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CRUISE CONTROL SYSTEM

Article Text

1984 Mazda RX7

For iluvmyrx7.com

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Saturday, June 08, 2002 05:03PM

ARTICLE BEGINNING

1984 CRUISE CONTROL SYSTEMS
Mazda

RX7

DESCRIPTION

Main switch is used to turn system on and off. A control switch with "SET (ACCEL)" and "COAST (RESUME)" is used to set desired speed. System will not operate at speeds under 25 MPH. Main switch is located on the right side of dash. Control switch is on right side of steering column.

OPERATION

MAIN SWITCH

Pressing the main switch activates the cruise control.

CONTROL SWITCH

When "SET" switch is pressed and then released, desired speed is set. If switch is continuously pressed, the vehicle will accelerate until switch is released, at which time the new or higher speed will be set.

When "COAST" switch is moved down or rearward, speed will be reduced. When switch is released, the new or lower speed will be set. If cruise control is overridden by means other than the main switch, original speed can be resumed by operating switch forward or up.

TROUBLE SHOOTING

CRUISE CONTROL SYSTEM DOES NOT WORK

Blown fuse. Faulty main switch, control switch, speed sensor or actuator. Malfunction of stop, clutch or inhibitor switch. Bad ground or wiring.

SPEED SETTING CAN'T BE CANCELED

Faulty control unit. Malfunction of clutch, stop or inhibitor switch.

SET SPEED IS NOT HELD

Faulty actuator, control unit or speed sensor. Actuator control cable malfunction.

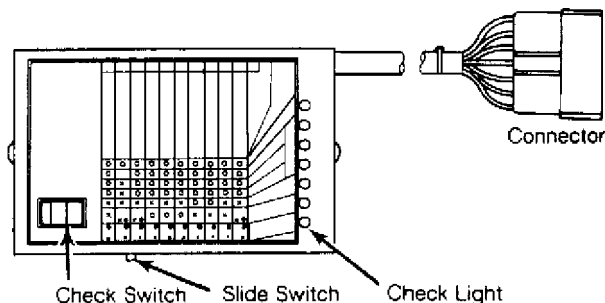
SYSTEM DOESN'T ENGAGE IMMEDIATELY

Faulty actuator, control switch or unit. Actuator control cable malfunction.

TESTING

Test RX7 system with ACC Checker (49 9200 010). See Fig. 1.

Items (main switch, actuator-VAC, actuator-VENT 2, actuator-VENT 1, clutch/brake switch, combination/inhibitor switch and generator) are verified by check lights on checker.



29854

Fig. 1: RX7 Cruise Control Checker

During tests, generator light may be on or off.

Checker also has 2 switches, a check switch and slide switch. Check switch checks actuator operation with the engine running. When this switch is held on with engine running, engine RPM is increased and held to 2000-3000. If RPMs do not come up, adjust free play of actuator inner cable. Free play is .28-.51" (7-13 mm) for 12A engines and .24-.43" (6-11 mm) for 13B engines. Slide switch should be moved to the "H" position before check switch is used.

NOTE: When connecting Checker, turn ignition off. When performing all steps below, main and ignition switch must be on.

1) When testing main switch continuity, all lights except clutch/brake switch and combination/inhibitor switch should be on. If all lights are off, check fuse, connectors, ignition and main switches.

2) To test inhibitor switch continuity, depress brake pedal and shift into "D". See step 1) for correct lighting response. If combination/inhibitor light is on, check wiring and switch.

3) To test brake switch continuity, shift lever to "D" and depress brake pedal. All lights except combination/inhibitor switch should be on. If clutch/brake switch light is off, check this switch and wiring.

4) To test clutch switch continuity, depress clutch pedal. See step 3) for correct lighting response. If clutch/brake switch light is out, check clutch switch and wiring.

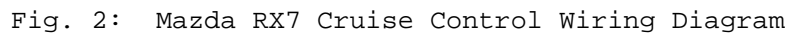
5) To test "SET", "COAST" or "RESUME" position of combination switch, shift lever to "D" and turn switch to appropriate position. Clutch/brake switch light should be off. If combination inhibitor switch light is off, check appropriate switch and wiring.

6) Start engine and put shift lever to "N". For automatic transmission, all lights except combination/inhibitor switch should be on. For manual transmission, this light should be off. Test actuator operation by setting slide switch "H". Then turn check switch "ON" and hold.

7) Engine speed should increase to 2000-3000 RPM, and all lights should be out except combination/inhibitor switch (automatic transmissions only. On manual transmission light will be on). VAC light should go from off to on.

8) To check speed sensor output, drive vehicle slowly. All lights except clutch/brake and combination/inhibitor switch should be on. If generator light does not flash, speed sensor or wiring is faulty. If no abnormalities exist when using Checker, replace cruise control unit.

WIRING DIAGRAM



END OF ARTICLE

INSTRUMENT PANEL - STANDARD

Article Text

1984 Mazda RX7

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Saturday, June 08, 2002 05:14PM

ARTICLE BEGINNING

Switches & Instrument Panels
MAZDA

DESCRIPTION & OPERATION

All models have a steering column mounted combination switch to control turn signals, headlights and wipers. The instrument cluster contains a speedometer, fuel gauge and water temperature gauge.

Some models also have a tachometer, voltmeter and oil pressure gauge. The fuel and temperature gauges operate on 7 volts, supplied by a cluster-mounted voltage regulator. The sending units are variable-resistance type and have the same resistance values on all models.

TESTING

GAUGES

1) Turn ignition on. If gauge needles do not move at all, check for blown fuse or broken power wire. If both gauges are inoperative, voltage regulator may be the cause. If only one gauge does not work, the gauge, sending unit, or connecting wiring may be at fault.

2) To test temperature gauge, disconnect sending unit wire. Connect a resistor between wire and ground, then check gauge reading. Change resistance and recheck. If gauge readings are as shown in tables, replace sending unit. If not, repair wiring or replace gauge.

3) To test fuel gauge, disconnect wire to sending unit at fuel tank. Connect resistor between positive and negative terminals of the unit. Check gauge reading.

NOTE: Allow 2 minutes for gauge reading to stabilize. It should be within 1 pointer width of line on gauge face. See Fig. 1.

4) If gauge readings are incorrect, replace gauge. If readings are okay, test in-tank sending unit before replacing it. Resistance should measure 1-5 ohms with float raised (RX7) or 3 ohms (Pickup and 626), and 103-117 ohms (RX7) or 110 ohms (Pickup and 626) with float lowered. If not, replace sending unit.

RESISTANCES FOR FUEL GAUGE TESTING

Needle Position	Test Resistor
Full Line	(1) 7 ohms
Half Tank	33 ohms
Empty Line	(2) 95 ohms

(1) - On Pickup and 626, 3 ohms.
(2) - On Pickup and 626, 110 ohms.

RESISTANCES FOR TEMPERATURE GAUGE TESTING

Model	Cold Line	Hot Line
GLC Wagon & 626	233 ohms	16 ohms
RX7	104 ohms	21 ohms

GLC 154 ohms 12 ohms

REMOVAL & INSTALLATION

INSTRUMENT CLUSTER

Removal (GLC)

Disconnect battery ground. Remove steering wheel. Remove meter hood by moving it up and down with hands. Disconnect speedometer cable and remove 4 cluster bolts. Twist upper part of meter and remove, being careful to avoid the pad. Unplug wiring.

Installation

To install, reverse removal procedure.

Removal (626)

Disconnect battery ground. Remove screws, meter cover and hood, illumination light, connector and meter cable and meter. Disconnect speedometer cable. Pull cluster down, and remove.

Installation

To install, reverse removal procedure.

Removal (Pickup)

Disconnect battery ground. Remove steering wheel and column cover. Disconnect speedometer cable. Remove cluster hood and mounting screws. Pull cluster back, unplug wiring and remove cluster.

Installation

To install, reverse removal procedure.

Removal (RX7)

Disconnect battery ground. Remove steering wheel and speedometer cable. Remove column covers, cluster and combination switches. Remove meter hood. Unplug wiring and remove cluster.

Installation

To install, reverse removal procedure.

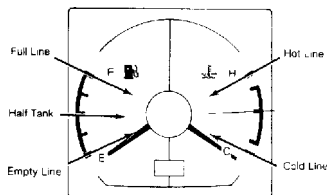
COMBINATION SWITCH

Removal

Disconnect battery ground. Remove steering wheel. Remove column covers and snap ring at top of column (if equipped). Unplug wiring connectors. Loosen combination switch screw. Remove switch.

Installation

To install, reverse removal procedure.



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Fig. 1: Gauge Testing Needle Locations
GLC is shown. Needle should indicate proper reading when test resistor is connected.

WIPER/WASHER SYSTEM

Article Text

1984 Mazda RX7

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Saturday, June 08, 2002 05:15PM

ARTICLE BEGINNING

1984 Wiper/Washer Systems
MAZDA

DESCRIPTION

All models have a 2-speed wiper motor, some with intermittent wipe feature. GLC and RX7 models may be equipped with a rear window wiper/washer system. The wiper lever is on the right side of column on all except some 626. A time delay relay is used to control the intermittent cycle on all except RX7 models. On RX7, wipers are timed by the "Control Processing Unit" that also operates a number of other accessories.

OPERATION

The wipers are controlled by a lever on the right side of the steering column. As the lever is moved down, it switches the wipers to intermittent, low speed and high speed. If the lever is pulled toward the steering wheel, the washer sprays.

If the lever is pushed away from the steering wheel, the wipers sweep until it is released. The rear wiper/washer is controlled by a rocker switch on the instrument panel (GLC) or push button (626). The RX7 rear wiper switch is on the console.

TESTING

WIPER MOTOR

626

1) To check wiper motor, connect ammeter between battery and blue terminal. See Fig. 1. For low speed, connect battery voltage to Blue wire terminal and ground the Blue/White terminal. For high speed, ground the Blue/Red terminal. On high speed, no load RPM should be 69-95. On low, it should be 50-60.

2) Difference between high and low RPM should be at least 15 RPM. Current draw should be 3 amps. To check auto stop, ground the Black terminal and connect the lead wire between Blue/White and Blue/Black terminals. Stop the wiper blades in mid stroke.

3) To check rear wiper motor, connect battery voltage to Blue/Red wire and ground the Blue/White wire. Motor should run steadily.

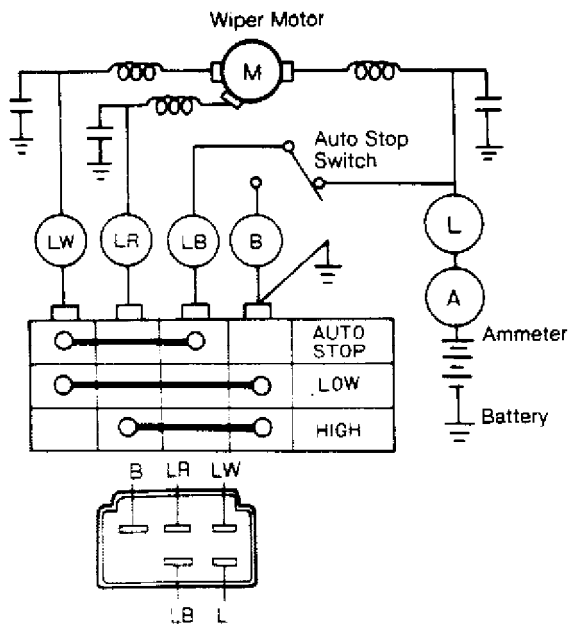


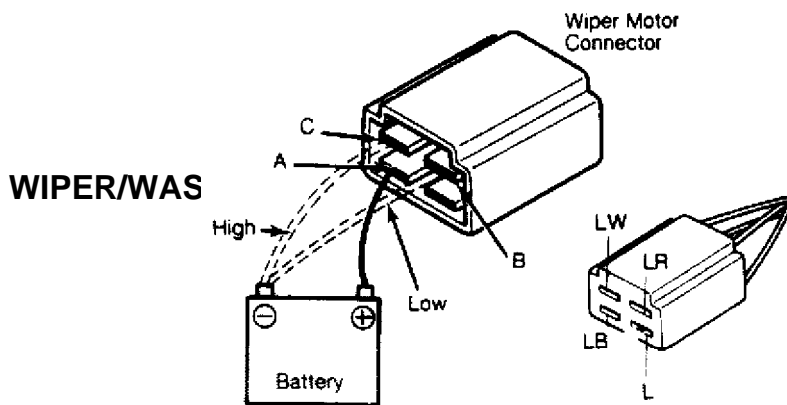
Fig. 1: 626 & GLC Windshield Wiper Test Hookup and Terminal Id
On GLC, B terminal is a separate connector.

RX7

1) To check front circuit, measure voltage between terminal L and ground with ignition on. See Fig. 2. If no voltage, check fuse or repair harness. Check ground between line B and body ground for continuity.

2) To check the front motor, connect the positive lead from the battery to terminal A of motor. See Fig. 2. Connect the negative lead to terminal B. Motor should turn at low speed. Connect the negative to terminal C to check high speed.

3) To check rear circuit, be certain there is voltage to the main line, then check the motor by connecting the positive lead from battery to terminal A of motor. Connect the negative to terminal B and C. Motor should turn. See Fig. 2.



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Fig. 2: RX7 Windshield Wiper Test Hookup and Terminal Id

B2000 & B2200

Connect wiper motor, ammeter and battery and check the number of wiping revolutions and amperage. See Fig. 3. On low, the wiping revolution number should be between 42 and 55 RPM; on high between 62 and 85. Amperage in either case should be less than 2.5.

RPM difference between high and low must be more than 15.

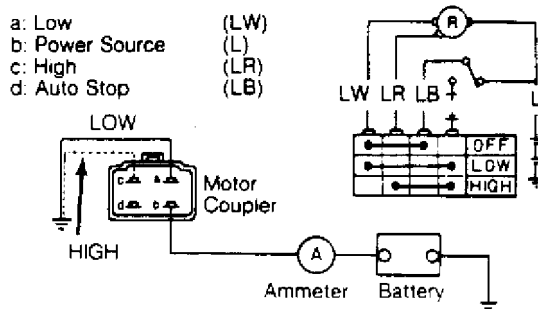


Fig. 3: B2000 & B2200 Windshield Wiper Test Hookup & Terminal Id

GLC

See Fig. 1 for hookup connections. Connect battery voltage to terminal L and ground the LR terminal. This should give low speed wiping revolutions similar to 626. For high speed, ground the LW terminal. To check auto stop, connect jumper between LW and LB, apply power to terminal L and ground terminal B.

REMOVAL & INSTALLATION

NOTE: No removal or installation procedures for RX7 wiper motors are given.

FRONT WIPER MOTOR ASSEMBLY

Removal (GLC & 626)

1) Run wipers until they are in vertical position, then turn ignition off or disconnect battery cable. Remove wiper arms and shaft nuts.

2) Remove cowl grille or access panel. Unplug at motor. Remove mounting bolts and wiper motor.

3) On 626, insert a large screwdriver between the crank arm and linkage and pry to separate it from crank arm.

Installation (GLC & 626)

To install, reverse removal procedure.

REAR WIPER MOTOR ASSEMBLY

Removal (GLC & 626)

Disconnect battery ground. Remove wiper arm and shaft nuts. Remove trim on rear hatch. Remove fasteners and remove wiper hole cover. Disconnect wiring, remove attaching bolts and remove rear wiper motor.

Installation (GLC & 626)

To install, reverse removal procedure.

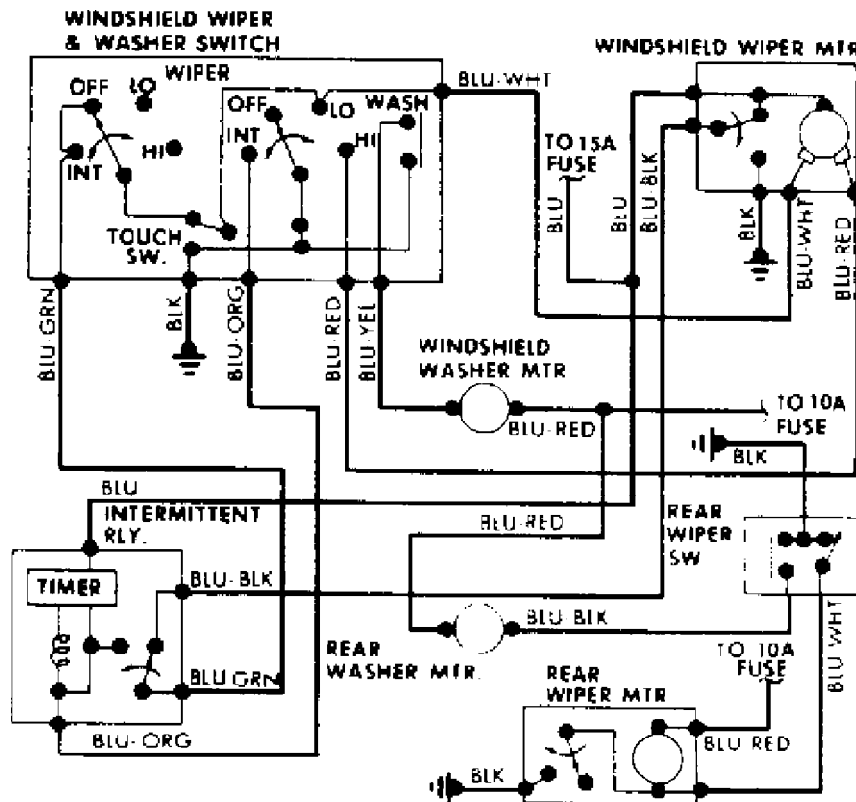
WIPER SWITCH

Removal (GLC & 626)

Disconnect battery ground. Remove steering wheel. Remove column covers and snap ring at top of column (if equipped). Unplug wiring connectors. Loosen combination switch screw. Remove combination switch.

Installation (GLC & 626)
To install, reverse removal procedure.

WIRING DIAGRAMS



29801
Fig. 4: GLC Wiring Diagram

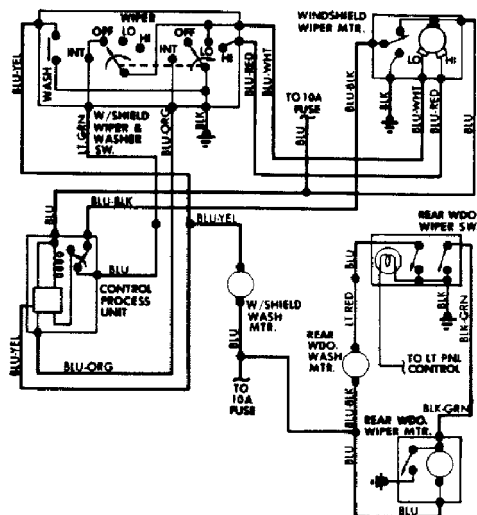
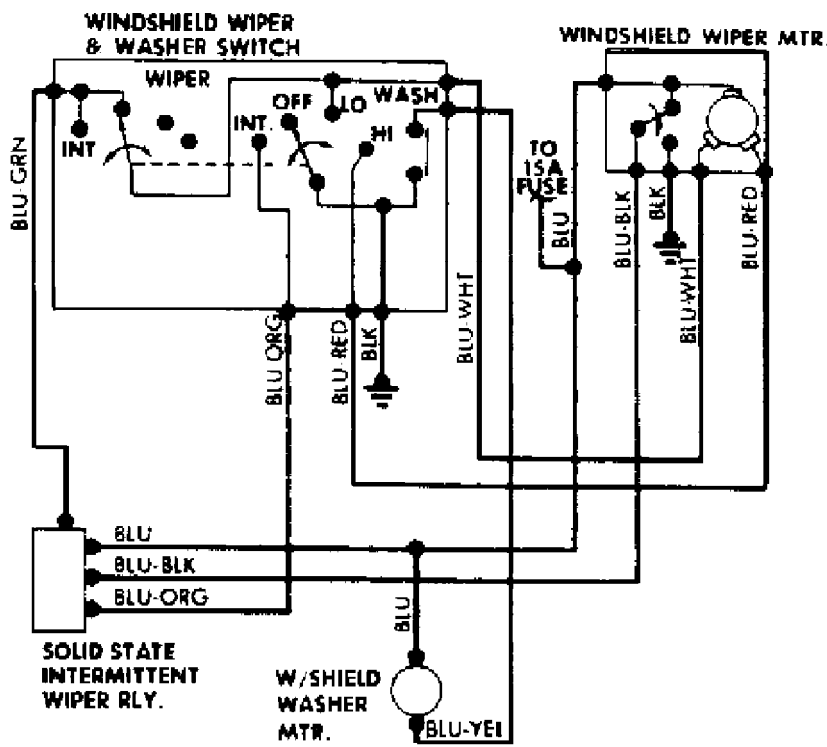
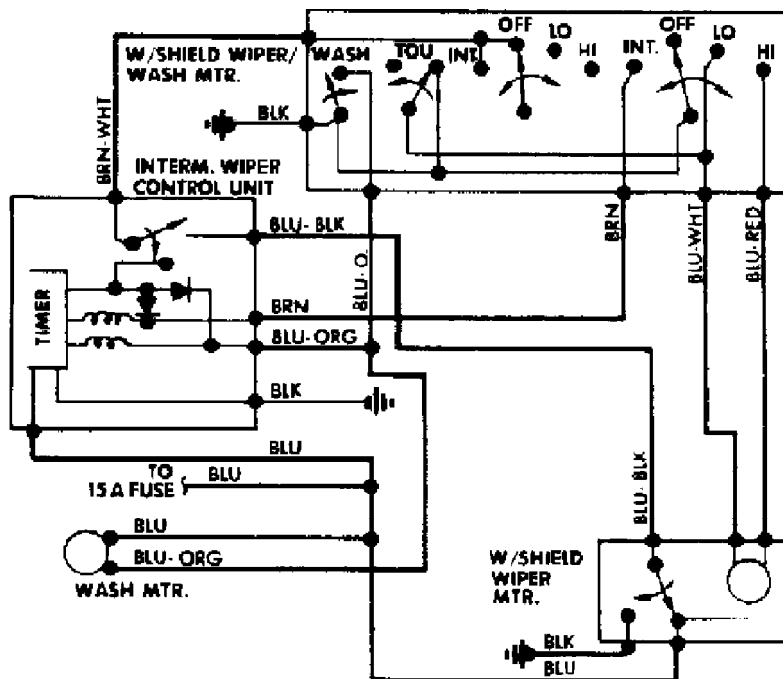


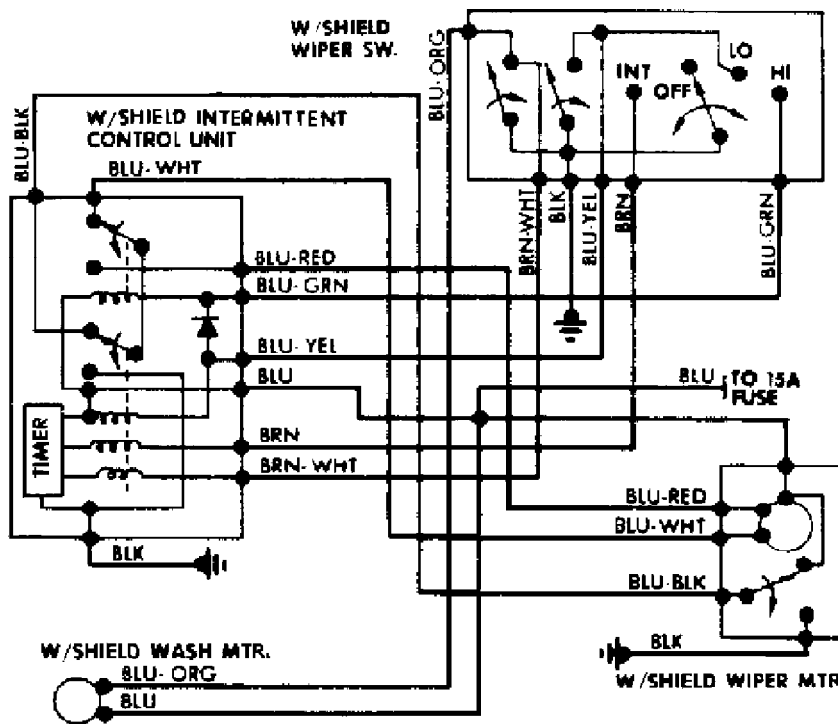
Fig. 5: RX7 Wiring Diagram



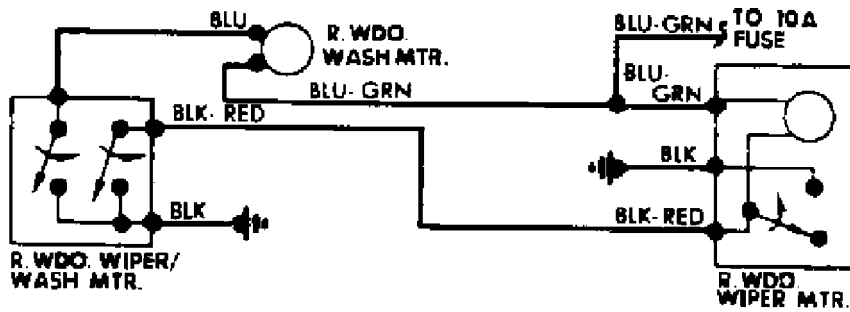
29804
Fig. 6: B2000 and B2200 Wiring Diagram



29805
Fig. 7: 626 Front Wiper Wiring Diagram (4-Door Models)
WIPER/WASHER SYSTEM Article Text (p. 5) 984 Mazda RX7 For iluvmyrx7.com Copyright © 1998 Mitchell Repai



29806
Fig. 8: 626 Rear Wiper Wiring Diagram (4-Door Models Only)



29807
Fig. 9: 626 Front Wiper Wiring Diagram (2 & 5 Door Models)

END OF ARTICLE

ELECTRICAL COMPONENT LOCATOR

Article Text

1984 Mazda RX7

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Saturday, June 08, 2002 05:17PM

ARTICLE BEGINNING

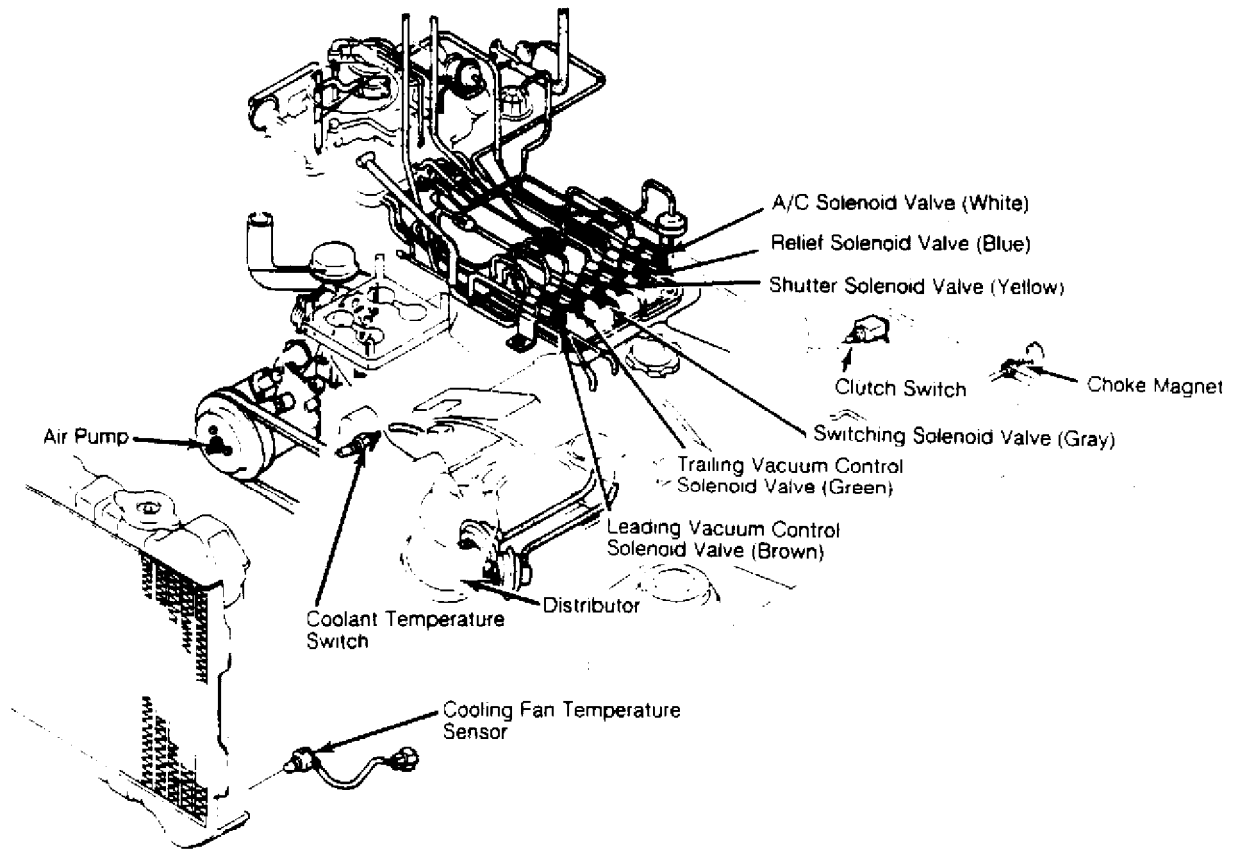
1984 ELECTRICAL COMPONENTS LOCATIONS

Mazda Electrical Components

Mazda; RX7

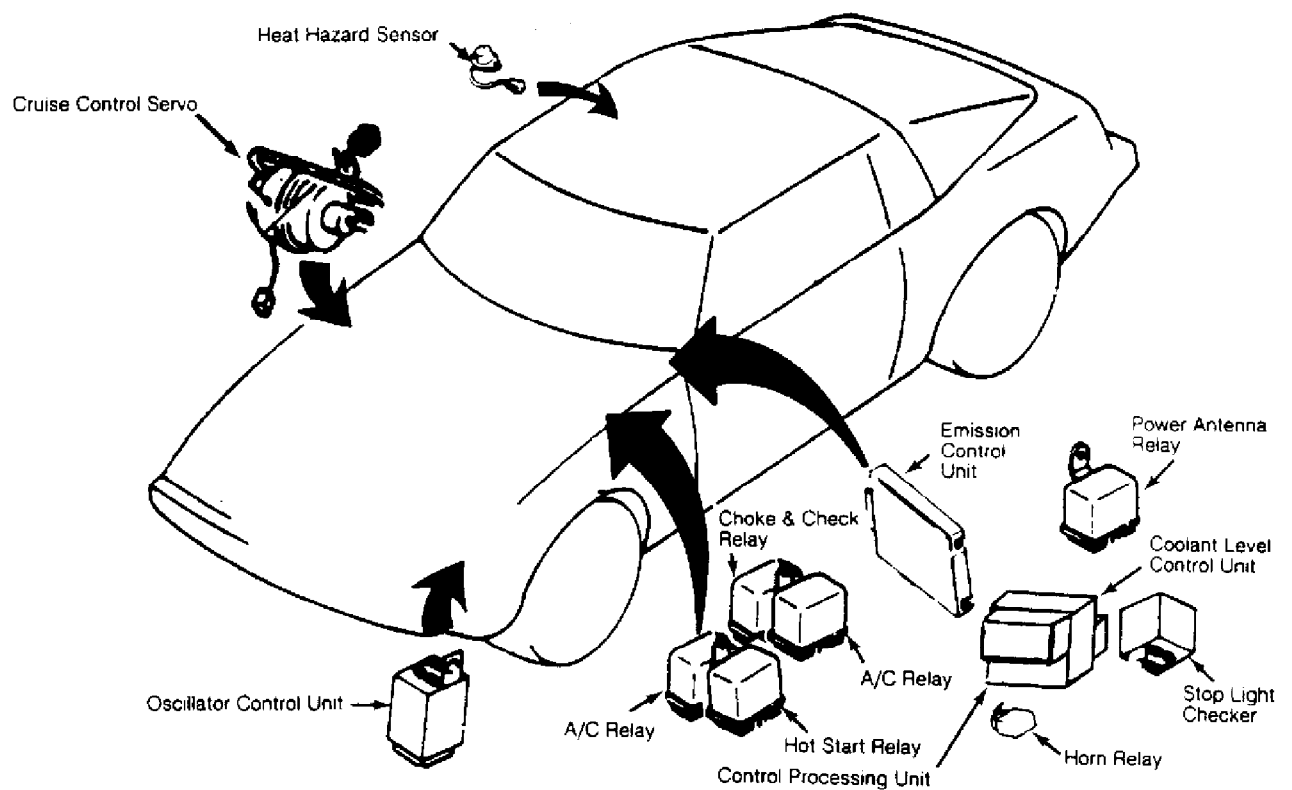
MISCELLANEOUS COMPONENTS

Component	Component Location
A/C-Heater Blower Motor Resistor	On blower housing under right side of instrument panel.



