

This file is available for free download at <http://www.iluvmyrx7.com>

This file is fully text-searchable – select Edit and Find and type in what you're looking for. This file is intended more for online viewing than printing out so some graphics may not print 100% legibly, you can zoom in on them if you need to.



www.iluvmyrx7.com

[illegible]

AIR BAG RESTRAINT SYSTEM

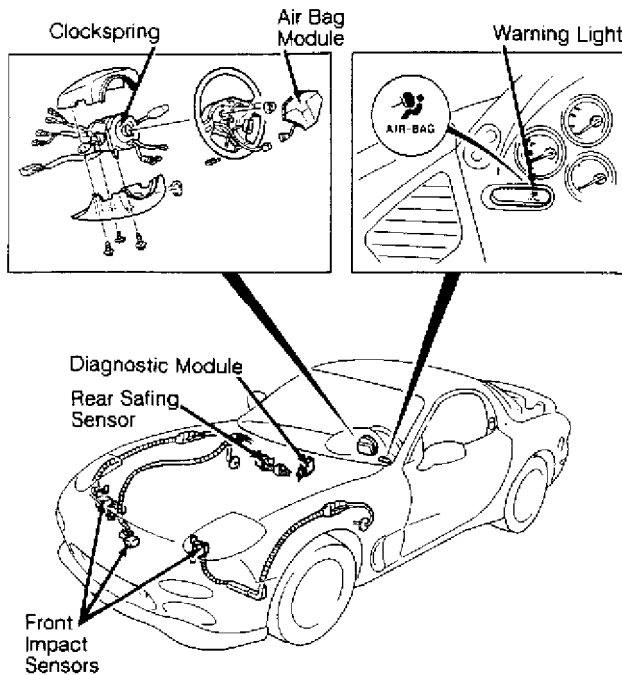
Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 11:52AM



93D75435

Fig. 1: Locating Air Bag System Components
Courtesy of Mazda Motors Corp.

SYSTEM OPERATION CHECK

1) Turn ignition on. AIR BAG warning light on instrument cluster should come on for about 6 seconds and then go out. If light stays on after 6-second system check, or if light comes on while driving, air bag system is malfunctioning and needs repair. Always follow SERVICE PRECAUTIONS and disable air bag system before performing repairs. See DISABLING AND ACTIVATING AIR BAG SYSTEM.

2) If light functions as specified, system is functioning properly. Check horn operation. If horn does not sound, remove air bag module and check air bag module and horn switch connections.

SERVICE PRECAUTIONS

Following precautions should be observed when working with air bag systems.

- * Disable air bag system before servicing any air bag system or steering column component. See DISABLING & ACTIVATING AIR BAG SYSTEM.
- * Wait at least 10 minutes after disabling air bag system before servicing. Air bag system voltage is maintained for about 10 minutes after system is disabled. Failure to wait at least 10 minutes before servicing system may cause accidental air bag deployment and possible personal injury.

AIR BAG RESTRAINT SYSTEM

Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 11:52AM

- * Obtain radio code number from customer, and deactivate radio anti-theft function before disconnecting battery.
- * Because of critical system operating requirements, DO NOT service any air bag system component. Corrections are made by replacement only.
- * DO NOT use an ohmmeter to check resistance of air bag module, as it may cause air bag deployment.
- * When carrying a live (undeployed) module, ensure trim cover is pointed away from your body. This minimizes chance of injury in event of accidental air bag deployment.
- * When placing a live air bag module on any surface, always face trim cover upward to reduce motion of module if it is accidentally deployed.
- * If an open circuit is present, replace entire wiring harness. DO NOT repair wiring harness.
- * Impact sensors must always be installed with arrow on sensor facing front of vehicle. Also, check sensors for cracks, defects and rust before installation. Replace impact sensor(s) if required.
- * Air bag system clockspring MUST be aligned in neutral position, since its rotation ability is limited. DO NOT turn steering wheel or column after removal of steering gear.
- * A double-lock mechanism is used on clockspring connectors. DO NOT use excessive force when disconnecting connectors, as damage to connector may occur.

DISABLING & ACTIVATING AIR BAG SYSTEM

WARNING: After disabling air bag system, wait at least 10 minutes before servicing. Air bag system voltage is maintained for about 10 minutes after system is disabled. Failure to wait at least 10 minutes may cause accidental air bag deployment and possible personal injury.

Disabling System

Disconnect and shield negative battery cable. Wait at least 10 minutes for back-up power supply to be depleted. Remove cover panel below left side of instrument panel. See Fig. 2. Disconnect clockspring lower connector.

Activating System

Connect clockspring lower connector. Install cover panel. Connect negative battery cable. Check AIR BAG warning light to ensure system is functioning properly. See SYSTEM OPERATION CHECK.

AIR BAG RESTRAINT SYSTEM

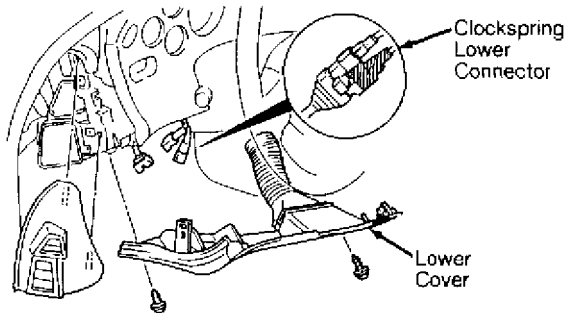
Article Text (p. 4)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 11:52AM



93E75436

Fig. 2: Locating Clockspring Lower Connector
Courtesy of Mazda Motors Corp.

DISPOSAL PROCEDURES

DEPLOYED AIR BAG

Wrap deployed air bag module in a vinyl bag and dispose of as you would any other part. Wear gloves and safety glasses when handling air bag module.

SCRAPPED VEHICLE

NOTE: Perform following procedure when scrapping a vehicle with undeployed air bag.

1) Ensure vehicle is outside and away from other vehicles and people. Open doors. Open convertible top (if equipped). Disconnect negative battery cable.

2) Ensure air bag module is firmly mounted to steering wheel. Remove knee protector. Disconnect clockspring lower connector. See Fig. 2. Cut clockspring lower connector off of harness. Strip back the Red and Green/Yellow wires.

3) Connect 2 jumper wires (20 feet long) to stripped wire ends. Connect other ends of wires to a 12-volt battery to deploy air bag. Because of heat, wait 15 minutes before touching deployed air bag module.

REMOVAL & INSTALLATION

WARNING: Follow air bag service precautions to prevent accidental air bag deployment and personal injury. See SERVICE PRECAUTIONS.

NOTE: After replacing components, check system to ensure proper operation. See SYSTEM OPERATION CHECK.

AIR BAG MODULE

AIR BAG RESTRAINT SYSTEM

Article Text (p. 5)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 11:52AM

Removal & Installation

1) Before proceeding, follow air bag service precautions. See SERVICE PRECAUTIONS. Disable air bag system. See DISABLING & ACTIVATING AIR BAG SYSTEM. Remove air bag module bolts from back side of steering wheel. Remove air bag module.

2) To install, reverse removal procedure. Tighten air bag module bolts to specification. See TORQUE SPECIFICATIONS table at the end of this article. Activate air bag system. See DISABLING & ACTIVATING AIR BAG SYSTEM. Check AIR BAG warning light to ensure system is functioning properly. See SYSTEM OPERATION CHECK.

CLOCKSPRING

NOTE: Clockspring is part of combination switch. When replacing clockspring, replace clockspring and combination switch as an assembly.

Removal

1) Before proceeding, follow air bag service precautions. See SERVICE PRECAUTIONS. Disable air bag system. See DISABLING & ACTIVATING AIR BAG SYSTEM.

2) Remove air bag module. See AIR BAG MODULE. Remove steering wheel nut. Remove steering wheel using steering wheel puller. Remove column covers. Remove clockspring screws. Remove clockspring and combination switch as assembly.

Installation

1) To install, reverse removal procedure. Before installing steering wheel, center clockspring. See CLOCKSPRING CENTERING under ADJUSTMENTS. Tighten steering wheel nut to specification. See TORQUE SPECIFICATIONS table at the end of this article.

2) After installation, activate air bag system. See DISABLING & ACTIVATING AIR BAG SYSTEM. Check AIR BAG warning light to ensure system is functioning properly. See SYSTEM OPERATION CHECK.

FRONT IMPACT SENSORS

CAUTION: Impact sensor orientation and mounting is important for proper operation. All sensors must be positioned so arrow points forward. If sheet metal damage exists near sensor mounting point, inspect body structure at sensor mounting point for deformation. If structure is damaged, restore it to original shape. Ensure sensor mounting bolts or nuts are tightened to specification. See TORQUE SPECIFICATIONS table at the end of this article.

Removal

1) Before proceeding, follow air bag service precautions. See SERVICE PRECAUTIONS. Disable air bag system. See DISABLING & ACTIVATING AIR BAG SYSTEM.

2) Remove wheelwell undercover. Disconnect sensor connector. See Fig. 1. Remove harness retaining clips and sensor bolts. Remove

AIR BAG RESTRAINT SYSTEM

Article Text (p. 6)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 11:52AM

sensor.

Installation

To install, reverse removal procedure. Position sensor with arrow toward front of vehicle. Tighten sensor bolts to specification. See TORQUE SPECIFICATIONS table at the end of this article. Activate air bag system. See DISABLING & ACTIVATING AIR BAG SYSTEM. Check AIR BAG warning light to ensure system is functioning properly. See SYSTEM OPERATION CHECK.

REAR SAFING SENSOR

Removal

Before proceeding, follow air bag service precautions. See SERVICE PRECAUTIONS. Disable air bag system. See DISABLING & ACTIVATING AIR BAG SYSTEM. Rear safing sensor is located in passenger compartment, forward of A/C-heater case. See Fig. 6. Remove instrument panel. Remove A/C-heater case. Disconnect rear safing sensor connectors. Remove sensor nuts and sensor.

Installation

To install, reverse removal procedure. Position sensor with arrow toward front of vehicle. Tighten sensor nuts to specification. See TORQUE SPECIFICATIONS table at the end of this article. Activate air bag system. See DISABLING & ACTIVATING AIR BAG SYSTEM. Check AIR BAG warning light to ensure system is functioning properly. See SYSTEM OPERATION CHECK.

DIAGNOSTIC MODULE

Removal & Installation

1) Before proceeding, follow air bag service precautions. See SERVICE PRECAUTIONS. Disable air bag system. See DISABLING & ACTIVATING AIR BAG SYSTEM.

2) Diagnostic module is located behind instrument panel, on left side of A/C-heater case (to right of accelerator pedal). Disconnect diagnostic module connectors. Remove nuts. Remove diagnostic module.

3) To install, reverse removal procedure. After installation, activate air bag system. See DISABLING & ACTIVATING AIR BAG SYSTEM. Check AIR BAG warning light to ensure system is functioning properly. See SYSTEM OPERATION CHECK.

STEERING WHEEL

Removal & Installation

Remove air bag module. See AIR BAG MODULE. Remove steering wheel nut. Steering shaft may collapse if it is struck with a hammer. DO NOT strike steering shaft. Remove steering wheel using steering wheel puller. To install, reverse removal procedure. Tighten steering wheel nut to specification. See TORQUE SPECIFICATIONS table at the end of this article.

Copyright © 1998 Mitchell Repair Information Company, LLC
Sunday, August 19, 2001 11:52AM

[illegible]

4) If battery voltage is present, measure voltage between ground and terminal 2M (Green/Black wire) of diagnostic module connector. If battery voltage is not present, replace wiring harness

AIR BAG RESTRAINT SYSTEM

Article Text (p. 9)

1993 Mazda RX7

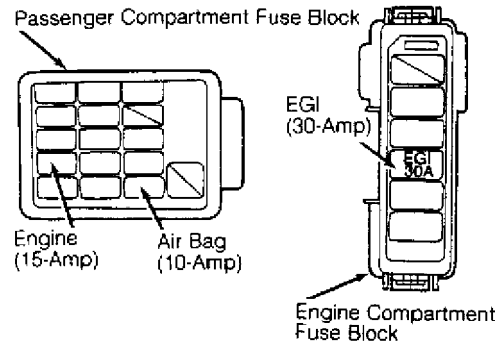
For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 11:52AM

between 10-amp AIR BAG fuse and diagnostic module.

5) If battery voltage is present, measure voltage between ground and terminal 2N (White/Green wire) of diagnostic module connector. If battery voltage is present, replace diagnostic module. If battery voltage is not present, replace wiring harness between 30-amp EGI fuse and diagnostic module.



93G75438

Fig. 3: Locating Fuses

Courtesy of Mazda Motors Corp.

DIAGNOSTIC TEST NO. 3

Warning Light Flashes 5 Or 9 Times

1) Disable air bag system. See DISABLING & ACTIVATING AIR BAG SYSTEM. Disconnect electrical connector from each front impact sensor connector. See Fig. 1. Measure resistance across terminals "C" and "D" of each front impact sensor connector. See Fig. 5. If resistance is not about 1200 ohms, replace sensor.

2) If resistance is about 1200 ohms, reconnect all front impact sensor connectors. Disconnect diagnostic module connectors. Measure resistance between terminals 1H (Yellow wire) and 1M (Brown wire) of diagnostic module connector. If resistance is 1200 ohms, go to next step. If resistance is not 1200 ohms, replace wiring harness.

3) Measure resistance between terminals 1G (Green wire) and 1O (Orange wire) of diagnostic module connector. If resistance is 1200 ohms, go to next step. If resistance is not 1200 ohms, replace wiring harness.

4) Measure resistance between terminals 2H (Blue wire) and 2F (Gray wire) of diagnostic module connector. If resistance is 1200 ohms, replace diagnostic module. If resistance is not 1200 ohms, replace wiring harness.

AIR BAG RESTRAINT SYSTEM

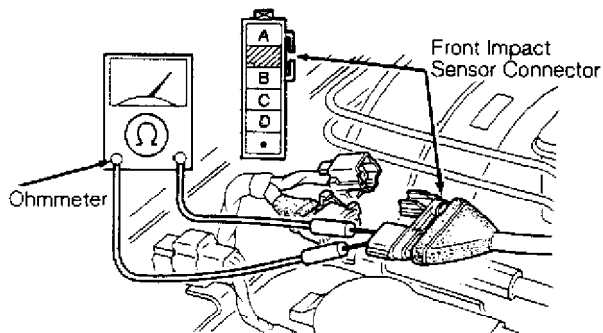
Article Text (p. 10)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 11:52AM



93H75439

Fig. 4: Measuring Front Impact Sensor Resistance
Courtesy of Mazda Motors Corp.

DIAGNOSTIC TEST NO. 4

Warning Light Flashes 10 Times

1) Disable air bag system. See **DISABLING & ACTIVATING AIR BAG SYSTEM**. Disconnect electrical connector from each front impact sensor. Measure the resistance across terminals "C" and "D" of each front impact sensor connector. See Fig. 5. If resistance is not about 1200 ohms, replace sensor.

2) If resistance is about 1200 ohms, reconnect all front impact sensor connectors. Disconnect diagnostic module connectors. Measure resistance between terminals 1H (Yellow wire) and 1M (Brown wire) of diagnostic module connector. If resistance is not 1200 ohms, replace wiring harness.

3) If resistance is 1200 ohms, measure resistance between terminals 1G (White wire) and 1O (Violet wire) of diagnostic module connector. If resistance is not 1200 ohms, replace wiring harness.

4) If resistance is 1200 ohms, measure resistance between terminals 2H (Blue wire) and 2F (Gray wire) of diagnostic module connector. If resistance is not 1200 ohms, replace wiring harness.

5) If resistance is 1200 ohms, check for continuity between ground and terminal 2J (Red wire) of diagnostic module connector. If there is continuity, replace diagnostic module. If there is no continuity, replace wiring harness.

DIAGNOSTIC TEST NO. 5

Warning Light Flashes 4 Times

1) Disable air bag system. See **DISABLING & ACTIVATING AIR BAG SYSTEM**. Disconnect diagnostic module connectors. Check continuity between terminals 1J (Green wire) and 2L (Orange wire) of diagnostic module connectors. If there is no continuity, go to step 2).

2) If there is continuity, check continuity between terminals 1L (Pink wire) and 2K (Light Green wire) of diagnostic module connectors. If there is no continuity, go to step 4). If there is continuity, check continuity between terminals 2L (Orange wire) and 2K (Light Green wire) of diagnostic module connectors.

AIR BAG RESTRAINT SYSTEM

Article Text (p. 11)

1993 Mazda RX7

For www.iluvmyrx7.com

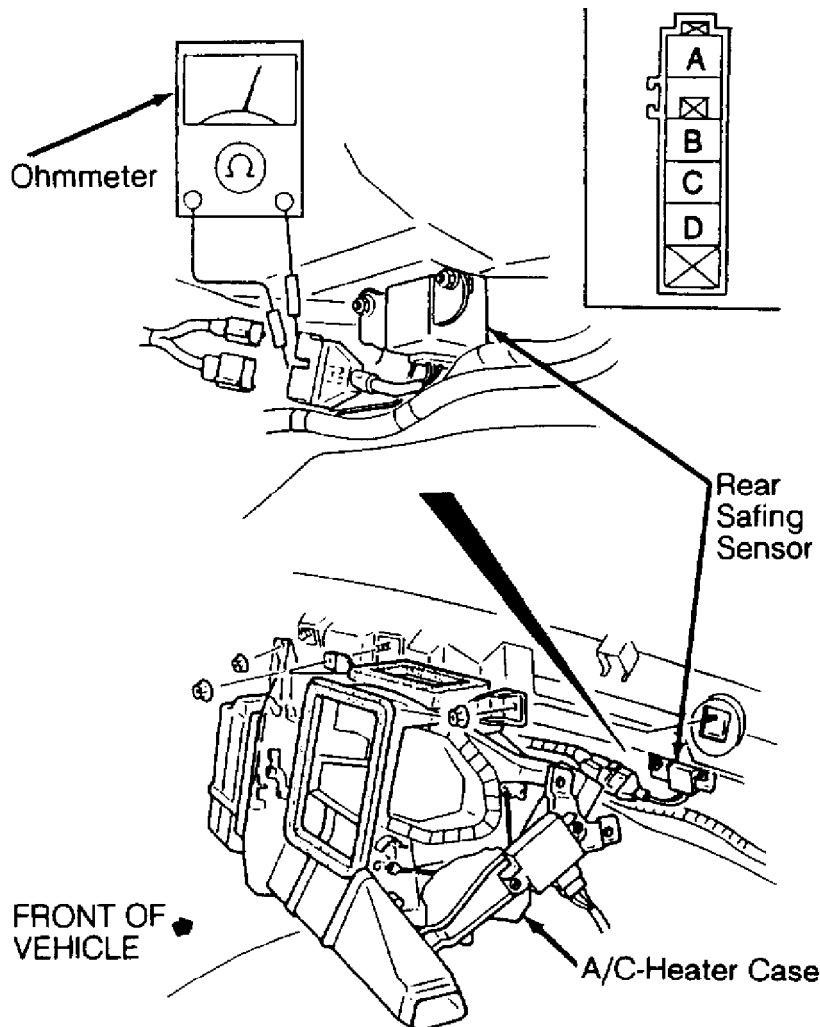
Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 11:52AM

3) If there is no continuity, go to step 4). If there is continuity, check continuity between ground and terminals 2L (Orange wire) and 2K (Light Green wire) of diagnostic module connector. If there is continuity in each case, replace diagnostic module.

4) Disconnect rear safing sensor connector. Check for continuity between terminals "A" and "B" of rear safing sensor connector. See Fig. 6. If there is no continuity, replace rear safing sensor.

5) If there is continuity, check for continuity between terminals "C" and "D" of rear safing sensor connector. If there is no continuity, replace rear safing sensor. If there is continuity, replace wiring harness.



93A75440

Fig. 5: Identifying Rear Safing Sensor Connector Terminals
Courtesy of Mazda Motors Corp.

AIR BAG RESTRAINT SYSTEM

Article Text (p. 12)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 11:52AM

Warning Light Flashes 6 Times

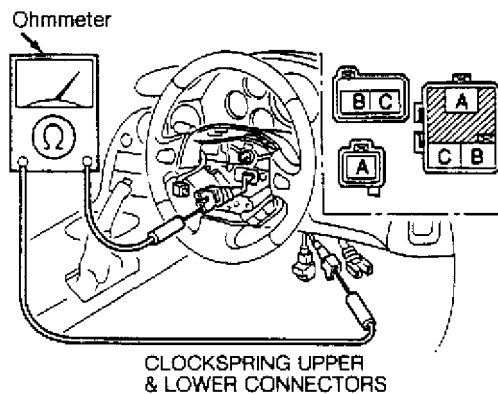
1) Disable air bag system. See DISABLING & ACTIVATING AIR BAG SYSTEM. Remove air bag module bolts. Remove air bag module, suspending it by support rope. Check clockspring lower connector. See Fig. 2. Repair as necessary.

2) If connection is okay, disconnect air bag module connector and completely remove air bag module. Check for continuity between terminal "B" of clockspring upper connector and terminal "B" of clockspring lower connector. See Fig. 7.

3) If there is no continuity, replace clockspring. If there is continuity, check for continuity between terminal "C" of clockspring upper connector and terminal "C" of clockspring lower connector. If there is no continuity, replace clockspring. If there is continuity, disconnect diagnostic module connector.

4) Check for continuity between terminal 2I (Green/White wire) of diagnostic module connector and terminal "B" (Green/White wire) of clockspring lower connector. If there is no continuity, replace wiring harness.

5) If there is continuity, check for continuity between terminal 2J (Red wire) of diagnostic module connector and terminal "C" (Red wire) of clockspring lower connector. If there is no continuity, replace wiring harness. If there is continuity, replace air bag module. Check warning light operation. If warning light flashes 6 times, replace diagnostic module.



93B75441

Fig. 6: Checking Resistance Between Clockspring Connector Terminals
Courtesy of Mazda Motors Corp.

DIAGNOSTIC TEST NO. 7

Warning Light Does Not Come On

1) Check fuses. See Fig. 4. If fuse(s) are blown, check/repair harness and replace fuse(s) as necessary. If fuses are okay, remove instrument cluster. Check AIR BAG warning light bulb. See Fig. 8.

2) Replace bulb if burnt. If bulb is okay, check for continuity between terminals 2D and 1D of instrument cluster

AIR BAG RESTRAINT SYSTEM

Article Text (p. 13)

1993 Mazda RX7

For www.iluvmyrx7.com

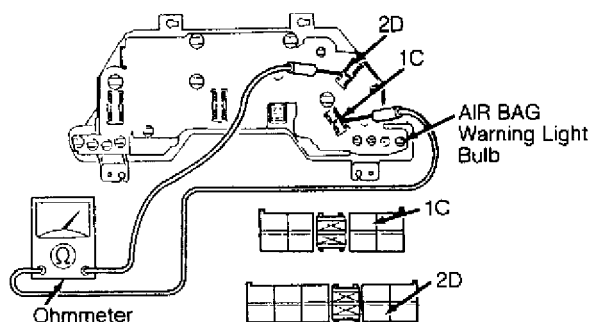
Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 11:52AM

connectors. See Fig. 8. If there is no continuity, replace instrument cluster. If there is continuity, disable air bag system. See DISABLING & ACTIVATING AIR BAG SYSTEM.

3) Disconnect diagnostic module connectors. Check for continuity between terminal 2A (Red/Yellow wire) of diagnostic module connector and terminal 1A (Red/Yellow wire) of instrument cluster connector. If there is no continuity, replace wiring harness.

4) If there is continuity, check for continuity between terminal 2C (Green/Yellow wire) of diagnostic module connector and terminal 1C (Green/Yellow wire) of instrument cluster connector. If there is no continuity, replace wiring harness. If there is continuity, replace diagnostic module.



93C75442

Fig. 7: Identifying Instrument Cluster Connector Terminals
Courtesy of Mazda Motors Corp.

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	Ft. Lbs. (N.m)
-------------	----------------

Left & Right Front Impact Sensor Bolt	13-20 (18-27)
---------------------------------------	---------------

Steering Wheel Nut	29-36 (39-49)
--------------------	---------------

INCH Lbs. (N.m)

Air Bag Module Bolt	70-104 (8-12)
---------------------	---------------

Center Front Impact Sensor Bolt	70-104 (8-12)
---------------------------------	---------------

Rear Safing Sensor Nut	61-86 (7-10)
------------------------	--------------

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

POST-COLLISION AIR BAG SAFETY INSPECTION

POST-COLLISION AIR BAG SAFETY INSPECTION TABLE

UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;

Replace After Deployment	3	*	Air Bag Module(s)	3
--------------------------	---	---	-------------------	---

	3	*	Clockspring	3
--	---	---	-------------	---

Sunday, August 19, 2001 11:52AM

END OF ARTICLE

ANTI-THEFT SYSTEM

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 12:13PM

ARTICLE BEGINNING

1993 ACCESSORIES/SAFETY EQUIPMENT
Mazda Anti-Theft System

RX7

DESCRIPTION & OPERATION

If alarm goes off, headlights and hazard lights flash, horn sounds and starter is disabled. Alarm goes off if the hood, rear hatch or a door is opened without a key, or if ignition switch is forced into START position without a key. Two Central Processing Units (CPUs) control the system based on inputs they receive from the following switches:

- * Door switches indicate whether a door is open or closed.
- * Key cylinder switches indicate whether or not the key cylinder for a door or the rear hatch is turned to the unlocked position.
- * Door lock link switches indicate whether a door is locked or unlocked.
- * Hood switch indicates whether the hood is open or closed.
- * Cargo compartment light switch indicates whether the rear hatch is open or closed.

ELECTRICAL COMPONENT LOCATIONS TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Component	Location
-----------	----------

Cargo Compartment Light Switch	On Rear Hatch Latch
CPUs No. 1 & 2	(1) Behind Left Kick Panel, (Part Of Joint Box)

Flasher Unit	Integral Part Of CPU No. 2
Headlight Relay	On Left Front Inner Fender
Hood Switch	On Hood Latch
Horn Relay	In Relay Block Above Radiator
Starter Cut Relay	Behind Left Kick Panel, On Joint Box

(1) - See Figs. 1 and 2.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

TESTING

SYSTEM OPERATION TEST

Initial Phase
Remove ignition key.

Pre-arming Phase 1

ANTI-THEFT SYSTEM

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 12:13PM

With hood and rear hatch closed, open any door. Security light will come on.

Pre-arming Phase 2

Lock and close all doors. After security light stays lit for 10 seconds, system proceeds to arming phase 1.

Arming Phase 1

Security light flashes every 3 seconds, and system is armed.

Arming Phase 2

Rear hatch may be opened with key during arming phase 1. Security light should continue to flash. Process returns to arming phase 1 after rear hatch is closed.

Alarm Phase 1

If a door, hood or rear hatch is opened without a key, or if ignition switch is forced to the ON position, alarm is activated (horn sounds intermittently, headlights and hazard lights flash for 5 minutes, and starter does not operate).

Alarm Phase 2

Horn stops sounding, headlights and hazard lights stop flashing, but starter remains inoperative.

Alarm Stop Phase

Unlock any door or rear hatch with key.

NOTE: If system does not operate as previously described, use the following procedure to determine where to begin testing.

1) Open any door window. Close both doors. Remove ignition key. With hood and rear hatch closed, open either door. If security light comes on and buzzer sounds once, go to next step. If security light does not come on and buzzer does not sound, go to TEST NO. 1. If buzzer sounds but security light does not come on, go to TEST NO. 2. If security light comes on but buzzer does not sound, go to TEST NO. 3.

2) Turn ignition on. If security light does not go out, go to TEST NO. 4. If security light goes out, go to next step.

3) Perform steps 1) and 2) to set arming condition. Unlock either door lock knob. Security light should go out, horn should sound and headlights and hazard lights should flash. Starter should not operate. If results are as specified, go to next step. If results are not as specified, go to appropriate test.

- * If security light does not go out, go to TEST NO. 5.
- * If horn does not sound, go to TEST NO. 6.
- * If headlights do not flash, go to TEST NO. 7.
- * If hazard lights do not flash, go to TEST NO. 8.
- * If starter operates, go to TEST NO. 9.

ANTI-THEFT SYSTEM

Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 12:13PM

4) Using key, unlock driver or passenger door or rear hatch. Warning should cancel (horn should stop sounding, headlights and hazard lights should stop flashing and starter should operate).

- * If warning cancels when door and rear hatch are unlocked, go to next step.
- * If warning does not cancel when door is unlocked but cancels when rear hatch is unlocked, go to TEST NO. 10.
- * If warning does not cancel when rear hatch is unlocked but cancels when door is unlocked, go to TEST NO. 11.

5) Remove STOP and HEAD fuses. Perform steps 1), 2) and 3). If hazard lights do not flash, go to TEST NO. 12. If hazard lights do not stop flashing after about 5 minutes, go to TEST NO. 13.

SYSTEM DIAGNOSTIC TESTS

NOTE: Before performing the following tests, perform SYSTEM OPERATION TEST to determine which test to follow.

Test No. 1

1) Check ROOM fuse. If fuse is faulty, replace fuse (repair circuit if shorted). If fuse is okay, go to next step.

2) Measure voltage at terminal 1A (Blue/Red wire) of CPU No. 2 (20-pin connector). See Fig. 1. If battery voltage is not present, repair wiring between ROOM fuse and CPU No. 2. If battery voltage is present, go to next step.

3) Check continuity between ground and terminal 1H (Black wire) of CPU No. 2 (20-pin connector). If there is no continuity, repair wiring between CPU No. 2 and ground. If there is continuity, go to next step.

4) Measure voltage at terminal 1B (White wire) of CPU No. 2 (20-pin connector). If battery voltage is present, replace key reminder switch or repair wiring between ROOM fuse and CPU No. 2. If battery voltage is not present, go to next step.

5) Disconnect 20-pin connector from CPU No. 2. Close passenger door. Open driver door. Check continuity between ground and terminal 1E (Blue/White wire) of CPU No. 2 (20-pin connector). If there is no continuity, go to next step. If there is continuity, go to step 7).

6) Remove driver door switch. Check continuity between switch terminal and switch body with switch button released. If there is continuity, repair wiring between CPU No. 2 and door switch. If there is no continuity, replace door switch.

7) Close driver door. Open passenger door. Check continuity between ground and terminal 1E (Blue/White wire) of CPU No. 2 (20-pin connector). If there is continuity, go to next step. If there is no continuity, go to step 9).

8) Remove passenger door switch. Check continuity between switch terminal and switch body with switch button released. If there is continuity, repair wiring between CPU No. 2 and door switch. If there is no continuity, replace door switch.

ANTI-THEFT SYSTEM

Article Text (p. 4)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 12:13PM

9) Disconnect 20-pin connector from CPU No. 2. Close hood and rear hatch. Check continuity between ground and terminal 1F (Green/Yellow wire) of CPU No. 2 (20-pin connector). If there is continuity, go to next step. If there is no continuity, check continuity between ground and terminal 1G (Brown/Yellow wire) of CPU No. 2 (20-pin connector). If there is continuity, go to step 11). If there is no continuity, go to step 12).

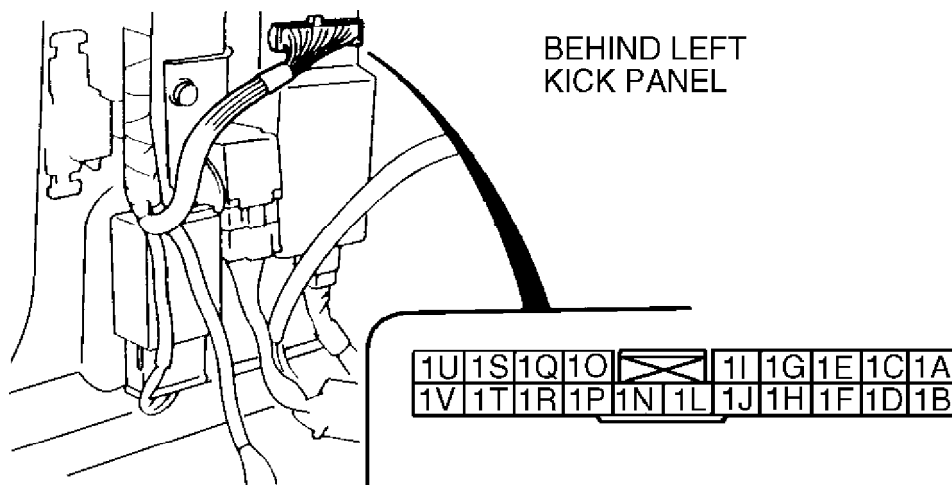
10) Remove cargo compartment light switch. Check continuity between switch connector terminals. With switch button pushed (rear hatch closed), there should be no continuity. With switch button released (rear hatch open), there should be continuity. If continuity is not as specified, replace switch. If continuity is as specified, repair wiring between CPU No. 2 and switch.

11) Disconnect hood switch connector. Check continuity between switch connector terminals. With switch lever pushed (hood closed), there should be no continuity. With switch lever released (hood open), there should be continuity. If continuity is not as specified, replace switch. If continuity is as specified, repair wiring between CPU No. 2 and switch.

12) Remove security light. Measure voltage at Blue/Red wire terminal of security light connector. If battery voltage is not present, repair wiring between ROOM fuse and CPU No. 2. If battery voltage is present, go to next step.

13) Check continuity between security light connector terminals. If there is no continuity, replace security light. If there is continuity, go to next step.

14) Check continuity between Violet/Green wire terminal of security light connector and terminal 1R (Violet/Green wire) of CPU No. 2 (20-pin connector). If there is no continuity, repair wiring between security light and CPU No. 2. If there is continuity, replace CPU No. 2.



93D82555

Fig. 1: CPU No. 2 (20-Pin Connector) Terminal ID
Courtesy of Mazda Motors Corp.

Test No. 2

1) Remove security light. Measure voltage at Blue/Red wire

ANTI-THEFT SYSTEM

Article Text (p. 5)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 12:13PM

terminal of security light connector. If battery voltage is not present, repair wiring between ROOM fuse and CPU No. 2.

2) If battery voltage is present, check continuity between security light connector terminals. If there is no continuity, replace security light.

3) If there is continuity, check continuity between Violet/Green wire terminal of security light connector and terminal 1R (Violet/Green wire) of CPU No. 2 (20-pin connector). See Fig. 1. If there is no continuity, repair wiring between security light and CPU No. 2. If there is continuity, replace CPU No. 2.

Test No. 3

Replace CPU.

Test No. 4

Replace CPU.

Test No. 5

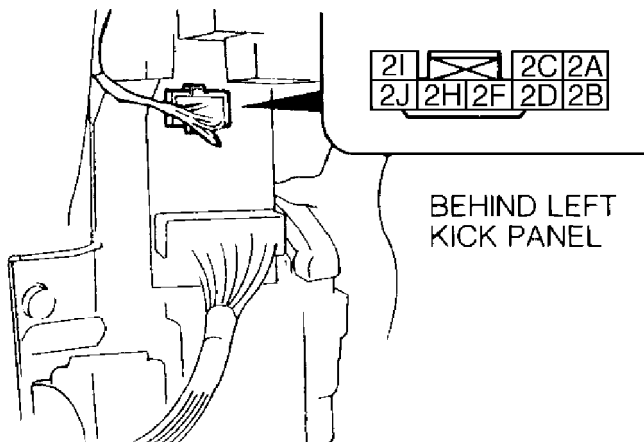
Replace CPU.

Test No. 6

Press horn pad. If horn does not sound, repair horn circuit. If horn sounds, measure voltage at terminal 2B (Green/Orange wire) of CPU No. 2 (8-pin connector). See Fig. 2. If battery voltage is not present, repair wiring between horn relay and CPU No. 2. If battery voltage is present, replace CPU No. 2.

Test No. 7

Turn on headlights. If headlights do not come on, repair headlight circuit. If headlights come on, turn off headlights. Measure voltage at terminal 2H (White/Blue wire) of CPU No. 2 (8-pin connector). See Fig. 2. If battery voltage is not present, repair wiring between headlight relay and CPU No. 2. If battery voltage is present, replace CPU No. 2.



93F82556

Fig. 2: CPU No. 2 (8-Pin Connector) Terminal ID
Courtesy of Mazda Motors Corp.

ANTI-THEFT SYSTEM

Article Text (p. 6)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 12:13PM

Test No. 8

Turn on hazard lights. If hazard lights do not come on, repair hazard lights. If hazard lights come on, turn off hazard lights. Check voltage at terminal 1V (Orange wire) of CPU No. 2 (20-pin connector). See Fig. 1. If battery voltage is not present, repair wiring between flasher unit and CPU No. 2. If battery voltage is present, replace CPU No. 2.

Test No. 9

1) Check ENGINE fuse. If fuse is faulty, replace fuse (repair circuit if shorted). If fuse is okay, remove starter cut relay. Turn ignition on. Measure voltage at terminal "A" (Black/Light Green wire) of starter cut relay connector. See Fig. 6. If battery voltage is not present, repair wiring between ENGINE fuse and starter cut relay.

2) If battery voltage is present, check continuity between terminals "C" and "F" of starter cut relay. If there is continuity, replace starter cut relay. If there is no continuity, apply battery voltage across starter cut relay terminals "A" and "B". Check continuity between terminals "C" and "F".

3) If there is no continuity, replace starter cut relay. If there is continuity, turn ignition switch to LOCK position. Install starter cut relay. Turn ignition on.

4) Measure voltage at terminal 2D (Light Green/Red wire) of CPU No. 2 (8-pin connector). If battery voltage is not present, repair wiring between starter cut relay and CPU No. 2. If battery voltage is present, replace CPU No. 2.

Test No. 10

1) Disconnect 20-pin connector from CPU No. 2. See Fig. 1. Connect continuity tester between ground and terminal 1N (Light Green/Black wire) of CPU No. 2 (20-pin connector). Lock passenger door, and unlock driver door. If there is continuity, replace CPU No. 2. If there is no continuity, lock driver door and unlock passenger door. If there is no continuity, go to next step 2). If there is continuity, replace CPU No. 2.

2) Disconnect driver door key cylinder switch connector. Check continuity between ground and Black wire terminal of driver door key cylinder switch connector. If there is no continuity, repair wiring between driver door key cylinder switch and ground.

3) If there is continuity, disconnect passenger door key cylinder switch connector. Check continuity between ground and Black wire terminal of passenger door key cylinder switch connector. If there is no continuity, repair wiring between passenger door key cylinder switch and ground.

4) If there is continuity, check continuity between terminals of both door key cylinder switches with cylinder held in unlocked position. If there is continuity, repair wiring between CPU No. 2 and door key cylinder switch. If there is no continuity, replace appropriate door key cylinder switch.

Test No. 11

1) Disconnect 20-pin connector from CPU No. 2. See Fig. 1.

ANTI-THEFT SYSTEM

Article Text (p. 7)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 12:13PM

Unlock rear hatch. Check continuity between ground and terminal 10 (Light Green/Red wire) of CPU No. 2 (20-pin connector). If there is continuity, replace CPU No. 2.

2) If there is no continuity, disconnect rear hatch key cylinder (remove rear hatch trim for access). Unlock rear hatch key cylinder. Check continuity between terminals of rear hatch key cylinder switch connector.

3) If there is no continuity, replace rear hatch key cylinder. If there is continuity, check continuity between ground and Black wire terminal of rear hatch key cylinder switch connector. If there is no continuity, repair wiring between rear hatch key cylinder and ground. If there is continuity, repair wiring between CPU No. 2 and rear hatch key cylinder.

Test No. 12
Replace CPU.

Test No. 13
Replace CPU.

CPU CONNECTOR PIN VOLTAGES & CONTINUITY

CPU CONNECTOR PIN VOLTAGES (1) & CONTINUITY (2) TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Terminal	Desired Condition
----------	-------------------

8-Pin Connector

2B (Horn Relay)

Horn Sounding	No Voltage
Alarm	No Voltage
Other	Battery Voltage

2D (Starter Cut Relay)

Ignition On	Battery Voltage
Ignition Off	No Voltage

20-Pin Connector

1B (Ign. Key Reminder Switch)

Key Inserted	Battery Voltage
Key Removed	No Voltage

1E (Door Switch)

Door Open	Continuity
Door Closed	No Continuity

1F (Cargo Comp. Light Switch)

Rear Hatch Open	Continuity
Rear Hatch Closed	No Continuity

1G (Hood Switch)

Hood Open	Continuity
Hood Closed	No Continuity

1I (Passenger Door Lock Switch)

Locked	More Than 0 Volts
Unlocked	No Voltage

1J (Driver Door Lock Switch)

Locked	More Than 0 Volts
--------------	-------------------

ANTI-THEFT SYSTEM

Article Text (p. 8)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 12:13PM

Unlocked	No Voltage
1N (Door Key Cylinder Switch)	
Unlocked (3)	No Voltage
Locked	5 Volts
1O (Rear Hatch Key Cylinder Switch)	
Locked	No Continuity
Unlocked (3)	Continuity
1V (Hazard Switch)	
Hazard Switch On	No Voltage
Hazard Switch Off	Battery Voltage

- (1) - Measure voltage with CPU connector connected and ignition on, unless specified otherwise.
- (2) - Check continuity with ignition off and CPU connector disconnected.
- (3) - Hold key cylinder in unlocked position.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

COMPONENT TESTING

Door Switch

Remove door switch. Check continuity between switch connector terminal and switch body. With door switch button pressed (door closed), there should be no continuity. With door switch button released (door open), there should be continuity. If continuity is not as specified, replace switch.

Door Key Cylinder Switch

Remove door trim panel. Disconnect door key cylinder switch connector. Check continuity between Light Green/Black and Black wire terminals of door key cylinder switch connector. With door key cylinder held in unlocked position, there should be continuity. With door key cylinder in any other position, there should be no continuity. If continuity is not as specified, replace door key cylinder.

Door Lock Link Switch (Driver Door)

There is no door lock link switch for driver door. To determine if door is locked or unlocked, CPU receives input from power door lock switch (indirectly, via the door lock timer unit). To check power door lock switch and door lock timer unit, proceed to DOOR LOCKS - POWER article in the ACCESSORIES/SAFETY EQUIPMENT section.

Door Lock Link Switch (Passenger Door)

Door lock link switch is inside power door lock actuator. Remove door trim panel. Disconnect door lock actuator 4-pin connector. Check continuity between Green/Black and Black wire terminals of door lock actuator connector. With door locked, there should be no continuity. With door unlocked, there should be continuity. If continuity is not as specified, replace actuator.

ANTI-THEFT SYSTEM

Article Text (p. 9)

1993 Mazda RX7

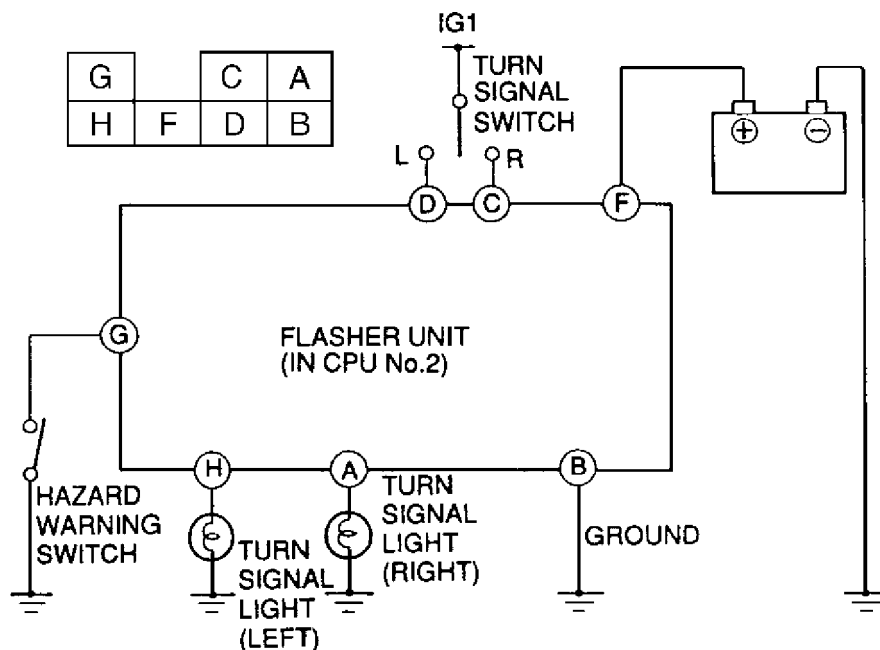
For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 12:13PM

Flasher Unit

If turn signal and/or hazard flasher operation is incorrect, check for faults in circuits leading to flasher unit. See Fig. 3. If no faults are found, replace flasher unit.

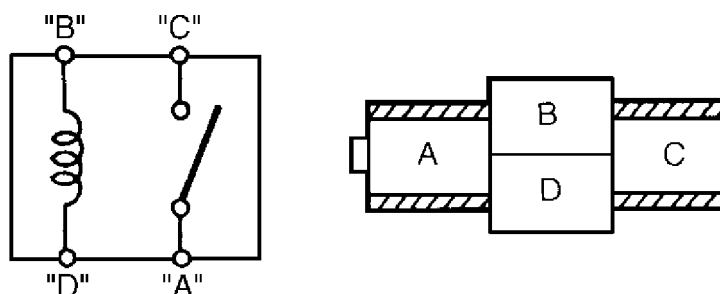


93F82557

Fig. 3: Flasher Unit Circuit Diagram/Connector Terminals
Courtesy of Mazda Motors Corp.

Horn Relay

Remove relay. Check continuity between relay terminals "A" and "C". See Fig. 4. If there is continuity, replace relay. If there is no continuity, apply battery voltage across relay terminals "B" and "D". Check continuity between terminals "A" and "C". If there is continuity, relay is okay. If there is no continuity, replace relay.



93G82558

Fig. 4: Horn Relay Terminal ID
Courtesy of Mazda Motors Corp.

Headlight Relay

Remove relay. Check continuity between relay terminals "C" and "D". See Fig. 5. If there is continuity, replace relay. If there is no continuity, apply battery voltage across relay terminals "A" and

ANTI-THEFT SYSTEM

Article Text (p. 10)

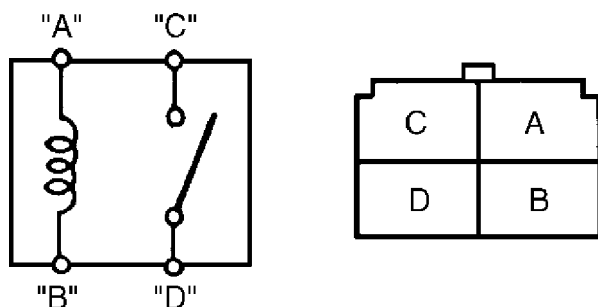
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 12:13PM

"B". Check continuity between terminals "C" and "D". If there is continuity, relay is okay. If there is no continuity, replace relay.



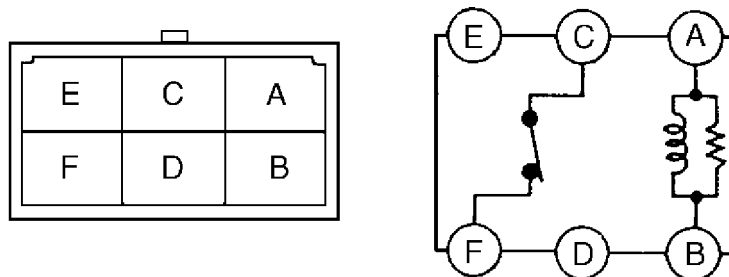
93H82559

Fig. 5: Headlight Relay Terminal ID

Courtesy of Mazda Motors Corp.

Starter Cut Relay

Remove relay. Check continuity between relay terminals "C" and "F". See Fig. 6. If there is continuity, replace relay. If there is no continuity, apply battery voltage across relay terminals "A" and "B". Check continuity between terminals "C" and "F". If there is continuity, relay is okay. If there is no continuity, replace relay.



93A82560

Fig. 6: Starter Cut Relay Terminal ID

Courtesy of Mazda Motors Corp.

Rear Hatch Key Cylinder Switch

Disconnect rear hatch key cylinder switch connector behind trim panel in rear hatch. Check continuity between switch connector terminals. With rear hatch key cylinder held in unlocked position, there should be continuity. With rear hatch key cylinder in any other position, there should be no continuity. If continuity is not as specified, replace switch.

Cargo Compartment Light Switch

Cargo compartment light switch is inside rear hatch striker assembly. Disconnect switch connector. Check continuity between switch connector terminal and switch body. With switch button pushed in (rear hatch closed), there should be no continuity. With switch button released (rear hatch open), there should be continuity. If continuity is not as specified, replace switch.

Hood Switch

ANTI-THEFT SYSTEM

Article Text (p. 11)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 12:13PM

Disconnect hood switch connector near hood latch. Check continuity between switch connector terminals. With switch lever released (hood open), there should be continuity. With switch lever pushed (hood closed), there should be no continuity. If continuity is not as specified, replace switch.

Key Reminder Switch

Remove steering column cover. Disconnect key reminder switch connector. Check continuity between Blue/Red and White wire terminals of switch connector. With ignition key inserted, there should be continuity. With ignition key removed, there should be no continuity. If continuity is not as specified, replace switch.

WIRING DIAGRAMS

NOTE: See appropriate WIRING DIAGRAMS article in the WIRING DIAGRAMS section.

END OF ARTICLE

CRUISE CONTROL SYSTEM

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:08PM

ARTICLE BEGINNING

1993 ACCESSORIES/SAFETY EQUIPMENT
Mazda Cruise Control System

RX-7

DESCRIPTION & OPERATION

System uses an electric motor actuator to control throttle position, maintaining desired vehicle speed. Based on various inputs, cruise control unit controls operation of actuator motor. See ELECTRICAL COMPONENT LOCATIONS table.

When main switch is in ON position, system is ready to be engaged. Cruise control switch sets or adjusts desired speed. Cruise control switch contains SET, COAST, RESUME and ACCEL switches (and CANCEL switch on some models). System will not operate at speeds less than 25 MPH.

To engage system, accelerate to desired speed and momentarily activate SET switch. To disengage system, apply brakes, press clutch pedal (M/T) or turn main switch to OFF position.

To accelerate from a set cruising speed, activate ACCEL switch until vehicle speed is as desired, then turn off ACCEL switch. To decrease speed, activate COAST switch until vehicle speed is as desired, then turn off COAST switch. To resume previous set speed, activate RESUME switch (previous set speed cannot be resumed if system was disengaged using main switch).

If a fault occurs, cruise control unit stores a self-diagnostic code in memory. See RETRIEVING FAULT CODES under SYSTEM TESTING. Self-diagnostic system also includes an inspection mode that can be initiated to check individual components and their circuits. See INITIATING INSPECTION MODE under SYSTEM TESTING.

NOTE: System uses 2 switches to determine if brakes are being applied: cruise brake switch (dedicated to cruise control system) and brakelight switch (part of brakelight system).

NOTE: On vehicles with automatic overdrive transmission, if speed drops 5 MPH less than set speed, cruise control unit cancels or prevents OD transmission function. When vehicle speed returns to within 2 MPH of set speed for at least 20 seconds, OD transmission function is restored.

ELECTRICAL COMPONENT LOCATIONS TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Component	Location
Cruise Control Unit	Behind Left Kick Panel
ECAT Control Unit	Behind Right Kick Panel
Neutral Switch (M/T)	Top Right Side Of Transmission
Park/Neutral (Inhibitor) Switch (A/T)	On Right Side Of Transmission

CRUISE CONTROL SYSTEM

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:08PM

Vehicle Speed Sensor On Transmission
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

TROUBLE SHOOTING

Check for blown fuse. Check for faulty main switch, cruise control switch, vehicle speed sensor, actuator, cruise brake switch, brakelight switch, or clutch switch. Inspect wiring and ground circuits.

ADJUSTMENTS

ACTUATOR INNER CABLE FREE PLAY

Ensure throttle is fully closed. Beginning at fully relaxed position, rotate actuator link as if actuator were pulling inner cable. Measure free play (distance that the outer diameter of the actuator link rotates before cable tightens). If free play is not as specified, turn adjusting nuts as necessary until free play is within specification. See ACTUATOR INNER CABLE FREE PLAY SPECIFICATIONS table.

ACTUATOR INNER CABLE FREE PLAY SPECIFICATIONS TABLE	
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	
Application	In. (mm)
RX-7 .....	.039-.197 (1.00-5.00)
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	

BRAKELIGHT SWITCH & CRUISE BRAKE SWITCH

1) Disconnect switch electrical connector. Loosen switch adjustment nuts. Loosen switch until it does not contact brake pedal. Loosen adjustment nuts at brake booster push rod. Rotate push rod until distance between carpet and center of brake pedal pad at firewall is within specification. See BRAKE PEDAL HEIGHT table. See Fig. 1.

2) Tighten switch until it contacts brake pedal. Tighten switch an additional 1/2 turn. Tighten switch adjustment nuts. Tighten push rod adjustment nuts. Reconnect switch electrical connector. Ensure brakelights operate.

BRAKE PEDAL HEIGHT TABLE	
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	
Application	(1) In. (mm)
RX7	6.48-6.93 (164.5-176.0)
(1) - Measure with carpet installed.	
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	

CRUISE CONTROL SYSTEM

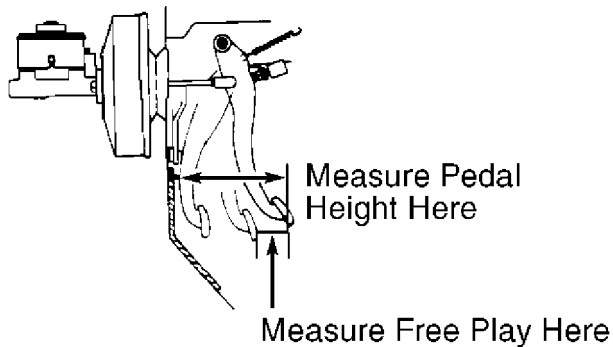
Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:08PM



90F02172

Fig. 1: Measuring Brake & Clutch Pedal Height
Courtesy of Mazda Motors Corp.

CLUTCH SWITCH

Loosen clutch switch adjustment nuts. Rotate clutch switch until distance between carpet and center of clutch pedal pad at firewall is within specification. See CLUTCH PEDAL HEIGHT table. See Fig. 1. Tighten clutch switch adjustment nuts.

CLUTCH PEDAL HEIGHT TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application (1) In. (mm)

RX7 6.52-6.97 (165.5-177.0)

(1) - Measure with carpet installed.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

SYSTEM TESTING

1) If vehicle speed cannot be set or controlled, check for fault codes and initiate inspection mode (inspection codes). See RETRIEVING FAULT CODES and INITIATING INSPECTION MODE.

2) If no fault codes are set and all inspection codes are okay, check components in the following order: main switch, cruise control unit, cruise brake switch, brakelight switch, clutch switch (M/T), cruise control switch, actuator and vehicle speed sensor. See COMPONENT TESTING.

RETRIEVING FAULT CODES

1) Go to next step.

NOTE: There is no wire in terminal "D" of cruise control unit connector. Push test light probe through connector cavity until probe contacts terminal on cruise control unit.

2) Turn ignition on. Turn main switch to ON position. Ensure cruise indicator light comes on. If indicator light does not come on, repair it before continuing.

CRUISE CONTROL SYSTEM

Article Text (p. 4)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:08PM

3) Activate RESUME switch for at least 3 seconds. Indicator light will come on for 3 seconds, then go out for 2 seconds. After this, light will flash codes (if stored). See FAULT CODE DIRECTORY. If no fault codes are stored, light will not flash. To exit self-diagnostics, drive vehicle at a speed greater than 10 MPH or turn main switch to OFF position. Ensure light goes off.

FAULT CODE DIRECTORY

A list of fault codes with the appropriate diagnosis follows. A long pause separates codes. On 2-digit codes, a short pause separates each digit of the code (example of Code 15: long flash, short pause, 5 short flashes).

Fault Code 01

Check wiring harness leading to actuator, brakelight switch and cruise brake switch. Check actuator. See ACTUATOR under COMPONENT TESTING. Check cruise brake switch and brakelight switch. See CRUISE BRAKE SWITCH and BRAKELIGHT SWITCH under COMPONENT TESTING.

Fault Code 05

Check STOP fuse. Check wiring between STOP fuse and cruise control unit.

Fault Code 07

Check cruise brake switch and brakelight switch. See CRUISE BRAKE SWITCH and BRAKELIGHT SWITCH under COMPONENT TESTING.

Fault Code 11

Check cruise control switch. See CRUISE CONTROL SWITCH under COMPONENT TESTING.

Fault Code 12

Check cruise control switch. See CRUISE CONTROL SWITCH under COMPONENT TESTING.

Fault Code 15

Check for defective cruise control unit. See CRUISE CONTROL UNIT under COMPONENT TESTING.

INITIATING INSPECTION MODE

1) Leave electrical connector attached to cruise control unit.

NOTE: There is no wire in terminal "D" of cruise control unit connector. Push test light probe through connector cavity until probe contacts terminal on cruise control unit.

2) Shift transmission into Drive or Reverse (any gear except Neutral on M/T). Turn ignition on. Ensure main switch is in OFF position (indicator light must be off). Simultaneously activate RESUME

CRUISE CONTROL SYSTEM

Article Text (p. 5)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:08PM

switch and turn MAIN switch to ON position. Ensure cruise indicator light comes on. Inspection mode is now initiated. Go to INSPECTION CODE DIRECTORY.

INSPECTION CODE DIRECTORY

A list of inspection codes follows. Beginning with Inspection Code 21, perform procedure listed after each code. If system is operating properly, indicator light will flash code. If light does not flash code, inspect system as described. To exit self-diagnostics, turn main switch to OFF position or turn ignition off.

Inspection Code 21

Press SET/COAST button. If Code 21 does not flash, check cruise control switch. See CRUISE CONTROL SWITCH under COMPONENT TESTING.

Inspection Code 22

Press RESUME/ACCEL button. If Code 22 does not flash, check cruise control switch. See CRUISE CONTROL SWITCH under COMPONENT TESTING.

Inspection Code 31

Depress brake pedal. If Code 31 does not flash, check brakelight switch and cruise brake switch. See BRAKELIGHT SWITCH and CRUISE BRAKE SWITCH under COMPONENT TESTING.

Inspection Code 35 (A/T)

Turn ignition on. Shift transmission into Park or Neutral. If Code 35 does not flash, check Park/Neutral (inhibitor) switch.

Inspection Code 35 (M/T)

Turn ignition on. Depress clutch pedal. Shift transmission into Neutral. If Code 35 does not flash, check clutch switch or neutral switch.

Inspection Code 37

Drive vehicle at speed of 25 MPH (40 km/h) or greater. If Code 37 does not flash, check vehicle speed sensor and circuit. See VEHICLE SPEED SENSOR under COMPONENT TESTING.

COMPONENT TESTING

ACTUATOR

Resistance Test

Check resistance between specified terminals of actuator connector. See ACTUATOR RESISTANCE SPECIFICATIONS table. See Fig. 2. If resistance is not as specified, replace actuator. If resistance is as specified, perform FUNCTION TEST.

ACTUATOR RESISTANCE SPECIFICATIONS TABLE

CRUISE CONTROL SYSTEM

Article Text (p. 6)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:08PM

Application (1) Ohms

Between Terminals

"A" & "C"	26,000
"B" & "D"	11,200

(1) - Values are approximate.



93B83320

Fig. 2: Actuator Connector Terminal ID
Courtesy of Mazda Motors Corp.

Function Test

Observe actuator arm when battery voltage is connected across specified terminals of actuator connector. See Fig. 2. If actuator arm does not function as specified, replace actuator.

ACTUATOR FUNCTION TEST TABLE

Application	Actuator Arm Result
Apply 12 Volts To Terminals "B" & "C"	
& Ground Terminals "A" & "D"	Pull
Apply 12 Volts To Terminals "B" & "C"	
& Ground Terminal "A"	Hold
Apply 12 Volts To Terminals "C" & "D"	
& Ground Terminals "A" & "B"	Extend
Disconnect All Voltage & Ground	Release

BRAKELIGHT SWITCH

NOTE: Brakelight switch can be distinguished from cruise brake switch by color of wires connected to switch. See BRAKELIGHT & CRUISE BRAKE SWITCHES IDENTIFICATION table.

Disconnect brakelight switch connector. Check continuity between brakelight switch connector terminals with brake pedal in specified position. See BRAKELIGHT SWITCH CONTINUITY TEST table. If continuity is not as specified, replace brakelight switch.

BRAKELIGHT SWITCH CONTINUITY TEST TABLE

Pedal Position	Specification
Released	No Continuity

CRUISE CONTROL SYSTEM

Article Text (p. 7)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:08PM

Pressed Continuity
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

BRAKELIGHT & CRUISE BRAKE SWITCHES IDENTIFICATION TABLE
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
Application Wire Colors

Brakelight Switch Green/White & Green
Cruise Brake Switch Blue/Black & Light Green/Black
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

CLUTCH SWITCH

Disconnect clutch switch connector. Check continuity between clutch switch connector terminals with clutch pedal in specified position. See CLUTCH SWITCH CONTINUITY TEST table. If continuity is not as specified, replace clutch switch.

CLUTCH SWITCH CONTINUITY TEST TABLE
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
Pedal Position Specification

Released No Continuity
Pressed Continuity
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

CRUISE BRAKE SWITCH

NOTE: Cruise brake switch can be distinguished from brakelight switch by color of wires connected to switch. See BRAKELIGHT & CRUISE BRAKE SWITCHES IDENTIFICATION table under BRAKELIGHT SWITCH.

Disconnect cruise brake switch connector. Check continuity between cruise brake switch connector terminals with brake pedal in specified position. See CRUISE BRAKE SWITCH CONTINUITY TEST table. If continuity is not as specified, replace cruise brake switch.

CRUISE BRAKE SWITCH CONTINUITY TEST TABLE
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
Pedal Position Specification

Released Continuity
Pressed No Continuity
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

CRUISE CONTROL SWITCH

1) Remove steering wheel cover. With button pressed, check resistance between specified terminals of cruise control switch connector. See CRUISE CONTROL SWITCH RESISTANCE TEST table. See Fig. 3.

CRUISE CONTROL SYSTEM

Article Text (p. 8)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

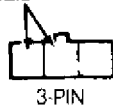
Sunday, August 19, 2001 01:08PM

2) Replace switch if resistance is not as specified. If resistance is as specified but problem still exists, remove steering wheel and check slip rings and wiring.

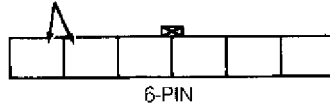
CRUISE CNTRL SW RESISTANCE TEST TABLE

Switch Position		Ohms
No Buttons Pressed	.....	Infinite Ohms
RESUME/ACCEL	.....	910 Ohms
SET/COAST	.....	240 Ohms
CANCEL	.....	0 Ohms

Check Resistance
Between These
Terminals



Check Resistance
Between These
Terminals



93E83323

Fig. 3: Cruise Control Switch Connector Terminal ID
Courtesy of Mazda Motors Corp.

CRUISE CONTROL UNIT

Turn ignition on. Check voltage at cruise control unit connector terminals with electrical connector attached (backprobe terminals). See Fig. 6. If voltages are not as specified, check appropriate circuit and component. If circuit and component are okay, replace cruise control unit.

MAIN SWITCH

Disconnect main switch connector. With main switch in specified position, check continuity between main switch connector terminals. See MAIN SWITCH CONTINUITY TEST table. See Fig. 4. If continuity is not as specified, replace main switch.

MAIN SWITCH CONTINUITY TEST TABLE

Switch Position		Continuity Between Terminals
-----------------	--	------------------------------

OFF	.....	"D" & "E"
ON	.....	"C" & "D"; (1) "B" & "D"

(1) - Apply battery voltage across these terminals to test switch backlighting or indicator light.

CRUISE CONTROL SYSTEM

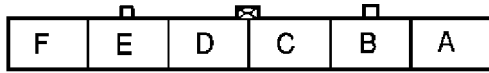
Article Text (p. 9)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:08PM



93H83326

Fig. 4: Main Switch Connector Terminal ID

Courtesy of Mazda Motors Corp.

VEHICLE SPEED SENSOR

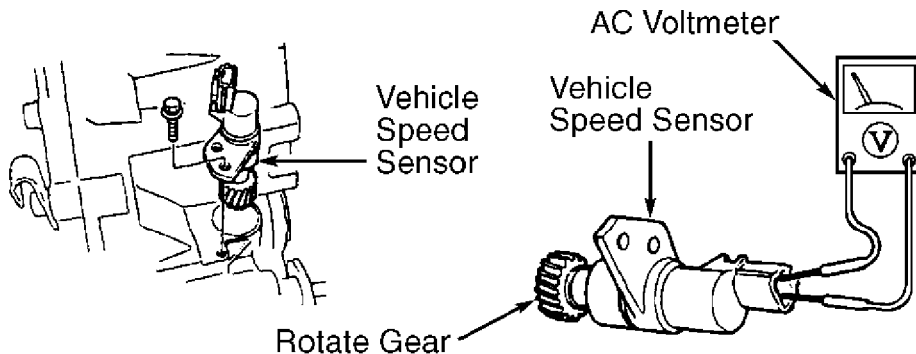
NOTE: If speedometer operates, vehicle speed sensor is okay.

Speedometer Needle Moves But Fluctuates Or Is Inaccurate

Disconnect vehicle speed sensor connector. Connect AC voltmeter (5-volt scale) across vehicle speed sensor connector terminals. See Fig. 5. Slowly turn rear wheels. If voltage pulses are detected, vehicle speed sensor is okay. If voltage pulses are not detected, replace vehicle speed sensor.

Speedometer Needle Does Not Move

Remove vehicle speed sensor. Turn shaft gear by hand. See Fig. 5. If magnetic resistance is not felt, replace vehicle speed sensor. If magnetic resistance is felt, measure resistance across vehicle speed sensor connector terminals. If resistance is about 290 ohms at 68°F (20°C), vehicle speed sensor is okay. If resistance is not as specified, replace vehicle speed sensor.



93D83330

Fig. 5: Checking Vehicle Speed Sensor

Courtesy of Mazda Motors Corp.

VOLTAGE TEST CHARTS

CRUISE CONTROL SYSTEM

Article Text (p. 10)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:08PM

S	Q	O	M	K	I	G	E	C	A
T	R	P	N	L	J	H	F	D	B

CRUISE CONTROL UNIT VOLTAGE TEST CHART (RX7)

	Pin	Circuit	Test Conditions ¹ (Voltage)
Gray/Red	A	Main Switch	Main Switch On (Battery)
Blue/Red	B	Main Switch	Main Switch Off (Battery); Main Switch On (0)
Light Green/Black	C	Actuator Clutch	Main Switch Off (0); Main Switch On (9)
Blue	D	Cruise Control Switch	Main Switch On. No Buttons Pressed (About 5); SET Button Pressed (About 2); RESUME Button Pressed (About 3); CANCEL Button Pressed (0)
Green/Red	E	Vehicle Speed Sensor	Rotate Rear Wheels (Fluctuating 2-3)
Blue/White	G (A/T)	Inhibitor Switch	Disconnect Engine PCM Connector. Park Or Neutral (0); Except Park Or Neutral (Battery)
Blue/Orange	G (M/T)	Clutch Switch	Disconnect Engine PCM Connector. Depress Pedal (0)
Green	H	Brakelight Switch	Depress Pedal (Battery); Release Pedal (0)
Violet/White	I	CRUISE Indicator Light	Light Off (Battery); Light On (0)
Green/White	J	STOP Fuse	All Conditions (Battery)
Pink	L	ECAT Control Unit (A/T)	All Conditions (Battery)
Light Green/Red	M	Actuator Motor	Main Switch Off (0); Main Switch On (Battery)
Red/Black	O	Actuator Motor	Main Switch Off (0); Main Switch On (Battery)
Blue/Black	Q	Cruise Brake Switch	Release Pedal (9); Depress Pedal (0)
Blue/Yellow	S	Actuator Clutch	Main Switch Off (0); Main Switch On (9)
Black	T	Ground	All Conditions (0)

¹ - Turn ignition on, unless specified otherwise.

93A83337

Fig. 6: Cruise Control Unit Voltage Test Chart
Courtesy of Mazda Motors Corp.

WIRING DIAGRAMS

Refer to chassis WIRING DIAGRAMS article in WIRING DIAGRAMS section.

END OF ARTICLE

DEFOGGER - REAR WINDOW

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:09PM

ARTICLE BEGINNING

1993 ACCESSORIES/SAFETY EQUIPMENT

Mazda Rear Window Defogger

RX7

DESCRIPTION & OPERATION

Heating grid filament is bonded to inside of rear window. Defogger relay allows power to heating grid filament. See ELECTRICAL COMPONENT LOCATIONS table. Defogger timer maintains power to grid for 10 or 15 minutes or until ignition is turned off. Indicator light comes on when defogger is on.

ELECTRICAL COMPONENT LOCATIONS TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Component	Location
Defogger Relay	..... In Luggage Compartment, On Left Wall
Defogger Timer	..... (1)

(1) - Defogger timer is an integral part of Central Processing Unit (CPU). CPU is attached to joint box at left kick panel.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

TESTING

SYSTEM TEST

Turn ignition on. Turn defogger switch to ON position. If glass is not warm after a few minutes, check fuse. If fuse is okay, use a test light or voltmeter to check for battery voltage at grid feed wire. If battery voltage is present, repair grid filament or grid filament ground. If battery voltage is not present, check defogger switch, defogger relay and wiring harness. If components are okay, replace defogger timer.

DEFOGGER SWITCH TEST

Disconnect defogger switch connector. Check continuity between specified terminals of defogger switch connector. See DEFOGGER SWITCH CONTINUITY TEST table. See Fig. 1. With defogger switch in OFF position, there should be no continuity. With defogger switch in ON position, there should be continuity. Replace defogger switch if continuity is not as specified.

DEFOGGER SWITCH CONTINUITY TEST (EXCEPT MIATA, MPV & NAVAJO)

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	Terminals
-------------	-----------

DEFOGGER - REAR WINDOW

Article Text (p. 2)

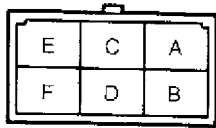
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:09PM

RX7 C & D
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA



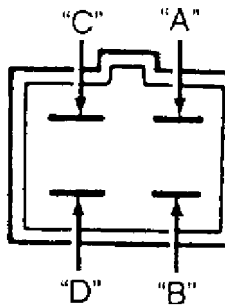
PROTEGE, RX7 & 323

93F01969

Fig. 1: Testing Defogger Switch
Courtesy of Mazda Motors Corp.

DEFOGGER RELAY TEST

Remove relay. Continuity should not exist between terminals "C" and "D". See Fig. 2. Apply battery voltage across terminals "A" and "B". Continuity should exist between terminals "C" and "D". If continuity is not as specified, replace relay.



EXCEPT MIATA

93A8342E

Fig. 2: Relay Terminal ID
Courtesy of Mazda Motors Corp.

GRID FILAMENT TEST

1) To locate breaks in grid wire filaments, attach a voltmeter probe to middle portion of filament. See Fig. 3. Attach other voltmeter probe to vertical section of window grid.

2) If wire is not broken, voltmeter will register about one half of battery voltage. If a grid is broken, voltmeter will register zero volts or battery voltage, depending on whether grid is broken between test leads or outside test leads. To locate break, move probe along wire until voltmeter needle moves abruptly.

DEFOGGER - REAR WINDOW

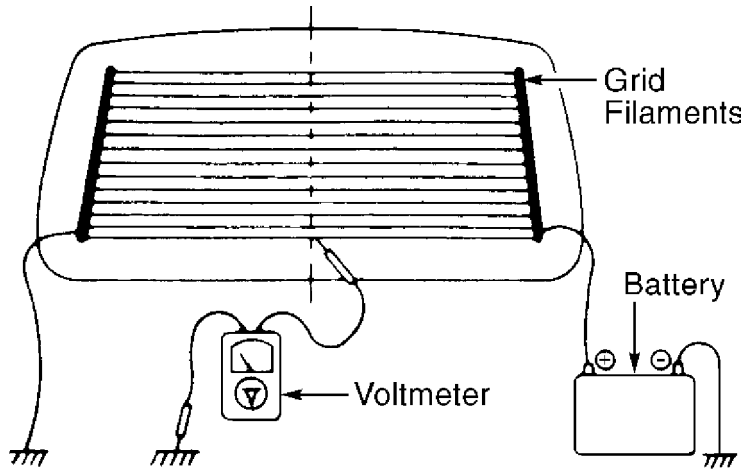
Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:09PM



91B00086

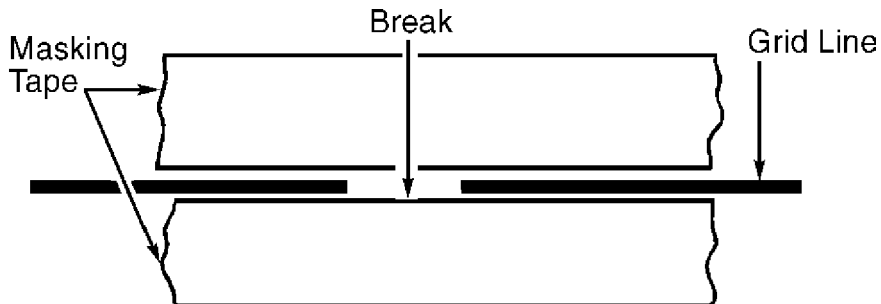
Fig. 3: Testing Grid Filaments
Courtesy of Mazda Motors Corp.

ON-VEHICLE SERVICE

GRID FILAMENT REPAIR

1) If necessary, use razor blade or equivalent to remove small amount of silicone from damaged area to expose grid line. Clean exposed broken grid line area with alcohol. Place tape along both sides of grid line area to be repaired. See Fig. 4. If Brown filament is broken, apply Brown touch-up paint to Brown grid line break area (if necessary).

2) Apply Silver Touch-Up Paint (2835-77-600) over Brown touch-up paint at break area, overlapping both lines. Allow a few minute drying time before carefully removing tape from line edges. DO NOT touch repaired area for 24 hours.



92A01033

Fig. 4: Repairing Defogger Grid Filament

WIRING DIAGRAMS

Refer to chassis WIRING DIAGRAMS article in WIRING DIAGRAMS section.

Copyright © 1998 Mitchell Repair Information Company, LLC
Sunday, August 19, 2001 01:10PM

[illegible]

DOOR LOCKS - POWER

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:10PM

DOOR LOCK ACTUATOR

2-Pin Connector

Remove door trim panel. Disconnect door lock actuator connector. Apply battery voltage and ground across terminals of door lock actuator connector. Reverse polarity across terminals to move door lock actuator in opposite direction. Replace door lock actuator if it does not operate.

4-Pin Connector

Remove door trim panel. Disconnect door lock actuator connector. Apply battery voltage across the following terminals of door lock actuator connector. Reverse polarity across terminals to move door lock actuator in opposite direction. Replace door lock actuator if it does not operate.

* Orange and Green wire terminals.

DOOR LOCK TIMER UNIT

Leave door lock timer unit connector attached. Check voltage at the following terminals of door lock timer unit connector (backprobe connector). If voltages are not as specified, check circuit (including component, if applicable). If circuit is okay, replace door lock timer unit.

Black Wire (To Ground)

No voltage should be present under all conditions.

Blue Wire (To DOOR LOCK Fuse)

Battery voltage should be present under all conditions.

Green/Red Wire (To Door Lock Link Switch)

With door unlocked, no voltage should be present. With door locked, battery voltage should be present.

Green/Yellow Wire (To Door Lock Link Switch)

With door locked, no voltage should be present. With door unlocked, battery voltage should be present.

Green Wire (To Door Lock Actuator)

With door locked, battery voltage should be present. With door unlocked, no voltage should be present.

Orange Wire (To Door Lock Actuator)

With door unlocked, battery voltage should be present. With door locked, no voltage should be present.

WIRING DIAGRAMS

DOOR LOCKS - POWER

Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:10PM

Proceed to chassis WIRING DIAGRAMS article in WIRING DIAGRAMS section.

END OF ARTICLE

Loosen headlight lid adjustment screws. See Fig. 1. Adjust headlight lid so distance between headlight lid and body is as specified when headlight is lower.

HEADLIGHT DOORS - AUTOMATIC

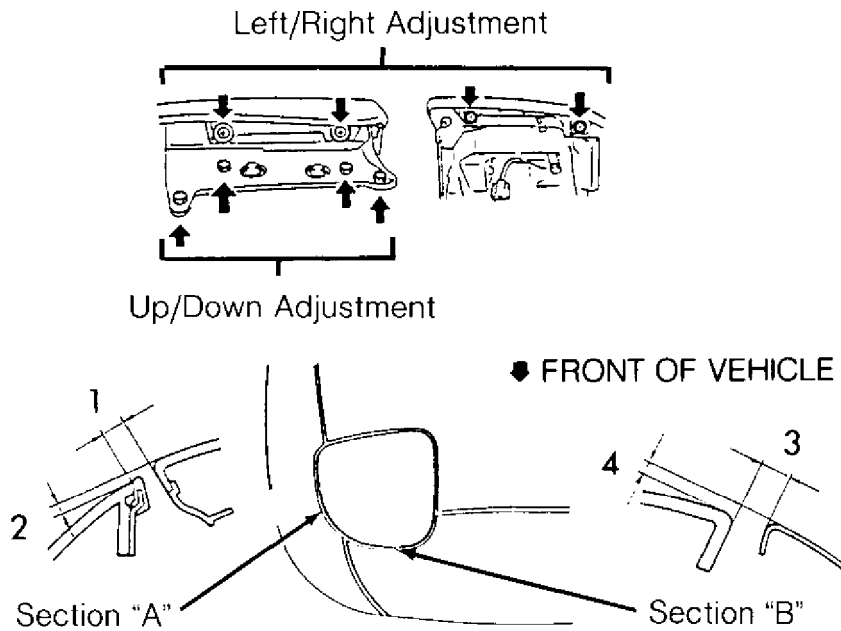
Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:10PM



93A82768

Fig. 1: Adjusting Headlight Lid
Courtesy of Mazda Motors Corp.

TESTING

BOTH RETRACTORS INOPERATIVE USING EITHER SWITCH

1) Check HEAD and RETRA fuses in main fuse block. If fuse is faulty, replace fuse (repair circuit if shorted). If fuse is okay, remove retractor switch. Measure voltage at terminal "C" of retractor switch connector. See Fig. 2. If battery voltage is not present, repair Red wire.

2) If battery voltage is present, disconnect retractor switch connector. Turn on retractor switch. Check continuity between terminals "A" and "C" of retractor switch connector. Turn off switch. Check continuity between terminals "B" and "C". Continuity should exist in both checks.

3) If continuity is not as specified, replace retractor switch. If continuity is as specified, reconnect retractor switch connector. Disconnect retractor motor connector. Measure voltage at Black/White wire terminal of retractor motor connector. If battery voltage is not present, repair wire between RETRA fuse and retractor motor.

4) If battery voltage is present, check continuity between ground and Black wire terminal of retractor motor connector. If continuity is not present, repair wire between retractor motor and ground. If battery voltage is present, check retractor motor. See RETRACTOR MOTOR TEST. If retractor motor is okay, check for mechanical problem.

HEADLIGHT DOORS - AUTOMATIC

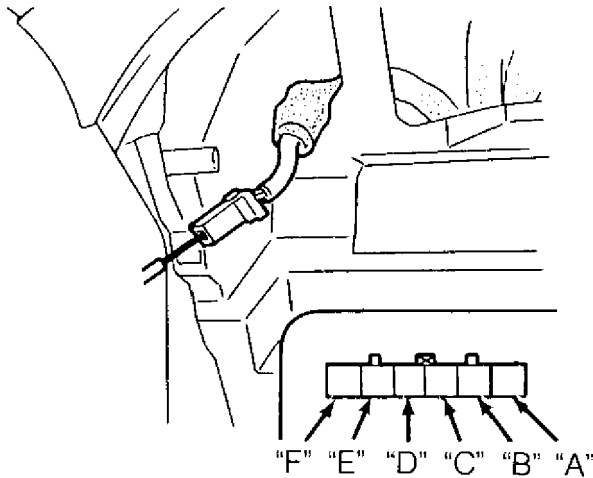
Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:10PM

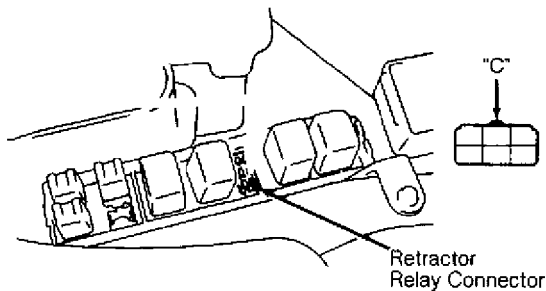


93B82769

Fig. 2: Retractor Switch Connector Terminal ID
Courtesy of Mazda Motors Corp.

BOTH RETRACTORS INOPERATIVE USING HEADLIGHT SWITCH

Turn on headlight switch. Measure voltage at terminal "C" of retractor relay connector. See Fig. 3. If battery voltage is not present, repair Brown wire between headlight relay and retractor relay. If battery voltage is present, check retractor relay. See RETRACTOR RELAY TEST. If retractor relay is okay, repair Black wire between retractor relay and ground.



93E82770

Fig. 3: Retractor Relay Connector Terminal ID
Courtesy of Mazda Motors Corp.

BOTH RETRACTORS INOPERATIVE USING RETRACTOR SWITCH

Check retractor switch. If retractor switch is okay, repair wiring harness.

ONE RETRACTOR INOPERATIVE

1) Measure voltage at Black/White wire terminal of retractor motor connector. If battery voltage is not present, repair wire between RETRA fuse and retractor motor.

2) If battery voltage is present, check continuity between

HEADLIGHT DOORS - AUTOMATIC

Article Text (p. 4)

1993 Mazda RX7

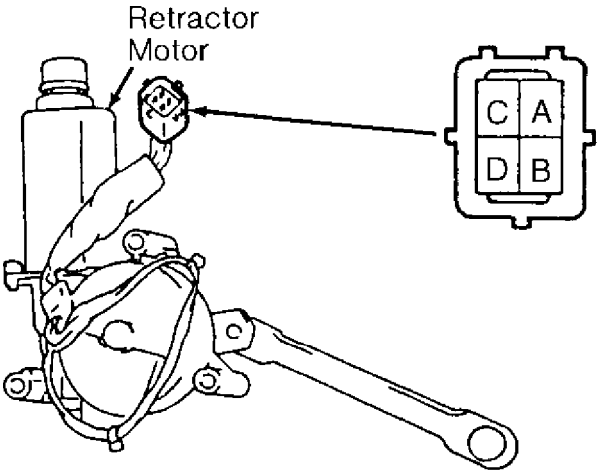
For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Sunday, August 19, 2001 01:10PM

ground and Black wire terminal of retractor motor connector. If battery voltage is not present, repair wire between retractor motor and ground. If battery voltage is present, replace retractor motor.

RETRACTOR MOTOR TEST

- 1) A link connects retractor motor to headlight assembly. Disconnect link from headlight assembly. Disconnect retractor motor connector. Apply battery voltage across terminals "B" (positive) and "A" (negative) of retractor motor connector. See Fig. 4. Leave battery voltage connected across these terminals.
- 2) To raise headlight, apply battery voltage across terminals "C" (positive) and "A" (negative) of retractor motor connector. To lower headlight, apply battery voltage across terminals "D" (positive) and "A" (negative) of retractor motor connector. Replace retractor motor if it does not operate as specified.



93F82771
Fig. 4: Retractor Motor Connector Terminal ID
Courtesy of Mazda Motors Corp.

RETRACTOR SWITCH TEST

Disconnect retractor switch connector (remove switch, if necessary). With switch turned off, there should be continuity between terminals "A" and "C". See Fig. 5. With switch turned on, there should be continuity between terminals "B" and "C". Replace retractor switch if continuity is not as specified.

RETRACTOR RELAY TEST

Remove relay. Check continuity between specified terminals of relay connector. See RETRACTOR RELAY TEST table. See Fig. 5. If continuity is not as specified, replace relay.

RETRACTOR RELAY TEST TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
Continuity Between

HEADLIGHT DOORS - AUTOMATIC

Article Text (p. 5)

1993 Mazda RX7

For www.iluvmyrx7.com

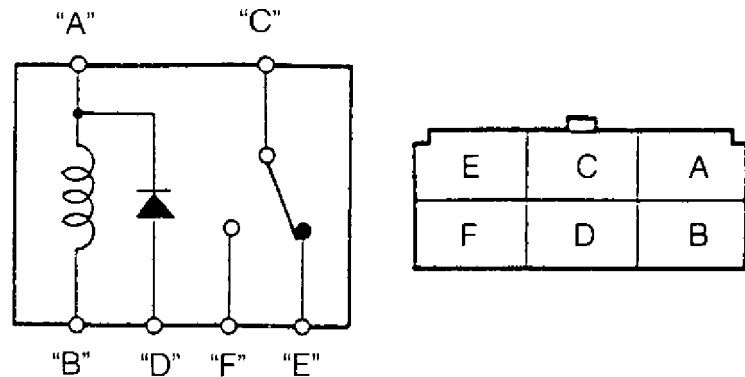
Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:10PM

Condition	Terminals
Relay Not Energized	"A" & "B"
	"C" & "E"
Relay Energized (1)	"C" & "F"

(1) - Apply battery voltage across terminals "A" and "B".

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA



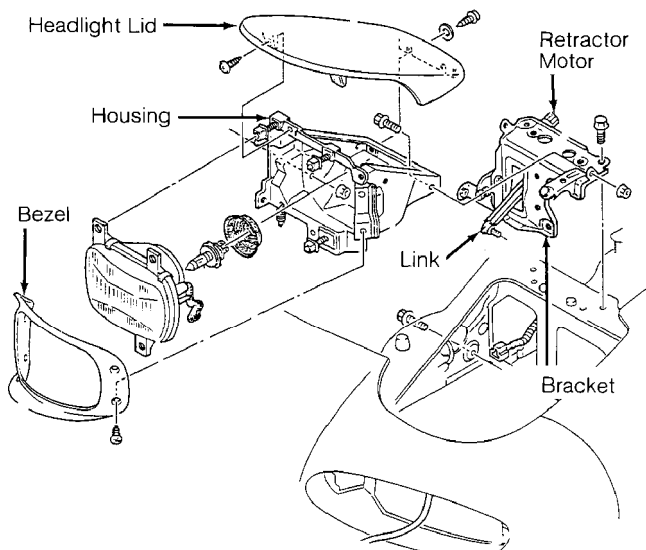
93G82772

Fig. 5: Retractor Relay Terminals/Internal Circuit ID
Courtesy of Mazda Motors Corp.

REMOVAL & INSTALLATION

HEADLIGHT & RETRACTOR MOTOR ASSEMBLY

NOTE: Use illustration for exploded view of headlight and retractor motor assembly. See Fig. 6.



93H82773

Fig. 6: Exploded View Of Headlight & Retractor Motor Assembly
Courtesy of Mazda Motors Corp.

HEADLIGHT DOORS - AUTOMATIC

Article Text (p. 6)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Sunday, August 19, 2001 01:10PM

WIRING DIAGRAMS

Refer to chassis WIRING DIAGRAMS article in WIRING DIAGRAMS section.

END OF ARTICLE

INSTRUMENT PANEL

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:11PM

ARTICLE BEGINNING

1993 ACCESSORIES/SAFETY EQUIPMENT
Mazda Instrument Panels

RX7

DESCRIPTION & OPERATION

Speedometer senses road speed through a speed sensor (AC voltage signal generator). Fuel gauge, oil pressure gauge and temperature gauge receive signals from variable-resistance sending units. See ELECTRICAL COMPONENT LOCATIONS table.

ELECTRICAL COMPONENT LOCATIONS TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Component	Location
-----------	----------

Oil Pressure Sensor (Gauge)	Near Oil Filter
-----------------------------------	-----------------

Oil Pressure Switch (Indicator)	
---------------------------------	--

Speed Sensor	On Transmission
--------------------	-----------------

Temperature Gauge	
-------------------	--

Sending Unit	On Left Side Of Engine, At Rear
--------------------	---------------------------------

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

TESTING

NOTE: Checker (49-0839-285) simulates sending unit resistance when testing gauges. If checker is not available, gauges may be tested with specific resistors listed in appropriate table.

FUEL GAUGE TEST

1) Disconnect fuel gauge sending unit connector at fuel tank. Connect Red wire lead of Checker (49-0839-285) to Black/Blue wire terminal of sending unit connector. Ground checker Black wire lead.

2) Turn ignition on. Set checker to specified resistance value. See FUEL GAUGE RESISTANCE table. If fuel gauge needle rests at specified position for each resistance value setting, replace fuel gauge sending unit. If fuel gauge needle does not rest at specified position, check wiring. If wiring is okay, replace fuel gauge.

NOTE: After changing checker resistance value, allow 2 minutes for needle to stabilize. Allowable limit of needle deflection is twice width of needle.

FUEL GAUGE TEST TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Resistance Setting (Ohms)	Needle Position
---------------------------	-----------------

7	Full
---------	------

Copyright © 1998 Mitchell Repair Information Company, LLC
Sunday, August 19, 2001 01:11PM

[illegible]

INSTRUMENT PANEL

Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:11PM

OIL PRESSURE SENSOR TEST

Ensure oil pressure is okay. Disconnect oil pressure sensor connector. Measure resistance between oil pressure sensor connector terminal and ground. Replace oil pressure sensor if resistance is not as specified. See OIL PRESSURE SENSOR RESISTANCE table.

OIL PRESSURE SWITCH TEST

Check continuity between oil pressure switch connector terminal and ground. With engine stopped, there should be continuity. With engine running, there should be no continuity. Replace oil pressure switch if continuity is not as specified.

SPEEDOMETER TEST

NOTE: Tire size, wear and incorrect inflation can affect speedometer reading and odometer measurement. Allowable variance between actual vehicle speed and indicated speed is about 1/2 MPH for every 10 MPH of vehicle speed.

Disconnect speed sensor connector. Connect AC voltmeter (5-volt scale) across speed sensor connector terminals. With transmission in Neutral, slowly turn drive wheels. If voltage pulses are not detected, replace speed sensor. If voltage pulses are detected, check wiring. If wiring is okay, replace speedometer.

TACHOMETER VARIANCE TEST

Connect positive lead of test tachometer to negative terminal of ignition coil. Connect negative lead of tachometer to ground. Start engine. Compare vehicle tachometer with test tachometer. Vehicle tachometer performance is acceptable if specification is within allowable range. See TACHOMETER VARIATION SPECIFICATIONS table. If tachometer performance is not within specifications, replace tachometer.

TACHOMETER VARIATION SPECIFICATIONS TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
Standard Indication Allowable Range

A/T

2000 RPM	.....	1810-2110 RPM
3000 RPM	.....	2800-3100 RPM
4000 RPM	.....	3820-4020 RPM
5000 RPM	.....	4700-5000 RPM

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

TEMPERATURE GAUGE TEST

NOTE: After changing checker resistance value, allow 2 minutes for needle to stabilize. Allowable limit of needle deflection is

INSTRUMENT PANEL

Article Text (p. 4)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:11PM

twice width of needle.

1) Disconnect temperature gauge sending unit connector. Connect Red wire lead of Checker (49-0839-285) to sending unit connector terminal and Black wire lead to ground.

2) Turn ignition on. Set checker to specified resistance value. See TEMPERATURE GAUGE RESISTANCE table. If gauge needle rests at specified position for each resistance value setting, replace sending unit. If gauge needle does not rest at specified position, check wiring. If wiring is okay, replace gauge.

TEMPERATURE GAUGE RESISTANCE TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application & Resistance

Setting (Ohms)

Needle Position

17 HOT

178 COLD

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

TEMPERATURE GAUGE SENDING UNIT TEST

Remove sending unit. Place sending unit in a pan of water with a thermometer. Gradually heat water. Measure resistance between sending unit connector terminal and sending unit body. Replace sending unit if resistance is not as specified. See TEMPERATURE GAUGE SENDING UNIT RESISTANCE table.

TEMPERATURE GAUGE SENDING UNIT RESISTANCE TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application

Specification

RX7 190-260 Ohms @ 122°F (50°C)

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

REMOVAL & INSTALLATION

NOTE: For exploded view of instrument cluster, see Fig. 2.

INSTRUMENT CLUSTER

WARNING: RX7 is equipped with air bag restraint system. See AIR BAG RESTRAINT SYSTEM article in the ACCESSORIES/SAFETY EQUIPMENT section for warnings and safety precautions.

Removal & Installation

1) Remove switch panel. See Fig. 1. Remove air bag module and steering wheel. Remove instrument cluster. Disconnect wiring harness connectors. Remove steering column covers. To install, reverse removal procedure.

INSTRUMENT PANEL

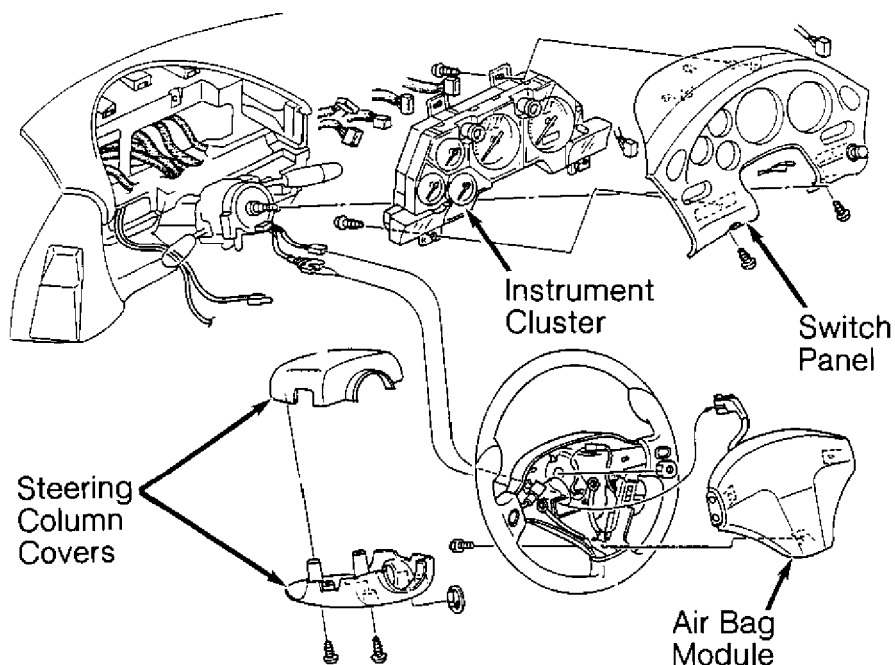
Article Text (p. 5)

1993 Mazda RX7

For www.iluvmyrx7.com

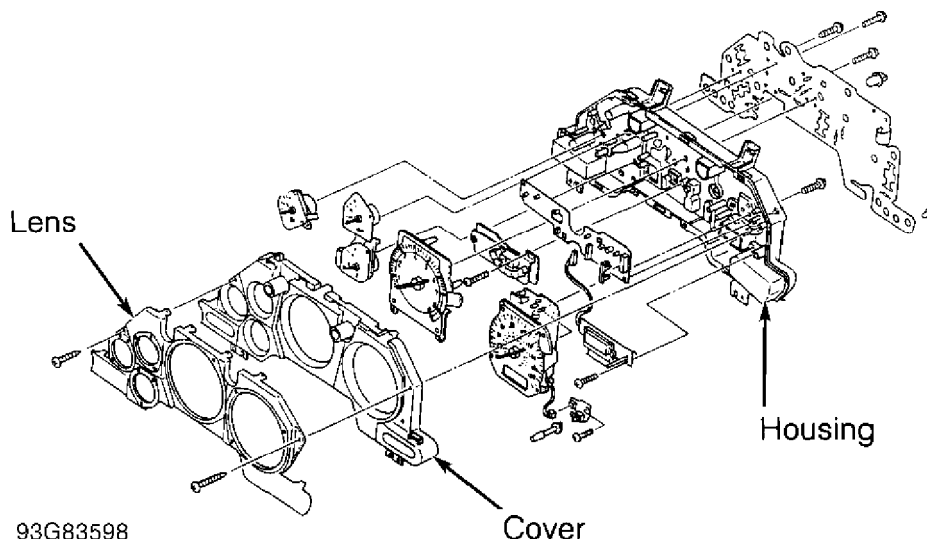
Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:11PM



93D83595

Fig. 1: Removing Instrument Cluster
Courtesy of Mazda Motors Corp.



93G83598

Fig. 2: Exploded View Of Instrument Cluster
Courtesy of Mazda Motors Corp.

WIRING DIAGRAMS

Refer to chassis WIRING DIAGRAMS article in WIRING DIAGRAMS section.

END OF ARTICLE

MIRRORS - POWER
Article Text
1993 Mazda RX7
For www.iluvmyrx7.com
Copyright © 1998 Mitchell Repair Information Company, LLC
Sunday, August 19, 2001 01:12PM

ARTICLE BEGINNING

1993 ACCESSORIES/SAFETY EQUIPMENT
Mazda Power Mirrors

RX7

DESCRIPTION & OPERATION

Each mirror contains 2 reversible motors, one for horizontal movement and the other for vertical movement. Power mirror switch on dash controls power and ground circuits of power mirror motors. Power mirror switch has a selector switch and a perimeter switch. Position of selector switch determines whether left or right mirror is controlled by switch. Perimeter switch controls vertical and horizontal movements of selected mirror.

TROUBLE SHOOTING

Both Mirrors Inoperative

Check fuse. See POWER MIRROR FUSE IDENTIFICATION table. Check power and ground circuits of power mirror switch. Check power mirror switch. Check wiring between power mirror switch and power mirror motors.

One Mirror Inoperative

Check power mirror motor. Check wiring between power mirror switch and power mirror motor. Check power mirror switch.

POWER MIRROR FUSE IDENTIFICATION TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
Application (1) Fuse

RX7 CIGAR

(1) - Fuse is located in fuse block behind left side of instrument panel.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

SYSTEM TESTING

NOTE: If both mirrors are inoperative, begin testing at step 1).
If one mirror is inoperative, begin testing at step 3).

- 1) Turn ignition on. Check CIGAR fuse. If fuse is blown, replace fuse (repair wiring if necessary). If fuse is okay, check voltage at Blue/Black wire terminal of power mirror switch connector. If battery voltage is not present, repair Blue/Black wire between fuse and power mirror switch.
- 2) If battery voltage is present, disconnect power mirror switch connector. Check continuity between ground and Black wire

MIRRORS - POWER

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:12PM

terminal of power mirror switch connector. If there is no continuity, repair Black wire. If there is continuity, reconnect power mirror switch connector.

3) Check voltage at the following terminals of power mirror switch connector with switch in specified position. If battery voltage is not present at all terminals, replace power mirror switch. If battery voltage is present at all terminals, go to next step.

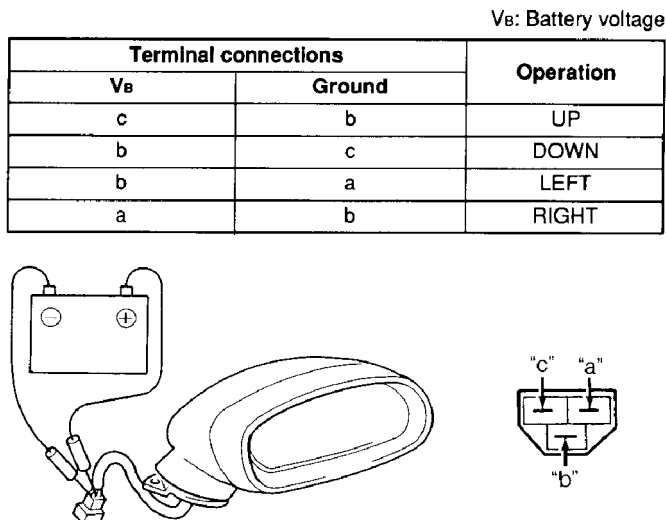
- * Brown wire (right mirror UP)
- * Light Green/Red wire (right mirror DOWN)
- * Light Green/Red wire (right mirror LEFT)
- * Brown/Black wire (right mirror RIGHT)
- * Brown wire (left mirror UP)
- * Light Green wire (left mirror DOWN)
- * Light Green wire (left mirror LEFT)
- * Brown/Yellow wire (left mirror RIGHT).

4) At power mirror motor connector, check voltage at terminals specified in previous step with switch in specified position. If battery voltage is not present at all terminals, repair wiring between power mirror switch and power mirror motor. If battery voltage is present at all terminals, replace power mirror motor.

COMPONENT TESTING

POWER MIRROR MOTOR TEST

Disconnect power mirror motor connector. Apply battery voltage across specified terminals of power mirror motor connector. See Fig. 1. If mirror does not move as specified, replace power mirror assembly.



93H84134

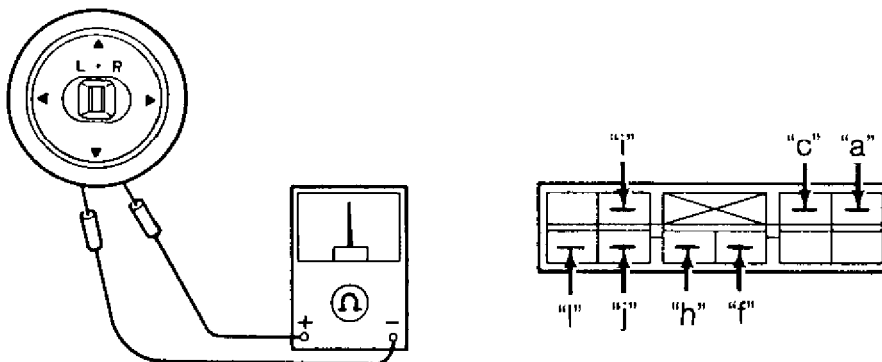
Fig. 1: Testing Power Mirror Motor
Courtesy of Mazda Motors Corp.

POWER MIRROR SWITCH TEST

Disconnect switch connector (remove switch if necessary). See POWER MIRROR SWITCH under REMOVAL & INSTALLATION. With switch in specified position, check continuity between specified terminals of switch connector. See Fig. 2. Replace switch if continuity is not as specified.

Switch position		Terminal						
		i	j	c	h	a	f	l
Right	UP	○	○			○	○	○
	DOWN	○	○			○		○
	LEFT	○	○			○	○	
	RIGHT	○	○			○	○	○
Left	UP	○	○	○	○			○
	DOWN	○	○	○				○
	LEFT	○	○	○	○			
	RIGHT	○	○	○	○			○

○—○ : Indicates continuity.



93C84139
 Fig. 2: Testing Power Mirror Switch
 Courtesy of Mazda Motors Corp.

REMOVAL & INSTALLATION

POWER MIRROR SWITCH

Removal & Installation

MIRRORS - POWER

Article Text (p. 4)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:12PM

Push out switch from behind or carefully pry switch from dash. Disconnect wiring connector. To install, reverse removal procedure.

POWER MIRROR ASSEMBLY

Removal & Installation

Remove door garnish at front of door frame. Remove door trim panel. Remove power mirror screws. Disconnect wiring connector. Remove power mirror assembly. To install, reverse removal procedure.

WIRING DIAGRAMS

Proceed to chassis WIRING DIAGRAMS article in WIRING DIAGRAMS section.

END OF ARTICLE

POWER WINDOWS

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:12PM

ARTICLE BEGINNING

1993 ACCESSORIES/SAFETY EQUIPMENT

Mazda Power Windows

RX7

DESCRIPTION & OPERATION

Main switch (master switch) on driver's door controls all windows. Sub-switch on passenger's door and rear doors controls individual window. RX7 uses a power cut switch on driver's door to prevent operation of windows. When power cut switch is in ON position, windows can be operated by main switch or sub-switch. When power cut switch is in OFF position:

- * Driver's window can be operated using main switch; no other windows can be operated using main switch or sub-switch.

SYSTEM TESTING

SYMPTOM DIRECTORY TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Symptom	Symptom No.
Both Windows Inoperative	1
Driver's Window Inoperative, Passenger's Window Okay	2
Passenger's Window Inoperative Using Main Switch	3
Passenger's Window Okay Using Main Switch, Inoperative Using Sub-Switch	4
With Power Cut Switch Off, Passenger's Window Operates Using Sub-Switch	5

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

NOTE: "Main switch/passenger's" refers to passenger's window switch on main switch.

SYMPTOM NO. 1

- 1) Turn ignition on. Check 30-amp power window fuse in fuse block, near left kick panel. If fuse is okay, go to next step. If fuse is blown, replace fuse (repair wiring if necessary).
- 2) Check voltage at White/Blue wire terminal of main switch connector. If battery voltage is present, go to next step. If battery voltage is not present, repair White/Blue wire between fuse and main switch.
- 3) Disconnect main switch connector. Check continuity between ground and Black wire terminal of main switch connector. If there is continuity, reconnect main switch connector and go to next step. If

POWER WINDOWS

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:12PM

there is no continuity, repair Black wire.

4) At main switch connector, check voltage at the following terminals. If battery voltage is present at all terminals, go to next step. If battery voltage is not present at all terminals, replace main switch.

- * Red wire (driver's switch in UP position)
- * Green wire (driver's switch in DOWN position)
- * Black/White wire (main switch/passenger's in UP position)
- * Red/Yellow wire (main switch/passenger's in DOWN position).

5) At driver's window motor connector, check voltage at Red wire terminal (driver's switch in UP position) and Green wire terminal (driver's switch in DOWN position). If battery voltage is not present at both terminals, repair wiring between main switch and driver's window motor. If battery voltage is present at both terminals, replace driver's window motor.

NOTE: If passenger's window motor is still inoperative at this point, go to next step.

6) At sub-switch connector, check voltage at Black/White wire terminal (main switch/passenger's in UP position) and Black/Yellow wire terminal (main switch/passenger's in DOWN position). If battery voltage is present at both terminals, go to next step. If battery voltage is not present at both terminals, repair wiring between main switch and sub-switch.

7) At sub-switch connector, check voltage at Red wire terminal (main switch/passenger's in UP position) and Green wire terminal (main switch/passenger's in DOWN position). If battery voltage is present at both terminals, go to next step. If battery voltage is not present at both terminals, replace sub-switch.

8) At passenger's window motor connector, check voltage at Red wire terminal (main switch/passenger's in UP position) and Green wire terminal (main switch/passenger's in DOWN position). If battery voltage is present at both terminals, replace passenger's window motor. If battery voltage is not present at both terminals, repair wiring between sub-switch and window motor.

SYMPTOM NO. 2

1) Turn ignition on. At main switch connector, check voltage at the following terminals. If battery voltage is present at all terminals, go to next step. If battery voltage is not present at all terminals, replace main switch.

- * Red wire (driver's switch in UP position)
- * Green wire (driver's switch in DOWN position)
- * Black/White wire (main switch/passenger's in UP position)
- * Black/Yellow wire (main switch/passenger's in DOWN position).

2) At driver's window motor connector, check voltage at Red

POWER WINDOWS

Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:12PM

wire terminal (driver's switch in UP position) and Green wire terminal (driver's switch in DOWN position). If battery voltage is present at both terminals, replace window motor. If battery voltage is not present at both terminals, repair wiring between main switch and window motor.

SYMPTOM NO. 3

1) Turn ignition on. At main switch connector, check voltage at the following wire terminals. If battery voltage is present at all terminals, go to next step. If battery voltage is not present at all terminals, replace main switch.

- * Red wire (driver's switch in UP position)
- * Green wire (driver's switch in DOWN position)
- * Black/White wire (main switch/passenger's in UP position)
- * Black/Yellow wire (main switch/passenger's in DOWN position).

2) At sub-switch connector, check voltage at Black/White wire terminal (main switch/passenger's in UP position) and Black/Yellow wire terminal (main switch/passenger's in DOWN position). If battery voltage is present at both terminals, go to next step. If battery voltage is not present at both terminals, repair wiring between main switch and sub-switch.

3) At sub-switch connector, check voltage at Red wire terminal (main switch/passenger's in UP position) and Green wire terminal (main switch/passenger's in DOWN position). If battery voltage is present at both terminals, go to next step. If battery voltage is not present at both terminals, replace sub-switch.

4) At passenger's window motor connector, check voltage at Red wire terminal (main switch/passenger's in UP position) and Green wire terminal (main switch/passenger's in DOWN position). If battery voltage is present at both terminals, replace window motor. If battery voltage is not present at both terminals, repair wiring between sub-switch and window motor.

SYMPTOM NO. 4

Turn ignition on. Turn power cut switch to ON position. Check voltage at White/Blue wire terminal of sub-switch connector. If battery voltage is present, replace sub-switch. If battery voltage is not present, repair White/Blue wire.

SYMPTOM NO. 5

Replace main switch.

COMPONENT TESTING

MAIN SWITCH TEST

Check continuity across specified terminals of main switch

POWER WINDOWS

Article Text (p. 4)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:12PM

connector with switch button held in specified position. See appropriate MAIN SWITCH CONTINUITY TEST table. See Fig. 1. Replace main switch if continuity is not as specified.

MAIN SWITCH CONTINUITY TEST TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Switch Position	Terminals
-----------------	-----------

Driver

UP	A & G; B & H
----------	--------------

Off (Neutral)	B, G & H
---------------------	----------

DOWN	A & H; B & G
------------	--------------

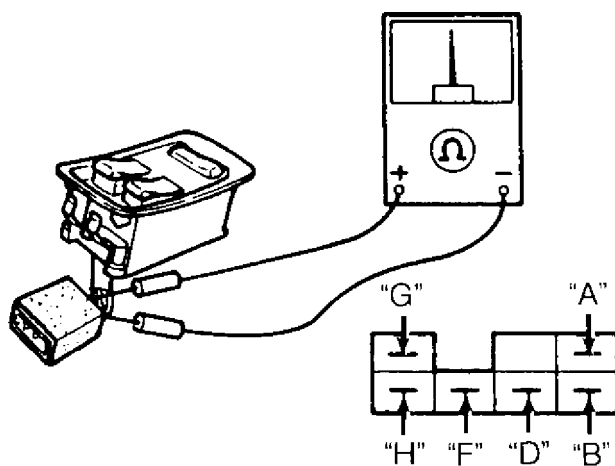
Passenger

UP	A & D; B & F
----------	--------------

Off (Neutral)	B, D & F
---------------------	----------

DOWN	A & F; B & D
------------	--------------

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA



93D83918

Fig. 1: Main Switch Connector Terminal ID

Courtesy of Mazda Motors Corp.

POWER CUT SWITCH TEST

Check continuity across specified terminals of main switch connector with power cut switch button held in specified position. See POWER CUT SWITCH CONTINUITY TEST table. See Fig. 1. Replace main switch if continuity is not as specified.

SUB-SWITCH TEST

Check continuity across specified terminals of sub-switch connector with switch button held in specified position. See SUB-SWITCH CONTINUITY TEST table. See Fig. 2. Replace sub-switch if continuity is not as specified.

SUB-SWITCH CONTINUITY TEST TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application & Switch Position	Terminals
-------------------------------	-----------

POWER WINDOWS

Article Text (p. 5)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:12PM

UP B & G; F & H
Off (Neutral) A & B; F & H
DOWN A & B; F & G
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

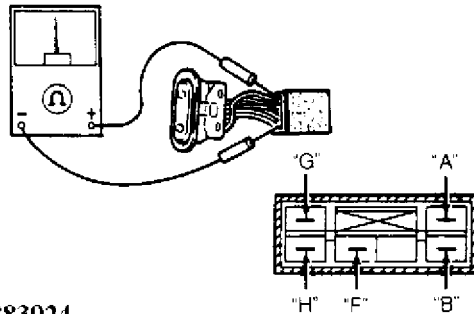


Fig. 2: Sub-Switch Connector Terminal ID
Courtesy of Mazda Motors Corp.

WINDOW MOTOR TEST

Disconnect window motor connector. Apply battery voltage and ground across window motor connector terminals. Reverse polarity to move window in opposite direction. Replace window motor if it does not operate.

REMOVAL & INSTALLATION

CAUTION: When battery is disconnected, vehicle computer and memory systems may lose memory data. Driveability problems may exist until computer systems have completed a relearn cycle. See COMPUTER RELEARN PROCEDURES article in GENERAL INFORMATION section before disconnecting battery.

MAIN SWITCH

Removal & Installation

Wrap tape around end of screwdriver. Carefully pry main switch out of door with screwdriver. Disconnect electrical connector. To install, reconnect electrical connector. Press main switch into door until lock tabs engage.

SUB-SWITCH

Removal & Installation

Wrap tape around end of screwdriver. Pry sub-switch out of door with screwdriver. Disconnect electrical connector. To install, reconnect electrical connector. Press sub-switch into door until lock tabs engage.

POWER WINDOWS

Article Text (p. 6)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:12PM

WINDOW MOTOR

WARNING: Window regulator is spring-loaded to assist window motor during upward movement. Before separating window motor from regulator, securely position regulator arms in full-up position (if possible). This will relieve spring pressure as much as possible, preventing injury when window motor is separated from regulator.

Removal & Installation

Fully open window. Raise window until height of glass (measured at top rear edge) is as specified. See WINDOW HEIGHT SPECIFICATIONS table. Disconnect negative battery cable. Remove door trim panel. Remove window regulator and motor as an assembly. Securely position regulator arms in full-up position (if possible) to relieve spring pressure. Remove window motor from regulator. To install, reverse removal procedure.

WINDOW HEIGHT SPECIFICATIONS TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	In. (mm)
-------------	----------

RX7	11.0 (280)
-----------	------------

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

WIRING DIAGRAMS

Proceed to chassis WIRING DIAGRAMS article in WIRING DIAGRAMS section.

END OF ARTICLE

STEERING COLUMN SWITCHES

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Sunday, August 19, 2001 01:13PM

ARTICLE BEGINNING

1993 ACCESSORIES/SAFETY EQUIPMENT
Mazda Steering Column Switches

RX7

WARNING: RX7 is equipped with Supplemental Inflatable Restraint (SIR) system. To prevent air bag deployment, use extreme caution while servicing steering column. Ensure battery is disconnected before attempting any repair. DO NOT apply electrical power to any component on steering column without first disabling air bag. See DISABLING & ACTIVATING AIR BAG SYSTEM.

DESCRIPTION

Switches covered in this article include combination switch, ignition switch and hazard switch. Hazard switch is not part of combination switch but is covered in this article.

Combination switch includes turn signal switch, headlight switch and windshield wiper/washer switch. Ignition switch and lock cylinder are mounted on steering column.

DISABLING & ACTIVATING AIR BAG SYSTEM

WARNING: After disabling air bag system, wait at least 10 minutes before servicing system. Voltage is maintained for about 10 minutes (or one minute) after system is disabled. Failure to wait may cause accidental air bag deployment and possible personal injury.

Disabling System

Obtain radio code number from customer, and deactivate audio anti-theft function. Turn ignition off. Disconnect and shield negative battery cable. Disconnect clockspring lower connectors (Orange and Blue connectors under steering column). Wait 10 minutes before servicing.

Activating System

Reconnect clockspring lower connectors and negative battery cable. Turn ignition switch to ON position. Check AIR BAG indicator light to ensure system is operating properly. For more information, see AIR BAG RESTRAINT SYSTEM article in the ACCESSORIES/SAFETY EQUIPMENT section.

TESTING

WARNING: Before servicing steering column, see DISABLING & ACTIVATING AIR BAG SYSTEM.

STEERING COLUMN SWITCHES

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:13PM

COMBINATION SWITCH

Remove steering column covers. Remove combination switch (if necessary). See COMBINATION SWITCH under REMOVAL & INSTALLATION. Check continuity between specified terminals of combination switch connector. See Fig. 1. Replace switch if continuity is not as specified.

HAZARD SWITCH

Remove hazard switch from instrument cluster cover. Check continuity between specified terminals of hazard switch connector. See Fig. 2. Replace hazard switch if continuity is not as specified.

IGNITION SWITCH

Disconnect negative battery cable. Remove covers from steering column. Disconnect ignition switch connector. Ensure continuity is present as indicated. See Fig. 3. If necessary, replace ignition switch.

TURN SIGNAL SWITCH

Turn signal switch is part of combination switch. See COMBINATION SWITCH under TESTING.

WIPER SWITCH

Front

Wiper switch is part of combination switch. See COMBINATION SWITCH under TESTING.

Rear

See appropriate WIPER/WASHER SYSTEM article in the ACCESSORIES/SAFETY EQUIPMENT section.

REMOVAL & INSTALLATION

WARNING: Before servicing steering column, see DISABLING & ACTIVATING AIR BAG SYSTEM.

STEERING WHEEL & HORN PAD

Removal

1) Set front wheels in straight-ahead position. Disconnect negative battery cable. On vehicles without air bag, remove horn pad and go to next step. On vehicles with air bag, disable air bag system. See DISABLING & ACTIVATING AIR BAG SYSTEM. Remove air bag module.

2) Mark steering wheel and shaft for reassembly reference. Remove steering wheel nut or bolt. Remove damper (if equipped). Using appropriate puller, remove steering wheel.

STEERING COLUMN SWITCHES

Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:13PM

Installation

1) Ensure front wheels are in straight-ahead position.

Install steering wheel, ensuring reference marks are aligned. Ensure damper is aligned with holes of steering wheel. Tighten steering wheel bolt or nut to specification. See TORQUE SPECIFICATIONS. To install remaining components, reverse removal procedure.

HAZARD SWITCH

Removal & Installation

Remove instrument cluster cover. Remove hazard switch. To install, reverse removal procedure.

COMBINATION SWITCH

Removal & Installation

Disable air bag system. See DISABLING & ACTIVATING AIR BAG SYSTEM. Remove air bag module. Remove steering column covers. Disconnect combination switch electrical connectors. Remove combination switch screws. Remove combination switch. See Fig. 3.

2) To install, ensure front wheels are in straight-ahead position. Install combination switch. Turn clockspring connector (housing) clockwise until it stops (DO NOT force). Return clockspring connector 2 3/4 turns counterclockwise until arrow marks are aligned.

3) Install steering wheel, aligning reference marks made during removal. Ensure damper is aligned with holes of steering wheel. Tighten steering wheel bolt or nut to specification. See TORQUE SPECIFICATIONS.

LOCK CYLINDER

NOTE: To remove lock cylinder, see IGNITION SWITCH under REMOVAL & INSTALLATION.

IGNITION SWITCH

Removal & Installation

Disconnect negative battery cable. Remove steering column covers. Remove screws mounting ignition switch to steering column. Disconnect ignition switch wiring. Remove ignition switch. To install, reverse removal procedure.

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application Ft. Lbs. (N.m)

Steering Wheel Nut 29-36 (39-49)

INCH Lbs. (N.m)

Air Bag Module Bolt 70-104 (8-12)

STEERING COLUMN SWITCHES

Article Text (p. 4)

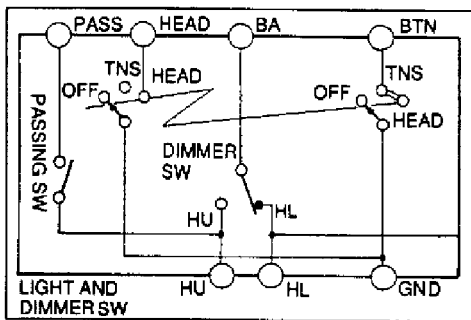
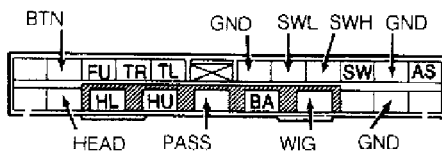
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:13PM

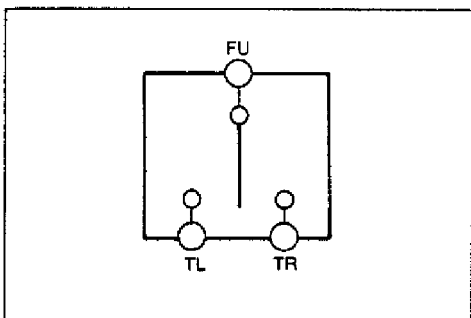
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA



LIGHTS, DIMMER & PASSING SWITCH

Terminal		GND	BTN	HEAD	BA	HL	HU	PASS
Position								
OFF								
Parking		○	○					
Headlight ON	Low			○				
	High				○		○	
Flash-to-pass							○	○

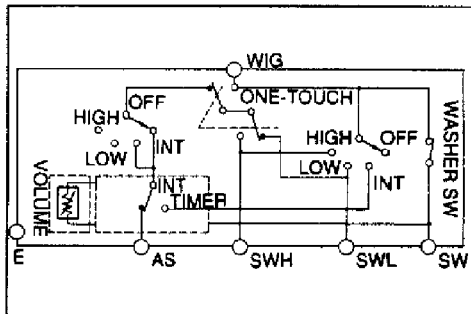
○-○ : Indicates continuity.



TURN SIGNAL SWITCH

Terminal		FU	TL	TR
Position				
Left		○	○	
OFF				
Right		○		○

○-○ : Indicates continuity.



WINDSHIELD WIPER & WASHER SWITCH

Terminal		AS	SWL	SWH	WIG	SW
Position						
Wiper switch	OFF	One-touch OFF	○			
		One-touch ON			○	
	INT		○			
	I (LOW)				○	
	II				○	
Washer ON					○	○

○-○ : Indicates continuity.

93G84281

Fig. 1: Testing Combination Switch Continuity
Courtesy of Mazda Motors Corp.

STEERING COLUMN SWITCHES

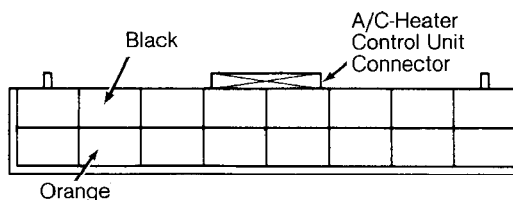
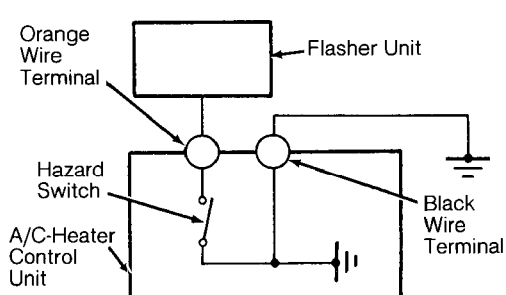
Article Text (p. 5)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

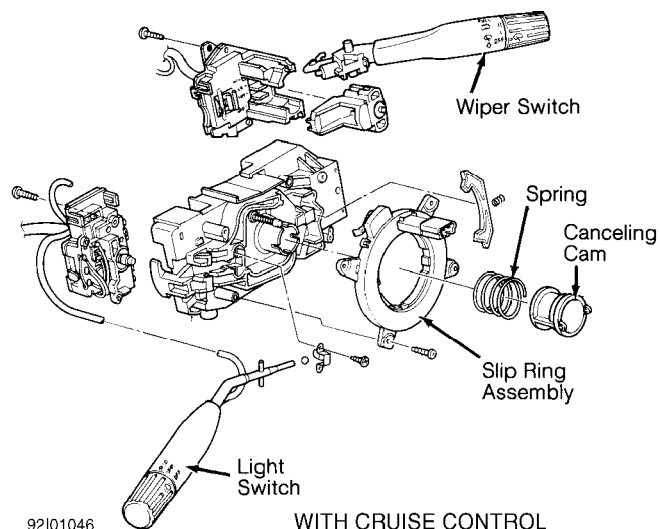
Sunday, August 19, 2001 01:13PM



NOTE: Hazard switch is on A/C-heater control panel. Check continuity between Orange and Black wire terminals of A/C-heater control unit connector. With switch in ON position, there should be continuity. With switch in OFF position, there should be no continuity. Replace hazard switch if continuity is not as specified.

93J84284

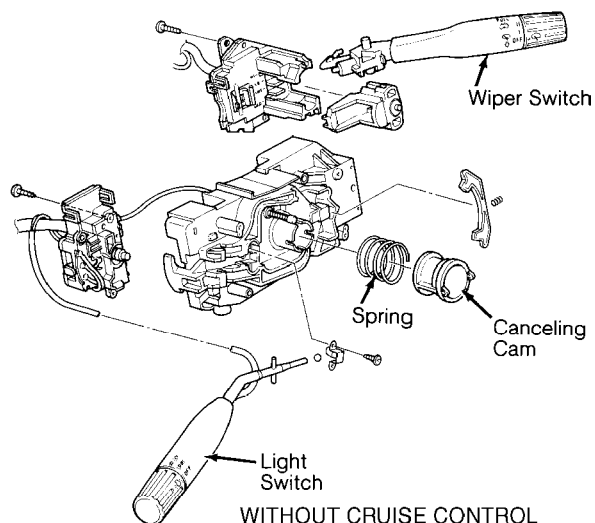
Fig. 2: Testing Hazard Switch Continuity
Courtesy of Mazda Motors Corp.



92I01046

WITH CRUISE CONTROL

Fig. 3: Removing Combination Switch
Courtesy of Mazda Motors Corp.



WITHOUT CRUISE CONTROL

END OF ARTICLE

ARTICLE BEGINNING

1993 ACCESSORIES/SAFETY EQUIPMENT
Mazda Power Sun Roof

RX7

DESCRIPTION & OPERATION

System Components

System components include sun roof motor, sun roof relay(s), limit switch(es) and sun roof switch(es). Sun roof motor is located rearward of sun roof opening. Sun roof relay(s) are located near sun roof motor. Limit switch(es), which sense position of sun roof panel, are an integral part of sun roof motor.

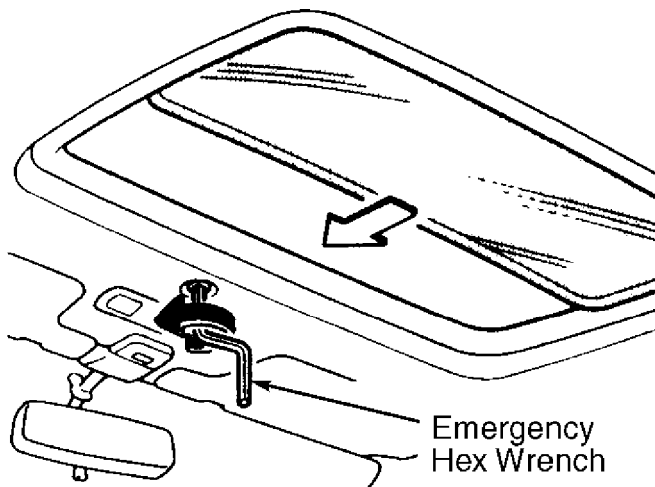
Tilt Function

To tilt sun roof upward:

- * Quickly press slide switch toward OPEN position and release

Manually Opening & Closing Sun Roof

If sun roof is inoperative, it can be opened and closed manually. To manually open and close sun roof, use emergency hex wrench. See Fig. 1. For access, remove access cap.



93A84053
Fig. 1: Manually Opening & Closing Sun Roof Panel
Courtesy of Mazda Motors Corp.

SYSTEM TESTING

SYMPTOM DIRECTORY TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Symptom

Symptom No.

SUN ROOF - POWER

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:13PM

Sun Roof Does Not Tilt Or Slide	1
Sun Roof Tilts, But Does Not Slide	2
Sun Roof Tilts Up, But Does Not Stop At Tilted Up Position	3

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

SYMPTOM NO. 1

1) Turn ignition on. Check 15-amp sun roof fuse in fuse block, near left kick panel. If fuse is blown, replace fuse (repair wiring if necessary). If fuse is okay, go to next step.

2) Check voltage at Green/Orange wire terminal of sun roof switch connector. If battery voltage is present, go to next step. If battery voltage is not present, repair Green/Orange wire between fuse and sun roof switch.

3) Disconnect sun roof switch connector. Check continuity between ground and Black wire terminal of sun roof switch connector. If there is continuity, reconnect sun roof switch connector and go to next step. If there is no continuity, repair Black wire.

NOTE: OPEN position of sun roof switch includes 2 positions: OPEN/tilt position (with sun roof closed, quickly press and release button) and OPEN/slide position (with sun roof open, hold button down).

4) Ensure battery voltage is present at the following terminals of sun roof switch connector. If battery voltage is present at both terminals, go to next step. If battery voltage is not present at both terminals, replace sun roof switch.

- * Yellow/Red wire (switch in OPEN/tilt and OPEN/slide positions)
- * Yellow/Blue wire (switch in CLOSE position).

5) Ensure battery voltage is present at the following terminals of sun roof relay connector. If battery voltage is present at both terminals, go to next step. If battery voltage is not present at both terminals, repair wiring between sun roof switch and sun roof relay.

- * Yellow/Red wire (switch in OPEN/tilt and OPEN/slide positions)
- * Yellow/Blue wire (switch in CLOSE position).

6) Ensure battery voltage is present at the following terminals of sun roof relay connector. If battery voltage is present at both terminals, go to next step. If battery voltage is not present at both terminals, replace sun roof relay.

- * Yellow/Red wire (switch in OPEN/tilt and OPEN/slide position)
- * Yellow wire (switch in CLOSE position).

SUN ROOF - POWER

Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:13PM

7) Ensure battery voltage is present at the following terminals of sun roof motor connector. If battery voltage is present at both terminals, replace sun roof motor. If battery voltage is not present at both terminals, repair wiring between sun roof relay and sun roof motor.

- * Yellow/Red wire (switch in OPEN/tilt and OPEN/slide positions)
- * Yellow wire (switch in CLOSE position).

SYMPTOM NO. 2

1) Ensure battery voltage is present at the following terminals of sun roof switch connector. If battery voltage is present at both terminals, go to next step. If battery voltage is not present at both terminals, replace sun roof switch.

- * Yellow/Red wire (switch in OPEN/tilt and OPEN/slide positions)
- * Yellow/Blue wire (switch in CLOSE position).

2) Ensure battery voltage is present at terminals of sun roof relay connector specified in previous step. If battery voltage is present at both terminals, replace sun roof relay. If battery voltage is not present at both terminals, repair wiring between sun roof switch and sun roof relay.

SYMPTOM NO. 3

1) Move sun roof to tilted up position using emergency handle. Disconnect electrical connectors at sun roof relay and sun roof motor. Check continuity of Blue/Green and Blue wires between sun roof relay and sun roof motor. If there is no continuity, repair wiring.

2) If there is continuity, check continuity between Blue/Green and Blue wire terminals of sun roof motor connector. If there is continuity, replace sun roof relay. If there is no continuity, replace sun roof motor.

COMPONENT TESTING

LIMIT SWITCH TEST

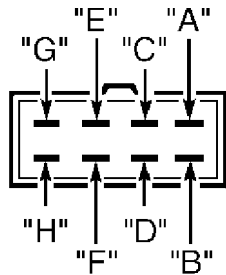
Manually move sun roof panel. See DESCRIPTION & OPERATION at beginning of article. With sun roof panel in specified position, check continuity between specified terminals of sun roof motor connector. See LIMIT SWITCH CONTINUITY TEST table. See Fig. 2. Replace sun roof motor if continuity is not as specified.

LIMIT SWITCH CONTINUITY TEST TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application & Sun Roof

Position (Wire Terminals)	Continuity
Opened (A & B)	No
Closed (A & B)	No
Tilted Up (A & B)	Yes
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	



93D84056
Fig. 2: Sun Roof Motor Connector Terminal ID
Courtesy of Mazda Motors Corp

SUN ROOF MOTOR TEST

Disconnect sun roof motor connector. Apply battery voltage across specified wire terminals of sun roof motor connector (reverse polarity to move motor in opposite direction). See SUN ROOF MOTOR TEST table. Replace sun roof motor if it does not operate.

SUN ROOF MOTOR TEST TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
Application	Wire Colors

RX7	Yellow & Yellow/Red
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

SUN ROOF RELAY TEST

A list of sun roof relay connector terminals with specified voltages follows. Leave sun roof relay connected. With ignition on, check voltage at terminals of sun roof relay connector (backprobe connector). If voltages are not as specified, check circuit. If circuit is okay, replace sun roof relay.

- * "B" (Yellow/Blue Wire) - To Sun Roof Switch

When sun roof is closing, battery voltage should be present.
Under all other conditions, no voltage should be present.

- * "F" (Yellow/Red Wire) - To Sun Roof Switch

When sun roof is tilting up or opening, battery voltage should be present. Under all other conditions, no voltage should be present.

SUN ROOF - POWER

Article Text (p. 5)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:13PM

- * "H" (Blue Wire) - To Limit Switch

Under all other conditions, no voltage should be present.

- * "I" (Yellow Wire) - To Sun Roof Motor

When sun roof is closing, battery voltage should be present.

Under all other conditions, no voltage should be present.

- * "J" (Light Green Wire) - To Limit Switch

When sun roof is tilting up, no voltage should be present.

Under all other conditions, battery voltage should be present.

SUN ROOF SWITCH TEST

Disconnect sun roof switch connector. Check continuity between specified terminals of sun roof switch connector. See SUN ROOF SWITCH CONTINUITY TEST table. See Fig. 3. Replace sun roof switch if continuity is not as specified.

SUN ROOF SWITCH CONTINUITY TEST TABLE

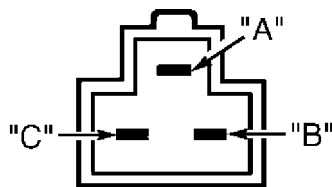
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Switch Position	Terminals
-----------------	-----------

OPEN	A & B
------------	-------

CLOSE	B & C
-------------	-------

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA



93A84061

Fig. 3: Sun Roof Switch Connector Terminal ID
Courtesy of Mazda Motors Corp.

REMOVAL & INSTALLATION

NOTE: For removal and installation, refer to Fig. 4.

SUN ROOF - POWER

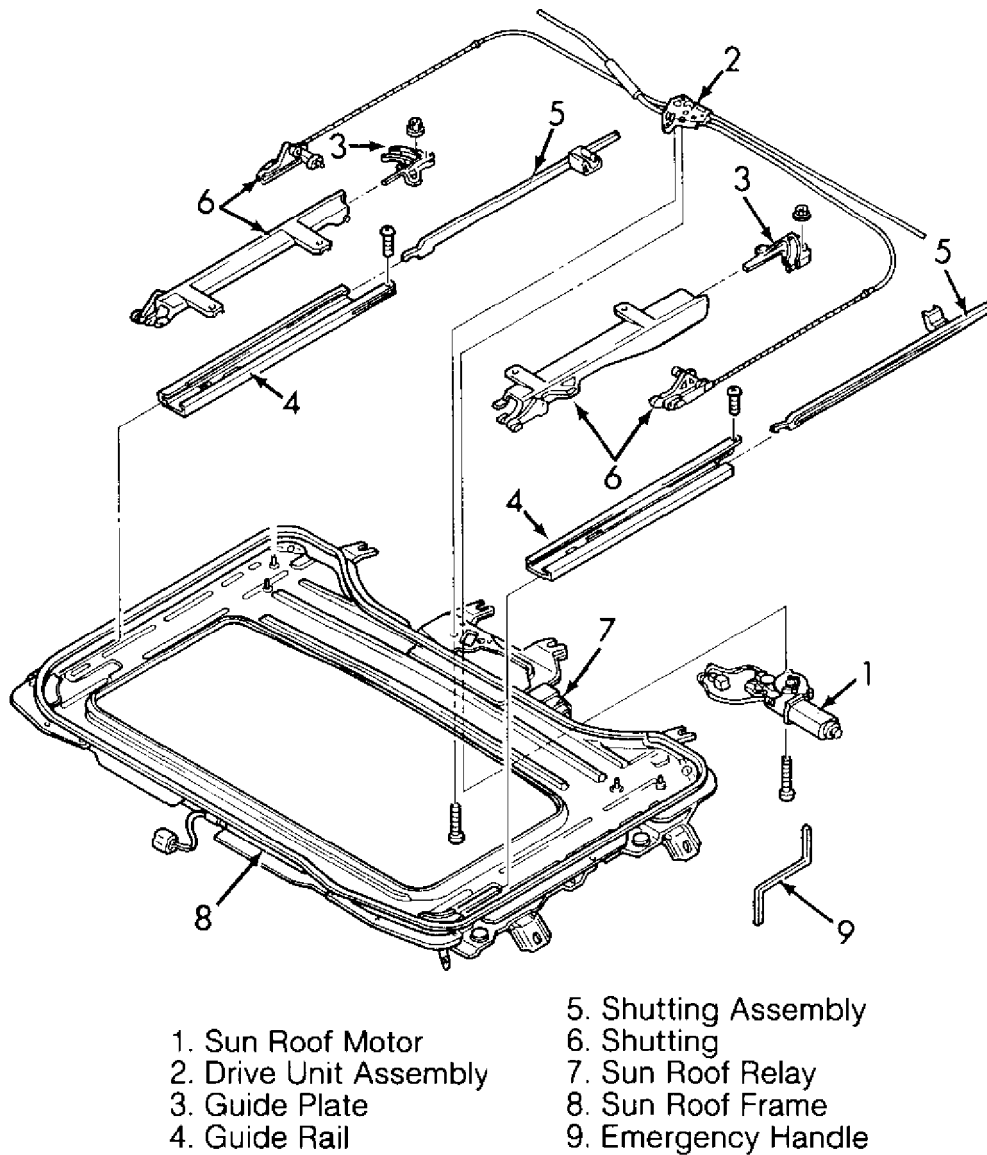
Article Text (p. 6)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:13PM



93H84068
Fig. 4: Exploded View Of Sun Roof Assembly
Courtesy of Mazda Motors Corp.

WIRING DIAGRAMS

Proceed to chassis WIRING DIAGRAMS article in WIRING DIAGRAMS section.

END OF ARTICLE

WIPER/WASHER SYSTEM
Article Text
1993 Mazda RX7
For www.iluvmyrx7.com
Copyright © 1998 Mitchell Repair Information Company, LLC
Sunday, August 19, 2001 01:14PM

ARTICLE BEGINNING

1993 ACCESSORIES/SAFETY EQUIPMENT
Mazda Wiper/Washer Systems

RX7

DESCRIPTION & OPERATION

RX7 is equipped with a 2-speed wiper motor with an optional intermittent wiper feature.

ADJUSTMENTS

FRONT WIPER ARM ADJUSTMENT

Ensure wiper motor is in park position. Position wiper arm and blade assembly so tip of blade is specified distance above front window trim. See FRONT WIPER ADJUSTMENT SPECIFICATIONS table.

FRONT WIPER ADJUSTMENT SPECIFICATIONS TABLE

Model	Driver's Side	Passenger's Side
RX7	1.0" (25 mm)	1.0" (25 mm)

TESTING

FRONT WIPER MOTOR CONTINUITY TEST

NOTE: Refer to Fig. 1 when conducting the following tests.

With wiper motor in park position, ensure continuity exists between terminals "B", "C" and "D". Continuity should not exist between terminals "A" and "E" in park position. With wiper motor not in park position, continuity should exist between terminals "A", "B", "C" and "E". Continuity should not exist between terminal "D" and any other terminals.

FRONT WIPER MOTOR LOW SPEED TEST

NOTE: Refer to Fig. 1 when conducting the following tests.

Connect battery voltage to wiper motor terminal "C". Connect ground to wiper motor housing. Motor should run at low speed.

FRONT WIPER MOTOR HIGH SPEED TEST

NOTE: Refer to Fig. 1 when conducting the following tests.

WIPER/WASHER SYSTEM

Article Text (p. 2)

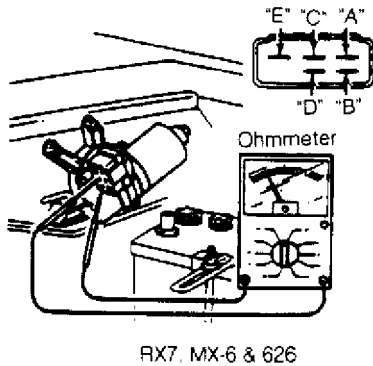
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:14PM

Connect battery voltage to wiper motor terminal "A". Connect ground to wiper motor housing. Motor should run at high speed.



93E84545

Fig. 1: Wiper Motor Terminal ID
Courtesy of Mazda Motors Corp.

FRONT WIPER RELAY

NOTE: Intermittent wiper relay is incorporated into wiper switch.
See COMBINATION SWITCH in STEERING COLUMN SWITCHES article in the ACCESSORIES/SAFETY EQUIPMENT section.

FRONT WIPER SWITCH TEST

NOTE: See COMBINATION SWITCH in STEERING COLUMN SWITCHES article in the ACCESSORIES/SAFETY EQUIPMENT section.

REMOVAL & INSTALLATION

NOTE: On RX7 models with anti-theft radio system, obtain code number from customer and deactivate audio anti-theft function before disconnecting battery.

FRONT WIPER MOTOR

CAUTION: DO NOT remove wiper motor arm unless necessary. If wiper motor arm removal is necessary, mark wiper arm position on adapter plate or motor housing for reassembly.

Removal & Installation

1) Wiper motor is located on engine compartment firewall. Disconnect negative battery cable. Remove wiper arms and cowl grille (if necessary). Remove wiper motor cover (if necessary).

2) Remove electrical connector. Remove wiper motor or wiper motor bracket attaching bolts. Move motor and adapter plate out slightly. Separate wiper arm/link pivot joint and remove motor. To install, reverse removal procedure.

WIPER/WASHER SYSTEM

Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:14PM

FRONT WIPER SWITCH

NOTE: See COMBINATION SWITCH in STEERING COLUMN SWITCHES article in the ACCESSORIES/SAFETY EQUIPMENT section.

REAR WIPER MOTOR

Removal & Installation

Disconnect negative battery cable. Remove wiper arm and blade assembly. From underside of hatch, remove upper, side and lower hatch trim (if necessary). Carefully remove hatch screen. Disconnect rear wiper motor electrical connector. Remove wiper motor. To install, reverse removal procedure.

WIRING DIAGRAMS

Refer to WIRING DIAGRAMS article in WIRING DIAGRAMS section.

END OF ARTICLE

ELECTRICAL COMPONENT LOCATOR

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:15PM

ARTICLE BEGINNING

1993 ELECTRICAL COMPONENT LOCATION

Mazda Electrical Components

RX7

SAFETY PRECAUTION

WARNING: When working on vehicles equipped with Supplemental Restraint System (SRS), never apply electrical voltage to the system. This could cause the SRS (air bag) to be deployed. For complete Air Bag Safety precautions refer to AIR BAG RESTRAINT SYSTEM article in ACCESSORIES/SAFETY EQUIPMENT Section.

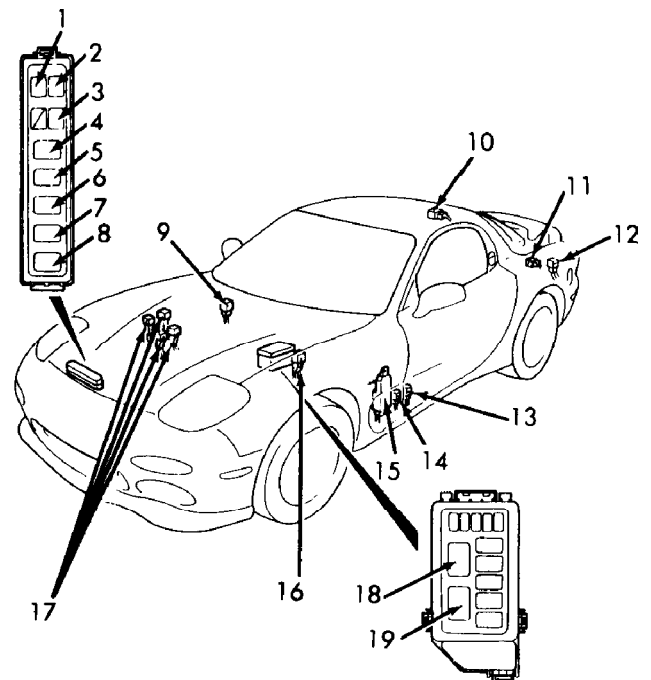
BUZZERS, RELAYS & TIMERS

Component	Component Location
ABS Relays	On top of ABS hydraulic unit, on right rear of engine compartment.

A/C Relay

1. Air Pump Relay
2. Foglight Relay
3. Horn Relay
4. Radio Relay
5. TNS Relay
6. Retractable Headlight Relay
7. A/C Relay
8. Fuel Pump Relay
9. Blower Motor Relay
10. Sun Roof Relay
11. Headlight Cleaner Motor & Relay
12. Rear Window Defroster Relay
13. Door Lock Timer
14. Stater Cut Relay
15. Hazard Flasher Relay
16. Headlight Relay
17. Cooling Fan Relays (4)
18. Circuit Opening Relay
19. EGI Main Relay

94I31425



Graphic No. 1

On relay block, in right front of engine compartment.

ELECTRICAL COMPONENT LOCATOR

Article Text (p. 2)

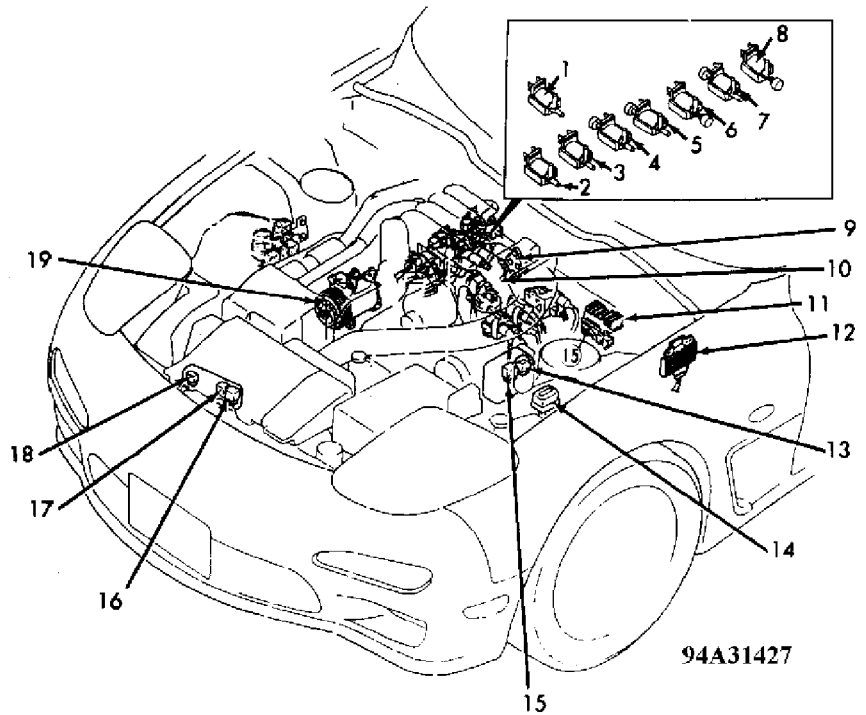
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:15PM

1. Charge Relief Solenoid
2. Double Throttle Control Solenoid
3. Charge Control Solenoid
4. Turbo Pre-Control Solenoid
5. EGR Solenoid
6. Relief Solenoid
7. Switching Solenoid
8. Fuel Pressure Regulator Control Solenoid
9. Idle Speed Control Valve
10. AWS Solenoid
11. Fuel Injector Resistor
12. Ignitor
13. Main Relay
14. Data Link Connector (DLC)
15. Circuit Opening Relay
16. Fuel Pump Relay
17. A/C Relay
18. Air Pump Relay
19. Air Pump
20. Cooling Fan Relays (4)



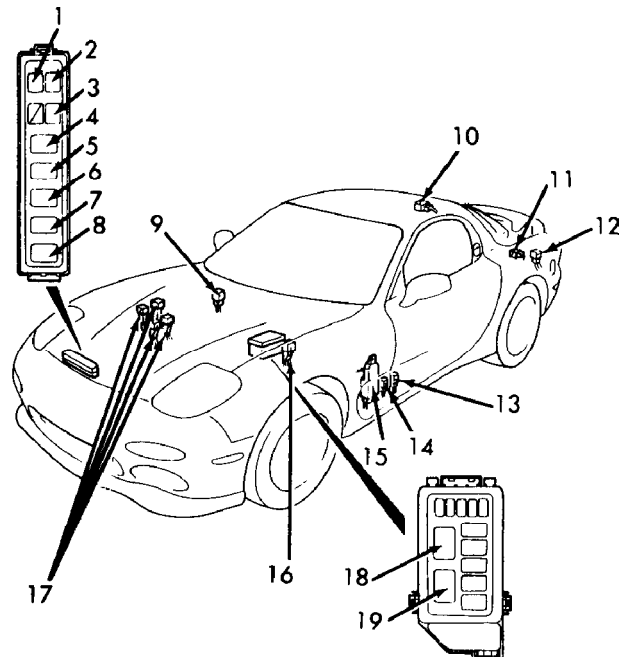
Engine Compartment View

On relay block, in right front of engine compartment.

Air Pump Relay

1. Air Pump Relay
2. Foglight Relay
3. Horn Relay
4. Radio Relay
5. TNS Relay
6. Retractable Headlight Relay
7. A/C Relay
8. Fuel Pump Relay
9. Blower Motor Relay
10. Sun Roof Relay
11. Headlight Cleaner Motor & Relay
12. Rear Window Defroster Relay
13. Door Lock Timer
14. Stater Cut Relay
15. Hazard Flasher Relay
16. Headlight Relay
17. Cooling Fan Relays (4)
18. Circuit Opening Relay
19. EGI Main Relay

94I31425



Graphic No. 1

On relay block, in right front of engine compartment.

ELECTRICAL COMPONENT LOCATOR

Article Text (p. 3)

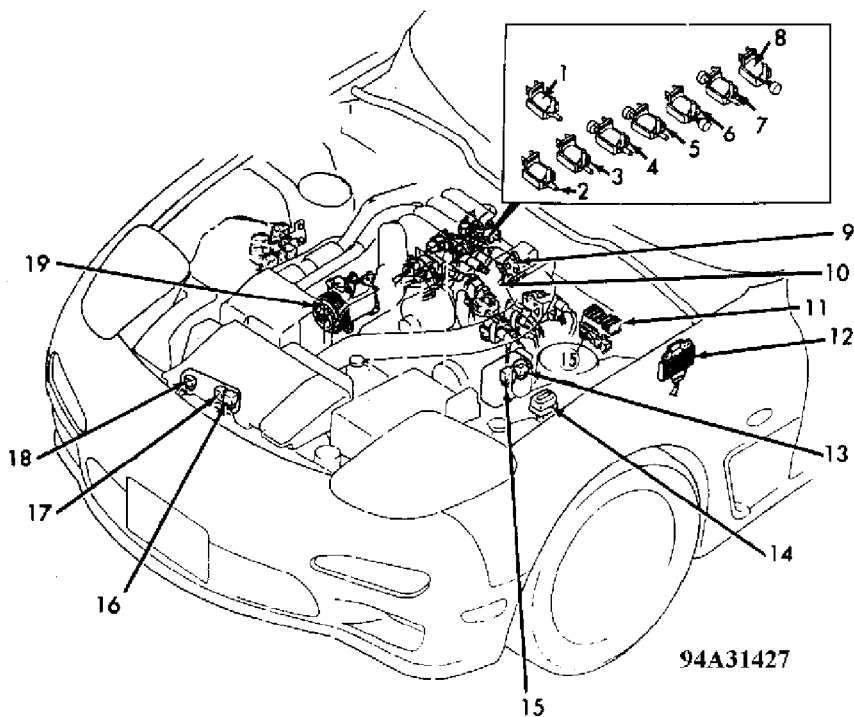
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:15PM

1. Charge Relief Solenoid
2. Double Throttle Control Solenoid
3. Charge Control Solenoid
4. Turbo Pre-Control Solenoid
5. EGR Solenoid
6. Relief Solenoid
7. Switching Solenoid
8. Fuel Pressure Regulator Control Solenoid
9. Idle Speed Control Valve
10. AWS Solenoid
11. Fuel Injector Resistor
12. Ignitor
13. Main Relay
14. Data Link Connector (DLC)
15. Circuit Opening Relay
16. Fuel Pump Relay
17. A/C Relay
18. Air Pump Relay
19. Air Pump
20. Cooling Fan Relays (4)

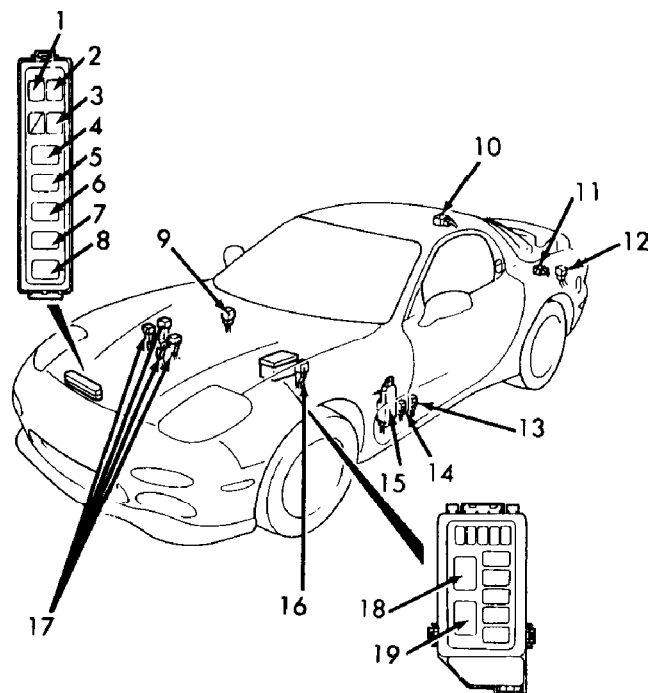


Engine Compartment View

On relay block, in right front of engine compartment.

1. Air Pump Relay
2. Foglight Relay
3. Horn Relay
4. Radio Relay
5. TNS Relay
6. Retractable Headlight Relay
7. A/C Relay
8. Fuel Pump Relay
9. Blower Motor Relay
10. Sun Roof Relay
11. Headlight Cleaner Motor & Relay
12. Rear Window Defroster Relay
13. Door Lock Timer
14. Stater Cut Relay
15. Hazard Flasher Relay
16. Headlight Relay
17. Cooling Fan Relays (4)
18. Circuit Opening Relay
19. EGI Main Relay

94I31425



Blower Motor Relay

Behind center console, on A/C-heater housing.

ELECTRICAL COMPONENT LOCATOR

Article Text (p. 4)

1993 Mazda RX7

For www.iluvmyrx7.com

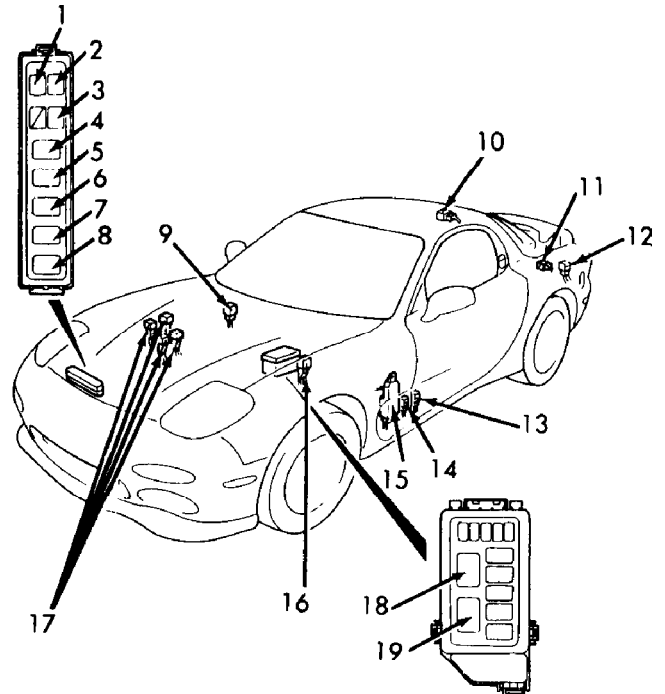
Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:15PM

Circuit Opening Relay

1. Air Pump Relay
2. Foglight Relay
3. Horn Relay
4. Radio Relay
5. TNS Relay
6. Retractable Headlight Relay
7. A/C Relay
8. Fuel Pump Relay
9. Blower Motor Relay
10. Sun Roof Relay
11. Headlight Cleaner Motor & Relay
12. Rear Window Defroster Relay
13. Door Lock Timer
14. Stater Cut Relay
15. Hazard Flasher Relay
16. Headlight Relay
17. Cooling Fan Relays (4)
18. Circuit Opening Relay
19. EGI Main Relay

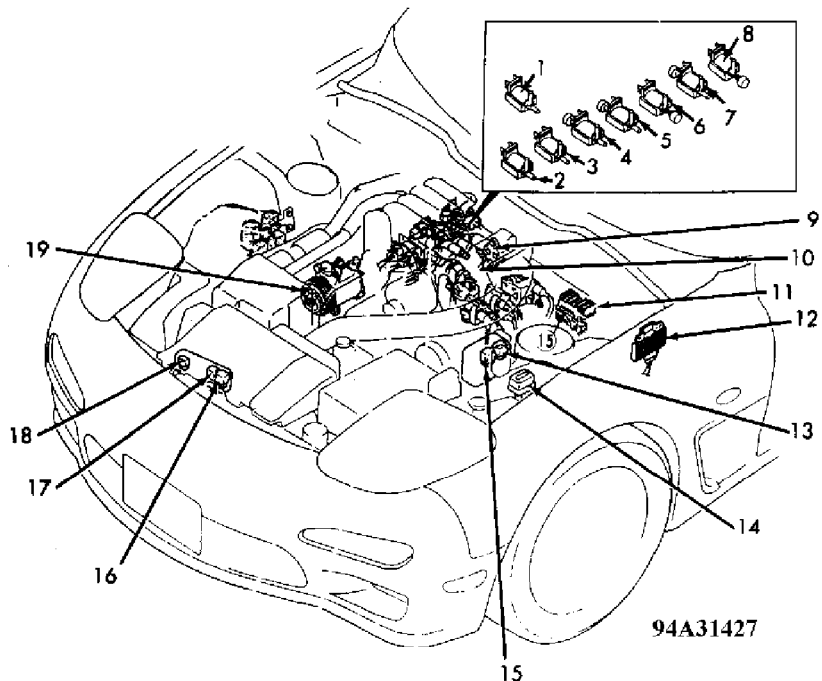
94I31425



Graphic No. 1

On relay block, in right front of engine compartment.

1. Charge Relief Solenoid
2. Double Throttle Control Solenoid
3. Charge Control Solenoid
4. Turbo Pre-Control Solenoid
5. EGR Solenoid
6. Relief Solenoid
7. Switching Solenoid
8. Fuel Pressure Regulator Control Solenoid
9. Idle Speed Control Valve
10. AWS Solenoid
11. Fuel Injector Resistor
12. Ignitor
13. Main Relay
14. Data Link Connector (DLC)
15. Circuit Opening Relay
16. Fuel Pump Relay
17. A/C Relay
18. Air Pump Relay
19. Air Pump
20. Cooling Fan Relays (4)



94A31427

Engine Compartment View

On relay block, in right front of engine compartment.

ELECTRICAL COMPONENT LOCATOR

Article Text (p. 5)

1993 Mazda RX7

For www.iluvmyrx7.com

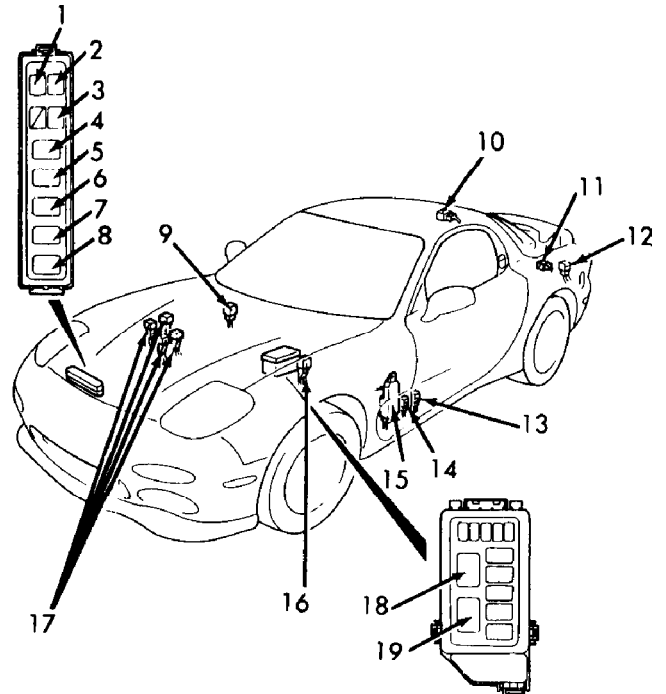
Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:15PM

Cooling Fan Relays (4)

1. Air Pump Relay
2. Foglight Relay
3. Horn Relay
4. Radio Relay
5. TNS Relay
6. Retractable Headlight Relay
7. A/C Relay
8. Fuel Pump Relay
9. Blower Motor Relay
10. Sun Roof Relay
11. Headlight Cleaner Motor & Relay
12. Rear Window Defroster Relay
13. Door Lock Timer
14. Stater Cut Relay
15. Hazard Flasher Relay
16. Headlight Relay
17. Cooling Fan Relays (4)
18. Circuit Opening Relay
19. EGI Main Relay

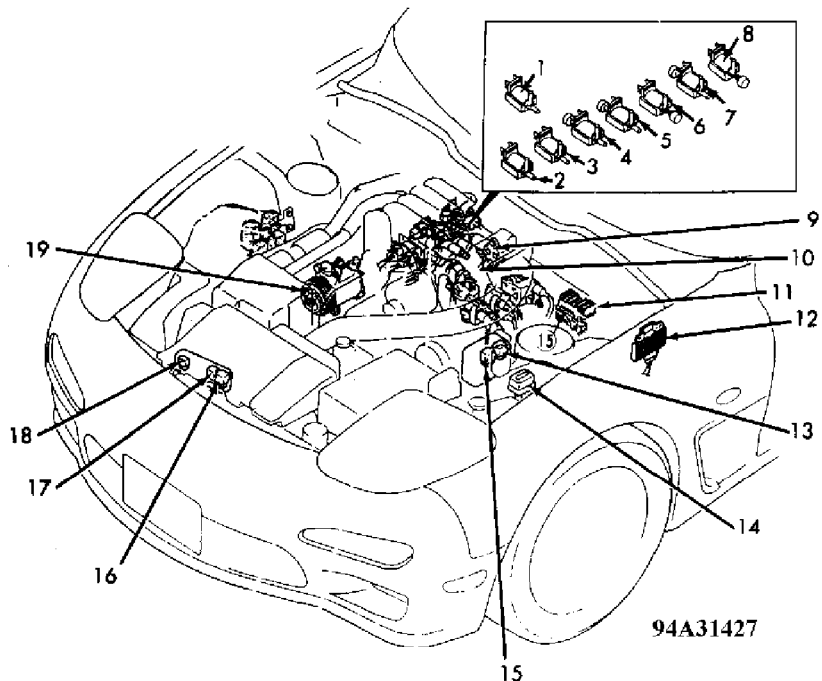
94I31425



Graphic No. 1

On bracket, on right strut tower.

1. Charge Relief Solenoid
2. Double Throttle Control Solenoid
3. Charge Control Solenoid
4. Turbo Pre-Control Solenoid
5. EGR Solenoid
6. Relief Solenoid
7. Switching Solenoid
8. Fuel Pressure Regulator Control Solenoid
9. Idle Speed Control Valve
10. AWS Solenoid
11. Fuel Injector Resistor
12. Ignitor
13. Main Relay
14. Data Link Connector (DLC)
15. Circuit Opening Relay
16. Fuel Pump Relay
17. A/C Relay
18. Air Pump Relay
19. Air Pump
20. Cooling Fan Relays (4)



94A31427

Engine Compartment View

On bracket, on right strut tower.

ELECTRICAL COMPONENT LOCATOR

Article Text (p. 6)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

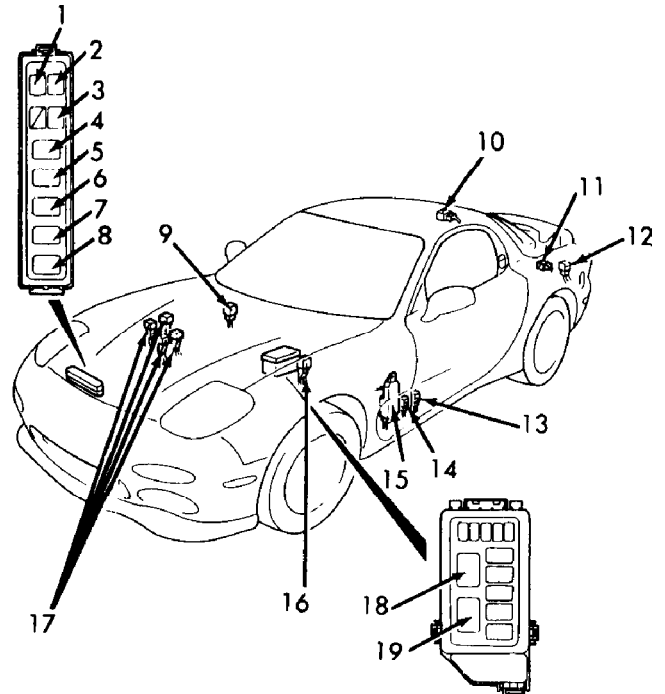
Sunday, August 19, 2001 01:15PM

1. Air Pump Relay
2. Foglight Relay
3. Horn Relay
4. Radio Relay
5. TNS Relay
6. Retractable Headlight Relay
7. A/C Relay
8. Fuel Pump Relay
9. Blower Motor Relay
10. Sun Roof Relay
11. Headlight Cleaner Motor & Relay
12. Rear Window Defroster Relay
13. Door Lock Timer
14. Stater Cut Relay
15. Hazard Flasher Relay
16. Headlight Relay
17. Cooling Fan Relays (4)
18. Circuit Opening Relay
19. EGI Main Relay

94I31425

Door Lock Timer

Behind left kickpanel.

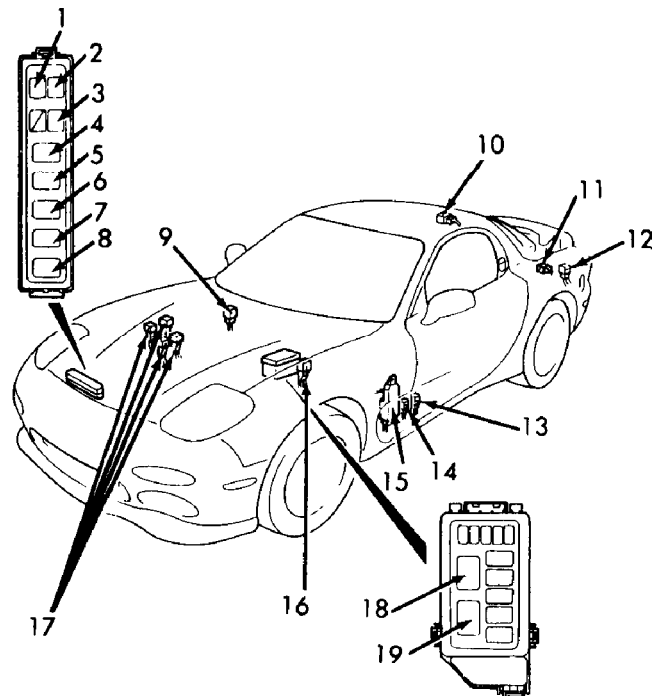


1. Air Pump Relay
2. Foglight Relay
3. Horn Relay
4. Radio Relay
5. TNS Relay
6. Retractable Headlight Relay
7. A/C Relay
8. Fuel Pump Relay
9. Blower Motor Relay
10. Sun Roof Relay
11. Headlight Cleaner Motor & Relay
12. Rear Window Defroster Relay
13. Door Lock Timer
14. Stater Cut Relay
15. Hazard Flasher Relay
16. Headlight Relay
17. Cooling Fan Relays (4)
18. Circuit Opening Relay
19. EGI Main Relay

94I31425

EGI Main Relay

On fuse/relay block, in engine compartment.



ELECTRICAL COMPONENT LOCATOR

Article Text (p. 7)

1993 Mazda RX7

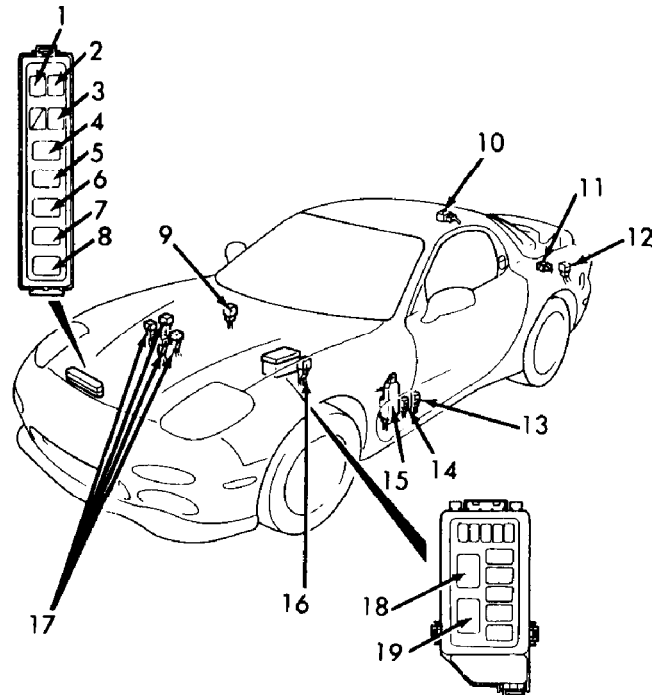
For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:15PM

1. Air Pump Relay
2. Foglight Relay
3. Horn Relay
4. Radio Relay
5. TNS Relay
6. Retractable Headlight Relay
7. A/C Relay
8. Fuel Pump Relay
9. Blower Motor Relay
10. Sun Roof Relay
11. Headlight Cleaner Motor & Relay
12. Rear Window Defroster Relay
13. Door Lock Timer
14. Stater Cut Relay
15. Hazard Flasher Relay
16. Headlight Relay
17. Cooling Fan Relays (4)
18. Circuit Opening Relay
19. EGI Main Relay

94I31425



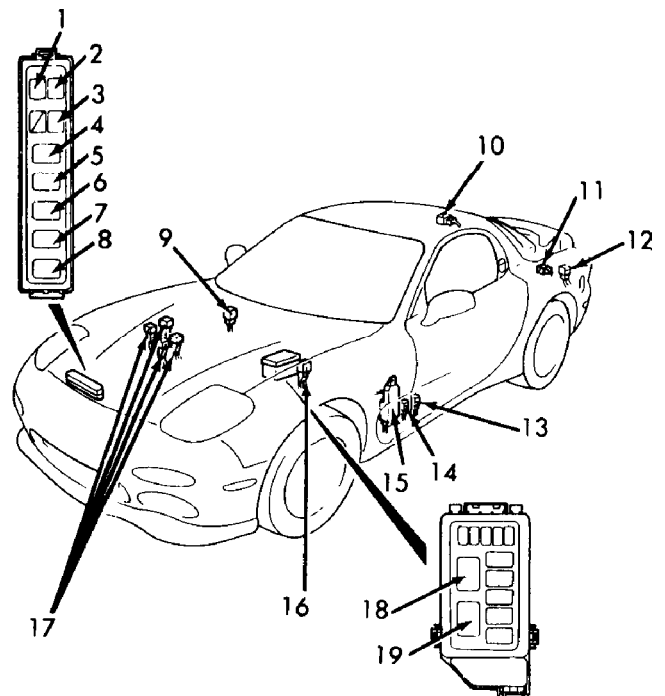
Foglight Relay

On relay block, in right front of engine compartment.

Fuel Pump Relay

1. Air Pump Relay
2. Foglight Relay
3. Horn Relay
4. Radio Relay
5. TNS Relay
6. Retractable Headlight Relay
7. A/C Relay
8. Fuel Pump Relay
9. Blower Motor Relay
10. Sun Roof Relay
11. Headlight Cleaner Motor & Relay
12. Rear Window Defroster Relay
13. Door Lock Timer
14. Stater Cut Relay
15. Hazard Flasher Relay
16. Headlight Relay
17. Cooling Fan Relays (4)
18. Circuit Opening Relay
19. EGI Main Relay

94I31425



Graphic No. 1

On relay block, in right front of engine compartment.

ELECTRICAL COMPONENT LOCATOR

Article Text (p. 8)

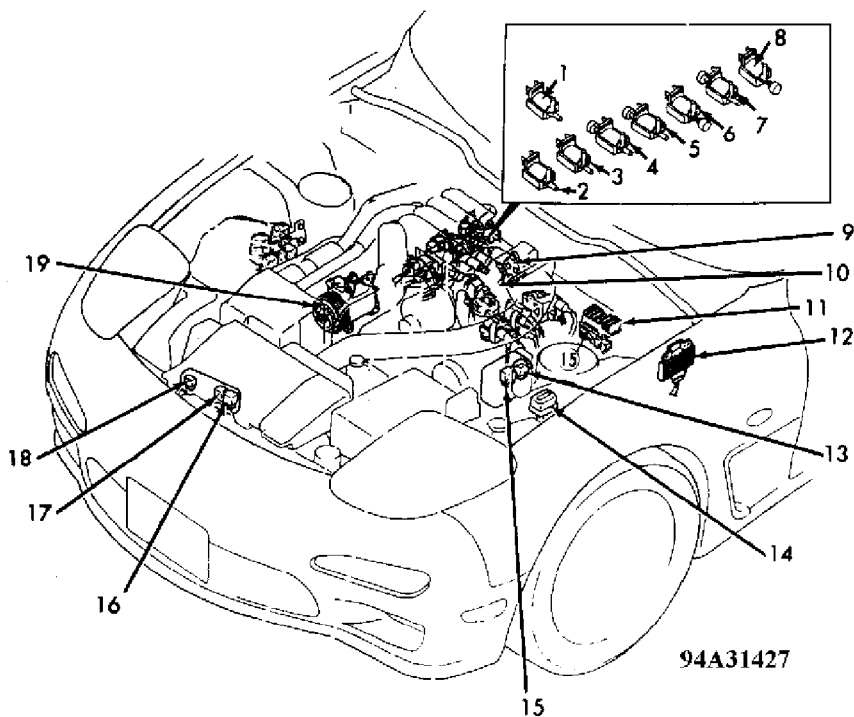
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:15PM

1. Charge Relief Solenoid
2. Double Throttle Control Solenoid
3. Charge Control Solenoid
4. Turbo Pre-Control Solenoid
5. EGR Solenoid
6. Relief Solenoid
7. Switching Solenoid
8. Fuel Pressure Regulator Control Solenoid
9. Idle Speed Control Valve
10. AWS Solenoid
11. Fuel Injector Resistor
12. Ignitor
13. Main Relay
14. Data Link Connector (DLC)
15. Circuit Opening Relay
16. Fuel Pump Relay
17. A/C Relay
18. Air Pump Relay
19. Air Pump
20. Cooling Fan Relays (4)

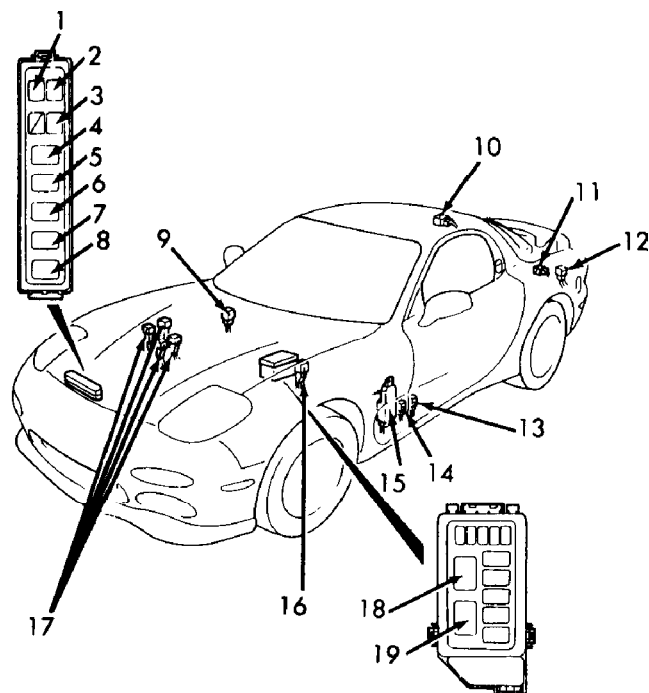


Engine Compartment View

On relay block, in right front of engine compartment.

1. Air Pump Relay
2. Foglight Relay
3. Horn Relay
4. Radio Relay
5. TNS Relay
6. Retractable Headlight Relay
7. A/C Relay
8. Fuel Pump Relay
9. Blower Motor Relay
10. Sun Roof Relay
11. Headlight Cleaner Motor & Relay
12. Rear Window Defroster Relay
13. Door Lock Timer
14. Stater Cut Relay
15. Hazard Flasher Relay
16. Headlight Relay
17. Cooling Fan Relays (4)
18. Circuit Opening Relay
19. EGI Main Relay

94I31425



Hazard Flasher Relay

Behind left kick panel.

ELECTRICAL COMPONENT LOCATOR

Article Text (p. 9)

1993 Mazda RX7

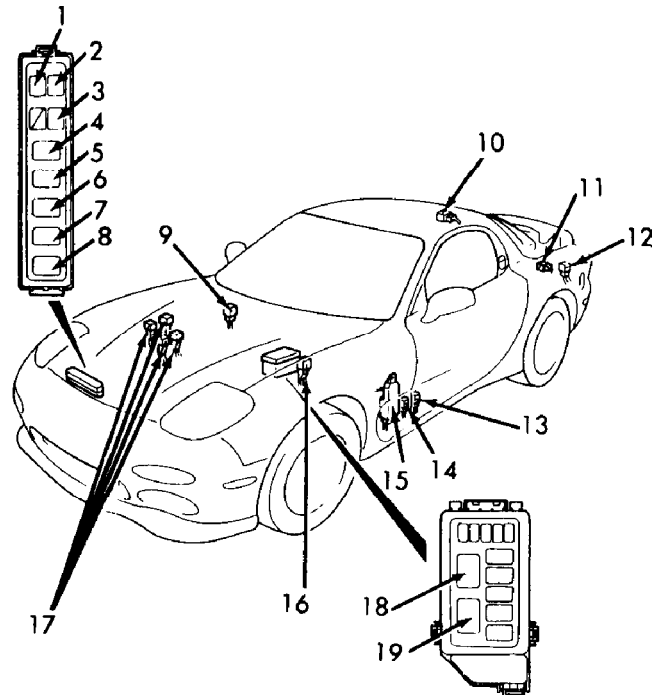
For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:15PM

1. Air Pump Relay
2. Foglight Relay
3. Horn Relay
4. Radio Relay
5. TNS Relay
6. Retractable Headlight Relay
7. A/C Relay
8. Fuel Pump Relay
9. Blower Motor Relay
10. Sun Roof Relay
11. Headlight Cleaner Motor & Relay
12. Rear Window Defroster Relay
13. Door Lock Timer
14. Stater Cut Relay
15. Hazard Flasher Relay
16. Headlight Relay
17. Cooling Fan Relays (4)
18. Circuit Opening Relay
19. EGI Main Relay

94I31425

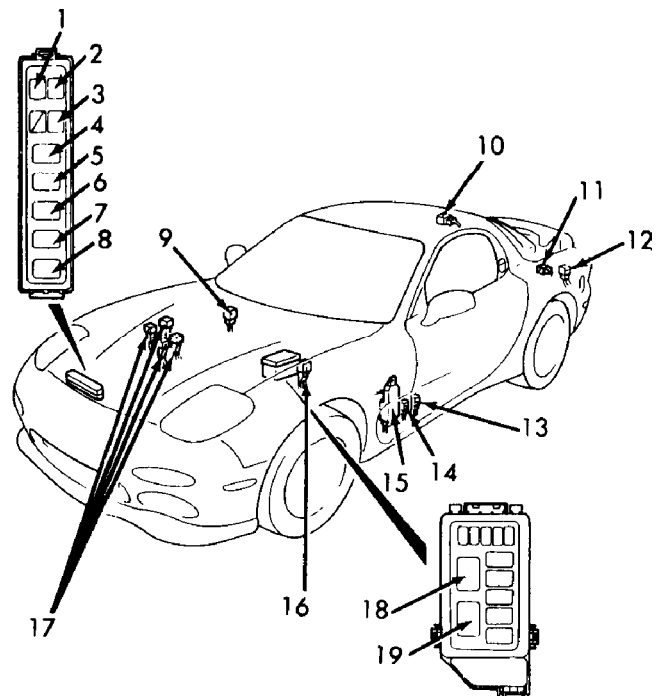


Headlight Relay

On side of fuse/relay block, in left front of engine compartment.

1. Air Pump Relay
2. Foglight Relay
3. Horn Relay
4. Radio Relay
5. TNS Relay
6. Retractable Headlight Relay
7. A/C Relay
8. Fuel Pump Relay
9. Blower Motor Relay
10. Sun Roof Relay
11. Headlight Cleaner Motor & Relay
12. Rear Window Defroster Relay
13. Door Lock Timer
14. Stater Cut Relay
15. Hazard Flasher Relay
16. Headlight Relay
17. Cooling Fan Relays (4)
18. Circuit Opening Relay
19. EGI Main Relay

94I31425



Headlight Cleaner Relay

On left rear of luggage compartment, behind trim panel.

Horn Relay

On relay block, in right front

ELECTRICAL COMPONENT LOCATOR

Article Text (p. 10)

1993 Mazda RX7

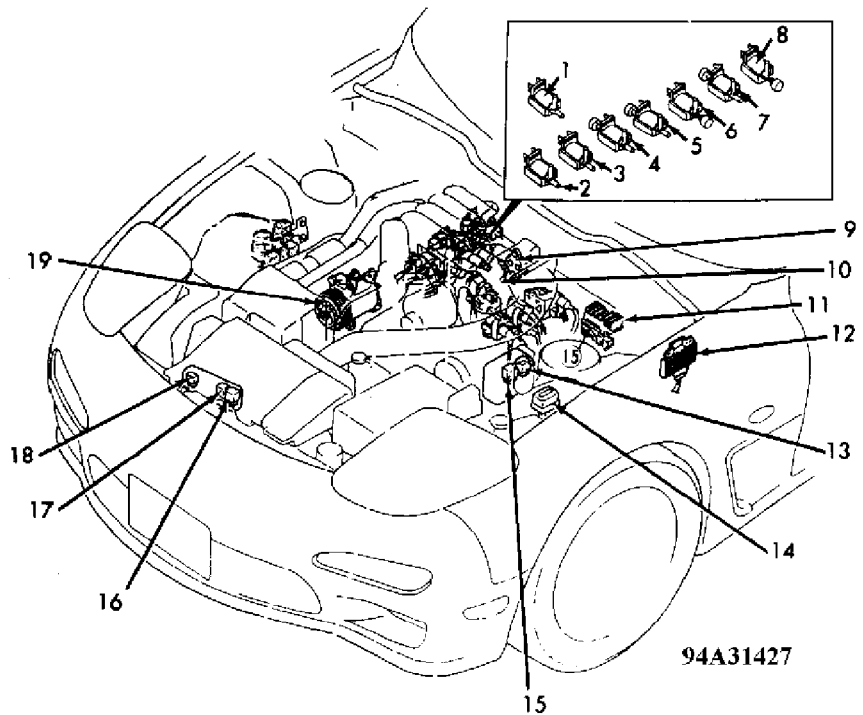
For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:15PM

of engine compartment.

1. Charge Relief Solenoid
2. Double Throttle Control Solenoid
3. Charge Control Solenoid
4. Turbo Pre-Control Solenoid
5. EGR Solenoid
6. Relief Solenoid
7. Switching Solenoid
8. Fuel Pressure Regulator Control Solenoid
9. Idle Speed Control Valve
10. AWS Solenoid
11. Fuel Injector Resistor
12. Ignitor
13. Main Relay
14. Data Link Connector (DLC)
15. Circuit Opening Relay
16. Fuel Pump Relay
17. A/C Relay
18. Air Pump Relay
19. Air Pump
20. Cooling Fan Relays (4)

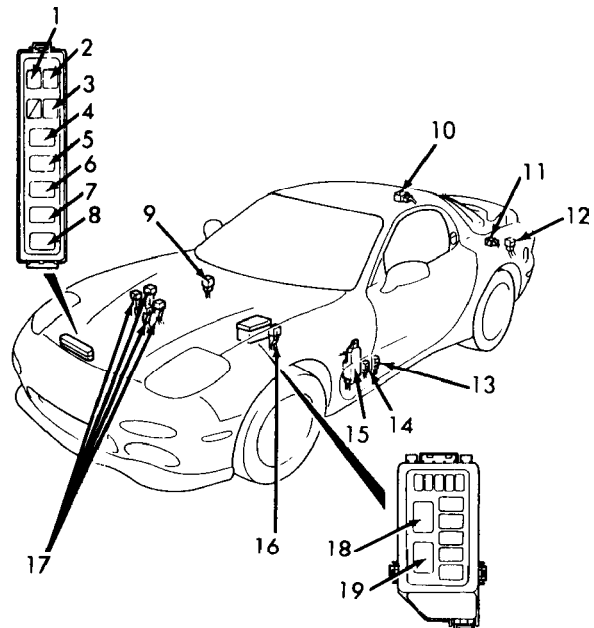


Main Relay

On fuse/relay block, on right front of engine compartment.

1. Air Pump Relay
2. Foglight Relay
3. Horn Relay
4. Radio Relay
5. TNS Relay
6. Retractable Headlight Relay
7. A/C Relay
8. Fuel Pump Relay
9. Blower Motor Relay
10. Sun Roof Relay
11. Headlight Cleaner Motor & Relay
12. Rear Window Defroster Relay
13. Door Lock Timer
14. Stater Cut Relay
15. Hazard Flasher Relay
16. Headlight Relay
17. Cooling Fan Relays (4)
18. Circuit Opening Relay
19. EGI Main Relay

94I31425



Radio Relay

On relay block, in right front of engine compartment.

ELECTRICAL COMPONENT LOCATOR

Article Text (p. 11)

1993 Mazda RX7

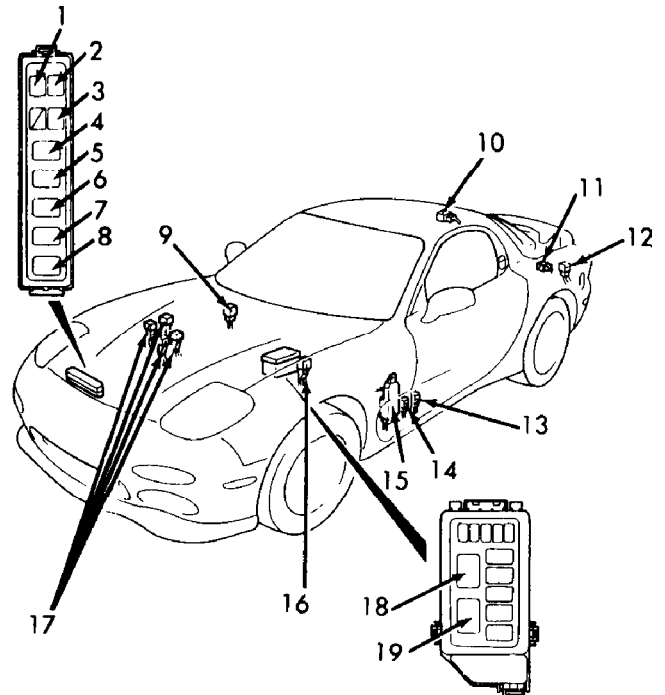
For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:15PM

1. Air Pump Relay
2. Foglight Relay
3. Horn Relay
4. Radio Relay
5. TNS Relay
6. Retractable Headlight Relay
7. A/C Relay
8. Fuel Pump Relay
9. Blower Motor Relay
10. Sun Roof Relay
11. Headlight Cleaner Motor & Relay
12. Rear Window Defroster Relay
13. Door Lock Timer
14. Stater Cut Relay
15. Hazard Flasher Relay
16. Headlight Relay
17. Cooling Fan Relays (4)
18. Circuit Opening Relay
19. EGI Main Relay

94I31425

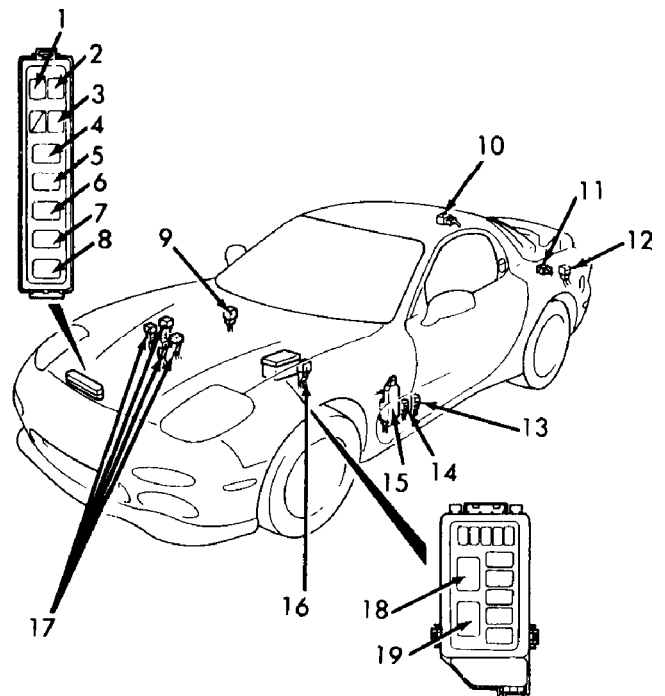


Rear Window Defroster Relay

On left side of luggage compartment, behind trim panel.

1. Air Pump Relay
2. Foglight Relay
3. Horn Relay
4. Radio Relay
5. TNS Relay
6. Retractable Headlight Relay
7. A/C Relay
8. Fuel Pump Relay
9. Blower Motor Relay
10. Sun Roof Relay
11. Headlight Cleaner Motor & Relay
12. Rear Window Defroster Relay
13. Door Lock Timer
14. Stater Cut Relay
15. Hazard Flasher Relay
16. Headlight Relay
17. Cooling Fan Relays (4)
18. Circuit Opening Relay
19. EGI Main Relay

94I31425



Retractable Headlight Relay

On relay block, in right front of engine compartment.

ELECTRICAL COMPONENT LOCATOR

Article Text (p. 12)

1993 Mazda RX7

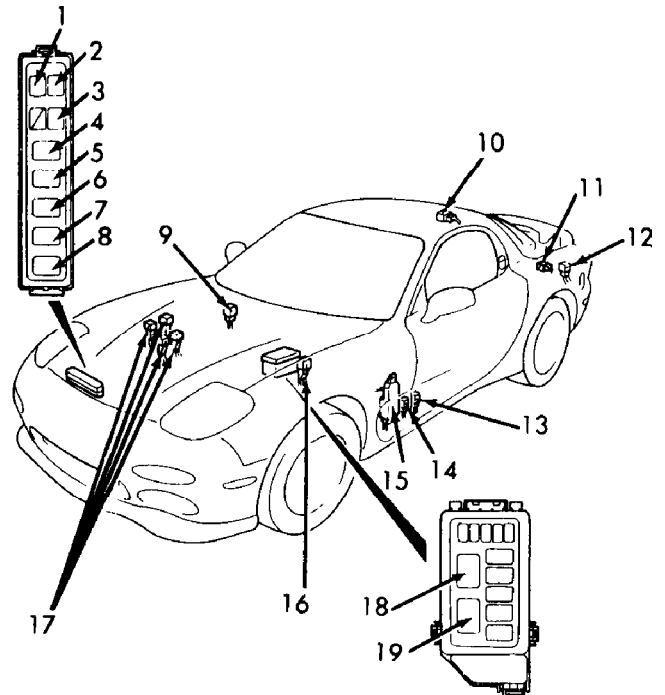
For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:15PM

1. Air Pump Relay
2. Foglight Relay
3. Horn Relay
4. Radio Relay
5. TNS Relay
6. Retractable Headlight Relay
7. A/C Relay
8. Fuel Pump Relay
9. Blower Motor Relay
10. Sun Roof Relay
11. Headlight Cleaner Motor & Relay
12. Rear Window Defroster Relay
13. Door Lock Timer
14. Starter Cut Relay
15. Hazard Flasher Relay
16. Headlight Relay
17. Cooling Fan Relays (4)
18. Circuit Opening Relay
19. EGI Main Relay

94I31425

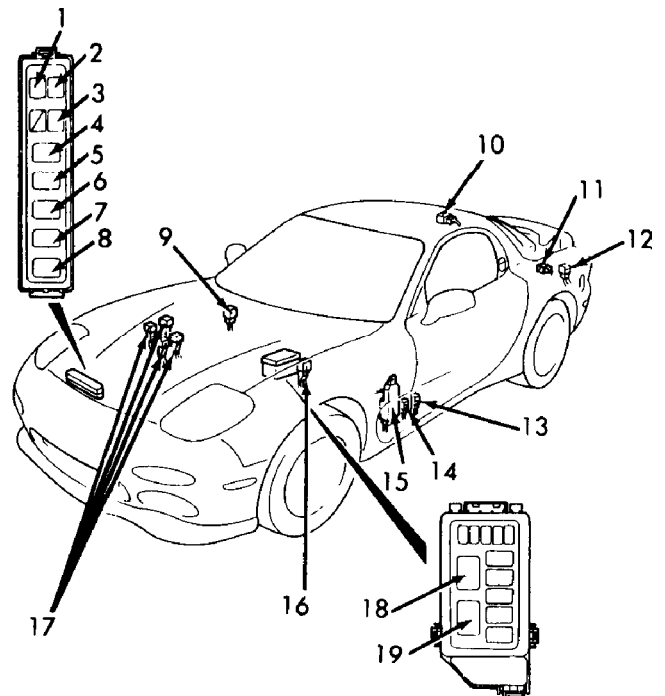


Starter Cut Relay

Behind left kick panel.

1. Air Pump Relay
2. Foglight Relay
3. Horn Relay
4. Radio Relay
5. TNS Relay
6. Retractable Headlight Relay
7. A/C Relay
8. Fuel Pump Relay
9. Blower Motor Relay
10. Sun Roof Relay
11. Headlight Cleaner Motor & Relay
12. Rear Window Defroster Relay
13. Door Lock Timer
14. Starter Cut Relay
15. Hazard Flasher Relay
16. Headlight Relay
17. Cooling Fan Relays (4)
18. Circuit Opening Relay
19. EGI Main Relay

94I31425



Sun Roof Relay

On rear of sun roof opening,
under headliner.

ELECTRICAL COMPONENT LOCATOR

Article Text (p. 13)

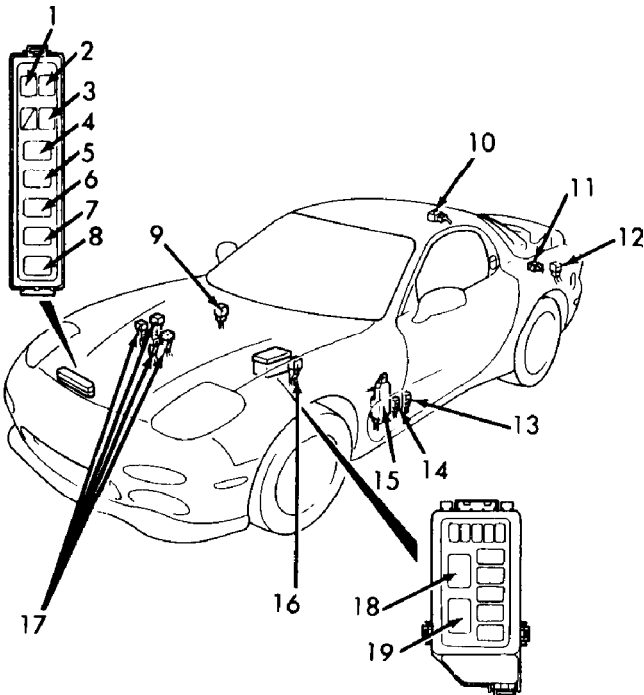
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Sunday, August 19, 2001 01:15PM

- 1. Air Pump Relay
- 2. Foglight Relay
- 3. Horn Relay
- 4. Radio Relay
- 5. TNS Relay
- 6. Retractable Headlight Relay
- 7. A/C Relay
- 8. Fuel Pump Relay
- 9. Blower Motor Relay
- 10. Sun Roof Relay
- 11. Headlight Cleaner Motor & Relay
- 12. Rear Window Defroster Relay
- 13. Door Lock Timer
- 14. Stater Cut Relay
- 15. Hazard Flasher Relay
- 16. Headlight Relay
- 17. Cooling Fan Relays (4)
- 18. Circuit Opening Relay
- 19. EGI Main Relay

94I31425



TNS Relay

On relay block, in right front of engine compartment.

CIRCUIT PROTECTION DEVICES

Component	Component Location
Blower Motor Fuse	On blower motor housing.
Fuse Block	Behind left side of dash.
Fuse/Relay Block	On left front inner fender panel, near battery.
Relay Block	On right front of engine compartment.

CONTROL UNITS

Component	Component Location
ABS Control Unit	On left side of luggage compartment, behind trim panel.
Central Processing Unit No. 1	Behind fuse block, under left side of dash.

ELECTRICAL COMPONENT LOCATOR

Article Text (p. 14)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:15PM

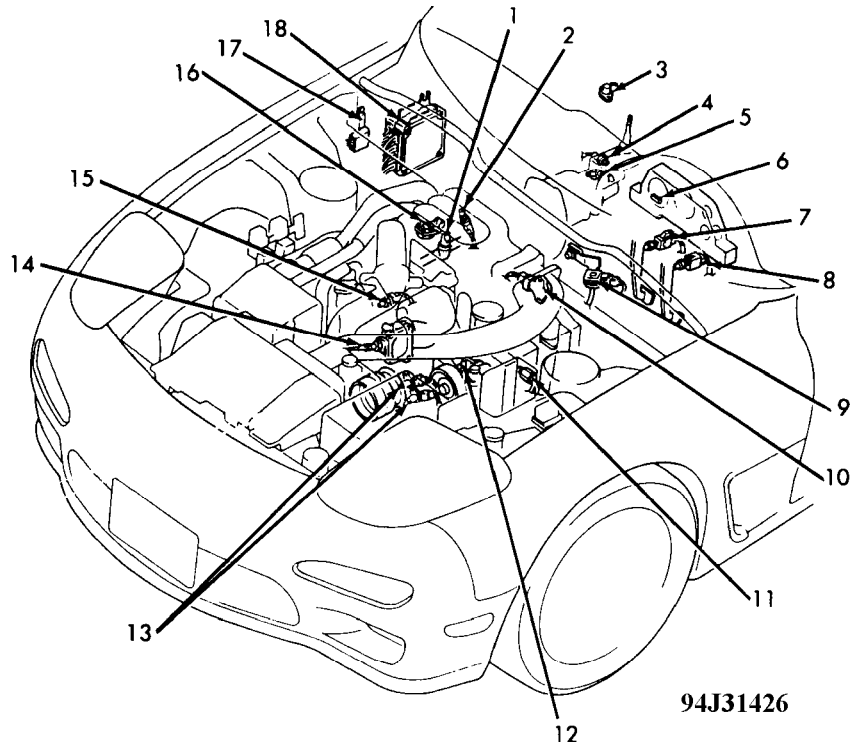
No. 2

Behind left kick panel.

Cruise Control Unit

Behind left kick panel.

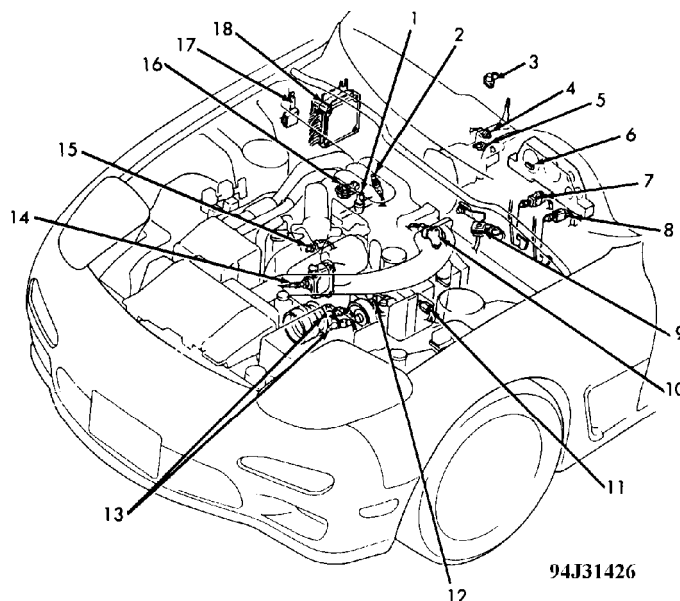
1. Fuel Thermosensor
2. Intake Air Temp. Sensor
3. Heat Hazard Sensor
4. Neutral Switch (M/T)
5. 1-2 Shift Switch (M/T)
6. Mileage Switch
7. Brake/Stoplight Switch
8. Clutch Switch
9. Barometric Pressure Sensor
10. Throttle Position (TP) Sensor
11. Knock Sensor
12. Power Steering Pressure Switch
13. Crank Angle Sensors
14. Oxygen Sensor (O2S)
15. Coolant Temperature Sensor
16. EGR Position Sensor (Calif.)
17. Electrical Load Control Unit
18. Engine Control Unit (ECU)



Electrical Load Control Unit

Behind right kick panel,
above ECU.

1. Fuel Thermosensor
2. Intake Air Temp. Sensor
3. Heat Hazard Sensor
4. Neutral Switch (M/T)
5. 1-2 Shift Switch (M/T)
6. Mileage Switch
7. Brake/Stoplight Switch
8. Clutch Switch
9. Barometric Pressure Sensor
10. Throttle Position (TP) Sensor
11. Knock Sensor
12. Power Steering Pressure Switch
13. Crank Angle Sensors
14. Oxygen Sensor (O2S)
15. Coolant Temperature Sensor
16. EGR Position Sensor (Calif.)
17. Electrical Load Control Unit
18. Engine Control Unit (ECU)



Engine Control Unit (ECU)

Behind right kick panel.

Shift Lock Control Unit

Under console, forward of

ELECTRICAL COMPONENT LOCATOR

Article Text (p. 15)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:15PM

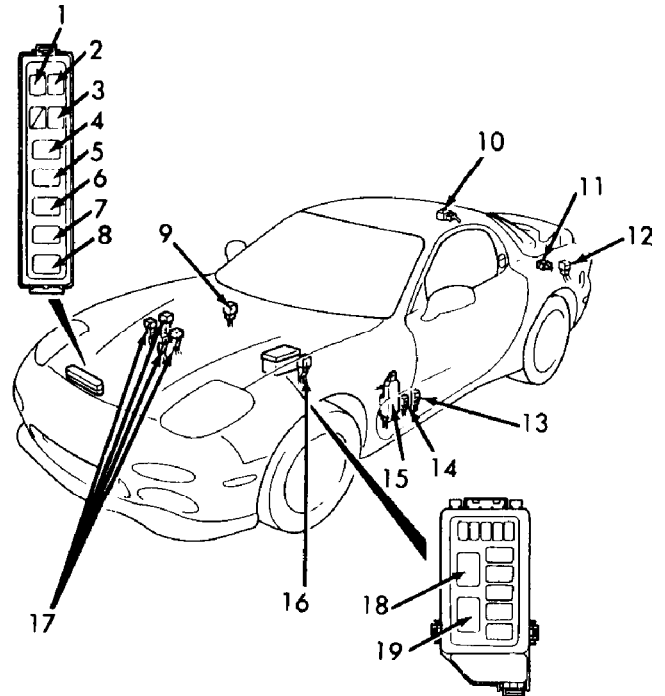
shift lever.

MOTORS

Component	Component Location
Blower Motor	Behind right side of dash.

1. Air Pump Relay
2. Foglight Relay
3. Horn Relay
4. Radio Relay
5. TNS Relay
6. Retractable Headlight Relay
7. A/C Relay
8. Fuel Pump Relay
9. Blower Motor Relay
10. Sun Roof Relay
11. Headlight Cleaner Motor & Relay
12. Rear Window Defroster Relay
13. Door Lock Timer
14. Stater Cut Relay
15. Hazard Flasher Relay
16. Headlight Relay
17. Cooling Fan Relays (4)
18. Circuit Opening Relay
19. EGI Main Relay

94I31425



Headlight Cleaner Motor

On left rear of luggage compartment, behind trim panel.

Sun Roof Motor

On center rear of sun roof opening.

Washer Motor
Front

Bottom of washer fluid reservoir, behind left headlight.

Rear

Bottom of washer fluid reservoir, left rear of luggage compartment.

Wiper Motor
Front

On right side of firewall.

Rear

On left bottom of liftgate.

ELECTRICAL COMPONENT LOCATOR

Article Text (p. 16)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:15PM

SENDING UNITS & SENSORS

```

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
Component                               Component Location
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
ABS Wheel Speed Sensors                 On bracket, on each wheel hub.

```

Air Bag Crash Sensors
"D" Sensors (3)

On left, right and center of vehicle front.

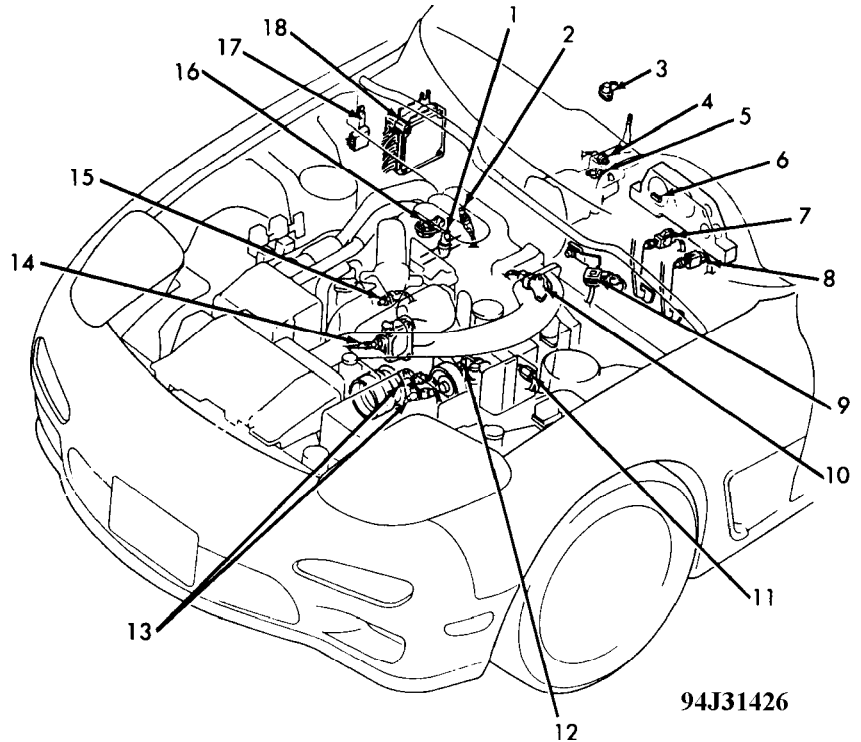
"S" Sensor

On center of firewall.

ATF Thermosensor

Inside transmission.

1. Fuel Thermosensor
2. Intake Air Temp. Sensor
3. Heat Hazard Sensor
4. Neutral Switch (M/T)
5. 1-2 Shift Switch (M/T)
6. Mileage Switch
7. Brake/Stoplight Switch
8. Clutch Switch
9. Barometric Pressure Sensor
10. Throttle Position (TP) Sensor
11. Knock Sensor
12. Power Steering Pressure Switch
13. Crank Angle Sensors
14. Oxygen Sensor (O2S)
15. Coolant Temperature Sensor
16. EGR Position Sensor (Calif.)
17. Electrical Load Control Unit
18. Engine Control Unit (ECU)



Barometric Pressure Sensor

On center of firewall.

Brake Fluid Level Sensor

In brake master cylinder.

Coolant Level Sensor

On top front of engine.

Coolant Temp. Sending Unit

On left rear of engine.

ELECTRICAL COMPONENT LOCATOR

Article Text (p. 17)

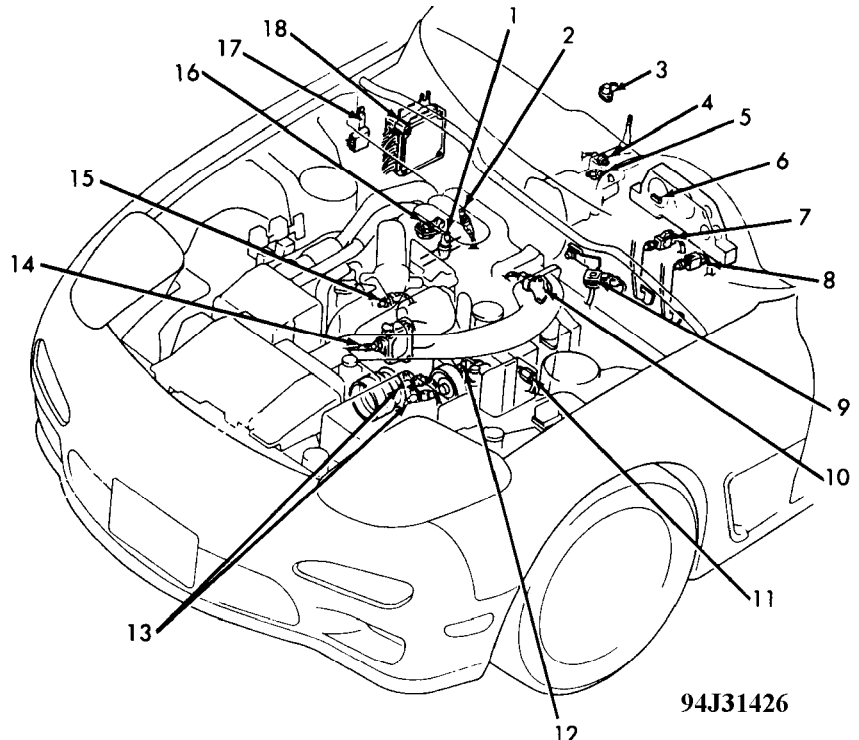
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:15PM

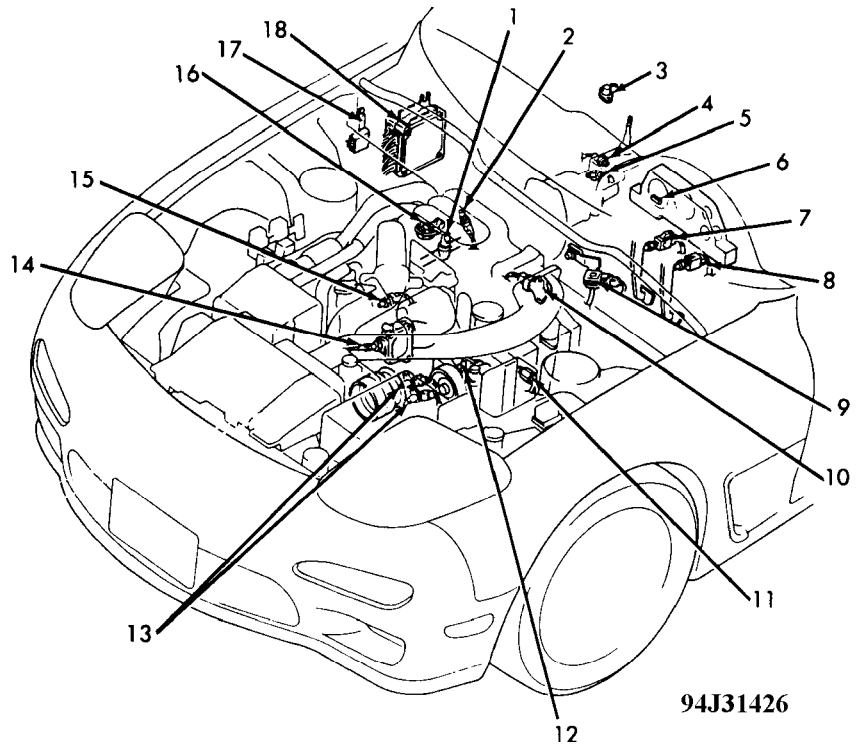
1. Fuel Thermosensor
2. Intake Air Temp. Sensor
3. Heat Hazard Sensor
4. Neutral Switch (M/T)
5. 1-2 Shift Switch (M/T)
6. Mileage Switch
7. Brake/Stoplight Switch
8. Clutch Switch
9. Barometric Pressure Sensor
10. Throttle Position (TP) Sensor
11. Knock Sensor
12. Power Steering Pressure Switch
13. Crank Angle Sensors
14. Oxygen Sensor (O2S)
15. Coolant Temperature Sensor
16. EGR Position Sensor (Calif.)
17. Electrical Load Control Unit
18. Engine Control Unit (ECU)



Coolant Temperature Sensor

On top front of engine, below alternator.

1. Fuel Thermosensor
2. Intake Air Temp. Sensor
3. Heat Hazard Sensor
4. Neutral Switch (M/T)
5. 1-2 Shift Switch (M/T)
6. Mileage Switch
7. Brake/Stoplight Switch
8. Clutch Switch
9. Barometric Pressure Sensor
10. Throttle Position (TP) Sensor
11. Knock Sensor
12. Power Steering Pressure Switch
13. Crank Angle Sensors
14. Oxygen Sensor (O2S)
15. Coolant Temperature Sensor
16. EGR Position Sensor (Calif.)
17. Electrical Load Control Unit
18. Engine Control Unit (ECU)



Crank Angle Sensors (2)

Behind crankshaft pulley.

ELECTRICAL COMPONENT LOCATOR

Article Text (p. 18)

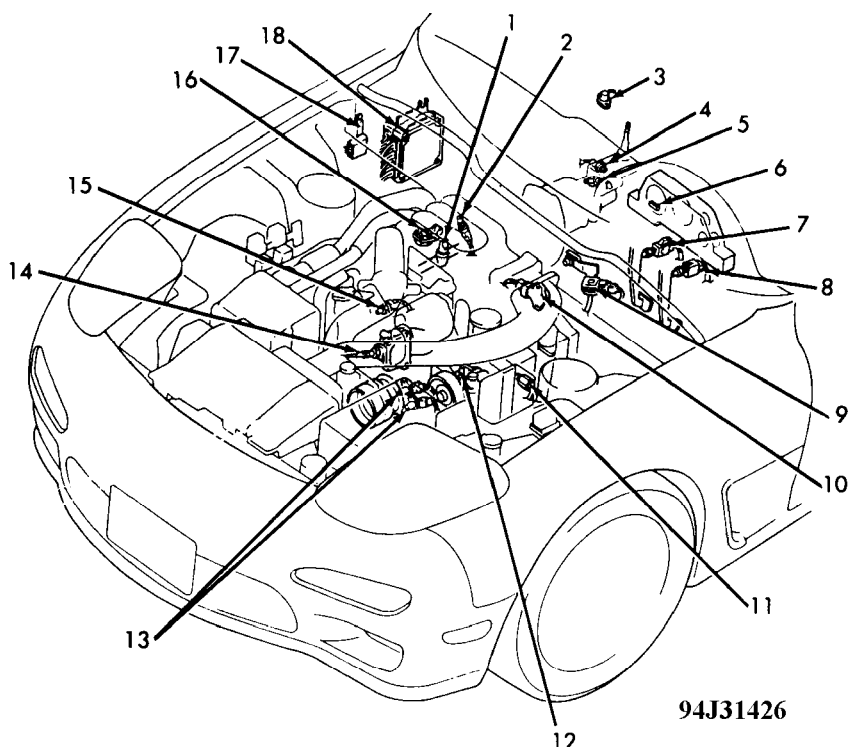
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:15PM

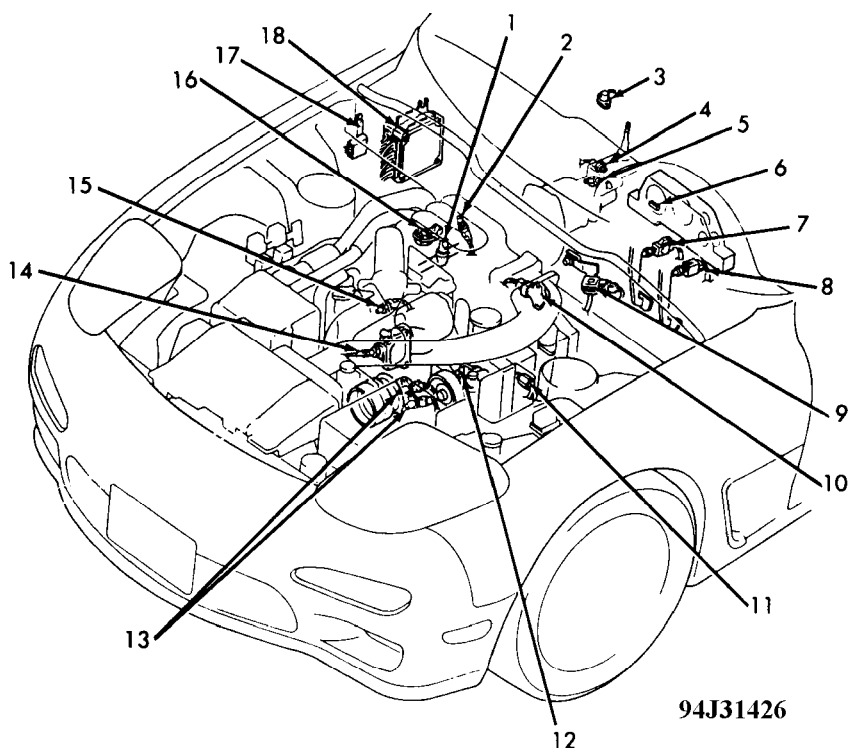
1. Fuel Thermosensor
2. Intake Air Temp. Sensor
3. Heat Hazard Sensor
4. Neutral Switch (M/T)
5. 1-2 Shift Switch (M/T)
6. Mileage Switch
7. Brake/Stoplight Switch
8. Clutch Switch
9. Barometric Pressure Sensor
10. Throttle Position (TP) Sensor
11. Knock Sensor
12. Power Steering Pressure Switch
13. Crank Angle Sensors
14. Oxygen Sensor (O2S)
15. Coolant Temperature Sensor
16. EGR Position Sensor (Calif.)
17. Electrical Load Control Unit
18. Engine Control Unit (ECU)



EGR Position Sensor (Calif.)

On EGR valve base.

1. Fuel Thermosensor
2. Intake Air Temp. Sensor
3. Heat Hazard Sensor
4. Neutral Switch (M/T)
5. 1-2 Shift Switch (M/T)
6. Mileage Switch
7. Brake/Stoplight Switch
8. Clutch Switch
9. Barometric Pressure Sensor
10. Throttle Position (TP) Sensor
11. Knock Sensor
12. Power Steering Pressure Switch
13. Crank Angle Sensors
14. Oxygen Sensor (O2S)
15. Coolant Temperature Sensor
16. EGR Position Sensor (Calif.)
17. Electrical Load Control Unit
18. Engine Control Unit (ECU)



Fuel Thermosensor

On fuel rail, on top rear of engine.

ELECTRICAL COMPONENT LOCATOR

Article Text (p. 19)

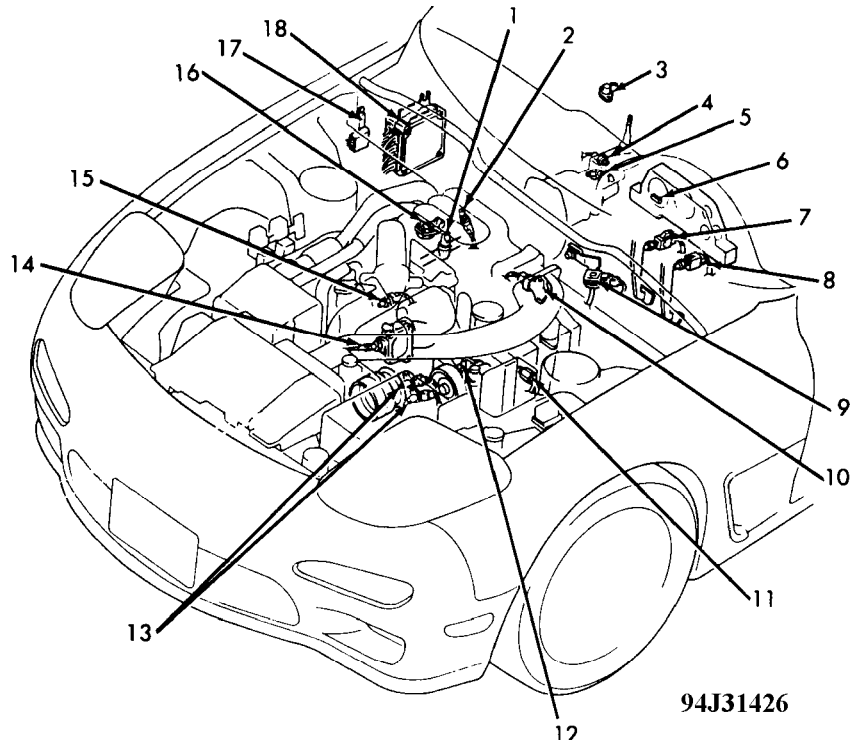
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:15PM

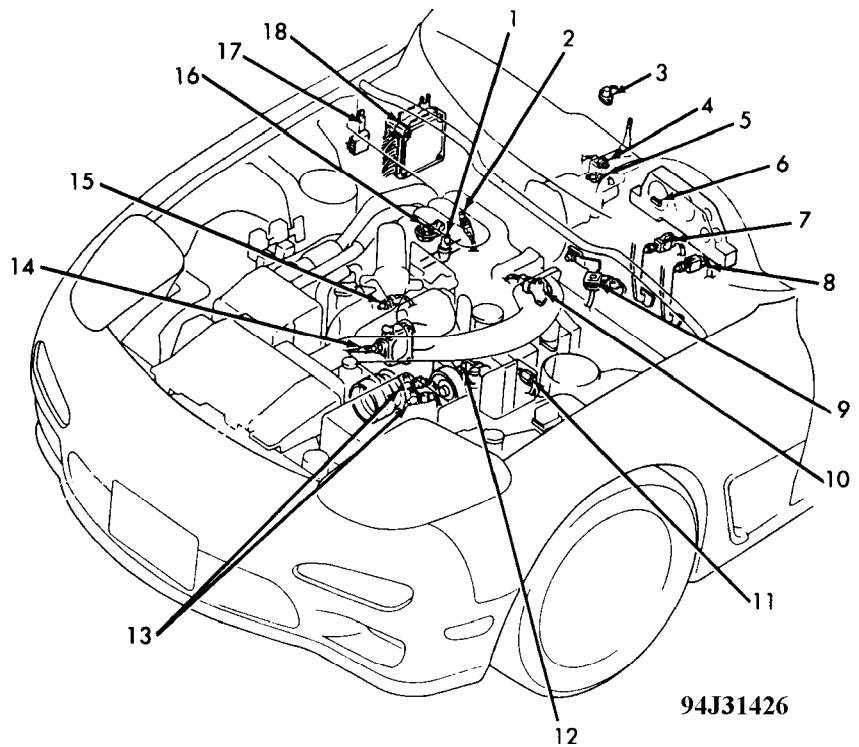
1. Fuel Thermosensor
2. Intake Air Temp. Sensor
3. Heat Hazard Sensor
4. Neutral Switch (M/T)
5. 1-2 Shift Switch (M/T)
6. Mileage Switch
7. Brake/Stoplight Switch
8. Clutch Switch
9. Barometric Pressure Sensor
10. Throttle Position (TP) Sensor
11. Knock Sensor
12. Power Steering Pressure Switch
13. Crank Angle Sensors
14. Oxygen Sensor (O2S)
15. Coolant Temperature Sensor
16. EGR Position Sensor (Calif.)
17. Electrical Load Control Unit
18. Engine Control Unit (ECU)



Heat Hazard Sensor

On rear of center console.

1. Fuel Thermosensor
2. Intake Air Temp. Sensor
3. Heat Hazard Sensor
4. Neutral Switch (M/T)
5. 1-2 Shift Switch (M/T)
6. Mileage Switch
7. Brake/Stoplight Switch
8. Clutch Switch
9. Barometric Pressure Sensor
10. Throttle Position (TP) Sensor
11. Knock Sensor
12. Power Steering Pressure Switch
13. Crank Angle Sensors
14. Oxygen Sensor (O2S)
15. Coolant Temperature Sensor
16. EGR Position Sensor (Calif.)
17. Electrical Load Control Unit
18. Engine Control Unit (ECU)



Intake Air Temperature Sensor

On rear of engine, on underside of intake extension housing.

ELECTRICAL COMPONENT LOCATOR

Article Text (p. 20)

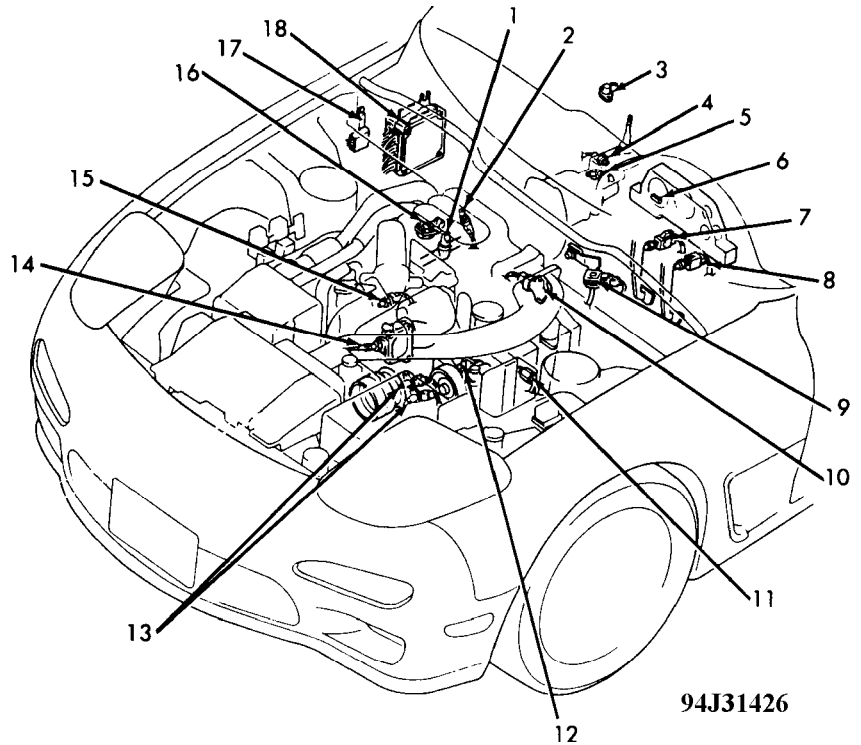
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:15PM

1. Fuel Thermosensor
2. Intake Air Temp. Sensor
3. Heat Hazard Sensor
4. Neutral Switch (M/T)
5. 1-2 Shift Switch (M/T)
6. Mileage Switch
7. Brake/Stoplight Switch
8. Clutch Switch
9. Barometric Pressure Sensor
10. Throttle Position (TP) Sensor
11. Knock Sensor
12. Power Steering Pressure Switch
13. Crank Angle Sensors
14. Oxygen Sensor (O2S)
15. Coolant Temperature Sensor
16. EGR Position Sensor (Calif.)
17. Electrical Load Control Unit
18. Engine Control Unit (ECU)



Knock Sensor

On left side of engine.

Oil Level Sensor

On left side of oil pan.

Oil Pressure Sensor

On left rear of engine.

Speed Sensor

No. 1 (Revolution)

On top left of transmission.

No. 2 (Speedometer)

On left rear of transmission.

ELECTRICAL COMPONENT LOCATOR

Article Text (p. 21)

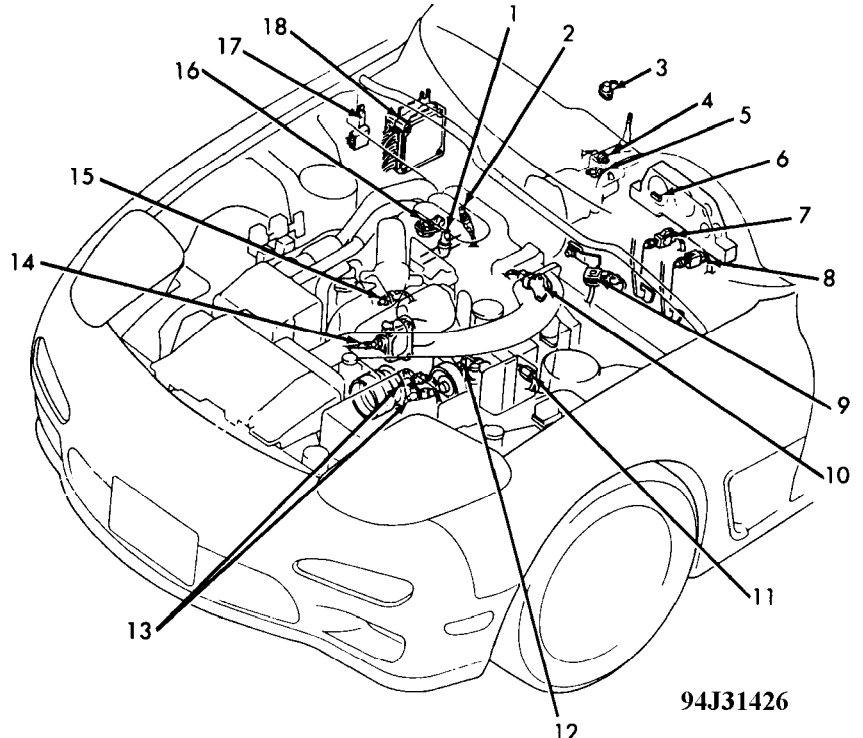
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:15PM

1. Fuel Thermosensor
2. Intake Air Temp. Sensor
3. Heat Hazard Sensor
4. Neutral Switch (M/T)
5. 1-2 Shift Switch (M/T)
6. Mileage Switch
7. Brake/Stoplight Switch
8. Clutch Switch
9. Barometric Pressure Sensor
10. Throttle Position (TP) Sensor
11. Knock Sensor
12. Power Steering Pressure Switch
13. Crank Angle Sensors
14. Oxygen Sensor (O2S)
15. Coolant Temperature Sensor
16. EGR Position Sensor (Calif.)
17. Electrical Load Control Unit
18. Engine Control Unit (ECU)



94J31426

Throttle Position (TP) Sensor

On throttle body assembly.

Washer Fluid Level Sensor

On bottom of washer fluid reservoir, behind right headlight.

SOLENOIDS & SOLENOID VALVES

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Component

Component Location

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Accelerated Warm-Up System

ELECTRICAL COMPONENT LOCATOR

Article Text (p. 22)

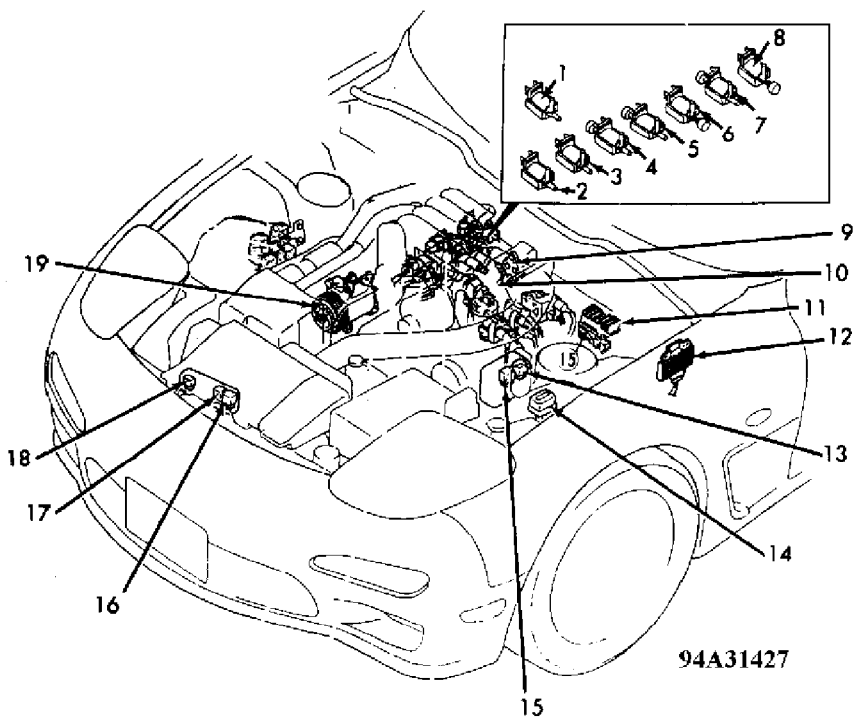
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:15PM

1. Charge Relief Solenoid
2. Double Throttle Control Solenoid
3. Charge Control Solenoid
4. Turbo Pre-Control Solenoid
5. EGR Solenoid
6. Relief Solenoid
7. Switching Solenoid
8. Fuel Pressure Regulator Control Solenoid
9. Idle Speed Control Valve
10. AWS Solenoid
11. Fuel Injector Resistor
12. Ignitor
13. Main Relay
14. Data Link Connector (DLC)
15. Circuit Opening Relay
16. Fuel Pump Relay
17. A/C Relay
18. Air Pump Relay
19. Air Pump
20. Cooling Fan Relays (4)



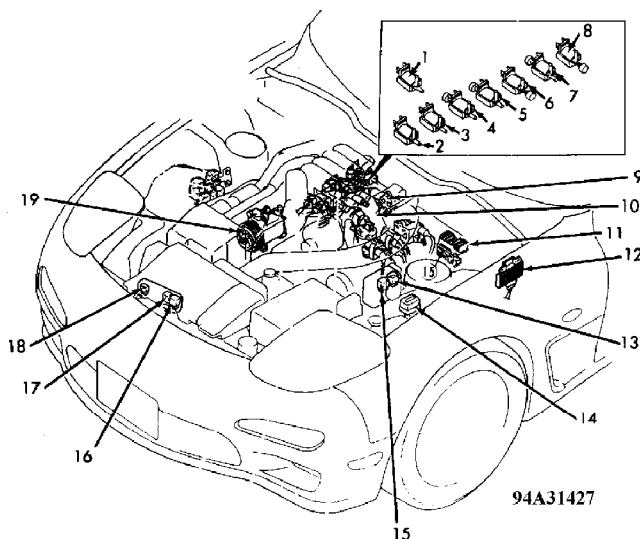
(AWS) Solenoid

On top left of engine, under intake manifold.

A/T Solenoids

In transmission upper control valve body.

1. Charge Relief Solenoid
2. Double Throttle Control Solenoid
3. Charge Control Solenoid
4. Turbo Pre-Control Solenoid
5. EGR Solenoid
6. Relief Solenoid
7. Switching Solenoid
8. Fuel Pressure Regulator Control Solenoid
9. Idle Speed Control Valve
10. AWS Solenoid
11. Fuel Injector Resistor
12. Ignitor
13. Main Relay
14. Data Link Connector (DLC)
15. Circuit Opening Relay
16. Fuel Pump Relay
17. A/C Relay
18. Air Pump Relay
19. Air Pump
20. Cooling Fan Relays (4)



Charge Control Solenoid

On top left of engine, under intake manifold.

ELECTRICAL COMPONENT LOCATOR

Article Text (p. 23)

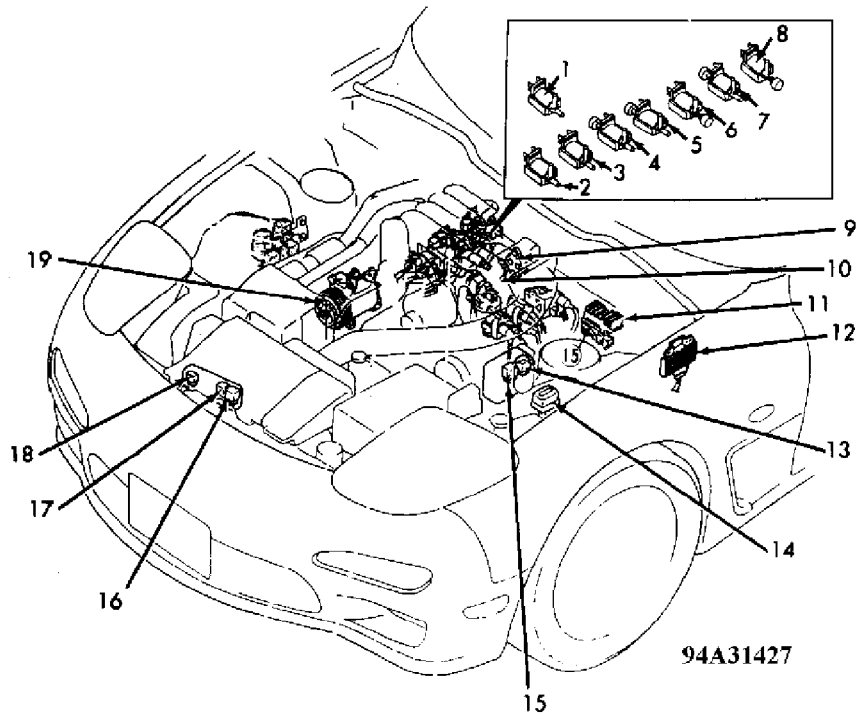
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:15PM

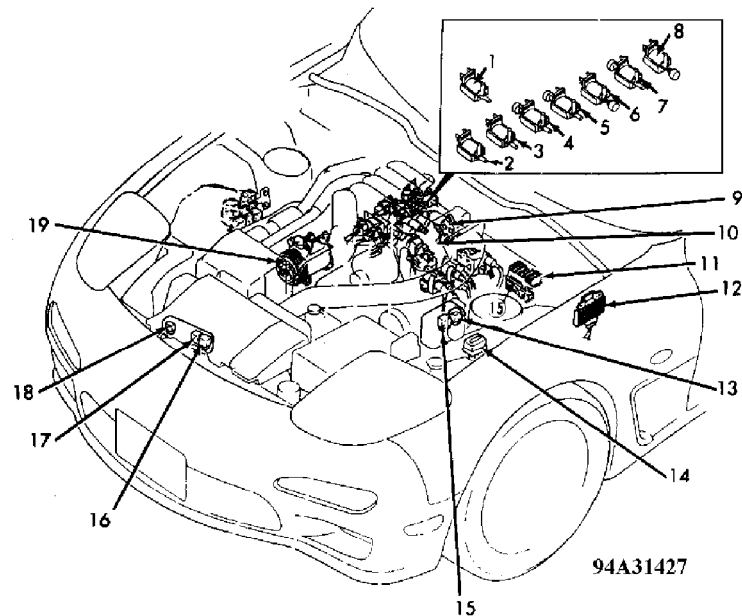
1. Charge Relief Solenoid
2. Double Throttle Control Solenoid
3. Charge Control Solenoid
4. Turbo Pre-Control Solenoid
5. EGR Solenoid
6. Relief Solenoid
7. Switching Solenoid
8. Fuel Pressure Regulator Control Solenoid
9. Idle Speed Control Valve
10. AWS Solenoid
11. Fuel Injector Resistor
12. Ignitor
13. Main Relay
14. Data Link Connector (DLC)
15. Circuit Opening Relay
16. Fuel Pump Relay
17. A/C Relay
18. Air Pump Relay
19. Air Pump
20. Cooling Fan Relays (4)



Charge Relief Solenoids (2)

On top left of engine, under intake manifold.

1. Charge Relief Solenoid
2. Double Throttle Control Solenoid
3. Charge Control Solenoid
4. Turbo Pre-Control Solenoid
5. EGR Solenoid
6. Relief Solenoid
7. Switching Solenoid
8. Fuel Pressure Regulator Control Solenoid
9. Idle Speed Control Valve
10. AWS Solenoid
11. Fuel Injector Resistor
12. Ignitor
13. Main Relay
14. Data Link Connector (DLC)
15. Circuit Opening Relay
16. Fuel Pump Relay
17. A/C Relay
18. Air Pump Relay
19. Air Pump
20. Cooling Fan Relays (4)



Double Throttle Control Solenoid

On top left of engine, under intake manifold.

ELECTRICAL COMPONENT LOCATOR

Article Text (p. 24)

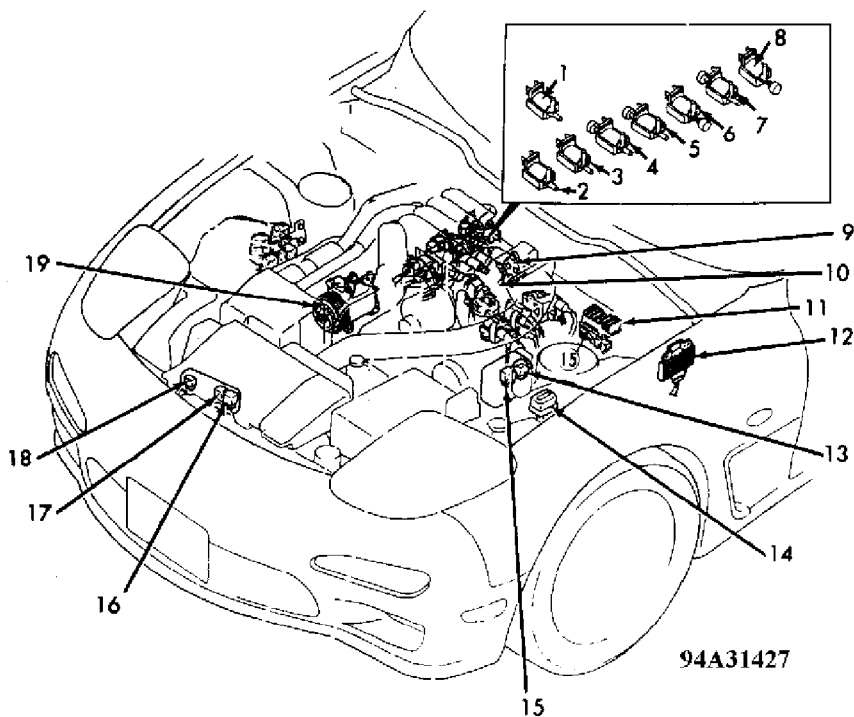
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:15PM

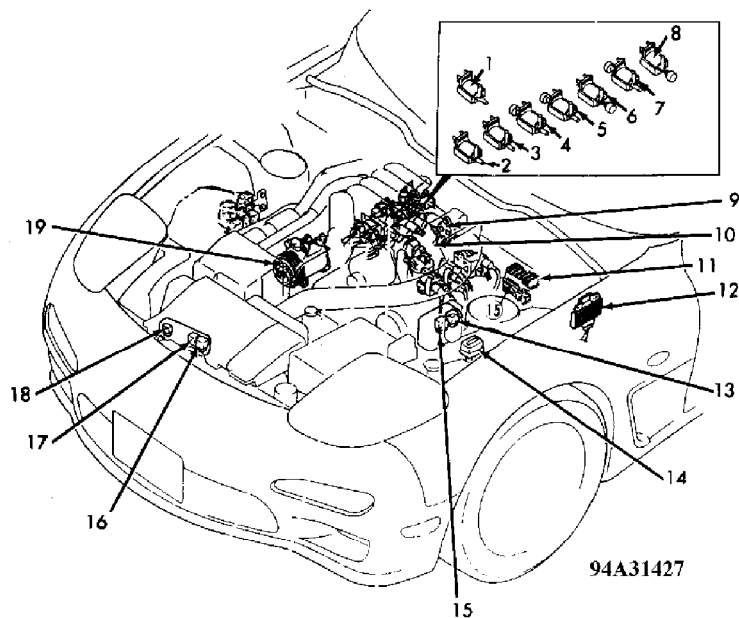
1. Charge Relief Solenoid
2. Double Throttle Control Solenoid
3. Charge Control Solenoid
4. Turbo Pre-Control Solenoid
5. EGR Solenoid
6. Relief Solenoid
7. Switching Solenoid
8. Fuel Pressure Regulator Control Solenoid
9. Idle Speed Control Valve
10. AWS Solenoid
11. Fuel Injector Resistor
12. Ignitor
13. Main Relay
14. Data Link Connector (DLC)
15. Circuit Opening Relay
16. Fuel Pump Relay
17. A/C Relay
18. Air Pump Relay
19. Air Pump
20. Cooling Fan Relays (4)



EGR Solenoid

On top left of engine, under intake manifold.

1. Charge Relief Solenoid
2. Double Throttle Control Solenoid
3. Charge Control Solenoid
4. Turbo Pre-Control Solenoid
5. EGR Solenoid
6. Relief Solenoid
7. Switching Solenoid
8. Fuel Pressure Regulator Control Solenoid
9. Idle Speed Control Valve
10. AWS Solenoid
11. Fuel Injector Resistor
12. Ignitor
13. Main Relay
14. Data Link Connector (DLC)
15. Circuit Opening Relay
16. Fuel Pump Relay
17. A/C Relay
18. Air Pump Relay
19. Air Pump
20. Cooling Fan Relays (4)



Fuel Pressure Regulator Control Solenoid

On top left of engine compartment, under intake

ELECTRICAL COMPONENT LOCATOR

Article Text (p. 25)

1993 Mazda RX7

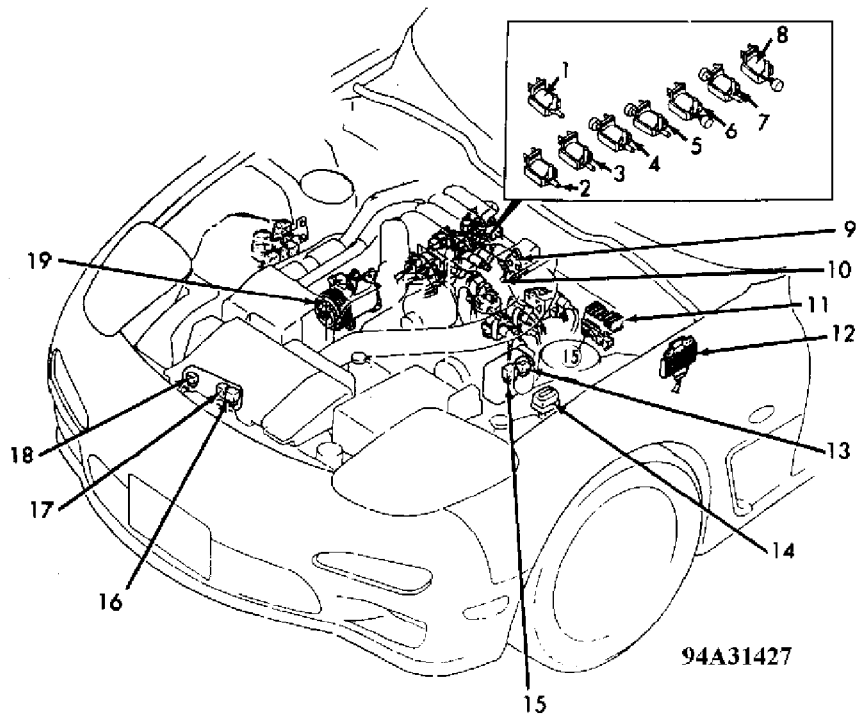
For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:15PM

manifold.

1. Charge Relief Solenoid
2. Double Throttle Control Solenoid
3. Charge Control Solenoid
4. Turbo Pre-Control Solenoid
5. EGR Solenoid
6. Relief Solenoid
7. Switching Solenoid
8. Fuel Pressure Regulator Control Solenoid
9. Idle Speed Control Valve
10. AWS Solenoid
11. Fuel Injector Resistor
12. Ignitor
13. Main Relay
14. Data Link Connector (DLC)
15. Circuit Opening Relay
16. Fuel Pump Relay
17. A/C Relay
18. Air Pump Relay
19. Air Pump
20. Cooling Fan Relays (4)



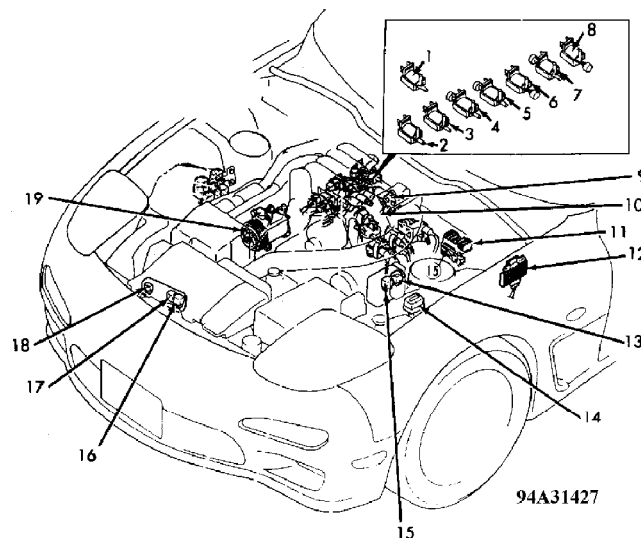
Idle Speed Control (ISC) Valve

On throttle body assembly.

Purge Control Solenoid

On bracket, near throttle body assembly.

1. Charge Relief Solenoid
2. Double Throttle Control Solenoid
3. Charge Control Solenoid
4. Turbo Pre-Control Solenoid
5. EGR Solenoid
6. Relief Solenoid
7. Switching Solenoid
8. Fuel Pressure Regulator Control Solenoid
9. Idle Speed Control Valve
10. AWS Solenoid
11. Fuel Injector Resistor
12. Ignitor
13. Main Relay
14. Data Link Connector (DLC)
15. Circuit Opening Relay
16. Fuel Pump Relay
17. A/C Relay
18. Air Pump Relay
19. Air Pump
20. Cooling Fan Relays (4)



Relief Solenoid

On top left of engine, under intake manifold.

ELECTRICAL COMPONENT LOCATOR

Article Text (p. 26)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:15PM

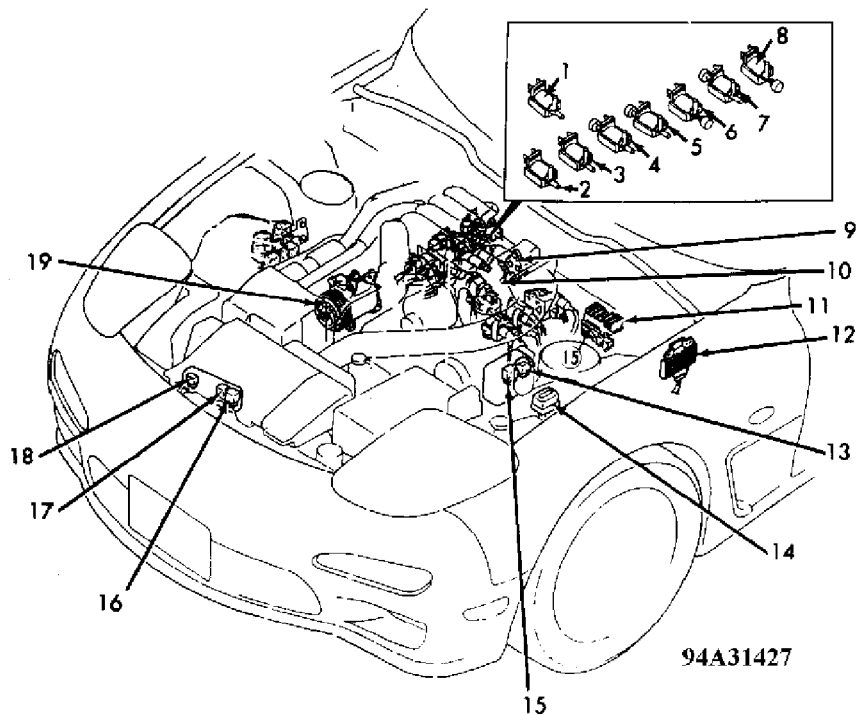
Secondary Air Injection Solenoids

Mounted on intake manifold extension.

Shift Lock Solenoid

Under console, base of shift lever.

1. Charge Relief Solenoid
2. Double Throttle Control Solenoid
3. Charge Control Solenoid
4. Turbo Pre-Control Solenoid
5. EGR Solenoid
6. Relief Solenoid
7. Switching Solenoid
8. Fuel Pressure Regulator Control Solenoid
9. Idle Speed Control Valve
10. AWS Solenoid
11. Fuel Injector Resistor
12. Ignitor
13. Main Relay
14. Data Link Connector (DLC)
15. Circuit Opening Relay
16. Fuel Pump Relay
17. A/C Relay
18. Air Pump Relay
19. Air Pump
20. Cooling Fan Relays (4)



Switching Solenoid

On top left of engine, under intake manifold.

ELECTRICAL COMPONENT LOCATOR

Article Text (p. 27)

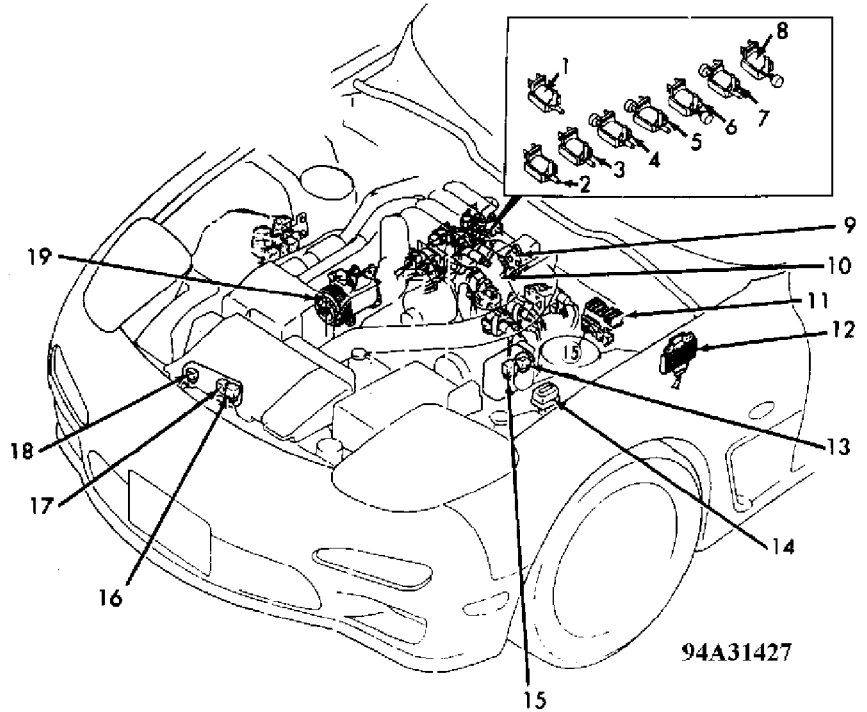
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:15PM

1. Charge Relief Solenoid
2. Double Throttle Control Solenoid
3. Charge Control Solenoid
4. Turbo Pre-Control Solenoid
5. EGR Solenoid
6. Relief Solenoid
7. Switching Solenoid
8. Fuel Pressure Regulator Control Solenoid
9. Idle Speed Control Valve
10. AWS Solenoid
11. Fuel Injector Resistor
12. Ignitor
13. Main Relay
14. Data Link Connector (DLC)
15. Circuit Opening Relay
16. Fuel Pump Relay
17. A/C Relay
18. Air Pump Relay
19. Air Pump
20. Cooling Fan Relays (4)



Turbo Pre-Control Solenoid

On top left of engine, under intake manifold.

SWITCHES

Component	Component Location
A/C Pressure Switch	On A/C line, near receiver-drier.
Back-Up Light Switch	On left side of transmission.
Brake Fluid Level Switch	In master cylinder.

ELECTRICAL COMPONENT LOCATOR

Article Text (p. 28)

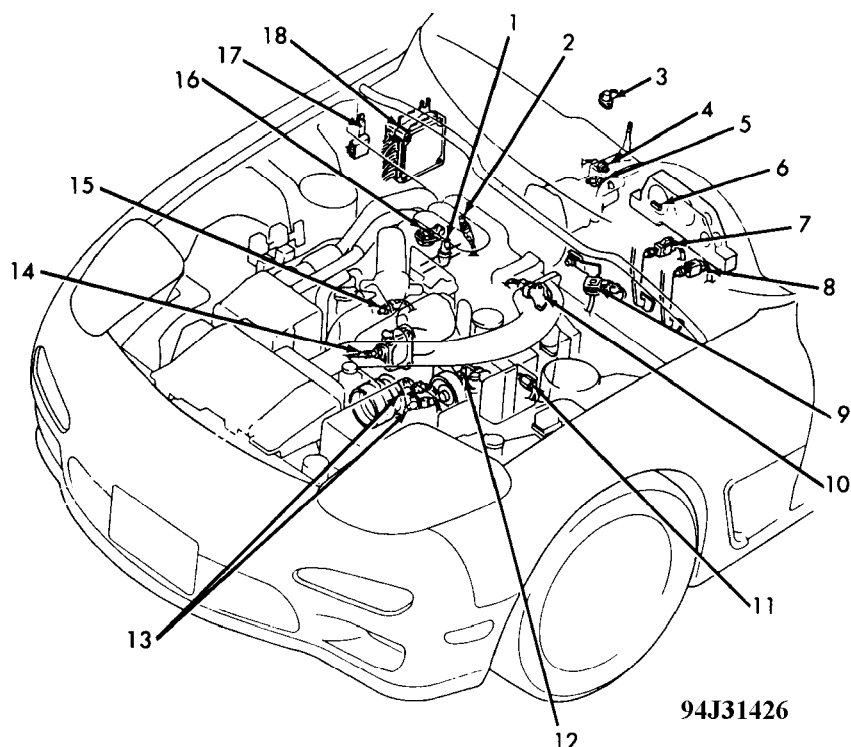
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:15PM

1. Fuel Thermosensor
2. Intake Air Temp. Sensor
3. Heat Hazard Sensor
4. Neutral Switch (M/T)
5. 1-2 Shift Switch (M/T)
6. Mileage Switch
7. Brake/Stoplight Switch
8. Clutch Switch
9. Barometric Pressure Sensor
10. Throttle Position (TP) Sensor
11. Knock Sensor
12. Power Steering Pressure Switch
13. Crank Angle Sensors
14. Oxygen Sensor (O2S)
15. Coolant Temperature Sensor
16. EGR Position Sensor (Calif.)
17. Electrical Load Control Unit
18. Engine Control Unit (ECU)

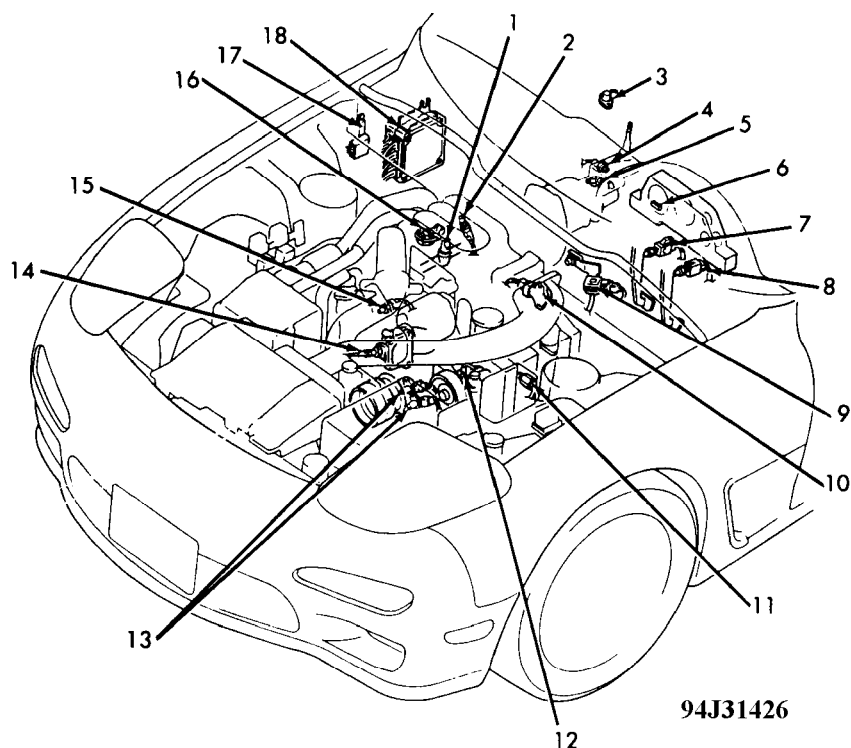


94J31426

Brake/Stoplight Switch

On bracket, above brake pedal.

1. Fuel Thermosensor
2. Intake Air Temp. Sensor
3. Heat Hazard Sensor
4. Neutral Switch (M/T)
5. 1-2 Shift Switch (M/T)
6. Mileage Switch
7. Brake/Stoplight Switch
8. Clutch Switch
9. Barometric Pressure Sensor
10. Throttle Position (TP) Sensor
11. Knock Sensor
12. Power Steering Pressure Switch
13. Crank Angle Sensors
14. Oxygen Sensor (O2S)
15. Coolant Temperature Sensor
16. EGR Position Sensor (Calif.)
17. Electrical Load Control Unit
18. Engine Control Unit (ECU)



94J31426

Clutch Switch

On bracket, above clutch pedal.

Inhibitor Switch (A/T)

On right side of transmission.

ELECTRICAL COMPONENT LOCATOR

Article Text (p. 29)

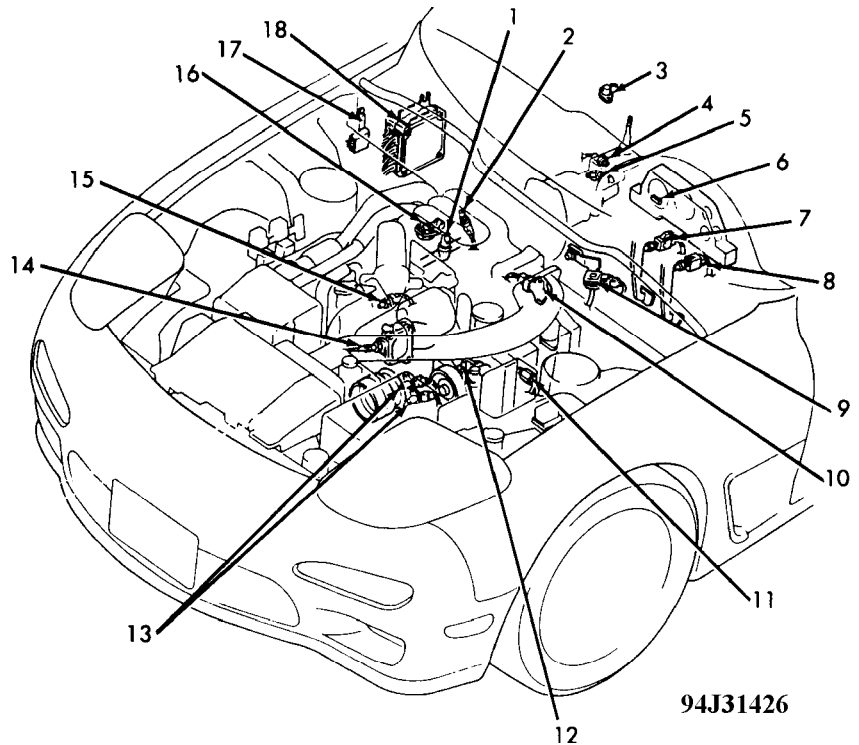
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:15PM

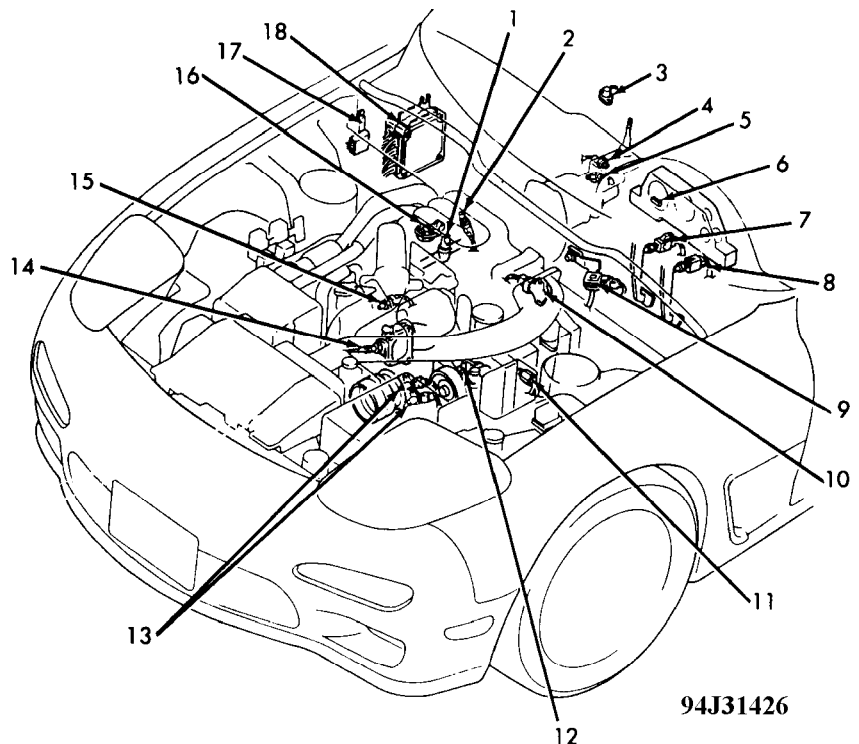
1. Fuel Thermosensor
2. Intake Air Temp. Sensor
3. Heat Hazard Sensor
4. Neutral Switch (M/T)
5. 1-2 Shift Switch (M/T)
6. Mileage Switch
7. Brake/Stoplight Switch
8. Clutch Switch
9. Barometric Pressure Sensor
10. Throttle Position (TP) Sensor
11. Knock Sensor
12. Power Steering Pressure Switch
13. Crank Angle Sensors
14. Oxygen Sensor (O2S)
15. Coolant Temperature Sensor
16. EGR Position Sensor (Calif.)
17. Electrical Load Control Unit
18. Engine Control Unit (ECU)



Neutral Switch (M/T)

On top right of transmission.

1. Fuel Thermosensor
2. Intake Air Temp. Sensor
3. Heat Hazard Sensor
4. Neutral Switch (M/T)
5. 1-2 Shift Switch (M/T)
6. Mileage Switch
7. Brake/Stoplight Switch
8. Clutch Switch
9. Barometric Pressure Sensor
10. Throttle Position (TP) Sensor
11. Knock Sensor
12. Power Steering Pressure Switch
13. Crank Angle Sensors
14. Oxygen Sensor (O2S)
15. Coolant Temperature Sensor
16. EGR Position Sensor (Calif.)
17. Electrical Load Control Unit
18. Engine Control Unit (ECU)



Mileage Switch

Behind speedometer assembly.

Parking Brake Switch

On bottom of parking brake lever.

ELECTRICAL COMPONENT LOCATOR

Article Text (p. 30)

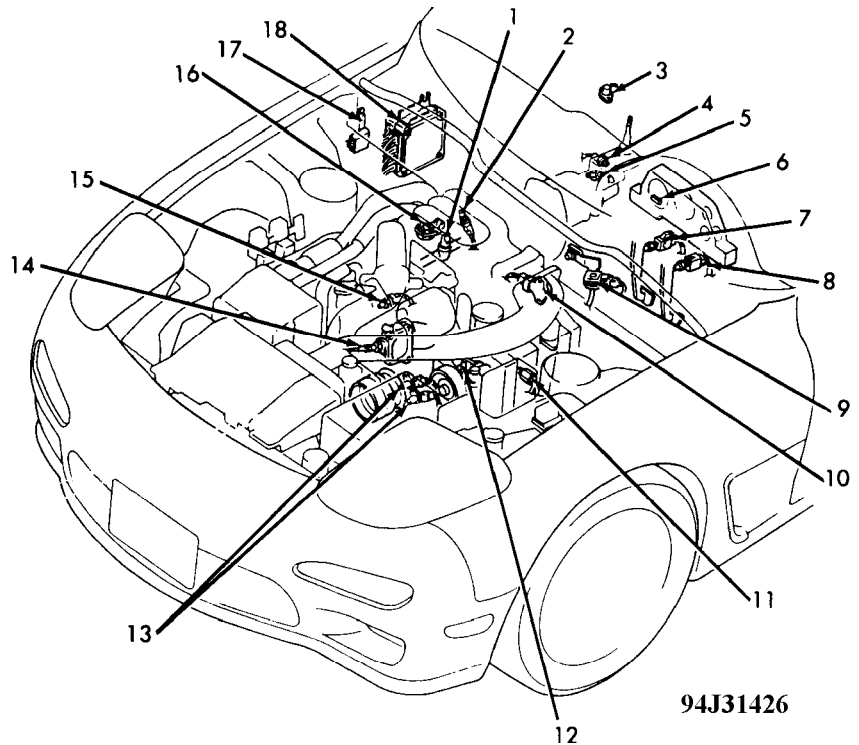
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:15PM

1. Fuel Thermosensor
2. Intake Air Temp. Sensor
3. Heat Hazard Sensor
4. Neutral Switch (M/T)
5. 1-2 Shift Switch (M/T)
6. Mileage Switch
7. Brake/Stoplight Switch
8. Clutch Switch
9. Barometric Pressure Sensor
10. Throttle Position (TP) Sensor
11. Knock Sensor
12. Power Steering Pressure Switch
13. Crank Angle Sensors
14. Oxygen Sensor (O2S)
15. Coolant Temperature Sensor
16. EGR Position Sensor (Calif.)
17. Electrical Load Control Unit
18. Engine Control Unit (ECU)



Power Steering Pressure Switch

In power steering pump assembly.

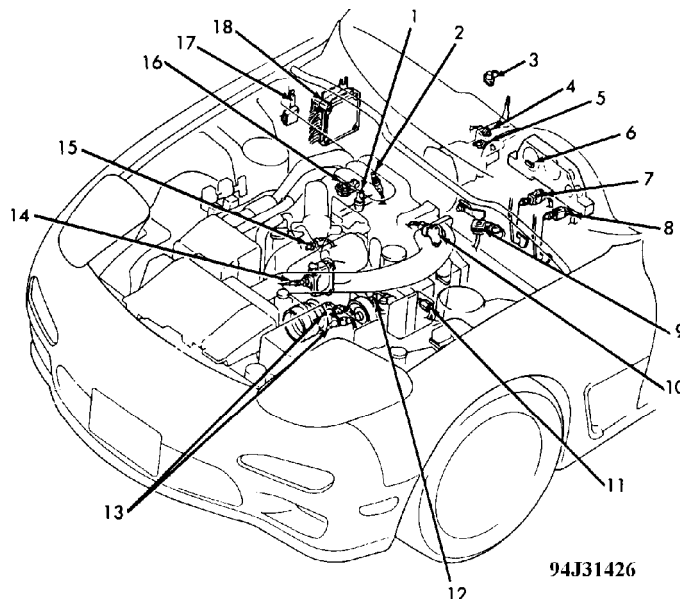
Seat Belt Switch

In driver's seat belt buckle.

Starter Interlock Switch

On top rear of clutch pedal.

1. Fuel Thermosensor
2. Intake Air Temp. Sensor
3. Heat Hazard Sensor
4. Neutral Switch (M/T)
5. 1-2 Shift Switch (M/T)
6. Mileage Switch
7. Brake/Stoplight Switch
8. Clutch Switch
9. Barometric Pressure Sensor
10. Throttle Position (TP) Sensor
11. Knock Sensor
12. Power Steering Pressure Switch
13. Crank Angle Sensors
14. Oxygen Sensor (O2S)
15. Coolant Temperature Sensor
16. EGR Position Sensor (Calif.)
17. Electrical Load Control Unit
18. Engine Control Unit (ECU)



1-2 Shift Switch (M/T)

On lower right of transmission.

ELECTRICAL COMPONENT LOCATOR

Article Text (p. 31)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

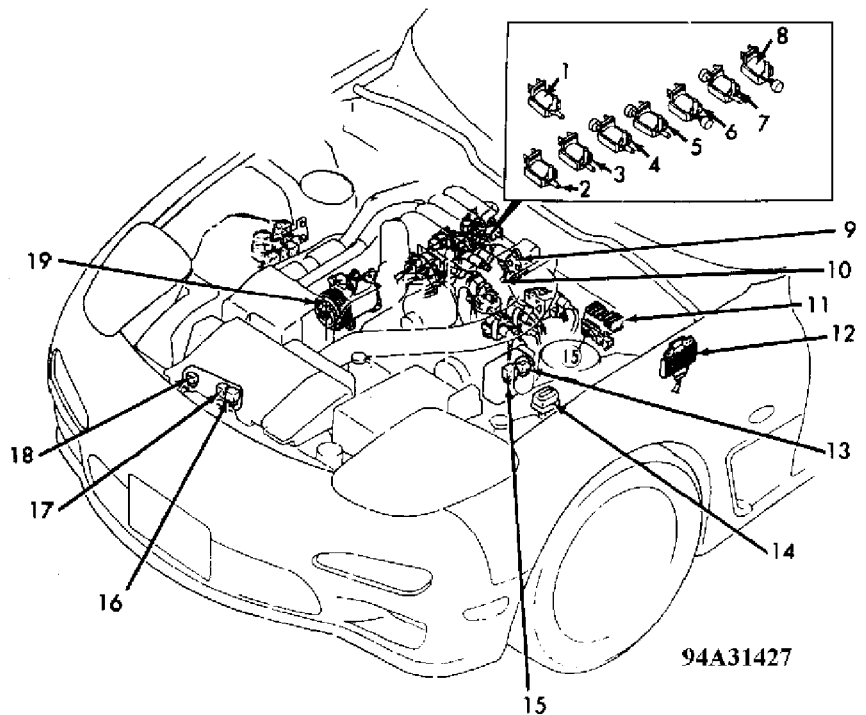
Sunday, August 19, 2001 01:15PM

MISCELLANEOUS

Component	Component Location
A/T Pulse Generator	On front left of transmission.

Blower Motor Resistor	Behind right side of dash, on blower motor housing.
-----------------------	-----------------------------------------------------

1. Charge Relief Solenoid
2. Double Throttle Control Solenoid
3. Charge Control Solenoid
4. Turbo Pre-Control Solenoid
5. EGR Solenoid
6. Relief Solenoid
7. Switching Solenoid
8. Fuel Pressure Regulator Control Solenoid
9. Idle Speed Control Valve
10. AWS Solenoid
11. Fuel Injector Resistor
12. Ignitor
13. Main Relay
14. Data Link Connector (DLC)
15. Circuit Opening Relay
16. Fuel Pump Relay
17. A/C Relay
18. Air Pump Relay
19. Air Pump
20. Cooling Fan Relays (4)



Data Link Connector (DLC)	Mounted on bracket, on left strut tower.
---------------------------	------------------------------------------

ELECTRICAL COMPONENT LOCATOR

Article Text (p. 32)

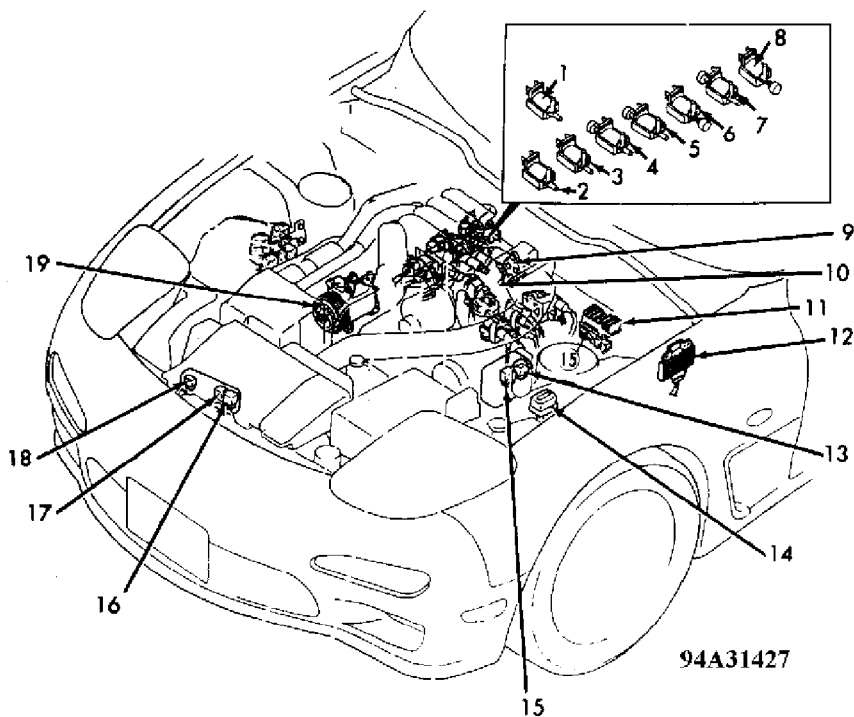
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:15PM

1. Charge Relief Solenoid
2. Double Throttle Control Solenoid
3. Charge Control Solenoid
4. Turbo Pre-Control Solenoid
5. EGR Solenoid
6. Relief Solenoid
7. Switching Solenoid
8. Fuel Pressure Regulator Control Solenoid
9. Idle Speed Control Valve
10. AWS Solenoid
11. Fuel Injector Resistor
12. Ignitor
13. Main Relay
14. Data Link Connector (DLC)
15. Circuit Opening Relay
16. Fuel Pump Relay
17. A/C Relay
18. Air Pump Relay
19. Air Pump
20. Cooling Fan Relays (4)



Fuel Injector Resistor On left side of firewall.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

END OF ARTICLE

ALTERNATOR & REGULATOR

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:17PM

ARTICLE BEGINNING

1993 ELECTRICAL

Mazda Alternators & Regulators - Mitsubishi

B2200, B2600i, Miata, MPV, MX-3,
MX-6, Protege, RX7, 323, 626, 929

DESCRIPTION

Alternator is a conventional 3-phase, self-rectifying type with 6 diodes (3 positive and 3 negative) that rectify current. See Fig. 1. Internal regulator is solid-state type.

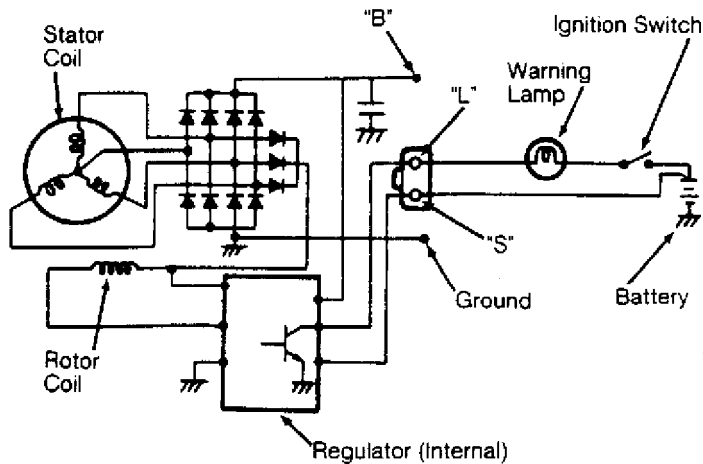


Fig. 1: Charging System Wiring Schematic
Courtesy of Mazda Motors Corp.

ADJUSTMENTS

BELT DEFLECTION

Measure belt deflection in center of longest pulley-to-pulley span. See BELT DEFLECTION SPECIFICATIONS table. If belt deflection is not as specified, adjust as necessary.

BELT DEFLECTION SPECIFICATIONS TABLE

Application (1) Deflection - In. (mm)

B2200

New Belt	0.28-0.31 (7.0-8.0)
Used Belt	0.31-0.35 (8.0-9.0)

B2600i

New Belt	0.39-0.47 (10.0-12.0)
Used Belt	0.43-0.51 (11.0-13.0)

Miata

New Belt	0.31-0.35 (8.0-9.0)
----------	---------------------

ALTERNATOR & REGULATOR

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:17PM

Used Belt	.....	0.35-0.39 (9.0-10.0)
MPV		
4-Cylinder		
New Belt	.....	0.39-0.47 (10.0-12.0)
Used Belt	.....	0.43-0.57 (11.0-13.0)
V6		
New Belt	.....	0.35-0.39 (9.0-10.0)
Used Belt	.....	0.39-0.47 (10.0-12.0)
MX-3		
4-Cylinder		
New Belt	.....	0.22-0.28 (5.5-7.0)
Used Belt	.....	0.24-0.30 (6.0-7.5)
V6		
With A/C		
New Belt	.....	0.22-0.26 (5.5-6.5)
Used Belt	.....	0.26-0.30 (6.5-7.5)
Without A/C		
New Belt	.....	0.24-0.28 (6.0-7.0)
Used Belt	.....	0.28-0.31 (7.0-8.0)
MX-6 & 626		
4-Cylinder		
New Belt	.....	0.26-0.28 (6.5-7.0)
Used Belt	.....	0.28-0.35 (7.0-9.0)
V6		
With A/C		
New Belt	.....	0.22-0.26 (5.5-6.5)
Used Belt	.....	0.26-0.30 (6.5-7.5)
Without A/C		
New Belt	.....	0.24-0.28 (6.0-7.0)
Used Belt	.....	0.28-0.31 (7.0-8.0)
Protege & 323		
New Belt	.....	0.31-0.35 (8.0-9.0)
Used Belt	.....	0.35-0.39 (9.0-10.0)
RX7		
New Belt	.....	0.24-0.31 (6.0-8.0)
Used Belt	.....	0.28-0.35 (7.0-9.0)
929		
New Belt	.....	0.39-0.47 (10.0-12.0)
Used Belt	.....	0.43-0.51 (11.0-13.0)

(1) - With 22 lbs. (10 kg) applied to belt.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

TROUBLE SHOOTING

NOTE: See TROUBLE SHOOTING - BASIC PROCEDURES article in
GENERAL INFORMATION section.

TROUBLE SHOOTING PRECAUTIONS

Observe the following precautions when trouble shooting or
testing charging system:

ALTERNATOR & REGULATOR

Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:17PM

Miata

- * Obtain code number and deactivate audio anti-theft system before disconnecting battery.

All Models

- * DO NOT reverse battery cable connections. Rectifier will be damaged.
- * DO NOT use high voltage type testers.
- * Battery voltage is always present at terminal "B".
- * DO NOT ground terminal "L" while engine is running.
- * DO NOT start engine with connector disconnected from terminals "L" and "S".
- * DO NOT apply battery voltage to terminal "L".

ON-VEHICLE TESTING

NOTE: Check alternator wiring harness connections and drive belt tension. Battery must be fully charged before testing. Wait at least 30 seconds after starting engine before measuring system voltage.

CAUTION: Ensure alternator terminal "B" does not contact ground.

ALTERNATOR OUTPUT

1) Connect an ammeter (100-amp minimum) in-line between terminal "B" connector and wire. See Fig. 2, 3 or 4. Turn headlights and all accessories on. Depress brake pedal. Operate engine at 2500-3000 RPM.

2) If amperage is not as specified in ALTERNATOR MAXIMUM RATED OUTPUT table, repair or replace alternator as necessary. If amperage is as specified, turn off headlights and all accessories. Release brake pedal. Operate engine at 2500-3000 RPM. If amperage is not about 5 amps or more, repair or replace alternator as necessary.

3) If amperage is about 5 amps or more, measure voltage between ground and terminals "S" and "L" while operating engine at 2500-3000 RPM. If 14.1-14.7 volts is not present, repair or replace alternator as necessary. If 14.1-14.7 volts is present, alternator output is okay.

ALTERNATOR MAXIMUM RATED OUTPUT TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	Amps
B2200	55
B2600i	60
Miata	
A/T	65
M/T	60

ALTERNATOR & REGULATOR

Article Text (p. 4)

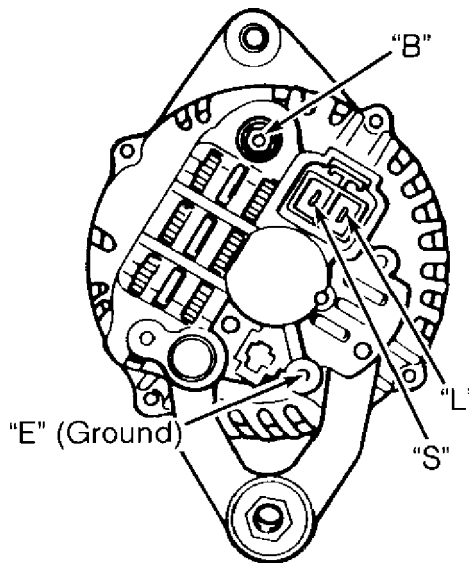
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

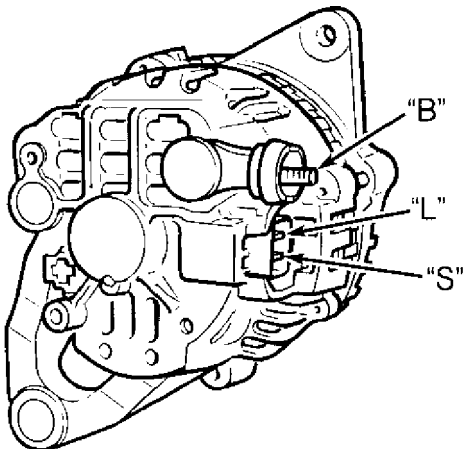
Sunday, August 19, 2001 01:17PM

MPV	70
MX-3	
4-Cylinder	70
V6	90
MX-6 & 626	
4-Cylinder	80
V6	90
Protege & 323	65
RX7	100
929	90
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	



93D00706

Fig. 2: Alternator Terminal ID (B2200, B2600i & MPV)
Courtesy of Mazda Motors Corp.



93E00707

Fig. 3: Alternator Terminal ID (Miata, MX-3 4-Cyl., MX-6 4-Cyl.,
Protege, 323, 626 4-Cyl. & 929)
Courtesy of Mazda Motors Corp.

ALTERNATOR & REGULATOR

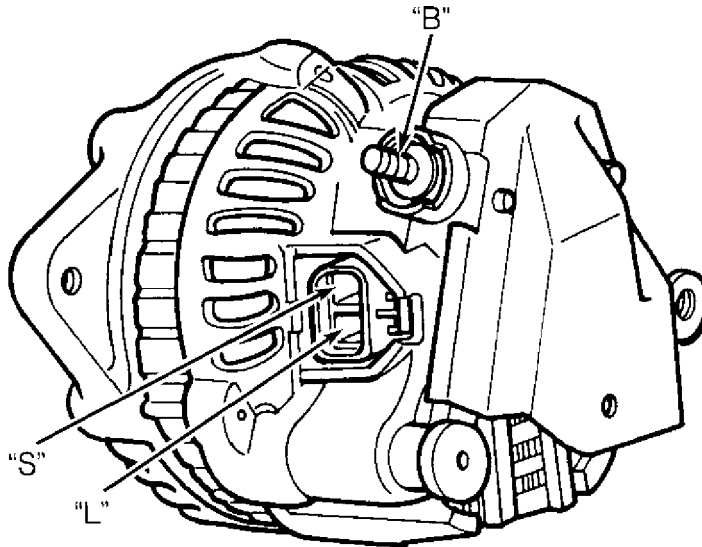
Article Text (p. 5)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:17PM



93I82345

Fig. 4: Alternator Terminal ID (MX-3 V6, MX-6 V6, RX7 & 626 V6)
Courtesy of Mazda Motors Corp.

BENCH TESTING

Rectifier/Diode Assembly

1) Using an ohmmeter, check continuity of each diode in both directions (polarity). See Figs. 5-9. If diode shows high resistance in one direction and low resistance in other direction, diode is okay.

2) If diode shows low resistance in both directions, it is shorted. If diode shows high resistance in both directions, diode is open. If any diode is defective, replace rectifier assembly.

Rotor & Slip Rings

Measure resistance between rotor slip ring contacts. See Fig. 10-14. If resistance is not within specification, replace rotor. See ROTOR RESISTANCE SPECIFICATIONS table. Check continuity between individual slip rings and rotor core/shaft. If there is continuity, replace rotor.

ROTOR RESISTANCE SPECIFICATIONS TABLE

Application		Ohms
B2200, B2600i, Miata, Protege & 323	.....	3.5-4.5
MPV	.....	2.7-2.9
MX-3 & RX7	.....	(1)
MX-6 & 626	.....	2.5-3.5

(1) - Information is not available from manufacturer.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Stator

Check continuity between stator coil leads and stator core.

ALTERNATOR & REGULATOR

Article Text (p. 6)

1993 Mazda RX7

For www.iluvmyrx7.com

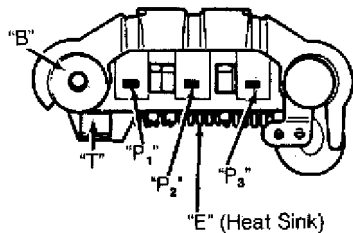
Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:17PM

See Figs. 10-14. If there is continuity, replace stator. Check continuity between leads of stator coil. If there is no continuity, replace stator.

Brushes

Replace brushes if worn to limit line. See Figs. 10-14. Replace brush springs if corroded. For brush replacement procedure, see OVERHAUL.

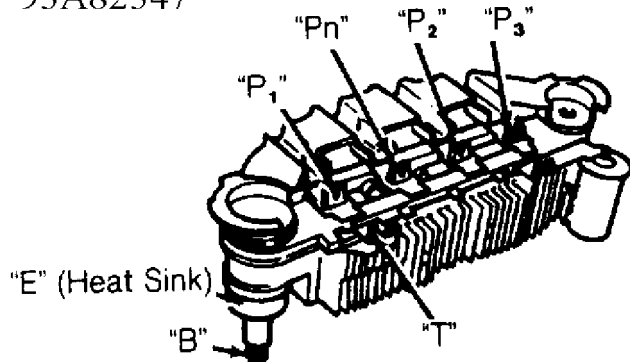


B2200, B2600I, MIATA & MPV

93J82346

Fig. 5: Testing Rectifier Diodes (B220, B2600I, Miata & MPV)
Courtesy of Mazda Motors Corp.

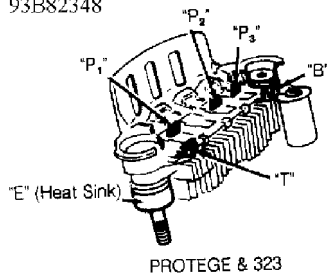
93A82347



MX-3, MX-6, RX7, 626 & 929

Fig. 6: Testing Rectifier Diodes (MX-3, MX-6, RX7, 626, 929)
Courtesy of Mazda Motors Corp.

93B82348



PROTEGE & 323

Fig. 7: Testing Rectifier Diodes (Protege & 323)
Courtesy of Mazda Motors Corp.

ALTERNATOR & REGULATOR

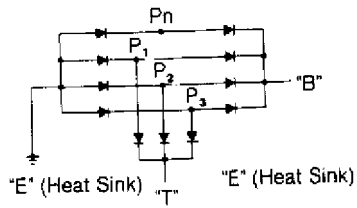
Article Text (p. 7)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:17PM



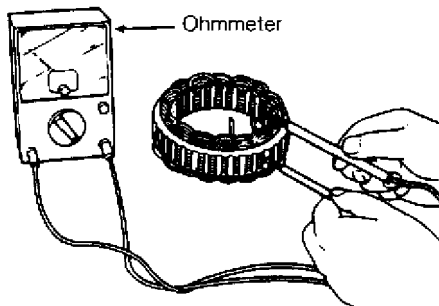
93C92349

Fig. 8: Testing Rectifier Diodes
Courtesy of Mazda Motors Corp.

Negative	Positive	Continuity
E	Pn, P1, P2, P3	Yes
B		No
T		No
Pn, P1, P2, P3	E	No
	B	Yes
P1, P2, P3	T	Yes
Pn		No

93G82350

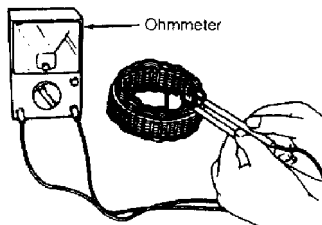
Fig. 9: Testing Rectifier Diodes
Courtesy of Mazda Motors Corp.



CHECKING STATOR FOR SHORTS

93H82351

Fig. 10: Checking Stator For Shorts
Courtesy of Mazda Motors Corp.



CHECKING STATOR WINDING CONTINUITY

93I82352

Fig. 11: Checking Stator Winding Continuity
Courtesy of Mazda Motors Corp.

ALTERNATOR & REGULATOR

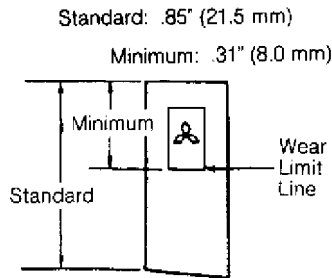
Article Text (p. 8)

1993 Mazda RX7

For www.iluvmyrx7.com

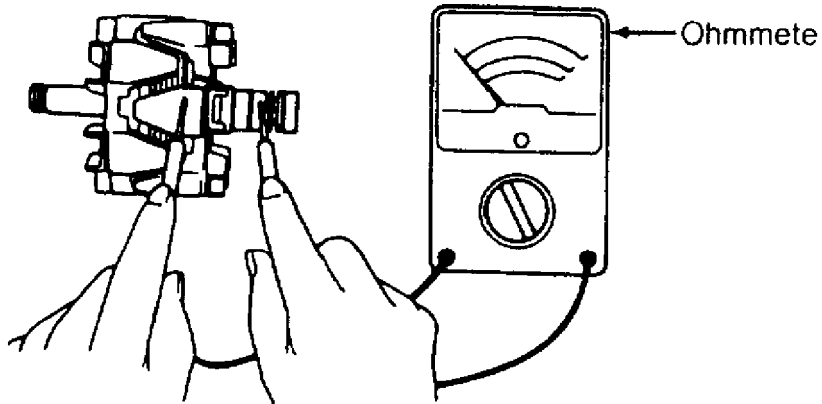
Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:17PM



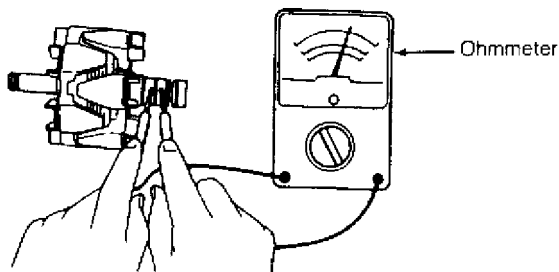
MEASURING BRUSH WEAR
93J82353

Fig. 12: Measuring Brush Wear
Courtesy of Mazda Motors Corp.



CHECKING ROTOR FOR SHORTS
93A82354

Fig. 13: Checking Rotor For Shorts
Courtesy of Mazda Motors Corp.



CHECKING ROTOR RESISTANCE
93B82355

Fig. 14: Checking Rotor Resistance
Courtesy of Mazda Motors Corp.

OVERHAUL

DISASSEMBLY

- 1) Place a 200-watt soldering iron against rear bearing for

ALTERNATOR & REGULATOR

Article Text (p. 9)

1993 Mazda RX7

For www.iluvmyrx7.com

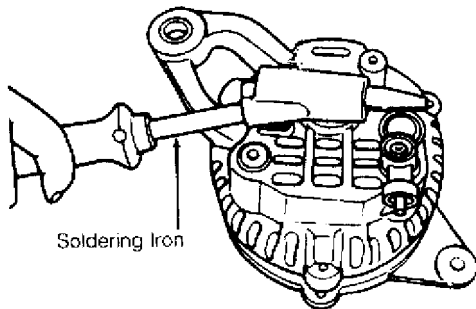
Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:17PM

3-4 minutes to heat rear cover to 122-140°F (50-60°C). Carefully separate front case and rotor from rear cover and stator. See Figs. 15-20 and 22-24.

2) Position rotor in vise. Remove pulley. Disassemble pulley, rotor and front case. Remove front bearing from front case. Using a bearing puller, remove rear bearing.

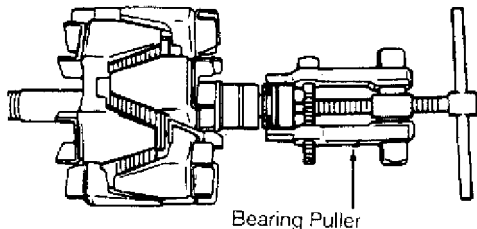
3) Remove "B" terminal nut and bushing from rear cover. Remove screws from brush holder and rectifier. Separate rear cover and stator. When unsoldering rectifier and stator leads, disconnect as quickly as possible (5 seconds maximum) to avoid damage to rectifier. To remove brushes from holder, unsolder pigtail from terminal.



USING A SOLDERING IRON
TO HEAT REAR BEARING HOUSING

93C82356

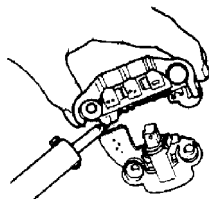
Fig. 15: Overhauling Alternator
Courtesy of Mazda Motors Corp.



REMOVING REAR BEARING

93D82357

Fig. 16: Overhauling Alternator
Courtesy of Mazda Motors Corp.



UNSOLDERING RECTIFIER FROM REGULATOR

93E82358

Fig. 17: Overhauling Alternator
Courtesy of Mazda Motors Corp.

ALTERNATOR & REGULATOR

Article Text (p. 10)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:17PM

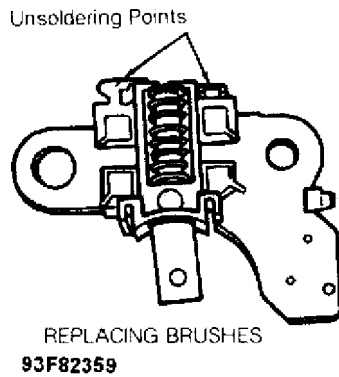


Fig. 18: Overhauling Alternator
Courtesy of Mazda Motors Corp.

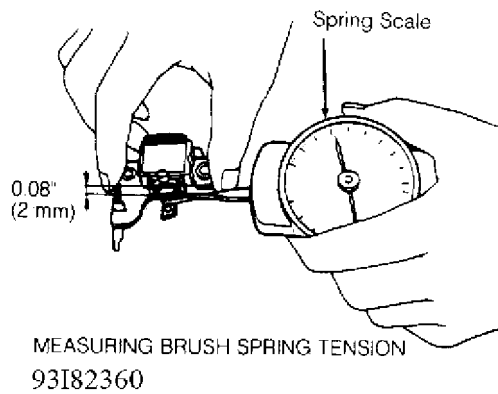


Fig. 19: Overhauling Alternator
Courtesy of Mazda Motors Corp.

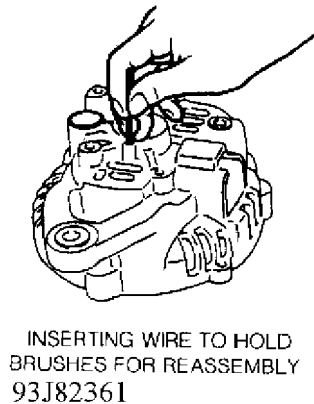


Fig. 20: Overhauling Alternator
Courtesy of Mazda Motors Corp.

REASSEMBLY

ALTERNATOR & REGULATOR

Article Text (p. 11)

1993 Mazda RX7

For www.iluvmyrx7.com

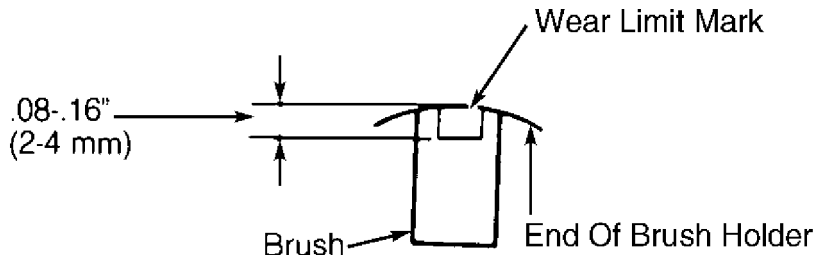
Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:17PM

Brush Installation

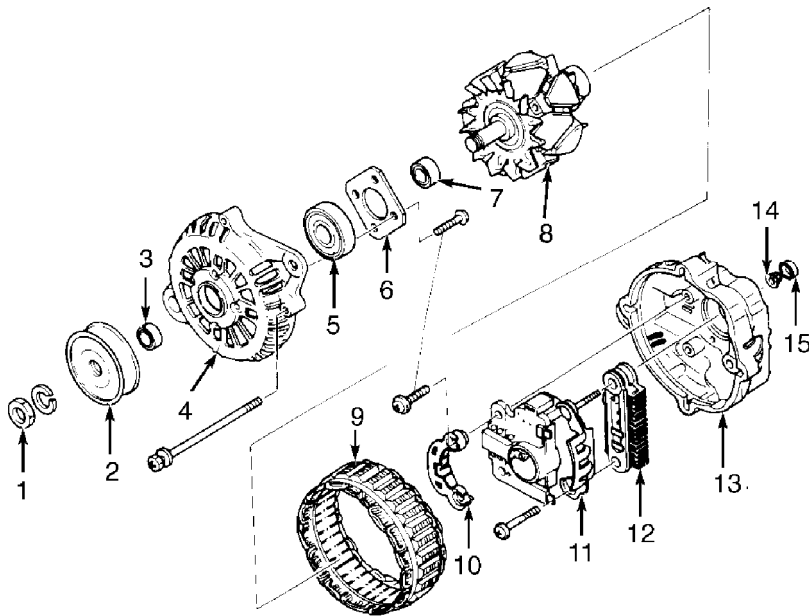
1) Install brush and spring into holder. Allow brush to extend out of holder until wear limit line extends .08-.16" (2-4 mm) beyond end of brush holder. See Fig. 21. Solder pigtail onto brush holder.

2) Insert spring and brush into brush holder. Using a spring scale, pull brush into holder until end of brush protrudes .08" (2.0 mm) from holder. See Fig. 15-20. Note reading on spring scale. Replace spring if tension is not 5.6-15.5 ozs. (160-440 g).



90F02332

Fig. 21: Measuring Installed Depth Of Brush
Courtesy of Mazda Motors Corp.



1. Pulley Nut
2. Pulley
3. Spacer
4. Front Case
5. Front Bearing
6. Bearing Retainer Plate
7. Spacer
8. Rotor

9. Stator
10. Brush Shield
11. Brush Holder
12. Rectifier
13. Rear Cover
14. Nut
15. Bushing

93A82362

Fig. 22: Exploded View Of Alternator (B2200, B2600i, Miata & MPV)
Courtesy of Mazda Motors Corp.

ALTERNATOR & REGULATOR

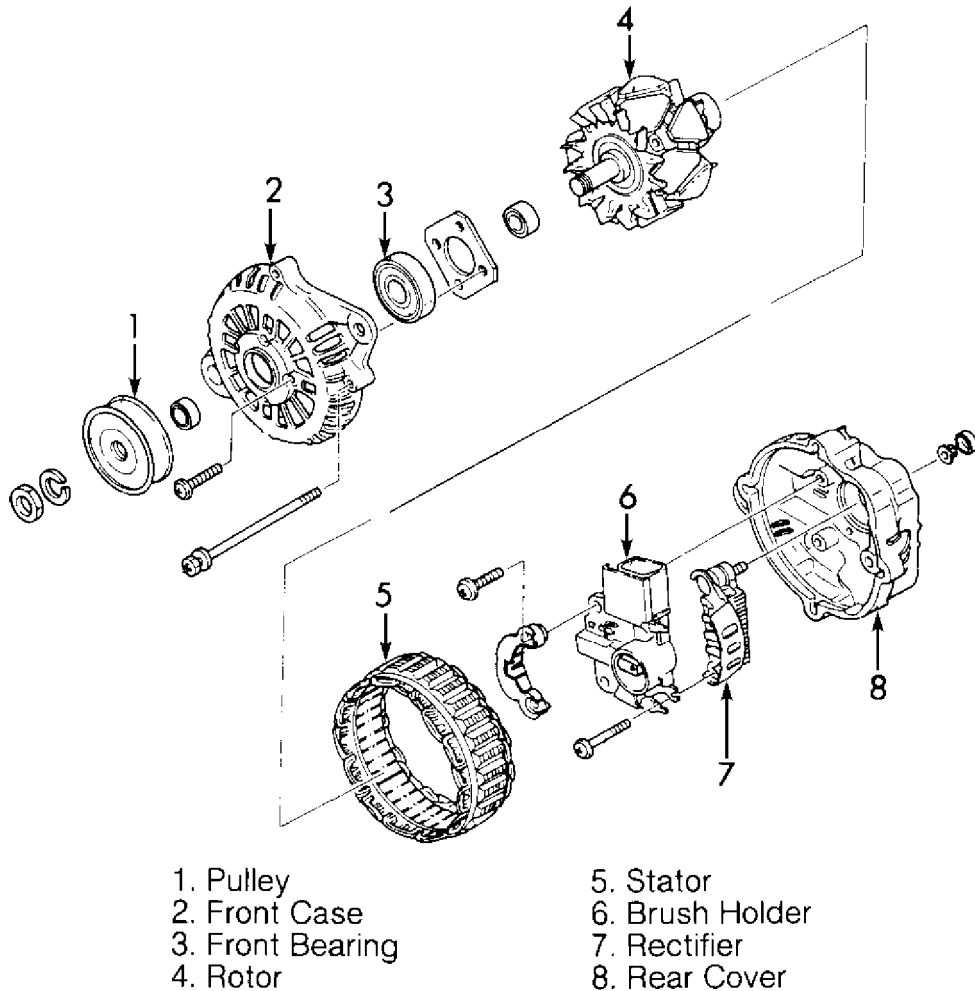
Article Text (p. 12)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

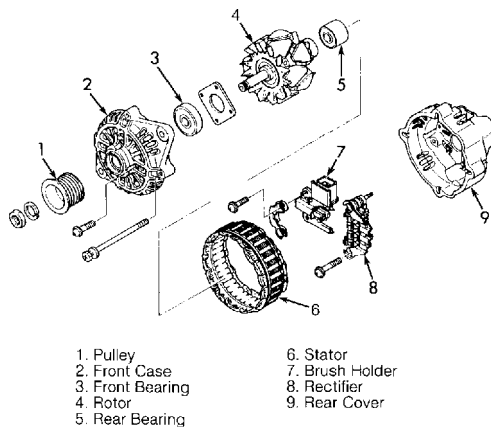
Sunday, August 19, 2001 01:17PM



93B82363

Fig. 23: View Of Alternator (MX-3 4-Cyl., MX-6 4-Cyl., Protege, 323, 626 4-Cyl. & 929)

Courtesy of Mazda Motors Corp.



93C82364

Fig. 24: Exploded View Of Alternator (MX-3 V6, MX-6 V6, RX7 & 626 V6)

Courtesy of Mazda Motors Corp.

ALTERNATOR & REGULATOR

Article Text (p. 13)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Sunday, August 19, 2001 01:17PM

END OF ARTICLE

FUSES & CIRCUIT BREAKERS

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:50PM

ARTICLE BEGINNING

Fuses & Circuit Breakers
1993-95 Mazda

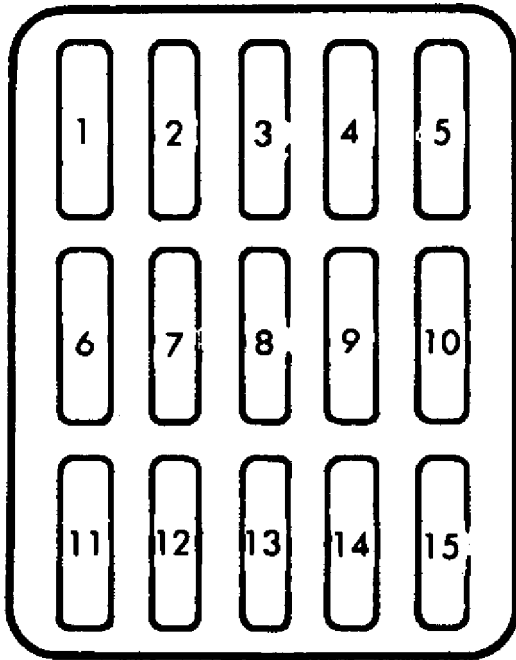
Mazda; RX7

FUSES & CIRCUIT BREAKERS

FUSE PANEL LOCATION

The main fuse block is located at the right rear side of the engine compartment and contains high amperage fuses which protect multiple circuits. Fuse box located above driver's left knee, accessible through a removable cover, contains fuses for individual circuits.

PASSENGER COMPARTMENT FUSE PANEL IDENTIFICATION



PASSENGER COMPARTMENT FUSE BOX

93H45390

Fig. 1: Passenger Compartment Fuse Panel Identification
Courtesy of Mazda Motor of America Inc.

Fuse & Circuit Breaker Identification

- 1 - 20 Amp (Yellow)
Brakelights, Cruise Control, Shift Lock, ABS Control Unit
- 2 - Not Used
- 3 - 15 Amp (Blue)

FUSES & CIRCUIT BREAKERS

Article Text (p. 2)

1993 Mazda RX7

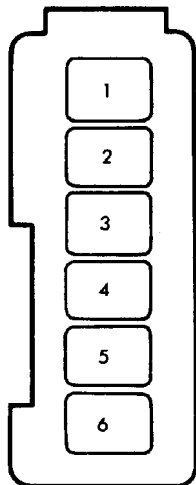
For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:50PM

- 4 - 20 Amp (Yellow)
Sun Roof
Fuel Pump
- 5 - 10 Amp (Red)
Air Bag Unit
- 6 - 10 Amp (Red)
Power Door Locks
- 7 - 15 Amp (Blue)
Tail, License, Side Marker & Parking Lights, Glove Box Light,
Instrument Panel Lights
- 8 - 30 Amp (Pink)
Power Windows
- 9 - 15 Amp (Blue)
Back-Up Lights, Meters, Warning Indicators, Cruise Control,
Shift Lock, Flasher Unit, Defogger, Rear Washer Motor,
Power Antenna
- 10 - 20 Amp (Yellow)
Windshield Wiper/Washer
- 11 - 10 Amp (Red)
Rear Wiper & Washer, Heater, ABS System
- 12 - 15 Amp (Blue)
Hazard Warning Lights, Horn
- 13 - 10 Amp (Red)
Radio, Interior Light, Cargo Light
- 14 - 15 Amp (Blue)
Starter, EGI, Fuel Pump, Air Bag
- 15 - 15 Amp (Blue)
Audio System, Cigarette Lighter, Power Mirrors, Power
Antenna, Ignition Light, Security Indicator, Meters

ENGINE COMPARTMENT SMALL FUSE PANEL IDENTIFICATION



ENGINE COMPARTMENT
SMALL FUSE BOX

93I45391

Fig. 2: Engine Compartment Small Fuse Panel Identification
Courtesy of Mazda Motor of America Inc.

FUSES & CIRCUIT BREAKERS

Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

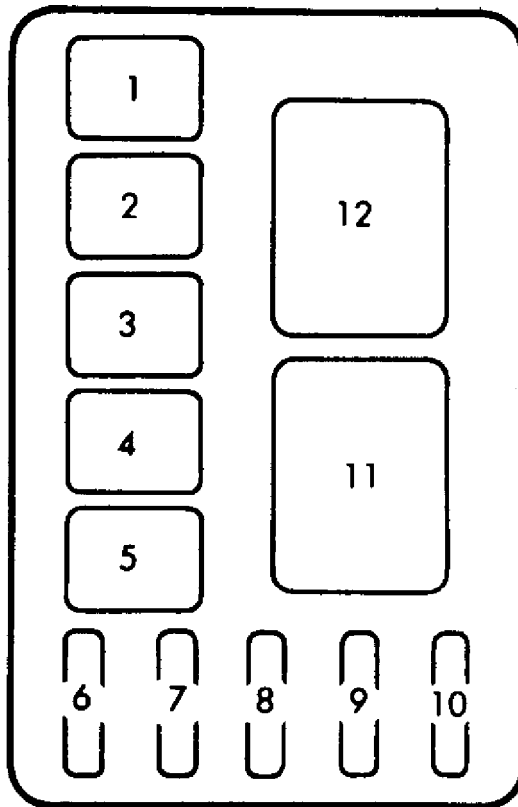
Sunday, August 19, 2001 01:50PM

WARNING: Always disconnect battery ground cable before servicing "high-current fuses. It is recommended that "high-current" fuses be replaced by a qualified technician.

Fuse & Circuit Breaker Identification

- 1 - Not Used
- 2 - 120 Amp (White)
Main Circuit Protection
- 3 - 30 Amp (Pink)
Foglights, Headlights
- 4 - 30 Amp (Pink)
EGI System, Alternator
- 5 - 30 Amp (Pink)
Headlight Retractors
- 6 - 40 Amp (Green)
Heater-A/C Blower Motor, Rear Wiper, Power Windows,
Windshield Wipers, Sun Roof

ENGINE COMPARTMENT LARGE FUSE PANEL IDENTIFICATION



ENGINE COMPARTMENT LARGE FUSE BLOCK

93J45392

Fig. 3: Engine Compartment Large Fuse Panel Identification
Courtesy of Mazda Motor of America Inc.

FUSES & CIRCUIT BREAKERS

Article Text (p. 4)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:50PM

WARNING: Always disconnect battery ground cable before servicing "high-current fuses. It is recommended that "high-current" fuses be replaced by a qualified technician.

Fuse & Circuit Breaker Identification

- 1 - 60 Amp (Yellow)
Hazard, Stoplight, Taillight, Power Door Lock & Courtesy Fuse Protection
- 2 - 40 Amp (Green)
Ignition Switch
- 3 - 60 Amp (Yellow)
Rear Window Defogger
- 4 - 60 Amp (Yellow)
ABS System
- 5 - 60 Amp (Yellow)
Cooling System Fan
- 6 - 30 Amp (Green)
Speaker Amplifiers
- 7 - 15 Amp (Blue)
A/C Cooling Fan
- 8 - 15 Amp (Blue)
ABS Valve, ABS Unit
- 9 - Not Used
- 10 - Not Used
- 11 - Circuit Relay
- 12 - EGI Main Relay

BATTERY SPECIFICATIONS

CAUTION: When battery is disconnected, vehicles equipped with computers may lose memory data. When battery power is restored, driveability problems may exist on some vehicles. These vehicles may require a relearn procedure. See COMPUTER RELEARN PROCEDURES article in the GENERAL INFORMATION Section.

If battery is replaced, new battery should be of the same group number as shown on the original battery's label. Use group 24 batteries with a cold crank rating of 600 amps.

CAUTIONS & WARNINGS

SUPPLEMENTAL RESTRAINT SYSTEM (AIR BAG)

NOTE: See the AIR BAGS article in the ACCESSORIES/SAFETY EQUIPMENT Section.

Modifications or improper maintenance, including incorrect removal and installation of the Supplemental Restraint System (SRS), can adversely affect system performance. DO NOT cover, obstruct or change the steering wheel horn pad in any way, as such action could

FUSES & CIRCUIT BREAKERS

Article Text (p. 5)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:50PM

cause improper function of the system. Use only plain water when cleaning the horn pad. Solvents or cleaners could adversely affect the air bag cover and cause improper deployment of the system.

WARNING: To avoid injury from accidental air bag deployment, read and carefully follow all warnings and service precautions. See appropriate AIR BAGS article in ACCESSORIES/SAFETY EQUIPMENT.

CAUTION: Disconnect negative battery cable before servicing any air bag system, steering column or passenger side dash component. After any repair, turn ignition key to the ON position from passenger's side of vehicle in case of accidental air bag inflation

AIR CONDITIONING SERVICING

CAUTION: Avoid breathing R-134a refrigerant and PAG lubricant vapors, exposure may irritate eyes, nose and throat. To remove R-134a from system use R-134a recycling equipment that meets SAE J2210 specifications. If accidental system discharge occurs, ventilate work area before resuming service.

WARNING: R-134a service equipment or vehicle A/C systems SHOULD NOT be pressure tested or leak tested with compressed air. Some mixtures of air/R134a have shown to be combustible at elevated pressures. These mixtures are dangerous and may cause fire and/or explosions. See AIR CONDITIONING SERVICE article in GENERAL INFORMATION section.

ANTI-LOCK BRAKE SYSTEM

The anti-lock brake system contains electronic equipment that can be susceptible to interference caused by improperly installed or high output radio transmitting equipment. Since this interference could cause the possible loss of the anti-lock braking capability, such equipment should be installed by qualified professionals.

On models equipped with anti-lock brake systems, ALWAYS observe the following cautions:

- * DO NOT attempt to bleed hydraulic system without first referring to the appropriate ANTI-LOCK BRAKE SYSTEM article in the BRAKES Section.
- * DO NOT mix tire sizes. As long as tires remain close to the original diameter, increasing the width is acceptable. Rolling diameter must be identical for all 4 tires. Some manufacturers recommend tires of the same brand, style and type. Failure to follow this precaution may cause inaccurate wheel speed readings.
- * Use ONLY recommended brake fluids. DO NOT use silicone brake fluids in an ABS-equipped vehicle.

FUSES & CIRCUIT BREAKERS

Article Text (p. 6)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:50PM

BATTERY WARNING

WARNING: When battery is disconnected, vehicles equipped with computers may lose memory data. When battery power is restored, driveability problems may exist on some vehicles. These vehicles may require a relearn procedure. See COMPUTER RELEARN PROCEDURES article in GENERAL INFORMATION section.

REPLACING BLOWN FUSES

Before replacing a blown fuse, remove ignition key, turn off all lights and accessories to avoid damaging the electrical system. Be sure to use fuse with the correct indicated amperage rating. The use of an incorrect amperage rating fuse may result in a dangerous electrical system overload.

BRAKE PAD WEAR INDICATOR

Indicator will cause a squealing or scraping noise, warning that brake pads need replacement.

CATALYTIC CONVERTER

Continued operation of vehicle with a severe malfunction could cause converter to overheat, resulting in possible damage to converter and vehicle.

Any modification to the exhaust system on turbo models, which reduces exhaust backpressure, will lead to lean fuel mixtures and excessive spark advance. This could cause serious engine damage.

ELECTROSTATIC DISCHARGE SENSITIVE (ESD) PARTS

WARNING: Many solid state electrical components can be damaged by static electricity (ESD). Some will display a warning label, but many will not. Discharge personal static electricity by touching a metal ground point on the vehicle prior to servicing any ESD sensitive component.

ENGINE OIL

CAUTION: Never use non-detergent or straight mineral oil.

FUEL SYSTEM SERVICE

WARNING: Relieve fuel system pressure prior to servicing any fuel system component (fuel injection models).

HALOGEN BULBS

Halogen bulbs contain pressurized gas which may explode if overheated. DO NOT touch glass portion of bulb with bare hands. Eye protection should be worn when handling or working around halogen

FUSES & CIRCUIT BREAKERS

Article Text (p. 7)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:50PM

bulbs.

HEADLIGHT RETRACTOR

CAUTION: Never operate headlight retractor when a person's hands, or other objects are on or near the headlights. When working on the headlights always remove the headlight retractor fuse.

RADIATOR CAP

CAUTION: Always disconnect the fan motor when working near the radiator fan. The fan is temperature controlled and could start at any time even when the ignition key is in the OFF position. DO NOT loosen or remove radiator cap when cooling system is hot.

RADIATOR FAN

WARNING: Keep hands away from radiator fan. Fan is controlled by a thermostatic switch which may come on or run for up to 15 minutes even after engine is turned off.

TURBOCHARGED MODELS

CAUTION: Do not race engine immediately after starting. When stopping engine, allow engine to idle for approximately 60 seconds before shutting it off. Failure to do so may cause turbocharger damage due to lack of oil flowing to the turbocharger bearings.

END OF ARTICLE

STARTER - DIRECT DRIVE

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Sunday, August 19, 2001 01:50PM

ARTICLE BEGINNING

1993 ELECTRICAL

Mazda Starters - Direct Drive

B2200 M/T, Miata, MX-3 4-Cylinder,
Protege M/T, RX7 M/T, 323

DESCRIPTION

Nippondenso direct drive starter is a conventional 12-volt, 4-pole, brush-type starter. The integral solenoid is attached to the drive housing. The overrunning clutch pinion drive is mounted directly on end of armature shaft drive.

NOTE: For information on B2200 (A/T), MX-3 (V6) and Protege (A/T), proceed to STARTER - REDUCTION GEAR article in the ELECTRICAL section.

TROUBLE SHOOTING

NOTE: See TROUBLE SHOOTING - BASIC PROCEDURES article in the GENERAL INFORMATION section.

ON-VEHICLE TESTING

NOTE: Before testing, ensure battery is fully charged, battery cables and terminals are clean and tight and engine grounds are good.

CIRCUIT TESTING

If starter does not operate, check voltage at starter "S" terminal with ignition switch in START position (and clutch depressed on M/T). See Fig. 1. If voltage is greater than 8 volts, repair or replace as required. If voltage is less than 8 volts, check ignition switch, inhibitor switch (A/T), interlock switch (M/T) and wiring.

STARTER - DIRECT DRIVE

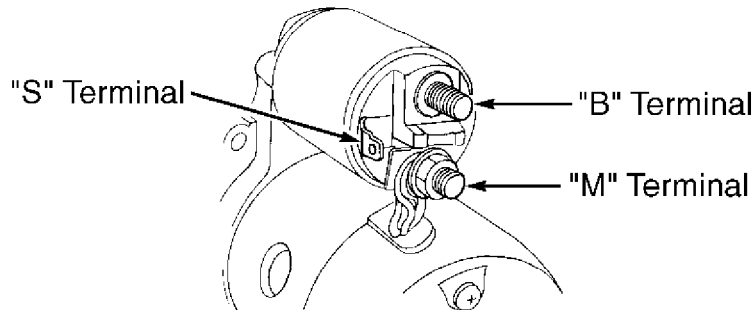
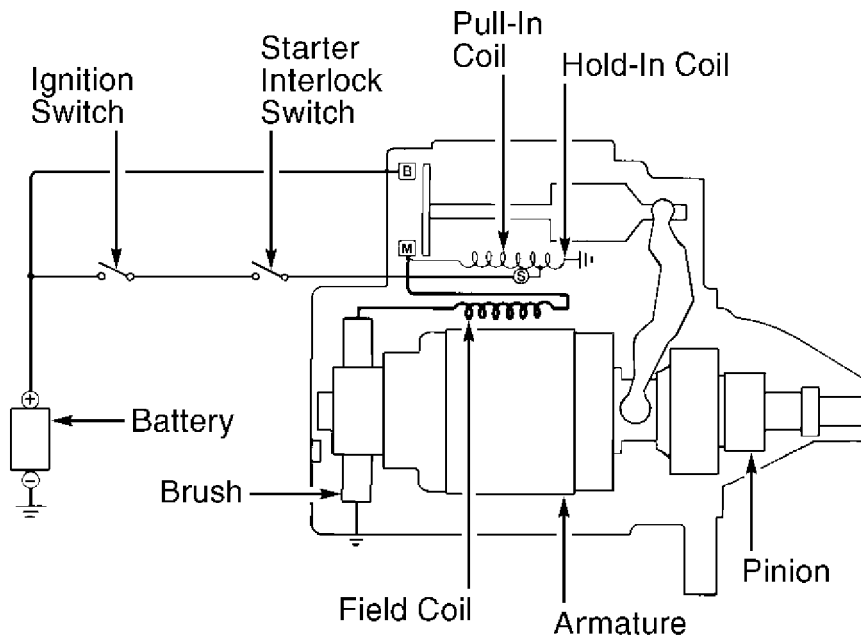
Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:50PM



91J01834

Fig. 1: Direct Drive Starter Circuit Diagrams
Courtesy of Mazda Motors Corp.

STARTER INTERLOCK SWITCH (CLUTCH START SWITCH)

Switch is mounted on bracket near top front of clutch pedal. Disconnect switch wiring connector. Using ohmmeter, ensure continuity exists between switch connector terminals when clutch pedal is depressed. If continuity does not exist, adjust or replace switch.

BENCH TESTING

NO-LOAD TEST

Connect fully-charged 12-volt battery, voltmeter and ammeter to starter. See Fig. 2. Using remote starter wires or jumper, engage solenoid. Starter should spin smoothly. Compare readings with specifications. See NO-LOAD TEST SPECIFICATIONS table. If voltage is less than specified or amperage is more than specified, disassemble and inspect starter components.

STARTER - DIRECT DRIVE

Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:50PM

NO-LOAD TEST SPECIFICATIONS TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	Minimum Voltage	Maximum Amperage
-------------	-----------------	------------------

B2200 M/T, Miata &

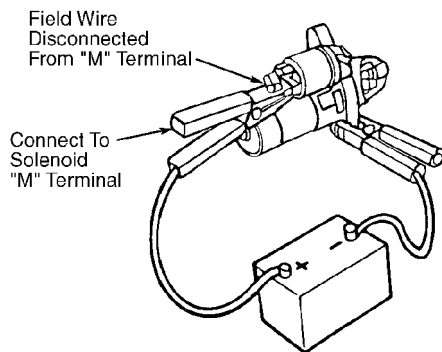
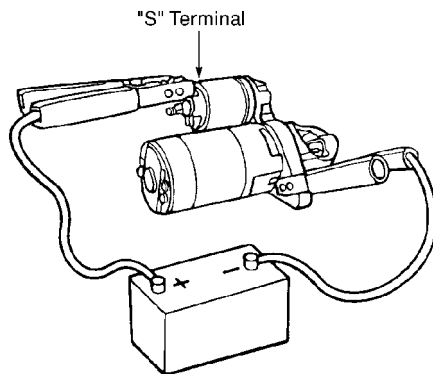
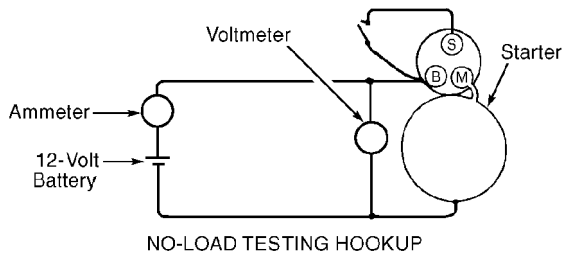
MX-3 4-Cyl.	11.5	60
------------------	------	----

Protege & 323	(1)	(1)
--------------------	-----	-----

RX7	11.0	90
----------	------	----

(1) - Information is not available from manufacturer.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA



STARTER - DIRECT DRIVE

Article Text (p. 4)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:50PM

SOLENOID TEST

NOTE: Perform solenoid tests with starter assembled and field lead ("M" terminal wire) disconnected at the solenoid. See Fig. 2.

CAUTION: DO NOT engage starter solenoid for more than 10 seconds during testing or damage to coil winding may result.

Solenoid Pull-In Test

Connect positive battery lead to solenoid "S" terminal and negative battery lead to starter body. See Fig. 2. Starter pinion drive gear should extend quickly and maintain this position. If starter pinion drive gear does not extend, replace solenoid.

Solenoid Return Test

Connect positive battery lead to solenoid "M" terminal and ground negative battery lead to starter body. See Fig. 2. Using screwdriver, pry overrunning clutch pinion drive outward. Release screwdriver and ensure overrunning clutch pinion drive returns to original position.

Solenoid Hold-In Test

Remove solenoid from starter. Connect positive battery lead to solenoid "S" terminal and negative battery lead to solenoid case. Push plunger into switch. If plunger stays in solenoid, hold-in windings are okay. If plunger does not stay in solenoid, replace solenoid.

Solenoid

1) Disconnect all wires from solenoid, including "M" wire between solenoid and starter. Using ohmmeter, ensure there is continuity between "S" and "M" terminals, and between "S" terminal and solenoid body. See Figs. 1 and 2. If continuity does not exist between these terminals, replace solenoid.

2) Ensure continuity does not exist between "M" and "B" terminals. If continuity exists between these terminals, solenoid is shorted. Replace solenoid.

PINION GAP ADJUSTMENT

1) Disconnect field wire from solenoid "M" terminal. See Fig. 2. Connect positive battery lead to "S" terminal and negative battery lead to starter case. Starter pinion drive gear will extend outward and stop.

2) Quickly measure pinion gap between end of pinion drive and circlip retainer. See Fig. 3. DO NOT operate starter solenoid for more than 10 seconds. Pinion gap should be .02-.08" (0.5-2.0 mm).

3) If pinion gap is not within specification, adjust by increasing or decreasing thickness of solenoid shims located between solenoid and drive housing.

STARTER - DIRECT DRIVE

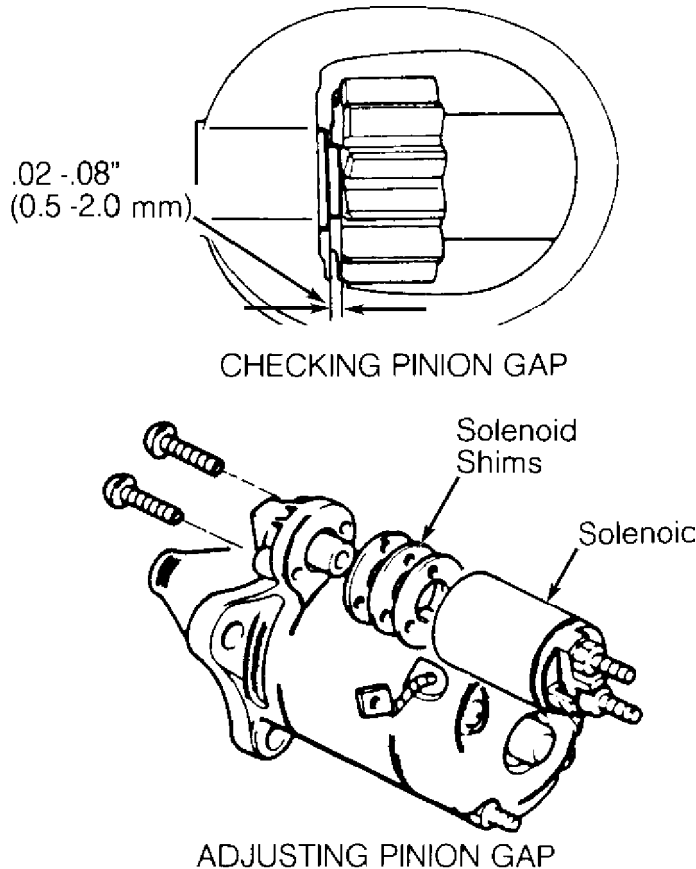
Article Text (p. 5)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:50PM



91F01832
Fig. 3: Checking & Adjusting Pinion Gap
Courtesy of Mazda Motors Corp.

ARMATURE TEST

- 1) Place armature in growler. Turn on growler and hold a piece of hacksaw blade over armature. Slowly rotate armature. If hacksaw blade is attracted to core or if it vibrates, replace armature.
- 2) Remove armature from growler. Using an ohmmeter, check continuity between commutator and core. If continuity exists, replace armature. Check continuity between commutator and shaft. If continuity exists, replace armature.
- 3) Check continuity between each commutator segment. If an open exists between any 2 segments, replace armature.

COMMUTATOR TEST

- 1) Clean surface and polish with No. 400 sandpaper if required. If surface is scored, out of round or pitted, turn commutator in a lathe.
- 2) Maximum commutator runout and minimum diameter of commutator must not exceed specification after turning. See COMMUTATOR SPECIFICATIONS table.
- 3) Commutator mica undercut depth should be .020 -.030" (.50

STARTER - DIRECT DRIVE

Article Text (p. 6)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:50PM

-.80 mm). Minimum mica undercut depth is .008" (.20 mm). If not within specification, undercut to standard depth.

COMMUTATOR SPECIFICATIONS TABLE

Application	Maximum		Minimum	
	Runout		Diameter	
	In. (mm)		In. (mm)	
B2200 M/T, Protege M/T				
& 323 .....	.004	(.10)	.....	1.24 (31.4)
Miata .....	.001	(.03)	.....	1.21 (30.8)
MX-3 4-Cyl. ....	.004	(.10)	.....	1.22 (31.0)
RX7 M/T .....	.002	(.05)	.....	1.26 (32.0)

BRUSH TEST

1) Connect ohmmeter lead to positive brush holder and other lead to negative brush holder. If continuity exists, brush holder assembly is shorted and must be replaced.

2) Check brush length. Standard brush length is .67" (17.0 mm). Minimum brush length is .45" (11.5 mm). If length is less than specified, replace brushes.

3) Using brush spring scale, measure spring tension. Tension should be greater than 2 lbs. (0.9 kg). Tension for a NEW spring should be 3.1-5.7 lbs. (1.4-2.6 kg). Ensure brushes move freely in holders.

FIELD WINDING TEST

1) Connect one ohmmeter lead to field coil lead ("M" terminal lead). Connect other lead to soldered portion of brush lead. If continuity does not exist, repair or replace field coil.

2) Check field coil for shorts to ground by connecting ohmmeter lead to field coil lead. Connect other lead to field coil housing. If continuity exists, repair or replace field coil.

OVERRUNNING CLUTCH PINION DRIVE

Hold overrunning clutch housing and turn pinion gear by hand. If pinion turns in both directions, clutch is faulty. Replace clutch. DO NOT clean overrunning clutch with solvent, as it is packed with grease and sealed by manufacturer.

OVERHAUL

NOTE: Overhaul procedures are not available from manufacturer. Use illustration for exploded view of starter. See Fig. 4 and 5.

STARTER - DIRECT DRIVE

Article Text (p. 7)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:50PM

MIATA, MX-3, PROTEGE (M/T) & 323

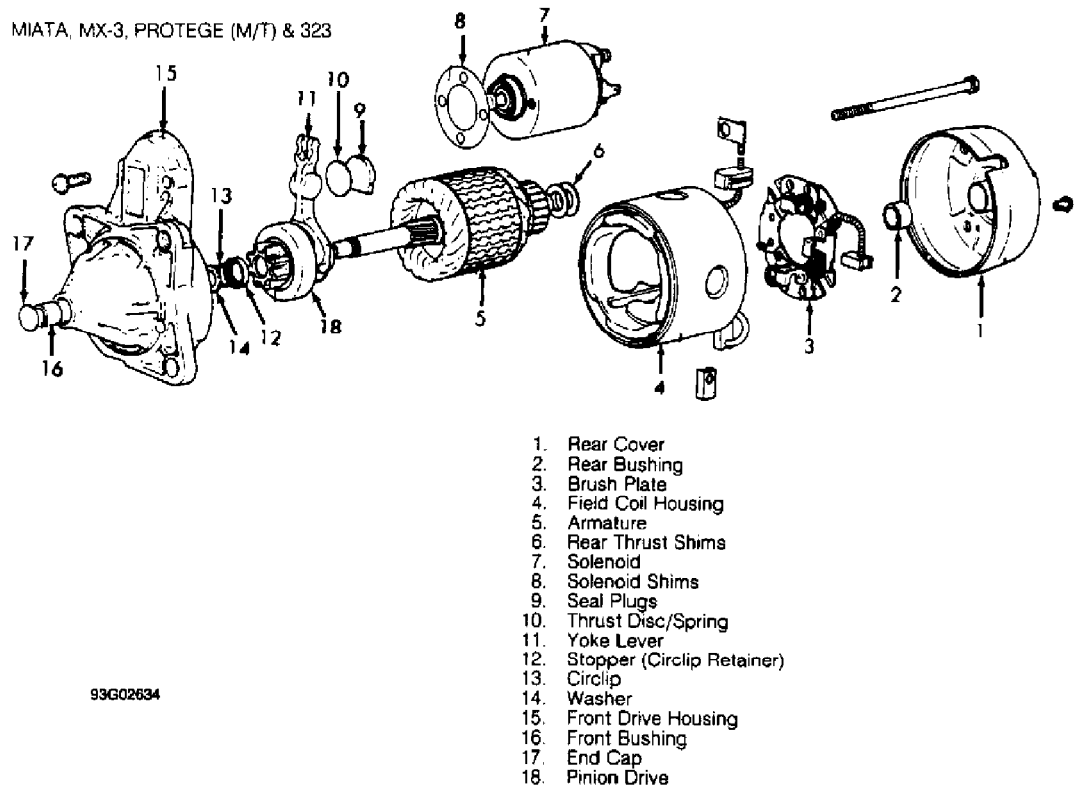


Fig. 4: Exploded View Of Direct Drive Starter
Courtesy of Mazda Motors Corp.

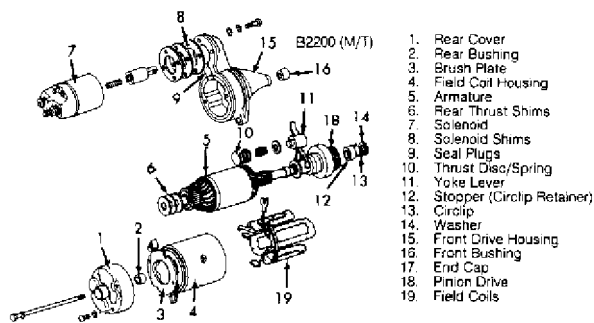


Fig. 5: Exploded View Of Direct Drive Starter
Courtesy of Mazda Motors Corp.

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application Ft. Lbs. (N.m)

Starter Mounting Bolt (1) 27-38 (37-52)

STARTER - DIRECT DRIVE

Article Text (p. 8)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:50PM

INCH Lbs. (N.m)

Battery Cable Nut (Solenoid Terminal "B") 96 (8)

(1) - On Miata, tighten small bolt to 60-86 INCH lbs.
(5.0-7.2 N.m).

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

END OF ARTICLE

A/C COMPRESSOR OIL CHECKING

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 06:59PM

ARTICLE BEGINNING

1993 GENERAL SERVICING

Compressor Refrigerant Oil Checking

* PLEASE READ THIS FIRST *

NOTE: For compressor applications, see COMPRESSOR APPLICATIONS TABLE below. DO NOT exceed A/C system refrigerant oil capacity, when servicing system. See REFRIGERANT OIL & REFRIGERANT SPECIFICATIONS TABLE.

COMPRESSOR APPLICATION

NOTE: Due to late changes, always refer to underhood A/C specification label in engine compartment or A/C compressor label while servicing A/C system. If A/C Specification label and specifications in this article differ, always use label specifications.

COMPRESSOR APPLICATION TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	Compressor
-------------	------------

Acura	Nippondenso 10-Cyl.
-------	---------------------

Audi	
------	--

90	Zexel 6-Cyl.
----	--------------

100	Zexel 6-Cyl.
-----	--------------

BMW	Nippondenso
-----	-------------

Or Seiko-Seiki

Chrysler Motors/Eagle

Colt & Summit	Sanden FX105V Scroll
---------------	----------------------

Colt Vista & Summit Wagon	Nippondenso 10PA15 10-Cyl.
---------------------------	----------------------------

Stealth	Sanden FX105VS Scroll
---------	-----------------------

Ram-50	Sanden FX80 Scroll
--------	--------------------

Ford Motor Co.

Capri	Nippondenso 10-Cyl.
-------	---------------------

Festiva	Nippondenso 6-Cyl.
---------	--------------------

General Motors & Geo

LeMans	Harrison V5 5-Cyl.
--------	--------------------

Metro & Tracker	Nippondenso 10-Cyl.
-----------------	---------------------

Prizm	Nippondenso 10PA15 10-Cyl.
-------	----------------------------

Storm	Diesel Kiki KC-50 Rotary Vane
-------	-------------------------------

Honda

Accord	Nippondenso 10-Cyl.
--------	---------------------

Or Hadsys RC-17S 7-Cyl.

Civic	Sanden Scroll
-------	---------------

Civic Del Sol	Sanden Scroll
---------------	---------------

Prelude	Sanden Scroll
---------	---------------

Hyundai

Elantra	San den TRF-090 Scroll
---------	------------------------

A/C COMPRESSOR OIL CHECKING

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 06:59PM

Excel	.....	Sanden SD-709 7-Cyl.
Scoupe	.....	Nippondenso 10PA15C 10-Cyl.
Sonata	.....	Ford FX-15 10-Cyl.
Infiniti		
G20	.....	Atsugi NVR 140S Rotary Vane
J30	.....	Calsonic V6 6-Cyl.
Q45	.....	Calsonic V5 5-Cyl.
Isuzu (R-12)		
Amigo	.....	Diesel Kiki DKS-13CH 6-Cyl.
Pickup		
4-Cylinder	.....	Diesel Kiki DKS-13CH 6-Cyl.
V6	.....	Harrison R4 4-Cyl. Radial
Stylus	.....	Diesel Kiki DKV-14D Rotary Vane
Rodeo		
4-Cylinder	.....	Diesel Kiki DKS-17CH 6-Cyl.
V6	.....	Diesel Kiki DKV-14D Rotary Vane
Trooper	.....	Diesel Kiki DKV-14D Rotary Vane
Isuzu (R-134a Option) (1)		
Amigo, Pickup, Rodeo & Trooper		
2.3L & 2.6L Engine	.....	Zexel R-134a 6-Cyl.
3.1L Engine	.....	Harrison R-134a R-4 4-Cyl. Radial
3.2L Engine	.....	Zexel R-134a Rotary Vane
Jaguar		
XJS	.....	Sanden SD-709 7-Cyl.
XJ6	.....	Sanden SD-7H15 7-Cyl.
Lexus	.....	Nippondenso 10PA20 10-Cyl.
Mazda		
B2200 & B2600i	.....	Sanden 5-Cyl.
Miata	.....	Nippondenso TV12 Rotary Vane
MPV	.....	Nippondenso 10-Cyl.
MX-6 & 626	.....	Panasonic Rotary Vane
Navajo	.....	Ford FX-15 10-Cyl.
MX-3, Protege & 323	.....	Panasonic Rotary Vane
929	.....	Panasonic Rotary Vane
RX7	.....	Nippondenso TV12 Rotary Vane
Mercedes-Benz		
190E	.....	Nippondenso 10PA15 10-Cyl.
300D/E, 400E & 500E	.....	Nippondenso 10PA17 10-Cyl.
300SE/SD, 400SE & 500SEL	.....	Nippondenso 10PA20 10-Cyl.
Mitsubishi		
Diamante		
R-12	.....	Sanden FX105VS Scroll
R-134a	.....	Sanden MSC105
Diamante Wagon	.....	Nippondenso 10PA17C 10-Cyl.
Galant & Mirage	.....	Sanden FX105V Scroll
Eclipse	.....	Nippondenso 10PA17 10-Cyl.
Expo/Expo LRV	.....	Nippondenso 10PA17C 10-Cyl.
Pickup	.....	Sanden FX80 Scroll
Montero	.....	Nippondenso 10PA15 10-Cyl.
Precis	.....	Sanden SD-709 7-Cyl.
3000GT		
R-12	.....	Sanden FX105VS Scroll

Sunday, August 19, 2001 06:59PM

[illegible]

A/C COMPRESSOR OIL CHECKING

Article Text (p. 4)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 06:59PM

REFRIGERANT OIL & REFRIGERANT CAPACITY

REFRIGERANT OIL & REFRIGERANT CAPACITY (ACURA THROUGH INFINITI)

Application	(1) Oil Ounces	Refrigerant Ounces
Acura		
Integra	(2) 2.0-3.4	32-34
Legend		
Sedan	(2) (3) 4.7	(4) 24.7-26.5
Coupe	(3) 4.7	24.7-26.5
Vigor	(2) 4.7-4.9	26.5-28.0
Audi		
90	7.8-9.2	(5) 23.0-24.8
100	7.8-9.2	(5) 21.0-22.8
BMW		
318 & 325 Series	3.4-4.8	(6) 35-36
525i & 535i	4.7-6.1	(6) 53.0-55.5
740i & 740iL	4.7-6.1	(6) 53.0-55.5
Chrysler Motors/Eagle		
Colt & Summit	(2) 4.4-5.1	26-30
Colt Vista & Summit		
Wagon	(2) 2.0-3.4	30
Ram-50	(2) 4.4-5.1	30
Stealth	(2) 4.6-6.0	29
Ford Motor Co.		
Capri	2.4-3.0	23-27
Festiva	10	25
General Motors & Geo		
LeMans	8.0	35
Metro	2.7	18
Prizm & Prizm LSi	6.0	25
Storm	5.1	21
Tracker	2.7	21
Honda		
Accord		
Nippondenso	3.0-4.1	28-30
Hadsys	4.1-4.3	28-30
Civic	4.0-4.7	21-23
Civic Del Sol	4.0-4.7	21-23
Prelude	(7) 4.3-5.0	21-23
Hyundai		
Excel	8.1	30-32
Scoupe	2-3	28-32
Elantra	4.0	32
Sonata	6.9-7.7	30-32
Infiniti		
G20	6.8	24-29
J30	8.5	(8) 24-26
Q45	9.7	38-42

A/C COMPRESSOR OIL CHECKING

Article Text (p. 5)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 06:59PM

- (1) - Total system capacity, unless otherwise noted.
- (2) - Compressor refrigerant oil capacity.
- (3) - Capacity revised by manufacturer in Acura Service News bulletin number ASN 0793-02.
- (4) - Use R-134a refrigerant and ND-Oil 8 (Part No. 38899-PR7-003).
- (5) - Use R-134a refrigerant and Polyalkylene Glycol (PAG) oil.
- (6) - Use R-134a and Polyalkylene Glycol Oil (Part No. 81-22-9-407-724).
- (7) - Use R-134a refrigerant and PAG Refrigerant Oil (Part No. 38899-P13-003).
- (8) - Use R-134a refrigerant and Type "S" Oil (Part No. KLH00-PAGS0).

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

REFRIGERANT OIL & REFRIGERANT CAPACITY (ISUZU THROUGH MERCEDES)

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	(1) Oil Ounces	Refrigerant Ounces
Isuzu (R-12)		
Amigo	5.0	26
Pickup		
2.3L & 2.6L Engine	5.0	26
3.1L Engine	6.0	26
Rodeo		
2.6L Engine	5.0	26
3.2L Engine	5.0	26
Stylus	5.0	21
Trooper	5.0	30
Isuzu (R-134a Option) (3)		
Amigo & Pickup		
2.3L & 2.6L Engine	5.0	23
3.1L Engine	7.5-8.5	23
Rodeo	5.0	23
Trooper	5.0	26
Jaguar		
XJS	(2) 4.6	40
XJ6	(2) 4.5	(4) 40
Lexus		
ES300	(2) 3.5	32-35
GS300	(2) 4.0	(5) 28-32
LS400	(2) 2.8-3.5	(5) 32
SC300 & SC400	(2) 4.0	32-35
Mazda		
B2200 & B2600i	(2) 4.5	28
Miata	(2) 2.7-3.3	28
MPV		
Dual Unit	(2) 2.7-3.3	51
Single Unit	(2) 2.7-3.3	37
MX-3	(2) 5.0	28

A/C COMPRESSOR OIL CHECKING

Article Text (p. 6)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 06:59PM

MX-6 & 626	.....	(2)	4.3	.....	26
Protege & 323	.....	(2)	3.9-4.6	.....	28
Navajo	.....	7.0	.....	28-29	
929	.....	3.6	.....	28	
RX7	.....	3.4-4.7	.....	21	
Mercedes-Benz					
190E	.....	(2)	4.0	.....	36
300D/E, 400E & 500E	.....	(2)	5.4	..... (6)	36
300SE/SD, 400SE	.....			
& 500SEL	.....	(2)	5.4	..... (7)	43

- (1) - Total system capacity, unless otherwise noted.
- (2) - Compressor refrigerant oil capacity.
- (3) - Standard equipment on some models built after 5/1/93.
Use R-134a Swash Plate Compressor Oil (Part No. 2-90188-300-0) on 2.3L and 2.6L engine. Use R-134a R-4 Compressor Oil (Part No. 2-90222-320-0) on 3.1L engine. Use R-134a Rotary Vane Compressor Oil (Part No. 2-90188-301-0) on 3.2L engine.
- (4) - Use R-134a refrigerant and PAG SP20 refrigerant oil.
- (5) - Use R-134a refrigerant and ND-Oil 8 (Part No. 38899-PR7-003).
- (6) - Use R-134a refrigerant and Densooil 8 (Part No. A 001 989 08 03).
- (7) - Use R-134a refrigerant and Densooil 8 (Part No. A 001 989 08 03). Use 50 ounces if equipped with rear passenger compartment A/C-heater system.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

REFRIGERANT OIL & REFRIGERANT CAPACITY (MITSUBISHI THRU SUBARU)

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	(1) Oil Ounces	Refrigerant Ounces
-------------	-------------------	-----------------------

Mitsubishi

Diamante		
R-12	.....	5.4-6.0 34-38
R-134a	.....	(3) 5.7-6.4 26-28
Diamante Wagon	.....	5.4 28
Eclipse	.....	(2) 2.0-3.4 33
Expo/Expo LRV		
1.8L	.....	(2) 3.4-4.0 30
2.4L	.....	(2) 2.0-3.4 30
Galant	.....	(2) 5.0-5.7 33
Mirage	.....	(2) 4.4-5.1 26-30
Pickup	.....	(2) 4.4-5.1 30
Montero	.....	(2) 2.0-3.4 28
Precis	.....	8.1 30-32
3000GT		
R-12	.....	4.7-6.0 29
R-134a	.....	(3) 4.7-6.0 26-28

Nissan

A/C COMPRESSOR OIL CHECKING

Article Text (p. 7)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 06:59PM

Altima	(4) 6.8	25-28
Maxima	(5) 6.8	30-33
Pathfinder & Pickup	(4) 6.8	26-30
Quest		
Front A/C	7.0	36
Front & Rear A/C	10	56
Sentra & NX	6.8	23-26
240SX	8.0	29-32
300ZX	6.8	26-30
Porsche		
911 America Roadster, RS		
America & Carrera 2/4	4.6	(6) 29.5
Saab		
900	5.9	34-36
9000	6.6	(3) 33-34
Subaru		
Impreza	6.1	23-26
Legacy		
Zexel	(2) 2.4	29-32
Calsonic	(2) 3.2	29-32
Loyale	(2) 2.4	26-28
SVX	(2) 2.4	(7) 22-23

(1) - Total system capacity, unless otherwise noted.

(2) - Compressor refrigerant oil capacity.

(3) - Use SUN PAG 56 refrigerant oil.

(4) - Use R-134a refrigerant and Type "R" Oil (Part No. KLH00-PAGR0).

(5) - Use R-134a refrigerant and Type "S" Oil (Part No. KLH00-PAGS0).

(6) - Use R-134a refrigerant and Nippondenso ND8 refrigerant oil.

(7) - Use R-134a refrigerant and ZXL100 PG (DH-PS) Type "S" Oil (Part No. K0010PS000).

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

REFRIGERANT OIL & REFRIGERANT CAPACITY (SUZUKI THROUGH VOLVO)

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	(1) Oil Ounces	Refrigerant Ounces
Suzuki		
Samurai	2.0-3.4	18
Sidekick	2.0-3.4	21-23
Swift	2.0-3.4	18
Toyota		
Camry	(2) 3.5	32-35
Celica	3.4-4.1	24-27
Corolla	3.4-4.1	25-28
Land Cruiser	3.4-4.1	30-34
MR2	3.4-4.1	28-32
Paseo	3.4-4.1	25-28
Pickup	3.4-4.1	24-29

A/C COMPRESSOR OIL CHECKING

Article Text (p. 8)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 06:59PM

Previa			
Without Rear A/C	3.4-4.7		32-35
With Rear A/C	3.4-4.7		41-44
Supra	(2) 4.1	(3)	23-27
Tercel	3.4-4.1		25-28
T100	3.4-4.1	(3)	21-25
4Runner	3.4-4.1		27-30
Volkswagen			
Cabriolet	4.6		30.0-31.8
Corrado SLC	3.9-4.4		35.0-36.8
EuroVan			
Without Rear A/C	4.6	(4)	34-35
With Rear A/C	8.2	(4)	48-49
Fox	5.7		41-42
Golf, GTI & Jetta	3.9	(4)	28-30
Passat	3.9-4.4	(4)	41.0-42.8
Volvo			
240	7.4	(5)	26
850			
Cold Climates	7.0	(5)	29
Hot Climates	7.0	(5)	26
940 & 960			
Sanden SD-510	4.8	(6)	32-34
Sanden SD-709	8.5	(6)	32-34
Seiko-Seiki	7.8	(6)	32-34

(1) - Total system capacity, unless otherwise noted.

(2) - Compressor refrigerant oil capacity.

(3) - Use R-134a refrigerant and ND-Oil 8 (Part No. 38899-PR7-003).

(4) - Use R-134a refrigerant and SP-10 PAG Oil (Part No. G 052 154 A2).

(5) - Use R-134a refrigerant and ZXL 100 PG Oil (Part No. 8708581-7).

(6) - Use R-134a refrigerant and PAG Oil (Part No. 8708581-9).

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

REFRIGERANT OIL

Only NEW, moisture-free refrigerant oil should be used in the air conditioning system. This oil is highly refined and dehydrated so moisture content is less than 10 parts per million. The oil container must be tightly closed at all times when not in use, or moisture from the air will be absorbed into the refrigerant oil.

SERVICING PRECAUTIONS

DISCHARGING SYSTEM

Discharge A/C system using approved refrigerant recovery/recycling equipment. Always follow recovery/recycling equipment manufacturer's instructions. After refrigerant recovery

A/C COMPRESSOR OIL CHECKING

Article Text (p. 9)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 06:59PM

process is completed, the amount of compressor oil removed must be measured and the same amount added to A/C system.

DISCONNECTING LINES & FITTINGS

After system is discharged, carefully clean area around all fittings to be opened. Always use 2 wrenches when tightening or loosening fittings. Some refrigerant lines are connected with a coupling. Special tools may be required to disconnect lines. Cap or plug all openings as soon as lines are removed. DO NOT remove caps until connections of lines and fittings are completed.

CONNECTING LINES & FITTINGS

NOTE: All R-134a based systems use 1/2-16 ACME threaded fittings. Ensure all replacement parts match the connections of the system being worked on.

Always use a new gasket or "O" ring when connecting lines or fittings. Coat "O" ring with refrigerant oil and ensure it is not twisted during installation. Always use 2 wrenches to prevent damage to lines and fittings.

PLACING SYSTEM IN OPERATION

After component service or replacement has been completed and all connections have been made, evacuate system thoroughly with a vacuum pump. Charge system with proper amount of refrigerant and perform leak test. See REFRIGERANT OIL & REFRIGERANT SPECIFICATIONS article in GENERAL SERVICING for system capacities. Check all fittings that have been opened. After system has been leak tested, check system performance.

NOTE: Most compressors are pre-charged with a fixed amount of refrigerant (shipping) oil. Drain compressor oil from new compressor and add refrigerant oil to new compressor according to amount removed from old compressor. Always refer to underhood A/C specification label or A/C compressor label while servicing A/C system.

ATSUGI

ROTARY VANE

1) Before checking and adjusting oil level, operate engine at 1200 RPM. Set controls at maximum cooling and high blower motor speed for 10 minutes to return oil to compressor.

2) Stop engine. Discharge refrigerant and remove compressor from vehicle. See SERVICING PRECAUTIONS. Drain compressor oil through compressor discharge port and measure oil amount.

3) If amount drained is less than 3 ounces, conduct leak tests at system connections. Repair or replace faulty parts as

Sunday, August 19, 2001 06:59PM

Fill with same amount drained, using new oil. If amount drained is less than 3 ounces, pour in 3 ounces of new refrigerant oil.

Refrigerant Lines (1) 1.0-1.7

[illegible]

6-CYLINDER

2) Stop engine and discharge refrigerant. See SERVICING PRECAUTIONS. Remove refrigerant oil level inspection plug on side of compressor. Oil should be at lower lip of threaded hole. If oil level is low, add new refrigerant oil as necessary. Replace inspection plug and tighten to 10-12 ft. lbs. (14-16 N.m).

V5 5-CYLINDER & V6 6-CYLINDER

4) Fill compressor with total amount drained, using new oil. If any major components of the system were also replaced, determine the amount of additional oil needed. See appropriate COMPONENT REFRIGERANT OIL CAPACITIES table for specified amount.

[illegible]

A/C COMPRESSOR OIL CHECKING

Article Text (p. 11)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 06:59PM

Component	Ounces
Condenser	1.0-1.7
Evaporator	1.5-2.5
Receiver-Drier	0.5-0.8
Refrigerant Lines (1)	1.0-1.7

(1) - Add only if a refrigerant oil leak is indicated.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

COMPONENT REFRIGERANT OIL CAPACITIES (CALSONIC V6)

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Component	Ounces
Condenser	2.5
Evaporator	2.5
Receiver-Drier	0.2
Refrigerant Lines (1)	1.0

(1) - Add only if a refrigerant oil leak is indicated.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Subaru

1) Before checking and adjusting oil level, operate engine at 1000-1500 RPM. Set controls at maximum cooling and high blower motor speed for 20 minutes to return oil to compressor.

2) Stop engine. Discharge refrigerant and remove compressor from vehicle. See SERVICING PRECAUTIONS. Drain compressor oil from compressor drain plug and measure oil amount.

3) Fill compressor with total amount drained, using new oil. If any major components of the system were also replaced, determine the amount of additional oil needed. See appropriate SUBARU COMPONENT REFRIGERANT OIL CAPACITIES table for specified amount.

SUBARU COMPONENT REFRIGERANT OIL CAPACITIES (LEGACY)

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Component	Ounces
Compressor	2.4
Condenser	1.7
Evaporator	2.4
Refrigerant Lines (1)	1.7

(1) - Add only if a refrigerant oil leak is indicated.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

SUBARU COMPONENT REFRIGERANT OIL CAPACITIES (SVX)

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Component	Ounces
Compressor	2.4
Condenser	1.7

A/C COMPRESSOR OIL CHECKING

Article Text (p. 12)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 06:59PM

Evaporator	2.4
Refrigerant Lines (1)	1.7

(1) - Add only if a refrigerant oil leak is indicated.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

DIESEL KIKI

ROTARY VANE

1) Before checking and adjusting oil level, operate engine at 800-1000 RPM. Set controls at maximum cooling and high blower motor speed for 20 minutes to return oil to compressor.

2) Stop engine. Discharge refrigerant and remove compressor from vehicle. See SERVICING PRECAUTIONS. Remove oil drain plug and measure amount of oil drained.

3) If amount drained is less than 3 ounces (1.7 ounces on Geo Storm), conduct leak tests at system connections. Repair or replace faulty parts as necessary.

4) If amount drained is more 3 ounces (1.7 ounces on Geo Storm), oil level is okay. Fill compressor with same amount drained, using new oil. If amount drained is less than 3 ounces (1.7 ounces on Geo Storm), pour in 3 (1.7) ounces of new refrigerant oil.

5) When replacing other A/C system components, add the following amount(s) of refrigerant oil. See COMPONENT REFRIGERANT OIL CAPACITIES (DIESEL KIKI ROTARY VANE) table.

COMPONENT REFRIGERANT OIL CAPACITIES (DIESEL KIKI ROTARY VANE)

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Component	Ounces
-----------	--------

Condenser	1.7
-----------------	-----

Evaporator	1.0
------------------	-----

Receiver-Drier	1.0
----------------------	-----

Refrigerant Lines	0.3
-------------------------	-----

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

5 & 6-CYLINDER

1) Before checking and adjusting oil level, operate engine at 800-1000 RPM. Set controls at maximum cooling and high blower motor speed for 20 minutes to return oil to compressor.

2) Stop engine. Discharge refrigerant and remove compressor from vehicle. See SERVICING PRECAUTIONS. Remove oil drain plug and measure amount of oil drained.

3) If amount drained is less than 3 ounces, conduct leak tests at system connections. Repair or replace faulty parts as necessary.

4) If amount drained is more 3 ounces, oil level is okay. Fill compressor with same amount drained, using new oil.

5) When replacing other A/C system components, add the following amount(s) of refrigerant oil. See COMPONENT REFRIGERANT OIL

A/C COMPRESSOR OIL CHECKING

Article Text (p. 13)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 06:59PM

CAPACITIES (DIESEL KIKI 5 & 6-CYLINDER) table.

COMPONENT REFRIGERANT OIL CAPACITIES (DIESEL KIKI 5 & 6-CYLINDER)

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Component	Ounces
-----------	--------

Condenser	1.0
-----------------	-----

Evaporator	1.7
------------------	-----

Receiver-Drier	1.0
----------------------	-----

Refrigerant Lines	0.3
-------------------------	-----

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

FORD

FX-15 10-CYLINDER

1) Slowly discharge system. See SERVICING PRECAUTIONS. Remove A/C compressor. Drain compressor oil from suction and discharge ports. Measure amount drained and discard oil.

2) If amount drained from removed (old) compressor is between 3 and 5 ounces, add drained amount of new refrigerant oil into the NEW compressor through suction port.

3) If amount drained is less than 3 ounces, add 3 ounces to the NEW compressor. If amount drained is more than 5 ounces, add 5 ounces. Use new "O" rings on refrigerant lines. Install A/C compressor. Evacuate and recharge system. Perform leak test.

4) When replacing other A/C system components, add the following amount(s) of refrigerant oil. See COMPONENT REFRIGERANT OIL CAPACITIES (FX-15 10-CYLINDER) table.

COMPONENT REFRIGERANT OIL CAPACITIES (FX-15 10-CYLINDER)

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Component	Ounces
-----------	--------

Condenser	1.0
-----------------	-----

Evaporator	3.0
------------------	-----

Receiver-Drier	(1) 2.0
----------------------	---------

Refrigerant Lines	(2) 1.0
-------------------------	---------

(1) - On Hyundai Sonata and Mazda Navajo, drain oil from old receiver-drier. Add amount drained to amount specified.

(2) - Add only if a large oil leak is indicated.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

HADSYS

7-CYLINDER

Honda (Accord)

1) Discharge system. See SERVICING PRECAUTIONS. Remove compressor from vehicle. Drain all oil from NEW compressor and fill compressor with 4 ounces of clean refrigerant oil.

A/C COMPRESSOR OIL CHECKING

Article Text (p. 14)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 06:59PM

2) Add one ounce of refrigerant oil when replacing evaporator. Add 1/2 ounce when replacing condenser. When replacing receiver-drier or hoses, add 1/3 ounce per component replaced.

HARRISON

R4 4-CYLINDER

1) Before checking and adjusting oil level, operate engine at 800-1000 RPM. Set controls at maximum cooling and high blower motor speed for 20 minutes to return oil to compressor.

2) Stop engine. Discharge refrigerant and remove compressor from vehicle. See SERVICING PRECAUTIONS. Remove oil drain plug and measure amount of oil drained.

3) If amount drained is less than one ounce, conduct leak tests at system connections. Repair or replace faulty parts as necessary. Fill compressor with 2 ounces, using new refrigerant oil.

4) If amount drained is more one ounce, oil level is okay. Fill compressor with same amount drained, using new oil.

5) When replacing other A/C system components, add the following amount(s) of refrigerant oil. See COMPONENT REFRIGERANT OIL CAPACITIES (HARRISON R4 4-CYLINDER) table.

COMPONENT REFRIGERANT OIL CAPACITIES (HARRISON R4 4-CYLINDER)

Component		Ounces
Condenser	.....	1.0
Evaporator	.....	1.7
Receiver-Drier	.....	1.0
Refrigerant Lines	.....	0.3

V5 5-CYLINDER

1) If system is operable, run A/C system for several minutes to stabilize system. Turn off engine. Discharge system and remove compressor. See SERVICING PRECAUTIONS. Remove drain plug and measure oil.

2) If one ounce or more is drained, add same amount. If less than one ounce is drained, add 2 ounces of new refrigerant oil to compressor.

3) If condenser is replaced, add one ounce. Add 3.5 ounces if accumulator is replaced. If evaporator is replaced or if a large refrigerant leak occurred, add 3 ounces of new refrigerant oil.

HITACHI

6-CYLINDER

1) Before checking and adjusting oil level, operate compressor at 1000-1500 engine RPM, and set controls at maximum

A/C COMPRESSOR OIL CHECKING

Article Text (p. 15)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 06:59PM

cooling and high blower motor speed for about 10 minutes to return oil to compressor.

2) Stop engine. Discharge refrigerant and remove compressor from vehicle. See SERVICING PRECAUTIONS. Drain oil from compressor through suction port. Measure amount of oil drained.

3) If amount drained is 2.4 ounces or more, fill with same amount using new oil. If amount drained is less than 2.4 ounces, fill with 2.4 ounces. Install compressor and recharge.

4) If A/C components are replaced, add refrigerant oil to system. Add 1.7 ounces if condenser is replaced. Add 2.4 ounces if evaporator is replaced. Oil does not need to be added if receiver-drier is replaced. Add 1.7 ounces of refrigerant oil only if a refrigerant oil leak is indicated.

MATSUSHITA

ROTARY VANE

Geo (Prizm)

1) If system is operable, run A/C system for several minutes to stabilize system. Turn off engine. Discharge system and remove compressor. See SERVICING PRECAUTIONS. Remove drain plug and measure oil.

2) If one ounce or more is drained, add same amount. If less than one ounce is drained, add 2 ounces of new refrigerant oil to compressor.

3) If condenser is replaced, add one ounce. Add 3.5 ounces if receiver-drier is replaced. If evaporator is replaced or if a large refrigerant leak occurred, add 3 ounces of new refrigerant oil.

Toyota

Discharge system. See SERVICING PRECAUTIONS. Remove compressor from vehicle. Drain oil from compressor through inlet and outlet ports. Fill compressor with 3.4-4.1 ounces of oil through suction port. Add 0.7 ounces if receiver-drier was replaced. When replacing condenser or evaporator, add 1.4-1.7 ounces of refrigerant oil.

NIPPONDENSO

ROTARY VANE

1) Before checking and adjusting oil level, operate compressor at engine idle speed, and set controls at maximum cooling and high blower motor speed for 20-30 minutes to return oil to compressor.

2) Stop engine. Discharge refrigerant and remove compressor from vehicle. See SERVICING PRECAUTIONS. Drain compressor oil through compressor intake and discharge ports. Measure amount drained.

3) Fill compressor with same amount as drained, plus one ounce. When replacing condenser, add one ounce. When replacing evaporator, add 1 1/2 ounces. When replacing receiver-drier, add 1/3

A/C COMPRESSOR OIL CHECKING

Article Text (p. 16)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 06:59PM

ounce of new refrigerant oil.

6 & 10-CYLINDER

NOTE: Porsche and Suzuki compressor oil checking procedures are not available from manufacturer.

Acura & Honda

1) Discharge system. See SERVICING PRECAUTIONS. Remove compressor from vehicle. Drain all oil from NEW compressor and fill compressor with 3-4 ounces of clean refrigerant oil.

2) On Accord, add 5/6 ounce of refrigerant oil when replacing evaporator. Add 1/3 ounce when replacing condenser. When replacing receiver-drier or hoses, add 1/3 ounce per component replaced.

3) On Legend, add 2 ounces of refrigerant oil when replacing evaporator. Add one ounce when replacing condenser. When replacing receiver-drier or hoses, add 1/3 ounce per component replaced.

4) On Integra, add one ounce of refrigerant oil when replacing evaporator. When replacing condenser, receiver-drier or hoses, add 1/3 ounce per component replaced.

5) On Vigor, add 1/2 ounce of refrigerant oil when replacing evaporator. Add 2/3 ounce when replacing condenser. When replacing receiver-drier or hoses, add 1/3 ounce per component replaced.

Chrysler Corp. (Colt Vista/Summit Wagon)

Add 2 ounces of refrigerant oil when replacing evaporator. Add one ounce when replacing condenser. When replacing receiver-drier or hoses, add 1/3 ounce per component replaced.

Ford Motor Co.

On Capri, add 2-3 ounces when replacing compressor. Add one ounce of refrigerant oil when replacing condenser or evaporator. When replacing receiver-drier, add 1/2 ounce. On Festiva, drain and measure oil from receiver-drier. Add the amount drained plus one ounce. Add one ounce when replacing condenser. Add 3 ounces of refrigerant oil when replacing evaporator.

Geo, Hyundai & Mazda

Add one ounce of refrigerant oil when replacing condenser. Add 1-1 1/2 ounce when replacing evaporator. When replacing receiver-drier or hoses, add 1/3 ounce per component replaced.

Lexus & Toyota

The use of refrigerant recovery/recycling is recommended by manufacturer. After refrigerant recovery process is completed, the amount of compressor oil removed must be measured and the same amount added to A/C system. Add 1 1/2 ounces of refrigerant oil when replacing condenser. Add 1 1/2 ounces when replacing evaporator. When replacing receiver-drier or hoses, add 1/2 ounce per component replaced.

Mercedes-Benz

A/C COMPRESSOR OIL CHECKING

Article Text (p. 17)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 06:59PM

Add 2/3 ounce of refrigerant oil when replacing condenser. Add 1 1/3 ounces when replacing evaporator. When replacing receiver-drier or hoses, add 1/3 ounce per component replaced. If A/C system line has broken (sudden discharge), add 1 1/3 ounces of refrigerant oil.

NOTE: On Mercedes-Benz vehicles with rear A/C, add 2/3 ounce of refrigerant oil when replacing rear condenser. When replacing rear A/C lines, add 1/3 ounce per line replaced.

Mitsubishi

1) On Eclipse, add 2/3 ounce of refrigerant oil when replacing condenser. Add one ounce when replacing evaporator. When replacing receiver-drier or hoses, add 1/3 ounce per component replaced.

2) On Expo/Expo LRV and Montero, add one ounce of refrigerant oil when replacing condenser. Add 2 ounces when replacing evaporator. When replacing receiver-drier or hoses, add 1/3 ounce per component replaced.

Volkswagen (Fox)

1) The use of refrigerant recovery/recycling is recommended by manufacturer. After refrigerant recovery process is completed, the amount of compressor oil removed must be measured and the same amount added to A/C system.

2) Add 1 1/2 ounce of refrigerant oil when replacing evaporator. When replacing condenser, add 1 1/3 ounce of refrigerant oil. Add one ounce of refrigerant oil when replacing receiver-drier (1 1/2 ounces if relief valve on receiver-drier has burst).

PANASONIC

ROTARY VANE

Mazda

Add 1 1/3 ounce of refrigerant oil when replacing condenser (1/2 ounce on MX-6 and 626). Add 2 ounces when replacing evaporator. When replacing receiver-drier or hoses, add 1/3 ounce of refrigerant oil.

SANDEN

SCROLL

Chrysler/Mitsubishi

1) On Colt, Galant, Mirage, Pickup, Ram-50 and Summit, add 1/2 ounce of refrigerant oil when replacing condenser. Add 1 1/2 ounces when replacing evaporator. When replacing receiver-drier or hoses, add 1/3 ounce per component replaced.

2) On Stealth and 3000GT, add 1/2 ounce of refrigerant oil when replacing condenser. Add 2 ounces when replacing evaporator. When replacing receiver-drier or low-pressure hose, add 1/3 ounce per

A/C COMPRESSOR OIL CHECKING

Article Text (p. 18)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 06:59PM

component replaced.

Honda

1) Discharge system. See SERVICING PRECAUTIONS. Remove compressor from vehicle. Drain all oil from NEW compressor and fill compressor with 4 ounces of clean refrigerant oil.

2) On Civic and Civic Del Sol, add 1 1/2 ounce of refrigerant oil when replacing evaporator. Add 2/3 ounce when replacing condenser. When replacing receiver-drier or hoses, add 1/3 ounce per component replaced.

3) On Prelude, add one ounce of refrigerant oil when replacing evaporator. When replacing other A/C components, add 1/3 ounce per component replaced (including hoses).

Hyundai

Add 1 1/2 ounces of refrigerant oil when replacing evaporator. Add one ounce when replacing condenser. When replacing receiver-drier, add 1/3 ounce of refrigerant oil.

5-CYLINDER

Mazda

Add one ounce of refrigerant oil when replacing condenser. Add 1 2/3 ounce when replacing evaporator. When replacing receiver-drier, add 1/2 ounce of refrigerant oil.

NOTE: Saab and Volvo (Sanden 5 or 7-cylinder) compressor oil checking procedures are not available from manufacturer.

7-CYLINDER

Hyundai & Mitsubishi (Excel & Precis)

1) Before checking and adjusting oil level, operate compressor at engine idle speed, and set controls at maximum cooling and high blower motor speed for 20-30 minutes to return oil to compressor.

2) Stop engine. Discharge refrigerant and remove compressor from vehicle. See SERVICING PRECAUTIONS. Remove oil drain plug and drain oil. Measure amount of oil drained. Install drain plug with new "O" ring.

3) If amount drained is 2.3 ounces or more, fill compressor with same amount using new oil. If amount drained is less than 2.3 ounces, fill with 2.3 ounces. Install filler plug. Install compressor and recharge system.

COMPONENT REFRIGERANT OIL CAPACITIES (SANDEN 7-CYLINDER)

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Component	Ounces
Condenser	1.0
Evaporator	3
Receiver-Drier	1

A/C COMPRESSOR OIL CHECKING

Article Text (p. 19)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 06:59PM

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

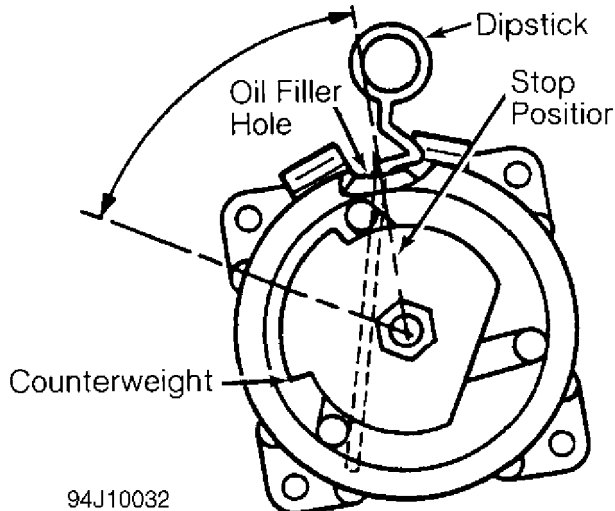
Jaguar (XJS)

1) Operate engine at idle speed for 10 minutes, to return refrigerant oil to compressor. Stop engine. Discharge refrigerant. See SERVICING PRECAUTIONS. Clean area around compressor filler plug and remove plug slowly.

2) Determine angle at which compressor is mounted. Insert compressor dipstick diagonally until stop on dipstick contacts filler plug surface. See Fig. 1. Remove dipstick and note oil fill level. Each increment on dipstick represents one ounce of oil.

3) Determine amount of oil needed according to mounting angle. See COMPRESSOR OIL CAPACITIES (JAGUAR XJS) table for specified amount.

4) If necessary, correct compressor oil level. Install compressor oil plug, and tighten it to 72-108 INCH lbs. (8-12 N.m). Evacuate and recharge A/C system. Perform leak test.



94J10032

Fig. 1: Checking Jaguar XJS Compressor Oil Level (Sanden 7-Cylinder)
Courtesy of Jaguar Cars, Inc.

COMPRESSOR OIL CAPACITIES (JAGUAR XJS)

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Mounting Angle (In Degrees) Oil Level In Increments

0	.....	3-5
10	.....	4-6
20	.....	5-7
30	.....	6-8
40	.....	7-9
50	.....	8-10
60	.....	9-11
90	.....	10-12

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Volkswagen

1) The use of refrigerant recovery/recycling is recommended

A/C COMPRESSOR OIL CHECKING

Article Text (p. 20)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 06:59PM

by manufacturer. After refrigerant recovery process is completed, the amount of compressor oil removed must be measured and the same amount added to A/C system.

2) On Cabriolet, add 2/3 ounce of refrigerant oil when replacing evaporator. When replacing condenser or receiver-drier, add 1/3 ounce of refrigerant oil per component replaced.

3) On Corrado SLC, Golf, GTI, Jetta and Passat, add 2/3 ounce of refrigerant oil when replacing evaporator. When replacing condenser or receiver-drier, add 1/3 ounce of refrigerant oil per component replaced.

4) On EuroVan, add one ounce of refrigerant oil when replacing evaporator. Add 1/2 ounce when replacing condenser (2/3 ounce on vehicles with rear A/C). When replacing receiver-drier, add 1/3 ounce (2/3 ounce on vehicles with rear A/C).

SEIKO-SEIKI

ROTARY VANE

Saab (9000)

The A/C system is filled with 6.6 ounces of compressor oil. The compressor must be topped off with the specified amount. See COMPONENT REFRIGERANT OIL CAPACITIES (SEIKO-SEIKI ROTARY VANE) table. Topping off should be carried out on the high pressure side of the compressor.

COMPONENT REFRIGERANT OIL CAPACITIES (SEIKO-SEIKI ROTARY VANE)

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Component	Ounces
Compressor	(1) 2.3
Condenser	1.3
Expansion Valve	0.6
Evaporator	1.3
Receiver-Drier	1.3
Refrigerant Lines	0.6

(1) - To avoid an excessive amount of oil in the A/C system, oil must be drained from the compressor before it is installed.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

ZEXEL

NOTE: Isuzu and Subaru compressor oil checking procedures are not available from manufacturer.

ROTARY VANE

Nissan

1) Before checking and adjusting oil level, operate engine at 1200 RPM. Set controls at maximum cooling and high blower motor speed for 10 minutes to return oil to compressor.

A/C COMPRESSOR OIL CHECKING

Article Text (p. 21)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 06:59PM

2) Stop engine. Discharge refrigerant. See SERVICING PRECAUTIONS. Measure the amount of oil drained/discharged into refrigerant recovery/recycling equipment.

3) Remove compressor from vehicle. Drain compressor oil from compressor drain plug and measure oil amount. Add this amount to amount drained in step 2), to obtain total amount drained.

4) Fill compressor with total amount drained, using new oil. If any major components of the system were also replaced, determine the amount of additional oil needed. See COMPONENT REFRIGERANT OIL CAPACITIES (ZEXEL ROTARY VANE & 6-CYLINDER) table for specified amount.

COMPONENT REFRIGERANT OIL CAPACITIES (ZEXEL ROTARY VANE & 6-CYLINDER)

~~~~~

| Component                        | Ounces  |
|----------------------------------|---------|
| Condenser                        |         |
| Altima & Maxima .....            | 2.5     |
| NX, Pickup, Sentra & 300ZX ..... | 1.0-1.7 |
| Evaporator                       |         |
| Altima & Maxima .....            | 2.5     |
| NX, Pickup, Sentra & 300ZX ..... | 1.5-2.5 |
| Receiver-Drier                   |         |
| Altima & Maxima .....            | 0.2     |
| NX, Pickup, Sentra & 300ZX ..... | 0.5-0.8 |
| Refrigerant Lines (1) .....      | 1.0     |

(1) - Add only if a refrigerant oil leak is indicated.

~~~~~

6-CYLINDER

Audi

1) The use of refrigerant recovery/recycling is recommended by manufacturer. After refrigerant recovery process is completed, the amount of compressor oil removed must be measured and the same amount added to A/C system.

2) Add one ounce of refrigerant oil when replacing accumulator. When replacing condenser, add amount drained from condenser plus 1/3 ounce of refrigerant oil. When replacing evaporator, add amount drained from evaporator plus 2/3 ounce of refrigerant oil.

Nissan

1) Before checking and adjusting oil level, operate engine at 1200 RPM. Set controls at maximum cooling and high blower motor speed for 10 minutes to return oil to compressor.

2) Stop engine. Discharge refrigerant. See SERVICING PRECAUTIONS. Measure the amount of oil drained/discharged into refrigerant recovery/recycling equipment.

3) Remove compressor from vehicle. Drain compressor oil from compressor drain plug and measure oil amount. Add this amount to

A/C COMPRESSOR OIL CHECKING

Article Text (p. 22)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 06:59PM

amount drained in step 2), to obtain total amount drained.

4) Fill compressor with total amount drained, using new oil. If any major components of the system were also replaced, determine the amount of additional oil needed. See COMPONENT REFRIGERANT OIL CAPACITIES (ZEXEL ROTARY VANE & 6-CYLINDER) table for specified amount.

Volvo (850)

1) Discharge refrigerant. See SERVICING PRECAUTIONS. Remove compressor from vehicle. Drain compressor oil from compressor drain plug and measure oil amount. Add the same amount of oil as was drained from the old compressor.

2) Add 1 2/3 ounce of refrigerant oil when replacing evaporator. When replacing condenser or hoses, add 2/3 ounce of refrigerant oil per component replaced. Add 3 ounce of refrigerant oil when replacing receiver-drier.

END OF ARTICLE

A/C COMPRESSOR SERVICING

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Sunday, August 19, 2001 07:00PM

ARTICLE BEGINNING

1993 AIR CONDITIONING & HEAT
Compressor Servicing

READ THIS FIRST

NOTE: The purpose of this article is to provide GENERAL servicing overview. For more specific information, refer to the AUTO A/C-HEAT SYSTEM, MANUAL A/C-HEAT SYSTEM, or HEATER SYSTEM articles in this section.