Choke Magnet

In choke switch under instrument panel.



Cruise Control Servo

On right inner fender panel.

Fuse Block

Below left side of instrument panel.

Fusible Links

On left shock tower.

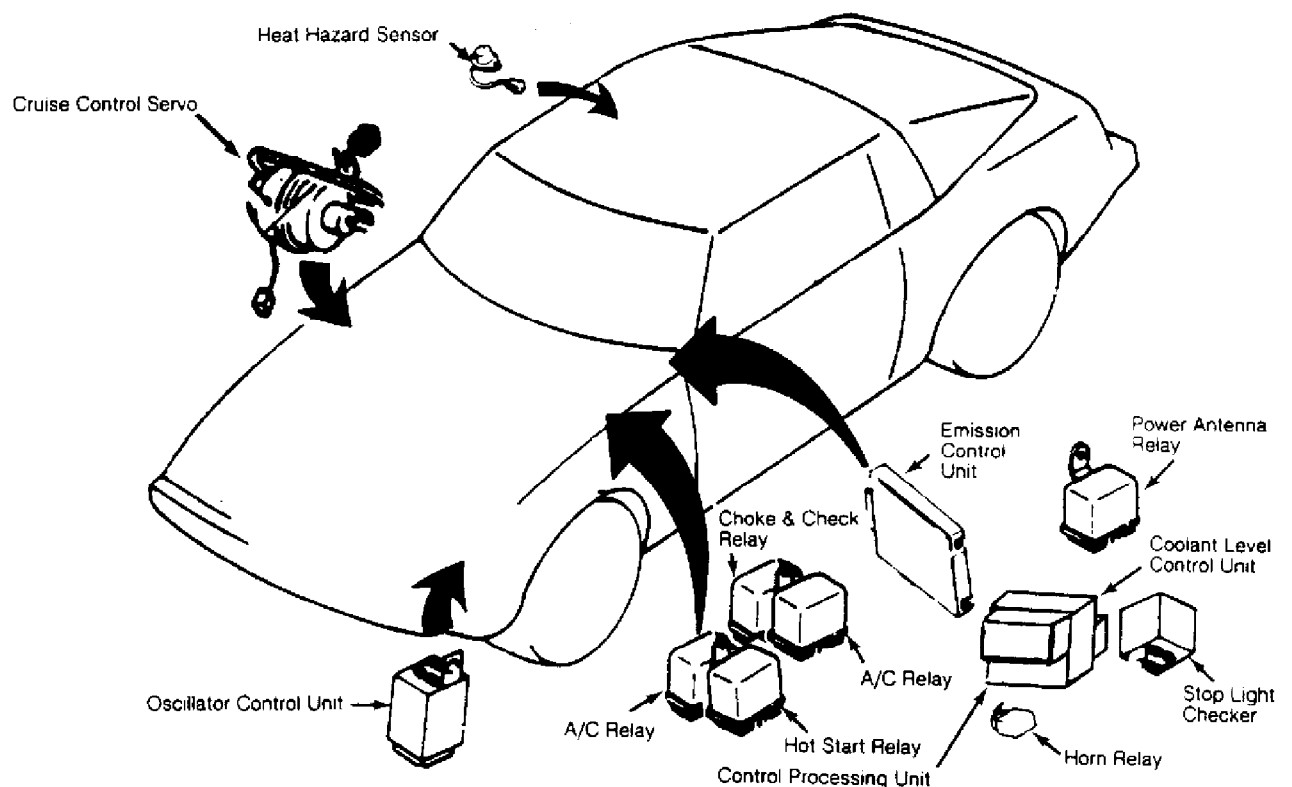
Seat Belt Warning Chime

Behind right side of instrument cluster.

CONTROL UNITS

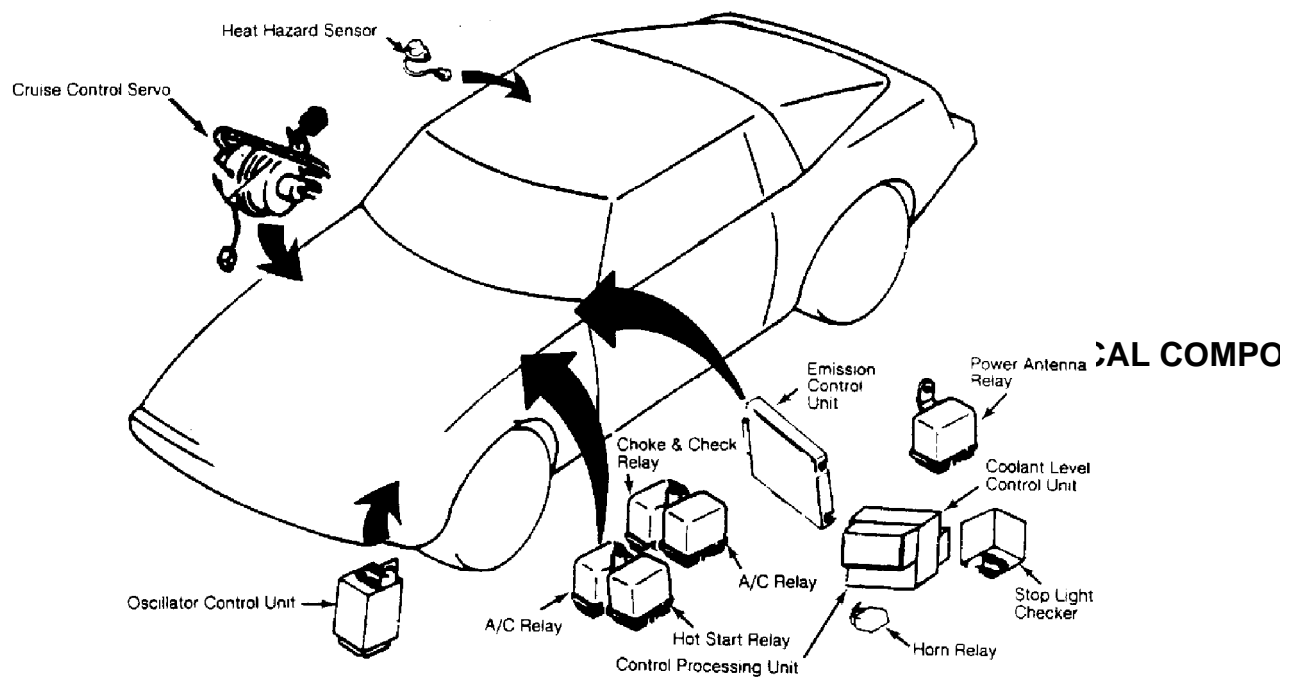
Component

Component Location



Coolant Level Control Unit

On left kick panel.

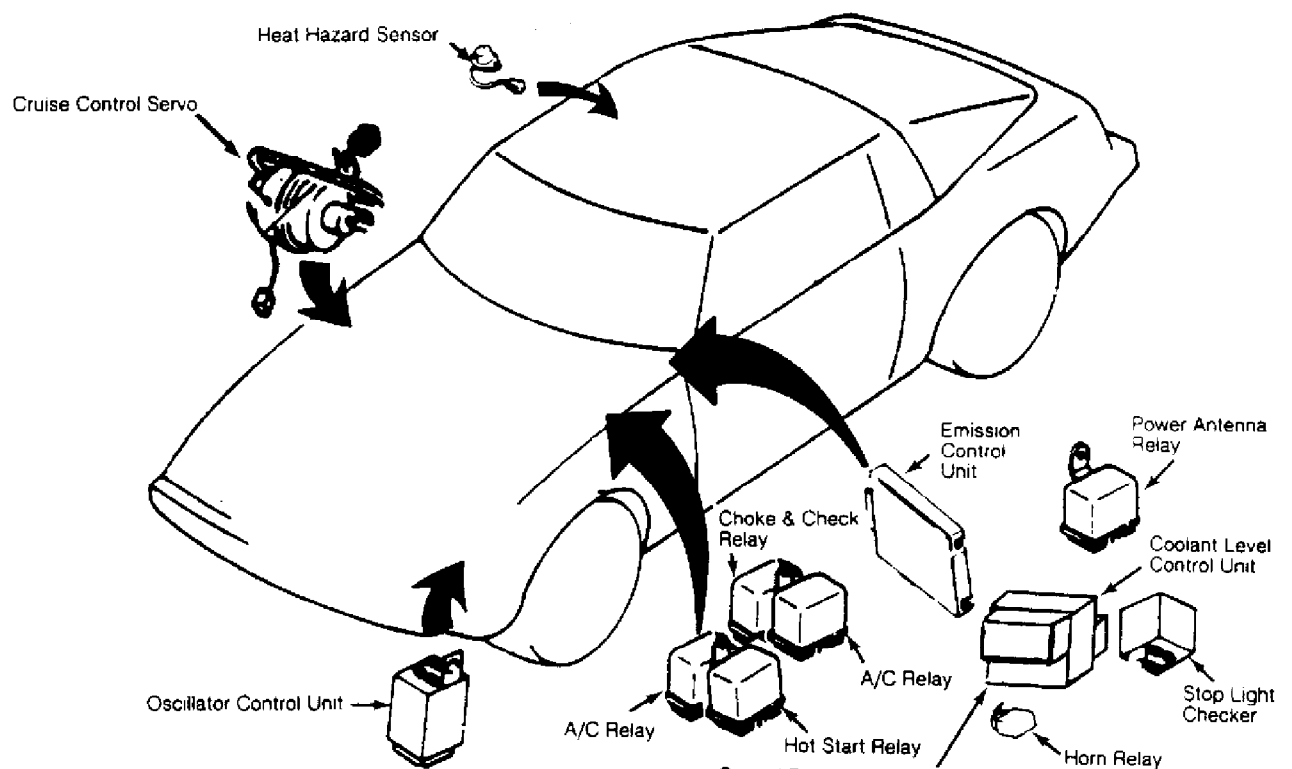


Control Processing Unit

On left kick panel.

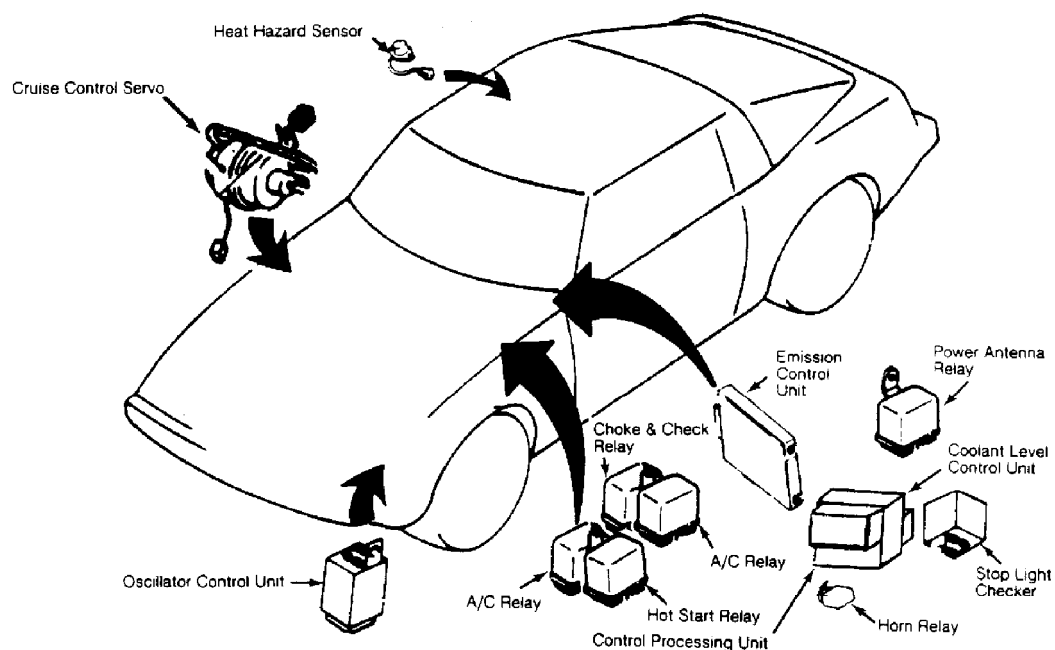
Cruise Control Unit

At left side of luggage compartment.



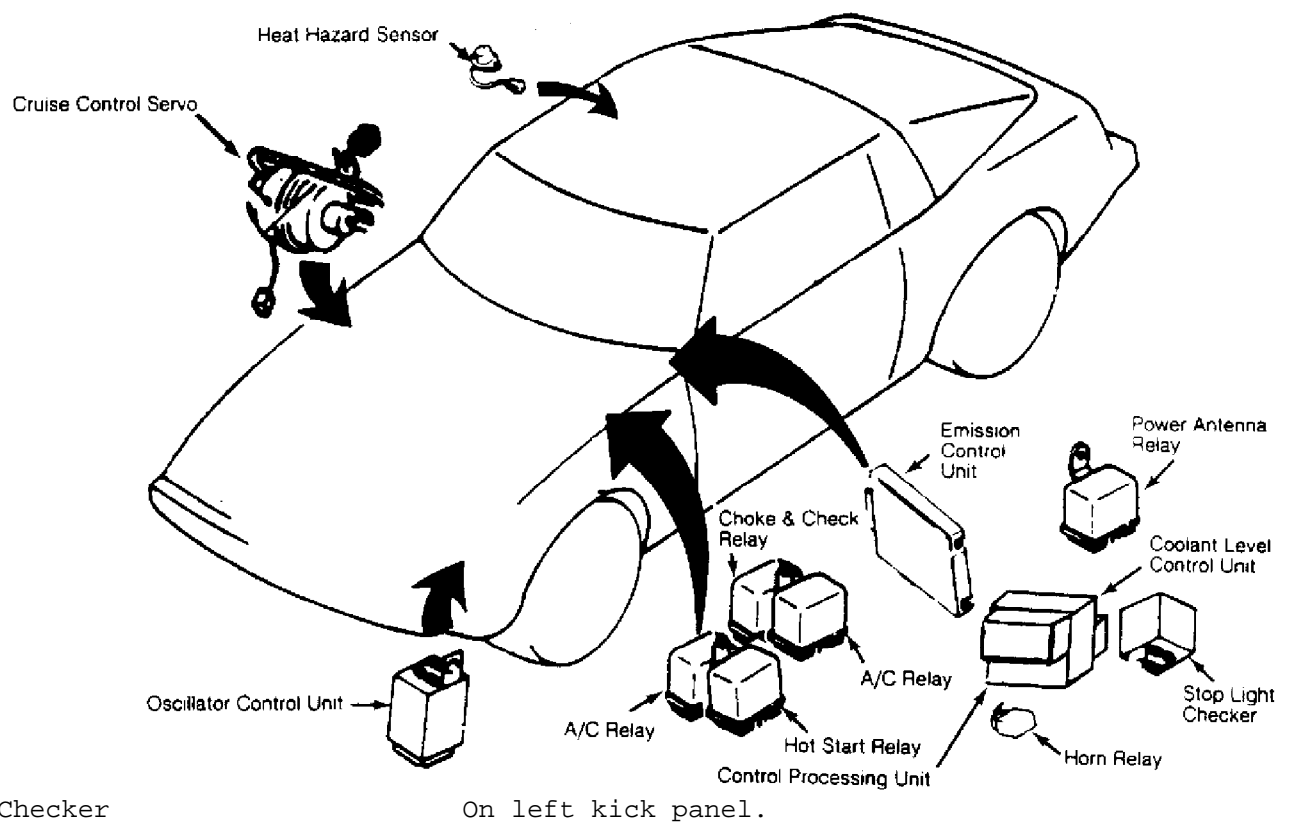
Emission Control Unit

Below right side of instrument panel.



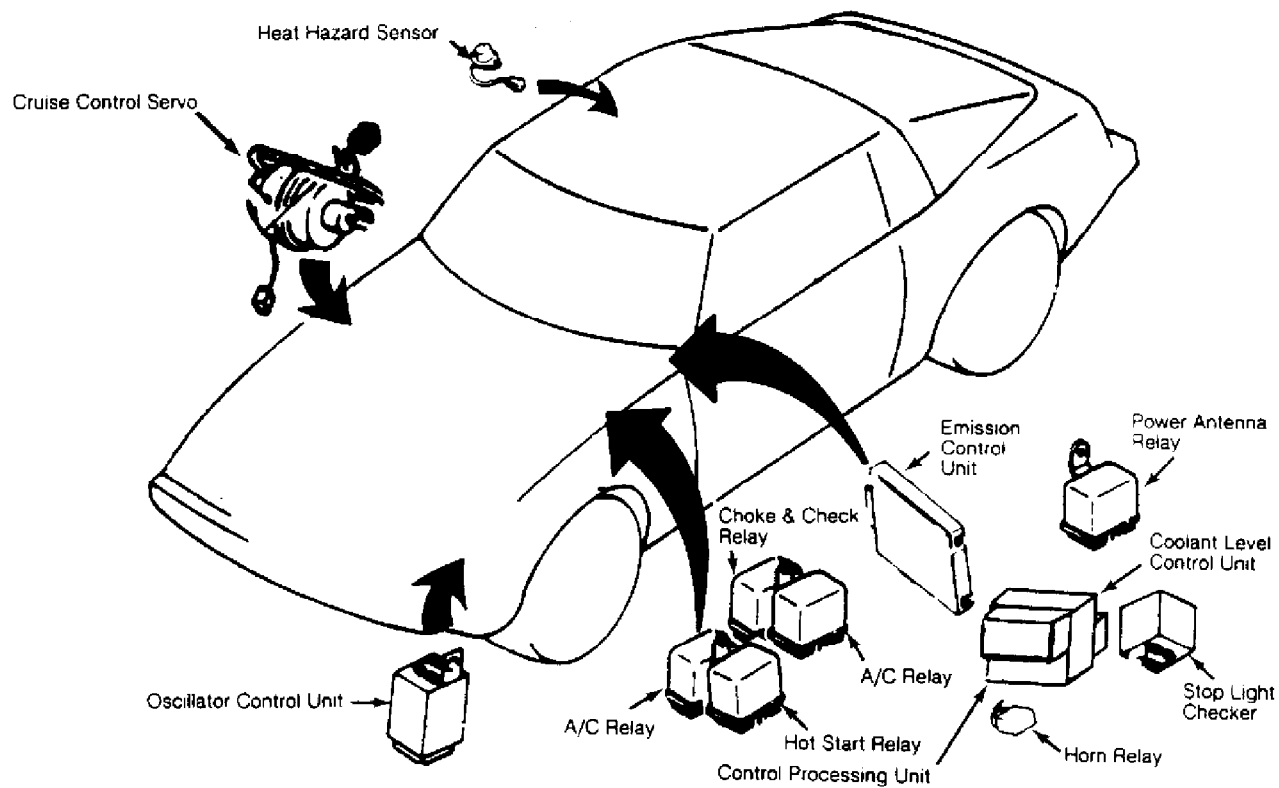
Oscillator Control Unit

At left front corner of engine compartment.



RELAYS

Component	Component Location
Heat Hazard Sensor	Under left side of dash, on kick panel.
Cruise Control Servo	Under left side of dash, on kick panel.
Oscillator Control Unit	Under left side of dash, on kick panel.
A/C Relay	Under left side of dash, on kick panel.
Choke & Check Relay	Under left side of dash, on kick panel.
Hot Start Relay	Under left side of dash, on kick panel.
Control Processing Unit	Under left side of dash, on kick panel.
Emission Control Unit	Under left side of dash, on kick panel.
Power Antenna Relay	Under left side of dash, on kick panel.
Coolant Level Control Unit	Under left side of dash, on kick panel.
Stop Light Checker	Under left side of dash, on kick panel.
Horn Relay	Under left side of dash, on kick panel.



Choke & Check Relay

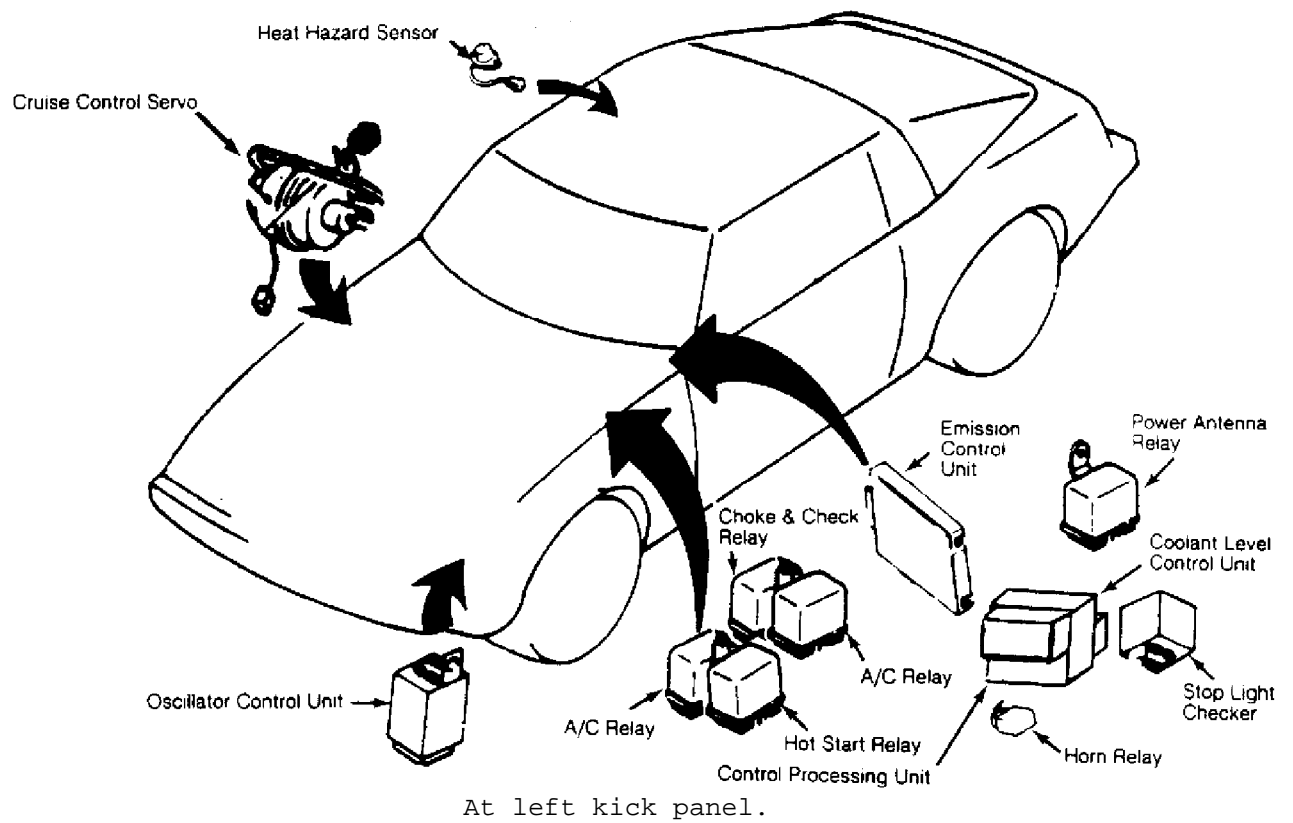
Under left side of dash, on kick panel.

Cutout Relay

Under left hand side of instrument panel.

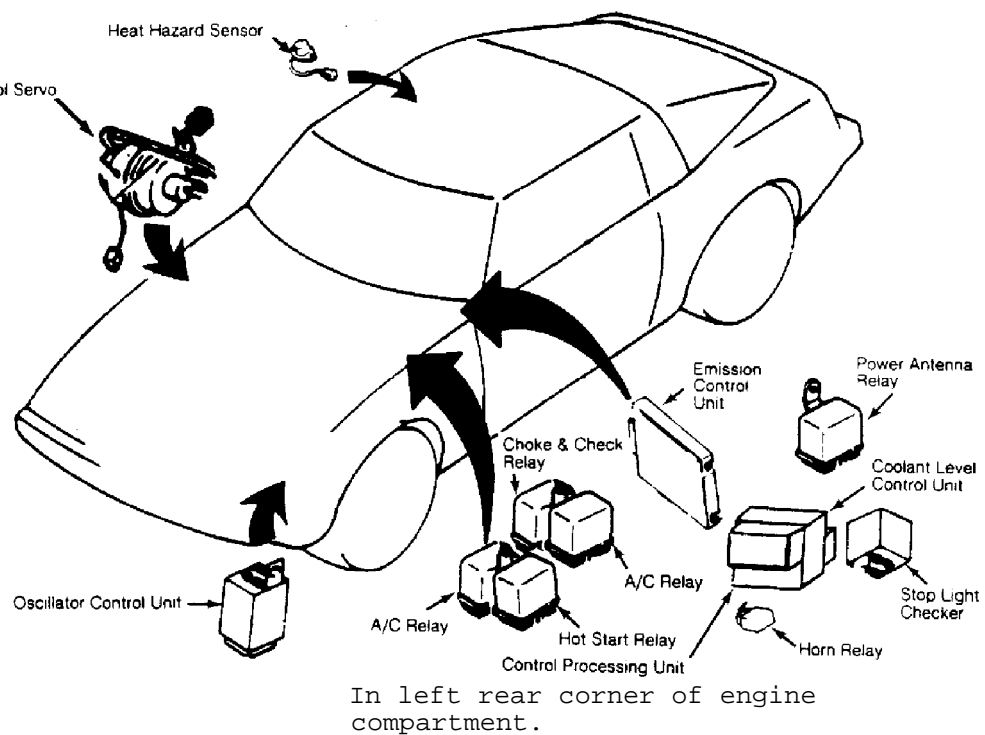
Fuel Pump Relay

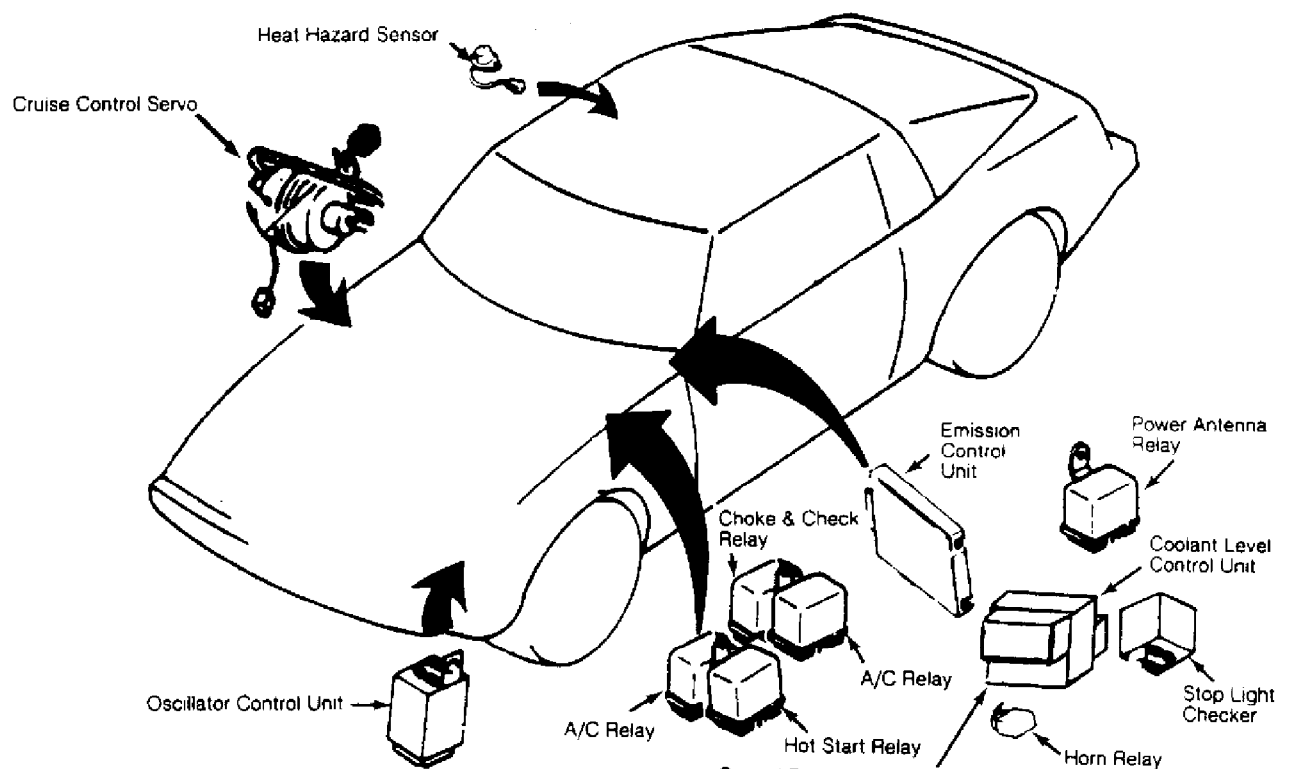
Under left side of dash, or near steering column.



ELECTRICA

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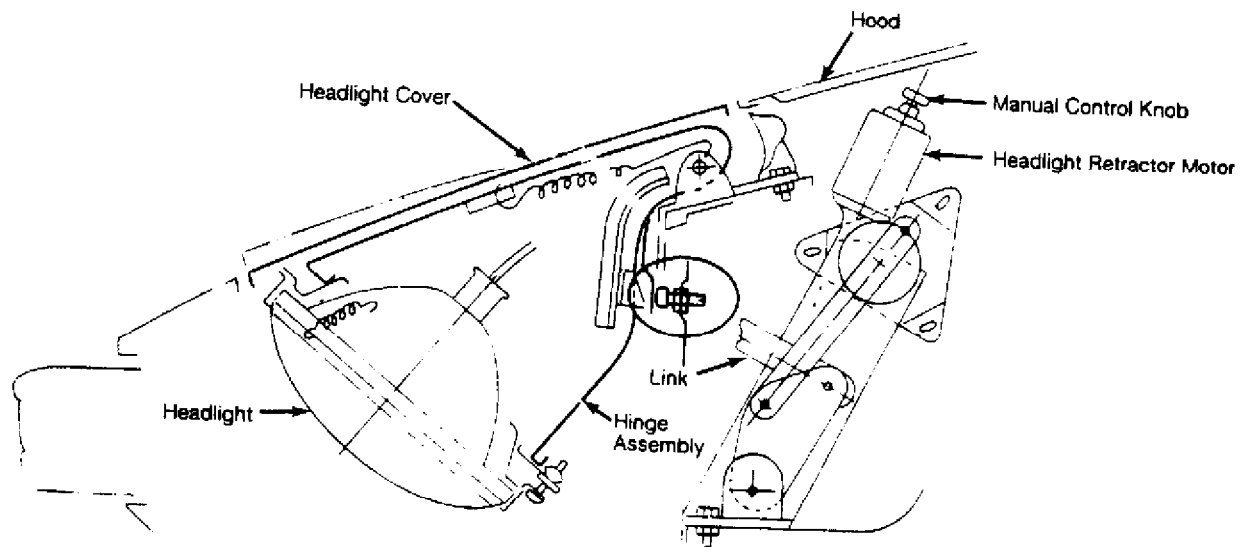


Power Antenna Relay

Under left side of instrument panel.

MOTORS

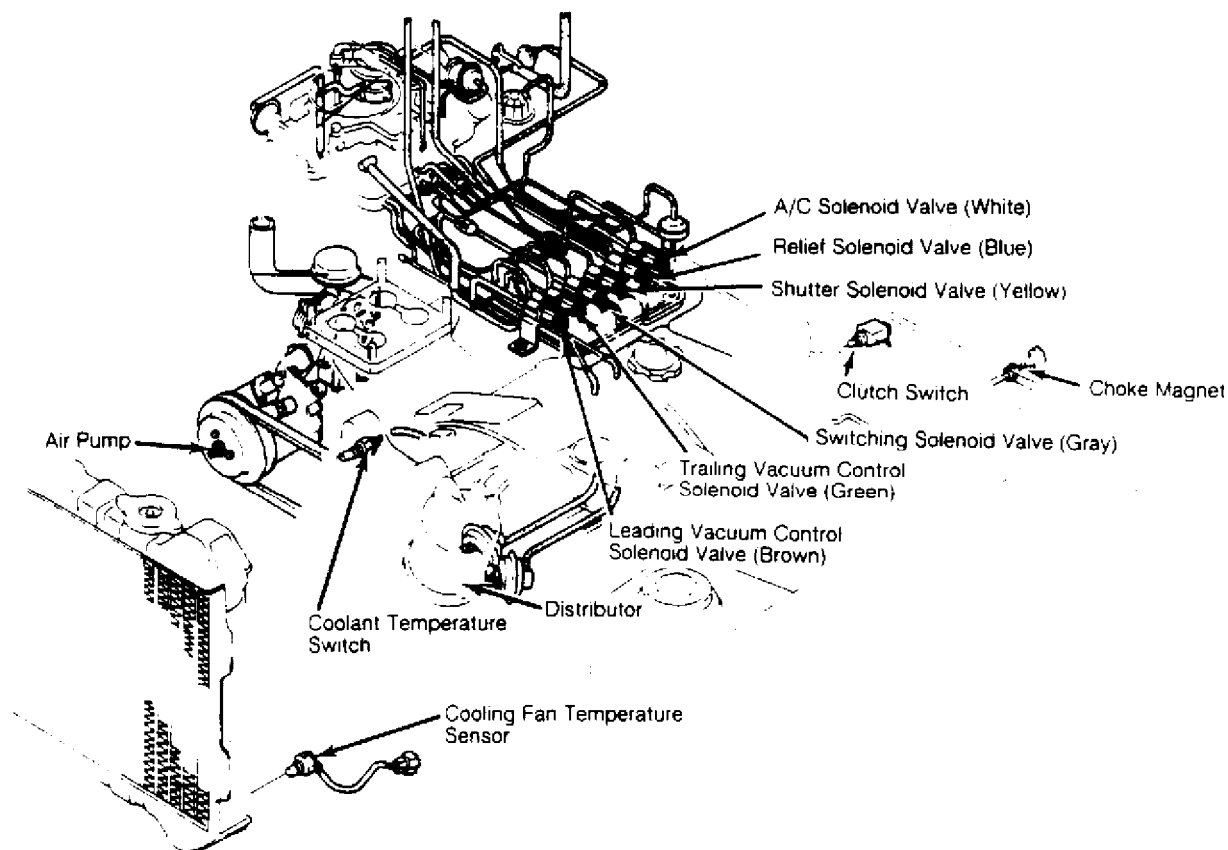
Component	Component Location
A/C-Heater Blower Motor	Under instrument panel in heater box.
Front Washer Motor	On reservoir in center right side of engine compartment.
Front Wiper Motor	Under left side of cowl.
Fuel Pump	Mounted on frame, near fuel tank.
Headlight Washer Motor	In right front corner of engine compartment.
Hot Start Assist Motor	In left rear corner of engine compartment.



Headlight Retractor Motors	Behind each headlight assembly.
Power Antenna Motor	In right rear corner of luggage compartment.
Rear Washer Motor	In left rear quarter panel.
Rear Wiper Motor	On bottom right side of rear hatch.

SENDING UNITS/SENSORS

Component	Component Location
Brake Fluid Level Sensor	In brake master cylinder.
Coolant Level Sensor	On top of radiator.



Cooling Fan Temperature Sensor

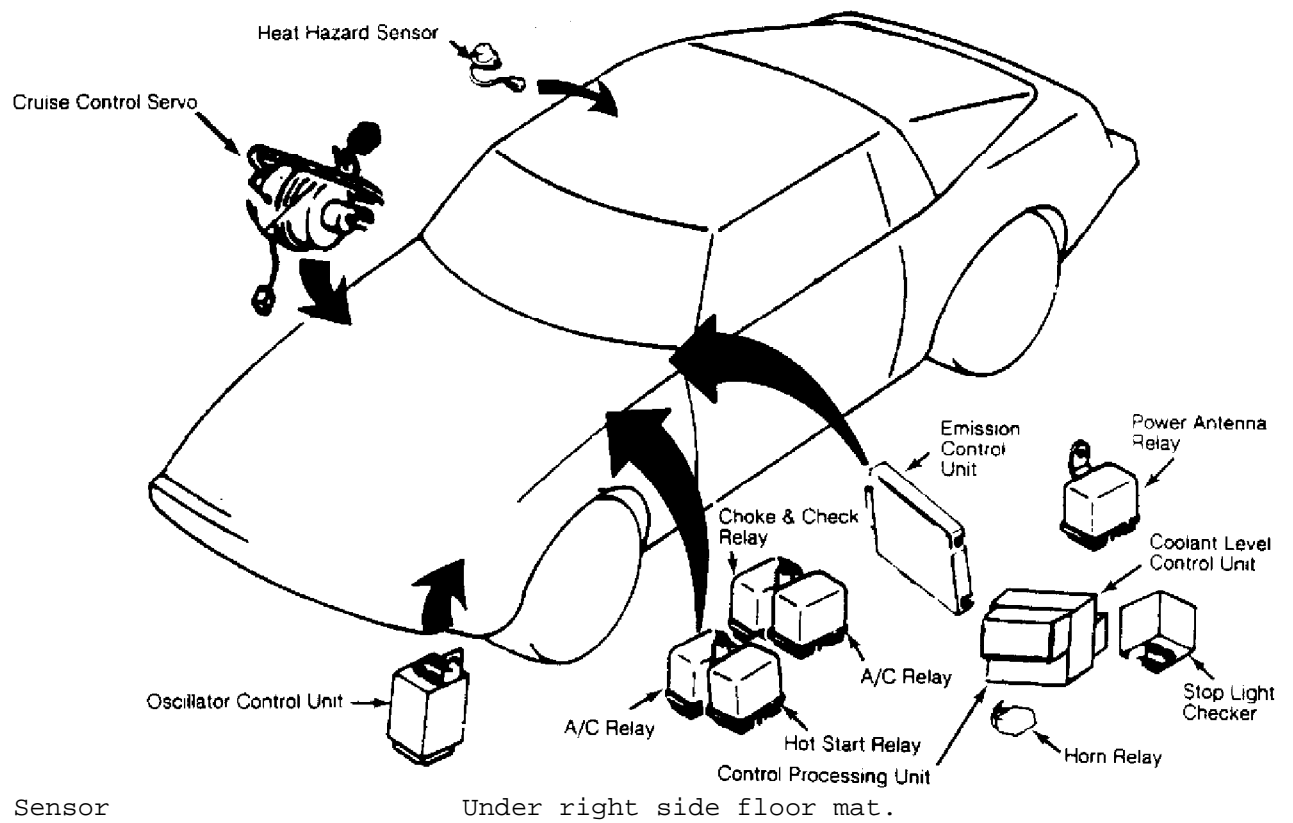
In lower left side of radiator.

Cruise Control Sensor

On back of speedometer

Fuel Gauge Sending Unit

On left side of fuel tank.

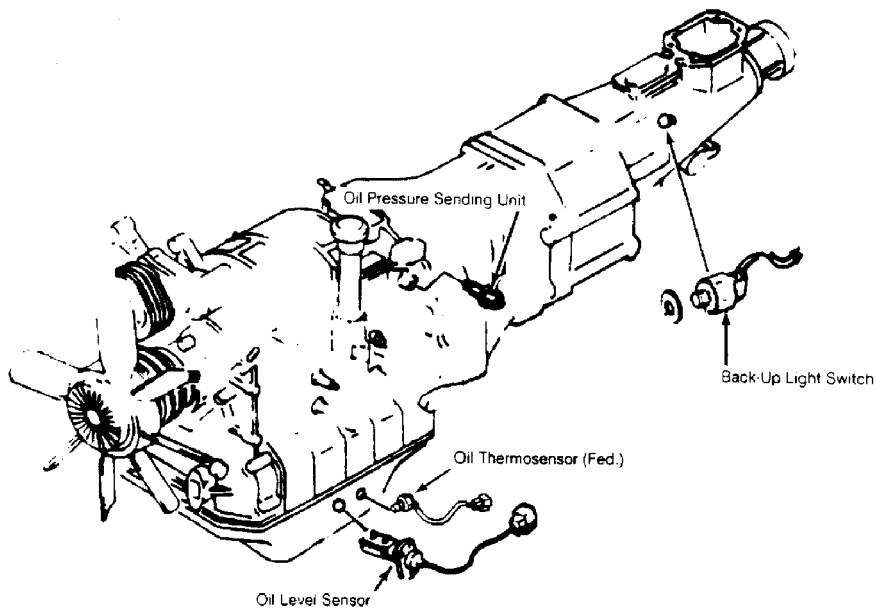


Heat Hazard Sensor

Under right side floor mat.

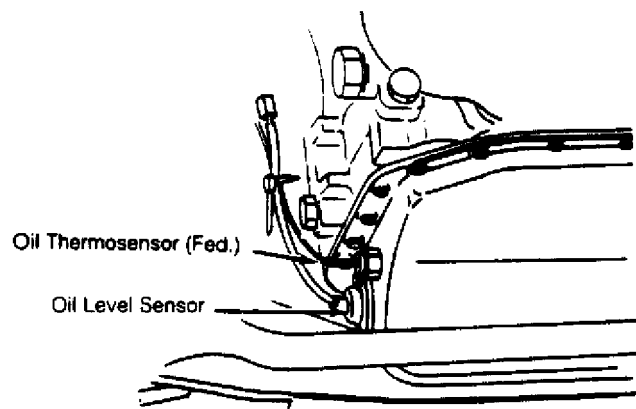
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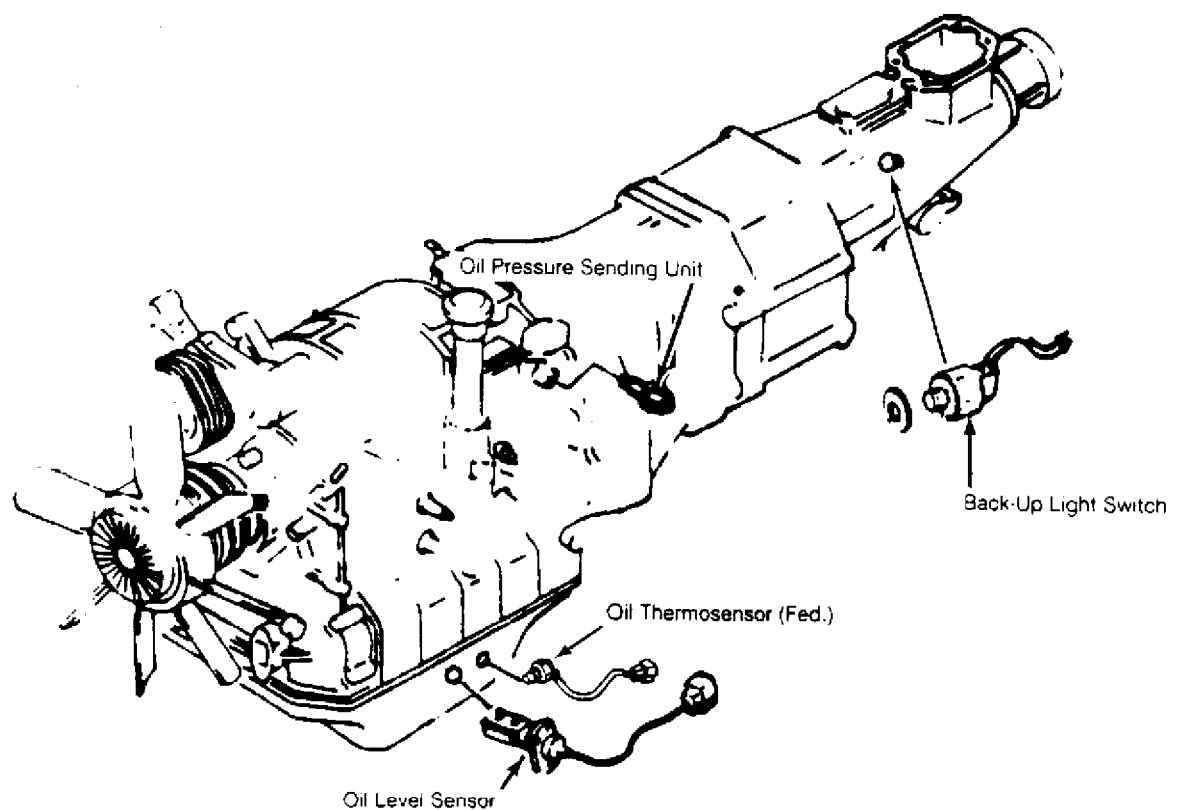


Oil Level Sensor, (Graphic 1)

In left side of oil pan.

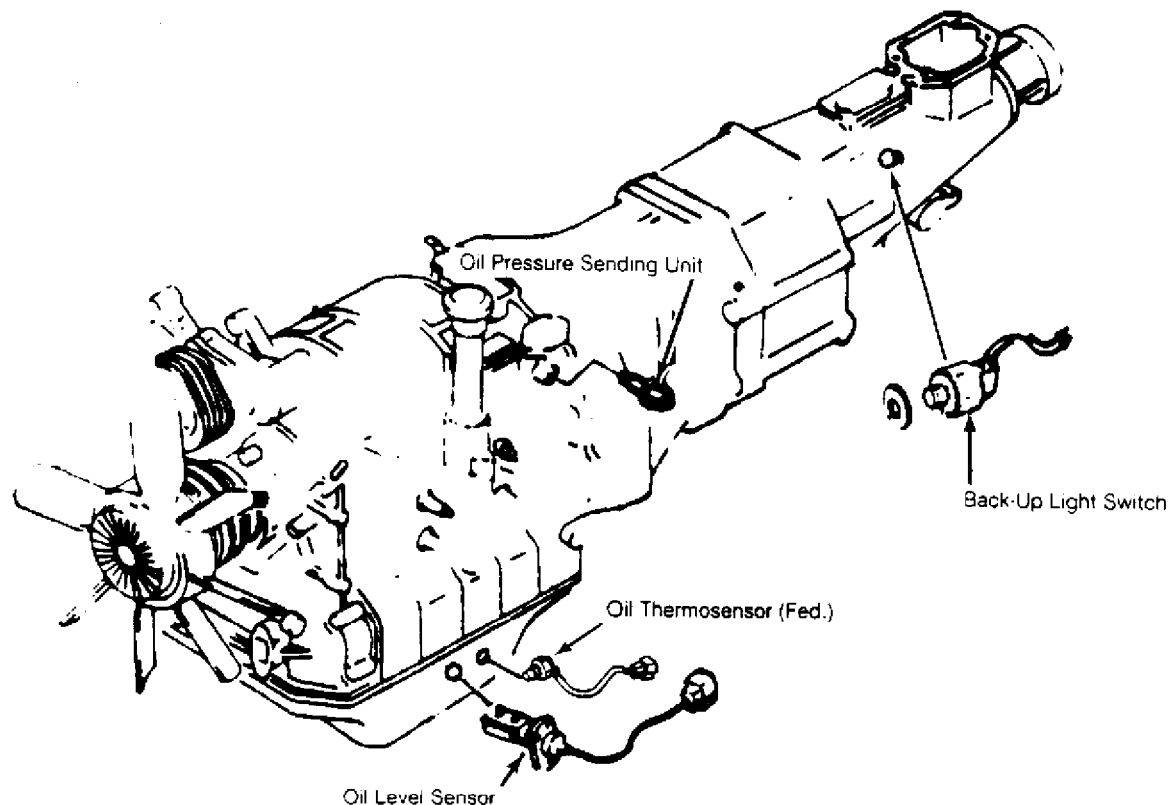


Oil Level Sensor, (Graphic 2) In left side of oil pan.



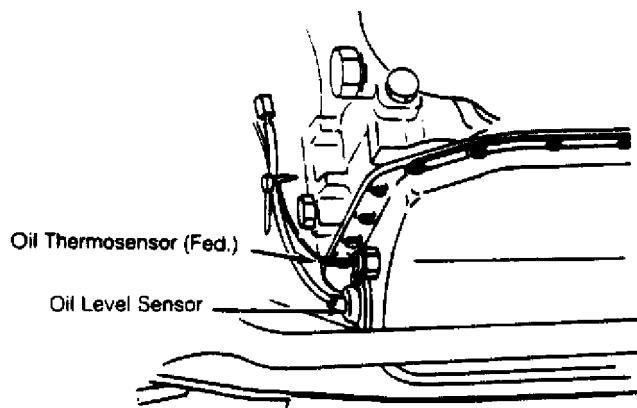
Oil Pressure Sending Unit

On rear left side of block
below oil filter.



Oil Thermo Sensor (Fed.),
(Graphic 1)

In left side of oil pan.



Oil Thermo Sensor (Fed.),

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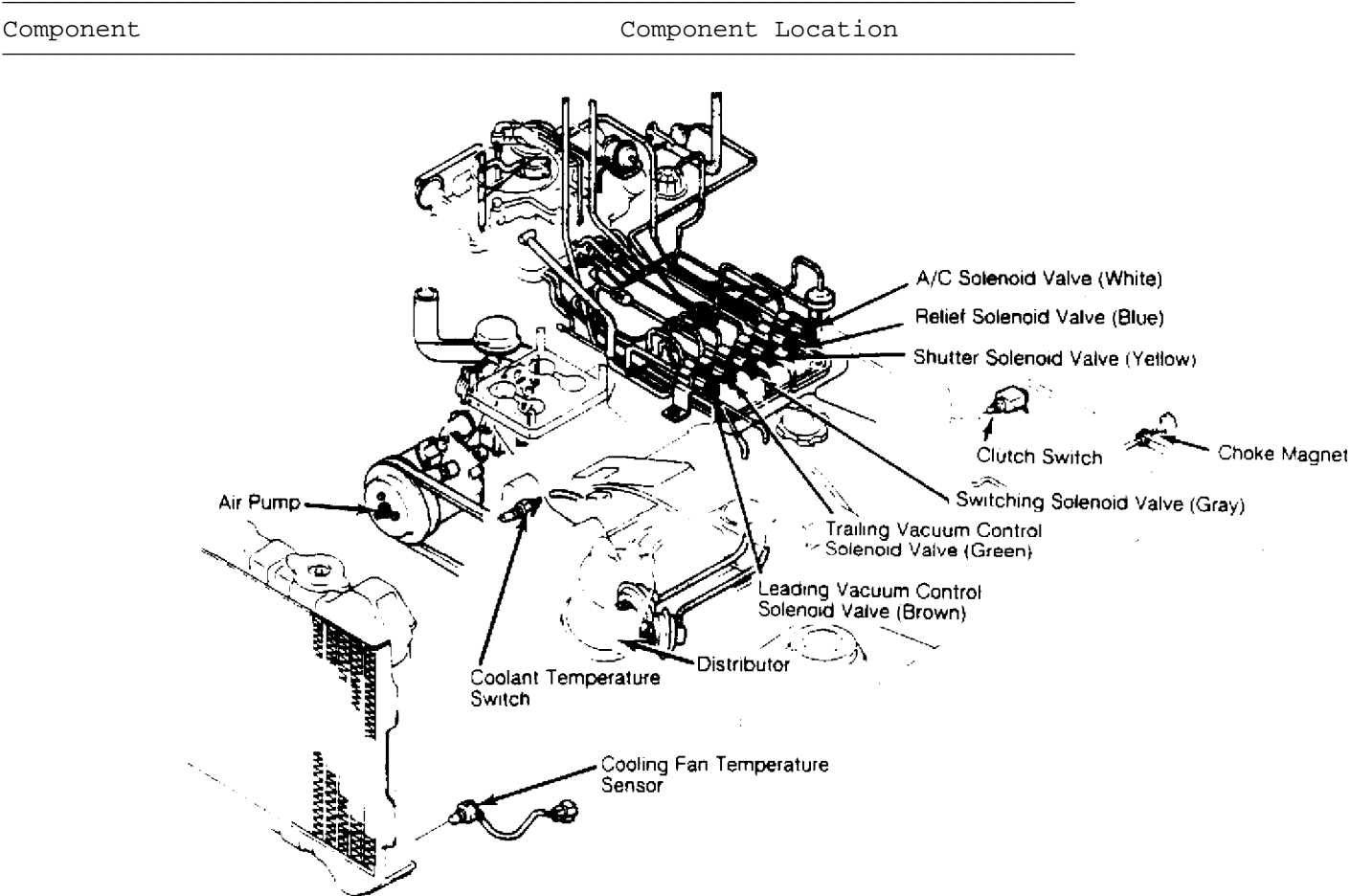
Throttle Sensor

On carburetor throttle
linkage.

Washer Fluid Level Sensor

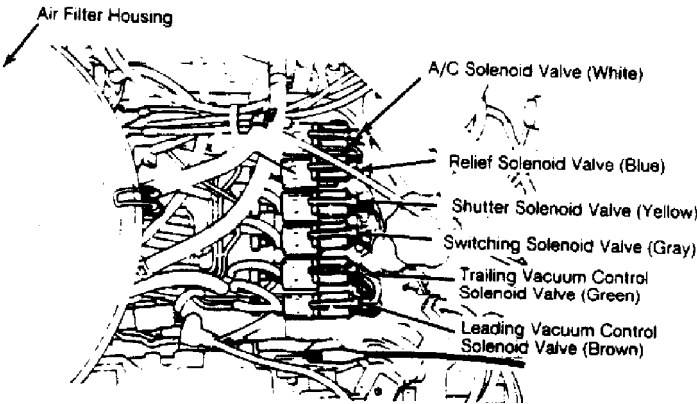
On bottom of washer fluid
reservoir.

SOLENOIDS/SOLENOID VALVES



A/C Solenoid Valve (White),
(Graphic 1)

In solenoid block on left side
of engine.

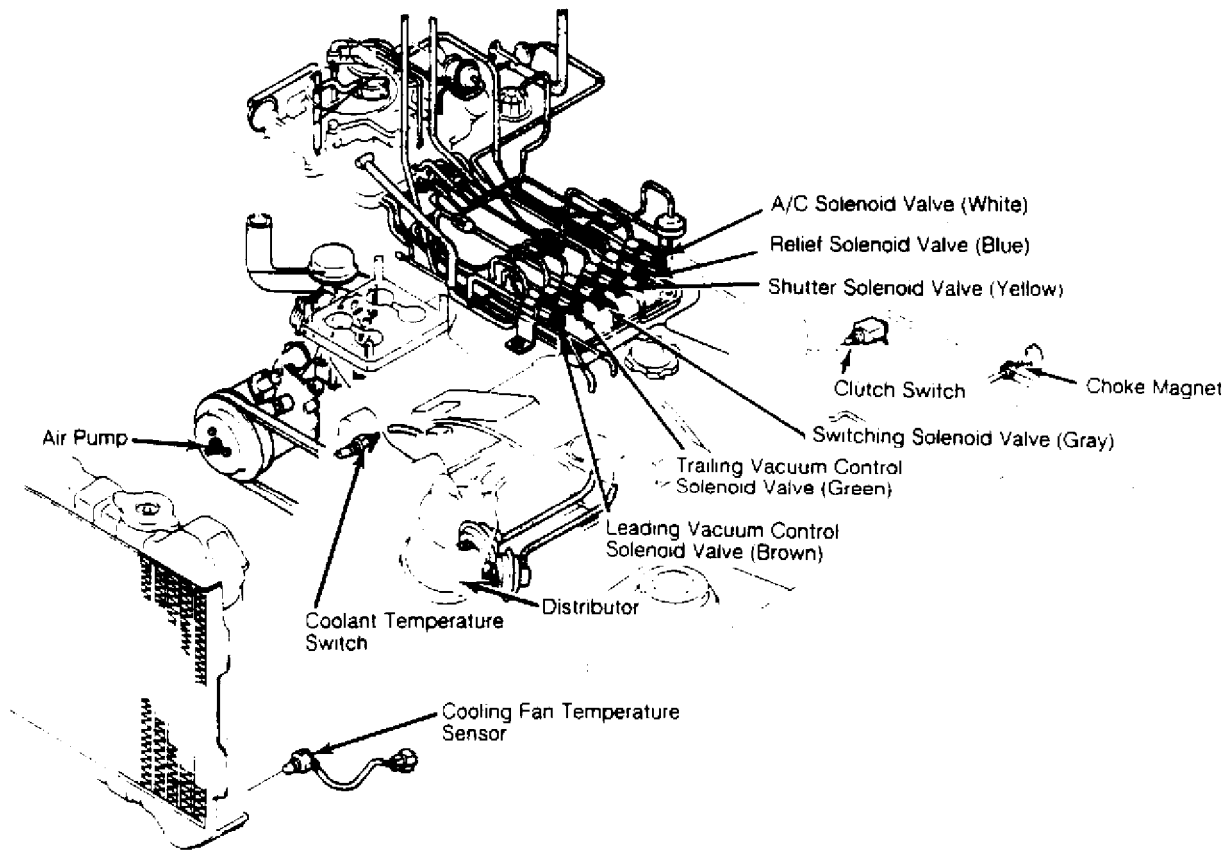


A/C Solenoid Valve (White),
(Graphic 2)

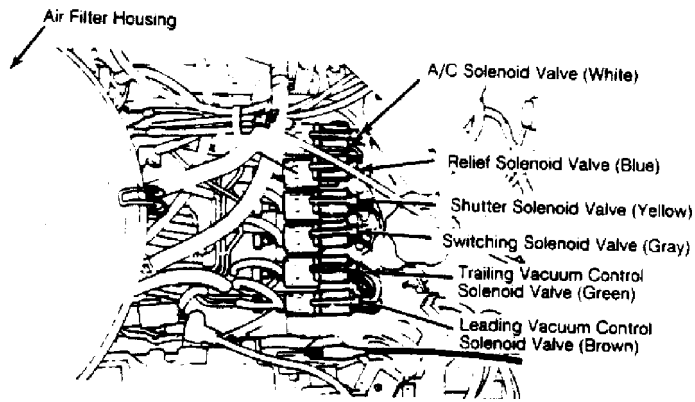
In solenoid block on left side
of engine.