NOTE: Due to variety of clutch and shaft seal configurations, obtain appropriate A/C compressor service tools for compressor being serviced.

ATSUGI ROTARY VANE CLUTCH COIL R & I

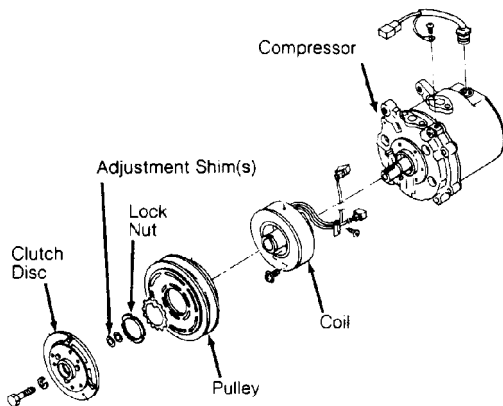
Removal

When replacing compressor clutch, be careful not to scratch shaft or bend pulley. When removing center bolt, hold clutch disc with Clutch Holder (KV99231010). Using Hub Puller (KV998VR001), remove clutch disc. When removing pulley, remove lock nut with Hub Socket (KV99235160).

Installation

1) Tighten center bolt to 81-104 INCH lbs. (9.1-11.8 N.m). Tighten lock nut to 21-29 ft. lbs. (29-39 N.m). Using feeler gauge, ensure clearance between clutch disc and pulley is .012-.024" (.30-.60 mm).

2) If clearance is not correct, replace adjustment shim(s). See Fig. 1. Break-in clutch by engaging and disengaging clutch about 30 times.



103223

Fig. 1: Exploded View Of Compressor (Atsugi Rotary Vane)
Courtesy of Nissan Motor Co., U.S.A.

A/C COMPRESSOR SERVICING

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:00PM

BOSCH 6-CYLINDER CLUTCH COIL R & I

Removal

1) Hold clutch plate and remove shaft nut. Using Clutch Plate Remover (64 5 00), remove clutch plate. Using snap ring pliers, remove circlip and remove pulley assembly.

2) If pulley bearing is being replaced, remove circlip at rear of pulley. Press bearing and spacer from pulley. Press in new bearing with spacer and replace circlip.

Installation

1) Clean all surfaces. Install pulley assembly on compressor and install circlip. Ensure clutch plate shim is in place on shaft. Install clutch plate and nut. Tighten nut to 13-15 ft. lbs. (18-20 N. m).

2) Using a feeler gauge, check clutch plate-to-pulley clearance. Clearance should be .028-.051" (.7-1.3 mm). If clearance is not correct, remove clutch plate and replace clutch plate shim. See Fig. 2.

BOSCH 6-CYLINDER SHAFT SEAL R & I

Removal

Remove clutch plate. Remove shaft key and circlip. Using Seal Seat Remover/Installer (64 5 030), remove seal seat. Using Seal Remover/Installer (64 5 040), turn seal slightly clockwise to disengage tangs and pull out shaft seal. Remove "O" ring seal.

Installation

1) Coat new "O" ring seal with refrigerant oil and install. Coat new shaft seal with refrigerant oil and install seal on Seal Remover/Installer (64 5 040). Ensure shaft seal and shaft machine surfaces align. Insert shaft seal and turn slightly counterclockwise to secure on shaft.

2) Using sleeve from Seal Seat Remover/Installer (64 5 030), push seal seat into compressor and install circlip. Install shaft key and clutch plate. Check compressor oil level before charging system.

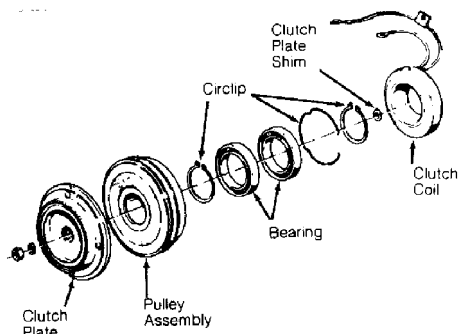


Fig. 2: Exploded View Of Compressor Clutch (Bosch 6-Cylinder)
Courtesy of BMW of North America, Inc.

A/C COMPRESSOR SERVICING

Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:00PM

CALSONIC V5 & V6 CLUTCH COIL R & I

NOTE: Calsonic V6 compressor servicing procedure is not available from manufacturer.

Removal

1) Remove shaft nut while holding clutch plate with Clutch Disc Wrench (J-39072). Install clutch disc Puller Set (J-39073-4, J-33013-1, J-33013-3) and remove clutch plate.

2) Remove snap ring. Use a universal gear puller to remove clutch pulley. See Fig. 3. Remove screw from clutch coil lead. Use puller to remove clutch coil.

Installation

1) To install clutch coil, reverse removal procedure. Ensure coil lead is installed in original position. Using puller set and Coil Jig (J-39073-1), carefully press clutch coil into place.

2) Install a new clutch pulley snap ring, being careful not to damage shaft seal. Press clutch plate into place. Install shaft nut and torque to 89-106 INCH lbs. (10-12 N.m).

3) Use a feeler gauge to check clutch plate-to-pulley clearance. Clearance should be .012-.024" (.30-.60 mm). If clearance is too large, remove shaft nut and again press in clutch plate. If clearance is too small, increase gap by pulling up clutch plate. DO NOT remove shaft nut.

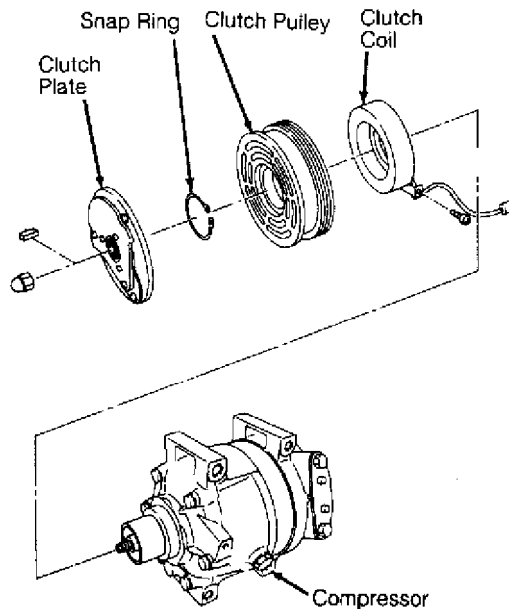


Fig. 3: Exploded View Of Compressor Clutch (Calsonic V5)
Courtesy of Nissan Motor Co., U.S.A.

DIESEL KIKI ROTARY VANE CLUTCH COIL R & I

Removal

A/C COMPRESSOR SERVICING

Article Text (p. 4)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:00PM

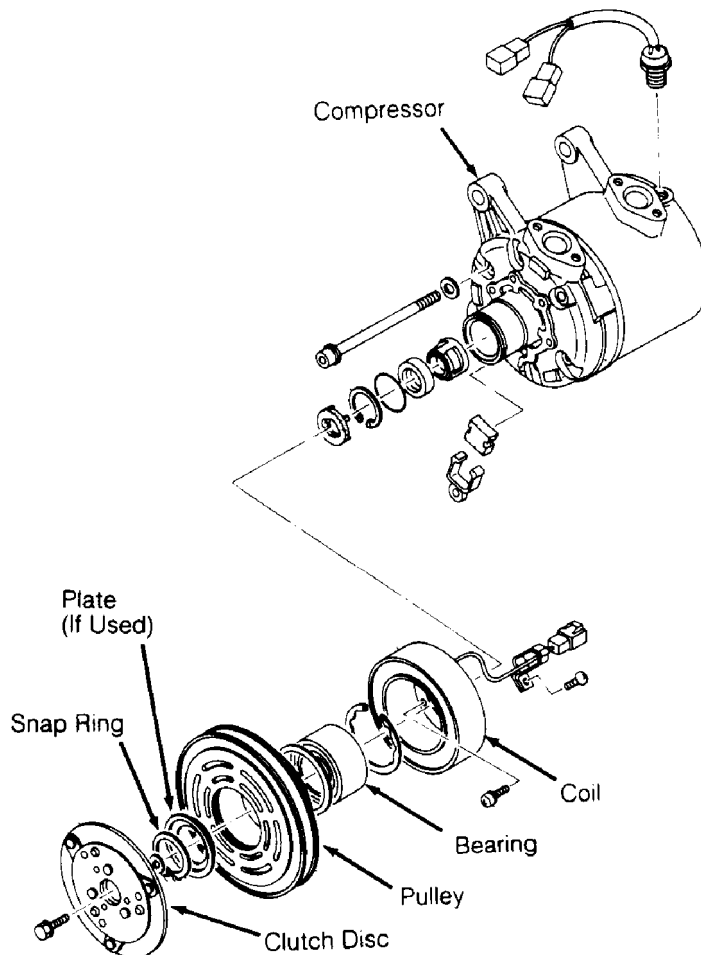
1) Hold clutch disc using Clutch Holder (J-33939) and remove center bolt. Using Puller (J-33944-A) and Forcing Bolt (J-33944-4), remove clutch disc. Remove adjustment shim(s) and snap ring.

2) Remove pulley using Pilot (J-38424) and universal puller. Remove coil lead screw, clutch coil screws and coil. Remove snap ring and bearing if necessary.

Installation

1) Ensure coil lead is installed in original position. Install and tighten coil screws to 35-53 INCH lbs. (4-6 N.m). Press pulley onto compressor using Pulley Installer (J-33940). Install snap ring and adjustment shim(s).

2) Install clutch disc and tighten center bolt to 106-133 INCH lbs. (12-15 N.m). Using feeler gauge, ensure clearance between clutch disc and pulley is .012-.024" (.30-.60 mm). If clearance is incorrect, add or remove shim(s) as necessary. Break-in clutch by engaging and disengaging clutch 30 times.



103225

Fig. 4: Exploded View Of Compressor (Diesel Kiki Rotary Vane)
Courtesy of Nissan Motor Co., U.S.A.

A/C COMPRESSOR SERVICING

Article Text (p. 5)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:00PM

DIESEL KIKI 6-CYLINDER CLUTCH COIL R & I

NOTE: Due to variety of clutch and shaft seal configurations, obtain appropriate A/C compressor service tools for compressor being serviced.

Removal & Installation

1) Using Clutch Holder (J-33939) to prevent clutch disc from rotating, remove shaft bolt. Using Clutch Disc Puller (J-33944-A) and Forcing Bolt (J-33944-4), remove clutch disc. Remove shim(s) from compressor drive shaft or clutch disc. See Fig. 5.

2) Remove snap ring, cover and pulley. With Puller Guide (J-33943-A) in center of pulley, attach Crossbar (J-8433) to outside diameter of pulley. Tighten crossbar bolt against puller guide to remove pulley. Remove coil lead, screws, and coil.

3) To install, reverse removal procedure. Install cover snap ring with beveled side facing out. Install clutch disc and tighten center bolt to 133 INCH lbs. (15 N.m).

4) Using feeler gauge, ensure clearance between clutch disc and pulley is .012-.024" (.30-.60 mm). If clearance is incorrect, add or remove shim(s) as necessary.

DIESEL KIKI SHAFT SEAL R & I

Removal & Installation

1) Remove clutch coil. Remove and discard felt. Using Shaft Seal Cover Remover/Installer (J-33942), push down and turn remover clockwise to engage tangs to cover. Slowly remove seal cover from bore.

2) Remove shaft seal snap ring. Use Shaft Seal Remover (J-33942-B) to remove seal. Remove compressor through bolts, front head and "O" ring. If necessary, replace front and rear valve plates, reed valves, and "O" rings.

3) To install, reverse removal procedure. Coat "O" ring, shaft seal and seal seat with refrigerant oil. Place Shaft Seal Guide (J-34614) over end of compressor shaft. Ensure chamfered portion of shaft seal retainer aligns with chamfered portion on compressor shaft.

4) Install front head and tighten compressor through bolts, in a crisscross pattern, to 16 ft. lbs. (22 N.m). Install shaft seal cover and felt. See Fig. 5. Rotate compressor drive shaft 2-3 times to ensure compressor operates smoothly.

A/C COMPRESSOR SERVICING

Article Text (p. 6)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:00PM

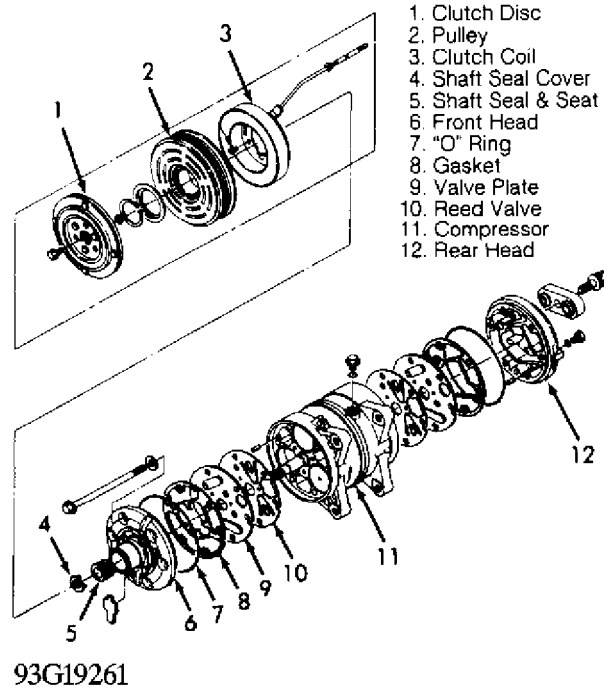


Fig. 5: Exploded View Of Compressor (Diesel Kiki 6-Cylinder)
Courtesy of Isuzu Motor Co.

FORD FX-15 CLUTCH COIL R & I

Removal

1) Using Clutch Holder (000 41 0812 05), remove clutch plate bolt. Using an 8-mm bolt threaded into clutch plate, remove clutch plate and shim(s). See Fig. 6.

2) Remove snap ring and pulley assembly. Install Shaft Protector (49 UN01 047) over shaft seal opening. Use a 2-jaw puller to remove clutch coil from compressor.

Installation

1) Ensure clutch coil mounting surface is clean. Use Coil Installer (49 UN01 046) and 2-jaw puller engaged to rear side of compressor front mounts to press coil into place.

2) Install pulley assembly. Install pulley assembly snap ring with bevel side of snap ring facing out. Install shim(s) and clutch plate. Install a new clutch plate bolt and tighten to 97-115 INCH lbs. (11-13 N.m).

3) Use a feeler gauge to check clearance between clutch plate and pulley assembly. Clearance should be .018-.033" (.46-.84 mm). If clearance is incorrect, add or remove shims as necessary.

FORD FX-15 SHAFT SEAL R & I

A/C COMPRESSOR SERVICING

Article Text (p. 7)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:00PM

Removal

1) Using Clutch Holder (000 41 0812 05), remove clutch plate bolt. Using an 8-mm bolt threaded into clutch plate, remove clutch plate and shim(s). See Fig. 6.

2) Remove shaft felt seal. Thoroughly clean seal area of compressor. Remove shaft seal snap ring. Position Shaft Seal Remover (49 UN01 044) over compressor shaft.

3) Push shaft seal remover downward against seal. Ensure end of shaft seal remover is engaged with inside of seal. Rotate shaft seal remover clockwise to expand remover tip inside seal. Pull shaft seal from compressor.

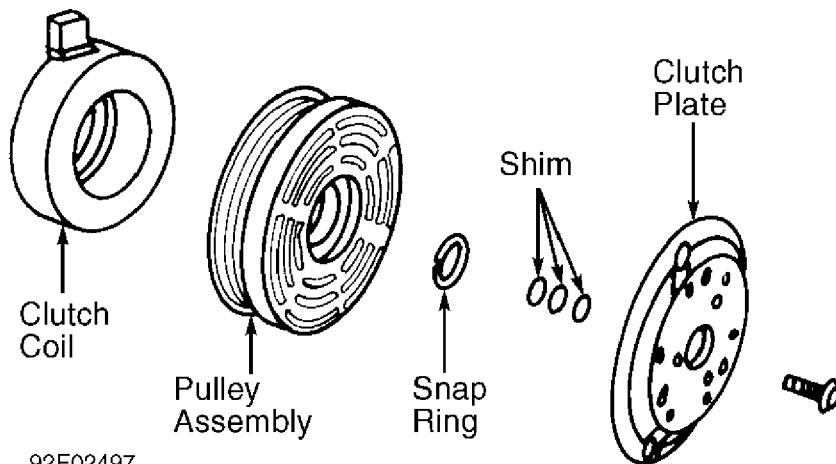
Installation

1) Lubricate shaft seal protector and shaft seal with refrigerant oil. Install shaft seal on shaft seal protector so lip seal is toward compressor (large end of shaft seal protector).

2) Install shaft seal protector on compressor shaft. Using Shaft Seal Installer (49 UN01 043), push shaft seal down seal protector until seal is seated.

3) Remove shaft seal installer and protector. Install a new shaft seal retaining snap ring and shaft seal felt. Install shim(s) and clutch plate. Install a new clutch plate retaining bolt and tighten to 97-115 INCH lbs. (11-13 N.m).

4) Use a feeler gauge to check clearance between clutch plate and pulley assembly. Clearance should be .018-.033" (.46-.84 mm). If clearance is incorrect, add or remove shims as necessary.



92E02497

Fig. 6: Exploded View Of Compressor Clutch (Ford FX-15)
Courtesy of Mazda Motors Corp.

HADSYS 7-CYLINDER CLUTCH COIL R & I

Removal

Using Clutch Holder (J-37872), hold pressure plate and remove shaft bolt. Remove pressure plate and adjustment shim(s). See Fig. 7. Remove snap ring. Using universal puller, remove compressor pulley. Remove clutch coil.

A/C COMPRESSOR SERVICING

Article Text (p. 8)

1993 Mazda RX7

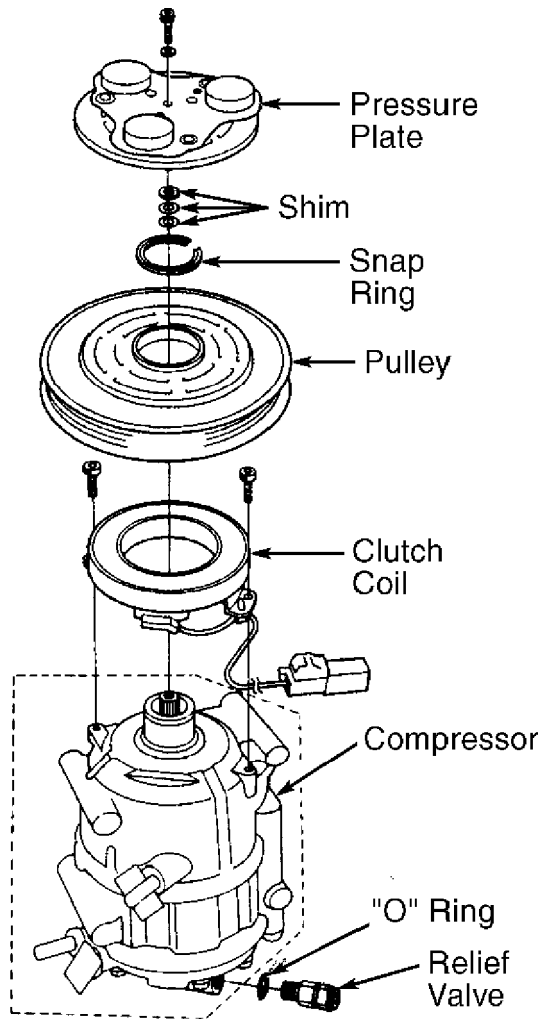
For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:00PM

Installation

Install clutch coil in reverse order of removal. Ensure snap ring is properly seated. Apply locking compound to shaft bolt and tighten it to 62 INCH lbs. (7 N.m). Ensure clearance between pressure plate and pulley is 0.012-0.024" (.30-.60 mm). If clearance is incorrect, add or remove shim(s) as necessary.



94E10060

Fig. 7: Exploded View Of Compressor (Hadsys 7-Cylinder)
Courtesy of American Honda Motor Co., Inc.

HARRISON R4 4-CYLINDER CLUTCH COIL AND BEARING R & I

Removal

1) Clamp Holding Fixture (J-25008-A) in vise. Attach compressor to holding fixture. Use Clutch Hub Holder (J-33027) to hold clutch and remove shaft nut.

2) Thread Hub and Drive Plate Assembly Remover/Installer (J-37707) into hub. Hold body of remover with wrench and turn center bolt

A/C COMPRESSOR SERVICING

Article Text (p. 9)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:00PM

into remover body to remove clutch plate and hub assembly. Remove shaft key and save for installation.

3) Remove snap ring. Place Puller Guide (J-25031-1) in center of pulley housing. Engage universal puller to outer diameter of pulley (clutch rotor). See Fig. 8. Hold puller and tighten screw to remove pulley.

4) Invert pulley and place on work bench. Press out rotor bearing using handle and Bearing Remover (J-9398-A). Attach universal puller to outside diameter of clutch coil. Tighten bolt against puller guide to remove clutch coil.

CAUTION: DO NOT drive or pound on clutch hub or shaft.

Installation

1) Ensure clutch coil is installed in original position. Press pulley onto compressor using Installer (J-9481-A) and handle. Install shaft key into hub key groove. Allow key to project approximately 3/16" (4.8 mm) out of keyway.

2) Ensure frictional surface of clutch plate and clutch rotor are clean before installing clutch plate and hub assembly. Align shaft key with shaft keyway and place clutch plate and hub assembly onto compressor shaft.

3) Hold hub and drive plate remover/installer with wrench and tighten nut to press hub into shaft until there is a .020-.040" (.5-1.0 mm) air gap between plate and clutch rotor. Install a new shaft nut and tighten to 10 ft. lbs. (14 N.m). Ensure rotor is not rubbing on clutch plate.

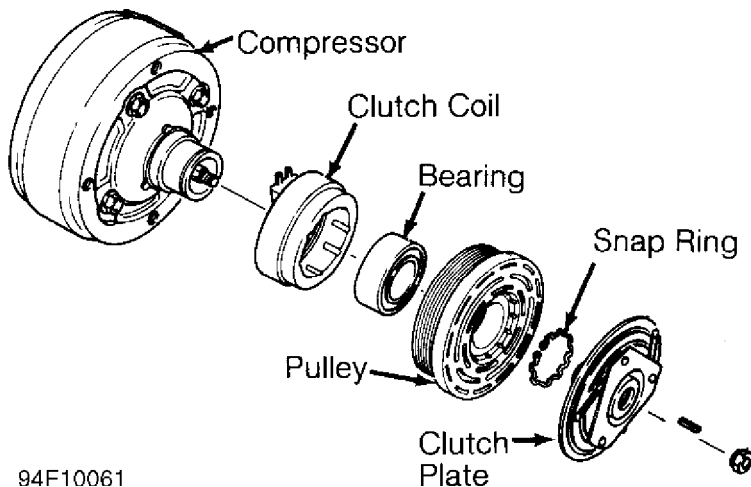


Fig. 8: Exploded View Of Compressor (Harrison R4 4-Cylinder)
Courtesy of Isuzu Motor Co.

HARRISON V5 5-CYLINDER CLUTCH COIL AND BEARING R & I

Removal

1) Clamp Holding Fixture (J-34992) in vise. Attach compressor to holding fixture. Use Clutch Hub Holder (J-33027-A) to hold clutch. Remove shaft nut using Socket (J-33022). See Fig. 9.

A/C COMPRESSOR SERVICING

Article Text (p. 10)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:00PM

2) Thread Clutch Plate and Hub Assembly Remover (J-33013-B) into hub. Hold body of remover with wrench and turn center bolt to remove clutch plate and hub assembly. Remove snap ring. Remove shaft key and save for installation.

3) Place Puller Guide (J-33023-A) in center of pulley housing. Engage Rotor/Bearing Puller (J-33020) to inner circle of slots in pulley (rotor). Hold rotor/bearing puller in place and tighten screw to remove pulley.

4) Remove screw from rotor/bearing puller. Invert assembly and place on work bench with rotor/bearing puller still engaged. Remove hub bearing using handle and Bearing Remover (J-9398-A).

5) With puller guide in place, attach Crossbar (J-8433-1) and Puller (J-33025) to outside diameter of clutch coil. Tighten crossbar Bolt (J-8433-3) against puller guide to remove clutch coil.

Installation

1) Ensure clutch coil is installed in original position. Press coil into position using crossbar, clutch Coil Installer (J-33024) and Through Bolts (J-34992-2). Stake compressor housing 120 degrees apart to secure coil.

2) Position Rotor/Bearing Installer (J-33017) and puller guide over inner race of bearing. Using through bolts, assemble crossbar over puller pilot and tighten through bolts onto holding fixture. Tighten crossbar bolt to press pulley/bearing assembly onto compressor.

3) Install shaft key into hub key groove. Allow key to project approximately 1/8" (3.2 mm) out of keyway. Align shaft key with shaft keyway and place clutch plate and hub assembly onto compressor shaft.

CAUTION: Do not drive or pound on clutch hub or compressor shaft, as compressor could be damaged internally.

4) Hold hex portion of Hub Installer (J-33013) with a wrench. Tighten center screw to press hub into shaft until there is .020-.030" (.50-.76 mm) air gap between frictional plate and clutch rotor.

5) Install new shaft nut with small diameter boss of nut against crankshaft shoulder. Use Socket (J-33022) and Clutch Hub Holder (J-33027-A). Tighten shaft nut to 12 ft. lbs. (16 N.m). Ensure pulley does not rub on clutch plate. See Fig. 9.

HARRISON V5 5-CYLINDER SHAFT SEAL R & I

Removal

Remove clutch plate and hub assembly. Remove shaft seal snap ring. Thoroughly clean inside of compressor neck area around shaft and seal. Engage tangs of Seal Remover/Installer (J-23128-A) into recessed portion of seal and remove seal. Remove and discard "O" ring from compressor neck. Thoroughly clean inside of compressor neck and "O" ring groove.

Installation

A/C COMPRESSOR SERVICING

Article Text (p. 11)

1993 Mazda RX7

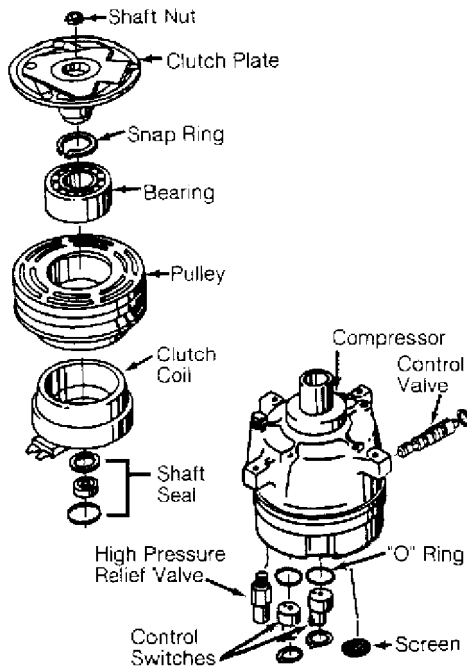
For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:00PM

1) Coat new "O" ring with refrigerant oil and install on "O" Ring Installer (J-33011). Install "O" ring into groove in compressor neck. Attach new seal to seal remover/installer. Dip shaft seal in clean refrigerant oil.

2) Place Seal Protector (J-34614) over compressor shaft. Push new seal over shaft protector. Install new seal snap ring with flat side against seal. Install clutch plate assembly.



94G10062

Fig. 9: Exploded View Of Compressor (Harrison V5 5-Cylinder)
Courtesy of General Motors Corp.

HITACHI 6-CYLINDER CLUTCH COIL AND SEAL R & I

Removal

1) Hold clutch hub with Clutch Tightener (925770000). Remove shaft nut from shaft. Using Clutch Hub Remover (926130000), remove clutch hub. Use snap ring pliers to remove inner snap ring.

2) Remove pulley and bearing assembly. Remove screws securing clutch coil lead. Remove inner snap ring from clutch coil. Remove clutch coil from front cover.

3) Remove shaft key. Use snap ring pliers to remove shaft seal snap ring. Wrap a rag around compressor shaft. Using Injector Needle (92619000) and refrigerant can, slowly pressurize compressor at low pressure (suction) service port. See Fig. 10. Catch shaft seal seat in rag.

4) Insert Shaft Seal Remover/Installer (926120000) through

A/C COMPRESSOR SERVICING

Article Text (p. 12)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

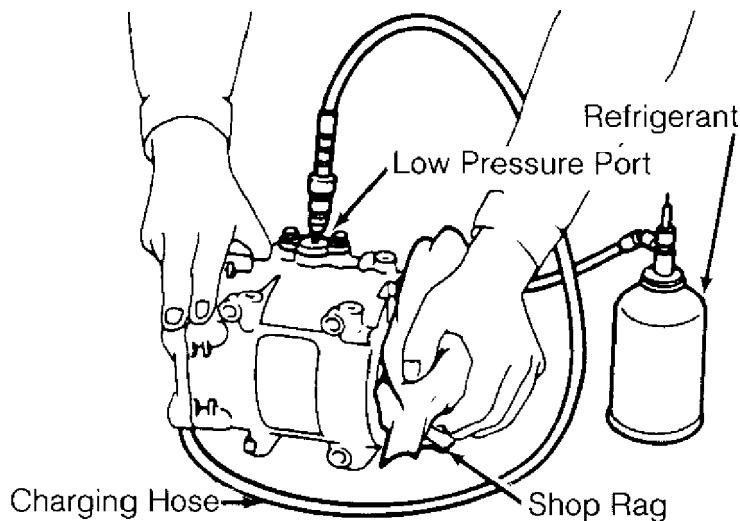
Sunday, August 19, 2001 07:00PM

open end of front cover. Slowly pull out remover/installer to remove shaft seal.

Installation

1) Ensure shaft seal contact surface is free of dirt. Lubricate with refrigerant oil. Using shaft seal remover/installer, insert shaft seal.

2) To install clutch coil and hub, reverse removal procedure. Tighten shaft nut to 14-15 ft. lbs. (19-21 N.m). Ensure clearance between pressure plate and pulley is 0.020-0.031" (.50-.80 mm).



94H10063

Fig. 10: Removing Compressor Shaft Seal Seat (Hitachi 6-Cylinder)
Courtesy of Subaru of America, Inc.

MATSUSHITA ROTARY VANE CLUTCH COIL R & I

Removal & Installation

1) Using Pressure Plate Holder (J-7624) and socket, remove center bolt. Thread Puller (J-34878) onto pressure plate. Hold pressure plate with pressure plate holder and tighten puller to remove pressure plate.

2) Remove shim(s) from shaft. Remove snap ring and, using a plastic hammer, tap pulley off. Remove screw for clutch coil lead. Remove snap ring and clutch coil. See Fig. 11.

3) To install, reverse removal procedure. Tighten shaft bolt to 10 ft. lbs (14 N.m). Using feeler gauge, ensure clearance between pressure plate and pulley is .014-.026" (.35-.65 mm). If clearance is incorrect, add or remove shim(s) as necessary.

A/C COMPRESSOR SERVICING

Article Text (p. 13)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:00PM

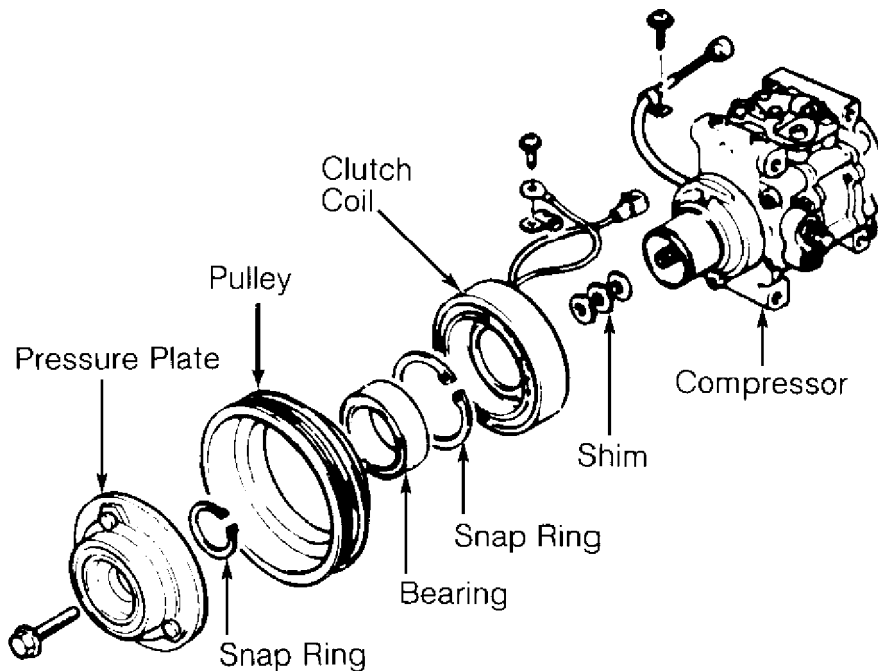


Fig. 11: Exploded View Of Compressor (Matsushita Rotary Vane)
Courtesy of Toyota Motor Sales, U.S.A., Inc.

NIPPONDENSO TV12 ROTARY VANE CLUTCH COIL R & I

Removal

1) Hold clutch disc with Clutch Holder (00007-10331) and remove shaft nut. Install Clutch Disc Remover (4992-02-020) and remove clutch disc and shims. See Fig. 12.

2) Remove pulley snap ring and tap pulley (with bearing) off of compressor with plastic hammer. Remove screw for clutch coil lead. Remove snap ring and clutch coil.

Installation

To install, reverse removal procedure. Ensure pulley-to-clutch disc clearance is .016-.024" (.40-.60 mm). If clearance is incorrect, add or remove shim(s) as necessary.

NIPPONDENSO TV12 DISCHARGE VALVE & SHAFT SEAL R & I

Removal

1) Drain and measure compressor oil in compressor. Remove discharge valve body through bolts. Remove discharge valve body bolts and body. Remove discharge valve plate and discharge valve.

2) Remove compressor through bolts and front and rear housing (oil separator case). Remove pins and gaskets. Remove shaft seal from shaft. Press shaft seal plate off of front housing (head cover).

Installation

To install components, reverse removal procedure. Tighten

A/C COMPRESSOR SERVICING

Article Text (p. 14)

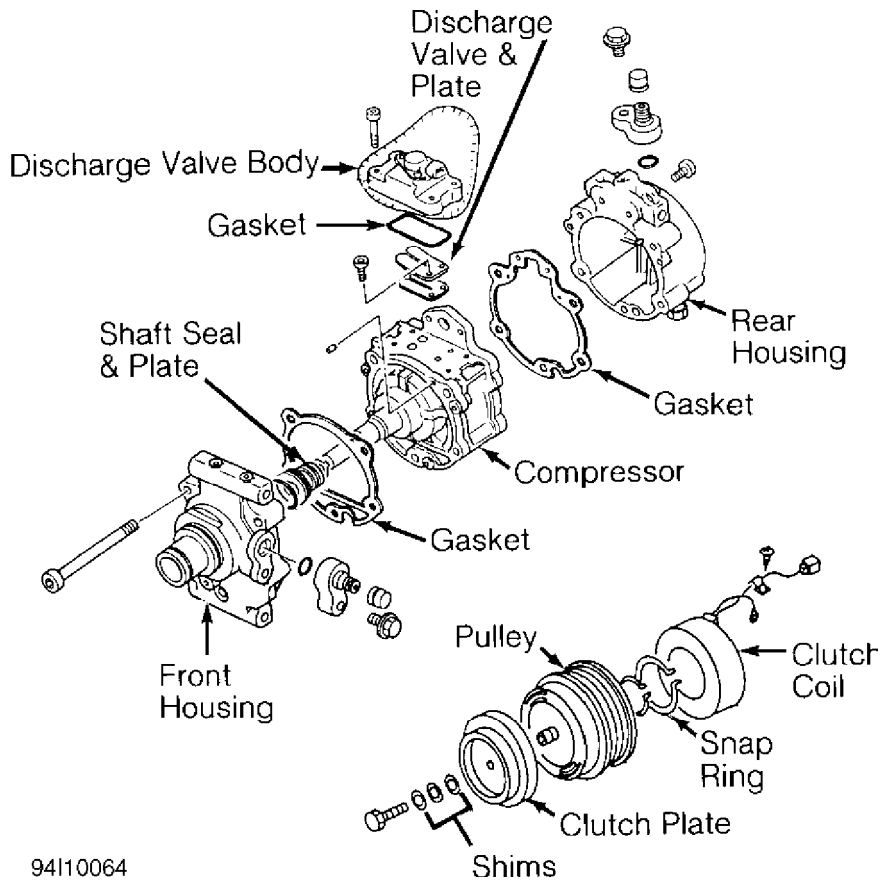
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:00PM

compressor through bolts to 19 ft. lbs. (26 N.m). Tighten discharge valve bolts to 41 INCH lbs. (4.6 N.m). Tighten discharge valve body and body through bolts to 96 INCH lbs. (10.8 N.m).



94I10064

Fig. 12: Exploded View Of Compressor (Nippondenso TV12 Rotary Vane)
Courtesy of Mazda Motors Corp.

NIPPONDENSO 6 & 10-CYLINDER CLUTCH COIL AND BEARING R & I

NOTE: Due to variety of clutch and shaft seal configurations, obtain appropriate A/C compressor service tools for compressor being serviced.

Removal

1) Hold clutch plate stationary and remove shaft bolt (or nut). Remove clutch plate using puller. Remove shim(s) from shaft and snap ring. Tap pulley off shaft with plastic hammer. If pulley cannot be removed by hand, use commercially available puller.

2) Remove snap ring, bearing, and seal (if equipped) from pulley. See Fig. 13. Remove screw for clutch coil lead. Remove snap ring and clutch coil.

Installation

To install, reverse removal procedure. Ensure snap rings are installed with beveled side facing out. Tighten shaft bolt (or nut) to

A/C COMPRESSOR SERVICING

Article Text (p. 15)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:00PM

13-14 ft. lbs. (17-19 N.m) on Fox, MR2 and Scoupe; 10-13 ft. lbs. (14-17 N.m) on all others. Ensure air gap between clutch plate and pulley is .024-.040" (.60-1.00 mm) on Fox and MR2; .014-.026" (.36-.66 mm) on all others. If air gap is incorrect, add or remove shim(s) as necessary.

NOTE: To check air gap, place a dial indicator on clutch plate. Apply voltage to clutch coil. Check air gap between clutch plate and drive pulley. Ensure air gap is as specified.

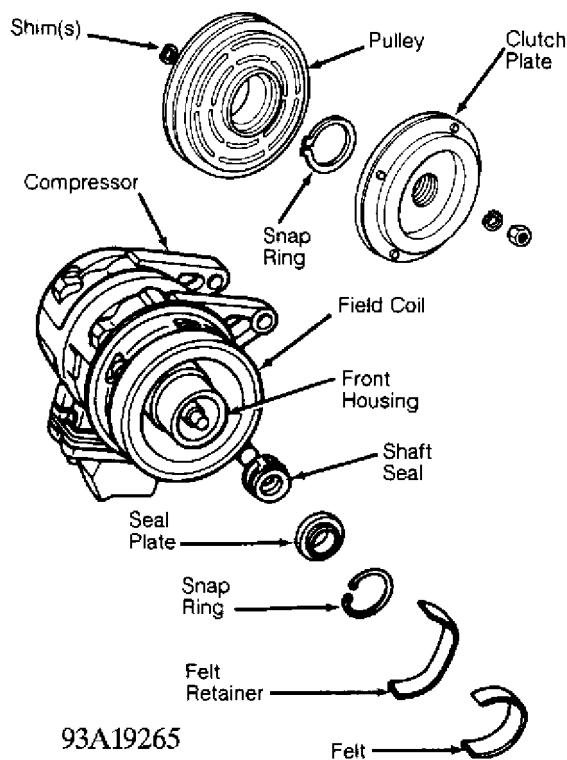


Fig. 13: Exploded View Of Compressor (Nippondenso 10-Cylinder)
Courtesy of Ford Motor Co.

NIPPONDENSO 6 & 10-CYLINDER SHAFT SEAL R & I

NOTE: On Chrysler and Mitsubishi, remove compressor through bolts and front housing to remove shaft seal. See Fig. 14. Alternately tighten through bolts to 18-21 ft. lbs. (24-28 N.m).

Removal

1) Remove clutch plate and pulley. Remove shim(s) from shaft. Remove clutch coil if necessary. Remove felt and felt retainer (if equipped). Place shaft key remover on shaft and turn to remove key.

A/C COMPRESSOR SERVICING

Article Text (p. 16)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

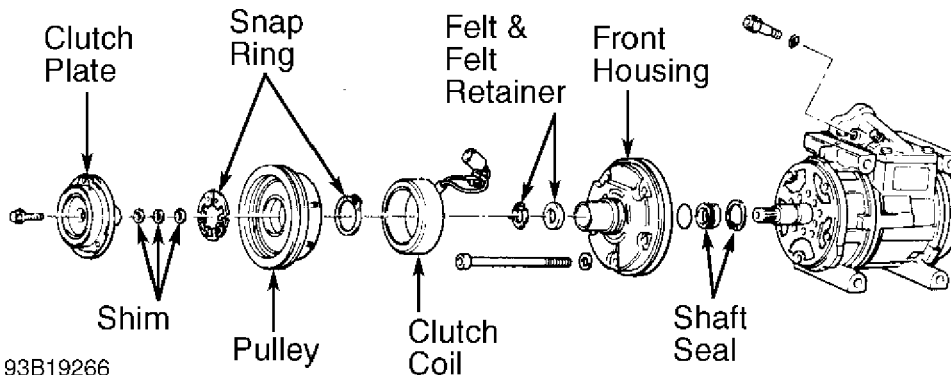
Sunday, August 19, 2001 07:00PM

2) Remove seal plate snap ring. Engage plate remover on seal plate and pull up to remove seal plate. Engage shaft seal remover/installer to shaft seal and pull up to remove shaft seal from front housing.

Installation

1) Apply clean refrigerant oil to compressor housing bore. Lubricate shaft seal with refrigerant oil and install in front housing. Lubricate seal plate and install in front housing.

2) Install shaft key, snap ring, felt retainer and felt. With clutch plate installed, ensure air gap between clutch plate and pulley is .024-.040" (.60-1.00 mm) on Fox and MR2; .014-.026" (.36-.66 mm) on all others. If air gap is incorrect, add or remove shim(s) as necessary.



93B19266
Fig. 14: Exploded View Of Compressor (Nippondenso 10PA15 10-Cylinder)
Courtesy of Chrysler Corp.

PANASONIC ROTARY VANE CLUTCH COIL R & I

Removal

Hold clutch disc stationary and remove shaft bolt. Remove clutch disc and shim(s) from shaft. Remove snap ring. Using a puller, remove pulley. Remove screw from clutch coil lead. Remove screws and field coil.

Installation

To install, reverse removal procedure. Tighten field coil screws to 30-57 INCH lbs. (3.4-6.4 N.m). Ensure pulley-to-armature gap is .016-.020" (.40-.50 mm). If air gap is incorrect, add or remove shim(s) as necessary. Tighten shaft bolt to 97-115 INCH lbs. (11-13 N.m).

PANASONIC ROTARY VANE DISCHARGE VALVE R & I

Removal & Installation

Remove compressor head cover. Remove discharge valve stopper and discharge valve. See Fig. 15. Install replacement discharge valve and stopper, reversing removal procedure. Tighten discharge valve bolts to 27-34 INCH lbs. (3.0-3.8 N.m). Tighten compressor head cover

A/C COMPRESSOR SERVICING

Article Text (p. 17)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:00PM

bolts to 89 INCH lbs. (10 N.m).

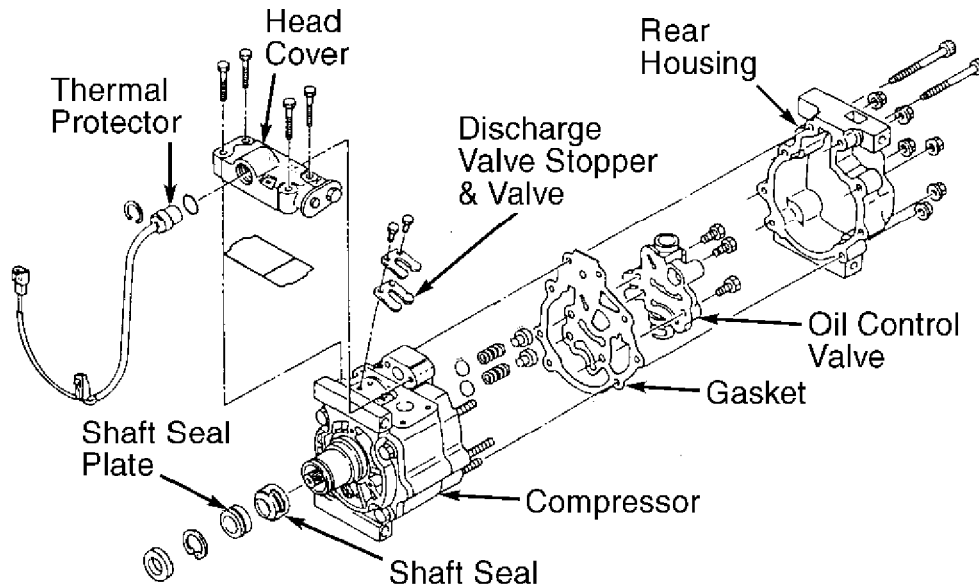


Fig. 15: Exploded View Of Compressor (Panasonic Rotary Vane)
Courtesy of Mazda Motors Corp.

PANASONIC ROTARY VANE OIL CONTROL VALVE R & I

Removal & Installation

Remove compressor rear cover. Remove oil control valve. Remove springs, valve, and rear cover seal. To install components, reverse removal procedure. Tighten oil control valve bolts to 89 INCH lbs. (10 N.m). Tighten rear cover nuts to 21 ft. lbs. (29 N.m) and bolts to 89 INCH lbs. (10 N.m).

PANASONIC ROTARY VANE SHAFT SEAL R & I

Removal & Installation

Remove clutch disc and shim(s). Remove felt seal and snap ring. Using Seal Plate Remover (49 B061 005), engage and remove shaft seal plate. Remove shaft seal with Seal Remover/Installer (49 B061 006). To install, reverse removal procedure. Coat new seal plate and seal with clean refrigerant oil. DO NOT touch seal surfaces with fingers.

SANDEN SCROLL CLUTCH COIL AND SHAFT SEAL R & I

NOTE: Due to variety of clutch and shaft seal configurations, obtain appropriate A/C compressor service tools for compressor being serviced.

Removal (Chrysler & Mitsubishi Except Galant & Mirage)

1) Remove drive belt pulley (if equipped). Hold clutch plate

A/C COMPRESSOR SERVICING

Article Text (p. 18)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:00PM

using Pliers (MB991367) and Bolts (MB991386). Use a ratchet and socket to remove clutch hub nut.

2) Remove clutch plate. Remove snap ring with internal snap ring pliers. Remove clutch hub (rotor). Remove snap ring and clutch coil.

3) Using an awl, remove bearing cover and retainer. Using Bearing Remover (MB991456), engage bearing grooves. Place base of bearing remover over remover arms and tighten nut.

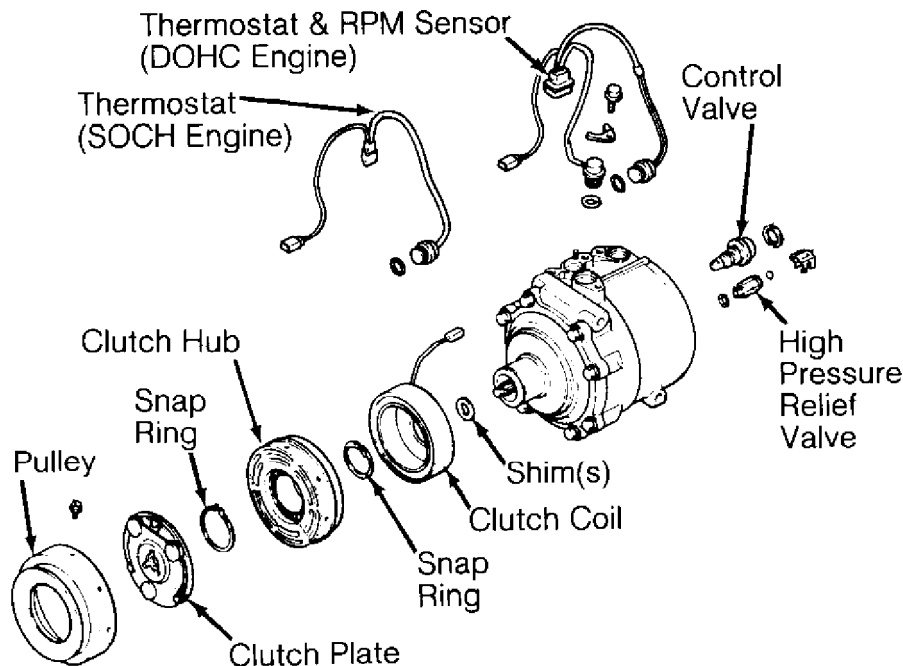
4) Tighten bearing remover bolt to withdraw bearing from compressor. Engage grooves of Shaft Seal Remover/Installer (MB991458) and pull straight up on shaft seal.

Installation (Chrysler & Mitsubishi Except Galant & Mirage)

1) To install shaft seal, ensure front housing is free of foreign objects. Lubricate Shaft Seal Protector (MB991459) and place over compressor shaft. Lubricate shaft seal and install using shaft seal remover/installer. Remove shaft seal protector.

2) Using a 21 mm socket or Drift (MB991301), carefully press bearing onto compressor shaft. Install clutch coil so that alignment pin is engaged. Install clutch coil snap ring with tapered side facing out.

3) Align armature plate with crankshaft spline. Tighten shaft nut to 12 ft. lbs (16 N.m). Using feeler gauge, ensure clearance between pressure plate and pulley is .016-.024" (.40-0.60 mm). If clearance is incorrect, add or remove shim(s) as necessary.



94A10066

Fig. 16: Exploded View Of Compressor (Sanden Scroll)
Courtesy of Chrysler Corp.

Removal (Chrysler & Mitsubishi Galant & Mirage)

A/C COMPRESSOR SERVICING

Article Text (p. 19)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:00PM

1) Hold clutch plate by securing 2 box-end wrenches with two 6-mm bolts, 1" (25 mm) or longer. Holding bow-end wrenches, use a ratchet and socket to remove clutch hub nut.

2) Remove clutch plate. See Fig. 17. Remove snap ring with internal snap ring pliers. Remove clutch hub. Remove snap ring and clutch coil.

3) Remove front housing bolts. Remove front housing and "O" ring from compressor. Remove shaft seal from shaft. Remove snap ring from back side of front housing. Remove seal plate. Use brass drift and hammer to lightly tap shaft bearing from front housing. Remove felt seal.

NOTE: DO NOT touch sealing surfaces of shaft seal carbon ring and shaft seal plate.

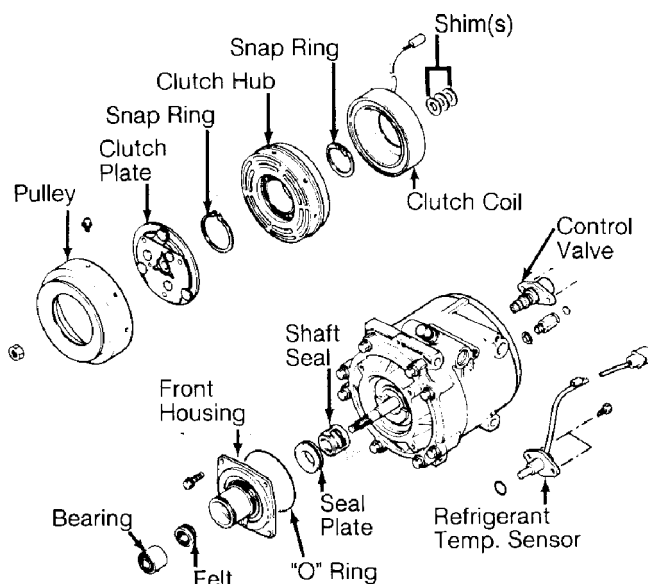
Installation (Chrysler & Mitsubishi Galant & Mirage)

1) Lubricate shaft seal with compressor oil. Align notches on shaft seal with notches on shaft. Install shaft seal plate on front housing. Install front seal housing to compressor.

2) Use Drift (MB991301) to install felt into front housing. Ensure metal ring on felt faces up. Use drift to press bearing into front housing.

3) Align and install clutch coil. Install snap ring so tapered surface faces outward. Install clutch hub. Install snap ring. Align clutch plate mark with shaft; where there are no splines on shaft.

4) Tighten clutch hub nut to 12 ft. lbs. (16 N.m). Using feeler gauge, measure clutch plate-to-clutch hub gap. If gap is not .012-.024" (.30-.60 mm), remove clutch assembly and add or remove shim(s).



94B10067

Fig. 17: Exploded View Of Compressor (Sanden FX105V Scroll)
Courtesy of Chrysler Corp.

A/C COMPRESSOR SERVICING

Article Text (p. 20)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:00PM

Removal & Installation (Honda & Hyundai)

1) Remove shaft nut while holding clutch plate with Armature Holder (J-37872). Using Puller (07935-8050003), remove pressure plate and shim(s). See Fig. 16. Remove snap ring.

2) Place Seal Driver (07945-4150200) in center of pulley. Engage universal puller to outer diameter of pulley. DO NOT engage puller on belt area. Hold puller in place and tighten screw to remove pulley. Remove screw for clutch coil lead. Remove snap ring and clutch coil.

3) To install clutch coil, reverse removal procedure. Align lug on clutch coil with hole in compressor. Install snap rings with chamfered side facing out. Tighten shaft nut to 12-14 ft. lbs. (16-19 N.m). Using feeler gauge, ensure clearance between pressure plate and pulley is .014-.026" (.35-.65 mm). If clearance is incorrect, add or remove shim(s) as necessary.

NOTE: Shaft seal removal and installation procedures not available from Honda or Hyundai.

SANDEN 5-CYLINDER CLUTCH COIL R & I

Removal

1) Hold clutch plate, using Holder (0000-41-0809-01), and remove shaft nut. Remove clutch plate using Puller (0000-41-0809-02). Remove shaft key and shim(s). Remove external front housing snap ring and internal bearing snap ring (if used).

2) Install Clutch Pilot (0000-41-0810-77), Pulley/Clutch Remover (0000-41-0810-76), and Puller (0000-41-0804-51/57) to remove pulley assembly. Remove snap ring and drive bearing out of pulley. Remove screw for clutch coil lead. Remove snap ring and clutch coil.

Installation

1) Install new bearing, ensuring Bearing Installer (000-41-0804-43) contacts outer race of bearing. Install snap ring and ensure bearing turns freely.

2) Install clutch coil, ensuring lug on coil aligns with hole in front housing. Support compressor on rear mounting ears. Align rotor on front housing hub. Use bearing installer and Driver (0000-41-0810-59) to install pulley. With pulley seated, install snap ring(s). Install shim(s) and shaft key.

3) Place clutch plate over shaft and, using Shaft Protector (0000-41-0809-10), tap clutch plate into place. Install and tighten shaft nut to 25-32 ft. lbs. (34-44 N.m). Using feeler gauge, ensure clearance between clutch plate and pulley is .016-.032" (.40-.80 mm). If clearance is incorrect, add or remove shim(s) as necessary.

SANDEN 5-CYLINDER CYLINDER HEAD & VALVE PLATE R & I

Removal & Installation

Remove compressor cylinder head (rear cover) bolts. Carefully pry cylinder head of compressor. Remove reed valve plate and gasket. To install components, reverse removal procedure. Tighten compressor

A/C COMPRESSOR SERVICING

Article Text (p. 21)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:00PM

cylinder head bolts, in a crisscross pattern, to 21-29 ft. lbs. (29-39 N.m).

SANDEN 5-CYLINDER SHAFT SEAL R & I

Removal

Remove shaft nut and clutch plate. Remove shaft key and shim(s). Carefully remove felt ring. Remove shaft seal seat snap ring. Using Seal Seat Remover/Installer (0000-41-0810-73), carefully remove seal seat. Using Shaft Seal Remover/Installer (0000-41-0812-11), carefully remove shaft seal.

Installation

1) Install Seal Protector (0000-41-0812-13) over shaft. Place new seal on remover/installer. DO NOT touch carbon sealing surface with fingers. Dip seal in refrigerant oil and install. Remove seal installer by turning counterclockwise.

2) Coat seal seat with refrigerant oil. Install seal seat using remover/installer. Install seal seat snap ring (with flat side down). Install shim(s), felt ring and shaft key. Install shaft nut and clutch plate. Ensure clearance between clutch plate and pulley is .016-.032" (.40-.80 mm). If clearance is incorrect, add or remove shim(s) as necessary.

SANDEN 7-CYLINDER CLUTCH COIL AND BEARING R & I

NOTE: Due to variety of clutch and shaft seal configurations, obtain appropriate A/C compressor service tools for compressor being serviced.

Removal

1) Install two 6-mm bolts, 1" (25 mm) or longer, in clutch plate holes. Using 2 box-end wrenches to hold bolts and to prevent clutch plate from turning, remove shaft nut.

2) Remove clutch plate using Clutch Plate Puller (09977-21100). Remove clutch shim(s) and bearing dust cover. Remove external front housing snap ring. See Fig. 18.

3) Remove pulley using universal puller. Detach clutch coil lead from compressor housing. Remove clutch coil snap ring and clutch coil. If necessary, remove snap ring and bearing.

Installation

1) Align clutch coil lug with hole in compressor housing, and install clutch coil. Install clutch coil snap ring. Install drive pulley using Drive Pulley Installer (09977-21811).

2) Install external bearing snap ring. Using Seal Installer (09977-21800), install bearing dust cover. After dust cover installation, ensure there is no contact between cover and front housing.

3) Install clutch shim(s) and clutch plate. Tighten shaft nut to 13-14 ft. lbs. (17-19 N.m). Using a dial indicator, check air gap between clutch plate and drive pulley. Apply voltage to clutch coil.

A/C COMPRESSOR SERVICING

Article Text (p. 22)

1993 Mazda RX7

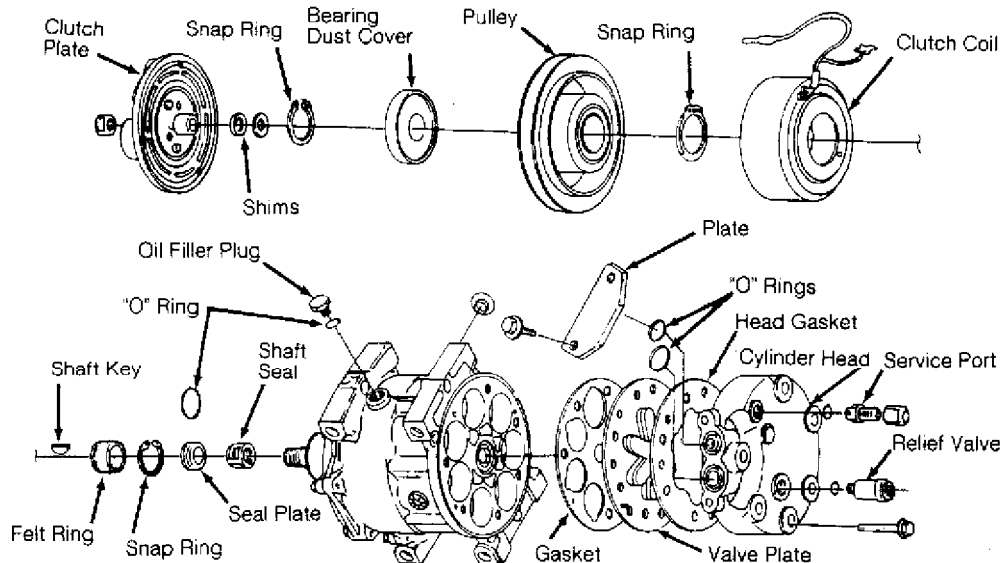
For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:00PM

Ensure air gap is .016-.032" (.40-.80 mm). If clearance is incorrect, add or remove shim(s) as necessary.

NOTE: If compressor valve plate is serviced, tighten compressor cylinder head bolts to 25-26 ft. lbs. (34-35 N.m).



93I19263

Fig. 18: Exploded View Of Compressor (Sanden 7-Cylinder)

Courtesy of Hyundai Motor Co.

SANDEN 7-CYLINDER SHAFT SEAL R & I

NOTE: Check compressor refrigerant oil level when replacing seals. See COMPRESSOR OIL CHECKING article in GENERAL SERVICING.

Removal

1) Remove clutch plate, shim(s) and bearing dust cover. Tap shaft key out of slot in compressor shaft. Remove seal retainer felt ring.

2) Remove shaft seal seat snap ring. Insert Seal Seat Remover/Installer (09977-21400) into front housing and turn to engage tangs on seat. Lift seal seat out.

3) Insert Seal Remover/Installer (09977-21510) into front housing and turn to engage tangs on seal. Carefully lift shaft seal out without scratching compressor shaft.

Installation

1) Install Shaft Seal Guide Sleeve (09977-21700) over compressor shaft. Dip seal in refrigerant oil and install seal on sleeve. Using seal remover/installer, rotate seal clockwise until seal is engaged. Remove seal remover/installer by turning it

A/C COMPRESSOR SERVICING

Article Text (p. 23)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:00PM

counterclockwise.

2) Coat seal seat with refrigerant oil and install seal with seal seat remover/installer. Remove shaft seal guide sleeve. Install snap ring with beveled edge facing out. Install seal retainer felt ring using seal seat remover/installer.

3) Install shaft key and clutch plate. Tighten shaft nut to 13-14 ft. lbs. (17-19 N.m). Using a dial indicator, check air gap between clutch plate and drive pulley. Apply voltage to clutch coil. Ensure air gap is .016-.032" (.40-.80 mm). If clearance is incorrect, add or remove shim(s) as necessary.

SEIKO-SEIKI ROTARY VANE

NOTE: Volvo Seiko-Seiki compressor servicing procedure is not available from manufacturer.

ZEXEL ROTARY VANE CLUTCH COIL AND BEARING R & I

Removal

1) Hold clutch disc using Clutch Disc Wrench (KV99231260) and remove center bolt. Using Clutch Disc Puller (KV99232340), remove drive plate and adjustment shim(s).

2) Remove snap ring. Remove pulley using Pilot (J-39023) and universal puller. Remove clutch coil. If necessary, remove snap ring and bearing. See Fig. 19.

Installation

1) Ensure coil lead is installed in original position. Install and tighten coil screws. Press pulley onto compressor using Pulley Installer (J-33940). Install snap ring and adjustment shim(s).

2) Install clutch disc and tighten center bolt to 11-13 ft. lbs. (15-18 N.m). Using feeler gauge, ensure clearance between clutch disc and pulley is .012-.024" (.30-.60 mm). If clearance is incorrect, add or remove shim(s) as necessary. Break-in clutch by engaging and disengaging clutch 30 times.

NOTE: Shaft seal assembly servicing procedure is not available from manufacturer. Use exploded view as a guide. See Fig. 19. Tighten thermal protector, if removed, to 11-13 ft.lbs. (15-18 N.m).

A/C COMPRESSOR SERVICING

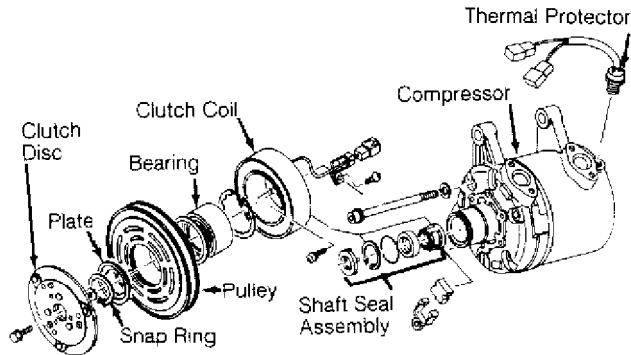
Article Text (p. 24)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:00PM



94C10068

Fig. 19: Exploded View Of Compressor (Zexel Rotary Vane)
Courtesy of Nissan Motor Co., U.S.A.

ZEXEL 6-CYLINDER CLUTCH COIL AND BEARING R & I

NOTE: Volvo Zexel compressor servicing procedure is not available from manufacturer.

Removal (Audi)

1) Using Spanner Wrench (44-4), hold clutch hub stationary and remove shaft bolt. Remove clutch plate and shim(s) using Puller (VAG 1719) and Spanner Wrench (3212). See Fig. 20. Remove snap ring.

2) Place Spacer (VAG 1719/1) in center of pulley cavity. Attach Puller (US 1078) to outer diameter of pulley and remove pulley. Remove snap ring, bearing, and clutch coil as necessary.

Installation (Audi)

Ensure clutch coil lug fits into hole on compressor housing. Using Installer (VAG 1719/2), press on pulley and install snap ring. Install shim(s) and clutch plate. Tighten shaft bolt to 11 ft. lbs. (15 N.m). Using feeler gauge, ensure air gap between pulley and clutch disc is .012-.024" (.30-.60 mm). If clearance is incorrect, add or remove shim(s) as necessary.

A/C COMPRESSOR SERVICING

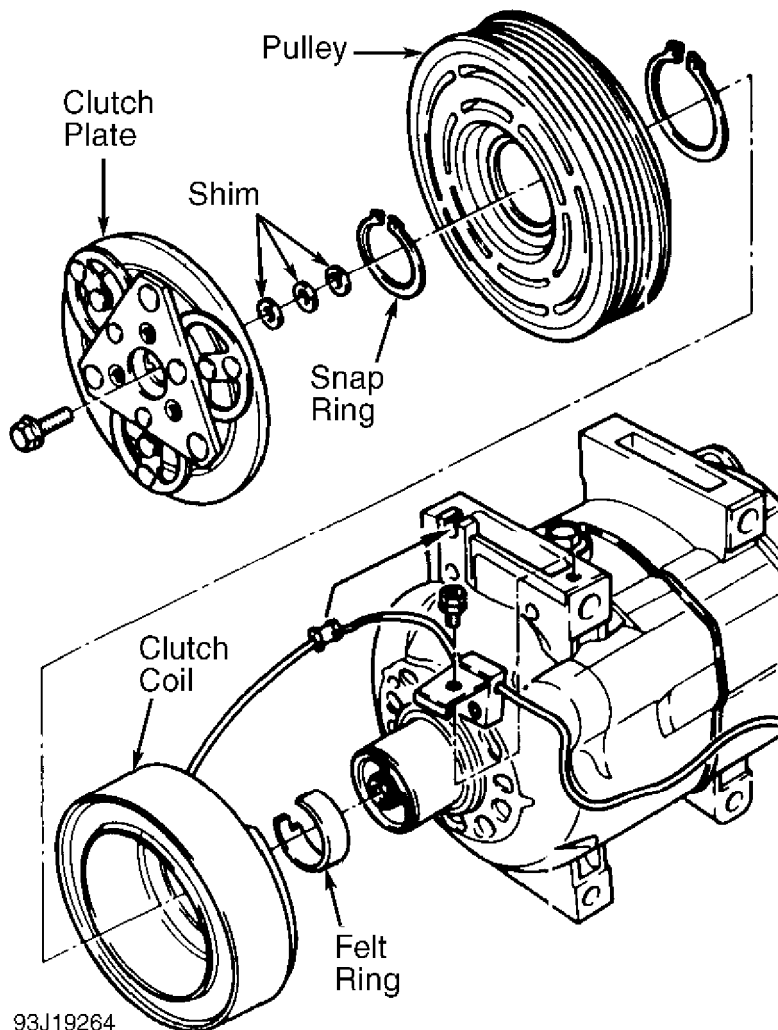
Article Text (p. 25)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:00PM



93J19264
Fig. 20: Exploded View Of Compressor (Zexel 6-Cylinder)
Courtesy of Audi of America, Inc.

Removal (Nissan)

1) Using Clutch Disc Wrench (J-37877), hold clutch hub stationary and remove shaft nut. Remove adjustment shim(s) and clutch disc using Clutch Disc Puller (J-26571-A).

2) Bend lock washer away from lock nut. See Fig. 21. Remove lock nut with Wrench (J-37882). Remove pulley by hand or, if difficult to remove, use Pilot (J-26720-A) and universal puller. Remove snap ring, bearing, and clutch coil as necessary.

Installation (Nissan)

1) Ensure key is installed in compressor shaft keyway. Install pulley, lock washer and pulley. Tighten lock nut to 25-29 ft. lbs. (34-39 N.m). Bend lock washer against lock nut.

2) Install clutch disc and tighten shaft nut to 10-12 ft. lbs (14-16 N.m). Using feeler gauge, ensure air gap between pulley and clutch disc is .012-.024" (.30-.60 mm). If clearance is incorrect, add or remove shim(s) as necessary. Break-in compressor clutch assembly by

A/C COMPRESSOR SERVICING

Article Text (p. 26)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:00PM

engaging and disengaging clutch 30 times.

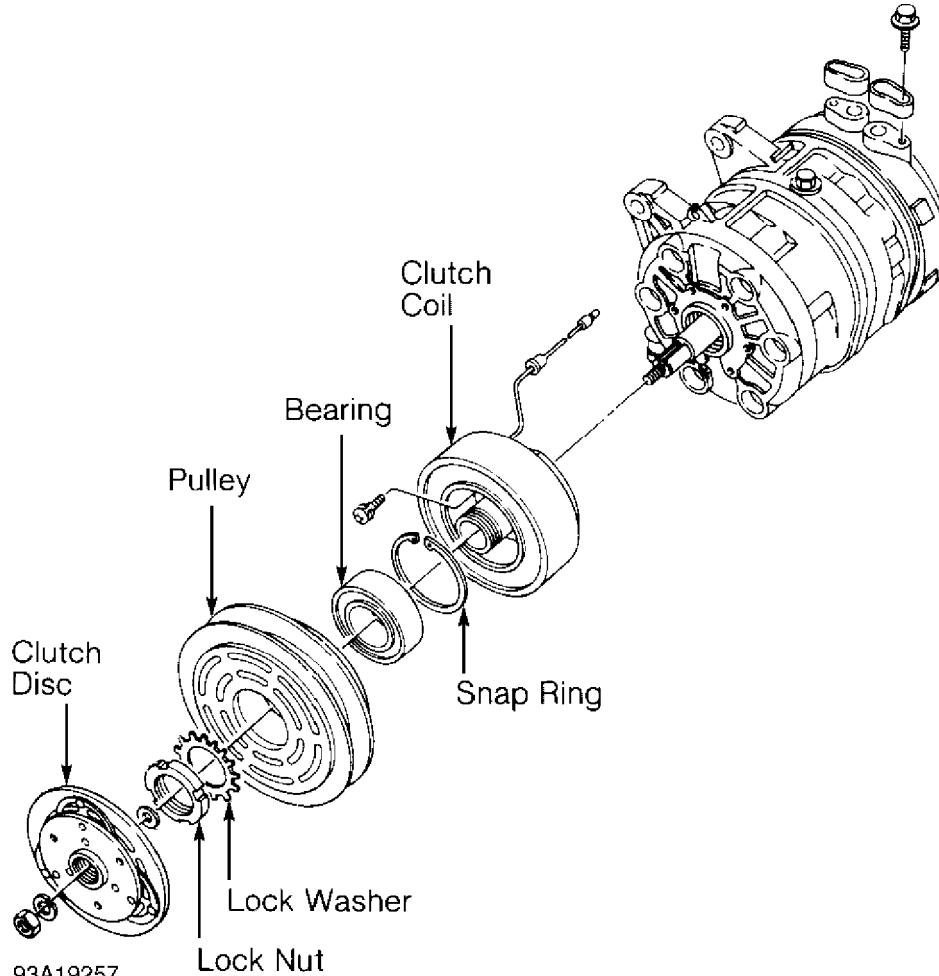


Fig. 21: Exploded View Of Compressor (Zexel DKS-16H 6-Cylinder)
Courtesy of Nissan Motor Co., U.S.A.

END OF ARTICLE

A/C SYSTEM GENERAL DIAGNOSTIC PROCEDURES

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:01PM

ARTICLE BEGINNING

1993 AIR CONDITIONING & HEAT
A/C General Diagnostic Procedures

Diagnosis is an important first step in A/C system servicing. To save time and effort, systems should be carefully checked to identify the causes of poor performance. By using the following diagnostic charts, defective components or system problems can be quickly located. To identify problems that are specific to one system, refer to the repair section of this manual. The charts in this section apply to all systems.

PREPARATION FOR TESTING

- 1) Attach Low and High pressure gauges.
- 2) Start engine and allow to warm up.
- 3) Set system to COOL and blower to HIGH.
- 4) Open car doors and hood.
- 5) Run engine at fast idle for 2-3 minutes.

AIR CONDITIONING SYSTEM PERFORMANCE CHECK

AIR CONDITIONING SYSTEM PERFORMANCE CHECK TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

PERFORM TESTS:	SHOULD BE:	IF:
----------------	------------	-----

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Temperature Check		Temperature Check Is:
-------------------	--	-----------------------

- * Switch to LOW blower.
- * Close doors.
- * Check outlet temperature. 35-45° F Too warm - Check control lever operation, heater water valve, cooling system and gauge readings.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

PERFORM TESTS:	SHOULD BE:	IF:
----------------	------------	-----

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Visual Check		Visual Check Shows:
--------------	--	---------------------

- | | | |
|------------------|-----------------------|--------------------------------------------------------------|
| * Compressor | Quiet with no leaks | Noisy - Check belts, oil level, seals, gaskets, reed valves. |
| * Condenser | Free of obstructions | Blocked - Clean off.
Plugged - Flush or replace. |
| * Receiver-Drier | Dry and warm to touch | Frosty - Check for restriction, replace desiccant. |

A/C SYSTEM GENERAL DIAGNOSTIC PROCEDURES

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:01PM

* Sight Glass	Clear or few bubbles	Bubbly, foamy or streaks - Check gauge readings.
* High Side Lines	Dry and warm to touch	Frosty or very hot - Check for restriction or overcharge.
* Low Side Lines	Dry and cool to touch	Frosty or warm - Check for restriction, low charge or bad valve.
* Expansion Valve	Dry	Frosty - Check for moisture or restriction. Check sensing bulb.
* STV	Dry and cool to touch	Frosty or warm - Check gauge readings for valve malfunction.
* Evaporator	Dry and cold to touch	Freezing or warm - Check expansion valve, STV or thermoswitch.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

PERFORM TESTS: SHOULD BE: IF:

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Gauge Readings Gauge Readings are:

* High Side Gauge	See Pressure Chart	Above or below normal - See A/C Diagnosis.
-------------------	--------------------	-----------------------------------------------

* Low Side Gauge	See Pressure Chart	Above or below normal
------------------	--------------------	-----------------------

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

AMBIENT TEMPERATURE/PRESSURE

A/C SYSTEM GENERAL DIAGNOSTIC PROCEDURES

Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:01PM

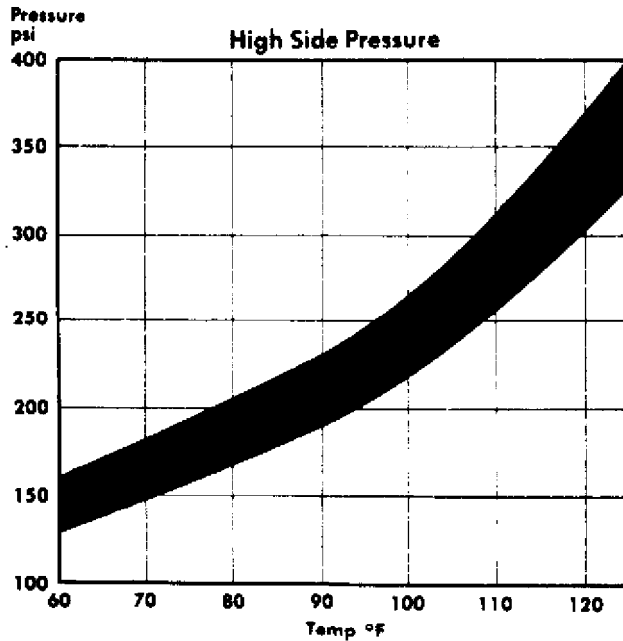


Fig. 1: Ambient Temperature/Pressure (R-12)

EVAPORATOR TEMPERATURE/PRESSURE

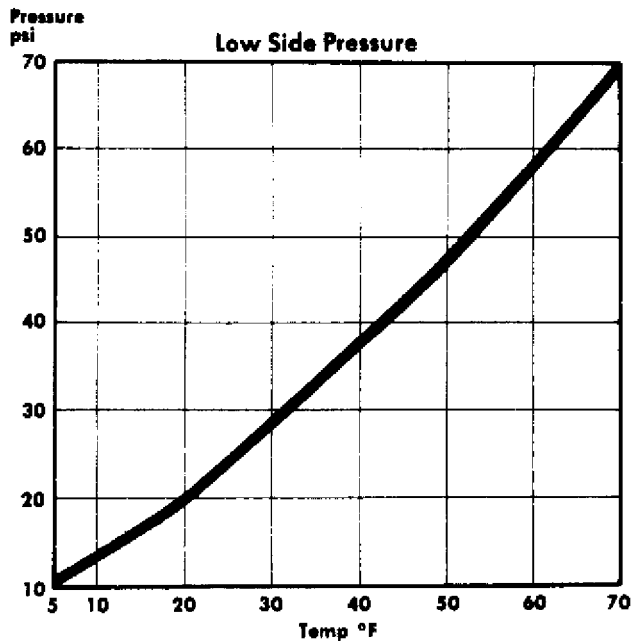


Fig. 2: Evaporator Temperature/Pressure (R-12)

A/C DIAGNOSIS W/GAUGES FOR SYS. W/INSUFFICIENT OR NO COOLING

A/C DIAGNOSIS W/GAUGES FOR SYS. W/INSUFFICIENT OR NO COOLING TABLE

A/C SYSTEM GENERAL DIAGNOSTIC PROCEDURES

Article Text (p. 4)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:01PM

UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;					
3Low Side	3High Side	3	Other Symptoms (1)	3	Diagnosis
3 Gauge	3 Gauge	3		3	3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-					
3 NORMAL	3 NORMAL	3	No or few bubbles in sight	3Some Air & Moisture	3
3	3	3	glass. High side gauge may	3in System	3
3	3	3	go high. Low side gauge	3	3
3	3	3	does not fluctuate with	3	3
3	3	3	compressor on/off cycle.	3	3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-					
3 NORMAL	3 NORMAL	3	Cools okay in morning but	3 Excessive Moisture	3
3	3	3	not during hot part of day.	3 in System	3
3	3	3	Bubbles in sight glass.	3	3
3	3	3	Discharge air warm when low	3	3
3	3	3	side gauge drops into	3	3
3	3	3	vacuum.	3	3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-					
3 NORMAL	3 NORMAL	3	Thermostatic sw. sys. only-	3 Defective	3
3	3	3	compressor cycles off & on	3 Thermostatic Sw.	3
3	3	3	too rapidly.	3	3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-					
3 NORMAL	3 NORMAL	3	Cycling clutch sys only -	3Misadjusted	3
3 to	3	3	compressor doesn't turn on	3Thermostatic Sw. or	3
3 HIGH	3	3	soon enough.	3Defective Pressure	3
3	3	3	Discharge air becomes warm	3Sensing Switch	3
3	3	3	as low side pressure rises.	3	3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-					
3 LOW	3 LOW	3	Bubbles in sight glass.	3 Low R-12 Charge	3
3	3	3	Outlet air slightly cool.	3	3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-					
3 LOW	3 LOW	3	Sight glass clear.	3 Excessively Low	3
3	3	3	Outlet air very warm.	3 R-12 Charge	3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-					
3 LOW	3 LOW	3	Outlet air slightly cool.	3 Expansion Valve	3
3	3	3	Sweating or frost at	3Stuck Closed Screen	3
3	3	3	expansion valve.	3 Plugged or Sensing	3
3	3	3		3 Bulb Malfunction	3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-					
3 LOW	3 LOW	3	Outlet air slightly cool.	3 Restriction on	3
3	3	3	High side line cool to touch.	3 High Side	3
3	3	3	Sweating or frost on	3	3
3	3	3	high side.	3	3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-					
3 LOW	3 HIGH	3	Evaporator outlet pipe cold.	3 STV Stuck Open	3
3	3	3	Low side goes into vacuum	3	3
3	3	3	when blower is disconnected.	3	3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-					
3 HIGH	3 LOW	3	Evaporator outlet pipe warm.	3 STV Stuck Closed	3
3	3	3	Outlet air warm.	3	3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-					
3 HIGH	3 LOW	3	Noise from compressor.	3 Compressor	3
3	3	3		3 Malfunction	3

A/C SYSTEM GENERAL DIAGNOSTIC PROCEDURES

Article Text (p. 5)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:01PM

```

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 HIGH      3 HIGH      3 Outlet air warm.           3 Compressor      3
3           3           3 Liquid line very hot.       3 Malfunction     3
3           3           3 Bubbles in sight glass.    3 or              3
3           3           3                               3 R-12 Overcharge 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 HIGH      3 HIGH      3 Outlet air slightly cool. 3 Large Amount of Air 3
3           3           3 Bubbles in sight glass. 3 of Air & Moisture 3
3           3           3                               3 in System       3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 HIGH      3 HIGH      3 Outlet air warm.           3 Expansion Valve  3
3           3           3 Evaporator outlet sweating 3 Stuck Open       3
3           3           3 and frost.              3                  3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3(1) - If equipped with a low refrigerant charge protection system, 3
3 compressor operation may have stopped. 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

```

AIR CONDITIONING GENERAL TROUBLE SHOOTING

CONDITION & POSSIBLE CAUSE

Compressor Not Working

- * Compressor clutch circuit open.
- * Compressor clutch coil inoperative.
- * Poor clutch ground connection.
- * Fan belts loose.
- * Thermostatic switch inoperative.
- * Thermostatic switch not adjusted.
- * Ambient temperature switch open.
- * Superheat fuse blown.

Excessive Noise or Vibration

- * Missing or loose mounting bolts.
- * Bad idler pulley bearings.
- * Fan belts not tightened correctly.
- * Compressor clutch contacting body.
- * Excessive system pressure.
- * Compressor oil level low.
- * Damaged clutch bearings.
- * Damaged reed valves.
- * Damaged compressor.

Insufficient or No Cooling; Compressor Working

- * Expansion valve inoperative.
- * Heater control valve stuck open.
- * Low system pressure.
- * Blocked condenser fins.
- * Blocked evaporator fins.
- * Vacuum system leak.
- * Vacuum motors inoperative.
- * Control cables improperly adjusted.

A/C SYSTEM GENERAL DIAGNOSTIC PROCEDURES

Article Text (p. 6)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:01PM

- * Restricted air inlet.
- * Mode doors binding.
- * Blower motor inoperative.
- * Temperature above system capacity.

HEATING GENERAL TROUBLE SHOOTING

CONDITION & POSSIBLE CAUSE

Insufficient, Erratic, or No Heat

- * Low coolant level.
- * Incorrect thermostat.
- * Restricted coolant flow through heater core.
- * Heater hoses plugged.
- * Misadjusted control cable.
- * Sticking heater control valve.
- * Vacuum hose leaking.
- * Vacuum hose blocked.
- * Vacuum motors inoperative.
- * Blocked air inlet.
- * Inoperative heater blower motor.
- * Oil residue on heater core fins.
- * Dirt on heater core fins.

Too Much Heat

- * Improperly adjusted cables.
- * Sticking heater control valve.
- * No vacuum to heater control valve.
- * Temperature door stuck open.

Airflow Changes During Acceleration

- * Vacuum system leak.
- * Bad check valve or reservoir.

Air From Defroster At All Times

- * Vacuum system leak.
- * Improperly adjusted control cables.
- * Inoperative vacuum motor.

Blower Does Not Operate Correctly

- * Blown fuse.
- * Blower motor windings open.
- * Resistors burned out.
- * Motor ground connection loose.
- * Wiring harness connections loose.
- * Blower motor switch inoperative.
- * Blower relay inoperative.
- * Fan binding or foreign object in housing.
- * Fan blades broken or bent.

END OF ARTICLE

A/C COMPRESSOR SERVICING

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Sunday, August 19, 2001 07:00PM

ARTICLE BEGINNING

1993 AIR CONDITIONING & HEAT
Compressor Servicing

READ THIS FIRST

NOTE: The purpose of this article is to provide GENERAL servicing overview. For more specific information, refer to the AUTO A/C-HEAT SYSTEM, MANUAL A/C-HEAT SYSTEM, or HEATER SYSTEM articles in this section.

NOTE: Due to variety of clutch and shaft seal configurations, obtain appropriate A/C compressor service tools for compressor being serviced.

ATSUGI ROTARY VANE CLUTCH COIL R & I

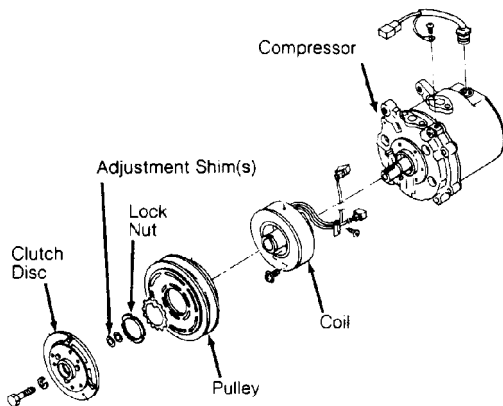
Removal

When replacing compressor clutch, be careful not to scratch shaft or bend pulley. When removing center bolt, hold clutch disc with Clutch Holder (KV99231010). Using Hub Puller (KV998VR001), remove clutch disc. When removing pulley, remove lock nut with Hub Socket (KV99235160).

Installation

1) Tighten center bolt to 81-104 INCH lbs. (9.1-11.8 N.m). Tighten lock nut to 21-29 ft. lbs. (29-39 N.m). Using feeler gauge, ensure clearance between clutch disc and pulley is .012-.024" (.30-.60 mm).

2) If clearance is not correct, replace adjustment shim(s). See Fig. 1. Break-in clutch by engaging and disengaging clutch about 30 times.



103223

Fig. 1: Exploded View Of Compressor (Atsugi Rotary Vane)
Courtesy of Nissan Motor Co., U.S.A.

A/C COMPRESSOR SERVICING

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:00PM

BOSCH 6-CYLINDER CLUTCH COIL R & I

Removal

1) Hold clutch plate and remove shaft nut. Using Clutch Plate Remover (64 5 00), remove clutch plate. Using snap ring pliers, remove circlip and remove pulley assembly.

2) If pulley bearing is being replaced, remove circlip at rear of pulley. Press bearing and spacer from pulley. Press in new bearing with spacer and replace circlip.

Installation

1) Clean all surfaces. Install pulley assembly on compressor and install circlip. Ensure clutch plate shim is in place on shaft. Install clutch plate and nut. Tighten nut to 13-15 ft. lbs. (18-20 N. m).

2) Using a feeler gauge, check clutch plate-to-pulley clearance. Clearance should be .028-.051" (.7-1.3 mm). If clearance is not correct, remove clutch plate and replace clutch plate shim. See Fig. 2.

BOSCH 6-CYLINDER SHAFT SEAL R & I

Removal

Remove clutch plate. Remove shaft key and circlip. Using Seal Seat Remover/Installer (64 5 030), remove seal seat. Using Seal Remover/Installer (64 5 040), turn seal slightly clockwise to disengage tangs and pull out shaft seal. Remove "O" ring seal.

Installation

1) Coat new "O" ring seal with refrigerant oil and install. Coat new shaft seal with refrigerant oil and install seal on Seal Remover/Installer (64 5 040). Ensure shaft seal and shaft machine surfaces align. Insert shaft seal and turn slightly counterclockwise to secure on shaft.

2) Using sleeve from Seal Seat Remover/Installer (64 5 030), push seal seat into compressor and install circlip. Install shaft key and clutch plate. Check compressor oil level before charging system.

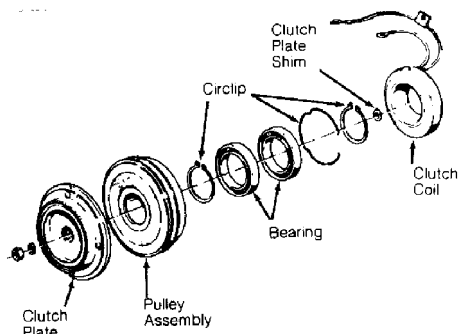


Fig. 2: Exploded View Of Compressor Clutch (Bosch 6-Cylinder)
Courtesy of BMW of North America, Inc.

A/C COMPRESSOR SERVICING

Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:00PM

CALSONIC V5 & V6 CLUTCH COIL R & I

NOTE: Calsonic V6 compressor servicing procedure is not available from manufacturer.

Removal

1) Remove shaft nut while holding clutch plate with Clutch Disc Wrench (J-39072). Install clutch disc Puller Set (J-39073-4, J-33013-1, J-33013-3) and remove clutch plate.

2) Remove snap ring. Use a universal gear puller to remove clutch pulley. See Fig. 3. Remove screw from clutch coil lead. Use puller to remove clutch coil.

Installation

1) To install clutch coil, reverse removal procedure. Ensure coil lead is installed in original position. Using puller set and Coil Jig (J-39073-1), carefully press clutch coil into place.

2) Install a new clutch pulley snap ring, being careful not to damage shaft seal. Press clutch plate into place. Install shaft nut and torque to 89-106 INCH lbs. (10-12 N.m).

3) Use a feeler gauge to check clutch plate-to-pulley clearance. Clearance should be .012-.024" (.30-.60 mm). If clearance is too large, remove shaft nut and again press in clutch plate. If clearance is too small, increase gap by pulling up clutch plate. DO NOT remove shaft nut.

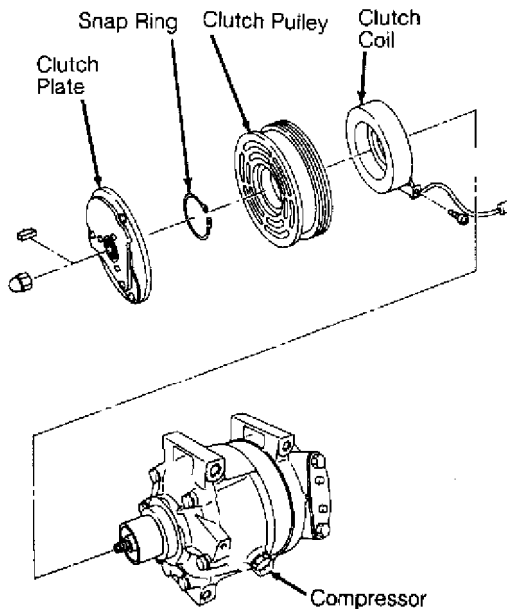


Fig. 3: Exploded View Of Compressor Clutch (Calsonic V5)
Courtesy of Nissan Motor Co., U.S.A.

DIESEL KIKI ROTARY VANE CLUTCH COIL R & I

Removal

A/C COMPRESSOR SERVICING

Article Text (p. 4)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:00PM

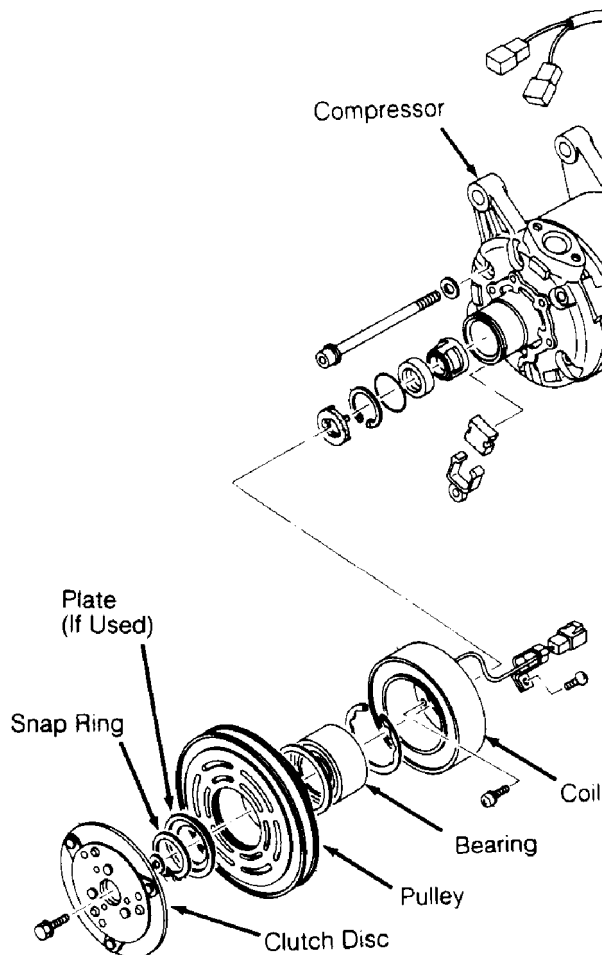
1) Hold clutch disc using Clutch Holder (J-33939) and remove center bolt. Using Puller (J-33944-A) and Forcing Bolt (J-33944-4), remove clutch disc. Remove adjustment shim(s) and snap ring.

2) Remove pulley using Pilot (J-38424) and universal puller. Remove coil lead screw, clutch coil screws and coil. Remove snap ring and bearing if necessary.

Installation

1) Ensure coil lead is installed in original position. Install and tighten coil screws to 35-53 INCH lbs. (4-6 N.m). Press pulley onto compressor using Pulley Installer (J-33940). Install snap ring and adjustment shim(s).

2) Install clutch disc and tighten center bolt to 106-133 INCH lbs. (12-15 N.m). Using feeler gauge, ensure clearance between clutch disc and pulley is .012-.024" (.30-.60 mm). If clearance is incorrect, add or remove shim(s) as necessary. Break-in clutch by engaging and disengaging clutch 30 times.



103225

Fig. 4: Exploded View Of Compressor (Diesel Kiki Rotary Vane)
Courtesy of Nissan Motor Co., U.S.A.

A/C COMPRESSOR SERVICING

Article Text (p. 5)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:00PM

DIESEL KIKI 6-CYLINDER CLUTCH COIL R & I

NOTE: Due to variety of clutch and shaft seal configurations, obtain appropriate A/C compressor service tools for compressor being serviced.

Removal & Installation

1) Using Clutch Holder (J-33939) to prevent clutch disc from rotating, remove shaft bolt. Using Clutch Disc Puller (J-33944-A) and Forcing Bolt (J-33944-4), remove clutch disc. Remove shim(s) from compressor drive shaft or clutch disc. See Fig. 5.

2) Remove snap ring, cover and pulley. With Puller Guide (J-33943-A) in center of pulley, attach Crossbar (J-8433) to outside diameter of pulley. Tighten crossbar bolt against puller guide to remove pulley. Remove coil lead, screws, and coil.

3) To install, reverse removal procedure. Install cover snap ring with beveled side facing out. Install clutch disc and tighten center bolt to 133 INCH lbs. (15 N.m).

4) Using feeler gauge, ensure clearance between clutch disc and pulley is .012-.024" (.30-.60 mm). If clearance is incorrect, add or remove shim(s) as necessary.

DIESEL KIKI SHAFT SEAL R & I

Removal & Installation

1) Remove clutch coil. Remove and discard felt. Using Shaft Seal Cover Remover/Installer (J-33942), push down and turn remover clockwise to engage tangs to cover. Slowly remove seal cover from bore.

2) Remove shaft seal snap ring. Use Shaft Seal Remover (J-33942-B) to remove seal. Remove compressor through bolts, front head and "O" ring. If necessary, replace front and rear valve plates, reed valves, and "O" rings.

3) To install, reverse removal procedure. Coat "O" ring, shaft seal and seal seat with refrigerant oil. Place Shaft Seal Guide (J-34614) over end of compressor shaft. Ensure chamfered portion of shaft seal retainer aligns with chamfered portion on compressor shaft.

4) Install front head and tighten compressor through bolts, in a crisscross pattern, to 16 ft. lbs. (22 N.m). Install shaft seal cover and felt. See Fig. 5. Rotate compressor drive shaft 2-3 times to ensure compressor operates smoothly.

A/C COMPRESSOR SERVICING

Article Text (p. 6)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:00PM

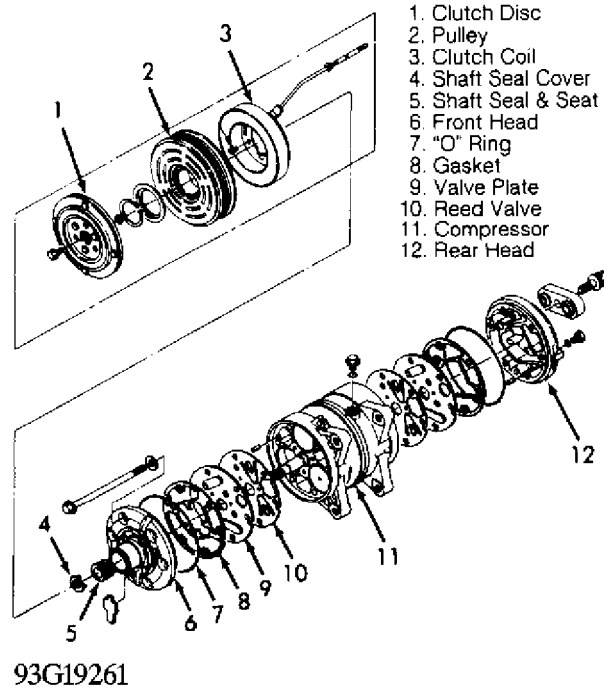


Fig. 5: Exploded View Of Compressor (Diesel Kiki 6-Cylinder)
Courtesy of Isuzu Motor Co.

FORD FX-15 CLUTCH COIL R & I

Removal

1) Using Clutch Holder (000 41 0812 05), remove clutch plate bolt. Using an 8-mm bolt threaded into clutch plate, remove clutch plate and shim(s). See Fig. 6.

2) Remove snap ring and pulley assembly. Install Shaft Protector (49 UN01 047) over shaft seal opening. Use a 2-jaw puller to remove clutch coil from compressor.

Installation

1) Ensure clutch coil mounting surface is clean. Use Coil Installer (49 UN01 046) and 2-jaw puller engaged to rear side of compressor front mounts to press coil into place.

2) Install pulley assembly. Install pulley assembly snap ring with bevel side of snap ring facing out. Install shim(s) and clutch plate. Install a new clutch plate bolt and tighten to 97-115 INCH lbs. (11-13 N.m).

3) Use a feeler gauge to check clearance between clutch plate and pulley assembly. Clearance should be .018-.033" (.46-.84 mm). If clearance is incorrect, add or remove shims as necessary.

FORD FX-15 SHAFT SEAL R & I

A/C COMPRESSOR SERVICING

Article Text (p. 7)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:00PM

Removal

1) Using Clutch Holder (000 41 0812 05), remove clutch plate bolt. Using an 8-mm bolt threaded into clutch plate, remove clutch plate and shim(s). See Fig. 6.

2) Remove shaft felt seal. Thoroughly clean seal area of compressor. Remove shaft seal snap ring. Position Shaft Seal Remover (49 UN01 044) over compressor shaft.

3) Push shaft seal remover downward against seal. Ensure end of shaft seal remover is engaged with inside of seal. Rotate shaft seal remover clockwise to expand remover tip inside seal. Pull shaft seal from compressor.

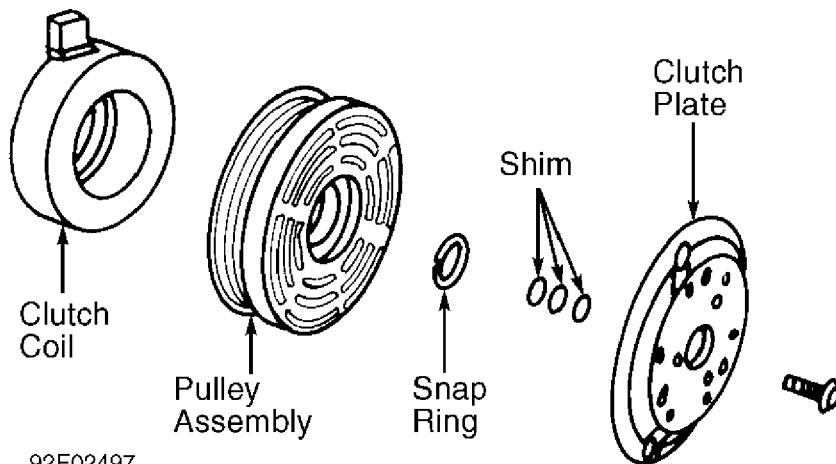
Installation

1) Lubricate shaft seal protector and shaft seal with refrigerant oil. Install shaft seal on shaft seal protector so lip seal is toward compressor (large end of shaft seal protector).

2) Install shaft seal protector on compressor shaft. Using Shaft Seal Installer (49 UN01 043), push shaft seal down seal protector until seal is seated.

3) Remove shaft seal installer and protector. Install a new shaft seal retaining snap ring and shaft seal felt. Install shim(s) and clutch plate. Install a new clutch plate retaining bolt and tighten to 97-115 INCH lbs. (11-13 N.m).

4) Use a feeler gauge to check clearance between clutch plate and pulley assembly. Clearance should be .018-.033" (.46-.84 mm). If clearance is incorrect, add or remove shims as necessary.



92E02497

Fig. 6: Exploded View Of Compressor Clutch (Ford FX-15)
Courtesy of Mazda Motors Corp.

HADSYS 7-CYLINDER CLUTCH COIL R & I

Removal

Using Clutch Holder (J-37872), hold pressure plate and remove shaft bolt. Remove pressure plate and adjustment shim(s). See Fig. 7. Remove snap ring. Using universal puller, remove compressor pulley. Remove clutch coil.

A/C COMPRESSOR SERVICING

Article Text (p. 8)

1993 Mazda RX7

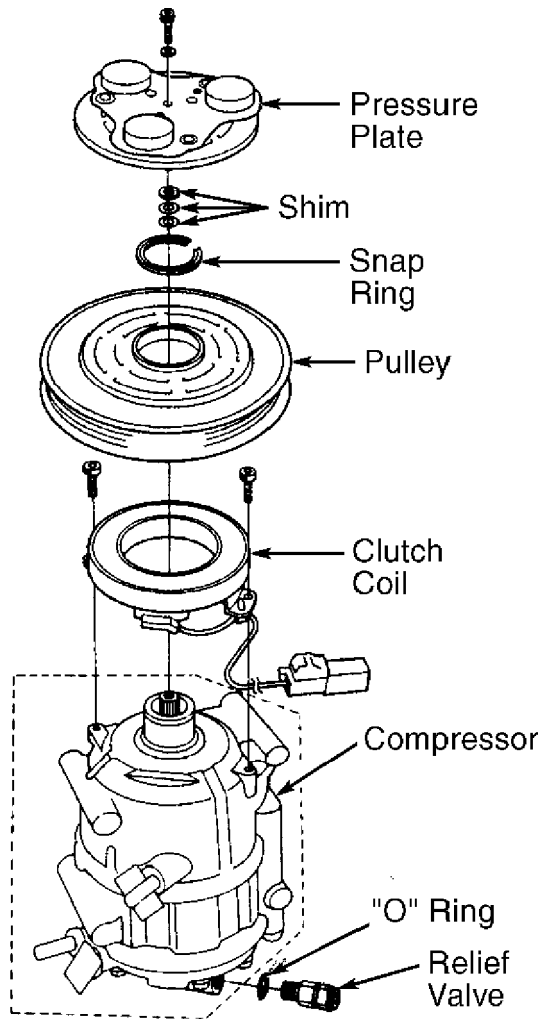
For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:00PM

Installation

Install clutch coil in reverse order of removal. Ensure snap ring is properly seated. Apply locking compound to shaft bolt and tighten it to 62 INCH lbs. (7 N.m). Ensure clearance between pressure plate and pulley is 0.012-0.024" (.30-.60 mm). If clearance is incorrect, add or remove shim(s) as necessary.



94E10060

Fig. 7: Exploded View Of Compressor (Hadsys 7-Cylinder)
Courtesy of American Honda Motor Co., Inc.

HARRISON R4 4-CYLINDER CLUTCH COIL AND BEARING R & I

Removal

1) Clamp Holding Fixture (J-25008-A) in vise. Attach compressor to holding fixture. Use Clutch Hub Holder (J-33027) to hold clutch and remove shaft nut.

2) Thread Hub and Drive Plate Assembly Remover/Installer (J-37707) into hub. Hold body of remover with wrench and turn center bolt

A/C COMPRESSOR SERVICING

Article Text (p. 9)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:00PM

into remover body to remove clutch plate and hub assembly. Remove shaft key and save for installation.

3) Remove snap ring. Place Puller Guide (J-25031-1) in center of pulley housing. Engage universal puller to outer diameter of pulley (clutch rotor). See Fig. 8. Hold puller and tighten screw to remove pulley.

4) Invert pulley and place on work bench. Press out rotor bearing using handle and Bearing Remover (J-9398-A). Attach universal puller to outside diameter of clutch coil. Tighten bolt against puller guide to remove clutch coil.

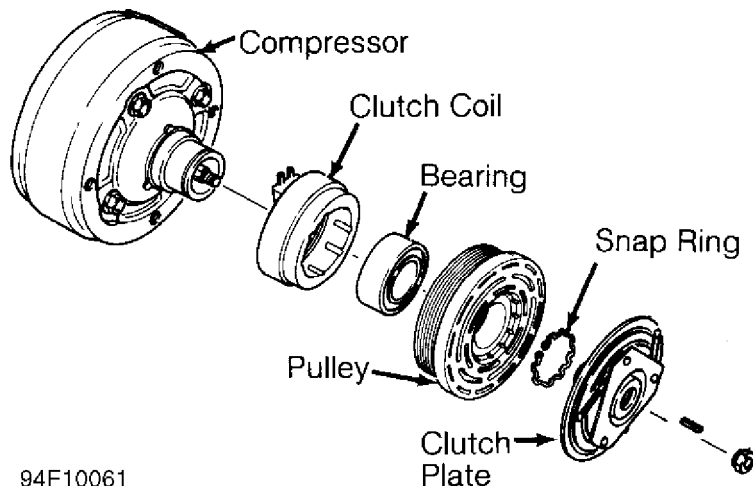
CAUTION: DO NOT drive or pound on clutch hub or shaft.

Installation

1) Ensure clutch coil is installed in original position. Press pulley onto compressor using Installer (J-9481-A) and handle. Install shaft key into hub key groove. Allow key to project approximately 3/16" (4.8 mm) out of keyway.

2) Ensure frictional surface of clutch plate and clutch rotor are clean before installing clutch plate and hub assembly. Align shaft key with shaft keyway and place clutch plate and hub assembly onto compressor shaft.

3) Hold hub and drive plate remover/installer with wrench and tighten nut to press hub into shaft until there is a .020-.040" (.5-1.0 mm) air gap between plate and clutch rotor. Install a new shaft nut and tighten to 10 ft. lbs. (14 N.m). Ensure rotor is not rubbing on clutch plate.



94F10061

Fig. 8: Exploded View Of Compressor (Harrison R4 4-Cylinder)
Courtesy of Isuzu Motor Co.

HARRISON V5 5-CYLINDER CLUTCH COIL AND BEARING R & I

Removal

1) Clamp Holding Fixture (J-34992) in vise. Attach compressor to holding fixture. Use Clutch Hub Holder (J-33027-A) to hold clutch. Remove shaft nut using Socket (J-33022). See Fig. 9.

A/C COMPRESSOR SERVICING

Article Text (p. 10)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:00PM

2) Thread Clutch Plate and Hub Assembly Remover (J-33013-B) into hub. Hold body of remover with wrench and turn center bolt to remove clutch plate and hub assembly. Remove snap ring. Remove shaft key and save for installation.

3) Place Puller Guide (J-33023-A) in center of pulley housing. Engage Rotor/Bearing Puller (J-33020) to inner circle of slots in pulley (rotor). Hold rotor/bearing puller in place and tighten screw to remove pulley.

4) Remove screw from rotor/bearing puller. Invert assembly and place on work bench with rotor/bearing puller still engaged. Remove hub bearing using handle and Bearing Remover (J-9398-A).

5) With puller guide in place, attach Crossbar (J-8433-1) and Puller (J-33025) to outside diameter of clutch coil. Tighten crossbar Bolt (J-8433-3) against puller guide to remove clutch coil.

Installation

1) Ensure clutch coil is installed in original position. Press coil into position using crossbar, clutch Coil Installer (J-33024) and Through Bolts (J-34992-2). Stake compressor housing 120 degrees apart to secure coil.

2) Position Rotor/Bearing Installer (J-33017) and puller guide over inner race of bearing. Using through bolts, assemble crossbar over puller pilot and tighten through bolts onto holding fixture. Tighten crossbar bolt to press pulley/bearing assembly onto compressor.

3) Install shaft key into hub key groove. Allow key to project approximately 1/8" (3.2 mm) out of keyway. Align shaft key with shaft keyway and place clutch plate and hub assembly onto compressor shaft.

CAUTION: Do not drive or pound on clutch hub or compressor shaft, as compressor could be damaged internally.

4) Hold hex portion of Hub Installer (J-33013) with a wrench. Tighten center screw to press hub into shaft until there is .020-.030" (.50-.76 mm) air gap between frictional plate and clutch rotor.

5) Install new shaft nut with small diameter boss of nut against crankshaft shoulder. Use Socket (J-33022) and Clutch Hub Holder (J-33027-A). Tighten shaft nut to 12 ft. lbs. (16 N.m). Ensure pulley does not rub on clutch plate. See Fig. 9.

HARRISON V5 5-CYLINDER SHAFT SEAL R & I

Removal

Remove clutch plate and hub assembly. Remove shaft seal snap ring. Thoroughly clean inside of compressor neck area around shaft and seal. Engage tangs of Seal Remover/Installer (J-23128-A) into recessed portion of seal and remove seal. Remove and discard "O" ring from compressor neck. Thoroughly clean inside of compressor neck and "O" ring groove.

Installation

A/C COMPRESSOR SERVICING

Article Text (p. 11)

1993 Mazda RX7

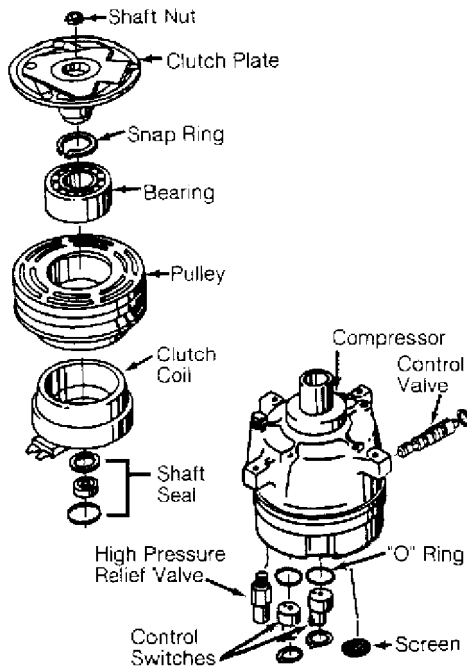
For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:00PM

1) Coat new "O" ring with refrigerant oil and install on "O" Ring Installer (J-33011). Install "O" ring into groove in compressor neck. Attach new seal to seal remover/installer. Dip shaft seal in clean refrigerant oil.

2) Place Seal Protector (J-34614) over compressor shaft. Push new seal over shaft protector. Install new seal snap ring with flat side against seal. Install clutch plate assembly.



94G10062

Fig. 9: Exploded View Of Compressor (Harrison V5 5-Cylinder)
Courtesy of General Motors Corp.

HITACHI 6-CYLINDER CLUTCH COIL AND SEAL R & I

Removal

1) Hold clutch hub with Clutch Tightener (925770000). Remove shaft nut from shaft. Using Clutch Hub Remover (926130000), remove clutch hub. Use snap ring pliers to remove inner snap ring.

2) Remove pulley and bearing assembly. Remove screws securing clutch coil lead. Remove inner snap ring from clutch coil. Remove clutch coil from front cover.

3) Remove shaft key. Use snap ring pliers to remove shaft seal snap ring. Wrap a rag around compressor shaft. Using Injector Needle (92619000) and refrigerant can, slowly pressurize compressor at low pressure (suction) service port. See Fig. 10. Catch shaft seal seat in rag.

4) Insert Shaft Seal Remover/Installer (926120000) through

A/C COMPRESSOR SERVICING

Article Text (p. 12)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

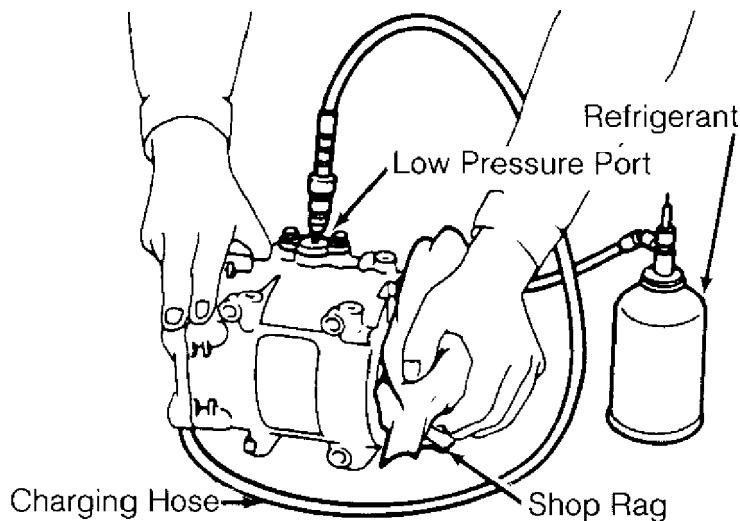
Sunday, August 19, 2001 07:00PM

open end of front cover. Slowly pull out remover/installer to remove shaft seal.

Installation

1) Ensure shaft seal contact surface is free of dirt. Lubricate with refrigerant oil. Using shaft seal remover/installer, insert shaft seal.

2) To install clutch coil and hub, reverse removal procedure. Tighten shaft nut to 14-15 ft. lbs. (19-21 N.m). Ensure clearance between pressure plate and pulley is 0.020-0.031" (.50-.80 mm).



94H10063

Fig. 10: Removing Compressor Shaft Seal Seat (Hitachi 6-Cylinder)
Courtesy of Subaru of America, Inc.

MATSUSHITA ROTARY VANE CLUTCH COIL R & I

Removal & Installation

1) Using Pressure Plate Holder (J-7624) and socket, remove center bolt. Thread Puller (J-34878) onto pressure plate. Hold pressure plate with pressure plate holder and tighten puller to remove pressure plate.

2) Remove shim(s) from shaft. Remove snap ring and, using a plastic hammer, tap pulley off. Remove screw for clutch coil lead. Remove snap ring and clutch coil. See Fig. 11.

3) To install, reverse removal procedure. Tighten shaft bolt to 10 ft. lbs (14 N.m). Using feeler gauge, ensure clearance between pressure plate and pulley is .014-.026" (.35-.65 mm). If clearance is incorrect, add or remove shim(s) as necessary.

A/C COMPRESSOR SERVICING

Article Text (p. 13)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:00PM

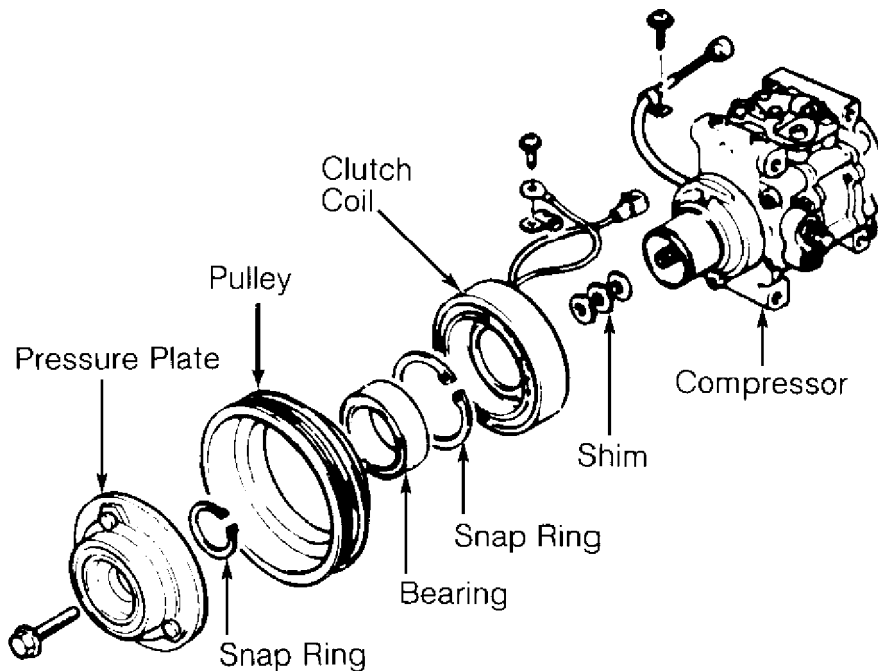


Fig. 11: Exploded View Of Compressor (Matsushita Rotary Vane)
Courtesy of Toyota Motor Sales, U.S.A., Inc.

NIPPONDENSO TV12 ROTARY VANE CLUTCH COIL R & I

Removal

1) Hold clutch disc with Clutch Holder (00007-10331) and remove shaft nut. Install Clutch Disc Remover (4992-02-020) and remove clutch disc and shims. See Fig. 12.

2) Remove pulley snap ring and tap pulley (with bearing) off of compressor with plastic hammer. Remove screw for clutch coil lead. Remove snap ring and clutch coil.

Installation

To install, reverse removal procedure. Ensure pulley-to-clutch disc clearance is .016-.024" (.40-.60 mm). If clearance is incorrect, add or remove shim(s) as necessary.

NIPPONDENSO TV12 DISCHARGE VALVE & SHAFT SEAL R & I

Removal

1) Drain and measure compressor oil in compressor. Remove discharge valve body through bolts. Remove discharge valve body bolts and body. Remove discharge valve plate and discharge valve.

2) Remove compressor through bolts and front and rear housing (oil separator case). Remove pins and gaskets. Remove shaft seal from shaft. Press shaft seal plate off of front housing (head cover).

Installation

To install components, reverse removal procedure. Tighten

A/C COMPRESSOR SERVICING

Article Text (p. 14)

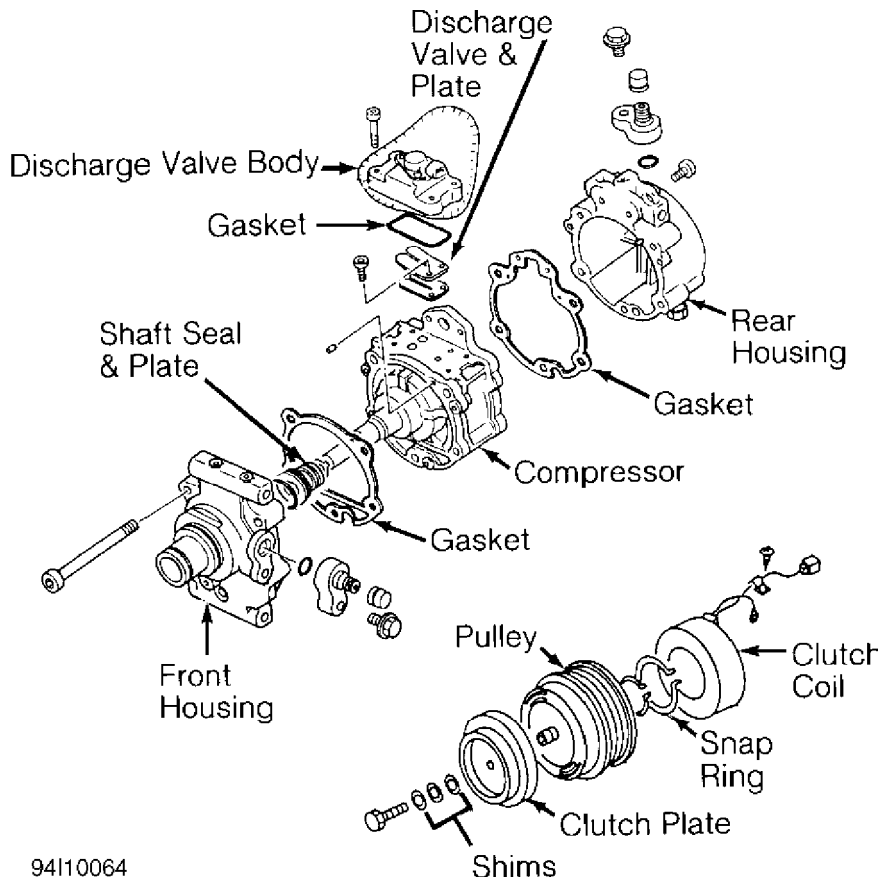
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:00PM

compressor through bolts to 19 ft. lbs. (26 N.m). Tighten discharge valve bolts to 41 INCH lbs. (4.6 N.m). Tighten discharge valve body and body through bolts to 96 INCH lbs. (10.8 N.m).



94I10064

Fig. 12: Exploded View Of Compressor (Nippondenso TV12 Rotary Vane)
Courtesy of Mazda Motors Corp.

NIPPONDENSO 6 & 10-CYLINDER CLUTCH COIL AND BEARING R & I

NOTE: Due to variety of clutch and shaft seal configurations, obtain appropriate A/C compressor service tools for compressor being serviced.

Removal

1) Hold clutch plate stationary and remove shaft bolt (or nut). Remove clutch plate using puller. Remove shim(s) from shaft and snap ring. Tap pulley off shaft with plastic hammer. If pulley cannot be removed by hand, use commercially available puller.

2) Remove snap ring, bearing, and seal (if equipped) from pulley. See Fig. 13. Remove screw for clutch coil lead. Remove snap ring and clutch coil.

Installation

To install, reverse removal procedure. Ensure snap rings are installed with beveled side facing out. Tighten shaft bolt (or nut) to

A/C COMPRESSOR SERVICING

Article Text (p. 15)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:00PM

13-14 ft. lbs. (17-19 N.m) on Fox, MR2 and Scoupe; 10-13 ft. lbs. (14-17 N.m) on all others. Ensure air gap between clutch plate and pulley is .024-.040" (.60-1.00 mm) on Fox and MR2; .014-.026" (.36-.66 mm) on all others. If air gap is incorrect, add or remove shim(s) as necessary.

NOTE: To check air gap, place a dial indicator on clutch plate. Apply voltage to clutch coil. Check air gap between clutch plate and drive pulley. Ensure air gap is as specified.

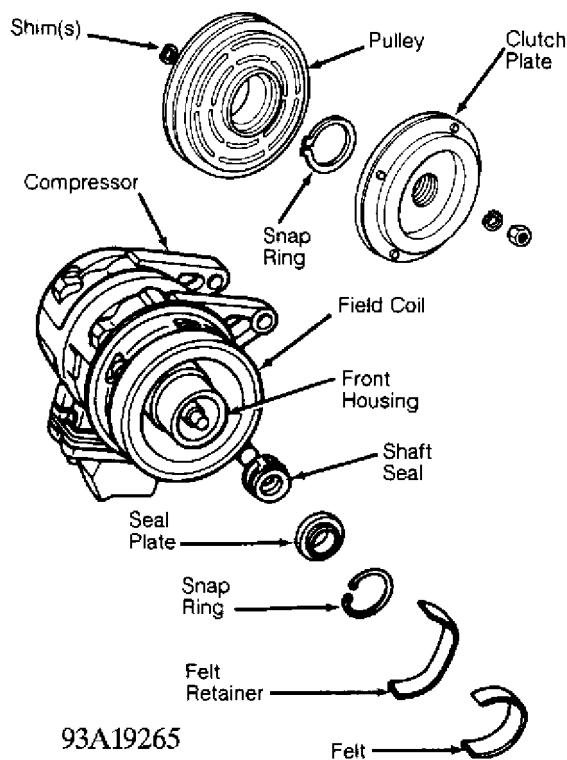


Fig. 13: Exploded View Of Compressor (Nippondenso 10-Cylinder)
Courtesy of Ford Motor Co.

NIPPONDENSO 6 & 10-CYLINDER SHAFT SEAL R & I

NOTE: On Chrysler and Mitsubishi, remove compressor through bolts and front housing to remove shaft seal. See Fig. 14. Alternately tighten through bolts to 18-21 ft. lbs. (24-28 N.m).

Removal

1) Remove clutch plate and pulley. Remove shim(s) from shaft. Remove clutch coil if necessary. Remove felt and felt retainer (if equipped). Place shaft key remover on shaft and turn to remove key.

A/C COMPRESSOR SERVICING

Article Text (p. 16)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

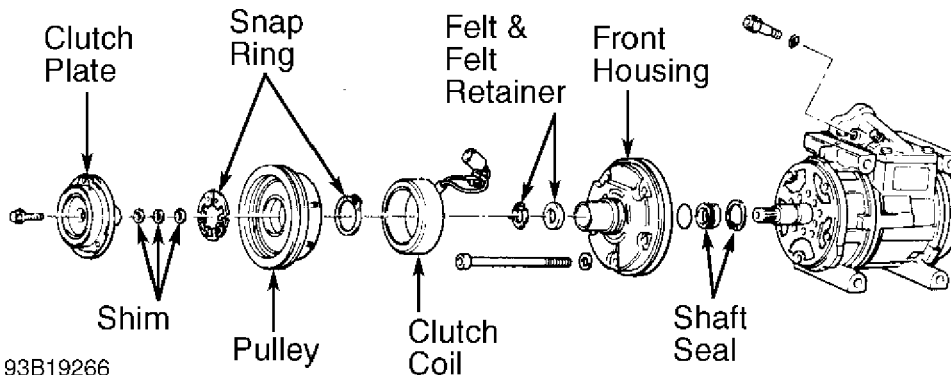
Sunday, August 19, 2001 07:00PM

2) Remove seal plate snap ring. Engage plate remover on seal plate and pull up to remove seal plate. Engage shaft seal remover/installer to shaft seal and pull up to remove shaft seal from front housing.

Installation

1) Apply clean refrigerant oil to compressor housing bore. Lubricate shaft seal with refrigerant oil and install in front housing. Lubricate seal plate and install in front housing.

2) Install shaft key, snap ring, felt retainer and felt. With clutch plate installed, ensure air gap between clutch plate and pulley is .024-.040" (.60-1.00 mm) on Fox and MR2; .014-.026" (.36-.66 mm) on all others. If air gap is incorrect, add or remove shim(s) as necessary.



93B19266
Fig. 14: Exploded View Of Compressor (Nippondenso 10PA15 10-Cylinder)
Courtesy of Chrysler Corp.

PANASONIC ROTARY VANE CLUTCH COIL R & I

Removal

Hold clutch disc stationary and remove shaft bolt. Remove clutch disc and shim(s) from shaft. Remove snap ring. Using a puller, remove pulley. Remove screw from clutch coil lead. Remove screws and field coil.

Installation

To install, reverse removal procedure. Tighten field coil screws to 30-57 INCH lbs. (3.4-6.4 N.m). Ensure pulley-to-armature gap is .016-.020" (.40-.50 mm). If air gap is incorrect, add or remove shim(s) as necessary. Tighten shaft bolt to 97-115 INCH lbs. (11-13 N.m).

PANASONIC ROTARY VANE DISCHARGE VALVE R & I

Removal & Installation

Remove compressor head cover. Remove discharge valve stopper and discharge valve. See Fig. 15. Install replacement discharge valve and stopper, reversing removal procedure. Tighten discharge valve bolts to 27-34 INCH lbs. (3.0-3.8 N.m). Tighten compressor head cover

A/C COMPRESSOR SERVICING

Article Text (p. 17)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:00PM

bolts to 89 INCH lbs. (10 N.m).

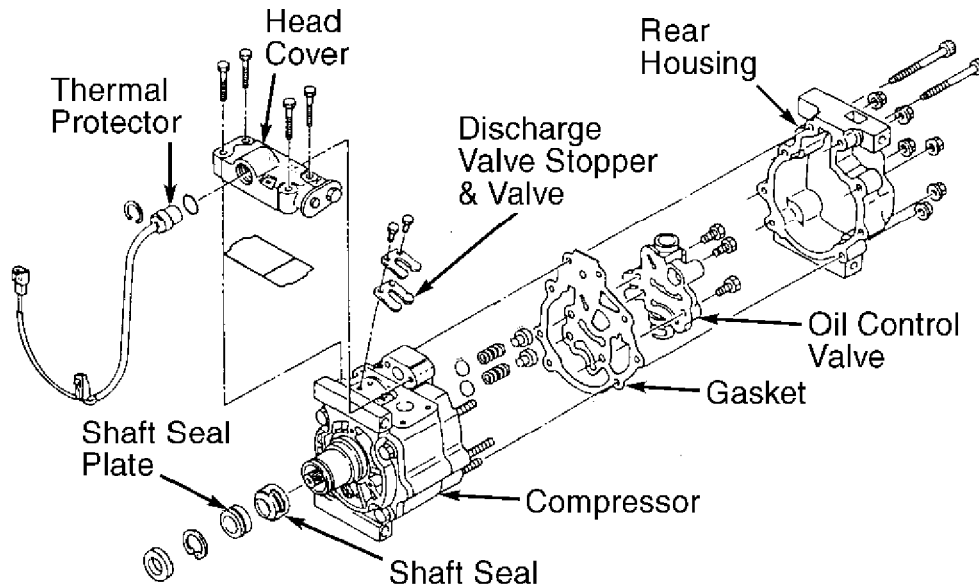


Fig. 15: Exploded View Of Compressor (Panasonic Rotary Vane)
Courtesy of Mazda Motors Corp.

PANASONIC ROTARY VANE OIL CONTROL VALVE R & I

Removal & Installation

Remove compressor rear cover. Remove oil control valve. Remove springs, valve, and rear cover seal. To install components, reverse removal procedure. Tighten oil control valve bolts to 89 INCH lbs. (10 N.m). Tighten rear cover nuts to 21 ft. lbs. (29 N.m) and bolts to 89 INCH lbs. (10 N.m).

PANASONIC ROTARY VANE SHAFT SEAL R & I

Removal & Installation

Remove clutch disc and shim(s). Remove felt seal and snap ring. Using Seal Plate Remover (49 B061 005), engage and remove shaft seal plate. Remove shaft seal with Seal Remover/Installer (49 B061 006). To install, reverse removal procedure. Coat new seal plate and seal with clean refrigerant oil. DO NOT touch seal surfaces with fingers.

SANDEN SCROLL CLUTCH COIL AND SHAFT SEAL R & I

NOTE: Due to variety of clutch and shaft seal configurations, obtain appropriate A/C compressor service tools for compressor being serviced.

Removal (Chrysler & Mitsubishi Except Galant & Mirage)

1) Remove drive belt pulley (if equipped). Hold clutch plate

A/C COMPRESSOR SERVICING

Article Text (p. 18)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:00PM

using Pliers (MB991367) and Bolts (MB991386). Use a ratchet and socket to remove clutch hub nut.

2) Remove clutch plate. Remove snap ring with internal snap ring pliers. Remove clutch hub (rotor). Remove snap ring and clutch coil.

3) Using an awl, remove bearing cover and retainer. Using Bearing Remover (MB991456), engage bearing grooves. Place base of bearing remover over remover arms and tighten nut.

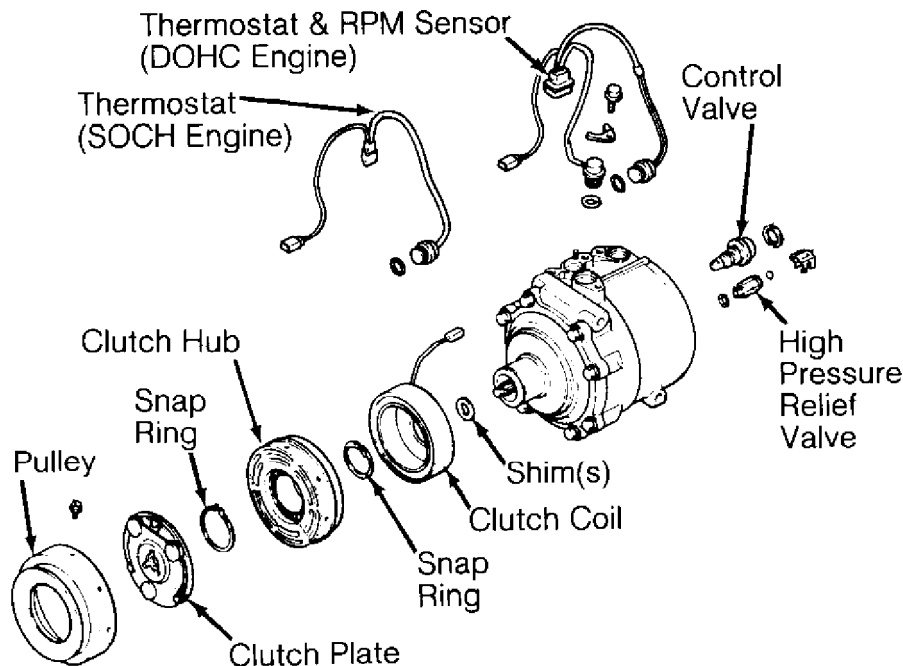
4) Tighten bearing remover bolt to withdraw bearing from compressor. Engage grooves of Shaft Seal Remover/Installer (MB991458) and pull straight up on shaft seal.

Installation (Chrysler & Mitsubishi Except Galant & Mirage)

1) To install shaft seal, ensure front housing is free of foreign objects. Lubricate Shaft Seal Protector (MB991459) and place over compressor shaft. Lubricate shaft seal and install using shaft seal remover/installer. Remove shaft seal protector.

2) Using a 21 mm socket or Drift (MB991301), carefully press bearing onto compressor shaft. Install clutch coil so that alignment pin is engaged. Install clutch coil snap ring with tapered side facing out.

3) Align armature plate with crankshaft spline. Tighten shaft nut to 12 ft. lbs (16 N.m). Using feeler gauge, ensure clearance between pressure plate and pulley is .016-.024" (.40-0.60 mm). If clearance is incorrect, add or remove shim(s) as necessary.



94A10066

Fig. 16: Exploded View Of Compressor (Sanden Scroll)
Courtesy of Chrysler Corp.

Removal (Chrysler & Mitsubishi Galant & Mirage)

A/C COMPRESSOR SERVICING

Article Text (p. 19)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:00PM

1) Hold clutch plate by securing 2 box-end wrenches with two 6-mm bolts, 1" (25 mm) or longer. Holding bow-end wrenches, use a ratchet and socket to remove clutch hub nut.

2) Remove clutch plate. See Fig. 17. Remove snap ring with internal snap ring pliers. Remove clutch hub. Remove snap ring and clutch coil.

3) Remove front housing bolts. Remove front housing and "O" ring from compressor. Remove shaft seal from shaft. Remove snap ring from back side of front housing. Remove seal plate. Use brass drift and hammer to lightly tap shaft bearing from front housing. Remove felt seal.

NOTE: DO NOT touch sealing surfaces of shaft seal carbon ring and shaft seal plate.

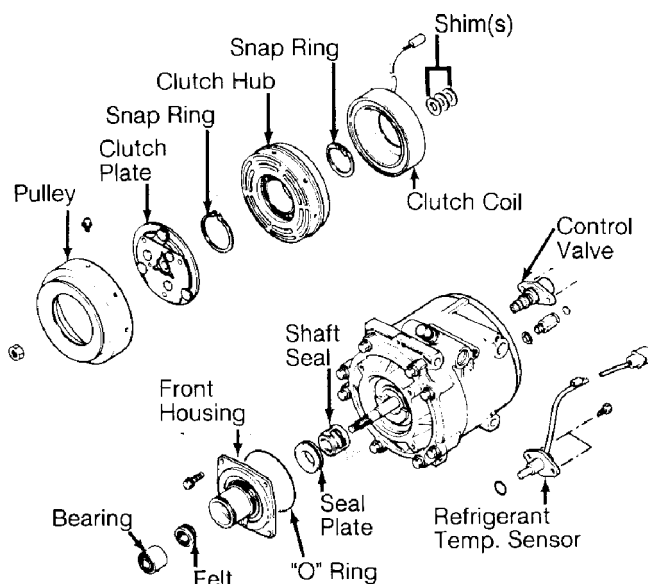
Installation (Chrysler & Mitsubishi Galant & Mirage)

1) Lubricate shaft seal with compressor oil. Align notches on shaft seal with notches on shaft. Install shaft seal plate on front housing. Install front seal housing to compressor.

2) Use Drift (MB991301) to install felt into front housing. Ensure metal ring on felt faces up. Use drift to press bearing into front housing.

3) Align and install clutch coil. Install snap ring so tapered surface faces outward. Install clutch hub. Install snap ring. Align clutch plate mark with shaft; where there are no splines on shaft.

4) Tighten clutch hub nut to 12 ft. lbs. (16 N.m). Using feeler gauge, measure clutch plate-to-clutch hub gap. If gap is not .012-.024" (.30-.60 mm), remove clutch assembly and add or remove shim(s).



94B10067

Fig. 17: Exploded View Of Compressor (Sanden FX105V Scroll)
Courtesy of Chrysler Corp.

A/C COMPRESSOR SERVICING

Article Text (p. 20)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:00PM

Removal & Installation (Honda & Hyundai)

1) Remove shaft nut while holding clutch plate with Armature Holder (J-37872). Using Puller (07935-8050003), remove pressure plate and shim(s). See Fig. 16. Remove snap ring.

2) Place Seal Driver (07945-4150200) in center of pulley. Engage universal puller to outer diameter of pulley. DO NOT engage puller on belt area. Hold puller in place and tighten screw to remove pulley. Remove screw for clutch coil lead. Remove snap ring and clutch coil.

3) To install clutch coil, reverse removal procedure. Align lug on clutch coil with hole in compressor. Install snap rings with chamfered side facing out. Tighten shaft nut to 12-14 ft. lbs. (16-19 N.m). Using feeler gauge, ensure clearance between pressure plate and pulley is .014-.026" (.35-.65 mm). If clearance is incorrect, add or remove shim(s) as necessary.

NOTE: Shaft seal removal and installation procedures not available from Honda or Hyundai.

SANDEN 5-CYLINDER CLUTCH COIL R & I

Removal

1) Hold clutch plate, using Holder (0000-41-0809-01), and remove shaft nut. Remove clutch plate using Puller (0000-41-0809-02). Remove shaft key and shim(s). Remove external front housing snap ring and internal bearing snap ring (if used).

2) Install Clutch Pilot (0000-41-0810-77), Pulley/Clutch Remover (0000-41-0810-76), and Puller (0000-41-0804-51/57) to remove pulley assembly. Remove snap ring and drive bearing out of pulley. Remove screw for clutch coil lead. Remove snap ring and clutch coil.

Installation

1) Install new bearing, ensuring Bearing Installer (000-41-0804-43) contacts outer race of bearing. Install snap ring and ensure bearing turns freely.

2) Install clutch coil, ensuring lug on coil aligns with hole in front housing. Support compressor on rear mounting ears. Align rotor on front housing hub. Use bearing installer and Driver (0000-41-0810-59) to install pulley. With pulley seated, install snap ring(s). Install shim(s) and shaft key.

3) Place clutch plate over shaft and, using Shaft Protector (0000-41-0809-10), tap clutch plate into place. Install and tighten shaft nut to 25-32 ft. lbs. (34-44 N.m). Using feeler gauge, ensure clearance between clutch plate and pulley is .016-.032" (.40-.80 mm). If clearance is incorrect, add or remove shim(s) as necessary.

SANDEN 5-CYLINDER CYLINDER HEAD & VALVE PLATE R & I

Removal & Installation

Remove compressor cylinder head (rear cover) bolts. Carefully pry cylinder head of compressor. Remove reed valve plate and gasket. To install components, reverse removal procedure. Tighten compressor

A/C COMPRESSOR SERVICING

Article Text (p. 21)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:00PM

cylinder head bolts, in a crisscross pattern, to 21-29 ft. lbs. (29-39 N.m).

SANDEN 5-CYLINDER SHAFT SEAL R & I

Removal

Remove shaft nut and clutch plate. Remove shaft key and shim(s). Carefully remove felt ring. Remove shaft seal seat snap ring. Using Seal Seat Remover/Installer (0000-41-0810-73), carefully remove seal seat. Using Shaft Seal Remover/Installer (0000-41-0812-11), carefully remove shaft seal.

Installation

1) Install Seal Protector (0000-41-0812-13) over shaft. Place new seal on remover/installer. DO NOT touch carbon sealing surface with fingers. Dip seal in refrigerant oil and install. Remove seal installer by turning counterclockwise.

2) Coat seal seat with refrigerant oil. Install seal seat using remover/installer. Install seal seat snap ring (with flat side down). Install shim(s), felt ring and shaft key. Install shaft nut and clutch plate. Ensure clearance between clutch plate and pulley is .016-.032" (.40-.80 mm). If clearance is incorrect, add or remove shim(s) as necessary.

SANDEN 7-CYLINDER CLUTCH COIL AND BEARING R & I

NOTE: Due to variety of clutch and shaft seal configurations, obtain appropriate A/C compressor service tools for compressor being serviced.

Removal

1) Install two 6-mm bolts, 1" (25 mm) or longer, in clutch plate holes. Using 2 box-end wrenches to hold bolts and to prevent clutch plate from turning, remove shaft nut.

2) Remove clutch plate using Clutch Plate Puller (09977-21100). Remove clutch shim(s) and bearing dust cover. Remove external front housing snap ring. See Fig. 18.

3) Remove pulley using universal puller. Detach clutch coil lead from compressor housing. Remove clutch coil snap ring and clutch coil. If necessary, remove snap ring and bearing.

Installation

1) Align clutch coil lug with hole in compressor housing, and install clutch coil. Install clutch coil snap ring. Install drive pulley using Drive Pulley Installer (09977-21811).

2) Install external bearing snap ring. Using Seal Installer (09977-21800), install bearing dust cover. After dust cover installation, ensure there is no contact between cover and front housing.

3) Install clutch shim(s) and clutch plate. Tighten shaft nut to 13-14 ft. lbs. (17-19 N.m). Using a dial indicator, check air gap between clutch plate and drive pulley. Apply voltage to clutch coil.

A/C COMPRESSOR SERVICING

Article Text (p. 22)

1993 Mazda RX7

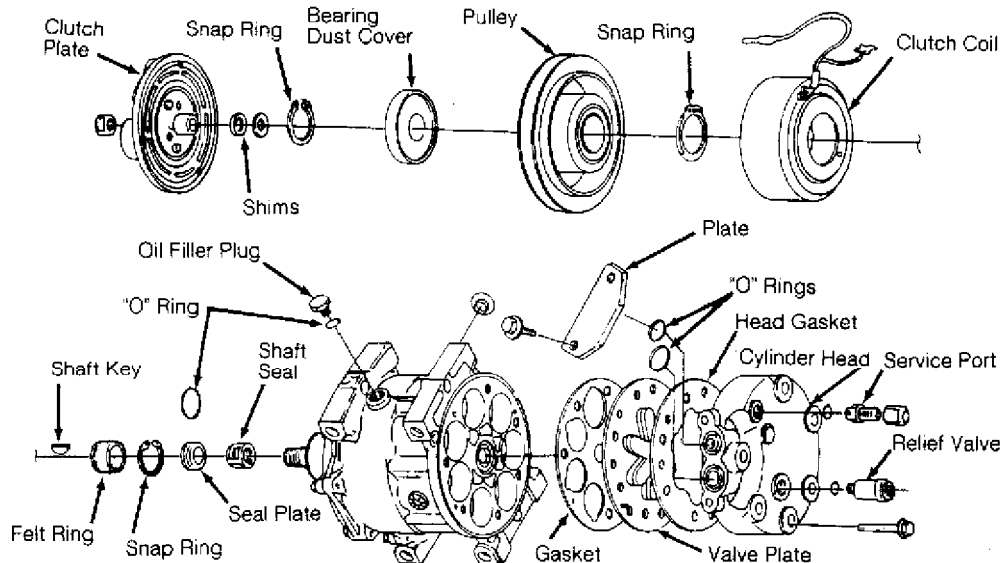
For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:00PM

Ensure air gap is .016-.032" (.40-.80 mm). If clearance is incorrect, add or remove shim(s) as necessary.

NOTE: If compressor valve plate is serviced, tighten compressor cylinder head bolts to 25-26 ft. lbs. (34-35 N.m).



93I19263

Fig. 18: Exploded View Of Compressor (Sanden 7-Cylinder)

Courtesy of Hyundai Motor Co.

SANDEN 7-CYLINDER SHAFT SEAL R & I

NOTE: Check compressor refrigerant oil level when replacing seals. See COMPRESSOR OIL CHECKING article in GENERAL SERVICING.

Removal

1) Remove clutch plate, shim(s) and bearing dust cover. Tap shaft key out of slot in compressor shaft. Remove seal retainer felt ring.

2) Remove shaft seal seat snap ring. Insert Seal Seat Remover/Installer (09977-21400) into front housing and turn to engage tangs on seat. Lift seal seat out.

3) Insert Seal Remover/Installer (09977-21510) into front housing and turn to engage tangs on seal. Carefully lift shaft seal out without scratching compressor shaft.

Installation

1) Install Shaft Seal Guide Sleeve (09977-21700) over compressor shaft. Dip seal in refrigerant oil and install seal on sleeve. Using seal remover/installer, rotate seal clockwise until seal is engaged. Remove seal remover/installer by turning it

A/C COMPRESSOR SERVICING

Article Text (p. 23)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:00PM

counterclockwise.

2) Coat seal seat with refrigerant oil and install seal with seal seat remover/installer. Remove shaft seal guide sleeve. Install snap ring with beveled edge facing out. Install seal retainer felt ring using seal seat remover/installer.

3) Install shaft key and clutch plate. Tighten shaft nut to 13-14 ft. lbs. (17-19 N.m). Using a dial indicator, check air gap between clutch plate and drive pulley. Apply voltage to clutch coil. Ensure air gap is .016-.032" (.40-.80 mm). If clearance is incorrect, add or remove shim(s) as necessary.

SEIKO-SEIKI ROTARY VANE

NOTE: Volvo Seiko-Seiki compressor servicing procedure is not available from manufacturer.

ZEXEL ROTARY VANE CLUTCH COIL AND BEARING R & I

Removal

1) Hold clutch disc using Clutch Disc Wrench (KV99231260) and remove center bolt. Using Clutch Disc Puller (KV99232340), remove drive plate and adjustment shim(s).

2) Remove snap ring. Remove pulley using Pilot (J-39023) and universal puller. Remove clutch coil. If necessary, remove snap ring and bearing. See Fig. 19.

Installation

1) Ensure coil lead is installed in original position. Install and tighten coil screws. Press pulley onto compressor using Pulley Installer (J-33940). Install snap ring and adjustment shim(s).

2) Install clutch disc and tighten center bolt to 11-13 ft. lbs. (15-18 N.m). Using feeler gauge, ensure clearance between clutch disc and pulley is .012-.024" (.30-.60 mm). If clearance is incorrect, add or remove shim(s) as necessary. Break-in clutch by engaging and disengaging clutch 30 times.

NOTE: Shaft seal assembly servicing procedure is not available from manufacturer. Use exploded view as a guide. See Fig. 19. Tighten thermal protector, if removed, to 11-13 ft.lbs. (15-18 N.m).

A/C COMPRESSOR SERVICING

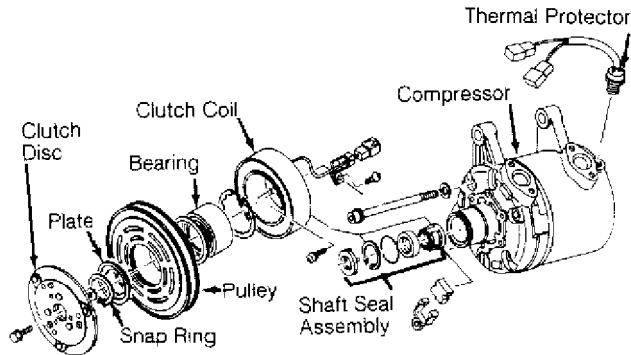
Article Text (p. 24)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:00PM



94C10068

Fig. 19: Exploded View Of Compressor (Zexel Rotary Vane)
Courtesy of Nissan Motor Co., U.S.A.

ZEXEL 6-CYLINDER CLUTCH COIL AND BEARING R & I

NOTE: Volvo Zexel compressor servicing procedure is not available from manufacturer.

Removal (Audi)

1) Using Spanner Wrench (44-4), hold clutch hub stationary and remove shaft bolt. Remove clutch plate and shim(s) using Puller (VAG 1719) and Spanner Wrench (3212). See Fig. 20. Remove snap ring.

2) Place Spacer (VAG 1719/1) in center of pulley cavity. Attach Puller (US 1078) to outer diameter of pulley and remove pulley. Remove snap ring, bearing, and clutch coil as necessary.

Installation (Audi)

Ensure clutch coil lug fits into hole on compressor housing. Using Installer (VAG 1719/2), press on pulley and install snap ring. Install shim(s) and clutch plate. Tighten shaft bolt to 11 ft. lbs. (15 N.m). Using feeler gauge, ensure air gap between pulley and clutch disc is .012-.024" (.30-.60 mm). If clearance is incorrect, add or remove shim(s) as necessary.

A/C COMPRESSOR SERVICING

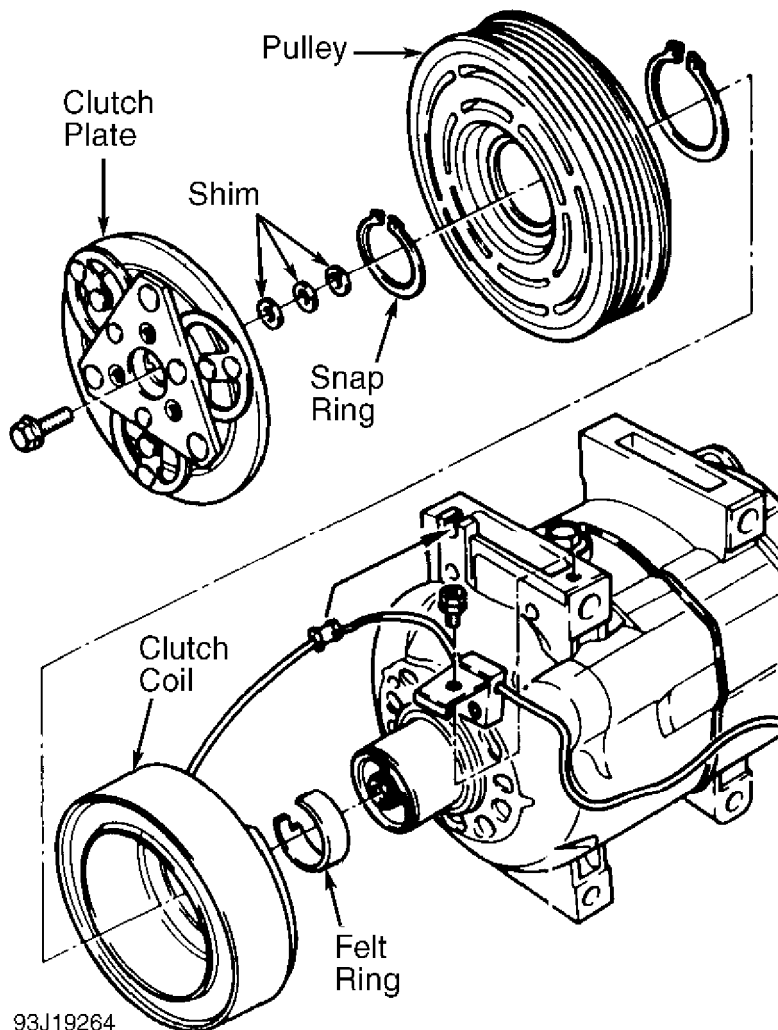
Article Text (p. 25)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:00PM



93J19264
Fig. 20: Exploded View Of Compressor (Zexel 6-Cylinder)
Courtesy of Audi of America, Inc.

Removal (Nissan)

1) Using Clutch Disc Wrench (J-37877), hold clutch hub stationary and remove shaft nut. Remove adjustment shim(s) and clutch disc using Clutch Disc Puller (J-26571-A).

2) Bend lock washer away from lock nut. See Fig. 21. Remove lock nut with Wrench (J-37882). Remove pulley by hand or, if difficult to remove, use Pilot (J-26720-A) and universal puller. Remove snap ring, bearing, and clutch coil as necessary.

Installation (Nissan)

1) Ensure key is installed in compressor shaft keyway. Install pulley, lock washer and pulley. Tighten lock nut to 25-29 ft. lbs. (34-39 N.m). Bend lock washer against lock nut.

2) Install clutch disc and tighten shaft nut to 10-12 ft. lbs (14-16 N.m). Using feeler gauge, ensure air gap between pulley and clutch disc is .012-.024" (.30-.60 mm). If clearance is incorrect, add or remove shim(s) as necessary. Break-in compressor clutch assembly by

A/C COMPRESSOR SERVICING

Article Text (p. 26)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:00PM

engaging and disengaging clutch 30 times.

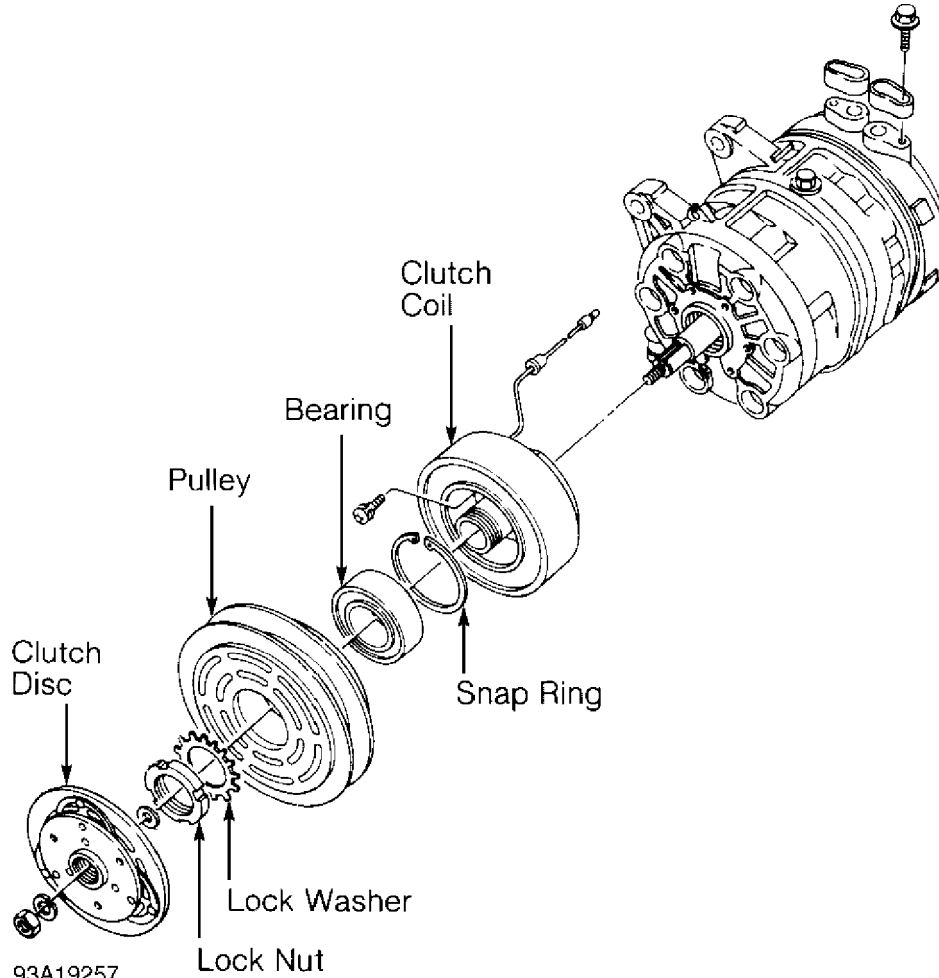


Fig. 21: Exploded View Of Compressor (Zexel DKS-16H 6-Cylinder)
Courtesy of Nissan Motor Co., U.S.A.

END OF ARTICLE

A/C-HEATER SYSTEM - MANUAL

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:05PM

ARTICLE BEGINNING

1993 MANUAL A/C-HEATER SYSTEMS
Mazda Motors Corp.

RX7

* PLEASE READ THIS FIRST *

WARNING: To avoid injury from accidental air bag deployment, read and carefully follow all SERVICE PRECAUTIONS and DISABLING & ACTIVATING AIR BAG SYSTEM procedures in AIR BAG RESTRAINT SYSTEM article in ACCESSORIES & ELECTRICAL section.

CAUTION: When battery is disconnected, radio will go into anti-theft protection mode. Obtain radio anti-theft protection code from owner prior to servicing vehicle.

SPECIFICATIONS

SPECIFICATIONS TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	Specification
-------------	---------------

Compressor Type	Panasonic Rotary Vane
-----------------------	-----------------------

Compressor Belt Deflection (1)	
--------------------------------	--

New	9/64-11/64" (3.5-4.5 mm)
-----------	--------------------------

Used	11/64-13/64" (4.5-5.0 mm)
------------	---------------------------

System Oil Capacity	3.4-4.7 ozs.
---------------------------	--------------

Refrigerant (R-12) Capacity	21 ozs.
-----------------------------------	---------

System Operating Pressures (2)	
--------------------------------	--

High Side	142-192 psi (10-13.5 kg/cm ²)
-----------------	-------------------------------------------

Low Side	15-27 psi (1.1-1.9 kg/cm ²)
----------------	-----------------------------------------

(1) - Measure with 22 lb. (10 kg) pressure applied to center of belt.

(2) - Specification is with ambient temperature at about 68°F (20°C).

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

DESCRIPTION

Blower case, mounted under right end of instrument panel, contains blower motor and intake (fresh/recirculated) air door. See Fig. 1. Evaporator case, to left of blower case, contains evaporator and evaporator thermoswitch. Heater case, located next to evaporator case, contains heater core, airflow mode door and air-mix (temperature blend) door.

A/C-HEATER SYSTEM - MANUAL

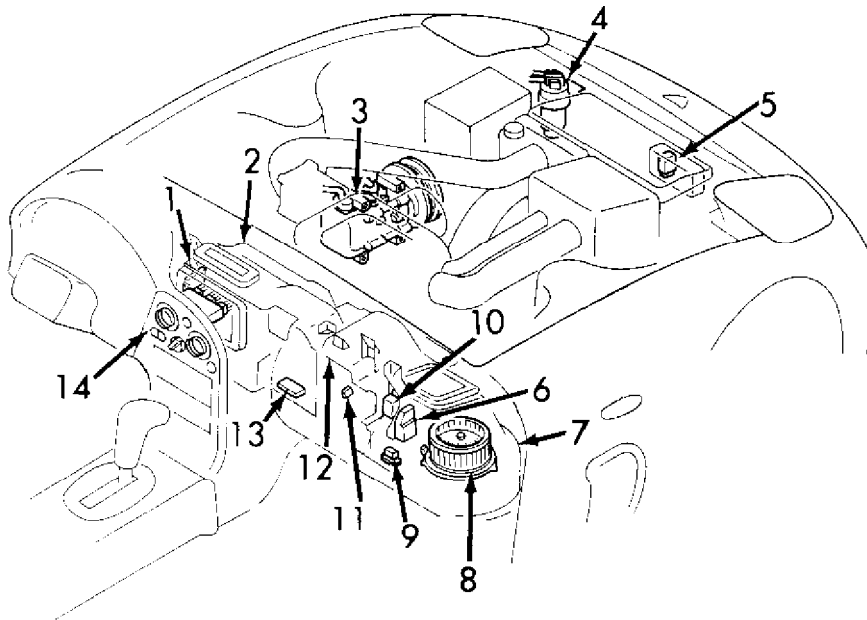
Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:05PM



- | | |
|-------------------------------|-----------------------------|
| 1. Airflow Mode Door Actuator | 8. Blower Motor |
| 2. Heater Case | 9. Blower Motor Resistor |
| 3. A/C Compressor | 10. Blower Motor Relay |
| 4. Receiver-Drier | 11. Evaporator Thermoswitch |
| 5. A/C Relay | 12. Evaporator Case |
| 6. Intake Air Door Actuator | 13. Air-Mix Door Actuator |
| 7. Blower Case | 14. A/C-Heater Control Unit |

94B10240

Fig. 1: Identifying Manual A/C-Heater System Components
Courtesy of Mazda Motors Corp.

OPERATION

A/C-HEATER CONTROL UNIT

Blower Motor Control Knob

Blower speed is controlled by a 4-speed setting knob. See Fig. 2. Blower must be on for A/C system to operate.

Temperature Control Knob

Temperature control knob operates air-mix door in evaporator case to achieve desired temperature. System will provide cooled air when A/C switch is on and blower switch is in any position other than off. Rotate knob counterclockwise for cooler air. Temperature control knob should be in maximum cool setting for maximum A/C performance.

A/C Switch

Push switch to engage A/C compressor. Compressor will not engage with ambient temperature less than 38°F (3°C).

Airflow Mode Control Knob

Control knob selects distribution of incoming air. Going

A/C-HEATER SYSTEM - MANUAL

Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

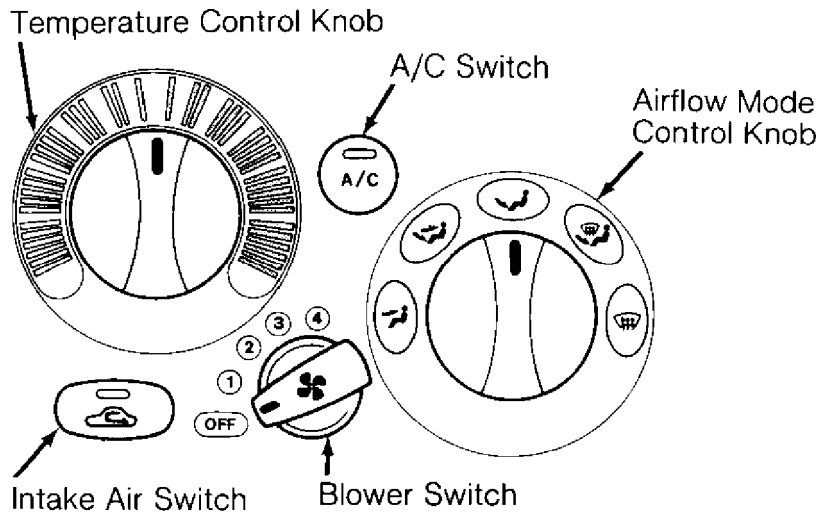
Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:05PM

clockwise from 9 o'clock position, air distribution positions of control knob are as follows: vent, floor and vent, floor, floor and defrost, defrost.

Intake (Fresh/Recirculated) Air Switch

Use this switch when maximum cooling is required. To recirculate air inside vehicle, press intake air button. Indicator light will come on, and outside air will be shut off.



94H10246

Fig. 2: Identifying A/C-Heater System Controls
Courtesy of Mazda Motors Corp.

PRESSURE SWITCH

The pressure switch, located in the refrigerant line near receiver-drier, is wired in series with magnetic (compressor) clutch. Whenever system pressures drop below or increase above the control point of the switch, power supplied to compressor will be cut and compressor activity will cease until pressures are back to within operating ranges.

TROUBLE SHOOTING

NOTE: Components listed indicate most likely cause(s) of trouble. Possible causes are not listed in any order of probability.

BLOWER MOTOR DOES NOT OPERATE AT ANY BLOWER SETTING

Check components listed, and repair or replace as necessary: A/C blower fuse; rear wiper fuse; blower motor relay; wiring harness; blower motor; blower switch.

BLOWER MOTOR DOES NOT OPERATE AT SPECIFIC SETTING

Check components listed, and repair or replace as necessary:

A/C-HEATER SYSTEM - MANUAL

Article Text (p. 4)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:05PM

blower motor resistor; blower switch; wiring harness.

AIRFLOW MODE DOES NOT CHANGE

Check components listed, and repair or replace as necessary:
airflow mode door motor; A/C-heater control unit; wiring harness.

INTAKE AIR DOES NOT CHANGE

Check components listed, and repair or replace as necessary:
A/C-heater control unit; intake air door motor; wiring harness.

TEMPERATURE CONTROL DOOR MOTOR DOES NOT OPERATE

Check components listed, and repair or replace as necessary:
A/C-heater control unit; temperature control door motor; wiring harness.

A/C CLUTCH DOES NOT OPERATE

Check components listed, and repair or replace as necessary:
A/C clutch; refrigerant pressure switch; A/C relay; A/C fuse; cigar fuse; wiring harness.

A/C CLUTCH & ELECTRIC COOLING FAN DO NOT OPERATE

Check components listed, and repair or replace as necessary:
A/C-heater control unit; thermoswitch; blower switch; wiring harness; refrigerant charge.

TESTING

*** PLEASE READ THIS FIRST ***

WARNING: To avoid injury from accidental air bag deployment, read and carefully follow all SERVICE PRECAUTIONS and DISABLING & ACTIVATING AIR BAG SYSTEM procedures in AIR BAG RESTRAINT SYSTEM article in ACCESSORIES & ELECTRICAL section.

A/C SYSTEM PERFORMANCE

1) Park vehicle out of direct sunlight. Install A/C manifold gauge set. Start and run engine at 2000 RPM. Set A/C controls to recirculate air, panel (vent) mode, full cold, and A/C button on.

2) Set blower/fan on high speed and close doors and windows. Insert thermometer in center vent. Operate system for 20 minutes to allow system to stabilize. Measure temperature. Temperature should be 37-42°F (3-6°C) at center vent, with high side and low side pressures within specification. See SPECIFICATIONS table at beginning of article.

A/C-HEATER SYSTEM - MANUAL

Article Text (p. 5)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:05PM

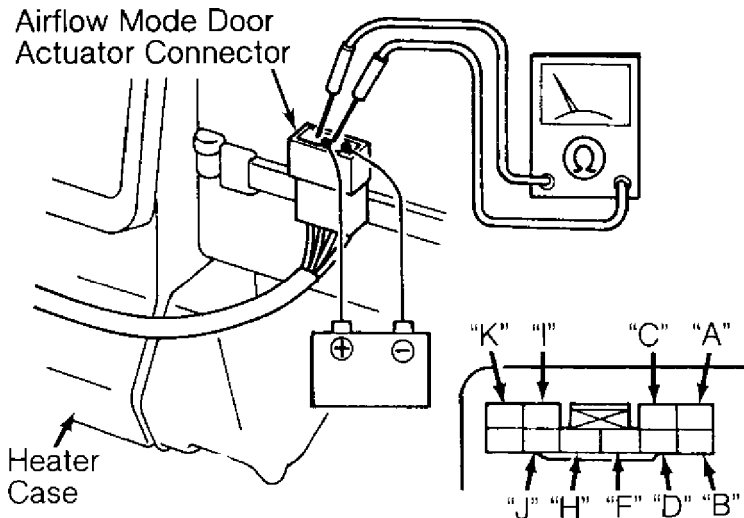
AIRFLOW MODE DOOR MOTOR

1) Disconnect airflow mode door motor connector. Apply battery voltage to terminal "J" and ground terminal "K". See Fig. 3. Ensure motor operates.

2) Check continuity between specified terminals. See AIRFLOW MODE SPECIFICATIONS table. If continuity does not exist, replace motor.

AIRFLOW MODE SPECIFICATIONS TABLE

Switch Setting		Terminals
Vent	.....	"C", "D", "F", "H" & "I"
Floor & Vent	.....	"A" & "B"; "D", "F", "H" & "I"
Floor	.....	"A", "B" & "C"; "F", "H" & "I"
Floor & Defrost	.....	"A", "B", "C" & "D"; "H" & "I"
Defrost	.....	"A", "B", "C", "D" & "F"



94J10248

Fig. 3: Testing Airflow Mode Door Motor
Courtesy of Mazda Motors Corp.

AIRFLOW MODE DOOR CIRCUIT

1) If airflow mode door motor tested okay in AIRFLOW MODE DOOR MOTOR test, disconnect A/C-heater control unit connector and airflow mode door motor connector. See Figs. 3 and 7.

2) Check continuity on all wires at airflow mode door motor connector. If continuity does not exist on any wire, repair wire as necessary between A/C-heater control unit connector and airflow door motor connector. If continuity exists on all wires, replace A/C-heater control unit.

AIR-MIX DOOR MOTOR

A/C-HEATER SYSTEM - MANUAL

Article Text (p. 6)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:05PM

1) Disconnect air-mix door motor connector. See Fig. 4. Apply battery voltage to terminal "G" and ground terminal "H". Verify motor operation. Check resistance between terminals "F" and "B". Resistance should increase from 1000 ohms to 5500 ohms as temperature control knob is moved from hot to cold setting.

2) Apply battery voltage to terminal "H" and ground terminal "G". Verify motor operation. Check resistance between terminals "F" and "A". Resistance should decrease from 5500 ohms to 1000 ohms as temperature control knob is moved from cold to hot setting. Replace motor if it does not test as specified.

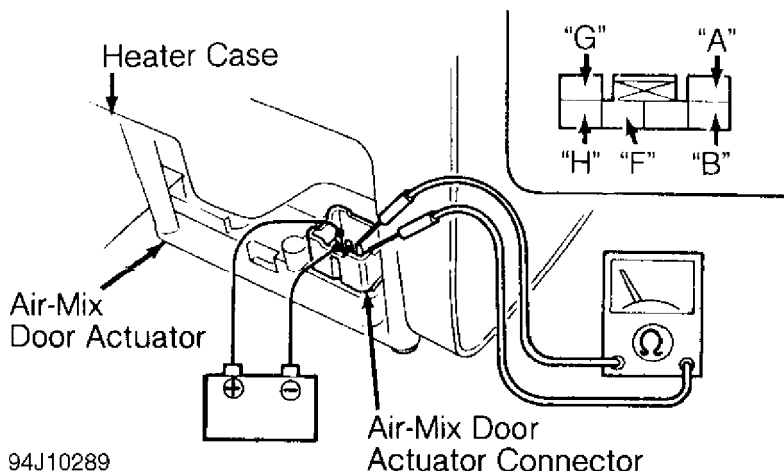


Fig. 4: Testing Air-Mix Door Motor
Courtesy of Mazda Motors Corp.

AIR-MIX DOOR MOTOR CIRCUIT

1) If air-mix door motor tested okay in AIR-MIX DOOR MOTOR test, disconnect A/C-heater control unit connector and air-mix door motor connector. See Figs. 4 and 7.

2) Check continuity on all wires at air-mix door motor connector. If continuity does not exist on any wire, repair wire as necessary between A/C-heater control unit connector and air-mix door motor connector. If continuity exists on all wires, replace A/C-heater control unit.

BLOWER MOTOR CIRCUIT

1) Check blower motor fuse and rear wiper fuse. See Fig. 5. If either fuse is blown, repair short circuit in wiring harness. Replace fuse. If fuses are okay, go to next step.

2) Turn ignition switch to ON position. Check voltage at specified blower motor relay harness connector terminals and take appropriate action. See BLOWER MOTOR RELAY VOLTAGE TEST table.

BLOWER MOTOR RELAY VOLTAGE TEST TABLE

Terminal	Volts	Action
----------	-------	--------

A/C-HEATER SYSTEM - MANUAL

Article Text (p. 7)

1993 Mazda RX7

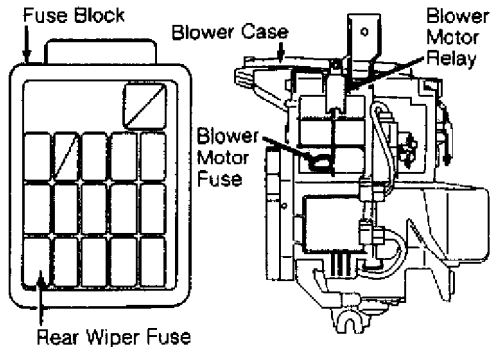
For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:05PM

Blue/Black	.....	12	.....	Check Voltage On Next Wire
		0	.....	Repair Wiring Harness
Blue/Green	.....	12	.....	Check Voltage On Next Wire
		0	.....	Repair Wiring Harness
Red	.....	12	.....	Go To Step 4)
		0	.....	Go To Step 3)

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA



94C10290

Fig. 5: Testing Blower Motor Relay Voltage
Courtesy of Mazda Motors Corp.

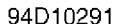
3) Turn ignition switch to OFF position. Check for continuity between chassis ground and blower motor relay harness connector Black wire. If continuity exists, replace blower motor relay. If continuity does not exist, repair wiring harness.

4) Turn ignition switch to ON position. Ensure blower switch is in OFF position. Check voltage at specified blower motor harness connector terminals and take appropriate action. See BLOWER MOTOR VOLTAGE TEST table. See Fig. 6.

BLOWER MOTOR VOLTAGE TEST TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA			
Terminal		Volts	Action
"A"	.....	12	..... Check Voltage At Next Terminal
	.....	0	..... Repair Wiring Harness Between Circuit Breaker & Blower Motor
"B"	.....	12	..... Go To Step 5)
		0	..... Replace Blower Motor
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA			

Copyright © 1998 Mitchell Repair Information Company, LLC
Sunday, August 19, 2001 07:05PM



6) Turn ignition switch to ON position. Turn blower switch to position No. 4. Check voltage at blower switch connector Black wire. See Fig. 7. If no voltage exists, replace A/C-heater control unit. If voltage exists, repair wiring harness between blower switch and chassis ground.

[illegible]

A/C-HEATER SYSTEM - MANUAL

Article Text (p. 9)

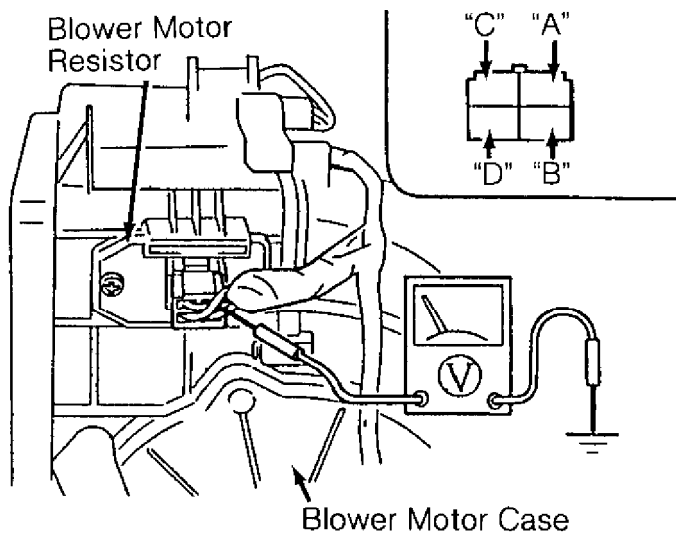
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:05PM

Terminal	Volts		Action
"A"	12	....	Check Voltage At Next Terminal
	0	.....	Replace Resistor
"B"	12	....	Check Voltage At Next Terminal
	0	.....	Replace Resistor
"C"	12	....	Check Voltage At Next Terminal
	0	.....	Replace Resistor
"D"	12	.....	Go To Step 2)
	0	.....	Replace Resistor
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA			



94F10293

Fig. 8: Testing Blower Motor Resistor
Courtesy of Mazda Motors Corp.

2) Turn ignition switch to ON position. Ensure blower switch and A/C switch are in OFF position. Check voltage at specified blower switch connector terminal and take appropriate action. See BLOWER SWITCH VOLTAGE TEST table. See Fig. 7.

BLOWER SWITCH VOLTAGE TEST TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Terminal	Volts		Action
Blue/White	12	.....	Check Voltage At Next Wire
	0	....	Repair Wiring Harness Between Resistor & Blower Switch
Blue/Red	12	.....	Check Voltage At Next Wire
	0	....	Repair Wiring Harness Between Resistor & Blower Switch
Blue	12	.....	Check Voltage At Next Wire
	0	....	Repair Wiring Harness Between Resistor & Blower Switch
Blue/Yellow	12	...	Replace A/C-Heater Control Unit
	0	....	Repair Wiring Harness Between Resistor & Blower Switch

A/C-HEATER SYSTEM - MANUAL

Article Text (p. 10)

1993 Mazda RX7

For www.iluvmyrx7.com

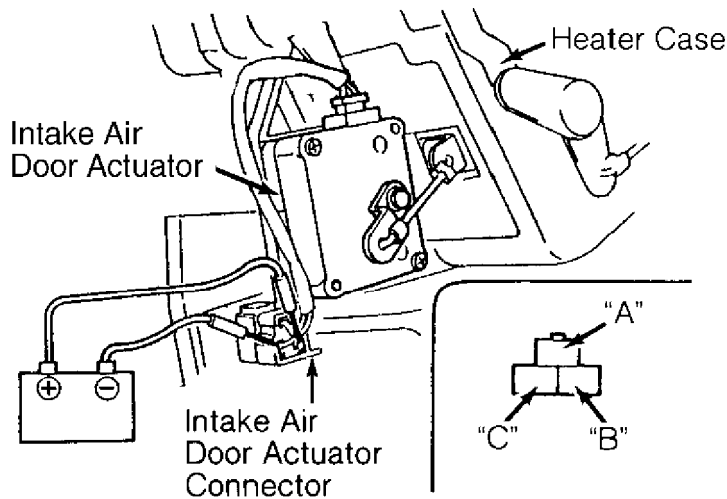
Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:05PM

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

INTAKE AIR DOOR MOTOR

Disconnect intake air door motor connector. See Fig. 9. Apply battery voltage to terminal "A". Ground terminal "B" and then ground terminal "C". Replace motor if it does not operate.



94G10294
Fig. 9: Testing Intake Air Door Motor
Courtesy of Mazda Motors Corp.

INTAKE AIR DOOR MOTOR CIRCUIT

- 1) If intake air door motor tested okay in INTAKE AIR DOOR MOTOR test, disconnect A/C-heater control unit connector and intake air door motor connector. See Figs. 7 and 9.
- 2) Check continuity on all wires at intake air door motor connector. If continuity does not exist on any wire, repair wire as necessary between A/C-heater control unit connector and intake air door motor connector. If continuity exists on all wires, replace A/C-heater control unit.

MAGNETIC (COMPRESSOR) CLUTCH CIRCUIT

- 1) Check A/C fuse and CIGAR fuse. See Fig. 10. If either fuse is blown, repair short circuit in wiring harness. Replace fuse. If fuses are okay, go to next step.
- 2) Remove A/C relay. See Figs. 1 and 11. Turn ignition switch to ON position. Check voltage at specified A/C relay harness connector terminals and take appropriate action. See A/C RELAY VOLTAGE TEST table.

A/C RELAY VOLTAGE TEST TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Terminal	Volts	Action
----------	-------	--------

A/C-HEATER SYSTEM - MANUAL

Article Text (p. 12)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

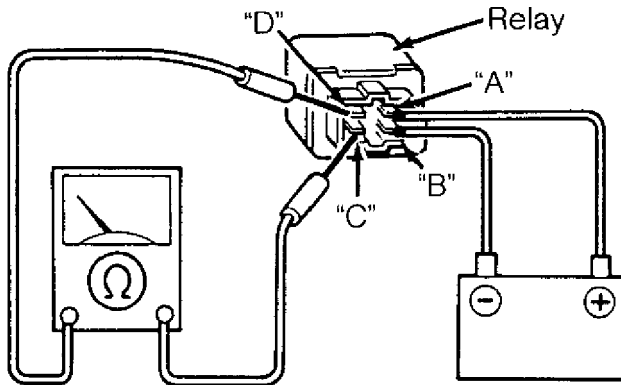
Sunday, August 19, 2001 07:06PM

switches to ON position. If magnetic clutch engages, go to next step. If magnetic clutch does not engage, remove jumper wire. Reconnect pressure switch. Go to step 7).

6) Install A/C manifold gauge set. Start and run engine at 2000 RPM. If high side pressure reading is 30-299 psi (2.1-21 kg/cm²), replace pressure switch. If reading is not within specification, check A/C system for leaks.

7) Check voltage on pressure switch harness connector Black/Blue wire. If battery voltage exists, go to next step. If battery voltage does not exist, repair wiring harness between A/C relay and pressure switch.

8) Check voltage on magnetic clutch harness connector Black/Red wire. If battery voltage exists, replace magnetic clutch. If battery voltage does not exist, repair wiring harness between magnetic clutch and pressure switch.

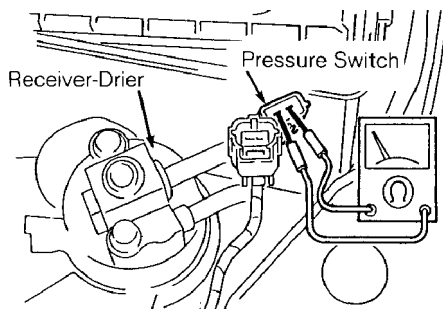


94J10297

Fig. 12: Identifying Relay Terminals
Courtesy of Mazda Motors Corp.

PRESSURE SWITCH

Turn engine off. Connect A/C manifold gauge set. Ensure system pressure reads 30-299 psi (2.1-21 kg/cm²). Disconnect pressure switch connector. See Fig. 13. Check continuity across connector terminals. If continuity does not exist, replace pressure switch.



94A10298

Fig. 13: Testing Pressure Switch
Courtesy of Mazda Motors Corp.

A/C-HEATER SYSTEM - MANUAL

Article Text (p. 13)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:06PM

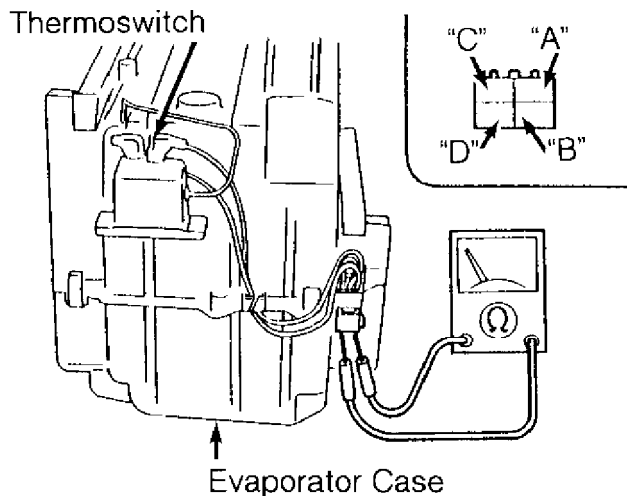
RELAYS

1) Remove relay to be tested. See Fig. 1. Using an ohmmeter, ensure continuity exists between terminals "A" and "B" and does not exist between terminals "C" and "D". See Fig. 12.

2) Apply battery voltage to terminal "A" and ground terminal "B". Ensure continuity exists between terminals "C" and "D". If continuity is not as specified, replace relay.

THERMOSWITCH

Ensure ignition switch is in OFF position. Disconnect thermoswitch connector. See Fig. 14. Check continuity between specified thermo-switch connector terminals. Continuity should exist between terminals "A" and "B", and terminals "C" and "D". If continuity is not as specified, replace thermoswitch.



94B10349
Fig. 14: Locating Thermoswitch Connector
Courtesy of Mazda Motors Corp.

THERMOSWITCH CIRCUIT

1) Ensure thermoswitch is okay. See THERMOSWITCH. Disconnect blower switch connector and thermoswitch connector. See Figs. 7 and 14. Check continuity on Blue/Yellow wire between connectors. If continuity does not exist, repair Blue/Yellow wire. If continuity exists, go to next step.

2) Reconnect blower switch connector. Disconnect A/C-heater control unit connectors. See Fig. 7. Check for continuity of Violet/Pink wire and White wire between A/C-heater control unit connector and thermoswitch connector. If continuity does not exist, repair appropriate wire. If continuity exists, go to next step.

3) Turn A/C switch to ON position. Check continuity between A/C-heater control unit terminals "1I" and "1G". See Fig. 15. If continuity does not exist, replace A/C-heater control unit. If continuity exists, check wiring harness between A/C-heater control unit and Electronic Control Unit (ECU).

A/C-HEATER SYSTEM - MANUAL

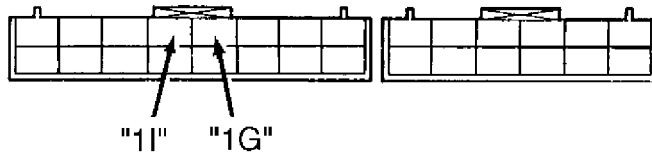
Article Text (p. 14)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:06PM



94F10350

Fig. 15: Testing A/C-Heater Control Unit
Courtesy of Mazda Motors Corp.

REMOVAL & INSTALLATION

* PLEASE READ THIS FIRST *

WARNING: To avoid injury from accidental air bag deployment, read and carefully follow all SERVICE PRECAUTIONS and DISABLING & ACTIVATING AIR BAG SYSTEM procedures in AIR BAG RESTRAINT SYSTEM article in ACCESSORIES & ELECTRICAL section.

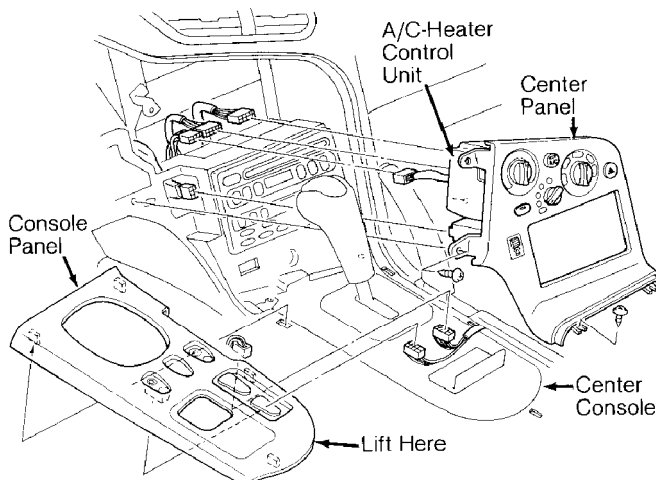
A/C-HEATER CONTROL UNIT

Removal & Installation

1) Obtain radio anti-theft protection code from owner prior to servicing vehicle. Disconnect negative battery cable. Remove ashtray.

2) Using a protected screwdriver, lift center console panel at location indicated. See Fig. 16. Pull console panel upward to disengage clips from center console.

3) Remove center panel screws and center panel. Disconnect electrical connectors from A/C-heater control unit. Remove A/C-heater control unit screws and control unit. To install, reverse removal procedure.



94I10353

Fig. 16: Removing A/C-Heater Control Unit
Courtesy of Mazda Motors Corp.

A/C-HEATER SYSTEM - MANUAL

Article Text (p. 15)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:06PM

BLOWER MOTOR

Removal & Installation

Remove instrument panel. See INSTRUMENT PANEL. Remove evaporator case. See EVAPORATOR CASE. Remove blower case mounting nuts and blower case. Disassemble blower case to remove blower motor. To install, reverse removal procedure.

COMPRESSOR

Removal & Installation

Discharge A/C system using approved refrigerant recovery/recycling equipment. Disconnect battery. Remove battery and battery box. Disconnect magnetic clutch connector. Disconnect refrigerant lines from compressor. Remove drive belt. Remove compressor mounting bolts and compressor. To install, reverse removal procedure.

CONDENSER

Removal & Installation

Discharge A/C system using approved refrigerant recovery/recycling equipment. Remove engine compartment undercover. Disconnect refrigerant lines from condenser. Remove condenser mounting bolts and condenser. To install, reverse removal procedure.

EVAPORATOR

Removal & Installation

1) Disconnect negative battery cable. Discharge A/C system using approved refrigerant recovery/recycling equipment. Disconnect refrigerant lines from evaporator tubes at engine compartment firewall.

2) Remove glove box and right undercover. Loosen left seal plate between heater case and evaporator case. Loosen right seal plate between evaporator case and blower case.

3) Remove evaporator case nuts. Disconnect drain hose and remove evaporator case. Disassemble evaporator case to remove evaporator and thermoswitch. See Fig. 17. To install, reverse removal procedure. Evacuate and charge system.

A/C-HEATER SYSTEM - MANUAL

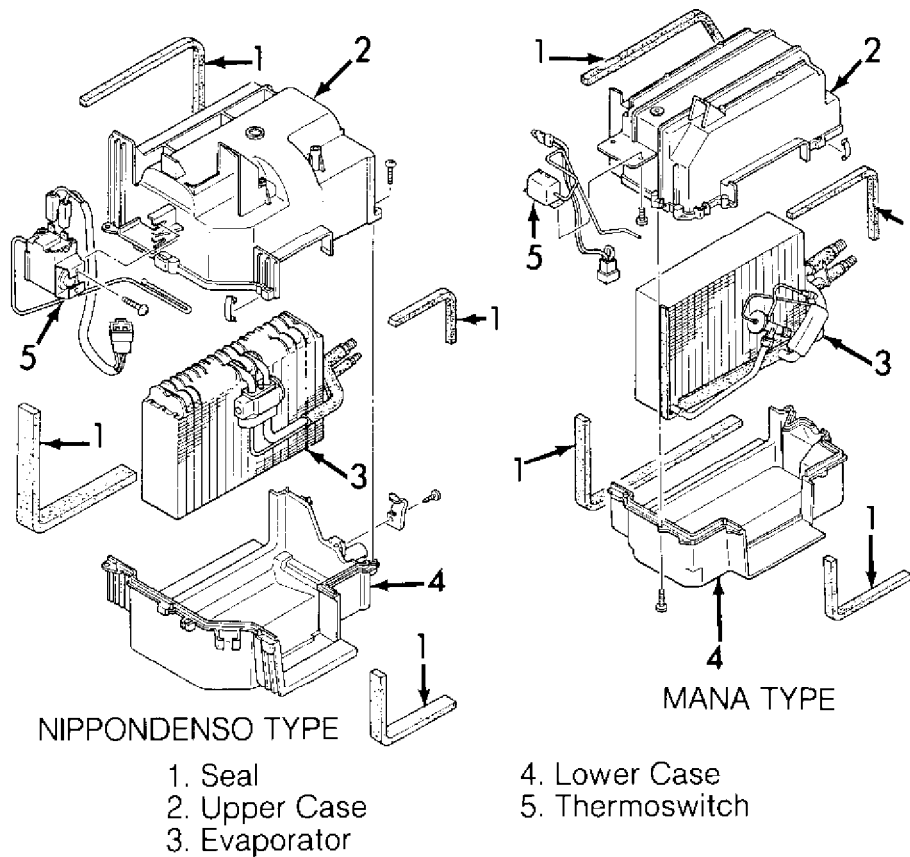
Article Text (p. 16)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:06PM



94J10354

Fig. 17: Exploded View Of Evaporator Case
Courtesy of Mazda Motors Corp.

HEATER CORE

Removal & Installation

Drain coolant. Disconnect negative battery cable. Disconnect heater hoses at engine compartment firewall and remove grommets. Remove instrument panel. See INSTRUMENT PANEL. Remove heater case. Disassemble heater case to remove heater core. To install, reverse removal procedure. Fill cooling system.

INSTRUMENT PANEL

Removal & Installation

Disconnect negative battery cable. Remove all components in order listed in illustration. See Fig. 18. To install, reverse removal procedure.

A/C-HEATER SYSTEM - MANUAL

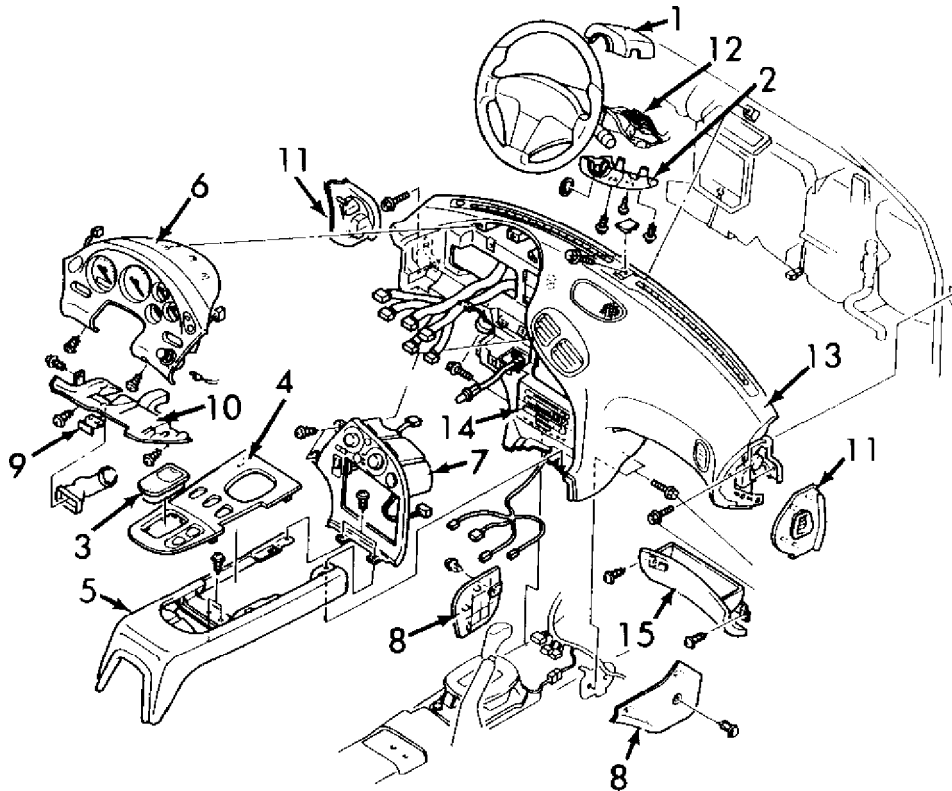
Article Text (p. 17)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:06PM



- | | |
|--------------------------------|----------------------------------|
| 1. Upper Column Cover | 9. Hood Release Knob |
| 2. Lower Column Cover | 10. Lower Panel |
| 3. Ashtray | 11. Side Panel
(Left & Right) |
| 4. Console Panel | 12. Steering Column |
| 5. Center Console | 13. Dash Board |
| 6. Instrument Cluster | 14. Radio |
| 7. Center Panel | 15. Glove Box |
| 8. Side Wall
(Left & Right) | |

94A10355

Fig. 18: Exploded View Of Instrument Panel
Courtesy of Mazda Motors Corp.

RECEIVER-DRIER

Removal & Installation

Disconnect negative battery cable. Discharge A/C system using approved refrigerant recovery/recycling equipment. Disconnect refrigerant lines from receiver-drier. Remove receiver-drier. To install, reverse removal procedure. Evacuate and charge system.

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application

Ft. Lbs. (N.m)

A/C-HEATER SYSTEM - MANUAL

Article Text (p. 18)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 07:06PM

A/C Compressor Bolts	14-19 (19-26)
A/C Compressor Lines	15-21 (20-29)
A/C Condenser Lines	
Inlet	11-18 (15-24)
Outlet	(1)

INCH Lbs. (N.m)

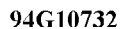
Evaporator Hoses	108-120 (12.2-13.6)
Receiver-Drier Hoses	40-56 (4.5-6.3)

(1) - Specification is 84-168 INCH lbs. (9.5-19 N.m).

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

WIRING DIAGRAM

Sunday, August 19, 2001 07:06PM



END OF ARTICLE

TRANSMISSION REMOVAL & INSTALLATION - A/T

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:16PM

ARTICLE BEGINNING

TRANSMISSION SERVICING

Mazda - Automatic Transmission Removal & Installation

RX7

AUTOMATIC

NOTE: On models with anti-theft radio system, obtain code number from customer to deactivate radio anti-theft system BEFORE disconnecting negative battery cable. To deactivate radio anti-theft system, turn ignition switch to ACC position. Press FF and REW buttons simultaneously until "cod e" is displayed. Press FF and REW buttons again until 4 bars are displayed. Use preset button No. 1 to enter first number. Use preset buttons No. 2, 3 and 4 to set other numbers. Press FF and REW buttons for about 2 seconds until a beep is heard. After 5 seconds, flashing "cod e" will go away and radio will operate.

RX7

Removal

1) Disconnect negative battery cable. Raise and support vehicle. Drain transmission fluid. Remove pipe and heat insulator. Mark drive shaft-to-differential assembly for reassembly reference.

2) Support engine from above. Remove shaft. Insert plug in rear of transmission to prevent leakage. Remove vacuum hose, shift rod, oil cooler lines and speedometer cable from transmission.

3) Remove starter and dipstick tube. Remove all wiring harness connectors from transmission. Remove lower cover from converter housing. Mark converter to drive plate for reassembly reference. Using Wrench (49 0877 435) remove torque converter-to-drive plate bolts.

4) Support transmission from below using transmission jack. Remove crossmember. Remove transaxle-to-engine bolts. Slowly lower transmission assembly out of vehicle.

Installation

To install transmission, reverse removal procedure. Tighten bolts to specification. See TORQUE SPECIFICATIONS. Fill transmission with required amount of fluid, and check for external leaks.

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	Ft. Lbs. (N.m)
-------------	----------------

Companion Flange Bolt/Nut	37-43 (50-58)
---------------------------	---------------

TRANSMISSION REMOVAL & INSTALLATION - A/T

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:16PM

Crossmember Mounting Nut	14-19	(18-26)
Dipstick Stub Tube Mounting Bolt	8	(11)
Starter Bolt	28-38	(38-51)
Torque Converter Bolt	26-36	(35-49)
Transmission-To-Engine Bolt	28-38	(38-52)
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA		

END OF ARTICLE

TRANSMISSION SERVICING - A/T

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:16PM

ARTICLE BEGINNING

TRANSMISSION SERVICING
Mazda - Automatic Transmission

RX7

NOTE: On models with anti-theft radio system, obtain code number from customer to deactivate radio anti-theft system BEFORE disconnecting negative battery cable. To deactivate radio anti-theft system, turn ignition switch to ACC position. Press FF and REW buttons simultaneously until "cod e" is displayed. Press FF and REW buttons again until 4 bars are displayed. Use preset button No. 1 to enter first number. Use preset buttons No. 2, 3 and 4 to set other numbers. Press FF and REW buttons for about 2 seconds until a beep is heard. After 5 seconds, flashing "cod e" will go away and radio will operate.

IDENTIFICATION

AUTOMATIC TRANSMISSION APPLICATIONS TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	
Model	Transmission
RX7	RB4A-EL
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	

LUBRICATION

SERVICE INTERVALS

Transmission Fluid
Check fluid level every 7500 miles or 6 months.

CHECKING FLUID LEVEL

Transmission
Park vehicle on level ground. Apply parking brake. Warm engine to normal operating temperature. Briefly place selector lever in all gears and return it to "P" position. Clean dipstick and insert it in tube. Remove dipstick. Level should be between "L" and "F" marks. Check fluid for discoloration and unusual smell. If necessary, add fluid. DO NOT overfill.

RECOMMENDED FLUID

Transmission
Use Dexron-II or M-III ATF.

FLUID CAPACITIES

TRANSMISSION SERVICING - A/T

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:16PM

TRANSMISSION REFILL CAPACITIES TABLE

Application Refill Qts. (L) Dry Fill Qts. (L)

RX7 4.2 (4.0) 9.1 Qts. (8.6L)

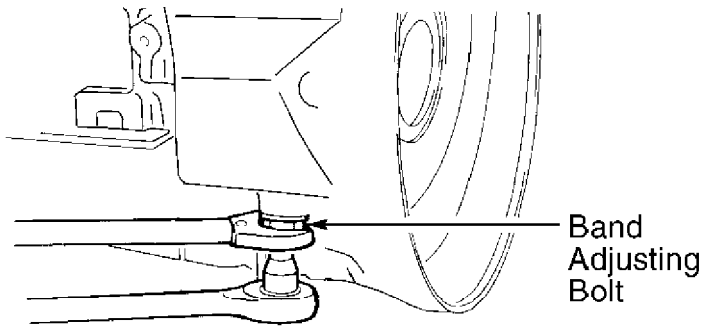
DRAINING & REFILLING

Disconnect negative battery cable. Loosen oil pan bolts to drain fluid. Remove oil pan, and discard old gasket. Clean oil pan, and install it using NEW gasket. Tighten oil pan bolts to specification. See TORQUE SPECIFICATIONS. Connect negative battery cable. Add fluid, and check level. DO NOT overfill.

ADJUSTMENTS

BRAKE BAND (2ND GEAR)

Loosen lock nut on band adjusting bolt. See Fig. 1. Tighten bolt to 35-53 INCH lbs (4-6 N.m). Loosen band adjusting bolt 2 1/2 turns. Tighten lock nut to 24-31 ft. lbs. (32-42 N.m).



91B01533

Fig. 1: Adjusting Brake Band
Courtesy of Mazda Motors Corp.

OVERDRIVE BRAKE BAND

NOTE: Overdrive brake band is not adjustable.

GEARSHIFT LINKAGE

1) Disconnect negative battery cable. Remove center console. Remove boot plate. Place gearshift lever in "P" position. Loosen lock nut on side of gearshift lever. See Fig. 2. Move adjustment lever forward to set transmission in "P" position.

2) Adjust lever so clearance between guide plate and guide pin with lever in position "P" is as specified. See Fig. 3. Also, see the GEARSHIFT LEVER ADJUSTMENT SPECIFICATIONS table.. Tighten rear

TRANSMISSION SERVICING - A/T

Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:16PM

lock nut to 14-21 ft. lbs. (19-28 N.m).

3) Place gearshift lever in "N" and "D" positions to ensure clearances are correct. See GEARSHIFT LEVER ADJUSTMENT SPECIFICATIONS table. See Fig. 3. Adjust lever if necessary. Install boot plate, center console, indicator panel, selector sleeve, selector knob and upper panel. Connect negative battery cable.

GEARSHIFT LEVER ADJUSTMENT SPECIFICATIONS TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application (1) In. (mm)

Gearshift In Position "P"

Clearance "A" (2)035-.039 (.89-.99)

Clearance "B" (2)020-.024 (.51-.61)

Gearshift In Position "N" Or "D"

Clearance "C"024-.028 (.61-.71)

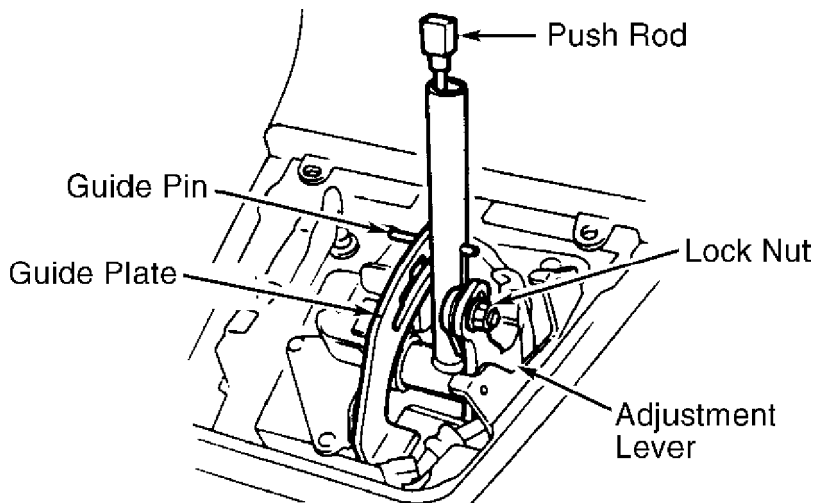
Clearance "D"024-.028 (.61-.71)

(1) - Clearance between guide plate and guide pin.

See Fig. 3.

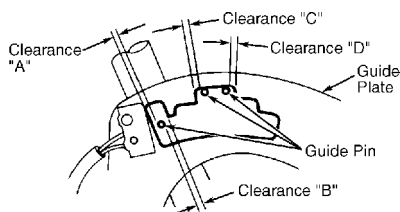
(2) - With push rod slightly depressed.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA



92J01650

Fig. 2: Gearshift Lever Components ID
Courtesy of Mazda Motors Corp.



92P01651

Fig. 3: Checking Gearshift Lever Adjustment Clearances
Courtesy of Mazda Motors Corp.

TRANSMISSION SERVICING - A/T

Article Text (p. 4)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:16PM

NEUTRAL SAFETY SWITCH

1) Place gearshift lever in "N" position. Ensure gearshift linkage is adjusted correctly. See GEARSHIFT LINKAGE under ADJUSTMENTS. Loosen neutral safety switch mounting bolts at transmission. Remove screw from alignment pin hole at bottom of switch (if equipped).

2) Rotate switch and insert a 5/32" (4.0 mm) alignment pin (or drill bit) through alignment holes.

3) Tighten mounting bolts to specification. Refer to the TORQUE SPECIFICATIONS table. Remove alignment pin. Install alignment pin hole screw (if equipped), and check switch operation. Vehicle should start only with gearshift in "P" or "N" position.

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS TABLE

Application		INCH Lbs. (N.m)
Neutral Safety Switch Mounting Bolt	.....	22-35 (2.5-4.0)
Oil Pan Bolt	.....	61-78 (7.0-9.0)
Valve Body Bolt	.....	61-78 (7.0-9.0)

END OF ARTICLE

AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:16PM

ARTICLE BEGINNING

AUTOMATIC TRANSMISSIONS

Mazda RA4A-EL & RB4A-EL Diagnosis

APPLICATION

TRANSMISSION APPLICATION

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Vehicle	Transmission Model
---------	--------------------

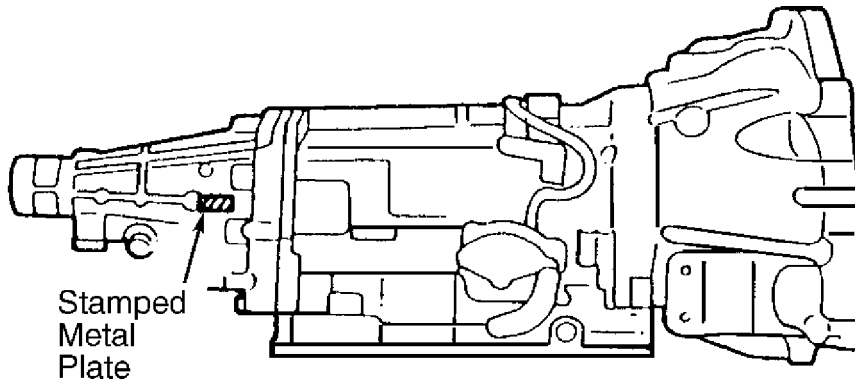
RX-7 (1991-94)	RB4A-EL
----------------	---------

929 (1992-94)	RA4A-EL
---------------	---------

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

IDENTIFICATION

Transmission model number is identified by a stamped metal plate attached to right side of transmission case. See Fig. 1.



93G23156

Fig. 1: Locating Transmission Identification Number
Courtesy of Mazda Motors Corp.

DESCRIPTION & OPERATION

RA4A-EL and RB4A-EL are electrically controlled, 4-speed overdrive units. These units use 3-element lock-up torque converter and 2 planetary gear sets. A Powertrain Control Module Transmission (PCMT) unit controls all shifts according to road speed and throttle position.

The PCMT has 2 shift programs (modes) to choose from, ECONOMY and POWER. In the RX7 & 929, modes can be manually selected from a switch by the driver. These models are equipped with a Hold switch. The Hold switch will cause transmission to remain in selected gear position. If Hold switch is depressed while in 3rd gear, transmission will downshift to 2nd on decel and upshift back to 3rd on acceleration and hold in 3rd gear.

The PCMT includes a self-diagnostic system, which diagnoses

AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:16PM

circuit problems of input sensors, solenoid valves and PCMT. Trouble codes are stored in the PCMT. The PCMT tester and adapter are used to access trouble codes.

LUBRICATION & ADJUSTMENT

LUBRICATION & ADJUSTMENT

See the appropriate TRANSMISSION SERVICING - A/T article in the AUTOMATIC TRANS SERVICING section. Refer to the following:

- * For RX7, see TRANSMISSION SERVICING - A/T
- * For 929, see TRANSMISSION SERVICING - A/T

SHIFT-LOCK SYSTEM

OPERATION

All models are equipped with a shift-lock system. System locks gear selector in Park unless brake pedal is pushed down. Shift-lock actuator uses an integral relay to release a solenoid (mounted on gear selector assembly).

A mechanical control cable prevents ignition key from being removed unless gear selector is in Park. With ignition key removed, gear selector locks in Park.

FUNCTIONAL CHECK

1) With ignition key removed, ensure gear selector cannot be moved from Park. Insert key in ignition switch.

2) Turn ignition on. Ensure gear selector can only be moved with brake pedal pressed down. Move gear selector to Reverse.

3) Ensure ignition key cannot be removed. Move gear selector to Park. Ensure it is now possible to remove ignition key.

4) If shift-lock system does not operate as described, check gear selector, shift-lock solenoid and control cable.

5) Place gear selector in Park. Using screwdriver, push down the emergency override button on shifter console and verify gear selector can be moved from Park position. See Fig. 2. If gear selector cannot be moved out of Park, adjust or replace shift-lock actuator. To adjust shift-lock actuator, refer to the appropriate TRANSMISSION SERVICING - A/T article in the AUTOMATIC TRANS SERVICING section. Refer to the following:

- * For RX7, see TRANSMISSION SERVICING - A/T
- * For 929, see TRANSMISSION SERVICING - A/T

AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

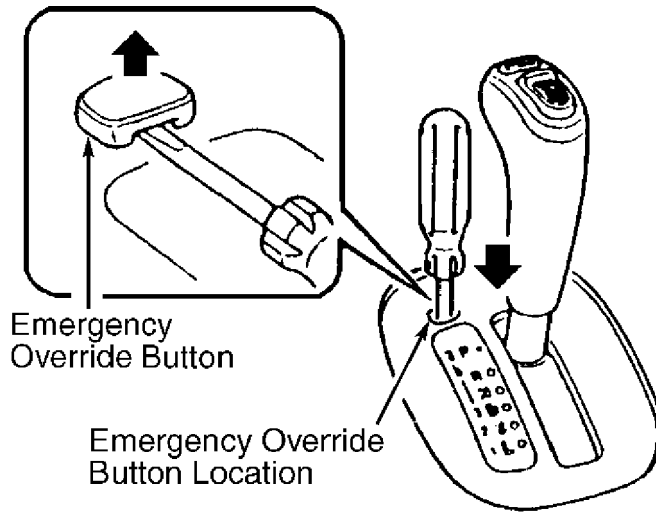
Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:16PM



95J20650

Fig. 2: Locating RX7 & 929 Emergency Override Button
Courtesy of Mazda Motors Corp.

SHIFT LOCK SYSTEM TESTING

NOTE: All electrical tests for RX7 and 929 are made at shift-lock control unit connector located at center console. To identify wire colors from connector locations, see appropriate SHIFT-LOCK CONTROL UNIT CONNECTOR I.D. table.

RX7

- 1) Disconnect negative battery cable. Remove gear selector console panel. Place gear selector in Park. Turn ignition on.
- 2) Check for battery voltage between terminal "G" and ground. See Fig. 3. Battery voltage should be present with brake pedal depressed.
- 3) Check for battery voltage between terminal "I" and ground. Disconnect shift-lock control unit connector and turn ignition off.
- 4) Test for continuity between terminal "H" and "J". Continuity should be present in Park with button depressed and all other gear selector positions.
- 5) Ensure continuity is present between terminal "J" and ground at all times. If voltage or continuity is not as described, repair wire harness and/or replace "P" range switch, shift-lock solenoid and shift-lock control unit as an assembly.

SHIFT-LOCK CONTROL UNIT CONNECTOR I.D. (RX7)

Connector I.D. Wire Color

G	.....	Green
H	.....	Light Green
I	.....	Black/Yellow
J	.....	Black

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

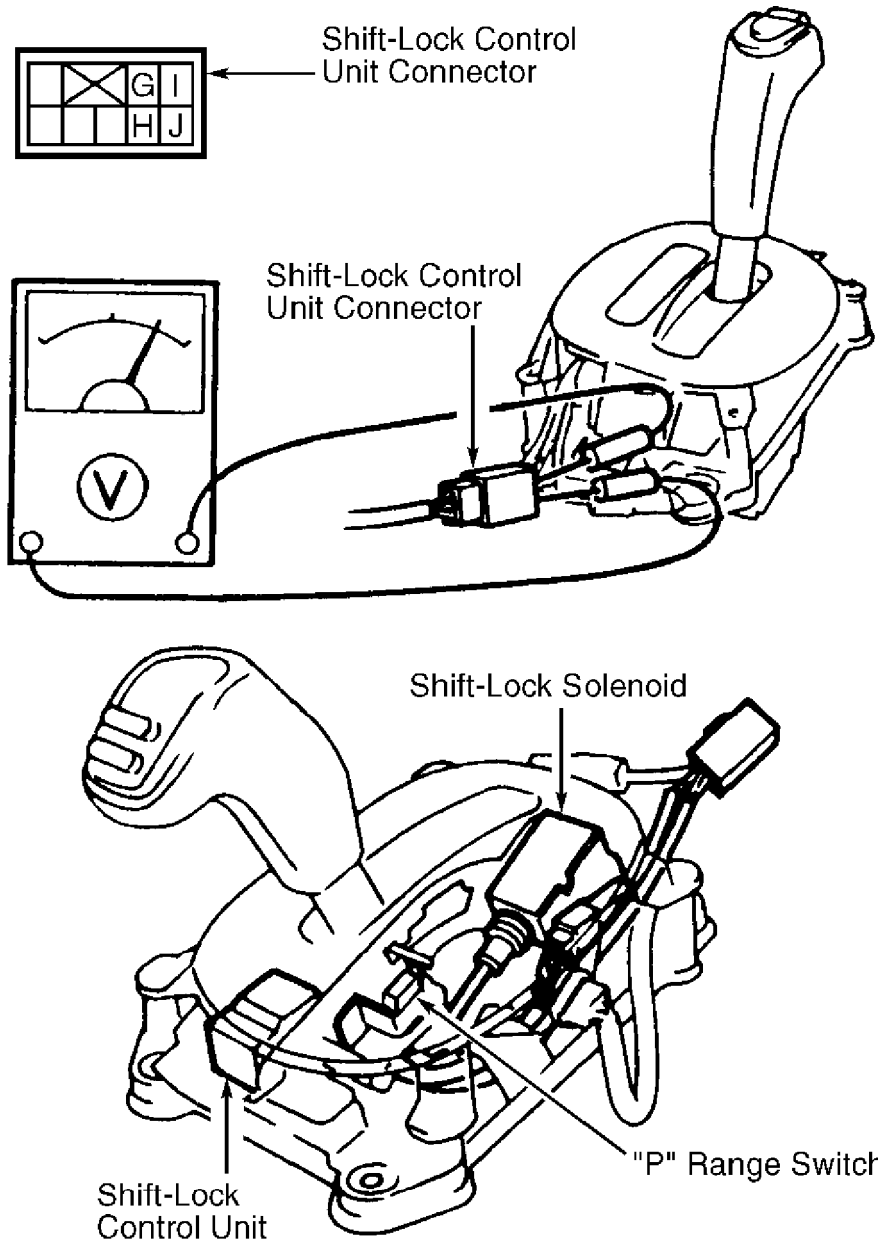
Article Text (p. 4)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:16PM



95A20651

Fig. 3: Testing RX7 Shift Lock Control System
Courtesy of Mazda Motors Corp.

929

1) Disconnect negative battery cable. Remove gear selector console cover. Disconnect "P" range switch connector. See Fig. 4.

2) Place gear selector in Park. Continuity should be present between wires. Depress gear selector release button and ensure no continuity is present. If "P" range switch works as described, go to next step. If "P" range switch does not work as described, replace "P" range switch.

3) Turn ignition on. Check for constant battery voltage

AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

Article Text (p. 5)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:16PM

between terminals "A" and "B", and terminals "A" and "C". See Fig. 5. Check for battery voltage between terminal "D" and "C". Battery voltage should be present with brake pedal depressed.

4) Disconnect shift-lock actuator connector and turn ignition off. Test for continuity between terminal "C" and ground. If voltage or continuity is not as described, repair wire harness and/or replace shift-lock actuator.

SHIFT-LOCK CONTROL UNIT CONNECTOR I.D. (929)

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Connector I.D.	Wire Color
----------------	------------

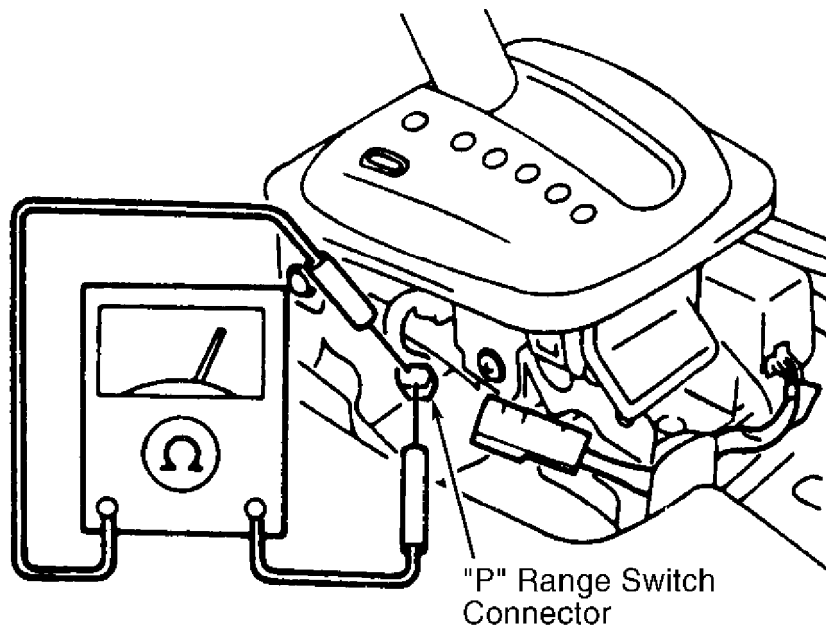
A	Blue/Red
---------	----------

B	Black/Yellow
---------	--------------

C	Black
---------	-------

D	White/Green
---------	-------------

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA



95B20652

Fig. 4: Testing 929 "P" Range Switch

Courtesy of Mazda Motors Corp.

AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

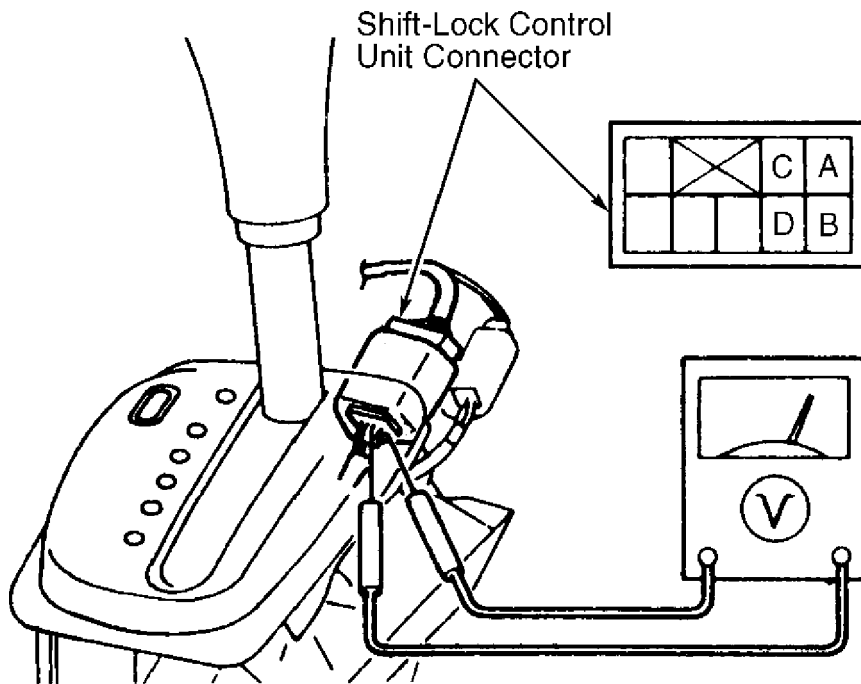
Article Text (p. 6)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:17PM



95C20653

Fig. 5: Testing 929 Shift Lock Actuator
Courtesy of Mazda Motors Corp.

TROUBLE SHOOTING

NOTE: For clutch, band, one-way clutch and overrunning clutch operation, see ELEMENTS IN USE under TESTING.

System problems may be caused by engine, PCMT, hydraulic control system or electronic control system. When trouble shooting, start with those points that can be inspected quickly and easily. Recommended trouble shooting sequence is as follows:

- * Check for fault codes. See ELECTRONIC SELF-DIAGNOSTICS. If fault code is present, see appropriate TROUBLE CODE CHARTS.
- * Check stall speed, time lag, line pressure and throttle pressure. See TESTING.
- * Road test vehicle and check for proper transmission operation. See ROAD TEST.

If previous trouble shooting sequence is followed, cause of the problem should be located. Another way to find PCMT problems is to use the QUICK DIAGNOSIS & TROUBLE SHOOTING CHART to find the correct test. These charts show various problems and relationship of components that might be cause of problem.

Using Quick Diagnosis Chart

1) Components listed under Self-Diagnosis are identified by PCMT self-diagnosis function. Components listed under adjustment indicate problem may be the result of an incorrect adjustment. Check

AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

Article Text (p. 7)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:17PM

adjustment of each component listed and readjust as necessary.

2) Use electronic tester to check input and output signals of components listed under Tester. Components listed under Stall Test may be checked by results of stall test procedure. To perform stall test, see STALL SPEED under TESTING.

3) Components listed under Time Lag Test may be checked by time lag test. To perform time lag test, see TIME LAG under TESTING.

4) Components listed under Road Test may be checked using the results of the road test. To perform the road test, see ROAD TEST. For appropriate trouble shooting chart testing procedures, refer to the QUICK DIAGNOSIS & TROUBLE SHOOTING CHART DIRECTORY table.

Using Trouble Shooting Chart

Use trouble shooting chart to diagnose a problem by symptom.

See the QUICK DIAGNOSIS & TROUBLE SHOOTING CHART DIRECTORY.

QUICK DIAGNOSIS & TROUBLE SHOOTING CHART DIRECTORY

Application See Fig.

Quick Diagnosis Chart

RX7 & 929 (RA4A-EL & RB4A-EL) 6

Trouble Shooting Chart

RX7 (RB4A-EL) 7

929 (RA4A-EL) 8

Application See Fig.

Item	Possible parts	Preliminary								Electronic system														Hydraulic control system						Powertrain																						
		ATF level and condition	Selector lever and control linkage	Idle speed and ignition timing	Ignition system and starter	Stall test	Time lag test	Line pressure test	Road test	Park/Neutral switch	Throttle position sensor	VSS 1 (revolution sensor)	VSS 2 (speedometer sensor)	Engine rpm sensor (Ne1 signal)	ATF thermosensor	Solenoid valve (shift A)	Solenoid valve (shift B)	Solenoid valve (line pressure)	Dropping resistor	Solenoid valve (lockup)	Solenoid valve (lockup control)	Solenoid valve (overrunning clutch)	Vehicle speed pulse generator	Inhibitor signal	Idle switch	OD inhibit signal (ASC signal)	Hold switch	A/C signal	Barometric absolute pressure sensor	Torque reduced signal	Reduce torque signal	Control valve body	N-D accumulator	1-2 accumulator	2-3 accumulator	3-4/N-R accumulator	Band servo	Oil pump	Hydraulic circuit	Torque converter	Reverse clutch	High clutch	Forward clutch	Forward one-way clutch	Overrunning clutch	Low one-way clutch	Low and reverse brake	Brake band (and servo)	Parking mechanism			
Self-diagnosis																																																				
Adjustment		○	○	○						○	○	○	○	○	○	○	○	○	○	○	○	○	○																													
EC-AT tester									○	○	○	○	○	○	○	○	○	○	○	○	○	○	○																													
Stall test																																																				
Time lag test																																																				
Line pressure test																																																				
Road test																																																				

95E20622

Fig. 6: Quick Diagnosis Chart - RX7 & 929 (RA4A-EL & RB4A-EL)

Courtesy of Mazda Motors Corp.

Sunday, August 19, 2001 09:17PM

95120626

Courtesy of Mazda Motors Corp.

Sunday, August 19, 2001 09:17PM

95J20627

Courtesy of Mazda Motors Corp.

AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

Article Text (p. 10)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:17PM

ROAD TEST

Preparation

Check all fluid levels and make corrections as necessary.

Warm engine and transmission to operating temperature. If any problems occur during the road test, refer to ELECTRONIC SELF-DIAGNOSTICS and TESTING, or repair transmission.

"D" RANGE

NOTE: NORMAL/POWER mode are controlled by the PCMT.

Inspection

1) Check for shift point, shift pattern and shift shock. Shift selector to "D" range. Accelerate vehicle at half and full throttle, ensure 1-2, 2-3 and 3-OD upshifts, downshifts and lock-up are obtained. Note speed and compare with appropriate SHIFT SPEED CHARTS. See Figs. 9 and 10. Note upshifts for shift shock and slippage.

2) When driving in OD, shift to "S" and check that OD-3 downshift occurs immediately.

3) Select HOLD mode. Check for 2-3 up and downshifts and lock-up and no 1st or "OD".

4) Decelerate vehicle. Check for engine braking in 3rd and 2nd gears when throttle is open 1/8 or less.

5) Drive in 3rd and 4th gear to ensure no unusual noise or vibration is heard. Check torque converter, driveshaft(s) and differential for source of unusual noise. Ensure kickdown operates properly and shift points match appropriate SHIFT SPEED CHARTS. See Figs. 9 and 10.

NOTE: Throttle sensor voltage of PCMT tester represents throttle opening. OD does not operate when ATF temperature is below 50°F (10°C), when cruise control is operating with a 5 MPH difference between preset cruise speed and vehicle speed on all 1994 models and 1993 RX7 and 13 MPH difference on remaining 1993 models. Lock-up does not operate when throttle is closed with vehicle below 74 MPH or when ATF is below 104°F (40°C).

AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

Article Text (p. 11)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:17PM

Range	Mode	Throttle condition (throttle sensor voltage)	Shift	Vehicle speed km/h {MPH}
D	POWER	Fully open (4.0–4.5V)	D ₁ → D ₂	50–56 {31–35}
			D ₂ → D ₃	103–111 {64–69}
			D ₃ → O/D	178–188 {111–117}
		Half throttle	D ₁ → D ₂	35–41 {22–25}
			D ₂ → D ₃	81–93 {50–58}
			D ₃ → O/D	126–144 {78–89}
			Lockup ON (D ₃)	94–106 {58–66} (81–93 {50–58})
			Lockup ON (O/D)	174–192 {108–119} (126–144 {78–89})
		Fully closed (0.1–1.1V)	O/D → D ₃	39–45 {24–28}
			D ₃ → D ₂	13–19 {8–12}
			D ₂ → D ₁	5–11 {3–7}
		Kickdown	O/D → D ₃	142–152 {88–94}
			D ₃ → D ₂	91–99 {57–62}
			D ₂ → D ₁	38–44 {24–27}
	NORMAL A/C ON	Fully open (4.0–4.5V)	D ₁ → D ₂	50–56 {31–35}
			D ₂ → D ₃	103–111 {64–69}
			D ₃ → O/D	178–188 {111–117}
		Half throttle	D ₁ → D ₂	32–38 {20–24}
			D ₂ → D ₃	80–92 {50–57}
			D ₃ → O/D	126–144 {78–89}
			Lockup ON (D ₃)	94–106 {58–66} (80–92 {50–57})
			Lockup ON (O/D)	174–192 {108–119} (126–144 {78–89})
		Fully closed (0.1–1.1V)	O/D → D ₃	39–45 {24–28}
			D ₃ → D ₂	13–19 {8–12}
			D ₂ → D ₁	5–11 {3–7}
		Kickdown	O/D → D ₃	142–152 {88–94}
			D ₃ → D ₂	91–99 {57–62}
			D ₂ → D ₁	38–44 {24–27}
	NORMAL A/C OFF	Fully open (4.0–4.5V)	D ₁ → D ₂	50–56 {31–35}
			D ₂ → D ₃	103–111 {64–69}
			D ₃ → O/D	178–188 {111–117}
		Half throttle	D ₁ → D ₂	32–38 {20–24}
			D ₂ → D ₃	80–92 {50–57}
			D ₃ → O/D	126–144 {78–89}
			Lockup ON (D ₃)	94–106 {58–66} (80–92 {50–57})
			Lockup ON (O/D)	174–192 {108–119} (126–144 {78–89})
		Fully closed (0.1–1.1V)	O/D → D ₃	32–38 {20–24}
			D ₃ → D ₂	13–19 {8–12}
			D ₂ → D ₁	5–11 {3–7}
		Kickdown	O/D → D ₃	142–152 {88–94}
			D ₃ → D ₂	91–99 {57–62}
			D ₂ → D ₁	38–44 {24–27}
D	HOLD	—	O/D → D ₃	180–186 {112–116}
			D ₃ → D ₂	7–13 {4–8}
			D ₂ → D ₃	15–25 {9–16}
			Lockup ON (D ₃)	94–106 {58–66} (39–51 {24–32})
S	EXCEPT HOLD	Fully open (4.0–4.5V)	S ₁ → S ₂	50–56 {31–35}
			S ₂ → S ₃	103–111 {64–69}
		Half throttle	S ₁ → S ₂	35–41 {22–25}
			S ₂ → S ₃	81–93 {50–58}
			Lockup ON (S ₃)	94–106 {58–66} (81–93 {50–58})
		Fully closed (0.1–1.1V)	S ₃ → S ₂	13–19 {8–12}
			S ₂ → S ₁	5–11 {3–7}
		Kickdown	S ₃ → S ₂	91–99 {57–62}
			S ₂ → S ₁	38–44 {24–27}
	HOLD	—	S ₃ → S ₂	112–118 {70–73}
L	EXCEPT HOLD	Fully open (4.0–4.5V)	L ₁ → L ₂	50–56 {31–35}
		Half throttle	L ₁ → L ₂	35–41 {22–25}
		Fully closed (0.1–1.1V)	L ₂ → L ₁	5–11 {3–7}
		Kickdown	L ₂ → L ₁	38–44 {24–27}
	HOLD	—	L ₂ → L ₁	45–51 {28–32}

95F20631

Fig. 9: RX7 Shift Speed Chart
Courtesy of Mazda Motors Corp.

AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

Article Text (p. 12)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:17PM

Range	Mode	Throttle condition (throttle position sensor voltage)	Shift	Vehicle speed km/h {mph}
D	POWER	Fully open (3.0—4.3V)	D ₁ →D ₂	49—55 {30—34}
			D ₂ →D ₃	94—102 {58—63}
			D ₃ →O/D	152—162 {94—100}
		Half throttle (1.7—2.7V)	D ₁ →D ₂	40—46 {25—29}
			D ₂ →D ₃	79—91 {49—56}
			D ₃ →O/D	133—151 {82—94}
			Lockup ON (D ₃)	94—106 {58—66}
			Lockup ON (O/D)	144—162 {89—100}
			O/D→D ₃	24—30 {15—19}
		Fully closed (0.1—1.1V)	D ₃ →D ₂	12—18 {7—11}
			D ₂ →D ₁	5—11 {3—7}
			O/D→D ₃	142—152 {88—94}
		Kickdown	D ₃ →D ₂	87—95 {54—59}
			D ₂ →D ₁	43—49 {27—30}
			D ₁ →D ₂	49—55 {30—34}
	NORMAL A/C ON	Fully open (3.0—4.3V)	D ₂ →D ₃	94—102 {58—63}
			D ₃ →O/D	152—162 {94—100}
			D ₁ →D ₂	40—46 {25—29}
		Half throttle (1.7—2.7V)	D ₂ →D ₃	79—91 {49—56}
			D ₃ →O/D	129—147 {80—91}
			Lockup ON (D ₃)	94—106 {58—66}
			Lockup ON (O/D)	144—162 {89—100}
			O/D→D ₃	24—30 {15—19}
		Fully closed (0.1—1.1V)	D ₃ →D ₂	12—18 {7—11}
			D ₂ →D ₁	5—11 {3—7}
			O/D→D ₃	142—152 {88—94}
		Kickdown	D ₃ →D ₂	87—95 {54—59}
			D ₂ →D ₁	43—49 {27—30}
			D ₁ →D ₂	49—55 {30—34}
	NORMAL A/C OFF	Fully open (3.0—4.3V)	D ₂ →D ₃	94—102 {58—63}
			D ₃ →O/D	152—162 {94—100}
			D ₁ →D ₂	40—46 {25—29}
		Half throttle (1.7—2.7V)	D ₂ →D ₃	79—91 {49—56}
			D ₃ →O/D	129—147 {80—91}
			Lockup ON (D ₃)	94—106 {58—66}
			Lockup ON (O/D)	144—162 {89—100}
			O/D→D ₃	24—30 {15—19}
		Fully closed (0.1—1.1V)	D ₃ →D ₂	12—18 {7—11}
			D ₂ →D ₁	5—11 {3—7}
			O/D→D ₃	142—152 {88—94}
		Kickdown	D ₃ →D ₂	87—95 {54—59}
			D ₂ →D ₁	43—49 {27—30}
			D ₁ →D ₂	49—55 {30—34}
D	HOLD	—	O/D→D ₃	154—160 {95—99}
			D ₃ →D ₂	7—13 {4—8}
			D ₂ →D ₃	15—25 {9—16}
			Lockup ON (D ₃)	94—106 {58—66}
S	NORMAL	Fully open (3.0—4.3V)	S ₁ →S ₂	49—55 {30—34}
			S ₂ →S ₃	94—102 {58—63}
		Half throttle (1.7—2.7V)	S ₁ →S ₂	40—46 {25—29}
			S ₂ →S ₃	79—91 {49—56}
			Lockup ON (S ₃)	94—106 {58—66}
		Fully closed (0.1—1.1V)	S ₃ →S ₂	12—18 {7—11}
			S ₂ →S ₁	5—11 {3—7}
		Kickdown	S ₃ →S ₂	87—95 {54—59}
			S ₂ →S ₁	43—49 {27—30}
	HOLD	—	S ₃ →S ₂	95—101 {59—63}
L	NORMAL	Fully open (3.0—4.3V)	L ₁ →L ₂	49—55 {30—34}
		Half throttle (1.7—2.7V)	L ₁ →L ₂	40—46 {25—29}
		Fully closed (0.1—1.1V)	L ₂ →L ₁	5—11 {3—7}
		Kickdown	L ₂ →L ₁	43—49 {27—30}
	HOLD	—	L ₂ →L ₁	45—51 {28—32}

95G20632

Fig. 10: 929 Shift Speed Chart
Courtesy of Mazda Motors Corp.

AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

Article Text (p. 13)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:17PM

"D" RANGE RESULTS

Starts In "S" Or Shifts Directly From "L" To "OD"
Stuck shift solenoid "A". Stuck shift valve "A".

Starts In "OD"
Stuck shift valve "B". Stuck shift solenoid "B".

No Shift
Stuck shift solenoid "A" and/or "B", or stuck shift valve "A"
and/or "B".

Incorrect Shift Points
Throttle sensor out of adjustment. Speed sensor No. 1 not
operating properly.

Shift Shock Or Slipping Is Felt
Stuck line pressure solenoid. Accumulator not operating
properly. Throttle sensor out of adjustment. Speed sensor No. 1 not
operating properly. ATF thermosensor not operating properly. Worn
clutches, one-way clutches and/or brakes.

No Engine Braking
Stuck overrunning clutch solenoid. Worn clutches and/or
brakes.

No Lock-Up Shift
Stuck lock-up solenoid. Stuck lock-up control valve.

KICKDOWN

Drive vehicle and check for OD-3, OD-2, OD-1, 3-2, 3-1 and 2-
1 kickdown. See appropriate SHIFT SPEED CHARTS. See Figs. 9 and 10.

"S" RANGE

1) Select "S" mode. Accelerate vehicle, check 1-2 and 2-3 up
and downshift with lock-up and no OD. Decelerate vehicle, check for
engine braking in 3rd and 2nd gears with throttle open 1/8 and less.

2) Drive in "S" mode and ensure 3rd gear is held until 3-2
downshift point is achieved. Accelerate in "S" HOLD mode and ensure
that 2nd gear is held. Decelerate vehicle, check for engine braking
with throttle open 1/8 and less.

"L" RANGE

1) Select "L" mode. Accelerate vehicle, ensure 1-2 upshifts
and downshifts are made and no 3rd gear, OD or lock-up occurs.
Decelerate vehicle and check for engine braking in 1st and 2nd gears.

2) Drive vehicle with gear selector in "D" HOLD (3rd gear),
shift to "L" and ensure 3rd gear is held until 3-2 downshift point is
reached, then 2nd gear is held until 2-1 downshift point is reached.

AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

Article Text (p. 14)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:17PM

3) Accelerate vehicle in "L" HOLD and ensure 1st gear is held. Decelerate vehicle and check for engine braking.

ELEMENTS IN USE

NOTE: For diagnosing clutch, band, one-way clutch and overrunning clutch operation, see appropriate ELEMENTS IN USE chart. See Figs. 11 and 12.

Range	Mode	Gear	Shift	Reverse clutch	High clutch	Forward clutch	Overrunning clutch	Band servo piston			Forward OWC	Low OWC	Low and reverse brake
								2nd applied	3rd released	O/D applied			
P	-	-	-										
R	-	Reverse	-	○									○
N	-	-	-										
D	Except HOLD	1st	↑↓			○	■				●	●	
		2nd	↑↓			○	*3 ■	○			●		
		3rd	↑↓		○	○	*3 ■	*1 ⊗	⊗		●		
		O/D	↑↓		○	⊗		*2 ⊗	⊗	○			
	HOLD	2nd	↑			○	*3 ⊙	○			●		
		3rd	↑		○	○	*3 ⊙	*1 ⊗	⊗		●		
		*4 O/D	↑		○	⊗		*2 ⊗	⊗	○			
S	Except HOLD	1st	↑↓			○	Δ				●	●	
		2nd	↑↓			○	*3 Δ	○			●		
		3rd	↑↓		○	○	*3 Δ	*1 ⊗	⊗		●		
	HOLD	2nd	↑			○	*3 Δ	○			●		
		*4 3rd	↑		○	○	*3 Δ	*1 ○	⊗		●		
L	Except HOLD	1st	↑↓			○	*3 ○				●	●	○
		2nd	↑↓			○	*3 ○	○			●		
	HOLD	1st	↑			○	*3 ○				●	●	○
		*4 2nd	↑			○	*3 ○	○			●		

OWC: one-way clutch

*1: Hydraulic pressure is applied to both 2nd applied side and 3rd released side of band servo piston.

However, because area of 3rd released side is larger than 2nd applied side, the brake band does not engage.

*2: Hydraulic pressure is applied to O/D applied side in the above conditions (*1) and brake band engages.

*3: Indicates that engine braking is available as a result of operation of overrunning clutch.

*4: Prevents engine overspeed.

○: Constantly engaged.

●: Operates when accelerated.

Δ: Engaged when throttle opening is below approximately 1/8.

○: Engaged when vehicle speed is above approximately 10 km/h {6.2 mph} and throttle opening is below approximately 1/8.

■: Engaged when O/D inhibit signal (ASC signal) is ON and vehicle speed is above approximately 10 km/h {6.2 mph} and throttle opening is below approximately 1/8.

⊗: Engaged, however does not transmit power.

95E20648

Fig. 11: RX7 & 1993 929 Elements In Use
Courtesy of Mazda Motors Corp.

AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

Article Text (p. 15)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:17PM

Range	Mode	Gear	Shift	Reverse clutch	High clutch	Forward clutch	Overrunning clutch	Band servo piston			Forward OWC	Low OWC	Low and reverse brake
								2nd applied	3GR released	4GR applied			
P	—	—	—										
R	—	Reverse	—	○									○
N	—	—	—										
D	Except HOLD	1	↕			○					●	●	
		2	↕			○		○			●		
		3	↕		○	○		*1 ○	○		●		
		4	↕		○	○		*2 ○	○	○			
	HOLD	2	↕			○	*3 ○	○			●		
		3	↕		○	○	*3 ○	*1 ○	○		●		
		*4 4	↕		○	○		*2 ○	○	○			
S	Except HOLD	1	↕			○	Δ				●	●	
		2	↕			○	*3 Δ	○			●		
		3	↕		○	○	*3 Δ	*1 ○	○		●		
	HOLD	2	↕			○	*3 Δ	○			●		
		*4 3	↕		○	○	*3 Δ	*1 ○	○		●		
L	Except HOLD	1	↕			○	*3 ○				●	●	○
		2	↕			○	*3 ○	○			●		
	HOLD	1	↕			○	*3 ○				●	●	○
		*4 2	↕			○	*3 ○	○			●		

OWC: one-way clutch

*1: Hydraulic pressure is applied to both 2nd applied side and Third gear released side of band servo piston.

However, because area of Third gear released side is larger than 2nd applied side, the brake band does not engage.

*2: Hydraulic pressure is applied to Fourth gear applied side in the above conditions (*1) and brake band engages.

*3: Indicates that engine braking is available as a result of operation of overrunning clutch.

*4: Prevents engine overspeed.

○: Constantly engaged.

●: Operates when accelerated.

Δ: Engaged when throttle opening is below approximately 1/8.

○: Engaged when vehicle speed is above approximately 10 km/h (6.2 mph) and throttle opening is below approximately 1/8.

○: Engaged, but does not transmit power.

95F20649

Fig. 12: 1994 929 Elements In Use

Courtesy of Mazda Motors Corp.

ELECTRONIC SELF-DIAGNOSTICS

Self-diagnostic system is integrated in PCMT and diagnoses faulty sensors (input devices), solenoid valves (output devices) and transaxle operation. Fault codes stored in PCMT identify specific components.

Codes may be retrieved from PCMT by using HOLD indicator light. Codes may be retrieved from PCMT by using OEM tester or aftermarket scan tester. See appropriate procedure.

NOTE: OEM tester may also be referred to as Electronic Controlled-Automatic Transmission (EC-AT) tester in trouble code charts.

AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

Article Text (p. 16)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

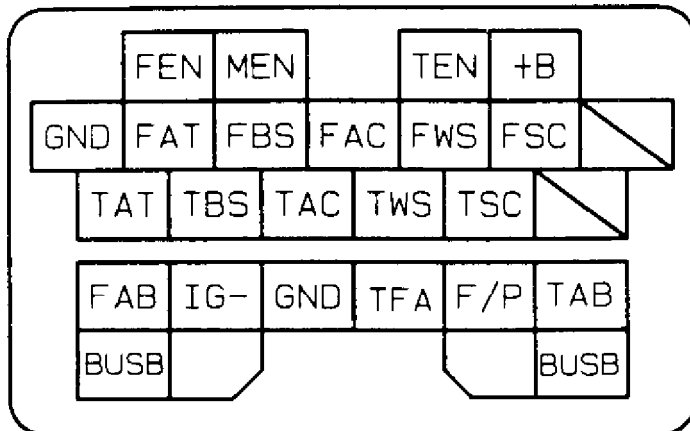
Sunday, August 19, 2001 09:17PM

RETRIEVING FAULT CODES

HOLD Indicator Light Procedure (RX7 & 929)

1) Locate Data Link Connector (DLC) underhood forward of left strut. Short together GND and TAT terminals of DLC and turn ignition on. See Fig. 13. Warning codes are flashed on HOLD indicator light on dash. Codes are flashed in numerical order if more than one code is present.

2) Note trouble code numbers. See TROUBLE CODE IDENTIFICATION CHARTS. Perform appropriate diagnostic code chart. Refer to the appropriate TROUBLE CODE CHARTS. After repairs are made, clear codes by disconnecting negative battery cable for 20 seconds.



95D20563

Fig. 13: Locating DLC GND & TAT Terminals
Courtesy of Mazda Motors Corp.

OEM Tester Hook-Up

1) Use manufacturer's instructions on connecting Self-Diagnosis checker and SST, selector and tester harness. Connect OEM tester assembly to DLC located underhood forward of left strut.

2) Set system selector system select switch to position 2. Set test switch to SELF TEST position. See Fig. 14.

NOTE: If using aftermarket scan tester, follow manufacturers procedures.

Retrieval Procedures

1) Connect OEM tester to appropriate positions. See OEM TESTER HOOK-UP. See Fig. 14.

2) Turn ignition on, if "88" flashes on digital display and buzzer sounds for 3 seconds, go to step 4). On RX7 and 929, if "88" does not flash, check main relay and terminals 1N and 1P of PCMT for an open or short circuit.

3) If "88" flashes and buzzer sounds continuously for more than 20 seconds, check wiring to terminal 2N of PCMT for an open or short circuit. See WIRING DIAGRAMS for wire color identification. If wiring is okay, replace PCMT and repeat steps 1-2).

AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

Article Text (p. 17)

1993 Mazda RX7

For www.iluvmyrx7.com

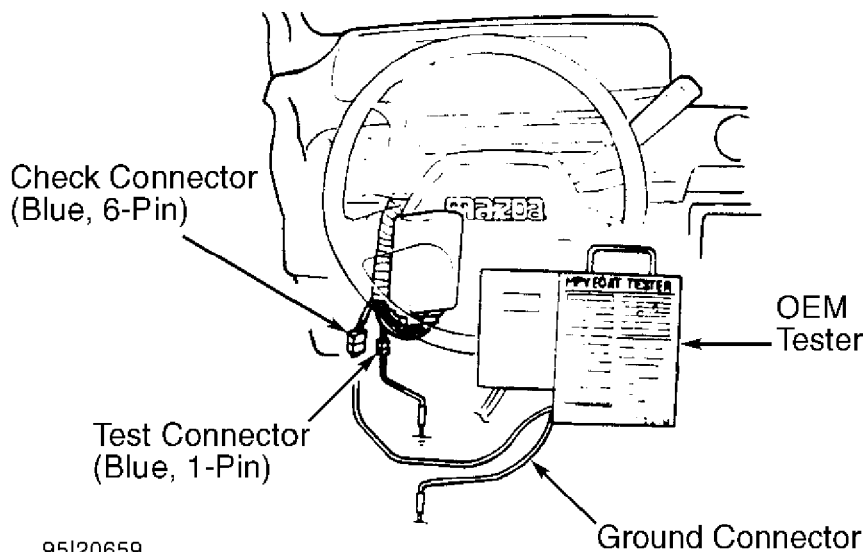
Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:17PM

4) Note fault code numbers. See TROUBLE CODE IDENTIFICATION CHARTS. Perform appropriate code chart. See TROUBLE CODE CHARTS. After repairs are made, clear codes by disconnecting negative battery cable for 20 seconds.

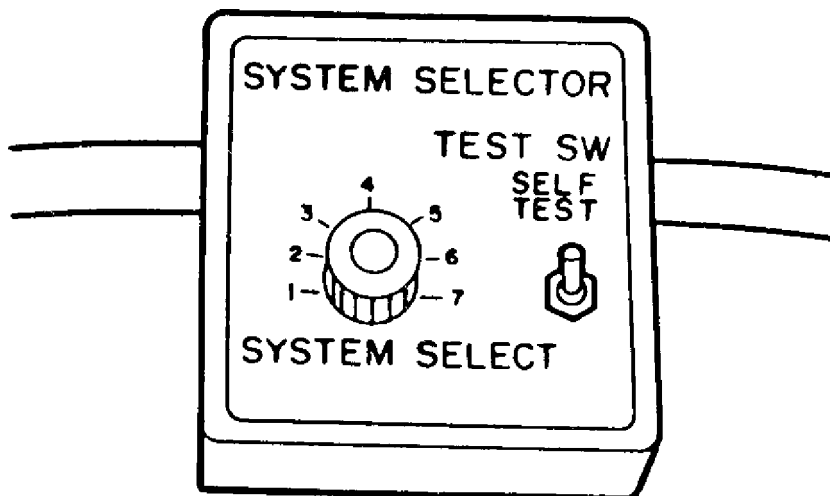
5) Remove OEM tester and road test vehicle at 31 MPH. Depress accelerator fully, stop vehicle gradually. Reconnect OEM tester to test connector and connect grounds. Turn ignition on and check for trouble codes.

6) If transmission problems are still present, or no trouble codes are stored, see ELECTRICAL COMPONENTS TESTS under TESTING.



95I20659

Fig. 14: Connecting OEM Tester
Courtesy of Mazda Motors Corp.



95E19764

Fig. 15: Identifying System Selector Switch Positions
Courtesy of Mazda Motors Corp.

TROUBLE CODE CHARTS

AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

Article Text (p. 18)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:17PM

TROUBLE CODE IDENTIFICATION CHARTS

DIAGNOSTIC TROUBLE CODE NUMBER

Code No.	Indicator flashing pattern	Diagnosed circuit	Condition	Point
01		Engine rpm signal	No input signal from ECU	<ul style="list-style-type: none"> Wiring from powertrain control module (Engine) to powertrain control module (Transmission) Powertrain control module (Engine)
06		Vehicle speed sensor (Revolution sensor)	No input signal from vehicle speed sensor (Revolution sensor)	<ul style="list-style-type: none"> Vehicle speed sensor connector Wiring from vehicle speed sensor to powertrain control module (Transmission) Vehicle speedometer sensor resistance
07		Vehicle speedometer sensor	No input signal from vehicle speedometer sensor	<ul style="list-style-type: none"> Vehicle speedometer sensor connector Wiring from vehicle speedometer sensor to combination meter Wiring from combination meter to powertrain control module (Transmission) Speedometer resistance
12		Throttle position sensor	Open or short circuit of throttle position sensor or wiring	<ul style="list-style-type: none"> Throttle position sensor connector Wiring from throttle position sensor to powertrain control module (Transmission) Throttle position sensor resistance
55		Vehicle speed pulse generator	No input signal from vehicle speed pulse generator	<ul style="list-style-type: none"> Vehicle speed pulse generator connector Wiring from vehicle speed pulse generator to powertrain control module (Transmission) Vehicle speed pulse generator resistance
56		ATF thermosensor	Open or short circuit of ATF thermosensor or wiring	<ul style="list-style-type: none"> ATF thermosensor connector Wiring from ATF thermosensor to powertrain control module (Transmission) ATF thermosensor resistance
57		Reduce torque signal/Slip lock-up signal, torque reduced signal	Open or short circuit of reduce torque signal/slip lockup signal wiring, and/or torque reduced signal wiring	<ul style="list-style-type: none"> Wiring from powertrain control module (Engine) to powertrain control module (Transmission) Powertrain control module (Transmission) Powertrain control module (engine)
58		Barometric absolute pressure sensor	Open or short circuit of barometric absolute pressure sensor wiring	<ul style="list-style-type: none"> Wiring from powertrain control module (Engine) to powertrain control module (Transmission) Powertrain control module (engine)
60		Shift A solenoid valve	Open or short circuit of solenoid valve wiring	<ul style="list-style-type: none"> Solenoid valve connector Wiring from solenoid valve to powertrain control module (Transmission) Solenoid valve resistance Wiring from dropping resistor to powertrain control module (Transmission) (Only No. 64) Dropping resistor resistance (Only No. 64)
61		Shift B solenoid valve		
62		Overrunning clutch solenoid valve		
63		Lockup solenoid valve		
64		Line pressure solenoid valve		
65		Lockup control solenoid valve		

95B20660

Fig. 16: RX7 Trouble Code Identification Chart

Courtesy of Mazda Motors Corp.

AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

Article Text (p. 19)

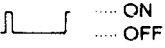








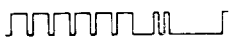

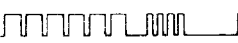

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:17PM

TROUBLE CODE NUMBER

CODE NO.	LOCATION OF MAL-FUNCTION	HOLD INDICATOR LIGHT FLASH CYCLE	SELF-DIAGNOSIS	FAIL-SAFE
01	Engine rpm signal (Ne1 signal)		No input signal from distributor Ne1 signal	—
06	Vehicle speed sensor (revolution sensor)		No input signal from vehicle speed sensor	Shifting performed in accordance with signals from vehicle speedometer sensor
07	Vehicle speedometer sensor		No input signal from speedometer (vehicle speedometer sensor)	If a malfunction occurs to both vehicle speed sensor and vehicle speedometer sensor, shift A and B solenoid valve go OFF*. Lockup not provided
12	Throttle position sensor		Open or short circuit of throttle position sensor or wiring	Throttle opening judged as follows: 4/8 stroke: Idle switch OFF 0/8 stroke: Idle switch ON
55	Vehicle speed pulse generator		No input signal from vehicle speed pulse generator	Shifting performed in accordance with signals from vehicle speed sensor. Torque reduction control not provided
56	ATF thermosensor		Open or short circuit of ATF thermo sensor or wiring	—
57	Reduce torque signal, Torque reduced signal		Open or short circuit of reduce torque signal / torque reduced signal or wiring	Torque reduction control not provided
60	Shift A solenoid valve		Open or short circuit of solenoid valves or wiring	Shift A and B solenoid valves go OFF*
61	Shift B solenoid valve			
62	Overrunning clutch solenoid valve			Overrunning clutch solenoid valve goes OFF and engine braking is available when coasting. Shifting performed normally
63	Lockup solenoid valve			Lockup not provided. Shifting performed normally
64	Line pressure solenoid valve			Line pressure solenoid valve goes OFF and line pressure is set at maximum. Shifting performed normally
65	Lockup control solenoid valve			Lockup not provided. Shifting performed normally

* - If both shift "A" and "B" solenoid valves go OFF, "D" and "S" ranges become 3rd gear position and "L" range becomes 2nd gear position.

95C20661

Fig. 17: 929 Trouble Code Identification Chart
Courtesy of Mazda Motors Corp.

RX7 & 929 TROUBLE CODE CHARTS

AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

Article Text (p. 20)

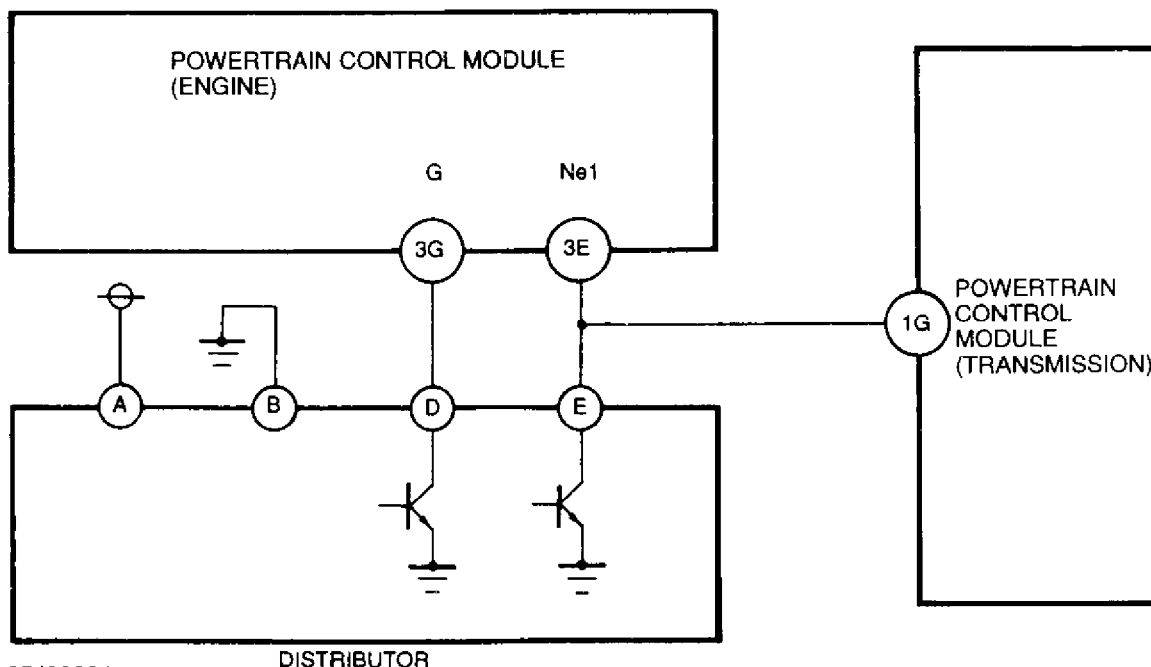
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:17PM

RX7



95J20684

Fig. 18: Schematic - Service Code No. 1
Courtesy of Mazda Motors Corp.

SERVICE CODE NO. 01					ENGINE RPM SIGNAL	
STEP	INSPECTION				ACTION	
1	Are there any poor connections at distributor, Powertrain Control Module (Engine) and Powertrain Control Module (Transmission) connectors?				Yes	Repair or replace connector
					No	Go to next step
2	Connect a circuit tester to terminals as shown. Is input voltage of engine rpm signal at Powertrain Control Module (Transmission) OK?				Yes	Go to step 6
					No	Check wiring and connectors from Powertrain Control Module (Transmission) to distributor If OK, go to next step If not OK, repair wiring and /or connector
		(+) term.	(-) term.	Voltage (V)	Condition	
		1G	Ground	2—3	While driving	
				0 or 4.5—5.5	Engine stopped	
3	Disconnect the distributor connector. Is voltage at Powertrain Control Module (Engine) terminal OK?				Yes	Go to next step
					No	Replace Powertrain Control Module (Transmission)
		(+) term.	(-) term.	Voltage (V)	Condition	
		3E	Ground	4.5—5.5	Ignition switch ON	
4	At step 3 condition, is the voltage to the distributor connector (vehicle-side) OK?				Yes	Replace distributor
					No	Go to next step
		(+) term.	(-) term.	Voltage (V)	Condition	
		G/W	Ground	4.5—5.5	Ignition switch ON	
5	Is there continuity between distributor connector (vehicle-side) and Powertrain Control Module (Engine) terminal 3E?				Yes	Go to next step
					No	Repair wiring and/or connector
6	Disconnect negative battery cable for at least 20 seconds. Connect battery cable and recheck for diagnostic trouble code. Is diagnostic trouble code displayed?				Yes	Replace Powertrain Control Module (Transmission)
					No	Intermittent poor connection Check for cause

95A20685

Fig. 19: Flow Chart - Service Code No. 1
Courtesy of Mazda Motors Corp.

AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

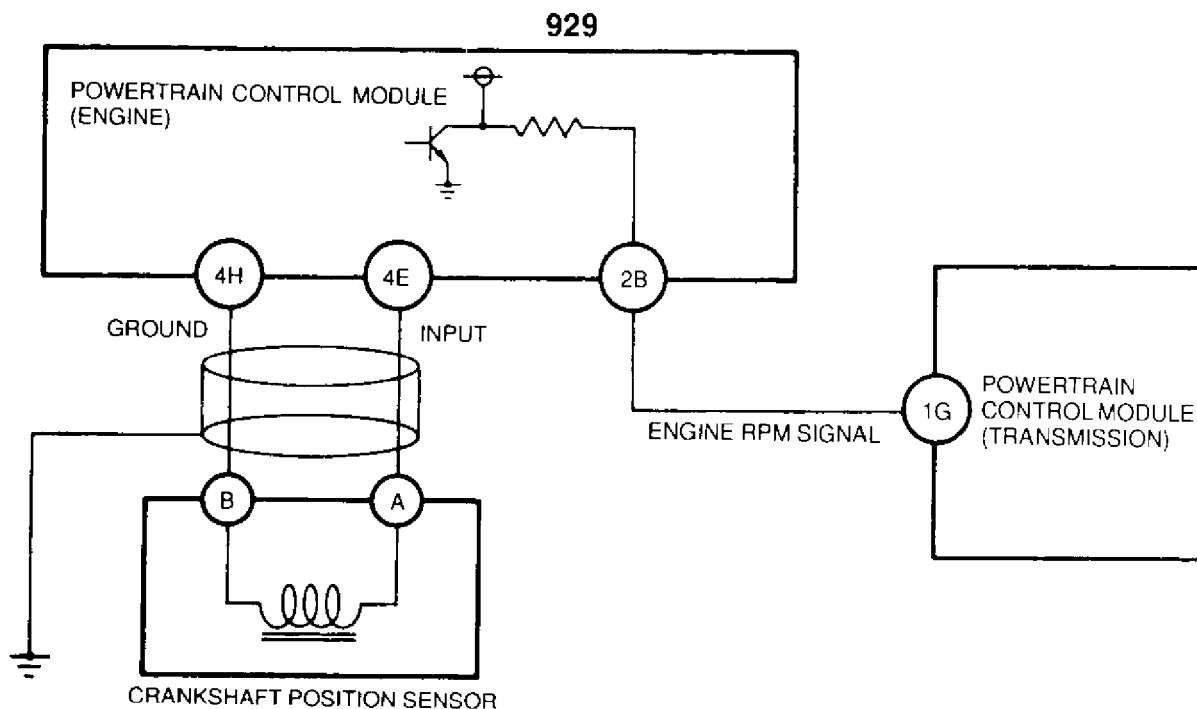
Article Text (p. 21)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:17PM



95B20686

Fig. 20: Schematic - Diagnostic Trouble Code No. 1
Courtesy of Mazda Motors Corp.

DIAGNOSTIC TROUBLE CODE NO.01		ENGINE RPM SIGNAL													
STEP	INSPECTION	ACTION													
1	Are there any poor connections at distributor, powertrain control module (Engine) and powertrain control module (Transmission) connectors?	Yes	Repair or replace connector												
		No	Go to next step												
2	Connect a circuit tester to terminals as shown Is input voltage of engine rpm signal at powertrain control module (Transmission) OK?	Yes	Go to step 5												
		No	Go to next step												
<table><tr><th>(+) term.</th><th>(-) term.</th><th>Voltage (V)</th><th>Condition</th></tr><tr><td rowspan="3">1G</td><td rowspan="3">Ground</td><td>0</td><td>Engine stopped</td></tr><tr><td>0.3-0.8</td><td>Engine idling</td></tr><tr><td>1.8-2.2</td><td>Engine running at 3,000 rpm (no load)</td></tr></table>		(+) term.	(-) term.	Voltage (V)	Condition	1G	Ground	0	Engine stopped	0.3-0.8	Engine idling	1.8-2.2	Engine running at 3,000 rpm (no load)		
(+) term.	(-) term.	Voltage (V)	Condition												
1G	Ground	0	Engine stopped												
		0.3-0.8	Engine idling												
		1.8-2.2	Engine running at 3,000 rpm (no load)												
3	Disconnect 16-pin powertrain control module (Transmission) connector Is there continuity between terminal 1G of powertrain control module (Transmission) and terminal 2B of powertrain control module (Engine)?	Yes	Go to next step												
		No	Repair wiring												
4	Connect a circuit tester to terminals as shown Is input voltage of engine rpm signal at powertrain control module (Engine) OK?	Yes	Go to next step												
		No	Check crank angle sensor and/or wiring If OK, replace powertrain control module (Engine) If not OK, repair or replace malfunction parts and/or wiring												
<table><tr><th>(+) term.</th><th>(-) term.</th><th>Voltage (V)</th><th>Condition</th></tr><tr><td rowspan="3">2B</td><td rowspan="3">Ground</td><td>0</td><td>Engine stopped</td></tr><tr><td>0.3-0.8</td><td>Engine idling</td></tr><tr><td>1.8-2.2</td><td>Engine running at 3,000 rpm (no load)</td></tr></table>		(+) term.	(-) term.	Voltage (V)	Condition	2B	Ground	0	Engine stopped	0.3-0.8	Engine idling	1.8-2.2	Engine running at 3,000 rpm (no load)		
(+) term.	(-) term.	Voltage (V)	Condition												
2B	Ground	0	Engine stopped												
		0.3-0.8	Engine idling												
		1.8-2.2	Engine running at 3,000 rpm (no load)												
5	Disconnect negative battery cable for at least 20 seconds, and depress the brake pedal. Connect battery cable and recheck for diagnostic trouble code Is diagnostic trouble code displayed?	Yes	Replace powertrain control module (Transmission)												
		No	Intermittent poor connection Check for cause												

95C20687

Fig. 21: Flow Chart - Diagnostic Trouble Code No. 1
Courtesy of Mazda Motors Corp.

AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

Article Text (p. 22)

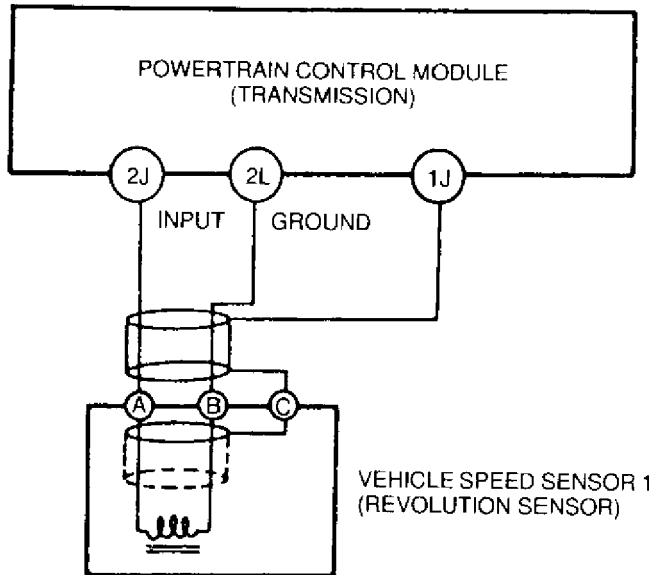
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:17PM

RX7 & 929



95D20688

Fig. 22: Schematic - Diagnostic Trouble Code No. 6
Courtesy of Mazda Motors Corp.

DIAGNOSTIC TROUBLE CODE NO.06				VEHICLE SPEED SENSOR (REVOLUTION SENSOR)	
STEP	INSPECTION			ACTION	
1	Are there any poor connections at vehicle speed sensor and powertrain control module (Transmission) connectors?			Yes	Repair or replace connector
				No	Go to next step
2	Connect a circuit tester to terminals as shown Is input voltage of vehicle speed sensor at powertrain control module (Transmission) OK?			Yes	Go to step 5
				No	Go to next step
	(+) term.	(-) term.	Voltage (V)			Condition
	2J	2L	Approx. above 1.0 (AC range)	While driving (above 25km/h {16MPH})	
		Approx. 0 (AC range)	Vehicle stopped		
3	Disconnect 20-pin powertrain control module (Transmission) connector Is resistance between terminal 2J and terminal 2L OK? Resistance: 500-1,000 Ω			Yes	Go to step 5
				No	Go to next step
4	Disconnect vehicle speed sensor connector Is resistance of sensor OK?			Yes	Check wiring and connectors from powertrain control module (Transmission) to vehicle speed sensor If OK, go to next step If not OK, repair wiring and/or connector
	Terminal		Resistance (Ω)	No	Replace vehicle speed sensor
	A ↔ B		500-1,000		
	B ↔ C		∞		
A ↔ C		∞			
5	Disconnect negative battery cable for at least 20 seconds, and depress the brake pedal. Connect battery cable and recheck for diagnostic trouble code Is diagnostic trouble code displayed?			Yes	Replace powertrain control module (Transmission)
				No	Intermittent poor connection Check for cause

95E20689

Fig. 23: Flow Chart - Diagnostic Trouble Code No. 6
Courtesy of Mazda Motors Corp.

AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

Article Text (p. 23)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:17PM

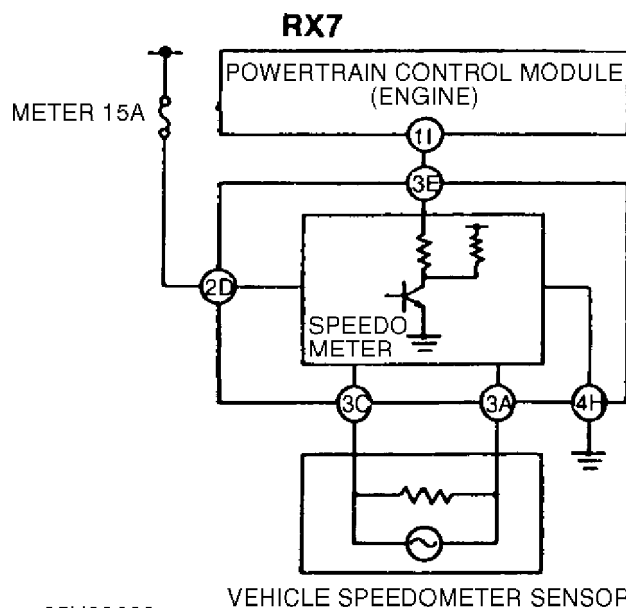


Fig. 24: Schematic - Diagnostic Trouble Code No. 7
Courtesy of Mazda Motors Corp.

DIAGNOSTIC TROUBLE CODE NO.07 VEHICLE SPEEDOMETER SENSOR															
STEP	INSPECTION		ACTION												
1	Are there any poor connections at vehicle speedometer sensor and powertrain control module (Transmission) connectors?	Yes	Repair or replace connector												
		No	Go to next step												
2	Connect a circuit tester to terminals as shown Is input voltage of vehicle speedometer sensor at powertrain control module (Transmission) OK?	Yes	Go to step 8												
		No	Go to next step												
	<table border="1"> <tr> <th>(+) term.</th><th>(-) term.</th><th>Voltage (V)</th><th>Condition</th></tr> <tr> <td>11</td><td>Ground</td><td>2-3</td><td>Vehicle moving</td></tr> <tr> <td></td><td></td><td>0 or 4.5-5.5</td><td>Vehicle stopped</td></tr> </table>	(+) term.	(-) term.	Voltage (V)	Condition	11	Ground	2-3	Vehicle moving			0 or 4.5-5.5	Vehicle stopped		
(+) term.	(-) term.	Voltage (V)	Condition												
11	Ground	2-3	Vehicle moving												
		0 or 4.5-5.5	Vehicle stopped												
3	Remove combination meter Is there continuity between terminal 3E of meter connector and terminal 11 of powertrain control module (Transmission)?	Yes	Go to next step												
		No	Repair or replace wiring and/or connector												
4	Connect circuit tester to terminals 3C and 3A of meter connector Does pointer of circuit tester move slightly when rear wheels are slowly turned?	Yes	Go to next step												
		No	Replace speedometer												
5	Remove vehicle speedometer sensor Is resistance felt when turning speedometer driven gear by hand?	Yes	Go to next step												
		No	Replace vehicle speedometer sensor												
6	Disconnect vehicle speedometer sensor connector and connect circuit tester Does pointer of circuit tester move slightly when driven gear is slowly turned?	Yes	Go to next step												
		No	Replace vehicle speedometer sensor												
7	Disconnect vehicle speedometer sensor connector Is continuity of sensor OK? Resistance: Approx. 290 Ω (20°C (68°F)); reference	Yes	Check wiring and connectors from vehicle speedometer sensor to speedometer If OK, go to next step If not OK, repair wiring and/or connector												
		No	Replace vehicle speedometer sensor												
8	Disconnect negative battery cable for at least 20 seconds and the brake pedal is depressed Connect battery cable and recheck for diagnostic trouble code Is diagnostic trouble code displayed?	Yes	Replace powertrain control module (Transmission)												
		No	Intermittent poor connection Check for cause												

Fig. 25: Flow Chart - Diagnostic Trouble Code No. 7
Courtesy of Mazda Motors Corp.

AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

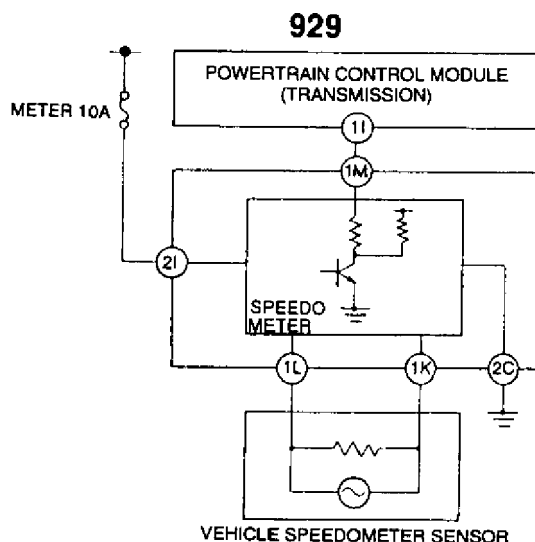
Article Text (p. 24)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:17PM



95J20692

Fig. 26: Schematic - Service Code No. 7
Courtesy of Mazda Motors Corp.

SERVICE CODE NO. 07 VEHICLE SPEEDOMETER SENSOR																
STEP	INSPECTION		ACTION													
1	Are there any poor connections at vehicle speed sensor and Powertrain Control Module (Transmission) connectors?		Yes	Repair or replace connector												
			No	Go to next step												
2	Connect a circuit tester to terminals as shown Is input voltage of vehicle speedometer sensor at Powertrain Control Module (Transmission) OK?		Yes	Go to step 7												
			No	Go to next step												
<table><tr><th>(+) term.</th><th>(-) term.</th><th>Voltage (V)</th><th>Condition</th></tr><tr><td>1I</td><td>Ground</td><td>2—3</td><td>While driving</td></tr><tr><td></td><td></td><td>0 or 4.5—5.5</td><td>Vehicle stopped</td></tr></table>					(+) term.	(-) term.	Voltage (V)	Condition	1I	Ground	2—3	While driving			0 or 4.5—5.5	Vehicle stopped
(+) term.	(-) term.	Voltage (V)	Condition													
1I	Ground	2—3	While driving													
		0 or 4.5—5.5	Vehicle stopped													
3	Remove combination meter Is there continuity between terminal 1M of meter connector and terminal 1I of Powertrain Control Module (Transmission)?		Yes	Go to next step												
			No	Repair or replace wiring and/or connector												
4	Connect circuit tester to terminals 1K and 1L of meter connector Does pointer of circuit tester move slightly when rear wheels are slowly turned?		Yes	Replace speedometer												
			No	Go to next step												
5	Remove vehicle speedometer sensor Is resistance felt when turning speedometer-driven gear by hand?		Yes	Go to next step												
			No	Replace vehicle speedometer sensor												
6	Disconnect vehicle speedometer sensor connector and connect circuit tester Does pointer of circuit tester move slightly when driven gear is slowly turned?		Yes	Go to next step												
			No	Replace vehicle speedometer sensor												
7	Disconnect vehicle speedometer sensor connector Is continuity of sensor OK? Resistance: Approx. 290Ω (20°C (68°F)); reference		Yes	Check wiring and connectors from vehicle speedometer sensor to speedometer If OK, go to next step If not OK, repair wiring and/or connector												
			No	Replace vehicle speedometer sensor												
8	Disconnect negative battery cable for at least 20 seconds Connect battery cable and recheck for diagnostic trouble code Is diagnostic trouble code displayed?		Yes	Replace Powertrain Control Module (Transmission)												
			No	Intermittent poor connection Check for cause												

95A20693

Fig. 27: Flow Chart - Service Code No. 7
Courtesy of Mazda Motors Corp.

AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

Article Text (p. 25)

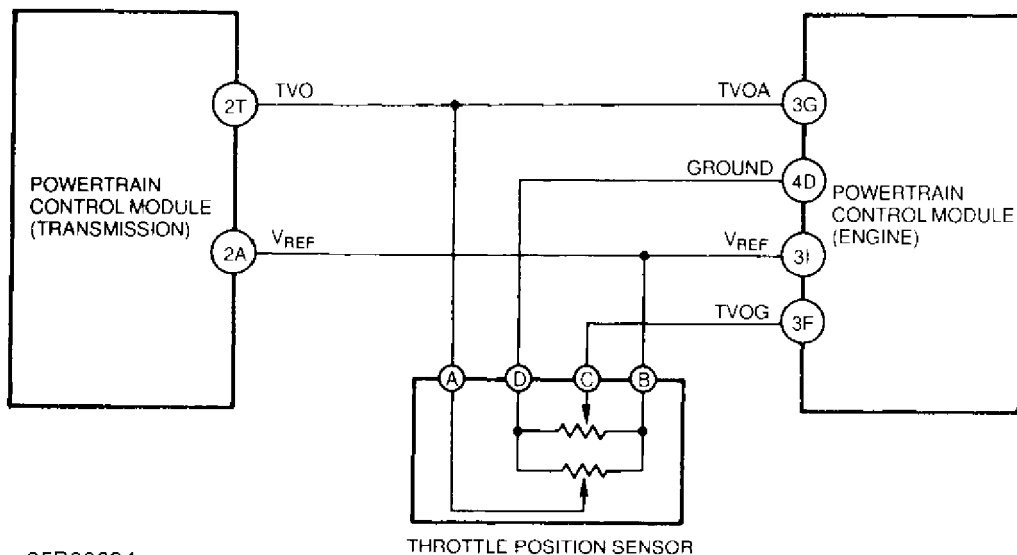
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:17PM

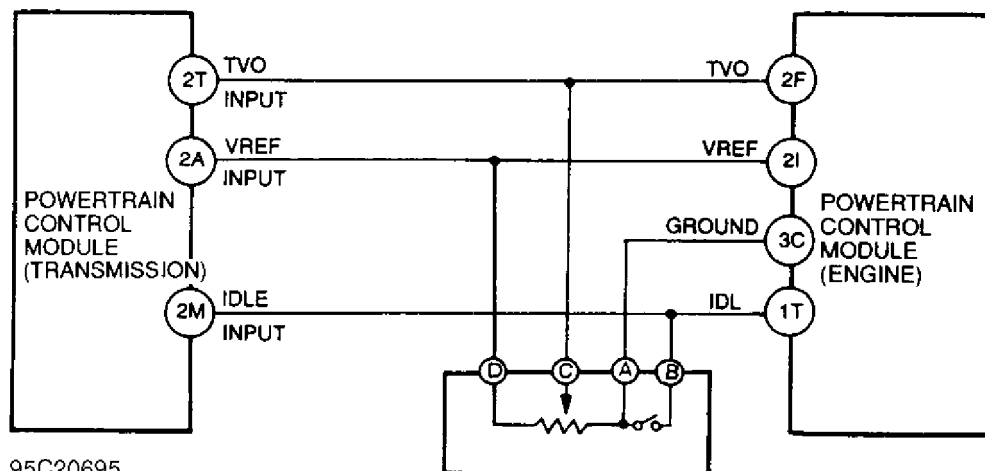
RX7



95B20694

Fig. 28: Schematic - Diagnostic Trouble Code No. 12 (1 of 2)
Courtesy of Mazda Motors Corp.

929



95C20695

Fig. 29: Schematic - Diagnostic Trouble Code No. 12 (2 of 2)
Courtesy of Mazda Motors Corp.

AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

Article Text (p. 26)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:17PM

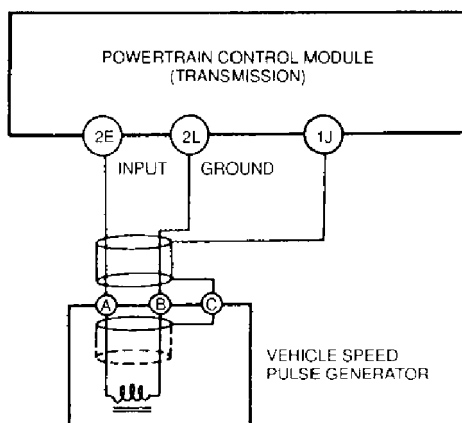
DIAGNOSTIC TROUBLE CODE NO.12		THROTTLE POSITION SENSOR											
STEP	INSPECTION	ACTION											
1	Are there any poor connections at throttle position sensor and powertrain control module (Transmission) connector or terminal?	Yes	Repair or replace connector										
		No	Go to next step										
2	Connect a circuit tester to terminals as shown Is input voltage of throttle position sensor (TVO) at powertrain control module (Transmission) OK?	Yes	Go to step 5										
		No	Go to next step										
<table><tr><th>(+) term.</th><th>(-) term.</th><th>Voltage (V)</th><th>Condition</th></tr><tr><td rowspan="2">2T</td><td rowspan="2">Ground</td><td>0.1-1.1</td><td>Throttle valve closed throttle position</td></tr><tr><td>4.0-4.5</td><td>Throttle valve wide open throttle</td></tr></table>		(+) term.	(-) term.	Voltage (V)	Condition	2T	Ground	0.1-1.1	Throttle valve closed throttle position	4.0-4.5	Throttle valve wide open throttle		
(+) term.	(-) term.	Voltage (V)	Condition										
2T	Ground	0.1-1.1	Throttle valve closed throttle position										
		4.0-4.5	Throttle valve wide open throttle										
3	Connect a circuit tester to terminals as shown Is input voltage of throttle position sensor (VREP) at powertrain control module (Transmission) OK?	Yes	Go to next step										
		No	Check voltage at terminal 3I of powertrain control module (Engine) Voltage: 4.5-5.5V (ignition switch ON) If OK, go to next step If not OK, repair wiring and/or connector, or replace powertrain control module (Transmission)										
<table><tr><th>(+) term.</th><th>(-) term.</th><th>Voltage (V)</th><th>Condition</th></tr><tr><td rowspan="2">2A</td><td rowspan="2">Ground</td><td>4.5-5.5</td><td>Ignition switch ON</td></tr><tr><td>0</td><td>Ignition switch OFF</td></tr></table>		(+) term.	(-) term.	Voltage (V)	Condition	2A	Ground	4.5-5.5	Ignition switch ON	0	Ignition switch OFF		
(+) term.	(-) term.	Voltage (V)	Condition										
2A	Ground	4.5-5.5	Ignition switch ON										
		0	Ignition switch OFF										
4	Is throttle position sensor OK?	Yes	Check wiring and connectors from powertrain control module (Transmission) to throttle position sensor If OK, go to next step If not OK, repair wiring and/or connector										
		No	Adjust or replace throttle position sensor										
5	Disconnect negative battery cable for at least 20 seconds and the brake pedal is depressed Connect battery cable and recheck for diagnostic trouble code Is diagnostic trouble code displayed?	Yes	Replace powertrain control module (Transmission)										
		No	Intermittent poor connection Check for cause										

95D20696

Fig. 30: Flow Chart - Diagnostic Trouble Code No. 12

Courtesy of Mazda Motors Corp.

RX7 & 929



95E20697

Fig. 31: Schematic - Diagnostic Trouble Code No. 55

Courtesy of Mazda Motors Corp.

AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

Article Text (p. 27)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:17PM

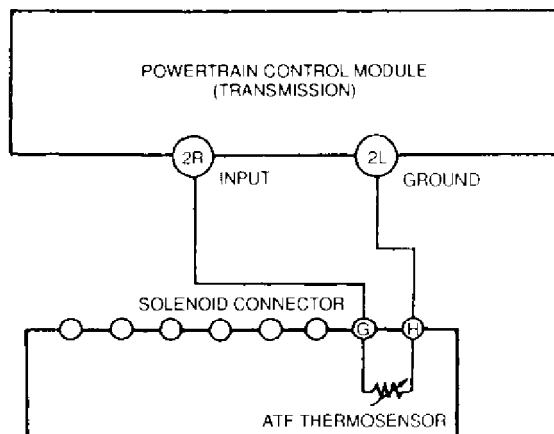
DIAGNOSTIC TROUBLE CODE NO.55		VEHICLE SPEED PULSE GENERATOR								
STEP	INSPECTION	ACTION								
1	Are there any poor connections at vehicle speed pulse generator and powertrain control module (Transmission) connector or terminal?	Yes	Repair or replace connector							
		No	Go to next step							
2	Connect a circuit tester to terminals as shown Is input voltage of vehicle speed pulse generator at powertrain control module (Transmission) OK?	Yes	Go to step 5							
		No	Go to next step							
				<table><tr><th>(+) term.</th><th>(-) term.</th><th>Voltage (V)</th><th>Condition</th></tr><tr><td rowspan="2">2E</td><td rowspan="2">2L</td><td>Approx. 0.5 (AC range)</td><td>While driving (above 25km/h [16mph])</td></tr><tr><td>Approx. 0 (AC range)</td><td>Vehicle stopped</td></tr></table>	(+) term.	(-) term.	Voltage (V)	Condition	2E	2L
(+) term.	(-) term.	Voltage (V)	Condition							
2E	2L	Approx. 0.5 (AC range)	While driving (above 25km/h [16mph])							
		Approx. 0 (AC range)	Vehicle stopped							
3	Disconnect 20-pin powertrain control module (Transmission) connector Is resistance between terminal 2E and terminal 2L OK? Resistance: 2.2–3.5 kΩ	Yes	Go to next step							
		No	Go to next step							
4	Disconnect vehicle speed pulse generator connector Is resistance of vehicle speed pulse generator OK?	Yes	Check wiring and connectors from powertrain control module (Transmission) to vehicle speed pulse generator If OK, go to next step If not OK, repair wiring and/or connector							
		No	Replace vehicle speed pulse generator							
				<table><tr><th>Terminal</th><th>Resistance (KΩ)</th></tr><tr><td>A ↔ B</td><td>2.2–3.5</td></tr><tr><td>B ↔ C</td><td>∞</td></tr><tr><td>A ↔ C</td><td>∞</td></tr></table>	Terminal	Resistance (KΩ)	A ↔ B	2.2–3.5	B ↔ C	∞
Terminal	Resistance (KΩ)									
A ↔ B	2.2–3.5									
B ↔ C	∞									
A ↔ C	∞									
5	Disconnect negative battery cable for at least 20 seconds and the brake pedal is depressed. Connect battery cable and recheck for diagnostic trouble code Is diagnostic trouble code displayed?	Yes	Replace powertrain control module (Transmission)							
		No	Intermittent poor connection Check for cause							

95F20698

Fig. 32: Flow Chart - Diagnostic Trouble Code No. 55

Courtesy of Mazda Motors Corp.

RX7 & 929



95G20699

Fig. 33: Schematic - Diagnostic Code No. 56

Courtesy of Mazda Motors Corp.

AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

Article Text (p. 28)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

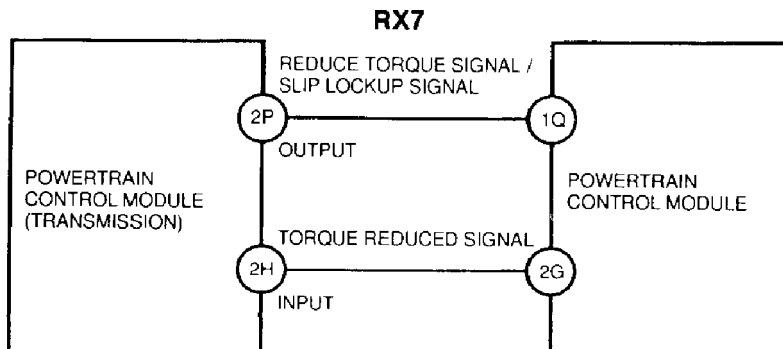
Sunday, August 19, 2001 09:17PM

DIAGNOSTIC TROUBLE CODE NO.56		ATF THERMOSENSOR													
STEP	INSPECTION	ACTION													
1	Are there any poor connections at ATP thermosensor and powertrain control module (Transmission) connector or terminal?	Yes	Repair or replace connector												
		No	Go to next step												
2	Connect a circuit tester to terminals as shown is input voltage of ATF thermosensor at powertrain control module (Transmission) OK?	Yes	Go to step 5												
		No	Go to next step												
<table><tr><th>(+) term.</th><th>(-) term.</th><th>Voltage (V)</th><th>Condition</th></tr><tr><td rowspan="3">2R</td><td rowspan="3">2L</td><td>Approx. 1.8</td><td>ATF temp. 10°C (50°F)</td></tr><tr><td>Approx. 1.1</td><td>ATF temp. 40°C (104°F)</td></tr><tr><td>Approx. 0.4</td><td>ATF temp. 80°C (176°F)</td></tr></table>		(+) term.	(-) term.	Voltage (V)	Condition	2R	2L	Approx. 1.8	ATF temp. 10°C (50°F)	Approx. 1.1	ATF temp. 40°C (104°F)	Approx. 0.4	ATF temp. 80°C (176°F)		
(+) term.	(-) term.	Voltage (V)	Condition												
2R	2L	Approx. 1.8	ATF temp. 10°C (50°F)												
		Approx. 1.1	ATF temp. 40°C (104°F)												
		Approx. 0.4	ATF temp. 80°C (176°F)												
3	Disconnect 20-pin powertrain control module (Transmission) connector Is resistance between terminal 2R and terminal 2L OK?	Yes	Go to step 5												
		No	Go to next step												
<table><tr><th>Terminal</th><th>Resistance (KΩ)</th></tr><tr><td rowspan="3">2R ↔ 2L</td><td>Approx. 3.8 ATF temp. 10°C (50°F)</td></tr><tr><td>Approx. 1.2 ATF temp. 40°C (104°F)</td></tr><tr><td>Approx. 0.3 ATF temp. 80°C (176°F)</td></tr></table>		Terminal	Resistance (KΩ)	2R ↔ 2L	Approx. 3.8 ATF temp. 10°C (50°F)	Approx. 1.2 ATF temp. 40°C (104°F)	Approx. 0.3 ATF temp. 80°C (176°F)								
Terminal	Resistance (KΩ)														
2R ↔ 2L	Approx. 3.8 ATF temp. 10°C (50°F)														
	Approx. 1.2 ATF temp. 40°C (104°F)														
	Approx. 0.3 ATF temp. 80°C (176°F)														
4	Disconnect solenoid connector Is resistance between terminal G and terminal H of ATF thermosensor OK?	Yes	Check wiring and connectors from powertrain control module (Transmission) to ATF thermosensor If OK, go to next step If not OK, repair wiring and/or connector												
		No	Replace ATF thermosensor												
<table><tr><th>Terminal</th><th>Resistance (KΩ)</th></tr><tr><td rowspan="3">G ↔ H</td><td>Approx. 3.8 ATF temp. 10°C (50°F)</td></tr><tr><td>Approx. 1.2 ATF temp. 40°C (104°F)</td></tr><tr><td>Approx. 0.3 ATF temp. 80°C (176°F)</td></tr></table>		Terminal	Resistance (KΩ)	G ↔ H	Approx. 3.8 ATF temp. 10°C (50°F)	Approx. 1.2 ATF temp. 40°C (104°F)	Approx. 0.3 ATF temp. 80°C (176°F)								
Terminal	Resistance (KΩ)														
G ↔ H	Approx. 3.8 ATF temp. 10°C (50°F)														
	Approx. 1.2 ATF temp. 40°C (104°F)														
	Approx. 0.3 ATF temp. 80°C (176°F)														
5	Disconnect negative battery cable for at least 20 seconds and the brake pedal is depressed Connect battery cable and recheck for diagnostic trouble code Is diagnostic trouble code displayed?	Yes	Replace powertrain control module (Transmission)												
		No	Intermittent poor connection Check for cause												

95J20700

Fig. 34: Flow Chart - Diagnostic Code No. 56

Courtesy of Mazda Motors Corp.



95A20701

Fig. 35: Schematic - Diagnostic Code No. 57

Courtesy of Mazda Motors Corp.

AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

Article Text (p. 29)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:17PM

DIAGNOSTIC TROUBLE CODE NO.57				REDUCE TORQUE SIGNAL / SLIP LOCKUP SIGNAL, TORQUE REDUCED SIGNAL							
STEP	INSPECTION			ACTION							
1	Are there any poor connections at powertrain control module (Engine) and powertrain control module (Transmission) connectors?			Yes	Repair or replace connector						
				No	Go to next step						
2	Connect a circuit tester to terminals as shown Is input voltage of torque reduced signal at powertrain control module (Transmission) OK? B+: Battery positive voltage			Yes	Go to step 4						
				No	Go to next step						
				<table><tr><th>(+) term.</th><th>(-) term.</th><th>Voltage (V)</th><th>Condition</th></tr><tr><td rowspan="3">2H</td><td rowspan="3">Ground</td><td>B+</td><td>Engine idling</td></tr><tr><td>Below 1.0</td><td>Throttle opening above 1/8 (Engine coolant temp below 40°C (104°F))</td></tr></table>		(+) term.	(-) term.	Voltage (V)	Condition	2H	Ground
(+) term.	(-) term.	Voltage (V)	Condition								
2H	Ground	B+	Engine idling								
		Below 1.0	Throttle opening above 1/8 (Engine coolant temp below 40°C (104°F))								
		Disconnect 20-pin powertrain control module (Transmission) connector Is there continuity between terminal 2H of powertrain control module (Transmission) and terminal 2G of powertrain control module (Engine)?			Yes	Go to next step					
No	Repair wiring										
4	Connect a circuit tester to terminals as shown Is input voltage of torque reduced signal at powertrain control module (Transmission) OK? B+: Battery positive voltage			Yes	Go to step 6						
				No	Go to next step						
				<table><tr><th>(+) term.</th><th>(-) term.</th><th>Voltage (V)</th><th>Condition</th></tr><tr><td rowspan="3">2P</td><td rowspan="3">Ground</td><td>Below 1.0</td><td>When shifting from 1st to 2nd or from 2nd to 3GR with the throttle opening above 1.5/8 When slip lockup with the throttle opening below 0.5/8</td></tr><tr><td>B+</td><td>Engine idling</td></tr></table>		(+) term.	(-) term.	Voltage (V)	Condition	2P	Ground
(+) term.	(-) term.	Voltage (V)	Condition								
2P	Ground	Below 1.0	When shifting from 1st to 2nd or from 2nd to 3GR with the throttle opening above 1.5/8 When slip lockup with the throttle opening below 0.5/8								
		B+	Engine idling								
		Disconnect 20-pin powertrain control module (Transmission) connector Is there continuity between terminal 2P of powertrain control module (Transmission) and terminal 1Q of powertrain control module (Engine)?			Yes	Go to next step					
No	Repair wiring										
6	Disconnect negative battery cable for at least 20 seconds and the brake pedal is depressed Connect battery cable and recheck for diagnostic trouble code Is diagnostic trouble code displayed?			Yes	Replace powertrain control module (Transmission) or powertrain control module (Engine)						
				No	Intermittent poor connection Check for cause						

95B20702

Fig. 36: Flow Chart - Diagnostic Code No. 57

Courtesy of Mazda Motors Corp.

AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

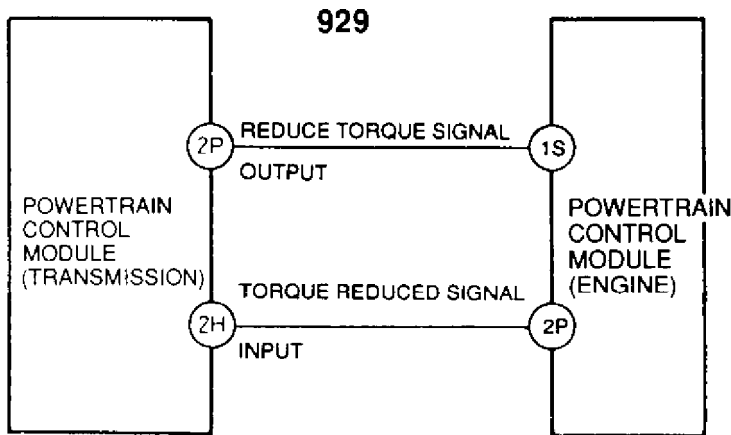
Article Text (p. 30)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:17PM



95C20703

Fig. 37: Schematic - Service Code No. 57

Courtesy of Mazda Motors Corp.

SERVICE CODE NO. 57				REDUCE TORQUE SIGNAL, TORQUE REDUCED SIGNAL																	
STEP	INSPECTION			ACTION																	
1	Are there any poor connections at Powertrain Control Module (Engine) and Powertrain Control Module (Transmission) connectors?			Yes	Repair or replace connector																
				No	Go to next step																
2	Connect a circuit tester to terminals as shown Is input voltage of torque reduced signal at Powertrain Control Module (Transmission) OK?			Yes	Go to step 4																
				No	Go to next step																
B+: Battery positive voltage																					
<table><tr><td>(+) term.</td><td>(-) term.</td><td>Voltage (V)</td><td colspan="3">Condition</td></tr><tr><td rowspan="2">2H</td><td rowspan="2">Ground</td><td>B+</td><td colspan="3">Engine warm</td></tr><tr><td>Below 1</td><td colspan="3">Engine cool</td></tr></table>						(+) term.	(-) term.	Voltage (V)	Condition			2H	Ground	B+	Engine warm			Below 1	Engine cool		
(+) term.	(-) term.	Voltage (V)	Condition																		
2H	Ground	B+	Engine warm																		
		Below 1	Engine cool																		
Some kinds of testers may give incorrect values. This is because the voltage output period is very short.																					
3	Disconnect 20-pin Powertrain Control Module (Transmission) connector Is there continuity between terminal 2H of Powertrain Control Module (Transmission) and terminal 2P of Powertrain Control Module (Engine)?			Yes	Go to next step																
				No	Repair wiring																
4	Connect a circuit tester to terminals as shown Is output voltage of reduce torque signal at Powertrain Control Module (Transmission) OK?			Yes	Go to step 6																
				No	Go to next step																
B+: Battery positive voltage																					
<table><tr><td>(+) term.</td><td>(-) term.</td><td>Voltage (V)</td><td colspan="3">Condition</td></tr><tr><td rowspan="2">2P</td><td rowspan="2">Ground</td><td>Below 1</td><td colspan="3">Shifting</td></tr><tr><td>B+</td><td colspan="3">Others</td></tr></table>						(+) term.	(-) term.	Voltage (V)	Condition			2P	Ground	Below 1	Shifting			B+	Others		
(+) term.	(-) term.	Voltage (V)	Condition																		
2P	Ground	Below 1	Shifting																		
		B+	Others																		
Some kinds of testers may give incorrect values. This is because the voltage output period is very short.																					
5	Disconnect 20-pin Powertrain Control Module (Transmission) connector Is there continuity between terminal 2P of Powertrain Control Module (Transmission) and terminal 1S of Powertrain Control Module (Engine)?			Yes	Go to next step																
				No	Repair wiring																
6	Disconnect negative battery cable for at least 20 seconds Connect battery cable and recheck for diagnostic trouble code Is diagnostic trouble code displayed?			Yes	Replace Powertrain Control Module (Transmission) or Powertrain Control Module (Engine)																
				No	Intermittent poor connection Check for cause																

95D20704

Fig. 38: Flow Chart - Service Code No. 57

Courtesy of Mazda Motors Corp.

AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

Article Text (p. 31)

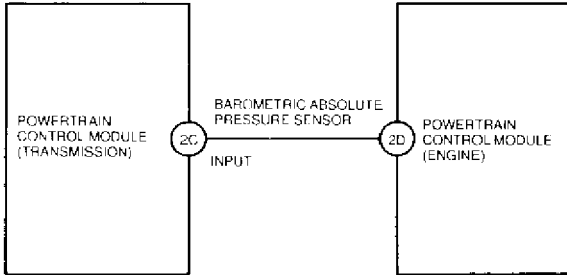
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:17PM

RX7 & 929



95E20705

Fig. 39: Schematic - Diagnostic Code No. 58
Courtesy of Mazda Motors Corp.

DIAGNOSTIC TROUBLE CODE NO.58		BAROMETRIC ABSOLUTE PRESSURE SENSOR											
STEP	INSPECTION	ACTION											
1	Are there any poor connections at powertrain control module (Engine) and powertrain control module (Transmission) connectors?	Yes	Repair or replace connector										
		No	Go to next step										
2	Connect a circuit tester to terminals as shown Is input voltage of barometric absolute pressure sensor at powertrain control module (Transmission) OK?	Yes	Go to step 5										
		No	Go to next step										
<table><tr><th>(+) term.</th><th>(-) term.</th><th>Voltage (V)</th><th>Condition</th></tr><tr><td rowspan="2">2C</td><td rowspan="2">Ground</td><td>2.0-4.5</td><td>Ignition switch ON</td></tr><tr><td>0V</td><td>Ignition switch OFF</td></tr></table>		(+) term.	(-) term.	Voltage (V)	Condition	2C	Ground	2.0-4.5	Ignition switch ON	0V	Ignition switch OFF		
(+) term.	(-) term.	Voltage (V)	Condition										
2C	Ground	2.0-4.5	Ignition switch ON										
		0V	Ignition switch OFF										
3	Disconnect 20-pin powertrain control module (Transmission) connector Is there continuity between terminal 2C of powertrain control module (Transmission) and terminal 2D of powertrain control module (Engine)?	Yes	Go to next step										
		No	Repair wiring										
4	Connect a circuit tester to terminals as shown Is output voltage of barometric absolute pressure sensor at powertrain control module (Engine) OK?	Yes	Go to next step										
		No	Replace powertrain control module (Engine)										
<table><tr><th>(+) term.</th><th>(-) term.</th><th>Voltage (V)</th><th>Condition</th></tr><tr><td rowspan="2">2D</td><td rowspan="2">Ground</td><td>2.0-4.5V</td><td>Ignition switch ON</td></tr><tr><td>0V</td><td>Ignition switch OFF</td></tr></table>		(+) term.	(-) term.	Voltage (V)	Condition	2D	Ground	2.0-4.5V	Ignition switch ON	0V	Ignition switch OFF		
(+) term.	(-) term.	Voltage (V)	Condition										
2D	Ground	2.0-4.5V	Ignition switch ON										
		0V	Ignition switch OFF										
5	Disconnect negative battery cable for at least 20 seconds and the brake pedal is depressed Connect battery cable and recheck for diagnostic trouble code Is diagnostic trouble code displayed?	Yes	Replace powertrain control module (Transmission)										
		No	Intermittent poor connection Check for cause										

95F20706

Fig. 40: Flow Chart - Diagnostic Code No. 58
Courtesy of Mazda Motors Corp.

AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

Article Text (p. 32)

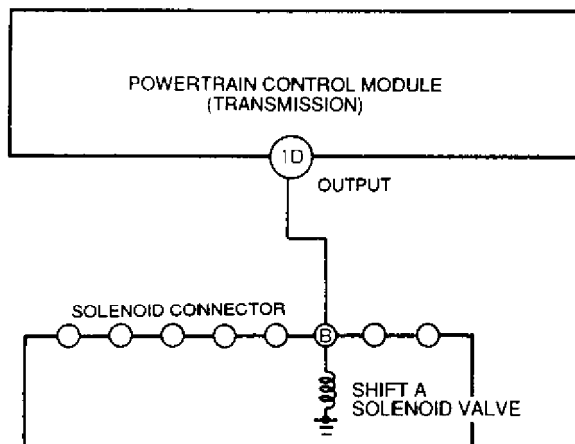
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:17PM

RX7 & 929



95G20707

Fig. 41: Schematic - Service Code No. 60
Courtesy of Mazda Motors Corp.

SERVICE CODE NO. 60 SHIFT A SOLENOID VALVE														
STEP	INSPECTION			ACTION										
1	Are there any poor connections at solenoid valve and Powertrain Control Module (Transmission) connectors?		Yes	Repair or replace connector										
			No	Go to next step										
2	Connect a circuit tester to terminals as shown Is output voltage of shift A solenoid valve at Powertrain Control Module (Transmission) OK? B+: Battery positive voltage		Yes	Check wiring and go to step 5										
			No	Go to next step										
<table><tr><th>(+) term.</th><th>(-) term.</th><th>Voltage (V)</th><th>Condition</th></tr><tr><td rowspan="2">1D</td><td rowspan="2">Ground</td><td>B+</td><td>1st, Fourth gear</td></tr><tr><td>Below 1</td><td>2nd, Third gear</td></tr></table>					(+) term.	(-) term.	Voltage (V)	Condition	1D	Ground	B+	1st, Fourth gear	Below 1	2nd, Third gear
(+) term.	(-) term.	Voltage (V)	Condition											
1D	Ground	B+	1st, Fourth gear											
		Below 1	2nd, Third gear											
3	Disconnect 16-pin Powertrain Control Module (Transmission) connector Is resistance between terminal 1D and a ground Resistance: 20—40 Ω		Yes	Go to step 5										
			No	Go to next step										
4	Disconnect solenoid connector Is resistance between ground and terminal B of shift A solenoid valve OK? Resistance: 20—40 Ω		Yes	Check wiring and connectors from Powertrain Control Module (Transmission) to shift A solenoid valve If OK, go to next step If not OK, repair wiring and/or connector										
			No	Replace shift A solenoid valve										
5	Disconnect negative battery cable for at least 20 seconds Connect battery cable and recheck for diagnostic trouble code Is diagnostic trouble code displayed?		Yes	Replace Powertrain Control Module (Transmission)										
			No	Intermittent poor connection Check for cause										

95H20708

Fig. 42: Flow Chart - Service Code No. 60
Courtesy of Mazda Motors Corp.

AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

Article Text (p. 33)

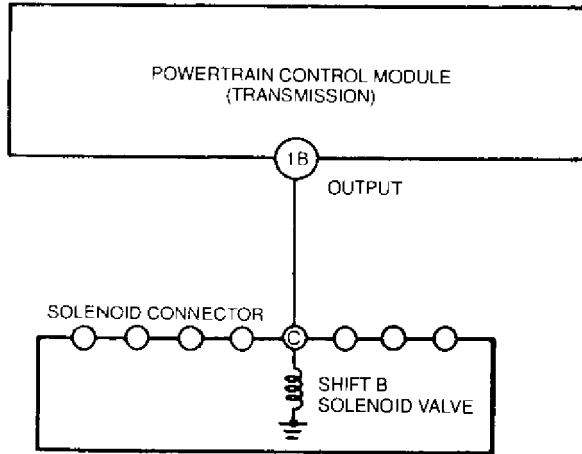
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:17PM

RX7 & 929



95I20709

Fig. 43: Schematic - Diagnostic Code No. 61
Courtesy of Mazda Motors Corp.

DIAGNOSTIC TROUBLE CODE NO.61				SHIFT B SOLENOID VALVE											
STEP	INSPECTION			ACTION											
1	Are there any poor connections at solenoid valve and powertrain control module (Transmission) connectors?			Yes	Repair or replace connector										
				No	Go to next step										
2	Connect a circuit tester to terminals as shown Is output voltage of shift B solenoid valve at powertrain control module (Transmission) OK? B+: Battery positive voltage <table border="1"><thead><tr><th>(+) term.</th><th>(-) term.</th><th>Voltage (V)</th><th>Condition</th></tr></thead><tbody><tr><td rowspan="2">1B</td><td rowspan="2">Ground</td><td>B+</td><td>1st, 2nd gear</td></tr><tr><td>Below 1.0</td><td>3GR, 4GR gear</td></tr></tbody></table>			(+) term.	(-) term.	Voltage (V)	Condition	1B	Ground	B+	1st, 2nd gear	Below 1.0	3GR, 4GR gear	Yes	Check wiring and go to step 5
				(+) term.	(-) term.	Voltage (V)	Condition								
1B	Ground	B+	1st, 2nd gear												
		Below 1.0	3GR, 4GR gear												
			No	Go to next step											
3	Disconnect 16-pin powertrain control module (Transmission) connector Is resistance between terminal 1B and a ground OK? Resistance: 20-40Ω			Yes	Go to step 5										
				No	Go to next step										
4	Disconnect solenoid connector Is resistance between ground and terminal C of shift B solenoid valve OK? Resistance: 20-40Ω			Yes	Check wiring and connectors from powertrain control module (Transmission) to shift B solenoid valve If OK, go to next step If not OK, repair wiring and/or connector										
				No	Replace shift B solenoid valve										
5	Disconnect negative battery cable for at least 20 seconds and the brake pedal is depressed Connect battery cable and recheck for diagnostic trouble code Is diagnostic trouble code displayed?			Yes	Replace powertrain control module (Transmission)										
				No	Intermittent poor connection Check for cause										

95B20710

Fig. 44: Flow Chart - Diagnostic Code No. 61
Courtesy of Mazda Motors Corp.

AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

Article Text (p. 34)

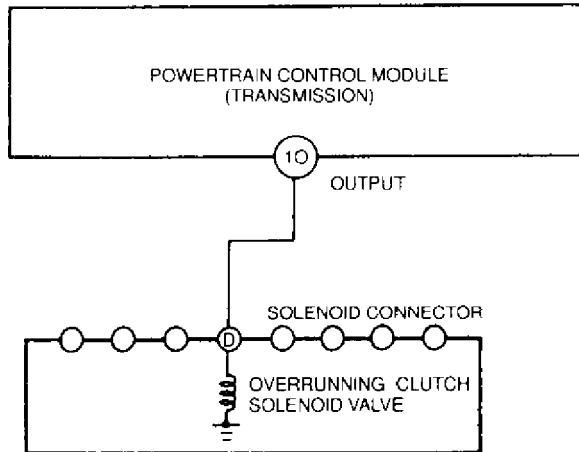
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:17PM

RX7 & 929



95C20711

Fig. 45: Schematic - Diagnostic Code No. 62
Courtesy of Mazda Motors Corp.

DIAGNOSTIC TROUBLE CODE NO.62 OVERRUNNING CLUTCH SOLENOID VALVE														
STEP	INSPECTION		ACTION											
1	Are there any poor connections at solenoid valve and powertrain control module (Transmission) connectors?		Yes	Repair or replace connector										
			No	Go to next step										
2	Connect a circuit tester to terminals as shown Is output voltage of overrunning clutch solenoid valve at powertrain control module (Transmission) OK? B+: Battery positive voltage <table border="1"> <thead> <tr> <th>(+) term.</th> <th>(-) term.</th> <th>Voltage (V)</th> <th>Condition</th> </tr> </thead> <tbody> <tr> <td rowspan="2">10</td> <td rowspan="2">Ground</td> <td>B+</td> <td>D range (throttle valve closed)</td> </tr> <tr> <td>Below 1.0</td> <td>D range (throttle valve wide open throttle)</td> </tr> </tbody> </table>		(+) term.	(-) term.	Voltage (V)	Condition	10	Ground	B+	D range (throttle valve closed)	Below 1.0	D range (throttle valve wide open throttle)	Yes	Check wiring and go to step 5
			(+) term.	(-) term.	Voltage (V)	Condition								
			10	Ground	B+	D range (throttle valve closed)								
Below 1.0	D range (throttle valve wide open throttle)													
No	Go to next step													
3	Disconnect 16-pin powertrain control module (Transmission) connector Is resistance between terminal 10 and a ground OK? Resistance: 20-40Ω		Yes	Go to step 5										
			No	Go to next step										
4	Disconnect solenoid connector Is resistance between ground and terminal D of overrunning clutch solenoid valve OK? Resistance: 20-40Ω		Yes	Check wiring and connectors from powertrain control module (Transmission) to overrunning clutch solenoid valve If OK, go to next step If not OK, repair wiring and/or connector										
			No	Replace overrunning clutch solenoid valve										
5	Disconnect negative battery cable for at least 20 seconds and the brake pedal is depressed Connect battery cable and recheck for diagnostic trouble code Is diagnostic trouble code displayed?		Yes	Replace powertrain control module (Transmission)										
			No	Intermittent poor connection Check for cause										

95D20712

Fig. 46: Flow Chart - Diagnostic Code No. 62
Courtesy of Mazda Motors Corp.

AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

Article Text (p. 35)

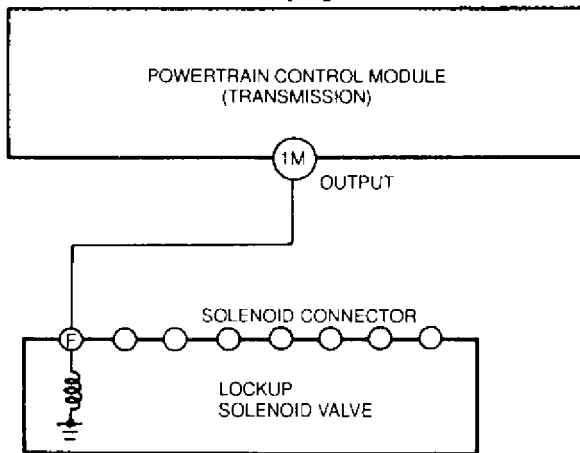
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:17PM

RX7 & 929



95E20713

Fig. 47: Schematic - Diagnostic Code No. 63
Courtesy of Mazda Motors Corp.

DIAGNOSTIC TROUBLE CODE NO.63				LOCKUP SOLENOID VALVE											
STEP	INSPECTION			ACTION											
1	Are there any poor connections at solenoid valve and powertrain control module (Transmission) connectors?			Yes	Repair or replace connector										
				No	Go to next step										
2	Disconnect 16-pin powertrain control module (Transmission) connector Is resistance between terminal 1M and a ground OK? Resistance: 10-20Ω			Yes	Go to step 4										
				No	Go to next step										
3	Disconnect solenoid connector Is resistance between ground and terminal F of lockup solenoid valve OK? Resistance: 10-20Ω			Yes	Check wiring and connectors from powertrain control module (Transmission) to lockup solenoid valve If OK, go to next step If not OK, repair wiring and/or connector										
				No	Replace lockup solenoid valve										
4	Connect a dwell meter to terminals as shown Is output duty of lockup solenoid valve at powertrain control module (Transmission) OK? <table border="1"><thead><tr><th>(+) term.</th><th>(-) term.</th><th>Duty (ON %)</th><th>Condition</th></tr></thead><tbody><tr><td rowspan="2">1M</td><td rowspan="2">Ground</td><td>Approx. 5</td><td>No lockup</td></tr><tr><td>Approx. 100</td><td>Lockup</td></tr></tbody></table>			(+) term.	(-) term.	Duty (ON %)	Condition	1M	Ground	Approx. 5	No lockup	Approx. 100	Lockup	Yes	Go to next step
				(+) term.	(-) term.	Duty (ON %)	Condition								
1M	Ground	Approx. 5	No lockup												
		Approx. 100	Lockup												
No	Replace powertrain control module (Transmission)														
5	Disconnect negative battery cable for at least 20 seconds and the brake pedal is depressed Connect battery cable and recheck for diagnostic trouble code Is diagnostic trouble code displayed?			Yes	Replace powertrain control module (Transmission)										
				No	Intermittent poor connection Check for cause										

95F20714

Fig. 48: Flow Chart - Diagnostic Code No. 63
Courtesy of Mazda Motors Corp.

AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

Article Text (p. 36)

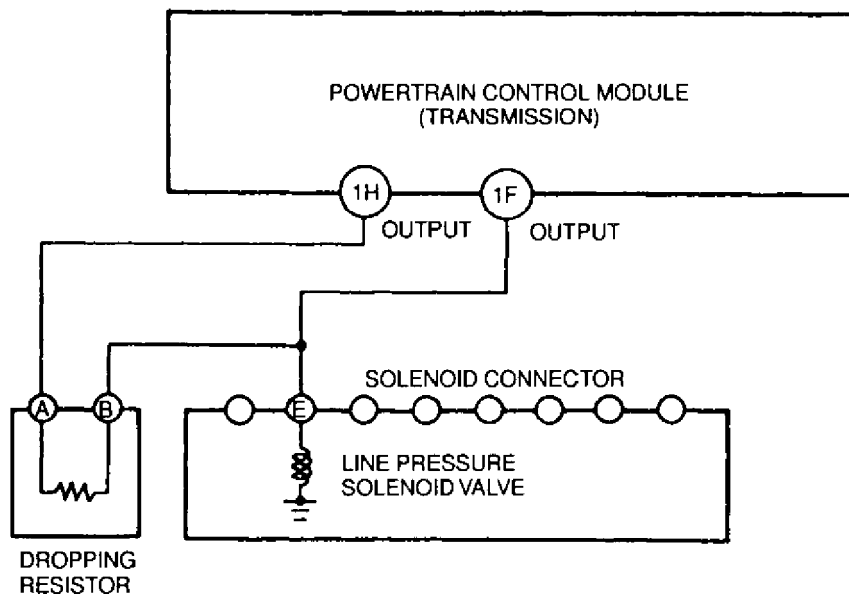
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:17PM

RX7 & 929



95G20715

Fig. 49: Schematic - Diagnostic Code No. 64
Courtesy of Mazda Motors Corp.

DIAGNOSTIC TROUBLE CODE NO.64		LINE PRESSURE SOLENOID VALVE													
STEP	INSPECTION		ACTION												
1	Are there any poor connections at solenoid valve and powertrain control module (Transmission) connectors?	Yes	Repair or replace connector												
		No	Go to next step												
2	Disconnect 16-pin powertrain control module (Transmission) connector Is resistance between terminal 1F (line pressure solenoid valve) and a ground OK? Resistance: 2.5-5.0Ω	Yes	Go to next step												
		No	Go to step 4												
3	Disconnect 16-pin powertrain control module (Transmission) connector Is resistance between terminal 1H (dropping resistor) and a ground OK? Resistance: 12.5-19.0Ω	Yes	Go to step 5												
		No	Go to step 7												
4	Disconnect solenoid connector Is resistance between ground and terminal E of line pressure solenoid valve OK? Resistance: 2.5-5.0Ω	Yes	Check wiring and connectors from powertrain control module (Transmission) to line pressure solenoid valve If OK, go to next step If not OK, repair wiring and/or connector												
		No	Replace line pressure solenoid valve												
5	Connect a dwell meter to terminals as shown Is output duty of dropping resistor at powertrain control module (Transmission) OK?	Yes	Go to next step												
		No	Replace powertrain control module (Transmission), perform road test, and go to step 8												
	<table border="1"> <thead> <tr> <th>(+) term.</th><th>(-) term.</th><th>Duty (ON %)</th><th>Condition</th></tr> </thead> <tbody> <tr> <td>1H</td><td>Ground</td><td>Approx. 100</td><td>Throttle valve closed throttle</td></tr> <tr> <td></td><td></td><td>Approx. 5</td><td>Throttle valve wide open throttle</td></tr> </tbody> </table>	(+) term.	(-) term.	Duty (ON %)	Condition	1H	Ground	Approx. 100	Throttle valve closed throttle			Approx. 5	Throttle valve wide open throttle		
(+) term.	(-) term.	Duty (ON %)	Condition												
1H	Ground	Approx. 100	Throttle valve closed throttle												
		Approx. 5	Throttle valve wide open throttle												
6	Connect a dwell meter to terminals as shown Is output duty of line pressure solenoid valve at powertrain control module (Transmission) OK?	Yes	Go to next step												
		No	Replace powertrain control module (Transmission), perform road test, and go to step 8												
	<table border="1"> <thead> <tr> <th>(+) term.</th><th>(-) term.</th><th>Duty (ON %)</th><th>Condition</th></tr> </thead> <tbody> <tr> <td>1F</td><td>Ground</td><td>Approx. 100</td><td>Throttle valve closed throttle position</td></tr> <tr> <td></td><td></td><td>Approx. 5</td><td>Throttle valve wide open throttle</td></tr> </tbody> </table>	(+) term.	(-) term.	Duty (ON %)	Condition	1F	Ground	Approx. 100	Throttle valve closed throttle position			Approx. 5	Throttle valve wide open throttle		
(+) term.	(-) term.	Duty (ON %)	Condition												
1F	Ground	Approx. 100	Throttle valve closed throttle position												
		Approx. 5	Throttle valve wide open throttle												
7	Disconnect dropping resistor connector Is resistance of resistor OK? Resistance: 10-14Ω	Yes	Check wiring and connectors from powertrain control module (Transmission) to dropping resistor If OK, go to next step If not OK, repair wiring and/or connector												
		No	Repair or dropping resistor												
8	Disconnect negative battery cable for at least 20 seconds and the brake pedal is depressed Connect battery cable and recheck for diagnostic trouble code Is diagnostic trouble code displayed?	Yes	Replace powertrain control module (Transmission)												
		No	Intermittent poor connection Check for cause												

95H20718

Fig. 50: Flow Chart - Diagnostic Code No. 64
Courtesy of Mazda Motors Corp.

AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

Article Text (p. 37)

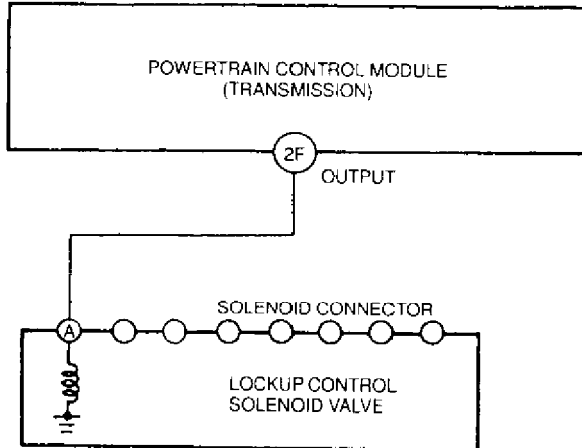
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:17PM

RX7 & 929



95J20717

Fig. 51: Schematic - Diagnostic Code No. 65
Courtesy of Mazda Motors Corp.

DIAGNOSTIC TROUBLE CODE NO.65				LOCKUP CONTROL SOLENOID VALVE											
STEP	INSPECTION			ACTION											
1	Are there any poor connections at solenoid valve and powertrain control module (Transmission) connectors?			Yes	Repair or replace connector										
				No	Go to next step										
2	Connect a circuit fester to terminals as shown Is output voltage of lockup control solenoid valve at powertrain control module (Transmission) OK? B+: Battery positive voltage <table><tr><th>(+) term.</th><th>(-) term.</th><th>Voltage (V)</th><th>Condition</th></tr><tr><td rowspan="2">2F</td><td rowspan="2">Ground</td><td>B+</td><td>Lockup</td></tr><tr><td>Below 1.0</td><td>No lockup</td></tr></table>			(+) term.	(-) term.	Voltage (V)	Condition	2F	Ground	B+	Lockup	Below 1.0	No lockup	Yes	Check wiring and go to step 5
				(+) term.	(-) term.	Voltage (V)	Condition								
				2F	Ground	B+	Lockup								
						Below 1.0	No lockup								
No	Go to next step														
3	Disconnect 20-pin powertrain control module (Transmission) connector Is resistance between terminal 2F and a ground OK? Resistance: 20-40Ω			Yes	Go to step 5										
				No	Go to next step										
4	Disconnect solenoid connector Is resistance between ground and terminal A of lockup control solenoid valve OK? Resistance: 20-40Ω			Yes	Check wiring and connectors from powertrain control module (Transmission) to lockup control solenoid valve If OK, go to next step If not OK, repair wiring and/or connector										
				No	Replace lockup control solenoid valve										
5	Disconnect negative battery cable for at least 20 seconds and the brake pedal is depressed Connect battery cable and recheck for diagnostic trouble code Is diagnostic trouble code displayed?			Yes	Replace powertrain control module (Transmission)										
				No	Intermittent poor connection Check for cause										

95J20718

Fig. 52: Flow Chart - Diagnostic Code No. 65
Courtesy of Mazda Motors Corp.

TESTING

AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

Article Text (p. 38)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:17PM

CAUTION: Stall and line pressure tests generate high engine and transmission temperatures. DO NOT hold throttle open more than 5 seconds. Allow engine to idle in "P" or "N" for at least one minute between tests.

Preparation

Check all fluid levels and correct if necessary. Warm engine and transmission to operating temperature. Prior to performing stall, lag time and line pressure tests, block front and rear wheels and set parking brake.

STALL SPEED TEST

Connect tachometer to engine. Ensure engine idle speed and ignition timing is correct. Refer to the appropriate article in the ENGINE PERFORMANCE section. Apply foot brake firmly and shift selector to "D" range. Press accelerator pedal to floor and note maximum RPM. Select "S", "R" and "L" ranges and repeat. Compare with STALL SPEED table.

STALL SPEED

Application		Stall RPM
RX7	.....	3000-3300
929	.....	1950-2250

STALL SPEED RESULTS

High In All Ranges

Insufficient line pressure, worn oil pump. Oil leakage from oil pump, control valve and/or transmission case. Stuck pressure regulator.

High In "D" & "S"

Forward clutch slipping. Forward one-way clutch slipping. Low one-way clutch slipping.

High In "R" Range

Low and reverse brake slipping. Reverse clutch slipping. Perform road test to see if low and/or reverse brake or reverse clutch is at fault. Results indicate the following:

- * Engine braking in "L" range, reverse clutch faulty.
- * No engine braking in "L" range, low and/or reverse brake faulty.

Low In All Ranges

Low engine output. One-way clutch in torque converter slipping.

AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

Article Text (p. 39)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:17PM

TIME LAG TEST

With engine at idle, shift selector from "N" to "D", "N" to "D" HOLD and "N" to "R". Time lag for transmission to engage should be less than one second for "N" to "D" and less than 1.2 seconds for "N" to "R".

TIME LAG RESULTS

Longer Than Specified In "N" To "D" & "N" To "D" HOLD

Low line pressure. Forward clutch slipping. Forward one-way clutch slipping.

High In "N" To "D"

Low line pressure. Low one-way clutch slipping. N-D accumulator not operating properly.

High In "N" To "D" HOLD

Low line pressure. Brake band slipping. 1-2 accumulator not operating properly.

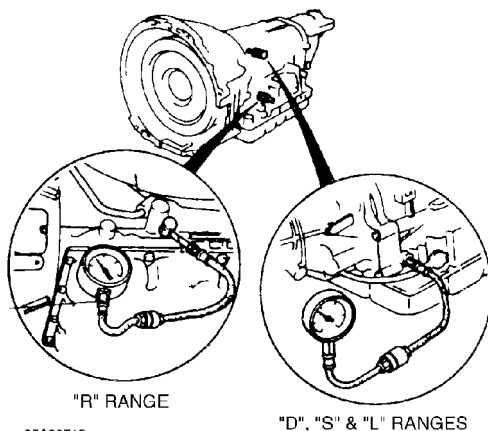
High In "N" To "R"

Low line pressure. Reverse clutch slipping. Low and reverse brake slipping 3-4/N-R. Accumulator not operating properly.

LINE PRESSURE TEST

1) Connect gauges to appropriate line pressure inspection ports. See Fig. 53. Connect tachometer to engine. Ensure engine idle speed and ignition timing is correct. See ENGINE PERFORMANCE section. Apply foot brake firmly and shift selector to "D" range.

2) Press accelerator pedal to floor and note pressure gauge. Release throttle to read pressure at idle. Select "S", "R" and "L" ranges and repeat. Compare with LINE PRESSURE SPECIFICATIONS table.



95A20719

Fig. 53: Connecting Pressure Gauges (RX7 & 929)

Courtesy of Mazda Motors Corp.

AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

Article Text (p. 40)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:17PM

LINE PRESSURE SPECIFICATIONS

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	Range	Idle		Stall	
		psi (kPa)		psi (kPa)	
929	D, S, L	63-68	(432-470)	151-162	(1040-1118)
	R	87-92	(600-638)	210-222	(1452-1530)
RX7	D, S, L	72-76	(496-524)	174-184	(1200-1269)
	R	90-95	(621-655)	218-228	(1503-1572)

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

LINE PRESSURE RESULTS

Low Pressure At Idle (All Ranges)

Worn oil pump. Damaged control piston in oil pump. Pressure regulator valve or plug sticking. Damaged pressure regulator valve spring. Fluid leakage between oil strainer and pressure regulator valve.

Low At Idle In "D", "S" Or "L"

Fluid leakage from hydraulic circuit of forward clutch.

Low At Idle In "D" & "S" HOLD Mode

Fluid leakage from hydraulic circuit of band servo 2nd apply side.

Low At Idle In "R"

Fluid leakage from hydraulic circuit of reverse clutch.

Low At Idle In "R" & "L"

Fluid leakage from hydraulic circuit of low and reverse brake.

High At Idle

Throttle sensor out of adjustment. Damaged thermosensor. Line pressure solenoid sticking. Short circuit of line pressure solenoid circuit. Pressure modifier valve sticking. Pressure regulator valve or plug sticking.

Low At Stall Speed

Throttle sensor out of adjustment. Damaged control piston in oil pump. Line pressure solenoid sticking. Short circuit of line pressure solenoid circuit. Pressure regulator valve or plug sticking. Pressure modifier valve sticking. Pilot valve sticking.

ELECTRICAL COMPONENTS TESTS

AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

Article Text (p. 41)

1993 Mazda RX7

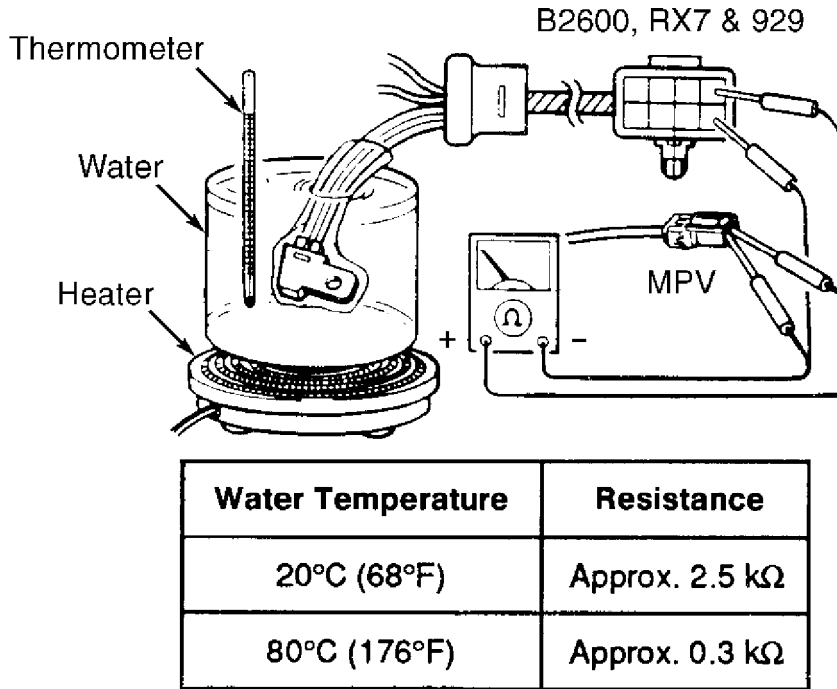
For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:17PM

ATF Thermosensor

Disconnect negative battery cable. Remove oil pan. Remove thermosensor from transmission. Connect ohmmeter to thermosensor terminals. Place thermosensor and thermometer in a container of water. Heat water gradually, checking temperature. See Fig. 54. If resistance is incorrect, replace thermosensor.



95G20905

Fig. 54: Testing ATF Thermosensor
Courtesy of Mazda Motors Corp.

ATF Thermoswitch (4WD)

Disconnect negative battery cable. Remove oil pan and thermoswitch. Place thermoswitch with a thermometer in a container of ATF and gradually heat ATF. Using an ohmmeter, note when thermoswitch closes and opens. Below 293°F (145°C) switch is open, above 302°F (150°C) switch is closed. If thermoswitch does not operate as described, replace thermoswitch.

Dropping Resistor

Disconnect wire connectors at dropping resistor. Resistance across wire connectors should be 10-14 ohms. If not 10-14 ohms, replace dropping resistor.

Hold Switch

1) Turn ignition on. On RX7, connect voltmeter between terminal "D" or terminal "F" and ground. On 929, connect voltmeter between terminal "A" or terminal "B" and ground. See Fig. 55. If voltage is not as specified, check and repair circuit between power source and switch. If voltage is okay, go to next step.

2) Turn ignition off and disconnect hold switch connector.

AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

Article Text (p. 42)

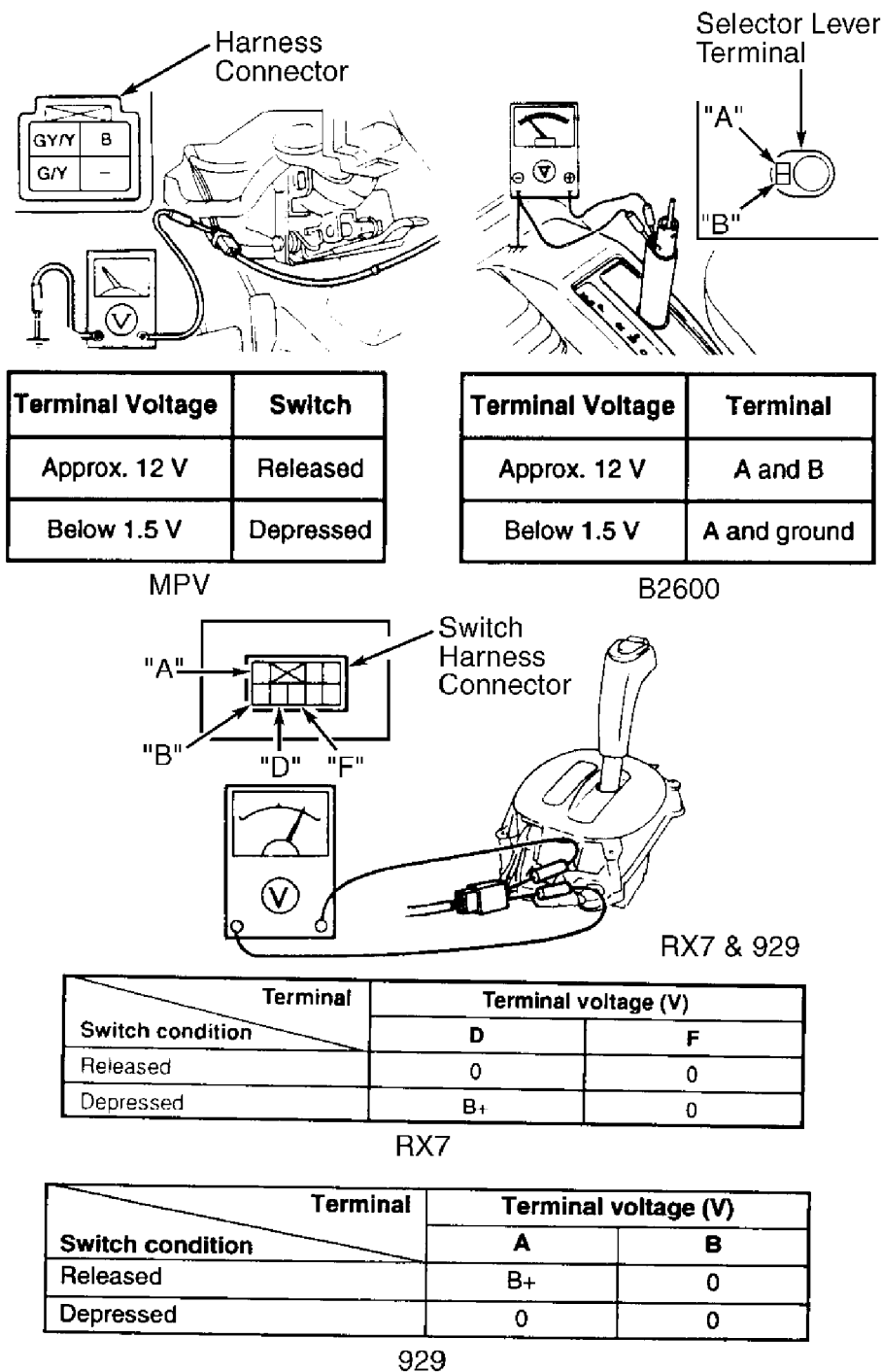
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:17PM

See Fig. 56. On RX7, connect ohmmeter between hold switch terminals "D" and "F". On 929, connect ohmmeter between hold switch terminals "A" and "B". If continuity is not correct, replace selector switch or selector lever knob.



95I20808

Fig. 55: Checking Hold Switch Voltage
Courtesy of Mazda Motors Corp.

AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

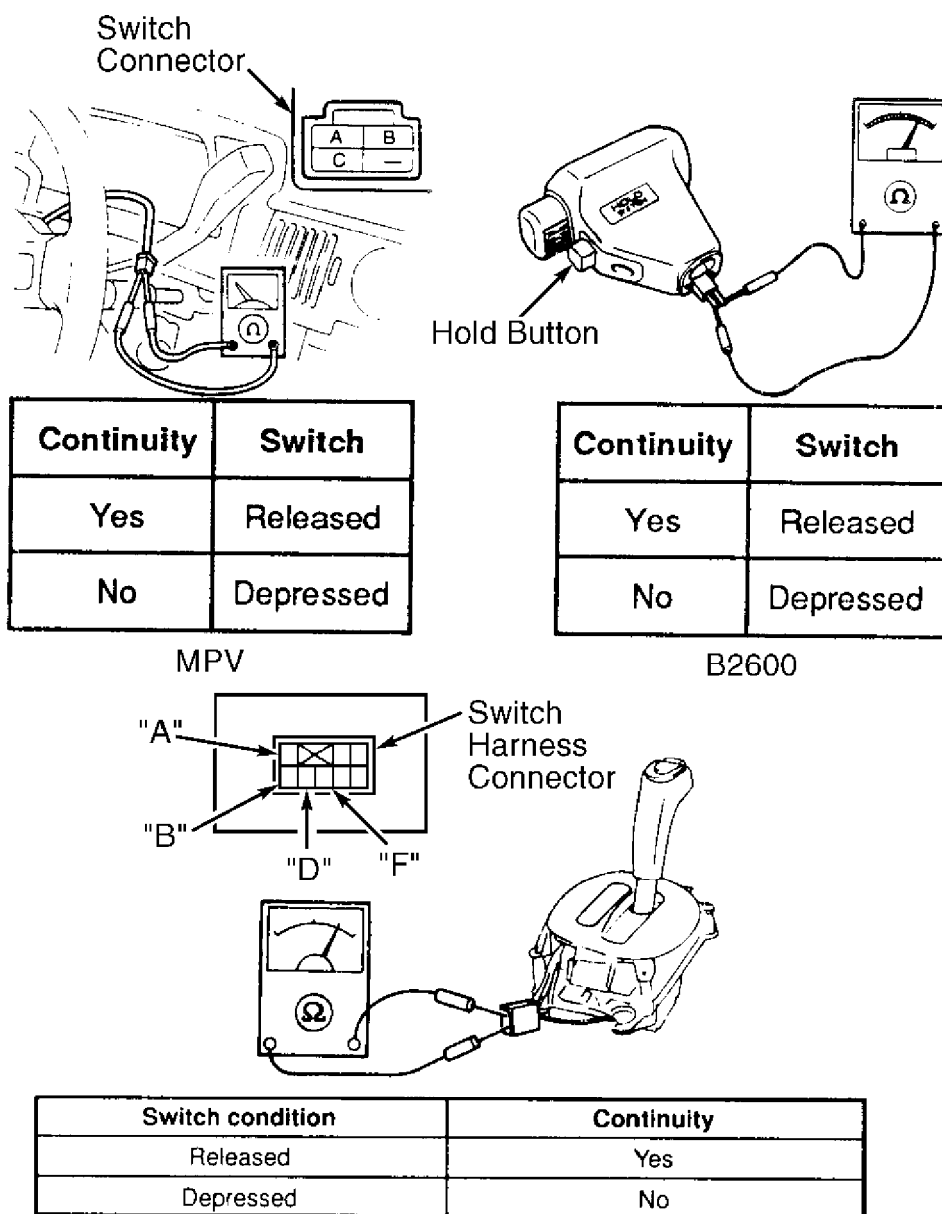
Article Text (p. 43)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:17PM



95J20809

RX7 & 929

Fig. 56: Checking Continuity Of Hold Switch
Courtesy of Mazda Motors Corp.

Inhibitor/Park Neutral Switch

1) Shift selector lever to "P" or "N". Ensure vehicle starts in these positions and not in any other. Ensure back-up lights come on when in "R" and ignition is on.

2) Disconnect wire connectors at inhibitor/park neutral switch on transmission, connect ohmmeter and shift selector to ranges. See Fig. 57. Check continuity between terminals. If continuity is not as specified, adjust or replace switch.

AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

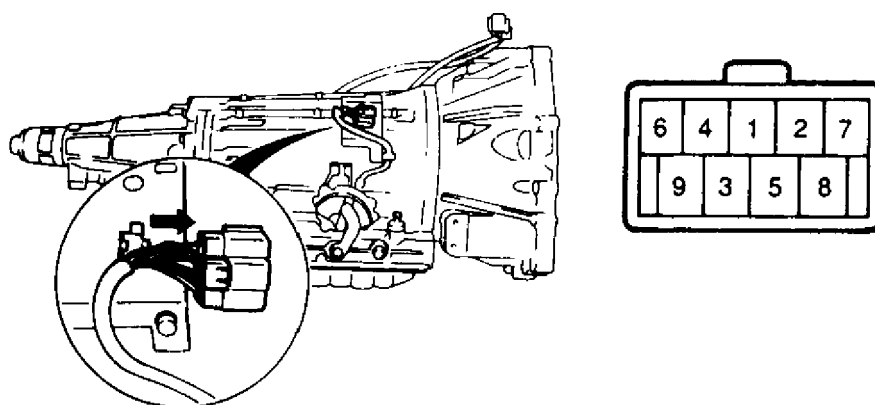
Article Text (p. 44)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:17PM



Position	1	2	3	4	5	6	7	8	9
P	○						○	○	○
R		○					○		
N			○				○	○	○
D				○			○		
S					○		○		
L						○	○		

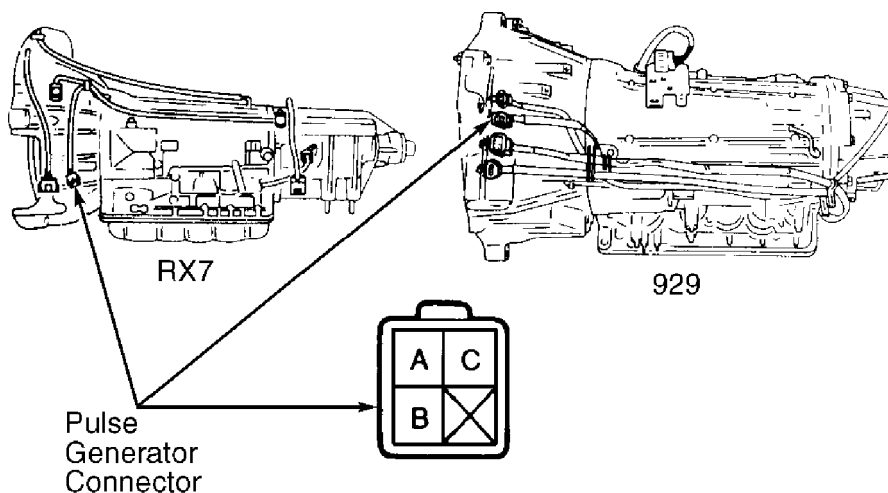
○—○ : Indicates continuity

95D20811

Fig. 57: Checking Inhibitor/Park Neutral Switch
Courtesy of Mazda Motors Corp.

Pulse Generator (RX7 & 929 Only)

Disconnect 3-wire connector at front of transmission. See Fig. 58. Make sure 2200-3500 ohms are present between terminals "A" and "B". Ensure ohmmeter reads infinity between all other terminal pairs. If not, replace pulse generator.



95E20812

Fig. 58: Checking Pulse Generator
Courtesy of Mazda Motors Corp.

AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

Article Text (p. 45)

1993 Mazda RX7

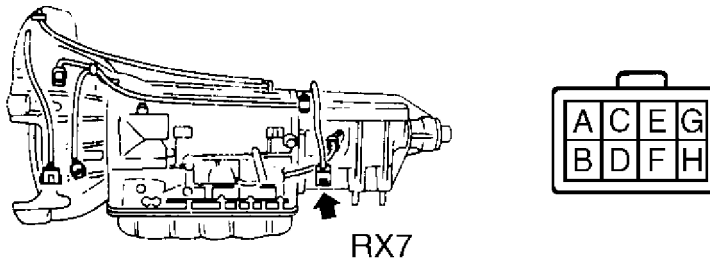
For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:17PM

Solenoid Valves

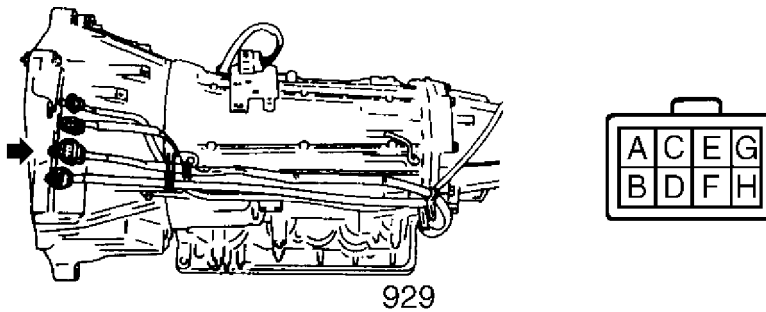
Disconnect solenoid valve connector and measure resistance from respective terminal to ground. See Figs. 59-61. Also, refer to the SOLENOID VALVE RESISTANCE SPECIFICATIONS table. If not as specified, replace solenoid or assembly.



Terminal	Solenoid valve	Resistance (Ω)
A	Lockup control	20-40
B	Shift A	20-40
C	Shift B	20-40
D	Overrunning clutch	20-40
E	Line pressure	2.5-5.0
F	Lockup	10-20

95H20815

Fig. 59: View of Solenoid Valve Connector
Courtesy of Mazda Motors Corp.



Terminal	Solenoid valve	Resistance (Ω)
A	Lockup control	20-40
B	Shift A	20-40
C	Shift B	20-40
D	Overrunning clutch	20-40
E	Line pressure	2.5-5.0
F	Lockup	10-20

95J20816

Fig. 60: Checking Solenoid Valves (RX7)
Courtesy of Mazda Motors Corp.

AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

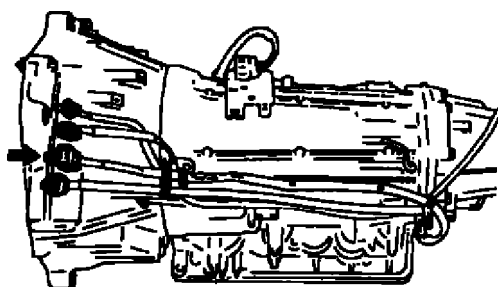
Article Text (p. 46)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:17PM



95J20817

929

Fig. 61: Checking Solenoid Valves(929)

Courtesy of Mazda Motors Corp.

SOLENOID VALVE RESISTANCE SPECIFICATIONS

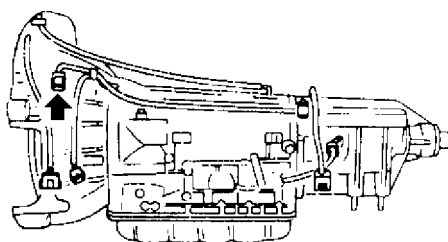
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Terminal	Solenoid Valve	Resistance In Ohms
A	Lock-Up Control	20-40
B	Shift "A"	20-40
C	Shift "B"	20-40
D	Overrunning Clutch	20-40
E	Line Pressure	2.5-5.0
F	Lock-Up	10-20

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Speed Sensor No. 1 (Revolution Sensor)

Disconnect speed sensor wiring connector at transmission. On 929, remove front exhaust pipe. See Figs. 62 and 63. On all models, connect ohmmeter to terminals as indicated. If resistance is not as specified, replace speed sensor.



RX7

Terminal	Resistance (Ω)
A and B	500-1,000
B and C	∞
A and C	∞

95F20821

Fig. 62: Checking Revolution Sensor (RX7)

Courtesy of Mazda Motors Corp.

AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

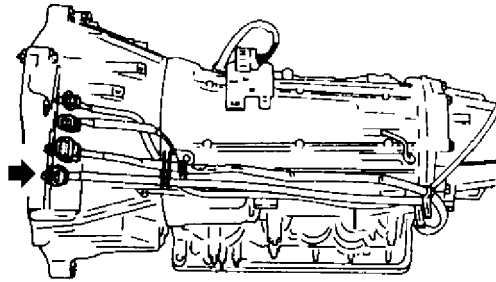
Article Text (p. 47)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:17PM



929

Terminal	Resistance (Ω)
A and B	500-1,000
B and C	∞
A and C	∞

95G20822

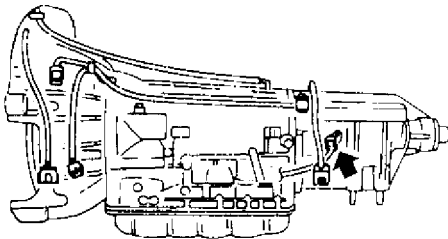
Fig. 63: Checking Revolution Sensor (929)
Courtesy of Mazda Motors Corp.

Vehicle Speedometer Sensor (RX7 & 929)

1) On RX7, disconnect speedometer connector at instrument panel. Connect an A/C voltmeter to Yellow/White and Yellow/Red wires of instrument panel connector. On 929, disconnect White connector at instrument panel. Connect an A/C voltmeter to Green/Red and Blue/Yellow wires of instrument panel connector.

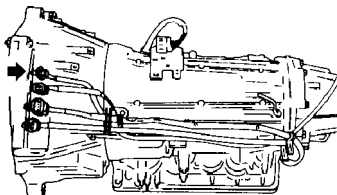
2) On all models, check for a voltage increase as rear wheel is turned. If no voltage increase occurs, go to next step. If voltage increases, vehicle speedometer sensor is okay.

3) Disconnect vehicle speedometer sensor wiring connector at transmission. See Figs. 64 and 65. Connect ohmmeter to terminals. If resistance is not about 290 ohms, replace vehicle speedometer sensor.



95H20880

Fig. 64: Locating Speedometer Sensor Connector (RX7)
Courtesy of Mazda Motors Corp.



95I20881

Fig. 65: Locating Speedometer Sensor Connector (929)
Courtesy of Mazda Motors Corp.

AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

Article Text (p. 48)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:17PM

PCMT

Turn ignition on. Check voltage at each control unit terminal. See appropriate PCMT terminal voltage chart. See Figs. 66-72. If voltage is not as specified at any terminal, repair or replace component(s) or wiring. If no problem is found with any component or wiring, replace PCMT.

NOTE: For additional electrical circuit information, see WIRING DIAGRAMS at end of this article.

2S	2Q	2O	2M	2K	2I	2G	2E	2C	2A	1O	1M	1K	1I	1G	1E	1C	1A
2T	2R	2P	2N	2L	2J	2H	2F	2D	2B	1P	1N	1L	1J	1H	1F	1D	1B

95A20891

Fig. 66: RX7 PCMT Terminal Voltage Chart (1 of 4)

Courtesy of Mazda Motors Corp.

AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

Article Text (p. 49)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:17PM

Terminal	Color	Component	Connected to	Voltmeter		Correct voltage	Condition	Check area
				(+) terminal	(-) terminal			
1A	L/R	Battery (backup)	Battery	1A	Ground	B+	Constant	• Wiring and/or connector from terminal 1A to battery
1B (Output)	W/G	Shift B solenoid valve	Solenoid valve	1B		B+	P, R, and N ranges or 1st and 2nd gear positions	• Shift B solenoid valve
						Below 1.0V	Third and Fourth gear positions	• Wiring and/or connector from 1B terminal to shift B solenoid valve
1C (Output)	Y	Inhibitor signal	Engine control unit	1C		Below 1.0V	P and N ranges	• Park/Neutral switch, vehicle speed pulse generator, and/or powertrain control module (engine)
						B+	Except P and N ranges	• Wiring and/or connector from terminal 1C to powertrain control module (engine)
1D (Output)	W/R	Shift A solenoid valve	Solenoid valve	1D		B+	P, R, and N ranges or 1st and Fourth gear positions	• Shift A solenoid valve
						Below 1.0V	2nd and Third gear positions	• Wiring and/or connector from terminal 1D to shift A solenoid valve
1E (Input)	R	Park/Neutral switch (R range)	Park/Neutral switch	1E		B+	R range	• Park/Neutral switch
						0V	Except R range	• Wiring and/or connector from terminal 1E to park/neutral switch
1F (Output)	W/L	Line pressure solenoid valve	Solenoid valve	1F		Above 1.5V	Throttle valve closed throttle position	• Line pressure solenoid valve
						Below 1.0V	Throttle valve wide opened throttle	• Wiring and/or connector from terminal 1F to line pressure solenoid valve
1G (Input)	Y/L	Engine rpm signal	Engine control unit	1G		0.3-0.8V	Engine running at idle	• Wiring and/or connector from terminal 1G to powertrain control module (engine)
						0V	Engine stopped	• Powertrain control module (engine)
						1.8-2.2V	Engine running at 3,000 rpm (no load)	• Powertrain control module (engine)
1H (Output)	B/LG	Dropping resistor	Dropping resistor	1H	Ground	B+	Throttle valve closed throttle position	• Dropping resistor and/or solenoid valve (line pressure)
						Below 1.0V	Throttle valve wide opened throttle	• Wiring and/or connector between terminal 1H, dropping resistor, and solenoid valve
1I (Input)	G/R	Vehicle speedometer sensor	Speedometer	1I		2-3V	Vehicle moving	• Vehicle speedometer sensor and/or speedometer
						0V or 4.5-5.5V	Vehicle stopped	• Wiring and/or connector between terminal 1I speedometer, and vehicle speedometer sensor
1J (Ground)	B/L	Ground (Powertrain control module (Transmission))	—	1J		0V	Constant	• Wiring condition
1K (Output)	Y	Hold indicator / FAT terminal (data link connector)	Combination meter (hold indicator light) and FAT terminal (data link connector)	1K		Below 1.0V	Hold mode	• Wiring and/or connector from terminal 1K to hold indicator light (combination meter)
						B+	Except hold mode	• Hold indicator light
1L (Input)	V/P	A/C signal	A/C relay	1L		Below 3.0V	A/C ON	• Powertrain control module (engine) and/or Air conditioning sensor
						B+	A/C OFF	• Wiring and/or connector from terminal 1L to Air conditioning sensor
1M (Output)	W	Lockup solenoid valve	Solenoid valve	1M		B+	Lockup	• Lockup solenoid valve
						Below 1.0V	No lockup	• Wiring and/or connector from terminal 1M to lockup solenoid valve
1N	B/Y	Battery (main)	Ignition switch	1N		B+	Ignition switch ON	• Meter fuse and/or ignition switch
						0V	Ignition switch OFF	• Wiring and/or connector from terminal 1N to ignition switch (IG1)
1O (Output)	W/Y	Overrunning clutch solenoid valve	Solenoid valve	1O		Below 1.0V	Throttle valve wide opened throttle (D range)	• Overrunning clutch solenoid valve
						B+	Throttle valve closed (D range)	• Wiring and/or connector from terminal 1O to overrunning clutch solenoid valve
1P	B/Y	Battery (main)	Ignition switch	1P	Ground	B+	Ignition switch ON	• Meter fuse and/or ignition switch
						0V	Ignition switch OFF	• Wiring and/or connector from terminal 1P to ignition switch (IG1)
2A (Input)	BR/W	Throttle position sensor (VREF)	Throttle position sensor	2A		4.5-5.5V	Ignition switch ON	• Wiring and/or connector from terminal 2A to powertrain control module (engine)
						0V	Ignition switch OFF	• Throttle position sensor

Terminal 1D voltage [shift A solenoid valve] is below 1.0V when in HOLD mode in P, R, and N ranges.

95B20892

Fig. 67: RX7 PCMT Terminal Voltage Chart (2 of 4)
Courtesy of Mazda Motors Corp.

AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

Article Text (p. 50)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:17PM

Terminal	Color	Component	Connected to	Voltmeter		Correct voltage	Condition	Check area
				(+) terminal	(-) terminal			
2B (Input)	Y/G	Park/Neutral switch (D range)	Park/Neutral switch	2B	Ground	B+	D range	<ul style="list-style-type: none"> • Park/Neutral switch • Wiring and/or connector from terminal 2B to park/neutral switch
						0V	Except D range	
2C (Input)	G/Y	Barometric absolute pressure sensor	Powertrain control module (engine)	2C	Ground	2.0–4.5V	Ignition switch ON	<ul style="list-style-type: none"> • Wiring and/or connector from terminal 2C to powertrain control module (engine) terminal 2D
						0V	Ignition switch OFF	
2D (Input)	L/Y	Park/Neutral switch (P and N ranges)	Park/Neutral switch	2D	Ground	0V	P and N ranges	<ul style="list-style-type: none"> • Park/Neutral switch and/or ignition switch • Wiring and/or connector between terminal 2D park/neutral switch, and ignition switch (STA)
						B+	Except P and N ranges	
2E (Input)	O	Vehicle speed pulse generator	Vehicle speed vehicle speed pulse generator	2E ^{*1}	2L	Approx. above 0.5V AC	Vehicle speed above 25 km/h {16 MPH}	<ul style="list-style-type: none"> • Vehicle speed pulse generator • Wiring and/or connector from terminal 2E to vehicle speed pulse generator
						Approx. 0V (AC)	Vehicle stopped (Ignition switch ON)	
2P (Output)	G/W	Lockup control solenoid valve	Solenoid valve	2P	Ground	B+	lockup	<ul style="list-style-type: none"> • Lockup control solenoid valve • Wiring and/or connector from terminal 2P to lockup control solenoid valve
						Below 1.0V	No lockup	
2G (Input)	G/R	Slip lockup OFF signal	Powertrain control module (engine)	2G	Ground	Below 1.0V	Engine running at 3,000 rpm	<ul style="list-style-type: none"> • Wiring and/or connector from terminal 2G to powertrain control module (engine) terminal 2C • Powertrain control module (engine)
						B+	Engine running at idle	
2H (Input)	L/G	Torque reduced signal	Powertrain control module (engine)	2H ^{*2}	Ground	B+	Engine running at idle	<ul style="list-style-type: none"> • Wiring and/or connector from terminal 2H to powertrain control module (engine) terminal 2G • Throttle position sensor, vehicle speed sensor vehicle speed pulse generator, and/or powertrain control module (engine)
						Below 1.0V	Throttle opening above 1/8 (Engine coolant temp below 40°C {104°F})	
2I (Input)	W/Y	Hold switch	Hold switch	2I	Ground	B+	Switch depressed	<ul style="list-style-type: none"> • Hold switch • Wiring and/or connector from terminal 2I to hold switch
						0V	Switch released	

*1 Check terminal 2E (vehicle speed pulse generator) voltage by using the AC range.

*2 2H (Torque reduced signal) - Some kinds of testers may give incorrect values. This is because the voltage output period is very short.

95C20893

Fig. 68: RX7 PCMT Terminal Voltage Chart (3 of 4)

Courtesy of Mazda Motors Corp.

AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

Article Text (p. 51)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:17PM

Terminal	Color	Component	Connected to	Voltmeter		Correct voltage	Condition	Check area
				(+) terminal	(-) terminal			
2J (Input)	Y/G	Vehicle speed sensor (revolution sensor)	Vehicle speed sensor (revolution sensor)	2J*	2L	Approx. above 1.0V (AC) Approx. 0V (AC)	Vehicle speed above 25 km/h (16 MPH) Vehicle stopped	<ul style="list-style-type: none"> Vehicle speed sensor (revolution sensor) Wiring and/or connector from terminal 2J to vehicle speed sensor
2K	L/W	TAT terminal(data link connector) / 4GR inhibit signal (auto speed control signal)	TAT terminal (data link connector) and cruise control unit	2K	Ground	4.5-5.5	Ignition switch ON	<ul style="list-style-type: none"> Terminal 1N and 1P voltage Wiring and/or connector from terminal 2K to data link connector TAT terminal Wiring and/or connector from terminal 2K to cruise control unit terminal G
						0V	TAT terminal grounded	
2L (Ground)	W	Ground (input signal)	—	2L		0V	Constant	<ul style="list-style-type: none"> Wiring condition
2M (Input)	R/W	Idle signal	Powertrain control module (engine)	2M	Ground	4.5-5.5V	Throttle valve opened	<ul style="list-style-type: none"> Throttle position sensor and/or powertrain control module (engine) Wiring and/or connector from terminal 2M to powertrain control module (engine) terminal 2E
						Below 1.0V	Throttle valve closed throttle position	
2N (Input)	B	Water thermo-switch / mileage switch	Water thermo-switch and mileage switch	2N		0V	Engine coolant temp. above 115°C (239°F) or vehicle total mileage above 625 km (388 miles) and vehicle stopped	<ul style="list-style-type: none"> Water thermo-switch and/or mileage switch Wiring and/or connector from terminal 2N to water thermo-switch
						B+	Engine coolant temp. below 110°C (230°F) or vehicle total mileage below 625 km (388 miles) and vehicle stopped	
2O (Input)	LG/R	Stoplight switch	Stoplight switch	2O	Ground	B+	Brake pedal depressed	<ul style="list-style-type: none"> Stoplight switch Wiring and/or connector from terminal 2O to stoplight switch
						0V	Brake pedal released	
2P (Output)	G/W	Reduce torque signal / slip lockup signal	Powertrain control module (engine)	2P*	Ground	Below 1.0V	When shifting from 1st to 2nd or from 2nd to Third with the throttle opening above 1.5/8. When slip lockup with the throttle opening below 0.5/8.	<ul style="list-style-type: none"> Wiring and/or connector from terminal 2P to powertrain control module (engine) terminal 1Q Throttle position sensor, vehicle speed pulse generator, lock-up, lockup control solenoid valve, and/or powertrain control module (engine)
						B+	Engine running at idle	
2Q (Input)	BR/W	Park/Neutral switch (L range)	Park/Neutral switch	2Q		B+	L range	<ul style="list-style-type: none"> Park/Neutral switch Wiring and/or connector from terminal 2Q to park/neutral switch
						0V	Except L range	
2R (Input)	R	ATF thermo-sensor	ATF thermosensor	2R	2L	Approx. 2.4-0.4V	While warming up ATF Note <ul style="list-style-type: none"> Approx. 1.8V: ATF temperature 10°C (50°F) Approx. 1.1V: ATF temperature 40°C (104°F) 	<ul style="list-style-type: none"> ATF thermosensor Wiring and/or connector from terminal 2R to ATF thermosensor
2S (Input)	L/R	Park/Neutral switch (S range)	Park/Neutral switch	2S	Ground	B+	S range	<ul style="list-style-type: none"> Park/Neutral switch Wiring and/or connector from terminal 2S to park/neutral switch
						0V	Except S range	
2T (Input)	B/G	Throttle position sensor (TVO)	Throttle position sensor	2T	Ground	0.1-1.1V	Throttle valve closed throttle position	<ul style="list-style-type: none"> Throttle position sensor Wiring and/or connector from terminal 2T to throttle position sensor
						4.0-4.5V	Throttle valve wide opened throttle	

* - Check terminal 2J using A/C range.

* - Erratic voltage readings may be found at terminal 2P. Ensure appropriate tester that can read very short voltage outputs is used.

95D20894

Fig. 69: RX7 PCMT Terminal Voltage Chart (4 of 4)

Courtesy of Mazda Motors Corp.

AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

Article Text (p. 52)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:17PM

2S	2Q	2O	2M	2K	2I	2G	2E	2C	2A	1O	1M	1K	1I	1G	1E	1C	1A
2T	2R	2P	2N	2L	2J	2H	2F	2D	2B	1P	1N	1L	1J	1H	1F	1D	1B

95A20891

Fig. 70: 929 PCMT Terminal Voltage Chart (1 of 3)
Courtesy of Mazda Motors Corp.

Terminal	Color	Component	Connection to	Voltmeter (+) terminal (-) terminal	Correct voltage	Condition	Possible cause
1A	L/R	Battery (back up)	Battery	1A	B+	Constant	• Wiring and/or connector from terminal 1A to battery
1B (Output)	W	Shift B solenoid valve	Solenoid valve	1B	B+	P, R, and N ranges or 1st and 2nd gear positions	• Shift B solenoid valve
1C (Output)	R/L	Park/Neutral signal	PCME	1C	Below 1.0V	Third and Fourth gear positions	• Park/Neutral switch and/or vehicle speed pulse generator
1D (Output)	G	Shift A solenoid valve	Solenoid valve	1D	Below 1.0V	P and N ranges	• Shift A solenoid valve
1E (Input)	R/G	Park/Neutral switch (R range)	Park/Neutral switch	1E	B+	P, R, and N ranges or 1st and Fourth gear positions	• Shift A solenoid valve
1F (Output)	R	Line pressure solenoid valve	Solenoid valve	1F	Below 1.0V	2nd and Third gear positions	• Park/Neutral switch
1G (Input)	G/W	Engine rpm signal (Ne1 signal)	Distributor	1G	B+	R range	• Line pressure solenoid valve and/or dropping resistor
1H (Output)	P	Dropping resistor	Dropping resistor	1H	0V	Other ranges	• Distributor
1I (Input)	G/R	Vehicle speedometer sensor	Speedometer	1I	Above 2.0V	Throttle valve closed throttle position (after ATF warm, engine stopped)	• Dropping resistor and/or line pressure solenoid valve
1J (Ground)	B/LG	Ground (powertrain control module (transmission))	—	1J	Below 1.0V	Throttle valve wide open throttle (after ATF warm, engine stopped)	• Dropping resistor
1K (Output)	GY/R	Hold indicator	Combination meter (hold indicator light)	1K	2—3V	Engine running at idle	• Distributor
1L (Input)	Y/W	A/C signal	PCME	1L	0V or 4.5—5.5V	Engine stopped	• Dropping resistor and/or line pressure solenoid valve
1M (Output)	W/R	Lockup solenoid valve	Solenoid valve	1M	B+	Throttle valve closed throttle position	• Dropping resistor
1N (Input)	B/Y	Battery (main)	Main relay	1N	Below 1.0V	Throttle valve wide open throttle	• Dropping resistor and/or line pressure solenoid valve
1O (Output)	W/B	Overrunning clutch solenoid valve	Solenoid valve	1O	2—3V	Vehicle moving	• Vehicle speedometer sensor and/or combination meter
1P (Input)	B/Y	Battery (main)	Main relay	1P	0V or 4.5—5.5V	Vehicle stopped	• Vehicle speedometer sensor and/or combination meter
2A (Input)	BR/W	Throttle position sensor	Throttle position sensor	2A	0V	Constant	• Wiring from terminal 1J to ground
2B (Input)	G/Y	Park/Neutral switch (D range)	Park/Neutral switch	2B	Below 1.0V	Hold mode	• Combination meter
2C (Input)	V	Barometric absolute pressure sensor	PCME	2C	B+	Other modes	• Combination meter
					B+	A/C ON	• PCME and/or A/C system components
					Below 1.0V	A/C OFF	• PCME and/or A/C system components
					B+	Lockup	• Lockup solenoid valve
					Below 1.0V	No lockup	• Lockup solenoid valve
					B+	Ignition switch ON	• Main relay
					0V	Ignition switch OFF	• Main relay
					Below 1.0V	Throttle valve open (D range)	• Main relay
					B+	Throttle valve closed throttle position (D range)	• Main relay
					B+	Ignition switch ON	• Main relay
					0V	Ignition switch OFF	• Main relay
					4.5—5.5V	Ignition switch ON	• Main relay
					0V	Ignition switch OFF	• Main relay
					B+	D range	• Park/Neutral switch
					0V	Other ranges	• Park/Neutral switch
					Approx. above 3.8V	Atmospheric pressure above 96.6 kPa (725 mmHg, 28.5 inHg) (approx. below 400 m (1,312 ft))	• PCME
					Approx. below 3.5V	Atmospheric pressure below 88.0 kPa (660 mmHg, 26.0 inHg) (approx. above 1,200 m (3,937 ft))	• PCME

The terminal 1D voltage [shift A solenoid valve] is below 1.0V when in HOLD mode in P, R, and N ranges.

95E20895

Fig. 71: 929 PCMT Terminal Voltage Chart (2 of 3)
Courtesy of Mazda Motors Corp.

AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

Article Text (p. 53)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:17PM

Terminal	Color	Component	Connection to	Voltmeter		Correct voltage	Condition	Possible cause
				(+) terminal	(-) terminal			
2D (Input)	B/Y	Park/Neutral switch (P and N ranges)	Park/Neutral switch	2D	Ground	0V B+	P and N ranges Other ranges	• Park/Neutral switch
2E (Input)	L/Y	Vehicle speed pulse generator	Vehicle speed pulse generator	2E ^{*1}	2L	Approx. above 0.5V (AC) Approx. 0V (AC)	Vehicle speed above 25 km/h (16 mph) Engine stopped (ignition switch ON)	• Vehicle speed pulse generator
2F (Output)	O	Lockup control solenoid valve	Solenoid valve	2F	Ground	B+ Below 1.0V	Lockup No lockup	• Lockup control solenoid valve
2G (Output)	P/B	Vehicle speed signal	Not used	2G		2—3V 0V or 4.5—5.5V	Vehicle speed above 25 km/h (16 mph) Vehicle stopped	
2H (Input)	GY	Torque reduced signal	PCME	2H ^{*2}		B+ Below 1.0V	After engine warm-up Cold engine	• Wiring and/or connector from terminal 2H to PCME terminal 2P • Vehicle speed pulse generator
2I (Input)	L/B	Hold switch	Hold switch	2I		0V B+	Switch depressed Switch released	• Hold switch
2J (Input)	O/L	Vehicle speed sensor (revolution sensor)	Vehicle speed sensor (revolution sensor)	2J ^{*1}		Approx. above 1.0V (AC) Approx. 0V (AC)	Vehicle speed above 25 km/h (16 mph) Vehicle stopped	• Vehicle speed sensor (revolution sensor)
2K	V	TAT terminal (data link connector) and 4GR inhibit signal (auto speed control signal)	TAT terminal (data link connector) and cruise control unit	2K	Ground	B+ 0V	Ignition switch ON (vehicle stopped) TAT terminal grounded (vehicle stopped)	• Main relay • Terminal 1N and 1P voltage • Wiring and/or connector from terminal 2K to data link connector TAT terminal • Wiring and/or connector from terminal 2K to cruise control unit terminal 1G
2L (Ground)	L/G	Ground (Input signals)	—	2L		0V	Constant	• Wiring from terminal 2L to ground
2M (Input)	BR/B	Idle switch	Throttle position sensor	2M	Ground	B+ 0V	Throttle valve open Throttle valve closed throttle position	• Throttle position sensor • Wiring and/or connector from terminal 2M to throttle position sensor
2N (Output)	P/W	FAT terminal (data link connector)	FAT terminal (data link connector)	2N		0V B+	Hold mode Other modes	• Main relay • Terminal 1N and 1P voltage • Wiring and/or connector from terminal 2N to data link connector FAT terminal
2P (Output)	GY/L	Reduce torque signal	PCME	2P		Below 1.0V B+	When shifting Other condition	• Wiring and/or connector from terminal 2P to PCME terminal 1S
2Q (Input)	G	Park/Neutral switch (L range)	Park/Neutral switch	2Q		B+ 0V	L range Other ranges	• Park/Neutral switch
2R (Input)	Y	ATF thermosensor	ATF thermosensor	2R	2L	Approx. 2.4—0.4V	While warming up ATF Note • Approx. 1.8V: ATF temperature 10°C (50°F) • Approx. 1.1V: ATF temperature 40°C (104°F)	• ATF thermosensor
2S (Input)	LG/B	Park/Neutral switch (S range)	Park/Neutral switch	2S	Ground	B+ 0V	S range Other ranges	• Park/Neutral switch
2T (Input)	L	Throttle position sensor	Throttle position sensor	2T		Approx. 0.1—1.1V 3.0—4.3V	Throttle valve closed throttle position Throttle valve wide open throttle	• Throttle position sensor • PCME terminal 2I voltage • Wiring and/or connector from terminal 2T to throttle position sensor

*1 Check the terminals 2E (vehicle speed pulse generator) and the 2J (vehicle speed sensor) voltage by using the AC range.

*2H (Torque reduced signal): Some kinds of testers may give incorrect values. This is because the voltage output period is very short.

*2P (Reduced torque signal): Some kinds of testers may give incorrect values. This is because the voltage output period is very short.

95F20896

Fig. 72: 929 PCMT Terminal Voltage Chart (3 of 3)

Courtesy of Mazda Motors Corp.

AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

Article Text (p. 54)

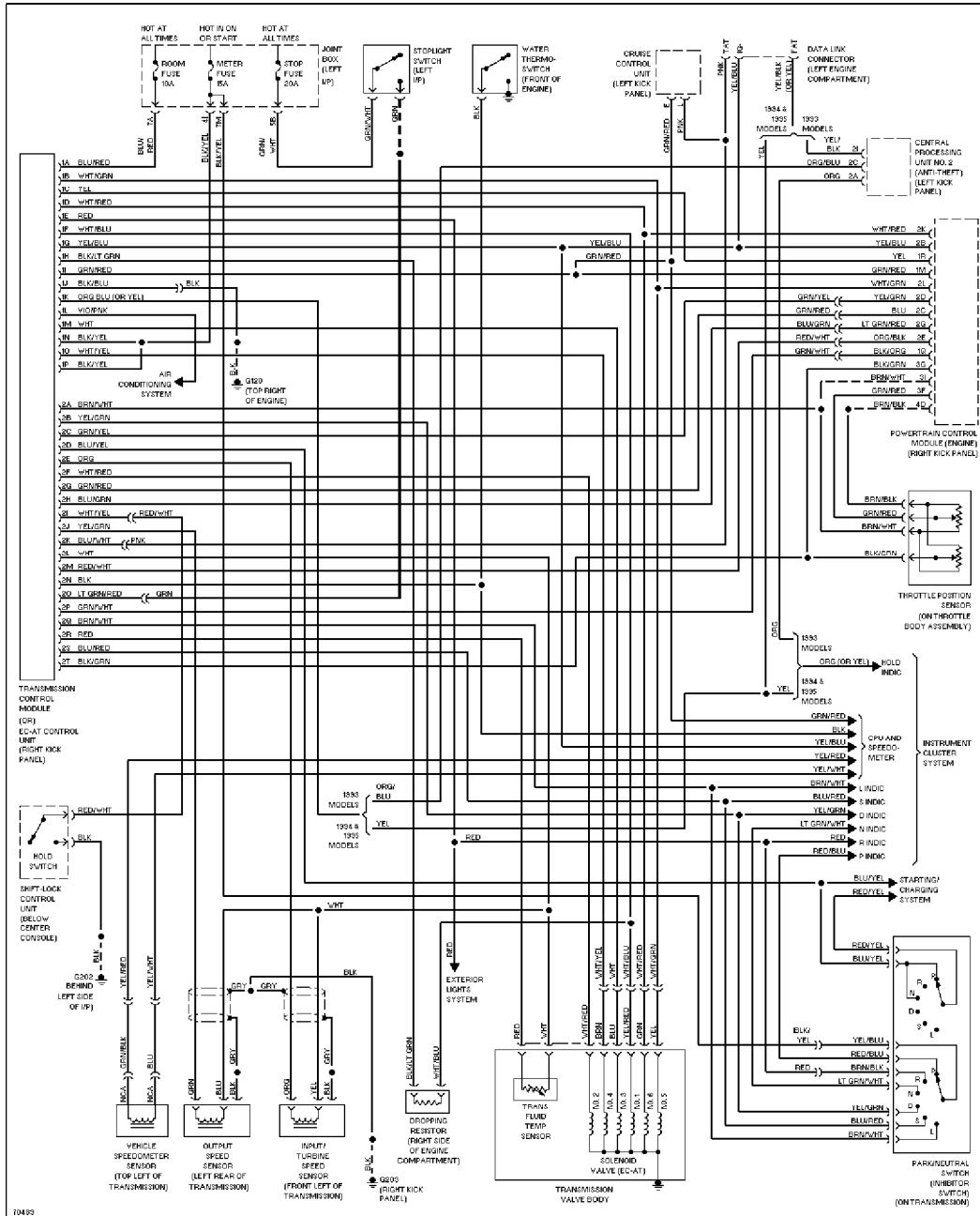
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:17PM

WIRING DIAGRAMS



AUTO TRANS DIAGNOSIS - RA4A-EL & RB4A-EL

Article Text (p. 55)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 09:17PM

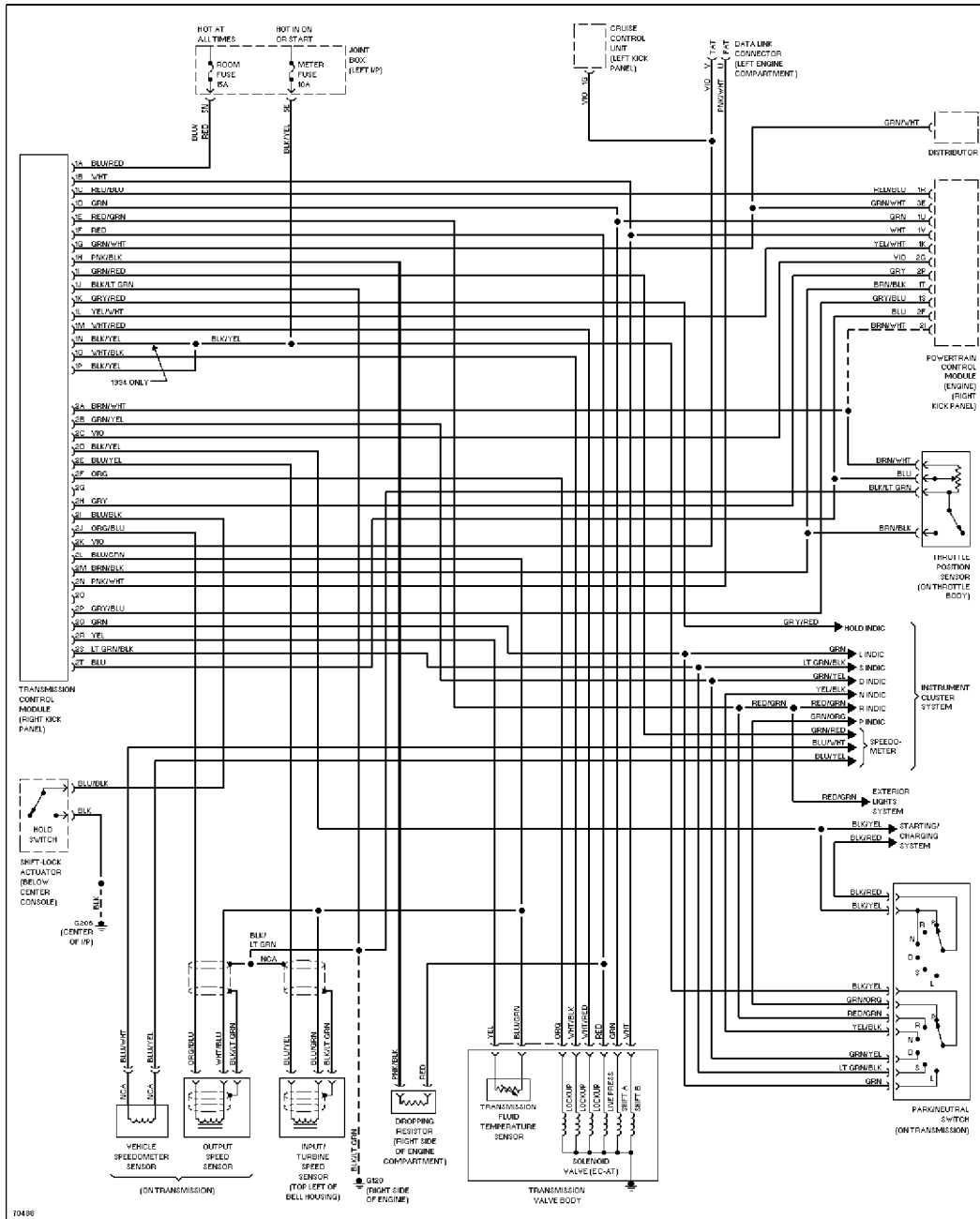


Fig. 74: 929 Wiring Diagram

END OF ARTICLE

ANTI-LOCK BRAKE SYSTEM

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 10:59PM

ARTICLE BEGINNING

1993 BRAKES

Mazda Anti-Lock

RX7

DESCRIPTION

The Anti-Lock Brake System (ABS) control unit senses reductions in front and rear wheel speed and modulates hydraulic pressure to the brakes to prevent wheel lock-up. The ABS consists of a hydraulic unit, 4 wheel speed sensors and sensor rotors, valve relay, motor relay, pump motor and ABS control unit. An ABS warning light is located on the instrument panel.

NOTE: For more information on brake system, see BRAKE SYSTEM article in this section.

OPERATION

Under normal driving conditions, Anti-Lock Brake System (ABS) functions like a standard brake system. When vehicle speed reaches 3.8 MPH, ABS will diagnose pump motor by briefly operating motor. Pump motor operation may be heard inside vehicle.

ABS control unit controls ABS by detecting speed sensor signals and activating solenoid valve in hydraulic unit. Control unit also controls pump motor and self-diagnostic function. If a problem is detected in ABS, ABS will function like a conventional brake system. ABS warning light will also come on.

With detection of wheel lock-up, short pedal pulsations, occurring in rapid succession, will be felt in brake pedal and steering wheel. Vehicle body may also vibrate slightly. These conditions are normal. Pedal pulsation will continue until there is no longer a need for anti-lock function or until vehicle is stopped.