Downshift Solenoid (A/T)
On left side of transmission case.

Fuel Door Release Solenoid
In left rear quarter panel.



Leading Vacuum Control Solenoid, Valve (Brown), (Graphic 1)
In solenoid block on left side of engine.

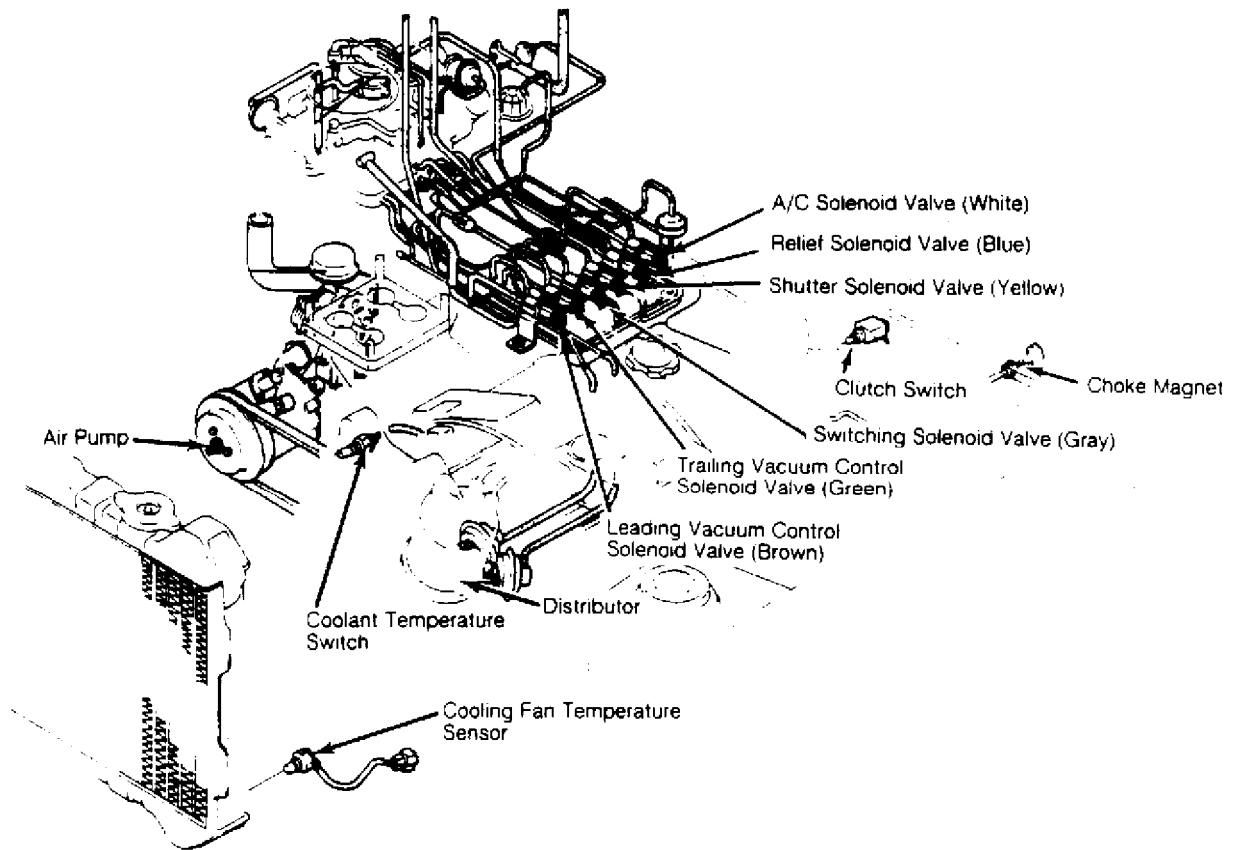


Leading Vacuum Control Solenoid, Valve (Brown), (Graphic 2)
In solenoid block on left side of engine.

Rear Hatch Release Solenoid
In center of rear fin

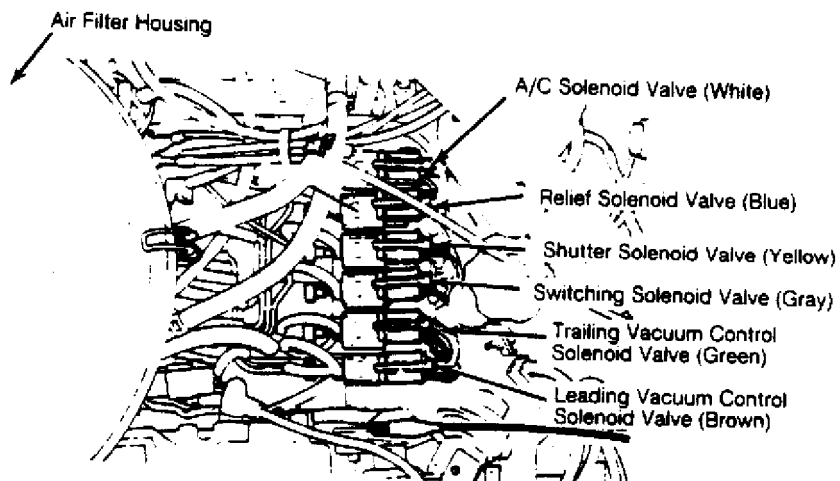
ELECTRICAL COMPONENT L

panel.



Relief Solenoid Valve (Blue),
(Graphic 1)

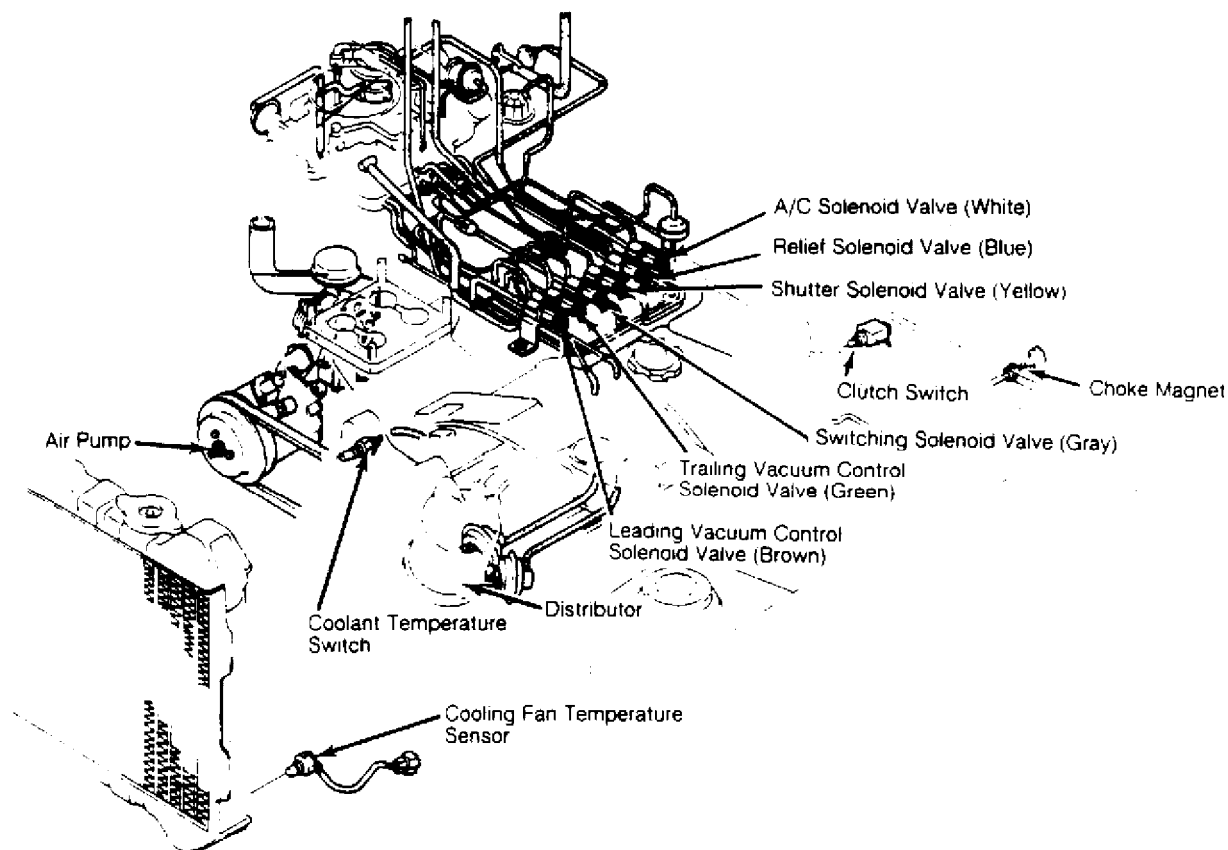
In solenoid block on left side
of engine.



Relief Solenoid Valve (Blue),
(Graphic 2)

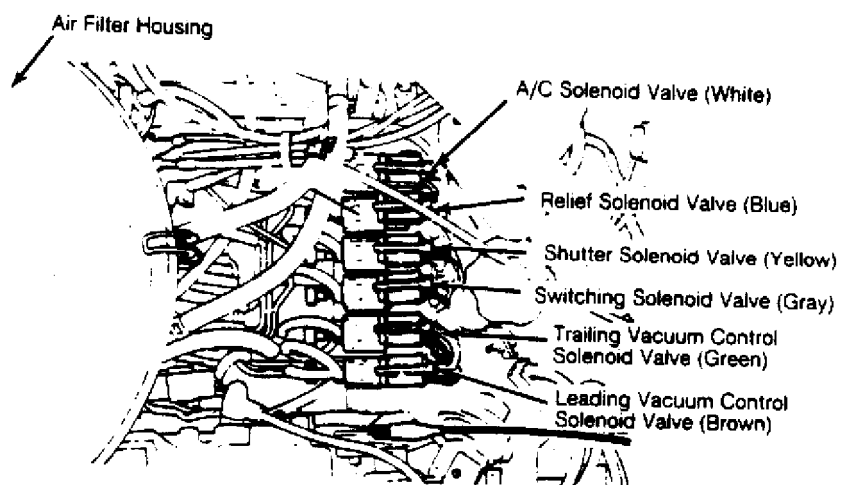
In solenoid block on left side
of engine.

ELECTRICAL COMPONENT



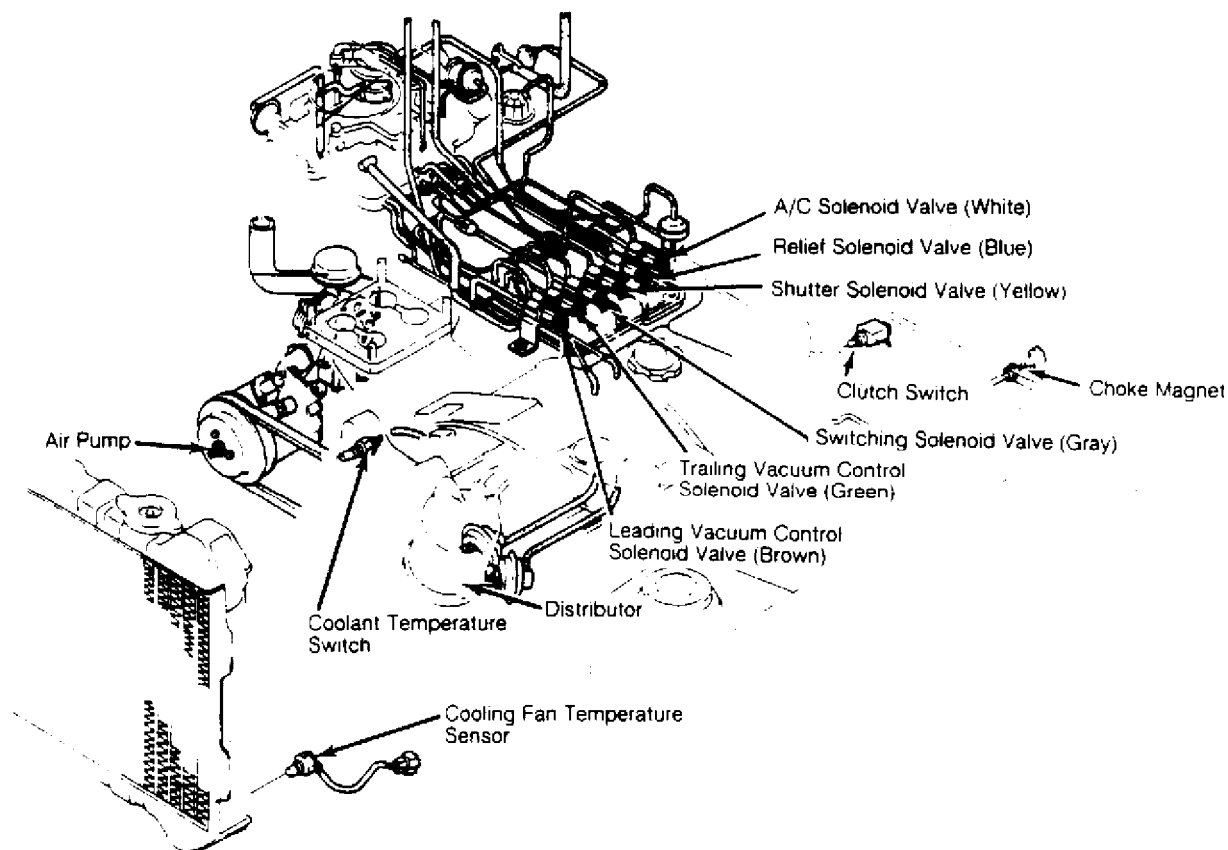
Shutter Solenoid Valve (Yellow),
(Graphic 1)

In solenoid block on left side
of engine.



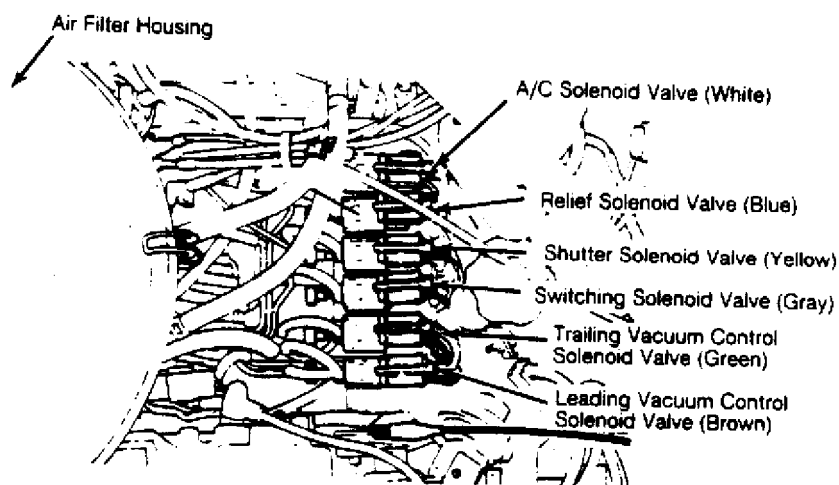
Shutter Solenoid Valve (Yellow),
(Graphic 2)

In solenoid block on left side
of engine.



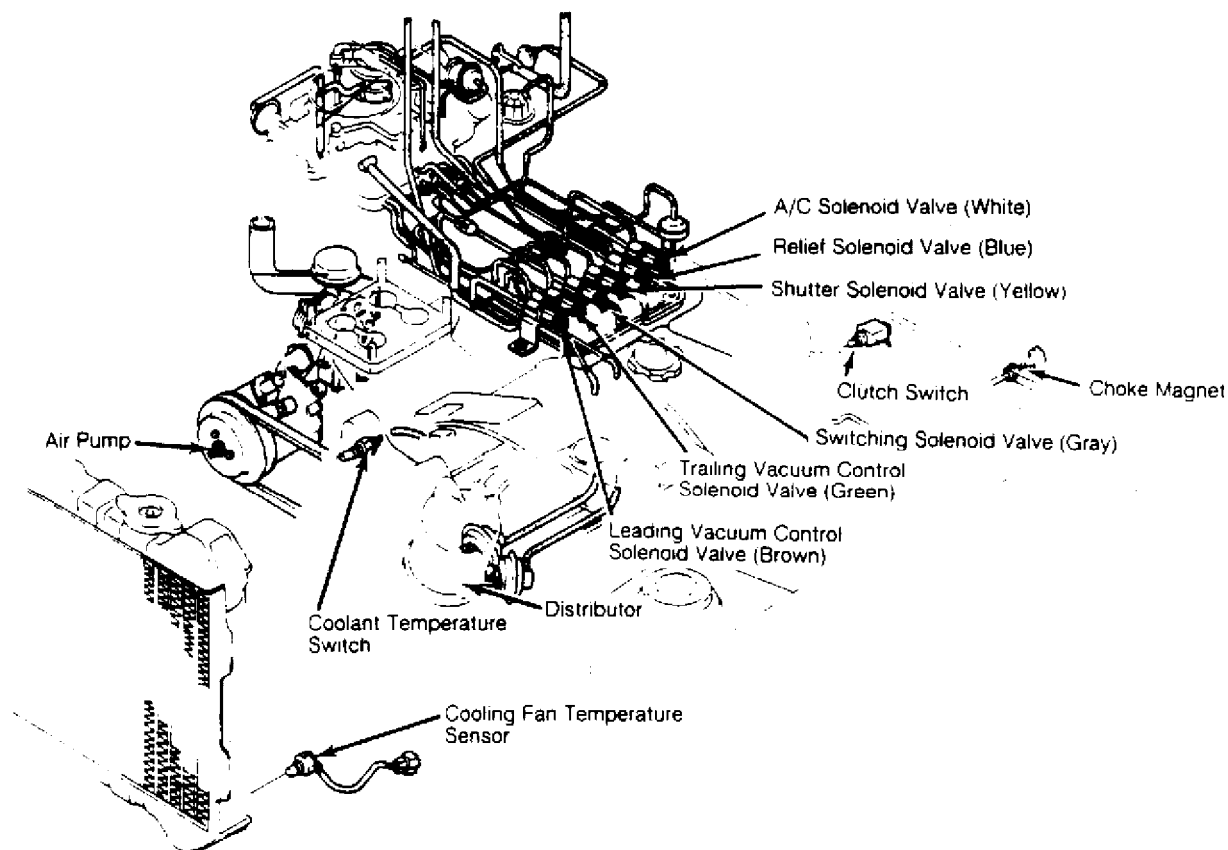
Switching Solenoid Valve (Gray),
(Graphic 1)

In solenoid block on left side
of engine.



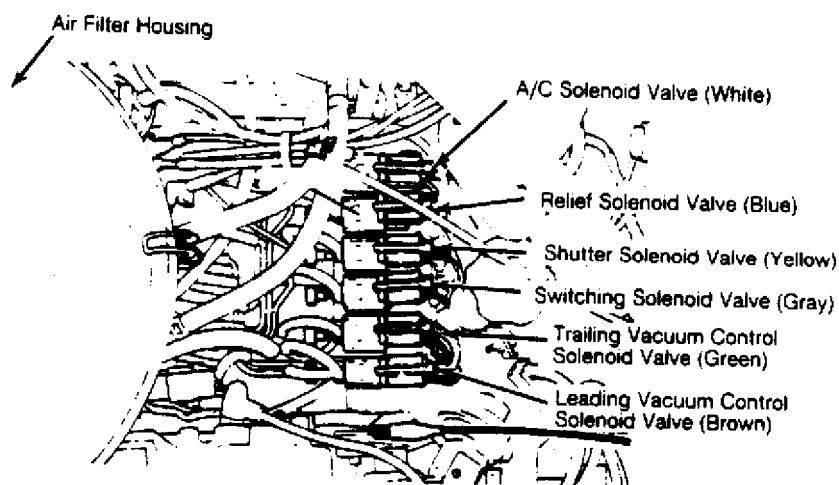
Switching Solenoid Valve (Gray),
(Graphic 2)

In solenoid block on left side
of engine.



Trailing Vacuum Control Solenoid,
(Graphic 1)

In solenoid block on left side
of engine.



Trailing Vacuum Control Solenoid,
(Graphic 2)

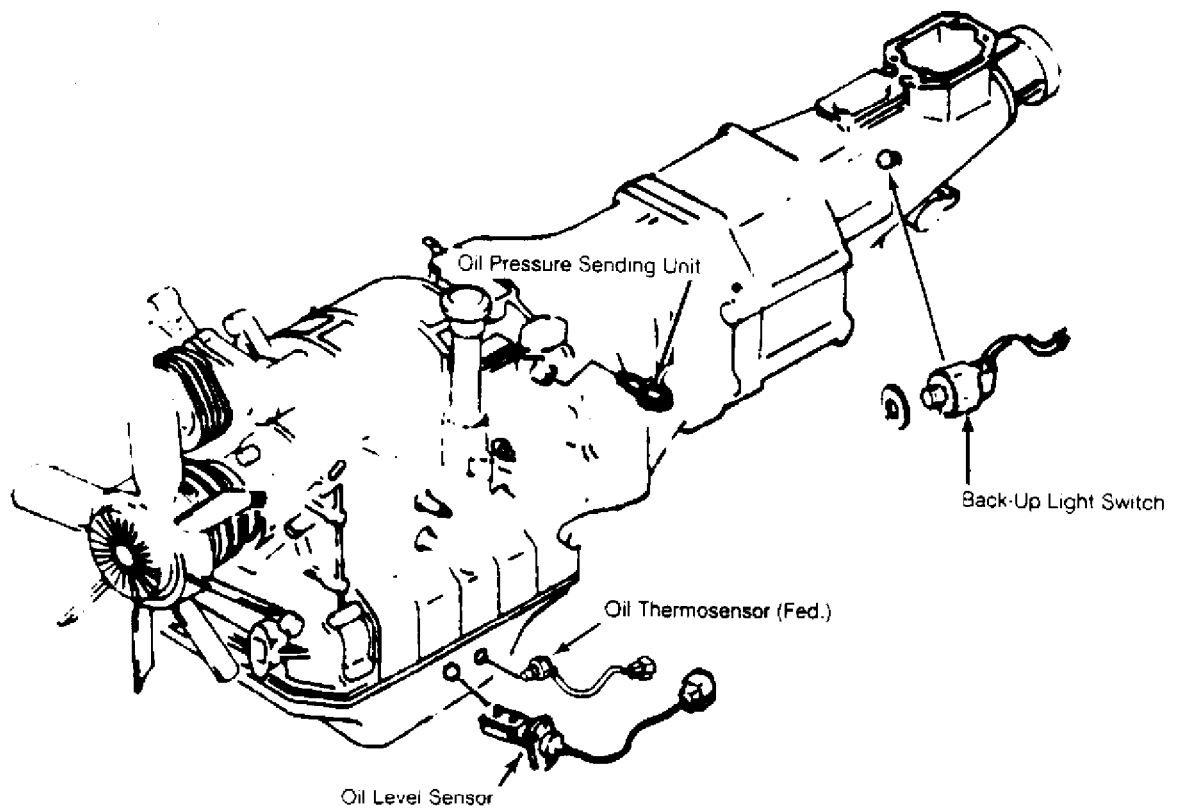
In solenoid block on left side
of engine.

Component

Component Location

A/C Low Pressure Switch

Below right side of instrument panel.

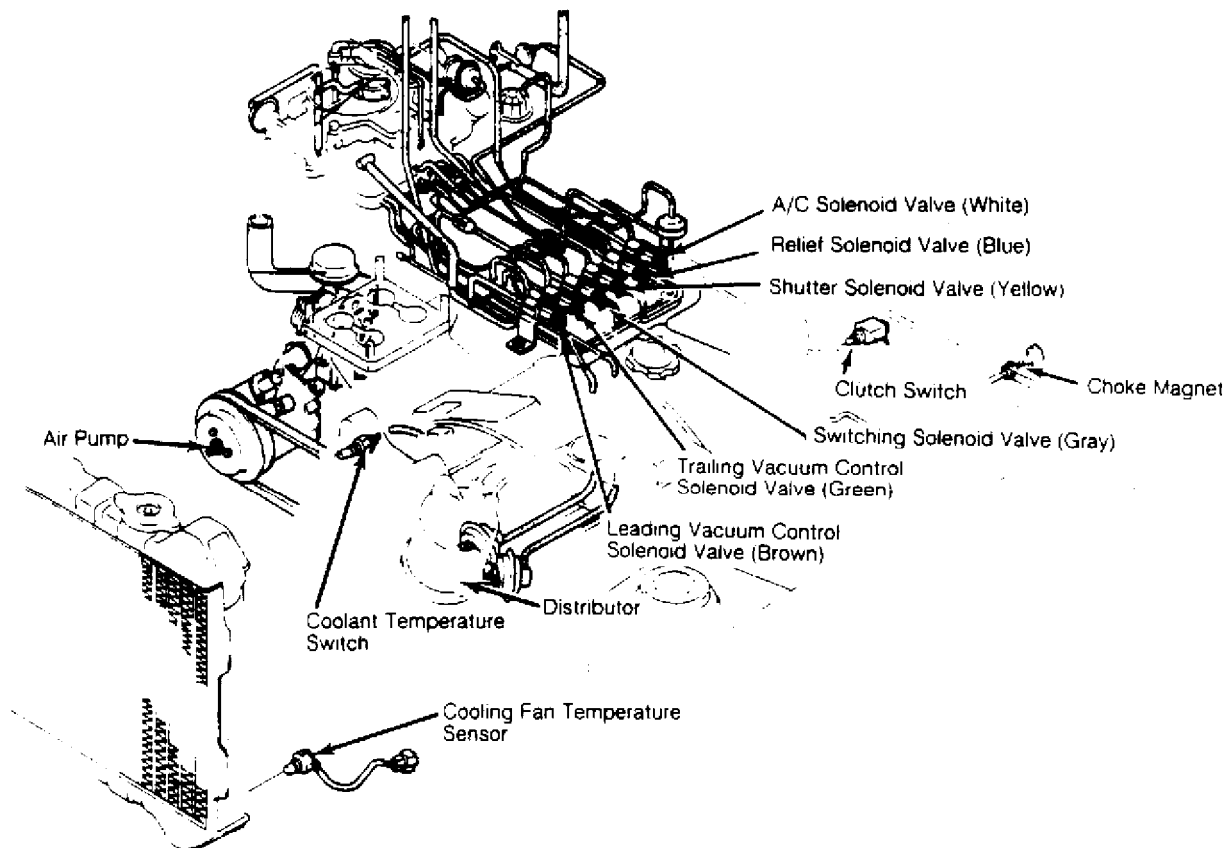


Back-Up Light Switch (M/T)

On left side of transmission case.

Brake/Stop Light Switch

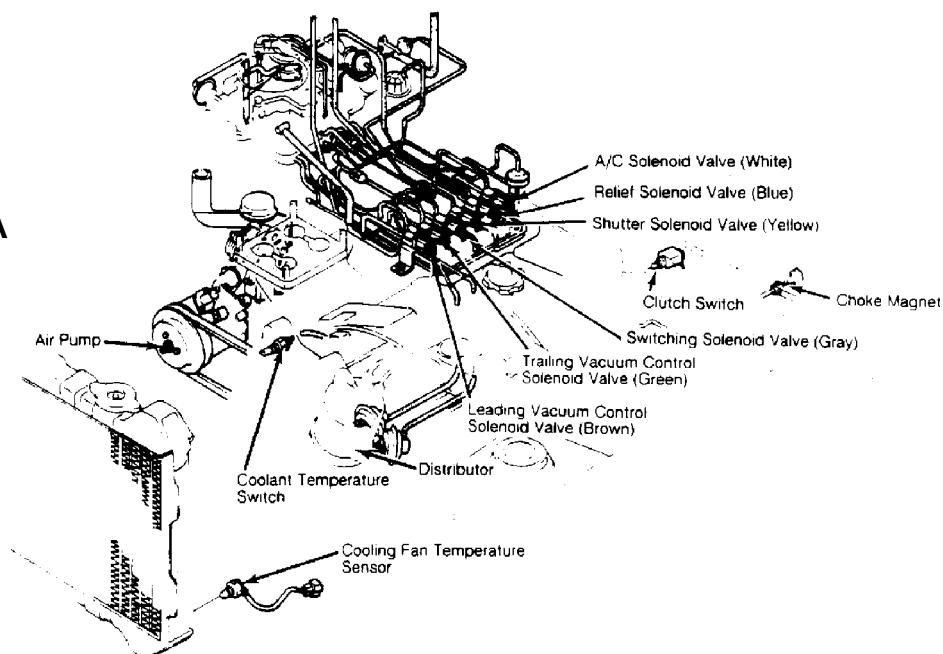
On top of brake pedal bracket.



Clutch Switch

On top of clutch pedal bracket.

ELECTRICAL



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Coolant Temperature Switch

Mounted in water pump.

Inhibitor Switch (A/T)	On left side of transmission case.
Kickdown Switch	On accelerator pedal bracket.
Parking Brake Switch	On bottom of parking brake lever.

END OF ARTICLE

ALTERNATOR & REGULATOR

Article Text

1984 Mazda RX7

For iluvmyrx7.com

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Saturday, June 08, 2002 05:23PM

ARTICLE BEGINNING

1984 Alternators & Regulators
MITSUBISHI ALTERNATORS WITH IC REGULATORS

Mazda

DESCRIPTION

Mitsubishi alternators are conventional 3-phase, self-rectifying type units containing 6 diodes (3 positive and 3 negative) which are used to rectify current. A case-mounted Integrated Circuit (IC) regulator is used on all models.

APPLICATION

Model	Volt/Amps		Part No.
Mazda			
B2000	13.5/50		A00IT23370
B2200	13.5/40		A00IT23479
GLC	12/50	(1)	E56318300A
RX7			
12A Engine	12/55	(1)	A5T30574
13B Engine	12/60	(1)	2A5T40374
626	12/60	(1)	FE0118300R

(1) - Vehicle manufacturer's part number.

TESTING

ON VEHICLE TEST

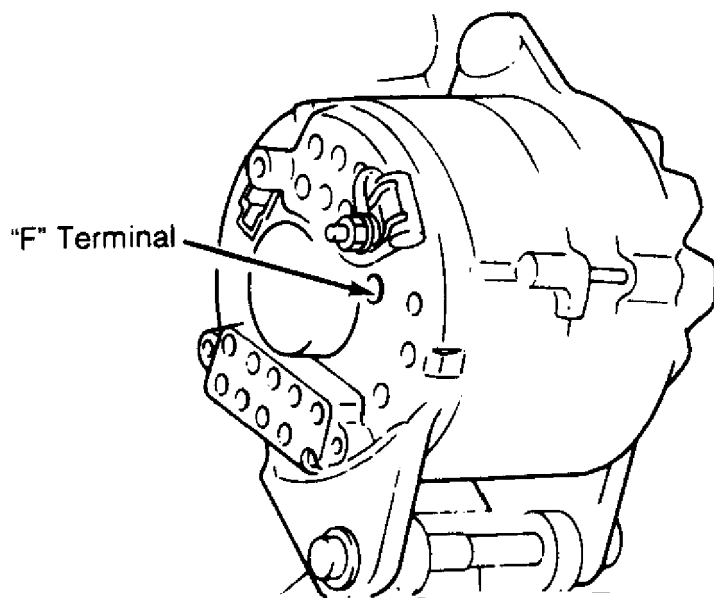
CAUTION: DO NOT short across any alternator terminals or run vehicle with any wires disconnected. Battery must be fully charged for tests to be accurate.

Output Test

1) With ignition switch off, check voltage at "R" terminal and "L" terminal. Reading at both terminals should be 0 volts. If not 0 volts, alternator is defective.

2) Turn ignition switch on but do not start engine. Voltage at "L" should be 1-3 volts. If voltage is 0, alternator and regulator are defective.

3) If voltage at "L" is close to battery voltage with ignition on, short circuit the "F" terminal to rear alternator housing. See Fig. 1.

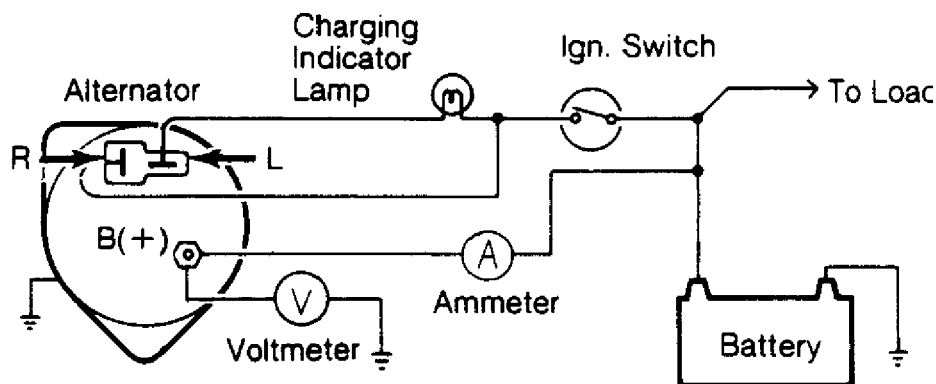


29386

Fig. 1: Alternator "F" Terminal Location
Terminal is located .8" (20 mm) below the hole.

4) Read the voltage at "L" with "F" terminal shorted. If voltage is lower than battery voltage, regulator is defective. If voltage is close to battery voltage, alternator is defective.

5) With ignition switch off and battery ground cable disconnected, connect ammeter between alternator terminal "B" and cable. Connect voltmeter between "B" (+) terminal and ground. See Fig. 2.



29387

Fig. 2: Alternator Output Test Arrangement

ALTERNATOR & REGULATOR Article Text (p. 2) 1984 Mazda RX7 For iluvmyrx7.com Copyright © 1998 Mitchell

6) Start engine and accelerate to 2000-3000 RPM. Turn on all lights and check ammeter for output.

OVERHAUL

DISASSEMBLY

1) After removing through bolts, insert screwdriver between front housing and stator to separate.

2) Hold the rotor in a soft jawed vice. Remove pulley nut, pulley, fan, and spacer. Remove rotor drive end housing by lightly tapping end housing with a soft mallet.

3) To separate stator from diode end housing, unsolder 3 negative diode leads and connections between diodes. Hold the stator lead with a needle nose plier to prevent rectifier from overheating.

4) Remove condenser from the "B" terminal. Unsolder the "L" and "B" terminal from the rectifier assembly. Lift out rectifier assembly and brush holder.

TESTING

Diode Assemblies

1) Check each diode with ohmmeter in forward and reverse direction. If the diode shows large resistance in one direction and small resistance in other direction, diode is normal.

2) If diode shows small resistance in both directions, it is shorted. If large resistance is shown in both directions, diode is open. Heat sink and diodes are replaced as an assembly.

Rotor Field Continuity

Check continuity across field coil slip rings. A reading of 3-4 ohms must be obtained. If there is no continuity, replace rotor.

Rotor Field Coil Ground

Check continuity between individual slip rings and rotor core/shaft. If there is continuity, coil or slip ring is grounded, replace rotor.

Stator Coil Ground

Ensure no continuity exists between stator coil leads and stator core.

Stator Coil Continuity

Check continuity between leads of stator coil. If there is no continuity, replace stator.

Brush Wear Limit

Brushes must be replaced when worn to 1/3 of original length. This limit is indicated by a wear limit line on the side of each brush.

Brush Spring Pressure

Standard tension should be 12-16 oz. (340-453 g). Replace if less than 7 oz. (198 g) or if springs are corroded.

COMPONENT REPLACEMENT

Brushes

To remove brushes from holder, unsolder pigtail from terminal. To replace, solder pigtail to terminal ensure that 1/4" of brush will be located in brush holder.

Diodes

The diodes and rectifier are serviced as an assembly. If any diodes are defective, replace rectifier assembly.

Drive End Bearing

Remove bearing retainer set screws. Press bearing out of front housing.

Rear Bearing

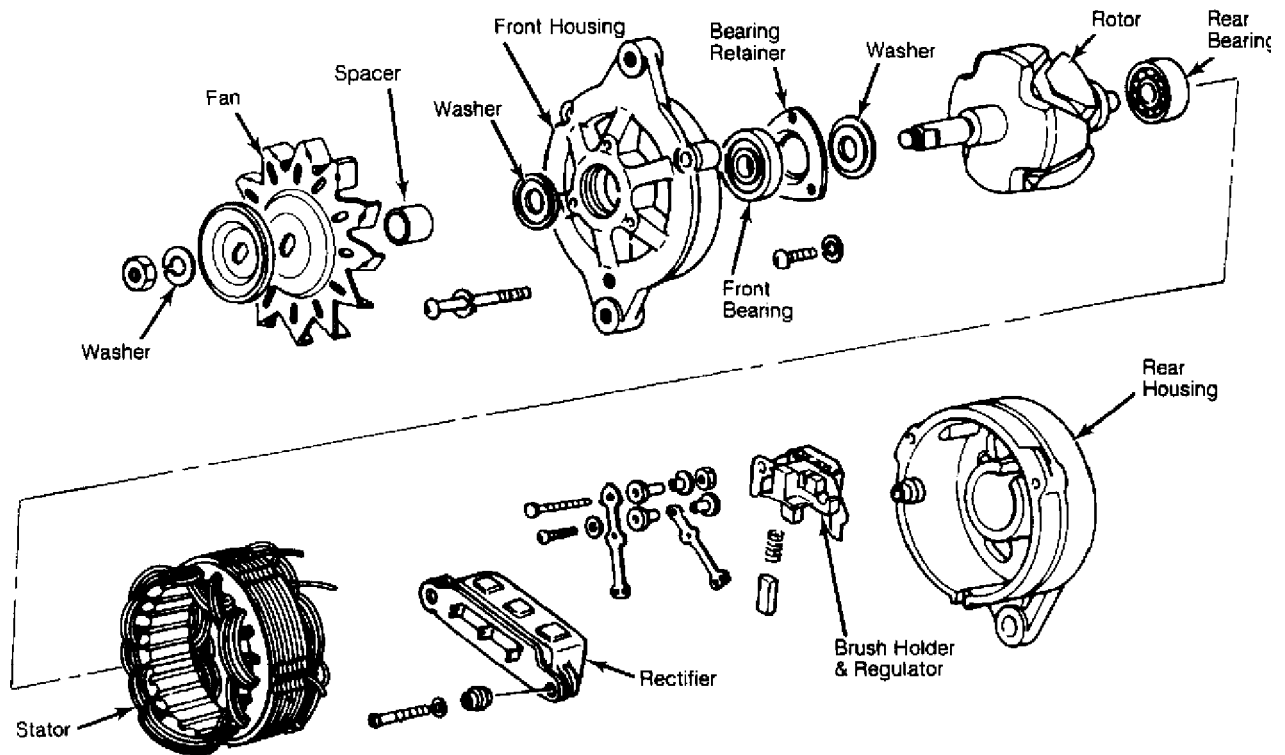
Remove rear bearing from housing assembly using a press or bearing puller.

Voltage Regulator

The voltage regulator and brush holder are combined in one unit. If regulator is found to be defective, replace as an assembly.

REASSEMBLY

Reassemble by reversing disassembly procedures. Soldering of rectifier leads should be done in less than 5 seconds to prevent damage to diodes. When installing the rotor assembly in the rear housing, hold the brushes in position by inserting a stiff piece of wire into the access hole in rear housing.



29389
Fig. 3: Exploded View of Mitsubishi Alternator

END OF ARTICLE

FUSE & FLASHER LOCATIONS

Article Text

1984 Mazda RX7

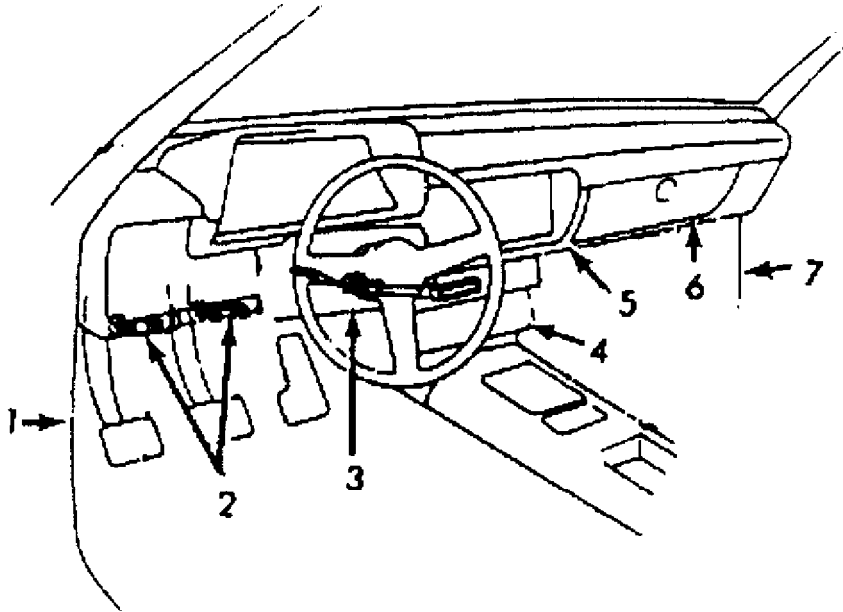
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Saturday, June 08, 2002 05:25PM

ARTICLE BEGINNING

1984 FUSES & FLASHER LOCATIONS
MAZDA



Locations 1-7 are as shown.

Locations 8-16 are as follows:

- 8 - Left Front Engine Compartment
- 9 - Right Front Engine Compartment
- 10 - Left Rear Engine Compartment
- 11 - Right Rear Engine Compartment
- 12 - Left Rear Taillight Area
- 13 - Right Rear Taillight Area
- 14 - Under Passenger Seat
- 15 - Under Rear Seat
- 16 - Right Side "B" Pillar

29511

Fig. 1: Fuse & Flasher Locations

FUSE BLOCKS, FLASHERS & RELAYS

Manufacturer & Model	Component Location in Fig. 1
----------------------	------------------------------

Mazda

GLC

Fuse Locations	(2)
Flasher Locations	(2)
Relay Locations	
Break Light Check, Choke, Horn,	
A/C Cut-Out, Cooling Fan	(2)
Wiper/Washer	(2)
Door Lock	(10)

B2000 & B2200	
Fuse Locations	(3)
Flasher Locations	(2)
Relay Locations	
Charging System Check	(9)
Glow Plug (Diesel)	(10)
A/C, Horn	(8)
Turn Signal (2 Relays), Wiper/Washer	(2)
RX7	
Fuse Locations	(2)
Flasher Location	(1)
Relay Locations	
Emission Control	(6)
Power Antenna, Bulb Check, Horn	(3)
A.C.V. (Fuel Injected Model), Hot Start	
Relay, A/C (3 Relays), Main (2 Relays)	(10)
Kick-Down (A/T)	(9)
626	
Fuse Locations	(1)
Flasher Locations	(2)
Relay Locations	
Intermittent Wiper	(2)
Horn	(1)
Door Lock	(7)
Headlight, Taillight, Ignition,	
Cooling Fan, A/C (2 Relays)	(8)

END OF ARTICLE

FUSES & CIRCUIT BREAKERS

Article Text

1984 Mazda RX7

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Saturday, June 08, 2002 05:26PM

ARTICLE BEGINNING

Fuses & Circuit Breakers
1983-85 Mazda

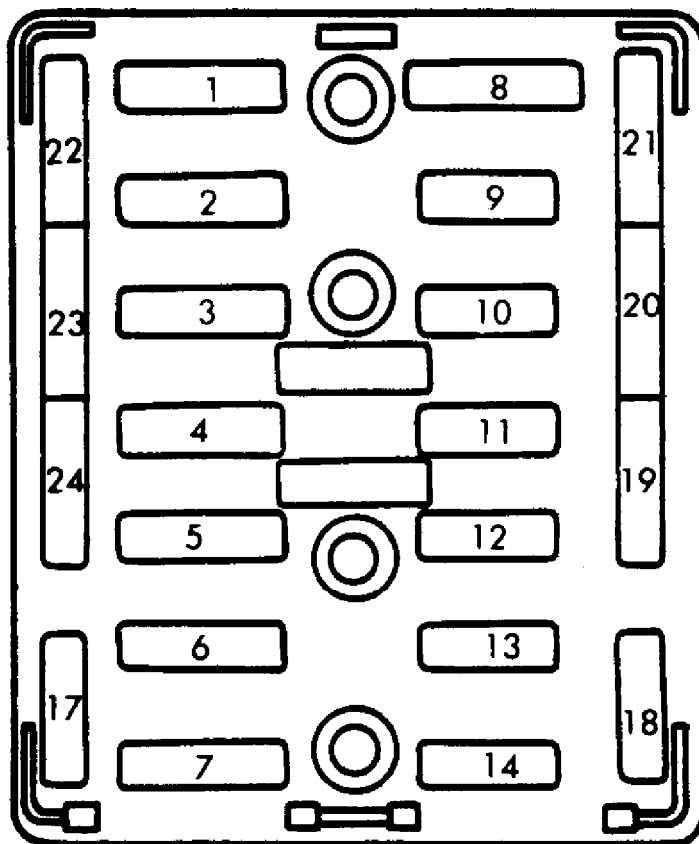
RX7

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.

FUSE PANEL & FUSE BLOCK IDENTIFICATION (1983-85)



93C45387

Fig. 1: Fuse Panel Identification (1983-85)
Courtesy of Mazda Motor of America Inc.

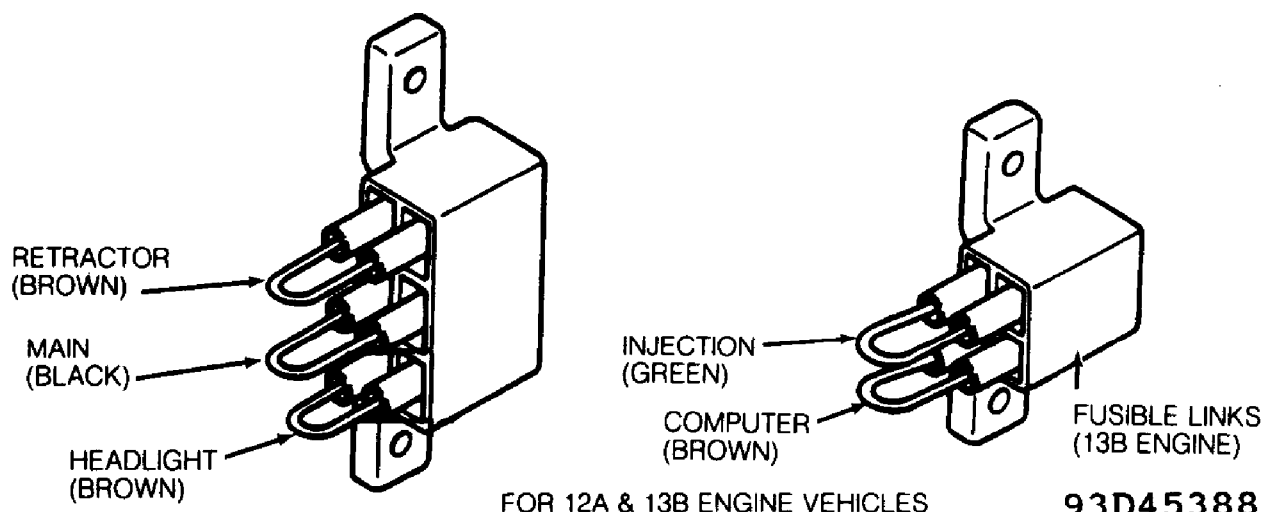


Fig. 2: Fuse Block Identification (1983-85)
Courtesy of Mazda Motor of America Inc.

- 1 - Empty
- 2 - 15 Amp
Horn
- 3 - 15 Amp
Hazard Warning Lights
- 4 - 10 Amp
Taillights
- 5 - 20 Amp
Roof Opener
- 6 - 10 Amp
Cigarette Lighter
- 7 - 20 Amp
Radio & Antenna
- 8 - 15 Amp
Gauges & Back-Up Lights
- 9 - 20 Amp
Engine
- 10 - 30 Amp
Power Windows
- 11 - 20 Amp
Heater Blower
- 12 - 15 Amp
Rear Defogger
- 13 - 15 Amp
Windshield Wipers
- 14 - 10 Amp
Rear Wiper
- 15 - Empty
- 16 - Empty
- 17 - Empty
- 18 - Empty
- 19 - 15 Amp
Air Conditioning
- 20 - Empty
- 21 - Empty
- 22 - Empty
- 23 - Empty
- 24 - Empty

FUSES & CIRCUIT BREAKERS Article Text (p. 2) 1984 Mazda RX7 For iluvmyrx7.com Copyright © 1998 Mitchell

CAUTIONS & WARNINGS

BRAKE PAD WEAR INDICATOR

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

HEADLIGHT RETRACTOR

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.

AIR BAG SYSTEM

Always remove air bag system fuse when working on any controls associated with the steering wheel or steering column.

END OF ARTICLE

IGNITION SYSTEM

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ARTICLE BEGINNING

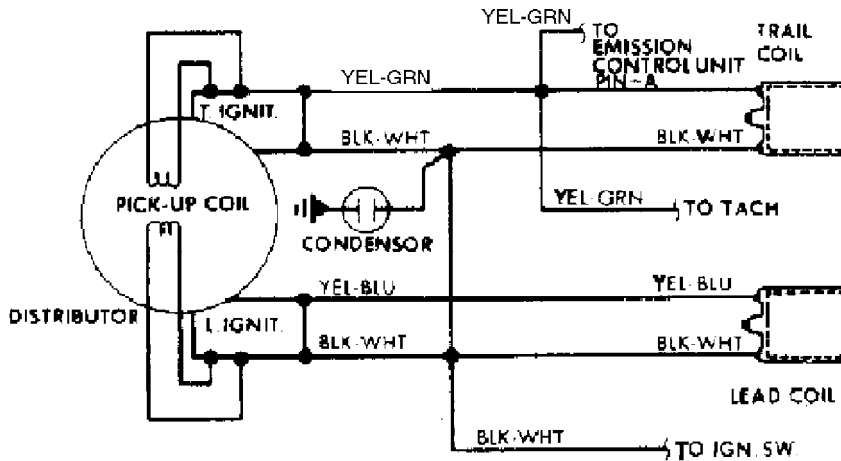
1984 Distributors & Ignition Systems

MITSUBISHI ELECTRONIC IGNITION - MAZDA ROTARY ENGINE

Mazda RX7

DESCRIPTION

The Mitsubishi electronic ignition system, used on the Mazda RX7 rotary engine, is unique in that it has 2 sets of spark plugs (leading and trailing). There is one set in the front rotor housing and one in the rear rotor housing. See Fig. 1. There are also 2 ignition coils, 2 pick-up coils located in the distributor, and 2 coil-to-distributor high tension wires.



29012

Fig. 1: Schematic of RX7 Ignition System

There are 2 separate ignitors, mounted externally on the distributor housing. One is for the leading side and the other for the trailing side. Other system components include a battery, ignition switch, ignition control switches, (water temperature, altitude, etc.), and various relays.

All models are equipped with an ignition control system and centrifugal advance mechanisms. All models have vacuum control units for both leading and trailing sides.

OPERATION

A reluctor (signal rotor) is mounted on the reluctor (rotor) shaft. It turns inside 2 magnetic pick-up coils, one for the leading side and one for the trailing side. See Fig. 2.

As each tooth of the reluctor approaches and then passes the leading pick-up coil, a signal is generated. It is sent to the leading ignitor, which breaks the primary circuit in the leading ignition coil.

As each tooth passes the leading pick-up coil, the previous passing tooth approaches and becomes aligned with the trailing pick-up coil. This triggers a signal to the trailing ignitor, which breaks the primary circuit in the trailing ignition coil.

Therefore, immediately after the leading spark plug fires, the trailing spark plug also fires, providing more complete and

efficient combustion while reducing HC and CO emissions.

As the primary circuit is broken in the leading and trailing ignition coils, a voltage surge occurs in the secondary circuit of the ignition coils. This high voltage is transmitted through the leading and trailing high tension wires to the distributor, rotor and spark plugs.

An emission control unit is also included in the ignition control system, along with different sensing switches to provide proper timing under varying engine operating conditions.

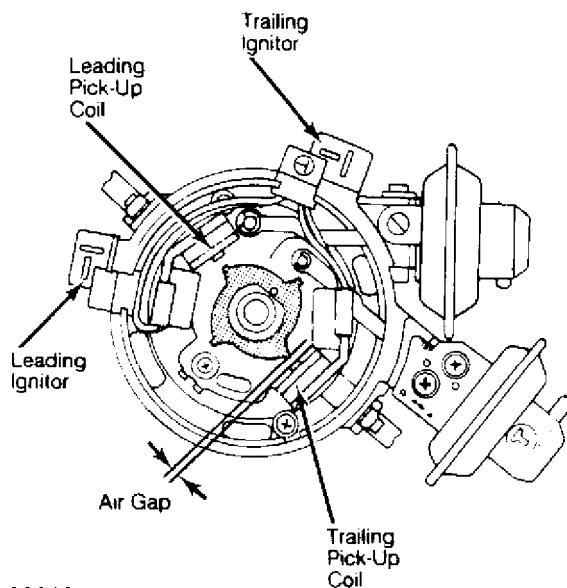
ADJUSTMENTS

RELUCTOR-TO-

PICK-UP COIL AIR GAP

1) Remove distributor cap and rotor. Turn distributor shaft until the extended tooth of the reluctor (signal rotor) aligns with core of pick-up coil. See Fig. 2.

2) Using a feeler gauge, check for .020-.035" (.5-.9 mm) air gap. If gap is incorrect, replace pick-up coil and bearing assembly or distributor drive shaft, as required.



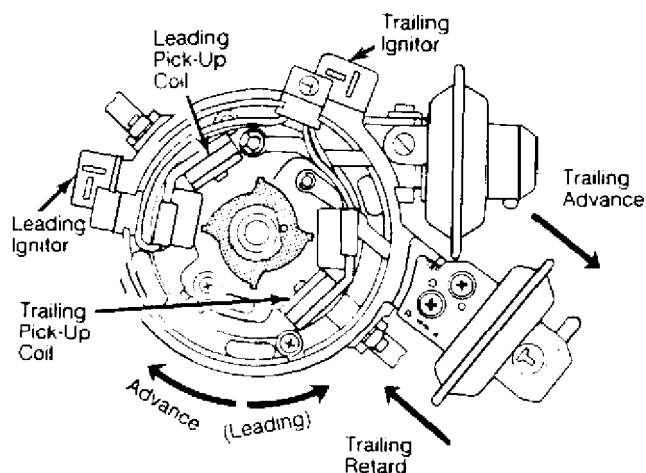
29013

Fig. 2: Adjusting Distributor Air Gap
Check air gap at all teeth and both pick-up coils.

IGNITION TIMING

1) To adjust leading timing, loosen distributor lock nut, and rotate distributor housing until correct timing is obtained. See Fig. 3.

2) To adjust trailing timing, loosen the screws securing the trailing vacuum unit. Move the vacuum unit outward (to advance) or inward (to retard). Retighten screws when correct timing is obtained.



29014

Fig. 3: Adjusting Ignition Timing

Distributor position determines leading timing. Vacuum unit position adjusts trailing timing.

TESTING

HIGH TENSION WIRE

RESISTANCE CHECK

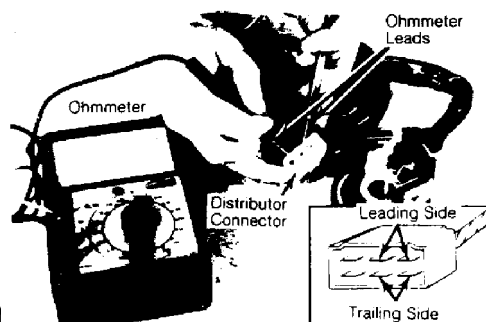
Turn ignition switch "OFF". Connect ohmmeter leads to each end of coil-to-distributor high tension wire. Resistance should not exceed 16,000 ohms (plus or minus 400 ohms) per 39.37" (1 m).

IGNITION COIL RESISTANCE CHECK

Set an ohmmeter in the low scale. With ignition switch turned "OFF", and coil wires disconnected, attach ohmmeter leads to primary terminals of leading coil and then trailing coil. Primary resistance should be 1.22-1.48 ohms for each ignition coil.

PICK-UP COIL RESISTANCE CHECK

1) Set an ohmmeter in the x100 scale. Turn ignition switch "OFF". Disconnect connector between ignitor and distributor. See Fig. 4.



IGNITION SYSTEM

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Fig. 4: Ohmmeter Hookup for Pick-Up Coil Resistance Check

Replace pick-up coil & bearing plate if reading is not 600-700 ohms.

2) Connect ohmmeter leads to leading terminals and then to trailing terminals. Resistance should be 600-700 ohms at 68° F (20°

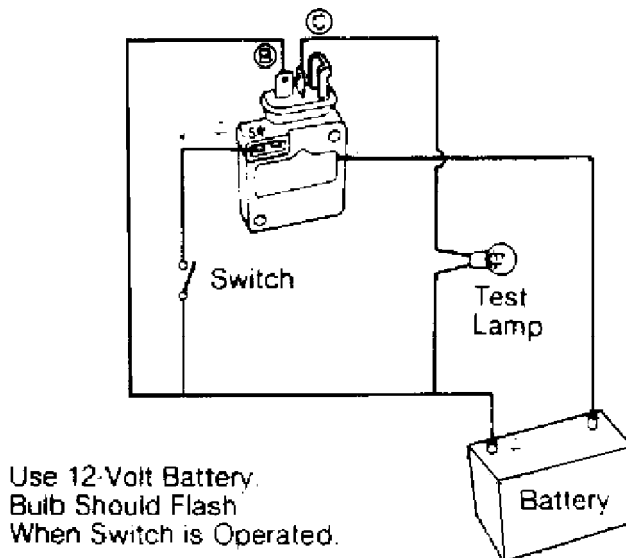
C) for each set of pick-up coils. If not, replace pick-up coil and bearing assembly.