CAUTION: See ANTI-LOCK BRAKE SAFETY PRECAUTIONS in this article.

ANTI-LOCK BRAKE SAFETY PRECAUTIONS

- * NEVER open a bleeder valve or loosen a hydraulic line while ABS is pressurized
- * NEVER disconnect or reconnect any electrical connectors while ignition is on. Damage to ABS control unit may result.
- * DO NOT attempt to bleed hydraulic system without first referring to the appropriate article.
- * Only use specially designed brake hoses/lines on ABS-equipped vehicles.
- * DO NOT tap on speed sensor components (sensor, sensor rings). Speed rings must be pressed, NOT hammered into hubs. Striking these components can cause demagnetization or a loss of

Sunday, August 19, 2001 10:59PM

polarization, affecting the accuracy of the speed signal returning to the ABS control unit.

- * DO NOT mix tire sizes. Increasing the width, as long as tires remain close to the original diameter, is acceptable. Rolling diameter must be identical for all 4 tires. Some manufacturers recommend tires of the same brand, style and type. Failure to follow this precaution may cause inaccurate wheel speed readings.
- * DO NOT contaminate speed sensor components with grease. Only use recommended anti-corrosion coating.
- * When speed sensor components have been removed, ALWAYS check sensor-to-ring air gaps when applicable. These specifications can be found in each appropriate article.
- * ONLY use recommended brake fluids. DO NOT use silicone brake fluids in an ABS-equipped vehicle.
- * When installing transmitting devices (CB's, telephones, etc.) on ABS-equipped vehicles, DO NOT locate the antenna near the ABS control unit (or any control unit).
- * Disconnect all on-board computers, when using electric welding equipment.
- * DO NOT expose the ABS control unit to prolonged periods of high heat (185°F/85°C for 2 hours is generally considered a maximum limit).

BLEEDING BRAKE SYSTEM

CAUTION: DO NOT allow reservoir to run dry during brake bleeding procedure. If brake fluid is spilled, clean surface immediately, as brake fluid will damage painted surfaces. Use only DOT 3 brake fluid and DO NOT mix with any other types.

1) Raise and support vehicle. Ensure brake fluid reservoir is at least half full during bleeding procedure. When bleeding brake system, start with longest brakeline first. Remove bleeder cap. Connect one end of transparent vinyl tube to bleeder screw. Submerge other end of tube in a container half filled with clean brake fluid.

2) Have an assistant depress brake pedal several times and hold in depressed position. Loosen bleeder screw, and drain fluid into container. Tighten bleeder screw.

NOTE: Ensure brake pedal remains depressed until bleeder screw is tightened.

3) Refill brake fluid reservoir if necessary. Repeat step 2) until air is no longer discharged. Tighten bleeder screw to 52-78 INCH lbs. (6-9 N.m). Ensure fluid leakage is not present. Add fluid to reservoir. Repeat procedure for remaining wheels.

COMPONENT LOCATIONS

COMPONENT LOCATIONS TABLE

CONFIDENTIAL LOCATIONS TABLE

ANTI-LOCK BRAKE SYSTEM

Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 10:59PM

Application

Location

RX7

ABS Control Unit

RX7 Behind Side Trim In Luggage Compartment

Front Sensor Rotor On Front Wheel Hub

Hydraulic Unit Right Rear Of Engine Compartment

Motor & Valve Relays On Hydraulic Unit

Pump Motor On Hydraulic Unit

Rear Sensor Rotor On Rear Drive Shaft

Wheel Speed Sensor On Wheel Hub

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

ADJUSTMENTS

BRAKE PEDAL FREE PLAY

Depress pedal a few times to eliminate vacuum. Depress brake pedal by hand and check pedal free play. On RX7, pedal free play should be .12-.31" (3-8 mm). Adjust free play by loosening push rod lock nut. Turn push rod until correct free play is obtained. Tighten push rod lock nut to 17-25 ft. lbs. (23-34 N.m).

BRAKE PEDAL HEIGHT & STOPLIGHT SWITCH

1) Released pedal height is measured from carpet surface, on vertical portion of firewall, to pedal pad center. Disconnect stoplight switch electrical connector. Loosen lock nut on stoplight switch. Rotate switch away from pedal. Loosen push rod lock nut. Rotate push rod until correct pedal height is obtained. See BRAKE PEDAL HEIGHT SPECIFICATIONS table.

2) Adjust pedal free play. See BRAKE PEDAL FREE PLAY under ADJUSTMENTS. Tighten push rod lock nut. Tighten push rod lock nut to 17-25 ft. lbs. (23-34 N.m).

3) Rotate stoplight switch until it contacts pedal, and then rotate an additional 1/2 turn. Tighten stoplight switch lock nut to 10-13 ft. lbs. (14-18 N.m). Reconnect stoplight switch electrical connector.

4) Applied pedal height is measured from angled portion of firewall (without carpet) to pedal pad center. Start engine. Depress brake pedal with a pressure of 132 lbs. (60 kg).

5) Measure applied pedal height. See BRAKE PEDAL HEIGHT SPECIFICATIONS table. If distance is not as specified, check for air in system, rear brake adjustment or worn shoes or pads.

BRAKE PEDAL HEIGHT SPECIFICATIONS TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application

In. (mm)

Pedal Released

RX7 6.5-6.9 (165-176)

Pedal Applied (1)

ANTI-LOCK BRAKE SYSTEM

Article Text (p. 4)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 10:59PM

RX7 3.9 (100)

(1) - Minimum height.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

PARKING/EMERGENCY BRAKE

1) Depress brake pedal several times. Pull parking brake lever with a force of 44 lbs. (20 kg). If stroke is 7-10 notches, parking brake is properly adjusted. If stroke is not 7-10 notches, raise and support rear of vehicle. Release parking brake lever.

2) Rotate cable adjusting nut at lever end of cable, located under console cover, until stroke is within specification. Ensure rear brakes do not drag. Ensure parking brake warning light illuminates when brake lever is pulled one notch.

DIAGNOSIS

ABS can only be diagnosed using ABS Tester (0000-42-0010) and Adapter Harness (49-H066-003 for RX7). ABS tester cannot diagnose ABS control unit. If a malfunction is detected in ABS and all other components in brake system are okay, replace ABS control unit.

If ABS tester is unavailable, test each component of ABS. See test procedures under TESTING. If all ABS components test okay, replace ABS control unit with a known good unit and retest system.

PRE-DIAGNOSIS INSPECTION

Visually inspect ABS components for possible cause of anti-lock problem. Visual inspection may help identify cause of simple malfunction.

DIAGNOSTIC PROCEDURE WITH ABS TESTER

ABS tester uses one display window and 2 switches for reading information from unit. Become thoroughly familiar with ABS tester displays and operation before proceeding. See Fig. 7. To diagnose ABS system, proceed to CONNECTING ABS TESTER under DIAGNOSIS. If ABS tester does not operate, check fuses, ignition switch and ignition circuit.

CONNECTING ABS TESTER

CAUTION: DO NOT drive vehicle with ABS Tester (0000-42-0010) connected.

Turn ignition off. Connect Adapter Harness (49-H066-003) between hydraulic unit harness connector and battery positive terminal. See Fig. 1. Remove luggage compartment side trim. Connect ABS Tester (0000-42-0010) harness to harness side of ABS control unit connector. Proceed to TESTING SEQUENCE charts under DIAGNOSING ABS. When diagnosing ABS, complete tests in the order given under TESTING

ANTI-LOCK BRAKE SYSTEM

Article Text (p. 5)

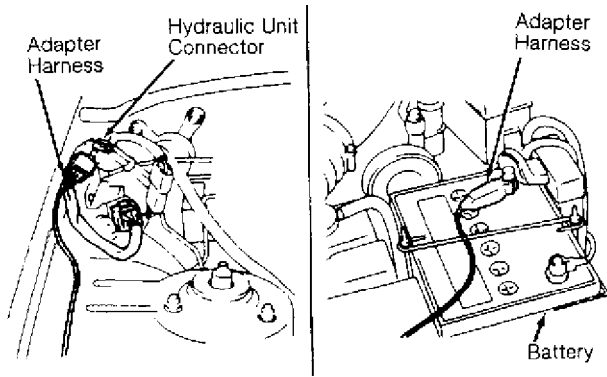
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 10:59PM

SEQUENCE.



93H82369

Fig. 1: Connecting ABS Tester & Adapter Harness (RX7)
Courtesy of Mazda Motors Corp.

TESTING

NOTE: Before testing ABS components, ensure battery and charging system are functioning properly. To prevent damage to ABS control unit connector, use very thin pins when probing connector.

ABS DIODE

Continuity Test

1) Check METER fuse and ABS warning light bulb. Check wiring harness between ABS warning light and ABS control unit, and between ABS warning light and hydraulic unit. Repair or replace as necessary. Disconnect hydraulic unit connector.

2) On RX7, connect positive lead of DVOM to Green/Orange wire terminal and negative lead to Green/Yellow wire terminal of hydraulic unit connector. See Fig. 2.

3) On all models, ensure continuity is present between terminals. Reverse DVOM leads. Continuity should not be present with leads reversed. If ABS diode does not test as described, replace hydraulic unit.

ANTI-LOCK BRAKE SYSTEM

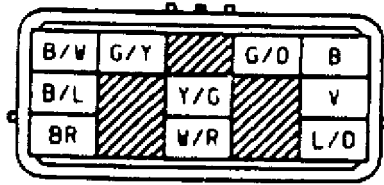
Article Text (p. 6)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 10:59PM



WIRE COLOR IDENTIFICATION

Color	Abbreviation
Blue	L
Black	B
Brown	BR
Green	G
Gray	GY
Light Green	LG
Orange	O
Red	R
White	W
Violet	V
Yellow	Y

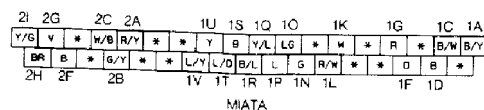
93E82416

Fig. 2: Hydraulic Unit Harness Connector Terminal ID (RX7)
Courtesy of Mazda Motors Corp.

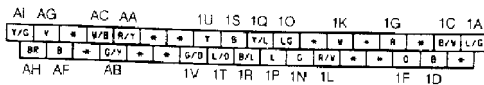
ABS GROUND

Continuity Test

Using a DVOM, check for continuity between ground and following ABS control unit connector terminals: 1D, 1S and AF. See Fig. 3. If continuity is not present, repair wiring harness.



MA2A



RX7



929

WIRE COLOR IDENTIFICATION

Color	Abbreviation
Blue	L
Black	B
Brown	BR
Green	G
Gray	GY
Light Green	LG
Orange	O
Red	R
White	W
Violet	V
Yellow	Y

93F82417

Fig. 3: Identifying Control Unit Harness Connector Terminals
Courtesy of Mazda Motors Corp.

ANTI-LOCK BRAKE SYSTEM

Article Text (p. 7)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 10:59PM

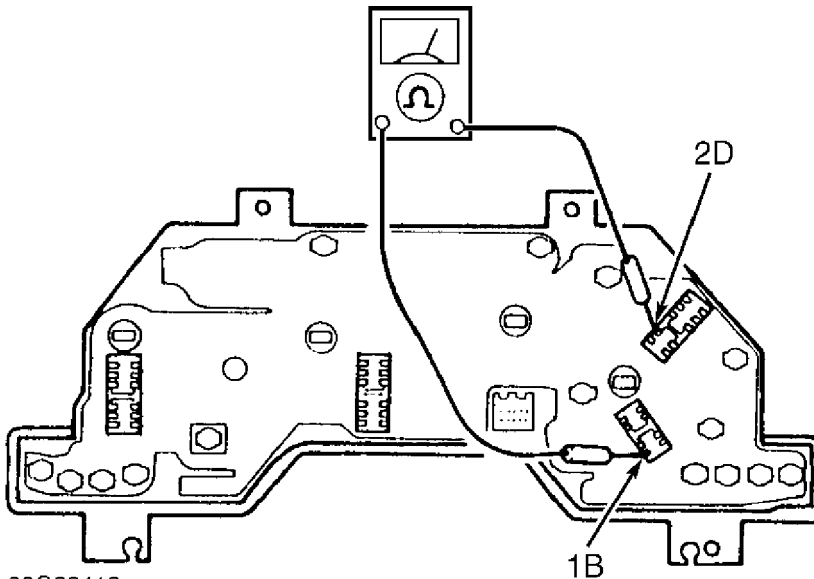
ABS WARNING LIGHT

Operational Test

1) Start engine and observe ABS warning light. Light should illuminate for a few seconds. If light does not illuminate as described, disconnect ABS control unit connector. Using a jumper wire, connect terminal 1V (Green/Orange wire) of ABS control unit connector to ground. See Fig. 3. Turn ignition on.

2) If ABS warning light illuminates, inspect ABS control unit. If light does not illuminate, remove instrument cluster. Remove and check ABS warning light bulb. Replace bulb if necessary. If bulb is okay, go to next step.

3) Using a DVOM, connect positive lead to terminal 2D (Black/Yellow wire) of instrument cluster and negative lead to terminal 1B (Green/Orange wire) of instrument cluster. See Fig. 4. If continuity is not present, replace instrument cluster. If continuity is present, repair wiring harness between instrument cluster and ABS control unit.



93G82418

Fig. 4: Identifying Instrument Cluster Connector Terminals
Courtesy of Mazda Motors Corp.

STOPLIGHT SWITCH

Continuity Test

1) Disconnect stoplight switch connector. On RX7, using a DVOM, check continuity between Green/White wire and Green wire with brake pedal depressed.

2) Ensure continuity exists. Release pedal, and note reading on DVOM. Continuity should not be present. If continuity is not as specified, check STOP fuse and wiring harness. Check wiring harness between stoplight switch and ABS control unit. Repair or replace if necessary. If fuse and wiring harness are okay, replace switch.

ANTI-LOCK BRAKE SYSTEM

Article Text (p. 8)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 10:59PM

FRONT & REAR VALVES

Continuity Test

1) Disconnect hydraulic unit connector. Using a DVOM, measure continuity between following wires: Yellow/Green wire and Green/Yellow wire; Brown wire and Green/Yellow wire; Black/White wire and Green/Yellow wire. See Fig. 2. Continuity should be present in each measurement.

2) If continuity is not present, replace hydraulic unit. If continuity is present, check wiring harness between ABS control unit and hydraulic unit. Repair or replace if necessary.

HYDRAULIC UNIT

The only serviceable parts of hydraulic unit are the motor relay and valve relay. If other parts of unit malfunction, replace hydraulic unit.

MOTOR RELAY

Continuity Tests

1) Disconnect negative battery cable. Remove motor relay from hydraulic unit. Ensure continuity exists between terminals "B" and "C" of motor relay. See Fig. 5. Connect 12 volts to terminal "C", and ground terminal "B". Ensure continuity exists between terminals "A" and "D".

2) Replace relay if continuity is not as specified. If continuity is as specified, check wiring harness between motor relay and ABS control unit fuse (60 amps). Repair or replace if necessary.

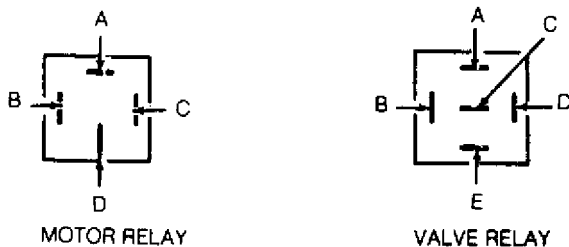


Fig. 5: Identifying Motor & Valve Relay Terminals
Courtesy of Mazda Motors Corp.

PUMP MOTOR

Voltage Test

1) Disconnect 2-pin connector at hydraulic unit. Using a DVOM, measure voltage between Black/Blue wire terminal of hydraulic unit connector and ground. Voltage should be 12 volts. If voltage is not as specified, check MAIN fuse and ABS fuse (60 amps). Also check wiring harness between battery and hydraulic unit. Repair or replace if necessary.

2) If voltage is 12 volts check continuity between Red/Yellow wire terminal of 2-pin hydraulic unit connector and ground. If

Copyright © 1998 Mitchell Repair Information Company, LLC
Sunday, August 19, 2001 10:59PM

[illegible]

ANTI-LOCK BRAKE SYSTEM

Article Text (p. 10)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 10:59PM

WHEEL SPEED SENSOR ROTORS

Inspection

Perform a comprehensive visual inspection of sensor rotor. If any teeth are damaged or missing, or any other damage is noted, replace sensor rotor.

REMOVAL & INSTALLATION

ABS CONTROL UNIT

Removal & Installation

Disconnect negative battery cable. Remove luggage compartment side trim. Remove ABS control unit protector panel (if equipped). Disconnect ABS control unit electrical connector. Remove ABS control unit mounting nuts. Remove ABS control unit. To install, reverse removal procedure.

HYDRAULIC UNIT

Removal & Installation

Disconnect negative battery cable. Disconnect hydraulic unit electrical connector. Using Flare Nut Wrench (49-0259-770B), disconnect brakelines from hydraulic unit. Remove hydraulic unit mounting bolts and nuts. Remove hydraulic unit. To install, reverse removal procedure. Tighten mounting bolts and nuts to specification. See TORQUE SPECIFICATIONS table at the end of this article. Bleed air from system. See BLEEDING BRAKE SYSTEM.

FRONT WHEEL SPEED SENSOR ROTOR

Removal

Raise and support vehicle. Remove front wheel assemblies. Remove brake caliper and wire aside. Remove grease cap. Remove rotor. Remove ABS wheel speed sensor. Remove wheel bearing lock nut. Remove wheel hub. Using chisel and hammer, remove sensor rotor from hub.

Installation

To install, reverse removal procedure. Install NEW sensor rotor on hub using Installer (49-H028-204). Tighten bolts and nuts to specification. See TORQUE SPECIFICATIONS table at the end of this article.

REAR WHEEL SPEED SENSOR ROTOR

Removal

Raise and support vehicle. Remove rear wheel assemblies. Remove wheel bearing lock nut. Remove I-arm bolt from steering knuckle. Remove drive axle. Using chisel and hammer, remove sensor rotor from drive axle.

ANTI-LOCK BRAKE SYSTEM

Article Text (p. 11)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 10:59PM

Installation

To install, reverse removal procedure. Install NEW sensor rotor on drive axle using Installer (49-F026-104). Tighten bolts and nuts to specification. See TORQUE SPECIFICATIONS table at the end of this article.

WHEEL SPEED SENSOR

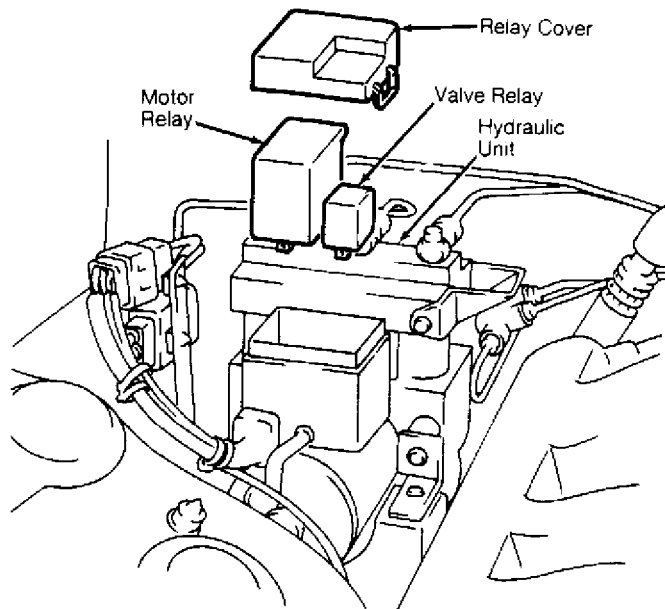
Removal & Installation

Raise and support vehicle. Remove wheel assemblies. Disconnect wheel speed sensor electrical connectors. Remove speed sensor mounting bolt. Remove wheel speed sensor from vehicle. To install, reverse removal procedure. Tighten mounting bolts to specification. See TORQUE SPECIFICATIONS table at the end of this article.

VALVE & MOTOR RELAYS

Removal & Installation

Disconnect negative battery cable. Remove relay cover from hydraulic unit. Remove valve and motor relays. See Fig. 6. To install, reverse removal procedure.



93H00858

Fig. 6: Locating Valve Relay & Motor Relay
Courtesy of Mazda Motors Corp.

TORQUE SPECIFICATIONS

ANTI-LOCK BRAKE SYSTEM

Article Text (p. 12)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 10:59PM

TORQUE SPECIFICATIONS TABLE

Application		Ft. Lbs. (N.m)
Brake Caliper Mounting Bolts		
RX7		
Front	.....	58-72 (79-98)
Rear	.....	34-49 (46-66)
Brakeline Nuts	.....	10-16 (14-22)
Drive Shaft-To-Flange Nuts	.....	40-47 (54-64)
Hydraulic Unit Brakeline Union Bolts		
RX7	.....	18-26 (24-35)
Hydraulic Unit Mounting Nuts	.....	14-19 (19-26)
I-Arm-To-Steering Knuckle Bolt (RX7)	.....	44-54 (59-73)
Speed Sensor Mounting Bolt	.....	12-16 (16-22)
Wheel Bearing Lock Nut		
RX7		
Front	.....	131-173 (177-235)
Rear	.....	174-231 (236-314)
Wheel Lug Nuts	.....	65-87 (88-118)

DIAGNOSING ABS

ABS TESTER OPERATION

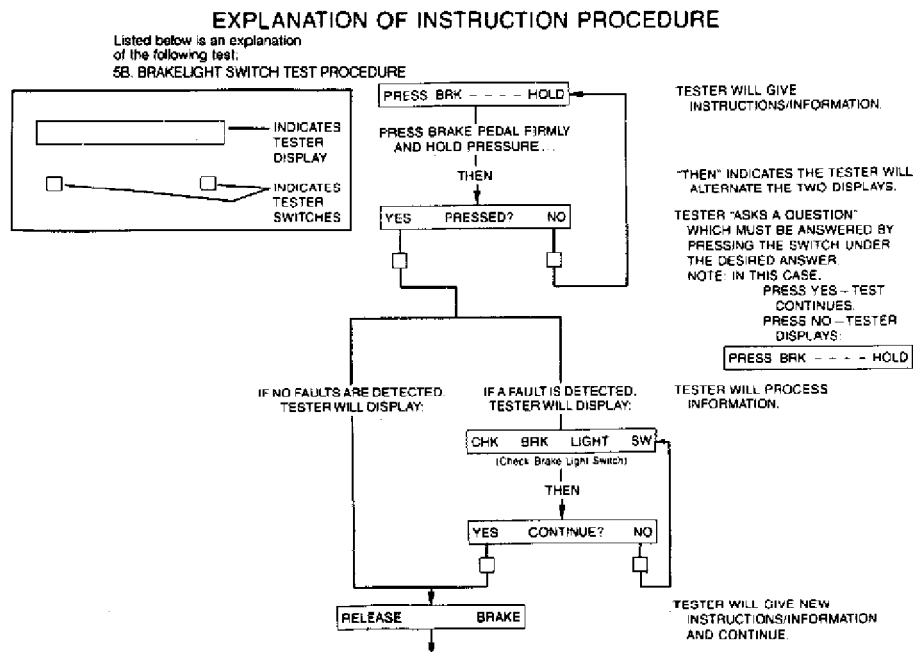


Fig. 7: Operating ABS Tester
Courtesy of Mazda Motors Corp.

ANTI-LOCK BRAKE SYSTEM

Article Text (p. 13)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 10:59PM

TESTING SEQUENCE

TESTER WILL RAPIDLY DISPLAY SEVERAL MESSAGES DURING AN INITIAL SEGMENT CHECK

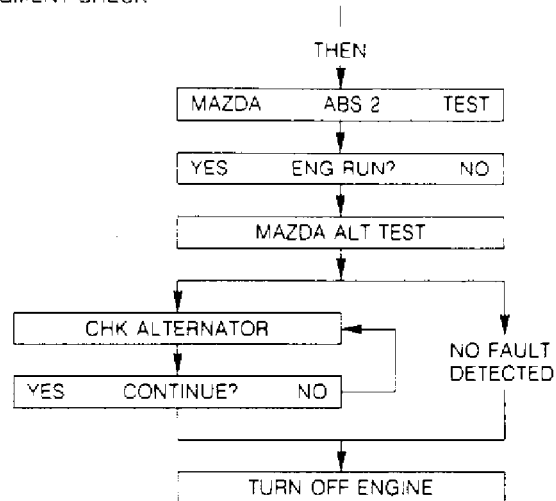


Fig. 8: ABS Testing Sequence: Chart 1 of 9
Courtesy of Mazda Motors Corp.

ANTI-LOCK BRAKE SYSTEM

Article Text (p. 14)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 10:59PM

4. SYSTEM VOLTAGE CHECKS

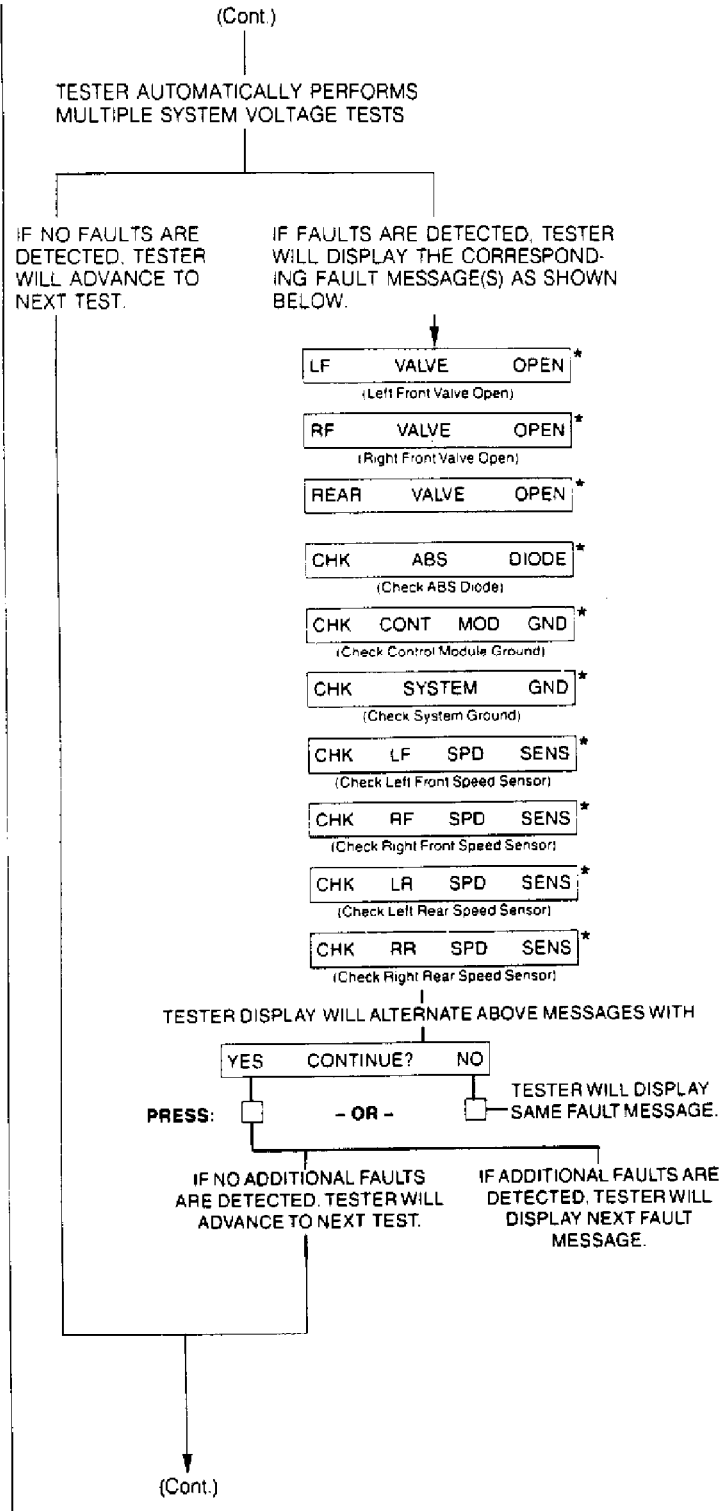


Fig. 9: ABS Testing Sequence: Chart 2 of 9
Courtesy of Mazda Motors Corp.

ANTI-LOCK BRAKE SYSTEM

Article Text (p. 15)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 10:59PM

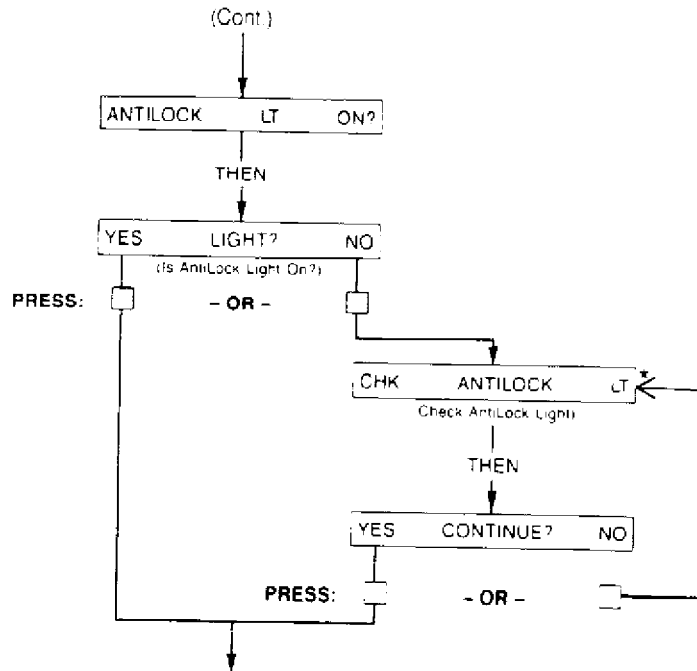


Fig. 10: ABS Testing Sequence: Chart 3 of 9
Courtesy of Mazda Motors Corp.

ANTI-LOCK BRAKE SYSTEM

Article Text (p. 16)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 10:59PM

5C. PUMP TEST

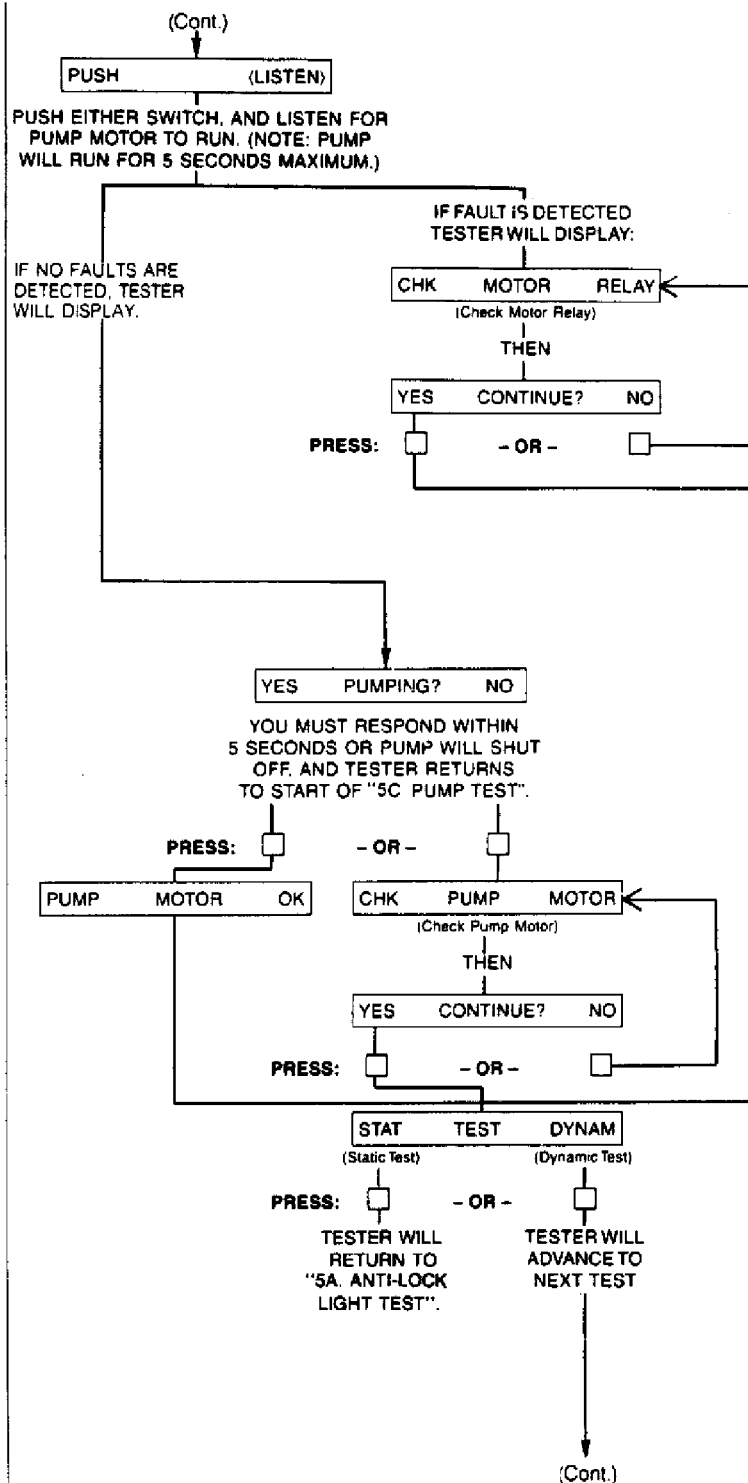


Fig. 11: ABS Testing Sequence: Chart 4 of 9
Courtesy of Mazda Motors Corp.

ANTI-LOCK BRAKE SYSTEM

Article Text (p. 17)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 10:59PM

6. DYNAMIC TESTS

6A. WHEEL SELECTION OR EXIT

THESE THREE MESSAGES
WILL ALTERNATE ON THE
DISPLAY SCREEN AT 3 1/2 SE-
COND INTERVALS. NOW,
SELECT ONE OF THE FOUR
WHEELS TO BEGIN THE DY-
NAMIC TEST SEQUENCE.

OR

PRESS EITHER SWITCH UN-
DER "PUSH TO EXIT" DIS-
PLAY TO RETURN TO "STAT
TEST DYNAM" SELECTION.

IMPORTANT:

WHEN ENTERING THE DY-
NAMIC TEST SEQUENCE, YOU
WILL SELECT ONE OF FOUR
WHEELS TO BEGIN. WHEN
YOU HAVE FINISHED WITH
THAT WHEEL TEST, YOU
SHOULD RETURN TO 6A
"WHEEL SELECTION". TO
SELECT ANOTHER WHEEL,
AND REPEAT THESE TEST
PROCEDURES FOR ALL FOUR
WHEELS.

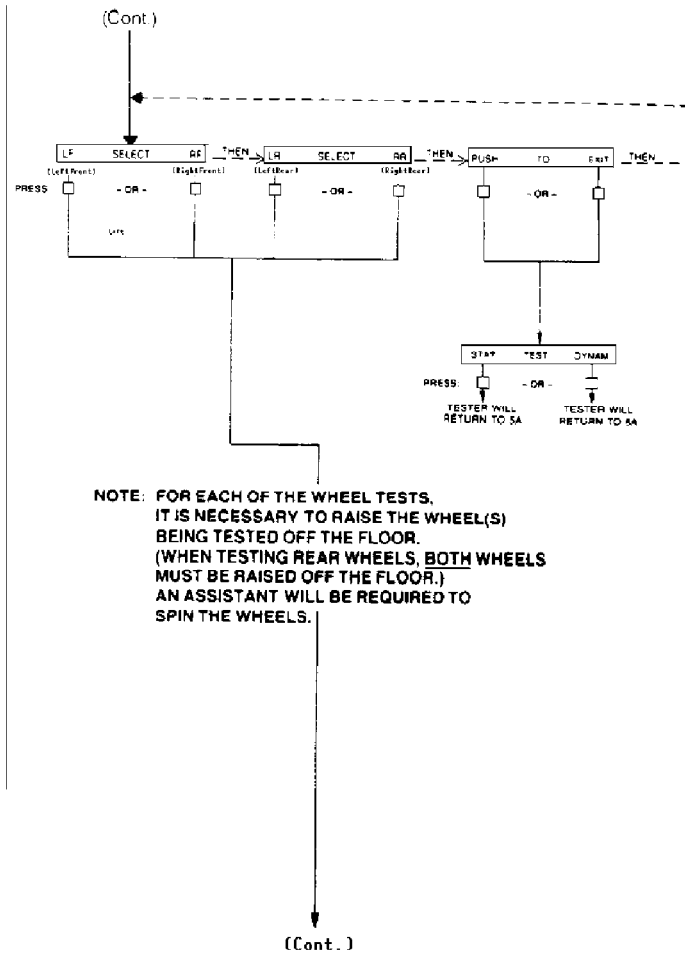


Fig. 12: ABS Testing Sequence: Chart 5 of 9
Courtesy of Mazda Motors Corp.

ANTI-LOCK BRAKE SYSTEM

Article Text (p. 18)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 10:59PM

6B. WHEEL SENSOR TEST

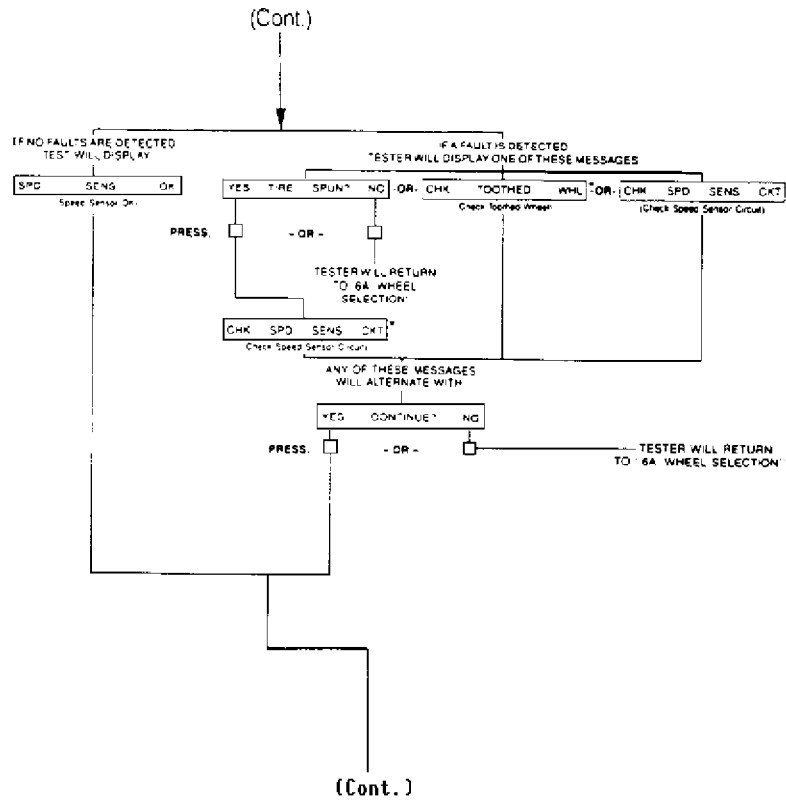


Fig. 13: ABS Testing Sequence: Chart 6 of 9
Courtesy of Mazda Motors Corp.

ANTI-LOCK BRAKE SYSTEM

Article Text (p. 19)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 10:59PM

6C. SOLENOID TEST

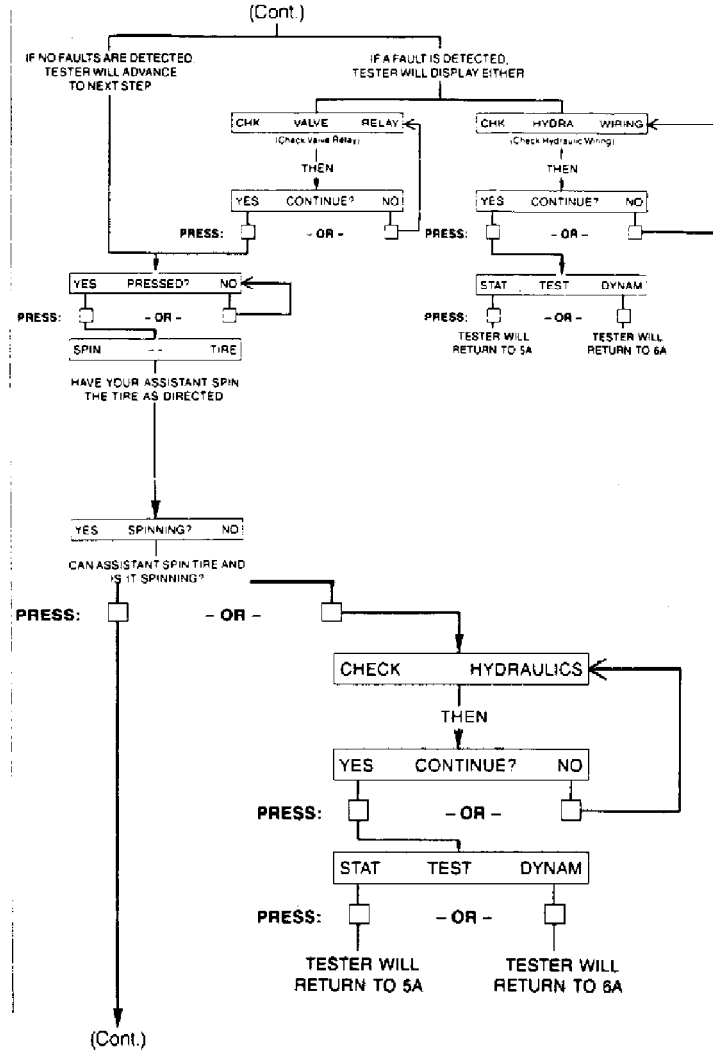


Fig. 14: ABS Testing Sequence: Chart 7 of 9
Courtesy of Mazda Motors Corp.

ANTI-LOCK BRAKE SYSTEM

Article Text (p. 20)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 10:59PM

6C. SOLENOID TEST

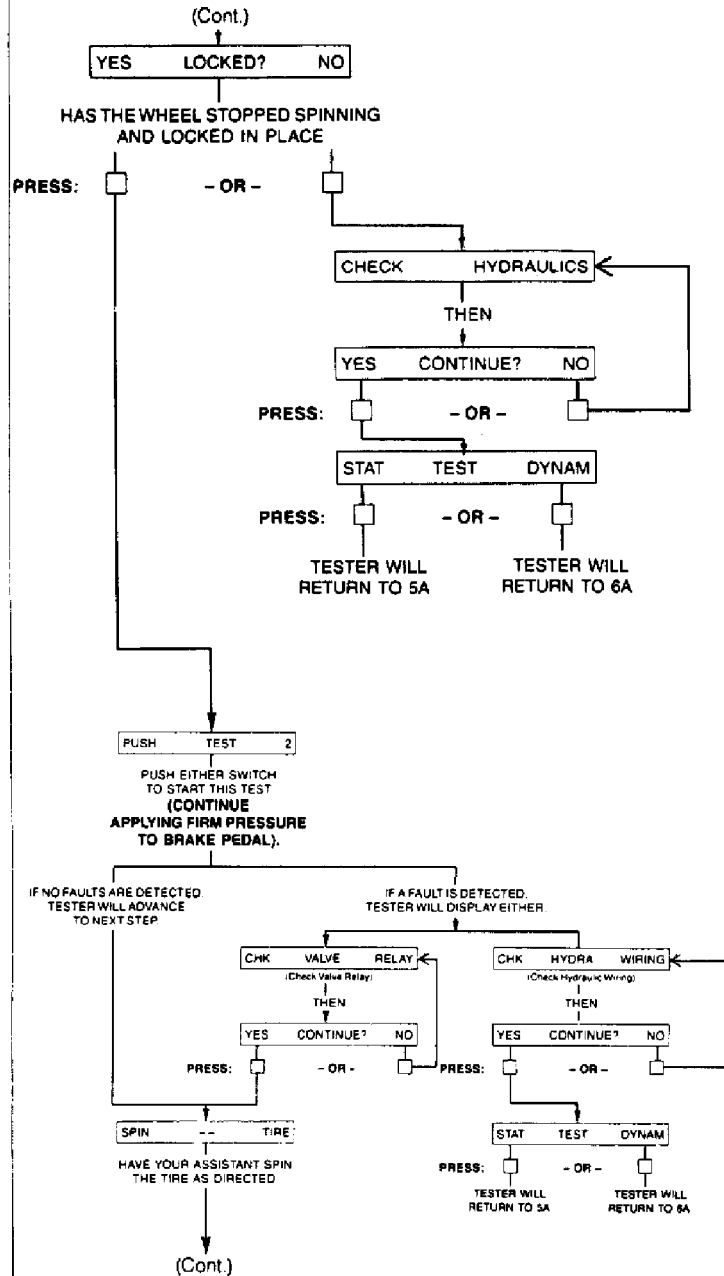


Fig. 15: ABS Testing Sequence: Chart 8 of 9
Courtesy of Mazda Motors Corp.

ANTI-LOCK BRAKE SYSTEM

Article Text (p. 21)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 10:59PM

6C. SOLENOID TEST

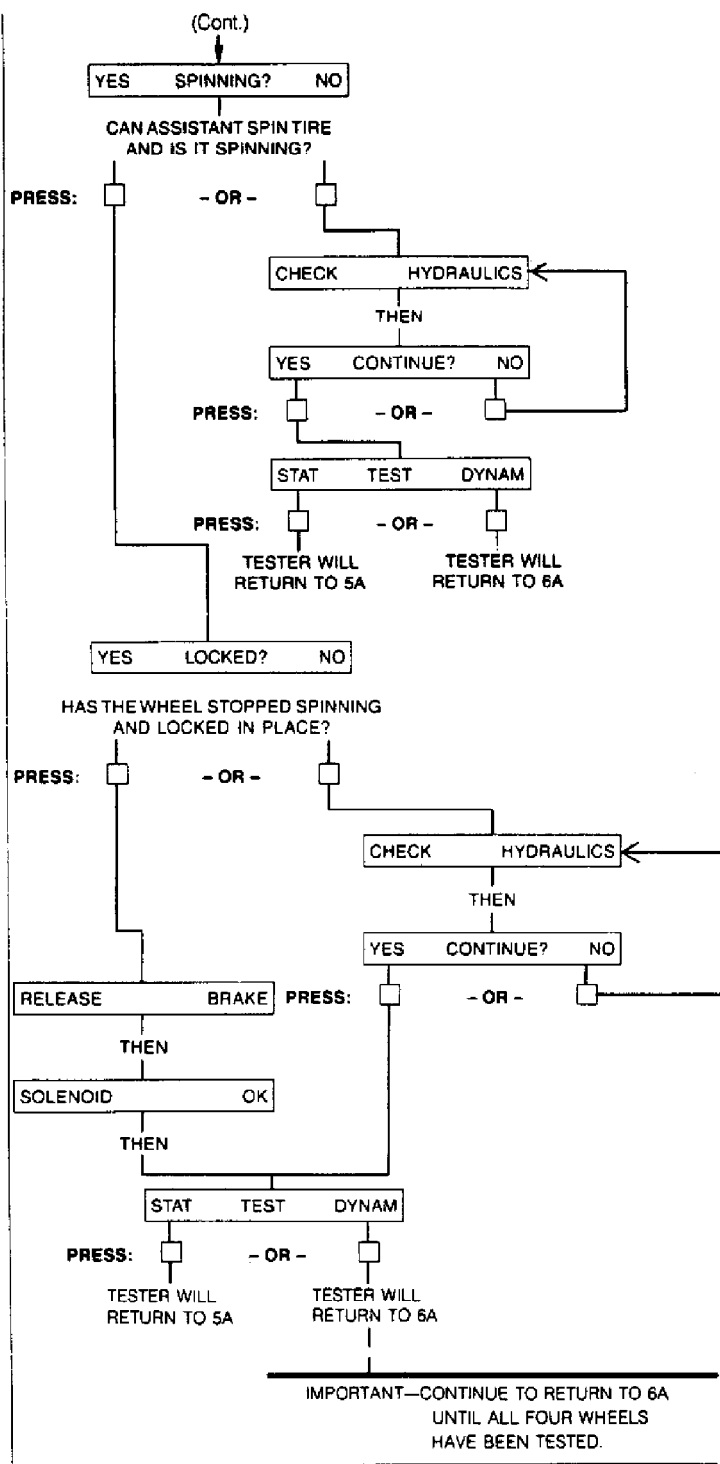


Fig. 16: ABS Testing Sequence: Chart 9 of 9
Courtesy of Mazda Motors Corp.

ANTI-LOCK BRAKE SYSTEM

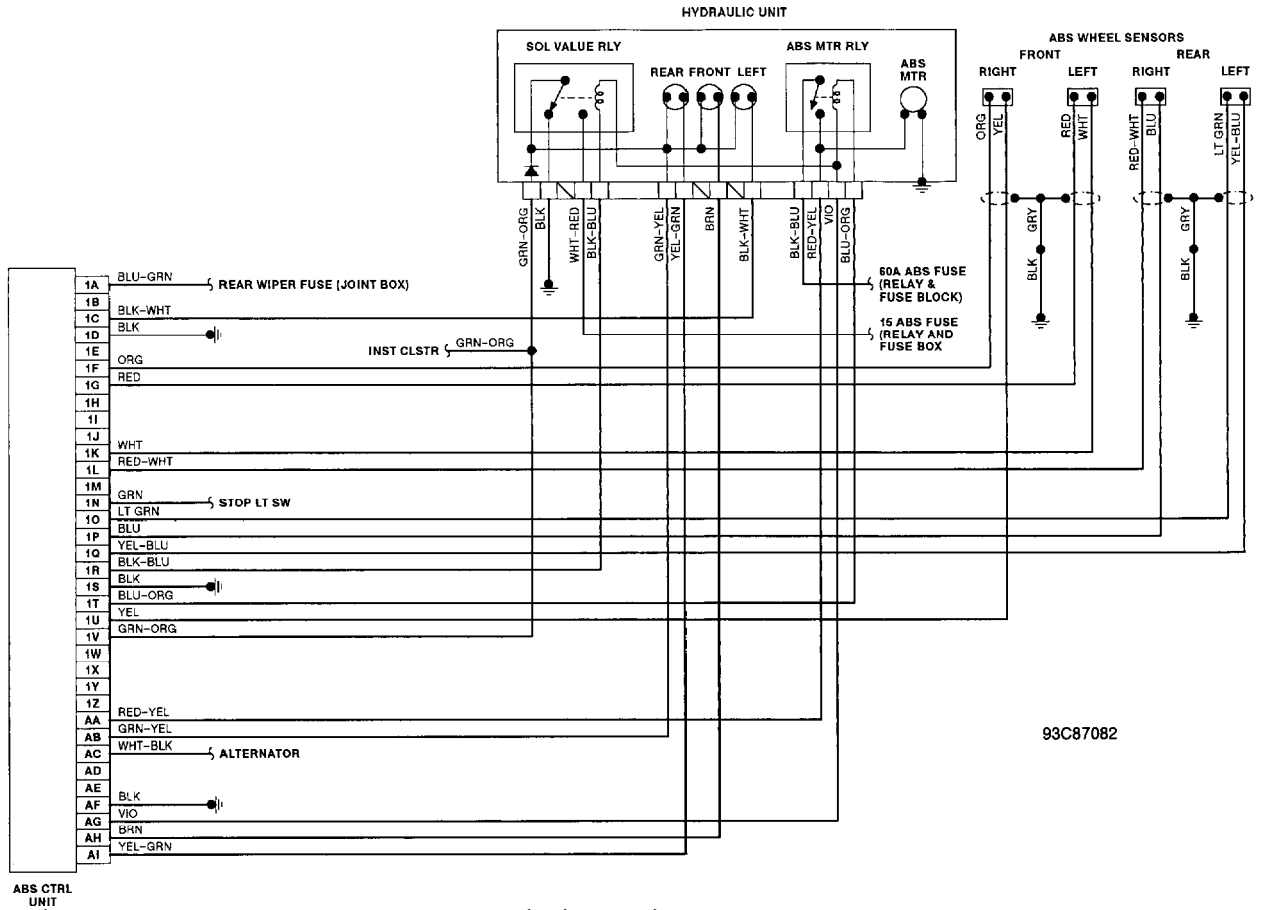
Article Text (p. 22)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 10:59PM



93C87082

Fig. 17: Anti-Lock Brake System (ABS) Wiring Diagram

END OF ARTICLE

Copyright © 1998 Mitchell Repair Information Company, LLC
Sunday, August 19, 2001 11:00PM

1993 BRAKES
Mazda Disc & Drum

RX7

NOTE: For information on anti-lock brake systems, see ANTI-LOCK BRAKE SYSTEM article in this section.

All models use hydraulic-operated brake system with a tandem master cylinder, proportioning valve and a power brake unit. All models are equipped with front disc brakes and either rear disc or drum brakes.

BRAKE LINE BLEEDING SEQUENCE TABLE

Application		Sequence
Application		Sequence

[illegible]

1) Depress brake pedal several times. Pull parking brake lever with a force of 44 lbs. (20 kg). If stroke is 7-10 notches, parking brake is properly adjusted. If stroke is not 7-10 notches, raise and support rear of vehicle. Release parking brake lever.

2) Rotate cable adjusting nut at lever end of cable, located under console cover, until stroke is within specification. Ensure rear brakes do not drag. Ensure parking brake warning light illuminates when brake lever is pulled one notch.

With engine off, depress pedal a few times to eliminate vacuum. Depress brake pedal by hand and check pedal free play. See BRAKE PEDAL FREE PLAY SPECIFICATIONS table. Adjust play by loosening push rod lock nut. Turn push rod until correct free play is obtained. On B2200 and B2600i, tighten push rod lock nut to 15-21 ft. lbs. (20-28 N.m). On all other models, tighten push rod lock nut to 18-25 ft. lbs. (24-34 N.m).

BRAKE PEDAL FREE PLAY SPECIFICATIONS TABLE

[illegible]

BRAKE SYSTEM

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 11:00PM

Application

In. (mm)

RX712-.31 (3-8)
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

BRAKE PEDAL HEIGHT & STOPLIGHT SWITCH

1) Released pedal height is measured from carpet surface on vertical portion of firewall to pedal pad center. Disconnect stoplight switch electrical connector. Loosen lock nut on stoplight switch. Rotate switch away from pedal. Loosen push rod lock nut. Rotate push rod until correct pedal height is obtained. See BRAKE PEDAL HEIGHT SPECIFICATIONS table.

2) Adjust pedal free play. See BRAKE PEDAL FREE PLAY under ADJUSTMENTS. Tighten push rod lock nut. Tighten push rod lock nut to 18-25 ft. lbs. (24-34 N.m).

3) Rotate stoplight switch until it contacts pedal and then rotate an additional 1/2 turn. Tighten stoplight switch lock nut to 10-13 ft. lbs (14-18 N.m). Reconnect stoplight switch electrical connector.

4) Applied pedal height is measured from angled portion of firewall (without carpet) to pedal pad center. Start engine. Depress brake pedal with 132 lbs. (60 kg) pressure.

5) Measure applied pedal height. See BRAKE PEDAL HEIGHT SPECIFICATIONS table. If distance is not as specified, check for air in system, rear brake adjustment or worn shoes or pads.

BRAKE PEDAL HEIGHT SPECIFICATIONS TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application

In. (mm)

Pedal Released

RX7 6.5-6.9 (165-175)

Pedal Applied (1)

RX7 3.9 (100)

(1) - Minimum height.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

TESTING

PROPORTIONING VALVE

1) Connect 2 pressure gauges to proportioning valve. One to input port and other to output port. Bleed brake system. See BLEEDING BRAKE SYSTEM. Depress brake pedal until pressure gauge reads as specified and check output pressure. See PROPORTIONING VALVE PRESSURE SPECIFICATIONS table.

2) Depress brake pedal again, applying additional pressure. Recheck output pressure. See PROPORTIONING VALVE PRESSURE SPECIFICATIONS table. If output pressure is not as specified, replace valve.

BRAKE SYSTEM

Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 11:00PM

PROPORTIONING VALVE PRESSURE SPECIFICATIONS TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA			
Application	Inlet Pressure		Outlet Pressure
	psi (kg/cm ²)		psi (kg/cm ²)
RX7	569 (40)	.....	527-611 (37-43)
	853 (60)	.....	626-739 (44-52)
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA			

POWER BRAKE UNIT

1) With engine off, depress brake pedal several times. Press and hold brake pedal and start engine. If brake pedal moves down slightly immediately after engine starts, power brake unit is operating. If brake pedal does not move as specified, go to next step.

2) Run engine for 1-2 minutes. Stop engine. Press brake pedal several times and note if first pedal stroke is longer than subsequent strokes. If first pedal stroke is longer than subsequent strokes, power brake unit is operating. If length of strokes is equal, test check valve and vacuum hose between vacuum source and power brake unit. Repair as necessary, and go to next step.

3) Start engine. Press and hold brake pedal. Stop engine. Hold pedal down for about 30 seconds. If pedal height remains at same height, power brake unit is operating. If pedal height recedes, test check valve and vacuum hose between vacuum source and power brake unit. Repair as necessary.

REMOVAL & INSTALLATION

FRONT DISC BRAKE PADS

Removal & Installation

1) Raise and support front of vehicle. Remove front wheel assemblies. Remove "M" clip. See Fig. 1. Remove pad pins. Remove "M" spring. Remove pads and shims. Replace pad if lining thickness is less than specified. See MINIMUM PAD LINING SPECIFICATIONS (FRONT) table.

2) To install, reverse removal procedure. Use Disc Brake Expander (49-0221-600C) and an old pad to push piston fully inward to install disc pads. Ensure shims are installed with arrows facing direction of forward rotor rotation.

BRAKE SYSTEM

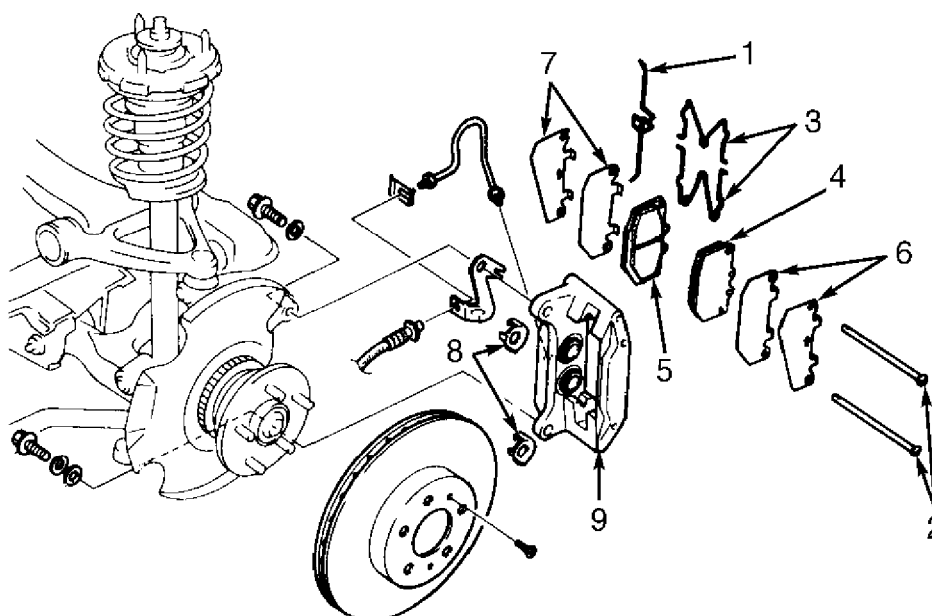
Article Text (p. 4)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 11:00PM



1. "M" Clip
2. Pad Pins
3. "M" Springs

4. Outer Pad
5. Inner Pad
6. Outer Shims

7. Inner Shims
8. Guard Plates
9. Caliper

93D82902

Fig. 1: Exploded View Of Front Disc Brake Assembly (RX7)
Courtesy of Mazda Motors Corp.

MINIMUM PAD LINING SPECIFICATIONS TABLE (FRONT)

Application		Thickness In. (mm)
RX7		.04 (1.0)

FRONT DISC BRAKE CALIPER

Removal & Installation

Raise and support front of vehicle. Remove front wheel assemblies and disconnect brake hose. Plug all openings. Remove front disc brake pads. See FRONT DISC BRAKE PADS under REMOVAL & INSTALLATION. Remove remaining mounting bolt(s). Remove caliper from vehicle. To install, reverse removal procedure. Bleed air from system.

FRONT BRAKE ROTOR

Removal & Installation

1) Raise and support front of vehicle. Remove front wheel assemblies. Remove front disc brake caliper with brake hose connected. Support caliper using rope. Remove grease cap (if equipped). Remove rotor-to-hub screws (if equipped). Remove rotor.

2) Machine rotor if lateral runout exceeds specification.

BRAKE SYSTEM

Article Text (p. 5)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 11:00PM

Replace rotor if measured thickness is less than specified minimum thickness. See DISC BRAKE SPECIFICATIONS table at end of this article. To install, reverse removal procedure.

REAR DISC BRAKE PADS

Removal & Installation

1) Raise and support rear of vehicle. Remove rear wheel assemblies. Remove lower guide bolt from caliper. Rotate caliper upward and support using wire. Remove "V" spring. Remove pads, shims and guide plates. Replace pad if lining thickness is less than .04" (1.0 mm).

2) To install, reverse removal procedure. Use Disc Brake Piston Wrench (49-FA18-602) to rotate piston clockwise to install disc pads. Ensure grooves in piston are aligned.

REAR BRAKE CALIPER

Removal & Installation

1) Raise and support rear of vehicle. Remove rear wheel assemblies. Release parking brake and disconnect parking brake cable from caliper. Disconnect brake hose from caliper.

2) Remove lower guide bolt from caliper. Rotate caliper upward. Pull caliper toward center of vehicle to slide it off of caliper mount. To install, reverse removal procedure. Bleed air from system.

REAR BRAKE ROTOR

Removal & Installation

1) Raise and support vehicle. Remove rear wheel assemblies. Remove rear brake caliper with brake hose connected. Support caliper using wire. Remove rotor-to-hub screws (if equipped). Remove rotor.

2) Machine rotor if lateral runout exceeds specification. Replace rotor if measured thickness is less than specified minimum thickness. See DISC BRAKE SPECIFICATIONS table.

3) To install, reverse removal procedure. Check end play at grease cap. If end play exceeds .002" (.05 mm), check lock nut torque or replace wheel bearings.

REAR AXLE BEARING & OIL SEAL

NOTE: For information on models with sealed wheel bearings, see appropriate article in the SUSPENSION section.

MASTER CYLINDER

Removal

Disconnect fluid level sensor electrical connector. See Fig. 2. Disconnect and plug brake lines at master cylinder to prevent entry of dirt and loss of fluid. Remove nuts attaching master cylinder to firewall or power brake unit. Remove master cylinder from vehicle.

BRAKE SYSTEM

Article Text (p. 6)

1993 Mazda RX7

For www.iluvmyrx7.com

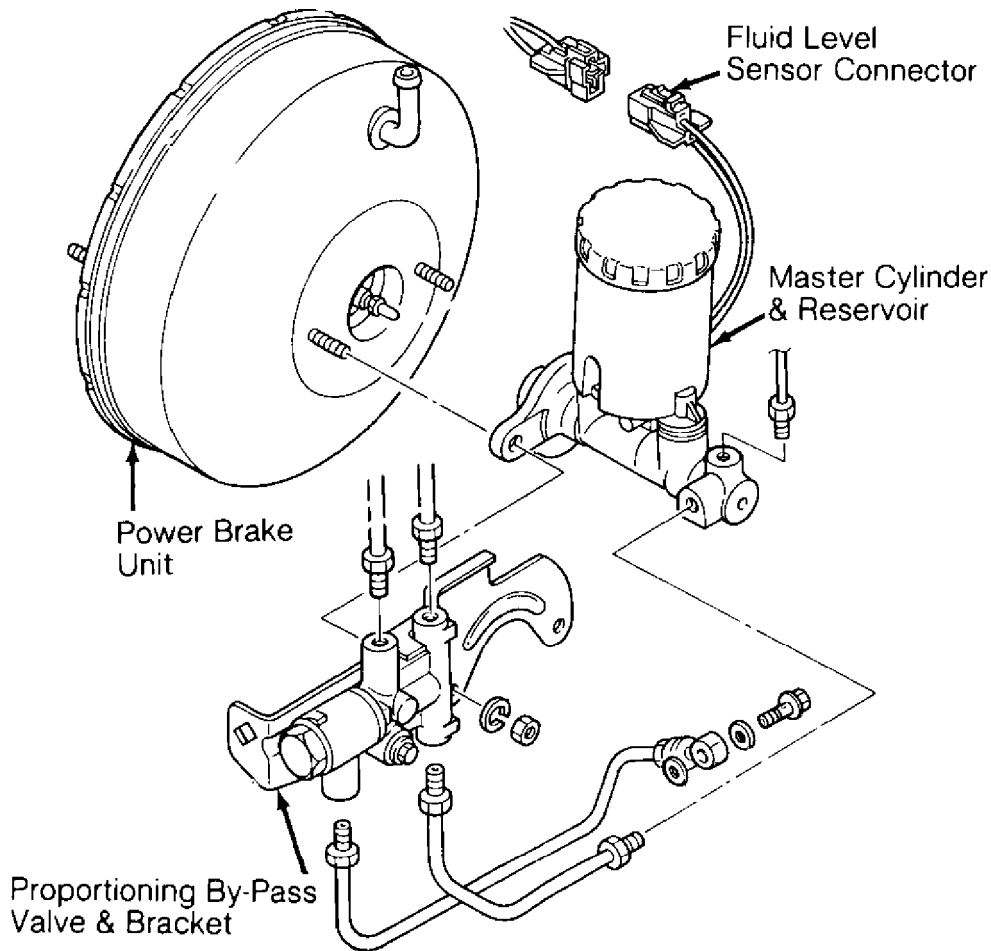
Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 11:00PM

Installation

1) Place Adjustment Gauge (49-F043-001) onto master cylinder. Turn screw on adjuster gauge until it contacts piston. Remove adjuster gauge. Apply 19.7 in. Hg to power brake unit.

2) Invert adjuster gauge and place it on power brake unit. Adjust push rod on power brake unit until there is no clearance between push rod and adjuster gauge screw. To install master cylinder, reverse removal procedure. Bleed air from system.



93E00848

Fig. 2: Removing Master Cylinder (Miata Shown; RX7 Similar)
Courtesy of Mazda Motors Corp.

POWER BRAKE UNIT

Removal & Installation

Remove master cylinder from power brake unit. See MASTER CYLINDER under REMOVAL & INSTALLATION. Disconnect vacuum line at power brake unit. See Fig. 3. From inside vehicle, remove cotter pin and clevis pin. Separate push rod from brake pedal. Remove power brake unit-to-firewall nuts. Remove power brake unit. To install, reverse removal procedure. Bleed air from system.

BRAKE SYSTEM

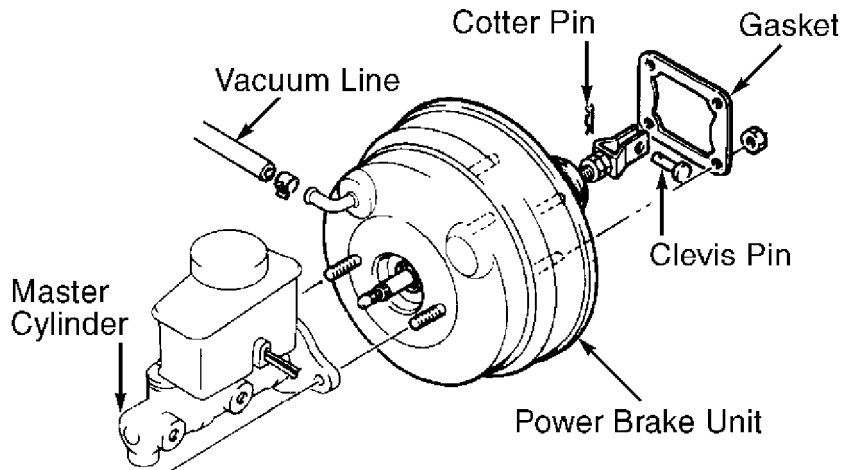
Article Text (p. 7)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 11:00PM

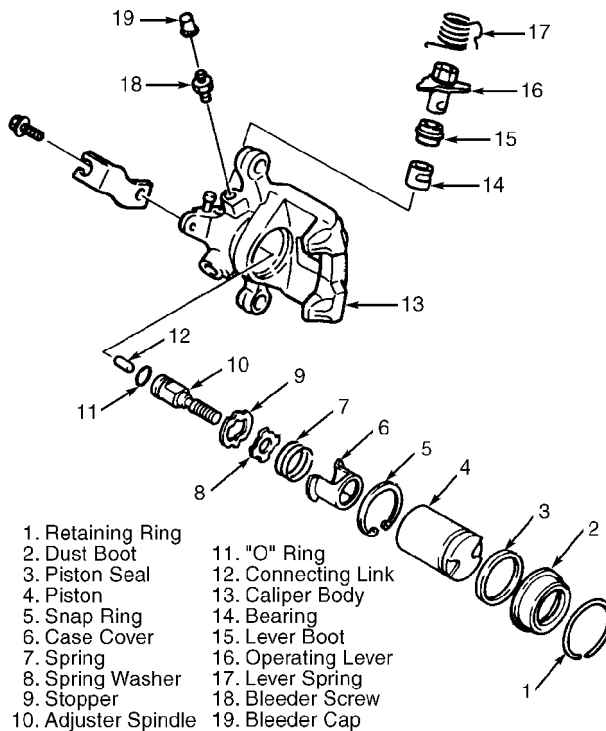


93F00849

Fig. 3: Removing Power Brake Unit
Courtesy of Mazda Motors Corp.

OVERHAUL

NOTE: Use appropriate illustrations for exploded view of rear caliper assembly, master cylinder and power brake unit. See Figs. 4-6.



93IR2931

Fig. 4: Exploded View Of Rear Caliper Assembly (RX7)
Courtesy of Mazda Motors Corp.

BRAKE SYSTEM

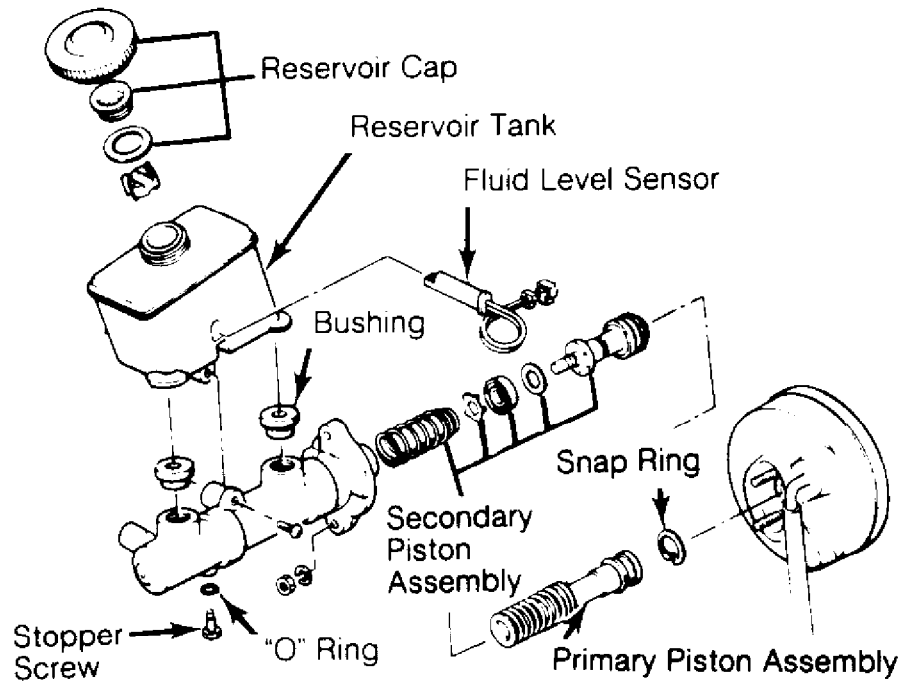
Article Text (p. 8)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

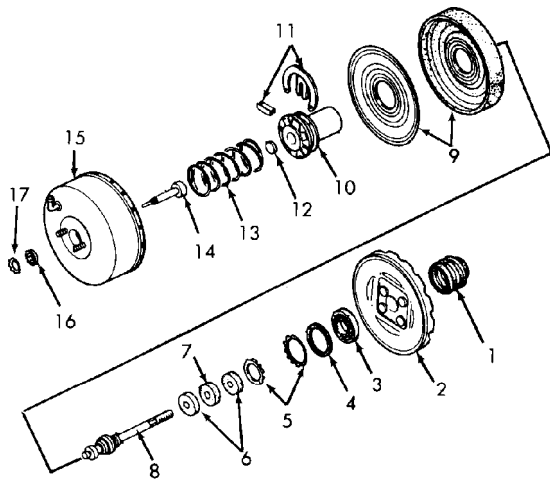
Sunday, August 19, 2001 11:00PM



58065

Mazda

Fig. 5: Exploded View Of Typical Master Cylinder
Courtesy of Mazda Motors Corp.



- | | |
|------------------------|-------------------|
| 1. Dust Boot | 10. Power Piston |
| 2. Rear Shell | 11. Retainer Key |
| 3. Dust Seal | 12. Reaction Disc |
| 4. Bearing | 13. Spring |
| 5. Retainer | 14. Push Rod |
| 6. Air Filter | 15. Front Shell |
| 7. Air Silencer | 16. Seal |
| 8. Valve Rod & Plunger | 17. Retainer |
| 9. Diaphragm & Plate | |

93R00852

Fig. 6: Exploded View Of Power Brake Unit
Courtesy of Mazda Motors Corp.

BRAKE SYSTEM

Article Text (p. 9)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 11:00PM

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	Ft. Lbs. (N.m)
-------------	----------------

Caliper Guide Bolt

RX7

Rear	46-62 (63-84)
------------	---------------

Caliper Mounting Bracket Bolt

RX7

Front	58-72 (78-98)
-------------	---------------

Rear	34-49 (46-67)
------------	---------------

Wheel Lug Nut

RX7	65-87 (88-118)
-----------	----------------

INCH Lbs. (N.m)

Wheel Cylinder Mounting Bolt

RX7	88-108 (10-12)
-----------	----------------

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

DISC BRAKE SPECIFICATIONS

DISC BRAKE SPECIFICATIONS TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	In. (mm)
-------------	----------

RX7

Front (1)

Original Thickness87 (22)
--------------------------	----------

Discard Thickness79 (20)
-------------------------	----------

Rear (1)

Original Thickness79 (20)
--------------------------	----------

Discard Thickness71 (18)
-------------------------	----------

(1) - Maximum lateral runout is .004" (.10 mm).

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

END OF ARTICLE

COOLING SYSTEM SPECIFICATIONS

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 11:00PM

ARTICLE BEGINNING

1993 ENGINE COOLING

Mazda Cooling System Specifications

Mazda; RX7

COOLING SYSTEM SPECIFICATIONS

COOLING SYSTEM SPECIFICATIONS (WITH HEATER)

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	Qts. (L)
-------------	----------

RX7	9.3 (8.8)
-----------	-----------

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

END OF ARTICLE

DRIVE BELT ADJUSTMENT SPECIFICATIONS

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 11:01PM

ARTICLE BEGINNING

1993 ENGINE COOLING

Mazda Drive Belt Adjustment Specifications

Mazda; RX7

BELT ADJUSTMENT SPECIFICATIONS

BELT ADJUSTMENT SPECIFICATIONS (NEW BELT)

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application (1) Deflection - In. (mm)

Alternator 15/64-17/64 (6-7)

A/C Compressor 9/64-5/32 (3.5-4)

Power Steering Pump 9/64-5/32 (3.5-4)

(1) - Deflection with 22 lbs. (10 kg) pressure applied
midway on belt run.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

END OF ARTICLE

ENGINE COOLING FAN

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Sunday, August 19, 2001 11:01PM

ARTICLE BEGINNING

1993 ENGINE COOLING
Mazda Engine Cooling Fans

Mazda; RX7

ELECTRIC COOLING FAN

COMPONENT TESTING

COOLING FAN MOTOR CURRENT SPECIFICATIONS

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Engine	Amps
--------	------

Low Speed	5.8-11.8
-----------------	----------

Medium Speed	6.5-12.5
--------------------	----------

High Speed	10.6-16.6
------------------	-----------

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Cooling Fan Motor (2-Speed or 3-speed)

1) Ensure battery is fully charged. Disconnect cooling fan motor connector. Connect ammeter between battery and cooling fan motor connector for desired fan speed test. See Fig. 1.

2) Ensure fan motor operates smoothly on all speeds at specified current. Check current draw against COOLING FAN MOTOR CURRENT SPECIFICATIONS table. See Fig. 1. If fan motor draws more or less than specified amperage, check wiring. If wiring is good, replace fan motor.

ENGINE COOLING FAN

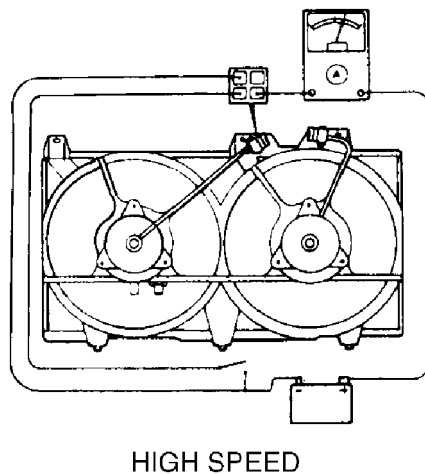
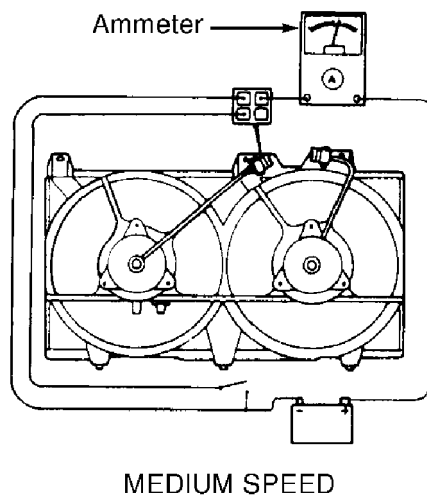
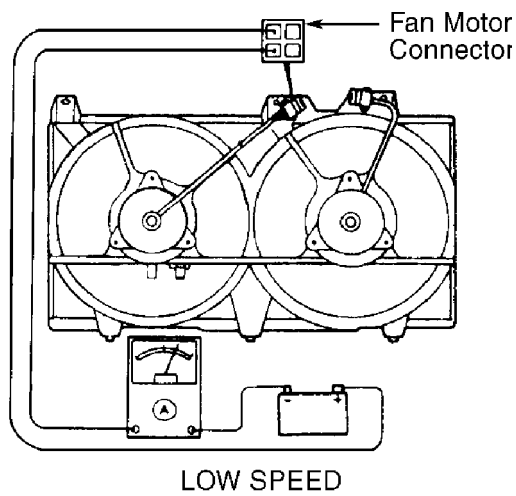
Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 11:01PM



93E84552

Fig. 1: Testing Cooling Fan Motor
Courtesy of Mazda Motors Corp.

ENGINE COOLING FAN

Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 11:01PM

Thermoswitch

1) Turn ignition switch to OFF position. Remove thermoswitch from thermostat housing. Suspend switch in container filled with water. If thermoswitch has 2 terminals, connect ohmmeter between thermoswitch terminals. If thermoswitch has 1 terminal, connect ohmmeter between terminal and thermoswitch base. Gradually heat water while checking switch resistance. See Fig. 2. See THERMOSWITCH RESISTANCE TEST table.

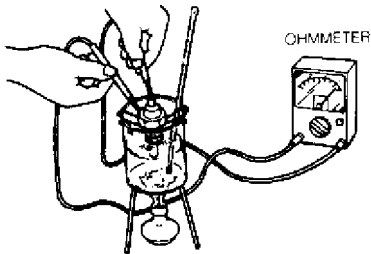


Fig. 2: Testing Thermoswitch
Courtesy of Mazda Motors Corp.

THERMOSWITCH RESISTANCE TEST TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Coolant Model & Temperature	Resistance
-----------------------------	------------

214°F (101°C)5X (Maximum)
---------------------	---------------

226°F (108°C)	1.0X (Minimum)
---------------------	----------------

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Cooling Fan Relay

1) Disconnect negative battery cable. Slide relays off of mounting bracket, located on left side of engine compartment. Remove fan relays. See Fig. 3.

2) Check for continuity between fan relay terminals "A" and "B". See Fig. 3. Continuity should not exist. Check for continuity between terminals "C" and "D." Continuity should exist.

3) Apply battery voltage between terminals "C" and "D". If no continuity exists between terminals "A" and "B", replace relay. If relay is good, check fuse and wiring.

ENGINE COOLING FAN

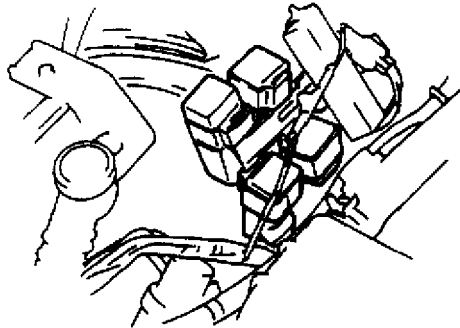
Article Text (p. 4)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

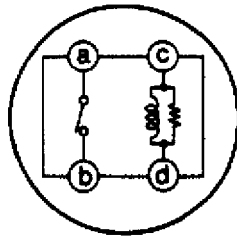
Sunday, August 19, 2001 11:01PM



'A' TYPE



'B' TYPE



93B84658

Fig. 3: Testing Cooling Fan Relay
Courtesy of Mazda Motors Corp.

WIRING DIAGRAMS

NOTE: For wiring circuit information, see appropriate wiring diagram.

END OF ARTICLE

1.3L ROTARY TURBO

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 11:01PM

ARTICLE BEGINNING

1993 MAZDA ENGINES

1.3L Rotary Turbo

RX7

ENGINE IDENTIFICATION

Engine number is stamped on left front of engine housing, below alternator. Engine model number is stamped on engine, above oil filler and oil dipstick.

ENGINE IDENTIFICATION CODES TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application Engine Code

RX7

1.3L Rotary Turbo RE 13B

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

REMOVAL & INSTALLATION

NOTE: For reassembly reference, label all electrical connectors, vacuum hoses and fuel lines before removal. Also place mating marks on engine hood and other major assemblies before removal.

FUEL PRESSURE RELEASE

Release fuel pressure by starting engine and removing circuit opening relay (located in underhood fuse and relay block). After engine stalls, turn ignition off and reinstall circuit opening relay.

ENGINE

Removal

1) Mark and remove hood. Remove battery and tray. Remove engine undercover. Drain engine oil and coolant. Remove air intake duct, air cleaner and hoses. Remove engine compartment strut bar. Disconnect radiator hoses and heater hoses.

2) Mark and remove throttle cable and cruise cable. Remove underhood fuse box mounting bolts. Move underhood fuse box aside with harness attached. Mark and disconnect necessary electrical connectors and vacuum hoses. Disconnect and plug fuel hoses. Remove drive belts. Remove power steering pump and A/C compressor with hoses attached and tie aside.

3) Disconnect oil pipes from oil cooler. Remove exhaust pipe and turbocharger heat shields. Remove exhaust head pipe. On A/T equipped models, disconnect transmission cooler pipe from lower radiator tank. Remove bolt securing transmission cooler pipes. Remove

1.3L ROTARY TURBO

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 11:01PM

torque converter-to-flexplate bolts.

4) On all models, remove starter assembly. Remove transmission-to-engine bolts. Remove engine mount nuts. Remove engine out top of vehicle.

Installation

To install, reverse removal procedure. Tighten bolts and nuts to specification. See TORQUE SPECIFICATIONS TABLE at the end of this article. Fill fluid levels.

INTAKE MANIFOLD

Removal

1) Raise and support vehicle. Drain coolant. Disconnect negative battery cable. Remove air cleaner, intake air hoses and pressure chamber. See Fig. 1. Remove air bypass valve. Remove air intake pipe. Remove coolant hose from throttle body. Disconnect vacuum hoses.

2) Remove accelerator cable, cruise control cable and throttle body assembly. Remove upper intake manifold bolts and upper intake manifold.

3) Disconnect fuel hose from injector fuel rail. Disconnect vacuum hoses at intake manifold. Disconnect fuel injector wire harness connector. Remove intake manifold-to-engine bolts and remove intake manifold.

Installation

1) To install, reverse removal procedure. Use NEW gaskets. Tighten nuts and bolts to specification. See TORQUE SPECIFICATIONS TABLE at the end of this article.

1.3L ROTARY TURBO

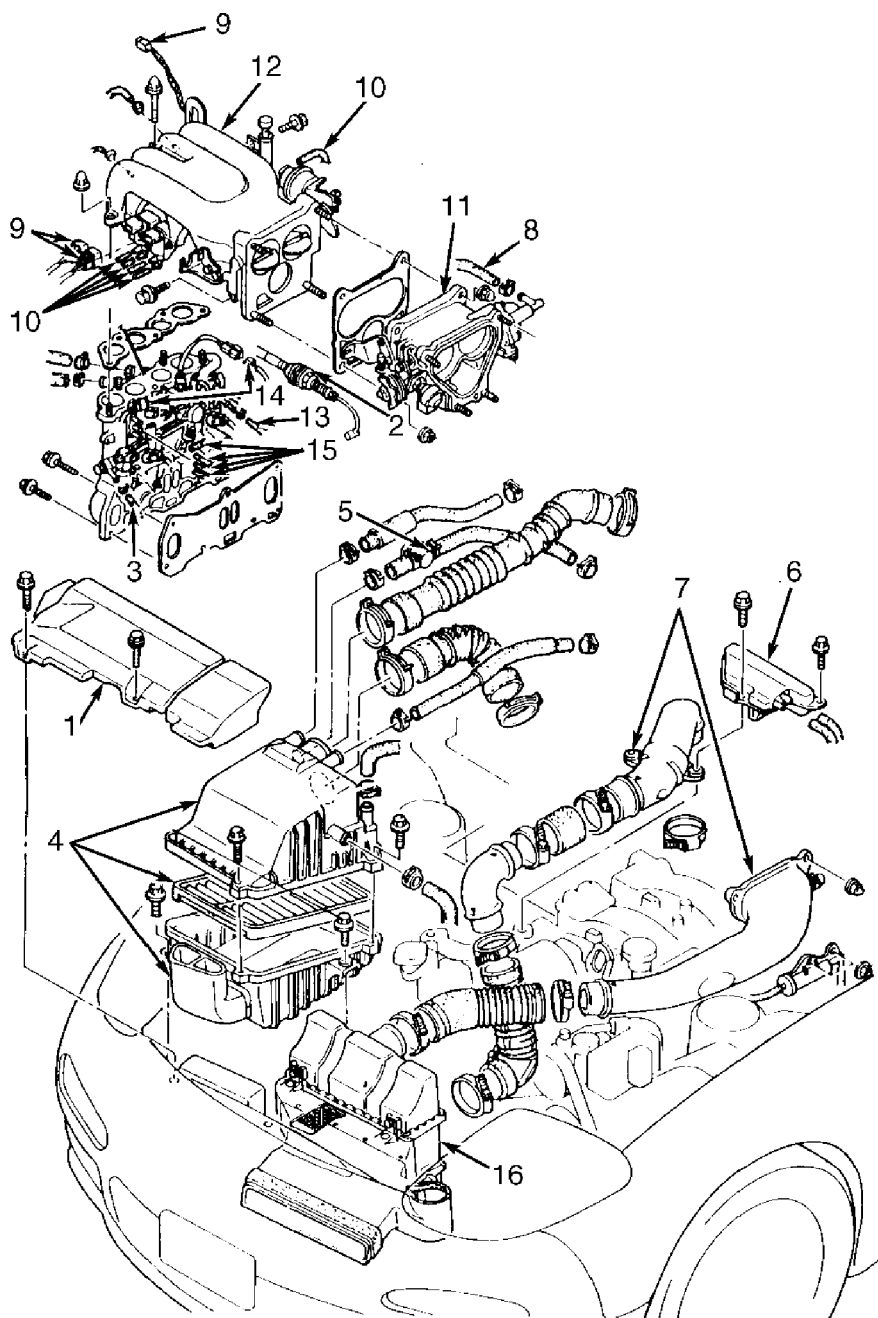
Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 11:02PM



1. Fresh Air Duct

2. Throttle Cable

3. Intake Manifold

4. Air Cleaner

5. Air By-Pass Valve

6. Pressure Chamber

7. Air Intake Hose

8. Coolant Hose

9. Connector

10. Vacuum Hose

11. Throttle Body

12. Upper Intake Manifold

13. Fuel Hose

14. Connector

15. Vacuum Hose

16. Intercooler

93D79510

Fig. 1: Exploded View Of Air Intake System

Courtesy of Mazda Motors Corp.

1.3L ROTARY TURBO

Article Text (p. 4)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 11:02PM

TURBOCHARGER/EXHAUST MANIFOLD

Removal

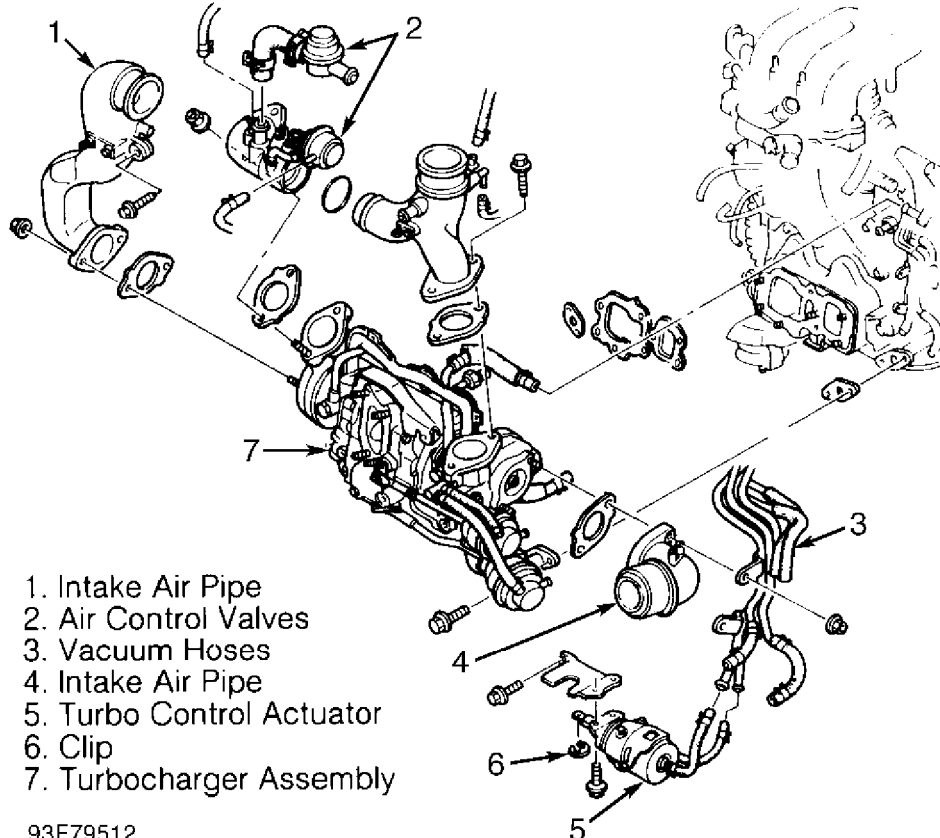
1) Raise and support vehicle. Drain coolant. Disconnect negative battery cable. Remove air cleaner, intake air hoses and pressure chamber. See Fig. 1. Disconnect accelerator cable from throttle body. Disconnect vacuum hoses. Remove pressure chamber.

2) Remove drive belt and air injection pump. Disconnect oxygen sensor, exhaust downpipe and catalytic converter. Disconnect turbo control valve assembly. See Fig. 2. Disconnect oil pipes from turbocharger. Remove coolant hoses.

3) Remove any remaining vacuum or air hoses. Remove bolts securing exhaust manifold to engine. Remove turbocharger/exhaust manifold assembly from vehicle. Place turbocharger/exhaust manifold assembly on bench. Remove turbochargers and control valve from exhaust manifold.

Installation

Install turbocharger with NEW gaskets, "O" rings and exhaust manifold studs. Tighten nuts and bolts to specification. See Fig. 3. See TORQUE SPECIFICATIONS TABLE at the end of this article. To complete installation, reverse removal procedure. Prime oil system.



93F79512

Fig. 2: Exploded View Of Turbocharger Assembly
Courtesy of Mazda Motors Corp.

1.3L ROTARY TURBO

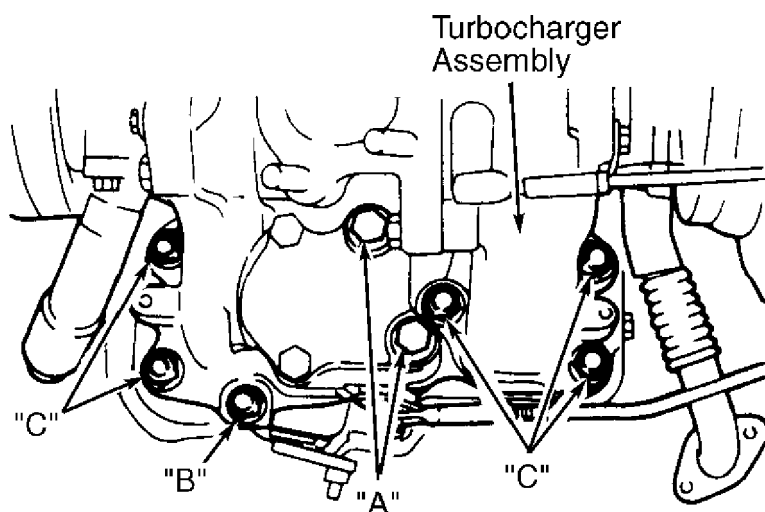
Article Text (p. 5)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 11:02PM



"A" : Tighten To 28-38 Ft. Lbs (38-51 N.m)

"B" : Tighten To 16-21 Ft. Lbs (22-29 N.m)

"C" : Tighten To 32-42 Ft. Lbs (44-57 N.m)

93G79513

Fig. 3: Installing Turbocharger

Courtesy of Mazda Motors Corp.

REAR ECCENTRIC SHAFT OIL SEAL

Removal

Disconnect negative battery cable. Drain engine oil. Remove transmission. On vehicles with manual transmission, install Ring Gear Brake (49-F011-101) or on vehicle with automatic transmission, install Counter Weight Stopper (49-1881-055). Using Flywheel Box Wrench (49-0820-035), remove flywheel or flexplate. Remove rear seal.

Installation

Apply engine oil to lip of new seal and install in rear cover. Install oil seal flush with edge of rear cover. Reverse removal procedure to complete installation. Tighten lock nut to 289-362 ft. lbs. (392-491 N.m).

WATER PUMP

Removal

1) Remove battery and battery tray. Remove air cleaner, fresh air duct and intake air hoses. Remove radiator drain plug and drain coolant. Remove water pump drive belt. Remove water pump pulley.

2) Remove alternator and air injection pump. Remove upper radiator hose. Remove intercooler, air separation tank and related brackets. Remove lower radiator hose and bypass hoses from water pump.

3) Disconnect metering oil tube. Remove water pump bolts and nuts and remove water pump. Remove temperature sensor connector.

Installation

To install, reverse removal procedure. Tighten water pump

1.3L ROTARY TURBO

Article Text (p. 6)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 11:02PM

nuts to 13-20 ft. lbs. (18-26 N.m). Tighten drive belts and refill coolant.

OIL PAN

Removal

1) Disconnect negative battery cable. Raise and support vehicle. Remove splash shield. Drain engine oil. Remove stabilizer bar. Support engine using Engine Mount Bracket (49-G017-5A0).

2) Remove engine mount-to-crossmember nuts. Disconnect power steering oil pipes at steering gear and mounting bracket on crossmember. Remove steering gear mounting bolts. Disconnect lower control arms from steering knuckles.

3) Remove crossmember-to-chassis bolts. Remove crossmember from vehicle. Remove engine mounts from engine. Remove oil pan mounting bolts. Insert knife or screwdriver between oil pan and engine and carefully loosen oil pan from engine. Remove oil pan.

Installation

To install, reverse removal procedure. Ensure all old sealant is removed from oil pan bolts. Tighten oil pan bolts to 79-104 INCH lbs. (9-12 N.m). Tighten engine mounts to 55-69 ft. lbs. (75-93 N.m). Add engine oil. Start engine and check for leaks.

DISASSEMBLY

NOTE: Disassembly procedures are with engine removed from vehicle.

Disassembly

1) Remove all external components, oil pan bolts, oil pan and oil strainer. While holding flexplate/flywheel, remove lock bolt on front of eccentric shaft. Remove "O" ring, by-pass valve, spring. See Fig. 4. Remove eccentric shaft pulley, crank angle sensor and pulley hub.

2) Remove front cover. Remove oil control valve from front cover. Remove oil pump sprockets and chain. Remove oil pump. Remove counter balance weight, Woodruff key needle bearing and spacer. See Fig. 4.

3) Remove flywheel (M/T) using Flywheel Brake (49-F011-101), or counter weight (A/T) using Counter Weight Stopper (49-1881-055). Loosen tension bolts gradually in sequence. See Fig. 5. Remove tension bolts.

1.3L ROTARY TURBO

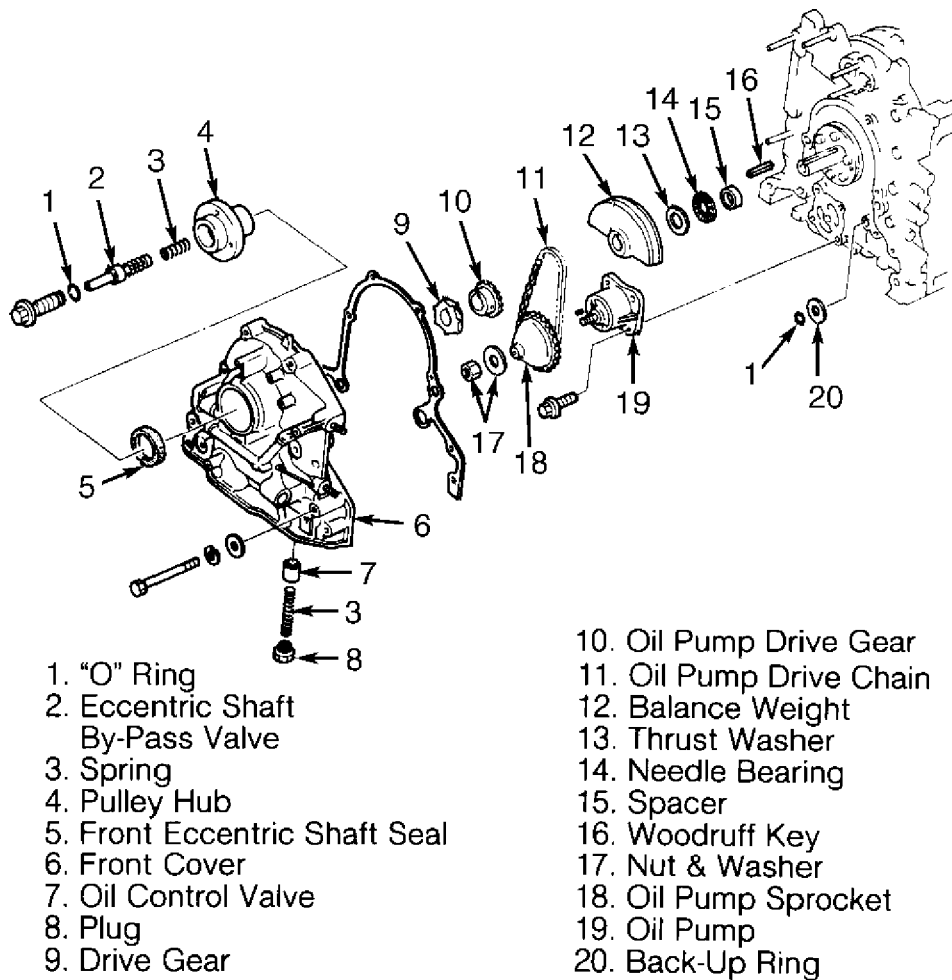
Article Text (p. 7)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 11:02PM



93A84426

Fig. 4: Exploded View Of Front Cover & Components
Courtesy of Mazda Motors Corp.

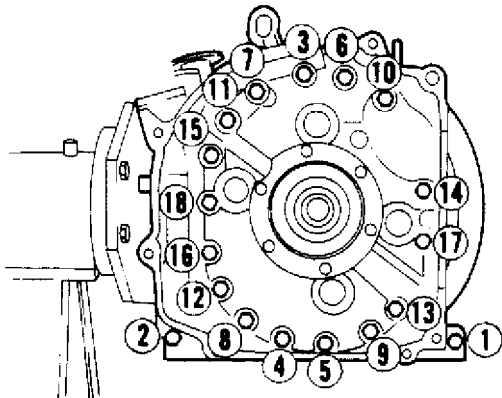


Fig. 5: Loosening Sequence Of Tension Bolts
Courtesy of Mazda Motors Corp.

CAUTION: Keep all apex, side and corner seals matched and in respect to numbers near each groove on rotor face. See Fig. 6.

1.3L ROTARY TURBO

Article Text (p. 8)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 11:02PM

4) Remove rear housing. If seals stick to rear housing, remove and place them into their original position. Remove rear oil seal from rear housing. See Fig. 7. Remove rear stationary gear. Remove oil regulator valve, oil pressure switch and temperature sender from rear housing.

5) Using a small slide hammer, remove tubular dowel from rear rotor housing. Before removing rear rotor housing, remove side pieces from rear rotor, keeping them in order. See Fig. 22. Carefully lift off rear rotor housing. Remove "O" ring from dowel hole. Remove rear rotor seals and springs, keeping them in order. Mark rear rotor for reassembly.

CAUTION: DO NOT place rotor assembly on a hard surface.

6) To remove rear rotor, rock back and forth while pulling rotor. Remove seals and springs, keeping them in order. Remove intermediate housing tubular dowel. Turn eccentric shaft so journal faces short axial direction. See Fig. 8. Remove intermediate housing (without removing eccentric shaft), while pushing eccentric shaft upward.

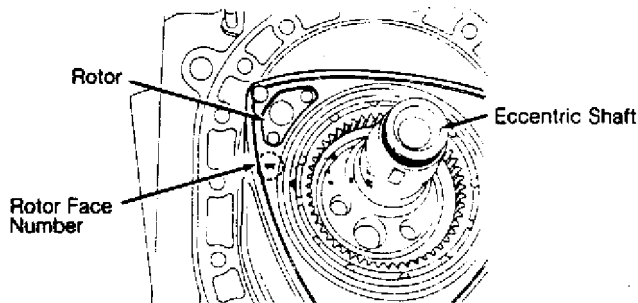


Fig. 6: Locating Rotor Face Number
Courtesy of Mazda Motors Corp.

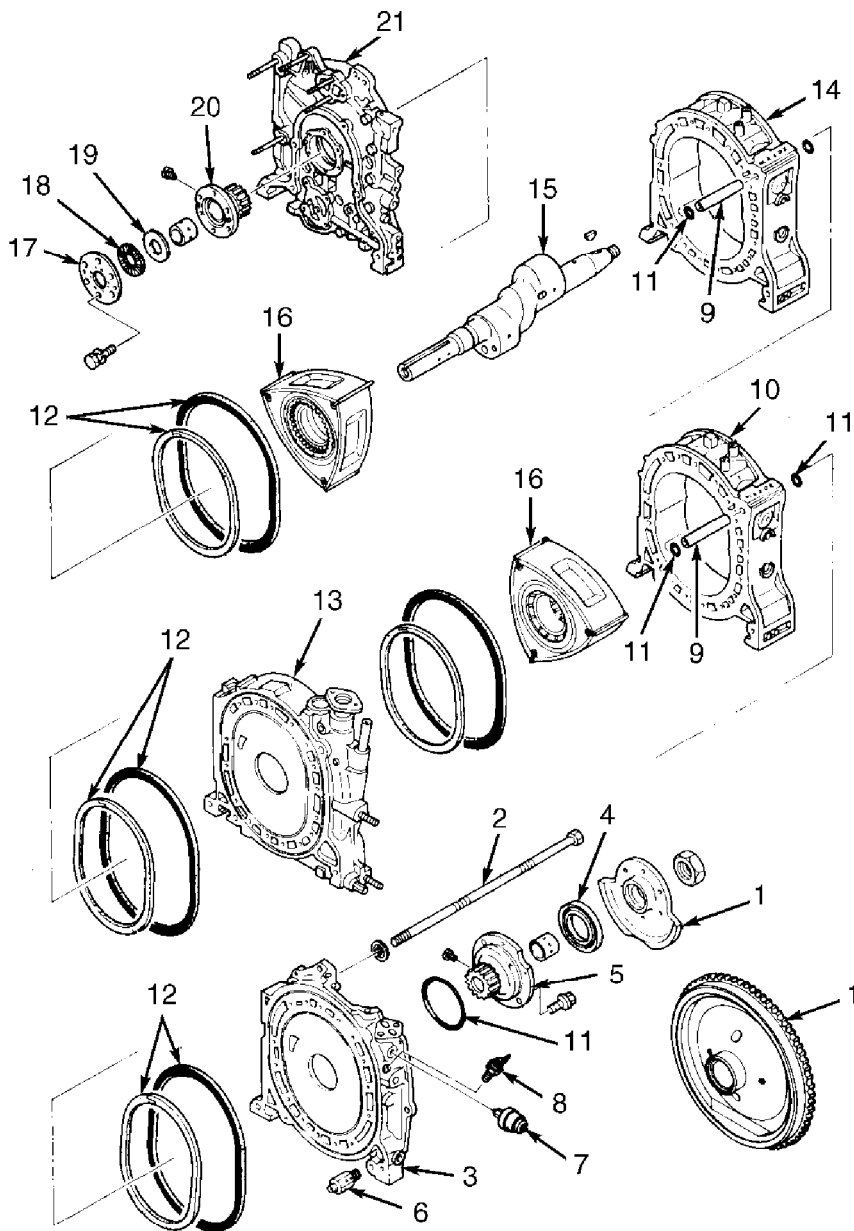
1.3L ROTARY TURBO

Article Text (p. 9)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Sunday, August 19, 2001 11:02PM



- | | |
|---------------------------------------|---------------------------|
| 1. Flywheel (M/T)/Counterweight (A/T) | 12. Sealing Rubber |
| 2. Tension Bolts | 13. Intermediate Housing |
| 3. Rear Housing | 14. Front Rotor Housing |
| 4. Rear Oil Seal | 15. Eccentric Shaft |
| 5. Rear Stationary Gear | 16. Rotor |
| 6. Oil Regulator Valve | 17. Needle Bearing |
| 7. Oil Pressure Switch | Retaining Plate |
| 8. Temperature Sender | 18. Needle Bearing |
| 9. Tubular Dowel | 19. Thrust Washer |
| 10. Rear Rotor Housing | 20. Front Stationary Gear |
| 11. "O" Ring | 21. Front Housing |

93B84427

Fig. 7: Exploded View Of Internal Engine
Courtesy of Mazda Motors Corp.

1.3L ROTARY TURBO

Article Text (p. 10)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 11:02PM

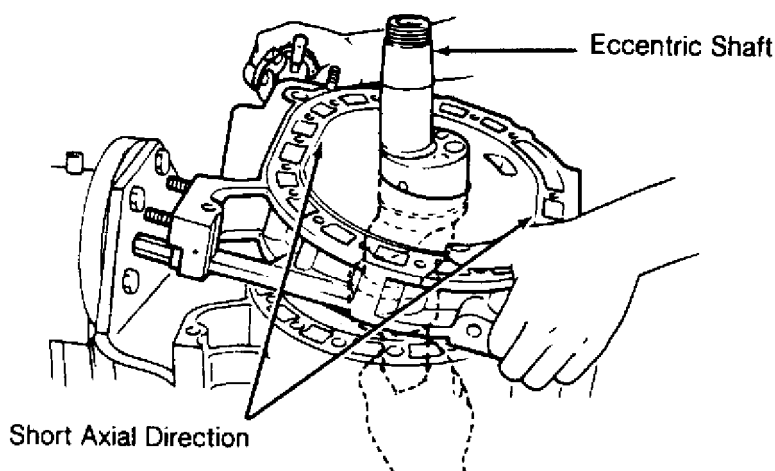


Fig. 8: Removing Intermediate Housing
Courtesy of Mazda Motors Corp.

7) If seals stick to intermediate housing surface, remove and place in original position. Remove sealing rubbers. Remove front rotor side pieces, keeping them in order. Remove front rotor housing. Remove "O" ring from dowel hole.

8) Turn eccentric shaft so journal faces short axial direction. See Fig. 8. Pull out eccentric shaft with front rotor. To remove front rotor, rock front rotor back and forth. Using Seal Remover (49 0813 225), remove outer oil seal from front rotor. See Fig. 9. Remove remaining seals, springs and "O" ring.

9) Remove needle bearing retaining plate bolts from front housing. Remove needle bearing retaining plate, needle bearing, thrust washer and front stationary gear from front housing.

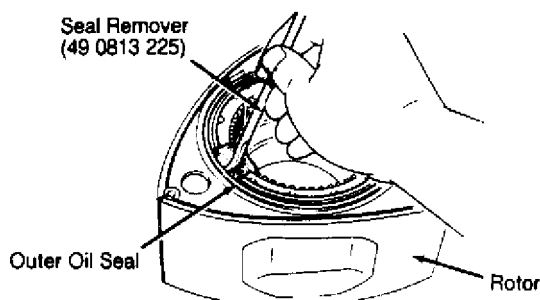


Fig. 9: Removing Oil Seal From Rotor
Courtesy of Mazda Motors Corp.

CLEANING

HOUSINGS

Cleaning

Clean sealing compound from surfaces with a cloth or brush soaked in solvent or thinner. Remove carbon on side surfaces of rotor chamber with extra-fine emery paper. DO NOT damage surface. Remove

carbon from inner surface of rotor housings with cloth soaked in solvent or thinner. Remove deposits and rust from coolant passages on housings. Check rotor housings thoroughly for gas or water leakage.

ROTOR

Cleaning

Remove carbon from rotor with sponge and carbon cleaning chemical. Use care not to damage soft material coating on side surfaces of rotor. Remove carbon from grooves. Wash rotor in cleaning solution. Clean carbon from seals and wash with cleaning solution. DO NOT use emery paper.

INSPECTION & OVERHAUL

FRONT, INTERMEDIATE & REAR HOUSINGS

Inspection & Overhaul

1) Using a straightedge and feeler gauge, check housings for warpage. See Fig. 10. See ROTOR HOUSING, INTERMEDIATE HOUSING & ROTOR in ENGINE SPECIFICATIONS tables at end of article. If not within specifications, replace housing(s).

2) Using dial indicator and Mount (49-0727-570), check seal contact surface for wear by sliding indicator across surface. Check oil seal and side seal step wear from inside to outside of each seal tracking pattern. See Fig. 11. See OIL SEAL STEP WEAR SPECIFICATIONS table. Replace as necessary.

OIL SEAL STEP WEAR SPECIFICATIONS TABLE

Application		In. (mm)
Side Seal Wear	.....	.0039 (.099)
Side Seal Wear		
Overlapping Oil Seal Wear	.....	.0004 (.010)
Side Seal Wear		
Outside Oil Seal Wear	.....	.0039 (.099)
Oil Seal Wear	.....	.0008 (.020)

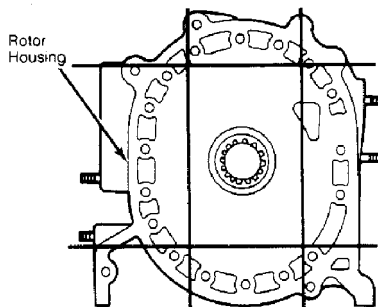


Fig. 10: Checking Housing Distortion
Courtesy of Mazda Motors Corp.

1.3L ROTARY TURBO

Article Text (p. 12)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 11:02PM

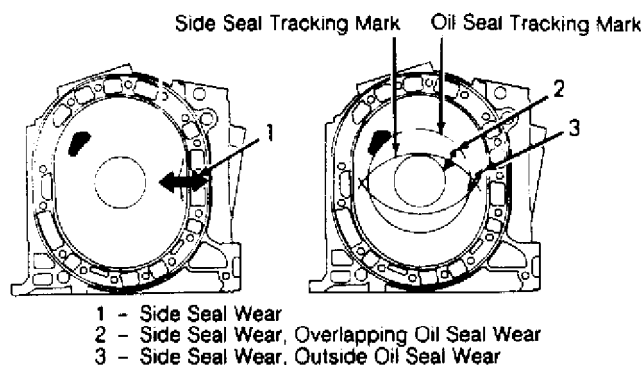


Fig. 11: Checking Oil Seal & Side Seal Step Wear
Courtesy of Mazda Motors Corp.

STATIONARY GEARS

Inspection & Overhaul

1) Check front and rear stationary gear for cracked worn or chipped teeth. To replace front stationary gear, remove plate, needle bearing and thrust plate. To replace rear stationary gear, remove bolts and drive gear out with a drift.

2) To install front stationary gear, reverse removal procedure. To install rear stationary gear, apply petroleum jelly to new "O" ring and place on rear stationary gear. Align stationary gear housing slot with housing dowel pin. Apply sealant to gear flange. Align slot with dowel and tap gear in place. Tighten bolts to specifications. See TORQUE SPECIFICATIONS TABLE at the end of this article.

ECCENTRIC SHAFT & MAIN BEARING

Inspection & Overhaul

1) Clean eccentric shaft in solvent. Apply compressed air to oil passages. Check oil jet for weak spring and stuck or damaged steel check ball. Place eccentric shaft in "V" blocks and check shaft runout. Maximum runout allowable is .0024" (.06 mm).

NOTE: The main bearing oil clearance specification allows for a wider tolerance on outside ends of eccentric shaft main bearing journals. See Fig. 12.

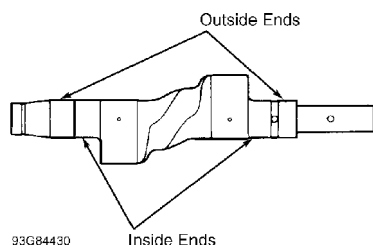


Fig. 12: Measuring Main Journal Taper
Courtesy of Mazda Motors Corp.

1.3L ROTARY TURBO

Article Text (p. 13)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 11:02PM

2) To find main bearing clearance, measure main bearing I.D. and eccentric shaft journal O.D. in at least 4 points of each bearing and journal. See ECCENTRIC SHAFT MAIN & ROTOR BEARINGS table in ENGINE SPECIFICATIONS at end of article. If not within specifications, replace main bearing and/or eccentric shaft. To replace main bearing, remove rear stationary gear as previously described. Remove screw retaining main bearing.

3) Press bearing from gear side to flange side. To install main bearing, press bearing in opposite direction of removal. Ensure new bearing lug aligns with slot on stationary gear.

ROTOR HOUSING

Inspection & Overhaul

Check chromium-plated surface on housing for damage. Using a micrometer, measure rotor housing width at points "A", "B", "C" and "D". See Fig. 13. Difference between "A" value and minimum value among "B", "C" and "D" is distortion. If distortion is not within specifications, replace housing. See ROTOR HOUSING, INTERMEDIATE HOUSING & ROTOR in ENGINE SPECIFICATIONS tables at end of article.

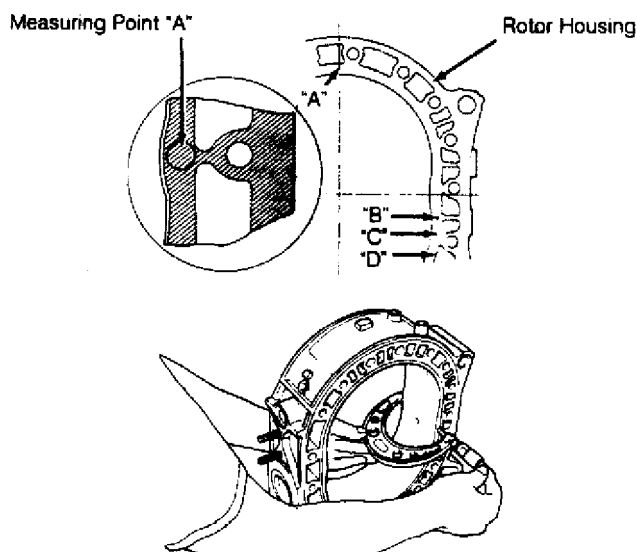


Fig. 13: Checking Rotor Housing Width Distortion
Courtesy of Mazda Motors Corp.

ROTORS

Inspection & Overhaul

1) Visually inspect rotors replace if any visual defects are found. Check condition of internal gear. Check clearance between rotor and rotor housing. Measure maximum rotor width at 3 points of rotor (near each apex). See Fig. 14. Clearance is difference between rotor housing value "A" (as previously described) and maximum width of rotor. See ROTOR HOUSING, INTERMEDIATE HOUSING & ROTOR in ENGINE SPECIFICATIONS tables at end of article.

1.3L ROTARY TURBO

Article Text (p. 14)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 11:02PM

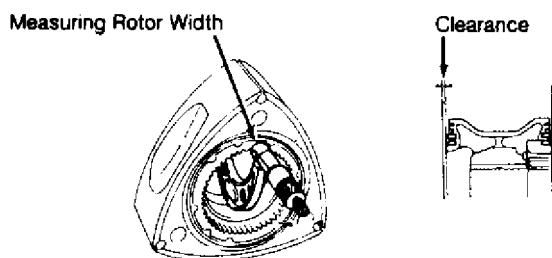


Fig. 14: Measuring Rotor-to-Side Housing Clearance
Courtesy of Mazda Motors Corp.

2) If clearance is greater or less than specification, replace rotor assembly. Check rotor corner seal bores for wear with Go-No-Go Gauge (49 0839 165). See Fig. 15. If neither end of gauge fits into rotor bores, use original corner seals. If both ends of gauge fit into bores, replace rotor. If one end of gauge does not fit and other end does, replace corner seals.

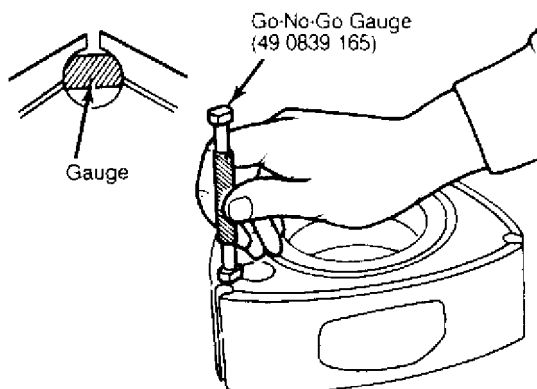


Fig. 15: Checking Corner Seal Bore Wear
Courtesy of Mazda Motors Corp.

ROTOR BEARING

Inspection & Overhaul

1) Check rotor bearing clearance. Measure I.D. of rotor bearing and O.D. of rotor bearing journal on eccentric shaft. Replace rotor bearing if clearance exceeds specifications. See ECCENTRIC SHAFT MAIN & ROTOR BEARINGS in ENGINE SPECIFICATIONS tables at end of article.

2) To replace bearing, place rotor in press with internal gear downward. Using Rotor Bearing Replacer (49 0813 240) without adapter ring, press bearing from rotor. To install, reverse removal procedure. Press new bearing in from opposite side as removed. Ensure bearing lug is aligned with slot in rotor bore.

ROTOR OIL SEALS & SPRINGS

Inspection & Overhaul

Inspect oil seal for wear or damage and replace as necessary.

1.3L ROTARY TURBO

Article Text (p. 15)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 11:02PM

Measure seal lip width. Maximum width is .020" (.51 mm). Install oil seal springs and oil seals on rotor. Measure seal protrusion. Replace oil seal and/or springs if protrusion is less than .020" (.51 mm). See Fig. 16.

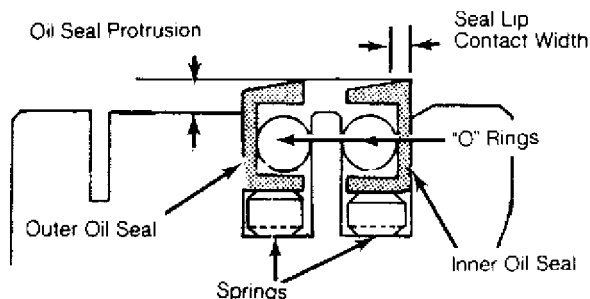


Fig. 16: Measuring Rotor Oil Seal
Courtesy of Mazda Motors Corp.

APEX SEAL & SPRING

Inspection & Overhaul

1) Measure combined height of upper and lower apex seal at 2 points. See Fig. 17. Combined height should be a minimum of .256" (6.5 mm). Replace short apex seal spring if apex seal height is less than .295" (7.5 mm).

2) To check apex seal warpage, put 2 apex seals together top edge-to-top edge. Measure between top surfaces of apex seals with a feeler gauge. See Fig. 17. Check all apex seals. If warpage exists in the middle of seals, replace apex seals. If end of seals are warped, seals can be reused.

3) Install apex seal in rotor in its original groove. Check clearance between apex seal and rotor groove with feeler gauge. See Fig. 18. Replace apex seal if not within specification. See APEX SEAL table in ENGINE SPECIFICATIONS at end of article.

4) Check apex seal spring for wear and free height. See Fig. 19. Replace long spring if free height is less than .18" (4.6 mm). Replace short spring if free height is less than .067" (1.7 mm).

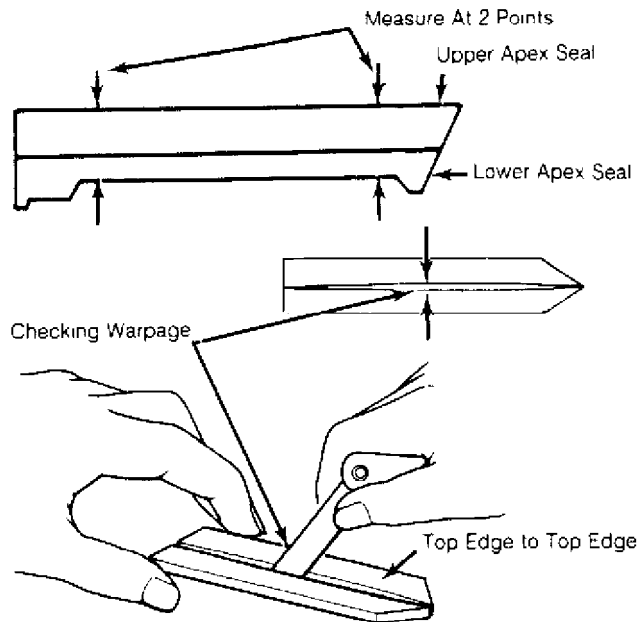


Fig. 17: Checking Apex Seal Height & Warpage
Courtesy of Mazda Motors Corp.

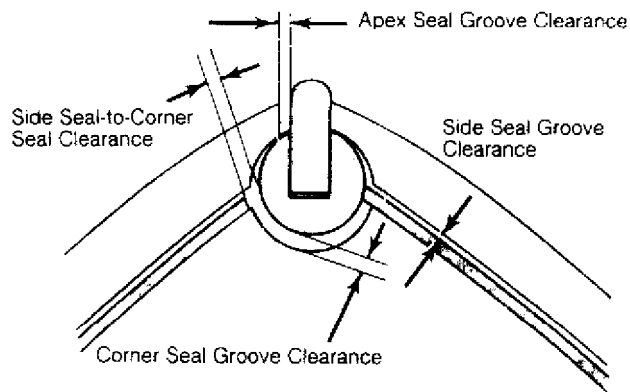


Fig. 18: Measuring Apex, Side & Corner Seal Clearance
Courtesy of Mazda Motors Corp.

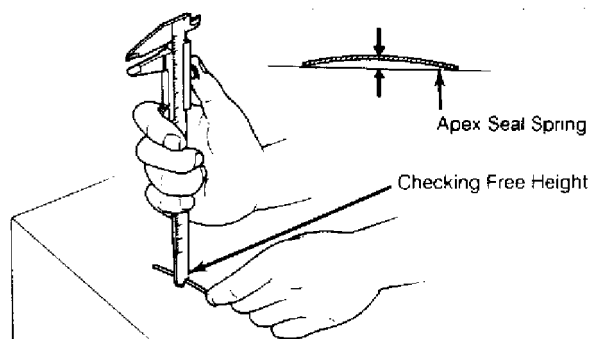


Fig. 19: Checking Apex Seal Spring Free Height
Courtesy of Mazda Motors Corp.

1.3L ROTARY TURBO

Article Text (p. 17)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 11:02PM

SIDE SEAL & SPRING

Inspection & Overhaul

1) With side seal and spring installed, press seal with finger and ensure it moves freely in groove. Check side seal protrusion. Replace side seal and/or spring if not within specifications. Side seal protrusion should be .020" (.50 mm).

2) Check clearance between side seal and groove with feeler gauge. See Fig. 18. Replace side seal if clearance exceeds specifications. Check clearance between side seals and corner seals. Replace side seals if clearance exceeds specification. See SIDE SEAL table in ENGINE SPECIFICATIONS at end of article.

3) When replacing side seals, adjust clearance between new side seal and corner seal by filing one end of side seal. Using a fine-cut file or sandpaper, shape cut unfinished end to match contour of corner seal. Adjust clearance to .002-.006" (.05-.15 mm).

CORNER SEAL, SOFT SEAL & SPRING

Inspection & Overhaul

Install corner spring and seal in rotor groove. Check free movement of seal by pressing with finger. Check corner seal protrusion from side surface of rotor. Replace corner seals or springs if corner seals protrude less than .02" (.5 mm). See CORNER SEAL table in ENGINE SPECIFICATIONS at end of article.

NEEDLE BEARING & THRUST PLATE

Inspection & Overhaul

Check needle bearing and thrust plate for wear or damage. Replace as necessary.

OIL PUMP DRIVE CHAIN & SPROCKETS

Inspection & Overhaul

Check oil pump drive chain for broken links. Check oil pump sprockets for cracks, wear or damaged teeth. Replace as necessary.

REASSEMBLY

NOTE: Replace all rubber seals. Apply clean engine oil to all sliding and rotating parts.

INNER & OUTER ROTOR OIL SEALS

Reassembly

1) Place rotor on a soft surface. Ensure new oil seal (without "O" ring) moves smoothly in its groove. Properly install oil seal springs indicated by Cream or Blue paint. See Fig. 20. Fit round edge of spring in stopper hole of groove.

1.3L ROTARY TURBO

Article Text (p. 18)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 11:02PM

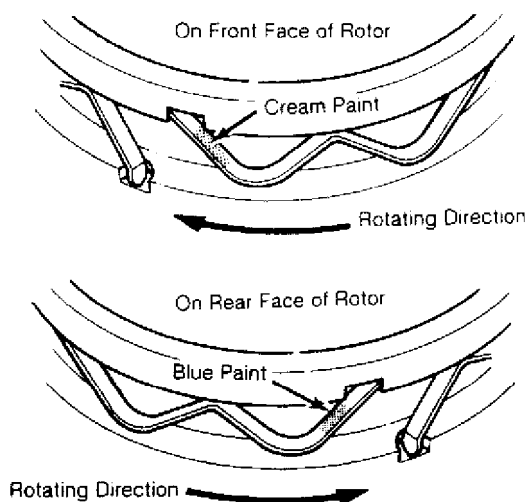


Fig. 20: Installing Oil Seal Spring On Rotor
Courtesy of Mazda Motors Corp.

2) Install new "O" ring in oil seal. Place inner oil seal in groove with square edge of spring in oil seal notch. Using old oil seal, push new seal until lip of new seal is .016" (.41 mm) below rotor surface. See Fig. 21. Carefully install remaining oil seal springs and oil seals without deforming oil seal lip. See Fig. 22. Push each oil seal slowly by hand and confirm free movement of seal.

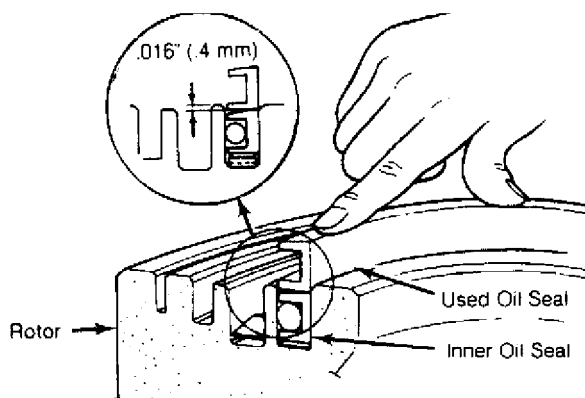


Fig. 21: Installing Oil Seal On Rotor
Courtesy of Mazda Motors Corp.

1.3L ROTARY TURBO

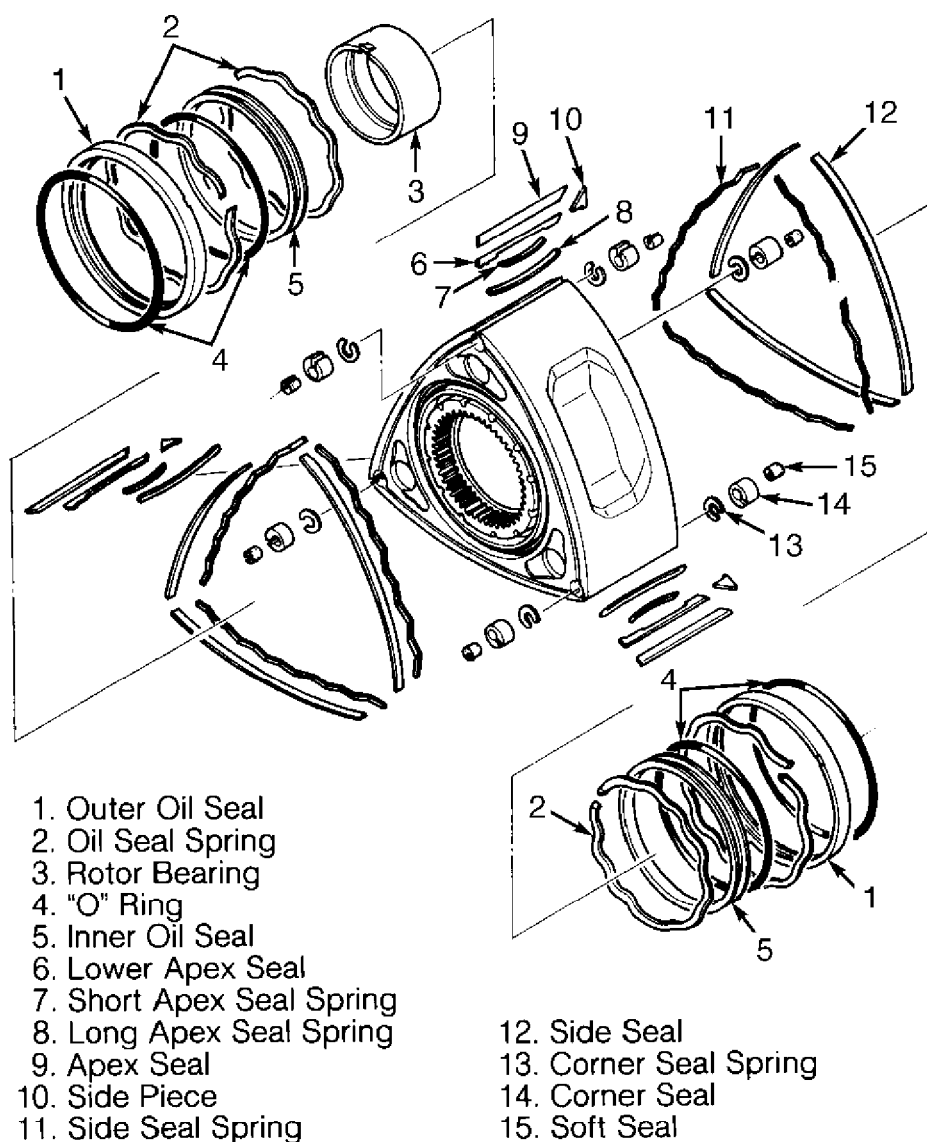
Article Text (p. 19)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 11:02PM



93D84429
Fig. 22: Exploded View Of Rotor Seals
Courtesy of Mazda Motors Corp.

FRONT HOUSING

NOTE: DO NOT apply engine oil to sealing rubber.

Reassembly

1) Mount front housing on engine stand. Position thrust plate with chamfer facing front housing. Install needle bearing and plate. Tighten plate bolts to 15 ft. lbs. (19 N.m). Apply petroleum jelly to new outer and inner sealing rubbers. Install outer sealing rubber with White paint facing groove side wall. See Fig. 23.

2) Install inner sealing rubber so Blue paint faces groove outer wall and seam is positioned properly. See Fig. 23. Ensure sealing rubbers are NOT twisted. Apply engine oil to contact surfaces,

1.3L ROTARY TURBO

Article Text (p. 20)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 11:02PM

stationary gear and main bearing.

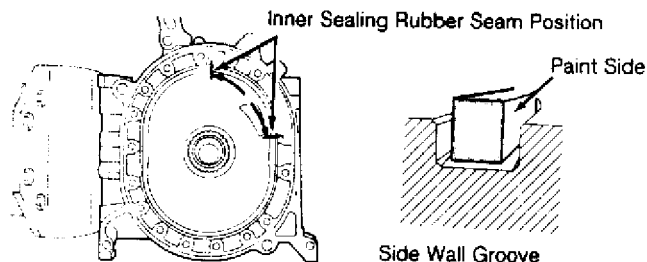


Fig. 23: Positioning Sealing Rubber On Front Housing
Courtesy of Mazda Motors Corp.

APEX SEAL & ASSIST PIECE

CAUTION: DO NOT place rotors on hard surface, use clean rubber pad or cloth.

Reassembly

Assemble apex seal and assist piece. Cut assist piece into a length of .08-1.1" (2.0-2.8 mm). Remove backing and stick assist piece to apex seal. See Fig. 24. Make sure side surfaces are flush.

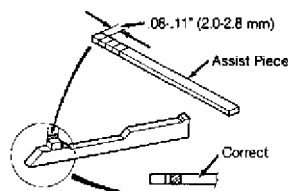


Fig. 24: Installing Assist Piece To Apex Seal
Courtesy of Mazda Motors Corp.

APEX, SOFT, CORNER & SIDE SEALS (FRONT SIDE OF ROTOR)

NOTE: Improperly installed apex seals may result in poor gas sealing performance.

Reassembly

1) Place front rotor on a soft surface (front side upward). Install upper and lower apex seals (without springs). Install side seals and corner seals on one side of rotor, apex seal springs and seals on other side of rotor will be installed after rotor is installed in housing. Side piece end is positioned to rear side of rotor. Install new soft seal into corner seal. Install corner seal spring. See Fig. 22.

2) Install corner seal, with chamfered surface facing bottom of groove. Install side seal springs and seals with painted surface facing bottom of groove. Ensure smooth movement of each corner and side seal by lightly pressing them. Apply petroleum jelly to side

1.3L ROTARY TURBO

Article Text (p. 21)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 11:02PM

seals.

FRONT ROTOR & ECCENTRIC SHAFT

Reassembly

1) Apply engine oil to rotor oil seal, rotor bearing and internal gear. Place front rotor in front housing and mesh internal gear and stationary gear. Ensure one rotor apex is set at one of 4 positions on housing. See Fig. 25. DO NOT place rotor on sealing rubbers. Apply engine oil to front rotor journal and main journal. Carefully insert eccentric shaft.

2) Tap needle bearing into eccentric shaft. Apply grease to needle bearing. Apply engine oil to oil seal lip, front rotor journal and main journal. Carefully insert eccentric shaft without damaging rotor or main bearings.

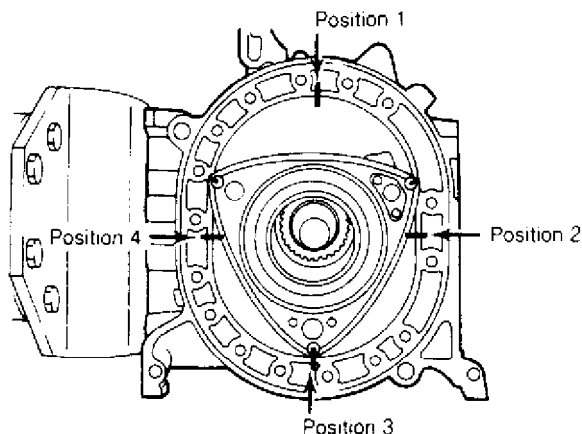


Fig. 25: Positioning Rotor Apex
Courtesy of Mazda Motors Corp.

FRONT ROTOR HOUSING

Reassembly

Apply petroleum jelly to new "O" ring and install. Apply sealant to front side of rotor housing. See Fig. 26. Apply engine oil to trochoid (rotor running) rotor housing surface. Install front rotor housing. Apply engine oil to tubular dowels and install dowels.

1.3L ROTARY TURBO

Article Text (p. 22)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 11:02PM

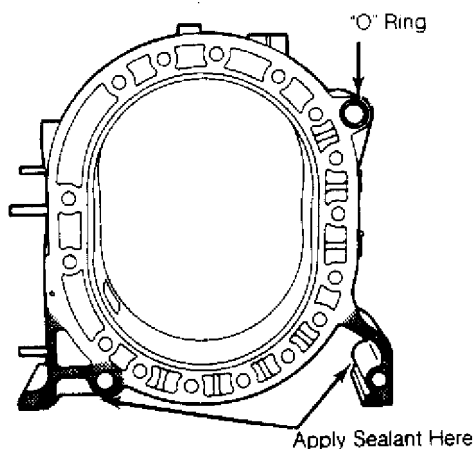


Fig. 26: Applying Sealant To Housing
Courtesy of Mazda Motors Corp.

ROTOR SEALS (REAR SIDE OF ROTOR)

Reassembly

Install short and long apex seal springs. See Figs. 27 & 28.
Install new soft seal into corner seal. Install corner seal spring.
Install corner seal with chamfered surface facing bottom of groove.
Install side seal springs and seals with painted surface facing bottom of groove. Ensure smooth movement of each corner and apex seal assembly by pressing lightly.

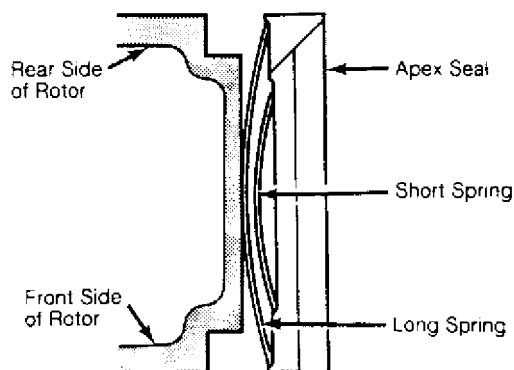


Fig. 27: Positioning Apex Seal Springs
Courtesy of Mazda Motors Corp.

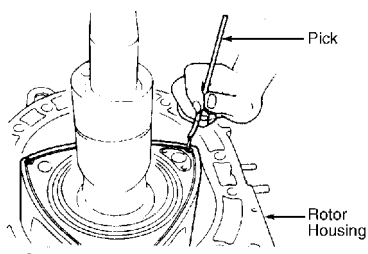


Fig. 28: Installing Apex Seal Springs
Courtesy of Mazda Motors Corp.

1.3L ROTARY TURBO

Article Text (p. 23)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 11:02PM

INTERMEDIATE HOUSING

Reassembly

1) Apply petroleum jelly to new outer and inner sealing rubbers. Install outer sealing rubber with White paint facing side wall of groove. Install inner sealing rubber to front side with the Blue paint area facing outer wall of groove and position seam properly. See Fig. 29.

2) Ensure sealing rubbers are not twisted. DO NOT apply engine oil to sealing rubbers. Apply engine oil to housing contact surfaces and rotor oil seal. Apply petroleum jelly to new "O" ring and install. Apply sealant to housing. See Fig. 26.

3) Turn the eccentric shaft so journal faces short axial direction. See Fig. 8. Lift eccentric shaft about 1.0" (25.5 mm) and install intermediate housing opposite of removal. DO NOT lift shaft more than 1.4" (35 mm).

4) Install outer and inner sealing rubbers to rear side of intermediate housing using same method as in step 1). Apply engine oil to contact surfaces. DO NOT apply engine oil to sealing rubbers.

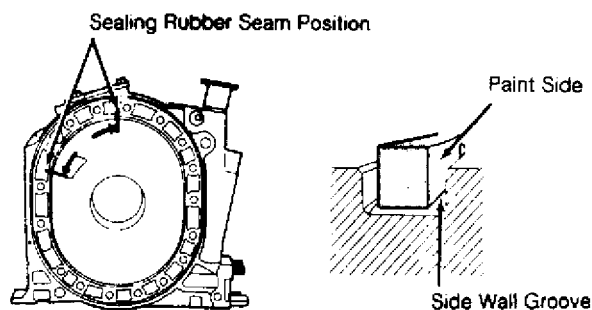


Fig. 29: Positioning Sealing Rubber On Intermediate Housing
Courtesy of Mazda Motors Corp.

REAR ROTOR, ROTOR SEALS & REAR ROTOR HOUSING

Reassembly

To reassemble, use procedure described for front rotor assembly. See FRONT ROTOR HOUSING.

NOTE: The side piece of rotor seal must face rear housing side.

REAR HOUSING

Reassembly

1) Apply engine oil to new rear oil seal and groove of rear stationary gear. Install oil seal into rear stationary gear. Install oil regulator valve and tighten to 51-58 ft. lbs. (69-78 N.m).

2) Apply petroleum jelly to new outer and inner sealing rubbers. Install outer sealing rubber with White paint facing side wall in groove. Install inner sealing rubber with Blue paint facing outer wall in groove. Ensure sealing rubbers are NOT twisted. Align seams to proper position. See Fig. 29.

3) Apply oil to contact surfaces, stationary gear and main

1.3L ROTARY TURBO

Article Text (p. 24)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 11:02PM

bearing. DO NOT apply oil to sealing rubbers. Coat rear rotor oil seal with oil. Apply petroleum jelly to new "O" ring and install in rear rotor housing. Apply sealant to lower outside edges of rear rotor housing.

4) Install rear housing on rear rotor housing. Ensure pieces of front and rear apex seals DO NOT wedge between rotor housing and side housing.

REAR HOUSING COVER

NOTE: The tension bolt marked "M" on bolt head is for No. 17 position and bolt with tube is for No. 18 position. See Fig. 30.

Reassembly

Apply engine oil to new seal washers and housing bolt threads. Install tension bolts and tighten gradually in sequence to specification. See Fig. 30. Turn eccentric shaft to ensure rotation is easy and smooth.

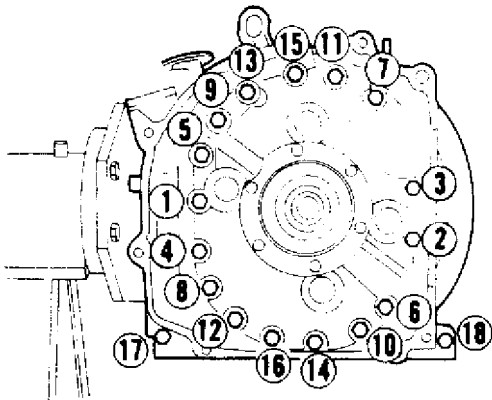


Fig. 30: Tension Bolt Tightening Sequence
Courtesy of Mazda Motors Corp.

FLYWHEEL/FLEXPLATE

Reassembly

Apply engine oil to rear housing seal. Insert Woodruff key in eccentric shaft. On M/T models, install flywheel. On A/T models, install counterweight. On all models, apply thread locking compound to eccentric shaft threads. Apply sealant to large nut contact surface. Install and tighten large nut to 290-362 ft. lbs. (392-490 N.m). On A/T models, install flex plate, rear plate and tighten evenly to 32-45 ft. lbs. (43-61 N.m).

BALANCE WEIGHT, BEARING & SPACER

Reassembly

1) Install spacer, thrust needle bearing, thrust washer, balance weight, oil pump sprocket and drive gear. See Fig. 4. Ensure needle bearing is NOT wedged by spacer. Install eccentric shaft pulley

1.3L ROTARY TURBO

Article Text (p. 25)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 11:02PM

hub and lock bolt. Tighten bolt to specification. See TORQUE SPECIFICATIONS TABLE at the end of this article.

2) Measure end play of eccentric shaft with dial indicator attached to either flywheel/flexplate or eccentric shaft pulley. If not within specifications, replace spacer with a thicker or thinner spacer. See ECCENTRIC SHAFT MAIN & ROTOR BEARINGS table in ENGINE SPECIFICATIONS at end of article. With end play within specification, remove lock bolt, pulley, drive gear and oil pump drive sprocket.

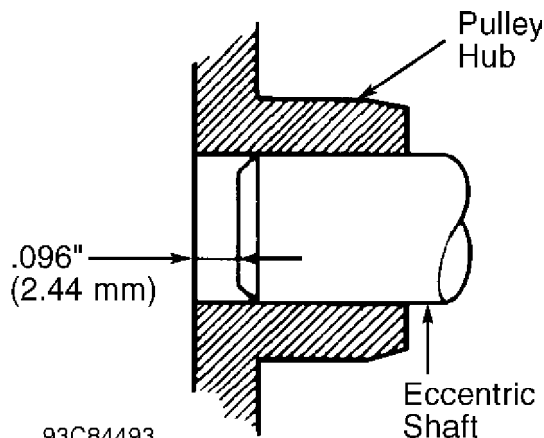
FRONT COVER

Reassembly

1) Apply engine oil to oil pump shaft and install oil pump. Install Woodruff key on eccentric shaft. Install oil pump drive gear, oil pump sprocket and chain as an assembly.

2) Install new washer and oil pump lock nut. Bend washer to lock nut. Install drive gear with chamfered surface toward front housing. Apply engine oil to new front cover oil seal and install seal into front cover. Install oil pressure control valve in front cover and tighten to specification. See TORQUE SPECIFICATIONS TABLE at the end of this article.

3) Apply petroleum jelly to "O" ring and install on front cover with new front cover gasket. Install front cover and tighten to specification. Install eccentric shaft pulley hub. Install lock bolt and tighten by hand. Remove lock bolt and measure pulley hub protrusion. See Fig. 31. If protrusion exceeds .096" (2.44 mm), needle bearing may be wedged by spacer. Remove and reposition needle bearing if necessary.



93C84493

Fig. 31: Checking Pulley Hub Protrusion
Courtesy of Mazda Motors Corp.

4) Apply thread locking compound to new lock bolt threads and sealant to flange face of bolt. Install spring, by-pass valve, NEW "O" ring and lock bolt into eccentric shaft. Install oil strainer and new gasket. Tighten to specification. See TORQUE SPECIFICATIONS TABLE at the end of this article.

5) Apply a .16-.24" (4.1-6.1 mm) diameter bead of silicone sealant to both sides of the gasket. Sealant must be continuously

1.3L ROTARY TURBO

Article Text (p. 26)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 11:02PM

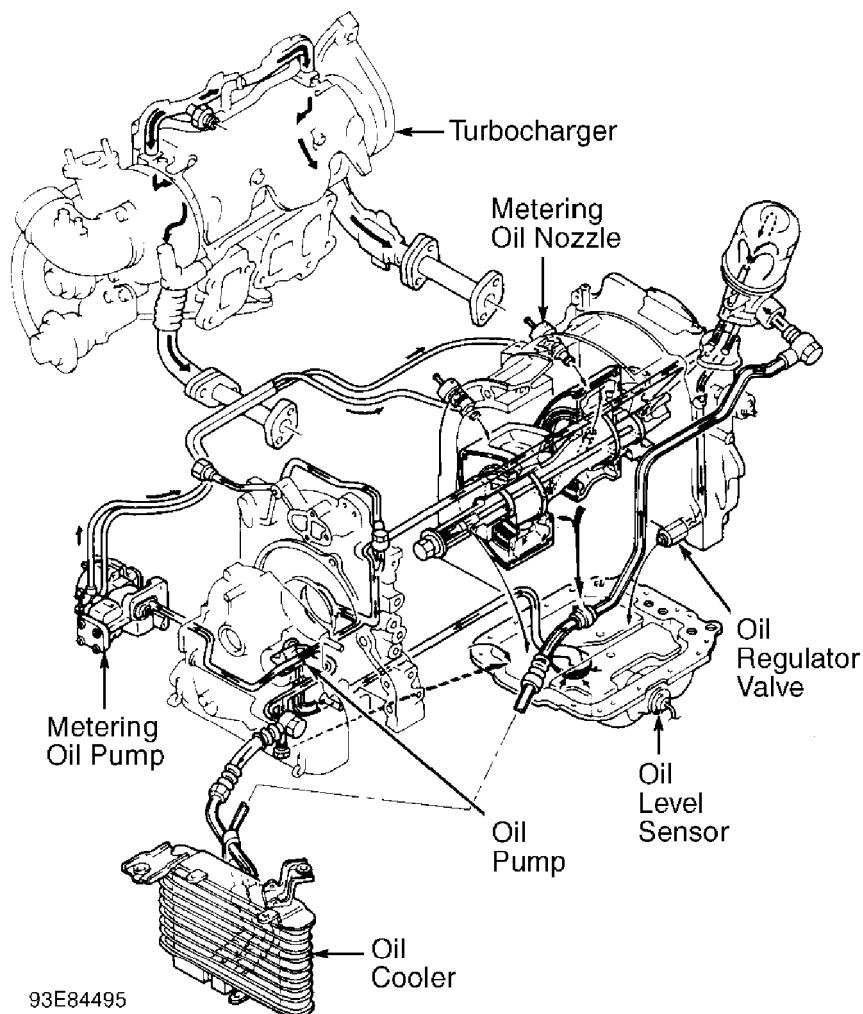
rimmed inside of bolt thread holes and ends should overlap. Install oil pan and tighten to specification. See TORQUE SPECIFICATIONS TABLE at the end of this article. To complete reassembly, reverse disassembly procedure.

EXTERNAL COMPONENTS

Reassembly

1) To reassemble external components, reverse disassembly procedure. Install White painted oil tube to oil nozzle in front rotor housing and yellow painted oil tube into oil nozzle in rear rotor housing. Ensure notch on mixing plate aligns with notch in mating hole in intermediate housing.

2) Ensure oil tubes are connected to metering oil pump as shown. See Fig. 32. Install exhaust manifold gaskets with crimped side facing exhaust manifold. When installing turbocharger tighten bolts in sequence to specification See Fig. 3.



93E84495

Fig. 32: Engine Oiling Circuit Diagram
Courtesy of Mazda Motors Corp.

ENGINE OILING

ENGINE LUBRICATION SYSTEM

Crankcase Capacity

Dry Fill crankcase capacity is 5 qts. (4.7L). Oil change
W/filter replacement capacity is 3.9 qts. (3.7L).

Oil Pressure

With engine warm and at 3000 RPM, oil pressure should be 50
psi (3.5 kg/cm²) minimum.

NOTE: Engine oil pump is mounted behind front cover. For removal
procedure, see DISASSEMBLY and Fig. 4.

OIL PUMP

Disassembly & Reassembly

With oil pump removed, remove snap ring from rear of shaft.
Remove rotors and plates. Remove lock screw and remove shaft. See
Fig. 33. To reassemble, reverse disassembly procedure. Ensure match
marks on outer rotor and inner rotors face front housing.

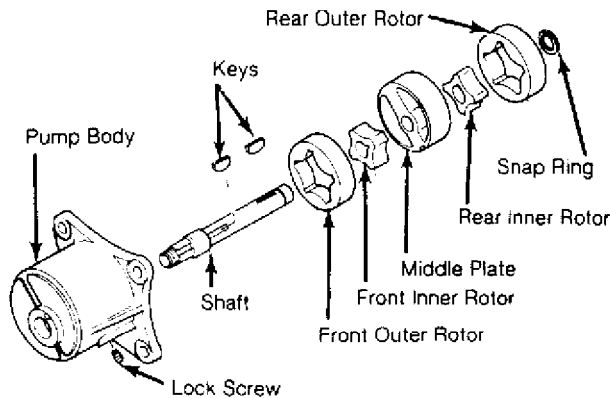


Fig. 33: Exploded View Of Oil Pump
Courtesy of Mazda Motors Corp.

Inspection

If oil pump is not within specifications, replace components
as necessary. See OIL PUMP SPECIFICATIONS table.

OIL PUMP SPECIFICATIONS TABLE

Application In. (mm)

Inner Rotor Tip-To-Outer Rotor Tip

Standard	.0012-.0047 (.031-.119)
Limit	.0059 (.150)
Oil Pressure Control Valve Spring Free Length	2.87 (72.9)
Outer Rotor-To-Pump Body	
Standard	.0079-.0098 (.201-.249)

1.3L ROTARY TURBO

Article Text (p. 28)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 11:02PM

Limit0118 (.300)
Rotor-to-Mounting Surfaces (1)
Standard0012-.0051 (.031-.130)
Limit0059 (.150)

(1) - Specification is clearance of rotor-to-body plus
clearance of front housing rotor sliding surface-to-front
housing mounting surface.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

METERING OIL PUMP

Removal

Drain engine oil. Disconnect electrical connectors.
Disconnect oil tubes and note location for reassembly. Remove mounting
bolts and pump from front housing. Remove "O" ring.

Inspection

Metering oil pump is controlled by ECU and can set Codes 20,
26, 27 and 37 if unit or wiring are malfunctioning. See SELF-
DIAGNOSTICS article in ENGINE PERFORMANCE.

Installation

Coat new "O" ring with engine oil and replace oil tube
gasket. Install pump and tighten mounting bolts to 69-95 INCH lbs. (8-
11 N.m). To complete installation, reverse removal procedure.

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	Ft. Lbs. (N.m)
Counterweight Large Nut (A/T)	290-362 (392-490)
Eccentric Shaft Pulley Bolt	180-200 (240-270)
Exhaust Manifold Nut	23-34 (32-46)
Flexplate Bolt (A/T)	32-45 (44-61)
Flywheel Large Nut (M/T)	290-362 (392-490)
Front Housing/Cover Bolt	12-17 (16-23)
Intake Manifold Bolt	14-19 (19-25)
Engine Mount Nut	34-49 (46-67)
Oil Inlet Pipe Bolt (Turbo)	14-17 (18-22)
Metering Oil Nozzle-To-Housing	12-17 (16-23)
Oil Pressure Control Valve Plug	29-36 (39-49)
Oil Pump Sprocket Nut	23-34 (32-46)
Tension Bolt (1)	24-29 (32-39)
Rear Stationary Gear Bolt	12-17 (16-23)
Engine Mount-To-Oil Pan	55-69 (75-93)
Spark Plug	10-13 (13-18)
Thrust Plate Bolt	12-17 (16-23)
Turbo Mount Nut	(2)
Water Pump Nut	13-19 (18-26)

1.3L ROTARY TURBO
Article Text (p. 29)
1993 Mazda RX7
For www.iluvmyrx7.com
Copyright © 1998 Mitchell Repair Information Company, LLC
Sunday, August 19, 2001 11:02PM

INCH Lbs. (N.m)

EGR Valve	69-95 (7.8-10.7)
Metering Oil Pump-To-Housing Bolt	69-95 (7.8-10.7)
Oil Pan Bolt	79-104 (8.9-11.7)
Oil Pump Housing-To-Front Housing Bolt ...	61-87 (6.9-9.8)
Oil Strainer Bolt	79-104 (8.9-11.7)

(1) - Tighten in sequence. See Fig. 30.

(2) - Tighten in sequence. See Fig. 3.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

ENGINE SPECIFICATIONS

GENERAL SPECIFICATIONS

GENERAL SPECIFICATIONS TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	Specification
-------------	---------------

Displacement	80.0 Cu. In. (1.3L)
Compression Ratio	9.0:1
Fuel System	PFI
Horsepower @ RPM	255 @ 6500
Torque Ft. Lbs. @ RPM	217 @ 5000

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

ROTOR HOUSING, INTERMEDIATE HOUSING & ROTOR

ROTOR HOUSING, INTERMEDIATE HOUSING & ROTOR TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	In. (mm)
-------------	----------

Front & Rear Rotor Housing	
Width	3.15 (80.0)
Distortion Limit .....	.0024 (.060)
Front, Intermediate & Rear Housing	
Wear/Distortion Limit .....	.0016 (.041)
Rotor	
Width	3.1368 (79.67)
Housing-To-Rotor Clearance	
Standard	(1) .0047-.0083 (.119-.211)
Minimum limit .....	.004" (.10 mm).

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

APEX SEAL

APEX SEAL TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	In. (mm)
-------------	----------

1.3L ROTARY TURBO

Article Text (p. 30)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 11:02PM

Seal Width079 (2.0)

Seal Height

Standard33 (8.5)

Minimum295 (7.5)

Seal-To-Groove Clearance

Standard002-.004 (.051-.101)

Maximum Wear Limit006 (.15)

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

SIDE SEAL

SIDE SEAL TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application In. (mm)

Thickness0260-.0270 (.661-.686)

Protrusion (Min.)020 (.51)

Seal-To-Groove

Clearance0011-.0031 (.028-.078)

Limit004 (.10)

Side Seal-To-Corner Seal

Clearance002-.006 (.05-.15)

Limit016 (.40)

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

ECCENTRIC SHAFT MAIN & ROTOR BEARINGS

ECCENTRIC SHAFT MAIN & ROTOR BEARINGS TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application In. (mm)

Eccentric Shaft

Runout0027 (.06)

End Play

Standard0016-.0028 (.041-.070)

Maximum0035 (.09)

Main Journal Diameter 1.693 (43.0)

Rotor Journal Diameter 2.9 (74)

Main Bearings

Clearance (Inside End)(1) ... (2) .0023-.0031 (.060-.079)

Clearance (Outside End)(1) .. (3) .0031-.0043 (.079-.110)

Inside Diameter 1.6939-1.6949 (43.025-43.050)

Rotor Bearing

Inside Diameter 2.9144-2.9153 (74.025-74.050)

Clearance (2) .0023-.0031 (.060-.080)

(1) - See Fig. 12.

(2) - Wear limit is .0043" (.11 mm).

(3) - Wear limit is .0051" (.13 mm).

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

CORNER SEAL

1.3L ROTARY TURBO

Article Text (p. 31)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 11:02PM

CORNER SEAL TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	In. (mm)
-------------	----------

Diameter4327-.4336 (10.990-11.014)
----------------	-----------------------------

Height276 (7.0)
--------------	------------

Side Seal-To-Corner Seal	
--------------------------	--

Clearance002-.006 (.05-.15)
-----------------	---------------------

Limit016 (.40)
-------------	------------

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

END OF ARTICLE

AA - USING THIS SECTION (GENERAL HELP INFORMATION)

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:36AM

ARTICLE BEGINNING

ENGINE PERFORMANCE

How To Use This Section

INTRODUCTION

NOTE: Because there are so many possible combinations of articles for the different manufacturers and models, the new hyper-text capabilities built into this product DO NOT apply to this article.

It is the purpose of this repair information system to help professional automotive technicians maintain top vehicle performance and correct driveability problems related to today's high tech vehicles.

Because of the limited amount of space allowable for the this product, our titles have been condensed to fit into the menus. An alphabetical designation has been added to the front of each title to allow the titles to be displayed in a way that reflects their respective order of use. References to the titles in some of the diagnostic flow charts sometimes will not correlate with the titles in the this product menu. If not, refer to the MENU CROSS-REFERENCE table below.

MENU CROSS-REFERENCE TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Title	Associate Print (Book) Title:
-------	-------------------------------

A - ENGINE/VIN I D	Introduction
B - EMISSION APPLICATION	Emission Applications
C - TUNE-UP SPECS	Service & Adjustment Specifications
C - SPECIFICATIONS	Service & Adjustment Specifications
D - ADJUSTMENTS	On-Vehicle Adjustments
E - THEORY/OPERATION	Theory & Operation
F - BASIC TESTING	Basic Diagnostic Procedures
G - TESTS W/ CODES	Self-Diagnostics
H - TESTS W/O CODES	Trouble Shooting - No Codes
I - SYS/COMP TESTS	Systems & Component Testing
J - PIN VOLTAGE CHARTS	Pin Voltage Charts
K - SENSOR RANGE CHARTS	Sensor Operating Range Charts
L - WIRING DIAGRAMS	Wiring Diagrams
M - VACUUM DIAGRAMS	Vacuum Diagrams
N - REMOVE/INSTALL/OHAUL	Removal, Overhaul & Installation

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Because of this we recommend that you read the rest of these INTRODUCTION paragraphs to better understand why the information is presented in this new format.

The A - ENGINE/VIN I D article will help you identify the vehicle and its systems. It will also explain the VIN code and in many cases, show its location.

AA - USING THIS SECTION (GENERAL HELP INFORMATION)

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:36AM

If you want "TUNE-UP" type information, see D - ADJUSTMENTS for the adjustment procedures. If you are familiar with the procedures, but need a quick way to find the specification, go to C - TUNE-UP SPECS or C - SPECIFICATIONS for the specifications pertaining to the vehicle.

When diagnosing driveability problems, first go to F - BASIC TESTING. This article is here to help eliminate wasted diagnostic time. If the basic systems are working properly, go to G - TESTS W/ CODES.

If the vehicle still is having a driveability problem or if the vehicle has no self-diagnostic system, go to H - TESTS W/O CODES. This article will help you diagnose the problem by symptom, locate the symptom exhibited by the vehicle, and inspect or test the items which may be causing the problem.

After finding which specific system or component requires testing, use the I - SYS/COMP TESTS article to tests the systems and components. We have also included (when available) pin voltage charts and sensor range charts. These can be found in J - PIN VOLTAGE CHARTS and K - SENSOR RANGE CHARTS.

Also included in this section are wiring diagrams and vacuum diagrams. These can be found in L - WIRING DIAGRAMS and M - VACUUM DIAGRAMS.

When all diagnostic tests have been performed and the problem has been discovered, it may be necessary to replace or overhaul the defective part. This information can be found in N - REMOVE/INSTALL/OHAUL.

The content of each of these articles is outlined below. As a summary of the driveability diagnosis, see ROUTINE OUTLINE in this article.

A - ENGINE/VIN ID

This article shows how to identify the model and engine by its Vehicle Identification Number (VIN). A model coverage chart shows each model and engine, the fuel system, ignition system and engine code. The engine serial number locations are also included in this article.

B - EMISSION APPLICATION

These charts identify the emission systems and sub-systems applicable to each model and engine combination.

C - TUNE-UP SPECS

This is a collection of quick-reference type specifications. This article is helpful when you are familiar with proper adjustment procedures and only need specifications. Included in this section are:

- * Battery specifications.
- * Fluid capacities.

AA - USING THIS SECTION (GENERAL HELP INFORMATION)

Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:36AM

- * Replacement intervals.
- * Belt adjustment.
- * Engine Compression.
- * Valve clearance.
- * Valve Arrangement.
- * Ignition coil specifications.

- * High tension wire resistance.
- * Spark plug type and gap.
- * Firing order.
- * Ignition timing.
- * Fuel pump performance and injector resistance specifications
- * Slow and fast idle speed and mixture specifications.
- * Carbon monoxide (CO) level specifications.
- * Throttle position sensor/switch specifications.

C - SPECIFICATIONS

This is a collection of quick-reference type specifications. This article is helpful when you are familiar with proper adjustment procedures and only need specifications. Included in this section are:

- * Battery specifications.
- * Fluid capacities.
- * Replacement intervals.
- * Belt adjustment.
- * Engine Compression.
- * Valve clearance.
- * Valve Arrangement.
- * Ignition coil specifications.

- * High tension wire resistance.
- * Spark plug type and gap.
- * Firing order.
- * Ignition timing.
- * Fuel pump performance and injector resistance specifications
- * Slow and fast idle speed and mixture specifications.
- * Carbon monoxide (CO) level specifications.
- * Throttle position sensor/switch specifications.

D - ADJUSTMENTS

This article contains the information that use to be included in the TUNE-UP section. Checking and adjusting valves, spark plugs, spark plug wires, base ignition timing and idle speed are found in this section. Use this article for routine maintenance. Also, if you have a driveability problem, ensure all on-vehicle adjustments are correct before proceeding with any diagnosis.

E - THEORY/OPERATION

AA - USING THIS SECTION (GENERAL HELP INFORMATION)

Article Text (p. 4)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:36AM

This article covers basic theory and operation of engine performance-related systems and components. Before diagnosing vehicles or systems with which you are not completely familiar, read this article.

F - BASIC TESTING

When diagnosing driveability problems, there are certain "BASIC DIAGNOSTIC PROCEDURES" which must FIRST be performed. It is necessary to perform a careful, complete check of basic engine mechanical and electrical conditions, and verify spark availability and adequate fuel supply.

The procedures apply to both computerized and non-computerized systems. If all systems are okay, go to G - TESTS W/ CODES for vehicles with self-diagnostic systems or H - TESTS W/O CODES for diagnosis by symptom.

G - TESTS W/ CODES

Use this article to retrieve and interpret trouble codes from the engine computer self-diagnostic system. Once information is retrieved, diagnostic procedures are given to help pinpoint and repair computer system/component faults. Necessary steps for clearing trouble codes are also given. If faults indicated by trouble codes are not present at time of testing, proceed to TESTS W/O CODES for intermittent testing procedures.

H - TESTS W/O CODES

This article helps trouble shoot driveability problems based upon available "SYMPTOMS" and "INTERMITTENT TESTING" procedures. Procedures in this section should lead you to specific component or system tests which may or may not be computer monitored/controlled.

I - SYS/COMP TESTS

In this article, you will find tests for systems and components related to air induction systems (turbochargers), fuel control, ignition control, and emissions control systems.

J - PIN VOLTAGE CHARTS

PIN VOLTAGE CHARTS are supplied (where available) to speed up the diagnostic process. By checking pin voltages at the electronic control unit, it is possible to determine if the control unit is receiving and transmitting proper voltage signals.

K - SENSOR RANGE CHARTS

Use the SENSOR OPERATING RANGE CHARTS to determine if a

AA - USING THIS SECTION (GENERAL HELP INFORMATION)

Article Text (p. 5)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:36AM

sensor is out of calibration. A sensor that is out of calibration may not set a trouble code, but it will cause driveability problems.

L - WIRING DIAGRAMS

Use these WIRING DIAGRAMS to identify and trace component circuits, locate shorts and opens in circuits, and understand how individual circuits function as part of a system. The diagrams in this article are only for fuel, ignition and emission systems

M - VACUUM DIAGRAMS

The VACUUM DIAGRAMS will assist you in finding incorrectly routed vacuum hoses which may cause driveability problems or computer indicated malfunctions.

N - REMOVE/INSTALL/OHAUL

N - REMOVE/INSTALL/OHAUL contains information found in the sub-headings of REMOVAL, OVERHAUL & INSTALLATION. These are procedures and specifications required to remove, overhaul (if possible) and install components related to engine performance.

WHERE TO START

PERFORM BASIC INSPECTION

- 1) Verify customer complaint.
- 2) Perform visual inspection. See F - BASIC TESTING.
- 3) Test engine sub-system to determine that the following systems are functioning properly. See F- BASIC TESTING.

- * Mechanical conditions (compression)
- * Ignition output
- * Fuel Delivery

- 4) Check air induction system for leaks.

- 5) Check & adjust basic engine settings listed below to ensure they are to specification. See D - ADJUSTMENTS.

- * Ignition timing
- * Idle speed

CHECK FOR TROUBLE CODES

- 1) If equipped with self-diagnostics, check for trouble codes. Refer to G - TESTS W/ CODES.
- 2) Repair causes of trouble code(s).
- 3) Clear control unit memory.

SYMPTOM DIAGNOSIS

AA - USING THIS SECTION (GENERAL HELP INFORMATION)

Article Text (p. 6)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:36AM

1) If no self-diagnostics available, or no trouble codes present, identify symptom.

2) See trouble shooting procedure to repair complaint. See H

- TESTS W/O CODES

TEST SYSTEM

1) Perform necessary systems and component tests. See I - SYS/COMP TESTS.

2) Verify that complaint is repaired.

SAFETY PRECAUTIONS

- * Always refer to Engine Tune-Up Decal in engine compartment before performing tune-up. If manual and decal differ, always use decal specifications.
- * DO NOT allow or create a condition of misfire in more than one cylinder for an extended period of time. Damage to converter may occur due to loading converter with unburned air/fuel mixture.
- * Always turn ignition off and disconnect negative battery cable BEFORE disconnecting or connecting computer or other electrical components.
- * DO NOT drop or shock electrical components such as computer, airflow meter, etc.
- * DO NOT use fuel system cleaning compounds that are not recommended by the manufacturer. Damage to gaskets, diaphragm materials and catalytic converter may result.
- * Before performing a compression test or cranking engine using a remote starter switch, disconnect coil wire from distributor and secure it to a good engine ground, or disable ignition.
- * Before disconnecting any fuel system component, ensure fuel system pressure is released.
- * Use a shop towel to absorb any spilled fuel to prevent fire.
- * DO NOT create sparks or have an open flame near battery.
- * If any EFI components such as hoses or clamps are replaced, ensure they are replaced with components designed for EFI use.
- * Always reassemble throttle body components with new gaskets, "O" rings and seals.
- * If equipped with an inertia switch, DO NOT reset switch until fuel system has been inspected for leaks.
- * Wear safety goggles when drilling or grinding.
- * Wear proper clothing which protects against chemicals and other hazards.

END OF ARTICLE

A - ENGINE/VIN ID

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:35AM

ARTICLE BEGINNING

1993 ENGINE PERFORMANCE

Mazda Introduction

1993 MODEL COVERAGE

MODEL COVERAGE TABLE

MODEL	BODY CODE	ENGINE (1)	ENGINE ID	FUEL SYSTEM	IGNITION SYSTEM
B2200	11, 12, 21, 22, 31, 32	2.2L 4-Cyl (8-Valve)	3	2V/PFI (2)	HEI (2)(3)
B2600i	11, 31, 41, 51, 61	2.6L 4-Cyl (12-Valve)	4	PFI	LED (4)
Miata	35	1.6L 4-Cyl (16-Valve)	1 (2 In Canada)	PFI	Hall Sensor
MPV	52, 62	2.6L 4-Cyl (12-Valve)	1	PFI	LED (4)
		3.0L V6 (18-Valve)	2	PFI	Magnetic
MX-3	43	1.6L 4-Cyl (16-Valve)	1, 2, 3, 4	SFI	Hall Sensor (6)
MX-6	31	2.0L 4-Cyl (16-Valve)	A	SFI	Hall Sensor
		2.5L V6 (24-Valve)	B	SFI	Magnetic & Hall Sensor
Navajo	44	4.0L V6 (12-Valve)	X	PFI	DIS (7)
Protege	22	1.8L 4-Cyl (16-Valve)	4, 6, 8	PFI	Hall Sensor
RX7	33	1.3L Rotary	1, 2	PFI	Magnetic
323	23	1.6L 4-Cyl (8-Valve)	2, 4	PFI	Hall Sensor
626	22	2.0L 4-Cyl (16-Valve)	A	SFI	Hall Sensor
		2.5L V6 (24-Valve)	B	SFI	Magnetic & Hall Sensor

A - ENGINE/VIN ID

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:35AM

```

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 929      3      46      3      3.0L V6      3      1      3      SFI      3 Magnetic & 3
3          3          3      (24-Valve) 3          3          3      Hall Sensor3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 (1) - See illustrations for engine code and serial number location.3
3 (2) - California models have PFI systems with light emitting      3
3      diode ignition system.      3
3 (3) - High Energy Ignition (HEI) system.      3
3 (4) - Light Emitting Diode (LED).      3
3 (5) - GS model has 1.8L V6 DOHC (24-valve) engine.      3
3 (6) - GS model also has magnetic sensor on crank pulley.      3
3 (7) - Distributorless Ignition System (DIS).      3
3 (8) - LX model has 1.8L 4-cyl. DOHC (16-valve) engine.      3
3 (9) - California models use a 1.6L 4-cyl. (16-valve) engine.      3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

```

VIN DEFINITION (EXCEPT NAVAJO)

```

(VIN)      J  M  1  B  D  2  3  1  *  P  0  5  0  0  0  0  1
           1  2  3  4  5  6  7  8  9  10 11 12 13 14 15 16 17

```

- 1 - Indicates Nation of Origin.
- 2 - Indicates Manufacturer.
- 3 - Indicates Vehicle Type.
- 4-5 - Indicates Model.
- 6-7 - Indicates Body Style.
- 8 - Indicates Modification.
- 9 - Indicates Check Digit.
- 10 - Indicates Model Year.
- 11 - Indicates Assembly Plant.
- 12-17 - Indicates Production Sequence.

VIN DEFINITION (NAVAJO ONLY)

```

(VIN)      4  F  2  C  U  4  4  X  *  P  U  M  0  0  0  0  1
           1  2  3  4  5  6  7  8  9  10 11 12 13 14 15 16 17

```

- 1 - Indicates Manufacturer.
- 2 - Indicates Make.
- 3 - Indicates Vehicle Type.
- 4 - Indicates Brake System/GVWR.
- 5-7 - Indicates Model or Line/Series/Chassis/Cab Type.
- 8 - Indicates Engine Type.
- 9 - Indicates Check Digit.
- 10 - Indicates Model Year.
- 11 - Indicates Assembly Plant.
- 12 - Indicates Mazda.
- 13-17 - Indicates Production Sequence.

MODEL YEAR VIN CODE APPLICATION TABLE

```

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
VIN Code                                         Model Year

```

A - ENGINE/VIN ID

Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

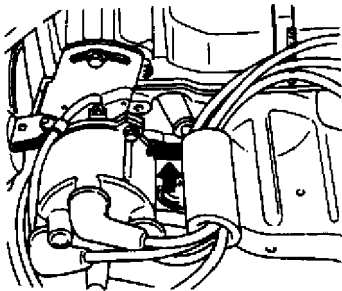
Copyright © 1998 Mitchell Repair Information Company, LLC
Monday, August 20, 2001 06:35AM

M	.....	1991
N	.....	1992
P	.....	1993
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA		

ENGINE CODE LOCATION

NOTE: Engine code location for Navajo not available from manufacturer.

ENGINE CODE LOCATION



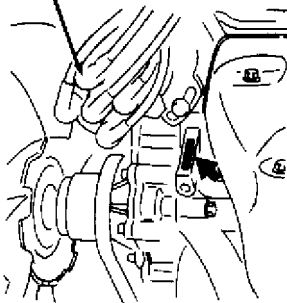
B2200 2.2L 4-CYLINDER

91J16674

Fig. 1: Engine Code Location (B2200 2.2L 4-Cyl.)
Courtesy of Mazda Motors Corp.

ENGINE CODE LOCATION

Distributor



B2600i 2.6L 4-CYLINDER

91A16675

Fig. 2: Engine Code Location (B2600i 2.5L 4-Cyl.)
Courtesy of Mazda Motors Corp.

A - ENGINE/VIN ID

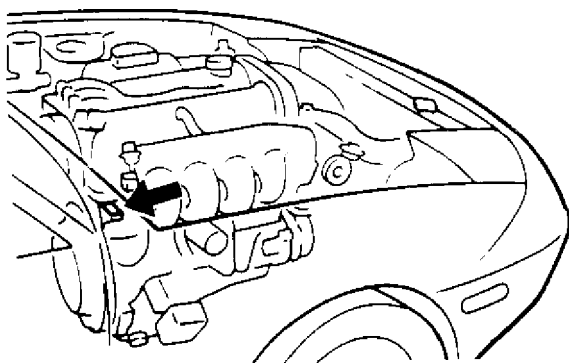
Article Text (p. 4)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:35AM

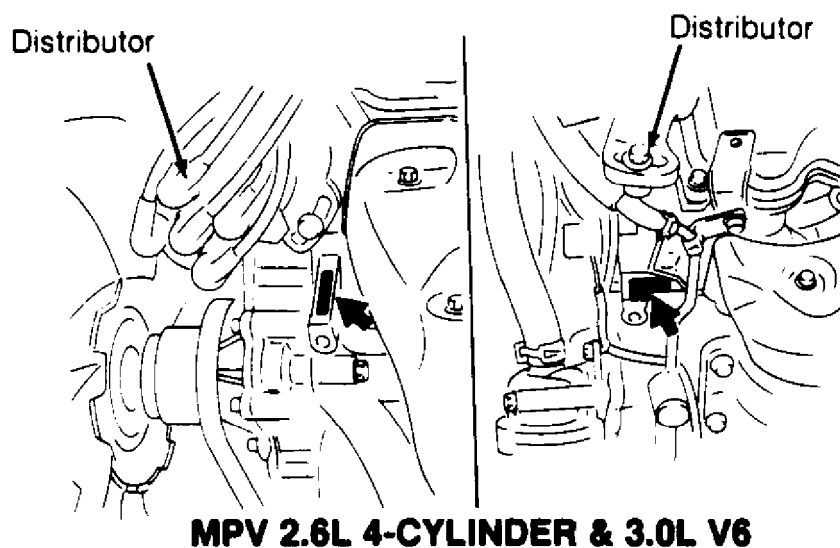


90A18341

Fig. 3: Engine Code Location (Miata 1.6L 4-Cyl.)

Courtesy of Mazda Motors Corp.

ENGINE CODE LOCATION

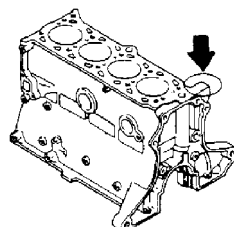


MPV 2.6L 4-CYLINDER & 3.0L V6

119550

Fig. 4: Engine Code Location (MPV 2.6L 4-Cyl. & 3.0L V6)

Courtesy of Mazda Motors Corp.



MX-3 & 323 1.6L 4-CYLINDER

91C16677

Fig. 5: Engine Code Location (MX-3 & 323 1.6L 4-Cyl.)

Courtesy of Mazda Motors Corp.

A - ENGINE/VIN ID

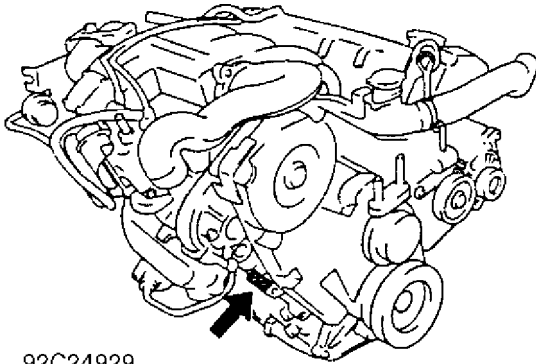
Article Text (p. 5)

1993 Mazda RX7

For www.iluvmyrx7.com

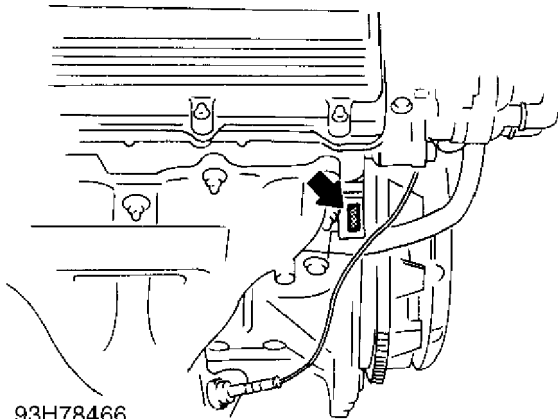
Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:35AM



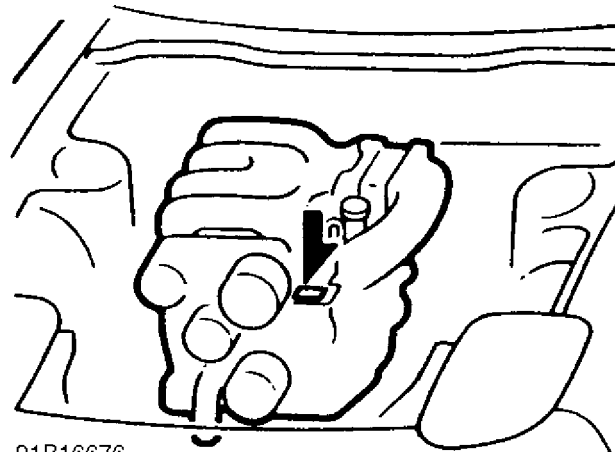
92C24929

Fig. 6: Engine Code Location (MX-3 1.8L V6 & MX-6 & 626 2.5L V6)
Courtesy of Mazda Motors Corp.



93H78466

Fig. 7: Engine Code Location (MX-6 & 626 2.0L 4-Cyl. & Protege 1.8L 4-Cyl.)
Courtesy of Mazda Motors Corp.



91B16676

Fig. 8: Engine Code Location (RX7 1.3L Rotary)
Courtesy of Mazda Motors Corp.

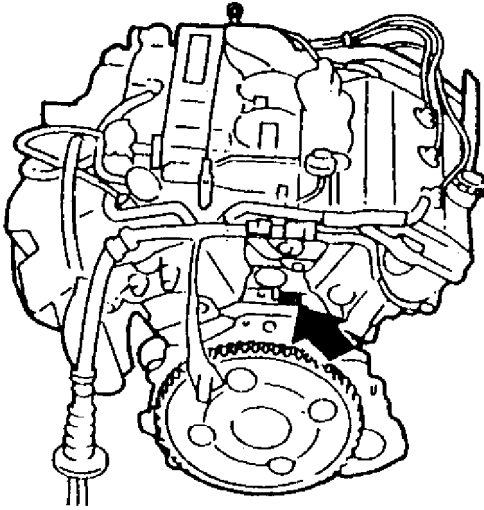
A - ENGINE/VIN ID

Article Text (p. 6)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Monday, August 20, 2001 06:35AM



92F24930

Fig. 9: Engine Code Location (929 3.0L V6)
Courtesy of Mazda Motors Corp.

END OF ARTICLE

Monday, August 20, 2001 06:36AM

1993 ENGINE PERFORMANCE
Mazda Emission Applications

B2200, B2600i, Miata, MPV, MX-3, MX-6, Navajo, Protege, RX7,
323, 626, 929

[illegible]

Engine & Fuel System

Emission Control Systems & Devices

2.2L 4-Cyl. 2-Bbl.

```

Major Control Systems & Devices ..... PCV, TAC, EVAP, (1) TWC,
                                         FR, EGR, SPK, PAIR, O2,
                                         CEC, EFE, MIL

```

Components & Other Related Devices EGR-PS, EVAP-VC,
EVAP-CKV, EVAP-CPCS,
SPK-VSV

2.2L 4-Cyl. PFI

Major Control Systems & Devices PCV, EVAP, TWC, FR, SPK,
O2, CEC, MIL

Components & Other Related Devices	EVAP-VC, EVAP-CKV, EVAP-CPCS, SPK-CC
------------------------------------------	-----------------------------------------

2.6L 4-Cyl. PFI

Major Control Systems & Devices PCV, EVAP, TWC, FR, SPK,
O2, CEC, MIL

Components & Other Related Devices	EVAP-VC, EVAP-CKV, EVAP-CPCS, SPK-CC
------------------------------------------	-----------------------------------------

1.6L 4-Cyl. PFI

Major Control Systems & Devices PCV, EVAP, TWC, FR, SPK,
O2, CEC, MIL

Components & Other Related Devices ... EVAP-VC, EVAP-CPCS, SPK-CC

2.6L 4-Cyl. PFI

Major Control Systems & Devices	PCV, EVAP, TWC, FR, O2, CEC, MIL
---------------------------------------	-------------------------------------

Components & Other Related Devices EVAP-VC, EVAP-CKV,
SPK-CC

3.0L V6 PFI

Major Control Systems & Devices PCV, EVAP, TWC, FR,
(2) O2, CEC, MIL

Components & Other Related Devices EVAP-VC, EVAP-CKV, SPK-CC

B - EMISSION APPLICATION

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:36AM

MX-3

1.6L 4-Cyl. & 1.8L V6 SFI

Major Control Systems & Devices PCV, EVAP, TWC, FR,
(3) EGR, SPK, O2, CEC, MIL

Components & Other Related Devices (3) EGR-VSV, (3) EGR-PS,
EVAP-VC, EVAP-CPCS, SPK-CC

MX-6 & 626

2.0L 4-Cyl. SFI

Major Control Systems & Devices PCV, EVAP, TWC, FR,
EGR, SPK, (2) O2, CEC, MIL

Components & Other Related Devices EVAP-VC, EVAP-CKV,
EVAP-CPCS, EGR-VSV,
(4) EGR-PS, SPK-CC

2.5L V6 SFI

Major Control Systems & Devices PCV, EVAP, TWC, FR,
EGR, SPK, (2) O2, CEC, MIL

Components & Other Related Devices EVAP-VC, EVAP-CKV,
EVAP-CPCS, EGR-VSV,
EGR-PS, SPK-CC

Navajo

4.0L V6 SFI

Major Control Systems & Devices PCV, TAC, EVAP, TWC, FR,
(4) BP/EGR, SPK, (2) O2, CEC, MIL

Components & Other Related Devices (4) BP/EGR-EET,
(4) BP/EGR-VRV, EVAP-VC,
EVAP-CPCS, SPK-CC

Protege

1.8L 4-Cyl. SFI

Major Control Systems & Devices PCV, EVAP, TWC, FR, SPK,
O2, CEC, MIL

Components & Other Related Devices EVAP-VC, EVAP-CPCS,
SPK-CC

RX7

1.3L Rotary PFI

Major Control Systems & Devices PCV, EVAP, (1) TWC, FR,
EGR, SPK, (5) AP, O2,
CEC, MIL

Components & Other Related Devices AP-DV, EGR-SOL,
(4) EGR-PS, EVAP-CKV,
EVAP-VC, EVAP-CPCS, SPK-CC

323

1.6L 4-Cyl. PFI

Major Control Systems & Devices PCV, EVAP, TWC, FR,
SPK, O2, CEC, MIL

Components & Other Related Devices ... EVAP-VC, EVAP-CPCS, SPK-CC

B - EMISSION APPLICATION

Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:36AM

3.0L V6 SFI

Major Control Systems & Devices PCV, EVAP, (1) TWC, FR,
EGR, SPK, (2) O2, CEC, MIL

Components & Other Related Devices EGR-VSV, EGR-PS,
EVAP-VC, EVAP-CKV,
EVAP-CPCS, SPK-CC

(1) - Engine uses 2 catalysts.

(2) - Heated oxygen sensor.

(3) - V6 engines only.

(4) - California models only.

(5) - Air pump includes magnetic clutch.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

ABBREVIATION DEFINITIONS

ABBREVIATION DEFINITION TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Abbreviation	Definition
--------------	------------

AP	Air Pump Injection System
AP-DV	AP Diverter Valve
BP/EGR	Backpressure EGR System
BP/EGR-EET	BP/EGR Electric Transducer
BP/EGR-VRV	BP/EGR Vacuum Regulator Valve
CEC	Computerized Engine Controls
EFE	Early Fuel Evaporation
EGR	Exhaust Gas Recirculation
EGR-PS	EGR Position Sensor
EGR-SOL	EGR Solenoid
EGR-VSV	EGR Vacuum Switching Valve
EVAP	Evaporative Emission Control
EVAP-CKV	EVAP Check Valve
EVAP-CPCS	EVAP Canister Purge Control Solenoid
EVAP-VC	EVAP Vapor Canister
FR	Fill Restrictor
MIL	Malfunction Indicator Light
O2	Oxygen Sensor
PAIR	Pulsed Secondary Air Injection
PCV	Positive Crankcase Ventilation
PFI	Port Fuel Injection
SFI	Sequential Fuel Injection
SPK	Spark Controls
SPK-CC	SPK Computer Controlled
SPK-VSV	SPK Vacuum Switching Valve
TAC	Thermostatic Air Cleaner
TWC	Three-Way Catalyst

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

END OF ARTICLE

C - SPECIFICATIONS

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:37AM

ARTICLE BEGINNING

1993 ENGINE PERFORMANCE

Mazda Service & Adjustment Specifications

B2200, B2600i, Miata, MPV, MX-3, MX-6,
Navajo, Protege, RX7, 323, 626, 929

INTRODUCTION

Use this article to quickly find specifications related to servicing and on-vehicle adjustments. This is a quick-reference article to use when you are familiar with an adjustment procedure and only need a specification.

CAPACITIES

BATTERY SPECIFICATIONS

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	Amp Hr. Rating
-------------	----------------

B2200 & B2600i

Standard	50
----------	----

Heavy Duty	75 or 80
------------	----------

Miata	32
-------	----

MPV

Standard	50
----------	----

Heavy Duty	65
------------	----

MX-3

4-Cyl.

Standard	50
----------	----

Heavy Duty	55
------------	----

V6	65
----	----

MX-6	58
------	----

Navajo	72
--------	----

Protege	50
---------	----

RX7

Standard	48
----------	----

Heavy Duty	55
------------	----

323	50
-----	----

626	58
-----	----

929

Standard	48
----------	----

Heavy Duty	55
------------	----

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

FLUID CAPACITIES

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	Quantity
-------------	----------

Crankcase (Includes Filter)

C - SPECIFICATIONS

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:37AM

B2200	.....	4.3 Qts. (4.1L)
B2600i	.....	5.0 Qts. (4.7L)
Miata	.....	3.6 Qts. (3.4L)
MPV		
2.6L	.....	5.0 Qts. (4.7L)
3.0L	.....	5.1 Qts. (4.8L)
MX-3		
1.6L	.....	3.4 Qts. (3.2L)
1.8L	.....	4.2 Qts. (4.0L)
MX-6		
2.0L	.....	3.5 Qts. (3.7L)
2.5L	.....	4.2 Qts. (4.0L)
Navajo	.....	5.0 Qts. (4.7L)
Protege	.....	4.0 Qts. (3.8L)
RX7		
Except R1 Option	.....	5.2 Qts. (4.9L)
R1 Option	.....	5.7 Qts. (5.4L)
323	.....	3.4 Qts. (3.2L)
626		
2.0L	.....	3.5 Qts. (3.7L)
2.5L	.....	4.2 Qts. (4.0L)
929	.....	5.3 Qts. (5.0L)
Cooling System (Includes Heater)		
B2200	.....	7.9 Qts. (7.5L)
B2600i	.....	7.9 Qts. (7.5L)
Miata	.....	6.3 Qts. (6.0L)
MPV		
2.6L	.....	7.6 Qts. (7.2L)
3.0L	.....	10.3 Qts. (9.7L)
MX-3		
1.6L	.....	6.3 Qts. (6.0L)
1.8L	.....	7.9 Qts. (7.5L)
MX-6		
2.0L	.....	7.4 Qts. (7.4L)
2.5L	.....	7.9 Qts. (7.5L)
Navajo		
With A/C	.....	8.6 Qts. (8.1L)
Without A/C	.....	7.8 Qts. (7.4L)
Protege		
Auto. Trans.	.....	6.3 Qts. (6.0L)
Manual Trans.	.....	5.3 Qts. (5.0L)
RX7	.....	9.2 Qts. (8.7L)
626		
2.0L	.....	7.4 Qts. (7.4L)
2.5L	.....	7.9 Qts. (7.5L)
323		
Auto. Trans.	.....	6.3 Qts. (6.0L)
Manual Trans.	.....	5.3 Qts. (5.0L)
929	.....	9.9 Qts. (9.4L)
Manual Transaxle		
MX-3 (1)	.....	2.8 Qts. (2.6L)
MX-6 (4)	.....	2.9 Qts. (2.7L)

C - SPECIFICATIONS

Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:37AM

Protege		
DOHC (3)	3.6 Qts.	(3.4L)
SOHC (2)	2.8 Qts.	(2.6L)
323 (2)	2.8 Qts.	(2.6L)
626 (4)	2.9 Qts.	(2.7L)
Manual Transmission (4)		
B2200 5-Spd.	2.1 Qts.	(2.0L)
B2600i (3)		
2WD	3.0 Qts.	(2.8L)
4WD	3.4 Qts.	(3.2L)
Miata	2.1 Qts.	(2.0L)
MPV	2.6 Qts.	(2.5L)
Navajo	2.8 Qts.	(2.6L)
RX7	2.6 Qts.	(2.5L)
Automatic Transaxle (ATF Dexron-II) (5)		
MX-3		
1.6L	6.7 Qts.	(6.3L)
1.8L	6.1 Qts.	(5.8L)
MX-6	9.3 Qts.	(8.8L)
Protege	6.1 Qts.	(5.8L)
323	6.1 Qts.	(5.8L)
626	9.3 Qts.	(8.8L)
Automatic Transmission (ATF M-III or Dexron-II)		
B2200, B2600i, Miata, MPV, RX7 & 929	4.2 Qts.	(4.0L)
Navajo	3.0 Qts.	(2.8L)
Front Differential (6)		
B2600i	1.6 Qts.	(1.5L)
MPV	1.8 Qts.	(1.7L)
Navajo	1.7 Qts.	(1.6L)
Rear Differential (6)		
B2200	1.3 Qts.	(1.2L)
B2600i	1.8 Qts.	(1.7L)
Miata	.69 Qts.	(.65L)
MPV	1.6 Qts.	(1.5L)
Navajo	2.6 Qts.	(2.5L)
RX7	1.4 Qts.	(1.3L)
929	1.4 Qts.	(1.3L)
Transfer Case (7)		
B2600i	2.1 Qts.	(2.0L)
MPV	1.6 Qts.	(1.5L)
Navajo	1.3 Qts.	(1.2L)

- (1) - For all-season conditions, use SAE 75W-90. If temperature is less than 0°F (-18°C), use ATF Dexron-II.
- (2) - Use SAE 75W-90.
- (3) - For all-season conditions, use SAE 75W-90 or ATF Dexron-II. For temperatures greater than 0°F (-18°C), use SAE 80W-90 or SAE 90.
- (4) - On Navajo, use SAE 80W-90 or SAE 75W-90. On other models, use SAE 75W-90 for all-season conditions, and SAE 80W-90 for temperatures greater than 50°F (10°C).
- (5) - Specification is total fluid capacity of transaxle, not

C - SPECIFICATIONS

Article Text (p. 4)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:37AM

refill capacity after pan removal.

- (6) - On Navajo, use SAE 90. On all other models, use SAE 90 for temperatures greater than 0°F (-18°C), and SAE 80W for temperatures less than 0°F (-18°C).
- (7) - On Navajo, use Mercon ATF. On other models, use SAE 75W-90 or ATF Dexron-II for all-season conditions, and SAE 80W-90 or SAE 90 for temperatures greater than 0°F (-18°C).

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

QUICK-SERVICE

SERVICE INTERVALS & SPECIFICATIONS

REPLACEMENT INTERVALS

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Component	Miles
Air Filter	30,000
Camshaft Timing Belt	60,000
Coolant	30,000
Fuel Filter	
B2200 (Carbureted)	30,000
Navajo	(1)
All Others	60,000
Oil	
Non-Turbo	7500
Turbo	5000
Oil Filter	
Non-Turbo	7500
Turbo	5000
Spark Plugs	
Navajo	60,000
All Others	30,000

(1) - Specification is not available from manufacturer.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

BELT ADJUSTMENT (NEW BELT)

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	Deflection (1) In. (mm)
Alternator	
B2200	9/32 - 5/16 (7-8)
B2600i	25/64 - 15/32 (10-12)
Miata & MX-3 (1.6L)	5/16 - 23/64 (8-9)
MPV	
2.6L	25/64 - 15/32 (10-12)
3.0L	23/64 - 25/64 (9-10)
MX-3	15/64 - 9/32 (6-7)
MX-6 & 626	15/64 - 9/32 (6-7)

C - SPECIFICATIONS

Article Text (p. 5)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:37AM

Navajo	.....	(2)
Protege & 323	..... 5/16 - 23/64	(8-9)
RX7	..... 9/32 - 5/16	(7-8)
929	..... 25/64 - 15/32	(10-12)
A/C Compressor		
B2200	..... 25/64 - 15/32	(10-12)
B2600i	..... 5/16 - 25/64	(8-10)
Miata & MX-3 (1.6L)	..... 5/16 - 23/64	(8-9)
MPV		
2.6L	..... 5/16 - 25/64	(8-10)
3.0L	..... 11/64 - 13/64	(4.5-5)
MX-3 (1.8L)	..... 15/64	(6)
MX-6 & 626		
2.0L	..... 9/32 - 23/64	(7-9)
2.5L	..... 15/64 - 9/32	(6-7)
Navajo	.....	(2)
Protege & 323	..... 5/16 - 23/64	(8-9)
RX7	..... 11/64 - 13/64	(4.5-5)
929	..... 15/32 - 1/2	(12-13)
Power Steering		
B2200	..... 9/32 - 5/16	(7-8)
B2600i	..... 9/32	(7)
Miata & MX-3 (1.6L)	..... 5/16 - 23/64	(8-9)
MPV	..... 9/32	(7)
MX-3 (1.8L)	..... 15/64 - 9/32	(6-7)
MX-6 & 626		
2.0L	..... 9/32 - 23/64	(7-9)
2.5L	..... 15/64 - 9/32	(6-7)
Navajo	.....	(2)
Protege & 323	..... 5/16 - 23/64	(8-9)
RX7	..... 11/64 - 13/64	(4.5-5)
929	..... 5/16 - 25/32	(8-10)

(1) - Measure belt deflection by applying moderate pressure, about 22 lbs. (10 kg), to belt, midway between pulleys.

(2) - Navajo is equipped with automatic belt tensioner.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

MECHANICAL CHECKS

ENGINE COMPRESSION

1) Warm engine to normal operating temperature. Remove all spark plugs. On Navajo, use remote starter switch to crank engine (DO NOT crank engine with ignition switch). On all other models, disconnect ignition coil primary wire connector.

2) On all models, hold throttle plate fully open. Crank engine, and note compression pressure.

COMPRESSION RATIO

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	Specification
-------------	---------------

C - SPECIFICATIONS

Article Text (p. 6)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:37AM

B2200	8.6:1
B2600i	8.4:1
Miata	
Auto. Trans.	9.4:1
Manual Trans.	9.0:1
MPV	
2.6L	8.4:1
3.0L	8.5:1
MX-3	
1.6L	9.0:1
1.8L	9.2:1
MX-6	
2.0L	9.0:1
2.5L	9.2:1
Navajo	9.0:1
Protege	
DOHC	9.0:1
SOHC	8.9:1
RX7	9.0:1
323	
California	9.3:1
Federal	9.0:1
626	
2.0L	9.0:1
2.5L	9.2:1
929	9.2:1
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	

COMPRESSION PRESSURE SPECIFICATIONS

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	Specifications
-------------	----------------

Compression Pressure

B2200	173 psi (12.2 kg/cm ²) @ 300 RPM
B2600i	182 psi (12.8 kg/cm ²) @ 270 RPM
Miata	192 psi (13.5 kg/cm ²) @ 300 RPM
MPV	
2.6L	185 psi (13.0 kg/cm ²) @ 280 RPM
3.0L	164 psi (11.5 kg/cm ²) @ 300 RPM
MX-3	
1.6L	185 psi (13.0 kg/cm ²) @ 300 RPM
1.8L	192 psi (13.5 kg/cm ²) @ 300 RPM
MX-6	
2.0L	171 psi (12.0 kg/cm ²) @ 300 RPM
2.5L	203 psi (14.3 kg/cm ²) @ 250 RPM
Navajo	(1)
Protege	
DOHC	182 psi (12.8 kg/cm ²) @ 300 RPM
SOHC	173 psi (12.2 kg/cm ²) @ 300 RPM
RX7	100 psi (7.0 kg/cm ²) @ 250 RPM
323	192 psi (13.5 kg/cm ²) @ 300 RPM

C - SPECIFICATIONS

Article Text (p. 7)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:37AM

626			
2.0L	.....	171 psi (12.0 kg/cm ²)	@ 300 RPM
2.5L	.....	203 psi (14.3 kg/cm ²)	@ 250 RPM
929	.....	213 psi (15.0 kg/cm ²)	@ 270 RPM
Minimum Compression Pressure			
B2200	.....	121 psi (8.5 kg/cm ²)	@ 300 RPM
B2600i	.....	142 psi (10.0 kg/cm ²)	@ 280 RPM
Miata	.....	135 psi (9.5 kg/cm ²)	@ 300 RPM
MPV			
2.6L	.....	142 psi (10.0 kg/cm ²)	@ 280 RPM
3.0L	.....	121 psi (8.5 kg/cm ²)	@ 300 RPM
MX-3	.....	142 psi (10.0 kg/cm ²)	@ 300 RPM
MX-6			
2.0L	.....	119 psi (8.4 kg/cm ²)	@ 300 RPM
2.5L	.....	142 psi (10.0 kg/cm ²)	@ 250 RPM
Navajo	.....		(1)
Protege			
DOHC	.....	128 psi (9.0 kg/cm ²)	@ 300 RPM
SOHC	.....	121 psi (8.5 kg/cm ²)	@ 300 RPM
RX7	.....	79 psi (5.5 kg/cm ²)	@ 250 RPM
323	.....	135 psi (9.5 kg/cm ²)	@ 300 RPM
626			
2.0L	.....	119 psi (8.4 kg/cm ²)	@ 300 RPM
2.5L	.....	142 psi (10.0 kg/cm ²)	@ 250 RPM
929	.....	157 psi (11.0 kg/cm ²)	@ 270 RPM
Maximum Variation Between Cylinders			
Miata, Protege & 323	.....	28 psi (2.0 kg/cm ²)	
Navajo	.....		(1)
RX7	.....	21 psi (1.5 kg/cm ²)	
All Others	.....		(2)

(1) - Measurement of lowest cylinder must be within 75 percent of highest cylinder.

(2) - Information is not available from manufacturer.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

VALVE CLEARANCE

NOTE: All piston engines are equipped with hydraulic valve lash adjusters. Valve clearance is not adjustable.

IGNITION SYSTEM

IGNITION COIL

IGNITION COIL RESISTANCE - Ohms @ 68°F (20°C)

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	Primary	Secondary
B2200		
Carbureted	1.0-1.3	6000-30,000
PFI	.81-.99	6000-30,000

Copyright © 1998 Mitchell Repair Information Company, LLC
Monday, August 20, 2001 06:37AM

B2600i	.....	.81-.99	.....	6000-30,000
Miata	.....	.78-.94	.....	11,200-15,200
MPV				
2.6L (4-Cyl.)				
Right Side	.....	.77-.95	.....	6000-30,000
Left Side	.....	900-1100	.....	N/A
3.0L (V6)	.....	.81-.99	.....	6000-30,000
MX-3				
1.6L	.....	.81-.99	.....	10,300-16,000
1.8L	.....	.58-.86	.....	11,500-18,500
MX-6 & 626	.....	.58-.86	.....	11,500-18,500
Navajo	.....	.5	.....	(1)
Protege & 323	.....	.81-.99	.....	10,000-16,000
RX7				
Leading	.....	0-1.0	.....	9600-16,000
Trailing	.....	0-1.0	.....	Infinity
929				
Left Side	.....	.77-1.0	.....	9000-17,000
Right Side	.....	900-1100	.....	N/A

(1) - Information is not available from manufacturer.

DISTRIBUTOR SENSORS

NOTE: For models not listed in tables, see BASIC DIAGNOSTIC PROCEDURES article for crank angle sensor testing.

DISTRIBUTOR PICK-UP COIL RESISTANCE (1)

Application		Ohms
B2200 (Carbureted)	.....	900-1200
MPV 3.0L		
Check Ignitor Terminals		
"COM" & "Ne"	.....	205-255
"COM" & "G1"	.....	205-255
"COM" & "G2"	.....	205-255

(1) - Other distributors use LED or Hall-Effect sensors.

CRANK ANGLE SENSOR RESISTANCE

Application		Ohms
MX-3 1.8L (At Crankshaft Pulley)	.....	520-580
MX-6 & 626 2.5L (At Crankshaft Pulley)	.....	520-580
RX7 (At Crankshaft Pulley)	.....	950-1250
929 (At Crankshaft Pulley)	.....	950-1250

C - SPECIFICATIONS

Article Text (p. 9)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:37AM

HIGH TENSION WIRE RESISTANCE

High tension wire resistance should not exceed 4900 ohms per foot (7000 ohms per foot on Navajo).

SPARK PLUGS

SPARK PLUG TYPE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	NGK No.
-------------	---------

B2200

Carbureted	BPR5ES or BPR6ES
------------	------------------

PFI	BPR5ES-11 or BPR6ES-11
-----	------------------------

B2600i	ZFR5F-11 or ZFR6F-11
--------	----------------------

Miata	BKR5E-11, BKR6E-11 or BKR7E-11
-------	--------------------------------

MPV	ZFR5F-11 or ZFR6F-11
-----	----------------------

MX-3	BPR5ES-11 or BPR6ES-11
------	------------------------

MX-6 & 626

2.0L	BKR5E-11 or BKR6E-11
------	----------------------

2.5L	ZFR5F-11 or ZFR6F-11
------	----------------------

Navajo	(1)
--------	-----

Protege DOHC	BKR5E-11, BKR6E-11 or BKR7E-11
--------------	--------------------------------

Protege SOHC	BKR5E-11 or BKR6E-11
--------------	----------------------

RX7

Leading	BUR7E-QP
---------	----------

Trailing	BUR9E-QP
----------	----------

323

California	BPR5ES-11 or BPR6ES-11
------------	------------------------

Federal	BKR5E-11 or BKR6E-11
---------	----------------------

929	BKR5EVX-11 or BKR6EVX-11
-----	--------------------------

(1) - Use Motorcraft spark plug number AWSF-42PP.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

SPARK PLUG SPECIFICATIONS

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	Gap		Torque	
	In.	(mm)	Ft. Lbs.	(N.m)
B2200 (Carbureted)	....	.031 (.80)	....	13 (18)
Navajo	....	.054 (1.4)	....	13 (18)
RX7	.... (1)	.044-.066 (1.1-1.7)	....	13 (18)
All Others	....	.041 (1.0)	....	13 (18)

(1) - Gap is not adjustable.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

FIRING ORDER & TIMING MARKS

C - SPECIFICATIONS
Article Text (p. 10)
 1993 Mazda RX7
 For www.iluvmyrx7.com
 Copyright © 1998 Mitchell Repair Information Company, LLC
 Monday, August 20, 2001 06:37AM

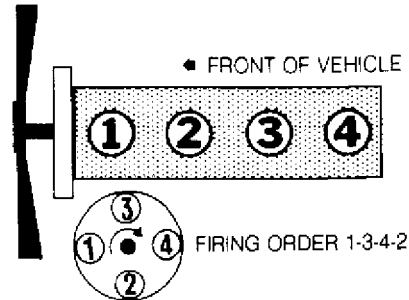
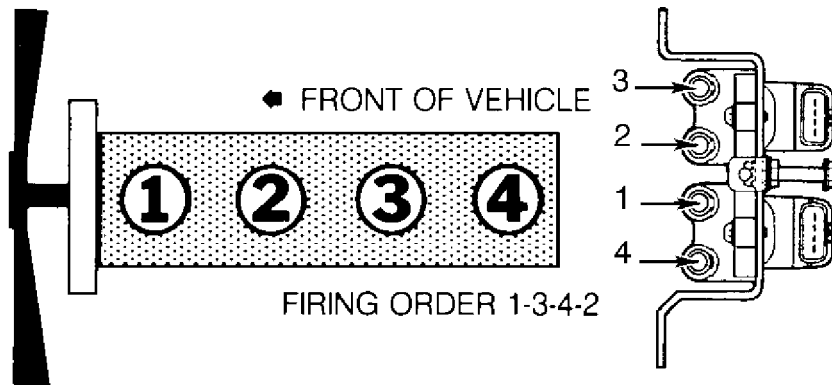


Fig. 1: Firing Order & Distributor Rotation (B2200, B2600i & MPV 2.6L)



95H31457
 Fig. 2: Firing Order (Miata)

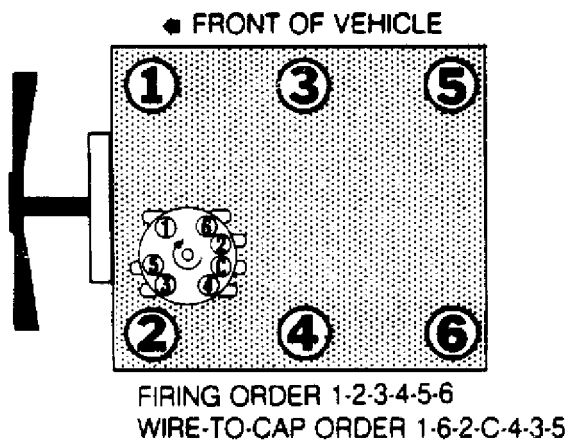


Fig. 3: Firing Order & Distributor Rotation (MPV 3.0L & 929)

Copyright © 1998 Mitchell Repair Information Company, LLC
Monday, August 20, 2001 06:37AM

Fig. 4: Firing Order & Distributor Rotation (MX-3 1.6L, Protege & 323)

Fig. 5: Firing Order & Distributor Rotation (MX-3 1.8L, MX-6 2.5L & 626 2.5L)

Fig. 6: Firing Order & Distributor Rotation (MX-6 & 626 2.0L)

Fig. 7: 91F13438 Firing Order 1-4-2-5-3-6
Firing Order & Coil Pack (Navajo)

IGNITION TIMING

IGNITION TIMING SPECIFICATIONS (Degrees BTDC @ RPM)

C - SPECIFICATIONS

Article Text (p. 12)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:37AM

Application	Man. Trans.	(1) Auto. Trans.
B2200		
Carbureted	6 @ 825	6 @ 825
PFI (2)	6 @ 750	6 @ 770
B2600i (2)	5 @ 750	5 @ 770
Miata (3)	10 @ 850	8 @ 850
MPV		
2.6L (2)	N/A	5 @ 770
3.0L (2)	N/A	11 @ 800
MX-3		
1.6L (3)	10 @ 750	10 @ 750
1.8L (3)	10 @ 670	10 @ 670
MX-6 & 626		
2.0L (3)	12 @ 700	12 @ 700
2.5L (3)	10 @ 650	10 @ 650
Navajo	(4)	(4)
Protege		
DOHC (3)	10 @ 750	10 @ 750
SOHC (3)	5 @ 750	5 @ 750
RX7		
Leading (3)	(5) 5 @ 725	(5) 5 @ 725
Trailing (3) ...	(5) 20 @ 725	(5) 20 @ 725
323 (3)	7 @ 750	7 @ 750
929 (3)	N/A	12 @ 700

- (1) - Place automatic transmission in Park.
- (2) - Connect jumper wire between Green test connector and ground.
- (3) - Connect jumper wire between terminals TEN and GRN of diagnostic connector.
- (4) - Base (initial) timing is preset at 10 degrees BTDC and is not adjustable. To check timing, see appropriate D - ADJUSTMENTS article.
- (5) - Timing specification is AFTER TDC and is not adjustable.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

DISTRIBUTOR SPECIFICATIONS

NOTE: On models with computer-controlled ignition, see appropriate G - TESTS W/CODES article to diagnose ignition timing problems.

C - SPECIFICATIONS

Article Text (p. 13)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:37AM

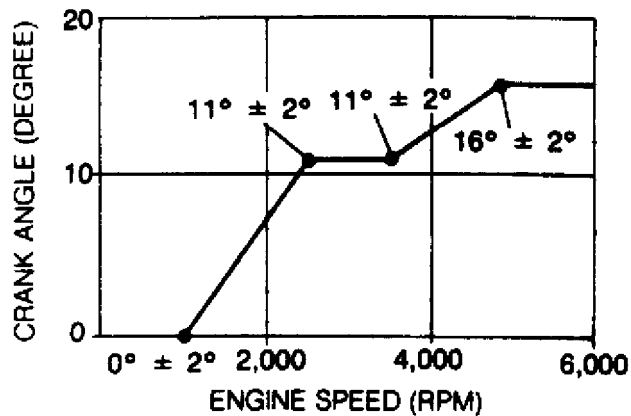
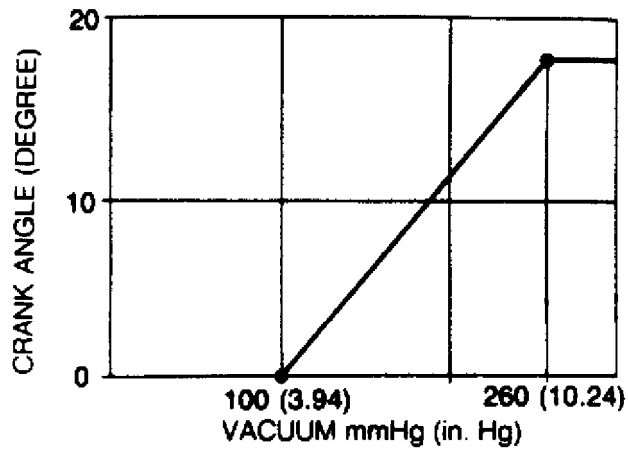


Fig. 8: Ignition Advance Curve (B2200 Carbureted)
Courtesy of Mazda Motors Corp.

FUEL SYSTEM

FUEL PUMP

NOTE: Fuel pump performance measures fuel pressure and volume availability, not regulated fuel pressure.

FUEL PUMP PERFORMANCE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	Pressure psi (kg/cm ²)	Min. Vol. In 30 Sec. Pts. (L)
-------------	---------------------------------------	----------------------------------

B2200 (Carbureted)

Electric Pump	2.8-3.6 (.20-.25)	1.1 (.66)
Mechanical Pump	3.7-4.7 (.26-.33)	.9 (.43)
Navajo	(1)	.95 (.49)
MX-6 & 626 (2.5L)	72-92 (5.5-6.5)	(1)
All Others	64-92 (4.5-6.5)	(1)

(1) - Information is not available from manufacturer.

C - SPECIFICATIONS

Article Text (p. 14)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:37AM

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

REGULATED FUEL PRESSURE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	At Idle W/ Vacuum		At Idle W/O Vacuum	
	psi	(kg/cm ²)	psi	(kg/cm ²)
B2200 (PFI) & B2600i	28-37	(2.0-2.6)	38-46	(2.7-3.2)
Miata, MX-6 & 626	31-38	(2.2-2.7)	38-46	(2.7-3.2)
MPV	30-37	(2.1-2.6)	38-46	(2.7-3.2)
MX-3, Protege & 323	30-37	(2.1-2.6)	38-46	(2.7-3.2)
RX7	27-32	(1.9-2.3)	36-38	(2.5-2.7)
Navajo	(1)		(2)	
929	31-38	(2.2-2.7)	38-46	(2.7-3.2)

(1) - Pressure should be 30-45 psi (2.2-3.2 kg/cm²) with engine running and 35-45 psi (2.5-3.2 kg/cm²) with ignition on and engine off.

(2) - Information is not available from manufacturer.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

INJECTOR RESISTANCE

INJECTOR RESISTANCE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	Ohms
Navajo	13-16
Except Navajo	12-16

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

IDLE SPEED & MIXTURE

IDLE SPEED SPECIFICATIONS

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	Man. Trans.	(1) Auto. Trans.
	RPM	RPM
B2200		
Carbureted	825	825
PFI (2)	750	770
B2600i (2)	750	770
Miata (3)	850	850
MPV		
2.6L (2)	750	770
3.0L (2)	800	800
MX-3 (3)		
1.6L	750	750
1.8L	670	670
MX-6 & 626 (3)		
2.0L	700	700

C - SPECIFICATIONS

Article Text (p. 15)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:37AM

2.5L	.....	650	.....	650
Navajo	.....	(4)	.....	(4)
Protege (3)	.....	750	.....	750
RX7 (3)	.....	725	.....	725
323 (3)	.....	750	.....	750
929 (3)	.....	N/A	.....	700

- (1) - Place automatic transmission in Park.
- (2) - Connect jumper wire between Green test connector and ground.
- (3) - Connect jumper wire between terminals TEN and GRN of diagnostic connector.
- (4) - Idle speed is not adjustable, however, throttle angle (minimum air rate) can be set using special procedure. See D - ADJUSTMENTS article.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

FAST (COLD) IDLE SPEED

FAST (COLD) IDLE SPEED

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	RPM
-------------	-----

B2200 (Carbureted)	..... (1) 3000-4000
RX7	..... (2) Not Adjustable

- (1) - Adjust with throttle lever on highest step of fast idle cam.
- (2) - See D - ADJUSTMENTS article for checking procedure.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

DASHPOT SPECIFICATIONS

DASHPOT SPECIFICATIONS (1)

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	RPM
-------------	-----

B2200 (Carbureted M/T)	..... 2700-2900
Miata	..... 2350-2650
MPV (3.0L)	..... 3200-3800
MX-3 (1.6L)	..... About 3000
Protege	
DOHC	..... About 3500
SOHC	..... About 2700
RX7	..... 2600-3000
323	..... About 3000

- (1) - See D - ADJUSTMENTS article.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

THROTTLE POSITION (TP) SENSOR

C - SPECIFICATIONS

Article Text (p. 16)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:37AM

NOTE: For information on connector terminal identification and test conditions specified in the following tables, see D - ADJUSTMENTS article.

NOTE: Throttle position sensor on MX-6 2.0L and 626 2.0L is not adjustable.

TP SENSOR VOLTAGE - B2200 PFI, B2600i & MPV 2.6L

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Red Wire Volts	Blue Wire (1) Volts	(2) Blue Wire Volts
-------------------	------------------------	------------------------

4.50-4.59	.....	.37-.54	.....	3.58-4.23
4.60-4.69	.....	.38-.55	.....	3.66-4.32
4.70-4.79	.....	.39-.56	.....	3.74-4.41
4.80-4.89	.....	.40-.57	.....	3.82-4.51
4.90-4.99	.....	.40-.58	.....	3.90-4.60
5.00-5.09	.....	.41-.60	.....	3.97-4.70
5.10-5.19	.....	.42-.61	.....	4.05-4.79
5.20-5.29	.....	.43-.62	.....	4.13-4.88
5.30-5.39	.....	.44-.63	.....	4.21-4.98
5.40-5.49	.....	.44-.64	.....	4.29-5.07
5.50	.....	.44-.66	.....	4.29-5.17

(1) - Closed throttle.

(2) - Wide Open Throttle.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

TP SENSOR CONTINUITY - MIATA, MX-3 1.6L, PROTEGE & 323 - A/T

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Test Condition (1)	(2) Continuity
--------------------	----------------

.004" (.1 mm)	..... Yes
.024" (.6 mm)	..... No

(1) - Insert feeler gauge of specified thickness between throttle lever and throttle stop screw.

(2) - Check continuity with ohmmeter connected between TP sensor terminals "E" and IDL.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

TP SENSOR CONTINUITY - MIATA, MX-3 1.6L, PROTEGE & 323 - M/T

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Test Condition	Continuity Between IDL & TL/E	Continuity Between POW & TL/E
----------------	-------------------------------	-------------------------------

Miata

.016" (.4 mm) (1)	..... Yes	..... No
.027" (.7 mm) (1)	..... No	..... No
Wide Open Throttle	..... No	..... Yes
MX-3, Protege & 323		
.004" (.10 mm) (1)	..... Yes	..... No

[illegible]

C - SPECIFICATIONS

Article Text (p. 18)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:37AM

TP SENSOR RESISTANCE - NAVAJO

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Test Condition (1) Ohms

Throttle Closed (2) 500-1200

(1) - Check resistance between Gray/Red wire and Gray/White wire terminals.

(2) - TP sensor is not adjustable.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

TP SENSOR VOLTAGE - RX7

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Wire Color	Closed Throttle	Wide Open Throttle
To Ground	Volts	Volts

Green/Red (3F) (1)75-1.25	4.8-5.0
--------------------------	----------------	---------

Black/Green (3G) (1)	0.7-1.0	4.2-4.6
----------------------------	---------------	---------

(1) - PCM terminal pin No. in parentheses.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

THROTTLE (IDLE) SWITCH

THROTTLE (IDLE) SWITCH VOLTAGE - B2200 CARBURETED

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

RPM Volts

825 (Idle) About 12

1000-1200 Less Than 1.5

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

END OF ARTICLE

D - ADJUSTMENTS

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Monday, August 20, 2001 06:37AM

ARTICLE BEGINNING

1993 ENGINE PERFORMANCE
Mazda On-Vehicle Adjustments

B2200, B2600i, Miata, MPV, MX-3,
MX-6, Navajo, Protege, RX7, 323, 626, 929

ENGINE MECHANICAL

Before performing any on-vehicle adjustments to fuel or ignition systems, ensure engine mechanical condition is okay.

VALVE CLEARANCE

NOTE: All piston engines are equipped with hydraulic valve lash adjusters. No adjustments are required.

IGNITION TIMING

NOTE: Before adjusting ignition timing, warm engine to normal operating temperature. Turn off all accessories. Place transmission in Neutral (M/T) or Park (A/T). Ensure idle speed is correct. See IDLE SPEED under IDLE SPEED & MIXTURE. If timing is not within specification, loosen distributor or Crank Angle Sensor (CAS) lock bolt (Miata only). Rotate distributor or CAS until timing marks are aligned. Tighten lock bolt.

B2200 & B2600i

On B2200 (PFI) and B2600i, connect jumper wire between ground and Green test connector in right rear corner of engine compartment. See Fig. 2. On all models, connect timing light. Set timing to specification. See IGNITION TIMING SPECIFICATIONS table. See Fig. 1. On B2200 (PFI) and B2600i, remove jumper wire.

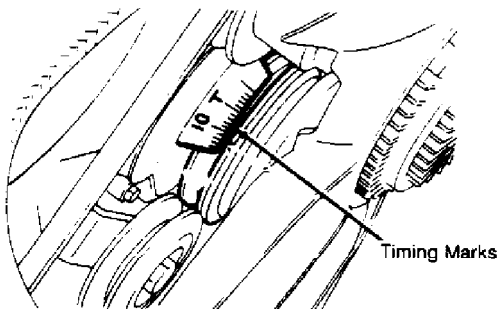


Fig. 1: Locating Ignition Timing Marks (Typical)
Courtesy of Mazda Motors Corp.

D - ADJUSTMENTS

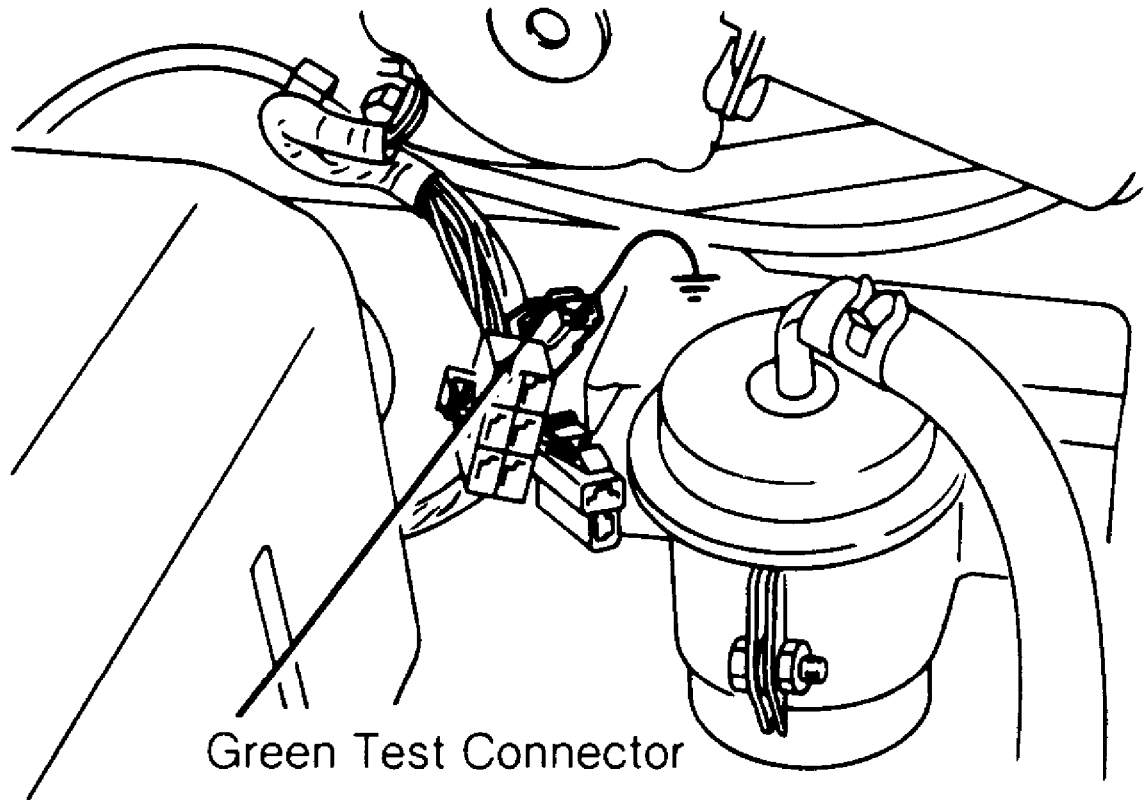
Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:37AM



201165

Fig. 2: Locating Green Test Connector (B2200 & B2600i)

Courtesy of Mazda Motors Corp.

NOTE: On Miata, use Blue 1-pin connector near airflow meter as a source of battery power for positive lead of tachometer or timing light (battery is in trunk). DO NOT ground this connector, or 20-amp WIPER fuse will blow.

Miata, MX-3, MX-6, Protege, RX7, 323, 626 & 929

1) Connect Diagnostic Tester (49 B019 9A0) to diagnostic connector and select SELF-TEST mode (position 1), or connect jumper wire between diagnostic connector terminals TEN and GND. See Fig. 3.

2) Connect timing light. Set timing to specification (except RX7). See IGNITION TIMING SPECIFICATIONS table. See Fig. 1. On RX7, if ignition timing is not within specifications, see TROUBLE SHOOTING -NO CODES and appropriate SELF-DIAGNOSTICS articles. Disconnect diagnostic tester or jumper wire from diagnostic connector.

D - ADJUSTMENTS

Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:37AM

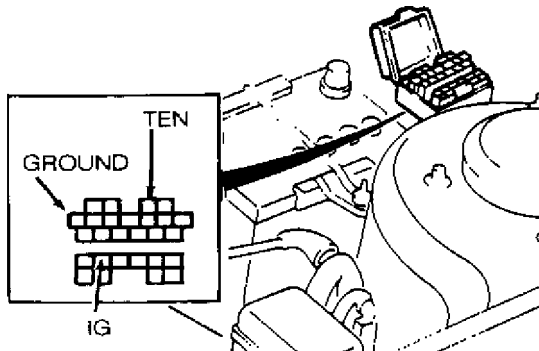


Fig. 3: Diagnostic Connector Terminal ID (Miata, MX-3, MX-6, Protege, RX7, 323, 626 & 929)
Courtesy of Mazda Motors Corp.

MPV

Connect jumper wire between ground and Green test connector in left front corner of engine compartment. See Fig. 4 or 5. Connect timing light. Set timing to specification. See IGNITION TIMING SPECIFICATIONS table. See Fig. 1. Remove jumper wire.

Navajo

1) Engine is equipped with a distributorless ignition. Base (initial) timing is preset at 10 degrees BTDC and is not adjustable. To check base timing, turn ignition off.

2) Disconnect SPOUT in-line connector in Yellow/Light Green wire near Ignition Control Module (ICM), in right front corner of engine compartment. Start engine.

3) Connect timing light and check timing. If ignition timing is not at 10 degrees BTDC, see TROUBLE SHOOTING - NO CODES and appropriate SELF-DIAGNOSTICS articles. Turn off engine. Connect SPOUT in-line connector.

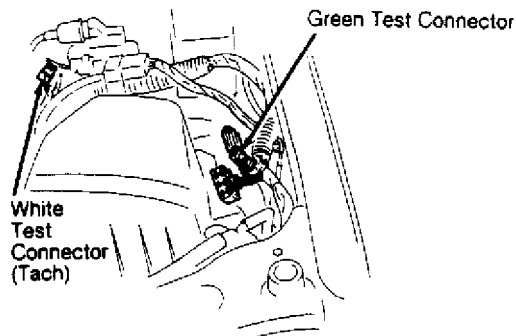


Fig. 4: Locating Green & White Test Connectors (MPV 2.6L)
Courtesy of Mazda Motors Corp.

Monday, August 20, 2001 06:37AM

[illegible]

D - ADJUSTMENTS

Article Text (p. 5)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:37AM

IDLE SPEED & MIXTURE

NOTE: Mixture adjustment is NOT a normal tune-up procedure. DO NOT adjust mixture unless mixture control unit is replaced or vehicle fails emissions test.

CHOKE

B2200 (Carbureted)

Apply about 16 in. Hg to choke pull-off diaphragm. Lightly push the choke plate to closed position. Measure clearance between top of choke plate and air horn. If clearance is not .067-.085" (1.70-2.16 mm), bend lever on choke plate shaft until clearance is within specification.

COLD (FAST) IDLE SPEED

NOTE: For adjustments of the choke unloader, fast idle cam (static adjustment) and secondary throttle valve, see information in N - REMOVE/INSTALL/OHAUL article.

B2200 (Carbureted)

1) Warm engine to normal operating temperature. Turn off engine. Disconnect and plug vacuum hoses to idle compensator and reed valves. Hold throttle valve slightly open. Push choke plate fully closed. Release throttle valve.

2) Remove pressure from choke plate. Start engine without touching accelerator pedal or throttle valve. If engine speed is not 3000-4000 RPM, turn fast idle screw until within specification.

COLD (FAST) IDLE SPEED

RX7

1) With engine cold, ensure roller near screw "B" is centered on fast idle cam. See Fig. 6. Warm engine to operating temperature. At 130-149°F (55-65°C), wax rod should extend fully and fast idle cam should separate from roller. If wax rod does not operate as described, replace wax rod or adjust separation point.

2) Turn screw "B" until separation point is as described in step 1). See Fig. 7. To adjust fast idle cam opening, turn screw "A". Using screw "A", align points on fast idle cam with roller at corresponding temperature. See FAST IDLE CAM OPENING SPECIFICATIONS (RX7) table.

FAST IDLE CAM OPENING SPECIFICATIONS TABLE (RX7)

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Temperature °F (°C)

Position

-5 (-20)	.....	"A"
32 (0)	.....	"B"
77 (25)	.....	"C"

D - ADJUSTMENTS

Article Text (p. 6)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:37AM

140 (60) "D"
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

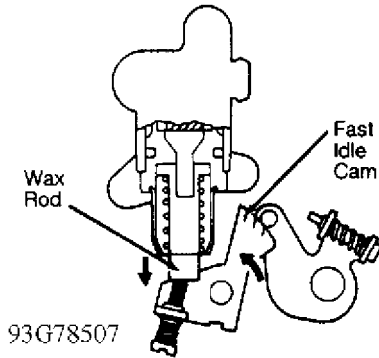


Fig. 6: Checking Fast Idle Cam Separation (RX7)
Courtesy of Mazda Motors Corp.

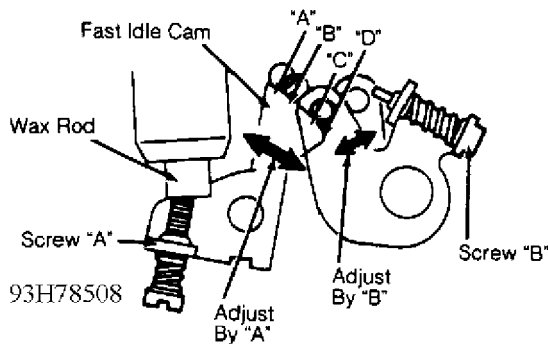


Fig. 7: Adjusting Fast Idle Cam Opening (RX7)
Courtesy of Mazda Motors Corp.

DASHPOT

NOTE: Before adjusting dashpot, warm engine to normal operating temperature. Turn off all accessories. Place transmission in Neutral (M/T) or Park (A/T).

B2200 (Carbureted M/T)

Slowly increase engine RPM until throttle lever separates from dashpot. If engine speed is not 2700-2900 RPM when throttle lever separates from dashpot, loosen lock nut and adjust dashpot as necessary. Tighten lock nut.

Miata, MPV 3.0L, MX-3 1.6L, Protege, RX7 & 323

Operate engine at 4000 RPM. Slowly decrease engine RPM until throttle lever contacts dashpot. If engine RPM is not as specified when throttle lever contacts dashpot, loosen lock nut and adjust dashpot as necessary. See DASHPOT SPECIFICATIONS table. Tighten lock

D - ADJUSTMENTS

Article Text (p. 7)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:37AM

nut.

DASHPOT SPECIFICATIONS TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	RPM
-------------	-----

B2200 (Carbureted M/T)	2700-2900
------------------------------	-----------

Miata	2350-2650
-------------	-----------

MPV (3.0L)	3200-3800
------------------	-----------

MX-3 (1.6L)	About 3000
-------------------	------------

Protege

DOHC	About 3500
------------	------------

SOHC	About 2700
------------	------------

RX7	2600-3000
-----------	-----------

323	About 3000
-----------	------------

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

IDLE SPEED

NOTE: Before adjusting idle speed, warm engine to normal operating temperature. Turn off all accessories. Place transmission in Neutral (M/T) or Park (A/T). Ensure ignition timing is adjusted. See IGNITION TIMING.

B2200 (Carbureted)

Connect tachometer to negative side of ignition coil primary circuit (White wire). Ensure choke is fully open and throttle valve lever is not resting on fast idle cam. If idle speed is not 825 RPM, turn idle speed adjusting screw on carburetor until within specification.

B2200 (PFI) & B2600i

Connect jumper wire between ground and Green 1-pin test connector in right rear corner of engine compartment. See Fig. 2. Connect tachometer to negative side of ignition coil primary circuit (White wire). If idle speed is not within specification, rotate idle air adjusting screw on throttle body. See IDLE SPEED SPECIFICATIONS table. Disconnect jumper wire.

NOTE: On Miata, use Blue 1-pin connector near airflow meter as a source of battery power for positive lead of tachometer or timing light (battery is in trunk). DO NOT ground this connector, or 20-amp WIPER fuse will blow.

Miata, MX-3, MX-6, Protege, 323, 626 & 929

1) Connect Diagnostic Tester (49 B019 9A0) to diagnostic connector and select SELF-TEST mode, or connect jumper wire between diagnostic connector terminals TEN and GND. See Fig. 3. Connect tachometer to diagnostic connector terminal IG (-).

2) If idle speed is not within specification, rotate idle air adjusting screw on throttle body. See IDLE SPEED SPECIFICATIONS table. Disconnect jumper wire.

D - ADJUSTMENTS

Article Text (p. 8)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:37AM

MPV

1) Connect jumper wire between ground and Green 1-pin test connector in left front corner of engine compartment. See Fig. 4 or 5. On 2.6L, connect tachometer to White 1-pin test connector in left front corner of engine compartment. On 3.0L, connect tachometer to test connector at ignition coil (White wire).

2) On all models, if idle speed is not within specification, rotate idle air adjusting screw on throttle body. See IDLE SPEED SPECIFICATIONS table. Disconnect jumper wire.

NOTE: On Navajo, idle speed is computer controlled and is not adjustable. However, use the following initial throttle angle adjustment procedure (minimum air rate setting) as a basis for diagnosing idle speed problems or if throttle stop screw has been incorrectly set.

Navajo

1) Ensure the following conditions exist: throttle bore, throttle plate and Idle Speed Control (ISC) air by-pass valve are free of contamination, oxygen sensor is free of contamination and is operating, throttle stop lever is resting against throttle stop screw, no vacuum leaks are present, cooling system is full, and ignition timing is set to specification.

2) Perform a thorough basic inspection and Self-Test (KOEO, KOER and continuous memory) to confirm operation of sub-systems which may contribute to idle speed control problems. See appropriate information in G - TESTS W/ CODES article.

3) With engine off, disconnect negative battery cable for at least 5 minutes. Connect negative battery cable. Start engine and allow idle speed to stabilize for 2 minutes. Snap throttle open and return to idle. Lightly press and release accelerator. Turn engine off. Disconnect ISC air by-pass solenoid.

NOTE: If engine RPM fluctuates during idle, throttle plate may be open enough to allow canister purge flow. To verify this condition, disconnect and plug canister purge line. If purge is present, close throttle plate until fluctuations stop.

4) Start engine. Operate engine at 2500 RPM for 30 seconds. Allow engine to idle for 2 minutes. Turn throttle stop screw until engine idles at 675 RPM.

5) Turn off engine. Repeat step 4). Turn off engine. Disconnect negative battery cable for at least 5 minutes. Connect ISC air by-pass solenoid connector. Connect negative battery cable. Verify throttle plate is not stuck in bore and linkage is not preventing throttle stop lever from contacting throttle stop.

6) Start engine and allow to idle for 2 minutes. Snap throttle open and return to idle. Lightly press and release accelerator. Allow engine to idle. If engine does not idle properly, see H - TESTS W/O CODES article.

D - ADJUSTMENTS

Article Text (p. 9)

1993 Mazda RX7

For www.iluvmyrx7.com

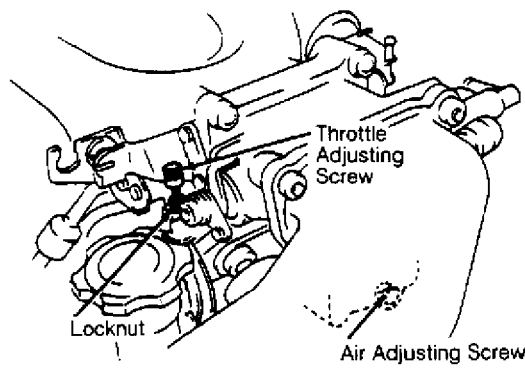
Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:37AM

RX7

1) Connect Diagnostic Tester (49 B019 9A0) to diagnostic connector and select SELF-TEST mode (position 1), or connect jumper wire between diagnostic connector terminals TEN and GND. See Fig. 3. Connect tachometer to diagnostic connector terminal IG (-).

2) If idle speed is not within specification, rotate air adjusting screw on throttle body. See Fig. 8. See IDLE SPEED SPECIFICATIONS table. If idle speed is too high with air adjusting screw closed, turn throttle adjusting screw. Disconnect jumper wire.



93D78546

Fig. 8: Adjusting Idle Speed (RX7)

Courtesy of Mazda Motors Corp.

IDLE SPEED SPECIFICATIONS TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	Man. Trans. RPM	(1) Auto. Trans. RPM
B2200		
Carbureted	825	825
PFI (2)	750	770
B2600i (2)	750	770
Miata (3)	850	850
MPV		
2.6L (2)	N/A	770
3.0L (2)	N/A	800
MX-3		
1.6L	750	750
1.8L	670	670
MX-6 (3)	750	750
Navajo	(4)	(4)
Protege (3)	750	750
RX7	700-750	700-750
323 (3)	750	750
626 (3)	750	750
929 (3)	N/A	700

D - ADJUSTMENTS

Article Text (p. 10)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:37AM

- (1) - Place automatic transmission in Park.
- (2) - Connect jumper wire between Green test connector and ground.
- (3) - Connect jumper wire between terminals TEN and GND of diagnostic connector.
- (4) - Idle speed is not adjustable; however, throttle angle (minimum air rate) can be set using special procedure.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

IDLE MIXTURE

B2200 (Carbureted)

1) Check for presence of mixture screw roll pin. See Fig. 9. If roll pin has already been removed, go to next step. If roll pin is present, remove air cleaner and carburetor. Drive out mixture screw roll pin. Install carburetor.

2) Install air cleaner. Ensure idle compensator valve is closed. Warm engine to normal operating temperature. Connect dwell meter (on 4-cylinder setting) between ground and mixture check connector (Brown/Yellow wire). See Fig. 10.

3) Adjust idle speed to 825 RPM. Turn mixture adjusting screw until dwell reading is 27-45 degrees. Reset idle speed (if necessary). Replace mixture roll pin after adjustment. If mixture cannot be adjusted to specification, see H - TESTS W/O CODES article.

Except B2200 (Carbureted)

Air/fuel mixture is computer controlled and cannot be manually adjusted. If CO level is excessive, see H - TESTS W/O CODES article.

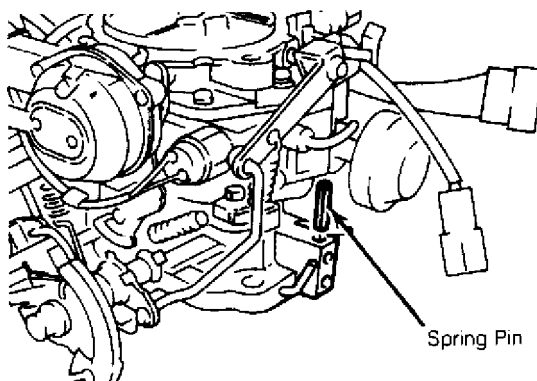


Fig. 9: Removing Carburetor Mixture Screw Roll Pin (B2200 Carbureted)
Courtesy of Mazda Motors Corp.

D - ADJUSTMENTS

Article Text (p. 11)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:37AM

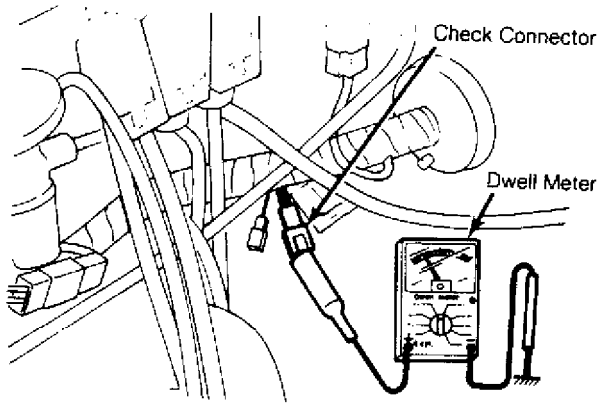


Fig. 10: Connecting Dwell Meter To Mixture Check Connector (Brown/Yellow Wire)-(B2200 Carbureted)

Courtesy of Mazda Motors Corp.

THROTTLE POSITION (TP) SENSOR

B2200 (CARBURETED)

See B2200 (CARBURETED) under THROTTLE (IDLE) SWITCH.

B2200 PFI, B2600i & MPV 2.6L

Inspection & Adjustment

1) Warm engine to normal operating temperature. Remove throttle body air inlet hose. Disconnect TP sensor connector. Install Test Harness (49 G018 901) between TP sensor and harness.

2) Turn ignition on. Ensure throttle valve is fully closed. Using a voltmeter capable of measuring voltage variations of .01 volt, measure voltage at Red and Black wires of test harness. See Fig. 11.

3) If voltage is 4.5-5.5 volts at Red wire and about zero volts at Black wire, go to next step. If voltage values are not as specified, check battery voltage and wiring harness between Electronic Control Unit (ECU) and TP sensor. If battery voltage and harness are okay, replace ECU.

4) Record voltage at Red wire. Measure voltage at Blue wire of test harness while varying throttle from closed to wide open position. Ensure voltage is within specification and voltmeter indicates a smooth voltage transition as throttle goes from closed to wide open position. See TP SENSOR VOLTAGE (B2200 PFI, B2600i & MPV 2.6L) table.

5) If voltage is not as specified, loosen TP sensor screw. Rotate TP sensor until Blue wire voltage is as specified. Tighten TP sensor screw. If TP sensor cannot be adjusted to specification, replace TP sensor. Disconnect negative battery cable and apply brake pedal for 5 seconds to erase ECU memory.

6) If voltage is as specified, turn ignition off. Disconnect test harness. Reconnect TP sensor connector. Disconnect negative battery cable and apply brake pedal for 5 seconds to erase ECU memory.

D - ADJUSTMENTS

Article Text (p. 12)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:37AM

TP SENSOR VOLTAGE (B2200 PFI, B2600i & MPV 2.6L)

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Red Wire Voltage	Blue Wire Voltage Closed Throttle	Blue Wire Voltage Wide Open Throttle
---------------------	--------------------------------------	-----------------------------------------

4.50-4.59	..... .37-.54	..... 3.58-4.23
4.60-4.69	..... .38-.55	..... 3.66-4.32
4.70-4.79	..... .39-.56	..... 3.74-4.41
4.80-4.89	..... .40-.57	..... 3.82-4.51
4.90-4.99	..... .40-.58	..... 3.90-4.60
5.00-5.09	..... .41-.60	..... 3.97-4.70
5.10-5.19	..... .42-.61	..... 4.05-4.79
5.20-5.29	..... .43-.62	..... 4.13-4.88
5.30-5.39	..... .44-.63	..... 4.21-4.98
5.40-5.49	..... .44-.64	..... 4.29-5.07
5.50	..... .44-.66	..... 4.29-5.17

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

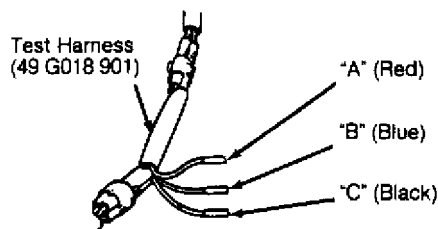


Fig. 11: TP Sensor Test Harness Terminal ID (B2200 PFI, B2600i & MPV 2.6L)

Courtesy of Mazda Motors Corp.

MIATA A/T, MX-3 1.6L A/T & 1.8L,

PROTEGE A/T, 323 A/T, MX-6 2.5L & 626 2.5L

Inspection

1) Disconnect TP sensor connector. Connect ohmmeter between TP sensor connector terminals "E" and IDL. See Fig. 12. Insert feeler gauge of specified thickness between throttle lever and throttle stop screw. See TP SENSOR CONTINUITY (MIATA A/T, MX-3 1.6L A/T & 1.8L, PROTEGE A/T, 323 A/T, MX-6 2.5L & 626 2.5L) table.

2) If continuity is not as specified, adjust TP sensor. See ADJUSTMENT procedure. If continuity is as specified, connect ohmmeter between TP sensor connector terminals Vt and "E". If resistance is less than 1000 ohms with throttle fully closed and about 5000 ohms with throttle wide open, TP sensor is adjusted. If resistance is not as specified, adjust TP sensor. See ADJUSTMENT procedure.

NOTE: If ohmmeter reading indicates a rough transition anywhere in range between lowest and highest readings, TP sensor potentiometer is faulty. Replace TP sensor.

D - ADJUSTMENTS

Article Text (p. 13)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:37AM

Adjustment

1) Disconnect TP sensor connector. Connect ohmmeter between TP sensor connector terminals "E" and IDL. See Fig. 12. Loosen TP sensor attaching screws.

2) Insert a .006" (.15 mm) feeler gauge (MX-3 1.8L, MX-6 2.5L and 626 2.5L) or .010" (.25 mm) feeler gauge (all other models) between throttle lever and throttle stop screw. Rotate TP sensor clockwise about 30 degrees, then rotate counterclockwise until ohmmeter indicates continuity.

3) Remove feeler gauge. Insert a .020" (.50 mm) feeler gauge (MX-3 1.8L, MX-6 2.5L and 626 2.5L) or .016" (.40 mm) feeler gauge (all other models) between throttle lever and throttle stop screw. If ohmmeter indicates no continuity, go to next step. If ohmmeter indicates continuity, repeat adjustment procedure.

4) Tighten TP sensor attaching screws. Open throttle valve fully and verify resistance between terminals "E" and Vt is about 5000 ohms.

NOTE: TP sensor on MX-6 2.0L and 626 2.0L is not adjustable.

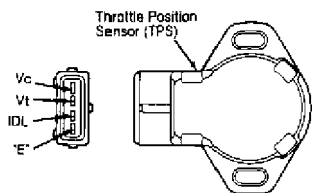


Fig. 12: TP Sensor Connector Terminal ID (Miata A/T, MX-3 1.6L A/T & 1.8L, Protege A/T, 323 A/T, MX-6 2.5L & 626 2.5L)

Courtesy of Mazda Motors Corp.

TP SENSOR CONTINUITY (MIATA A/T, MX-3 - 1.6L A/T & 1.8L, PROTEGE A/T, 323 A/T, MX-6 2.5L & 626 2.5L)

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Test Condition (1)

(2) Continuity

MX-3 1.8L, MX-6 2.5L & 626 2.5L

.006" (.15 mm) Yes

.020" (.50 mm) No

All Others

.004" (.10 mm) Yes

.024" (.60 mm) No

(1) - Insert feeler gauge of specified thickness between throttle lever and throttle stop screw.

(2) - Check continuity with ohmmeter connected between TP sensor terminals "E" and IDL.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

MIATA, MX-3 1.6L, PROTEGE & 323 - M/T

Inspection

1) Disconnect TP sensor connector. Insert feeler gauge of specified thickness between throttle lever and throttle stop screw.

Copyright © 1998 Mitchell Repair Information Company, LLC
Monday, August 20, 2001 06:37AM

See TP SENSOR CONTINUITY (MIATA, MX-3 1.6L, PROTEGE & 323 - M/T) table.

2) Connect ohmmeter between specified terminals of TP sensor connector. See Fig. 13. If continuity is not as specified, adjust TP sensor. See ADJUSTMENT procedure.

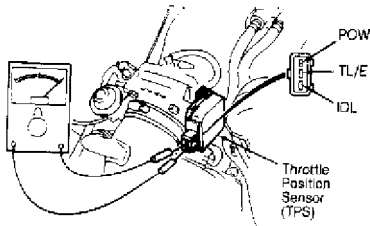
Adjustment

1) Disconnect TP sensor connector. Connect ohmmeter between terminals IDL and TL/E of TP sensor connector. See Fig. 13. Insert a .016" (.41 mm) feeler gauge between throttle lever and throttle stop screw.

2) Loosen TP sensor screws. Rotate TP sensor clockwise about 30 degrees, then rotate counterclockwise until ohmmeter indicates continuity.

3) Remove feeler gauge. Insert a .027" (.69 mm) feeler gauge between throttle lever and throttle stop screw. If ohmmeter indicates no continuity, go to next step. If ohmmeter indicates continuity, repeat adjustment procedure.

4) Tighten TP sensor attaching screws. Open throttle valve fully a few times. Recheck TP sensor adjustment.



92124933

Fig. 13: TP Sensor Connector Terminal ID (Miata, MX-3 1.6L, Protege & 323 - M/T)
Courtesy of Mazda Motors Corp.

TP SENSOR CONTINUITY (MIATA, MX-3 1.6L, PROTEGE & 323 - M/T) TABLE

Test Condition				Continuity Between IDL & TL/E	Continuity Between POW & TL/E
Miata					
.016" (.41 mm) (1)	.....	Yes	.....	No	
.027" (.7 mm) (1)	.....	No	.....	No	
WOT	.....	No	.....	Yes	
MX-3 1.6L,					
Protege & 323					
.004" (.10 mm) (1)	.....	Yes	.....	No	
.039" (1.0 mm) (1)	.....	No	.....	No	
WOT	.....	No	.....	Yes	

(1) - Insert feeler gauge of specified thickness between throttle lever and throttle stop screw.

Copyright © 1998 Mitchell Repair Information Company, LLC
Monday, August 20, 2001 06:37AM

[illegible]

D - ADJUSTMENTS

Article Text (p. 16)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:37AM

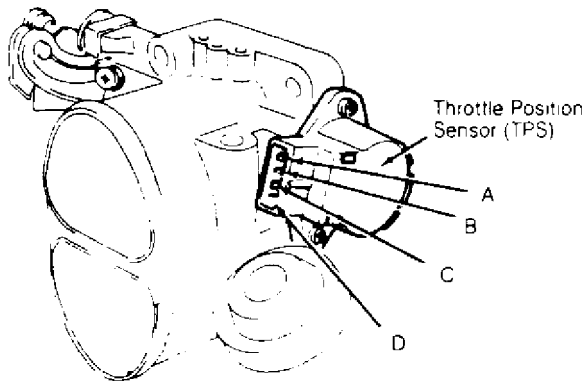
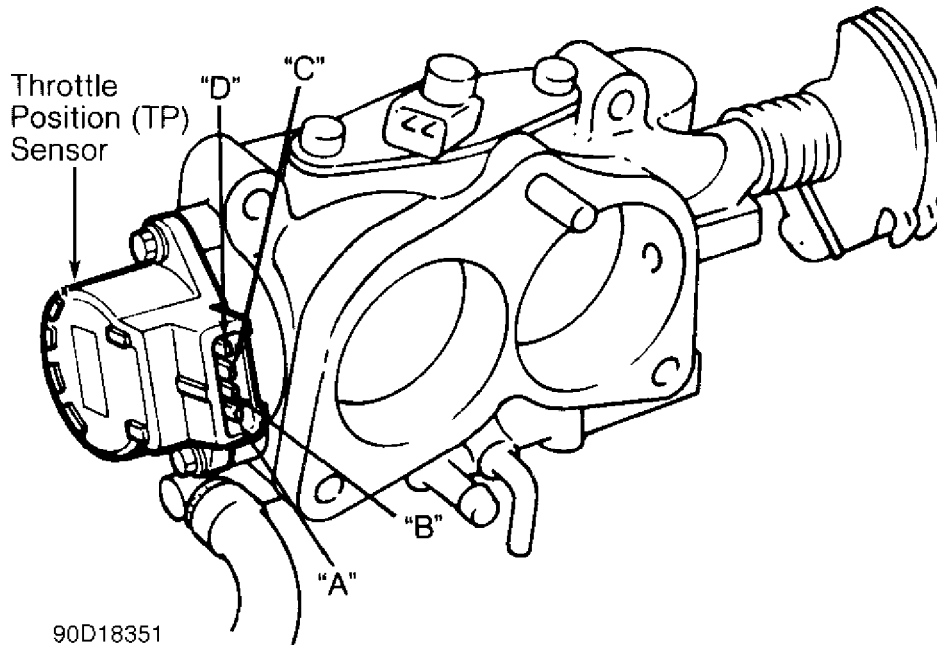


Fig. 14: Identifying TP Sensor Terminals (MPV 3.0L)
Courtesy of Mazda Motors Corp.



90D18351
Fig. 15: Identifying TP Sensor Terminals (929)
Courtesy of Mazda Motors Corp.

NAVAJO

NOTE: TP sensor is not adjustable. Replace TP sensor if voltage readings are not within specification.

1) Ensure throttle linkage is not preventing throttle stop lever from contacting throttle stop screw. Disconnect Electronic Control Assembly (ECA) 60-pin connector. Inspect connector for damaged pins, corrosion or loose wires and repair as necessary.

2) Connect Breakout Box (T83L-50-EEC-IV) between ECA and ECA harness. Connect digital voltmeter positive lead to pin No. 47 and negative lead to pin No. 46 of breakout box.

3) Turn ignition on. Observe voltmeter while slowly moving throttle between fully closed and wide open positions. Voltage should

D - ADJUSTMENTS

Article Text (p. 17)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:37AM

be .60 volt with throttle fully closed and about 4.50 volts throttle fully open.

4) If voltages values are not as specified, ensure throttle angle (minimum air rate) is correct. See IDLE SPEED under IDLE SPEED & MIXTURE. If throttle angle is correct, remove TP sensor.

5) Check for damaged, corroded or misadjusted pins. If pins are okay, install TP sensor. Check voltage readings again. If voltage readings are not as specified, perform KOEO self-test. See information G - TEST W/ CODES article. If KOEO self-test indicates no problems, replace TP sensor.

RX7

Inspection & Adjustment

1) Turn ignition off. Connect Harness Adapter (49 F018 902) and Signal Monitor (49 9200 162) to vehicle. See Fig. 16. Turn ignition on. Manually rotate throttle lever, and check TP sensor signal. See TP SENSOR VOLTAGE (RX7) table.

2) If voltage is not within specification, close throttle. Loosen TP sensor screws, and rotate TP sensor. See Fig. 17. Recheck TP sensor signal. Turn ignition off. Disconnect test equipment. Disconnect negative battery cable and depress brake pedal for 20 seconds. Reconnect negative battery cable.

TP SENSOR VOLTAGE TABLE (RX7)

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Wire Color To Ground	Closed Throttle Volts	Wide Open Throttle Volts
-------------------------	--------------------------	--------------------------------

Green/Red (3F) (1)	..... .75-1.25	..... 4.8-5.0
Black/Green (3G) (1)	..... 0.7-1.0	..... 4.2-4.6

(1) - PCM terminal pin No. in parentheses.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

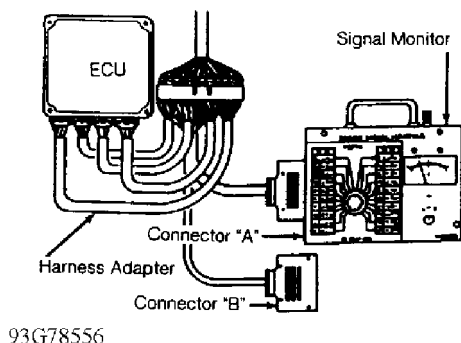


Fig. 16: Checking TP Sensor Voltage Signal (RX7)
Courtesy of Mazda Motors Corp.

D - ADJUSTMENTS

Article Text (p. 18)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:37AM

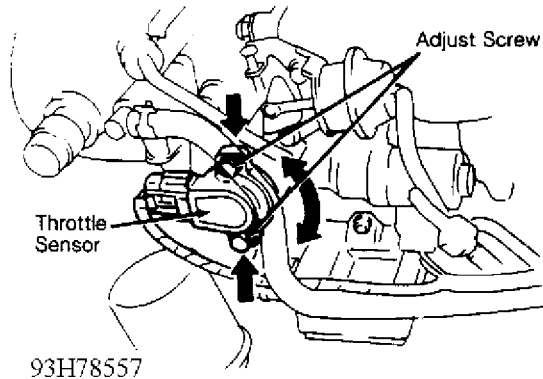


Fig. 17: Adjusting TP Sensor (RX7)
Courtesy of Mazda Motors Corp.

THROTTLE (IDLE) SWITCH

B2200 (CARBURETED)

1) Warm engine to operating temperature. Connect tachometer. Operate engine at idle. Using voltmeter, backprobe Light Green/Red wire terminal of idle switch connector. See Fig. 18.

2) Increase engine speed to more than 2000 RPM. Gradually decrease engine speed. If voltage is not as specified in THROTTLE SWITCH VOLTAGE TEST (B2200 CARBURETED) table, turn idle switch adjusting screw until voltage is within specification.

THROTTLE SWITCH VOLTAGE TEST TABLE (B2200 CARBURETED)

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
RPM Volts

825 (Idle) About 12

1000-1250 Less Than 1.5

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

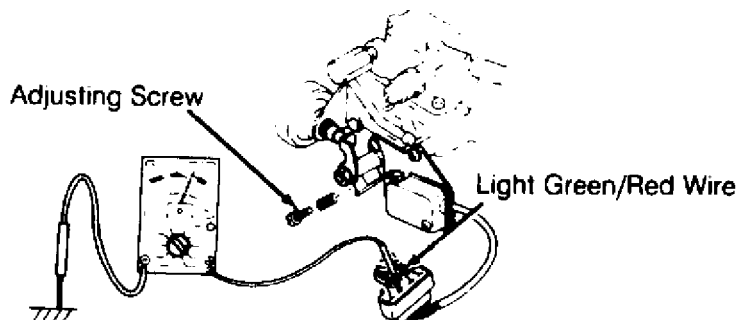


Fig. 18: Adjusting Throttle Switch (B2200 Carbureted)
Courtesy of Mazda Motors Corp.

EXCEPT B2200 (CARBURETED)

D - ADJUSTMENTS

Article Text (p. 19)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:37AM

Throttle switch is either a part of TP sensor, which is adjusted automatically when TP is adjusted, or a separate, nonadjustable switch on throttle body. See THROTTLE POSITION (TP) SENSOR.

END OF ARTICLE

E - THEORY/OPERATION

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Monday, August 20, 2001 06:38AM

ARTICLE BEGINNING

1993 ENGINE PERFORMANCE

Mazda Theory & Operation - Rotary Engine

RX7

INTRODUCTION

This article covers basic description and operation of engine performance-related systems and components. Read this article before diagnosing vehicles or systems with which you are not completely familiar.

AIR INDUCTION SYSTEM

4-Port Induction

The 4-port induction uses primary or primary and secondary intake manifold paths, located in intake system. During low speed light load, intake air enters engine through one lower throttle valve. Under high RPM and heavy load, throttle cable also opens 2 upper throttle valves. These feed intake air to the outside passages in intake manifold. If the engine RPM is too low or engine is cold, a double throttle control valve (inside intake manifold) delays opening the outside (secondary) passages. The double throttle control valve is controlled by a solenoid and PCM.

Intercooler

Air compressed by turbochargers enters intercooler located behind radiator under cover. From intercooler, air enters throttle body housing.

Turbochargers

All models use sequential twin liquid-cooled (coolant) turbochargers. Turbochargers consists of a turbine/compressor assembly, oil supply system and wastegate. PCM-controlled solenoids are used to open or close secondary turbocharger.

The safety valve of this system is a wastegate that prevents excess intake boost pressure. Wastegate operation is controlled by turbo boost pressure control solenoid. This solenoid limits boost pressure to 10-14 psi (.7-1.0 kg/cm²).

COMPUTERIZED ENGINE CONTROLS

The computerized engine control system monitors various engine and vehicle functions to control engine operation and lower emissions while maintaining fuel economy and driveability.

CONTROL UNIT

The Powertrain Control Module (PCM) monitors engine

E - THEORY/OPERATION

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:38AM

conditions through various input sensors, and controls engine operation through the use of output signals to control various systems such as fuel, air injection, ignition, EGR and turbo control, and knock control systems. Turbo operation is controlled by the turbo pre-control, turbo control, wastegate control, charge control and charge relief solenoid valves which are all controlled by PCM.

NOTE: Components are grouped into 2 categories. The first category covers INPUT DEVICES, which control or produce voltage signals monitored by the PCM. The second category covers OUTPUT SIGNALS, which are components controlled by the PCM.

INPUT DEVICES

Vehicles are equipped with different combinations of input devices. Not all devices are used on all models. To determine the input usage on a specific model, see appropriate wiring diagram in L - WIRING DIAGRAMS article. The available input signals include the following:

A/C Switch

Switch detects A/C operation and sends signal to PCM.

Barometric Pressure (BARO) Sensor

Sensor monitors intake manifold pressure and sends signal to PCM.

Battery Power Circuit

Battery power circuit provides current to PCM. The PCM uses this circuit to monitor battery voltage.

Clutch Switch

Clutch switch detects clutch operation and sends signal to PCM. Clutch switch is closed when pedal is depressed.

Coolant Thermosensor

Sensor monitors engine coolant temperature and sends signal to PCM.

Crank Angle Sensors

These sensors, mounted to front of engine, monitor position of front crank pulley and send signals to PCM.

EGR Switch (California)

Switch detects position of EGR valve and sends signal to PCM.

Fuel Thermosensor

Sensor monitors fuel temperature in fuel rail and sends signal to PCM.

Heat Hazard Sensor

Sensor detects floor temperature near catalytic converter and

E - THEORY/OPERATION

Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:38AM

sends signal to PCM.

Inhibitor Switch (A/T)

Switch detects position of gear selector lever and sends signal to PCM.

Intake Air Thermosensor

Sensor monitors intake manifold air temperature and sends signal to PCM.

Knock Sensor

Sensor monitors engine knock conditions and sends signal to engine knock control unit.

Mileage Sensor

Sensor determines vehicle mileage and sends signal to PCM.

Neutral Switch

Switch detects gearshift Neutral position and sends signal to PCM.

Oil Metering Pump

Oil metering pump includes a position sensor which senses oil metering pump position and send signal to PCM.

Overdrive Switch (A/T)

Switch detects overdrive operation and sends signal to PCM.

Oxygen (O2) Sensor

O2 sensor monitors oxygen content of exhaust gases and sends signal to PCM.

Power Steering Pressure (PSP) Switch

PSP switch determines when pressure is required to turn the wheels and sends signal to PCM. On turbo models, a power steering relay is used along with the power steering switch.

Throttle Sensor

Sensor monitors throttle opening angle. Sensor detects both narrow range and full range of throttle opening and sends signal to PCM.

5th Gear Switch (M/T)

Switch detects engagement of 5th gear and sends signal to PCM.

Vehicle Speed Sensor

Sensor determines speed of vehicle and sends signal to PCM.

OUTPUT SIGNALS

NOTE: Vehicles are equipped with different combinations of

E - THEORY/OPERATION

Article Text (p. 4)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:38AM

computer-controlled components. Not all components listed below are used on every vehicle. For theory and operation on each output component, refer to system indicated after component.

The PCM processes information from the input sensors and sends appropriate voltage control signals to the following engine controls:

By-Pass Air Control (BAC) Valve Solenoid
See IDLE SPEED under FUEL SYSTEM.

Malfunction Indicator Light
See SELF-DIAGNOSTIC SYSTEM.

Ignitor Module
See IGNITION SYSTEM.

Fuel Injectors
See FUEL CONTROL under FUEL SYSTEM.

EGR Control Solenoid
See EMISSION SYSTEMS.

Secondary Air Injection System Solenoids
See EMISSION SYSTEMS.

Turbocharger Control
See AIR INDUCTION SYSTEM.

Double Throttle Control Solenoid
See AIR INDUCTION SYSTEM.

FUEL SYSTEM

FUEL DELIVERY

Fuel Pump

Fuel under pressure from electric fuel pump flows through a fuel damper, fuel filter, injector fuel rail (delivery pipe) and fuel pressure regulator. Fuel pump is located in fuel tank. Electrical power for fuel pump operation during cranking mode is provided from starter relay via circuit opening relay, fuel pump resistor (or fuel pump relay) and PCM.

Fuel Pump Relays

The PCM turns on circuit opening relay or fuel pump relay based on inputs from ignition switch and other engine sensors. Under normal operation, PCM closes circuit opening relay. This causes fuel pump feed current to go through a fuel pump resistor, reducing electrical current to fuel pump.

During cranking, high RPM and high load, or fuel pressure

E - THEORY/OPERATION

Article Text (p. 5)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:38AM

regulator control operation, PCM supplies current to energize fuel pump relay. This causes fuel pump feed current to by-pass fuel pump resistor, providing maximum current to fuel pump.

Fuel Pressure Regulator

The pressure regulator is a sealed unit which is divided into 2 chambers (fuel and spring chambers) by a diaphragm. The fuel chamber receives fuel through the inlet side from the injector fuel rail. The spring chamber is connected to intake manifold vacuum.

At idle, intake manifold vacuum is high. The diaphragm is pulled back by intake manifold vacuum. Any excessive fuel is returned to the fuel tank. As throttle is depressed, intake manifold vacuum decreases. The regulator spring overcomes manifold vacuum, increasing fuel pressure.

During hot restarts, PCM increases fuel pressure at injectors by sending a signal to fuel pressure regulator control solenoid valve.

FUEL CONTROL

Electronic Gasoline Injection (EGI) System

The EGI system is a BARO controlled, dual-injector, feedback system. An O2 sensor monitors CO content of exhaust gases. Based on O2 sensor and other signals, PCM adjusts injector's injection time accordingly. The system precisely meters amount of fuel injected into each chamber.

Fuel Injectors

PCM uses input information supplied by various sensors to determine duration of injector's injection time. Primary injectors, located below upper intake manifold, operate all the time. Secondary injectors, located in outside intake manifold runners, operate during high RPM and heavy loads.

IDLE SPEED

Idle Control Valves

The By-Pass Air Control (BAC) valve contains an air valve. Engine coolant is directed around air valve warming thermowax. When engine coolant temperature is less than 122°F (50°C), wax is contracted and engine idles fast. When coolant temperature is more than 122°F (50°C), wax is fully expanded, closing valve.

The Idle Speed Control (ISC) valve controls air by-pass amount during warm engine operation. The ISC valve compensates for all engine loads during warm engine operation to maintain a preset idle RPM. The ISC is controlled by the PCM.

The Accelerated Warm-Up System (AWS) valve is open at temperature less than 104°F (40°C). At temperature greater than 104°F (40°C), valve is closed, preventing rough idle under some cold engine conditions.

IGNITION SYSTEM

E - THEORY/OPERATION

Article Text (p. 6)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:38AM

ELECTRONIC IGNITION SYSTEM

Coils & Ignitor

The RX7 uses a distributorless ignition system that uses 2 crank angle sensors, 3 coils and an ignitor assembly. The coils, one leading and 2 trailing, provide high voltage for spark operation. Crank angle sensors detect crank pulley position and send signals to PCM. The ignitor fires one coil for both leading spark plugs and fires 2 other coils for each trailing spark plug.

Mazda rotary engines use an ignition system with 2 spark plugs in each rotor housing. These fire at different times during ignition cycle. First spark plugs to fire are the leading set, and second spark plugs are the trailing set. Leading set spark plugs fire at about 5 degrees ATDC, depending on ignition advance, to begin combustion. Trailing set spark plugs fire about 20 degrees later to complete combustion.

IGNITION TIMING CONTROL SYSTEM

Ignition Timing Advance Control

All models use an Electronic Spark Advance (ESA) control system. The PCM determines ignition timing based on signals from various sensors and switches.

Detonation (Knock) Retard Operation

Knock sensor detects detonation in engine and sends signal to PCM. PCM retards ignition timing based on frequency of knocking.

EMISSION SYSTEMS

DECELERATION CONTROL SYSTEM

Deceleration system is designed to maintain a balanced air/fuel mixture during deceleration and help prevent backfiring. System consists of a fuel-cut operation (non-turbo), throttle sensor, anti-afterburn valve, dashpot and air by-pass valve (turbo).

EXHAUST GAS RECIRCULATION (EGR)

EGR system allows measured amounts of exhaust gas into intake manifold to reduce oxides of nitrogen (NOx). The EGR system consists of EGR control valve, EGR solenoid valve, EGR position switch (California), connecting hoses and pipes.

FUEL EVAPORATION SYSTEM

Fuel evaporation system prevents escape of raw fuel vapor to atmosphere. System components include fuel tank with integral vapor separator, check cut valve, purge control solenoid valve, charcoal canister, fuel filler cap, check valves and connecting lines.

PURGE CONTROL SOLENOID VALVE

E - THEORY/OPERATION

Article Text (p. 7)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:38AM

This normally closed solenoid valve controls fuel vapor flow from canister to intake manifold. Valve opens and closes based on signal from PCM during various engine operating modes.

VAPOR VENT SYSTEM

All vapor valves are mounted on fuel tank and use a small orifice, which allows vapor (but not liquid) fuel to pass into line running to canister. Fuel vapors in fuel tank are vented through vapor valve assembly on top of fuel tank. Vapors are routed through a vapor line to carbon canister in engine compartment.

SECONDARY AIR INJECTION CONTROL SYSTEM

System consists of air pump (with magnetic clutch), 2 check valves, air control valve, switching solenoid valve, relief solenoid valve, split air solenoid valve and port air solenoid. Air injection system supplies air into exhaust system to help control exhaust emissions.

SELF DIAGNOSTIC SYSTEM

The PCM is equipped with a self-diagnostic system which detects system failures or abnormalities. When malfunction occurs, Malfunction Indicator Light (MIL) on instrument panel is turned on.

By analyzing various input signals, PCM detects system malfunctions related to various operating parameter sensors. PCM stores trouble codes associated with detected failure until diagnostic system is cleared.

MALFUNCTION INDICATOR LIGHT (MIL)

MIL comes on when ignition is turned on. Light remains on for several seconds after engine has started. If an abnormal input signal occurs, light comes on and code is stored in memory. If an abnormal input signal returns to normal, PCM turns light off, but code remains stored in memory until cleared. If ignition is turned on again, light will not come on until PCM detects malfunction during system operation.

NOTE: PCM diagnostic memory is retained by direct power supply from battery. Memory is not erased by turning off ignition, but is erased if battery or PCM is disconnected.

MISCELLANEOUS CONTROLS

NOTE: Although not considered true engine performance-related systems, some controlled devices may affect driveability if they malfunction.

A/C CLUTCH

E - THEORY/OPERATION

Article Text (p. 8)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:38AM

When PCM detects a signal from the air conditioner PCM indicating that the A/C switch is turned on, PCM will output a signal to the magnetic clutch relay to turn it on.

The magnetic clutch operation is delayed for about 0.5 second. During this time, the PCM opens the ISC valve to offset the drop in engine RPM due to the operation of the A/C compressor.

This system also helps maintain driveability by switching off magnetic compressor clutch when vehicle is accelerated suddenly, or when engine is running under a heavy load condition.

RADIATOR FAN CONTROL

PCM detects coolant temperature and turns on one or both radiator fans. This system helps prevent rough idle.

END OF ARTICLE

F - BASIC TESTING

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:38AM

ARTICLE BEGINNING

1993 ENGINE PERFORMANCE

Mazda Basic Diagnostic Procedures

B2200, B2600i, Miata, MPV, MX-3, MX-6,
Navajo, Protege, RX7, 323, 626, 929

INTRODUCTION

The following diagnostic steps will help prevent overlooking a simple problem. This is also where to begin diagnosis for a no-start condition.

The first step in diagnosing any driveability problem is verifying the customer's complaint with a test drive under the conditions the problem reportedly occurred.

Before entering self-diagnostics, perform a careful and complete visual inspection. Most engine control problems result from mechanical breakdowns, poor electrical connections or damaged/misrouted vacuum hoses. Before condemning the computerized system, perform each test listed in this article.

NOTE: Perform all voltage tests with a Digital Volt-Ohmmeter (DVOM) with a minimum 10-megohm input impedance, unless stated otherwise in test procedure.

PRELIMINARY INSPECTION & ADJUSTMENTS

VISUAL INSPECTION

Visually inspect all electrical wiring, looking for chafed, stretched, cut or pinched wiring. Ensure electrical connectors fit tightly and are not corroded. Ensure vacuum hoses are properly routed and are not pinched or cut. See VACUUM DIAGRAMS article to verify routing and connections (if necessary). Inspect air induction system for possible vacuum leaks.

MECHANICAL INSPECTION

Compression

Check engine mechanical condition with a compression gauge, vacuum gauge, or an engine analyzer. See engine analyzer manual for specific instructions.

WARNING: DO NOT use ignition switch during compression tests on fuel injected vehicles. Use a remote starter to crank engine. Fuel injectors on many models are triggered by ignition switch during cranking mode, which can create a fire hazard or contaminate the engine's oiling system.

COMPRESSION SPECIFICATIONS TABLE

F - BASIC TESTING

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:38AM

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	Minimum		Standard	
	psi (kg/cm2)	@ RPM	psi (kg/cm2)	@ RPM
B2200	121 (8.5)	@ 300	.. 173 (12.2)	@ 300
B2600i	142 (10.0)	@ 280	... 185 (13.0)	@ 280
Miata & 323 (1)	135 (9.5)	@ 300	.. 192 (13.5)	@ 300
MPV				
2.6L	142 (10.0)	@ 280	... 185 (13.0)	@ 280
3.0L	121 (8.5)	@ 300	.. 164 (11.5)	@ 300
MX-3				
1.6L	142 (10.0)	@ 300	... 185 (13.0)	@ 300
1.8L	142 (10.0)	@ 300	... 192 (13.5)	@ 300
MX-6 & 626				
2.0L	119 (8.4)	@ 300	.. 171 (12.0)	@ 300
2.5L	142 (10.0)	@ 250	... 203 (14.3)	@ 250
Navajo	(2) 100 (7.0)		..... (2) 100 (7.0)	
Protege				
SOHC (1)	121 (8.5)	@ 300	.. 173 (12.2)	@ 300
DOHC (1)	128 (9.0)	@ 300	.. 182 (12.8)	@ 300
RX7	79 (5.5)	@ 250	.... 100 (7.0)	@ 250
929	157 (11.0)	@ 270	... 213 (15.0)	@ 270

- (1) - Difference between cylinders should not be more than 28 psi (2.0 kg/cm2).
- (2) - Lowest compression reading should not be less than 75 percent of highest compression reading.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Exhaust System Backpressure

The exhaust system can be checked with a vacuum or pressure gauge. Remove O2 sensor or air injection check valve (if equipped). Connect a 0-5 psi pressure gauge and run engine at 2500 RPM. If exhaust system backpressure is greater than 1 3/4 - 2 psi (.12-.14 kg/cm2), exhaust system or catalytic converter is plugged.

If a vacuum gauge is used, connect vacuum gauge hose to intake manifold vacuum port and start engine. Observe vacuum gauge. Open throttle part way and hold steady. If vacuum gauge reading slowly drops after stabilizing, exhaust system should be checked for a restriction.

FUEL SYSTEM

FUEL PRESSURE (CARBURETED)

Basic diagnosis of fuel system should begin with determining fuel system pressure.

NOTE: Fuel pump control unit terminal identification is not available from manufacturer.

Fuel Pump (Electrical)

F - BASIC TESTING

Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:38AM

1) Turn ignition on. Locate fuel control unit under left side of dash. Using a jumper wire, connect terminals "B" to "D". Fuel pump (located in tank) should operate. If pump does not operate, check and replace fuel pump (if necessary). Check fuel pump pressure. See FUEL PUMP PERFORMANCE (CARBURETED) table.

FUEL PUMP PERFORMANCE TABLE (CARBURETED)

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	Pressure psi (kg/cm2)	Min. Vol. In 30 Sec. Pts. (L)
-------------	--------------------------	-------------------------------------

B2200

Electrical Pump .. 2.8-3.6 (.20-.25) 1.1 (.53)

Mechanical Pump .. 3.7-4.7 (.26-.33)9 (.43)

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

2) If fuel pump operates, remove jumper wire. With ignition on, backprobe rear of fuel pump control unit. There should be 12 volts on terminals "A" and "D" only. If voltage is not as specified, check ignition and power feed.

3) Allow engine to idle. There should be 12 volts on terminals "A", "B", "D" and "F" only. If voltage is missing on terminal "B" only, replace fuel pump control unit. If voltage at any other terminal is not as specified, check ignition coil (tachometer signal) and power feed.

Fuel Pump (Mechanical)

Test pump for pressure and volume. Replace as necessary. See FUEL PUMP PERFORMANCE (CARBURETED) table.

FUEL PRESSURE (FUEL INJECTION)

WARNING: ALWAYS relieve fuel pressure before disconnecting any fuel injection related component. DO NOT allow fuel to contact engine or electrical components.

Fuel Pressure

1) Disconnect circuit opening relay. See CIRCUIT OPENING RELAY LOCATIONS table.

2) To bleed down fuel in system, start engine (if possible) and allow to die. Connect pressure gauge to fuel line at fuel filter. Reconnect circuit opening relay.

3) On Navajo, install EFI Pressure Gauge (T80L-9974-B) to relief valve. Relief valve is located on fuel supply manifold.

4) Turn ignition on. On Miata, MX-3, MX-6, Protege, RX7, 323, 626 and 929, jump test connector terminals Fp and ground. On all other models, use a jumper wire and connect terminals of Yellow fuel pump check connector together. See FUEL PUMP CHECK CONNECTOR (YELLOW) LOCATION table. On all models, if pump does not run, check fuel pump circuit and circuit opening relay.

F - BASIC TESTING

Article Text (p. 4)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:38AM

FUEL PUMP CHECK CONNECTOR (YELLOW) LOCATION TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	Location
-------------	----------

B2200 (PFI) & B2600i	On Firewall, Near Windshield Wiper Motor
----------------------	---------------------------------------------

MPV	Near Airflow Sensor
-----	---------------------

Navajo	At Right Inner Fender Panel
--------	-----------------------------

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

5) If possible, start engine. Check fuel pressure with vacuum connected to and disconnected from pressure regulator. See REGULATED FUEL PRESSURE (FUEL INJECTION) table. Turn engine off and disconnect jumper wire at fuel pump check connector. Wait 10 minutes and ensure residual pressure is at least 21 psi (1.5 kg/cm2).

6) Operate fuel pump by jumpering fuel pump test connector. Check fuel pump performance. Pinch hose between pressure gauge and fuel filter. DO NOT hold longer than necessary to check pressure. See FUEL PUMP PERFORMANCE table. If pump does not meet specifications, check fuel pump circuits, fuel pump, fuel tank, fuel filter and repair or replace as necessary.

FUEL PUMP PERFORMANCE TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	Pressure
-------------	----------

Navajo	(1)
--------	-----

MX-6 & 626 With 2.5L	72-92 psi (5.0-6.5 kg/cm2)
----------------------	----------------------------

All Others (2)	64-92 psi (4.5-6.5 kg/cm2)
----------------	----------------------------

(1) - Information is not available from manufacturer.

(2) - Minimum volume in 30 seconds is 1.0 pint (.47L).

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

REGULATED FUEL PRESSURE (FUEL INJECTION) TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	At Idle W/ Vacuum psi (kg/cm2)	At Idle W/O Vacuum psi (kg/cm2)
-------------	--------------------------------------	---------------------------------------

B2200 (PFI) & B2600i	28-37 (2.0-2.6)	38-46 (2.7-3.2)
----------------------	-----------------	-----------------

Miata, MX-6 & 626	31-38 (2.2-2.7)	38-46 (2.7-3.2)
-------------------	-----------------	-----------------

MPV	30-37 (2.1-2.6)	38-46 (2.7-3.2)
-----	-----------------	-----------------

MX-3, Protege & 323	30-37 (2.1-2.6)	38-46 (2.7-3.2)
---------------------	-----------------	-----------------

RX7	27-32 (1.9-2.3)	36-38 (2.5-2.7)
-----	-----------------	-----------------

Navajo	(1)	(2)
--------	-----	-----

929	31-38 (2.2-2.7)	38-46 (2.7-3.2)
-----	-----------------	-----------------

(1) - Pressure should be 30-46 psi (2.1-3.2 kg/cm2) with engine running and 36-46 psi (2.5-3.2 kg/cm2) with key on and engine off.

(2) - Information is not available from manufacturer.

F - BASIC TESTING

Article Text (p. 5)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:38AM

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

NOTE: Fuel pump control unit terminal identification is not available from manufacturer.

Fuel Pump Circuit (Except Navajo)

1) Turn ignition on. On B2200 (PFI), B2600i and MPV connect terminals of Yellow fuel pump check connector with a jumper wire. See FUEL PUMP CHECK CONNECTOR (YELLOW) LOCATIONS table. On Miata, MX-3, MX-6, Protege, RX7, 323, 626 and 929, attach jumper wire to test connector terminal Fp and to ground in the diagnostic connector, next to battery.

2) Listen for fuel pump operating sound. If there is no sound, check main fuse, circuit operating relay, fuel pump and all electrical connections. On MX-3, MX-6, RX-7, 626 and 929, PCM grounds circuit opening relay and operates fuel pump whenever distributor or crank angle sensor signals are present. On other models, airflow meter grounds circuit opening relay whenever airflow is present.

3) If circuit opening relay does not work, see SYSTEM & COMPONENT TESTING article or appropriate G - TESTS W/CODES article.

Fuel Pump Circuit (Navajo)

1) If fuel pressure is zero or low, with ignition off, ensure Inertia Fuel Shut-Off (IFS) switch is set. Ensure battery is fully charged. Using a jumper lead, ground FP lead terminal of self-test connector. See Fig. 1. IFS switch is located under dash to the right of transmission tunnel. With ignition on, engine off and IFS switch electrical connector connected, check voltage at IFS switch. If voltage is 10.5 volts or more at both IFS switch terminals, go to step 3).

2) If voltage is 10.5 volts or more at only one IFS switch terminal, replace IFS switch. If voltage is less than 10.5 volts at both IFS switch terminals, check and repair wiring circuit.

3) With ignition off, ensure connection is okay at pump/sender unit. Turn ignition on, with engine off. Listen for sound of fuel pump operation. If pump is not running, go to next step. If pump is running, check condition of fuel filter. If filter is okay, replace fuel pump. If filter is dirty, replace filter and recheck system.

4) Turn ignition off and disconnect fuel pump/sender connector. See Fig. 1. Turn ignition on, with engine off. Measure voltage at pump power terminal (Pink/Black wire) of pump/sender connector. If voltage is 10.5 volts or more, go to next step. If voltage is not 10.5 volts or more, repair open in Pink/Black wire between fuel pump and inertia switch.

5) With fuel pump/sender connector still disconnected, measure resistance of pump ground wire (Black wire) to chassis ground. See Fig. 1. If resistance is less than one ohm, go to next step. If resistance is not less than one ohm, repair open in Black wire between fuel pump and ground.

6) Turn ignition off. Measure resistance between IFS switch and ground. If resistance is less than 5 ohms, replace fuel pump. For

F - BASIC TESTING

Article Text (p. 6)

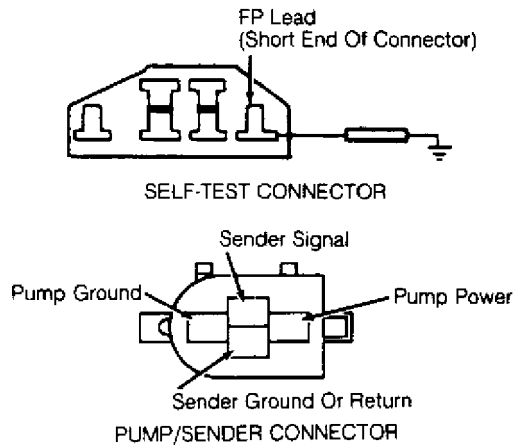
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:38AM

additional circuit testing information see CIRCUIT TEST J in appropriate G - TESTS W/CODES article.



93G78986

Fig. 1: Identifying Fuel Pump & Self-Test Connectors (Navajo)
Courtesy of Mazda Motors Corp.

Fuel Pump Relay (Navajo)

1) Remove fuel pump relay (located under power distribution box on right inner fender). Connect 12 volts to terminal "C" and ground terminal "D". Check for continuity between terminals "A" and "B". If continuity is present, relay is okay. If continuity is not present, replace relay.

2) Turn ignition on. Ensure 12 volts are present on Red and Black/Yellow or Yellow wires. If 12 volts are not present, repair circuits from Electronic Engine Control (EEC) power relay, battery or power distribution box.

3) Connect 12 volts to terminal "A". Fuel pump should operate. If pump does not operate, repair wiring to inertia switch, fuel pump or fuel pump ground, or replace fuel pump.

Inertia Fuel Shut-Off (IFS) Switch (Navajo)

IFS switch is located under dash to the right of transmission tunnel. To reset switch, make sure no fuel leaks are present. Push reset button.

Circuit Opening Relay (Except MX-3, MX-6, Navajo, 626 & 929)

1) With relay connected, ensure specified voltage is present at relay terminals. See CIRCUIT OPENING RELAY CIRCUIT VOLTAGE table. For location of circuit opening relays, see CIRCUIT OPENING RELAY LOCATION table.

2) If voltages are okay, remove relay from vehicle. Check relay operation using a 12-volt battery source and perform resistance tests. See Fig. 2.

[illegible]

F - BASIC TESTING

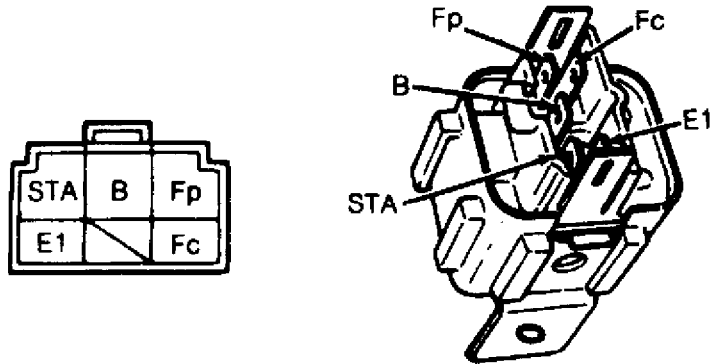
Article Text (p. 8)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:38AM



12V	Grounded	Correct result
STA	E1	B-Fp: Continuity
B	Fc	Fp: Battery voltage

RELAY VOLTAGE CHECK

Between terminals	Resistance (Ω)
STA-E1	21—43
B-Fc	109—226
B-Fp	∞

RELAY RESISTANCE CHECK

Fig. 2: Testing Circuit Opening Relay (Except MX-3, MX-6, Navajo, 626 & 929)

Courtesy of Mazda Motors Corp.

IGNITION CHECKS (EXCEPT NAVAJO)

Spark

Check for spark at coil wire and at each spark plug wire using a high output spark tester. Check spark plug wire resistance on suspect wires. Resistance should be no less than 4878 ohms per foot.

Ignition Coil Power Source

Turn ignition on. Using voltmeter, check for 12 volts between positive (+) terminal and ground. If no voltage is present, check battery feed, main fuse, EGI main relay (RX7), ignition switch and fusible links.

Ignition Coil Resistance (Except MX-3 1.8L, MX-6 & 626)

1) Remove primary and secondary leads from ignition coil. Using ohmmeter, check primary resistance between positive and negative

F - BASIC TESTING

Article Text (p. 9)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:38AM

terminals of coil. See Fig. 3. Resistance should be as specified in IGNITION COIL RESISTANCE table. If resistance is not as specified, replace ignition coil.

2) Check secondary resistance between (positive) terminal and coil tower. See Fig. 3. On leading coil of RX7, check secondary resistance between both high tension towers. On all models, see IGNITION COIL RESISTANCE table. If resistance is not within specification, replace coil.

Ignition Coil Resistance (MX-3 1.8L, MX-6 & 626)

1) Remove primary and secondary leads from ignition coil. Using ohmmeter, check primary resistance between terminals "A" and "C" of coil. See Fig. 4. Resistance should be as specified in IGNITION COIL RESISTANCE table. If resistance is not as specified, replace ignition coil.

2) Check secondary resistance between terminal "C" and coil tower. See Fig. 4. See IGNITION COIL RESISTANCE table. If resistance is not within specification, replace coil.

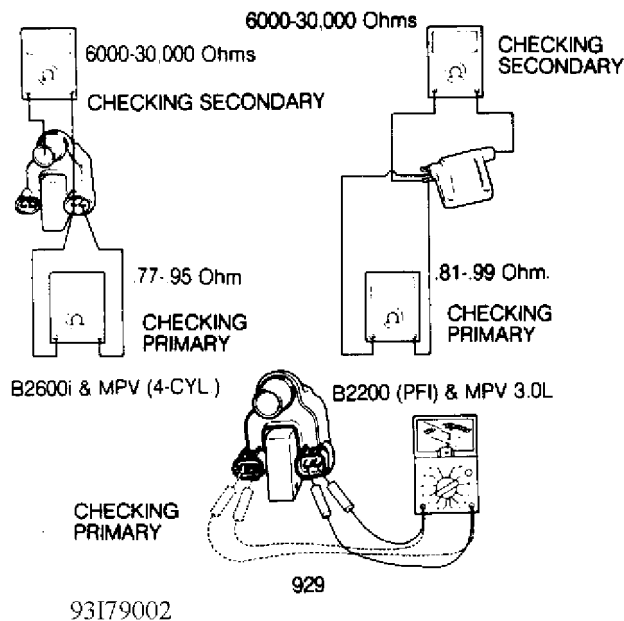


Fig. 3: Checking Coil (B2200, B2600i, MPV & 929; Others Except MX-3 1.8L, MX-6 & 626 Are Similar)
Courtesy of Mazda Motor Corp.

F - BASIC TESTING

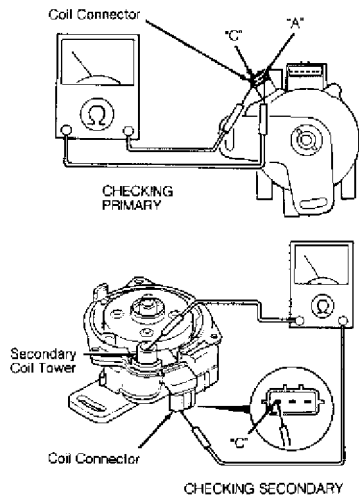
Article Text (p. 10)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:38AM



92A24935

Fig. 4: Checking Coil (MX-3 1.8L, MX-6 & 626)
Courtesy of Mazda Motor Corp.

IGNITION COIL RESISTANCE TABLE - Ohms @ 68°F (20°C)

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	Primary	Secondary
B2200		
Carbureted	1.0-1.3	6000-30,000
PFI .....	.81-.99	6000-30,000
B2600i .....	.81-.99	6000-30,000
Miata .....	.78-.94	11,200-15,200
MPV		
2.6L (4-Cyl.)		
Right Side .....	.77-.95	6000-30,000
Left Side	900-1100	(2)
3.0L (V6) .....	.81-.99	6000-30,000
MX-3		
1.6L (4-Cyl.) .....	.81-.99	10,300-16,000
1.8L (V6) .....	.58-.86	11,500-18,500
MX-6 & 626 .....	.58-.86	11,500-18,500
Navajo .....	.5	(1)
Protege & 323 .....	.81-.99	10,000-16,000
RX7		
Leading	0-1.0	9600-16,000
Trailing	0-1.0	Infinity
Left Side .....	.77-1.0	9000-17,000
Right Side	900-1100	(2)

(1) - Information is not available from manufacturer.

(2) - Not applicable.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Optical Distributor Voltage (B2200 PFI, B2600 & MPV 2.6L)

1) Turn ignition on. Check optical distributor ignition source by backprobing distributor terminal for correct voltage. See

F - BASIC TESTING

Article Text (p. 11)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:38AM

OPTICAL DISTRIBUTOR VOLTAGE SPECIFICATIONS table.

2) Ensure ignition coil has battery voltage. If ignition coil resistance and pick-up sensor test okay, check for spark. If spark is still not present, go to appropriate IGNITOR test procedure. If spark is still not present and ignitor is okay, see appropriate SELF-DIAGNOSTICS article.

OPTICAL DISTRIBUTOR VOLTAGE SPECIFICATIONS TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Wire Color	Volts
------------	-------

B2200 PFI & B2600

Black/Yellow	12
Purple	(1) 0-5
Yellow/Blue	(1) 0-5
Black	0

MPV 2.6L

Black/White	12
Purple/Black	(1) 0-5
Purple	(1) 0-5
Black/Orange	0

(1) - Voltage should fluctuate from 0-5 volts as engine is turned slowly.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Distributor Pick-Up Coil Resistance (B2200 Carb. & MPV 3.0L)

1) Disconnect pick-up coil from distributor. Using an ohmmeter, measure resistance between 2 inner terminals on pick-up coil. Replace pick-up coil if resistance is not as specified in DISTRIBUTOR PICK-UP COIL RESISTANCE table.

2) Ensure ignition coil has battery voltage. If ignition coil resistance and pick-up coil test okay, check for spark. If spark is still not present, go to appropriate IGNITOR test procedure. If spark is still not present and ignitor is okay, see appropriate information G - TESTS W/CODES article.

DISTRIBUTOR PICK-UP COIL RESISTANCE TABLE (1)

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	Ohms
-------------	------

B2200 (Carb.)	900-1200
---------------------	----------

MPV (3.0L)

Check Ignitor Terminals

COM & Ne	205-255
COM & G1	205-255
COM & G2	205-255

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Crank Angle Sensor Resistance (MX-3 1.8L, MX-6 & 626 2.5L, RX7 & 929)

1) Disconnect crank angle sensor connector. Crank angle

F - BASIC TESTING

Article Text (p. 12)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:38AM

sensor is a separate unit located at front of crankshaft. Measure resistance between terminals. See Fig. 5. If resistance is not as indicated, replace crank angle sensor.

2) If ignition coil resistance and crank angle sensor test okay, check for spark. If spark is still not present, go to HALL-EFFECT SENSORS test procedure.

CRANK ANGLE SENSOR RESISTANCE TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	Ohms
-------------	------

MX-3 1.8L (At Crankshaft Pulley)	520-580
----------------------------------------	---------

MX-6 & 626 2.5L (At Crankshaft Pulley)	520-580
----------------------------------------------	---------

RX7 (At Crankshaft Pulley)	(1) 950-1250
----------------------------------	--------------

929 (At Crankshaft Pulley)	950-1250
----------------------------------	----------

(1) - Resistance for either sensor.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

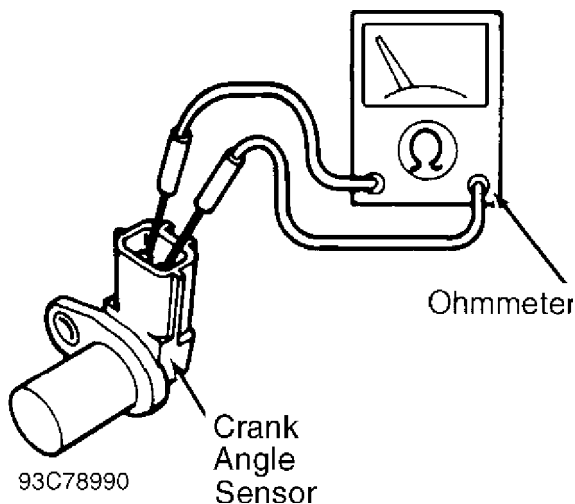


Fig. 5: Checking Crank Angle Sensor (RX7 Shown)
Courtesy of Mazda Motors Corp.

Hall-Effect Sensors (Miata, MX-3, MX-6, Protege, 323, 626 & 929)

1) Remove distributor. Remove circuit opening relay and disconnect 3-pin connector from distributor. This will prevent coil sparking. Turn ignition on.

2) Using a voltmeter, backprobe power wire and ground wire at distributor. Voltmeter should display 12 volts. If voltage is not as specified, check ignition and ground circuits. Backprobe sensor wire (White wire on MX-3 1.6L or Violet/Green wire on MX-3 1.8L) at distributor. See HALL-EFFECT SENSOR VOLTAGE SPECIFICATIONS table for other models wire colors. Slowly rotate distributor shaft one turn. Voltmeter should pulse 0-5 volts 4 times (4-cylinder) or 6 times (V6).

3) Backprobe Yellow/Blue wire on MX-3 1.6L or Violet/White wire on MX-3 1.8L at distributor. See HALL-EFFECT SENSOR VOLTAGE SPECIFICATIONS table for other models wire

F - BASIC TESTING

Article Text (p. 13)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:38AM

colors. Slowly rotate distributor shaft one turn. Voltmeter should pulse 0-5 volts one time. If either sensor does not work as described, turn ignition off. Disconnect 4-pin or 6-pin connector at distributor.

4) Turn ignition on. Ensure 5 volts are present at same wires which were checked in steps 2) and 3). If 5 volts are not present, check wiring and PCM. If 5 volts are present, replace distributor assembly.

HALL-EFFECT SENSOR VOLTAGE SPECIFICATIONS TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Wire Color	Volts
------------	-------

MX-6 & 626 (2.0L)

Red/Black (Power)	12
Orange (Sensor)	(1) 0-5
Yellow/White (Sensor)	(1) 0-5
Black/Blue (Ground)	0

MX-6 & 626 (2.5L)

Red/Black (Power)	12
Purple (Sensor)	(1) 0-5
Light Green (Sensor)	(1) 0-5
Black/Red (Ground)	0

Miata, MX-3 (1.6L), Protege & 323

White/Red (Power)	12
White (Sensor)	(1) 0-5
Yellow/Blue (Sensor)	(1) 0-5
Black/Lt. Green (Ground)	0

MX-3 (1.8L)

White/Red (Power)	12
Violet/Green (Sensor)	(1) 0-5
Violet/White (Sensor)	(1) 0-5
Black/Lt. Green (Ground)	0

929

Black/White (Power)	12
Green/White (Sensor)	(1) 0-5
Blue (Sensor)	(1) 0-5
Black/Lt. Green (Ground)	0

(1) - Voltage should fluctuate from 0-5 volts as engine is turned slowly.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

CAUTION: While checking the ignitor, disconnect connector from the ignition coil.

Ignitor (B2200 w/Carburetor, MX-3 1.8L, MX-6 & 626)

Testing information is not available. If coil, PCM, sensor and wiring are okay, replace ignitor.

Ignitor (B2200 w/PFI, B2600i, Miata, MX-3 1.6L, Protege, 323 & 929)

1) Ensure coil and power source are okay before checking

F - BASIC TESTING

Article Text (p. 14)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:38AM

ignitor. Disconnect coil ignitor connector. Install Ignitor Checker (49 F018 002) and Adapter Harness (49 N018 011 on MX-3 1.6L, Protege and 323; 49 N018 001 on all others). Connect the ignitor checker and adapter between the ignitor and wiring harness, connect the power leads to the battery.

2) Turn ignition on. Disconnect the high-tension coil lead from the distributor and hold it about 1/4" from ground. Flip the SW2 on and off, and verify a strong Blue spark is discharged from lead. If spark is weak in color, replace the coil. If no spark is present, check battery feed, main fuse, ignition switch and fusible links. Repair or replace as necessary.

CAUTION: DO NOT hold the SW2 switch on longer than one second.

3) Turn ignition on. Using voltmeter, check voltage on Black wire of adapter harness. Flip SW2 switch on and off. Verify voltmeter fluctuates. If voltmeter does not fluctuate, replace ignitor and retest.

Ignitor (MPV & 929)

1) Turn ignition off. Disconnect ignitor connector and install Test Harness (49 H018 001 on MPV or 49 N018 001 on 929). Using a needle-type ohmmeter, connect (+) lead to ground and (-) lead to single-pin test wire of test harness. See Fig. 6.

CAUTION: Ensure ohmmeter is installed with (+) lead to ground and (-) lead to single-pin wire of test harness. DO NOT reverse leads or damage may result.

2) Connect Ignitor Checker (49 F018 002 on MPV or 49 H018 910 on 929) to other lead of test harness and to battery. Set ohmmeter to X1 scale.

3) Turn ignition on. DO NOT touch ignitor checker SW1 switch. Push up ignitor checker SW2 switch and note ohmmeter reading. Ohmmeter needle should jump to 1/2 of the scale and then return. If ohmmeter does not operate as specified, replace ignitor.

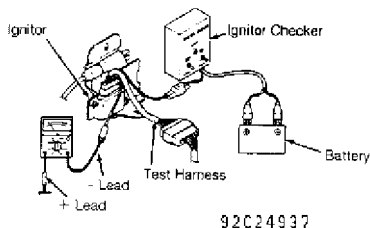


Fig. 6: Checking Ignitor (MPV & 929)
Courtesy of Mazda Motors Corp.

Ignitor (RX7)

1) Turn ignition off. Disconnect ignitor connector and install Test Harness (49 F018 003). Using a needle-type voltmeter, connect (+) lead to ground and (-) lead to Black test wire of test harness.

F - BASIC TESTING

Article Text (p. 15)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:38AM

CAUTION: Ensure voltmeter is installed with (+) lead to ground and (-) lead to single-pin wire of test harness. DO NOT reverse leads or damage may result.

2) Connect Ignitor Checker (49 F018 002) to large lead of test harness and to battery. Turn ignition on. Ignitor checker SW1 switch may be in any position.

3) Ensure voltmeter displays 12 volts. Push up ignitor checker SW2 switch and note voltmeter reading. Voltmeter needle should jump or wiggle. Release SW2 switch. If voltmeter does not operate as specified, replace ignitor.

4) Repeat steps 1)-3) for Brown test wire and Gray test wire. If ignitor does not cause voltmeter needle to respond, replace ignitor.

IGNITION CHECKS (NAVAJO)

NOTE: While performing diagnostics, DO NOT connect Powertrain Control Module (PCM) to breakout box unless directed to do so.

NOTE: Perform following tests in sequence shown, unless test procedures indicate otherwise. For the following test, Electronic Distributorless Ignition System (EDIS) or Ignition Control Module (ICM) may be used to describe the ignition system.

NOTE: California models are equipped with a Camshaft Position Sensor (CMP). This sensor uses a Hall Effect switch and is located at top rear of engine. For testing information, see G - TESTS W/CODES article.

Initial Test

Check for any stored trouble codes and repair as necessary. See appropriate G - TESTS W/CODES article. Using a high-output spark plug tester, check for spark at all spark plugs. If spark is present at ALL spark plugs, go to CHECK PROFILE IGNITION PICKUP (PIP) AT ICM. If no spark is indicated or spark only occurs at some spark plugs, go to CHECKING PLUGS & WIRES.

Check Profile Ignition Pickup (PIP) At ICM

1) Turn key off. Connect ICM Diagnostic Cable (007-00059) to Breakout Box (T83L-50-EEC-IV), ICM and coil pack. DO NOT connect crankshaft Variable Reluctance Sensor (VRS) tee. See Fig. 7. Use ICM No. 6 overlay.

F - BASIC TESTING

Article Text (p. 16)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:38AM

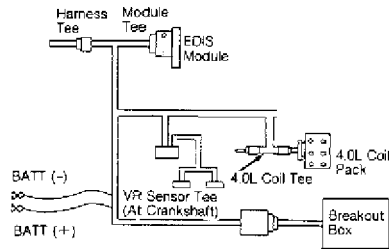


Fig. 7: Installing ICM Diagnostic Cable (Navajo)
Courtesy of Mazda Motors Corp.

2) Connect ICM diagnostic cable negative lead to battery, leaving positive lead disconnected. Set ICM diagnostic cable box to 4/6 CYLINDER position. Connect LED test light leads between breakout box pins No. J43 (PIP E) and J7 (ground). Crank engine. If LED test light blinks, go to step 3). If test light does not blink, go to ISOLATE ICM/PIP FAULT.

3) Turn key off. Disconnect PCM. Check continuity of PIP and Ignition Ground (IGND) wires between ICM and PCM. See Fig. 8. If any problems are found, repair circuits and components. Clear Continuous Memory, and run QUICK TEST in G - TESTS W/CODES article. If continuity is present and wires are not shorted or open, replace ICM.

Isolate ICM/PIP Fault

With key off, disconnect PCM. Connect LED test light leads between breakout box pins No. J43 (PIP E) and J7 (ground). Crank engine. If LED test light blinks, replace PCM. If test light does not blink, check PIP for short to ground or power. Repair any problems found. If no problems are found, replace ICM.

Checking Plugs & Wires

Crank engine. Using a high-output spark tester, check for spark at both spark plug wires of each coil. If there is no spark at all coils, go to CHECK FOR VBAT TO ICM. If spark is missing from both spark plug wires of one or 2 coils, go to CHECK VBAT FOR OPEN TO COIL. If spark is missing from one wire, replace spark plug wire and spark plug. Recheck ignition system.

Check For VBAT To ICM

Turn key off and disconnect PCM. Set DVOM to 20-volt scale. Turn ignition on. Measure voltage between breakout box pins No. (+) J51 (VBAT E) and (-) J7 (BAT negative). See Fig. 8. If voltage is greater than 10.5 volts, go to CHECK FOR GROUND OPEN TO ICM. If voltage is 10.5 volts or less, repair open or short in circuit from ignition switch.

Check For Ground Open To ICM

Turn key off and disconnect PCM. Measure resistance between breakout box pins J27 (PWR GND E) and chassis ground. If resistance is less than 5 ohms, go to CHECK VRS RESISTANCE. If resistance is 5 ohms

F - BASIC TESTING

Article Text (p. 17)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:38AM

or more, repair open in ground circuit.

Check VRS Resistance

Turn key off and disconnect PCM. Connect negative lead of ICM diagnostic cable to negative battery terminal. Set DVOM to 20-k/ohm scale. Measure resistance between breakout box pins No. J48 (VRS

See Fig. 8. If resistance is 2580-2700 ohms, go to VRS SENSOR. If resistance is not 2580-2700 ohms, repair wires between VRS and ICM or replace VRS.

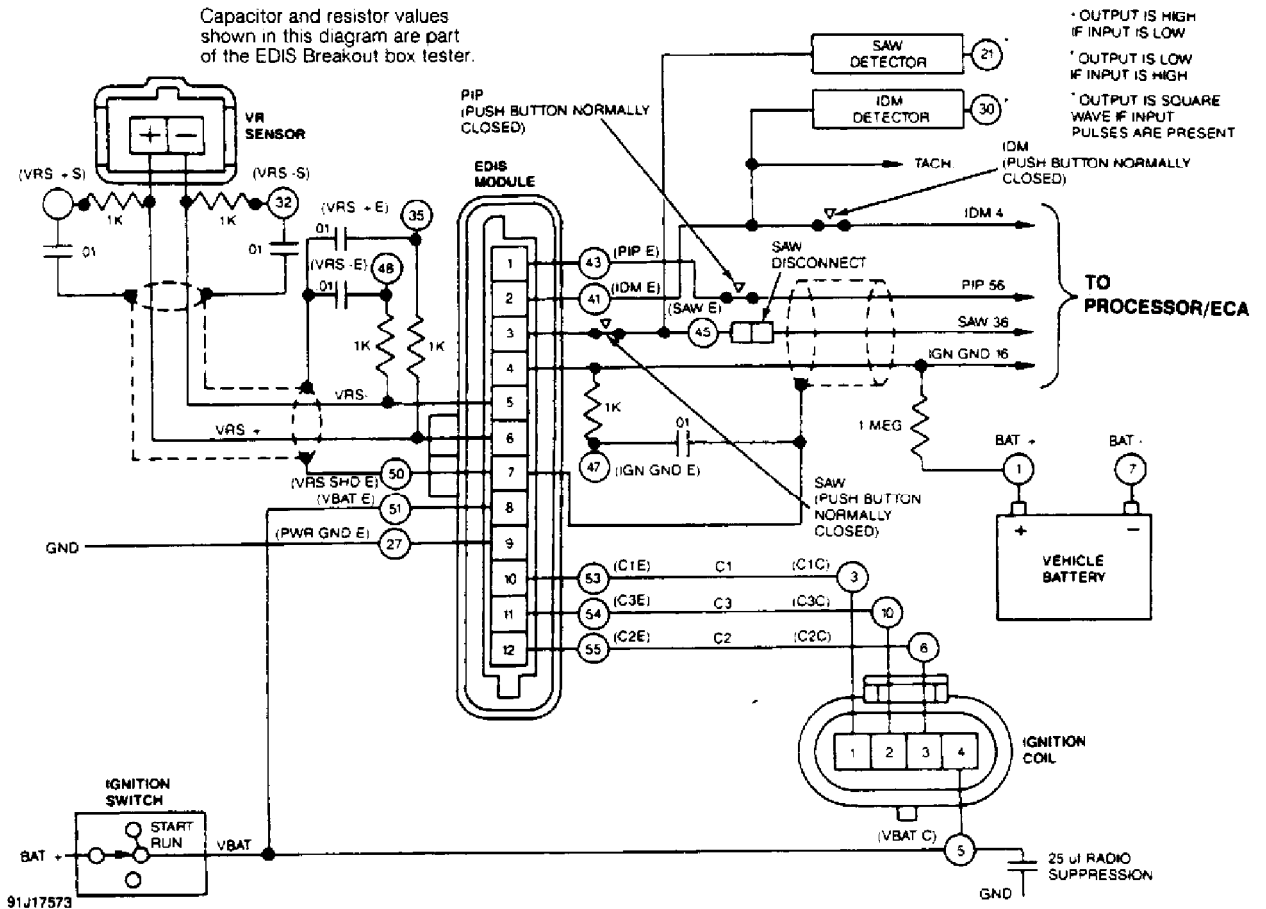


Fig. 8: Electronic Distributorless Ignition Control Module (ICM) Test Schematic (Navajo)
Courtesy of Mazda Motors Corp.

VRS Sensor

Ensure trigger wheel on crank pulley and VRS are not damaged. Ensure VRS is not touching trigger wheel. If no problems are found, disconnect ICM connector. Crank engine and check for slight A/C voltage at ICM harness terminals No. 5 and 6. See Fig. 8. If A/C voltage is not pulsing greater than one volt, check VRS circuits for opens or shorts. If no problems are found, replace VRS sensor. If A/C voltage pulses greater than one volt, go to CHECK VBAT OPEN TO COIL.

Check VBAT For Open To Coil

F - BASIC TESTING

Article Text (p. 18)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:38AM

Turn key off and disconnect harness at coil pack. Turn key on. Measure voltage between coil pack harness terminal No. 4 and ground. If more than 10.5 volts are present, go to next step. If there is less than 10.5 volts, repair open circuit. Remove all test equipment and reconnect all components. Clear Continuous Memory and check for fault codes.

Verify Coil Operation

Crank engine. If there is no spark, go to CHECK C1, C2 & C3 AT COIL PACK (CRANKING). If spark is present at any coil, go to CHECK C1, C2 & C3 AT COIL PACK (RUNNING).

Check C1, C2 & C3 At Coil Pack (Cranking)

Turn key off. Reconnect harness at coil pack. Set DVOM on 20-volt AC scale. While cranking engine, backprobe between coil terminals No. 1, 2 and 3, and chassis ground. See Fig. 8. If any voltage reading while cranking is NOT 0.2-1.0 volt, go to CHECKING ICM CONTROL. If all voltage readings while cranking are 0.2-1.0 volt, go to CHECKING COIL PACK.

Check C1, C2 & C3 At Coil Pack (Running)

Turn key off. Reconnect harness at coil pack. Set DVOM on 20-volt AC scale. Start engine, backprobe between coil terminals No. 1, 2 and 3, and chassis ground. See Fig. 8. If any voltage reading while running is NOT 1.0-2.0 volts, go to CHECKING ICM CONTROL. If voltage reading of each coil (while running) is 1.0-2.0 volts, go to CHECKING COIL PACK.

Checking Coil Pack

Turn key off, and disconnect coil pack. Measure resistance between coil pack terminal No. 4 and all other terminals. See Fig. 8. If each resistance is greater than 0.8 ohm, replace coil pack. If any resistance is less than 0.5 ohm, replace coil pack and ICM. Remove all test equipment, and reconnect all components. Clear Continuous Memory and check for fault codes.

Checking ICM Control

If voltage was less than described in CHECK C1, C2 & C3 AT COIL PACK (RUNNING) or CHECK C1, C2 & C3 AT COIL PACK (CRANKING), replace coil pack. If voltage was greater than described, check circuits between coil pack and ICM module for opens or shorts. If circuits okay, replace ICM. Remove all test equipment, and reconnect all components. Clear Continuous Memory, and check for fault codes.

IDLE SPEED & IGNITION TIMING

Ensure idle speed and base ignition timing are set to specification. If necessary, see D - ADJUSTMENTS article.

IGNITION TIMING SPECIFICATIONS TABLE (Degrees BTDC @ RPM)

Application Man. Trans. (1) Auto. Trans.

F - BASIC TESTING

Article Text (p. 19)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:38AM

B2200

Carbureted	.....	6 @ 825	.....	6 @ 825
PFI (2)	.....	6 @ 750	.....	6 @ 770
B2600i (2)	.....	5 @ 750	.....	5 @ 770
Miata (3)	.....	10 @ 850	.....	8 @ 850

MPV

2.6L (2)	.....	N/A	.....	5 @ 770
3.0L (2)	.....	N/A	.....	11 @ 800

MX-3

1.6L (3)	.....	10 @ 750	.....	10 @ 750
1.8L (3)	.....	10 @ 670	.....	10 @ 670

MX-6 & 626

2.0L (3)	.....	12 @ 700	.....	12 @ 700
2.5L (3)	.....	10 @ 650	.....	10 @ 650

Navajo	(4)	(4)
--------	-------	-----	-------	-----

Protege

DOHC (3)	.....	10 @ 750	.....	10 @ 750
SOHC (3)	.....	5 @ 750	.....	5 @ 750

RX7

Leading (3)	.....	(5) 20 @ 725	.....	(5) 20 @ 725
Trailing (3)	.....	(5) 5 @ 725	.....	(5) 5 @ 725
323 (3)	.....	7 @ 750	.....	7 @ 750
929 (3)	.....	N/A	.....	12 @ 700

- (1) - Place automatic transmission in Park.
- (2) - Connect jumper wire between Green test connector and ground.
- (3) - Connect jumper wire between terminals TEN and GRN of Green test connector.
- (4) - Base (initial) timing is preset at 10 degrees BTDC and is not adjustable. To check timing, see D - ADJUSTMENTS article in ENGINE PERFORMANCE.
- (5) - Timing specification is AFTER TDC and is not adjustable.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

SUMMARY

If no faults were found while performing BASIC DIAGNOSTIC PROCEDURES, proceed to appropriate G - TESTS W/CODES article. If no hard codes are found in self-diagnostics, proceed to appropriate H - TESTS W/O CODES article for diagnosis by symptom (i.e., ROUGH IDLE, NO START, etc.) or intermittent diagnostic procedures.

END OF ARTICLE

G - TESTS W/CODES

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:38AM

ARTICLE BEGINNING

1993 ENGINE PERFORMANCE

Mazda Self-Diagnostics

RX7

INTRODUCTION

If no faults were found while performing F - BASIC TESTING, proceed with self-diagnostics. If no fault codes or only pass codes are present after entering self-diagnostics, proceed to appropriate H - TESTS W/O CODES article for diagnosis by symptom (i.e., ROUGH IDLE, NO START, etc.).

SELF-DIAGNOSTIC SYSTEM

Hard Failures

Hard failures cause Malfunction Indicator Light (MIL) to illuminate and remain on until problem is repaired. If light comes on and remains on (light may flash) during vehicle operation, cause of malfunction must be determined using diagnostic (code) charts. See CODE CHARTS. If a sensor fails, ECU will use a substitute value in its calculations to continue engine operation. In this condition, commonly known as limp-in mode, the vehicle runs but driveability will not be optimum.

Intermittent Failures

Intermittent failures may cause Malfunction Indicator Light (MIL) to flicker or illuminate and go out after the intermittent fault goes away. However, the corresponding trouble code will be retained in ECU memory. If related fault does not reoccur within a certain time frame, related trouble code will be erased from ECU memory. Intermittent failures may be caused by a sensor, connector or wiring related problems. See INTERMITTENTS in TROUBLE SHOOTING - NO CODES article.

RETRIEVING CODES

Accessing Trouble Codes

1) Use Self-Diagnostic Checker (49 H018 9A1) and System Selector (49 B019 9A0) to retrieve trouble codes. Connect one lead of self-diagnostic checker to ground and the other to system selector. Connect system selector to data link connector. Connector is located on right inner fender panel in front of strut tower. See Fig. 1. If system selector is not available, connect a jumper wire between data link connector terminals TEN and GND. See PIN VOLTAGE CHARTS article for terminal identification.

2) With ignition on and engine stopped, observe Malfunction Indicator Light (MIL). Note trouble codes. Check TROUBLE CODE IDENTIFICATION chart for possible cause. If light remains on

G - TESTS W/CODES

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

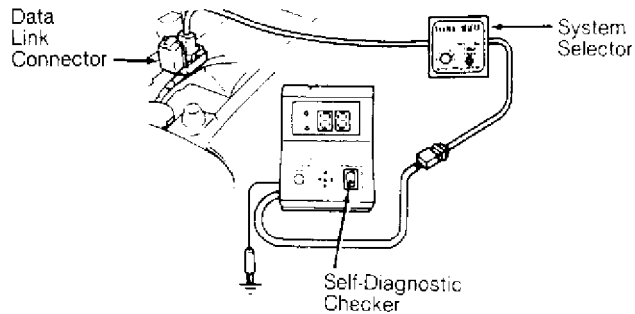
Monday, August 20, 2001 06:38AM

continuously, MIL circuit is grounded or ECU is defective.

Memorized vs. Non-Memorized Codes

Some sensor or circuit failures are stored in ECU and are referred to as memorized codes. While other circuit failures, called non-memorized codes, are not stored. Non-memorized codes can be retrieved if ignition is not turned off before accessing codes.

NOTE: To access non-memorized trouble codes, DO NOT stop engine. Connect jumper wire across data link connector terminals TEN and GND. Observe MIL, and note trouble codes.



93H80579

Fig. 1: Connecting Data Link Connector To System Selector
Courtesy of Mazda Motors Corp.

AFTER-REPAIR PROCEDURE

After indicated service or replacement is performed, clear codes. See CLEARING CODES. Recheck ECU memory. No codes should be present. If codes are present, see appropriate trouble code chart under CODE CHARTS to repair vehicle.

CLEARING CODES

Clearing Trouble Codes

Disconnect negative battery cable, and depress brake pedal for at least 20 seconds. Reconnect battery cable. Reconnect self-diagnostic checker and system selector. See Fig. 1. Turn ignition on, but DO NOT start engine for 6 seconds. Start and run engine at 2000 RPM for 3 minutes. Verify no codes are displayed.

NOTE: See PIN VOLTAGE CHARTS article to identify ECU connector terminals.

TROUBLE CODE CHARTS

TROUBLE CODE IDENTIFICATION

G - TESTS W/CODES

Article Text (p. 3)

1993 Mazda RX7














For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:38AM

- NOTE:
- * If there is more than one failure present, codes will be sequentially displayed in order of lowest to highest.
 - * After repairing a failure, turn ignition switch off. Disconnect negative battery cable, and depress brake pedal for at least 20 seconds to erase malfunction code from ECU memory.

TROUBLE CODE IDENTIFICATION

No.	Indicator flashing pattern	Diagnosed circuit	Condition	Point	Memorized
02	ON OFF 	Crank angle sensor (NE signal)	No NE signal	<ul style="list-style-type: none"> ● Crank angle sensor connector ● Wiring from crank angle sensor to ECU ● Crank angle sensor 	Yes
03	ON OFF 	Crank angle sensor (G signal)	No G signal	<ul style="list-style-type: none"> ● Crank angle sensor connector ● Wiring from crank angle sensor to ECU ● Crank angle sensor 	Yes
05	ON OFF 	Knock sensor	Open or short circuit	<ul style="list-style-type: none"> ● Knock sensor connector ● Wiring from knock sensor to ECU ● Knock sensor 	Yes
06	ON OFF 	Speedometer Sensor	No speed meter sensor signal	<ul style="list-style-type: none"> ● Speedometer sensor connector ● Wiring from speedometer sensor to ECU 	Yes
09	ON OFF 	Water thermosensor	Open or short circuit	<ul style="list-style-type: none"> ● Water thermosensor connector ● Wiring from water thermosensor to ECU ● Water thermosensor resistance 	Yes
11	ON OFF 	Intake air thermosensor		<ul style="list-style-type: none"> ● Intake air thermosensor connector ● Wiring from intake air thermosensor to ECU ● Intake air thermosensor resistance 	Yes
12	ON OFF 	Throttle sensor (Full range)		<ul style="list-style-type: none"> ● Throttle sensor connector ● Wiring from throttle sensor to ECU 	Yes
13	ON OFF 	Pressure sensor		<ul style="list-style-type: none"> ● Pressure sensor connector ● Wiring from pressure sensor to ECU ● Pressure sensor resistance 	Yes
14	ON OFF 	Atmospheric pressure sensor (in ECU)		<ul style="list-style-type: none"> ● ECU 	Yes
15	ON OFF 	Oxygen sensor	Sensor output continues less than 0.55V 25 sec. in feedback zone	<ul style="list-style-type: none"> ● Oxygen sensor connector ● Wiring from oxygen sensor to ECU ● Oxygen sensor 	Yes
16	ON OFF 	EGR switch (California only)	Open or short circuit	<ul style="list-style-type: none"> ● EGR switch connector ● Wiring from EGR switch to ECU ● EGR switch 	Yes
17	ON OFF 	Feedback system	Sensor output not changed 120 sec. in feedback zone	<ul style="list-style-type: none"> ● Fuel pressure ● Injection fuel leakage ● Ignition system ● Air leakage ● ECU 	Yes
18	ON OFF 	Throttle sensor (Narrow range)	Open or short circuit	<ul style="list-style-type: none"> ● Throttle sensor connector ● Wiring from throttle sensor to ECU 	Yes

93H80603

Fig. 2: Trouble Code Identification (1 Of 4)

Courtesy Of Mazda Motors Corp.

G - TESTS W/CODES

Article Text (p. 4)












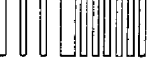
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:38AM

TROUBLE CODE IDENTIFICATION (Cont.)

No.	Indicator flashing pattern	Diagnosed circuit	Condition	Point	Memo- rized
20	ON OFF 	Metering oil pump position sensor	Open or Short circuit	<ul style="list-style-type: none"> • MOP connector • Wiring from MOP position sensor to ECU • MOP position sensor continuity 	Yes
23	ON OFF 	Fuel thermosensor		<ul style="list-style-type: none"> • Fuel thermosensor connector • Wiring from Fuel thermosensor to ECU • Fuel thermosensor resistance 	Yes
25	ON OFF 	Solenoid valve (pressure regulator control)		<ul style="list-style-type: none"> • Solenoid valve connector • Wiring from solenoid valve to ECU • Solenoid valve continuity 	No
26	ON OFF 	Metering oil pump (stepping motor)		<ul style="list-style-type: none"> • MOP connector • Wiring from MOP to ECU • MOP continuity 	No
27	ON OFF 	Metering oil pump	Open or short circuit or Sticking of MOP sensor	<ul style="list-style-type: none"> • MOP connector • Wiring from MOP to ECU • Mop continuity 	Yes
28	ON OFF 	Solenoid valve (EGR)	Open or short circuit	<ul style="list-style-type: none"> • Solenoid valve connector • Wiring from solenoid valve to ECU • Solenoid valve continuity 	No
30	ON OFF 	Solenoid valve (Split air bypass)		<ul style="list-style-type: none"> • Solenoid valve connector • Wiring from solenoid valve to ECU • Solenoid valve continuity 	No
31	ON OFF 	Solenoid valve (Relief 1)		<ul style="list-style-type: none"> • Solenoid valve connector • Wiring from solenoid valve to ECU • Solenoid valve continuity 	No
32	ON OFF 	Solenoid valve (Switching)		<ul style="list-style-type: none"> • Solenoid valve connector • Wiring from solenoid valve to ECU • Solenoid valve continuity 	No
33	ON OFF 	Solenoid valve (Port air bypass)		<ul style="list-style-type: none"> • Solenoid valve connector • Wiring from solenoid valve to ECU • Solenoid valve continuity 	No
34	ON OFF 	Solenoid valve (Idle speed control)		<ul style="list-style-type: none"> • Solenoid valve connector • Wiring from solenoid valve to ECU • Solenoid valve continuity 	No
37	ON OFF 	Metering Oil Pump	Low battery voltage	<ul style="list-style-type: none"> • Charging system • MOP connector • Wiring from MOP to ECU 	Yes

93I80604

Fig. 3: Trouble Code Identification (2 Of 4)

Courtesy Of Mazda Motors Corp.

G - TESTS W/CODES

Article Text (p. 5)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:38AM

TROUBLE CODE IDENTIFICATION (Cont.)

No.	Indicator flashing pattern	Diagnosed circuit	Condition	Point	Memo- rized
38	ON OFF	Solenoid valve (Accelerated warm-up system)	Open or Short Circuit	<ul style="list-style-type: none"> ● Solenoid valve connector ● Wiring from Solenoid valve to ECU ● Solenoid valve continuity 	No
39	ON OFF	Solenoid valve (Relief 2)		<ul style="list-style-type: none"> ● Solenoid valve connector ● Wiring from Solenoid valve to ECU ● Solenoid valve continuity 	No
40	ON OFF	Solenoid valve (Purge control)		<ul style="list-style-type: none"> ● Solenoid valve connector ● Wiring from Solenoid valve to ECU ● Solenoid valve continuity 	No
42	ON OFF	Solenoid valve (Turbo precontrol)		<ul style="list-style-type: none"> ● Solenoid valve connector ● Wiring from Solenoid valve to ECU ● Solenoid valve continuity 	No
43	ON OFF	Solenoid valve (Wastegate control)		<ul style="list-style-type: none"> ● Solenoid valve connector ● Wiring from Solenoid valve to ECU ● Solenoid valve continuity 	No
44	ON OFF	Solenoid valve (Turbo control)		<ul style="list-style-type: none"> ● Solenoid valve connector ● Wiring from Solenoid valve to ECU ● Solenoid valve continuity 	No
45	ON OFF	Solenoid valve (Charge control)		<ul style="list-style-type: none"> ● Solenoid valve connector ● Wiring from Solenoid valve to ECU ● Solenoid valve continuity 	No
46	ON OFF	Solenoid valve (Charge relief)		<ul style="list-style-type: none"> ● Solenoid valve connector ● Wiring from Solenoid valve to ECU ● Solenoid valve continuity 	No
50	ON OFF	Solenoid valve (Double throttle control)		<ul style="list-style-type: none"> ● Solenoid valve connector ● Wiring from Solenoid valve to ECU ● Solenoid valve continuity 	No
51	ON OFF	Fuel pump relay		<ul style="list-style-type: none"> ● Fuel pump relay connector ● Wiring from relay to ECU ● Relay continuity 	No
54	ON OFF	Air pump relay		<ul style="list-style-type: none"> ● Air pump relay connector ● Wiring from relay to ECU ● Relay continuity 	No

93J80605

Fig. 4: Trouble Code Identification (3 Of 4)

Courtesy Of Mazda Motors Corp.

G - TESTS W/CODES

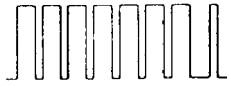



Article Text (p. 6)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:38AM

No.	Indicator flashing pattern	Diagnosed circuit	Condition	Point	Memo- rized
71	ON  OFF	Injector (Front secondary)	Open circuit	● Injector connector ● Wiring from injector to ECU ● Injector resistance	No
73	ON  OFF	Injector (Rear secondary)		● Injector connector ● Wiring from injector to ECU ● Injector resistance	No
76	ON  OFF	Slip Lock up off Signal (EC-AT CU)	Open or Short circuit	● EC-AT CU connector ● Wiring from EC-AT CU to ECU	No
77	ON  OFF	Torque reduced signal (EC-AT CU)		● EC-AT CU connector ● Wiring from EC-AT CU to ECU	No

Note

- If there is more than one failure present, codes will be sequentially displayed in order of lowest to highest.
- After repairing a failure, turn ignition switch off. Disconnect negative battery cable, and depress brake pedal for at least 20 seconds to erase malfunction code from ECU memory.

93A80606

Fig. 5: Trouble Code Identification (4 Of 4)

Courtesy Of Mazda Motors Corp.

TROUBLE CODE NO. 2 (CRANK ANGLE SENSOR - NE SENSOR)

G - TESTS W/CODES

Article Text (p. 7)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

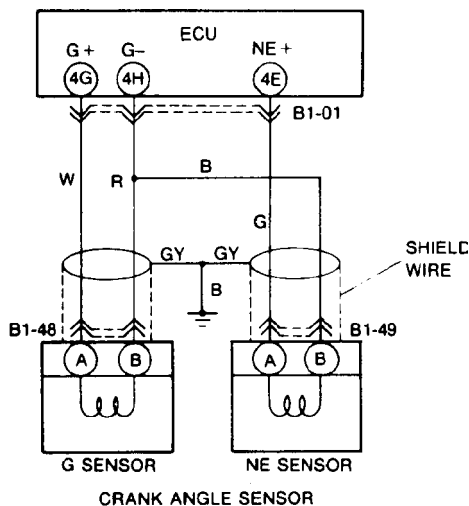
Monday, August 20, 2001 06:38AM

TROUBLE CODE NO. 2 (CRANK ANGLE SENSOR – NE SENSOR)

STEP	INSPECTION	ACTION
1	Is Code No.03 also present?	Yes Go to next step
		No Go to step 5
2	Does crank angle sensor circuit have poor connection?	Yes Repair connector and/or wiring harness
		No Go to next step
3	Is resistance of crank angle sensor [NE SENSOR] OK? Resistance: 0.95-1.25 k/ohm (20°C [68°F])	Yes Go to next step
		No Replace crank angle sensor [NE SENSOR]
4	Is clearance of crank angle sensor [NE signal] OK? Clearance: 1.0-2.0 mm (0.039-0.078 in)	Yes Go to next step
		No Adjust clearance
5	Is there continuity between ground and 4E or ground and 4H terminal? (at harness side)	Yes Check for short circuit in wiring (Crank angle sensor-4H or 4E terminal)
		No Go to next step
6	Disconnect connector from ECU; is resistance between 4E (G) and 4H (R) terminals OK? Resistance: 0.95-1.25 KΩ (20°C [68°F])	Yes Replace ECU
		No Check for open circuit in wiring (Crank angle sensor-4H or 4E terminal)

93B80607

Fig. 6: Trouble Code No. 2 - Diagnostic Flowchart
Courtesy Of Mazda Motors Corp.



93C80608

Fig. 7: Trouble Code No. 2 - Schematic
Courtesy Of Mazda Motors Corp.

G - TESTS W/CODES

Article Text (p. 8)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:39AM

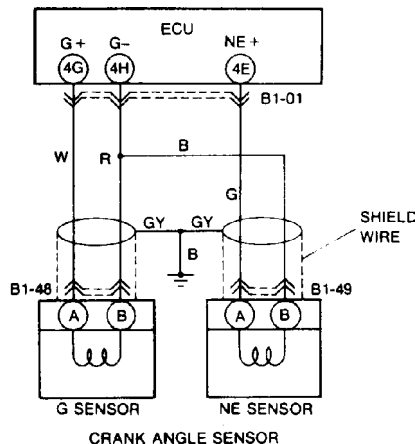
TROUBLE CODE NO. 3 (CRANK ANGLE SENSOR - G SENSOR)

TROUBLE CODE NO. 3 (CRANK ANGLE SENSOR – G SENSOR)

STEP	INSPECTION	ACTION
1	Is Code No.02 also present?	Yes
		Go to next step
		No
		Go to step 5
2	Does crank angle sensor circuit have poor connection?	Yes
		Repair connector and/or wiring harness
		No
		Go to next step
3	Is resistance of crank angle sensor [G SENSOR] OK? Resistance: 0.95-1.25 k/ohm (20°C [68°F])	Yes
		Go to next step
		No
		Replace crank angle sensor [G SENSOR]
4	Is clearance of crank angle sensor [G signal] OK? Clearance: 1.0–2.0 mm (0.039–0.0178 in)	Yes
		Go to step
		No
		Adjust clearance
5	Is there continuity between ground and 4G or ground and 4H terminal? (at harness side)	Yes
		Check for short circuit in wiring (Crank angle sensor–4H or 4G terminal)
		No
		Go to next step
6	Disconnect connector from ECU; is resistance between 4G (W) and 4H (R) terminals OK? Resistance: 0.95–1.25 KΩ (20°C [68°F])	Yes
		Replace ECU
		No
		Check for open circuit in wiring (Crank angle sensor–4G or 4H terminal)

93D80609

Fig. 8: Trouble Code No. 3 - Diagnostic Flowchart
Courtesy Of Mazda Motors Corp.



93C80608

Fig. 9: Trouble Code No. 3 - Schematic
Courtesy Of Mazda Motors Corp.

G - TESTS W/CODES

Article Text (p. 9)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:39AM

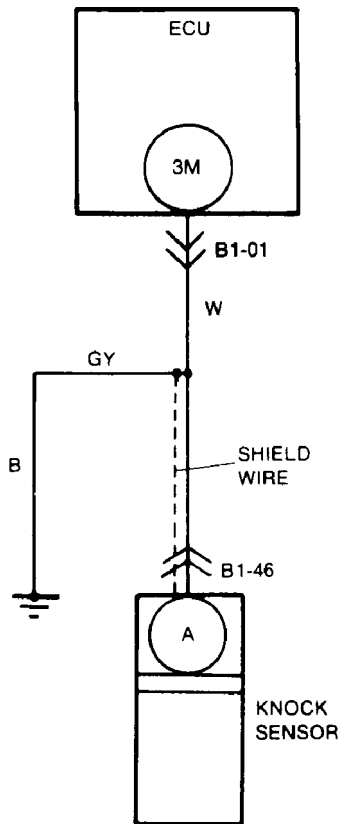
TROUBLE CODE NO. 5 (KNOCK SENSOR)

TROUBLE CODE NO. 5 (KNOCK SENSOR)

STEP	INSPECTION		ACTION
1	Does knock sensor circuit have a poor connection?	Yes	Repair connector and/or wiring harness
		No	Go to next step
2	Is there continuity between knock sensor and ECU terminal 3M (W)?	Yes	Check continuity between ECU terminal 3M (W) and ground ⇒ If continuity, repair or replace wiring ⇒ If no continuity, go to next step
		No	Repair wiring harness
3	Try known good knock sensor, is same code No. present?	Yes	Replace ECU
		No	Replace knock sensor

93G80610

Fig. 10: Trouble Code No. 5 - Diagnostic Flowchart
Courtesy Of Mazda Motors Corp.



93H80611

Fig. 11: Trouble Code No. 5 - Schematic
Courtesy Of Mazda Motors Corp.

G - TESTS W/CODES

Article Text (p. 10)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:39AM

TROUBLE CODE NO. 6 (SPEEDOMETER SENSOR)

TROUBLE CODE NO. 6 (SPEEDOMETER SENSOR)

STEP	INSPECTION	ACTION						
1	Is speedometer working correctly ?	Yes	Go to next step					
		No	Go to step 5					
2	Check for EC-AT CU service code. Is code No.07 also present?	Yes	Go to step 5					
		No	Go to next step					
3	Does speedometer sensor circuit have a poor connection?	Yes	Repair connector and/or wiring harness					
		No	Go to next step					
4	Is there speedometer sensor terminal 1M (G/R) voltage OK?	Yes	Check for open or short circuit wiring harness (Speedometer sensor terminal 3E (G/R)-ECU terminal 1M) ➡ If OK go to step 8 ➡ If not OK, repair wiring harness.					
	<table border="1"><tr><td>Condition</td><td>Voltage</td></tr><tr><td>While driving</td><td>2-3V</td></tr><tr><td>Idle</td><td>4-5V</td></tr></table>	Condition	Voltage	While driving	2-3V	Idle	4-5V	No
Condition	Voltage							
While driving	2-3V							
Idle	4-5V							
5	Remove speed sensor Is resistance felt when turning speedometer driven gear by hand ?	Yes	Go to next step					
		No	Replace speed sensor					
6	Disconnect speed sensor connector and connect circuit tester Does pointer of circuit tester move slightly when driven gear is slowly turned?	Yes	Go to next step					
		No	Replace speed sensor					
7	Disconnect speed sensor connector Is continuity of sensor OK? Resistance: Approx. 290 Ω (20°C [68°F]); (reference)	Yes	Check wiring and connectors from speed sensor to speedometer ➡ If OK, go to next step ➡ If not OK, repair wiring and/or connector					
		No	Replace speed sensor					
8	Disconnect negative battery cable for at least 20 seconds Connect battery cable and recheck for service code Is service code displayed?	Yes	Replace ECU					
		No	Intermittent poor connection Check for cause					

93180612

Fig. 12: Trouble Code No. 6 - Diagnostic Flowchart
Courtesy Of Mazda Motors Corp.

G - TESTS W/CODES

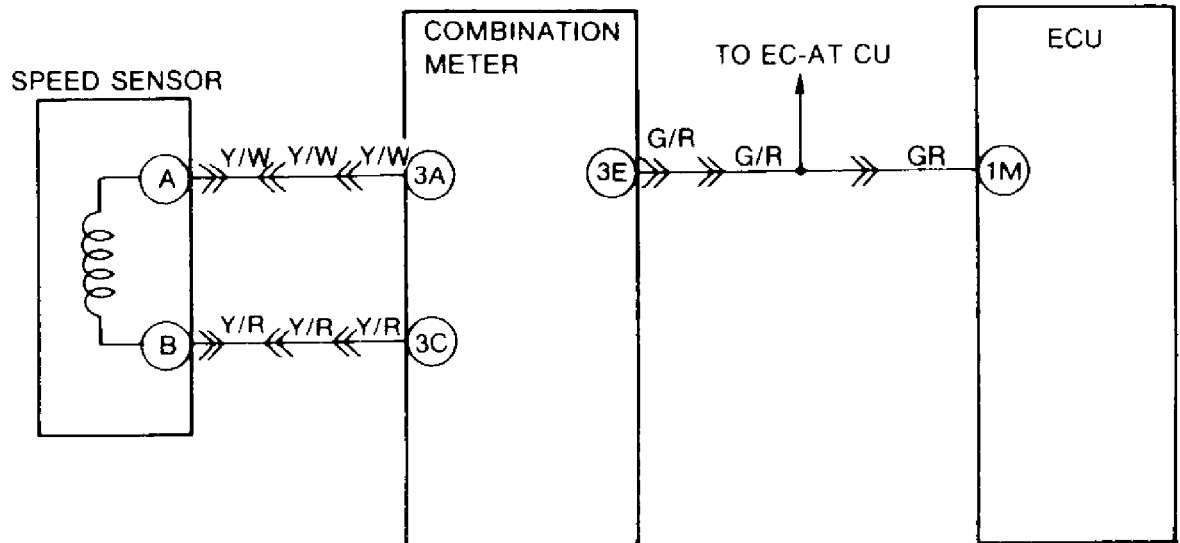
Article Text (p. 11)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:39AM



93J80613

Fig. 13: Trouble Code No. 6 - Schematic
Courtesy Of Mazda Motors Corp.

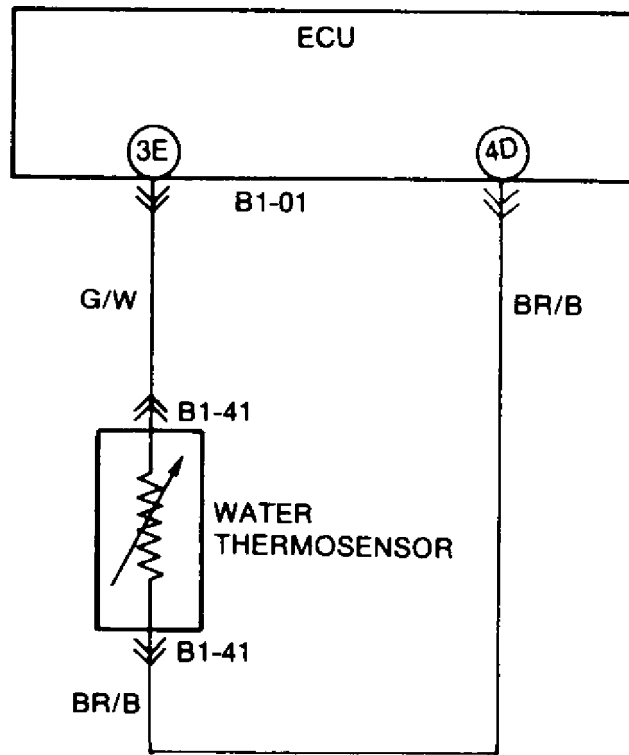
TROUBLE CODE NO. 9 (WATER THERMOSENSOR)

TROUBLE CODE NO. 9 (WATER THERMOSENSOR)

STEP	INSPECTION		ACTION									
1	Does the water thermosensor circuit have a poor connection?		Yes	Repair connector and/or wiring harness								
			No	Go to next step								
2	Is water thermosensor terminal (G/W) Voltage OK with water thermosensor connector disconnected? <table border="1"><thead><tr><th>Condition</th><th>Voltage</th></tr></thead><tbody><tr><td>Ignition switch ON</td><td>Approx. 5.0V</td></tr></tbody></table>		Condition	Voltage	Ignition switch ON	Approx. 5.0V	Yes	Go to next step				
			Condition	Voltage								
Ignition switch ON	Approx. 5.0V											
		No	Check for short or open circuit in wiring harness (Water thermosensor terminal [G/W]--ECU terminal 3E) ➡ If OK, replace ECU ➡ If not OK, repair wiring harness									
3	Is there continuity between water thermosensor terminal (BR/B) and a ground		Yes	Go to next step								
			No	Repair wiring harness								
4	Is resistance of water thermosensor OK? <table border="1"><thead><tr><th>Coolant temp.</th><th>Resistance {kΩ}</th></tr></thead><tbody><tr><td>-20°C {-4°F}</td><td>14.6-17.8</td></tr><tr><td>20°C {68°F}</td><td>2.2-2.7</td></tr><tr><td>80°C {176°F}</td><td>0.29-0.35</td></tr></tbody></table>		Coolant temp.	Resistance {kΩ}	-20°C {-4°F}	14.6-17.8	20°C {68°F}	2.2-2.7	80°C {176°F}	0.29-0.35	Yes	Replace ECU
			Coolant temp.	Resistance {kΩ}								
			-20°C {-4°F}	14.6-17.8								
			20°C {68°F}	2.2-2.7								
			80°C {176°F}	0.29-0.35								
	No	Replace water thermosensor										

93A80614

Fig. 14: Trouble Code No. 9 - Diagnostic Flowchart
Courtesy Of Mazda Motors Corp.



93B80615

Fig. 15: Trouble Code No. 9 - Schematic
 Courtesy Of Mazda Motors Corp.

TROUBLE CODE NO. 11 (INTAKE AIR THERMOSENSOR)

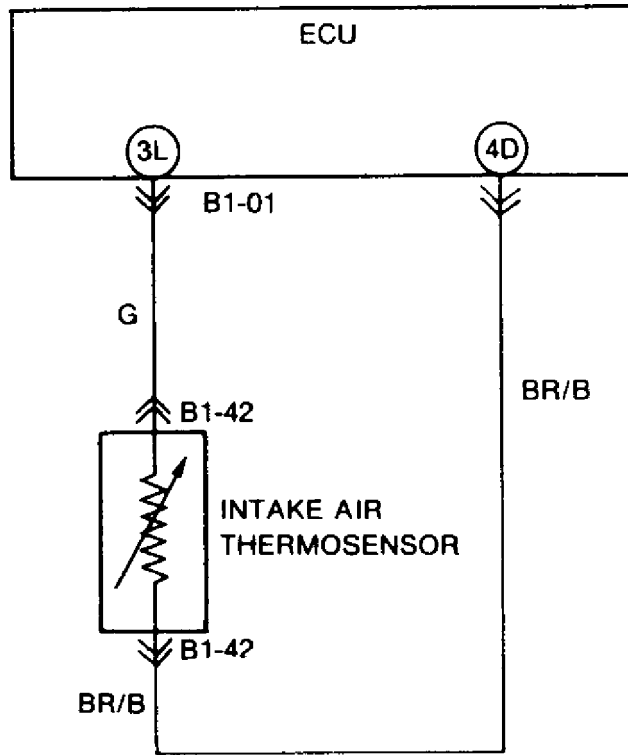
TROUBLE CODE NO. 11 (INTAKE AIR THERMOSENSOR)

STEP	INSPECTION	ACTION
1	Does the water thermosensor circuit have a poor connection?	Yes Repair connector and/or wiring harness
		No Go to next step
2	Is Intake air thermosensor terminal (G) voltage OK with Intake air thermosensor connector disconnected?	Yes Go to next step
		No Check for short or open circuit in wiring harness (intake air thermosensor terminal [G]-ECU terminal 3L) ➡ If OK, replace ECU ➡ If not OK, repair wiring harness
3	Is there continuity between intake air thermosensor terminal (BR/B) and a ground	Yes Go to next step
		No Repair wiring harness
4	Is resistance of Intake air thermosensor OK?	Yes Replace ECU
		No Replace intake air thermosensor

Fig. 16: Trouble Code No. 11 - Diagnostic Flowchart
 Courtesy Of Mazda Motors Corp.

93C80616

G - TESTS W/CODES
Article Text (p. 13)
 1993 Mazda RX7
 For www.iluvmyrx7.com
 Copyright © 1998 Mitchell Repair Information Company, LLC
 Monday, August 20, 2001 06:39AM



93D80617

Fig. 17: Trouble Code No. 11 - Schematic
 Courtesy Of Mazda Motors Corp.

TROUBLE CODE NO. 12 (THROTTLE SENSOR - FULL RANGE)

TROUBLE CODE NO. 12 (THROTTLE SENSOR - FULL RANGE)

STEP	INSPECTION		ACTION						
1	Does throttle sensor circuit have a poor connection?	Yes	Repair connector and/or wiring harness						
		No	Go to next step						
2	Is throttle sensor terminal (BR/W) voltage OK with throttle sensor disconnected? <table border="1"><thead><tr><th>Condition</th><th>Voltage</th></tr></thead><tbody><tr><td>Ignition switch ON</td><td>Approx. 5.0V</td></tr></tbody></table>	Condition	Voltage	Ignition switch ON	Approx. 5.0V	Yes	Go to next step		
		Condition	Voltage						
Ignition switch ON	Approx. 5.0V								
No	Check for open or short circuit in wiring harness (Throttle sensor terminal (BR/W)-ECU terminal 3L) ➡ If OK, replace ECU ➡ If not OK, repair wiring harness								
3	Is there continuity between throttle sensor and ECU? <table border="1"><thead><tr><th>Throttle sensor</th><th>ECU</th></tr></thead><tbody><tr><td>(B/G)</td><td>3G (B/G)</td></tr><tr><td>(BR/B)</td><td>4D (BR/B)</td></tr></tbody></table>	Throttle sensor	ECU	(B/G)	3G (B/G)	(BR/B)	4D (BR/B)	Yes	Check for short circuit in wiring harness (Throttle sensor terminal (B/G)-ECU terminal 3G) ➡ If OK, go to next step ➡ If not OK, repair wiring harness
		Throttle sensor	ECU						
(B/G)	3G (B/G)								
(BR/B)	4D (BR/B)								
No	Repair wiring harness								
4	Is there continuity between terminals (BR/W) and (B/G) with throttle valve fully closed to fully opened?	Yes	Replace ECU						
		No	Replace throttle sensor						

93E80618

Fig. 18: Trouble Code No. 12 - Diagnostic Flowchart
 Courtesy Of Mazda Motors Corp.

G - TESTS W/CODES

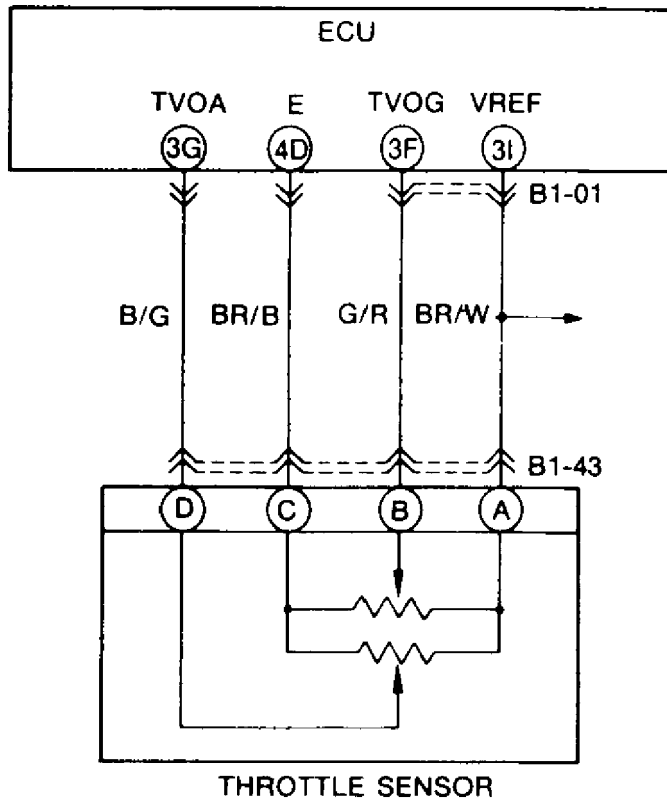
Article Text (p. 14)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:39AM



93F80619

Fig. 19: Trouble Code No. 12 - Schematic
Courtesy Of Mazda Motors Corp.

TROUBLE CODE NO. 13 (PRESSURE SENSOR)

TROUBLE CODE NO. 13 (PRESSURE SENSOR)

STEP	INSPECTION	ACTION									
1	Does pressure sensor circuit have a poor connection?	Yes	Repair connector and/or wiring harness								
		No	Go to next step								
2	Is connector terminal (BR/W) voltage OK with pressure sensor connector disconnected? <table border="1"><thead><tr><th>Condition</th><th>Voltage</th></tr></thead><tbody><tr><td>Ignition switch ON</td><td>Approx. 5V</td></tr></tbody></table>	Condition	Voltage	Ignition switch ON	Approx. 5V	Yes	Go to next step				
		Condition	Voltage								
Ignition switch ON	Approx. 5V										
		No	Check for open or short circuit in wiring harness (pressure sensor terminal [BR/W] ECU relay terminal [BR/W])								
3	Is there continuity between pressure sensor terminal (BR/B) and ECU terminal 4D?	Yes	Go to next step								
		No	Repair wiring harness								
4	Is output voltage (G/Y) of pressure sensor OK? <table border="1"><thead><tr><th>Pressure or Vacuum</th><th>Voltage</th></tr></thead><tbody><tr><td>- 66 kPa (- 500 mmHg, 19.7 inHg)</td><td>1.3-1.6V</td></tr><tr><td>0 kPa (0 mmHg, 0 inHg)</td><td>2.3-2.8V</td></tr><tr><td>98.7 kPa (740 mmHg, 29.1 inHg)</td><td>4.3-4.6V</td></tr></tbody></table>	Pressure or Vacuum	Voltage	- 66 kPa (- 500 mmHg, 19.7 inHg)	1.3-1.6V	0 kPa (0 mmHg, 0 inHg)	2.3-2.8V	98.7 kPa (740 mmHg, 29.1 inHg)	4.3-4.6V	Yes	Replace ECU
		Pressure or Vacuum	Voltage								
- 66 kPa (- 500 mmHg, 19.7 inHg)	1.3-1.6V										
0 kPa (0 mmHg, 0 inHg)	2.3-2.8V										
98.7 kPa (740 mmHg, 29.1 inHg)	4.3-4.6V										
		No	Replace pressure sensor								

93I80620

Fig. 20: Trouble Code No. 13 - Diagnostic Flowchart
Courtesy Of Mazda Motors Corp.

G - TESTS W/CODES

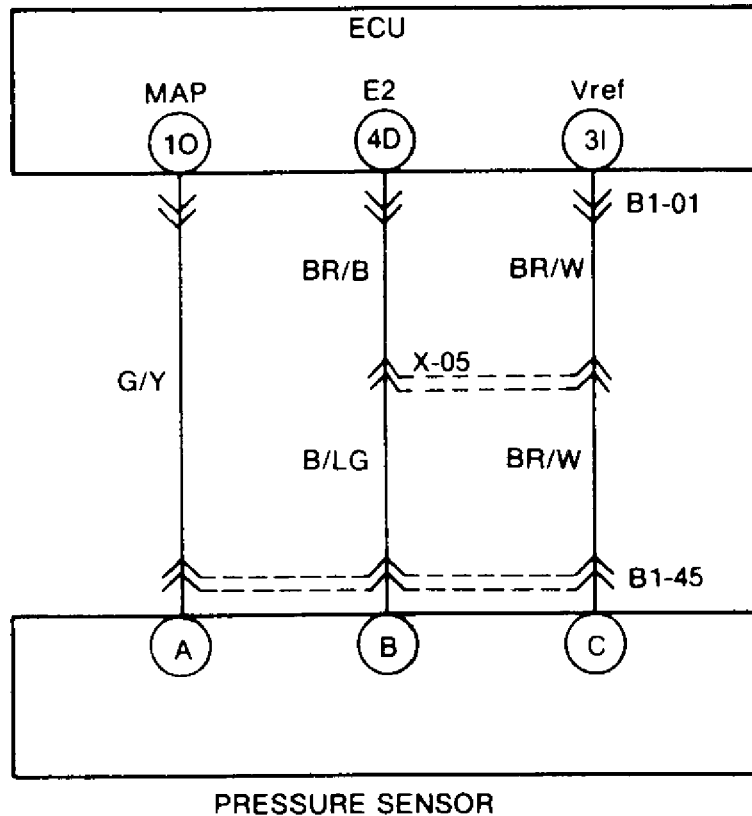
Article Text (p. 15)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:39AM



93J80621

Fig. 21: Trouble Code No. 13 - Schematic
Courtesy Of Mazda Motors Corp.

TROUBLE CODE NO. 14 (ATMOSPHERIC PRESSURE SENSOR)

- * Replace ECU

TROUBLE CODE NO. 15 (OXYGEN SENSOR)

TROUBLE CODE NO. 15 (OXYGEN SENSOR)

Note • If Codes No. 15 and 17 are both present, first perform the checking procedure for Code No. 17.			
STEP	INSPECTION		ACTION
1	Does oxygen sensor circuit have a poor connection?	Yes	Repair connector and/or wiring harness
		No	Go to next step
2	Is oxygen sensor output voltage OK?	Yes	Go to next step
		No	Replace oxygen sensor
3	Is there continuity between oxygen sensor and ECU terminal 3C (B)?	Yes	Check for short circuit in wiring ➡ If OK, replace ECU ➡ If not OK, repair wire harness
		No	Repair wiring harness

93B80623

Fig. 22: Trouble Code No. 15 - Diagnostic Flowchart
Courtesy Of Mazda Motors Corp.

G - TESTS W/CODES

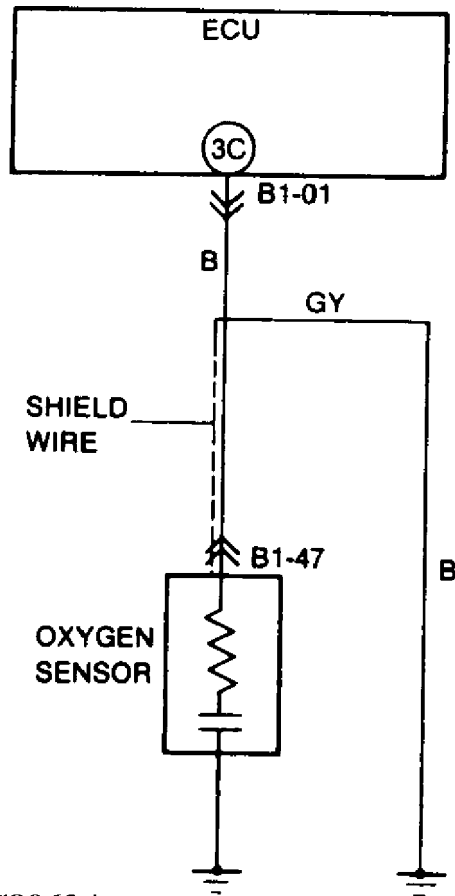
Article Text (p. 16)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:39AM



93C80624

Fig. 23: Trouble Code No. 15 - Schematic
Courtesy Of Mazda Motors Corp.

TROUBLE CODE NO. 16 (EGR SWITCH - CA)

TROUBLE CODE NO. 16 (EGR SWITCH - CALIFORNIA)

STEP	INSPECTION	ACTION
1	Does EGR switch circuit have a poor connection?	Yes Repair connector and/or wiring harness
		No Go to next step
2	Is connector terminal (L/G) voltage OK with EGR switch connector disconnected.	Yes Go to next step
		No Check for open or short circuit in wiring harness (EGR switch terminal [LG] ECU terminal 3J)
3	Is there continuity between EGR switch terminal (BR/B) and ECU terminal 4F?	Yes Go to next step
		No Repair wiring harness
4	Is EGR switch OK?	Yes Replace ECU
		No Replace EGR valve

93D80625

Fig. 24: Trouble Code No. 16 - Diagnostic Flowchart
Courtesy Of Mazda Motors Corp.

G - TESTS W/CODES

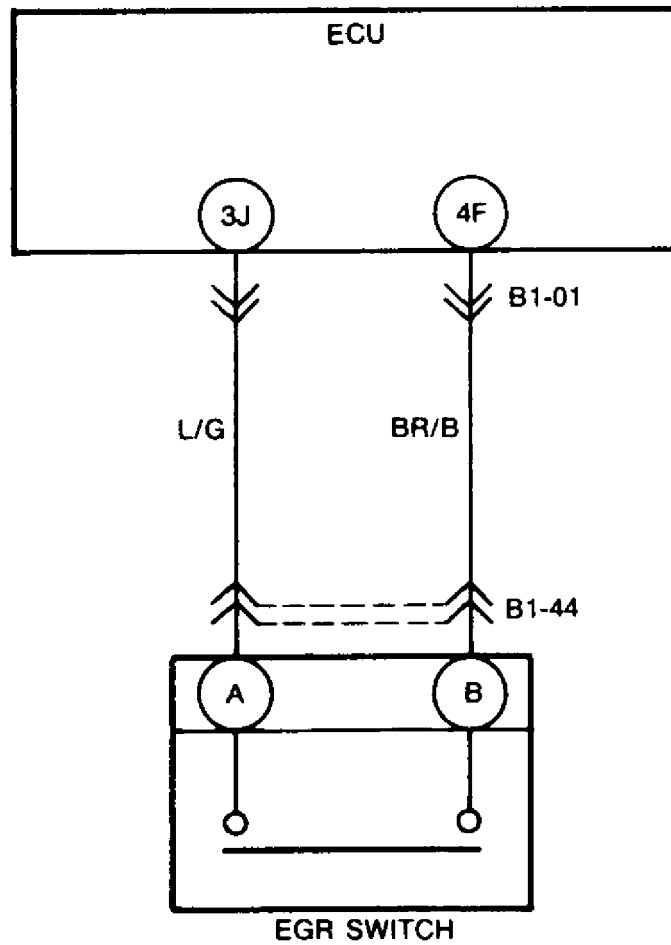
Article Text (p. 17)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:39AM



93E80626

Fig. 25: Trouble Code No. 16 - Schematic
Courtesy Of Mazda Motors Corp.

TROUBLE CODE NO. 17 (FEEDBACK SYSTEM)

G - TESTS W/CODES

Article Text (p. 18)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:39AM

TROUBLE CODE NO. 17 (FEEDBACK SYSTEM) 1 OF 2

STEP	INSPECTION	ACTION
1	Is same code No. present following after-repair procedure? *	Yes Go to next step
		No Check oxygen sensor circuit for a poor connection ⇒ If OK, perform troubleshooting Code No.15
2	Does monitor lamp of Self-Diagnosis Checker illuminate at idle after the engine has been warmed up and run at 2500-3000 rpm for 3 min ?	Yes Go to next step Note • A/F mixture rich
		No Go to Step 5 Note • A/F mixture is lean or misfire is occurring
3	Is fuel line pressure correct at idle? Fuel line pressure: 190-220 kPa 1.9-2.3 kg/cm², 28-32 psi	Yes Go to next step
		No High pressure Check if fuel return hose is clogged or restricted ⇒ If OK, replace pressure regulator
4	Is there fuel leakage at injector?	Yes Replace injector
		No Check water thermosensor ⇒ If it is OK, replace oxygen sensor ⇒ If it is not OK, replace it
5	Disconnect each high tension lead at idle: does engine speed decrease equally at each rotor?	Yes Go to next step
		No Go to Step 8
6	Is fuel line pressure correct at idle? Fuel line pressure: 190-220 kPa 1.9-2.3 kg/cm², 28-32 psi	Yes Go to next step
		No Low pressure Check fuel line pressure while pinching fuel return hose ⇒ If it quickly increases, check pressure regulator ⇒ If it gradually increases, check for clogging between fuel pump and pressure regulator ⇒ If hose is not clogged, check fuel pump maximum pressure
7	Is there air leakage in intake air system components?	Yes Replace oxygen sensor
		No Repair
8	Is there a misfire of a dead rotor from Step 5 inspection?	Yes Repair or replace ignition system component(s)
		No Go to next step

93F80627

Fig. 26: Trouble Code No. 17 - Diagnostic Flowchart (1 Of 2)

Courtesy Of Mazda Motors Corp.

G - TESTS W/CODES

Article Text (p. 19)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:39AM

TROUBLE CODE NO. 17 (FEEDBACK SYSTEM) 2 OF 2

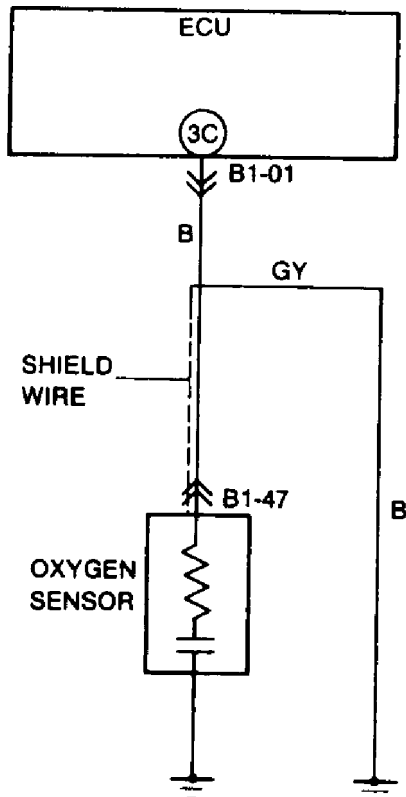
STEP	INSPECTION		ACTION
9	Is there an injector operating sound at idle of dead rotor from Step 5 inspection?	Yes	Go to next step
		No	Check for approx. 12V at injector terminal wire ⇒ If there is, replace injector ⇒ If there is not, check for a short or open circuit in wire harness
10	Replace injector at dead rotor from Step 5 inspection Is same code No. present following after-repair procedure? *	Yes	Try known good ECU
		No	System OK

* - See AFTER-REPAIR PROCEDURE under SELF-DIAGNOSTIC SYSTEM.

93G80628

Fig. 27: Trouble Code No. 17 - Diagnostic Flowchart (2 Of 2)

Courtesy Of Mazda Motors Corp.



93C80624

Fig. 28: Trouble Code No. 16 - Schematic

Courtesy Of Mazda Motors Corp.

G - TESTS W/CODES

Article Text (p. 20)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:39AM

TROUBLE CODE NO. 18 (THROTTLE SENSOR - NARROW RANGE)

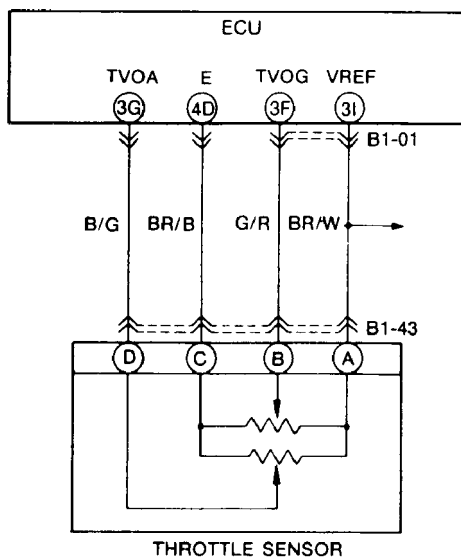
TROUBLE CODE NO. 18 (THROTTLE SENSOR – NARROW RANGE)

STEP	INSPECTION	ACTION
1	Does throttle sensor circuit have a poor connection?	Yes Repair connector and/or wiring harness
		No Go to next step
2	Is throttle sensor terminal (BR/W) voltage OK with throttle sensor disconnected?	Yes Go to next step
		No Check for open or short circuit in wiring harness (Throttle sensor terminal [BR/W]-ECU terminal 3I) ➡ If OK, replace ECU ➡ If not OK, repair wiring harness
3	Is there continuity between throttle sensor and ECU?	Yes Check for short circuit in wiring harness (Throttle sensor terminal (G/R)-ECU terminal 3F) ➡ If OK, go to next step ➡ If not OK, repair wiring harness
		No Repair wiring harness
4	Is there continuity between terminals (BR/W) and (G/R) with throttle valve fully closed to fully opened?	Yes Replace ECU
		No Replace throttle sensor

93H80629

Fig. 29: Trouble Code No. 18 - Diagnostic Flowchart

Courtesy Of Mazda Motors Corp.



93F80619

Fig. 30: Trouble Code No. 18 - Schematic

Courtesy Of Mazda Motors Corp.

G - TESTS W/CODES

Article Text (p. 21)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:39AM

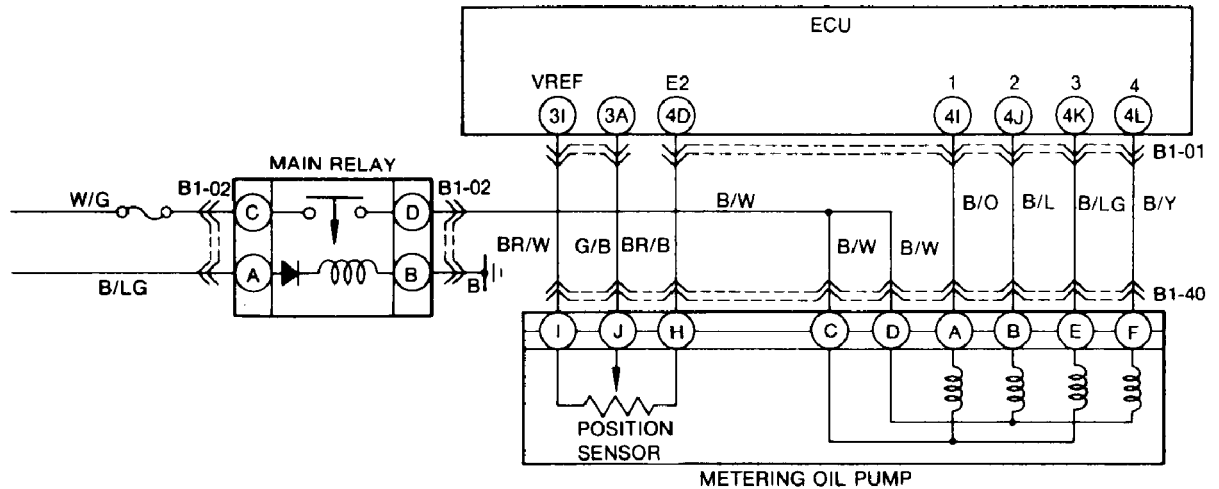
TROUBLE CODE NO. 20 (METERING OIL PUMP POSITION SENSOR)

TROUBLE CODE NO. 20 (METERING OIL PUMP POSITION SENSOR)

STEP	INSPECTION	ACTION							
1	Are there any poor connections at metering oil pump and ECU connectors?	Yes	Repair or replace connector						
		No	Go to next step						
2	Is ECU terminal 3A (G/B) voltage OK? <table border="1"><tr><td>Condition</td><td>Voltage</td></tr><tr><td>Idle</td><td>1.1V</td></tr><tr><td>Acceleration</td><td>1.1V-4.2V</td></tr></table>	Condition	Voltage	Idle	1.1V	Acceleration	1.1V-4.2V	Yes	Go to step 4
		Condition	Voltage						
Idle	1.1V								
Acceleration	1.1V-4.2V								
No	Go to next step								
3	Is resistance of MOP position sensor OK? Resistance: J-H 0.4-12 kΩ J-I 1.0-2 kΩ H-I 0.4-12 kΩ	Yes	Repair wiring harness (Mop position sensor-ECU terminal 3A)						
		No	Replace MOP						
4	Disconnect negative battery cable for at least 20 seconds Connect battery cable, and recheck for service code Is service code displayed?	Yes	Replace ECU						
		No	Intermittent poor connection check for cause.						

93A80630

Fig. 31: Trouble Code No. 20 - Diagnostic Flowchart
Courtesy Of Mazda Motors Corp.



93B80631

Fig. 32: Trouble Code No. 20 - Schematic
Courtesy Of Mazda Motors Corp.

TROUBLE CODE NO. 23 (FUEL THERMOSENSOR)

G - TESTS W/CODES

Article Text (p. 22)



1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

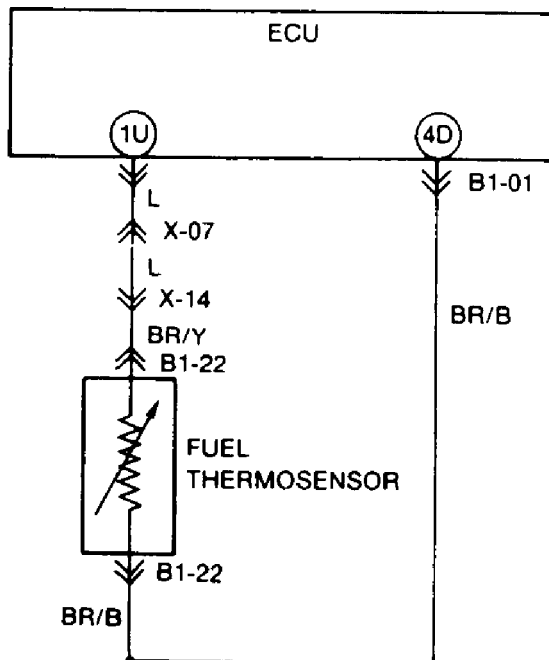
Monday, August 20, 2001 06:39AM

TROUBLE CODE NO. 23 (FUEL THERMOSENSOR)

STEP	INSPECTION	ACTION									
1	Does the fuel thermosensor circuit have a poor connection?	Yes	Repair connector and/or harness								
		No	Go to next step								
2	Is fuel thermosensor terminal (BR/B) voltage OK with fuel thermosensor connector disconnected?	Yes	Go to next step								
		No	Check for short or open circuit in wiring harness (fuel thermosensor terminal [BR/B]-ECU terminal 1U)  If OK, replace ECU  If not OK, repair wiring harness								
<table border="1"><thead><tr><th>Condition</th><th>Voltage</th></tr></thead><tbody><tr><td>Ignition switch ON</td><td>Approx. 5.0 V</td></tr></tbody></table>		Condition	Voltage	Ignition switch ON	Approx. 5.0 V						
Condition	Voltage										
Ignition switch ON	Approx. 5.0 V										
3	Is there continuity between fuel thermosensor terminal (BR/Y) and a ground?	Yes	Go to next step								
		No	Repair wiring harness								
4	Is resistance of fuel thermosensor OK?	Yes	Replace ECU								
		No	Replace fuel thermosensor								
<table border="1"><thead><tr><th>Fuel temp</th><th>Resistance {kΩ}</th></tr></thead><tbody><tr><td>- 20°C {- 4°F}</td><td>14.6-17.8</td></tr><tr><td>20°C {68°F}</td><td>2.2-2.7</td></tr><tr><td>80°C {176°F}</td><td>0.29-0.35</td></tr></tbody></table>		Fuel temp	Resistance {kΩ}	- 20°C {- 4°F}	14.6-17.8	20°C {68°F}	2.2-2.7	80°C {176°F}	0.29-0.35		
Fuel temp	Resistance {kΩ}										
- 20°C {- 4°F}	14.6-17.8										
20°C {68°F}	2.2-2.7										
80°C {176°F}	0.29-0.35										

93C80632

Fig. 33: Trouble Code No. 23 - Diagnostic Flowchart
Courtesy Of Mazda Motors Corp.



93D80633

Fig. 34: Trouble Code No. 23 - Schematic
Courtesy Of Mazda Motors Corp.

G - TESTS W/CODES

Article Text (p. 24)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:39AM

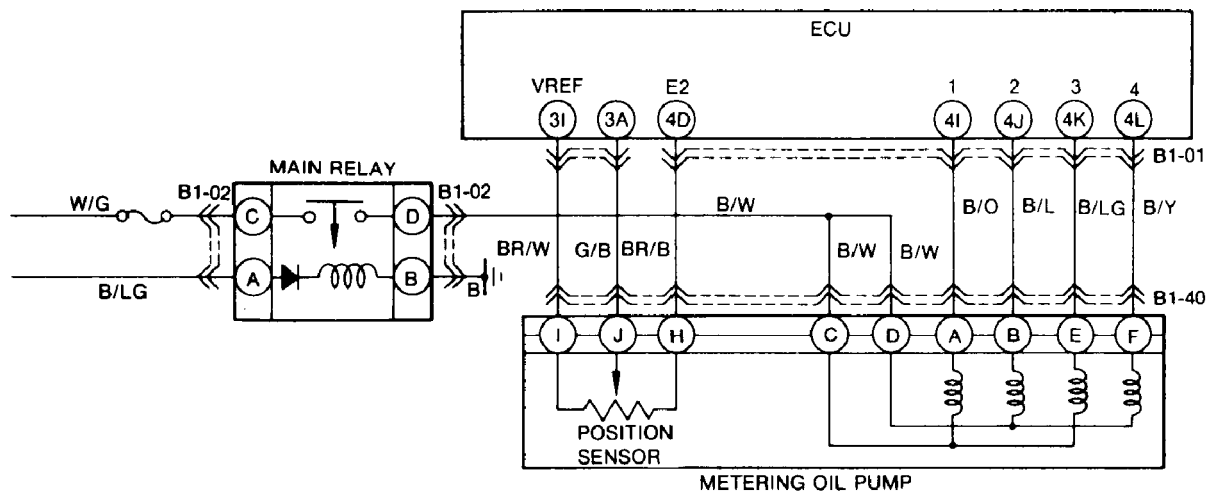
TROUBLE CODE NO. 26 (METERING OIL PUMP STEPPER MOTOR)

TROUBLE CODE NO. 26 (METERING OIL PUMP STEPPER MOTOR)

STEP	INSPECTION	ACTION											
1	Are there any poor connections at metering oil pump and ECU connector?	Yes	Repair or replace connector										
		No	Go to next step										
2	Is resistance of MOP stepping motor OK? Resistance: <table><tr><td>terminal</td><td>kΩ</td></tr><tr><td>C – SM1 A</td><td rowspan="4">16–31</td></tr><tr><td>C – SM3 E</td></tr><tr><td>D – SM2 B</td></tr><tr><td>D – SM4 F</td></tr></table>	terminal	kΩ	C – SM1 A	16–31	C – SM3 E	D – SM2 B	D – SM4 F	Yes	Go to next step			
		terminal	kΩ										
C – SM1 A	16–31												
C – SM3 E													
D – SM2 B													
D – SM4 F													
No	Replace MOP												
3	Is continuity between MOP stepping motor and ECU terminals OK? <table><tr><td>MOP terminal</td><td>ECU terminal</td></tr><tr><td>SM1 A</td><td>4I (B/O)</td></tr><tr><td>SM2 B</td><td>4J (B/L)</td></tr><tr><td>SM3 E</td><td>4K (B/LG)</td></tr><tr><td>SM4 F</td><td>4L (B/Y)</td></tr></table>	MOP terminal	ECU terminal	SM1 A	4I (B/O)	SM2 B	4J (B/L)	SM3 E	4K (B/LG)	SM4 F	4L (B/Y)	Yes	Repair wiring harness (MOP-Main relay)
		MOP terminal	ECU terminal										
SM1 A	4I (B/O)												
SM2 B	4J (B/L)												
SM3 E	4K (B/LG)												
SM4 F	4L (B/Y)												
No	Repair wiring harness (MOP-ECU terminals)												
4	Disconnect negative battery cable for at least 20 seconds Connect battery cable and recheck for service code Is service code displayed?	Yes	Replace ECU										
		No	Intermittent poor connection check for cause										

93G80636

Fig. 37: Trouble Code No. 26 - Diagnostic Flowchart
Courtesy Of Mazda Motors Corp.



93B80631

Fig. 38: Trouble Code No. 26 - Schematic
Courtesy Of Mazda Motors Corp.