PICK-UP COIL OPERATION CHECK

- 1) With distributor connector still disconnected, touch ammeter leads to leading terminals and then to trailing terminals.
- 2) Place a screwdriver against core of pick-up coil being tested. Indicator of meter should move each time screwdriver is taken quickly away from core. If not, replace pick-up coil and bearing assembly.

IGNITOR CHECK

- 1) Remove ignitor from distributor base. Make a circuit as shown in Fig. 5 using wire and a test bulb. Use a 12 volt bulb of less than 10 watts.



29016
Fig. 5: Test Lamp Hookup for Checking Ignitor Operation
Bulbs should flash when switch is operated.

- 2) Quickly operate switch "ON " and "OFF", and make sure test lamp flashes. If not, replace ignitor.

OVERHAUL

DISASSEMBLY

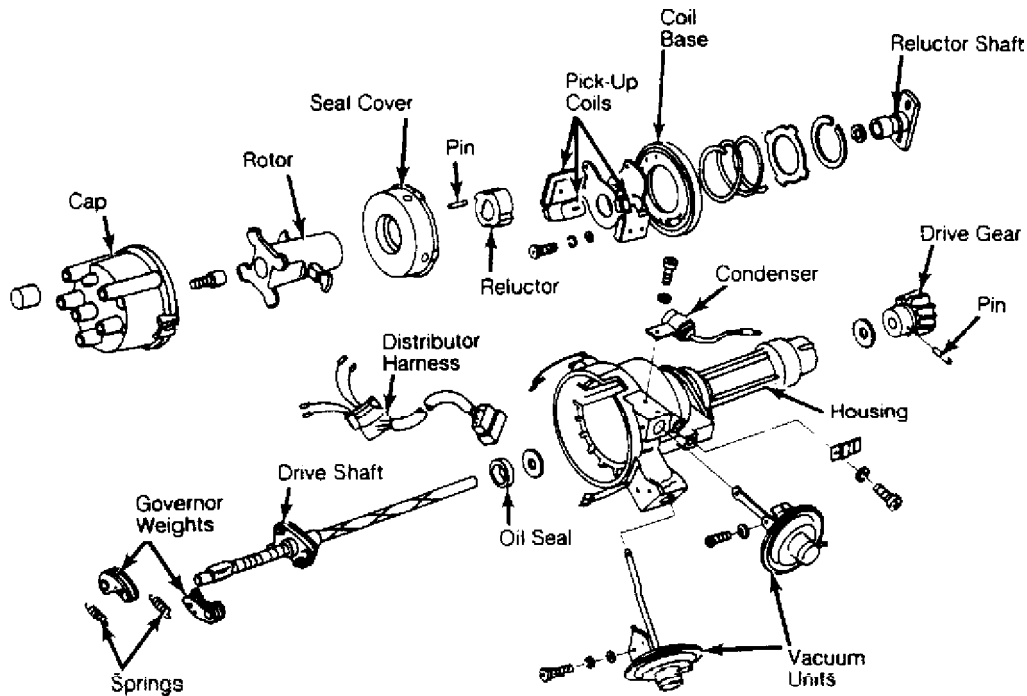
- 1) Remove distributor cap, rotor and seal cover. See Fig. 6. Remove ignitors and attaching screws from distributor housing. Remove clips holding vacuum diaphragm links. Remove attaching screws and vacuum control units from distributor housing. Remove condenser.
- 2) Remove reluctor shaft attaching screw from end of shaft. Remove pick-up coil base bearing attaching screws. Remove reluctor, reluctor shaft, pick-up coils and coil base bearing assembly from top of distributor drive shaft.
- 3) Remove reluctor from reluctor shaft, using puller. Remove spring pin. Remove governors by removing springs. Drive lock pin out of drive gear, using a small drift. Remove gear and washers. Remove

drive shaft through top of distributor housing.

REASSEMBLY

1) Inspect distributor cap and rotor for cracks, carbon tracks, and burned or corroded terminals.

2) Assemble distributor in reverse order of disassembly, noting the following: Install reluctor shaft onto distributor drive shaft, engaging slots of reluctor shaft and governor pins. Install pick-up coil and coil base bearing assembly and tighten attaching screws. Install reluctor on shaft, driving spring pin in with a punch.



29017

Fig. 6: Disassembled View of RX7 Mitsubishi Distributor

END OF ARTICLE

STARTER - MITSUBISHI

Article Text

1984 Mazda RX7

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Saturday, June 08, 2002 05:27PM

ARTICLE BEGINNING

1984 Starters
MITSUBISHI

Mazda - B2000 Pickup, B2200 Pickup, GLC, RX7, 626

DESCRIPTION

Starter is a conventional 12-volt, 4-pole brush-type motor, with either direct or reduction gear drive. The starter-mounted solenoid shifts overrunning clutch and pinion into flywheel when starter is energized.

MITSUBISHI STARTER APPLICATION

Model	Type or Part No.
Mazda	
B2000 Pickup Gasoline	
Man. Trans.	(1) FE05-18-400
Auto. Trans.	(1) FE05-18-400A
B2200 Pickup Diesel	(1) R201-18-400
GLC	(1) E301-18-400
RX7	
Man. Trans.	(1) N221-18-400
Auto. Trans.	(1) N202-18-400A
626	(1) FE05-18-400

(1) - Vehicle manufacturer's part number.

TESTING

STARTER PERFORMANCE TESTS

No Load Tests

Connect starter in series with a 12-volt battery, a voltmeter and a 1000 amp ammeter. Compare readings with STARTER NO LOAD SPECIFICATIONS.

MITSUBISHI STARTER NO LOAD SPECIFICATIONS TABLE (1)

Application	Max. Amps	Min. RPM
Mazda		
B2000 Pickup	53	6800
B2200 Pickup	180	3800
GLC Sedan	53	6800
RX7		
Man. Trans.	60	6500
Auto. Trans.	100	3500
626		
Man. Trans.	60	6500
Auto. Trans.	60	6600

(1) - Applied voltage of 11.5-12 volts.

Load (Lock Torque) Test

Mount starter in a test stand to perform torque measurement test. Follow manufacturer's instructions for test stand operation. With voltage adjusted, ammeter reading and torque should be within specifications.

MITSUBISHI STARTER LOAD TEST SPECIFICATIONS TABLE (1)

Application	Max. Amps	Volts	Torque Ft. Lbs. (N.m)
Mazda			
B2000 Pickup	310	5	5.4 (7.5)
B2200 Pickup	1050	2	21.7 (30.0)
GLC	310	5	5.4 (7.5)
RX7			
Man. Trans.	420	5	6.9 (9.6)
Auto. Trans.	1100	4	22.4 (31.0)
626	310	5	5.4 (7.5)

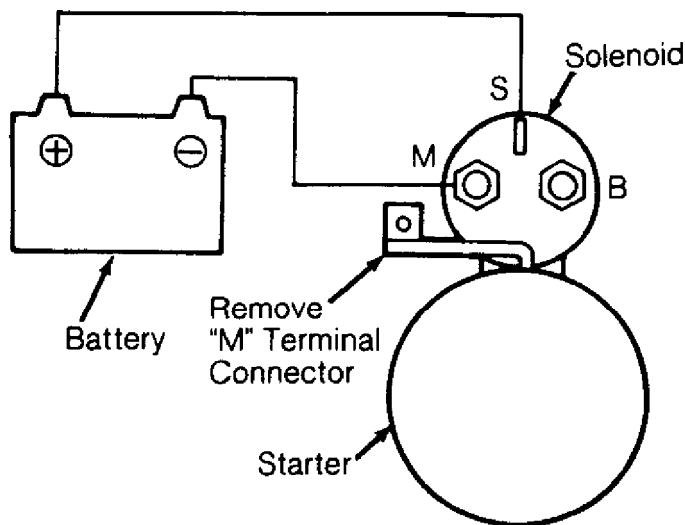
(1) - Turning speed not specified by manufacturer.

SOLENOID TESTS

NOTE: Make tests with solenoid removed from starter or remove solenoid lead to starter before testing. Ensure solenoid plunger and sleeve are clean and dry before performing tests. Make tests in less than 10 seconds to prevent coil damage.

Pull-In Coil Test

1) Connect jumper between positive post of 12 volt battery and "S" terminal. Connect a second jumper to negative battery terminal and touch "M" (MT) terminal (and between terminal "S" and switch body). See Fig. 1.

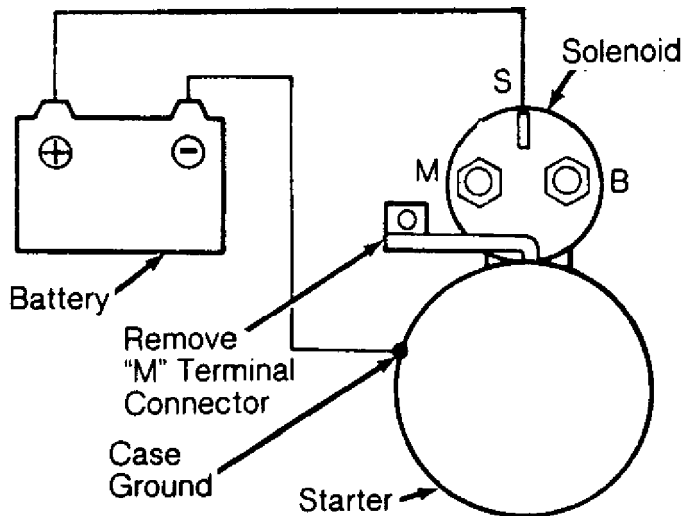


29414
Fig. 1: Connections for Conducting Solenoid Pull-In Test
Remove solenoid-to-starter lead before testing.

2) If pinion moves outward (or plunger is pulled-in), pull-in coil is good. If not, replace magnetic switch.

Hold-In Coil Test

1) Connect a jumper wire between the "M" (MT) terminal and solenoid case. Apply 8 volts to "S" terminal to pull in the plunger. See Fig. 2. Disconnect lead to "M" (MT) terminal.



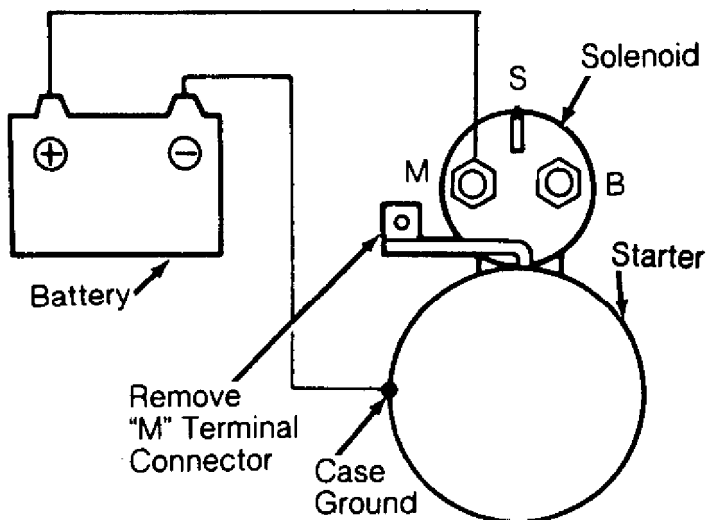
29415

Fig. 2: Connections for Conducting Solenoid Hold-In Test
Make tests in less than 10 seconds to avoid solenoid damage.

2) If pinion remains out (plunger is pulled-in), hold-in coil is good. If not, replace magnetic switch.

Return Test

1) Apply 12 volts between "M" (MT) terminal and the solenoid case. Pull pinion out and release it (push plunger into solenoid body by hand). See Fig. 3.



29416

Fig. 3: Connections for Conducting Return Test
Connect battery to "M" terminal and solenoid case.

2) If the case is short-circuited, the pinion will remain out (plunger will be attracted). If nothing happens, solenoid is good.

REMOVAL & INSTALLATION

1) On all models, remove negative battery cable. If necessary raise vehicle on hoist. Remove starter mounting bolts. Remove starter from vehicle.

OVERHAUL

DISASSEMBLY

NOTE: Procedures may vary slightly between conventional and reduction gear starters.

1) Loosen nut securing connecting plate-to-magnetic switch "M" terminal. Remove screws securing magnetic switch and remove switch (solenoid) assembly. Remove through bolts and brush cover assembly. Tap yoke assembly loose with wooden mallet. Remove yoke, armature assembly and pinion shift lever.

2) Remove pinion stop ring from end of armature shaft by pushing stop ring to clutch side. Remove snap ring and overrunning clutch assembly from armature shaft.

CLEANING & INSPECTION

Clean all parts. Do not use grease dissolving solvent on overrunning clutch, armature assembly, solenoid assembly or field coils due to possible damage. Inspect all parts for damage or wear and replace as required.

BENCH TESTS

Brushes & Springs

Check brush spring tension using a spring scale. Check brush contact surface condition and brush length. Check lead clip and wire connections and condition of brush holders. Replace as required. See BRUSH SPRING TENSION and MINIMUM BRUSH LENGTH charts.

BRUSH SPRING TENSION

Application	Ozs. (g)
Mazda	
B2000 & B2200 Pickups	50-62 (1415-1766)
RX7	50-92 (1415-2604)
All Other Models	46-60 (1302-1700)

MINIMUM BRUSH LENGTH

Application	In. (mm)
Mazda .....	.45 (11.5)

Armature

Check external condition of armature for scoring or other damage. Measure shaft runnout with dial indicator. Replace armature if shaft runnout exceeds .004" (.10 mm).

Commutator

1) Inspect commutator for roughness, grooves, burns or pitting. Sand lightly with 500 grit sandpaper if necessary. Check commutator for out-of-round and mica insulators undercut to a depth of .020-.031" (.50-.80 mm).

2) If necessary, commutator may be turned less than .04" (1.0 mm) from original size and mica undercut. Replace if excessively worn.

Field Coil

1) Check field coil continuity by connecting test probe of circuit tester or an ohmmeter to the field coil positive terminal and brush holder. If circuit is open, replace field coil.

2) Check for grounding of field coils by placing one probe of circuit tester on starter housing and other probe to field coil positive terminal. If little or no resistance, field coil is grounded and must be replaced.

Overrunning Clutch Assembly

1) Inspect pinion assembly and sleeve. Sleeve should slide freely on armature shaft and spline. If damage or resistance is noted, replace assembly.

2) Check pinion and flywheel teeth for excessive rubbing or damaged teeth. Replace as required.

Pinion Gear Clearance

1) The clearance between the pinion gear and pinion stopper collar should be .02-.08" (.51-2.03 mm) on Mitsubishi starters, when solenoid is engaged. Adjust as necessary by changing shims between solenoid and starter yoke.

2) On Mazda B2200 models, projection distance (starter housing-to-front face of gear) should be .67" (17 mm).

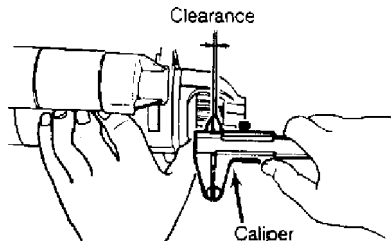
Pinion Case Bearing

Inspect bearing for wear and check side play. If clearance exceeds .008" (.20 mm), replace bearing. New bearing clearance should be .002-.004" (.05-.10 mm) for Mitsubishi starters.

NOTE: Ensure that bearing is installed so that end of bearing is flush with gear case end.

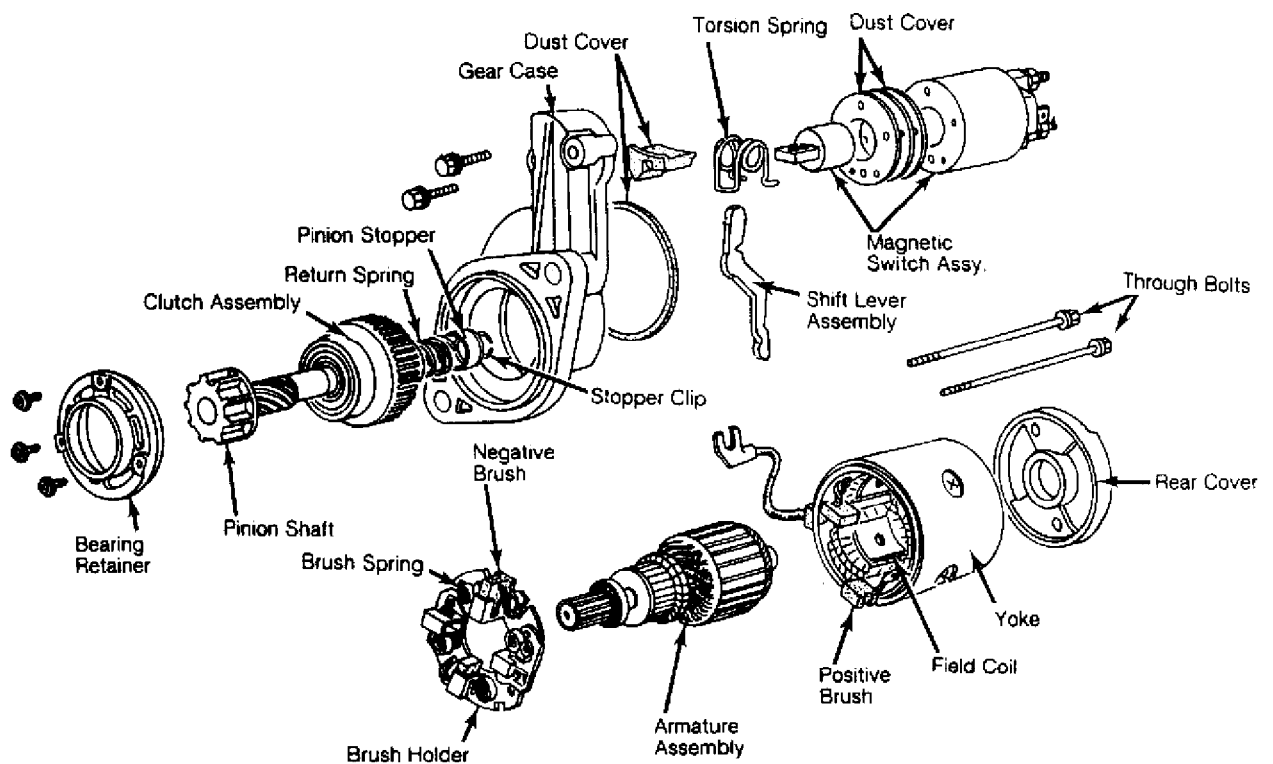
REASSEMBLY

To reassemble, reverse disassembly procedure. Fill rear case on reduction gear models with grease. Lightly oil pinion and all bearing surfaces.



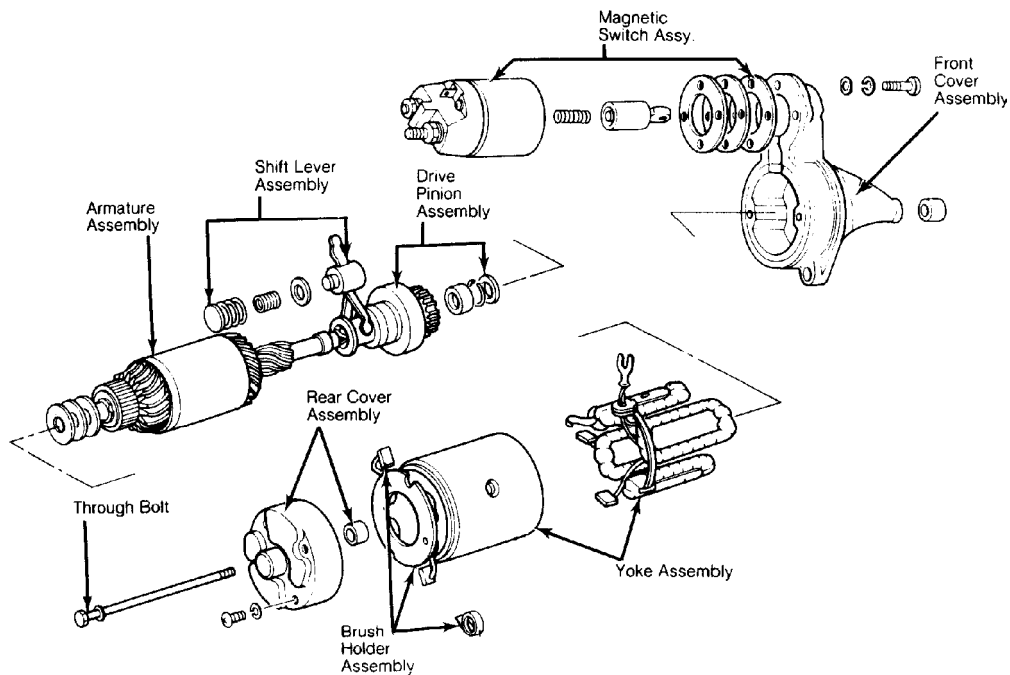
29418

Fig. 4: Measuring Pinion Edge-to-Pinion Stopper Clearance



29419

Fig. 5: Disassembled View of Typical Hitachi Reduction Gear Starter



29420

Fig. 6: Disassembled View of Typical Mitsubishi Conventional

STARTER - MITSUBISHI Article Text (p. 6) 984 Mazda RX7 For iluvmyrx7.com Copyright © 1998 Mitchell Repair In

END OF ARTICLE

1.3L ENG NO START/BLOWN FUSE - SHORT IN WIRE HARNESS CAT. 15, NO. 012/85

Article Text

1984 Mazda RX7

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Saturday, June 08, 2002 05:30PM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

APPLICATION

1979-84 RX7

SUBJECT

"ENGINE" Fuse Blows/No Start

REFERENCE

Mazda Motors Corp., Service Bulletin, No. 15 012/85, September, 1985

CONDITION & CAUSE

Some 1979-84 RX7 vehicles may exhibit an "ENGINE" fuse that blows, preventing the engine from starting. This problem may be caused by an electrical short circuit in the wiring harness.

REPAIR

Check for a short circuit in the wire harness in the area of the thermostat and air hose to the air cleaner. See Fig. 1.

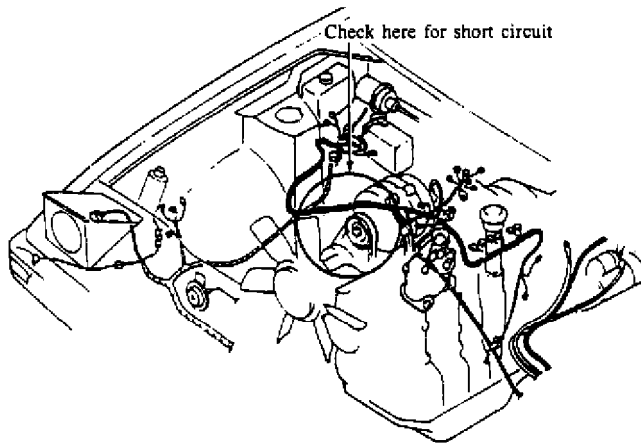


Fig. 1: View of Wiring Harness

END OF ARTICLE

ACCEPTABLE BATTERY DRAIN CAT. 5, NO. 017/88

Article Text

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Saturday, June 08, 2002 05:30PM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

CURRENT DRAW FROM THE BATTERY

Model: All Models
Bulletin No.: 017/88
Date: 7/27/88
Category: 5

DESCRIPTION

In order to maintain the memory of the electrical equipment such as radio, clock, and several other control units, a small amount of current is drawn from the battery even though the vehicle is not in use. Although the actual current may vary according to the electrical equipment in each vehicle, the following specification can be used to determine if the current draw of the vehicle in question is normal or not.

CURRENT DRAW AMPERAGE

All Vehicles: 15 to 25 mA (Ignition key is removed or in the lock position).

NOTE:

If the ignition key is in the ACC position, up to 250 mA is drawn from the battery. This current draw is large enough to discharge the battery in a few days.

TEST PROCEDURES

1. Turn the ignition switch off and remove the key from the cylinder.
2. Turn off all electrical loads. Make sure all doors and the trunk lid are completely closed.
3. Open the hood and disconnect the negative battery terminal.

NOTE:

If the vehicle is equipped with theft-deterrent system, disconnect the coupler from the hood switch so that the warning light of the theft-deterrent system is not operable.

4. Set the circuit tester to the "DC mA" range, to at least 100 mA range and check the current as follows:

Positive lead from tester to Negative Battery Cable

Negative lead from tester to Negative Battery Post.

CAUTION:

Do not open the door while checking the current, as the tester will be damaged by the excessive current.

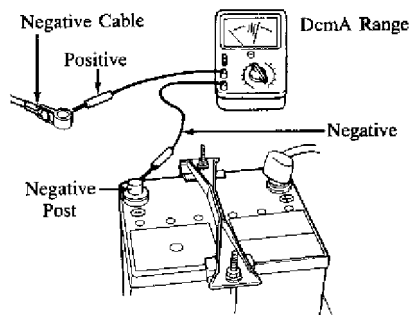


Fig. 1: Testing Currant Draw

END OF ARTICLE

ALTERNATOR/REGULATOR TEST PROCESS/REPLACEMENT INFO CAT. 5, NO. 058/83

Article Text

1984 Mazda RX7

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Saturday, June 08, 2002 05:31PM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

IC REGULATOR CHECKING PROCEDURE

Models All Models
Bulletin No. 058/83
Category 5
Date 11/9/83

DESCRIPTION

Checking procedure for the built-in IC regulator has been established to pin point the alternator problem. Basically, the alternator should be replaced as a unit through the exchange program. However, in case of a shortage of refurbished alternators, you may replace the IC regulator to minimize inconvenience of customers (see Fig. 1).

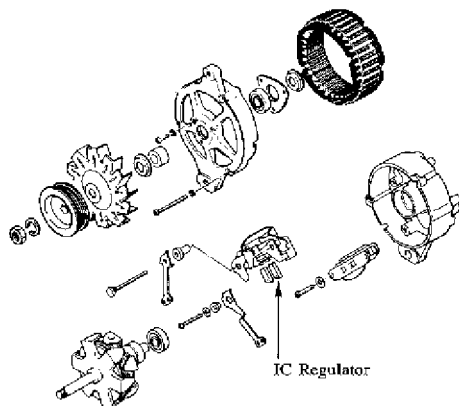


Fig. 1: Exploded View of Alternator

PARTS INFORMATION

Regulator N221 24 520

CHECKING PROCEDURE

1. Make sure the battery is fully charged.
2. Turn ignition key on to "Ig" position. If the alternator warning light is "off", the problem is likely to be caused by regulator. Leave the key in "Ig" position and take the following step to assure the cause.
3. Insert volt meter between "F" terminal and nearest ground point (Fig. 2).
4. Do not ground to the body of the alternator while positive probe of voltmeter is inserted through the hole for "F" terminal.

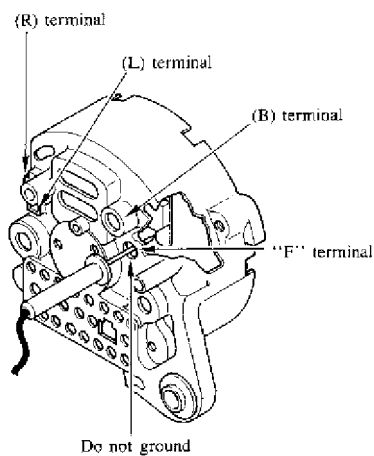


Fig. 2: Location of "F" Terminal

REPAIR PROCEDURE

Please refer to the Service Information for IC regulator replacing procedure.

NOTE: Be sure the insulators are in the proper position as shown in Fig. 3.

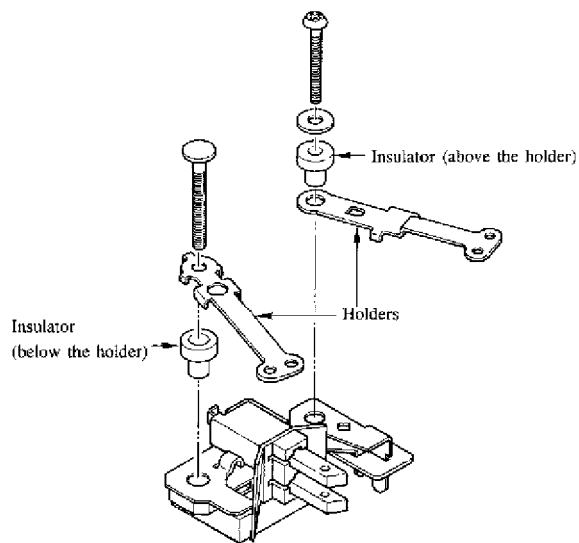


Fig. 3: Proper Location of Insulators

END OF ARTICLE

AUDIO SYSTEM TROUBLESHOOTING PROCEDURES CAT. 15, NO. 078/89

Article Text

1984 Mazda RX7

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Saturday, June 08, 2002 05:31PM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

AUDIO SYSTEM TROUBLESHOOTING

Model	All Mazda Models
Category	15, Body Electrical System
Bulletin No.	078/89
Date	May 5, 1989

DESCRIPTION

To simplify audio system troubleshooting, a flow chart (see Fig. 1) has been prepared. It contains essentials of audio system troubleshooting procedures, focusing on the following:

- * Obtain accurate information of customer's complaint.
- * Carry out appropriate diagnosis or troubleshooting to find the faulty part.
- * Avoid replacing unnecessary parts.
- * Verify whether the customer's complaint results from specific characteristics of FM radio waves. If so, the complaint cannot be corrected by audio component replacement.

Use the following materials with the attached flow chart when carrying out inspection and repair of the audio system.

- * Audio System Troubleshooting Procedures (plastic sheet)
- * Service Bulletin, Category 15, 050/87 (FM Reception)
- * Audio Customer Questionnaire
- * Workshop Manual

NOTE: If it becomes necessary to disconnect power to the audio system, be sure to copy down the customer's preset stations. Re-set these stations after repairs are complete.

AUDIO SYSTEM TROUBLESHOOTING

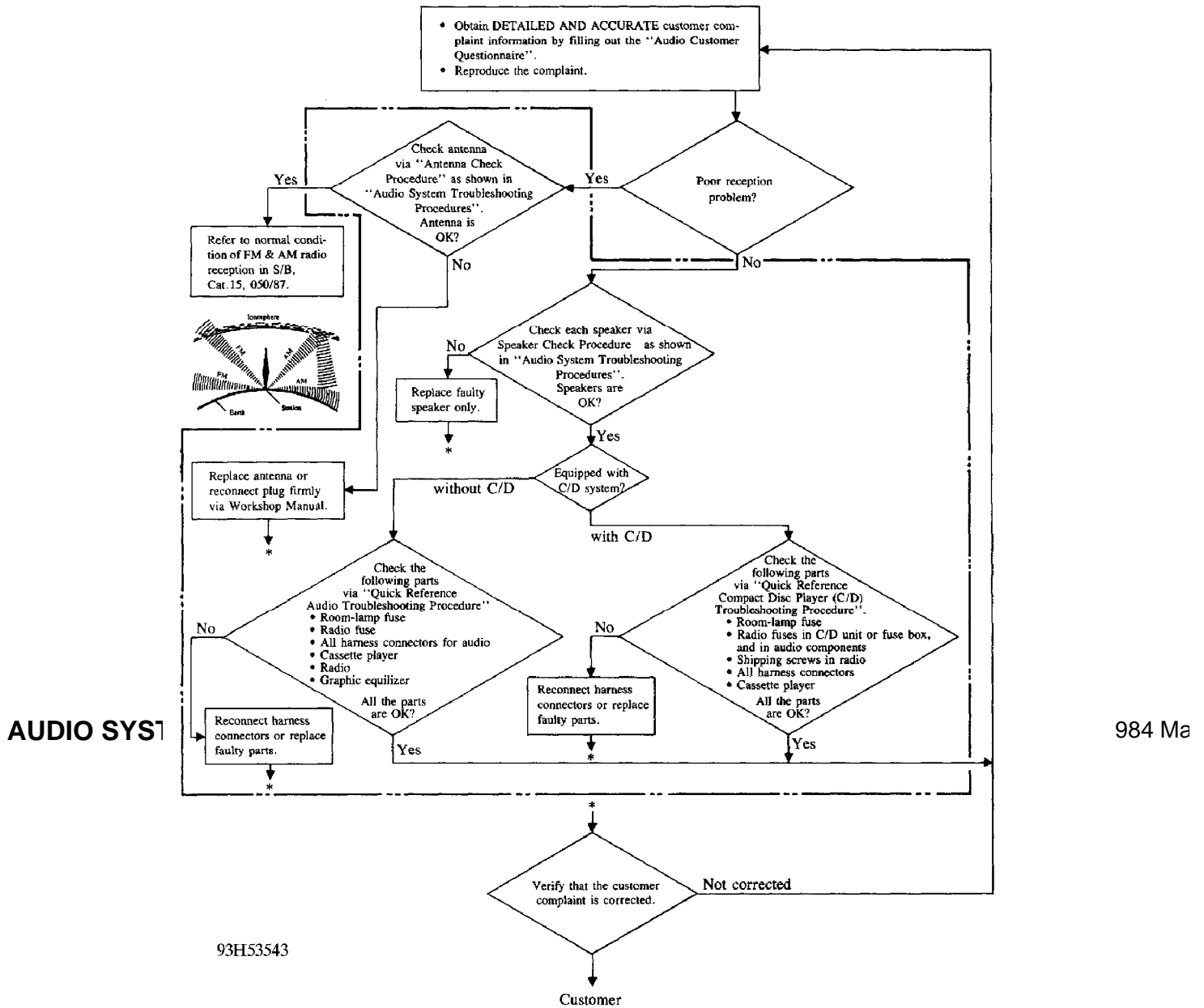


Fig. 1: Audio System Troubleshooting

END OF ARTICLE

BATTERY RECHARGING - DISCONNECT NEGATIVE TERMINAL MT 08-10

Article Text

1984 Mazda RX7

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Saturday, June 08, 2002 05:32PM

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

BATTERY REMOVAL/INSTALL WIRE CLIP WARNING CAT. 14, NO. 009/85

Article Text

1984 Mazda RX7

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Saturday, June 08, 2002 09:46PM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

BATTERY CLAMP BOLT & NUT

Models RX-7
Bulletin No. 009/85
Category 14
Date 1/22/85

DESCRIPTION

During installation of the battery clamp rod and nut, it is possible for wire clip to become pinched in the threads on the clamp bolt, resulting in the nut binding on the clamp rod. See Fig. 1.

If you encounter this problem, please follow the repair procedure below.

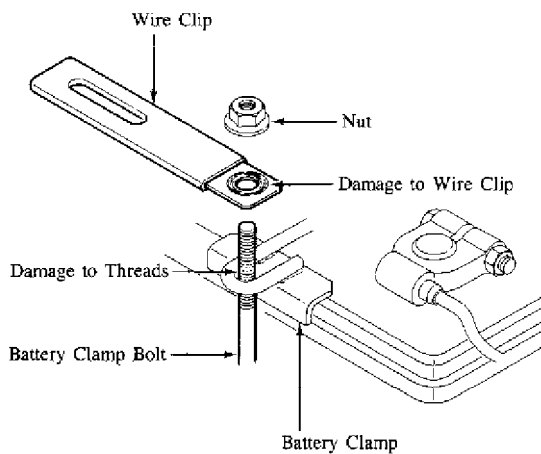


Fig. 1: Battery Clamp Bolt & Nut

PARTS INFORMATION

PART NUMBER	DESCRIPTION
0613 65 857A	Clamp Bolt
9994 00 602	Nut

REPAIR PROCEDURE

1. Carefully remove the nut from the battery clamp bolt.
2. Use a die to repair the threads on the clamp bolt.
3. Install a small washer on top of the wire clip to prevent damage to the threads on the clamp bolt during reinstallation.

END OF ARTICLE

KEYLESS SWITCH SPEED NUT INFORMATION CAT. 15, NO. 010/85

Article Text

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Saturday, June 08, 2002 09:51PM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

SPEED NUT FOR IGNITION KEY SWITCH

Models GLC, 626, RX-7 & B2000
Bulletin No. 010/85
Category 15
Date 6/25/85

DESCRIPTION

The speed nut for fixing the key-less switch to the ignition key cylinder housing has been established as a service part. If the replacement of the ignition key switch is necessary, please use the new speed nut to secure the key-less switch. See Fig. 1.

PARTS INFORMATION

NEW PART NO.	OLD PART NO.	DESCRIPTION
BC46 66 158	—	Speed Nut

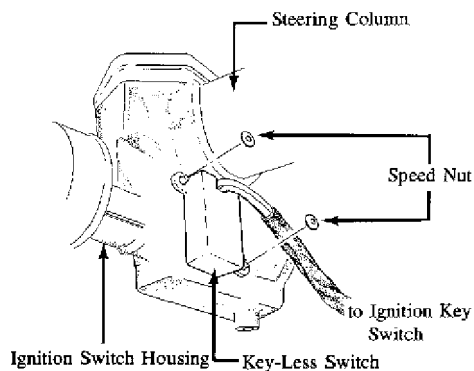


Fig. 1: Securing Key-Less Switch with Speed Nut

END OF ARTICLE

MISCELLANEOUS BLOWN FUSES/ELECTRICAL PROBLEMS CAT. 15, NO. 016/85

Article Text

1984 Mazda RX7

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Saturday, June 08, 2002 09:53PM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

APPLICATION

1979-85 RX7

SUBJECT

Miscellaneous Blown Fuses/Electrical Problems

REFERENCE

Mazda Motors Corp., Service Bulletin, No. 15 016/85, October, 1985

CONDITION & CAUSE

Some 1979-85 RX7 vehicles may exhibit one or more of the following electrical problems:

- * RADIO, ANTENNA fuse blown
- * TAIL, ILLUM fuse blown
- * METER, BACK fuse blown
- * OPENER fuse blown
- * Inoperative rear defroster/rear wiper
- * Rear wiper operates with wiper switch in OFF position

One or more of the above problems may be caused by a short circuit in the rear harness. The rear harness may be cut by a sharp metal edge where the harness is routed over the inner wheel well. See Fig. 1. This was fixed in production beginning with VIN JM1FB33 F0852204.

REPAIR

If this problem is present, repair the rear harness as necessary.

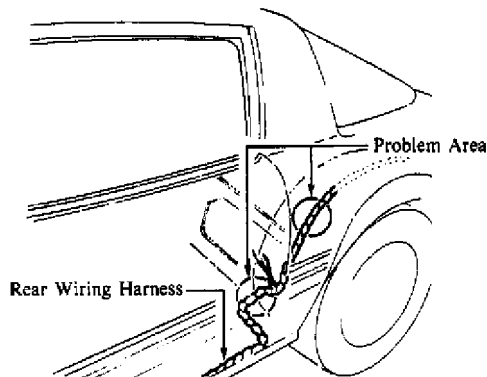


Fig. 1: View of Rear Wiring Harness

END OF ARTICLE

NEW WIRING DIAGRAM IDENTIFICATION INFORMATION CAT. 16, NO. 186/83

Article Text

1984 Mazda RX7

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Saturday, June 08, 2002 09:54PM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

WIRING DIAGRAMS

Models 1984 All Models
Bulletin No. 185/83
Category 16
Date 9/24/83

DESCRIPTION

A new method of describing color codes for electrical connectors has been established for 1984 Wiring Diagrams. In the new Wiring Diagrams, the connectors are viewed from the harness side rather than the connector side (Fig. 1).

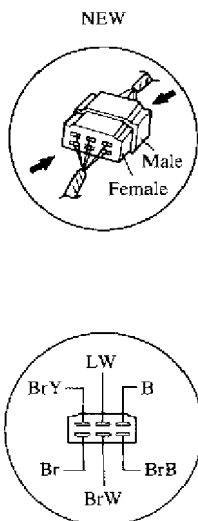


Fig. 1: View of Wiring Harness Connector

END OF ARTICLE

REAR WINDOW DEFROSTER GRID LINE REPAIR PROCEDURE CAT. T, NO. 015/95

Article Text

1988 Mazda RX7

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Tuesday, June 11, 2002 08:57AM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

REAR WINDOW DEFROSTER GRID LINE REPAIR

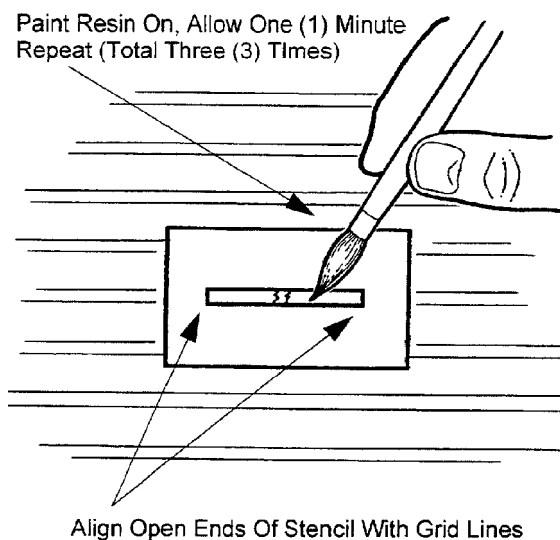
Model(s): All Mazda Models
Category: T - Body Electrical System
Bulletin No.: 015/95
Date Issued: November 14, 1995
Date Revised: December 21, 1995

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

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

Part Number	Description
0000 88 5067	Resin

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

REVISED WIPER LINK BUSHING CAT. 14, NO. 022/85

Article Text

1984 Mazda RX7

For iluvmyrx7.com

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Saturday, June 08, 2002 09:57PM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

WIPER LINK

Models 1981-1985 RX-7
Bulletin No. 022/85
Category 14
Date 10/18/85

DESCRIPTION

A new wiper link has been established as a service part. This new wiper link features a bushing as shown in Fig. 1.

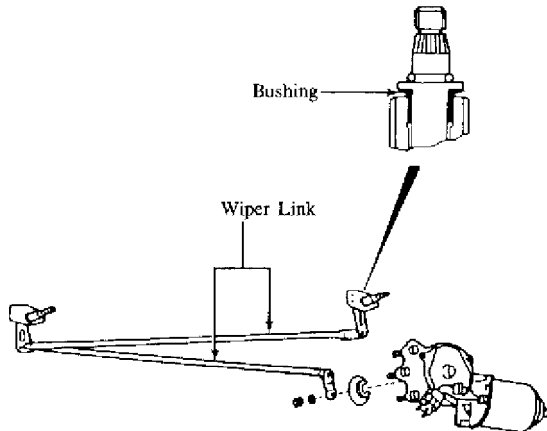


Fig. 1: 1981-85 RX7 Wiper Link

PARTS INFORMATION

NEW PART NO.	OLD PART NO.	DESCRIPTION	INTERCHANGEABILITY	APPLIED MODEL
FA54 76 601A	FA54 76 601	Wiper Link	NEW -> OLD	1984-85 RX-7
8871 76 601B	8871 76 601A	Wiper Link	NEW -> OLD	1981-83 RX-7

NOTE: A new part can be used in place of the former part, but the former part may not be used in place of the new part.

END OF ARTICLE

TURN SIGNAL DOESN'T CANCEL - REPLACE CANCEL CAM CAT. 14, NO. 010/85

Article Text

1984 Mazda RX7

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Saturday, June 08, 2002 09:58PM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

TURN SIGNAL SWITCH CANCEL CAM

Models	All Models
Bulletin No.	010/85
Category	14
Date	1/22/85
Symptom	Turn Signal Doesn't Cancel

DESCRIPTION

If the turn signal switch does not cancel, the most probable cause is a broken cancel cam. The cancel cam is available separately and can be replaced as shown below.

REPAIR PROCEDURE

1. Put a mark on the steering wheel and steering shaft so that the steering wheel can be reinstalled in the same position.
2. Remove the retaining nut for the steering wheel and remove the steering wheel with a steering wheel puller. See Fig. 1.

CAUTION: Do not strike the steering shaft with a hammer as this will damage the steering shaft.

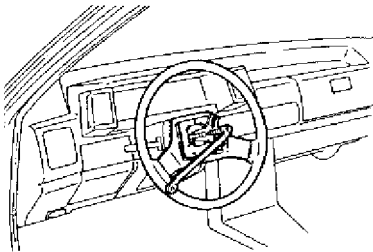


Fig. 1: Steering Wheel Removal

3. Inspect the cancel cam. If the tabs are broken off the cancel cam, the combination switch can be repaired by replacing the cancel cam. See Fig. 2.

NOTE: It is not necessary to remove the combination switch to replace the cancel cam.

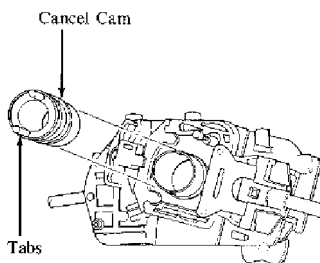


Fig. 2: Turn Signal Cancel Cam

4. Place the turn signal in the "OFF" position .
5. Carefully pry the cancel cam from the combination switch using a screwdriver. See Fig. 3.

6. Install the new cancel cam to the combination switch.

NOTE: It is not necessary to apply additional grease to the cancel cam.

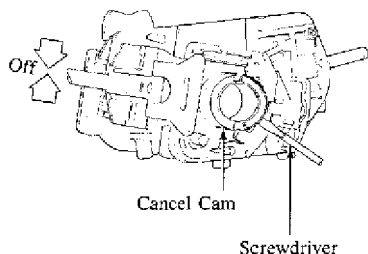


Fig. 3: Removing Cancel Cam from Switch

7. Align the tabs of the cancel cam with the holes in the steering wheel and install the steering wheel.

NOTE: The cancel cam will be broken if the tabs are not aligned with the holes in the steering wheel. See Fig. 4.

8. Install the steering wheel and torque the retaining nut to specification.

TORQUE SPECIFICATION

Model	Specification
RX-7, 626, GLC	29-36 ft-lb
B2000, B2200	22-29 ft-lb

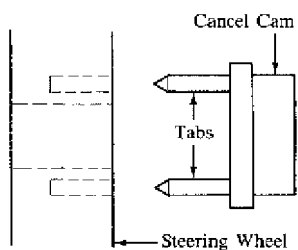


Fig. 4: Aligning Cancel Cam Tabs

END OF ARTICLE

TURN SIGNAL DOESN'T CANCEL - REPLACE CANCEL CAM C

HIGH PITCH BUZZING NOISE AT DASH: REMOVE OSCILLATOR

Article Text

1984 Mazda RX7

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Saturday, June 08, 2002 10:00PM

ARTICLE BEGINNING

TECHNICAL INFORMATION TIP

BUZZING ROTARY

YEAR(S): 1979-85

MANUFACTURER: Mazda

MODEL(S): RX-7

ISSUE: HIGH PITCH BUZZING NOISE AT DASH - REMOVE OSCILLATOR

If you hear a high pitched buzzing noise coming from the center of the dash with the key off on a 1979-85 Mazda RX-7, the cause may be a defective oscillator. The oscillator is located under the hood, in the area near the left headlight.

To stop the noise, unplug the oscillator. The oscillator is used as a dash instrument circuit backup. Removing the oscillator has no other effect except to stop the constant buzzing noise.

Courtesy of Import Service Magazine
with thanks to

James Halderman
Sinclair College
Dayton, Ohio

REFERENCE NUMBER: MAZ0170AP

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END OF ARTICLE

A/C SYSTEM GENERAL DIAGNOSTIC PROCEDURES

Article Text

1984 Mazda RX7

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Saturday, June 08, 2002 10:08PM

ARTICLE BEGINNING

1983-90 AIR CONDITIONING & HEAT
General Servicing Diagnostic Procedures

All Import Makes & Models

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 damage 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.

ALTITUDE PRESSURE VARIATIONS

ALTITUDE PRESSURE VARIATIONS TABLE

Altitude (Ft. Above Sea Level)	Absolute Pressure of Atmosphere (psi)	Gauge Altitude Correction (1) (psi)
0	14.7	0
1000	14.2	-0.5
2000	13.7	-1.0
3000	13.2	-1.5
4000	12.7	-2.0
5000	12.2	-2.5
6000	11.7	-3.0
7000	11.3	-3.4
8000	10.9	-3.8
9000	10.5	-4.2
10,000	10.1	-4.6

(1) - Subtract correction shown from gauge readings.

ALTITUDE VACUUM VARIATIONS

ALTITUDE VACUUM VARIATIONS TABLE

Altitude (Ft. Above Sea Level)	Absolute Pressure of Atmosphere (psi)	Gauge Altitude Correction (1) (psi)
0	29.92	0
1000	28.92	+1.0
2000	27.82	+2.1
3000	26.82	+3.1
4000	25.82	+4.1
5000	24.92	+5.0
6000	23.92	+6.0
7000	23.02	+6.9
8000	22.22	+7.7
9000	21.32	+8.6
10,000	20.52	+9.4

(1) - Add correction shown to gauge readings.

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 TABLE

PERFORM TESTS:		SHOULD BE:	IF:
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.
Visual Check			Visual Check Shows:
* Compressor	Quiet, 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 & warm to touch		Frosty - Check for restriction, replace desiccant.
* Sight Glass	Clear or few bubbles		Bubbly, foamy or streaks - Check gauge readings.
* High Side Lines	Dry & warm to touch		Frosty or very hot - Check for restriction or overcharge.
* Low Side Lines	Dry & 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 & cool to touch		Frosty or warm - Check gauge readings for valve malfunction.
* Evaporator	Dry & cold to touch		Freezing or warm - Check expansion valve, STV or thermo switch.
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 - See A/C Diagnosis.

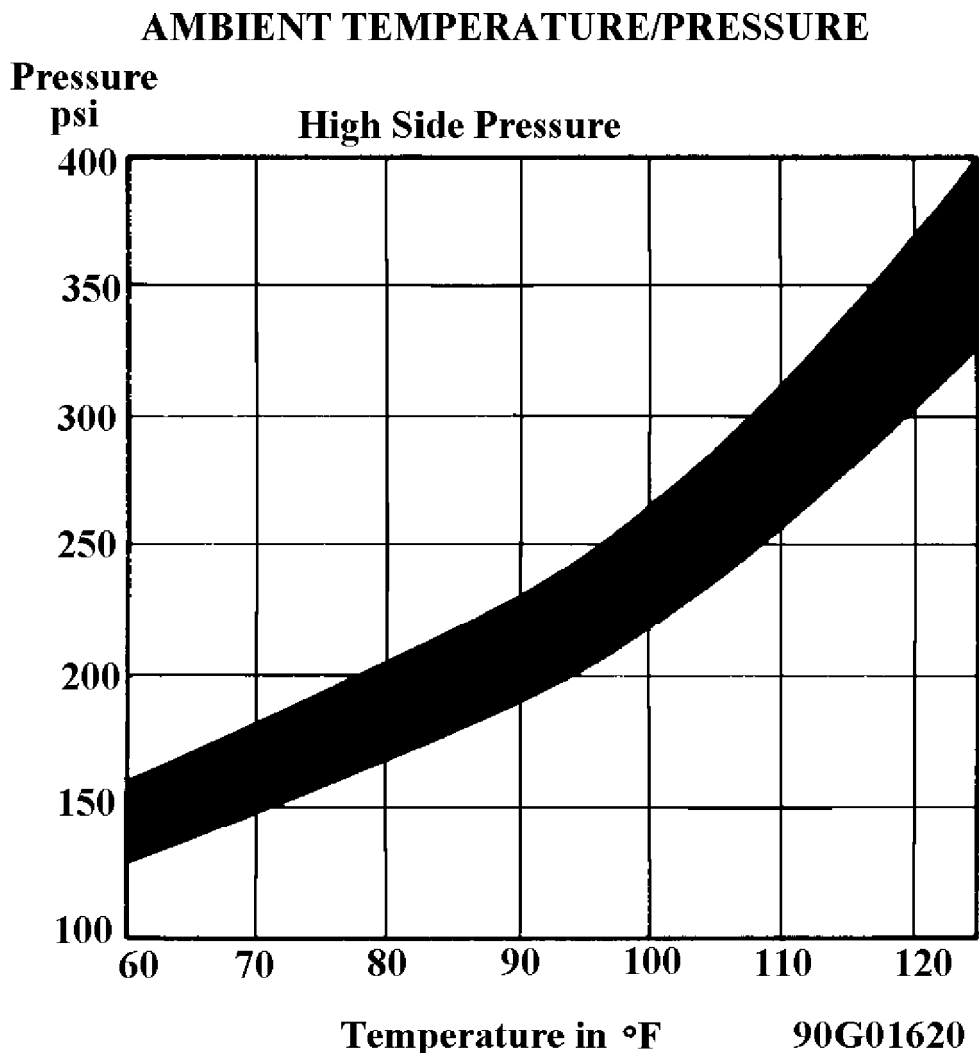
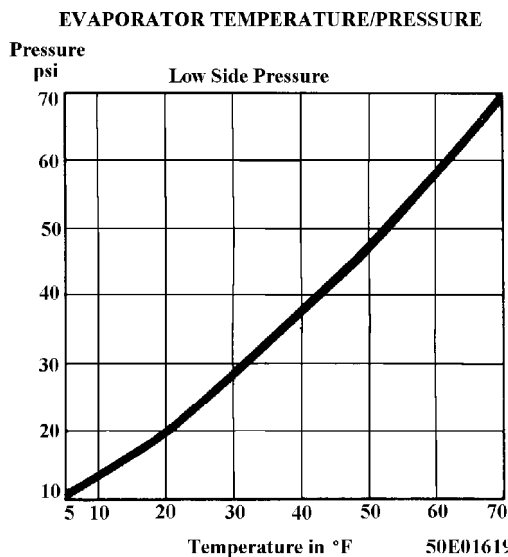


Fig. 1: Ambient Temperature/Pressure A/C Chart



A/C SYSTEM

Fig. 2: Evaporator Temperature/Pressure A/C Chart

AIR CONDITIONING DIAGNOSIS WITH GAUGES FOR SYSTEMS WITH
INSUFFICIENT OR NO COOLING TABLE

Low Side Gauge	High Side Gauge	Other Symptoms (1)	Diagnosis
NORMAL	NORMAL	No or few bubbles in sight glass. High side gauge may go high. Low side gauge does not fluctuate with compressor on/off cycle.	Some Air and Moisture in System
NORMAL	NORMAL	Cools okay in morning but not during hot part of day. Bubbles in sight glass. Discharge air warm when low side gauge drops into vacuum.	Excessive Moisture in System
NORMAL	NORMAL	Thermostatic switch system only - compressor cycles off and on too rapidly.	Defective Thermostatic Switch
NORMAL to HIGH	NORMAL	Cycling clutch systems only - compressor doesn't turn on soon enough. Discharge air becomes warm as low side pressure rises.	Misadjusted Thermostatic Switch or Defective Pressure Sensing Switch
LOW	LOW	Bubbles in sight glass. Outlet air slightly cool.	Low R-12 Charge
LOW	LOW	Sight glass clear. Outlet air very warm.	Excessively Low R-12 Charge
LOW	LOW	Outlet air slightly cool. Sweating or frost at expansion valve.	Expansion Valve Stuck Closed Screen Plugged or Sensing Bulb Malfunction
LOW	LOW	Outlet air slightly cool. High side line cool to touch. Sweating or frost on high side.	Restriction on High Side
LOW	HIGH	Evaporator outlet pipe cold. Low side goes into vacuum when blower is disconnected.	STV Stuck Open
HIGH	LOW	Evaporator outlet pipe warm. Outlet air warm.	STV Stuck Closed
HIGH	LOW	Noise from compressor.	Compressor Malfunction
HIGH	HIGH	Outlet air warm. Liquid line very hot. Bubbles in sight glass.	Compressor Malfunction or R-12 Overcharge
HIGH	HIGH	Outlet air slightly cool. Bubbles in sight glass.	Large Amount of Air and Moisture in System
HIGH	HIGH	Outlet air warm. Evaporator outlet sweating and frost.	Expansion Valve Stuck Open

(1) - If equipped with a low refrigerant charge protection system, compressor operation may have stopped.

A/C SYSTEM PRECAUTIONS

Article Text

1984 Mazda RX7

For iluvmyrx7.com

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Saturday, June 08, 2002 10:08PM

ARTICLE BEGINNING

AIR CONDITIONING & HEAT
A/C System Precautions

*** PLEASE READ THIS FIRST ***

CAUTION: When discharging air conditioning system, use only approved refrigerant recovery/recycling equipment. Make every attempt to avoid discharging refrigerant into the atmosphere.

BEFORE OPENING THE SYSTEM

Before disconnecting any lines or fittings, the system must be completely discharged using approved refrigerant recovery/recycling equipment.

DISCHARGING A/C SYSTEM

NOTE: Recent findings by the EPA indicate that R-11, R-12 and R-113 are harmful to the Earths' protective Ozone layer. Make every attempt possible, to avoid discharging R-11, R-12 or R-113 into the atmosphere.

1) Remove service valve caps and install gauges. For high side gauge hose, Adapter (D81L-19703-A) must be used to connect to high side service valve.

2) Place open end of center hose in garage exhaust outlet or in a well ventilated area. Slightly open low side gauge valve and let refrigerant escape slowly without losing refrigerant oil.

3) When system is nearly discharged, using approved refrigerant recovery/recycling equipment, open high side gauge valve to release any pressure trapped in compressor. Close valves immediately after discharging to prevent entry of moisture.

DISCONNECTING LINES & FITTINGS

1) After system is discharged, using approved refrigerant recovery/recycling equipment, carefully clean entire area around coupling nut to prevent dirt entering system. Always use two wrenches to avoid twisting or distorting lines and fittings (hold fitting with one wrench while loosening coupling nut with second wrench).

2) Cap or plug all LINES and FITTINGS immediately to prevent entry of air and moisture into system. Do not remove these caps until connections are being made.

COMPONENT REPLACEMENT

When components are replaced, system oil level must be adjusted. Add refrigeration oil to replacement component. See Compressor oil Check article, as well as, Component Oil Replacement Quantities" chart under "A/C SYSTEM SPECS" article in this section.

USING R-12 REFRIGERANT - SAFETY PRECAUTIONS

1) Always work in a well-ventilated, clean area. Refrigerant (R-12) is heavier than oxygen, and will displace oxygen in a confined

area. Always wear eye protection when working around air conditioning systems and R-12. The system's high pressure can cause severe injury to eyes and skin if a hose were to burst. R-12 evaporates quickly when exposed to atmosphere, freezing anything it contacts.

2) Use care when handling refrigerant containers. DO NOT drop or strike containers or expose refrigerant containers to excessive heat. Containers must never be heated more than 125°F (52°C). Never expose R-12 directly to open flame.