TROUBLE CODE NO. 27 (METERING OIL PUMP)

G - TESTS W/CODES

Article Text (p. 25)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:39AM

TROUBLE CODE NO. 27 (METERING OIL PUMP)

STEP	INSPECTION		ACTION														
1	Are there any poor connections at metering oil pump and ECU connector?	Yes	Repair or replace connector														
		No	Go to next step														
2	Is ECU terminal 3A voltage OK? <table><tr><td>Condition</td><td>Voltage</td></tr><tr><td>Idle</td><td>1.1V</td></tr><tr><td>Acceleration</td><td>1.0V-4.2V</td></tr></table>	Condition	Voltage	Idle	1.1V	Acceleration	1.0V-4.2V	Yes	Go to step 4								
		Condition	Voltage														
Idle	1.1V																
Acceleration	1.0V-4.2V																
No	Go to next step																
3	Is resistance of MOP position sensor OK? Resistance: J-H 0.4-12 kΩ J-I 10-2 kΩ H-I 0.4-12 kΩ	Yes	Go to next step														
		No	Replace MOP														
4	Is ECU terminals voltage OK? Specification: (Idle) <table><tr><td>Stepping Motor</td><td>ECU terminal</td><td>Output voltage</td></tr><tr><td>SM1 A</td><td>4I (B/O)</td><td>One terminal: 12V</td></tr><tr><td>SM2 B</td><td>4J (B/L)</td><td rowspan="2">Three terminals: 5-9 V</td></tr><tr><td>SM3 E</td><td>4K (B/LG)</td></tr><tr><td>SM4 F</td><td>4L (B/Y)</td><td></td></tr></table>	Stepping Motor	ECU terminal	Output voltage	SM1 A	4I (B/O)	One terminal: 12V	SM2 B	4J (B/L)	Three terminals: 5-9 V	SM3 E	4K (B/LG)	SM4 F	4L (B/Y)		Yes	Go to step 7
		Stepping Motor	ECU terminal	Output voltage													
SM1 A	4I (B/O)	One terminal: 12V															
SM2 B	4J (B/L)	Three terminals: 5-9 V															
SM3 E	4K (B/LG)																
SM4 F	4L (B/Y)																
No	Go to next step																
5	Is resistance of MOP stepping motor OK? Resistance: <table><tr><td>terminal</td><td>kΩ</td></tr><tr><td>C - SM1 A</td><td rowspan="4">16-31</td></tr><tr><td>C - SM3 E</td></tr><tr><td>D - SM2 B</td></tr><tr><td>D - SM4 F</td></tr></table>	terminal	kΩ	C - SM1 A	16-31	C - SM3 E	D - SM2 B	D - SM4 F	Yes	Go to next step							
		terminal	kΩ														
C - SM1 A	16-31																
C - SM3 E																	
D - SM2 B																	
D - SM4 F																	
No	Replace MOP																
6	Is continuity between MOP stepping motor and ECU terminals OK? <table><tr><td>MOP terminal</td><td>ECU terminal</td></tr><tr><td>SM1 A</td><td>4I (B/O)</td></tr><tr><td>SM2 B</td><td>4J (B/L)</td></tr><tr><td>SM3 E</td><td>4K (B/LG)</td></tr><tr><td>SM4 F</td><td>4L (B/Y)</td></tr></table>	MOP terminal	ECU terminal	SM1 A	4I (B/O)	SM2 B	4J (B/L)	SM3 E	4K (B/LG)	SM4 F	4L (B/Y)	Yes	Repair wiring harness (MOP-Main relay)				
		MOP terminal	ECU terminal														
SM1 A	4I (B/O)																
SM2 B	4J (B/L)																
SM3 E	4K (B/LG)																
SM4 F	4L (B/Y)																
No	Repair wiring harness (MOP-ECU terminals)																
7	Disconnect negative battery cable for at least 20 seconds Connect battery cable and recheck for service code Is service code displayed?	Yes	Replace ECU														
		No	Intermittent poor connection check for cause														

93H80637

Fig. 39: Trouble Code No. 27 - Diagnostic Flowchart
Courtesy Of Mazda Motors Corp.

G - TESTS W/CODES

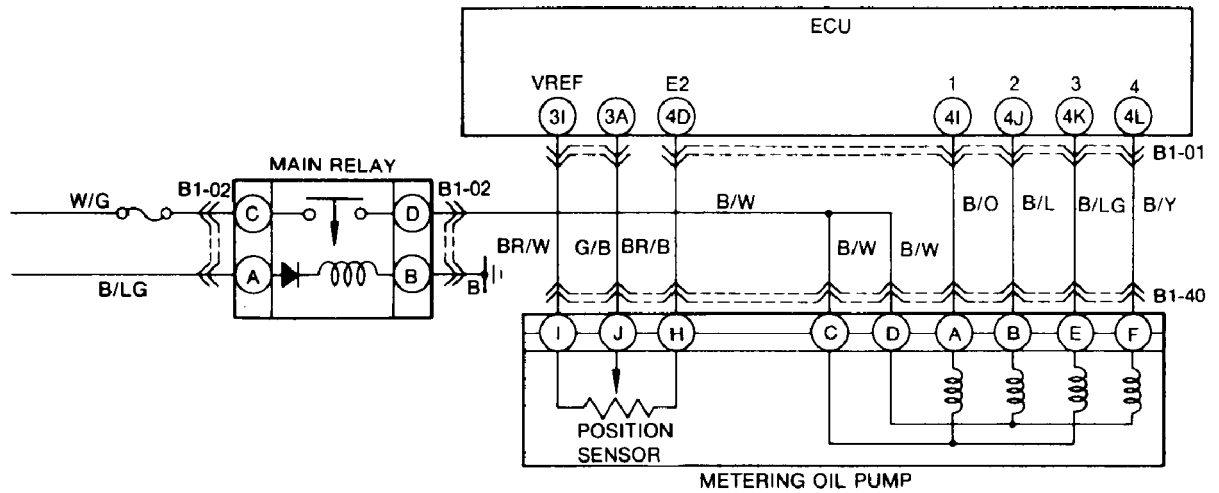
Article Text (p. 26)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:39AM



93B80631

Fig. 40: Trouble Code No. 27 - Schematic
Courtesy Of Mazda Motors Corp.

TROUBLE CODE NO. 28 (SOLENOID VALVE - EGR)

TROUBLE CODE NO. 28 (SOLENOID VALVE – EGR)

STEP	INSPECTION		ACTION
1	Does solenoid valve circuit have a poor connection?	Yes	Repair connector and/or wiring harness
		No	Go to next step
2	Is connector terminal (B/W) voltage OK with solenoid valve connector disconnected?	Yes	Go to next step
		No	Check for open or short circuit in wiring harness (Solenoid valve terminal [B/W]–Main relay terminal [B/W])
3	Is there continuity between solenoid valve terminal (L/Y) and ECU terminal 40?	Yes	Check for short circuit in wiring harness (Solenoid valve terminal [L/Y]–ECU terminal 40) ➡ If OK, go to next step ➡ If not OK, repair wiring harness
		No	Repair wiring harness
4	Is solenoid valve OK?	Yes	Replace ECU
		No	Replace solenoid valve

93I80638

Fig. 41: Trouble Code No. 28 - Diagnostic Flowchart
Courtesy Of Mazda Motors Corp.

G - TESTS W/CODES

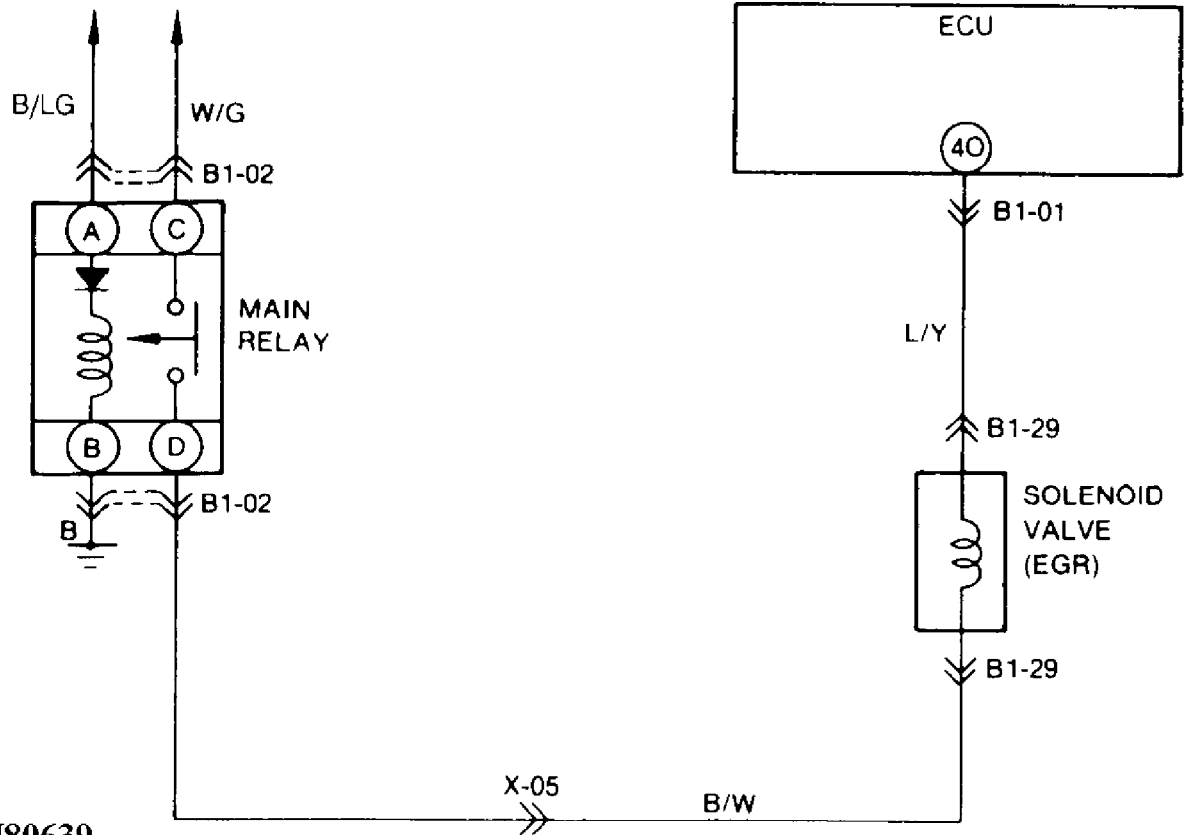
Article Text (p. 27)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:39AM



93J80639

Fig. 42: Trouble Code No. 28 - Schematic
Courtesy Of Mazda Motors Corp.

TROUBLE CODE NO. 30 (SOLENOID VALVE - SPLIT AIR BY-PASS)

TROUBLE CODE NO. 30 (SOLENOID VALVE - SPLIT AIR BY-PASS)

STEP	INSPECTION		ACTION
1	Does solenoid valve circuit have a poor connection?	Yes	Repair connector and/or wiring harness
		No	Go to next step
2	Is connector terminal (B/W) voltage OK with solenoid valve connector disconnected?	Yes	Go to next step
		No	Check for open or short circuit in wiring harness (Solenoid valve terminal (B/W)-Main relay terminal (B/W))
3	Is there continuity between solenoid valve terminal (B/R) and ECU terminal 4F?	Yes	Check for short circuit in wiring harness (Solenoid valve terminal (B/R)-ECU terminal 4F) ➡ If OK, go to next step ➡ If not OK, repair wiring harness
		No	Repair wiring harness
4	Is solenoid valve OK?	Yes	Replace ECU
		No	Replace solenoid valve

93C80640

Fig. 43: Trouble Code No. 30 - Diagnostic Flowchart
Courtesy Of Mazda Motors Corp.

G - TESTS W/CODES

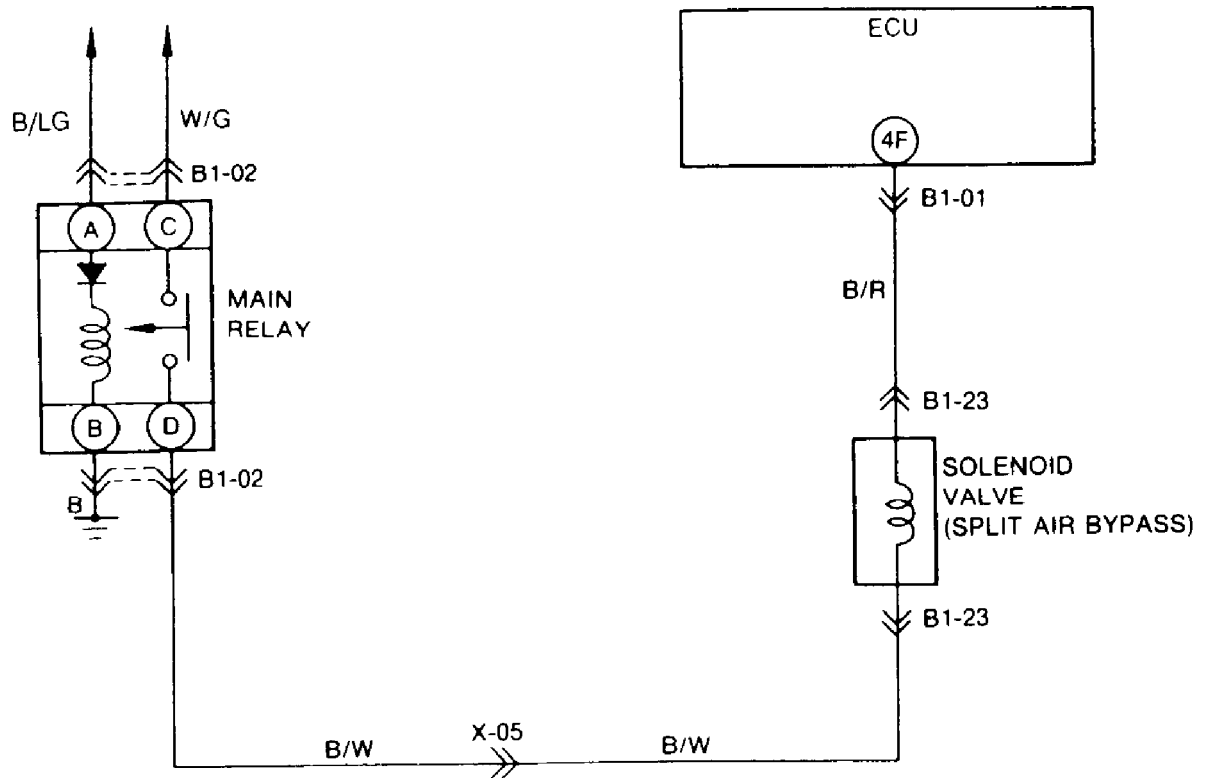
Article Text (p. 28)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:39AM



93D80641

Fig. 44: Trouble Code No. 30 - Schematic
Courtesy Of Mazda Motors Corp.

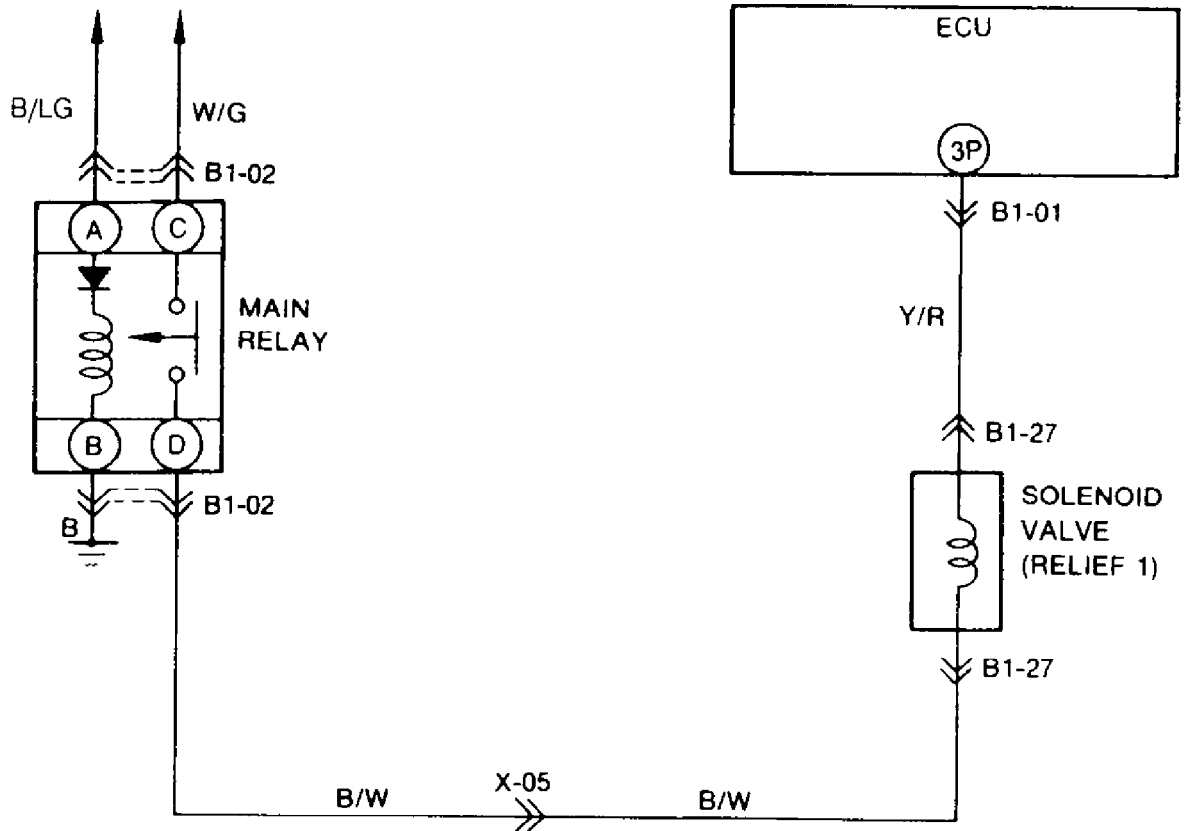
TROUBLE CODE NO. 31 (SOLENOID VALVE - RELIEF 1)

TROUBLE CODE NO. 31 (SOLENOID VALVE - RELIEF 1)

STEP	INSPECTION		ACTION
1	Does solenoid valve circuit have a poor connection?	Yes	Repair connector and/or wiring harness
		No	Go to next step
2	Is connector terminal (B/W) voltage OK with solenoid valve connector disconnected?	Yes	Go to next step
		No	Check for open or short circuit in wiring harness (Solenoid valve terminal [B/W]-Main relay terminal [B/W])
3	Is there continuity between solenoid valve terminal (Y/R) and ECU terminal 3P?	Yes	Check for short circuit in wiring harness (Solenoid valve terminal [Y/R]-ECU terminal 3P)
			<div> If OK, go to next step </div> <div> If not OK, repair wiring harness </div>
		No	Repair wiring harness
4	Is solenoid valve OK?	Yes	Replace ECU
		No	Replace solenoid valve

93F80642

Fig. 45: Trouble Code No. 31 - Diagnostic Flowchart
Courtesy Of Mazda Motors Corp.



93F80643

Fig. 46: Trouble Code No. 31 - Schematic
 Courtesy Of Mazda Motors Corp.

TROUBLE CODE NO. 32 (SOLENOID VALVE - SWITCHING)

TROUBLE CODE NO. 32 (SOLENOID VALVE - SWITCHING)

STEP	INSPECTION		ACTION
1	Does solenoid valve circuit have a poor connection?	Yes	Repair connector and/or wiring harness
		No	Go to next step
2	Is connector terminal (B/W) voltage OK with solenoid valve connector disconnected?	Yes	Go to next step
		No	Check for open or short circuit in wiring harness (Solenoid valve terminal [B/W]-Main relay terminal [B/W])
3	Is there continuity between solenoid valve terminal (L/R) and ECU terminal 4N?	Yes	Check for short circuit in wiring harness (Solenoid valve terminal [L/R] ECU terminal 4N) ➡ If OK, go to next step ➡ If not OK, repair wiring harness
		No	Repair wiring harness
4	Is solenoid valve OK?	Yes	Replace ECU
		No	Replace solenoid valve

93G80644

Fig. 47: Trouble Code No. 32 - Diagnostic Flowchart
 Courtesy Of Mazda Motors Corp.

G - TESTS W/CODES

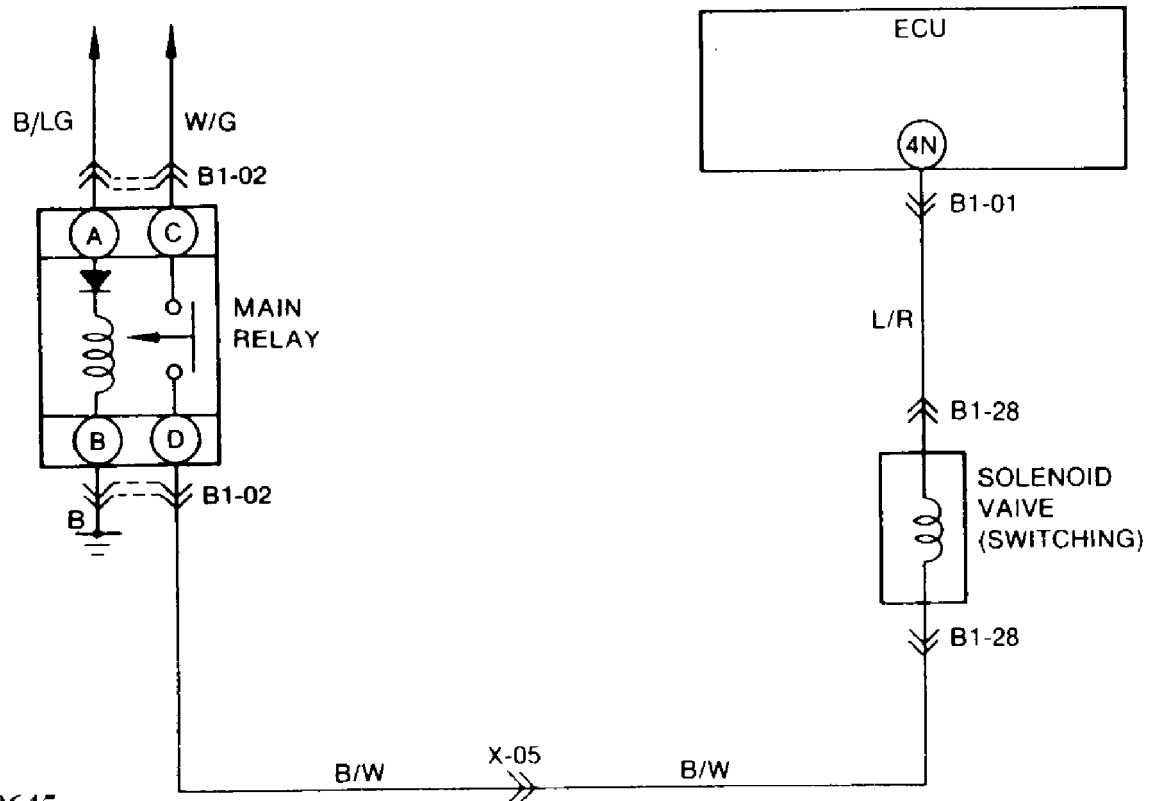
Article Text (p. 30)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:39AM



93H80645

Fig. 48: Trouble Code No. 32 - Schematic
Courtesy Of Mazda Motors Corp.

TROUBLE CODE NO. 33 (SOLENOID VALVE - PORT AIR BY-PASS)

TROUBLE CODE NO. 33 (SOLENOID VALVE - PORT AIR BY-PASS)

STEP	INSPECTION	ACTION
1	Does solenoid valve circuit have a poor connection?	Yes Repair connector and/or wiring harness
		No Go to next step
2	Is connector terminal (B/W) voltage OK with solenoid valve connector disconnected?	Yes Go to next step
		No Check for open or short circuit in wiring harness (Solenoid valve terminal [B/W]-Main relay terminal [B/W])
3	Is there continuity between solenoid valve terminal (L) and ECU terminal 3N?	Yes Check for short circuit in wiring harness (Solenoid valve terminal [L]-ECU terminal 3N) ⇒ If OK, go to next step ⇒ If not OK, repair wiring harness
		No Repair wiring harness
4	Is solenoid valve OK?	Yes Replace ECU
		No Replace solenoid valve

93I80646

Fig. 49: Trouble Code No. 33 - Diagnostic Flowchart
Courtesy Of Mazda Motors Corp.

G - TESTS W/CODES

Article Text (p. 31)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:39AM

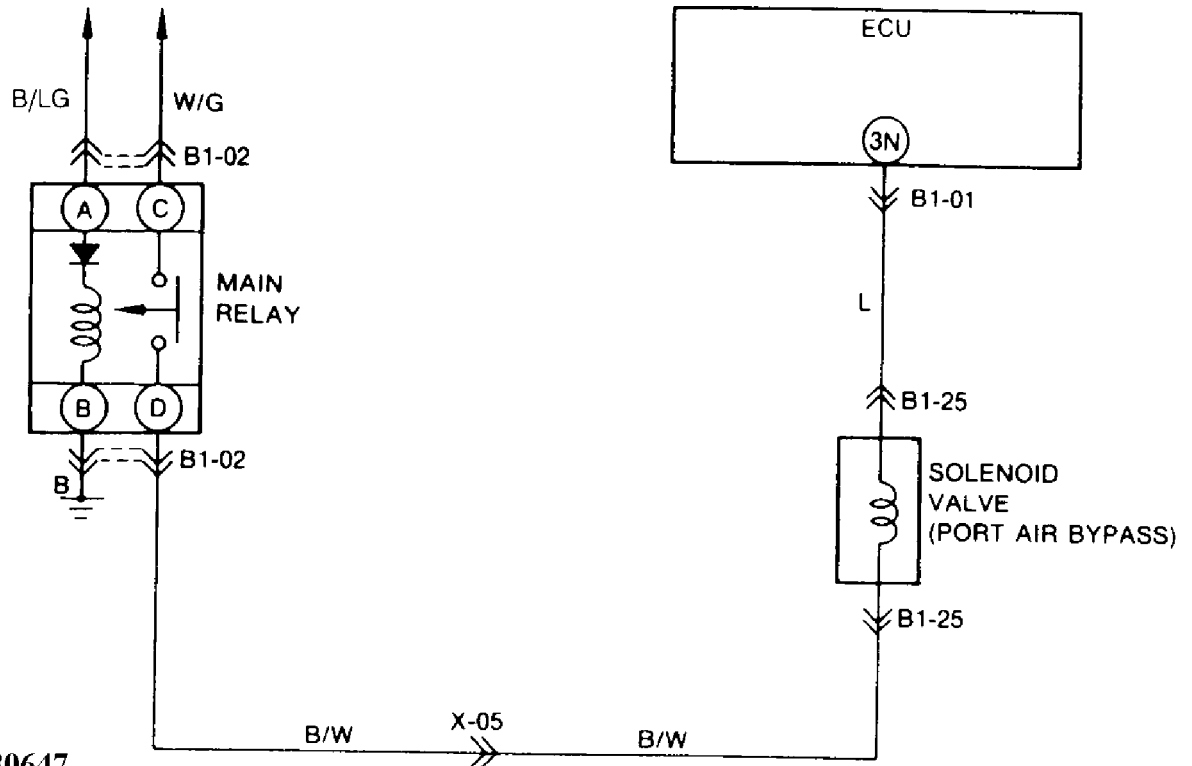


Fig. 50: Trouble Code No. 33 - Schematic
Courtesy Of Mazda Motors Corp.

TROUBLE CODE NO. 34 (SOLENOID VALVE - IDLE SPEED CONTROL)

TROUBLE CODE NO. 34 (SOLENOID VALVE - IDLE SPEED CONTROL)

STEP	INSPECTION		ACTION					
1	Does solenoid valve circuit have a poor connection?		Yes	Repair connector and/or wiring harness				
			No	Go to next step				
2	Is connector terminal (B/W) voltage OK with solenoid valve connector disconnected? <table border="1"><tr><th>Condition</th><th>Voltage</th></tr><tr><td>Ignition switch ON</td><td>Battery voltage</td></tr></table>		Condition	Voltage	Ignition switch ON	Battery voltage	Yes	Go to next step
			Condition	Voltage				
Ignition switch ON	Battery voltage							
		No	Check for open or short circuit in wiring harness (Solenoid valve terminal [B/W]-Main relay terminal [B/W])					
3	Is there continuity between solenoid valve terminal (L/G) and ECU terminal 4Q?		Yes	Check for short circuit in wiring harness (Solenoid valve terminal [L/G]-ECU terminal 4Q) ➡ If OK, go to next step ➡ If not OK, repair wiring harness				
			No	Repair wiring harness				
4	Is solenoid valve OK?		Yes	Replace ECU				
			No	Replace solenoid valve				

93A80648
Fig. 51: Trouble Code No. 34 - Diagnostic Flowchart
Courtesy Of Mazda Motors Corp.

Copyright © 1998 Mitchell Repair Information Company, LLC
Monday, August 20, 2001 06:39AM

Fig. 53: Trouble Code No. 37 - Diagnostic Flowchart
Courtesy Of Mazda Motors Corp.

G - TESTS W/CODES

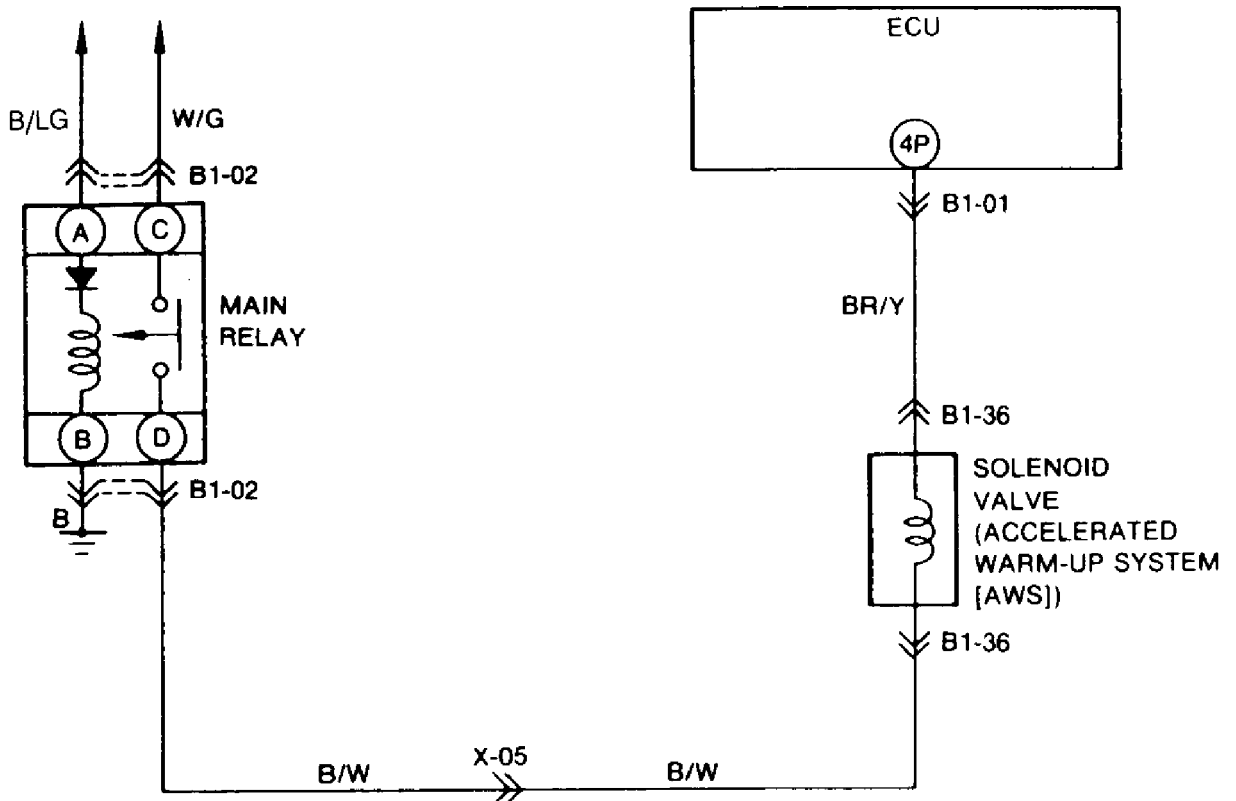
Article Text (p. 34)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:39AM





93H80652

Fig. 56: Trouble Code No. 38 - Schematic
Courtesy Of Mazda Motors Corp.

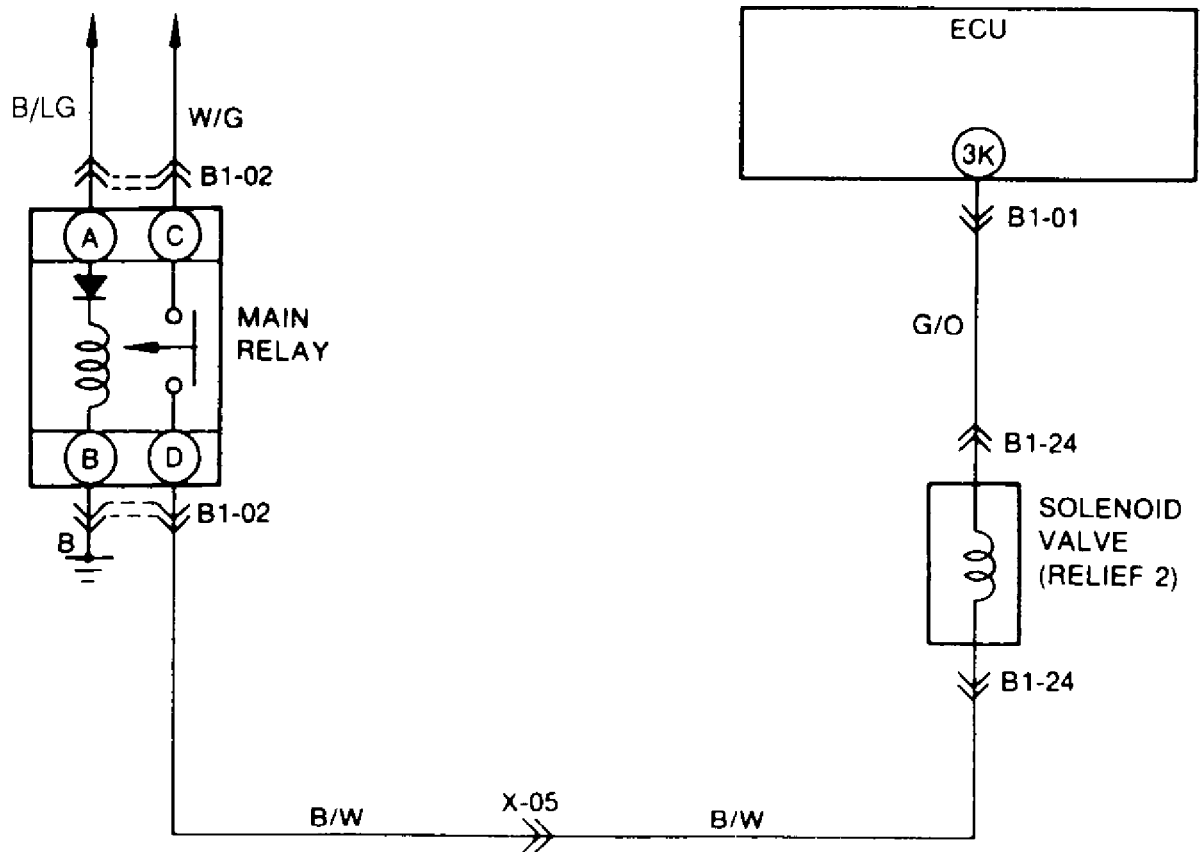
TROUBLE CODE NO. 39 (SOLENOID VALVE - RELIEF 2)

TROUBLE CODE NO. 39 (SOLENOID VALVE - RELIEF 2)

STEP	INSPECTION		ACTION					
1	Does solenoid valve circuit have a poor connection?	Yes	Repair connector and/or wiring harness					
		No	Go to next step					
2	Is connector terminal (B/W) voltage OK with solenoid valve connector disconnected? <table border="1"><thead><tr><th>Condition</th><th>Voltage</th></tr></thead><tbody><tr><td>Ignition switch ON</td><td>Battery voltage</td></tr></tbody></table>	Condition	Voltage	Ignition switch ON	Battery voltage	Yes	Go to next step	
		Condition	Voltage					
Ignition switch ON	Battery voltage							
No	Check for open or short circuit in wiring harness (Solenoid valve terminal [B/W]-Main relay terminal [B/W])							
3	Is there continuity between solenoid valve terminal (G/O) and ECU terminal 3K?	Yes	Check for short circuit in wiring harness (Solenoid valve terminal [G/O]-ECU terminal 3K)  If OK, go to next step  If not OK, repair wiring harness					
		No	Repair wiring harness					
4	Is solenoid valve OK?	Yes	Replace ECU					
		No	Replace solenoid valve					

93I80653

Fig. 57: Trouble Code No. 39 - Diagnostic Flowchart
Courtesy Of Mazda Motors Corp.



93J80654

Fig. 58: Trouble Code No. 39 - Schematic
 Courtesy Of Mazda Motors Corp.

TRUBLE CODE NO. 40 (SOLENOID VALVE - PURGE CONTROL)

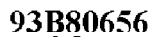
TRUBLE CODE NO. 40 (SOLENOID VALVE - PURGE CONTROL)

STEP	INSPECTION	ACTION
1	Does solenoid valve circuit have a poor connection?	Yes Repair connector and/or wiring harness
		No Go to next step
2	Is connector terminal (B/W) voltage OK with solenoid valve connector disconnected?	Yes Go to next step
		No Check for open or short circuit in wiring harness (Solenoid valve terminal [B/W]-Main relay terminal [B/W])
3	Is there continuity between solenoid valve terminal (G/Y) and ECU terminal 3H?	Yes Check for short circuit in wiring harness (Solenoid valve terminal [G/Y]-ECU terminal 3H) ➡ If OK, go to next step ➡ If not OK, repair wiring harness
		No Repair wiring harness
4	Is solenoid valve OK?	Yes Replace ECU
		No Replace solenoid valve

93A80655

Fig. 59: Trouble Code No. 40 - Diagnostic Flowchart
 Courtesy Of Mazda Motors Corp.

Copyright © 1998 Mitchell Repair Information Company, LLC
Monday, August 20, 2001 06:39AM



TROUBLE CODE NO. 42 (SOLENOID VALVE - TURBO PRE-CONTROL)

G - TESTS W/CODES

Article Text (p. 37)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

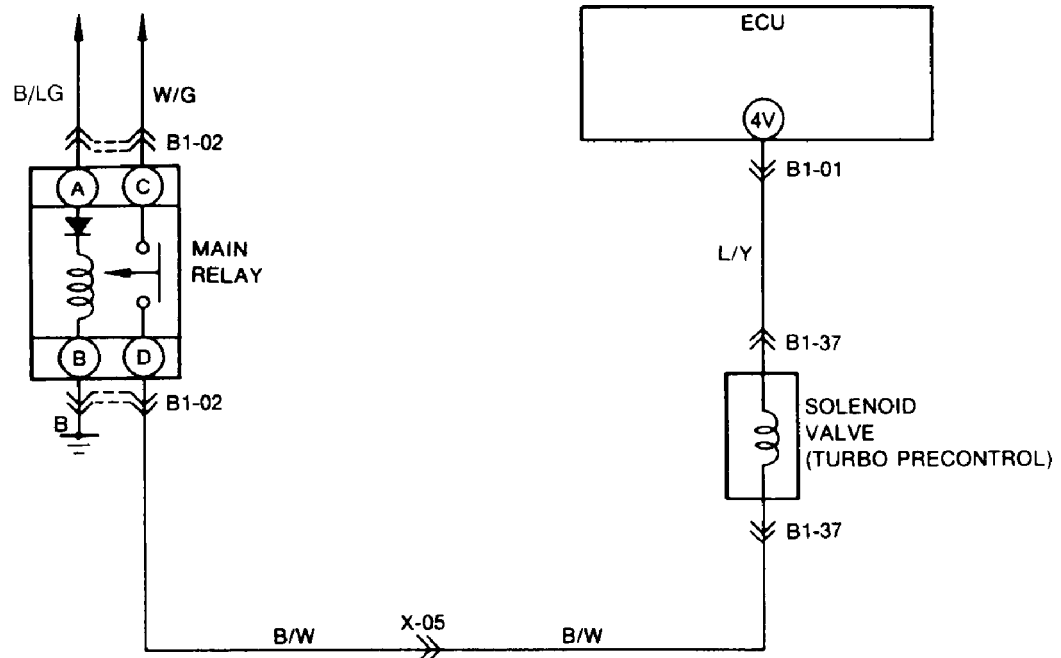
Monday, August 20, 2001 06:39AM

TROUBLE CODE NO. 42 (SOLENOID VALVE – TURBO PRE-CONTROL)

STEP	INSPECTION	ACTION
1	Does solenoid valve circuit have a poor connection?	Yes
		Repair connector and/or wiring harness
2	Is connector terminal (B/W) voltage OK with solenoid valve connector disconnected?	Yes
		Go to next step
3	Is there continuity between solenoid valve terminal (L/Y) and ECU terminal 4V?	Yes
		Check for open or short circuit in wiring harness (Solenoid valve terminal [B/W]–Main relay terminal [B/W])
4	Is solenoid valve OK?	Yes
		Replace ECU
5	Is solenoid valve OK?	Yes
		Replace solenoid valve

93C80657

Fig. 61: Trouble Code No. 42 - Diagnostic Flowchart
Courtesy Of Mazda Motors Corp.



93D80658

Fig. 62: Trouble Code No. 42 - Schematic
Courtesy Of Mazda Motors Corp.

G - TESTS W/CODES

Article Text (p. 38)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:39AM

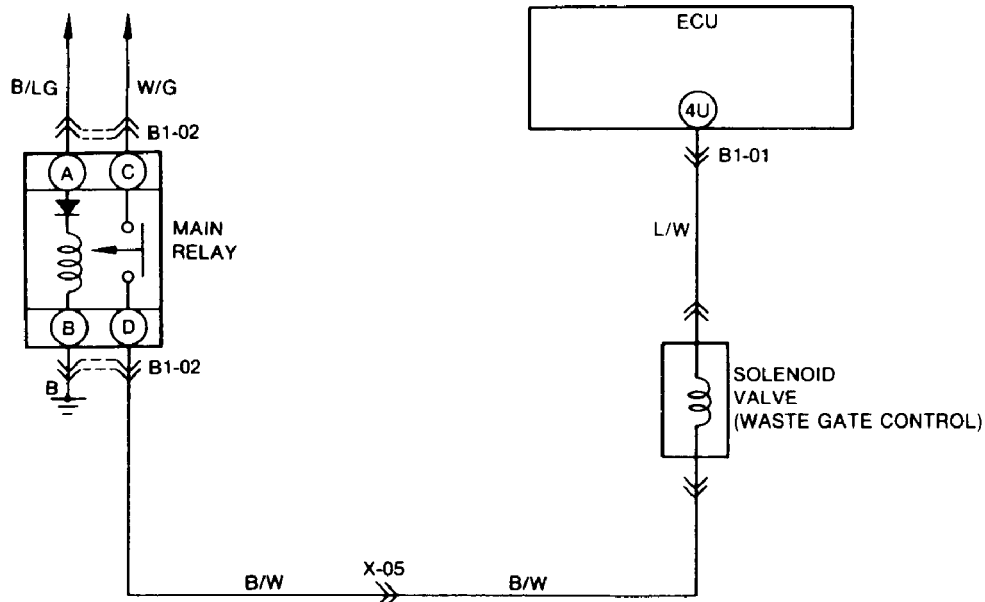
TROUBLE CODE NO. 43 (SOLENOID VALVE - WASTEGATE CONTROL)

TROUBLE CODE NO. 43 (SOLENOID VALVE – WASTEGATE CONTROL)

STEP	INSPECTION		ACTION					
1	Does solenoid valve circuit have a poor connection?		Yes	Repair connector and/or wiring harness				
			No	Go to next step				
2	Is connector terminal (B/W) voltage OK with solenoid valve connector disconnected? <table border="1"><tr><th>Condition</th><th>Voltage</th></tr><tr><td>Ignition switch ON</td><td>Battery voltage</td></tr></table>		Condition	Voltage	Ignition switch ON	Battery voltage	Yes	Go to next step
			Condition	Voltage				
			Ignition switch ON	Battery voltage				
No	Check for open or short circuit in wiring harness (Solenoid valve terminal [B/W]–Main relay terminal [B/W])							
3	Is there continuity between solenoid valve terminal (L/W) and ECU terminal 4U?		Yes	Check for short circuit in wiring harness (Solenoid valve terminal [L/W]–ECU terminal 4U) ➡ If OK, go to next step ➡ If not OK, repair wiring harness				
			No	Repair wiring harness				
4	Is solenoid valve OK?		Yes	Replace ECU				
			No	Replace solenoid valve				

93E80659

Fig. 63: Trouble Code No. 43 - Diagnostic Flowchart
Courtesy Of Mazda Motors Corp.



93H80660

Fig. 64: Trouble Code No. 43 - Schematic
Courtesy Of Mazda Motors Corp.

Monday, August 20, 2001 06:39AM



Monday, August 20, 2001 06:39AM

TROUBLE CODE NO. 45 (SOLENOID VALVE – CHARGE CONTROL)

93A80663

Fig. 67: Troubleshooting Code No. 45 - Diagnostic Flowchart
Courtesy Of Mazda Motors Corp.



Fig. 68: Trouble Code No. 45 - Schematic
Courtesy Of Mazda Motors Corp.

G - TESTS W/CODES

Article Text (p. 41)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:39AM

TROUBLE CODE NO. 46 (SOLENOID VALVE - CHARGE RELIEF CONTROL)

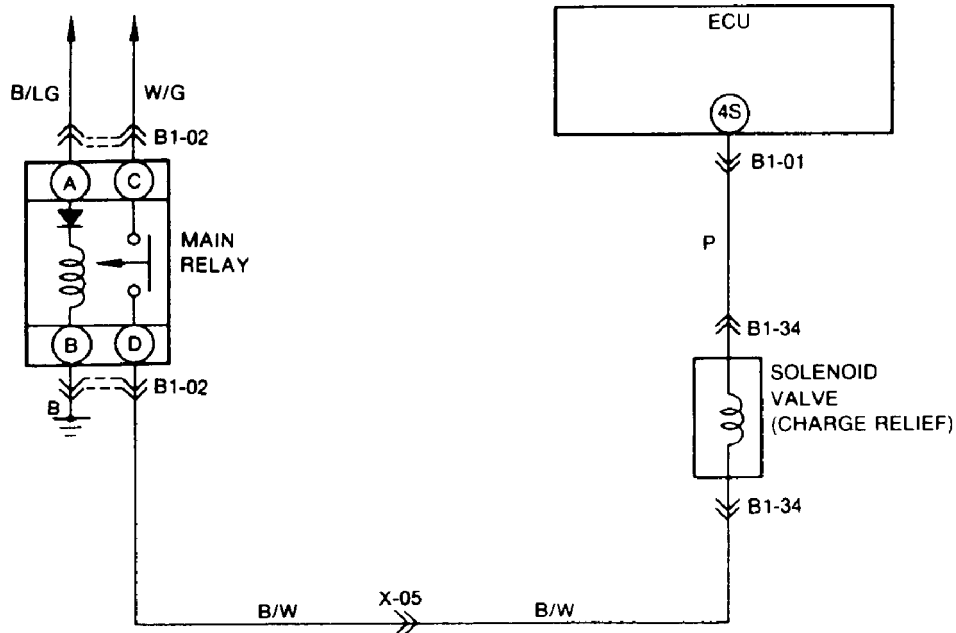
TROUBLE CODE NO. 46 (SOLENOID VALVE – CHARGE RELIEF CONTROL)

STEP	INSPECTION		ACTION			
1	Does solenoid valve circuit have a poor connection?		Yes	Repair connector and/or wiring harness		
			No	Go to next step		
2	Is connector terminal (B/W) voltage OK with solenoid valve connector disconnected?		Yes	Go to next step		
			No	Check for open or short circuit in wiring harness (Solenoid valve terminal [B/W]–Main relay terminal [B/W])		
	<table><tr><th>Condition</th><th>Voltage</th></tr><tr><td>Ignition switch ON</td><td>Battery voltage</td></tr></table>	Condition	Voltage	Ignition switch ON	Battery voltage	
Condition	Voltage					
Ignition switch ON	Battery voltage					
3	Is there continuity between solenoid valve terminal (B/R) and ECU terminal 4S?		Yes	Check for short circuit in wiring harness (Solenoid valve terminal [B/R]–ECU terminal 4S) ➡ If OK, go to next step ➡ If not OK, repair wiring harness		
			No	Repair wiring harness		
4	Is solenoid valve OK?		Yes	Replace ECU		
			No	Replace solenoid valve		

93C80665

Fig. 69: Trouble Code No. 46 - Diagnostic Flowchart

Courtesy Of Mazda Motors Corp.



93D80666

Fig. 70: Trouble Code No. 46 - Schematic

Courtesy Of Mazda Motors Corp.

G - TESTS W/CODES
Article Text (p. 42)
 1993 Mazda RX7
 For www.iluvmyrx7.com
 Copyright © 1998 Mitchell Repair Information Company, LLC
 Monday, August 20, 2001 06:39AM

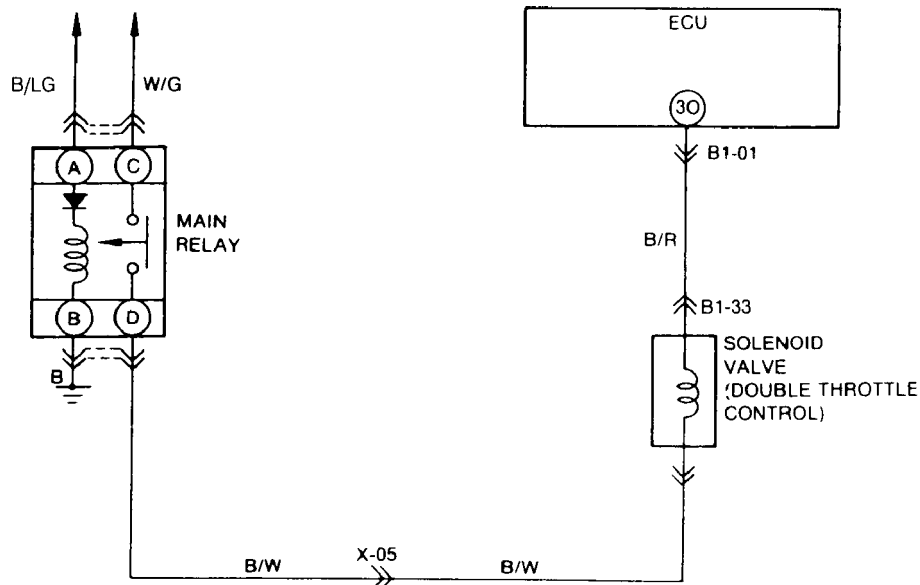
TROUBLE CODE NO. 50 (SOLENOID VALVE - DOUBLE THROTTLE CONTROL)

TRouble CODE NO. 50 (SOLENOID VALVE – DOUBLE THROTTLE CONTROL)

STEP	INSPECTION		ACTION				
1	Does solenoid valve circuit have a poor connection?	Yes	Repair connector and/or wiring harness				
		No	Go to next step				
2	Is connector terminal (B/W) voltage OK with solenoid valve connector disconnected?	Yes	Go to next step				
		No	Check for open or short circuit in wiring harness (Solenoid valve terminal [B/W]—Main relay terminal [B/W])				
	<table><tr><th>Condition</th><th>Voltage</th></tr><tr><td>Ignition switch ON</td><td>Battery voltage</td></tr></table>	Condition	Voltage	Ignition switch ON	Battery voltage		
Condition	Voltage						
Ignition switch ON	Battery voltage						
3	Is there continuity between solenoid valve terminal (B/R) and ECU terminal 30?	Yes	Check for short circuit in wiring harness (Solenoid valve terminal [B/R]—ECU terminal 30) ➡ If OK, go to next step ➡ If not OK, repair wiring harness				
		No	Repair wiring harness				
4	Is solenoid valve OK?	Yes	Replace ECU				
		No	Replace solenoid valve				

93E80667

Fig. 71: Trouble Code No. 50 - Diagnostic Flowchart
 Courtesy Of Mazda Motors Corp.



93F80668

Fig. 72: Trouble Code No. 50 - Schematic
 Courtesy Of Mazda Motors Corp.

Copyright © 1998 Mitchell Repair Information Company, LLC
Monday, August 20, 2001 06:40AM

TROUBLE CODE NO. 51 (FUEL PUMP RELAY)

Monday, August 20, 2001 06:40AM

TROUBLE CODE NO. 54 (AIR PUMP RELAY)

G - TESTS W/CODES

Article Text (p. 45)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:40AM

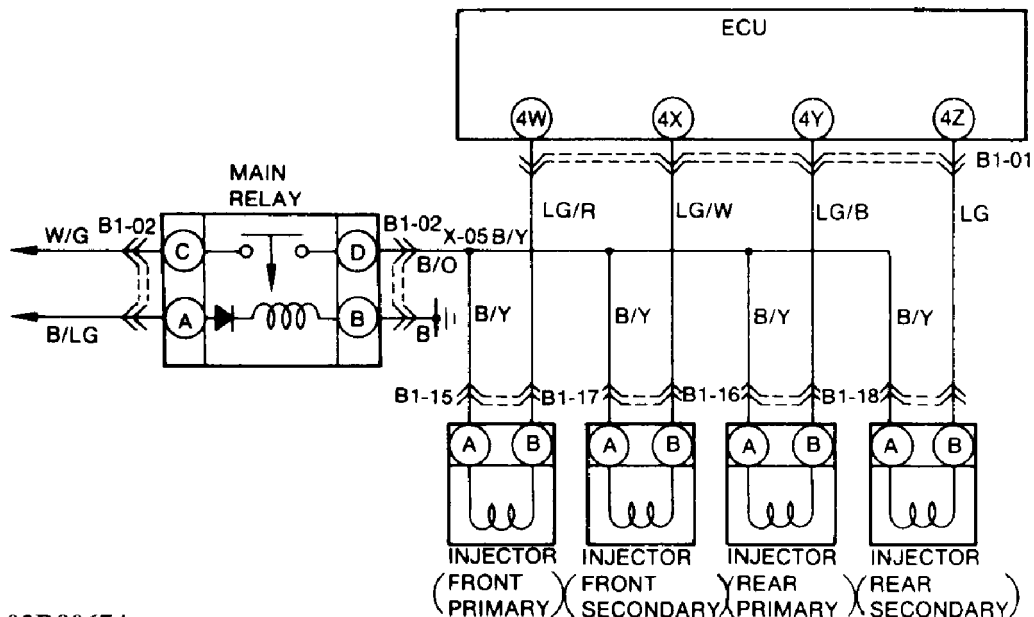
TROUBLE CODE NO. 71 (INJECTOR – FRONT SECONDARY)

STEP	INSPECTION	ACTION
1	Does injector circuit have a poor connection?	Yes
		Repair connector and/or wiring harness
2	Is connector terminal (B/Y) voltage OK with injector connector disconnected?	No
		Go to next step
		Check for open or short circuit in wiring harness (injector terminal 4X [B/Y]–Main relay terminal [B/O])
3	Is injector resistance OK? Resistance: 13.5 Ω (20°C [68°F])	Yes
		Go to next step
4	Is there continuity between injector terminal and ECU terminal?	Yes
		Check for short circuit in wiring harness Injector to ECU ➡ If OK, go to next step ➡ If not OK, repair wiring harness
5	Disconnect negative battery cable for at least 20 seconds Connect battery cable and recheck for service code Is service code displayed?	No
		Repair wiring harness
5	Disconnect negative battery cable for at least 20 seconds Connect battery cable and recheck for service code Is service code displayed?	Yes
		Replace ECU
5	Disconnect negative battery cable for at least 20 seconds Connect battery cable and recheck for service code Is service code displayed?	No
		Intermittent poor connection Check for cause

93C80673

Fig. 77: Trouble Code No. 71 – Diagnostic Flowchart

Courtesy Of Mazda Motors Corp.



93D80674

Fig. 78: Trouble Code No. 71 – Schematic

Courtesy Of Mazda Motors Corp.

G - TESTS W/CODES

Article Text (p. 46)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:40AM

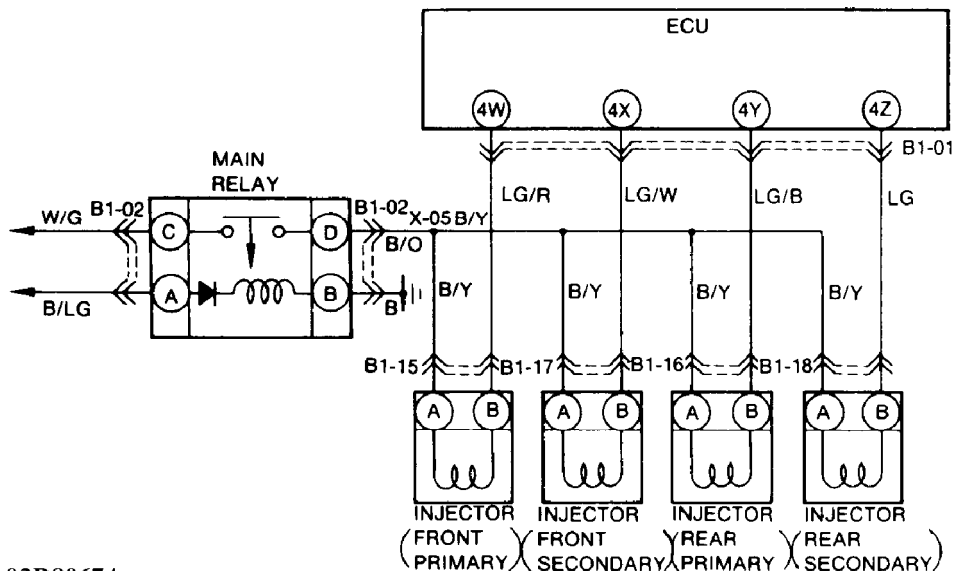
TROUBLE CODE NO. 73 (INJECTOR - REAR SECONDARY)

TROUBLE CODE NO. 73 (INJECTOR – REAR SECONDARY)

STEP	INSPECTION		ACTION			
1	Does injector circuit have a poor connection?		Yes Repair connector and/or wiring harness			
			No Go to next step			
2	Is connector terminal (B/Y) voltage OK with injector connector disconnected?		Yes Go to next step			
	<table><tr><th>Condition</th><th>Voltage</th></tr><tr><td>Ignition switch ON</td><td>Battery voltage</td></tr></table>		Condition	Voltage	Ignition switch ON	Battery voltage
Condition	Voltage					
Ignition switch ON	Battery voltage					
3	Is injector resistance OK ? Resistance: 13.8 Ω (20°C [68°F])		Yes Go to next step			
			No Replace injector			
4	Is there continuity between injector terminal and ECU terminal?		Yes Check for short circuit in wiring harness Injector to ECU ➡ If OK, go to next step ➡ If not OK, repair wiring harness			
	<table><tr><th>INJECTOR</th><th>ECU</th></tr><tr><td>Rear (LG)</td><td>4Z</td></tr></table>		INJECTOR	ECU	Rear (LG)	4Z
INJECTOR	ECU					
Rear (LG)	4Z					
5	Disconnect negative battery cable for at least 20 seconds Connect battery cable and recheck for service code Is service code displayed?		Yes Replace ECU			
			No Intermittent poor connection Check for cause			

93E80675

Fig. 79: Trouble Code No. 73 - Diagnostic Flowchart
Courtesy Of Mazda Motors Corp.



93D80674

Fig. 80: Trouble Code No. 73 - Schematic
Courtesy Of Mazda Motors Corp.

G - TESTS W/CODES

Article Text (p. 47)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:40AM

TROUBLE CODE NO. 76 (SLIP LOCK-UP OFF SIGNAL)

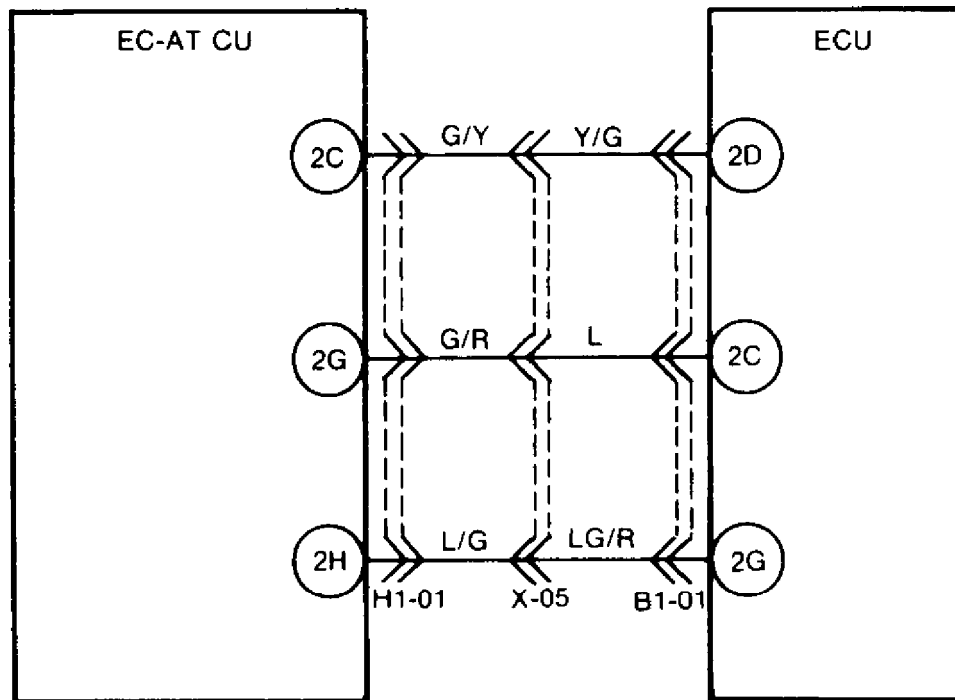
TROUBLE CODE NO. 76 (SLIP LOCK-UP OFF SIGNAL)

STEP	INSPECTION		ACTION
1	Is there poor connection in Lockup off signal circuit between ECU and EC-AT CU?	Yes	Repair or replace connector
		No	Go to next step
2	Is there continuity between ECU terminal 2G and EC-AT CU terminal 2H	Yes	Go to next step
		No	Check for open circuit in wiring from EC-AT CU to ECU
3	Is EC-AT CU terminal 2H voltage OK?	Yes	Go to next step
		No	Check for cause
4	Is ECU terminal 2G voltage OK?	Yes	Replace ECU
		No	Check for short circuit in wiring from EC-AT CU to ECU

93F80676

Fig. 81: Trouble Code No. 76 - Diagnostic Flowchart

Courtesy Of Mazda Motors Corp.



93G80677

Fig. 82: Trouble Code No. 76 - Schematic

Courtesy Of Mazda Motors Corp.

TROUBLE CODE NO. 77 (TORQUE REDUCED SIGNAL)

G - TESTS W/CODES

Article Text (p. 48)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

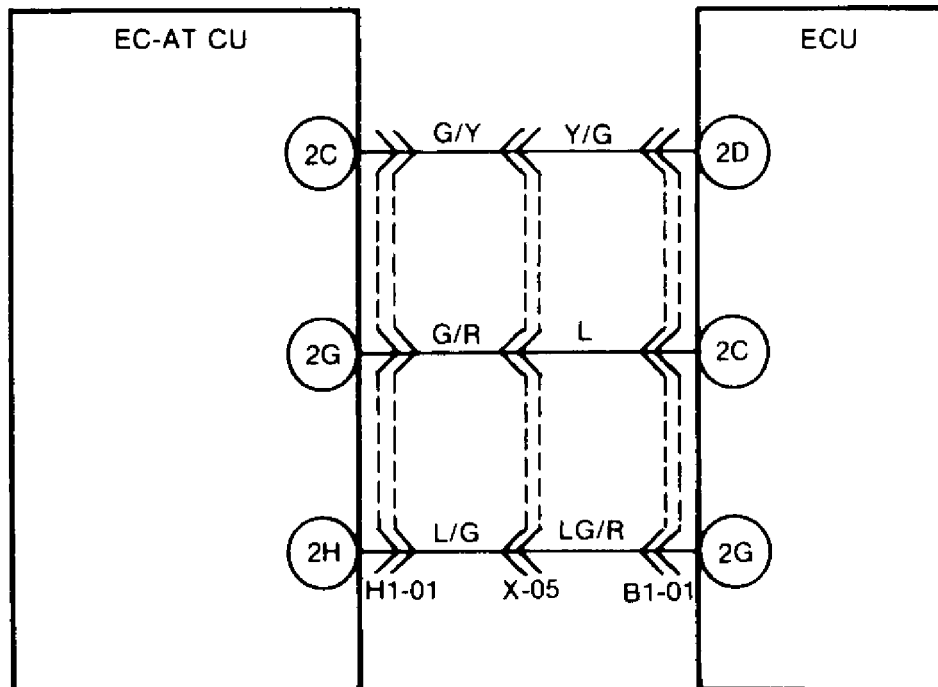
Monday, August 20, 2001 06:40AM

TROUBLE CODE NO. 77 (TORQUE REDUCED SIGNAL)

STEP	INSPECTION		ACTION
1	Is there poor connection in Torque reduced signal circuit between ECU and EC-AT CU?	Yes	Repair or replace connector
		No	Go to next step
2	Is there continuity between ECU terminal 2D and EC-AT CU terminal 2C	Yes	Go to next step
		No	Check for open circuit in wiring from EC-AT CU to ECU
3	Is EC-AT CU terminal 2C voltage OK?	Yes	Go to next step
		No	Check for cause
4	Is ECU terminal 2D voltage OK?	Yes	Replace ECU
		No	Check for short circuit in wiring from EC-AT CU to ECU

93H80678

Fig. 83: Trouble Code No. 77 - Diagnostic Flowchart
Courtesy Of Mazda Motors Corp.



93G80677

Fig. 84: Trouble Code No. 77 - Schematic
Courtesy Of Mazda Motors Corp.

G - TESTS W/CODES

Article Text (p. 49)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:40AM

SUMMARY

If no hard fault codes (or only pass codes) are present, driveability symptoms exist or intermittent codes exist, proceed to H - TESTS W/O CODES article for diagnosis by symptom (i.e., ROUGH IDLE, NO START, etc.) or intermittent diagnostic procedures.

END OF ARTICLE

H - TESTS W/O CODES

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:41AM

ARTICLE BEGINNING

1993 ENGINE PERFORMANCE

Trouble Shooting - No Codes

B2200, B2600i, Miata, MPV, MX-3, MX-6,
Navajo, Protege, RX7, 323, 626, 929

INTRODUCTION

Before diagnosing symptoms or intermittent faults, perform steps in F - BASIC TESTING article and appropriate G - TESTS W/CODES article. Use this article to diagnose driveability problems existing when a hard fault code is not present or vehicle is not equipped with a self-diagnostic system.

NOTE: Some driveability problems may have been corrected by manufacturer with a revised computer calibration chip or computer control unit. Check with manufacturer for latest chip or computer application.

Symptom checks can direct the technician to malfunctioning components for further diagnosis. A symptom should lead to a specific component, system test or adjustment.

Use intermittent test procedures to locate driveability problems that do not occur when the vehicle is being tested. These test procedures should also be used if a soft (intermittent) trouble code was present but no problem was found during self-diagnostic testing.

NOTE: For specific testing procedures, see appropriate information I - SYSTEM/COMPONENT TESTS article. For specifications, see appropriate article listed below:

D - ADJUSTMENTS

C - SPECIFICATIONS

SYMPTOMS

SYMPTOM DIAGNOSIS

Symptom checks cannot be used properly unless problem occurs while vehicle is being tested. To reduce diagnostic time, ensure steps in F - BASIC TESTING article and appropriate G - TESTS W/CODES article were performed before diagnosing a symptom. Following symptoms are available for diagnosis:

- * Difficult To Start Or Will Not Start
- * Rough Or Unstable Idle
- * High Idle After Warm Up
- * Engine Stalls

H - TESTS W/O CODES

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:41AM

- * Engine Misfires Or Has Lack Of Power
- * Engine Runs Rough On Deceleration
- * Backfire In Exhaust System
- * Poor Fuel Mileage
- * Excessive Oil Consumption
- * Abnormal Noise Or Knocking

DIFFICULT TO START OR WILL NOT START

Carbureted Models (B2200 Federal)

- * Check battery condition.
- * Ensure sufficient secondary spark is available.
- * Verify choke valve is closed (engine cold).
- * Verify choke valve is open (engine hot).
- * Ensure fuel level is at specified mark on carburetor sight glass.
- * Check mixture control valve operation.
- * Check for vacuum leaks.
- * Check for correct vacuum hose routing.
- * Check slow fuel-cut solenoid valve operation. A click should be heard from solenoid valve as ignition is cycled on and off.
- * Check duty solenoid valve for correct switching.
- * Check charcoal canister operation by clamping hose(s) shut. If problem goes away, check vacuum hose routing. If routing is correct, replace charcoal canister.
- * Ensure fuel system pressure is correct.
- * Ensure winter grade fuel is not used in warm climate conditions.
- * Ensure exhaust system is not restricted.

Fuel Injected Models

- * Check battery condition.
- * Check condition of spark plugs.
- * Ensure fuel system pressure is correct.
- * Check Electronic Fuel Injection (EFI) main fuse located in fuse box (if equipped).
- * Ensure inertia switch circuit is not open (Navajo).
- * Verify crank angle sensor has correct resistance values (MX-3 1.8L, Navajo, RX-7 and 929).
- * Verify optical sensor is working (Miata, Protege and 323).
- * Check coolant temperature sensor resistance.
- * Verify Hall-Effect sensor is working (MX-3, MX-6, 626 and 929).
- * Check for leaky fuel injectors or pressure regulator causing warm-engine no start.
- * Check fuel pump relay operation. A click should be heard from relay as ignition switch is cycled on and off.
- * Check distributor pick-up coil resistance (if equipped).
- * Ensure pressure regulator control system is okay.
- * Check air intake system for restriction.
- * Check EGR valve and solenoid for correct operation.

H - TESTS W/O CODES

Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:41AM

- * Check for cracks and poor connections at airflow meter or throttle body.
- * Check ignition coil resistance.

ROUGH OR UNSTABLE IDLE

Carbureted Models (B2200 Federal)

- * Ensure no vacuum leaks exist.
- * Verify vacuum hose routing is correct.
- * Ensure fuel level is at specified mark on carburetor sight glass.
- * Check PCV operation by clamping hose shut. If problem goes away, replace PCV valve.
- * Check EGR valve condition and operation.
- * Verify ignition timing is correct.
- * Briefly remove each spark plug wire to determine if problem can be isolated.
- * Verify mixture control solenoid operation is correct.

Fuel Injected Models

- * Use stethoscope to verify fuel injector operating noise.
- * Ensure fuel system pressure is correct.
- * Check EGR valve condition and operation.
- * Verify ignition timing is correct.
- * Check PCV valve.
- * Check airflow sensor.
- * Check coolant thermosensor for correct resistance.
- * Check idle air control valve function.
- * Check for cracks and poor connections (vacuum leaks) at airflow meter or throttle body.
- * Check O2 sensor for fluctuating 0.1-1.0 volt output while increasing and decreasing engine RPM.
- * Verify throttle position sensor has correct adjustment and resistance value.
- * Check purge valve function.
- * Check for poor fuel quality.

HIGH IDLE AFTER WARM UP

Carbureted Models (B2200 Federal)

- * Ensure no vacuum leaks are present.
- * Check choke and fast idle cam adjustment and operation.
- * Check throttle cable adjustment.
- * Verify ignition timing is correct.
- * Verify dashpot disengages throttle lever at 1900-2100 RPM.

Fuel Injected Models

- * Verify correct throttle body dashpot adjustment (if equipped).
- * Check idle air control valve and ISC valve operation.
- * Check air intake system for leaks or restriction.
- * Check throttle cable adjustment.

H - TESTS W/O CODES

Article Text (p. 4)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:41AM

- * Check coolant temperature sensor resistance.
- * Ensure fuel system pressure is correct.
- * Check airflow meter for cracks. Verify correct airflow operation and resistance value.
- * Check ignition timing.

ENGINE STALLS

Carbureted Models (B2200 Federal)

- * Ensure correct choke adjustment and operation.
- * Check ignition system for intermittent operation.
- * Ensure idle mixture adjustment is correct.
- * Check vacuum hoses for leakage and correct routing.
- * Check PCV operation by clamping hose shut. If problem goes away, replace PCV valve.
- * Check A/C cut-off system.
- * Check altitude compensator valve operation.
- * Check EGR valve condition and operation.

Fuel Injected Models (Cold)

- * Ensure air filter element is clean.
- * Check fuel filter for restriction.
- * Check EGR valve condition and operation.
- * Check for airflow meter or ISC valve malfunction.
- * Ensure fuel system pressure is correct.
- * Check air intake system for vacuum leaks.
- * Check coolant temperature sensor resistance.
- * Verify correct throttle position sensor adjustment and resistance value.
- * Check neutral switch (M/T) or inhibitor switch (A/T).

Fuel Injected Models (Warm)

- * Check PCV system for restrictions.
- * Check air valve or ISC valve for malfunction.
- * Check connections at airflow meter or throttle body.
- * Check operation of lock-up torque converter.
- * Check coolant temperature sensor resistance.
- * Ensure fuel system pressure is correct. Use ohmmeter to verify correct fuel injector resistance.
- * Check throttle bore for dirt and carbon.

ENGINE MISFIRES OR HAS LACK OF POWER

Carbureted Models (B2200 Federal)

- * Ensure fuel level is at specified mark on carburetor sight glass.
- * Ensure fuel system pressure is correct.
- * Check fuel filter for restriction.
- * Verify base timing is correct and advance system is functional.
- * Check EGR valve operation.
- * Check for restricted catalytic converter.

H - TESTS W/O CODES

Article Text (p. 5)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:41AM

- * Check ignition system for intermittent operation.
- * Check carburetor mixture control duty cycle using dwell meter.

Fuel Injected Models

- * Verify air filter is clean.
- * Check fuel filter for restriction.
- * Check vacuum switching valve operation.
- * Check coil resistance.
- * Check airflow meter for cracks.
- * Check EGR valve and solenoid for correct operation (if equipped).
- * Check purge control valve operation.
- * Check airflow operation and resistance value.
- * Check atmospheric pressure sensor.
- * Check ignition system for intermittent operation.
- * Check for restricted catalytic converter.
- * Check Variable Resonance Induction System (VRIS) for correct operation (if equipped).
- * Check Variable Inertia Charge System (VICS) for correct operation (if equipped).
- * Verify crank angle sensor (permanent magnet type) has correct resistance values.
- * Check A/C cut-off system (if equipped).
- * Ensure fuel system pressure is correct.
- * Check turbocharger system (if equipped) for wear or malfunctioning parts. Turbo system inspection should include the following:
 - * Turbo Precontrol
 - * Wastegate Control
 - * Turbo Control
 - * Charge Control
 - * Charge Relief

ENGINE RUNS ROUGH ON DECELERATION

Fuel Injected Models

- * Verify idle speed is correct.
- * Verify correct throttle body dashpot adjustment.
- * Check coolant thermosensor and throttle position sensor.
- * Check air valve or ISC valve for malfunction.
- * Check fuel pressure regulator.
- * Check O2 sensor operation.
- * Check throttle position sensor.
- * Check airflow sensor operation.

BACKFIRE IN EXHAUST SYSTEM

Carbureted Models (B2200 Federal)

- * Verify base timing is correct and timing advance system is functional.
- * Ensure air filter element is clean.

H - TESTS W/O CODES

Article Text (p. 6)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:41AM

- * Check neutral switch (M/T) or inhibitor switch (A/T).
- * Check mixture control valve.
- * Check pulse air injection system.
- * Verify dashpot disengages throttle lever at 2700-2900 RPM.
- * Check air cleaner reed valves.
- * Verify no leaks exist in exhaust system.

Fuel Injected Models

- * Verify base timing is correct and advance system is functional.
- * Ensure air filter element is clean.
- * Check throttle body dashpot adjustment (if equipped).
- * Check coolant temperature sensor and throttle position sensor.
- * Check air valve, ISC switch and idle switch operation.
- * Check intake air system and throttle body electrical connections for vacuum leaks.
- * Ensure fuel system pressure is correct.
- * Verify no leaks exist in exhaust system.

POOR FUEL MILEAGE

Carbureted Models (B2200 Federal)

- * Verify correct carburetor idle speed and fuel mixture adjustment.
- * Verify base timing is correct and timing advance system is functional.
- * Ensure air intake system is unrestricted.
- * Verify choke is fully open after engine is warm.
- * Ensure fuel level is at specified mark on carburetor sight glass.
- * Check carburetor mixture control duty cycle using dwell meter.

Fuel Injected Models

- * Check injectors for leakage.
- * Verify correct throttle body dashpot adjustment.
- * Ensure correct throttle position sensor adjustment and resistance value.
- * Check intake air and coolant temperature sensor.
- * Ensure fuel system pressure is correct.
- * Ensure exhaust system is unrestricted.

EXCESSIVE OIL CONSUMPTION

- * Check for restricted PCV system.
- * Check turbo system for malfunction.
- * Check metering oil pump (RX-7).
- * Check for worn engine parts.

ABNORMAL NOISE OR KNOCKING

H - TESTS W/O CODES

Article Text (p. 7)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 06:41AM

Fuel Injected Models

- * Check engine oil and coolant level.
 - * Check turbo system (if equipped) for damage and wear.
 - * Check engine control system for malfunctioning components.
- System inspection should include following components:

- * Airflow Meter
- * Idle Switch
- * Vacuum Routing (For Leaks)
- * Neutral Safety Switch (A/T)
- * Clutch Switch (M/T)
- * EGR Valve Position Sensor (If Equipped)
- * Knock Sensor (If Equipped)
- * Throttle Position Sensor
- * Coolant Temperature Sensor
- * Coolant Thermostat
- * Inhibitor Switch (A/T)
- * Electronic Controlled Automatic Transmission (ECAT) Unit

INTERMITTENTS

INTERMITTENT PROBLEM DIAGNOSIS

Intermittent fault testing requires duplicating circuit or component failure to identify problem. These procedures may lead to computer setting a fault code (on some systems) which may help in diagnosis.

If problem vehicle does not produce fault codes, monitor voltage or resistance values using a DVOM while attempting to reproduce conditions causing intermittent fault. A status change on DVOM indicates a fault has been located.

Use a DVOM to pinpoint faults. When monitoring voltage, ensure ignition switch is in ON position or engine is running. Ensure ignition switch is in OFF position or negative battery cable is disconnected when monitoring circuit resistance. Status changes on DVOM during test procedures indicate area of fault.

TEST PROCEDURES

Intermittent Simulation

To reproduce conditions creating an intermittent fault, use the following methods:

- * Lightly vibrate component.
- * Heat component.
- * Wiggle or bend wiring harness.
- * Spray component with water.
- * Remove/apply vacuum source.

Monitor circuit/component voltage or resistance while simulating intermittent. If engine is running, monitor for self-diagnostic codes. Use test results to identify a faulty component or

H - TESTS W/O CODES

Article Text (p. 8)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Monday, August 20, 2001 06:41AM

circuit.

END OF ARTICLE

I - SYSTEM/COMPONENT TESTS - EFI

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Monday, August 20, 2001 07:16AM

ARTICLE BEGINNING

1993 ENGINE PERFORMANCE

Mazda System & Component Testing - Fuel Injection

B2200, B2600i, Miata, MPV, MX-3, MX-6,
Navajo, Protege, RX7, 323, 626, 929

INTRODUCTION

Before testing separate components or systems, perform procedures in F - BASIC TESTING article. Since many computer-controlled and monitored components set a trouble code if they malfunction, also perform procedures in H - TESTS W/O CODES article.

NOTE: Testing individual components does not isolate shorts or opens. Perform all voltage tests using a Digital Volt-Ohmmeter (DVOM) with a minimum 10-megohm input impedance, unless stated otherwise in test procedure. Use ohmmeter to isolate wiring harness shorts or opens.

AIR INDUCTION SYSTEMS

TURBOCHARGER (RX7)

Air By-Pass Valve

Remove air by-pass valve. Connect vacuum pump to port "A" of valve. See Fig. 1. Apply 10 in. Hg to port "A", and blow air into port "B". Replace air by-pass valve if air does not flow from port "B" to port "C".

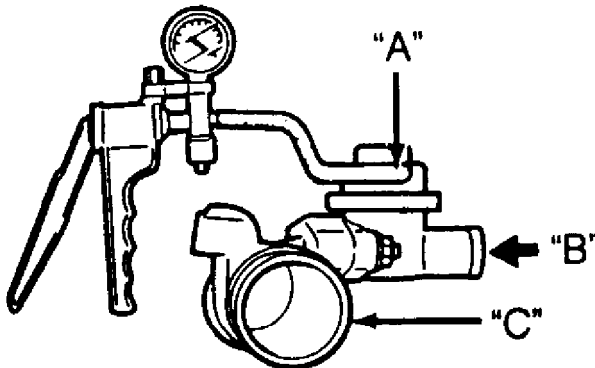


Fig. 1: Testing Air By-Pass & Charge Relief Valves (RX7)
Courtesy of Mazda Motors Corp.

Compressor & Turbine Wheel Deflection

Allow engine to cool. Remove air intake tube. Turn compressor wheel. Replace turbocharger if wheel does not turn freely or if wheel touches housing.

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:16AM

Charge Relief Valve

Remove charge relief valve. Connect vacuum pump to port "A" of valve. See Fig. 1. Apply 8 in. Hg to port "A", and blow air into port "B". Replace charge relief valve if air does not flow from port "B" to port "C".

Intercooler

Remove intercooler. Inspect for cracks, restriction or damage. Replace as necessary.

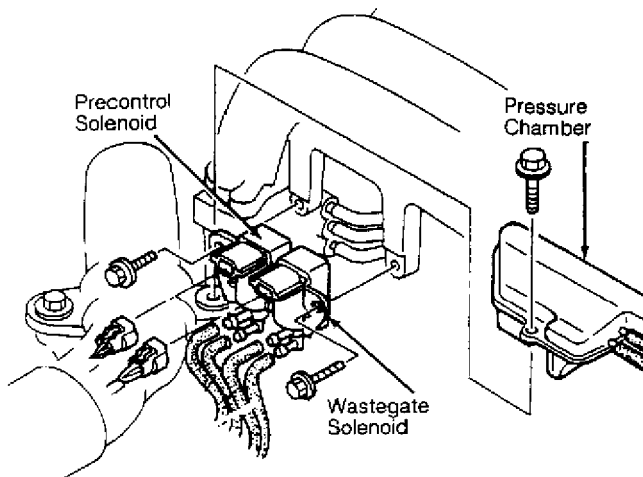
Oil Passage Inspection

Ensure engine is cool. Remove oil return pipe. Verify oil passage in turbocharger and oil return pipe are not blocked with carbonized oil. Replace turbocharger and return pipe as necessary.

Solenoid Valves (Turbo Precontrol & Wastegate Control)

1) Remove pressure chamber from intake manifold. Disconnect vacuum hoses. Disconnect solenoid valve connector and solenoid valves. Blow air through air tube and verify air does not flow. If air flows, replace solenoid valve.

2) Apply 12 volts and ground to solenoid valve connector. See Fig. 2. Blow air through air tube and verify air passes freely. If air does not pass freely with 12 volts applied, replace solenoid valve.



93G80321

Fig. 2: Testing Solenoid Valves (RX7)

Courtesy of Mazda Motors Corp.

Charge Actuator

1) Ensure engine is cool. Remove hose connected to actuator. Connect vacuum pump to charge actuator. See Fig. 3.

2) Apply 2 in. Hg to charge actuator. Ensure actuator rod moves when vacuum is applied. If actuator rod does not move, replace charge actuator.

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:16AM

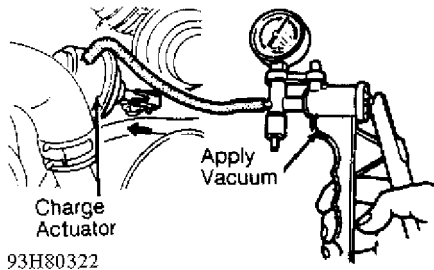


Fig. 3: Testing Charge Actuator (RX7)
Courtesy of Mazda Motors Corp.

Control Actuator

1) Ensure engine is cool. Remove hose connected to actuator. Connect air pressure source to pressure gauge. See Fig. 4. Apply air pressure to actuator.

CAUTION: DO NOT allow pressure to exceed 11 psi (.8 kg/cm²).

2) Apply 7 psi (0.5 kg/cm²) of compressed air. Ensure actuator rod moves when air pressure is applied. If actuator rod does not move, replace control actuator.

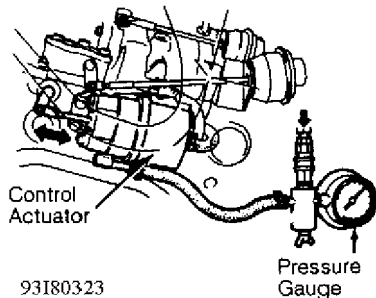


Fig. 4: Testing Control Actuator (RX7)
Courtesy of Mazda Motors Corp.

Precontrol Actuator

1) Ensure engine is cool. Remove hose connected to actuator. Connect air pressure source to pressure gauge. See Fig. 5. Apply air pressure to actuator.

CAUTION: DO NOT allow pressure to exceed 14 psi (1.0 kg/cm²).

2) Apply 10-14 psi (0.7-1.0 kg/cm²) of compressed air. Ensure actuator rod moves when air pressure is applied. If actuator rod does not move, replace precontrol actuator.

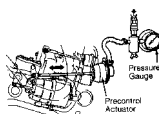


Fig. 5: Testing Precontrol Actuator (RX7)
Courtesy of Mazda Motors Corp.

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 4)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:16AM

Wastegate Actuator

1) Ensure engine is cool. Remove hose connected to actuator. Connect air pressure source to pressure gauge. See Fig. 6. Apply air pressure to actuator.

CAUTION: DO NOT allow pressure to exceed 14 psi (1.0 kg/cm²).

2) Apply 10-14 psi (0.7-1.0 kg/cm²) of compressed air. Ensure actuator rod moves when air pressure is applied. If actuator rod does not move, replace wastegate actuator.

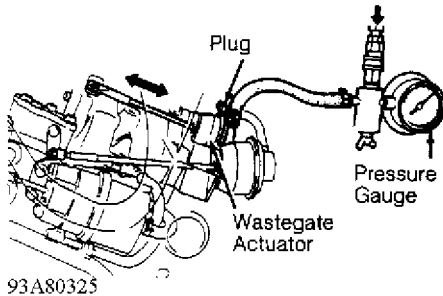


Fig. 6: Testing Wastegate Actuator (RX7)
Courtesy of Mazda Motors Corp.

DOUBLE THROTTLE CONTROL (RX7)

System Check

1) With engine cold, start engine. Ensure actuator rod is pulled in. See Fig. 7. If rod is not pulled in, check operation of coolant thermosensor and solenoid valve. Also check and repair any vacuum leaks. Apply vacuum to double throttle actuator. If rod does not pull in, replace double throttle actuator.

2) Warm engine until engine coolant temperature is greater than 176°F (80°C). Ensure actuator rod extends. If rod does not extend, check operation of coolant thermosensor and solenoid valve.

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 5)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:16AM

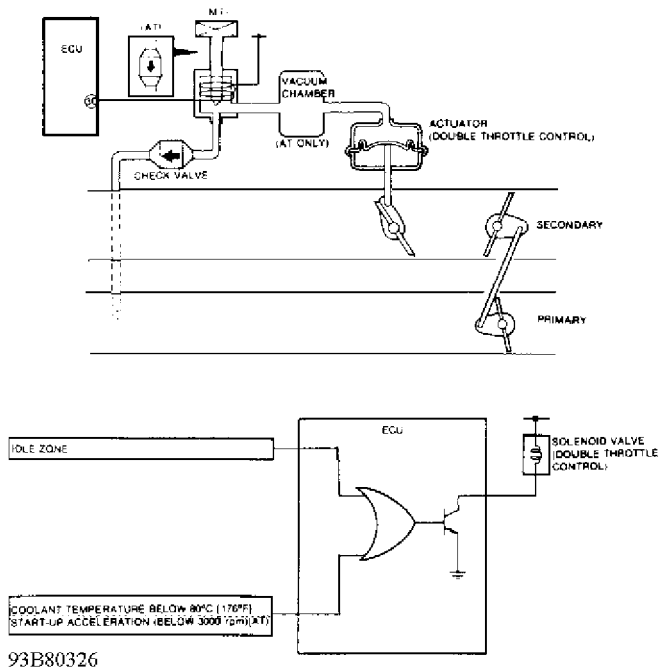


Fig. 7: View Of Double Throttle Control System (RX7)

VARIABLE INERTIA CHARGING SYSTEM (PROTEGE DOHC & 929)

System Check (Protege DOHC)

Connect tachometer to IG terminal of diagnostic connector.

See Fig. 8. Start engine, and operate it at idle. Ensure shutter valve actuator rod is retracted at idle. See Fig. 9. Gradually increase engine speed to 5000 RPM and ensure actuator rod extends. If necessary, check Variable Inertia Charging System (VICS) components.

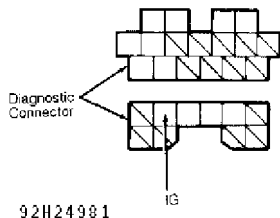


Fig. 8: Diagnostic Connector Terminal ID (MX-3 DOHC & Protege DOHC)
Courtesy of Mazda Motors Corp.

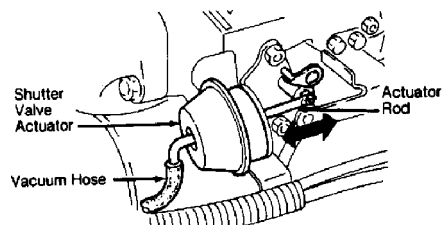


Fig. 9: Locating Shutter Valve Actuator & Rod
Courtesy of Mazda Motors Corp.

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 6)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:16AM

System Check (929)

Start engine, and operate it at idle. Ensure shutter valve actuator rod is retracted at idle. See Fig. 9. Actuator rod should extend when engine is started, for 5 seconds after engine is started and when engine is operating at 1100-4800 RPM with throttle opened in "D" range. If necessary, check Variable Inertia Charging System (VICS) components.

Check Valve (929)

Remove check valve. Blow air through port "A", and verify flow through port "B". Ensure air does not flow in reverse direction. Replace as necessary.

Solenoid Valve

Remove solenoid valve. Blow air through port "B". See Fig. 10. Ensure air flows from valve air filter. Connect 12 volts and a ground to solenoid valve terminals. Blow air through valve port "B", and ensure air flows from port "A". Replace solenoid valve as necessary.

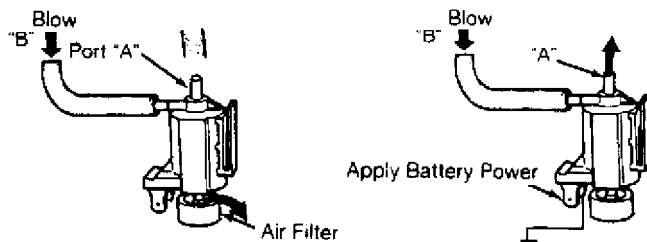


Fig. 10: Testing Solenoid Valve
Courtesy of Mazda Motors Corp.

Shutter Valve Actuator (Protege DOHC)

Disconnect vacuum hose from shutter valve actuator. See Fig. 9. Ensure shutter valve rod moves in and out smoothly. Place finger over hose. Ensure vacuum is present at idle. Reconnect vacuum hose on actuator and ensure rod retracts. Replace as necessary.

Shutter Valve Actuator (929)

Disconnect vacuum hose from shutter valve actuator. See Fig. 9. Connect vacuum pump to actuator. Apply vacuum and verify shutter valve rod retracts. Replace as necessary.

Shutter Valve (929)

Shutter valve stopper bolt is preset at factory. DO NOT adjust shutter valve stopper bolt. Remove shutter valve actuator. Ensure shutter valve rotates smoothly. See Fig. 11. Replace dynamic chamber if valve is stuck or does not rotate smoothly.

I - SYSTEM/COMPONENT TESTS - EFI

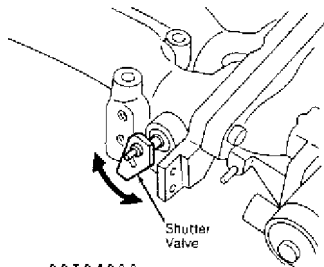
Article Text (p. 7)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:16AM



92I24982

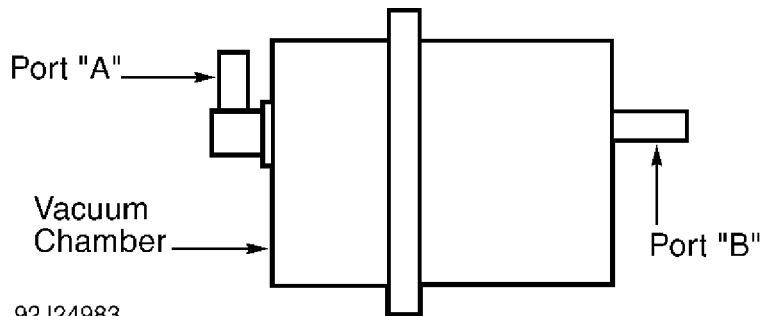
Fig. 11: Checking Shutter Valve Rotation (929)
Courtesy of Mazda Motors Corp.

Vacuum Chamber (Protege DOHC)

Remove vacuum chamber. Blow air through port "A" and verify flow through port "B". See Fig. 12. Ensure air does not flow in reverse direction. Replace as necessary.

Vacuum Chamber (929)

Remove vacuum chamber. Visually inspect vacuum chamber for clogging, cracks and damage. Replace as necessary.



92J24983

Fig. 12: Testing Vacuum Chamber (Protege DOHC)
Courtesy of Mazda Motors Corp.

VARIABLE RESONANCE INDUCTION SYSTEM (MPV 3.0L, MX-3 DOHC, MX-6 2.5L & 626 2.5L)

System Check (MX-3 DOHC, MX-6 2.5L & 626 2.5L)

Connect tachometer to IG terminal of diagnostic connector.

See Fig. 8. Start engine, and operate it at idle. Manually open throttle valve. Ensure shutter valve actuator rods No. 1 and 2 retract at specified RPM. See VRIS RPM SPECIFICATIONS table. See Fig. 13. If necessary, check Variable Resonance Induction System (VRIS) components.

VRIS RPM SPECIFICATIONS TABLE

RPM	Position
-----	----------

MX-3 DOHC

Shutter Valve Actuator Rod No. 1

Less Than 1900	Closed
1900-2600	Open

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 8)

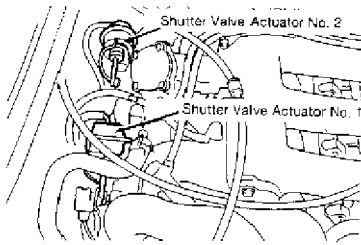
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:16AM

2600-4000	.....	Closed
4000-6300	.....	Open
Greater Than 6300	.....	Closed
Shutter Valve Actuator Rod No. 2		
Less Than 1900	.....	Closed
1900-2600	.....	Open
2600-4700	.....	Closed
4700-6300	.....	Open
Greater Than 6300	.....	Closed
MX-6 2.5L & 626 2.5L		
Shutter Valve Actuator Rod No. 1		
Less Than 3250	.....	Closed
3250-4250	.....	Open
4250-6250	.....	Open
Greater Than 6250	.....	Closed
Shutter Valve Actuator Rod No. 2		
Less Than 3250	.....	Closed
3250-4250	.....	Closed
4250-6250	.....	Open
Greater Than 6250	.....	Closed
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA		



92A24984

Fig. 13: Locating Shutter Valve Actuators (MX-3 DOHC, MX-6 2.5L & 626 2.5L)

Courtesy of Mazda Motors Corp.

Check Valve

Remove check valve. Blow air through port "A" and verify flow through port "B". Ensure air does not flow in reverse direction. Replace as necessary.

Shutter Valve Actuator (MPV 3.0L)

1) Remove shutter valve actuator protector cover. Remove "C" clip. Disconnect shutter valve actuator vacuum hose. See Fig. 9. Remove shutter valve actuator.

2) Apply vacuum to shutter valve actuator. See Fig. 14. Ensure rod retracts into actuator. Replace shutter valve actuator if rod does not retract. With shutter valve actuator removed, ensure shutter valve rod moves smoothly. Replace as necessary.

Shutter Valve Actuators (MX-3 DOHC, MX-6 2.5L & 626 2.5L)

Disconnect vacuum hose from shutter valve actuators No. 1 and 2. See Fig. 9 or 13. Connect vacuum pump to actuator. See Fig. 14. Apply vacuum to each actuator separately and verify shutter valve rod

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 9)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:16AM

retracts. Replace actuator as necessary.

Solenoid Valve

Disconnect vacuum hose from solenoid valve port "A". Blow air through port "B". See Fig. 10. Ensure air flows from valve air filter. Disconnect solenoid valve connector, and connect 12 volts and a ground to solenoid valve terminals. Blow air through valve port "B", and ensure air flows from port "A". Replace solenoid valve as necessary.

Vacuum Chamber

Remove vacuum chamber. Visually inspect chamber for clogging, cracks and damage. Replace as necessary.

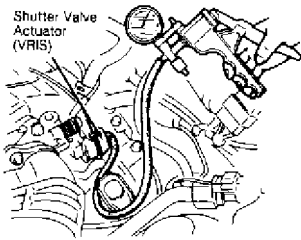


Fig. 14: Testing Shutter Valve Actuator (MPV 3.0L, MX-3 DOHC, MX-6 2.5L & 626 2.5L)

Courtesy of Mazda Motors Corp.

COMPUTERIZED ENGINE CONTROLS

POWERTRAIN CONTROL MODULE (NAVAJO)

Ground Circuits

1) Locate Powertrain Control Module (PCM) behind right kick panel. Using a DVOM, check for continuity to ground on PCM terminals No. 40 and 60. See Fig. 15. Reading on DVOM should be zero ohms. If reading is not zero ohms, repair open to ground.

2) Using a voltmeter, touch negative lead of voltmeter to a good ground. Touch positive lead of voltmeter to each ground terminal. With engine running, voltmeter should indicate less than one volt. If reading is one volt or more, check for open, corrosion and loose connection on ground lead.

Power Circuits

Using a voltmeter, check for battery voltage between PCM terminal No. 1 (constant battery power) and ground. Check for battery voltage at terminals No. 37 and 57 with ignition on. If battery voltage is not present, power is not being supplied from EEC power relay. See CIRCUIT TEST B in G - TESTS W/CODES article in the ENGINE PERFORMANCE section.

I - SYSTEM/COMPONENT TESTS - EFI

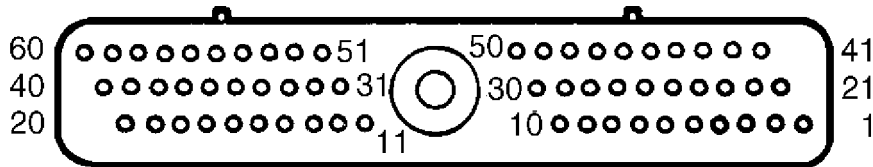
Article Text (p. 10)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:16AM



90I09354
Fig. 15: Identifying PCM 60-Pin Connector Terminals (Navajo)
Courtesy of Mazda Motors Corp.

POWERTRAIN CONTROL MODULE (EXCEPT NAVAJO)

1) Locate Electronic Control Unit (ECU) or Powertrain Control Module (PCME). See ECU/PCME LOCATION table. Connect Engine Signal Monitor (49-9200-162) to ECU/PCME. See Fig. 16. Check voltage at each terminal of ECU/PCME. If input and output component voltage readings are not as specified, check faulty component. See appropriate J - PIN VOLTAGE CHARTS article, appropriate information in G - TESTS W/CODES article in the ENGINE PERFORMANCE section, and testing for appropriate component in this article.

2) If input and output component voltages are as specified and ECU/PCME voltage is incorrect, replace ECU/PCME.

CAUTION: DO NOT apply voltage to terminals "A" and "B" of engine signal monitor. See Fig. 16.

ECU/PCME LOCATION TABLE

Application		Location
B2200, B2600i, RX7 & 929	.....	Behind Passenger Front Side Trim Panel
Miata & MPV	.....	Under Passenger Front Floor Mat
MX-3, Protege & 323	.....	Behind Center Console
MX-6 & 626	.....	Behind Center Console Top Cover

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 11)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:16AM

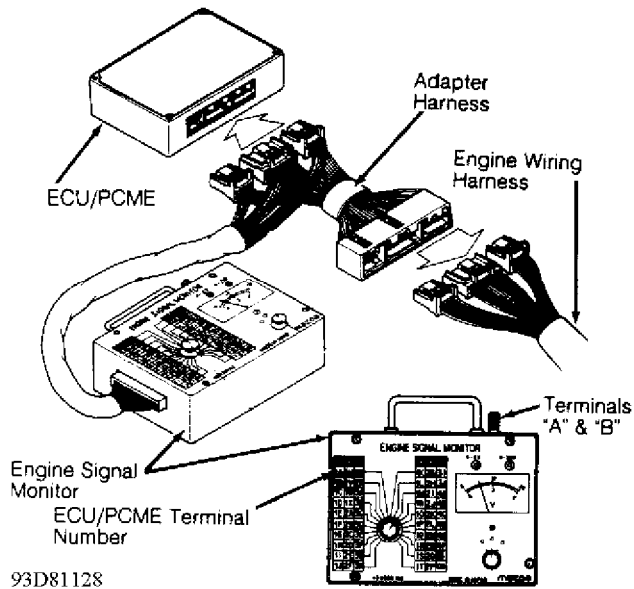


Fig. 16: Testing Engine Control Unit (ECU)
Courtesy of Mazda Motors Corp.

ENGINE SENSORS & SWITCHES

A/C SWITCH

See A/C CUT-OFF CONTROL SYSTEM (B2200, B2600i, MIATA, MPV, MX-3, MX-6, RX7, 626 & 929) under A/C CLUTCH under MISCELLANEOUS CONTROLS.

AIR CHARGE TEMPERATURE (ACT) SENSOR

MX-6 2.0L & 626 2.0L

Remove sensor from air cleaner housing. With sensor disconnected, measure resistance between sensor terminals. See ACT SENSOR RESISTANCE table. Replace sensor as necessary.

Navajo

Locate sensor on top left side of engine, behind idle air bypass valve. With sensor disconnected, measure resistance between sensor terminals. See ACT SENSOR RESISTANCE table. Replace sensor as necessary.

ACT SENSOR RESISTANCE TABLE

Temperature Ohms

MX-6 & 626 2.0L

77°F (25°C) 29,000-36,300

185°F (85°C) 3300-3700

Navajo

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 12)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:16AM

50°F (10°C)	58,750
68°F (20°C)	37,300
176°F (80°C)	384
194°F (90°C)	280
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	

AIRFLOW SENSOR

B2200, B2600i, MX-6 2.0L, MPV 2.6L & 626 2.0L

1) Pull rubber boot back from airflow sensor connector.

Backprobe sensor connector, and check terminal voltages. See Fig. 17.
See AIRFLOW SENSOR TERMINAL VOLTAGES table.

2) If voltages are not correct, check wiring for open or short. If wiring is okay, check burn-off operation. See BURN-OFF OPERATION (B2200, B2600i & MPV 2.6L) procedure. If ECU control of burn-off operation is okay but voltages are still incorrect, replace airflow sensor.

NOTE: Airflow sensors on MX-6 2.0L and 626 2.0L do not have burn-off operation.

AIRFLOW SENSOR TERMINAL VOLTAGES TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA		
Terminal Wire	Ignition On	Engine
Color	Volts	Running
		Volts

B2200, B2600i & MPV

Black/Yellow (Power Supply) (1)	12.0	12.0
Green/Orange (Burn-Off)	0	0
Green/Black (Airflow Mass)	1.0-2.0	1.9-5.0
Green/Yellow (Ground) (1)	0	0
Black/Orange (Ground)	0	0

MX-6 & 626 2.0L

Red/Black (Power Supply)	12.0	12.0
Black/Blue (Airflow Mass)	1.0-1.5	1.5-5.0
Black (Ground)	0	0

(1) - Black/White wire on MPV 2.6L.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

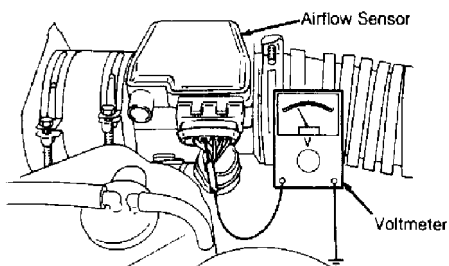


Fig. 17: Testing Airflow Sensor (B2200, B2600i, MX-6 2.0L, MPV 2.6L & 626 2.0L)

Courtesy of Mazda Motors Corp.

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 13)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:16AM

Burn-Off Operation (B2200, B2600i & MPV 2.6L)

1) Perform this test if airflow sensor failed voltage test. Disconnect negative battery cable to reset ECU. Reconnect negative battery cable.

2) Bring engine to normal operating temperature. Pull back rubber boot from airflow sensor connector. Operate engine at about 2000 RPM for 3 minutes with transmission in Neutral.

3) Turn ignition off. Backprobe airflow sensor Green/Orange wire at ECU terminal 2H using a voltmeter. Voltage should be zero volts immediately after ignition is turned off. About 8-12 volts should be present momentarily, 2-5 seconds after ignition switch is turned to OFF position.

4) If voltages are as specified, replace airflow sensor. If voltages are not as specified, check voltage and related wiring at ECU terminals 2P, 2Q and 1I (B2200 and B2600i) or ECU terminals 20, 2Q and 1I (MPV 2.6L). See J - PIN VOLTAGE CHARTS article.

AIRFLOW METER

Miata, MPV 3.0L, MX-3, MX-6 2.5L, Protege, 323, 626 2.5L & 929

Inspect airflow meter for damage, and ensure measuring plate or cone moves smoothly. See Fig. 18, 19 or 20. Disconnect airflow meter electrical connector. Move measuring plate or cone, and measure resistance between terminals. See appropriate AIRFLOW METER TERMINAL RESISTANCE table. Replace sensor as necessary.

AIRFLOW METER TERMINAL RESISTANCE TABLE

(MIATA, MX-3 SOHC, PROTEGE & 323)

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Terminals (1)	Fully Closed Ohms	Fully Open Ohms
E2 & Vs	(2) 200-600	20-1000
E2 & Vc	200-400	200-400
E2 & THAa (3)		
-40°F (-20°C)	13,600-18,400	13,600-18,400
68°F (20°C)	2210-2690	2100-2690
140°F (60°C)	493-667	493-667
E1 & Fc	Infinite	0

(1) - See Fig. 18 for terminal identification.

(2) - 20-600 ohms on 323 and Protege.

(3) - Intake air thermosensor.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

AIRFLOW METER TERMINAL RESISTANCE TABLE (MPV 3.0L)

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Terminals (1)	Fully Closed Ohms	Fully Open Ohms
---------------	----------------------	--------------------

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 14)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:16AM

E2 & Vs	.....	20-400	.....	20-1000
E2 & Vc	.....	100-300	.....	100-300
E2 & Vb	.....	200-400	.....	200-400
E2 & THAa (2)				
-40°F (-20°C)	.....	13,600-18,400	.	13,600-18,400
68°F (20°C)	.....	2210-2690	.....	2210-2690
140°F (60°C)	.....	493-667	.....	493-667
E1 & Fc	.....	Infinite	.....	0

(1) - See Fig. 19 for terminal identification.

(2) - Intake air thermosensor.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

AIRFLOW METER TERMINAL RESISTANCE TABLE

(MX-3 DOHC, MX-6 2.5L, 626 2.5L & 929)

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Terminals (1)		Temperature		Ohms
E2 & Vs				
Closed	.....	68°F (20°C)	.....	20-600
Open	.....	68°F (20°C)	.....	20-1,000
E2 & Vc (2)	.....	68°F (20°C)	.....	200-400
E2 & THA (3)	.....	-40°F (-20°C)	....	10,600-19,400
		68°F (20°C)	....	2,000-2,700
		140°F (60°C)	.....	400-700

(1) - See Fig. 20 for terminal identification.

(2) - Measurement is from closed to open.

(3) - Intake air thermosensor.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

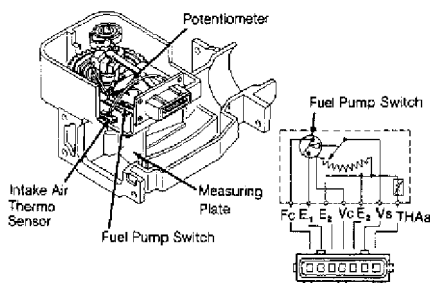


Fig. 18: Airflow Meter Terminal ID (Miata, MX-3 SOHC, Protege & 323)
Courtesy of Mazda Motors Corp.

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 15)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:16AM

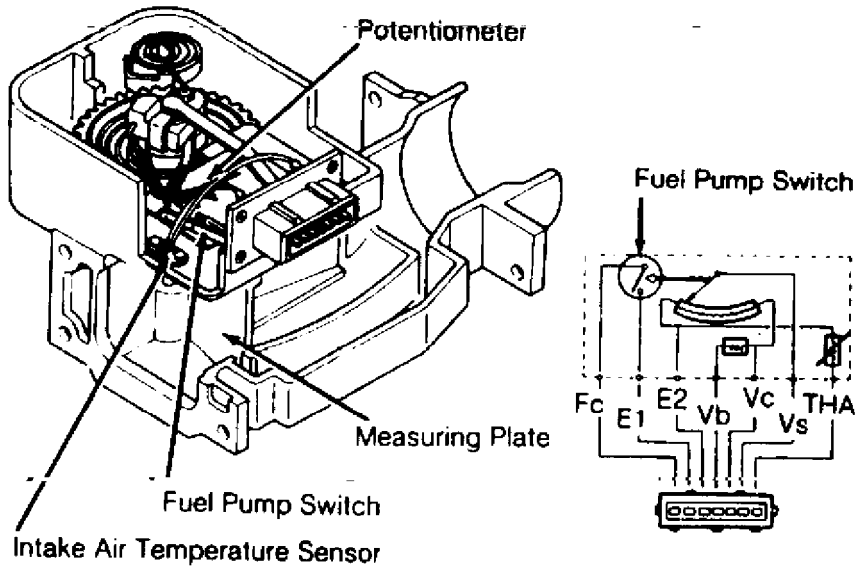
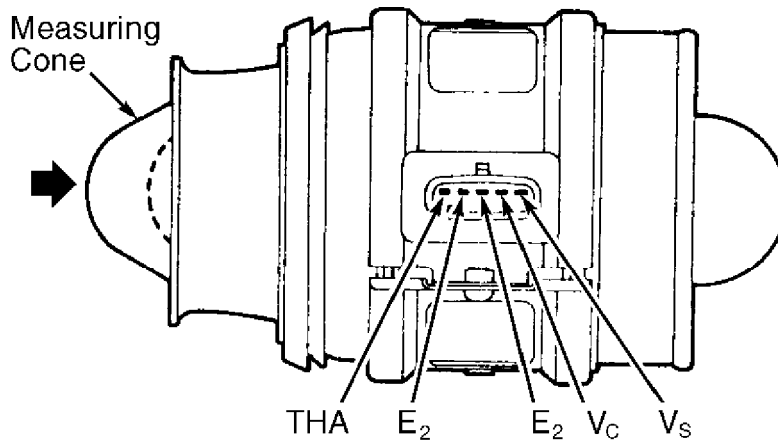


Fig. 19: Airflow Meter Terminal ID (MPV 3.0L)
Courtesy of Mazda Motors Corp.



92C24986
Fig. 20: Airflow Meter Terminal ID (MX-3 DOHC, MX-6 2.5L, 626 2.5L & 929)
Courtesy of Mazda Motors Corp.

ATMOSPHERIC PRESSURE SENSOR

See J - PIN VOLTAGE CHARTS article. On MX-6 2.0L A/T and 626 2.0L A/T, see TROUBLE CODE CHART 14 in H - TESTS W/O CODES article.

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 16)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:16AM

BAROMETRIC PRESSURE (BARO) SENSOR

RX7

1) Warm engine to operating temperature. Turn all accessories off. Connect positive lead of voltmeter to BARO sensor terminal "A" and negative lead to terminal "B".

2) With engine at idle, voltmeter should read 1.3-1.6 volts. Disconnect hose from BARO sensor and plug. See Fig. 21. Voltmeter should read 2.38-2.78 volts.

3) Connect a vacuum pump to BARO sensor, and apply 29 in. Hg. Voltmeter should read 4.35-4.65 volts. If voltmeter readings do not test as described, replace BARO sensor.

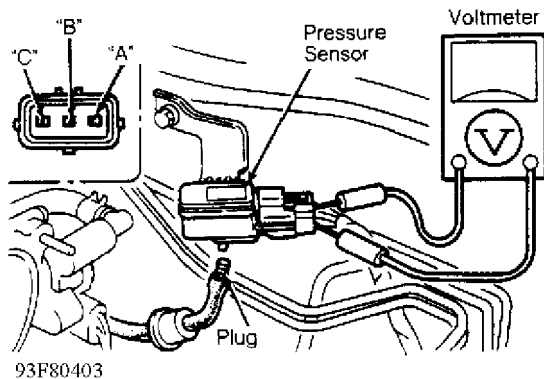


Fig. 21: Testing BARO Sensor (RX7)

Courtesy of Mazda Motors Corp.

BRAKELIGHT SWITCH

Disconnect brakelight switch connector. Measure resistance between terminals of brakelight switch. With brake pedal released, continuity should not exist. With brake pedal depressed, continuity should be present. Replace switch as necessary.

CAMSHAFT POSITION SENSOR (CMP)

Navajo

Camshaft Position Sensor (CMP) is a Hall-Effect switch, located on top rear of engine. See CIRCUIT TEST DR in G - TESTS W/CODES article in the ENGINE PERFORMANCE section.

CENTRAL PROCESSING UNIT (CPU)

MPV, RX7 & 929

CPU acts as an electrical load sensor. On MPV, remove CPU from behind left side of instrument panel. On RX7, remove CPU from right side kick panel above ECU. On 929, remove CPU from behind left front side trim panel near door. Check voltage at terminals of CPU connector. See appropriate CPU UNIT VOLTAGE CHART. If voltages are incorrect, check appropriate circuit. If circuits are okay but voltages are still incorrect, replace CPU.

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 17)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:17AM

Terminal	Connected to	Test condition	Specification	To correct
b	Battery (through ROOM 10A fuse)	Constant	Approx. 12V	Check ROOM 10A fuse and wiring harness
c	Engine control unit	Electrical load OFF (Ignition switch ON)	Approx. 12V	Check engine control unit and wiring harness
		Electrical load ON (Ignition switch ON)	Below 1.5V	
d	Ground	Constant	0V	Check wiring harness
f	Headlight switch	Headlight switch ON	Approx. 12V	Check headlight switch and wiring harness
g	Blower fan switch	Blower fan switch High or Super high position	0V	Check blower fan switch and wiring harness
h	Rear window defroster switch	Rear window defroster switch ON	0V	Check rear window defroster switch and wiring harness
j	Ignition switch	Ignition switch ON	Approx. 12V	Check ignition switch and wiring harness

Fig. 22: CPU Unit Voltage Chart (MPV 2.6L)
Courtesy of Mazda Motors Corp.

Terminal	Connected to	Test condition	Specification	To correct
b BLU/RED WIRE	Battery (through ROOM 10A fuse)	Constant	Approx. 12V	Check ROOM 10A fuse and wiring harness
c YEL/RED WIRE	Engine control unit	Ignition switch ON	Approx. 12V	Check engine control unit and wiring harness
d	Ground	Constant	0V	Check wiring harness
f RED/GRN WIRE	Headlight switch	Headlight switch ON	Approx. 12V	Check headlight switch and wiring harness
g BLUE WIRE	Blower fan switch	Blower fan switch High or Super-high position	0V	Check blower fan switch and wiring harness
h WHT/YEL WIRE	Rear window defroster switch	Rear window defroster switch ON	0V	Check rear window defroster switch and wiring harness
j BLK/WHT WIRE	Ignition switch	Ignition switch ON	Approx. 12V	Check ignition switch and wiring harness

90118372

Fig. 23: CPU Unit Voltage Chart (MPV 3.0L)
Courtesy of Mazda Motors Corp.

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 18)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:17AM

Terminal	Input	Output	Connected to	Test condition	Correct voltage	Remark
A	—	—	Main relay	Ignition switch ON	V _B	—
B	○		TNS relay	Position light ON	0V	—
				Position light OFF	V _B	
C	○		Water thermoswitch	Engine coolant temperature below 108°C	V _B	Ignition switch ON
				Engine coolant temperature above 108°C (221°F)	0V	
D	○		Rear window defroster ready	Rear window defroster OFF	V _B	Ignition switch ON
				Rear window defroster ON	Below 1.0V	
E	○		Blower motor relay	Blower switch 3rd or 4th position	Below 1.0V	Ignition switch ON
				Blower switch 1st or 2nd position	V _B	
F	—	—	—	—	—	—
G	—	—	—	—	—	—
H		○	Self-Diagnosis checker Diagnosis connector (FEN)	Buzzer sounded for 3 sec. after ignition switch OFF → ON	Below 2.5V	<ul style="list-style-type: none"> • With Self-Diagnosis checker and system Selector • With System Selector test switch at SELF TEST
				Buzzer not sounded for after 3 sec.	V _B	
				Buzzer sounded	Below 2.5V	
				Buzzer not sounded	V _B	
I	—	—	—	—	—	—
J	—	—	—	—	—	—
K		○	Malfunction indicator lamp (MIL)	Lamp illuminated for 3 sec. after ignition switch ON	Below 2.5V	With system selector test switch at SELF TEST
				Lamp not illuminated after 3 sec.	V _B	
				Lamp illuminated	Below 2.5V	
				Lamp not illuminated	V _B	
L	—	—	—	—	—	—
M	—	—	Ground	Constant	0V	—
N		○	ECU	Electrical load ON	Below 2.5V	Ignition switch ON
				Electrical load OFF	4.5~5.5	
O		○	Cooling fan relay	Engine coolant temperature below 105°C	Below 2.5V	Ignition switch ON
				Engine coolant temperature above 105°C	V _B	
P	○		Ignition switch	While cranking	V _B	—
				Ignition switch ON	Below 1.0V	

93G80404

Fig. 24: CPU Unit Voltage Chart (RX7)

Courtesy of Mazda Motors Corp.

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 19)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:17AM

CPU UNIT VOLTAGE CHART (929)

Connector	Terminal	Connected to	Test condition	Specification (V)
A (14-pin)	3A	Interior lamps, courtesy lamp	Constant	12V
	3B	Battery	Constant	12V
	3C	Door lock relay (lock)	Constant	12V
	3D	Body ground	Constant	0
	3E	Headlights	Light switch ON 2nd step, low beam	12V
	3F	Door lock relay (unlock)	Constant	12V
	3G	Front fog light relay	Constant	12V
	3H	Door switch (passenger side)	Passenger door open; check for continuity to body ground	Yes
			Passenger door closed; check for continuity to body ground	No
	3I	Headlight relay	Light switch ON 2nd step	0
			Other	12V
	3J	Ignition switch	Ignition switch ON	12V
	3K	Ignition switch	Ignition switch A/C	12V
	3L	TNS relay	Light switch ON	12V
B (16-pin)	3M	Door switch (driver side)	Driver door open; check for continuity to body ground	Yes
			Driver door closed; check for continuity to body ground	No
	3N	Key reminder switch	Ignition Key in Ignition switch	12V
	1A	Starter cut relay	Ignition switch ON	12V
	1B	Trunk key cylinder switch	Trunk key cylinder switch ON	0
	1C	Interlock resistor	Constant	12V
	1D	Trunk switch	Trunk switch ON	0
			Other	12V
	1E	Hazard warning output	Hazard warning switch ON	0
			Other	12V
	1F	Hood switch	Hood switch ON	0
	1G	Seat belt warning lamp	For 5 seconds from ignition switch ON	0
			Other	12V
	1H	Buckle switch	Ignition switch ON	12V
	1I	NA	Seat belt connected	0
			Other	12V
	1J	Brake warning lamp	Ignition switch ON	12V
	1K	NA	Parking brake pedal released	0
			Parking brake pedal depressed	12V
	1L	Parking brake switch	Parking brake pedal released	0
			Parking brake pedal depressed	12V
	1M	NA	—	—
	1N	P range switch	Ignition switch ON, shift lever P range	5
			Other	0
	1O	NA	—	—
	1P	NA	—	—

92024987

Fig. 25: CPU Unit Voltage Chart (929, 1 Of 2)

Courtesy of Mazda Motors Corp.

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 20)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:17AM

CPU UNIT VOLTAGE CHART (929 - Cont.)

Connector	Terminal	Connected to	Test condition		Specification (V)
B (20-pin)	2A	Ignition and door key illumination	Constant		12V
	2B	Outer handle switch	Door outer handle pulled		0
			Other		Approx. 4
	2C	Idle-up	Ignition switch ON		12V
			Headlights ON		4
			Front fog lights ON		4.5
	2D	Door switch (rear door)	Rear door open; check for continuity to body ground		Yes
			Rear door closed; check for continuity to body ground		No
	2E	Rear defroster indicator	Ignition switch ON	Rear defroster switch ON	0
			Other		Approx. 5
	2F	Lock link switch (passenger side)	Locked		Approx. 5
			Unlocked		0
	2G	Interlock solenoid coil	Constant		12V
	2H	Lock link switch (driver side)	Locked		Approx. 5
			Unlocked		0
	2I	NA	—		—
	2J	Lock link switch (rear door)	Locked		Approx. 5
			Unlocked		0
	2K	+B	Constant		12V
	2L	Door key cylinder switch (passenger side)	Locked		2.5
			Unlocked		0
			Other		5
	2M	Security lamp	Constant		12V
	2N	NA	—		—
	2Q	Horn relay	Constant		12V
	2P	Door lock switch	Locked		2.5
			Unlocked		0
			Other		5
	2Q	Rear defroster relay	Ignition switch ON	Rear defroster switch ON	12V
			Other		0
	2R	Door key cylinder switch (driver side)	Unlocked		0
			Others		5
	2S	Rear defroster switch	Rear defroster switch	Rear defroster switch ON	12V
			Other		0
	2T	Front fog light switch	Front fog light switch	Front fog light switch ON	12V
			Other		0

92E24988

Fig. 26: CPU Unit Voltage Chart (929, 2 Of 2)

Courtesy of Mazda Motors Corp.

CLUTCH SWITCH (M/T)

Disconnect clutch switch electrical connector. Using ohmmeter, check continuity between switch terminals. With clutch pedal depressed, continuity should be present. With clutch pedal released, continuity should not exist. Replace switch as necessary.

COLD START THERMOSWITCH

929

Remove cold start thermoswitch. Place thermoswitch and thermometer in container of coolant. Connect ohmmeter to thermoswitch terminals. Slowly heat coolant. Note resistance at specified temperatures. See COLD START THERMOSWITCH RESISTANCE table. Replace thermoswitch as necessary.

COLD START THERMOSWITCH RESISTANCE TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Temperature

Ohms

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 21)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:17AM

68°F (20°C) 25-35
176°F (80°C) 64-76
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

COOLANT TEMPERATURE SWITCH

Miata, MX-3 SOHC, Protege & 323

1) Remove switch from radiator or engine block. Place switch and thermometer in container of coolant. Connect ohmmeter to coolant temperature switch terminals. Slowly heat coolant.

2) Note temperature at which continuity is present between switch terminals. Continuity should be present with coolant temperature greater than 207°F (97°C). Continuity should not exist with temperature less than 194°F (90°C). Replace switch as necessary.

CRANK ANGLE SENSOR

See IGNITION CHECKS in F - BASIC TESTING article.

ENGINE COOLANT TEMPERATURE (ECT) SENSOR

Remove engine coolant temperature sensor. Place sensor and thermometer in container of coolant. Connect ohmmeter to sensor terminals. Slowly heat coolant. Note resistance at specified temperatures. See appropriate ECT SENSOR RESISTANCE table. Replace sensor as necessary.

ECT SENSOR RESISTANCE TABLE (B2200, B2600I, MIATA, MPV & 929)

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Temperature	Ohms
-4°F (-20°C)	(1) 14,600-17,800
68°F (20°C)	2,200-2,700
176°F (80°C)	(2) 200-400

(1) - Resistance is 14,500-17,800 ohms on B2200, B2600i and MPV 2.6L.

(2) - Resistance is 280-350 ohms on B2200, B2600i and MPV 2.6L; 290-350 ohms on Miata and MPV 3.0L.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

ECT SENSOR RESISTANCE TABLE

(MX-3, MX-6, PROTEGE, RX7, 323 & 626)

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Temperature	Ohms
-4°F (-20°C)	14,600-17,800
68°F (20°C)	2,200-2,700
104°F (40°C)	1,000-1,300
140°F (60°C)	500-650
176°F (80°C)	290-350

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 22)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:17AM

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

ECT SENSOR RESISTANCE TABLE (NAVAJO)

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Temperature	Ohms
-------------	------

50°F (10°C)	58,750
-------------------	--------

68°F (20°C)	37,300
-------------------	--------

176°F (80°C)	384
--------------------	-----

194°F (90°C)	280
--------------------	-----

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

EGR POSITION SENSOR

MX-3 DOHC, MX-6 2.5L, RX7, 626 2.5L & 929

See EXHAUST GAS RECIRCULATION (EGR) (MX-3 DOHC, MX-6, RX7, 626 & 929) under EMISSION SYSTEMS & SUB-SYSTEMS.

FUEL TEMPERATURE SENSOR

RX7

1) Remove circuit opening relay. Start engine and allow system to fuel pressure to bleed down. Install circuit opening relay. Remove upper intake manifold. Remove fuel temperature sensor from fuel rail.

2) Place sensor and thermometer in container of water. Connect ohmmeter to sensor terminals. Heat water. Note resistance at specified temperatures. See FUEL TEMPERATURE SENSOR RESISTANCE table. Replace sensor as necessary.

FUEL TEMPERATURE SENSOR RESISTANCE TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Temperature	Ohms
-------------	------

68°F (20°C)	2,200-2,700
-------------------	-------------

176°F (80°C)	290-350
--------------------	---------

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

HEAT HAZARD SENSOR

RX7

1) Remove right front seat. Lift floor mat and remove heat hazard sensor. Wrap sensor and a thermometer in aluminum foil. Place foil in a pot of oil. Connect a battery and 12-volt test light in series, to sensor terminals.

2) Heat oil to 221-239°F (105-115°C). Test light should light when sensor reaches specified temperature. If test light does not light, replace heat hazard sensor.

HEATED OXYGEN SENSOR (HO2S)

MPV 3.0L, MX-6, 626 & 929

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 23)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:17AM

With engine at room temperature, disconnect HO2S connector. Measure resistance across terminals "A" and "B" on MX-6 2.0L and 626 2.0L, or terminals "C" and "D" on all others. See Fig. 27. See HO2S RESISTANCE table. Replace HO2S as necessary. Also see PIN VOLTAGE CHARTS article.

HO2S RESISTANCE TABLE

Application		Ohms
MPV 3.0L	.....	Continuity
MX-6 & 626	.....	8
929	.....	4-40

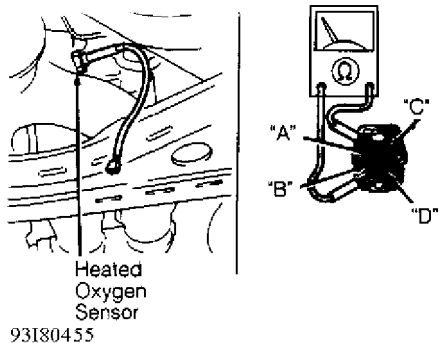


Fig. 27: Testing HO2S (MPV 3.0L, MX-6, 626 & 929)
Courtesy of Mazda Motors Corp.

Navajo

HO2S is located in exhaust pipe, upstream of the catalytic converter. Faults in sensor or circuit should set a service code. See QUICK TEST in G - TESTS W/CODES article. If no service code has been set, see CIRCUIT TEST H in G - TESTS W/CODES article for additional sensor specifications and circuit testing procedures. Ensure following conditions do not exist:

- * Moisture inside sensor/harness connector.
- * HO2S coated with contaminants.
- * Sensor circuit open or shorted to ground.

IDLE SWITCH

B2200, B2600i, MPV 2.6L, MX-6 2.0L & 626 2.0L

1) Disconnect idle switch electrical connector. See Fig. 28. Check continuity between switch and ground. Continuity should be present with throttle valve fully closed. Continuity should not exist with throttle valve open.

2) If continuity is not as specified, check wiring harness for open or short circuits. On B2200, B2600i, MX-6 2.0L and 626 2.0L, replace idle switch and throttle body as an assembly if wiring harness is okay. On MPV 2.6L, replace idle switch if wiring harness is okay.

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 24)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:17AM

Miata, MPV 3.0L, MX-3, MX-6 2.5L, Protege, RX7, 323, 626 2.5L & 929

Idle switch is part of throttle position sensor. See D - ADJUSTMENTS article.

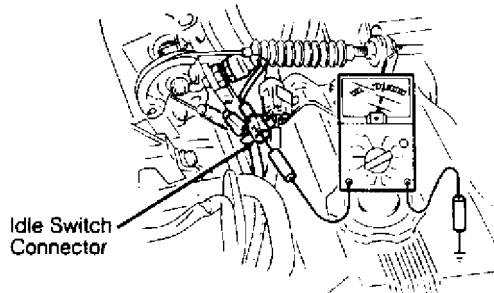


Fig. 28: Testing Idle Switch (B2200, B2600i & MPV 2.6L Shown; MX-6 2.0L & 626 2.0L Similar)
Courtesy of Mazda Motors Corp.

INERTIA FUEL SHUTOFF (IFS) SWITCH

Navajo

1) Inertia fuel shutoff switch is located under dash, right of transmission tunnel. To reset switch, ensure no fuel leaks are present. Push reset button.

2) Disconnect inertia fuel shutoff switch electrical connector. Connect ohmmeter set on 200-ohm scale across switch connector terminals. If resistance is greater than .3 ohm, replace switch.

INHIBITOR SWITCH (A/T)

Disconnect inhibitor switch electrical connector. Connect ohmmeter to indicated switch terminals. See Figs. 29-35. Continuity should be present with gearshift in Park and Neutral positions. Continuity should not exist in any other gear positions. Replace switch as necessary.

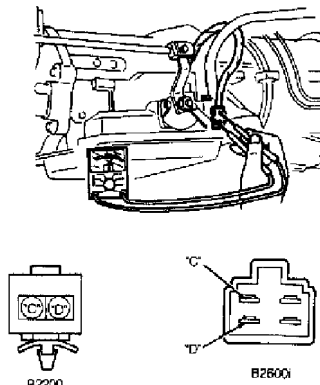


Fig. 29: Testing Inhibitor Switch (B2200 & B2600i Hyd. Controlled)
Courtesy of Mazda Motors Corp.

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 25)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:17AM

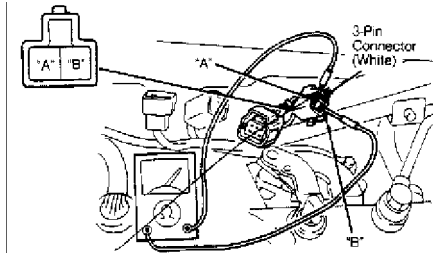


Fig. 30: Inhibitor Switch Terminal ID (B2200 & B2600i Hyd. Controlled)
Courtesy of Mazda Motors Corp.

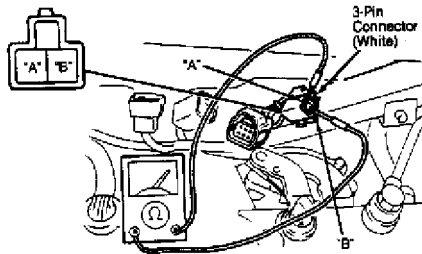


Fig. 31: Testing Inhibitor Switch (B2600i Elect. Controlled, MPV 3.0L, MX-6 & 626)
Courtesy of Mazda Motors Corp.

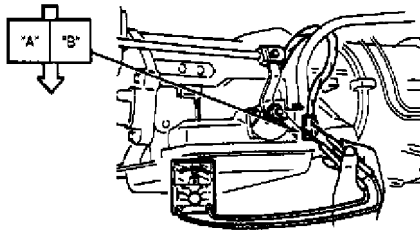


Fig. 32: Testing Inhibitor Switch (Miata)
Courtesy of Mazda Motors Corp.

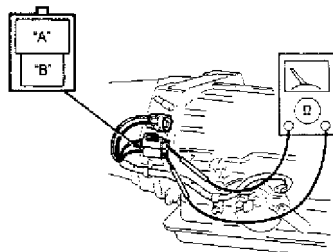


Fig. 33: Testing Inhibitor Switch (MPV 2.6L)
Courtesy of Mazda Motors Corp.

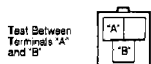


Fig. 34: Testing Inhibitor Switch (MX-3, Protege & 323)
Courtesy of Mazda Motors Corp.

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 27)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:17AM

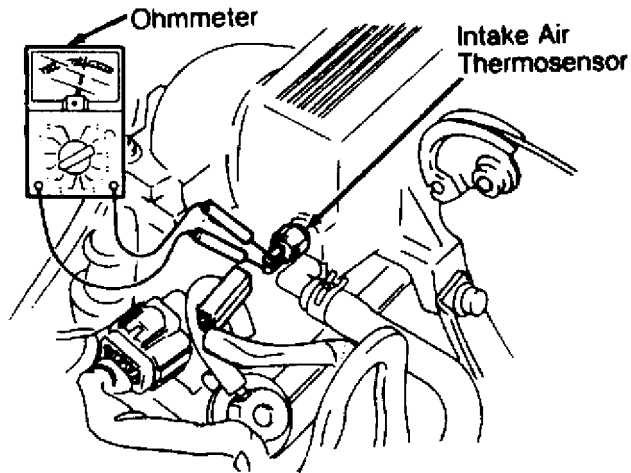


Fig. 36: Testing Intake Air Thermosensor (B2200, B2600i & MPV 2.6L)
Courtesy of Mazda Motors Corp.

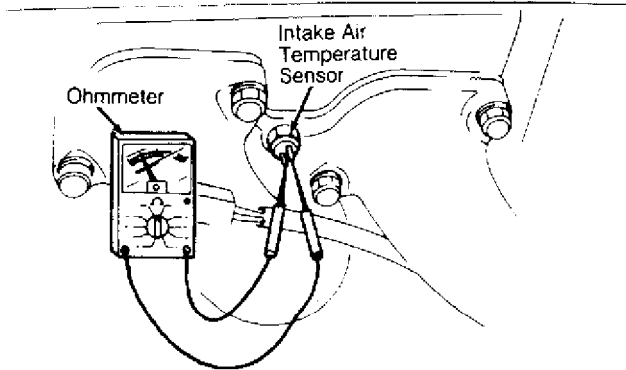


Fig. 37: Testing Intake Air Thermosensor (MPV 3.0L)
Courtesy of Mazda Motors Corp.

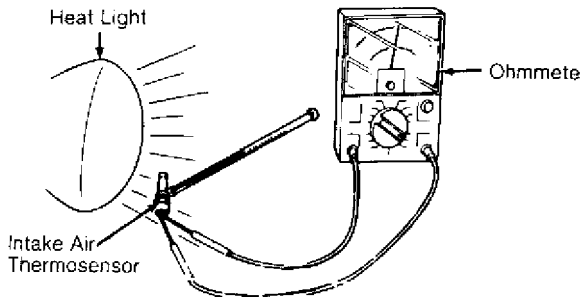


Fig. 38: Testing Intake Air Thermosensor (RX7 & 929)
Courtesy of Mazda Motors Corp.

KNOCK SENSOR

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 28)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:17AM

See J - PIN VOLTAGE CHARTS article.

MASS AIRFLOW (MAF) SENSOR (NAVAJO)

Faults in MAF sensor or circuit should set a service code. See QUICK TEST in G - TESTS W/CODES article. If no service code has been set, see CIRCUIT TEST DC in G - TESTS W/CODES article for sensor and circuit testing and specifications.

MILEAGE SWITCH (RX7)

See J - PIN VOLTAGE CHARTS article.

NEUTRAL SWITCH

Except Navajo (M/T)

Disconnect neutral switch electrical connector. Using ohmmeter, check continuity between switch terminals. Ensure continuity exists with transmission in Neutral. Continuity should not exist with transmission in any other gear. Replace switch as necessary.

Navajo

With ignition switch in OFF position, set DVOM to 200-ohm scale. Locate neutral switch on transmission. Disconnect neutral switch electrical connector. Using ohmmeter, measure resistance across neutral terminals. If resistance is greater than 5 ohms, replace switch.

OXYGEN (O2) SENSOR

B2200, B2600i, Miata, MPV 2.6L, MX-3, Protege, RX7 & 323

1) Warm engine to operating temperature. Operate engine at idle. Disconnect O2 sensor electrical connector. Connect voltmeter between connector and ground. On B2200, B2600i, MPV 2.6L and MX-3 DOHC, increase engine speed to 4500 RPM until voltmeter indicates about .7 volt. On Miata, MX-3 SOHC, Protege, RX7 and 323, increase engine speed to 3000 RPM until voltmeter indicates about .55 volt.

2) Observe voltmeter while rapidly accelerating and decelerating engine speed. Voltage should be 0.5-1.0 volt during acceleration and 0.0-0.4 volt during deceleration. Replace O2 sensor as necessary.

MPV 3.0L, MX-6, 626 & 929

1) Warm engine to operating temperature. Operate engine at idle. Disconnect O2 sensor electrical connector. Connect voltmeter between O2 sensor connector terminals "C" and "D" on MX-6 2.5L and 626 2.5L, or terminals "A" and "B" on all others. See Fig. 39.

2) Observe voltmeter while rapidly accelerating and decelerating engine speed. Voltage should be 0.5-1.0 volt during acceleration and 0.0-0.4 volt during deceleration. Replace O2 sensor as necessary.

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 29)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:17AM

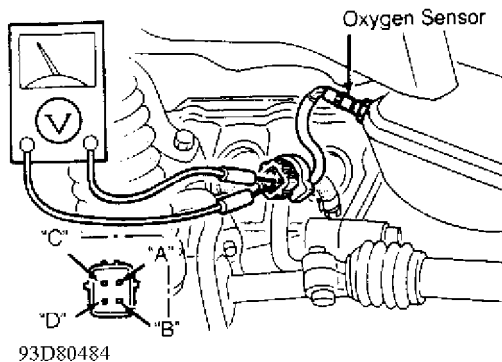


Fig. 39: Testing Oxygen Sensor (MPV 3.0L, MX-6, 626 & 929)
Courtesy of Mazda Motors Corp.

POWER STEERING PRESSURE SWITCH (PSPS)

Disconnect power steering pressure switch electrical connector. Connect ohmmeter to PSPS terminals. Start engine, and operate it at idle. Turn steering wheel from side to side, and observe ohmmeter. Ohmmeter should indicate continuity when front wheels are turned. Continuity should not exist when wheels are not turned. Replace switch as necessary.

THROTTLE POSITION SENSOR

See D - ADJUSTMENTS article for checking and adjustment procedures.

VARIABLE RELUCTANCE (VR) SENSOR

Navajo

See appropriate article below:

F - BASIC TESTING

G - TESTS W/CODES

VEHICLE SPEED SENSOR (VSS)

Except Navajo & 929

See J - PIN VOLTAGE CHARTS article.

Navajo

Disconnect VSS electrical connector on transmission. Using DVOM, measure resistance across VSS terminals. Resistance should be 190-250 ohms. Replace sensor as necessary.

929

1) Connect positive lead of voltmeter to Green/Red wire of combination meter. Connect negative lead of voltmeter to ground. Raise and support rear wheels. Start engine. Engage Drive and rotate rear wheels. Voltmeter should show 3-4 volts. If not, stop engine.

2) Disconnect connector from combination meter. Measure

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 30)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:17AM

resistance across Blue/White and Blue/Yellow wires (terminals 1K and 1L). Resistance should be 290 ohms. If resistance is not 290 ohms, check wiring to transmission. If wiring is okay, check resistance of VSS at transmission.

3) If resistance of VSS is not 290 ohms, replace VSS. If resistance of VSS is 290 ohms, replace VSS buffer in instrument cluster.

1-2 SWITCH

RX7 (M/T)

1) Disconnect 1-2 switch connector at transmission. Check continuity across White and Yellow wires. In first gear, no continuity should exist. In all other gears, continuity should be present. If switch does not test as described, replace 1-2 switch.

2) Check continuity across Red and Blue wires. In second gear, continuity should be present. In all other gears, no continuity should exist. If switch does not test as described, replace 1-2 switch.

RELAYS & SOLENOIDS

RELAYS

Circuit Opening Relay

See FUEL PRESSURE (FUEL INJECTION) under FUEL SYSTEM in F - BASIC TESTING article.

Cold Start Injector Relay (929)

Remove cold start injector relay. Apply battery voltage to terminal "C", and ground terminal "D". Continuity should be present with battery voltage applied. Continuity should not exist without voltage applied. Replace relay as necessary.

Fuel Pump Relay (Navajo)

Remove relay from vehicle. Connect battery voltage to terminal "C". See Fig. 40. Ground terminal "D". Check continuity between terminals "A" and "B". Continuity should exist with power applied. Continuity should not exist with power removed.

NOTE: For additional testing, see CIRCUIT TEST J in G - TESTS W/CODES article in the ENGINE PERFORMANCE section.

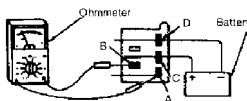


Fig. 40: Testing EEC Power & Fuel Pump Relays (Navajo)
Courtesy of Mazda Motors Corp.

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 31)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:17AM

Main Relay (Except Navajo)

1) Ensure main relay clicks when ignition is turned on and off.

2) If no sound is heard, unplug relay. Apply 12 volts to terminal "A", and ground terminal "B". See Fig. 41, 42 or 43.

3) Using ohmmeter, check continuity between terminals "C" and "D". Continuity should be present with 12 volts applied. Continuity should not exist with no voltage applied. Replace main relay as necessary.

EEC Power Relay (Navajo)

Remove relay from vehicle. Connect battery voltage to terminal "C". See Fig. 40. Ground terminal "D". Measure resistance between terminals "A" and "B". Resistance should be less than one ohm with power applied. Continuity should not exist with power removed.

NOTE: For additional testing, see CIRCUIT TEST B in G - TESTS W/CODES article in the ENGINE PERFORMANCE section.

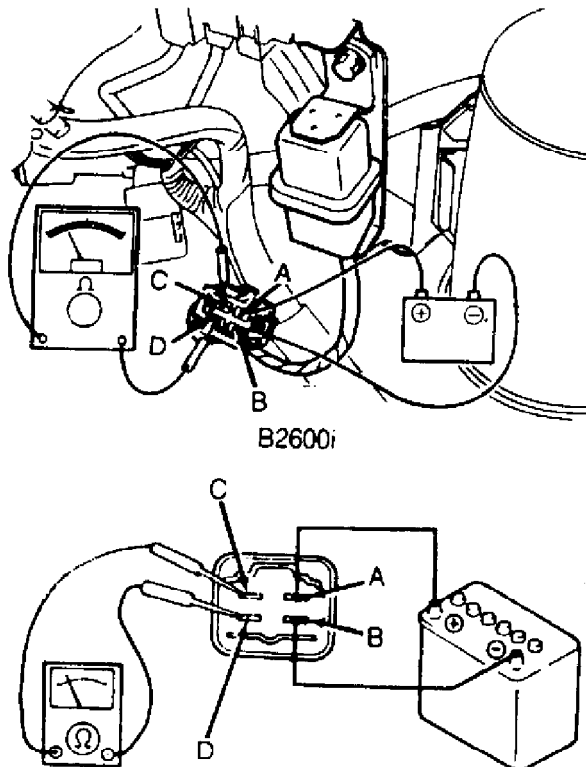


Fig. 41: Testing Main Relay (B2200 & B2600i)
Courtesy of Mazda Motors Corp.

I - SYSTEM/COMPONENT TESTS - EFI

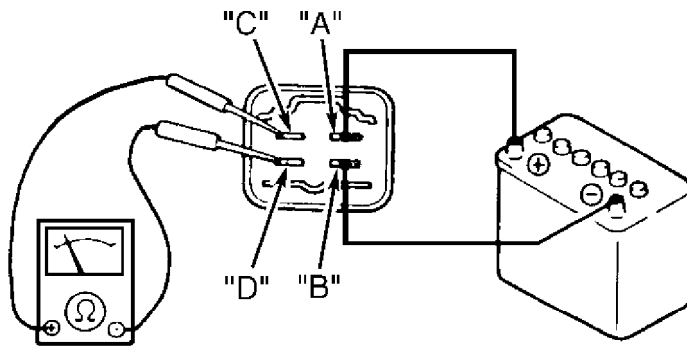
Article Text (p. 32)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

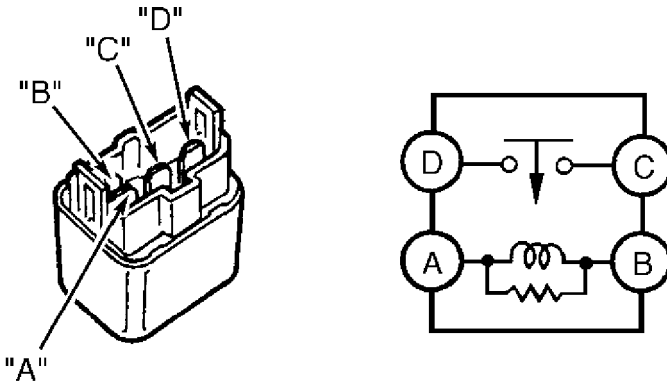
Monday, August 20, 2001 07:17AM



95G31688

Fig. 42: Testing Main Relay (Miata, MPV, MX-3 DOHC, MX-6, Protege, RX7, 323, 626 & 929)

Courtesy of Mazda Motors Corp.



92J24991

Fig. 43: Identifying Main Relay Terminals (MX-3 SOHC)

Courtesy of Mazda Motors Corp.

SOLENOIDS

NOTE: All solenoids (used on all vehicles except Navajo) operate the same way. See Fig. 44 to locate specific solenoids used on RX7.

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 33)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:17AM

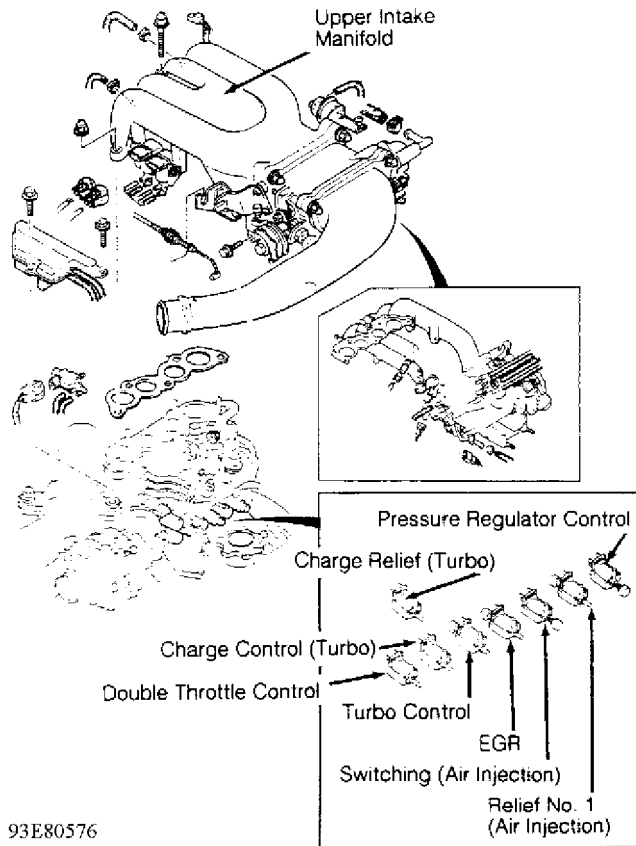


Fig. 44: Locating Vacuum Solenoids (RX7)
Courtesy of Mazda Motors Corp.

Backpressure EGR Vacuum Regulator Valve (Navajo)

See EXHAUST GAS RECIRCULATION (EGR) (NAVAJO - CALIFORNIA)
under EMISSION SYSTEMS & SUB-SYSTEMS.

Canister Purge (CANP) Solenoid (Navajo)

See FUEL EVAPORATION (NAVAJO) under EMISSION SYSTEMS & SUB-SYSTEMS.

Cold Start Injector Resistance (929)

Disconnect cold start injector electrical connector. Using ohmmeter, measure resistance between injector terminals. Resistance should be 2.7-3.4 ohms at 68°F (20°C). Replace injector as necessary.

Double Throttle Control Solenoid (RX7)

Disconnect vacuum hose from double throttle control solenoid. Blow air through solenoid port "A". See Fig. 45. Ensure air flows through port "B". Disconnect solenoid valve electrical connector. Connect 12 volts and ground to solenoid terminals. Blow air through solenoid port "A". Air should flow through valve air filter. Replace solenoid as necessary.

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 34)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:17AM

EGR Solenoid (MX-3 DOHC, MX-6, RX7, 626 & 929)

See EXHAUST GAS RECIRCULATION (EGR) (MX-3 DOHC, MX-6, RX7, 626 & 929) under EMISSION SYSTEMS & SUB-SYSTEMS.

Fuel Injectors

Using stethoscope, listen for normal clicking sound at each injector during idle and acceleration. If clicking sound is not heard, check injector wiring circuit, or main relay and circuit.

Fuel Injector Resistance

Disconnect fuel injector electrical connector. Using ohmmeter, measure resistance between injector terminals. Resistance should be 12-16 ohms. Replace injector as necessary.

Pressure Regulator Control Solenoid (Except Navajo)

Disconnect vacuum hose from pressure regulator control solenoid. Blow air through solenoid port "A". See Fig. 45. Ensure air flows through port "B". Disconnect solenoid valve electrical connector. Connect 12 volts and ground to solenoid terminals. Blow air through solenoid port "A". Air should flow through valve air filter. Replace solenoid as necessary.

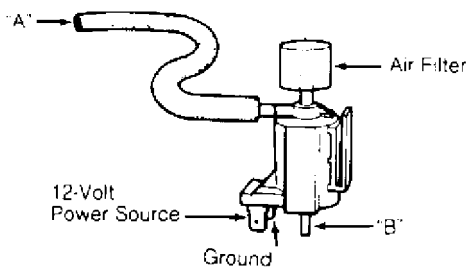


Fig. 45: Testing Pressure Regulator Control Solenoid
Courtesy of Mazda Motors Corp.

Purge Control Solenoid

See FUEL EVAPORATION (EXCEPT NAVAJO) under EMISSION SYSTEMS & SUB-SYSTEMS.

Air Injection Solenoid (RX7)

See AIR INJECTION (RX7) under EMISSION SYSTEMS & SUB-SYSTEMS.

Turbocharger Solenoid (RX7)

See TURBOCHARGER (RX7) under AIR INDUCTION SYSTEMS.

VICS Solenoid (Protege DOHC & 929)

See VARIABLE INERTIA CHARGING SYSTEM (PROTEGE DOHC & 929) under AIR INDUCTION SYSTEMS.

VRIS Solenoid (MPV 3.0L, MX-3 DOHC, MX-6 2.5L & 626 2.5L)

See VARIABLE RESONANCE INDUCTION SYSTEM (MPV 3.0L, MX-3 DOHC, MX-6 2.5L & 626 2.5L) under AIR INDUCTION SYSTEMS.

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 35)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Monday, August 20, 2001 07:17AM

FUEL SYSTEM

FUEL DELIVERY

NOTE: For fuel system pressure testing, see F - BASIC TESTING article.

Circuit Opening Relay

See FUEL PRESSURE (FUEL INJECTION) under FUEL SYSTEM in F - BASIC TESTING article.

Fuel Pump Circuit

See FUEL PRESSURE (FUEL INJECTION) under FUEL SYSTEM in F - BASIC TESTING article.

Fuel Pump Relay (Navajo)

See FUEL PUMP RELAY (NAVAJO) under RELAYS under RELAYS & SOLENOIDS. Also see FUEL PRESSURE (FUEL INJECTION) under FUEL SYSTEM in F - BASIC TESTING article.

Inertia Fuel Shutoff (IFS) Switch (Navajo)

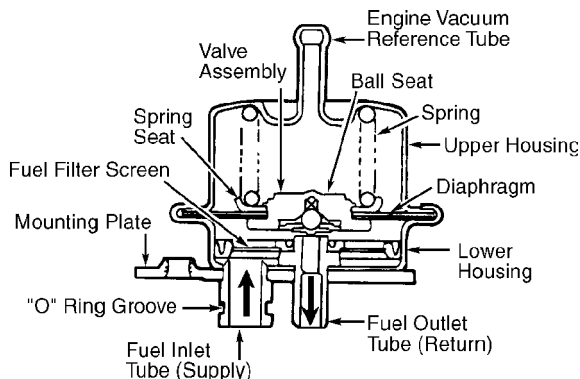
See INERTIA FUEL SHUTOFF (IFS) SWITCH under ENGINE SENSORS & SWITCHES. Also see FUEL PRESSURE (FUEL INJECTION) under FUEL SYSTEM in F - BASIC TESTING article.

Fuel Pressure Regulator (Except Navajo)

See FUEL PRESSURE (FUEL INJECTION) under FUEL SYSTEM in F - BASIC TESTING article.

Fuel Pressure Regulator (Navajo)

1) Ensure ignition is off. Connect fuel pressure gauge to Schrader valve on fuel rail. Ensure manifold vacuum supply tube is connected to fuel pressure regulator. Start engine, and run it for 10 seconds. Stop engine, and wait 10 seconds. Start engine, and operate it for 10 seconds. Stop engine, and remove pressure regulator vacuum hose. See Fig. 46. Check vacuum port for fuel.



91F11234

Fig. 46: Identifying Fuel Pressure Regulator Components (Navajo)
Courtesy of Ford Motor Co.

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 36)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:17AM

2) If fuel is present, replace fuel pressure regulator and repeat test. If fuel is not present, plug pressure regulator vacuum hose. Observe fuel pressure while driving vehicle and accelerating heavily. If fuel pressure remains at 27-48 psi, go to next step. If fuel pressure does not remain at 27-48 psi, check fuel filter. If filter is okay, replace fuel pump. If filter is dirty, replace filter and recheck system.

3) Remove plug from vacuum hose, and connect hose to pressure regulator. Install vacuum gauge to intake manifold. Start engine, and observe fuel pressure gauge and vacuum gauge readings. Increase engine speed. Fuel pressure gauge reading should increase as vacuum gauge reading decreases and vacuum gauge reading should increase as fuel pressure gauge decreases.

4) If gauges responds as specified, no fault is present in fuel system. Check for other causes of driveability symptoms. If gauges do not respond as specified, turn ignition off. Remove vacuum hose from fuel pressure regulator, and plug hose. Install a vacuum pump to pressure regulator. Start engine, and observe fuel pressure. Apply vacuum.

5) If fuel pressure changes as vacuum is applied, check and repair vacuum system. If fuel pressure does not change as vacuum is applied, replace fuel pressure regulator.

Fuel Pressure Regulator Pressure Leakage (Navajo)

1) Ensure ignition is off. Relieve fuel pressure. See FUEL SYSTEM in F - BASIC TESTING article. Remove fuel pressure regulator. Check "O" ring, gasket and mounting surfaces for cracks, cuts and other damage.

2) Connect vacuum pump to fuel return tube, and apply 20 in. Hg vacuum. See Fig. 46. If maximum vacuum loss exceeds 10 in. Hg in 10 seconds, replace fuel pressure regulator. If maximum vacuum loss does not exceed 10 in. Hg in 10 seconds, fuel pressure regulator is functioning properly.

Pulsation Damper (Navajo & RX7)

Start engine, and allow it to idle. Pulsation damper is located at end of fuel rail. Place finger over pulsation damper and ensure damper pulsates. Replace pulsation damper as necessary.

Pressure Regulator Control (Except Miata, Navajo & 929)

1) Engine must be at or near operating temperature. Turn engine off. Disconnect vacuum hose at fuel pressure regulator and connect a vacuum gauge to hose.

2) Without touching throttle, start engine. Observe vacuum gauge. Vacuum should not exist. If vacuum is present, check pressure regulator control solenoid and related circuits. If no vacuum exists, count seconds until vacuum gauge shows intake manifold vacuum. See PRESSURE REGULATOR SPECIFICATIONS table.

3) If vacuum gauge shows intake manifold vacuum after specified amount of time, system is okay. See Fig. 47. If intake manifold vacuum is not present, check vacuum source, pressure regulator control solenoid and related circuits.

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 37)

1993 Mazda RX7

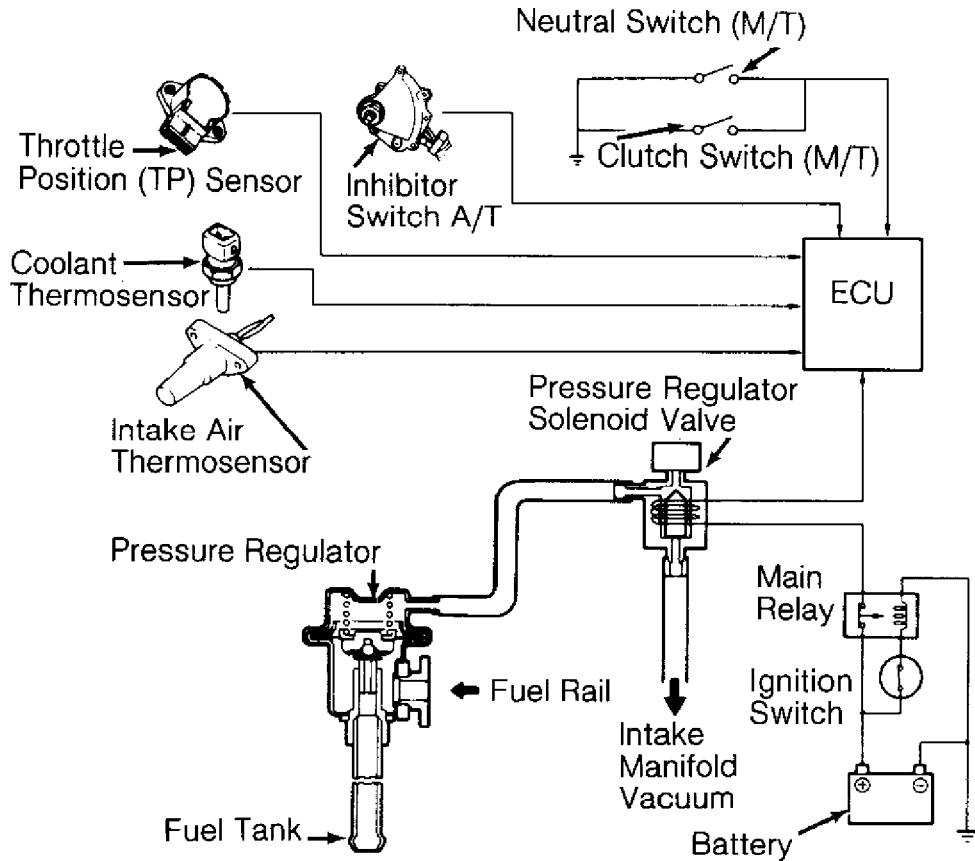
For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:17AM

Pressure Regulator Control Solenoid (Except Navajo)

See PRESSURE REGULATOR CONTROL SOLENOID (EXCEPT NAVAJO) under SOLENOIDS under RELAYS & SOLENOIDS.



93A80580

Fig. 47: Typical Pressure Regulator Control System (Except Miata, Navajo & 929)

Courtesy of Mazda Motors Corp.

PRESSURE REGULATOR SPECIFICATION TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	Operating Time (sec.)
B2200 & 2600i	120
MPV	
2.6L	240
3.0L	120
MX-3	120
MX-6 & 626	
2.0L	10
2.5L	120
Protege & 323	
1.6L & 1.8L DOHC	60
1.8L SOHC	120

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 38)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:17AM

RX7 60
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

FUEL CONTROL

Fuel Injectors

See FUEL INJECTORS under SOLENOIDS under RELAYS & SOLENOIDS.

Injector Fuel Leakage (Except Navajo)

1) Relieve fuel system pressure. See F - BASIC TESTING article. Remove air valve or dynamic chamber as necessary. Remove delivery pipe with hoses still connected. Remove fuel injectors. Using wire, secure injectors tightly onto delivery pipe.

CAUTION: Ensure injectors are securely tied to delivery pipe. If injectors are not properly secured to delivery pipe, fuel may spray from loose connections.

2) On Miata, MX-3, MX-6, Protege, RX7, 323, 626 and 929, connect a jumper wire between terminals F/P and GND of diagnostic connector located near battery. See Fig. 48.

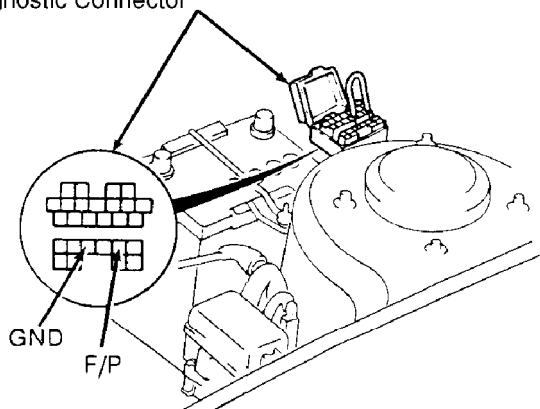
3) On B2200, B2600i and MPV, install a jumper wire between terminals of Yellow fuel pump check connector. Fuel pump check connector is located on firewall, under windshield wiper motor.

4) Turn ignition on for 10 seconds. Turn ignition off, and clean injector nozzles. On 4-cylinder models, tilt injectors about 60 degrees. On all models, turn ignition on. Ensure no fuel leakage exists at injectors. After one minute, a single drop of fuel is acceptable. If fuel leakage is present, replace faulty injector.

Injector Fuel Leakage (Navajo)

Use fuel injector tester/cleaner to test injector fuel leakage. Testing procedures are provided in instructions included with tester/cleaner from manufacturer.

Diagnostic Connector



92A24992

Fig. 48: Diagnostic Connector Terminal ID (Miata, MX-3, MX-6, Protege, RX7, 323, 626 & 929)
Courtesy of Mazda Motors Corp.

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 39)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:17AM

IDLE CONTROL SYSTEM

IDLE SPEED CONTROL (ISC) SYSTEM (B2200, B2600i, MPV, MX-3, MX-6, 626 & 929)

Air Valve (B2200, B2600i, MPV 2.6L, MX-6 2.0L & 626 2.0L)

1) Remove air valve from throttle body. Blow air through valve from port "A" and ensure air comes out of port "B" when valve is cold. See Fig. 49.

2) Place air valve in water at temperature greater than 176°F (80°C) for one minute. Blow air through valve from port "A". No air should come out of port "B". Replace valve as necessary.

Air Valve (MPV 3.0L & 929)

1) Disconnect air hoses from air valve. Blow air through valve from port "A" and ensure air flows through valve when engine is cold. See Fig. 50.

2) Warm engine to normal operating temperature. Blow air through valve from port "A". Air should not flow through valve. Replace valve as necessary.

Air Valve System (MX-3, MX-6 & 626)

Connect jumper wire between diagnostic connector terminals TEN and GND. Connect tachometer to diagnostic connector terminal IG. See Fig. 51. Start engine. Idle speed should decrease as engine reaches normal operating temperature. Replace valve as necessary.

ISC Valve

Disconnect ISC valve electrical connector. Connect ohmmeter to ISC valve 2-wire connector. Measure resistance. See ISC RESISTANCE SPECIFICATIONS table. If resistance is not within specification, replace ISC valve.

ISC RESISTANCE SPECIFICATIONS TABLE

Testing Temperature		
Application	°F (°C)	Ohms
B2200, B2600i, MX-6 2.0L, MPV 2.6L & 626 2.0L	73 (23)	7.7-9.3
MPV 3.0L, MX-3, MX-6 2.5L, 626 2.5L & 929	68 (20)	10.7-12.3

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 40)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:17AM

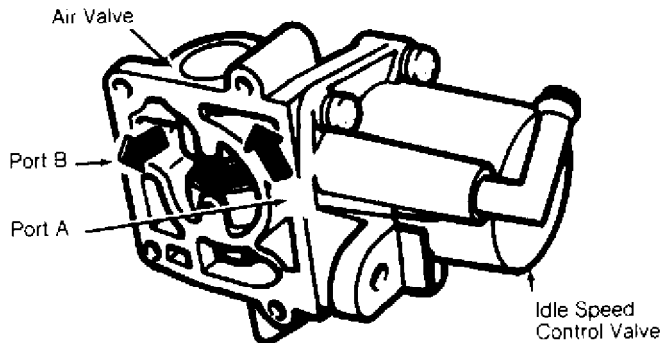


Fig. 49: Testing Air Valve (B2200, B2600i, MPV 2.6L, MX-6 & 626)
Courtesy of Mazda Motors Corp.

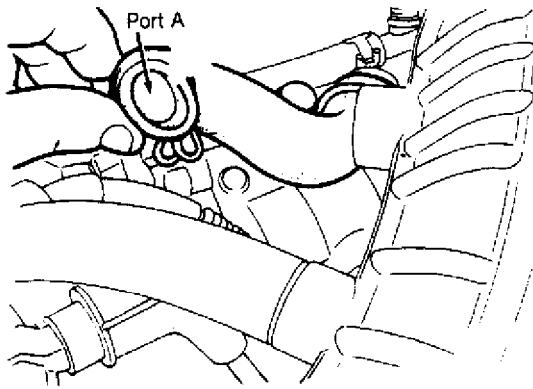


Fig. 50: Testing Air Valve (MPV 3.0L & 929)
Courtesy of Mazda Motors Corp.

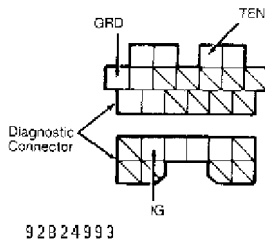


Fig. 51: Diagnostic Connector Terminal ID (MX-3, MX-6 & 626)
Courtesy of Mazda Motors Corp.

IDLE SPEED CONTROL (ISC) SYSTEM (MIATA, PROTEGE & 323)

Air Valve

Remove air valve. Cool air valve to temperature less than 32°F (0°C). Using a drier, heat air valve and verify plunger moves in direction of arrow. See Fig. 52.

ISC Valve

Disconnect ISC valve electrical connector. Connect ohmmeter to Idle Speed Control (ISC) valve 2-wire connector. Measure resistance. Resistance should be 11-13 ohms at 68°F (20°C). If resistance is not within specification, replace ISC valve.

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 41)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:17AM

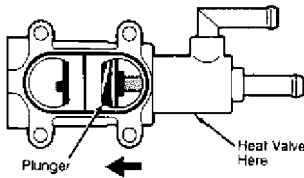


Fig. 52: Cross-Sectional View Of Air Valve (Miata, Protege & 323)
Courtesy of Mazda Motors Corp.

IDLE SPEED CONTROL (ISC) SYSTEM (NAVAJO)

Idle Speed Control (ISC) Solenoid

1) Solenoid is a by-pass air-type solenoid. Disconnect coolant hoses. Make sure coolant flows through ISC and air valve is open at room temperature.

2) Ensure ignition is off. Disconnect ISC solenoid electrical connector. Set DVOM to 200-ohm scale. Measure resistance between ISC solenoid terminals. A diode is located in solenoid; connect DVOM positive test lead to VPWR terminal (Red wire) and negative lead to ISC terminal (White/Light Blue wire). Resistance should be 6-13 ohms. Replace solenoid as necessary.

IDLE SPEED CONTROL (ISC) SYSTEM (RX7)

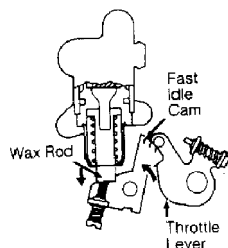
ISC Valve

1) Make sure fast idle cam has released throttle lever. See Fig. 53. Disconnect ISC valve electrical connector. Connect ohmmeter to ISC valve 2-wire connector. See Fig. 54. Measure resistance. Resistance should be 10.7-12.3 ohms at 68°F (20°C). If resistance is not within specification, replace ISC valve.

2) With engine idling at operating temperature, disconnect ISC valve electrical connector. Engine speed should increase to 1000-1500 RPM. If engine speed does not increase, replace ISC valve.

Accelerated Warm-Up System (AWS) Valve

Make sure fast idle cam has released throttle lever. See Fig. 53. Disconnect AWS valve electrical connector. Connect ohmmeter to AWS valve 2-wire connector. See Fig. 55. Measure resistance. Resistance should be 9.3-11.3 ohms at 68°F (20°C). If resistance is not within specification, replace AWS valve.



93180588

Fig. 53: Checking Fast Idle Cam & Throttle Lever
Courtesy of Mazda Motors Corp.

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 42)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Monday, August 20, 2001 07:17AM

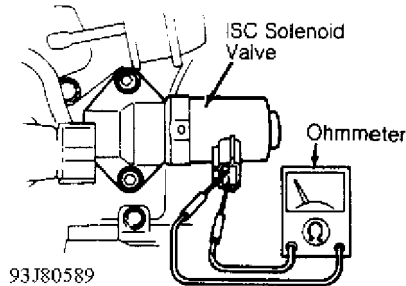


Fig. 54: Checking ISC Solenoid Valve
Courtesy of Mazda Motors Corp.

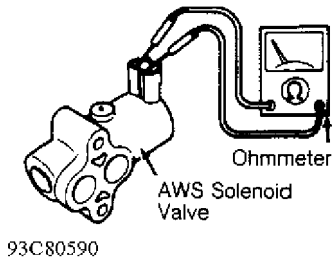


Fig. 55: Checking AWS Solenoid Valve
Courtesy of Mazda Motors Corp.

IGNITION SYSTEM

* PLEASE READ THIS FIRST *

NOTE: For basic ignition checks, see F - BASIC TESTING article.

PINPOINT TESTS (NAVAJO)

NOTE: Before testing Electronic Distributorless Ignition System (EDIS), ensure all tests in F - BASIC TESTING and G - TESTS W/CODES articles have been performed. In following tests, Electronic Distributorless Ignition System (EDIS) or Ignition Control Module (ICM) may be used to describe ignition system.

NOTE: Use EDIS Diagnostic Cable (49-UN01-057) to diagnose system. Cable is equipped with additional circuits and components to enhance and modify signals for testing purposes. If using an aftermarket test cable or DVOM, become familiar with system wiring diagram and system operation. See Figs. 56 and 57.

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 43)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:17AM

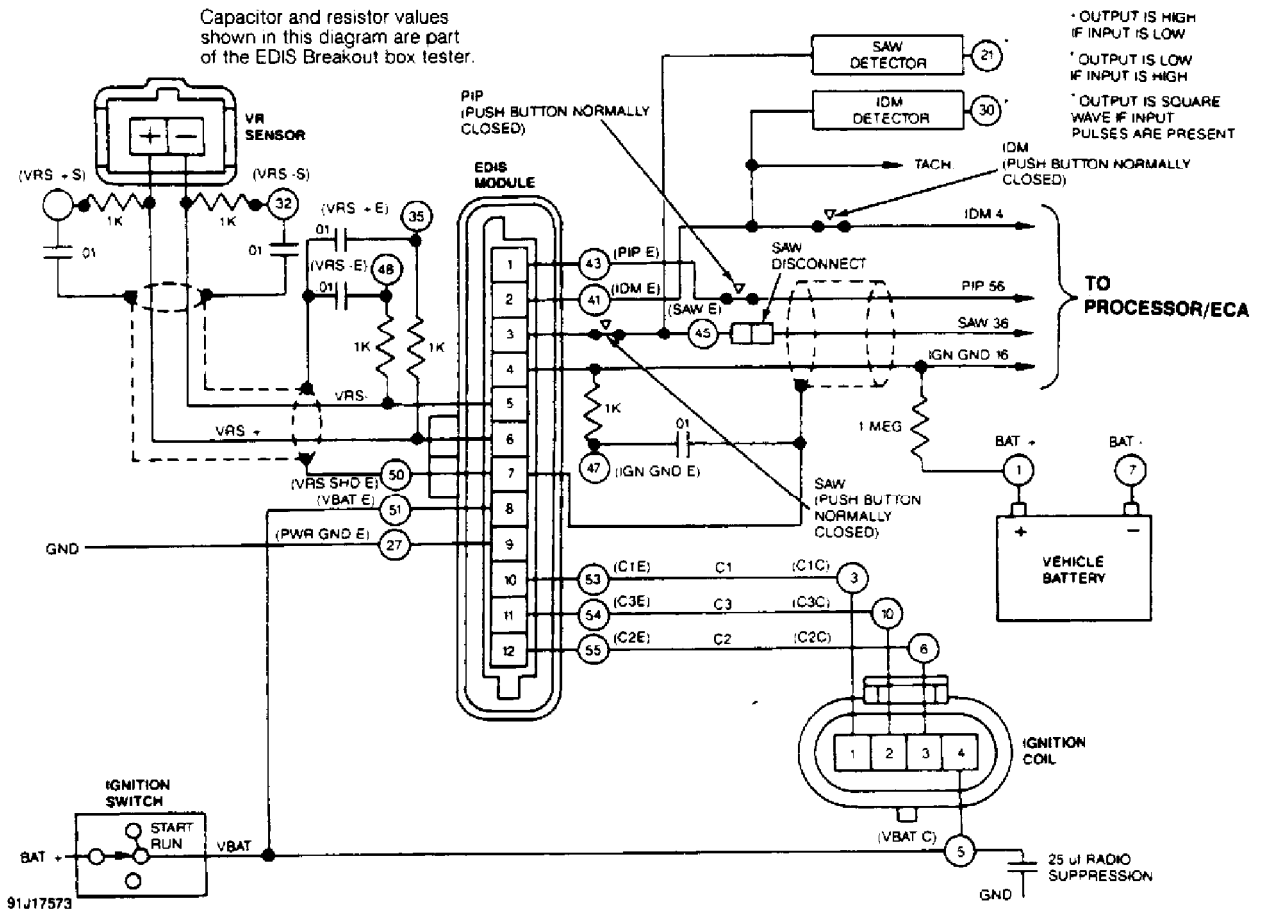


Fig. 56: Ignition System Wiring Diagram (Navajo)
Courtesy of Mazda Motors Corp.

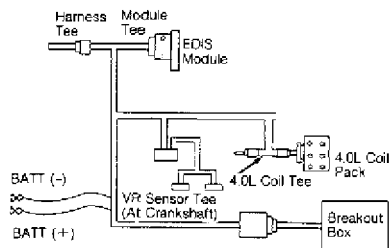


Fig. 57: EDIS/ICM Diagnostic Cable Diagram (Navajo)
Courtesy of Mazda Motors Corp.

CAUTION: Unless directed otherwise, DO NOT connect PCM to Breakout Box (BOB) when performing ICM diagnostics.

Pinpoint Test B (IDM Failure Code 212)

1) With ignition off, connect ICM diagnostic cable to Breakout Box (BOB) and ICM module. DO NOT connect VR sensor tee or coil tee. Use ICM "6" overlay. Connect negative and positive leads of

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 44)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:17AM

ICM diagnostic cable to battery. Set ICM diagnostic cable box switch to 4/6 CYLINDER position. Set DVOM on 20-volt AC scale. Start engine. Measure voltage between IDM DETECTOR (30) and BAT- (7) of diagnostic cable Ignition Diagnostic Monitor (IDM) at BOB. If pulses are present, IDM detector output will be 5-7 volts AC. If AC voltage is 5-7 volts, go to next step. If AC voltage is not 5-7 volts, go to step 3).

2) With ignition off, ICM module and PCM disconnected, disconnect ICM module from ICM module tee, leaving ICM diagnostic cable connected to vehicle harness connector. Set DVOM on 200-ohm scale. Connect PCM Breakout Box (BOB) to PCM harness connector. Measure resistance between IDM E (41) at BOB and terminal No. 4 at PCM BOB. If resistance is less than 5 ohms, IDM signal at PCM is okay. PCM does not respond to IDM signal. Replace PCM. Remove test equipment, and reconnect all components. Clear continuous memory codes, and rerun QUICK TEST. See QUICK TEST in G - TESTS W/CODES article in the ENGINE PERFORMANCE section. If resistance is 5 ohms or more, IDM is open. Check connections and/or repair open circuit or replace harness. Remove test equipment, and reconnect all components. Clear continuous memory codes, and rerun QUICK TEST. See QUICK TEST in appropriate G - TESTS W/CODES article in the ENGINE PERFORMANCE section.

3) With ignition off and IDM circuit disconnected, set DVOM on 20-volt AC scale. Push ICM IDM button at ICM diagnostic cable connector to BOB. Start engine, and measure voltage between diagnostic cable IDM DETECTOR (30) and BAT- (7) at BOB. If AC voltage is 5-7 volts, go to next step. If AC voltage is not 5-7 volts, IDM output from ICM module does not exist. Replace ICM module. Remove test equipment, and reconnect all components. Clear continuous memory codes, and rerun QUICK TEST. See QUICK TEST in G - TESTS W/CODES article.

4) With ignition off and PCM disconnected, set DVOM on 20-volt AC scale. Crank engine, and measure voltage between diagnostic cable IDM DETECTOR (30) and BAT- (7) at BOB. If voltage is less than 5 volts, go to next step. If voltage is 5 volts or more, PCM is loading IDM signal. Replace PCM. Remove test equipment, and reconnect all components. Clear continuous memory codes, and rerun QUICK TEST. See QUICK TEST in G - TESTS W/CODES article.

5) With ignition off and ICM module and PCM disconnected, disconnect ICM module from diagnostic cable module tee, leaving ICM diagnostic cable connected to vehicle harness connector. Set DVOM on 20-k/ohm scale. Measure resistance between IDM E (41) and BAT- (7) at BOB. If resistance is 10-k/ohms or more, go to next step. If resistance is less than 10-k/ohms, IDM is shorted low. Check connections and/or repair short circuit or replace harness. Remove test equipment, and reconnect all components. Clear continuous memory codes, and rerun QUICK TEST. See QUICK TEST in G - TESTS W/CODES article in the ENGINE PERFORMANCE section.

6) With ignition off and ICM module and PCM disconnected, set DVOM on 20-volt DC scale. With Key On Engine Off (KOEO), measure voltage between IDM E (41) and BAT- (7) at BOB. If DC voltage is .5 volt or more, IDM is shorted high. Check connections and/or repair short circuit or replace harness. Remove test equipment, and reconnect all components. Clear continuous memory codes, and rerun QUICK TEST.

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 45)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:17AM

See QUICK TEST in G - TESTS W/CODES article.

7) If voltage is less than .5 volt, IDM is shorted to another wire between ICM module and PCM. Check connections and/or repair short circuit or replace harness. Remove test equipment and reconnect all components. Clear continuous memory codes, and rerun QUICK TEST. See QUICK TEST in G - TESTS W/CODES article in the ENGINE PERFORMANCE section.

CAUTION: Unless directed otherwise, DO NOT connect PCM to Breakout Box (BOB) when performing ICM diagnostics.

Pinpoint Test C (Lack Of Power Or Poor Fuel Economy Code 213)

1) With ignition off, install ICM diagnostic cable to BOB and ICM module. DO NOT connect VR sensor tee or coil tee. Use ICM 6 overlay. Connect negative and positive leads of ICM diagnostic cable to battery. Set ICM diagnostic cable box switch to 4/6 CYLINDER position. Connect timing light (must be ICM compatible). Start engine, and warm it to normal operating temperature. Push and hold down ICM diagnostic cable SAW detector button. If timing is 8-12 degrees BTDC, go to next step. If timing is not 8-12 degrees BTDC, go to step 8).

2) Release ICM diagnostic cable SAW detector button. Go to next step if timing is not 15 degrees BTDC. If timing is more than 15 degrees BTDC, ICM is okay. Check for other causes of driveability symptoms.

3) With ignition off, set DVOM on 20-volt AC scale. Start engine and measure voltage between SAW DETECTOR (21) of ICM diagnostic cable and BAT- (7) at BOB. If AC voltage is 5 volts or more, go to next step. If AC voltage is less than 5 volts, SAW input to ICM module is okay and no spark advance is present. Replace ICM module. Remove test equipment, and reconnect all components. Clear continuous memory codes, and rerun QUICK TEST. See QUICK TEST in G - TESTS W/CODES article.

4) With ignition off and SAW circuit disconnected, set DVOM on 20-volt AC scale. Push and hold down SAW detector button at ICM diagnostic cable connector to BOB. Start engine, and measure voltage between SAW DETECTOR (21) of ICM diagnostic cable and BAT- (7) at BOB. If AC voltage is less than 5 volts, go to next step. If AC voltage is 5 volts or more, SAW is shorted in ICM module. Replace ICM module. Remove test equipment, and reconnect all components. Clear continuous memory codes, and rerun QUICK TEST. See QUICK TEST in G - TESTS W/CODES article in the ENGINE PERFORMANCE section.

5) With ignition off and ICM module and PCM disconnected, disconnect ICM module from ICM module tee, leaving ICM diagnostic cable connected to vehicle harness connector. Set DVOM on 20-k/ohm scale. Disconnect ICM diagnostic cable positive lead to battery. Measure resistance between SAW E (45) and BAT- (7) at BOB. If resistance is 10 k/ohms or more, go to next step. If resistance is less than 10 k/ohms, SAW is shorted low. Check connections and/or repair open circuit or replace harness. Remove test equipment, and reconnect all components. Clear continuous memory codes, and rerun QUICK TEST. See QUICK TEST in G - TESTS W/CODES article.

6) With ignition off and ICM module and PCM disconnected, set

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 46)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:17AM

DVOM on 20-volt DC scale. With Key On Engine Off (KOEO), measure voltage between SAW E (45) and BAT- (7) at BOB. If DC voltage is less than .5 volt, go to next step. If DC voltage is .5 volt or more, SAW is shorted high. Check connections and/or repair open circuit or replace harness. Remove test equipment, and reconnect all components. Clear continuous memory codes, and rerun QUICK TEST. See QUICK TEST in G - TESTS W/CODES article in the ENGINE PERFORMANCE section.

7) With ignition off and ICM module and PCM disconnected, set DVOM on 200-ohm scale. Connect PCM Breakout Box (BOB) to PCM harness connector. Measure resistance between SAW E (45) at BOB and terminal No. 36 at PCM BOB. If resistance is less than 5 ohms, SAW is open. Check connections and/or repair open circuit or replace harness. Remove test equipment, and reconnect all components. Clear continuous memory codes, and rerun QUICK TEST. See QUICK TEST in appropriate G - TESTS W/CODES article. If resistance is 5 ohms or more, SAW is not being transmitted by ECU. Replace ECU. Remove test equipment, and reconnect all components. Clear continuous memory codes, and rerun QUICK TEST. See QUICK TEST in G - TESTS W/CODES article.

8) If VR sensor or trigger wheel is loose, misaligned or damaged, repair or replace as necessary. Remove test equipment, and reconnect all components. Clear continuous memory codes, and rerun QUICK TEST. See QUICK TEST in G - TESTS W/CODES article in the ENGINE PERFORMANCE section. If VR sensor or trigger wheel is not loose, misaligned or damaged, ICM module has incorrect output. Remove test equipment, and reconnect all components. Clear continuous memory codes, and rerun QUICK TEST. See QUICK TEST in G - TESTS W/CODES article.

CAUTION: Unless directed otherwise, DO NOT connect PCM to PCM Breakout Box (BOB) when performing ICM diagnostics.

Pinpoint Test D (No Start Or Coil Failure Code 232)

1) Using spark plug tester, check for spark at all spark plug wires while cranking. If spark was consistent on all spark plug wires (one spark per crankshaft revolution), ignition system is okay. Check for other causes of driveability symptoms. If spark was not consistent on all spark plug wires, check spark plug wires for insulation damage, looseness, shorting and other damage. Remove and check spark plugs for wear, carbon deposits, improper gap and damage. If spark plugs and wires are okay, go to next step. If spark plugs and wires are not okay, repair or replace as necessary. Remove test equipment, and reconnect all components. Clear continuous memory codes, and rerun QUICK TEST. See QUICK TEST in G - TESTS W/CODES article.

2) With ignition off, install ICM diagnostic cable to BOB. Connect ICM diagnostic cable negative lead to battery. Set ICM diagnostic cable box switch to 4/6 CYLINDER position. Install coil tee. Use ICM "6" overlay. Set DVOM on 20-volt DC scale. With Key On, Engine Off (KOEO), measure voltage between VBAT C (5) and BAT- (7) at BOB. If DC voltage is 10 volts or more, go to next step. If DC voltage is less than 10 volts, VBAT is open. Check connections and/or repair open circuit or replace harness. Remove test equipment, and reconnect all components. Clear continuous memory codes, and rerun QUICK TEST.

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 47)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:17AM

See QUICK TEST in G - TESTS W/CODES article.

3) With Key On Engine Off (KOEO), measure voltage between C1C (3) and BAT- (7) at BOB. If DC voltage is 10 volts or more, go to next step. If DC voltage is less than 10 volts, go to step 15).

4) With Key On Engine Off (KOEO), measure voltage between C2C (6) and BAT- (7) at BOB. If DC voltage is 10 volts or more, go to next step. If DC voltage is less than 10 volts, go to step 17).

5) With Key On Engine Off (KOEO), measure voltage between C3C (6) and BAT- (7) at BOB. If DC voltage is 10 volts or more, go to next step. If DC voltage is less than 10 volts, go to step 19).

6) With ignition off, connect ICM module tee to ICM module and vehicle harness connector. Set DVOM on 20-volt DC scale. With KOEO, measure voltage between C1E (53) and BAT- (7) at BOB. If DC voltage is 10 volts or more, go to next step. If DC voltage is less than 10 volts, C1 is open. Check connections and/or repair open circuit or replace harness. Remove test equipment, and reconnect all components. Clear continuous memory codes, and rerun QUICK TEST. See QUICK TEST in G - TESTS W/CODES article in the ENGINE PERFORMANCE section.

7) With KOEO, measure voltage between C2E (55) and BAT- (7) at BOB. If DC voltage is 10 volts or more, go to next step. If DC voltage is less than 10 volts, C2 is open. Check connections and/or repair open circuit or replace harness. Remove test equipment, and reconnect all components. Clear continuous memory codes, and rerun QUICK TEST. See QUICK TEST in G - TESTS W/CODES article.

8) With KOEO, measure voltage between C3E (54) and BAT- (7) at BOB. If DC voltage is 10 volts or more, go to next step. If DC voltage is less than 10 volts, C3 is open. Check connections and/or repair open circuit or replace harness. Remove test equipment, and reconnect all components. Clear continuous memory codes, and rerun QUICK TEST. See QUICK TEST in G - TESTS W/CODES article in the ENGINE PERFORMANCE section.

9) With ignition off and coil disconnected, disconnect coil pack from coil tee. Leave ICM diagnostic cable connected to vehicle harness connector. Set DVOM on 20-volt DC scale. With KOEO, measure voltage between C1C (3) and BAT- (7) at BOB. If voltage is less than .5 volt, go to next step. If voltage is .5 volt or more, go to step 21).

10) With KOEO and coil disconnected, measure voltage at BOB between C2C (6) and BAT- (7). If DC voltage is less than .5 volt, go to next step. If DC voltage is .5 volt or more, go to step 22).

11) With KOEO and coil disconnected, measure voltage at BOB between C3C (10) and BAT- (7). If DC voltage is less than 10.5 volts, go to next step. If DC voltage is 10.5 volts or more, go to step 23).

12) With coil disconnected, connect ICM diagnostic cable positive lead to battery. Connect incandescent test light between C1C (3) and BAT+ (1). Crank engine. If test light blinks consistently and brightly (one blink per engine revolution), go to next step. If test light does not blink consistently and brightly, C1 is open in ICM module. Replace ICM module. Remove test equipment, and reconnect all components. Clear continuous memory codes, and rerun QUICK TEST. See QUICK TEST in G - TESTS W/CODES article.

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 48)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:17AM

13) With coil disconnected, connect incandescent test light between C2C (6) and BAT+ (1). Crank engine. If test light blinks consistently and brightly (one blink per engine revolution), go to next step. If test light does not blink consistently and brightly, C2 is open in ICM module. Replace ICM module. Remove test equipment, and reconnect all components. Clear continuous memory codes, and rerun QUICK TEST. See QUICK TEST in G - TESTS W/CODES article in the ENGINE PERFORMANCE section.

14) With coil disconnected, connect incandescent test light between C3C (10) and BAT+ (1). Crank engine. If test light blinks consistently and brightly (one blink per engine revolution), input to coil pack is okay and no high voltage output is present. Replace coil pack. Remove test equipment, and reconnect all components. Clear continuous memory codes, and rerun QUICK TEST. See QUICK TEST in G - TESTS W/CODES article. If test light does not blink consistently and brightly, C3 is open in ICM module. Replace ICM module. Remove test equipment, and reconnect all components. Clear continuous memory codes, and rerun QUICK TEST. See QUICK TEST in G - TESTS W/CODES article.

15) With ignition off and coil disconnected, set DVOM on 20-k/ohm scale. Disconnect coil from coil tee, leave ICM diagnostic cable connected to vehicle harness connector. Measure voltage at BOB between C1C (3) and BAT- (7). If resistance is less than 2 k/ohms, go to next step. If resistance is 2 k/ohms or more, C1 is open in coil. Replace coil pack. Remove test equipment, and reconnect all components. Clear continuous memory codes, and rerun QUICK TEST. See QUICK TEST in G - TESTS W/CODES article in the ENGINE PERFORMANCE section.

16) With ignition off and ICM module and coil disconnected, disconnect ICM module from vehicle harness connector. Set DVOM on 20-k/ohm scale. Measure voltage between C1C (3) and BAT- (7) at BOB. If resistance is less than 10-k/ohms, C1 is shorted low. Check connections and/or repair open circuit or replace harness. Remove test equipment, and reconnect all components. Clear continuous memory codes, and rerun QUICK TEST. See QUICK TEST in G - TESTS W/CODES article. If resistance is 10-k/ohms or more, C1 is shorted low. Replace ICM module. Remove test equipment, and reconnect all components. Clear continuous memory codes, and rerun QUICK TEST. See QUICK TEST in G - TESTS W/CODES article in the ENGINE PERFORMANCE section.

17) With ignition off and coil disconnected, set DVOM on 20-k/ohm scale. Disconnect coil from coil tee, leave ICM diagnostic cable connected to vehicle harness connector. Measure resistance between C2C (6) and BAT- (7) at BOB. If resistance is less than 2k/ohms, go to next step. If resistance is 2 k/ohms or more, C2 is open in coil. Replace coil pack. Remove test equipment, and reconnect all components. Clear continuous memory codes, and rerun QUICK TEST. See QUICK TEST in G - TESTS W/CODES article.

18) With ignition off and ICM module and coil disconnected, disconnect ICM module from vehicle harness connector. Set DVOM on 20-k/ohm scale. Measure resistance between C2C (6) and BAT- (7) at BOB. If resistance is less than 10 k/ohms, C2 is shorted low. Check connections and/or repair open circuit or replace harness. Remove test

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 49)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:17AM

equipment, and reconnect all components. Clear continuous memory codes, and rerun QUICK TEST. See QUICK TEST in SELF-DIAGNOSTICS - NAVAJO article. If resistance is 10 k/ohms or more, C2 is shorted low. Replace ICM module. Remove test equipment, and reconnect all components. Clear continuous memory codes, and rerun QUICK TEST. See QUICK TEST in G - TESTS W/CODES article in the ENGINE PERFORMANCE section.

19) With ignition off and coil disconnected, set DVOM on 20-k/ohm scale. Disconnect coil from coil tee, leave ICM diagnostic cable connected to vehicle harness connector. Measure resistance between C3C (10) and BAT- (7) at BOB. If resistance is less than 2 k/ohms, go to next step. If resistance is 2 k/ohms or more, C3 is open in coil. Replace coil pack. Remove test equipment, and reconnect all components. Clear continuous memory codes, and rerun QUICK TEST. See QUICK TEST in G - TESTS W/CODES article.

20) With ignition off and ICM module and coil disconnected, disconnect ICM module from vehicle harness connector. Set DVOM on 20-k/ohm scale. Measure resistance between C3C (10) and BAT- (7) at BOB. If resistance is less than 10 k/ohms, C3 is shorted low. Check connections and/or repair open circuit or replace harness. Remove test equipment, and reconnect all components. Clear continuous memory codes, and rerun QUICK TEST. See QUICK TEST in G - TESTS W/CODES article. If resistance is 10 k/ohms or more, C3 is shorted low. Replace ICM module. Remove test equipment, and reconnect all components. Clear continuous memory codes, and rerun QUICK TEST. See QUICK TEST in G - TESTS W/CODES article.

21) With ignition off and ICM module and coil disconnected, disconnect ICM module from ICM module tee. Leave ICM diagnostic cable connected to vehicle harness connector. Set DVOM on 20-volt DC scale. With KOEO, measure voltage between C1C (3) and BAT- (7) at BOB. If DC voltage is .5 volt or more, C1 is shorted high. Check connections and/or repair open circuit or replace harness. Remove test equipment, and reconnect all components. Clear continuous memory codes, and rerun QUICK TEST. See QUICK TEST in G - TESTS W/CODES article. If DC voltage is less than .5 volt, C1 is shorted high. Replace ICM module. Remove test equipment, and reconnect all components. Clear continuous memory codes, and rerun QUICK TEST. See QUICK TEST in G - TESTS W/CODES article.

22) With ignition off and ICM module and coil disconnected, disconnect ICM module from ICM module tee. Leave ICM diagnostic cable connected to vehicle harness connector. Set DVOM on 20-volt DC scale. With KOEO, measure voltage between C2C (6) and BAT- (7) at BOB. If DC voltage is .5 volt or more, C2 is shorted high. Check connections and/or repair open circuit or replace harness. Remove test equipment, and reconnect all components. Clear continuous memory codes, and rerun QUICK TEST. See QUICK TEST in G - TESTS W/CODES article. If DC voltage is less than .5 volt, C2 is shorted high. Replace ICM module. Remove test equipment, and reconnect all components. Clear continuous memory codes, and rerun QUICK TEST. See QUICK TEST in G - TESTS W/CODES article in the ENGINE PERFORMANCE section.

23) With ignition off and ICM module and coil disconnected, disconnect ICM module from ICM module tee. Leave ICM diagnostic cable

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 50)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:17AM

connected to vehicle harness connector. Set DVOM on 20-volt DC scale. With KOEO, measure voltage between C3C (10) and BAT- (7) at BOB. If DC voltage is .5 volt or more, C3 is shorted high. Check connections and/or repair open circuit or replace harness. Remove test equipment, and reconnect all components. Clear continuous memory codes, and rerun QUICK TEST. See QUICK TEST in G - TESTS W/CODES article. If DC voltage is less than .5 volt, C3 is shorted high. Replace ICM module. Remove test equipment, and reconnect all components. Clear continuous memory codes, and rerun QUICK TEST. See QUICK TEST in G - TESTS W/CODES article in the ENGINE PERFORMANCE section.

EMISSION SYSTEMS & SUB-SYSTEMS

AIR INJECTION (RX7)

System Inspection

1) Warm engine to normal operating temperature. Disconnect electrical connector from switching valve solenoid. Using jumper wires, energize solenoid.

2) If engine idles rough, air control valve and switching valve solenoid are okay. See Fig. 58. If engine does not idle rough, check vacuum routing, switching valve solenoid, air pump and air control valve.

Air Control Valve

1) Remove air control valve. Apply about 15 in. Hg to switching valve port. See Fig. 59. Ensure switching valve opens. If switching valve does not open, replace air control valve.

2) Apply about 19 in. Hg to air relief valve port. See Fig. 60. Ensure air relief valve opens. If air relief valve does not open, replace air control valve.

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 51)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:17AM

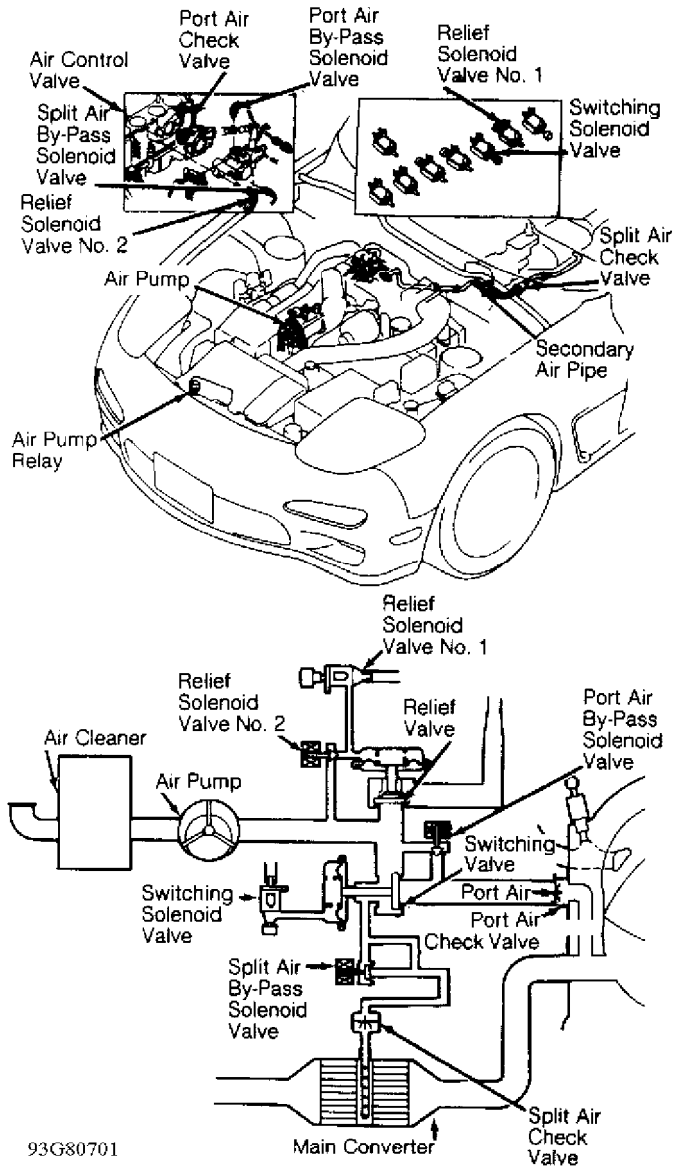


Fig. 58: View Of Air Injection System (RX7)
Courtesy of Mazda Motors Corp.

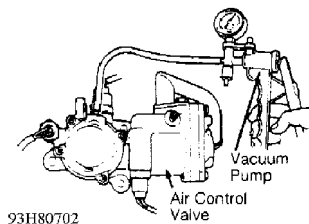


Fig. 59: Testing Switching Valve (RX7)
Courtesy of Mazda Motors Corp.

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 52)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:17AM

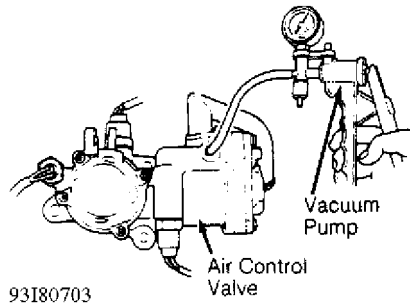


Fig. 60: Testing Air Relief Valve (RX7)
Courtesy of Mazda Motors Corp.

Air Pump

1) Install a "T" fitting into hose between air pump and air control valve. Connect a pressure gauge to fitting. Start engine. Pressure gauge should show at least .7 psi (.05 kg/cm²) coming from air pump. If pressure is less than specified, replace air pump.

2) Increase engine speed to 3250 RPM and verify air pump magnetic clutch disengages. If air pump magnetic clutch does not disengage, disconnect electrical connector from air pump. Air pump magnetic clutch should disengage.

3) If air pump is still engaged, replace air pump. If air pump magnetic clutch disengaged when electrical connector was disconnected, check air pump relay (located in front engine compartment relay box).

Air Relief Valve

1) Warm engine to normal operating temperature. Disconnect hose from air relief valve. Ensure no air flows from hose. If air does flow, air relief valve may be stuck open.

2) Disconnect electrical connector from relief valve solenoid No. 1. Using jumper wires, energize solenoid. If air flows from air relief valve, air relief valve and relief valve solenoid No. 1 are okay. See Fig. 58. If air does not flow, check vacuum routing, relief valve solenoid No. 1, air pump and air control valve.

Control Solenoids

Disconnect electrical connector from each solenoid. See Fig. 58. Using jumper wires, energize solenoid. Ensure each solenoid clicks. Measure resistance across solenoid terminals. Resistance should be 26-33 ohms at room temperature. If any solenoid does not test as described, replace solenoid.

Port Air & Split Air Check Valves

1) Operate engine at idle. Disconnect hose between air pump and air control valve. See Fig. 58. Ensure exhaust gas is not leaking from port air check valve. If exhaust gas is leaking, replace air control valve.

2) Disconnect hose from split air check valve. See Fig. 58. Increase engine speed to 2000 RPM and verify exhaust gas is not

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 53)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:17AM

leaking from split air check valve. If valve is not working correctly, replace split air check valve.

DECELERATION CONTROL SYSTEM

NOTE: Deceleration control system is a function of dashpot and ECU. Dashpot prevents sudden closure of throttle valve. ECU controls fuel cut during deceleration. For adjustment and testing, see D - ADJUSTMENTS article.

EXHAUST GAS RECIRCULATION (EGR) (MX-3 DOHC, MX-6, RX7, 626 & 929)

System Check (MX-3 DOHC, MX-6 2.5L, 626 2.5L & 929)

1) Connect Engine Signal Monitor (49-9200-162) and Test Harness (49 G018 903) to ECU. Start engine. Increase engine speed, and check voltage at ECU terminals 30 and 3P while engine is cold. See PIN VOLTAGE CHARTS article. Voltage should be 12 volts.

2) Warm engine to operating temperature, and operate it at idle. Increase engine speed, and ensure engine signal monitor Green and Red lights flash at ECU terminals 30 and 3P.

3) Disconnect EGR solenoid valve (vacuum side) electrical connector. Apply 12 volts and a ground to solenoid valve. Ensure engine runs rough or stalls at idle. Test EGR components as necessary. See Fig. 61 or 63.

System Check (MX-6 2.0L & 626 2.0L)

Check all connectors and hose routings. Check for cracks, leakage and restrictions, and repair as necessary. Start engine, and ensure diaphragm of EGR control valve does not move while engine is cold. Warm engine to operating temperature and operate at idle. Increase engine speed to about 2000 RPM, and ensure diaphragm of EGR control valve moves. If no movement is detected, test EGR components as necessary. See Fig. 62.

System Check (RX7)

Check all connectors and hose routings. Check for cracks, leakage and restrictions, and repair as necessary. Start engine, and ensure diaphragm of EGR control valve does not move while engine is cold. Warm engine to operating temperature and allow it to idle. Ground Blue/Yellow wire at EGR solenoid. Ensure EGR control valve moves and engine idles rough or stalls. If no movement occurs or engine idles smooth, test EGR components as necessary.

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 54)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:17AM

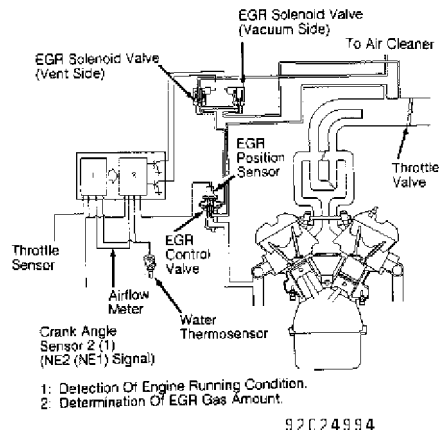


Fig. 61: EGR System Component ID (MX-3 DOHC, MX-6 2.5L & 626 2.5L)
Courtesy of Mazda Motors Corp.

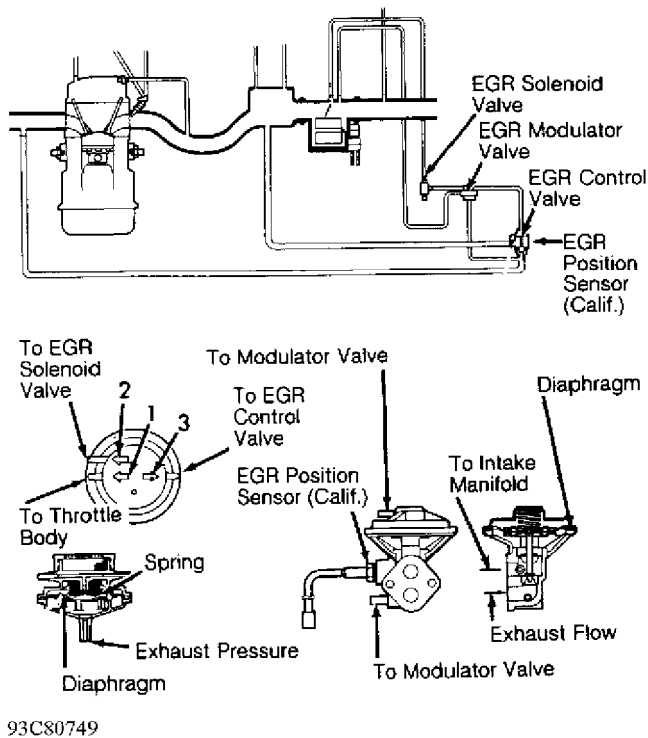


Fig. 62: EGR System Component ID (MX-6 2.0L & 626 2.0L)
Courtesy of Mazda Motors Corp.

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 55)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:17AM

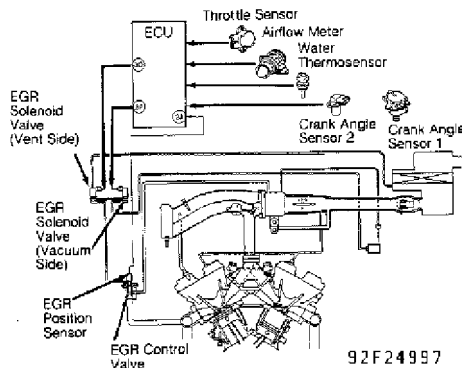


Fig. 63: EGR System Component ID (929)
Courtesy of Mazda Motors Corp.

EGR Control Valve

Bring engine to normal operating temperature and operate at idle. Disconnect and plug vacuum hose at EGR control valve. Engine should run smoothly. Connect vacuum pump to EGR control valve, and apply vacuum. See EGR CONTROL VALVE OPERATING VACUUM table. Engine should run rough or stall. If engine does not operate as specified, clean or replace EGR control valve.

EGR CONTROL VALVE OPERATING VACUUM TABLE

Application		Vacuum in. Hg
MX-3 DOHC	.....	1.6-2.4
MX-6 & 626		
2.0L	.....	6
2.5L	.....	1.6-2.4
RX7	.....	3.3-4.5
929	.....	1.6-2.4

EGR Modulator Valve (MX-6 2.0L & 626 2.0L)

Remove EGR modulator valve. Plug port No. 3, and connect a vacuum pump to port No. 1. See Figs. 56 and 58. Blow into exhaust gas port. Operate vacuum pump and verify vacuum is held. Release exhaust port and verify vacuum is released. Replace EGR modulator valve if it does not test as described.

I - SYSTEM/COMPONENT TESTS - EFI

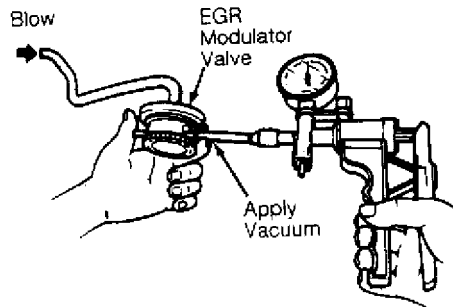
Article Text (p. 56)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:17AM



93G80750

Fig. 64: Testing EGR Modulator Valve (MX-6 2.0L & 626 2.0L)
Courtesy of Mazda Motors Corp.

EGR Position Sensor (MX-3 DOHC)

1) Disconnect ECU electrical connector. Connect Engine Signal Monitor (49-9200-162) and Test Harness (49 G018 903) to ECU. Connect vacuum pump to EGR control valve. Turn ignition on. Check voltage at ECU connector terminals. See EGR POSITION SENSOR VOLTAGE table.

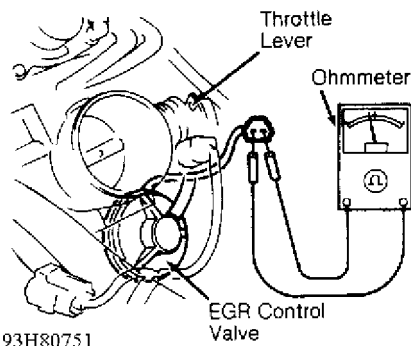
2) If voltage is not correct at terminals "A" and "B", check wiring harness and connection at ECU connector terminals 2J and 3D. If voltage is not correct at terminal "C", check sensor resistance, wiring harness and ECU connector terminal 2I.

3) Disconnect EGR position sensor electrical connector. Connect ohmmeter to EGR position sensor. Disconnect vacuum hose from EGR control valve. Connect vacuum pump to EGR control valve.

4) Check sensor resistance between indicated terminals. See EGR POSITION SENSOR RESISTANCE table. If resistance is not within specifications, replace sensor.

EGR Position Sensor (MX-6 2.0L & 626 2.0L)

Disconnect EGR position sensor electrical connector. Check resistance across terminals. See Fig. 65. At room temperature, resistance should be 182-336 ohms. If resistance is not as specified, replace EGR control valve.



93H80751

Fig. 65: Testing EGR Position Sensor (MX-6 2.0L & 626 2.0L)
Courtesy of Mazda Motors Corp.

EGR Position Sensor (MX-6 2.5L & 626 2.5L)

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 57)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:17AM

1) Disconnect ECU electrical connector. Connect Engine Signal Monitor (49-9200-162) and Test Harness (49 G018 903) between ECU and wiring harness. Disconnect vacuum hose from EGR control valve. Connect vacuum pump to EGR control valve.

2) Turn ignition on. Check voltage at adapter harness connector terminals. See Fig. 66. See EGR POSITION SENSOR VOLTAGE table.

3) If voltage is not correct at terminals "A" and "B", check wiring harness and connection at ECU connector terminals 2J and 3C. If voltage is not correct at terminal "C", check sensor resistance, wiring harness and ECU connector terminal 2I.

4) Disconnect EGR position sensor electrical connector. Disconnect vacuum hose from EGR control valve. Apply vacuum to EGR control valve.

5) Check sensor resistance between indicated terminals. See EGR POSITION SENSOR RESISTANCE table. If resistance is not within specifications, replace sensor.

EGR Position Sensor (929)

1) Disconnect EGR position sensor electrical connector. Connect ohmmeter to EGR position sensor. Disconnect vacuum hose from EGR control valve. Apply vacuum to EGR control valve.

2) Check sensor resistance between indicated terminals. See EGR POSITION SENSOR RESISTANCE table. If resistance is not within specifications, replace sensor.

EGR Switch (RX7 California)

Measure continuity across switch on EGR control valve. Apply 3.3-4.5 in. Hg to EGR control valve. Continuity should be present. If continuity is not present, replace EGR control valve.

EGR POSITION SENSOR VOLTAGE TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
Terminal (ECU) Volts

"A" (2J)

Without Vacuum About 0.7

With 5.9 In. Hg About 4.7

"B" (3D) Less Than 1.5

"C" (2I) 4.5-5.5

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

EGR POSITION SENSOR RESISTANCE TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
Terminals Ohms

MX-3 DOHC

"A" & "B"

Zero in. Hg 2300

6 in. Hg 5800

"A" & "C"

Zero in. Hg 5300

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 58)

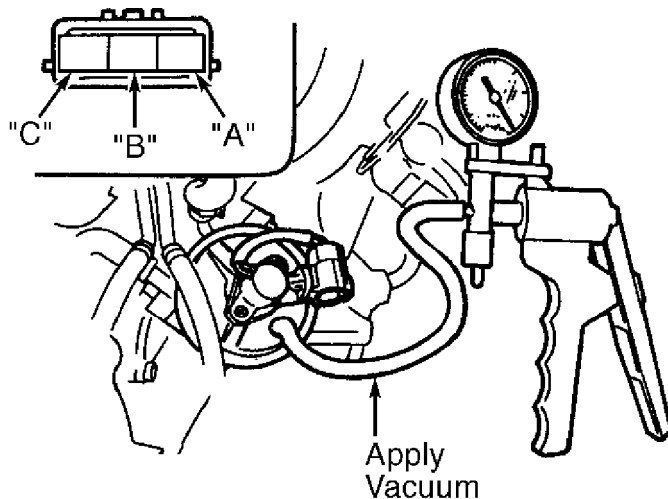
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:17AM

6 in. Hg	1200
"B" & "C"	5000
MX-6 2.5L & 626 2.5L	
"A" & "B"	5000
"A" & "C"	700-5000
"B" & "C"	700-5000
929	
"A" & "B"	700-5000
"A" & "C"	700-5000
"B" & "C"	5000
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	



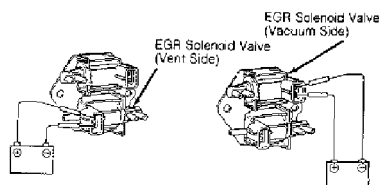
93I80752

Fig. 66: Testing EGR Position Sensor (MX-6 2.5L & 626 2.5L)
Courtesy of Mazda Motors Corp.

EGR Solenoid Valve (MX-3 DOHC, MX-6 2.5L, 626 2.5L & 929)

1) Disconnect vacuum hoses. Blow air through vacuum hose (vacuum side). Ensure air does not flow. Disconnect EGR solenoid valve (vacuum side) electrical connector. Apply 12 volts and a ground to solenoid valve (vacuum side) terminals. See Fig. 67. Blow air through vacuum hose and ensure air flows.

2) Blow air through vacuum hose (vent side). Ensure air flows. Disconnect EGR solenoid valve (vent side) electrical connector. Apply 12 volts and a ground to solenoid valve (vent side) terminals. See Fig. 67. Blow air through vacuum hose and ensure air does not flow. Replace solenoid valves as necessary.



92H24998

Fig. 67: Testing EGR Solenoid Valves (MX-3 DOHC Shown; MX-6 2.5L, 626 2.5L & 929 Similar)
Courtesy of Mazda Motors Corp.

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 59)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:17AM

EXHAUST GAS RECIRCULATION (EGR) (NAVAJO - CALIFORNIA)

System Check

1) Check all connectors and hose routings. Check for cracks, leakage and restrictions, and repair as necessary. Start engine, and ensure diaphragm of EGR control valve does not move while engine is cold. Warm engine to operating temperature and allow it to idle.

2) Disconnect vacuum hose at EGR control valve. See Fig. 68. Ensure less than 1 in. Hg is present. If specified amount of vacuum is present, check EGR control valve. If specified amount of vacuum is not present, test EGR components as necessary.

NOTE: Most EGR problems should set a trouble code in computer memory. For computer control testing of EGR components, see CIRCUIT TEST DL in G - TESTS W/CODES article.

EGR Control Valve

Bring engine to normal operating temperature and operate at idle. Disconnect and plug vacuum hose at EGR control valve. See Fig. 68. Engine should run smoothly. Connect vacuum pump to EGR control valve, and apply 5-10 in. Hg. Engine should run rough. If engine does not run rough, clean or replace EGR control valve.

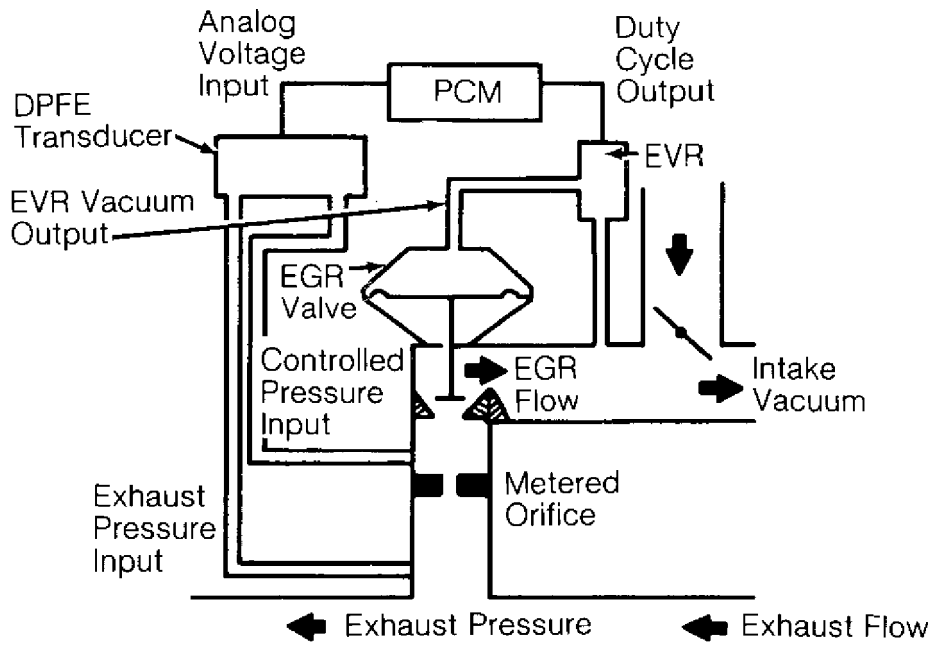


Fig. 68: Identifying EGR System Components (Navajo)
Courtesy of Mazda Motors Corp.

FUEL EVAPORATION (EXCEPT NAVAJO)

System Inspection

Purge system operation takes place when vehicle is accelerating in gear (off idle), engine is at operating temperature

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 60)

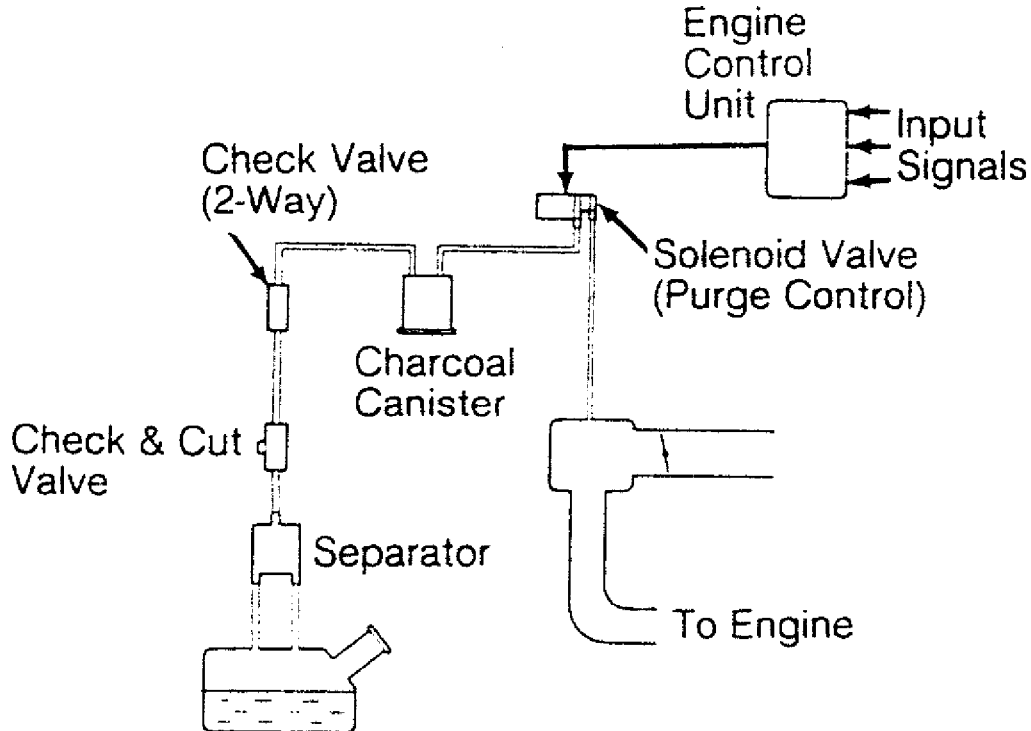
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:17AM

and oxygen sensor is functioning normally. See Fig. 69.



117789

Fig. 69: Identifying Fuel Evaporation Control System Components
Courtesy of Mazda Motors Corp.

Charcoal Canister

Check for loose, missing, cracked and broken connections and parts. Repair or replace as necessary. No liquid should exist in canister.

1-Way Check Valve (B2200, B2600i & MPV)

Note direction of valve installation. Remove check valve. Blow air into both ends of valve. Air should flow through valve from charcoal canister side but should not flow from airflow meter side (beveled end). Replace valve as necessary.

2-Way Check Valve (All Except B2200, B2600i & MPV)

Remove check valve. Connect a vacuum pump to one end of check valve. Air should flow with about 1-1.7 in. Hg applied. Connect vacuum pump to other end of check valve. Air should also flow with about 1-1.7 in. Hg applied. Replace valve as necessary.

3-Port Check Valve (Miata A/T & 929)

Note direction of valve installation. Remove check valve. Cap port going to 2-way check valve. Connect a vacuum pump to lower port. Air should flow from port going to fuel tank with 3.0 in. Hg applied. Replace valve as necessary.

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 61)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:17AM

Check & Cut Valve (B2200, B2600i, MPV, MX-3, Protege & 323)

1) Remove check and cut valve. Connect pressure gauge with "T" fitting to check and cut valve nipple leading to fuel tank. Cap opposite nipple. See Fig. 70.

2) Blow air through port "A". On MX-3, Protege and 323, valve should open when pressure gauge indicates 0.92-1.20 psi (.065-.085 kg/cm²). On all other models, valve should open when pressure gauge reads 0.78-1.00 psi (.06-.07 kg/cm²). Remove "T" fitting and pressure gauge. Connect "T" fitting to bottom of valve. Blow air through port "B". When pressure gauge reads .14-.71 psi (.01-.05 kg/cm²), valve should open. Replace cut and check valve as necessary.

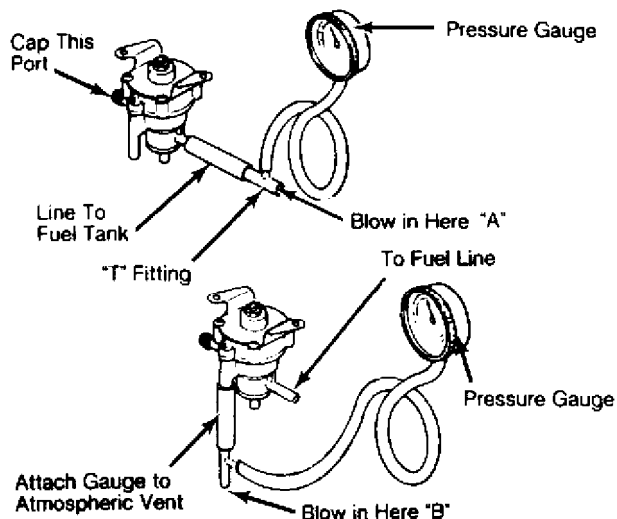


Fig. 70: Testing Check & Cut Valve
Courtesy of Mazda Motors Corp.

Fuel Vapor Valve (B2200, B2600i, Miata, MX-6, RX7, 626 & 929)

Remove fuel vapor valve. Blow air into upper port of valve. Air should flow through valve to lower port. Turn valve upside down. Blow air through lower port of valve. Air should not flow. Replace valve as necessary.

Purge Control Solenoid Valve

1) Warm engine to normal operating temperature and operate at idle. Disconnect vacuum hoses from solenoid valve. Ensure vacuum is not present at solenoid valve. Disconnect vacuum hoses from charcoal canister.

2) Ensure air does not flow through solenoid valve. If air

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 62)

1993 Mazda RX7

For www.iluvmyrx7.com

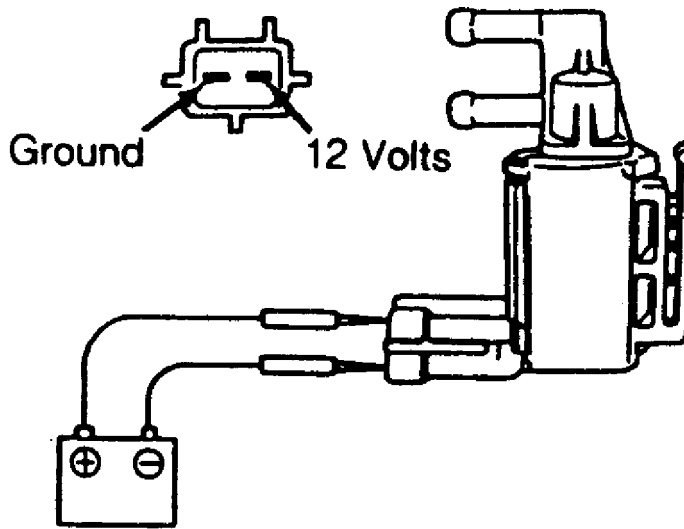
Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:17AM

flows through solenoid valve, disconnect solenoid valve connector. Connect 12 volts and a ground to solenoid valve terminals. See Fig. 71. Blow air through check valve. Air should flow through valve. Replace valve as necessary.

Separator

Check for loose, missing, cracked and broken connections and parts. Repair or replace as necessary. No liquid should exist in canister.



50D16819

Fig. 71: Testing Purge Control Solenoid Valve
Courtesy of Mazda Motors Corp.

FUEL EVAPORATION (NAVAJO)

Canister Purge (CANP) Solenoid

1) Disconnect CANP solenoid harness connector. Set DVOM to 200-ohm scale. Measure resistance across CANP solenoid terminals. Resistance should be 40-90 ohms. If resistance is not as specified, replace CANP solenoid.

2) Disconnect vacuum hose at CANP solenoid on manifold vacuum side. Apply 16 in. Hg to manifold vacuum side of solenoid. CANP solenoid should hold vacuum for 20 seconds. Using jumper wires, energize CANP solenoid. Vacuum should flow through solenoid. If CANP solenoid does not test as described, replace solenoid.

3) Faults in CANP solenoid or circuit should set a service code. See QUICK TEST in G - TESTS W/CODES article. If no service code has been set, see CIRCUIT TEST KD in G - TESTS W/CODES article for additional solenoid and circuit testing.

EVAP Canister

Check for loose, missing, cracked and broken connections and parts. Repair or replace as necessary. No liquid should exist in canister.

Copyright © 1998 Mitchell Repair Information Company, LLC
Monday, August 20, 2001 07:17AM

[illegible]

I - SYSTEM/COMPONENT TESTS - EFI

Article Text (p. 64)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:17AM

Wide Open Throttle A/C Cut-Out (WAC) & A/C Demand Switch
(Navajo)

Faults in WAC & A/C demand switch or circuit should set a service code. See QUICK TEST in G - TESTS W/CODES article. If no service code has been set, see CIRCUIT TEST KM in G - TESTS W/CODES article in the ENGINE PERFORMANCE section for testing.

ANTI-BACKFIRE

Anti-Afterburn Control (RX7)

Start engine and allow it to idle. Disconnect Idle Speed Control (ISC) connector. Raise engine speed to more than 4000 RPM, and quickly close throttle. Engine should idle rough at 1000-1500 RPM. No other information is available.

EXHAUST CONTROL

Variable Exhaust System (929)

1) With engine idling, ensure exhaust gas comes out of one exhaust pipe. Raise engine speed to 3500 RPM. Exhaust gas should come out of both exhaust pipes.

2) To test control motor, remove inside-rear trunk panel. Disconnect control motor connector. Apply 12 volts to Yellow/Black wire and ground to Blue wire. Control motor should rotate clockwise. Reverse leads and control motor should rotate counterclockwise. If system does not function as specified, check wiring between computer and control motor. See J - PIN VOLTAGE CHARTS article.

END OF ARTICLE

J - PIN VOLTAGE CHARTS

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:17AM

ARTICLE BEGINNING

1993 ENGINE PERFORMANCE
Mazda Pin Voltage Charts

RX7

INTRODUCTION

Pin voltage charts are supplied to reduce diagnostic time. Checking pin voltages at the Engine Control Unit (ECU) or Powertrain Control Module (PCM) determines whether ECU or PCM is receiving and transmitting proper voltage signals. Charts may also help determine if ECU or PCM harness is shorted or opened.

NOTE: Unless stated otherwise in testing procedures, perform all voltage tests using a Digital Volt-Ohmmeter (DVOM) with a minimum 10-megohm input impedance. Voltage readings may vary slightly due to battery condition or charging rate.

NOTE: For complete pin voltage information, see appropriate trouble code information in appropriate G - TESTS W/ CODES article.

J - PIN VOLTAGE CHARTS

Article Text (p. 2)

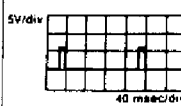
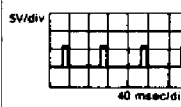
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:17AM

RX7 (1 OF 7)

Terminal	Input	Output	Connected to	Test condition	Correct voltage	Remark
1A	-	-	Battery	Constant	12V	For backup
1B	○		Main relay (FUEL INJ relay)	Ignition switch OFF	12V	-
				ON	12V	
1C	○		Ignition switch (START)	While cranking	12V	-
				Ignition switch ON	Below 1.0V	
1D		○	Self-Diagnosis checker (monitor lamp)	Test switch at SELF TEST Lamp illuminated for 3 sec. after ignition switch OFF → ON	4.5-5.5V	With Self-Diagnosis checker and System Selector
				Lamp not illuminated after 3 sec.	12V	
				Test switch at O ₂ MONITOR Lamp illuminated	4.5-5.5V	
				Test switch at O ₂ MONITOR Lamp not illuminated	12V	
1E	○		A/C switch	A/C switch ON	Below 3.0V	● With Blower SW ON ● Ignition switch ON
				A/C switch OFF	12V	
1F		○	Self-Diagnosis checker (code number)	Buzzer sounded for 3 sec. after ignition switch OFF → ON	Below 2.5V	● With Self-Diagnosis checker and System Selector ● With System Selector test switch at SELF TEST
				Buzzer not sounded for after 3 sec.	12V	
				Buzzer sounded	Below 2.5V	
				Buzzer not sounded	12V	
1G		○	Igniter (Trailing) Front rotor	Ignition switch ON	0V	-
				Idle	0.2-0.5V (Reference)	
				Oscilloscope		
1H		○	Igniter (Leading)	Engine speed: above 2,500 rpm	0.5-0.8V (Reference)	Initial acceleration
				Ignition switch ON	0V	-
				Idle	0.2-0.5V (Reference)	
				Oscilloscope		
				Engine speed: above 2,500 rpm	0.8-1.2V (Reference)	Initial acceleration

93A79988

Fig. 1: ECU Pin Voltage Chart (1 Of 7)
Courtesy of Mazda Motors Corp.

J - PIN VOLTAGE CHARTS

Article Text (p. 3)

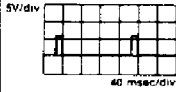
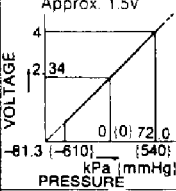
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:17AM

RX7 (2 OF 7)

Terminal	Input	Output	Connected to	Test condition	Correct condition	Remark
1I			Diagnosis connector (TEN terminal)	System Selector test switch at O ₂ MONITOR	12V	<ul style="list-style-type: none"> With System Selector Ignition switch ON
				System Selector test switch at SELF TEST	0V	
1J			Igniter (Trailing) Rear rotor	Ignition switch ON	0V	
				Idle	0.2-0.5V (Reference)	
				Oscilloscope		
1K			Fuel pump relay	Engine speed: above 2500 rpm	0.5-0.8V (Reference)	Initial acceleration
				Ignition switch ON	Below 1.0V	
				While cranking	Below 1.0V	
				Idle	12V	
1L			A/C relay	Solenoid valve (PRC) does not operate	12V	A/C switch, Blower switch ON
				Solenoid valve (PRC) operates	Below 1.0V	
				While cranking	12V	
				Idle	Below 1.0V	
1M			Speedometer sensor	During acceleration (Running)	12V	
				Ignition switch ON	4.0-5.0V	
				Driving	2.0-2.5V	
1N			P/S pressure switch	P/S OFF at idle	12V	
				P/S ON at idle	Below 1.0V	
			Mileage switch	Under 20,000 miles (34,000 km)	Below 1.5V	Ignition switch ON after 2 seconds
				Over 20,000 miles (34,000 km)	12V	
1O			Pressure sensor	Ignition switch ON	Approx. 2.6V	
				Idle	Approx. 1.5V	
1P	-	-	-	-		-

93B79989

Fig. 2: ECU Pin Voltage Chart (2 Of 7)

Courtesy of Mazda Motors Corp.

J - PIN VOLTAGE CHARTS

Article Text (p. 4)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:17AM

RX7 (3 OF 7)

Terminal	Input	Output	Connected to	Test condition	Correct voltage	Remark
1Q	○		Clutch switch (MT)	Clutch pedal: released	12V	Ignition switch ON
				Clutch pedal: depressed	Below 1.0V	
			EC-AT control unit (AT)	Idle	12V	Reduce torque signal
				When shifting from 1st to 2nd or from 2nd to 3rd with the throttle opening above 1.5/8	Below 1.0V	
				Idle	12V	Slip lock up signal
				When slip lockup with the throttle opening below 0.5/8	Below 1.0V	
1R	○		Neutral switch (MT)	Neutral	Below 1.0V	Ignition switch ON
				In gear	12V	
			EC-AT control unit (AT)	P or N range	Below 1.0V	● Inhibitor signal ● Ignition switch ON
				Other	12V	
1S	○		Stoplight switch	Brake pedal released	Below 1.0V	Ignition switch ON
				Brake pedal depressed	12V	
1T		○	Circuit opening relay	Ignition switch ON	12V	-
				Idle	Below 1.0V	
1U	○		Fuel thermosensor	Idle (after warm up)	1.5-3.0V	
1V	-	-	-	-	-	-
2A	-	-	-	-	-	-
2B		○	Diagnosis connector (IG-terminal)	Ignition switch ON	0V	-
				Idle	0.3-0.8 (Reference)	
				Engine speed: 3,000 rpm	1.8-2.2V (Reference)	
2C		○	EC-AT (AT) control unit	Idle	12V	Slip lock up OFF signal
				Engine speed: hold 3,000 rpm (after 5 seconds)	Below 1.0V	Initial acceleration
2D		○	EC-AT control unit (AT)	Ignition switch ON	2-4.5V	Atmospheric pressure signal
2E		○	EC-AT control unit (AT)	Idle	Below 1.0V	Idle signal
				Other	Approx 5V	
2F		○	Open (ex. Canada)	Constant	1-2.5V	-
			Ground (Canada)	Constant	0V	
2G		○	EC-AT control unit (AT)	Idle	12V	Torque reduced signal
				Throttle opening above 1/8 (Engine coolant temp. below 40°C {104°F})	Below 1.0V	
2H	-	-	-	-	-	-
2I	○		Heat Hazard Sensor	Ignition switch ON	Below 2.0V	
				Idle (Temp. Below 100°C {212°F})	12V	
				Idle (Temp. Above 100°C {212°F})	Below 1.0V	
2J		○	A/P relay	Engine speed idle-Below 3,250 rpm	Below 1.0V	
				Engine speed above 3,250 rpm	12V	

93E79990

Fig. 3: ECU Pin Voltage Chart (3 Of 7)

Courtesy of Mazda Motors Corp.

J - PIN VOLTAGE CHARTS

Article Text (p. 5)

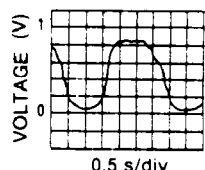
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:17AM

RX7 (4 OF 7)

Terminal	Input	Output	Connected to	Test condition		Correct voltage	Remark	
2K	○		1-2 switch (MT)	1st position		12V	Ignition switch ON	
				Other		Below 1.0V		
			EC-AT CU (AT)	2nd or 3rd position		Below 1.0V	While running	
				Other		12V		
2L	○		1-2 switch (MT)	2nd position		Below 1.0V	Ignition switch ON	
				Other		12V		
			EC-AT CU (AT)	3rd or O/D position		Below 1.0V	While running	
				Other		12V		
3A	○		Metering oil pump position sensor	Ignition switch ON		1.0-4.2V	Voltage increase when accelerating	
				Idle		Approx. 1.1V		
				Accelerator pedal depressed		1.1-4.2V		
3B	○		E/L unit	Headlight switch position I, II,		Below 4.0V		
				Blower motor position III, IV,				
				Rear defroster switch ON				
				Headlight switch, Blower motor, rear defroster switch are OFF		5V		
3C	○		Oxygen sensor	Idle	Cold engine	Approx 0V		
					After warm up	0.0-1.0V		
				<div>Oscilloscope</div> 				
				Acceleration (after warm up)		0.5-1.0V		
Deceleration (after warm up)		0.0-0.4V						
3D		○	Cooling fan relay	Idle	During electrical cooling fan operating	12V		
					Electrical cooling fan does not operate	Below 1.0V		
				TFA terminal of diagnosis connector is grounded		Below 1.0V		Ignition switch ON
3E	○		Water thermosensor	Engine coolant temperature 20°C (68°F)		Approx. 2.5V	Ignition switch ON	
				After warm up		Below 0.5V		
3F	○		Throttle sensor (Narrow range)	Accelerator pedal released		0.75-1.25	● Ignition switch ON ● After warm-up	
				Accelerator pedal fully depressed		4.8-5.0		
3G	○		Throttle sensor (Full range)	Accelerator pedal released		0.1-0.7	● Ignition switch ON ● After warm-up	
				Accelerator pedal fully depressed		4.2-4.6		
3H		○	Solenoid valve (purge control)	Ignition switch ON		12V		
				Idle				
				Engine speed: 1,500-3,300 rpm		4-10V		While running

93F79991

Fig. 4: ECU Pin Voltage Chart (4 Of 7)

Courtesy of Mazda Motors Corp.

J - PIN VOLTAGE CHARTS

Article Text (p. 6)

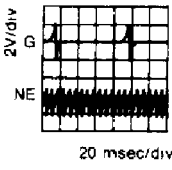
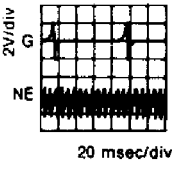
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:17AM

RX7 (5 OF 7)

Terminal	Input	Output	Connected to	Test condition	Correct voltage	Remark
3I	○		Throttle sensor	Constant	Approx. 5.0V	Ignition switch ON
3J	○		EGR switch	EGR valve operates	12V	California only
				EGR valve does not operate	Below 1.0V	
	○		DRL relay	Idle	0V	Canada only
				Pull the parking brake (Turnlight OFF) Release the parking brake (Turnlight ON)	12V	
3K		○	Solenoid valve (Relief2)	Ignition switch ON	12V	
				Idle	Below 1.0V	
				Before warm up approx. 40°C (104°F) After warm up	12V	
3L	○		Intake air thermosensor	Ambient air temperature 20°C (68°F)	Approx. 2.5V	Ignition switch ON
				After warm up	Approx. 0.6V	
3M	○		Knock sensor	Ignition switch ON	Approx. 2.5V	Ignition switch ON
				Knocking occur (Tap the engine hanger with hammer)	2.6-2.8V (Reference)	
3N		○	Solenoid valve (Port air by-pass)	Ignition switch ON	12V	
				After warm up	Below 1.0V	
				Engine speed: 1,500-3,000 rpm		
3O		○	Solenoid valve (Double throttle control)	Engine coolant temperature below 80°C (176°F)	Below 1.0V	Ignition switch ON
				After warm up	12V	
3P		○	Solenoid valve (Relief1)	Idle	12V	● After warm up ● While running
				Engine speed: 2,700-3,200 rpm	Below 1.0V	
4A	-	-	Ground (Output)	Constant	0V	-
4B	-	-	Ground (Output)	Constant	0V	-
4C	-	-	Ground (CPU)	Constant	0V	-
4D	-	-	Ground (Input)	Constant	0V	-
4E	○		Crank angle sensor (NE + signal)	Ignition switch ON	Below 1.0V	Engine signal monitor: Red lamp flash
				Idle	Oscilloscope	
						
4F		○	Solenoid valve (Split air by-pass)	Idle	12V	● After warm up ● While running
				5th position (MT) / OD (AT)	Below 1.0V	
4G	○		Crank angle sensor (G signal)	Ignition switch ON	Below 1.0V	
				Idle	Oscilloscope	
						
4H						
				Voltmeter	0.1-0.4V (Reference)	

93G79992

Fig. 5: ECU Pin Voltage Chart (5 Of 7)

Courtesy of Mazda Motors Corp.

J - PIN VOLTAGE CHARTS

Article Text (p. 7)




1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:17AM

RX7 (6 OF 7)

Terminal	Input	Output	Connected to	Test condition	Correct voltage	Remark
4H	○		Crank angle sensor	Constant	Below 1.0V	-
4J		○	Stepping motor (Metering oil pump)	Ignition switch ON	12V	3 terminals / 4 terminals 12V Other terminal 5-8V
4K				Idle		
4L						
4M		○		Idle	12V	
			Solenoid valve (Pressure regulator control)	Idle after hot start	Below 1.0V	approx. 1 minute
4N		○	Solenoid valve (Switching)	Ignition switch ON/Idle	12V	
				Engine speed: above 3,200 rpm (After warm up)	Below 1.0V	Initial acceleration
4O		○	Solenoid valve (EGR)	Idle	12V	
				5th position (MT)/OD (AT)	Below 1.0V	While running
4P		○	Solenoid valve (AWS)	Before warm up approx. 40°C (104°F)	Below 1.0V	Idle
				After warm up	12V	
4Q		○	Solenoid valve (ISC)	Ignition switch ON	8.0-11.0V	Reference valve ● Cranking 99% ● Idle 32-65% ● Initial set 38%
				Idle	5.0-11.0 (Reference)	
				Oscilloscope	5V/div  20 msec/div	
4R		○	Solenoid valve (Turbo control)	Idle	12V	
				Engine speed: above 5,500 rpm (MT)	Below 1.0V	Initial acceleration
				Engine speed: above 5,250 rpm (AT)		
4S		○	Solenoid valve (Charge relief)	Idle	12V	
				Engine speed: 4,000-5,500 rpm (MT) for 8 sec. 3,500-5,000 (AT) for 4 sec.	Below 1.0V	Initial acceleration
				Engine speed: above 5,500 rpm (MT) above 5,250 rpm (AT)		
4T		○	Solenoid valve (Charge control)	Idle	Below 1.0V	
				Engine speed: above 5,500 rpm (MT)	12V	Initial acceleration
				Engine speed: above 5,250 rpm (AT)		
4U		○	Solenoid valve (Wastegate control)	Ignition switch ON	12V	Reference valve ● Idle 5% ● Solenoid valve (Turbo control) before operates 95%
				Idle	12V	
				Oscilloscope	5V/div  10 msec/div	
				Initial acceleration	5.0-11.0 V	
4V		○	Solenoid valve (Turbo precontrol)	Ignition switch ON	12V	Reference valve ● Idle 5% ● Solenoid valve (Turbo control) after operates 5%
				Idle	12V	
				Oscilloscope	5V/div  10 msec/div	
				Engine speed: above 3,000 rpm	4.0-10.0V (Reference)	Initial acceleration

93H79993

Fig. 6: ECU Pin Voltage Chart (6 Of 7)

Courtesy of Mazda Motors Corp.

J - PIN VOLTAGE CHARTS

Article Text (p. 8)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:17AM

RX7 (7 OF 7)

Terminal	Input	Output	Connected to	Test condition	Correct voltage	Remark
4W		○	Injector (Front primary)	Ignition switch ON idle* Oscilloscope	12V	<ul style="list-style-type: none"> Secondary injector not working at no load condition Engine Signal Monitor: Green lamp flash
4X		○	Injector (Front secondary)		12-14V	
4Y		○	Injector (Rear primary)		10V/div	
4Z		○	Injector (Rear secondary)		10 msec/div	

ECU CONNECTOR TERMINAL IDENTIFICATION

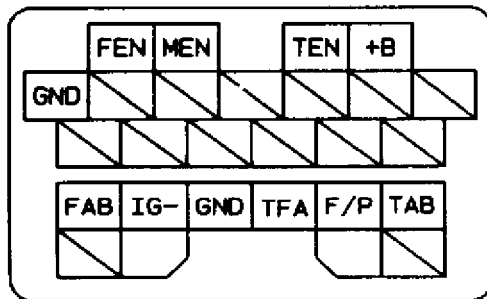
4Y	4W	4U	4S	4Q	4P	4M	4K	4J	4G	4E	4C	4A	3D	3M	3K	3I	3G	3E	3C	3A	2K	2I	2G	2E	2C	2A	U	S	Q	O	M	K	I	G	E	C	A
4Z	4X	4V	4T	4R	4P	4N	4L	4J	4H	4F	4D	4B	3P	3N	3L	3J	3H	3F	3D	3B	2L	2J	2H	2F	2D	2B	V	T	R	P	N	L	J	H	F	D	B

93I79994

Fig. 7: ECU Pin Voltage Chart (7 Of 7)

Courtesy of Mazda Motors Corp.

DIAGNOSIS CONNECTOR TERMINAL IDENTIFICATION



Diagnosis connector is also referred to as Data Link Connector (DLC).

93D79999

Fig. 8: Identifying Diagnosis Connector Terminals

Courtesy of Mazda Motors Corp.

END OF ARTICLE

L - WIRING DIAGRAMS

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Monday, August 20, 2001 07:18AM

ARTICLE BEGINNING

1993 ENGINE PERFORMANCE
Mazda Wiring Diagrams

RX7

WIRING DIAGRAMS

MAZDA
1W-16

1993 ENGINE PERFORMANCE Wiring Diagrams (Cont.)

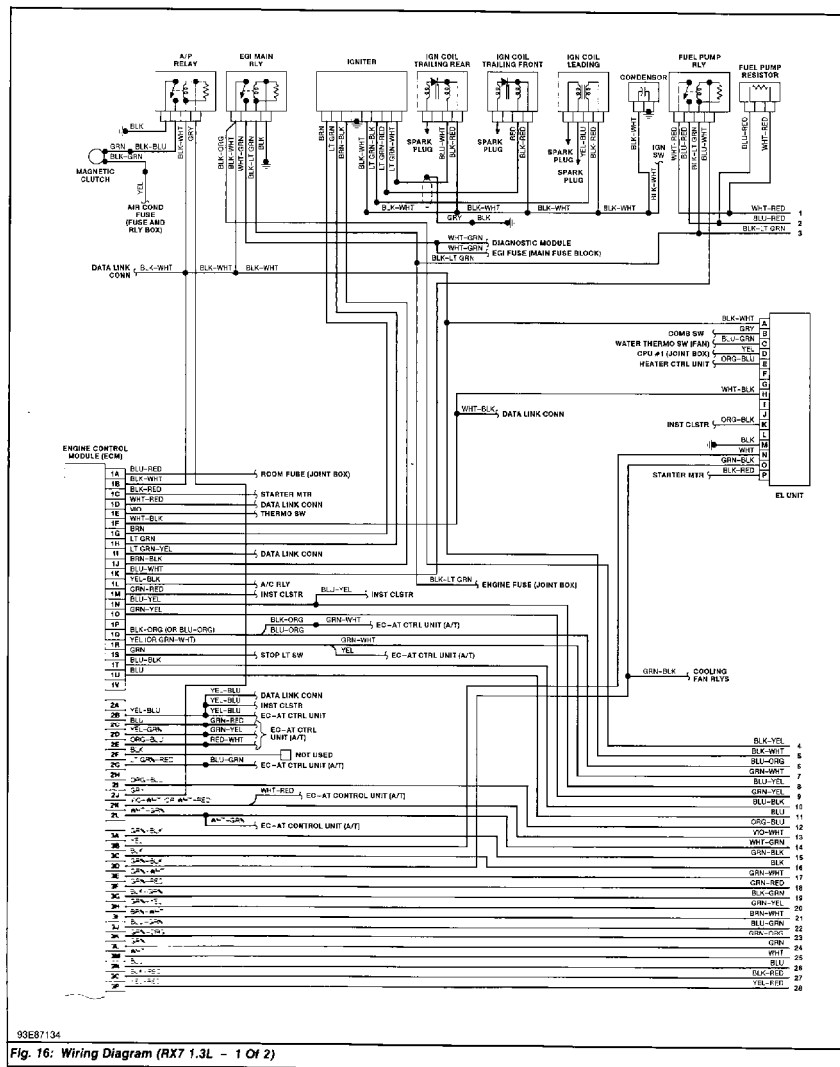


Fig. 1: Wiring Diagram (RX7 1.3L - 1 Of 2)

L - WIRING DIAGRAMS

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:18AM

1993 ENGINE PERFORMANCE Wiring Diagrams (Cont.)

MAZDA
1W-17

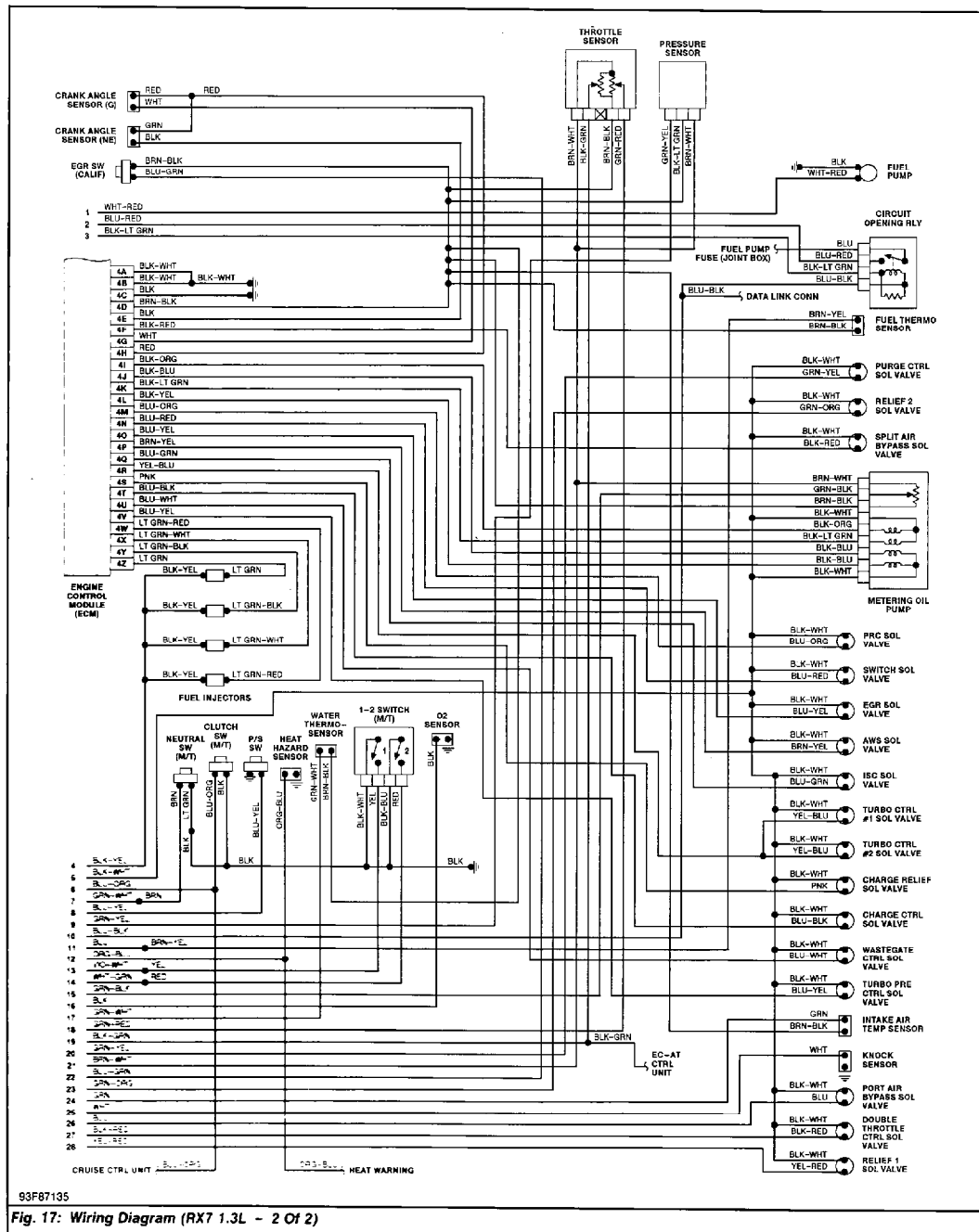


Fig. 2: Wiring Diagram (RX7 1.3L - 2 Of 2)

END OF ARTICLE

M - VACUUM DIAGRAMS

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:18AM

ARTICLE BEGINNING

1993 ENGINE PERFORMANCE

Mazda Vacuum Diagrams

B2200, B2600i, Miata, MPV, MX-3, MX-6, Navajo,
Protege, RX7, 323, 626 & 929

INTRODUCTION

This article contains underhood views or schematics of vacuum hose routing. Use these vacuum diagrams during the visual inspection in F - BASIC TESTING article. This will assist in identifying improperly routed vacuum hoses which cause driveability and/or computer indicated malfunctions.

M - VACUUM DIAGRAMS

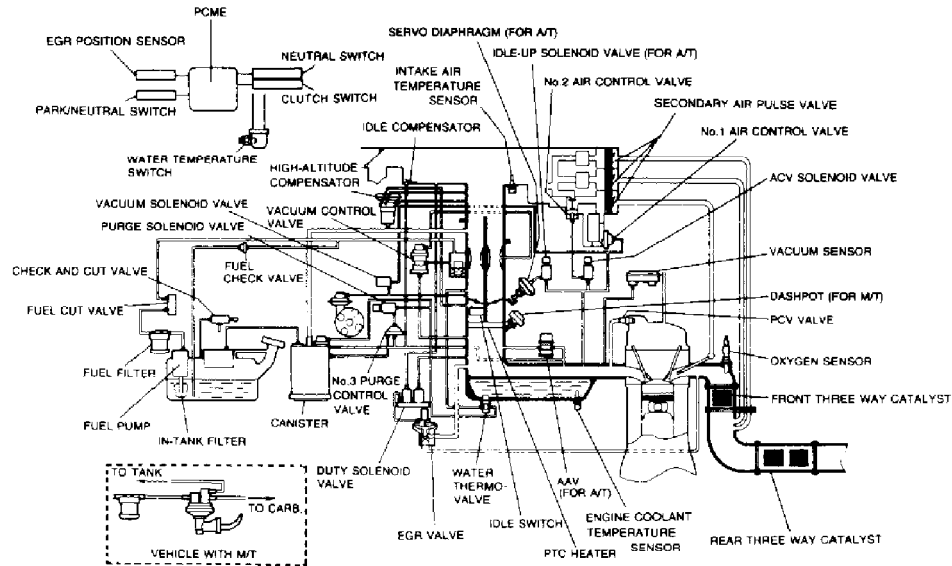
Article Text (p. 2)

1993 Mazda RX7

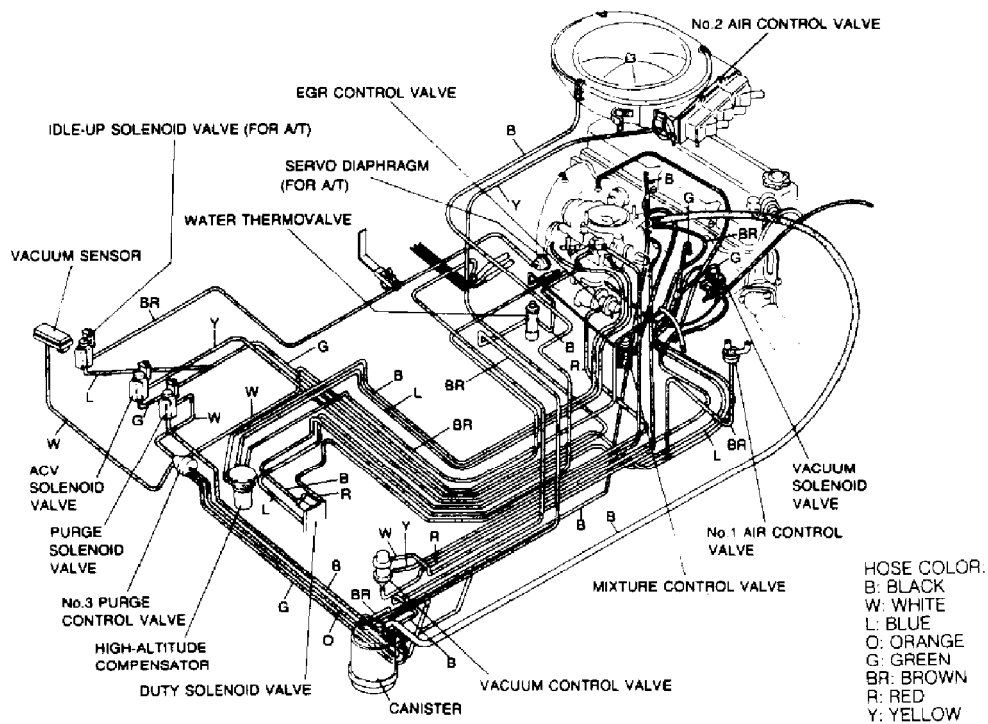
For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:18AM



VACUUM SYSTEM SCHEMATIC



VACUUM HOSE ROUTING DIAGRAM

93E80006

Fig. 1: Vacuum System Schematic (B2200 2.2L Carbureted)
Courtesy Of Mazda Motors Corp.

M - VACUUM DIAGRAMS

Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:18AM

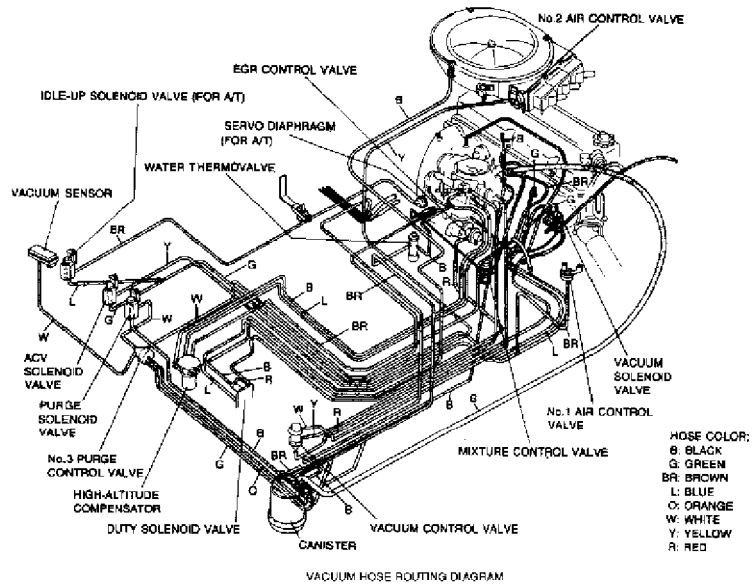


Fig. 2: Vacuum Hose Routing Diagram (B2200 2.2L Carbureted)
Courtesy Of Mazda Motors Corp.

M - VACUUM DIAGRAMS

Article Text (p. 4)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:18AM

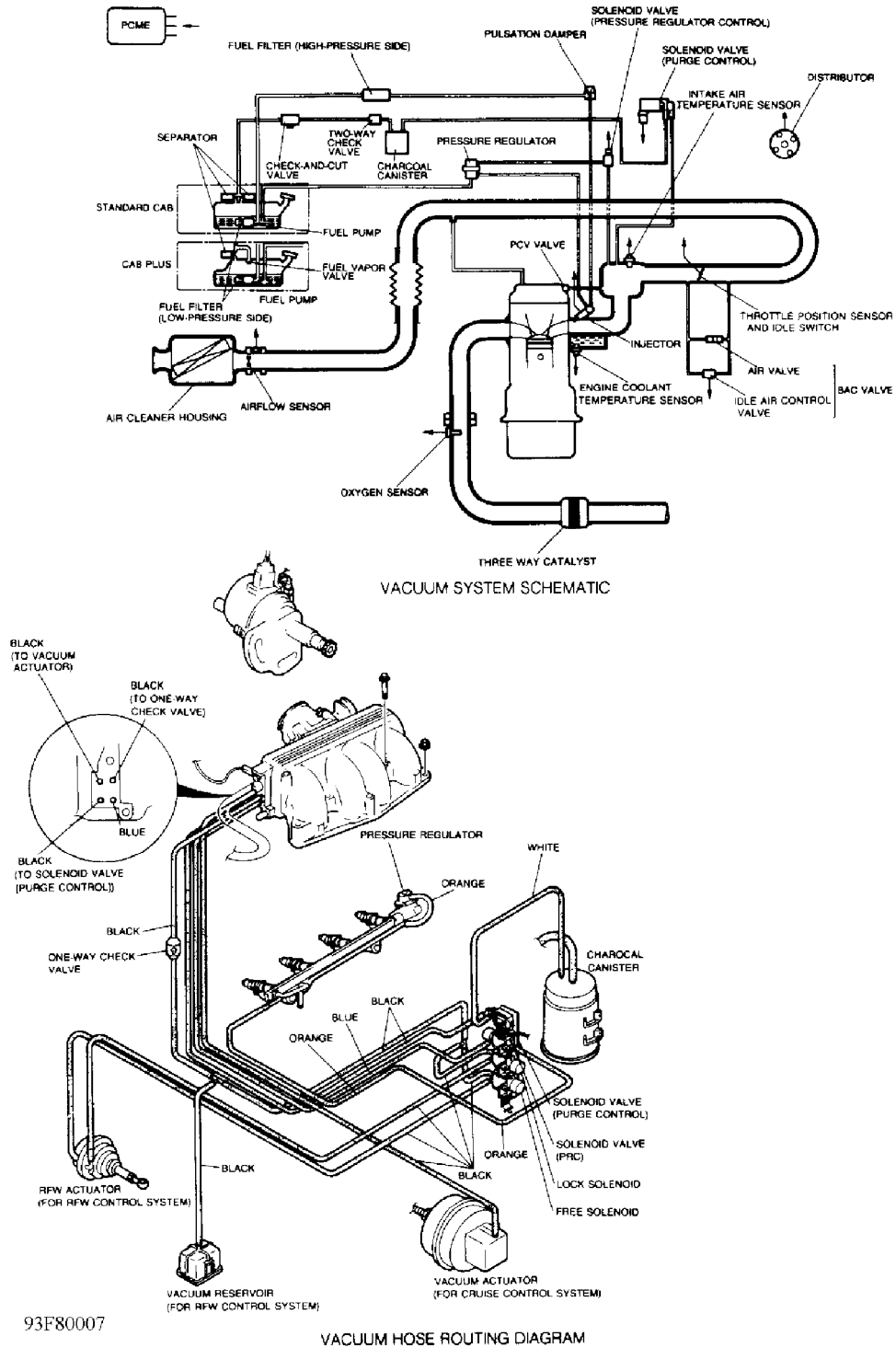


Fig. 3: Vacuum System Schematic (B2200 2.2L PFI & B2600i 2.6L)
Courtesy Of Mazda Motors Corp.

M - VACUUM DIAGRAMS

Article Text (p. 5)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:18AM

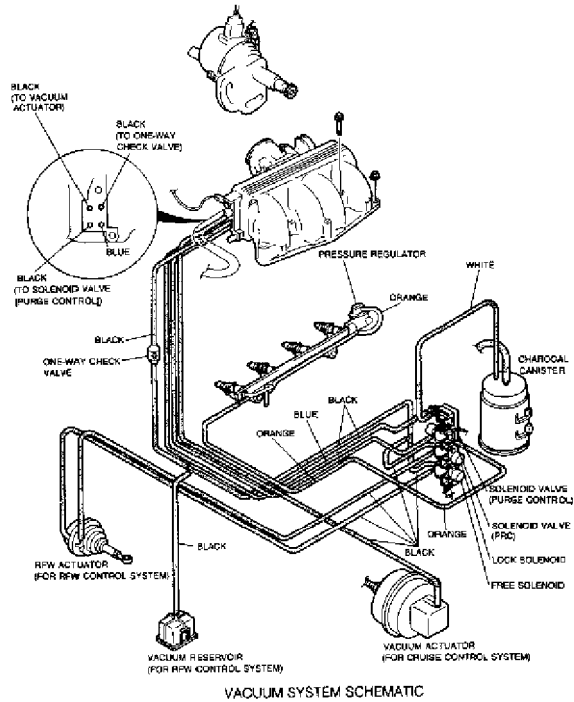


Fig. 4: Vacuum Hose Routing Diagram (B2200 2.2L PFI & B2600i 2.6L)
Courtesy Of Mazda Motors Corp.

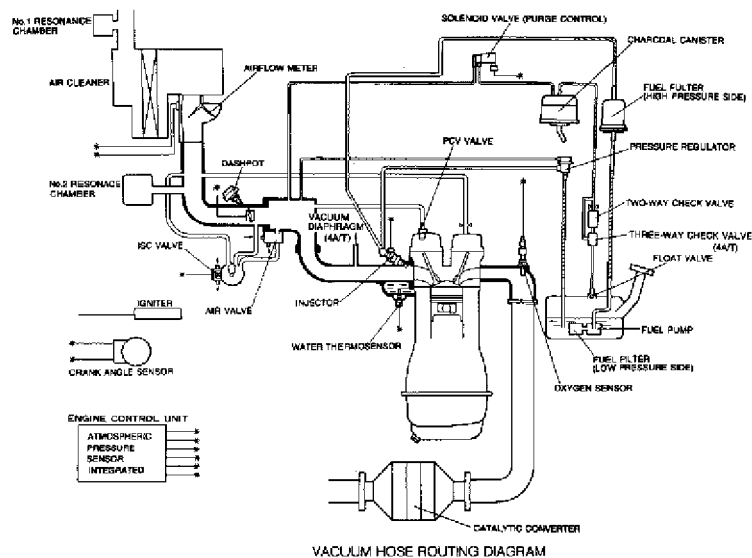


Fig. 5: Vacuum System Schematic (Miata 1.6L)
Courtesy Of Mazda Motors Corp.

M - VACUUM DIAGRAMS

Article Text (p. 6)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:18AM

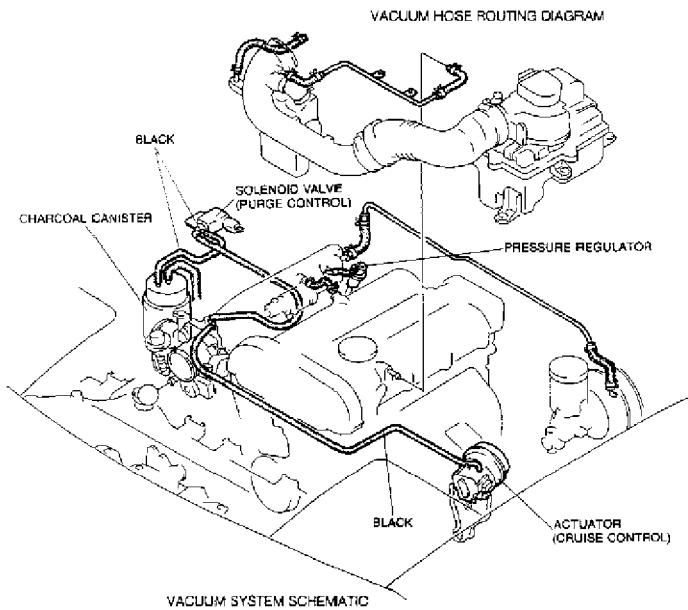


Fig. 6: Vacuum Hose Routing Diagram (Miata 1.6L)
Courtesy Of Mazda Motors Corp.

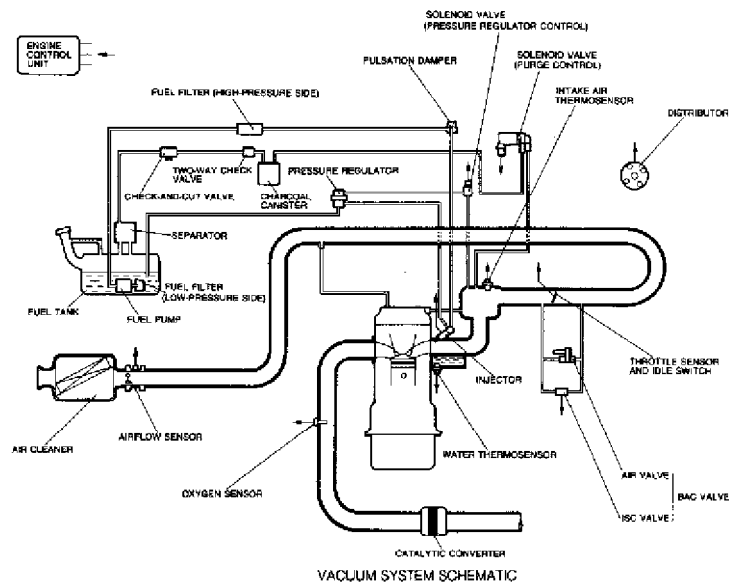


Fig. 7: Vacuum System Schematic (MPV 2.6L)
Courtesy Of Mazda Motors Corp.

M - VACUUM DIAGRAMS

Article Text (p. 7)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:18AM

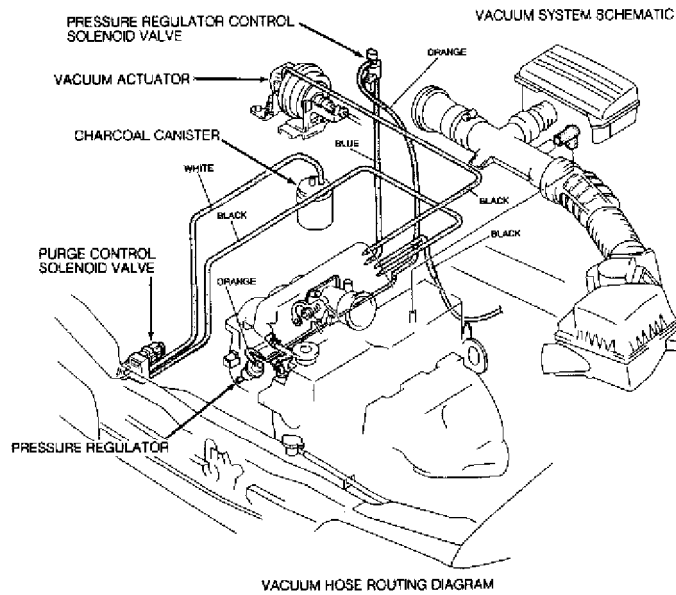


Fig. 8: Vacuum Hose Routing Diagram (MPV 2.6L)
Courtesy Of Mazda Motors Corp.

M - VACUUM DIAGRAMS

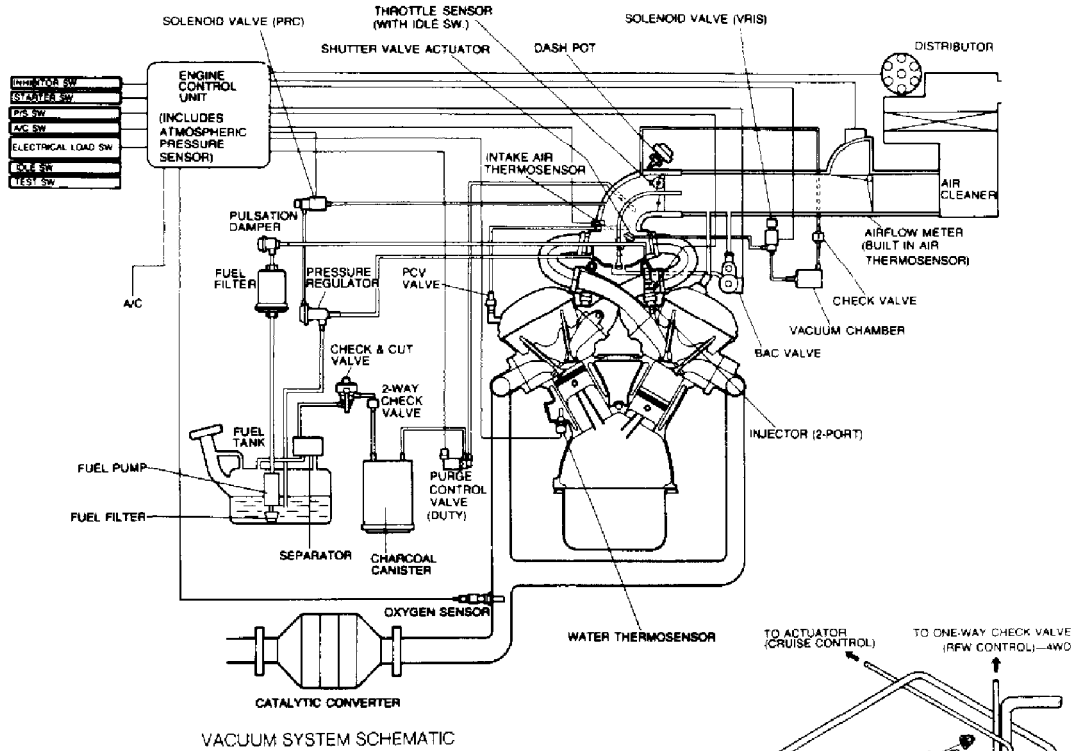
Article Text (p. 8)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:18AM



93G80008

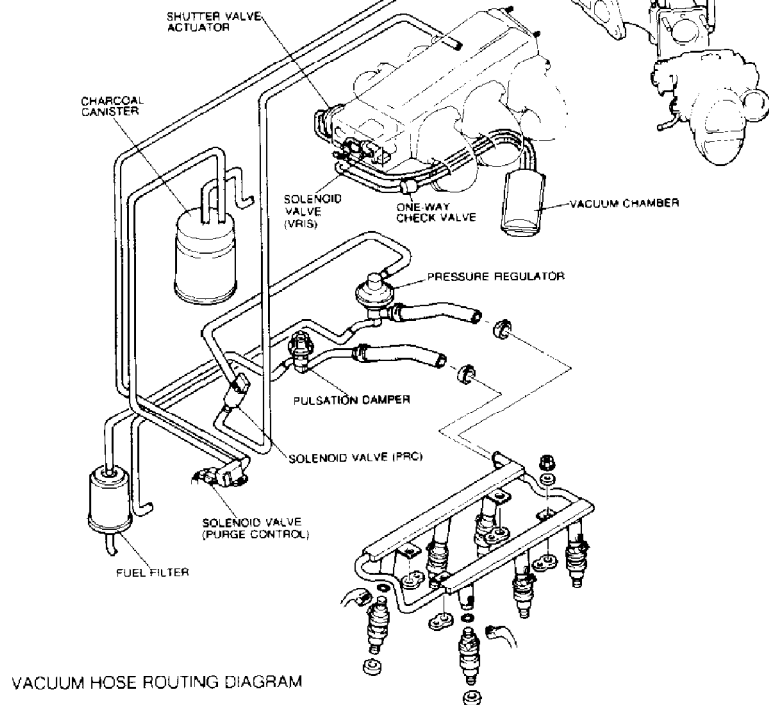


Fig. 9: Vacuum System Schematic (MPV 3.0L)
Courtesy Of Mazda Motors Corp.

M - VACUUM DIAGRAMS

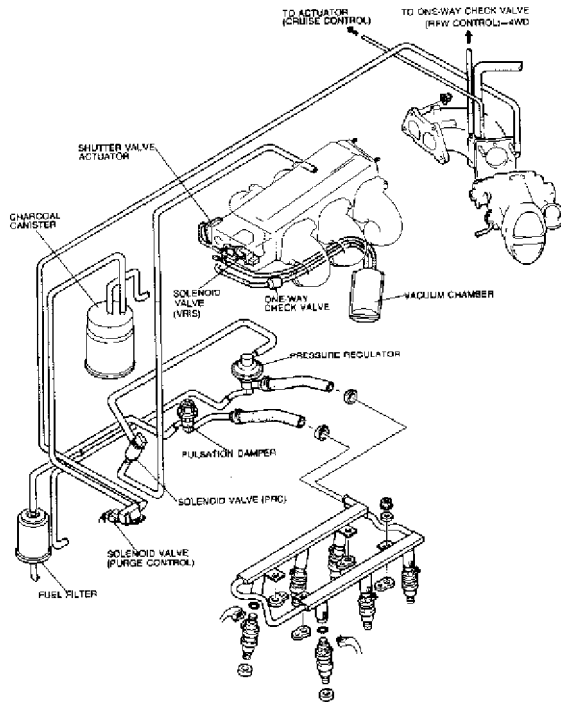
Article Text (p. 9)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

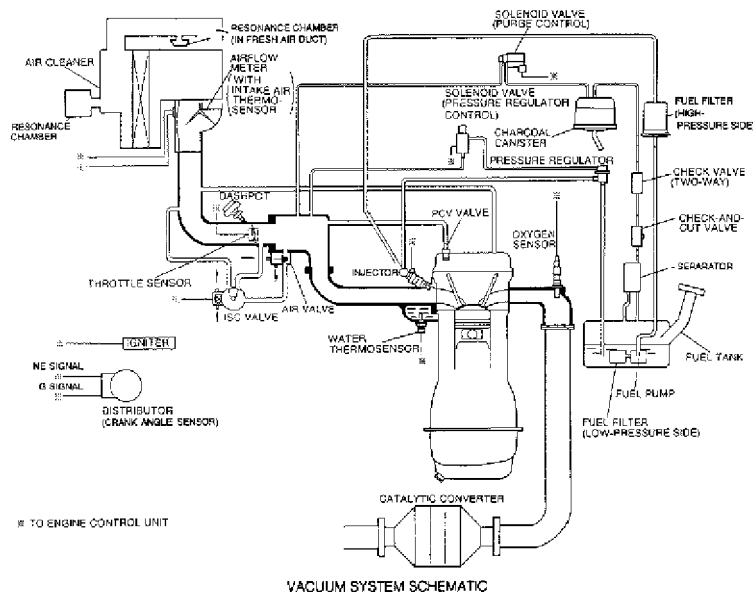
Monday, August 20, 2001 07:18AM



VACUUM HOSE ROUTING DIAGRAM

92E24970

Fig. 10: Vacuum Hose Routing Diagram (MPV 3.0L)
Courtesy Of Mazda Motors Corp.



VACUUM SYSTEM SCHEMATIC

92F24971

Fig. 11: Vacuum System Schematic (MX-3 1.6L)
Courtesy Of Mazda Motors Corp.

M - VACUUM DIAGRAMS

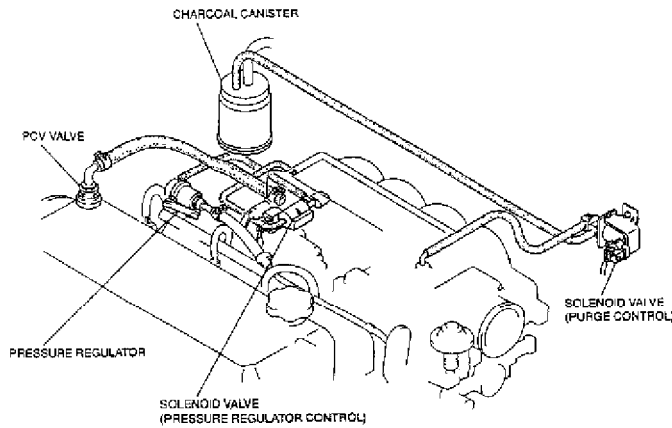
Article Text (p. 10)

1993 Mazda RX7

For www.iluvmyrx7.com

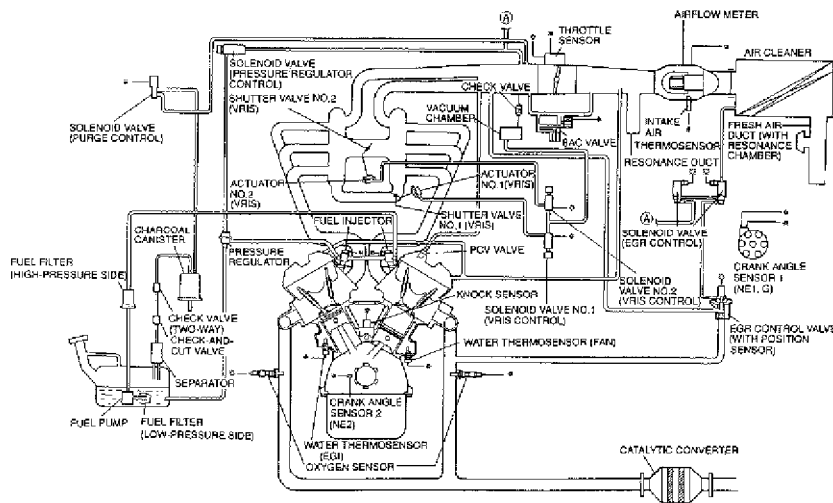
Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:18AM



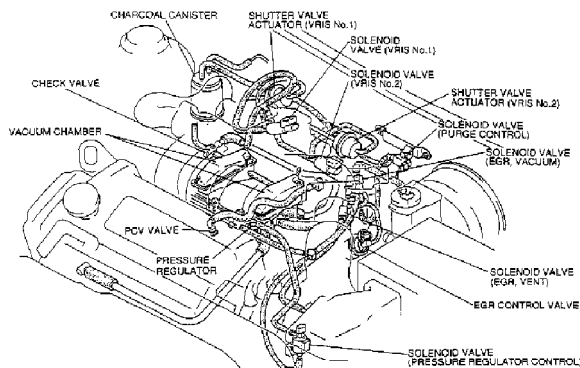
VACUUM HOSE ROUTING DIAGRAM 92624972

Fig. 12: Vacuum Hose Routing Diagram (MX-3 1.6L)
Courtesy Of Mazda Motors Corp.



92H24973 VACUUM SYSTEM SCHEMATIC

Fig. 13: Vacuum System Schematic (MX-3 1.8L)
Courtesy Of Mazda Motors Corp.



VACUUM HOSE ROUTING DIAGRAM 92I24974

Fig. 14: Vacuum Hose Routing Diagram (MX-3 1.8L)
Courtesy Of Mazda Motors Corp.

M - VACUUM DIAGRAMS

Article Text (p. 12)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:18AM

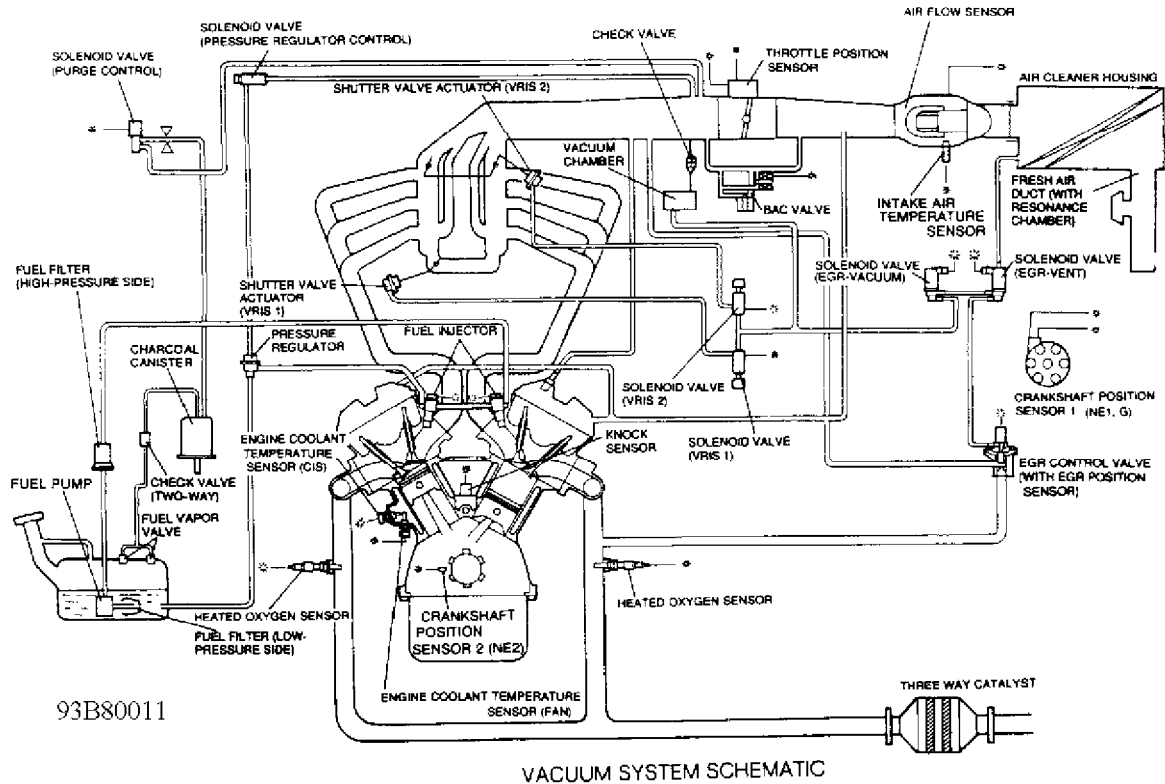


Fig. 17: Vacuum System Schematic (MX-6 2.5L & 626 2.5L)
Courtesy Of Mazda Motors Corp.

M - VACUUM DIAGRAMS

Article Text (p. 13)

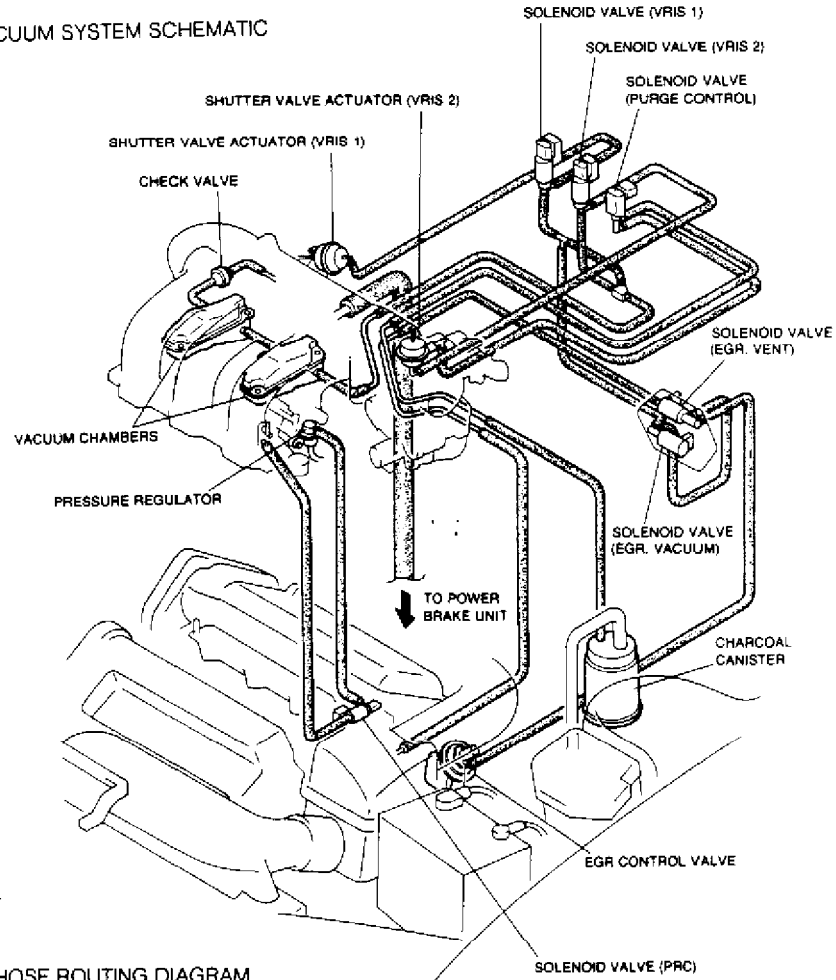
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:18AM

VACUUM SYSTEM SCHEMATIC



93C80012

VACUUM HOSE ROUTING DIAGRAM

Fig. 18: Vacuum Hose Routing Diagram (MX-6 2.5L & 626 2.5L)
Courtesy Of Mazda Motors Corp.

M - VACUUM DIAGRAMS

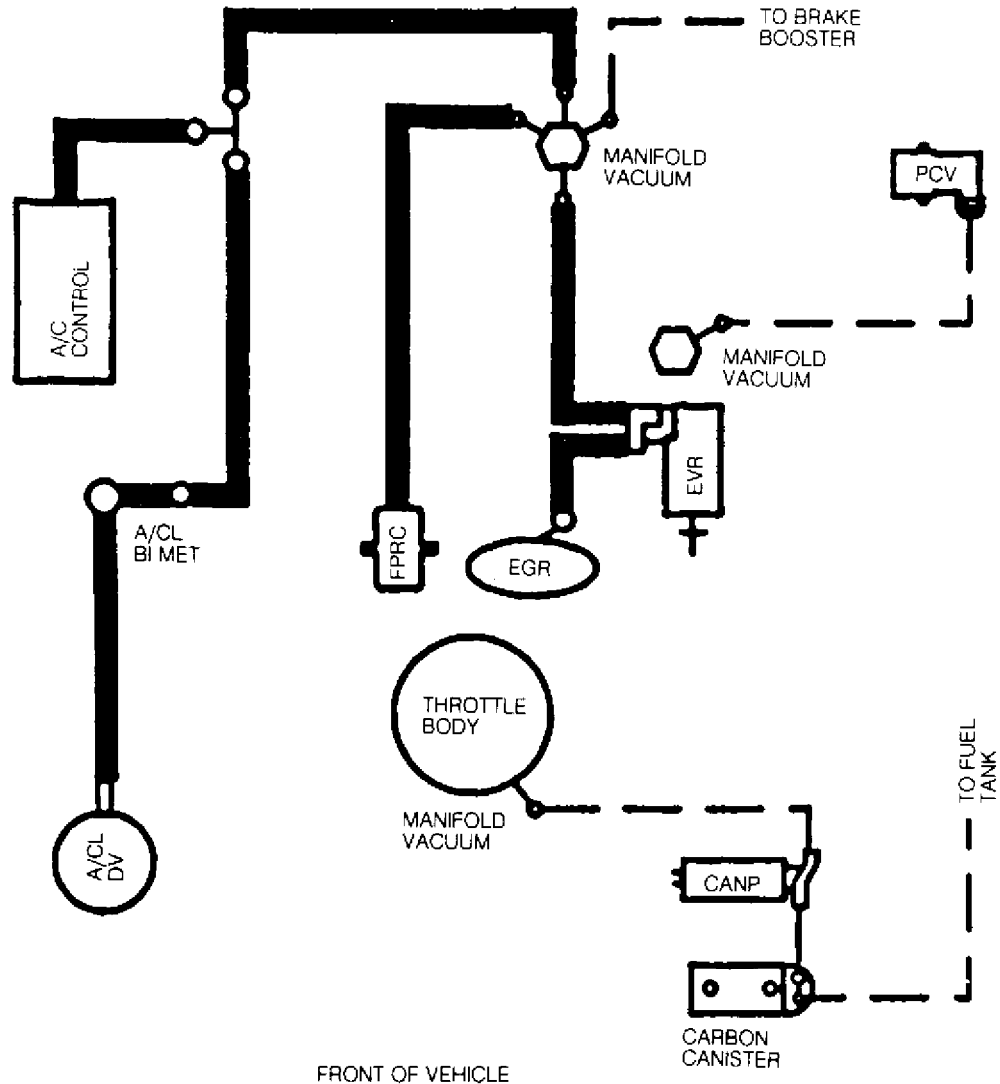
Article Text (p. 14)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:18AM



EMISSION CONTROL DEVICE ABBREVIATIONS

A/CL-BI MET - AIR CLEANER BI-METALLIC SENSOR

A/CL-DV - AIR CLEANER DUCT VALVE

CANP - CANISTER PURGE

EGR - EXHAUST GAS RECIRCULATION

EVR - EGR VACUUM REGULATOR

FPRC - FUEL PRESSURE REGULATOR CONTROL

PCV - POSITIVE CRANKCASE VENTILATION

93D80013

VACUUM HOSE ROUTING DIAGRAM

Fig. 19: Vacuum Hose Routing Diagram (Navajo 4.0L California)
Courtesy Of Ford Motor Co.

M - VACUUM DIAGRAMS

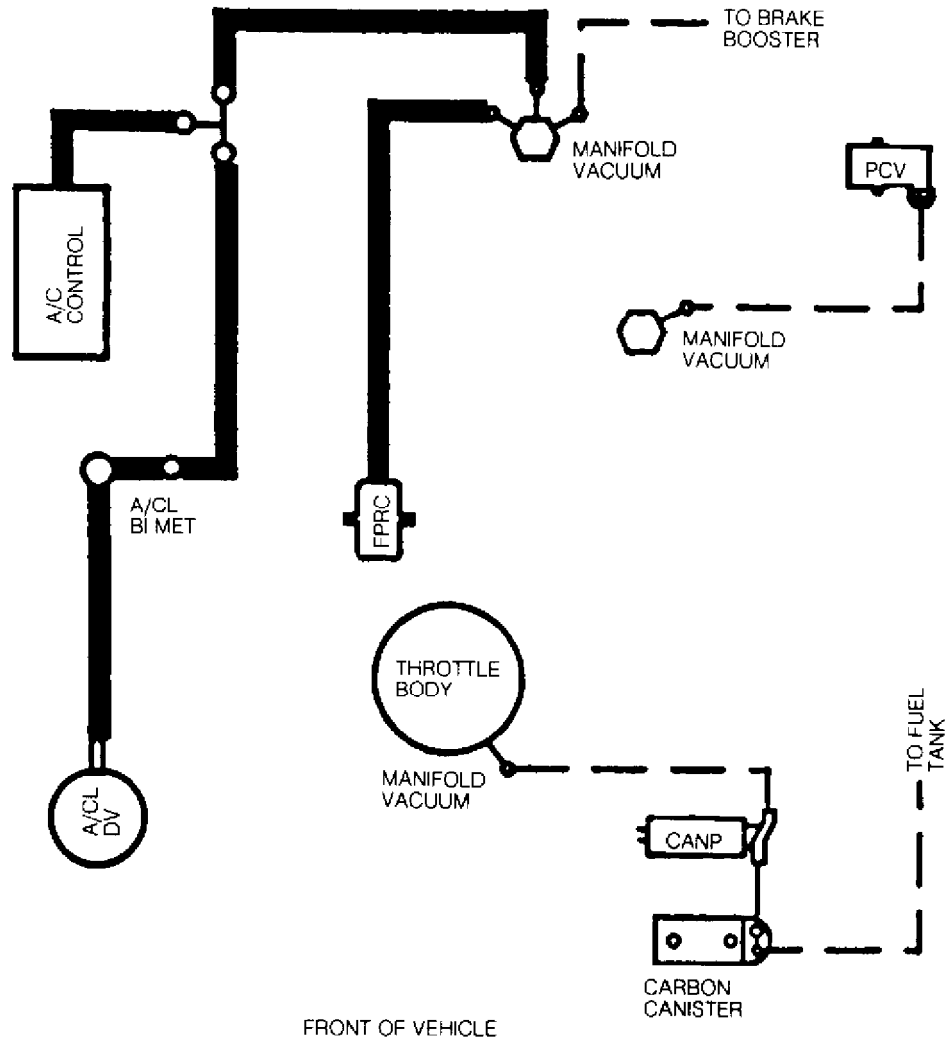
Article Text (p. 15)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:18AM



EMISSION CONTROL DEVICE ABBREVIATIONS

A/C CL-BI MET - AIR CLEANER BI-METALLIC SENSOR

A/C CL-DV - AIR CLEANER DUCT VALVE

CANP - CANISTER PURGE

FPRC - FUEL PRESSURE REGULATOR CONTROL

PCV - POSITIVE CRANKCASE VENTILATION

VACUUM HOSE ROUTING DIAGRAM

93E80014

Fig. 20: Vacuum Hose Routing Diagram (Navajo 4.0L Federal)
Courtesy Of Ford Motor Co.

M - VACUUM DIAGRAMS

Article Text (p. 16)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:18AM

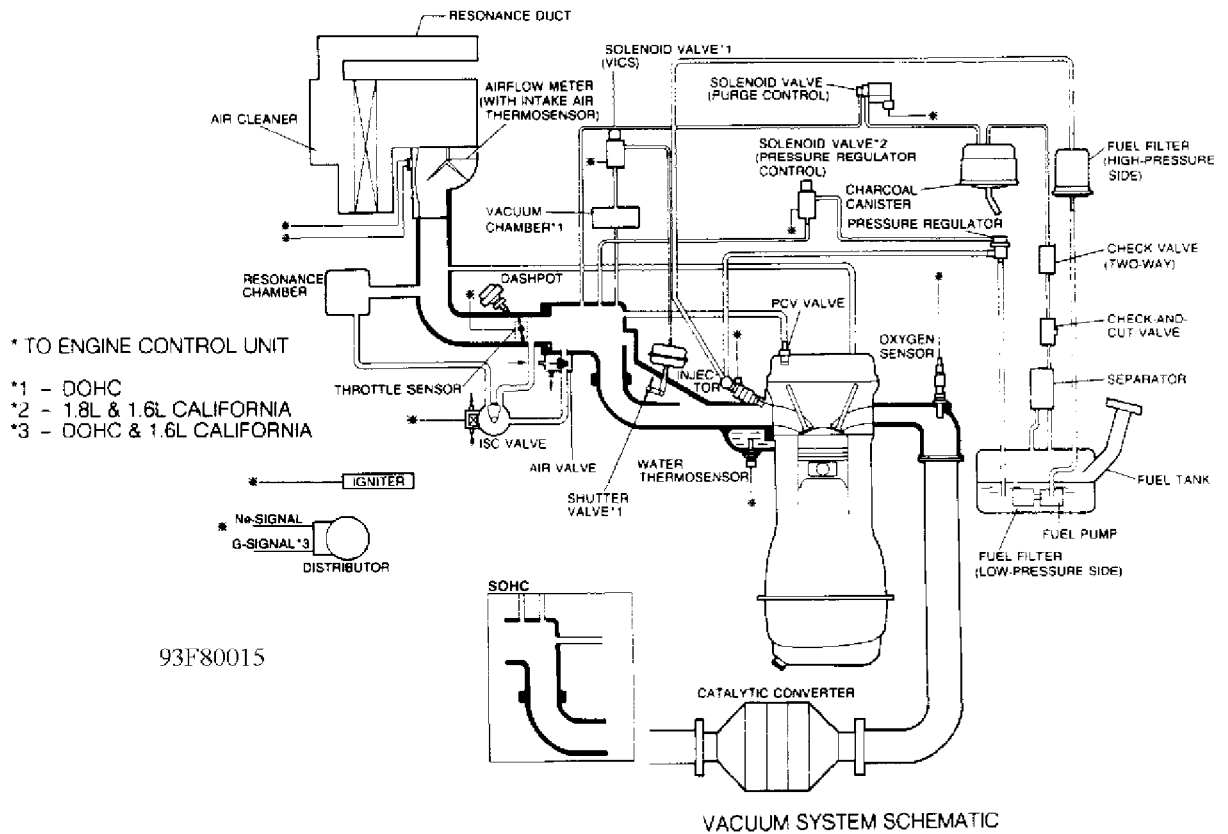


Fig. 21: Vacuum System Schematic (Protege 1.8L & 323 1.6L)
Courtesy Of Mazda Motors Corp.

M - VACUUM DIAGRAMS

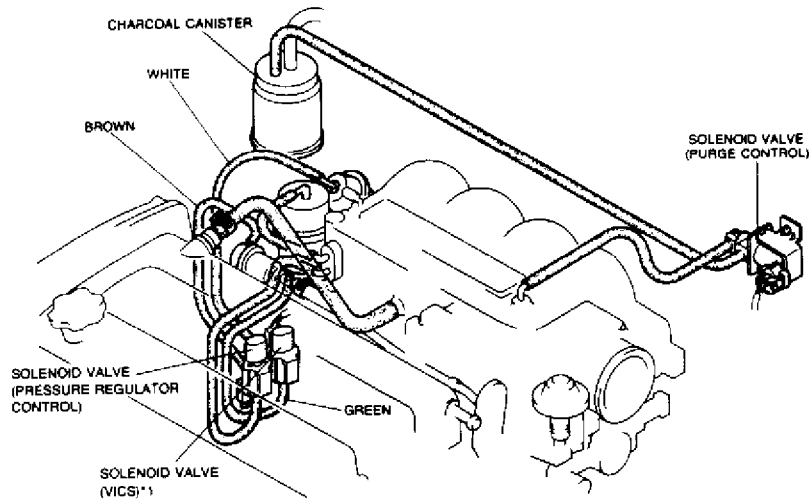
Article Text (p. 17)

1993 Mazda RX7

For www.iluvmyrx7.com

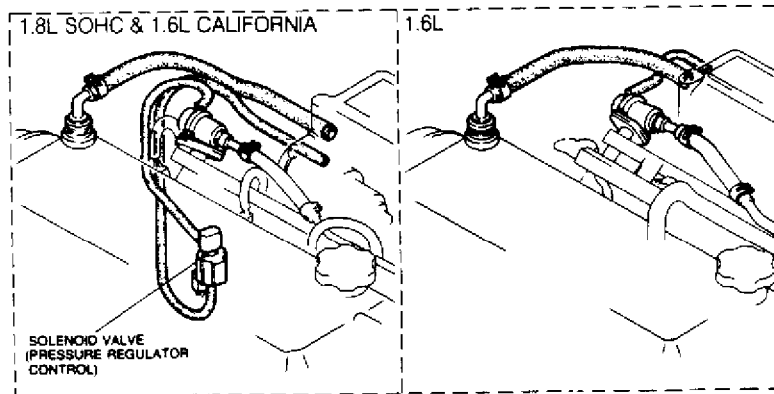
Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:18AM



*1 - DOHC

VACUUM HOSE ROUTING DIAGRAM



93G80016

Fig. 22: Vacuum Hose Routing Diagram (Protege 1.8L & 323 1.6L)
Courtesy Of Mazda Motors Corp.

Copyright © 1998 Mitchell Repair Information Company, LLC
Monday, August 20, 2001 07:18AM



VACUUM HOSE ROUTING DIAGRAM

LEGEND:

- ① SOLENOID VALVE (PRESSURE REGULATOR CONTROL)
- ② SOLENOID VALVE (RELIEF 1)
- ③ SOLENOID VALVE (SWITCH)
- ④ SOLENOID VALVE (IGPH)
- ⑤ SOLENOID VALVE (TURBO CONTROL)
- ⑥ SOLENOID VALVE (CHARGE CONTROL)
- ⑦ SOLENOID VALVE (DOUBLE THROTTLE CONTROL)
- ⑧ SOLENOID VALVE (CHARGE RELIEF)
- ⑨ SOLENOID VALVE (WASTEGATE CONTROL)
- ⑩ SOLENOID VALVE (TURBO PRE-CONTROL)

COMPONENTS AND CONNECTIONS Labeled:

- AIR CONTROL VALVE
- SOLENOID VALVE (TURBO CONTROL)
- PRESSURE REGULATOR
- PCV VALVE
- GAS FILTER
- SOLENOID VALVE (PURGE CONTROL)
- CHECK VALVE
- CATCH TANK PRESSURE CHAMBER
- VACUUM CHAMBER
- MT
- VACUUM CHAMBER
- VACUUM CHAMBER
- CHARGE RELIEF VALVE
- ACTUATOR (CHARGE CONTROL)
- TO FUEL TANK FROM FUEL FILTER
- TURBO CHARGER
- AIR BYPASS VALVE
- ACTUATOR (WASTEGATE CONTROL)
- ACTUATOR (TURBO PRE-CONTROL)
- ACTUATOR (DOUBLE THROTTLE SENSOR CONTROL)
- CHARGES CANISTER

Fig. 24: Vacuum Hose Routing Diagram (RX7 1.3L)
Courtesy Of Mazda Motors Corp.

M - VACUUM DIAGRAMS

Article Text (p. 19)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:18AM

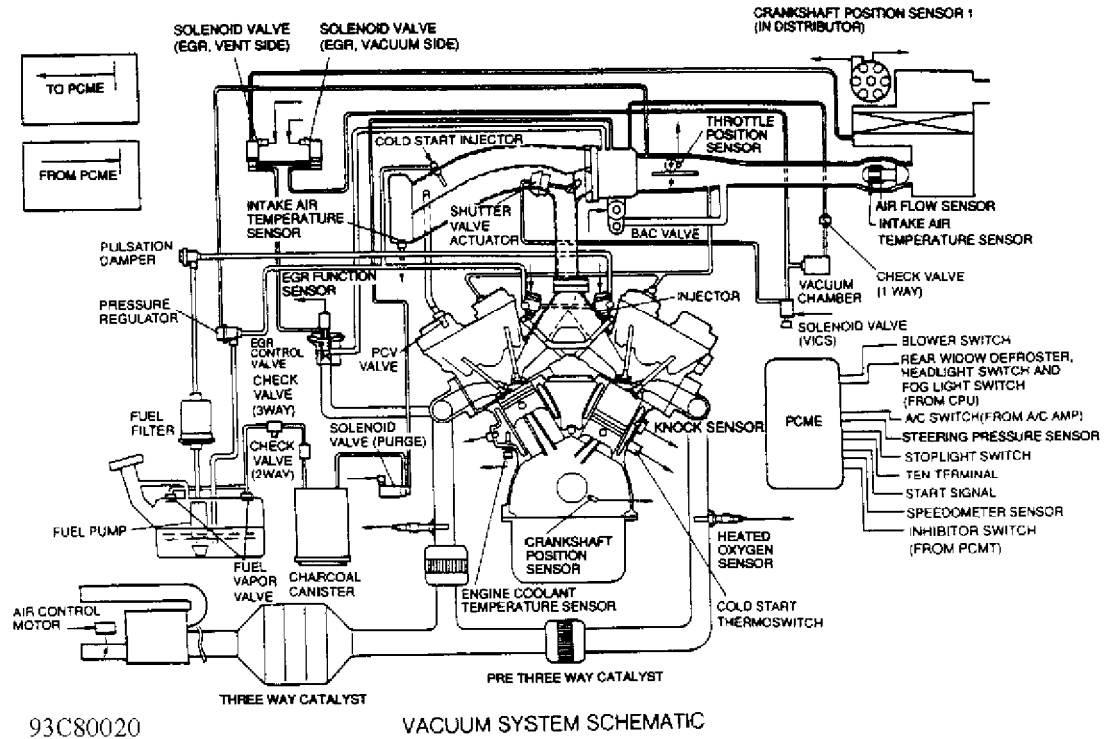


Fig. 25: Vacuum System Schematic (929 3.0L)

Courtesy Of Mazda Motors Corp.

M - VACUUM DIAGRAMS

Article Text (p. 20)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:18AM

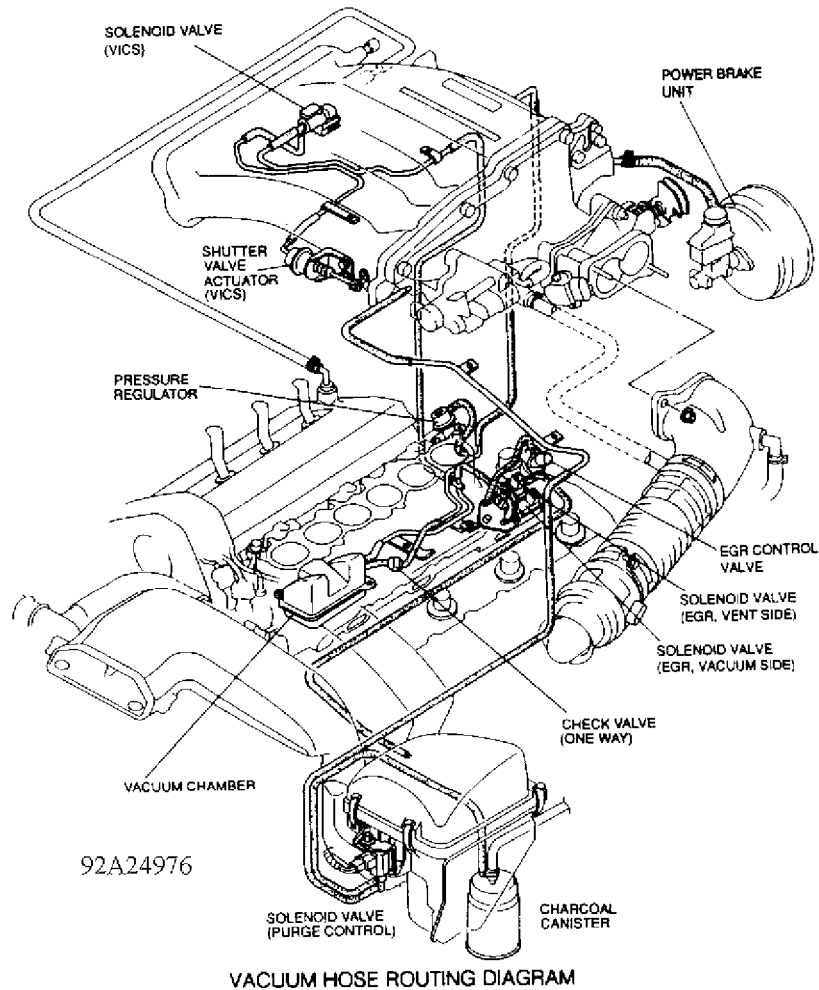


Fig. 26: Vacuum Hose Routing Diagram (929 3.0L)
Courtesy Of Mazda Motors Corp.

END OF ARTICLE

N - REMOVE/INSTALL/OVERHAUL

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Monday, August 20, 2001 07:18AM

ARTICLE BEGINNING

1993 ENGINE PERFORMANCE

Mazda Removal, Overhaul & Installation

B2200, B2600i, Miata, MPV, MX-3, MX-6,
Navajo, Protege, RX7, 323, 626 & 929

INTRODUCTION

Removal, overhaul and installation procedures are covered in this article. If component removal and installation is primarily an unbolt and bolt-on procedure, only a torque specification may be furnished.

NOTE: On Miata, obtain code number and deactivate anti-theft alarm before disconnecting battery cable.

IGNITION SYSTEM

DISTRIBUTOR

NOTE: Miata, Navajo and RX7 are equipped with distributorless ignition system.

Refer to appropriate illustration when removing, overhauling or installing distributor. See Figs. 1-7.

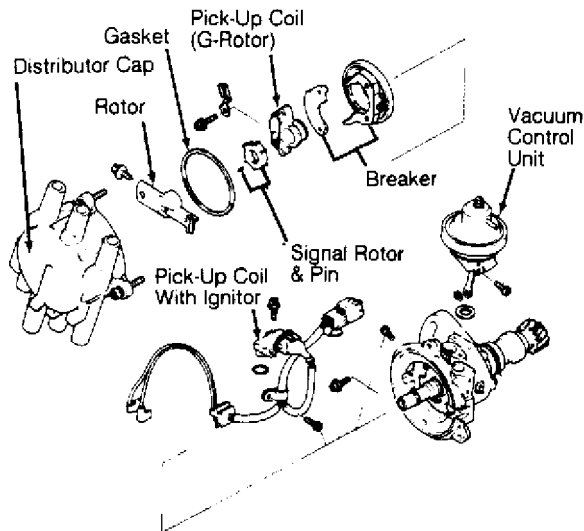


Fig. 1: Exploded View Of Distributor (B2200 Carbureted)
Courtesy of Mazda Motors Corp.

N - REMOVE/INSTALL/OVERHAUL

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:18AM

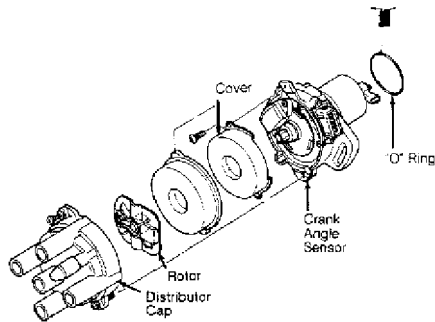
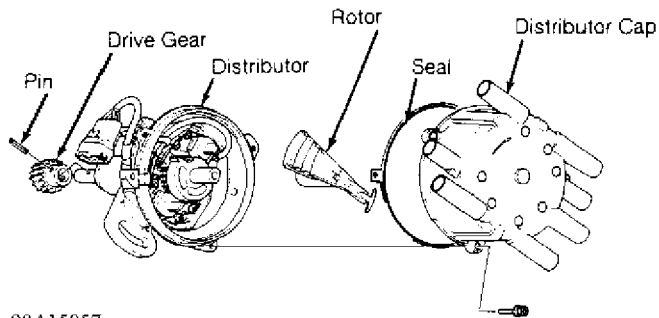


Fig. 2: Exploded View Of Distributor (B2200 PFI, B2600i, MPV 2.6L, Protege & 323)

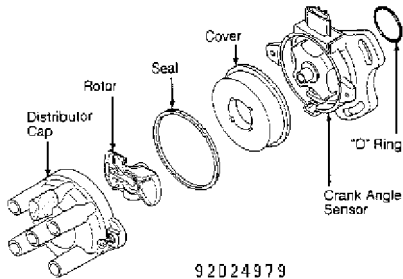
Courtesy of Mazda Motors Corp.



90A15057

Fig. 3: Exploded View Of Distributor (MPV 3.0L)

Courtesy of Mazda Motors Corp.



92024979

Fig. 4: Exploded View Of Distributor (MX-3 1.6L)

Courtesy of Mazda Motors Corp.

N - REMOVE/INSTALL/OVERHAUL

Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:18AM

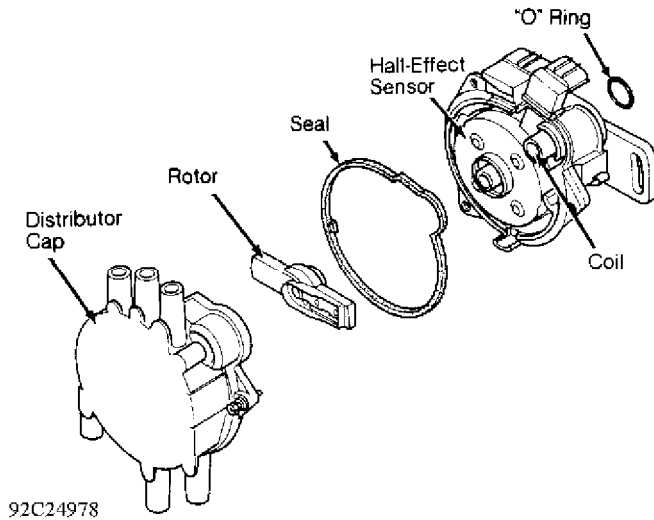


Fig. 5: Exploded View Of Distributor (MX-3 1.8L, MX-6 2.5L & 626 2.5L)

Courtesy of Mazda Motors Corp.

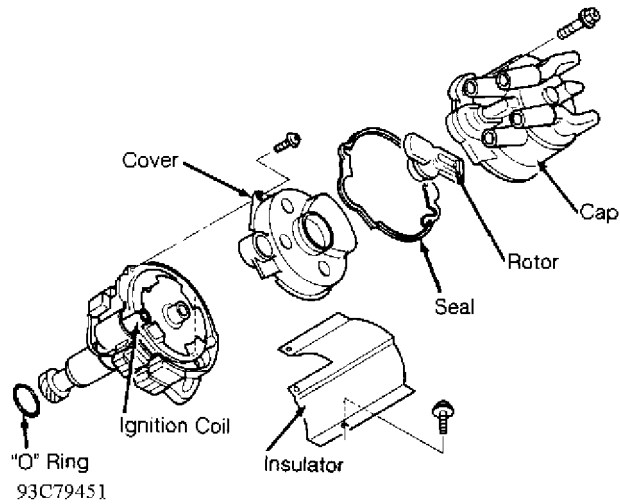


Fig. 6: Exploded View Of Distributor (MX-6 2.0L & 626 2.0L)

Courtesy of Mazda Motors Corp.

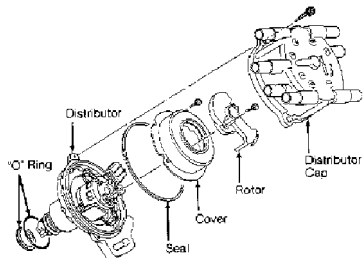


Fig. 7: Exploded View Of Distributor (929)

Courtesy of Mazda Motors Corp.

N - REMOVE/INSTALL/OVERHAUL

Article Text (p. 4)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:18AM

CRANK ANGLE SENSOR

Removal & Installation (Miata)

Disconnect sensor connector. Remove hold-down bolt. Remove sensor. To install, reverse removal procedure. Adjust ignition timing. See D - ADJUSTMENTS article. Tighten bolt to specification. See TORQUE SPECIFICATIONS TABLE at the end of this article.

Removal & Installation (MX-3 1.8L, MX-6 2.5L & 626 2.5L)

Crank angle sensor is located on front of engine near crank pulley. To remove, disconnect negative battery cable. Remove idle pulley bracket. Remove dipstick pipe. Disconnect sensor connector. Remove sensor. To install, reverse removal procedure. Tighten bolts to specification. See TORQUE SPECIFICATIONS table. Adjust ignition timing. See D - ADJUSTMENTS article.

Removal & Installation (RX7)

Disconnect negative battery cable. Remove drive belt. Remove crankshaft pulley and crank angle sensor plate. Remove nuts and sensor bracket. Disconnect electrical connectors. Remove crank angle sensors. To install, reverse removal procedure. Tighten sensor mounting nuts to specification. See TORQUE SPECIFICATIONS TABLE at the end of this article.

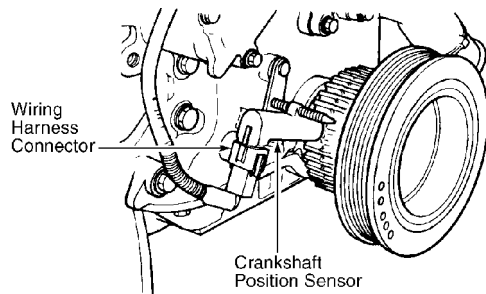
Removal & Installation (929)

Crank angle sensor is located on front of engine, near crank pulley. To remove, disconnect sensor connector. Remove mounting bolt. Remove sensor. To install, reverse removal procedure. Adjust ignition timing. See D - ADJUSTMENTS article. Tighten bolt to specification. See TORQUE SPECIFICATIONS TABLE at the end of this article.

CRANKSHAFT POSITION SENSOR

Removal & Installation (Navajo)

Disconnect negative battery cable. Disconnect crankshaft position sensor connector. See Fig. 8. Remove crankshaft timing sensor mounting screws, and remove sensor. To install, reverse removal procedure. Tighten screws to specification. See TORQUE SPECIFICATIONS TABLE at the end of this article.



93G79687

Fig. 8: Locating Crankshaft Position Sensor (Navajo)
Courtesy of Ford Motor Co.

N - REMOVE/INSTALL/OVERHAUL

Article Text (p. 5)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:18AM

FUEL SYSTEM

WARNING: Always relieve fuel pressure before disconnecting any fuel injection-related component. DO NOT allow fuel to contact engine or electrical components.

FUEL SYSTEM PRESSURE RELEASE

Except Navajo

1) Start engine. On B2200 PFI, B2600i, Miata, MX-6, RX7, 626 and 929, disconnect fuel pump relay or circuit opening relay. See FUEL PUMP/CIRCUIT OPENING RELAY LOCATION table.

2) On MPV 3.0L, disconnect airflow sensor connector. On all other models, disconnect fuel pump connector near fuel tank (on MX-3, Protege and 323, fuel pump connector is accessible from under rear seat cushion).

3) On all models, allow engine to run until it stalls. Turn ignition off. Reconnect electrical connector.

FUEL PUMP/CIRCUIT OPENING RELAY LOCATION TABLE

Application

Location

B2200 PFI & B2600i Behind Left Kick Panel

Miata Left Of Steering Column

MX-6 & 626 Underhood Relay Panel

Protege & 323 Below Glove Box

RX7 & 929 Underhood Fuse Block

Navajo

1) Disconnect negative battery cable. Remove snow/ice shield.

Remove air intake tube between air cleaner and throttle body. Remove fuel filler cap to release fuel tank pressure. Connect Fuel Pressure Gauge (49-UN01-010) to fuel pressure relief valve (Schrader valve) on fuel supply manifold, near fuel pressure regulator. See Fig. 25.

2) As an alternate method, disconnect inertia switch connector behind instrument panel, under radio. Start engine and operate until it stalls.

FUEL LINE CONNECTORS (NAVAJO)

NOTE: Although push-connect fittings and spring lock couplers are similar in function, different procedures and tools are used to disconnect and connect these connectors. See Figs. 9 and 10.

Disconnect (Push-Connect Fitting)

1) Release fuel system pressure. See FUEL SYSTEM PRESSURE RELEASE. Remove locking (safety) clip (if equipped).

2) Position Push-Connect Fitting Releaser (49-UN01-053 for 5/16" line; 49-UN01-054 for 3/8" line) over fuel line. See Fig. 9.

N - REMOVE/INSTALL/OVERHAUL

Article Text (p. 6)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:18AM

Slide releaser into fitting. Pull fuel lines apart.

Connect

Press fuel lines together until a click is heard. Attempt to pull lines apart to ensure coupler is fully engaged. Install locking clip (if equipped).

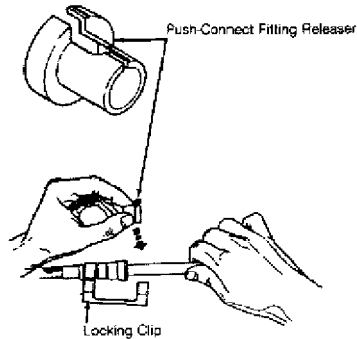


Fig. 9: Disconnecting Push-Connect Fitting (Navajo)
Courtesy of Ford Motor Co.

Disconnect (Spring Lock Coupler)

1) Release fuel system pressure. See FUEL SYSTEM PRESSURE RELEASE. Remove locking (safety) clip (if equipped). Place Spring Lock Coupler Releaser (49-UN01-051 for 3/8" line; 49-UN01-052 for 1/2" line) over fuel line coupler. See Fig. 10.

2) Push spring lock coupler releaser to release female fitting from garter spring. Pull spring lock coupler apart. Remove releaser.

Connect (Spring Lock Coupler)

1) Check for damaged garter spring. If garter spring is damaged, remove using small hooked wire and replace spring. Wipe end of lines using clean cloth. Place new "O" rings onto tube. Lubricate ends of lines with clean refrigerant oil.

2) Push fitting together using a slight twisting motion. Ensure garter spring is over flared end of female fitting. Attempt to pull lines apart to ensure coupler is fully engaged. Install locking clip (if equipped).

N - REMOVE/INSTALL/OVERHAUL

Article Text (p. 7)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:18AM

Warning-Relieve fuel system pressure before disconnecting coupling

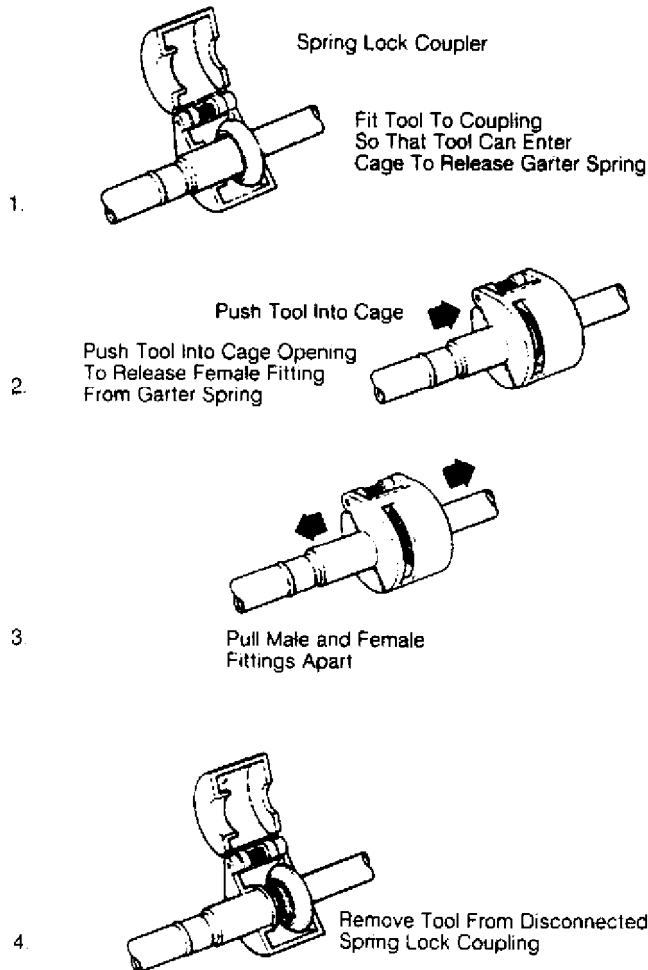


Fig. 10: Disconnecting Spring Lock Coupler (Navajo)
Courtesy of Ford Motor Co.

FUEL SYSTEM PRIMING

CAUTION: After performing fuel system repairs, use following procedure to prime fuel system before starting engine . This prevents excessive engine cranking and allows system to be leak-tested.

Except Navajo

1) On B2200 PFI, B2600i, and MPV, connect jumper wire between terminals of Yellow 2-pin connector. See FUEL PUMP TEST CONNECTOR LOCATION table.

2) On all others, connect jumper wire between GND and F/P terminals of data link connector. See Fig. 11. On all models, turn ignition on for about 10 seconds and then off. Disconnect jumper wire.

Navajo

N - REMOVE/INSTALL/OVERHAUL

Article Text (p. 8)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:18AM

Without starting engine, turn ignition on and off 5-10 times.

FUEL PUMP TEST CONNECTOR LOCATION TABLE

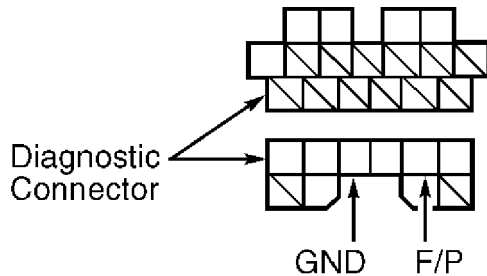
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	Location
-------------	----------

B2200 PFI & B2600i	Right Rear Corner Of Engine Compartment
--------------------	-----------------------------------------

MPV	Left Front Corner Of Engine Compartment
-----	-----------------------------------------

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA



91117838

Fig. 11: Data Link Connector Terminal ID (Except B2200, B2600i, MPV & Navajo)

Courtesy of Mazda Motors Corp.

CARBURETOR (B2200)

Removal & Installation

Disconnect negative battery cable. Remove air cleaner. Disconnect accelerator cable, cruise control cable (if equipped), all necessary vacuum hoses, fuel hoses and electrical connectors. Remove carburetor mounting nuts. Remove carburetor. To install, reverse removal procedure.

Disassembly (Air Horn & Choke Assembly)

1) DO NOT remove choke valve and shaft from air horn.

Disconnect vacuum hose from choke opener (pull-off) diaphragm. Remove accelerator pump connecting rod, spring and lever. See Fig. 22. Remove spring. Disconnect air vent solenoid valve wire from connector.

2) Disconnect choke rod. Remove air horn retaining bolts.

Remove air horn and choke assembly from main body. Remove air vent solenoid valve, spring and gasket from air horn.

Disassembly (Needle Valve & Float)

Remove float, pin and gasket. See Figs. 15 and 22. Remove needle valve assembly. Remove sight glass assembly from main body.

CAUTION: Note location and size of air bleeds and jets before removal. Ensure components are installed in correct locations.

Disassembly (Air Bleeds & Jets)

1) Remove secondary slow jet, secondary slow bleed, secondary main bleed and secondary main jet from main body. See Figs. 12 and 22.

N - REMOVE/INSTALL/OVERHAUL

Article Text (p. 9)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:18AM

Remove primary main bleed, slow jet and plug, primary slow bleed and primary main jet from main body.

2) Remove richer air bleed, primary slow bleed, coasting richer air bleed and coasting richer jet from air horn. See Figs. 13 and 22.

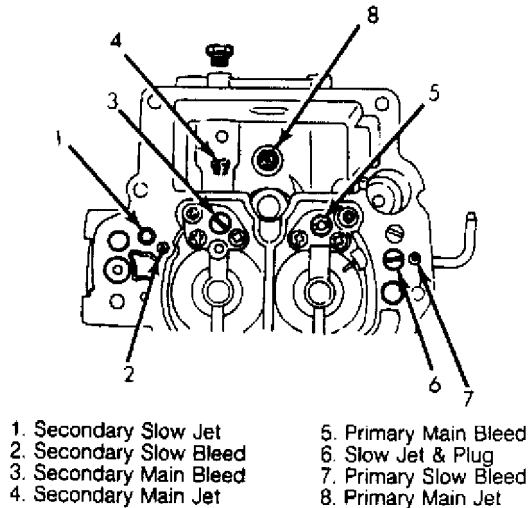


Fig. 12: Locating Air Bleeds & Jets (Main Body)
Courtesy of Mazda Motors Corp.

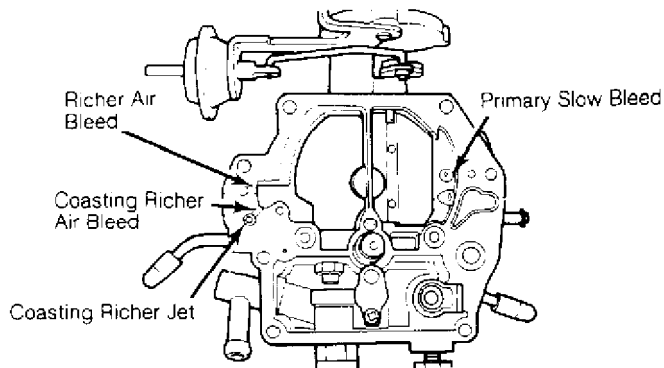


Fig. 13: Locating Air Bleeds & Jets (Air Horn)
Courtesy of Mazda Motors Corp.

Disassembly (Main Body)

1) DO NOT remove venturi's from main body. Remove coasting richer solenoid valve and "O" ring. See Fig. 22. Remove idle switch and spring. Remove slow fuel-cut solenoid valve, needle valve, spring and gasket. Remove dashpot (M/T).

2) Remove accelerator pump plunger and spring assembly. Remove retaining clip, strainer and inlet check ball. Remove outlet check ball plug, outlet check ball and spring.

3) Disconnect throttle link, vacuum diaphragm connecting rod

N - REMOVE/INSTALL/OVERHAUL

Article Text (p. 10)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:18AM

and throttle return spring. Remove throttle body-to-main body retaining bolts (one bolt is located inside throttle body). Separate throttle body from main body.

Disassembly (Throttle Body)

DO NOT remove throttle valve and shaft from throttle body. Remove vacuum (secondary) diaphragm assembly. Remove diaphragm cover screws. Remove cover, spring and diaphragm. Using small punch and hammer, remove spring pin located in front of mixture adjusting screw. Remove mixture adjusting screw.

NOTE: DO NOT immerse diaphragms, electrical components or synthetic parts in carburetor cleaner.

Cleaning & Inspection

1) Thoroughly clean metal parts in carburetor cleaner. Using compressed air, dry all components and blow out all passages. DO NOT use wire or pointed metal objects for cleaning. Inspect air horn, main body and throttle body for cracks.

2) Inspect choke shaft and throttle shaft for wear. Check all jets and air bleeds for open passages. Inspect needle and seat for wear. Inspect float and accelerator pump cup for damage. Replace all damaged components.

3) Inspect vacuum diaphragm for damage. Inspect idle mixture screw for wear and burrs. Apply battery voltage to solenoids to ensure solenoids operate (indicated by valve stem movement).

4) Check electric choke heater by connecting an ohmmeter to wire connector and heater ground. If continuity does not exist, replace electric choke heater.

5) To check Mixture Control (M/C) solenoid, apply battery voltage across solenoid using solenoid connector. See Fig. 14. From bottom of air horn, blow air through valve in direction indicated. If air does not flow through valve with solenoid energized, replace air horn assembly (M/C solenoid and air horn are replaced as an assembly).

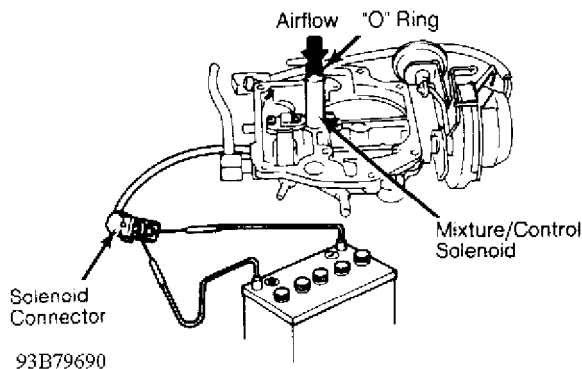


Fig. 14: Checking Mixture Control (M/C) Solenoid
Courtesy of Mazda Motors Corp.

Reassembly (All Parts)

N - REMOVE/INSTALL/OVERHAUL

Article Text (p. 11)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:18AM

1) To reassemble, reverse disassembly procedure using NEW gaskets. DO NOT install spring pin in front of mixture screw until idle mixture has been adjusted with engine running. Before installing air horn on main body, adjust float level and float drop. Install NEW "O" ring on M/C solenoid and coat "O" ring with gasoline.

2) After reassembly and before installing carburetor, adjust choke pull-off diaphragm, fast idle cam (throttle opening angle), fast idle cam (choke opening angle), choke unloader, secondary throttle valve and accelerator cable.

3) After installing carburetor, adjust curb (hot) idle speed, fast (cold) idle speed and idle mixture. See D - ADJUSTMENTS article.

Adjusting Float Level

With air horn upside-down and gasket removed, allow float to hang by its weight. Measure distance between top of float and air horn gasket surface. See Fig. 15. If distance is not .42-.46" (10.7-11.7 mm) on A/T models or .46-.50" (11.7-12.7 mm) on M/T models, bend float seat as necessary.

Adjusting Float Drop

With air horn upright and gasket removed, allow float to hang by its weight. Measure between bottom of float and air horn gasket surface. See Fig. 16. If distance is not 1.81-1.85" (46.0-47.0 mm), bend float stop as necessary. See Fig. 15.

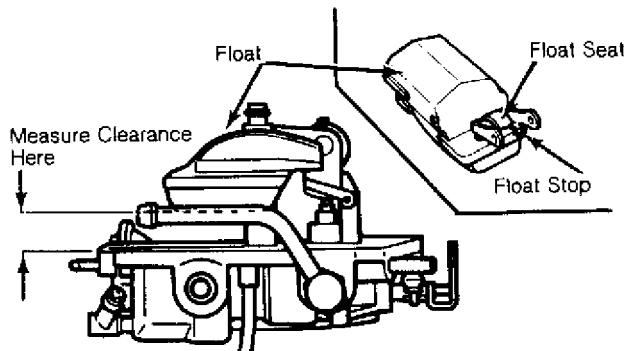


Fig. 15: Adjusting Float Level
Courtesy of Mazda Motors Corp.

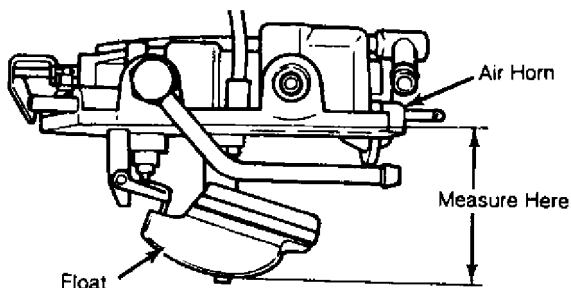


Fig. 16: Adjusting Float Drop
Courtesy of Mazda Motors Corp.

Adjusting Choke Pull-Off Diaphragm

N - REMOVE/INSTALL/OVERHAUL

Article Text (p. 12)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:19AM

Apply about 16 in. Hg vacuum to choke pull-off diaphragm. Lightly push choke plate toward closed position. Measure clearance between top of choke plate and air horn. See Fig. 17. If clearance is not .067-.085" (1.70-2.16 mm), bend choke lever until clearance is within specification.

Adjusting Fast Idle Cam (Throttle Opening Angle)

Set fast idle cam on second highest position. Measure between primary throttle valve and throttle bore. See Fig. 18. If clearance is not .033-.041" (0.84-1.04 mm), turn fast idle adjusting screw as necessary.

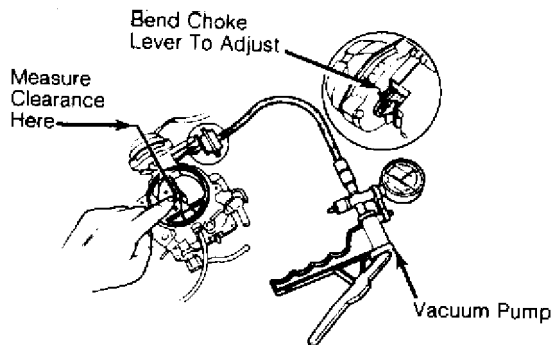


Fig. 17: Adjusting Choke Pull-Off Diaphragm
Courtesy of Mazda Motors Corp.

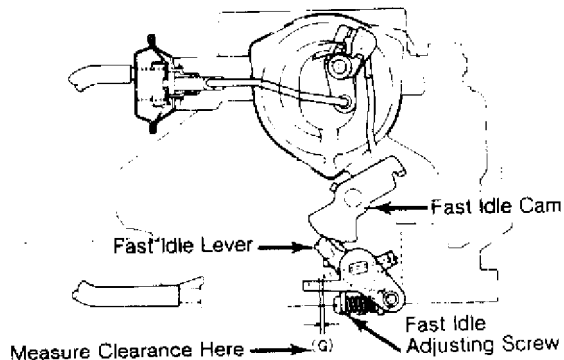


Fig. 18: Adjusting Fast Idle Cam (Throttle Valve Angle)
Courtesy of Mazda Motors Corp.

Adjusting Fast Idle Cam (Choke Valve Angle)

Set fast idle cam on second highest position. Measure clearance between top of choke plate and air horn. See Fig. 19. If clearance is not .024-.045" (0.60-1.14 mm), bend starting arm. If large adjustment is required, bend choke rod.

Adjusting Choke Unloader

Fully open primary throttle valve. Measure clearance between top of choke plate and air horn. See Fig. 20. If clearance is not .110-.143" (2.80-3.62 mm), bend tab as necessary.

N - REMOVE/INSTALL/OVERHAUL

Article Text (p. 13)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:19AM

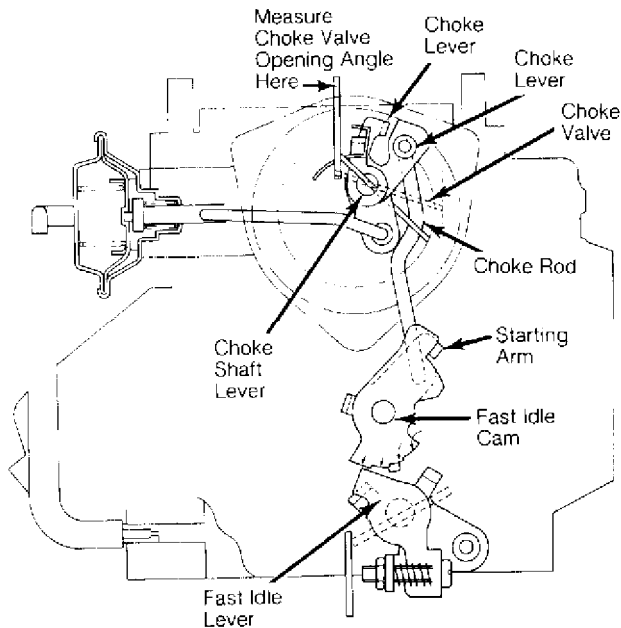


Fig. 19: Adjusting Fast Idle Cam (Choke Opening Angle)
Courtesy of Mazda Motors Corp.

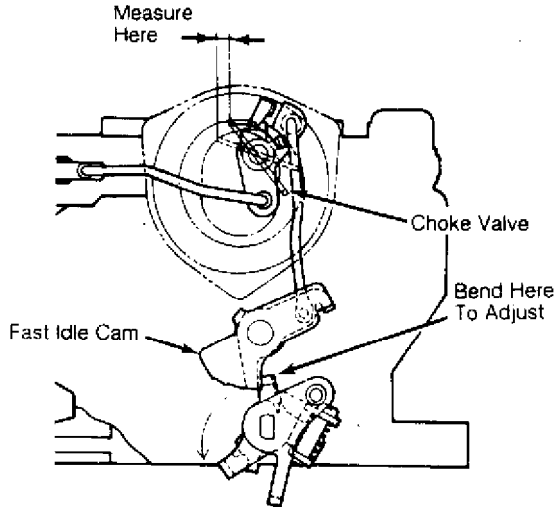


Fig. 20: Adjusting Choke Unloader
Courtesy of Mazda Motors Corp.

Adjusting Secondary Throttle Valve

Secondary throttle valve should start to open when primary throttle valve opens 50-54 degrees and should be fully open when primary throttle valve is fully open. Measure clearance between primary throttle valve and throttle bore when secondary throttle valve starts to open. See Fig. 21. If clearance is not .289-.325" (7.35-8.25 mm), bend tab as necessary.

Adjusting Accelerator Cable

N - REMOVE/INSTALL/OVERHAUL

Article Text (p. 14)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:19AM

Check accelerator cable deflection (free play) at carburetor. If deflection is not .039-.118" (1.0-3.0 mm), turn cable adjusting nuts as needed. Fully depress accelerator pedal. If primary throttle valve does not fully open, turn accelerator stop bolt (above accelerator pedal) as needed to obtain full valve opening.

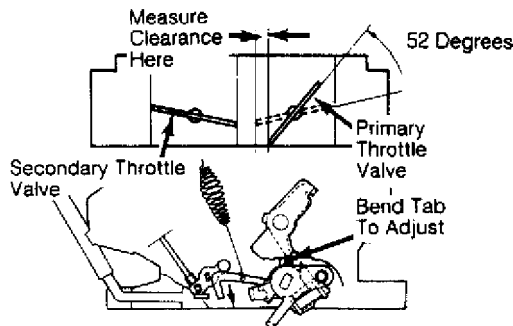
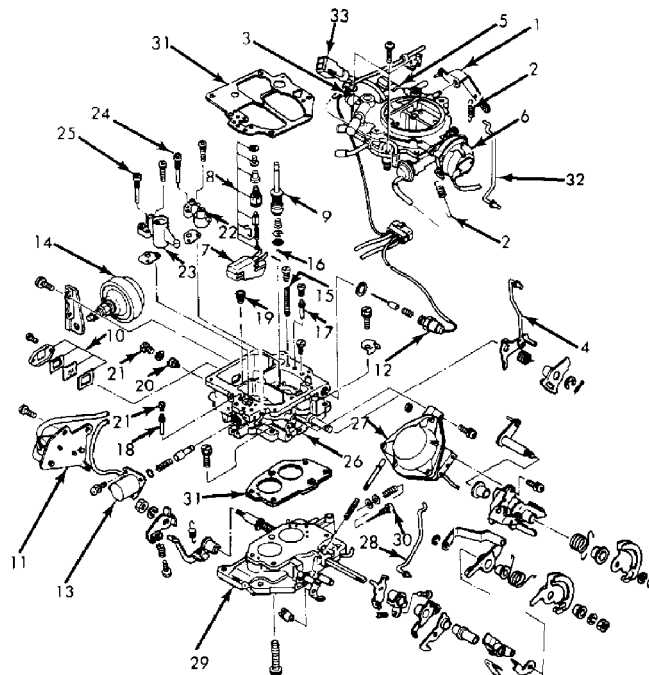


Fig. 21: Adjusting Secondary Throttle Valve
Courtesy of Mazda Motors Corp.



- | | | |
|------------------------------------|------------------------------------|--------------------------------|
| 1. Accelerator Pump Connecting Rod | 12. Slow Fuel-Cut Valve | 23. Secondary Venturi & Nozzle |
| 2. Spring | 13. Coasting Richer Solenoid Valve | 24. Primary Main Bleed |
| 3. Air Vent Solenoid Valve | 14. Dashpot | 25. Secondary Main Bleed |
| 4. Choke Rod | 15. Outlet Check Ball & Spring | 26. Main Body |
| 5. Air Horn | 16. Inlet Check Ball | 27. Vacuum Diaphragm Assembly |
| 6. Choke Assembly | 17. Primary Slow Jet | 28. Throttle Link |
| 7. Float | 18. Secondary Slow Jet | 29. Throttle Body |
| 8. Needle Valve Assembly | 19. Primary Main Jet | 30. Mixture Adjust Screw |
| 9. Accelerator Pump Plunger | 20. Secondary Main Jet | 31. Gasket |
| 10. Sight Glass Assembly | 21. Plug | 32. Accelerator Pump Linkage |
| 11. Idle Switch | 22. Primary Venturi & Nozzle | 33. M/C Solenoid Connector |

93D79452

Fig. 22: Exploded View Of 2-Barrel Carburetor (B2200)
Courtesy of Mazda Motors Corp.

N - REMOVE/INSTALL/OVERHAUL

Article Text (p. 15)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:19AM

FUEL PUMP

CAUTION: After performing fuel system repairs, prime fuel system before starting engine. See FUEL SYSTEM PRIMING.

Removal (B2200 Carbureted With Electric Pump, B2200 PFI & B2600i)

Release fuel system pressure (except B2200 Carbureted). See FUEL SYSTEM PRESSURE RELEASE. Remove fuel tank. Remove fuel pump and sending unit assembly. Remove fuel pump from assembly.

Installation (B2200 Carbureted With Electric Pump, B2200 PFI & B2600i)

Install new pump in sending unit assembly. Ensure fuel pump wire terminals do not touch hose clamps or bracket assembly. To complete installation, reverse removal procedure.

Removal (Miata, Protege, RX7 & 323)

1) Release fuel system pressure. See FUEL SYSTEM PRESSURE RELEASE.

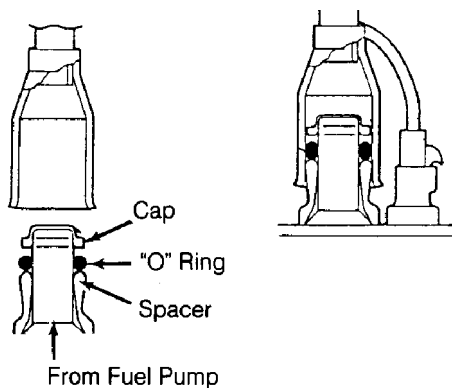
2) On Miata, remove rear package trim (behind seat). On Protege and 323, remove rear seat. On RX7, remove carpet in luggage compartment.

3) On all models, remove fuel pump access cover. Disconnect fuel hoses and electrical connector. Remove fuel pump and sending unit assembly. Remove fuel pump from assembly.

Installation (Miata, Protege, RX7 & 323)

1) Install fuel pump to assembly using NEW "O" ring, cap and spacer between fuel pump and outlet pipe (coat components with oil or gasoline before installing). See Fig. 23. After installing fuel pump to assembly, blow through outlet pipe (at top of assembly) toward pump to confirm sealing of "O" ring.

2) If air flows through pump, shake pump several times to dislodge check ball. To complete installation, reverse removal procedure.



91J17839

Fig. 23: Installing Fuel Pump (Miata, Protege, RX7 & 323)
Courtesy of Mazda Motors Corp.

N - REMOVE/INSTALL/OVERHAUL

Article Text (p. 16)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:19AM

Removal (MPV & MX-3)

1) Release fuel system pressure. See FUEL SYSTEM PRESSURE RELEASE. Remove rear seat. On MPV, lift rear floor mat.

2) On all models, remove fuel pump cover. Disconnect fuel hoses and electrical connector. Remove fuel pump and sending unit assembly. Remove fuel pump from assembly.

Installation (MPV & MX-3)

1) Replace fuel hose between pump and outlet pipe (DO NOT apply excessive force when installing onto pump nipple). Install hose clamps.

2) Install pump with wire terminals positioned to avoid contact with metal parts. To complete installation, reverse removal procedure.

Removal (MX-6 & 626)

Release fuel system pressure. See FUEL SYSTEM PRESSURE RELEASE. Remove fuel tank. Turn lock ring counterclockwise. Remove lock ring. Remove fuel pump and sending unit assembly.

Installation (MX-6 & 626)

Clean seal area on tank and assembly flange. Lightly coat NEW "O" ring with molybdenum grease. Install seal in groove. Carefully install assembly into fuel tank, ensuring filter is not damaged and seal remains in groove. Install and turn lock ring clockwise until tight. Install fuel tank.

Removal & Installation (929)

1) Release fuel system pressure. See FUEL SYSTEM PRESSURE RELEASE.

2) Remove rear seat mounting bolts, located between seat bottom and seat back cushions. Remove seat cushions. Remove amplifier and CD changer (if equipped) and lift luggage compartment carpeting. Remove hole cover.

3) Disconnect fuel hoses and electrical connector. Remove fuel pump and sending unit assembly. Remove fuel pump from assembly. To install, reverse removal procedure.

Removal (Navajo)

Release fuel system pressure. See FUEL SYSTEM PRESSURE RELEASE. Remove fuel tank. Using Fuel Tank Lock Ring Wrench (T86T-9275-A), turn lock ring counterclockwise. Remove lock ring. Remove fuel pump and sending unit assembly. Remove fuel pump from assembly.

Installation (Navajo)

Clean seal area on tank and assembly flange. Lightly coat NEW "O" ring with molybdenum grease. Install seal in groove. Carefully install assembly into fuel tank, ensuring filter is not damaged and seal remains in groove. Install and turn lock ring clockwise until tight using Fuel Tank Lock Ring Wrench (T86T-9275-A). Install fuel tank.

N - REMOVE/INSTALL/OVERHAUL

Article Text (p. 17)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:19AM

FUEL PRESSURE REGULATOR

CAUTION: After performing fuel system repairs, prime fuel system before starting engine. See FUEL SYSTEM PRIMING.

Removal & Installation (Except Navajo)

1) Disconnect negative battery cable. Release fuel system pressure. See FUEL SYSTEM PRESSURE RELEASE. On 929, remove dynamic chamber. On all models, disconnect vacuum and fuel hose(s) from regulator. Remove regulator mounting bolts. Remove regulator, gasket and "O" ring (if equipped).

2) To install, reverse removal procedure. Install NEW gasket and "O" ring (if equipped). On 929, install dynamic chamber with NEW gasket. Tighten bolts to specification. See TORQUE SPECIFICATIONS TABLE at the end of this article.

Removal & Installation (Navajo)

1) Disconnect negative battery cable. Release fuel system pressure. See FUEL SYSTEM PRESSURE RELEASE. Disconnect vacuum hose from regulator. Disconnect fuel line coupling at regulator. See FUEL LINE CONNECTORS (NAVAJO).

2) Remove regulator mounting screws. Remove regulator, "O" ring and washer. To install, reverse removal procedure using NEW washer and "O" ring. Lubricate NEW "O" ring with light oil. DO NOT use silicone grease.

FUEL RAILS & INJECTORS

CAUTION: After performing fuel system repairs, prime fuel system before starting engine. See FUEL SYSTEM PRIMING.

Removal & Installation (B2200 PFI, B2600i & MPV 2.6L)

1) Release fuel system pressure. See FUEL SYSTEM PRESSURE RELEASE under FUEL SYSTEM. Remove throttle body. See THROTTLE BODY under FUEL SYSTEM.

2) Remove support brackets and injector harness bracket from dynamic chamber. Disconnect vacuum hoses, PCV hose, intake air thermosensor connector and ground wire from dynamic chamber. Remove dynamic chamber.

3) Disconnect vacuum hose and fuel hoses from fuel rail. Disconnect injector electrical connectors. Pull fuel rail with injectors and pressure regulator upward to remove. Remove insulators, injectors and "O" rings from fuel rail.

4) To install, reverse removal procedure. Apply coat of engine oil to NEW "O" rings, and install rings on injectors. Install NEW insulators. Tighten fuel rail mounting bolts to specification. See TORQUE SPECIFICATIONS TABLE at the end of this article. Install dynamic chamber with NEW gasket.

Removal & Installation (Miata)

1) Release fuel system pressure. See FUEL SYSTEM PRESSURE RELEASE. Disconnect negative battery cable. Remove air valve and PCV

N - REMOVE/INSTALL/OVERHAUL

Article Text (p. 18)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:19AM

valve hose from intake manifold. Disconnect vacuum and fuel hoses from fuel rail. Disconnect injector electrical connectors. Remove insulators, injectors and "O" rings from fuel rail.

2) To install, reverse removal procedure. Apply coat of engine oil to NEW "O" rings and install rings on injectors. Install NEW insulators. Tighten fuel rail mounting bolts to specification. See TORQUE SPECIFICATIONS TABLE at the end of this article.

Removal & Installation (MPV 3.0L)

1) Release fuel system pressure. See FUEL SYSTEM PRESSURE RELEASE. Remove air intake tube. See Fig. 24. Remove throttle body. See THROTTLE BODY.

2) Remove intake air pipe, extension manifolds and upper intake manifold. Disconnect fuel hoses from fuel rail. Disconnect injector electrical connectors. Remove fuel rail and injectors as an assembly. Remove insulators, injectors and "O" rings from fuel rail.

3) To install, reverse removal procedure. Apply coat of engine oil to NEW "O" rings, and install rings on injectors. Install NEW insulators. Tighten fuel rail mounting nuts to specification. See TORQUE SPECIFICATIONS TABLE at the end of this article. Install NEW extension manifold and intake air pipe gaskets.

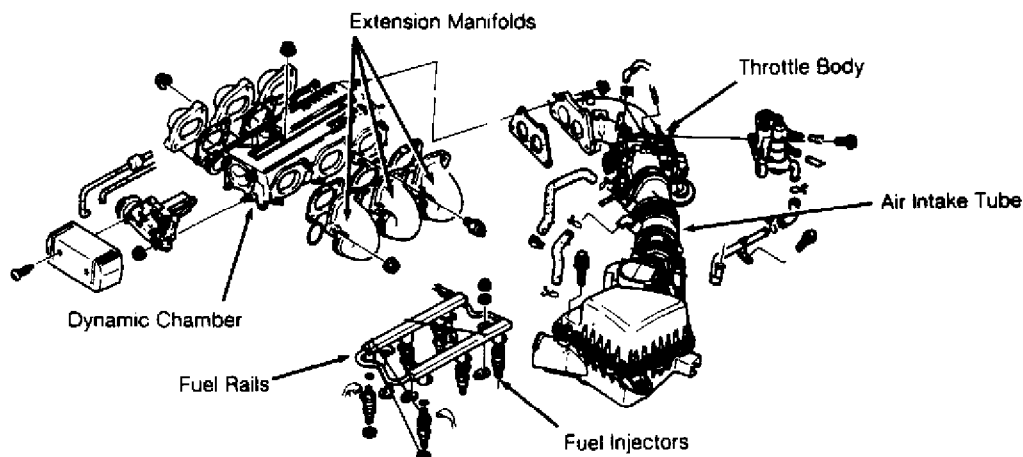


Fig. 24: View Of Upper Intake Manifold Components & Fuel Rail (MPV 3.0L)

Courtesy of Mazda Motors Corp.

Removal & Installation (MX-3 1.6L, MX-6 & 626 2.0L, Protege & 323)

1) Release fuel system pressure. See FUEL SYSTEM PRESSURE RELEASE. Disconnect injector electrical connectors. Remove injector harness from fuel rail. Remove fuel rail mounting bolts. Remove fuel rail, injectors and pressure regulator as an assembly.

2) Remove insulators, injectors and "O" rings from fuel rail. To install, reverse removal procedure. Apply coat of engine oil to NEW "O" rings and install rings on injectors. Install NEW insulators. Tighten fuel rail mounting bolts to specification. See TORQUE SPECIFICATIONS TABLE at the end of this article.

N - REMOVE/INSTALL/OVERHAUL

Article Text (p. 19)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:19AM

Removal & Installation (MX-3 1.8L, MX-6 & 626 2.5L)

1) Release fuel system pressure. See FUEL SYSTEM PRESSURE RELEASE. Disconnect negative battery cable. Remove air intake tube. Disconnect vacuum and fuel hoses from fuel rail. Disconnect injector electrical connectors. Remove fuel rail, injectors and pressure regulator as an assembly. Remove insulators, injectors and "O" rings from fuel rail.

2) To install, reverse removal procedure. Apply coat of engine oil to NEW "O" rings and install rings on injectors. Install NEW insulators. Tighten fuel rail mounting bolts to specification. See TORQUE SPECIFICATIONS TABLE at the end of this article.

Removal (Navajo)

1) Thoroughly clean engine. Release fuel system pressure. See FUEL SYSTEM PRESSURE RELEASE. Disconnect negative battery cable. Remove upper intake manifold and throttle body as an assembly.

2) Disconnect fuel supply line from fuel supply manifold. See FUEL LINE CONNECTORS (NAVAJO). Disconnect fuel return line from fuel pressure regulator. Remove fuel supply manifold. See Fig. 25. Disconnect injector electrical connectors and retaining clips. Remove injectors from fuel supply manifold.

Installation (Navajo)

1) Lubricate NEW injector "O" rings with light oil. DO NOT use silicone grease. Carefully install injectors into fuel supply manifold. Carefully install fuel supply manifold into lower manifold using NEW manifold gasket.

2) Clean and oil fuel supply manifold bolt threads. Install fuel supply manifold bolts. Tighten bolts to specification. See TORQUE SPECIFICATIONS TABLE at the end of this article. To complete installation, reverse removal procedure.

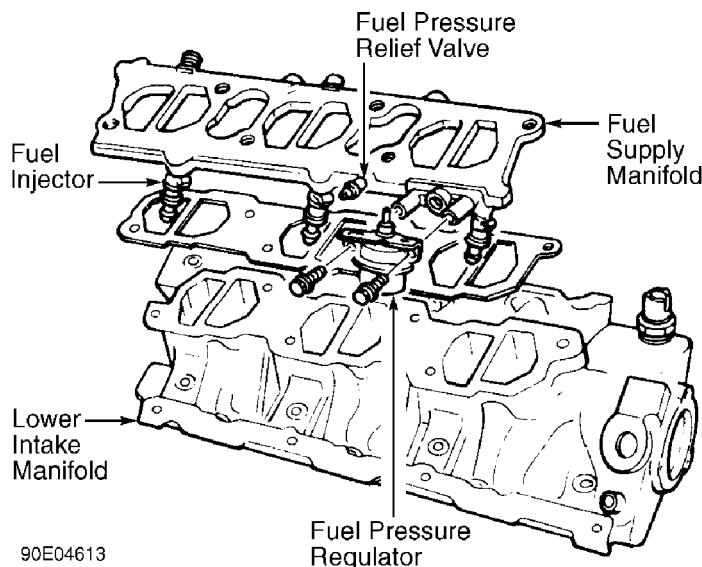


Fig. 25: Exploded View Of Fuel Supply Manifold Assembly (Navajo)
Courtesy of Ford Motor Co.

N - REMOVE/INSTALL/OVERHAUL

Article Text (p. 20)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:19AM

Removal & Installation (RX7)

1) Release fuel system pressure. See FUEL SYSTEM PRESSURE RELEASE. Remove air intake duct. See Fig. 26. Remove throttle body. See THROTTLE BODY.

2) Remove upper intake manifold. Disconnect fuel hoses from fuel rail. Disconnect injector electrical connectors. Remove idle speed control solenoid. Remove fuel rail and injectors as an assembly. Remove insulators, injectors and "O" rings from fuel rail.

3) To install, reverse removal procedure. Apply coat of engine oil to NEW "O" rings, and install rings on injectors. Install NEW insulators. Tighten fuel rail mounting nuts to specification. See TORQUE SPECIFICATIONS TABLE at the end of this article. Install NEW manifold gaskets.

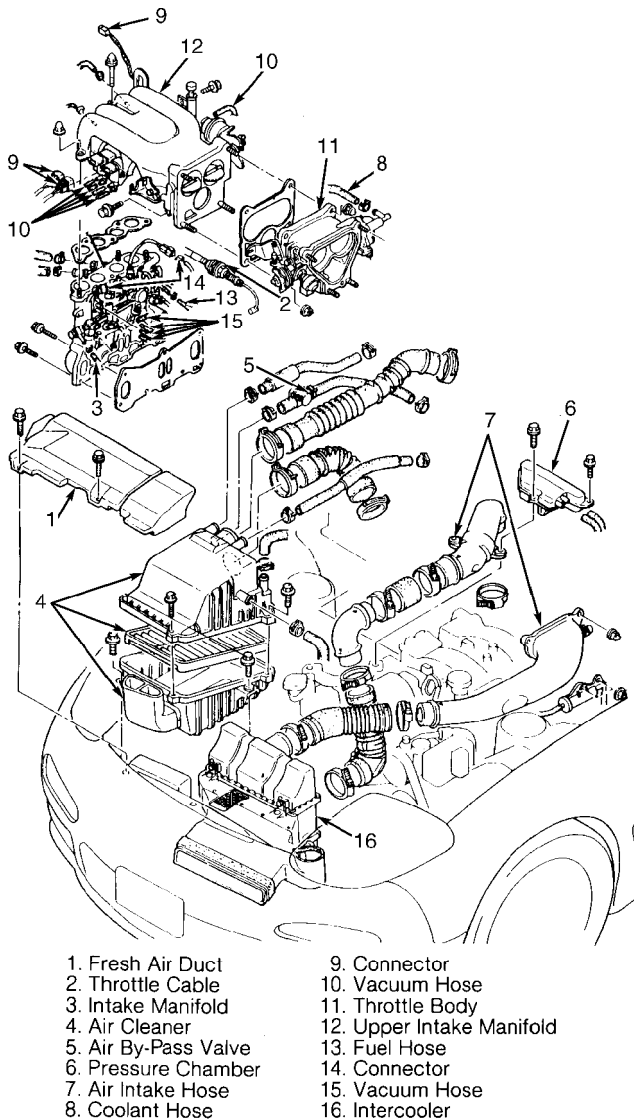


Fig. 26: Exploded View Of Air Intake System
Courtesy of Mazda Motors Corp.

N - REMOVE/INSTALL/OVERHAUL

Article Text (p. 21)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:19AM

Removal & Installation (929)

1) Disconnect negative battery cable. Release fuel system pressure. See FUEL SYSTEM PRESSURE RELEASE. Remove dynamic chamber and throttle body as an assembly. Disconnect injector electrical connectors. Disconnect vacuum and fuel hoses. Remove fuel rail, injectors and pressure regulator as an assembly.

2) Remove insulators, injectors and "O" rings from fuel rail. To install, reverse removal procedure. Apply coat of engine oil to NEW "O" rings, and install rings on injectors. Install NEW insulators. Tighten fuel rail mounting bolts to specification. See TORQUE SPECIFICATIONS TABLE at the end of this article.

OXYGEN SENSOR

Removal

Disconnect oxygen sensor electrical connector. Sensor may be difficult to remove when engine temperature is less than 120°F (48°C). If sensor is difficult to remove, use rust penetrant to avoid damaging threads. Carefully remove sensor.

Installation

Apply anti-seize to sensor threads (if reusing old sensor or if new sensor is not coated with anti-seize). Install sensor and tighten to specification. See TORQUE SPECIFICATIONS TABLE at the end of this article. Reconnect sensor electrical connector.

THROTTLE BODY

CAUTION: After performing fuel system repairs, prime fuel system before starting engine. See FUEL SYSTEM PRIMING.

Removal & Installation (Except Navajo)

1) On MPV 3.0L, drain about 2 qts. (1.9 L) of coolant from cooling system. On all models, disconnect negative battery cable. Remove air intake tubes.

2) Disconnect accelerator cable, coolant hoses and electrical connectors from throttle body as necessary. On 929, remove by-pass air control valve. On all models, remove throttle body. To install, reverse removal procedure using NEW throttle body gasket. See TORQUE SPECIFICATIONS TABLE at the end of this article.

Removal (Navajo)

1) Disconnect throttle position sensor electrical connector. Remove snow/ice shield to expose throttle linkage. Remove throttle cable bracket.

2) Disconnect cable from ball stud on throttle body. Remove air cleaner-to-throttle body air inlet tube. Disconnect canister purge hose from fitting beneath throttle body.

3) Remove 4 throttle body bolts. Remove throttle body from upper intake manifold.

Installation (Navajo)

N - REMOVE/INSTALL/OVERHAUL

Article Text (p. 22)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:19AM

Install NEW throttle body gasket. To complete installation, reverse removal procedure.

TURBOCHARGER

Removal (RX7)

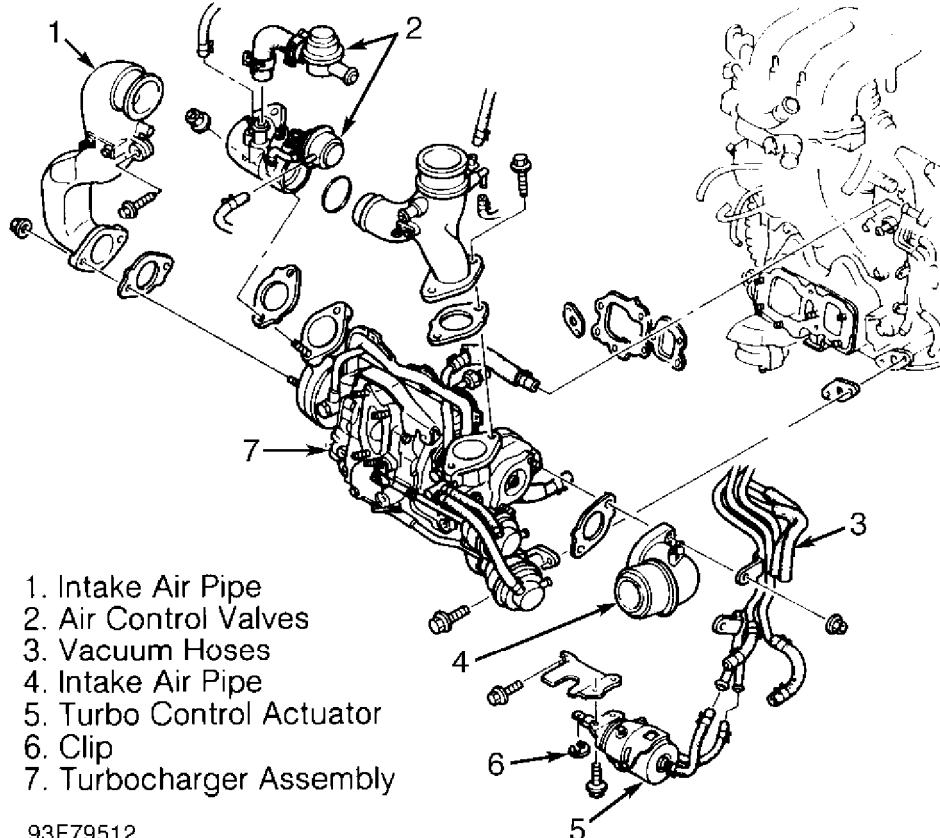
1) Raise and support vehicle. Drain coolant. Disconnect negative battery cable. Remove air cleaner, intake air hoses and pressure chamber. See Fig. 26. Remove air control valve assembly. Disconnect vacuum hoses.

2) Remove drive belt and air injection pump. Disconnect oxygen sensor, exhaust downpipe and catalytic converter. Disconnect turbo control valve rod and actuator. See Fig. 27. Disconnect oil pipes from turbocharger. Remove coolant hoses.

3) Remove bolts securing turbocharger to exhaust manifold. Remove turbocharger assembly.

Installation (RX7)

Install turbocharger with NEW gaskets, "O" rings and exhaust manifold studs. Tighten nuts and bolts to specification. See Fig. 28. See TORQUE SPECIFICATIONS TABLE at the end of this article. To complete installation, reverse removal procedure. Prime oil system.



93F79512

Fig. 27: Exploded View Of Turbocharger Assembly
Courtesy of Mazda Motors Corp.

N - REMOVE/INSTALL/OVERHAUL

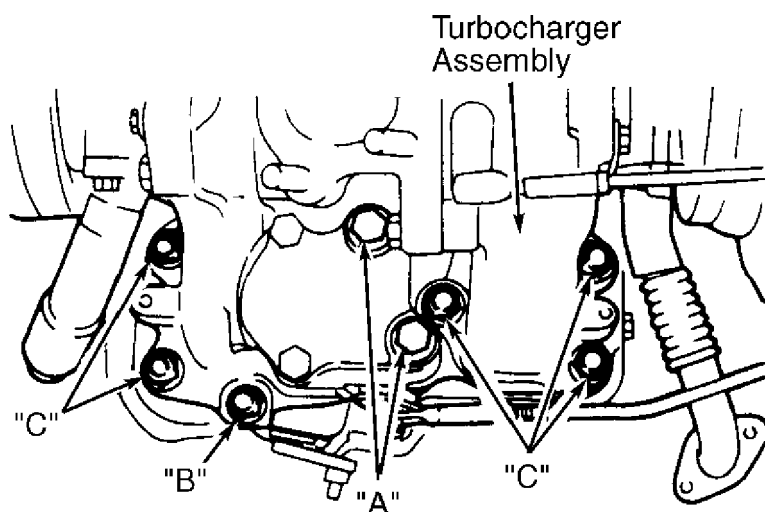
Article Text (p. 23)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:19AM



"A" : Tighten To 28-38 Ft. Lbs (38-51 N.m)

"B" : Tighten To 16-21 Ft. Lbs (22-29 N.m)

"C" : Tighten To 32-42 Ft. Lbs (44-57 N.m)

93G79513

Fig. 28: Installing Turbocharger

Courtesy of Mazda Motors Corp.

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Component	Ft. Lbs (N.m)
Crank Angle Sensor Mounting Bolt (Miata)	14-20 (19-27)
Distributor Mounting Bolts	14-18 (19-25)
Fuel Rail Mounting Bolt/Nut	14-18 (19-25)
Idle Pulley Bracket Bolts (MX-3 1.8L)	14-19 (19-26)
Oxygen Sensor	
B2200 Carbureted	(1)
Navajo	30 (41)
All Others	22-36 (30-49)
Throttle Body-To-Manifold Bolts	
(Except Navajo)	14-18 (19-25)
Turbo-To-Exhaust Manifold Bolts/Nuts (RX7)	
"A" Bolts (2)	28-38 (38-51)
"B" Nuts (2)	16-21 (22-29)
"C" Nuts (2)	32-42 (44-57)
Turbo-To-Exhaust Pipe Nut (RX7)	28-38 (38-52)
Upper Intake Manifold Bolt/Nut	
Except Navajo	14-18 (19-25)
Navajo	15-18 (20-24)

INCH Lbs. (N.m)

Carburetor Mounting Nuts (B2200) 62-97 (7-11)

N - REMOVE/INSTALL/OVERHAUL

Article Text (p. 24)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:19AM

Crank Angle Sensor Mounting Bolt	
MX-3 1.8L, MX-6 2.5L & 626 2.5L	95 (10.7)
RX7 & 929	71-97 (8-11)
Crankshaft Position Sensor Bolts (Navajo)	79-106 (9-12)
Dipstick Pipe Bolts (MX-3 1.8L)	71-97 (8-11)
Fuel Pressure Regulator Bolts	71-97 (8-11)
Fuel Supply Manifold Bolts (Navajo)	89-124 (10-14)
Throttle Body-To-Manifold Bolts (Navajo)	71-106 (8-12)
Turbo Oil Return Pipe Nut (RX7)	71-97 (8-11)

(1) - Information is not available from manufacturer.

(2) - See Fig. 28 for nut/bolt identification.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

END OF ARTICLE

P - EGR FUNCTION TESTING

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 20, 2001 07:19AM

ARTICLE BEGINNING

1989-95 ENGINE PERFORMANCE

Mazda EGR Function Testing

All Models

EGR VALVE

PISTON ENGINES (W/SINGLE OR DUAL VALVES)

1) Check vacuum lines for correct routing. Disconnect vacuum hose at EGR valve, and plug hose end. Connect vacuum pump to valve. Start engine. Apply 6-10 in. Hg to valve and hold.

2) Engine speed should drop at least 100 RPM or engine should stall. Vacuum should not drop more than one in. Hg in 30 seconds. Reconnect EGR vacuum hose.

Modulator Valve

Disconnect all vacuum and exhaust pipe hoses. Cap fitting going to each EGR control solenoid. Blow into bottom fitting from exhaust pipe end. Apply 7 in. Hg to fitting No. 3 (from ported vacuum source). Vacuum should hold until pressure at bottom fitting is released.

Vacuum Amplifier

1) Check for adequate manifold vacuum. With engine warm and at curb idle, connect vacuum gauge to vacuum amplifier port leading to EGR 3-way solenoid. Vacuum should not be more than 1.6-2.4 in. Hg at idle.

2) Disconnect venturi hose at carburetor. Increase engine speed to 3500 RPM. Vacuum should not change. Maintain high engine speed and reconnect carburetor venturi hose.

3) Vacuum gauge should read 3.2-3.8 in. Hg. Return engine to idle. Vacuum gauge should return to initial reading. If vacuum gauge does not return to initial reading, replace vacuum amplifier.

ROTARY ENGINE

Check vacuum hose routing. Disconnect EGR valve hose. Connect vacuum pump to EGR valve. Idle engine and apply 15 in. Hg. EGR valve stem/diaphragm should move and engine speed should drop at least 100 RPM or engine should stall.

EGR Solenoid Valve

1) Remove electrical connector from EGR solenoid valve (Gray dot). Remove vacuum hose at EGR valve. Connect a vacuum gauge to EGR vacuum hose. Warm engine to operating temperature.

2) Increase engine speed to 1100-3300 RPM. Vacuum gauge should not read any vacuum. Allow engine to idle. Apply 12 volts across EGR solenoid valve terminals. Increase engine speed again. Vacuum gauge should now read vacuum.

P - EGR FUNCTION TESTING

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Monday, August 20, 2001 07:19AM

END OF ARTICLE

MAINTENANCE INFORMATION
Article Text
1993 Mazda RX7
For www.iluvmyrx7.com
Copyright © 1998 Mitchell Repair Information Company, LLC
Wednesday, August 22, 2001 06:58AM

ARTICLE BEGINNING

1993-95 MAINTENANCE
Mazda Maintenance Information

RX7

*** PLEASE READ THIS FIRST ***

NOTE: For scheduled maintenance intervals and the related fluid capacities, fluid specifications and labor times for major service intervals, see SCHEDULED SERVICES article in this section. Warranty information and specifications for fluid capacities, lubrication specifications, wheel and tire size, and battery type are covered in this article.

MODEL IDENTIFICATION

VIN LOCATION

The Vehicle Identification Number (VIN) is located on the left side of the dash panel at the base of the windshield. The VIN chart explains the code characters.

VIN CODE ID EXPLANATION

Numbers preceding the explanations in the legend below refer to the sequence of characters as listed on VIN identification label. See VIN example below.

UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;
3 (VIN) J M 1 F D 3 3 2 6 P 0 2 0 0 0 0 1 3
3 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU

- 1 - Manufacturing Country
J * Japan
- 2 - Make
M * Mazda Motors Corp., Japan
- 3 - Type
1 * Passenger Car
- 4-5 - Model
FD * RX7
- 6-7 - Body Style
33 * Hatchback
- 8 - Modification Code

MAINTENANCE INFORMATION

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Wednesday, August 22, 2001 06:58AM

- 2 * 13BT Rotary (Turbo)
- 9 - VIN Check Digit
 - 6 * Constant For All Models
- 10 - Vehicle Model Year
 - P * 1993
 - R * 1994
 - S * 1995
- 11 - Assembly Plant
 - 0 * Hiroshima, Japan
- 12-17 - Serial Number
 - * Sequential Production Number

MAINTENANCE SERVICE INFORMATION

SEVERE & NORMAL SERVICE DEFINITIONS

NOTE: Use the Severe Service schedule if the vehicle to be serviced is operated under ANY (one or more) of these conditions:

Service is recommended at mileage intervals based on vehicle operation. Service schedules are based on the following primary operating conditions:

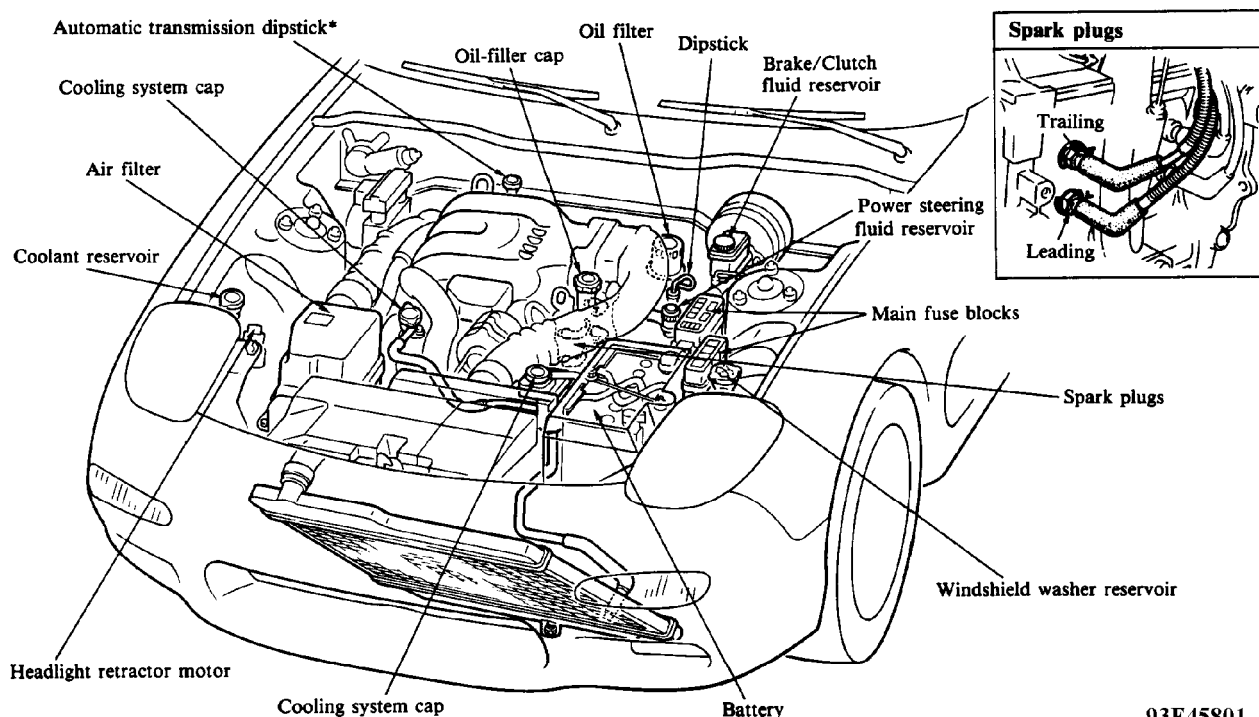
Normal Service

- * Driven More Than 10 Miles Daily
- * No Operating Conditions From Severe Service Schedule

Severe Service (Unique Driving Conditions)

- * Repeated Short Distance Driving
- * Dusty Conditions
- * Extended Use Of Brakes
- * Salt Or Other Corrosive Materials On The Roads
- * Rough Or Muddy Roads
- * Extended Idling Or Low Speed Operation
- * Extended Operation In Extreme Temperatures

SERVICE POINT LOCATIONS



93E45801

*Some models.
Fig. 1: Service Point Locations
Courtesy of Mazda Motor of America, Inc.

SERVICE LABOR TIMES

SERVICE LABOR TIMES TABLE (HOURS)

APPLICATION			
		30,000 Mile Service	60,000 Mile Service
Automatic Transmission	2.9	5.1	
Manual Transmission	2.9	5.3	

LUBRICATION SPECIFICATIONS

LUBRICATION SPECIFICATIONS TABLE

APPLICATION		Fluid Specifications
Brake Fluid	SAE J1703 Or FMVSS116 DOT 3	
Engine Oil		
Minimum Temperature		
Greater Than 0°F (-18°C)	SAE 10W-30 API SH/CD	
Maximum Temperature		
Less Than 0°F (-18°C)	SAE 5W-30 API SH/CD	
Automatic Transmission	ATF M-III or Dexron IIE	
Manual Transmission	SAE 75W-90 GL-4, GL-5	
Power Steering Fluid	Dexron-IIE ATF Or Equivalent	

MAINTENANCE INFORMATION

Article Text (p. 4)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 06:58AM

Rear Axle SAE 80W-90 API GL-5
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

FLUID CAPACITIES

FLUID CAPACITIES TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	Quantity
A/C System R-12 Refrigerant	
1993	21 Ozs.
A/C System R-134a Refrigerant Capacity (1)	
1994-95	18 Ozs.
Cooling System	9.2 Qts. (8.7L)
Engine Oil (2)	
1993	3.7 Qts. (3.5L)
1994-95	4.0 Qts. (3.8L)
Automatic Transmission Fluid	9.1 Qts. (8.6L)
Manual Transmission Oil	2.6 Qts. (2.5L)
Rear Axle Oil	1.4 Qts. (1.3L)
Fuel Tank	
1993	20.1 Gals. (76L)
1994-95	
Manual Transmission	20.1 Gals. (76L)
Automatic Transmission	18.5 Gals. (70L)

(1) - Use of R-12 in a R134a system will result in SEVERE DAMAGE.

(2) - With filter change.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

WHEEL & TIRE SPECIFICATIONS

WHEEL & TIRE SPECIFICATIONS TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Wheel Size	Tire Size
16 x 7.0 in.	225/50 R16 91V
16 x 7.0 in.	225/50ZR16
15 x 4T (Temporary)	T135/70 D16

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

TIRE INFLATION

TIRE INFLATION SPECIFICATIONS TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application (1)	Pressure psi (kg/cm ²)
Normal Loads	32 (2.2)
Temporary Spare	60 (4.2)

(1) - Tire inflation label is located near top of

MAINTENANCE INFORMATION

Article Text (p. 5)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 06:58AM

driver's door.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

WHEEL TIGHTENING

Tighten wheel lug nuts to 65-87 ft. lbs. (88-118 N.m).

BATTERY SPECIFICATIONS

CAUTION: When battery is disconnected, vehicles equipped with computers may lose memory data. When battery power is restored, driveability problems may exist on some vehicles. These vehicles may require a relearn procedure. See COMPUTER RELEARN PROCEDURES article in the GENERAL INFORMATION Section.

If battery is replaced, new battery should be of the same group number as shown on the original battery's label. Use group 24 batteries with a cold crank rating of 600 amps.

CAUTIONS & WARNINGS

SUPPLEMENTAL RESTRAINT SYSTEM (SRS) AIR BAG SYSTEM

NOTE: See the AIR BAG RESTRAINT SYSTEM article in the ACCESSORIES/SAFETY EQUIPMENT Section.

The SRS has no user-servicable parts. Always have servicing done by an authorized dealer.

When performing maintenance on air bag equipped vehicles always observe proper safety precautions.

WARNING: To avoid injury from accidental air bag deployment, read and carefully follow all warnings and service precautions. See appropriate AIR BAG RESTRAINT SYSTEM article in the ACCESSORIES/SAFETY EQUIPMENT section.

CAUTION: Disconnect negative battery cable before servicing any air bag system, steering column or passenger side dash component. After any repair, turn ignition key to the ON position from passenger's side of vehicle in case of accidental air bag inflation

ANTI-LOCK BRAKE SYSTEM (ABS)

CAUTION: Never mix different diameter tires. On loose or uneven surfaces, the ABS system may require longer stopping distances than conventional brake systems. Exercise caution when removing mud or snow from the wheels so as not to damage the ABS wiring or speed sensors.

MAINTENANCE INFORMATION

Article Text (p. 6)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 06:58AM

BATTERY WARNING

WARNING: When battery is disconnected, vehicles equipped with computers may lose memory data. When battery power is restored, driveability problems may exist on some vehicles. These vehicles may require a relearn procedure. See appropriate COMPUTER RELEARN PROCEDURES article in the GENERAL INFORMATION section below.

REPLACING BLOWN FUSES

Before replacing a blown fuse, remove ignition key, turn off all lights and accessories to avoid damaging the electrical system. Be sure to use fuse with the correct indicated amperage rating. The use of an incorrect amperage rating fuse may result in a dangerous electrical system overload.

BRAKE PAD WEAR INDICATOR

Indicator will cause a squealing or scraping noise, warning that brake pads need replacement.

CATALYTIC CONVERTER

Continued operation of vehicle with a severe malfunction could cause converter to overheat, resulting in possible damage to converter and vehicle.

COOLANT (PROPYLENE-GLYCOL FORMULATIONS)

CAUTION: To avoid possible damage to vehicle use only ethylene-glycol based coolants with a mixture ratio from 44-68% anti-freeze. DO NOT use 100% anti-freeze as it will cause the formation of cooling system deposits. This results in coolant temperatures of over 300°F (149°C) which can melt plastics. 100% anti-freeze has a freeze point of only -8°F (-22°C).

CAUTION: Propylene-Glycol Mixtures has a smaller temperature range than Ethylene-Glycol. The temperature range (freeze-boil) of a 50/50 Anti-Freeze/Water Mix is as follows:

Propylene-Glycol -26°F (-32°C) - 257°F (125°C)

Ethylene-Glycol -35°F (-37°C) - 263°F (128°C)

CAUTION: Propylene-Glycol/Ethylene-Glycol Mixtures can cause the destabilization of various corrosion inhibitors. Also Propylene-Glycol/Ethylene-Glycol has a different specific gravity than Ethylene-Glycol coolant, which will result in inaccurate freeze point calculations.

ELECTROSTATIC DISCHARGE SENSITIVE (ESD) PARTS

WARNING: Many solid state electrical components can be damaged by

MAINTENANCE INFORMATION

Article Text (p. 7)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 06:58AM

static electricity (ESD). Some will display a warning label, but many will not. Discharge personal static electricity by touching a metal ground point on the vehicle prior to servicing any ESD sensitive component.

ENGINE OIL

CAUTION: Never use non-detergent or straight mineral oil.

FUEL SYSTEM SERVICE

WARNING: Relieve fuel system pressure prior to servicing any fuel system component (fuel injection models).

HALOGEN BULBS

WARNING: Halogen bulbs contain pressurized gas which may explode if overheated. DO NOT touch glass portion of bulb with bare hands. Eye protection should be worn when handling or working around halogen bulbs.

RADIATOR CAP

CAUTION: Always disconnect the fan motor when working near the radiator fan. The fan is temperature controlled and could start at any time even when the ignition key is in the OFF position. DO NOT loosen or remove radiator cap when cooling system is hot.

RADIATOR FAN

WARNING: Keep hands away from radiator fan. Fan is controlled by a thermostatic switch which may come on or run for up to 15 minutes even after engine is turned off.

TURBOCHARGED MODELS

CAUTION: Do not race engine immediately after starting. When stopping engine, allow engine to idle for approximately 60 seconds before shutting it off. Failure to do so may cause turbocharger damage due to lack of oil flowing to the turbocharger bearings.

WARRANTY INFORMATION

CAUTION: Due to the different warranties offered in various regions and the variety of after-market extended warranties available, please refer to the warranty package that came with the vehicle to verify all warranty options.

BASIC NEW CAR LIMITED WARRANTY

MAINTENANCE INFORMATION

Article Text (p. 8)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 06:58AM

Warrants basic components against defects in materials and workmanship for 36 months or 50,000 miles, whichever occurs first. Tires are covered by a separate warranty offered by the tire manufacturer.

AIR BAG WARRANTY

Covered by the basic warranty for a period of 3 years or 50,000 miles, whichever comes first.

ANTI-CORROSION WARRANTY

Covers holes caused by corrosion in body sheet metal panels for 60 months, without respect to mileage, so long as regular inspection and maintenance services are performed.

REPLACEMENT PARTS & ACCESSORIES

Manufacturer supplied parts and accessories are warranted against defects in material or workmanship for 12 months without regard to mileage. If installed by dealer, the part or accessory will be repaired or replaced without charge for parts or labor.

EMISSION CONTROL SYSTEM

Manufacturer warrants to the initial purchaser and each subsequent purchaser that this vehicle is designed, built, and equipped so as to conform at the time of sale with all U.S. and California Air Resources Board emission regulations applicable at the time of manufacture. Manufacturer also warrants that this vehicle is free from defects in materials and workmanship which cause it to fail to conform with applicable regulations within the first 5 years or 50,000 miles, which ever occurs first.

Emission Performance Warranty Parts List (60 Months Or 50,000 Miles)

- * Air/Fuel Metering System
- * Ignition Spark Advance/Retard System
- * Evaporative Emission Control
- * Positive Crankcase Ventilation System
- * Exhaust Gas Recirculation System
- * Air Injection System
- * Catalyst System
- * Electronic Controls Used In Above Systems
- * Miscellaneous Items Used In Above Systems

Additional Emission Warranty Parts List For California (7 Years Or 70,000 Miles)

- * Air Flow Meter
- * Throttle Body

MAINTENANCE INFORMATION

Article Text (p. 9)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Wednesday, August 22, 2001 06:58AM

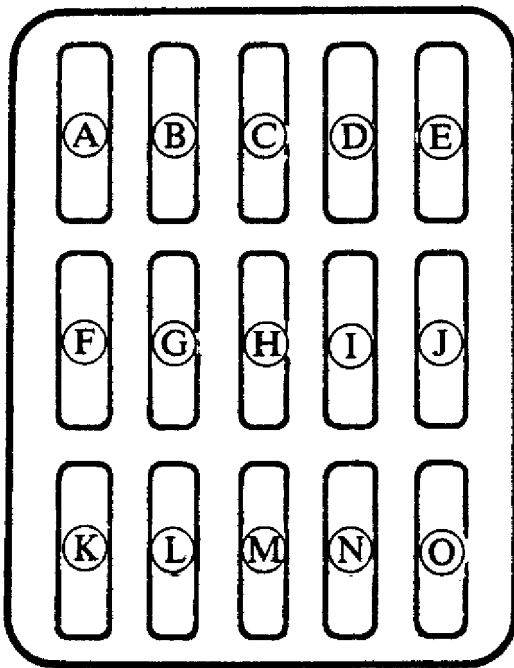
- * E.G.I. Control Unit
- * Monolithic Catalytic Converter
- * Fuel Pump Assembly

FUSES & CIRCUIT BREAKERS

FUSE PANEL LOCATION

The main fuse block is located at the right rear side of the engine compartment and contains high amperage fuses which protect multiple circuits. Fuse box located above driver's left knee, accessible through a removable cover, contains fuses for individual circuits.

PASSENGER COMPARTMENT FUSE PANEL IDENTIFICATION



50E13353

Fig. 2: Passenger Compartment Fuse Panel Identification
Courtesy of Mazda Motor of America Inc.

Fuse & Circuit Breaker Identification

- A - 20 Amp (Yellow)
Brakelights, Cruise Control, Shift Lock, ABS Control Unit
- B - Not Used
- C - 15 Amp (Blue)
Sun Roof
- D - 20 Amp (Yellow)
Fuel Pump
- E - 10 Amp (Red)
Air Bag Unit

MAINTENANCE INFORMATION

Article Text (p. 10)

1993 Mazda RX7

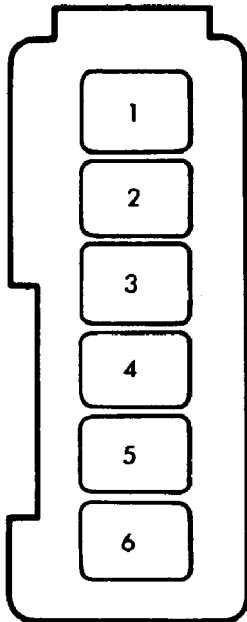
For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 06:58AM

- F - 10 Amp (Red)
Power Door Locks
- G - 15 Amp (Blue)
Tail, License, Side Marker & Parking Lights, Glove Box Light,
Instrument Panel Lights
- H - 30 Amp (Pink)
Power Windows
- I - 15 Amp (Blue)
Back-Up Lights, Meters, Warning Indicators, Cruise Control,
Shift Lock, Flasher Unit, Defogger, Rear Washer Motor,
Power Antenna
- J - 20 Amp (Yellow)
Windshield Wiper/Washer
- K - 10 Amp (Red)
Rear Wiper & Washer, Heater, ABS System
- L - 15 Amp (Blue)
Hazard Warning Lights, Horn
- M - 10 Amp (Red)
Radio, Interior Light, Cargo Light
- N - 15 Amp (Blue)
Starter, EGI, Fuel Pump, Air Bag
- Q - 15 Amp (Blue)
Audio System, Cigarette Lighter, Power Mirrors, Power
Antenna, Ignition Light, Security Indicator, Meters

ENGINE COMPARTMENT SMALL FUSE PANEL IDENTIFICATION



ENGINE COMPARTMENT
SMALL FUSE BOX

93I45391

Fig. 3: Engine Compartment Small Fuse Panel Identification
Courtesy of Mazda Motor of America Inc.

MAINTENANCE INFORMATION

Article Text (p. 11)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

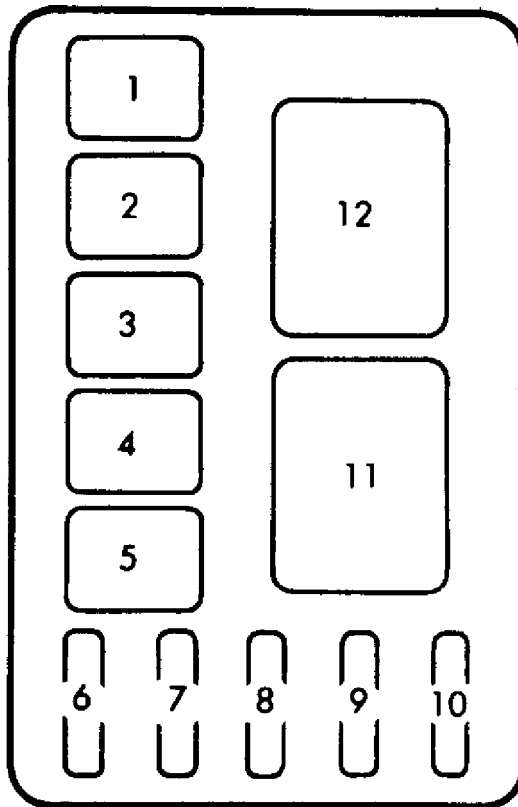
Wednesday, August 22, 2001 06:58AM

WARNING: Always disconnect battery ground cable before servicing "high-current fuses. It is recommended that "high-current" fuses be replaced by a qualified technician.

Fuse & Circuit Breaker Identification

- 1 - Not Used
- 2 - 120 Amp (White)
Main Circuit Protection
- 3 - 30 Amp (Pink)
Foglights, Headlights
- 4 - 30 Amp (Pink)
EGI System, Alternator
- 5 - 30 Amp (Pink)
Headlight Retractors
- 6 - 40 Amp (Green)
Heater-A/C Blower Motor, Rear Wiper, Power Windows,
Windshield Wipers, Sun Roof

ENGINE COMPARTMENT LARGE FUSE PANEL IDENTIFICATION



ENGINE COMPARTMENT LARGE FUSE BLOCK

93J45392

Fig. 4: Engine Compartment Large Fuse Panel Identification
Courtesy of Mazda Motor of America Inc.

MAINTENANCE INFORMATION

Article Text (p. 12)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 06:58AM

WARNING: Always disconnect battery ground cable before servicing "high-current fuses. It is recommended that "high-current" fuses be replaced by a qualified technician.

Fuse & Circuit Breaker Identification

- 1 - 60 Amp (Yellow)
Hazard, Stoplight, Taillight, Power Door Lock & Courtesy Fuse Protection
- 2 - 40 Amp (Green)
Ignition Switch
- 3 - 60 Amp (Yellow)
Rear Window Defogger
- 4 - 60 Amp (Yellow)
ABS System
- 5 - 60 Amp (Yellow)
Cooling System Fan
- 6 - 30 Amp (Green)
Speaker Amplifiers
- 7 - 15 Amp (Blue)
A/C Cooling Fan
- 8 - 15 Amp (Blue)
ABS Valve, ABS Unit
- 9 - Not Used
- 10 - Not Used
- 11 - Circuit Relay
- 12 - EGI Main Relay

END OF ARTICLE

SCHEDULED SERVICES

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Wednesday, August 22, 2001 06:59AM

ARTICLE BEGINNING

1993-95 MAINTENANCE

Mazda Maintenance & Service Intervals

RX7

*** PLEASE READ THIS FIRST ***

NOTE: All SERVICE SCHEDULES are listed for normal service vehicles. If vehicle is operated under severe service conditions, see SEVERE SERVICE REQUIREMENTS (PERFORM W/SERVICE SCHEDULES) for items requiring additional maintenance.

NOTE: This article contains scheduled maintenance service information. Fluid types and capacities listed with each service in this article are only those necessary to perform that scheduled service. For specifications pertaining to fluid capacities for the entire vehicle, fuse and circuit breaker identification, wheel and tire size, battery type, warranty information, or model identification refer to the MAINTENANCE INFORMATION article in this section.

CAUTIONS & WARNINGS

SUPPLEMENTAL RESTRAINT SYSTEM (SRS) AIR BAG SYSTEM

NOTE: See the AIR BAG RESTRAINT SYSTEM article in the ACCESSORIES/SAFETY EQUIPMENT Section.

The SRS has no user-servicable parts. Always have servicing done by an authorized dealer.

When performing maintenance on air bag equipped vehicles always observe proper safety precautions.

WARNING: To avoid injury from accidental air bag deployment, read and carefully follow all warnings and service precautions. See appropriate AIR BAG RESTRAINT SYSTEM article in the ACCESSORIES/SAFETY EQUIPMENT section.

CAUTION: Disconnect negative battery cable before servicing any air bag system, steering column or passenger side dash component. After any repair, turn ignition key to the ON position from passenger's side of vehicle in case of accidental air bag inflation

ANTI-LOCK BRAKE SYSTEM (ABS)

CAUTION: Never mix different diameter tires. On loose or uneven

SCHEDULED SERVICES

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 06:59AM

surfaces, the ABS system may require longer stopping distances than conventional brake systems. Exercise caution when removing mud or snow from the wheels so as not to damage the ABS wiring or speed sensors.

BATTERY WARNING

WARNING: When battery is disconnected, vehicles equipped with computers may lose memory data. When battery power is restored, driveability problems may exist on some vehicles. These vehicles may require a relearn procedure. See appropriate COMPUTER RELEARN PROCEDURES article in the GENERAL INFORMATION section below.

REPLACING BLOWN FUSES

Before replacing a blown fuse, remove ignition key, turn off all lights and accessories to avoid damaging the electrical system. Be sure to use fuse with the correct indicated amperage rating. The use of an incorrect amperage rating fuse may result in a dangerous electrical system overload.

BRAKE PAD WEAR INDICATOR

Indicator will cause a squealing or scraping noise, warning that brake pads need replacement.

CATALYTIC CONVERTER

Continued operation of vehicle with a severe malfunction could cause converter to overheat, resulting in possible damage to converter and vehicle.

COOLANT (PROPYLENE-GLYCOL FORMULATIONS)

CAUTION: To avoid possible damage to vehicle use only ethylene-glycol based coolants with a mixture ratio from 44-68% anti-freeze. DO NOT use 100% anti-freeze as it will cause the formation of cooling system deposits. This results in coolant temperatures of over 300°F (149°C) which can melt plastics. 100% anti-freeze has a freeze point of only -8°F (-22°C).

CAUTION: Propylene-Glycol Mixtures has a smaller temperature range than Ethylene-Glycol. The temperature range (freeze-boil) of a 50/50 Anti-Freeze/Water Mix is as follows:

Propylene-Glycol	-26°F (-32°C)	-	257°F (125°C)
Ethylene-Glycol	-35°F (-37°C)	-	263°F (128°C)

CAUTION: Propylene-Glycol/Ethylene-Glycol Mixtures can cause the destabilization of various corrosion inhibitors. Also Propylene-Glycol/Ethylene-Glycol has a different specific gravity than Ethylene-Glycol coolant, which will result in

SCHEDULED SERVICES

Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Wednesday, August 22, 2001 06:59AM

inaccurate freeze point calculations.

ELECTROSTATIC DISCHARGE SENSITIVE (ESD) PARTS

WARNING: Many solid state electrical components can be damaged by static electricity (ESD). Some will display a warning label, but many will not. Discharge personal static electricity by touching a metal ground point on the vehicle prior to servicing any ESD sensitive component.

ENGINE OIL

CAUTION: Never use non-detergent or straight mineral oil.

FUEL SYSTEM SERVICE

WARNING: Relieve fuel system pressure prior to servicing any fuel system component (fuel injection models).

HALOGEN BULBS

WARNING: Halogen bulbs contain pressurized gas which may explode if overheated. DO NOT touch glass portion of bulb with bare hands. Eye protection should be worn when handling or working around halogen bulbs.

RADIATOR CAP

CAUTION: Always disconnect the fan motor when working near the radiator fan. The fan is temperature controlled and could start at any time even when the ignition key is in the OFF position. DO NOT loosen or remove radiator cap when cooling system is hot.

RADIATOR FAN

WARNING: Keep hands away from radiator fan. Fan is controlled by a thermostatic switch which may come on or run for up to 15 minutes even after engine is turned off.

HEADLIGHT RETRACTOR

CAUTION: Never operate headlight retractor when a person's hands, or other objects are on or near the headlights. When working on the headlights always remove the headlight retractor fuse.

SERVICE POINT LOCATIONS

SCHEDULED SERVICES

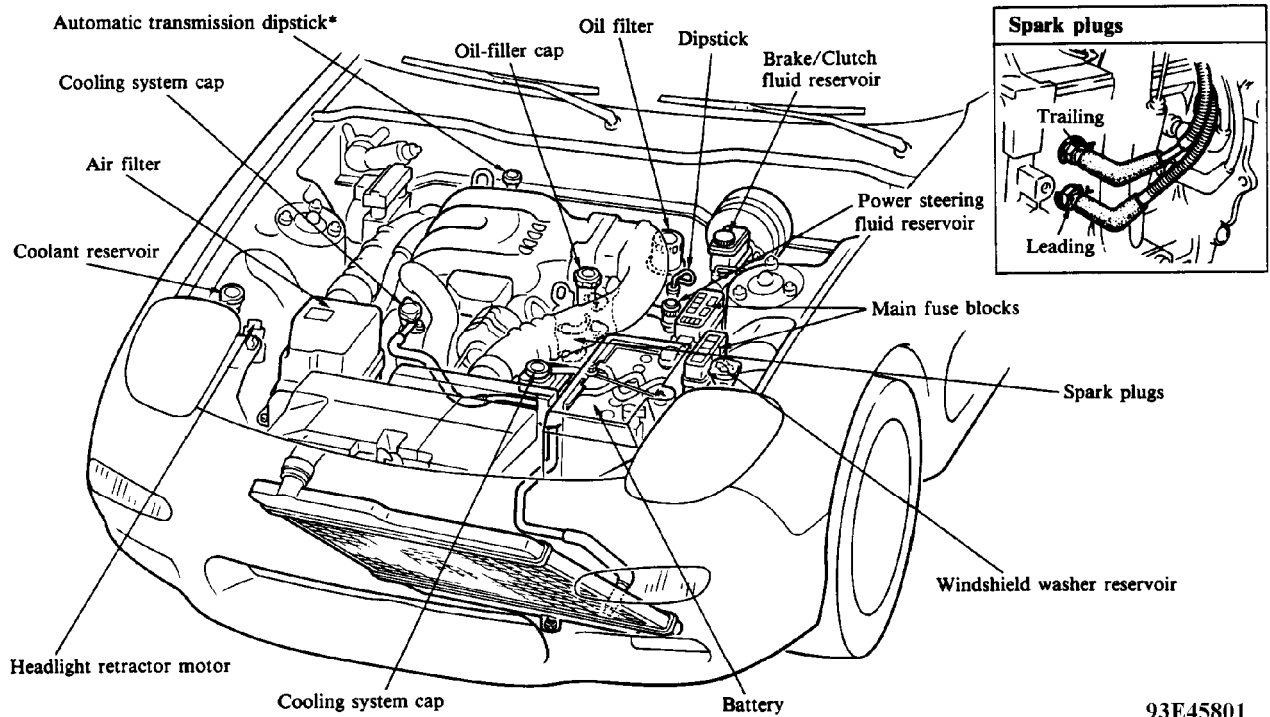
Article Text (p. 4)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 06:59AM



93E45801

Fig. 1: Service Point Locations
Courtesy of Mazda Motor of America, Inc.

SEVERE & NORMAL SERVICE DEFINITIONS

NOTE: Use the Severe Service schedule if the vehicle to be serviced is operated under ANY (one or more) of these conditions:

Service is recommended at mileage intervals based on vehicle operation. Service schedules are based on the following primary operating conditions:

Normal Service

- * Driven More Than 10 Miles Daily
- * No Operating Conditions From Severe Service Schedule

Severe Service (Unique Driving Conditions)

- * Repeated Short Distance Driving
- * Dusty Conditions
- * Extended Use Of Brakes
- * Salt Or Other Corrosive Materials On The Roads
- * Rough Or Muddy Roads
- * Extended Idling Or Low Speed Operation
- * Extended Operation In Extreme Temperatures

SEVERE SERVICE REQUIREMENTS (PERFORM W/SERVICE SCHEDULES)

Wednesday, August 22, 2001 06:59AM

U								
3	Condition	3	Action	3	Item	3	Perform Every (1)	3
A								
3	Repeated Short Distance Driving	3	Replace	3	Turbo: Oil & Filter	3	3,000 Miles or 3 Months	3
3		3	Replace	3	Non-Turbo: Oil & Filter	3	5,000 Miles or 5 Months	3
3		3	Replace	3	M/T Fluid	3	30,000 Miles	3
3		3	Replace	3	Rear Axle Oil	3	30,000 Miles	3
A								
3	Dusty Conditions	3	Replace	3	Turbo: Oil & Filter	3	3,000 Miles or 3 Months	3
3		3	Replace	3	Non-Turbo: Oil & Filter	3	5,000 Miles or 5 Months	3
3		3	Replace	3	M/T Fluid	3	30,000 Miles	3
3		3	Replace	3	Rear Axle Oil	3	30,000 Miles	3
A								
3	Extended Use Of Brakes	3	Replace	3	Turbo: Oil & Filter	3	3,000 Miles or 3 Months	3
3		3	Replace	3	Non-Turbo: Oil & Filter	3	5,000 Miles or 5 Months	3
3		3	Replace	3	M/T Fluid	3	30,000 Miles	3
3		3	Replace	3	Rear Axle Oil	3	30,000 Miles	3
A								
3	Salt Or Other Corrosive Materials On The Roads	3	Replace	3	Turbo: Oil & Filter	3	3,000 Miles or 3 Months	3
3		3	Replace	3	Non-Turbo: Oil & Filter	3	5,000 Miles or 5 Months	3
3		3	Replace	3	M/T Fluid	3	30,000 Miles	3
3		3	Replace	3	Rear Axle Oil	3	30,000 Miles	3
A								
3	Rough Or Muddy Roads	3	Replace	3	Turbo: Oil & Filter	3	3,000 Miles or 3 Months	3
3		3	3	3	3	3	3	3

SCHEDULED SERVICES

Article Text (p. 6)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 06:59AM

```
3      ~~~~~
3      3 Replace 3 Non-Turbo: 3 5,000 Miles or 5 Months 3
3      3      3Oil & Filter 3
3      ~~~~~
3      3 Replace 3 M/T Fluid 3 30,000 Miles 3
3      ~~~~~
3      3 Replace 3Rear Axle Oil3 30,000 Miles 3
3      ~~~~~
3      3 Extended Idling 3 Replace 3Turbo: Oil & 3 3,000 Miles or 3 Months 3
3      Or Low Speed 3      3 Filter 3
3      Operation ~~~~~
3      3 Replace 3 Non-Turbo: 3 5,000 Miles or 5 Months 3
3      3      3Oil & Filter 3
3      ~~~~~
3      3 Replace 3 M/T Fluid 3 30,000 Miles 3
3      ~~~~~
3      3 Replace 3Rear Axle Oil3 30,000 Miles 3
3      ~~~~~
3      3 Extended 3 Replace 3Turbo: Oil & 3 3,000 Miles or 3 Months 3
3      Operation In 3      3 Filter 3
3      Extreme ~~~~~
3      Temperatures 3 Replace 3 Non-Turbo: 3 5,000 Miles or 5 Months 3
3      3      3Oil & Filter 3
3      ~~~~~
3      3 Replace 3 M/T Fluid 3 30,000 Miles 3
3      ~~~~~
3      3 Replace 3Rear Axle Oil3 30,000 Miles 3
3      ~~~~~
3      ~~~~~
3      3(1) - Perform these services at the mileage or number of months 3
3      (since the last time), whichever comes first. 3
3      ~~~~~
```

NORMAL MAINTENANCE SERVICE SCHEDULES

The following service schedules refer to vehicles driven under normal operating conditions. For vehicles driven under severe conditions, additional services may be necessary. See SEVERE SERVICE REQUIREMENTS (PERFORM W/SERVICE SCHEDULES) above in this article for additional service requirements.

5000 MILE (8000 KM) SERVICE

5000 MILE (8000 KM) SERVICE

```
U~~~~~
3      Service Or Inspect 3
3      ~~~~~
3      3 Check Fluid Levels 3
3      ~~~~~
3      3 Inspect Coolant Hoses and Clamps 3
3      ~~~~~
3      3 Inspect Brake System 3
```

Article Text (p. 7)

1993 Mazda RX7

Copyright © 1998 Mitchell Repair Information Company, LLC

Application		Specification
Engine Oil		
Minimum Temperature	Greater Than 0°F (-18°C)	SAE 10W-30 API/SG
Maximum Temperature	Less Than 0°F (-18°C)	SAE 5W-30 API/SG
Fluid Capacities		
Application		Quantity
Engine Oil (1)		
1993		3.7 Qts. (3.5L)
1994-95		4.0 Qts. (3.8L)
(1) - With filter change.		

10,000 MILE (16,000 KM) SERVICE

[illegible]

```

UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;
3      Service Or Inspect                                                                3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      3      Verify Last Major Service Was Performed                                  3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      3      Idle Speed                                                                3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      3      Check Fluid Levels                                                        3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      3      Check Cooling System Hoses and Clamps                                  3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      3      Check Coolant Strength                                                    3

```

SCHEDULED SERVICES

Article Text (p. 9)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 06:59AM

```

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Inspect Air Conditioning System 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Check Low Engine Oil Level Warning System 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Inspect Brake System 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Check Exhaust System & Heat Shielding 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Clean Battery and Battery Terminals 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Inspect Fuel/Tank/Cap/Lines 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Check Operation of Horn, Wipers/Washers & All Exterior Lights 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Inspect Condition of Wiper Blades 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Check Headlight Alignment 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Check Seat Belt Webbing and Release Mechanisms 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Check Parking Brake Operation 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Check Shift/Clutch Interlock Operation 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Inspect C/V Joint boots 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Brake Discs & Calipers 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Parking Brake 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Clutch Release Arm Travel 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Inspect Steering Linkage/Front Suspension 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Lubricate Chassis 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Suspension Mounting Bolts 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Steering Operation, Tie Rods, Gear Box & Boots 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Power Steering System 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Lubricate Weatherstripping with Silicone 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Lubricate Door Hinges 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Lubricate Door Locks 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Check Body Drain Holes 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Rotate Tires and Adjust Air Pressure 3

```

SCHEDULED SERVICES

Article Text (p. 10)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 06:59AM

```

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      Replace                                                                                                     3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      3      Engine Oil                                                                                         3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      3      Oil Filter                                                                                       3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      Lubrication Specifications                                                                                   3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      Application                                                                                               Specification 3
3                                                                                                               3
3      Engine Oil                                                                                               3
3      Minimum Temperature                                                                                     3
3      Greater Than 0°F (-18°C) ..... SAE 10W-30 API/SG 3
3      Maximum Temperature                                                                                   3
3      Less Than 0°F (-18°C) ..... SAE 5W-30 API/SG 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      Fluid Capacities                                                                                       3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      Application                                                                                               Quantity 3
3                                                                                                               3
3      Cooling System ..... 9.2 Qts. (8.7L) 3
3      Engine Oil (1)                                                                                       3
3      1993 ..... 3.7 Qts. (3.5L) 3
3      1994-95 ..... 4.0 Qts. (3.8L) 3
3                                                                                                               3
3      (1) - With filter change.                                                                                   3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

```

20,000 MILE (32,000 KM) SERVICE

```

20,000 MILE (32,000 KM) SERVICE
UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      Service Or Inspect                                                                                       3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      3      Verify Last Major Service Was Performed                                                         3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      3      Check Fluid Levels                                                                                   3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      3      Check Cooling System Hoses and Clamps                                                           3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      3      Check Exhaust System & Heat Shielding                                                            3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      3      Inspect Brake System                                                                               3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      3      Inspect C/V Joint boots                                                                           3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      3      Inspect Steering Linkage/Front Suspension                                                         3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      3      Lubricate Chassis                                                                                   3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      3      Rotate Tires and Adjust Air Pressure (Including Spare)                                           3

```

Wednesday, August 22, 2001 06:59AM

3	Service Or Inspect	3
3	3 Verify Last Major Service Was Performed	3
3	3 Check Fluid Levels	3
3	3 Check Cooling System Hoses and Clamps	3
3	3 Check Exhaust System & Heat Shielding	3
3	3 Inspect C/V Joint boots	3
3	3 Inspect Power Steering System (If Equipped)	3
3	3 Inspect Steering Linkage/Front Suspension	3
3	3 Lubricate Chassis	3
3	3 Inspect Front Brake Pads & Rotors	3

SCHEDULED SERVICES

Article Text (p. 12)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 06:59AM

3	3	Inspect Brake System Hoses & Lines	3
3	3	Inspect Shocks/Struts for Leakage	3
3	3	Inspect Tire Wear Pattern	3
3	3	Rotate Tires and Adjust Air Pressure (Including Spare)	3
3		Replace	3
3	3	Engine Oil	3
3	3	Oil Filter	3
3		Lubrication Specifications	3
3	Application	Specification	3
3	Engine Oil		3
3	Minimum Temperature		3
3	Greater Than 0°F (-18°C)	SAE 10W-30 API/SG	3
3	Maximum Temperature		3
3	Less Than 0°F (-18°C)	SAE 5W-30 API/SG	3
3	Fluid Capacities		3
3	Application	Quantity	3
3	Engine Oil (1)		3
3	1993	3.7 Qts. (3.5L)	3
3	1994-95	4.0 Qts. (3.8L)	3
3	(1) - With filter change.		3

30,000 MILE (48,000 KM) SERVICE

30,000 MILE (48,000 KM) SERVICE	
3	Service Or Inspect
3	Verify Last Major Service Was Performed
3	Idle Speed
3	Check Fluid Levels
3	Check Cooling System Hoses and Clamps
3	Engine Coolant Level Warning System
3	Check Low Engine Oil Level Warning System

Article Text (p. 13)

1993 Mazda RX7

Copyright © 1998 Mitchell Repair Information Company, LLC

3	3	Inspect Air Conditioning System	3
3	3	Check Exhaust System & Heat Shielding	3
3	3	Clean Battery and Battery Terminals	3
3	3	Inspect/Adjust Accessory Drive Belts (Replace if Required)	3
3	3	Crankcase Ventilation System	3
3	3	ABS System Operation	3
3	3	Brake Hoses & Lines	3
3	3	Brake Discs & Calipers	3
3	3	Parking Brake	3
3	3	Clutch Release Arm Travel	3
3	3	Suspension Mounting Bolts	3
3	3	Steering Operation, Tie Rods, Gear Box & Boots	3
3	3	Inspect C/V Joint boots	3
3	3	Inspect Power Steering System (If Equipped)	3
3	3	Suspension Bushings, Springs, Arms & Rear Jounce Bumpers	3
3	3	Front & Rear Suspension Ball Joints	3
3	3	Rear Suspension Uni-Ball and Sliding Rubber Bushing	3
3	3	Parking Brake System	3
3	3	Inspect Shocks/Struts for Leakage	3
3	3	Inspect Tire Wear Pattern	3
3	3	Rotate Tires and Adjust Air Pressure (Including Spare)	3
3		Replace	3
3	3	Engine Oil	3
3	3	Oil Filter	3
3	3	Spark Plugs	3
3	3	Air Filter Element	3

SCHEDULED SERVICES

Article Text (p. 14)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 06:59AM

~~~~~		
3	3 Drain, Refill and Bleed Brake System	3
~~~~~		
3	3 Engine Coolant	3
~~~~~		
3	Lubrication Specifications	3
~~~~~		
3	Application	Specification 3
3		3
3	Engine Oil	3
3	Minimum Temperature	3
3	Greater Than 0°F (-18°C)	SAE 10W-30 API/SG 3
3	Maximum Temperature	3
3	Less Than 0°F (-18°C)	SAE 5W-30 API/SG 3
3	Manual Transmission	SAE 75W-90 GL-4, GL-5 3
3	Rear Axle	SAE 80W-90 GL-5 3
~~~~~		
3	Fluid Capacities	3
~~~~~		
3	Application	Quantity 3
3		3
3	Cooling System	9.2 Qts. (8.7L) 3
3	Engine Oil (1)	3
3	1993	3.7 Qts. (3.5L) 3
3	1994-95	4.0 Qts. (3.8L) 3
3	Manual Transmission Oil	2.6 Qts. (2.5L) 3
3	Rear Axle Oil	1.4 Qts. (1.3L) 3
3		3
3	(1) - With filter change.	3
~~~~~		
3	Service Labor Times	3
~~~~~		
3	Application	Hours 3
3		3
3	Automatic Transmission	2.9 3
3	Manual Transmission	2.9 3
~~~~~		

### 35,000 MILE (56,000 KM) SERVICE

#### 35,000 MILE (56,000 KM) SERVICE

~~~~~		
3	Service Or Inspect	3
~~~~~		
3	3 Verify Last Major Service Was Performed	3
~~~~~		
3	3 Check Fluid Levels	3
~~~~~		
3	3 Check Cooling System Hoses and Clamps	3
~~~~~		
3	3 Check Exhaust System & Heat Shielding	3
~~~~~		

## SCHEDULED SERVICES

### Article Text (p. 15)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 06:59AM

3	3	Inspect Brake System	3
3	3	Inspect C/V Joint boots	3
3	3	Inspect Steering Linkage/Front Suspension	3
3	3	Lubricate Chassis	3
3	3	Rotate Tires and Adjust Air Pressure (Including Spare)	3
3		Replace	3
3	3	Engine Oil	3
3	3	Oil Filter	3
3		Lubrication Specifications	3
3	Application	Specification	3
3	Engine Oil		3
3	Minimum Temperature		3
3	Greater Than 0°F (-18°C)	SAE 10W-30 API/SG	3
3	Maximum Temperature		3
3	Less Than 0°F (-18°C)	SAE 5W-30 API/SG	3
3	Fluid Capacities		3
3	Application	Quantity	3
3	Engine Oil (1)		3
3	1993	3.7 Qts. (3.5L)	3
3	1994-95	4.0 Qts. (3.8L)	3
3	(1) - With filter change.		3

### 40,000 MILE (64,000 KM) SERVICE

40,000 MILE (64,000 KM) SERVICE	
3	Service Or Inspect
3	Verify Last Major Service Was Performed
3	Check Fluid Levels
3	Check Cooling System Hoses and Clamps
3	Check Exhaust System & Heat Shielding
3	Inspect Brake System

[illegible]

## SCHEDULED SERVICES

### Article Text (p. 17)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 06:59AM

3	3	Check Low Engine Oil Level Warning System	3
3	3	Inspect Air Conditioning System	3
3	3	Inspect Brake System	3
3	3	Check Exhaust System & Heat Shielding	3
3	3	Clean Battery and Battery Terminals	3
3	3	Inspect Fuel/Tank/Cap/Lines	3
3	3	Check Operation of Horn, Wipers/Washers & All Exterior Lights	3
3	3	Inspect Condition of Wiper Blades	3
3	3	Check Headlight Alignment	3
3	3	Check Seat Belt Webbing and Release Mechanisms	3
3	3	Check Parking Brake Operation	3
3	3	Check Shift/Clutch Interlock Operation	3
3	3	Inspect C/V Joint boots	3
3	3	Brake Discs & Calipers	3
3	3	Parking Brake	3
3	3	Clutch Release Arm Travel	3
3	3	Inspect Steering Linkage/Front Suspension	3
3	3	Lubricate Chassis	3
3	3	Suspension Mounting Bolts	3
3	3	Steering Operation, Tie Rods, Gear Box & Boots	3
3	3	Lubricate Weatherstripping with Silicone	3
3	3	Lubricate Door Hinges	3
3	3	Lubricate Door Locks	3
3	3	Check Body Drain Holes	3
3	3	Rotate Tires and Adjust Air Pressure	3
3		Replace	3

Wednesday, August 22, 2001 06:59AM

```

3          Service Or Inspect
3          Verify Last Major Service Was Performed
3          Check Fluid Levels
3          Check Cooling System Hoses and Clamps
3          Check Exhaust System & Heat Shielding
3          Inspect C/V Joint boots
3          Inspect Power Steering System (If Equipped)
3          Inspect Steering Linkage/Front Suspension

```

## SCHEDULED SERVICES

### Article Text (p. 19)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 06:59AM

```
3 3 Lubricate Chassis 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Inspect Front Brake Pads & Rotors 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Inspect Brake System Hoses & Lines 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Inspect Shocks/Struts for Leakage 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Inspect Tire Wear Pattern 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Rotate Tires and Adjust Air Pressure (Including Spare) 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Replace 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Engine Oil 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Oil Filter 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Lubrication Specifications 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Application Specification 3
3 3
3 Engine Oil 3
3 Minimum Temperature 3
3 Greater Than 0°F (-18°C) ..... SAE 10W-30 API/SG 3
3 Maximum Temperature 3
3 Less Than 0°F (-18°C) ..... SAE 5W-30 API/SG 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Fluid Capacities 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Application Quantity 3
3 3
3 Engine Oil (1) 3
3 1993 ..... 3.7 Qts. (3.5L) 3
3 1994-95 ..... 4.0 Qts. (3.8L) 3
3 3
3 (1) - With filter change. 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
```

### 55,000 MILE (88,000 KM) SERVICE

```
55,000 MILE (88,000 KM) SERVICE
UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Service Or Inspect 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Verify Last Major Service Was Performed 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Check Fluid Levels 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Check Cooling System Hoses and Clamps 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Check Exhaust System & Heat Shielding 3
```



[illegible]

Wednesday, August 22, 2001 06:59AM

[illegible]

## SCHEDULED SERVICES

### Article Text (p. 22)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 06:59AM

3	3	Spark Plugs	3
3	3	Air Filter Element	3
3	3	Drain, Refill and Bleed Brake System	3
3	3	Engine Coolant	3
3	3	Fuel Filter	3
3	3	Manual Transmission Oil	3
3	3	Rear Axle Oil	3
3	3	Lubrication Specifications	3
3	Application	Specification	3
3	Engine Oil		3
3	Minimum Temperature		3
3	Greater Than 0°F (-18°C)	SAE 10W-30 API/SG	3
3	Maximum Temperature		3
3	Less Than 0°F (-18°C)	SAE 5W-30 API/SG	3
3	Manual Transmission	SAE 75W-90 GL-4, GL-5	3
3	Rear Axle	SAE 80W-90 GL-5	3
3	Fluid Capacities		3
3	Application	Quantity	3
3	Cooling System	9.2 Qts. (8.7L)	3
3	Engine Oil (1)		3
3	1993	3.7 Qts. (3.5L)	3
3	1994-95	4.0 Qts. (3.8L)	3
3	(1) - With filter change.		3
3	Manual Transmission Oil	2.6 Qts. (2.5L)	3
3	Rear Axle Oil	1.4 Qts. (1.3L)	3
3	Service Labor Times		3
3	Application	Hours	3
3	Automatic Transmission	5.1	3
3	Manual Transmission	5.3	3

### 65,000 MILE (104,000 KM) SERVICE

65,000 MILE (104,000 KM) SERVICE

3 Service Or Inspect 3

[illegible]

## SCHEDULED SERVICES

### Article Text (p. 24)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:00AM

```
3 3 Verify Last Major Service Was Performed 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Check Fluid Levels 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Check Cooling System Hoses and Clamps 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Check Exhaust System & Heat Shielding 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Inspect Brake System 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Inspect C/V Joint boots 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Inspect Steering Linkage/Front Suspension 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Lubricate Chassis 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Rotate Tires and Adjust Air Pressure (Including Spare) 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Replace 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Engine Oil 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Oil Filter 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Lubrication Specifications 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Application Specification 3
3 3
3 Engine Oil 3
3 Minimum Temperature 3
3 Greater Than 0°F (-18°C) ..... SAE 10W-30 API/SG 3
3 Maximum Temperature 3
3 Less Than 0°F (-18°C) ..... SAE 5W-30 API/SG 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Fluid Capacities 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Application Quantity 3
3 3
3 Engine Oil (1) 3
3 1993 ..... 3.7 Qts. (3.5L) 3
3 1994-95 ..... 4.0 Qts. (3.8L) 3
3 3
3 (1) - With filter change. 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
```

## 75,000 MILE (120,000 KM) SERVICE

```
75,000 MILE (120,000 KM) SERVICE
UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Service Or Inspect 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Verify Last Major Service Was Performed 3
```

## Article Text (p. 25)

1993 Mazda RX7

Copyright © 1998 Mitchell Repair Information Company, LLC

```

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3   3   Idle Speed                                                         3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3   3   Check Fluid Levels                                                 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3   3   Check Cooling System Hoses and Clamps                             3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3   3   Check Coolant Strength                                             3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3   3   Check Low Engine Oil Level Warning System                         3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3   3   Inspect Air Conditioning System                                    3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3   3   Inspect Brake System                                               3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3   3   Check Exhaust System & Heat Shielding                            3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3   3   Clean Battery and Battery Terminals                              3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3   3   Inspect Fuel/Tank/Cap/Lines                                       3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3   3   Check Operation of Horn, Wipers/Washers & All Exterior Lights    3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3   3   Inspect Condition of Wiper Blades                                 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3   3   Check Headlight Alignment                                          3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3   3   Check Seat Belt Webbing and Release Mechanisms                  3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3   3   Check Parking Brake Operation                                      3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3   3   Check Shift/Clutch Interlock Operation                           3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3   3   Inspect C/V Joint boots                                            3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3   3   Brake Discs & Calipers                                           3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3   3   Parking Brake                                                      3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3   3   Clutch Release Arm Travel                                         3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3   3   Inspect Steering Linkage/Front Suspension                        3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3   3   Lubricate Chassis                                                  3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3   3   Suspension Mounting Bolts                                         3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3   3   Steering Operation, Tie Rods, Gear Box & Boots                   3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3   3   Lubricate Weatherstripping with Silicone                         3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3   3   Lubricate Door Hinges                                              3

```

## SCHEDULED SERVICES

### Article Text (p. 26)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:00AM

```

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Lubricate Door Locks 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Check Body Drain Holes 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Rotate Tires and Adjust Air Pressure 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Replace 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Engine Oil 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Oil Filter 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Replace 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Engine Oil 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Oil Filter 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Lubrication Specifications 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Application Specification 3
3 3
3 Engine Oil 3
3 Minimum Temperature 3
3 Greater Than 0°F (-18°C) ..... SAE 10W-30 API/SG 3
3 Maximum Temperature 3
3 Less Than 0°F (-18°C) ..... SAE 5W-30 API/SG 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Fluid Capacities 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Application Quantity 3
3 3
3 Cooling System ..... 9.2 Qts. (8.7L) 3
3 Engine Oil (1) 3
3 1993 ..... 3.7 Qts. (3.5L) 3
3 1994-95 ..... 4.0 Qts. (3.8L) 3
3 3
3 (1) - With filter change. 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

```

## 80,000 MILE (128,000 KM) SERVICE

```

80,000 MILE (128,000 KM) SERVICE
UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Service Or Inspect 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Verify Last Major Service Was Performed 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Check Fluid Levels 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Check Cooling System Hoses and Clamps 3

```

Wednesday, August 22, 2001 07:00AM

[illegible]



## SCHEDULED SERVICES

### Article Text (p. 28)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:00AM

```
3 3 Check Exhaust System & Heat Shielding 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Inspect Brake System 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Inspect C/V Joint boots 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Inspect Steering Linkage/Front Suspension 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Lubricate Chassis 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Rotate Tires and Adjust Air Pressure (Including Spare) 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Replace 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Engine Oil 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Oil Filter 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Lubrication Specifications 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Application Specification 3
3 3
3 Engine Oil 3
3 Minimum Temperature 3
3 Greater Than 0°F (-18°C) ..... SAE 10W-30 API/SG 3
3 Maximum Temperature 3
3 Less Than 0°F (-18°C) ..... SAE 5W-30 API/SG 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Fluid Capacities 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Application Quantity 3
3 3
3 Engine Oil (1) 3
3 1993 ..... 3.7 Qts. (3.5L) 3
3 1994-95 ..... 4.0 Qts. (3.8L) 3
3 3
3 (1) - With filter change. 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
```

## 90,000 MILE (144,000 KM) SERVICE

```
90,000 MILE (144,000 KM) SERVICE
UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Service Or Inspect 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Verify Last Major Service Was Performed 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Idle Speed 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Check Fluid Levels 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Check Cooling System Hoses and Clamps 3
```

## Article Text (p. 29)

## 1993 Mazda RX7

Copyright © 1998 Mitchell Repair Information Company, LLC

3	3	Engine Coolant Level Warning System	3
3	3	Check Low Engine Oil Level Warning System	3
3	3	Inspect Air Conditioning System	3
3	3	Check Exhaust System & Heat Shielding	3
3	3	Clean Battery and Battery Terminals	3
3	3	Inspect/Adjust Accessory Drive Belts (Replace if Required)	3
3	3	Crankcase Ventilation System	3
3	3	ABS System Operation	3
3	3	Brake Hoses & Lines	3
3	3	Brake Discs & Calipers	3
3	3	Parking Brake	3
3	3	Clutch Release Arm Travel	3
3	3	Suspension Mounting Bolts	3
3	3	Steering Operation, Tie Rods, Gear Box & Boots	3
3	3	Inspect C/V Joint boots	3
3	3	Inspect Power Steering System (If Equipped)	3
3	3	Suspension Bushings, Springs, Arms & Rear Jounce Bumpers	3
3	3	Front & Rear Suspension Ball Joints	3
3	3	Rear Suspension Uni-Ball and Sliding Rubber Bushing	3
3	3	Parking Brake System	3
3	3	Inspect Shocks/Struts for Leakage	3
3	3	Inspect Tire Wear Pattern	3
3	3	Rotate Tires and Adjust Air Pressure (Including Spare)	3
3		Replace	3
3	3	Engine Oil	3
3	3	Oil Filter	3

## SCHEDULED SERVICES

### Article Text (p. 30)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:00AM

~~~~~		
3	3 Spark Plugs	3
~~~~~		
3	3 Air Filter Element	3
~~~~~		
3	3 Engine Coolant	3
~~~~~		
3	Lubrication Specifications	3
~~~~~		
3	Application	Specification 3
3		3
3	Engine Oil	3
3	Minimum Temperature	3
3	Greater Than 0°F (-18°C)	SAE 10W-30 API/SG 3
3	Maximum Temperature	3
3	Less Than 0°F (-18°C)	SAE 5W-30 API/SG 3
3	Manual Transmission	SAE 75W-90 GL-4, GL-5 3
3	Rear Axle	SAE 80W-90 GL-5 3
~~~~~		
3	Fluid Capacities	3
~~~~~		
3	Application	Quantity 3
3		3
3	Cooling System	9.2 Qts. (8.7L) 3
3	Engine Oil (1)	3
3	1993	3.7 Qts. (3.5L) 3
3	1994-95	4.0 Qts. (3.8L) 3
3	Manual Transmission Oil	2.6 Qts. (2.5L) 3
3	Rear Axle Oil	1.4 Qts. (1.3L) 3
3		3
3	(1) - With filter change.	3
~~~~~		
3	Service Labor Times	3
~~~~~		
3	Application	Hours 3
3		3
3	Automatic Transmission	2.9 3
3	Manual Transmission	2.9 3
~~~~~		

### 95,000 MILE (152,000 KM) SERVICE

#### 95,000 MILE (152,000 KM) SERVICE

~~~~~		
3	Service Or Inspect	3
~~~~~		
3	3 Verify Last Major Service Was Performed	3
~~~~~		
3	3 Check Fluid Levels	3
~~~~~		
3	3 Check Cooling System Hoses and Clamps	3
~~~~~		

SCHEDULED SERVICES

Article Text (p. 31)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:00AM

```
3 3 Check Exhaust System & Heat Shielding 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Inspect Brake System 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Inspect C/V Joint boots 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Inspect Steering Linkage/Front Suspension 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Lubricate Chassis 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Rotate Tires and Adjust Air Pressure (Including Spare) 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Replace 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Engine Oil 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Oil Filter 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Lubrication Specifications 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Application Specification 3
3 3
3 Engine Oil 3
3 Minimum Temperature 3
3 Greater Than 0°F (-18°C) ..... SAE 10W-30 API/SG 3
3 Maximum Temperature 3
3 Less Than 0°F (-18°C) ..... SAE 5W-30 API/SG 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Fluid Capacities 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Application Quantity 3
3 3
3 Engine Oil (1) 3
3 1993 ..... 3.7 Qts. (3.5L) 3
3 1994-95 ..... 4.0 Qts. (3.8L) 3
3 3
3 (1) - With filter change. 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
```

100,000 MILE (160,000 KM) SERVICE

```
100,000 MILE (160,000 KM) SERVICE
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Service Or Inspect 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Verify Last Major Service Was Performed 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Check Fluid Levels 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Check Cooling System Hoses and Clamps 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Check Exhaust System & Heat Shielding 3
```

[illegible]

Article Text (p. 33)

1993 Mazda RX7

Copyright © 1998 Mitchell Repair Information Company, LLC

3	Verify Last Major Service Was Performed	3
3	Idle Speed	3
3	Check Fluid Levels	3
3	Check Cooling System Hoses and Clamps	3
3	Check Coolant Strength	3
3	Check Low Engine Oil Level Warning System	3
3	Inspect Air Conditioning System	3
3	Inspect Brake System	3
3	Check Exhaust System & Heat Shielding	3
3	Clean Battery and Battery Terminals	3
3	Inspect Fuel/Tank/Cap/Lines	3
3	Check Operation of Horn, Wipers/Washers & All Exterior Lights	3
3	Inspect Condition of Wiper Blades	3
3	Check Headlight Alignment	3
3	Check Seat Belt Webbing and Release Mechanisms	3
3	Check Parking Brake Operation	3
3	Check Shift/Clutch Interlock Operation	3
3	Inspect C/V Joint boots	3
3	Brake Discs & Calipers	3
3	Parking Brake	3
3	Clutch Release Arm Travel	3
3	Inspect Steering Linkage/Front Suspension	3
3	Lubricate Chassis	3
3	Suspension Mounting Bolts	3
3	Steering Operation, Tie Rods, Gear Box & Boots	3
3	Lubricate Weatherstripping with Silicone	3

Wednesday, August 22, 2001 07:00AM

[illegible]

SCHEDULED SERVICES

Article Text (p. 35)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:00AM

```
3 3 Check Cooling System Hoses and Clamps 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Check Exhaust System & Heat Shielding 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Inspect Brake System 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Inspect C/V Joint boots 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Inspect Steering Linkage/Front Suspension 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Lubricate Chassis 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Rotate Tires and Adjust Air Pressure (Including Spare) 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Replace 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Engine Oil 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Oil Filter 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Lubrication Specifications 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Application Specification 3
3 3
3 Engine Oil 3
3 Minimum Temperature 3
3 Greater Than 0°F (-18°C) ..... SAE 10W-30 API/SG 3
3 Maximum Temperature 3
3 Less Than 0°F (-18°C) ..... SAE 5W-30 API/SG 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Fluid Capacities 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Application Quantity 3
3 3
3 Engine Oil (1) 3
3 1993 ..... 3.7 Qts. (3.5L) 3
3 1994-95 ..... 4.0 Qts. (3.8L) 3
3 3
3 (1) - With filter change. 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
```

115,000 MILE (184,000 KM) SERVICE

```
115,000 MILE (184,000 KM) SERVICE
UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Service Or Inspect 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Verify Last Major Service Was Performed 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Check Fluid Levels 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Check Cooling System Hoses and Clamps 3
```


Wednesday, August 22, 2001 07:00AM

[illegible][illegible]

SCHEDULED SERVICES

Article Text (p. 37)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:00AM

3	3	Check Cooling System Hoses and Clamps	3
3	3	Engine Coolant Level Warning System	3
3	3	Check Low Engine Oil Level Warning System	3
3	3	Inspect Air Conditioning System	3
3	3	Check Exhaust System & Heat Shielding	3
3	3	Clean Battery and Battery Terminals	3
3	3	Inspect/Adjust Accessory Drive Belts (Replace if Required)	3
3	3	Crankcase Ventilation System	3
3	3	ABS System Operation	3
3	3	Brake Hoses & Lines	3
3	3	Brake Discs & Calipers	3
3	3	Parking Brake	3
3	3	Clutch Release Arm Travel	3
3	3	Suspension Mounting Bolts	3
3	3	Steering Operation, Tie Rods, Gear Box & Boots	3
3	3	Inspect C/V Joint boots	3
3	3	Inspect Power Steering System (If Equipped)	3
3	3	Suspension Bushings, Springs, Arms & Rear Jounce Bumpers	3
3	3	Front & Rear Suspension Ball Joints	3
3	3	Rear Suspension Uni-Ball and Sliding Rubber Bushing	3
3	3	Parking Brake System	3
3	3	Inspect Shocks/Struts for Leakage	3
3	3	Inspect Tire Wear Pattern	3
3	3	Rotate Tires and Adjust Air Pressure (Including Spare)	3
3		Replace	3
3	3	Engine Oil	3

Wednesday, August 22, 2001 07:00AM

Oil Filter	
Spark Plugs	
Air Filter Element	
Drain, Refill and Bleed Brake System	
Engine Coolant	
Fuel Filter	
Manual Transmission Oil	
Rear Axle Oil	
Lubrication Specifications	
Application	Specification
Engine Oil	
Minimum Temperature	
Greater Than 00F (-180C)	SAE 10W-30 API/SG
Maximum Temperature	
Less Than 00F (-180C)	SAE 5W-30 API/SG
Manual Transmission	SAE 75W-90 GL-4, GL-5
Rear Axle	SAE 80W-90 GL-5
Fluid Capacities	
Application	Quantity
Cooling System	9.2 Qts. (8.7L)
Engine Oil (1)	
1993	3.7 Qts. (3.5L)
1994-95	4.0 Qts. (3.8L)
Manual Transmission Oil	2.6 Qts. (2.5L)
Rear Axle Oil	1.4 Qts. (1.3L)
(1) - With filter change.	
Service Labor Times	
Application	Hours
Automatic Transmission	5.1
Manual Transmission	5.3

LUBRICATION SPECIFICATIONS

LUBRICATION SPECIFICATIONS TABLE

SCHEDULED SERVICES

Article Text (p. 39)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:00AM

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	Fluid Specifications
-------------	----------------------

Brake Fluid	SAE J1703 Or FMVSS116 DOT 3
-------------------	-----------------------------

Engine Oil

Minimum Temperature

Greater Than 0°F (-18°C)	SAE 10W-30 API SH/CD
--------------------------------	----------------------

Maximum Temperature

Less Than 0°F (-18°C)	SAE 5W-30 API SH/CD
-----------------------------	---------------------

Automatic Transmission	ATF M-III or Dexron IIE
------------------------------	-------------------------

Manual Transmission	SAE 75W-90 GL-4, GL-5
---------------------------	-----------------------

Power Steering Fluid	Dexron-IIE ATF Or Equivalent
----------------------------	------------------------------

Rear Axle	SAE 80W-90 API GL-5
-----------------	---------------------

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

FLUID CAPACITIES

FLUID CAPACITIES TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	Quantity
-------------	----------

A/C System R-12 Refrigerant

1993	21 Ozs.
------------	---------

A/C System R-134a Refrigerant Capacity (1)

1994-95	18 Ozs.
---------------	---------

Cooling System	9.2 Qts. (8.7L)
----------------------	-----------------

Engine Oil (2)

1993	3.7 Qts. (3.5L)
------------	-----------------

1994-95	4.0 Qts. (3.8L)
---------------	-----------------

Automatic Transmission Fluid	9.1 Qts. (8.6L)
------------------------------------	-----------------

Manual Transmission Oil	2.6 Qts. (2.5L)
-------------------------------	-----------------

Rear Axle Oil	1.4 Qts. (1.3L)
---------------------	-----------------

Fuel Tank

1993	20.1 Gals. (76L)
------------	------------------

1994-95	
---------------	--

Manual Transmission	20.1 Gals. (76L)
---------------------------	------------------

Automatic Transmission	18.5 Gals. (70L)
------------------------------	------------------

(1) - Use of R-12 in a R134a system will result in SEVERE DAMAGE.

(2) - With filter change.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

END OF ARTICLE

TRANSMISSION SERVICING - M/T

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Wednesday, August 22, 2001 07:02AM

ARTICLE BEGINNING

1993 Manual Transmission Servicing

RX7

IDENTIFICATION

MANUAL TRANSMISSION/TRANSAXLE APPLICATIONS TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Model	Transmission/Transaxle
-------	------------------------

RX7	R15M-D (1) (R5M-D)
-----------	--------------------

(1) - Old model designation given in parenthesis.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

LUBRICATION

SERVICE INTERVALS

Fluid Inspection & Replacement

Check fluid level(s) at least once a year. Change transmission/transaxle and transfer case fluids every 60,000 miles for normal driving conditions and every 30,000 miles for severe driving conditions.

CHECKING FLUID LEVEL

Transmission Fluid (RWD Models)

Remove fill plug from transmission/transaxle. Fluid should be up to bottom of fill hole on side of case. B2600i & MPV have 2 drain and 2 fill plugs in transmission case. Fluid should be up to bottom of rear fill hole on side of case.

RECOMMENDED FLUID

FLUID SPECIFICATIONS TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	Recommended Fluid
-------------	-------------------

Transmission/Transaxle Fluid

All-Season Usage	(1) SAE 75W-90
------------------------	----------------

Temp. Greater Than 50°F (10°C)	(1) SAE 80W-90
--------------------------------------	----------------

(1) - API GL-4 or GL-5.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

FLUID CAPACITIES

TRANSMISSION/TRANSAXLE REFILL CAPACITIES TABLE

TRANSMISSION SERVICING - M/T

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:02AM

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application Pts. (L)

RX7 5.2 (2.5)

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

ADJUSTMENTS

GEARSHIFT LINKAGE

No external linkage adjustment is required.

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application Ft. Lbs. (N.m)

Forward Transmission Plug 29-43 (39-58)

Rearward Transmission Plug 15-23 (21-31)

Fill Plug 18-29 (24-39)

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

END OF ARTICLE

CLUTCH
Article Text
1993 Mazda RX7
For www.iluvmyrx7.com
Copyright © 1998 Mitchell Repair Information Company, LLC
Wednesday, August 22, 2001 07:03AM

ARTICLE BEGINNING

1993 Clutch

RX7

DESCRIPTION

Clutch assembly uses a diaphragm spring type disc. Clutch is hydraulically-operated.

ADJUSTMENTS

CLUTCH PEDAL FREE PLAY

Check clutch pedal free play. See Fig. 1. See CLUTCH PEDAL FREE PLAY table. If free play is not within specification, check hydraulic and mechanical system components. If pedal free play adjustment is required, loosen lock nut and turn master cylinder push rod to obtain specified free play. Tighten lock nut.

CLUTCH PEDAL FREE PLAY TABLE (1)

Application In. (mm)

RX7 .20-.55 (5.1-14)

(1) - See Fig. 1.

CLUTCH PEDAL HEIGHT

Measure clutch pedal height from firewall to front side of pedal pad. See Fig. 1. See CLUTCH PEDAL HEIGHT table.

CLUTCH PEDAL HEIGHT TABLE (1)

Application In. (mm)

RX7 6.52-6.97 (166-177)

(1) - Measure to carpet on firewall. See Fig. 1.

CLUTCH DISENGAGEMENT HEIGHT

Measure clutch disengagement height, where clutch disengages, from pedal pad to firewall. See Fig. 1. See CLUTCH DISENGAGEMENT HEIGHT (MINIMUM) table.

CLUTCH DISENGAGEMENT HEIGHT (MINIMUM) TABLE (1)

CLUTCH

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Wednesday, August 22, 2001 07:03AM

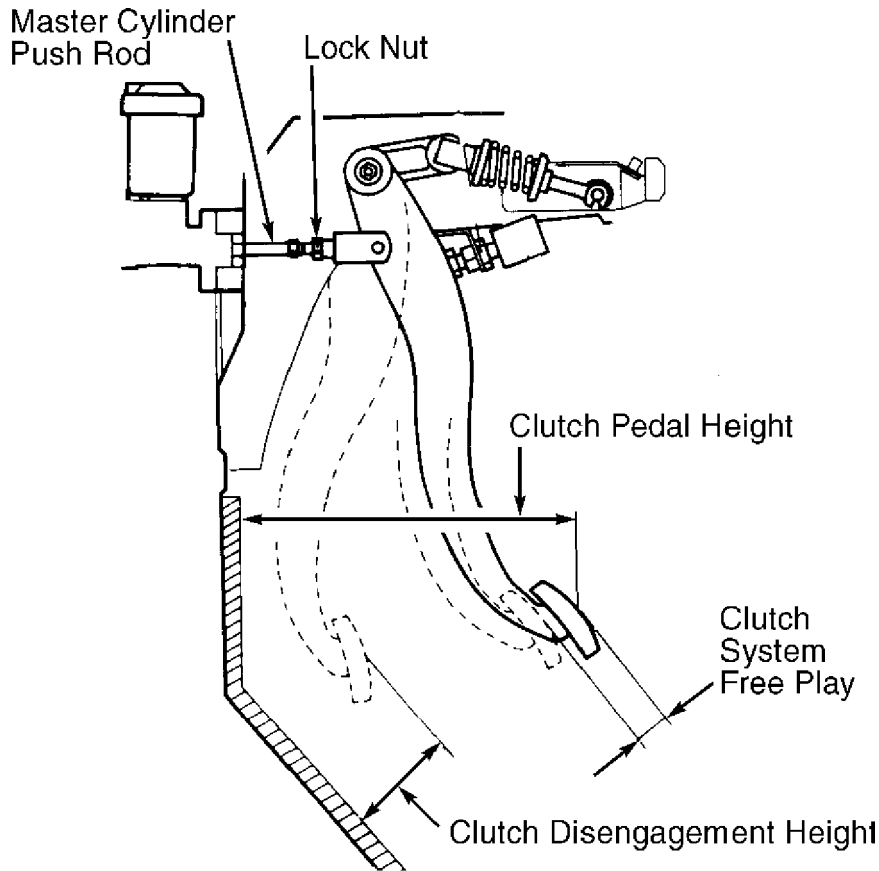
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application In. (mm)

RX7 1.89 (48)

(1) - Measure to carpet on firewall. See Fig. 1.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA



90E09842

Fig. 1: Measuring Clutch Pedal Adjustment & Position

Courtesy of Mazda Motors Corp.

HYDRAULIC SYSTEM BLEEDING

- 1) Fill reservoir with DOT 3 brake fluid. Place hose on bleeder screw to prevent brake fluid from entering bellhousing. Loosen bleeder screw and maintain fluid level in reservoir.
- 2) Close bleeder screw when fluid stream is free of air bubbles. Ensure proper fluid level, and install reservoir cap.

REMOVAL & INSTALLATION

CLUTCH ASSEMBLY

Removal

CLUTCH

Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

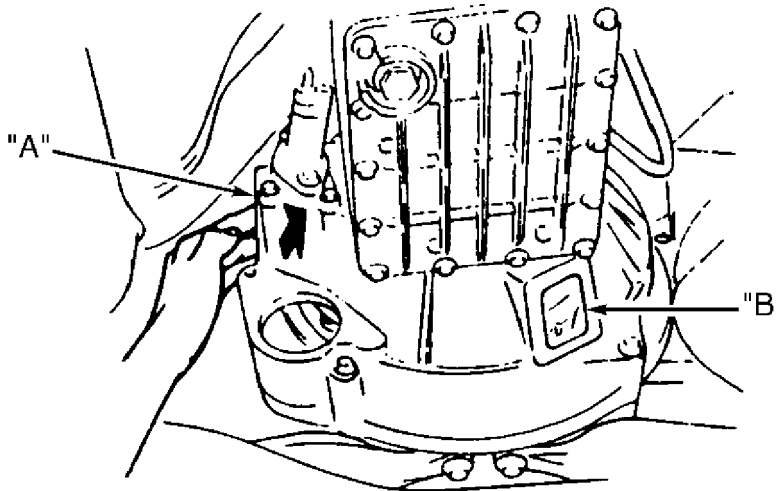
Copyright © 1998 Mitchell Repair Information Company, LLC
Wednesday, August 22, 2001 07:03AM

1) Disconnect negative battery cable. Remove console, gear shift knob and insulator. Remove gear shift lever assembly. Remove transmission cover.

2) Raise and support vehicle. Remove right and left under covers. Leave fluid pipe connected to clutch release cylinder. Remove clutch release cylinder from bell housing and secure aside with wire. Remove starter and center tunnel reinforcement. Remove secondary air injection pipe and catalytic converter. Remove front and rear tunnel reinforcement.

3) Mark position of drive shaft flange for reassembly reference. Remove drive shaft. Insert Main Shaft Holder (49-S120-440) into extension housing. Support engine and differential. Remove Power Plant Frame (PPF) from transmission and differential. Remove back up light switch from transmission.

4) Remove service access covers "A" and "B". See Fig. 2. Through service hole "A", swing clutch fork forward and hold release collar against pressure plate. Insert a screwdriver through service hole "B" into space between release collar and wedge collar. Pry and separate release from pressure plate.



93F84546

Fig. 2: Identifying Clutch Housing Service Access Holes
Courtesy of Mazda Motors Corp.

NOTE: If release collar cannot be separated from clutch cover, remove cover-to-flywheel bolts through service hole "B". Remove clutch cover and disc with transmission.

5) Secure transmission jack under transmission. Remove transmission-to-engine bolts. Remove transmission. If clutch disc and clutch cover were removed with transmission, remove wire ring from release collar. Separate release collar from clutch cover. Remove clutch cover and disc.

CLUTCH RUNOUT (MAXIMUM) TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application

In. (mm)

CLUTCH

Article Text (p. 4)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Wednesday, August 22, 2001 07:03AM

Disc 0.024 (0.6)
Flywheel 0.008 (.20)
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Inspection

1) Check disc for loose rivets, worn springs and oil contamination. Minimum lining height above rivet heads is .012" (.30 mm). Inspect flywheel and clutch cover for burns, scoring and grooves.

2) Check flywheel and clutch cover runout. Resurface or replace flywheel and clutch cover if beyond specification. See CLUTCH RUNOUT (MAXIMUM) table. If flywheel ring gear is replaced, ensure chamfer on flywheel teeth faces engine.

3) Check clutch disc runout using dial indicator. Replace disc if it is not to specification. See CLUTCH RUNOUT (MAXIMUM) table. Check disc hub and input shaft splines for excessive wear. Hub must slide smoothly on input shaft splines.

4) Check pilot bearing/bushing for wear. If equipped with roller bearing, apply inward pressure and turn pilot bearing from side to side. If bearing sticks or has excessive resistance, replace bearing. If equipped with a pilot bushing, check for abnormal wear or roughness in pilot hole. Check for tight fit in crankshaft. Replace as necessary. Check release bearing for smooth operation, and inspect it for wear, damage and looseness. Replace bearing as necessary.

Installation

1) Lightly coat input shaft splines, release bearing and fork contact areas with molybdenum disulfide grease. Align clutch disc on flywheel. Install NEW wedge collar and wire ring on clutch cover. Place clutch cover on flywheel and align reference marks. Tighten bolts evenly in a crisscross sequence.

2) Raise transmission into position. Install transmission-to-engine bolts. Tighten bolts to specification. See TORQUE SPECIFICATIONS TABLE at the end of this article. To complete installation, reverse removal procedure.

RELEASE BEARING & FORK

Removal & Installation

1) Remove transmission. See CLUTCH ASSEMBLY under REMOVAL & INSTALLATION. Remove release bearing and fork. Turn release bearing in both directions. Replace bearing if rough or noisy.

2) Inspect release fork for wear and damage. Replace if necessary. Apply molybdenum disulfide grease to release bearing contact and sliding surfaces. To complete installation, reverse removal procedure.

CLUTCH MASTER CYLINDER

Removal & Installation

Disconnect hydraulic line and master cylinder mounting nuts. Unhook clutch pedal from push rod. Remove master cylinder. To install,

CLUTCH

Article Text (p. 5)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Wednesday, August 22, 2001 07:03AM

reverse removal procedure and bleed hydraulic system.

CLUTCH RELEASE CYLINDER

Removal & Installation

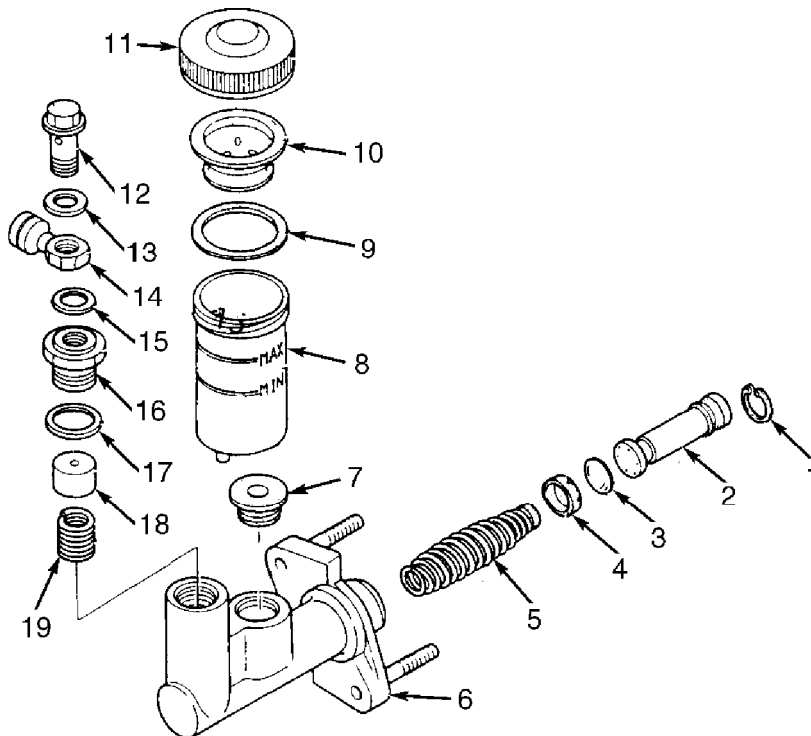
Raise and support vehicle. Disconnect and plug fluid hose. Remove release cylinder-to-clutch housing nuts. Remove release cylinder. To install, reverse removal procedure. Bleed hydraulic system.

OVERHAUL

NOTE: Overhaul procedures for Navajo are not available.

CLUTCH MASTER CYLINDER

NOTE: For exploded view of clutch master cylinder, see Fig. 3.



- | | | |
|------------------|-------------------|--------------------|
| 1. Snap Ring | 8. Reservoir | 15. Washer |
| 2. Piston | 9. Gasket | 16. Outlet Fitting |
| 3. Spacer | 10. Strainer | 17. Gasket/Washer |
| 4. Cup | 11. Cap | 18. One-Way Valve |
| 5. Return Spring | 12. Bolt | 19. Spring |
| 6. Cylinder Body | 13. Washer | |
| 7. Bushing | 14. Banjo Fitting | |

90G09843

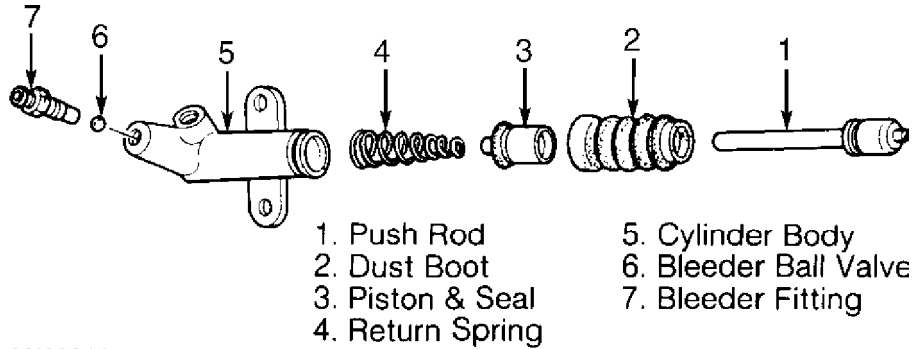
Fig. 3: Exploded View Of Clutch Master Cylinder
Courtesy of Mazda Motors Corp.

CLUTCH
Article Text (p. 6)
1993 Mazda RX7

For www.iluvmyrx7.com
Copyright © 1998 Mitchell Repair Information Company, LLC
Wednesday, August 22, 2001 07:03AM

CLUTCH RELEASE CYLINDER

NOTE: For exploded view of clutch release cylinder, see Fig. 4.



90109844
Fig. 4: Exploded View Of Clutch Release Cylinder
Courtesy of Mazda Motors Corp.

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	Ft. Lbs. (N.m)
-------------	----------------

Clutch Cover Bolts (1)	13-19 (18-26)
Clutch Housing-To-Engine Block Bolts	28-38 (38-51)
Flywheel-To-Crankshaft Nut	290-361 (393-490)
Tunnel Reinforcement	13-19 (18-26)

(1) - Tighten in a crisscross pattern.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

END OF ARTICLE

DRIVE AXLE
Article Text
1993 Mazda RX7
For www.iluvmyrx7.com
Copyright © 1998 Mitchell Repair Information Company, LLC
Wednesday, August 22, 2001 07:03AM

ARTICLE BEGINNING

1993 DRIVE AXLES
Mazda - Differentials & Axle Shafts

RX7

NOTE: For models with independent suspension, see the
DRIVE AXLE - REAR article in the DRIVE AXLES section.

DESCRIPTION

A Limited Slip Differential (LSD) is standard on RX7. Rear
axle uses CV joints to connect differential to axle hubs.

AXLE RATIO & IDENTIFICATION

See AXLE RATIO SPECIFICATIONS table. To determine axle ratio,
divide number of ring gear teeth by number of pinion teeth.

AXLE RATIO SPECIFICATIONS TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA			
		Number Of Teeth	
Application	Pinion/Ring Gear		Ratio
A/T	..... 11/43	.....	3.91:1
M/T	..... 10/41	.....	4.10:1
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA			

LUBRICATION

CAPACITY

DIFFERENTIAL CAPACITY SPECIFICATIONS TABLE (1)

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	
Application	Qts. (L)
RX7	..... 1.40 (1.30)

(1) - Fill to lower edge of filler plug hole.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

FLUID TYPE

DIFFERENTIAL LUBRICATION SPECIFICATIONS TABLE (1)

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	
Application	Specification
Warmer Than 00F (-180C)	..... GL-5/SAE 90W
Cooler Than 00F (-180C)	..... GL-5/SAE 80W

DRIVE AXLE

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Wednesday, August 22, 2001 07:03AM

(1) - Fill to lower edge of filler plug hole.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

TROUBLE SHOOTING

NOTE: See TROUBLE SHOOTING - BASIC PROCEDURES article in
GENERAL INFORMATION.

REMOVAL & INSTALLATION

DIFFERENTIAL ASSEMBLY

Removal

1) Raise and support vehicle. Remove wheel and tire assembly. Drain differential. Mark drive shaft flange for reassembly reference and remove drive shaft from differential carrier. Remove tunnel reinforcement bracket. See Fig. 1. Remove Power Plant Frame (PPF)-to-differential bolts and remove PPF. Remove I-arm bolt, and pull knuckle/hub assembly outward.

2) Using pry bar, separate CV joint drive axles from differential assembly, and support aside. Support differential assembly and remove differential mount-to-chassis mounting bolts. Remove differential assembly from vehicle. Remove differential mount from differential. Remove differential carrier-to-housing bolts. Remove differential carrier.

Installation

1) To install, reverse removal procedure. Apply sealant to carrier mating flange. Align marks made during removal. Measure outside diameter of snap ring on inner drive axle shaft. Diameter should be a maximum of 1.26" (32.0 mm). Replace snap ring if measurement exceeds specification. Ensure ends of snap ring are facing upward when installing drive axle shaft into differential.

2) Carefully install drive axle assembly into differential so as not to damage oil seal. Pull drive axle assembly outward to ensure drive axle assembly is properly seated in differential. Refill differential with lubricant. Tighten all nuts and bolts to specification. See TORQUE SPECIFICATIONS TABLE at the end of this article.

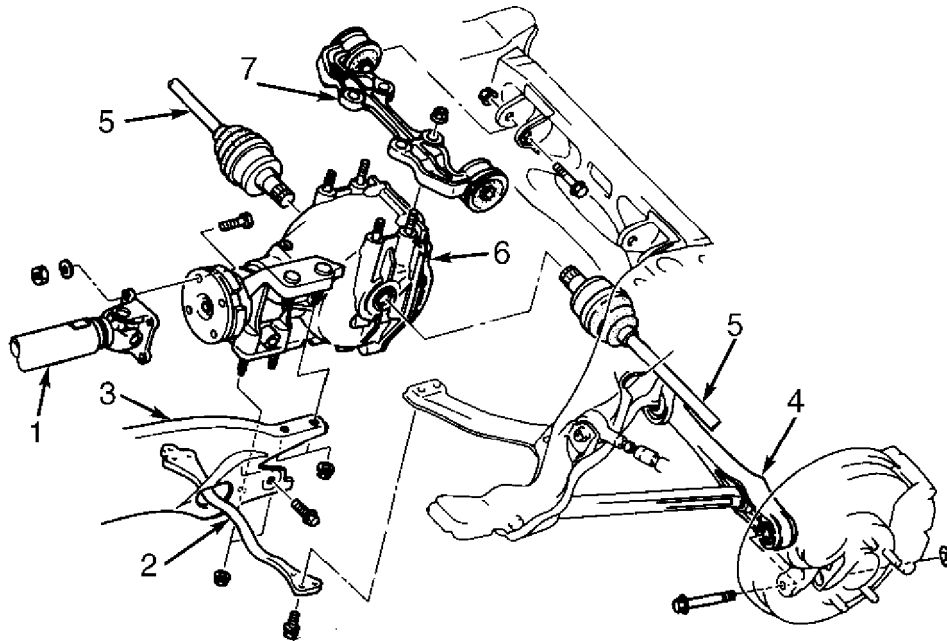
DRIVE AXLE

Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Wednesday, August 22, 2001 07:03AM



- | | |
|---------------------------------|-----------------------|
| 1. Drive Shaft | 5. Drive Axle |
| 2. Tunnel Reinforcement Bracket | 6. Differential |
| 3. Power Plant Frame (PPF) | 7. Differential Mount |
| 4. I-Arm | |

93H83045
Fig. 1: Exploded View Of Differential Components
Courtesy of Mazda Motors Corp.

OVERHAUL

DIFFERENTIAL

NOTE: Mark positions of all components before disassembly.

NOTE: Overhaul of Limited Slip Differential (LSD) unit is not recommended. Replace if defective. Overhaul procedures listed below are for carrier assembly only.

Disassembly

1) Mount carrier in Differential Carrier Hanger (49-M005-561). Mark side bearing caps for reassembly reference. Remove adjuster lock plates (if equipped). See Fig. 2.

2) Loosen side bearing cap bolts and slightly back off adjusters. Remove side bearing caps. Remove differential assembly from carrier. Mark side bearing races for reassembly reference. Remove adjusters and side bearing races from differential.

3) Remove drive pinion lock nut and washer. Remove companion flange using Puller (49-0839-425C). Remove oil seal, spacer, front bearing and collapsible spacer from carrier. Remove drive pinion, spacer and rear bearing assembly from carrier. Remove bearing races using a drift and hammer in slots provided on inner lip (as

DRIVE AXLE Article Text (p. 4)

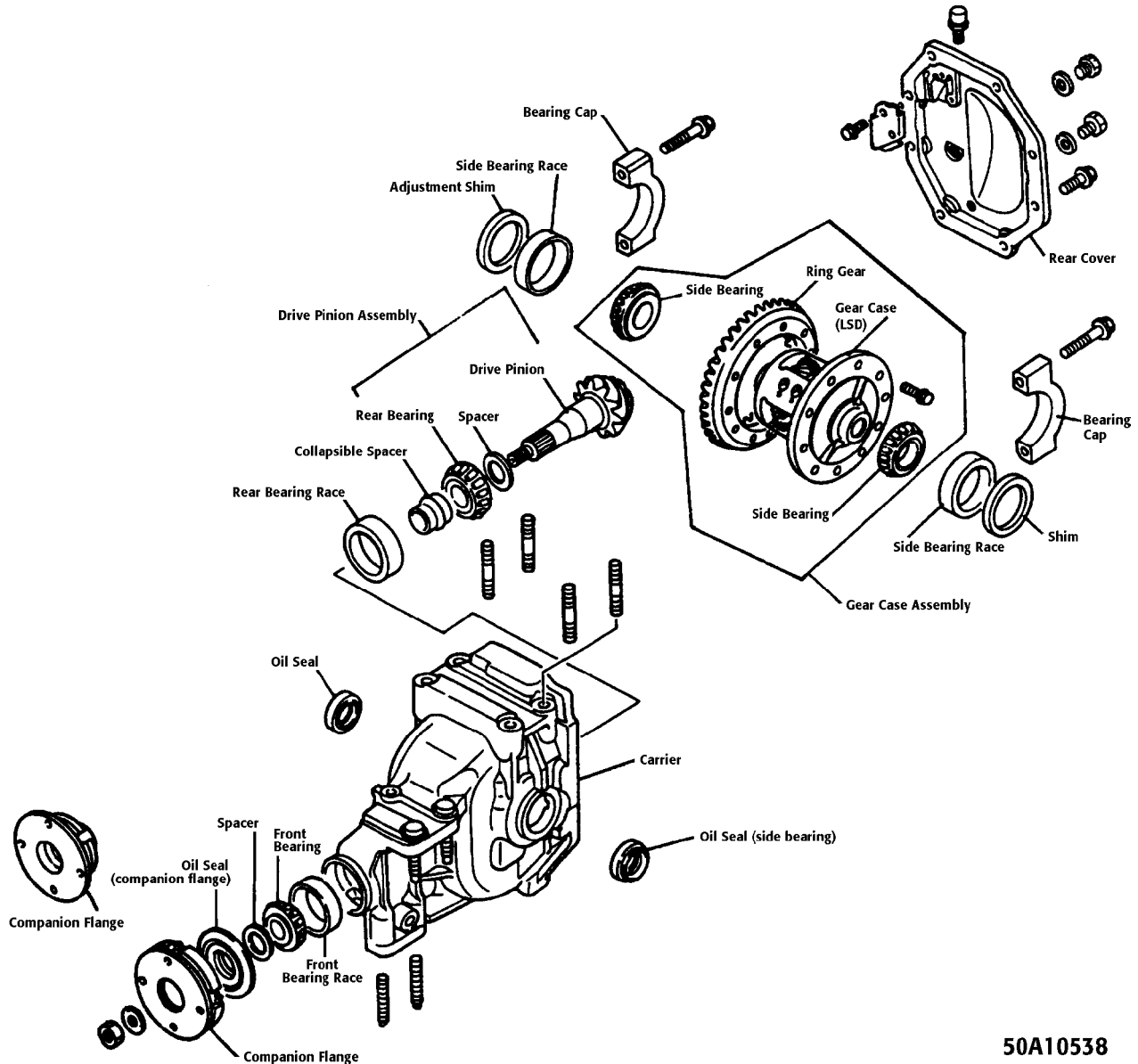
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Wednesday, August 22, 2001 07:03AM

necessary).

4) Remove ring gear retaining bolts. Separate ring gear from differential case. Mark side bearings for reassembly reference. Using Puller (49-0839-425C), remove side bearings from differential case. Remove knock pin. Remove pinion shaft, pinion gears, thrust washers, side gears, and thrust block (if equipped). See Fig. 2.



50A10538

Fig. 2: Exploded View Of Differential & Carrier Assembly
Courtesy of Mazda Motors Corp.

Reassembly & Adjustment

1) Install thrust block (if equipped), side gears, thrust washers, pinion gears, pinion shaft and knock pin. Stake knock pin. Position dial indicator against pinion gear. See Fig. 3. Secure one side gear.

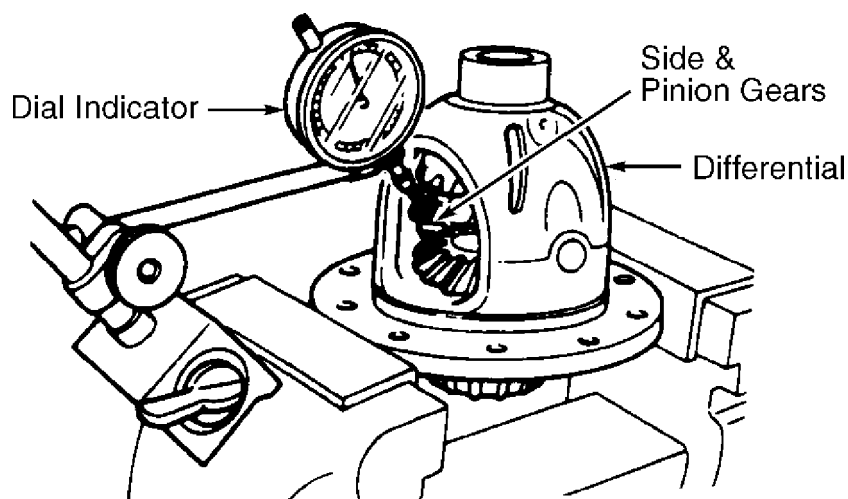
DRIVE AXLE

Article Text (p. 5)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Wednesday, August 22, 2001 07:03AM



91B01528

Fig. 3: Measuring Side Gear & Pinion Gear Backlash
Courtesy of Mazda Motors Corp.

2) Check side gear and pinion gear backlash. If backlash exceeds .004" (.10 mm), replace thrust washers. See THRUST WASHER SPECIFICATIONS table. Noting marks made during disassembly, press side bearings onto differential assembly using Bearing Installer (49-F401-337A, 49-G030-338 or 49-UB71-525) and Body (49-F401-331). Apply locking compound to rear face of ring gear. Install ring gear and tighten ring gear retaining bolts to 51-61 ft. lbs. (69-83 N.m).

THRUST WASHER SPECIFICATIONS TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Identifying Mark	Thickness - In. (mm)
------------------	----------------------

00787 (2.000)
---------	---------------

050807 (2.050)
----------	---------------

10827 (2.100)
---------	---------------

150846 (2.150)
----------	---------------

20866 (2.200)
---------	---------------

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

3) Use Bearing Installer (49-J027-001) for rear bearing race installation, and Attachment (49-F027-007) for front bearing race installation.

4) On all models, put original spacer, rear bearing and Collar (49-J027-002) on Dummy Drive Pinion (49-8531-565). See Fig. 4. Secure collar with "O" ring. Install assembly into differential carrier.

5) Install front bearing and collar on dummy drive pinion. See COLLAR SELECTION table. Install companion flange, washer and original drive pinion lock nut. Tighten drive pinion lock nut so dummy drive pinion assembly can be turned by hand.

COLLAR SELECTION TABLE

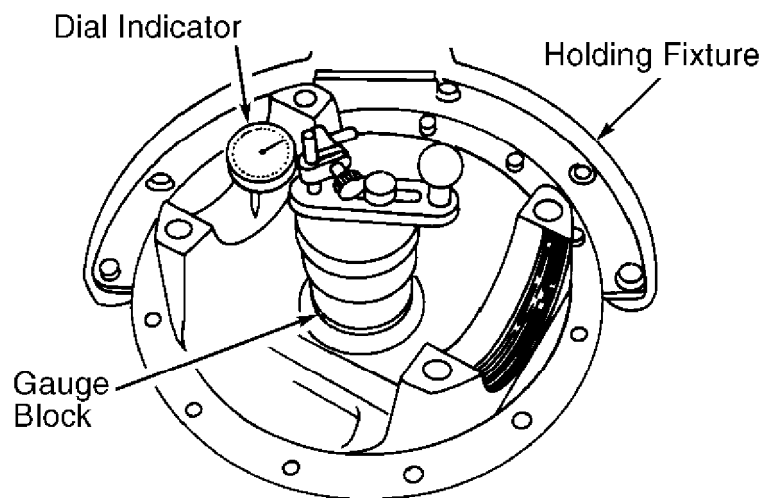
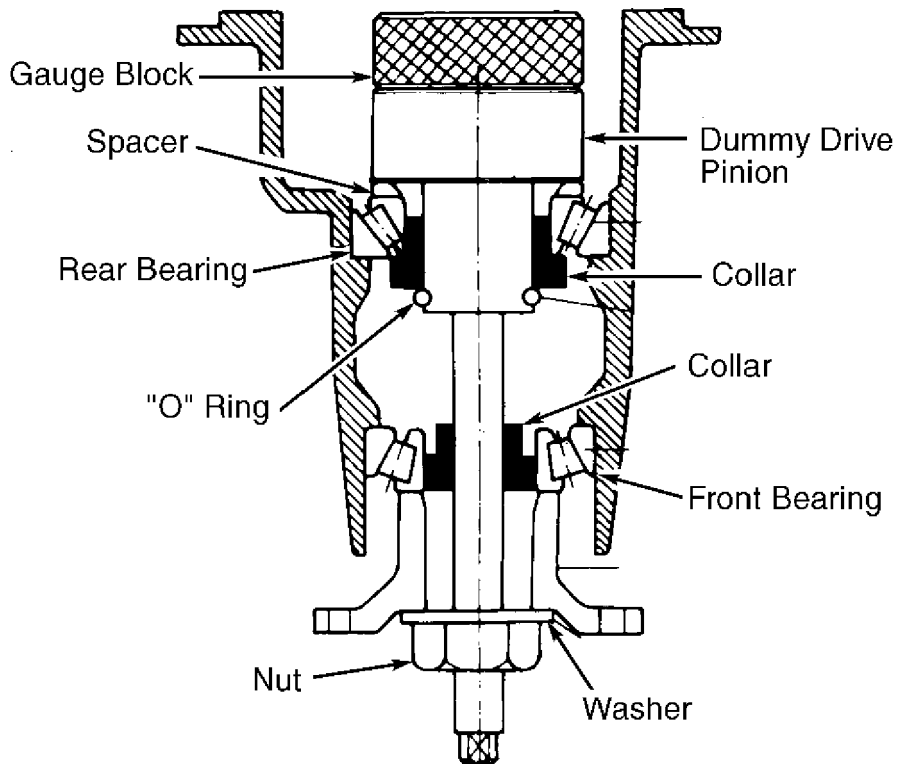
DRIVE AXLE
Article Text (p. 6)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Wednesday, August 22, 2001 07:03AM

Application Collar No.
RX7 49-8531-567



91J01532
Fig. 4: Checking Drive Pinion Installation & Position
Courtesy of Mazda Motors Corp.

6) Install dial indicator on Pinion Height Gauge (49-0727-570). Place pinion height gauge on a flat surface and zero dial

DRIVE AXLE

Article Text (p. 7)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Wednesday, August 22, 2001 07:03AM

indicator. Position gauge block on top of dummy drive pinion assembly. See GAUGE BLOCK SELECTION table.

GAUGE BLOCK SELECTION TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	Gauge Block No.
-------------	-----------------

Rear Differential	49-0660-555
-------------------------	-------------

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

7) Place pinion height gauge on top of gauge block. Position dial indicator to measure distance to a point where side bearing sits. Measure lowest point. See Fig. 4. Measure both sides. Add both measurements together and divide by 2.

8) If result is not zero, replace pinion spacer. Spacers are available in a range of .1213-.1366" (3.080-3.470 mm) in .001" (.03 mm) increments. Remove dummy drive pinion. Press rear bearing on drive pinion.

9) Install drive pinion, spacer, front bearing, collapsible spacer and companion flange in differential carrier. DO NOT install pinion oil seal yet. DO NOT exceed one-ton force; collapsible spacer will be damaged.

10) Install washer and drive pinion lock nut. Temporarily tighten drive pinion lock nut. Turn companion flange by hand to seat bearing. Using torque wrench, tighten drive pinion lock nut to specification. See TORQUE SPECIFICATIONS TABLE at the end of this article. Check pinion bearing preload at drive pinion lock nut. See PINION PRELOAD SPECIFICATIONS table. If pinion bearing preload is not as specified, replace collapsible spacer and recheck preload.

PINION PRELOAD SPECIFICATIONS TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	INCH Lbs. (N.m)
-------------	-----------------

RX7	11.3-15.6 (1.3-1.8)
-----------	---------------------

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

11) Remove drive pinion lock nut, washer and companion flange. Install pinion oil seal. Lubricate oil seal lip with differential oil. Install companion flange and washer. Install NEW drive pinion lock nut and tighten it to specification. See TORQUE SPECIFICATIONS TABLE at the end of this article. Recheck pinion bearing preload. Lubricate end of companion flange with grease.

12) Position differential assembly into differential carrier. Install side bearing adjusters. Position side bearing caps. Align marks made during disassembly. Install side bearing cap bolts and hand-tighten bolts.

13) Tighten side bearing adjusters equally until adjusters contact bearing races. Mark ring gear in 4 locations, 90 degrees apart. Position dial indicator against ring gear to check ring gear backlash.

14) Check backlash at all 4 locations. Tighten side bearing

DRIVE AXLE
Article Text (p. 8)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:03AM

adjusters equally until backlash is .0035-.0043" (.09-.11 mm). Minimum backlash at any point is .002" (.05 mm). Difference between minimum and maximum backlash should not exceed .0028" (.07 mm).

15) To set differential bearing preload, tighten adjusters equally until distance between measuring points on carrier bearing caps is within specification. See Fig. 5. See DIFFERENTIAL CARRIER DIMENSIONS table.

16) Ensure backlash did not change when preload was set. Tighten side bearing cap bolts to specification. See TORQUE SPECIFICATIONS TABLE at the end of this article. Check ring gear tooth patterns. See GEAR TOOTH CONTACT PATTERNS article in GENERAL INFORMATION.

17) To complete reassembly, reverse disassembly procedure. Tighten all nuts and bolts to specification. See TORQUE SPECIFICATIONS TABLE at the end of this article.

DIFFERENTIAL CARRIER DIMENSIONS TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

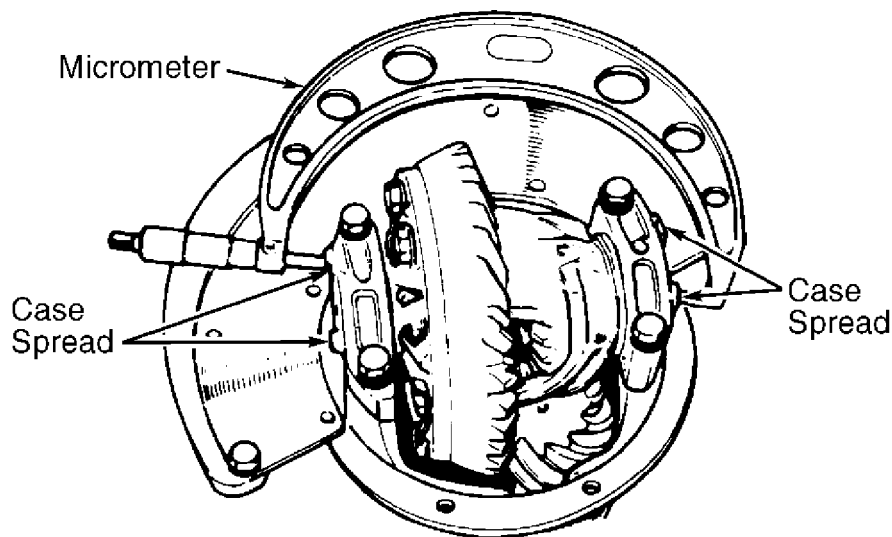
Application (1)	In. (mm)
-----------------	----------

RX7	(2)
-----------	-----

(1) - See illustration for measuring point. See Fig. 5.

(2) - Information is not available from manufacturer.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA



91D01529

Fig. 5: Measuring Carrier Case Spread

Courtesy of Mazda Motors Corp.

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	Ft. Lbs. (N.m)
-------------	----------------

DRIVE AXLE
Article Text (p. 9)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Wednesday, August 22, 2001 07:03AM

Differential Carrier Bearings Cap Bolts ... 54-79 (73-107)
Differential Carrier-To-Housing Bolts 27-38 (37-52)
Differential Mount-To-Chassis Nuts 69-86 (94-117)
Differential-To-Differential Mount Nuts ... 69-86 (94-117)
Drive Pinion Lock Nut 94-210 (127-284)
Drive Shaft Companion Flange Nuts 36-43 (49-58)
Filler Plug 29-40 (39-54)
I-Arm-To-Knuckle/Hub Assembly Bolt 44-54 (60-73)
Power Plant Frame-to-
 Differential Nuts 109-130 (148-176)
Ring Gear Retaining Bolts 51-61 (69-83)
Tunnel Reinforcement Bracket Bolts 13-19 (18-26)
Wheel Lug Nuts 65-87 (88-118)
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

END OF ARTICLE

DRIVE AXLE - REAR
Article Text
1993 Mazda RX7
For www.iluvmyrx7.com
Copyright © 1998 Mitchell Repair Information Company, LLC
Wednesday, August 22, 2001 07:04AM

ARTICLE BEGINNING

1993 DRIVE AXLES
Mazda RWD Axle Shafts

Mazda; RX7

NOTE: Information in this article applies only to models with independent rear suspension. For other information, see DRIVE AXLE article.

DESCRIPTION

CV JOINT IDENTIFICATION TABLE

Application		Joint Type
RX7		Tripod

TROUBLE SHOOTING

NOTE: See TROUBLE SHOOTING - BASIC PROCEDURES article in GENERAL INFORMATION.

REMOVAL, DISASSEMBLY, REASSEMBLY & INSTALLATION

RWD AXLE SHAFT

Removal

1) Raise vehicle and support with safety stands. Remove wheel and tire assembly. Loosen drive axle lock nut until flush with end of drive axle shaft.

2) Remove I-arm bolt, and pull knuckle/hub assembly outward. See Fig. 1. Remove inner CV joint from differential. Remove drive axle shaft from knuckle/hub assembly. If drive axle shaft is stuck in knuckle/hub assembly, use plastic or soft-faced hammer to tap drive axle shaft from knuckle/hub assembly. Remove drive axle lock nut and washer.

DRIVE AXLE - REAR

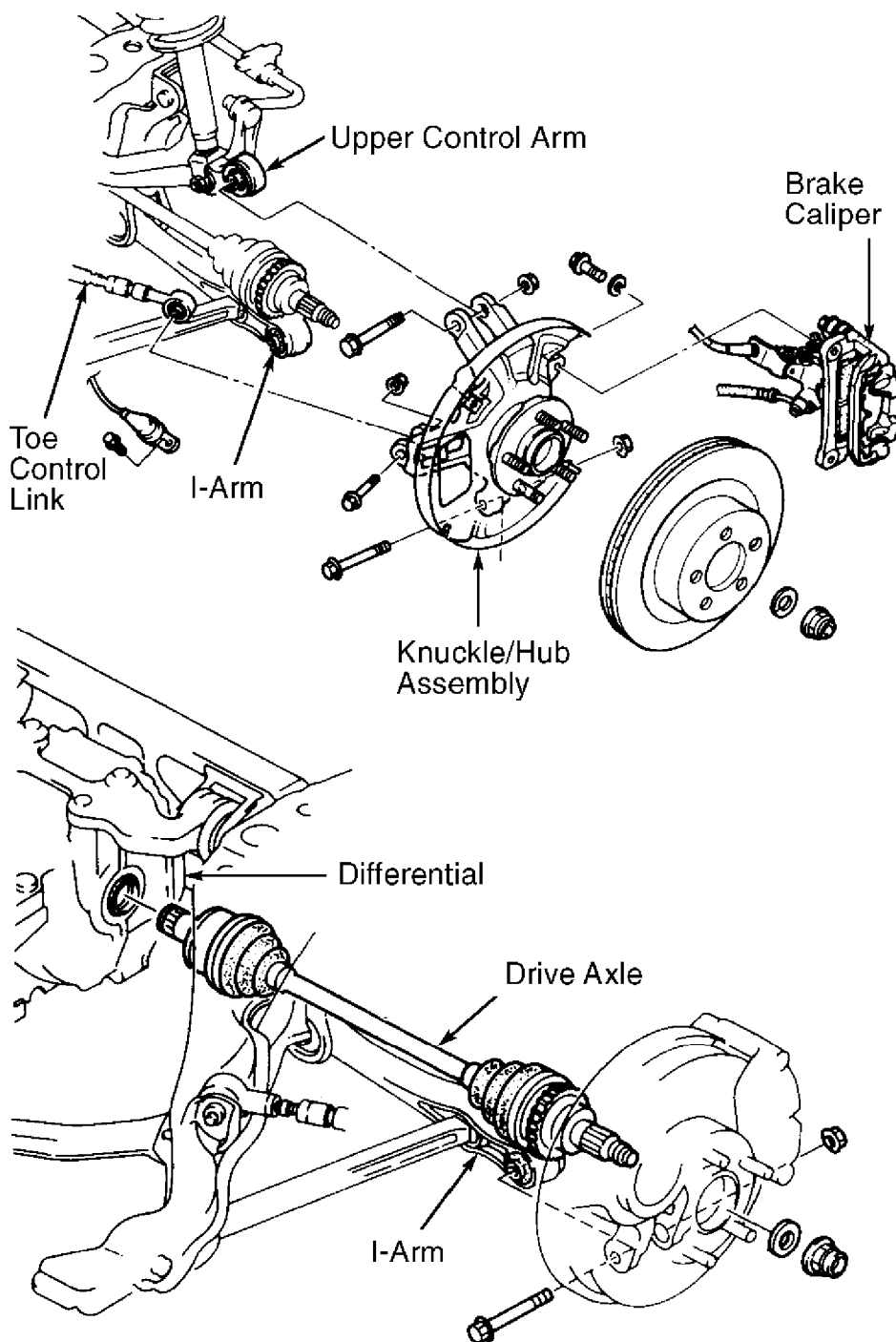
Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:04AM



93H82997

Fig. 1: Removing Rear Drive Axle & Knuckle/Hub Assembly
Courtesy of Mazda Motors Corp.

Disassembly (Tripod Type)

1) Place drive axle assembly in soft-jawed vise. Keep drive axle assembly clean during disassembly and reassembly. Remove CV joint boot bands and slide boot away from CV joint housing. Index mark CV

DRIVE AXLE - REAR

Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:04AM

joint housing, tripod assembly and drive axle shaft for reassembly reference. Using screwdriver, remove circlip ring from inner race groove in CV joint housing. See Fig. 2.

2) Remove CV joint housing from tripod assembly. Remove snap ring retaining tripod to drive axle shaft. Using a hammer and soft drift, drive tripod assembly from drive axle shaft. Wrap drive axle shaft end with tape. Remove inner CV joint boot. Remove outer CV joint boot bands, and remove boot by sliding it off inner CV joint end.

3) Clean and inspect all parts. Ensure drive axle shaft is not bent, twisted or damaged. Check splines for wear. Inspect tripod bearings for abnormal wear, excessive looseness, seizure, rust or other damage. Replace as necessary.

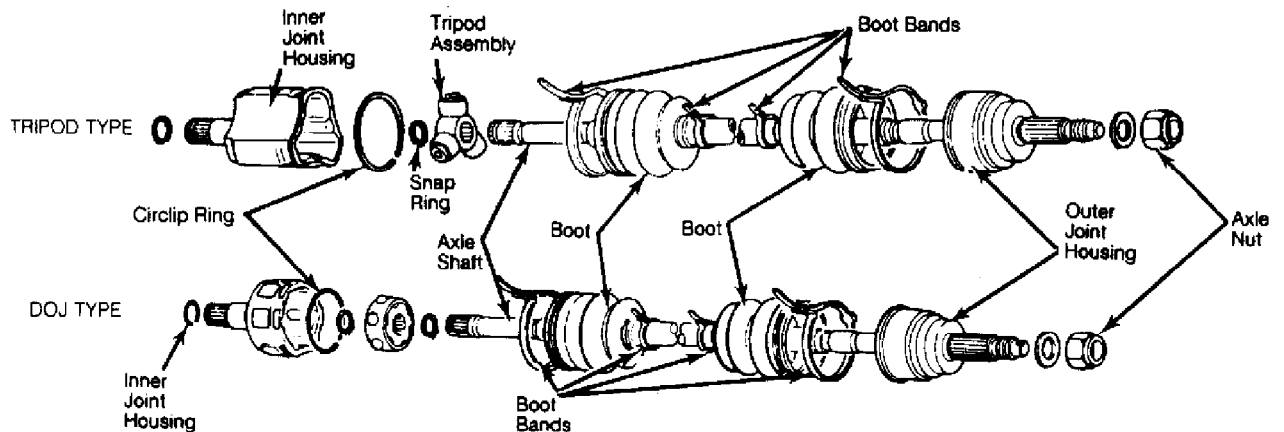


Fig. 2: Exploded View Of Axle Assemblies (DOJ & Tripod)
Courtesy of Mazda Motors Corp.

NOTE: Inner and outer CV joint boots differ in design and/or diameter. Ensure correct boot is installed at proper end when reassembling drive axle shaft. See Fig. 3. See REAR AXLE BOOT IDENTIFICATION table.

Reassembly (Tripod Type)

1) Pack outer CV joint assembly with grease. Wrap tape around drive axle shaft end and slide outer boot on drive axle shaft (if removed). Slide inner CV joint boot on drive axle shaft.

2) Align marks on tripod assembly and drive axle shaft. Install tripod assembly on drive axle shaft using hammer and soft drift. Install snap ring. Apply grease to tripod housing assembly. Align marks on tripod, drive axle shaft and CV joint housing. Position housing onto tripod assembly and install circlip ring.

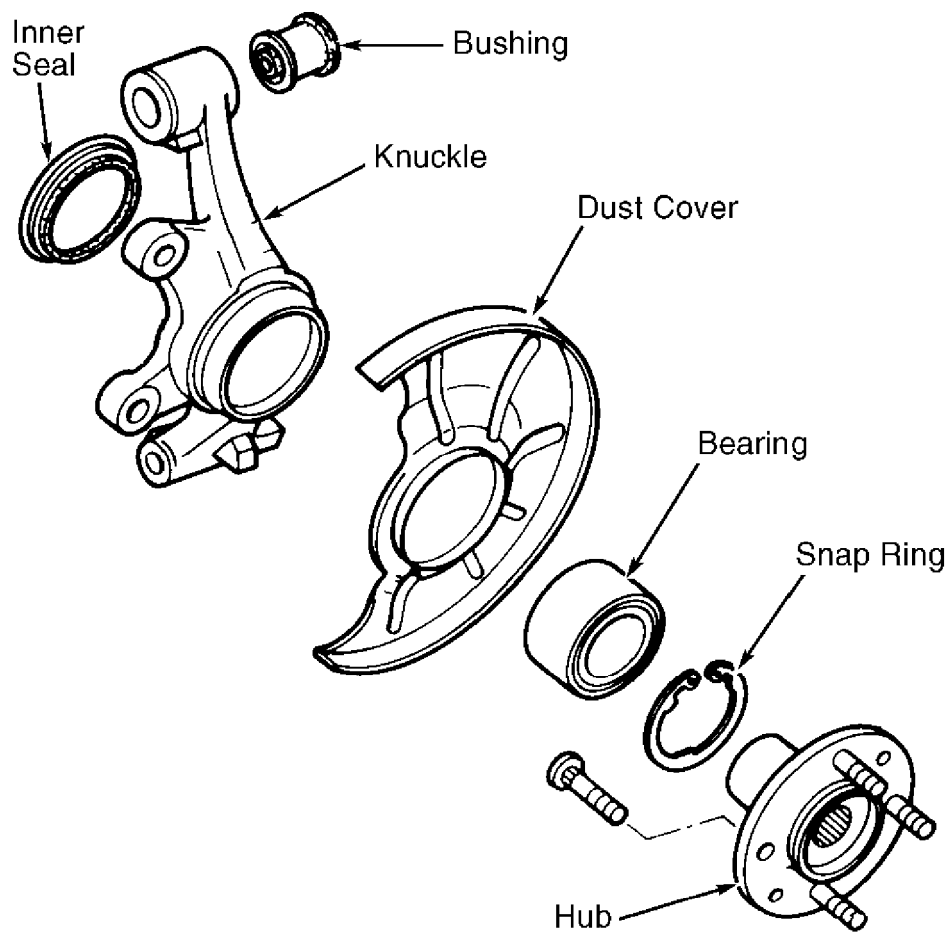
3) Using NEW boot bands, position bands so when folded down, the direction is opposite drive axle shaft direction of rotation. Fold boot band back by pulling on end of band with pliers. Lock end of band by bending locking clip.

Application	Right In. (mm)	Left In. (mm)
RX7	(1)	(1)

(1) - Length of right and left rear axle shafts should be 31.15-31.54 In. (791.2-801.2 mm). See Fig. 3.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

REAR HUB ASSEMBLY



91E01860
 Fig. 4: Exploded View Of Rear Knuckle/Hub Assembly (RX7 Is Similar)
 Courtesy of Mazda Motors Corp.

Removal & Disassembly

- 1) Raise vehicle and support with safety stands. Remove wheel and tire assembly. Remove brake caliper and support aside. See Fig. 1. Remove rotor from hub.
- 2) Mount dial indicator on hub and measure wheel bearing play by pulling and pushing on hub. Wheel bearing play should be a maximum of .002" (.05 mm). Check and adjust drive axle lock nut torque or replace wheel bearing if measurement exceeds specification.
- 3) Remove drive axle lock nut and washer. Remove ABS speed

DRIVE AXLE - REAR

Article Text (p. 6)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:04AM

sensor from knuckle/hub assembly. Remove upper control arm, I-arm and toe control link bolts retaining knuckle/hub assembly. Remove knuckle/hub assembly from vehicle. If drive axle is stuck in hub, use plastic or soft-faced hammer to tap drive axle from hub assembly.

4) Using Puller (49-F026-103), Handle (49-G033-102) and Attachment (49-G033-105), remove hub from knuckle. See Fig. 4. Remove snap ring retaining bearing. Using Support Block (49-H034-201) and Attachment (49-F027-005), press bearing from knuckle.

5) Grind inner bearing race to a thickness of .02" (0.5 mm). Using chisel, cut remaining inner bearing race from hub. DO NOT reuse wheel bearing. Inspect all components for cracks, wear and damage. Replace components as necessary.

Reassembly & Installation

1) Press NEW wheel bearing into knuckle using Support Block (49-H034-201) and Attachment (49-F027-004). Install snap ring. Apply grease to inner bearing race. Press hub into knuckle. Reverse removal procedure to install knuckle/hub assembly.

2) Check rear wheel alignment. See SPECIFICATIONS & PROCEDURES article in WHEEL ALIGNMENT. Tighten all bolts and nuts to specification. See TORQUE SPECIFICATIONS TABLE at the end of this article. Stake drive axle lock nut.

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS TABLE

Application		Ft. Lbs. (N.m)
ABS Speed Sensor Bolt	.....	14-18 (19-25)
Brake Caliper Mounting Bolts	.....	34-49 (46-66)
Drive Axle Lock Nut	.....	174-231 (236-313)
I-Arm Bolt/Nut	.....	44-55 (59-74)
Toe Control Link Bolt/Nut	.....	47-57 (64-77)
Upper Control Arm Bolt/Nut	.....	44-55 (59-74)
Wheel Lug Nuts	.....	65-87 (88-118)

END OF ARTICLE

STEERING COLUMN

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Wednesday, August 22, 2001 07:04AM

ARTICLE BEGINNING

1993 STEERING

Mazda - Steering Columns

RX7

DESCRIPTION & OPERATION

Steering columns are designed to be collapsible upon impact. The steering column consists of solid steering shaft with a lower joint assembly. Some models are equipped with tilt steering. Turn signal, headlight, ignition and windshield washer/wiper switches are mounted on column. Switches can be serviced by removing steering wheel and column covers. RX7 is equipped with air bag restraint system consisting of an air bag module and clockspring connector assembly located in the steering column.

AIR BAG DISABLING & ACTIVATING

WARNING: Wait about 10 minutes after disabling air bag system before servicing. Air bag system voltage is maintained for about 10 minutes after system is disabled. Failure to wait 10 minutes before servicing system may cause accidental air bag deployment and possible personal injury.

CAUTION: When battery is disconnected, vehicle computer and memory systems may lose memory data. Driveability problems may exist until computer systems have completed a relearn cycle.

Disabling System

1) Obtain radio code from customer and deactivate audio anti-theft function. Turn ignition off. Disconnect and shield negative battery cable. Wait at least 10 minutes for back-up power supply to be depleted. Remove cover panel below left side of instrument panel.

2) Disconnect Orange and Blue clockspring connectors located at base of steering column.

Activating System

Reconnect clockspring connectors. Reinstall cover panel. Reconnect negative battery cable. Turn ignition on. Check AIR BAG warning indicator light to ensure system is operating properly.

REMOVAL & INSTALLATION

STEERING WHEEL & HORN PAD

CAUTION: DO NOT strike steering shaft with a hammer as it may collapse.

WARNING: Before servicing RX7 disconnect and shield negative battery

STEERING COLUMN

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:04AM

cable. Use caution when working around steering column as air bag could deploy.

WARNING: Wait about 10 minutes after disabling air bag system before servicing. Air bag system voltage is maintained for about 10 minutes after system is disabled. Failure to wait 10 minutes before servicing system may cause accidental air bag deployment and possible personal injury.

Removal & Installation

1) Disconnect negative battery cable. Remove 4 air bag module nuts from underside of steering wheel. Disconnect electrical connector and remove air bag module. See AIR BAG RESTRAINT SYSTEM article in the ACCESSORIES/SAFETY EQUIPMENT section.

2) Remove steering wheel lock nut. Using a puller, remove steering wheel. To install, reverse removal procedure. Tighten steering wheel lock nut and air bag module nuts.

COMBINATION SWITCH

Removal

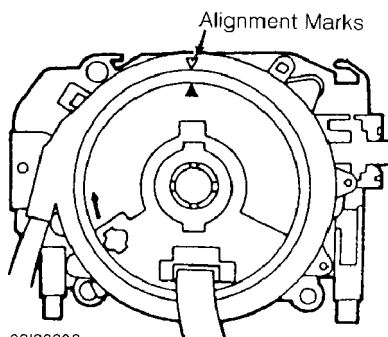
Remove steering wheel. See STEERING WHEEL & HORN PAD under REMOVAL & INSTALLATION. Remove upper and lower column covers. Disconnect combination switch connectors. Remove screws, and remove combination switch with clockspring assembly.

Installation

1) Install combination switch and clockspring assembly. Before installing steering wheel, center clockspring. To center clockspring, set front wheels straight ahead. Turn clockspring connector clockwise until it stops. DO NOT force clockspring.

2) Rotate connector 2 3/4 turns (counterclockwise). Rotate clockspring connector further (as necessary) to align marks on connector and outer housing. See Fig. 1.

3) Install steering wheel. Tighten steering wheel lock nut to specification. See TORQUE SPECIFICATION table at the end of this article. Install air bag module. See AIR BAG RESTRAINT SYSTEM article in the ACCESSORIES/SAFETY EQUIPMENT section.



93183608

Fig. 1: Aligning Clockspring Connector Alignment Marks
Courtesy of Mazda Motors Corp.

STEERING COLUMN

Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Wednesday, August 22, 2001 07:04AM

IGNITION SWITCH/STEERING LOCK ASSEMBLY

Removal & Installation

1) Remove steering wheel and combination switch. See STEERING WHEEL & HORN PAD and COMBINATION SWITCH. Disconnect ignition switch connectors. Remove key interlock cable from ignition switch/steering lock assembly (if equipped).

2) Using a hammer and chisel, make a groove in ignition switch/steering lock assembly shear screws. Remove 2 shear screws with screwdriver. Remove ignition switch/steering lock assembly. To install, reverse removal procedure. Tighten NEW shear screws until heads break off.

STEERING COLUMN

CAUTION: Excessive pressure or impact to steering shaft assembly during service may cause column to collapse.

Removal & Installation

1) Remove steering wheel and combination switch. See STEERING WHEEL & HORN PAD and COMBINATION SWITCH under REMOVAL & INSTALLATION. See Fig. 2. Remove ignition switch/steering lock assembly. See IGNITION SWITCH/STEERING LOCK ASSEMBLY under REMOVAL & INSTALLATION.

2) Remove lower panel. Remove air duct (if equipped). Remove "U" joint dust boot (if equipped). Remove steering shaft assembly-to-intermediate shaft "U" joint bolt. Remove lower steering shaft assembly-to-firewall nuts. Separate steering shaft from intermediate shaft. Remove steering column upper bracket bolts. Remove steering column.

3) To install, reverse removal procedure. Tighten bolts and nuts to specification. See TORQUE SPECIFICATION table at the end of this article.

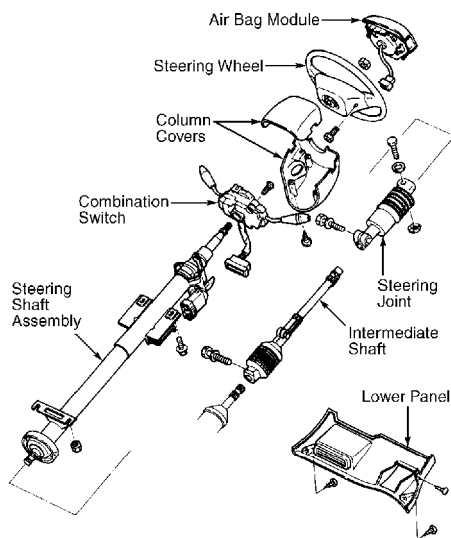


Fig. 2: Exploded View Of Steering Column
Courtesy of Mazda Motors Corp.

STEERING COLUMN

Article Text (p. 4)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:04AM

OVERHAUL

STEERING COLUMN

Disassembly

Remove steering wheel and combination switch. See STEERING WHEEL & HORN PAD and COMBINATION SWITCH under REMOVAL & INSTALLATION. See Figs. 2. Remove ignition switch/steering lock assembly. See IGNITION SWITCH/STEERING LOCK ASSEMBLY under REMOVAL & INSTALLATION. Remove steering column. See STEERING COLUMN under REMOVAL & INSTALLATION. Turn steering shaft to remove.

Inspection

Inspect all components for damage and wear. Check steering shaft for bends, damage or sheared plastic pins. Check bearings for excessive play. Replace components as necessary. Measure length of steering shaft. See Fig. 3.

Reassembly

To reassemble, reverse disassembly procedure. Grease steering shaft, bushings and bearings. Use NEW shear screws.

STEERING SHAFT DIMENSIONS TABLE (1)

Application Length - In. (mm)

RX7 30.69-30.76 (779.5-781.5)

(1) - For measuring points, see illustration. See Fig. 3.

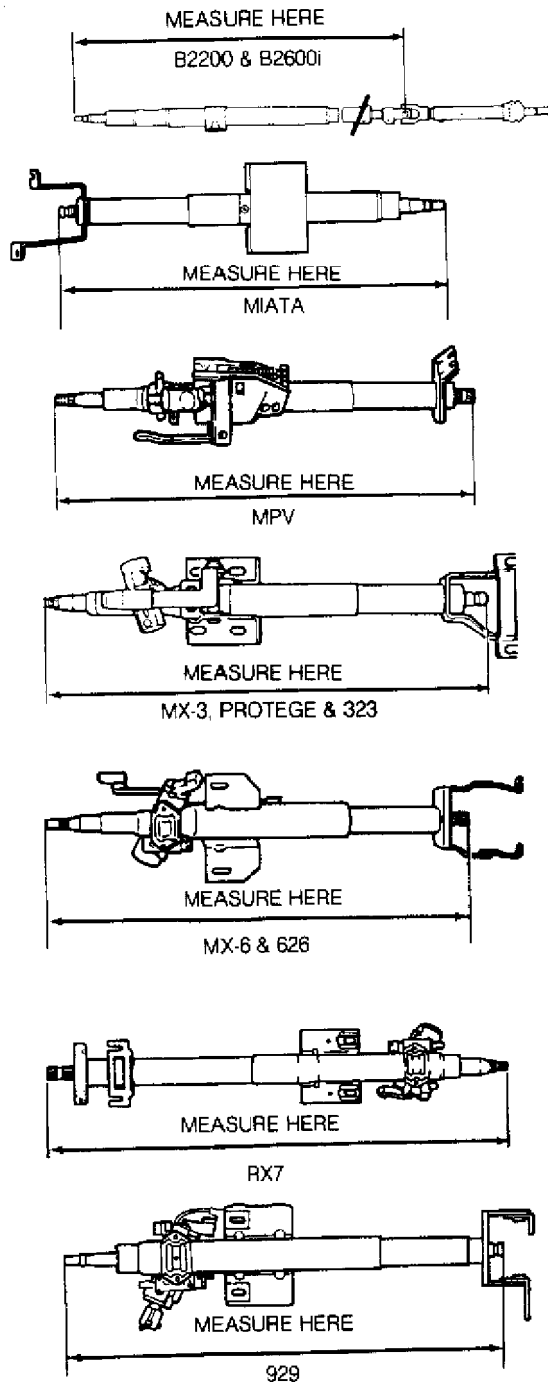
STEERING COLUMN

Article Text (p. 5)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Wednesday, August 22, 2001 07:04AM



93E83687

Fig. 3: Measuring Steering Shaft Dimensions
Courtesy of Mazda Motors Corp.

TORQUE SPECIFICATIONS

STEERING COLUMN

Article Text (p. 6)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:04AM

TORQUE SPECIFICATIONS TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	Ft. Lbs. (N.m)
-------------	----------------

Column Upper Bracket Mounting Bolts	12-17 (16-23)
-------------------------------------------	---------------

Steering Shaft Assembly-To-Firewall Nuts ...	13-20 (18-27)
----------------------------------------------	---------------

Steering Shaft "U" Joint Bolts	13-20 (18-27)
--------------------------------------	---------------

Steering Wheel Lock Nut	29-36 (39-49)
-------------------------------	---------------

INCH Lbs. (N.m)

Key Interlock Cable Bolt	35-53 (4-6)
--------------------------------	-------------

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

END OF ARTICLE

STEERING SYSTEM - POWER RACK & PINION

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:05AM

ARTICLE BEGINNING

1993 STEERING

Mazda - Power Rack & Pinion

RX7

DESCRIPTION

Steering system is a power-assisted rack and pinion. The system consists of a rack and pinion steering gear and power-assist pump/reservoir. The steering gear and pump/reservoir are connected by flexible lines.

LUBRICATION

CAPACITY

POWER STEERING FLUID CAPACITY TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	Qts. (L)
-------------	----------

RX7	1.01 (.96)
-----------	------------

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

FLUID TYPE

Dexron-II or M-III are recommended for all models.

FLUID LEVEL CHECK

Check fluid level on oil pump dipstick (if equipped) or reservoir. Fluid should be between marks on level gauge dipstick (if equipped) or reservoir. If fluid level is low, fill as necessary. Recheck fluid level. DO NOT overfill.

HYDRAULIC SYSTEM BLEEDING

1) Raise and support front of vehicle. With ignition off, turn steering wheel from lock to lock several times. Check fluid level. Add fluid as necessary. Repeat procedure until fluid level no longer decreases.

2) Start engine and operate at idle. Turn steering wheel from lock to lock 5 times. Check fluid level. Add fluid as necessary. Continue procedure until fluid is clear of air bubbles and does not decrease in level.

ADJUSTMENTS

NOTE: On-vehicle adjustment procedures are not available from manufacturer. For belt adjustment specifications, see POWER

STEERING SYSTEM - POWER RACK & PINION

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:05AM

STEERING PUMP BELT.

POWER STEERING PUMP BELT

BELT ADJUSTMENT SPECIFICATIONS TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	(1) Deflection	
	In. (mm)	
New Belt .....	.14-.15	(3.5-4.0)
Used Belt .....	.18-.19	(4.5-5.0)

(1) - Belt deflection is measured at midpoint between idler pulley and pump, with 22 lbs. (10 kg.) of pressure applied.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

TESTING

HYDRAULIC SYSTEM PRESSURE TEST

Pump Fluid Pressure Test

1) Disconnect pressure line from steering gear and steering pump. Connect pressure gauge/valve between steering pump and steering gear. See Fig. 1. Bleed air from system.

2) Completely open valve. Start engine and operate at idle. Turn steering wheel from lock to lock to increase fluid temperature to 122-140°F (50-60°C). To measure pump fluid pressure, close gauge valve completely.

3) Increase engine speed to 1000-1500 RPM. Measure oil pump fluid pressure. Ensure pump pressure is within specification. See HYDRAULIC SYSTEM FLUID PRESSURE SPECIFICATIONS table. If pressure is not within specification, replace pump.

CAUTION: DO NOT leave gauge valve closed for more than 15 seconds, or pump may be damaged.

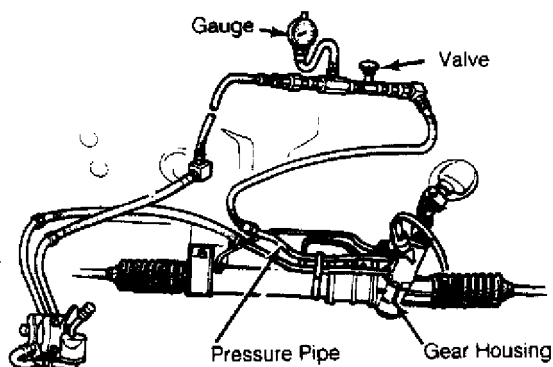


Fig. 1: Connecting Pressure Gauge/Valve
Courtesy of Mazda Motors Corp.

STEERING SYSTEM - POWER RACK & PINION

Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:05AM

Gear Fluid Pressure Test

1) Ensure steering pump pressure is within specification. To measure steering gear fluid pressure, open gauge valve completely. Increase engine speed to 1000-1500 RPM.

2) Turn steering wheel from lock to lock. Measure steering gear fluid pressure. Ensure gear pressure is within specification. See HYDRAULIC SYSTEM FLUID PRESSURE SPECIFICATIONS table. If pressure is not within specification, replace gear.

HYDRAULIC SYSTEM FLUID PRESSURE SPECIFICATIONS TABLE (1)

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	psi (kg/cm ²)
-------------	---------------------------

RX7	1110-1209 (78-85)
-----------	-------------------

(1) - Specifications are measured at 1000-1500 RPM, with fluid temperature at 122-140°F (50-60°C).

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

REMOVAL & INSTALLATION

STEERING GEAR

NOTE: Use a suitable container or rags to collect fluid when disconnecting pressure and return lines.

Removal & Installation

1) Disconnect negative battery cable. Raise and support front of vehicle. Remove front wheel assemblies. Remove engine undercover. Remove cotter pins and castle nuts from tie rod ends. Using Puller (49-0118-850C), separate tie rod ends from steering knuckles.

2) Remove stabilizer bar-to-frame bolts and brackets. Disconnect pressure and return line connections from steering gear. Remove steering column intermediate shaft-to-steering gear pinion shaft bolt. Remove steering gear mounting bolts. Support crossmember with jack and remove crossmember nuts and bolts. Slowly lower jack and remove steering gear and linkage from vehicle.

3) To install, reverse removal procedure. Tighten bolts and nuts to specification. See TORQUE SPECIFICATIONS table at the end of this article. Tighten steering gear mounting bolts in sequence: left rear, right rear, left front, right front. Fill and bleed system. Check and adjust front wheel alignment. See WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES article in the WHEEL ALIGNMENT section.

POWER STEERING PUMP

NOTE: Use a suitable container or rags to collect fluid when disconnecting pressure and return lines.

Removal & Installation

1) Remove drive belt. Remove idler pulley lock nut and remove

STEERING SYSTEM - POWER RACK & PINION

Article Text (p. 4)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:05AM

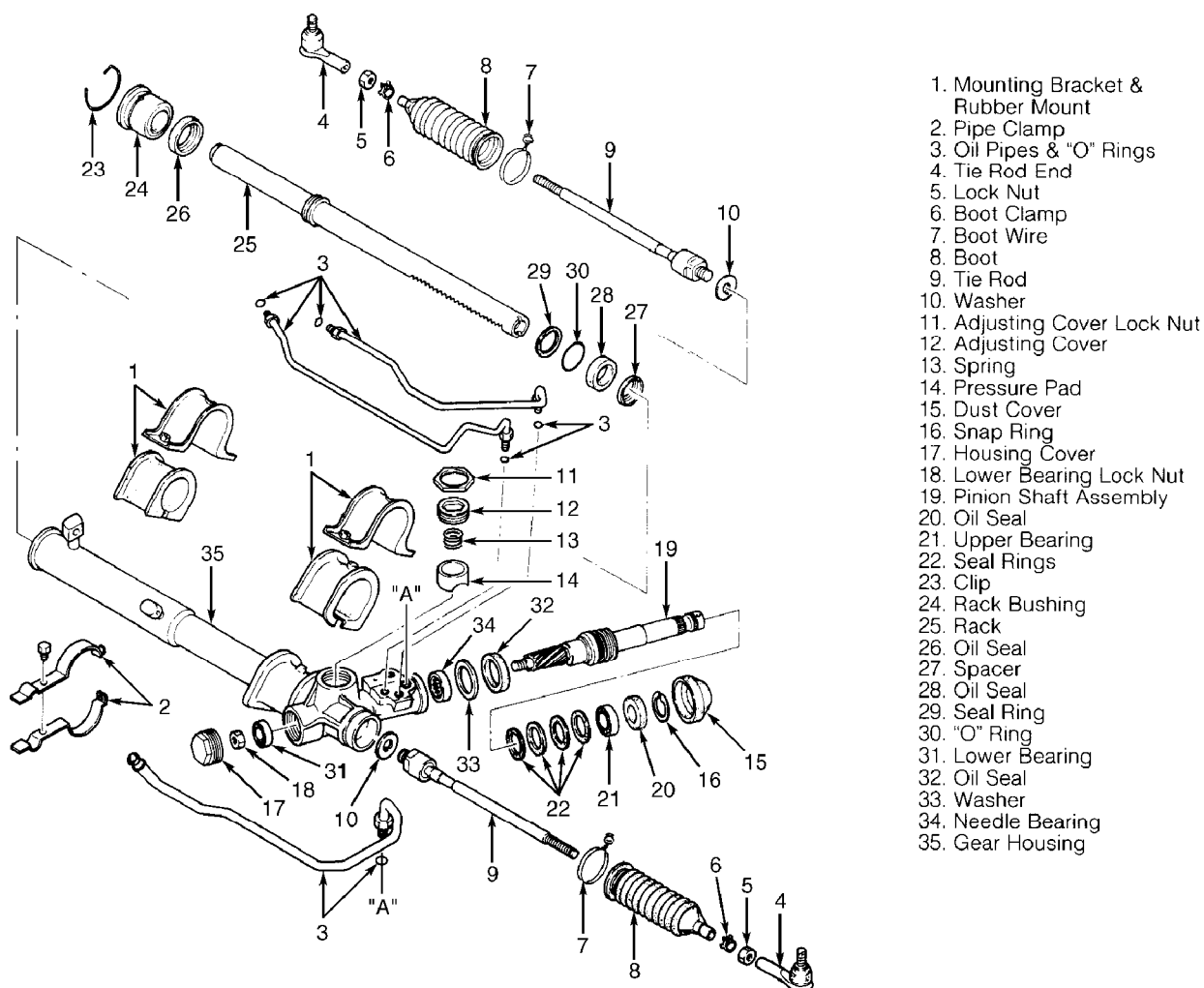
idler pulley from pump. On all models, disconnect power steering pressure switch electrical connector (if equipped). Place reference marks on steering pump and pressure line fitting for reassembly. Disconnect pressure and return line connections from steering pump. Remove pump-to-bracket bolts and nuts. Remove pump from vehicle.

2) To install, reverse removal procedure. Tighten bolts and nuts to specification. See TORQUE SPECIFICATIONS table at the end of this article. Adjust belt tension. See POWER STEERING PUMP BELT under ADJUSTMENTS. Bleed air from system. Inspect system for leaks.

OVERHAUL

STEERING GEAR

NOTE: See Fig. 2 for exploded view of rack and pinion steering gears.



93B83742

Fig. 2: Exploded View Of Rack & Pinion Steering Gear
Courtesy of Mazda Motors Corp.

STEERING SYSTEM - POWER RACK & PINION

Article Text (p. 5)

1993 Mazda RX7

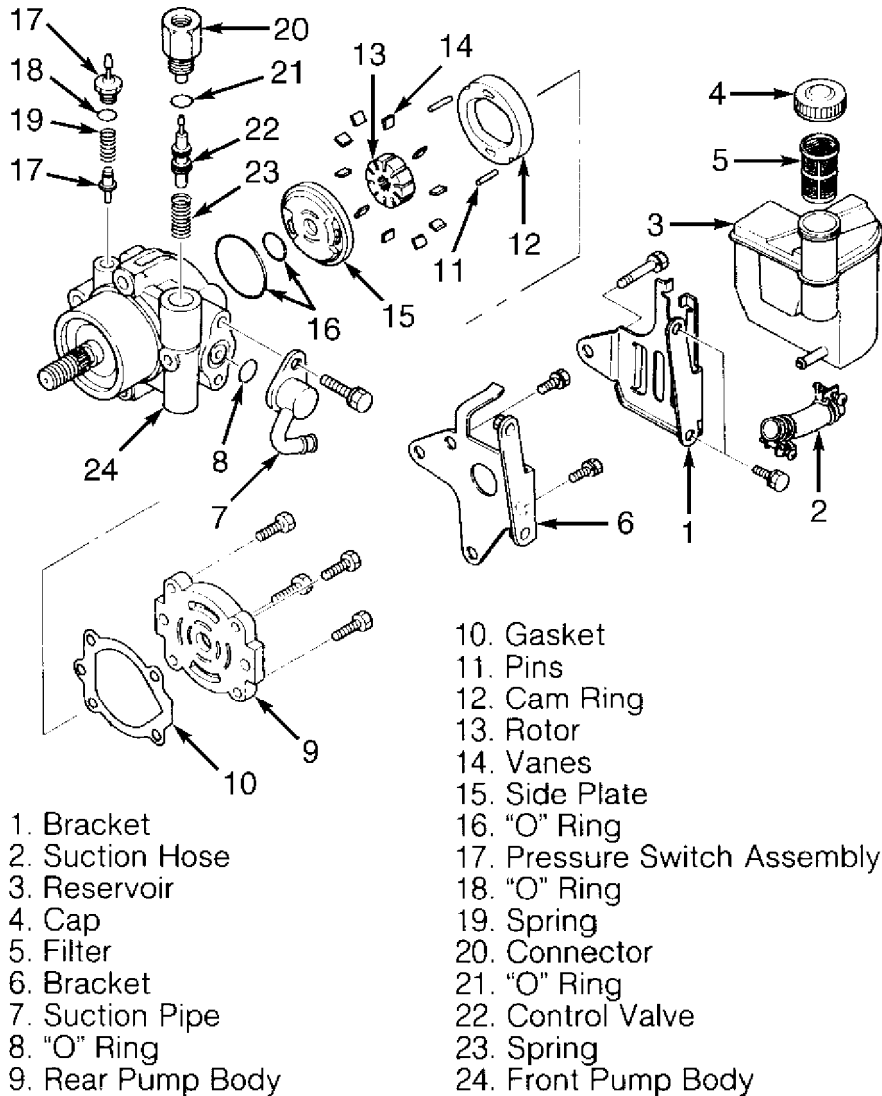
For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:05AM

POWER STEERING PUMP

NOTE: See Fig. 3 for exploded view of power steering pump.



93F83746

Fig. 3: Exploded View Of Power Steering Pump
Courtesy of Mazda Motors Corp.

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	Ft. Lbs. (N.m)
Idler Pulley Lock Nut	29-43 (39-58)
Intermediate Shaft-To-Pinion Shaft Bolt	13-19 (18-26)
Pinion Housing Lock Nut	36-51 (49-69)
Pinion Shaft Lock Nut	14-22 (19-30)

STEERING SYSTEM - POWER RACK & PINION

Article Text (p. 6)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:05AM

Power Steering Pump Mounting Bolts/Nuts	....	12-17	(16-23)
Pressure Line Fitting-To-Power	.....	17-26	(23-36)
Steering Pump			
Pressure Line Fitting-To-Steering Gear	.....	12-17	(16-23)
Steering Gear Mounting Bolts/Nuts	.....	27-38	(37-52)
Steering Rack-To-Tie Rod	.....	58-72	(79-98)
Tie Rod Castle Nuts	.....	21-32	(28-43)
Tie Rod End-To-Tie Rod Lock Nut	.....	26-36	(35-49)
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA			

END OF ARTICLE

SUSPENSION - FRONT

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Wednesday, August 22, 2001 07:05AM

ARTICLE BEGINNING

1993 SUSPENSION

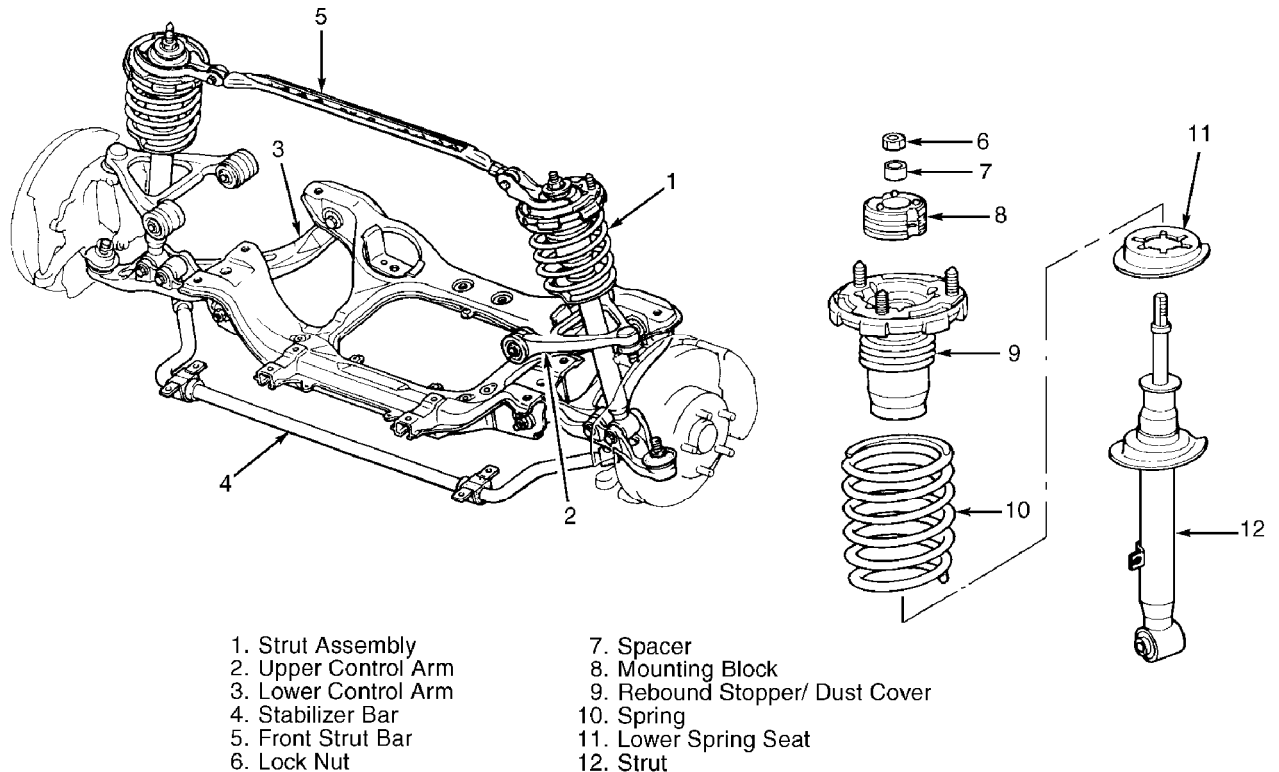
Mazda Front Suspension

RX7

DESCRIPTION

An independent front suspension with MacPherson-type struts is used on all models. RX7 uses double wishbone design upper and lower control arms with struts mounted between lower control arm and upper fender panel. See Fig. 1.

Lower control arm pivots at crossmember and is connected by ball joint to steering knuckle. All models are equipped with a stabilizer bar which attaches to each lower control arm and frame. See Fig. 1.



93A83352

Fig. 1: Identifying Front Suspension Components
Courtesy of Mazda Motors Corp.

ADJUSTMENTS & INSPECTION

WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES

NOTE: See WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES article in the WHEEL ALIGNMENT section.

SUSPENSION - FRONT

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Wednesday, August 22, 2001 07:05AM

WHEEL BEARING

Raise and support vehicle. Remove wheel assembly. Remove brake caliper and wire aside. Attach dial indicator to rotor and axle hub assembly. Measure bearing play. Check bearing axial play by rocking hub assembly by hand. Maximum axial play should be .002" (.05 mm). If play exceeds specification, check and adjust hub and bearing assembly.

BALL JOINT CHECKING

Lower Ball Joint

Remove lower control arm. Rotate ball joint stud 3-4 times. Install Preload Attachment (49-0180-510B) to ball joint stud. Measure ball joint preload using spring scale. Preload should be 1.1-3.3 lbs. (0.5-1.5 kg).

Upper Ball Joint

Remove upper control arm. Rotate ball joint stud 3-4 times. Install Preload Attachment (49-0180-510B) to ball joint stud. Measure ball joint preload using spring scale. Preload should be 0.9-2.6 lbs. (0.4-1.2 kg).

REMOVAL & INSTALLATION

NOTE: Refer to Fig. 1 during removal and installation.

WHEEL BEARING

NOTE: Replace hub and bearing assembly as a unit.

Removal

Raise and support vehicle. Remove wheel assembly. Remove brake caliper and wire aside. Remove grease cap and axle lock nut. Remove brake rotor. Remove hub and bearing assembly. Remove wheel speed sensor rotor from hub.

Inspection

Wash all disassembled components before inspection. Check for damage, excessive wear and signs of bearing seizure. Inspect steering knuckle and hub for cracks, scoring and rust. Check for damaged dust cover and poor fit with steering knuckle. Replace components as necessary.

Installation

To install, reverse removal procedure. Adjust wheel bearing preload. See WHEEL BEARING under ADJUSTMENTS & INSPECTION.

LOWER CONTROL ARM & BALL JOINT

Removal

SUSPENSION - FRONT

Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Wednesday, August 22, 2001 07:05AM

1) Raise and support vehicle. Remove wheel assembly. Remove engine splash shield (if equipped). Remove brake caliper and wire aside (as necessary). Remove compression rod or tension rod (if equipped). Separate tie rod end from knuckle (as necessary). Remove stabilizer bar from lower control arm.

2) Remove strut lower mounting bolt and separate lower strut from lower control arm or knuckle. Remove lower control arm ball joint cotter pin and nut. Separate lower control arm ball joint stud from knuckle. Remove lower control arm pivot bolts and remove lower control arm.

Inspection

Check lower control arm for damage or cracks. Check bushings for deterioration and excessive wear. Check ball joint for excessive wear. Examine dust boot for damage. Replace components as necessary.

Bushing Replacement

Cut away front bushing inner collar. Using a vise and Remover/Installer (49-F034-2A0), push out front bushing. Press out rear bushing using Remover/Installer (49-F034-2A0). To install front bushing, apply soapy water to bushing and use remover/installer to press in. Always install bushing from outer side of arm. Press in bushing until collar contacts arm. To install rear bushing, align arrows on bushing with marks on lower arm and use remover/installer to press in.

Installation

To install, reverse removal procedure. Tighten lower control arm-to-frame bolts to specification with vehicle resting on ground and suspension unloaded. See TORQUE SPECIFICATIONS table at the end of this article.

UPPER CONTROL ARM & BALL JOINT

Removal

Raise and support vehicle. Remove wheel assembly. Disconnect brake line from strut assembly. Remove wheel speed sensor harness band. Remove strut lower mounting bolt and separate lower strut from lower control arm. Remove upper control arm ball joint bolt. Separate upper control arm ball joint stud from knuckle. Remove upper control arm pivot bolts and remove upper control arm.

Inspection

Check upper control arm for damage or cracks. Check bushings for deterioration and excessive wear. Check ball joint for excessive wear. Examine dust boot for damage. Replace components as necessary.

Bushing Replacement

Cut away front and rear bushing inner collars. Using a vise and Remover/Installer (49-F034-2A0), push out front and rear bushings. To install front and rear bushings, apply soapy water to bushings and use remover/installer to press in. Always install bushings from outer

SUSPENSION - FRONT

Article Text (p. 4)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Wednesday, August 22, 2001 07:05AM

side of arm. Press in bushings until collar contacts arm.

Installation

To install, reverse removal procedure. Tighten upper control arm pivot bolts to specification with vehicle resting on ground and suspension unloaded. See TORQUE SPECIFICATIONS table at the end of this article.

STRUT ASSEMBLY

Removal

Raise and support vehicle. Remove wheel assembly. Disconnect brake line from strut assembly. Remove wheel speed sensor harness band and sensor. Remove upper control arm pivot bolts. Remove cap, nut and rubber stopper from upper strut. Remove strut upper mount nuts and remove strut plate. Remove insulator from upper strut. Remove strut lower bolt. Move upper control arm just enough to remove strut assembly.

NOTE: Prior to removing strut-to-steering knuckle bolts, make an alignment mark for reassembly reference. Note position of mounting mark on top of strut assembly before removing strut.

Disassembly

Clamp upper strut mount in vise. Loosen piston lock nut 2 turns only. Compress coil spring using coil spring compressor. Remove piston lock nut. Slowly release compressor tension. Remove components. Remove coil spring. Remove strut from vise.

Inspection

Check strut tube for damage, oil leakage and abnormal noise. Check rubber components for deterioration or damage. Inspect coil spring for signs of fatigue or damage. Replace components as necessary.

Reassembly

Clamp strut in vise. Install coil spring and components in reverse order of disassembly. Ensure coil spring is well seated in upper and lower spring seats.

Installation

To install, reverse removal procedure. Fully tighten all bolts with vehicle resting on ground and suspension unloaded. See TORQUE SPECIFICATIONS table at the end of this article. For checks and adjustments, see WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES article in the WHEEL ALIGNMENT section.

STABILIZER BAR

Removal & Installation

1) Raise and support vehicle. Remove engine splash shield (if equipped). Remove mounting hardware and stabilizer bar. Note position

SUSPENSION - FRONT

Article Text (p. 5)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Wednesday, August 22, 2001 07:05AM

of frame bushing seam.

2) Remove steering gear mounting bracket nuts and remove steering gear. Support crossmember with jack and remove bolts and nuts. Slowly lower crossmember and remove stabilizer bar. On all models, inspect all components for wear, bends or damage. Replace components as necessary.

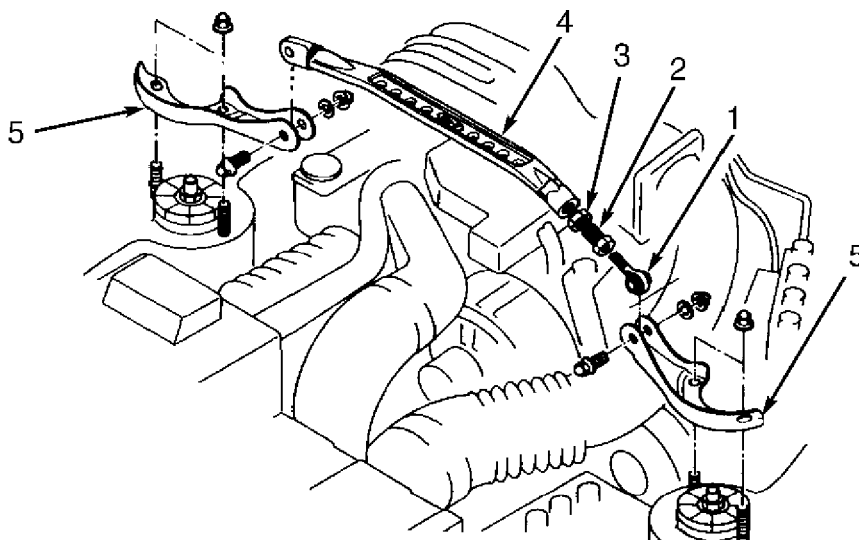
3) To install, reverse removal procedure. Ensure frame bushing is aligned with White line on stabilizer bar. Ensure seam faces front of vehicle. Fully tighten all bolts with vehicle resting on ground and suspension unloaded. See TORQUE SPECIFICATIONS table at the end of this article.

FRONT STRUT BAR

Removal & Installation

1) Strut bar is located in engine compartment mounted on top of strut assembly. See Fig. 2. Remove nut, washer and bolt retaining strut bar to strut plate. Remove strut bar from vehicle. Loosen lock nut and remove joint "A" and joint "B" from strut bar.

2) To install, reverse removal procedure. Rotate joint "B" counterclockwise to 3.5-5.2 INCH lbs. (.4-.6 N.m) to set tension. Tighten lock nut to 87-121 INCH lbs. (10-14 N.m). Tighten strut bar-to-strut plate nut. See TORQUE SPECIFICATIONS table at the end of this article.



1. Joint "A"

2. Joint "B"

3. Lock Nut

4. Strut Bar

5. Strut Plate

93E83455

Fig. 2: Removing Front Strut Bar
Courtesy of Mazda Motors Corp.

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS TABLE

SUSPENSION - FRONT

Article Text (p. 6)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:05AM

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application	Ft. Lbs. (N.m)
-------------	----------------

Brake Caliper Bracket Bolts	58-72 (78-98)
Drive Axle Lock Nut	130-175 (177-235)
Front Strut Bar-To-Strut Plate Nut	24-33 (32-46)
Lower Ball Joint-To-Knuckle Nut	58-80 (78-108)
Lower Control Arm-To-Frame Bolt/Nut	69-86 (93-117)
Stabilizer Bar Bracket-To-Frame Bolts	13-19 (18-26)
Stabilizer Bar-To-Stabilizer Link Nut	27-40 (36-54)
Stabilizer Link-To-Lower Control Arm Nut	44-54 (59-73)
Strut Assembly Lock Nut	12-17 (16-23)
Strut Assembly-To-Body Nuts (Strut Plate)	34-46 (46-63)
Strut Assembly-To-Body Shaft Nut	24-33 (32-46)
Strut Assembly-To-Lower Control Arm Bolt	69-86 (93-117)
Tie Rod-To-Knuckle Nut	22-32 (30-44)
Upper Ball Joint-To-Knuckle Bolt	27-39 (37-53)
Upper Control Arm Pivot Bolt/Nut	44-54 (59-73)
Wheel Lug Nuts	65-87 (88-118)
Wheel Speed Sensor Bolt	12-17 (16-23)

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

END OF ARTICLE

SUSPENSION - REAR

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Wednesday, August 22, 2001 07:06AM

ARTICLE BEGINNING

1993 SUSPENSION

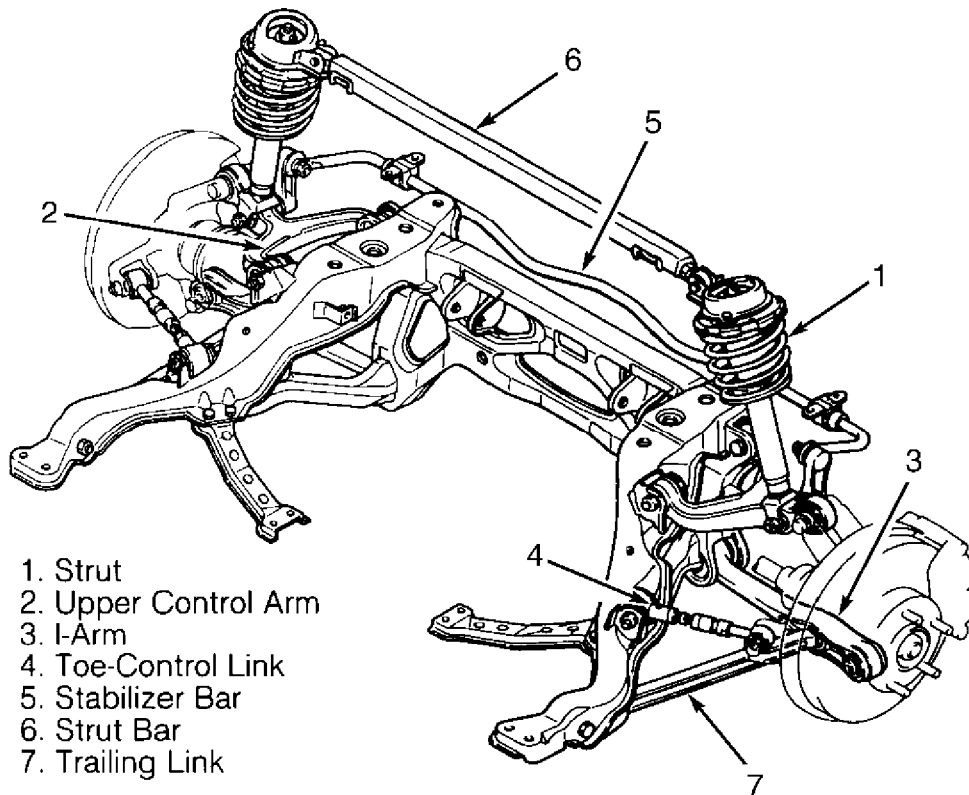
Mazda Rear

RX7

DESCRIPTION

Rear suspension consists of MacPherson type struts, double wishbone design upper control arm, I-arm, trailing link and toe-control link. A stabilizer bar with stabilizer link mounts to frame and upper control arms. A rear strut bar is mounted between tops of each strut assembly.

Upper control arm and "I"-arm mount to crossmember and knuckle/hub assembly. Trailing link mounts to "I"-arm and crossmember. Toe-control link mounts to crossmember and knuckle/hub assembly. Rear wheel camber alignment is adjusted using bolt and cam plate on upper control arm, and toe-in is adjusted using toe-control link. See Fig. 1.



93I83533

Fig. 1: Identifying Rear Suspension Components
Courtesy of Mazda Motors Corp.

ADJUSTMENTS & INSPECTION

SUSPENSION - REAR

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Wednesday, August 22, 2001 07:06AM

WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES

NOTE: See WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES article in the WHEEL ALIGNMENT section.

WHEEL BEARING

Raise and support vehicle. Remove wheel assembly. Remove brake caliper and wire aside. Remove brake rotor. Attach dial indicator to axle hub and measure bearing play. Check bearing axial play by rocking hub assembly by hand. Maximum axial play should be .002" (.05 mm). If axial play exceeds specification, check drive axle lock nut torque or replace wheel bearing.

REMOVAL & INSTALLATION

WHEEL BEARING

Removal

1) Raise and support vehicle. Remove wheel assembly. Remove drive axle lock nut. Remove brake caliper and wire aside. Remove brake rotor. Disconnect ABS speed sensor. Remove I-arm-to-knuckle/hub bolt. Remove toe-control link-to-knuckle/hub bolt. Remove upper control arm-to-knuckle/hub bolt. Remove knuckle/hub assembly from vehicle.

2) Using Handle (49-G033-102), Attachment (49-G033-105) and Puller (49-F026-103), remove hub from knuckle. Remove snap ring from knuckle. If bearing race remains on hub, grind race until approximately .02" (.50 mm) thick and remove using chisel. Using Attachment (49-F027-005) and Support Block (49-H034-201), remove wheel bearing from hub.

Inspection

Check wheel hub and knuckle for cracks and damage. Check backing plate for deformation. Check bearing for excessive wear and seizure.

Installation

Press NEW wheel bearing into knuckle using Attachment (49-F027-004) and Support Block (49-H034-201). Press hub into knuckle using Adapter (49-F027-005). To install, reverse removal procedure. Perform final tightening of trailing link with vehicle resting on ground and suspension unloaded. Tighten drive axle lock nut to specification. See TORQUE SPECIFICATIONS table at the end of this article. Stake drive axle lock nut. Check axial play. See WHEEL BEARING under ADJUSTMENTS & INSPECTION.

STRUT ASSEMBLY

Removal & Disassembly

1) Raise and support vehicle. Remove wheel assembly. Remove stabilizer link-to-upper control arm nut. Remove stabilizer link from

SUSPENSION - REAR

Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Wednesday, August 22, 2001 07:06AM

upper control arm. Separate lower strut from upper control arm. Remove suspension tower cover from top of rear strut bar located in rear hatch compartment. Remove rear strut bar from top of strut assembly.

2) Remove upper strut assembly-to-body nut and rubber stopper. Remove strut assembly and gasket. Clamp strut securely in soft-jawed vise. Loosen upper strut shaft nut several turns, but DO NOT remove nut. Compress coil spring, then remove nut. Remove remaining components, noting order for reassembly reference.

Inspection

Check strut tube for damage, oil leakage and abnormal noise. Check rubber components for deterioration or damage. Inspect coil spring for signs of fatigue or damage. Replace components as necessary.

Reassembly & Installation

To reassemble, reverse disassembly procedure. Ensure coil spring is seated in lower seat. To install, reverse removal procedure. Ensure paint mark on lower strut mount faces rearward. Tighten nuts to specification. See TORQUE SPECIFICATIONS table at the end of this article. Check rear wheel alignment. See appropriate WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES article in the WHEEL ALIGNMENT section.

UPPER CONTROL ARM

Removal

Raise and support vehicle. Remove wheel assembly. Remove stabilizer link-to-upper control arm nut. Remove stabilizer link from upper control arm. Separate lower strut from upper control arm. Remove upper control arm-to-crossmember nuts and bolts. Remove upper control arm-to-knuckle/hub assembly nut and bolt. Remove upper control arm.

Inspection

Inspect upper control arm for cracks and deformation. Check bushings for damage and excessive wear. Check pillow ball for excessive play. Replace components as necessary.

Bushing Replacement

Mount upper control arm in a soft-jawed vise. Remove old bushings using components from Bushing Replacer Set (49-F034-2A0). To install, apply soapy water to NEW bushings. Using components from Bushing Replacer Set (49-F034-2A0), install NEW bushings into upper control arm.

Pillow Ball Replacement

1) Mount upper control arm in a soft-jawed vise. Using screwdriver, remove rubber seals. Remove snap ring. Remove pillow ball using components from Bushing Replacer Set (49-F034-2A0). To install, coat diameter of NEW pillow ball with multipurpose grease.

2) Using components from Bushing Replacer Set (49-F034-2A0), install NEW pillow ball into upper control arm. Ensure step side of

SUSPENSION - REAR

Article Text (p. 4)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:06AM

pillow ball is facing into upper control arm. Install snap ring. Fill space between pillow ball and rubber seals with grease. Install rubber seals into upper control arm.

Installation

To install, reverse removal procedure. Tighten nuts and bolts to specification. See TORQUE SPECIFICATIONS table at the end of this article. Check rear wheel alignment. See in the appropriate WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES article in the WHEEL ALIGNMENT section.

TRAILING LINK & I-ARM

Removal

Raise and support vehicle. Remove wheel assembly. Remove trailing link-to-"I"-arm bolt. Remove trailing link-to-crossmember bolt and nut. Remove trailing link. Mark cam plate-to-crossmember position for installation reference. Remove I-arm-to-crossmember cam bolt, cam plate and nut. Remove I-arm-to-knuckle/hub assembly bolt and nut. Remove I-arm.

Inspection

Inspect trailing link and "I"-arm for cracks and deformation. Check bushings for damage and excessive wear. Check pillow balls for excessive play. Replace components as necessary.

Bushing Replacement (I-Arm)

Mount "I"-arm in a soft-jawed vise. Carefully cut away outer flange of bushing. Remove old bushing using components from Bushing Replacer Set (49-F034-2A0). To install, apply soapy water to NEW bushing. Using components from Bushing Replacer Set (49-F034-2A0), install NEW bushing into I-arm.

Bushing Replacement (Trailing Link)

Mount trailing link in a soft-jawed vise. Remove old bushing using components from Bushing Replacer Set (49-F034-2A0). To install, apply soapy water to NEW bushing. Using components from Bushing Replacer Set (49-F034-2A0), install NEW bushing into trailing link.

Pillow Ball Replacement

1) Mount "I"-arm in a soft-jawed vise. Using screwdriver, remove rubber seals. Remove snap rings. Remove pillow balls using components from Bushing Replacer Set (49-F034-2A0). To install, coat diameter of NEW pillow balls with multipurpose grease.

2) Using components from Bushing Replacer Set (49-F034-2A0), install NEW pillow balls into I-arm. Ensure step side of pillow ball is facing into I-arm. Install snap rings. Fill space between pillow ball and rubber seals with grease. Install rubber seals into I-arm.

Installation

To install, reverse removal procedure. Perform final tightening of trailing link with vehicle resting on ground

SUSPENSION - REAR

Article Text (p. 5)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Wednesday, August 22, 2001 07:06AM

and suspension unloaded. See TORQUE SPECIFICATIONS table at the end of this article. Check rear wheel alignment. See WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES article in the WHEEL ALIGNMENT section.

TOE-CONTROL LINK

Removal

Raise and support vehicle. Remove wheel assembly. Remove ABS speed sensor harness bracket from toe-control link. Remove toe-control link-to-crossmember bolt and nut. Remove toe-control link-to-knuckle/hub assembly bolt and nut. Remove toe-control link.

Inspection

Inspect toe-control link for cracks and deformation. Check bushings for damage and excessive wear. Replace components as necessary.

Installation

To install, reverse removal procedure. Ensure paint mark on toe-control link faces upward after installation. Tighten nuts and bolts to specification. See TORQUE SPECIFICATIONS table at the end of this article. Check rear wheel alignment. See appropriate WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES article in the WHEEL ALIGNMENT section.

STABILIZER BAR & LINK

Removal & Installation

1) Raise and support vehicle. Remove wheel assembly. Remove stabilizer link-to-upper control arm nut. Remove stabilizer bar-to-frame mounting bolts and brackets. Remove stabilizer bar from vehicle. Remove stabilizer bar-to-stabilizer link nut. Separate stabilizer link from stabilizer bar.

2) To install, reverse removal procedure. Ensure bushing is aligned with stopper or White paint mark on stabilizer bar. Check marks on stabilizer links and ensure stabilizer links are installed on correct side of stabilizer bar. Tighten nuts and bolts to specification. See TORQUE SPECIFICATIONS table at the end of this article.

REAR STRUT BAR

Removal

Remove suspension tower cover from top of rear strut bar located in rear hatch compartment. Remove nuts retaining strut plate to upper strut assembly. Remove rear strut bar assembly from vehicle. Remove strut plate-to-strut bar bolt, nut and washer. Loosen lock nut and remove joint "A", nut and washer from strut bar. Inspect strut bar for bends or damage.

Installation

SUSPENSION - REAR

Article Text (p. 6)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:06AM

To install, reverse removal procedure. Install joint "A" onto strut bar and tighten lock nut to 87-121 INCH lbs. (10-14 N.m). Tighten strut bar-to-strut plate nut and strut plate-to-upper strut assembly nut. See TORQUE SPECIFICATIONS table at the end of this article.

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS TABLE

Application		Ft. Lbs. (N.m)
ABS Speed Sensor Bolt	.....	14-18 (19-24)
ABS Speed Sensor Bracket Bolt	.....	14-18 (19-24)
Brake Caliper Bolts	.....	34-49 (46-66)
Drive Axle Lock Nut	.....	174-231 (235-313)
I-Arm-To-Crossmember Pivot Bolt/Nut	.....	69-86 (93-117)
I-Arm-To-Knuckle/Hub Bolt/Nut	.....	44-54 (59-73)
Rear Strut Bar-To-Strut Plate Bolt/Nut	.....	14-19 (19-26)
Stabilizer Bar Bracket-To-Frame Bolts	.....	14-19 (19-26)
Stabilizer Bar-To-Stabilizer Link Nut	.....	40-56 (54-76)
Stabilizer Link-To-Upper Control Arm Nut	.....	69-81 (93-110)
Strut Assembly-To-Body Nuts (Strut Plate)	.....	34-46 (46-63)
Strut Assembly-To-Body Shaft Nut	.....	24-33 (33-45)
Strut Piston Rod Lock Nut	.....	12-17 (16-23)
Toe-Control Link-To-Crossmember Bolt/Nut	.....	44-54 (59-73)
Toe-Control Link-To-Knuckle/Hub Bolt/Nut	.....	48-57 (65-77)
Trailing Link-To-Crossmember Bolt/Nut	.....	69-86 (93-117)
Trailing Link-To-"I"-arm Bolt	.....	44-54 (59-73)
Upper Control Arm-To-Crossmember Pivot Bolt/Nut	.....	44-54 (59-73)
Upper Control Arm-To-Knuckle/Hub Bolt/Nut	.....	44-54 (59-73)
Wheel Lug Nuts	.....	65-87 (88-118)

END OF ARTICLE

JACKING & HOISTING

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Wednesday, August 22, 2001 07:06AM

ARTICLE BEGINNING

1993 WHEEL ALIGNMENT
Mazda Jacking & Hoisting

RX7

* PLEASE READ THIS FIRST *

NOTE: Prior to performing wheel alignment, perform preliminary visual and mechanical inspection of wheels, tires and suspension components. See PRE-ALIGNMENT INSTRUCTIONS in WHEEL ALIGNMENT THEORY/OPERATION article in the GENERAL INFORMATION section.

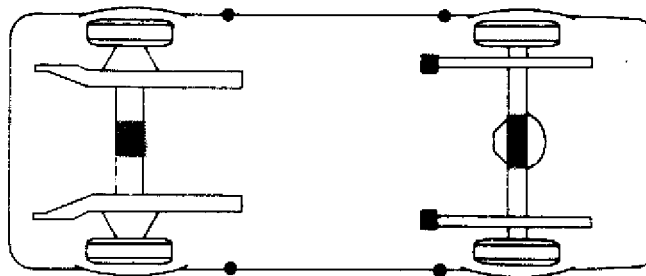
JACKING & HOISTING

NOTE: Illustrations are not intended to represent exact structure of each vehicle's frame, underbody or body outline. They are presented only to give a point of reference.

FLOOR JACK & HOIST

Following illustrations indicate areas (parts) of underbody and frame which may be used to raise and support vehicle using either floor jack or hoist. These points are indicated by shaded areas on frame. See Fig. 1.

CAUTION: DO NOT interfere with shock absorber mounting brackets or stabilizer bar mounting brackets.



MAZDA RX7

Fig. 1: Identifying Jacking & Hoisting Points (RX7)
Courtesy of Mazda Motors Corp.

EMERGENCY JACKING

Points designated on outline of body were specifically designed to facilitate use of vehicle's own jack. Jacking points are indicated by circular dots on outline of body. See Fig. 1.

If using floor jack or hoist, use extreme care to avoid

JACKING & HOISTING

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Wednesday, August 22, 2001 07:06AM

damaging outer body shell.

END OF ARTICLE

PRE-ALIGNMENT CHECKS

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Wednesday, August 22, 2001 07:06AM

ARTICLE BEGINNING

Wheel Alignment

PRE-ALIGNMENT INSPECTION PROCEDURES

PRE-ALIGNMENT CHECKS

Before making wheel alignment adjustment, perform the following checks:

- 1) Tires should be equal in size and runout must not be excessive. Tires and wheels should be in balance, and inflated to manufacturer's specifications.
- 2) Wheel bearings must be properly adjusted. Steering linkage and suspension must not have excessive looseness. Check for wear in tie rod ends and ball joints.
- 3) Steering gear box must not have excessive play. Check and adjust to manufacturer's specifications.
- 4) Vehicle must be at curb height with full fuel load and spare tire in vehicle. No extra load should be on vehicle.
- 5) Vehicle must be level with floor and with suspension settled. Jounce front and rear of vehicle several times and allow it to settle to normal curb height.
- 6) If steering wheel is not centered with front wheels in straight-ahead position, correct by shortening one tie rod adjusting sleeve and lengthening opposite sleeve equal amounts.
- 7) Ensure wheel lug nuts are tightened to torque specifications.

END OF ARTICLE

RIDING HEIGHT ADJUSTMENT

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Wednesday, August 22, 2001 07:07AM

ARTICLE BEGINNING

1993 WHEEL ALIGNMENT

Mazda Ride Height Adjustment

All Models Except Navajo and MPV

* PLEASE READ THIS FIRST *

NOTE: Prior to performing wheel alignment, perform preliminary visual and mechanical inspection of wheels, tires and suspension components. See PRE-ALIGNMENT INSTRUCTIONS in WHEEL ALIGNMENT THEORY/OPERATION article in the GENERAL INFORMATION section.

RIDE HEIGHT ADJUSTMENT

NOTE: Ride height specifications are not available. Specifications are given for side-to-side or front-to-rear height tolerance. If vehicle is not within side-to-side or front-to-rear specifications replace damaged or worn components as necessary.

NOTE: On vehicles with electronic chassis controls, all systems should be functional before attempting ride height or wheel alignment adjustment.

Before adjusting alignment, check ride height. Ride height must be checked with vehicle on level floor and tires properly inflated. Bounce vehicle several times and allow suspension to settle.

Visually inspect vehicle for signs of abnormal height from front to rear or side to side. Remove any extra heavy items from passenger and luggage compartments. Measure from center of wheel to lip of wheel arch. Refer to RIDE HEIGHT SPECIFICATIONS table.

RIDE HEIGHT SPECIFICATIONS TABLE

Application				Front		Rear	
				In. (mm)		In. (mm)	
All Models	(1)	(2)	(3)	.....	.39 (10)	.....	.39 (10)

(1) - Allowable difference in height from left to right side.

(2) - On Miata, allowable difference in height from front to rear is .93" (30.0 mm).

(3) - On RX7, allowable difference in height from front to rear is .59" (15.0 mm).

END OF ARTICLE

WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Wednesday, August 22, 2001 07:07AM

ARTICLE BEGINNING

1993 WHEEL ALIGNMENT
Mazda Specifications & Procedures

RX7

NOTE: Prior to performing wheel alignment, perform preliminary visual and mechanical inspection of wheels, tires and suspension components. See PRE-ALIGNMENT INSTRUCTIONS in WHEEL ALIGNMENT THEORY/OPERATION article in the GENERAL INFORMATION section.

WHEEL ALIGNMENT PROCEDURES

CAMBER ADJUSTMENT (FRONT)

1) Camber is adjusted by turning front and rear adjusting cam bolts at lower control arm. Loosen left and right cam adjusting lock nuts. To increase camber on left side, turn front cam counterclockwise or rear cam clockwise. To decrease camber on left side, turn front cam clockwise or rear cam counterclockwise.

2) To increase camber on right side, turn front cam clockwise or rear cam counterclockwise. To decrease camber on right side, turn front cam counterclockwise or rear cam clockwise. Tighten lock nuts to specification. See TORQUE SPECIFICATIONS table at the end of this article.

CAMBER ADJUSTMENT (REAR)

1) Camber is adjusted by turning adjusting cam bolt at I-arm. Loosen left and right cam adjusting lock nuts. To increase camber on left side, turn cam clockwise. To decrease camber on left side, turn cam counterclockwise.

2) To increase camber on right side, turn cam counterclockwise. To decrease camber on right side, turn cam clockwise. Tighten lock nuts to specification. See TORQUE SPECIFICATIONS table at the end of this article.

CASTER ADJUSTMENT

1) Caster is adjusted by turning front and/or rear adjusting cam bolts at lower control arm. Loosen left and right cam adjusting lock nuts. To increase caster on left side, turn front and/or rear cam counterclockwise. To decrease caster on left side, turn front and/or rear cam clockwise.

2) To increase caster on right side, turn front and/or rear cam clockwise. To decrease caster on right side, turn front and/or rear cam counterclockwise. Tighten lock nuts to specification. See TORQUE SPECIFICATIONS table at the end of this article.

TOE-IN ADJUSTMENT (FRONT)

WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:07AM

NOTE: Both left and right tie rods have right-hand threads. To increase toe-in, turn right tie rod toward front of vehicle and turn left tie rod same amount toward rear of vehicle.

Loosen left and right tie rod lock nuts. Turn left and right tie rod sleeves by equal amounts until toe-in is within specification.

TOE-IN ADJUSTMENT (REAR)

1) Loosen left and right tie rod lock nuts or lateral link lock nuts. Turn left and right tie rod sleeves or lateral link adjustment link until toe-in is within specification.

2) Loosen left and right adjusting cam lock nuts. To increase toe-in on left side, turn front and/or rear cam counterclockwise. To decrease toe-in on left side, turn front and/or rear cam clockwise.

3) To increase toe-in on right side, turn front and/or rear cam clockwise. To decrease toe-in on right side, turn front and/or rear cam counterclockwise. Tighten lock nuts to specification. See TORQUE SPECIFICATIONS table at the end of this article.

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS TABLE

Application Ft. Lbs. (N.m)

RX7
Adjusting Cam Lock Nut 69-86 (94-117)
Tie Rod Lock Nut (Front) 23-36 (31-49)
Toe Control Link Nut (Rear) 41-47 (56-63)
Wheel Lug Nut 65-87 (88-118)

WHEEL ALIGNMENT SPECIFICATIONS

WHEEL ALIGNMENT SPECIFICATIONS TABLE

Application Preferred Range

RX7
Camber (1)
Front 0.10 -0.65 To 0.85
Rear -1.22 -1.97 To 0.47
Caster (1) 6.08 5.08 To 7.08
Toe-In (2)
Front 0.04 (1.0) .. -0.07 To 0.15 (-2.0 To 4.0)
Rear 0.08 (2.0) .. -0.03 To 0.19 (-1.0 To 5.0)
Toe-In (1)
Front 0.10 -0.17 To 0.37
Rear 0.17 -0.10 To 0.43
Toe-Out On Turns (1)

WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES

Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:07AM

Inner	.....	36	.....	.....
Outer	.....	32	.....	.....
Steering Axis				
Inclination (SAI) (1)	.....	13.92	.....	.....

(1) - Measurement in degrees.

(2) - Measurement in inches (mm).

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

END OF ARTICLE

A/T - NO START AFTER HEAT SOAK:WIRE LENGTH INCREASED CAT. G, NO. 001/93

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:19PM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

NO START AFTER HEAT SOAK

Model(s): 1993 Mazda RX-7 (A/T) with a VIN of JM1FD3***P0200001 through JM1FD3***P0210498

Category: "G" Engine Electrical

Bulletin No.: 001/93

Date: 7/2/93

DESCRIPTION

Hard restart after running the vehicle at high speeds on hot days. Vehicle restarts easily after engine compartment cools down. This hard start condition is caused when heat from the engine increases the electrical resistance in the starter wire. This decreases the amount current received at the "S" terminal on the starter. To correct this problem, the starter harness length has been changed and the amount of current applied to the "S" terminal during starting increased.

REPAIR PROCEDURE

If the condition exists, install the countermeasure starter wire harness.

1. Disconnect the vehicle battery.
2. Raise the vehicle on a hoist or raise the front end with ramps.
3. Disconnect the connectors at the starter.

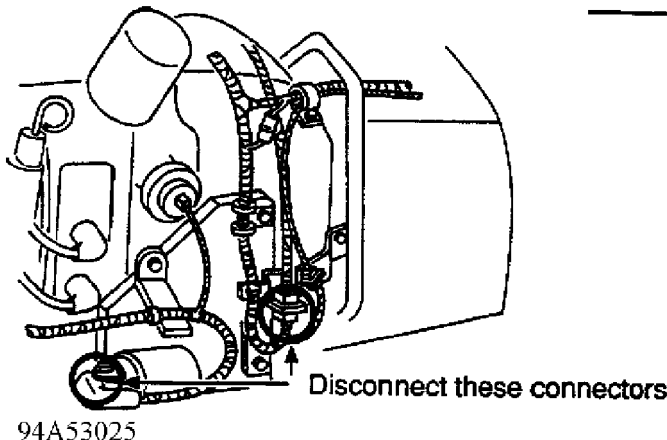
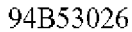
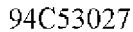


Fig. 1: Disconnecting Starter Solenoid Connectors

4. Connect countermeasure harness FDY1 67 SH0 as shown in Fig. 2.



5. Tape off OEM starter solenoid wire. Secure countermeasure harness with 4 tie-wraps E018 67C92, see Fig. 3. Confirm there is no interference between the brake and fuel lines.



Part Number	Description	Qty.
FDY1 67 SH0	Starter Wire Harness	1
E018 67 C92	Tie-Wrap	4

Warranty Type Code: A
Customer Comment Code: 02

A/T - NO START AFTER HEAT SOAK:WIRE LENGTH INCREASED CAT. G, NO. 001/93

Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:19PM

Damage Code:	99
Part No. of Main Cause:	FDY1 67 SH0
Operation No.:	XX0568RX
Labor Hours:	0.4 Hrs.

END OF ARTICLE

AIR CONDITION MALFUNCTION - HAZARD SWITCH CONTACTS CAT. U, NO. 95-09

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:20PM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

AIR CONDITIONING MALFUNCTION

Model(s): 1993-95 Mazda RX-7 (Canadian)
Category: U - Heater & Air Conditioning
Bulletin No.: 95-09
Date: August 1995

APPLICABLE MODELS/VINS

All 1993-95 RX-7 vehicles with a VIN of JM1FD333*S0400026 and lower.

DESCRIPTION

Either of the following conditions may occur when the air conditioning system is operated:

- * No compressor engagement when A/C is switched on.
- * Air flow mode switch fixed in defrost position.

These conditions may be caused by insufficient contact at the hazard switch connector (1994-95 - G-06, 1993 - G-01). See Fig. 1

NOTE: The hazard switch harness also contains the A/C control connector.

This improper connection does not affect the hazard switch operation.

Changes in the production process have eliminated this problem. Customers complaining of the above symptoms should have the problem verified and if necessary, corrected.

REPAIR PROCEDURE

1. Verify the complaint.
2. Remove the control panel and the heater control unit. See Fig. 1. Refer to section G of the BETM for removal instructions.

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:20PM

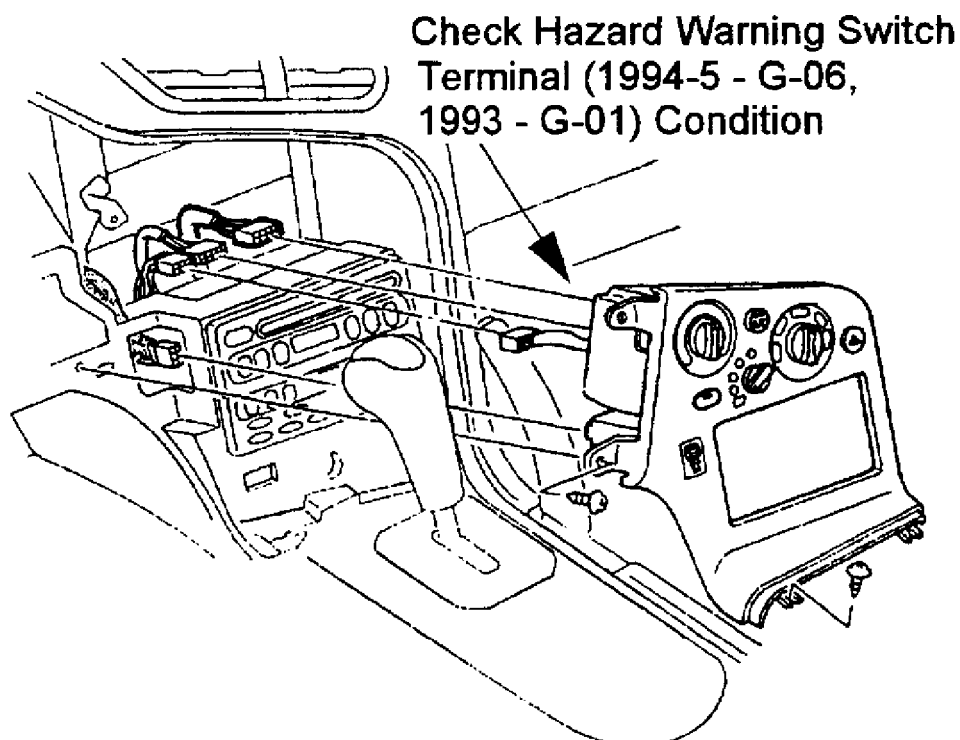


Fig. 1: Removing Control Panel/Heater Control Unit

3. Check the hazard warning switch terminals. Refer to information in the TERMINAL CONNECTION EXAMPLES for problem examples.

- * If the female terminals are damaged (expanded), remove the switch from the A/C control unit and replace it with a new part.
- * If the terminals are normal, re-assemble and test. If problems still exist, refer to the BETM or workshop manual for troubleshooting information.

CAUTION: Avoid damage to pins by inserting the connectors straight. Refer to TERMINAL CONNECTION EXAMPLES.

TERMINAL CONNECTION EXAMPLES

MALE CONNECTORS

1. Hold the housing when connecting and disconnecting.

2. To avoid connector pin damage:

- * align the connector and housing at the appropriate angle.
- * Slightly wiggle the connector right and left then slowly insert straight into the assembly. Refer to Fig. 2 and Fig. 3.
- * Avoid forcing the connection or mis-alignment.

Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:20PM

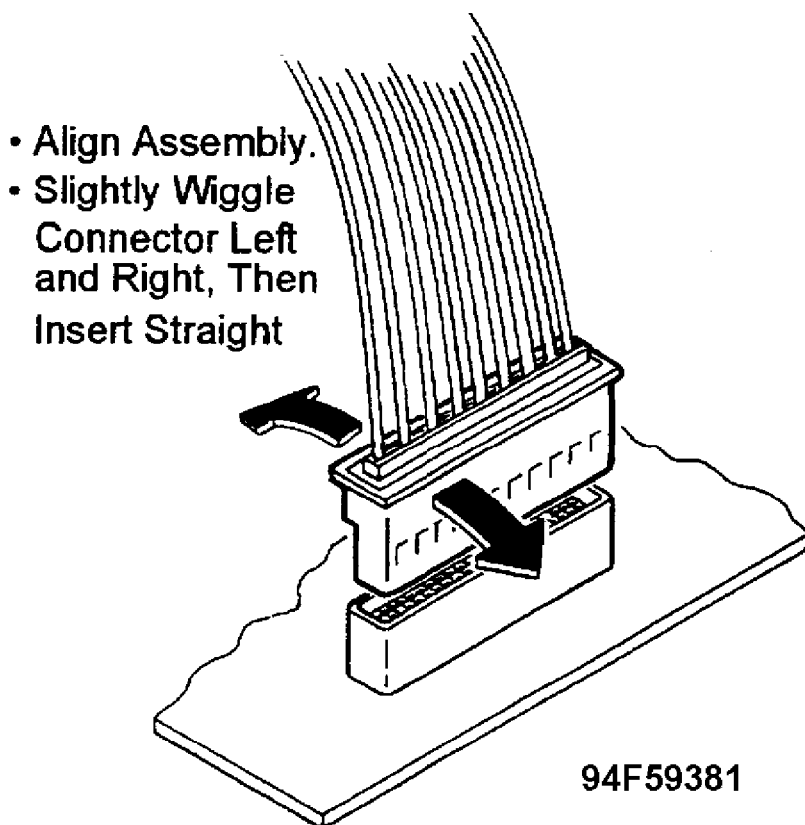


Fig. 2: Correct Installation of Male Connectors

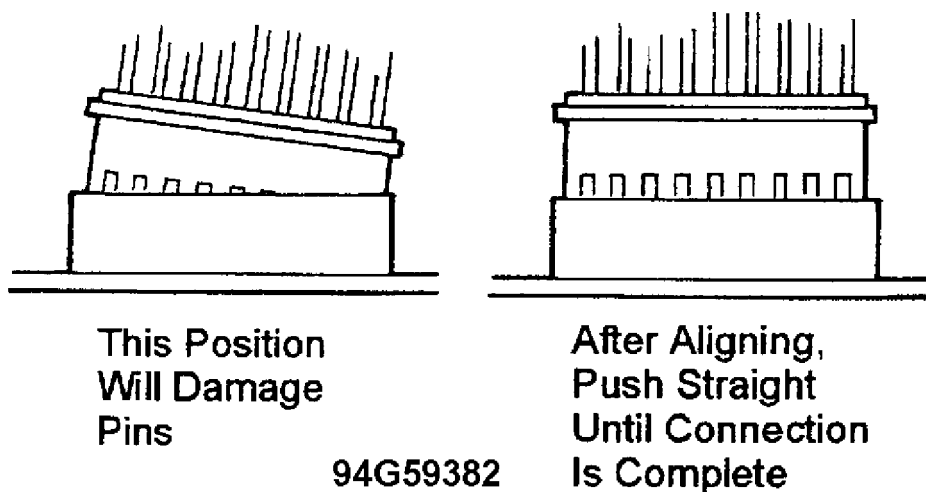


Fig. 3: Installation of Male Connectors

HARNESSES

1. DO NOT STRETCH harnesses to connect connectors.
2. Route harnesses to provide slack in harness and no stress on connector. Refer to Fig. 4.

AIR CONDITION MALFUNCTION - HAZARD SWITCH CONTACTS CAT. U, NO. 95-09

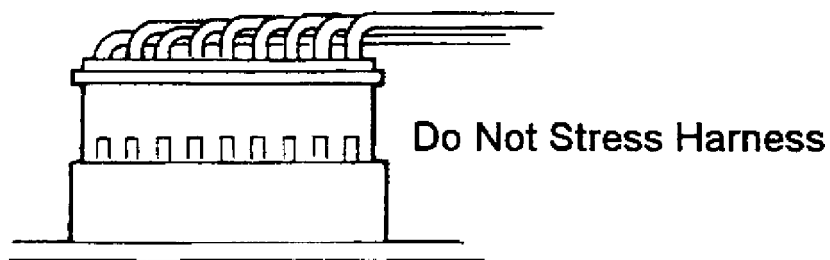
Article Text (p. 4)

1993 Mazda RX7

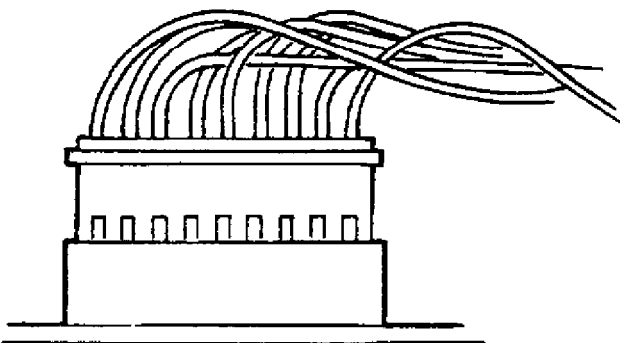
For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:20PM



Allow Slack When Routing



94H59383

Fig. 4: Correct Installation of Harness

WARRANTY INFORMATION

(Applies to verified customer complaints on vehicles covered under normal warranty. Refer to the SRT Microfiche for warranty term information).

Warranty Type:	A
Symptom Code:	60
Damage Code:	9G
Part Number Main Cause:	FD01 66 4H0
Quantity:	1
Operation Number:	T0204XRX
Labor Hours:	0.3Hrs.

END OF ARTICLE

ANTENNA MAST REPLACEMENT SERVICE CAT. T, NO. 017/92

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:22PM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

ANTENNA MAST REPLACEMENT/SERVICE

Model(s): 1992 Mazda 929
1993 Mazda MX-6, 626 & RX-7
Category: T
Number: 017/92
Date: 9/22/92

DESCRIPTION

Vehicles specified in "Applicable Models" have antenna masts available as replacement parts. It is not necessary to replace the entire antenna assembly (motor and mast) when only a mast is required.

At times, the mast does not retract fully due to dirt build-up around the mast area. Periodic cleaning of the mast with a moist wash cloth is recommended.

END OF ARTICLE

AUDIO SYSTEM WIRING CHANGES MT 0794-07

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:23PM

ARTICLE BEGINNING

TECHNICAL INFORMATION TIP - MANUFACTURER

AUDIO SYSTEM WIRING DIAGRAM

Model(s): 1993 Mazda RX-7

Category: Mazda Tips

Bulletin No.: MT 0794-07

Date: July, 1994

DESCRIPTION

The 1993 RX-7 wiring Diagram (WG) (Pg. Z-84) and Body Electrical Troubleshooting Manual (BETM) (pg. J1-11) incorrectly show a radio relay at connector J1-06 for the base audio system. This relay only exists for the high grade (BOSE) audio system.

Mazda has corrected the 1994 publications (pg. Z-86, WD; pg. J1-11, BTEM) to show J1-06 as the connector for the center speaker amplifier.

END OF ARTICLE

BATTERY CHARGER CAUTION CAT. 01, NO. 012/99

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:23PM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

BATTERY CHARGING CAUTION

Model(s): All Mazda Models
Category: 01 - Engine
Bulletin No.: 012/99
Date: April 19, 1999

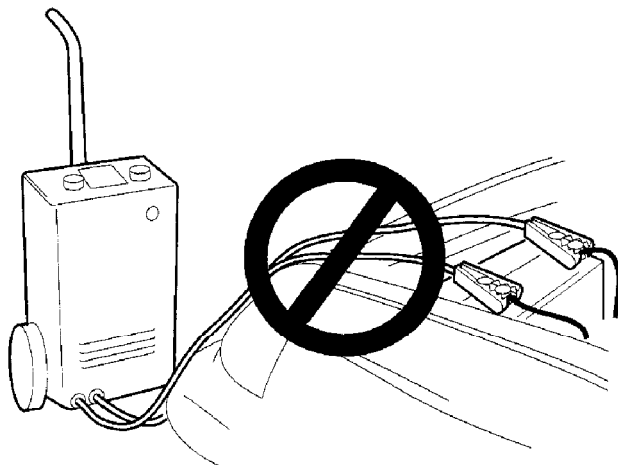
DESCRIPTION

When attempting to charge a battery, apply caution and remove it from the vehicle. If a battery is charged in the vehicle with the battery cables connected, excessive voltage produced by the charger may result in damage to the Powertrain Control Module (PCM), audio system, memory back-up circuits and other electrical devices. The maximum voltage for vehicle electrical components is approximately 15 volts. Battery chargers generate at least 15 volts and in some cases as much as 20 volts.

Damage may also occur to power window switches, lights and other similar components that are activated or that are in use while the battery is being charged in a vehicle with the battery cables connected.

Be sure to apply the above caution when attempting to charge a battery.

NOTE: Removing battery cables will erase memory circuits for audio, PCM and other devices in the vehicle.



98154153

Fig. 1: Battery Charger

END OF ARTICLE

BATTERY RECHARGING - DISCONNECT NEGATIVE TERMINAL MT 08-10

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:25PM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

BATTERY RECHARGING

Model(s): All Mazda Models
Category: Mazda Tips
Bulletin No.: MT 08-10
Date: 1995

DESCRIPTION

Always disconnect the negative cable from the battery before connecting a battery charger to it. Leaving the negative cable connected could damage the control unit or cause the air bag to inflate as the battery recharges.

END OF ARTICLE

DTC DIAGNOSTIC TROUBLE SHOOTING TIPS MT 0597-07

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:26PM

ARTICLE BEGINNING

TECHNICAL INFORMATION TIP - MANUFACTURER

DTC DIAGNOSTICS

Model(s): All Mazda Models
Category: Mazda Tips
Bulletin No.: MT 0597-07
Date: May, 1997

DESCRIPTION

The diagnostic procedures for DTCs (Diagnostic Trouble Codes) in the Workshop manual don't always include the procedure to check related connectors that are within the DTC component's circuit.

Whenever performing diagnostic procedures, always use the wiring diagram in conjunction with the Workshop Manual. Check each related connector for the following:

- * Incomplete connection
- * Loose female terminals
- * Terminals that are pushed out of their connectors
- * Water inside the connector
- * Terminal corrosion

Also check each related harness for damage.

END OF ARTICLE

ECU/AIR FLOW METER/FUEL PUMP/ALTERNATOR DIAGNOSTICS CAT. G, NO. 002/93

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:27PM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

DIAGNOSTIC PROCEDURES FOR ECU'S, AIR FLOW METERS, FUEL PUMPS, AND ALTERNATORS

Model(s): 1988-94 Mazda Vehicles (except Navajo and 1994 B-Series)

Category: "G" Engine Electrical, No.: 002/93, Date: 9/16/93

Category: "G" Engine Electrical, No.: 93-03, Date: Oct, 93

DESCRIPTION

This bulletin contains diagnostic and repair procedures for the following components:

- Engine Control Units (ECU)
- Air Flow Meters
- Fuel Pumps
- Alternators

Each procedure includes the following:

1. Outline Of Diagnostics, Parts Requirements And Warranty Application
 - Illustrates the steps from diagnostics through parts return and warranty submission.
2. Diagnostic Procedures - Step by step testing of the component and circuit.
3. Component Check Sheet - Details of the customer complaint and events leading to the repair.

NOTE: Proper completion of the check sheets are required for warranty claim submission.

INDEX

SECTION 1

- Outline
- ECU Diagnostics
- ECU Check Sheet

SECTION 2

- Outline
- Air Flow Meter Diagnostics
- Air Flow Meter Check Sheet

SECTION 3

ECU/AIR FLOW METER/FUEL PUMP/ALTERNATOR DIAGNOSTICS CAT. G, NO. 002/93

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:27PM

Outline

Fuel Pump Diagnostics

Fuel Pump Check Sheet

SECTION 4

Outline

Charging System Diagnostics

Alternator and Battery Check Sheet

SECTION 5

Warranty Information

Refer to the appropriate service information for symptoms not described in this bulletin. If further reference is required, contact the Technical Hotline in your area.

ECU - OUTLINE OF DIAGNOSTICS, PARTS ORDERING AND WARRANTY APPLICATION

DEALER

UAAAAAAAAAAAAAAAAA;

3 Diagnostics AAAAAAAAAAAAAAAAAA<AAAAAAAAAAAAAAAAA;

AAAAAAAAAAAAAAAAAU

3

MMA

3

UAAAAAAAAAAAAAAAAA;

UAAAAAAAAAAAAAAAAA;

3

3 Results AA No Trouble A' Contact Region 3 3

AAAAAAAAAAAAAAAAAU Found 3 Hot Line 3 3

3

AAAAAAAAAAAAAAAAAU

3

Trouble Found

3

3

3

3

3

UAAAAAAAAAAAAAAAAA;

UAAAAAAAAAAAAAAAAA;

3

3 Complete 3 3 Hot Line 3 3

3 Check Sheet, AAAAAAAAAAAAAAAAAA' Instruction 3 3

3 Order Part 3 Authorized AAAAAAAAAAAAAAAAAAU 3

AAAAAAAAAAAAAAAAAU Replacement 3 3

3

(Auth. No. Required) AAAAAAAAAAAU

UAAAAAAAAAAAAAAAAA;

Review

3 Receive Parts 3

Diagnostics

AAAAAAAAAAAAAAAAAU

3

UAAAAAAAAAAAAAAAAA;

3 Return Repl. Part 3

3 With Check Sheet 3

3 To Your Servicing 3

3 PDC 3

AAAAAAAAAAAAAAAAAU

3

UAAAAAAAAAAAAAAAAA;

3 Warranty Claim 3

3 Application 3

AAAAAAAAAAAAAAAAAU

Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:27PM

SECTION 1 - ECU DIAGNOSTICS PROCEDURE

1. Disconnect ECU connectors
2. Connect SST (Engine Signal Monitor And Adapter) as shown in Fig. 1.
Place application panel sheet on the Engine Signal Monitor.

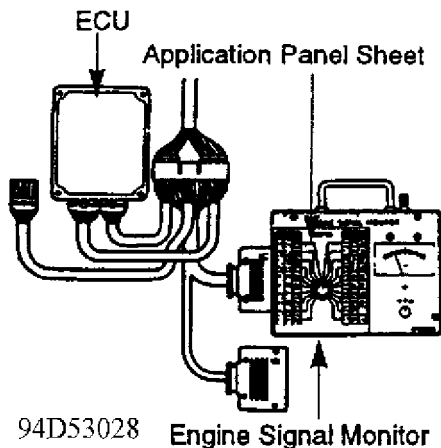


Fig. 1: Engine Signal Monitor and ECU

3. Measure the voltage according to the specifications in the appropriate service information
4. If the voltage is different than specified, check the related input and output devices and wiring for damage. If no problem is found and the reading remains out of specification, replace the ECU.
5. If the voltage is within specification and the problem still exists, contact the Technical Hotline for assistance.

CAUTION: Terminals A & B are for external voltmeter connections. Use these terminal to attach a digital voltmeter or oscilloscope for precise volt readings. See Fig. 2 for illustration. Never apply current to these terminals, damage to the ECU will result.

ECU/AIR FLOW METER/FUEL PUMP/ALTERNATOR DIAGNOSTICS CAT. G, NO. 002/93

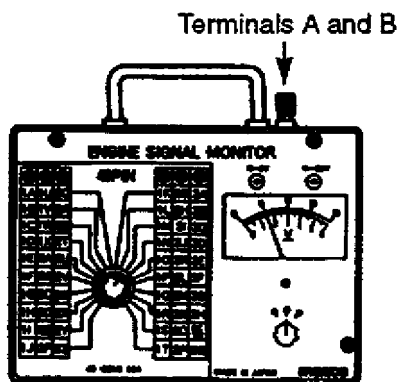
Article Text (p. 4)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:27PM



94E53029

Fig. 2: Engine Signal Monitor

ECU CHECK SHEET

Dealer Name _____ Technician Number: _____

Vehicle Year: _____ Model: _____ M/T: _____ A/T: _____ VIN: _____

Repair Date: __/__/__ Mileage: _____ Repair Order Number: _____

1. Customer Complaint: _____

2. Was the customer's complaint verified: _____Yes _____No

3. Reason for replacement:

Terminal Voltage Out Of Specification: _____Yes _____No

Terminal Number	Voltage Reading	Factory Specification
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		
32		
33		
34		
35		
36		
37		
38		
39		
40		
41		
42		
43		
44		
45		
46		
47		
48		
49		
50		
51		
52		
53		
54		
55		
56		
57		
58		
59		
60		
61		
62		
63		
64		
65		
66		
67		
68		
69		
70		
71		
72		
73		
74		
75		
76		
77		
78		
79		
80		
81		
82		
83		
84		
85		
86		
87		
88		
89		
90		
91		
92		
93		
94		
95		
96		
97		
98		
99		
100		

According to Service Bulletin instructions: _____Category _____No.

According to DSM or Hot Line Authorization: _____(Authorization #)

Other: _____

1993 RX-7

Article Text (p. 6)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:27PM

1. Check the air intake temperature sensor resistance.

- A) Remove air flow meter and allow to sit until its temperature is the same as the ambient temperature.
- B) Using a multi tester, measure and record the resistance of the intake air temperature sensor terminals (THAA-E2) and the atmospheric temperature at that time. See Fig. 3 for terminal identification.

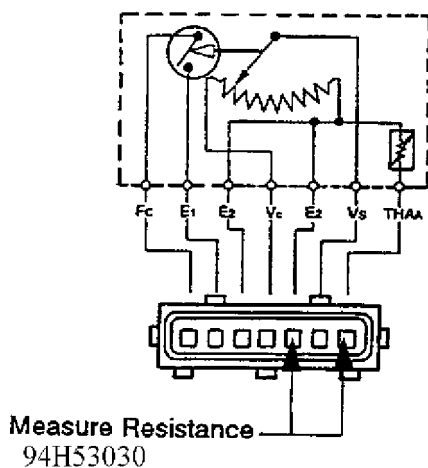


Fig. 3: Air Flow Meter Terminal

NOTE: Use a multi tester with an accuracy equivalent of the FLUK 70 series.

CAUTION: Refer to Fig. 3 and the "Standard Values" table when measuring resistance.

STANDARD VALUES TABLE

Ambient Temp. (F)		Resistance (K, Ohms)		Ambient Temp. (F)		Resistance (K, Ohms)	
0	3	11.1 - 18.7	3	70	3	1.9 - 2.9	3
10	3	8.2 - 13.7	3	80	3	1.5 - 2.3	3
20	3	6.4 - 10.3	3	90	3	1.2 - 1.9	3
30	3	4.9 - 7.9	3	100	3	0.9 - 1.5	3
40	3	3.8 - 6.0	3	110	3	0.8 - 1.3	3
50	3	3.0 - 4.7	3	120	3	0.6 - 1.1	3
60	3	2.4 - 3.7	3		3		3

ECU/AIR FLOW METER/FUEL PUMP/ALTERNATOR DIAGNOSTICS CAT. G, NO. 002/93

Article Text (p. 7)

1993 Mazda RX7

For www.iluvmyrx7.com

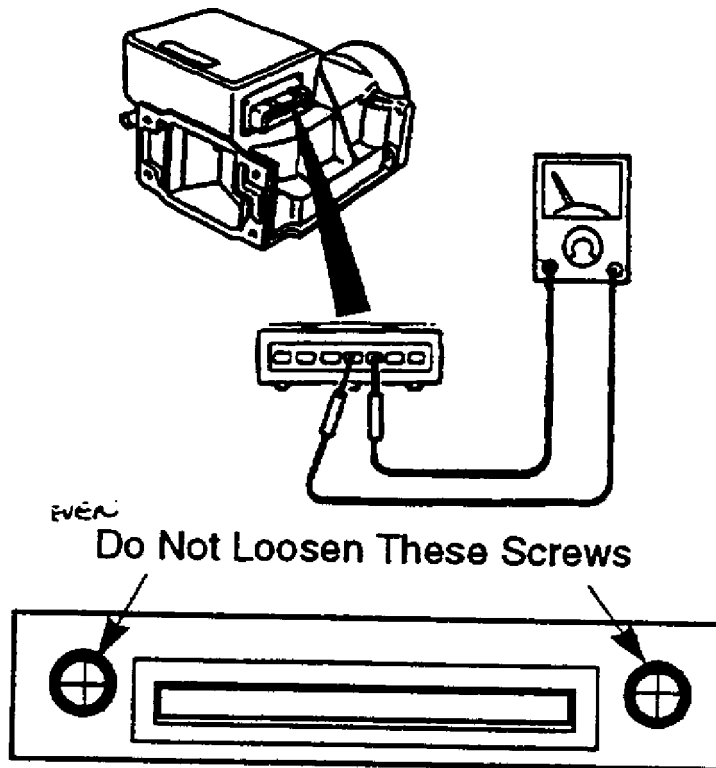
Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:27PM

[illegible]

2. Check resistance between E2 and Vc. See Fig. 4.

Standard Value= 200 - 400 ohms



NOTE: If the screws are loosened or removed, the warranty claim will be rejected.

94I53031

Fig. 4: Air Flow Meter Resistance Check

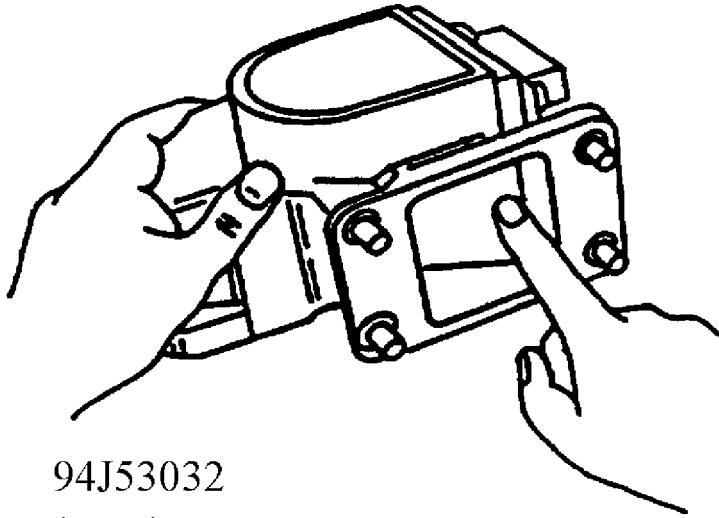
NOTE: Use a multi-tester with the accuracy equivalent of a FLUK 70 Series.

The following models have air flow meters with measuring plates and should be diagnosed using the method listed below:

1986-89	323	1990-93	323/Protege
1990-92	626/MX-6	1990-91	929
1988-93	MPV	1990-93	MX-5
1993	MX-3 (1.6 Litre)		

1. Check for smooth movement of the measuring plate (see Fig. 5). If no problem is found, reinstall the air flow meter.

Copyright © 1998 Mitchell Repair Information Company, LLC
Sunday, August 19, 2001 01:27PM



According to Service Bulletin instructions:_____Category _____No.

ECU/AIR FLOW METER/FUEL PUMP/ALTERNATOR DIAGNOSTICS CAT. G, NO. 002/93

Article Text (p. 9)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:27PM

According to DSM or Hot Line Authorization: _____ (Authorization #)

Other: _____

Technician's Signature: _____ Date: ____/____/____

NOTE: Attach the check sheet to the repair order. If requested to return the failed air flow meter to Mazda, attach a copy of the check sheet and repair order.

FUEL PUMP - OUTLINE OF DIAGNOSTICS, PARTS ORDERING AND WARRANTY APPLICATION

DEALER

UAAAAAAAAAAAAAAAAA;

3 Diagnostics AAAAAAAAAAAAAAAAAA<AAAAAAAAAAAAAAAAA;

AAAAAAAAAAAAAAAAU

3

MMA

3

UAAAAAAAAAAAAAAAAA;

UAAAAAAAAAAAAAAAAA;

3

3 Results AA No Trouble A' Contact Region 3 3

AAAAAAAAAAAAAAAAU

Found

3 Hot Line 3 3

3

AAAAAAAAAAAAAAAAU

3

Trouble Found

3

3

3

3

3

UAAAAAAAAAAAAAAAAA;

UAAAAAAAAAAAAAAAAA;

3

3 Complete 3

3 Hot Line 3 3

3 Check Sheet, AAAAAAAAAAAAAAAAAA' Instruction 3 3

3 Order Part 3 Authorized AAAAAAAAAAAAAAAAAAU 3

AAAAAAAAAAAAAAAAU Replacement 3 3

3

(Auth. No. Required) AAAAAAAAAAAU

UAAAAAAAAAAAAAAAAA;

Review

3 Receive Parts 3

Diagnostics

AAAAAAAAAAAAAAAAU

3

UAAAAAAAAAAAAAAAAA;

3 Keep Check Sheets 3

3 At Dealer 3

3 (Attach to R.O.) 3

AAAAAAAAAAAAAAAAU

3

UAAAAAAAAAAAAAAAAA;

3 Warranty Claim 3

3 Application 3

AAAAAAAAAAAAAAAAU

SECTION 3 - FUEL PUMP DIAGNOSTIC PROCEDURES

1. Disconnect negative terminal and check battery voltage. Voltage should be 12.4V or more. Reconnect terminal.
2. Start engine and run at idle.

ECU/AIR FLOW METER/FUEL PUMP/ALTERNATOR DIAGNOSTICS CAT. G, NO. 002/93

Article Text (p. 10)

1993 Mazda RX7

For www.iluvmyrx7.com

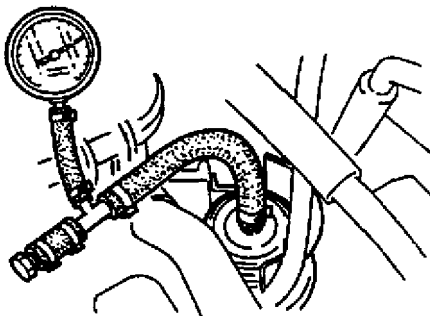
Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:27PM

3. Disconnect circuit opening relay. Engine will continue to run until all fuel in the supply line is used.

WARNING: Step 3 is designed to eliminate fuel in the supply line and enable safe installation of the fuel pressure gauge. Refer to the appropriate service information for further instructions.

4. Disconnect the negative battery terminal.
5. Install the fuel pressure gauge on the outlet side of the fuel filter. See Fig. 6 for illustration.



94A53033

Fig. 6: Checking Fuel Pressure

6. Short circuit the fuel pump test terminals (yellow 2 pin connector) with a jumper wire on the following vehicles (see Fig. 7).

1988-89 323	1993 626/MX-6
1990-91 929	1989-92 MPV
1989-91 RX-7	

7. Short circuit the fuel pump check terminal and the ground terminal of the diagnostic connector with a jumper wire on the following vehicles (see Fig. 7).

1990-93 323/Protege	1993 626/MX-6
1992-93 929	1992-93 MX-3
1990-93 MX-5	1993 RX-7

Article Text (p. 11)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:27PM

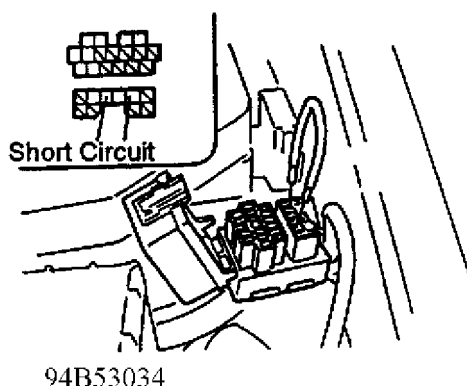


Fig. 7: Short Circuiting Fuel Pump

8. Turn the ignition switch on and measure the maximum fuel pressure. Turn the ignition switch off and remove the jumper wires. See FUEL PRESSURE TABLE For standard values

FUEL PRESSURE TABLE

Year/Model			Standard Value (PSI)		
1988-89 323			49 or Over		
1990-91 323/Protege					
1990-92 626/MX-6					
1990-91 929					
MPV (All)					
1992-93 323/Protege			52 or Over		
1992-93 929					
1993 626/MX-6					
MX-3 (All)					
MX-5 (All)					
1989-91 RX-7			56 or Over		
1993 RX-7			53 or Over		

9. If the value of fuel pressure (Max.) is below standard, measure the voltage at the fuel pump connector (vehicle side) using the procedures below.

- A) Reinstall the jumper wire and turn the Ignition on. Refer to steps 6 and 7 of the previous page.
- B) Connect test leads to the fuel pump positive and negative terminals and measure the voltage at the fuel pump connector (vehicle side). See Fig. 8 for illustration

ECU/AIR FLOW METER/FUEL PUMP/ALTERNATOR DIAGNOSTICS CAT. G, NO. 002/93

Article Text (p. 12)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:27PM

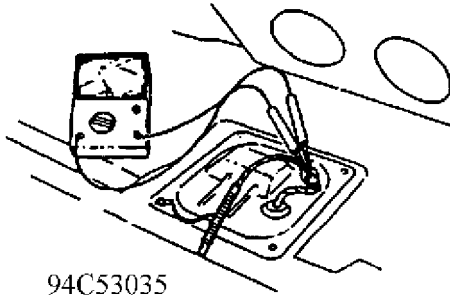


Fig. 8: Measuring Fuel Pump Voltage

NOTE: Do not disconnect the fuel pump connector.

If the voltage is above the standard value, replace the fuel pump.

If the voltage is below standard, check for a damaged harness, relay or a poor ground at the pump.

Standard Value: 8.5V and over (93 RX-7)
9.5V and over (Other Models)

10. After restoring the standard voltage value, measure the fuel pump pressure (Max.). If pressure is not to specification, replace the fuel pump.
11. If no trouble is found with the fuel pump and the problem still exists, contact the Technical Hotline for assistance

FUEL PUMP CHECK SHEET

Dealer Name _____ Technician Number: _____

Vehicle Year: _____ Model: _____ M/T: _____ A/T: _____ VIN: _____

Repair Date: ____/____/____ Mileage: _____ Repair Order Number: _____

1. Customer Complaint: _____

2. Was the customer's complaint verified: _____Yes _____No

3. Reason for replacement:

Fuel Pump Did Not Operate _____Yes _____No

Insufficient Fuel Pressure: _____yes _____No

Maximum Fuel Pressure: _____ (PSI) Factory Specification: _____

ECU/AIR FLOW METER/FUEL PUMP/ALTERNATOR DIAGNOSTICS CAT. G, NO. 002/93

Article Text (p. 13)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:27PM

According to Service Bulletin instructions:_____Category _____No.

According to DSM or Hot Line Authorization:_____(Authorization #)

Other:_____

Technician's Signature:_____ Date:____/____/____

NOTE: Attach the check sheet to the repair order. If requested to return the failed air flow meter to Mazda, attach a copy of the check sheet and repair order.

CHARGING SYSTEM - OUTLINE OF DIAGNOSTICS, PARTS ORDERING AND WARRANTY APPLICATION

DEALER

UAAAAAAAAAAAAAAAAA;

3 Diagnostics AAAAAAAAAAAAAAAAAA<AAAAAAAAAAAAAAAAA;

AAAAAAAAAAAAAAAAU

3

MMA

3

UAAAAAAAAAAAAAAAAA;

UAAAAAAAAAAAAAAAAA;

3

3 Results AA No Trouble A' Contact Region 3 3

AAAAAAAAAAAAAAAAU

Found

3 Hot Line 3 3

3

AAAAAAAAAAAAAAAAU

3

Trouble Found

3

3

3

3

3

UAAAAAAAAAAAAAAAAA;

UAAAAAAAAAAAAAAAAA;

3

3 Complete 3

3 Hot Line 3 3

3 Check Sheet, AAAAAAAAAAAAAAAAAA' Instruction 3 3

3 Order Part 3 Authorized AAAAAAAAAAAAAAAAAU 3

AAAAAAAAAAAAAAAAU Replacement 3 3

3

(Auth. No. Required) AAAAAAAAAAAU

UAAAAAAAAAAAAAAAAA;

Review

3 Receive Parts 3

Diagnostics

AAAAAAAAAAAAAAAAU

3

UAAAAAAAAAAAAAAAAA;

3 Return Replacement 3

3 Part With Check 3

3 Sheet To Your 3

3 Servicing PDC 3

AAAAAAAAAAAAAAAAU

3

UAAAAAAAAAAAAAAAAA;

3 Warranty Claim 3

3 Application 3

AAAAAAAAAAAAAAAAU

SECTION 4 - CHARGING SYSTEM DIAGNOSTIC PROCEDURES

Article Text (p. 14)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:27PM

1. Start the engine and confirm that the alternator warning light is not illuminating.

NOTE: If the warning light is illuminated, see Fig. 9, the self diagnosis operation is functioning. Check the alternator and related harness' according to appropriate service information.

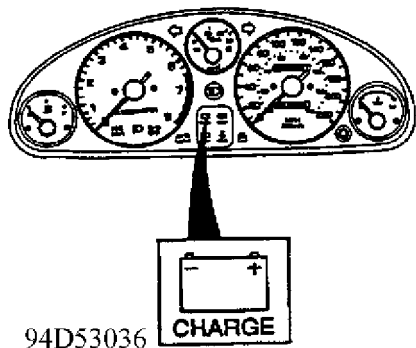


Fig. 9: Charge Indicator Light

2. Fluctuate the engine RPM and listen for alternator bearing or engine belt noise. If noise is present, inspect for loose or damaged belt or damage to the alternator bearing.

NOTE: Perform the above inspection with the vehicle headlights illuminated.

3. Turn off the ignition and all accessories. Connect a load tester (VAT-40 or equivalent).
4. Apply the load test referring to the LOAD TEST TABLE. The final voltage must be above the standard minimum value shown in MINIMUM VOLTAGE TABLE.

LOAD TEST TABLE

Model	Test Load (Amps)
323/Prot.	180
626/MX-6	174
929	180
	195
MX-3	150
	180
	165
MX-5	105
RX-7	180

ECU/AIR FLOW METER/FUEL PUMP/ALTERNATOR DIAGNOSTICS CAT. G, NO. 002/93

Article Text (p. 15)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:27PM

3	3	165	3
3	3	195	3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA~			
3	MPV	3	150
3		3	195
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA~			
3	B-Series	3	150
3		3	195
3		3	195
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA~			

MINIMUM VOLTAGE TABLE

UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA~			
3	Aprox Battery	3	Minimum Voltage
3	Temperature	3	3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA~			
3	70F (21C)	3	9.6V
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA~			
3	60F (15C)	3	9.5V
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA~			
3	50F (10C)	3	9.4V
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA~			
3	40F (4C)	3	9.3V
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA~			
3	30F (-1C)	3	9.1V
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA~			
3	20F (-7C)	3	8.9V
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA~			

If the voltage measures at or above the minimum, proceed to step 5.

If the voltage is below the minimum, quick charge the battery for 30 minutes and load test. If the battery remains below the minimum, replace the battery and proceed to step 5.

NOTE: Battery inspection and charging procedures for Navajo vehicles are different than those outlined in this bulletin. Refer to the appropriate service information for instructions.

5. Start the vehicle and raise the RPM to 2500.
6. Connect a battery load tester (VAT 40/70 or equivalent)
7. Apply a load equal to the alternator rating. The generated voltage should be 14.1V to 14.7V.

LOAD TEST RESULTS

Over 14.7V - Replace Alternator

Under 14.1V - Check for resistance between the battery and

[illegible]

ECU/AIR FLOW METER/FUEL PUMP/ALTERNATOR DIAGNOSTICS CAT. G, NO. 002/93

Article Text (p. 17)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:27PM

3 _____ 3
3 _____ 3
3 _____ 3
3 _____ 3
3 Signature _____ Date ____/____/____ 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAUU

SECTION 5 - WARRANTY INFORMATION

Symptom Code: Complete Applicable Code
Damage Code: Complete Applicable Code
Part Number Main Cause: Complete Applicable Part Number

OPERATION NUMBER AND LABOR HOURS TABLE

UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;
3 Operation Number 3 Labor Hours 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3 Engine Control Unit(ECU),Diagnosis 3 F0005XDX 3 0.9 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3 Air Flow Sensor (AFM), Diagnosis 3 F0006XDX 3 0.4 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3 Fuel Pump, Diagnosis 3 F0007XDX 3 0.5 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3 Charging System, Diagnosis 3 G0003XDX 3 1.4 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3 NOTE: Labor hours shown are the maximum allowable time. Claim 3
3 only the actual time used for these operations. 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAUU

END OF ARTICLE

ETR OPERATION - CASSETTE CHANGES BEFORE TAPE ENDS MT 0297-05

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:29PM

ARTICLE BEGINNING

TECHNICAL INFORMATION TIP - MANUFACTURER

DEALER HINT: ETR OPERATION

Model(s): All Mazda Models
Category: Mazda Tip
Bulletin No.: 0297-05
Date: February, 1997

DESCRIPTION

Bob White of the Southeast Region worked with Ferman Mazda In Tampa, Florida on an ETR (audio unit) concern. The customer complaint was that the auto reverse cassette player switched directions intermittently when it wasn't at the end of the tape. After trying to duplicate the concern with different tapes, they found it was specific just to some cassette tapes. Certain tapes had too much internal resistance and caused the ETR to sense "end of tape", and reverse.

If a customer complains that the auto reverse function of the ETR operates incorrectly, see if it occurs only on certain tapes. Then manually check the movement of the tape with a pencil to see if it rolls easily compared to other tapes. If the resistance is significantly higher, the tape is most likely the cause of the concern, not the ETR.

END OF ARTICLE

FRONT WIPER MOTOR INOPERATIVE MT 0394-15

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:31PM

ARTICLE BEGINNING

TECHNICAL INFORMATION TIP - MANUFACTURER

FRONT WIPER MOTOR INOPERATIVE - RENEWABLE CIRCUIT BREAKER

Model(s): 1986-94 Mazda Models
Category: Mazda Tips
Bulletin No.: MT 0394-15
Date: March, 1994

DESCRIPTION

If the front wipers don't work, you may not need to replace the wiper motor. The wipers may only be temporarily disabled.

Here's why: A wiper motor circuit breaker deactivates the wipers for about five minutes if it senses an overload, like heavy snow build-up on the windshield. It's a fail-safe designed to prevent wiper damage. After the short period, the wipers will start working again.

END OF ARTICLE

FRONT WIPER MOTOR OPERATION/INSPECTION CAT. 15, NO. 070/88

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:31PM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

WIPER MOTOR INOPERATIVE CIRCUIT BREAKER ACTIVATION

Model(s): All Mazda Vehicles Except B-Series & Navajo
Category: T - Body Electrical System
Bulletin No.: 013/97
Date: June 19, 1997

NOTE: This bulletin supersedes Technical Service Bulletin Category 15-070/88 and Category G 003/97, dated May 19, 1997.

DESCRIPTION

The wiper motor is equipped with a built-in circuit breaker to protect the circuit and motor from over heating due to motor overloading. See Fig. 1. Overload may occur when:

- * Motor temperature exceeds 150 degrees C, 302 degrees F.
- * Wipers are frozen to the windshield.
- * Wiper motion is restricted due to heavy loads (snow or mud build-up).

NOTE: Circuit automatically resets when motor temperature decreases below 90 degrees C, 194 degrees F.

The information in this bulletin is provided to answer customer questions regarding occasional wiper motor perceived problems and prevent unnecessary wiper motor replacement.

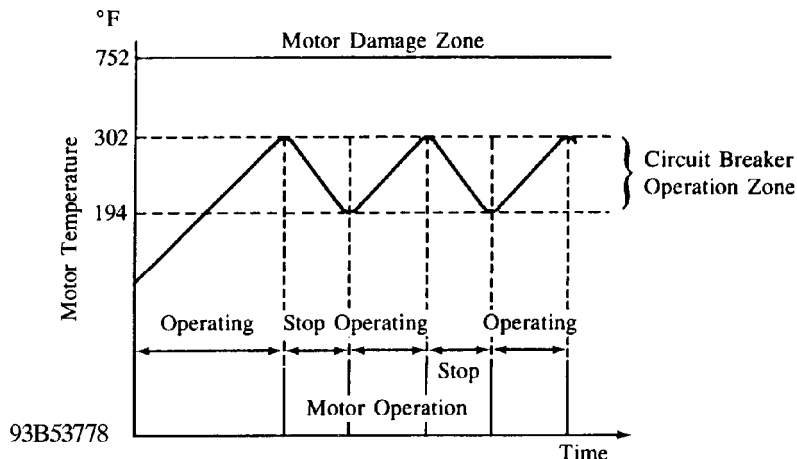


Fig. 1: Motor Temperature & Motor Damage Zone Chart

CUSTOMER NOTE

Copyright © 1998 Mitchell Repair Information Company, LLC
Sunday, August 19, 2001 01:31PM

Service Managers and Service Advisors should relay the following to customers with this concern.

FRONT WIPER MOTOR OPERATION/INSPECTION CAT. 15, NO. 070/88

Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:31PM

CUSTOMER NOTE:

- * If the circuit breaker opens and stops operation of the wiper motor, operation will resume once the circuit resets itself (approx. 5 minutes).
- * If while the circuit breaker is open, the wiper switch is turned "OFF", the wiper will automatically move to the "PARK" position once the circuit breaker resets.

If the wiper motor stops while the vehicle is in motion:

- * Carefully guide the vehicle off the road and stop. Turn the wiper switch "OFF".
- * Wait approximately 5 minutes then turn the wiper switch "ON" to verify wiper operation. If the wipers operate, the wiper motor is functioning correctly (circuit breaker opened momentarily).

TECHNICIAN'S NOTE: If the wiper motor DOES NOT operate, check the wiper motor circuit. Refer to Workshop Manual or specific model and replace wiper motor if necessary.

END OF ARTICLE

FUSIBLE LINK REFERENCE CHART NO. T-2-3

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:34PM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

FUSIBLE LINK REFERENCE CHART

Model: All Mazda
Date: November 1, 1990 (Revised - April 27, 1992)
No: T-2-3
Group: Parts Bulletin

SERVICE INFORMATION

For easy reference, the following list of Fusible Links have been compiled.

FUSIBLE LINK REFERENCE CHART

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Year	Model	Location	P/N
------	-------	----------	-----

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

1979-82	626	Engine Compartment	8174-66-760B
1983-85	626 Gas	Engine Compartment	3775-67-099
1983-85	626 Diesel	Engine Compartment	H047-67-099
1983-85	626	Alternator	HA67-67-099
1979	RX-7	Under Dash	1175-66-710A
1980	RX-7	Under Dash	8130-66-710
1980	RX-7	Engine Compartment	8341-18-055
1981	RX-7	Under Dash	FA02-67-099
1981-85	RX-7	Engine Compartment	3777-67-099
1981-85	RX-7	Transmission	8341-18-055
1981-85	RX-7	Engine Compartment	8871-67-099
1984-85	RX-7	Engine Compartment	3775-67-099
1981-85	GLC	Engine Compartment	B003-67-099
1981-85	GLC	Engine Compartment	B005-67-099
1981-85	GLC	Engine Compartment	B006-67-099
1977-82	B2000	Engine Compartment	B094-67-099
1983-84	B2000/B2200	Engine Compartment	UA47-66-099
1988-93	MX-6 M/T, Non-Turbo A/T	Engine Compartment	FB01-67-099
1988-93	626 Sedan	Engine Compartment	FB01-67-099
1988-93	626 Hatchback M/T, Non-Turbo A/T	Engine Compartment	FB01-67-099
1990-92	929, 929S	Engine Compartment	FB01-67-099
1986-92	323	Engine Compartment	FB01-67-099
1987-89	323 Wagon	Engine Compartment	FB01-67-099
1986-91, 93	RX-7	Engine Compartment	FB01-67-099

FUSIBLE LINK REFERENCE CHART NO. T-2-3

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:34PM

1992	MX-3	Engine Compartment	FB01-67-099
1984-86	GLC Wagon	Engine Compartment	8573-66-760
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA			

END OF ARTICLE

HESITATION WHILE DRIVING - CHECK ENGINE GROUND STRAP CAT. F, NO. 005/97

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:35PM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

HESITATION (JERKING/BUCKING) WHILE DRIVING

Model(s): 1993-95 Mazda RX-7
Category: F - Fuel & Emission Control System
Bulletin No.: 005/97
Date: March 10, 1997

DESCRIPTION

A jerk or bucking condition may occur under any of the following conditions:

- * Under light to moderate acceleration.
- * Cruising at engine speed of 2000-2200 rpm.
- * A/C ON.

This concern may be caused by improperly grounded engine harness, creating high resistance in the engine ground circuits. This condition affects the fuel control system. Customers complaining of this concern should have the vehicle inspected and if necessary, repaired according to this bulletin.

REPAIR PROCEDURE

1. Clean and retorquer harness ground. See Fig. 1.
 - a. Locate ground on left side of engine, mounted to bracket behind A/C compressor. Refer to the applicable BETM or wiring diagram.
 - b. Tightening Torque: 7 - 11 N.m (69.5 - 95.4 in-lb).
2. Clean and retorquer main battery ground and bracket mounting bolts (bracket used for mounting the ground). See Fig. 2.
 - a. Tightening Torque: 7 - 11 N.m (69.5 - 95.4 in-lb).
 - b. Remove the original ground strap and terminal bracket between the engine hanger and the bulkhead.
 - c. Install new style ground strap using the original bolts. See Fig. 3.
 - d. Tighten Torque: 16-23 N.m (12 - 17 ft-lb) engine hanger side), 7 - 11 N.m (69.5 - 95.4 in-lb), (engine room bulkhead side).
3. Verify repair.

HESITATION WHILE DRIVING - CHECK ENGINE GROUND STRAP CAT. F, NO. 005/97

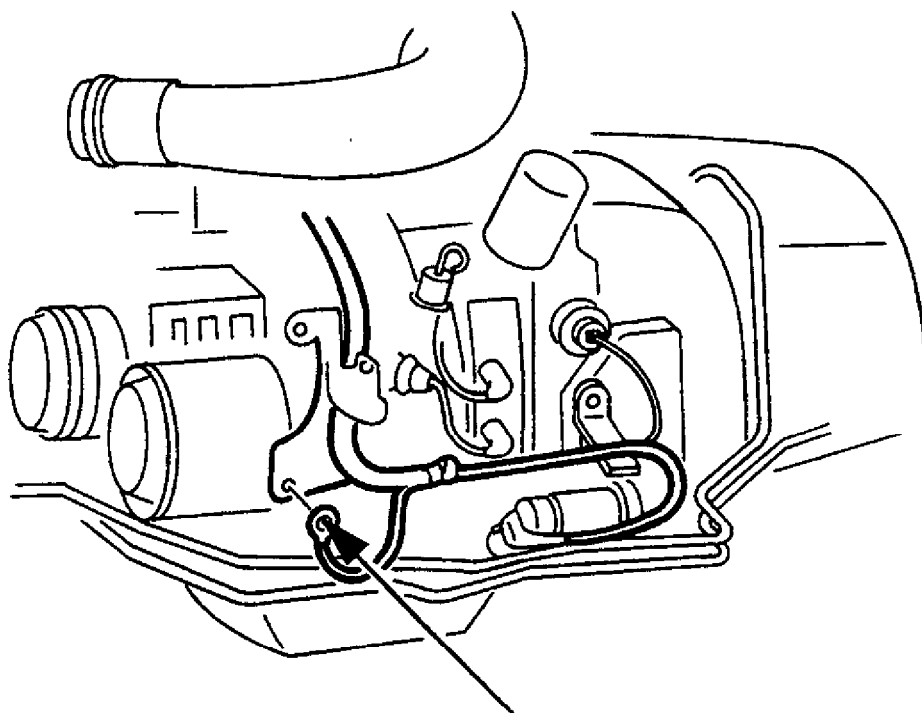
Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

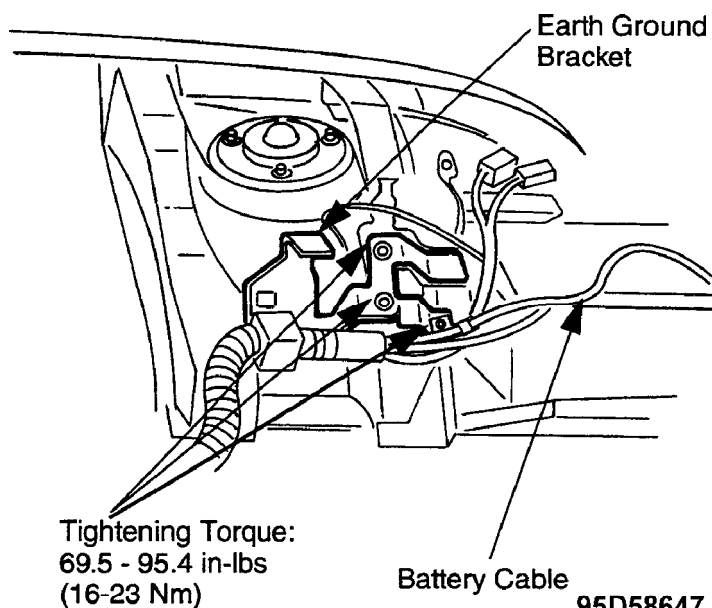
Sunday, August 19, 2001 01:35PM



Harness Ground
Tightening Torque: 69.5 - 95.4 in-lbs
(7-11 Nm).

95C58646

Fig. 1: Harness Ground - Location & Tightening Torque Measurement



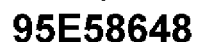
Tightening Torque:
69.5 - 95.4 in-lbs
(16-23 Nm)

Battery Cable

95D58647

Fig. 2: Earth Ground Bracket - Location & Tightening Torque

Sunday, August 19, 2001 01:35PM



<u>U</u>			
³ New P/N ³	³ Old P/N ³	³ Description ³	³ Qty. ³ Interchangeability ³

HESITATION WHILE DRIVING - CHECK ENGINE GROUND STRAP CAT. F, NO. 005/97

Article Text (p. 4)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:35PM

~~~~~  
3 FD02-67-E70 3 FD01-67-E70A 3 Earth Wire 3 1 3 A 3  
~~~~~  
3 NOTE: Interchangeability "A" = The new part can be used in place 3
3 of the old part but the old part CAN NOT be used in place 3
3 of the new part. 3
~~~~~

## WARRANTY INFORMATION

Applies to verified customer complaints on vehicles covered under normal warranty. Refer to the SRT microfiche for warranty Term Information.

|                         |             |
|-------------------------|-------------|
| Warranty Type:          | A           |
| Symptom Code:           | 08          |
| Damage Code:            | 9S          |
| Part Number Main Cause: | FD02-67-E70 |
| Quantity:               | 1           |
| Operation Number:       | XX899XRX    |
| Labor Hours:            | 0.2 hrs.    |

END OF ARTICLE

# MAINTENANCE FREE BATTERY-REVISED DIAG. & CHARGING CAT. G, NO. 001/97

## Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:36PM

## ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

## MAINTENANCE FREE BATTERY DIAGNOSTIC & CHARGING PROCEDURE

Model(s): All Mazda Models  
Category: G - Engine Electrical System  
Bulletin No.: 001/97  
Date: April 8, 1997

NOTE: This bulletin replaces the previously released bulletin  
Cat. G, No. 002/95, dated April 5, 1995.

## DESCRIPTION

The information in this bulletin describes:

- \* Conditions that may lead to battery failure.
- \* Correct inspection and servicing procedures.
- \* Samples of current inspection sheets and maintenance records.
- \* Requirements for Warranty Submission.

## CONDITIONS LEADING TO BATTERY PROBLEMS

If a customer complains of poor battery performance (i.e. slow start, no start), perform the following quick checks prior to detailed diagnosis or parts replacement.

### BATTERY PROBLEMS TABLE

|                                                                            |                            |                                         |
|----------------------------------------------------------------------------|----------------------------|-----------------------------------------|
| UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA |                            |                                         |
| 3                                                                          | Item                       | 3 Check 3                               |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA   |                            |                                         |
| 3                                                                          | Condition Prior To Battery | 3 Door open, lights left on, radio on 3 |
| 3                                                                          | Problem                    | 3 etc. 3                                |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA   |                            |                                         |
| 3                                                                          | Vehicle Condition          | 3 Add-on accessories installed 3        |
| 3                                                                          |                            | 3 properly (alarms, cellular phones, 3  |
| 3                                                                          |                            | 3 stereo amp. etc.) 3                   |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA   |                            |                                         |
| 3                                                                          | Battery Condition          | 3 Correct fluid level. Check 3          |
| 3                                                                          |                            | 3 Indicator "Eye" (if equipped) and 3   |
| 3                                                                          |                            | 3 note color. 3                         |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA   |                            |                                         |
| 3                                                                          | Cable Condition            | 3 Must be free of corrosion, 3          |
| 3                                                                          |                            | 3 terminals tight. 3                    |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA   |                            |                                         |
| 3                                                                          | Vehicle Wiring Grounds     | 3 Check by voltage drop measurements. 3 |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA   |                            |                                         |
| 3                                                                          | Alternator                 | 3 Check alternator output (between 3    |
| 3                                                                          |                            | 3 13.5 and 15.5 volts) 3                |



# MAINTENANCE FREE BATTERY-REVISED DIAG. & CHARGING CAT. G, NO. 001/97

## Article Text (p. 3)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:36PM

### SERVICING EQUIPMENT REQUIREMENTS

In order to accurately and quickly check the condition of maintenance free, batteries, you should have available a digital volt meter capable of reading to 0.01 V and a battery tester utilizing load cells (VAT 40, or equivalent) or electronic testing (Midtronics Power Sensor Plus).

\* VAT 40 testers require the battery to be charged to 12V or higher.

\* Midtronics tester requires 10.2V or higher to test and provides an indicator lamp confirming that the battery is OK to test. See Special Tool Bulletin Cat. ST, No. (003/95 for Midtronics purchase information.

### CHARGING AND LOAD TESTING INFORMATION

The table below gives specific charging amps, times and load test amps for 1993-97 vehicles. Refer to the applicable workshop manual for other model year vehicles and additional troubleshooting information.

#### FACTORY INSTALLED BATTERIES INFORMATION TABLE

| Model       | Battery  | Max. Charge Current (AMP) | Charge Time (Min.) | Load Test (AMP) |
|-------------|----------|---------------------------|--------------------|-----------------|
| Protege/323 | 55D23L   | 30                        | 30                 | 180             |
| 626/MX-6    | GROUP58R | 30                        | 30                 | 174             |
| 929         | 55D23L   | 30                        | 30                 | 180             |
|             | 80D26L   | 35                        | 30                 | 195             |
| Millenia    | 75D26L   | 35                        | 30                 | 195             |
|             | 80D26L   |                           |                    |                 |
| MX-3        | 50D20L   | 25                        | 30                 | 150             |
|             | 55D23L   | 30                        | 30                 | 180             |
|             | 65D23L   | 30                        | 30                 | 165             |
| MX-5 Miata  | S46A24L  | 20                        | 30                 | 105             |
| RX-7        | 55D23L   | 30                        | 30                 | 180             |
|             | 65D23L   | 30                        | 30                 | 165             |
|             | 75D26L   | 35                        | 30                 | 195             |
| MPV         | 50D20L   | 25                        | 30                 | 150             |
|             | 80D26L   | 35                        | 30                 | 195             |
| B-Series    | 50D20L   | 25                        | 30                 | 150             |
|             | 75D26L   | 35                        | 30                 | 195             |
|             | 80D26L   | 35                        | 30                 | 195             |

Sunday, August 19, 2001 01:36PM

|       |            |   |            |   |    |   |    |   |     |   |
|-------|------------|---|------------|---|----|---|----|---|-----|---|
| ***** |            |   |            |   |    |   |    |   |     |   |
| 3     | 1994-97 B- | 3 | BX-58C     | 3 | 35 | 3 | 20 | 3 | 270 | 3 |
| 3     | Series     | 3 | BXT-65-650 | 3 | 35 | 3 | 20 | 3 | 325 | 3 |
| ***** |            |   |            |   |    |   |    |   |     |   |
| 3     | Navajo     | 3 | BXT-65-650 | 3 | 35 | 3 | 20 | 3 | 325 | 3 |
| ***** |            |   |            |   |    |   |    |   |     |   |

- \* Perform a load test again. If the battery is still below the minimum voltage replace the battery and proceed to step 8.
7. Start the vehicle and raise the RPM to 2500.
  8. Connect the battery load tester and apply a load equal to the alternator rating.
- \* If the voltage is 13.5V to 15.0V, the alternator and battery are

Sunday, August 19, 2001 01:36PM

Ä Ä Ä Ä Ä Ä Ä Ä Ä Ä Ä Ä Ä Ä Ä Ä Ä Ä Ä Ä Ä Ä Ä Ä Ä Ä Ä Ä





3 Dial in Rated CCA And Read 3

# MAINTENANCE FREE BATTERY-REVISED DIAG. & CHARGING CAT. G, NO. 001/97

## Article Text (p. 8)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:36PM

3 Condition Scale Of The Meter 3

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAUU

UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA; RED - REPLACE

3 Meter shows "Good" or "Replace" AAAAAAAAAAAAAAAAAAAAA;

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAUU

UAAAAAAAAAAAAAAAAAAAA;

3 GREEN -

3 Replace Battery 3

3 GOOD

AAAAAAAAAAAAAAAAAAAAUU

3

UAAAAAAAAAAAAAAAAAAAA;

3 Switch to "C" Position To 3

3 Check Voltage 3

AAAAAAAAAAAAAAAAAAAAUU

UAAAAAAAAAAAAAAAAAAAA; YES UAAAAAAAAAAAA;

3 Voltage is Greater Than AAAAAAAA Return To Service 3

3 12.4 Volts? 3

AAAAAAAAAAAAUU

AAAAAAAAAAAAUU

3 NO

UAAAAAAAAAAAA;

3 Recharge Until Voltage is 3

3 12.4V or Greater 3

AAAAAAAAAAAAUU

NOTE: When testing in the vehicle, turn the headlights "ON" for 15 seconds to remove the surface charge before testing.

## PARTS INFORMATION

PARTS INFORMATION TABLE (MAZDA FINISH LINE BATTERIES)

UAAAAAAAAAAAAAAAAAAAA;

| 3 Make 3 | Year 3 | Model | 3 OEM 3 | Part Number | 3 CCA 3 |
|----------|--------|-------|---------|-------------|---------|
| 3 3      | 3      |       | 3 CCA 3 |             | 3 3     |

|   |             |     |         |                 |         |
|---|-------------|-----|---------|-----------------|---------|
| 3 | 3 1981-85 3 | FWD | 3 320 3 | 0000 80 026R WB | 3 525 3 |
|---|-------------|-----|---------|-----------------|---------|

|       |             |                    |         |                 |         |
|-------|-------------|--------------------|---------|-----------------|---------|
| 3 GLC | 3 1981-85 3 | Optional For Above | 3 360 3 | 0000 80 0035 WB | 3 550 3 |
|-------|-------------|--------------------|---------|-----------------|---------|

|   |             |         |         |                 |         |
|---|-------------|---------|---------|-----------------|---------|
| 3 | 3 1977-80 3 | GLC RWD | 3 320 3 | 0000 80 0024 WB | 3 460 3 |
|---|-------------|---------|---------|-----------------|---------|

|   |             |          |         |                 |         |
|---|-------------|----------|---------|-----------------|---------|
| 3 | 3 1992-95 3 | All 1.6L | 3 310 3 | 0000 80 026R WB | 3 525 3 |
|---|-------------|----------|---------|-----------------|---------|

|        |             |                    |         |                 |         |
|--------|-------------|--------------------|---------|-----------------|---------|
| 3 MX-3 | 3 1992-95 3 | Optional For Above | 3 360 3 | 0000 80 0035 WB | 3 550 3 |
|--------|-------------|--------------------|---------|-----------------|---------|

|   |             |              |         |                 |         |
|---|-------------|--------------|---------|-----------------|---------|
| 3 | 3 1992-95 3 | All V-6 1.8L | 3 415 3 | 0000 80 024F WB | 3 525 3 |
|---|-------------|--------------|---------|-----------------|---------|

|   |             |     |         |                 |         |
|---|-------------|-----|---------|-----------------|---------|
| 3 | 3 1993-97 3 | All | 3 582 3 | 0000 80 058R WB | 3 582 3 |
|---|-------------|-----|---------|-----------------|---------|

|        |             |                   |         |                 |         |
|--------|-------------|-------------------|---------|-----------------|---------|
| 3 626/ | 3 1983-92 3 | All Except Diesel | 3 320 3 | 0000 80 026R WB | 3 525 3 |
|--------|-------------|-------------------|---------|-----------------|---------|

|   |             |                    |         |                 |         |
|---|-------------|--------------------|---------|-----------------|---------|
| 3 | 3 1983-92 3 | Optional For Above | 3 360 3 | 0000 80 0035 WB | 3 550 3 |
|---|-------------|--------------------|---------|-----------------|---------|

|   |             |        |         |                 |         |
|---|-------------|--------|---------|-----------------|---------|
| 3 | 3 1984-85 3 | Diesel | 3 620 3 | 0000 80 124F WB | 3 700 3 |
|---|-------------|--------|---------|-----------------|---------|

AAAAAAAAAAAAAAAAAAAA

# MAINTENANCE FREE BATTERY-REVISED DIAG. & CHARGING CAT. G, NO. 001/97

## Article Text (p. 9)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:36PM

```

3      3 1979-82 3      All      3 235 3 0000 80 0024 WB 3 460 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      3 1993-95 3      M/T      3 420 3 0000 80 026R WB 3 525 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 RX-7 3 1984-92 3      All      3 320 3 0000 80 026R WB 3 525 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      3 1979-83 3      All      3 370 3 0000 80 0024 WB 3 460 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 323/ 3 1988-97 3      All      3 310 3 0000 80 026R WB 3 525 3
3ProtegeAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      3 1988-97 3 Optional For Above 3 585 3 0000 80 0035 WB 3 525 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      3 1988-95 3      All w/o Cold 3 320 3 0000 80 0035 WB 3 550 3
3      3      3      Package      3      3      3      3
3 929 AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      3 1988-95 3      All with Cold 3 585 3 0000 80 124F WB 3 700 3
3      3      3      Package      3      3      3      3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3Milenia3 1995-97 3      All      3 490 3 0000 80 124F WB 3 700 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      3 1973-93 3 All Except Diesel 3 375 3 0000 80 0024 WB 3 460 3
3      AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 B2000 3 1973-93 3 Optional For Above 3 375 3 0000 80 026R WB 3 525 3
3 B2200 AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      3 1982-84 3      Diesel      3 600 3 0000 80 0124 WB 3 675 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      3 1994-97 3B2300/B3000 Std. Cab3 540 3 0000 80 58HD WB 3 582 3
3 B2300 AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 B3000 3 1994-97 3 B2300, B3000, 3 650 3 0000 80 0065 WB 3 875 3
3 B4000 3      3 Opt. Cold Spec. 3      3      3      3
3      AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      3 1994-97 3 B4000, Cab Plus 3 850 3 0000 80 0065 WB 3 875 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      3 1989-93 3      All      3 310 3 0000 80 0024 WB 3 460 3
3      AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 B2600 3 1987-88 3      All B2600 3 320 3 0000 80 026R WB 3 525 3
3B2600i AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      3 1987-88 3 Optional For Above 3 390 3 0000 80 224F WB 3 525 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3Navajo 3 1991-94 3      All      3 650 3 0000 80 0065 WB 3 875 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      3 1991-97 3      All      3 310 3 0000 80 026R WB 3 525 3
3      AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 MPV 3 1991-97 3 Optional Cold 3 585 3 0000 80 124F WB 3 700 3
3      3      3      Package      3      3      3      3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU

```

## WARRANTABLE CHARGING AND/OR REPLACEMENT

The information below outlines when battery charging or replacement that is covered under vehicle warranty.

# **MAINTENANCE FREE BATTERY-REVISED DIAG. & CHARGING CAT. G, NO. 001/97**

## **Article Text (p. 10)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:36PM

### **\* Charging/Testing**

Charging/testing is not covered under vehicle warranty and is considered part of normal dealer processing responsibility. Boost charging is covered within 48 hours of vehicle delivery.

NOTE: This operation will require completion of the Battery Check Sheet.

### **\* Wholesale Delivery Inspection**

Battery Replacement requires DCSM authorization. Additionally, the Battery Check Sheet and Battery Check Tag must be completed and attached to the repair order. If the documentation is not attached to the repair order, the claim will be subject to debit.

### **\* After Retail Delivery**

Replacement is covered under normal warranty if the battery is judged defective after charging and diagnosing the battery according to the procedures in this bulletin. The Battery Check Sheet must be completed and attached to the repair order. If the documents are not attached to the repair order, the claim will be subject to debit.

### **\* After Retail Delivery**

Replacement is covered under normal warranty if the battery is judged defective after charging and diagnosing the battery according to the procedure in this bulletin. The Battery Check Sheet must be completed and attached to the repair order. If the documentation is not attached to the repair order, the claim will be subject to debit.

## **WARRANTY CLAIM SUBMISSION**

Dealers submitting warranty claims must retain copies of the Battery Maintenance Record and the Battery Check Sheet. The operation number listed below is used for Battery Inspection, Charging and Testing. This includes:

- \* Battery Load Test
- \* Battery Replenishment
- \* Charging and Capacity Test
- \* Charging Test
- \* Dark Current Test

## **WARRANTY INFORMATION (FOR BATTERY INSPECTION, CHARGING AND TESTING)**

|               |                      |
|---------------|----------------------|
| Symptom Code: | Complete Actual Code |
| Damage Code:  | Complete Actual Code |

# MAINTENANCE FREE BATTERY-REVISED DIAG. & CHARGING CAT. G, NO. 001/97

## Article Text (p. 11)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:36PM

Part Number Main Cause: Complete Actual Part Number  
Operation Number: G0501ACX  
Labor Hours: 0.5 hrs (Vehicles other than 929)  
0.6 hrs (929 Vehicles)

NOTE: \* If a charging problem still exists after battery charging and/or replacement, follow the charging diagnostic procedures covered under operation number G0001\*DX to identify the problem.  
\* Basic diagnostic operations require separate punch/flag time. Hours shown on the SRT microfiche are the maximum allowable times.

### BATTERY CHECK SHEET

NOTE: Attach this Check Sheet to the reverse side of Repair Order

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

1. Was the customer's complaint verified? \_\_\_\_ Yes \_\_\_\_ No

2. Battery Inspection Results

UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;  
3 Information 3 Reading 3  
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-  
3 Instrument Used For Test 3 3  
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-  
3 Battery Voltage (Open Terminal) 3 Volts 3  
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-  
3 Battery Voltage (Load Test) 3 Volts 3  
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU

Authorization Number: \_\_\_\_\_ (if battery was replaced prior to retail sale or within 90 days of retail sale)

Vehicle Year: \_\_\_\_\_  
Model: \_\_\_\_\_  
VIN: \_\_\_\_\_  
Mileage: \_\_\_\_\_

Repair Date: \_\_/\_\_/\_\_ R.O. Number: \_\_\_\_\_

Technician Number: \_\_\_\_\_

These check sheets are available through HELM, Inc. (free of charge) in pads (1 pad = 100 sheets).  
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

### BATTERY TAG

# MAINTENANCE FREE BATTERY-REVISED DIAG. & CHARGING CAT. G, NO. 001/97

Article Text (p. 12)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:36PM

See Fig. 1, battery tag.

IDENTIFY AS MILL, 626, MX6, ETC;  
I.E.: SUITABLE 3 OR 4 LETTER OR  
NUMBER CODE

PORT OR DEALER STAFF  
MEMBER INITIALS FOR QUALITY  
TRACKING PURPOSES


NOTES ON POSSIBLE REPLACE-  
MENT BATTERY OR OTHER  
SPECIAL SERVICING

FINAL V+ READING JUST  
PRIOR TO SHIPMENT TO DEALER

V+ ON RECEIPT AT DEALER.  
MMA WILL USE TO EVALUATE  
PERFORMANCE OF THE SYSTEM

VOLTAGE AT TIME OF RETAIL  
DELIVERY. CRITICAL MEASURE  
OF BATT. CONDITION TO NEW  
RETAIL CUSTOMER.

TSD / LOGISTICS



**DO NOT REMOVE TAG  
FAILURE TO  
MAY JEOPARDIZE**

**UNTIL RETAIL DELIVERY.  
COMPLETE THIS LOG  
WARRANTY CLAIM.**

| MODEL | YR | LAST 8 OF VIN |
|-------|----|---------------|
|       |    |               |

**PORT**

SCHEDULED VOLTAGE CHECK

| CHECKER | DATE    | VOLTAGE | NOTES            |
|---------|---------|---------|------------------|
| DRN     | 9/11/25 | 11 5    | REPLACED 9/11/25 |
|         |         |         |                  |
|         |         |         |                  |
|         |         |         |                  |

LOAD LINE VOLTAGE CHECK

|  |  |  |
|--|--|--|
|  |  |  |
|--|--|--|

**DEALER**

ON-RECEIPT VOLTAGE CHECK

|  |  |  |
|--|--|--|
|  |  |  |
|--|--|--|

INVENTORY MAINTENANCE VOLTAGE CHECK

|  |  |  |
|--|--|--|
|  |  |  |
|  |  |  |
|  |  |  |

VOLTAGE CHECK JUST PRIOR TO RETAIL DELIVERY

|  |  |  |
|--|--|--|
|  |  |  |
|--|--|--|

**NOTE TO DEALER**

CHECK AND NOTE IF BATTERY VOLTAGE IS LESS THAN 12.4 VOLTS  
AFTER SUITABLE CHARGE. USE VAT 40 OR MIDTRONICS ELECTRONIC  
TESTER TO DIAGNOSE ACCORDING TO SERVICE BULLETIN 002/95.

94D59900

Fig. 1: Battery Tag

END OF ARTICLE

# NON FACTORY ACCESSORY INSTALLATION PRECAUTIONS MT 0897-09

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:39PM

### ARTICLE BEGINNING

TECHNICAL INFORMATION TIP - MANUFACTURER

NON-FACTORY ACCESSORIES

Model(s): All Mazda Models

Category: Mazda Tips

Bulletin No.: MT 0897-09

Date: August, 1997

### DESCRIPTION

Do not splice circuits for non-factory accessories into existing wire harnesses. Splicing of non-approved accessories into the wire harness can increase the chance of water entering the harness and causing corrosion. Splicing power circuits of non-factory accessories can also cause faulty signals to be sent to electronic systems in the vehicle. Separate fused power circuits should be run to non-factory accessories if they are installed.

### END OF ARTICLE

# PARTS REPLACEMENT AFTER AIRBAG DEPLOYMENT CAT. T, NO. 007/97

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:40PM

## ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

## PARTS REPLACEMENT AFTER AIRBAG DEPLOYMENT

Model(s): 1993-97 Mazda 626/MX-6  
1992-95 Mazda 929  
1995-97 Mazda Millenia  
1993-97 Mazda MPV  
1994-95 Mazda MX-3  
1990-97 Mazda MX-5 Miata  
1995-97 Mazda Protege  
1988-91 Mazda RX-7 (Conv.)  
1993-95 Mazda RX-7  
Category: T - Body Electrical System  
Bulletin No.: 007/97  
Date: April 25, 1997

## DESCRIPTION

If you repair a vehicle in which the driver's side and/or passenger side air bag deployed due to collision, always replace the SAS or Diagnostic Module in addition to damaged components. Replacement will ensure the system is completely operational. Use the table below to determine which system is installed in the vehicle.

### DIAGNOSTIC MODULE INFORMATION TABLE

|                                                                    |  |  |  |                                     |  |  |  |              |  |  |  |           |  |  |  |   |  |  |  |  |  |  |  |
|--------------------------------------------------------------------|--|--|--|-------------------------------------|--|--|--|--------------|--|--|--|-----------|--|--|--|---|--|--|--|--|--|--|--|
| UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA |  |  |  |                                     |  |  |  | ;            |  |  |  |           |  |  |  |   |  |  |  |  |  |  |  |
| SAS Unit                                                           |  |  |  | Diagnostic Module                   |  |  |  |              |  |  |  |           |  |  |  |   |  |  |  |  |  |  |  |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA  |  |  |  |                                     |  |  |  |              |  |  |  |           |  |  |  | - |  |  |  |  |  |  |  |
| Model                                                              |  |  |  | Year                                |  |  |  | Model        |  |  |  | Year      |  |  |  |   |  |  |  |  |  |  |  |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA  |  |  |  |                                     |  |  |  |              |  |  |  |           |  |  |  | - |  |  |  |  |  |  |  |
| MPV                                                                |  |  |  | 1996-97                             |  |  |  | MPV          |  |  |  | 1993-95*  |  |  |  |   |  |  |  |  |  |  |  |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA  |  |  |  |                                     |  |  |  |              |  |  |  |           |  |  |  | - |  |  |  |  |  |  |  |
| 626/MX-6                                                           |  |  |  | 1995-97                             |  |  |  | 626/MX-6     |  |  |  | 1993-94   |  |  |  |   |  |  |  |  |  |  |  |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA  |  |  |  |                                     |  |  |  |              |  |  |  |           |  |  |  | - |  |  |  |  |  |  |  |
| MX-5 Miata                                                         |  |  |  | 1995-97                             |  |  |  | MX-5 Miata   |  |  |  | 1990-94   |  |  |  |   |  |  |  |  |  |  |  |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA  |  |  |  |                                     |  |  |  |              |  |  |  |           |  |  |  | - |  |  |  |  |  |  |  |
| Protege                                                            |  |  |  | 1995-97                             |  |  |  | RX-7 (Conv.) |  |  |  | 1988-91** |  |  |  |   |  |  |  |  |  |  |  |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA  |  |  |  |                                     |  |  |  |              |  |  |  |           |  |  |  | - |  |  |  |  |  |  |  |
| Millenia                                                           |  |  |  | 1995-97                             |  |  |  | RX-7         |  |  |  | 1993-95   |  |  |  |   |  |  |  |  |  |  |  |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA  |  |  |  |                                     |  |  |  |              |  |  |  |           |  |  |  | - |  |  |  |  |  |  |  |
|                                                                    |  |  |  |                                     |  |  |  | 929          |  |  |  | 1992-95   |  |  |  |   |  |  |  |  |  |  |  |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA  |  |  |  |                                     |  |  |  |              |  |  |  |           |  |  |  | - |  |  |  |  |  |  |  |
|                                                                    |  |  |  |                                     |  |  |  | MX-3         |  |  |  | 1994-95   |  |  |  |   |  |  |  |  |  |  |  |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA  |  |  |  |                                     |  |  |  |              |  |  |  |           |  |  |  | - |  |  |  |  |  |  |  |
| CAUTION:                                                           |  |  |  | Never attempt to repair the air bag |  |  |  |              |  |  |  |           |  |  |  |   |  |  |  |  |  |  |  |
|                                                                    |  |  |  | system wiring; always replace any   |  |  |  |              |  |  |  |           |  |  |  |   |  |  |  |  |  |  |  |
|                                                                    |  |  |  | damaged wiring.                     |  |  |  |              |  |  |  |           |  |  |  |   |  |  |  |  |  |  |  |
|                                                                    |  |  |  |                                     |  |  |  |              |  |  |  |           |  |  |  |   |  |  |  |  |  |  |  |



**PARTS REPLACEMENT AFTER AIRBAG DEPLOYMENT CAT. T, NO. 007/97**

**Article Text (p. 2)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:40PM

3 \* - 1993 MPV incorporated air bag systems 3  
3 during a mid-year production change. 3  
3 3  
3 \*\* - 1992 RX-7 convertibles were available only 3  
3 in the Canadian market. 3  
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAUU

**END OF ARTICLE**

## POOR WIPER BLADE PERFORMANCE CAT. A, NO. 93-07

### Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:40PM

### ARTICLE BEGINNING

#### TECHNICAL SERVICE BULLETIN

### WIPER BLADE PERFORMANCE

Model All Mazda Models  
Category A  
Bulletin No. 93-07  
Date August, 1993

SPECIAL ATTENTION: ALL P.D.I. Service Technicians

#### DESCRIPTION

Results from the Certified Delivery Program have revealed that there are a large number of customer complaints about wiper blade performance. The complaints usually relate to one of the following three problems (see Fig. 1):

- \* Streaking
- \* Chattering (blade hopping)
- \* Partial cleaning



Streaking



Chattering  
(Blade hopping)



Partial cleaning

94G50233

Fig. 1: Wiper Blade Complaints

#### INSPECTION/REPAIR PROCEDURE

During the pre-delivery inspection, operate the windshield wipers and washers at each speed interval, (low and high) to ensure that the wiper blades operate without the above-mentioned problems.

If there is a problem, soak a clean cloth with an alcohol based solution and wipe the windshield and the windshield wiper blades to remove all dirt, grime and any remaining transit coating. Check the operation again, and if there are any problems, replace the wiper blades with new ones. See Fig. 2.

NOTE: Never use a corrosive or caustic solution such as:

- \* Gasoline
- \* Thinner
- \* Benzene
- \* Alkaline detergent

**POOR WIPER BLADE PERFORMANCE CAT. A, NO. 93-07**

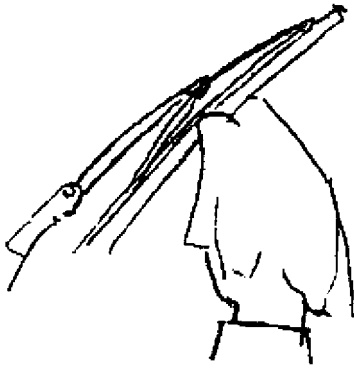
**Article Text (p. 2)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:40PM



94H50234

Fig. 2: Cleaning Wiper Blade

**END OF ARTICLE**

# POWER ANTENNA MAST - REPAIR PROCEDURE MT 0195-08

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC  
Sunday, August 19, 2001 01:41PM

## ARTICLE BEGINNING

TECHNICAL INFORMATION TIP - MANUFACTURER

## POWER ANTENNA MAST REPAIR

Model(s): All Mazda Models with Power Antennas  
Category: Mazda Tips  
Bulletin No.: MT 0195-08  
Date: January, 1995

## DESCRIPTION

You don't need to replace the entire power antenna assembly if only the mast is defective. Repair the mast using the following procedure:

1) Remove the mounting nut with snap-ring pliers or a hook wrench.  
See Fig. 1

2) Have an assistant turn on the radio while holding the mast, to avoid damaging the paint. If the mast does not pop up, use slip-joint pliers to pull it up. See Fig. 1.

NOTE: If part of the plastic rack wire is broken inside of antenna motor, the antenna assembly must be replaced.

3) Clean the mounting hardware, then spray a bit of lubricant on the nut.

4) On the replacement mast, carefully bend 3/4 inch of the plastic rack wire (or feeder) back about 3/8 inch, for easy installation.

5) Insert the rack wire into the assembly until it touches the pinion gear.

6) Have an assistant turn off the radio. At the same time, guide the mast as it is retracted into the housing.

7) Don't forget to tighten the mounting nut.

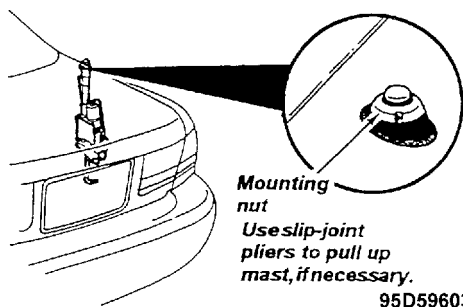


Fig. 1: Antenna Location

# **POWER ANTENNA MAST - REPAIR PROCEDURE MT 0195-08**

## **Article Text (p. 2)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:41PM

**END OF ARTICLE**

# POWER ANTENNA MAST REPLACEMENT (CANADIAN) CAT. T, NO. 95-06

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC  
Sunday, August 19, 2001 01:41PM

## ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

## POWER ANTENNA MAST REPLACEMENT

Model(s):           1983-95 Mazda 626 (Canadian)  
                      1988-95 Mazda 929 (Canadian)  
                      1989-95 Mazda MX-6, MX-5/Miata (Canadian)  
                      1995     Mazda Millenia (Canadian)  
Category:           T - Body Electrical  
Bulletin No.:       95-06  
Date:               April, 1995

## APPLICABLE MODELS/VINS

All vehicles equipped with a power antenna.

## DESCRIPTION

It is not necessary to replace the entire antenna assembly if an antenna mast is damaged. Follow the procedures below to replace only the mast portion of the assembly.

NOTE: Bent or broken antenna masts (i.e. damage not due to defects in material and workmanship) are not covered under vehicle warranty.

## REPAIR PROCEDURES

1. Remove the mounting nut with snap ring pliers or a spanner wrench.
2. Hold the mast and have an assistant turn the radio "ON". If the antenna mast does not pop up, use slip joint pliers to pull the mast up.

NOTE: Holding the antenna mast is necessary to prevent paint damage.

3. Remove any debris from the ground plate, rubber bushing and mounting nut.
4. Apply a small amount of lubricant to these pieces.
5. Bend the plastic rack as shown in Fig. 2. This will facilitate installation.
6. Insert plastic rack into assembly until contact is made.
7. Have an assistant turn the radio "OFF" to retract the antenna mast into the assembly. Carefully guide the replacement mast into the

# POWER ANTENNA MAST REPLACEMENT (CANADIAN) CAT. T, NO. 95-06

## Article Text (p. 2)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:41PM

base of the antenna motor.

NOTE: For replacement parts, refer to the applicable parts microfiche.

8. Assemble rubber bushing and mounting nut. Tighten nut.

9. Verify operation.

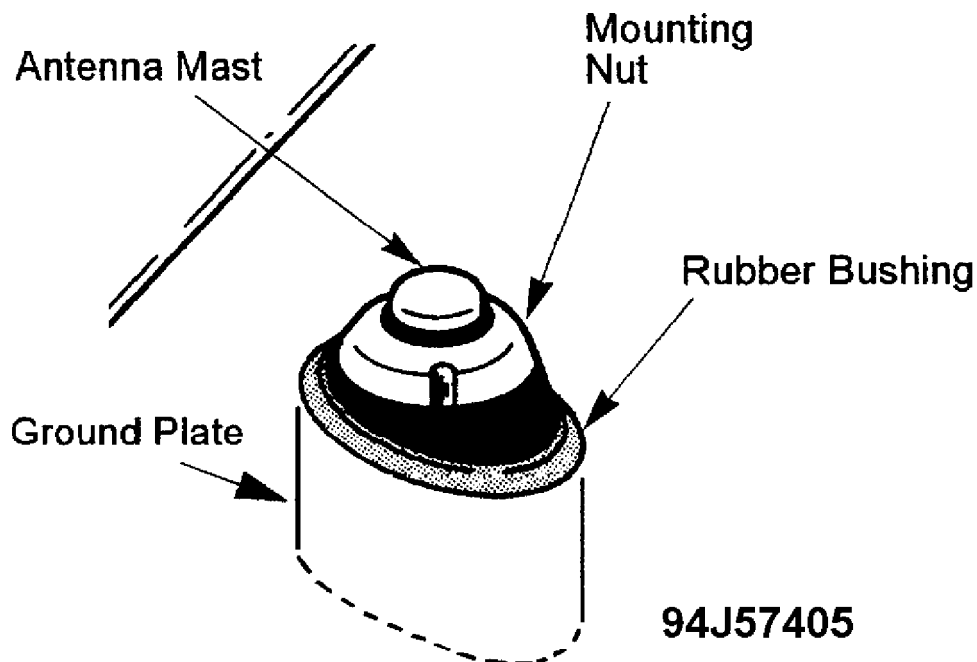


Fig. 1: Exploded View of Power Antenna Mast

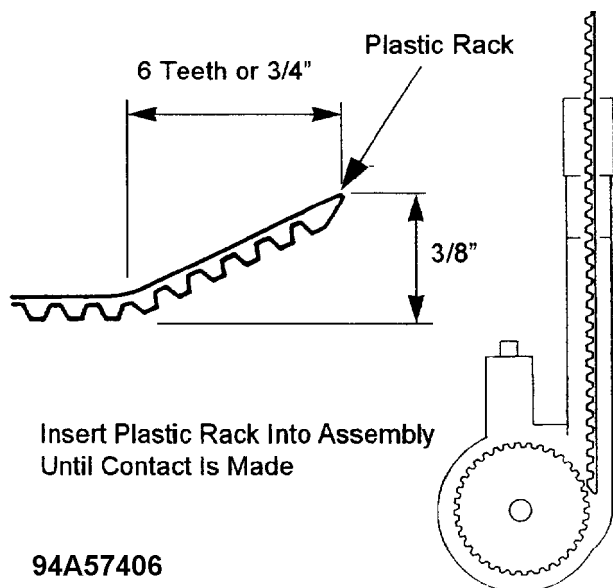


Fig. 2: Plastic Rack Insertion Into Power Antenna Assembly

END OF ARTICLE

# RADIO REMOVAL TIPS (W/CD PLAYER) CAT. T, NO. 018/92

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:42PM

## ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

## RADIO REMOVAL TIPS (W/CD PLAYER)

Model(s): 1993 Mazda RX-7  
Category: T  
Bulletin No.: 018/92  
Date: 11/9/92

## DESCRIPTION

Some 1993 RX-7 radios have been returned for service with damaged antenna leads. This is caused by improper radio removal. The removal procedures below should be followed to avoid damage to the antenna leads.

NOTE: After installing the replacement radio, advise vehicle owner to input the radio's anti-theft code. If needed, refer to the owner's manual for details.

## REMOVAL PROCEDURE

1. Remove the anchor clip from the right lower console panel. See Fig. 1.
2. Remove the right lower console panel. See Fig. 1.

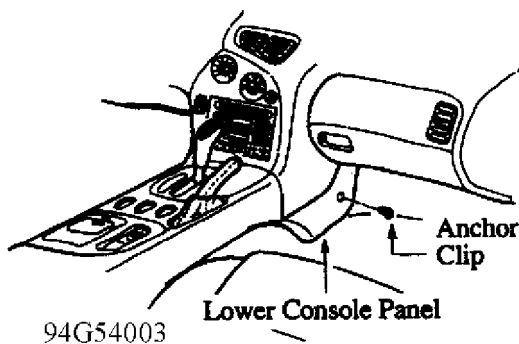


Fig. 1: Console Panel Removal

3. Fold back the carpeting and pull down the antenna connectors. See Fig. 2.



## RADIO REMOVAL TIPS (W/CD PLAYER) CAT. T, NO. 018/92

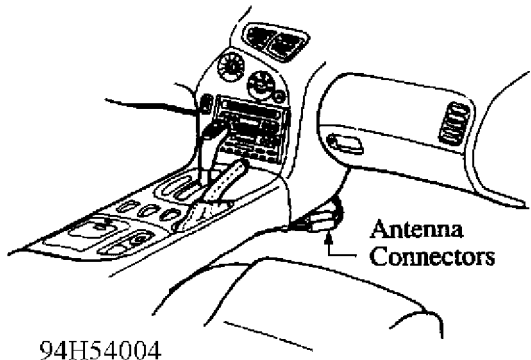
### Article Text (p. 2)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

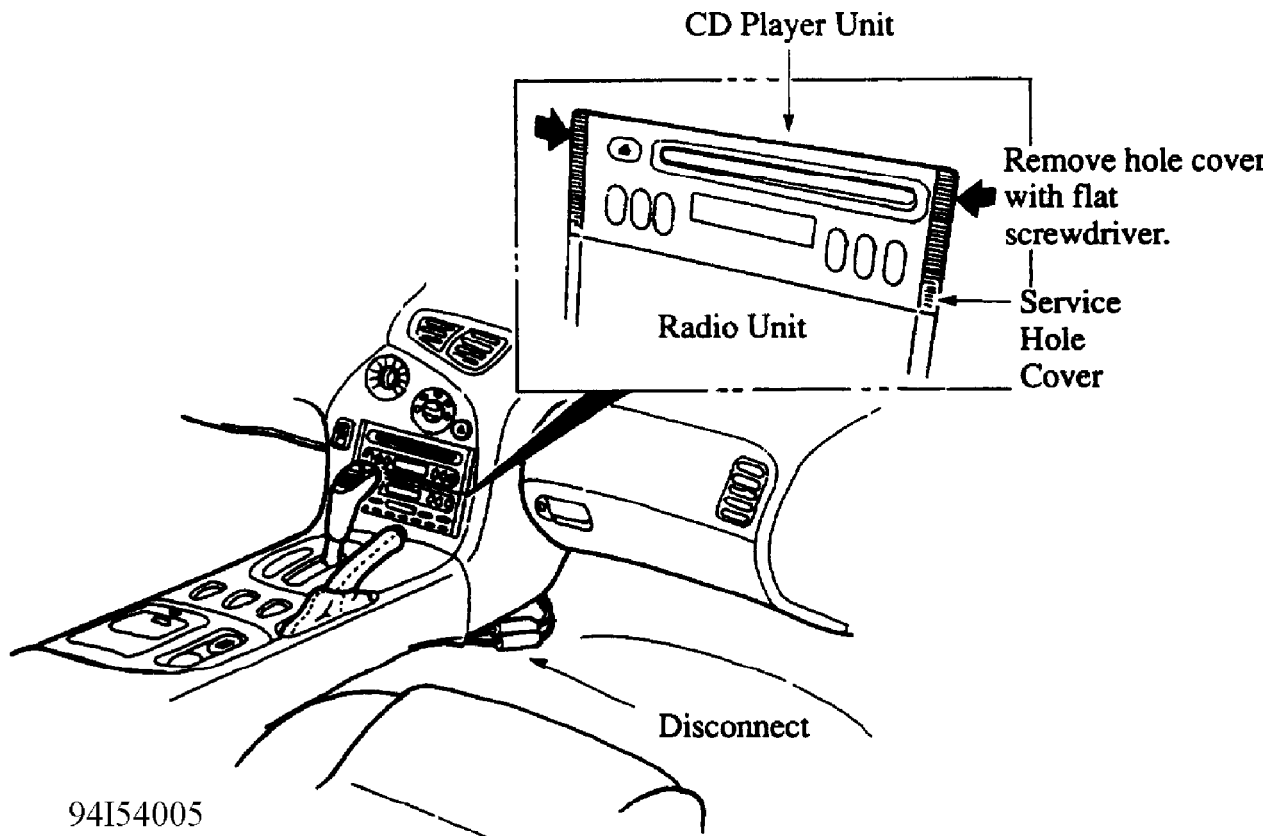
Sunday, August 19, 2001 01:42PM



94H54004

Fig. 2: Exposing Antenna Connectors

4. Disconnect the antenna connectors.
5. Remove the service hole covers from both the radio and CD player using a small, flat blade screwdriver wrapped with tape. See Fig. 3.



94I54005

Fig. 3: Hole Cover Removal

6. Push the stereo removal tool, SST (Part No. 49 UN01 050), into the holes on the CD player until it locks firmly. See Fig. 4.

NOTE: This tool is used on the following models:

1992-93 MX-3

1993 RX-7

# RADIO REMOVAL TIPS (W/CD PLAYER) CAT. T, NO. 018/92

## Article Text (p. 3)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:42PM

1992-93 MX-6

1991-92 Navajo

1992-93 626

1992 929

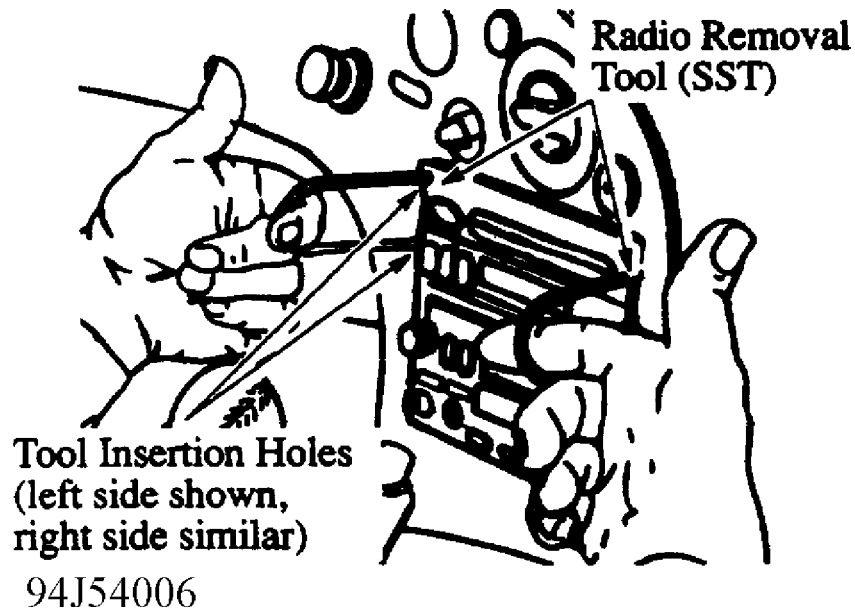


Fig. 4: CD Player Removal

7. Spread the SST toward the outside and pull the CD player straight out.

8. The CD player should hang to the left of the radio.

NOTE: Prop up the CD player so there is no unnecessary tension on the CD player wiring.

9. Push the SST into the holes on the sides of the radio until it locks. See Fig. 5.

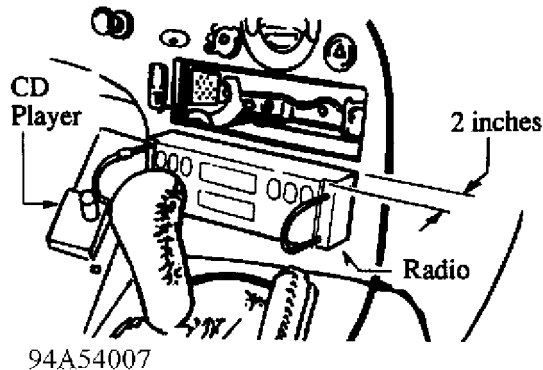


Fig. 5: Radio Disconnection

10. Pull the stereo out about two inches.

11. The electrical connectors must now be removed from the back of the

## RADIO REMOVAL TIPS (W/CD PLAYER) CAT. T, NO. 018/92

### Article Text (p. 4)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:42PM

radio. Since it is not possible to see the connectors, refer to Fig. 6. Remove the connectors in the order shown below and note the locations of the locking tabs.

- A. 8-Pin White connector: locking tab is on top and should be pressed down.
- B. 12-Pin White connector: locking tab is on the passenger's side (right) of the connector and should be pressed towards the driver's side (left).
- C. 13-Pin DIN connector: has no locking tab and should be pulled straight out.
- D. 1-Pin Ground connector: locking tab is on top and should be pressed down.

NOTE: The antenna leads going into the back of the radio are not removable.

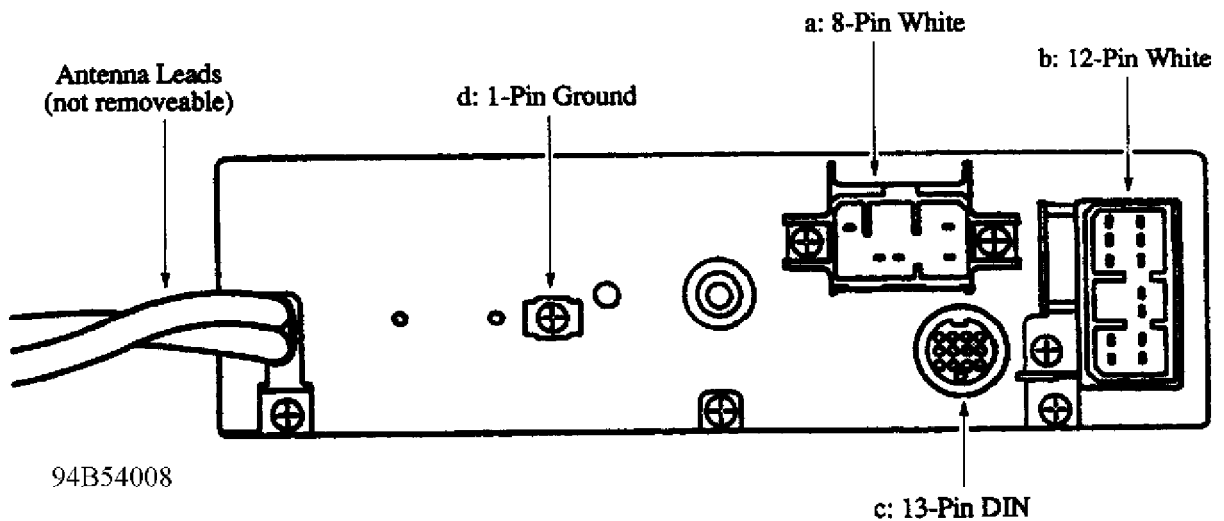


Fig. 6: Rear View of Radio

12. Pull the radio straight out. Make sure that you carefully feed the antenna leads through the radio opening as you pull out the radio. See Fig. 7

# RADIO REMOVAL TIPS (W/CD PLAYER) CAT. T, NO. 018/92

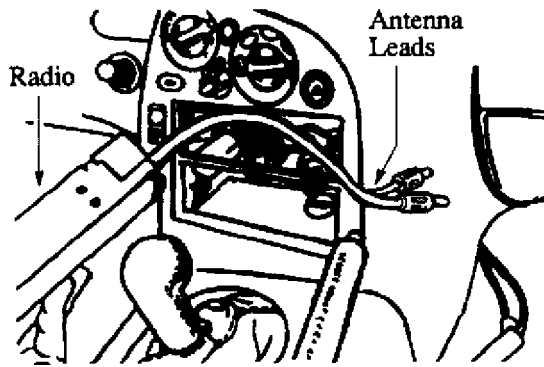
## Article Text (p. 5)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:42PM



94C54009

Fig. 7: Radio Removal

END OF ARTICLE

# REAR WINDOW DEFROSTER GRID LINE REPAIR PROCEDURE CAT. T, NO. 015/95

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC  
Sunday, August 19, 2001 01:42PM

## ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

## REAR WINDOW DEFROSTER GRID LINE REPAIR

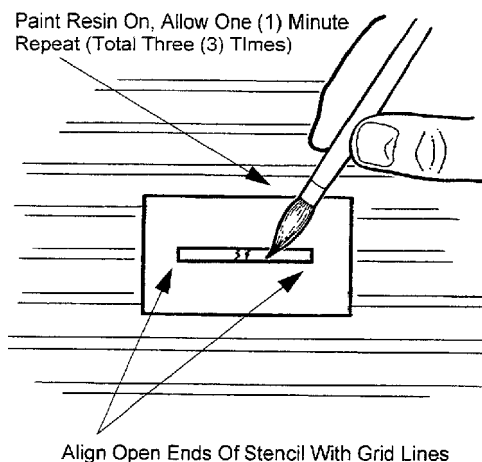
Model(s): All Mazda Models  
Category: T - Body Electrical System  
Bulletin No.: 015/95  
Date Issued: November 14, 1995  
Date Revised: December 21, 1995

## DESCRIPTION

The following procedure should be used to repair broken grid lines on rear window defrosters. Place a copy of these procedures in the appropriate section of the workshop manual.

## REPAIR PROCEDURE

1. Turn the defroster switch on with the ignition in the on position.
2. Determine the broken grid line visually or with a test light or voltage meter.
3. Turn the defroster and ignition Off.
4. Clean the area with a glass cleaner.
5. Remove the protective backing from the stencil.
6. Align both ends of the broken grid line with the opening in the stencil and press firmly to attach. See Fig. 1



95B51939

Fig. 1: Resin Application Location

# REAR WINDOW DEFROSTER GRID LINE REPAIR PROCEDURE CAT. T, NO. 015/95

## Article Text (p. 2)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:42PM

NOTE: Make sure both ends are aligned prior to attaching.

7. Shake the bottle of resin well.

CAUTION: Continuity failure will occur if the ingredients are not mixed completely.

8. Brush on the resin overlapping both ends of the broken grid line.

NOTE: Use paint remover to clean brush for future applications.

9. Repeat application (total of 3 times) when the surface is tack-free (approximately one (1) minute).

10. Allow to dry twenty (20) minutes.

11. Carefully peel stencil from glass.

12. Allow twenty-four (24) hours before activating rear defroster.

## PARTS INFORMATION

### PARTS INFORMATION TABLE

```
UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;
 3 Part Number 3 Description 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA~
 3 0000 88 5067 3 Resin 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU
```

## WARRANTY INFORMATION

(Applies To Verified Customer Complaints On Vehicles Covered Under Normal Warranty. Refer To The SRT Microfiche For Warranty Term Information.)

|                         |              |
|-------------------------|--------------|
| Warranty Type:          | A            |
| Symptom Code:           | D5           |
| Damage Code:            | AA           |
| Part Number Main Cause: | 0000 88 5067 |
| Quantity:               | 0            |
| Operation Number:       | XX0777RX     |
| Labor Hours:            | 0.3 Hrs.     |

## END OF ARTICLE

# SEAT BELT EXTENDERS DESCRIPTION/ORDERING INFO CAT. S, NO. 005/98

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:43PM

## ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

## SEAT BELT EXTENDERS

Model(s):           1989-98 Mazda MPV  
                      1995-99 Mazda Protege  
                      1994-95 Mazda MX-3  
                      1994-97 Mazda Miata  
                      1999       Mazda Miata  
                      1993-97 Mazda 626/MX6  
                      1998-99 Mazda 626  
                      1993-95 Mazda RX-7  
                      1988-89 Mazda 929  
                      1992-95 Mazda 929  
                      1995-99 Mazda Millenia  
                      1991-94 Mazda Navajo  
                      1994-98 Mazda B-Series

Category:           S (08) - Body

Bulletin No.:       005/98

Date:               August 5, 1998

NOTE: This bulletin supersedes Technical Service Bulletin number 005/98, dated April 22, 1998. The Parts Information section has been corrected and revised to include 1999 models.

## DESCRIPTION

If a fully extended seat belt will not reach across the lap of the vehicle occupant, a seat belt extender may be available which can lengthened a seat belt by 8, 9 or 12 inches. Refer to the PARTS INFORMATION for applicable models and available lengths.

Fig. 1 shows the "Warning Label" which is affixed to the seat belt extender. The proper usage and safety related warnings listed on the extender must be explained to the customer when the extender is delivered.

It is also the dealer's responsibility to explain the following Owners Manual Warning information to the customer:

### WARNING:

- \* Using a seat belt extender when not necessary is dangerous. The seat belt will be too long and not fit properly. In an accident, the seat belt will not provide adequate protection and you (customer) could be seriously injured. Only use the extender when it is required to fasten the seat belt properly.
- \* Using an extender that is too long is dangerous. The seat belt

# SEAT BELT EXTENDERS DESCRIPTION/ORDERING INFO CAT. S, NO. 005/98

## Article Text (p. 2)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

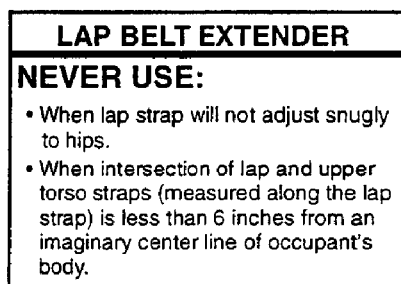
Sunday, August 19, 2001 01:43PM

will not fit properly. In an accident, the seat belt will not provide adequate protection and you could be seriously injured. DO NOT use the seat belt extender or choose one shorter in length if the distance between the extender's buckle and the center of the user's body is less than 6 inches.

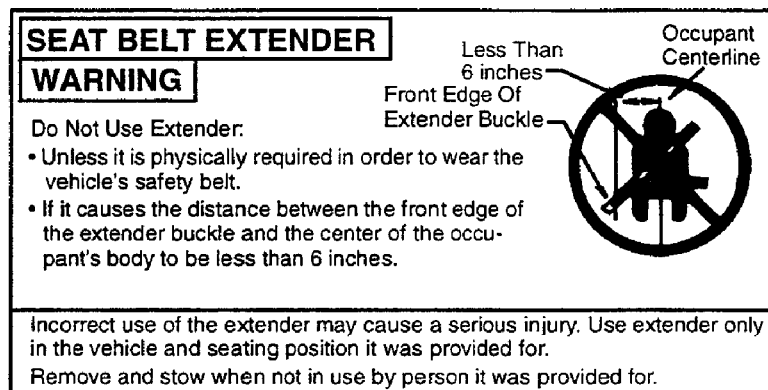
- \* Using a seat belt extender that is for another person or a different vehicle or seat is dangerous. The seat belt will not provide adequate protection and the user can be seriously injured in an accident. Only use the extender provided for you and for the particular vehicle and seat. Never use an extender in a different vehicle or seat.

### PARTS INFORMATION

Seat belt extender availability application table for the different models is at Fig. 2.



**NAVAJO and B-SERIES**



**ALL OTHER MODELS**

97H57528

Fig. 1: Seat Belt Extender Warning Label



# SEAT BELT EXTENDERS DESCRIPTION/ORDERING INFO CAT. S, NO. 005/98

## Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:43PM

| PARTS INFORMATION - Seat Belt Extender Availability/Application |                            |               |            |   |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
|-----------------------------------------------------------------|----------------------------|---------------|------------|---|---|---------|---|---------------|----|------------|---------|-------------|---|---|-----------------|-----------------|------------------|--|
| Yr./Model                                                       | VIN                        | Seat Position |            |   |   |         |   |               |    |            |         | Part Number |   |   |                 |                 |                  |  |
|                                                                 |                            | front seat    | 2nd seat   |   |   |         |   | separate seat |    | 3rd seat   |         |             |   |   |                 |                 |                  |  |
|                                                                 |                            |               | bench seat |   |   | 3 pass. |   | LH            | RH | bench seat |         |             |   |   |                 |                 |                  |  |
|                                                                 |                            |               | 2 pass.    |   | L | R       | L |               |    | C          | 3 pass. |             |   |   |                 |                 |                  |  |
|                                                                 |                            |               | L          | H | R | H       | T |               |    | R          | L       | C           | R |   |                 |                 |                  |  |
| 89-90 MPV                                                       | ALL                        | X             |            |   |   |         |   |               |    | X          |         |             |   |   | 8 Inch Extender | 9 Inch Extender | 12 Inch Extender |  |
|                                                                 |                            |               | X          | X |   |         |   |               |    |            |         |             |   | X |                 |                 |                  |  |
|                                                                 |                            |               |            | X |   |         |   |               |    |            |         |             | X |   |                 |                 |                  |  |
| 91-92 MPV                                                       | ALL                        | X             |            |   |   |         |   |               |    |            |         |             | X |   |                 |                 |                  |  |
|                                                                 |                            |               | X          | X | X |         |   |               |    |            |         |             |   |   | X               |                 |                  |  |
|                                                                 |                            |               |            |   | X |         |   |               |    |            |         |             | X |   |                 |                 |                  |  |
| 93-95 MPV                                                       | ALL                        | X             |            | X |   |         |   |               |    |            |         |             | X |   |                 |                 |                  |  |
|                                                                 |                            |               | X          | X | X |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
|                                                                 |                            |               |            |   |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
| 96-98 MPV                                                       | ALL                        | X             |            |   |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
|                                                                 |                            |               | X          | X | X |         |   |               |    |            |         |             | X |   |                 |                 |                  |  |
|                                                                 |                            |               |            |   |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
| 95 PROTEGE                                                      | All                        | X             |            |   |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
|                                                                 |                            |               | X          | X | X |         |   |               |    | X          | X       | X           | X |   |                 |                 |                  |  |
|                                                                 |                            |               |            |   |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
| 96 PROTEGE                                                      | JM1BB14**T0300001-T0349419 | X             |            |   |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
|                                                                 |                            |               | X          | X |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
|                                                                 |                            |               |            |   |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
| 97-98 PROTEGE                                                   | All                        | X             |            |   |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
|                                                                 |                            |               | X          | X |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
|                                                                 |                            |               |            |   |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
| 1999 PROTEGE                                                    | ALL                        | X             |            |   |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
|                                                                 |                            |               | X          | X |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
|                                                                 |                            |               |            |   |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
| 94-95 MX-3                                                      | All                        | X             |            |   |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
|                                                                 |                            |               | X          | X |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
|                                                                 |                            |               |            |   |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
| 94-97 MIATA                                                     | All                        | X             |            |   |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
|                                                                 |                            |               | X          | X |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
|                                                                 |                            |               |            |   |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
| 99 MIATA                                                        | All                        | X             |            |   |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
|                                                                 |                            |               | X          | X |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
|                                                                 |                            |               |            |   |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
| 93-97 626/MX-6                                                  | All                        | X             |            |   |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
|                                                                 |                            |               | X          | X |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
|                                                                 |                            |               |            |   |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
| 98-99 626                                                       | All                        | X             |            |   |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
|                                                                 |                            |               | X          | X |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
|                                                                 |                            |               |            |   |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
| 93-95 RX-7                                                      | All                        | X             |            |   |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
|                                                                 |                            |               | X          | X |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
|                                                                 |                            |               |            |   |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
| 88-89 929                                                       | All                        | X             |            |   |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
|                                                                 |                            |               | X          | X |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
|                                                                 |                            |               |            |   |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
| 92-95 929                                                       | All                        | X             |            |   |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
|                                                                 |                            |               | X          | X |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
|                                                                 |                            |               |            |   |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
| 95-99 MILLENIA                                                  | All                        | X             |            |   |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
|                                                                 |                            |               | X          | X |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
|                                                                 |                            |               |            |   |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
| 91-94 NAVAJO<br>(bright, side release buckle)                   | (black buckle)             | X             |            |   |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
|                                                                 |                            |               | X          | X |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
|                                                                 |                            |               |            |   |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
| 91-94 NAVAJO                                                    | All                        | X             |            |   |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
|                                                                 |                            |               | X          | X |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
|                                                                 |                            |               |            |   |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
| 94-97 B-SERIES                                                  | All                        | X             |            |   |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
|                                                                 |                            |               | X          | X |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
|                                                                 |                            |               |            |   |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
| 98 B-SERIES                                                     | All                        | X             |            |   |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
|                                                                 |                            |               | X          | X |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |
|                                                                 |                            |               |            |   |   |         |   |               |    |            |         |             |   |   |                 |                 |                  |  |

NOTE: It is the dealer's responsibility to explain to the customer that the extender should be used only at the designated seat position(s) as shown above.

97J58619

Fig. 2: Seat Belt Extender Availability Application Table

## WARRANTY INFORMATION

Applies To Verified Customer Complaints On Vehicles Covered Under Normal Warranty. Refer To The SRT Microfiche For Warranty Term

**SEAT BELT EXTENDERS DESCRIPTION/ORDERING INFO CAT. S, NO. 005/98**

**Article Text (p. 4)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC  
Sunday, August 19, 2001 01:43PM

Information.

|                         |                            |
|-------------------------|----------------------------|
| Warranty Type Code:     | A                          |
| Symptom Code:           | 99                         |
| Damage Code:            | 99                         |
| Part Number Main Cause: | Refer to Parts Information |
| Quantity:               | 1                          |
| Operation Number:       | N/A                        |
| Labor Time:             | N/A                        |

**END OF ARTICLE**

# SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:44PM

## ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

## SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL REPAIRS

Model(s): 1993-94 Mazda RX-7  
Category: AD  
Bulletin No.: 002/96  
Date: February, 1996

## PURPOSE OF THIS INFORMATION

- 1) Emphasize the importance of proper repair.
- 2) Provide diagnostic tips-if repairs are not performed correctly.

## CONTENTS

- \* January 1994 M-Tips contents related to this recall.
- \* General, Driveability and Component Troubleshooting Tips
- \* Service Bulletin AD, 002/96
- \* Up dated reference pages for the applicable Wiring Diagrams.

NOTE: Many driveability concerns occur from improperly performed repair procedures. This information is provided to emphasize this point and give direction to prevent these concerns.

## REPAIR PROCEDURE

IMPORTANT: Read this information thoroughly prior to performing recall repairs

## MAZDA TIPS (Jan. 1994 ed.)

When performing the Fuel Line Recall on RX-7 (Recall #60504), the following precautions and tips could save you a lot of extra time, and eliminate unnecessary expenses.

- \* Use extreme caution when removing the Fuel Pressure Regulator vacuum line. The plastic solenoid pipe can be easily broken when removing the hose if caution is not exercised.
- \* Secondary Fuel Rail Hose Replacement: The fuel injector rails are very fragile and can be easily broken. Remove the fuel distributor assemblies before you remove the Fuel Connector bolt. Do not mount the fuel distributor in a vice. Hold the distributor in your hand

## SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96

### Article Text (p. 2)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:44PM

and remove the Fuel Connector bolt with an air impact wrench. When installing the new fuel hose, hold the fuel distributor by hand and torque. The fuel connector bolt torque should be adjusted to 240-360 kgs/cm (208-312 in-lbs)

- \* Fuel Hose Clips: The double clips used on the primary fuel distributor inlet hose are narrower than the other clips. They also have a red holder. The single clips for use on the secondary distributor outlet hose is wider and has a pink holder.
- \* Fuel System Pressure Test: It is essential that this test be properly completed. The fuel line clips may appear to be properly seated, when in fact they are slightly mispositioned. Only when this pressure test is performed for the full five minutes can you be certain that all joints are well sealed.
- \* When performing fuel system leak test, it is important to connect the battery negative cable and then install jumper wire from the ground to the fuel pump terminals in the diagnostic connector before turning the ignition switch on. When the test is completed, turn the ignition switch off, remove the jumper wire, and then disconnect the battery negative cable. Failure to follow this order could result in damage to electrical components, such as the PCM.
- \* Be sure to use the proper 10mm nuts to install the coil assembly. The proper nuts have grooves on the underside to ensure a complete ground.
- \* Be sure that the O-ring gasket is properly seated on the base of the oil filler. The gasket may come off during removal without being noticed.
- \* When installing the Catch Tank during reassembly, be sure to route the vacuum hose from the purge control and to the catch tank on the outside of the oil filler. Otherwise, the vacuum hose could interfere in proper operation of the throttle linkage.
- \* The Fan Control System fastener A is a gray plastic-phillips screw in fastener. Remove and discard the fastener. The bolt at the top of the ECU should be loosened to allow the ECU to be slid down and away from the kick panel. It is not necessary to remove the wiring connectors from the ECU to perform this procedure. Just move the ECU over toward the center of the passenger area floor.

# SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96

## Article Text (p. 3)

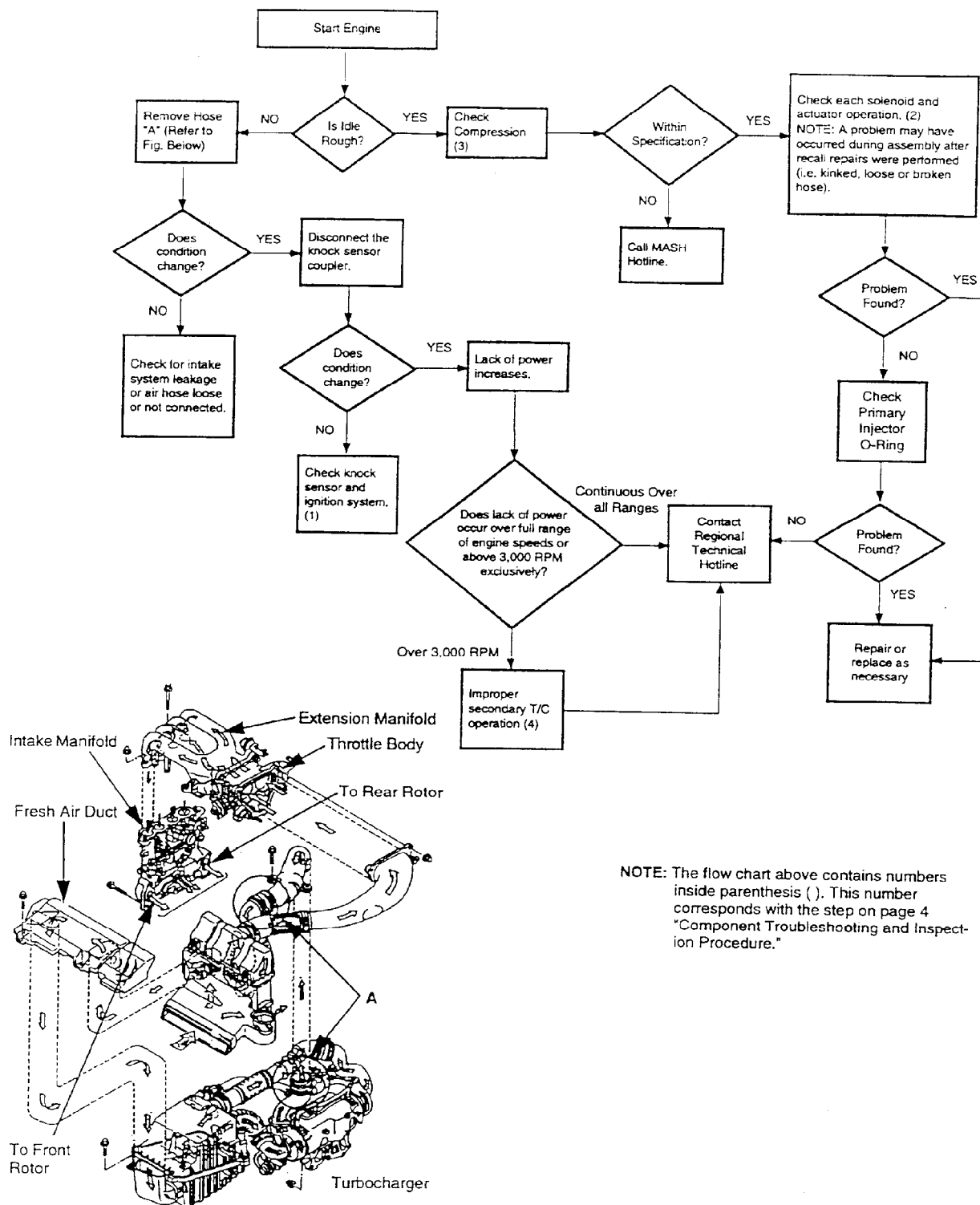
1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:44PM

### DRIVEABILITY TROUBLESHOOTING TIPS (Lack of Power, Rough Idle and Hesitation)



NOTE: The flow chart above contains numbers inside parenthesis (.). This number corresponds with the step on page 4 "Component Troubleshooting and Inspection Procedure."

Fig. 1: Driveability Troubleshooting Tips, Poor Power/Idle, Hesitates

## GENERAL TROUBLESHOOTING TIPS

| Trouble                                                                          | Possible Cause                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Engine will not start, spark plugs are wet or fouled.                            | <p>On older vehicles, the injectors may leak under extremely high pressures developed during the fuel system pressure test.</p> <p>* Remove and clean plugs.</p> <p>* With plugs remove, hold the throttle completely open and crank the engine to dechoke.</p> <p>DO NOT REPLACE THE INJECTORS.</p> <p>Injectors will not leak under normal system pressure.</p>                                                                  |
| Engine does not get fuel. Cranks but will not start.                             | <p>The PCM may have been damaged during the fuel leakage test if the proper procedure was not followed. To test the PCM:</p> <p>* Connect a jumper wire from the pump terminal in the diagnostic connector directly to a good ground (not in the connector).</p> <p>* Crank the engine.</p> <p>* If the engine starts and remains running only as long as the connector is connected, the PCM is damaged and must be replaced.</p> |
| Engine cuts out on hard throttle, but accelerates normally under light throttle. | <p>Check the secondary fuel injector connectors.</p> <p>* If the connectors are not fully locked during reassembly, they can be mis-positioned when the vacuum pipe assembly is installed.</p> <p>* Connectors may appear to be in place but not fully connected.</p>                                                                                                                                                              |
| No fast idle.                                                                    | <p>* Check the idle speed control valve connector for good connection.</p>                                                                                                                                                                                                                                                                                                                                                         |
| Excess fuel consumption after recall repair work.                                | <p>Improper vacuum may result in faulty fuel regulator operation.</p> <p>* Check fuel regulator vacuum hose connection.</p>                                                                                                                                                                                                                                                                                                        |
| Unusual air noise from center of engine (just off idle).                         | <p>If the Air Control Valve check valve is not properly seated, the ACV can not seat properly.</p> <p>* Check that the ACV check valve is</p>                                                                                                                                                                                                                                                                                      |

## SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96

### Article Text (p. 5)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:44PM

```
3           3 properly installed.           3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA -
3 Cooling fan will not 3 If the cooling fan will not operate 3
3 operate.           3 under any conditions during the fan 3
3           3 test.           3
3           3 * Check the wire harness ground 3
3           3 strap for proper connection. 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA -
3 Cooling fan shuts off 3 Memory needs cleared. 3
3 when the key is turned 3 * Disconnect the battery and start 3
3 off during the fan 3 fan test over. 3
3 test.           3           3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA -
3 Cooling fan comes on 3 If the vehicle was produced before 3
3 immediately when the 3 April 1, 1993 (VIN of JM1FD331* 3
3 key is turned on and 3 P0210660 or less): 3
3 the check connector is 3 * The fan should come on immediately 3
3 grounded. 3 when the key is turned on. 3
3           3 * Leave the key on and the fan 3
3           3 operating for at least 150 seconds 3
3           3 * Turn the key off and proceed with 3
3           3 the test. 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA -
3 Fan operates only on 3 * Check that the harnesses with the 3
3 medium speed during fan 3 Black wires are connected. 3
3 test. 3 NOTE: The other two (2) harnesses 3
3           3 are interchangeable. 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA U
```

### COMPONENT TROUBLESHOOTING AND INSPECTION PROCEDURE

1) Perform Spark Plug and Ignition Coil Inspection.

2) Intake System Inspection, check the following:

- \* If the air hose is coming off.
- \* If oil is present inside the hose and there is no sign of breakage, remove the oil. It is not necessary to replace the hose.
- \* If the hose is broken, replace the hose with a new part and tighten to the specified torque.
- \* If the hose is loose (coming off) insert properly and tighten to specified torque.

NOTE: The fuel connector bolt torque should be adjusted to 240-360 kgs/cm (208-312 in-lbs).

CAUTION: Do not allow foreign material to enter related parts when replacing or reinstalling intake system parts.

# SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96

## Article Text (p. 6)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:44PM

3) Compression Measurement.

4) Turbocharger Operation Controls Inspection:

### TURBOCHARGER OPERATION CONTROLS INSPECTION TABLE

|                                                                             |                 |                              |   |
|-----------------------------------------------------------------------------|-----------------|------------------------------|---|
| UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA; |                 |                              |   |
| 3 Part Name                                                                 | 3 Inspection    | 3 Procedure                  | 3 |
| 3                                                                           | 3 Item          | 3                            | 3 |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-   |                 |                              |   |
| 3 Check Valve "A"                                                           | 3 Reverse Flow  | 3 * After checking the check | 3 |
| 3 and "B"                                                                   | 3               | 3 valve, confirm that air    | 3 |
| 3                                                                           | 3               | 3 hoses C, D, E, F, are      | 3 |
| 3                                                                           | 3               | 3 connected. See Fig. 2.     | 3 |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-   |                 |                              |   |
| 3 Turbo Control                                                             | 3 Improper      | 3 * Refer to Fig. 2 to       | 3 |
| 3 Valve Actuator,                                                           | 3 Operation,    | 3 identify components for    | 3 |
| 3 Charge Control                                                            | 3 Improper      | 3 damaged (bent, nicked)     | 3 |
| 3 Valve Actuator,                                                           | 3 Piping Bent,  | 3 or removed condition.      | 3 |
| 3 Charge Relief                                                             | 3 Nicked and    | 3 Carefully check the        | 3 |
| 3 Valve,Turbo                                                               | 3 Removed Hoses | 3 following:                 | 3 |
| 3 Control Actuator,                                                         | 3               | 3 * Improperly connected     | 3 |
| 3 Turbo Pre-                                                                | 3               | 3 piping around area         | 3 |
| 3 Control Actuator                                                          | 3               | 3 "G."                       | 3 |
| 3 in Fig. 2                                                                 | 3               | 3 * Removed hoses around     | 3 |
| 3                                                                           | 3               | 3 area "H."                  | 3 |
| 3                                                                           | 3               | 3 * "I" hose for bent        | 3 |
| 3                                                                           | 3               | 3 condition.                 | 3 |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU       |                 |                              |   |

Repair or replace defective parts as necessary.



SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96

Article Text (p. 7)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:44PM

SYSTEM SCHEMATIC

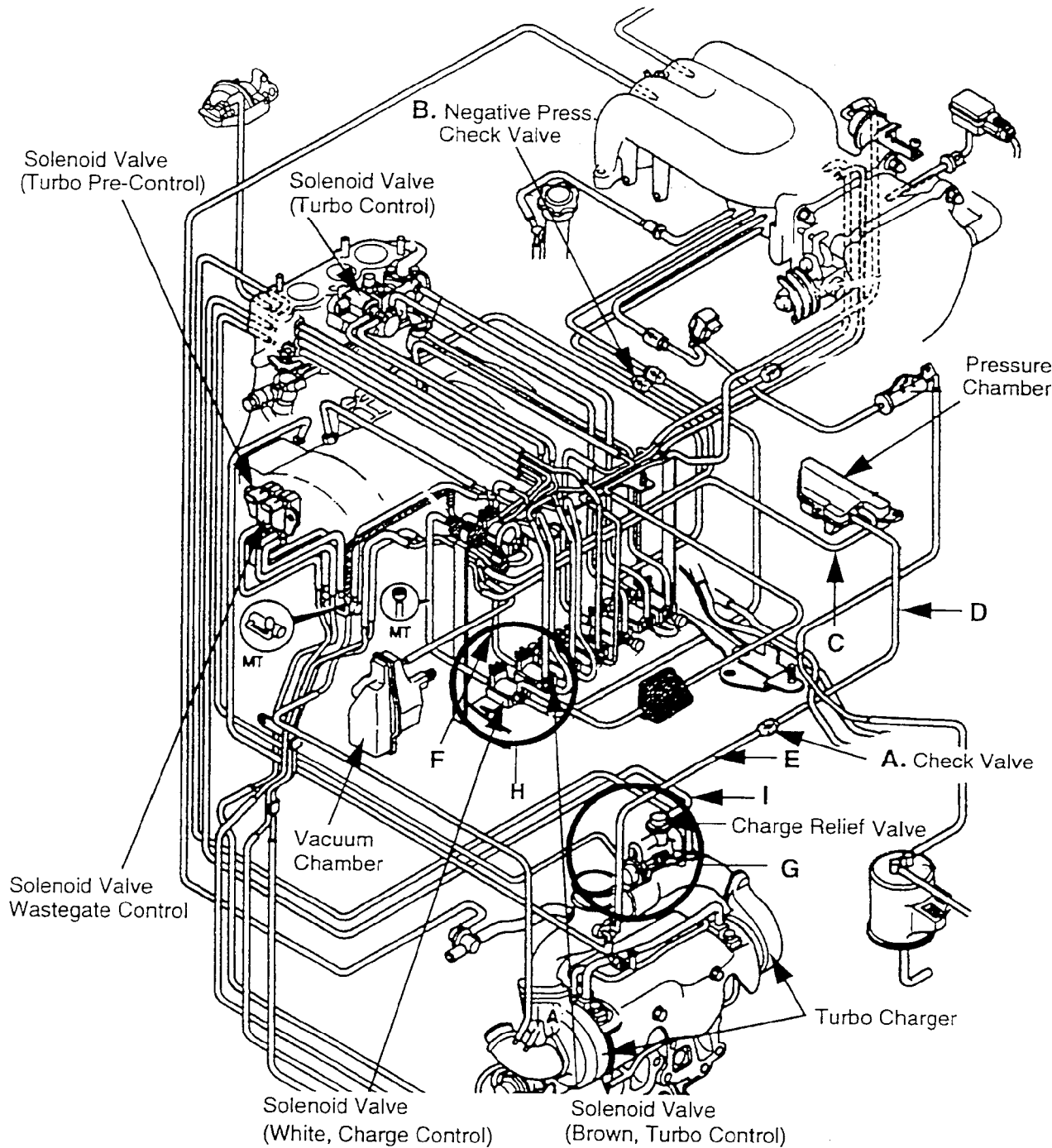


Fig. 2: Intake System Schematic

| SYSTEM SCHEMATIC PARTS IDENTIFICATION TABLE |             |              |
|---------------------------------------------|-------------|--------------|
| Item                                        | Description | Part No. (1) |

# SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96

## Article Text (p. 8)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:44PM

```

3  A  3 Check Valve (Positive Pressure) 3 N390-13-995A 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3  B  3 Check Valve (Positive Pressure) 3 N390-13-995A 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3  C  3 Vacuum Hose (Pressure Chamber 3 N3A1-20-341 3
3      3 Exit) 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3  D  3 Vacuum Hose (Pressure Chamber 3 N3A1-20-342 3
3      3 Entrance) 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3  E  3 Vacuum Hose (Check Valve 3 N350-13-B96 3
3      3 Entrance) 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3  F  3 Vacuum Hose (CCV No. 3 3 N3A2-20-362 3
3      3 Solenoid) 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 (1) If part is removed, replacement is necessary 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
  
```

## COOLING FAN CONTROL SYSTEM 1993 RX-7

### DESCRIPTION

To improve idle smoothness and engine reliability, the cooling fan control system controls the electrical fan speed by ECM. This system consists of the cooling fan, cooling fan relays, cooling fan control module, ECM, and input devices. See Figs. 3 and 4.

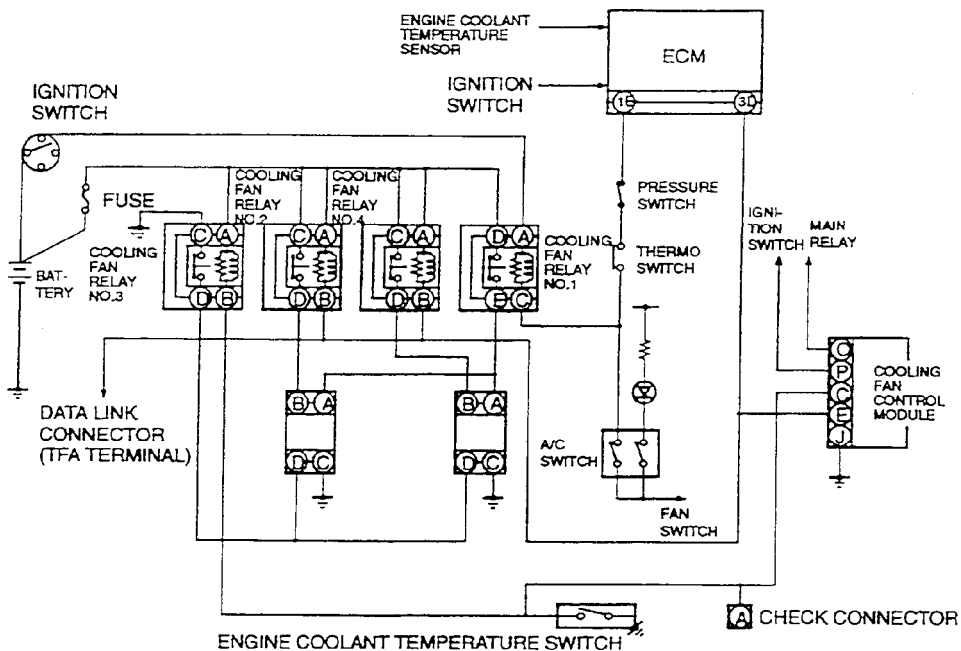


Fig. 3: Cooling Fan Control System Components

# SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96

## Article Text (p. 9)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:44PM

| Engine condition<br>(No electrical load)                                                                                                                     |                                                                                                    | A/C operation | Cooling fan relay No.1 | Cooling fan relay No.2 | Cooling fan relay No.3 | Cooling fan relay No.4 | Cooling fan operation |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|---------------|------------------------|------------------------|------------------------|------------------------|-----------------------|
| Engine coolant temperature below 105 °C {221 °F }                                                                                                            |                                                                                                    | OFF           | OFF                    | OFF                    | OFF                    | OFF                    | OFF                   |
|                                                                                                                                                              |                                                                                                    | ON            | ON                     | OFF                    | OFF                    | OFF                    | LOW                   |
| Engine coolant temperature 105—108 °C {221—226 °F }                                                                                                          |                                                                                                    | OFF           | OFF                    | ON                     | OFF                    | ON                     | LOW                   |
|                                                                                                                                                              |                                                                                                    | ON            | ON                     | ON                     | OFF                    | ON                     | MIDDLE                |
| Engine coolant temperature above 108 °C {226 °F } (Engine coolant temperature switch ON)                                                                     |                                                                                                    | OFF           | OFF                    | ON                     | ON                     | ON                     | MIDDLE                |
|                                                                                                                                                              |                                                                                                    | ON            | ON                     | ON                     | ON                     | ON                     | HIGH                  |
| In 10 min. after ignition switch is turned OFF. Engine coolant temperature above 108 °C {226 °F } for more than 2 min. before ignition switch is turned OFF. | Engine coolant temperature over 108 °C {226 °F } after ignition switch is turned OFF               | —             | OFF                    | ON                     | ON                     | ON                     | MIDDLE                |
|                                                                                                                                                              | Engine coolant temperature becomes lower than 108 °C {226 °F } after ignition switch is turned OFF | —             | OFF                    | ON                     | OFF                    | ON                     | LOW                   |
| Engine coolant temperature sensor malfunction                                                                                                                |                                                                                                    | —             | OFF                    | ON                     | OFF                    | ON                     | LOW                   |
| TFA terminal ground                                                                                                                                          |                                                                                                    | —             | OFF                    | ON                     | OFF                    | ON                     | LOW                   |

98E51742

Fig. 4: Cooling Fan Control System Operation

## SYSTEM INSPECTION

- 1) Verify that the engine coolant temperature is below 80°C (176°F)
- 2) Turn the ignition switch to ON for 15 seconds or longer.
- 3) Turn the ignition switch to OFF.
- 4) Ground the check connector by using a jumper wire.
- 5) (Up to VIN JM1 FD331' PO 210660) Turn the ignition switch to ON and verify that the cooling fan operates. Wait for approximately 150 seconds. (From VIN JM1 FD331' PO 210661) Turn the ignition switch to ON and verify that the cooling fan operates approximately 100-150 seconds after the ignition switch is turned to ON.
- 6) If the cooling fan will not operate, inspect the following.
  - \* Battery positive voltage
  - \* Fan control signal
  - \* Engine coolant temperature signal
  - \* Ground

## SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96

### Article Text (p. 10)

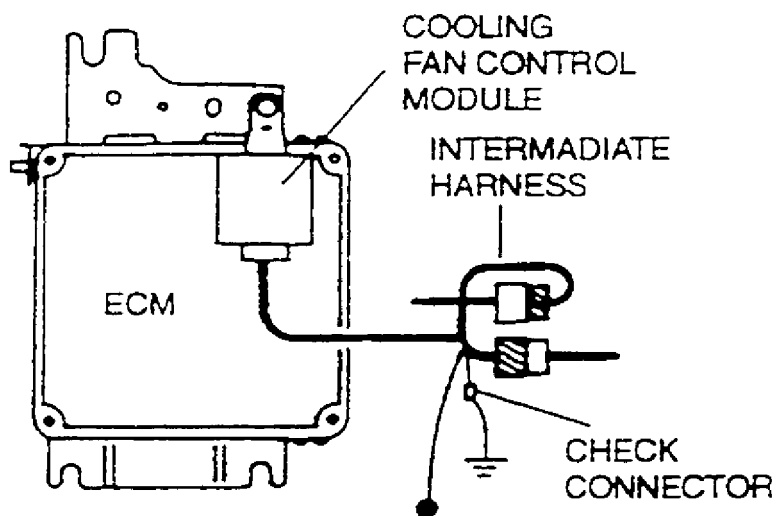
1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

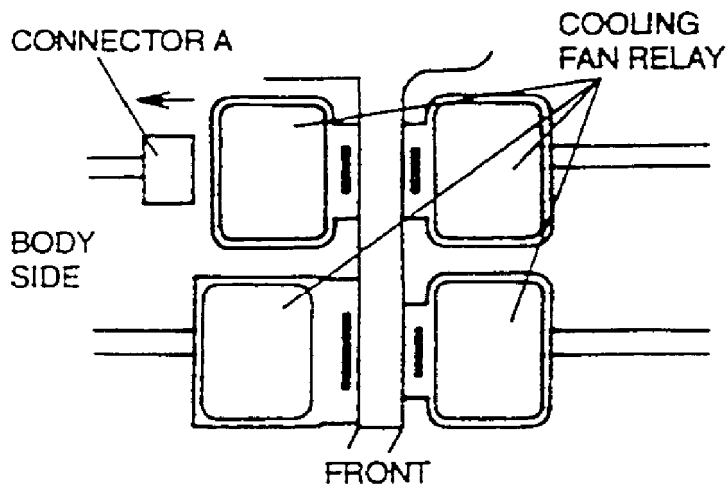
Sunday, August 19, 2001 01:44PM

- 7) Turn the ignition switch to OFF.
- 8) Verify that the cooling fan keeps operating after the ignition switch is turned to OFF.
- 9) If not, replace the cooling fan control module. See Fig. 5.
- 10) Wait for approximately 20 seconds.
- 11) Disconnect cooling fan relay connector A. Verify that the cooling fan operates at low speed. See Fig. 6.



98H51620

Fig. 5: Cooling Fan Control Module



98I51621

Fig. 6: Cooling Fan Relay Connector

- 12) If not, inspect the cooling fan relay.

## SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96

### Article Text (p. 11)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:44PM

- 13) Connect cooling fan relay connector A. Verify that the cooling fan operates at the speed before connector A is disconnected.
- 14) Disconnect the jumper wire from the check connector. Verify that the cooling fan operates at low speed.
- 15) Turn the ignition switch to ON.
- 16) Verify that the cooling fan stops 8-12 seconds after the ignition switch is turned to ON.
- 17) If not as specified, replace the cooling fan control module

### COOLING FAN CONTROL MODULE 1993 RX-7

#### REMOVAL/INSTALLATION

- 1) Remove the ECM.
- 2) Disconnect the cooling fan control module connector.
- 3) Loosen nut A as shown. See Fig. 7.
- 4) Remove the cooling fan control module.
- 5) Install in the reverse order of removal. Tighten Nut A Torque to 7.9-10.7 N-m (80-110 kgs-cm, 70-95 in-lbs).

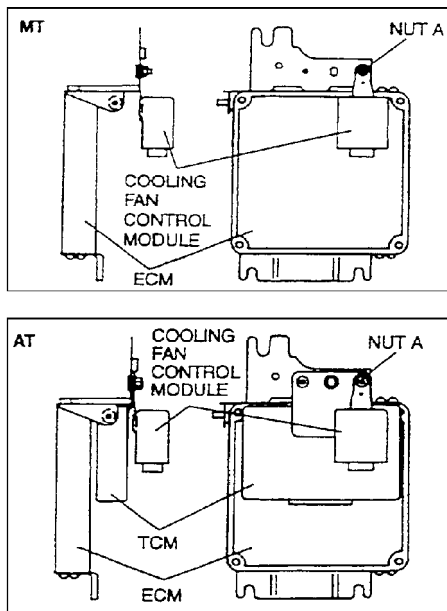


Fig. 7: Cooling Fan Control Module

INSPECTION 1993 RX-7

# SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96

## Article Text (p. 12)

1993 Mazda RX7

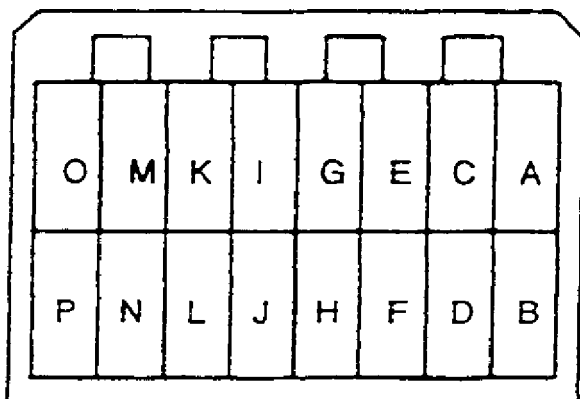
For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:44PM

1) With the cooling fan control module connector connected, measure the voltage at each terminal of the connector. Using a voltmeter, ground the negative lead to the body and insert the positive lead in each terminal of the connector.

2) If there is any incorrect output voltage while all input voltages are correct, inspect related systems. See Figs. 8 thru 10. When the systems are normal, replace the cooling fan control module



98A51623

Fig. 8: Fan Control Module Connector Terminal Locations

Terminal Voltage

B+: Battery positive voltage

| Terminal | Signal                                       | Connected to                      | Test condition                                    | Voltage (V) | Possible malfunction                                                                                                              |
|----------|----------------------------------------------|-----------------------------------|---------------------------------------------------|-------------|-----------------------------------------------------------------------------------------------------------------------------------|
| A        | —                                            | —                                 | —                                                 | —           | —                                                                                                                                 |
| B        | —                                            | —                                 | —                                                 | —           | —                                                                                                                                 |
| C        | Engine coolant temperature (for cooling fan) | Engine coolant temperature switch | Engine coolant temperature below 108 °C {226 °F } | B+          | <ul style="list-style-type: none"> <li>Engine coolant temperature switch</li> <li>Cooling fan relay (Refer to F-146-1)</li> </ul> |
|          |                                              |                                   | Engine coolant temperature above 108 °C {226 °F } | Below 1.0   |                                                                                                                                   |
| D        | —                                            | —                                 | —                                                 | —           | —                                                                                                                                 |
| E        | Cooling fan relay No.2, 4                    | Cooling fan relay No.2, 4         | Cooling fan not operating                         | B+          | <ul style="list-style-type: none"> <li>Cooling fan relay (Refer to F-146-1)</li> </ul>                                            |
|          |                                              |                                   | During cooling fan operating                      | Below 1.0   |                                                                                                                                   |
|          |                                              |                                   | TFA terminal of data link connector is grounded   | Below 1.0   |                                                                                                                                   |
| F        | —                                            | —                                 | —                                                 | —           | —                                                                                                                                 |
| G        | —                                            | —                                 | —                                                 | —           | —                                                                                                                                 |
| H        | —                                            | —                                 | —                                                 | —           | —                                                                                                                                 |
| I        | —                                            | —                                 | —                                                 | —           | —                                                                                                                                 |
| J        | Ground                                       | Ground                            | Constant                                          | Below 1.0   | <ul style="list-style-type: none"> <li>Cooling fan control module terminal J —Ground</li> </ul>                                   |

98F51743

Fig. 9: Terminal Voltage Chart A-J

# SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96

## Article Text (p. 13)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:44PM

B + : Battery positive voltage

| Terminal | Signal                       | Connected to | Test condition      | Voltage (V) | Possible malfunction |
|----------|------------------------------|--------------|---------------------|-------------|----------------------|
| K        | —                            | —            | —                   | —           | —                    |
| L        | —                            | —            | —                   | —           | —                    |
| M        | —                            | —            | —                   | —           | —                    |
| N        | —                            | —            | —                   | —           | —                    |
| O        | Power supply                 | Main relay   | Ignition switch OFF | Below 1.0   | • Main relay         |
|          |                              |              | Ignition switch ON  | B +         |                      |
| P        | Power supply (Condenser fan) | Battery      | Constant            | B +         | • A/C fuse           |

Fig. 10: Terminal Voltage Chart K-P

## COOLING FAN RELAY (NO. 1, 2, 3, 4) 1993 RX-7

### INSPECTION

- 1) Disconnect the cooling fan relay.
- 2) Apply battery positive voltage and ground to terminals A and B of the cooling fan relay. See Fig. 11.
- 3) Check continuity of the relay.

#### TERMINAL CONTINUITY TABLE

```

UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3  Operation      3 A Type - Terminals D-E  3
3              3 B Type - Terminals C-D  3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3  B+ applied    3      Continuity      3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3  B+ not applied 3      No continuity    3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU
  
```

NOTE: B+ = Battery positive voltage

- 4) If not as specified, replace the cooling fan relay.

For additional wiring schematic information see Figs. 12 and 13

**SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96**

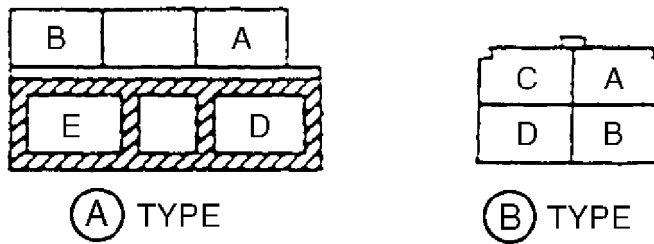
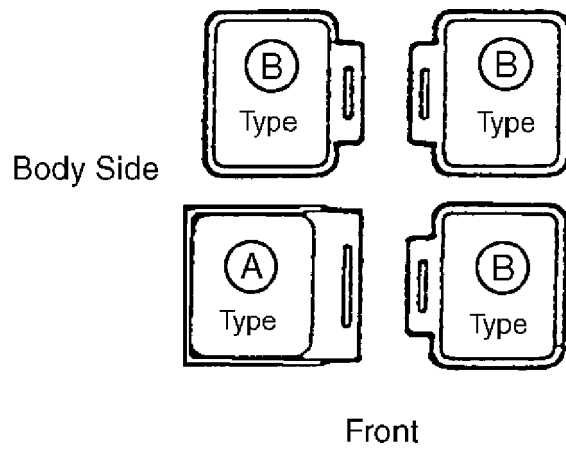
**Article Text (p. 14)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:44PM



98B51624

Fig. 11: Terminals A and B



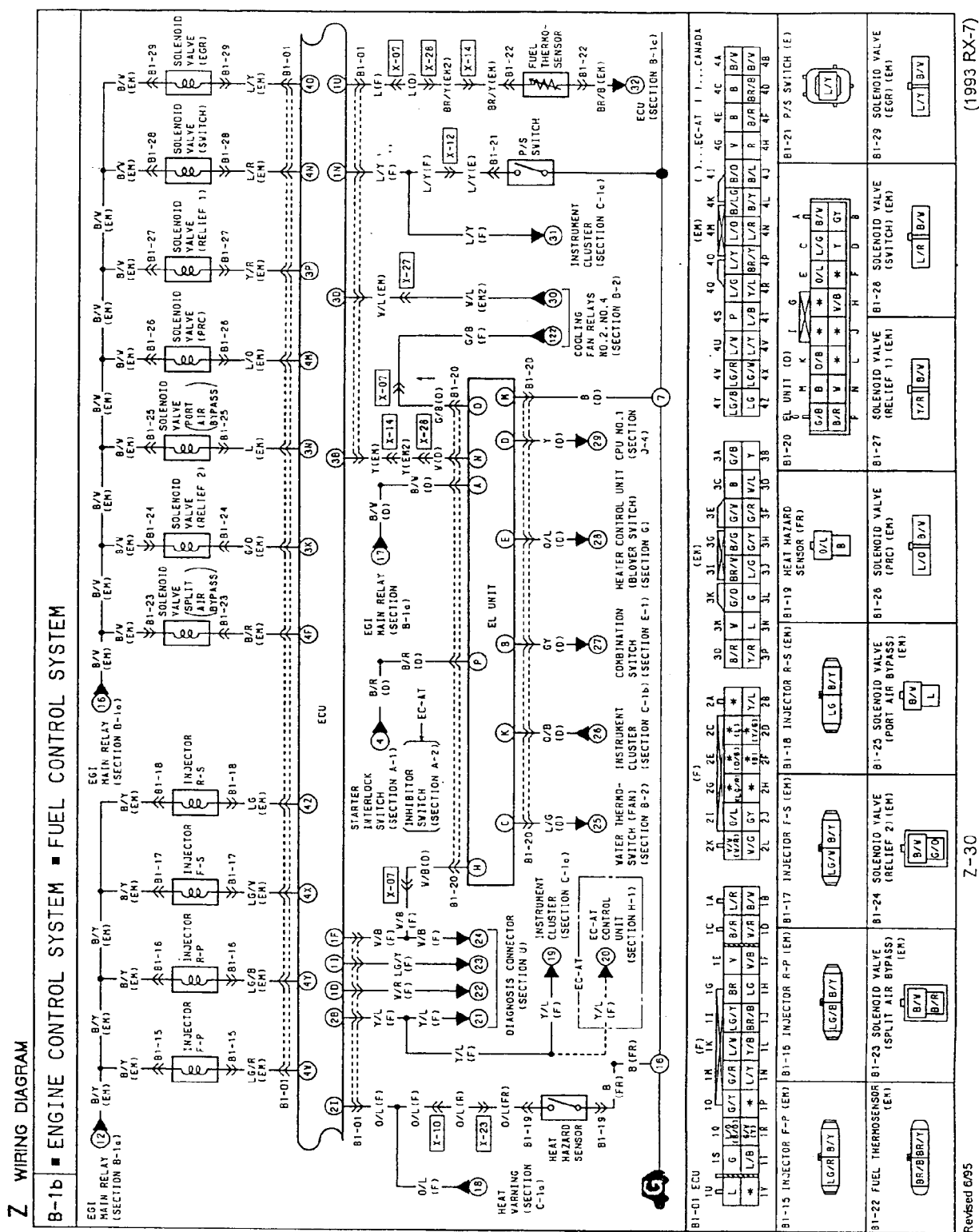


Fig. 12: Wiring Diagram Engine &amp; Fuel Control System 1993 RX-7

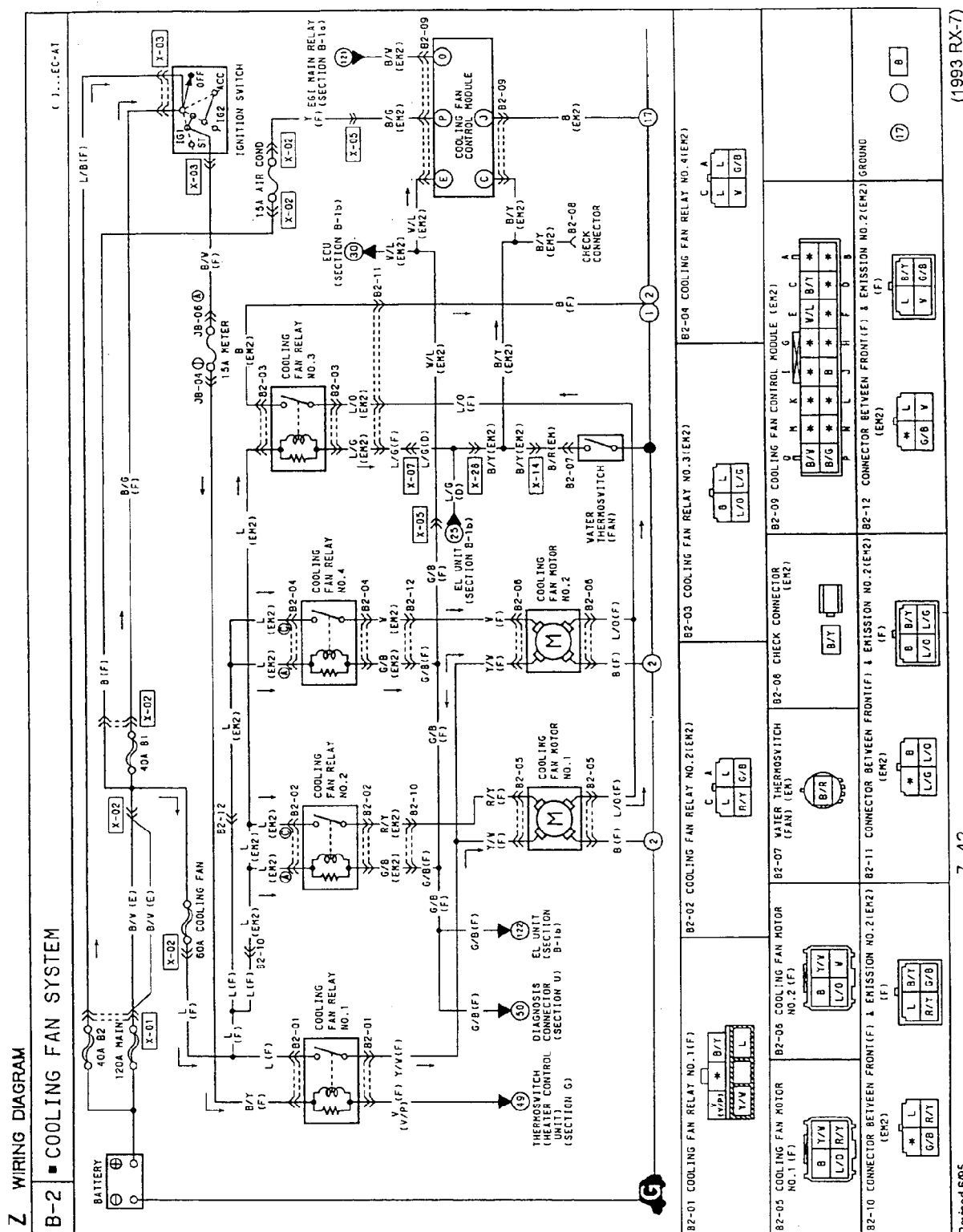


Fig. 13: Wiring Diagram Coolant Fan System 1993 RX-7

## SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96

### Article Text (p. 17)

1993 Mazda RX7

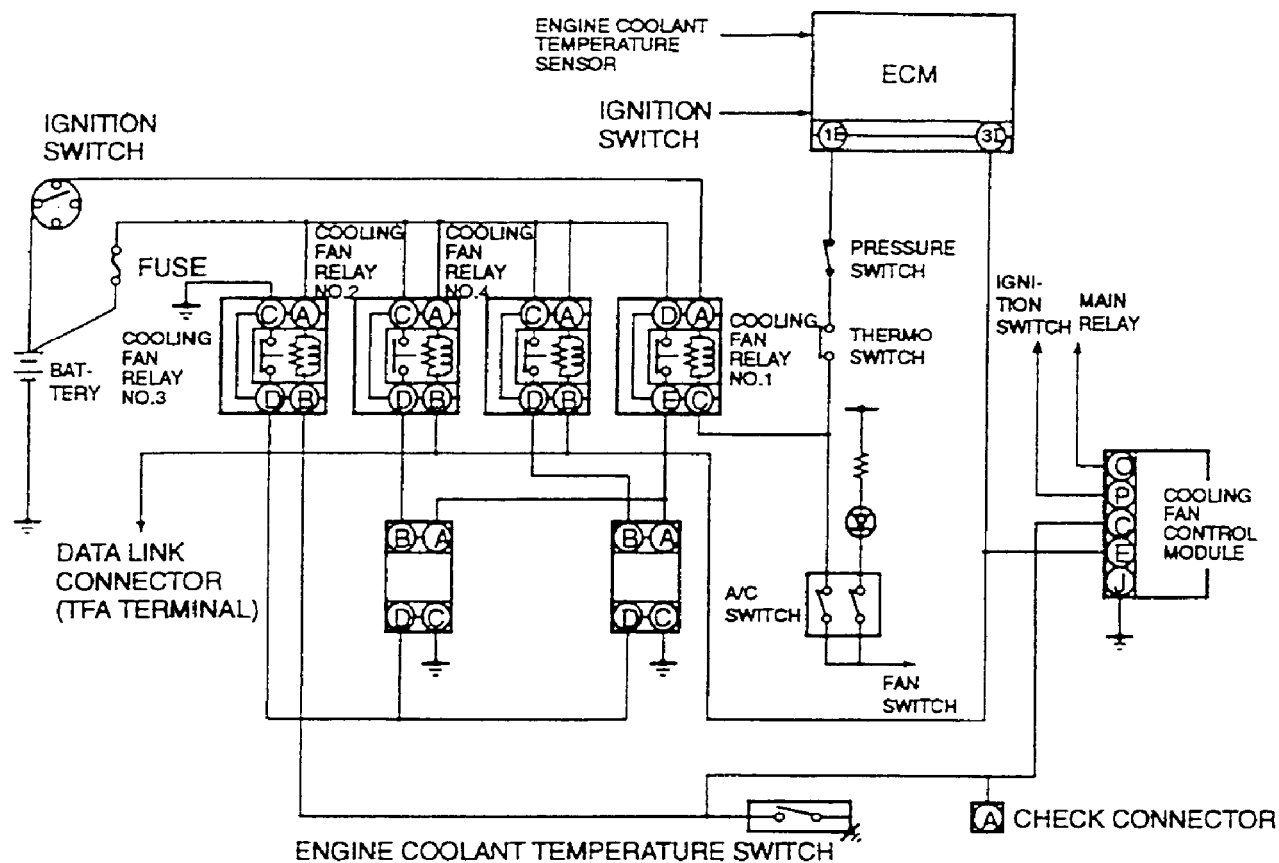
For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:44PM

### DESCRIPTION

To improve idle smoothness and engine reliability, the cooling fan control system controls the electrical fan speed by ECM. This system consists of the cooling fan, cooling fan relays, cooling fan control module, ECM, and input devices. See Figs. 14 and 15.



98E51627  
Fig. 14: Cooling Fan Control System Components

# SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96

## Article Text (p. 18)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:45PM

### Operation

| Engine condition<br>(No electrical load)                                                                                                                     |                                                                                                    | A/C operation | Cooling fan relay No.1 | Cooling fan relay No.2 | Cooling fan relay No.3 | Cooling fan relay No.4 | Cooling fan operation |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|---------------|------------------------|------------------------|------------------------|------------------------|-----------------------|
| Engine coolant temperature below 105 °C {221 °F }                                                                                                            |                                                                                                    | OFF           | OFF                    | OFF                    | OFF                    | OFF                    | OFF                   |
|                                                                                                                                                              |                                                                                                    | ON            | ON                     | OFF                    | OFF                    | OFF                    | LOW                   |
| Engine coolant temperature 105—108 °C {221—226 °F }                                                                                                          |                                                                                                    | OFF           | OFF                    | ON                     | OFF                    | ON                     | LOW                   |
|                                                                                                                                                              |                                                                                                    | ON            | ON                     | ON                     | OFF                    | ON                     | MIDDLE                |
| Engine coolant temperature above 108 °C {226 °F } (Engine coolant temperature switch ON)                                                                     |                                                                                                    | OFF           | OFF                    | ON                     | ON                     | ON                     | MIDDLE                |
|                                                                                                                                                              |                                                                                                    | ON            | ON                     | ON                     | ON                     | ON                     | HIGH                  |
| In 10 min. after ignition switch is turned OFF. Engine coolant temperature above 108 °C {226 °F } for more than 2 min. before ignition switch is turned OFF. | Engine coolant temperature over 108 °C {226 °F } after ignition switch is turned OFF               | —             | OFF                    | ON                     | ON                     | ON                     | MIDDLE                |
|                                                                                                                                                              | Engine coolant temperature becomes lower than 108 °C {226 °F } after ignition switch is turned OFF | —             | OFF                    | ON                     | OFF                    | ON                     | LOW                   |
| Engine coolant temperature sensor malfunction                                                                                                                |                                                                                                    | —             | OFF                    | ON                     | OFF                    | ON                     | LOW                   |
| TFA terminal ground                                                                                                                                          |                                                                                                    | —             | OFF                    | ON                     | OFF                    | ON                     | LOW                   |

98H51745

Fig. 15: Cooling Fan Control System Operation

### SYSTEM INSPECTION

- 1) Verify that the engine coolant temperature is below 80°C (176°F)
- 2) Turn the ignition switch to ON for 15 seconds or longer.
- 3) Turn the ignition switch to OFF.
- 4) Ground the check connector by using a jumper wire.
- 5) Turn the ignition switch to ON and verify that the cooling fan operates approximately 100-150 seconds after the ignition switch is turned to ON.
- 6) If the cooling fan will not operate, inspect the following.
  - \* Battery positive voltage
  - \* Fan control signal
  - \* Engine coolant temperature signal
  - \* Ground

## **SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96**

### **Article Text (p. 19)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:45PM

- 7 Turn the ignition switch to OFF.
- 8 Verify that the cooling fan keep operating after the ignition switch is turned to OFF.
- 9 If not, replace the cooling fan control module. See Fig. 5.
- 10) Wait for approximately 20 seconds.
- 11) Disconnect cooling fan relay connector A. Verify that the cooling fan operates at low speed. See Fig. 6.
- 12) If not, inspect the cooling fan relay.
- 13) Connect cooling fan relay connector A. Verify that the cooling fan operates at the speed before connector A is disconnected.
- 14) Disconnect the jumper wire from the check connector. Verify that the cooling fan operates at low speed.
- 15) Turn the ignition switch to ON.
- 16) Verify that the cooling fan stops 8-12 seconds after the ignition switch is turned to ON.
- 17) If not as specified, replace the cooling fan control module.

### **COOLING FAN CONTROL MODULE 1994 RX-7**

#### **REMOVAL/INSTALLATION**

- 1) Remove the ECM.
- 2) Disconnect the cooling fan control module connector.
- 3) Loosen nut A as shown. See Fig. 7.
- 4) Remove the cooling fan control module.
- 5) Install in the reverse order of removal. Tighten Nut A Torque to 7.9-10.7 N-m (80-110 kgs-cm, 70-95 in-lbs).

#### **INSPECTION**

- 1) With the cooling fan control module connector connected, measure the voltage at each terminal of the connector. Using a voltmeter, ground the negative lead to the body and insert the positive lead in each terminal of the connector.
- 2) If there is any incorrect output voltage while all input voltages are correct, inspect related systems. See Figs. 8 thru 10. When the systems are normal, replace the cooling fan control module.

# SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96

## Article Text (p. 20)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:45PM

### COOLING FAN RELAY (NO. 1, 2, 3, 4) 1994 RX-7

#### INSPECTION

- 1) Disconnect the cooling fan relay.
- 2) Apply battery positive voltage and ground to terminals A and B of the cooling fan relay. See Fig. 11.
- 3) Check continuity of the relay.

#### TERMINAL CONTINUITY TABLE

|                                                            |                |                          |   |
|------------------------------------------------------------|----------------|--------------------------|---|
| UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA |                |                          | ; |
| 3                                                          | Operation      | 3 A Type - Terminals D-E | 3 |
| 3                                                          |                | 3 B Type - Terminals C-D | 3 |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA  |                |                          | ' |
| 3                                                          | B+ applied     | 3 Continuity             | 3 |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA  |                |                          | ' |
| 3                                                          | B+ not applied | 3 No continuity          | 3 |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA  |                |                          | U |

NOTE: B+ = Battery positive voltage

- 4) If not as specified, replace the cooling fan relay.

For additional wiring schematic information see Figs. 16 and 17.

Sunday, August 19, 2001 01:45PM



Fig. 16: <sup>98F51628</sup> Wiring Diagram Engine & Fuel Control System 1994 RX-7



**END OF ARTICLE**



# **SPEEDOMETER REPLACEMENT PROCEDURE CAT. AD, NO. 003/97**

## **Article Text**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:45PM

## **ARTICLE BEGINNING**

TECHNICAL SERVICE BULLETIN

## **SPEEDOMETER REPLACEMENT PROCEDURE**

Model(s): All Mazda Models  
Category: AD - Administrative  
Bulletin No.: 003-97  
Date: February 25, 1997

## **DESCRIPTION**

In accordance with Federal regulations, follow the procedures listed below when replacing a speedometer.

### **NOTE:**

1. Mazda vehicles are manufactured with tamper-proof speedometers and the mileage CAN NOT be altered or adjusted.
2. When a speedometer is replaced, the new speedometer will read zero.
3. This procedure is extremely important to accurately represent actual vehicle mileage.
4. The "Speedometer Replacement Label" referenced below is available through the Mazda Program Center for a limited time. Mazda Motor of America, Inc. is providing 1 sheet of 20 labels with this bulletin.

## **REPLACEMENT PROCEDURE**

1. Remove and replace the speedometer according to the workshop manual.
2. Complete the following information on the "Speedometer Replacement Label". See Fig. 1.
  - a. Mileage before speedometer replacement.
  - b. Date of replacement.
  - c. Dealer code.
3. Attach the label to the driver's side "B" pillar.
4. Complete the "Speedometer Replacement Record" in the Warranty Information Booklet. See Fig. 1.

**SPEEDOMETER REPLACEMENT PROCEDURE CAT. AD, NO. 003/97**

**Article Text (p. 2)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:45PM

|                                                                                                                                                                                                                                                                                                |                                |                                        |                               |                    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|----------------------------------------|-------------------------------|--------------------|
| <table border="1"><tr><td><b>SPEEDOMETER REPLACEMENT</b></td></tr><tr><td>Mileage: _____<br/>(Before Replacement)</td></tr><tr><td>Date Replaced: ____/____/____</td></tr><tr><td>Dealer Code: _____</td></tr></table> <p>Complete Information and Install<br/>On Driver's Side "B" Pillar</p> | <b>SPEEDOMETER REPLACEMENT</b> | Mileage: _____<br>(Before Replacement) | Date Replaced: ____/____/____ | Dealer Code: _____ |
| <b>SPEEDOMETER REPLACEMENT</b>                                                                                                                                                                                                                                                                 |                                |                                        |                               |                    |
| Mileage: _____<br>(Before Replacement)                                                                                                                                                                                                                                                         |                                |                                        |                               |                    |
| Date Replaced: ____/____/____                                                                                                                                                                                                                                                                  |                                |                                        |                               |                    |
| Dealer Code: _____                                                                                                                                                                                                                                                                             |                                |                                        |                               |                    |

|                                                                                                                                                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>SPEEDOMETER REPLACEMENT RECORD</b>                                                                                                                              |
| Speedometer replaced on _____ with _____ miles                                                                                                                     |
| Dealer Name<br>_____                                                                                                                                               |
| Dealer Signature<br>_____                                                                                                                                          |
| After the speedometer is replaced, total mileage should be determined by adding the mileage listed here to the current mileage shown on the speedometer installed. |

95H58641

Fig. 1: "Speedometer Replacement Label" & Record - Identification

END OF ARTICLE

# WARRANTY BULLETIN - MAZDA BATTERY WARRANTY CAT. G, NO. 1

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:47PM

## ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

## MAZDA BATTERY WARRANTY

Model(s): All Mazda Vehicles  
Category: G - Engine Electrical  
Bulletin No.: 1  
Date: 6/16/95

## DESCRIPTION

The Owner's Warranty Information booklet provided with each vehicle specifies the Original Equipment Battery warranty applicable to that model and model year. Additional repair information is available in Mazda Service Bulletin publications. Mazda batteries are covered by:

- I. Original (Factory) Equipment Battery Warranty.
- II. Replacement Battery Warranty (Dealer installed under warranty or retail)

## ORIGINAL EQUIPMENT - FACTORY INSTALLED BATTERY

- \* Fully covered for the first 12 months and a Pro-Rated warranty applies from 13 months to 36 months (1991 and later models).
- \* Reimbursement for Labor - Labor charges related to warrantable repairs on factory installed batteries are fully covered for 36 months.
- \* The Pro-rate amount is based on the retail price of the replacement battery.
- \* Warranty claims must be submitted with warranty type code "E" (Original Equipment Battery) for proper processing.
- \* Battery warranty on the Original Factory Installed battery starts on the vehicle's INSERVICE DATE (Demo/Retail).
- \* The Original Equipment Battery warranty is applicable to batteries installed while in Dealer Inventory.

1991 and Later Models (36 Month Pro-rate) Original Factory Installed Battery

Chart I

|                                                             |                |            |
|-------------------------------------------------------------|----------------|------------|
| UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA; |                |            |
| 3 Months                                                    | Customer's     | % Dealer 3 |
| 3 In Use                                                    | Responsibility | Claims 3   |
| 3 AAAAAA                                                    | AAAAAAAAAAAAAA | AAAAAAAA 3 |
| 3 0-12                                                      | 0%             | 100% 3     |
| 3 13-24                                                     | 50%            | 50% 3      |
| 3 25-36                                                     | 75%            | 25% 3      |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAUU      |                |            |

# WARRANTY BULLETIN - MAZDA BATTERY WARRANTY CAT. G, NO. 1

## Article Text (p. 2)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:47PM

Reimbursement is based on Dealer Net Price (DNP) plus 30% on 1993 and earlier models and DNP plus 40% on 1994 and later models.

### REPLACEMENT BATTERY (WET BATTERY)

- \* Covered for the first 12 months and a Pro-Rated warranty applies from 13 months to 36 months.
- \* Reimbursement for Labor - Labor charges related to warrantable repairs on replacement batteries are fully covered up to 12 months. Labor is not covered on replacement batteries replaced under the 13 to 36 month pro-rate.
- \* The customer's responsibility is the Pro-rate amount based on the retail price of the replacement battery.
- \* Warranty claims must be submitted with warranty type code "P" (Parts Warranty) or "K" (Over-the-Counter), for proper processing.
- \* Battery warranty start date on the Replacement battery begins on the installed date. The warranty coverage starts over on the date of each battery installation.
- \* Over-The-Counter battery warranty starts on purchase date. The customer is responsible for labor charges, if any. Warranty is only applicable to Mazda vehicles.
- \* Replacement Miata batteries are covered under the Replacement Battery warranty.
- \* Replacement Batteries which fail within 12 months: Interstate will provide the dealer a new battery at no cost. If the dealer installs the warranty battery, the dealer should submit a warranty claim for labor and handling charges. Enter X5555-95-BATT" as the PNMC with a quantity of one. This will reimburse the dealer \$15.70 for handling charges (see example #2).
- \* Replacement Batteries which fail after 12 months: If the dealer installs the battery, the dealer should submit a warranty claim for the pro-rated battery only. NOTE: Pro-rate applies to replacement batteries replaced after 12 months.

Replacement Battery (48 Month Pro-rate)

Chart II

|                                                                     |                  |              |
|---------------------------------------------------------------------|------------------|--------------|
| UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA; |                  |              |
| 3 Months                                                            | Customer's       | % Dealer 3   |
| 3 In Use                                                            | Responsibility   | Claims 3     |
| 3 AAAAAA                                                            | AAAAAAAAAAAAAA   | AAAAAAAAAA 3 |
| 3 0-12                                                              | 0%               | Labor Only 3 |
| 3 13-24                                                             | 50% (plus labor) | 50% 3        |
| 3 25-36                                                             | 75% (plus labor) | 25% 3        |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAUU      |                  |              |

Reimbursement is based on Dealer Net Price (DNP) plus 30% on 1993 and earlier models and DNP plus 40% on 1994 and later models.

### GENERAL INFORMATION

# WARRANTY BULLETIN - MAZDA BATTERY WARRANTY CAT. G, NO. 1

## Article Text (p. 3)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:47PM

(applies to all warranty battery claims):

### TOWING

Towing is covered for warrantable repairs during the Mazda New Vehicle Limited 36 Month/50,000 Mile Warranty.

Towing is not covered under the replacement battery warranty (or any other applicable warranty) unless the vehicle falls under the New Vehicle Limited Warranty.

### MILEAGE ALLOWANCE

Battery warranties are based on Time (months) and are not limited by mileage considerations.

### BATTERY CHECK SHEET

A Battery Check Sheet must be completed and retained with repair order for any battery replacement under warranty.

### EMERGENCY REPLACEMENT

Reimbursement for battery emergency replacement must reflect applicable pro-rate. Refer to "Emergency Repairs" in the Resources section for more information. Note: All emergency battery replacements require DCSM authorization.

### WARRANTY CONDITIONS

Unless specified, all warranty coverage and application limitations apply to battery warranty repairs (as referenced in the vehicle's Warranty Information booklet).

All batteries are covered for defects in material and workmanship. Coverage does not extend to batteries that have been improperly stored, or that show sign of:

- \* Abuse
- \* Improper handling
- \* Lack of proper maintenance

### DCSM AUTHORIZATION

Battery replacement for vehicles in dealer inventory and during the first 90 days following retail sale requires DCSM authorization.

### STORAGE

All batteries must be properly tagged and held for inspection and core credit.

# WARRANTY BULLETIN - MAZDA BATTERY WARRANTY CAT. G, NO. 1

## Article Text (p. 4)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:47PM

### CLAIM PROCESSING EXAMPLES

#### Example #1.

A 1994 626 Original Equipment Battery, fails after the vehicle has been in service for 13 months with 11,000 miles on the odometer.

#### WARRANTY INFORMATION TABLE - EXAMPLE #1

```
UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;
3          Claim Submission:          3 Dealer Reimbursement: 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3 Warranty type:      E          3 Warranty labor          3
3                               3 rate = $50.00/hr.        3
3 Symptom code:      20          3                               3
3 Damage code:       81          3                               3
3 Vendor code:       KN212       3                               3
3 Part number                               3                               3
3 main cause:        0000-80-058R-WB 3                               3
3 Quantity:          1          3                               3
3 Pro-Rate:          50          3 $35.67 = (DNP + 40%)/50% 3
3 Related part(s):   0 (wet battery, acid 3                               3
3                   is not required)      3                               3
3 Labor operation:   G0501ACX       3                               3
3 Labor Hours:       0.5           3 $25.00              3
3                               3 Total                3
3                               3 reimbursement = $60.67 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3 CUSTOMER'S RESPONSIBILITY: battery pro-rate only,          3
3                   (retail price $78.95 x 50%) = $39.48      3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU
```

#### Example #2.

A 1993 Protege battery has failed. This is the second time the battery has failed. The first battery failed 6 months ago.

#### WARRANTY INFORMATION TABLE - EXAMPLE #2

```
UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;
3          Claim Submission:          3 Dealer Reimbursement: 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3 Warranty type:      P          3 Warranty labor          3
3                               3 rate = $50.00/hr.        3
3 Symptom code:      20          3                               3
3 Damage code:       81          3                               3
3 Vendor code:       KN999       3                               3
3 Part number                               3                               3
3 main cause:        5555-95-BATT     3                               3
3 Quantity:          1 (must enter     3                               3
3                   quantity of one)    3                               3
3 Pro-Rate:          100          3 $15.70 (handling charges 3
3                               3 only)                3
3 Related part(s):   0 (wet battery, acid 3                               3
3                   is not required)      3                               3
3 Labor operation:   G0501ACX       3                               3
```

[illegible]





Fig. 1: 94A54056 Wiring Diagram Revision - Page Z-37

Sunday, August 19, 2001 01:47PM

**END OF ARTICLE**

**YEAR 2000 COMPLIANCE CAT. 01, NO. 018/99**

**Article Text**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Sunday, August 19, 2001 01:48PM

**ARTICLE BEGINNING**

TECHNICAL SERVICE BULLETIN

**YEAR 2000 COMPLIANCE**

Model(s): All Mazda Models  
Category: 01 - Engine  
Bulletin No.: 018/99  
Date: May 28, 1999

**DESCRIPTION**

Because all Control Units, including the Powertrain Control Modules used in Mazda vehicles do not use the day, month, or year to operate, Mazda vehicles are completely immune to the effects of the year 2000 concern.

**END OF ARTICLE**

Saturday, August 25, 2001 07:03AM

NOTE: Part numbers ending in "J1X" are delivered in quantities of 10.  
See Fig. 2 for O-Ring Identification.

# A/C O-RING REPLACEMENT CAT. U, NO. 95-10

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:03AM

## Protege (1989-94)

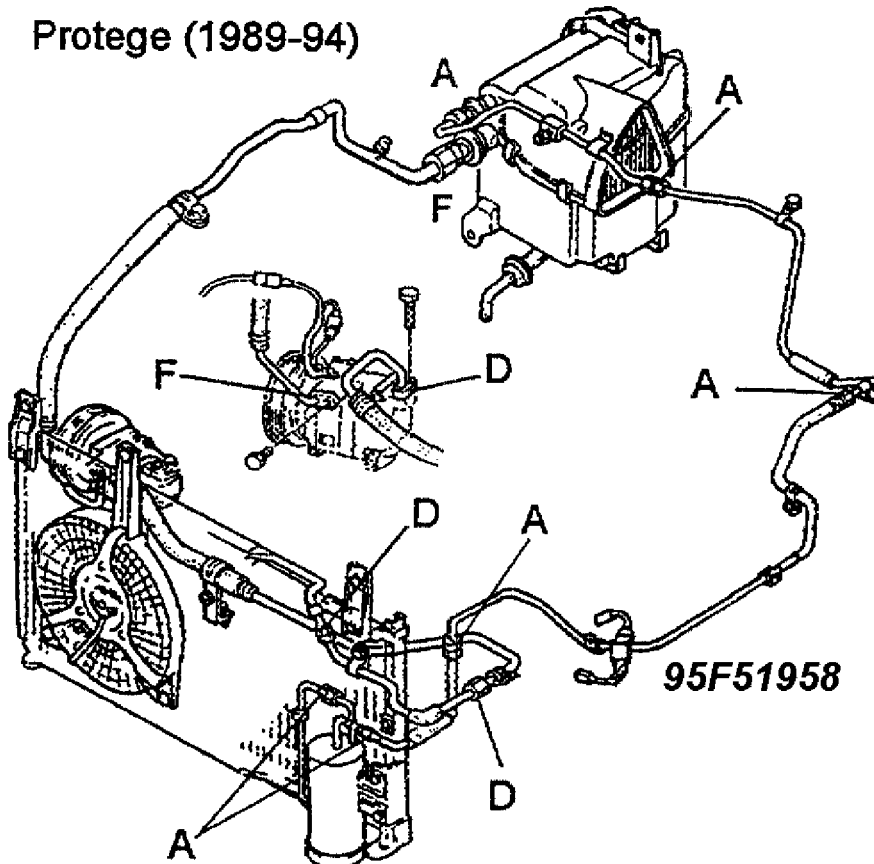


Fig. 2: 1989-94 323/Protege O-Ring Identification

### 1992-96 MX-3 O-RING DESCRIPTION TABLE

| O    | Pipe | O-Ring      | Part Numbers | Quantity |
|------|------|-------------|--------------|----------|
| Ring | Size | Size D X T  | and          | per      |
| Code | Size |             | Kit Numbers  | Vehicle  |
| A    | 8mm  | 6.9 x 1.78  | LB51 61 J1X  | 5        |
| D    | 12mm | 10.8 x 1.78 | LB54 61 J1X  | 3        |
| F    | 16mm | 14.0x 1.78  | LB56 61 J1X  | 2        |

NOTE: Part numbers ending in "J1X" are delivered in quantities of 10. See Fig. 3 for O-Ring Identification.

# A/C O-RING REPLACEMENT CAT. U, NO. 95-10

Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:03AM

## MX-3 (1992-96)

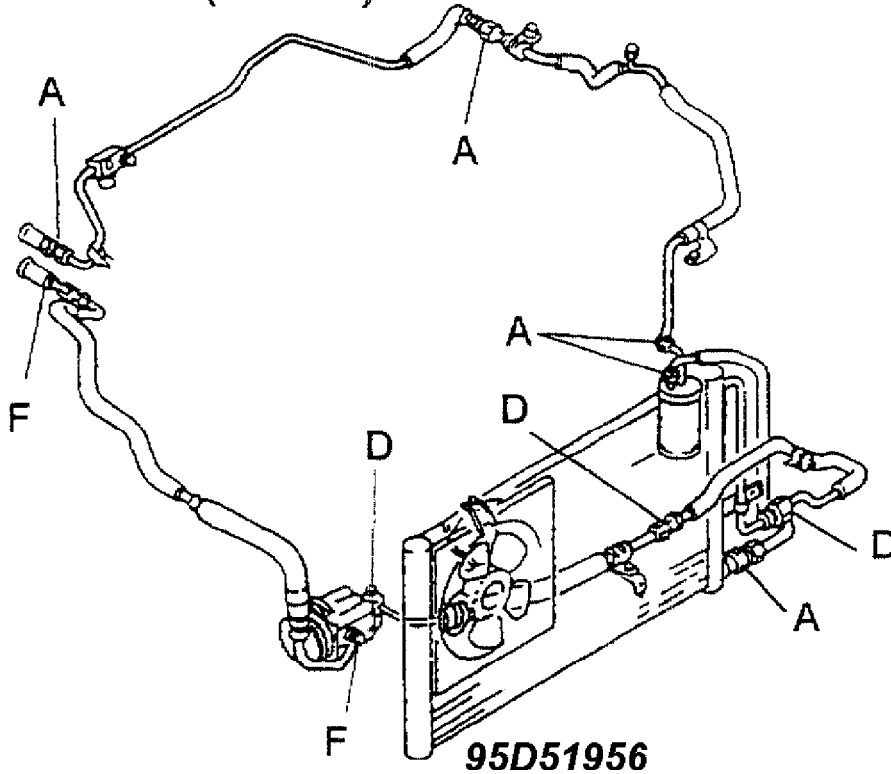


Fig. 3: 1992-96 MX-3 O-Ring Identification

### 1990-93 MX-5 O-RING DESCRIPTION TABLE

| O    | Pipe | O-Ring      | Part Numbers | Quantity |
|------|------|-------------|--------------|----------|
| Ring | Size | Size D X T  | and          | per      |
| Code |      |             | Kit Numbers  | Vehicle  |
| A    | 8mm  | 6.9 x 1.78  | LB51 61 J1X  | 4        |
| D    | 12mm | 10.8 x 1.78 | LB54 61 J1X  | 3        |
| F    | 16mm | 14.0x 1.78  | LB56 61 J1X  | 3        |

NOTE: Part numbers ending in "J1X" are delivered in quantities of 10. See Fig. 4 for O-Ring Identification.

# A/C O-RING REPLACEMENT CAT. U, NO. 95-10

Article Text (p. 4)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:03AM

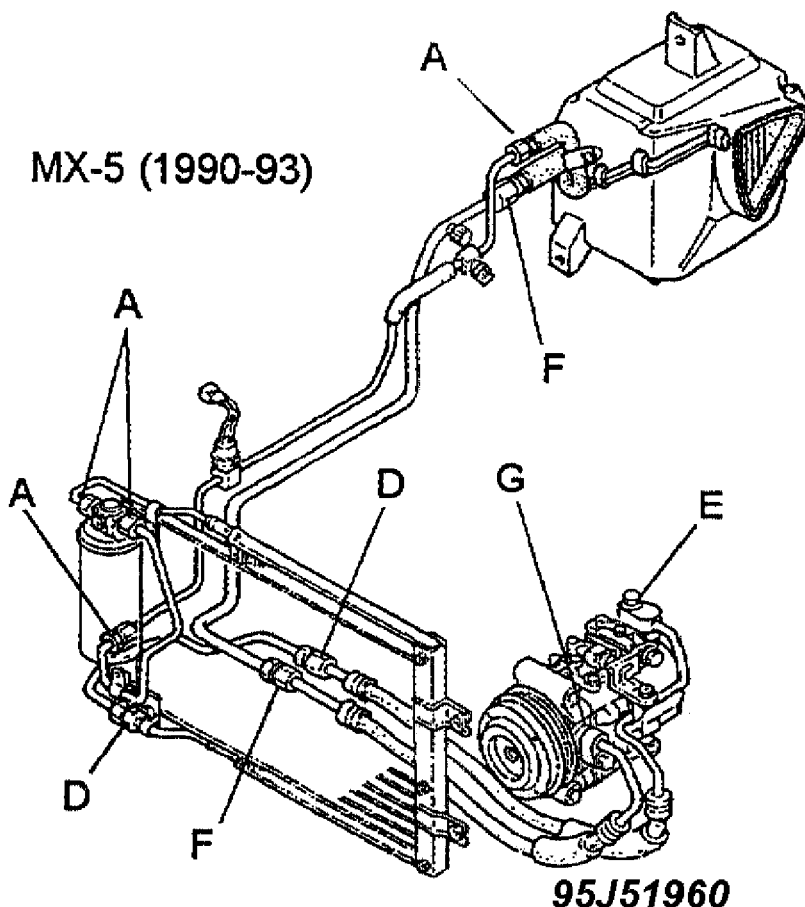


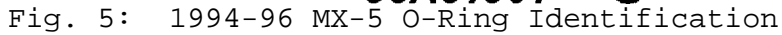
Fig. 4: 1990-93 MX-5 O-Ring Identification

## 1994-96 MX-5 O-RING DESCRIPTION TABLE

| O    | Pipe  | O-Ring      | Part Numbers | Quantity |
|------|-------|-------------|--------------|----------|
| Ring | Size  | Size D X T  | and          | Per      |
| Code |       |             | Kit Numbers  | Vehicle  |
| A    | 8mm   | 6.9 x 1.78  | LB51 61 J1X  | 4        |
| D    | 12mm  | 10.8 x 1.78 | LB54 61 J1X  | 1        |
| E    | 12mm  | 10.8 x 2.4  | LB55 61 J1X  | 1        |
|      | axial |             |              |          |
| F    | 16mm  | 14.0x 1.78  | LB56 61 J1X  | 2        |
| G    | 16mm  | 13.4 x 2.4  | LB57 61 J1X  | 1        |
|      | axial |             |              |          |

NOTE: Part numbers ending in "J1X" are delivered in quantities of 10. See Fig. 5 for O-Ring Identification.

Copyright © 1998 Mitchell Repair Information Company, LLC  
Saturday, August 25, 2001 07:03AM



| 3 | 0    | 3 | Pipe | 3 | O-Ring      | 3 | Part Numbers | 3 | Quantity | 3 |
|---|------|---|------|---|-------------|---|--------------|---|----------|---|
| 3 | Ring | 3 | Size | 3 | Size D X T  | 3 | and          | 3 | Per      | 3 |
| 3 | Code | 3 |      | 3 |             | 3 | Kit Numbers  | 3 | Vehicle  | 3 |
| 3 | A    | 3 | 8mm  | 3 | 6.9 x 1.78  | 3 | LB51 61 J1X  | 3 | 5        | 3 |
| 3 | D    | 3 | 12mm | 3 | 10.8 x 1.78 | 3 | LB54 61 J1X  | 3 | 1        | 3 |
| 3 | F    | 3 | 16mm | 3 | 14.0x 1.78  | 3 | LB56 61 J1X  | 3 | 3        | 3 |

NOTE: Part numbers ending in "J1X" are delivered in quantities of 10. See Fig. 6 for O-Ring Identification.



# A/C O-RING REPLACEMENT CAT. U, NO. 95-10

Article Text (p. 6)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:03AM

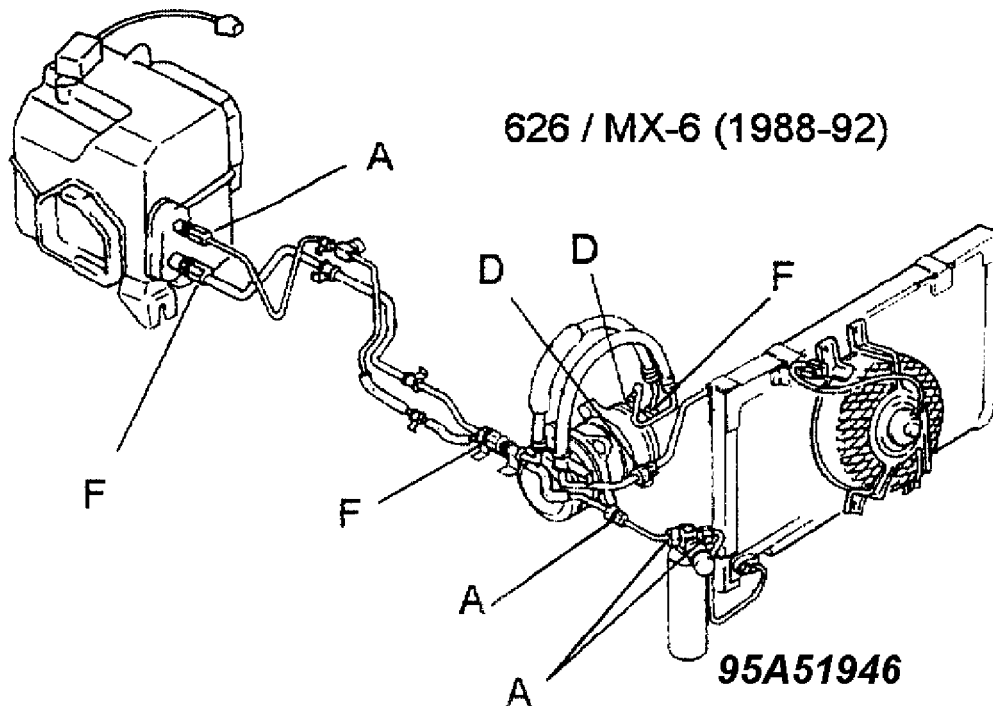


Fig. 6: 1988-92 626/MX-6 O-Ring Identification

## 1993-96 626/MX-6 O-RING DESCRIPTION TABLE

| O    | Pipe | O-Ring      | Part Numbers | Quantity |
|------|------|-------------|--------------|----------|
| Ring | Size | Size D X T  | and          | Per      |
| Code |      |             | Kit Numbers  | Vehicle  |
| A    | 8mm  | 6.9 x 1.78  | LB51 61 J1X  | 5        |
| D    | 12mm | 10.8 x 1.78 | LB54 61 J1X  | 2        |
| F    | 16mm | 14.0x 1.78  | LB56 61 J1X  | 3        |

NOTE: Part numbers ending in "J1X" are delivered in quantities of 10. See Fig. 7 for O-Ring Identification.

# A/C O-RING REPLACEMENT CAT. U, NO. 95-10

Article Text (p. 7)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:03AM

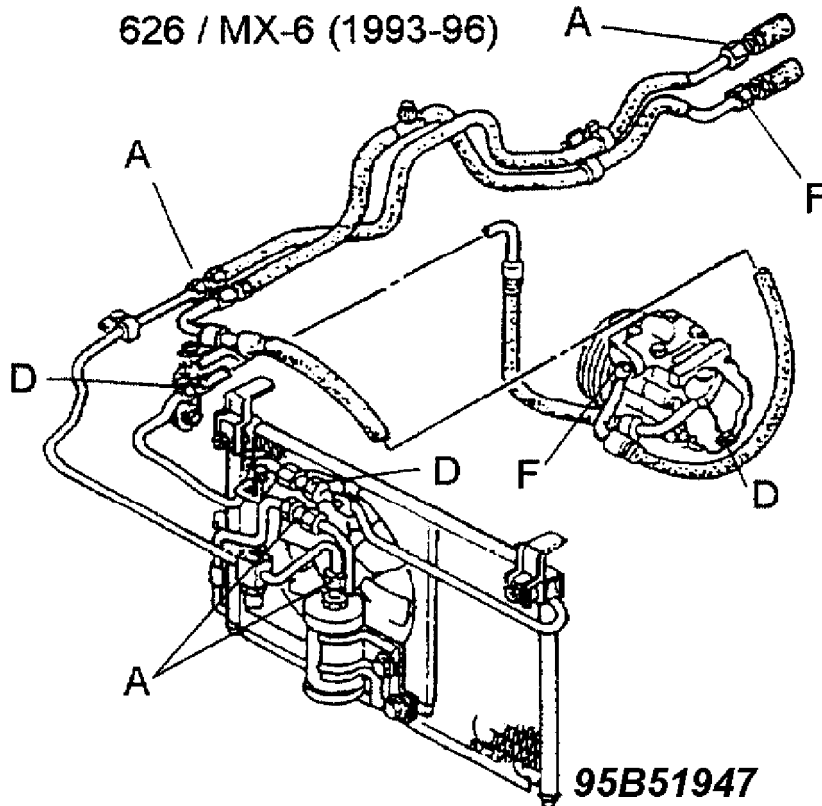


Fig. 7: 1993-96 626/MX-6 O-Ring Identification

## 1989-94 RX-7 O-RING DESCRIPTION TABLE

| O    | Pipe | O-Ring      | Part Numbers | Quantity |
|------|------|-------------|--------------|----------|
| Ring | Size | Size D X T  | and          | Per      |
| Code |      |             | Kit Numbers  | Vehicle  |
| A    | 8mm  | 6.9 x 1.78  | LB51 61 J1X  | 6        |
| D    | 12mm | 10.8 x 1.78 | LB54 61 J1X  | 2        |
| F    | 16mm | 14.0x 1.78  | LB56 61 J1X  | 3        |

NOTE: Part numbers ending in "J1X" are delivered in quantities of 10.  
See Fig. 8 for O-Ring Identification.

**A/C O-RING REPLACEMENT CAT. U, NO. 95-10**

**Article Text (p. 8)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:03AM

**1989 MAZDA RX-7**

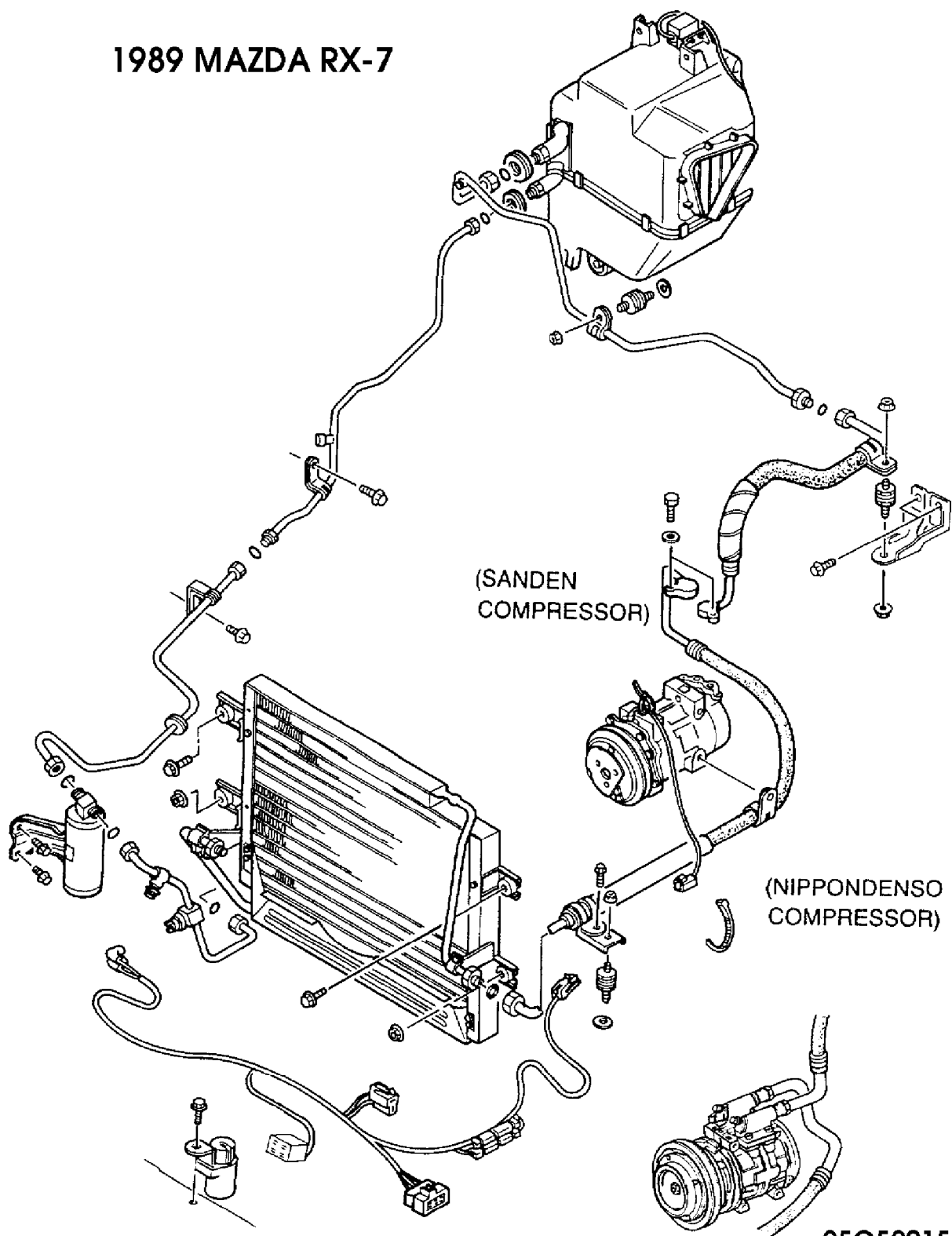


Fig. 8: 1989-94 RX-7 O-Ring Identification

1995-96 RX-7 O-RING DESCRIPTION TABLE

**95G52015**

# A/C O-RING REPLACEMENT CAT. U, NO. 95-10

## Article Text (p. 9)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:03AM

| O    | Pipe  | O-Ring      | Part Numbers | Quantity |
|------|-------|-------------|--------------|----------|
| Ring | Size  | Size D X T  | and          | Per      |
| Code |       |             | Kit Numbers  | Vehicle  |
| A    | 8mm   | 6.9 x 1.78  | LB51 61 J1X  | 6        |
| D    | 12mm  | 10.8 x 1.78 | LB54 61 J1X  | 1        |
| E    | 12mm  | 10.8 x 2.4  | LB55 61 J1X  | 1        |
|      | axial |             |              |          |
| F    | 16mm  | 14.0x 1.78  | LB56 61 J1X  | 2        |
| G    | 16mm  | 13.4 x 2.4  | LB57 61 J1X  | 1        |
|      | axial |             |              |          |

NOTE: Part numbers ending in "J1X" are delivered in quantities of 10.  
See Fig. 9 for O-Ring Identification.

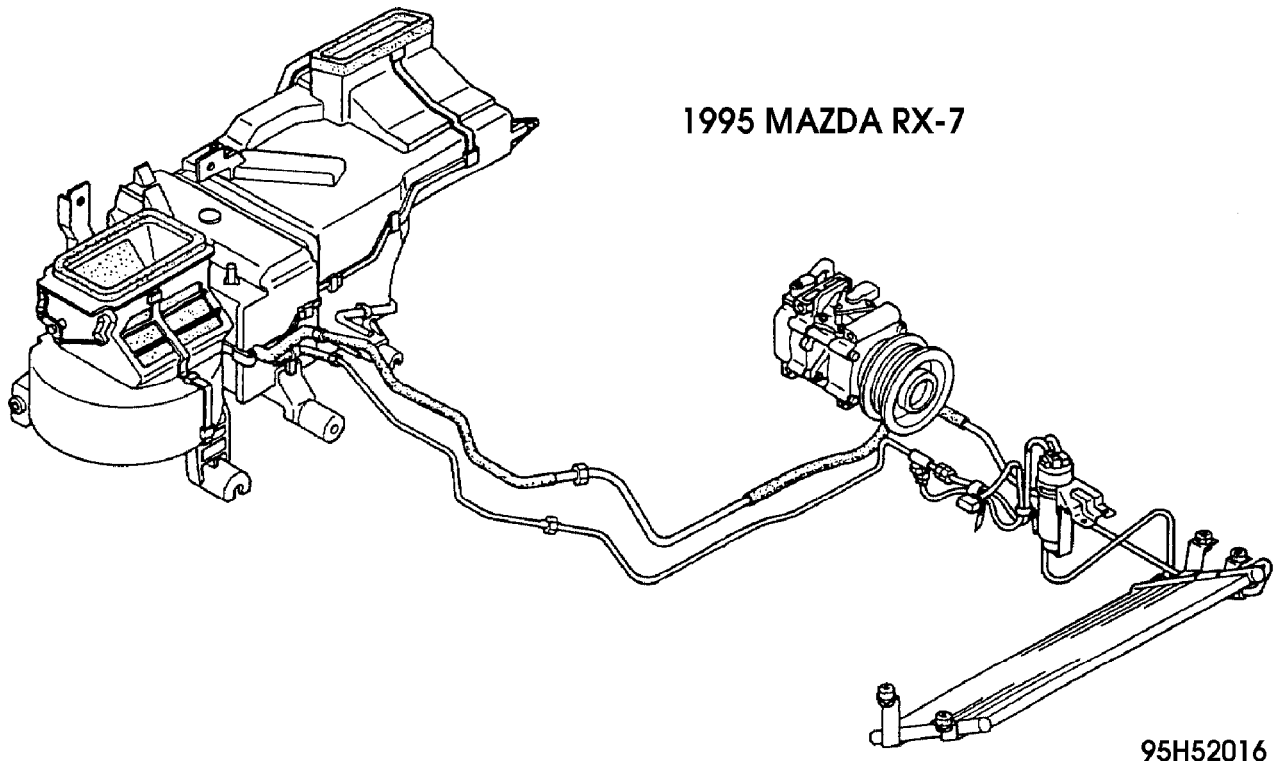


Fig. 9: 1995-96 RX-7 O-Ring Identification

## 1992-93 929 O-RING DESCRIPTION TABLE

| O    | Pipe | O-Ring     | Part Numbers | Quantity |
|------|------|------------|--------------|----------|
| Ring | Size | Size D X T | and          | Per      |
| Code |      |            | Kit Numbers  | Vehicle  |

Saturday, August 25, 2001 07:03AM

NOTE: Part numbers ending in "J1X" are delivered in quantities of 10.

# A/C O-RING REPLACEMENT CAT. U, NO. 95-10

Article Text (p. 11)

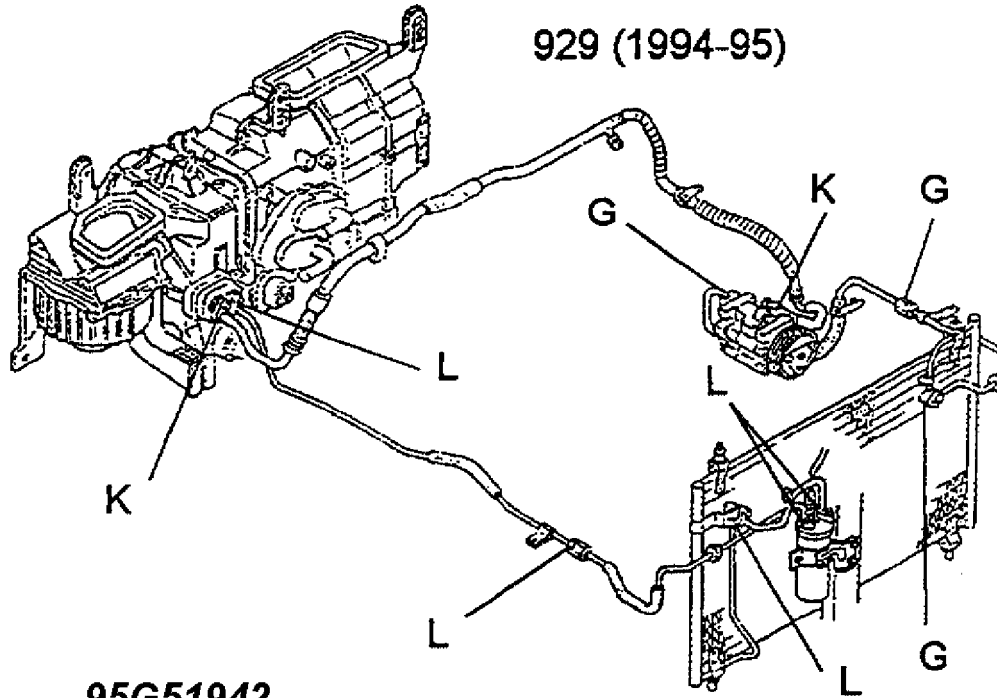
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:03AM

See Fig. 11 for O-Ring Identification.



**95G51942**

Fig. 11: 1994-95 929 O-Ring Identification

## 1995-96 PROTEGE O-RING DESCRIPTION TABLE

| O-RING DESCRIPTION TABLE |      |             |              |          |  |  |
|--------------------------|------|-------------|--------------|----------|--|--|
| O                        | Pipe | O-Ring      | Part Numbers | Quantity |  |  |
| Ring                     | Size | Size D X T  | and          | Per      |  |  |
| Code                     |      |             | Kit Numbers  | Vehicle  |  |  |
| A                        | 8mm  | 6.9 x 1.78  | LB51 61 J1X  | 6        |  |  |
| D                        | 12mm | 10.8 x 1.78 | LB54 61 J1X  | 2        |  |  |
| F                        | 16mm | 14.0x 1.78  | LB56 61 J1X  | 3        |  |  |

NOTE: Part numbers ending in "J1X" are delivered in quantities of 10.  
See Fig. 12 for O-Ring Identification.

# A/C O-RING REPLACEMENT CAT. U, NO. 95-10

Article Text (p. 12)

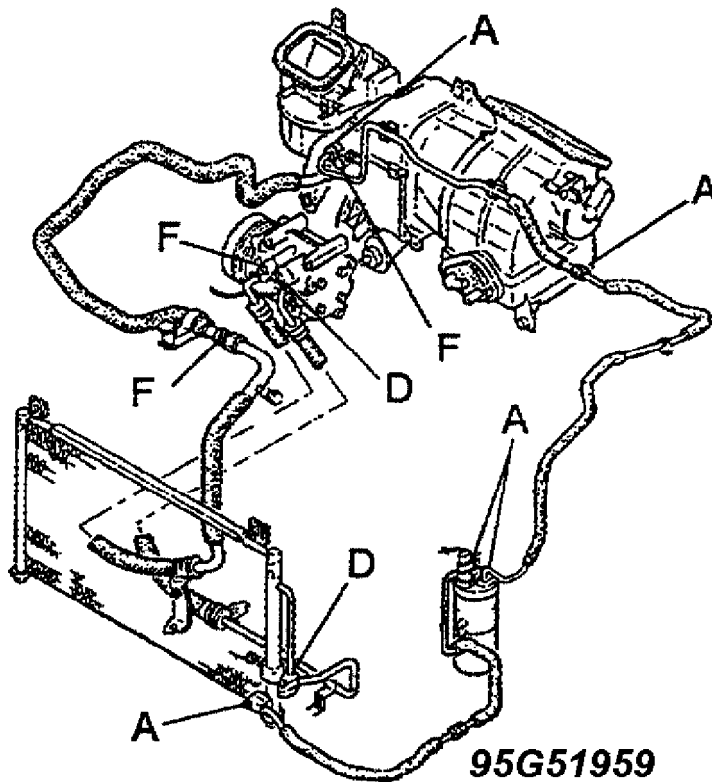
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:03AM

## Protege (1995-96)



95G51959

Fig. 12: 1995-96 Protege O-Ring Identification

### 1995 MILLENIA O-RING DESCRIPTION TABLE

| O    | Pipe  | O-Ring       | Part Numbers     | Quantity |
|------|-------|--------------|------------------|----------|
| Ring | Size  | Size D X T   | and              | Per      |
| Code |       |              | Kit Numbers      | Vehicle  |
| G    | 16mm  | 13.4 x 2.4   | LB57 61 J1X      | 3        |
|      | axial |              |                  |          |
| K    | 5/8in | 12.95 x 1.85 | ZZLO 61 J19(KIT) | 3        |
| L    | 5/8in | 6.1 x 1.8    | C003 61 J17      | 4        |

NOTE: Part numbers ending in "J1X" are delivered in quantities of 10. See Fig. 13 for O-Ring Identification.

# A/C O-RING REPLACEMENT CAT. U, NO. 95-10

Article Text (p. 13)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:03AM

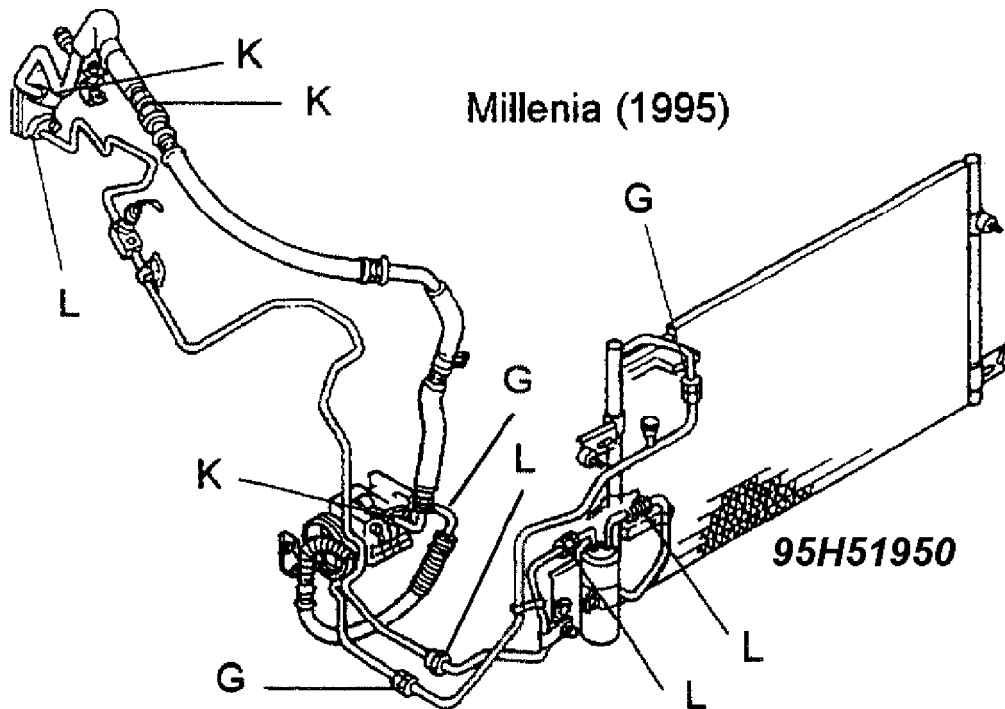


Fig. 13: 1995 Millenia O-Ring Identification

## 1989-93 MPV (DUAL AIR) O-RING DESCRIPTION TABLE

| O<br>Ring<br>Code | Pipe<br>Size  | O-Ring<br>Size D X T | Part Numbers<br>and<br>Kit Numbers | Quantity<br>Per<br>Vehicle |
|-------------------|---------------|----------------------|------------------------------------|----------------------------|
| A                 | 8mm           | 6.9 x 1.78           | LB51 61 J1X                        | 14                         |
| C                 | 3/8in         | 7.65 x 1.78          | L853 61 J1X                        | 3                          |
| E                 | 12mm<br>axial | 10.8 x 2.4           | LB55 61 J1X                        | 11                         |

NOTE: Part numbers ending in "J1X" are delivered in quantities of 10.  
See Fig. 14 for O-Ring Identification.

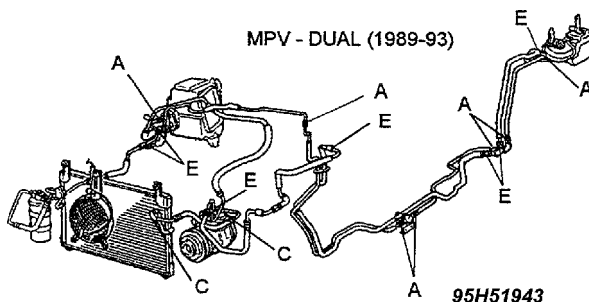


Fig. 14: 1989-93 MPV (Dual Air) O-Ring Identification



# A/C O-RING REPLACEMENT CAT. U, NO. 95-10

## Article Text (p. 14)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:03AM

### 1994-95 MPV (DUAL AIR) O-RING DESCRIPTION TABLE

| O    | Pipe   | O-Ring      | Part Numbers | Quantity |
|------|--------|-------------|--------------|----------|
| Ring | Size   | Size D X T  | and          | Per      |
| Code | Size   |             | Kit Numbers  | Vehicle  |
| B    | 5/16in | 6.8 x 1.5   | LB52 61 J1X  | 13       |
| D    | 12mm   | 10.8 x 1.78 | LB54 61 J1X  | 3        |
| F    | 16mm   | 14.0x 1.78  | LB56 61 J1X  | 9        |

NOTE: Part numbers ending in "J1X" are delivered in quantities of 10.  
See Fig. 15 for O-Ring Identification.

### MPV - DUAL (1994-95)

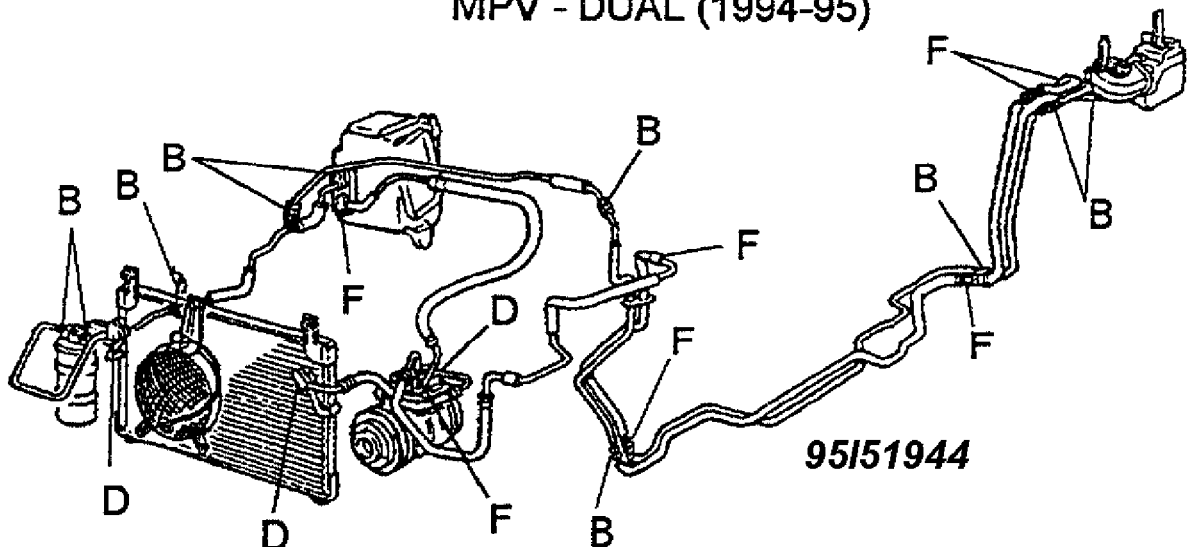


Fig. 15: 1994-95 MPV (Dual Air) O-Ring Identification

### 1989-93 MPV (SINGLE AIR) O-RING DESCRIPTION TABLE

| O    | Pipe   | O-Ring      | Part Numbers | Quantity |
|------|--------|-------------|--------------|----------|
| Ring | Size   | Size D X T  | and          | Per      |
| Code | Size   |             | Kit Numbers  | Vehicle  |
| B    | 5/16in | 6.8 x 1.5   | LB52 61 J1X  | 3        |
| C    | 3/8in  | 7.65 x 1.78 | L853 61 J1X  | 1        |
| D    | 12mm   | 10.8 x 1.78 | LB54 61 J1X  | 3        |
| F    | 16mm   | 14.0x 1.78  | LB56 61 J1X  | 2        |

NOTE: Part numbers ending in "J1X" are delivered in quantities of 10.  
See Fig. 16 for O-Ring Identification.

# A/C O-RING REPLACEMENT CAT. U, NO. 95-10

## Article Text (p. 15)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:03AM

### 1994-95 MPV (SINGLE AIR) O-RING DESCRIPTION TABLE

| O    | Pipe   | O-Ring      | Part Numbers | Quantity |
|------|--------|-------------|--------------|----------|
| Ring | Size   | Size D X T  | and          | Per      |
| Code | Size   |             | Kit Numbers  | Vehicle  |
| B    | 5/16in | 6.8 x 1.5   | LB52 61 J1X  | 3        |
| C    | 3/8in  | 7.65 x 1.78 | L853 61 J1X  | 1        |
| D    | 12mm   | 10.8 x 1.78 | LB54 61 J1X  | 2        |
| E    | 12mm   | 10.8 x 2.4  | LB55 61 J1X  | 1        |
|      | axial  |             |              |          |
| F    | 16mm   | 14.0x 1.78  | LB56 61 J1X  | 1        |
| G    | 16mm   | 13.4 x 2.4  | LB57 61 J1X  | 1        |
|      | axial  |             |              |          |

NOTE: Part numbers ending in "J1X" are delivered in quantities of 10.  
See Fig. 16 for O-Ring Identification.

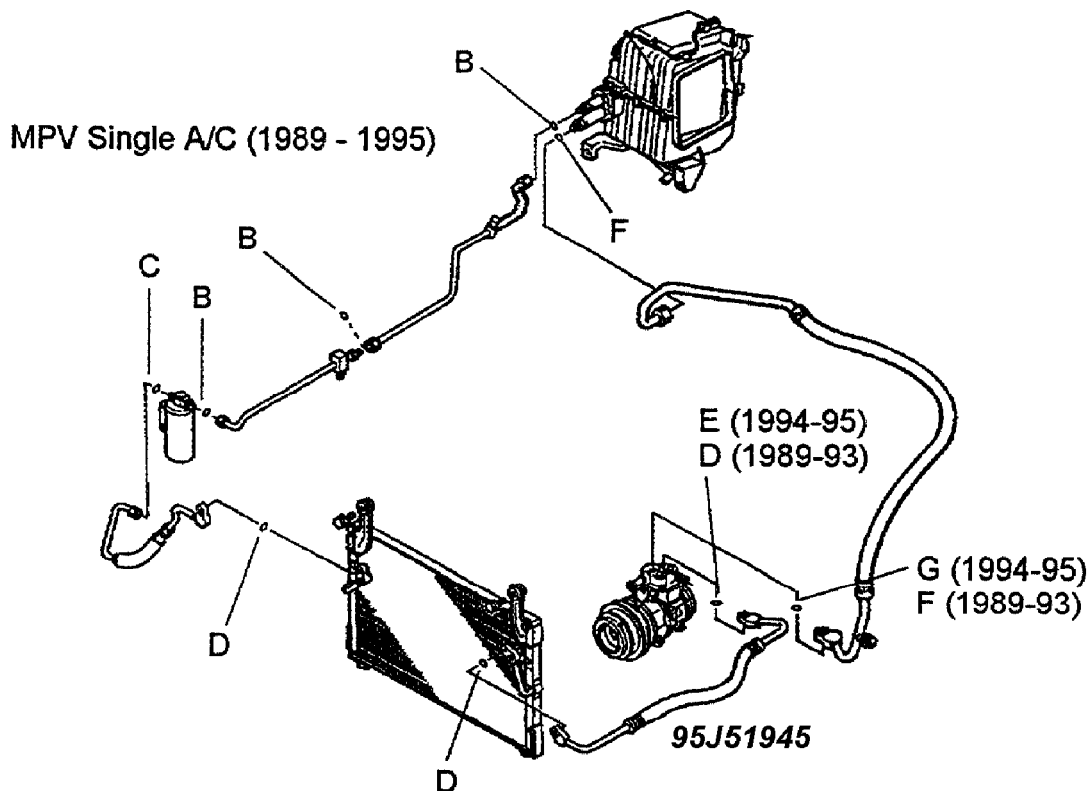


Fig. 16: 1989-95 MPV (Single Air) O-Ring Identification

### 1990-93 B-SERIES O-RING DESCRIPTION TABLE

# A/C O-RING REPLACEMENT CAT. U, NO. 95-10

Article Text (p. 16)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:03AM

| O    | Pipe  | O-Ring      | Part Numbers | Quantity |
|------|-------|-------------|--------------|----------|
| Ring | Size  | Size D X T  | and          | Per      |
| Code |       |             | Kit Numbers  | Vehicle  |
| C    | 3/8in | 7.65 x 1.78 | L853 61 J1X  | 4        |
| D    | 12mm  | 10.8 x 1.78 | LB54 61 J1X  | 2        |
| F    | 16mm  | 14.0x 1.78  | LB56 61 J1X  | 4        |

NOTE: Part numbers ending in "J1X" are delivered in quantities of 10.  
See Fig. 17 for O-Ring Identification.

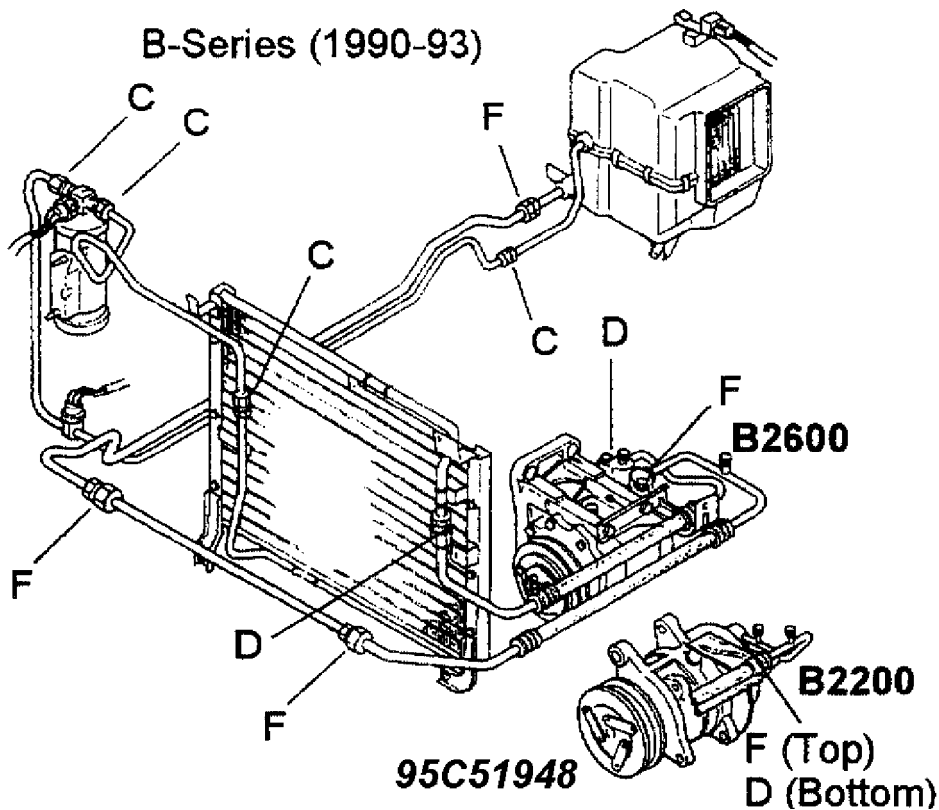


Fig. 17: 1990-93 B-Series O-Ring Identification

## 1994-96 B-SERIES O-RING DESCRIPTION TABLE

| O    | Pipe  | O-Ring       | Part Numbers     | Quantity |
|------|-------|--------------|------------------|----------|
| Ring | Size  | Size D X T   | and              | Per      |
| Code |       |              | Kit Numbers      | Vehicle  |
| H    | 3/8in | 7.36 x 1.80  | ZZL0 61 J19(KIT) | 3        |
| J    | 1/2in | 10.16 x 1.85 | ZZL0 61 J19(KIT) | 4        |



**A/C O-RING REPLACEMENT CAT. U, NO. 95-10**

**Article Text (p. 18)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:03AM

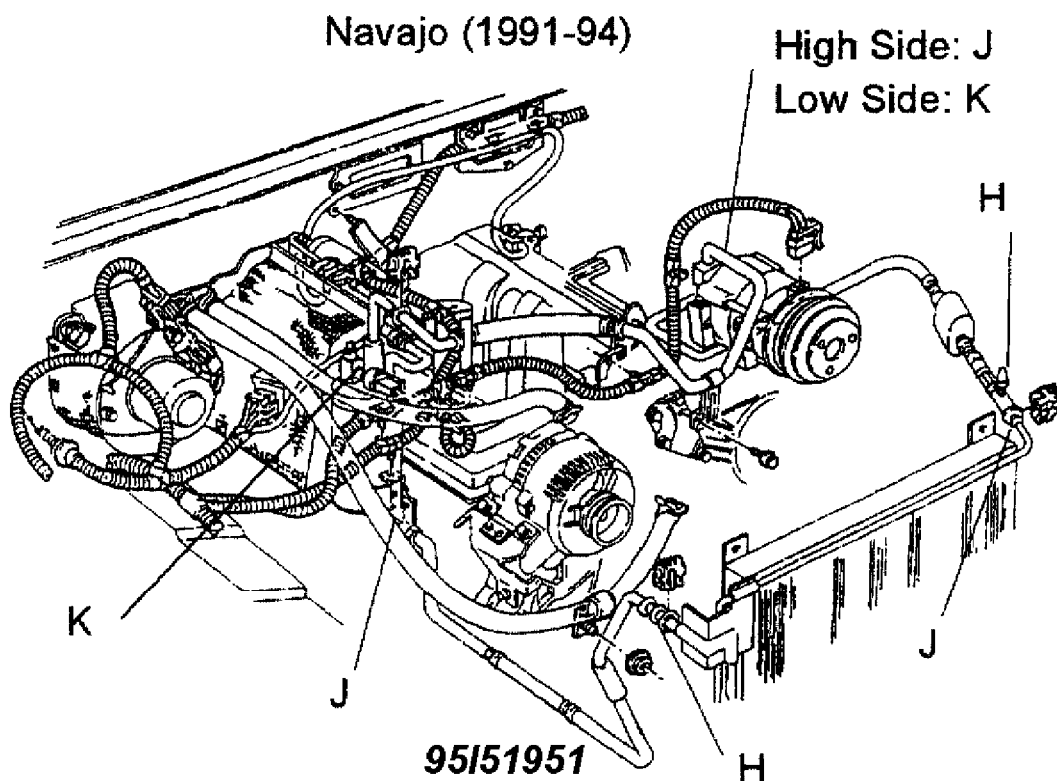


Fig. 19: 1991-94 Navajo O-Ring Identification

**END OF ARTICLE**

| <b>O-Ring Description</b>          |            |            |            |            |            |            |            |        |        |        |  |  |  |  |  |
|------------------------------------|------------|------------|------------|------------|------------|------------|------------|--------|--------|--------|--|--|--|--|--|
| A<br>O-Ring Code                   | B<br>A     | C<br>B     | D<br>C     | E<br>D     | F<br>E     | G<br>F     | H<br>G     | I<br>H | J<br>J | K<br>K |  |  |  |  |  |
| Pipe Size D x T                    | 6mm        | 5/16 in.   | 3/8 in.    | 12mm axial | 12mm axial | 16mm       | 16mm       |        |        |        |  |  |  |  |  |
| O-Ring Size                        | 6.9x1.78   | 6.8x1.5    | 7.65x1.78  | 10.8x1.78  | 10.8x2.4   | 14.0x1.78  | 13.4x2.4   | 3/8    | 1/2    | 5/8    |  |  |  |  |  |
| Part # /Kit #                      | LB51 61J1X | LB52 61J1X | LB53 61J1X | LB54 61J1X | LB55 61J1X | LB56 61J1X | LB57 61J1X | ZZLO   | 61 J19 | (KIT)  |  |  |  |  |  |
| <b>O-ring Quantity Per Vehicle</b> |            |            |            |            |            |            |            |        |        |        |  |  |  |  |  |
| 1989-94 323/Protege                | 5          |            |            | 3          | 3          | 2          |            |        |        |        |  |  |  |  |  |
| 1992-94 MX-3                       | 5          |            |            | 3          | 3          | 3          | 3          |        |        |        |  |  |  |  |  |
| 1990-93 MX-5                       | 4          |            |            | 3          | 3          | 3          | 3          |        |        |        |  |  |  |  |  |
| 1994 MX-5                          | 4          |            |            | 1          | 1          | 2          | 1          |        |        |        |  |  |  |  |  |
| 1989-94 RX-7                       | 6          |            |            | 2          |            | 3          |            |        |        |        |  |  |  |  |  |

Fig. 1: O-Ring Illustration For Diameter & Thickness Measurement

**A/C O-RING REPLACEMENT GUIDE CAT. U, NO. 001/94**

**Article Text (p. 3)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:03AM

**323/PROTEGE**

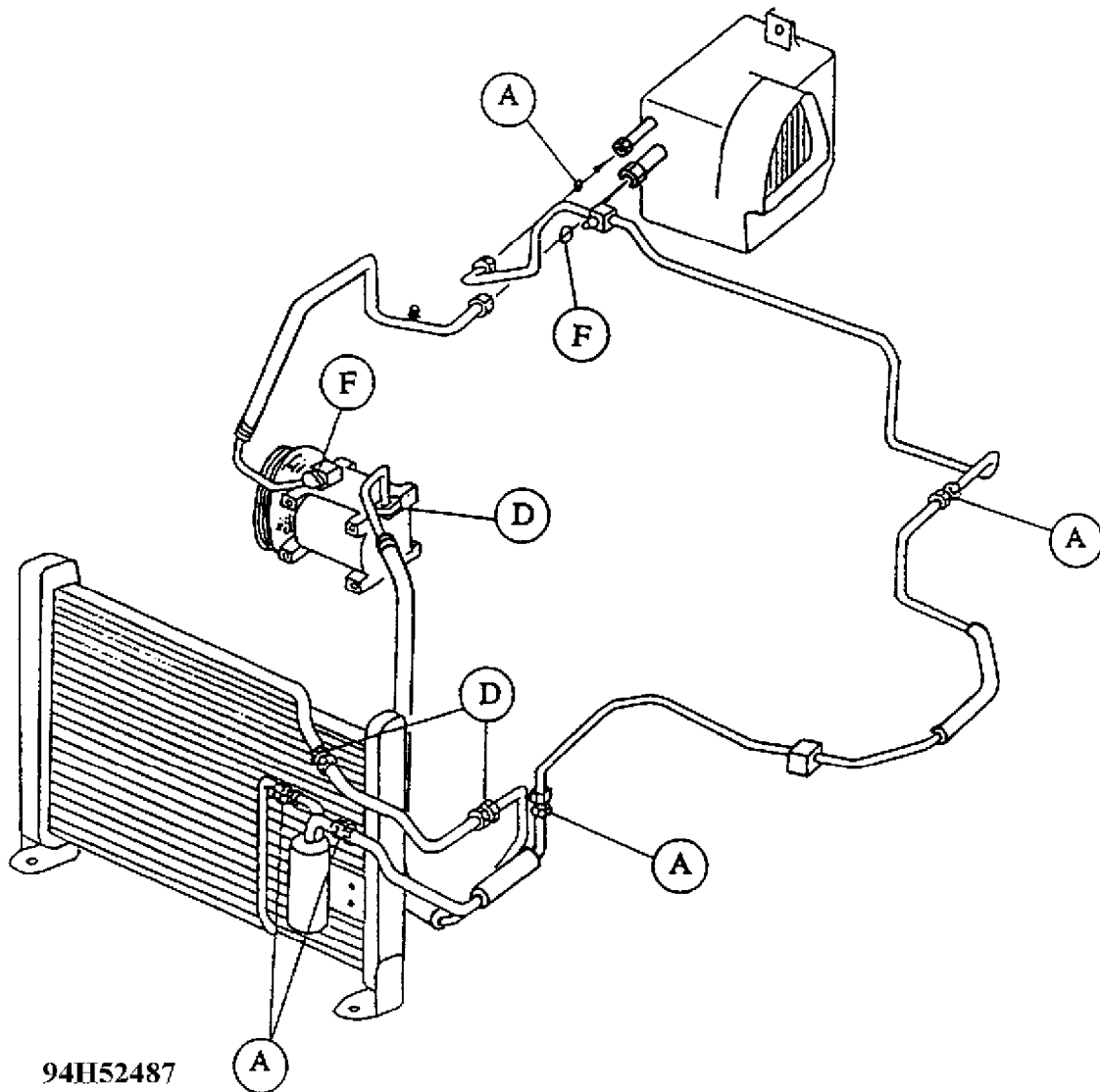


Fig. 2: 323/Protege Air Conditioning System Diagram



**A/C O-RING REPLACEMENT GUIDE CAT. U, NO. 001/94**

**Article Text (p. 4)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:03AM

**MX-3**

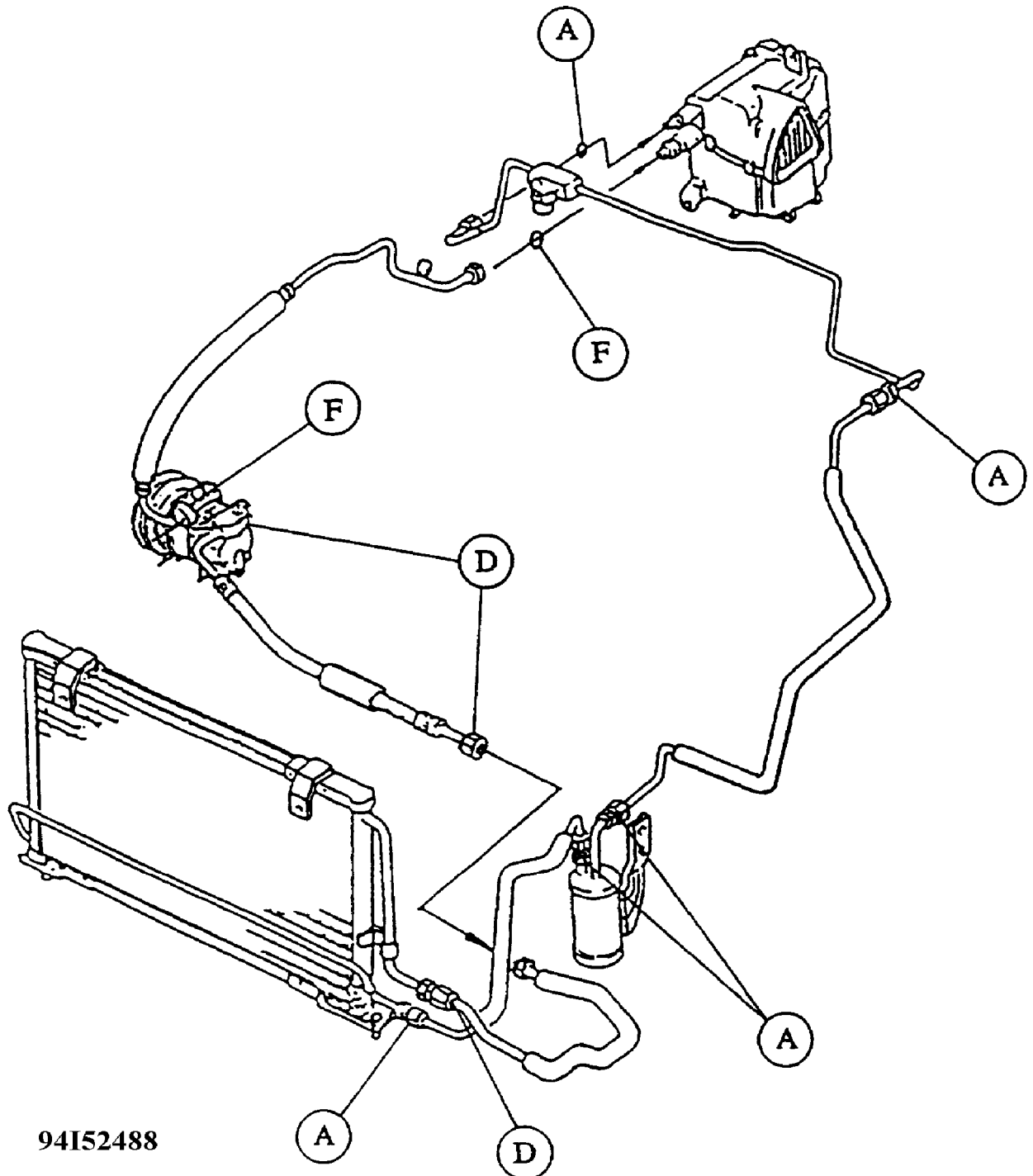


Fig. 3: MX-3 Air Conditioning System Diagram

**A/C O-RING REPLACEMENT GUIDE CAT. U, NO. 001/94**

**Article Text (p. 5)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:03AM

**RX-7**

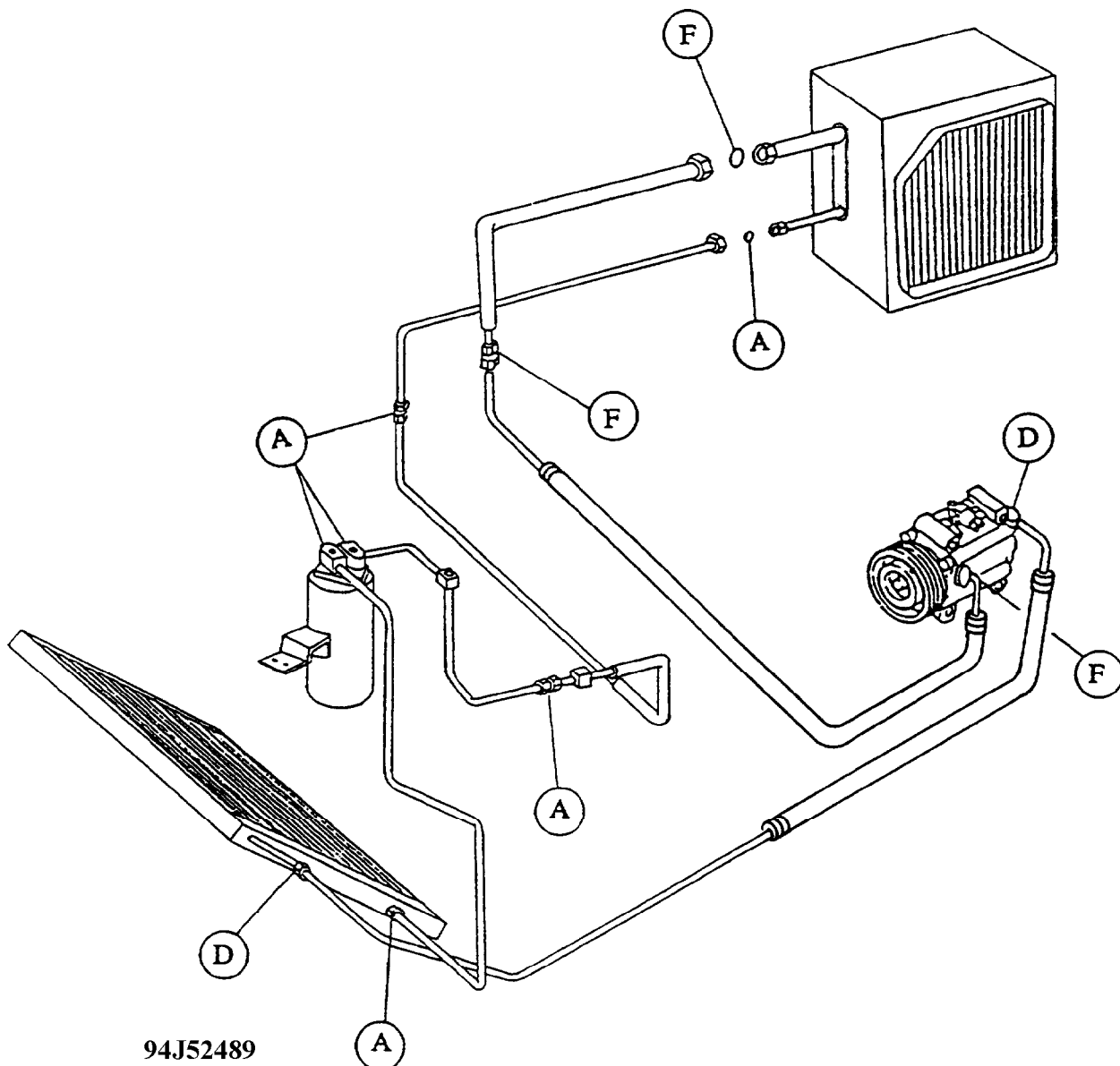


Fig. 4: RX-7 Air Conditioning System Diagram

**A/C O-RING REPLACEMENT GUIDE CAT. U, NO. 001/94**

**Article Text (p. 6)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:03AM

**MPV**

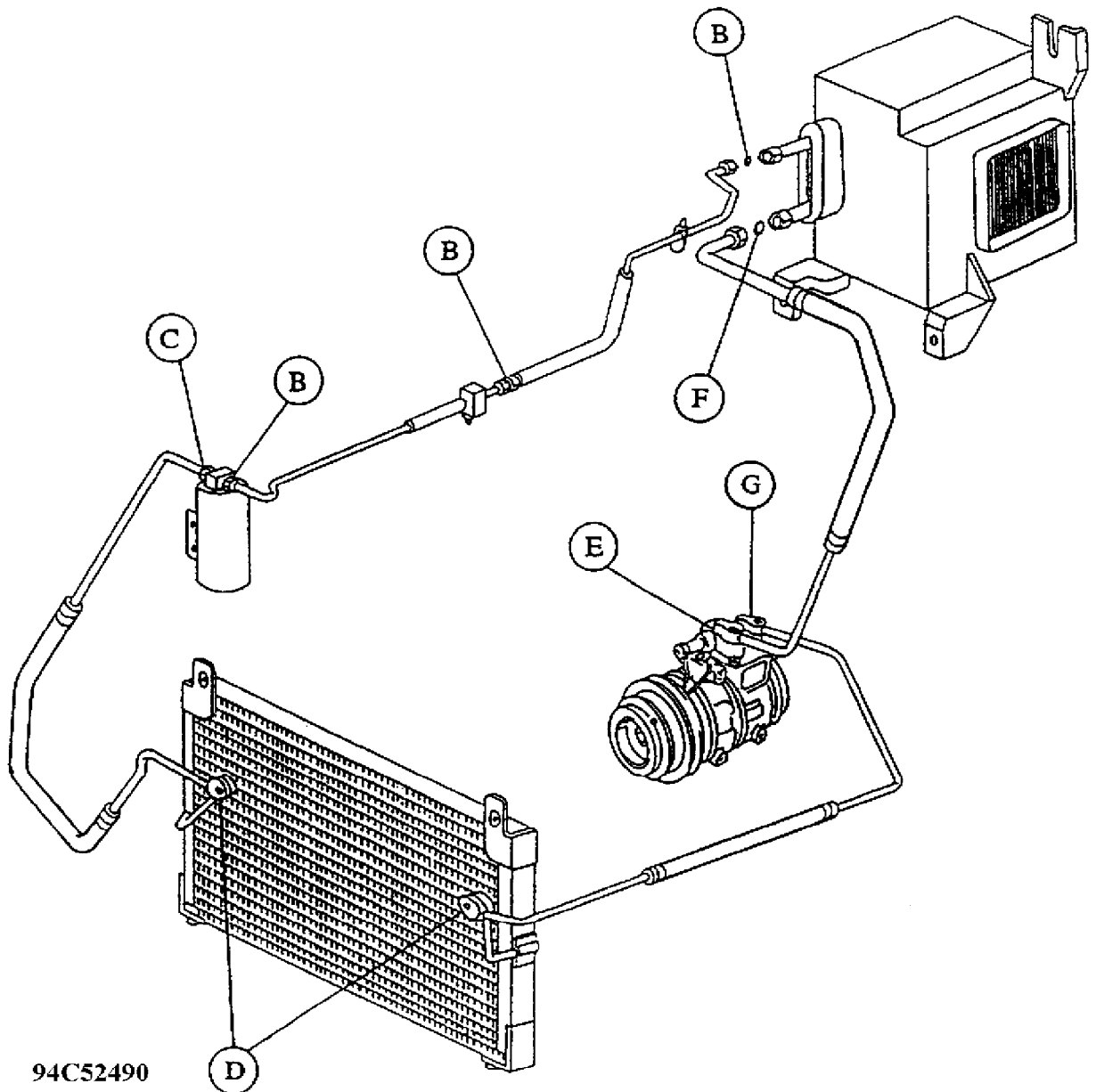


Fig. 5: MPV Air Conditioning System Diagram

**A/C O-RING REPLACEMENT GUIDE CAT. U, NO. 001/94**

**Article Text (p. 7)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:03AM

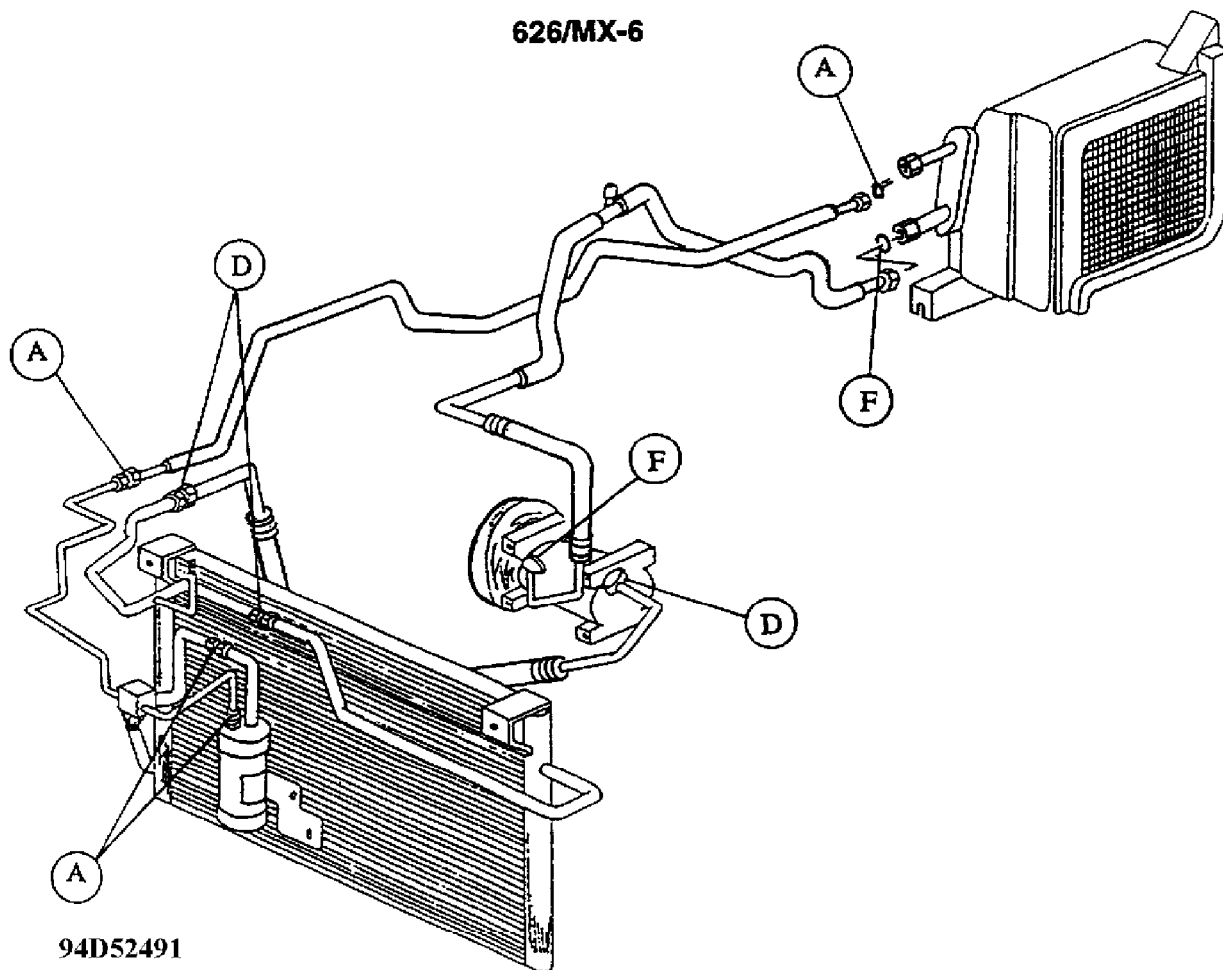


Fig. 6: 626/MX-6 Air Conditioning System Diagram

**A/C O-RING REPLACEMENT GUIDE CAT. U, NO. 001/94**

**Article Text (p. 8)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:03AM

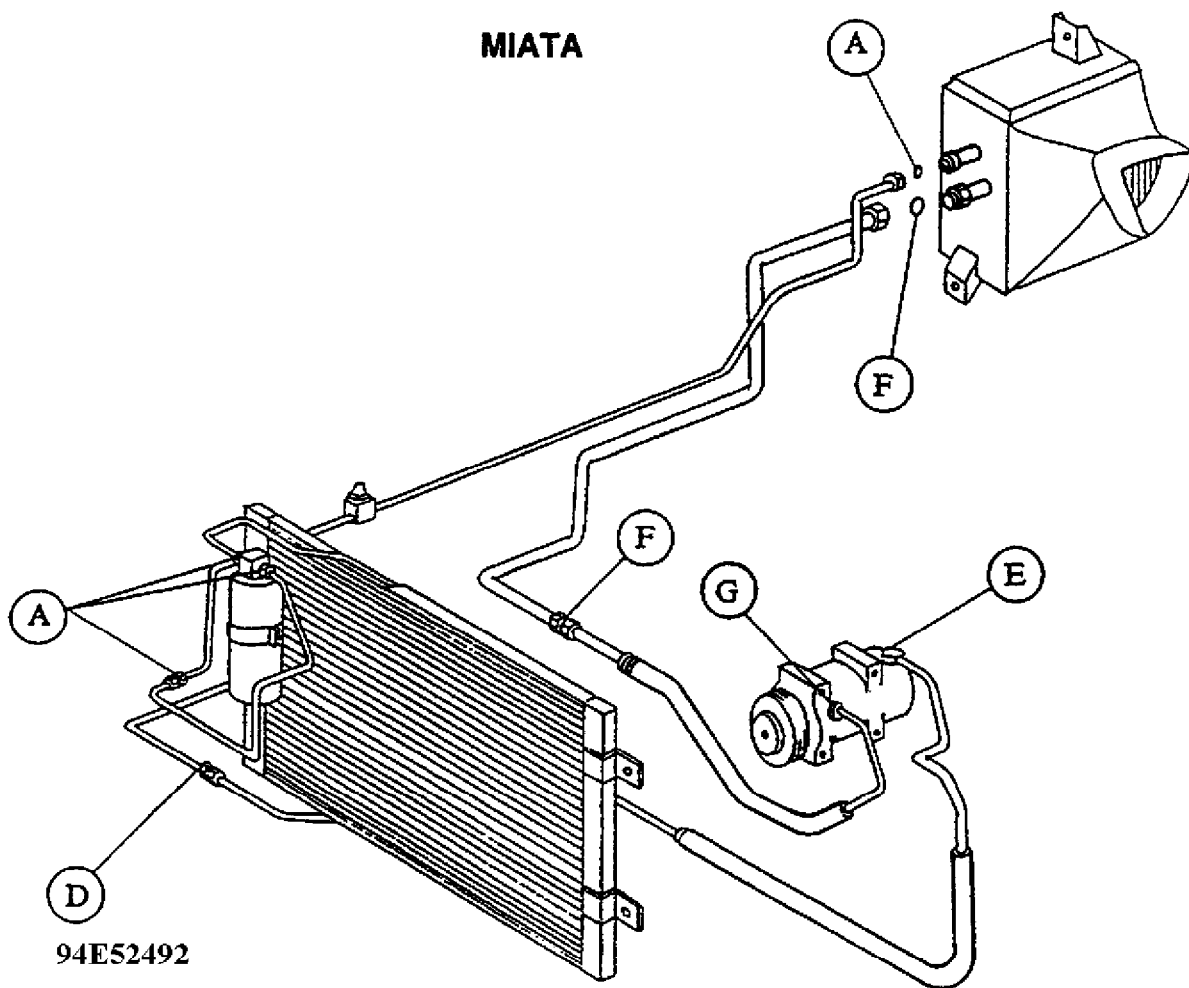


Fig. 7: Miata Air Conditioning System Diagram

# A/C O-RING REPLACEMENT GUIDE CAT. U, NO. 001/94

## Article Text (p. 9)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:03AM

### NAVAJO/94' B-TRUCK

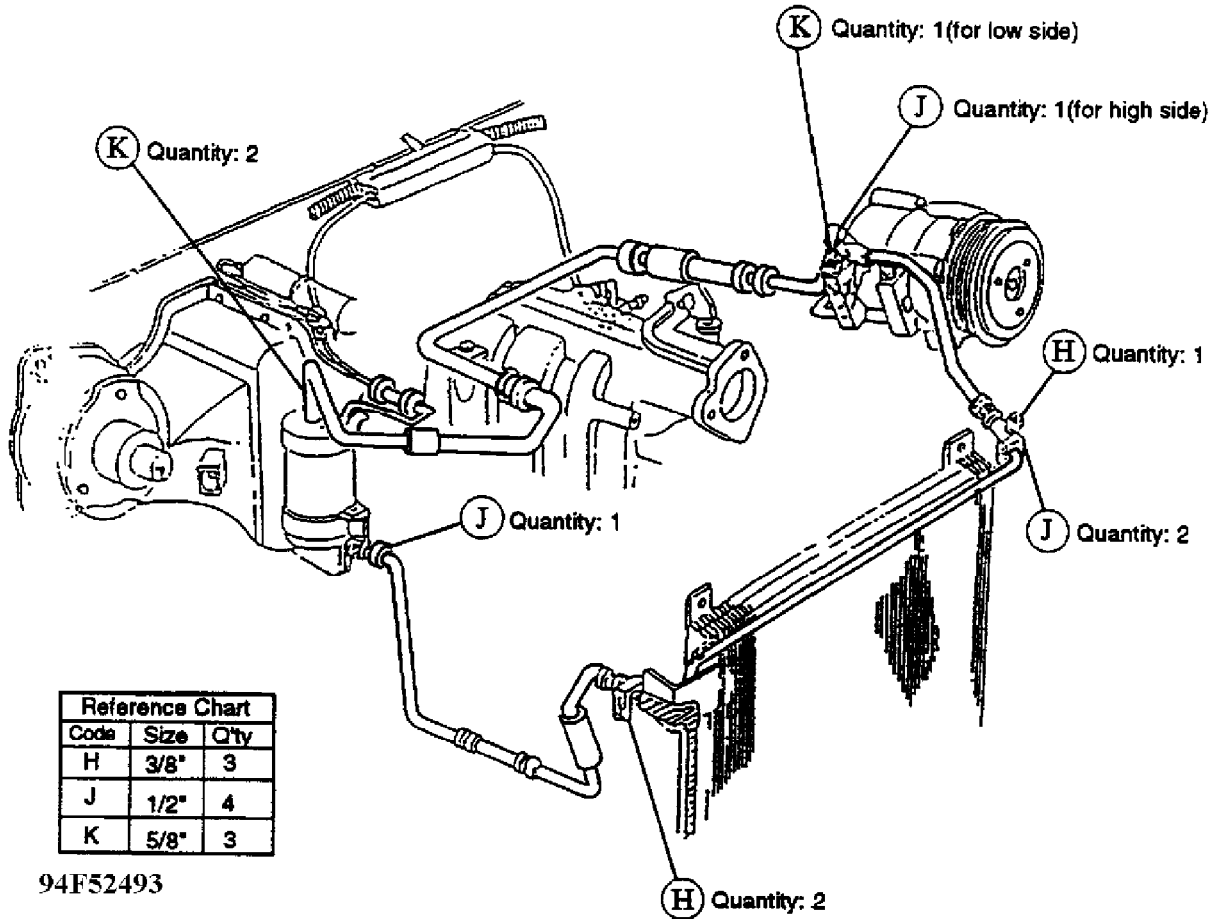


Fig. 8: Navajo/94'B-Truck Air Conditioning System Diagram

END OF ARTICLE

# AIR CONDITION MALFUNCTION - HAZARD SWITCH CONTACTS CAT. U, NO. 95-09

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:05AM

## ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

## AIR CONDITIONING MALFUNCTION

Model(s): 1993-95 Mazda RX-7 (Canadian)  
Category: U - Heater & Air Conditioning  
Bulletin No.: 95-09  
Date: August 1995

## APPLICABLE MODELS/VINS

All 1993-95 RX-7 vehicles with a VIN of JM1FD333\*S0400026 and lower.

## DESCRIPTION

Either of the following conditions may occur when the air conditioning system is operated:

- \* No compressor engagement when A/C is switched on.
- \* Air flow mode switch fixed in defrost position.

These conditions may be caused by insufficient contact at the hazard switch connector (1994-95 - G-06, 1993 - G-01). See Fig. 1

NOTE: The hazard switch harness also contains the A/C control connector.

This improper connection does not affect the hazard switch operation.

Changes in the production process have eliminated this problem. Customers complaining of the above symptoms should have the problem verified and if necessary, corrected.

## REPAIR PROCEDURE

1. Verify the complaint.
2. Remove the control panel and the heater control unit. See Fig. 1. Refer to section G of the BETM for removal instructions.

**Article Text (p. 2)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:05AM

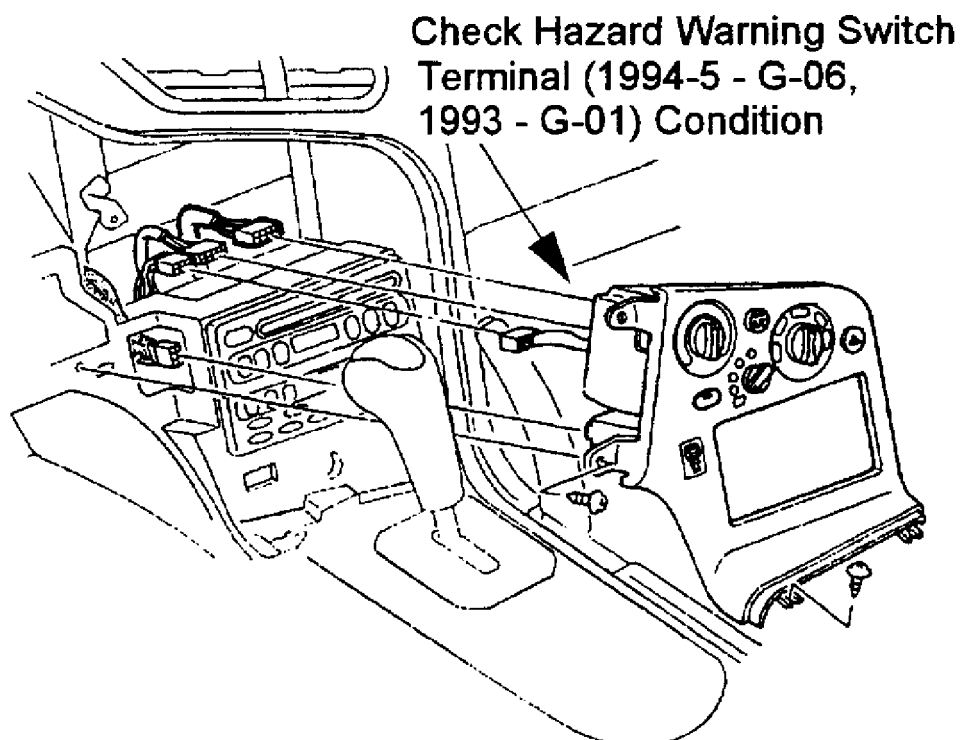


Fig. 1: Removing Control Panel/Heater Control Unit

3. Check the hazard warning switch terminals. Refer to information in the TERMINAL CONNECTION EXAMPLES for problem examples.

- \* If the female terminals are damaged (expanded), remove the switch from the A/C control unit and replace it with a new part.
- \* If the terminals are normal, re-assemble and test. If problems still exist, refer to the BETM or workshop manual for troubleshooting information.

CAUTION: Avoid damage to pins by inserting the connectors straight. Refer to TERMINAL CONNECTION EXAMPLES.

### TERMINAL CONNECTION EXAMPLES

#### MALE CONNECTORS

1. Hold the housing when connecting and disconnecting.

2. To avoid connector pin damage:

- \* align the connector and housing at the appropriate angle.
- \* Slightly wiggle the connector right and left then slowly insert straight into the assembly. Refer to Fig. 2 and Fig. 3.
- \* Avoid forcing the connection or mis-alignment.



**Article Text (p. 3)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:05AM

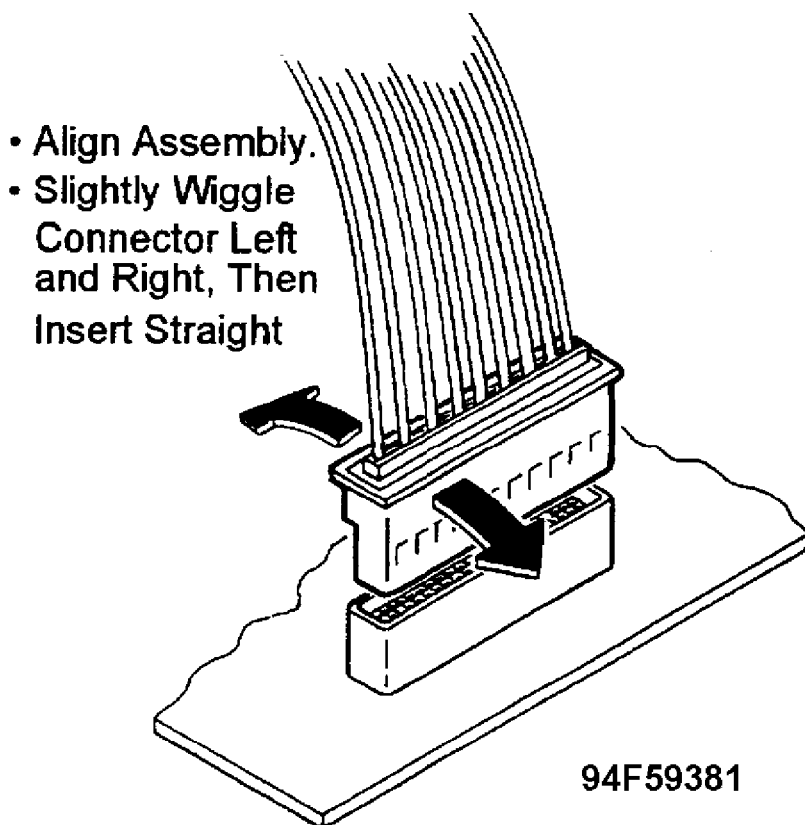


Fig. 2: Correct Installation of Male Connectors

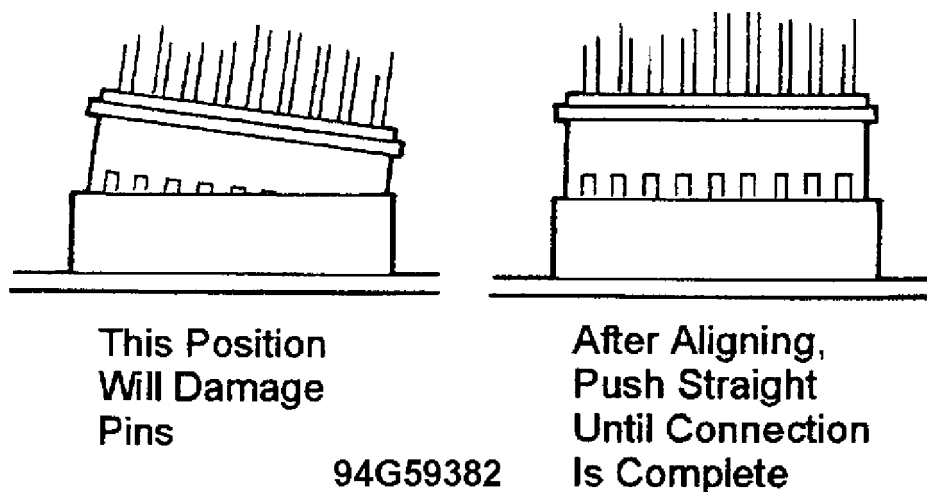


Fig. 3: Installation of Male Connectors

**HARNESSES**

1. DO NOT STRETCH harnesses to connect connectors.
2. Route harnesses to provide slack in harness and no stress on connector. Refer to Fig. 4.

# AIR CONDITION MALFUNCTION - HAZARD SWITCH CONTACTS CAT. U, NO. 95-09

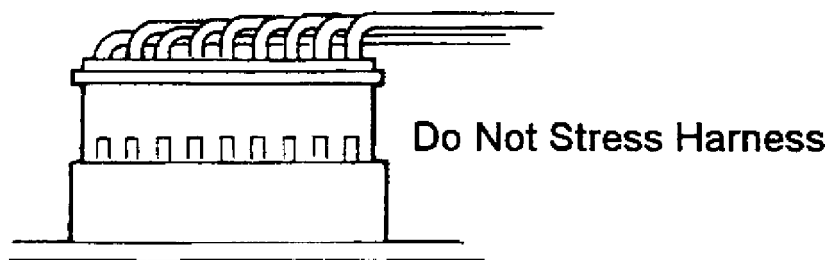
## Article Text (p. 4)

1993 Mazda RX7

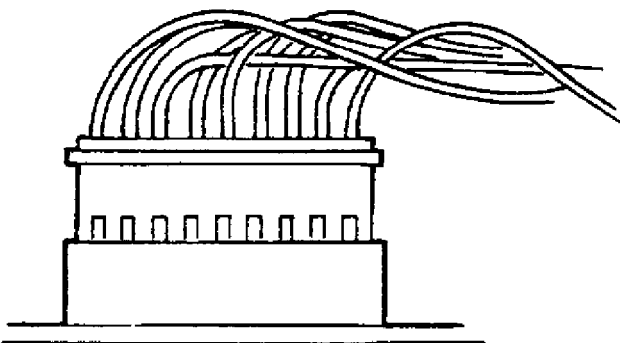
For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:05AM



**Allow Slack When Routing**



**94H59383**

Fig. 4: Correct Installation of Harness

### WARRANTY INFORMATION

(Applies to verified customer complaints on vehicles covered under normal warranty. Refer to the SRT Microfiche for warranty term information).

|                         |             |
|-------------------------|-------------|
| Warranty Type:          | A           |
| Symptom Code:           | 60          |
| Damage Code:            | 9G          |
| Part Number Main Cause: | FD01 66 4H0 |
| Quantity:               | 1           |
| Operation Number:       | T0204XRX    |
| Labor Hours:            | 0.3Hrs.     |

**END OF ARTICLE**

## **DTC DIAGNOSTIC TROUBLE SHOOTING TIPS MT 0597-07**

### **Article Text**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:06AM

### **ARTICLE BEGINNING**

TECHNICAL INFORMATION TIP - MANUFACTURER

DTC DIAGNOSTICS

Model(s): All Mazda Models  
Category: Mazda Tips  
Bulletin No.: MT 0597-07  
Date: May, 1997

### **DESCRIPTION**

The diagnostic procedures for DTCs (Diagnostic Trouble Codes) in the Workshop manual don't always include the procedure to check related connectors that are within the DTC component's circuit.

Whenever performing diagnostic procedures, always use the wiring diagram in conjunction with the Workshop Manual. Check each related connector for the following:

- \* Incomplete connection
- \* Loose female terminals
- \* Terminals that are pushed out of their connectors
- \* Water inside the connector
- \* Terminal corrosion

Also check each related harness for damage.

### **END OF ARTICLE**

## HEATER HOSE/CORE CONNECTOR DEALER HINT MT 0597-09

### Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:06AM

### ARTICLE BEGINNING

TECHNICAL INFORMATION TIP - MANUFACTURER

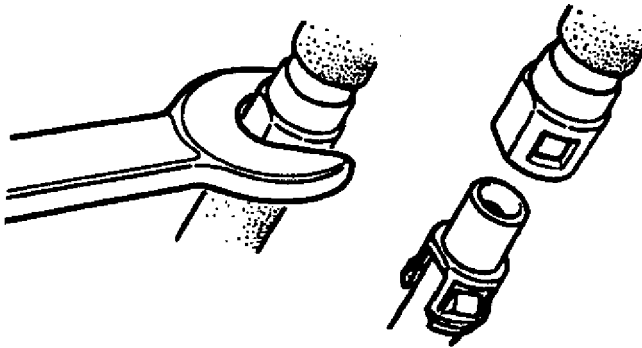
DEALER HINT: HEATER HOSE/CORE CONNECTOR

Model(s): All Mazda Models  
Category: Mazda Tips  
Bulletin No.: MT 0597-09  
Date: May, 1997

### DESCRIPTION

The following hint was submitted by George Beck of New London Mazda in New London, Connecticut.

An easy way to disconnect the heater hoses from the heater core is to insert a 20 mm or 13/16 in. open end wrench into the slots of the quick coupler, then pull the hose out. See Fig. 1.



98B51715

Fig. 1: Heater Hoses

END OF ARTICLE

# HEATING SYSTEM TROUBLESHOOTING CAT. U, NO. 93-04

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:07AM

## ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

## HEATING SYSTEM TROUBLESHOOTING MANUAL

|              |                  |
|--------------|------------------|
| Model        | All Mazda Models |
| Category     | U                |
| Bulletin No. | 93-04            |
| Date         | September, 1993  |

### DESCRIPTION

This Service Bulletin contains a new Heating System Troubleshooting Manual that was developed by the Mazda Canada Quality Assurance Section. The diagnostic procedures were developed and tested in Canada during a Cold Weather Test that took place in February 1993. The diagnostic procedures were tested on vehicles in which customers had complained about a lack of heat for several winters. The effectiveness of these procedures was confirmed.

### SPECIAL NOTE

This same manual will also be used as a hand out for all forth coming Training Courses on Climate Control Systems.

## HEATER AND DEFROSTER TROUBLESHOOTING MANUAL

### INTRODUCTION

An investigation was conducted using customer vehicles at dealer-ships across North America over a two year period. The investigation was conducted to determine if there were any concerns that were difficult to repair using existing Mazda repair manuals. The following list represents items most commonly left unrepaired or undiagnosed by the dealer.

1. Air leakage between the blower unit and the cooler unit.
2. Missing or mis-installed sealing grommets in the firewall.
3. Incorrect operation of the thermostat.
4. Improper usage of the recirculation and fresh air mode of the ventilation system.

In order to assist in the correct diagnosis and repair of Heating System concerns the following troubleshooting manual was developed. See Fig. 1. for a visual description of the Climate Control System.

# HEATING SYSTEM TROUBLESHOOTING CAT. U, NO. 93-04

## Article Text (p. 2)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:07AM

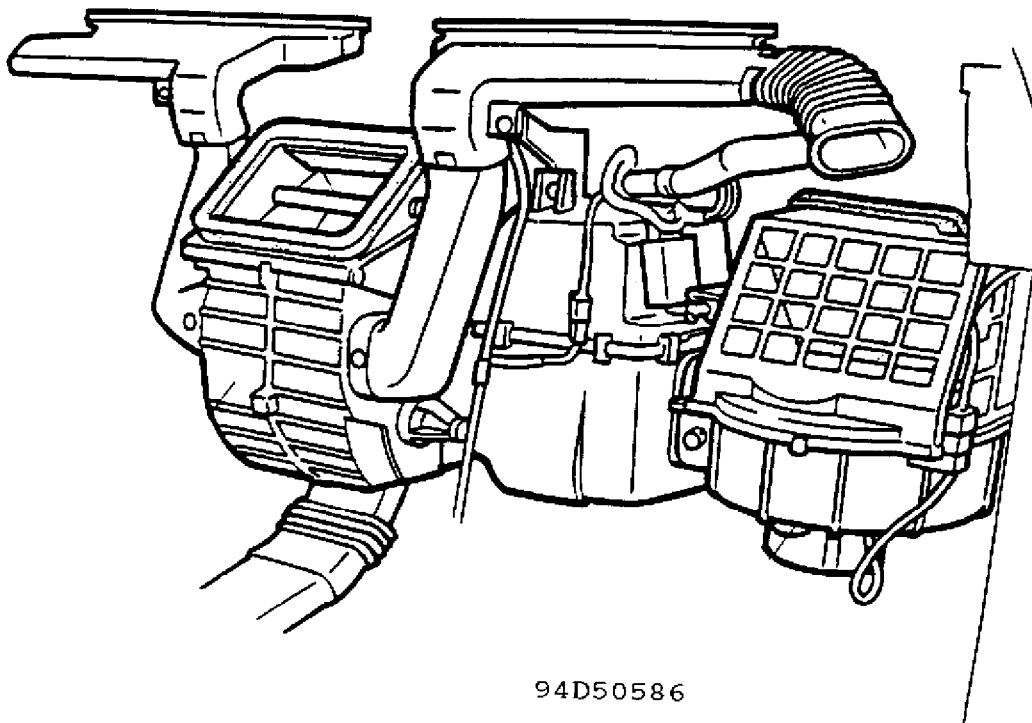


Fig. 1: Climate Control System

### USING THIS MANUAL

Follow the flow charts and diagnostic procedures below to repair the complaints which were determined on the Customer Comment Sheet.

UAAAAAAAAAAAAAAAAAAAAAAAAAAZ

3 1. Complete customer 3  
3 comment sheet. 3

AAAAAAAAAAAAAAAAAAAAAAAAAU

UAAAAAAAAAAAAAAAAAAAAAAAAAAZ

3 2. Determine Nature of complaint 3  
3 a) problem or b) improper usage 3

AAAAAAAAAAAAAAAAAAAAAAAAAU

UAAAAAAAAAAAAAAAAAAAAAAAAAAZ

UAAAAAAAAAAAAAAAAAAAAAAAAAAZ

3 3a. Use diagnostic flow 3  
3 chart to determine 3  
3 repair procedure. 3

AAAAAAAAAAAAAAAAAAAAAAAAAU

UAAAAAAAAAAAAAAAAAAAAAAAAAAZ

3 4. Use check sheet to 3  
3 perform repairs. 3

AAAAAAAAAAAAAAAAAAAAAAAAAU

UAAAAAAAAAAAAAAAAAAAAAAAAAAZ

3 3b. Instruct on proper 3  
3 system usage. 3

AAAAAAAAAAAAAAAAAAAAAAAAAU

# HEATING SYSTEM TROUBLESHOOTING CAT. U, NO. 93-04

## Article Text (p. 3)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:07AM

1. Collect detailed complaint information from the customer using the Customer Comment Sheet.
2. Use the information collected on the Customer Comment Sheet to determine the nature of the complaint.
- 3a. Refer to the diagnostic flow chart and determine the necessary checks.
- 3b. After determining the complaint is of a usage nature instruct the customer on the proper operation of the system.
4. Use the Check Sheet to perform the necessary repairs.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

### CUSTOMER COMMENT SHEET

Please complete the following with the aid of the customer.

#### 1. Heater Concern

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

| No. | Customer Comment | Checked | Result |
|-----|------------------|---------|--------|
|-----|------------------|---------|--------|

|   |                                              |  |  |
|---|----------------------------------------------|--|--|
| 1 | Water temp indicator reads low at high speed |  |  |
|---|----------------------------------------------|--|--|

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

|   |                                                             |  |  |
|---|-------------------------------------------------------------|--|--|
| 2 | While driving the interior temp. is cooler than when parked |  |  |
|---|-------------------------------------------------------------|--|--|

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

|   |                                              |  |  |
|---|----------------------------------------------|--|--|
| 3 | Heater outlet air temperature is always cold |  |  |
|---|----------------------------------------------|--|--|

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

|   |                                             |  |  |
|---|---------------------------------------------|--|--|
| 4 | Passenger side is cooler than driver's side |  |  |
|---|---------------------------------------------|--|--|

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

|   |                                  |  |  |
|---|----------------------------------|--|--|
| 5 | Passenger feels cold air at feet |  |  |
|---|----------------------------------|--|--|

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

|   |                                                                                |  |  |
|---|--------------------------------------------------------------------------------|--|--|
| 6 | After vehicle interior has reached normal temperature cool air is felt at body |  |  |
|---|--------------------------------------------------------------------------------|--|--|

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

|   |                                |  |  |
|---|--------------------------------|--|--|
| 7 | Upper body is cooler than foot |  |  |
|---|--------------------------------|--|--|

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

|   |                                                                 |  |  |
|---|-----------------------------------------------------------------|--|--|
| 8 | Temperature is unbalanced between driver's and passenger's side |  |  |
|---|-----------------------------------------------------------------|--|--|

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

#### 2. Defroster Concern

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

|   |                              |  |  |
|---|------------------------------|--|--|
| 1 | At cold temperatures or high |  |  |
|---|------------------------------|--|--|

# HEATING SYSTEM TROUBLESHOOTING CAT. U, NO. 93-04

## Article Text (p. 4)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:07AM

3 humidity the windows never clear 3 3

3 (all) 3 3

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

2 3 Even after reaching normal 3 3

3 operating temp. the front wind- 3 3

3 shield is only cleared 30-50 % 3 3

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

3 3 Rear window does not clear 3 3

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

4 3 Rear window clears only in the 3 3

3 middle 3 3

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

### 3. Temperature Control Concern

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

1 3 Difficult to set temperature 3 3

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

2 3 Temperature unbalance between 3 3

3 head and foot 3 3

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

3 3 Temperature unbalance between 3 3

3 driver and passenger seat 3 3

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

### 4. Other Concerns

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

1 3 3 3

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

2 3 3 3

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

3 3 3 3

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Record in the appropriate column if the item was checked and the result.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

1. Heater Concern - Use the Diagnostic Flow Chart (see Fig. 2) to determine the necessary diagnostic checks. Refer to the Check Sheet.



# HEATING SYSTEM TROUBLESHOOTING CAT. U, NO. 93-04

## Article Text (p. 5)

1993 Mazda RX7

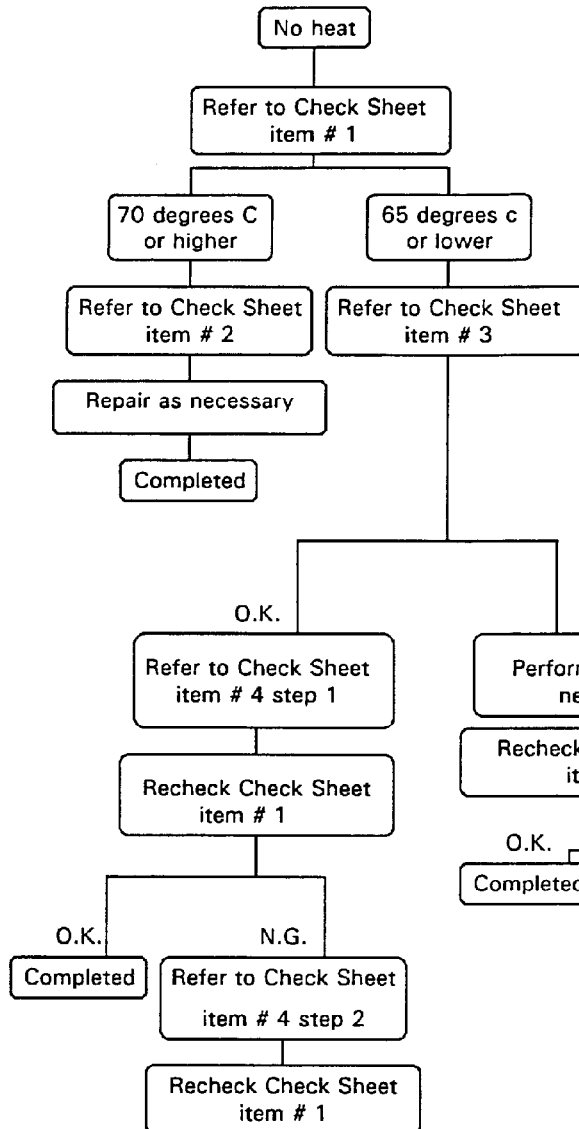
For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

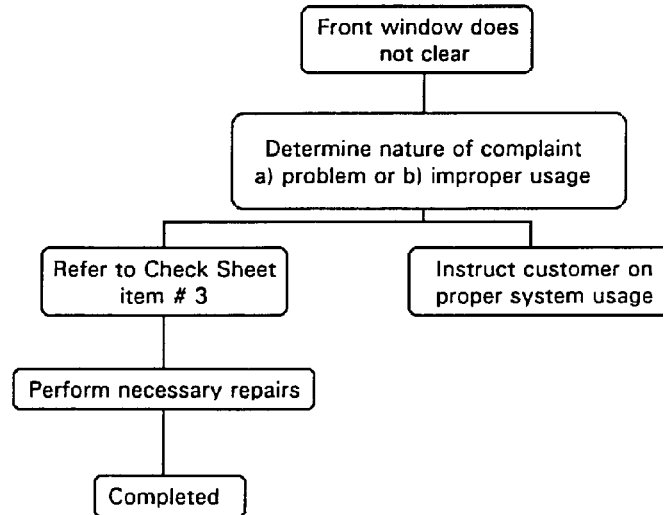
Saturday, August 25, 2001 07:07AM

### Diagnostic Flow Chart

#### 1. Heater Concern



#### 2. Defroster Concern



94F50588

Fig. 2: Diagnostic Flow Chart

#### CHECK SHEET

##### Heater concern

Item 1: Measuring Vent Outlet Air Temperature

1. Place transmission in park or place manual transmission in neutral and set the parking brake.
2. Start the engine and let idle until the engine reaches normal operating temperatures.

## HEATING SYSTEM TROUBLESHOOTING CAT. U, NO. 93-04

### Article Text (p. 6)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:07AM

3. Adjust the climate controls to the following settings:

|                   |       |          |
|-------------------|-------|----------|
| Function          | ..... | Bi-level |
| Temperature       | ..... | Max. hot |
| Fan speed         | ..... | 2        |
| Recirculate/fresh | ....  | Fresh    |

4. Raise the engine speed to 2000 rpm and hold for ten minutes.

5. Measure the vent outlet air temperature.

NOTE: The thermostat will cycle after the engine has reached operating temperatures. Measure outlet air temperature several times over a ten minute period to attain the high temperature reading (thermostat closed).

#### Item 2 - Air Leakage

##### A. Interior Components

1. Remove the lower kick panel on passenger side.

2. Remove the glove box.

3. Adjust the climate controls to the following settings:

|                     |       |          |
|---------------------|-------|----------|
| Function            | ..... | Defrost  |
| Temperature         | ..... | Max. hot |
| Fan speed           | ..... | 4        |
| Recirculation-fresh | ..... | Fresh    |

4. Check for leakage between blower unit and cooler unit (air duct).

5. Check for leakage between cooler unit (air duct) and heater unit.

NOTE: Air duct is present only on vehicles not equipped with air conditioning.

##### B. Engine compartment

1. Turn off the engine.

2. Raise the hood and visually inspect the following for proper sealing:

- \* A/C drain grommet
- \* A/C pipes where they enter the cooling unit at the firewall.
- \* Heater pipes where they enter the firewall.
- \* All body harnesses that pass through the firewall.
- \* Speedometer cable.

## HEATING SYSTEM TROUBLESHOOTING CAT. U, NO. 93-04

### Article Text (p. 7)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:07AM

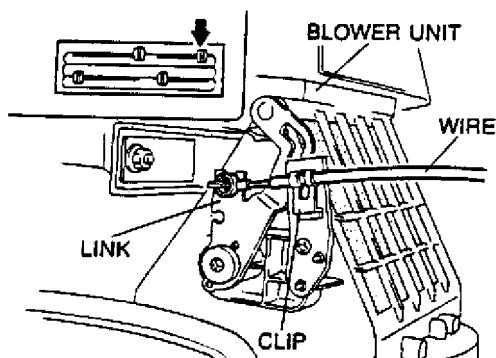
NOTE: Do not perform the above checks with the engine running.

#### Item 3 - Link and Wire Adjustment

1. Remove the kick panel on the passenger side of the vehicle.
2. Remove the glove box.
3. Place the transmission in park or set manual transmission in neutral and set the parking brake.
4. Start the engine and allow to idle.
5. Set the climate controls to the following settings:

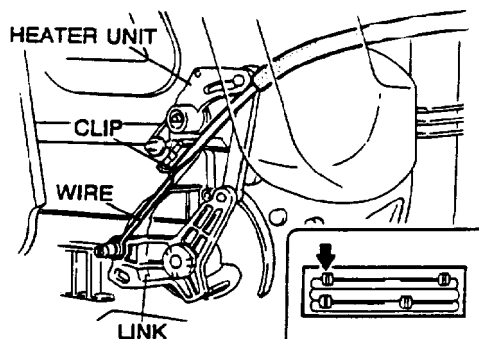
Temperature ..... Max. hot  
Recirculation-fresh ... fresh

6. Using Figs. 3 and 4 for reference, ensure the linkages are adjusted properly.



94G50589

Fig. 3: Blower Unit Linkage Adjustment



94J50590

Fig. 4: Heater Unit Linkage Adjustment

#### Item 4 - Coolant By-passing the Thermostat/Thermostat Stuck

## HEATING SYSTEM TROUBLESHOOTING CAT. U, NO. 93-04

### Article Text (p. 8)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:07AM

1. Drain the engine coolant from the radiator.
2. Remove the thermostat from the thermostat housing.
3. Visually inspect the coolant passages and thermostat housing for any casting debris.
4. Feel around inside the thermostat housing for any foreign materials, especially in the area around the heater pipe outlet. If present, remove any casting sand or debris which may be blocking the coolant passages or causing the thermostat to stick open.
5. Verify the operation of the thermostat using the appropriate workshop manual.

NOTE: In addition to the procedure to check for proper thermostat opening the following check must be performed to ensure the thermostat is closing properly. When the thermostat has opened fully continue to bring the water to a boil. When the water has reached a boil remove the thermostat from the water and set it on the work bench. Closely watch as the thermostat begins to close and that it closes smoothly and does not hang up.

6. If the thermostat fails either of the above tests, Replace it.
7. Using a filter, refill the radiator with engine coolant.

#### Recommended Climate Control System Operation

If all systems check out O.K., or through reviewing the Customer Comment Sheet it is determined the system is being operated incorrectly, instruct the customer on the proper system operation using the operating guidelines listed below.

##### Item 1 - Air Intake Selector (Fresh/Recirculation)

This selector controls the source of air that enters the vehicle. Usually, for heating or defrosting the air intake selector should be in the "Fresh" or outside air mode. However, if there is a heavy presence of exhaust fumes in the surrounding area it may be necessary to switch to the "Recirculation" mode. It is important to remember to return to the "Fresh" mode because humidity may build up in the "Recirculation" mode causing the windows to fog up. See Fig. 5. Another method to help reduce humidity within the vehicle is to use the Air Conditioning system. Its dehumidifying characteristics can be taken advantage of in any situation.

# HEATING SYSTEM TROUBLESHOOTING CAT. U, NO. 93-04

## Article Text (p. 9)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:07AM

**Type A**



**Type B**



94A50591

Fig. 5: Air Intake Selector (Type A and B)

### Item 2 - Function Selector

This selector controls the direction of the airflow from the vents. On initial start during cold or high humidity temperatures the selector should be placed in the defrost position and the fan speed set to 3 or 4. After the front and side windows become clear the selector can be switched to defrost/heat and then to heat only as necessary and the fan speed reduced. If the front or side windows begin to fog again while driving the selector should be reset to the defrost/heat or full defrost and the fan speed adjusted as necessary. In addition to the above, air-conditioning can be used in conjunction with the heating system to control the humidity level in the vehicle while providing heat.

**Type A**



**Type B**



94B50592

Fig. 6: Function Selector (Type A and B)

### Item 3 - Temperature Selector Lever

This lever controls air temperature by sliding the lever either to the right for hot or to the left for cold. On start up during cold temperatures the selector should be set to the full heat position at far right of the selectors travel. See Fig. 7.

As the interior of the vehicle reaches the desired temperature the selector should be adjusted to the left towards the cold setting by increments until the desired temperature is reached.

# HEATING SYSTEM TROUBLESHOOTING CAT. U, NO. 93-04

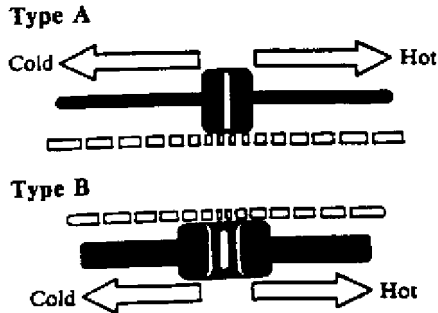
## Article Text (p. 10)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:07AM

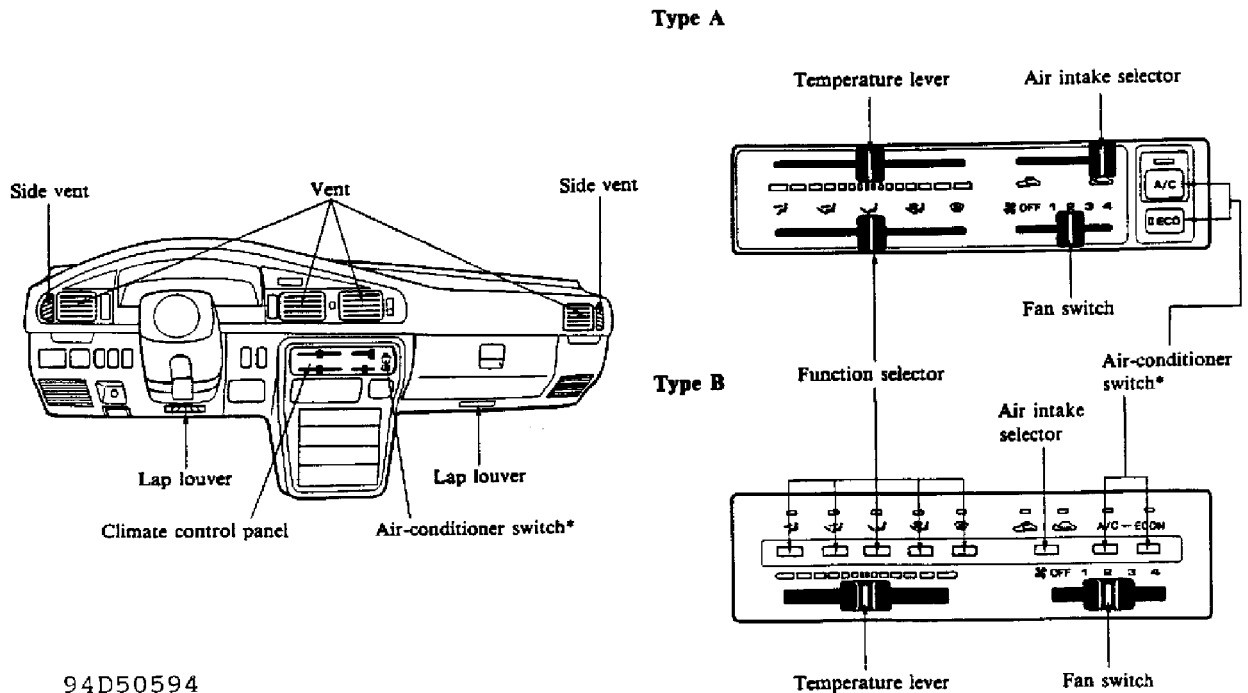


94C50593

Fig. 7: Temperature Selector (Type A and B)

### Climate Control System

Shown in Fig. 8 is a typical climate control system. Detailed descriptions of each function are found under the heading "Driving Your Mazda" in the appropriate Owners Manual.



94D50594

Fig. 8: Climate Control System Layout

END OF ARTICLE

# HFC-134A A/C RECOVERY & RECYCLING TRAINING/EQUIPMENT CAT. ST, NO. 008/95

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC  
Saturday, August 25, 2001 07:07AM

## ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

## REQUIREMENTS OF HFC-134A A/C RECOVERY AND RECYCLING TRAINING & EQUIPMENT

Model(s): All Mazda Models  
Category: ST - Special Tools  
Bulletin No.: 008/95  
Date: November 24, 1995

## DESCRIPTION

A new law by the United States Environmental Protection Agency (EPA) requires all who work with and make A/C repairs to have:

- \* Technicians trained and certified by an EPA approved organization
- \* EPA approved HFC-134a recovery/ recycling or recover-only equipment.

These requirements became effective November 15, 1995.

To become more familiar with this new law, review the EPA fact sheet RECYCLING REFRIGERANT FROM MOTOR VEHICLE AIR CONDITIONERS. It further explains this law and addresses some general concerns. For your convenience, the LIST OF APPROVED SECTION 609 CERTIFYING ORGANIZATIONS and APPROVED REFRIGERANT RECOVERY/RECYCLE EQUIPMENT referenced in the fact sheet are also included.

## RECYCLING REFRIGERANT FROM MOTOR VEHICLE AIR CONDITIONERS

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

A regulation signed in July, 1992 by the administrator of the United States Environmental Protection Agency (EPA), requires that motor vehicle air conditioning refrigerant be recycled. This fact sheet will help you become familiar with this law and address some of your concerns.

## OUR THREATENED OZONE LAYER

The stratospheric ozone layer shields the earth from harmful ultraviolet (UV) radiation. Scientists worldwide believe that synthetic chemicals such as chlorofluorocarbons (CFC's also know by the trade name Freon) are rapidly destroying this layer of gas 10 to 30 miles above the earth's surface. Ozone loss of 3.5% globally has already been recorded and is greatest over Antarctica, where a seasonal ozone "hole" occurs. Recent data strongly suggests that substantial losses may also develop over the North Pole, exposing

**Article Text (p. 2)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:07AM

parts of the U.S. to increasing levels of UV radiation.

Ozone loss in the atmosphere is likely to lead to an increase in skin cancer and cataracts and could weaken the human immune system. Agriculture, as well as plant and animal life, may also be dramatically affected.

## **IMPACT OF MOTOR VEHICLE AIR CONDITIONERS**

One of the single largest uses of CFC's in the U.S. is as a refrigerant in automobile air conditioners. CFC 12 in motor vehicles accounts for over 20% of all CFC use in this country.

Commonly released into the air when car or truck air conditioners are serviced, CFC's rise to the stratosphere where they can remain active for up to 120 years. Solar rays break these molecules apart releasing chlorine. A single chlorine atom can destroy over one hundred thousand ozone molecules

## **WORLDWIDE ACTION TO PROTECT THE OZONE LAYER**

The United States has joined over 135 other countries in a global effort to protect the ozone layer as a Party to the international treaty known as the Montreal Protocol. In 1990, these countries agreed to phase out production of ozone depleting substances, including CFC-12, by the year 2000. The 1990 Clean Air Act Amendments (the Act) incorporated this production phase out data and also addressed the use and emission of these chemicals. President Bush later pledged to halt almost all U.S. production of CFC's by the end of 1995.

Section 609 of the Act gives the EPA the authority to establish requirements to prevent the release of refrigerants during the servicing of motor vehicle air conditioners. Recycling of CFC's can occur at minimal cost and without damaging motor vehicle A/C systems.

The following sections describe the requirements of the law and its potential impact on the service industry.

## **CLEAN AIR ACT REQUIREMENTS**

### **APPROVED EQUIPMENT**

Technicians repairing or servicing motor vehicle air conditioners must use either refrigerant recover/recycle or recover-only equipment approved by the EPA. Recover/recycle equipment both recovers the refrigerant from the motor vehicle and processes it through an oil separator, a filter, and a dryer. Approved recover/recycle machines meet the technical specifications of SAE Standard J-1990 and must have the capacity to purify used refrigerant to SAE Standard J-1991 for safe and direct return to the air conditioner following repair.

Recover-only equipment removes the refrigerant from the A/C unit as specified by SAE Standard J-2209 and transfers it into a holding tank.



# HFC-134A A/C RECOVERY & RECYCLING TRAINING/EQUIPMENT CAT. ST, NO. 008/95

## Article Text (p. 3)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:07AM

Technicians are then required by law either to recycle the used refrigerant on site or send it to an off-site reclamation facility to be purified to ARI Standard 700 before it can be used to recharge A/C equipment.

A list of approved equipment is available from EPA at the address on the back of this fact sheet. Most certified equipment will be labeled AC "design certified to SAE standards."

### TECHNICIAN TRAINING AND CERTIFICATION

Technicians who repair or service motor vehicle air conditioners must be trained and certified by an EPA Approved organization. Training programs must cover use of recycling equipment in compliance with SAE Standard J-1989, the regulatory requirement, the importance of refrigerant containment, and the effects of ozone depletion. To be certified, technicians must pass a test demonstrating their knowledge in these areas. A list of approved testing programs is available from EPA at the address on the back of this fact sheet.

### SALES RESTRICTIONS

The sale of any size containers of CFCs to anyone other than certified technicians is prohibited after November 14, 1994. This provision is intended to discourage "do-it-yourselfers" who recharge their own air conditioners. Such individuals often release refrigerant because they typically do not have access to recycling equipment. The Agency encourages "do-it-yourselfers" to bring their cars to certified technicians who can properly fix air conditioners using approved equipment. This avoids damage to A/C equipment by improper charging and helps to protect the environment.

### RECORD KEEPING REQUIREMENTS

Service shops must certify to EPA that they own approved equipment. If refrigerant is recovered and sent to a reclamation facility the name of that facility must be retained.

### IMPACTS ON A/C SERVICE

Because of the planned CFC phase-out and the tax on CFC's shops that service air conditioners can expect the price of CFC-12 to increase and its availability to decrease. Widespread refrigerant recycling, however, reduces the need for virgin CFC-12 and thus helps keep costs down. Refrigerant recycling is an important step towards the goal of eliminating CFC use. It means that car owners can have their air conditioners fixed until alternatives to CFC-12 are developed.

### REFRIGERANT IN NEW CARS

Automobile manufacturers are responding to the CFC phase out by producing new vehicles with an alternative refrigerant called HFC-

## HFC-134A A/C RECOVERY & RECYCLING TRAINING/EQUIPMENT CAT. ST, NO. 008/95

### Article Text (p. 4)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:07AM

134a. This refrigerant does not deplete the ozone layer because it does not contain chlorine. About half of the 1993 model year cars and almost all 1994 model year cars are equipped with HFC-134a air conditioning systems.

#### CHOICES FOR OLDER CAR OWNERS

As for existing cars, when the supply of CFC-12 is no longer available, owners may modify their A/C systems to accept the HFC-134a.

Since the HFC-134a works at a higher pressure than the CFC-12 retrofitting will require that some components be replaced. EPA estimates that retrofits will cost between \$100 - \$800.00. The specific requirements will vary depending on the make, model and age of the car, and on the car's history of air-conditioning servicing. If you are having major service performed on your CFC-12 air conditioning system, modifying the system may be appropriate. Auto manufacturers are currently working to identify retrofit procedures. Most have toll-free consumer hot lines which you can call to determine if retrofit procedures have been developed for your automobile.

#### ALTERNATIVE REFRIGERANTS

EPA's Significant New Alternatives Policy (SNAP) program reviews alternatives to CFC-12 to determine the risks posed to human health and the environment by that alternative. HFC-134a has been approved under the SNAP program. Some refrigerant manufacturers and distributors are conducting research to determine if other substitutes exist which will cool adequately, work compatibly with the components in A/C systems with minimal retrofit procedures. These substitutes must be reviewed under the SNAP program. It is important to keep in mind that the SNAP program does not evaluate the effect of a substitute refrigerant on the life or performance of the components in your car's A/C system, or the effect of a substitute on the system's cooling capacity.

By November 15, 1995, all substitute refrigerants will have to be recovered and recycled, technicians handling those substitutes will have to be certified, and equipment used to service those substitutes will have to be approved.

By complying with these regulations, you will help preserve the ozone layer for future generations.

For further information please contact the Stratospheric Ozone Information Hotline at 1-800-296-1996 (10a.m. - 4p.m. EST, Monday - Friday, except federal holidays), or you may write:

MVAC's Recycling Program Manager  
Stratospheric Protection Division  
6205J  
U.S. Environmental Protection Agency  
401 M Street, S. W.

# HFC-134A A/C RECOVERY & RECYCLING TRAINING/EQUIPMENT CAT. ST, NO. 008/95

## Article Text (p. 5)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:07AM

Washington, D.C. 20406

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

### APPROVED REFRIGERANT RECOVERY/RECYCLE EQUIPMENT

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

The following lists contain the section 609 approved refrigerant recover/recycle and recover-only equipment.

TABLE 1 - Contains recover/recycle equipment approved by Underwriters Laboratory (UL) and ETL Testing Laboratories, Inc.

TABLE 2 - Contains recover/recycle equipment determined to be substantially identical to approved equipment.

TABLE 3 - Contains recover-only equipment approved by Underwriters Laboratory (UL) and ETL Testing Laboratories, Inc.

TABLE 4 - Contains recover-only equipment determined to be substantially identical to approved equipment.

All lists will be updated as equipment is approved. Models listed for the first time in this update are in bold type.

### TABLE 1 - APPROVED (UL) RECOVER/RECYCLE EQUIPMENT

TABLE 1 - APPROVED (UL) RECOVER/RECYCLE EQUIPMENT

|                                                                             |                      |   |                                  |
|-----------------------------------------------------------------------------|----------------------|---|----------------------------------|
| UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA; |                      |   |                                  |
| 3                                                                           | TABLE 1              |   | 3                                |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA    |                      |   |                                  |
| 3                                                                           | Manufacturer         | 3 | Model                            |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA    |                      |   |                                  |
| 3                                                                           | A. Gramkow           | 3 | RRC                              |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA    |                      |   |                                  |
| 3                                                                           | AES NTRON            | 3 | Retriever 2.2AC and 2.2A         |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA    |                      |   |                                  |
| 3                                                                           | Airosol Company, Inc | 3 | Chargette RC2000, RC2200         |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA    |                      |   |                                  |
| 3                                                                           | American Thermaflo   | 3 | 18000 *                          |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA    |                      |   |                                  |
| 3                                                                           | Applied Ecological   | 3 | 2.2c                             |
| 3                                                                           | Systems              | 3 |                                  |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA    |                      |   |                                  |
| 3                                                                           | Assemblies Systems   | 3 | NS-2000                          |
| 3                                                                           | Corp.                | 3 |                                  |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA    |                      |   |                                  |
| 3                                                                           | Atlas Supply Company | 3 | EAC-205, -250, -750,             |
| 3                                                                           |                      | 3 | -1400, -1500 **                  |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA    |                      |   |                                  |
| 3                                                                           | Atlas/SPX-           | 3 | EAC-125, EAC-370, 679125, 679137 |
| 3                                                                           |                      | 3 |                                  |

# HFC-134A A/C RECOVERY & RECYCLING TRAINING/EQUIPMENT CAT. ST, NO. 008/95

## Article Text (p. 6)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:07AM

|                                                                                  |                         |   |                                     |
|----------------------------------------------------------------------------------|-------------------------|---|-------------------------------------|
| 3                                                                                | Robinair                | 3 | 3                                   |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA |                         |   |                                     |
| 3                                                                                | Automotive Diagnostics, | 3 | 40-375 **                           |
| 3                                                                                | Division of             | 3 | 3                                   |
| 3                                                                                | SPX Corporation         | 3 | 3                                   |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA |                         |   |                                     |
| 3                                                                                | Bear/SPX - Robinair     | 3 | 40-310, 17352C/17352,               |
| 3                                                                                |                         | 3 | 17355C, 40-327, 40-370              |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA |                         |   |                                     |
| 3                                                                                | Belco Controls Inc.     | 3 | 08                                  |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA |                         |   |                                     |
| 3                                                                                | Carquest Corporation    | 3 | 209990 **                           |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA |                         |   |                                     |
| 3                                                                                | Carrier                 | 3 | 12RA001100                          |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA |                         |   |                                     |
| 3                                                                                | Caterpillar Inc/        | 3 | 4C8754, 4C8755, 905786,             |
| 3                                                                                | SPX -Robinair           | 3 | 905787, 905788, 905789, 905790      |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA |                         |   |                                     |
| 3                                                                                | Century Mfg. Co.        | 3 | MR-1991-A, -R, ME-1991-A, 160-002,  |
| 3                                                                                |                         | 3 | -003, -004, -005, -013, -014, -015, |
| 3                                                                                |                         | 3 | -016. Solar 5090, -5100, -5110,     |
| 3                                                                                |                         | 3 | 7100, 8100, 85100, 86100            |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA |                         |   |                                     |
| 3                                                                                | Chrysler/SPX-           | 3 | OT-17350, OT-17400, OT-17700        |
| 3                                                                                | Robinair                | 3 | 3                                   |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA |                         |   |                                     |
| 3                                                                                | Classic Tool            | 3 | FBR-11 ***                          |
| 3                                                                                | Design, Inc.            | 3 | 3                                   |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA |                         |   |                                     |
| 3                                                                                | Cornwell/               | 3 | RA-17350C, RA-17400, RA-17500B,     |
| 3                                                                                | SPX-Robinair            | 3 | RA-17700                            |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA |                         |   |                                     |
| 3                                                                                | Diavia/SPX-Robinair     | 3 | 17705                               |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA |                         |   |                                     |
| 3                                                                                | D.W. Myers Enterprises  | 3 | AM 6000, MR-1991-A, MR-1991-R,      |
| 3                                                                                | Inc.                    | 3 | ME-1991-A                           |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA |                         |   |                                     |
| 3                                                                                | Dowmar Solvent          | 3 | DR12R **                            |
| 3                                                                                | Recovery Systems, Inc.  | 3 | 3                                   |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA |                         |   |                                     |
| 3                                                                                | Draf Industries         | 3 | 1400                                |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA |                         |   |                                     |
| 3                                                                                | Enspecto, Inc.          | 3 | RMS-3112                            |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA |                         |   |                                     |
| 3                                                                                | Environmental           | 3 | SKYE.EP3, SKYE.EP-4/5               |
| 3                                                                                | Products                | 3 | 3                                   |
| 3                                                                                | Amalgamated             | 3 | 3                                   |
| 3                                                                                | Pty. Ltd.               | 3 | 3                                   |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA |                         |   |                                     |
| 3                                                                                | Environrnental          | 3 | FICS 9000 **                        |
| 3                                                                                | Systems Products,       | 3 | 3                                   |
| 3                                                                                | Inc.                    | 3 | 3                                   |

# HFC-134A A/C RECOVERY & RECYCLING TRAINING/EQUIPMENT CAT. ST, NO. 008/95

## Article Text (p. 7)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:07AM

```

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA -
3      Enviromental          3      SYSTEM I 102-12          3
3      Technologies          3
3      Corporation          3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA -
3      Everco/SPX-Robinair    3      A9990          3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA -
3      Everco Industries, Inc  3      A9950          3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA -
3      Firestone/SPX-Robinair 3      TE 48-30-960-7    3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA -
3      Fluoro Tech, Inc.      3      Fluoromizer 3000R (FM3000R), FM3000 3
3                               3      With RM3 module (Flouromizer, 3000) 3
3                               3      FM4000-12 ** & ***      3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA -
3      Ford Motor Company     3      158-00001,-00002, 01400900, 3
3                               3      02300100 **          3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA -
3      Ford-New Holland       3      FNH00140, FNH00141, FNH00335 3
3      /SPX-Robinair         3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA -
3      Four Seasons           3      59870 **          3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA -
3      Four Seasons           3      59900, 59901        3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA -
3      General Motors/SPX-    3      17250B          3
3      Robinair              3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA -
3      Honda/SPX-Robinair     3      J-3810-CH        3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA -
3      IG-LO, Inc.;           3      1400, 1500        3
3      Subsidiary of          3
3      Valvoline, Inc         3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA -
3      IG-LO, Inc.;           3      1000 **          3
3      Subsidiary of          3
3      Valvoline, Inc.        3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA -
3      Infiniti/SPX4-Robinair 3      J-38100-INF       3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA -
3      International Carbonics 3      RRR-SS, BH-RRR    3
3      Inc. (now The Youngstown 3
3      Research and Development 3
3      Company YRD)          3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA -
3      James Kamm Technologies' 3      K-3333, K3333-TB, AC-3333 3
3      Inc.                  3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA -
3      John Deere/SPX-Robinair 3      JTO 2020, JTO 2021, JTO 2052 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA -
3      Kent Moore/SPX-Robinair 3      J-38100-C, J-38100-B, J-38750, 3
3                               3      J-38550-B, J-39770, 42-17400, 3

```

## HFC-134A A/C RECOVERY &amp; RECYCLING TRAINING/EQUIPMENT CAT. ST, NO. 008/95

## Article Text (p. 8)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:07AM

|   |   |                                                              |   |
|---|---|--------------------------------------------------------------|---|
| 3 | 3 | 43-40015-HDE, 43-40018-HDE,                                  | 3 |
| 3 | 3 | 42-175250-C, 43-40017-HDE,                                   | 3 |
| 3 | 3 | 42-17350-C, 43-40014-HDE,                                    | 3 |
| 3 | 3 | J-38100-D                                                    | 3 |
| - |   |                                                              |   |
| 3 | 3 | Kolpak Mfg. Co. ZRM2000                                      | 3 |
| - |   |                                                              |   |
| 3 | 3 | Lexus/SPX-Robinair 00002-01396-02                            | 3 |
| - |   |                                                              |   |
| 3 | 3 | MAC Tools Inc ACRRC-750, AC650, AC751, AC760                 | 3 |
| 3 | 3 | AC600 ***, AC700 ***, AC800 ***                              | 3 |
| - |   |                                                              |   |
| 3 | 3 | MAC Tools, AC17350C, AC17400, AC17500B,                      | 3 |
| 3 | 3 | Inc/SPX-Robinair AC17700, AM 6000                            | 3 |
| - |   |                                                              |   |
| 3 | 3 | Matco Tools Corp. ACRM120 ACRM3412 **                        | 3 |
| - |   |                                                              |   |
| 3 | 3 | MATCO Tools/SPX-Robinair AG17350, AC17400, AC17500B, AC17700 | 3 |
| - |   |                                                              |   |
| 3 | 3 | Mastercool, U.S.A. Inc Supervamp 62000, 65000, 65500         | 3 |
| - |   |                                                              |   |
| 3 | 3 | Mazda/SPX-Robinair 17401MAZ                                  | 3 |
| - |   |                                                              |   |
| 3 | 3 | MDI 1/2 HPCA                                                 | 3 |
| - |   |                                                              |   |
| 3 | 3 | Mitsubishi/SPX-Robinair 17400MIT, 17401MIT                   | 3 |
| - |   |                                                              |   |
| 3 | 3 | Moog Automotive, Inc 209990                                  | 3 |
| - |   |                                                              |   |
| 3 | 3 | Murray Corporation ATC-1000, -1100, -5000                    | 3 |
| - |   |                                                              |   |
| 3 | 3 | Myers Enterprises MR-1991-A, MR-1991-R, ME-1991-A            | 3 |
| - |   |                                                              |   |
| 3 | 3 | NAPA 209990 **                                               | 3 |
| - |   |                                                              |   |
| 3 | 3 | NAPA Temp. Products ATC 1100, -5000 **                       | 3 |
| - |   |                                                              |   |
| 3 | 3 | Nissan/SPX-Robinair J-38100-NI, 17400NIS, 42-17250-NI,       | 3 |
| 3 | 3 | 17401NIS, 17403NIS                                           | 3 |
| - |   |                                                              |   |
| 3 | 3 | OTC/SPX-Robinair OEM- 1380, - 1396, - 1412,                  | 3 |
| 3 | 3 | -48463- 1420, -48158,                                        | 3 |
| - |   |                                                              |   |
| 3 | 3 | Ozone Environmental R-6A, OS-1000, OS-4000, OS-2000          | 3 |
| 3 | 3 | Industries Inc.                                              | 3 |
| - |   |                                                              |   |
| 3 | 3 | P&F Technologies PF-8                                        | 3 |
| - |   |                                                              |   |
| 3 | 3 | Power Manufacturing R-12a                                    | 3 |
| - |   |                                                              |   |
| 3 | 3 | Promax Industries, Inc Roger-1 (front & back), Roger 1B      | 3 |
| 3 | 3 | (consists of front & back systems)                           | 3 |

# HFC-134A A/C RECOVERY & RECYCLING TRAINING/EQUIPMENT CAT. ST, NO. 008/95

## Article Text (p. 9)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:07AM

```

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA -
3 R&D Fountain Industries 3 AM6000 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA -
3 Refrigerant Recovery 3 ST100A 3
3 Systems, Inc 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA -
3 Refrigerant Recovery 3 Fluoromizer 3000R (FM3000R), FM3000 3
3 Technologies, Inc 3 with RM3 module (Fluoromizer 3000), 3
3 FM4000-12 *** 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA -
3 Refrigerant 3 RRC-1000, RRC-750, RRC-750X, 3
3 Technologies, Inc 3 RRC-751, TC-700 ***, TX-600 ***, 3
3 AC-800 ***, TX-200 *** 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA -
3 Refrigeration Transfer 3 RFT-2212, RFT-2234 3
3 Systems/Justice 3
3 Supply and Glass 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA -
3 Rolo Inc. 3 91R12 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA -
3 Rotunda/Ford 3 158-00001, 158-00002, 014-00900, 3
3 (Sun & SPX) 3 023-00100, 078-00802, 078-00800, 3
3 078-00801 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA -
3 R.S.I. 3 Port-O-Zone, Automotive 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA -
3 Saturn/SPX-Robinair 3 42-A7250, 17400ASAT 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA -
3 Snap-On Tools 3 ACT2500, ACT3000, ACT3300, 3
3 Company 3 ACTR3000, ACTH3400 ** 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA -
3 SPX Corporation; 3 12134A, 12135A, 17251C, 014-00900 3
3 Robinair Division, 3 AC17145, GM17250B, J38100B, 3
3 -C, 17400A, 17401A, 17500B, 17501B, 3
3 17503B, 17300,-01, -03, -50, 3
3 -50C, -51, -51C, -52, -52C, -53, 3
3 -53C, -54, -54C, -55C. 3
3 17400, -01, -03, -25. 3
3 17666, 17700, -01, -03, -15, -25, 3
3 17800, 17150, 17151A (for use 3
3 with models 17350C, 17351C, 17500, 3
3 -17500B, 17501B, and 17625A only) 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA -
3 Sun Electric 3 MRC-150,-300,-312,-400,-500, 3
3 Corporation 3 MTC-4000, NAPA-1100, -5000, -A9950, 3
3 -ATC-1000, -1100, -5000, -078 3
3 -00800, -00801, -00802, -00805. 3
3 ACT-3120, -3540, 4100. 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA -
3 Technical Chemical 3 SERCON -8000 (-M, -A, -MA, -MAH, 3
3 Company 3 -MV, -MAV, -H), -9000, (-M, -A, -MA, 3
3 -MV, -MAH, -MAV, -H), -9220, 3

```

# HFC-134A A/C RECOVERY & RECYCLING TRAINING/EQUIPMENT CAT. ST, NO. 008/95

## Article Text (p. 10)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:07AM

```

3          3          -9220M, -SOOOH with          3
3          3          -SR4000 or 4000A filter, -5000A, 3
3          3          -5000AB, -5000MB or -5000MBJ with 3
3          3          SR4000, 4000A or -4000H filter. 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3  Toyota/SPX-Robinair 3  TOY-01380, TOY-01396, 3
3          3          00002-01396-01, 42-17400, 3
3          3          17400TOYJ, 17401TOYJ, 17404TOYJ 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3  Trane Division of 3  RRPC ** 3
3  American Standard, Inc. 3  3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3  Van Steenburgh 3  JV90-4,-3,-2,-1, LV30-4,-3,-2,-1. 3
3  Engineering Lab Inc. 3  CV 15-4,-3,-2, 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3  Walsco Components, Inc. 3  WC-2 ** 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3  White Industries; 3  01050, 01060, 01061, 01080, 01095, 3
3  Division of K-Whit Tools 3  01075, 01234a 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3  Wynn's Climate Systems 3  90-0001A, -0458A, -1100A, 3
3          3          -1300A,-1500A 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3  The Youngstown Research 3  RRR-SS, BH-RRR 3
3  and Development Company 3  3
3  YRD (formerly 3  3
3  International Carbonics) 3  3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3  * - Dual refrigerant 3
3  ** - Multiple listing 3
3  *** - Certified by ETL, Inc. 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU

```

NOTE: A UL Multiple Listing (referred to as private labeling by the industry) is the formal publication of the name of company that appears on equipment that is basically UL Listed for another company. It would be similar to a private brand except that the basic company name need not appear anywhere on the product. This equipment has been evaluated to determine the minimum purity specifications for recycled CFC-12 for use in mobile automotive air conditions systems. Such equipment is provided with the following auxiliary marking "Design Certified by Underwriters Laboratories for Compliance with -----(date) to indicate that the equipment has been investigated for compliance with the applicable SAE requirements.

## TABLE 2 - SUBSTANTIALLY IDENTICAL RECOVER/RECYCLE EQUIPMENT

TABLE 2 - SUBSTANTIALLY IDENTICAL RECOVER/RECYCLE EQUIPMENT

```

UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;
3          3          Substantially Identical 3
3          3          Recover/Recycle Equipment 3

```



# HFC-134A A/C RECOVERY & RECYCLING TRAINING/EQUIPMENT CAT. ST, NO. 008/95

## Article Text (p. 11)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:07AM

|                                |  |  |                                |  |
|--------------------------------|--|--|--------------------------------|--|
| REJUVENATOR ST-100 and ST-1000 |  |  | White Industries Model 01050   |  |
| Refrigerant Recovery Sys. Inc. |  |  | K-Whit Tools, Inc.             |  |
| P.O. Box 360298                |  |  | 100 Visionary Way              |  |
| Tampa, Florida 33673           |  |  | Fishers, IN 46038              |  |
| (800) 327-9142                 |  |  | (800) 849-6830                 |  |
| R-12 Recover-Recycle Machine   |  |  | NAPA TEMP ATC-1000             |  |
| Justice Glass & Supply Co.     |  |  | Murray/                        |  |
| 2445 Third Avenue              |  |  | Div. of Moog Automotive, Inc   |  |
| Huntington, West Va. 25703     |  |  | P.O. Box 7224                  |  |
| (800) 624-3420                 |  |  | St. Louis, MO 63177            |  |
|                                |  |  | (314) 385-3400                 |  |
| CFC-SAV-R (with Robinair       |  |  | Everco A9989 (with Robinair    |  |
| retrofit kit 17217)            |  |  | retrofit kits 17217 and 17216) |  |
| LSK, Inc                       |  |  | Everco Industries              |  |
| McPherson, KS 67460            |  |  | P.O. Box 7224                  |  |
|                                |  |  | St. Louis, MO 63177            |  |
|                                |  |  | (314) 385-3400                 |  |
| Robinair 17200 (With retrofit  |  |  | MODEL K-3330                   |  |
| Kits 17216 and 17217), 17500,  |  |  | James Kamm Technologies, Inc.  |  |
| RTB17200, RTB17500.            |  |  | P.O. Box 8961                  |  |
| Robinair Division, SPX Corp.   |  |  | 4730 W Bancroft A-3            |  |
| Robinair Way                   |  |  | Toledo, Ohio 43615             |  |
| Montpelier, OH 43543-0193      |  |  | (419) 531-33X3                 |  |
| (419) 485-8300                 |  |  |                                |  |
| Space Age Air Products, Inc.   |  |  | AES-Ntron Models 2.2 and 2.4   |  |
| Model 010 (with retrofit kit   |  |  | 456 Creamery Way               |  |
| Robinair 17217)                |  |  | Exton, PA 19341                |  |
|                                |  |  | (215) 594-9309                 |  |

### TABLE 3 - APPROVED RECOVERY ONLY EQUIPMENT

TABLE 3 - APPROVED RECOVERY ONLY EQUIPMENT

| Manufacturer                | Model                          |
|-----------------------------|--------------------------------|
| AES NTRON                   | R1.1AC                         |
| Assemblies Systems Corp.    | NS750A--no longer manufactured |
| Clardy Manufacturing Co.    | CP4MA                          |
| C Mar Industries Inc.       | CM20-12A                       |
| DAVECO Recovery Division of | 41250, 41250-2                 |
| DAVECO Industries Inc.      |                                |

# HFC-134A A/C RECOVERY & RECYCLING TRAINING/EQUIPMENT CAT. ST, NO. 008/95

## Article Text (p. 12)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:07AM

|                           |                                  |
|---------------------------|----------------------------------|
| Econozone, Inc.           | Econozone 29A                    |
| (RSB Engineering)         |                                  |
| Environmental Products    | EP10A                            |
| Amalgamated PTY Ltd.      |                                  |
| Environmental             | The-Pro-A                        |
| Technologies Corp.        |                                  |
| Fluoro Tech, Inc.         | FM3000--Certified by ETL, Inc.   |
| MDI                       | 5150D                            |
| National Refrigeration    | ULV63                            |
| Products, Inc.            |                                  |
| Power Manufacturing, Inc. | 012B-FRSPORT-01 (Power R1)       |
| Refrigerant Recovery      | RC-1-A                           |
| Systems, Inc.             |                                  |
| Refrigerant Recovery      | PM3000--Certified by ETL, Inc.   |
| Technologies, Inc.        |                                  |
| Refrigerant               | TX 200--Certified by ETL, Inc.   |
| Technologies, Inc.        |                                  |
| R.S.I.                    | Mini-Sucker1 Automotive Recovery |
|                           | System, RSI Part Number 600075   |
| SPX Corporation,          | 17625A                           |
| Robinair Division         |                                  |
| Technical Chemical        | SR5000MBJ, SR 1000MBJ            |
| Watsco Components Inc.    | WC1S-A                           |
| White Industries          | 01055                            |
| Div. of K-Whit Tools      |                                  |
| Inc.                      |                                  |

NOTE: A UL Multiple Listing (referred to as private labeling by the industry) is the formal publication of the name of company that appears on equipment that is basically UL Listed for another company. It would be similar to a private brand except that the basic company name need not appear anywhere on the product. This equipment has been evaluated to determine the minimum purity specifications for recycled CFC-12 for use in mobile automotive air conditions systems. Such equipment is provided with the following auxiliary marking "Design Certified by Underwriters Laboratories for Compliance with -----(date) to

**HFC-134A A/C RECOVERY & RECYCLING TRAINING/EQUIPMENT CAT. ST, NO. 008/95**

**Article Text (p. 13)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:07AM

indicate that the equipment has been investigated for compliance with the applicable SAE requirements.

**TABLE 4 - SUBSTANTIALLY IDENTICAL RECOVER ONLY EQUIPMENT**

TABLE 4 - SUBSTANTIALLY IDENTICAL RECOVER ONLY EQUIPMENT

UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;

3 NONE APPROVED AT THIS TIME 3

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU

**LIST OF APPROVED SECTION 609 CERTIFYING ORGANIZATIONS**

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

OZONE PROTECTION HOTLINE TOLL-FREE (800) 296-1996

EPA'S OZONE DEPLETION WORLD WIDE WEB SITE: <http://www.epa.gov/docs/ozone/index.html>

September 22, 1995

(This list will be updated when other technician certification programs are approved. Section 609 covers technician certification in the motor vehicle sector only.)

An asterisk (\*) indicates that the program offers home study.

NOTE: Ryder Trucks formerly offered a certification program.

Retailers should continue to accept Ryder cards.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

C.F.C. Reclamation and Recycling Service, Inc.

P.O. Box 560 Abilene, Texas 79604

(915) 675-5311

Approval Date: 3/31/93

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

\* The Greater Cleveland Automobile Dealers' Association

6100 Rockside Woods Boulevard, Suite 235

Independence, Ohio 44131

(216) 328-1500

Approval Date: 8/12/92

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

\* International Mobile Air Conditioning Association

P.O. Box 9000

Fort Worth, TX 76147-2000

(817) 338-1100

Approval Date: 6/29/92

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Mechanic's Education Association

10 Main Street

Netcong, New Jersey 07857-1111

(201) 426-9001

Approval Date: 3/30/93

**HFC-134A A/C RECOVERY & RECYCLING TRAINING/EQUIPMENT CAT. ST, NO. 008/95**

**Article Text (p. 14)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:07AM

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

\* Mobile Air Conditioning Society

P.O. Box 97

East Greenville, PA 18041

(215) 679-2220

Approval Date: 6/12/92

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

\* National Institute of Automotive Service Excellence

13505 Dulles Technology Drive

Herndon, Virginia 22071-3415

(703) 713-3800

Approval Date: 6/29/92

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

New York State Association of Service Stations and Repair Shops, Inc.

Automotive Technician Training Program

8 Elk Street

Albany, New York 12207

(518) 434-6102

Approval Date: 8/12/92

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Rancho Santiago College

1530 West 17th

Santa Ana, California 92706

(714) 564-6661

Approval Date: 8/12/92

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

\* Refrigerant Certification Services

8203 Willow Place South

Houston, Texas 77070-9998

(800) 597-9291

Approval Date: 4/19/93

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

NOTE: Only RCS technicians with credentials dated after April 19th  
1993 will be considered trained by an EPA-approved certifying  
program.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Snap-On Tools Corporation

2801 80th Street

Kenosha, Wisconsin 53141-1410

(414) 656-5200

Approval Date: 3/30/93

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Texas Engineering Extension Service

San Antonio Training Division

The Texas A & M University System

9350 South Presa

San Antonio, Texas 78223-4799

(512) 633-1000

Approval Date: 3/30/93

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

\* Waco Chemicals, Inc.

12306 Montague Street

**HFC-134A A/C RECOVERY & RECYCLING TRAINING/EQUIPMENT CAT. ST, NO. 008/95**

**Article Text (p. 15)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:07AM

Pacoima, California 91331

(818) 897-3018

Approval Date: 7/13/93

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

\* ESCO Institute

1350 West Northwest Highway Suite 205

Mount Prospect, IL 60056

(800) 726-9696

Approval Date: 12/27/94

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

New York State Department of Motor Vehicles,

Division of Vehicle Safety

Technical Training Unit

Empire State Plaza

Swan Street Building, Room 111

Albany, New York 12228

(518) 474-4049

Approval Date: 5/10/95

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

\* Air Conditioning Contractors of America

Ferris State University

1712 New Hampshire Avenue, NW

Washington, D.C. 20009

(202) 483-9370

Approval Date: 9/22/95

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

The programs listed below are intended specifically for the employees  
of these companies

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Geneva Steel

P. O. Box 2500

Provo, Utah 84603

(801) 227-9000

Approval Date: 2/4/93

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Jiffy Lube International

P.O. Box 2967

Houston, Texas 77252-2967

(713) 546-4100

Approval Date: 9/14/93

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Kmart Corporation

East/Central Regional Office

Auto Training Center

551 North Hicks Road.

Palatine Illinois 60067

(708)358-3205

Approval Date: 8/12/92

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Los Angeles County Metropolitan Transportation Authority (MTA)

900 Lyon Street Los Angeles, California 90012

(213) 972-5159

Article Text (p. 16)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:07AM

Approval Date: 2/1/94

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Minnesota Department of Transportation

Central Services Building

Central Shop Unit

6000 Minnehaha Avenue South

St. Paul Minnesota (612) 725-2345

Approval Date: 2/1/94

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Potomac Electric Power Company

8400-B Old Marlboro Pike

Upper Marlboro, Maryland 20772

(301) 967-5294

Approval Date: 8/12/92

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Whayne Supply Company

P.O. Box 35900

Louisville, KY 40323-5900

(502) 774-4441

Approval Date: 7/19/93

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

U.S. Army Ordinance Center and School

Attn: TP-SB-TSED-C10 (SFC Powell)

Aberdeen Proving Ground

Aberdeen, Maryland 21005-5201

(410) 278-4099

Approval Date: 8/12/92

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Yellow Freight System, Inc.

10990 Roe Avenue

P.O. Box 7270

Overland Park, Kansas 66207

(913) 345-3000

Approval Date: 8/12/92

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

END OF ARTICLE

# INSPECTION PROCEDURE FOR TEST LEAD OF NGS TESTER CAT. ST, NO. 006/98

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:08AM

## ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

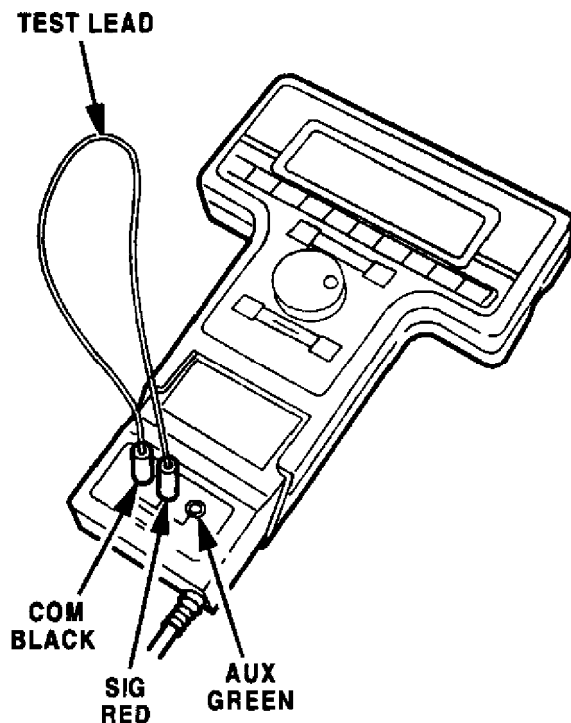
## INSPECTION PROCEDURE FOR TEST LEAD OF NGS TESTER

Model(s): All Mazda Models  
Category: ST - Service Tool  
Bulletin No.: 006/98  
Date: September 30, 1998

## DESCRIPTION

The NGS test lead connectors may become loose or corroded causing incorrect readings. Before using the ohm meter function of the NGS tester for diagnosing electrical circuits, check for excessive resistance in the test leads and connectors and repair them if necessary.

NOTE: Two types of connectors (screw and solder) are used on the NGS test leads.



98E54134

Fig. 1: NGS Tester

## INSPECTION PROCEDURE

1) Verify concern.

# INSPECTION PROCEDURE FOR TEST LEAD OF NGS TESTER CAT. ST, NO. 006/98

## Article Text (p. 2)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

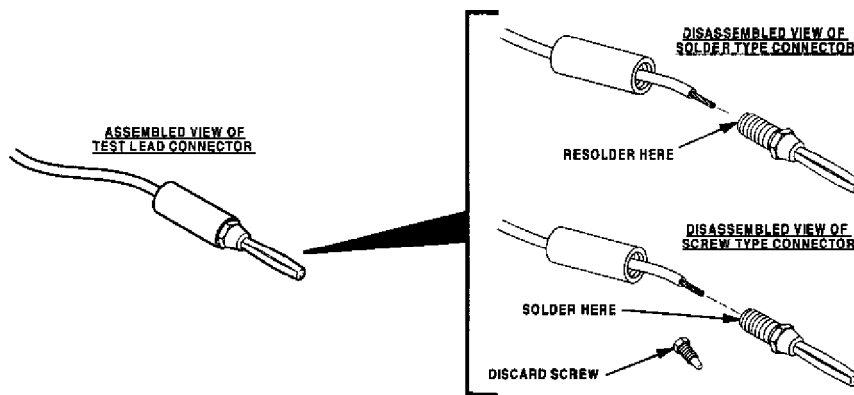
Saturday, August 25, 2001 07:08AM

2) Select "Ohm Meter" on the tester and connect a test lead between the COM (black) and SIG (red) terminal on the NGS tester and note the reading.

- \* A reading of 0 ohms indicates that the test lead and connections do not have excess resistance.
- \* A reading other than 0 ohms may indicate a poor connection (go to STEP 3).

3) Disassemble the connectors and check for corrosion, solder breakage, or looseness. Resolder connections to repair as necessary. See Fig. 2.

4) Verify repair.



98F54135

Fig. 2: Assembled\Disassembled Connectors

END OF ARTICLE



## **R-12 (CFC) WARNING LABEL: INFORMATION CAT. U, NO. 002/93**

### **Article Text**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC  
Saturday, August 25, 2001 07:08AM

### **ARTICLE BEGINNING**

TECHNICAL SERVICE BULLETIN

### **R-12 (CFC) WARNING LABEL**

Model(s): All models produced after May 15, 1993 that do not  
have R-134A air conditioning units.  
Category: "U" Air Conditioning  
Bulletin No.: 002/93  
Date: 7/30/93

### **DESCRIPTION**

Since May 15, 1993, government regulations mandate warning labels for vehicles fitted with R-12 (CFC) based air conditioning units.

Air conditioning units supplied from MANA as of MAY 17, 1993 contain these labels. The label must be attached to the vehicle window glass at the time of air conditioning kit installation and can only be removed by the retail buyer of the vehicle. Refer to Fig. 1 to determine label installation location.

NOTE: Depending on model, the label can be installed in 3 different locations.

Additional labels can be ordered through the Mazda parts department using the PARTS INFORMATION TABLE.

# R-12 (CFC) WARNING LABEL: INFORMATION CAT. U, NO. 002/93

## Article Text (p. 2)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:08AM

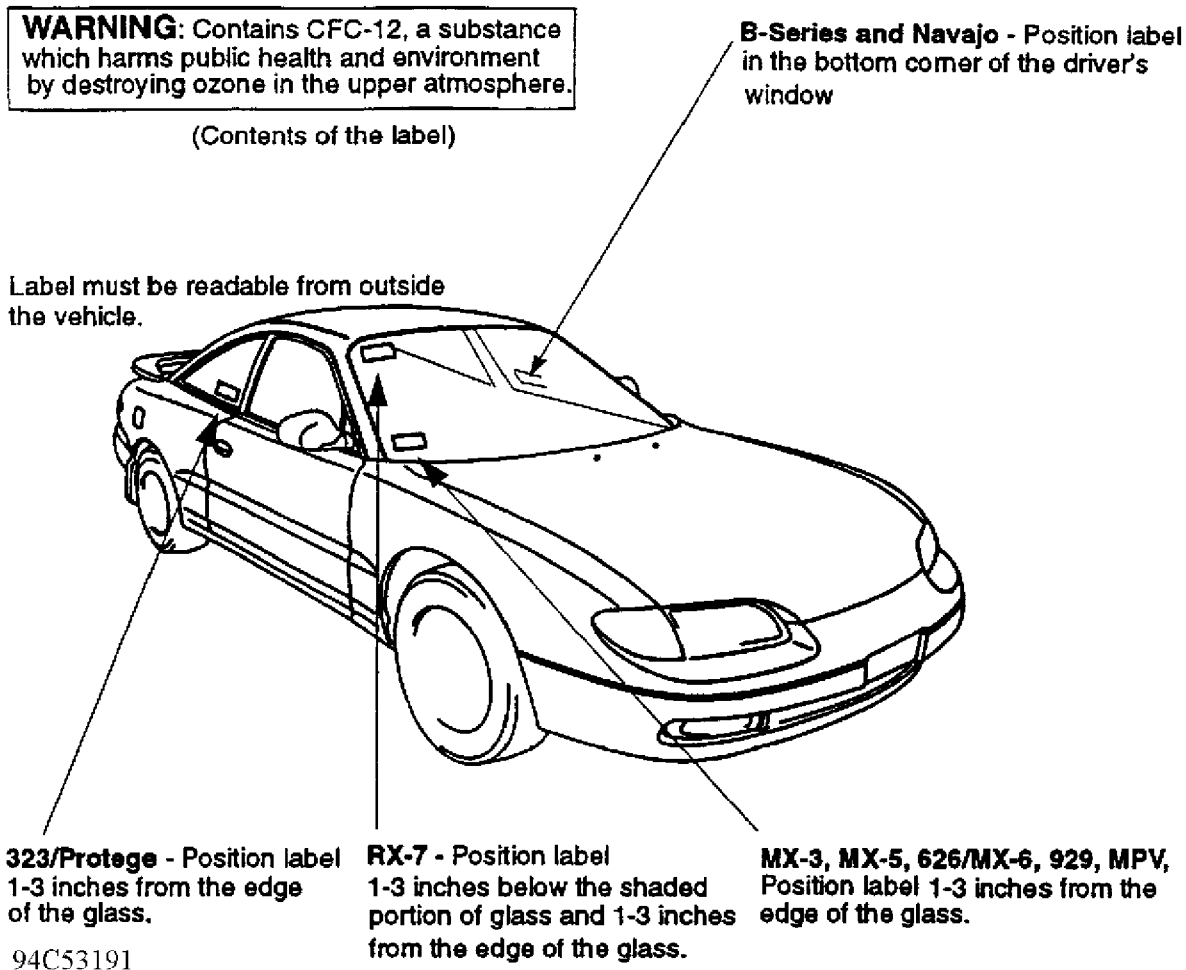


Fig. 1: Location of R-12 Label

### INSTALLATION PROCEDURES

Labels are not self adhering and must be attached using tape. Apply the tape to the back side of the label and attach so that the front of the label faces the window.

### PARTS INFORMATION TABLE

|                                            |             |   |             |
|--------------------------------------------|-------------|---|-------------|
| UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA |             |   |             |
| 3                                          | Part Number | 3 | Description |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA   |             |   |             |
| 3                                          | BR70 61 438 | 3 | Label       |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU  |             |   |             |

END OF ARTICLE

**ÚÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ;**

# RECEIVER DRIER REPLACEMENT CRITERIA (CANADIAN) CAT. U, NO. 95-02

## Article Text (p. 2)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:08AM

3 Golden Brown, Light 3  
3 Brown, Transparent, or 3  
3 Yellowish Gray 3  
AAAAAAAAAAAAAAAAAAAAAAAAUU  
3

UAAAAAAAAAAAAAAAAAAAAA;  
3 2) Inspect Oil for 3  
3 Contamination 3  
AAAAAAAAAAAAAAAAAAAAUU  
3

UAAAAAAAAAAAAAAAAAAAA;  
3 Contamination 3 UAAAAAAAAAAAAAAAAAAAA;  
3 Replace 3  
AAAAAAA>AAAAAAA' Present (Part- AA>A' Receiver-Drier 3  
3 icles of Metal 3 AAAAAAAAAAAAAAAAAUU  
3 or O-Ring) 3  
3  
AAAAAAAAAAAAAAAAAAAAU

UAAAAAAAAAAAAAAAAAAAA;  
3 No Obvious Contamination 3  
AAAAAAAAAAAAAAAAAAAAUU  
3

UAAAAAAAAAAAAAAAAAAAA;  
3 Do Not Replace the 3  
3 Receiver-Drier, Continue 3  
3 To Use Original 3  
AAAAAAAAAAAAAAAAAAAAUU

CAUTION: Before charging, always evacuate the A/C system thoroughly to remove air and moisture. Use a vacuum pump to evacuate the system. Hold vacuum at 29 inches (740mm Hg) for 5-10 minutes.

END OF ARTICLE

# RECEIVER DRIER REPLACEMENT CRITERIA - INFORMATION CAT. U, NO. 001/95

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC  
Saturday, August 25, 2001 07:09AM

### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### RECEIVER DRIVER REPLACEMENT CRITERIA WHEN REPLACING OTHER A/C COMPONENTS

Model(s): All Mazda Models with A/C  
Category: U - Heater and Air Conditioner Systems  
Bulletin No.: 001/95  
Date: February 15, 1995

### APPLICABLE MODELS/VINS

All models equipped with R12 and R134a (Except Navajo and 1994 and later B-Series vehicles).

### DESCRIPTION

The following information is designed to assist dealers in determining when to replace the receiver-drier when replacing other A/C components. Do not replace the receiver-drier unless the following criteria have been met.

### RECEIVER-DRIER REPLACEMENT CRITERIA

- \* Replace the receiver-drier when the A/C system has been ruptured and ALL system pressure is lost.
- \* Receiver-drier will require replacement if the compressor oil becomes discolored or foreign substances become visible (Refer to the flow chart in this article).

NOTE: Refer to section U of the workshop manual for additional receiver-drier diagnostic procedures.

If an A/C component has failed, extract the compressor oil from the failed part and inspect the oil according to the procedure described in the following flow chart. Follow the procedure to determine if the receiver-drier requires replacement as a precaution.

UAAAAAAAAAAAAAAAAAAAAAAAAAA;

3 1) Inspect Oil for 3  
3 Discoloration 3

AAAAAAAAAAAAAAAAAAAAAAAAAU

3  
AAAAAAAAAAAAAAAAAAAAA

3  
3  
3

UAAAAAAAAAAAAAAAAAA;

3 Dark Gray or 3  
3 Black 3

AAAAAAAAAAAAAAAAAAU

UAAAAAAAAAAAAAAAAAA;

3 Replace 3  
3 Receiver-Drier 3

AAAAAAAAAAAAAAAAAAU

UAAAAAAAAAAAAAAAAAAAAAAAAAA;

# RECEIVER DRIER REPLACEMENT CRITERIA - INFORMATION CAT. U, NO. 001/95

## Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:09AM

3 Golden Brown, Light 3  
3 Brown, Transparent, or 3  
3 Yellowish Gray 3  
AAAAAAAAAAAAAAAAAAAAAAAAUU  
3

UAAAAAAAAAAAAAAAAAAAAAAAAZ  
3 2) Inspect Oil for 3  
3 Contamination 3  
AAAAAAAAAAAAAAAAAAAAAAAAUU

3 UAAAAAAAAAAAAAAAAAAZ UAAAAAAAAAAAAAAAAAAZ  
3 3 Contamination 3 3 Replace 3  
AAAAAAAAAAAAAAAAAA Present (Part- AAAA Receiver-Drier 3  
3 3 icles of Metal 3 AAAA  
3 3 or O-Ring) 3  
3  
AAAAAAAAAAAAAAAAAAU

UAAAAAAAAAAAAAAAAAAAAAAAAZ  
3 No Obvious Contamination 3  
AAAAAAAAAAAAAAAAAAAAAAAAUU  
3

UAAAAAAAAAAAAAAAAAAAAAAAAZ  
3 Do Not Replace the 3  
3 Receiver-Drier, Continue 3  
3 To Use Original 3  
AAAAAAAAAAAAAAAAAAAAAAAAUU

CAUTION: Before charging, always evacuate the A/C system thoroughly to remove air and moisture. Use a vacuum pump to evacuate the system. Hold vacuum at 29 inches (740mm Hg) for 5-10 minutes.

END OF ARTICLE

# USE OF A/C TRACER DYE SERVICE INFO CAT. U, NO. 008/97

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:10AM

## ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

## USE OF A/C TRACER DYE

Model: All Mazda models  
Category: U - Heater & Air Conditioner Systems  
Bulletin No.: 008/97  
Date: May 19, 1997

## DESCRIPTION

Use a fluorescent A/C leak detecting tracer dye and light for finding minute, intermittent leaks.

NOTE: Most electronic leak detectors can detect small steady leaks, but are ineffective on minute, intermittent leaks.

## WHEN USING A/C TRACER DYE METHOD

1. Follow the A/C tracer dye manufacturers instructions.

NOTE: Different manufacturers have different methods for installing, measuring and diagnosing with their particular product.

### CAUTION:

- \* Use only a tracer dye that is compatible with the type of refrigerant and oil in the vehicle's A/C system.

- \* Tracer dye can lead to misdiagnosis and unnecessary parts replacement if used improperly.

2. After repairing the leak, clean the area that is covered with A/C tracer dye.

NOTE: This will prevent a future technician from mistaking this residue as a current leak.

3. When diagnosing an A/C leak on a vehicle that previously had tracer dye installed, thoroughly clean the suspected area and re-verify the leak prior to repairing.

4. After repairing the leak, evacuate and recharge the system as outlined in the workshop manual.

NOTE: DO NOT add additional A/C tracer dye when recharging the system.

- a. Flushing or changing the A/C oil is not necessary.

# USE OF A/C TRACER DYE SERVICE INFO CAT. U, NO. 008/97

## Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:10AM

- b. Small amounts of the tracer dye will be found in the Recovery / Recycling tank, if recovery is necessary.

### TRACER DYE SUPPLIERS

#### TRACER DYE SUPPLIERS INFORMATION TABLE

| Supplier                | Available At   | Part Number | Note          |
|-------------------------|----------------|-------------|---------------|
| Spectronics Corporation | (800) 641-1133 | - - -       | Or Equivalent |
| Ford - Rotunda          | See Dealer     | 112-R0027   | Or Equivalent |

### REFRIGERANT/COMPRESSOR OIL

#### REFRIGERANT/COMPRESSOR OIL INFORMATION TABLE

| Model    | Model Year     | Refrigerant | Compressor | Oil Type |
|----------|----------------|-------------|------------|----------|
| MX-6/626 | 1993 and prior | R12         | ATMOS S150 |          |
|          | 1994 and after | R134a       | ATMOS GU10 |          |
| Protege  | 1994 and prior | R12         | ATMOS S150 |          |
|          | 1995 and after | R134a       | SP10       |          |
| Miata    | 1993 and prior | R12         | ND7        |          |
|          | 1994 and after | R134a       | ND9        |          |
| RX-7     | 1994 and prior | R12         | ND7        |          |
|          | 1995 and after | R134a       | ND9        |          |
| MX-3     | 1993 and prior | R12         | ATMOS S150 |          |
|          | 1994 and after | R134a       | ATMOS GU10 |          |
| MPV      | 1993 and prior | R12         | ND6        |          |
|          | 1994 and after | R134a       | ND8        |          |
| Millenia | 1995 and after | R134a       | ATMOS GU10 |          |
| 929      | 1993 and prior | R12         | ATMOS S150 |          |



USE OF A/C TRACER DYE SERVICE INFO CAT. U, NO. 008/97

Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:10AM

```
3      AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3      3      1994 and after      3      R134a      3      ATMOS GU10      3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3      Navajo      3      1993 and prior      3      R12      3      ESHM2C31A2      3
3      AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3      3      1994 and after      3      R134a      3      WSHM1C231B      3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3      B-Series      3      Built before Sep 20, 1993      3      R12      3      ESHM2C31A2      3
3      AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3      3      Built after Sep 20, 1993      3      R134a      3      WSHM1C231B      3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU
```

END OF ARTICLE

# USE OF R-12 REFRIGERANT SUBSTITUTES CAT. U, NO. 009/96

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:10AM

### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### USE OF R-12 REFRIGERANT SUBSTITUTES

Model(s): All Mazda Models  
Category: U - Heater and Air Conditioning Systems  
Bulletin No.: 009/96  
Date: October 21, 1996

### DESCRIPTION

Mazda Corporation does not approve of using substitute R-12 refrigerants when an A/C system requires charging. Use of these products may result in component damage and loss of warranty. If service is required on a vehicle with an R-12 system, use only new or known good recycled refrigerant.

NOTE: A/C systems designed to operate on R-134a can be recharged using only HFC-134a. Using R-12 substitutes may result in a hazardous condition and/or A/C component damage.

### END OF ARTICLE

**YEAR 2000 COMPLIANCE CAT. 01, NO. 018/99**

**Article Text**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:10AM

**ARTICLE BEGINNING**

TECHNICAL SERVICE BULLETIN

**YEAR 2000 COMPLIANCE**

Model(s): All Mazda Models  
Category: 01 - Engine  
Bulletin No.: 018/99  
Date: May 28, 1999

**DESCRIPTION**

Because all Control Units, including the Powertrain Control Modules used in Mazda vehicles do not use the day, month, or year to operate, Mazda vehicles are completely immune to the effects of the year 2000 concern.

**END OF ARTICLE**

# "HOLD" INDICATOR LIGHT FLASHES -REPLACE CONTROL UNIT CAT. K, NO. 012/92

## Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:22AM

## ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

## "HOLD" INDICATOR LIGHT FLASHES

Model(s): 1993 Mazda RX-7  
Category: K  
Bulletin No.: 012/92  
Date: 7/15/92

## DESCRIPTION

On some 1993 RX-7 vehicles, the torque reduction control fail diagnostic system may start working without any failure and cause the "hold" light to flash while the vehicle is running.

Beginning May 11, 1992, the circuit logic of the torque reduction control has been changed to eliminate this possibility.

VIN OF PRODUCTION CHANGE

JM1FD\*\*\*\*P0205980 May 11, 1992

## INSPECTION & REPLACEMENT PROCEDURE

If you encounter a complaint that the "hold" light starts flashing while the vehicle is running, and torque reduction control fail code is 57, follow this procedure

1. Are any short circuits, damaged wiring, or bad coupler contacts present?

\* If yes, repair circuit.

\* If no, proceed to Step 2.

2. Replace EC-AT control unit with a modified unit.

## PARTS INFORMATION TABLE

| Part Number  | Description                    | Interchangeability |
|--------------|--------------------------------|--------------------|
| N3A2 18 9E1B | N3A2 18 9E1 EC-AT Control Unit | New - Old          |

## WARRANTY INFORMATION

**"HOLD" INDICATOR LIGHT FLASHES -REPLACE CONTROL UNIT CAT. K, NO. 012/92**

**Article Text (p. 2)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:22AM

(Applies to Vehicles Covered Under Warranty.)

|                         |              |
|-------------------------|--------------|
| Warranty Type Code:     | A            |
| Customer Comment Code:  | 62           |
| Damage Code:            | 9W           |
| Part No. of Main Cause: | N3A2 18 9E1B |
| Quantity:               | 1            |
| Operation No.:          | K0404XRX     |
| Labor Hours:            | 0.3 Hr.      |

**END OF ARTICLE**

# **A/T OIL COOLER FLUSHING EQUIPMENT GUIDELINE CAT. J, NO. 96-01**

## **Article Text**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:23AM

## **ARTICLE BEGINNING**

TECHNICAL SERVICE BULLETIN

### **A/T OIL COOLER FLUSHING**

Model(s): All Mazda Models with Automatic Transmission(Canadian)  
Section: J - Automatic Transmission  
Bulletin No.: 96-01  
Date: January 1996

### **DESCRIPTION**

The automatic transmission oil cooler must be flushed when a major transmission repair or replacement is performed. If the cooler is not flushed properly, residual friction material and metal may become dislodged and affect the new transmission's operation.

A labor operation is established to cover the use of flushing equipment. If the transmission oil cooler is not flushed with the proper flushing equipment prior to repair completion, and a comeback repair occurs due to clogged oil cooler circuits, the repair cost is not warrantable.

Recommended Power Flushing Manufacturer and Equipment;

Kent Moore/(800)345-2233, J 35944-A Flushing Kit

NOTE: Flushing Kit includes:

- \* Chrome Plated Brass Tank
- \* One Gallon of J35944-22 Flushing Fluid (enough for six flushing operations additional fluid can be purchased directly from Kent Moore).
- \* Complete Operating Instructions
- \* J41763 Adapter Kit - A/T Oil Cooler and Line Flusher (for Mazda vehicles).

### **FLUSHING PROCEDURE**

1. Backflush Cooler Starting At The Cooler OUT FWD Line Fitting.
2. Reverse Lines And Flush Again Starting At The Cooler IN Line Fiting. See Fig. 1

# A/T OIL COOLER FLUSHING EQUIPMENT GUIDELINE CAT. J, NO. 96-01

## Article Text (p. 2)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

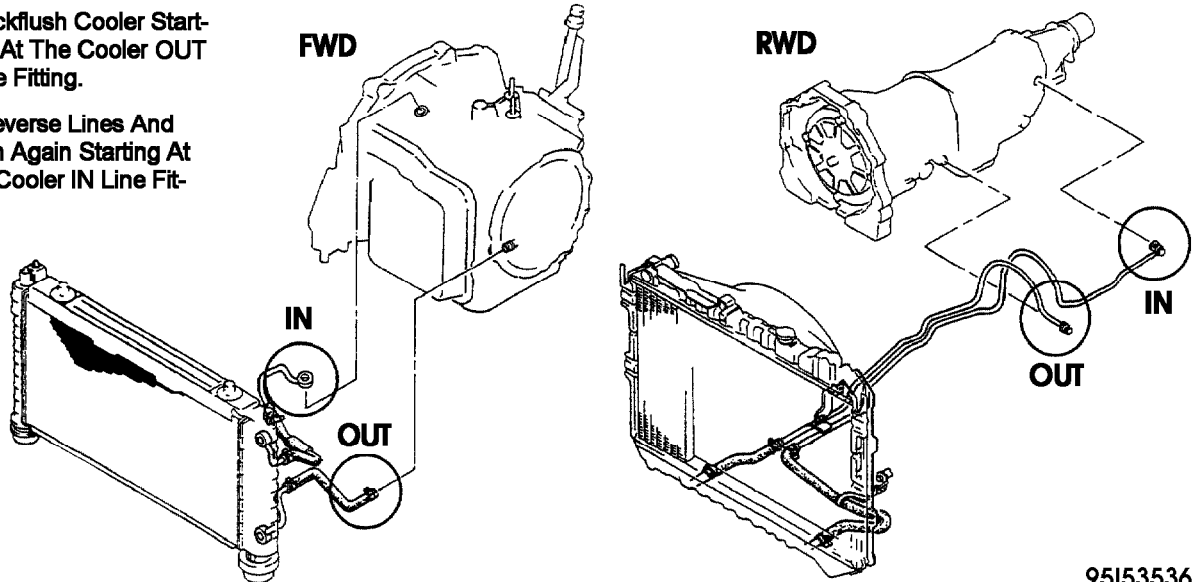
Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:23AM

### Flushing Procedure

1) Backflush Cooler Starting At The Cooler OUT Line Fitting.

2) Reverse Lines And Flush Again Starting At The Cooler IN Line Fitting.



95I53536

Fig. 1: Transmission and Cooler View

NOTE: Refer to the workshop manual for cooler location fittings on A4LD, 4R44E and LA4A-EL transmissions

### WARRANTY INFORMATION

Applicable warranty information will be included in the 1996 SRT microfiche.

END OF ARTICLE

# **AUTOMATIC TRANS COOLER/LINE FLUSHING PROCEDURE CAT. K, NO. 005/98**

## **Article Text**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:23AM

## **ARTICLE BEGINNING**

TECHNICAL SERVICE BULLETIN

## **AUTOMATIC TRANSMISSION COOLER/LINE FLUSHING PROCEDURE**

Model(s): All Mazda models with Automatic Transmission  
Category: K (05) - Automatic Transaxle  
Bulletin No.: 005/98  
Date: April 22, 1998

## **DESCRIPTION**

Automatic transmission (A/T) oil cooler/lines must be power flushed completely before an overhauled or replacement A/T is installed. One of the causes of repeat A/T failures is an internal automatic transmission fluid (ATF) restriction at the inlet side of the oil cooler. This restriction is usually caused by an accumulation of metal particles and debris (from a previous A/T failure) on the internal mesh type baffle of the oil cooler. Power flushing will remove the restriction by back flushing the cooler/lines followed by forward flushing to ensure full ATF flow. See Fig. 1 of a typical ATF cooler.

CAUTION: Repeat repairs caused by improper or lack of cooler line flushing WILL NOT be covered under warranty.

## **REPAIR PROCEDURE**

Before power flushing, inspect the hoses/lines and clamps. Power flushing MUST begin with back flushing followed by forward flushing to quickly dislodge the restriction. If back flushing is not performed before forward flushing, the restriction could further reduce the ATF flow through the internal mesh type baffle of the cooler and flushing will not be effective or possible.

## **INSPECTING OIL LINES & CLAMPS**

Be sure to inspect the lines (hoses/pipes) for cuts, crimps (pinched), cracks or any other damage before reusing them. If any problem exists or the hose comes off when applying oil pressure, replace it.

CAUTION: Always use new clamps when replacing hoses.

## **BACK FLUSHING**

1. Using the Power Flushing Equipment manufacturer's instructions, connect equipment so the flushing fluid flows in the OPPOSITE DIRECTION of normal fluid flow. See typical example of back flushing flow in Fig. 2.



# AUTOMATIC TRANS COOLER/LINE FLUSHING PROCEDURE CAT. K, NO. 005/98

## Article Text (p. 2)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:23AM

2. Flush oil cooler/lines until discharge fluid is clean.

CAUTION: If the cooler can not be properly flushed using recommended equipment, send the radiator out for sublet cleaning or replace.

NOTE: Refer to the WSM or Automatic Transmission Quick Reference Guide (P/N 9999-954501-96) for exact location of cooler line inlet/outlet fittings.

### FORWARD FLUSHING

3. Connect power flushing equipment so the flushing fluid flows in the direction of normal fluid flow. See typical example of forward flushing flow in Fig. 3.

4. Flush oil cooler/lines until DISCHARGE FLUID IS CLEAN.

### PARTS INFORMATION

Recommended Power Flushing Equipment, see Service Bulletin ST 000/98 for details.

#### PARTS INFORMATION TABLE

|                                                                     |             |                                       |
|---------------------------------------------------------------------|-------------|---------------------------------------|
| UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA; |             |                                       |
| 3                                                                   | Part Number | 3 Description                         |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-  |             |                                       |
| 3                                                                   | J35944-AMAZ | 3 Kent-Moore Flusher w/Mazda Adaptors |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-  |             |                                       |
| 3                                                                   | 60081-M     | 3 OTC Flusher w/Mazda Adaptors        |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-  |             |                                       |
| 3                                                                   |             | 3 Flushing Fluid                      |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU  |             |                                       |

### FLUID FLOW & COOLER LINE FITTING

Typical automatic transmission/transaxle normal fluid flow & cooler line fitting locations are located at Fig. 4.

Refer to applicable WSM for specific details.

# AUTOMATIC TRANS COOLER/LINE FLUSHING PROCEDURE CAT. K, NO. 005/98

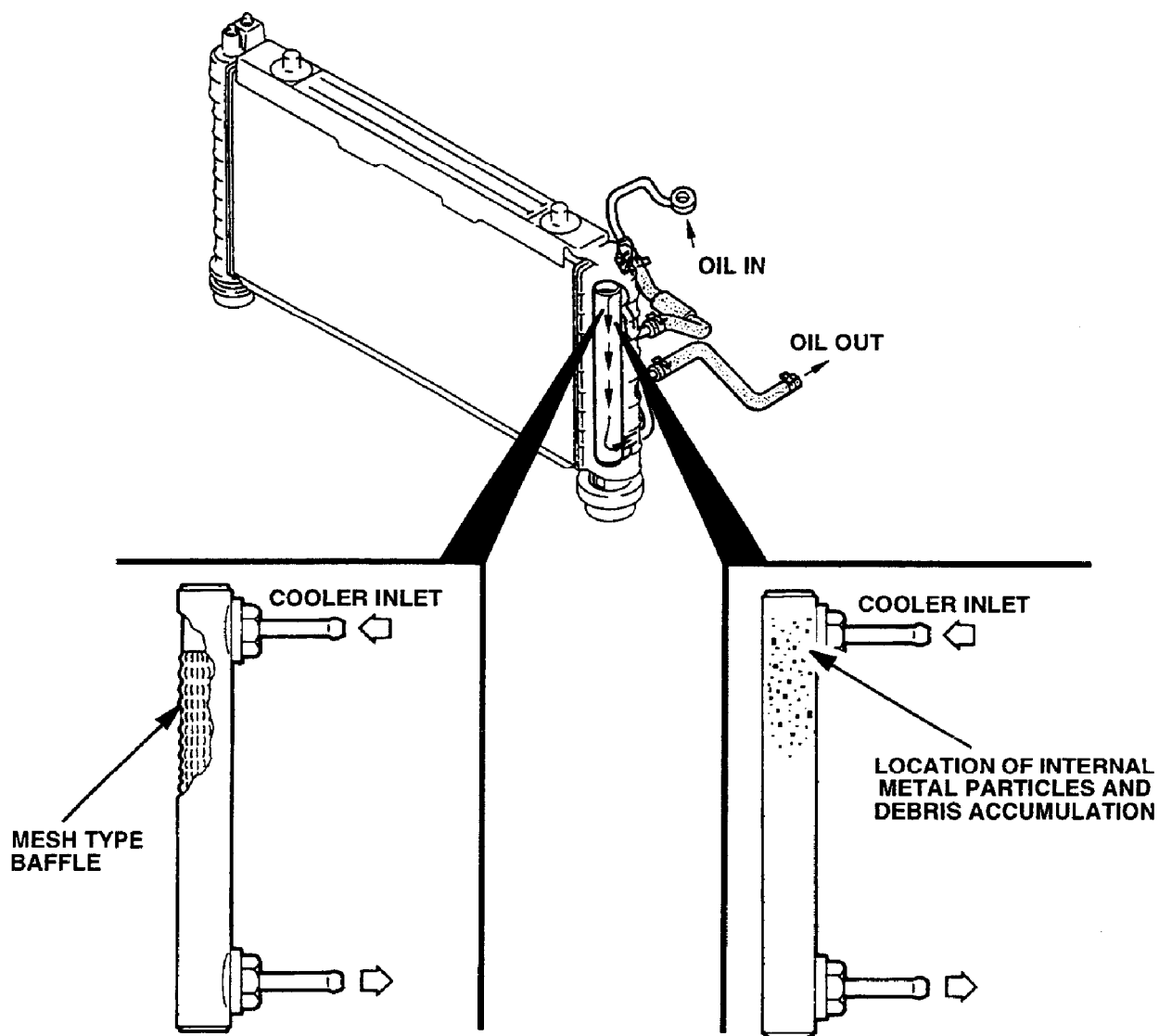
## Article Text (p. 3)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

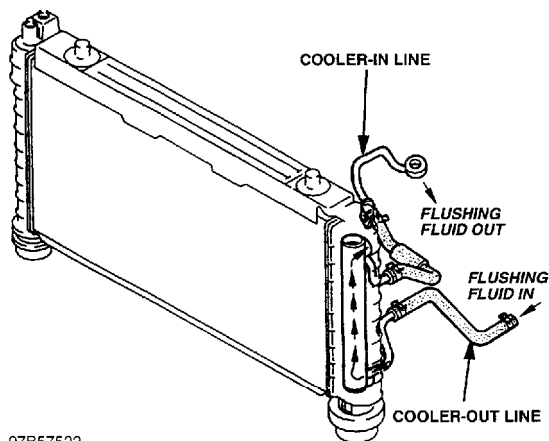
Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:23AM



97A57521

Fig. 1: Automatic Transmission Flushing Cooler



97B57522

Fig. 2: Back Flushing Flow

**AUTOMATIC TRANS COOLER/LINE FLUSHING PROCEDURE CAT. K, NO. 005/98**

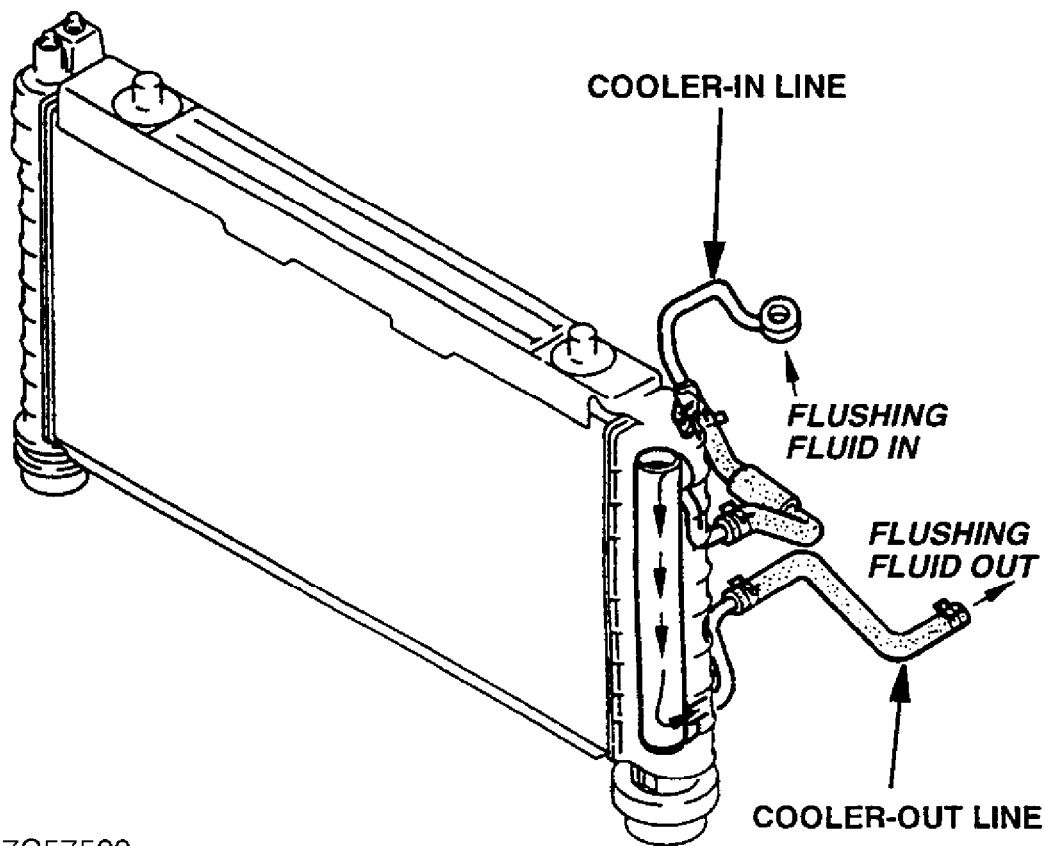
**Article Text (p. 4)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:23AM



97C57523

Fig. 3: Forward Flushing Flow

# AUTOMATIC TRANS COOLER/LINE FLUSHING PROCEDURE CAT. K, NO. 005/98

## Article Text (p. 5)

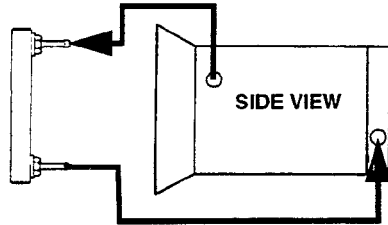
1993 Mazda RX7

For www.iluvmyrx7.com

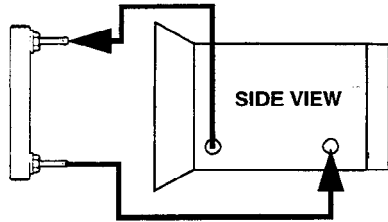
Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:23AM

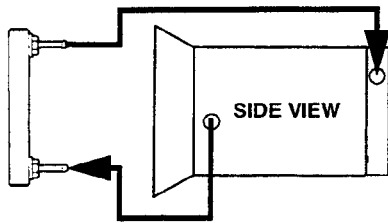
### FRONT WHEEL DRIVE (TRANSAXLE)



PROTEGE, MILLENIA (KL), 626 (FS)

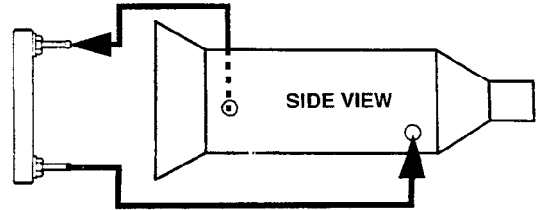


MILLENIA (KJ)

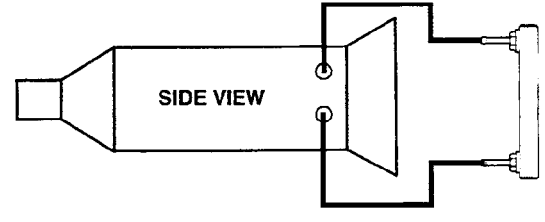


626 (KL)

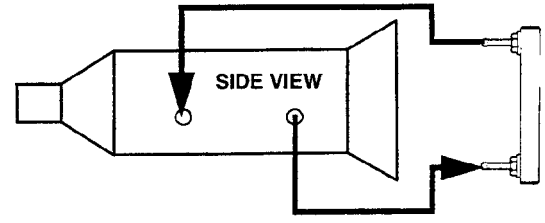
### REAR WHEEL DRIVE



MPV, RX-7, 929, MIATA (NA)



B-TRUCKS



MIATA (NB)

97D57524

Fig. 4: A/T Transaxle Fluid Flow & Cooler Line Fitting Locations

### WARRANTY INFORMATION

NOTE: This information applies to verified customer complaints on vehicles covered under normal warranty. Refer to the SRT microfiche for warranty term information.

When you submit a warranty claim on automatic transmission complete replacement, add any of the following operation numbers and labor hours to the operation number and labor hours for automatic transmission complete R&R.

|                               |            |                |
|-------------------------------|------------|----------------|
| Operation Number/Labor Hours: | MPV L4     | = K0101XRU/0.4 |
|                               | MPV V6 2WD | = K0101XRU/0.4 |
|                               | MPV V6 4WD | = K0101XRU/0.4 |

# **AUTOMATIC TRANS COOLER/LINE FLUSHING PROCEDURE CAT. K, NO. 005/98**

## **Article Text (p. 6)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:23AM

|                       |   |              |
|-----------------------|---|--------------|
| Millenia 2.3L         | = | K0101XRU/0.4 |
| Millenia 2.5L         | = | K0101XRU/0.4 |
| RX-7                  | = | K0101XRU/0.4 |
| MX-5                  | = | K0101XRU/0.4 |
| MX-3 L4               | = | K0101ARU/0.4 |
| MX-3 V6               | = | K0101BRU/0.4 |
| 929                   | = | K0101XRU/0.4 |
| 626/MX-6 L4           | = | K0101XRU/0.4 |
| 626/MX-6 V6           | = | K0101XRU/0.4 |
| Protege/323 2WD, 1.6L |   |              |
| & 1.8L                | = | K0101XRU/0.4 |
| Protege/323 2WD, 1.5L | = | K0101XRU/0.4 |
| Protege/323 4WD       | = | K0101XRU/0.4 |

**END OF ARTICLE**

# AUTOMATIC TRANSMISSION DIAGNOSTIC PROCEDURES CAT. K, NO. 002/94

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:23AM

## ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

## AUTOMATIC TRANSMISSION DIAGNOSTIC PROCEDURES

Model(s): All Mazda Models with A/T  
Category: K  
Bulletin No.: 002/94  
Date: 10/4/94

## APPLICABLE MODELS

All vehicles with automatic transmissions or automatic transaxles

## DESCRIPTION

Follow the information listed in this bulletin when diagnosing automatic transmission/transaxle problems or after installing a new or rebuilt transmission/transaxle

A Service Adviser / Technician Check Sheet & Diagnostic Flow Chart is provided with this bulletin. See Figs. 1 & 2. These are useful tools in preventing unnecessary replacement of transmissions, illustrating step by step diagnostics and are required for replacement authorization. Additional pads of fifty (50) are available free of charge from Helm, Inc. For additional information regarding transmission/transaxle diagnostics, refer to the applicable workshop manual and/or contact your regional/distributor hot line.

NOTE: If the transmission oil cooler is not cleaned with the proper power flushing equipment prior to repair completion, and comeback problems occur due to clogged oil cooler circuits, the repair cost will not be warrantable.

## RECOMMENDED POWER FLUSHING MANUFACTURERS / EQUIPMENT TABLE

|                                                                     |                                 |                                |
|---------------------------------------------------------------------|---------------------------------|--------------------------------|
| UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA; |                                 |                                |
| ³                                                                   | Manufacturer / Telephone Number | ³ Part Number / Description    |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA´  |                                 |                                |
| ³                                                                   | OTC / (800) 533-0492            | ³ 60081 / Portable Torque      |
| ³                                                                   |                                 | ³ Converter Oil Cooler Cleaner |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU   |                                 |                                |

NOTE: 1) Power flushers require installation of a 5 micron filter.  
2) All of the above flushers require adapters / attachments for Mazda vehicle applications.  
3) Questions regarding usage and applications should be directed to the flusher manufacturer.

# AUTOMATIC TRANSMISSION DIAGNOSTIC PROCEDURES CAT. K, NO. 002/94

## Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:23AM

| AUTOMATIC TRANSMISSION CHECK SHEET                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Dealer: _____ | R.O.# _____ |                                    |  |  |      |       |     |                |  |  |  |         |  |  |  |         |  |  |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-------------|------------------------------------|--|--|------|-------|-----|----------------|--|--|--|---------|--|--|--|---------|--|--|--|
| S<br>E<br>R<br>V<br>I<br>C<br>E<br><br>A<br>D<br>V<br>I<br>S<br>O<br>R                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Service Writer: _____ Dealer No. _____ Date: ____/____/____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |               |             |                                    |  |  |      |       |     |                |  |  |  |         |  |  |  |         |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Customer's Name: _____ Dealer Telephone No. (____) ____-____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |               |             |                                    |  |  |      |       |     |                |  |  |  |         |  |  |  |         |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <div style="display: flex; justify-content: space-between;"> <div>                     Model _____ Year _____ Engine _____ Mileage _____                 </div> <div>VIN _____</div> </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |               |             |                                    |  |  |      |       |     |                |  |  |  |         |  |  |  |         |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Aftermarket Parts Installed? Yes ___ No ___ (list, if yes) _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |               |             |                                    |  |  |      |       |     |                |  |  |  |         |  |  |  |         |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Customer Description Of Problem: _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |               |             |                                    |  |  |      |       |     |                |  |  |  |         |  |  |  |         |  |  |  |
| S<br>E<br>R<br>V<br>I<br>C<br>E<br><br>T<br>E<br>C<br>H<br><br>/<br><br>S<br>E<br>R<br>V<br>I<br>C<br>E<br><br>M<br>G<br>R                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>WHEN DOES PROBLEM OCCUR?</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |               |             |                                    |  |  |      |       |     |                |  |  |  |         |  |  |  |         |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <div style="display: flex; justify-content: space-between;"> <div>                     Test Drive Vehicle? Yes ___ No ___<br/>                     Engine Temperature? Cold ___ Hot ___ All ___<br/>                     Road Condition? Flat ___ Hilly ___<br/>                     Vehicle Speed? High ___ Cruise ___ Low ___ All ___<br/>                     Is The Problem Intermittent? Yes ___ No ___<br/>                     Is The Problem Occurring Now? Yes ___ No ___                 </div> <div>                     No Movement: 1 ___ 2 ___ 3 ___ 4 ___ R ___<br/>                     Noise: 1 ___ 2 ___ 3 ___ 4 ___ R ___<br/>                     Slip: 1-2 ___ 2-3 ___ 3-4 ___ 4-3 ___ 3-2 ___ 2-1 ___<br/>                     Shock: 1-2 ___ 2-3 ___ 3-4 ___ 4-3 ___ 3-2 ___ 2-1 ___<br/>                     Flare: 1-2 ___ 2-3 ___ 3-4 ___ 4-3 ___ 3-2 ___ 2-1 ___                 </div> </div> |               |             |                                    |  |  |      |       |     |                |  |  |  |         |  |  |  |         |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>PROBLEM DESCRIPTION / DIAGNOSIS</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |               |             |                                    |  |  |      |       |     |                |  |  |  |         |  |  |  |         |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Description: _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |               |             |                                    |  |  |      |       |     |                |  |  |  |         |  |  |  |         |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Problem Duplicated? Yes ___ No ___ Test Drive? Yes ___ No ___ Serv. Bulletin Relating To Problem? ____/____<br><span style="float: right; font-size: small;">(list, if yes)</span>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |               |             |                                    |  |  |      |       |     |                |  |  |  |         |  |  |  |         |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Trans. Fluid Cond.: Milky ___ Burnt ___ Particles/Sludge ___ Normal ___ Trans Fluid Level: High ___ Low ___ Normal ___                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |               |             |                                    |  |  |      |       |     |                |  |  |  |         |  |  |  |         |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Trans. Leaks? Yes ___ No ___ _____<br><span style="float: right; font-size: small;">(list area(s), if yes)</span>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |               |             |                                    |  |  |      |       |     |                |  |  |  |         |  |  |  |         |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <div style="display: flex; justify-content: space-between;"> <div>Engine Electrical System: Battery Voltage (engine running) _____ Volts</div> <div>                         KOEO: _____ KOER: _____<br/> <span style="font-size: small;">(Key On Engine Off) (Key On Engine Running)</span><br/> <b>LA4A-EL Transmission Only</b> </div> </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |               |             |                                    |  |  |      |       |     |                |  |  |  |         |  |  |  |         |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>TEST RESULTS</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |               |             |                                    |  |  |      |       |     |                |  |  |  |         |  |  |  |         |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Problem Category: Codes _____ Leaks ___ Fluid Cond. ___ Driveability ___ Unusual Noise ___<br><span style="float: right; font-size: small;">(list codes, if yes)</span>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |               |             |                                    |  |  |      |       |     |                |  |  |  |         |  |  |  |         |  |  |  |
| <b>Line Pressure/Stall Test Results:</b> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th rowspan="2" style="width: 20%;">Range</th> <th colspan="3" style="text-align: center;">Line Pressure Kg/f _____ psi _____</th> </tr> <tr> <th style="width: 20%;">Idle</th> <th style="width: 20%;">Stall</th> <th style="width: 20%;">RPM</th> </tr> </thead> <tbody> <tr> <td>Park / Neutral</td> <td></td> <td></td> <td></td> </tr> <tr> <td>D, S, L</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Reverse</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |               | Range       | Line Pressure Kg/f _____ psi _____ |  |  | Idle | Stall | RPM | Park / Neutral |  |  |  | D, S, L |  |  |  | Reverse |  |  |  |
| Range                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Line Pressure Kg/f _____ psi _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |               |             |                                    |  |  |      |       |     |                |  |  |  |         |  |  |  |         |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Idle                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Stall         | RPM         |                                    |  |  |      |       |     |                |  |  |  |         |  |  |  |         |  |  |  |
| Park / Neutral                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |               |             |                                    |  |  |      |       |     |                |  |  |  |         |  |  |  |         |  |  |  |
| D, S, L                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |               |             |                                    |  |  |      |       |     |                |  |  |  |         |  |  |  |         |  |  |  |
| Reverse                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |               |             |                                    |  |  |      |       |     |                |  |  |  |         |  |  |  |         |  |  |  |
| <b>RECOMMENDATIONS</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |               |             |                                    |  |  |      |       |     |                |  |  |  |         |  |  |  |         |  |  |  |
| Did You Use The "Quick Diagnostic Chart II" In The WSM? Yes ___ No ___ Was It Useful? Yes ___ No ___                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |               |             |                                    |  |  |      |       |     |                |  |  |  |         |  |  |  |         |  |  |  |
| Contact Regional Hotline For Assistance? Yes ___ No ___ _____<br><span style="float: right; font-size: small;">(list person contacted, if yes) (date)</span>                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |               |             |                                    |  |  |      |       |     |                |  |  |  |         |  |  |  |         |  |  |  |
| Recommendation: Normal Condition ___ Repair Trans. ___ Exchange ___<br><span style="float: right; font-size: small;">(MASH Authorization Number) (date)</span>                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |               |             |                                    |  |  |      |       |     |                |  |  |  |         |  |  |  |         |  |  |  |

94A54106

Fig. 1: Automatic Transmission Check Sheet

# AUTOMATIC TRANSMISSION DIAGNOSTIC PROCEDURES CAT. K, NO. 002/94

## Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:24AM

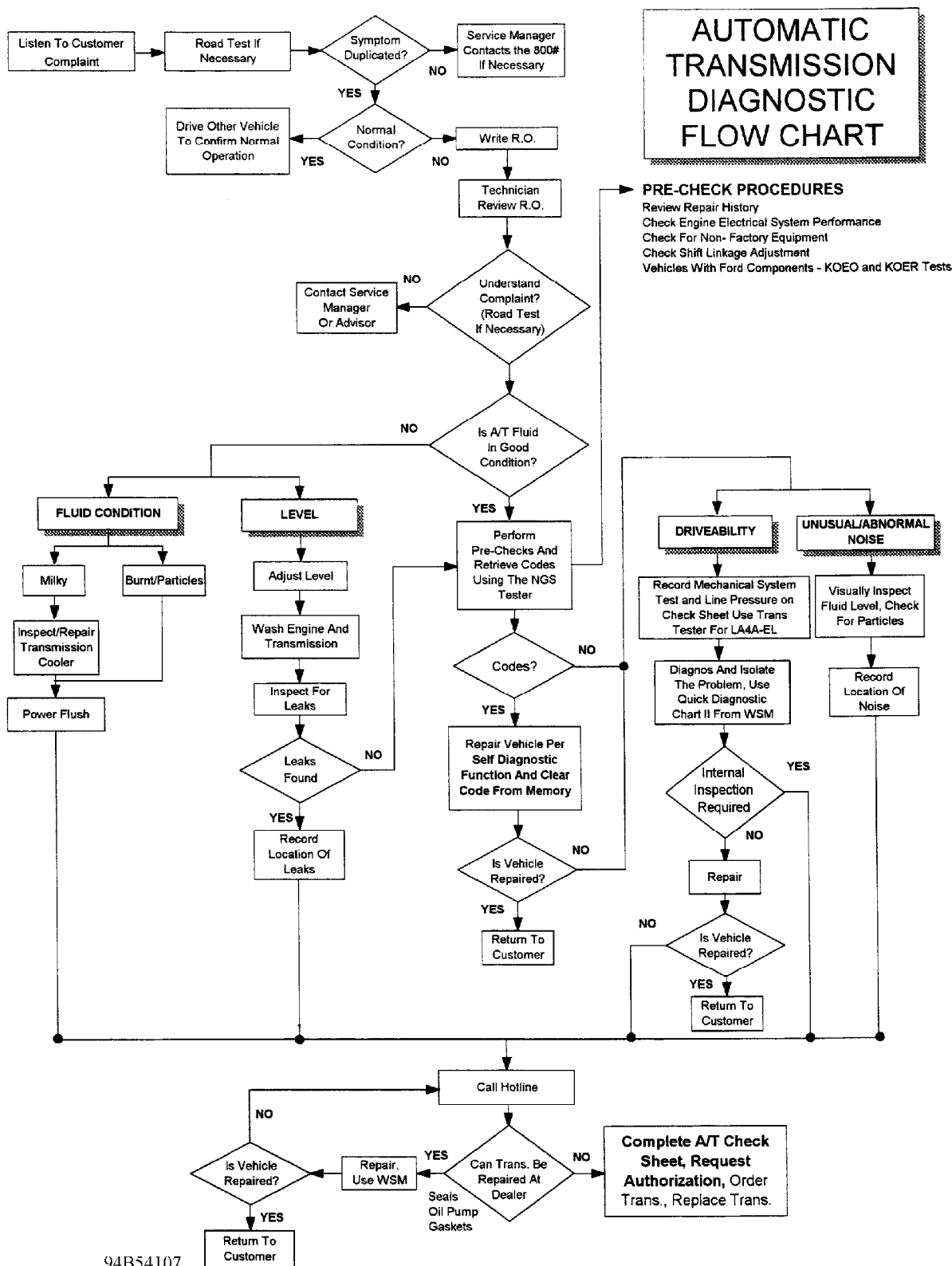


Fig. 2: Automatic Transmission Diagnostic Flow Chart

END OF ARTICLE



# **AUTOMATIC TRANSMISSION REPAIR POLICY CAT. K, NO. 002/95**

## **Article Text**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC  
Saturday, August 25, 2001 07:24AM

## **ARTICLE BEGINNING**

TECHNICAL SERVICE BULLETIN

## **AUTOMATIC TRANSMISSION REPAIR POLICY**

Model(s): All Mazda Models  
Category: K - Automatic Transmission  
Bulletin No.: 002/95  
Issued Date: August 10, 1995  
Revised Date: October 31, 1995

## **APPLICABLE MODELS/VINS**

All Models Currently Under Warranty.

## **DESCRIPTION**

Policies of the Remanufactured Automatic Transmission Program have changed. The contents in this bulletin describe the new and carryover features of this program as well as diagnostic applications.

Service Managers are requested to inform the necessary dealer personnel of these changes.

## **POLICY**

- \* Adjustments, repairs or component replacement for each transmission are limited to those items listed on the "APPLICABLE WARRANTY REPAIR/PART GUIDE."
- \* Any vehicle (within warranty) that requires internal transmission repairs or rebuilding will be replaced with a MANA Remanufactured assembly.

NOTE: MASH authorization is required prior to replacing an automatic transmission assembly. Transmissions replaced without prior authorization will not be considered for warranty reimbursement.

## **REPAIR PROCESS OVERVIEW**

1. Record the customer concern and the conditions when the concern exists. Validate by duplicating the customers concern.
  - \* If the concern cannot be duplicated, check M-Tips On Line (MTO) for service information. If no MTO information exists, return the vehicle to the customer with an explanation of your attempts to duplicate the concern. Request the customer demonstrate the condition to service management.

# AUTOMATIC TRANSMISSION REPAIR POLICY CAT. K, NO. 002/95

## Article Text (p. 2)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:24AM

\* If a concern exists:

\* Determine the transmission type using the AUTOMATIC TRANSMISSION APPLICATION CHART.

\* Perform the diagnosis as described in the AUTOMATIC TRANSMISSION DIAGNOSTIC FLOW CHART and record the data.

NOTE: A. The Automatic Transmission Diagnostic Sheets (ATDS) are available from Helm, Inc. in pad form. Each pad contains 100 sheets. The part number for the pad is 9999 95 TRANS 95.

B. Warranty claims submitted for A/T Performance Tests must have a copy of the AUTOMATIC TRANSMISSION DIAGNOSTIC SHEET (ATDS) retained with the R.O.

2. Using the WARRANTY REPAIR GUIDE, determine if the concern can be corrected by performing allowable adjustments, repairs or component part replacement listed on the guide. Perform the adjustments, repairs or component replacements.

IMPORTANT NOTE: \* If the transmission or components are replaced, flush the transmission cooler prior to installation.

\* If an internal part is suspected, call the MASH hotline for assembly authorization.

3. Prepare the core for return shipment to MANA in the "original" shipping container. This includes:

- \* draining the fluid
- \* replacing the hole plugs and torque convertor retaining strap
- \* completing and attaching the core tag and a copy of the ATDS

4. Perform a quality check (thorough road test and visual inspection) after repairs are made to ensure complete customer satisfaction. Including the customer in the road test is recommended.

## AUTOMATIC TRANSMISSION DIAGNOSTIC FLOW CHART

UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;

3 Listen To Customer Complaint 3

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU

UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;

3 Road Test Customer Complaint 3

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU

UAAAAAAAAAAAAAAAAAAAAAAAAA NO UAAAAAAAAAAAAAAAAAAAAAAAAA;

3 Symptom Duplicated? AAAAA Check M-Tips On-Line Service 3

AAAAAAAAAAAAAAAAAAAAU 3 Manager Contacts the 800# 3

3 YES 3 If Necessary 3

UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA; 3 Check M-Tips On-Line or Call Hotline 3 UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU

```

3
UAAAAAAAAAAAAAAAAAAAAA;
UAAAAAAAAAAAAAAAAAAAA; UAAAAAAAAAAAAAAAAAAAA;
3 DRIVEABILITY 3 3 UNUSUAL/ABNORMAL 3
AAAAAAAAAAAAAAAAAU 3 NOISE 3
3
AAAAAAAAAAAAAAAAAU
UAAAAAAAAAAAAAAAAAAAA; UAAAAAAAAAAAAAAAAAAAA

```

| Model/Year | Trans.         | Engine       | MFG | Applications        |
|------------|----------------|--------------|-----|---------------------|
| 1964-1965  | 4-Speed Manual | 2000cc 4-Cyl | AMC | Police, Taxi, Fleet |
| 1966-1967  | 4-Speed Manual | 2000cc 4-Cyl | AMC | Police, Taxi, Fleet |
| 1968-1969  | 4-Speed Manual | 2000cc 4-Cyl | AMC | Police, Taxi, Fleet |
| 1970-1971  | 4-Speed Manual | 2000cc 4-Cyl | AMC | Police, Taxi, Fleet |
| 1972-1973  | 4-Speed Manual | 2000cc 4-Cyl | AMC | Police, Taxi, Fleet |
| 1974-1975  | 4-Speed Manual | 2000cc 4-Cyl | AMC | Police, Taxi, Fleet |
| 1976-1977  | 4-Speed Manual | 2000cc 4-Cyl | AMC | Police, Taxi, Fleet |
| 1978-1979  | 4-Speed Manual | 2000cc 4-Cyl | AMC | Police, Taxi, Fleet |
| 1980-1981  | 4-Speed Manual | 2000cc 4-Cyl | AMC | Police, Taxi, Fleet |
| 1982-1983  | 4-Speed Manual | 2000cc 4-Cyl | AMC | Police, Taxi, Fleet |
| 1984-1985  | 4-Speed Manual | 2000cc 4-Cyl | AMC | Police, Taxi, Fleet |
| 1986-1987  | 4-Speed Manual | 2000cc 4-Cyl | AMC | Police, Taxi, Fleet |
| 1988-1989  | 4-Speed Manual | 2000cc 4-Cyl | AMC | Police, Taxi, Fleet |
| 1990-1991  | 4-Speed Manual | 2000cc 4-Cyl | AMC | Police, Taxi, Fleet |
| 1992-1993  | 4-Speed Manual | 2000cc 4-Cyl | AMC | Police, Taxi, Fleet |
| 1994-1995  | 4-Speed Manual | 2000cc 4-Cyl | AMC | Police, Taxi, Fleet |
| 1996-1997  | 4-Speed Manual | 2000cc 4-Cyl | AMC | Police, Taxi, Fleet |
| 1998-1999  | 4-Speed Manual | 2000cc 4-Cyl | AMC | Police, Taxi, Fleet |
| 2000-2001  | 4-Speed Manual | 2000cc 4-Cyl | AMC | Police, Taxi, Fleet |
| 2002-2003  | 4-Speed Manual | 2000cc 4-Cyl | AMC | Police, Taxi, Fleet |
| 2004-2005  | 4-Speed Manual | 2000cc 4-Cyl | AMC | Police, Taxi, Fleet |
| 2006-2007  | 4-Speed Manual | 2000cc 4-Cyl | AMC | Police, Taxi, Fleet |
| 2008-2009  | 4-Speed Manual | 2000cc 4-Cyl | AMC | Police, Taxi, Fleet |
| 2010-2011  | 4-Speed Manual | 2000cc 4-Cyl | AMC | Police, Taxi, Fleet |
| 2012-2013  | 4-Speed Manual | 2000cc 4-Cyl | AMC | Police, Taxi, Fleet |
| 2014-2015  | 4-Speed Manual | 2000cc 4-Cyl | AMC | Police, Taxi, Fleet |
| 2016-2017  | 4-Speed Manual | 2000cc 4-Cyl | AMC | Police, Taxi, Fleet |
| 2018-2019  | 4-Speed Manual | 2000cc 4-Cyl | AMC | Police, Taxi, Fleet |
| 2020-2021  | 4-Speed Manual | 2000cc 4-Cyl | AMC | Police, Taxi, Fleet |
| 2022-2023  | 4-Speed Manual | 2000cc 4-Cyl | AMC | Police, Taxi, Fleet |
| 2024-2025  | 4-Speed Manual | 2000cc 4-Cyl | AMC | Police, Taxi, Fleet |

# AUTOMATIC TRANSMISSION REPAIR POLICY CAT. K, NO. 002/95

## Article Text (p. 6)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:24AM

```

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 1990-91 929 3 NA4A-EL 3 3.0L JE/D 3 Jatco 3 RWD/ECAT 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 1992-96 929 3 RA4A-EL 3 3.0L JED 3 Jatco 3 RWD/ECAT 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 1995-96 Millenia S 3 LJ4A-EL 3 2.3L KJ 3 Jatco 3 FWD/ECAT 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 1995-96 Millenia 3 GF4A-EL 3 2.5L KJ 3 Mazda 3 FWD/ECAT 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 1990-96 MPV 3 RA4A-EL 3 3.0L JE 3 Jatco 3 RWD/ECAT 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 1990-96 MPV 3 RA4AX-EL 3 3.0L JE 3 Jatco 3 RWD/4WD/ECAT 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 1990-94 MPV 3 NA4A-HL 3 2.6L G6 3 Jatco 3 RWD/HAT 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 1990-92 RX7 3 NA4A-EL 3 RE 13B 3 Jatco 3 RWD/ECAT 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 1993-95 RX7 3 RB4A-EL 3 RE 13B 3 Jatco 3 RWD/ECAT 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 1990-92 626/MX6 3 G4A-EL 3 2.2 F2 3 Mazda 3 FWD/ECAT 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 1990-92 626/MX6 3 G4A-EL 3 2.2 Turbo 3 Mazda 3 FWD/ECAT 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 1993 626/MX6 3 GF4A-EL 3 2.0 FS 3 Mazda 3 FWD/ECAT 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 1993-96 626/MX6 3 GF4A-EL 3 2.5 KL 3 Mazda 3 FWD/ECAT 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 1994-96 626/MX6 3 LA4A-EL 3 2.0 FS 3 Ford 3 FWD/ECAT 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 1990-94 Protege 3 FA4A-EL 3 1.8 BP 3 Mazda 3 FWD/ECAT 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 1990-96 Protege 3 FA4A-EL 3 1.8 BPD 3 Mazda 3 FWD/ECAT 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 1995-96 Protege 3 FA4A-EL 3 1.5 Z5D 3 Mazda 3 FWD/ECAT 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 1990-91 Protege 3 G4AX-EL 3 1.8 BP 3 Mazda 3 FWD/4WD/ECAT 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 1990-93 Miata 3 NA4A-HL 3 1.6 B6 3 Jatco 3 RWD/HAT 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 1994-96 Miata 3 NC4A-EL 3 1.8 BPD 3 Jatco 3 RWD/ECAT 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 1992-96 MX3 3 FA4A-EL 3 ALL 3 Mazda 3 FWD/ECAT 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 1990-94 323 3 FA4A-EL 3 ALL 3 Mazda 3 FWD/ECAT 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 1990-93 B2200 3 NA4A-HL 3 2.2 F2 3 Jatco 3 RWD/HAT 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 1990-93 B2600 3 NA4A-HL 3 2.6 G6 3 Jatco 3 RWD/HAT 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 1990-93 B2600 3 RA4AX-EL 3 2.6 G6 3 Jatco 3 RWD/4WD/ECAT 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 1991-94 Navajo 3 A4LD 3 4.0 3 Ford 3 RWD/4WD/HAT 3

```

# AUTOMATIC TRANSMISSION REPAIR POLICY CAT. K, NO. 002/95

## Article Text (p. 7)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:24AM

1994 B-Series 3 A4LD 3 ALL 3 Ford 3 RWD/4WD/HAT 3  
ECAT = Electronically Controlled Automatic Transmission 3  
HAT = Hydraulically Controlled Automatic Transmission 3  
NOTE: MASH Hotline will provide information regarding 3  
transmission availability for 1995-96 B-Series vehicles. 3

### MAZDA AUTOMATIC TRANSMISSION APPLICATION TABLE - 1 OF 6

| External Adjustments        | NA4A-EL  | RA4A-EL | LJ4A-EL | GF4A-EL | FA4A-EL |
|-----------------------------|----------|---------|---------|---------|---------|
| NC4A-EL                     | RB4A-EL  | G4A-EL  |         |         |         |
|                             | RA4AX-EL | G4AX-EL |         |         |         |
| 2-4 band                    | ADJ      | ADJ     | ADJ     | ADJ     | ADJ     |
| OD band                     | ADJ      | ---     | ---     | ---     | ---     |
| INT band                    | ---      | ---     | ---     | ---     | ---     |
| Low/Rev band                | ---      | ---     | ---     | ---     | ---     |
| T/R sensor                  | ADJ      | ADJ     | ADJ     | ADJ     | ADJ     |
| Throttle cable/<br>pressure | ---      | ---     | ---     | ADJ(1)  | ADJ     |
| Modulator pin               | ADJ      | ---     | ---     | ---     | ---     |
| External linkage            | ADJ      | ADJ     | ADJ     | ADJ     | ADJ     |

ADJ - Adjust as needed per W/M (authorization not required).  
RPL - Repair or replace as needed per W/M (authorization not required).  
CMH - Call MASH Hotline for REMAN ASSEMBLY authorization (do not repair or replace component)  
(1) - Throttle cable not used on GF4A-EL.  
(2) - Do not replace converter if oil pan is full of debris, CALL MASH HOTLINE.  
(3) - 2-3 accumulator is internal and not serviceable, CALL MASH HOTLINE.  
(4) - If cracked, porous (leakage), damaged, other, CALL MASH HOTLINE.

### MAZDA AUTOMATIC TRANSMISSION APPLICATION TABLE - 2 OF 6

| External Adjustments | NA4A-HL | LA4A-EL | A4LD | 4R44E |
|----------------------|---------|---------|------|-------|
|                      |         |         |      | 4R55E |

|                      |         |          |         |         |         |  |
|----------------------|---------|----------|---------|---------|---------|--|
| U                    |         |          |         |         |         |  |
| External Components  | NA4A-EL | RA4A-EL  | LJ4A-EL | GF4A-EL | FA4A-EL |  |
|                      | NC4A-EL | RB4A-EL  |         | G4A-EL  |         |  |
|                      |         | RA4AX-EL |         | G4AX-EL |         |  |
| A                    |         |          |         |         |         |  |
| Control valve body   | RPL     | RPL      | RPL     | RPL     | RPL     |  |
| A                    |         |          |         |         |         |  |
| Torque converter (2) | RPL     | RPL      | RPL     | RPL     | RPL     |  |
| A                    |         |          |         |         |         |  |
| Spool valve          | ---     | ---      | ---     | RPL     | RPL     |  |
| A                    |         |          |         |         |         |  |
| Oil pump gasket      | CMH     | CMH      | CMH     | RPL     | RPL     |  |
| A                    |         |          |         |         |         |  |
| Hydraulic governor   | ---     | ---      | ---     | ---     | ---     |  |
| A                    |         |          |         |         |         |  |
| Vacuum modulator     | RPL     | ---      | ---     | ---     | ---     |  |
| A                    |         |          |         |         |         |  |
| Front seal           | RPL     | RPL      | RPL     | RPL     | RPL     |  |
| A                    |         |          |         |         |         |  |



|       |                      |   |         |   |         |   |      |   |       |   |
|-------|----------------------|---|---------|---|---------|---|------|---|-------|---|
| 3     | External Components  | 3 | NA4A-HL | 3 | LA4A-EL | 3 | A4LD | 3 | 4R44E | 3 |
| 3     |                      | 3 |         | 3 |         | 3 |      | 3 | 4R55E | 3 |
| <hr/> |                      |   |         |   |         |   |      |   |       |   |
| 3     | Control valve body   | 3 | RPL     | 3 | RPL     | 3 | RPL  | 3 | RPL   | 3 |
| <hr/> |                      |   |         |   |         |   |      |   |       |   |
| 3     | Torque converter (2) | 3 | RPL     | 3 | RPL     | 3 | RPL  | 3 | RPL   | 3 |
| <hr/> |                      |   |         |   |         |   |      |   |       |   |
| 3     | Spool valve          | 3 | ---     | 3 | ---     | 3 | ---  | 3 | ---   | 3 |
| <hr/> |                      |   |         |   |         |   |      |   |       |   |
| 3     | Oil pump gasket      | 3 | CMH     | 3 | RPL     | 3 | CMH  | 3 | CMH   | 3 |
| <hr/> |                      |   |         |   |         |   |      |   |       |   |
| 3     | Hydraulic governor   | 3 | CMH     | 3 | ---     | 3 | CMH  | 3 | ---   | 3 |
| <hr/> |                      |   |         |   |         |   |      |   |       |   |
| 3     | Vacuum modulator     | 3 | RPL     | 3 | ---     | 3 | RPL  | 3 | ---   | 3 |

[illegible]

# AUTOMATIC TRANSMISSION REPAIR POLICY CAT. K, NO. 002/95

## Article Text (p. 11)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:24AM

```
3      Gears      3 CMH 3 CMH 3 CMH 3 CMH 3 CMH 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      Shafts     3 CMH 3 CMH 3 CMH 3 CMH 3 CMH 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      Bearings   3 CMH 3 CMH 3 CMH 3 CMH 3 CMH 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      Seal Rings 3 CMH 3 CMH 3 CMH 3 CMH 3 CMH 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      O-rings    3 CMH 3 CMH 3 CMH 3 CMH 3 CMH 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      Bands      3 CMH 3 CMH 3 CMH 3 CMH 3 CMH 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      Drums      3 CMH 3 CMH 3 CMH 3 CMH 3 CMH 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      Brakes     3 CMH 3 CMH 3 CMH 3 CMH 3 CMH 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      Park pawl  3 CMH 3 CMH 3 CMH 3 CMH 3 CMH 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      Int. linkage 3 CMH 3 CMH 3 CMH 3 CMH 3 CMH 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Hydraulic governor 3 --- 3 --- 3 --- 3 --- 3 --- 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      Servo pistons 3 CMH 3 CMH 3 CMH 3 CMH 3 CMH 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      Differential 3 --- 3 --- 3 CMH 3 CMH 3 CMH 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      2-3 Accumulator 3 --- 3 --- 3 --- 3 CMH 3 --- 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      T/C Housing (4) 3 CMH 3 CMH 3 CMH 3 CMH 3 CMH 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      Main case (4) 3 CMH 3 CMH 3 CMH 3 CMH 3 CMH 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 ADJ - Adjust as needed per W/M (authorization not required). 3
3 RPL - Repair or replace as needed per W/M (authorization not 3
3 required). 3
3 CMH - Call MASH Hotline for REMAN ASSEMBLY authorization (do 3
3 not repair or replace component) 3
3 (1) - Throttle cable not used on GF4A-EL. 3
3 (2) - Do not replace converter if oil pan is full of debris, 3
3 CALL MASH HOTLINE. 3
3 (3) - 2-3 accumulator is internal and not serviceable, CALL 3
3 MASH HOTLINE. 3
3 (4) - If cracked, porous (leakage), damaged, other, CALL 3
3 MASH HOTLINE. 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU
```

MAZDA AUTOMATIC TRANSMISSION APPLICATION TABLE - 6 OF 6

UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;

```
3 Internal Components 3NA4A-HL3LA4A-EL 3 A4LD 3 4R44E 3
3 3 3 3 3 4R55E 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
```

```
3      Oil Pump   3 CMH 3 CMH 3 CMH 3 CMH 3
```

[illegible]

# **AUTOMATIC TRANSMISSION REPAIR POLICY CAT. K, NO. 002/95**

## **Article Text (p. 13)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:24AM

### **MASH AUTHORIZATION**

Before replacing a transmission assembly, authorization must be obtained from the Major Assembly Service Hotline (MASH). This authorization is required for warranty reimbursement.

When it is necessary to contact MASH, the information from the Automatic Transmission Diagnostic Sheet (ATDS) will be required by the hotline specialist before the situation can be reviewed.

The ATDS is used for documenting diagnostic finding for all transmission concerns.

### **AUTHORIZATION PROCESS**

1. Dealer technician diagnoses the problem to determine if a complete assembly is required.
2. Technician completes the ATDS.
3. Dealer Service Manager calls the MASH Hotline (800) 832-4940
  - \* Service Manager selects "2" for the Major Assembly Service Hotline (as prompted by phone voice mail).
  - \* Service Manager provides all information from the ADTS
  - \* Service Manager provides an estimated cost for assembly replacement. Cost includes:
    - A) Replacement Part
    - B) SRT or Dealership Labor Rate (if applicable)
    - C) Sublet description and cost (if applicable)

NOTE: Dealerships can fax the ATDS to MASH at (714) 442-6598. The MASH specialist will contact the dealer regarding the fax request.

4. The Hotline specialist will review the request and determine if:
  - \* Additional repair information will eliminate the need for complete assembly replacement. If this is determined, the dealer will be requested to perform additional steps to repair the vehicle. In this circumstance no authorization number is issued.
  - \* Complete assembly replacement is the best alternative. In this circumstance, an authorization number is issued for warranty reimbursement.

### **HOTLINE HOURS**

## **AUTOMATIC TRANSMISSION REPAIR POLICY CAT. K, NO. 002/95**

### **Article Text (p. 14)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:24AM

Operation hours are 9 a.m. to 4 p.m. (for each continental time zone), Monday through Friday. (9 a.m. to 3 p.m. in Hawaii). Fax transmission is available 24 hours a day, seven days a week. Responses to fax will occur during regular business hours.

### **TRANSMISSION ORDERING INFORMATION**

If the vehicle is within warranty, MASH authorization must be obtained before ordering a transmission for replacement under normal warranty conditions.

After obtaining authorization, the transmission must be ordered from the MANA Remanufacturing Operation office servicing your dealer. MANA will require the following information before releasing a transmission:

- \* MASH Authorization Number
- \* Vehicle retail date if under original warranty
- \* Repair date and mileage at the time of replacement if under parts warranty

### **DEALER INVENTORY**

Transmission assemblies will be available for dealer stocking on November 1, 1995.

### **ORDERING LOCATIONS**

MANA Irvine Branch  
1424 McGaw Ave.  
Irvine, CA. 92714  
(714) 261-9429  
or (714) 852-7225  
FAX: (714) 261-6573

MANA Jacksonville Branch  
8601 Youngerman Court, Unit 9  
Jacksonville, FL 32244  
(904) 779-5996  
FAX: (904) 77X5X X89

NOTE: Dealers in TEXAS should order transmission assemblies from the MANA Jacksonville Branch.

### **TRANSMISSION DELIVERY**

Normal delivery for transmissions ordered before 12 p.m. is two (2) full working days. Example: Order received before 12 p.m. Monday will be delivered Wednesday.

### **PART NUMBER INFORMATION**

See Parts Flash (95-20) for detailed applications and part numbers.

### **CORE RETURN PREPARATION**

## **AUTOMATIC TRANSMISSION REPAIR POLICY CAT. K, NO. 002/95**

### **Article Text (p. 15)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:24AM

To ensure your dealer receives the \$600.00 core credit the unit must be returned properly. Failure to return a complete core and the required information will result in no core charge refund. To receive core credit you must:

- \* Return the transmission within 30 days of the vehicle repair date.
- \* Return it in the special shipping container.
- \* Completely drain the transmission fluid.
- \* Assemble all components and install hole plugs, differential side gear and torque convertor holding devices.
- \* Complete and attach the core return tag.
- \* Complete and attach a copy of the Automatic Transmission Diagnostic Sheet.

**IMPORTANT NOTE:** The \$600 core charge will not be refunded if the dealer fails to perform these tasks or if the transmission is damaged during shipping (due to improper preparation).

### **CORE COMPONENT DETAILS**

Install the torque convertor by rotating it to align the splines of the bearing cover, turbine shaft and oil pump. Ensure the torque convertor is fully installed to prevent bushing damage during shipping. See Fig. 1.

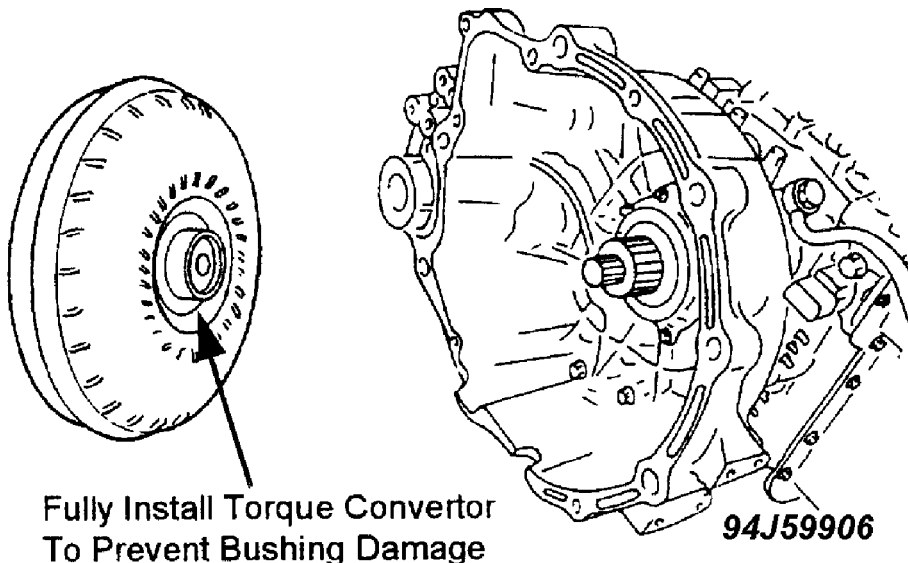


Fig. 1: Installing Torque Converter

Install torque convertor retaining bracket. See Fig. 2.

**AUTOMATIC TRANSMISSION REPAIR POLICY CAT. K, NO. 002/95**

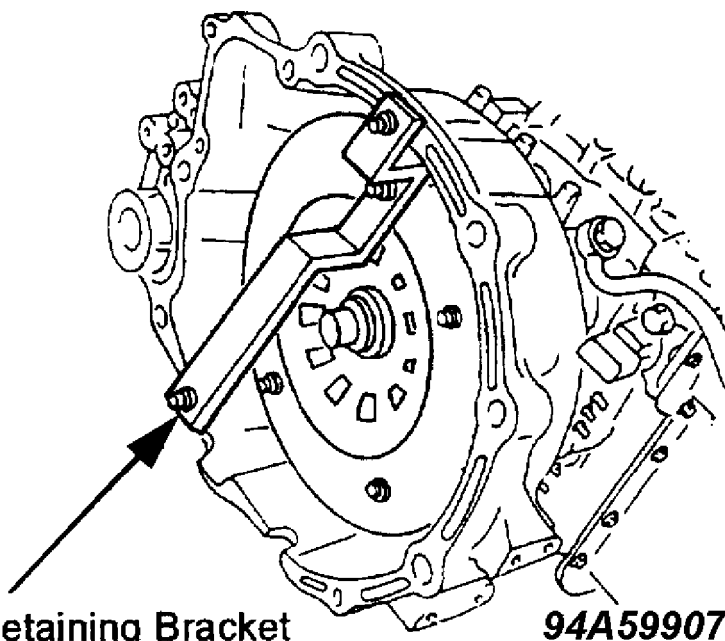
**Article Text (p. 16)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

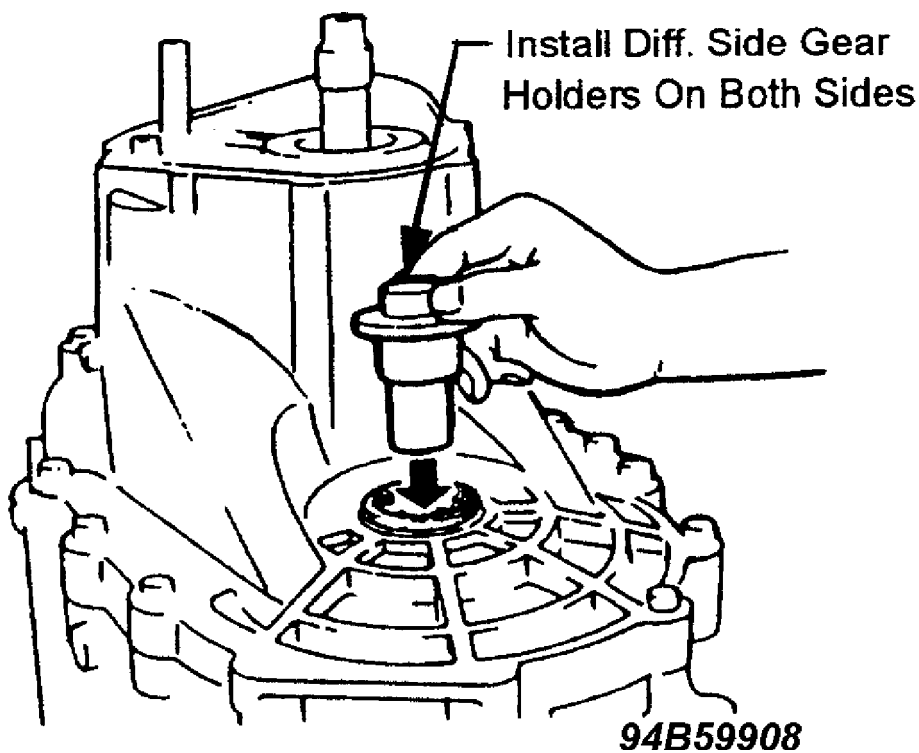
Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:24AM



**Install Retaining Bracket**  
Fig. 2: Installing Retaining Bracket

Install differential side gear holders.



**Install Differential Side Gear Holders**  
Fig. 3: Install Differential Side Gear Holders

**AUTOMATIC TRANSMISSION FLUSHING EQUIPMENT**



NOTE:

1. Power flushers require a 5 Micron filter installed.
2. The above flushers require adapters/attachments for Mazda vehicle applications.
3. Direct all questions regarding usage and application to the flusher manufacturer.
4. Flush in reverse direction of normal operation. Refer to the workshop manual for normal flow. Refer to Fig. 4.

# AUTOMATIC TRANSMISSION REPAIR POLICY CAT. K, NO. 002/95

## Article Text (p. 18)

1993 Mazda RX7

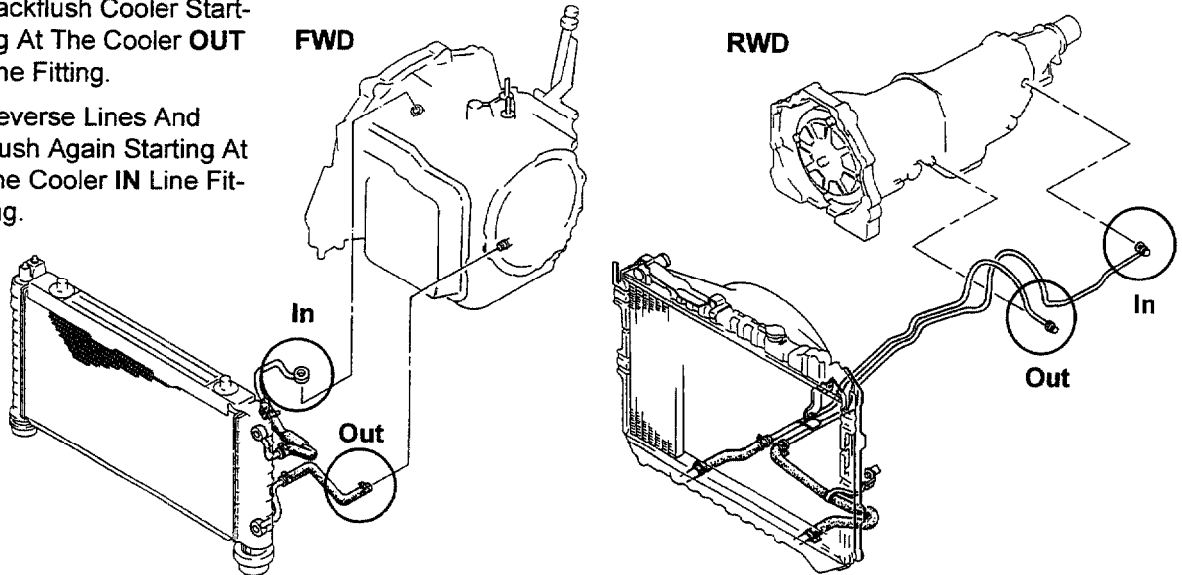
For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:24AM

### Flushing Procedure

- 1) Backflush Cooler Starting At The Cooler **OUT** Line Fitting.
- 2) Reverse Lines And Flush Again Starting At The Cooler **IN** Line Fitting.



**NOTE:** Refer to the workshop manual for cooler location fittings on A4LD, 4R44E and LA4A-EL transmissions.

Fig. 4: Automatic Transmission Flushing Procedure

95J52604

### WARRANTY INFORMATION

Applicable warranty information will be included in the 1996 SRT microfiche.

### AUTOMATIC TRANSMISSION DIAGNOSTIC SHEET - ECAT

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Dealer Code: \_\_\_\_\_ R.O.#: \_\_\_\_\_ Date: \_\_\_\_\_

Your Name: \_\_\_\_\_ Phone #: \_\_\_\_\_

#### 1. VEHICLE INFORMATION

VIN: \_\_\_\_\_ Mileage: \_\_\_\_\_

\* Transmission Unit #: \_\_\_\_\_  
Original Unit \_\_\_\_\_ Reman. Unit \_\_\_\_\_ Replaced New Unit \_\_\_\_\_

\* Retail Date \_\_\_\_\_ Date of first repair: \_\_\_\_\_  
Was the vehicle towed in? No \_\_\_\_ Yes \_\_\_\_

\* Has the A/T been previously repaired or replaced? \_\_\_\_ No \_\_\_\_ Yes  
If Yes, when: \_\_\_\_\_ What: \_\_\_\_\_

\* Are there any aftermarket parts installed (Alarm, Phone, ETC)  
\_\_\_\_ No \_\_\_\_ Yes If Yes, Product Name: \_\_\_\_\_

**AUTOMATIC TRANSMISSION REPAIR POLICY CAT. K, NO. 002/95**

**Article Text (p. 19)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:24AM

**2. CUSTOMER CONCERN**

\* Test drive vehicle? ☐ No ☐ Yes \* Problem duplicated? ☐ No ☐ Yes

\* Symptom(s) (Choose all that apply):

☐ No movement ☐ Shift shock  
☐ Clutch slippage ☐ Noise: ☐ Whine ☐ Clunk ☐ Other:  
☐ Flare ☐ Shudder Vibration  
☐ Doesn't shift ☐ Oil leakage Location: \_\_\_\_\_  
☐ Delayed engagement ☐ Hold/OD off light flashing  
☐ Erratic Shift/Hunting ☐ Other: \_\_\_\_\_

\* Shifter range?

☐ P ☐ R ☐ N ☐ D ☐ 2(S) ☐ 1(L)

☐ When shifting from ☐ to ☐

\* In what gear does it occur? ☐ 1st ☐ 2nd ☐ 3rd ☐ 4th ☐ N

☐ From gear ☐ to ☐

\* Vehicle speed? ☐ MPH to ☐ MPH

\* Throttle position:

☐ Acceleration ☐ Kick down  
☐ Decelerating ☐ Any Position  
☐ Steady Position: \_\_\_\_\_ %

\* Engine temp: ☐ Cold ☐ Hot ☐ Any Temp.

\* Road condition: ☐ Flat ☐ Uphill ☐ Downhill

\* A/C Switch position: ☐ On ☐ Off

\* Frequency: ☐ Intermittent ☐ Always

\* Description of other symptom:

\_\_\_\_\_  
\_\_\_\_\_

**3. TECHNICIAN DIAGNOSIS**

\* Trans fluid condition:

☐ Normal ☐ Milky ☐ Burnt ☐ Particles/Sludge

\* Trans fluid level: ☐ Normal ☐ High ☐ Low

\* Throttle cable adjustment (If applicable):

☐ Normal ☐ Tight ☐ mm out of spec. ☐ Loose ☐ mm out of spec.

\* Shift linkage setting: ☐ Normal ☐ Out of spec.

Describe: \_\_\_\_\_

\* Trans range sensor ☐ Normal ☐ Out of spec.

Describe: \_\_\_\_\_

\* Diagnostic Trouble Code (DTC): ☐ None ☐ Code: \_\_\_\_\_

\* Throttle position sensor voltage:

☐ Steady? ☐ Yes ☐ No Open: \_\_\_\_\_ V Closed: \_\_\_\_\_ V

If Yes, describe: \_\_\_\_\_

# AUTOMATIC TRANSMISSION REPAIR POLICY CAT. K, NO. 002/95

## Article Text (p. 21)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:24AM

Visual Inspection: (Note Leaks) \_\_\_\_\_

Fluid Condition: \_\_\_ Burnt \_\_\_ Normal

Fluid Level: \_\_\_ Correct \_\_\_ High \_\_\_ Low

### A. Self Test Codes Before Repair

KOEO: \_\_\_\_\_

CONT: \_\_\_\_\_

KOER: \_\_\_\_\_

### B. TP (FIPL) Gage Block Setting

Solid Tone (OK) \_\_\_\_\_

Slow Beep (Low Adjustment) \_\_\_\_\_

Fast Beep (High Adjustment) \_\_\_\_\_

### C. Line Pressure (Record Applicable Data)

|    | IDLE  | WOT   |
|----|-------|-------|
| P  | _____ | N/A   |
| R  | _____ | _____ |
| N  | _____ | N/A   |
| OD | _____ | _____ |
| D  | _____ | _____ |
| 2  | _____ | _____ |
| 1  | _____ | _____ |

Was Transmission Tester used for Diagnostic \_\_\_ Yes \_\_\_ No

Shift Linkage TR/MLPS Setting \_\_\_ Correct \_\_\_ Incorrect

Metal In Pan \_\_\_ Yes \_\_\_ No

### 4. OTHER POWERTRAIN/ELECTRICAL EEC SERVICE PERFORMED:

\_\_\_\_\_

### 5. TRANSMISSION IDENTIFICATION (Removed From Vehicle)

Original Unit \_\_\_ Remain Unit \_\_\_

Part No. \_\_\_\_\_ Serial No. \_\_\_\_\_ Model No. \_\_\_\_\_

### 6. REPLACEMENT TRANSMISSION IDENTIFICATION (Installed Into Vehicle)

Installation Date: \_\_\_\_\_

Service Part No. \_\_\_\_\_ Serial No. \_\_\_\_\_

BEFORE REQUIRED ROAD TEST OF VEHICLE WITH REPLACEMENT TRANSMISSION.  
ALL SELF TEST ERROR CODES MUST BE REPAIRED/CLEARED.

Test Drive Results After Service: \_\_\_ Acceptable \_\_\_ Unacceptable

Service Test Error Codes After Required Road Test Evaluation:

KOEO: \_\_\_\_\_ CONT: \_\_\_\_\_ KOER: \_\_\_\_\_

**AUTOMATIC TRANSMISSION REPAIR POLICY CAT. K, NO. 002/95**

**Article Text (p. 22)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:24AM

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

**END OF ARTICLE**

## **DTC DIAGNOSTIC TROUBLE SHOOTING TIPS MT 0597-07**

### **Article Text**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:25AM

### **ARTICLE BEGINNING**

TECHNICAL INFORMATION TIP - MANUFACTURER

DTC DIAGNOSTICS

Model(s): All Mazda Models  
Category: Mazda Tips  
Bulletin No.: MT 0597-07  
Date: May, 1997

### **DESCRIPTION**

The diagnostic procedures for DTCs (Diagnostic Trouble Codes) in the Workshop manual don't always include the procedure to check related connectors that are within the DTC component's circuit.

Whenever performing diagnostic procedures, always use the wiring diagram in conjunction with the Workshop Manual. Check each related connector for the following:

- \* Incomplete connection
- \* Loose female terminals
- \* Terminals that are pushed out of their connectors
- \* Water inside the connector
- \* Terminal corrosion

Also check each related harness for damage.

### **END OF ARTICLE**

| Advantages                                   |  |  | Disadvantages                                                                                                                                                             |  |  |
|----------------------------------------------|--|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| Inexpensive                                  |  |  | Not as easy to use                                                                                                                                                        |  |  |
| Requires little storage space                |  |  | Requires shop water and air hoses for flushing procedure                                                                                                                  |  |  |
| Does not require periodic filter replacement |  |  | Does not recycle its flushing fluid. Each flushing procedure requires the disposal of 18-20 gal. of waste (water/ATF/flushing fluid) that cannot be dumped in shop drain. |  |  |
|                                              |  |  | Dealer must consult state and local authorities for proper disposal of waste                                                                                              |  |  |



# RECOMMENDED A/T COOLER LINE FLUSHING EQUIPMENT CAT. ST, NO. 009/95

## Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:25AM

### OTC 60081-M PORTABLE OIL COOLER/TORQUE CONVERTER CLEANER

OTC 60081-M PORTABLE OIL COOLER/TORQUE CONVERTER CLEANER

| Advantages |                                                                                             |   | Disadvantages |                                                                                           |   |
|------------|---------------------------------------------------------------------------------------------|---|---------------|-------------------------------------------------------------------------------------------|---|
| 3          | Cleaner recycles its solvent.                                                               | 3 | 3             | More expensive                                                                            | 3 |
| 3          | Does not require the disposal of flushing solvent after each procedure                      | 3 | 3             | Requires more storage space                                                               | 3 |
| 3          | Requires only 5 gal. of flushing solvent which can be used for several flushing procedures. | 3 | 3             | Requires periodic filter and solvent replacement. Solvent cannot be dumped in shop drain. | 3 |
| 3          | Easier to use                                                                               | 3 | 3             | Dealer must consult state and local authorities for proper disposal of waste              | 3 |
| 3          | Does not require shop air and air hoses for flushing procedure.                             | 3 | 3             |                                                                                           | 3 |
| 3          | Also cleans torque converters                                                               | 3 | 3             |                                                                                           | 3 |

### PRICING INFORMATION

PRICING INFORMATION TABLE

| Manufacturer/Model |                                                          |   | Price |            |   |
|--------------------|----------------------------------------------------------|---|-------|------------|---|
| 3                  | Kent-Moore J35944 MAZ A/T Oil Cooler and Line Flusher    | 3 | 3     | \$272.55   | 3 |
| 3                  | OTC 60081-M Portable Oil Cooler/Torque Converter Cleaner | 3 | 3     | \$2,541.00 | 3 |

### ORDER INFORMATION

Use the following ordering procedures.

KENT-MOORE J 35944-AMAZ AT Oil Cooler and Line Flusher  
J 41763 Adapter Kit (optional)

- \* J 35944-A A/T Flusher which includes:
- \* chrome plated brass tank
- \* one gallon of J 35944-22 flushing fluid (enough for six flushing operations additional fluid can be purchased directly from

**RECOMMENDED A/T COOLER LINE FLUSHING EQUIPMENT CAT. ST, NO. 009/95**

**Article Text (p. 3)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:25AM

Kent-Moore).

\* complete operating instructions.

Phone Number 1-800-345-2233

Fax 1-800-578-7375

You will be billed directly by Kent-Moore

-----  
OTC

No. 60081-M Portable Oil Cooler/Torque Converter Cleaner  
J41763 Adapter Klt--A/T Oil Cooler and Line Flusher

Phone Number 1-800-533-0492

Fax 1-800-455-7240

You will be billed directly by OTC.

-----  
**SHIPPING INFORMATION**

Your order will be shipped directly from the manufacturer.

**END OF ARTICLE**

# **WORKSHOP MANUAL CORRECTION - EC-AT DIAGNOSTIC CODES CAT. W, NO. 034/92**

## **Article Text**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC  
Saturday, August 25, 2001 07:25AM

## **ARTICLE BEGINNING**

TECHNICAL SERVICE BULLETIN

## **WORKSHOP MANUAL CORRECTION - EC-AT DIAGNOSTIC PROCEDURES**

Model(s): 1993 Mazda RX-7  
Category: W - Workshop Manual Corrections  
Bulletin No.: 034/92  
Date: 10/26/92

## **DESCRIPTION**

Attached are pages for the 1993 RX-7 Workshop Manuals which require corrections for the reasons listed below:

1993 RX-7  
K-219 - K-233: correction to Step 1 Action items

These pages have been corrected and their entire repair procedures are listed below.

## **CORRECTIONS**

PAGES K-219 - K-231: CORRECTION TO STEP 1 ACTION ITEMS

Troubleshooting

If a service code number is shown on the SST, check for the cause by using the chart (Fig. 1) related to the code number shown.

# WORKSHOP MANUAL CORRECTION - EC-AT DIAGNOSTIC CODES CAT. W, NO. 034/92

## Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:25AM

| Code No. | Indicator flashing pattern | Diagnosed circuit                                              | Condition                                                                                                    | Point                                                                                                                                                                                                                                                                                                | Mem-<br>orized |
|----------|----------------------------|----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| 01       |                            | Engine rpm signal                                              | No input signal from ECU                                                                                     | <ul style="list-style-type: none"> <li>Wiring from engine control unit to EC-AT control unit</li> <li>Engine control unit</li> </ul>                                                                                                                                                                 | Yes            |
| 06       |                            | Speed sensor 1 (Revolution sensor)                             | No input signal from speed sensor 1 (Revolution sensor)                                                      | <ul style="list-style-type: none"> <li>Speed sensor 1 connector</li> <li>Wiring from speed sensor 1 to EC-AT control unit</li> <li>Speed sensor 2 resistance</li> </ul>                                                                                                                              | Yes            |
| 07       |                            | Speed sensor 2 (Speedometer sensor)                            | No input signal from speed sensor 2 (Speedometer sensor)                                                     | <ul style="list-style-type: none"> <li>Speed sensor 2 connector</li> <li>Wiring from speed sensor 2 to combination meter</li> <li>Wiring from combination meter to EC-AT control unit</li> <li>Speedometer resistance</li> </ul>                                                                     | Yes            |
| 12       |                            | Throttle sensor                                                | Open or short circuit of throttle sensor or wiring                                                           | <ul style="list-style-type: none"> <li>Throttle sensor connector</li> <li>Wiring from throttle sensor to EC-AT control unit</li> <li>Throttle sensor resistance</li> </ul>                                                                                                                           | Yes            |
| 55       |                            | Pulse generator                                                | No input signal from pulse generator                                                                         | <ul style="list-style-type: none"> <li>Pulse generator connector</li> <li>Wiring from pulse generator to EC-AT control unit</li> <li>Pulse generator resistance</li> </ul>                                                                                                                           | Yes            |
| 56       |                            | ATF thermosensor                                               | Open or short circuit of ATF thermosensor or wiring                                                          | <ul style="list-style-type: none"> <li>ATF thermosensor connector</li> <li>Wiring from ATF thermosensor to EC-AT control unit</li> <li>ATF thermosensor resistance</li> </ul>                                                                                                                        | Yes            |
| 57       |                            | Reduce torque signal/Slip lockup signal, torque reduced signal | Open or short circuit of reduce torque signal/slip lockup signal wiring, and/or torque reduced signal wiring | <ul style="list-style-type: none"> <li>Wiring from engine control unit to EC-AT control unit</li> <li>EC-AT control unit</li> <li>Engine control unit</li> </ul>                                                                                                                                     | Yes            |
| 58       |                            | Atmospheric pressure sensor                                    | Open or short circuit of atmospheric pressure sensor wiring                                                  | <ul style="list-style-type: none"> <li>Wiring from engine control unit to EC-AT control unit</li> <li>Engine control unit</li> </ul>                                                                                                                                                                 | Yes            |
| 60       |                            | Solenoid valve (shift A)                                       | Open or short circuit of solenoid valve wiring                                                               | <ul style="list-style-type: none"> <li>Solenoid valve connector</li> <li>Wiring from solenoid valve to EC-AT control unit</li> <li>Solenoid valve resistance</li> <li>Wiring from dropping resistor to EC-AT control unit (Only No.64)</li> <li>Dropping resistor resistance (Only No.64)</li> </ul> | Yes            |
| 61       |                            | Solenoid valve (shift B)                                       |                                                                                                              |                                                                                                                                                                                                                                                                                                      | Yes            |
| 62       |                            | Solenoid valve (overrunning clutch)                            |                                                                                                              |                                                                                                                                                                                                                                                                                                      | Yes            |
| 63       |                            | Solenoid valve (lookup)                                        |                                                                                                              |                                                                                                                                                                                                                                                                                                      | Yes            |
| 64       |                            | Solenoid valve (line pressure)                                 |                                                                                                              |                                                                                                                                                                                                                                                                                                      | Yes            |
| 65       |                            | Solenoid valve (lockup control)                                |                                                                                                              |                                                                                                                                                                                                                                                                                                      | Yes            |

94H55506

Fig. 1: Service Code Number Reference Chart

SERVICE CODE 01 DIAGNOSTIC TABLE

| Step | Inspection                                                                                                                                            | Action                                                                              |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 1.   | Are there any poor connections at distributor, engine control unit and EC-AT control unit connectors?                                                 | Yes Repair or replace connector<br>No Go to next step                               |
| 2.   | Connect a circuit tester to terminals 1G and ground as shown in Fig. 2. Is input voltage of engine RPM signal at EC-AT control unit OK?               | Yes Go to Step 5<br>No Go to next step                                              |
|      | Acceptable Voltages                                                                                                                                   |                                                                                     |
|      | 0 volts - engine stopped                                                                                                                              |                                                                                     |
|      | .3-.8 volts - engine idling                                                                                                                           |                                                                                     |
|      | 1.8-2.2 volts - engine running at 3,000 rpm with no load                                                                                              |                                                                                     |
| 3.   | Disconnect 16-pin EC-AT control unit connector. Is there continuity between 1G terminal of EC-AT control unit and 2B terminal of engine control unit. | Yes Go to next step<br>No Repair wiring                                             |
| 4.   | Connect a circuit tester to terminals 2B and ground as shown in Fig. 2. Is input voltage of engine RPM signal at engine control unit OK?              | Yes Go to next step<br>No Check crank angle sensor and/or wiring                    |
|      | Acceptable Voltages                                                                                                                                   |                                                                                     |
|      | 0 volts - engine stopped                                                                                                                              |                                                                                     |
|      | .3-.8 volts - engine idling                                                                                                                           |                                                                                     |
|      | 1.8-2.2 volts - engine running at 3,000 rpm with no load                                                                                              |                                                                                     |
| 5.   | Disconnect negative battery cable for at least 20 seconds. Connect battery cable and recheck for service code. Is service code displayed?             | Yes Replace EC-AT control unit<br>No Intermittent poor connection. Check for cause. |

Article Text (p. 4)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:25AM

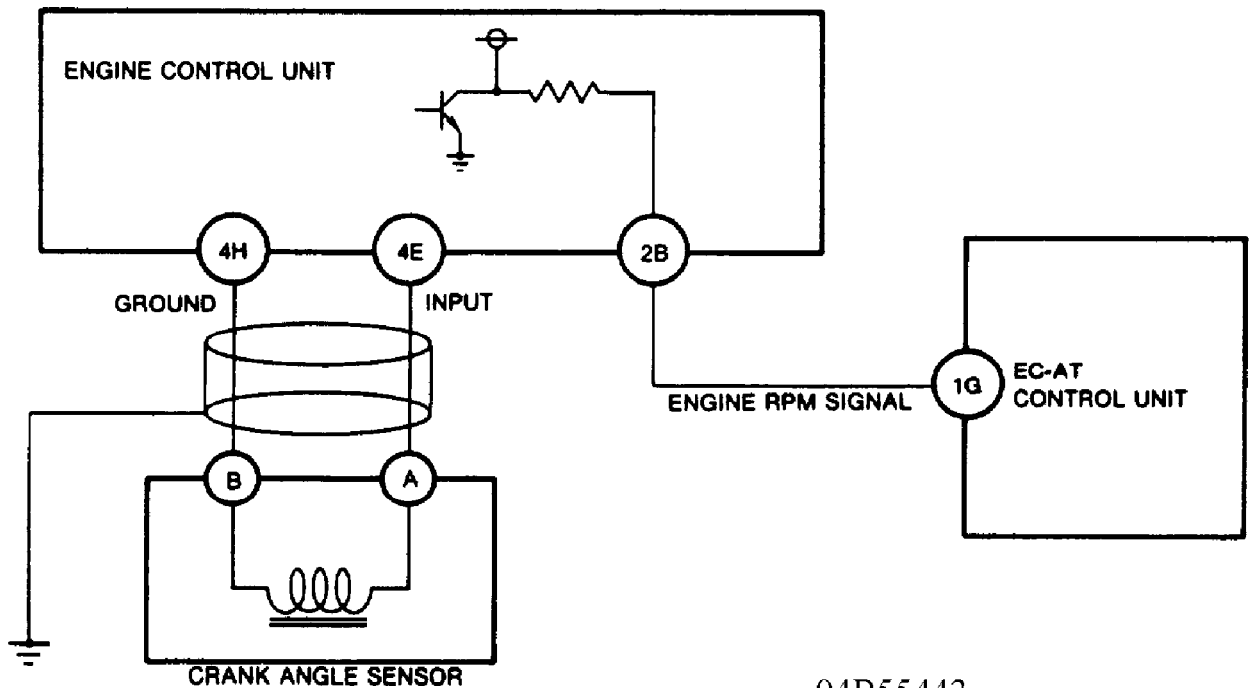


Fig. 2: Service Code 01 Circuit Diagram

94B55443

SERVICE CODE 06 DIAGNOSTIC TABLE

| Service Code No. 06                |                                                                                     |        |                             |
|------------------------------------|-------------------------------------------------------------------------------------|--------|-----------------------------|
| Speed Sensor 1 (Revolution Sensor) |                                                                                     |        |                             |
| Step                               | Inspection                                                                          | Action |                             |
| 1.                                 | Are there any poor connections at speed sensor 1 and EC-AT control unit connectors? | Yes    | Repair or Replace connector |
|                                    |                                                                                     | No     | Go to next step             |
| 2.                                 | Connect a circuit tester to terminals 2J and 2L as shown in Fig. 3.                 | Yes    | Go to Step 5                |
|                                    | Is input voltage of speed sensor 1 at EC-AT control unit OK?                        | No     | Go to next step             |
|                                    | Acceptable Voltages                                                                 |        |                             |
|                                    | Approx. above 1 - while driving above 16 mph                                        |        |                             |
|                                    | Approx. 0 - Vehicle stopped                                                         |        |                             |
| 3.                                 | Disconnect 20-pin EC-AT control unit connector                                      | Yes    | Go to Step 5                |
|                                    | Is resistance between 2J terminal and 2L terminal OK?                               | No     | Go to next step             |
|                                    | Resistance: 500-1,000 ohms                                                          |        |                             |

[illegible]

|    |                                                                                                                                      |     |                                                                         |
|----|--------------------------------------------------------------------------------------------------------------------------------------|-----|-------------------------------------------------------------------------|
| 1. | Are there any poor connections at speed sensor 2 and EC-AT control unit connectors?                                                  | Yes | Repair or replace connector                                             |
| 2. | Connect a circuit tester to terminals 1I and ground as shown in Fig. 4. Is input voltage of speed sensor 2 at EC-AT control unit OK? | Yes | Go to Step 8                                                            |
|    | Acceptable Voltages 2-3 volts while driving 0 or 4.5-5.5 volts with vehicle stopped                                                  | No  | Go to next step                                                         |
| 3. | Remove combination meter                                                                                                             | Yes | Go to next step                                                         |
|    | Is there continuity between 3E terminal of meter connector and 1I terminal of EC-AT control unit?                                    | No  | Repair or replace wiring and/or connector                               |
| 4. | Connect circuit tester to 3C and 3A terminals of meter connector                                                                     | Yes | Replace speedometer                                                     |
|    | Does pointer of circuit tester move slightly when rear wheels are slowly turned?                                                     | No  | Go to next step                                                         |
| 5. | Remove speed sensor 2                                                                                                                | Yes | Go to next step                                                         |
|    | Is resistance felt when turning speedometer driven gear by hand?                                                                     | No  | Replace speed sensor 2                                                  |
| 6. | Disconnect speed sensor 2 connector and connect circuit tester                                                                       | Yes | Go to next step                                                         |
|    | Does pointer of circuit tester move slightly when driven gear is slowly turned?                                                      | No  | Replace speed sensor 2                                                  |
| 7. | Disconnect speed sensor 2 connector                                                                                                  | Yes | Check wiring and connectors from speed sensor 2 to speedometer          |
|    | Is continuity of sensor OK?                                                                                                          |     |                                                                         |
|    | Resistance: approx. 290 Ohms at 20°C (68°F)                                                                                          |     | * If OK, go to next step<br>* If not OK, repair wiring and/or connector |
|    |                                                                                                                                      | No  | Replace sensor 2                                                        |



Article Text (p. 7)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:25AM

```

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 8. 3 Disconnect negative 3Yes3 Replace EC-AT control unit 3
3 3 battery cable for at least 3 3 3
3 3 20 seconds AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Connect battery cable and 3No 3 Intermittent poor connection 3
3 3 recheck for service code 3 3 Check for cause 3
3 3 Is service code displayed? 3 3 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
    
```

### CIRCUIT DIAGRAM

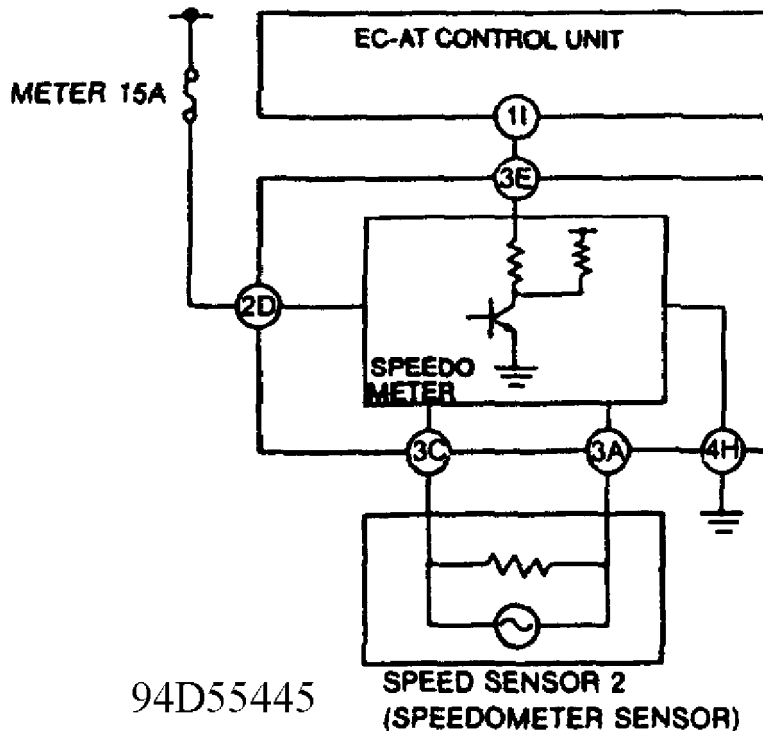


Fig. 4: Service Code 07 Circuit Diagram

### SERVICE CODE 12 DIAGNOSTIC TABLE

| Service Code No. 12 |                                                                                                                                             | Throttle Sensor                                         |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|
| Step                | Inspection                                                                                                                                  | Action                                                  |
| 1.                  | Are there any poor connections at throttle sensor and EC-AT control unit connector or terminal?                                             | Yes: Repair or replace connector<br>No: Go to next step |
| 2.                  | Connect a circuit tester to terminals 2T and ground as shown in Fig. 5. Is input voltage of throttle sensor (TV0) at EC-AT control unit OK? | Yes: Go to Step 5<br>No: (Implied)                      |

## SERVICE CODE 55 DIAGNOSTIC TABLE

| Service Code No. 55 |                                                                                                                                           |     |                                                                        | Pulse Generator |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------|-----|------------------------------------------------------------------------|-----------------|
| Step                | Inspection                                                                                                                                |     | Action                                                                 |                 |
| 1.                  | Are there any poor connections at pulse generator and EC-AT control unit connector or terminal?                                           | Yes | Repair or Replace connector                                            |                 |
|                     |                                                                                                                                           | No  | Go to next step                                                        |                 |
| 2.                  | Connect a circuit tester to terminals 2E and 2L as shown in Fig. 6. Is input voltage of pulse generator at EC-AT control unit OK?         | Yes | Go to Step 5                                                           |                 |
|                     | Acceptable Voltages Approx. above 0.5 - while driving above 16 mph                                                                        | No  | Go to next step                                                        |                 |
|                     | Approx. 0 - Vehicle stopped                                                                                                               |     |                                                                        |                 |
| 3.                  | Disconnect 20-pin EC-AT control unit connector. Is resistance between 2E terminal and 2L terminal OK?                                     | Yes | Go to next step                                                        |                 |
|                     | Resistance: 2.2-3.5 Kohms                                                                                                                 | No  | Go to next step                                                        |                 |
| 4.                  | Disconnect pulse generator connector. Is resistance of pulse generator OK?                                                                | Yes | Check wiring and connectors from EC-AT control unit to pulse generator |                 |
|                     | Terminal Resistance                                                                                                                       |     | * If OK, go to next step                                               |                 |
|                     | A-B                                                                                                                                       |     | * If not OK, repair wiring and/or connector                            |                 |
|                     | B-C                                                                                                                                       |     |                                                                        |                 |
|                     | A-C                                                                                                                                       |     |                                                                        |                 |
| 5.                  | Disconnect negative battery cable for at least 20 seconds. Connect battery cable and recheck for service code. Is service code displayed? | Yes | Replace EC-AT control unit                                             |                 |
|                     |                                                                                                                                           | No  | Intermittent poor connection. Check for cause.                         |                 |

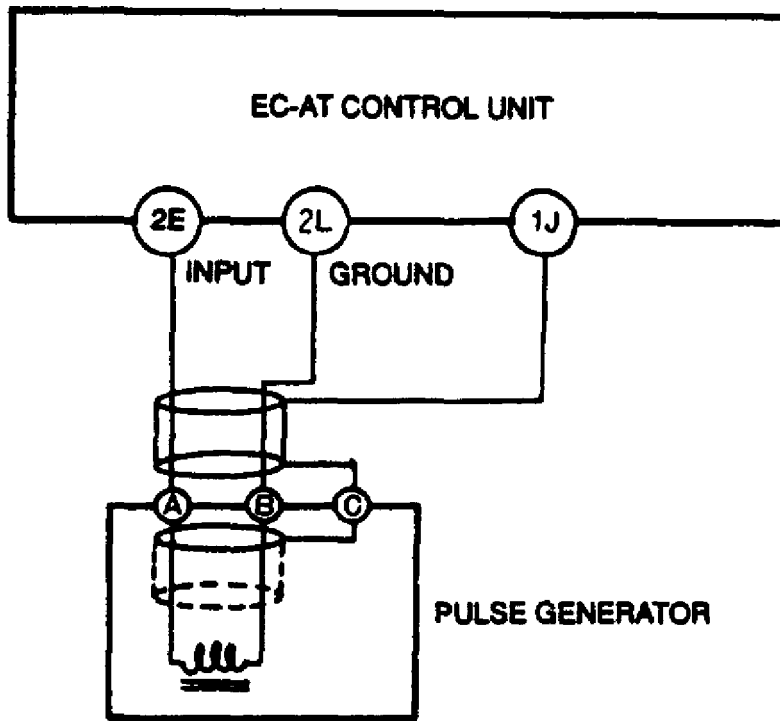
Article Text (p. 10)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:25AM



94B55427

Fig. 6: Service Code 55 Circuit Diagram

SERVICE CODE 56 DIAGNOSTIC TABLE

| Service Code No. 56 |                                                                                                  |     | ATF Thermosensor            |  |
|---------------------|--------------------------------------------------------------------------------------------------|-----|-----------------------------|--|
| Step                | Inspection                                                                                       |     | Action                      |  |
| 1.                  | Are there any poor connections at ATF thermosensor and EC-AT control unit connector or terminal? | Yes | Repair or Replace connector |  |
|                     |                                                                                                  | No  | Go to next step             |  |
| 2.                  | Connect a circuit tester to terminals 2R - 2L as shown in Fig. 7.                                | Yes | Go to Step 5                |  |
|                     | Is input voltage of ATF thermosensor at EC-AT control unit OK?                                   | No  | Go to next step             |  |
|                     | Acceptable Voltages                                                                              |     |                             |  |
|                     | Approx. 1.8 volts                                                                                |     |                             |  |
|                     | ATF temp. 10°C (50°F)                                                                            |     |                             |  |
|                     | Approx. 1.1 volts                                                                                |     |                             |  |
|                     | ATF temp. 40°C (104°F)                                                                           |     |                             |  |
|                     | Approx. 0.4 volts                                                                                |     |                             |  |
|                     | ATF temp. 80°C (176°F)                                                                           |     |                             |  |

# WORKSHOP MANUAL CORRECTION - EC-AT DIAGNOSTIC CODES CAT. W, NO. 034/92

## Article Text (p. 11)

1993 Mazda RX7

For www.iluvmyrx7.com

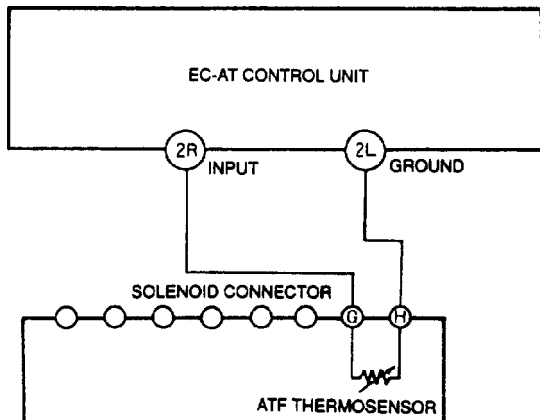
Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:25AM

```

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3. 3 Disconnect 20-pin EC-AT      3Yes3 Go to Step 5      3
3 3 control unit connector        3 3                      3
3 3 Is resistance between 2R      3 3                      3
3 3 terminal and 2L terminal      AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 OK?                          3No 3 Go to next step    3
3 3 Acceptable Resistance        3 3                      3
3 3 Approx. 3.8 Kohms            3 3                      3
3 3 ATF temp. 100C (500F)        3 3                      3
3 3 Approx. 1.2 Kohms            3 3                      3
3 3 ATF temp. 400C (1040F)       3 3                      3
3 3 Approx. 0.3 Kohms            3 3                      3
3 3 ATF temp. 800C (1760F)       3 3                      3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 4. 3 Disconnect solenoid        3Yes3 Check wiring and connectors 3
3 3 connector                    3 3 from EC-AT control unit to 3
3 3 Is resistance between G      3 3 ATF thermosensor      3
3 3 terminal and H terminal of   3 3 * If OK, go to next step 3
3 3 ATF thermosensor OK?        3 3 * If not OK, repair wiring 3
3 3 Acceptable Resistance        3 3 and/or connector      3
3 3 Approx. 3.8 Kohms            3 3                      3
3 3 ATF temp. 100C (500F)       AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Approx. 1.2 Kohms            3No 3 Replace ATF thermosensor 3
3 3 ATF temp. 400C (1040F)       3 3                      3
3 3 Approx. 0.3 Kohms            3 3                      3
3 3 ATF temp. 800C (1760F)       3 3                      3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 5. 3 Disconnect negative        3Yes3 Replace EC-AT control unit 3
3 3 battery cable for at least  3 3                      3
3 3 20 seconds                  AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Connect battery cable and    3No 3 Intermittent poor connection 3
3 3 recheck for service code    3 3 Check for cause        3
3 3 Is service code displayed?  3 3                      3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU

```



94C55428

Fig. 7: Service Code 56 Circuit Diagram

SERVICE CODE 57 DIAGNOSTIC TABLE

# WORKSHOP MANUAL CORRECTION - EC-AT DIAGNOSTIC CODES CAT. W, NO. 034/92

## Article Text (p. 12)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:25AM

```
UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;
³ Service Code No. 57 ³ Reduce Torque Signal, Torque Reduced Signal ³
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
³Step³                Inspection                ³                Action                ³
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
³ 1. ³ Are there any poor                ³Yes³ Repair or Replace connector ³
³    ³ connections at engine                ³    ³
³    ³ control unit and EC-AT                AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
³    ³ control unit connectors                ³No ³ Go to next step                ³
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
³ 2. ³ Connect a circuit tester                ³Yes³ Go to Step 4                ³
³    ³ to terminals 2H and ground                ³    ³
³    ³ as shown in Fig. 8.                ³    ³
³    ³ Is input voltage of torque                ³    ³
³    ³ reduced signal at EC-AT                AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
³    ³ control unit OK?                ³No ³ Go to next step                ³
³    ³ Acceptable Voltages                ³    ³
³    ³ Battery voltage - Engine                ³    ³
³    ³ idling                ³    ³
³    ³ Below 1 volt - Engine cool                ³    ³
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
³ 3. ³ Disconnect 20-pin EC-AT                ³Yes³ Go to next step                ³
³    ³ control unit connector                ³    ³
³    ³ Is there continuity                ³    ³
³    ³ between 2H terminal of                AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
³    ³ EC-AT control unit and 2G                ³No ³ Repair Wiring                ³
³    ³ terminal of engine control                ³    ³
³    ³ unit?                ³    ³
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
³ 4. ³ Connect a circuit tester                ³Yes³ Go to step 6                ³
³    ³ to terminals 2P and ground                ³    ³
³    ³ as shown in Fig. 8.                ³    ³
³    ³ Is output voltage of reduce                ³    ³
³    ³ torque signal at EC-AT                ³    ³
³    ³ control unit OK?                AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
³    ³ Acceptable Voltages                ³No ³ Go to next step                ³
³    ³ Below 1 volt - Shifting                ³    ³
³    ³ Battery voltage - engine                ³    ³
³    ³ idling                ³    ³
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
³ 5. ³ Disconnect 20-pin EC-AT                ³Yes³ Go to next step                ³
³    ³ control unit connector                ³    ³
³    ³ Is there continuity                ³    ³
³    ³ between 2P terminal of                AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
³    ³ EC-AT control unit and 1Q                ³No ³ Repair Wiring                ³
³    ³ terminal of engine control                ³    ³
³    ³ unit?                ³    ³
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
³ 6. ³ Disconnect negative                ³Yes³ Replace EC-AT control unit ³
³    ³ battery cable for at least                ³    ³ or engine control unit                ³
³    ³ 20 seconds                AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
³    ³ Connect battery cable and                ³No ³ Intermittent poor connection ³
```

# WORKSHOP MANUAL CORRECTION - EC-AT DIAGNOSTIC CODES CAT. W, NO. 034/92

Article Text (p. 13)

1993 Mazda RX7

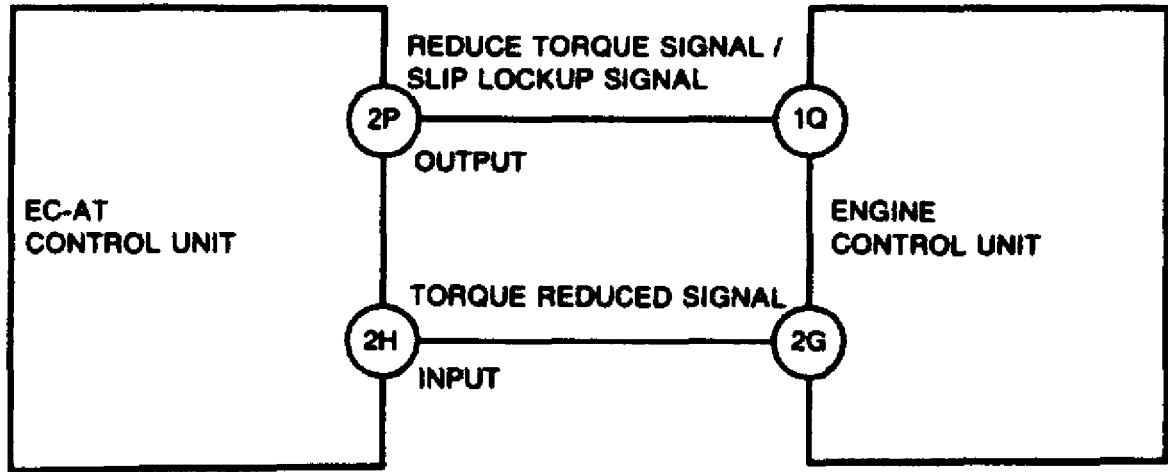
For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:25AM

```

3      3 recheck for service code      3      3 Check for cause      3
3      3 Is service code displayed?    3      3                      3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU
    
```



94G55448

Fig. 8: Service Code 57 Circuit Diagram

| SERVICE CODE 58 DIAGNOSTIC TABLE                                      |                     |   |                             |
|-----------------------------------------------------------------------|---------------------|---|-----------------------------|
| UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA |                     |   |                             |
| 3                                                                     | Service Code No. 58 | 3 | Atmospheric Pressure Sensor |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA  |                     |   |                             |
| 3                                                                     | Step                | 3 | Inspection                  |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA  |                     |   |                             |
| 3                                                                     | 1.                  | 3 | Are there any poor          |
| 3                                                                     |                     | 3 | connections at engine       |
| 3                                                                     |                     | 3 | control unit and EC-AT      |
| 3                                                                     |                     | 3 | control unit connectors     |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA  |                     |   |                             |
| 3                                                                     |                     | 3 | Yes                         |
| 3                                                                     |                     | 3 | Repair or Replace connector |
| 3                                                                     |                     | 3 |                             |
| 3                                                                     |                     | 3 | No                          |
| 3                                                                     |                     | 3 | Go to next step             |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA  |                     |   |                             |
| 3                                                                     | 2.                  | 3 | Connect a circuit tester    |
| 3                                                                     |                     | 3 | to terminals 2C and ground  |
| 3                                                                     |                     | 3 | as shown in Fig. 9.         |
| 3                                                                     |                     | 3 | Is input voltage of         |
| 3                                                                     |                     | 3 | atmospheric pressure sensor |
| 3                                                                     |                     | 3 | at EC-AT control unit OK?   |
| 3                                                                     |                     | 3 | No                          |
| 3                                                                     |                     | 3 | Go to next step             |
| 3                                                                     |                     | 3 | Acceptable Voltages         |
| 3                                                                     |                     | 3 | 2.0-4.5 volts - ignition    |
| 3                                                                     |                     | 3 | switch ON                   |
| 3                                                                     |                     | 3 | 0 volts - ignition switch   |
| 3                                                                     |                     | 3 | OFF                         |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA  |                     |   |                             |
| 3                                                                     | 3.                  | 3 | Disconnect 20-pin EC-AT     |
| 3                                                                     |                     | 3 | control unit connector      |
| 3                                                                     |                     | 3 | Is there continuity         |
| 3                                                                     |                     | 3 | between 2C terminal of      |
| 3                                                                     |                     | 3 | EC-AT control unit and 2D   |
| 3                                                                     |                     | 3 | No                          |
| 3                                                                     |                     | 3 | Repair Wiring               |

[illegible]



# WORKSHOP MANUAL CORRECTION - EC-AT DIAGNOSTIC CODES CAT. W, NO. 034/92

## Article Text (p. 15)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:26AM

| Step      | Inspection                                                                                                                                       |     | Action                                                                                                                                               |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------|-----|------------------------------------------------------------------------------------------------------------------------------------------------------|
| - - - - - |                                                                                                                                                  |     |                                                                                                                                                      |
| 1.        | Are there any poor connections at solenoid valve and EC-AT control unit connectors?                                                              | Yes | Repair or Replace connector                                                                                                                          |
|           |                                                                                                                                                  | No  | Go to next step                                                                                                                                      |
| - - - - - |                                                                                                                                                  |     |                                                                                                                                                      |
| 2.        | Connect a circuit tester to terminals 1D and ground as shown in Fig. 10. Is output voltage of solenoid valve (shift A) at EC-AT control unit OK? | Yes | Check wiring and go to Step 5                                                                                                                        |
|           |                                                                                                                                                  | No  | Go to next step                                                                                                                                      |
|           | Acceptable Voltages                                                                                                                              |     |                                                                                                                                                      |
|           | Battery voltage - 1st or O/D gear                                                                                                                |     |                                                                                                                                                      |
|           | Below 1 volt - 2nd,3rd gear                                                                                                                      |     |                                                                                                                                                      |
| - - - - - |                                                                                                                                                  |     |                                                                                                                                                      |
| 3.        | Disconnect 16-pin EC-AT control unit connector. Is resistance between 1D terminal and ground OK?                                                 | Yes | Go to Step 5                                                                                                                                         |
|           |                                                                                                                                                  | No  | Go to next step                                                                                                                                      |
|           | Resistance: 20-40 ohms                                                                                                                           |     |                                                                                                                                                      |
| - - - - - |                                                                                                                                                  |     |                                                                                                                                                      |
| 4.        | Disconnect solenoid connector. Is resistance between ground and terminal B of solenoid valve (shift A) OK?                                       | Yes | Check wiring and connectors from EC-AT control unit to solenoid valve (shift A) * If OK, go to next step * If not OK, repair wiring and/or connector |
|           |                                                                                                                                                  | No  | Replace solenoid valve (shift A)                                                                                                                     |
| - - - - - |                                                                                                                                                  |     |                                                                                                                                                      |
| 5.        | Disconnect negative battery cable for at least 20 seconds. Connect battery cable and recheck for service code. Is service code displayed?        | Yes | Replace EC-AT control unit                                                                                                                           |
|           |                                                                                                                                                  | No  | Intermittent poor connection Check for cause                                                                                                         |
| - - - - - |                                                                                                                                                  |     |                                                                                                                                                      |

[illegible]

³ Service Code No. 62                      Solenoid valve (Overrunning Clutch)                      ³

# WORKSHOP MANUAL CORRECTION - EC-AT DIAGNOSTIC CODES CAT. W, NO. 034/92

## Article Text (p. 18)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:26AM

| Step | Inspection                                                                                                                                                                                                                                                                            |     | Action                                                                                                                                                          |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.   | Are there any poor connections at solenoid valve and EC-AT control unit connectors?                                                                                                                                                                                                   | Yes | Repair or Replace connector                                                                                                                                     |
|      |                                                                                                                                                                                                                                                                                       | No  | Go to next step                                                                                                                                                 |
| 2.   | Connect a circuit tester to terminals 10 and ground as shown in Fig. 12. Is output voltage of solenoid valve (overrunning clutch) at EC-AT control unit OK? Acceptable Voltages Battery voltage - D range (throttle valve closed) Below 1 volt - Except D range (throttle valve open) | Yes | Check wiring and go to Step 5                                                                                                                                   |
|      |                                                                                                                                                                                                                                                                                       | No  | Go to next step                                                                                                                                                 |
| 3.   | Disconnect 16-pin EC-AT control unit connector Is resistance between 1D terminal and ground OK? Resistance: 20-40 ohms                                                                                                                                                                | Yes | Go to Step 5                                                                                                                                                    |
|      |                                                                                                                                                                                                                                                                                       | No  | Go to next step                                                                                                                                                 |
| 4.   | Disconnect solenoid connector Is resistance between ground and terminal D of solenoid valve (overrunning clutch) OK? Resistance: 20-40 ohms                                                                                                                                           | Yes | Check wiring and connectors from EC-AT control unit to solenoid valve (overrunning clutch) * If OK, go to next step * If not OK, repair wiring and/or connector |
|      |                                                                                                                                                                                                                                                                                       | No  | Replace solenoid valve (overrunning clutch)                                                                                                                     |
| 5.   | Disconnect negative battery cable for at least 20 seconds Connect battery cable and recheck for service code Is service code displayed?                                                                                                                                               | Yes | Replace EC-AT control unit                                                                                                                                      |
|      |                                                                                                                                                                                                                                                                                       | No  | Intermittent poor connection Check for cause                                                                                                                    |

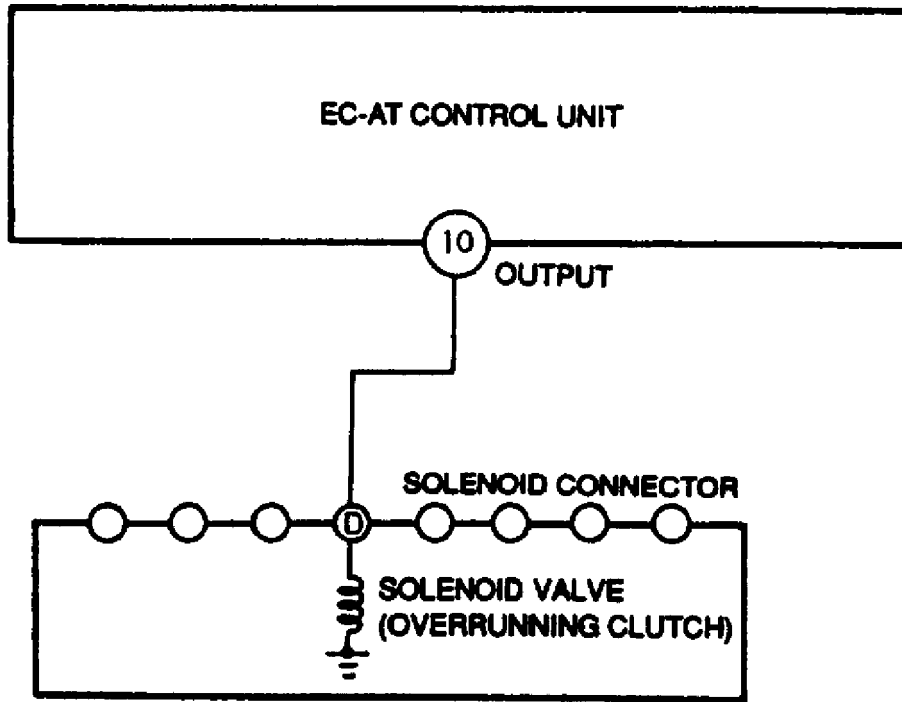
Article Text (p. 19)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:26AM



94I55432

Fig. 12: Service Code 62 Circuit Diagram

SERVICE CODE 63 DIAGNOSTIC TABLE

| Service Code No. 63 Solenoid valve (Lockup) |                                                                                                                                  |                                                                                                                                                                                                          |  |
|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Step                                        | Inspection                                                                                                                       | Action                                                                                                                                                                                                   |  |
| 1.                                          | Are there any poor connections at solenoid valve and EC-AT control unit connectors?                                              | Yes: Repair or Replace connector<br>No: Go to next step                                                                                                                                                  |  |
| 2.                                          | Disconnect 16-pin EC-AT control unit connector. Is resistance between 1M terminal and ground OK? Resistance: 10-20 ohms          | Yes: Go to Step 4<br>No: Go to next step                                                                                                                                                                 |  |
| 3.                                          | Disconnect solenoid connector. Is resistance between ground and terminal F of solenoid valve (lockup) OK? Resistance: 10-20 ohms | Yes: Check wiring and connectors from EC-AT control unit to solenoid valve (lockup).<br>* If OK, go to next step.<br>* If not OK, repair wiring and/or connector.<br>No: Replace solenoid valve (lockup) |  |

# WORKSHOP MANUAL CORRECTION - EC-AT DIAGNOSTIC CODES CAT. W, NO. 034/92

## Article Text (p. 20)

1993 Mazda RX7

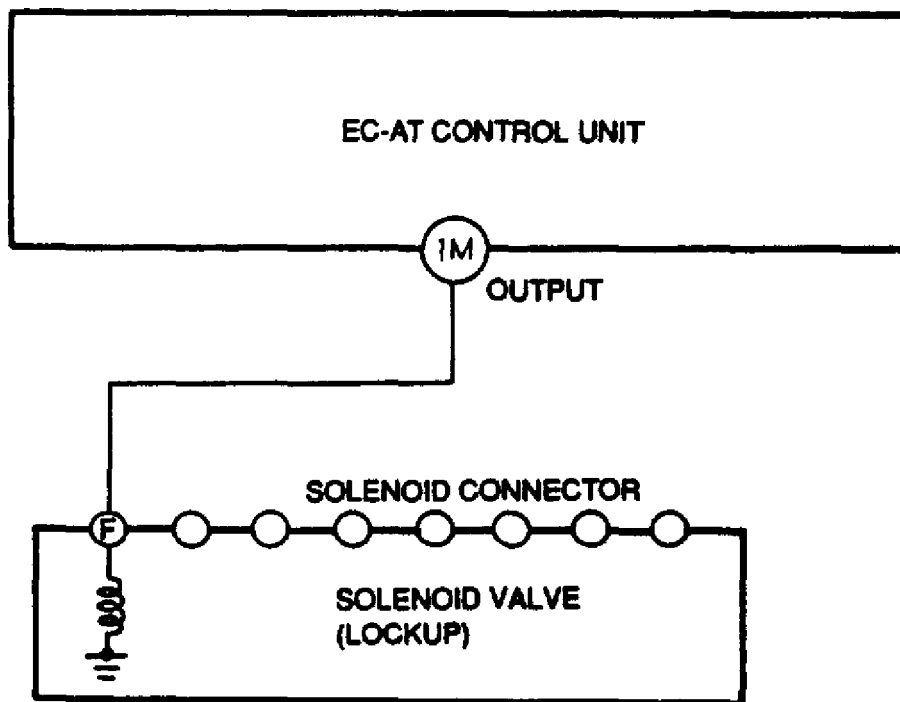
For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:26AM

```

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 4. 3 Connect a dwell meter to 3Yes3 Go to next step 3
3 3 terminals 1M and ground 3 3 3
3 3 as shown in Fig. 13. 3 3 3
3 3 Is output duty of solenoid 3 3 3
3 3 valve (lockup) at EC-AT AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 control unit OK? 3No 3 Replace EC-AT control unit 3
3 3 Acceptable Dwell 3 3 3
3 3 Approx. 5% - no lockup 3 3 3
3 3 Approx. 100% - lockup 3 3 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 5. 3 Disconnect negative 3Yes3 Replace EC-AT control unit 3
3 3 battery cable for at least 3 3 3
3 3 20 seconds AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Connect battery cable and 3No 3 Intermittent poor connection 3
3 3 recheck for service code 3 3 Check for cause 3
3 3 Is service code displayed? 3 3 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
  
```



94J55433

Fig. 13: Service Code 63 Circuit Diagram

### SERVICE CODE 64 DIAGNOSTIC TABLE

| Service Code No. 64                                                      |            |  | Solenoid valve (Line Pressure) |  |  |
|--------------------------------------------------------------------------|------------|--|--------------------------------|--|--|
| Step                                                                     | Inspection |  | Action                         |  |  |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA |            |  |                                |  |  |

# WORKSHOP MANUAL CORRECTION - EC-AT DIAGNOSTIC CODES CAT. W, NO. 034/92

## Article Text (p. 21)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:26AM

```
3 1. 3 Are there any poor 3Yes3 Repair or Replace connector 3
3 3 connections at solenoid 3 3 3
3 3 valve and EC-AT control 3
3 3 unit connectors? 3No 3 Go to next step 3
3
3
3 2. 3 Disconnect 16-pin EC-AT 3Yes3 Go to next step 3
3 3 control unit connector 3 3 3
3 3 Is resistance between 1F 3
3 3 terminal (solenoid valve 3
3 3 line pressure) and ground 3No 3 Go to Step 4 3
3 3 OK? 3 3 3
3 3 Resistance: 2.5-5.0 ohms 3 3 3
3
3
3 3. 3 Disconnect 16-pin EC-AT 3Yes3 Go to Step 5 3
3 3 control unit connector 3 3 3
3 3 Is resistance between 1H 3
3 3 terminal (dropping 3No 3 Go to Step 7 3
3 3 resistor) and ground OK? 3 3 3
3 3 Resistance: 12.5-19.0 ohms 3 3 3
3
3
3 4. 3 Disconnect solenoid 3Yes3 Check wiring and connectors 3
3 3 connector 3 3 from EC-AT control unit to 3
3 3 Is resistance between 3 3 solenoid valve (line 3
3 3 ground and terminal E of 3 3 pressure) 3
3 3 solenoid valve (line 3 3 * If OK, go to next step 3
3 3 pressure) OK? 3 3 * If not OK, repair wiring 3
3 3 Resistance: 2.5-5.0 ohms 3 3 and/or connector 3
3 3 3
3 3 3No 3 Replace solenoid valve 3
3 3 3 (line pressure) 3
3
3
3 5. 3 Connect a dwell meter to 3Yes3 Go to next step 3
3 3 terminals 1H and ground 3 3 3
3 3 as shown in Fig. 14. 3 3 3
3 3 Is output duty of dropping 3 3 3
3 3 resistor at EC-AT control 3
3 3 unit OK? 3No 3 Replace EC-AT control unit, 3
3 3 Acceptable Dwell 3 3 perform road test, and go to 3
3 3 Approx. 5% - Throttle 3 3 Step 8 3
3 3 valve fully open 3 3 3
3 3 Approx. 100% - Throttle 3 3 3
3 3 valve fully closed 3 3 3
3
3
3 6. 3 Connect a dwell meter to 3Yes3 Go to next step 3
3 3 terminals 1F and ground 3 3 3
3 3 as shown in Fig. 14. 3 3 3
3 3 Is output duty of solenoid 3 3 3
3 3 valve (line pressure) at 3
3 3 EC-AT control unit OK? 3No 3 Replace EC-AT control unit, 3
3 3 Acceptable Dwell 3 3 perform road test, and go to 3
3 3 Approx. 5% - Throttle 3 3 Step 8 3
3 3 valve fully open 3 3 3
```

Saturday, August 25, 2001 07:26AM

[illegible]



# WORKSHOP MANUAL CORRECTION - EC-AT DIAGNOSTIC CODES CAT. W, NO. 034/92

## Article Text (p. 23)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:26AM

| Step      | Inspection                                                                                                                                              |     | Action                                                                         |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------|-----|--------------------------------------------------------------------------------|
| - - - - - |                                                                                                                                                         |     |                                                                                |
| 1.        | Are there any poor connections at solenoid valve and EC-AT control unit connectors?                                                                     | Yes | Repair or Replace connector                                                    |
|           |                                                                                                                                                         | No  | Go to next step                                                                |
| - - - - - |                                                                                                                                                         |     |                                                                                |
| 2.        | Connect a circuit tester to terminals 2F and ground as shown in Fig. 15. Is output voltage of solenoid valve (lockup control) at EC-AT control unit OK? | Yes | Check wiring and go to Step 5                                                  |
|           |                                                                                                                                                         | No  | go to next step                                                                |
|           | Acceptable voltage                                                                                                                                      |     |                                                                                |
|           | Battery voltage - lockup                                                                                                                                |     |                                                                                |
|           | Below 1 volt - no lockup                                                                                                                                |     |                                                                                |
| - - - - - |                                                                                                                                                         |     |                                                                                |
| 3.        | Disconnect 20-pin EC-AT control unit connector. Is resistance between 2F terminal and ground OK?                                                        | Yes | Go to Step 5                                                                   |
|           |                                                                                                                                                         | No  | Go to next step                                                                |
|           | Resistance: 20-40 ohms                                                                                                                                  |     |                                                                                |
| - - - - - |                                                                                                                                                         |     |                                                                                |
| 4.        | Disconnect solenoid connector. Is resistance between ground and terminal A of solenoid valve (lockup control) OK?                                       | Yes | Check wiring and connectors from EC-AT control unit to lockup control solenoid |
|           |                                                                                                                                                         |     | * If OK, go to next step                                                       |
|           |                                                                                                                                                         |     | * If not OK, repair wiring and/or connector                                    |
|           | Resistance: 20-40 ohms                                                                                                                                  |     |                                                                                |
|           |                                                                                                                                                         | No  | Replace solenoid valve (lockup control)                                        |
| - - - - - |                                                                                                                                                         |     |                                                                                |
| 5.        | Disconnect negative battery cable for at least 20 seconds. Connect battery cable and recheck for service code. Is service code displayed?               | Yes | Replace EC-AT control unit                                                     |
|           |                                                                                                                                                         | No  | Intermittent poor connection. Check for cause.                                 |
| - - - - - |                                                                                                                                                         |     |                                                                                |

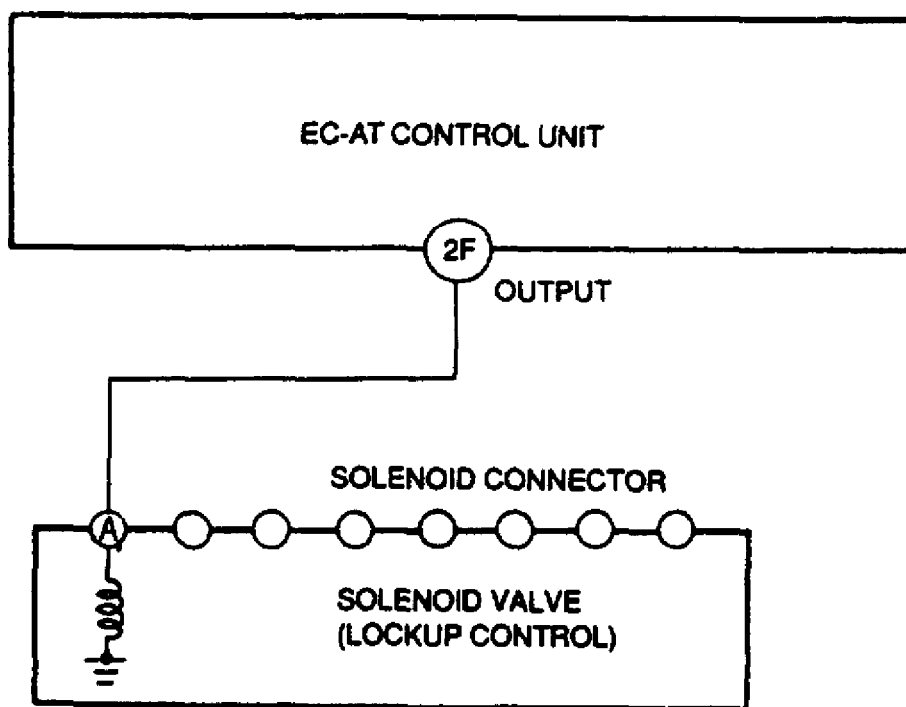
Article Text (p. 24)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:26AM

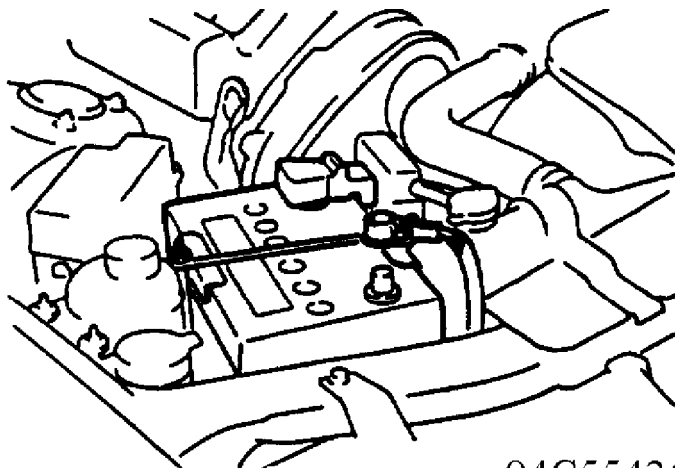


94B55435

Fig. 15: Service Code 65 Circuit Diagram

AFTER-REPAIR PROCEDURE

1. Cancel the memory of service codes by disconnecting the negative battery cable for at least 20 seconds. Reconnect the battery cable. Fig. 16.



94C55436

Fig. 16: Disconnecting Battery Cable

2. Remove the SST (SELF-DIAGNOSIS CHECKER or DTS1000) if connected.

## WORKSHOP MANUAL CORRECTION - EC-AT DIAGNOSTIC CODES CAT. W, NO. 034/92

### Article Text (p. 25)

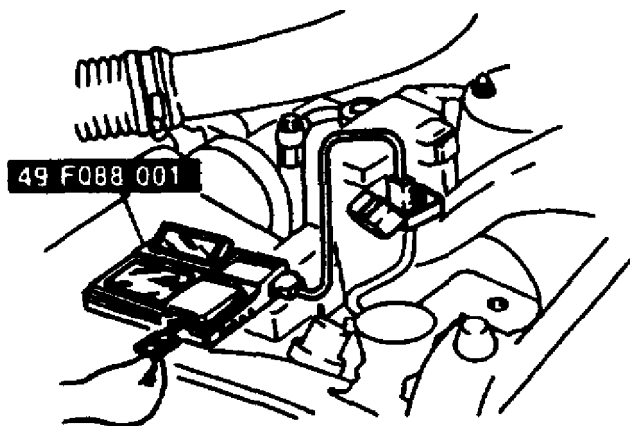
1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:26AM

3. Drive the vehicle at 50 km/h (31 mph), and depress the accelerator pedal fully to activate kickdown. Stop the vehicle gradually.
4. Connect the SST to the diagnosis connector. Fig. 17.



94A55509

Fig. 17: Connecting SST to Vehicle

5. Turn the ignition switch ON.
6. Verify that no code numbers are displayed.

**END OF ARTICLE**

**YEAR 2000 COMPLIANCE CAT. 01, NO. 018/99**

**Article Text**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC  
Saturday, August 25, 2001 07:26AM

**ARTICLE BEGINNING**

TECHNICAL SERVICE BULLETIN

**YEAR 2000 COMPLIANCE**

Model(s): All Mazda Models  
Category: 01 - Engine  
Bulletin No.: 018/99  
Date: May 28, 1999

**DESCRIPTION**

Because all Control Units, including the Powertrain Control Modules used in Mazda vehicles do not use the day, month, or year to operate, Mazda vehicles are completely immune to the effects of the year 2000 concern.

**END OF ARTICLE**

# BLACK FINISH PEELING FROM INERIOR TRIM: REPLACE PART CAT. S, NO. 056/92

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:33AM

## ARTICLE BEGINNING

### TECHNICAL SERVICE BULLETIN

## BLACK FINISH PEELING FROM INTERIOR TRIM

Model(s): 1993 Mazda RX-7 with a VIN of JM1FD331\*P0207441  
or lower produced through August 4, 1992  
Category: "S" Body  
Bulletin No.: 056/93  
Date: 12/15/93

## DESCRIPTION

Some vehicles may experience the black finish peeling from certain interior trim parts. Fig. 1 illustrates the affected parts.

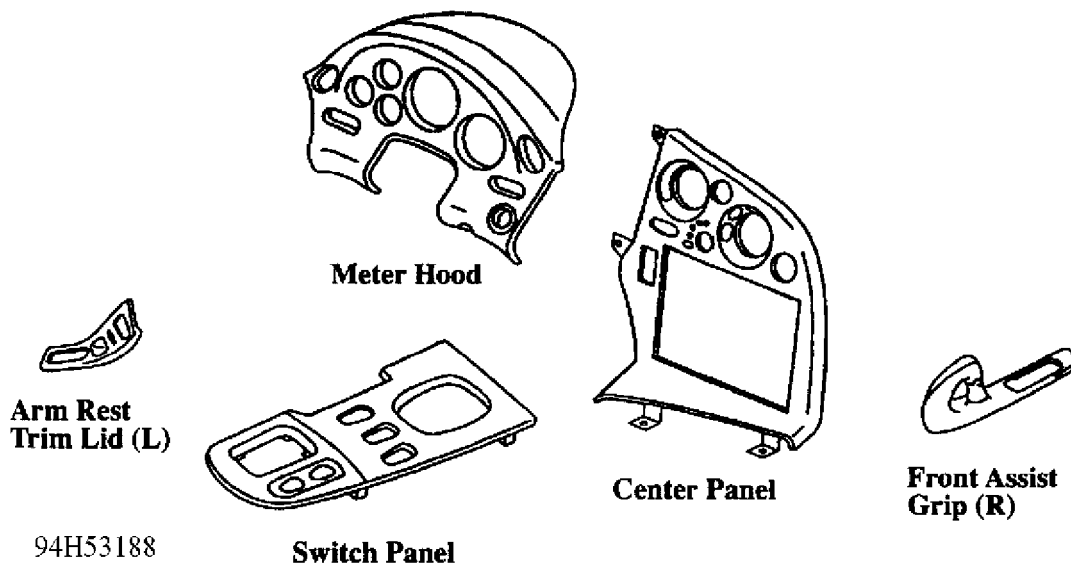


Fig. 1: Affected Parts

This condition is caused by poor adhesion of the black finish to the trim parts.

## REPAIR PROCEDURE

The adhesive element has been strengthened to prevent the interior trim black finish from peeling. If peeling occurs, replace the affected parts. See PARTS INFORMATION TABLE for list of modified parts.

Refer to the appropriate service information for removal and installation procedures.

**BLACK FINISH PEELING FROM INERIOR TRIM: REPLACE PART CAT. S, NO. 056/92**

**Article Text (p. 2)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:34AM

PARTS INFORMATION TABLE

|                                                                             |                 |   |                       |              |
|-----------------------------------------------------------------------------|-----------------|---|-----------------------|--------------|
| UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA; |                 |   |                       |              |
| 3                                                                           | Part Number     | 3 | Description           | 3 Quantity 3 |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-      |                 |   |                       |              |
| 3                                                                           | FDO1 55 210B 00 | 3 | Central Panel         | 3 1 3        |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-      |                 |   |                       |              |
| 3                                                                           | FDO1 55 420E 00 | 3 | Meter Hood            | 3 1 3        |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-      |                 |   |                       |              |
| 3                                                                           | FDO1 64 471D 00 | 3 | Switch Panel          | 3 1 3        |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-      |                 |   |                       |              |
| 3                                                                           | FDO1 68 4LY 00  | 3 | Switch Panel (L)      | 3 1 3        |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-      |                 |   |                       |              |
| 3                                                                           | FDO1 68 4MOA 00 | 3 | Arm Rest Trim Lid (L) | 3 1 3        |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-      |                 |   |                       |              |
| 3                                                                           | FDO1 69 44XA 00 | 3 | Front Assist Grip (R) | 3 1 3        |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU       |                 |   |                       |              |

**WARRANTY INFORMATION**

(Applies to Vehicles Covered Under Warranty.)

Warranty Type Code: A  
Customer Comment Code: 45  
Damage Code: 9X

|                         |               |             |
|-------------------------|---------------|-------------|
| Part No. of Main Cause: | Operation No: | Labor Hours |
| FDO1 S5 210B 00         | S0702XRX      | 0.9 hrs.    |
| FDO1 55 420E 00         | T0602XRX      | 0.6 hrs.    |
| FDO1 64 471D 00         | S0805XRX      | 0.2 hrs.    |
| FDO1 68 4LY 00          | XX051OR1      | 0.5 hrs.    |
| FDO1 68 4MOA 00         | XX051OR2      | 0.5 hrs.    |
| FDO1 69 44XA 00         | XX051OR3      | 0.4 hrs.    |

**END OF ARTICLE**

|       |                 |   |                 |   |                |   |     |   |      |   |
|-------|-----------------|---|-----------------|---|----------------|---|-----|---|------|---|
| ***** |                 |   |                 |   |                |   |     |   |      |   |
| 3     | Part Number     |   |                 | 3 | Description    | 3 | Qty | 3 | Int  | 3 |
| ***** |                 |   |                 |   |                |   |     |   |      |   |
| 3     | New             |   |                 | 3 | Old            | 3 |     | 3 | Code | 3 |
| ***** |                 |   |                 |   |                |   |     |   |      |   |
| 3     | FD01 69 44XB 00 | 3 | FD01 69 44XA 00 | 3 | Passenger Door | 3 | 1   | 3 | A    | 3 |
| 3     |                 | 3 |                 | 3 | Assist Grip    | 3 |     | 3 |      | 3 |
| ***** |                 |   |                 |   |                |   |     |   |      |   |

**BROKEN PASSENGER SIDE DOOR GRIP: REPLACE GRIP CAT. S, NO. 033/93**

**Article Text (p. 2)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:34AM

**WARRANTY INFORMATION**

(Applies to Vehicles Covered Under Warranty.)

|                         |                 |
|-------------------------|-----------------|
| Warranty Type Code:     | A               |
| Customer Comment Code:  | 92              |
| Damage Code:            | 99              |
| Part No. of Main Cause: | FD01 69 44XB 00 |
| Operation No.:          | XX0552RX        |
| Labor Hours:            | 0.4 Hrs.        |

**END OF ARTICLE**



# DIRT ON SEAT BELT AND ANCHOR CAT. S, NO. 028/96

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:34AM

## ARTICLE BEGINNING

### TECHNICAL SERVICE BULLETIN

## DIRT ON SEAT BELT AND ANCHOR

Model(s): All Mazda Models except Navajo and B-Series  
Category: S - Body  
Bulletin No.: 028/96  
Date: June 27, 1996

## DESCRIPTION

Dirt accumulating on the seat belt anchor or webbing may restrict seat belt travel over the anchor. This may cause some customers to complain that the seat belt will not retract or requires effort to pull out. Customers with this concern should have the belt inspected and serviced according to this bulletin.

## SERVICE PROCEDURE

1. Clean the seat belt contact area and sash guide.

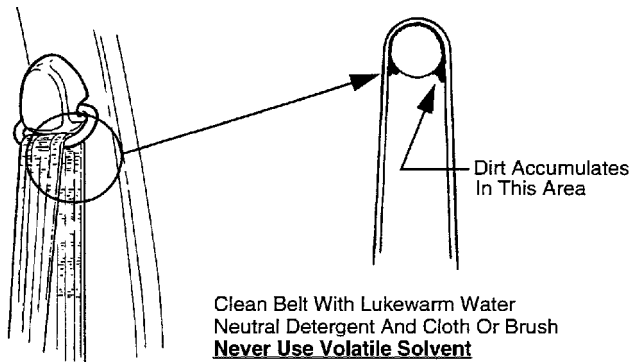
NOTE: Use a brush or cloth, lukewarm water and neutral detergent.

CAUTION: Do not use volatile solvent for cleaning, this substance may affect the seat belt strength.

2. Verify seat belt operation.

\* If the seat belt is not operating smoothly, refer to the workshop manual for troubleshooting procedures.

NOTE: The seat belt will not retract smoothly while wet. Allow seat belt to dry before verifying operation.



95G54912

Fig. 1: Dirt Accumulates In This Area

## END OF ARTICLE

# DOOR MIRROR VIBRATION - APPLY TREAD-LOCK TO SCREWS CAT. S, NO. 020/95

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:35AM

## ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

## DOOR MIRROR VIBRATION

Model(s): 1993-94 Mazda RX-7  
Category: S - Body  
Bulletin No.: 020/95  
Date: 6/16/95

## APPLICABLE MODELS/VINS

RX-7 model vehicles with a VIN of JM1FD333\*R0301491 and lower

## DESCRIPTION

The door mirror may vibrate while driving on bumpy roads. This vibration may be caused by loose mirror mounting screws. To prevent the screws from loosening, a thread locking agent has been added during mass production. Customers complaining of this concern should have the vehicle repaired according to this bulletin.

NOTE: Place a copy of this bulletin in your edition of the NVH manual for future reference.

## REPAIR PROCEDURE

1. Verify the complaint.
2. Remove the mirror from the door. Refer to section S of the workshop manual for removal instructions.

NOTE: Mirror wiring harness removal is not necessary.

3. Apply a non-permanent thread locking compound (Loctite 242 or equivalent) to the three (3) mounting screws and install the mirror. See Fig. 1.
4. Verify the repair.

**DOOR MIRROR VIBRATION - APPLY TREAD-LOCK TO SCREWS CAT. S, NO. 020/95**

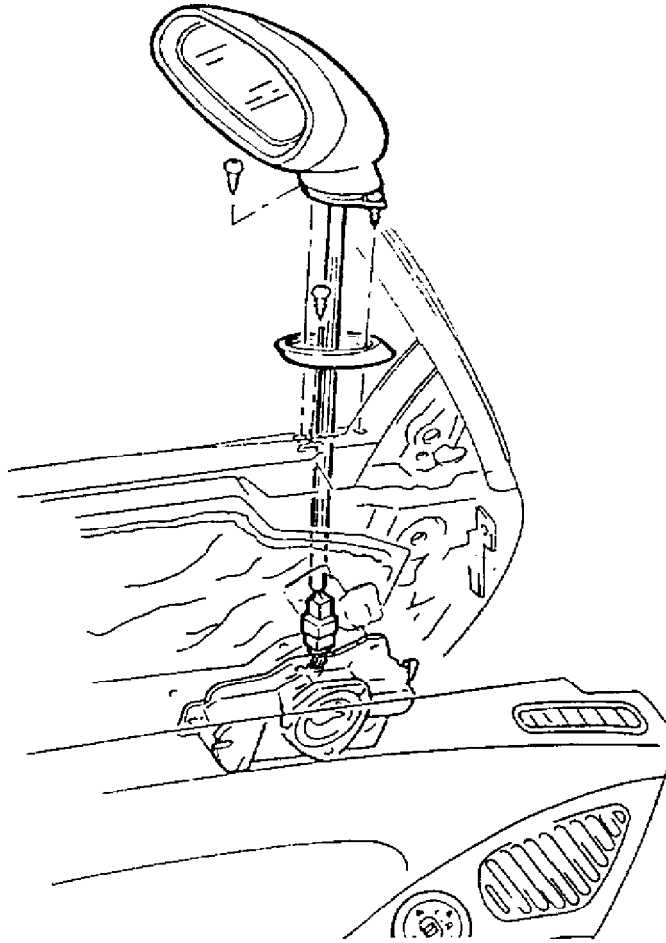
**Article Text (p. 2)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:35AM



**Apply Non-Permanent Thread-Locking  
Agent To the Mounting Screws**

**94F58789**

Fig. 1: Mounting Door Mirror

**WARRANTY INFORMATION**

(Applies To Verified Customer Complaints On Vehicles Covered Under Normal Warranty. Refer To The SRT Microfiche For Warranty Term Information).

|                         |                             |
|-------------------------|-----------------------------|
| Warranty Type:          | A                           |
| Symptom Code:           | 83                          |
| Damage Code:            | 9G                          |
| Part Number Main Cause: | FD01 76 120 ** (Right Door) |
|                         | FD01 76 180 ** (Left Door)  |
| Quantity:               | 0                           |
| Operation Number:       | XX0739RX                    |
| Labor Hours:            | 0.3 (both sides)            |

NOTE: \*\* in the PNMC designates the applicable color code

**END OF ARTICLE**

## DOOR MIRROR VIBRATION - REPAIR MT 0495-08

### Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:36AM

### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### DOOR MIRROR VIBRATION

Model(s): 1993-95 Mazda RX-7  
Category: Mazda Tips  
Bulletin No.: MT 0495-08  
Date: April, 1995

### SERVICE INFORMATION

If the left or right door mirrors shake or vibrate under normal driving conditions, or on rough roads, do not replace the door mirror.

Twist the mirror downward to expose the two (2) mounting screws that attach the mirror to the body. See Fig. 1. Remove the mounting screws and apply loctite (blue type) to the threads and reinstall the screws very firmly to ensure the vibration has been eliminated.

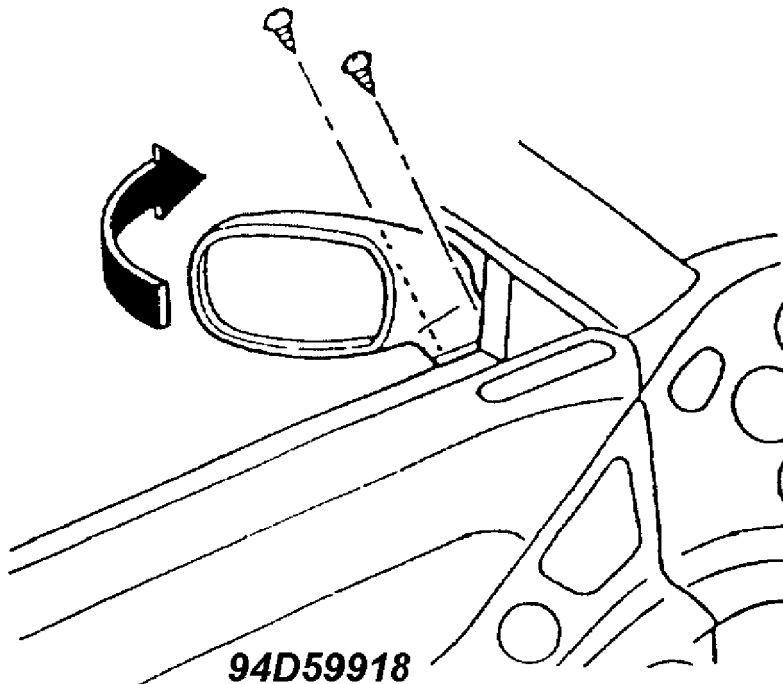


Fig. 1: Location of Mounting Screws

END OF ARTICLE

# DOOR TRIM RECESS BROKEN -RECESS AVAILABLE SEPARATELY MT 0395-03

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC  
Saturday, August 25, 2001 07:36AM

## ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

## DOOR TRIM RECESS BREAKAGE

Model(s): All Mazda Models (equipped)  
Category: Mazda Tips  
Bulletin No.: MT 0395-03  
Date: March 1995

## DESCRIPTION

If the door trim recess is broken, do not replace the entire door trim. The recess is available separately as a service part for all models. The complete door trim is not warrantable if it was replaced to repair a broken recess. See Fig. 1.

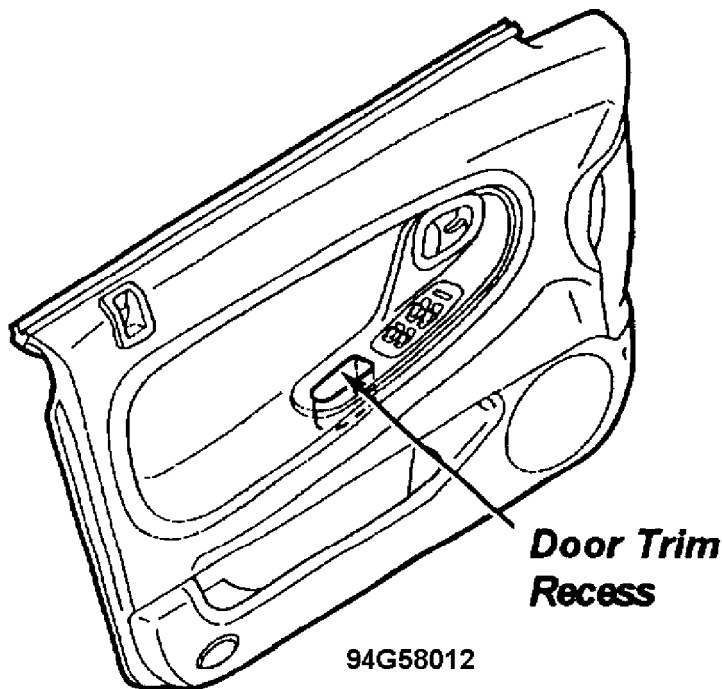


Fig. 1: Door Trim Recess

END OF ARTICLE

# ENVIRONMENTAL FALLOUT REPAIR PROCEDURE MT 0797-07

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:36AM

### ARTICLE BEGINNING

TECHNICAL INFORMATION TIP - MANUFACTURER

ENVIRONMENTAL FALLOUT REPAIR PROCEDURE

Model(s): All Mazda Models  
Category: Mazda Tips  
Bulletin No.: MT 0797-07  
Date: July, 1997

### DESCRIPTION

With the warm summer days ahead, customers will be washing their vehicles more often, and paint concerns such as those caused by environmental fallout (acid rain, rail dust, water spotting, etc.) can be more easily seen.

As a reminder, when addressing these concerns, please refer to the Mazda Paint Damage Repair Manual (P/N: 9999-95-044N-94.) This manual lists the recommended repair procedure and products supplied by Finish Kare, Inc. for proper removal of environmental fallout damage. For questions or product information, please contact Finish Kare, Inc. at 1-888-FINKARE, 7:00 A.M.- 3:30 P.M. (PST).

Two copies of the Paint Damage Repair Manual will be mailed to your service department in the next publications mailing.

### END OF ARTICLE

# GLOVE BOX LAMP STAYS ON: NEW LAMP COVER CAT. S, NO. 042/93

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:37AM

## ARTICLE BEGINNING

### TECHNICAL SERVICE BULLETIN

## GLOVE BOX LAMP STAYS ON

Model(s): 1993 Mazda RX-7 with a VIN of JM1FD332\*P0200001  
through JM1FD332\*P0210624

NOTE: The asterisk (\*) in the VIN range can be any number (0 through 9) or "X".

Category: "S" Body

Bulletin No.: 042/93

Date: 10/21/93

## DESCRIPTION

The glove box lamp may stay on when the glove box door is closed. The lamp cover has been modified to prevent this condition. If this condition exists, replace the glove box lamp cover with the modified lamp cover according to the instructions listed below.

## REPAIR PROCEDURE

1. Remove the glove box.
2. Remove the two installation screws for the lamp assembly and remove the lamp cover.
3. Install the modified lamp cover and glove box.

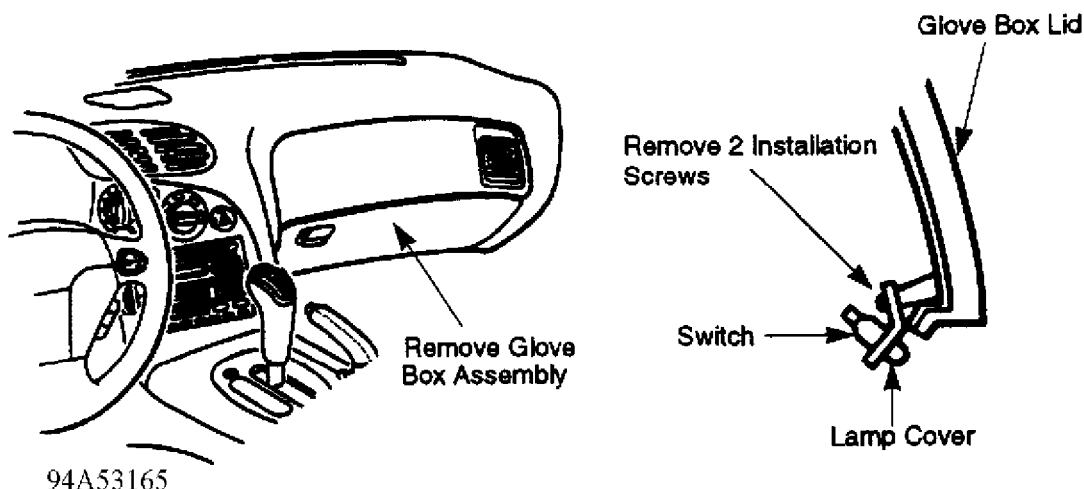


Fig. 1: Glove Box Assembly

## PARTS INFORMATION TABLE

| 3 | Part Number                                                          | 3 | Description | 3 | Quantity | 3 |
|---|----------------------------------------------------------------------|---|-------------|---|----------|---|
| U | AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA |   |             |   |          | 2 |

# GLOVE BOX LAMP STAYS ON: NEW LAMP COVER CAT. S, NO. 042/93

## Article Text (p. 2)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:37AM

```
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA '
3      New      3      Old      3      3      3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA '
3 FD01 64 170A 3 FD01 64 170 3      Lamp Cover      3      1      3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU
```

### WARRANTY INFORMATION

(Applies To Vehicles Covered Under Normal Warranty)

|                         |              |
|-------------------------|--------------|
| Warranty Type:          | A            |
| Customer Comment Code:  | 62           |
| Damage Code:            | 97           |
| Part Number Main Cause: | FD01 64 170A |
| Quantity:               | 1            |
| Operation Number:       | T0416XRX     |
| Labor Hours:            | 0.3 Hrs.     |

**END OF ARTICLE**



# HOOD RELEASE INOPERATIVE/DIFFICULT TO OPEN - REPAIR MT 0295-05

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:37AM

## ARTICLE BEGINNING

### TECHNICAL SERVICE BULLETIN

## HOOD RELEASE

Model(s): 1993-95 Mazda RX-7  
Category: Mazda Tips  
Bulletin No.: MT 0295-05  
Date: February 1995

## DESCRIPTION

If the hood release is inoperative or very difficult to pull, even though the release knob moves all the way out, you do not need to replace the cable or the lock. The problem is caused by poor adjustment of the hood lock.

Follow the procedure listed below to remedy the situation.

NOTE: If the hood will not open, remove the release knob bracket from the dashboard, separate the cable end and the knob, then firmly pull the inner cable.

1. Adjust the location of the hood lock. Latch the striker into the center of the lock. Check the clearance of the striker latch to the lock. (You can see the lock between the hood and bumper facia), then adjust the location of the lock to the right or left until the clearance is even. See Fig. 1.

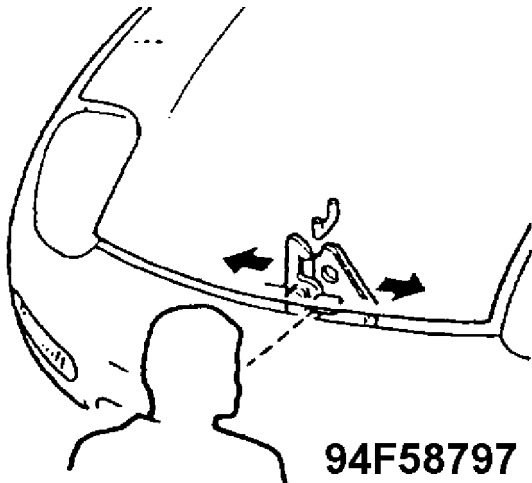


Fig. 1: Hood Lock Adjustment

2. Correct the angle of the hood release knob bracket. Adjust the bracket angle to 90 degrees. If this angle is not at 90 degrees, the release cable may not pull out fully and therefore may not release the lock. See Fig. 2.

# HOOD RELEASE INOPERATIVE/DIFFICULT TO OPEN - REPAIR MT 0295-05

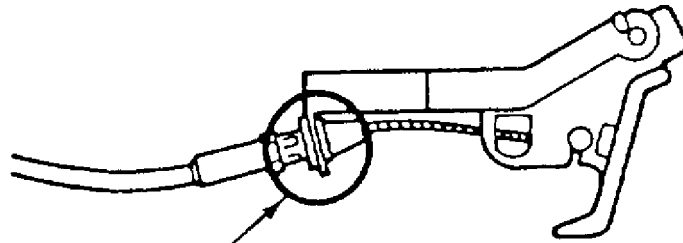
## Article Text (p. 2)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:37AM



**Check angle here  
(Incorrect angle shown)**

**94G58798**

Fig. 2: Hood Release Knob Bracket

**END OF ARTICLE**

# INSTALLATION OF TIE-DOWN HOLE PLUGS AT PDI CAT. S, NO. 050/92

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:38AM

## ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

## INSTALLATION OF TIE-DOWN HOLE PLUGS AT PDI

Model(s): 1993 Mazda RX-7  
Category: S  
Bulletin No.: 050/92  
Date: 10/19/92

## DESCRIPTION

Tie-down hole plugs need to be installed at PDI on vehicles produced after May 20, 1992. These tie-down holes are used during vehicle transportation. The plugs will reinforce anti-perforation; preventing water and mud from penetrating the body which may result in rust.

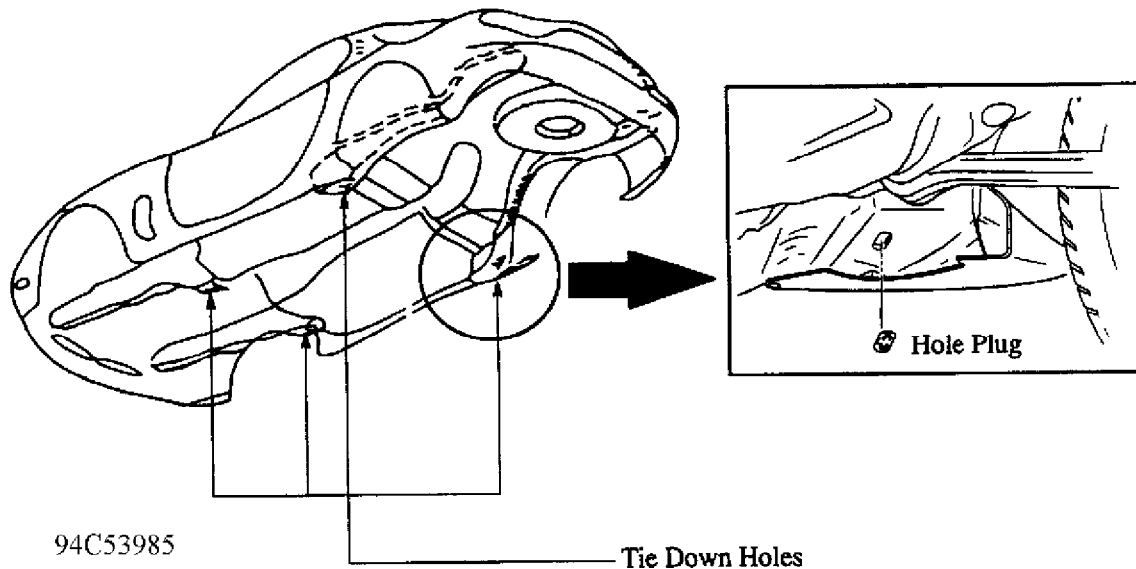


Fig. 1: Tie-Down Holes

The package of plugs and installation diagram can be found in the vehicle's cargo area

The above information is also outlined in the 1993 RX-7's Service Pre-Delivery Inspection (PDI) Sheet; under the "Mechanical Preparation/Exterior-On Hoist" procedures.

## END OF ARTICLE

# KEY CYLINDER REPLACEMENT - REKEY CYLINDERS TO MATCH MT 0995-10

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:38AM

## ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

## KEY CYLINDER

Model(s): All Mazda Models  
Category: Mazda Tips  
Bulletin No.: MT 0995-10  
Date: 1995

## DESCRIPTION

If you have to replace a key cylinder (door, trunk, glove box, etc.) don't replace the entire key cylinder set. Most locksmiths can reset the lock tumblers in the new replacement cylinder to match the existing ones. Although the factory chrome bezel must be removed and replaced, most locksmiths can fit a replacement after market bezel. Please contact locksmiths in your area to find one who can provide this service.

## END OF ARTICLE

# NOISE FROM THE REAR HATCH HINGE: REPLACEMENT PARTS CAT. S, NO. 010/93

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:38AM

## ARTICLE BEGINNING

### TECHNICAL SERVICE BULLETIN

## NOISE FROM THE REAR HATCH HINGE

Model(s): 1993 Mazda RX-7  
Category: S  
Number: 010/93  
Date: 2/26/93

### AFFECTED VINS

This bulletin applies to vehicles with a VIN of JM1FD\*\*\*\*P0210513 or lower produced through November 30, 1992.

This bulletin does not apply to vehicles with a VIN equal to or greater than JM1FD\*\*\*\*P0210514 and produced after November 30, 1992.

### DESCRIPTION

On some vehicles, noise may be heard from the rear hatch hinges. This noise is most evident when driving on rough roads or going over bumps.

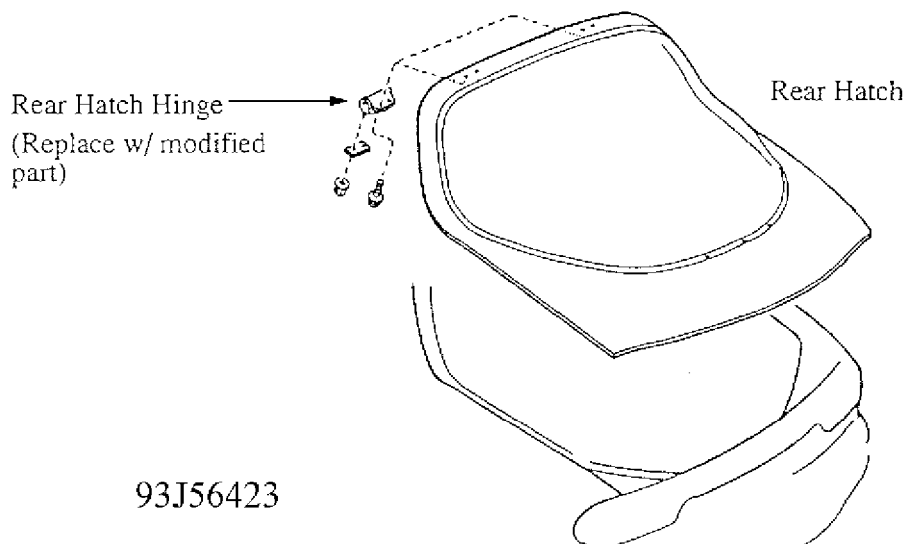


Fig. 1: Modified Rear Hatch Hinge

### REPAIR PROCEDURE

If the above condition exists, replace the rear hatch hinges with a modified part. The modified part has been improved to eliminate the noise.

### PARTS INFORMATION TABLE

**NOISE FROM THE REAR HATCH HINGE: REPLACEMENT PARTS CAT. S, NO. 010/93**

**Article Text (p. 2)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:38AM

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Part Number

| New          | Old        | Description      | Qty | Int. Code |
|--------------|------------|------------------|-----|-----------|
| FD01 62 210C | FD01 6210A | Rear Hatch Hinge | 2   | AN        |

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

**END OF ARTICLE**

|                        |    |
|------------------------|----|
| Warranty Type Code:    | A  |
| Customer Comment Code: | 82 |
| Damage Code:           | 9A |

**NOISE WHEN OPERATING POWER WINDOWS: NEW STOPPER CAT. S, NO. 031/93**

**Article Text (p. 2)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:39AM

|                         |             |
|-------------------------|-------------|
| Part No. of Main Cause: | FD01 58 565 |
| Quantity:               | 1           |
| Operation No.:          | S1015XRX    |
| Labor Hours:            | 0.7Hr.      |

**END OF ARTICLE**



Copyright © 1998 Mitchell Repair Information Company, LLC  
Saturday, August 25, 2001 07:39AM

| Part Number | Description | Qty | Remarks |
|-------------|-------------|-----|---------|
|             |             |     |         |

**OUTER DOOR HANDLE RATTLES: REPLACE NUTS CAT. S, NO. 026/93**

**Article Text (p. 2)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:39AM

3 9YB0 40 603 3 Self Locking Nut 3 2 3 One Door 3  
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAUU

WARRANTY INFORMATION

(Applies to Vehicles Covered Under Warranty.)

|                         |                      |
|-------------------------|----------------------|
| Warranty Type Code:     | A                    |
| Customer Comment Code:  | 82                   |
| Damage Code:            | 99                   |
| Part No. of Main Cause: | 9YB0 40 603          |
| Operation No.:          | XX0566R1 (One Door)  |
|                         | XX0566R2 (Two Doors) |
| Labor Hours:            | 0.3 Hrs. (One Door)  |
|                         | 0.4 Hrs. (Two Doors) |

**END OF ARTICLE**

# **PRE-PAINTING PREPARATION FOR FRONT & REAR BUMPERS CAT. S, NO. 020/97**

## **Article Text**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC  
Saturday, August 25, 2001 07:39AM

## **ARTICLE BEGINNING**

TECHNICAL SERVICE BULLETIN

## **PAINTING PREPARATION FOR FRONT & REAR BUMPERS**

Model(s): 1989-98 Mazda Models  
Category: S - Body  
Bulletin No.: 020/97  
Date: October 23, 1997

NOTE: This bulletin supersedes Technical Service Bulletin number (Cat. S 031/95).

## **DESCRIPTION**

Prepare replacement bumpers for painting according to the instructions in this bulletin.

NOTE: Service Managers are requested to distribute these instructions to body shop personnel.

## **PREPARATION PROCEDURE**

1. Soak a terry cloth towel in isopropyl alcohol.

CAUTION: Grease/Wax remover that contains "Naptha" based solvent (ex. PPG DX-330) may remove the bumper's factory primer. If this occurs, the bumper will require primer application prior to painting.

2. Clean the entire surface with the alcohol soaked towel.

3. Allow bumper to air dry.

NOTE: The bumper must be completely dry before painting.

4. Remove any lint threads remaining on the bumper with compressed air.

5. Paint the bumper according to the paint manufacturer's instructions.

NOTE: See PAINTING PROCEDURE SAMPLE. Body shops using other paint manufacturers should follow their bumper painting procedures.

## **SUPPLIES REQUIRED**

Terry Cloth Towel - Available Locally.

# PRE-PAINTING PREPARATION FOR FRONT & REAR BUMPERS CAT. S, NO. 020/97

## Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:39AM

Isopropyl Alcohol - Available Locally.

PPG Multi-Prep (DX103) - Optional - Available through authorized PPG distribution locations.

### PAINTING PROCEDURE SAMPLE

MAZDA Plastic Bumper Cover Refinish System

NOTE: Products used to refinish flexible bumper covers fall under the category of SPECIALTY COATINGS, therefore products specified in the system below may be used in any VOC regulated area.

3Clean with DX 393 0.6 Low VOC Cleaner or DX 394 1.4 Low VOC Cleaner3

3Wipe Down with DX 103 DX 103 MULTI-PREP3

3Abrade Panel with a Gray Abrasive Pad3

3Wipe Down with DX 103 MULTI-PREP3

3DPX 801 Universal Plastics Primer3

3Flexible 1 Repair Material or3

3Plastic Weld3

3Heavily Damaged3

3Repair (Tears,3

3Punctures, etc.)3

3Existing Panel3

3Minor Repair3

3New Replacement3

3Panel3

3A3

3B3

3C3

3DPX 8013

3Universal Plastics3

3Primer3

3Flexible 13

3Repair Material or3

3Plastic Weld3

3Heavily Damaged3

3Repair (Tears,3

3Punctures, etc.)3

3Existing Panel3

3Minor Repair3

3New Replacement3

3Panel3

3A3

3B3

3C3

3DPX 8013

3Universal Plastics3

3Primer3

3Flexible 13

3Repair Material or3

3Plastic Weld3

3Heavily Damaged3

3Repair (Tears,3

**END OF ARTICLE**

# RATTLING FROM DASHBOARD AT IDLE W/BRAKES APPLIED CAT. S, NO. 011/97

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:39AM

## ARTICLE BEGINNING

### TECHNICAL SERVICE BULLETIN

## RATTLING NOISE FROM DASHBOARD AT IDLE WITH BRAKES APPLIED

Model: 1993-95 Mazda RX-7  
Category: S - Body  
Bulletin No.: 011/97  
Date: May 19, 1997

## DESCRIPTION

A rattling noise may be heard from the dashboard when pressing the brake pedal at idle. This noise is transmitted through the body by the check valve operating in the brake vacuum line. Customers complaining of this noise should have the vehicle inspected and if necessary, repaired according to this bulletin.

NOTE: This noise may occur after performing "Brake Vacuum Hose" recall campaign #65609.

## REPAIR PROCEDURE

See Fig. 1 for components and location pertaining to Vacuum Line.

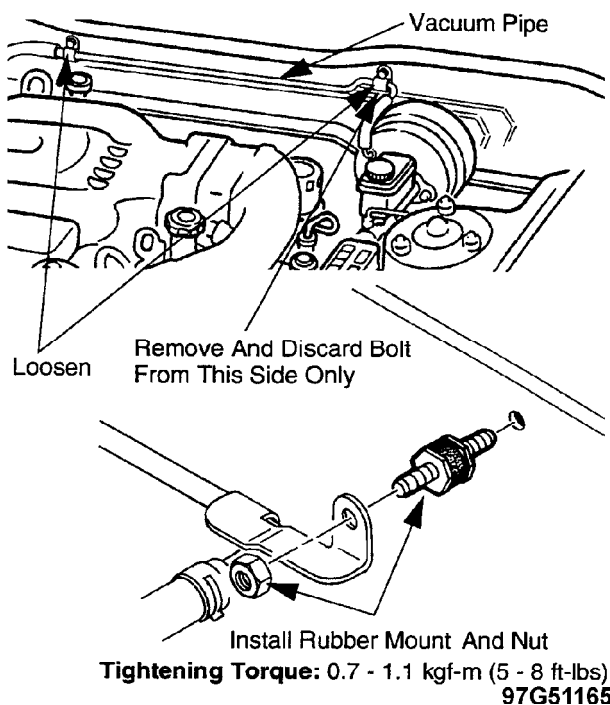


Fig. 1: Brake Booster Vacuum Line Location

1. Verify the concern.

# RATTLING FROM DASHBOARD AT IDLE W/BRAKES APPLIED CAT. S, NO. 011/97

## Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:39AM

2. Loosen the two bolts attaching the vacuum pipe to the cowl panel.

\* Remove and discard brake booster side bolt only.

3. Install a rubber mount into the attaching bolt hole.

4. Tighten rubber mount into the firewall.

Tightening Torque: 0.7 - 1.1 kgf-m (5-8 ft-lb).

5. Install vacuum pipe to the rubber mount, retighten bolt loosened in step 2.

Tightening Torque: 0.7 - 1.1 kgf-m (5-8 ft-lb).

## PARTS INFORMATION

### PARTS INFORMATION TABLE

| Part Number | Description      | Qty. |
|-------------|------------------|------|
| F285-13-363 | Rubber, Mounting | 1    |
| 9994-00-600 | Nut, Flange      | 1    |

## WARRANTY INFORMATION

Applies to verified customer complaints on vehicles covered under normal warranty. Refer to the SRT microfiche for warranty term information.

Warranty Type: A  
Symptom Code: 80  
Damage Code: 9G  
Part Number Main Cause: F285-13-363  
Quantity: 1  
Operation No.: XX921XRX  
Labor Time: 0.2 hr.

## END OF ARTICLE

# **REPLACEMENT BUMPERS - GREASE REMOVAL PRECAUTIONS MT 08-03**

## **Article Text**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:40AM

## **ARTICLE BEGINNING**

TECHNICAL SERVICE BULLETIN

## **REPLACEMENT FRONT AND REAR BUMPERS**

Model(s): All Mazda Models  
Category: Mazda Tips  
Bulletin No.: MT 08-03  
Date: 1995

## **DESCRIPTION**

On current parts in PDC stock, if a grease remover is used on a replacement front or rear bumper, the primer may rub off. As you may know, grease remover is normally used prior to painting the bumper. If the primer rubs off, the bumper must be re-primed prior to painting.

We recommend that all grease remover products that contain Naptha (solvents) such as PPG DX33C should not be used. Instead, a mixture of 50% Isopropyl Alcohol and 50% water (PPG DX103 or equivalent) should be used as a grease remover. Please convey this information to your Body Shop Personnel.

## **END OF ARTICLE**



Copyright © 1998 Mitchell Repair Information Company, LLC  
Saturday, August 25, 2001 07:40AM

3. If stitching is damaged, seat belt replacement is necessary. If the

**SEAT BELT CAUTION LABEL EXPOSED: INSPECT/REPLACE CAT. S, NO. 001/94**

**Article Text (p. 2)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:40AM

stitching is not damaged, the seat belt caution label cover should be stitched in place.

NOTE: If the seat belt was damaged as result of an accident, the replacement is not a warrantable item.

**SLEEVE SEWING PROCEDURE:**

1. Fold the seat belt fuse over the caution label as shown in Fig. 2.
2. Slide the sleeve over the seat belt fuse.

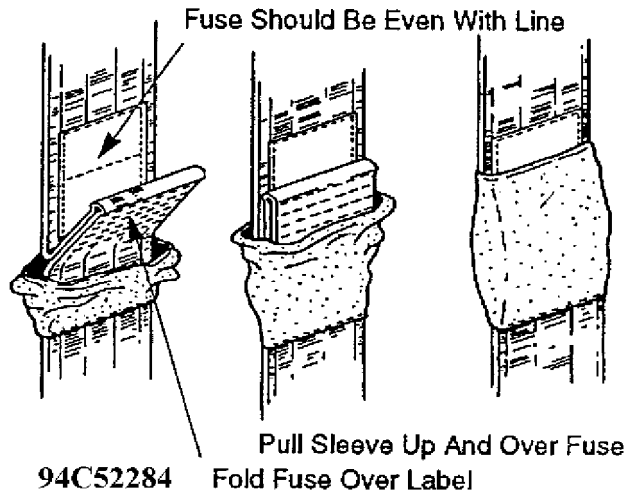


Fig. 2: Folding Seat Belt Fuse Over Caution Label

3. Sew the sleeve in place as shown in Fig. 3.

# SEAT BELT CAUTION LABEL EXPOSED: INSPECT/REPLACE CAT. S, NO. 001/94

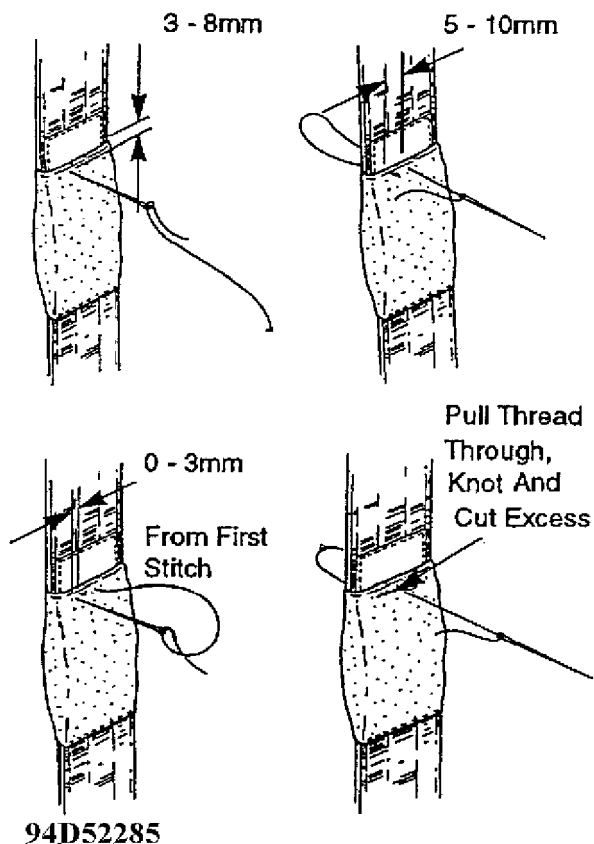
## Article Text (p. 3)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:40AM



94D52285

Fig. 3: Sewing Sleeve in Place

NOTE: The sleeve should be sewn above the seat.

### WARRANTY INFORMATION:

(Applies To Vehicles Covered Under Normal Warranty)

Warranty Type: A  
Customer Comment Code: 87  
Damage Code: 99  
Part Number Main Cause: RX-7 FD01 57 630E 00, FD01 57 630E 17,  
FD01 57 630E 33  
MX-5 NA01 57 630D 00, NA01 57 630D 17,  
NA01 57 630D 88  
Operation Number: XX0619RX  
Labor Hours: 0.3Hrs.

END OF ARTICLE

# SEAT BELT EXTENDER DESCRIPTION/ORDERING INFO CAT. S, NO. 032/96

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:41AM

## ARTICLE BEGINNING

### TECHNICAL SERVICE BULLETIN

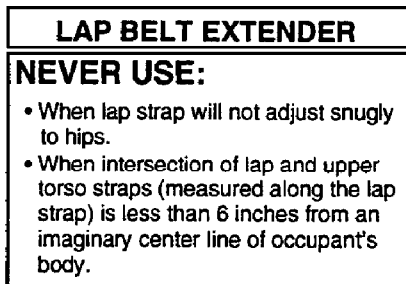
## SEAT BELT EXTENDERS

Model(s): 1991-94 Mazda Navajo  
1994-97 Mazda B-Series  
1995-97 Mazda Protege  
1994-95 Mazda MX-3  
1990-97 Mazda MX-5 Miata  
1993-95 Mazda RX-7  
1988-89 Mazda 929  
1992-95 Mazda 929  
1993-97 Mazda 626/MX-6  
1995-97 Mazda Millenia  
1989-97 Mazda MPV  
Category: S - Body  
Bulletin No.: 032/96  
Date: December 26, 1996

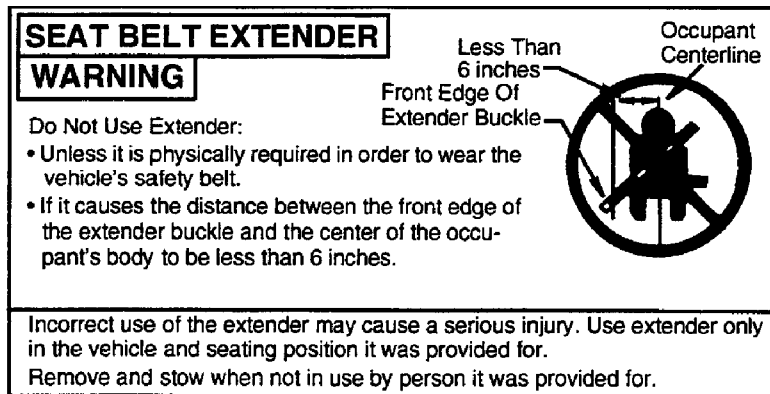
NOTE: This bulletin supersedes Technical Service Bulletin number 032/96, dated September 23, 1996.

## DESCRIPTION

A fully extended seat belt that will not reach across the lap of the vehicle occupant, can be lengthened by 8, 9 or 12 inches using a seat belt extender. Seat belt extenders are now available through your facing PDC. The following "Warning Label" is affixed to the seat belt extender. See Fig. 1. The proper usage and safety related warning listed on the extender must be explained to the customer when the extender is delivered. See Fig. 1.



NAVAJO and B-SERIES



ALL OTHER MODELS

95A57067

Fig. 1: Seat Belt Extender & Seat Belt Extender Warning - Labels

## PARTS INFORMATION

[illegible]

**END OF ARTICLE**

# SQUEAKING NOISE WHEN OPENING/CLOSING DOOR: CHECKER CAT. S, NO. 010/94

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:41AM

## ARTICLE BEGINNING

### TECHNICAL SERVICE BULLETIN

## SQUEAKING NOISE WHEN OPENING OR CLOSING DOOR

Model(s): 1993 Mazda RX-7 - VIN of JM1FD33\*\*P0200001  
through JM1FD33\*\*P0210664

Category: S  
Bulletin No.: 010/94  
Date: 2/11/94

### SERVICE INFORMATION:

NOTE: The asterisk (\*) in the VIN range can be any number  
(0 through 9) or "X".

### DESCRIPTION:

When opening or closing the door a squeaking sound may be heard. This is caused by the door checker. To correct this problem, the checker has been modified.

Follow the procedures listed in section S of the workshop manual to replace the door checker for customers complaining of this noise.

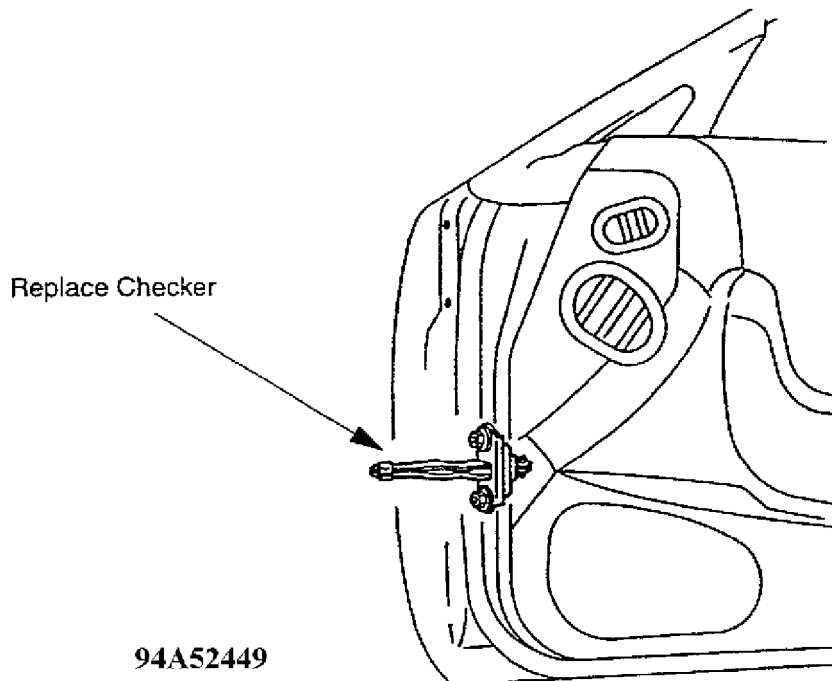


Fig. 1: View of Door Checker

### PARTS INFORMATION TABLE

**SQUEAKING NOISE WHEN OPENING/CLOSING DOOR: CHECKER CAT. S, NO. 010/94**

**Article Text (p. 2)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:41AM

```
UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;
3 Description          3          Part Number          3 Applicable          3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA'
3              3          New              3          Old              3              3
3              AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA'              3
3 Door Checker        3  FD01 58 270        3  FD01 58 270A        3      RX-7          3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU
```

**WARRANTY INFORMATION:**

(Applies to vehicles covered under normal vehicle warranty)

Warranty Type: A  
Customer Comment Code: 77  
Damage Code: 92  
Part Number Main Cause: FD01 58 270  
Quantity: 2  
Operation Number: S1006XRX (one side)  
Labor Hours: 0.5 Hrs.  
Location Code: RHD (right side)  
LHD (left side)

NOTE: If both door checkers are replaced. 2 claims will be required.  
Use the above Operation Number and Location Code when submitting  
the claims.

**END OF ARTICLE**



# SQUEALING SOUND FROM THE HOOD -MODIFY RUBBER CUSHION CAT. S, NO. 057/92

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC  
Saturday, August 25, 2001 07:41AM

## ARTICLE BEGINNING

### TECHNICAL SERVICE BULLETIN

## SQUEAKING SOUND FROM THE HOOD

Model(s): 1993 Mazda RX-7  
Category: S  
Bulletin No.: 057/92  
Date: 12/15/92

### AFFECTED VINS

This bulletin applies to 1993 RX-7 models produced through July 2, 1992 and with a VIN of JM1FD33\*\*P0208750 and lower.

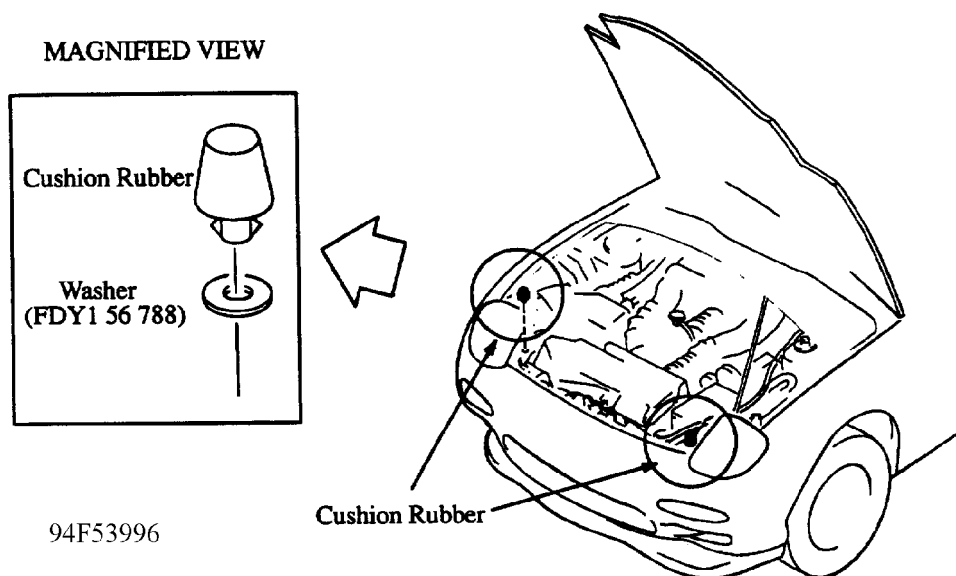
This bulletin does not apply to 1993 RX-7 models with a VIN equal to or greater than JM1FD33\*\*P0208751 and produced after July 2, 1992.

## DESCRIPTION

Some vehicles may experience a squealing sound from the hood when driving on normal road surfaces. After July 2, 1992, the hood was modified to eliminate this condition.

## REPAIR PROCEDURE

If the above condition occurs, install a washer between the two cushion rubbers under the hood. See Fig. 1.



94F53996

Fig. 1: Rubber Hood Cushion

## PARTS INFORMATION TABLE

# SQUEALING SOUND FROM THE HOOD -MODIFY RUBBER CUSHION CAT. S, NO. 057/92

## Article Text (p. 2)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:41AM

```
UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;
3 Part Number 3 Description 3 Qty 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3 FDY1 56 788 3 Washer 3 2 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU
```

NOTE: If the hood is replaced with a modified part, the washers do not need to be installed.

### WARRANTY INFORMATION

(Applies to Vehicles Covered Under Warranty.)

Warranty Type Code: A  
Customer Comment Code: 82  
Damage Code: 99  
Part No. of Main Cause: FDY1 56 788  
Operation No: XX0523RX  
Labor Hours: 0.2 Hrs.

END OF ARTICLE

# STATIC ELECTRICITY BUILDUP - SOLUTIONS MT 1095-11

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:41AM

### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

STATIC ELECTRICITY

Model(s): All Mazda Models  
Category: Mazda Tips  
Bulletin No.: MT 1095-11  
Date: 1995

### DESCRIPTION

Sometimes customers may feel a static shock when getting out of the vehicle. This shock is the result of static electricity build-up. (This phenomenon occurs more frequently in the winter season or in dry weather.) The following two procedures are effective in preventing static shock. Please suggest these methods to your customers.

- 1) Touching a metal panel while exiting the vehicle is a very effective way to eliminate static shock. After opening the door touch or hold on to a metal panel (example: a door sash).
- 2) Touch the static electricity ground pad (equipped on the following vehicles).

### MODELS EQUIPPED WITH STATIC GROUND PADS

STATIC GROUNDING PAD TABLE

```
UAAAAAAAAAAAAAAAAAAAAA;
  Model  Year(s)
AAAAAAAAAAAAAAAAAAAA~
  929    1992-94
AAAAAAAAAAAAAAAAAAAA~
  626/MX-6 1992-94
AAAAAAAAAAAAAAAAAAAA~
  PROTEGE  1991-94
AAAAAAAAAAAAAAAAAAAA~
  MX-3     1992-94
AAAAAAAAAAAAAAAAAAAAU
```

NOTE: This feature has been eliminated from the 1995 model year.

### END OF ARTICLE

# WHISTLING NOISE FROM THE WINDSHIELD MOLDING CAT. S, NO. 049/92

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:44AM

## ARTICLE BEGINNING

### TECHNICAL SERVICE BULLETIN

## WHISTLING NOISE FROM THE WINDSHIELD MOLDING

Model(s): 1993 Mazda RX-7  
Category: S  
Bulletin No.: 049/92  
Date: 10/5/92

### AFFECTED VINS

JM1FD331\*P0207061 May 31, 1992

## DESCRIPTION

Some 1993 RX-7s may emit a whistling noise around the windshield area when being driven at high speeds. This whistling noise is caused by air being pulled through the space between the molding and the windshield.

## REPAIR PROCEDURE

A repair seal foam kit has been established as a countermeasure. If a whistling noise is encountered on a vehicle(s) produced on or before May 31, 1992, install a repair seal foam kit into the vehicle's front windshield molding. Lift the windshield molding and slide the sealing foam into the space between the molding and the windshield. See Fig. 1.

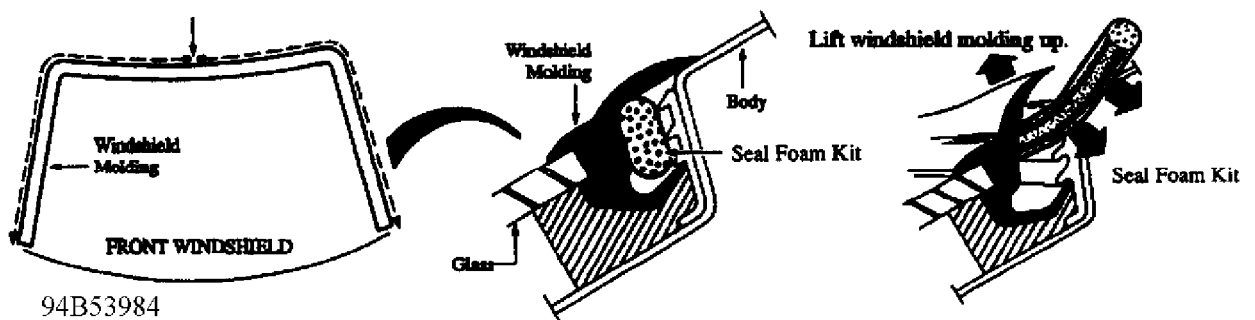


Fig. 1: Seal Foam Kit Installation

Vehicles produced after May 31, 1992 are equipped with a modified front windshield molding. The sealing foam is attached to the molding.

### PARTS INFORMATION TABLE

|                                            |                      |   |
|--------------------------------------------|----------------------|---|
| UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA |                      |   |
| 3                                          | Part Number          | 3 |
| 3                                          | Description          | 3 |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA   |                      |   |
| 3                                          | B001 77 739          | 3 |
| 3                                          | Repair Seal Foam Kit | 3 |

**WHISTLING NOISE FROM THE WINDSHIELD MOLDING CAT. S, NO. 049/92**

**Article Text (p. 2)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:44AM

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAUU

**WARRANTY INFORMATION**

(Applies to Vehicles Covered Under Warranty.)

|                         |             |
|-------------------------|-------------|
| Warranty Type Code:     | A           |
| Customer Comment Code:  | 81          |
| Damage Code:            | 99          |
| Part No. of Main Cause: | B001 77 739 |
| Operation No.:          | S0422XRX    |
| Labor Hour:             | 0.2 Hrs.    |

**END OF ARTICLE**

# WIND NOISE AROUND DOORS CAT. S, NO. 018/98

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:44AM

## ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

## WIND NOISE AROUND DOORS

Model(s): All Mazda models except MX-5 Miata and MX-6  
Category: S (09) - Body  
Bulletin No.: 018/98  
Date: July 29, 1998

## DESCRIPTION

Wind noise around doors may occur with some vehicles. This may be caused by the door weather-strip seal.

Customers complaining of this should have their vehicle inspected and repaired according to this service bulletin.

## REPAIR PROCEDURE

1. Verify customer complaint.
2. Examine weather-strip for the following conditions:
  - a. Rips, tears, cuts
  - b. Loose or falling off
  - c. Excessive deterioration
  - If the weather-strip has any of the above conditions, replace it. Go to step 3.
  - If weather-strip does not have any of the above conditions, but wind noise still exists, proceed to the CARD TEST.

## CARD TEST

1. Open the door and insert a business card (0.2 mm thickness) between the door and the weather-strip at the base of the A-pillar. Close the door. See Fig. 1.
2. Slide the business card up along the A-pillar. See Fig. 1.
  - a. If the card slides easily at any location along the A-pillar, the sealing contact between the door is insufficient and requires adjustment. Proceed to DOOR ADJUSTMENT.
  - b. If there is consistent resistance, proceed to the WHITE GREASE TEST.

## WIND NOISE AROUND DOORS CAT. S, NO. 018/98

### Article Text (p. 2)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:44AM

NOTE: The card test can only be used to evaluate the A-pillar sealing contact. Use the following WHITE GREASE TEST to evaluate the rest of the weather-strip.

#### WHITE GREASE TEST

1. Roll down windows and adequately cover all interior surfaces to prevent contact with grease.
2. Thoroughly and evenly spray the sheet metal surface of the body that seals against the weather-strip on the door.

NOTE:

- \* It is recommended that you use KAR Products #78620 "Multi-purpose white grease (aerosol spray)" or equivalent.
  - \* DO NOT spray the weather-strip.
3. Using only the door handle, very gently close the door. This will prevent over-slam which could result in an inaccurate reading.
  4. Open the door and measure the width of the grease pattern that is left along the length of the weather-strip (check for any unevenness in width). See Fig. 2.
    - a. If 4 mm or more, sealing contact is adequate if door closing effort is acceptable. Clean grease from vehicle.
    - b. If 3 mm or less, sealing contact is insufficient. Clean grease from vehicle and proceed to DOOR ADJUSTMENT.

#### DOOR ADJUSTMENT

The door should be adjusted to obtain the proper seal compression while maintaining proper door alignment. The hinges control the in/out location of the door at the front as well as overall tip or tilt of the door when viewed from the front or rear. The door striker controls the in/out location of the door at the rear latch.

CAUTION: DO NOT pry or force the door into alignment.

In addition to Workshop Manual procedures for door alignment, the following information tips are provided

- \* As a guideline, if the weather-strip contact is insufficient, the door hinge(s) should be adjusted 2-4 mm inward. Determine the amount of movement by outlining the hinge mount area before door adjustment and after. See Fig. 3.
- \* Adjusting one hinge at a time will prevent any extreme door

## WIND NOISE AROUND DOORS CAT. S, NO. 018/98

### Article Text (p. 3)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

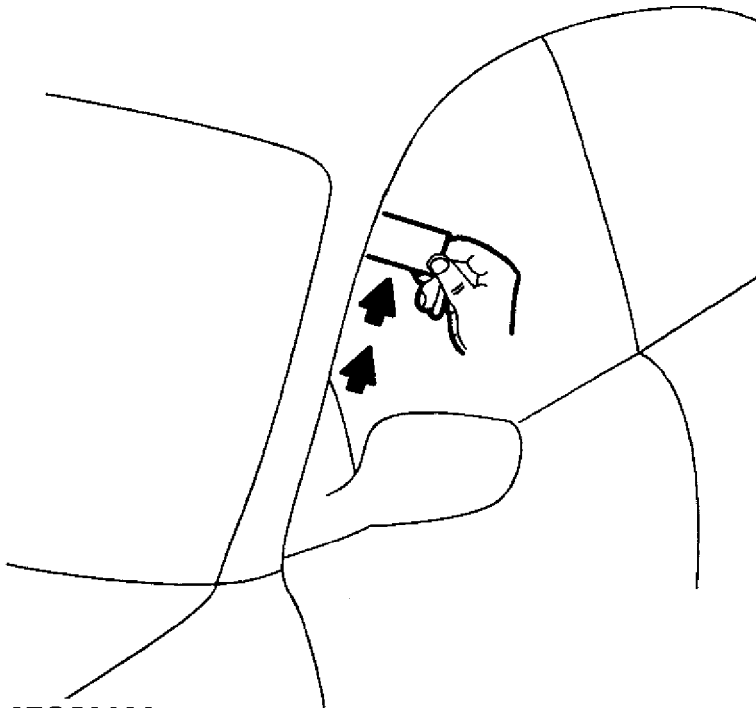
Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:44AM

movement. This is done by loosening the hinge bolts and moving the door with a padded pry bar just enough to permit movement of the door.

- \* Hinges should be adjusted first, followed by the striker.
- \* Adjustment to the rear door(s), if applicable, may require adjustments to the front door and possibly to the front fender to maintain alignment.
- \* Door closing effort should be checked to ensure that it remains acceptable after adjustments are completed. If any doors are too difficult to close, the seal compression may be excessive and adjustment will need to be repeated.
- \* After completing adjustments, verify seal compression by using the card test and white grease test.

### 3. Verify repair.



97G58632

Fig. 1: Card Test



**WIND NOISE AROUND DOORS CAT. S, NO. 018/98**

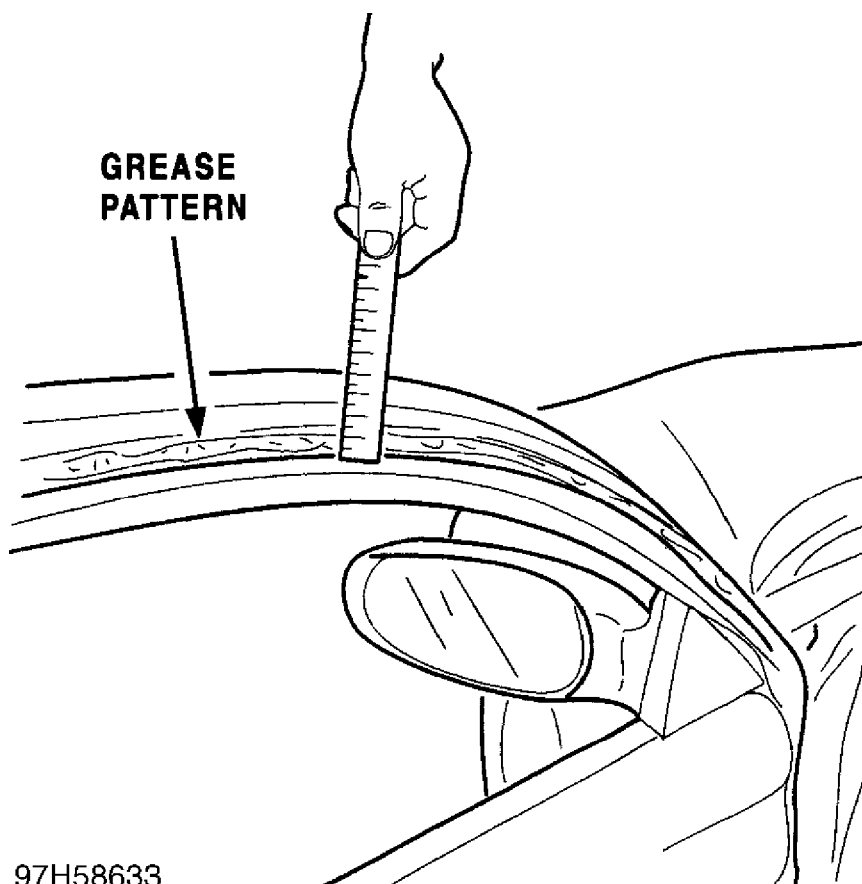
**Article Text (p. 4)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

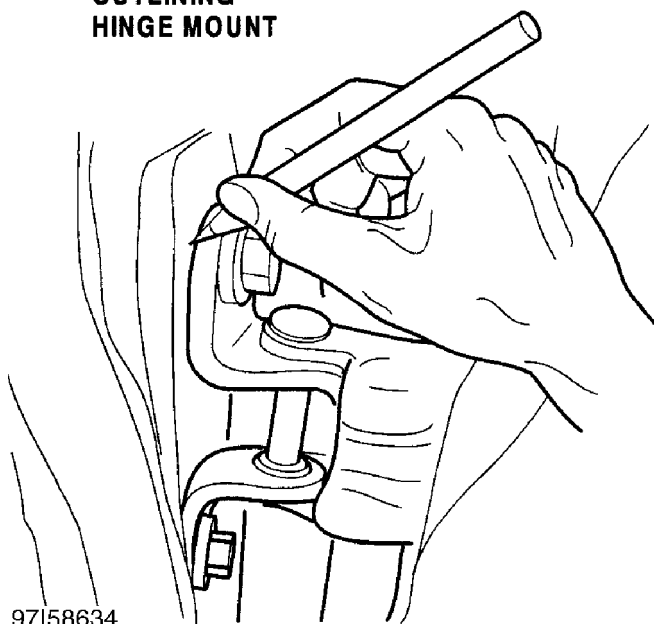
Saturday, August 25, 2001 07:44AM



97H58633

Fig. 2: Grease Pattern - Measure

**OUTLINING  
HINGE MOUNT**



97I58634

Fig. 3: Hinge Mount - Outline

**END OF ARTICLE**

# WIND NOISE FROM THE DOOR WINDOW: NEW GLASS GLIDES CAT. S, NO. 002/93

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:44AM

## ARTICLE BEGINNING

### TECHNICAL SERVICE BULLETIN

## WIND NOISE FROM THE DOOR WINDOWS

Model(s): 1993 Mazda RX-7 with a VIN of JM1FD3\*\*\*P02057080  
or lower, produced through April 30, 1992.  
Category: "S" Body  
Bulletin No.: 002/93  
Date: 2/5/93

### DESCRIPTION

Some vehicles may experience a wind noise from the right and left door windows (near the outside door handles). This noise is due to air entering the cabin area. When completely rolled up, the windows do not fit flush against the glass channel.

### REPAIR INFORMATION

Inspect the vehicle for excessive clearance(see Fig. 1). If the above condition exists, replace the affected glass guide(s) with a modified part(see Fig. 2). The glass guide has been modified to reduce the sliding resistance between the glass and glass channel. This modification makes the glass fit flush against the glass channel.

Removal and installation procedures can be found in the appropriate service information.

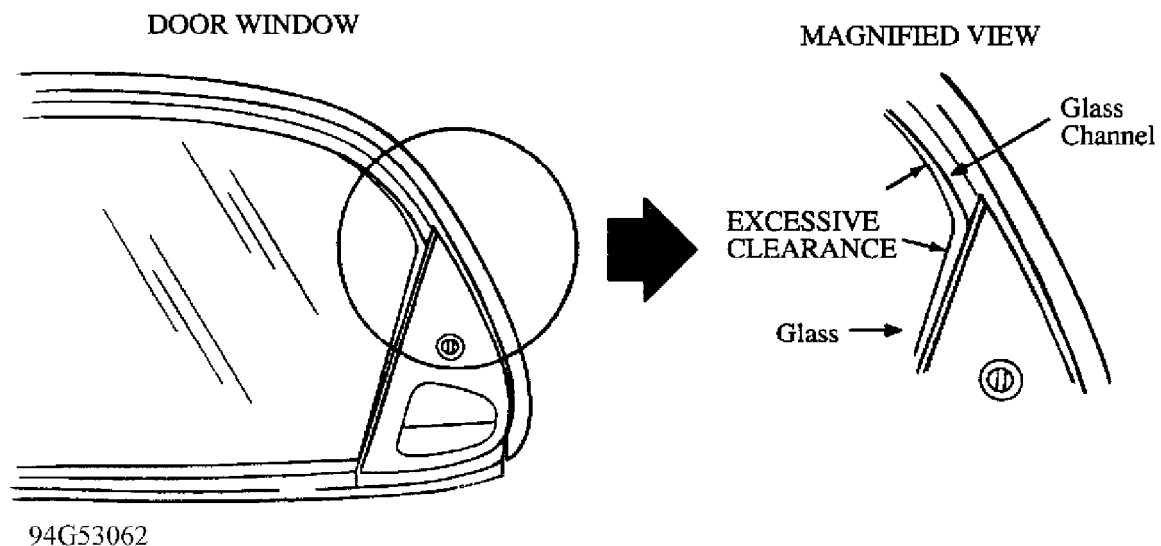


Fig. 1: Door Window Illustration

# WIND NOISE FROM THE DOOR WINDOW: NEW GLASS GLIDES CAT. S, NO. 002/93

## Article Text (p. 2)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:44AM

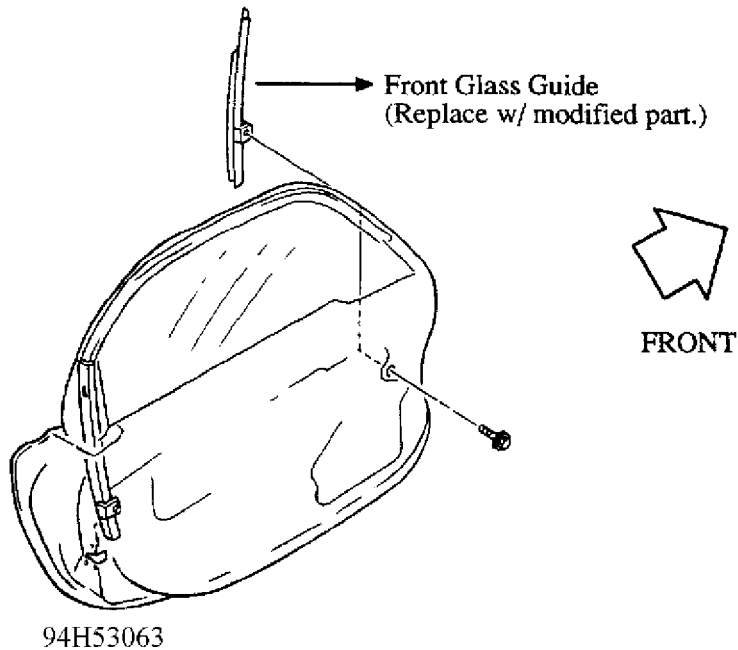


Fig. 2: Front Glass Guide Replacement

### PARTS INFORMATION TABLE

| PARTS INFORMATION TABLE |              |   |              |   |     |         |
|-------------------------|--------------|---|--------------|---|-----|---------|
| 3                       | Part Number  | 3 | Description  | 3 | Int | 3 Qty 3 |
| 3                       | New          | 3 | Old          | 3 | 3   | 3       |
| 3                       | FD01 58 601B | 3 | FD01 58 601A | 3 | A   | 3 1 3   |
| 3                       | FD01 59 601B | 3 | FD01 59 601A | 3 | A   | 3 1 3   |

### WARRANTY INFORMATION

(Applies to Vehicles Covered Under Warranty.)

Warranty Type Code: A  
Customer Comment Code: 82  
Damage Code: 97  
Part No. of Main Cause: FD01 58 601B  
FD01 59 601B  
Operation No: S1004XRX  
Labor Hours: 0.6 hrs. (one side)

END OF ARTICLE

## **WINDSHIELD FOG OR FILM MT 0397-04**

### **Article Text**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC  
Saturday, August 25, 2001 07:45AM

### **ARTICLE BEGINNING**

TECHNICAL INFORMATION TIP - MANUFACTURER

WINDSHIELD FOG OR FILM

Model(s): All Mazda Models  
Category: Mazda Tips  
Bulletin No.: MT 0397-04  
Date: March, 1997

### **DESCRIPTION**

Some customers may complain of a fog or a film on the interior of the windshield. This is a harmless by-product of chemicals used to produce many interior trim components and can be easily removed from windows with glass cleaner.

### **END OF ARTICLE**

# WINDSHIELD STONE CHIPPING INSPECTION CAT. S, NO. 037/96

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:45AM

## ARTICLE BEGINNING

### TECHNICAL SERVICE BULLETIN

## WINDSHIELD STONE CHIPPING INSPECTION

Model(S): All Mazda Models  
Category: S - Body  
Bulletin No.: 037/96  
Date: August 10, 1996

## DESCRIPTION

Windshield cracks caused by stone chips are not covered under the new vehicle warranty. Service Advisers and Service Managers should review the criteria below for addressing customer complaints regarding cracked windshields. If possible, customers should be present when the inspection is performed.

## INSPECTION PROCEDURE

1. Visually inspect the length of the crack and the windshield molding for signs of stone contact.
2. Trace the length of the crack with a needle or small nail to determine chipping location.

## IMPORTANT

Windshield replacement is not warrantable if a chip larger than 1 mm in diameter exists along the length of the crack.

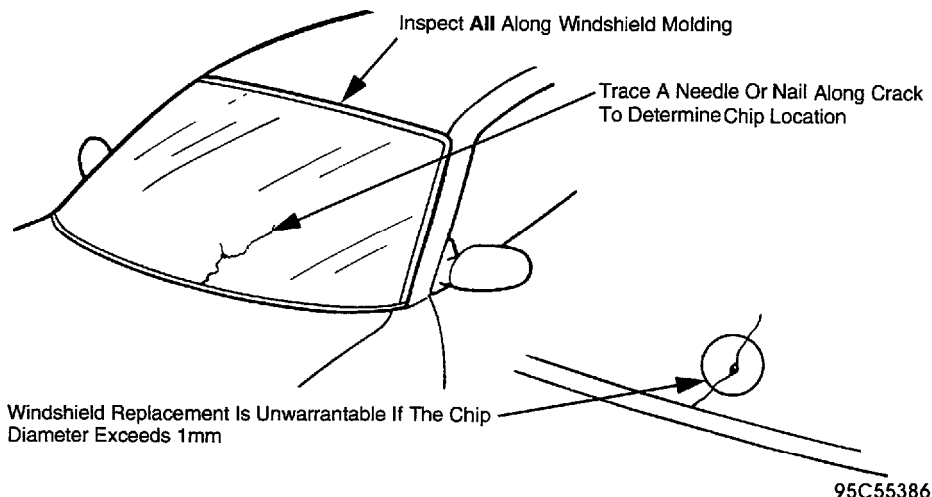


Fig. 1: Windshield Inspection

**WINDSHIELD STONE CHIPPING INSPECTION CAT. S, NO. 037/96**

**Article Text (p. 2)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 07:45AM

**END OF ARTICLE**

## **ABS LIGHT ON/MODELS WITH 4 WHEEL ABS MT 0997-04**

### **Article Text**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:23AM

### **ARTICLE BEGINNING**

TECHNICAL INFORMATION TIP - MANUFACTURER

DEALER HINT: ABS LIGHT ON

Model(s):           1991-97 Mazda 626/MX6, Miata,  
                      1991-95 Mazda 929, RX7  
                      1992-95 Mazda MX3  
                      1994       Mazda Navajo  
                      1995-97 Mazda B2300, B4000, Millenia, Protege  
                      1997       Mazda MPV  
Category:           Mazda Tips  
Bulletin No.:       MT 0997-04  
Date:               September, 1997

### **DESCRIPTION**

Alan Carothers of Almaden Mazda in San Jose, CA reported on a vehicle where an ABS sensor rotor was not seated properly on the axle shaft. This caused the ABS light to come on intermittently, and no problems were found using the ABS tester.

If you encounter this type of complaint, first check the ABS sensor rotors for missing or damaged teeth, then inspect the ABS sensor rotors for improper seating. A rotor may have become loose and slipped out of alignment on the axle shaft. You may be able to see marks on the axle from when the rotor was fully seated, indicating it has moved.

If it appears that the rotor has slipped out of position, replace the affected axle shaft and ABS sensor rotor.

### **END OF ARTICLE**

# **BRAKE CALIPER BOLT CORROSION - CLEAN & SEAL MT 0995-11**

## **Article Text**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:24AM

## **ARTICLE BEGINNING**

TECHNICAL SERVICE BULLETIN

## **BRAKE CALIPER BOLTS**

Model(s): All Mazda Models  
Category: Mazda Tips  
Bulletin No.: MT 0995-11  
Date: 1995

## **DESCRIPTION**

When reinstalling disk brake calipers, use the following procedure to secure the caliper bolts and seal against road corrosion. When installing caliper mounting bolts, first clean the bolt threads of any old residue. Be sure to clean out the female portion as well, using a wire brush, brake cleaner and an air hose. When parts are dry apply 3-4 drops of Loctite Threadlocking Adhesive/Sealant 272 (Loctite part number 27200) on the male threads, one full thread back from the lead thread. Assemble and torque to specification in less than 5-8 minutes.

## **END OF ARTICLE**



# **BRAKE DRUM/ROTOR RESURFACING MACHINERY SELECTION MT 0897-06**

## **Article Text**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:24AM

### **ARTICLE BEGINNING**

TECHNICAL INFORMATION TIP - MANUFACTURER

BRAKE DRUM/ROTOR RESURFACING

Model(s): All Mazda Models  
Category: Mazda Tips  
Bulletin No.: MT 0897-06  
Date: August, 1997

### **DESCRIPTION**

Although some workshop manuals may recommend sanding rotors and drums for conditions such as minor scoring, glazing or surface irregularities, it is not an acceptable repair method.

To repair these conditions, an on-the-vehicle brake lathe should be used to machine rotors, and a standard lathe used for drums.

Note: If a customer complains of occasional brake noise, sanding or machining alone will not be a permanent repair, and will likely result in a customer comeback.

### **END OF ARTICLE**

## **BRAKE JUDDER REPAIR (CANADIAN) CAT. P, NO. 94-06**

### **Article Text**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:24AM

### **ARTICLE BEGINNING**

TECHNICAL SERVICE BULLETIN

### **BRAKE JUDDER REPAIR**

Model(s): 1983-95 Mazda Vehicles (Canadian)

Category: P - Brakes

Bulletin No.: 95-02

Date: May, 1995

NOTE: This bulletin supersedes Service Bulletin Cat. P, No. 94-06.

### **DESCRIPTION**

Customers who complain of vibration or pulsation in the steering wheel, brake pedal, floor or seat while applying the brakes may be experiencing symptoms of brake judder. Judder is caused by:

- \* Disk Thickness Variation (DTV)
- \* rotor run-out and/or
- \* rotor surface rust (which leads to DTV)

This bulletin describes the causes and corrections for each condition.

### **CAUSES OF JUDDER**

1. Disc Thickness Variation (DTV) - DTV creates a vibration/pulsation during application of the brakes. DTV will increase with distance travelled if the run-out of the disc is excessive.
2. Disc Rotor Run-Out - Run-out, or rotor "wobble", leads to DTV. It is corrected by precision machining to bring the run-out within specification.
3. Rotor Surface Rust - Under certain conditions (storage or use in extreme environments), the surface of the brake rotors may become rusted in the pad non-contact area. If this corrosion penetrates the rotor surface deeply enough, it will not wear or rub off during normal use. This will cause DTV.

### **CORRECTION**

In order to effectively correct brake judder, rotor surfaces must be precisely machined. Mazda Canada Inc., has evaluated both on and off-car brake lathes and has determined that on-car lathes are more precise and greatly reduces comeback repairs.

The steps necessary for correction of brake judder are as follows:

## **BRAKE JUDDER REPAIR (CANADIAN) CAT. P, NO. 94-06**

### **Article Text (p. 2)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:24AM

1. If the vehicle is in dealer inventory and the condition is rotor rust:

- A. Clean the rotor surface by driving the vehicle several miles while frequently applying the brakes.
- B. If vibration/pulsation is still felt, processed to step "C".
- C. Machine the rotor surface enough to remove all rust or surface staining (generally 0.1 mm per side).

NOTE: If machining is performed, the Service Manager's signature must appear on the repair order.

2. If the vehicle has been in service:

- A. Verify customer's complaint with a test drive.
- B. If brake judder is felt, proceed to step "C". If brake judder is not felt, refer to the work shop manual or the NVH manual for additional troubleshooting information.
- C. Mark the front wheel(s) and the lug nut stud with chalk. This will determine the original position of the wheel to the rotor. Remove the front wheel(s).

NOTE: A high majority of brake judder is due to DTV of the front rotors. Customer complaints of brake judder are most often corrected by machining the front rotors only.

- D. Measure the remaining front rotor thickness and run-out. Determine if sufficient rotor material remains to allow machining.  
Limit: Stated minimum thickness for the model plus 0.8 mm.
- E. If machining can be achieved, an on-car brake lathe is recommended to ensure a precise rotor surface.

NOTE: After machining rotor(s) with an on-car brake lathe, you must remove all metal cuttings (particles) from the ABS "toothed ring" (the reluctor) and the ABS sensor. Failure to remove these particles will prevent proper function of the ABS system.

- F. If machining can not be achieved due to rotor thickness limitations, the dealer should replace the rotor. To ensure a successful repair, run-out and/or DTV must be removed by on-car machining, even on new rotor(s).
- G. Install the wheel in the same location relative to the hub as it was originally positioned.

## BRAKE JUDDER REPAIR (CANADIAN) CAT. P, NO. 94-06

### Article Text (p. 3)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:24AM

- H. Torque wheel lug nuts to the specifications in the service manual.
- I. Test drive the vehicle to confirm repair.
- J. If the brake judder is still felt, correct the rear rotor(s) using steps "C" through "I".

### SERVICE TOOLS

The Accu-Turn (model 8750) On-Car Brake Lathe is recommended by Mazda. The brake lathe is available through Mazda Canada's Equipment Program at 1-800-33-6687.

### WARRANTY INFORMATION

(Applies To Vehicles Covered Under Normal Warranty.)

Warranty Type: O  
Symptom Code: 83  
Damage Code: 9B  
Part Number Main Cause: \*\*\*\* 33 25 \*  
\*\*\*\* 26 25 \* (Rear of Vehicle - Rear Wheel  
Drive Only)

Operation Number: P0113AMX/0.7 hrs. (Front/One Side)  
P0113BMX/1.2 hrs. (Front/Both Sides)  
P0214AMX/0.7 hrs. (Rear/One Side)  
P0214BMX/1.2 hrs. (Rear/Both Sides)

- NOTE:
- 1. Unnecessary replacement of rotors will result in warranty claim denial.
  - 2. Brake pad replacement costs will not be warrantable for brake judder repair.
  - 3. The 1995 SRT Microfiche (for the MX-3, RX-7, 929, MPV, Miata, etc.) shows labor times for on-car rotor machining are 0.7 hrs. Max for one side, and 1.2 hrs. Max for both sides.
  - 4. If an Accu-Turn on-car lathe is used, apply the labor time from the table above. If an off-car lathe is used, refer to the labor times from the 1994 SRT. The next issue of the SRT microfiche will be revised to show the new labor times.
  - 5. Please refer to the attached sheet for all valid off-car brake and on-car brake machining operation codes for all models and model years.

### END OF ARTICLE

# RATTLING FROM DASHBOARD AT IDLE W/BRAKES APPLIED CAT. S, NO. 011/97

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:25AM

## ARTICLE BEGINNING

### TECHNICAL SERVICE BULLETIN

## RATTLING NOISE FROM DASHBOARD AT IDLE WITH BRAKES APPLIED

Model: 1993-95 Mazda RX-7  
Category: S - Body  
Bulletin No.: 011/97  
Date: May 19, 1997

## DESCRIPTION

A rattling noise may be heard from the dashboard when pressing the brake pedal at idle. This noise is transmitted through the body by the check valve operating in the brake vacuum line. Customers complaining of this noise should have the vehicle inspected and if necessary, repaired according to this bulletin.

NOTE: This noise may occur after performing "Brake Vacuum Hose" recall campaign #65609.

## REPAIR PROCEDURE

See Fig. 1 for components and location pertaining to Vacuum Line.

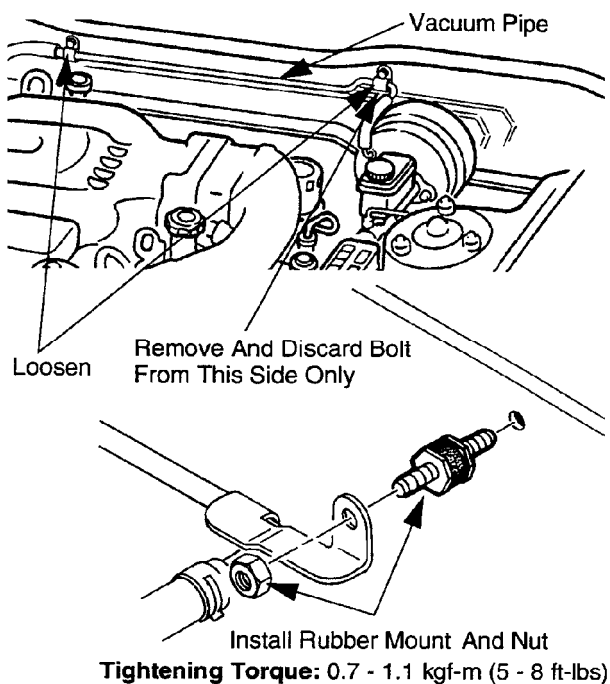


Fig. 1: Brake Booster Vacuum Line Location

1. Verify the concern.

# RATTLING FROM DASHBOARD AT IDLE W/BRAKES APPLIED CAT. S, NO. 011/97

## Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:25AM

2. Loosen the two bolts attaching the vacuum pipe to the cowl panel.

\* Remove and discard brake booster side bolt only.

3. Install a rubber mount into the attaching bolt hole.

4. Tighten rubber mount into the firewall.

Tightening Torque: 0.7 - 1.1 kgf-m (5-8 ft-lb).

5. Install vacuum pipe to the rubber mount, retighten bolt loosened in step 2.

Tightening Torque: 0.7 - 1.1 kgf-m (5-8 ft-lb).

## PARTS INFORMATION

### PARTS INFORMATION TABLE

| Part Number | Description      | Qty. |
|-------------|------------------|------|
| F285-13-363 | Rubber, Mounting | 1    |
| 9994-00-600 | Nut, Flange      | 1    |

## WARRANTY INFORMATION

Applies to verified customer complaints on vehicles covered under normal warranty. Refer to the SRT microfiche for warranty term information.

Warranty Type: A  
Symptom Code: 80  
Damage Code: 9G  
Part Number Main Cause: F285-13-363  
Quantity: 1  
Operation No.: XX921XRX  
Labor Time: 0.2 hr.

## END OF ARTICLE

# VIBRATION/PULSATION WHILE BRAKING - PROCEDURE CAT. P, NO. 001/95

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:26AM

## ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

## BRAKE JUDDER REPAIR

Model(s): All Mazda Models Through 1995

Category: P

Bulletin No.: 001/95

Date: April, 27 1995

NOTE: This bulletin replaces Service Bulletin Cat. P, 006/94 dated Sept. 1994.

## DESCRIPTION

Customers who complain of vibration or pulsation in the steering wheel, brake pedal, floor or seat while applying the brakes may be experiencing symptoms of brake judder. Judder is caused by:

- \* Disk Thickness Variation (DTV)
- \* rotor run-out and/or
- \* rotor surface rust (which leads to DTV)

This bulletin describes the causes and corrections for each condition.

## CAUSES OF JUDDER

1. Disc Thickness Variation (DTV) - DTV creates a vibration/pulsation during application of the brakes. DTV will increase with mileage accumulation if the run-out of the disc is excessive.
2. Disc Rotor Run-Out - Run-out, or rotor "wobble", leads to DTV. It is corrected by precision machining to bring the run-out within specification.
3. Rotor Surface Rust - Under certain conditions (storage or use in extreme environments), the surface of the brake rotors may become rusted in the pad non-contact area. If this corrosion penetrates the rotor surface deeply enough, it will not wear or rub off during normal use. This will cause DTV.

## CORRECTION

In order to effectively correct brake judder, rotor surfaces must be precisely machined. Mazda has evaluated both on and off-car brake lathes and has determined that on-car lathes are more precise and greatly reduces comeback repairs.

The steps necessary for correction of brake judder are as follows:

# VIBRATION/PULSATION WHILE BRAKING - PROCEDURE CAT. P, NO. 001/95

## Article Text (p. 2)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:26AM

1. If the vehicle is in dealer inventory and the condition is rotor rust:
  - a. Clean the rotor surface by driving the vehicle several miles while frequently applying the brakes.
  - b. If vibration/pulsation is still felt, processed to step "c".
  - c. Machine the rotor surface enough to remove all rust or surface staining (generally 0.1 mm per side).

NOTE: If machining is performed, the Service Manager's signature must appear on the repair order.

2. If the vehicle has been in service:
  - a. Verify customer's complaint with a test drive.
  - b. If brake judder is felt, proceed to step c. If brake judder is not felt, refer to the work shop manual or the NVH manual for additional troubleshooting information.
  - c. Mark the front wheel(s) and the lug nut stud with chalk. This will determine the original position of the wheel to the rotor. Remove the front wheel(s).

NOTE: A high majority of brake judder is due to DTV of the front rotors. Customer complaints of brake judder are most often corrected by machining the front rotors only.

- d. Measure the remaining front rotor thickness and run-out. Determine if sufficient rotor material remains to allow machining. Limit: Stated minimum thickness for the model plus 0.8 mm.
- e. If machining can be achieved, an on-car brake lathe is recommended and will be required for all warranty repairs after January 1, 1995 to ensure a precise rotor surface.

NOTE: After machining rotor(s) with an on-car brake lathe, you must remove all metal cuttings (particles) from the ABS "toothed ring" (the reluctor) and the ABS sensor. Failure to remove these particles will prevent proper function of the ABS system.

- f. If machining can not be achieved due to rotor thickness limitations, the dealer should replace the rotor. To ensure a successful repair, run-out and/or DTV must be removed by on-car machining, even on new rotor(s).
- g. Install the wheel in the same location relative to the hub as it was originally positioned.
- h. Torque wheel lug nuts to the specifications in the service manual.
- i. Test drive the vehicle to confirm repair.
- j. If the brake judder is still felt, correct the rear rotor(s) using steps "c" through "i".



# VIBRATION/PULSATION WHILE BRAKING - PROCEDURE CAT. P, NO. 001/95

## Article Text (p. 3)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:26AM

### SERVICE TOOLS

The Accu-Tum (model 8750) On-Car Brake Lathe is recommended by Mazda. The brake lathe will be available soon from MMA's National Accounts Program at a substantial savings. When the national account is established, a Special Tools Service Bulletin will be released which will combine further details. However, if you wish to receive a brochure on this brake lathe, please call Accu-Turn at (800) 551-2228.

### WARRANTY INFORMATION

(Applies To Vehicles Covered Under Normal Warranty.)

Warranty Type: A  
Symptom Code: 83  
Damage Code: 9B  
Part Number Main Cause: \*\*\*\* 33 25  
\*\*\*\* 26 25 (Rear of Vehicle - Rear Wheel  
Drive Only)

Operation Number: P0113AMX/0.7 hrs. (Front/One Side)  
P0113BMX/1.2 hrs. (Front/Both Sides)  
P0214AMX/0.7 hrs. (Rear/One Side)  
P0214BMX/1.2 hrs. (Rear/Both Sides)

NOTE: 1. Unnecessary replacement of rotors will result in warranty claim denial.  
2. Brake pad replacement costs will not be warrantable for brake judder repair.  
3. If an on-car lathe is used, apply the labor time from the table above.

NOTE: Warranty policy does not permit using an off-car brake lathe after January 1, 1995. The next issue of the SRT microfiche will be revised to show new labor times.

### BRAKE DRUMS LABOR OPERATION/TIME CODES - 1993-1995 MODELS

626/MX-6

Rear Brakes/Brake Drums(s), R&R (one side)  
Labor Operation: P0201ARX/0.3 hrs.  
Rear Brakes/Brake Drums(s), R&R (both sides)  
Labor Operation: P0201BRX/0.4 hrs.  
Brake Drum(s), Machine (one side)  
Labor Operation: P0201AMX/0.5 hrs.  
Brake Drum(s), Machine (both sides)  
Labor Operation: P0201AMX/0.7 hrs.  
Brake Shoe(s), R&R (one side)  
Labor Operation: P0204ARX/0.4 hrs.  
Brake Shoe(s), R&R (both sides)

# VIBRATION/PULSATION WHILE BRAKING - PROCEDURE CAT. P, NO. 001/95

## Article Text (p. 4)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:26AM

Labor Operation: P0204BRX/0.6 hrs.

### MPV (1993 Models only)

Rear Brakes/Brake Drums(s), R&R (one side)

Labor Operation: P0201ARX/0.3 hrs.

Rear Brakes/Brake Drums(s), R&R (both sides)

Labor Operation: P0201BRX/0.6 hrs.

Brake Drum(s), Machine (one side)

Labor Operation: P0201AMX/0.3 hrs.

Brake Drum(s), Machine (both sides)

Labor Operation: P0201AMX/0.6 hrs.

Brake Shoe(s), R&R (one side)

Labor Operation: P0204ARX/0.5 hrs.

Brake Shoe(s), R&R (both sides)

Labor Operation: P0204BRX/0.8 hrs.

### 323/PROTEGE

Rear Brakes/Brake Drums(s), R&R (one side)

Labor Operation: P0201ARX/0.3 hrs.

Rear Brakes/Brake Drums(s), R&R (both sides)

Labor Operation: P0201BRX/0.6 hrs. (1993-94)

Labor Operation: P0201BRX/0.3 hrs. (1995)

Brake Drum(s), Machine (one side)

Labor Operation: P0201AMX/0.3 hrs.

Brake Drum(s), Machine (both sides)

Labor Operation: P0201AMX/0.6 hrs.

Brake Shoe(s), R&R (one side)

Labor Operation: P0204ARX/0.5 hrs. (1993-94)

Labor Operation: P0204ARX/0.3 hrs. (1995)

Brake Shoe(s), R&R (both sides)

Labor Operation: P0204BRX/0.8 hrs. (1993-94)

Labor Operation: P0204BRX/0.5 hrs. (1995)

### MX-3

Rear Brakes/Brake Drums(s), R&R (one side)

Labor Operation: P0201ARX/0.3 hrs.

Rear Brakes/Brake Drums(s), R&R (both sides)

Labor Operation: P0201BRX/0.4 hrs.

Brake Drum(s), Machine (one side)

Labor Operation: P0201AMX/0.3 hrs.

Brake Drum(s), Machine (both sides)

Labor Operation: P0201AMX/0.6 hrs.

Brake Shoe(s), R&R (one side)

Labor Operation: P0204ARX/0.4 hrs.

Brake Shoe(s), R&R (both sides)

Labor Operation: P0204BRX/0.6 hrs.

### 93 B-Series and earlier

Rear Brakes/Brake Drums(s), R&R (one side)

Labor Operation: P0201ARX/0.3 hrs.

Rear Brakes/Brake Drums(s), R&R (both sides)

Labor Operation: P0201BRX/0.6 hrs.

## VIBRATION/PULSATION WHILE BRAKING - PROCEDURE CAT. P, NO. 001/95

### Article Text (p. 5)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:26AM

Brake Drum(s), Machine (one side)  
Labor Operation: P0201AMX/0.8 hrs.  
Brake Drum(s), Machine (both sides)  
Labor Operation: P0201AMX/1.3 hrs.  
Brake Shoe(s), R&R (one side)  
Labor Operation: P0204ARX/0.7 hrs.  
Brake Shoe(s), R&R (both sides)  
Labor Operation: P0204BRX/1.0 hrs.

#### Navajo

Rear Brakes/Brake Drums(s), R&R (one side)  
Labor Operation: P0201ARX/0.5 hrs.  
Rear Brakes/Brake Drums(s), R&R (both sides)  
Labor Operation: P0201BRX/0.7 hrs.  
Brake Drum(s), Machine (one side)  
Labor Operation: P0201AMX/0.2 hrs.  
Brake Drum(s), Machine (both sides)  
Labor Operation: P0201AMX/0.4 hrs.  
Brake Shoe(s), R&R (one side)  
Labor Operation: P0204XRX/1.0 hrs.  
Brake Shoe(s), R&R (both sides)  
Labor Operation: P0204XRX/1.0 hrs.

#### 94 B-Series and later

Rear Brakes/Brake Drums(s), R&R (one side)  
Labor Operation: P0201ARX/0.4 hrs.  
Rear Brakes/Brake Drums(s), R&R (both sides)  
Labor Operation: P0201BRX/0.6 hrs.  
Brake Drum(s), Machine (one side)  
Labor Operation: P0201AMX/0.2 hrs.  
Brake Drum(s), Machine (both sides)  
Labor Operation: P0201AMX/0.4 hrs.  
Brake Shoe(s), R&R (one side)  
Labor Operation: P0204XRX/1.0 hrs.  
Brake Shoe(s), R&R (both sides)  
Labor Operation: P0204XRX/1.0 hrs.

## REAR DISC BRAKES LABOR OPERATION/TIME CODES - 1993-1995 MODELS

#### Millenia

Rear Brakes/Disc Plate(s), R&R (one side)  
Labor Operation: P0208ARX/0.3 hrs.  
Rear Brakes/Disc Plate(s), R&R (both sides)  
Labor Operation: P0208BRX/0.4 hrs.  
Rear Brakes/Disc Plate(s), Machine on vehicle (one sides)  
Labor Operation: P0214AMX/0.7 hrs.  
Rear Brakes/Disc Plate(s), Machine on vehicle (both sides)  
Labor Operation: P0214BMX/1.2 hrs.  
Rear Brakes/Pad(s), R&R (one sides)  
Labor Operation: P0209ARX/0.3 hrs.  
Rear Brakes/Pad(s), R&R (both sides)  
Labor Operation: P0214BRX/0.5 hrs.

# VIBRATION/PULSATION WHILE BRAKING - PROCEDURE CAT. P, NO. 001/95

## Article Text (p. 6)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:26AM

### 626/MX-6

Rear Brakes/Disc Plate(s), R&R (one side)  
Labor Operation: P0208ARX/0.4 hrs.  
Rear Brakes/Disc Plate(s), R&R (both sides)  
Labor Operation: P0208BRX/0.6 hrs.  
Rear Brakes/Disc Plate(s), Machine on vehicle (one sides)  
Labor Operation: P0214AMX/0.7 hrs.  
Rear Brakes/Disc Plate(s), Machine on vehicle (both sides)  
Labor Operation: P0214BMX/1.2 hrs.  
Rear Brakes/Pad(s), R&R (one sides)  
Labor Operation: P0209ARX/0.4 hrs.  
Rear Brakes/Pad(s), R&R (both sides)  
Labor Operation: P0214BRX/0.5 hrs.

### RX-7

Rear Brakes/Disc Plate(s), R&R (one side)  
Labor Operation: P0208ARX/0.3 hrs.  
Rear Brakes/Disc Plate(s), R&R (both sides)  
Labor Operation: P0208BRX/0.4 hrs.  
Rear Brakes/Disc Plate(s), Machine on vehicle (one sides)  
Labor Operation: P0214AMX/0.7 hrs.  
Rear Brakes/Disc Plate(s), Machine on vehicle (both sides)  
Labor Operation: P0214BMX/1.2 hrs.  
Rear Brakes/Pad(s), R&R (one sides)  
Labor Operation: P0209ARX/0.3 hrs.  
Rear Brakes/Pad(s), R&R (both sides)  
Labor Operation: P0214BRX/0.5 hrs.

### MX-5

Rear Brakes/Disc Plate(s), R&R (one side)  
Labor Operation: P0208ARX/0.4 hrs.  
Rear Brakes/Disc Plate(s), R&R (both sides)  
Labor Operation: P0208BRX/0.5 hrs.  
Rear Brakes/Disc Plate(s), Machine on vehicle (one sides)  
Labor Operation: P0214AMX/0.7 hrs.  
Rear Brakes/Disc Plate(s), Machine on vehicle (both sides)  
Labor Operation: P0214BMX/1.2 hrs.  
Rear Brakes/Pad(s), R&R (one sides)  
Labor Operation: P0209ARX/0.4 hrs.  
Rear Brakes/Pad(s), R&R (both sides)  
Labor Operation: P0214BRX/0.5 hrs.

### MPV (1994-95)

Rear Brakes/Disc Plate(s), R&R (one side)  
Labor Operation: P0208ARX/0.6 hrs.  
Rear Brakes/Disc Plate(s), R&R (both sides)  
Labor Operation: P0208BRX/0.8 hrs.  
Rear Brakes/Disc Plate(s), Machine on vehicle (one sides)  
Labor Operation: P0214AMX/0.7 hrs.  
Rear Brakes/Disc Plate(s), Machine on vehicle (both sides)  
Labor Operation: P0214BMX/1.2 hrs.

# VIBRATION/PULSATION WHILE BRAKING - PROCEDURE CAT. P, NO. 001/95

## Article Text (p. 7)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:26AM

Rear Brakes/Pad(s), R&R (one sides)  
Labor Operation: P0209ARX/0.5 hrs.  
Rear Brakes/Pad(s), R&R (both sides)  
Labor Operation: P0214BRX/0.6 hrs.

### MX-3

Rear Brakes/Disc Plate(s), R&R (one side)  
Labor Operation: P0208ARX/0.4 hrs.  
Rear Brakes/Disc Plate(s), R&R (both sides)  
Labor Operation: P0208BRX/0.6 hrs.  
Rear Brakes/Disc Plate(s), Machine on vehicle (one sides)  
Labor Operation: P0214AMX/0.7 hrs.  
Rear Brakes/Disc Plate(s), Machine on vehicle (both sides)  
Labor Operation: P0214BMX/1.2 hrs.  
Rear Brakes/Pad(s), R&R (one sides)  
Labor Operation: P0209ARX/0.5 hrs.  
Rear Brakes/Pad(s), R&R (both sides)  
Labor Operation: P0214BRX/0.9 hrs.

### 929

Rear Brakes/Disc Plate(s), R&R (one side)  
Labor Operation: P0208ARX/0.4 hrs.  
Rear Brakes/Disc Plate(s), R&R (both sides)  
Labor Operation: P0208BRX/0.6 hrs.  
Rear Brakes/Disc Plate(s), Machine on vehicle (one sides)  
Labor Operation: P0214AMX/0.7 hrs.  
Rear Brakes/Disc Plate(s), Machine on vehicle (both sides)  
Labor Operation: P0214BMX/1.2 hrs.  
Rear Brakes/Pad(s), R&R (one sides)  
Labor Operation: P0209ARX/0.3 hrs.  
Rear Brakes/Pad(s), R&R (both sides)  
Labor Operation: P0214BRX/0.5 hrs.

### 323/PROTEGE

Rear Brakes/Disc Plate(s), R&R (one side)  
Labor Operation: P0208ARX/0.5 hrs. (1993-94)  
Labor Operation: P0208ARX/0.4 hrs. (1995)  
Rear Brakes/Disc Plate(s), R&R (both sides)  
Labor Operation: P0208CRX/0.9 hrs. (1993-94)  
Labor Operation: P0208CRX/0.6 hrs. (1995)  
Rear Brakes/Disc Plate(s), Machine on vehicle (one sides)  
Labor Operation: P0214AMX/0.7 hrs.  
Rear Brakes/Disc Plate(s), Machine on vehicle (both sides)  
Labor Operation: P0214BMX/1.2 hrs.  
Rear Brakes/Pad(s), R&R (one sides)  
Labor Operation: P0209ARX/0.4 hrs. (1993-94)  
Labor Operation: P0209ARX/0.3 hrs. (1995)  
Rear Brakes/Pad(s), R&R (both sides)  
Labor Operation: P0214BRX/0.5 hrs.

## FRONT BRAKES LABOR OPERATION/TIME CODES - 1993-1995 MODELS

# VIBRATION/PULSATION WHILE BRAKING - PROCEDURE CAT. P, NO. 001/95

## Article Text (p. 8)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:26AM

### Millenia

Front Brakes/Disc Plate(s), R&R (one side)  
Labor Operation: P0102ARX/0.5 hrs.  
Front Brakes/Disc Plate(s), R&R (both side)  
Labor Operation: P0208CRX/0.6 hrs.  
Front Brakes/Disc Plate(s), Machine on vehicle (one sides)  
Labor Operation: P0113AMX/0.7 hrs.  
Front Brakes/Disc Plate(s), Machine on vehicle (both sides)  
Labor Operation: P0113BMX/1.2 hrs.  
Front Brakes/Pad(s), R&R (one sides)  
Labor Operation: P0104ARX/0.5 hrs.  
Front Brakes/Pad(s), R&R (both sides)  
Labor Operation: P0104BRX/0.6 hrs.

### 626/MX-6

Front Brakes/Disc Plate(s), R&R (one side)  
Labor Operation: P0102ARX/0.3 hrs.  
Front Brakes/Disc Plate(s), R&R (both side)  
Labor Operation: P0208CRX/0.5 hrs.  
Front Brakes/Disc Plate(s), Machine on vehicle (one sides)  
Labor Operation: P0113AMX/0.7 hrs.  
Front Brakes/Disc Plate(s), Machine on vehicle (both sides)  
Labor Operation: P0113BMX/1.2 hrs.  
Front Brakes/Pad(s), R&R (one sides)  
Labor Operation: P0104ARX/0.4 hrs.  
Front Brakes/Pad(s), R&R (both sides)  
Labor Operation: P0104BRX/0.5 hrs.

### RX-7

Front Brakes/Disc Plate(s), R&R (one side)  
Labor Operation: P0102ARX/0.3 hrs.  
Front Brakes/Disc Plate(s), R&R (both side)  
Labor Operation: P0208CRX/0.5 hrs.  
Front Brakes/Disc Plate(s), Machine on vehicle (one sides)  
Labor Operation: P0113AMX/0.7 hrs.  
Front Brakes/Disc Plate(s), Machine on vehicle (both sides)  
Labor Operation: P0113BMX/1.2 hrs.  
Front Brakes/Pad(s), R&R (one sides)  
Labor Operation: P0104ARX/0.3 hrs.  
Front Brakes/Pad(s), R&R (both sides)  
Labor Operation: P0104BRX/0.4 hrs.

### MX-5

Front Brakes/Disc Plate(s), R&R (one side)  
Labor Operation: P0102ARX/0.5 hrs.  
Front Brakes/Disc Plate(s), R&R (both side)  
Labor Operation: P0208CRX/0.6 hrs.  
Front Brakes/Disc Plate(s), Machine on vehicle (one sides)  
Labor Operation: P0113AMX/0.7 hrs.  
Front Brakes/Disc Plate(s), Machine on vehicle (both sides)  
Labor Operation: P0113BMX/1.2 hrs.  
Front Brakes/Pad(s), R&R (one sides)

# VIBRATION/PULSATION WHILE BRAKING - PROCEDURE CAT. P, NO. 001/95

## Article Text (p. 9)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:26AM

Labor Operation: P0104ARX/0.4 hrs.  
Front Brakes/Pad(s), R&R (both sides)  
Labor Operation: P0104BRX/0.6 hrs.

### MPV

Front Brakes/Disc Plate(s), R&R (one side)  
Labor Operation: P0102ARX/0.6 hrs.  
Front Brakes/Disc Plate(s), R&R (both side)  
Labor Operation: P0208CRX/0.9 hrs.  
Front Brakes/Disc Plate(s), Machine on vehicle (one sides)  
Labor Operation: P0113AMX/0.7 hrs.  
Front Brakes/Disc Plate(s), Machine on vehicle (both sides)  
Labor Operation: P0113BMX/1.2 hrs.  
Front Brakes/Pad(s), R&R (one sides)  
Labor Operation: P0104ARX/0.4 hrs.  
Front Brakes/Pad(s), R&R (both sides)  
Labor Operation: P0104BRX/0.5 hrs.

### 323/PROTEGE

Front Brakes/Disc Plate(s), R&R (one side)  
Labor Operation: P0102ARX/0.5 (1993-94)  
Labor Operation: P0102ARX/0.3 (1995)  
Front Brakes/Disc Plate(s), R&R (both side)  
Labor Operation: P0208CRX/0.9 hrs. (1993-94)  
Labor Operation: P0208CRX/0.4 hrs. (1995)  
Front Brakes/Disc Plate(s), Machine on vehicle (one sides)  
Labor Operation: P0113AMX/0.7 hrs.  
Front Brakes/Disc Plate(s), Machine on vehicle (both sides)  
Labor Operation: P0113BMX/1.2 hrs.  
Front Brakes/Pad(s), R&R (one sides)  
Labor Operation: P0104ARX/0.4 hrs. (1993-94)  
Labor Operation: P0104ARX/0.3 hrs. (1995)  
Front Brakes/Pad(s), R&R (both sides)  
Labor Operation: P0104BRX/0.5 hrs. (1993-94)  
Labor Operation: P0104BRX/0.4 hrs. (1995)

### MX-3

Front Brakes/Disc Plate(s), R&R (one side)  
Labor Operation: P0102ARX/0.3 hrs.  
Front Brakes/Disc Plate(s), R&R (both side)  
Labor Operation: P0208CRX/0.5 hrs.  
Front Brakes/Disc Plate(s), Machine on vehicle (one sides)  
Labor Operation: P0113AMX/0.7 hrs.  
Front Brakes/Disc Plate(s), Machine on vehicle (both sides)  
Labor Operation: P0113BMX/1.2 hrs.  
Front Brakes/Pad(s), R&R (one sides)  
Labor Operation: P0104ARX/0.5 hrs.  
Front Brakes/Pad(s), R&R (both sides)  
Labor Operation: P0104BRX/0.6 hrs.

### 929

Front Brakes/Disc Plate(s), R&R (one side)

# VIBRATION/PULSATION WHILE BRAKING - PROCEDURE CAT. P, NO. 001/95

## Article Text (p. 10)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:26AM

Labor Operation: P0102ARX/0.4 hrs.  
Front Brakes/Disc Plate(s), R&R (both side)  
Labor Operation: P0208CRX/0.7 hrs.  
Front Brakes/Disc Plate(s), Machine on vehicle (one sides)  
Labor Operation: P0113AMX/0.7 hrs.  
Front Brakes/Disc Plate(s), Machine on vehicle (both sides)  
Labor Operation: P0113BMX/1.2 hrs.  
Front Brakes/Pad(s), R&R (one sides)  
Labor Operation: P0104ARX/0.4 hrs.  
Front Brakes/Pad(s), R&R (both sides)  
Labor Operation: P0104BRX/0.6 hrs.

### Navajo

Front Brakes/Disc Plate(s), R&R (one side)  
Labor Operation: P0102ARX/0.6 hrs. (2WD)  
Labor Operation: P0102CRX/0.8 hrs. (4WD)  
Front Brakes/Disc Plate(s), R&R (both side)  
Labor Operation: P0102BRX/0.9 hrs. (2WD)  
Labor Operation: P0102DRX/1.2 hrs. (4WD)  
Front Brakes/Disc Plate(s), Machine on vehicle (one sides)  
Labor Operation: P0113AMX/0.8 hrs. (2WD)  
Labor Operation: P0113CMX/0.6 hrs. (4WD)  
Front Brakes/Disc Plate(s), Machine on vehicle (both sides)  
Labor Operation: P0113BMX/1.5 hrs. (2WD)  
Labor Operation: P0113DMX/1.1 hrs. (4WD)  
Front Brakes/Pad(s), R&R (one sides)  
Labor Operation: P0104ARX/0.4 hrs.  
Front Brakes/Pad(s), R&R (both sides)  
Labor Operation: P0104BRX/0.7 hrs.

### 94 B-Series and later

Front Brakes/Disc Plate(s), R&R (one side)  
Labor Operation: P0102ARX/0.5 hrs. (2WD)  
Labor Operation: P0102CRX/0.7 hrs. (4WD)  
Front Brakes/Disc Plate(s), R&R (both side)  
Labor Operation: P0102BRX/0.8 hrs. (2WD)  
Labor Operation: P0102DRX/1.1 hrs. (4WD)  
Front Brakes/Disc Plate(s), Machine on vehicle (one sides)  
Labor Operation: P0113AMX/0.8 hrs. (2WD)  
Labor Operation: P0113CMX/0.6 hrs. (4WD)  
Front Brakes/Disc Plate(s), Machine on vehicle (both sides)  
Labor Operation: P0113BMX/1.5 hrs. (2WD)  
Labor Operation: P0113DMX/1.1 hrs. (4WD)  
Front Brakes/Pad(s), R&R (one sides)  
Labor Operation: P0104ARX/0.4 hrs.  
Front Brakes/Pad(s), R&R (both sides)  
Labor Operation: P0104BRX/0.7 hrs.

### 93 B-Series and earlier

Front Brakes/Disc Plate(s), R&R (one side)  
Labor Operation: P0102ARX/0.6 hrs. (2WD)  
Labor Operation: P0102BRX/0.9 hrs. (4WD)



**VIBRATION/PULSATION WHILE BRAKING - PROCEDURE CAT. P, NO. 001/95**

**Article Text (p. 11)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:26AM

Front Brakes/Disc Plate(s), R&R (both side)

Labor Operation: P0102CRX/1.1 hrs. (2WD)

Labor Operation: P0102DRX/1.6 hrs. (4WD)

Front Brakes/Disc Plate(s), Machine on vehicle (one sides)

Labor Operation: P0113AMX/0.8 hrs. (2WD)

Labor Operation: P0113CMX/0.6 hrs. (4WD)

Front Brakes/Disc Plate(s), Machine on vehicle (both sides)

Labor Operation: P0113BMX/1.5 hrs. (2WD)

Labor Operation: P0113DMX/1.1 hrs. (4WD)

Front Brakes/Pad(s), R&R (one sides)

Labor Operation: P0104ARX/0.4 hrs.

Front Brakes/Pad(s), R&R (both sides)

Labor Operation: P0104BRX/0.6 hrs.

**END OF ARTICLE**

# AIR PUMP FAILURE DUE TO NON-GENUINE AIR FILTERS CAT. F, NO. 006/95

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:32AM

## ARTICLE BEGINNING

### TECHNICAL SERVICE BULLETIN

## AIR PUMP FAILURE DUE TO INSTALLATION OF NON-GENUINE AIR CLEANERS

Models: 1993-95 Mazda RX-7  
Category: F  
Bulletin No.: 006/95  
Date: 4/5/95

## DESCRIPTION

Installing non-genuine air cleaners may lead to air pump failure. Unlike the original design, non-genuine air cleaners, draw heated, engine compartment air into the air pump. See Fig. 1. This air increases pump temperature which may result in lubrication loss and bearing failure. Customers should be informed that the vehicle warranty prohibits alteration of the emission control system as well as other components.

Recommend that the customer have the original air cleaner installed to prevent non-warrantable component failure.

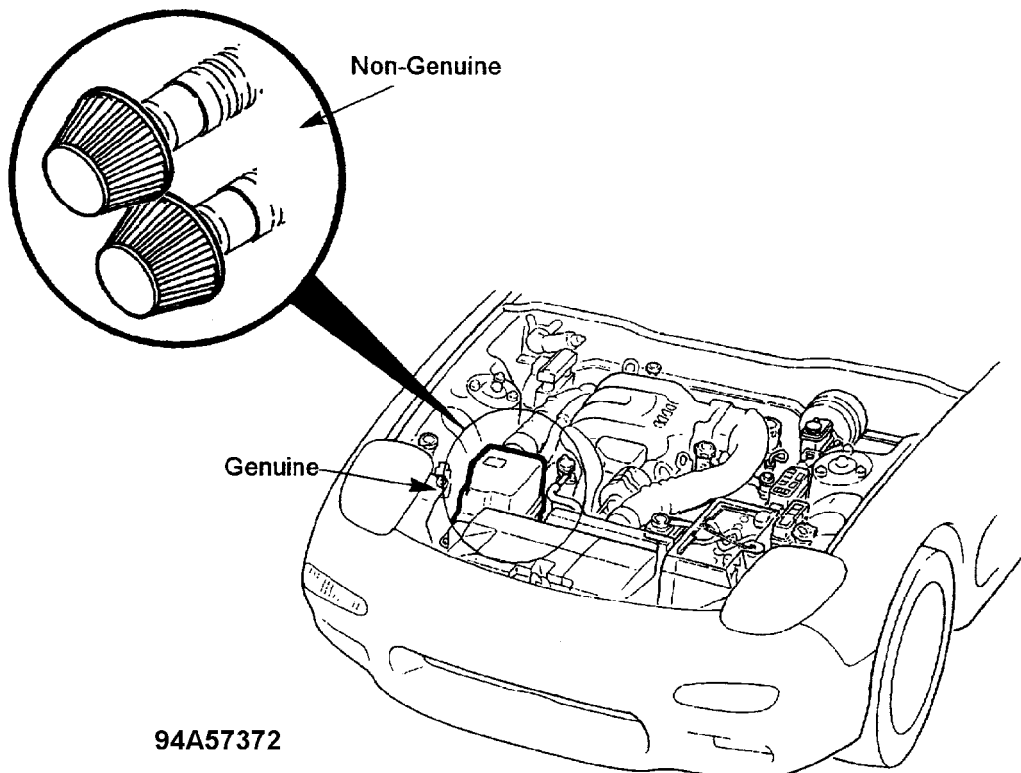


Fig. 1: Exploded View of Installed Non-Genuine Air Cleaner

## END OF ARTICLE

# CRACKS IN TURBOCHARGER MANIFOLD - INFORMATION MT 0495-07

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:34AM

## ARTICLE BEGINNING

### TECHNICAL SERVICE BULLETIN

## TURBOCHARGER

Model(s): 1993-95 Mazda RX-7

Category: Mazda Tips

Bulletin No.: MT 0495-07

Date: April, 1995

## SERVICE INFORMATION

During engine replacement or other engine disassembly, cracks on the turbocharger exhaust manifold may be present. Due to the high heat concentration existing in the turbocharger and manifold, some cracks (in the shaded areas) are considered normal, and the turbo does not need to be replaced.

NOTE: Cracks will not extend in length because the outer wall temperature is comparatively low.

The following are acceptable conditions and the turbo does not need to be replaced.

1) Cracks of 5mm or less in length that do not pierce the housing, EXCEPT:

2) At the top of the secondary turbo flange, next to the turbo pre-control valve, cracks of 13mm or less are acceptable. See Fig. 1.

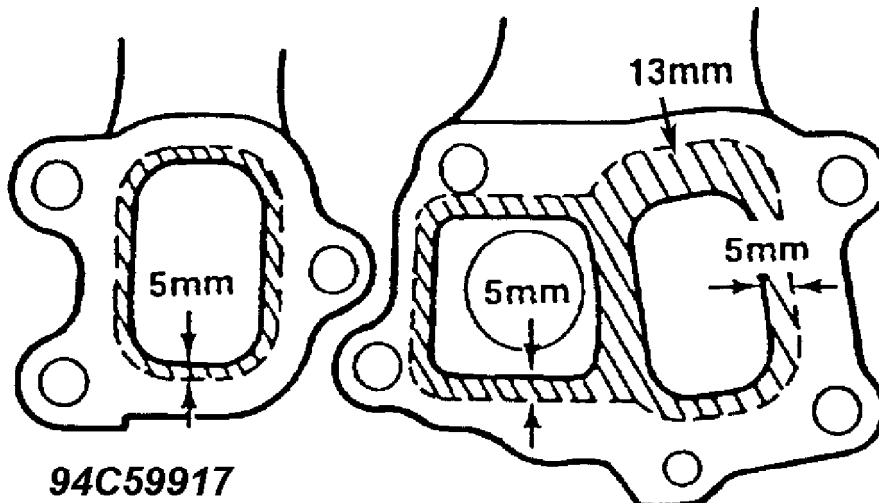


Fig. 1: Location Of Cracks On The Turbocharger

END OF ARTICLE

# **INTAKE MANIFOLD GASKET PRECAUTIONS CAT. F, NO. 005/95**

## **Article Text**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC  
Saturday, August 25, 2001 09:34AM

## **ARTICLE BEGINNING**

TECHNICAL SERVICE BULLETIN

## **INTAKE MANIFOLD GASKET PRECAUTIONS**

Model: 1986-94 Mazda RX-7  
Category: F  
Bulletin No.: 005/95  
Date: 3/15/95  
Date Revised: 6/16/95

## **APPLICABLE MODEL/VIN**

1986-94 RX-7 Model Vehicles

## **DESCRIPTION**

Rough idle that occurs after replacing an intake manifold gasket may be caused by damage to the gasket. If the proper torque sequence is not followed, cracks and/or breakage may occur.

## **INSTALLATION PROCEDURE**

Refer to the instructions and tightening sequences shown in Fig. 1, when installing the gasket. Make a note in the applicable workshop manuals to avoid problems during installation.

# INTAKE MANIFOLD GASKET PRECAUTIONS CAT. F, NO. 005/95

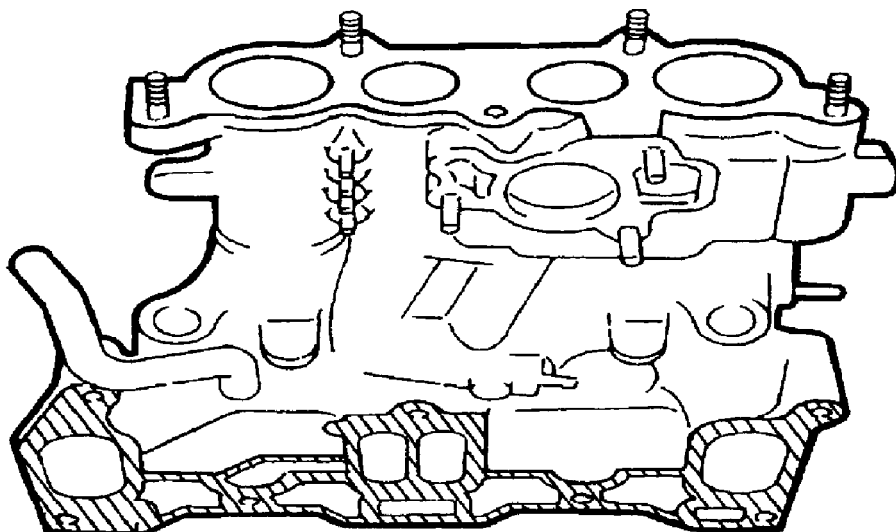
## Article Text (p. 2)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:34AM

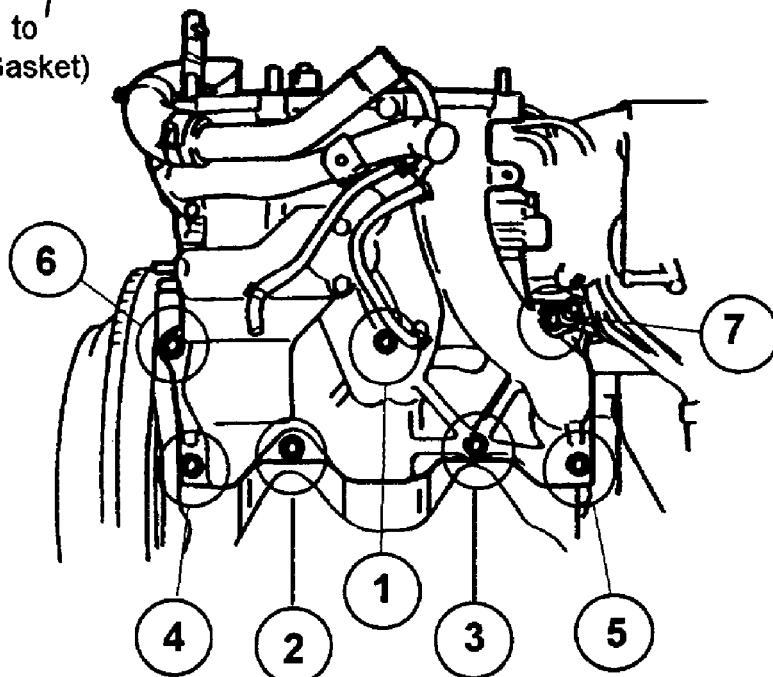


### Step 1

Apply molybdenum grease to  
flange (Do Not Apply To Gasket)

### Step 2

Tightening Torque:  
16-20 Nm  
(1.6-2.3 kgfm  
12-16ft-lbs)



**94G58863**

Fig. 1: Intake Manifold Gasket Tightening Sequences

END OF ARTICLE

# INTAKE MANIFOLD GASKET PRECAUTIONS (CANADIAN) CAT. F, NO. 95-03

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC  
Saturday, August 25, 2001 09:35AM

## ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

## INTAKE MANIFOLD GASKET PRECAUTIONS

Model(s): 1986-94 Mazda RX-7 (Canadian)  
Category: F Fuel & Emission Controls  
Bulletin No.: 95-03  
Date: April, 1995  
Date Revised: June, 1995

## APPLICABLE MODEL/VIN

1986-94 RX-7 Model Vehicles

## DESCRIPTION

Rough idle that occurs after replacing an intake manifold gasket may be caused by damage to the gasket. If the proper torque tightening sequences is not followed, cracks and/or breakage may occur.

## INSTALLATION PROCEDURE

Refer to the instructions and tightening sequences shown in Fig. 1, when installing the gasket. Make a note in the applicable workshop manuals to avoid problems during installation.

# INTAKE MANIFOLD GASKET PRECAUTIONS (CANADIAN) CAT. F, NO. 95-03

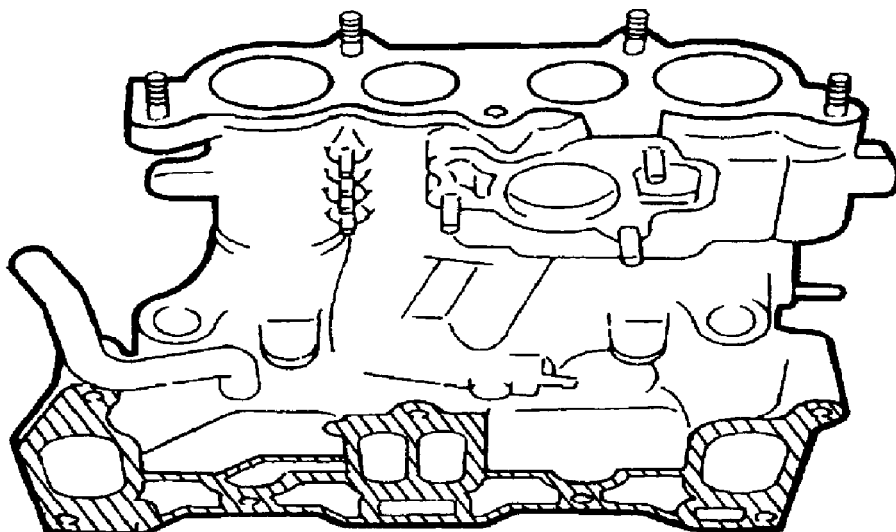
## Article Text (p. 2)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:35AM

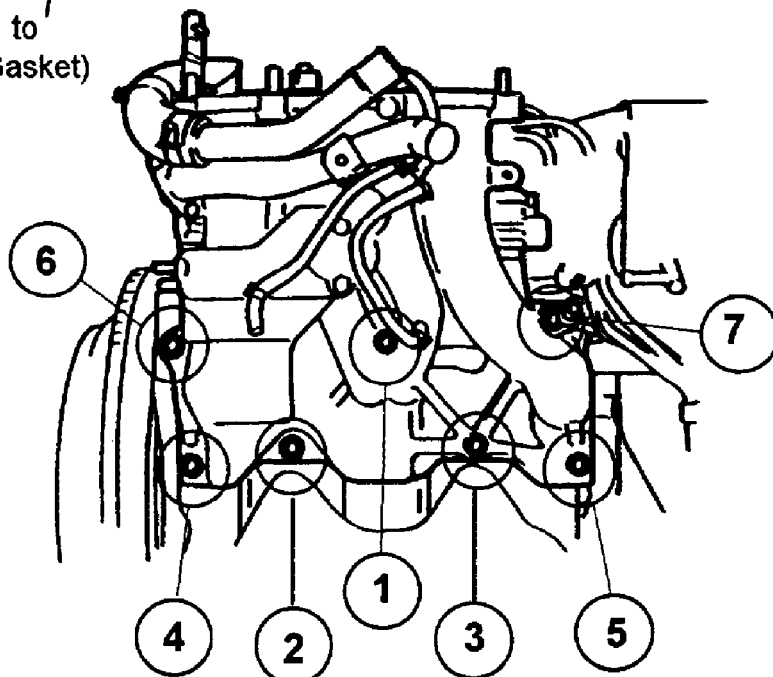


### Step 1

Apply molybdenum grease to  
flange (Do Not Apply To Gasket)

### Step 2

Tightening Torque:  
16-20 Nm  
(1.6-2.3 kgfm  
12-16ft-lbs)



**94G58863**

Fig. 1: Intake Manifold Gasket Tightening Sequences

END OF ARTICLE

# KINKED TURBO CHARGER RELIEF VACUUM HOSE - NEW HOSE MT 1195-09

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:35AM

## ARTICLE BEGINNING

### TECHNICAL SERVICE BULLETIN

### T/C VACUUM HOSE

Model(s): 1993 Mazda RX-7  
Section: Mazda Tips  
Bulletin No.: MT 1195-09  
Date: 1996

### SERVICE PROCEDURE

A kink in the T/C relief valve vacuum hose may cause the engine to hesitate or lack power during acceleration. Check the hose and replace it with a modified one if it is kinked. The new part number is available through the Means system. Part number N3A3-2341A.

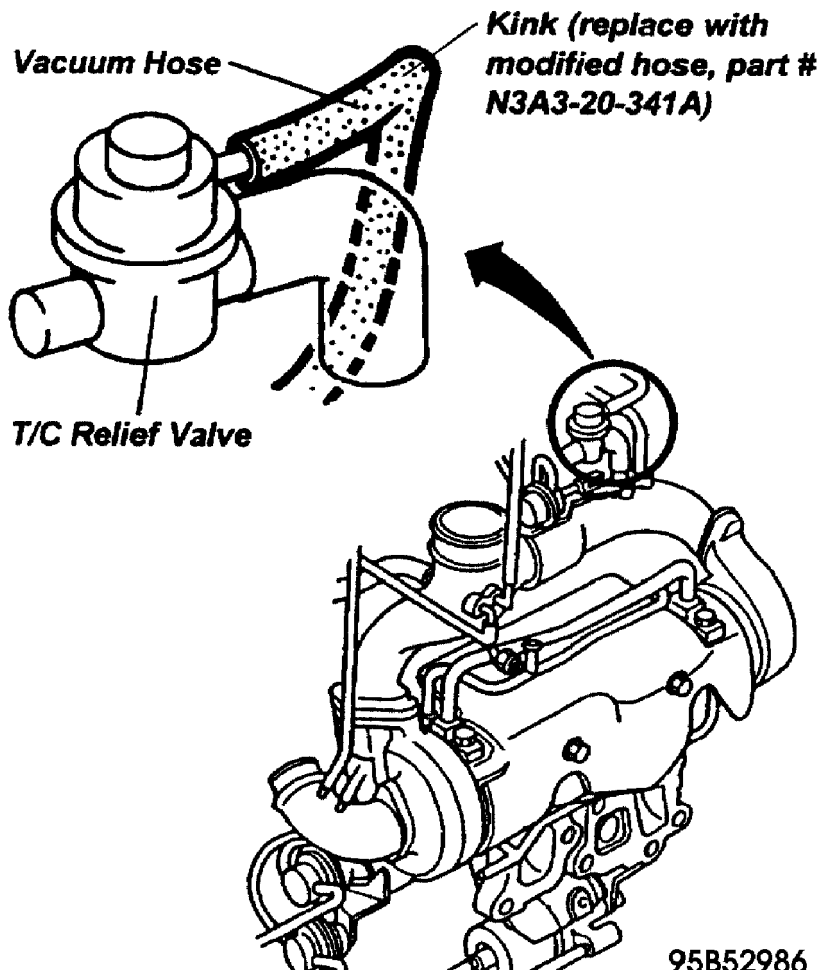


Fig. 1: T/C Relief Valve

95B52986

## END OF ARTICLE



# LEFT ENGINE MOUNT INTERFERES WITH OIL PAN BOLT CAT. B, NO. 008/97

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC  
Saturday, August 25, 2001 09:35AM

### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### LEFT ENGINE MOUNT INTERFERES WITH OIL PAN BOLT - REMANUFACTURED ENGINE INSTALLATION

Model(s): 1993-95 Mazda RX-7  
Category: B - Engine  
Bulletin No.: 008/97  
Date: November 18, 1997

### VEHICLES AFFECTED

1993-95 RX-7 with a VIN of JM1FD333\*S0400027 and lower.

### DESCRIPTION

During remanufactured rotary engine installation, the left rubber engine mount may interfere with an oil pan installation bolt. To prevent this concern, follow the procedures below.

### INSTALLATION PROCEDURE

1. Verify concern.
2. Remove oil pan bolt and discard. See Fig. 1.
3. Apply silicone sealer to the bolt hole and pan area.

NOTE: Three Bond TB1207D, Loctite Ultra Gray 599 (or equivalent)

4. Install engine mounts according to section C of the workshop manual.

Tightening Torque: 75-93 N.m, 7.6 - 9.5 Kgfm (55-68 ft-lb).

5. Operate engine to normal temperature and inspect oil pan area for leaks.

\* If no leaks are present, return vehicle to customer.

\* If leaks occur, repair as necessary.

# LEFT ENGINE MOUNT INTERFERES WITH OIL PAN BOLT CAT. B, NO. 008/97

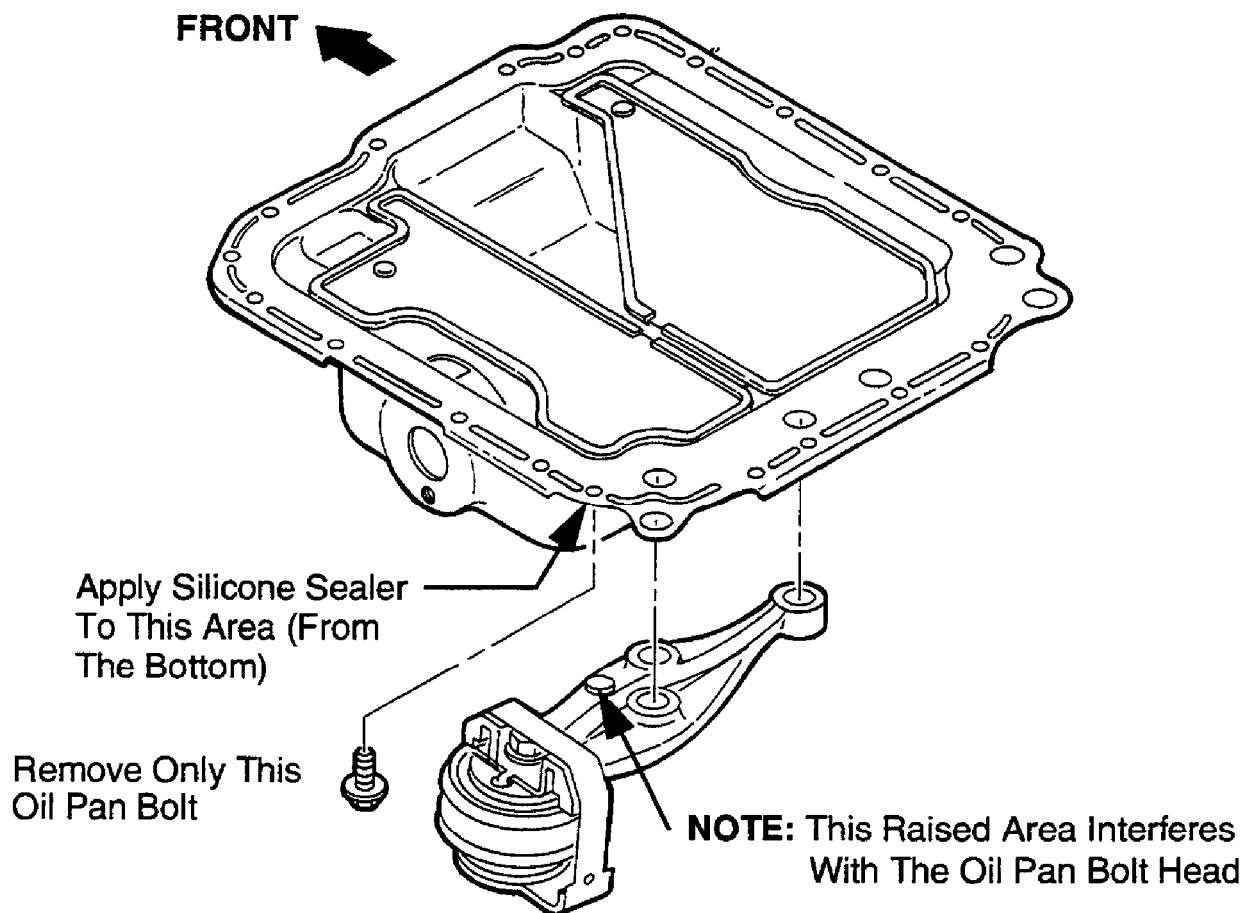
## Article Text (p. 2)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:35AM



97J54345  
Fig. 1: Oil Pan Bolt - Location

END OF ARTICLE

## MOTOR MOUNT HEAT SHIELDS - NOISE MT 0394-10

### Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:35AM

### ARTICLE BEGINNING

TECHNICAL INFORMATION TIP - MANUFACTURER

MOTOR MOUNT HEAT SHIELDS RUB - RUBBING OR GROANING NOISE

Model(s): 1993 Mazda RX-7  
Category: Mazda Tips  
Bulletin No.: MT 0394-10  
Date: March, 1994

### DESCRIPTION

The heat shields for the engine motor mounts may rub the mount, producing a rubbing or groaning noise from the lower, front suspension area. You hear the noise as you drive slowly over bumps or as you turn.

DO NOT replace the mounts, control arm bushings or struts. Instead, inspect the heat shield(s) according to the Workshop Manual (page D-19, part 3). If there is contact, use a screw driver to carefully pry the heat shield(s) away from the point of contact.

If you still hear the noise, refer to Service Bulletin R-004/93 regarding a front upper bushing noise.

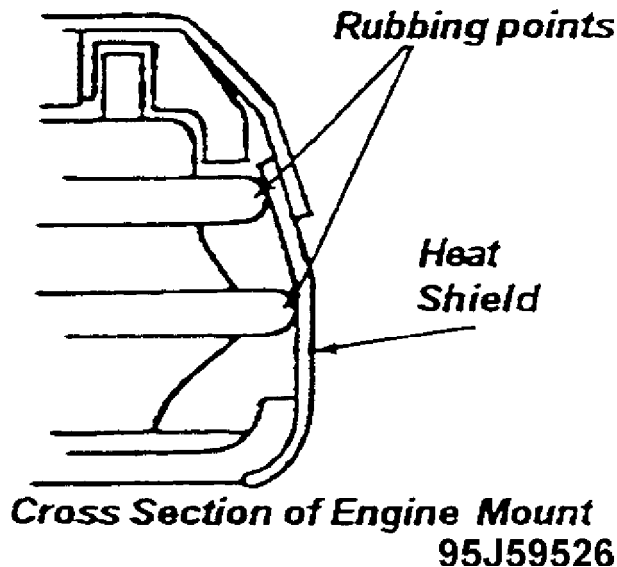


Fig. 1: Cross Section of Engine Mount

END OF ARTICLE

# **OIL LEAK AT REAR STATIONARY GEAR O-RING - CAR FIX CAT. B, NO. 003/98**

## **Article Text**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:35AM

## **ARTICLE BEGINNING**

TECHNICAL SERVICE BULLETIN

## **OIL LEAK AT REAR STATIONARY GEAR O-RING/ON-CAR REPLACEMENT PROCEDURE**

Model(s): 1979-95 Mazda RX-7  
Category: B (01) - Engine  
Bulletin No.: 003/98  
Date: July 16, 1998

## **DESCRIPTION**

The following procedure is for on-car rear stationary (RS) gear O-ring replacement. This procedure is not included in the Workshop Manual. When the RS gear O-ring is leaking, use the following on-car procedure.

## **REPAIR PROCEDURE**

1. Verify customer complaint.
2. Remove the flywheel (M/T) or counterweight (A/T). Refer to the Workshop Manual section C and H.
3. Set the front rotor to TDC (top dead center) per the Workshop Manual section C.
4. Remove the six bolts from the RS gear.

NOTE: If the eccentric shaft and rotor are rotated with the RS gear removed, they cannot be re-used. The engine will require overhauling.

5. Insert two screwdrivers or pry bars and pry out the RS gear. See Fig. 1.

CAUTION: To prevent the (RS) gear from falling out, loosely reinstall one of the bolts back into the gear. This will hold the gear in place while prying.

6. After the (RS) gear is pried loose, remove the one bolt used to hold it in place, and remove the (RS) gear assembly.
7. Remove the O-ring and oil seal, and clean the (RS) gear. After (RS) gear is cleaned, use shop air to remove any remaining debris. See Fig. 2.
8. Apply a small amount of oil to the new O-ring and oil seal and install.

## OIL LEAK AT REAR STATIONARY GEAR O-RING - CAR FIX CAT. B, NO. 003/98

### Article Text (p. 2)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

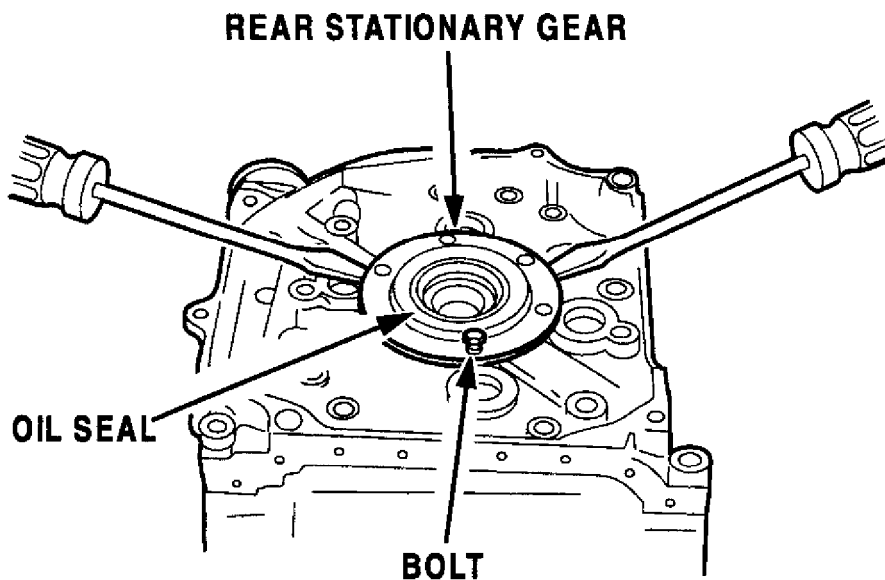
Saturday, August 25, 2001 09:35AM

9. Install the (RS) gear.

Tightening torque: 16-22 N.m

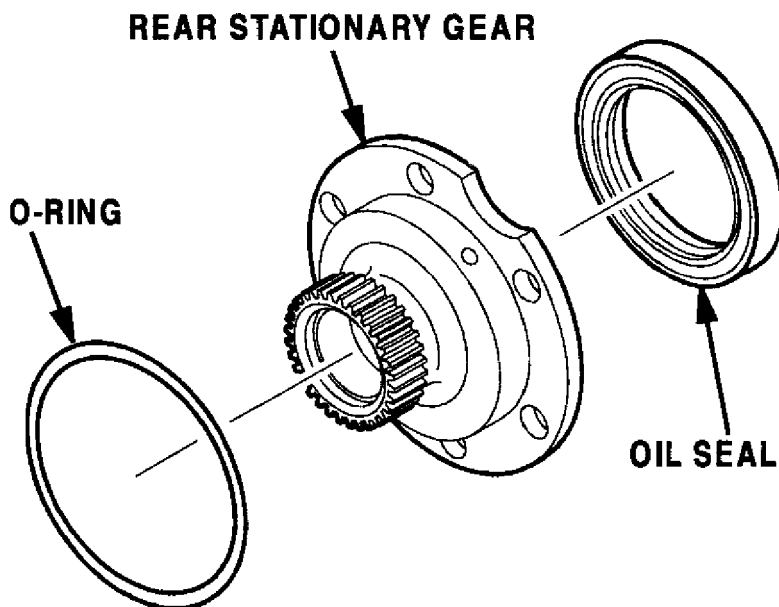
10. Install remaining parts in the reverse order of removal.

11. Verify repair.



97B58611

Fig. 1: Rear Stationary Gear, Oil Seal & Bolt - Insert Screwdrivers



97C58612

Fig. 2: Rear Stationary Gear, Oil Seal & Bolt - Remove & Clean

### PARTS INFORMATION

# OIL LEAK AT REAR STATIONARY GEAR O-RING - CAR FIX CAT. B, NO. 003/98

## Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:35AM

### PARTS INFORMATION TABLE

```
UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;
³ Part Number ³ Description ³ Qty. ³ Applicable Models ³
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
³ 0813-10-555A ³ O-Ring ³ 1 ³ Rotary Engine ³
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU
```

### WARRANTY INFORMATION

#### NOTE:

- \* This information applies to verified customer complaints on vehicles covered under normal warranty. Refer to the SRT microfiche for warranty term information.
- \* The Operation Numbers / Labor Hours below include complete transmission R&R, flywheel or counterweight R&R, and road test.

|                                 |                                |
|---------------------------------|--------------------------------|
| Warranty Type:                  | A                              |
| Symptom Code:                   | 76                             |
| Damage Code:                    | Use Code Applicable to Problem |
| Part Number Main Cause:         | 0813-10-555A                   |
| Quantity:                       | 1                              |
| Operation Number / Labor Hours: | XX012XR1 / 2.9 (FC - M/T)      |
|                                 | XX012XR2 / 3.6 (FC - A/T)      |
|                                 | XX012XR3 / 3.7 (FD - M/T)      |
|                                 | XX012XR4 / 4.7 (FD - A/T)      |

END OF ARTICLE

# PARTIAL ENGINE (LONG BLOCK) AVAILABILITY CAT. B, NO. 004/94

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:36AM

## ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

## PARTIAL ENGINE (LONG BLOCK) AVAILABILITY

Model(s): All Mazda Models  
Category: B  
Bulletin No.: 004/94  
Date: 3/9/94  
Revised: 6/21/94

## DESCRIPTION

Partial engines are available as repair components and will replace the need to replace the entire engine. When installing a partial engine, the following components must be utilized from the original engine:

1. Engine Electrical Parts
2. Cooling System Parts
3. Intake And Exhaust System Parts
4. Fuel And Emission Control Parts
5. Clutch And/Or Flywheel

## WARRANTY INFORMATION

Partial engines are warranted for the remainder or the original vehicle warranty or for the first 12 months after installation of the partial engine, whichever is longer. All warranty repairs of the partial engine replacement will require prior authorization from the DCSM.

## NEW ENGINE (LONG BLOCK) REPLACEMENT PROGRAM

### B-TRUCKS NEW ENGINE AVAILABILITY PARTS TABLE

| Year/Model          | Engine P/N  | Gasket P/N  | Remarks                                                         |
|---------------------|-------------|-------------|-----------------------------------------------------------------|
| 1979-84 B2000       | HEA4-23-800 | 8AU1-23-900 |                                                                 |
| 1986-87 B2000       | FEY3-02-300 | 8AU1-02-310 | Requires the replacement of the Heat Gauge Unit - (G607-18-510) |
| 1987-89 B2200       | F2Y3-02-300 | 8AU2-02-310 |                                                                 |
| 1990-93 B2200 (CAL) | F2Y6-02-300 | 8AU5-02-310 |                                                                 |
| (FED)               | F2Y7-02-300 | 8AU2-02-310 |                                                                 |

[illegible]



# PARTIAL ENGINE (LONG BLOCK) AVAILABILITY CAT. B, NO. 004/94

## Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:36AM

| Year/Model            | Engine P/N  | Gasket P/N  | Remarks |
|-----------------------|-------------|-------------|---------|
| 1990-94 PROTEGE (M/T) | BP05-02-300 | 8ABA-02-310 |         |
| (1.8L DOHC)           |             |             |         |
| (A/T)                 | BP06-02-300 | 8ABA-02-310 |         |
| 1990-94 PROTEGE (M/T) | BP01-02-300 | 8ABB-02-310 |         |
| (1.8L SOHC)           |             |             |         |
| (A/T)                 | BP02-02-300 | 8ABB-02-310 |         |

### 626/MX-6 NEW ENGINE AVAILABILITY PARTS TABLE

| Year/Model              | Engine P/N   | Gasket P/N  | Remarks                                                         |
|-------------------------|--------------|-------------|-----------------------------------------------------------------|
| 1981-82 626             | HE41-02-300  | 8AU1-02-310 |                                                                 |
| 1983-85 626             | FE01-02-300  | 8AG1-02-310 |                                                                 |
| 1986-87 626             | FEY1-02-300  | 8AG2-02-310 | Requires the replacement of the Heat Gauge Unit - (G607-18-510) |
| (NON-TURBO)             |              |             |                                                                 |
| (TURBO)                 | FEY2-02-300  | 8AG3-02-310 |                                                                 |
| 1988-89 626/MX-6        | F2Y1-02-300  | 8AG4-02-310 |                                                                 |
| (NON-TURBO)             |              |             |                                                                 |
| (TURBO)                 | F2Y2-02-300  | 8AG5-02-310 |                                                                 |
| 1990-92 626/MX-6        | F2Y4-02-300  | 8AG4-02-310 |                                                                 |
| (NON-TURBO)             |              |             |                                                                 |
| (TURBO)                 | F2Y5-02-300  | 8AG5-02-310 |                                                                 |
| 1993-94 626/MX-6        | FS01-02-300A | 8AGB-02-310 |                                                                 |
| (2.0L) (M/T)            |              |             |                                                                 |
| 1993 626/MX-6           | FS01-02-300A | 8AGB-02-310 |                                                                 |
| (2.0L) (A/T)            |              |             |                                                                 |
| 1994 626/MX-6           | FS71-02-300A | 8AGB-02-310 |                                                                 |
| (2.0L) (A/T)            |              |             |                                                                 |
| 1993-94 626/MX-6 (2.5L) | KLY1-02-300A | 8AE3-02-310 |                                                                 |

### 929 NEW ENGINE AVAILABILITY PARTS TABLE

| Year/Model | Engine P/N | Gasket P/N | Remarks |
|------------|------------|------------|---------|
|------------|------------|------------|---------|

| Year/Model                          | Engine P/N  | Gasket P/N   | Remarks |
|-------------------------------------|-------------|--------------|---------|
| 1994 MILLENIA<br>(2.3L, V-6 MILLER) | KJY2-02-300 | 8AK1-02-310A |         |

**PARTIAL ENGINE (LONG BLOCK) AVAILABILITY CAT. B, NO. 004/94**

**Article Text (p. 5)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:36AM

3 (2.5L, V-6) 3 KL47-02-300 3 8AK2-02-310 3  
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAUU

**END OF ARTICLE**

# PROPYLENE GLYCOL BASED COOLANT: RECOMMENDATIONS CAT. E, NO. 001/94

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:36AM

## ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

## PROPYLENE GLYCOL BASED COOLANT

Model(s): All Mazda Models  
Category: E  
Bulletin No.: 001/94  
Date: 10/21/94

## AFFECTED MODELS

All Mazda Vehicles

## DESCRIPTION

Mazda does not recommend propylene glycol coolants. Available information indicates the following characteristics regarding propylene glycol coolants:

- \* Provides less heat transfer
- \* May not provide adequate corrosion protection (to meet Mazda specifications)
- \* Freezing temperature is 10 - 20% higher than ethylene glycol based coolants

Mazda recommends ethylene glycol and water mixture. Customer's with questions regarding coolant should be directed to the information in Section 7 of their owner's manual.

## END OF ARTICLE

## RECALL CAMPAIGN - 54407 - COOLANT LEAK 54407

### Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:37AM

### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### RECALL CAMPAIGN 54407 COOLANT LEAK

Model(s): 1993-94 Mazda RX-7  
Category: Recall Campaign  
Bulletin No.: 54407  
Date: August 8, 1994

### DESCRIPTION

Dear Mazda Dealer:

Mazda Motor Corporation has decided to conduct Recall Campaign #54407 for replacement of selected engine cooling system components on certain 1993-94 Mazda RX-7 models, beginning August 8, 1994.

We have determined that if an RX-7 has been subjected to high speed operation and then parked before cooling down, the residual engine heat combined with the build-up of pressure in the cooling system can raise the temperature of the coolant to levels, where the integrity of the cooling system can be compromised. Repeated operation of the vehicle in this manner may produce cooling system leaks.

Under some circumstances, the leaking coolant mixture can collect on the top of the engine, where some of the water can evaporate, increasing the concentration of the coolant. If coolant then leaks onto the exhaust manifold, an engine compartment fire could be the result.

The RX-7 is equipped with a water level sensor that warns the driver of low coolant levels with both a warning light and accompanying buzzer. In most cases, the driver would be warned of a low water level prior to the point where enough coolant had been leaked to present any serious risk of fire.

Detailed information regarding this Recall Campaign is provided in CONDITION OF CONCERN section with additional information concerns in VEHICLES WITH A HISTORY OF A COOLANT LEAK, the letter sent to the owners of the subject vehicles is in OWNER NOTIFICATION LETTER section, and the repair procedure is given in SERVICE PROCEDURES section.

In an effort to demonstrate concern for customer satisfaction, we are requesting you to do the following two items:

- \* Upon completion of the repairs, as part of a dealer effort to demonstrate concern for customer satisfaction, wash the vehicle, vacuum the interior, and clean the windows before returning the

# RECALL CAMPAIGN - 54407 - COOLANT LEAK 54407

## Article Text (p. 2)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:37AM

vehicle to the customer.

- \* Call the customer within 48 hours of the recall repair's completion to ensure that the vehicle is performing satisfactorily. If there are any unresolved concerns the customer brings to your attention, schedule an inspection date to address the concerns.

The National Traffic and Motor Vehicle Safety Act prohibits selling or leasing any subject vehicles without performing the necessary repair for defects or failures. Therefore, please complete the necessary work for all new and used vehicles in your inventory prior to sale or lease.

Please make certain that the appropriate personnel in your dealership are familiar with the details of this Recall Campaign for responding to customer inquiries. Should you have any questions, please contact your District Customer Support Manager.

We apologize for any inconvenience this program may cause you and your personnel. Your understanding and support in carrying out this campaign will be greatly appreciated.

Sincerely,

Mazda Motor of America, Inc.

### CONDITION OF CONCERN

If an RX-7 has been subjected to high speed operation and then parked before cooling down, the residual engine heat combined with the build-up of pressure in the cooling system can raise the temperature of the coolant to levels, where the integrity of the cooling system can be compromised. Repeated operation of the vehicle in this manner may produce cooling system leaks.

Under some circumstances, the leaking coolant mixture can collect on the top of the engine, where some of the water can evaporate, increasing the concentration of the coolant. If coolant then leaks onto the exhaust manifold, an engine compartment fire could be the result.

### SUBJECT VEHICLES TABLE

```
UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;
3 Model Year & Model 3 VIN Range 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA^
3 1993-94 RX-7 3 JM1FD33**P0200001 - R0302076 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA^
3 NOTE: "*" can be replaced by any letter or number. 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU
```

### SERVICE PROCEDURES

## RECALL CAMPAIGN - 54407 - COOLANT LEAK 54407

### Article Text (p. 3)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:37AM

#### REPLACEMENT OF THE CAP KIT

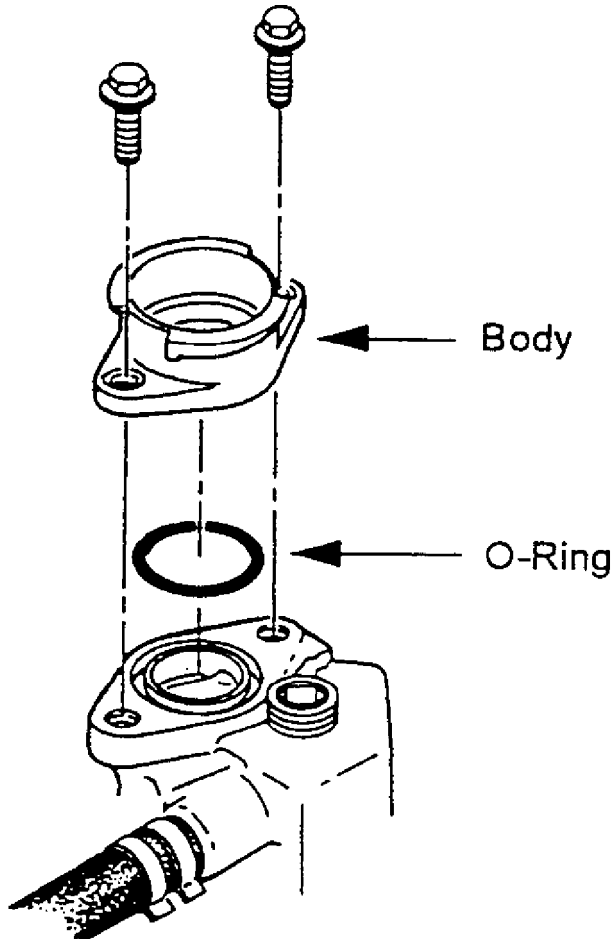
NOTE: If the vehicle has been sold, perform steps 52 - 55 before preceding with step 1.

To be performed on ALL vehicles.

1) Loosen the bolts of the filler cap body. Remove and discard the body and cap. Replace body, cap, and "O" ring with new ones from kit.

2) Remove and discard the radiator cap from the surge tank, and replace it with a new one.

NOTE: If vehicle is in inventory (not sold), proceed to step 56.



98G51645

Fig. 1: Body, Cap, and "O" Ring

#### REPLACEMENT OF THROTTLE HOSE

To be performed on ALL customer (sold) vehicles.

## RECALL CAMPAIGN - 54407 - COOLANT LEAK 54407

### Article Text (p. 4)

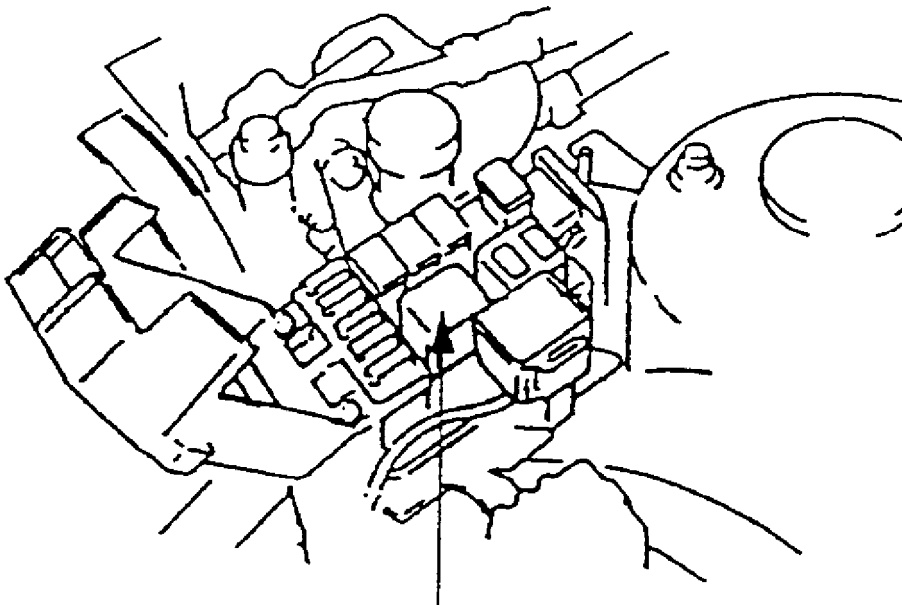
1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:37AM

- 3) Start the engine.
- 4) Remove the circuit opening relay.
- 5) After the engine stalls, crank the engine for 15-20 seconds to purge the injectors.
- 6) Turn the ignition switch off.
- 7) Install the circuit opening relay.



Circuit Opening Relay

98H51646

Fig. 2: Circuit Opening Relay

- 8) Disconnect the negative terminal from the battery.

NOTE: Record all preset stations on the vehicle's audio system prior to disconnecting the battery terminal.

- 9) Drain coolant and retain in an appropriate container.
- 10) Remove the air intake pipe from the outlet of the turbo, and cover the outlet with a shop towel.



**RECALL CAMPAIGN - 54407 - COOLANT LEAK 54407**

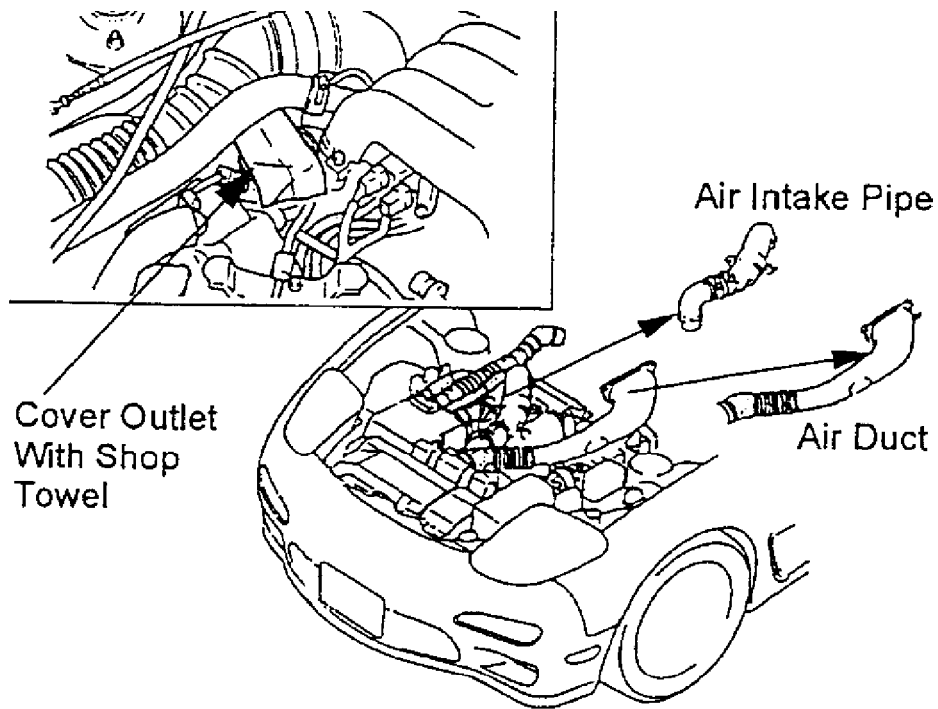
**Article Text (p. 5)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:37AM



98I51647

Fig. 3: Air Intake Pipe

- 11) Remove the air duct from the intercooler.
- 12) Remove hoses from the extension manifold. See Fig. 4.
- 13) Remove harnesses from the extension manifold. See Fig. 4.

# RECALL CAMPAIGN - 54407 - COOLANT LEAK 54407

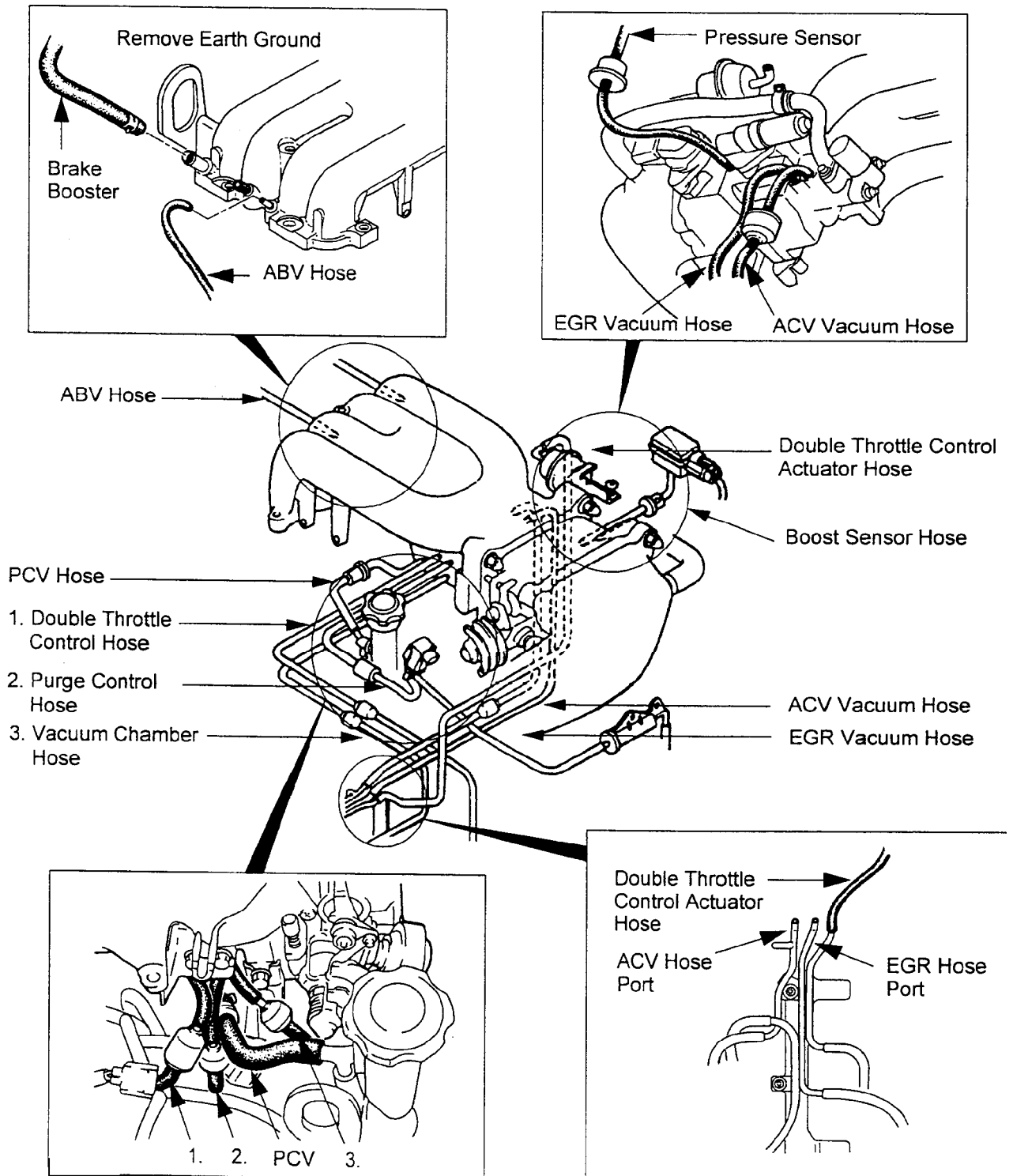
## Article Text (p. 6)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:37AM



98.151648  
Fig. 4: Extension Manifold

NOTE: Use the above illustration to determine hose location

14) Remove the bolts from the pressure chamber to remove the tank.

**RECALL CAMPAIGN - 54407 - COOLANT LEAK 54407**

**Article Text (p. 7)**

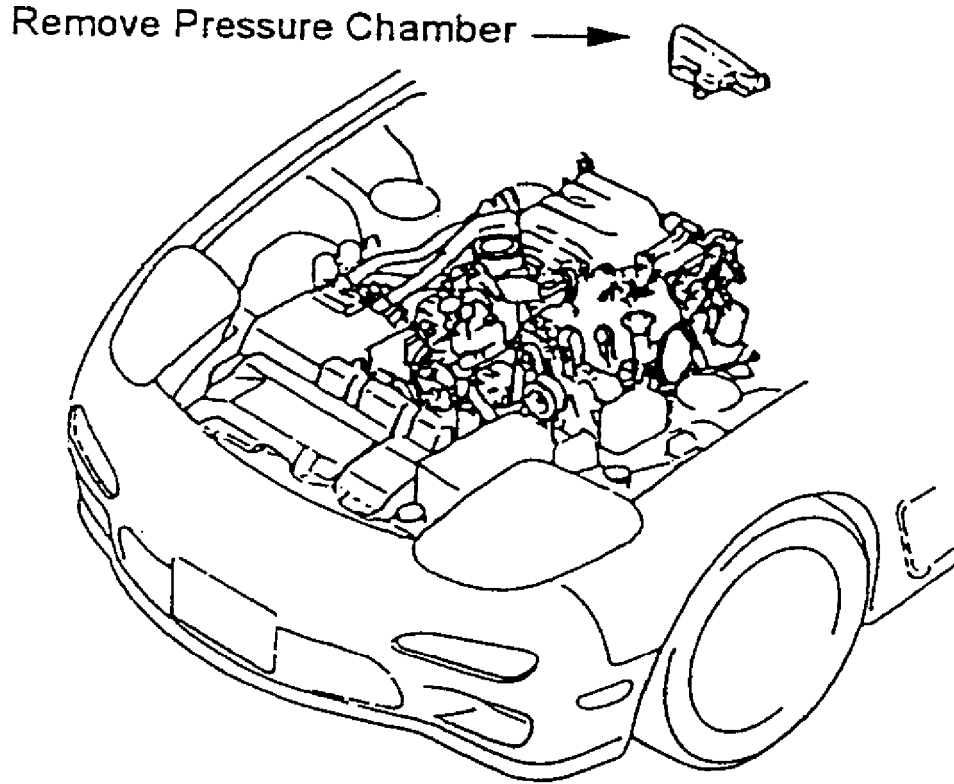
1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:37AM

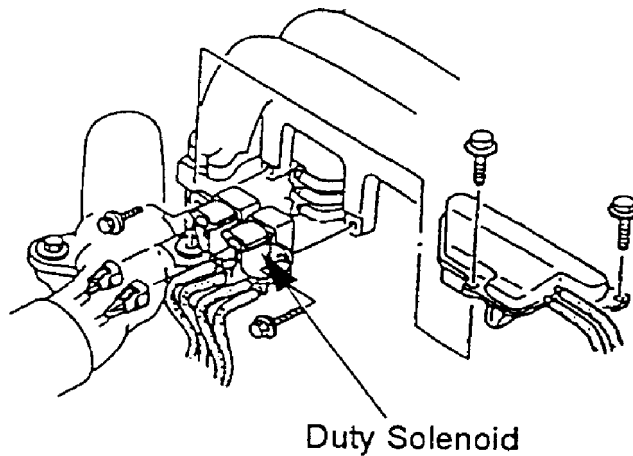
See Fig. 5.



98A51649

Fig. 5: Pressure Chamber Removal

15) Remove the bolts from the duty solenoid. See Fig. 6



Remove Bolts From Duty Solenoid

98E51650

Fig. 6: Duty Solenoid Bolt Removal

16) Remove the accelerator cable and cruise cable. See Fig. 7.

## RECALL CAMPAIGN - 54407 - COOLANT LEAK 54407

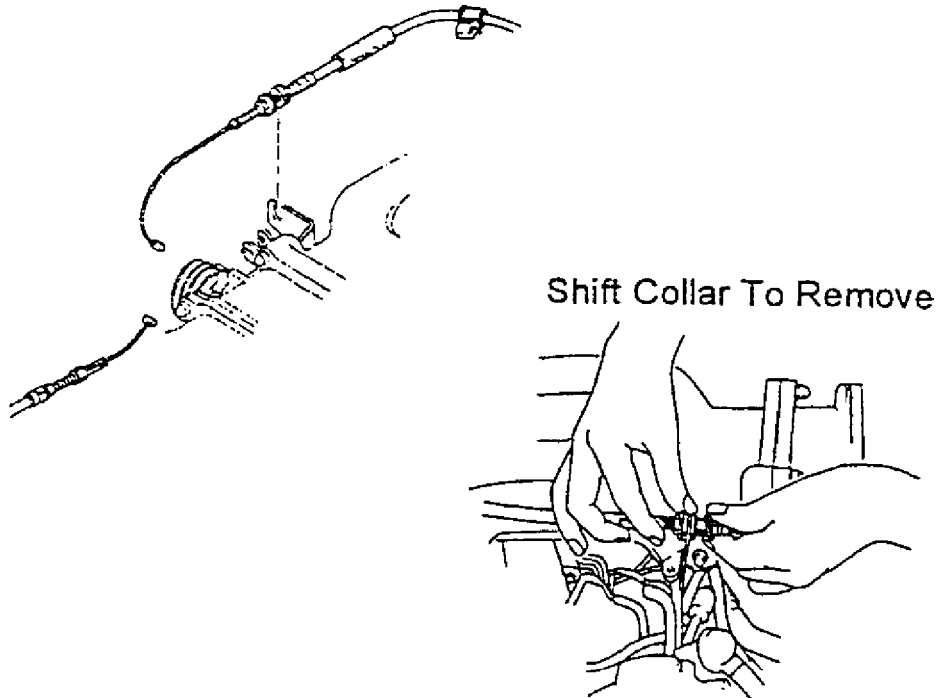
### Article Text (p. 8)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:37AM



98F51651

Fig. 7: Accelerator Cable Removal

17) Remove the bolts and nuts from the extension manifold and throttle body. Shift the throttle body.

18) Raise the extension manifold and remove the following harnesses and vacuum tubes:

#### Harnesses:

- \* Inlet Air Temperature Sensor
- \* AB Solenoid
- \* ISC Valve

#### Vacuum Tubes:

- \* EGR Vacuum Hose
- \* ACV Vacuum Hose
- \* Purge Hose
- \* Double Throttle Control Hose
- \* Double Throttle Control Actuator Hose.

**RECALL CAMPAIGN - 54407 - COOLANT LEAK 54407**

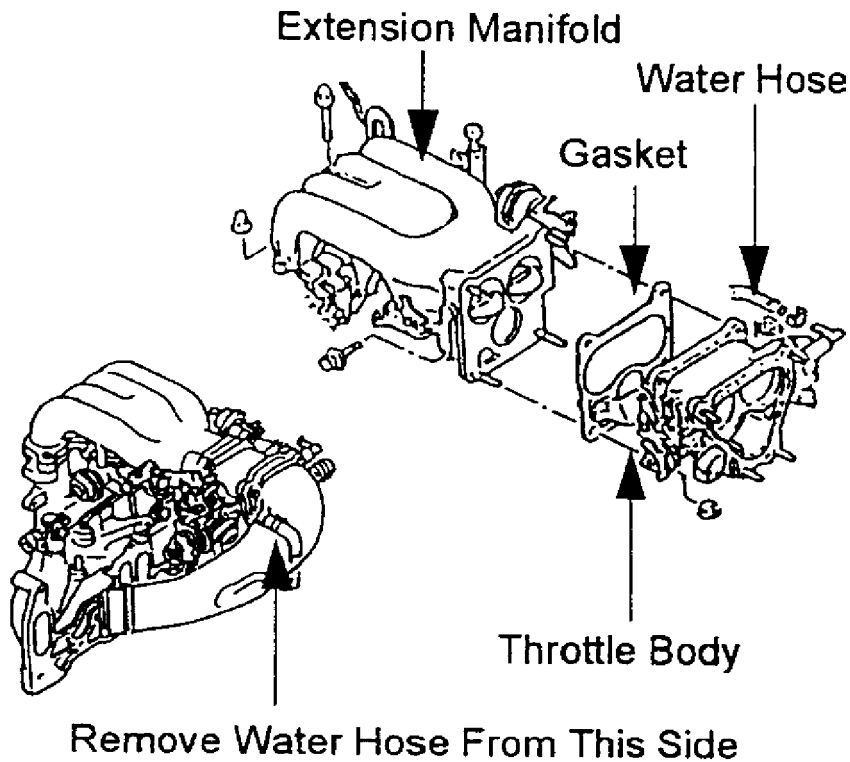
**Article Text (p. 9)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:37AM



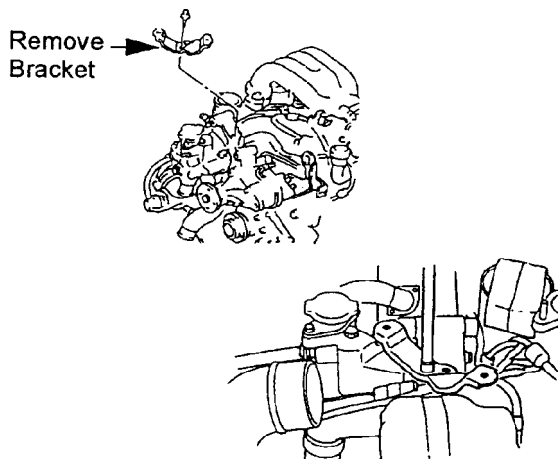
98G51652

Fig. 8: Harness and Vacuum Tube Removal

19) Remove the extension manifold and throttle body.

NOTE: Cover exposed intake holes with shop towel.

20) Remove the air intake pipe bracket. See Fig. 9.



98H51653

Fig. 9: Air Intake Pipe Bracket Removal

21) Replace the front throttle body water hose with a new one and

## RECALL CAMPAIGN - 54407 - COOLANT LEAK 54407

### Article Text (p. 10)

1993 Mazda RX7

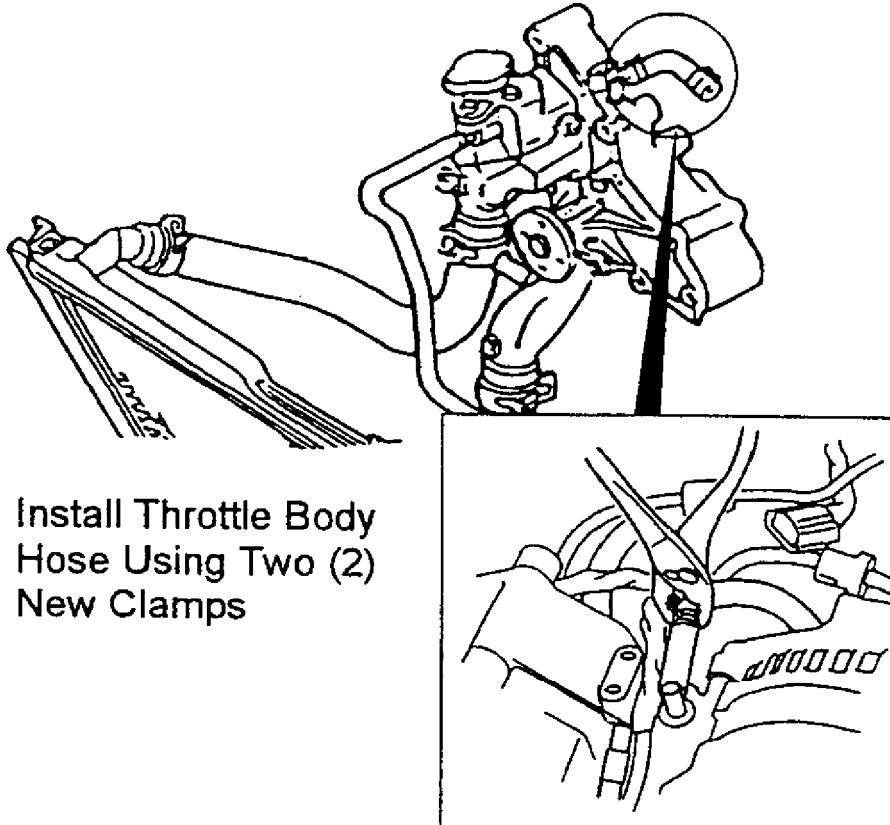
For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:37AM

attach it with two new hose clamps. See Fig. 10.

NOTE: Holder must be removed from clamps.



98151654  
Fig. 10: Install Throttle Body Hose

22) Install air intake pipe bracket. See Fig. 9.

### REPLACEMENT OF THE REAR WATER HOSE

23) Remove the following parts: O2 Sensor Coupler on the ACV, ACV Vacuum Tubes, Double Throttle Control Actuator Hose, Pressure Regulator Cut Valve Vacuum Hose, Rear Secondary Injector Coupler, Fuel Return Hose. See Figs. 11 thru 16.

# RECALL CAMPAIGN - 54407 - COOLANT LEAK 54407

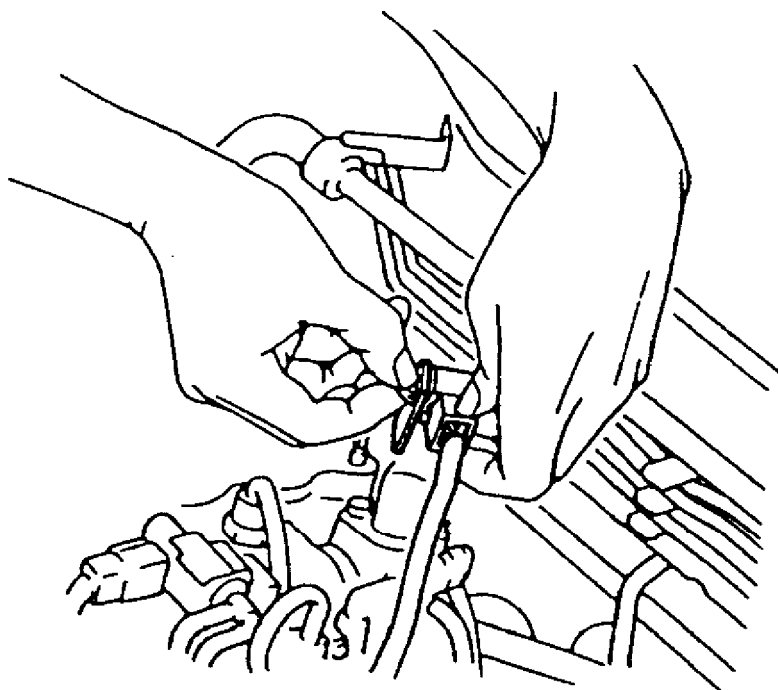
## Article Text (p. 11)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

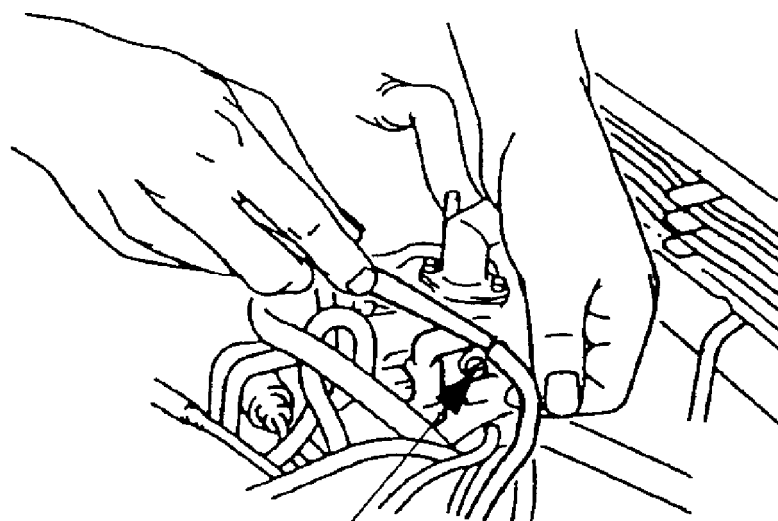
Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:37AM



- O<sub>2</sub> sensor coupler on the ACV

Fig. 11: <sup>98J51655</sup> O2 Sensor Coupler on the ACV



DO NOT DAMAGE

- ACV vacuum tubes

Fig. 12: <sup>98A51656</sup> ACV Vacuum Tubes

**RECALL CAMPAIGN - 54407 - COOLANT LEAK 54407**

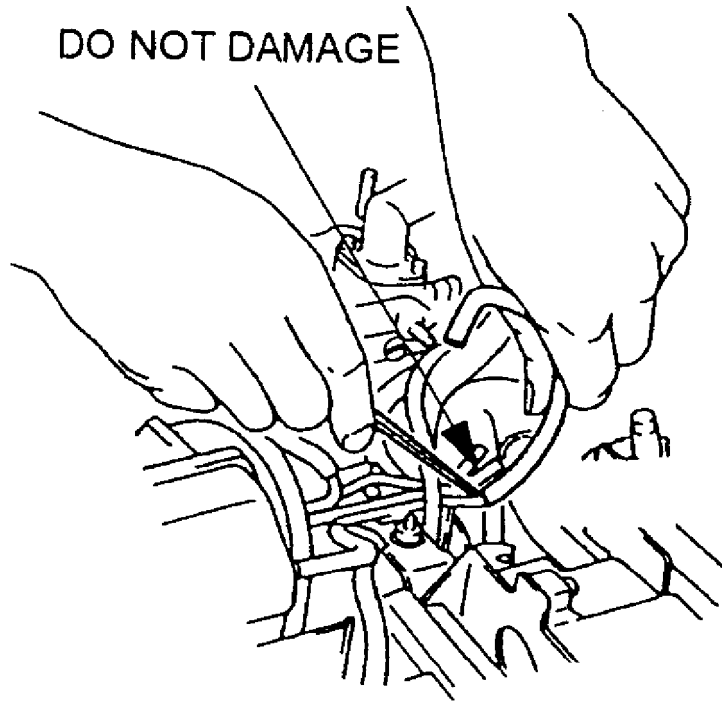
**Article Text (p. 12)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

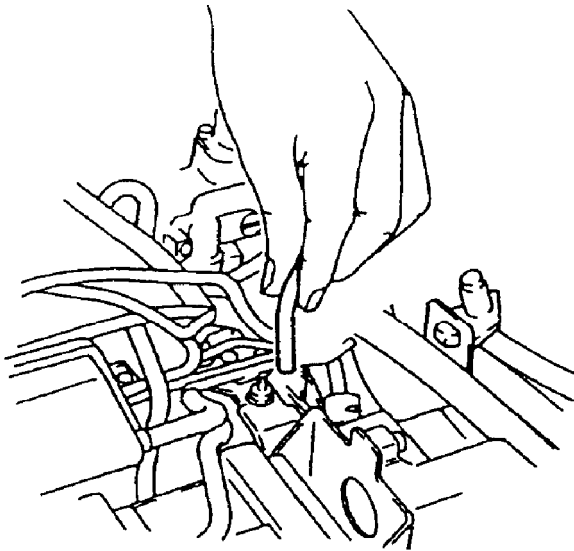
Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:37AM



- Double throttle control actuator hose

98B51657  
Fig. 13: Double Throttle Control Actuator Hose



- Pressure regulator cut valve vacuum hose.

98C51658  
Fig. 14: Pressure Regulator Cut Valve Vacuum Hose



**RECALL CAMPAIGN - 54407 - COOLANT LEAK 54407**

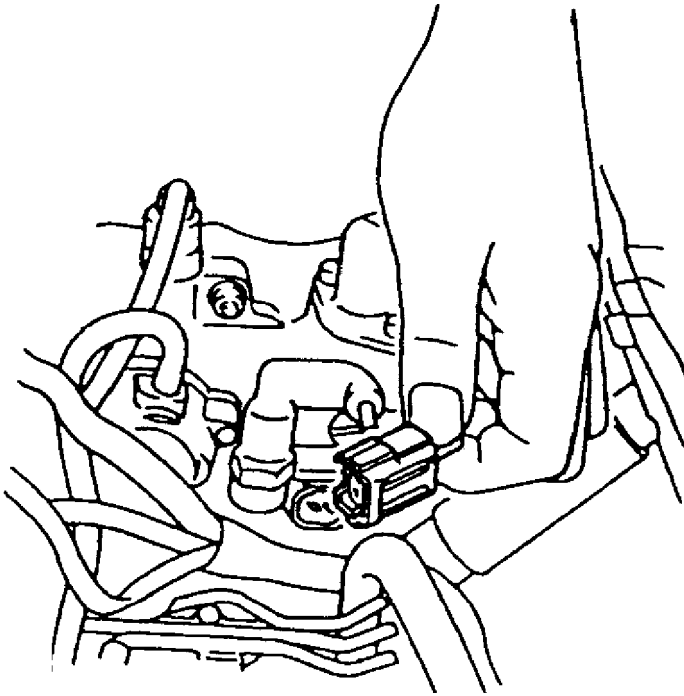
**Article Text (p. 13)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

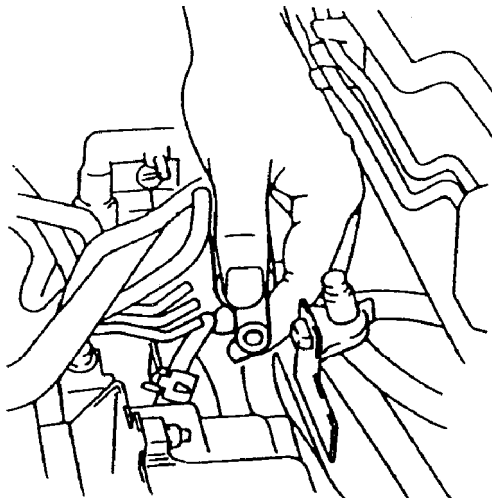
Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:37AM



- Rear secondary injector coupler

98D51659  
Fig. 15: Rear Secondary Injector Coupler



- Fuel return hose on the rear upper side of the throttle water hose.
- NOTE:** DO NOT DAMAGE fuel return hose.

98G51660  
Fig. 16: Fuel Return Hose

24) Use long needle nose pliers to remove hose clamps, and replace the

## RECALL CAMPAIGN - 54407 - COOLANT LEAK 54407

### Article Text (p. 14)

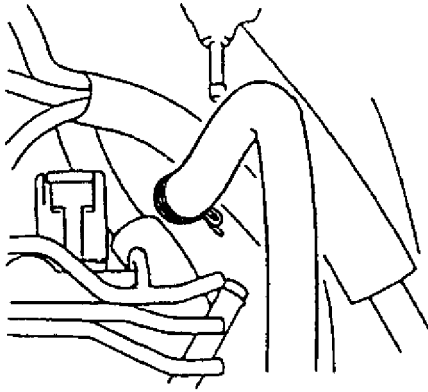
1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

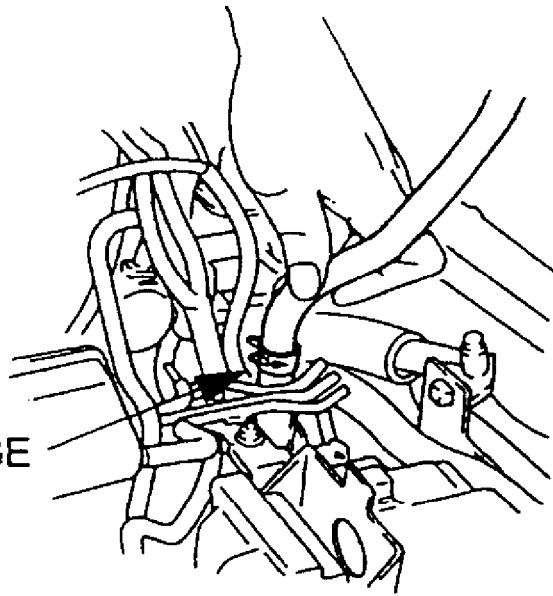
Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:37AM

rear throttle body water hose with a new one. See Fig. 17. Remove holders from clamps attach with two new clamps.



**Install New Rear  
Throttle Body Water  
Hose. Use New  
Clamps**



**DO NOT DAMAGE**

98H51661

Fig. 17: New Rear Throttle Body Water Hose

25) Install the fuel return hose.

26) Check for fuel leakage.

**NOTE:** If the vehicle has never overheated, perform D-G of this step. Due to the complexity of the above procedures, it is possible that fuel hoses may have been loosened. It is therefore critical that this test be completed.

\* A: Install fuel pressure gauge on the main fuel hose.  
See Fig. 18.

**WARNING:** DO NOT SMOKE, CARRY LIGHTED TOBACCO, OR AN OPEN FLAME OF ANY TYPE WHEN WORKING ON OR NEAR A FUEL RELATED COMPONENT. HIGHLY FLAMMABLE MIXTURES ARE PRESENT AND MAY BE IGNITED,

## RECALL CAMPAIGN - 54407 - COOLANT LEAK 54407

### Article Text (p. 15)

1993 Mazda RX7

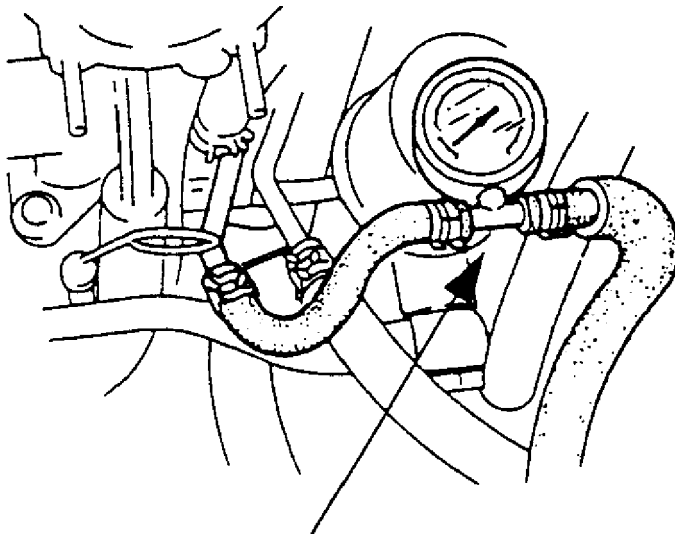
For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:37AM

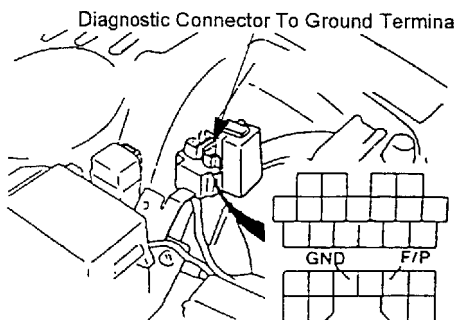
RESULTING IN POSSIBLE INJURY.

- \* B: Connect the negative terminal to the battery.
- \* C: Connect the fuel pump terminal of the diagnostic connector to the ground terminal. See Fig. 19.
- \* D: Turn ignition on for 30 seconds.
- \* E: Visually inspect for fuel leakage.
- \* F: Turn ignition off. Record fuel pressure.
- \* G: After 5 minutes, check fuel pressure. If fuel pressure has dropped more than 2.8 psi after 5 minutes, locate and repair fuel leaks. Re-test system following the above steps.



Install Fuel Pressure Gauge

98I51662  
Fig. 18: Install Fuel Pressure Gage



98I51663  
Fig. 19: Diagnostic Connector to Ground Terminal

**RECALL CAMPAIGN - 54407 - COOLANT LEAK 54407**

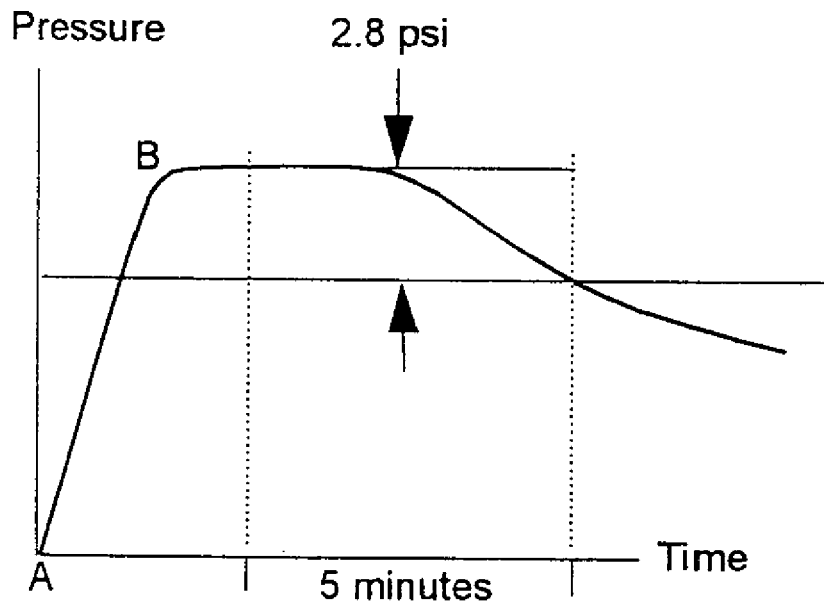
**Article Text (p. 16)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

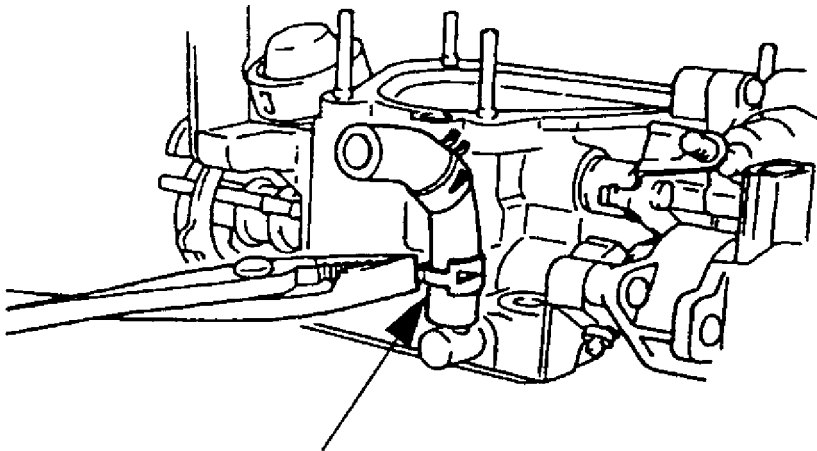
Saturday, August 25, 2001 09:37AM



98A51664

Fig. 20: Fuel Pressure Graph

27) Replace the throttle body water hose with a new one using two new clamps. See Fig. 21.



**Install New Throttle Body Water  
Hose Using Two (2) New Clamps**

98B51665

Fig. 21: Installing Throttle Body Water Hose

28) Install the following in reverse order of step 24:

- \* O2 sensor coupler on the ACV
- \* Pressure regulator cut valve vacuum hose

## RECALL CAMPAIGN - 54407 - COOLANT LEAK 54407

### Article Text (p. 17)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

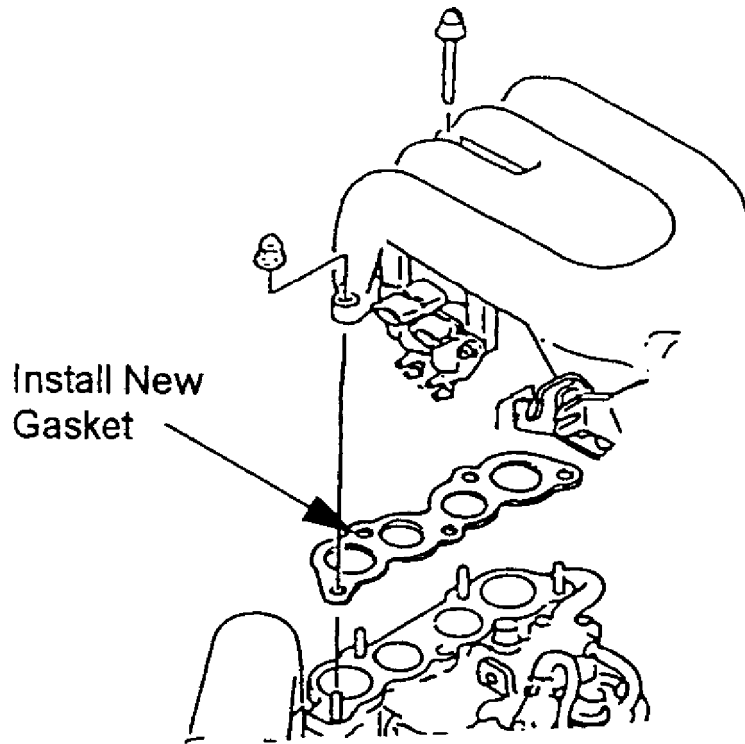
Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:37AM

\* Double throttle control actuator hose

\* Rear secondary injector coupler

29) Replace the gasket between the extension manifold and the intake manifold with a new one, install the extension manifold, and then install the harnesses and the vacuum tubes. See Fig. 22.



98C51666  
Fig. 22: Extension Manifold Gasket

30) Install throttle body with new gasket.

## RECALL CAMPAIGN - 54407 - COOLANT LEAK 54407

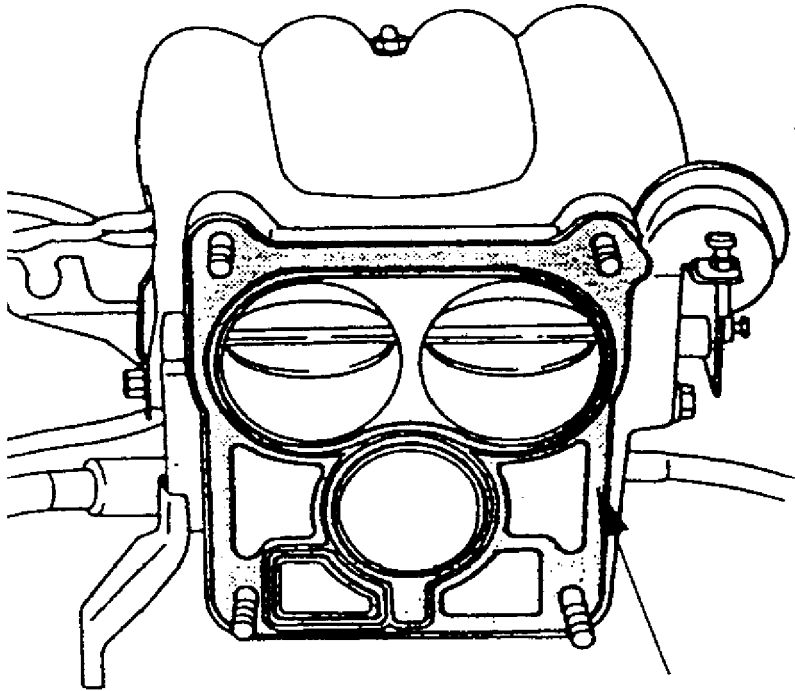
### Article Text (p. 18)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:37AM



Install New Gasket

98D51667  
Fig. 23: Throttle Body Gasket

NOTE: Be sure the gasket is installed in the correct direction. A projection on the gasket faces the double throttle body side.

31) Attach the water hoses at the outlet and inlet of the throttle body.

32) If the vehicle has no history of coolant leaks and no leaks were detected during initial testing, proceed to step 51.

### REPLACEMENT OF THE WATER PUMP KIT AND THE THROTTLE HOSE KIT

To be performed on vehicles that have experienced overheating or leaked during the pressure test.

33) Drain coolant and retain in appropriate container.

34) Remove the bolts from the fresh air duct, and remove the fresh air duct. See Fig. 24.

- \* Remove the rubber hoses from the air cleaner.

- \* Remove the air cleaner installation bolts.

**RECALL CAMPAIGN - 54407 - COOLANT LEAK 54407**

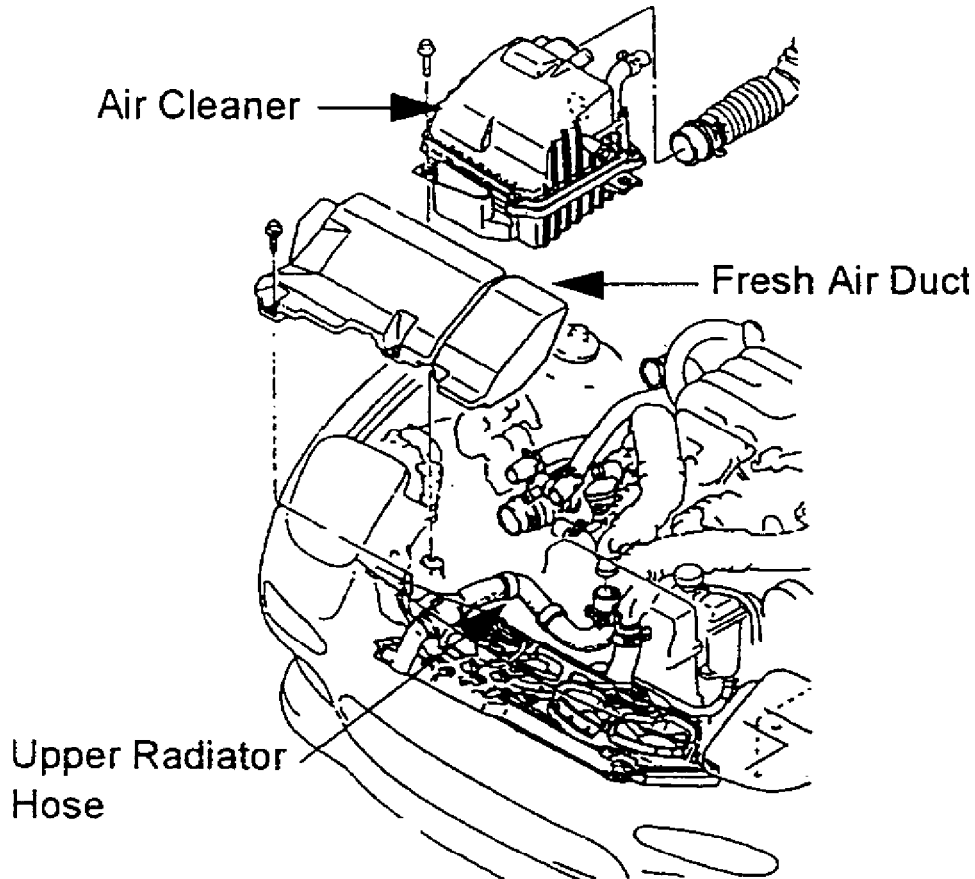
**Article Text (p. 19)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:37AM

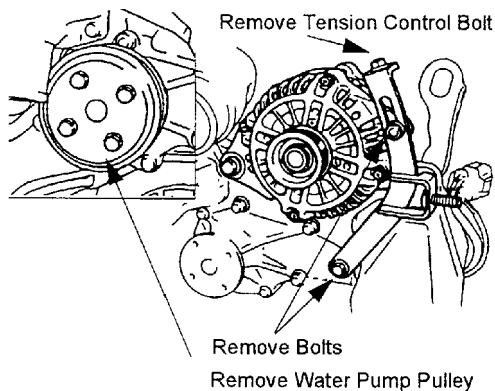


98E51668

Fig. 24: Fresh Air Duct And Radiator Hose

35) Remove the upper radiator hose. See Fig. 24.

36) Remove the alternator installation nuts from the alternator adjuster bracket to remove the tension control bolt. See Fig. 24.



98F51669

Fig. 25: Tension Control Bolt And Water Pump Pulley

37) Remove the water pump pulley and the alternator belt. See Fig. 24.

## RECALL CAMPAIGN - 54407 - COOLANT LEAK 54407

### Article Text (p. 20)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:37AM

- \* Loosen the four bolts from the water pump pulley.

- \* Loosen the alternator belt.

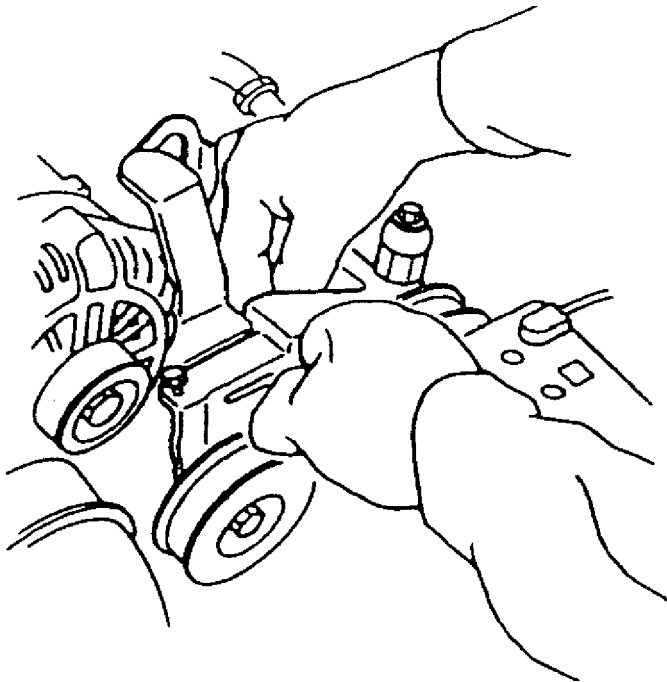
- \* Remove the bolts from the water pump pulley.

- \* Move the belt, and remove the water pump pulley.

38) Remove the alternator adjustor bracket.

- \* Remove the bolt attaching the alternator adjustor bracket to the water pump.

39) Remove the nut attaching the alternator adjusting bracket to the power steering bracket. See Fig. 26.



98I51670

Fig. 26: Alternator Attaching Nut

40) Remove the water pump and discard. Remove and discard gasket and clean gasket surface.

41) Install new water pump using the new gasket.



**RECALL CAMPAIGN - 54407 - COOLANT LEAK 54407**

**Article Text (p. 21)**

1993 Mazda RX7

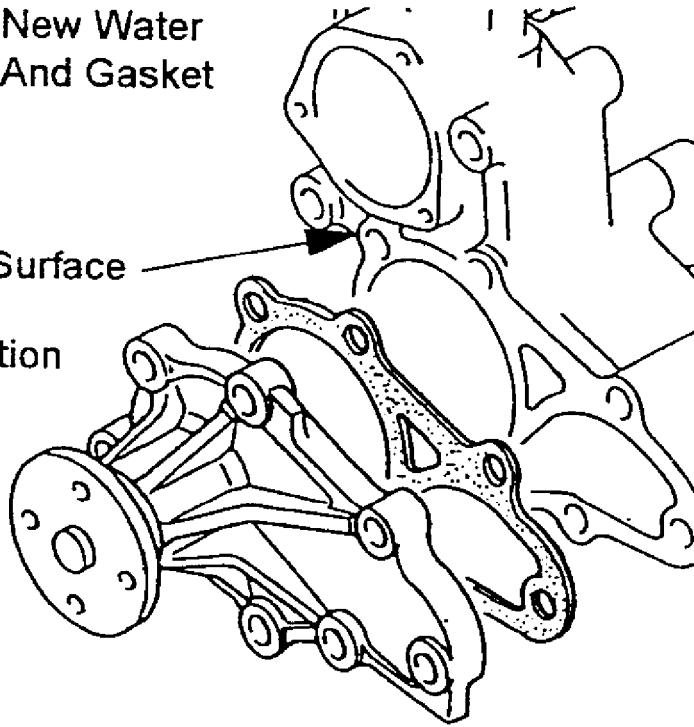
For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:37AM

**Install New Water  
Pump And Gasket**

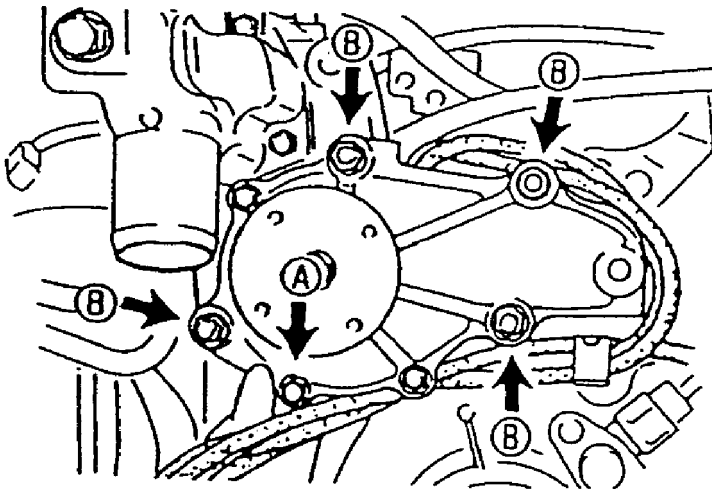
Clean Surface  
Prior to  
Installation



98J51671

Fig. 27: New Water Pump Installation

Note: Be sure that oil metering line retaining clip is installed correctly on the outside of the water pump at bolt "A". See Fig. 28.



**Route Oil Metering Line Properly**

98A51672

Fig. 28: Oil Metering Line Routing

42) Disconnect the low coolant switch connector. See Fig. 29.

**RECALL CAMPAIGN - 54407 - COOLANT LEAK 54407**

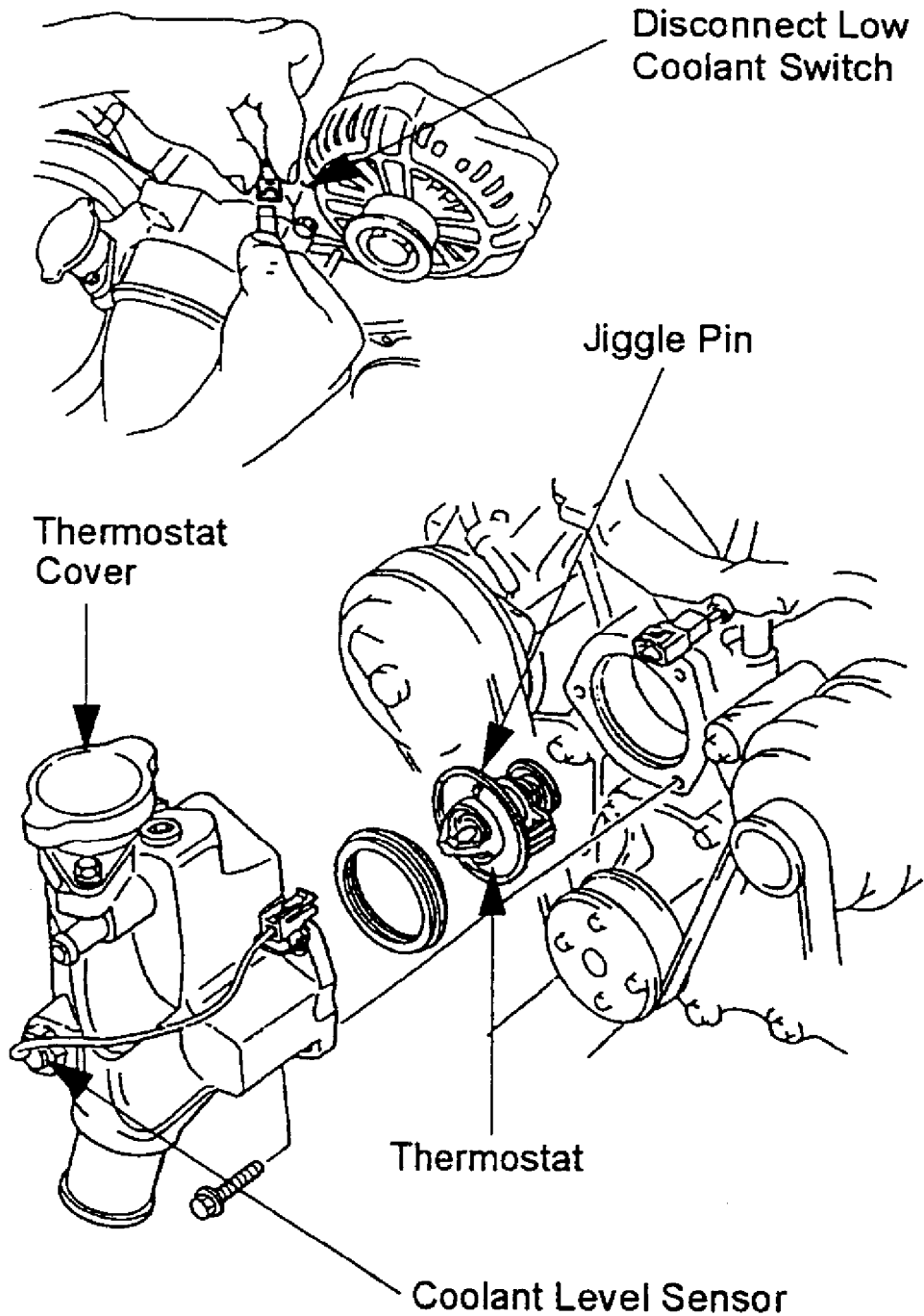
**Article Text (p. 22)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:37AM



98B51673

Fig. 29: Low Coolant Switch, Sensor, And Thermostat Cover

43) Remove the surge tank hose from the thermostat cover.

44) Remove the thermostat cover. See Fig. 29.

\* Remove the thermostat.

# RECALL CAMPAIGN - 54407 - COOLANT LEAK 54407

## Article Text (p. 23)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:37AM

\* Install thermostat with new gasket.

NOTE: Ensure that the jiggle pin is in the 12:00 o'clock position.  
See Fig. 29.

45) Install a new coolant level sensor and gasket. See Fig. 29.

46) Install the thermostat cover.

NOTE: Install water level sensor connector bracket.

47) Connect the coolant level sensor.

48) Install alternator bracket, pulley, and belt in reverse order of removal. See Fig. 25.

49) Install new upper radiator hose.

50) Install air cleaner and fresh air duct.

51) After assembling parts, follow the instructions below prior to replenishing coolant.

\* Measure the concentration of antifreeze in the removed coolant with a hydrometer.

\* If the concentration is more than 45%, use the removed coolant to fill the system, purge air from the system and fill the coolant reservoir to the "F" mark.

\* If the concentration is 45% or less, add 100% anti-freeze to the coolant system as specified in the table on the right.

\* Purge the system of air. Use the original coolant to fill the reservoir to the "F" mark.

NOTE: Coolant refers to the fluid drained from the vehicle.  
Antifreeze refers to 100% new coolant.

### COOLANT TABLE

|                                                             |                  |   |
|-------------------------------------------------------------|------------------|---|
| UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA; |                  |   |
| 3                                                           | Concentration of | 3 |
| 3                                                           | Anti-Freeze      | 3 |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA~  |                  |   |
| 3                                                           | 0 - 5 %          | 3 |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA~  |                  |   |
| 3                                                           | 5 - 10 %         | 3 |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA~  |                  |   |
| 3                                                           | 10 - 15 %        | 3 |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA~  |                  |   |
| 3                                                           | 15 - 20 %        | 3 |

## RECALL CAMPAIGN - 54407 - COOLANT LEAK 54407

### Article Text (p. 24)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

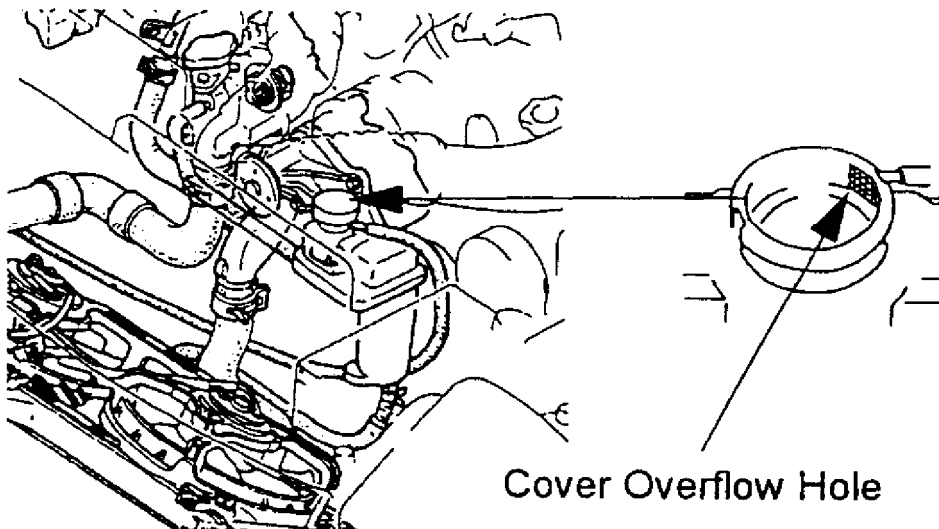
Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:37AM

|   |                                         |   |      |   |
|---|-----------------------------------------|---|------|---|
| 3 | 20 - 25 %                               | 3 | 3.1L | 3 |
| 3 | 25 - 30 %                               | 3 | 2.7L | 3 |
| 3 | 30 - 35 %                               | 3 | 2.2L | 3 |
| 3 | 35 - 40 %                               | 3 | 1.6L | 3 |
| 3 | 40 - 45 %                               | 3 | 1.0L | 3 |
| 3 | Use Hydrometer to Measure Concentration |   |      | 3 |

### PRESSURE TEST COOLING SYSTEM

52) Remove the cap from the surge tank, and close the overflow hole in the surge tank neck with tape. See Fig. 30.



98C51674

Fig. 30: Cover Overflow Hole

53) Install the radiator tester on the surge tank. See Fig. 31.

## RECALL CAMPAIGN - 54407 - COOLANT LEAK 54407

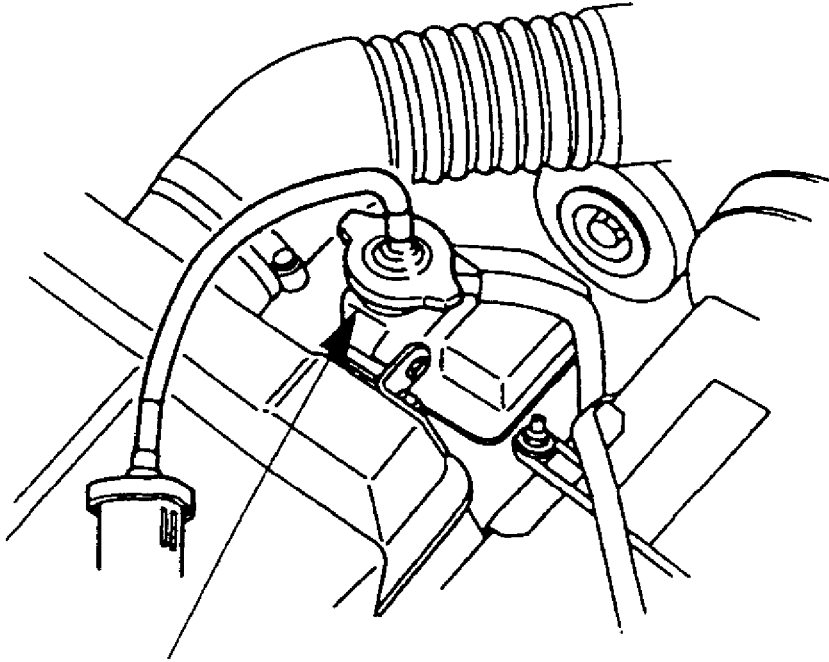
### Article Text (p. 25)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:37AM



**Install Radiator Tester And Apply 15psi  
Verify That Pressure Holds**

98D51675

Fig. 31: Radiator Pressure Tester

54) Apply 15 psi.

55) Verify that pressure holds.

NOTE: If the radiator coolant pressure has dropped, locate the leak and repair as necessary. Retest after repair following the above procedures. After confirmation that no leaks are present, remove the tape from the overflow hole and install the pressure cap.

### AFFIX THE CAMPAIGN LABELS

56) Affix the label onto the driver's side door for future confirmation that the campaign has been completed on this vehicle.

IMPORTANT: If the water pump was replaced during the campaign, affix an additional recall label on the underside of the hood as shown. See Fig. 32.

57) Affix coolant concentration label to air cleaner housing. See Fig. 32.

## RECALL CAMPAIGN - 54407 - COOLANT LEAK 54407

### Article Text (p. 26)

1993 Mazda RX7

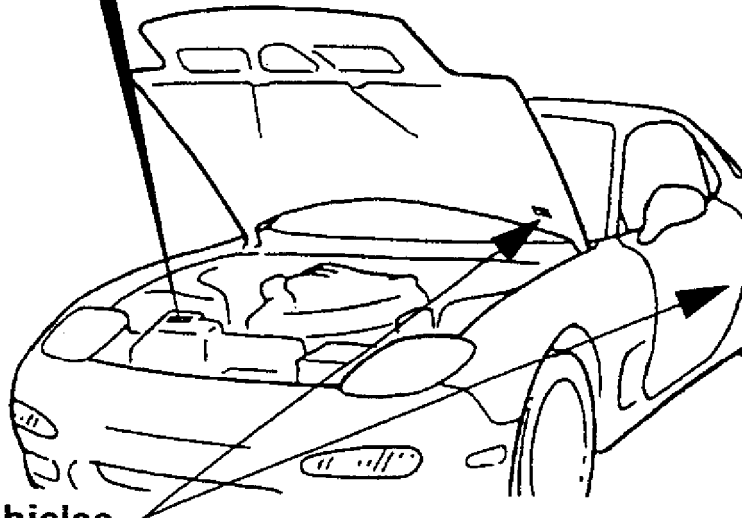
For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:37AM

### Install Coolant Concentration Label

**ATTENTION**  
COOLANT CONCENTRATION MUST  
BE KEPT AT 45% OR HIGHER  
(example: 45% or higher coolant, 55% or lower water)



#### All Vehicles

Install Recall Label On Inside Of Driver's Door

#### Vehicles With Replaced Water Pump

Install An Additional Recall Label Under Hood On  
Driver's Side

98E51676  
Fig. 32: Coolant Concentration Label

58) Place correction sticker over the existing "Mixture Percentage" table in the vehicle owner's manual (pg. 7-15).

### PARTS INFORMATION

An initial allocation of parts will be drop shipped to dealers with their scheduled stock order (SSO), beginning Monday, August 1 through Friday, August 5.

The total number of filler cap kits and throttle water kits to be distributed, will be equal to 50% of the combined number of subject vehicles registered in the dealer's assigned market area and in inventory.

The total number of thermostat gaskets and water pump kits to be shipped will be equal to 50% of the anticipated failure rate (50%) of

# RECALL CAMPAIGN - 54407 - COOLANT LEAK 54407

## Article Text (p. 27)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:37AM

the number of subject vehicles registered in the dealer's assigned market area.

Parts ordering will be open to dealers beginning August 29, 1994.

### NECESSARY PARTS TABLE

|   |                                                                                                                                                                           |   |                     |   |          |   |
|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---------------------|---|----------|---|
| 3 | Part Description                                                                                                                                                          | 3 | Part Number         | 3 | Qty.     | 3 |
| 3 | Campaign Door Label                                                                                                                                                       | 3 | P/N 9999-95-065A-00 | 3 | Qty. [1] | 3 |
| 3 | Owner's Manual Label                                                                                                                                                      | 3 | P/N 9999-95-073A-94 | 3 | Qty. [1] | 3 |
| 3 | Under-hood Coolant Mix Label                                                                                                                                              | 3 | P/N 9999-95-074A-94 | 3 | Qty. [1] | 3 |
| 3 | Filler Cap Kit                                                                                                                                                            | 3 | P/N N3Z1 -15-S1 OB  | 3 | Qty. [1] | 3 |
| 3 | Throttle Water Hose Kit                                                                                                                                                   | 3 | P/N N3A1-13-S60     | 3 | Qty. [1] | 3 |
| 3 | Thermostat Gasket*                                                                                                                                                        | 3 | P/N N3C1 -15-173    | 3 | Qty. [1] | 3 |
| 3 | Water Pump Kit*                                                                                                                                                           | 3 | P/N N3Z1-15-S20     | 3 | Qty. [1] | 3 |
| 3 | *" Replacement of the part is only required if there is currently a coolant leak or if there has been a coolant leak repair claimed and approved in the vehicle's history |   |                     |   |          | 3 |

One sheet of each of the labels listed above has been supplied with the dealer notification. Additional labels are available through HELM, Inc. at (800) 782-4356. Recall related labels are supplied at no charge.

### WARRANTY INFORMATION

#### VEHICLES WITH A HISTORY OF A COOLANT LEAK

If the following conditions are met, then the vehicle has experienced a coolant leak:

- \* Any vehicle that has had a warranty claim paid for a Part Number Main Cause (PNMC) that matches the last five positions of the numbers listed below and one of the Symptom Codes listed.

#### PART NUMBER MAIN CAUSE (PNMC) LAST FIVE POSITIONS

02200 13530 1353X 1354X 13681, 13691, 13692, 13640, 15010, 15100, 15116, 15140, 15150, 15162, 15171, 15172, 15173, 15174, 15175, 1517Y, 15182, 15183, 15184, 15185, 15186, 15200, 15203, 15205, 15350, 15355, 15359, 535X, 15380, 15610, 15611, 99008,

### SYMPTOM CODE TABLE

# RECALL CAMPAIGN - 54407 - COOLANT LEAK 54407

## Article Text (p. 28)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:37AM

| Symptom Code # |  |  | Description                     |
|----------------|--|--|---------------------------------|
| 09             |  |  | Engine Overheat                 |
| 11             |  |  | Engine Knocking                 |
| 61             |  |  | Does Not Switch On              |
| 62             |  |  | Does Not Switch Off             |
| 64             |  |  | Improper Operation              |
| 65             |  |  | Improper Indication             |
| 77             |  |  | Water Leak/Coolant Leak         |
| 78             |  |  | Air/Exhaust Gas/Dust/Light Leak |
| 92             |  |  | Broken                          |

### WARRANTY INFORMATION TABLE

| Nature   |              | New Vehicle  |  | Retailed         |  | Retailed      |  |
|----------|--------------|--------------|--|------------------|--|---------------|--|
|          |              | In Inventory |  | Vehicles         |  | Vehicles      |  |
|          |              |              |  | No Coolant Leaks |  | Coolant Leaks |  |
| Warranty | R            |              |  | R                |  | R             |  |
| Type     |              |              |  |                  |  |               |  |
| Customer | 99           |              |  | 99               |  | 99            |  |
| Comment  |              |              |  |                  |  |               |  |
| Code     |              |              |  |                  |  |               |  |
| Damage   | 99           |              |  | 99               |  | 99            |  |
| Code     |              |              |  |                  |  |               |  |
| Process  | A4014A       |              |  | A4014B           |  | A4014C        |  |
| Number   |              |              |  |                  |  |               |  |
| Part     | N3Z1-15-S10B |              |  | N3Z1-15-S10B     |  | N3Z1-15-S10B  |  |
| Number   |              |              |  |                  |  |               |  |
| Main     |              |              |  |                  |  |               |  |
| Cause    |              |              |  |                  |  |               |  |
| (PNMC)   |              |              |  |                  |  |               |  |
| Quantity | 1            |              |  | 1                |  | 1             |  |
| Related  | None         |              |  | N3A1-13-S60      |  | N3A1-13-S60   |  |
| Part     |              |              |  |                  |  | N3Z1-15-S20   |  |
| Numbers  |              |              |  |                  |  | N3C1-15-173   |  |



# RECALL CAMPAIGN - 54407 - COOLANT LEAK 54407

## Article Text (p. 29)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:37AM

```

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Quantity      3      None      3      1      3 1 for each P/N 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Labor      3      XX0667R1      3      XX0667R2      3      XX0667R3      3
3 Operation  3      3      3      3      3
3 Code      3      3      3      3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Labor      3      0.3 Hrs.      3      2.2 Hrs.      3      3.3 Hrs.      3
3 Hours      3      3      3      3      3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

```

### OWNER NOTIFICATION LETTER

The owners of the subject vehicles will be notified by first class mail beginning August 8, 1994. Please see attached letter.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

1993-94 RX-7 Coolant Leak (Recall Campaign #54407)

Dear RX-7 Owner:

This notice is sent to you in accordance with the requirements of the National Traffic and Motor Vehicle Safety Act.

Mazda has determined that a defect which relates to motor vehicle safety exists in certain 1993-94 RX-7 models. We have decided to conduct Recall Campaign #54407 for replacement of selected engine cooling system components in those vehicles, beginning August 8, 1994.

If your RX-7 has been subjected to high speed operation and then parked before cooling down, the residual engine heat combined with the build-up of pressure in the cooling system can raise the temperature of the coolant to levels, where the integrity of the cooling system can be compromised. Repeated operation of the vehicle in this manner may produce cooling system leaks.

Under some circumstances, the leaking coolant mixture can collect on the top of the engine, where some of the water can evaporate, increasing the concentration of the coolant. If coolant then leaks onto the exhaust manifold, an engine compartment fire could be the result.

Your RX-7 is equipped with a water level sensor that warns you of low coolant levels with both a warning light and accompanying buzzer. In most cases, you would be warned of a low water level prior to the point where enough coolant had been leaked to present any serious risk of fire.

Please make an appointment at your Mazda dealer to have the required repairs performed at no charge to you.

**RECALL CAMPAIGN - 54407 - COOLANT LEAK 54407**

**Article Text (p. 30)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:37AM

If you have moved or no longer own the vehicle, please complete the enclosed "Change of Address/Ownership" pre-paid postcard as soon as possible, so we may update our records and/or notify the current owner.

Should you have any questions regarding this program, please contact our Customer Relations toll free number (800) 222-5500.

If your dealer or distributor does not remedy the defect without charge within a reasonable amount of time, you may wish to notify the Administrator, National Highway Traffic Safety Administration, Washington, D.C. 20590, or you can call their toll-free Auto Safety Hotline at (800) 424-9393. (Residents of Washington, D.C. may call 366-0123).

Our goal at Mazda is to build and maintain only the highest quality products. Please accept our apologies for any inconvenience this may cause you.

Sincerely,

Mazda Motor of America, Inc.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

**END OF ARTICLE**

## RECONDITIONED ANTI-FREEZE CAT. E, NO. 002/96

### Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:37AM

### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### RECONDITIONED ANTI-FREEZE

Model(s): All Mazda Models  
Category: E - Cooling System  
Bulletin No.: 002/96  
Date: June 27, 1996

### DESCRIPTION

Mazda does not recommend the use of reconditioned anti-freeze. Mazda recommends ethylene glycol base coolants for all Mazda aluminum engines.

Although reconditioned anti-freeze is available, this product may contain silicon particles which may be abrasive to the water pump seal. Additionally, reconditioned anti-freeze may contain chemicals (alcohol or methanol) that erode metal parts.

Service Managers should inform customers that Mazda does not recommend reconditioned anti-freeze and that problems (mechanical and otherwise) related to the use of reconditioned anti-freeze are not warrantable.

CAUTION: Antifreeze is considered a hazardous and toxic substance. Handled and disposed must be done in accordance with local, state and federal laws.

### END OF ARTICLE

# REVISED ROTARY ENGINE PRICING CAT. RF, NO. 95-24

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:38AM

## ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

## REVISED ROTARY ENGINE PRICING

Model(s): All Mazda RX-7 Models  
Category: Parts Flash  
Bulletin No.: RF 95-24  
Date: October 20, 1995

## DESCRIPTION

The price of the Rebuilt Rotary Engines has changed. A core charge of \$600.00 is now included in the dealer Price. Refer to the PARTS INFORMATION TABLE.

These new prices were effective 10-2-95 and are not reflected in List or the DMS tapes. The DMS tapes will be updated the first week of November. The next issue of the Dealer Price List will contain the new prices.

## PARTS INFORMATION

### PARTS INFORMATION TABLE

| Part Number  | Year/Model                  | Current Pricing | Revised Pricing |
|--------------|-----------------------------|-----------------|-----------------|
| A008-99-008R | 1970-73                     | \$1,000.00      | \$1,600.00      |
| B008-99-008R | 1974-78                     | \$1,000.00      | \$1,600.00      |
| C008-99-008R | 1979-85<br>RX-7 12A         | \$1,250.00      | \$1,850.00      |
| D008-99-008R | 1984-85<br>RX-7 13B         | \$1,250.00      | \$1,850.00      |
| E008-99-008R | 86-88 RX-7 13B<br>W/O TURBO | \$1,250.00      | \$1,850.00      |
| F008-99-008R | 87-88 RX-7 13B<br>W/ TURBO  | \$1,250.00      | \$1,850.00      |
| G008-99-008R | 89-91 RX-7 13B<br>W/O TURBO | \$1,250.00      | \$1,850.00      |
| H008-99-008R | 89-91 RX-7 13B<br>W/ TURBO  | \$1,270.00      | \$1,870.00      |
| J008-99X08R  | 1993 RX-7                   | \$1,270.00      | \$1,870.00      |

REVISED ROTARY ENGINE PRICING CAT. RF, NO. 95-24

Article Text (p. 2)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:38AM

3 3 W/ TWIN TURBO 3 3  
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAUU

END OF ARTICLE

# RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:38AM

## ARTICLE BEGINNING

### RECALL CAMPAIGN

RX-7 FUEL LEAKAGE RECALL CAMPAIGN NUMBER 60504

Model(s): 1993-94 Mazda RX-7 (Canadian)  
Category: RC - Recall  
Bulletin No.: 95-01  
Date: May, 1995

## DESCRIPTION

If an RX-7 is driven under severe conditions such as high speed and uphill driving, and the engine is turned off, the temperature of the engine compartment rises because of the residual engine heat, to the extent that it may cause premature deterioration of the fuel hoses elasticity. Repetitive operation may lead to a reduction in the sealing performance of the fuel hoses, and in rare cases, engine compartment fires can result.

Therefore, these vehicles must be repaired by replacing the fuel hoses with modified fuel hoses.

## SUBJECT VEHICLES

### VEHICLE INFORMATION TABLE

|                                                              |  |                            |
|--------------------------------------------------------------|--|----------------------------|
| UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA; |  |                            |
| Model Year & Model                                           |  | Vin Range                  |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA^  |  |                            |
| 1993 RX-7                                                    |  | JM1FD33**PO200001-210660   |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA^  |  |                            |
| 1994-95 RX-7                                                 |  | JM1FD33**RO300001-S0400026 |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA^  |  |                            |
| * - Can be replaced by any letter or number.                 |  |                            |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU   |  |                            |

## OWNER NOTIFICATION

The owners of the subject vehicles will be notified by first class mail around May 12, 1995.

## REPAIR PARTS

An initial quantity of Recall Labels are enclosed with this Service Bulletin (Part Number 9999-94 5032E/F). Additional quantities can be ordered through normal parts ordering channels.

Following completion of the repair, fill out the Recall Label with the appropriate information and affix it to left front (driver's) door

# RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01

## Article Text (p. 2)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:38AM

as shown in Fig. 31 & Fig. 74.

**SPECIAL NOTE:** Under separate cover, a container of special adhesive was shipped to every dealer. The adhesive was strapped with a note which clearly indicates that this adhesive is the only adhesive that can be used to carry out the repairs for this Recall. Do not attempt to carry out this Recall unless you have the adhesive. If your dealer has not received the adhesive, please contact the Technical Hot Line at 1-800-268-9400.

Initial quantities of the Fuel Hose Kit, part number N3A1-13-S70 have already been shipped. However please confirm parts stock with each new customer that books an appointment to have this Recall completed.

In addition to the above mentioned parts the following parts will have to be ordered, depending on which repair procedure(s) is required.

If Procedure A is performed:  
no additional parts order is necessary.

If Procedure B & C are performed:  
order Throttle Water Hose Kit, part number N3A1-13-S60  
and Filler Cap Kit, part number N3Z1-15-S10B

If Procedure B, C, & D are performed:  
order Throttle Water Hose Kit, part number N3A1-13-S60  
Filler Cap Kit, part number N3Z1-15-S10B  
Thermostat Gasket, part number N3C1-15-173  
Water Pump Kit, part number N3Z1-15-S20

**NOTE:** To Determine The Correct Repair Procedure:

The subject vehicles of Recall No. 60504 (Fuel Leakage) could also be subject to Recall No. 54407 (Coolant Leakage) which was launched in July, 1994. When the subject vehicles are brought in for repair, please check if recall campaign No. 54407 has been performed. If not, please perform recall No. 54407 in addition to No. 60504, based on the Repair Procedures found flow chart on the following page.

Please follow the flow chart to determine which procedure to perform before beginning repairs on each vehicle.

### SUBJECT VIN RANGE TABLE

UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;

³ Fuel Leakage ³ 1993 JM1FD33\*\*PO200001-210660 ³

³ ³ 1994-95 JM1FD33\*\*R0300001-S0400026 ³

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-

³ Coolant Leak ³ 1993-94 JM1FD33\*\*PO200001-R0302076 ³

# RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01

## Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:38AM

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

\* - Can be replaced by any letter or number.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAUU

### VEHICLE SUBJECT TO RECALL - FLOW CHART

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA; UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;

Is The vehicle subject to Recall No. 60504? No further action required.

Recall No. 60504? AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU

YES

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA; UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;

Are there recall labels indicating both recalls No. 60504 & No. 54407 have been completed? No further action required.

YES AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU

NO

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA; UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;

Is vehicle subject to Recall No. 54407? Follow Repair Procedure A

Recall No. 54407? (Replace Fuel Hoses)

YES AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU

NO

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA; UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;

Has recall repair No, 54407 been performed? Follow Repair Procedure B, C & E

YES AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU

NO

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA; UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;

Does vehicle have any Coolant Leakage? Follow Repair Procedure B, C & E

YES AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU

NO

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA; UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;

Follow Repair Procedure B, C, D & E

YES AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU

NO

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA; UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;

Follow Repair Procedure B, C, D & E

YES AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU

NO

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA; UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;

Follow Repair Procedure B, C, D & E

YES AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU

NO

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA; UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;

### FUEL HOSES REPLACEMENT PROCEDURES

#### PRE-CAUTIONS:

- Boost tubes, water hoses and fuel hoses should be removed and replaced on the designated side only as shown in the procedure (do not remove any joint other than those indicated).
- Do not remove any fuel hose during the check for fuel leakage after replacement (please see step 33).



# **RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01**

## **Article Text (p. 4)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:38AM

If a hose(s) is removed mistakenly, replace the clip(s) and the hose(s) with new one(s).

3. Be sure to use the hoses, clips and gaskets designated in this procedure, and do not reuse the removed parts.
4. When installing the hoses, be sure to check their locations in accordance with the instruction, and install them correctly.

### **PROCEDURE A - REPLACEMENT OF FUEL HOSE KIT**

To be performed on ALL customer (sold) vehicles.

1. Start the engine.
2. Remove the circuit opening relay. See Fig. 1.

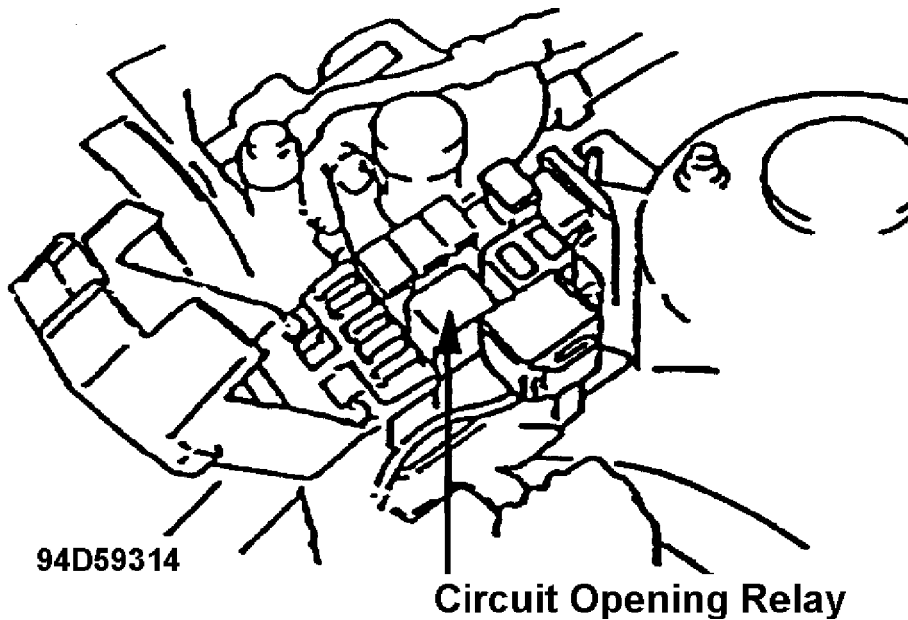


Fig. 1: Location of Circuit Opening Relay

3. After the engine stalls, crank the engine for 15 - 20 seconds to purge the injectors.
4. Turn the ignition switch off.
5. Install the circuit opening relay.
6. Disconnect the negative terminal from the battery.

**NOTE:** Record all preset stations on the vehicle's audio system prior to disconnecting the battery terminal.

7. Drain coolant and retain in an appropriate container.

**RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01**

**Article Text (p. 5)**

1993 Mazda RX7

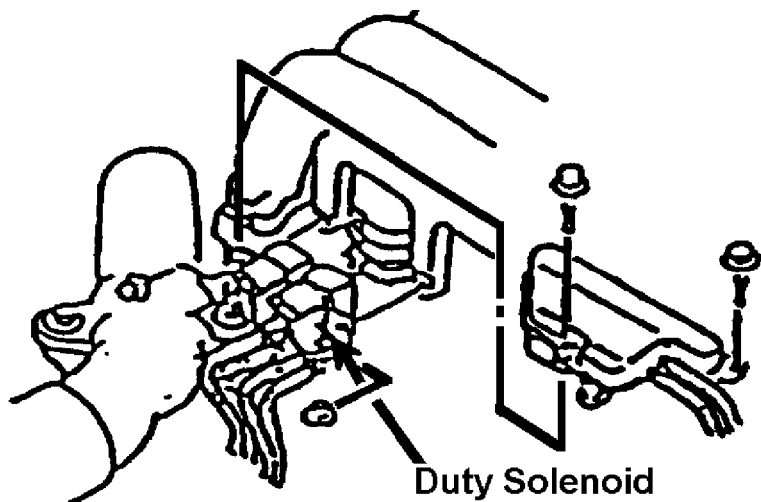
For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:38AM

8. Remove the bolts from the duty solenoid and the pressure chamber.  
See Fig. 2.

Tightening Torque: 70-100 kgf. cm. (61-86 in-lbf)



**Remove Bolts from Duty Solenoid 94E59315**

Fig. 2: Removing Bolts from Duty Solenoid

9. Disconnect the air pipe at joint A shown in Fig. 3.

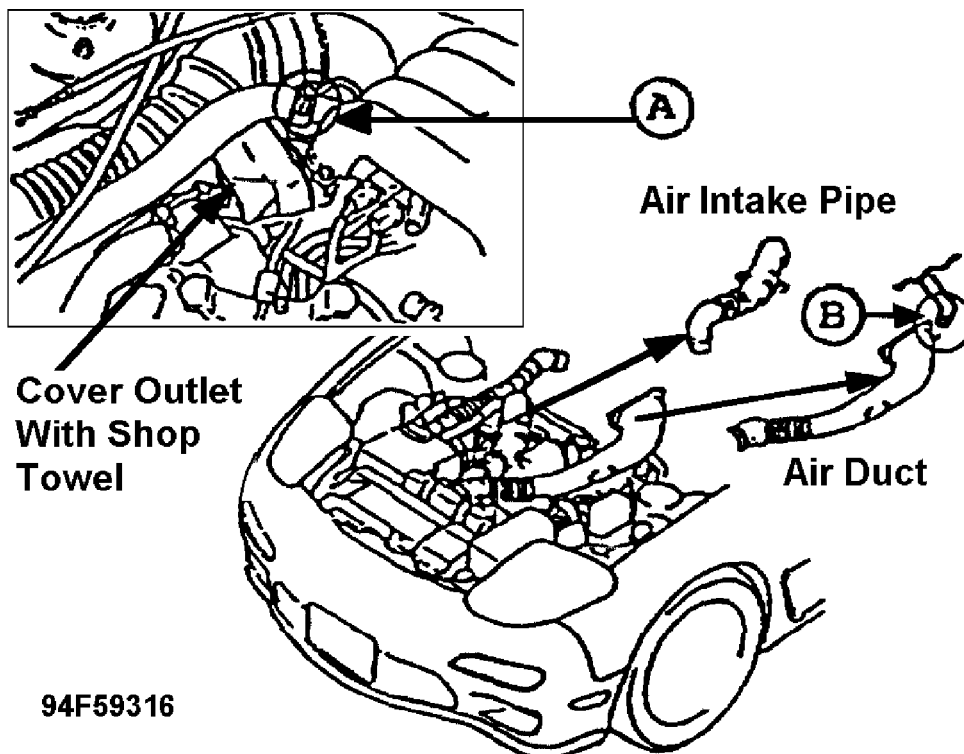


Fig. 3: Disconnecting the Air Pipe

10. Disconnect the AWS hose and Air Duct B at the joint as shown

# RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01

## Article Text (p. 6)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:38AM

in Fig. 3.

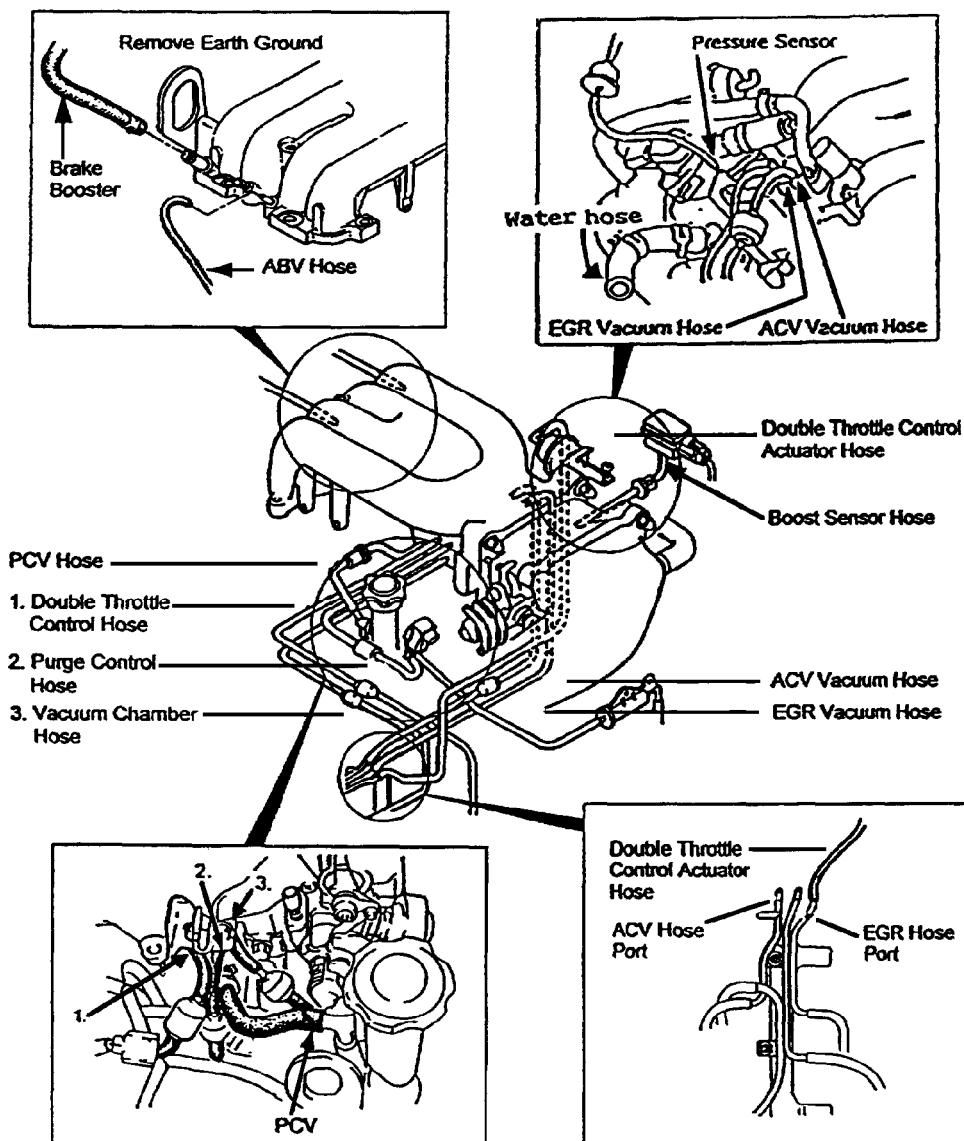
11. Remove the air intake pipe from the outlet of the turbo, and cover the outlet with a shop towel.

12. Remove the air duct from the inter cooler.

13. Remove the hoses from the extension manifold. See Fig. 4.

NOTE: Disconnect the hoses at the locations indicated by arrows (--->) only!

Remove these four parts referring to Step 16.



94G59317

Fig. 4: Removing Hoses & Harnesses From the Extension Manifold

NOTE: Use the above illustration to determine the hose location.

**RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01**

**Article Text (p. 7)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:38AM

14. Remove the harnesses from the extension manifold. See Fig. 4.
15. Remove the accelerator cable and the cruise cable. See Fig. 5.

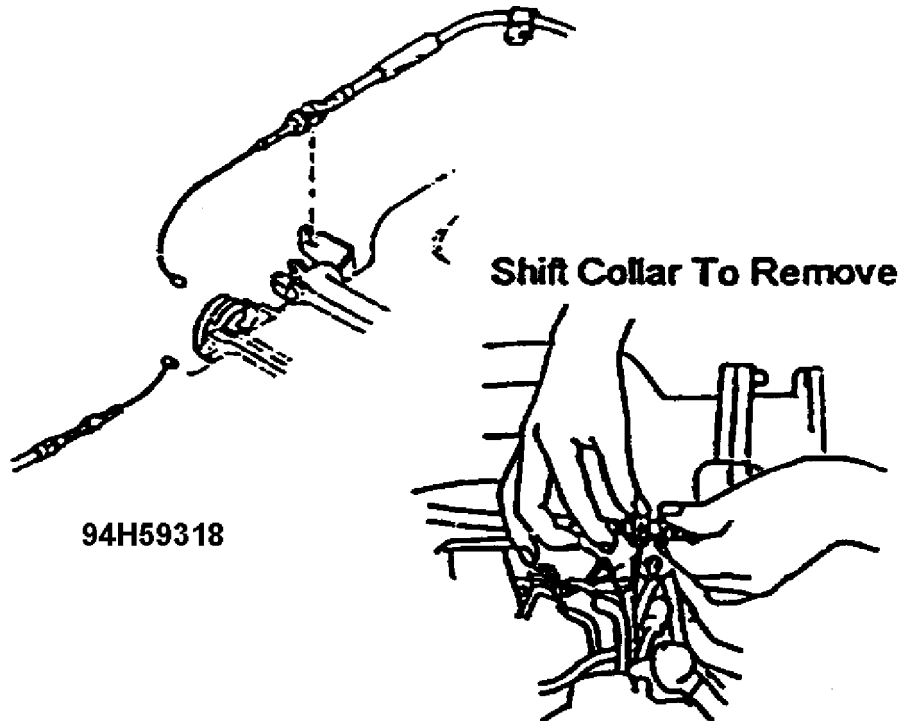


Fig. 5: Removing Accelerator Cable & the Cruise Cable

16. Raise the extension manifold and disconnect the following harnesses, vacuum tubes and hoses from the side indicated by the arrow (-->) only. See Figs. 6, 7, & 8.

**Harnesses:**

- \* Inlet Air Temperature Sensor
- \* AB Solenoid
- \* ISC Valve

**Vacuum Tubes:**

- \* EGR Vacuum Hose
- \* ACV Vacuum Hose
- \* Purge Hose
- \* Double Throttle Control Hose
- \* Double Throttle Control Actuator Hose

**Hoses:**

- \* Water Hose

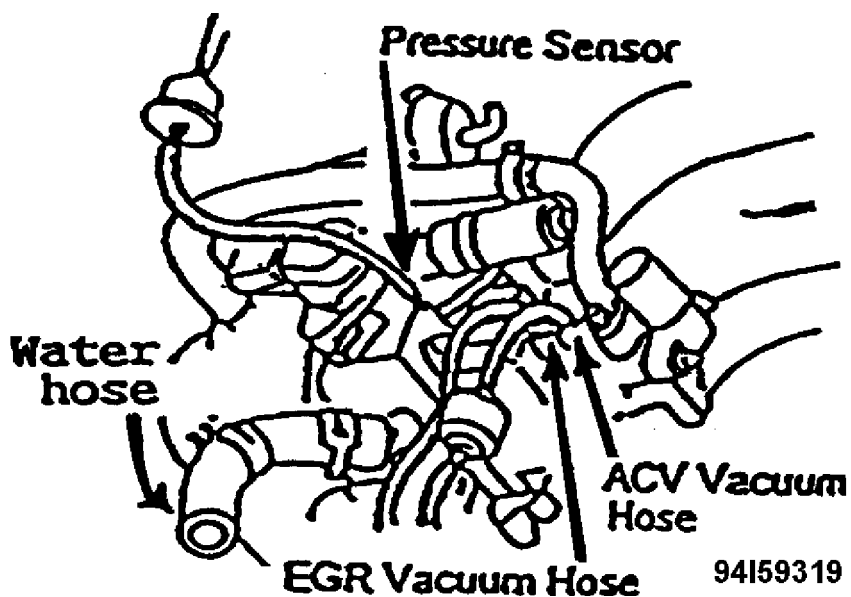


Fig. 6: EGR & ACV Vacuum Hose, Water Hose & Pressure Sensor

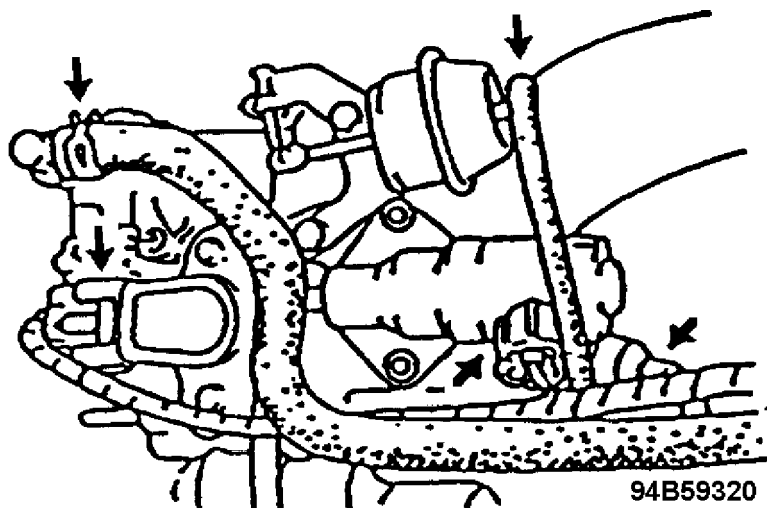


Fig. 7: Hose & Vacuum Tubes Identification

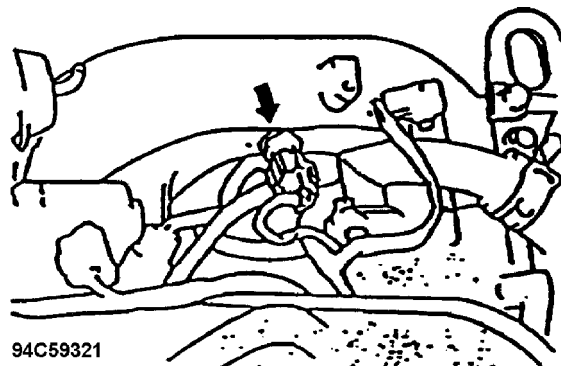


Fig. 8: Switch Identification

17. Remove the extension manifold and throttle body.

# RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01

## Article Text (p. 9)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:38AM

NOTE: Cover exposed intake holes with shop towels.  
Torque for re-tightening the bolt:  
Tightening Torque: 160-230 kgf.cm (139-199 in-lbf)

When reassembling, replace the intake manifold gasket with a new one.

Gasket: N3A1-13-112

18. Remove the following parts shown in Figs. 9 & 10.

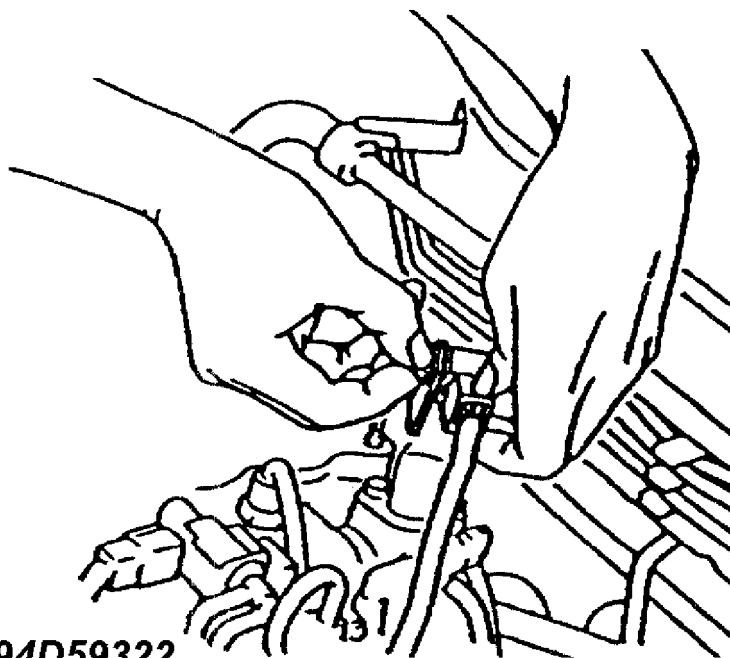


Fig. 9: O2 Sensor Coupler on the ACV

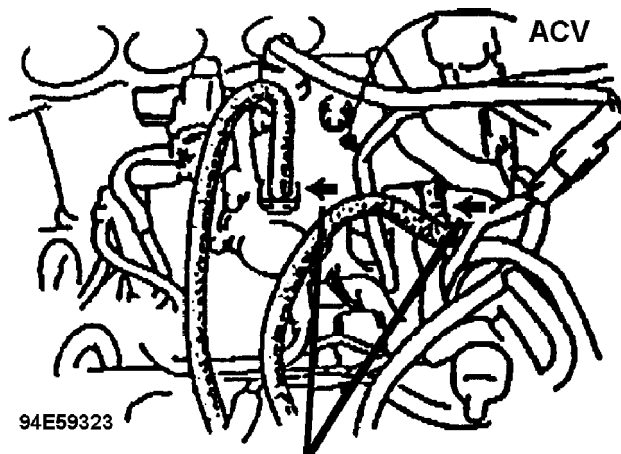


Fig. 10: ACV Vacuum Tubes

19. Remove the nut shown in Fig. 11. Remove the three-way solenoid.

**RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01**

**Article Text (p. 10)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:38AM

NOTE: Do not remove the vacuum tube from the solenoid.

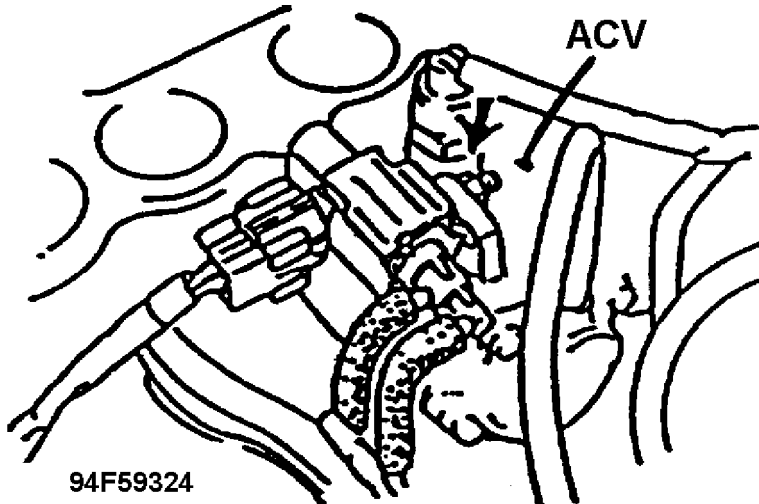


Fig. 11: Three-Way Solenoid Nut to be Removed

20. Remove the oil filler pipe. See Fig. 12.

Tightening torque: 70-100 kgf.cm (61-86 in-lbf)

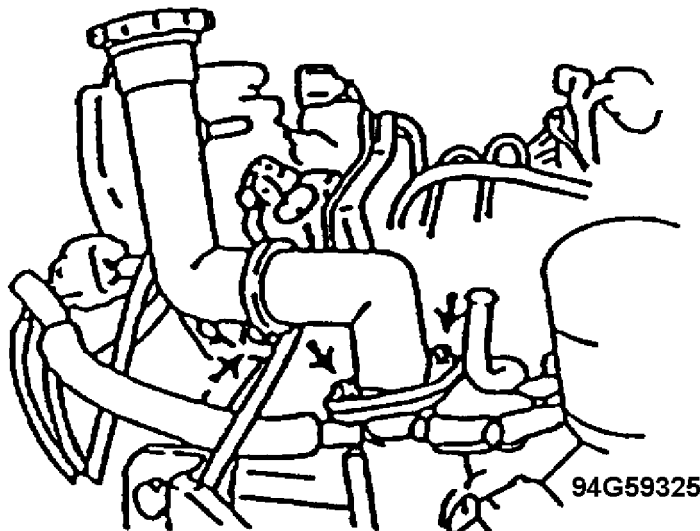


Fig. 12: Oil Filler Pipe Identification

21. Remove the ignition coil assembly. Remove the four nuts shown in

Fig. 13. Tightening torque of the nuts for reassembly:

Tightening Torque: 70-100 kgf.cm (61-86 in-lbf)

**RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01**

**Article Text (p. 11)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:38AM

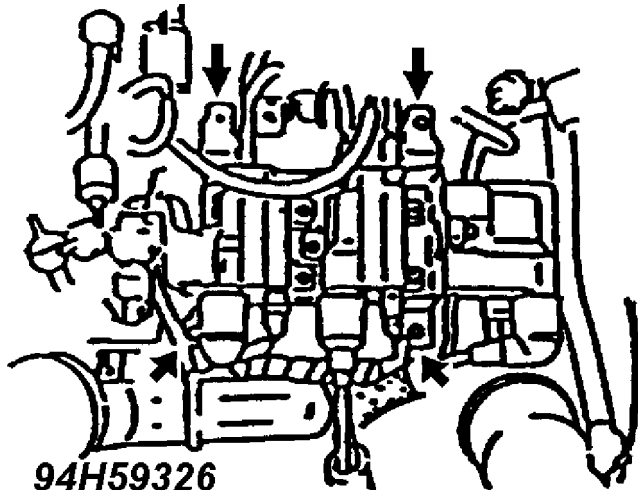


Fig. 13: Four Nuts Holding the Ignition Coil Assembly

22. ACV Removal:

1. Disconnect the couplers from each solenoid valve in the ACV.
2. Remove the relief air hose. See E in Fig. 14.
3. Remove the ACV. Re-tightening torque of the nuts:  
Tightening Torque: 70-100 kgf.cm (61-86 in-lbf)
4. Remove the vacuum tubes from the inlet manifold.  
See A in Fig. 14. Replace the vacuum tubes with new ones.

Vacuum tube: 99351-04095 x 4 pcs.

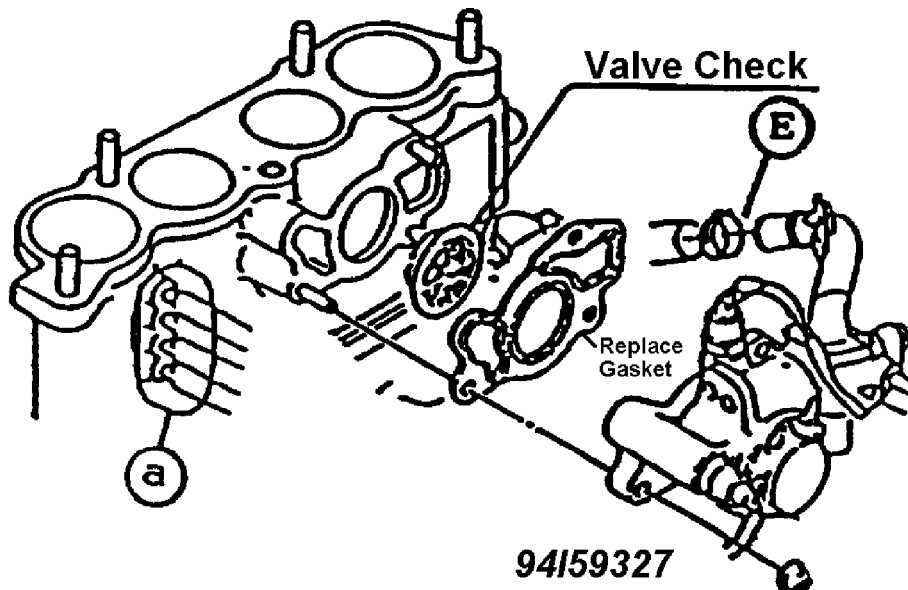


Fig. 14: Removal of Relief Air Hose & Vacuum Tubes

NOTE: \* When reassembling, replace the ACV gasket with a new one.



**RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01**

**Article Text (p. 12)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:38AM

Gasket: N3A3-13-996

- \* When reassembling, be sure to insert the check valve in the step cut position of the intake manifold, then attach the ACV.
- \* Make sure that the wire harnesses of the solenoid valve will not touch the ACV.

23. Move the vacuum pipe assembly toward the steering shaft side.  
See Fig. 15.

1. Loosen the three bolts that attach the vacuum pipe to the engine. See letter C in Fig. 15.
2. Disconnect the coupler from the solenoid valve attached to the vacuum pipe.
3. Remove the vacuum tubes, water hose and fuel hoses (cutting the fuel hoses off where indicated by scissors in Fig. 15, makes the work easier).

NOTE: \* Do not remove hoses other than 1-14.

\* Remove the hoses on the sides indicated by arrows (-->) shown in Fig. 15.

\* Be careful not to damage any pipes.

\* When removing the hoses, do not use any spray type lubricant.

4. Move the vacuum pipe assembly toward direction D as shown in Fig. 15.
5. When reassembling, replace the hoses 1, 2, 3, 4, 5, 6, 7, 8, 10 and 11 with new ones.

**RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01**

**Article Text (p. 13)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:38AM

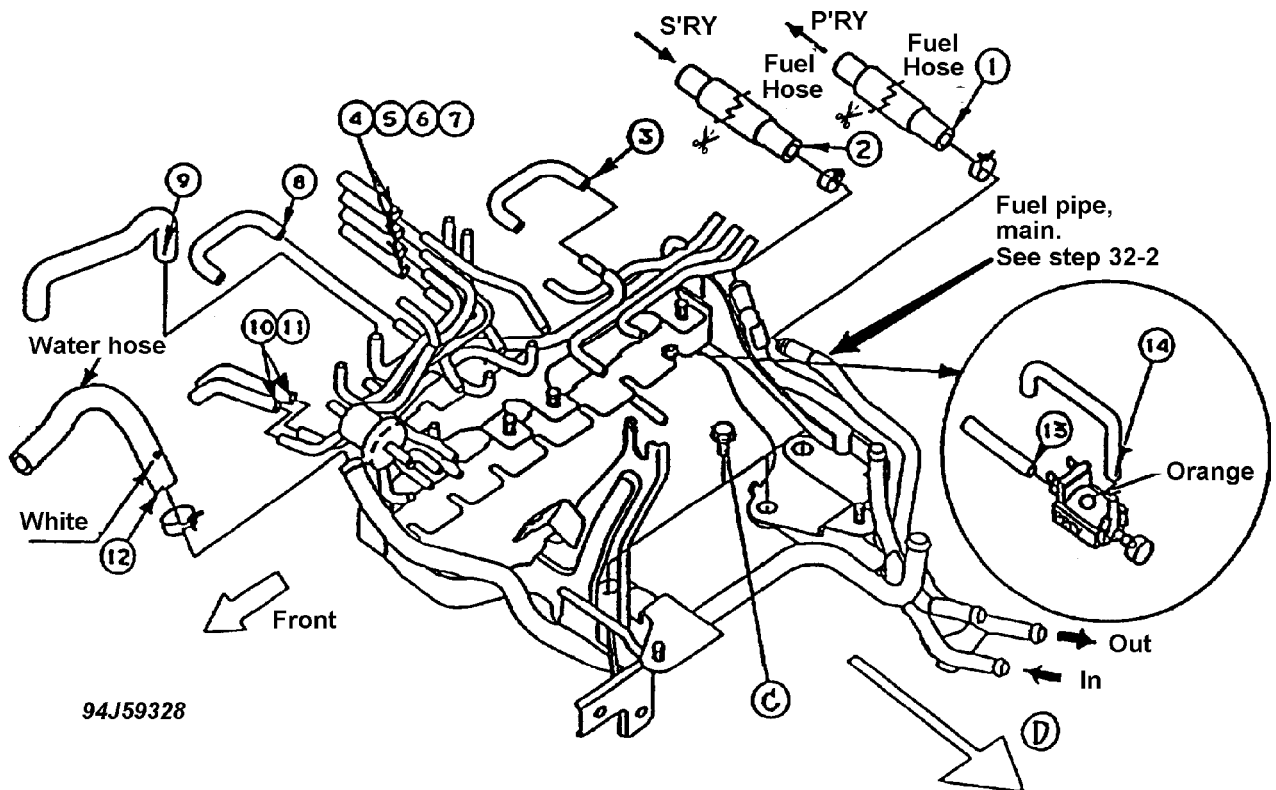


Fig. 15: Exploded View of Tubes & Hoses for Modification

24. Removal of primary fuel distributor, secondary fuel distributor and insulator. See Fig. 16.

1. Loosen the four bolts.
2. Loosen the connector bolt from the inlet of the secondary fuel distributor.

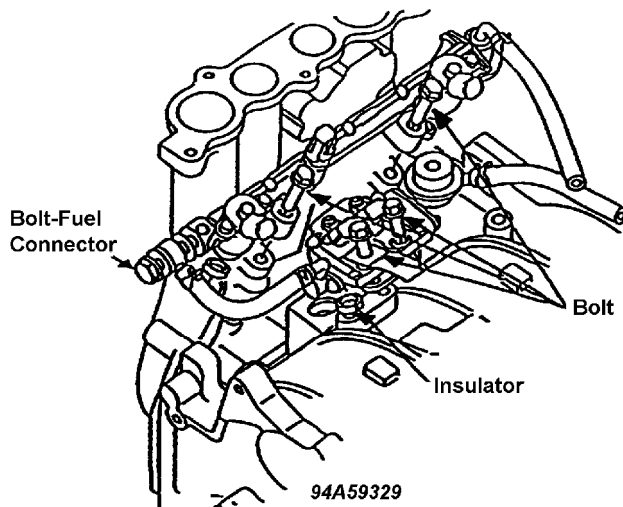


Fig. 16: Removal of Primary & Secondary Fuel Distributor & Insulator

**RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01**

**Article Text (p. 14)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:38AM

25. Remove the fuel hose from the primary fuel distributor.  
See Fig. 17.

NOTE: \* When turning the screw be careful not to break the heads  
( + ) of the screws F (two) because they are tight.

\* Be careful not to damage the pipe at the hose insertion  
location on the primary inlet side.

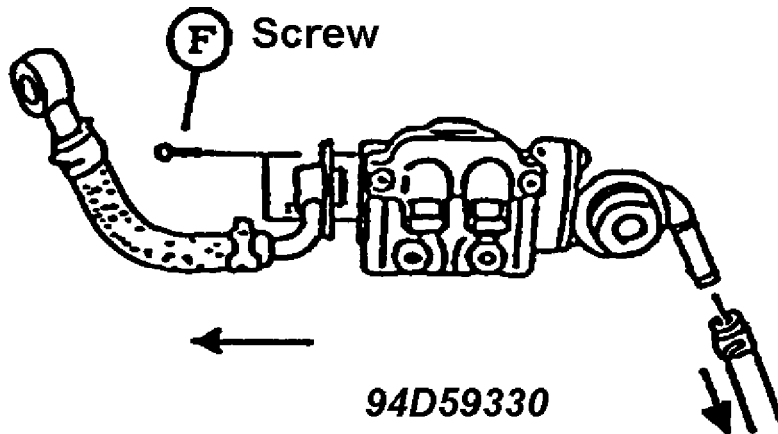


Fig. 17: Removal of Hose from Primary Fuel Distributor

26. Install the modified fuel hose on the primary fuel distributor  
outlet side. See Fig. 18.

NOTE: \* When installing, do not twist the "O" ring.

\* Replace the bolts with modified ones. See letter G in  
Fig. 18.  
Tightening Torque: 25-36 kgf.cm (22-31 in-lbf)

Fuel Hose: N3Z1-13-420  
Bolt: 99796-0510 x 2 pcs.

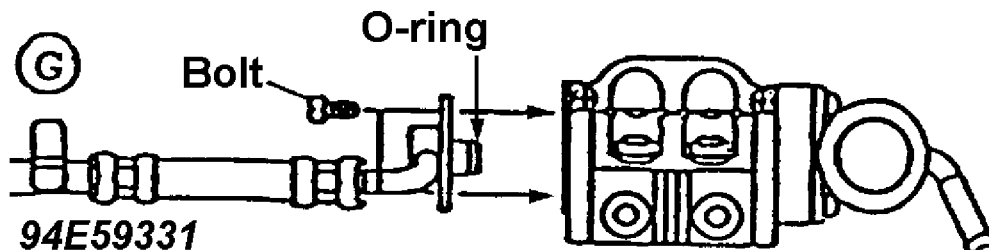


Fig. 18: Installing Primary Fuel Distributor Outlet Modified Hose

- 27-1. Install the hose on the inlet side of the primary fuel  
distributor. See Fig. 19.

Fuel hose: N3Z1-13-415.

\* Submerge the hose end with the white mark into adhesive.

**RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01**

**Article Text (p. 15)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:38AM

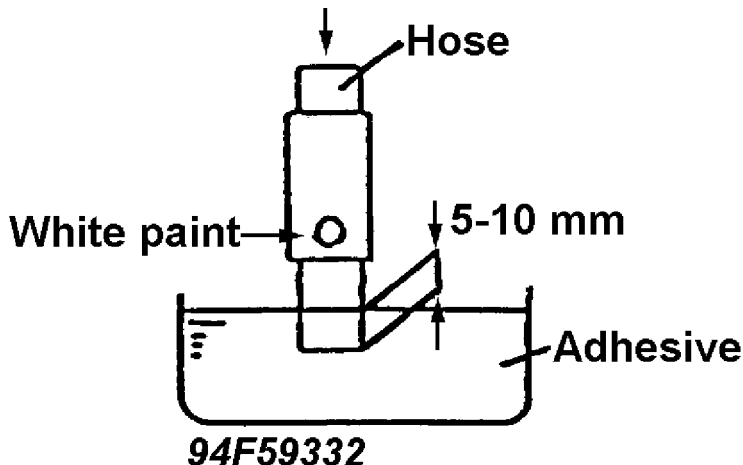
\* Use adhesive specially prepared for this work.

NOTE: Be careful not to use another adhesive.

\* Install the hose (white mark side) within five minutes after applying adhesive.

NOTE: Before installing the hose, degrease the pipe for better adhesion.

Fuel hose: N3Z1-13-415.



**94F59332**

Fig. 19: Installing Hose on Inlet Side of Primary Fuel Distributor  
Submerging Hose End with White Mark into Adhesive

27-2. Install the clips on the hose of the inlet side of the primary fuel distributor.

NOTE:

- \* Use two clips on the fuel distributor side.
- \* Place the fuel distributor side clip claws on the top and the other one on the bottom. For the directions of the clip claws, see Figs. 20 and 21. Insert the hose to the pipe bulge. Match the edges of the clip and the hose end.
- \* Replace all hose clips with new ones.
- \* Do not use clips other than those included, part number below.
- \* Be careful not to place the clip on the pipe bulge.

Clip: N3Z1-13-157 x 2pcs. (with Red colored holder)

Protector: N3B7-1 3428A

**RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01**

**Article Text (p. 16)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:38AM

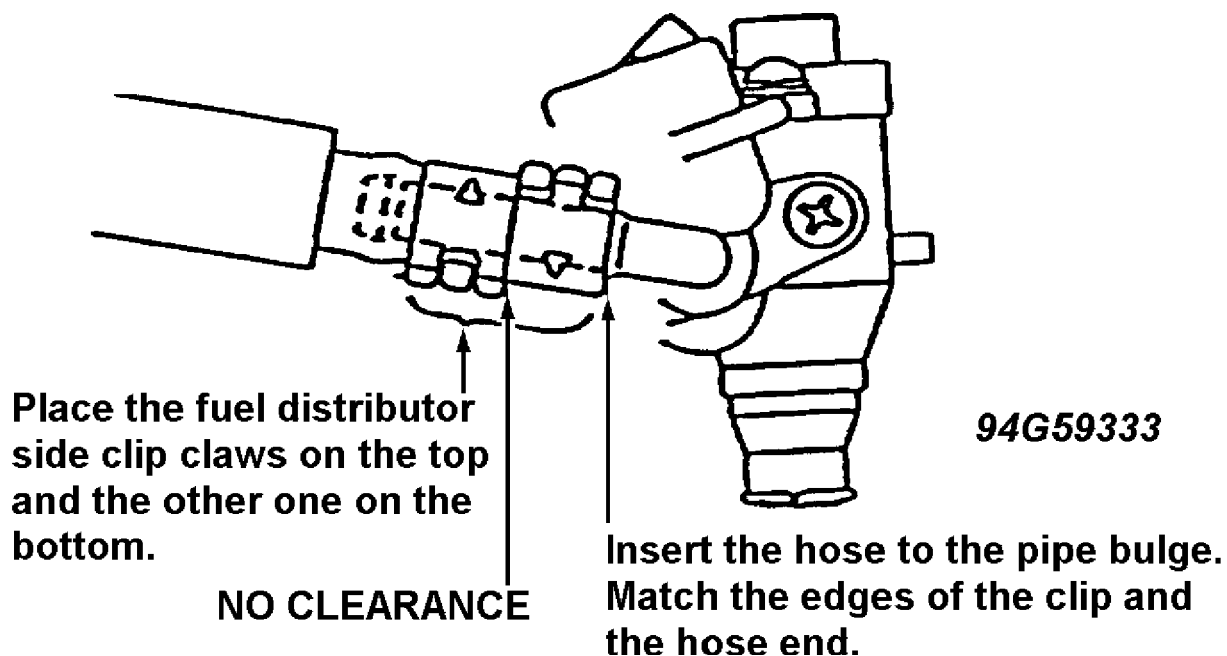


Fig. 20: Installation of Clips on Hose

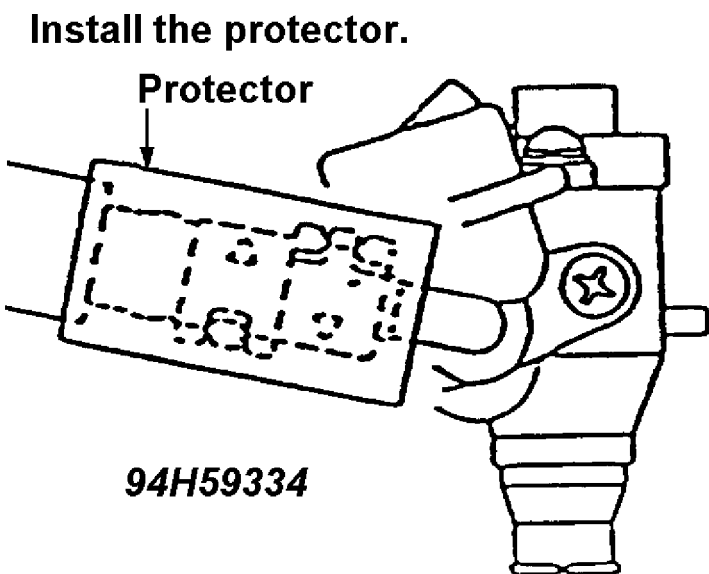


Fig. 21: Installation of Protector

28. Install the fuel hose on the secondary fuel distributor. See Fig. 22.

NOTE: \* Place the connector stopper on the secondary fuel distributor body, then tighten the connector bolts.  
Tightening Torques: 240-360 kgf.cm (208-312 in-lbf)

\* Use new gaskets.

Gasket: N236-13-483 x 2pcs.

**RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01**

**Article Text (p. 17)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:38AM

\* Reuse the connector bolts.

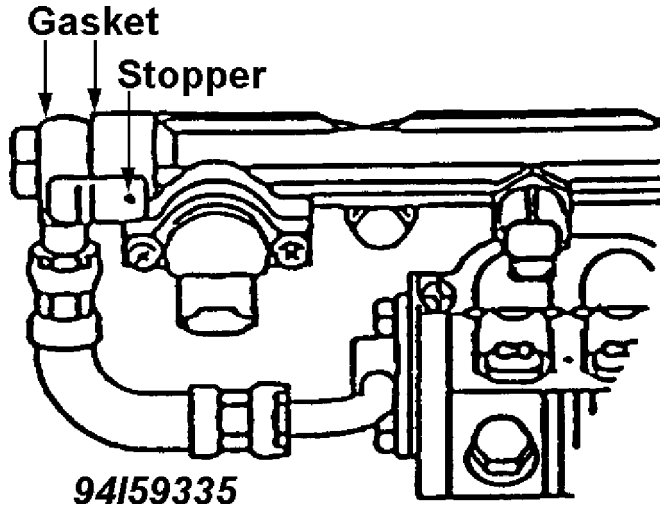


Fig. 22: Installation of Fuel Hose on Secondary Fuel Distributor

29. Replace the fuel hose on the return side of the secondary fuel distributor with a new one. See Fig. 23.

NOTE: \* Replace the clip also with a new one. Do not use clips other than those included, part number below.

Fuel hose: N370-13-415

Clip: 8574-13-157

(Clip - with Pink Colored holder)

\* For the direction of the clip claws, see Fig. 23.

\* Do not place the clip on the pipe bulge.

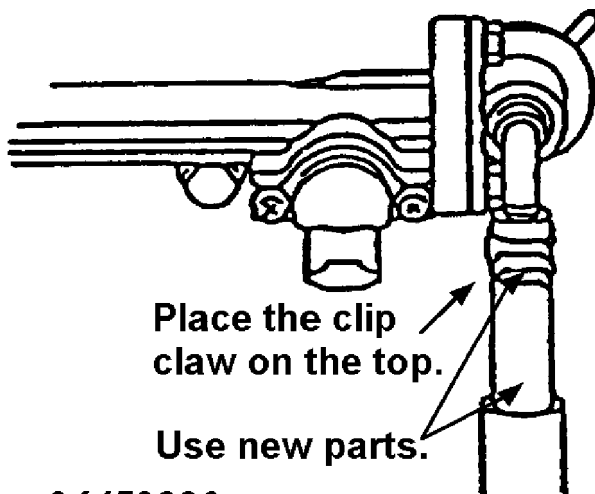


Fig. 23: Return Side of Secondary Fuel Distributor Hose Replacement  
Place the Clip Claw on the Top - Use New Parts

**RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01**

**Article Text (p. 18)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:38AM

30. Replace the two vacuum tubes with new ones. See Fig. 24.  
Vacuum tube: 99351-04150 x 2 pcs.

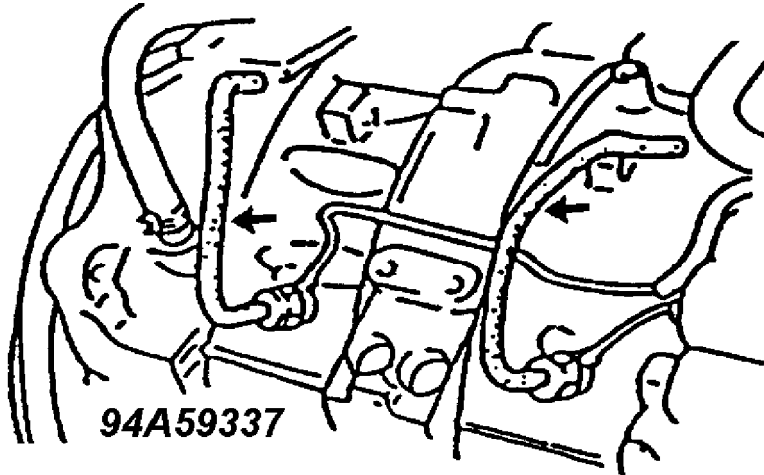


Fig. 24: Location of Vacuum Tubes

31. Install the primary fuel distributor and the secondary fuel distributor to the engine. See Fig. 25.

NOTE: Replace the four insulators with new ones.

Insulator (for primary): N3A1-13-257 x 2 pcs.

Insulator (for secondary): NF01-13-257A x 2 pcs.

- 32-1. Apply adhesive to the hose end on the primary fuel distributor outlet side (indicated by the arrow in Fig. 25). To apply adhesive see step 27-1.

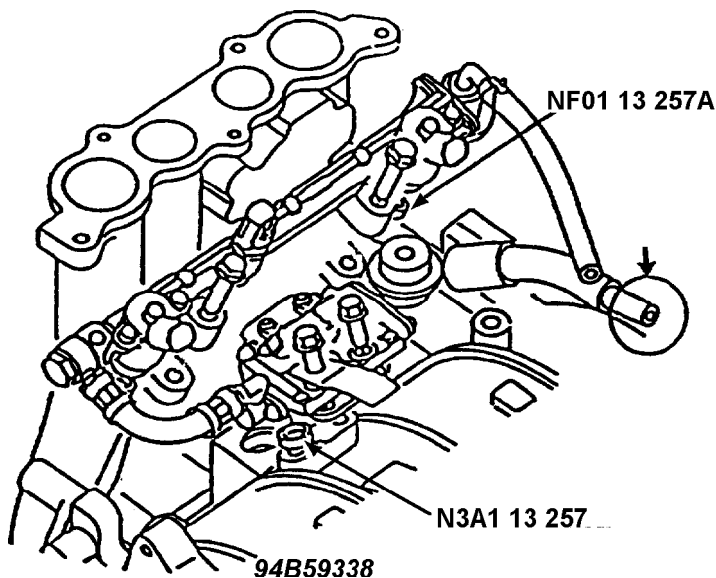


Fig. 25: Installing Fuel Distributors to the Engine

- 32-2. Connect the hose between the fuel distributor and the vacuum

**RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01**

**Article Text (p. 19)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:38AM

pipe-assembly. See Fig. 26.

- NOTE: \* Replace the clips (outlet side of the secondary fuel distributor) with new ones.  
Clip (Secondary): 8574-13-157  
(Clip with Pink colored holder)
- \* For the direction of the clip claw, see Fig. 26.
- \* Do not use clips other than those included, part number below.
- \* Be sure to use two clips for the joint between the primary fuel distributor and the main fuel pipe, shown with an arrow in Fig. 15.

NOTE: For the direction of the clips claw, see step 27-2.

Clip (Primary): N3Z1-13-157 x 2 pcs.  
(Clip with Red colored holder)

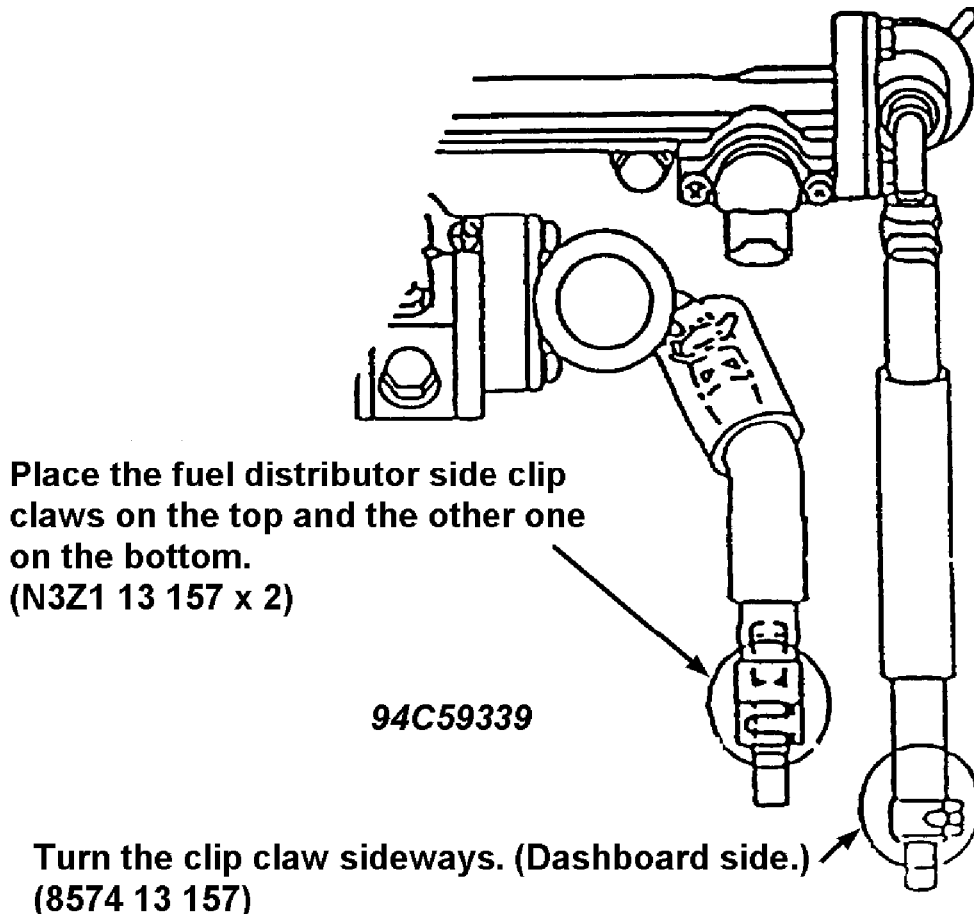


Fig. 26: Connecting Hose Fuel Distributor & Vacuum Pipe Assembly  
Place the Clip Claws in Opposite Directions



**RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01**

**Article Text (p. 20)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:38AM

32-3. Replace the main fuel hose with a new one. See Fig. 27.

NOTE: \* The hose and the clips shown in Fig. 27 should be replaced with new ones.

\* Be careful not to use the hose and the clips other than those included, part numbers below.

\* Apply adhesive to the hose end [short end side only shown by the arrow in Fig. 27] then install it. (To apply adhesive, see step 27-1.)

\* Insertion depth of both hose ends should be 25 - 30 mm.

Fuel hose: N3Z1-13-421

Clip: 8574-13-157 x 2 pcs. (Clip with Pink colored holder.)

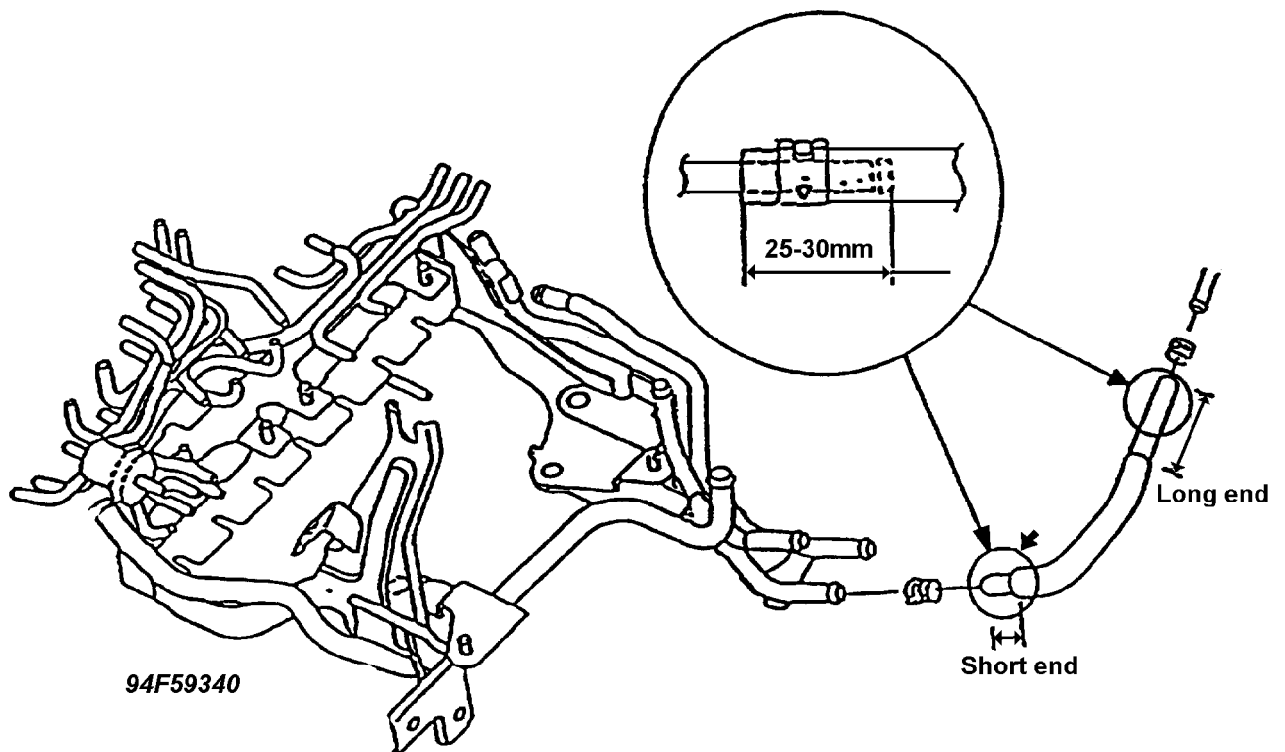


Fig. 27: Replacement of Main Fuel Hose

33. Check for fuel leakage.

WARNING: Do not smoke, carry lighted tobacco, or an open flame of any type when working on or near a fuel related component. Highly flammable mixtures are present and may be ignited, resulting in possible injury.

1. Connect the negative terminal to the battery.
2. Connect the fuel pump terminal of the diagnostic connector to

**RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01**

**Article Text (p. 21)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:38AM

the ground terminal. See Fig. 28.

3. Pinch the fuel return hose with a suitable tool, to stop any fuel return to the tank. See Fig. 29.

NOTE: Use a dull-edged SST so that it does not damage the hose.

4. Operate the fuel pump for more than five minutes, and check for fuel leakage.

\* Check for fuel leakage visually and by odor. Carefully check the positions(seven) indicated by the arrows shown in Fig. 29. If fuel leakage is found, repair the problem. Once repaired, check again according to the above steps.

**Diagnostic Connector To Ground Terminal**

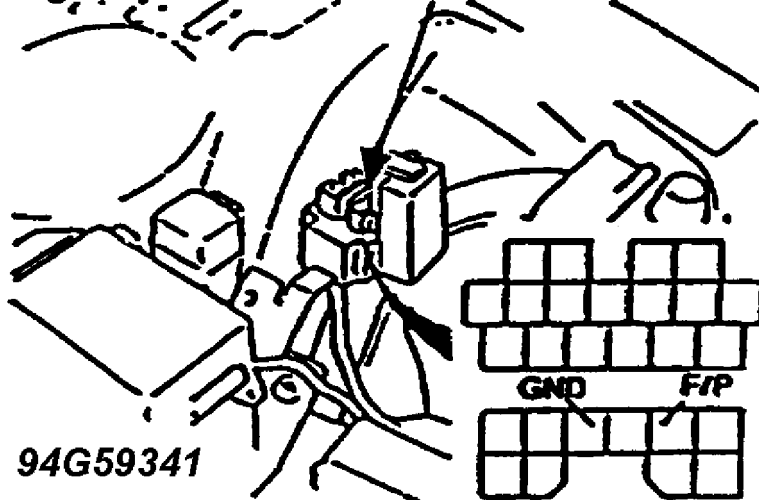


Fig. 28: Diagnostic Connector to Ground Terminal

**RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01**

**Article Text (p. 22)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:38AM

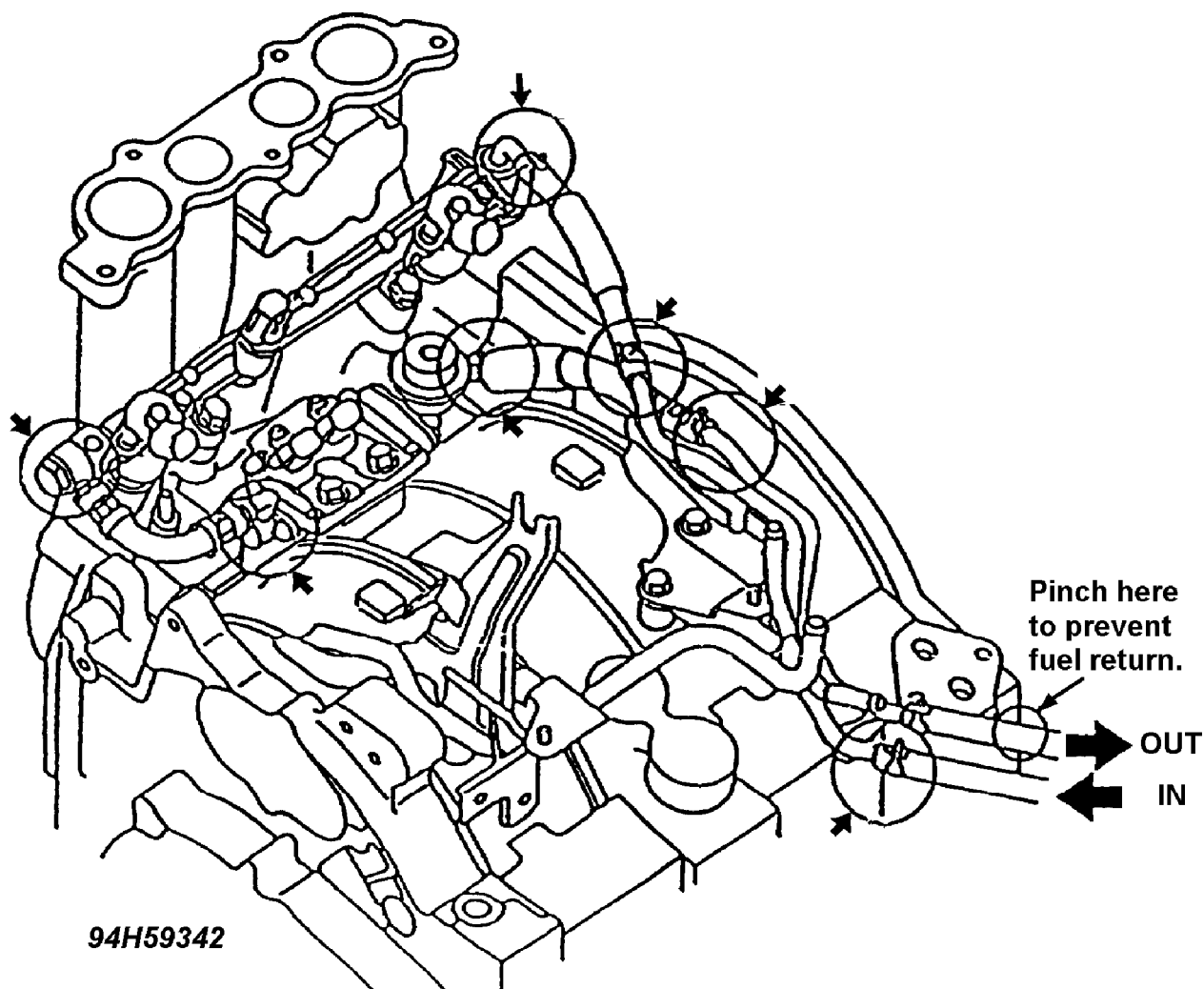


Fig. 29: Seven Fuel Leakage Areas

34. Install the vacuum pipe assembly. See Fig. 30.

1. Replace the vacuum tubes 4, 5, 6, 7, 10 and 11 with new ones.
2. Connect the hoses 3 - 14 to the vacuum pipe assembly.
3. Connect the coupler of each solenoid valve.
4. Install the vacuum pipes to the engine by tightening the bolts (three pieces).  
Tightening Torque: 160-230 kgf.cm (139-199 in-lbf)

Vacuum tubes 10 and 11: N3A4-20-344 x 2 pcs.

# RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01

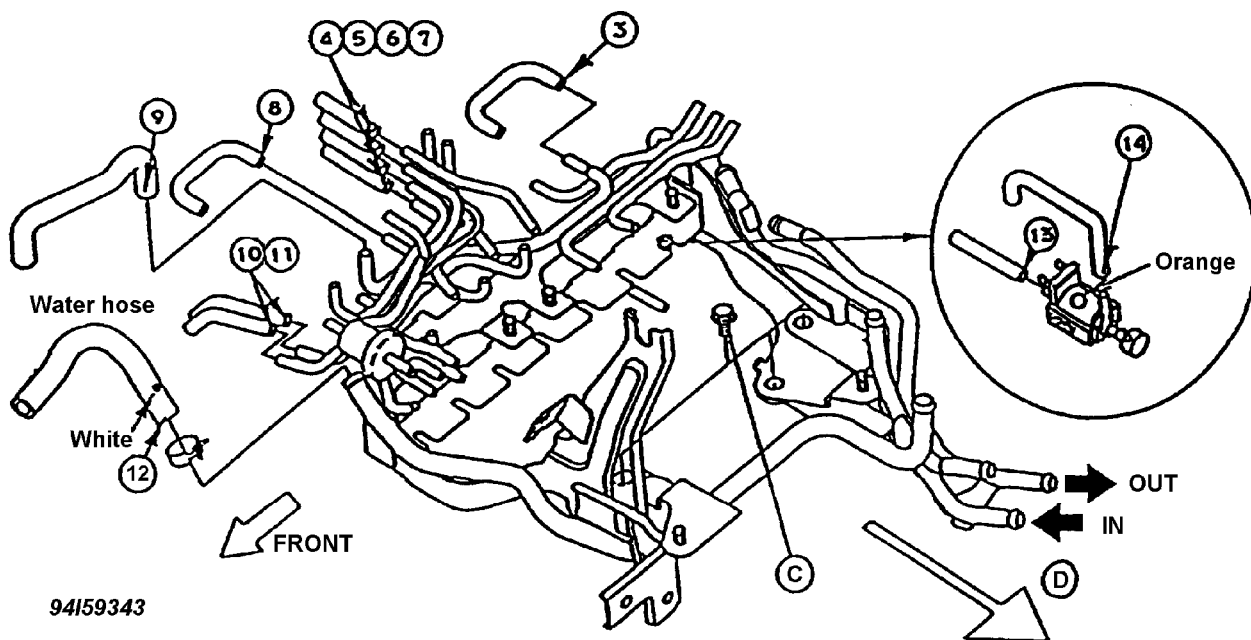
## Article Text (p. 23)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:38AM



94I59343

Fig. 30: Installation of Vacuum Tubes

35. Assemble the pans in the reverse order of removal.
36. Affix the recall label (No. 60504) onto the driver's side door for future confirmation that the campaign has been completed on this vehicle. See Fig. 31.

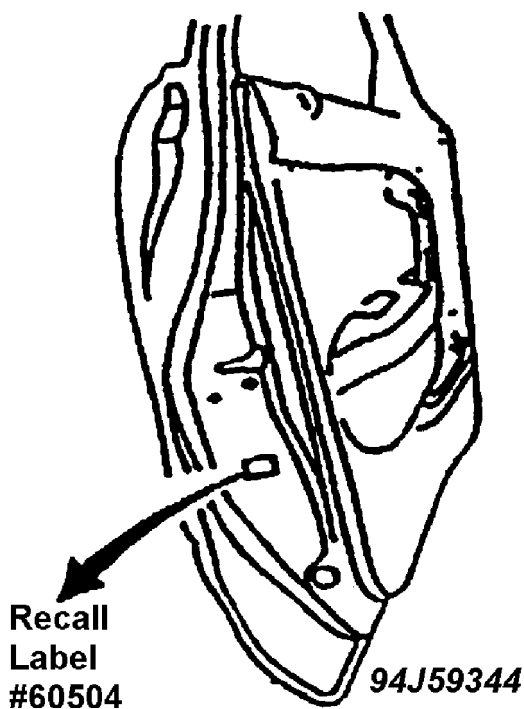


Fig. 31: Recall Label #60504 Identification

## FUEL HOSES AND COOLING (COOLANT) SYSTEM REPLACEMENT PROCEDURE

# **RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01**

## **Article Text (p. 24)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:38AM

### **PRE-CAUTIONS:**

1. Boost tubes, water hoses and fuel hoses should be removed and replaced on the designated side only as shown in the procedure (do not remove any joint other than those indicated).
2. Do not remove any fuel hose during the check for fuel leakage after replacement (please see step 33).

If a hose(s) is removed mistakenly, replace the clip(s) and the hose(s) with new one(s).

3. Be sure to use the hoses, clips and gaskets designated in this procedure, and do not reuse the removed parts.
4. When installing the hoses, be sure to check their locations in accordance with the instruction, and install them correctly.

### **PROCEDURE B - REPLACEMENT OF FUEL HOSE KIT AND THROTTLE HOSE KIT**

To be performed on ALL customer (sold) vehicles.

NOTE: Throttle Hose Kit, part number N3A1-13-S60 and Filler Cap Kit, part number N3Z1-15-S10B must be ordered separately and are not included in Fuel Hose Kit.

1. Start the engine.
2. Remove the circuit opening relay.
3. After the engine stalls, crank the engine for 15-20 seconds to purge the injectors.
4. Turn the ignition switch off.
5. Install the circuit opening relay. See Fig. 32.

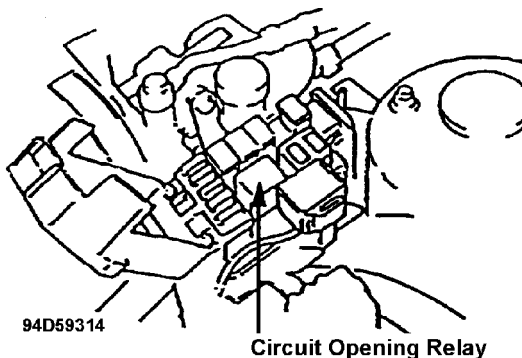


Fig. 32: Finding the Circuit Opening Relay

6. Disconnect the negative terminal from the battery.

**RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01**

**Article Text (p. 25)**

1993 Mazda RX7

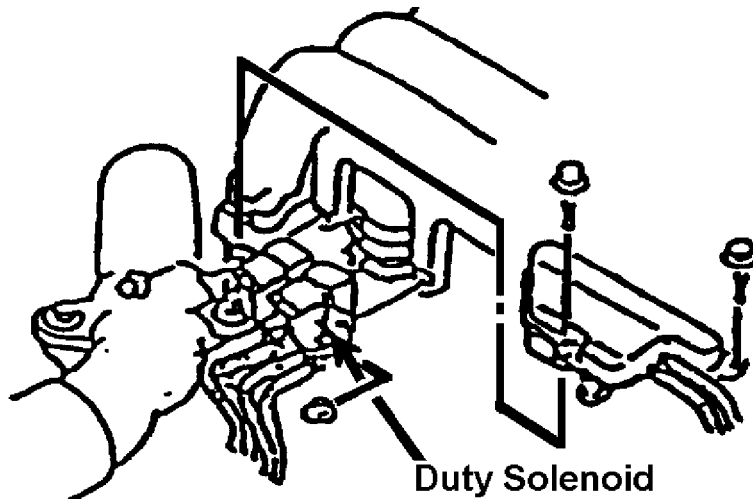
For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:38AM

NOTE: Record all preset stations on the vehicle's audio system prior to disconnecting the battery terminal.

7. Drain coolant and retain in an appropriate container.
8. Remove the bolts from the duty solenoid and the pressure chamber.  
Tightening Torque: 70-100 kgf.cm (61-86 in-lbf)  
See Fig. 33.



**Remove Bolts from Duty Solenoid 94E59315**

Fig. 33: Removal of Bolts from Duty Solenoid

9. Disconnect the air pipe at joint A shown in Fig. 33.
10. Disconnect the AWS hose and the air duct B at the joint as shown in Fig. 34.

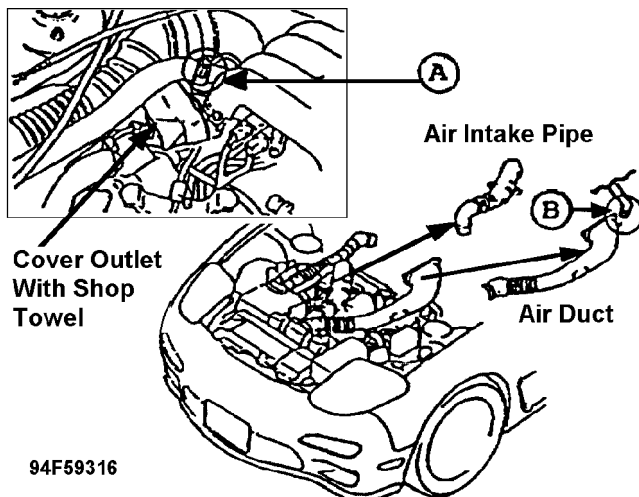


Fig. 34: Disconnecting the Air Pipe & Hose

11. Remove the air intake pipe from the outlet of the turbo. and cover

# RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01

## Article Text (p. 26)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:38AM

the outlet with a shop towel.

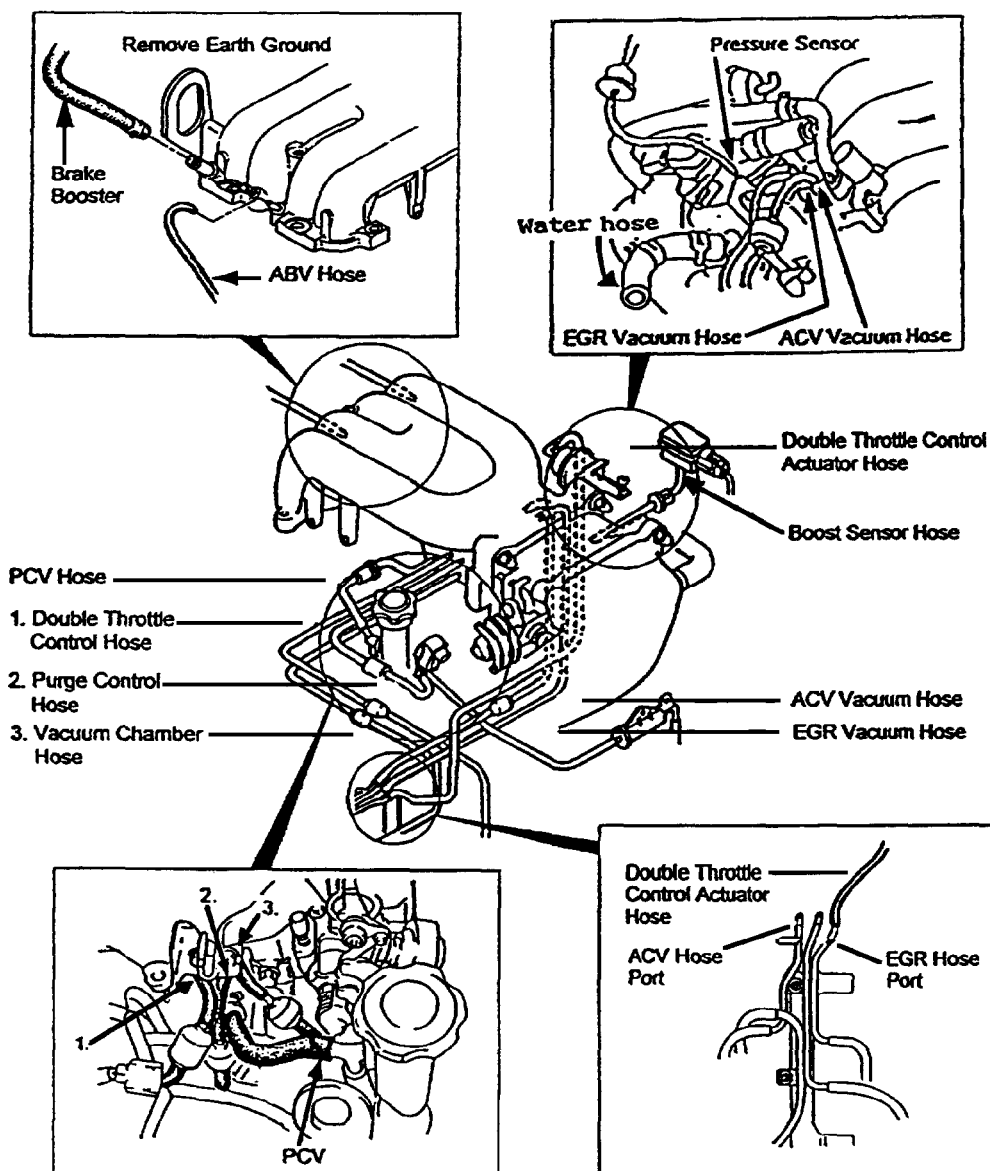
12. Remove the air duct from the inter cooler.

13. Remove the hoses from the extension manifold. See Fig. 35.

NOTE: Disconnect the hoses at the locations indicated by the arrows (→) shown in Fig. 35 only!

14. Remove the harnesses from the extension manifold. See Fig. 35.

Remove these four parts referring to Step 16.



94G59317

Fig. 35: Removing Hoses & Harnesses From the Extension Manifold

NOTE: Use the above illustration to determine the hose location.

**RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01**

**Article Text (p. 27)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:38AM

15. Remove the accelerator cable and the cruise cable. See Fig. 35.

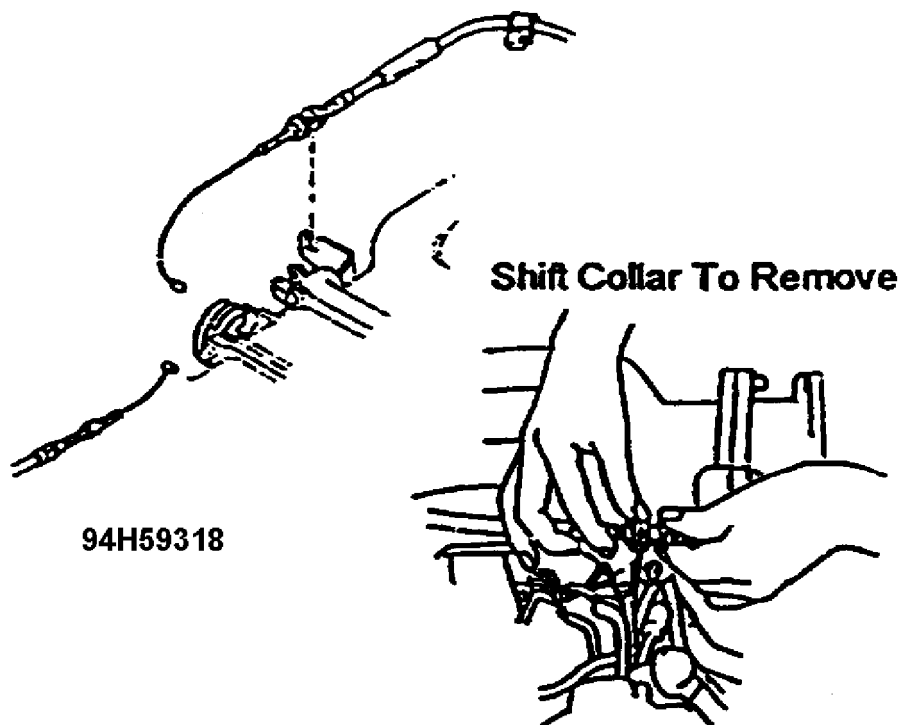


Fig. 36: Removing Accelerator Cable & Cruise Cable

16. Raise the extension manifold and disconnect the following harnesses, vacuum tubes and hoses from the side indicated by the arrows (-->) only. See Figs. 37, 38, & 39.

**Harnesses:**

- \* Inlet Air Temperature Sensor
- \* AB Solenoid
- \* ISC Valve

**Vacuum Tubes:**

- \* EGR Vacuum Hose
- \* ACV Vacuum Hose
- \* Purge Hose
- \* Double Throttle Control Hose
- \* Double Throttle Control Actuator Hose

**Hoses:**

- \* Water Hose



**RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01**

**Article Text (p. 28)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:38AM

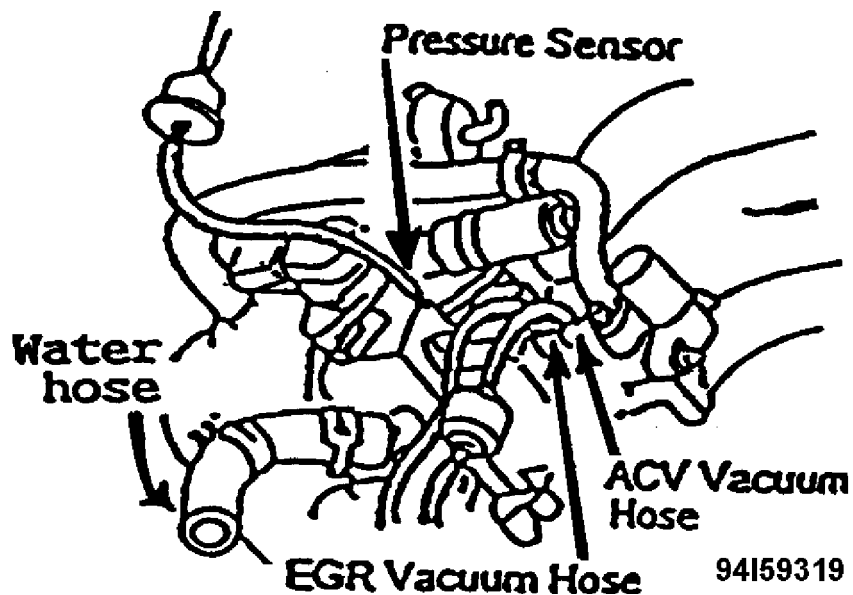


Fig. 37: EGR Vacuum Hose & ACV Vacuum Hose

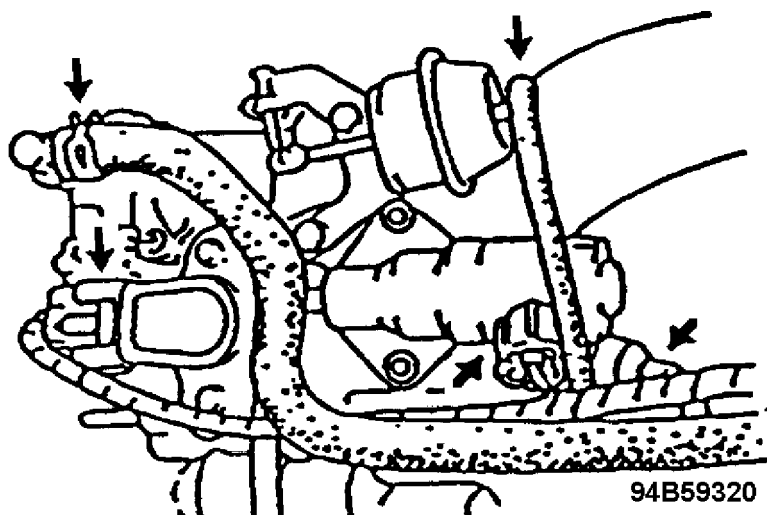


Fig. 38: Hoses to Disconnect

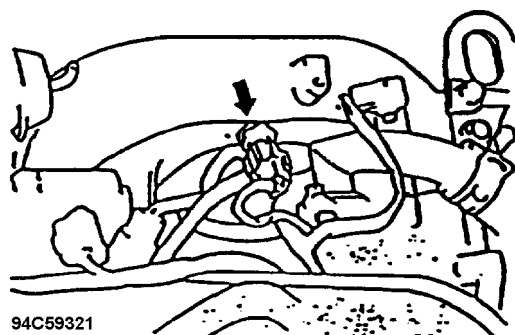


Fig. 39: Switch to Disconnect

17. Remove the extension manifold and throttle body.

# RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01

## Article Text (p. 29)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:38AM

NOTE: Cover exposed intake holes with shop towel.

Torque for re-tightening the bolt:

Tightening Torque: 160-230 kgf.cm (139-199 in-lbf)

When reassembling, replace the intake manifold gasket with a new one.

Gasket: N3A1-13-112

18. Remove the following parts. See Figs. 40 & 41.

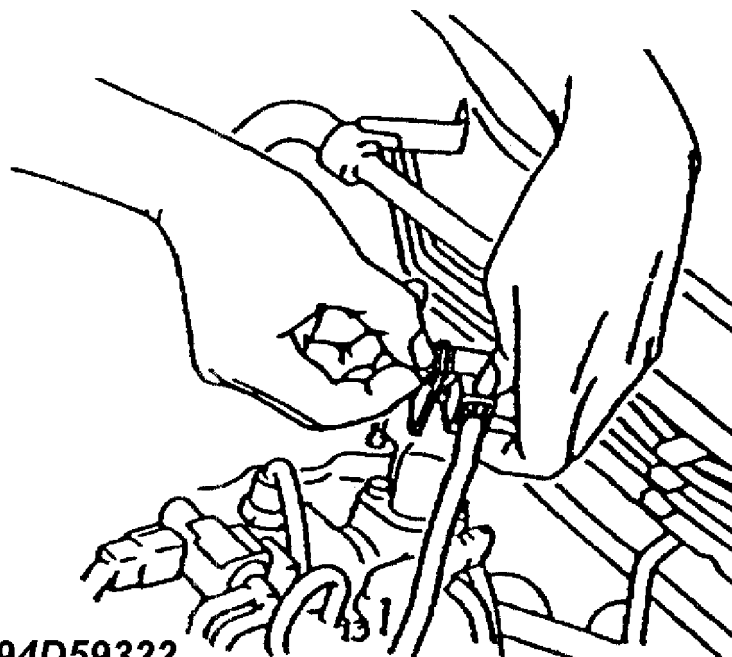


Fig. 40: O2 Sensor Coupler on the ACV

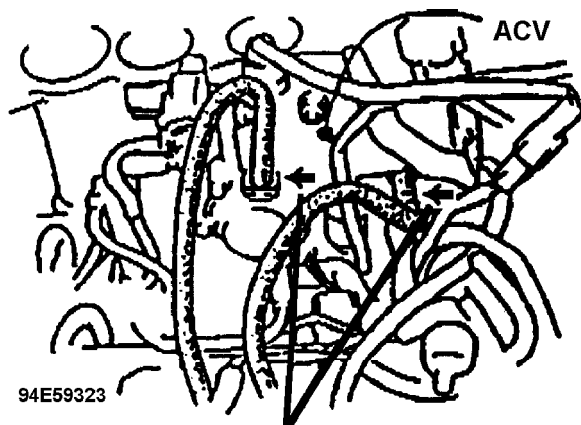


Fig. 41: ACV Vacuum Tubes

19. Remove the nut shown in Fig. 42. Remove the three-way solenoid.

**RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01**

**Article Text (p. 30)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:38AM

NOTE: Do not remove the vacuum tube from the solenoid.

Tightening Torque: 70-100 kgf.cm (61-86 in-lbf)

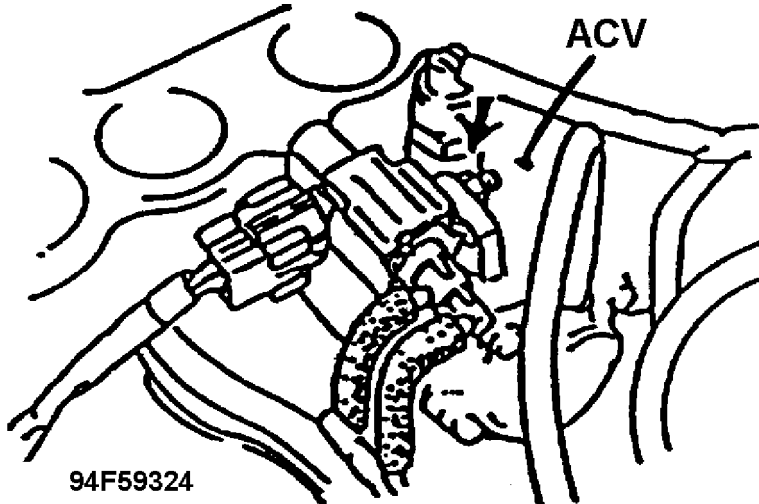


Fig. 42: Three-Way Solenoid Nut to be Removed

20. Remove the oil filler pipe. See Fig. 43.

Tightening Torque: 70-100 kgf.cm (61-86 in-lbf)

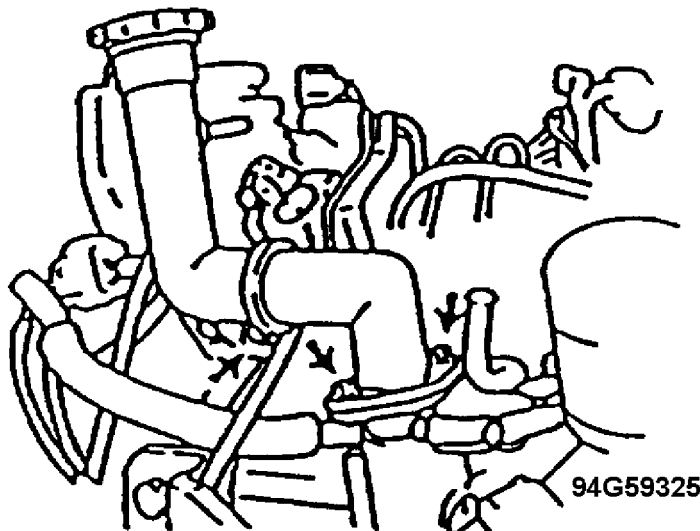


Fig. 43: Oil Filler Pipe Identification

21. Remove the ignition coil assembly. Remove the four nuts shown in Fig. 44. Tightening torque of the nuts for reassembly:

Tightening torque: 70-100 kgf.cm (61-86 in lbf)

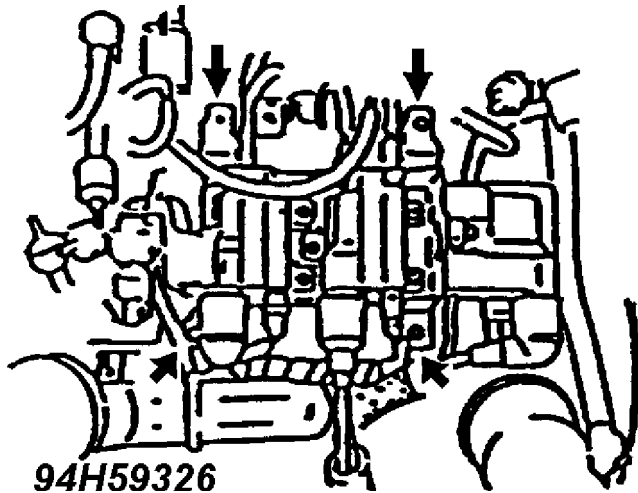


Fig. 44: Four Nuts Holding the Ignition Coil Assembly

## 22. ACV Removal

1. Disconnect the couplers from each solenoid valve in the ACV.
2. Remove the relief air hose. See letter E in Fig. 45.
3. Remove the ACV. Re-tightening torque of the nuts:  
Tightening Torque: 70-100 kgf.cm (61-86 in-lbf)
4. Remove the vacuum tubes from the inlet manifold. See Fig. 45.  
Replace the vacuum tubes with new ones.

Vacuum tube: 99351-04095 x 4 pcs.

NOTE: \* When reassembling, replace the ACV gasket with a new one.

Gasket: N3A3-13-996

- \* When reassembling, be sure to insert the check valve in the step cut position of the intake manifold, then attach the ACV.
- \* Make sure that the wire harnesses of the solenoid valve will not touch the ACV.

**RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01**

**Article Text (p. 32)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:38AM

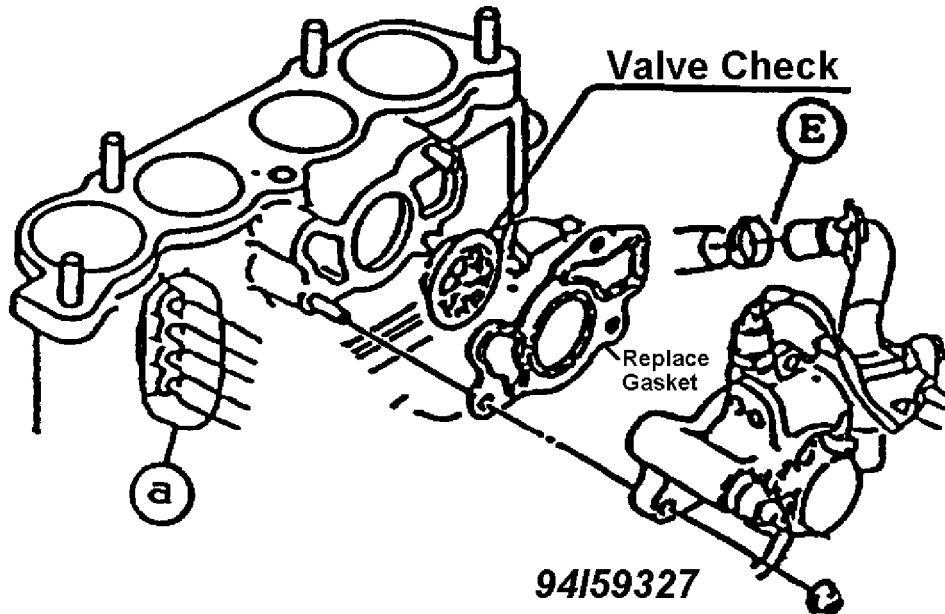


Fig. 45: Removal of Relief Air Hose & Vacuum Tubes

23. Move the vacuum pipe assembly toward the steering shaft side.  
See Fig. 46.

1. Loosen the three bolts that attach the vacuum pipe to the engine. See letter C in Fig. 46.
2. Disconnect the coupler from the solenoid valve attached to the vacuum pipe.
3. Remove the vacuum tubes, water hose and fuel hoses (cutting the fuel hoses off at the position marked with scissors makes the work easier). See Fig. 46.

NOTE: \* Do not remove hoses other than 1-14.

\* Remove the hoses on the sides indicated by arrows (-->) in Fig. 46.

\* Be careful not to damage any pipes.

\* When removing the hoses, do not use any spray type lubricant.

4. Move the vacuum pipe assembly toward direction D.

5. When reassembling, replace the hoses 1, 2, 3, 4, 5, 6, 7, 8, 10, and 11 with new ones.

# RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01

## Article Text (p. 33)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:38AM

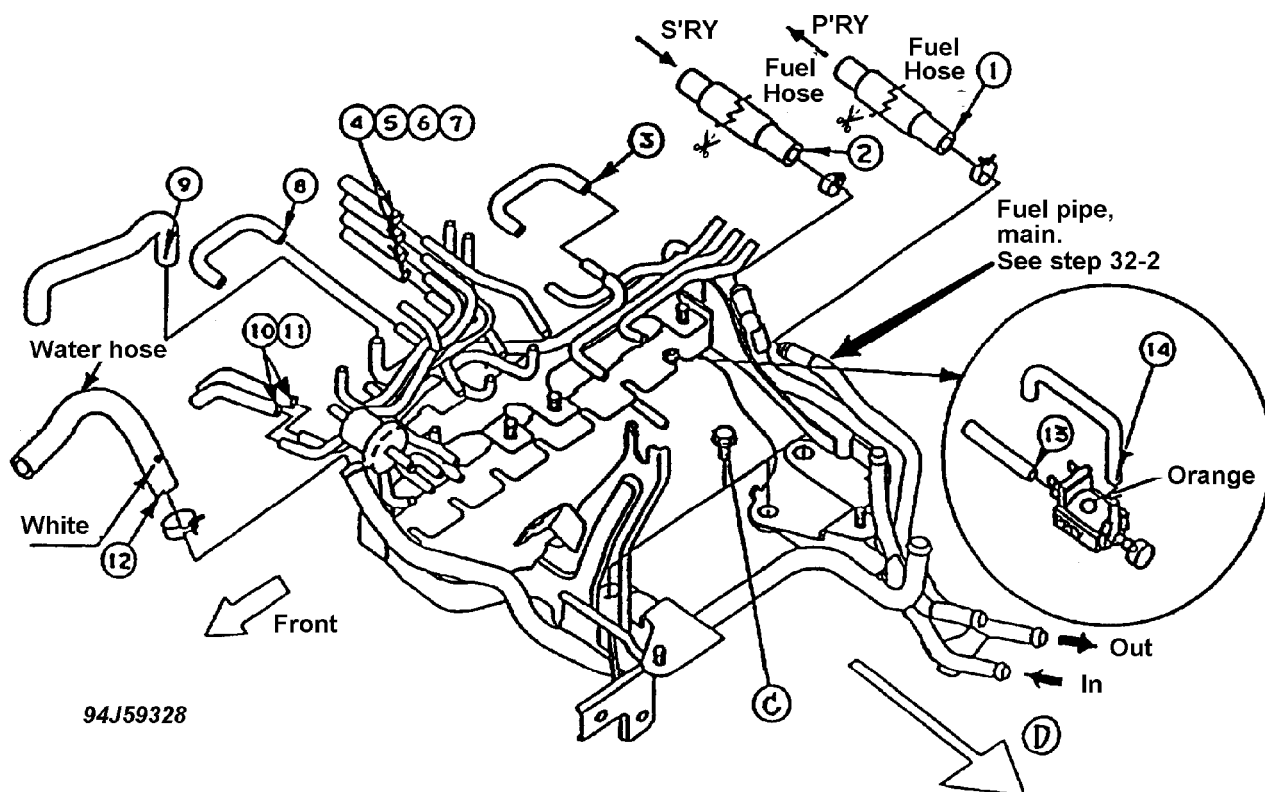


Fig. 46: Exploded View of Tubes & Hoses for Modification

6. Replace the front throttle body water hose with a new one and attach it with two new hose clamps. See Fig. 47.

NOTE: Holder must be removed from clamps.

Water hose: N3A1-13-692A

Clamps: 99287-1400P x 2 pcs.

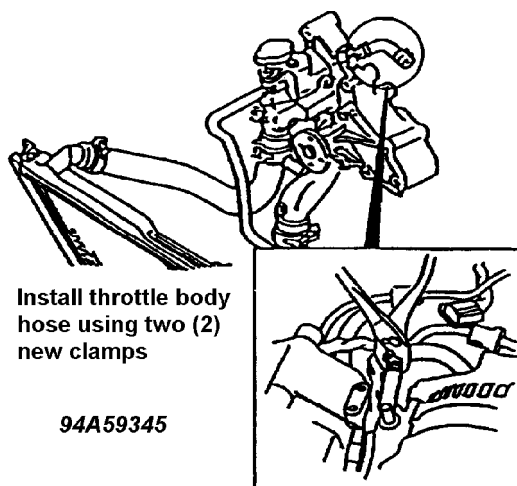


Fig. 47: Installing Throttle Body Hose (N3A1-13-692A)  
Use Two New Clamps

**RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01**

**Article Text (p. 34)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

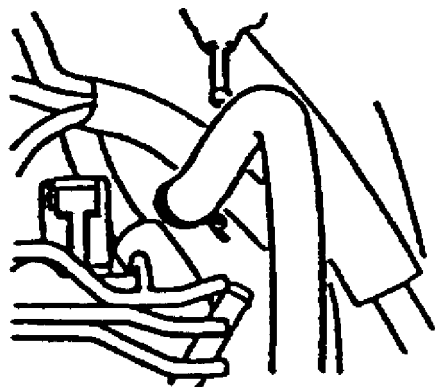
Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:38AM

7. Use long needle nose pliers to remove hose clamps, and replace the rear throttle body water hose with a new one. Remove holders from clamps. Attach with two new clamps. See Fig. 48.

Water hose: N3A1-13-681A

Clamps: 99287-1400P x 2 pcs.



**Install New Rear  
Throttle Body Water  
Hose. Use New  
Clamps**

**DO NOT DAMAGE**

**94B59346**

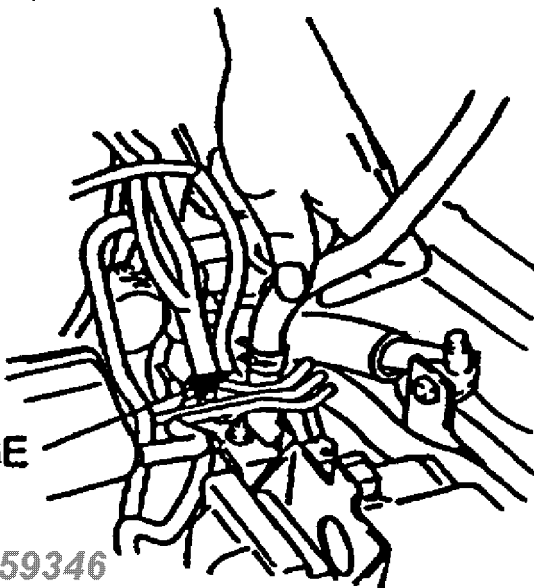
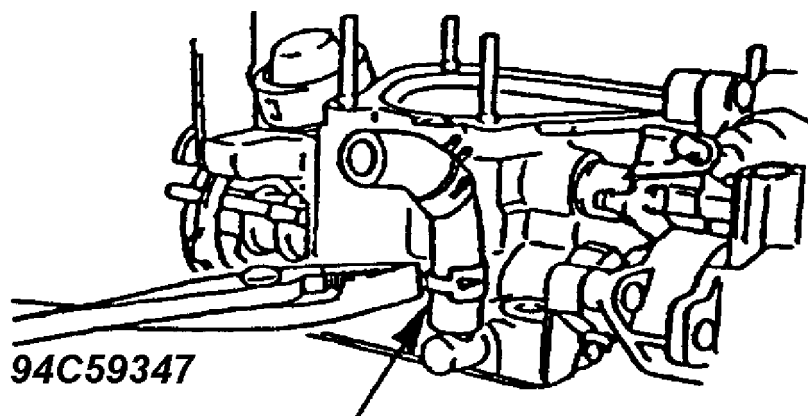


Fig. 48: Installing New Rear Throttle Body Water Hose (N3A1-13-681A)  
Use New Clamps

8. Replace the throttle body water hose with a new one using two new clamps. See Fig. 49.

Water hose: N3A1-13-691A

Clamps: 99287-1400P 2 pcs.



**Install New Throttle Body Water  
Hose Using Two (2) New Clamps**

Fig. 49: Installing New Throttle Body Water Hose (N3A1-13-691A)  
Use Two New Clamps

24. Removal of primary fuel distributor, secondary fuel distributor and insulator. See Fig. 50.
1. Loosen the four bolts.
  2. Loosen the connector bolt from the inlet of the secondary fuel distributor.

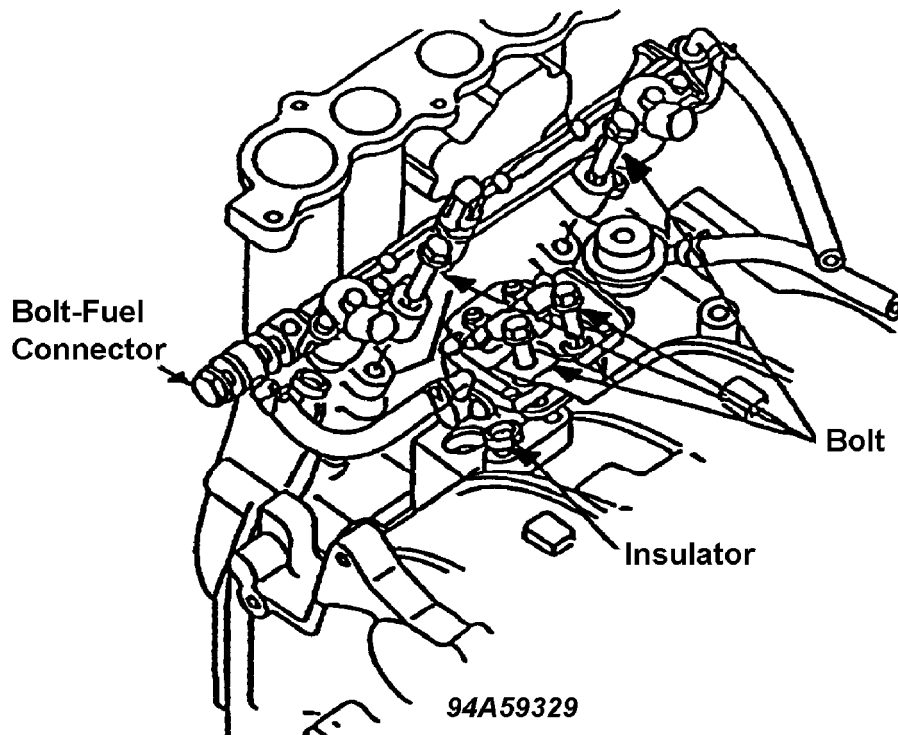


Fig. 50: Removal of Primary & Secondary Fuel Distributor & Insulator

25. Remove the fuel hose from the primary fuel distributor.



**RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01**

**Article Text (p. 36)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:38AM

See Fig. 51.

- NOTE:
- \* When turning the screw be careful not to break the heads (+) of the screws F (two) because they are tight.
  - \* Be careful not to damage the pipe at the hose insertion location on the primary inlet side.

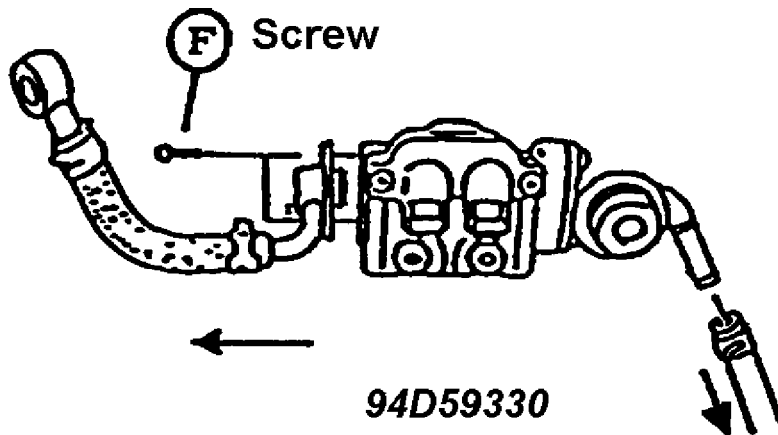


Fig. 51: Removal of Hose from Primary Fuel Distributor

26. Install the modified fuel hose on the primary fuel distributor outlet side. See Fig. 52.

- NOTE:
- \* When installing, do not twist the "O" ring.
  - \* Replace the bolts with modified ones. See letter G in Fig. 52.

Tightening Torque: 25-36 kgf.cm (22-31 in-lbf)

Fuel Hose: N3Z1-13-420

Bolt: 99796-0810 x 2 pcs.

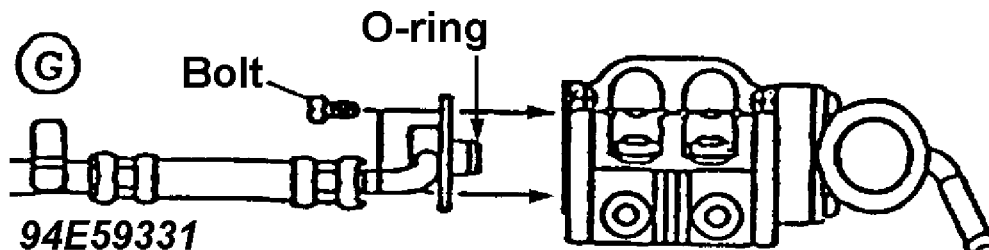


Fig. 52: Primary Fuel Distributor Outlet Modified Hose

- 27-1. Install the hose on the inlet side of the primary fuel distributor. See Fig. 53.

- \* Submerge the hose end with the white mark into adhesive.
- \* Use adhesive specially prepared for this work.

**RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01**

**Article Text (p. 37)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:38AM

NOTE: Be careful not to use another adhesive.

- \* Install the hose (white mark side) within five minutes after applying adhesive.

NOTE: Before installing the hose, degrease the pipe for better adhesion.

Fuel Hose: N3Z1-13-415

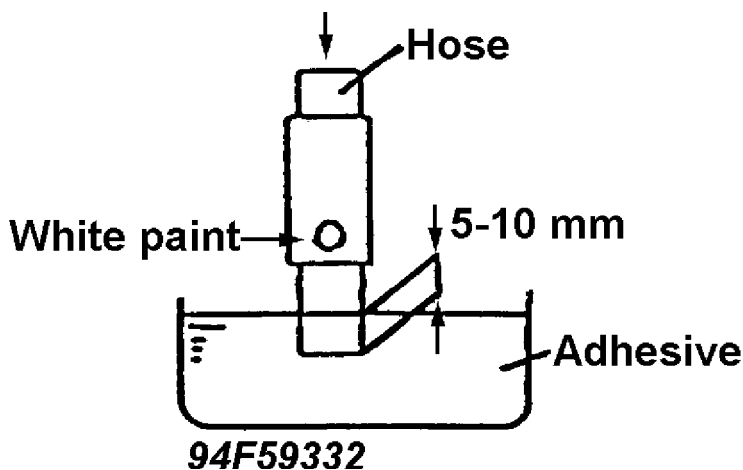


Fig. 53: Installing Hose on Inlet Side of Primary Fuel Distributor  
Submerging Hose End with White Mark into Adhesive

27-2. Install the clips on the hose of the inlet side of the primary fuel distributor.

- NOTE:
- \* Use two clips on the fuel distributor side.
  - \* Place the fuel distributor side clip claws on the top and the other one on the bottom. For the directions of the clip claws, see Figs. 54 and 55. Insert the hose to the pipe bulge. Match the edges of the clip and the hose end.
  - \* Replace all hose clips with new ones.
  - \* Do not use clips other than those included, part number below.
  - \* Be careful not to place the clip on the pipe bulge.

Clip: N3Z1-13-157 x 2pcs.

Protector: N3B7-13-428A

**RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01**

**Article Text (p. 38)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:38AM

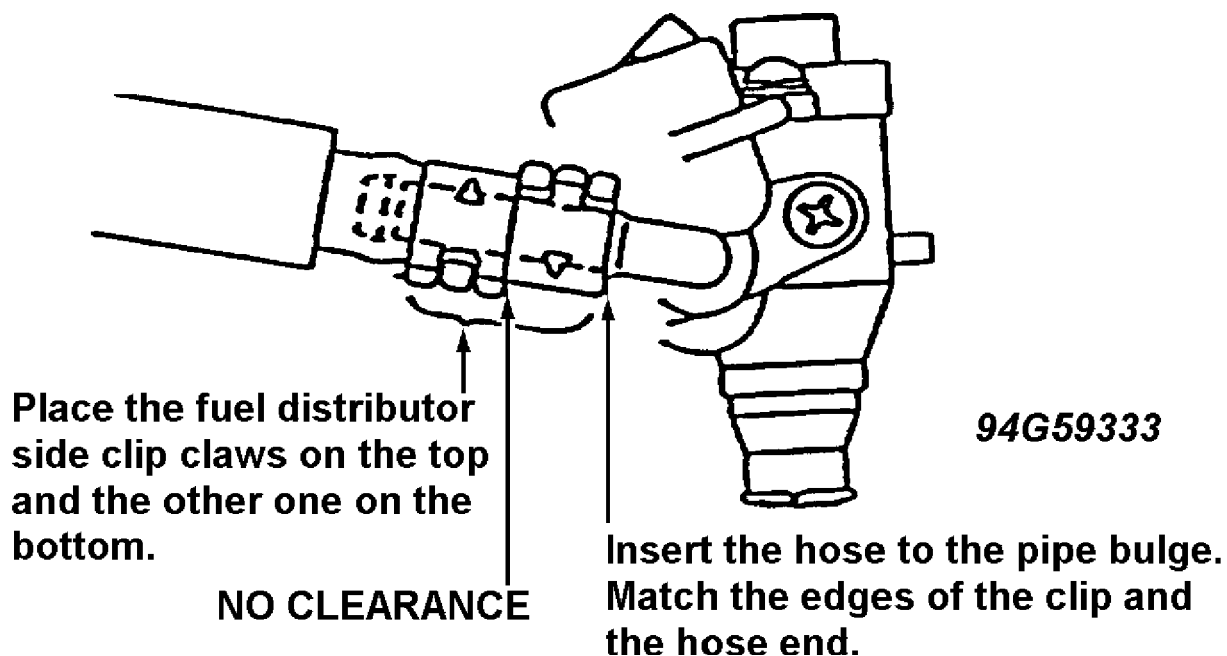


Fig. 54: Installation of Clips on Hose

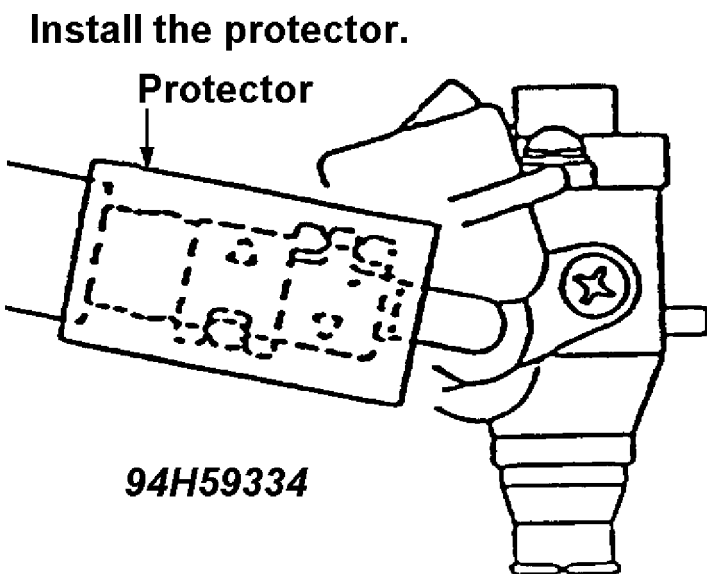


Fig. 55: Installation of Protector

28. Install the fuel hose on the secondary fuel distributor.  
See Fig. 56.

NOTE: \* Place the connector stopper on the secondary fuel distributor body, then tighten the connector bolts.

Tightening Torque: 240-360 kgf.cm (208-312 in-lbf)

\* Use new gaskets.

Gasket: N236-13-483 x 21pcs.

**RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01**

**Article Text (p. 39)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:38AM

\* Reuse the connector bolts.

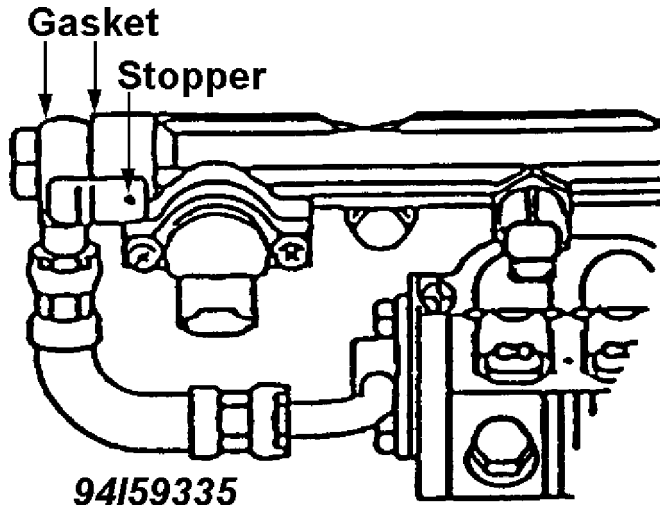


Fig. 56: Installation of Fuel Hose on Secondary Fuel Distributor

29. Replace the fuel hose on the return side of the secondary fuel distributor with a new one. See Fig. 57.

NOTE: \* Replace the clip also with a new one. Do not use clips other than those included, part number below.

Fuel hose: N370-13-415

Clip: 8574-13-157

\* For the direction of the clip claws, see Fig. 57.

\* Do not place the clip on the pipe on the bulge.

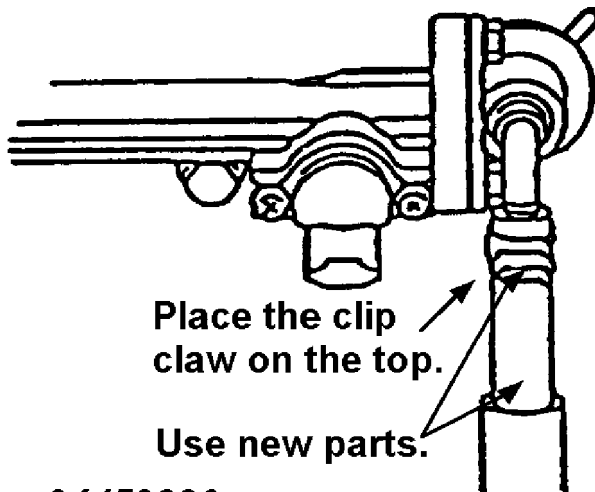


Fig. 57: Return Side of Secondary Fuel Distributor Hose Replacement  
Place the Clip Claw on the Top - Use New Parts

**RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01**

**Article Text (p. 40)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:38AM

30. Replace the two vacuum tubes with new ones. See Fig. 58.

Vacuum tube: 99351-04150 x 2 pcs.

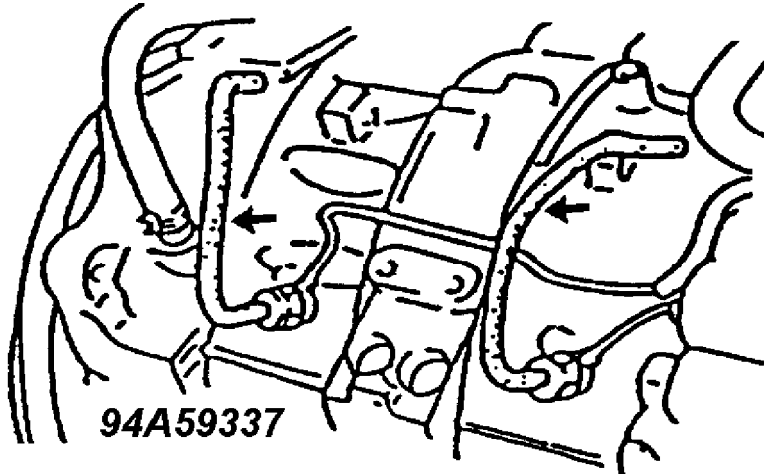


Fig. 58: Location of Vacuum Tubes

31. Install the primary fuel distributor and the secondary fuel distributor to the engine. See Fig. 59.

NOTE: \* Replace the four insulators with new ones.

Insulator (for primary): N3A1-13-257 x 2 pcs.

Insulator (for secondary): NF01-13-257A x 2 pcs.

32-1. Apply adhesive to the hose end on the primary fuel distributor outlet side indicated by the arrow in Fig. 59. To apply adhesive see step 27-1.

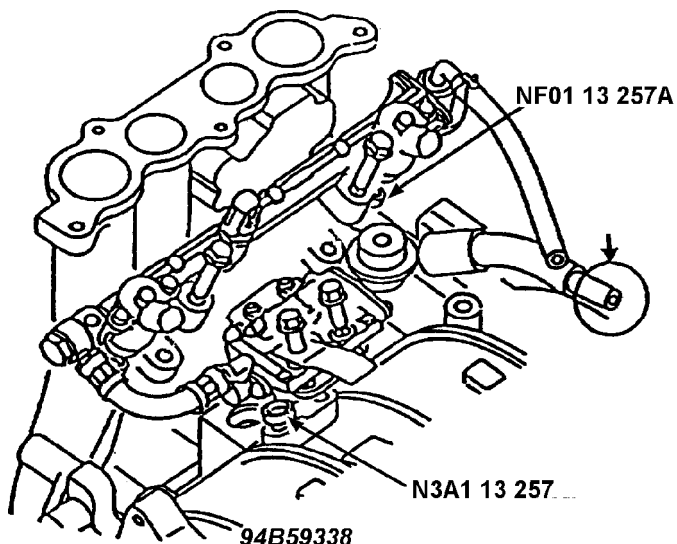


Fig. 59: Installing Primary & Secondary Fuel Distributors to Engine

32-2. Connect the hose between the fuel distributor and the vacuum

**RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01**

**Article Text (p. 41)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:38AM

pipe assembly. See Fig. 60.

NOTE: \* Replace the clips (outlet side of the secondary fuel distributor) with new ones.

Clip (Secondary): 8574-13-157

\* For the direction of the clip claw, see Fig. 60.

\* Do not use clips other than those included, part number below.

\* Be sure to use two clips for the joint between the primary fuel distributor and the main fuel pipe. (see arrow in Fig. 46.)

NOTE: For the direction of the clips claw, see step 27-2.

Clip (Primary): N3Z1-13-157 x 2 pcs.

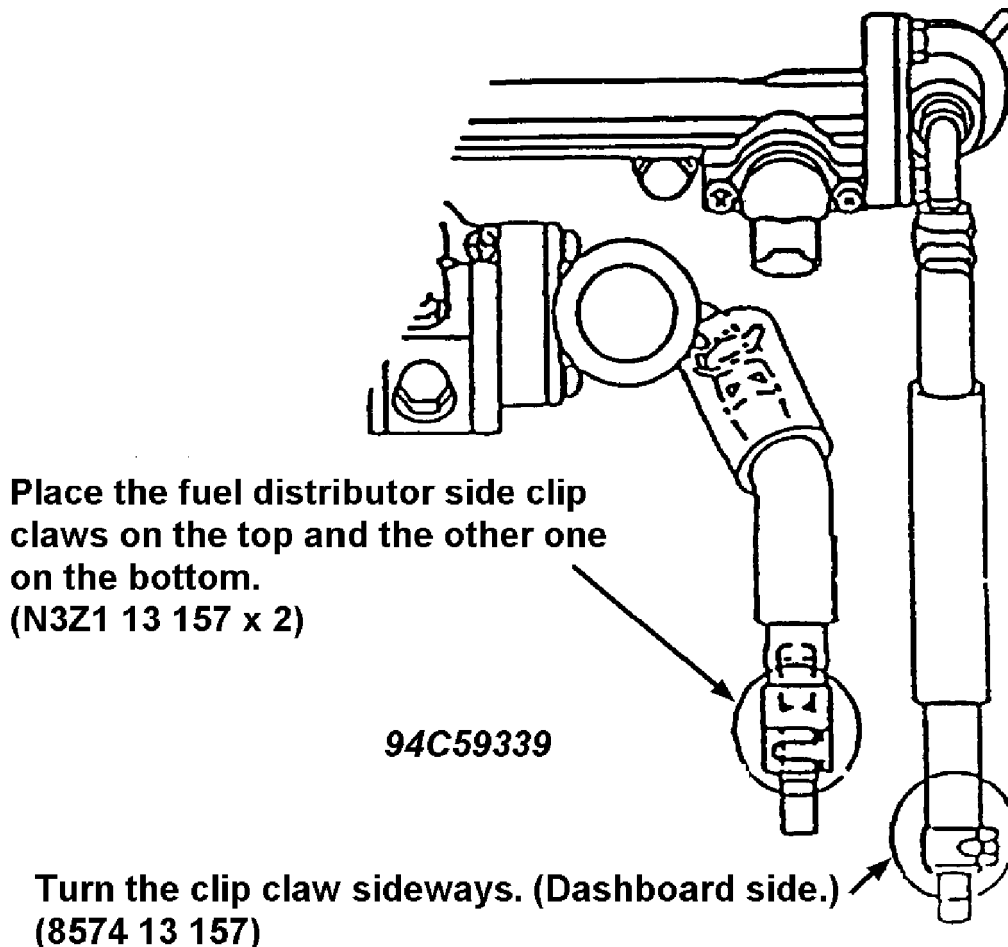


Fig. 60: Connecting Hose Fuel Distributor & Vacuum Pipe Assembly  
Place the Clip Claws in Opposite Directions

**RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01**

**Article Text (p. 42)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:38AM

32-3. Replace the main fuel hose with a new one. See Fig. 61.

NOTE: \* The hose and the clips shown in Fig. 61 should be replaced with new ones.

\* Be careful not to use the hose and the clips other than those included, part number's below.

\* Apply adhesive to the hose end (short end side only, indicated by the arrow in Fig. 61), then install it. (To apply adhesive, see step 27-1.)

\* Insertion depth of both hose ends should be 25 - 30 mm.

Fuel hose: N3Z1 -13-421.

Clip: 8574-13-157 x 2 pcs.

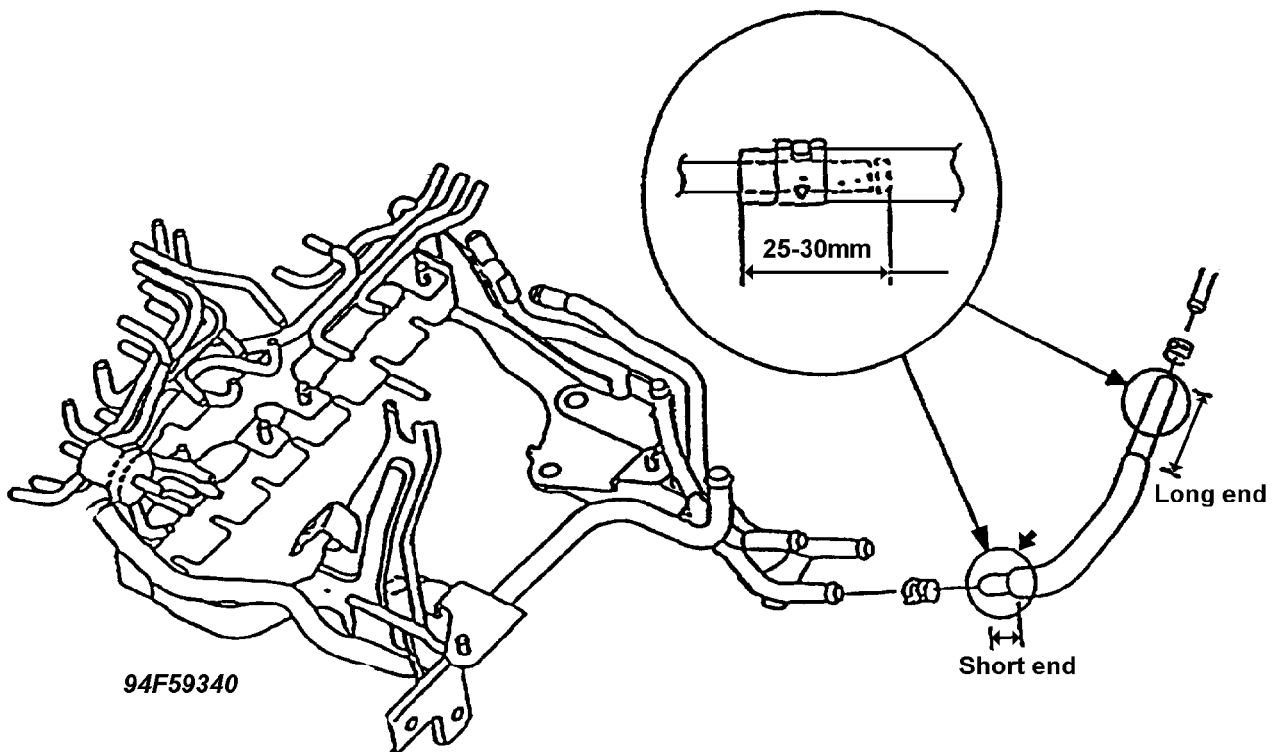


Fig. 61: Replacement of Main Fuel Hose

33. Check for fuel leakage.

WARNING: Do not smoke, carry lighted tobacco, or an open flame of any type when working on or near a fuel related component. Highly flammable mixtures are present and may be ignited resulting in possible injury.

1. Connect the negative terminal to the battery.
2. Connect the fuel pump terminal of the diagnostic connector to

**RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01**

**Article Text (p. 43)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:38AM

the ground terminal. See Fig. 62.

3. Pinch the fuel return hose with a suitable tool to stop any fuel return to the tank. See Fig. 63.

NOTE: Use a dull-edged SST so that it does not damage the hose.

4. Operate the fuel pump for more than five minutes, and check for fuel leakage.
- \* Check for fuel leakage visually and by odor. Carefully check the positions (seven) indicated by the arrows in Fig. 63. If fuel leakage is found, repair the problem. Once repaired, check again according to the above steps.

**Diagnostic Connector To Ground Terminal**

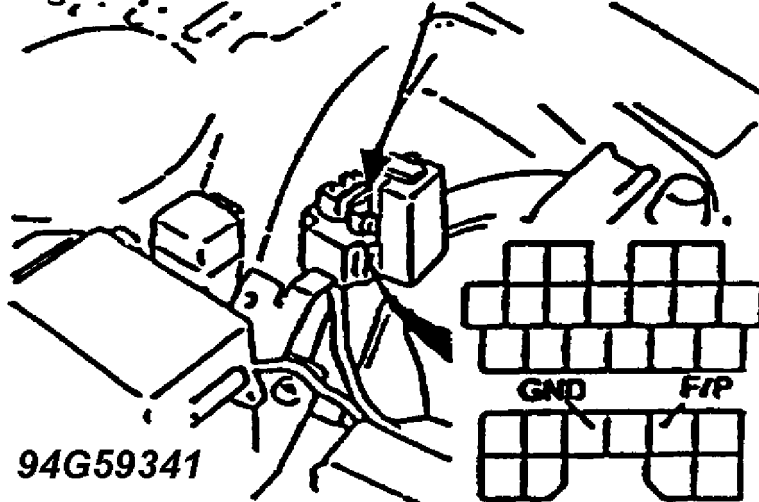


Fig. 62: Diagnostic Connector to Ground Terminal



**RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01**

**Article Text (p. 44)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:38AM

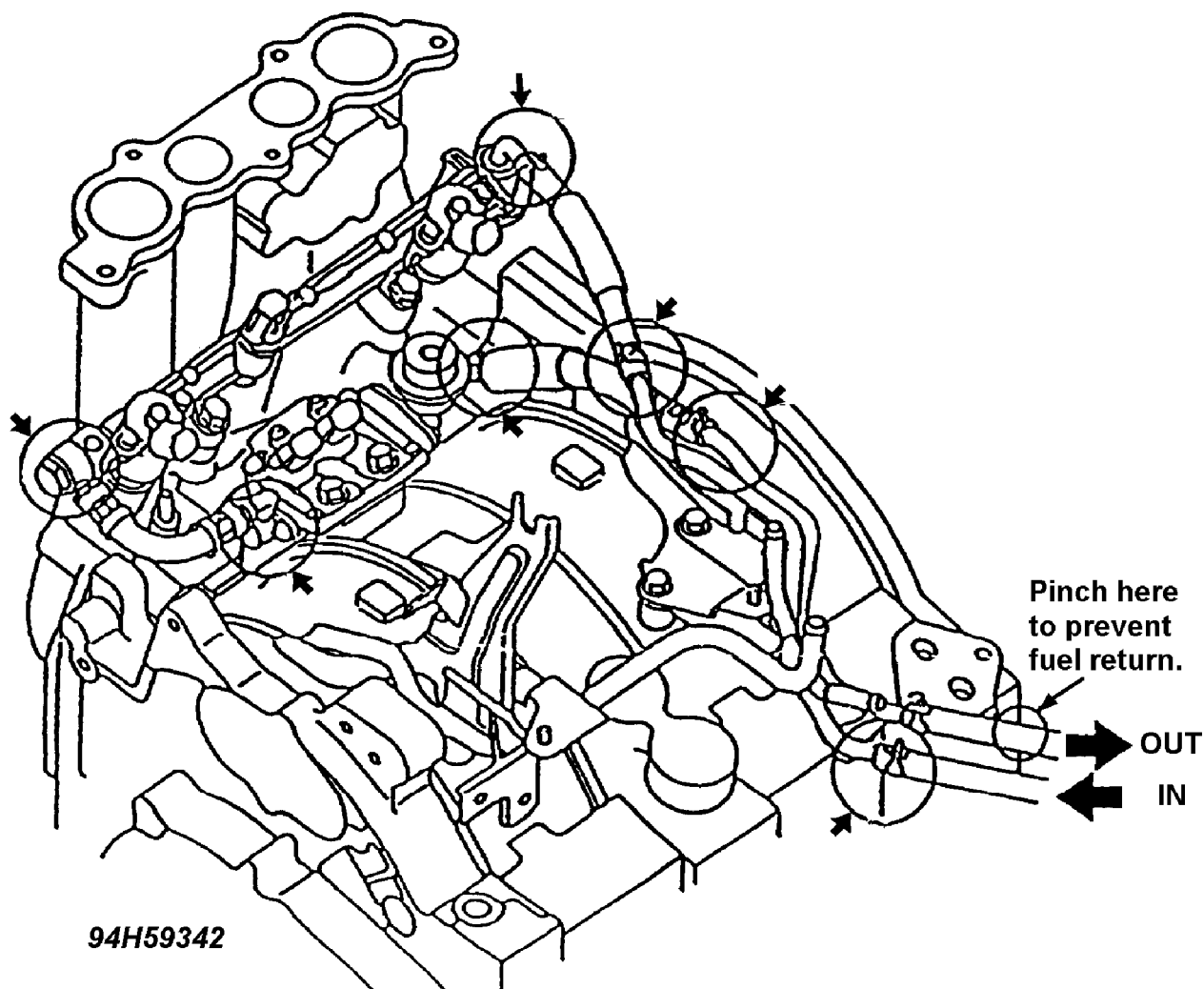


Fig. 63: Seven Fuel Leakage Areas

34. Install the vacuum pipe assembly.

1. Replace the vacuum tubes 4, 5, 6, 7, 10 and 11 with new ones.
2. Connect the hoses 3 - 14 to the vacuum pipe assembly.
3. Connect the coupler of each solenoid valve.
4. Install the vacuum pipes to the engine by tightening the bolts (three pieces).

Tightening torque: 160-230 kgf.cm (139-199 in-lbf)

Vacuum tubes 10 and 11: N3A4-20-344 x 2 pcs.

# RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01

## Article Text (p. 45)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:38AM

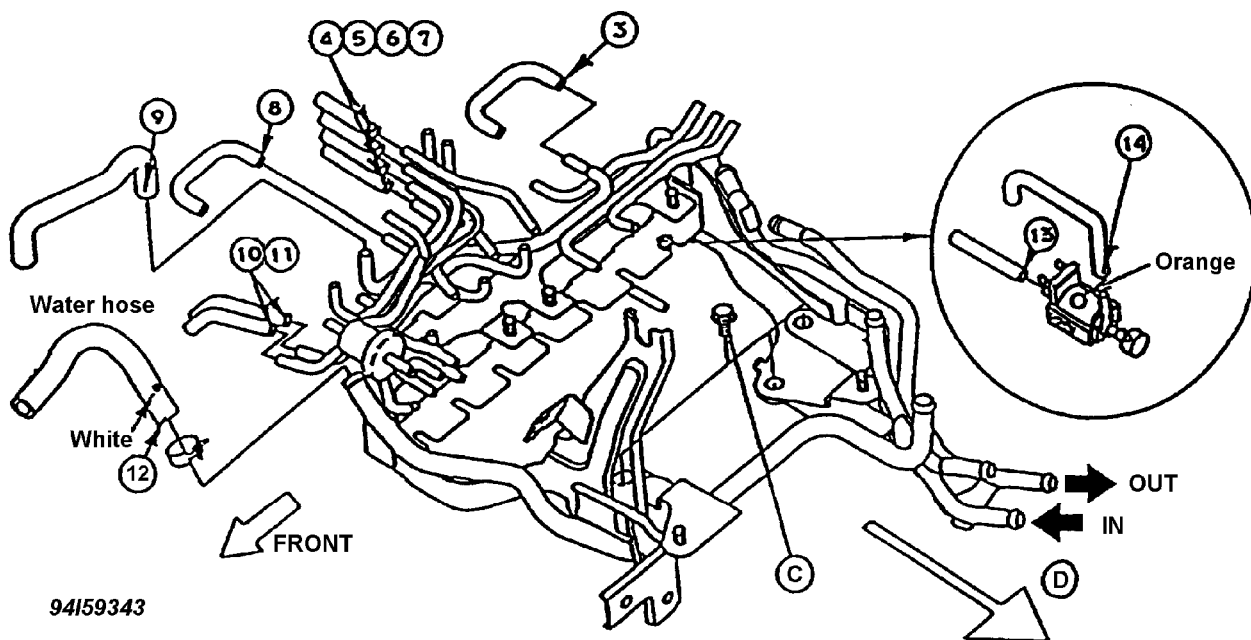


Fig. 64: Installation of Vacuum Tubes

35. Assemble the parts in the reverse order of removal.

### PROCEDURE C - REPLACEMENT OF THE FILLER CAP KIT

NOTE: Procedure C is continued from procedure B.

The parts listed in this procedure must be ordered separately and are not included with the Fuel Recall Parts Kit.

36. Loosen the bolts of the filler cap body. Remove and discard the body and cap. Replace body, cap, and "O" ring with new ones from kit. See Fig. 65.

Kit Part Number - N3Z1-15-S10B

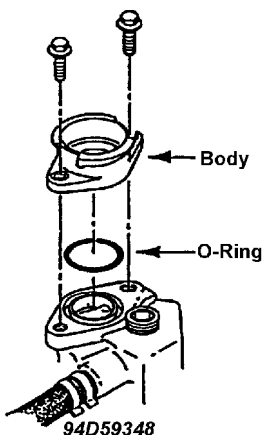


Fig. 65: Replacing Body Cap & "O" Rings

**RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01**

**Article Text (p. 46)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:38AM

37. Remove and discard the radiator cap from the sure tank and replace it with a new one.

Rad-cap: Included in Kit

NOTE: If the vehicle has no coolant leakage experienced and no coolant leakage at present, proceed to PROCEDURE E.

**PROCEDURE D - REPLACEMENT OF THE WATER PUMP KIT**

NOTE: Procedure D is continued from procedure E.

Water Pump Kit Part number N3Z1-15-S20

Thermostat Gasket must be ordered separately and is not included in the Fuel Hose Parts Kit.

38. Remove the bolts from the fresh air duct, and remove the fresh air duct. See Fig. 66.

\* Remove the rubber hoses from the air cleaner.

\* Remove the air cleaner installation bolts.

39. Remove the upper radiator hose. See Fig. 66.

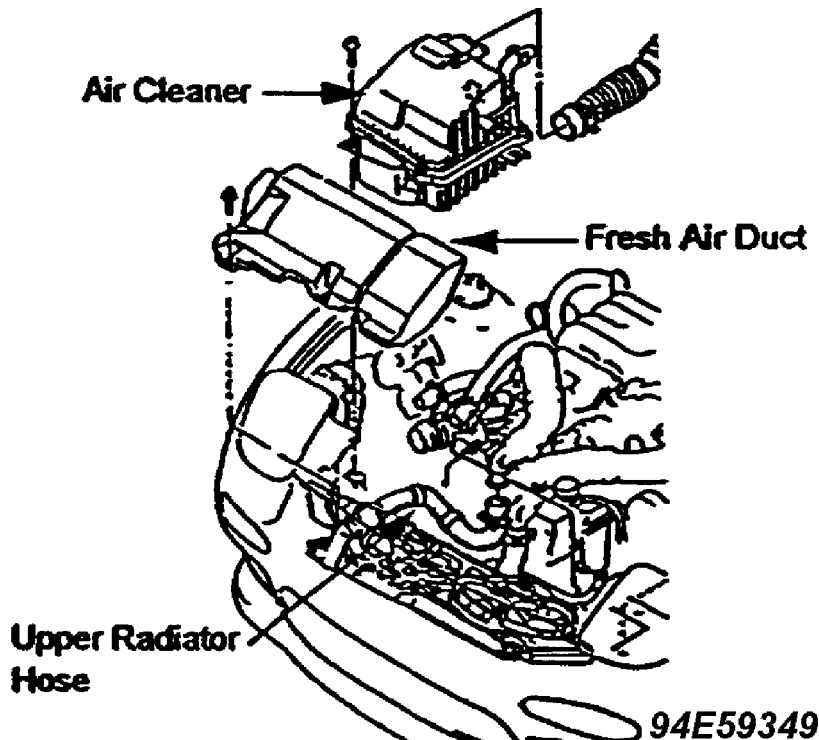


Fig. 66: Fresh Air Duct Bolts & Upper Radiator Hose

40. Remove the alternator installation nuts from the alternator

**RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01**

**Article Text (p. 47)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:38AM

adjuster bracket to remove the tension control bolt.

41. Remove the water pump pulley and alternator belt. See Fig. 67.

- \* Loosen the four bolts from the water pump pulley.
- \* Loosen the alternator belt.
- \* Remove the bolts from the water pump pulley.
- \* Move the belt, and remove the water pump pulley.

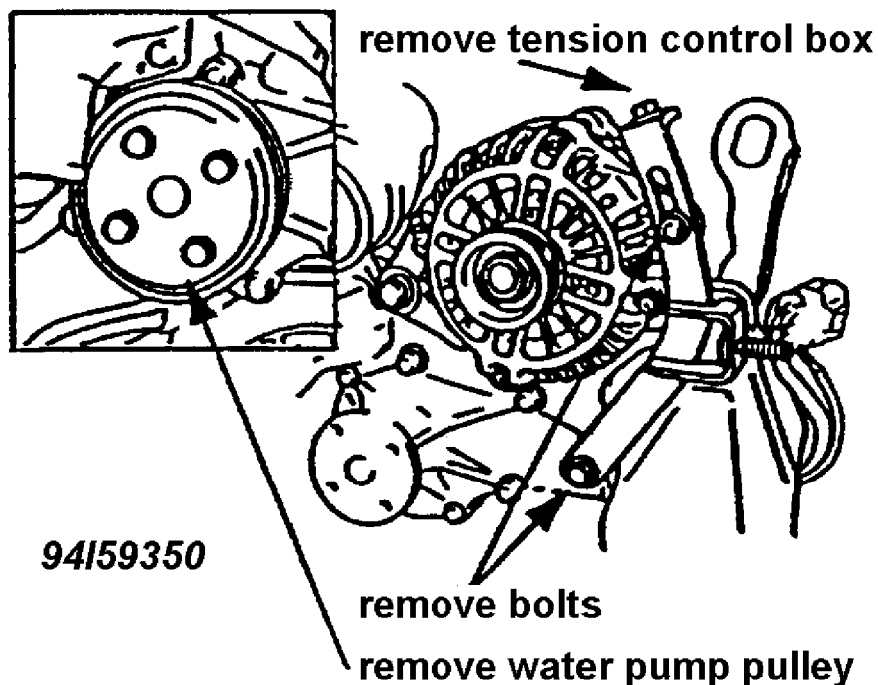


Fig. 67: Alternator Bracket & Water Pump Pulley

42. Remove the alternator adjuster bracket.

- \* Remove the bolts attaching the alternator adjuster bracket to the water pump.

43. Remove the nut attaching the alternator adjusting bracket to the power steering bracket. See Fig. 68.

**RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01**

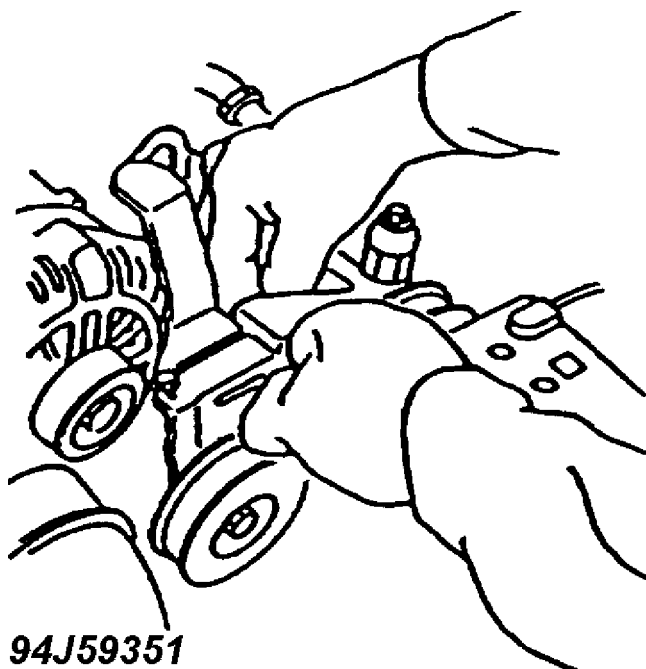
**Article Text (p. 48)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:38AM

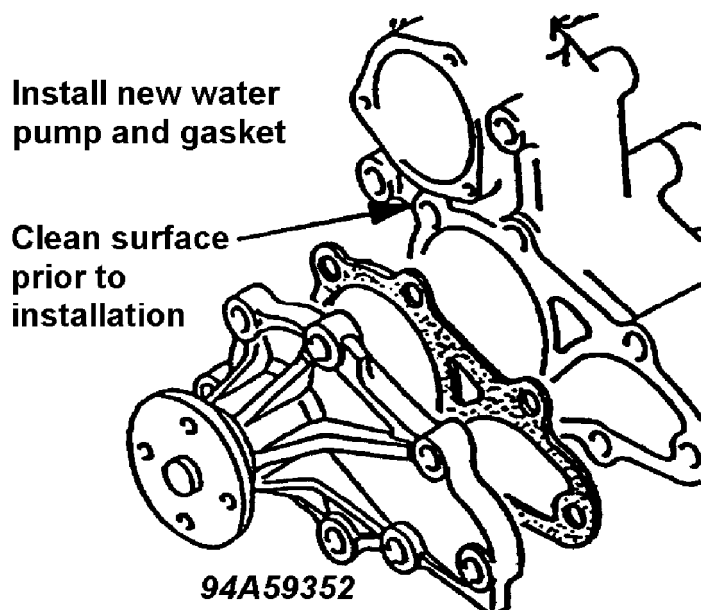


**94J59351**  
Fig. 68: Alternator Adjusting Bracket Nut to Power Steering Bracket

44. Remove the water pump and discard. Remove and discard gasket and clean gasket surface.
45. Install new water pump using the new gasket. See Fig. 69.

Water pump: Included in Kit

Gasket: Included in Kit



**94A59352**  
Fig. 69: Installing New Water Pump Gasket

**NOTE:** Be sure that oil metering line retaining clip is installed

**RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01**

**Article Text (p. 49)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:38AM

correctly on the outside of the water pump at bolt "A".  
See Fig. 70.

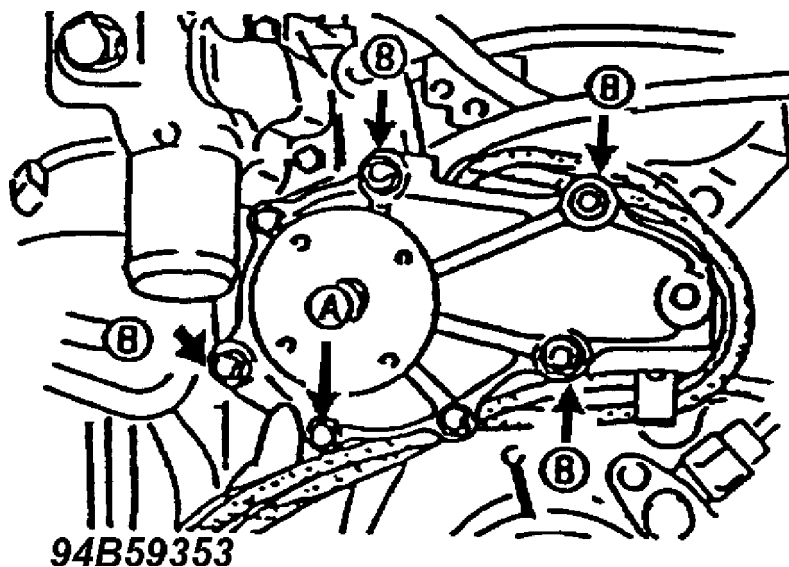


Fig. 70: Oil Metering Line Retaining Clip Identification

46. Disconnect the low coolant switch connector. See Fig. 71.

47. Remove the surge tank hose from the thermostat cover.

48. Remove the thermostat cover.

\* Remove the thermostat.

\* Install thermostat with new gasket.

Gasket: N3C1-15-173

NOTE: Ensure that the jiggle pin is in the 12:00 o'clock position.

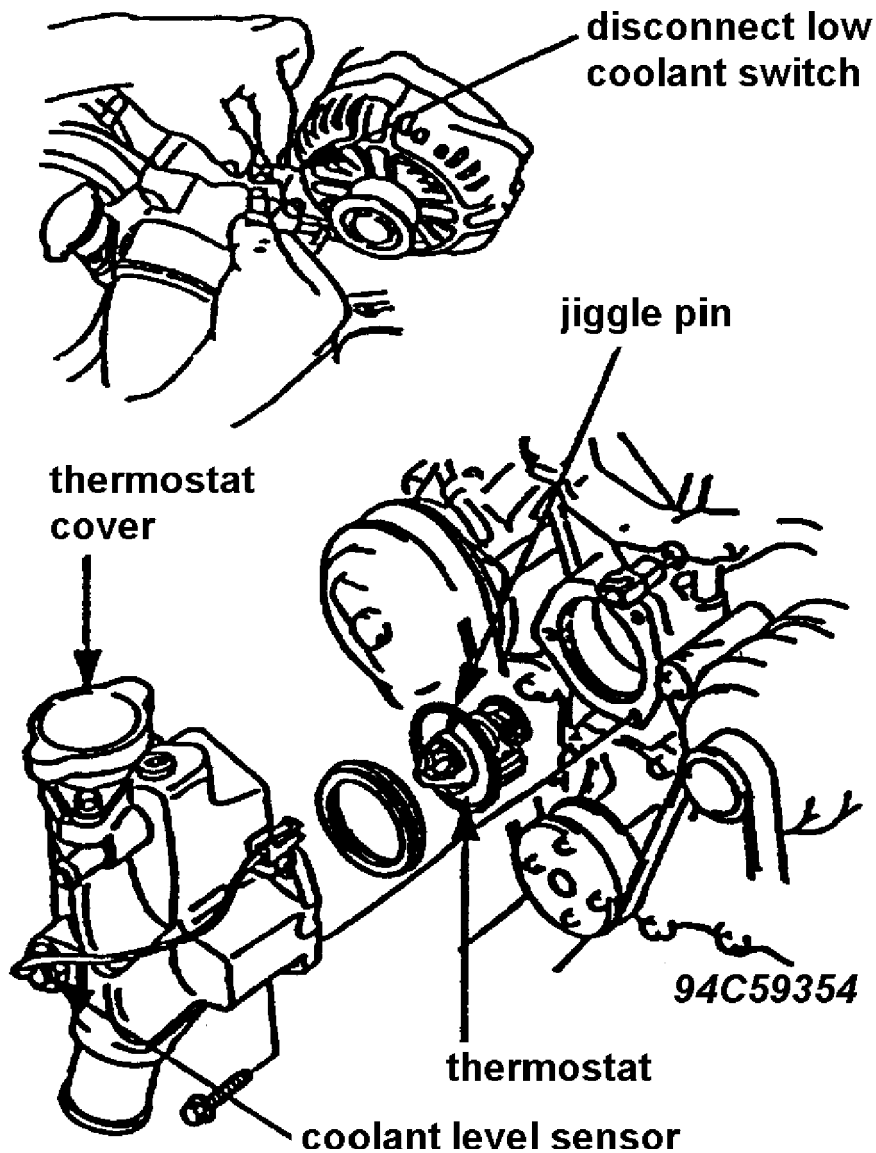


Fig. 71: Jiggle Pin Identification

49. Install a new coolant level sensor and gasket.

Level sensor: Included in Kit

Gasket: Included in Kit

50. Install the thermostat cover.

NOTE: Install water level sensor connector bracket.

51. Connect the coolant level sensor.

52. Install alternator bracket, pulley, and belt in reverse order of removal. See Fig. 67.

53. Install new upper radiator hose.

# RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01

## Article Text (p. 51)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:38AM

Radiator hose: Included in Kit

54. Install air cleaner and fresh air duct.

### PROCEDURE E - COOLING SYSTEM CHECK/AFFIXING CAMPAIGN LABELS

NOTE: Procedure E is continued from procedure D.

55. After assembling parts, follow the instructions below prior to replenishing coolant.

- \* Measure the concentration of antifreeze in the removed coolant with a hydrometer.
- \* If the concentration is more than 45%, use the removed coolant to fill the system, purge air from the system and fill the coolant reservoir to the "F" mark.
- \* If the concentration is 45% or less, add 100% anti-freeze to the coolant system as specified in the ANTI-FREEZE CONCENTRATION TABLE.
- \* Purge the system of air. Use the original coolant to fill the reservoir to the "F" mark.

NOTE: Coolant refers to the fluid drained from the vehicle.  
Anti-Freeze refers to 100% new coolant.

#### ANTI-FREEZE CONCENTRATION TABLE

|                                                            |                  |   |                       |   |
|------------------------------------------------------------|------------------|---|-----------------------|---|
| UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA |                  |   | ;                     |   |
| 3                                                          | Concentration Of | 3 | Amount of Anti-Freeze | 3 |
| 3                                                          | Anti-Freeze      | 3 | To Be Added           | 3 |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA  |                  |   | ^                     |   |
| 3                                                          | 0-5%             | 3 | 4.4L                  | 3 |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA  |                  |   | ^                     |   |
| 3                                                          | 5-10%            | 3 | 4.1L                  | 3 |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA  |                  |   | ^                     |   |
| 3                                                          | 10-15%           | 3 | 3.8L                  | 3 |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA  |                  |   | ^                     |   |
| 3                                                          | 15-20%           | 3 | 3.5L                  | 3 |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA  |                  |   | ^                     |   |
| 3                                                          | 20-25%           | 3 | 3.1L                  | 3 |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA  |                  |   | ^                     |   |
| 3                                                          | 25-30%           | 3 | 2.7L                  | 3 |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA  |                  |   | ^                     |   |
| 3                                                          | 30-35%           | 3 | 2.2L                  | 3 |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA  |                  |   | ^                     |   |
| 3                                                          | 35-40%           | 3 | 1.6L                  | 3 |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA  |                  |   | ^                     |   |
| 3                                                          | 40-45%           | 3 | 1.0L                  | 3 |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA  |                  |   | ^                     |   |



**RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01**

**Article Text (p. 52)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

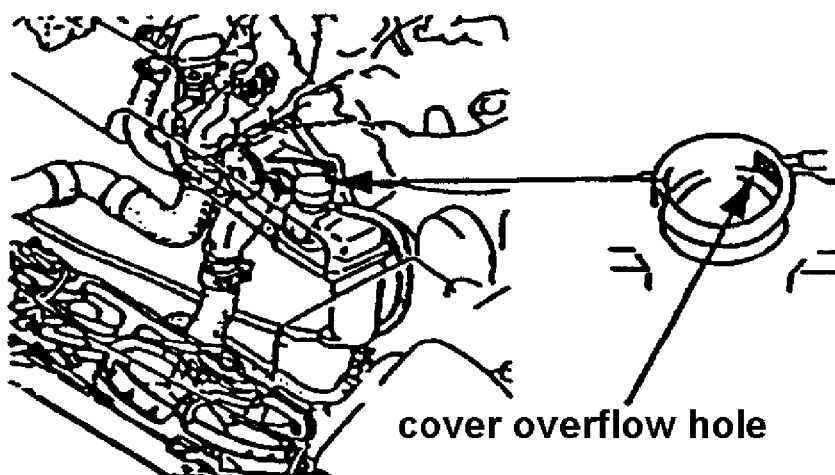
Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:39AM

<sup>3</sup> Use Hydrometer To Measure Concentration <sup>3</sup>

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAUU

56. Remove the cap from the surge tank and close the overflow hole in the surge tank neck with tape. See Fig. 72.

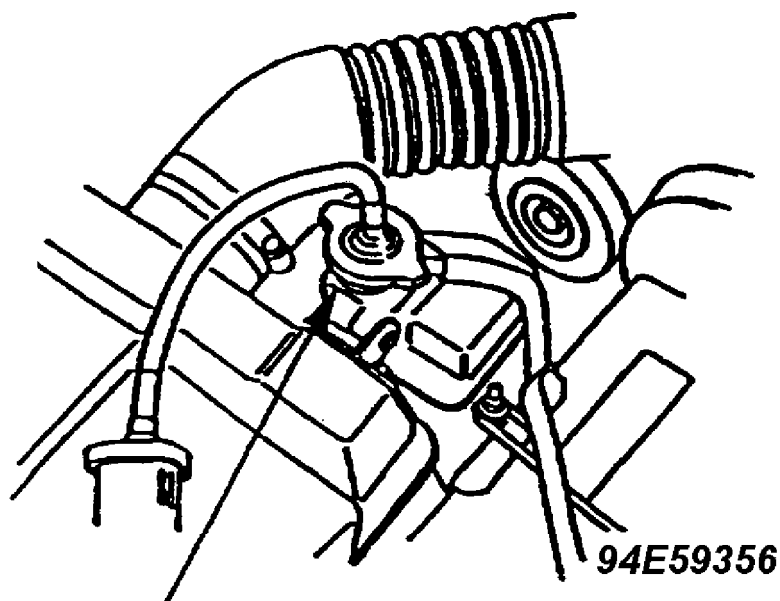


**94D59355**

Fig. 72: Cover Overflow Hole

57. Install the radiator pressure tester on surge tank.

58. Apply 15 psi. See Fig. 73.



**Install radiator tester and apply 15psi.**

**Verify that pressure holds.**

Fig. 73: Radiator Pressure Tester Application

59. Verify that pressure holds.

# RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01

## Article Text (p. 53)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:39AM

NOTE: If the radiator coolant pressure has dropped, locate the leak and repair as necessary. Retest after repair following the above procedures. After confirmation that no leaks are present, remove the tape from the overflow hole and install the pressure cap.

60. Affix the Campaign Label number 54407 and number 60504 onto the driver's side door for future confirmation that the campaign has been completed on this vehicle. See Fig. 74.

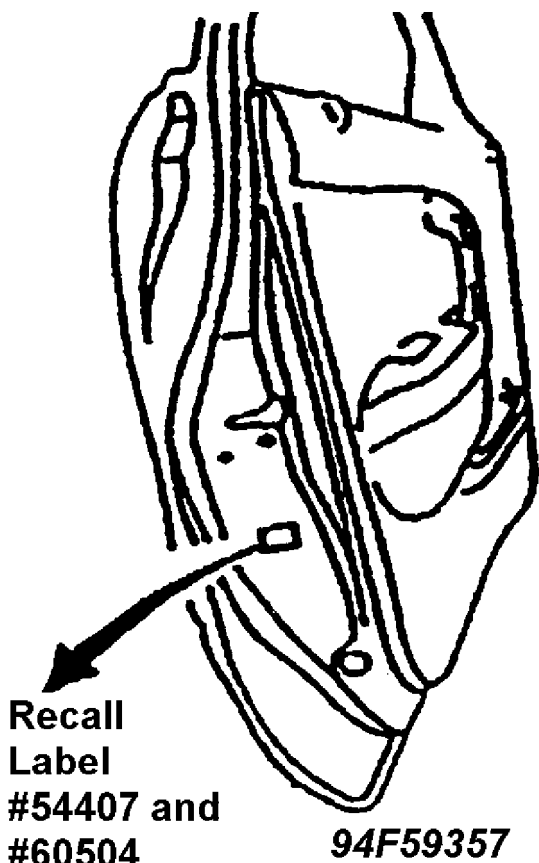


Fig. 74: Recall Label #54407 & #60504 Identification

## WARRANTY INFORMATION

### REPAIR CONTENT - FUEL HOSE AND COOLING SYSTEM WARRANTY TABLE

|                                                                                  |   |               |   |                 |   |                                                                                  |   |       |   |  |  |
|----------------------------------------------------------------------------------|---|---------------|---|-----------------|---|----------------------------------------------------------------------------------|---|-------|---|--|--|
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA |   |               |   |                 |   | AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA |   |       |   |  |  |
| 3                                                                                | 3 | With Coolant  | 3 | Without Coolant | 3 | Fuel Hose                                                                        | 3 |       |   |  |  |
| 3                                                                                | 3 | Leak          | 3 | Leak            | 3 |                                                                                  | 3 |       |   |  |  |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA |   |               |   |                 |   | AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA |   |       |   |  |  |
| 3                                                                                | 3 | Warranty Type | 3 | 5               | 3 | 5                                                                                | 3 | 5     | 3 |  |  |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA |   |               |   |                 |   | AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA |   |       |   |  |  |
| 3                                                                                | 3 | Recall No.    | 3 | 60504           | 3 | 60504                                                                            | 3 | 60504 | 3 |  |  |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA |   |               |   |                 |   | AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA |   |       |   |  |  |
| 3                                                                                | 3 | Process Code  | 3 | D               | 3 | E                                                                                | 3 | F     | 3 |  |  |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA |   |               |   |                 |   | AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA |   |       |   |  |  |

Saturday, August 25, 2001 09:39AM

**END OF ARTICLE**

# **SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96**

## **Article Text**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:39AM

## **ARTICLE BEGINNING**

TECHNICAL SERVICE BULLETIN

## **SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL REPAIRS**

Model(s): 1993-94 Mazda RX-7  
Category: AD  
Bulletin No.: 002/96  
Date: February, 1996

## **PURPOSE OF THIS INFORMATION**

- 1) Emphasize the importance of proper repair.
- 2) Provide diagnostic tips-if repairs are not performed correctly.

## **CONTENTS**

- \* January 1994 M-Tips contents related to this recall.
- \* General, Driveability and Component Troubleshooting Tips
- \* Service Bulletin AD, 002/96
- \* Up dated reference pages for the applicable Wiring Diagrams.

NOTE: Many driveability concerns occur from improperly performed repair procedures. This information is provided to emphasize this point and give direction to prevent these concerns.

## **REPAIR PROCEDURE**

IMPORTANT: Read this information thoroughly prior to performing recall repairs

### **MAZDA TIPS (Jan. 1994 ed.)**

When performing the Fuel Line Recall on RX-7 (Recall #60504), the following precautions and tips could save you a lot of extra time, and eliminate unnecessary expenses.

- \* Use extreme caution when removing the Fuel Pressure Regulator vacuum line. The plastic solenoid pipe can be easily broken when removing the hose if caution is not exercised.
- \* Secondary Fuel Rail Hose Replacement: The fuel injector rails are very fragile and can be easily broken. Remove the fuel distributor assemblies before you remove the Fuel Connector bolt. Do not mount the fuel distributor in a vice. Hold the distributor in your hand

## SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96

### Article Text (p. 2)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:39AM

and remove the Fuel Connector bolt with an air impact wrench. When installing the new fuel hose, hold the fuel distributor by hand and torque. The fuel connector bolt torque should be adjusted to 240-360 kgs/cm (208-312 in-lbs)

- \* Fuel Hose Clips: The double clips used on the primary fuel distributor inlet hose are narrower than the other clips. They also have a red holder. The single clips for use on the secondary distributor outlet hose is wider and has a pink holder.
- \* Fuel System Pressure Test: It is essential that this test be properly completed. The fuel line clips may appear to be properly seated, when in fact they are slightly mispositioned. Only when this pressure test is performed for the full five minutes can you be certain that all joints are well sealed.
- \* When performing fuel system leak test, it is important to connect the battery negative cable and then install jumper wire from the ground to the fuel pump terminals in the diagnostic connector before turning the ignition switch on. When the test is completed, turn the ignition switch off, remove the jumper wire, and then disconnect the battery negative cable. Failure to follow this order could result in damage to electrical components, such as the PCM.
- \* Be sure to use the proper 10mm nuts to install the coil assembly. The proper nuts have grooves on the underside to ensure a complete ground.
- \* Be sure that the O-ring gasket is properly seated on the base of the oil filler. The gasket may come off during removal without being noticed.
- \* When installing the Catch Tank during reassembly, be sure to route the vacuum hose from the purge control and to the catch tank on the outside of the oil filler. Otherwise, the vacuum hose could interfere in proper operation of the throttle linkage.
- \* The Fan Control System fastener A is a gray plastic-phillips screw in fastener. Remove and discard the fastener. The bolt at the top of the ECU should be loosened to allow the ECU to be slid down and away from the kick panel. It is not necessary to remove the wiring connectors from the ECU to perform this procedure. Just move the ECU over toward the center of the passenger area floor.

# SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96

## Article Text (p. 3)

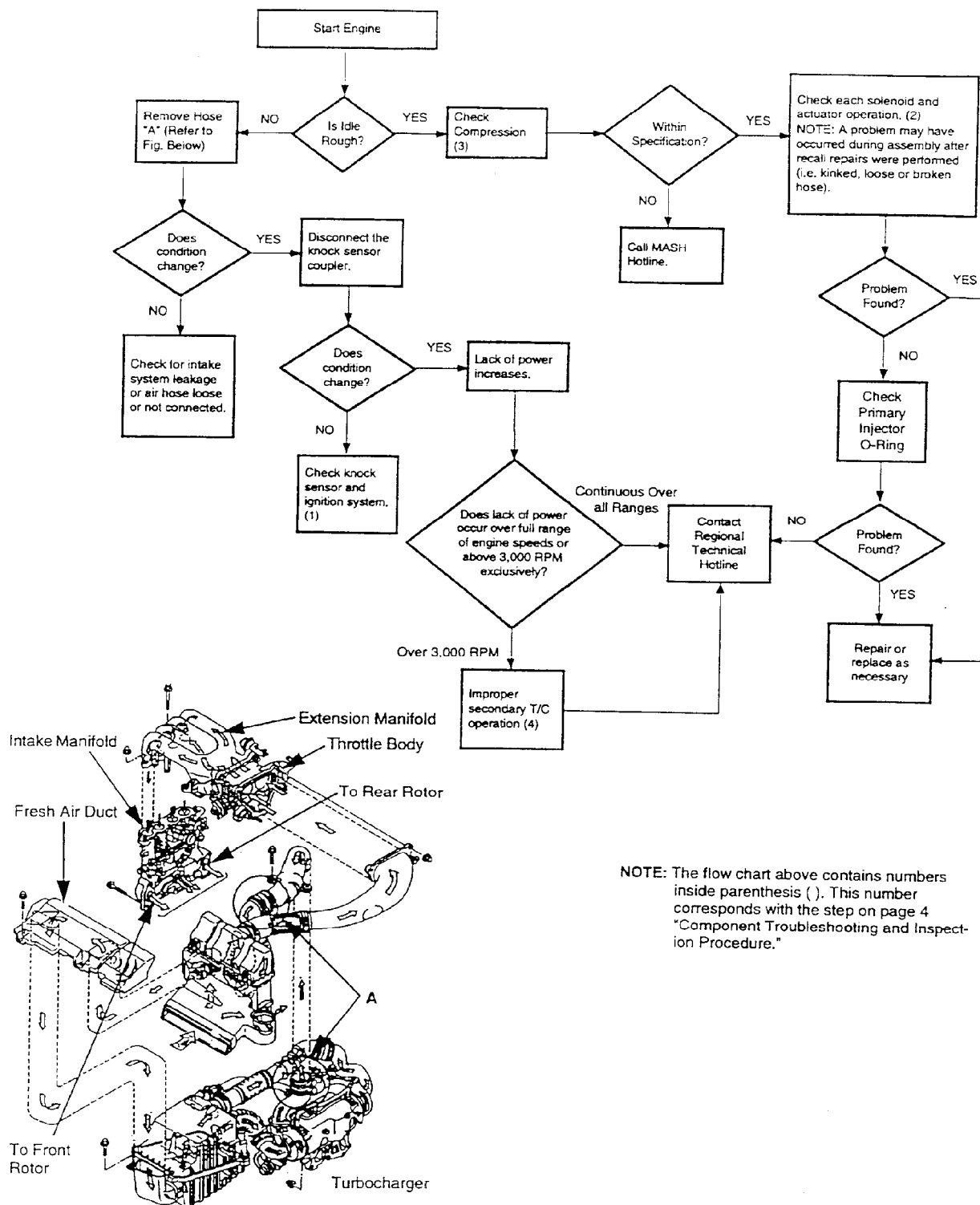
1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:39AM

### DRIVEABILITY TROUBLESHOOTING TIPS (Lack of Power, Rough Idle and Hesitation)



NOTE: The flow chart above contains numbers inside parenthesis (.). This number corresponds with the step on page 4 "Component Troubleshooting and Inspection Procedure."

Fig. 1: Driveability Troubleshooting Tips, Poor Power/Idle, Hesitates

## GENERAL TROUBLESHOOTING TIPS

3 \* Check that the ACV check valve is 3

## SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96

### Article Text (p. 5)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:39AM

```
3              3 properly installed.              3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA -
3 Cooling fan will not 3 If the cooling fan will not operate 3
3 operate.            3 under any conditions during the fan 3
3                    3 test.                    3
3                    3 * Check the wire harness ground 3
3                    3 strap for proper connection. 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA -
3 Cooling fan shuts off 3 Memory needs cleared. 3
3 when the key is turned 3 * Disconnect the battery and start 3
3 off during the fan 3 fan test over. 3
3 test.              3              3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA -
3 Cooling fan comes on 3 If the vehicle was produced before 3
3 immediately when the 3 April 1, 1993 (VIN of JM1FD331* 3
3 key is turned on and 3 P0210660 or less): 3
3 the check connector is 3 * The fan should come on immediately 3
3 grounded. 3 when the key is turned on. 3
3 3 * Leave the key on and the fan 3
3 3 operating for at least 150 seconds 3
3 3 * Turn the key off and proceed with 3
3 3 the test. 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA -
3 Fan operates only on 3 * Check that the harnesses with the 3
3 medium speed during fan 3 Black wires are connected. 3
3 test. 3 NOTE: The other two (2) harnesses 3
3 3 are interchangeable. 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU
```

### COMPONENT TROUBLESHOOTING AND INSPECTION PROCEDURE

1) Perform Spark Plug and Ignition Coil Inspection.

2) Intake System Inspection, check the following:

- \* If the air hose is coming off.
- \* If oil is present inside the hose and there is no sign of breakage, remove the oil. It is not necessary to replace the hose.
- \* If the hose is broken, replace the hose with a new part and tighten to the specified torque.
- \* If the hose is loose (coming off) insert properly and tighten to specified torque.

NOTE: The fuel connector bolt torque should be adjusted to 240-360 kgs/cm (208-312 in-lbs).

CAUTION: Do not allow foreign material to enter related parts when replacing or reinstalling intake system parts.



# SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96

## Article Text (p. 6)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:39AM

3) Compression Measurement.

4) Turbocharger Operation Controls Inspection:

### TURBOCHARGER OPERATION CONTROLS INSPECTION TABLE

|                                                                             |                 |                              |   |
|-----------------------------------------------------------------------------|-----------------|------------------------------|---|
| UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA; |                 |                              |   |
| 3 Part Name                                                                 | 3 Inspection    | 3 Procedure                  | 3 |
| 3                                                                           | 3 Item          | 3                            | 3 |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-   |                 |                              |   |
| 3 Check Valve "A"                                                           | 3 Reverse Flow  | 3 * After checking the check | 3 |
| 3 and "B"                                                                   | 3               | 3 valve, confirm that air    | 3 |
| 3                                                                           | 3               | 3 hoses C, D, E, F, are      | 3 |
| 3                                                                           | 3               | 3 connected. See Fig. 2.     | 3 |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-       |                 |                              |   |
| 3 Turbo Control                                                             | 3 Improper      | 3 * Refer to Fig. 2 to       | 3 |
| 3 Valve Actuator,                                                           | 3 Operation,    | 3 identify components for    | 3 |
| 3 Charge Control                                                            | 3 Improper      | 3 damaged (bent, nicked)     | 3 |
| 3 Valve Actuator,                                                           | 3 Piping Bent,  | 3 or removed condition.      | 3 |
| 3 Charge Relief                                                             | 3 Nicked and    | 3 Carefully check the        | 3 |
| 3 Valve,Turbo                                                               | 3 Removed Hoses | 3 following:                 | 3 |
| 3 Control Actuator,                                                         | 3               | 3 * Improperly connected     | 3 |
| 3 Turbo Pre-                                                                | 3               | 3 piping around area         | 3 |
| 3 Control Actuator                                                          | 3               | 3 "G."                       | 3 |
| 3 in Fig. 2                                                                 | 3               | 3 * Removed hoses around     | 3 |
| 3                                                                           | 3               | 3 area "H."                  | 3 |
| 3                                                                           | 3               | 3 * "I" hose for bent        | 3 |
| 3                                                                           | 3               | 3 condition.                 | 3 |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU         |                 |                              |   |

Repair or replace defective parts as necessary.

Saturday, August 25, 2001 09:39AM

[illegible]

# SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96

## Article Text (p. 8)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:39AM

```

3  A  3 Check Valve (Positive Pressure) 3 N390-13-995A 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3  B  3 Check Valve (Positive Pressure) 3 N390-13-995A 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3  C  3 Vacuum Hose (Pressure Chamber 3 N3A1-20-341 3
3      3 Exit) 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3  D  3 Vacuum Hose (Pressure Chamber 3 N3A1-20-342 3
3      3 Entrance) 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3  E  3 Vacuum Hose (Check Valve 3 N350-13-B96 3
3      3 Entrance) 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3  F  3 Vacuum Hose (CCV No. 3 3 N3A2-20-362 3
3      3 Solenoid) 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 (1) If part is removed, replacement is necessary 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
  
```

## COOLING FAN CONTROL SYSTEM 1993 RX-7

### DESCRIPTION

To improve idle smoothness and engine reliability, the cooling fan control system controls the electrical fan speed by ECM. This system consists of the cooling fan, cooling fan relays, cooling fan control module, ECM, and input devices. See Figs. 3 and 4.

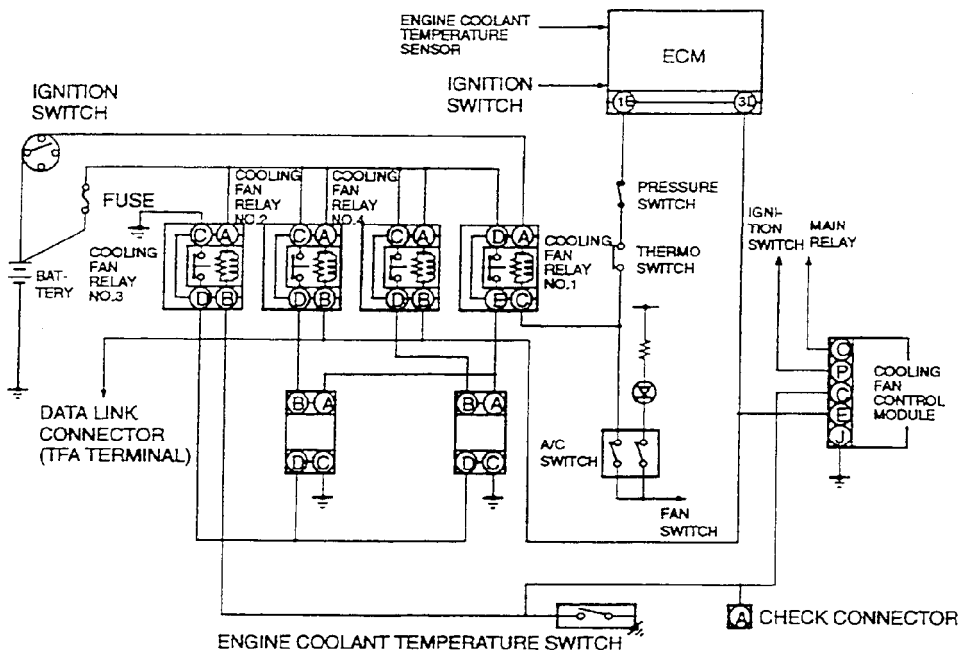


Fig. 3: Cooling Fan Control System Components

# SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96

## Article Text (p. 9)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:39AM

| Engine condition<br>(No electrical load)                                                                                                                     |                                                                                                    | A/C operation | Cooling fan relay No.1 | Cooling fan relay No.2 | Cooling fan relay No.3 | Cooling fan relay No.4 | Cooling fan operation |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|---------------|------------------------|------------------------|------------------------|------------------------|-----------------------|
| Engine coolant temperature below 105 °C {221 °F }                                                                                                            |                                                                                                    | OFF           | OFF                    | OFF                    | OFF                    | OFF                    | OFF                   |
|                                                                                                                                                              |                                                                                                    | ON            | ON                     | OFF                    | OFF                    | OFF                    | LOW                   |
| Engine coolant temperature 105—108 °C {221—226 °F }                                                                                                          |                                                                                                    | OFF           | OFF                    | ON                     | OFF                    | ON                     | LOW                   |
|                                                                                                                                                              |                                                                                                    | ON            | ON                     | ON                     | OFF                    | ON                     | MIDDLE                |
| Engine coolant temperature above 108 °C {226 °F } (Engine coolant temperature switch ON)                                                                     |                                                                                                    | OFF           | OFF                    | ON                     | ON                     | ON                     | MIDDLE                |
|                                                                                                                                                              |                                                                                                    | ON            | ON                     | ON                     | ON                     | ON                     | HIGH                  |
| In 10 min. after ignition switch is turned OFF. Engine coolant temperature above 108 °C {226 °F } for more than 2 min. before ignition switch is turned OFF. | Engine coolant temperature over 108 °C {226 °F } after ignition switch is turned OFF               | —             | OFF                    | ON                     | ON                     | ON                     | MIDDLE                |
|                                                                                                                                                              | Engine coolant temperature becomes lower than 108 °C {226 °F } after ignition switch is turned OFF | —             | OFF                    | ON                     | OFF                    | ON                     | LOW                   |
| Engine coolant temperature sensor malfunction                                                                                                                |                                                                                                    | —             | OFF                    | ON                     | OFF                    | ON                     | LOW                   |
| TFA terminal ground                                                                                                                                          |                                                                                                    | —             | OFF                    | ON                     | OFF                    | ON                     | LOW                   |

98E51742

Fig. 4: Cooling Fan Control System Operation

## SYSTEM INSPECTION

- 1) Verify that the engine coolant temperature is below 80°C (176°F)
- 2) Turn the ignition switch to ON for 15 seconds or longer.
- 3) Turn the ignition switch to OFF.
- 4) Ground the check connector by using a jumper wire.
- 5) (Up to VIN JM1 FD331' PO 210660) Turn the ignition switch to ON and verify that the cooling fan operates. Wait for approximately 150 seconds. (From VIN JM1 FD331' PO 210661) Turn the ignition switch to ON and verify that the cooling fan operates approximately 100-150 seconds after the ignition switch is turned to ON.
- 6) If the cooling fan will not operate, inspect the following.
  - \* Battery positive voltage
  - \* Fan control signal
  - \* Engine coolant temperature signal
  - \* Ground

## SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96

### Article Text (p. 10)

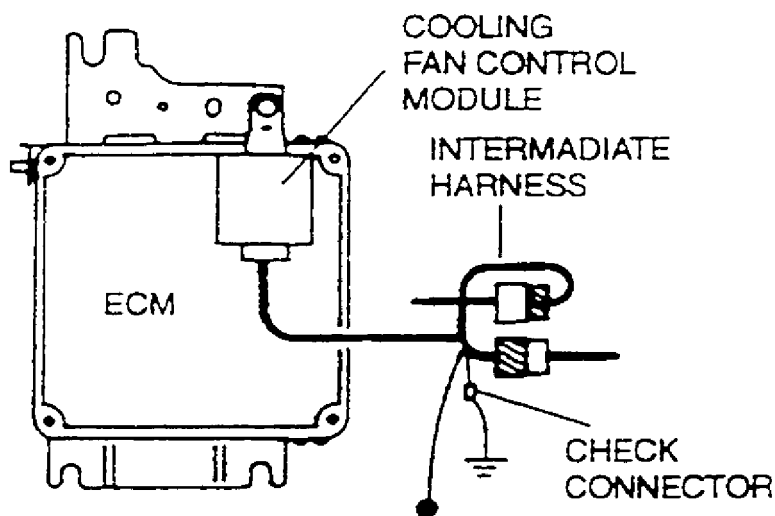
1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

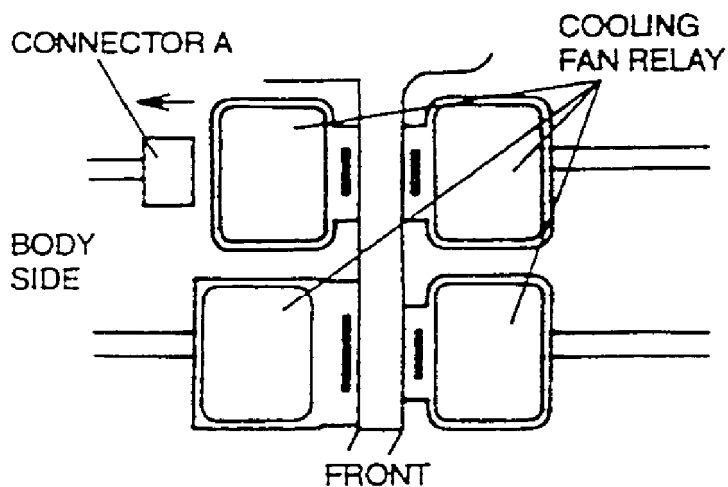
Saturday, August 25, 2001 09:39AM

- 7) Turn the ignition switch to OFF.
- 8) Verify that the cooling fan keeps operating after the ignition switch is turned to OFF.
- 9) If not, replace the cooling fan control module. See Fig. 5.
- 10) Wait for approximately 20 seconds.
- 11) Disconnect cooling fan relay connector A. Verify that the cooling fan operates at low speed. See Fig. 6.



98H51620

Fig. 5: Cooling Fan Control Module



98I51621

Fig. 6: Cooling Fan Relay Connector

- 12) If not, inspect the cooling fan relay.

## SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96

### Article Text (p. 11)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:39AM

- 13) Connect cooling fan relay connector A. Verify that the cooling fan operates at the speed before connector A is disconnected.
- 14) Disconnect the jumper wire from the check connector. Verify that the cooling fan operates at low speed.
- 15) Turn the ignition switch to ON.
- 16) Verify that the cooling fan stops 8-12 seconds after the ignition switch is turned to ON.
- 17) If not as specified, replace the cooling fan control module

### COOLING FAN CONTROL MODULE 1993 RX-7

#### REMOVAL/INSTALLATION

- 1) Remove the ECM.
- 2) Disconnect the cooling fan control module connector.
- 3) Loosen nut A as shown. See Fig. 7.
- 4) Remove the cooling fan control module.
- 5) Install in the reverse order of removal. Tighten Nut A Torque to 7.9-10.7 N-m (80-110 kgs-cm, 70-95 in-lbs).

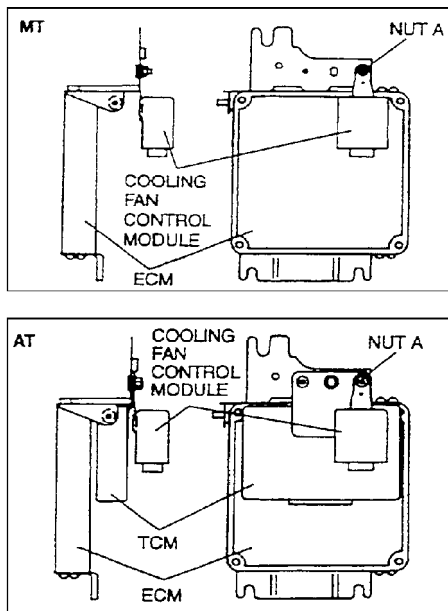


Fig. 7: Cooling Fan Control Module

INSPECTION 1993 RX-7

# SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96

## Article Text (p. 12)

1993 Mazda RX7

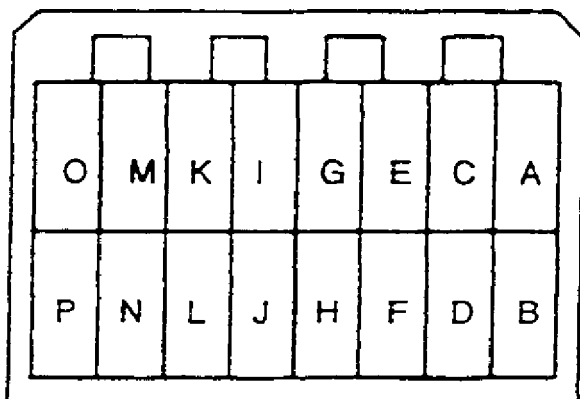
For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:39AM

1) With the cooling fan control module connector connected, measure the voltage at each terminal of the connector. Using a voltmeter, ground the negative lead to the body and insert the positive lead in each terminal of the connector.

2) If there is any incorrect output voltage while all input voltages are correct, inspect related systems. See Figs. 8 thru 10. When the systems are normal, replace the cooling fan control module



98A51623

Fig. 8: Fan Control Module Connector Terminal Locations

Terminal Voltage

B+: Battery positive voltage

| Terminal | Signal                                       | Connected to                      | Test condition                                    | Voltage (V) | Possible malfunction                                                                                                                  |
|----------|----------------------------------------------|-----------------------------------|---------------------------------------------------|-------------|---------------------------------------------------------------------------------------------------------------------------------------|
| A        | —                                            | —                                 | —                                                 | —           | —                                                                                                                                     |
| B        | —                                            | —                                 | —                                                 | —           | —                                                                                                                                     |
| C        | Engine coolant temperature (for cooling fan) | Engine coolant temperature switch | Engine coolant temperature below 108 °C {226 °F } | B+          | <ul style="list-style-type: none"> <li>• Engine coolant temperature switch</li> <li>• Cooling fan relay (Refer to F-146-1)</li> </ul> |
|          |                                              |                                   | Engine coolant temperature above 108 °C {226 °F } | Below 1.0   |                                                                                                                                       |
| D        | —                                            | —                                 | —                                                 | —           | —                                                                                                                                     |
| E        | Cooling fan relay No.2, 4                    | Cooling fan relay No.2, 4         | Cooling fan not operating                         | B+          | <ul style="list-style-type: none"> <li>• Cooling fan relay (Refer to F-146-1)</li> </ul>                                              |
|          |                                              |                                   | During cooling fan operating                      | Below 1.0   |                                                                                                                                       |
|          |                                              |                                   | TFA terminal of data link connector is grounded   | Below 1.0   |                                                                                                                                       |
| F        | —                                            | —                                 | —                                                 | —           | —                                                                                                                                     |
| G        | —                                            | —                                 | —                                                 | —           | —                                                                                                                                     |
| H        | —                                            | —                                 | —                                                 | —           | —                                                                                                                                     |
| I        | —                                            | —                                 | —                                                 | —           | —                                                                                                                                     |
| J        | Ground                                       | Ground                            | Constant                                          | Below 1.0   | <ul style="list-style-type: none"> <li>• Cooling fan control module terminal J —Ground</li> </ul>                                     |

98F51743

Fig. 9: Terminal Voltage Chart A-J

# SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96

## Article Text (p. 13)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:39AM

B + : Battery positive voltage

| Terminal | Signal                       | Connected to | Test condition      | Voltage (V) | Possible malfunction |
|----------|------------------------------|--------------|---------------------|-------------|----------------------|
| K        | —                            | —            | —                   | —           | —                    |
| L        | —                            | —            | —                   | —           | —                    |
| M        | —                            | —            | —                   | —           | —                    |
| N        | —                            | —            | —                   | —           | —                    |
| O        | Power supply                 | Main relay   | Ignition switch OFF | Below 1.0   | • Main relay         |
|          |                              |              | Ignition switch ON  | B +         |                      |
| P        | Power supply (Condenser fan) | Battery      | Constant            | B +         | • A/C fuse           |

Fig. 10: Terminal Voltage Chart K-P

## COOLING FAN RELAY (NO. 1, 2, 3, 4) 1993 RX-7

### INSPECTION

- 1) Disconnect the cooling fan relay.
- 2) Apply battery positive voltage and ground to terminals A and B of the cooling fan relay. See Fig. 11.
- 3) Check continuity of the relay.

#### TERMINAL CONTINUITY TABLE

```

UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3  Operation      3 A Type - Terminals D-E  3
3              3 B Type - Terminals C-D  3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3  B+ applied    3      Continuity      3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3  B+ not applied 3      No continuity    3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU
  
```

NOTE: B+ = Battery positive voltage

- 4) If not as specified, replace the cooling fan relay.

For additional wiring schematic information see Figs. 12 and 13



**SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96**

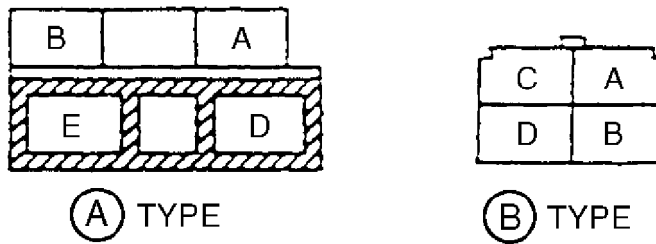
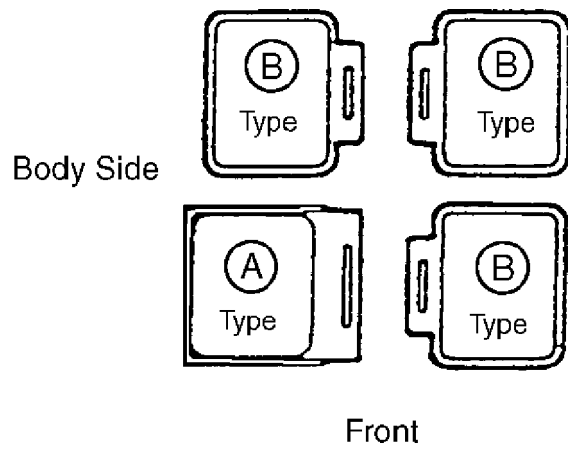
**Article Text (p. 14)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:39AM



98B51624

Fig. 11: Terminals A and B

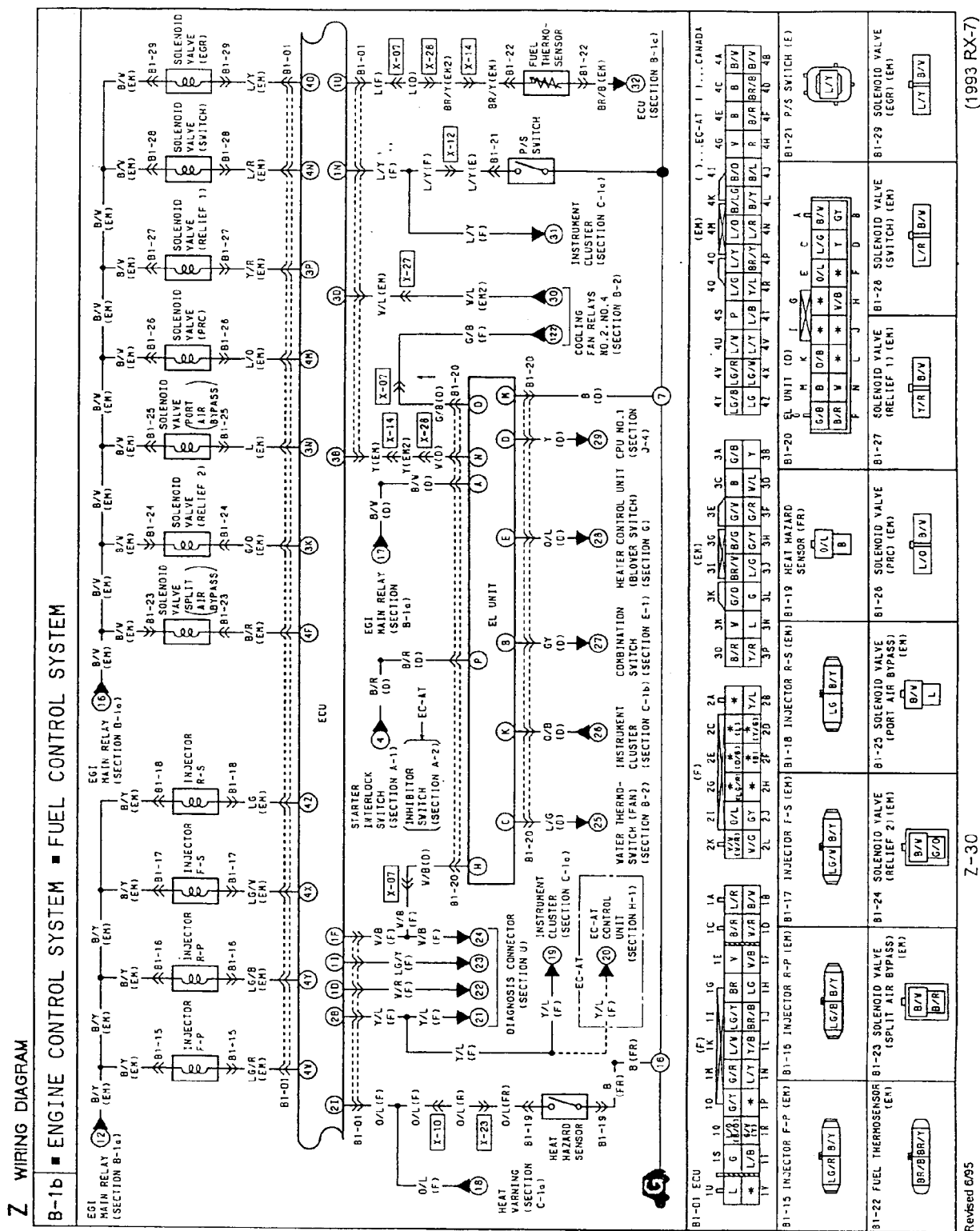


Fig. 12: Wiring Diagram Engine & Fuel Control System 1993 RX-7

Saturday, August 25, 2001 09:39AM



## COOLING FAN CONTROL-SYSTEM 1994 RX-7

## SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96

### Article Text (p. 17)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:39AM

### DESCRIPTION

To improve idle smoothness and engine reliability, the cooling fan control system controls the electrical fan speed by ECM. This system consists of the cooling fan, cooling fan relays, cooling fan control module, ECM, and input devices. See Figs. 14 and 15.

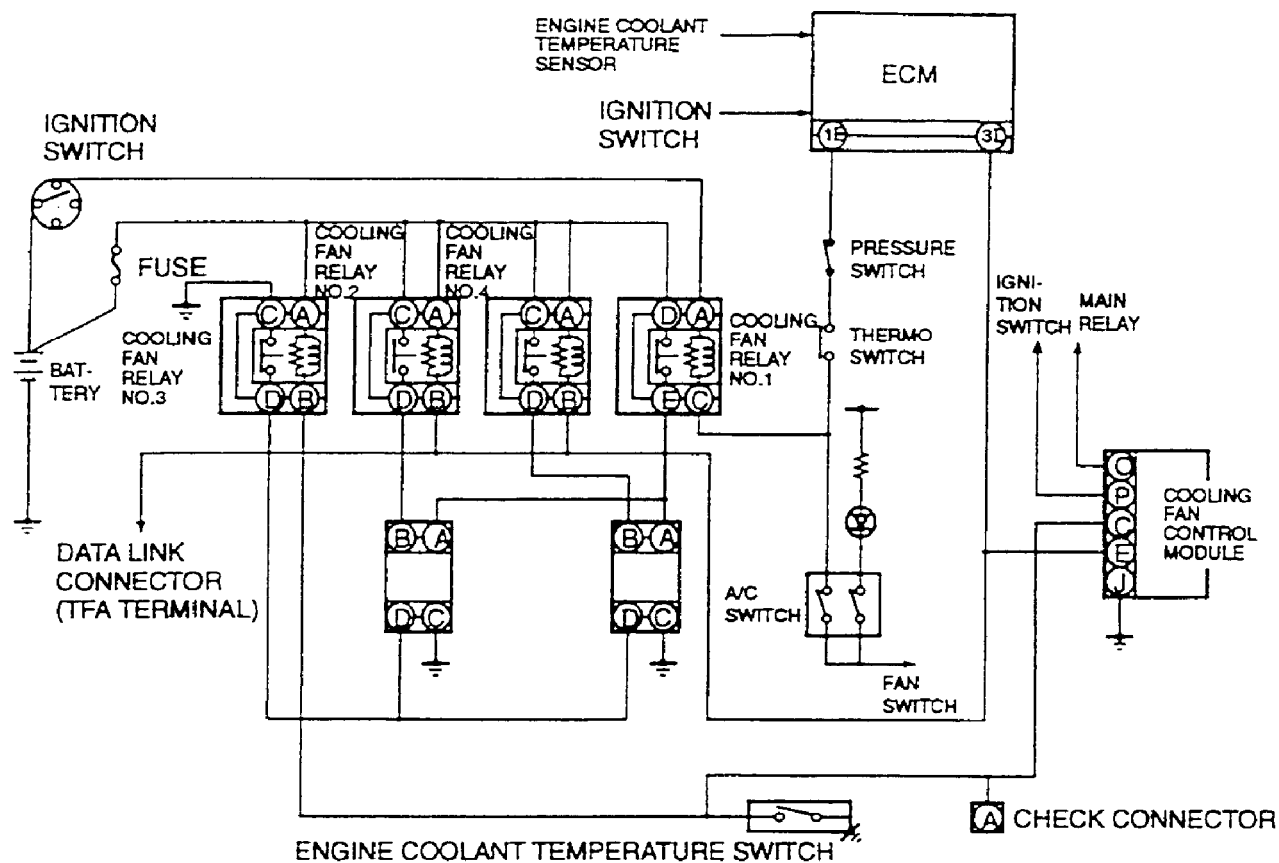


Fig. 14: <sup>98E51627</sup> Cooling Fan Control System Components

# SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96

## Article Text (p. 18)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:39AM

### Operation

| Engine condition<br>(No electrical load)                                                                                                                     |                                                                                                    | A/C operation | Cooling fan relay No.1 | Cooling fan relay No.2 | Cooling fan relay No.3 | Cooling fan relay No.4 | Cooling fan operation |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|---------------|------------------------|------------------------|------------------------|------------------------|-----------------------|
| Engine coolant temperature below 105 °C {221 °F }                                                                                                            |                                                                                                    | OFF           | OFF                    | OFF                    | OFF                    | OFF                    | OFF                   |
|                                                                                                                                                              |                                                                                                    | ON            | ON                     | OFF                    | OFF                    | OFF                    | LOW                   |
| Engine coolant temperature 105—108 °C {221—226 °F }                                                                                                          |                                                                                                    | OFF           | OFF                    | ON                     | OFF                    | ON                     | LOW                   |
|                                                                                                                                                              |                                                                                                    | ON            | ON                     | ON                     | OFF                    | ON                     | MIDDLE                |
| Engine coolant temperature above 108 °C {226 °F } (Engine coolant temperature switch ON)                                                                     |                                                                                                    | OFF           | OFF                    | ON                     | ON                     | ON                     | MIDDLE                |
|                                                                                                                                                              |                                                                                                    | ON            | ON                     | ON                     | ON                     | ON                     | HIGH                  |
| In 10 min. after ignition switch is turned OFF. Engine coolant temperature above 108 °C {226 °F } for more than 2 min. before ignition switch is turned OFF. | Engine coolant temperature over 108 °C {226 °F } after ignition switch is turned OFF               | —             | OFF                    | ON                     | ON                     | ON                     | MIDDLE                |
|                                                                                                                                                              | Engine coolant temperature becomes lower than 108 °C {226 °F } after ignition switch is turned OFF | —             | OFF                    | ON                     | OFF                    | ON                     | LOW                   |
| Engine coolant temperature sensor malfunction                                                                                                                |                                                                                                    | —             | OFF                    | ON                     | OFF                    | ON                     | LOW                   |
| TFA terminal ground                                                                                                                                          |                                                                                                    | —             | OFF                    | ON                     | OFF                    | ON                     | LOW                   |

98H51745

Fig. 15: Cooling Fan Control System Operation

### SYSTEM INSPECTION

- 1) Verify that the engine coolant temperature is below 80°C (176°F)
- 2) Turn the ignition switch to ON for 15 seconds or longer.
- 3) Turn the ignition switch to OFF.
- 4) Ground the check connector by using a jumper wire.
- 5) Turn the ignition switch to ON and verify that the cooling fan operates approximately 100-150 seconds after the ignition switch is turned to ON.
- 6) If the cooling fan will not operate, inspect the following.
  - \* Battery positive voltage
  - \* Fan control signal
  - \* Engine coolant temperature signal
  - \* Ground

## **SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96**

### **Article Text (p. 19)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:39AM

- 7 Turn the ignition switch to OFF.
- 8 Verify that the cooling fan keep operating after the ignition switch is turned to OFF.
- 9 If not, replace the cooling fan control module. See Fig. 5.
- 10) Wait for approximately 20 seconds.
- 11) Disconnect cooling fan relay connector A. Verify that the cooling fan operates at low speed. See Fig. 6.
- 12) If not, inspect the cooling fan relay.
- 13) Connect cooling fan relay connector A. Verify that the cooling fan operates at the speed before connector A is disconnected.
- 14) Disconnect the jumper wire from the check connector. Verify that the cooling fan operates at low speed.
- 15) Turn the ignition switch to ON.
- 16) Verify that the cooling fan stops 8-12 seconds after the ignition switch is turned to ON.
- 17) If not as specified, replace the cooling fan control module.

### **COOLING FAN CONTROL MODULE 1994 RX-7**

#### **REMOVAL/INSTALLATION**

- 1) Remove the ECM.
- 2) Disconnect the cooling fan control module connector.
- 3) Loosen nut A as shown. See Fig. 7.
- 4) Remove the cooling fan control module.
- 5) Install in the reverse order of removal. Tighten Nut A Torque to 7.9-10.7 N-m (80-110 kgs-cm, 70-95 in-lbs).

#### **INSPECTION**

- 1) With the cooling fan control module connector connected, measure the voltage at each terminal of the connector. Using a voltmeter, ground the negative lead to the body and insert the positive lead in each terminal of the connector.
- 2) If there is any incorrect output voltage while all input voltages are correct, inspect related systems. See Figs. 8 thru 10. When the systems are normal, replace the cooling fan control module.

# SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96

## Article Text (p. 20)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:39AM

### COOLING FAN RELAY (NO. 1, 2, 3, 4) 1994 RX-7

#### INSPECTION

- 1) Disconnect the cooling fan relay.
- 2) Apply battery positive voltage and ground to terminals A and B of the cooling fan relay. See Fig. 11.
- 3) Check continuity of the relay.

#### TERMINAL CONTINUITY TABLE

|                                                            |                |                          |   |
|------------------------------------------------------------|----------------|--------------------------|---|
| UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA |                |                          | ; |
| 3                                                          | Operation      | 3 A Type - Terminals D-E | 3 |
| 3                                                          |                | 3 B Type - Terminals C-D | 3 |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA  |                |                          | ' |
| 3                                                          | B+ applied     | 3 Continuity             | 3 |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA  |                |                          | ' |
| 3                                                          | B+ not applied | 3 No continuity          | 3 |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA  |                |                          | U |

NOTE: B+ = Battery positive voltage

- 4) If not as specified, replace the cooling fan relay.

For additional wiring schematic information see Figs. 16 and 17.

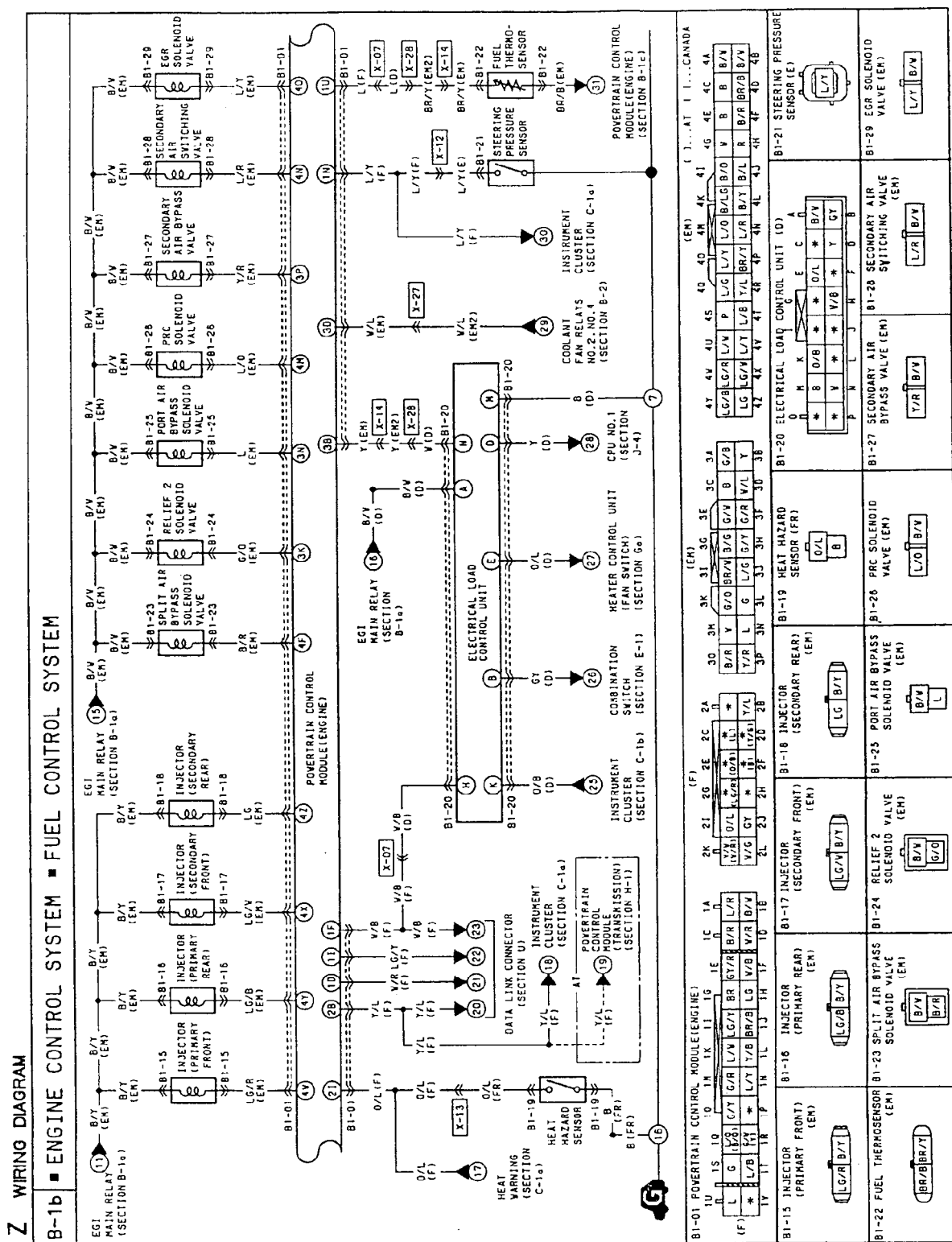


Fig. 16: Wiring Diagram Engine & Fuel Control System 1994 RX-7



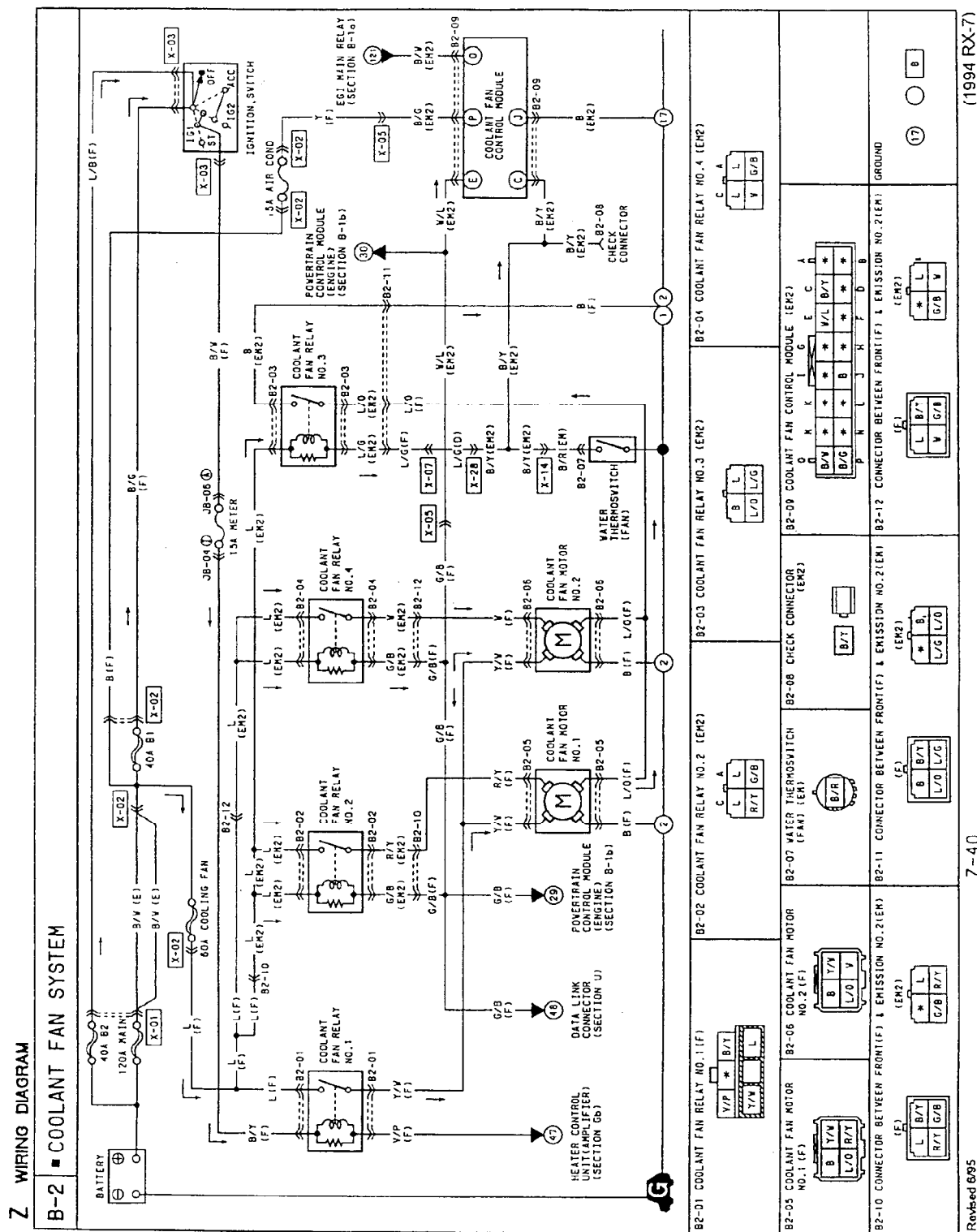


Fig. 17: Wiring Diagram Coolant Fan System 1994 RX-7

# **TURBO CHARGER BOLT PART NUMBER MT 06-13**

## **Article Text**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:40AM

## **ARTICLE BEGINNING**

TECHNICAL SERVICE BULLETIN

## **TURBO CHARGER BOLT SET**

Model(s): 1993-94 Mazda RX-7

Category: Mazda Tips

Bulletin No.: MT 06-13

Date: 1995

## **DESCRIPTION**

A bolt set is now available for the turbo chargers. The part number is N3A1-13-ZL7. See Fig. 1

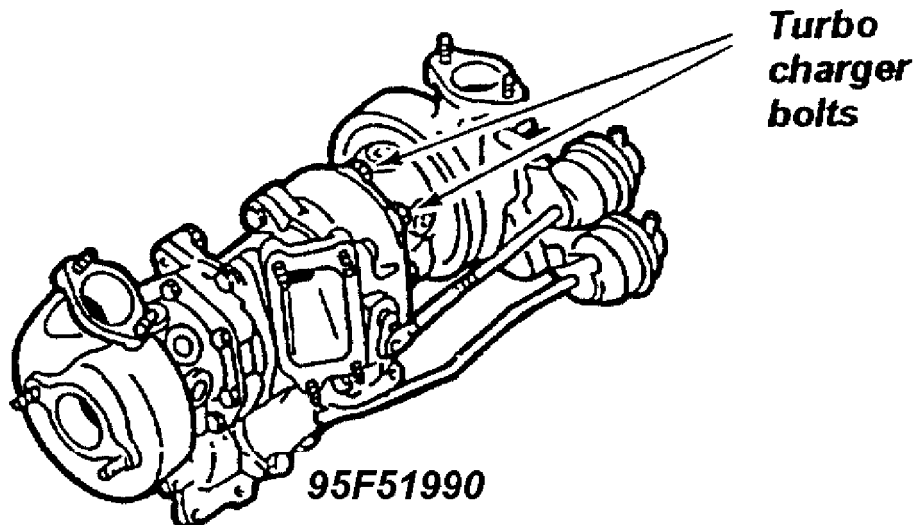


Fig. 1: Turbo Charger Bolt Location

**END OF ARTICLE**

# UNUSUAL NOISE FROM THE RIGHT ENGINE MOUNT CAT. B, NO. 002/93

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:40AM

## ARTICLE BEGINNING

### TECHNICAL SERVICE BULLETIN

## UNUSUAL NOISE FROM THE RIGHT ENGINE MOUNT

Model(s): 1993 Mazda RX-7 with a VIN of JM1FD3\*\*\*P0207061  
or lower produced through May 31, 1992  
Category: "B" Engine  
Bulletin No.: 002/93  
Date: 2/26/93

## DESCRIPTION

On some vehicles, an unusual noise may be heard from the right engine mount. This noise is most evident during idle or when driving on rough roads and/or speed bumps. See Fig. 1.

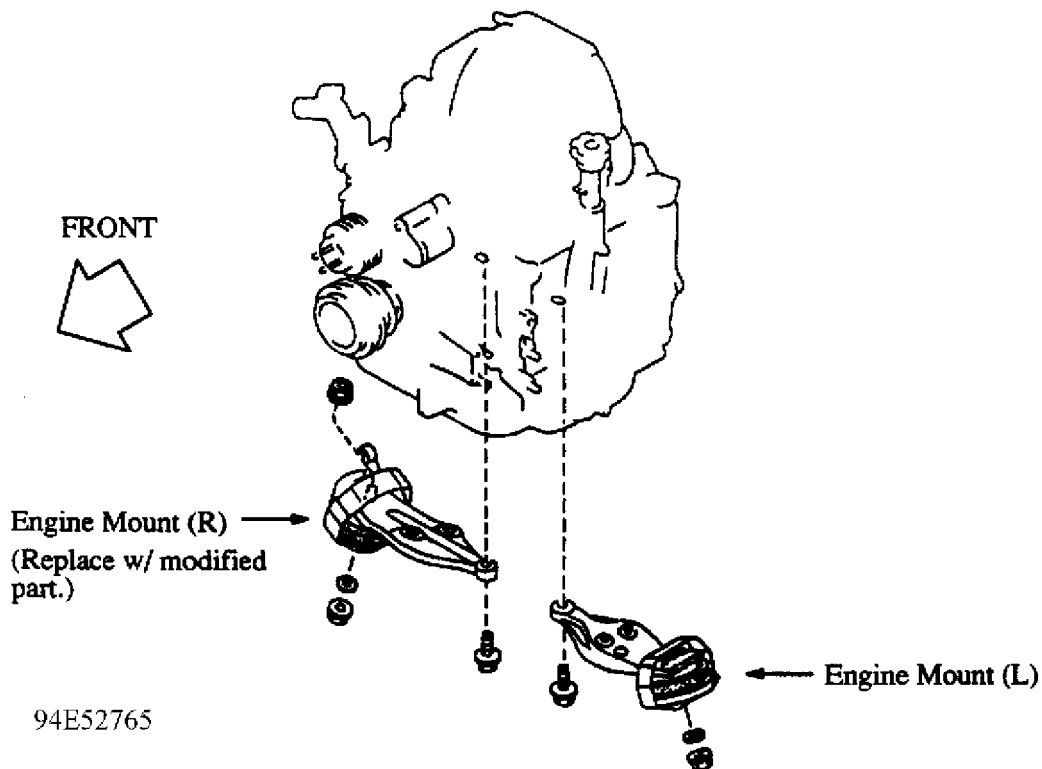


Fig. 1: Motor/Engine Mount Illustration

## REPAIR PROCEDURE

If the above condition occurs, replace the right engine mount with a modified part. The clearance between the rubber mount and mount housing has been increased to eliminate the noise. See Fig. 2.

# WORKSHOP MANUAL CORRECTION - FUEL SYSTEM CAT. W, NO. 040/92

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:40AM

## ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

## WORKSHOP MANUAL CORRECTION - VARIOUS CORRECTIONS

Model(s): 1993 Mazda RX-7  
Category: W - Workshop Manual Corrections  
Bulletin No.: 040/92  
Date: 11/19/92

## DESCRIPTION

Attached are pages for the 1993 RX-7 Workshop Manuals which required corrections for the reasons listed below:

1993 RX-7

- A-9 - correction to the Inspection of Cooling System text
- F-67 - correction to the Self-Diagnosis Checker Chart
- F-137 - correction to throttle illustration - valve operation in relation to temperature
- F-158 - correction to terminal 3D Test Condition items
- F-160 - correction to terminal 3M Remark item
- F-172 - correction to terminal 3D Test Condition items
- F-174 - correction to terminal 3M Remark item

## CORRECTIONS

### PAGE A-9: INSPECTION OF COOLING SYSTEM CORRECTION

Inspection Of Cooling System

1. Check the cooling system hoses (including the heater hoses) for cracks or wear. If necessary, replace the hoses.
2. Check the cooling system for leaks by applying a pressure of 142 kPa (1.45 kgf/cm<sup>2</sup>, 20.6 psi) with a radiator cap tester.

NOTE: Do not pressurize the system to more than 142 kPa (1.45 kgf/cm<sup>2</sup>, 20.6 psi).

WARNING: Be careful to avoid injury from escaping steam or hot water when removing the radiator cap.

# WORKSHOP MANUAL CORRECTION - FUEL SYSTEM CAT. W, NO. 040/92

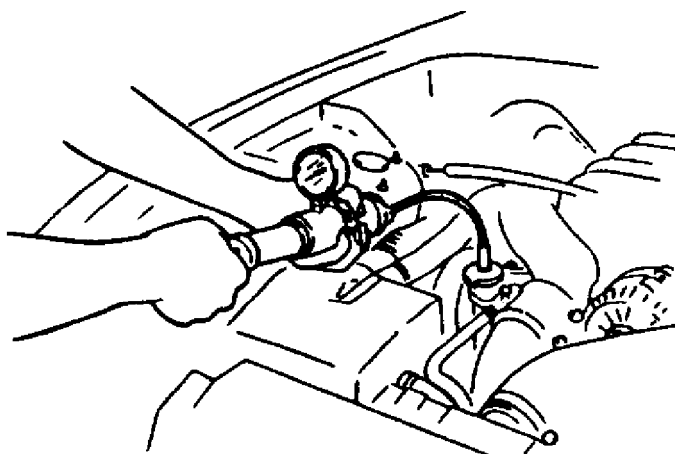
## Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:40AM



94D55494

Fig. 1: Pressurizing the Cooling System

### PAGE F-67: SELF-DIAGNOSIS CHECKER CHART CORRECTION

#### Switch Monitor Function

Individual switches can be inspected by the SST (Self-Diagnosis Checker or DT-S1000)

NOTE: The TEN terminal of the diagnostic connector must be grounded and the ignition switch ON (engine stopped). If either switch remains activated, the monitor lamp will be illuminated.

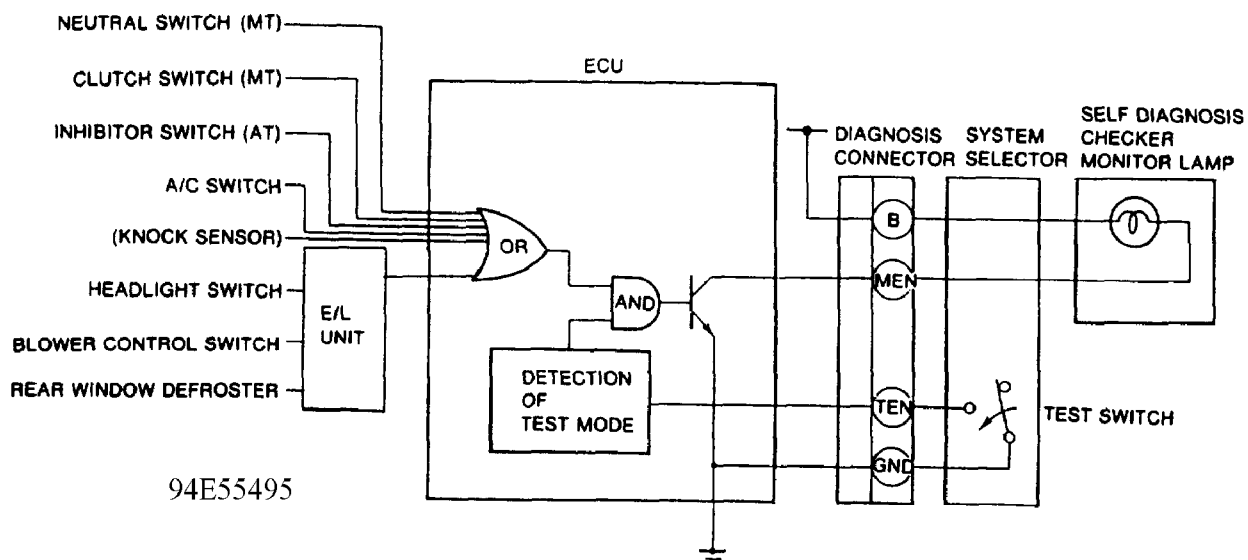


Fig. 2: ECU Logic Circuit

#### LOGIC TABLE

|                                                                            |                              |   |                        |   |
|----------------------------------------------------------------------------|------------------------------|---|------------------------|---|
| UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA |                              |   |                        |   |
| 3                                                                          | Switch                       | 3 | Self-Diagnosis         | 3 |
| 3                                                                          |                              | 3 | Checker (Monitor temp) | 3 |
| 3                                                                          | AAAAAAAAAAAAAAAAAAAAAAAAAAAA |   |                        | 3 |

# WORKSHOP MANUAL CORRECTION - FUEL SYSTEM CAT. W, NO. 040/92

## Article Text (p. 3)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:40AM

```
3          3 Light ON  3 Light OFF  3          3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Clutch      3 Pedal    3 Pedal    3 In neutral  3
3 switch (MT) 3 depressed 3 released  3          3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Neutral      3 In gear   3 Neutral  3 Clutch pedal released  3
3 switch (MT) 3          3          3          3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Inhibitor    3 L. S, D  3 N or P   3          ÄÄÄ  3
3 switch (AT) 3 or R range 3 range  3          3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Headlight    3 ON      3 OFF     3 Headlight switch  3
3 switch       3          3          3 I or II position  3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Blower       3 ON      3 OFF     3 At 3rd or 4th position  3
3 switch       3          3          3          3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Rear window  3 ON      3 OFF     3          3
3 defroster    3          3          3          ÄÄÄ  3
3 switch       3          3          3          3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 A/C switch   3 ON      3 OFF     3 Blower switch at 1st  3
3             3          3          3 or higher position  3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU
```

### PAGE F-137: THROTTLE ILLUSTRATION CORRECTION

The illustration on page F-137 contains an illustration that has been revised. Fig. 3 contains the revised illustration.

# WORKSHOP MANUAL CORRECTION - FUEL SYSTEM CAT. W, NO. 040/92

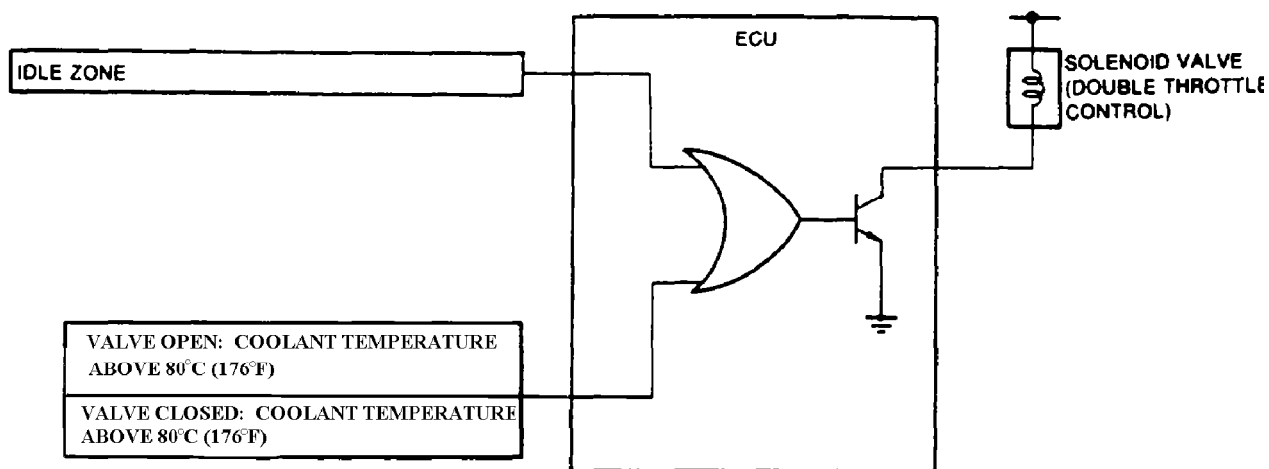
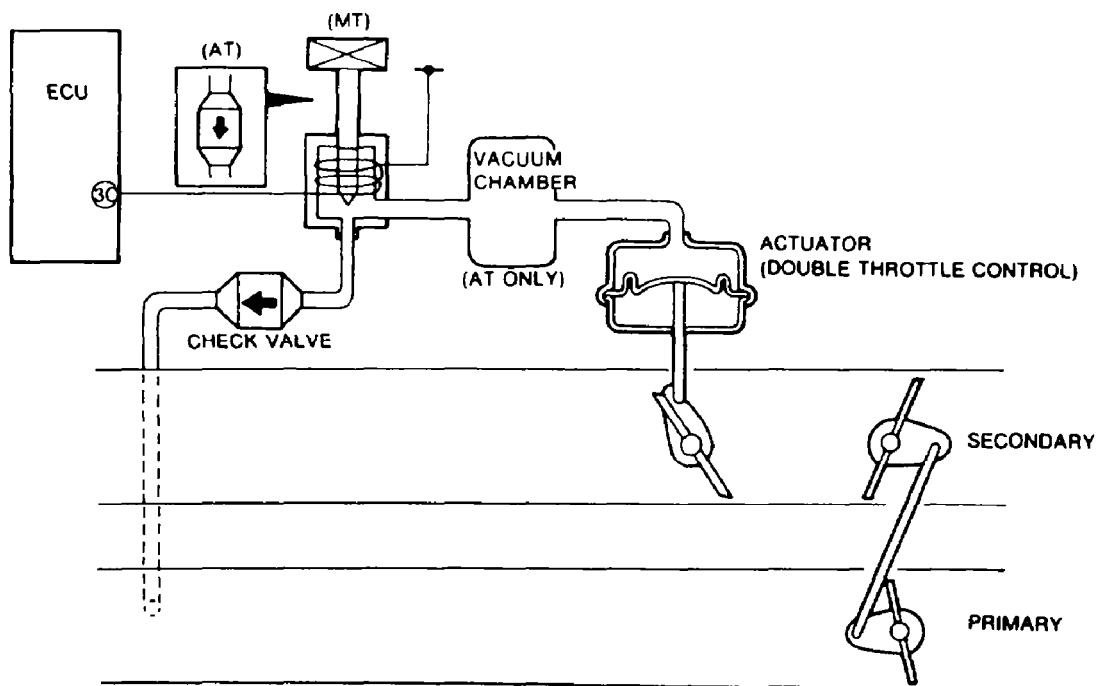
## Article Text (p. 4)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:40AM



94F55496

Fig. 3: Solenoid Valve Logic Circuit

## PAGE F-158: TERMINAL 3D TEST CONDITION CORRECTION

Page F-158 contains two corrections involving ECU terminal pin voltage tests. The terminals affected by the correction are listed below with the appropriate correction.

Terminal: 2K

# **WORKSHOP MANUAL CORRECTION - FUEL SYSTEM CAT. W, NO. 040/92**

## **Article Text (p. 5)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:40AM

Under TEST CONDITIONS at battery voltage, TEST CONDITIONS should read "1st and 2nd position"

Terminal: 3D

Under TEST CONDITIONS at idle, TEST CONDITIONS should read "Electrical cooling fan does not operate" for battery voltage and "During electrical cooling fan operating" when voltage is below 1.0V.

### **PAGE F-160: TERMINAL 3M REMARK CORRECTION**

Page F-160 contains a correction involving ECU terminal pin voltage tests. The terminal affected by the correction is listed below with the appropriate correction.

Terminal: 3M

Under REMARK at 2.6-2.8V (reference), REMARK should read "Ignition switch ON (measure the terminal voltage by using the digital type voltmeter)"

### **PAGE F-172: TERMINAL 3D TEST CONDITION CORRECTION**

Page F-172 contains two corrections involving ECU terminal pin voltage tests. The terminals affected by the correction are listed below with the appropriate correction.

Terminal: 2K

Under TEST CONDITIONS for an ON condition, TEST CONDITIONS should read "1st and 2nd position"

Terminal: 3D

Under TEST CONDITIONS at idle, TEST CONDITIONS should read "Electrical cooling fan does not operate" for an OFF condition and "During electrical cooling fan operating" for an ON condition.

### **PAGE F-174: TERMINAL 3M REMARK CORRECTION**

Page F-174 contains a correction involving ECU terminal pin voltage tests. The terminal affected by the correction is listed below with the appropriate correction.

Terminal: 3M

Under REMARK at 2.6-2.8V (reference), REMARK should read "Ignition switch ON (measure the terminal voltage by using the digital type voltmeter)"

**END OF ARTICLE**



Saturday, August 25, 2001 09:40AM

**END OF ARTICLE**

# **CALIFORNIA REFORMULATED GASOLINE CAT. F, NO. 014/96**

## **Article Text**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:58AM

## **ARTICLE BEGINNING**

TECHNICAL SERVICE BULLETIN

## **CALIFORNIA REFORMULATED GASOLINE**

Model(s): All Mazda Models  
Category: F - Fuel & Emission Control Systems  
Bulletin No.: 014/96  
Date: June 6, 1996

## **DESCRIPTION**

This bulletin is issued to provide service personnel with information to answer commonly asked questions regarding California Reformulated Gasoline (CaRFG). Please use this information to address customer concerns.

## **BACKGROUND**

- \* The purpose of CaRFG is to reduce emissions.
- \* CaRFG replaces the traditionally high pollution generating gasoline distributed in Northern California.
- \* CaRFG improves the reformulated gasoline distributed in Southern California.

The California Air Resources Board (CARB) expects smog forming emissions from motor vehicles to decrease by approximately 15% due to CaRFG.

## **MAZDA'S POSITION ON CaRFG**

- \* CaRFG does not affect the new vehicle or emission warranty.
- \* Mazda recommends the use of CaRFG as a cost effective means of reducing emissions to provide cleaner air.
- \* Vehicle and laboratory testing of CaRFG ensures that CaRFG is acceptable for customer use.
- \* Based on the above studies, no unusual vehicle performance concerns are expected.

## **DIFFERENCE BETWEEN CaRFG AND OTHER GASOLINES**

CaRFG consists of the same basic components as other gasoline but, pollutes less due to cleaner burning components and fewer toxic components. These components provide:

- \* Reduced aromatic hydrocarbons to form less smog emissions.
- \* Added oxygenates to reduce emissions.
- \* Decreases the amount of vehicle fuel evaporation.
- \* Lower sulfur to provide more efficient catalytic converter

# **CALIFORNIA REFORMULATED GASOLINE CAT. F, NO. 014/96**

## **Article Text (p. 2)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:58AM

operation.

- \* Reduced benzene by approximately 50%.

### **CaRFG AFFECT ON VEHICLE PERFORMANCE**

Properly blended CaRFG should have no adverse affect on vehicle performance, engine durability or fuel system components. Basic components of CaRFG are not significantly different from other cleaner burning gasoline used in the United States for several years.

If the vehicle is a California calibrated 1996 or later model, the vehicle will:

- \* Operate satisfactorily on gasoline in the other 49 states but the emission control system performance may be effected.
- \* Using gasoline other then CaRFG may cause the Malfunction Indicator Light (MIL) to illuminate or cause the vehicle to fail an emission test.

### **CaRFG AFFECT ON FUEL ECONOMY**

A very small reduction in MPG (less than one-half MPG) is possible if the customer uses gasoline without oxygenates. This is attributed to the lower energy content of oxygenates, which have been included in all Southern California gasoline since January 1995 and some gasoline since the 1970s.

NOTE: Driving habits, vehicle maintenance and weather conditions all affect fuel economy. Fuel economy may vary more than 1 MPG from one fill up to the next using the same gasoline.

### **NO SPECIAL ADDITIVES ARE NECESSARY WHEN USING CaRFG.**

It is not necessary to add anything to the vehicle's fuel tank after CaRFG is purchased from the service station. California regulations require deposit control additives in CaRFG to avoid port fuel injector and valve deposits.

### **OLDER VEHICLE'S PERFORMANCE USING CaRFG**

Older vehicles are expected to operate satisfactorily on CaRFG because these vehicles have been operating on gasoline similar to CaRFG for a number of years. However, considerable testing indicates that older, high mileage vehicles are more susceptible to fuel system problems due to age and normal wear and tear regardless of whether they are operated on conventional or CaRFG gasoline.

NOTE: Owners of older vehicles are encouraged to have their vehicle's fuel systems inspected periodically and to follow their vehicle manufacturers recommendations regarding vehicle maintenance.

**CALIFORNIA REFORMULATED GASOLINE CAT. F, NO. 014/96**

**Article Text (p. 3)**

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:58AM

**ODOR EMITTED FROM CaRFG**

CaRFG is not expected to smell different from gasoline most vehicles currently use. If unusual odor is noticed, it is probably be from oxygenates. Most service stations use vapor recovery systems to minimize gasoline vapor release to the atmosphere during refueling.

**ADDITIONAL INFORMATION REGARDING CaRFG**

Customers can receive more information on CaRFG from the California Air Resources Board at the following toll free number: 1-800-922-7349.

**END OF ARTICLE**

# ECU/AIR FLOW METER/FUEL PUMP/ALTERNATOR DIAGNOSTICS CAT. G, NO. 002/93

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:58AM

## ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

## DIAGNOSTIC PROCEDURES FOR ECU'S, AIR FLOW METERS, FUEL PUMPS, AND ALTERNATORS

Model(s): 1988-94 Mazda Vehicles (except Navajo and 1994 B-Series)

Category: "G" Engine Electrical, No.: 002/93, Date: 9/16/93

Category: "G" Engine Electrical, No.: 93-03, Date: Oct, 93

## DESCRIPTION

This bulletin contains diagnostic and repair procedures for the following components:

- Engine Control Units (ECU)
- Air Flow Meters
- Fuel Pumps
- Alternators

Each procedure includes the following:

1. Outline Of Diagnostics, Parts Requirements And Warranty Application
  - Illustrates the steps from diagnostics through parts return and warranty submission.
2. Diagnostic Procedures - Step by step testing of the component and circuit.
3. Component Check Sheet - Details of the customer complaint and events leading to the repair.

NOTE: Proper completion of the check sheets are required for warranty claim submission.

## INDEX

### SECTION 1

- Outline
- ECU Diagnostics
- ECU Check Sheet

### SECTION 2

- Outline
- Air Flow Meter Diagnostics
- Air Flow Meter Check Sheet

### SECTION 3

# ECU/AIR FLOW METER/FUEL PUMP/ALTERNATOR DIAGNOSTICS CAT. G, NO. 002/93

## Article Text (p. 2)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:58AM

Outline

Fuel Pump Diagnostics

Fuel Pump Check Sheet

### SECTION 4

Outline

Charging System Diagnostics

Alternator and Battery Check Sheet

### SECTION 5

Warranty Information

Refer to the appropriate service information for symptoms not described in this bulletin. If further reference is required, contact the Technical Hotline in your area.

ECU - OUTLINE OF DIAGNOSTICS, PARTS ORDERING AND WARRANTY APPLICATION

DEALER

UAAAAAAAAAAAAAAAAA;

3 Diagnostics AAAAAAAAAAAAAAAAAA<AAAAAAAAAAAAAAAAA;

AAAAAAAAAAAAAAAAAU

3

MMA

3

UAAAAAAAAAAAAAAAAA;

UAAAAAAAAAAAAAAAAA;

3

3 Results AA No Trouble A' Contact Region 3 3

AAAAAAAAAAAAAAAAAU Found 3 Hot Line 3 3

3

AAAAAAAAAAAAAAAAAU

3

Trouble Found

3

3

3

3

3

UAAAAAAAAAAAAAAAAA;

UAAAAAAAAAAAAAAAAA;

3

3 Complete 3 3 Hot Line 3 3

3 Check Sheet, AAAAAAAAAAAAAAAAAA' Instruction 3 3

3 Order Part 3 Authorized AAAAAAAAAAAAAAAAAAU 3

AAAAAAAAAAAAAAAAAU Replacement 3 3

3

(Auth. No. Required) AAAAAAAAAAAU

UAAAAAAAAAAAAAAAAA;

Review

3 Receive Parts 3

Diagnostics

AAAAAAAAAAAAAAAAAU

3

UAAAAAAAAAAAAAAAAA;

3 Return Repl. Part 3

3 With Check Sheet 3

3 To Your Servicing 3

3 PDC 3

AAAAAAAAAAAAAAAAAU

3

UAAAAAAAAAAAAAAAAA;

3 Warranty Claim 3

3 Application 3

AAAAAAAAAAAAAAAAAU

Article Text (p. 3)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:58AM

SECTION 1 - ECU DIAGNOSTICS PROCEDURE

1. Disconnect ECU connectors
2. Connect SST (Engine Signal Monitor And Adapter) as shown in Fig. 1.  
Place application panel sheet on the Engine Signal Monitor.

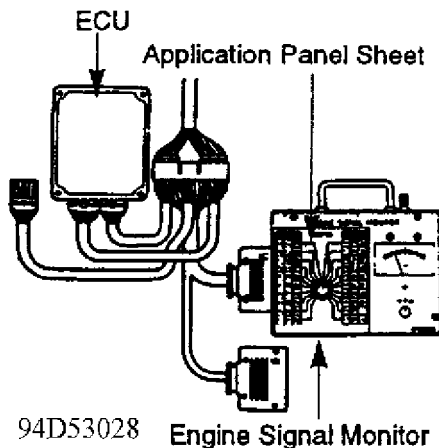


Fig. 1: Engine Signal Monitor and ECU

3. Measure the voltage according to the specifications in the appropriate service information
4. If the voltage is different than specified, check the related input and output devices and wiring for damage. If no problem is found and the reading remains out of specification, replace the ECU.
5. If the voltage is within specification and the problem still exists, contact the Technical Hotline for assistance.

**CAUTION:** Terminals A & B are for external voltmeter connections. Use these terminal to attach a digital voltmeter or oscilloscope for precise volt readings. See Fig. 2 for illustration. Never apply current to these terminals, damage to the ECU will result.

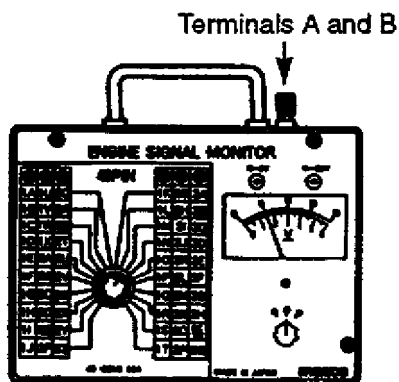
Article Text (p. 4)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:58AM



94E53029

Fig. 2: Engine Signal Monitor

ECU CHECK SHEET

Dealer Name \_\_\_\_\_ Technician Number: \_\_\_\_\_

Vehicle Year: \_\_\_\_\_ Model: \_\_\_\_\_ M/T: \_\_\_\_\_ A/T: \_\_\_\_\_ VIN: \_\_\_\_\_

Repair Date: \_\_/\_\_/\_\_ Mileage: \_\_\_\_\_ Repair Order Number: \_\_\_\_\_

1. Customer Complaint: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

2. Was the customer's complaint verified: \_\_\_\_\_Yes \_\_\_\_\_No

3. Reason for replacement:

Terminal Voltage Out Of Specification: \_\_\_\_\_Yes \_\_\_\_\_No

| UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA; |                 |   |                                           |
|-----------------------------------------------------------------------------|-----------------|---|-------------------------------------------|
| 3                                                                           | Terminal Number | 3 | Voltage Reading 3 Factory Specification 3 |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA~   |                 |   |                                           |
| 3                                                                           | 3               | 3 | 3                                         |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA~   |                 |   |                                           |
| 3                                                                           | 3               | 3 | 3                                         |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA~   |                 |   |                                           |
| 3                                                                           | 3               | 3 | 3                                         |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA~   |                 |   |                                           |
| 3                                                                           | 3               | 3 | 3                                         |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA~   |                 |   |                                           |
| 3                                                                           | 3               | 3 | 3                                         |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU   |                 |   |                                           |

According to Service Bulletin instructions: \_\_\_\_\_Category \_\_\_\_\_No.

According to DSM or Hot Line Authorization: \_\_\_\_\_(Authorization #)

Other: \_\_\_\_\_  
 \_\_\_\_\_





# ECU/AIR FLOW METER/FUEL PUMP/ALTERNATOR DIAGNOSTICS CAT. G, NO. 002/93

## Article Text (p. 6)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:58AM

1. Check the air intake temperature sensor resistance.

- A) Remove air flow meter and allow to sit until its temperature is the same as the ambient temperature.
- B) Using a multi tester, measure and record the resistance of the intake air temperature sensor terminals (THAA-E2) and the atmospheric temperature at that time. See Fig. 3 for terminal identification.

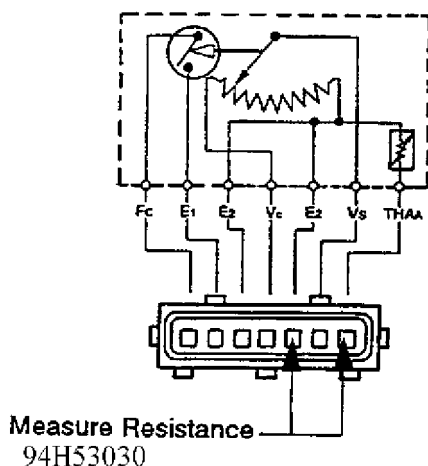


Fig. 3: Air Flow Meter Terminal

NOTE: Use a multi tester with an accuracy equivalent of the FLUK 70 series.

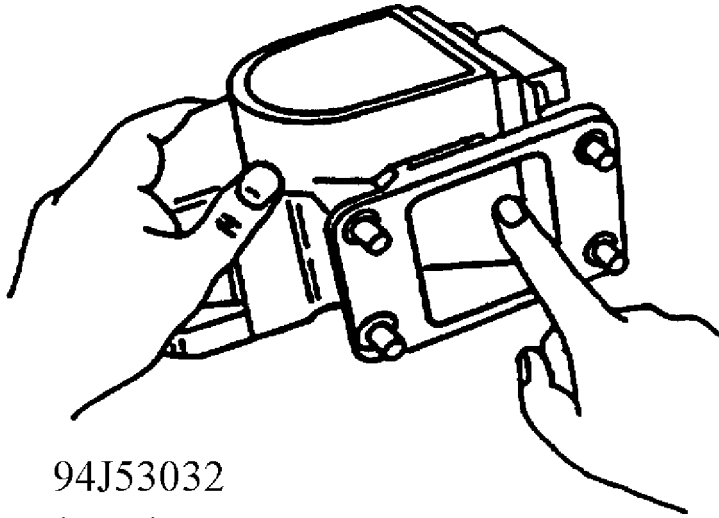
CAUTION: Refer to Fig. 3 and the "Standard Values" table when measuring resistance.

### STANDARD VALUES TABLE

| Ambient Temp. (F) | Resistance (K, Ohms) | Ambient Temp. (F) | Resistance (K, Ohms) |
|-------------------|----------------------|-------------------|----------------------|
| 0                 | 11.1 - 18.7          | 70                | 1.9 - 2.9            |
| 10                | 8.2 - 13.7           | 80                | 1.5 - 2.3            |
| 20                | 6.4 - 10.3           | 90                | 1.2 - 1.9            |
| 30                | 4.9 - 7.9            | 100               | 0.9 - 1.5            |
| 40                | 3.8 - 6.0            | 110               | 0.8 - 1.3            |
| 50                | 3.0 - 4.7            | 120               | 0.6 - 1.1            |
| 60                | 2.4 - 3.7            |                   |                      |

1. Check for smooth movement of the measuring plate (see Fig. 5). If no problem is found, reinstall the air flow meter.

Copyright © 1998 Mitchell Repair Information Company, LLC  
Saturday, August 25, 2001 09:58AM



According to Service Bulletin instructions:\_\_\_\_\_Category \_\_\_\_\_No.

# ECU/AIR FLOW METER/FUEL PUMP/ALTERNATOR DIAGNOSTICS CAT. G, NO. 002/93

## Article Text (p. 9)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:58AM

According to DSM or Hot Line Authorization: \_\_\_\_\_ (Authorization #)

Other: \_\_\_\_\_  
\_\_\_\_\_

Technician's Signature: \_\_\_\_\_ Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

NOTE: Attach the check sheet to the repair order. If requested to return the failed air flow meter to Mazda, attach a copy of the check sheet and repair order.

### FUEL PUMP - OUTLINE OF DIAGNOSTICS, PARTS ORDERING AND WARRANTY APPLICATION

#### DEALER

UAAAAAAAAAAAAAAAAA;

3 Diagnostics AAAAAAAAAAAAAAAAAA<AAAAAAAAAAAAAAAAA;

AAAAAAAAAAAAAAAAU

3

MMA

3

UAAAAAAAAAAAAAAAAA;

UAAAAAAAAAAAAAAAAA;

3

3 Results AA No Trouble A' Contact Region 3 3

AAAAAAAAAAAAAAAAU

Found

3 Hot Line 3 3

3

AAAAAAAAAAAAAAAAU

3

Trouble Found

3

3

3

3

3

UAAAAAAAAAAAAAAAAA;

UAAAAAAAAAAAAAAAAA;

3

3 Complete 3

3 Hot Line 3 3

3 Check Sheet, AAAAAAAAAAAAAAAAAA' Instruction 3 3

3 Order Part 3 Authorized AAAAAAAAAAAAAAAAAU 3

AAAAAAAAAAAAAAAAU Replacement 3 3

3

(Auth. No. Required) AAAAAAAAAAAU

UAAAAAAAAAAAAAAAAA;

Review

3 Receive Parts 3

Diagnostics

AAAAAAAAAAAAAAAAU

3

UAAAAAAAAAAAAAAAAA;

3 Keep Check Sheets 3

3 At Dealer 3

3 (Attach to R.O.) 3

AAAAAAAAAAAAAAAAU

3

UAAAAAAAAAAAAAAAAA;

3 Warranty Claim 3

3 Application 3

AAAAAAAAAAAAAAAAU

### SECTION 3 - FUEL PUMP DIAGNOSTIC PROCEDURES

1. Disconnect negative terminal and check battery voltage. Voltage should be 12.4V or more. Reconnect terminal.
2. Start engine and run at idle.

# ECU/AIR FLOW METER/FUEL PUMP/ALTERNATOR DIAGNOSTICS CAT. G, NO. 002/93

## Article Text (p. 10)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

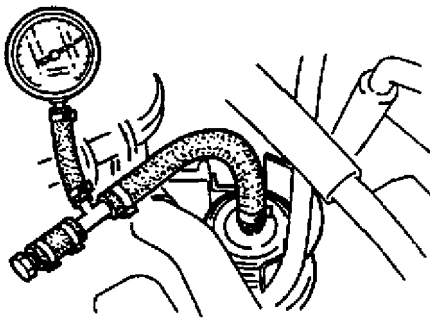
Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:58AM

3. Disconnect circuit opening relay. Engine will continue to run until all fuel in the supply line is used.

**WARNING:** Step 3 is designed to eliminate fuel in the supply line and enable safe installation of the fuel pressure gauge. Refer to the appropriate service information for further instructions.

4. Disconnect the negative battery terminal.
5. Install the fuel pressure gauge on the outlet side of the fuel filter. See Fig. 6 for illustration.



94A53033

Fig. 6: Checking Fuel Pressure

6. Short circuit the fuel pump test terminals (yellow 2 pin connector) with a jumper wire on the following vehicles (see Fig. 7).

|              |               |
|--------------|---------------|
| 1988-89 323  | 1993 626/MX-6 |
| 1990-91 929  | 1989-92 MPV   |
| 1989-91 RX-7 |               |

7. Short circuit the fuel pump check terminal and the ground terminal of the diagnostic connector with a jumper wire on the following vehicles (see Fig. 7).

|                     |               |
|---------------------|---------------|
| 1990-93 323/Protege | 1993 626/MX-6 |
| 1992-93 929         | 1992-93 MX-3  |
| 1990-93 MX-5        | 1993 RX-7     |

## Article Text (p. 11)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:58AM

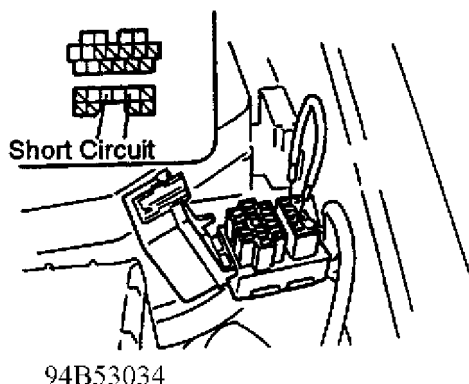


Fig. 7: Short Circuiting Fuel Pump

8. Turn the ignition switch on and measure the maximum fuel pressure. Turn the ignition switch off and remove the jumper wires. See FUEL PRESSURE TABLE For standard values

## FUEL PRESSURE TABLE

| Year/Model          |  |  | Standard Value (PSI) |  |  |
|---------------------|--|--|----------------------|--|--|
| 1988-89 323         |  |  | 49 or Over           |  |  |
| 1990-91 323/Protege |  |  |                      |  |  |
| 1990-92 626/MX-6    |  |  |                      |  |  |
| 1990-91 929         |  |  |                      |  |  |
| MPV (All)           |  |  |                      |  |  |
| 1992-93 323/Protege |  |  | 52 or Over           |  |  |
| 1992-93 929         |  |  |                      |  |  |
| 1993 626/MX-6       |  |  |                      |  |  |
| MX-3 (All)          |  |  |                      |  |  |
| MX-5 (All)          |  |  |                      |  |  |
| 1989-91 RX-7        |  |  | 56 or Over           |  |  |
| 1993 RX-7           |  |  | 53 or Over           |  |  |

9. If the value of fuel pressure (Max.) is below standard, measure the voltage at the fuel pump connector (vehicle side) using the procedures below.

- A) Reinstall the jumper wire and turn the Ignition on. Refer to steps 6 and 7 of the previous page.
- B) Connect test leads to the fuel pump positive and negative terminals and measure the voltage at the fuel pump connector (vehicle side). See Fig. 8 for illustration

# ECU/AIR FLOW METER/FUEL PUMP/ALTERNATOR DIAGNOSTICS CAT. G, NO. 002/93

## Article Text (p. 12)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:58AM

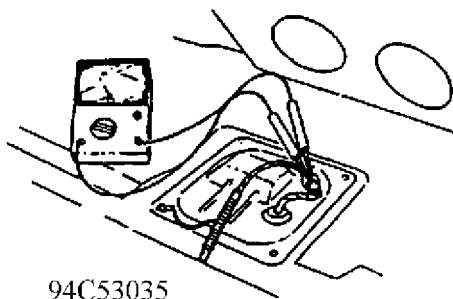


Fig. 8: Measuring Fuel Pump Voltage

NOTE: Do not disconnect the fuel pump connector.

If the voltage is above the standard value, replace the fuel pump.

If the voltage is below standard, check for a damaged harness, relay or a poor ground at the pump.

Standard Value: 8.5V and over (93 RX-7)  
9.5V and over (Other Models)

10. After restoring the standard voltage value, measure the fuel pump pressure (Max.). If pressure is not to specification, replace the fuel pump.
11. If no trouble is found with the fuel pump and the problem still exists, contact the Technical Hotline for assistance

### FUEL PUMP CHECK SHEET

Dealer Name \_\_\_\_\_ Technician Number: \_\_\_\_\_

Vehicle Year: \_\_\_\_\_ Model: \_\_\_\_\_ M/T: \_\_\_\_\_ A/T: \_\_\_\_\_ VIN: \_\_\_\_\_

Repair Date: \_\_\_\_/\_\_\_\_/\_\_\_\_ Mileage: \_\_\_\_\_ Repair Order Number: \_\_\_\_\_

1. Customer Complaint: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2. Was the customer's complaint verified: \_\_\_\_\_ Yes \_\_\_\_\_ No

3. Reason for replacement:

Fuel Pump Did Not Operate \_\_\_\_\_ Yes \_\_\_\_\_ No

Insufficient Fuel Pressure: \_\_\_\_\_ yes \_\_\_\_\_ No

Maximum Fuel Pressure: \_\_\_\_\_ (PSI) Factory Specification: \_\_\_\_\_





## Article Text (p. 14)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:58AM

1. Start the engine and confirm that the alternator warning light is not illuminating.

NOTE: If the warning light is illuminated, see Fig. 9, the self diagnosis operation is functioning. Check the alternator and related harness' according to appropriate service information.

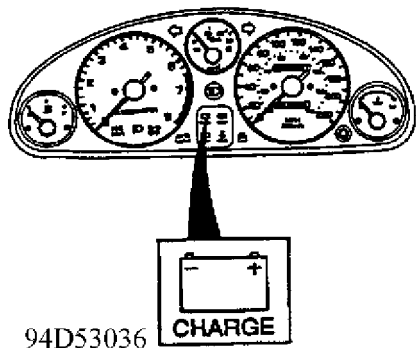


Fig. 9: Charge Indicator Light

2. Fluctuate the engine RPM and listen for alternator bearing or engine belt noise. If noise is present, inspect for loose or damaged belt or damage to the alternator bearing.

NOTE: Perform the above inspection with the vehicle headlights illuminated.

3. Turn off the ignition and all accessories. Connect a load tester (VAT-40 or equivalent).
4. Apply the load test referring to the LOAD TEST TABLE. The final voltage must be above the standard minimum value shown in MINIMUM VOLTAGE TABLE.

## LOAD TEST TABLE

| Model     | Test Load (Amps) |
|-----------|------------------|
| 323/Prot. | 180              |
| 626/MX-6  | 174              |
| 929       | 180              |
|           | 195              |
| MX-3      | 150              |
|           | 180              |
|           | 165              |
| MX-5      | 105              |
| RX-7      | 180              |

## ECU/AIR FLOW METER/FUEL PUMP/ALTERNATOR DIAGNOSTICS CAT. G, NO. 002/93

## Article Text (p. 15)

# 1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:58AM

|                                                 |          |     |     |   |
|-------------------------------------------------|----------|-----|-----|---|
|                                                 | 3        | 165 | 3   |   |
| 3                                               | 3        | 195 | 3   |   |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA- |          |     |     |   |
| 3                                               | MPV      | 3   | 150 | 3 |
| 3                                               | 3        | 195 | 3   |   |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA- |          |     |     |   |
| 3                                               | B-Series | 3   | 150 | 3 |
| 3                                               | 3        | 195 | 3   |   |
| 3                                               | 3        | 195 | 3   |   |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU |          |     |     |   |

### MINIMUM VOLTAGE TABLE

```

UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;
3  Aprox Battery      3  Minimum Voltage      3
3  Temperature        3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3  70F (21C)          3  9.6V                    3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3  60F (15C)          3  9.5V                    3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3  50F (10C)          3  9.4V                    3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3  40F (4C)           3  9.3V                    3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3  30F (-1C)          3  9.1V                    3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3  20F (-7C)          3  8.9V                    3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-

```

If the voltage measures at or above the minimum, proceed to step 5.

If the voltage is below the minimum, quick charge the battery for 30 minutes and load test. If the battery remains below the minimum, replace the battery and proceed to step 5.

NOTE: Battery inspection and charging procedures for Navajo vehicles are different than those outlined in this bulletin. Refer to the appropriate service information for instructions.

5. Start the vehicle and raise the RPM to 2500.
6. Connect a battery load tester (VAT 40/70 or equivalent)
7. Apply a load equal to the alternator rating. The generated voltage should be 14.1V to 14.7V.

## LOAD TEST RESULTS

Over 14.7V - Replace Alternator

Under 14.1V - Check for resistance between the battery and

ECU/AIR FLOW METER/FUEL PUMP/ALTERNATOR DIAGNOSTICS CAT. G, NO. 002/93

Article Text (p. 16)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:58AM

terminals "B" and "S". If resistance is present, repair the damaged harness and retest. If the voltage is still below 14.1V, replace the alternator.

14.1V to 14.7V - No trouble with the alternator or battery.

ALTERNATOR AND BATTERY CHECK SHEET

Dealer Name \_\_\_\_\_ Technician Number: \_\_\_\_\_

Vehicle Year: \_\_\_\_\_ Model: \_\_\_\_\_ M/T: \_\_\_\_\_ A/T: \_\_\_\_\_ VIN: \_\_\_\_\_

Repair Date: \_\_/\_\_/\_\_ Mileage: \_\_\_\_\_ Repair Order Number: \_\_\_\_\_

1. Customer Complaint: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2. Was the customer's complaint verified: \_\_\_\_\_ Yes \_\_\_\_\_ No

3. Reason for replacement:

Alternator output or battery voltage was out of spec.: \_\_\_\_\_ Yes \_\_\_\_\_ No

|   | 3                               | 3 | Reading | 3 | Factory Spec. | 3 |
|---|---------------------------------|---|---------|---|---------------|---|
| 3 | Output Voltage                  | 3 |         | 3 |               | 3 |
| 3 | Output Amperage                 | 3 |         | 3 |               | 3 |
| 3 | Instrument Used                 | 3 |         | 3 |               | 3 |
| 3 | Battery Voltage (Open Terminal) | 3 |         | 3 |               | 3 |
| 3 | Battery Voltage (Load Test)     | 3 |         | 3 |               | 3 |

According to Service Bulletin instructions: \_\_\_\_\_ Category \_\_\_\_\_ No.

According to DSM or Hot Line Authorization: \_\_\_\_\_ (Authorization #)

Other: \_\_\_\_\_  
\_\_\_\_\_

Repair Type: \_\_\_\_\_ Warranty \_\_\_\_\_ Customer Pay

Technician's Signature: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

3 ME LA Comments: 3

# ECU/AIR FLOW METER/FUEL PUMP/ALTERNATOR DIAGNOSTICS CAT. G, NO. 002/93

## Article Text (p. 17)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:58AM

3 \_\_\_\_\_ 3  
3 \_\_\_\_\_ 3  
3 \_\_\_\_\_ 3  
3 \_\_\_\_\_ 3  
3 Signature \_\_\_\_\_ Date \_\_\_\_/\_\_\_\_/\_\_\_\_ 3  
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAUU

### SECTION 5 - WARRANTY INFORMATION

Symptom Code: Complete Applicable Code  
Damage Code: Complete Applicable Code  
Part Number Main Cause: Complete Applicable Part Number

#### OPERATION NUMBER AND LABOR HOURS TABLE

UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;  
3 Operation Number 3 Labor Hours 3  
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-  
3 Engine Control Unit(ECU),Diagnosis 3 F0005XDX 3 0.9 3  
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-  
3 Air Flow Sensor (AFM), Diagnosis 3 F0006XDX 3 0.4 3  
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-  
3 Fuel Pump, Diagnosis 3 F0007XDX 3 0.5 3  
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-  
3 Charging System, Diagnosis 3 G0003XDX 3 1.4 3  
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-  
3 NOTE: Labor hours shown are the maximum allowable time. Claim 3  
3 only the actual time used for these operations. 3  
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAUU

END OF ARTICLE

# EMISSION INSPECTION & MAINTENANCE TEST PREPARATIONS CAT. F, NO. 005/93

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:59AM

## ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

## PROPER PREPARATION FOR STATE EMISSION INSPECTION AND MAINTENANCE TEST

|              |                  |
|--------------|------------------|
| Model        | All Mazda Models |
| Category     | F                |
| Bulletin No. | 005/93           |
| Date         | April 28, 1993   |

## DESCRIPTION

Some vehicles with properly functioning emission control systems may fail certain states' emission inspection and maintenance test(s) (tailpipe emission tests).

In order to avoid the above mentioned condition, make sure the following items are observed before conducting the test:

- \* Engine should be warmed up but not overheating (as indicated by gauge or warning light).
- \* All electrical loads and AC should be turned off.
- \* For 5-speed models: Neutral range should be selected.
- \* For automatic transmission models: "N" or "P" range should be selected.

NOTE: All Mazda vehicles meet the U.S. EPA and California emission standards when tested under the EPA certification test procedure.

## PREPARATION PROCEDURE

Perform the following before conducting the emission inspection and maintenance test:

1. Before testing, bring the engine's operating temperature to normal by operating the engine for approximately 3 minutes at 2,500-3,000 rpm.

NOTE: When the cooling fan has cycled on and off twice, the engine has reached its normal operating temperature.

2. Test the vehicle as soon as possible after the engine has warmed up. Keep the engine at operating temperature during the test.

## END OF ARTICLE

# ENGINE PINGING,KNOCK - PREMIUM FUEL RECOMMENDATION CAT. F, NO. 018/92

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:59AM

## ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

## PREMIUM FUEL RECOMMENDATION

Model(s):           1992 Mazda 929  
                      1993 Mazda RX-7  
                      1993 Mazda 626 (V6 Engine)  
                      1993 Mazda MX-6 (V6 Engine)  
Category:           F  
Bulletin No.:       018/92  
Date:               5/13/92

## DESCRIPTION

If the following problems are encountered on the models shown below, it may be the result of using a lower octane, non-premium fuel.

Engine Detonation (pinging)  
Engine Knock  
Lack of Power

NOTE: Problems listed are not model specific.

Customers experiencing any of the above symptoms should be referred to page 3-2 (or the back cover) of their Owner's Manuals. The information states; "Your Mazda vehicle will perform best with premium unleaded fuel having an octane rating (anti-knock index) of at least 91."

Dealers providing a full tank of fuel to customers upon delivery of new vehicles should use premium unleaded Fuel of 91 octane or higher.

## END OF ARTICLE

# ENGINE STALLS DURING DECELERATION - REPLACE ECU CAT. F, NO. 032/92

## Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:59AM

## ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

## ENGINE STALLS DURING WARM UP/IDLE FLUCTUATION

Model(s): 1993 Mazda RX-7  
Category: F  
Bulletin No.: 032/92  
Date: 12/23/92

## AFFECTED VINS

This bulletin applies to 1993 RX-7 M/T models with a VIN of JM1FD3312P0208703 or lower produced through July 2, 1992.

This bulletin applies to 1993 RX-7 A/T models with a VIN of JM1FD331XP0210513 or lower produced through September 30, 1992.

## DESCRIPTION

Some 1993 RX-7 vehicles may experience stalling during deceleration with the throttle release, approaching a stop. This occurs during initial warm up and, sometimes, after reaching normal operating temperatures. The engine will then restart easily and stalling may not reoccur until the next cold engine start.

Also, when idling with the A/C on, engine speed decreases as the A/C compressor engages and idle fluctuation may occur.

The ECU has been modified as a countermeasure. If any of the above symptoms are encountered, replace the ECU. The modified ECU is designed to:

1. Make necessary air-fuel ratio adjustments to maintain stable idle at all temperatures (for A/T & M/T).
2. Turn off the A/C compressor when the clutch pedal is depressed or when the accelerator pedal is released (for M/T).

## REPAIR PROCEDURE

Removal & installation procedures can be found in the appropriate service information. See PARTS INFORMATION TABLE for list of replacement parts.

## PARTS INFORMATION TABLE

|                                            |              |   |                   |   |  |  |  |
|--------------------------------------------|--------------|---|-------------------|---|--|--|--|
| UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA |              |   |                   | ; |  |  |  |
| 3                                          | Part Number  | 3 | Description       | 3 |  |  |  |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA   |              |   |                   | - |  |  |  |
| 3                                          | N3A1 18 881R | 3 | ECU (Federal M/T) | 3 |  |  |  |



# ENGINE STALLS DURING DECELERATION - REPLACE ECU CAT. F, NO. 032/92

## Article Text (p. 2)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 09:59AM

```
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA~
3  N3A2 18 881R 3  ECU (Federal A/T) 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA~
3  N3A3 18 881R 3  ECU (California M/T) 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA~
3  N3A4 18 881R 3  ECU (California A/T) 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU
```

### CORE RETURN PROCEDURES

1. Fill out a Warranty Shipping Record form.
2. Ship the old ECU to:  
MMA - Customer Support  
2 Cromwell  
Irvine, CA 92718  
ATTN: Warranty Dept.
3. Failure to ship the old ECU will result in the denial of the warranty claim.
4. Refer to Parts Bulletin No. R-11 for details

### WARRANTY INFORMATION

(Applies to Vehicles Covered Under Warranty.)

|                         |                                                              |
|-------------------------|--------------------------------------------------------------|
| Warranty Type Code:     | A                                                            |
| Customer Comment Code:  | 03                                                           |
| Damage Code:            | 99                                                           |
| Part No. of Main Cause: | N3A1 18 881R<br>N3A2 18 881R<br>N3A3 18 881R<br>N3A4 18 881R |
| Operation No:           | F0812XRX                                                     |
| Labor Hours:            | 0.3 hrs.                                                     |

END OF ARTICLE

# HESITATION WHILE DRIVING - CHECK ENGINE GROUND STRAP CAT. F, NO. 005/97

## Article Text

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 10:00AM

## ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

## HESITATION (JERKING/BUCKING) WHILE DRIVING

Model(s): 1993-95 Mazda RX-7  
Category: F - Fuel & Emission Control System  
Bulletin No.: 005/97  
Date: March 10, 1997

## DESCRIPTION

A jerk or bucking condition may occur under any of the following conditions:

- \* Under light to moderate acceleration.
- \* Cruising at engine speed of 2000-2200 rpm.
- \* A/C ON.

This concern may be caused by improperly grounded engine harness, creating high resistance in the engine ground circuits. This condition affects the fuel control system. Customers complaining of this concern should have the vehicle inspected and if necessary, repaired according to this bulletin.

## REPAIR PROCEDURE

1. Clean and retorquer harness ground. See Fig. 1.
  - a. Locate ground on left side of engine, mounted to bracket behind A/C compressor. Refer to the applicable BETM or wiring diagram.
  - b. Tightening Torque: 7 - 11 N.m (69.5 - 95.4 in-lb).
2. Clean and retorquer main battery ground and bracket mounting bolts (bracket used for mounting the ground). See Fig. 2.
  - a. Tightening Torque: 7 - 11 N.m (69.5 - 95.4 in-lb).
  - b. Remove the original ground strap and terminal bracket between the engine hanger and the bulkhead.
  - c. Install new style ground strap using the original bolts. See Fig. 3.
  - d. Tighten Torque: 16-23 N.m (12 - 17 ft-lb) engine hanger side), 7 - 11 N.m (69.5 - 95.4 in-lb), (engine room bulkhead side).
3. Verify repair.

# HESITATION WHILE DRIVING - CHECK ENGINE GROUND STRAP CAT. F, NO. 005/97

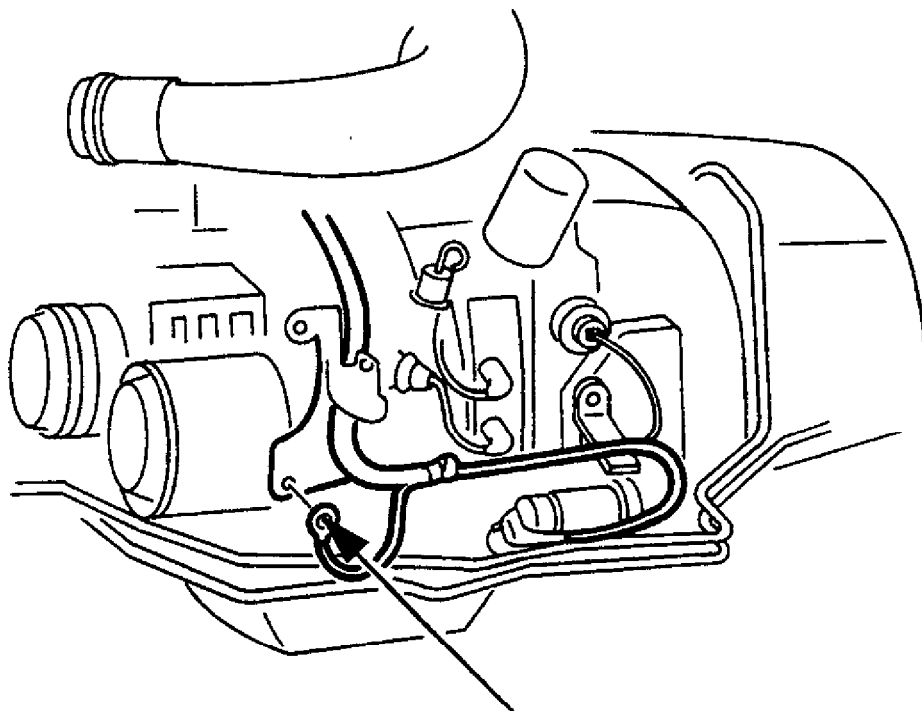
## Article Text (p. 2)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

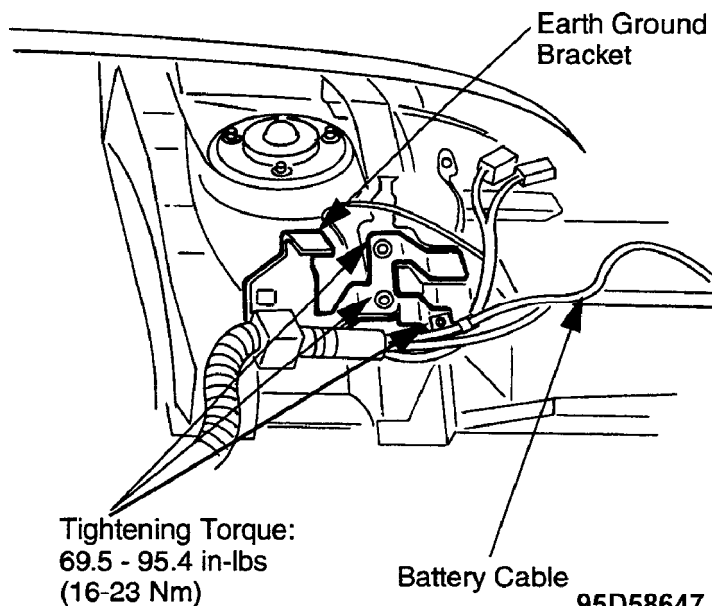
Saturday, August 25, 2001 10:00AM



**Harness Ground**  
**Tightening Torque: 69.5 - 95.4 in-lbs**  
**(7-11 Nm).**

**95C58646**

Fig. 1: Harness Ground - Location & Tightening Torque Measurement



**Tightening Torque:**  
**69.5 - 95.4 in-lbs**  
**(16-23 Nm)**

**Battery Cable**

**95D58647**

Fig. 2: Earth Ground Bracket - Location & Tightening Torque

HESITATION WHILE DRIVING - CHECK ENGINE GROUND STRAP CAT. F, NO. 005/97

Article Text (p. 3)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 10:00AM

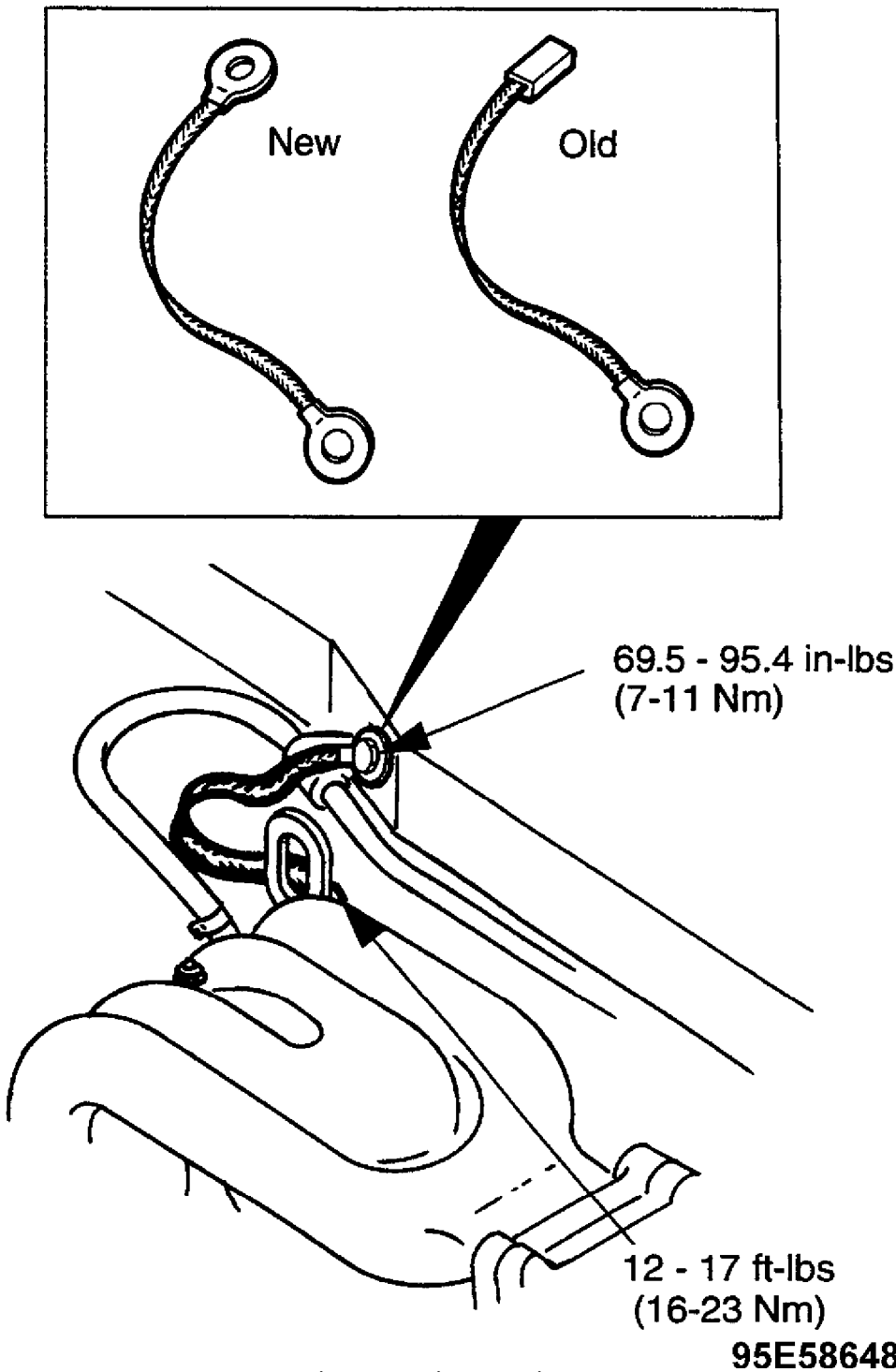


Fig. 3: Ground Strap - Location & Tightening Torque

PARTS INFORMATION

| PARTS INFORMATION TABLE                                                                    |         |   |         |                                           |
|--------------------------------------------------------------------------------------------|---------|---|---------|-------------------------------------------|
| UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA |         |   |         |                                           |
| 3                                                                                          | New P/N | 3 | Old P/N | 3 Description 3 Qty. 3Interchangeability3 |

# HESITATION WHILE DRIVING - CHECK ENGINE GROUND STRAP CAT. F, NO. 005/97

## Article Text (p. 4)

1993 Mazda RX7

For [www.iluvmyrx7.com](http://www.iluvmyrx7.com)

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 10:00AM

~~~~~  
3 FD02-67-E70 3 FD01-67-E70A 3 Earth Wire 3 1 3 A 3
~~~~~  
3 NOTE: Interchangeability "A" = The new part can be used in place 3  
3 of the old part but the old part CAN NOT be used in place 3  
3 of the new part. 3  
~~~~~

WARRANTY INFORMATION

Applies to verified customer complaints on vehicles covered under normal warranty. Refer to the SRT microfiche for warranty Term Information.

Warranty Type:	A
Symptom Code:	08
Damage Code:	9S
Part Number Main Cause:	FD02-67-E70
Quantity:	1
Operation Number:	XX899XRX
Labor Hours:	0.2 hrs.

END OF ARTICLE

PARTS BULLETIN - SPARK PLUG COIL/WIRE SET NO. T-1-6

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 10:00AM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

SPARK PLUG COIL/WIRE SET

Model(s): All Mazda Models Through 1995
Category: Parts Bulletin
Bulletin No.: T-1-6
Date: November 1, 1990
Revised: April, 24 1995

DESCRIPTION

A complete line of Mazda Spark Plug Wire Sets are available from your servicing PDC. These high-quality wire sets are manufactured for Mazda by NGK.

Each wire set includes the coil/wire(s) and is attractively packaged for merchandising purposes. The carton can be placed on a wall display. The part number and model applications are clearly indicated on the front and on the end of the carton. Each wire is numbered for easy installation and the instructions are printed on the back.

Complete wire sets cannot be used for new vehicle warranty. Individual wires are available under the MC part numbers, as indicated in the Parts Catalog Microfiche.

PARTS INFORMATION

PART NUMBERS AND APPLICATIONS TABLE

Year/Model	⌘	NGK P/N	⌘	Mazda P/N
1971-74 RX-2	⌘	RC-ZE91	⌘	0000-18-091A
1972-78 RX-3	⌘	RC-ZE91	⌘	0000-18-091A
1974-78 RX-4	⌘	RC-ZE91	⌘	0000-18-091A
1976-78 Cosmo	⌘	RC-ZE91	⌘	0000-18-091A
1974-77 Repu	⌘	RC-ZE91	⌘	0000-18-091A
1975-77 808 (1600CC)	⌘	RC-ZE92	⌘	0000-18-092A
1976-77 808 (1300CC)	⌘	RC-ZE92	⌘	0000-18-092A
1977-80 GLC	⌘	RC-ZE92	⌘	0000-18-092A
1981-83 GLC Wagon	⌘	RC-ZE92	⌘	0000-18-092A

PARTS BULLETIN - SPARK PLUG COIL/WIRE SET NO. T-1-6

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 10:00AM

```

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
1972-74 808 (1600CC)           3    RC-ZE94A           3    0000-18-094A
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
1972-74 B1600                   3    RC-ZE94A           3    0000-18-094A
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
1977-78 B1800                   3    RC-ZE94A           3    0000-18-094A
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
1979-84 B2000                   3    RC-ZE94A           3    0000-18-094A
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
1979-82 626                     3    RC-ZE94A           3    0000-18-094A
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
1979-85 RX-7                    3    RC-ZE97            3    0000-18-097B
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
1981-85 GLC FWD                 3    RC-ZE98            3    0000-18-098A
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
1986-87 323                     3    RC-ZE98            3    0000-18-098A
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
1983-87 626 FWD                 3    RC-ZX99A           3    0000-18-099A
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
1983-87 B2000                   3    RC-ZX99A           3    0000-18-099A
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
1986-91 RX-7 (All Models)       3    RC-ZE02            3    0000-18-100A
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
1987-93 B2600                   3    RC-ME51            3    0000-18-101A
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
1988-89 323 (Turbo)             3    RC-ZE07            3    0000-18-102A
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
1988-91 929 (Except S)         3    RC-ZE06            3    0000-18-103A
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
1989-94 MPV (3.0L)              3    RC-ZE06            3    0000-18-103A
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
1987-93 B2600i (2.6L)          3    RC-ZE17            3    0000-18-104A
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
1989-94 MPV (2.6L)              3    RC-ZE17            3    0000-18-104A
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
1988-92 626/MX-6                3    RC-ZX12            3    0000-18-105A
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
1987-93 B2200                   3    RC-ZE94A           3    0000-18-094A
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
1990-94 Protege (1.8L/DOHC)     3    RC-ZX18            3    0000-18-118A
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
1988-94 323/Protege            3    RC-ZX19            3    0000-18-119A
      (1.6L & 1.8L SOHC)       3
      MX-3 (1.6L)              3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
1990-95 Miata                   3    RC-ZE21            3    0000-18-121A
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
1990-91 929S                    3    RC-ZX22            3    0000-18-122A
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
1992-93 MX-3 (1.3L)            3    RC-ZE25            3    0000-18-125A
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
1992-95 929                    3    RC-ZE26            3    0000-18-126A

```

PARTS BULLETIN - SPARK PLUG COIL/WIRE SET NO. T-1-6

Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 10:00AM

```

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
1991-93 Navajo          3      -          3  ZZLO-18-140
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
1993-94 626/MX-6 2.5L   3      RC-ZE28    3  0000-18-128A
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
1995 626 2.5L          3      RC-ZE32    3  0000-18-132A
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
1993-94 626/MX-6 2.0L   3      RC-ZX29    3  0000-18-129A
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
1995 626 2.0L (A/T)     3      RC-ZX40    3  0000-18-140A
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
1995 626/MX-6 2.0L (M/T) 3      RC-ZX41    3  0000-18-141A
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
1993-95 RX7            3      RC-ZE30    3  0000-18-130A
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
1995 Millenia          3      RC-ZE31    3  0000-18-131A
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
1995 MX-3 (1.8L)        3      RC-ZE35    3  0000-18-135A
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
1995 MX-3 (1.6L)        3      RC-ZE36    3  0000-18-136A
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
1995 Protege (1.8L)     3      RC-ZE36    3  0000-18-136A
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
1995 Protege (1.5L)     3      RC-ZE37    3  0000-18-137A
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

```

END OF ARTICLE

SPARK PLUG CROSS-REFERENCE CHART NO. T-1-3

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 10:01AM

1979-80	GLC (Wagon)	BP5ES	0660-18-110	8AG1-18-110A-BP
1980-83	GLC (Wagon)	BPR5ES *	8G14-18-110	8AB1-18-110A-BP
1986				

1972-77	808	BP7ES	0745-18-110	-
1976	808 (1300)	BP6ES13	3710-18-110	-
1977	808 (1300)	BPR6ES *	1690-18-110	-
1972-77	808 (1600)	BP6ES	0259-18-110	8AU1-18-110A-BP
1972-76	B1600	BP6ES	0259-18-110	8AU1-18-110A-BP
1972-76	B1600	BP7ES	0745-18-110	-
1977-78	B1800	BP6ES	0259-18-110	8AU1-18-110A-BP
1979	B2000	BPR5ES *	8914-18-110	8AB1-18-110A-BP
1981-87				

1980-81	B2000	BPRBES *	1690-18-110	-
1970	1500	BP7ES	0745-18-110	-
1970-72	1800	BP7ES	0745-18-110	-
1971	616	BP7ES	0745-18-110	-
1972-73	618	BP7ES	0745-18-110	-

* = Resistor Plug

1974-76	REPU	B7EM	2328-18-600	8AH1-18-110A-BP
1977	REPU	B7ET	3743-18-600	8AF1-18-110A-BP
1971-74	RX-2	B7EM	2328-18J600	8AH1-18-1 10A-BP
1972-75	RX-3	B7EM	2328-18-600	8AH1-18-1 10A-BP
1976	RX-3	BR7ET *	3648-18-600	-
1977-78	RX-3	B7ET	3743-18-600	8AF1-18-110A-BP
1972-78	RX-3	B8EM	2359-18-600	-
1974-75	RX4	B7EM	2328-18-600	8AH1-18-110A-BP
1974-78	RX4	BR7EM	2182-18-600	-
1974-78	RX4	B7EMV	1757-18-600	-
1976-78	RX4	B7ET	3743-18-600	8AF1-18-1110A-BP
1976-78	RX4	BR7ET	3648-18-600	-
1976-78	RX4	BR8ET *	3649-18-600	8AF3-18-110A-BP
1979	RX-7	B7ET	3743-18-600	8AF1-18-110A-BP
1979	RX-7	BR7ET	3648-18-600	-
1980	RX-7	BR8ET	3649-18-600	8AF3-18-110A-BP
1980	RX-7	BR9ET	8344-18-600	-
1981-85	RX-7	BR8EQ14	N201-18-600	8AF2-18-110A-BP
1984-85	RX-7	BR9EQ14	N203-18-600	-
1986-91	RX-7	BUR7EQ	N343-18-110	N3X4-18-110
	(Leading)			
1986-91	RX-7	BUR9EQ	N342-18-110	N3X4-18-110
	(Trailing)			
1993	RX-7	BUR7EQP	N3A2-A8-110	N3X5-18-110
	(Leading)			
1993	RX-7	BUR9EQP	N3A1-18-110	N3X5-18-110
	(Trailing)			

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

(See Fig. 1).

SPARK PLUG CROSS-REFERENCE CHART NO. T-1-3

Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 10:01AM

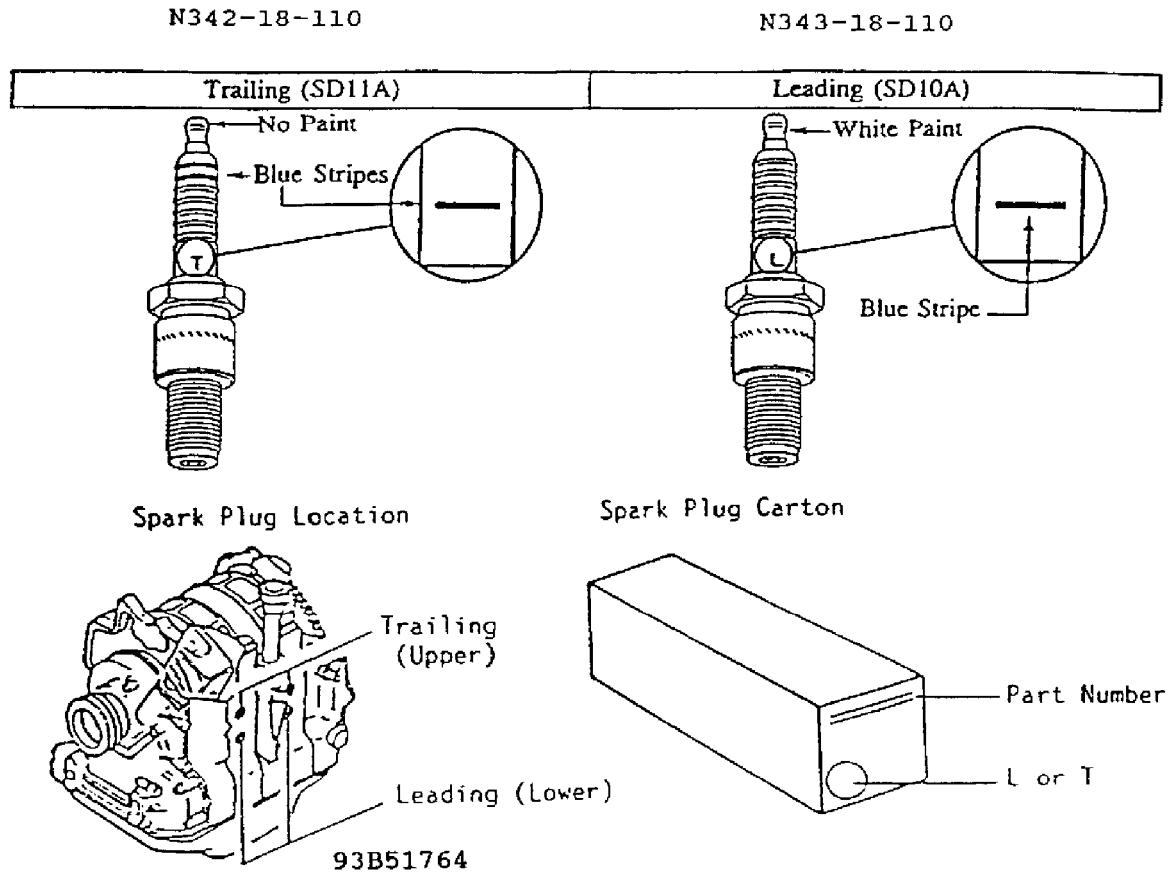


Fig. 1: Spark Plug Identification for 1986-91 RX-7 Engines

END OF ARTICLE

TAS (THROTTLE ADJUSTMENT SCREW) LOCATION/ADJUSTMENT CAT. F, NO. 014/98

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Saturday, August 25, 2001 10:01AM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

TAS (THROTTLE ADJUSTMENT SCREW) ADJUSTMENT

Model(s): All Mazda Models with Fuel Injection
Category: F (01) - Fuel & Emission Control
Bulletin No.: 014/98
Date: December 9, 1998

VEHICLES AFFECTED

All fuel injected models.

DESCRIPTION

Fuel injected vehicles with idle speed control motors should NOT have the TAS (Throttle Adjustment Screw) adjusted for any reason. The TAS functions as a stopper when the throttle valve is fully closed. During production, the TAS is accurately set by measuring the airflow rate past a closed throttle plate. Any adjustment to this screw will affect PCM control of idle speed.

Customers complaining of low idle speed should have their vehicle repaired using the Workshop Manual.

- NOTE: * Tampering with this screw will affect the idle contact switch and/or throttle position sensor settings. This can lead to rough idle and difficulty in diagnosis of idle quality concerns.
- * The TAS locations on the examples below may vary depending on model year of vehicle. See Fig. 1.

TAS (THROTTLE ADJUSTMENT SCREW) LOCATION/ADJUSTMENT CAT. F, NO. 014/98

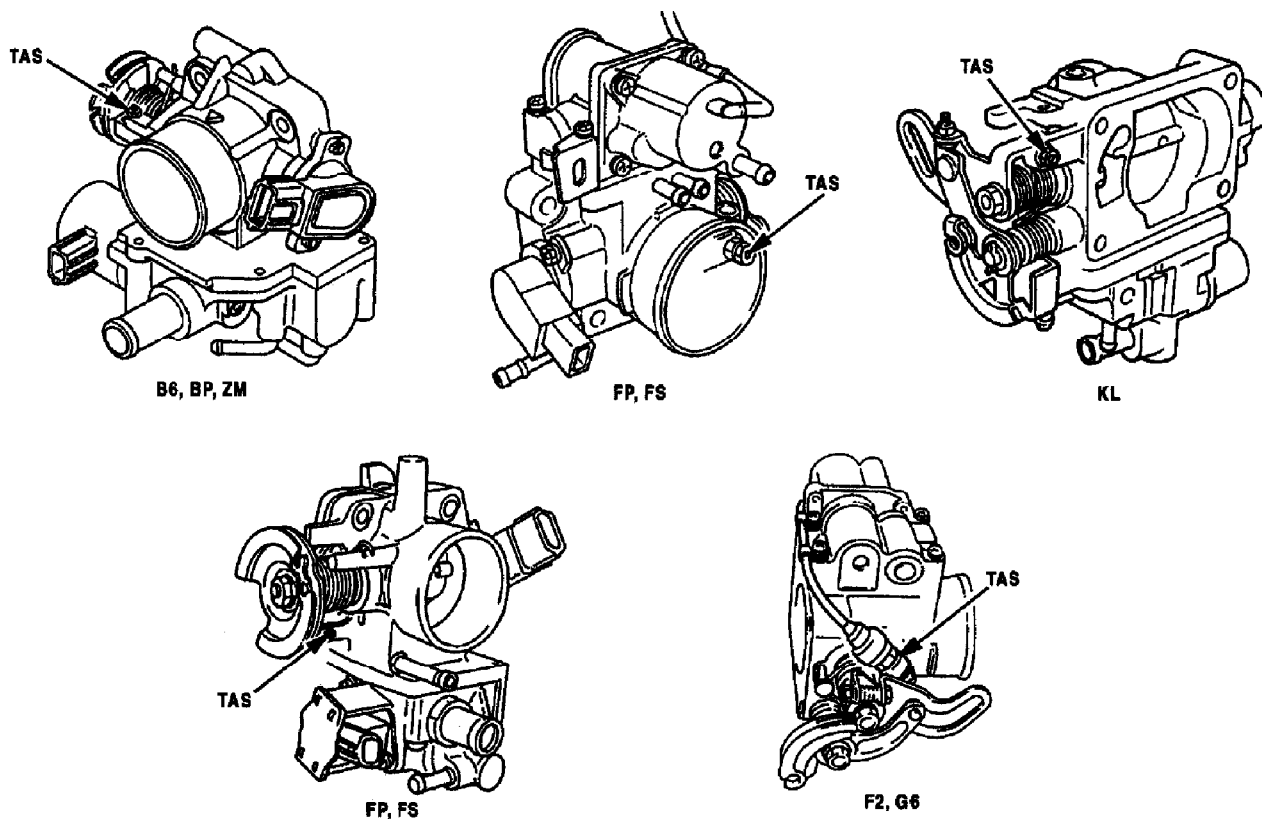
Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 10:01AM



98B54057

Fig. 1: Throttle Adjustment Screw Locations

END OF ARTICLE

WORKSHOP MANUAL CORRECTION - FUEL SYSTEM INSPECTION CAT. W, NO. 028/92

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Saturday, August 25, 2001 10:02AM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

WORKSHOP MANUAL CORRECTION - FUEL SYSTEM

Model(s): 1986-88 Mazda RX-7
1993 Mazda RX-7
Category: W - Workshop Manual Corrections
Bulletin No.: 028/92
Date: 7/23/92

DESCRIPTION

Attached are procedures for the 1986-88 RX-7 Workshop Manuals which provide clear fuel system inspection procedures. Also attached are corrections for the 1993 RX-7 Workshop manual.

AFFECTED PAGES

1986 RX-7
4-50
4-50-1

1987 RX-7
4A-68

1988 RX-7
4A-68-1

1993 RX-7
J-16
J-59

CORRECTIONS

1986-88 RX-7: FUEL PRESSURE RELEASE AND SERVICING FUEL SYSTEM

Fuel in the fuel lines remains under high pressure even when the engine is not running.

A) Before disconnecting a fuel line, release fuel pressure from the fuel lines to eliminate the possibility of injury or fire.

1. Start the engine.
2. Disconnect the fuel pump connector with the engine running.
Fig. 1.

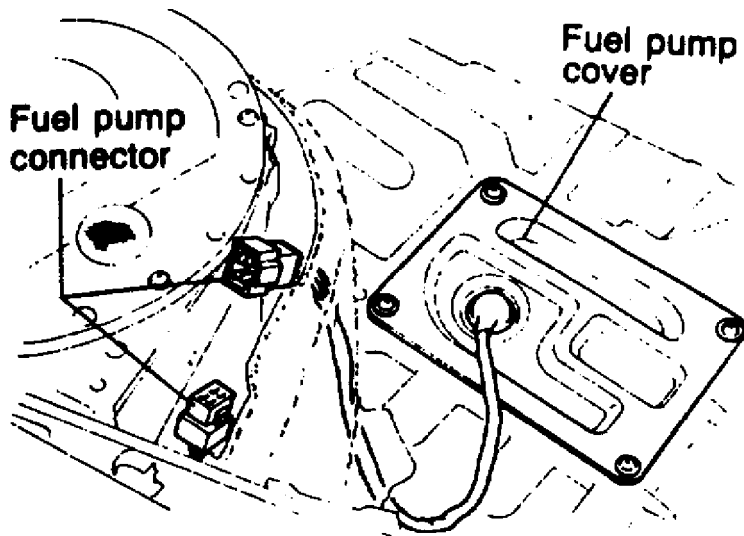
Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 10:02AM



94C54090

Fig. 1: Fuel pump Connector

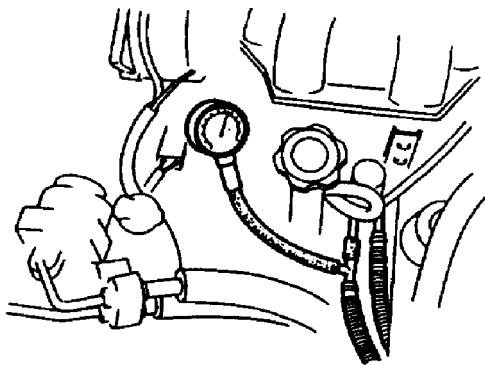
3. Allow the engine to stall, then turn the ignition switch OFF.
- B) Use a rag to protect from fuel spraying out when disconnecting the hoses, and plug the hoses after removal to prevent leakage.

System Operation

WARNING: Before disconnecting any fuel line, release the fuel pressure from the fuel system to reduce the possibility of injury or fire. (Refer to Page 4-50)

Hold Pressure Inspection

1. Release the fuel pressure from the fuel system.
2. Disconnect the negative battery terminal.
3. Install a fuel pressure gauge between the fuel filter and the pulsation damper. See Fig. 2.



94D54091

Fig. 2: Measuring Fuel Pressure

4. Connect the negative battery terminal

WORKSHOP MANUAL CORRECTION - FUEL SYSTEM INSPECTION CAT. W, NO. 028/92

Article Text (p. 3)

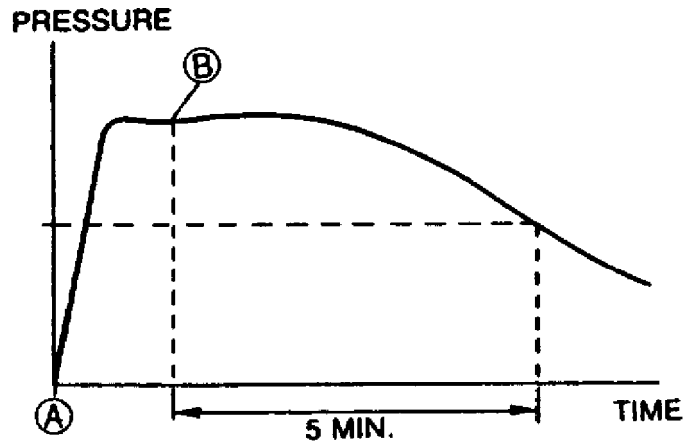
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 10:02AM

5. Connect the terminals of the check connector (Yellow: 2-pin) with a jumper wire.
6. Turn the ignition switch ON for 10 sec. to operate the fuel pump.
(Point A on Fig. 3).



94E54092

Fig. 3: Fuel Pressure vs. Time Graph

7. Turn the ignition switch OFF and disconnect the jumper wire
(Point B on Fig. 3).
8. Observe the fuel pressure after 15 minutes.

Fuel Pressure

Drop less than 20 Kpa (0.2 kg/cm - 2.8 psi)

9. If not as specified, perform the following inspection.
 - * Fuel pump on vehicle inspection.
(Refer to page 4-51)
 - * Pressure regulator inspection.
(Refer to page 4-52)
 - * Injector on vehicle inspection.
(Refer to page 4-53)

TRANSMISSION

PAGE J-16: NEW EXTENSION HOUSING DISASSEMBLY INSTRUCTIONS

Disassembly Note - Extension Housing

1. Temporarily reinstall the shift lever, and move the control rod end to the neutral position. Fig. 4

WORKSHOP MANUAL CORRECTION - FUEL SYSTEM INSPECTION CAT. W, NO. 028/92

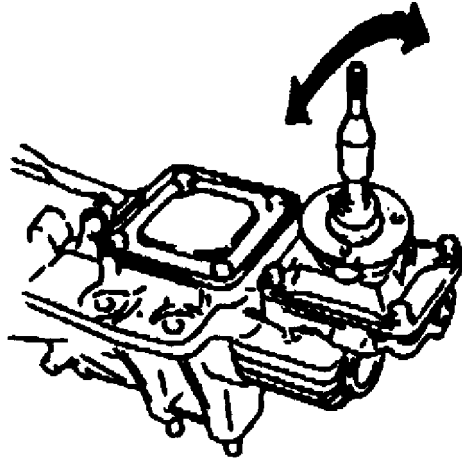
Article Text (p. 4)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 10:02AM



94F54093

Fig. 4: Positioning Shift Lever

2. Remove the shift lever.
3. Remove the extension housing installation bolts.

CAUTION: When removing the extension housing, be careful that the control lever is not pulled into or pushed against the shift rod gates.

4. Lift up on and remove the extension housing from the center housing.

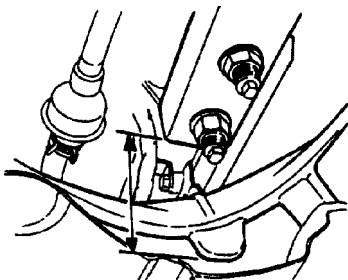
PAGE J-59: PPF INSPECTION DIMENSIONS PROVIDED

Measure the distance from the bottom of the front tunnel reinforcement to the point directly above it on the PPF. See Fig. 5

Standard: 77.1 mm (3.04 in)

Acceptable Range: 72-79 mm (2.83-3.11 in)

CAUTION: If the distance is not within the acceptable range, readjust the PPF.



94G54094

Fig. 5: PPF Measurement

END OF ARTICLE

1ST AND 2ND GEAR HARD TO SHIFT: IMPROVED CLUTCH HUB CAT. J, NO. 002/94

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 10:17AM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

1st AND 2nd GEAR HARD TO SHIFT

Model(s): Mazda RX-7
1993 - Vehicles with a VIN of JM1FD***P0200001 through JM1FD***R0299999
1994 - Vehicles with a VIN of JM1FD***R0300001 through JM1FD***R0300031

NOTE: The asterisk (*) in the VIN range can be any number (0 through 9) or "X".

Category: J
Bulletin No.: 002/94
Date: 1/20/94

DESCRIPTION

When shifting into 1st and/or 2nd gear, the shift movement may be stiff or binding may be felt. This is caused by the chamfer on the tips of the clutch hub sleeve.

To improve the shift feeling, since August 1, 1993 production, the chamfer on the tips of the clutch hub sleeves are formed using a press. This process increases the accuracy and consistency of the chamfer.

REPAIR PROCEDURE

1. Verify the customer complaint.
2. Replace the 1st and 2nd clutch hub set and synchronizer ring according to the instructions in the appropriate service information

PARTS INFORMATION TABLE

Part Number			Description	Qty.	Interchangeability
New	Old				
R523 17 260A	R523 17 260	1-2	Clutch Hub Set	1	AN

WARRANTY INFORMATION

(Applies To Vehicles Covered Under Normal Warranty)

Warranty Type: A
Customer Comment Code: 24
Damage Code: 9M
Part Number Main Cause: R523 17 260A
Quantity: 1

1ST AND 2ND GEAR HARD TO SHIFT: IMPROVED CLUTCH HUB CAT. J, NO. 002/94

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 10:17AM

Operation Number:

J0304BRX

Labor Hours:

7.2Hrs.

END OF ARTICLE

5TH GEAR SHIFTING NOISE: NEW SHIFT SELECT SPIDLE CAT. J, NO. 001/94

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 10:17AM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

5th GEAR SHIFTING NOISE

Model(s): 1993 RX-7 - Vehicles with a VIN of JM1FD332*P0100001 through JM1FD332*P0210508

NOTE: The asterisk (*) in the VIN range can be any number (0 through 9) or "X".

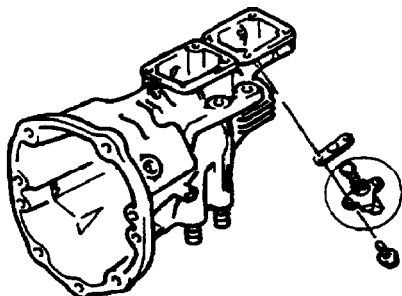
Category: J
Bulletin No.: 001/94
Date: 1/7/94
Revised: 1/27/94

DESCRIPTION

If grinding occurs when shifting to 5th gear, a 5th gear synchronizer ring, damaged by mis-shifting, may be the cause. To correct this concern, the shift select spindle has been modified to increase accuracy of the shift pattern.

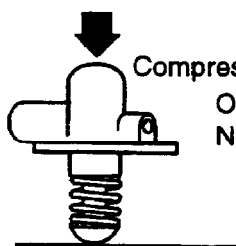
REPAIR PROCEDURES

1. Verify complaint.
2. Replace the shift select spindle and 5th gear synchronizer ring.
3. Inspect related parts for damage. Replace as necessary.



94I52272

Fig. 1: Shift Select Spindle



Compress Spindle And Record Spring Force

Old Part= 6.7 +/- 0.7 kg

New Part= 8.9 +/- 0.7 kg

PARTS INFORMATION TABLE

UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;

3 Part Number 3 Description 3

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-

3 R503 17 550 3 Shift Select Spindle 3

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-

3 W501 17 725B 3 5th Gear Synchronizer 3

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-

3 NOTE: The part number of the spindle has not changed. 3

3 Parts in your facing PDC are new. Dealers with 3

3 spindles existing in inventory should check the 3

5TH GEAR SHIFTING NOISE: NEW SHIFT SELECT SPIDLE CAT. J, NO. 001/94

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 10:17AM

³ spindle using the method Shown below. ³

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAUU

WARRANTY INFORMATION

(Applies to vehicles covered under normal warranty)

Warranty Type:	A
Symptom Code:	82
Damage Code:	24
Part Number Main Cause:	R503 17 550
Operation Number:	J0312XRX
Labor Hours:	4.8Hrs.

END OF ARTICLE

END OF ARTICLE

DTC DIAGNOSTIC TROUBLE SHOOTING TIPS MT 0597-07

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 10:18AM

ARTICLE BEGINNING

TECHNICAL INFORMATION TIP - MANUFACTURER

DTC DIAGNOSTICS

Model(s): All Mazda Models
Category: Mazda Tips
Bulletin No.: MT 0597-07
Date: May, 1997

DESCRIPTION

The diagnostic procedures for DTCs (Diagnostic Trouble Codes) in the Workshop manual don't always include the procedure to check related connectors that are within the DTC component's circuit.

Whenever performing diagnostic procedures, always use the wiring diagram in conjunction with the Workshop Manual. Check each related connector for the following:

- * Incomplete connection
- * Loose female terminals
- * Terminals that are pushed out of their connectors
- * Water inside the connector
- * Terminal corrosion

Also check each related harness for damage.

END OF ARTICLE

REMANUFACTURED TRANS (CANADIAN) - DIAGNOSIS SHEET CAT. J, NO. 95-02

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 10:18AM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

REMANUFACTURED TRANSMISSIONS

Model(s): All Mazda (Canadian) Models through 1995
Category: J - Manual Transmission
Bulletin No.: 95-02
Date: May 1995

DESCRIPTION

Remanufactured Transmissions and Transaxles which are supplied by Mazda Canada Inc., are rebuilt by M.A.N.A. (Mazda North America Inc.). This division of Mazda supplies remanufactured units for both Canada and United States.

In their continued efforts to upgrade the quality of these remanufactured units they are looking for more information on what initially failed and why. This will allow the cause to be recognized and addressed during the remanufacturing of the failed unit.

To assist M.A.N.A. in their efforts, the following procedures will be put into place immediately:

1. A properly completed "Warranty Tag" (P/N 9999-94-5011-E/F) must be attached, directly to the body of the core unit (Attachment #1 is a completed sample).
2. A properly completed "Automatic Transmission, Diagnosis Information Sheet" must be folded twice and stapled to the "Warranty Tag". See Fig. 1.


Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 10:18AM


mazda
MAZDA CANADA INC.

WARRANTY TAG

PART NO.
TROUBLE DESCRIPTION/CUSTOMER COMMENTS
R.O. NO.
VIN
REPAIR DATE
KILOMETERS
DELIVERY DATE
TYPE OF WARRANTY
DEALER NAME & ADDRESS

9999-94-5011 E/F
Rev. 05/89

94C59313

Fig. 1: Example of Warranty Tag

3. The defective unit must be shipped to the Quality Assurance Centre

REMANUFACTURED TRANS (CANADIAN) - DIAGNOSIS SHEET CAT. J, NO. 95-02

Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 10:18AM

as specified in the enclosed revised Parts Merchandising Bulletin.

If a core unit is received without a properly completed "Warranty Tag" and/or properly completed "Automatic Transmission Diagnosis Information Sheet" the core credit will not be processed for payment. The dealer will be advised of the situation by the Warranty Administration Department. Once the missing information is faxed/received by the Warranty Administration Department, the core credit will be processed.

If the requested information is not received within 10 working days, the core unit will be shipped back to the dealer, freight collect.

Two copies of this Service Bulletin are being supplied to each dealer. Please give the second copy to the Mazda Parts Manager.

NOTE: Five copies of the Automatic Transmission Diagnosis Information Sheet are being supplied with this bulletin. Ensure 1 copy remains intact with the original bulletin so that additional copies can be produced as necessary by your dealership.

Your understanding and continued co-operation are appreciated.
See Fig. 1 for example.

AUTOMATIC TRANSMISSION DIAGNOSIS INFORMATION SHEET

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

1. Dealer Code _____ RO _____ Date _____ Model Yr. _____
VIN _____ Odometer _____

2. Customer Concern: (Check appropriate box)

Shifting/Engagement:	Does Not Occur	Slips	Delayed
Harsh			
A. Engagement into drive	_____	_____	_____
B. Engagement into reverse	_____	_____	_____
C. 1-2 Upshift	_____	_____	_____
D. 2-3 Upshift	_____	_____	_____
E. 3-4 Upshift	_____	_____	_____
F. Downshifts	_____	_____	_____
G. Kickdowns	_____	_____	_____

Noise/Vibration: _____ Clunk _____ Whine _____ Buzz _____ Other _____
Condition Occurs: _____ Hot _____ Cold _____
Frequency: _____ Intermittent _____ Always _____

Other: _____

3. Technician Diagnosis:

Visual Inspection: (note leaks) _____

REMANUFACTURED TRANS (CANADIAN) - DIAGNOSIS SHEET CAT. J, NO. 95-02

Article Text (p. 4)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 10:18AM

Fluid Condition: _____ Burnt _____ Normal
Fluid Level: _____ Correct _____ High _____ Low

Line Pressure (record applicable data)

	Idle	WOT
P	_____	N/A
R	_____	_____
N	_____	N/A
OD	_____	_____
D	_____	_____
2	_____	_____
1	_____	_____

4. Replacement Transmission Identification: (unit to be installed into vehicle)

Installation date _____ Part Number _____ Unit Serial No. _____

5. Transmission Identification: (MCI use only)

_____ Original unit _____ reman unit
_____ Unit Serial Number

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

END OF ARTICLE

U					
3	Items	3	Standard	3	Note
3		3	Tolerance	3	
A					
3	Camber (Difference	3	ñ1 (ñ1.5)	3	
3	between right and left)	3	degrees	3	
3	F	A			
3	R	3	Caster (Difference	3	
3	O	3	between right and left	3	
3	N	A			
3	T	3	Toe (Total toe-in)	3	
3		3	ñ4mm (Angle	3	One side is
3		3	indicated is	3	not mentioned.
3		3	also described)	3	(No specification)
A					
3	Camber (Difference	3	ñ1 (ñ1.5)	3	
3	between right and left	3	degrees	3	
3	R	A			
3	E	3	Toe (Total toe-in)	3	
		3	ñ4mm (Angle	3	One side toe is

ALIGNMENT SPECIFICATIONS (CANADIAN) CAT. N, NO. 95-02

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 10:22AM

3 A 3 3 indicated is 3 not mentioned. 3
3 R 3 3 also described) 3 (No specification) 3
3 ~~~~~
3 3 Thrust Angle 3 ±0.8 degrees 3
3 ~~~~~
3 NOTE: Each vehicle varies in specification median. Refer to the 3
3 Workshop Manual for each vehicle's specification. 3
3 ~~~~~

VEHICLE PREPARATION AND CONDITION

1. The vehicle should have:

- * No Passengers
- * No Luggage
- * Gas Tank Full, Radiator And Engine Oil To The Specified Levels
- * Spare Tire, Jack And Tools Stored In Designated Areas
- * Tire Pressure Checked And, If Necessary, Adjusted

NOTE: If the specifications are different (depending on load conditions), adjust the pressure for the lightest load.

2. The table below contains examples of front caster specifications based on fuel tank level.

CASTER SPECIFICATION TABLE

U~~~~~Z
3 Fuel Gauge 3 Front Caster 3
3 Indication 3 (Shown in degrees, minutes) 3
3 ~~~~~
3 Empty 3 3 degrees 05' to 5 degrees 05' 3
3 ~~~~~
3 1/4 3 3 degrees 10' to 5 degrees 10' 3
3 ~~~~~
3 1/2 3 3 degrees 15' to 5 degrees 15' 3
3 ~~~~~
3 3/4 3 3 degrees 20' to 5 degrees 20' 3
3 ~~~~~
3 Full 3 3 degrees 25' to 5 degrees 25' 3
3 ~~~~~
3 NOTE: Specifications may differ between 3
3 models. 3
3 ~~~~~U

3. Follow the operating procedures specified for the alignment equipment being used.

4. Prior to measuring the current settings, firmly push the vehicle bumper up and down to stabilize the vehicle's height.

END OF ARTICLE

ALIGNMENT SPECIFICATIONS AND TOLERANCES -INFORMATION CAT. N, NO. 001/95

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 10:22AM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

ALIGNMENT SPECIFICATIONS

Model(s): All Mazda Models
(except Navajo & 1994 and on B-Series vehicles)
Category: N - Steering
Bulletin No.: 001/95
Date: 1/19/95

NOTE: This bulletin was originally released as Cat N, #003/94.
Replace the original bulletin with this revised copy.

APPLICABLE MODELS

All models except Navajo and 1994 and on B-Series

DESCRIPTION

This bulletin provides background information on standard specification and measuring conditions for wheel alignment. Measured values are not absolute. Variations occur between technician, equipment and the condition of the vehicle at the time of measurement. To avoid unnecessary adjustments, specifications and measurement conditions have been changed in the workshop manual. These changes are described below.

NOTE: Changes in the specifications do not imply that alignment tolerances have increased during production. Vehicle alignment is set to the median specifications during production and technicians should also use median specifications during alignment adjustment.

NEW SPECIFICATIONS TABLE

Items				Standard Tolerance		Note	
Front				1 (1.5) degrees			
Camber (Difference between right and left)							
Caster (Difference between right and left)				1 (1.5) degrees			
Toe (Total toe-in)				4mm (Angle indicated is also described)		One side toe is not mentioned. No specification	

ALIGNMENT SPECIFICATIONS AND TOLERANCES -INFORMATION CAT. N, NO. 001/95

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 10:22AM

Rear	Camber (Difference between right and left)	± 1 (±1.5) degrees	
	Toe (Total toe in)	± 4mm (Angle indicated is also described)	One side toe is not mentioned. No specification
	Thrust Angle	± 0.8 degrees	
NOTE: Each vehicle varies in specification median. Refer to the appropriate service information for each vehicle's specification.			

VEHICLE PREPARATION AND CONDITION

1. The vehicle should have:
 - * No Passengers
 - * No Luggage
 - * Gas Tank Full, Radiator and Engine Oil To The Specified Levels
 - * Spare Tire, Jack And Tool Stored In Designated Areas
 - * Tire Pressure Checked And, If Necessary, Adjusted.

NOTE: If the specifications are different (depending on load conditions), adjust the pressure for the lightest load.

2. The table below contains examples of front caster specifications based on fuel tank level.

CASTER EXAMPLE TABLE

FUEL GAUGE		
3	Fuel Gauge	3
3	Indication	3
(Shown in degrees, minutes)		
3	Empty	3
3 degrees 05' to 5 degrees 05"		
3	1/4	3
3 degrees 10' to 5 degrees 10"		
3	1/2	3
3 degrees 15' to 5 degrees 15"		
3	3/4	3
3 degrees 20' to 5 degrees 20"		
3	Full	3
3 degrees 25' to 5 degrees 25"		
NOTE: Specifications may differ between models.		

3. Follow the operating procedures specified for the alignment equipment being used.
4. Prior to measuring the current settings, firmly push the vehicle bumper up and down to stabilize the vehicle's height.

ALIGNMENT SPECIFICATIONS AND TOLERANCES -INFORMATION CAT. N, NO. 001/95

Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 10:22AM

END OF ARTICLE

CHECKING PROCEDURE FOR POWER STEERING BOOT LEAKAGE CAT. N, NO. 004/97

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Saturday, August 25, 2001 10:23AM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

CHECKING PROCEDURE FOR POWER STEERING BOOT LEAKAGE

Model(s): All Mazda Models with Rack/Pinion
Category: N - Steering System
Bulletin No.: 004/97
Date: December 28, 1997

DESCRIPTION

Customers complaining of problems associated with power steering fluid loss should have the vehicle inspected according to the instructions in section N of the workshop manual. If the leak is determined to be coming from the power steering gear, follow the procedures listed below.

NOTE: Service Managers should place a copy of this bulletin in section N of the workshop manual.

INSPECTION PROCEDURE

1. Check the color of the fluid that is leaking. See Fig. 1.
 - * If the fluid is red, proceed to step 3.
 - * If the fluid is any color other than red, (i.e. yellow, colorless), this is grease and no problem exists with the power steering gear. Proceed to step 2.
2. Inspect the boot for damage (i.e. cracks or tears).
3. Remove the boot wire and inspect the inside of the boot for contamination (dirt, water, etc.). See Fig. 1.
 - * If there is a large quantity of red fluid inside the boot, this indicates insufficient sealing. Replace the side seal and the power steering gear according to section N of the workshop manual. See Fig. 1.
 - * If a minimal quantity of red fluid is present, proceed to step 4.
4. Start the engine and turn the steering wheel right and left, lock to lock.
 - * If the fluid is leaking, replace the side seal and the power steering gear according to section N of the workshop manual.
 - * If no fluid is leaking, no problem exists in the power steering

CHECKING PROCEDURE FOR POWER STEERING BOOT LEAKAGE CAT. N, NO. 004/97

Article Text (p. 2)

1993 Mazda RX7

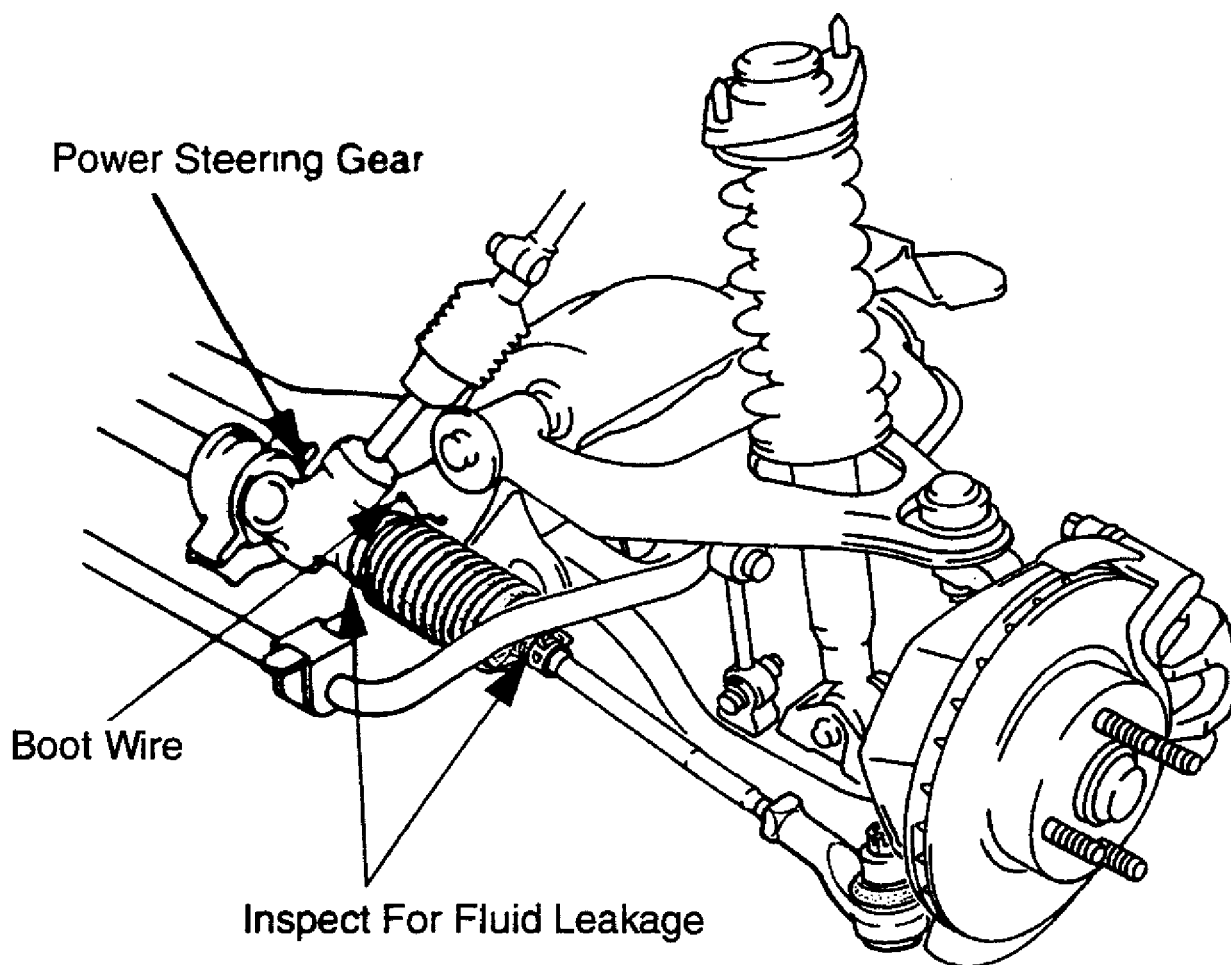
For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 10:23AM

gear.

CAUTION: DO NOT keep the steering wheel fully turned to the locked position for more than five seconds. Power steering system damage may occur.



97A54353

Fig. 1: Power Steering Gear & Boot Wire - Inspect Fluid Leakage

END OF ARTICLE

FRONT SUSPENSION UPPER ARM BUSHING NOISE CAT. R, NO. 004/93

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Saturday, August 25, 2001 10:23AM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

FRONT UPPER BUSHING NOISE

Model 1993 Mazda RX-7
Category R, No.: 004/93, Date: 9/22/93
Category R, No.: 93-02, Date: Sept, 93

APPLICABLE MODELS

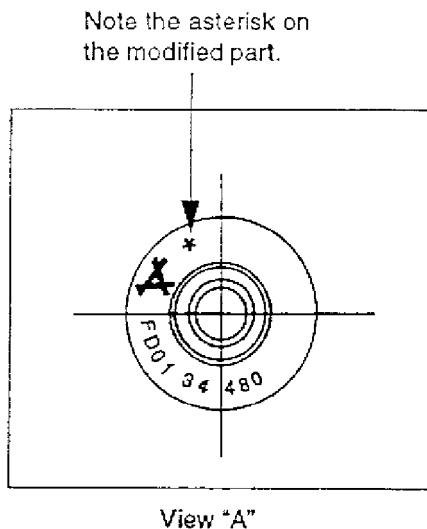
Model 3 Year 3 VIN Range(s)
Mazda RX-7 3 1993 3 JM1FD33**P0200001 through JM1FD33**P0204513

DESCRIPTION

A customer may complain of an unusual noise from the front suspension upper arm bushing when the vehicle moves from a stop. Turning the steering wheel when the vehicle is stationary may also produce the noise.

REPAIR PROCEDURE

Verify the condition and replace the upper arm rubber bushing with a modified one designed to eliminate the noise. See Figs. 1 and 2.



94G50423

Fig. 1: Modified Bushing Identification

FRONT SUSPENSION UPPER ARM BUSHING NOISE CAT. R, NO. 004/93

Article Text (p. 2)

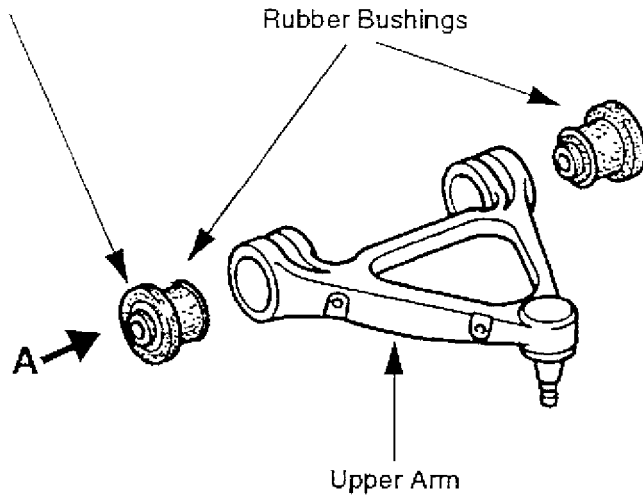
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 10:23AM

Cut Away This Lip and Remove Bushing With Hydraulic Press. Lubricate New Bushing With Soapy Water And Install With Press



94H50424

Fig. 2: Front Suspension Upper Arm Assembly

PARTS INFORMATION TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	
Part Description	Part Number
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	
Rubber Bushing - 2 (one side)	FD01 34 480A*
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	

NOTE: *-Part number remains the same.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

END OF ARTICLE

HIGH STEERING WHEEL EFFORT - VERIFY CONDITION MT 0995-05

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 10:23AM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

STEERING WHEEL EFFORT

Model(s): All Mazda
Category: Mazda Tips
Bulletin No.: MT 0995-05
Date: 1995

DESCRIPTION

If a customer complains of high or uneven steering effort, before attempting any repair, verify the amount of force required to turn the steering wheel. Use the instructions in the Workshop Manual, category "N", under "Steering Wheel Effort". This procedure involves using a pull scale.

CAUTION: Before measuring steering wheel effort make sure that:

1. Tires are the correct size and correctly inflated.
 2. Power steering fluid level and condition are OK.
 3. Vehicle is on a hard, level surface for testing.
- * If the force is within the specification listed in the Workshop Manual, inform the customer that this is a normal condition.
 - * If the force is out of specification and/or abnormally high, then troubleshoot per the Workshop Manual.

END OF ARTICLE

INSTALLATION OF TIRE CHAINS CAT. Q, NO. 005/93

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 10:23AM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

INSTALLATION OF TIRE CHAINS

Model(s): All Mazda Models
Category: "Q" Tires/Wheels
Bulletin No.: 005/93
Date: 6/3/93

DESCRIPTION

Tire chains may scratch or chip aluminum wheels. If chains are to be installed, aluminum wheels should be changed to steel wheels.

Please remind your customers of the following instructions when installing tire chains on their vehicle. These recommendations are also explained in the vehicles owner's manual.

1. Investigate local regulations before using tire chains.
2. Use only SAE Class "S" chains, and make sure they fit the vehicle's tires.
3. Follow the chain manufacturer's instructions.
4. Remove the steel wheel covers (if equipped) to avoid scratches or damage.
5. Front Wheel Drive Vehicle: Secure the chains on the front tires as tightly as possible. Retighten after one-half mile of driving.
Rear Wheel Drive Vehicles: Secure the chains to the rear wheels as tightly as possible. Retighten after one-half mile of driving.

CAUTION:

- CHAINS MAY AFFECT VEHICLE HANDLING.
- DO NOT GO FASTER THAN 30 MPH OR THE MANUFACTURER'S RECOMMENDED SPEED, WHICHEVER IS LOWER.
- DRIVE CAREFULLY AND AVOID BUMPS, HOLES AND SHARP TURNS.
- AVOID LOCKED-WHEEL BRAKING.
- DO NOT USE CHAINS ON THE TEMPORARY TIRE. THEY MAY DAMAGE THE VEHICLE AND THE TIRE.

END OF ARTICLE

NOISE WHEN TURNING STEERING WHEEL: NEW RACK BOOTS CAT. N, NO. 002/93

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 10:24AM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

NOISE FROM FRONT OF VEHICLE WHILE TURNING STEERING WHEEL

Model(s): 1993 Mazda RX-7 with a VIN of JM1FD33**P0200001
through JM1FD33**P0210661.

NOTE: The asterisk (*) in the VIN range can be any number (0 through 9) or "X".

Category: "N" Steering

Bulletin No.: 002/93

Date: 10/21/93

DESCRIPTION

Turning the steering wheel while the vehicle is stationary may produce an unusual noise from the front of the vehicle. This noise is generated from the steering linkage boots. The diameter of the boots have been increased to correct this problem.

REPAIR PROCEDURE

1. Confirm the noise. If the noise is coming from another source, refer to the appropriate service information for troubleshooting information. If the noise is coming from the boots, proceed to step 2.
2. Replace the boots with the redesigned boot.

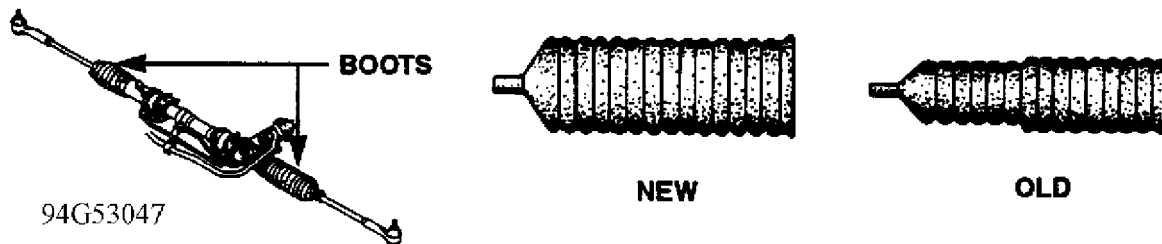


Fig. 1: Steering Gear Dust Boots

PARTS INFORMATION TABLE

Part Number					Description					Quantity				
New					Old									
FD01 32 125A	FD01 32 125	3	3	3	Boot, Rack (Left)	3	1	3	3	3	3	3	3	3
FD02 32 125A	FD02 32 125	3	3	3	Boot, Rack (Right)	3	1	3	3	3	3	3	3	3

NOISE WHEN TURNING STEERING WHEEL: NEW RACK BOOTS CAT. N, NO. 002/93

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 10:24AM

WARRANTY INFORMATION

(Applies To Vehicles Covered Under Normal Warranty)

Warranty Type:	A
Customer Comment Code:	82
Damage Code:	9B
Part Number Main Cause:	See PARTS INFORMATION TABLE
Related Parts:	See PARTS INFORMATION TABLE
Quantity:	See PARTS INFORMATION TABLE
Operation Number:	N0205BRX
Labor Hours:	2.3 Hrs. (Includes front wheel alignment and adjustment)

END OF ARTICLE

RIDE QUALITY - PROPER TIRE INFLATION CAT. Q, NO. 002/92

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 10:24AM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

RIDE QUALITY

Model(s): 1993 Mazda Models
Category: Q
Bulletin No.: 002/92
Date: 7/16/92

DESCRIPTION

Vehicle tires are inflated with excessive air pressure during assembly in order to properly seat the tire bead and to prevent flat-spotting during storage. Excessive tire pressure can increase steering wheel vibration and effect overall ride of the vehicle .

INSPECTION & ADJUSTMENT PROCEDURE

Check and adjust the tire pressure at pre-delivery inspection and any other service interval. The proper tire inflation values are shown in Fig. 1 and can also be found on the vehicle certification label located on the driver's side door.

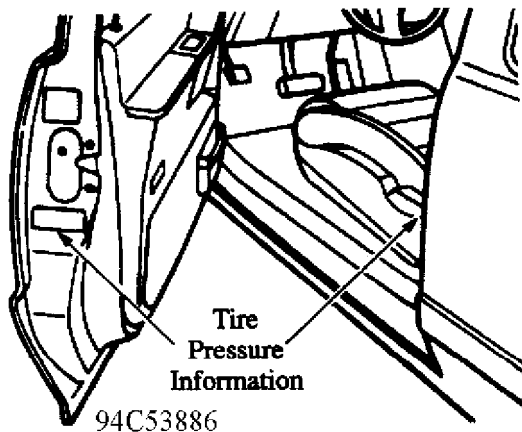


Fig. 1: Location of Vehicle Certification Label

TIRE PRESSURE SPECIFICATION TABLE

UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA					
3	Model	3	Front	3	Rear
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA					
3	323/Protege	3	32 psi	3	32 psi
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA					
3	626/MX-6	3	32 psi	3	26 psi
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA					
3	929	3	28 psi	3	28 psi

RIDE QUALITY - PROPER TIRE INFLATION CAT. Q, NO. 002/92

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 10:24AM

```

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      MX-3      3      32 psi      3      32 psi      3
3      1.6L      3      28 psi      3      28 psi      3
3      1.8L      3      26 psi      3      26 psi      3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      MX-5 Miata 3      26 psi      3      26 psi      3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      RX-7      3      32 psi      3      32 psi      3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      Navajo    3      26 psi      3      26 psi      3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      B-Series  3      26 psi      3      35 psi      3
3      4 X 2     3      28 psi      3      31 psi      3
3      4 X 4     3      35 psi      3      32 psi      3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3      MPV       3      35 psi      3      32 psi      3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

```

END OF ARTICLE

STEERING WHEEL SLIGHTLY OFF CENTER CAT. N, NO. 001/96

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 10:24AM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

STEERING WHEEL SLIGHTLY OFF CENTER

Model(s): 1989-97 Mazda MPV
 1990-97 Mazda 323/Protege
 1990-97 Mazda MX-5
 1992-95 Mazda 929
 1992-95 Mazda MX-3
 1993-95 Mazda RX-7
 1993-97 Mazda 626/MX-6
 1995-97 Mazda Millenia
Category: N - Steering System
Bulletin No.: 001/96
Date: November 7, 1996

NOTE: This bulletin replaces bulletin Cat. N, No. 001/94 and
Cat. N, No. 005/95

APPLIED MODELS/VINS

All Models except the Navajo and B-Series.

DESCRIPTION

Some vehicles may have an off center steering wheel but no right or left hand pulling. Customers complaining of this concern should have the vehicle inspected and if necessary, repaired according to this bulletin.

REPAIR PROCEDURE

1. Test drive the vehicle on a straight road.
2. Place the steering wheel in a neutral position.
 - * If the vehicle tracks straight and the steering wheel is NOT in a centered position, proceed to step 3.
3. Use the outside circumference of the steering wheel to measure the distance between the center position and the neutral position.
 - * If the measurement is more than 30mm (1.18in) remove the steering wheel and install it in the centered position. See the workshop manual for removal and installation procedures.
 - * If the measurement is less than 30mm (1.18in):
 - a) Loosen both right and left hand tie-rod end lock nuts.

STEERING WHEEL SLIGHTLY OFF CENTER CAT. N, NO. 001/96

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 10:24AM

- b) Turn the tie-rod ends in opposite directions by equal amounts, until the steering wheel is centered.

3. Verify the repair.

The chart below shows the approximate distance the outside diameter will move for every 1/4 (90 degree) turn of the tie-rod end.

Tie-Rod End - Turns vs. Distance Moved Table

Model	Approximate Distance
(1/4 turn)	
1990-97 323/Protege	8mm (with PS) 11-12mm (without PS)
1992-95 MX-3	7mm (6 cyl.)
1993-95 RX-7	7mm
1993-97 626/MX-6	9-10mm
1992-95 929	11mm
1989-97 MPV	13mm (4x2) 12mm (4x4)
1990-97 MX-5	8mm (with PS) 10mm (without PS)
1995-97 Millenia	10mm

WARRANTY INFORMATION

(Applies To Verified Customer Complaints On Vehicles Covered Under Normal Warranty. Refer To The SRT Microfiche For Warranty Term Information.)

Warranty Type: A
Symptom Code: 30
Damage Code: 9H
Part Number Main Cause: 5555-FE-001
Quantity: 0
Operation Number: XX0640RX
Labor Hrs: 0.5 Hrs.

END OF ARTICLE

STEERING WHEEL SLIGHTLY OFF CENTER (CANADIAN) CAT. N, NO. 95-04

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 10:24AM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

STEERING WHEEL SLIGHTLY OFF CENTER

Model(s): 1983-95 Mazda Models (Except B-Series) (Canadian)
Category: N - Steering
Bulletin No.: 95-04
Date: April, 1995

DESCRIPTION

The steering wheel on some models may be slightly off center. The vehicle still drives straight and does not pull right or left.

If a customer complains of the position of the steering wheel, confirm that the vehicle is not pulling and repair according to the instructions in this bulletin.

REPAIR PROCEDURE

1. Drive on a straight road and place the steering wheel in a neutral position. If the steering wheel is not centered, go to step 2.
2. Using the outside circumference of the steering wheel, measure the distance between the neutral position and the center position.

NOTE: If the distance is larger than 30 mm (1.18 in.) remove the steering wheel and reinstall in the correct position. If the steering wheel is still off center, proceed to step 3.

3. Measure the distance described in step 2. If less than 30 mm (1.18 in) loosen both left and right tie rod end lock nuts. Turn the rods in the opposite directions by the same amount until the steering wheel is centered.
4. Road test the vehicle to confirm the steering wheel is centered. If not centered, repeat step 3.

The TIE ROD OUTSIDE CIRCUMFERENCE DISTANCE TABLE below shows the approximate distance that the outside circumference will move per 90 degree turn on the tie rod (both left and right in opposite directions).

TIE ROD CIRCUMFERENCE DISTANCE TABLE

Model	Type	Approx. Distance
1990-94 323/Protege,	With P/S	8 mm

STEERING WHEEL SLIGHTLY OFF CENTER (CANADIAN) CAT. N, NO. 95-04

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 10:24AM

```
3      1995 Protege      3 Without P/S 3      12 mm      3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3      3      4 cyl.      3      8 mm      3
3      1992-95 MX-3      AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3      3      6 cyl.      3      7 mm      3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3      1993-95 RX-7      3      All      3      7 mm      3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3      1992-95 626/MX-6 3      All      3      9 mm      3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3      1992-95 929      3      All      3      11 mm     3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3      3      4 x 2      3      13 mm     3
3      1989-95 MPV      AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3      3      4 x 4      3      12 mm     3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3      1990-95 MX-5 Miata 3      All      3      10 mm     3
3      AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3      1995 Millenia      3      All      3      10 mm     3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU
```

WARRANTY INFORMATION

(Applies To Verified Customer Complaints On Vehicles Covered Under Normal Warranty. Refer To The SRT Microfiche For Current Warranty Term Information).

Warranty Type: 0
Symptom Code: 30
Damage Code: 9H
Part Number Main Cause: 5555 FE 001
Operation Number: XX0640RX
Labor Hours: 0.5 Hrs.

END OF ARTICLE

WHEEL BALANCE TIPS FOR HIGHER PRECISION RESULTS MT 0897-08

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 10:25AM

ARTICLE BEGINNING

TECHNICAL INFORMATION TIP - MANUFACTURER

WHEEL BALANCE

Model(s): All Mazda Model
Category: Mazda Tips
Bulletin No.: MT 0897-08
Date: August, 1997

DESCRIPTION

Use the following hints for customer complaints which require a higher precision wheel balance than usual.

- * Use the proper size cone on the inside of the wheel for precise center hole positioning on the spindle. If the cone diameter and wheel hole are not properly matched, it may cause too much run-out and incorrect wheel balance.
- * For improved centering, tighten the wing nut while turning the wheel by hand.
- * Adjust the unbalance amount to the smallest possible (10 grams or 0.35 ounces or less). Most wheel balance machines do not indicate unbalance amounts of less than 10 grams, so check your machine's operating instructions for it's accuracy specification.
- * Check the precision of your balancing equipment and procedure. When you are finished with the wheel balance, turn the wheel approximately 90 degrees on the balancer and check again. If the unbalance amount is greater than 10 grams, there is a problem with either the equipment or the balancing procedure.

END OF ARTICLE

WHEEL CENTER CAP STICKS OUT: MODIFIED CENTER CAPS CAT. Q, NO. 003/92

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 10:26AM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

WHEEL CENTER CAP STICKS OUT

Model(s): 1993 Mazda RX-7
Category: Q
Number: 003/92
Date: 9/14/92

DESCRIPTION

Some vehicles may have aluminum wheel center cap(s) that do not fit flush with the wheel. This is caused by the contact between the cap and the axle flange. (See Fig. 1).

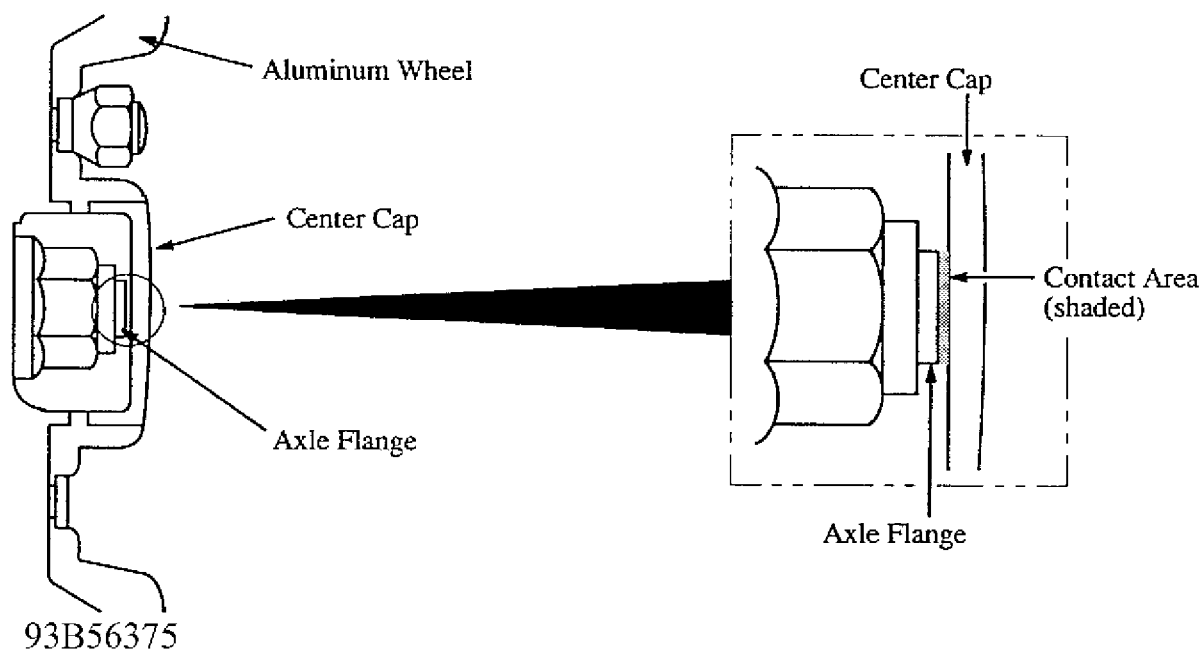


Fig. 1: Center Cap/Axle Flange Contact

REPAIR PROCEDURE

If this condition occurs, the center cap(s) should be replaced with a modified one.

PARTS INFORMATION TABLE

PARTS INFORMATION TABLE				
Part Number	Description	Int	Quantity	
New	Old			

WHEEL CENTER CAP STICKS OUT: MODIFIED CENTER CAPS CAT. Q, NO. 003/92

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 10:26AM

FD01 37 191B FD01 37 191A Cap, Center A 4
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

NOTE: Interchangeability code "A" means that a new part can be used
 in place of an old one, but an old part cannot be used in place
 of a new one.

END OF ARTICLE

FUEL HOSE MAY LEAK FROM EXCESSIVE ENGINE HEAT

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Saturday, August 25, 2001 06:54AM

ARTICLE BEGINNING

NHTSA RECALL BULLETIN

Model(s): 1993 Mazda RX7
1994 Mazda RX7
Campaign No: 95V069000
Number of Affected Vehicles: 13400
Beginning Date of Manufacture: 1991 DEC
Ending Date of Manufacture: 1994 SEP

VEHICLE DESCRIPTION:

Passenger vehicles.

SYSTEM:

Fuel; fuel lines; hoses; non-metallic.

FAULT:

Broken, Shattered, Cracked, Split, Collapsed.

DESCRIPTION OF DEFECT:

Residual engine heat can cause premature deterioration of the fuel hose causing the hose to leak. Also, removing and reinstalling the deteriorated fuel hoses increases the likelihood of a leak.

CONSEQUENCE OF DEFECT:

This condition can result in an engine compartment fire.

CORRECTIVE ACTION:

Dealers will install an additional control unit for the electric cooling fan. The fan will then activate after the engine is turned off when the coolant exceeds a specified temperature. The fuel hoses will also be replaced with revised hoses.

NOTE:

If your vehicle is presented to an authorized dealer on an agreed upon service date and the remedy is not provided free of charge within a reasonable time, please contact Mazda at 1-800-222-5500. Also contact the National Highway Traffic Safety Administration's Auto Safety Hotline at 1-800-424-9393.

ADDITIONAL INFORMATION:

The National Highway Traffic Safety Administration operates Monday through Friday from 8:00 AM to 4:00 PM, Eastern Time. For more

FUEL HOSE MAY LEAK FROM EXCESSIVE ENGINE HEAT

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:54AM

information call (800) 424-9393 or (202) 366-0123. For the hearing impaired, call (800) 424-9153.

END OF ARTICLE

RADIATOR CAP PRESSURE SET TOO HIGH

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Saturday, August 25, 2001 06:55AM

ARTICLE BEGINNING

NHTSA RECALL BULLETIN

Model(s): 1993 Mazda RX7
1994 Mazda RX7
Campaign No: 94V094000
Number of Affected Vehicles: 12316
Beginning Date of Manufacture: 1991 DEC
Ending Date of Manufacture: 1994 JAN

VEHICLE DESCRIPTION:

Passenger vehicles.

DESCRIPTION OF DEFECT:

The radiator cap pressure relief valve release pressure is set too high. This can cause the coolant to reach temperatures that exceed the thermal design limits of some components of the coolant system. Should this occur, engine coolant can leak collect on top of the engine.

FAULT:

Burned, Overheated, Burnt out, Melted

SYSTEM:

Engine cooling system.

CONSEQUENCE OF DEFECT:

If engine coolant leaks onto the hot engine exhaust manifold from the top of the engine, an engine compartment fire can result.

CORRECTIVE ACTION:

Dealers will inspect the vehicles and if any vehicle exhibits coolant leakage or if the coolant level has dropped to the point where the coolant loss would be sufficient to trigger the coolant level warning system, components potentially subject to deterioration from overheating would be replaced. These parts include the water pump bearing housing, the water level sensor and radiator upper hose, the thermostat gasket, and all water hoses located above the engine. In addition, all vehicles in which those components are replaced would also have the cooling system and other systems that carry flammable liquids checked to make certain that engine overheating had not caused any problems in those systems. any identified problems will be repaired. The radiator cap, filler cap, and filler cap body of all recalled vehicles will be replaced by newly designed parts.

NOTE:

RADIATOR CAP PRESSURE SET TOO HIGH

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:55AM

If your vehicle is presented to an authorized dealer on an agreed upon service date and the remedy is not provided within a reasonable time or the remedy does not correct the defect or noncompliance, please contact Mazda Service Center at 1-800-222-5500. Also, contact the National Highway Traffic Safety Administration's auto safety hotline at 1-800-424-9393.

ADDITIONAL INFORMATION:

The National Highway Traffic Safety Administration operates Monday through Friday from 8:00 AM to 4:00 PM, Eastern Time. For more information call (800) 424-9393 or (202) 366-0123. For the hearing impaired, call (800) 424-9153.

END OF ARTICLE

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:55AM

ARTICLE BEGINNING

RECALL CAMPAIGN

RX-7 FUEL LEAKAGE RECALL CAMPAIGN NUMBER 60504

Model(s): 1993-94 Mazda RX-7 (Canadian)
Category: RC - Recall
Bulletin No.: 95-01
Date: May, 1995

DESCRIPTION

If an RX-7 is driven under severe conditions such as high speed and uphill driving, and the engine is turned off, the temperature of the engine compartment rises because of the residual engine heat, to the extent that it may cause premature deterioration of the fuel hoses elasticity. Repetitive operation may lead to a reduction in the sealing performance of the fuel hoses, and in rare cases, engine compartment fires can result.

Therefore, these vehicles must be repaired by replacing the fuel hoses with modified fuel hoses.

SUBJECT VEHICLES

VEHICLE INFORMATION TABLE

UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;		
Model Year & Model		Vin Range
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA^		
1993 RX-7		JM1FD33**PO200001-210660
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA^		
1994-95 RX-7		JM1FD33**RO300001-S0400026
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA^		
* - Can be replaced by any letter or number.		
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU		

OWNER NOTIFICATION

The owners of the subject vehicles will be notified by first class mail around May 12, 1995.

REPAIR PARTS

An initial quantity of Recall Labels are enclosed with this Service Bulletin (Part Number 9999-94 5032E/F). Additional quantities can be ordered through normal parts ordering channels.

Following completion of the repair, fill out the Recall Label with the appropriate information and affix it to left front (driver's) door

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:55AM

as shown in Fig. 31 & Fig. 74.

SPECIAL NOTE: Under separate cover, a container of special adhesive was shipped to every dealer. The adhesive was strapped with a note which clearly indicates that this adhesive is the only adhesive that can be used to carry out the repairs for this Recall. Do not attempt to carry out this Recall unless you have the adhesive. If your dealer has not received the adhesive, please contact the Technical Hot Line at 1-800-268-9400.

Initial quantities of the Fuel Hose Kit, part number N3A1-13-S70 have already been shipped. However please confirm parts stock with each new customer that books an appointment to have this Recall completed.

In addition to the above mentioned parts the following parts will have to be ordered, depending on which repair procedure(s) is required.

If Procedure A is performed:
no additional parts order is necessary.

If Procedure B & C are performed:
order Throttle Water Hose Kit, part number N3A1-13-S60
and Filler Cap Kit, part number N3Z1-15-S10B

If Procedure B, C, & D are performed:
order Throttle Water Hose Kit, part number N3A1-13-S60
Filler Cap Kit, part number N3Z1-15-S10B
Thermostat Gasket, part number N3C1-15-173
Water Pump Kit, part number N3Z1-15-S20

NOTE: To Determine The Correct Repair Procedure:

The subject vehicles of Recall No. 60504 (Fuel Leakage) could also be subject to Recall No. 54407 (Coolant Leakage) which was launched in July, 1994. When the subject vehicles are brought in for repair, please check if recall campaign No. 54407 has been performed. If not, please perform recall No. 54407 in addition to No. 60504, based on the Repair Procedures found flow chart on the following page.

Please follow the flow chart to determine which procedure to perform before beginning repairs on each vehicle.

SUBJECT VIN RANGE TABLE

UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;

³ Fuel Leakage ³ 1993 JM1FD33**PO200001-210660 ³

³ ³ 1994-95 JM1FD33**R0300001-S0400026 ³

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-

³ Coolant Leak ³ 1993-94 JM1FD33**PO200001-R0302076 ³

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:55AM

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

* - Can be replaced by any letter or number.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAUU

VEHICLE SUBJECT TO RECALL - FLOW CHART

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Is The vehicle subject to Recall No. 60504?

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAUU

3

YES

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Are there recall labels indicating both recalls No. 60504 & No. 54407 have been completed?

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAUU

3

NO

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Is vehicle subject to Recall No. 54407?

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAUU

3

YES

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Has recall repair No, 54407 been performed?

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAUU

3

NO

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Does vehicle have any Coolant Leakage?

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAUU

3

3

3

3

3

3

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

No further action required.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAUU

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

No further action required

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAUU

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Follow Repair Procedure A

3

(Replace Fuel Hoses)

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Follow Repair Procedure

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAUU

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Follow Repair Procedure

3

3

3

3

3

3

3

3

FUEL HOSES REPLACEMENT PROCEDURES

PRE-CAUTIONS:

1. Boost tubes, water hoses and fuel hoses should be removed and replaced on the designated side only as shown in the procedure (do not remove any joint other than those indicated).
2. Do not remove any fuel hose during the check for fuel leakage after replacement (please see step 33).

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

Article Text (p. 4)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:55AM

If a hose(s) is removed mistakenly, replace the clip(s) and the hose(s) with new one(s).

3. Be sure to use the hoses, clips and gaskets designated in this procedure, and do not reuse the removed parts.
4. When installing the hoses, be sure to check their locations in accordance with the instruction, and install them correctly.

PROCEDURE A - REPLACEMENT OF FUEL HOSE KIT

To be performed on ALL customer (sold) vehicles.

1. Start the engine.
2. Remove the circuit opening relay. See Fig. 1.

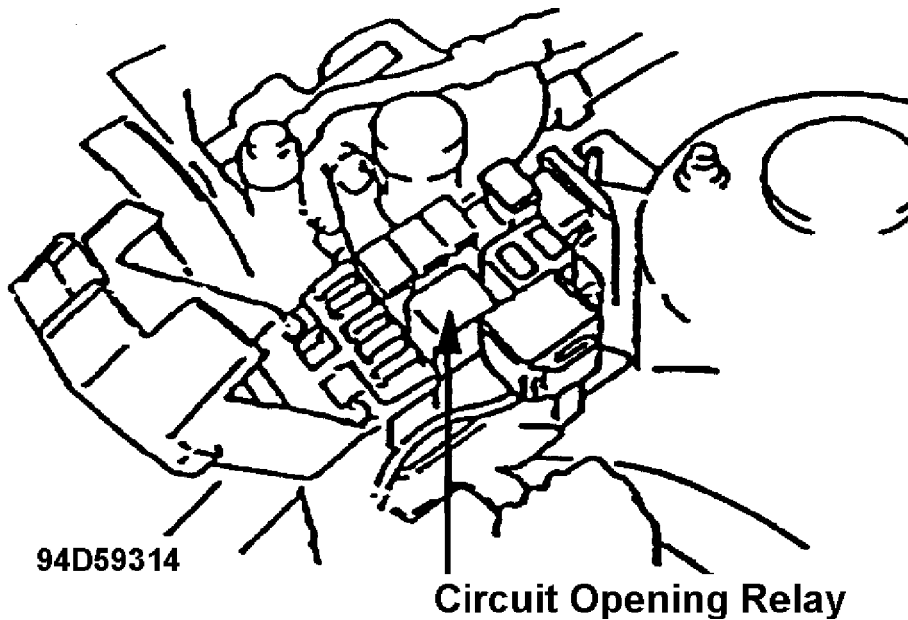


Fig. 1: Location of Circuit Opening Relay

3. After the engine stalls, crank the engine for 15 - 20 seconds to purge the injectors.
4. Turn the ignition switch off.
5. Install the circuit opening relay.
6. Disconnect the negative terminal from the battery.

NOTE: Record all preset stations on the vehicle's audio system prior to disconnecting the battery terminal.

7. Drain coolant and retain in an appropriate container.

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

Article Text (p. 5)

1993 Mazda RX7

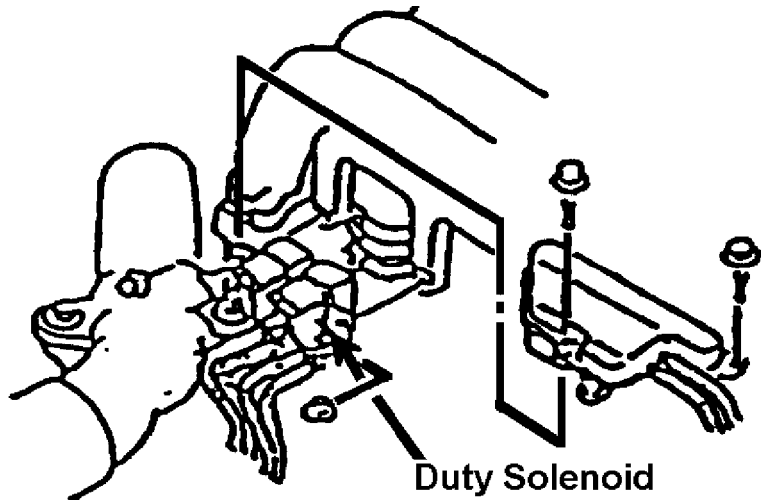
For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:55AM

8. Remove the bolts from the duty solenoid and the pressure chamber.
See Fig. 2.

Tightening Torque: 70-100 kgf. cm. (61-86 in-lbf)



Remove Bolts from Duty Solenoid 94E59315

Fig. 2: Removing Bolts from Duty Solenoid

9. Disconnect the air pipe at joint A shown in Fig. 3.

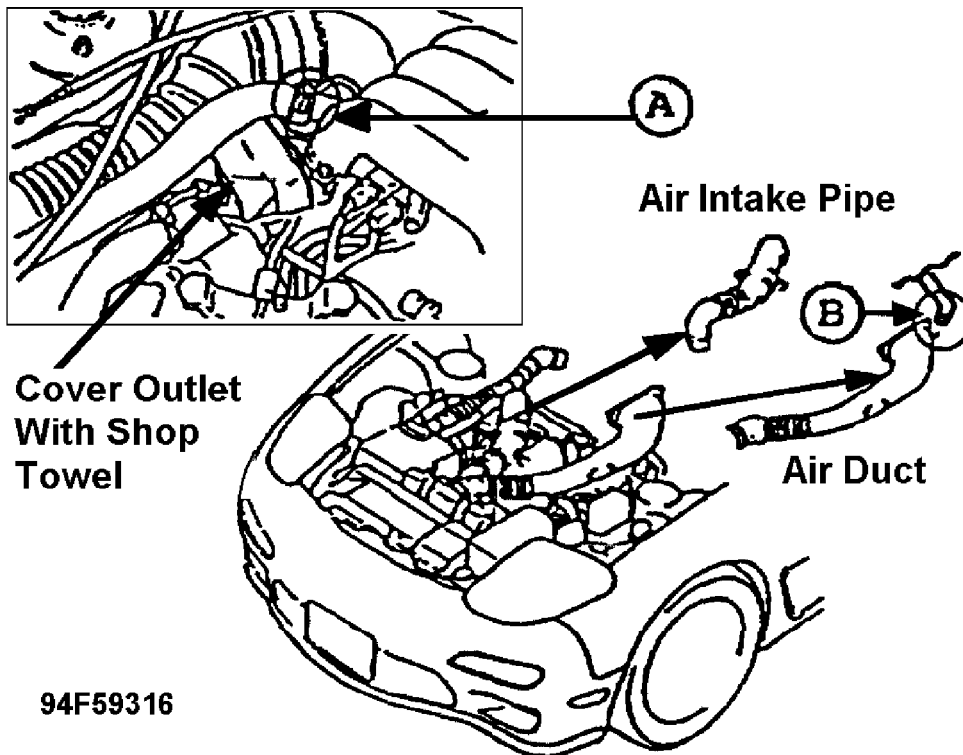


Fig. 3: Disconnecting the Air Pipe

10. Disconnect the AWS hose and Air Duct B at the joint as shown

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

Article Text (p. 6)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:55AM

in Fig. 3.

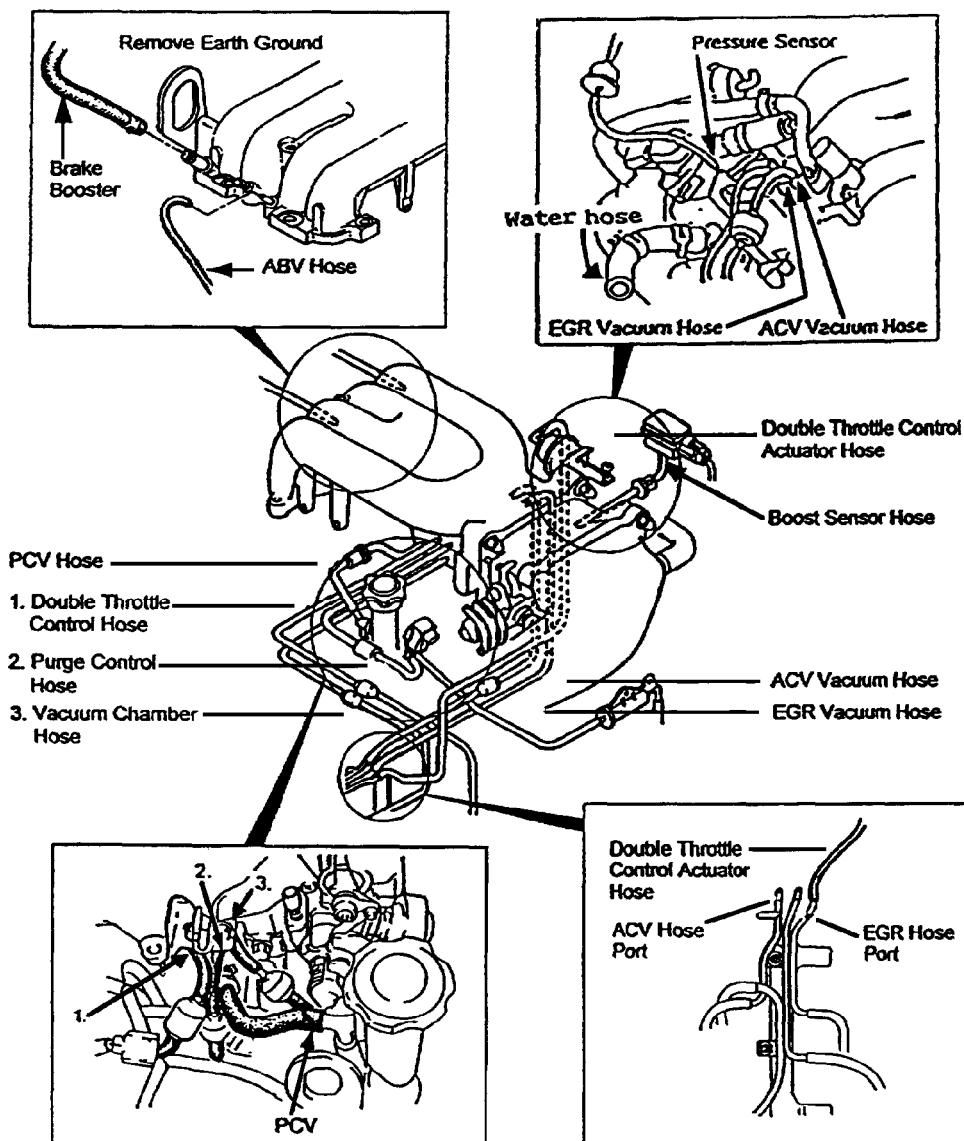
11. Remove the air intake pipe from the outlet of the turbo, and cover the outlet with a shop towel.

12. Remove the air duct from the inter cooler.

13. Remove the hoses from the extension manifold. See Fig. 4.

NOTE: Disconnect the hoses at the locations indicated by arrows (--->) only!

Remove these four parts referring to Step 16.



94G59317

Fig. 4: Removing Hoses & Harnesses From the Extension Manifold

NOTE: Use the above illustration to determine the hose location.

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

Article Text (p. 7)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:55AM

14. Remove the harnesses from the extension manifold. See Fig. 4.

15. Remove the accelerator cable and the cruise cable. See Fig. 5.

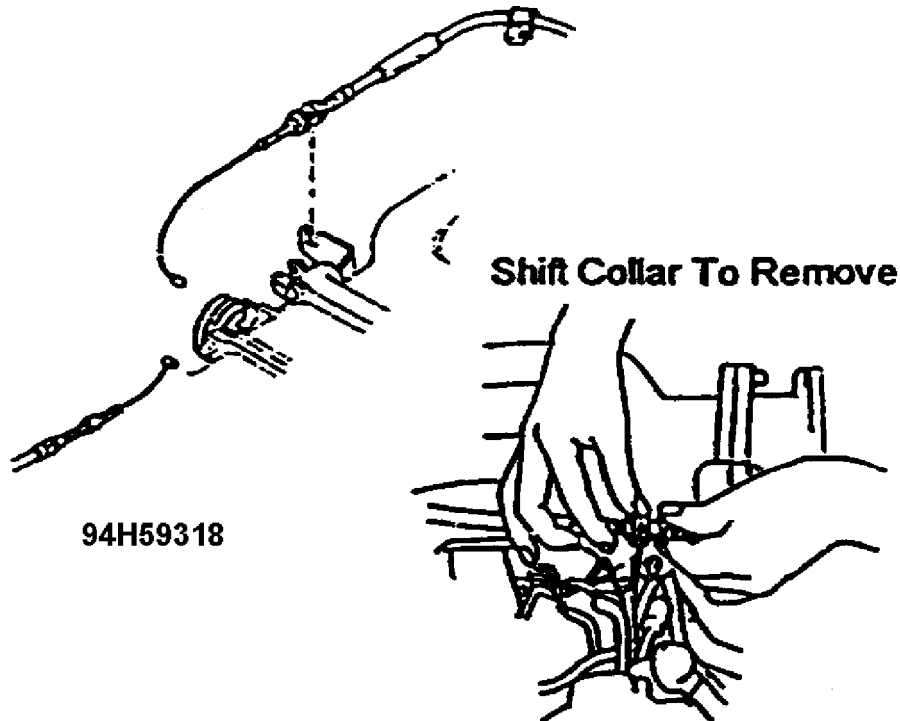


Fig. 5: Removing Accelerator Cable & the Cruise Cable

16. Raise the extension manifold and disconnect the following harnesses, vacuum tubes and hoses from the side indicated by the arrow (-->) only. See Figs. 6, 7, & 8.

Harnesses:

- * Inlet Air Temperature Sensor
- * AB Solenoid
- * ISC Valve

Vacuum Tubes:

- * EGR Vacuum Hose
- * ACV Vacuum Hose
- * Purge Hose
- * Double Throttle Control Hose
- * Double Throttle Control Actuator Hose

Hoses:

- * Water Hose

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

Article Text (p. 8)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:55AM

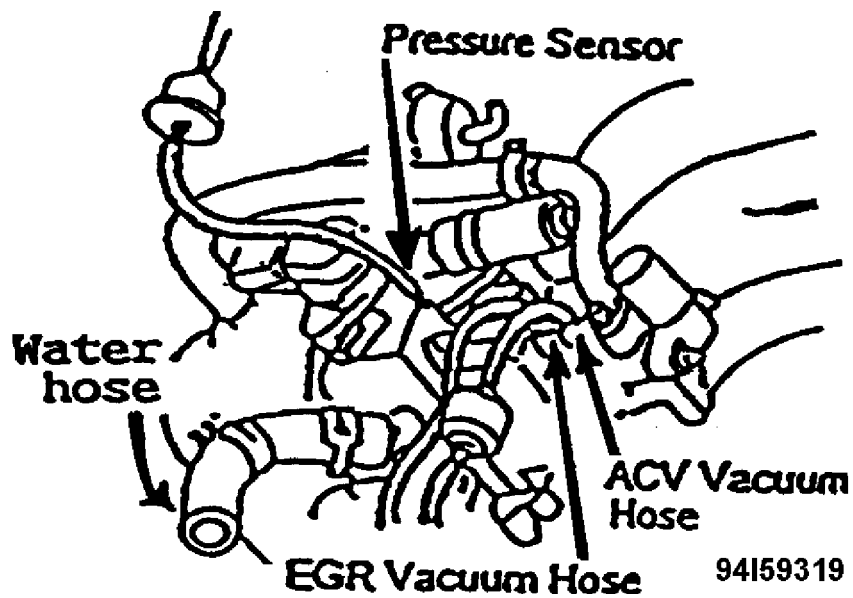


Fig. 6: EGR & ACV Vacuum Hose, Water Hose & Pressure Sensor

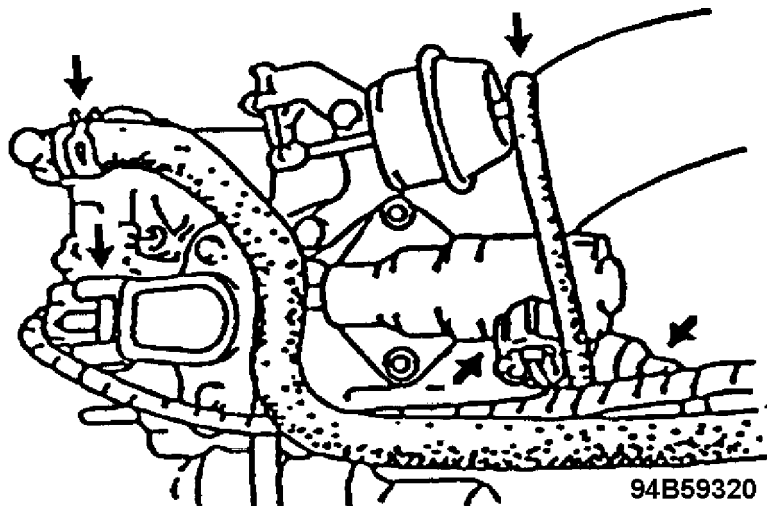


Fig. 7: Hose & Vacuum Tubes Identification

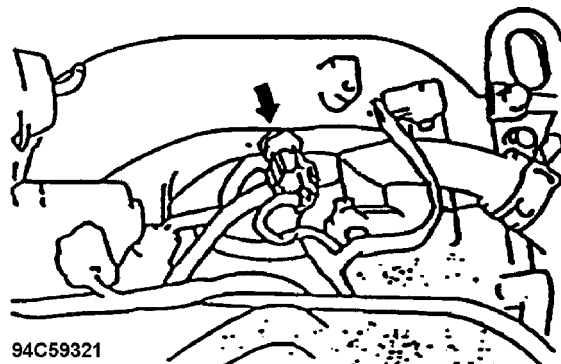


Fig. 8: Switch Identification

17. Remove the extension manifold and throttle body.

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

Article Text (p. 9)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:55AM

NOTE: Cover exposed intake holes with shop towels.
Torque for re-tightening the bolt:
Tightening Torque: 160-230 kgf.cm (139-199 in-lbf)

When reassembling, replace the intake manifold gasket with a new one.

Gasket: N3A1-13-112

18. Remove the following parts shown in Figs. 9 & 10.

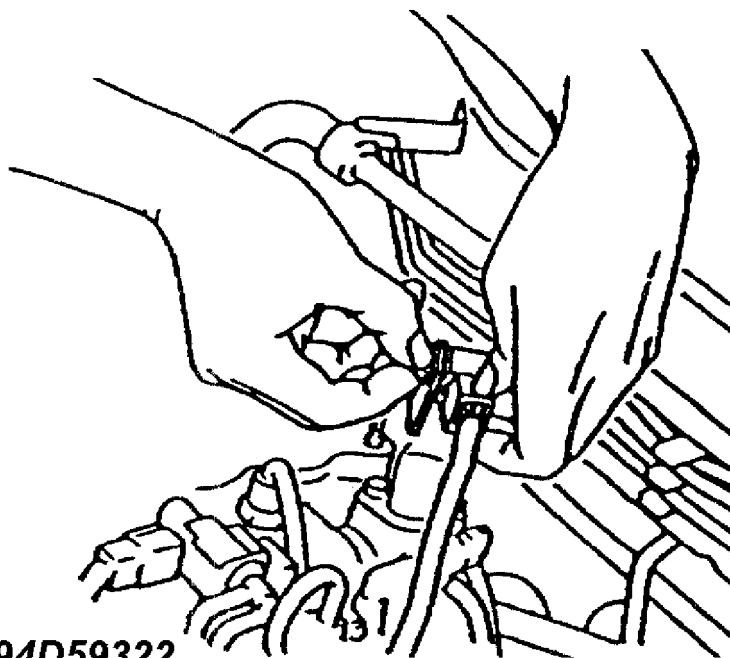


Fig. 9: O2 Sensor Coupler on the ACV

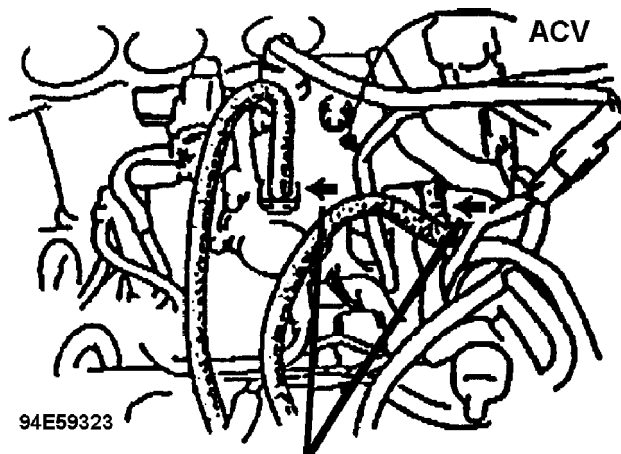


Fig. 10: ACV Vacuum Tubes

19. Remove the nut shown in Fig. 11. Remove the three-way solenoid.

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

Article Text (p. 10)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:55AM

NOTE: Do not remove the vacuum tube from the solenoid.

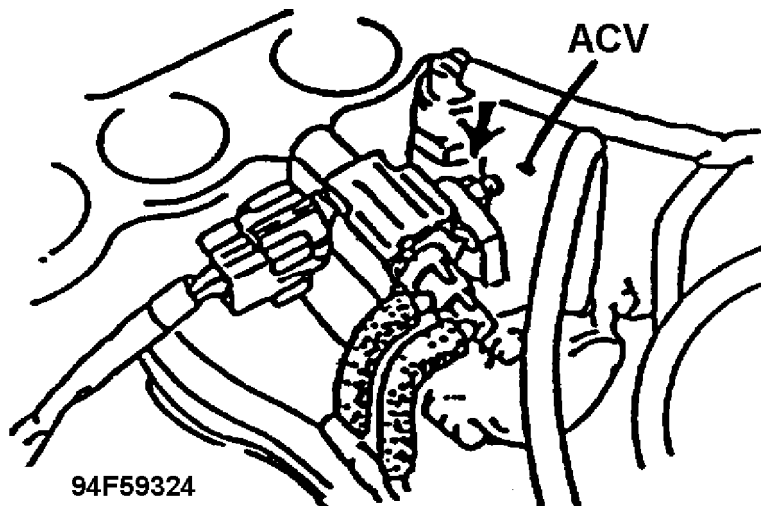


Fig. 11: Three-Way Solenoid Nut to be Removed

20. Remove the oil filler pipe. See Fig. 12.

Tightening torque: 70-100 kgf.cm (61-86 in-lbf)

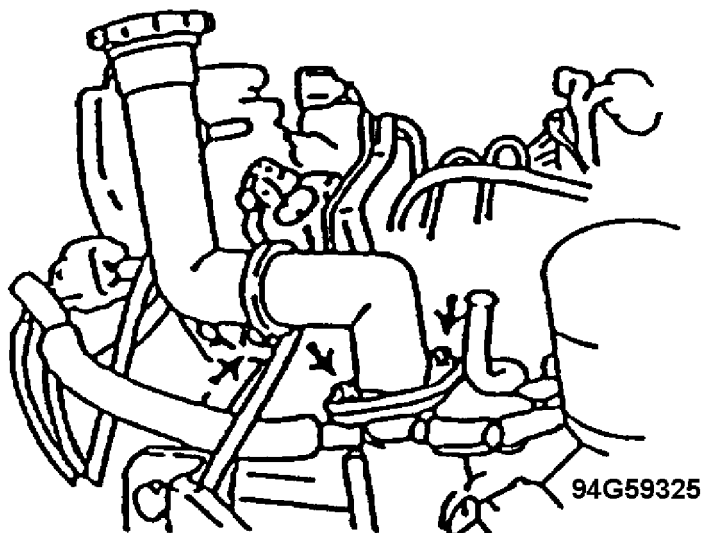


Fig. 12: Oil Filler Pipe Identification

21. Remove the ignition coil assembly. Remove the four nuts shown in

Fig. 13. Tightening torque of the nuts for reassembly:

Tightening Torque: 70-100 kgf.cm (61-86 in-lbf)

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

Article Text (p. 11)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:55AM

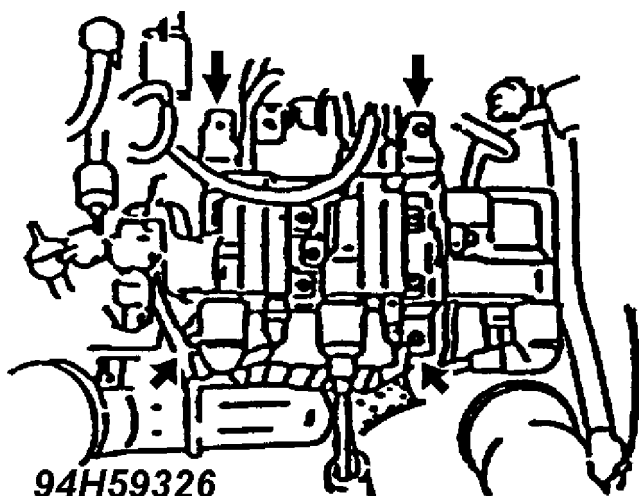


Fig. 13: Four Nuts Holding the Ignition Coil Assembly

22. ACV Removal:

1. Disconnect the couplers from each solenoid valve in the ACV.
2. Remove the relief air hose. See E in Fig. 14.
3. Remove the ACV. Re-tightening torque of the nuts:
Tightening Torque: 70-100 kgf.cm (61-86 in-lbf)
4. Remove the vacuum tubes from the inlet manifold.
See A in Fig. 14. Replace the vacuum tubes with new ones.

Vacuum tube: 99351-04095 x 4 pcs.

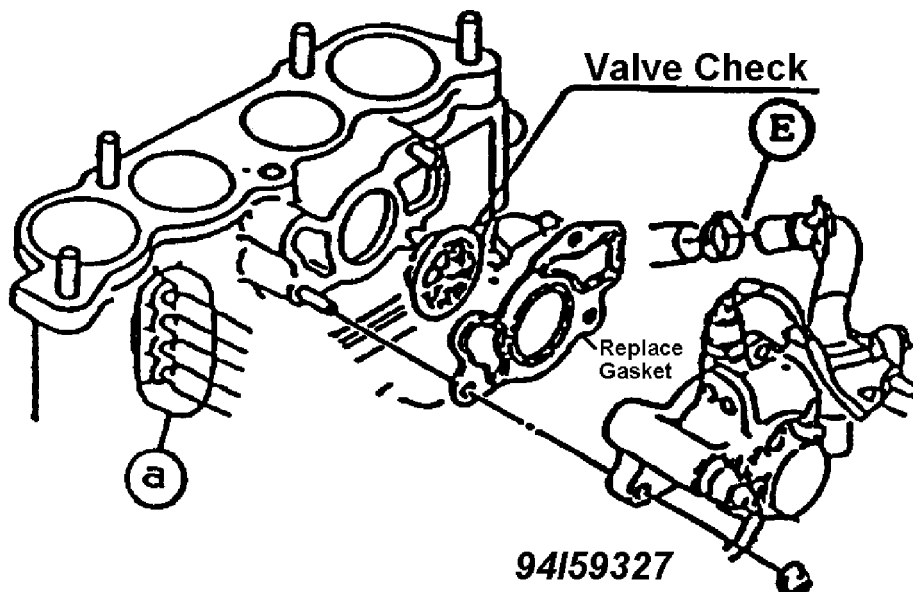


Fig. 14: Removal of Relief Air Hose & Vacuum Tubes

NOTE: * When reassembling, replace the ACV gasket with a new one.

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

Article Text (p. 12)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:55AM

Gasket: N3A3-13-996

- * When reassembling, be sure to insert the check valve in the step cut position of the intake manifold, then attach the ACV.
- * Make sure that the wire harnesses of the solenoid valve will not touch the ACV.

23. Move the vacuum pipe assembly toward the steering shaft side.
See Fig. 15.

1. Loosen the three bolts that attach the vacuum pipe to the engine. See letter C in Fig. 15.
2. Disconnect the coupler from the solenoid valve attached to the vacuum pipe.
3. Remove the vacuum tubes, water hose and fuel hoses (cutting the fuel hoses off where indicated by scissors in Fig. 15, makes the work easier).

NOTE: * Do not remove hoses other than 1-14.

* Remove the hoses on the sides indicated by arrows (-->) shown in Fig. 15.

* Be careful not to damage any pipes.

* When removing the hoses, do not use any spray type lubricant.

4. Move the vacuum pipe assembly toward direction D as shown in Fig. 15.
5. When reassembling, replace the hoses 1, 2, 3, 4, 5, 6, 7, 8, 10 and 11 with new ones.

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

Article Text (p. 13)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:55AM

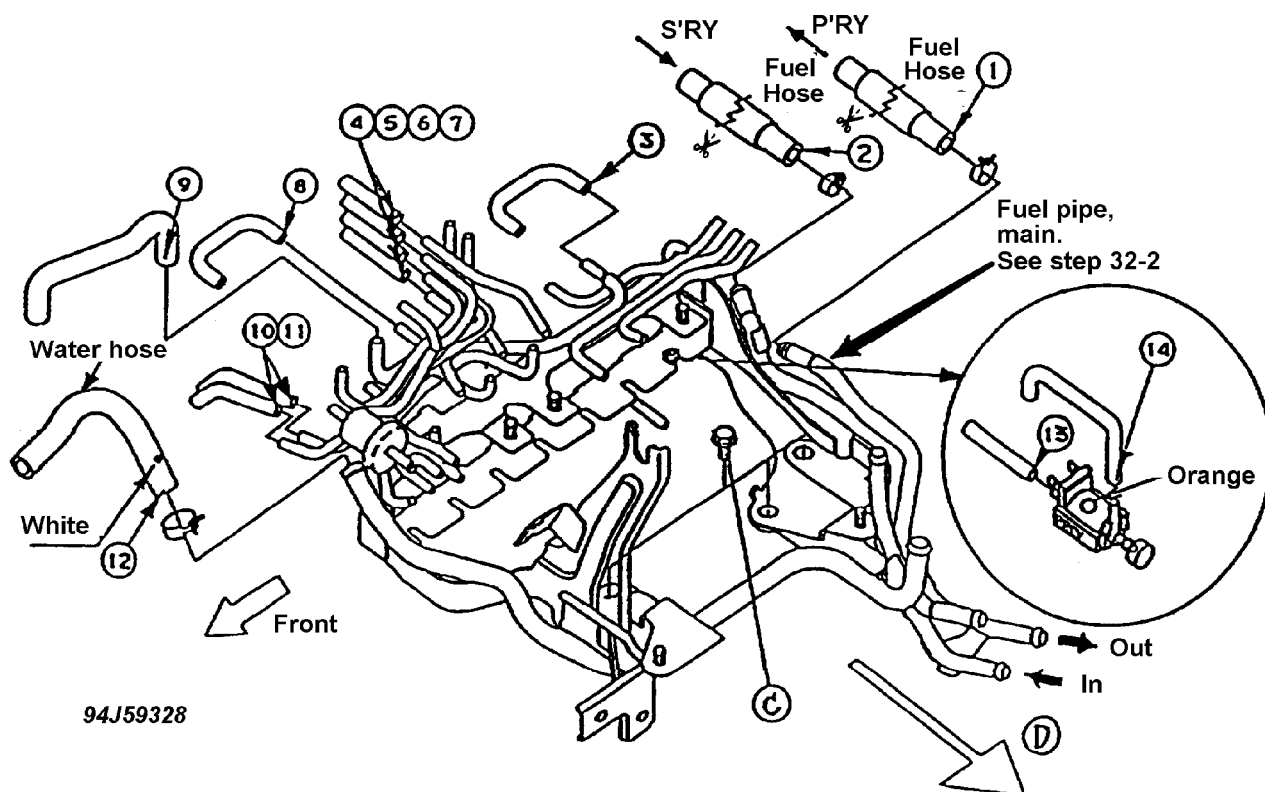


Fig. 15: Exploded View of Tubes & Hoses for Modification

24. Removal of primary fuel distributor, secondary fuel distributor and insulator. See Fig. 16.

1. Loosen the four bolts.
2. Loosen the connector bolt from the inlet of the secondary fuel distributor.

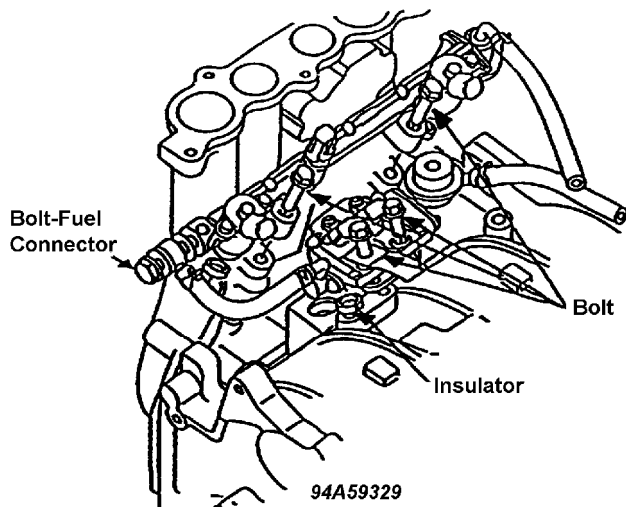


Fig. 16: Removal of Primary & Secondary Fuel Distributor & Insulator

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

Article Text (p. 14)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:55AM

25. Remove the fuel hose from the primary fuel distributor.
See Fig. 17.

NOTE: * When turning the screw be careful not to break the heads (+) of the screws F (two) because they are tight.

* Be careful not to damage the pipe at the hose insertion location on the primary inlet side.

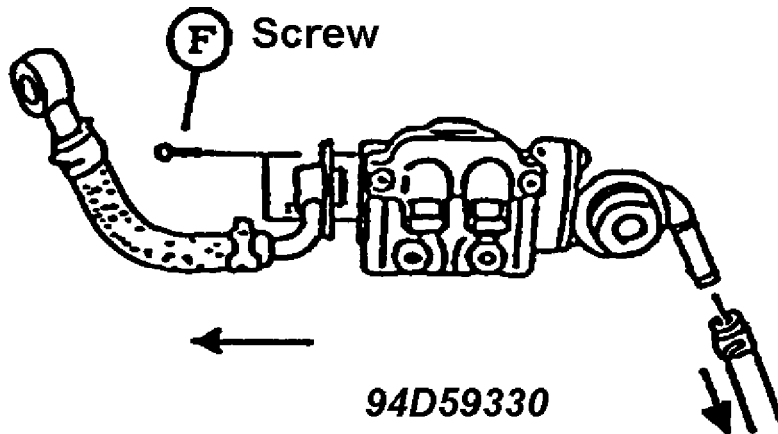


Fig. 17: Removal of Hose from Primary Fuel Distributor

26. Install the modified fuel hose on the primary fuel distributor outlet side. See Fig. 18.

NOTE: * When installing, do not twist the "O" ring.

* Replace the bolts with modified ones. See letter G in Fig. 18.

Tightening Torque: 25-36 kgf.cm (22-31 in-lbf)

Fuel Hose: N3Z1-13-420

Bolt: 99796-0510 x 2 pcs.

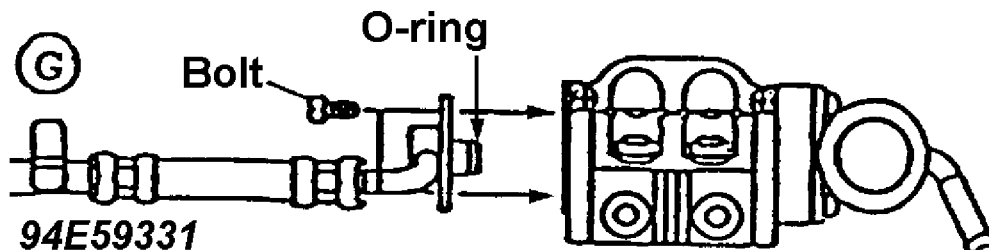


Fig. 18: Installing Primary Fuel Distributor Outlet Modified Hose

- 27-1. Install the hose on the inlet side of the primary fuel distributor. See Fig. 19.

Fuel hose: N3Z1-13-415.

* Submerge the hose end with the white mark into adhesive.

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

Article Text (p. 15)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:55AM

* Use adhesive specially prepared for this work.

NOTE: Be careful not to use another adhesive.

* Install the hose (white mark side) within five minutes after applying adhesive.

NOTE: Before installing the hose, degrease the pipe for better adhesion.

Fuel hose: N3Z1-13-415.

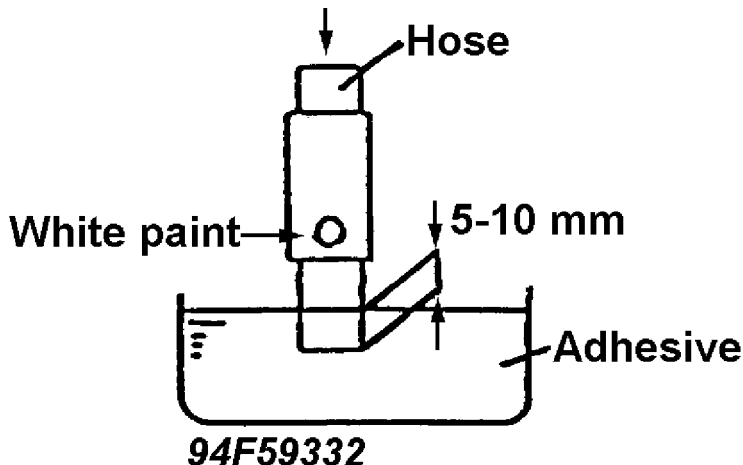


Fig. 19: Installing Hose on Inlet Side of Primary Fuel Distributor Submerging Hose End with White Mark into Adhesive

27-2. Install the clips on the hose of the inlet side of the primary fuel distributor.

NOTE:

- * Use two clips on the fuel distributor side.
- * Place the fuel distributor side clip claws on the top and the other one on the bottom. For the directions of the clip claws, see Figs. 20 and 21. Insert the hose to the pipe bulge. Match the edges of the clip and the hose end.
- * Replace all hose clips with new ones.
- * Do not use clips other than those included, part number below.
- * Be careful not to place the clip on the pipe bulge.

Clip: N3Z1-13-157 x 2pcs. (with Red colored holder)

Protector: N3B7-1 3428A

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

Article Text (p. 16)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:55AM

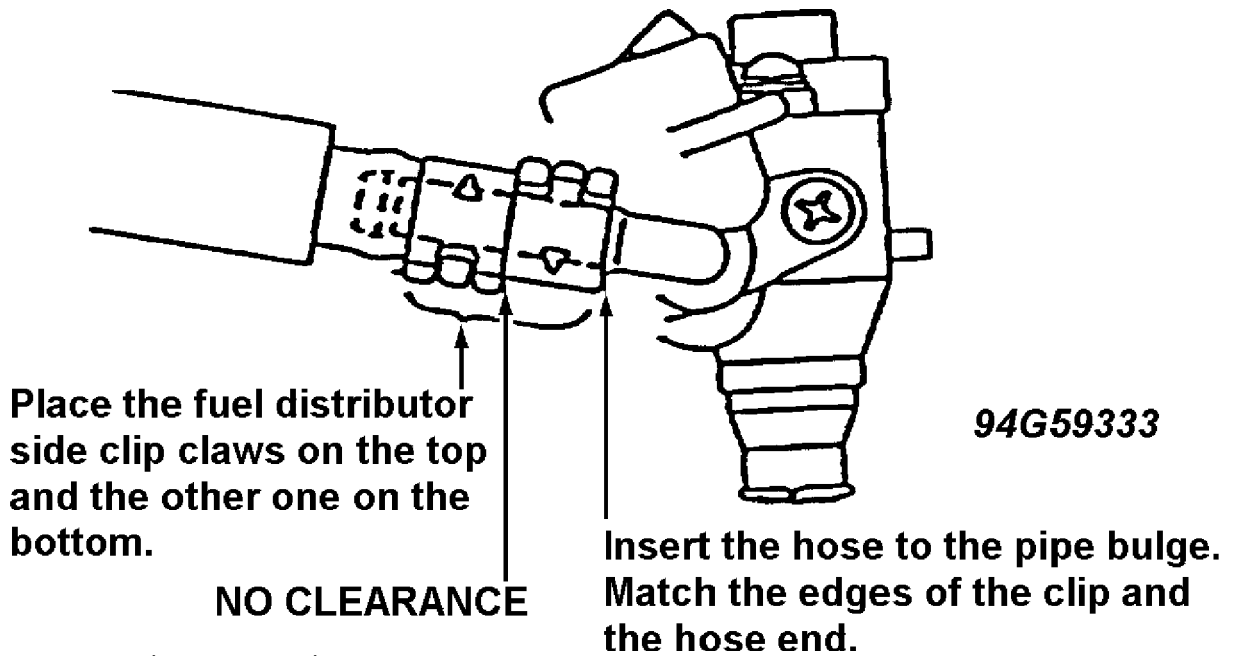


Fig. 20: Installation of Clips on Hose

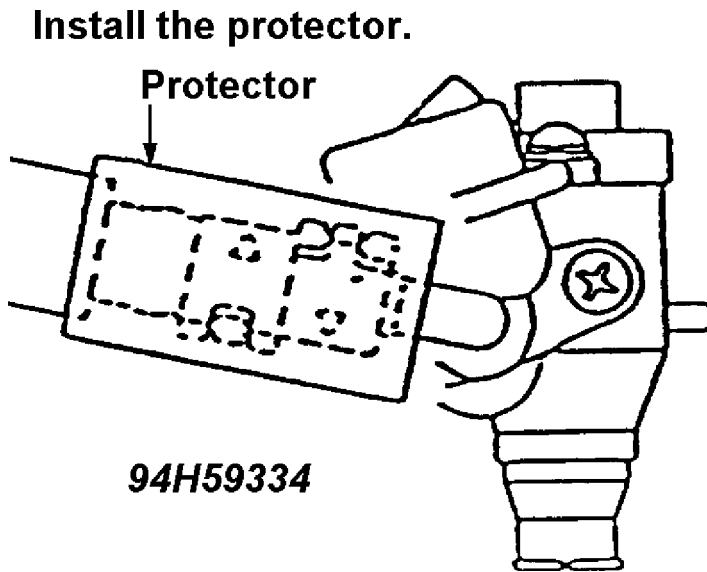


Fig. 21: Installation of Protector

28. Install the fuel hose on the secondary fuel distributor. See Fig. 22.

NOTE: * Place the connector stopper on the secondary fuel distributor body, then tighten the connector bolts.
Tightening Torques: 240-360 kgf.cm (208-312 in-lbf)

* Use new gaskets.

Gasket: N236-13-483 x 2pcs.

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

Article Text (p. 17)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:55AM

* Reuse the connector bolts.

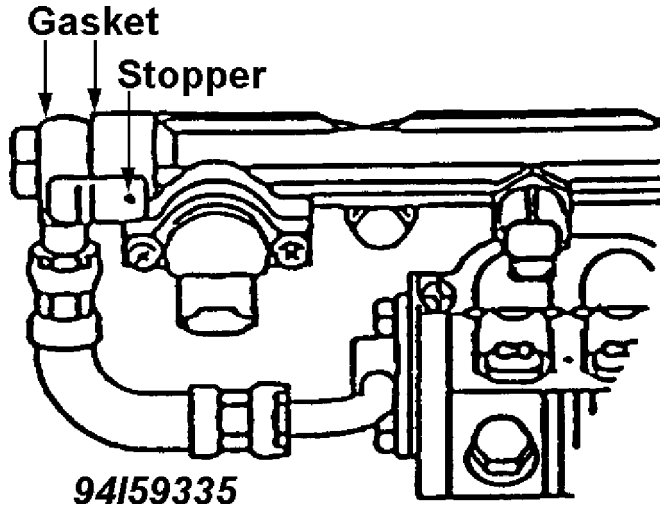


Fig. 22: Installation of Fuel Hose on Secondary Fuel Distributor

29. Replace the fuel hose on the return side of the secondary fuel distributor with a new one. See Fig. 23.

NOTE: * Replace the clip also with a new one. Do not use clips other than those included, part number below.

Fuel hose: N370-13-415

Clip: 8574-13-157

(Clip - with Pink Colored holder)

* For the direction of the clip claws, see Fig. 23.

* Do not place the clip on the pipe bulge.

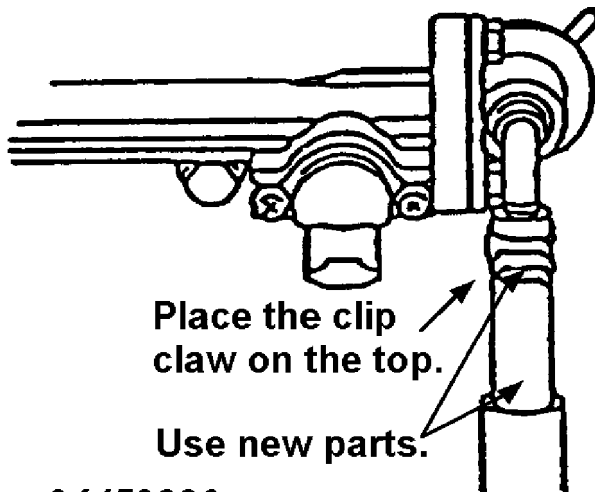


Fig. 23: Return Side of Secondary Fuel Distributor Hose Replacement
Place the Clip Claw on the Top - Use New Parts

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

Article Text (p. 18)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:55AM

30. Replace the two vacuum tubes with new ones. See Fig. 24.
Vacuum tube: 99351-04150 x 2 pcs.

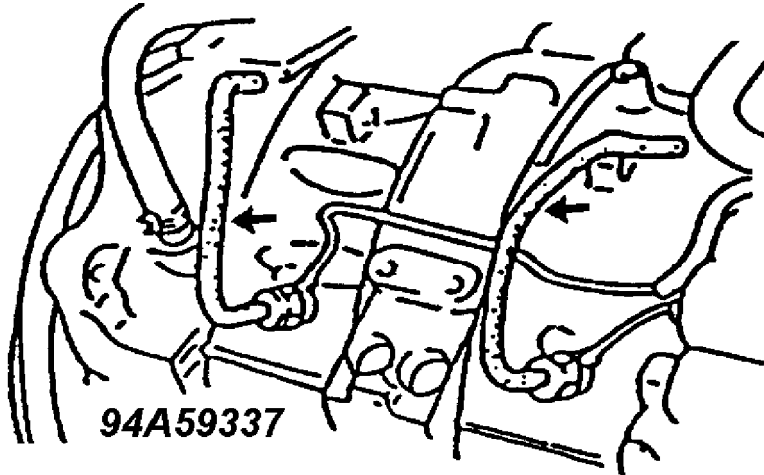


Fig. 24: Location of Vacuum Tubes

31. Install the primary fuel distributor and the secondary fuel distributor to the engine. See Fig. 25.

NOTE: Replace the four insulators with new ones.

Insulator (for primary): N3A1-13-257 x 2 pcs.

Insulator (for secondary): NF01-13-257A x 2 pcs.

- 32-1. Apply adhesive to the hose end on the primary fuel distributor outlet side (indicated by the arrow in Fig. 25). To apply adhesive see step 27-1.

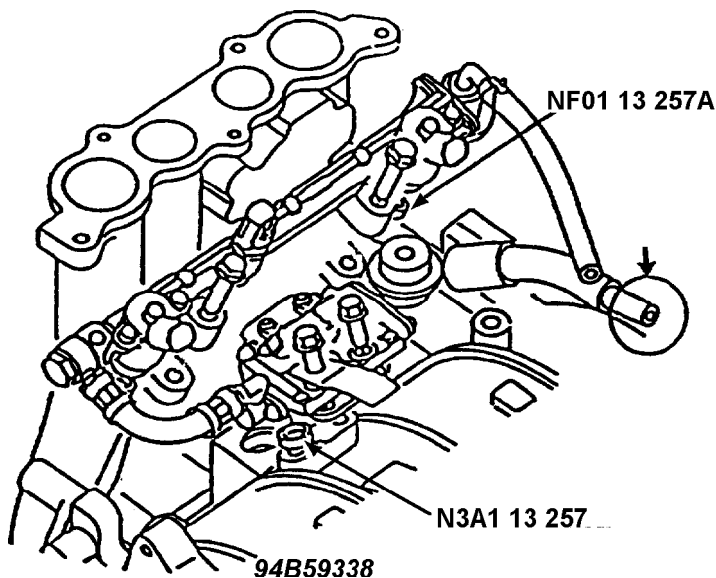


Fig. 25: Installing Fuel Distributors to the Engine

- 32-2. Connect the hose between the fuel distributor and the vacuum

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

Article Text (p. 19)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:55AM

pipe-assembly. See Fig. 26.

- NOTE:
- * Replace the clips (outlet side of the secondary fuel distributor) with new ones.
Clip (Secondary): 8574-13-157
(Clip with Pink colored holder)
 - * For the direction of the clip claw, see Fig. 26.
 - * Do not use clips other than those included, part number below.
 - * Be sure to use two clips for the joint between the primary fuel distributor and the main fuel pipe, shown with an arrow in Fig. 15.

NOTE: For the direction of the clips claw, see step 27-2.

Clip (Primary): N3Z1-13-157 x 2 pcs.
(Clip with Red colored holder)

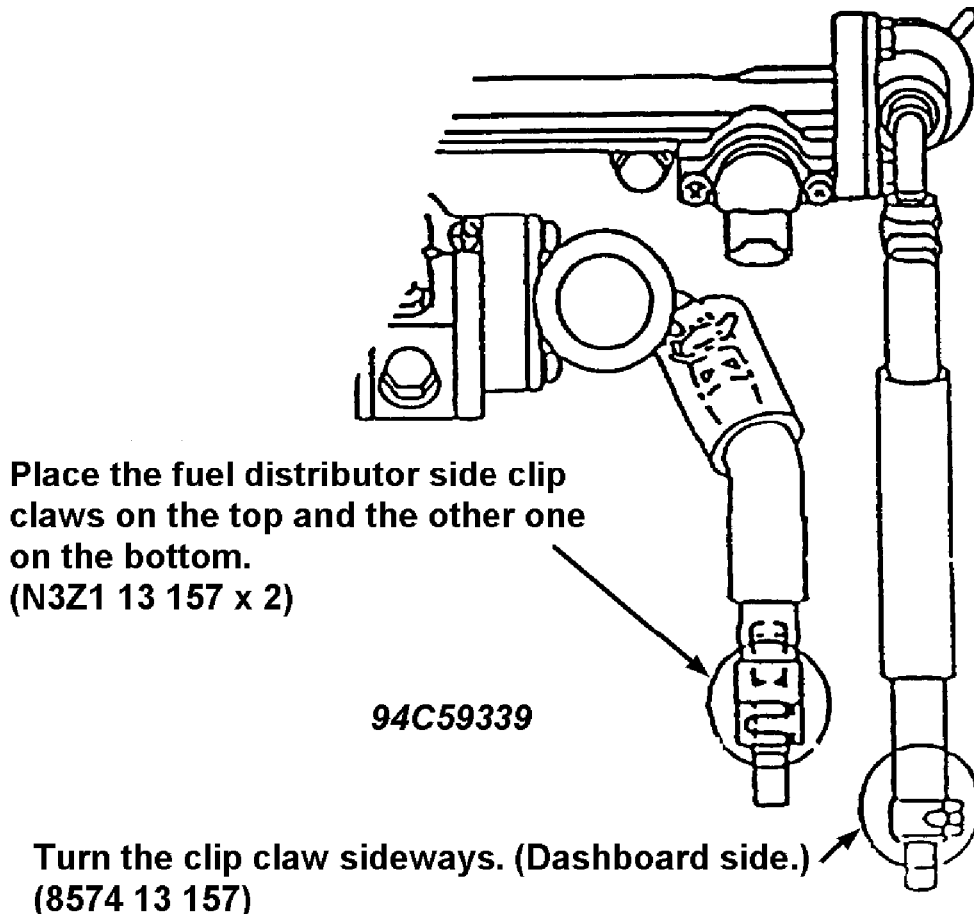


Fig. 26: Connecting Hose Fuel Distributor & Vacuum Pipe Assembly
Place the Clip Claws in Opposite Directions

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

Article Text (p. 20)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:55AM

32-3. Replace the main fuel hose with a new one. See Fig. 27.

NOTE: * The hose and the clips shown in Fig. 27 should be replaced with new ones.

* Be careful not to use the hose and the clips other than those included, part numbers below.

* Apply adhesive to the hose end [short end side only shown by the arrow in Fig. 27] then install it. (To apply adhesive, see step 27-1.)

* Insertion depth of both hose ends should be 25 - 30 mm.

Fuel hose: N3Z1-13-421

Clip: 8574-13-157 x 2 pcs. (Clip with Pink colored holder.)

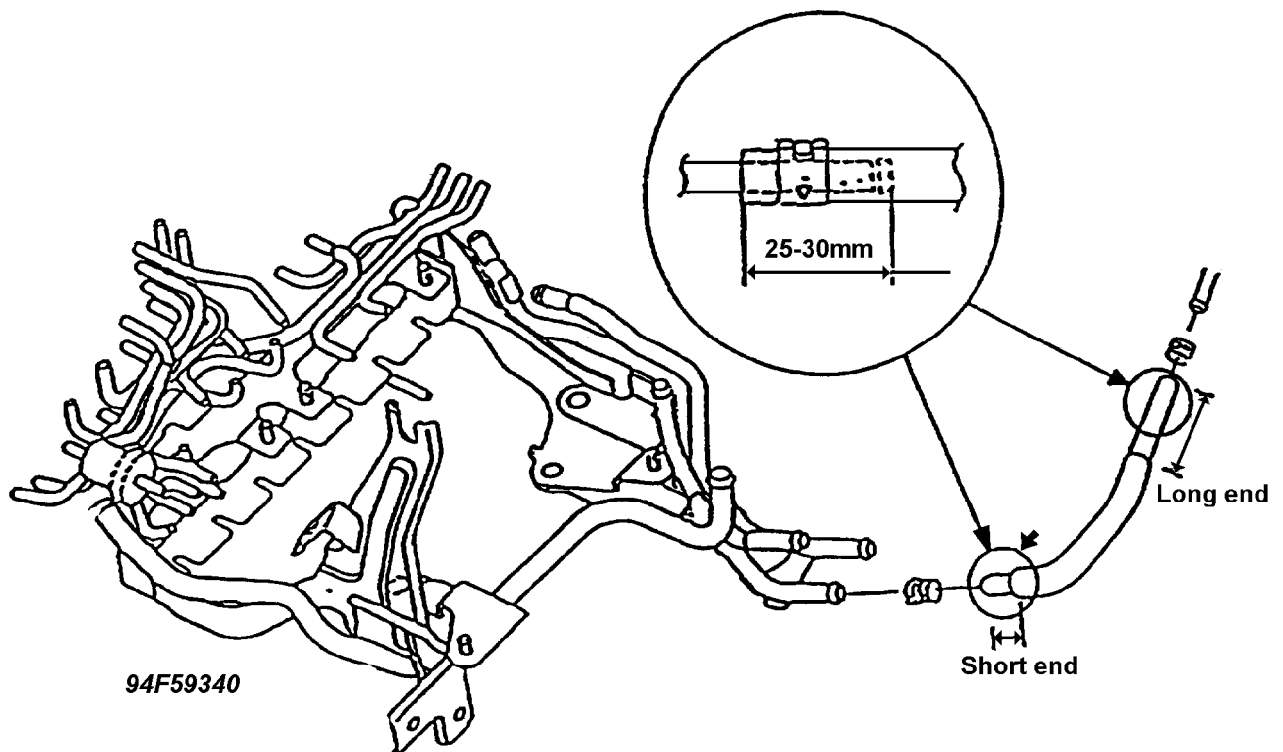


Fig. 27: Replacement of Main Fuel Hose

33. Check for fuel leakage.

WARNING: Do not smoke, carry lighted tobacco, or an open flame of any type when working on or near a fuel related component. Highly flammable mixtures are present and may be ignited, resulting in possible injury.

1. Connect the negative terminal to the battery.
2. Connect the fuel pump terminal of the diagnostic connector to

Saturday, August 25, 2001 06:55AM

Fig. 28: Diagnostic Connector to Ground Terminal

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

Article Text (p. 22)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:55AM

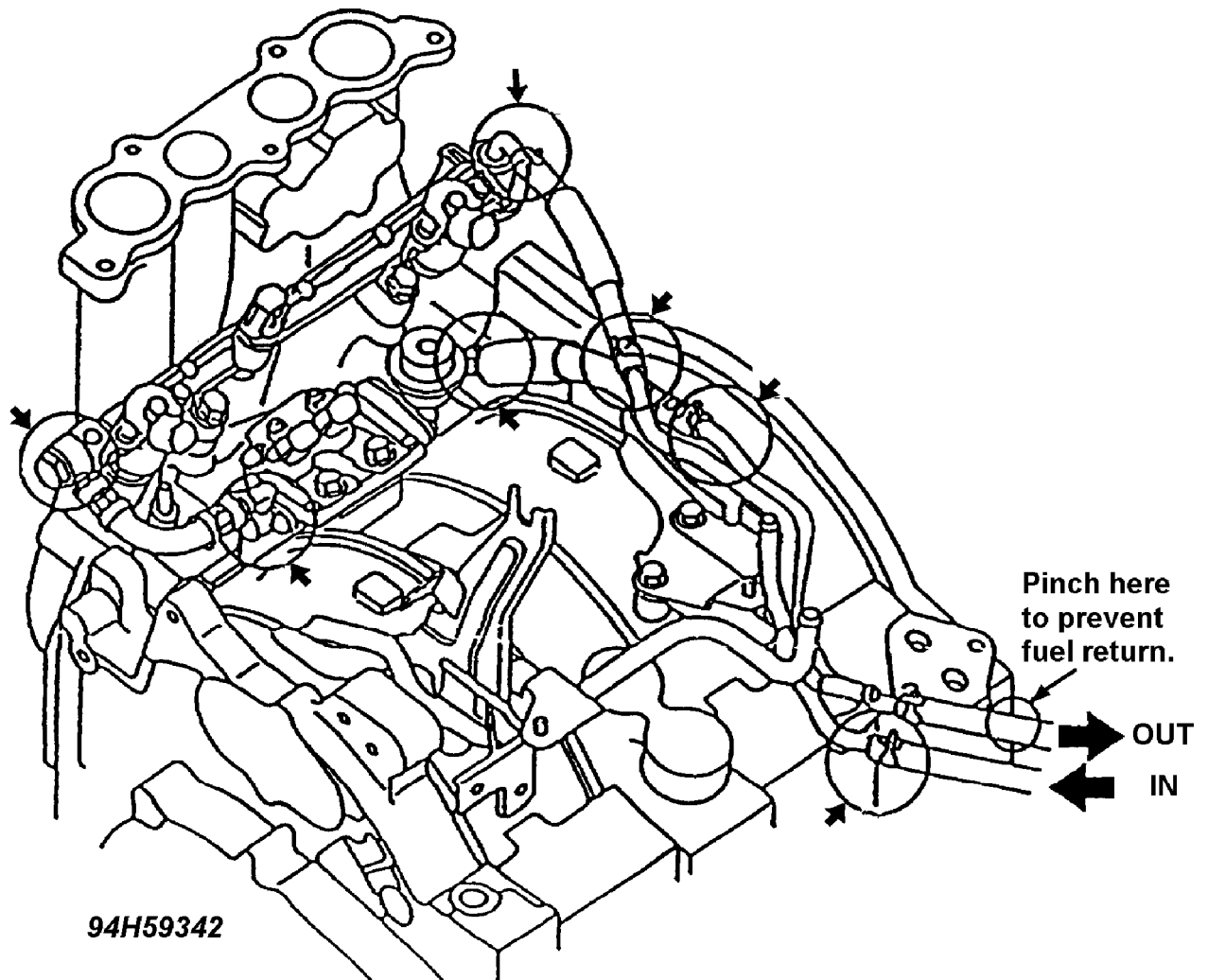


Fig. 29: Seven Fuel Leakage Areas

34. Install the vacuum pipe assembly. See Fig. 30.

1. Replace the vacuum tubes 4, 5, 6, 7, 10 and 11 with new ones.
2. Connect the hoses 3 - 14 to the vacuum pipe assembly.
3. Connect the coupler of each solenoid valve.
4. Install the vacuum pipes to the engine by tightening the bolts (three pieces).
Tightening Torque: 160-230 kgf.cm (139-199 in-lbf)

Vacuum tubes 10 and 11: N3A4-20-344 x 2 pcs.

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

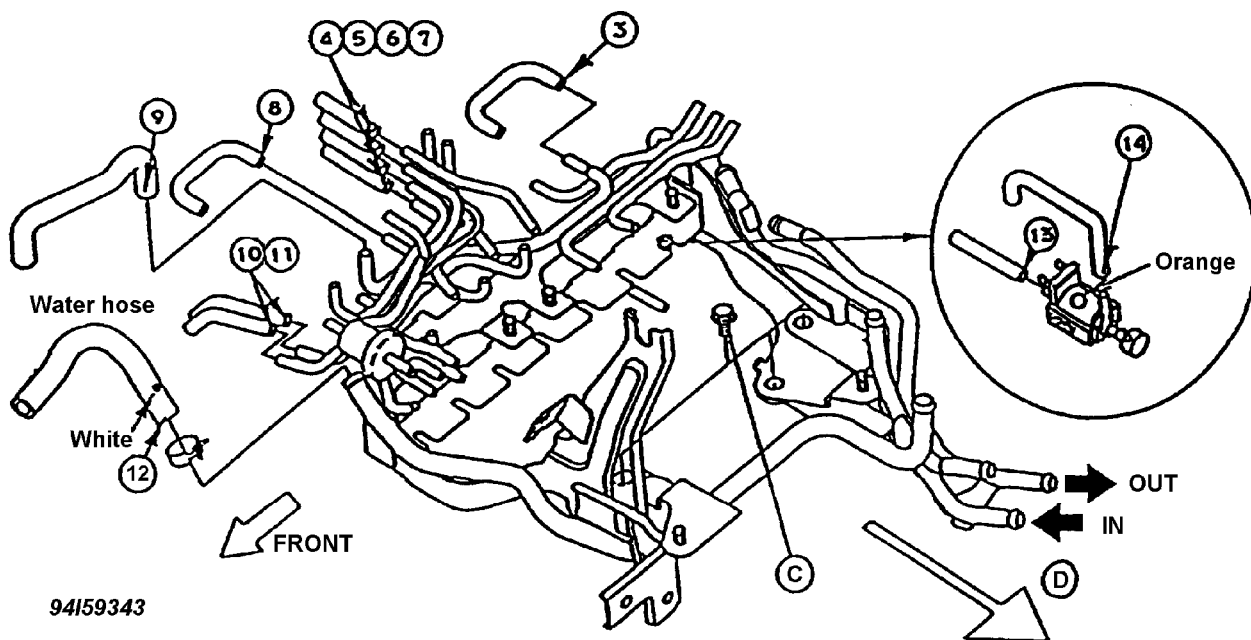
Article Text (p. 23)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:55AM



94I59343

Fig. 30: Installation of Vacuum Tubes

35. Assemble the pans in the reverse order of removal.
36. Affix the recall label (No. 60504) onto the driver's side door for future confirmation that the campaign has been completed on this vehicle. See Fig. 31.

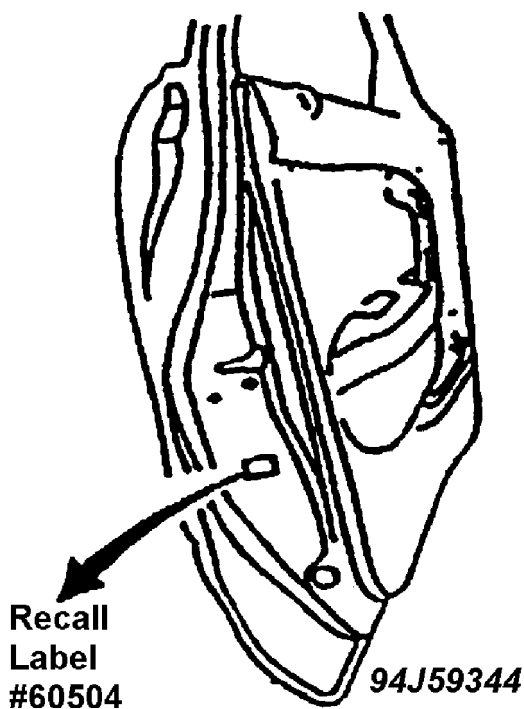


Fig. 31: Recall Label #60504 Identification

FUEL HOSES AND COOLING (COOLANT) SYSTEM REPLACEMENT PROCEDURE

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

Article Text (p. 24)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:55AM

PRE-CAUTIONS:

1. Boost tubes, water hoses and fuel hoses should be removed and replaced on the designated side only as shown in the procedure (do not remove any joint other than those indicated).
2. Do not remove any fuel hose during the check for fuel leakage after replacement (please see step 33).

If a hose(s) is removed mistakenly, replace the clip(s) and the hose(s) with new one(s).

3. Be sure to use the hoses, clips and gaskets designated in this procedure, and do not reuse the removed parts.
4. When installing the hoses, be sure to check their locations in accordance with the instruction, and install them correctly.

PROCEDURE B - REPLACEMENT OF FUEL HOSE KIT AND THROTTLE HOSE KIT

To be performed on ALL customer (sold) vehicles.

NOTE: Throttle Hose Kit, part number N3A1-13-S60 and Filler Cap Kit, part number N3Z1-15-S10B must be ordered separately and are not included in Fuel Hose Kit.

1. Start the engine.
2. Remove the circuit opening relay.
3. After the engine stalls, crank the engine for 15-20 seconds to purge the injectors.
4. Turn the ignition switch off.
5. Install the circuit opening relay. See Fig. 32.

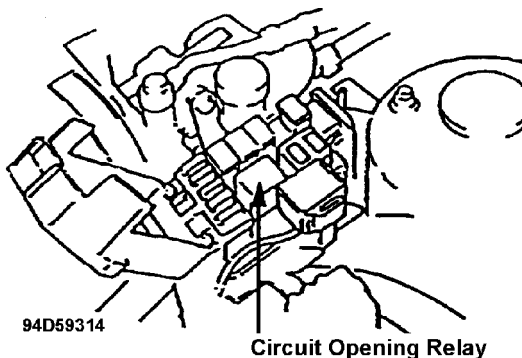


Fig. 32: Finding the Circuit Opening Relay

6. Disconnect the negative terminal from the battery.

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

Article Text (p. 25)

1993 Mazda RX7

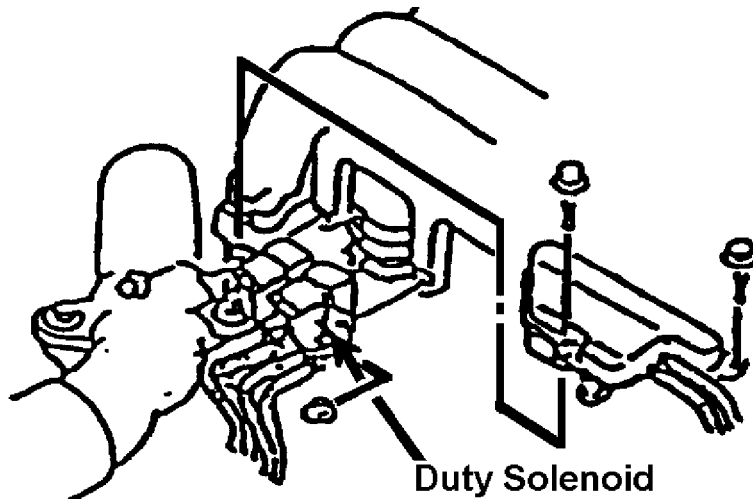
For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:55AM

NOTE: Record all preset stations on the vehicle's audio system prior to disconnecting the battery terminal.

7. Drain coolant and retain in an appropriate container.
8. Remove the bolts from the duty solenoid and the pressure chamber.
Tightening Torque: 70-100 kgf.cm (61-86 in-lbf)
See Fig. 33.



Remove Bolts from Duty Solenoid 94E59315

Fig. 33: Removal of Bolts from Duty Solenoid

9. Disconnect the air pipe at joint A shown in Fig. 33.
10. Disconnect the AWS hose and the air duct B at the joint as shown in Fig. 34.

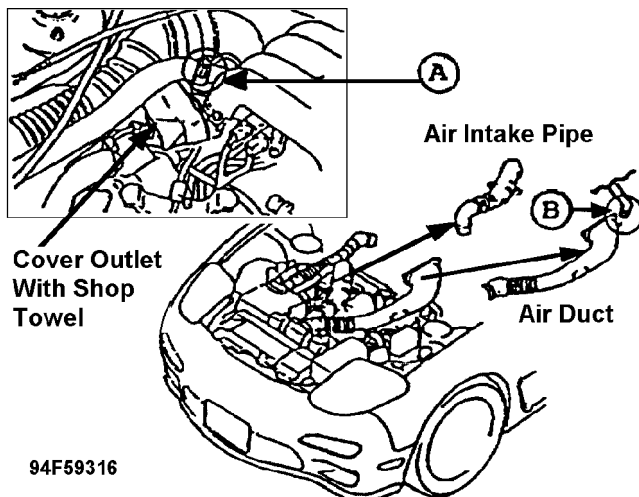


Fig. 34: Disconnecting the Air Pipe & Hose

11. Remove the air intake pipe from the outlet of the turbo. and cover

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

Article Text (p. 26)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:55AM

the outlet with a shop towel.

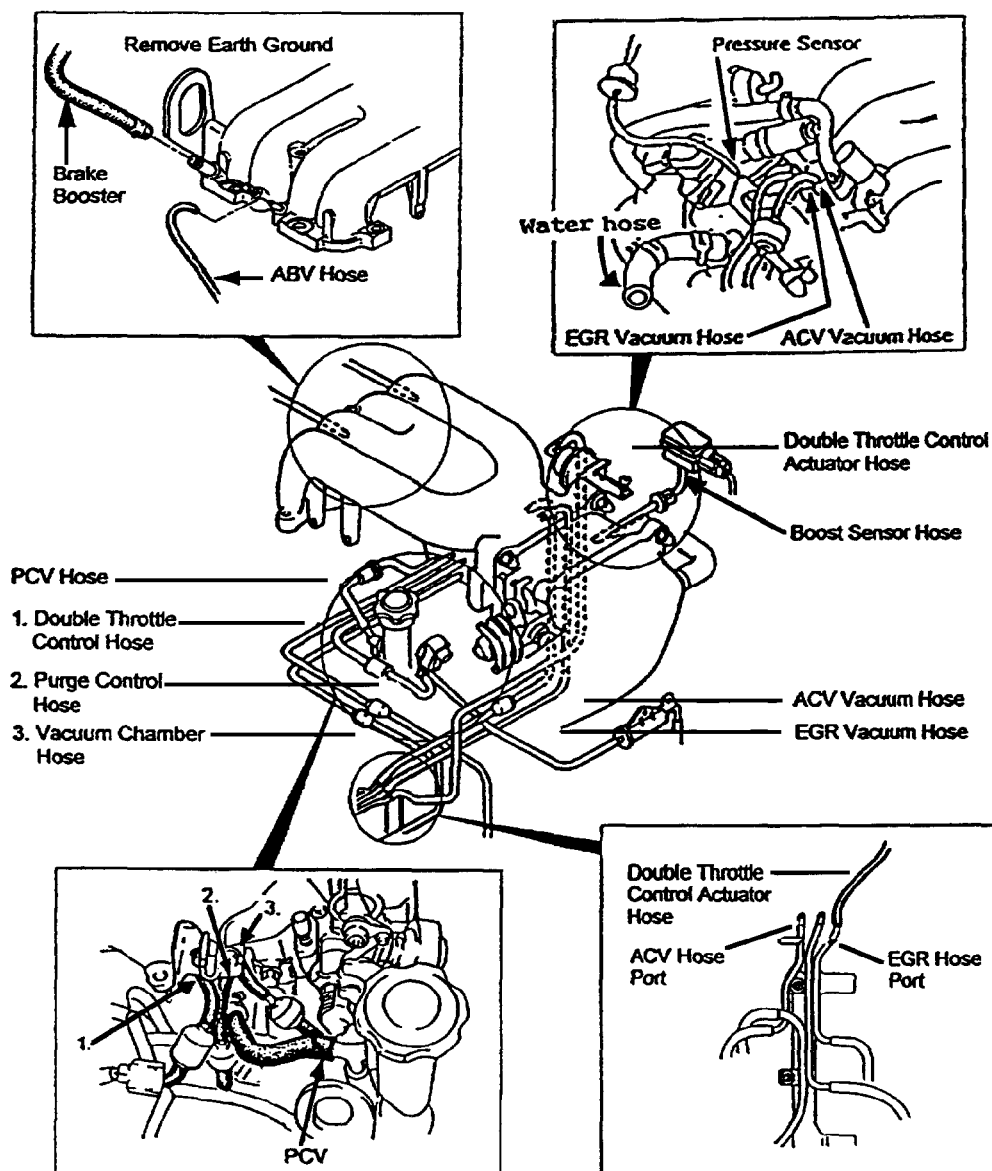
12. Remove the air duct from the inter cooler.

13. Remove the hoses from the extension manifold. See Fig. 35.

NOTE: Disconnect the hoses at the locations indicated by the arrows (→) shown in Fig. 35 only!

14. Remove the harnesses from the extension manifold. See Fig. 35.

Remove these four parts referring to Step 16.



94G59317

Fig. 35: Removing Hoses & Harnesses From the Extension Manifold

NOTE: Use the above illustration to determine the hose location.

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

Article Text (p. 27)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:55AM

15. Remove the accelerator cable and the cruise cable. See Fig. 35.

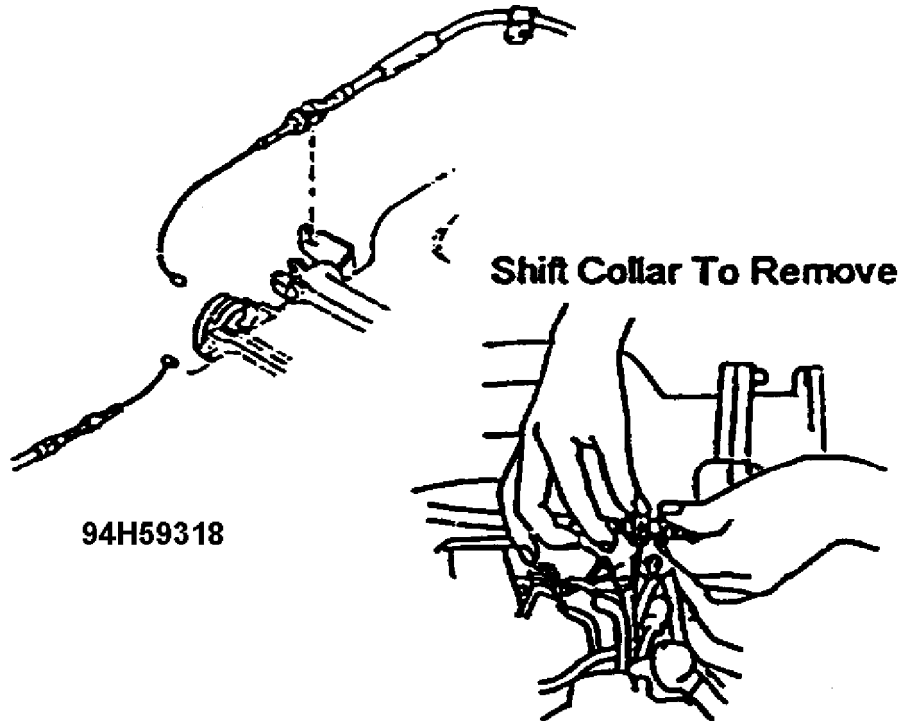


Fig. 36: Removing Accelerator Cable & Cruise Cable

16. Raise the extension manifold and disconnect the following harnesses, vacuum tubes and hoses from the side indicated by the arrows (-->) only. See Figs. 37, 38, & 39.

Harnesses:

- * Inlet Air Temperature Sensor
- * AB Solenoid
- * ISC Valve

Vacuum Tubes:

- * EGR Vacuum Hose
- * ACV Vacuum Hose
- * Purge Hose
- * Double Throttle Control Hose
- * Double Throttle Control Actuator Hose

Hoses:

- * Water Hose

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

Article Text (p. 28)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:56AM

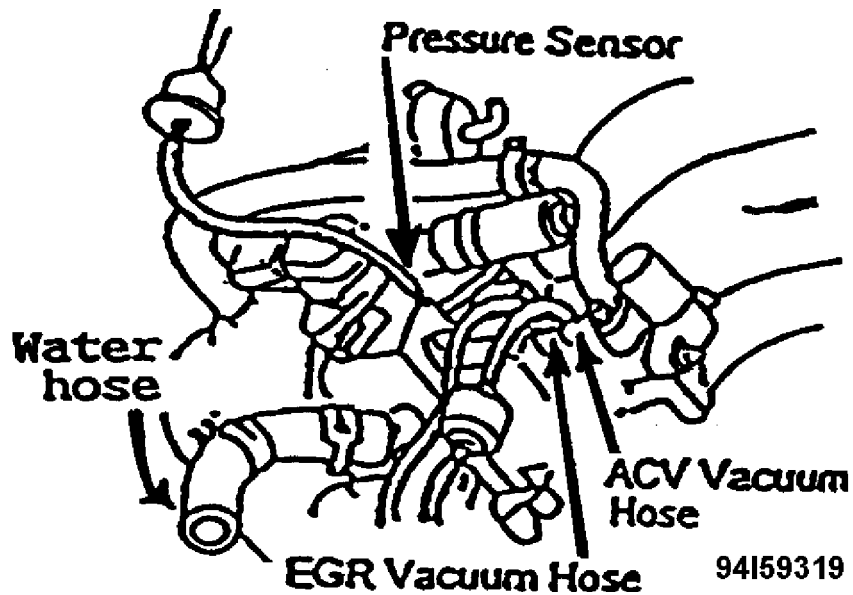


Fig. 37: EGR Vacuum Hose & ACV Vacuum Hose

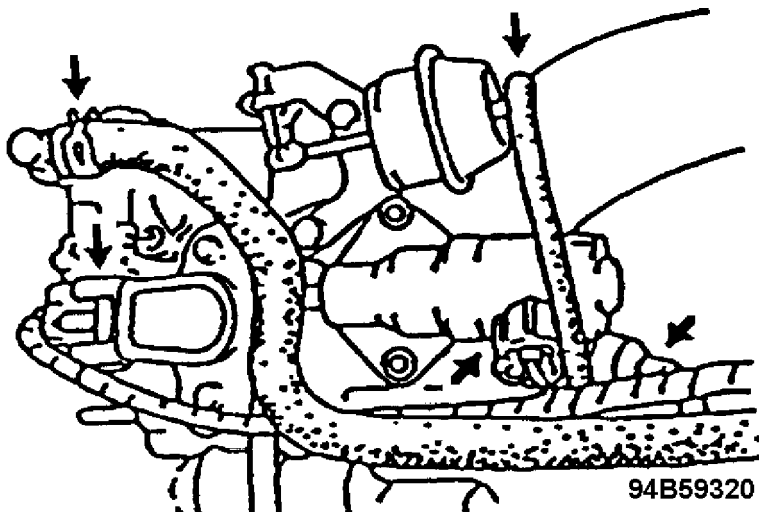


Fig. 38: Hoses to Disconnect

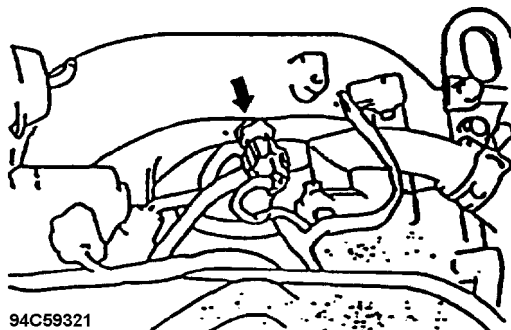


Fig. 39: Switch to Disconnect

17. Remove the extension manifold and throttle body.

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

Article Text (p. 29)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:56AM

NOTE: Cover exposed intake holes with shop towel.

Torque for re-tightening the bolt:

Tightening Torque: 160-230 kgf.cm (139-199 in-lbf)

When reassembling, replace the intake manifold gasket with a new one.

Gasket: N3A1-13-112

18. Remove the following parts. See Figs. 40 & 41.

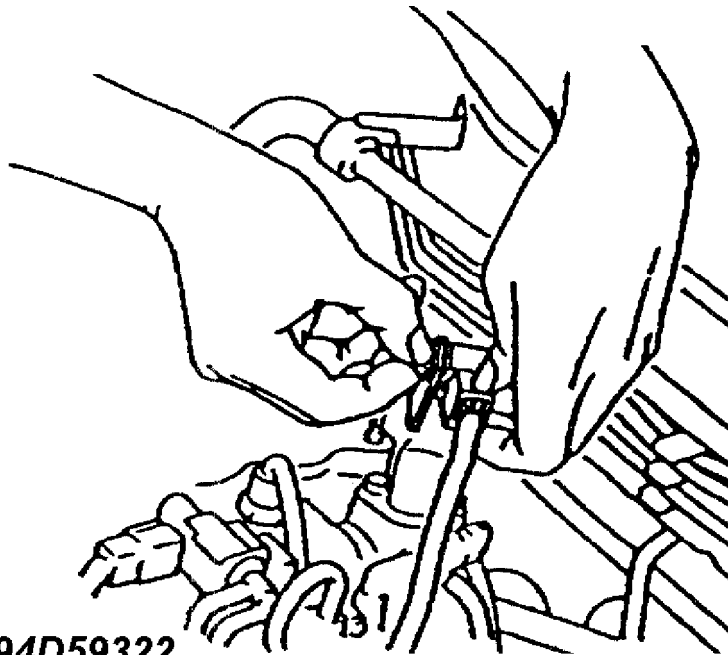


Fig. 40: O2 Sensor Coupler on the ACV

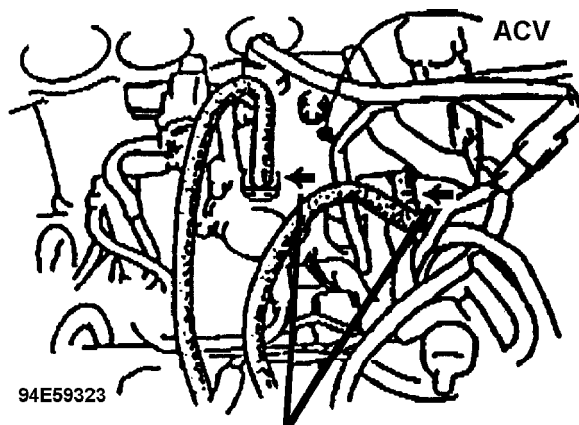


Fig. 41: ACV Vacuum Tubes
DO NOT DAMAGE

19. Remove the nut shown in Fig. 42. Remove the three-way solenoid.

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

Article Text (p. 30)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:56AM

NOTE: Do not remove the vacuum tube from the solenoid.

Tightening Torque: 70-100 kgf.cm (61-86 in-lbf)

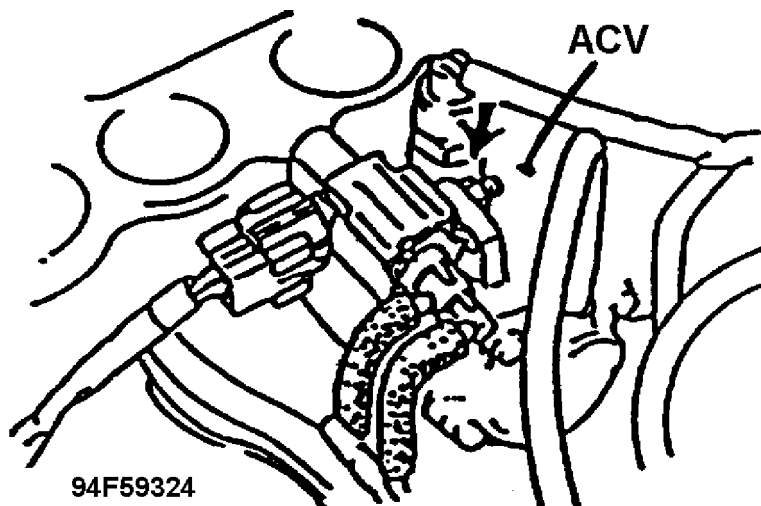


Fig. 42: Three-Way Solenoid Nut to be Removed

20. Remove the oil filler pipe. See Fig. 43.

Tightening Torque: 70-100 kgf.cm (61-86 in-lbf)

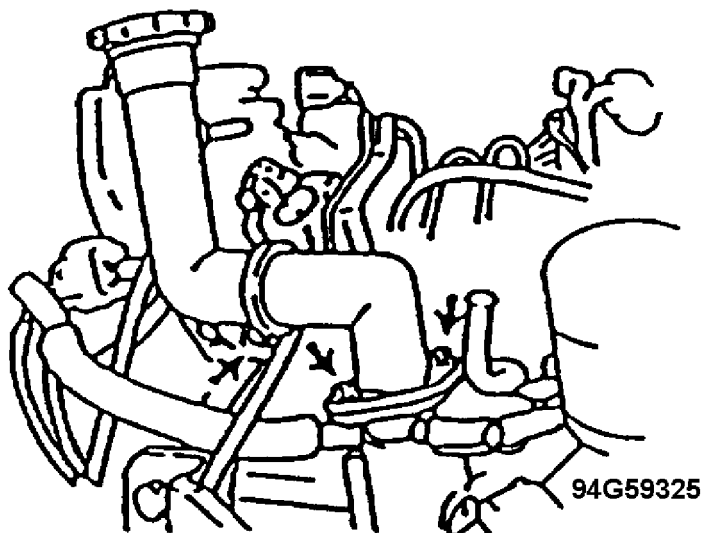


Fig. 43: Oil Filler Pipe Identification

21. Remove the ignition coil assembly. Remove the four nuts shown in Fig. 44. Tightening torque of the nuts for reassembly:

Tightening torque: 70-100 kgf.cm (61-86 in lbf)

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

Article Text (p. 31)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:56AM

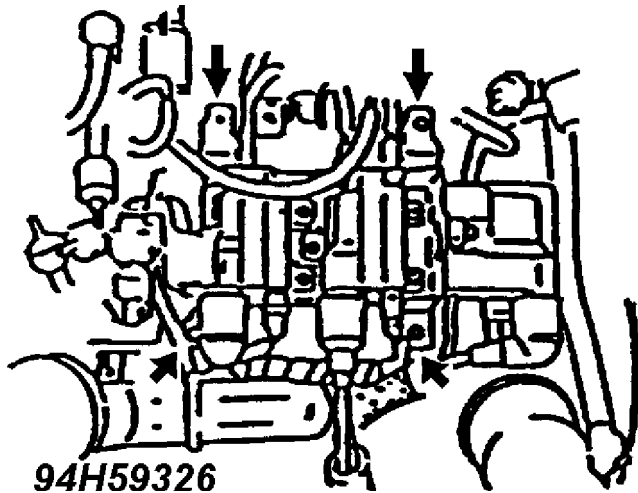


Fig. 44: Four Nuts Holding the Ignition Coil Assembly

22. ACV Removal

1. Disconnect the couplers from each solenoid valve in the ACV.
2. Remove the relief air hose. See letter E in Fig. 45.
3. Remove the ACV. Re-tightening torque of the nuts:
Tightening Torque: 70-100 kgf.cm (61-86 in-lbf)
4. Remove the vacuum tubes from the inlet manifold. See Fig. 45.
Replace the vacuum tubes with new ones.

Vacuum tube: 99351-04095 x 4 pcs.

NOTE: * When reassembling, replace the ACV gasket with a new one.

Gasket: N3A3-13-996

- * When reassembling, be sure to insert the check valve in the step cut position of the intake manifold, then attach the ACV.
- * Make sure that the wire harnesses of the solenoid valve will not touch the ACV.

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

Article Text (p. 32)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:56AM

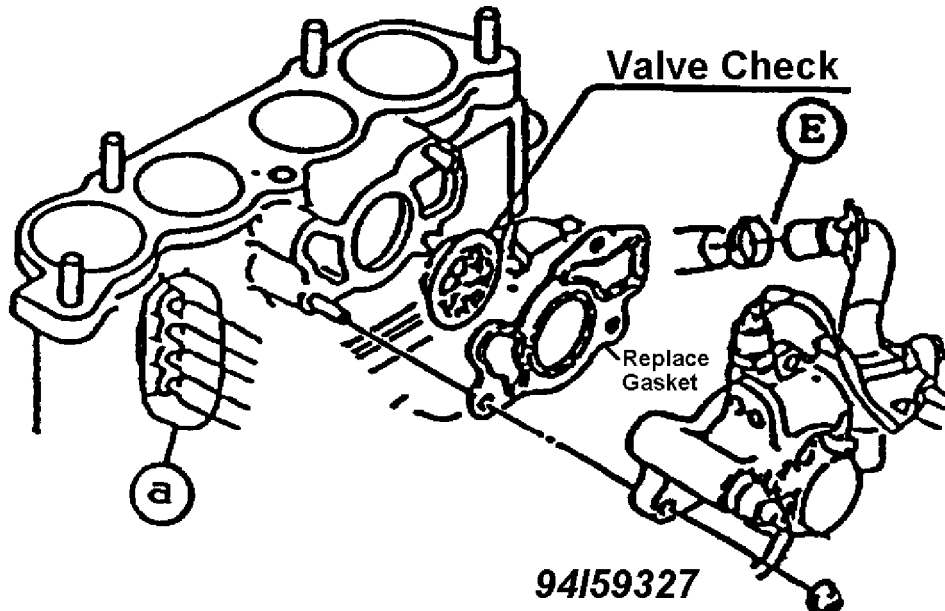


Fig. 45: Removal of Relief Air Hose & Vacuum Tubes

23. Move the vacuum pipe assembly toward the steering shaft side. See Fig. 46.

1. Loosen the three bolts that attach the vacuum pipe to the engine. See letter C in Fig. 46.
2. Disconnect the coupler from the solenoid valve attached to the vacuum pipe.
3. Remove the vacuum tubes, water hose and fuel hoses (cutting the fuel hoses off at the position marked with scissors makes the work easier). See Fig. 46.

NOTE: * Do not remove hoses other than 1-14.

* Remove the hoses on the sides indicated by arrows (-->) in Fig. 46.

* Be careful not to damage any pipes.

* When removing the hoses, do not use any spray type lubricant.

4. Move the vacuum pipe assembly toward direction D.

5. When reassembling, replace the hoses 1, 2, 3, 4, 5, 6, 7, 8, 10, and 11 with new ones.

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

Article Text (p. 33)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:56AM

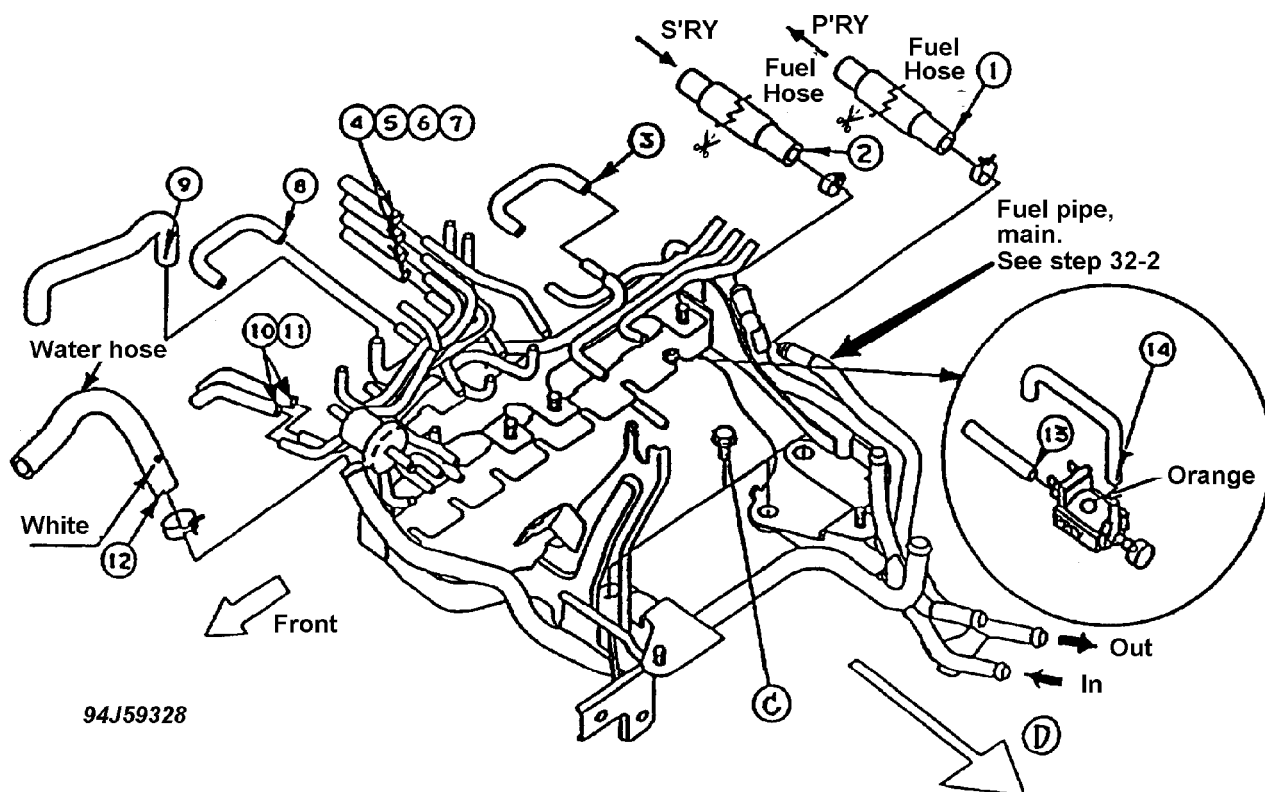


Fig. 46: Exploded View of Tubes & Hoses for Modification

6. Replace the front throttle body water hose with a new one and attach it with two new hose clamps. See Fig. 47.

NOTE: Holder must be removed from clamps.

Water hose: N3A1-13-692A

Clamps: 99287-1400P x 2 pcs.

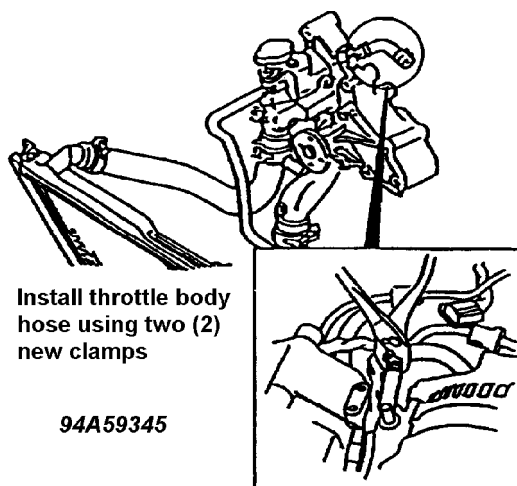


Fig. 47: Installing Throttle Body Hose (N3A1-13-692A)
Use Two New Clamps

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

Article Text (p. 34)

1993 Mazda RX7

For www.iluvmyrx7.com

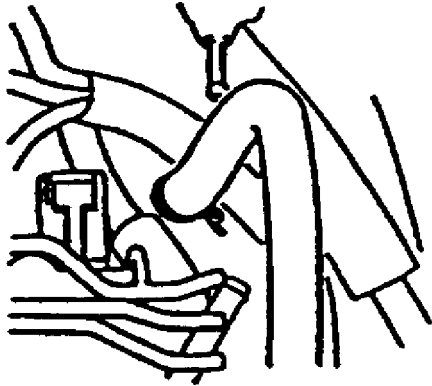
Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:56AM

7. Use long needle nose pliers to remove hose clamps, and replace the rear throttle body water hose with a new one. Remove holders from clamps. Attach with two new clamps. See Fig. 48.

Water hose: N3A1-13-681A

Clamps: 99287-1400P x 2 pcs.



**Install New Rear
Throttle Body Water
Hose. Use New
Clamps**

DO NOT DAMAGE

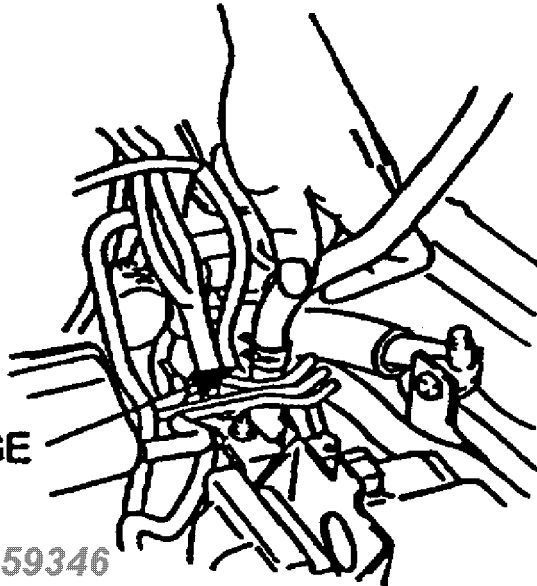


Fig. 48: Installing New Rear Throttle Body Water Hose (N3A1-13-681A)
Use New Clamps

8. Replace the throttle body water hose with a new one using two new clamps. See Fig. 49.

Water hose: N3A1-13-691A

Clamps: 99287-1400P 2 pcs.

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

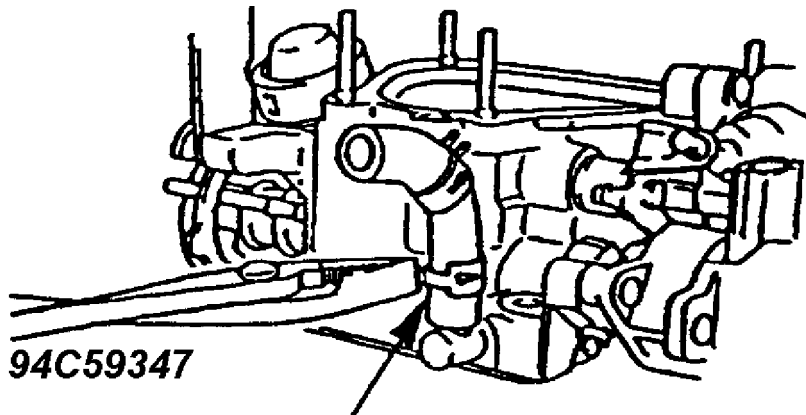
Article Text (p. 35)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:56AM



**Install New Throttle Body Water
Hose Using Two (2) New Clamps**

Fig. 49: Installing New Throttle Body Water Hose (N3A1-13-691A)
Use Two New Clamps

24. Removal of primary fuel distributor, secondary fuel distributor and insulator. See Fig. 50.
1. Loosen the four bolts.
 2. Loosen the connector bolt from the inlet of the secondary fuel distributor.

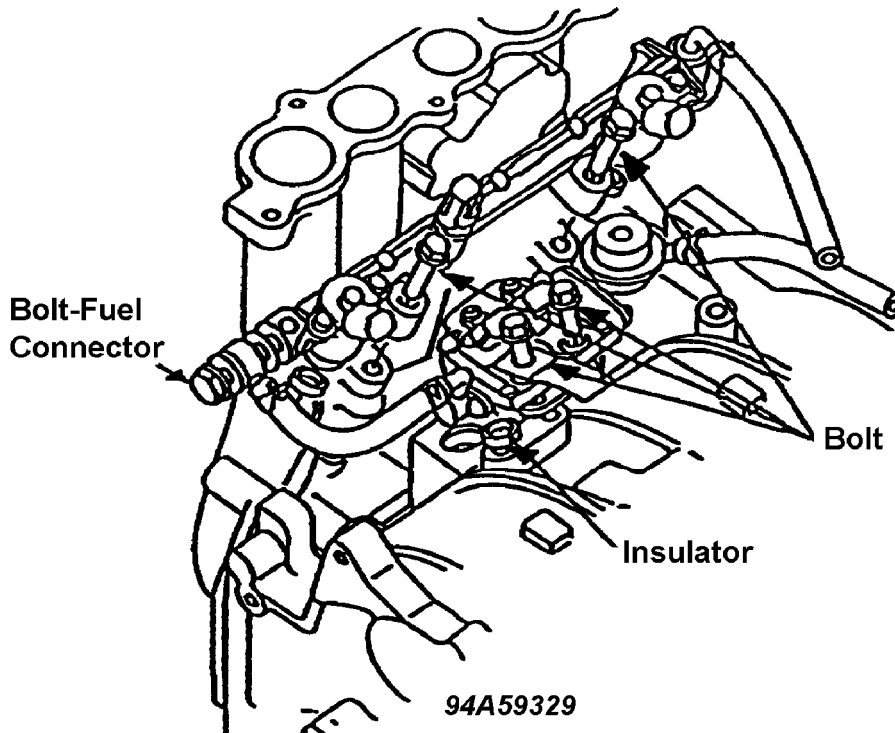


Fig. 50: Removal of Primary & Secondary Fuel Distributor & Insulator

25. Remove the fuel hose from the primary fuel distributor.

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

Article Text (p. 36)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:56AM

See Fig. 51.

- NOTE:
- * When turning the screw be careful not to break the heads (+) of the screws F (two) because they are tight.
 - * Be careful not to damage the pipe at the hose insertion location on the primary inlet side.

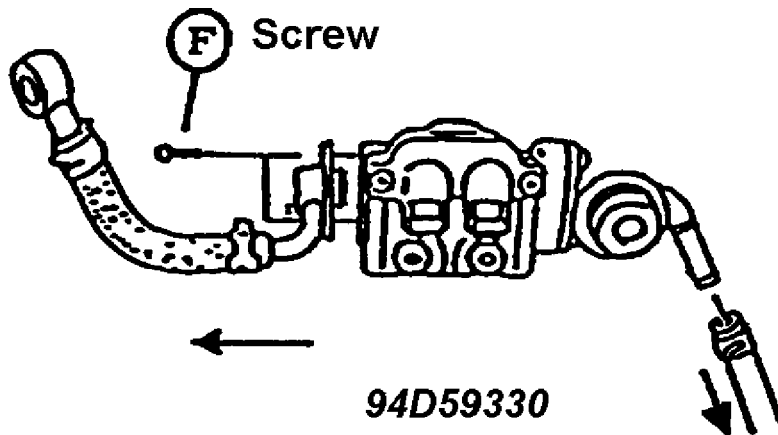


Fig. 51: Removal of Hose from Primary Fuel Distributor

26. Install the modified fuel hose on the primary fuel distributor outlet side. See Fig. 52.

- NOTE:
- * When installing, do not twist the "O" ring.
 - * Replace the bolts with modified ones. See letter G in Fig. 52.

Tightening Torque: 25-36 kgf.cm (22-31 in-lbf)

Fuel Hose: N3Z1-13-420

Bolt: 99796-0810 x 2 pcs.

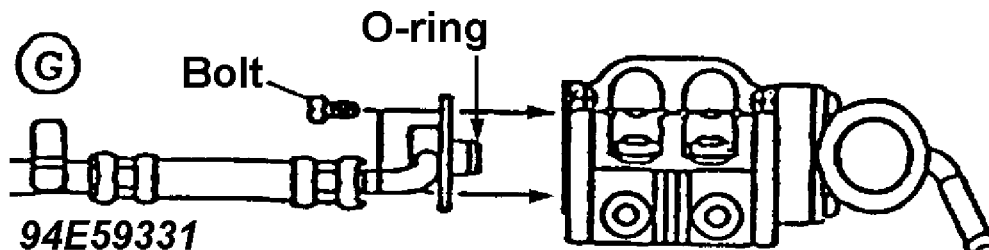


Fig. 52: Primary Fuel Distributor Outlet Modified Hose

- 27-1. Install the hose on the inlet side of the primary fuel distributor. See Fig. 53.

- * Submerge the hose end with the white mark into adhesive.
- * Use adhesive specially prepared for this work.

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

Article Text (p. 37)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:56AM

NOTE: Be careful not to use another adhesive.

- * Install the hose (white mark side) within five minutes after applying adhesive.

NOTE: Before installing the hose, degrease the pipe for better adhesion.

Fuel Hose: N3Z1-13-415

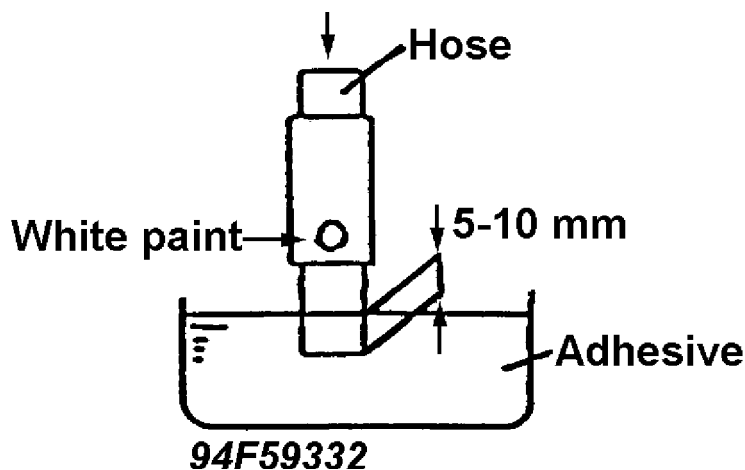


Fig. 53: Installing Hose on Inlet Side of Primary Fuel Distributor
Submerging Hose End with White Mark into Adhesive

27-2. Install the clips on the hose of the inlet side of the primary fuel distributor.

- NOTE:
- * Use two clips on the fuel distributor side.
 - * Place the fuel distributor side clip claws on the top and the other one on the bottom. For the directions of the clip claws, see Figs. 54 and 55. Insert the hose to the pipe bulge. Match the edges of the clip and the hose end.
 - * Replace all hose clips with new ones.
 - * Do not use clips other than those included, part number below.
 - * Be careful not to place the clip on the pipe bulge.

Clip: N3Z1-13-157 x 2pcs.

Protector: N3B7-13-428A

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

Article Text (p. 38)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:56AM

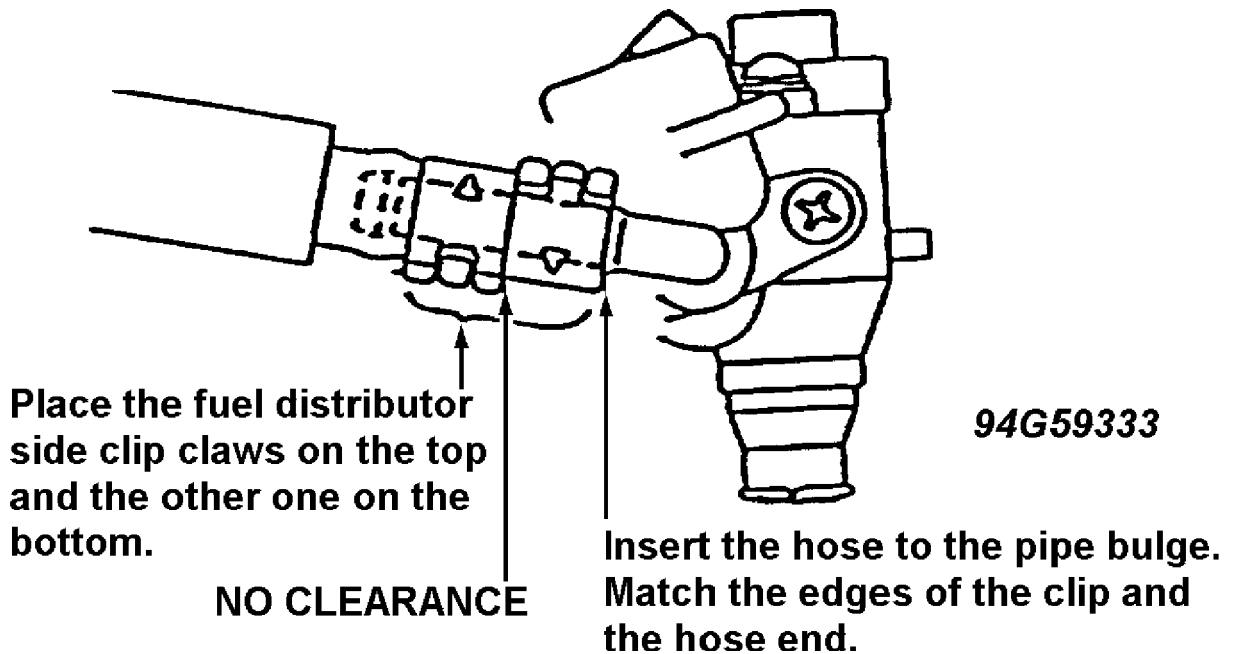


Fig. 54: Installation of Clips on Hose

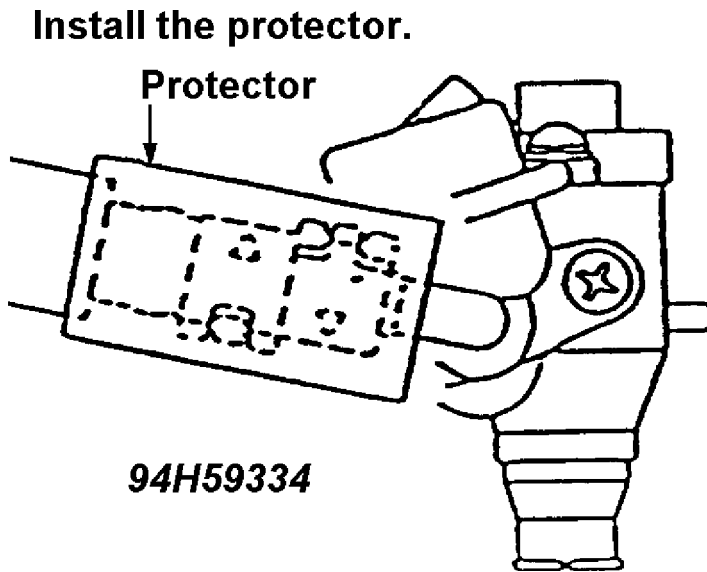


Fig. 55: Installation of Protector

28. Install the fuel hose on the secondary fuel distributor.
See Fig. 56.

NOTE: * Place the connector stopper on the secondary fuel distributor body, then tighten the connector bolts.

Tightening Torque: 240-360 kgf.cm (208-312 in-lbf)

* Use new gaskets.

Gasket: N236-13-483 x 21pcs.

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

Article Text (p. 39)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:56AM

* Reuse the connector bolts.

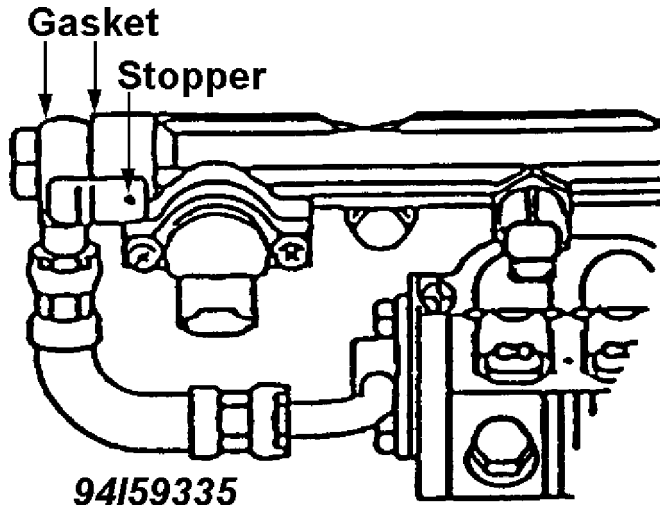


Fig. 56: Installation of Fuel Hose on Secondary Fuel Distributor

29. Replace the fuel hose on the return side of the secondary fuel distributor with a new one. See Fig. 57.

NOTE: * Replace the clip also with a new one. Do not use clips other than those included, part number below.

Fuel hose: N370-13-415

Clip: 8574-13-157

* For the direction of the clip claws, see Fig. 57.

* Do not place the clip on the pipe on the bulge.

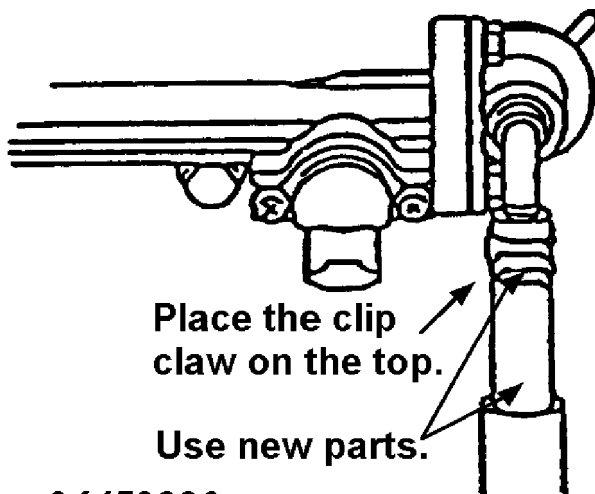


Fig. 57: Return Side of Secondary Fuel Distributor Hose Replacement
Place the Clip Claw on the Top - Use New Parts

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

Article Text (p. 40)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:56AM

30. Replace the two vacuum tubes with new ones. See Fig. 58.

Vacuum tube: 99351-04150 x 2 pcs.

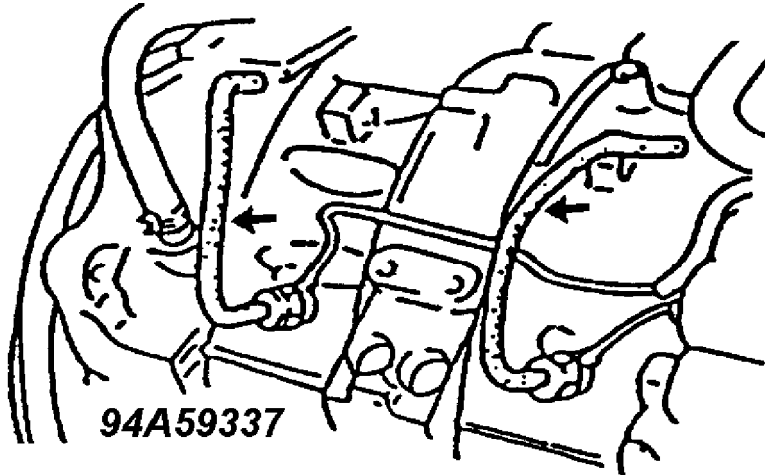


Fig. 58: Location of Vacuum Tubes

31. Install the primary fuel distributor and the secondary fuel distributor to the engine. See Fig. 59.

NOTE: * Replace the four insulators with new ones.

Insulator (for primary): N3A1-13-257 x 2 pcs.

Insulator (for secondary): NF01-13-257A x 2 pcs.

32-1. Apply adhesive to the hose end on the primary fuel distributor outlet side indicated by the arrow in Fig. 59. To apply adhesive see step 27-1.

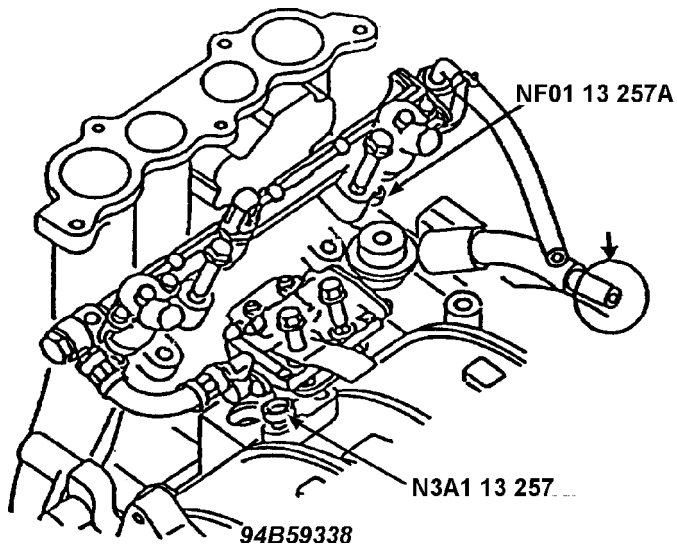


Fig. 59: Installing Primary & Secondary Fuel Distributors to Engine

32-2. Connect the hose between the fuel distributor and the vacuum

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

Article Text (p. 41)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:56AM

pipe assembly. See Fig. 60.

NOTE: * Replace the clips (outlet side of the secondary fuel distributor) with new ones.

Clip (Secondary): 8574-13-157

* For the direction of the clip claw, see Fig. 60.

* Do not use clips other than those included, part number below.

* Be sure to use two clips for the joint between the primary fuel distributor and the main fuel pipe. (see arrow in Fig. 46.)

NOTE: For the direction of the clips claw, see step 27-2.

Clip (Primary): N3Z1-13-157 x 2 pcs.

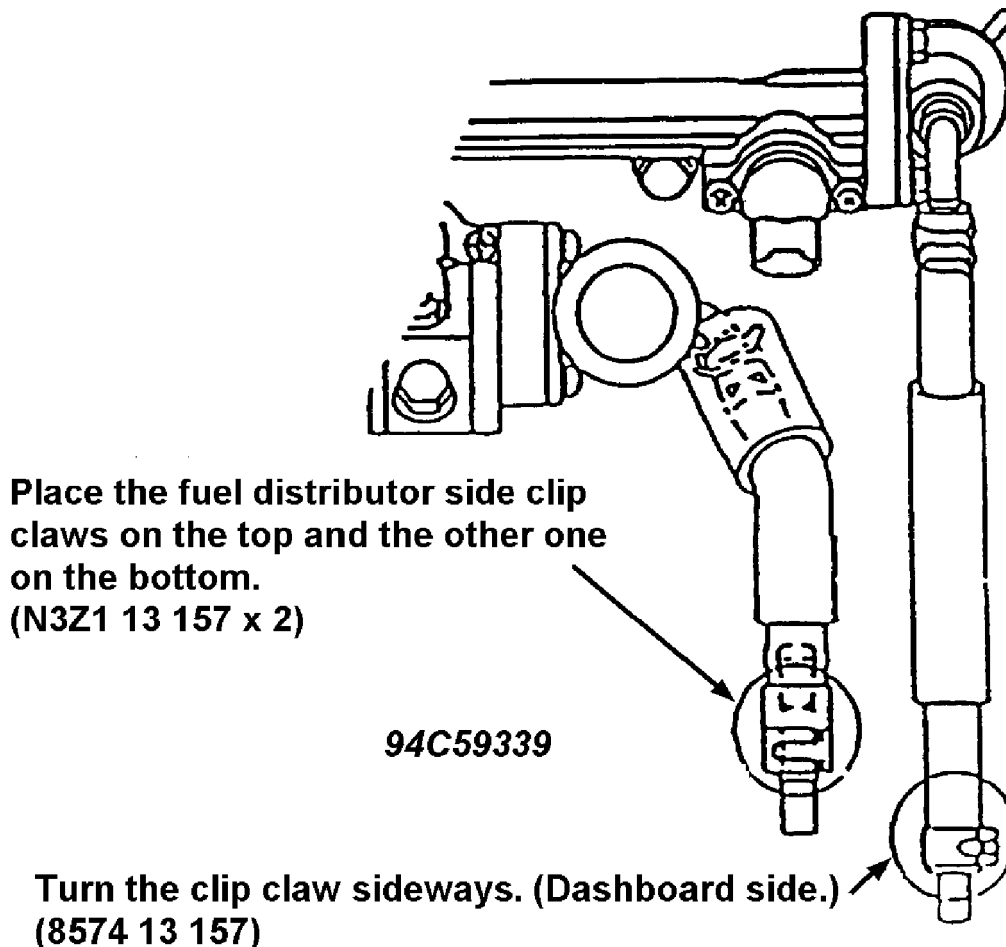


Fig. 60: Connecting Hose Fuel Distributor & Vacuum Pipe Assembly
Place the Clip Claws in Opposite Directions

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

Article Text (p. 42)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:56AM

32-3. Replace the main fuel hose with a new one. See Fig. 61.

NOTE: * The hose and the clips shown in Fig. 61 should be replaced with new ones.

* Be careful not to use the hose and the clips other than those included, part number's below.

* Apply adhesive to the hose end (short end side only, indicated by the arrow in Fig. 61), then install it. (To apply adhesive, see step 27-1.)

* Insertion depth of both hose ends should be 25 - 30 mm.

Fuel hose: N3Z1 -13-421.

Clip: 8574-13-157 x 2 pcs.

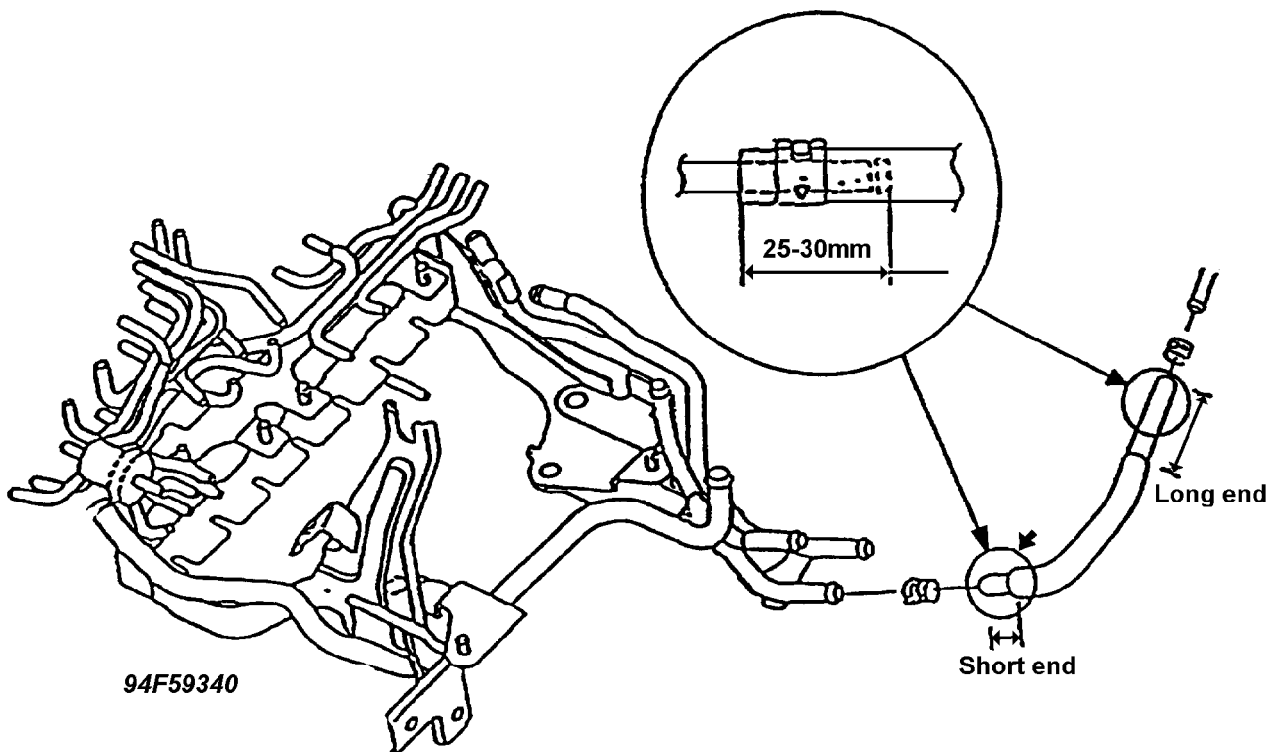


Fig. 61: Replacement of Main Fuel Hose

33. Check for fuel leakage.

WARNING: Do not smoke, carry lighted tobacco, or an open flame of any type when working on or near a fuel related component. Highly flammable mixtures are present and may be ignited resulting in possible injury.

1. Connect the negative terminal to the battery.
2. Connect the fuel pump terminal of the diagnostic connector to

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

Article Text (p. 43)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:56AM

the ground terminal. See Fig. 62.

3. Pinch the fuel return hose with a suitable tool to stop any fuel return to the tank. See Fig. 63.

NOTE: Use a dull-edged SST so that it does not damage the hose.

4. Operate the fuel pump for more than five minutes, and check for fuel leakage.
- * Check for fuel leakage visually and by odor. Carefully check the positions (seven) indicated by the arrows in Fig. 63. If fuel leakage is found, repair the problem. Once repaired, check again according to the above steps.

Diagnostic Connector To Ground Terminal

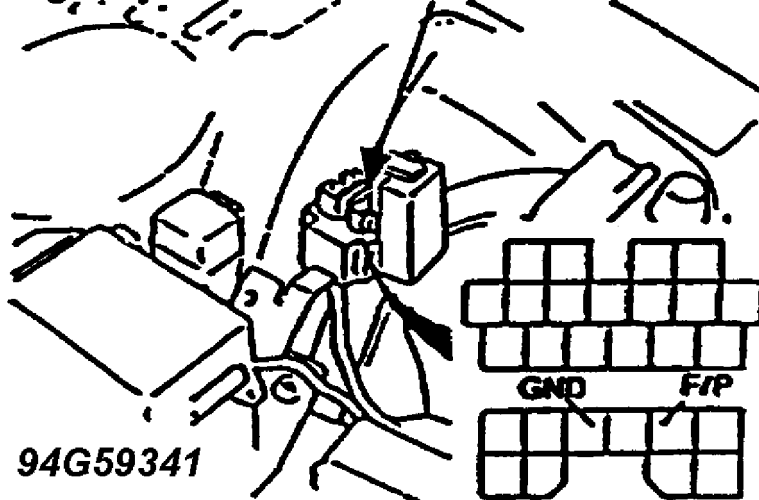


Fig. 62: Diagnostic Connector to Ground Terminal

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

Article Text (p. 44)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:56AM

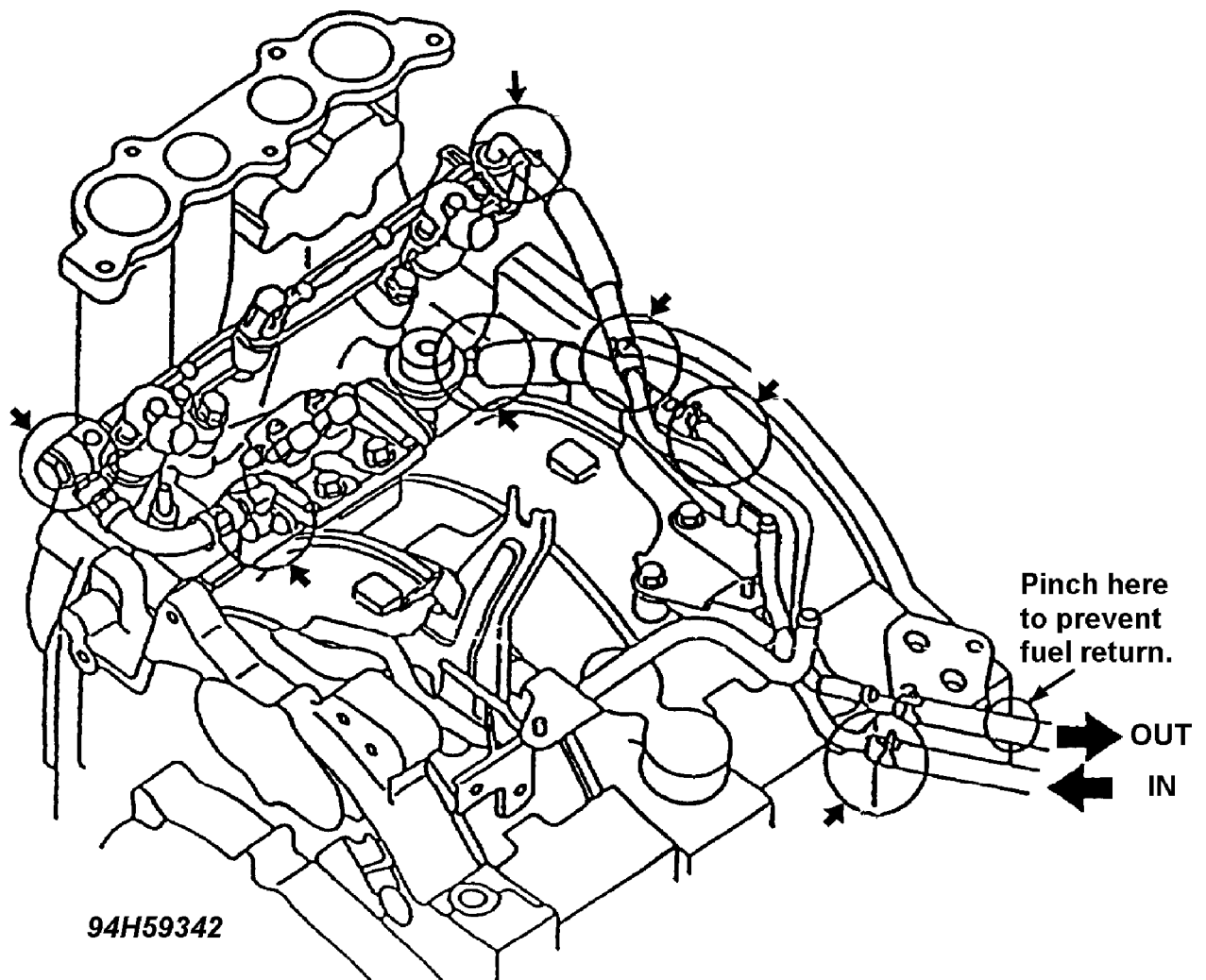


Fig. 63: Seven Fuel Leakage Areas

34. Install the vacuum pipe assembly.

1. Replace the vacuum tubes 4, 5, 6, 7, 10 and 11 with new ones.
2. Connect the hoses 3 - 14 to the vacuum pipe assembly.
3. Connect the coupler of each solenoid valve.
4. Install the vacuum pipes to the engine by tightening the bolts (three pieces).

Tightening torque: 160-230 kgf.cm (139-199 in-lbf)

Vacuum tubes 10 and 11: N3A4-20-344 x 2 pcs.

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

Article Text (p. 45)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:56AM

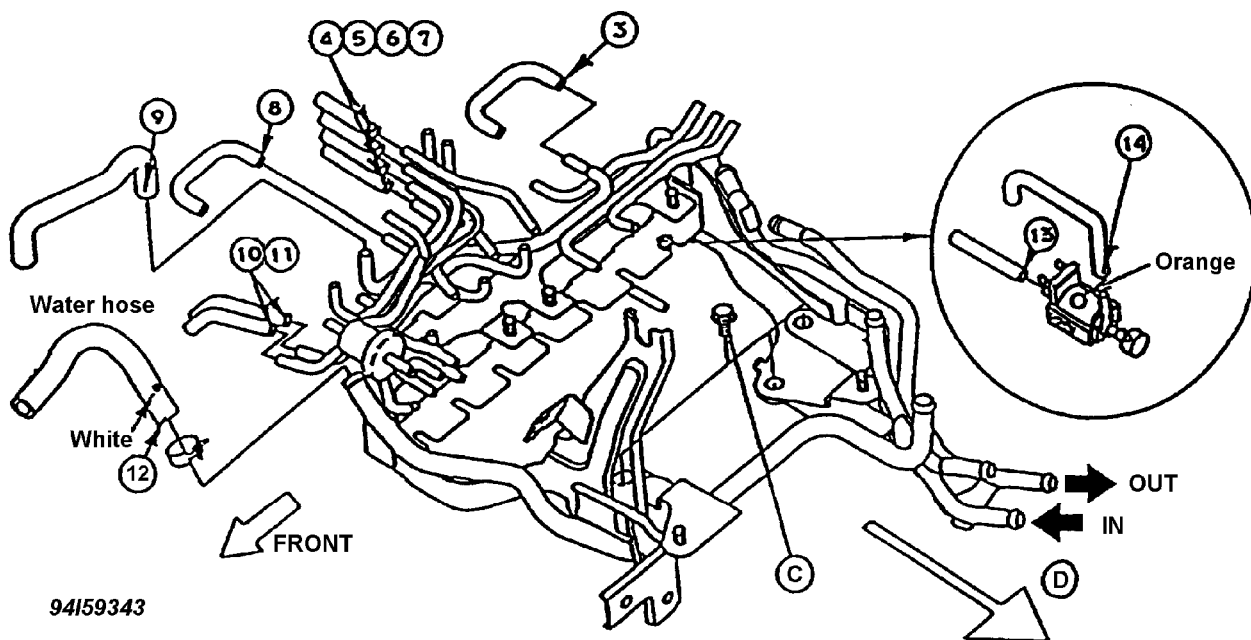


Fig. 64: Installation of Vacuum Tubes

35. Assemble the parts in the reverse order of removal.

PROCEDURE C - REPLACEMENT OF THE FILLER CAP KIT

NOTE: Procedure C is continued from procedure B.

The parts listed in this procedure must be ordered separately and are not included with the Fuel Recall Parts Kit.

36. Loosen the bolts of the filler cap body. Remove and discard the body and cap. Replace body, cap, and "O" ring with new ones from kit. See Fig. 65.

Kit Part Number - N3Z1-15-S10B

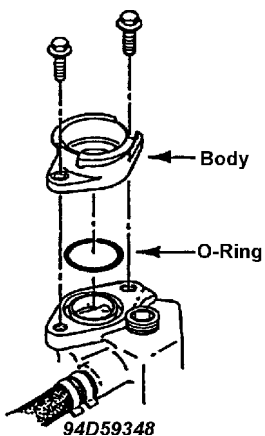


Fig. 65: Replacing Body Cap & "O" Rings

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

Article Text (p. 46)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:56AM

37. Remove and discard the radiator cap from the sure tank and replace it with a new one.

Rad-cap: Included in Kit

NOTE: If the vehicle has no coolant leakage experienced and no coolant leakage at present, proceed to PROCEDURE E.

PROCEDURE D - REPLACEMENT OF THE WATER PUMP KIT

NOTE: Procedure D is continued from procedure E.

Water Pump Kit Part number N3Z1-15-S20

Thermostat Gasket must be ordered separately and is not included in the Fuel Hose Parts Kit.

38. Remove the bolts from the fresh air duct, and remove the fresh air duct. See Fig. 66.

* Remove the rubber hoses from the air cleaner.

* Remove the air cleaner installation bolts.

39. Remove the upper radiator hose. See Fig. 66.

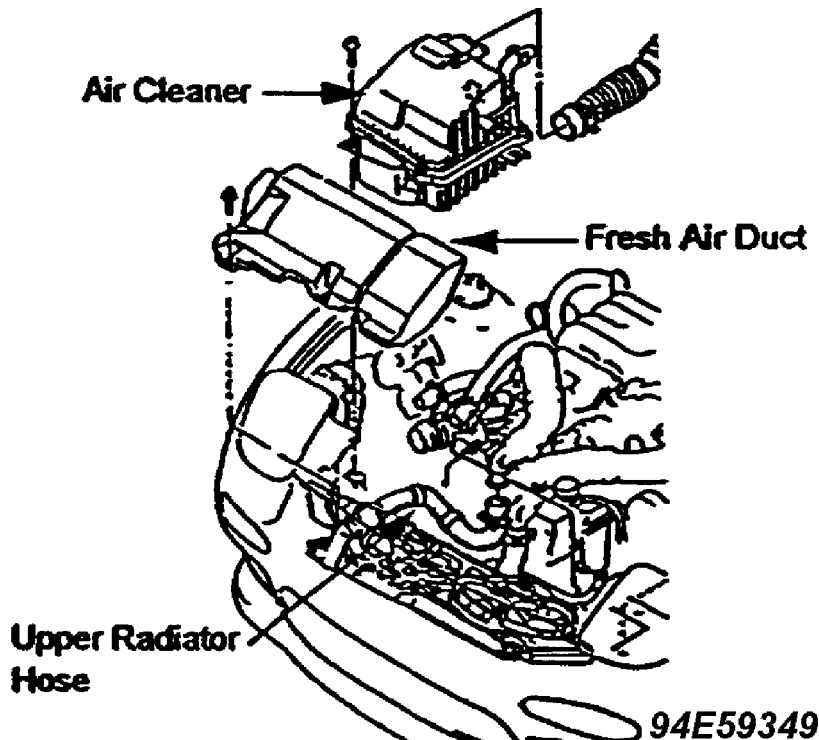


Fig. 66: Fresh Air Duct Bolts & Upper Radiator Hose

40. Remove the alternator installation nuts from the alternator

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

Article Text (p. 47)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:56AM

adjuster bracket to remove the tension control bolt.

41. Remove the water pump pulley and alternator belt. See Fig. 67.

- * Loosen the four bolts from the water pump pulley.
- * Loosen the alternator belt.
- * Remove the bolts from the water pump pulley.
- * Move the belt, and remove the water pump pulley.

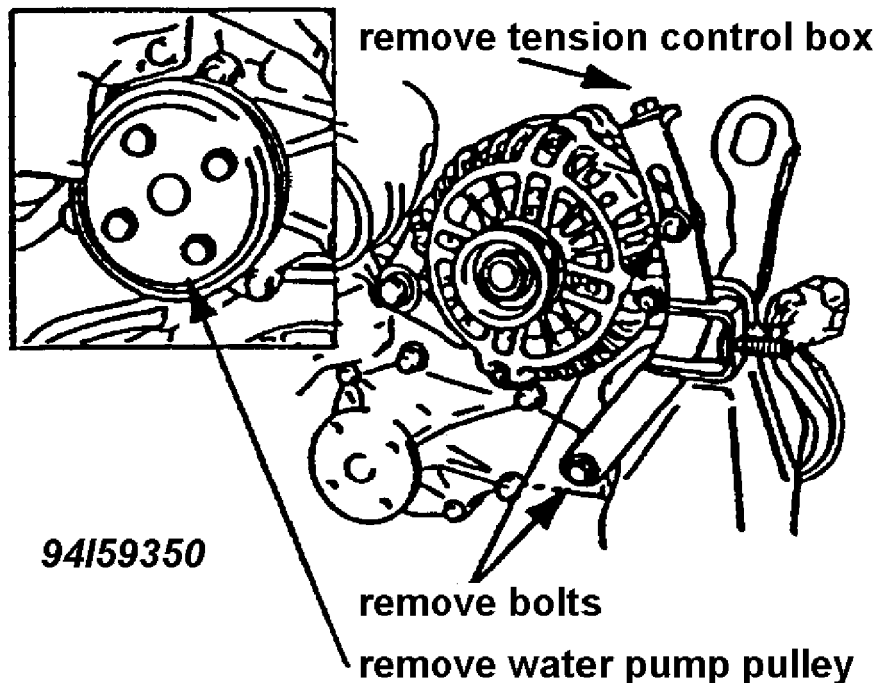


Fig. 67: Alternator Bracket & Water Pump Pulley

42. Remove the alternator adjuster bracket.

- * Remove the bolts attaching the alternator adjuster bracket to the water pump.

43. Remove the nut attaching the alternator adjusting bracket to the power steering bracket. See Fig. 68.

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

Article Text (p. 48)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:56AM

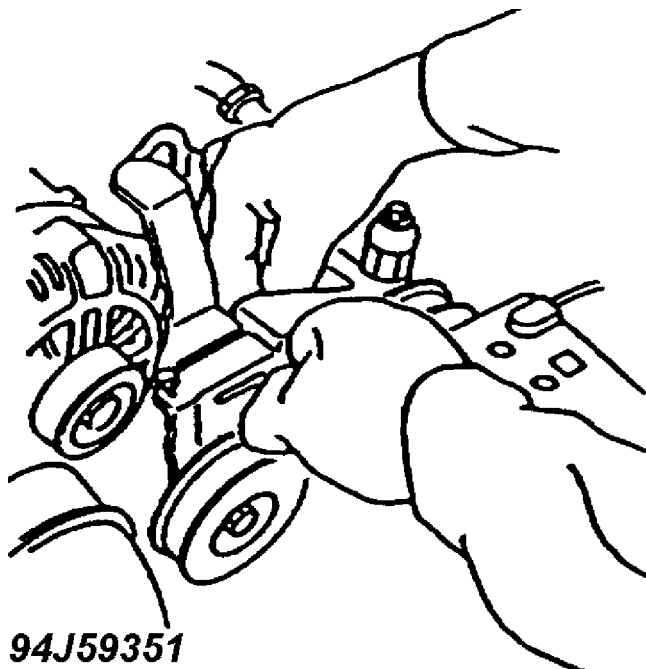


Fig. 68: Alternator Adjusting Bracket Nut to Power Steering Bracket

44. Remove the water pump and discard. Remove and discard gasket and clean gasket surface.
45. Install new water pump using the new gasket. See Fig. 69.

Water pump: Included in Kit

Gasket: Included in Kit

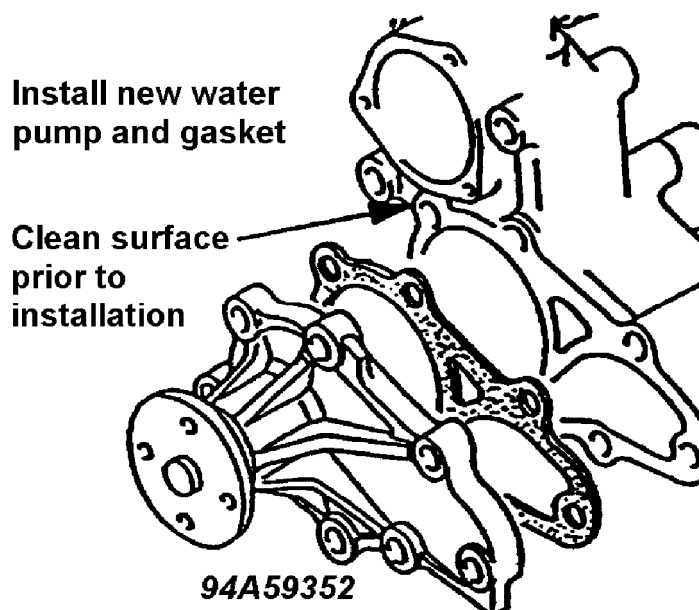


Fig. 69: Installing New Water Pump Gasket

NOTE: Be sure that oil metering line retaining clip is installed

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

Article Text (p. 49)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:56AM

correctly on the outside of the water pump at bolt "A".
See Fig. 70.

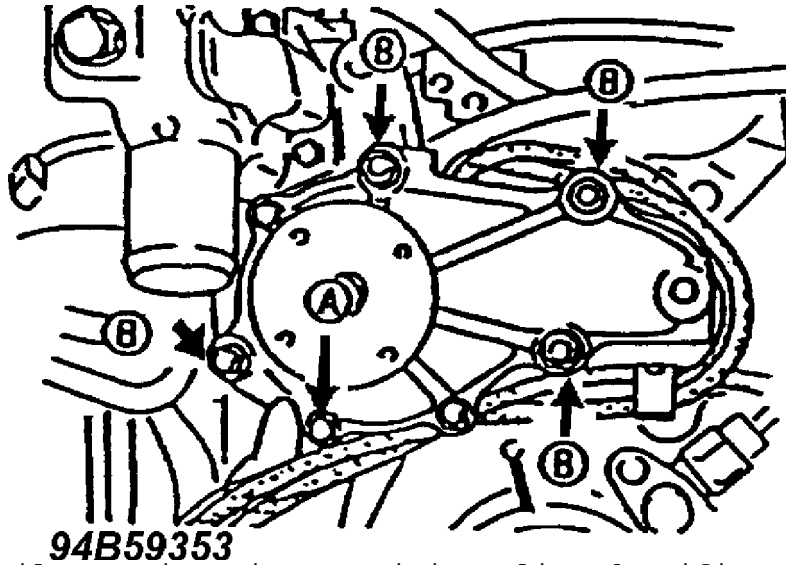


Fig. 70: Oil Metering Line Retaining Clip Identification

46. Disconnect the low coolant switch connector. See Fig. 71.

47. Remove the surge tank hose from the thermostat cover.

48. Remove the thermostat cover.

* Remove the thermostat.

* Install thermostat with new gasket.

Gasket: N3C1-15-173

NOTE: Ensure that the jiggle pin is in the 12:00 o'clock position.

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

Article Text (p. 50)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:56AM

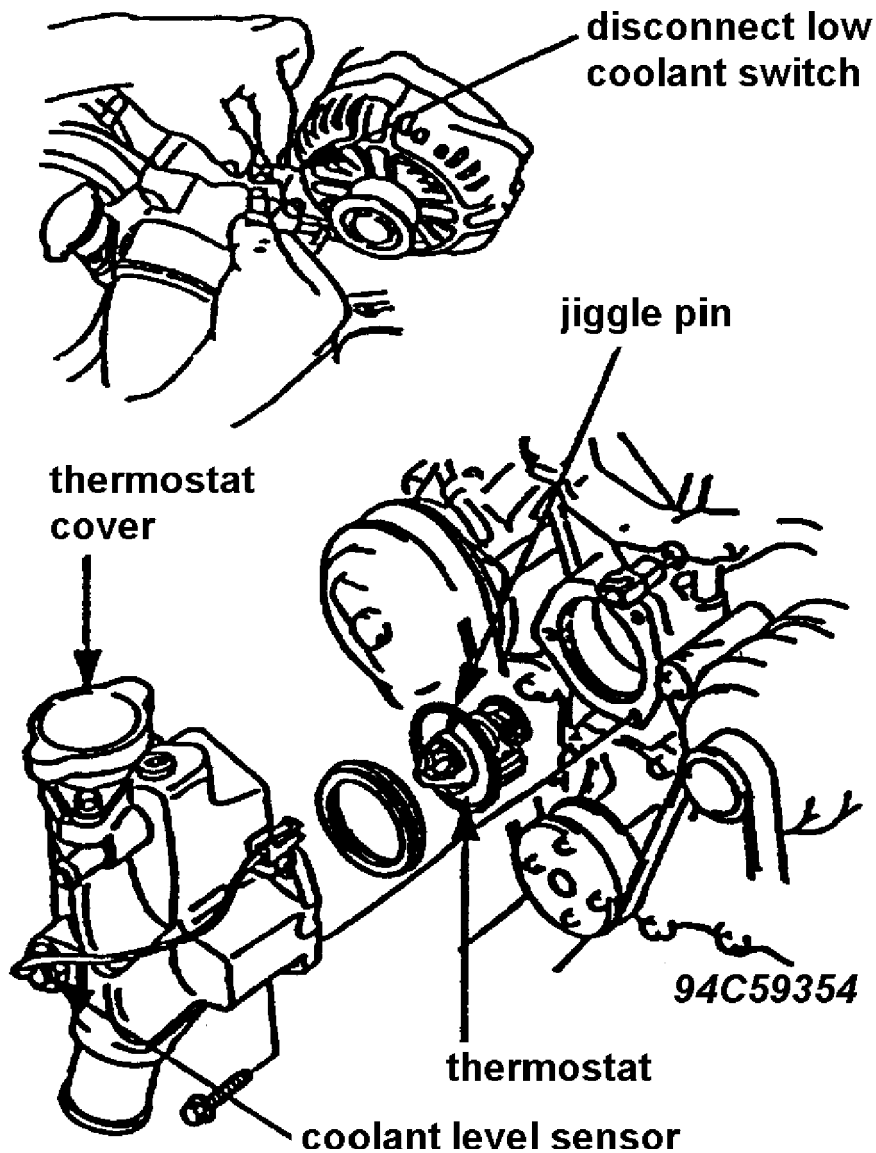


Fig. 71: Jiggle Pin Identification

49. Install a new coolant level sensor and gasket.

Level sensor: Included in Kit

Gasket: Included in Kit

50. Install the thermostat cover.

NOTE: Install water level sensor connector bracket.

51. Connect the coolant level sensor.

52. Install alternator bracket, pulley, and belt in reverse order of removal. See Fig. 67.

53. Install new upper radiator hose.

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

Article Text (p. 51)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:56AM

Radiator hose: Included in Kit

54. Install air cleaner and fresh air duct.

PROCEDURE E - COOLING SYSTEM CHECK/AFFIXING CAMPAIGN LABELS

NOTE: Procedure E is continued from procedure D.

55. After assembling parts, follow the instructions below prior to replenishing coolant.

- * Measure the concentration of antifreeze in the removed coolant with a hydrometer.
- * If the concentration is more than 45%, use the removed coolant to fill the system, purge air from the system and fill the coolant reservoir to the "F" mark.
- * If the concentration is 45% or less, add 100% anti-freeze to the coolant system as specified in the ANTI-FREEZE CONCENTRATION TABLE.
- * Purge the system of air. Use the original coolant to fill the reservoir to the "F" mark.

NOTE: Coolant refers to the fluid drained from the vehicle.
Anti-Freeze refers to 100% new coolant.

ANTI-FREEZE CONCENTRATION TABLE

Concentration Of Anti-Freeze			Amount of Anti-Freeze To Be Added		
3	Anti-Freeze	3	To Be Added	3	3
3	0-5%	3	4.4L	3	3
3	5-10%	3	4.1L	3	3
3	10-15%	3	3.8L	3	3
3	15-20%	3	3.5L	3	3
3	20-25%	3	3.1L	3	3
3	25-30%	3	2.7L	3	3
3	30-35%	3	2.2L	3	3
3	35-40%	3	1.6L	3	3
3	40-45%	3	1.0L	3	3

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

Article Text (p. 52)

1993 Mazda RX7

For www.iluvmyrx7.com

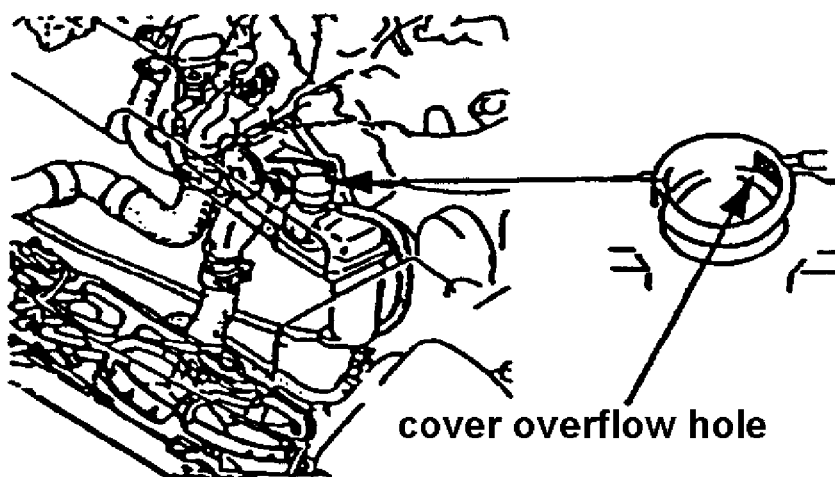
Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:56AM

³ Use Hydrometer To Measure Concentration ³

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAUU

56. Remove the cap from the surge tank and close the overflow hole in the surge tank neck with tape. See Fig. 72.

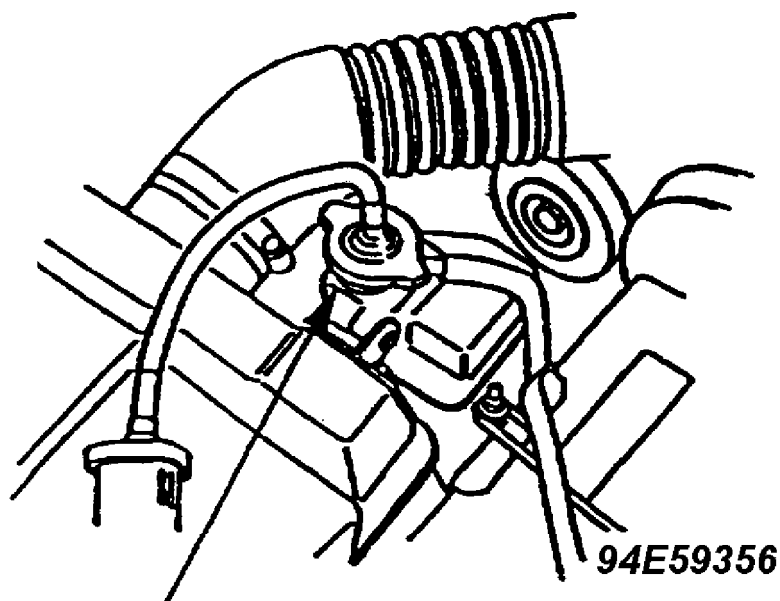


94D59355

Fig. 72: Cover Overflow Hole

57. Install the radiator pressure tester on surge tank.

58. Apply 15 psi. See Fig. 73.



94E59356

Install radiator tester and apply 15psi.

Verify that pressure holds.

Fig. 73: Radiator Pressure Tester Application

59. Verify that pressure holds.

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

Article Text (p. 53)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Saturday, August 25, 2001 06:56AM

NOTE: If the radiator coolant pressure has dropped, locate the leak and repair as necessary. Retest after repair following the above procedures. After confirmation that no leaks are present, remove the tape from the overflow hole and install the pressure cap.

60. Affix the Campaign Label number 54407 and number 60504 onto the driver's side door for future confirmation that the campaign has been completed on this vehicle. See Fig. 74.

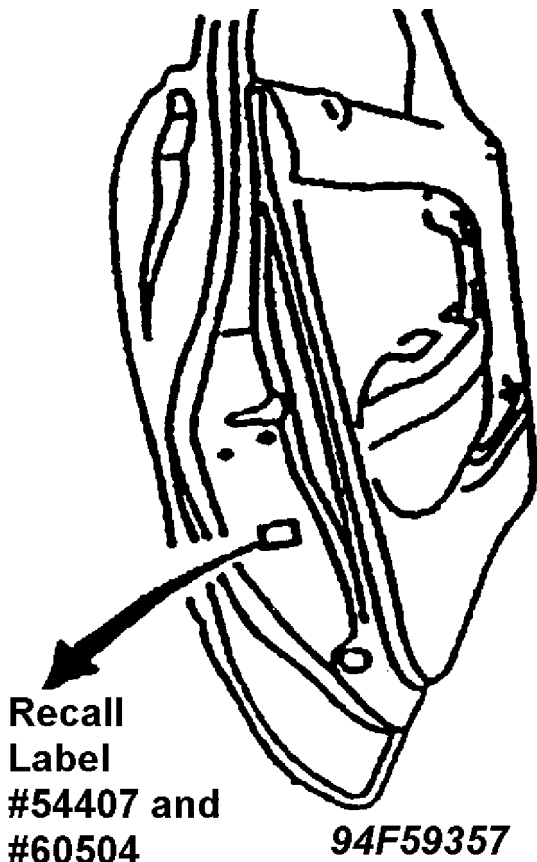


Fig. 74: Recall Label #54407 & #60504 Identification

WARRANTY INFORMATION

REPAIR CONTENT - FUEL HOSE AND COOLING SYSTEM WARRANTY TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA						AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA					
3	3	With Coolant	3	Without Coolant	3	Fuel Hose	3				
3	3	Leak	3	Leak	3		3				
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA						AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA					
3	3	Warranty Type	3	5	3	5	3	5	3		
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA						AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA					
3	3	Recall No.	3	60504	3	60504	3	60504	3		
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA						AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA					
3	3	Process Code	3	D	3	E	3	F	3		
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA						AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA					

Saturday, August 25, 2001 06:56AM

END OF ARTICLE

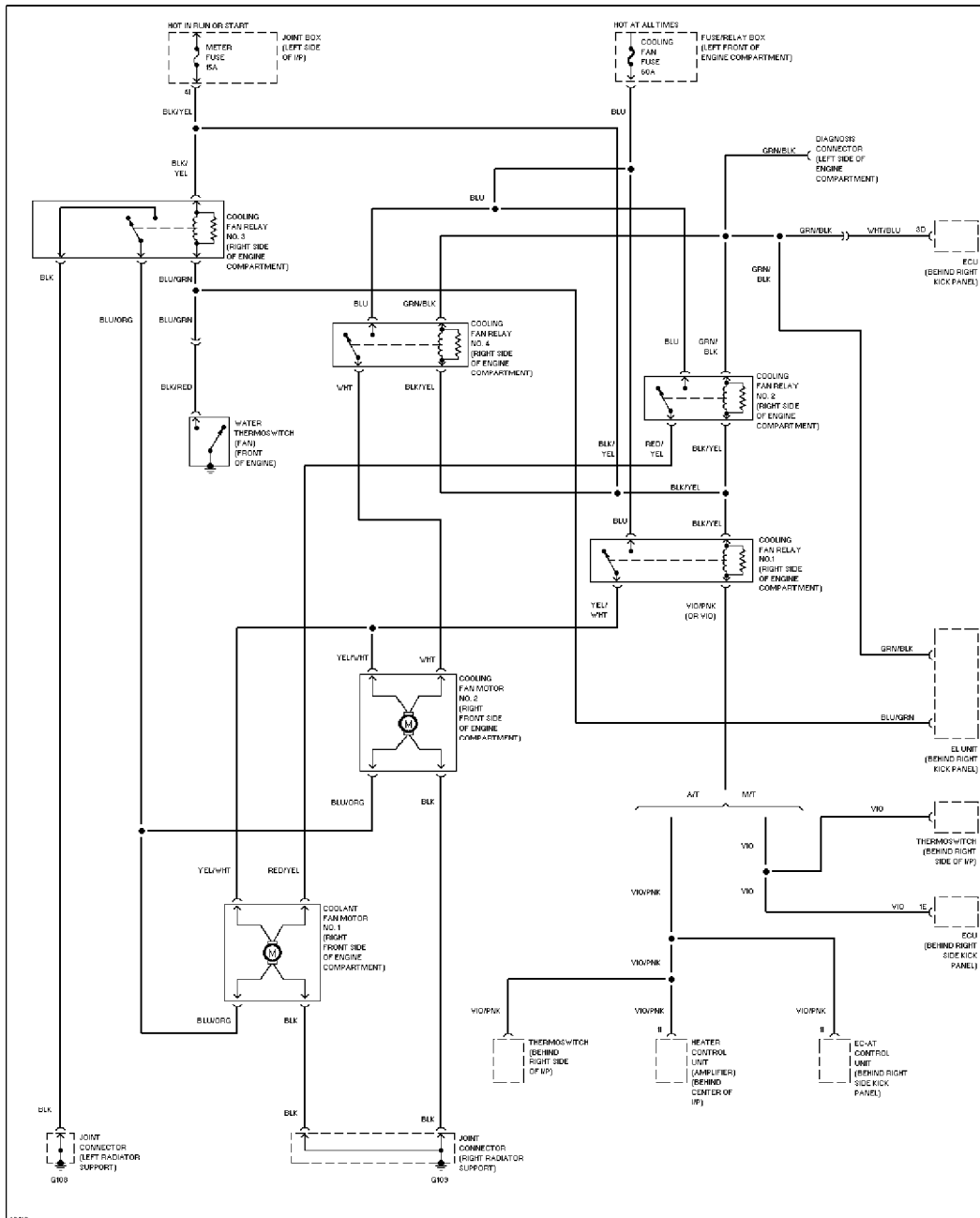
Copyright © 1998 Mitchell Repair Information Company, LLC
Wednesday, August 22, 2001 07:08AM

ARTICLE BEGINNING

1993 System Wiring Diagrams

Mazda - RX7

COOLING FAN



Cooling Fan Circuit

SYSTEM WIRING DIAGRAMS

Article Text (p. 2)

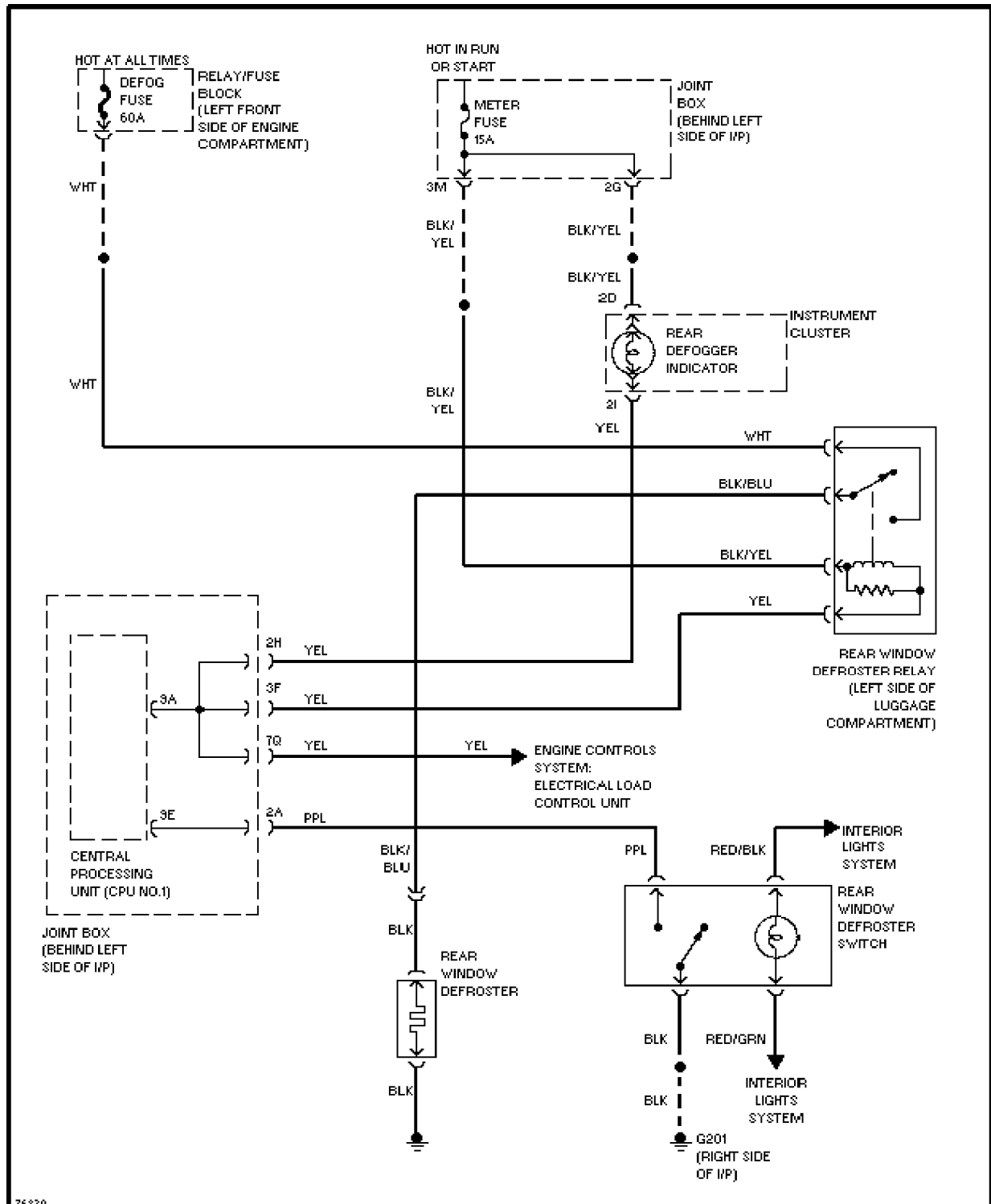
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:08AM

DEFOGGERS



Defogger Circuit

SYSTEM WIRING DIAGRAMS

Article Text (p. 3)

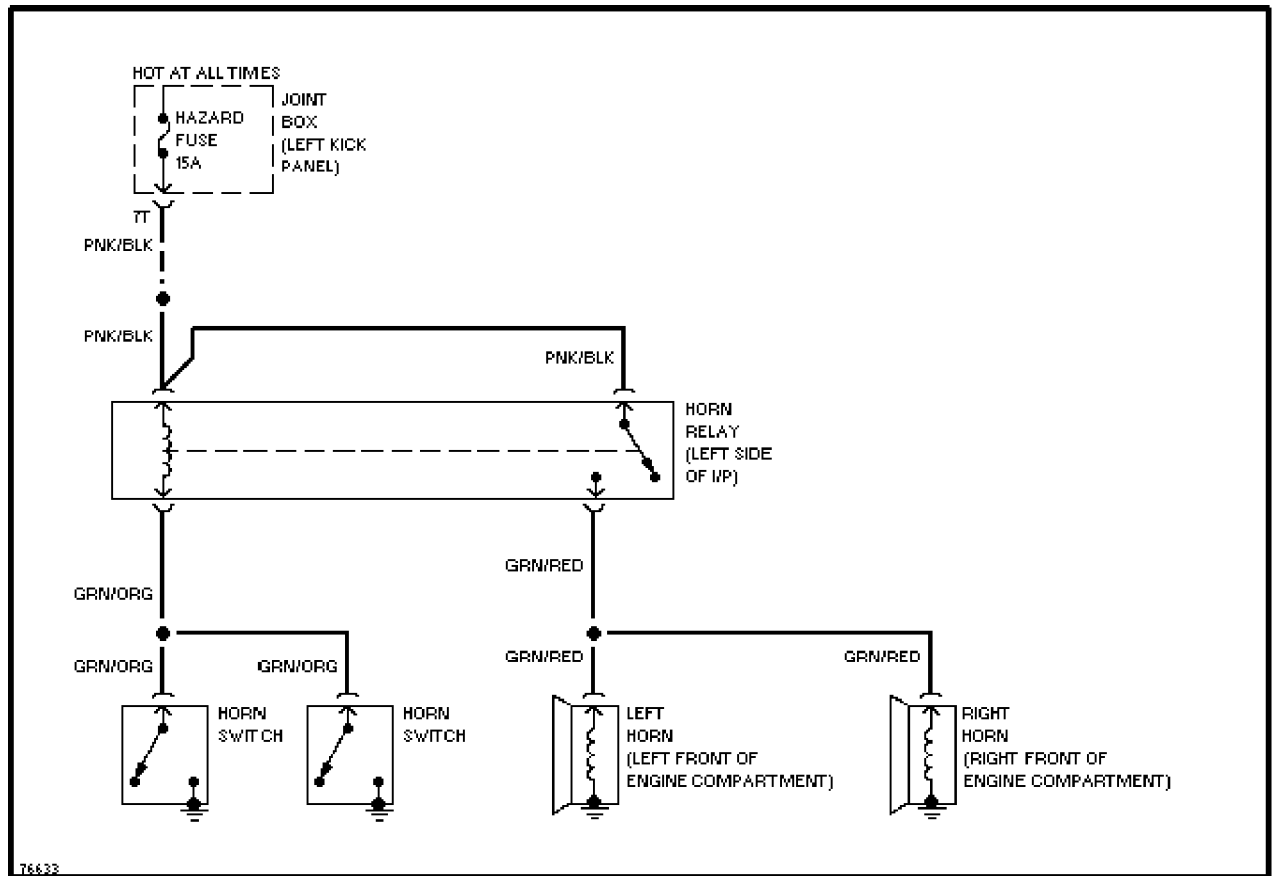
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:08AM

HORN



Horn Circuit

POWER ANTENNA

SYSTEM WIRING DIAGRAMS

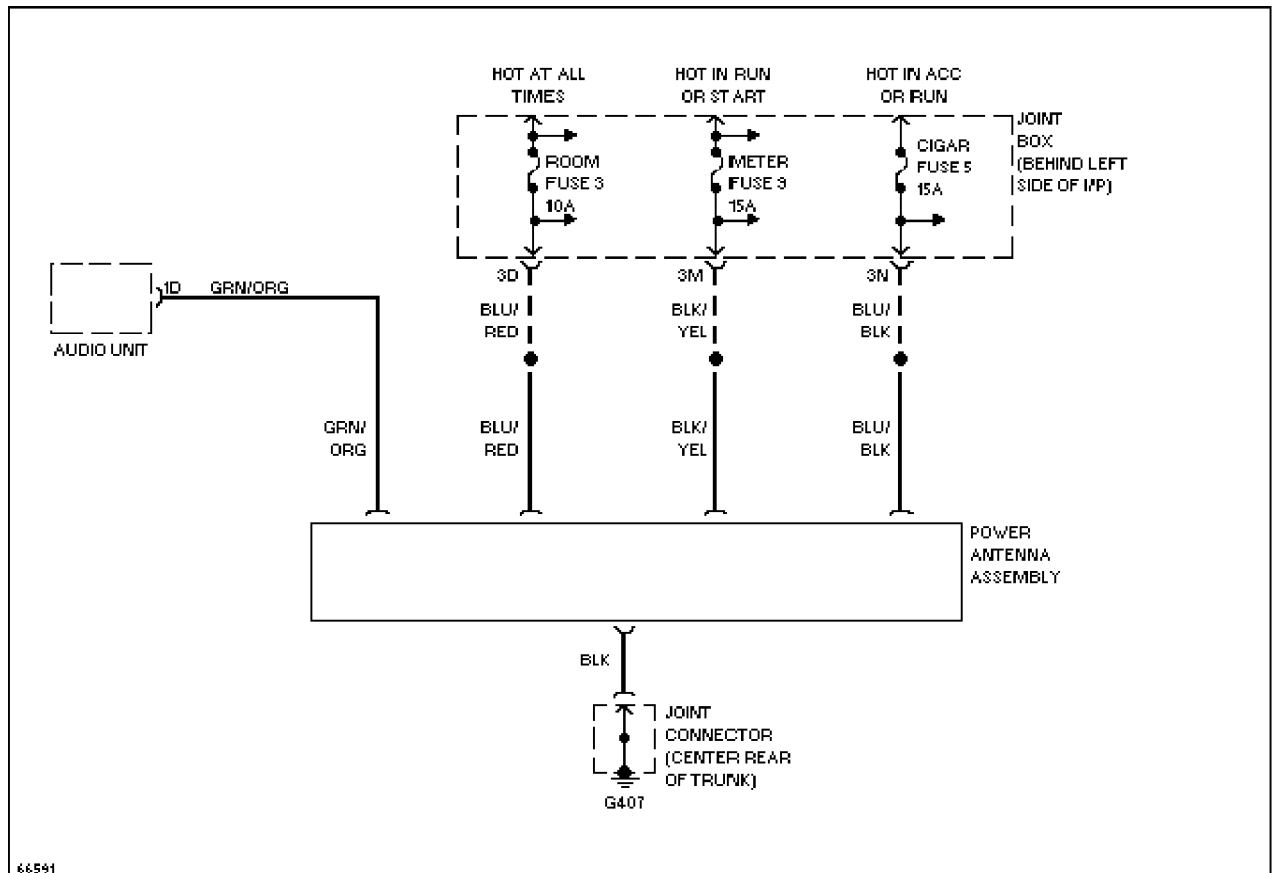
Article Text (p. 4)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:08AM



66591
Power Antenna Circuit

POWER DOOR LOCKS

SYSTEM WIRING DIAGRAMS

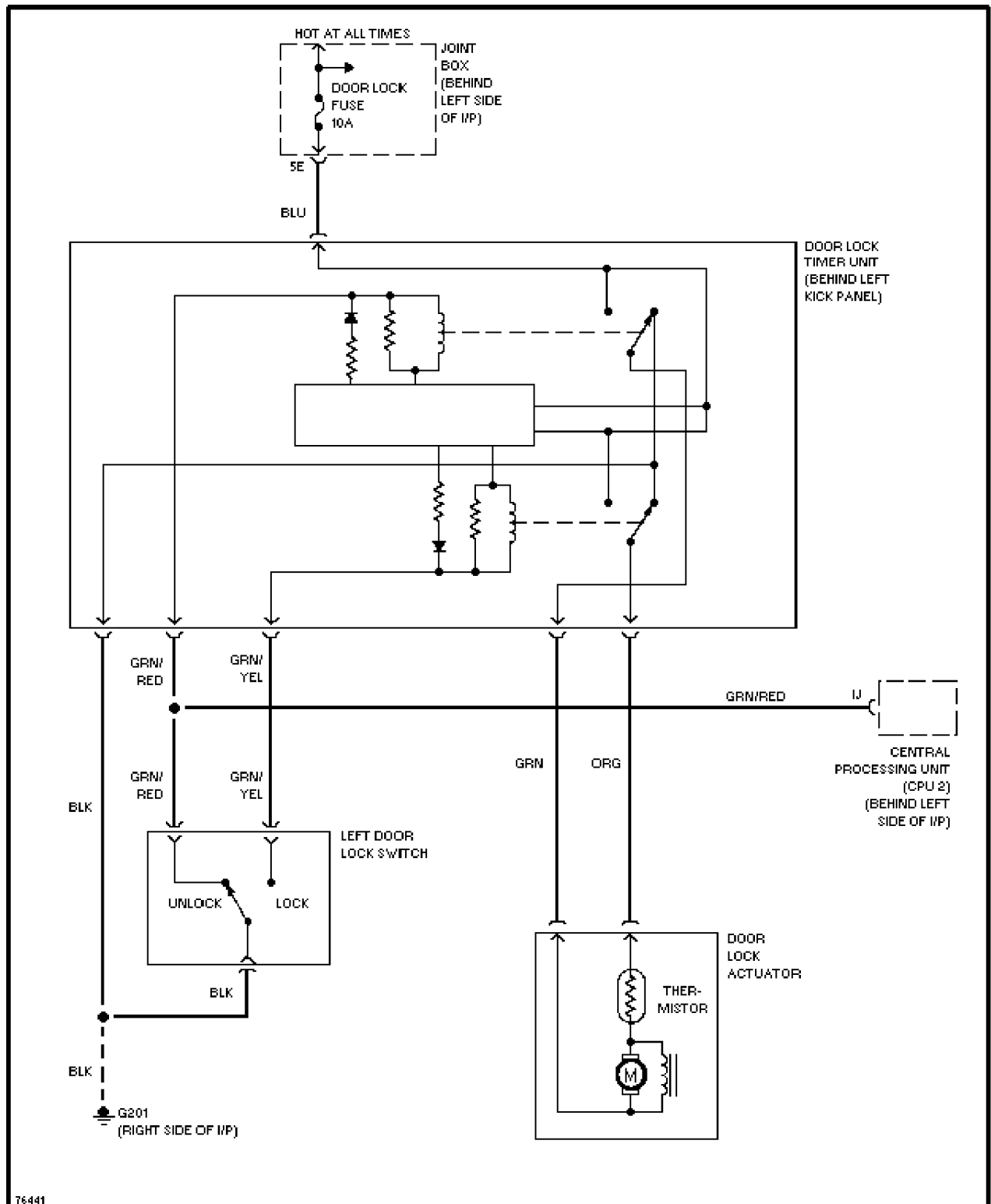
Article Text (p. 5)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:08AM



Power Door Lock Circuit

POWER MIRRORS

SYSTEM WIRING DIAGRAMS

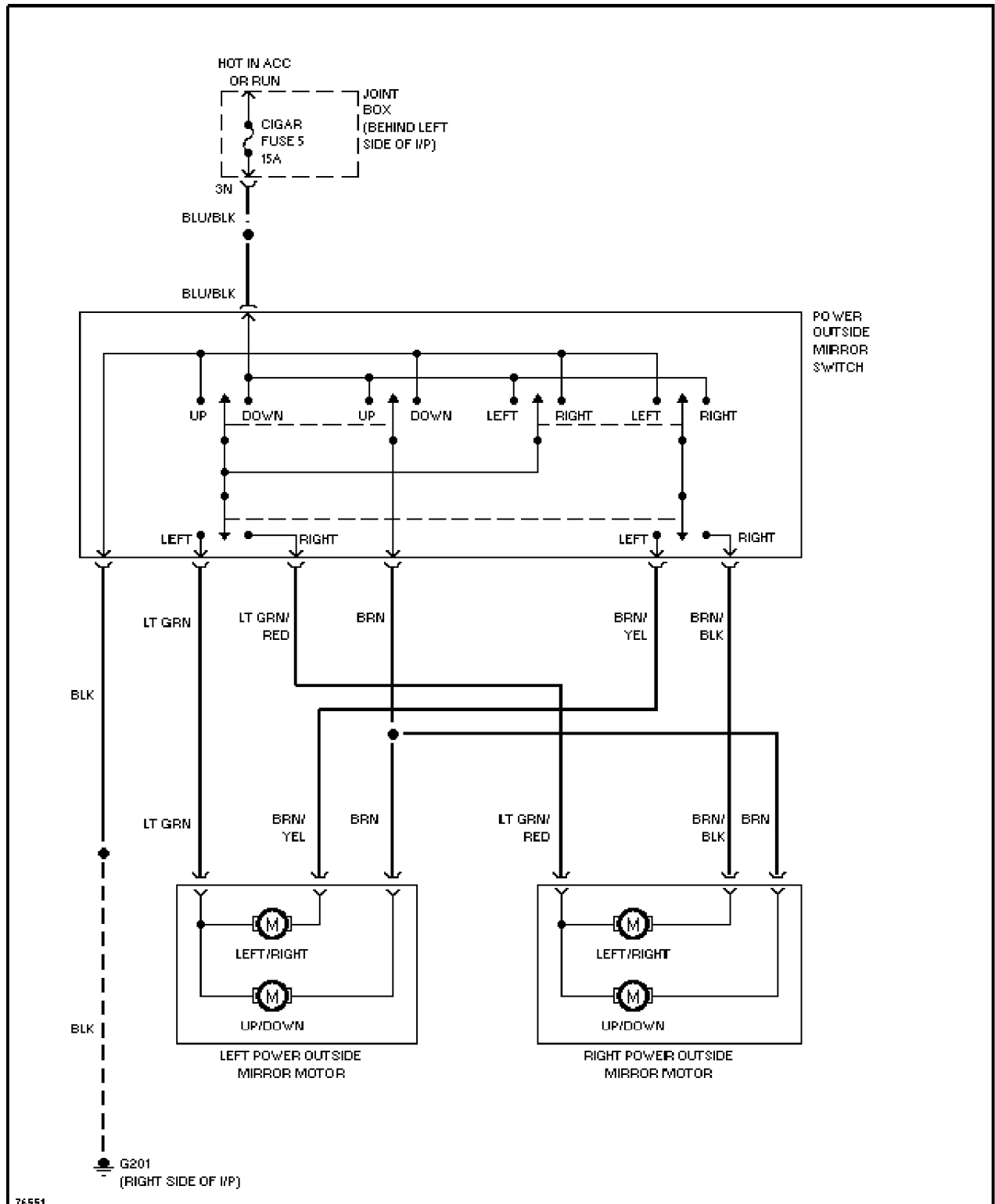
Article Text (p. 6)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:08AM



Power Mirror Circuit

SYSTEM WIRING DIAGRAMS

Article Text (p. 7)

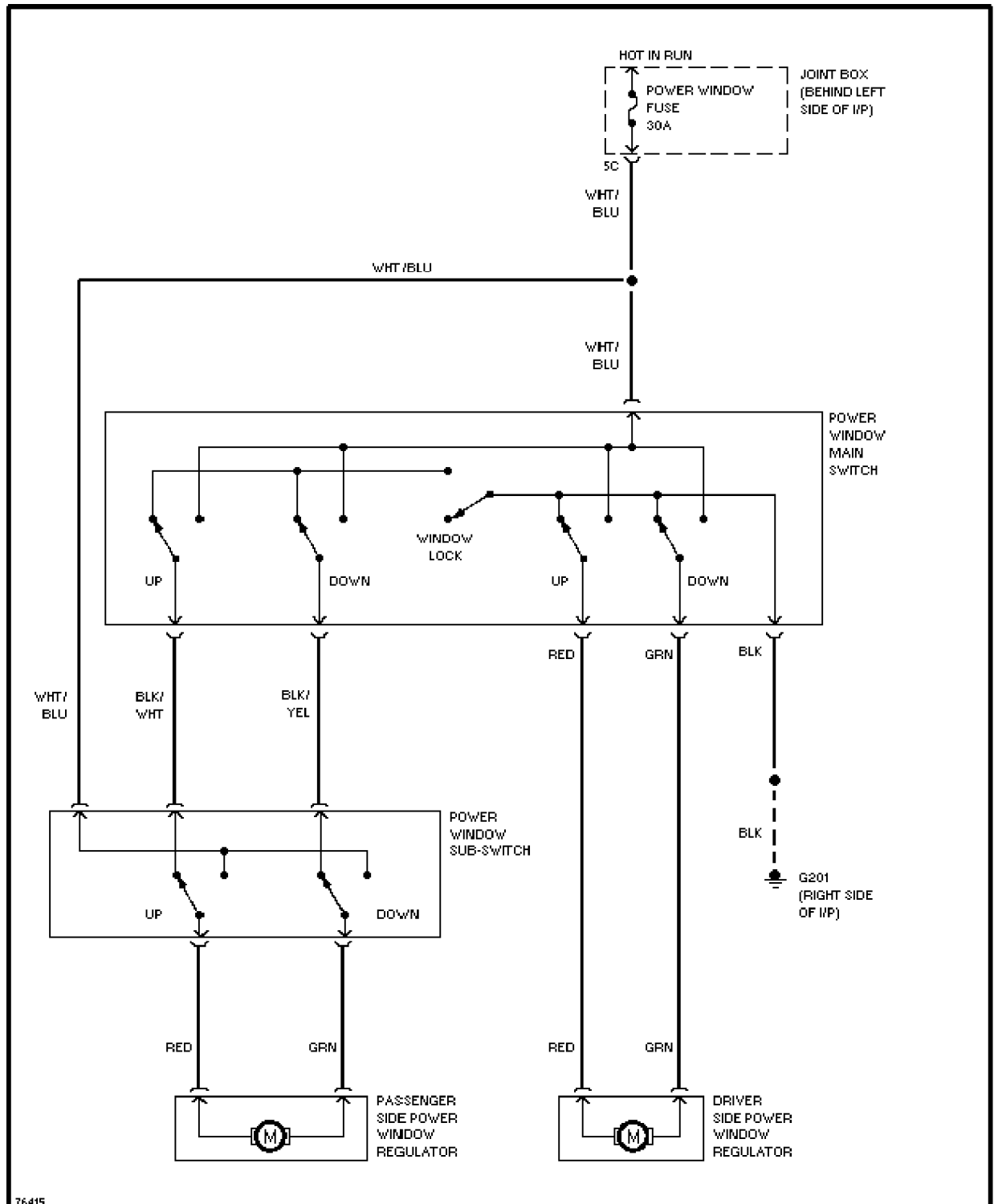
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:08AM

POWER WINDOWS



Power Window Circuit

SYSTEM WIRING DIAGRAMS

Article Text (p. 8)

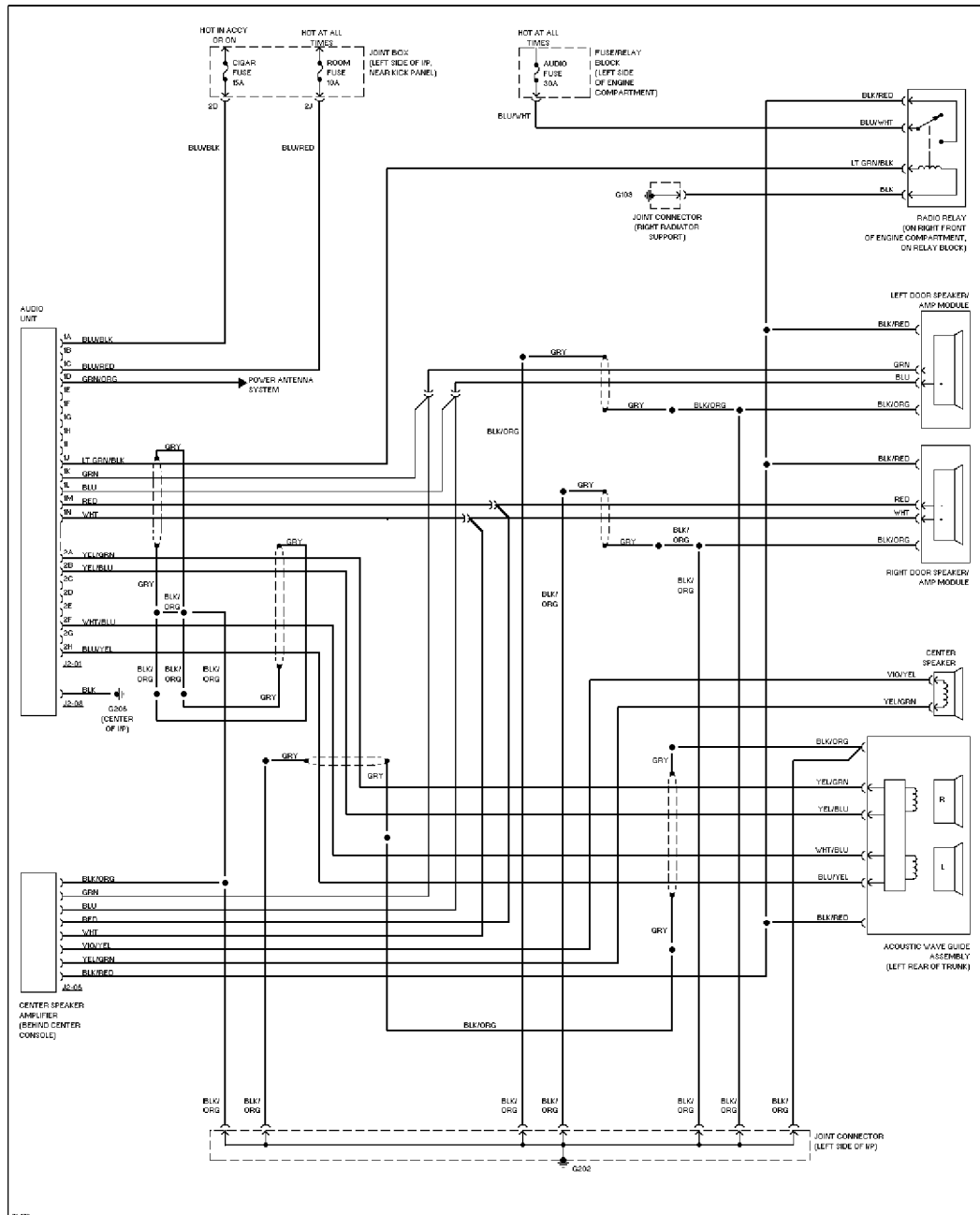
1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:08AM

RADIO



Radio Circuits, W/ Bose Acoustic Wave System

SYSTEM WIRING DIAGRAMS

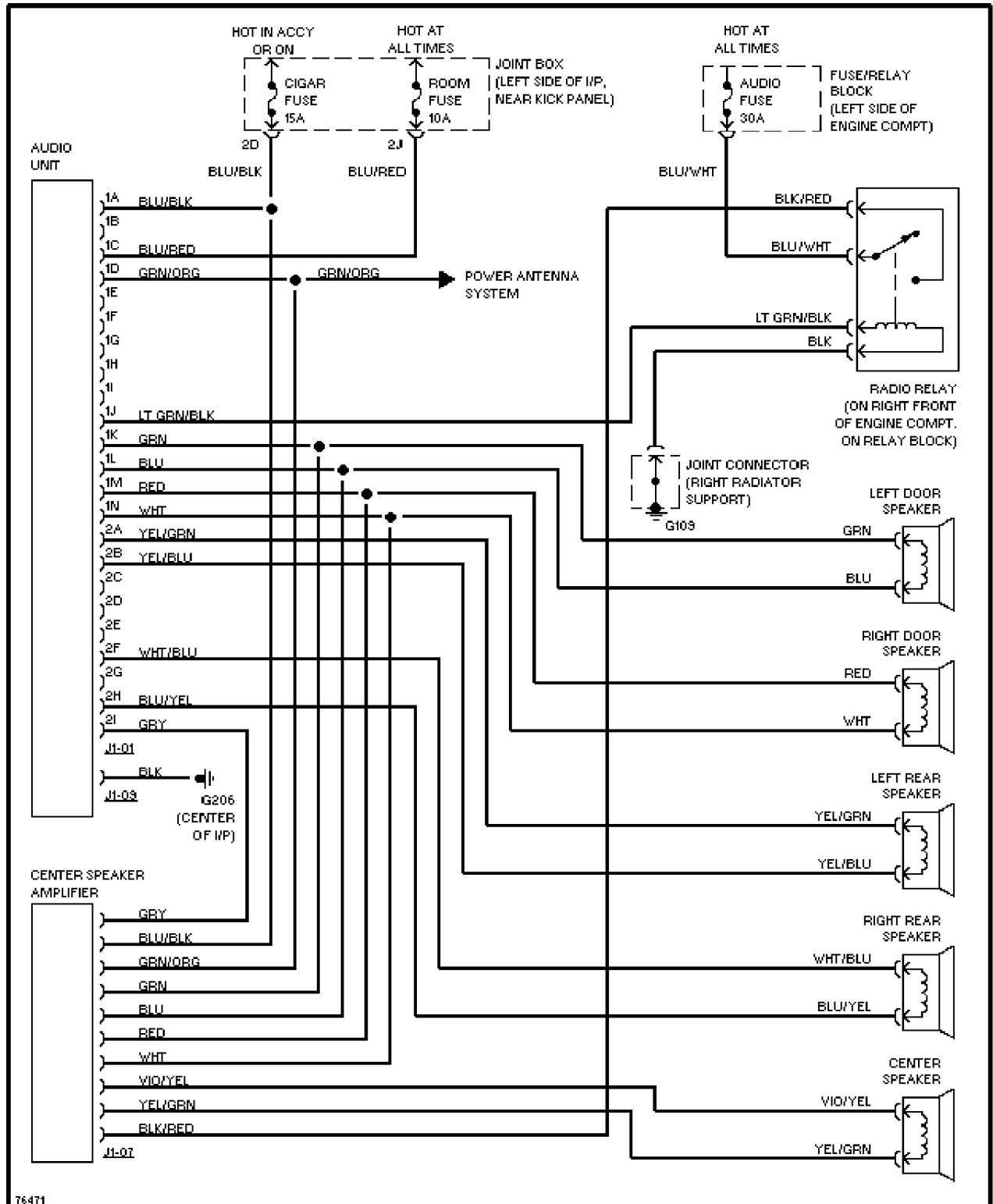
Article Text (p. 9)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:08AM



Radio Circuits, W/O Bose Acoustic Wave System

STARTING/CHARGING

SYSTEM WIRING DIAGRAMS

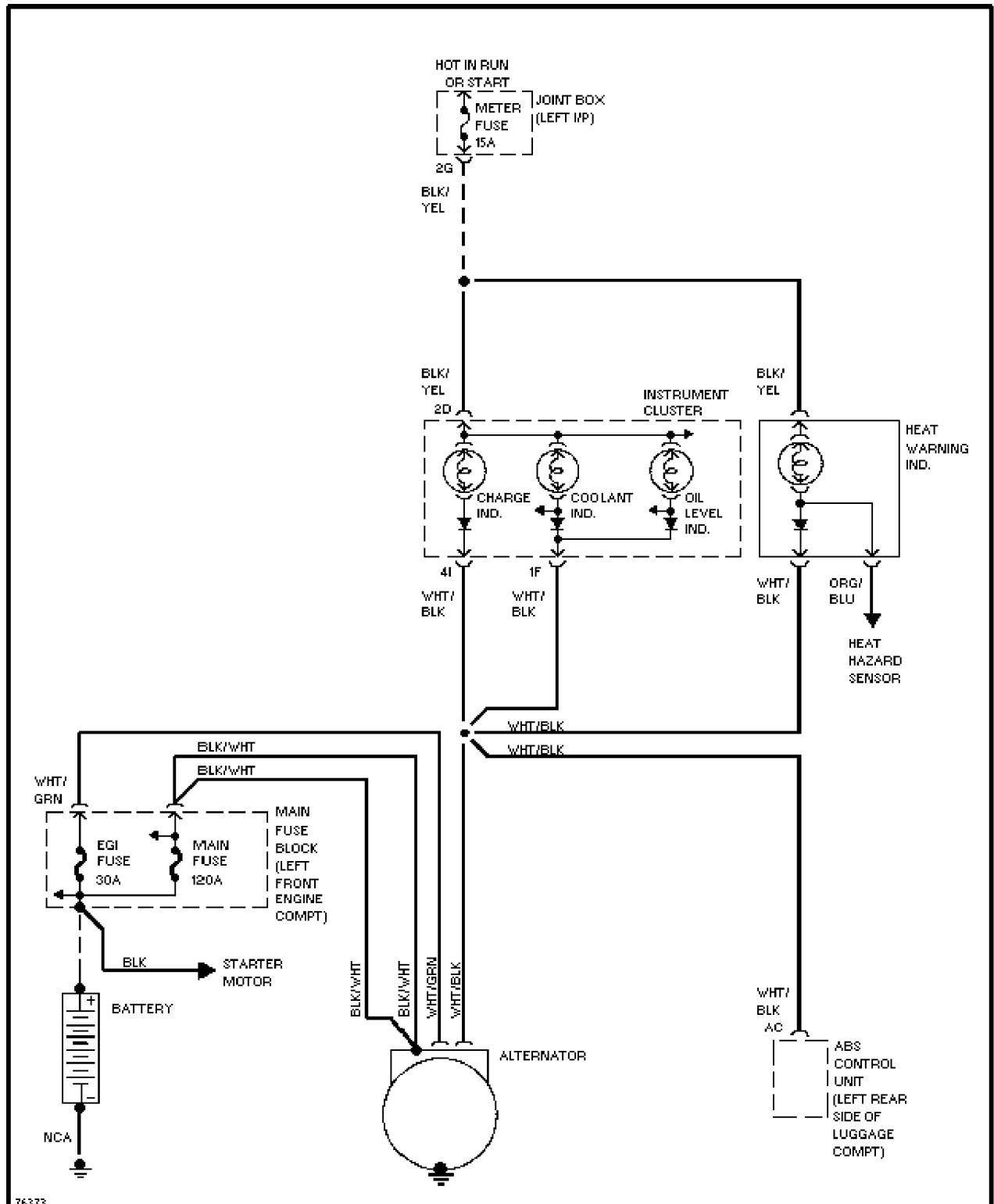
Article Text (p. 10)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:08AM



Charging Circuit

SYSTEM WIRING DIAGRAMS

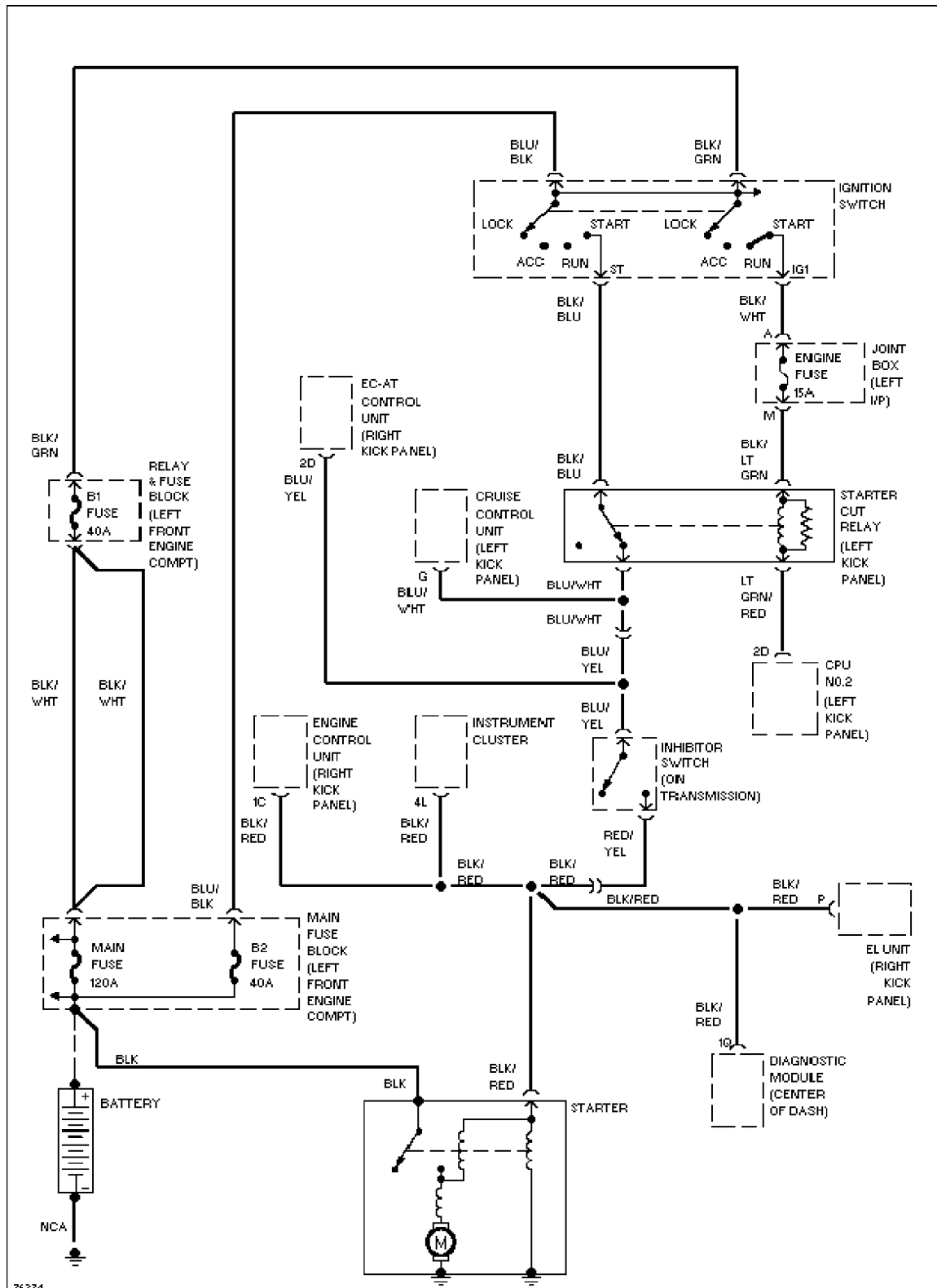
Article Text (p. 11)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:08AM



Starting Circuit, A/T

SYSTEM WIRING DIAGRAMS

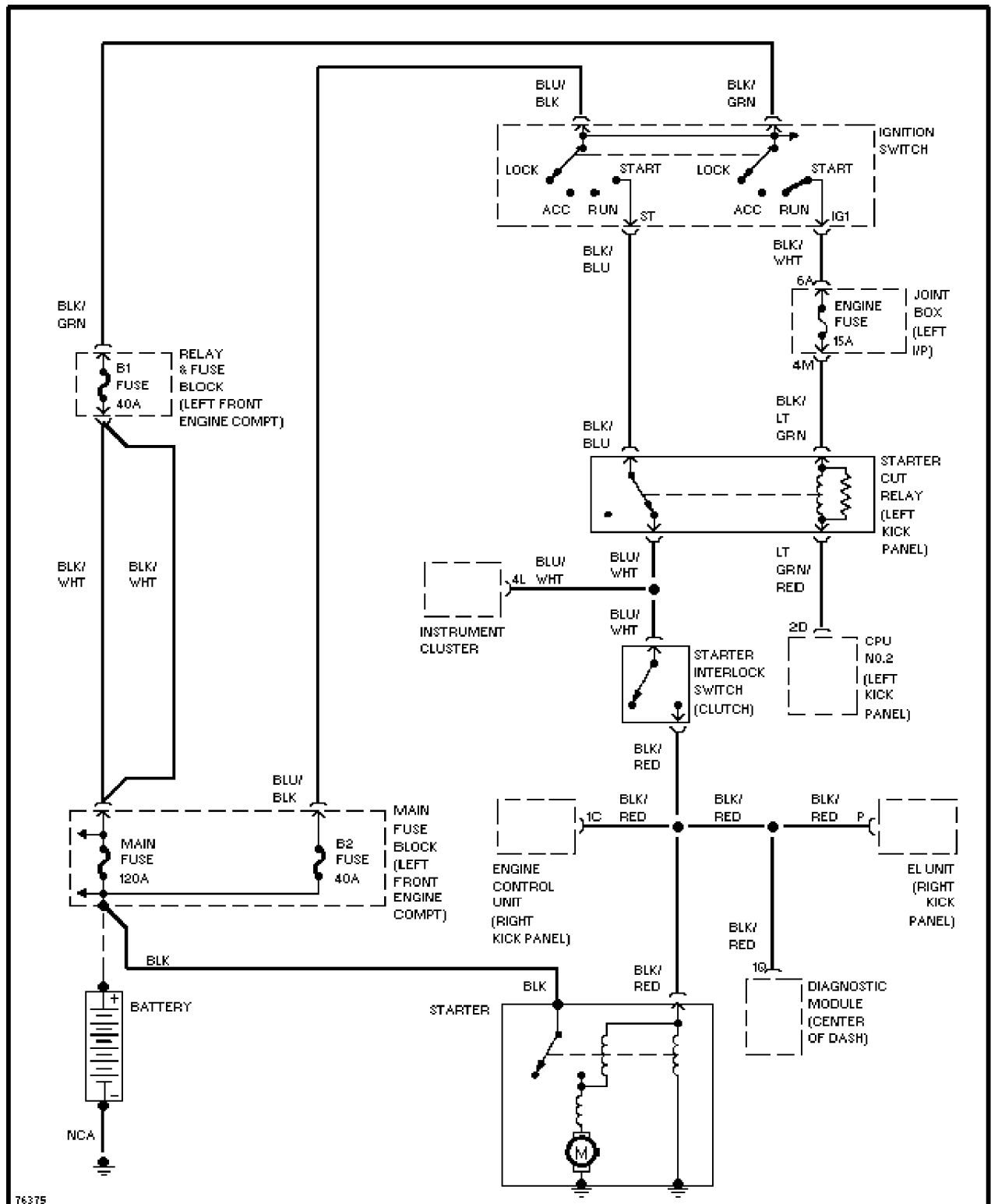
Article Text (p. 12)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:08AM



Starting Circuit, M/T

TRANSMISSION

SYSTEM WIRING DIAGRAMS

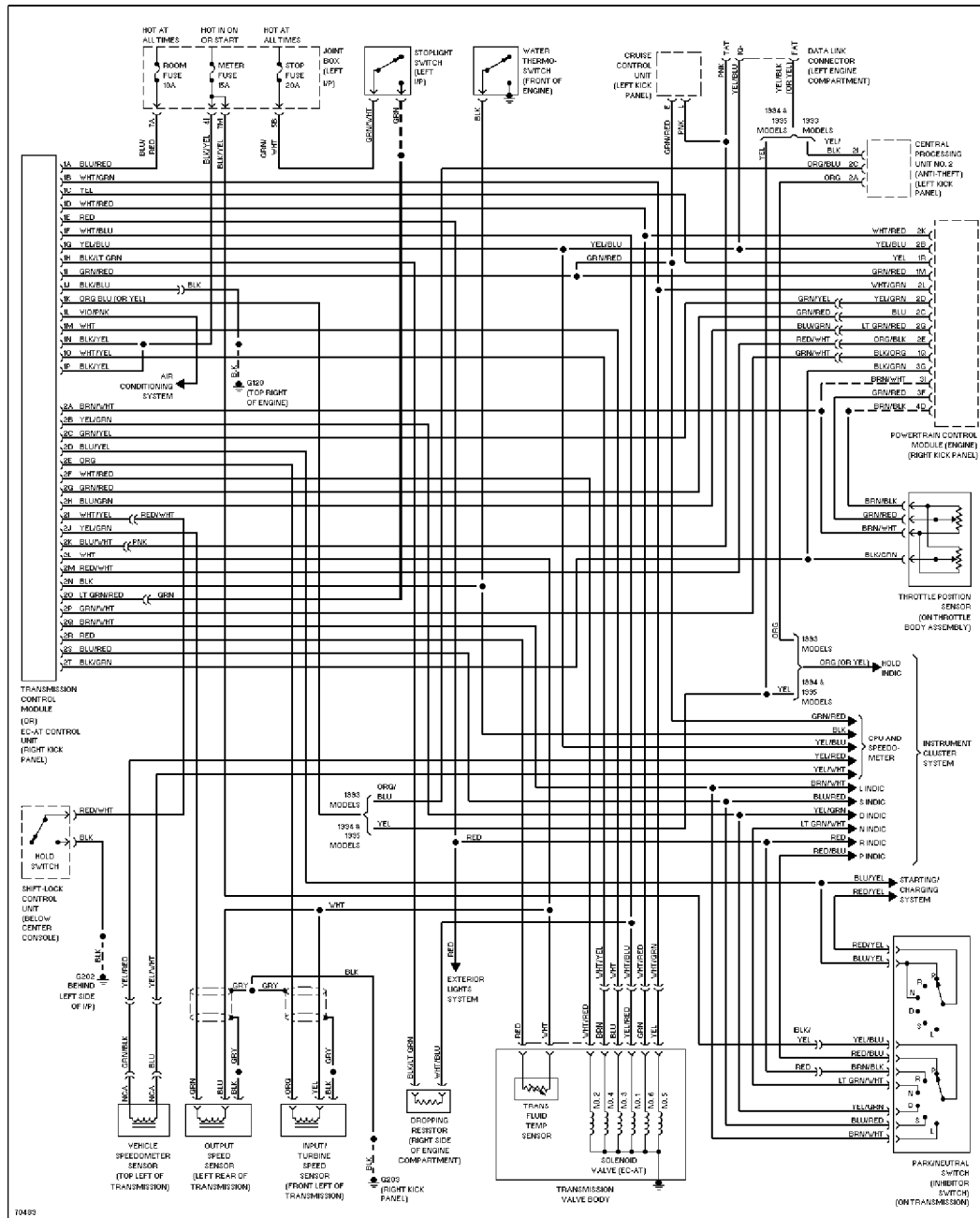
Article Text (p. 13)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:08AM



Transmission Circuit

WIPER/WASHER

SYSTEM WIRING DIAGRAMS

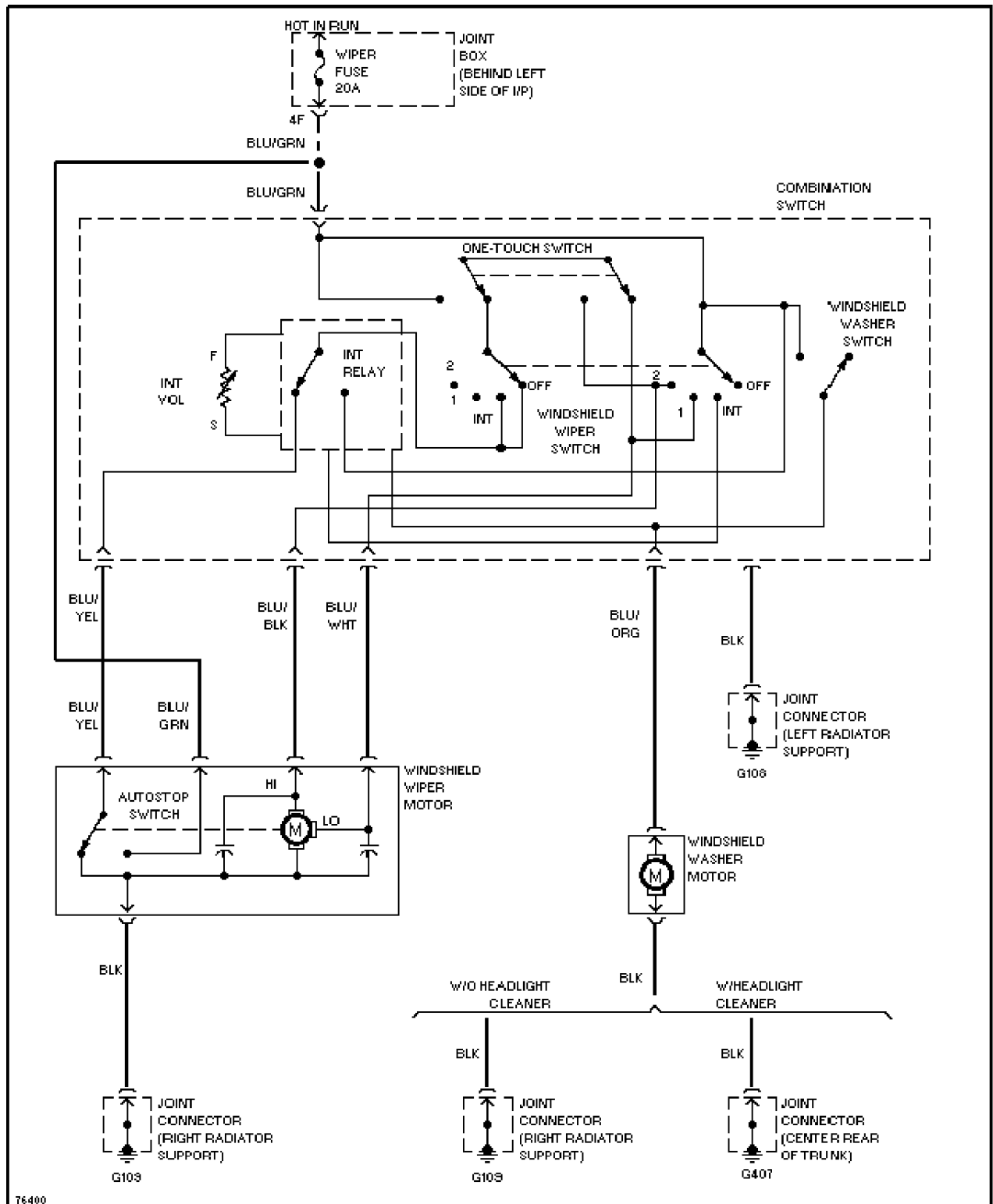
Article Text (p. 14)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:08AM



Front Washer/Wiper Circuit

SYSTEM WIRING DIAGRAMS

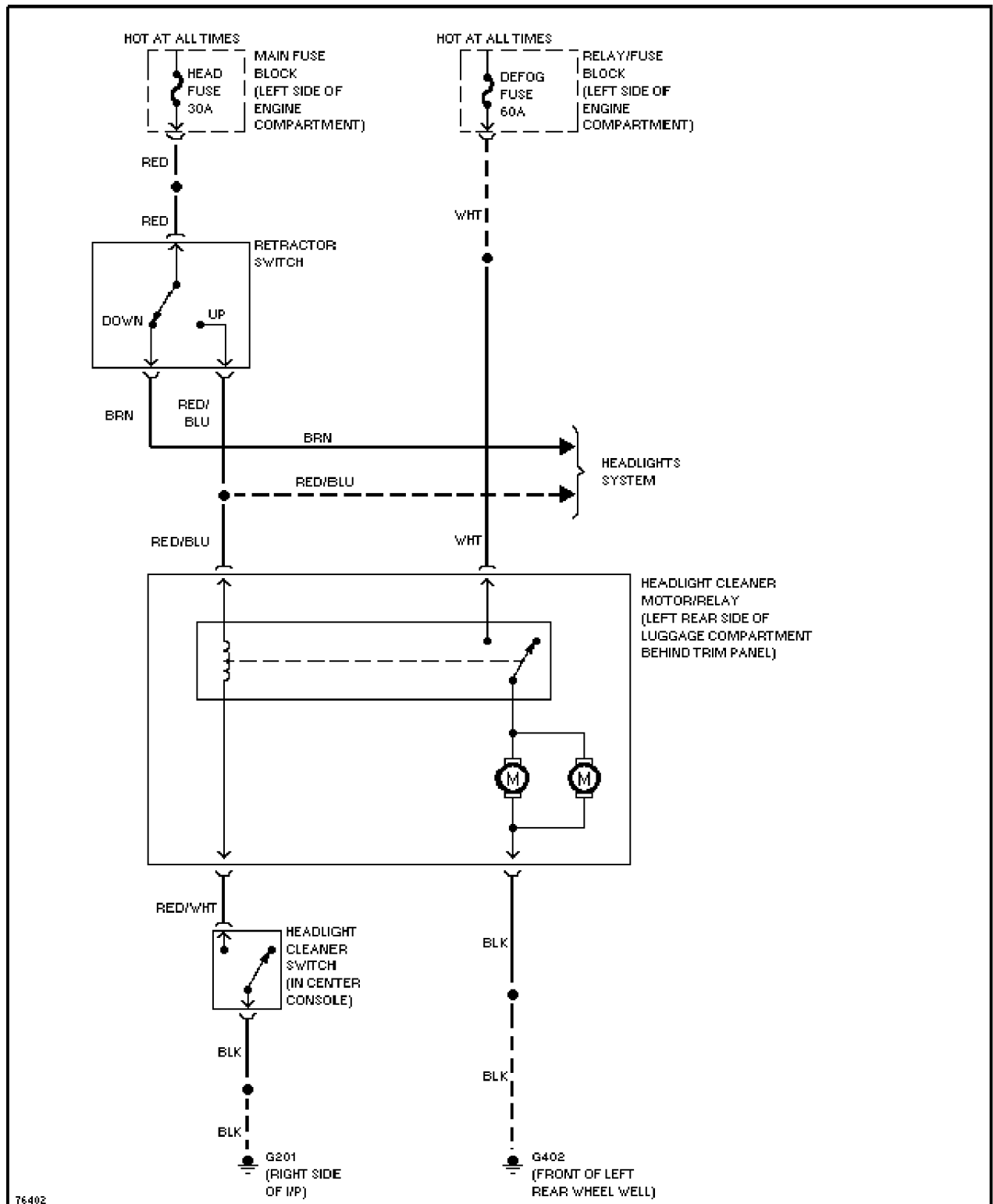
Article Text (p. 15)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:08AM



Headlamp Washer Circuit

SYSTEM WIRING DIAGRAMS

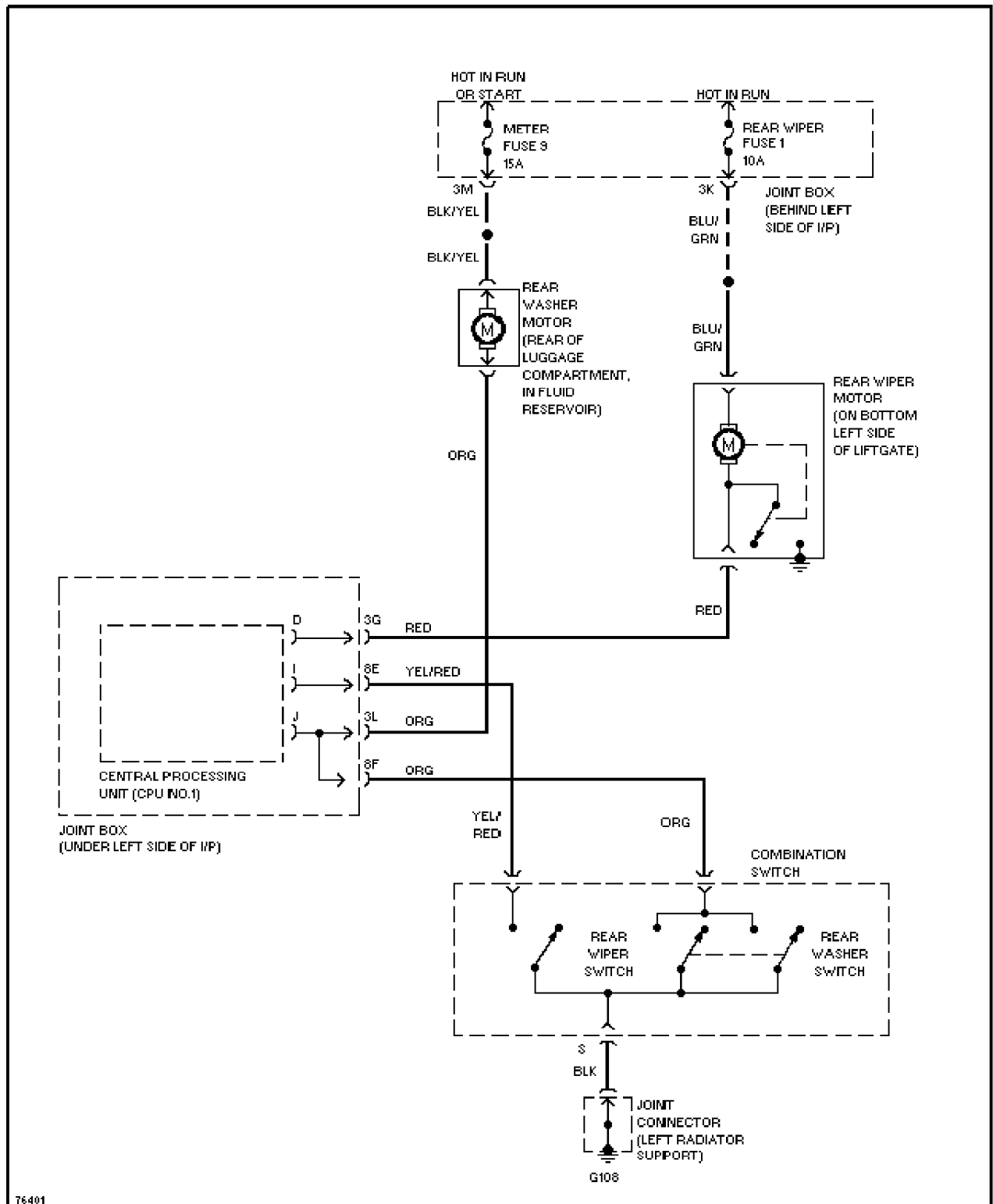
Article Text (p. 16)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:08AM



Rear Washer/Wiper Circuit

END OF ARTICLE

WIRING DIAGRAM SYMBOLS

Article Text

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Wednesday, August 22, 2001 07:09AM

ARTICLE BEGINNING

WIRING DIAGRAMS

How To Use The Wiring Diagrams

WIRING DIAGRAMS

INTRODUCTION

The wiring diagrams and technical service bulletins, containing wiring diagram changes, are obtained from the domestic and import manufacturers. These are checked for accuracy and are all redrawn into a consistent format for easy use.

All diagrams are arranged with the front of the vehicle at the left side of the first page and the rear of the vehicle at the right side of the last page. Accessories are shown near the end of the diagram.

Components are shown in their approximate location on the vehicle. Due to the constantly increasing number of components on vehicles today, it is impossible to show exact locations.

In the past, when cars were simpler, diagrams were simpler. All components were connected by wires, and diagrams seldom exceeded 4 pages in length. Today some wiring diagrams require more than 16 pages. It would be impractical to expect a service technician to trace a wire from page 1 across every page to page 16.

Removing some of the wiring maze reduces eyestrain and time wasted searching across several pages. Today, the majority of diagrams now follow a much improved format, which permits space for internal switch details and connector shapes.

Any wires that don't connect directly to their components are identified on the diagram to indicate where they go. There is a legend on the first page of each diagram, detailing component location. It refers you to sub-systems, using grid NUMBERS at the top and bottom of the page and grid LETTERS on each side. This grid system works in a manner similar to that of a road map.

HOW TO USE THE WIRING DIAGRAMS

1) On the first page of the diagram, you will find a listing of major electrical components or systems. Locate the specific component or system you wish to trace. A grid number and letter will follow the component's name.

2) Use the grid NUMBERS (arranged horizontally across the top and bottom of each page) to find the page of the wiring diagram that contains the component you're seeking. When you reach this page, use the grid LETTERS on the side of the page to determine the component's vertical location.

3) Locate the circuit you need to service. The internals are shown for switches and relays to assist you in understanding how the circuit operates.

NOTE: In some of the newer wiring diagram articles in this

WIRING DIAGRAM SYMBOLS

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:09AM

product, there is a Legend for the wiring diagrams that has been created to make locating components easier. For these articles, there will be a COMPONENT LOCATION MENU title in the article main menu. These articles will also have the original legend available on the first graphic.

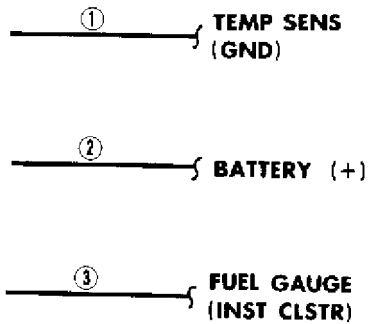


Fig. 1: Identifying Tie-Off Symbols

4) If the wires are not drawn all the way to another component (across several pages), a reference will tell you their final destination.

5) Again, use the legend on the first page of the wiring diagram to determine the grid number and letter of the referenced component. You can then turn directly to it without tracing wires across several pages.

6) The symbols shown in Fig. 1 are called tie-offs. The first tie-off shown indicates that the circuit goes to the temperature sensor, and is also a ground circuit.

7) The second symbol indicates that the circuit goes to a battery positive parallel circuit. The third symbol leads to a particular component and the location is also given.

8) The lines shown in Fig. 2 are called options. Which path or option to take depends on what engine or systems the vehicle has.

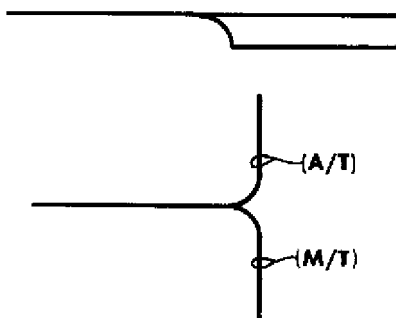


Fig. 2: Identifying Option Symbols

COLOR ABBREVIATIONS IDENTIFICATION

COLOR ABBREVIATIONS

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Color	Normal	Optional
-------	--------	----------

Black BLK BK
-------	-----------	----------

WIRING DIAGRAM SYMBOLS

Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:09AM

Blue	.....	BLU	.....	BU
Brown	.....	BRN	.....	BN
Clear	.....	CLR	.....	CR
Dark Blue	.....	DK BLU	.....	DK BU
Dark Green	.....	DK GRN	.....	DK GN
Green	.....	GRN	.....	GN
Gray	.....	GRY	.....	GY
Light Blue	.....	LT BLU	.....	LT BU
Light Green	.....	LT GRN	.....	LT GN
Orange	.....	ORG	.....	OG
Pink	.....	PNK	.....	PK
Purple	.....	PPL	.....	PL
Red	.....	RED	.....	RD
Tan	.....	TAN	.....	TN
Voilet	.....	VIO	.....	VI
White	.....	WHT	.....	WT
Yellow	.....	YEL	.....	YL
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA				

WIRING DIAGRAM SYMBOL IDENTIFICATION

NOTE: Standard wiring symbols are used on diagrams. The list below will help clarify any symbols that are not easily understood at a glance. Most components are labeled "Motor", "Switch" or "Relay" in addition to being drawn with the standard symbol.

WIRING DIAGRAM SYMBOLS

Views of the symbols used in the WIRING DIAGRAM articles are in the following graphics. See Figs. 3 through 25.



Fig. 3: Circuit Breaker

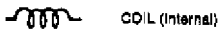


Fig. 4: Coil (Internal)



Fig. 5: Connector

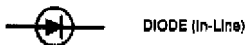


Fig. 6: Diode (In-Line)



Fig. 7: Diode (Internal)



Fig. 8: Diode (Light Emitting)

WIRING DIAGRAM SYMBOLS

Article Text (p. 4)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Wednesday, August 22, 2001 07:09AM



DEFOGGER GRID

Fig. 9: Defogger Grid



FUSE

Fig. 10: Fuse



FUSIBLE LINK

Fig. 11: Fusible Link



GROUND

Fig. 12: Ground



GLOW PLUG, RESISTOR (In-Line)
MIRROR HEATER

Fig. 13: Glow Plug Resistor (In-Line) or Mirror Heater



INJECTOR, PHOTOCCELL

Fig. 14: Injector (Diesel) or Photocell (Gasoline)



INTERNAL FUSE,
THERMAL LIMITER

Fig. 15: Internal Fuse, Thermal Limiter



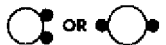
LAMP (Dual Element)

Fig. 16: Lamp (Dual Element)



LAMP (Single Element)

Fig. 17: Lamp (Single Element)



MOTOR

Fig. 18: Motor



RESISTOR (Internal)

Fig. 19: Resistor (Internal)



SENSOR, THERMISTOR

Fig. 20: Sensor, Thermistor



SOLENOID

Fig. 21: Solenoid



SOLID STATE DEVICE,
TRANSISTOR

Fig. 22: Solid State Device, Transistor



SWITCH (Internal)

Fig. 23: Switch (Internal)

WIRING DIAGRAM SYMBOLS

Article Text (p. 5)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC
Wednesday, August 22, 2001 07:09AM



TWO PIN SWITCH

Fig. 24: Two Pin Switch



VARIABLE RESISTOR
OR POTENTIOMETER

Fig. 25: Variable Resistor or Potentiometer

END OF ARTICLE

WIRING DIAGRAMS
Article Text
1993 Mazda RX7
For www.iluvmyrx7.com
Copyright © 1998 Mitchell Repair Information Company, LLC
Wednesday, August 22, 2001 07:08AM

ARTICLE BEGINNING

1993 Wiring Diagrams
Mazda Wiring Diagrams

Mazda; RX7

IDENTIFICATION

COMPONENT LOCATION MENU

COMPONENT LOCATIONS TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Component	Figure No. (Location)
A/C RELAY	9 (C 34)
A/P RLY	2 (A 4)
ABS CTRL UNIT	7 (B-C 24)
ALTERNATOR	1 (B 3)
BACK-UP LT SW (M/T)	12 (B 47)
BATTERY	1 (A 2)
BLOWER MTR RLY	9 (B 33)
CIG LTR	8 (D 28)
CIRCUIT OPENING RELAY	3 (A 11)
CLUTCH SW (M/T)	3 (D 8)
COMBINATION SW	6 (C-D 20-23)
CPU #2	10 (A-C 36)
CRUISE CONTROL	8 (E 29)
CRUISE CONTROL UNIT	7 (D-E 24)
DATA LINK CONN	11 (D-E 41)
DIAGNOSTIC MODULE (AIRBAG)	10 (D-E 36)
DIR SWITCH	6 (D 22)
DOOR LOCK TIMER UNIT	7 (C 26)
DOOR SWITCH	9 (D 33)
EC-AT CONTROL SYSTEM	8 (A-B 29-31)
EGI MAIN RLY	2 (A 5)
EL UNIT	2 (B 7)
ENGINE CONTROL UNIT	2,3 (B-E 4-8)
FOG LT SW	1 (B 2)
FUEL PUMP	3 (A 11)
GLOVE BOX LT	12 (A 45)
HEADLT RELAY	1 (E 1)
HEAT WARNING	11 (A-E 40)
HEATER CTRL UNIT	9 (A-D 32)
HORN RLY	1 (C 2)
HYDRAULIC UNIT	10 (A 38-39)
IGNITION SW	6 (A 23)
ILLUM LIGHTS	9 (E 32-35)
INHIBITOR SW	8 (A-B 28)
INST CLSTR	11 (A-E 40-43)
INTERIOR LTS	9 (D 33)

WIRING DIAGRAMS

Article Text (p. 2)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:08AM

JOINT BOX	4,5 (B-D 14-18)
KEY INTERLOCK SOL	8 (B 29)
LIGHT SW	6 (D 23)
MAGNETIC CLUTCH	2 (A 4)
MAIN FUSE BLOCK	1 (A 2)
PANEL LAMP CTRL SWITCH	9 (E 32)
POWER ANTENNA ASSEMBLY	12 (A 44)
POWER MIRROR SW	12 (C-D 44)
POWER WINDOW MAIN SW	12 (C-E 44)
RADIO RELAY	6 (B 23)
REAR WINDOW DEFROSTER RLY	12 (B 44)
REAR WINDOW DEFROSTER SW	12 (C 46)
REAR WIPER MTR	12 (B 46)
REAR WIPER/WASHER SW	12 (B 44)
RELAY AND FUSE BLOCK	6 (A-B 20-21)
RETRACTABLE HEADLT RLY	1 (D 3)
RETRACTABLE HEADLT SW	1 (D 2)
SHIFT LOCK CONTROL UNIT	8 (C 28)
STARTER	1 (B 2)
STARTER CUT RELAY	1 (C 3)
STARTING INTERLOCK SW (M/T)	1 (C 3)
STOP LT SW	12 (C 47)
SUNROOF SW	10 (C 38)
THROTTLE SENSOR	3 (A 10)
TNS RELAY	6 (A 23)
WASHER MOTOR	6 (D 20)
WIPER MOTOR	6 (E 20)
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	

WIRING DIAGRAMS

WIRING DIAGRAMS

Article Text (p. 3)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:08AM

COMPONENT LOCATOR:

A/C RLY	C 34
A/P RLY	A 4
ABS CTRL UNIT	B-C 24
ALTERNATOR	B 3
BACK-UP LT SW (M/T)	B 47
BATTERY	A 2
BLOWER MTR RLY	B 33
CLG LTR	D 28
CIRCUIT OPENING RLY	A 11
CLUTCH SW (M/T)	D 8
COMBINATION SW	C-D 20-22
COOLING FAN RLYS	C-E 31
CPU #2	A-C 36
CRUISE CTRL MAIN SW	E-29
CRUISE CTRL UNIT	D-E 24
DATA LINK CONN	D-E 41
DIAGNOSTIC MODULE (AIRBAG)	D-E 36
DIR SW	D 22
DOOR LOCK TIMER UNIT	C 26
DOOR SW	D 33
EC-AT CTRL UNIT	A 25-31
EGI MAIN RLY	A 5
EL UNIT	B 7
ENGINE CONTROL MODULE (ECM)	B-E 4-8
FOG LT SW	B 2
FUEL PUMP	A 11
GLOVE BOX LT	A 45
HEADLT RLY	E 1
HEAT WARNING	A-E 40
HEATER CTRL UNIT	A-D 32
HORN RLY	A 38-39
HYDRAULIC UNIT	A 23
IGNITION SW	E 32-35
ILLUM LITS	A-B 28
INHIBITOR SW	A-E 40-43
INSTRUMENT CLUSTER	D 33
INTERIOR LT	B-D 14-18
JOINT BOX	B 29
KEY INTERLOCK SW	D 23
LIGHT SW	A 2
MAGNETIC CLUTCH	E 32
MAIN FUSE BLOCK	A 44
PANEL LAMP CTRL SW	C-D 44
POWER ANTENNA ASSEMBLY	D-E 44
POWER MIRROR SW	B 23
POWER WINDOW MAIN SW	B 44
RADIO RLY	B 46
REAR WINDOW DEFROSTER SW	D 3
REAR WIPER MTR	D 2
REAR WIPER/WASHER SW	C 3
RELAY AND FUSE BLOCK	C 47
RETRACTABLE HEADLT RLY	C 38
RETRACTABLE HEADLT SW	A 10
SHIFT LOCK CTRL UNIT	A 23
STARTER	D 20
STARTER CUT RLY	E 20
STARTER INTERLOCK SW (M/T)	
STOP LT SW	
SUNROOF SW	
THROTTLE SENSOR	
TNS RELAY	
WASHER MOTOR	
WIPER MOTOR	

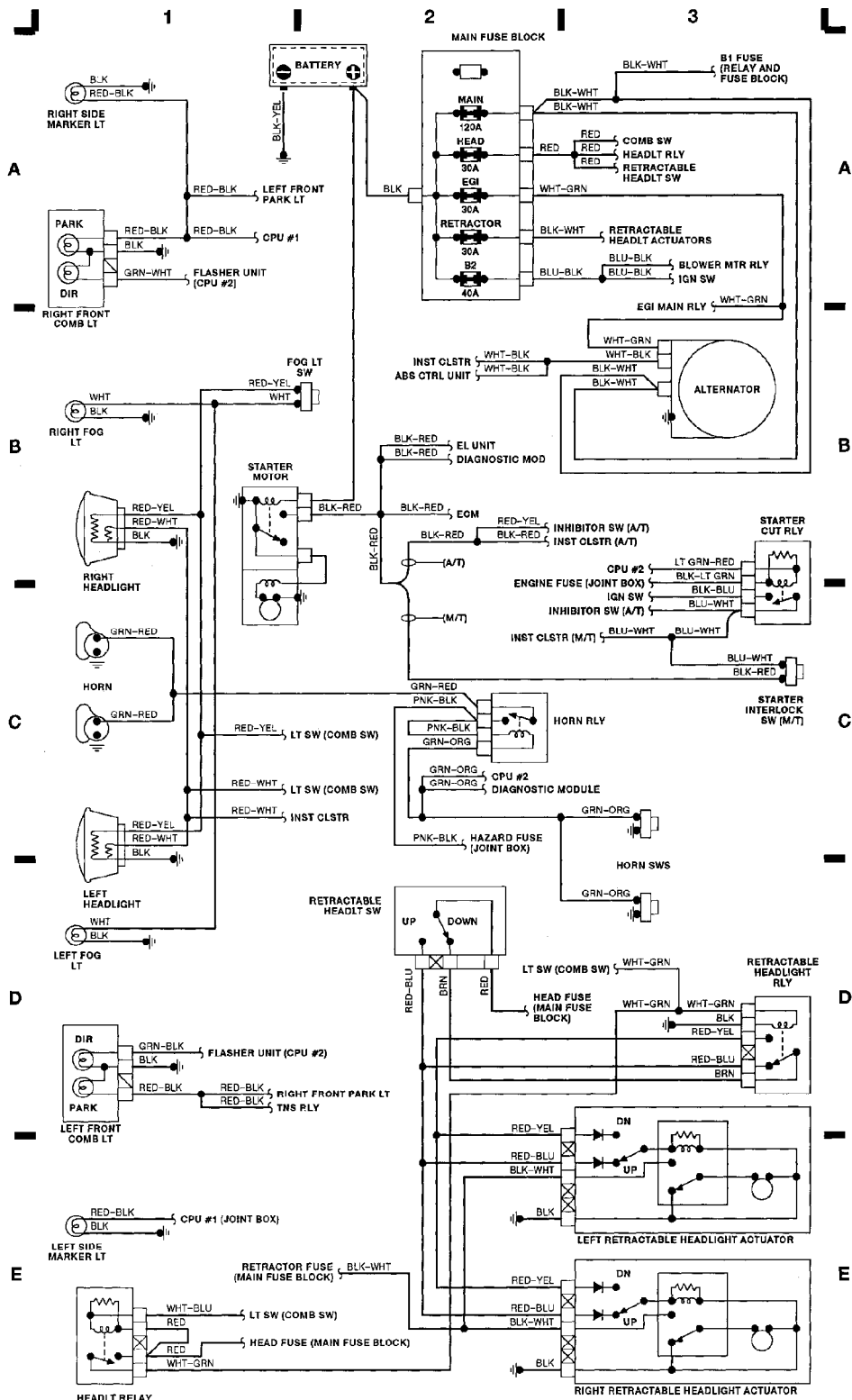


Fig. 1: Engine Compartment & Headlights (Grids 1-3)

Wednesday, August 22, 2001 07:08AM



WIRING DIAGRAMS

Article Text (p. 5)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:08AM

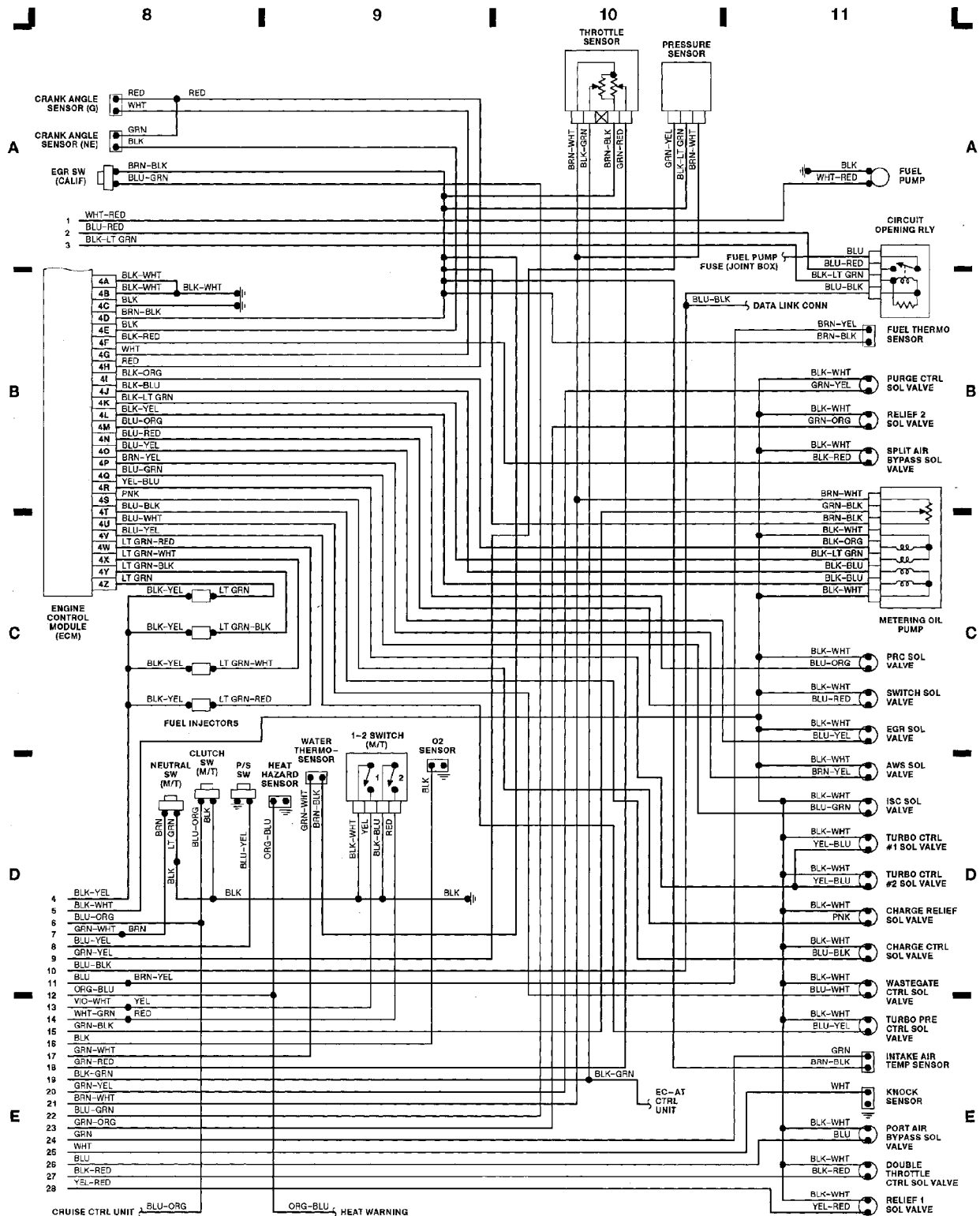


Fig. 3: Engine Ctrl Mdl, Throttle Sensor (Grids 8-11)

WIRING DIAGRAMS

Article Text (p. 6)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:08AM

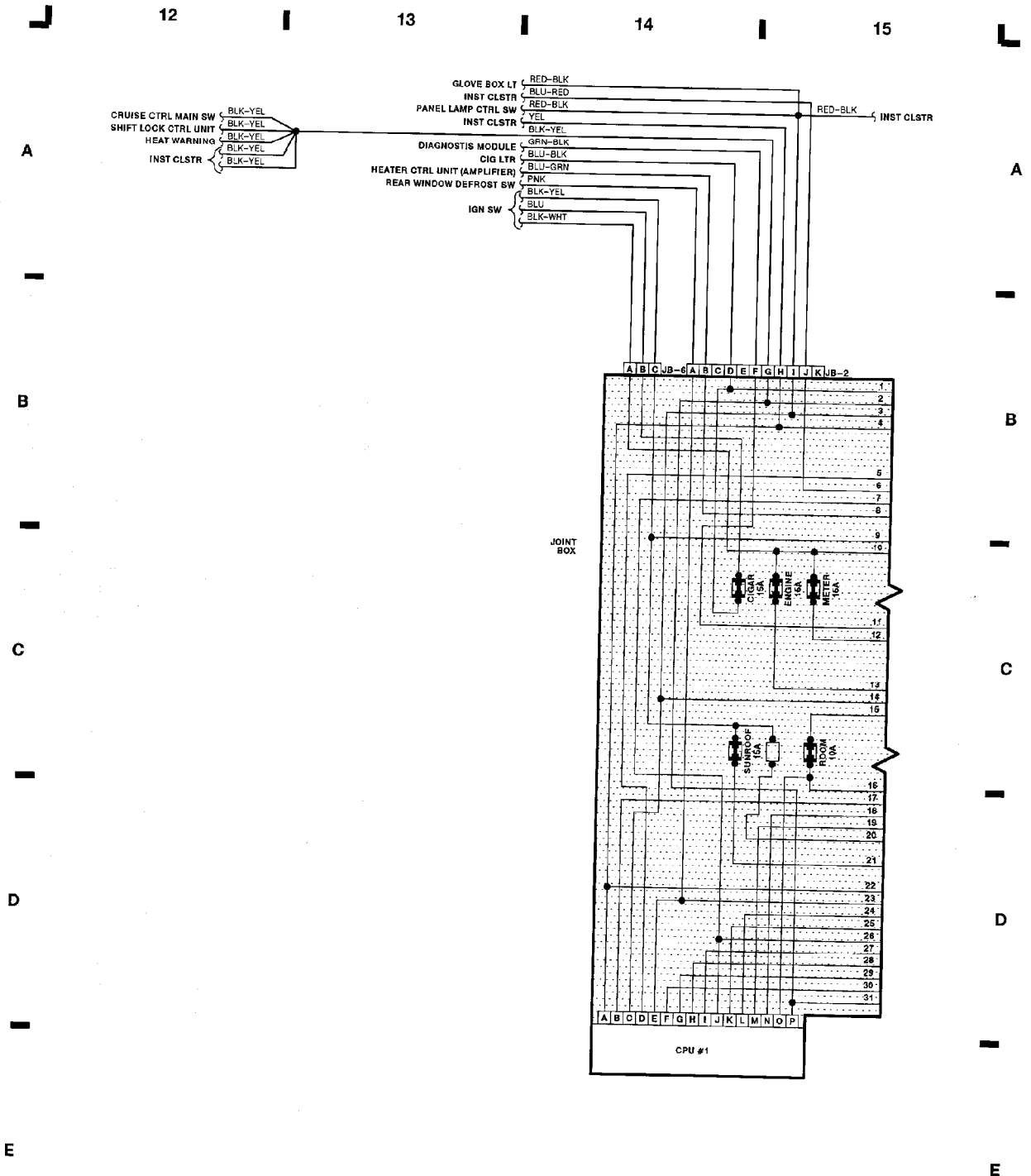


Fig. 4: Joint Box (Grids 12-15)

For www.iluvmyrx7.com

Wednesday, August 22, 2001 07:08AM



Fig. 5: Joint Box (Cont.) (Grids 16-19)

Wednesday, August 22, 2001 07:08AM



Fig. 6: Combination Sw, Wiper/Washer Sw (Grids 20-23)

WIRING DIAGRAMS

Article Text (p. 9)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:08AM

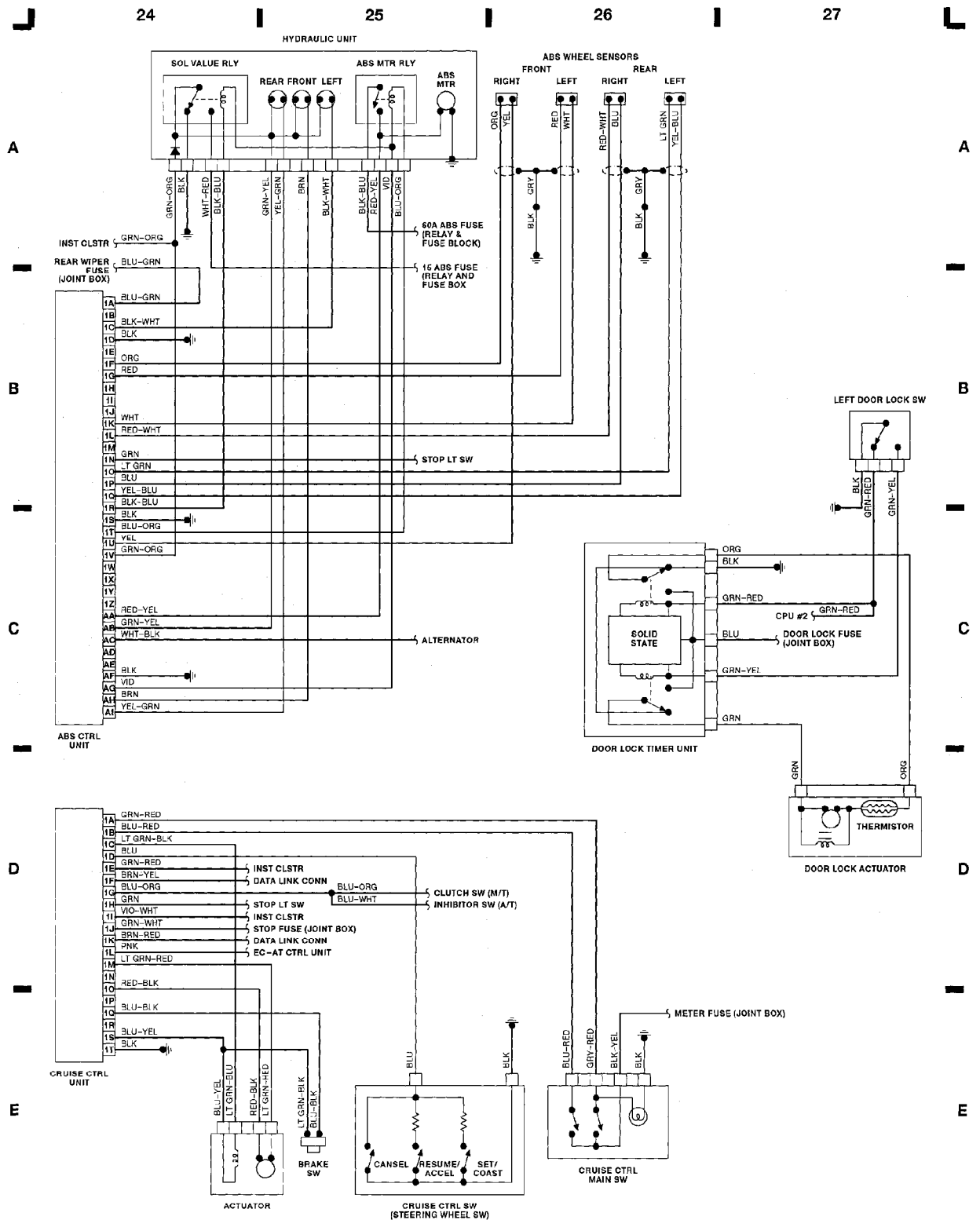


Fig. 7: Cruise Ctrl Unit, Hydraulic Unit (Grids 24-27)

WIRING DIAGRAMS

Article Text (p. 10)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:08AM

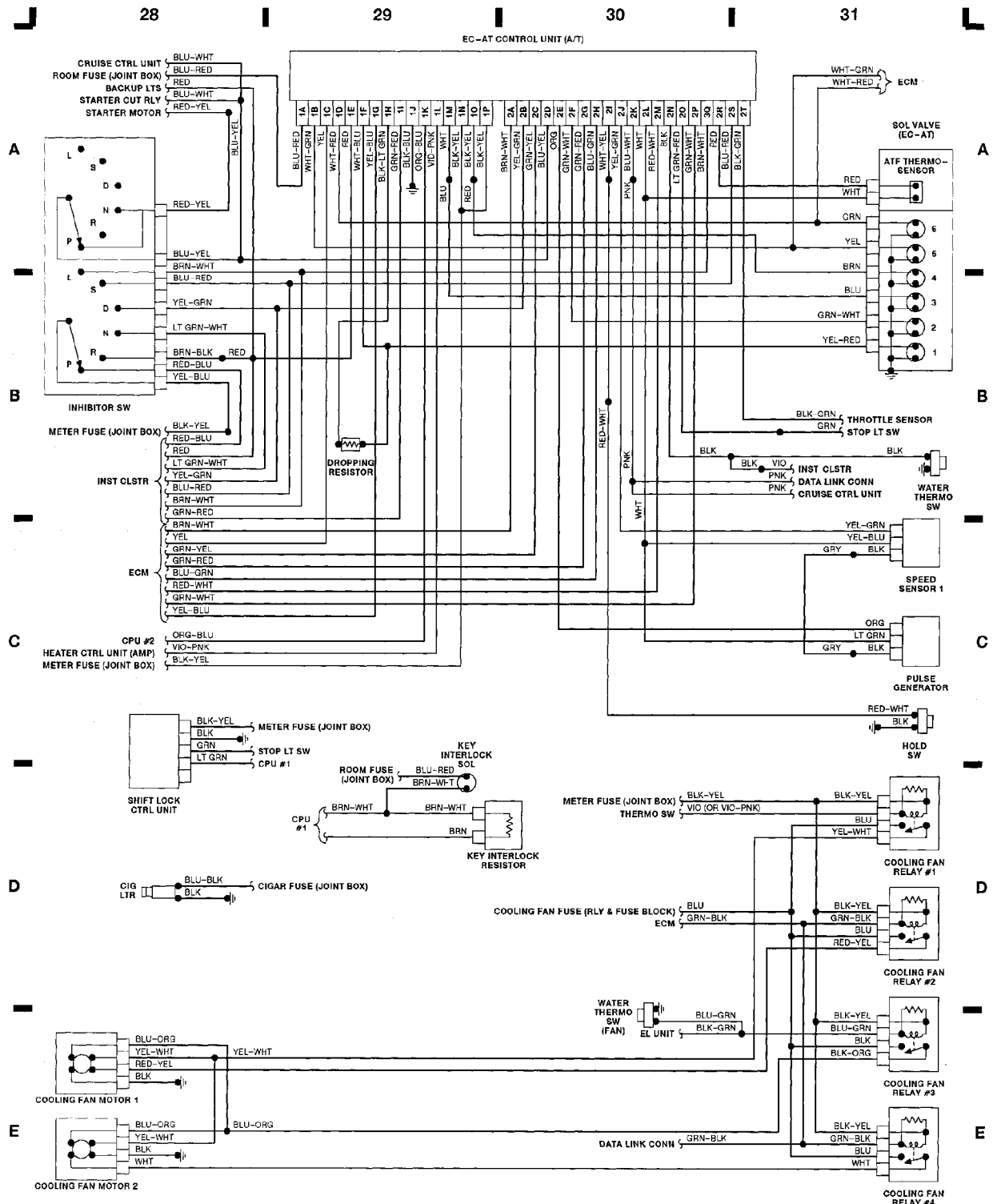


Fig. 8: EC-AT Ctrl Unit, Inhibitor Sw (Grids 28-31)

WIRING DIAGRAMS

Article Text (p. 11)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:08AM

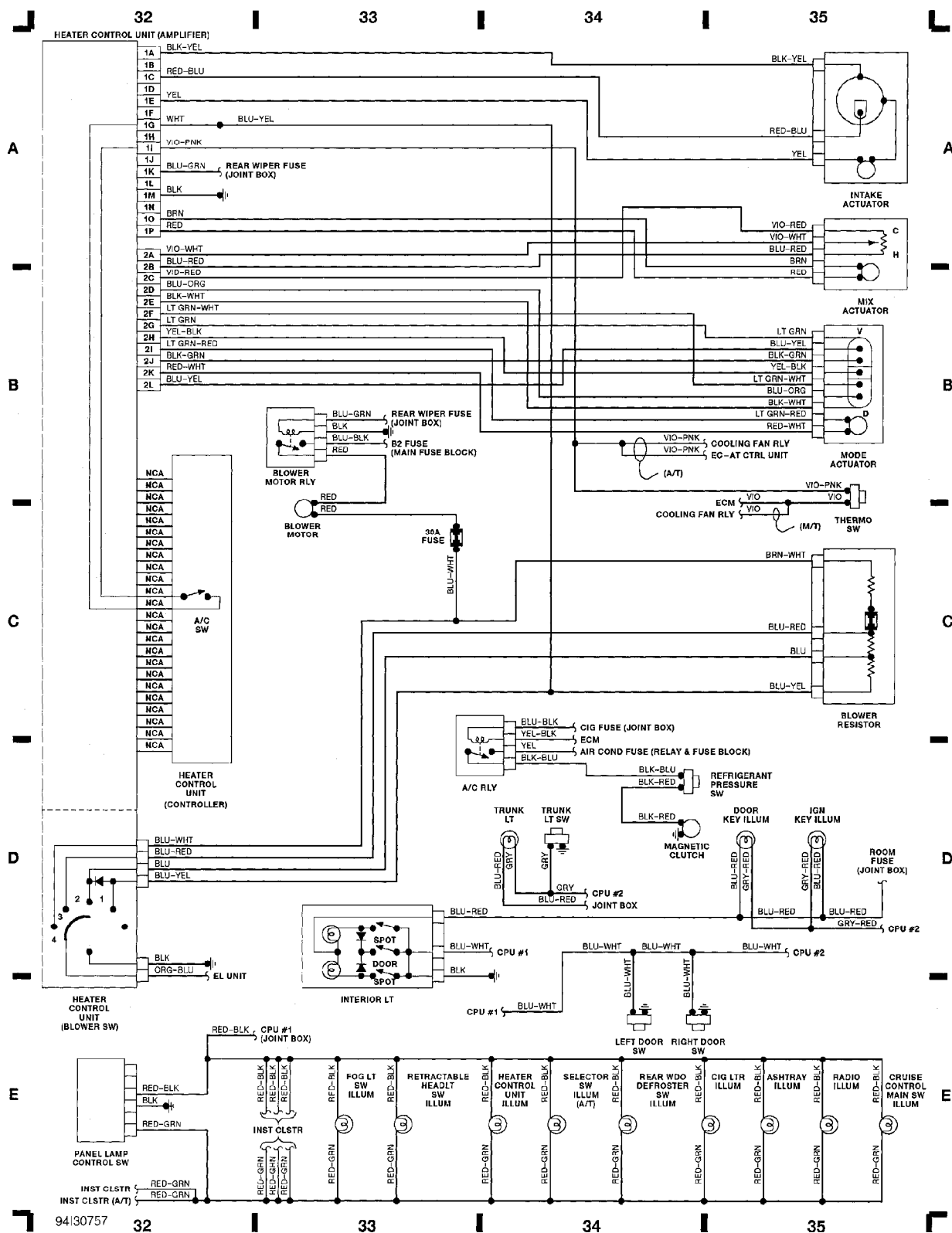


Fig. 9: Heater Control Unit (Amplifier) (Grids 32-35)

WIRING DIAGRAMS

Article Text (p. 12)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:08AM

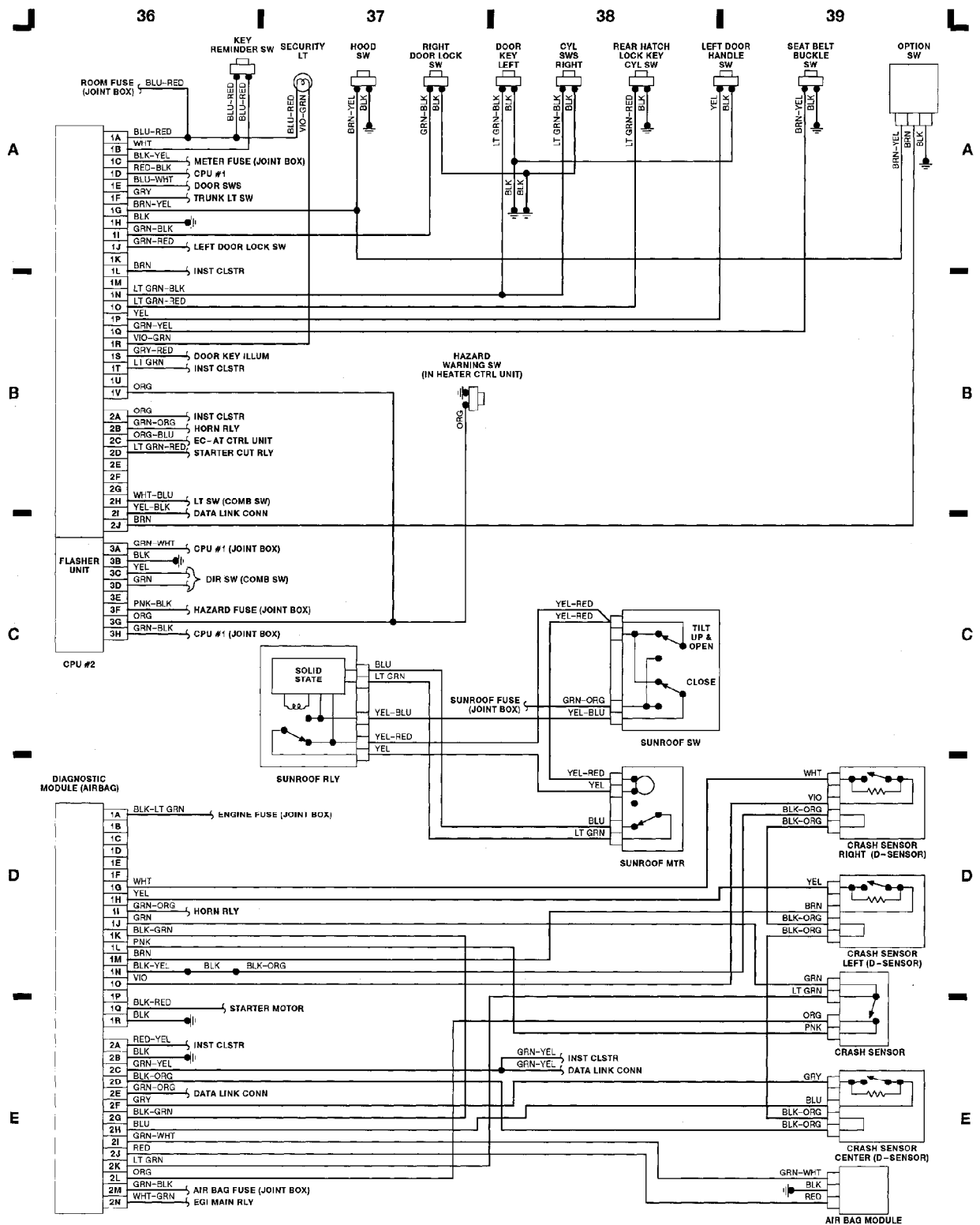


Fig. 10: Diagnostic Module, Flasher Unit (Grids 36-39)

WIRING DIAGRAMS

Article Text (p. 13)

1993 Mazda RX7

For www.iluvmyrx7.com

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, August 22, 2001 07:08AM

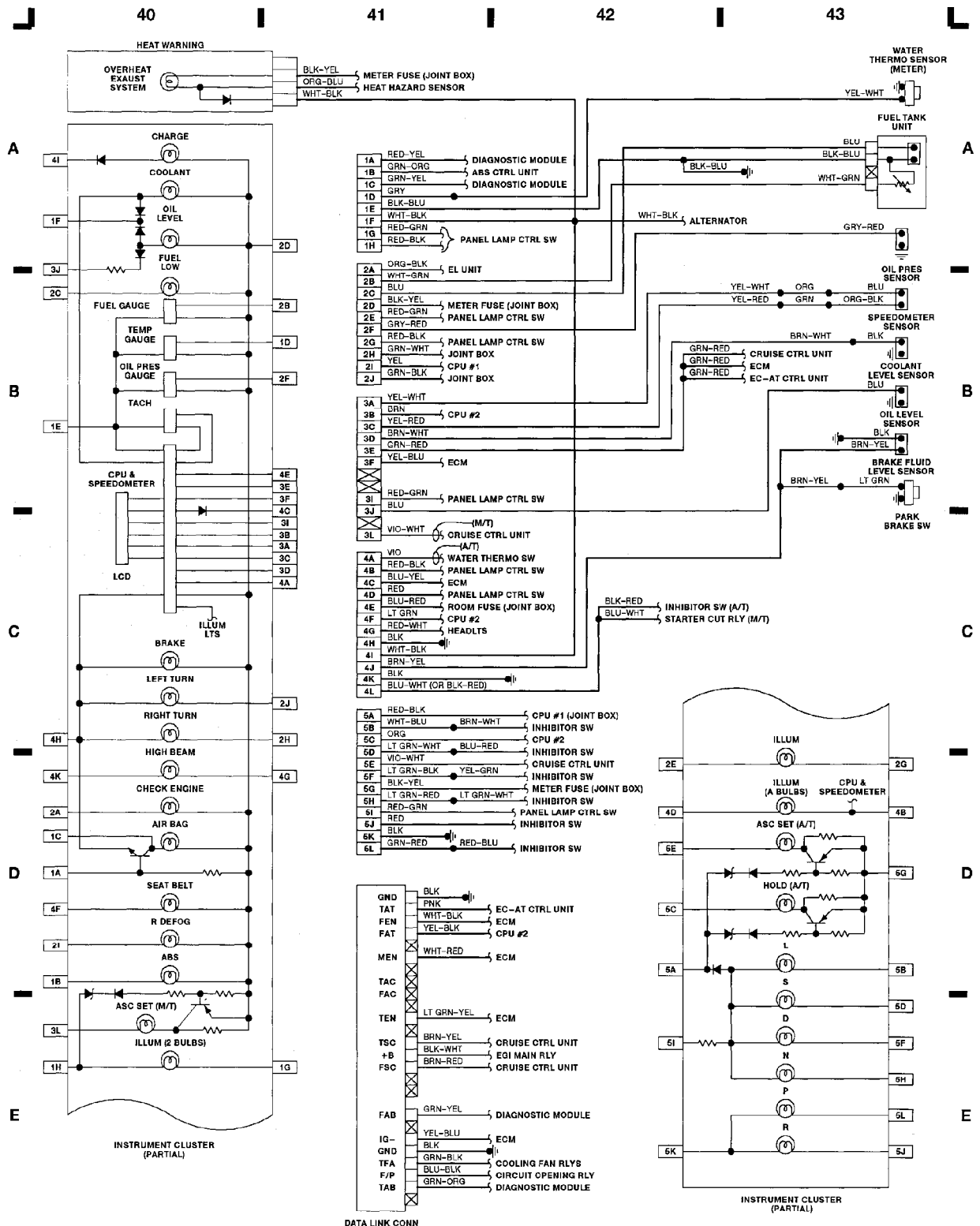


Fig. 11: Instrument Panel (Partial), Heat Warning (Grids 40-43)

WIRING DIAGRAMS
Article Text (p. 14)
 1993 Mazda RX7
 For www.iluvmyrx7.com
 Copyright © 1998 Mitchell Repair Information Company, LLC
 Wednesday, August 22, 2001 07:08AM

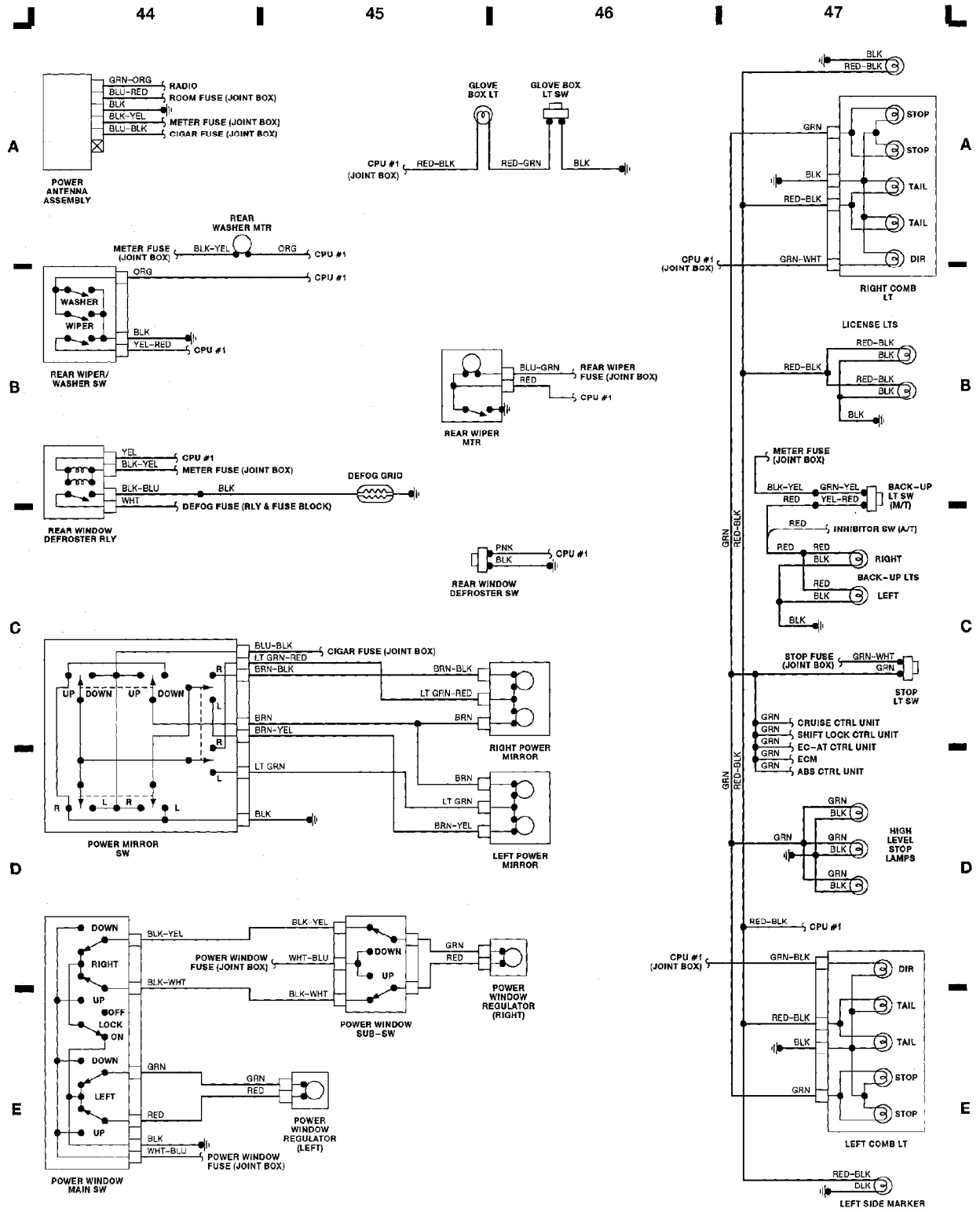


Fig. 12: Power Mirror/Doors/Window, Taillights (Grids 44-47)

END OF ARTICLE