CAUTION: When R-12 is exposed to an open flame, drawn into a running engine, or detected with a Halide (propane) leak tester, poisonous phosgene gas is formed. Keep work areas ventilated and avoid running engines near work area.

USING INDIVIDUAL R-12 CANS

Disposable refrigerant cans (referred to as one pound cans) have a flat type seal or a screw type seal, and proper can tap must be used for each type. Be sure sealing gasket on can tap is in good condition. A proper safety can tap will prevent refrigerant from flowing back into open can, as tap has a one-way flow control.

NOTE: Recent findings by the EPA indicate that refrigerant is harmful to the Earth's protective Ozone layer. When discharging refrigerant avoid allowing refrigerant to enter the atmosphere. Refrigerant recovery system should be used when discharging the system.

MULTI-CAN DISPENSING VALVES

A multi-can dispensing valve allows attachment of several cans of refrigerant, and is a good substitute when a bulk container is not available. Cans are installed onto each leg of multi-can dispensing valve in the same manner as the individual cans, and each leg has its own can tap.

CAN TAP INSTALLATION FLAT TYPE SEAL CANS

On cam-lock or one-piece can taps, first turn the handle outward to the fully open position. Securely engage locking lugs over the can flange, and lock them in place by turning cam lock or locking nut. Screw tap assembly into adapter so sealing gasket is fully seated against the can top. Turn tap inward to pierce the can and close the tap. DO NOT open tap until ready to purge the service hose or dispense refrigerant into the system.

On 2-piece can taps, be certain tap handle is turned fully inward to the closed position. Check that locking base is turned to its outer limit. Securely engage locking lugs over the can flange. Turn entire tap assembly (without disturbing the closed setting) downward into the locking base to pierce the can. DO NOT open tap until ready to dispense into system.

SCREW TYPE SEAL CANS

Ensure can tap is fully closed. Screw refrigerant can into can tap fitting until tight. This will pierce the can. Connect tap to center hose on manifold gauge set. DO NOT open tap until ready to dispense R-12 into system.

WARNING: DO NOT open high side hand valve while air conditioning

A/C SYSTEM PRECAU'

system is in operation. This high pressure could rupture can or fitting at safety can valve, resulting in damage and personal injury.

CONNECTING LINES & FITTINGS

A new "O" ring should be used in all instances when connecting lines and fittings (dip "O" ring in clean refrigeration oil and make certain it is not twisted during installation). Always use two wrenches to avoid twisting or distorting lines and fittings, tighten coupling nuts securely.

PLACING SYSTEM IN OPERATION

After component replacement and/or system servicing has been completed and all connections have been made, proceed as follows:

- 1) Evacuate the system using a vacuum pump.
- 2) Charge the system with new R-12 (refrigerant) according to each individual vehicle as outlined in the GENERAL COOLING SYSTEM SERVICING article. Also see Refrigerant Capacity in this Section.
- 3) Leak test the system, with particular attention to all new connections and components.
- 4) Make a performance test of the system. Never assume that a recharging has automatically corrected a problem.

COMPRESSOR REMOVAL INFORMATION - ISOLATION METHOD

On systems which have compressors equipped with stem-type service valves (Tecumseh), it is possible to isolate the compressor for removal.

Isolating

Turn both high and low pressure manual valves to extreme clockwise (front seat) position. Loosen cap on high pressure manual valve connection to compressor and allow gas to escape until compressor is relieved of pressure.

COMPRESSOR REMOVAL INFORMATION - DISCHARGE METHOD

This procedure is to be used on vehicles which have compressor equipped with Schrader service valves. In these cases, the compressor cannot be isolated and the system must be discharged, using approved refrigerant recovery/recycling equipment, prior to compressor removal.

END OF ARTICLE

1.2L ENG MODIFIED LONE STAR A/C EVAPORATOR INSTALL CAT. 15, NO. 126/83

Article Text

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Saturday, June 08, 2002 10:12PM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

AIR CONDITIONER EVAPORATOR INSTALLATION

Models 1984 RX7
Bulletin No. 126/83
Category 15
Date 12/23/83

DESCRIPTION

The following modifications must be made when installing a Lone Star air conditioner on 1984 RX7. If these modifications are not made, the evaporator will not align with the heater case and blower and consequently, air leakage will occur from the seal plates.

REPAIR PROCEDURE

1. Cut the insulation in the area of the upper mounting stud for the evaporator. Cut the insulation as needed to allow the evaporator bracket to bolt directly to the dash frame (Fig. 1).

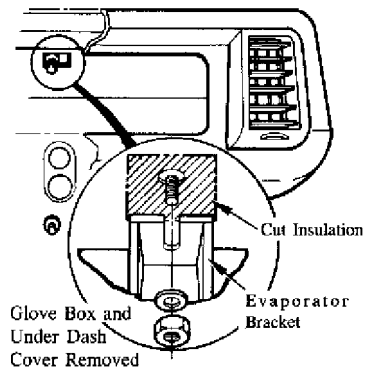


Fig. 1: Evaporator Bracket Installation

2. Install the evaporator as shown. Route the instrument harness on top of the evaporator approximately 6 inches from the firewall as shown in Fig. 2.

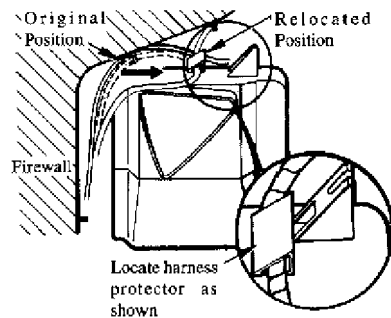


Fig. 2: Evaporator Installation

END OF ARTICLE

A/C LITE DIM/NOT ON - WIRE HARNESS CONNECTOR CAT. 16, NO. 008/85

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ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

AIR CONDITIONER INDICATOR LIGHT

Models	RX-7
Bulletin No.	008/85
Category	16
Date	7/16/85
Symptom	No A/C Light

DESCRIPTION

Some air conditioner kits manufactured by Lone Star Manufacturing Company may contain incorrectly assembled harness connectors. If the indicator light on the air conditioner switch does not illuminate, or illuminates dimly after installation, the problem may be due to incorrectly assembled G-03 or G-16 connectors. See Fig. 1.

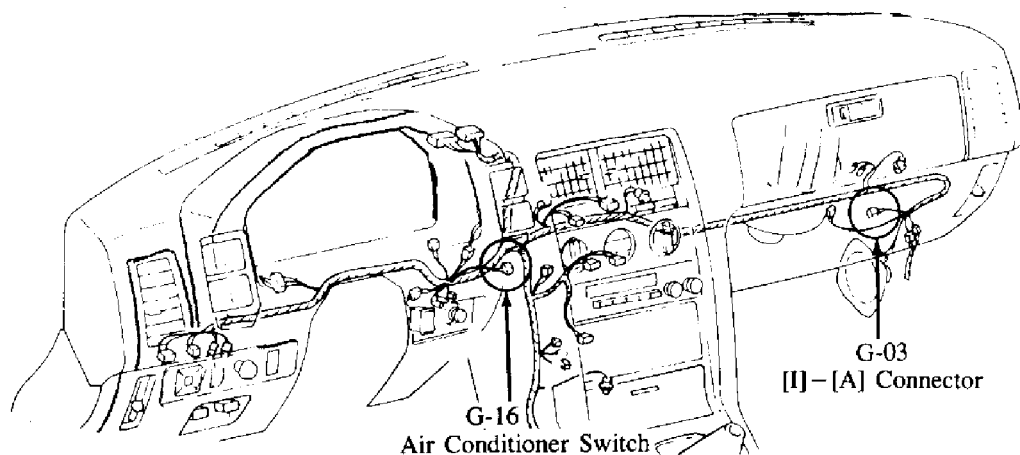
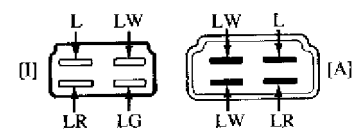


Fig. 1: A/C Indicator Light Harness Routing

REPAIR PROCEDURE

1. Check that the G-03 accessory connector (A) is assembled correctly as viewed from the harness side of the connector. If not, remove the incorrect terminals and reassemble according to the connector diagram.
2. Check that the G-16 accessory connector (A) is assembled correctly as viewed from the harness side of the connector. If not, remove the incorrect terminals and reassemble according to the connector diagram. See Fig. 2.

G-03 Connector Between Instrument Panel
and Air Conditioner Harness



G-16 Air Conditioner Switch [I]

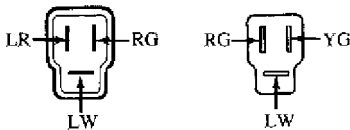


Fig. 2: RX7 A/C Accessory Connectors

END OF ARTICLE

INOPERATIVE A/C - BLOWN FUSIBLE RECEIVER/DRYER PLUG CAT. 16, NO. 009/85

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Saturday, June 08, 2002 10:15PM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

APPLICATION

1979-85 RX7

SUBJECT

Inoperative A/C

REFERENCE

Mazda Motors Corp., Service Bulletin, No. 16 009/85, September, 1985

CONDITION & CAUSE

Some 1979-85 RX7 vehicles may exhibit an inoperative air conditioning system. This condition may be caused by a variety of factors blowing the fusible plug on the receiver/drier.

REPAIR

- 1) If the fusible plug on the receiver/drier is blown, replace the receiver/drier and evacuate the A/C system.
- 2) Check the tension of the compressor drive belt. With center span of belt pushed with a force of 22 lbs. (10 kg), deflection should be 5/16-3/8" (8-10 mm). Ensure the fins on the condenser are not clogged or restricted and clean as necessary.
- 3) Attach an air conditioning manifold to the suction and discharge fittings. If the high pressure gauge shows excessive pressure, check the fan drive clutch and replace as necessary.

END OF ARTICLE

POOR A/C COOLING - ADJUST A/C THERMOSTAT CAT. 16, NO. 006/85

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Saturday, June 08, 2002 10:16PM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

NIPPONDENSO AIR CONDITIONER

Models	RX-7 13B
Bulletin No.	006/85
Category	16
Date	5/17/85
Symptom	Poor Cooling

DESCRIPTION

If the customer objects to the cooling performance of the air conditioner on RX-7 13B vehicles, please follow the procedure described below.

REPAIR PROCEDURE

1. Check the air conditioning system for insufficient cooling according to the current Service Information. If no problem is found, proceed to Step 2.
2. Remove the glove box and the under cover. See Fig. 1.

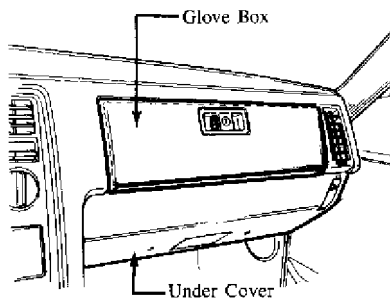


Fig. 1: Removing Glove Box & Under Cover

3. Remove the 2 screws securing the thermostat. Pull the thermostat approximately "1" away from the evaporator in order to provide access to the thermostat adjusting screw.

NOTE: Do not damage the capillary tube attached to the thermostat by excessive bending or twisting. See Fig. 2.

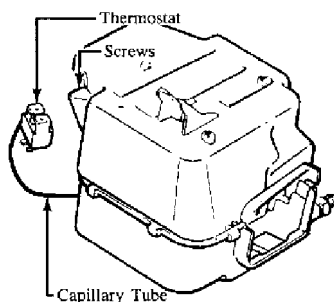


Fig. 2: Removing 2 Screws Securing the Thermostat

4. Turn the adjusting screw of the thermostat clockwise 90° from the original position.

CAUTION: Do not turn the adjusting screw more than 90°, otherwise the evaporator core will freeze, resulting in an adverse effect on the cooling performance. See Fig. 3.

5. Reassemble in the reverse order of disassembly.

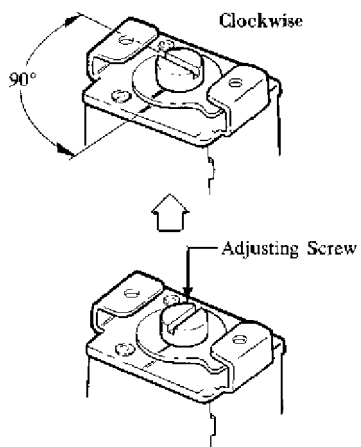


Fig. 3: Adjusting Thermostat

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TRANSMISSION REMOVAL & INSTALLATION - A/T

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Saturday, June 08, 2002 10:21PM

ARTICLE BEGINNING

1984 Automatic Transmission Removal
MAZDA

RX-7

REMOVAL

1) Disconnect negative battery cable. Remove air cleaner, converter housing upper and side covers, and top bolts attaching transmission to engine. On models so equipped, disengage torsion shaft from accelerator linkage. Raise vehicle and support with safety stands.

2) Drain fluid from transmission. Remove drive shaft. Use output shaft plug to prevent oil leakage from rear of transmission. Remove any exhaust mounts attached to transmission. Disconnect exhaust pipe from manifold. Disconnect shift linkage from manual shaft on transmission.

3) Disconnect all electrical and vacuum leads from transmission. Disconnect speedometer cable. Remove oil filler tube from transmission, then disconnect both oil cooler pipes.

4) Disconnect governor tube from converter housing and transmission case (if equipped). Support transmission with wood block between oil pan and transmission jack.

5) Remove converter inspection plate. Mark converter and flywheel for realignment reference during installation. Remove torque converter-to-flywheel attaching bolts.

6) Remove rear mount and crossmember mounting bolts. Remove starter (lower transmission as needed to gain access to starter bolts). Remove transmission-to-engine bolts and slowly lower transmission out of vehicle.

INSTALLATION

Reverse removal procedure to install transmission, noting the following: When installing torque converter, ensure notch in converter lines up with notch in oil pump. When bolting converter to flywheel, align mark made during removal to ensure proper alignment. After transmission is installed, rotate crankshaft several times to be sure that transmission rotates freely without binding.

END OF ARTICLE

TRANSMISSION SERVICING - A/T

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Saturday, June 08, 2002 10:21PM

ARTICLE BEGINNING

Automatic Transmission Servicing
1984 MAZDA

IDENTIFICATION

TRANSMISSION CODES TABLE

Application	Codes
GLC & 626	F3A
RX7	L4N71B
B2000	3N71B

LUBRICATION

SERVICE INTERVALS

Check fluid level every 7,500 miles or every 8 months, whichever occurs first.

CHECKING FLUID LEVEL

Park vehicle on level ground. Apply parking brake and run engine at idle for 2 minutes. Briefly place selector lever in all gears and return to "P". Clean dipstick cap and remove dipstick. Level should be between "L" and "F" marks. If necessary, add fluid. through filler tube. Do not overfill.

RECOMMENDED FLUID

Type F automatic transmission fluid.

FLUID CAPACITY

TRANSMISSION REFILL CAPACITIES TABLE

Application	Quantity
B2000 & RX7	6.6 qts. (6.2L)
GLC & 626	6.0 qts. (5.7L)

DRAINING & REFILLING

B2000 & RX7

Remove oil pan bolts and drain fluid. Remove oil pan and discard gasket. Clean oil pan and install, using a new gasket. Tighten oil pan bolts to 43-72 INCH lbs. (5-8 N.m). Add fluid through filler tube and check fluid level. Do not overfill.

GLC & 626

Remove drain plug on bottom of differential. If transaxle is to be completely drained, remove oil pan bolts and drain remaining fluid. Remove oil pan and discard gasket. Clean oil pan and install, using a new gasket. Tighten oil pan bolts to 43-72 INCH lbs. (5-8 N.m). Add fluid through filler tube and check fluid level. Do not

overfill.

ADJUSTMENTS

BRAKE BAND

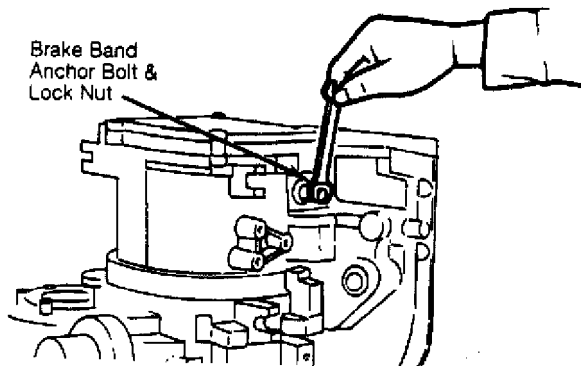
B2000

Remove oil pan to adjust brake band. Loosen servo piston stem lock nut. Tighten servo piston stem 2 turns. Hold piston stem in this position and tighten lock nut to 11-29 ft. lbs. (15-39 N.m).

GLC & 626

NOTE: Make this adjustment with oil pump installed. Apply sealant to anchor bolt threads.

Loosen lock nut on brake band anchor bolt. Tighten brake band anchor bolt to 108-132 INCH lbs. (12-15 N.m), then back off bolt 2 turns. Hold brake band anchor bolt and tighten lock nut to 41-59 ft. lbs. (56-80 N.m).



Courtesy of Mazda Motors Corp.

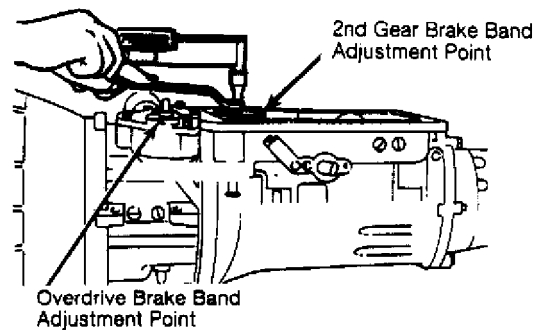
Fig. 1: GLC & 626 Brake Band Adjustment

RX7

1) Remove overdrive brake band servo cover to adjust overdrive brake band. Remove oil pan to adjust 2nd gear brake band. Loosen overdrive brake band and 2nd gear brake band servo piston stem lock nuts.

2) Tighten overdrive brake band servo piston stem to 61-86 INCH lbs. (7-10 N.m). Back off piston stem 2 turns. Hold piston stem in this position and tighten lock nut to 11-29 ft. lbs. (15-39 N.m).

3) Tighten 2nd gear brake band servo piston stem to 108-132 INCH lbs. (12-15 N.m). Back off piston stem 3 turns. Hold piston stem in this position and tighten lock nut to 11-29 ft. lbs. (15-39 N.m).



Courtesy of Mazda Motors Corp.

Fig. 2: RX7 Brake Band Adjustment

KICKDOWN SWITCH & DOWNSHIFT SOLENOID

- 1) Depress accelerator pedal to limit. Listen for a click from solenoid. Switch must operate at or after 7/8 of pedal travel.
- 2) If not, loosen switch retaining nut. Adjust switch to engage when pedal is 7/8 of its full travel. Tighten retaining nut and check solenoid.

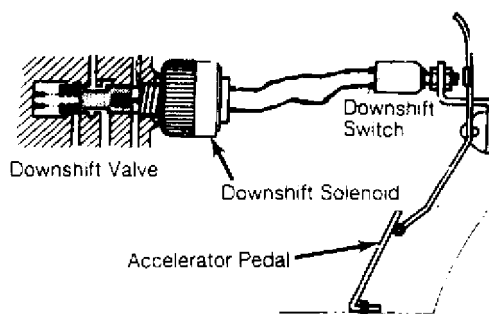


Fig. 3: Kickdown Switch & Downshift Solenoid

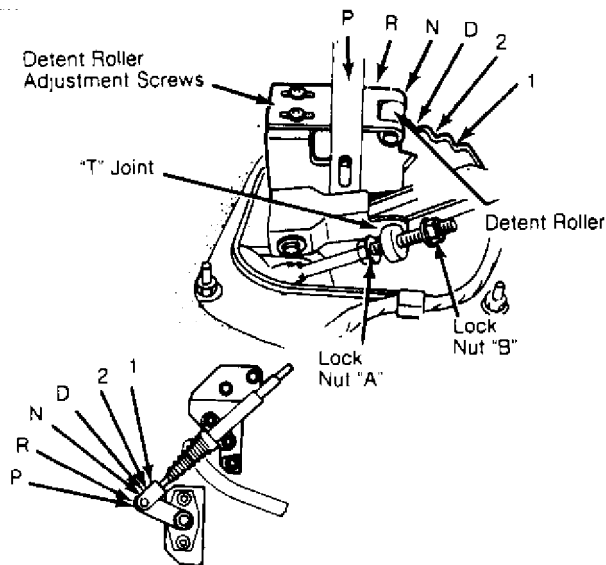
GEARSHIFT LINKAGE

B2000

- 1) Place selector lever in "N" position. Raise vehicle and support with safety stands. Disconnect "T" joint from lower end of selector lever arm. Move transmission lever to Neutral, third detent position from rear of transmission.
- 2) Loosen "T" joint lock nuts, adjust "T" joint so that it freely enters hole of selector lever arm and tighten lock nuts. Connect "T" joint to selector lever arm and secure using retaining clip. Lower vehicle, place selector lever in each position to ensure that selector lever functions properly.

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- 1) Loosen lock nuts "A" and "B" at "T" joint and place selector lever in "N". Move transaxle lever to neutral, fourth detent position away from transaxle.
- 2) Turn lock nut "A" until it comes in contact with "T" joint. Tighten lock nut "B". Move selector lever toward "P" until lever on transaxle begins to move and check amount of movement.



Courtesy of Mazda Motors Corp

Fig. 4: GLC & 626 Gearshift Linkage Adjustment

3) Move lever toward "D" until lever on transaxle begins to move and check amount of movement. Amount of movement should be equal. If movement toward "P" is greater than movement toward "D", loosen lock nut "B" and tighten lock nut "A" so that movement becomes smaller.

4) If movement toward "D" is greater than movement toward "P", loosen lock nut "A" and tighten lock nut "B" so that movement becomes smaller. Shift selector lever from "P" to "1". Ensure that a "click" can be felt in each position and gear corresponds to position plate.

5) Ensure that lever can be shifted between "D" and "N" without depressing push button. If lever can be shifted from "D" to "R" without depressing push button, or if push button is loose, adjust selector lever handle.

RX7

1) Remove boot plate. Place selector lever in "P". Loosen selector lever plate adjustment bolt. Raise vehicle and support with safety stands. Move transmission selector rod to "P" position (first detent from rear of transmission).

2) Tighten selector lever plate adjustment bolt to 23-34 ft. lbs. (32-47 N.m). Lower vehicle. Place selector lever in each position to ensure that selector lever functions properly.

SELECTOR LEVER HANDLE

B2000 & RX7

1) Place selector lever in "N" or "D" position. Loosen lock nut below selector lever handle and turn handle until no play exist in push button. Unscrew selector lever handle 1 full turn until button is on driver's side.

2) Push button and ensure that lever can be shifted into "P" position. If lever cannot be shifted into "P", turn lever in 1 full turn. Repeat procedure until lever can be shifted into "P" position.

3) Turn selector lever until it can be shifted from "N" to "R" or from "D" to "2" without depressing push button. If lever can be shifted into "R" or "2" without depressing button, selector lever has been turned in too much, turn selector lever out.

4) After adjustment is complete, check protrusion of push button. Protrusion should be 3/16-9/32 in. (4.8-7.1 mm). Place selector lever in each position and ensure that selector lever functions properly. Tighten lock nut to 11-15 ft. lbs. (15-20 N.m).

GLC & 626

1) Place selector lever in "P". Loosen lock nut below selector lever handle and turn nut and handle until they bottom. Unscrew selector lever handle 1 full turn until button is on driver's side. Tighten lock nut to 11-15 ft. lbs. (15-20 N.m).

2) Ensure that selector lever functions properly. If button does not operate smoothly, set lever in "P" and loosen detent roller adjustment screws and adjust by moving detent roller.

NEUTRAL SAFETY SWITCH

B2000 & RX7

1) Check and adjust gearshift linkage on B2000. Place transmission lever in Neutral, third detent position from rear of transmission on B2000. Place selector lever in "N" position on RX7.

2) Loosen neutral safety switch attaching bolts and remove screw from alignment pin hole from bottom of switch. Rotate switch and insert a .059" (1.5 mm) alignment pin through alignment holes.

3) Tighten attaching bolts and remove alignment pin. Install alignment pin hole screw and check operation of switch. Vehicle should start in "P" and "N" positions only.

GLC & 626

NOTE: The following instructions are for checking neutral safety switch. No adjustments are possible.

1) Ensure vehicle starts in "P" and "N" only. Back-up lights must illuminate with selector lever in "R". If switch is faulty, disconnect it and check continuity between each terminal.

2) With selector lever in "P" or "N", continuity should exist between terminals "A" and "B". With lever in "R", continuity should exist between terminals "C" and "D".

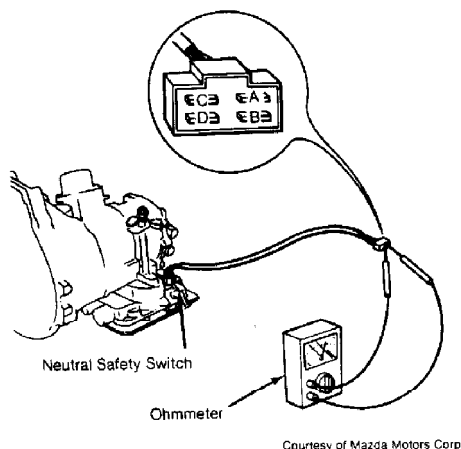


Fig. 5: Neutral Safety Switch Continuity Check

END OF ARTICLE

1.2L ENG FLYWHEEL THREAD HOLE MODIFICATIONS CAT. 40, NO. 003/84

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ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

FLYWHEEL MODIFICATION

Model: 1984 RX-7
Bulletin No.: 003/84
Date: 7/31/84
Category: 40

DESCRIPTION

The thread pitch of the two holes in the flywheel has been changed from 1.50mm to 1.25mm in order that the same puller can be used to remove the flywheel for manual transmission and the counter weight for automatic transmission. Because of this change, the flywheel puller (4908 23 300A) cannot be used for the modified flywheel. When removing the flywheel, use the counter weight puller (4908 39 305A).

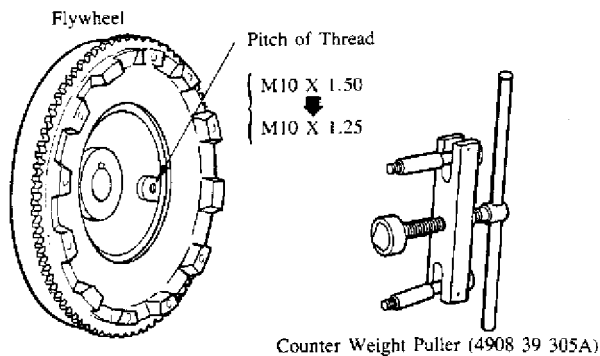


Fig. 1: Flywheel Modifications

VIN OF PRODUCTION CHANGE

12A:	JM1FB331 E0834333	May, 1984
13B:	JM1FB332 E0834333	May, 1984

PARTS INFORMATION

NEW PART NO.	OLD PART NO.	DESCRIPTION	MODEL	INTERCHANGEABLE
N231 11 700A	N231 11 700	Flywheel	12A	NEW = OLD
N304 11 700A	N304 11 700	Flywheel	13B	NEW = OLD

END OF ARTICLE

L4N71B TRANS OIL PRESSURE GAUGE ADAPTER CAT. 40, NO. 018/87

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ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

OIL PRESSURE GAUGE ADAPTER

Model: 1983 - 1987 RX-7 A/T

Bulletin No.: 018/87

Date: 4/9/87

Category: 40

DESCRIPTION

An adaptor for the (4903 78 400A) oil pressure gauge has been newly established for 1983-87 RX7 with automatic transmission. This adaptor is necessary when checking line pressure in "R" range because of the limited space between the transmission and the body. (See the 1986-87 RX-7 Service Information.

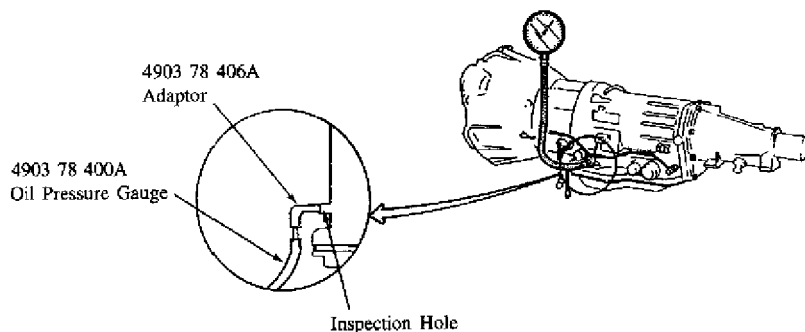


Fig. 1: Oil Pressure Gauge Adaptor Installation

PARTS INFORMATION

PART NUMBER	DESCRIPTION
4903 78 406A	Adaptor

END OF ARTICLE

BRAKE SYSTEM

Article Text

1984 Mazda RX7

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Saturday, June 08, 2002 10:26PM

ARTICLE BEGINNING

1984 BRAKES

Mazda

Pickups, RX7

DESCRIPTION

Brake system is hydraulically-operated, using a tandem master cylinder and power brake unit. Front brakes are floating caliper disc. Rear brakes on most models are leading/trailing drums.

Floating caliper rear disc brakes are available on RX7 as an option. Proportioning valves are used on most models to prevent premature lockup of rear wheels.

ADJUSTMENTS

REAR DRUM BRAKE SHOES

RX7 & Pickups

1) Raise and support rear of vehicle. Release parking brake. Remove rear wheel and star wheel adjusting plug from backing plate. Insert a flat-tipped screwdriver, and rotate star wheel until wheel is locked. See Fig. 1.

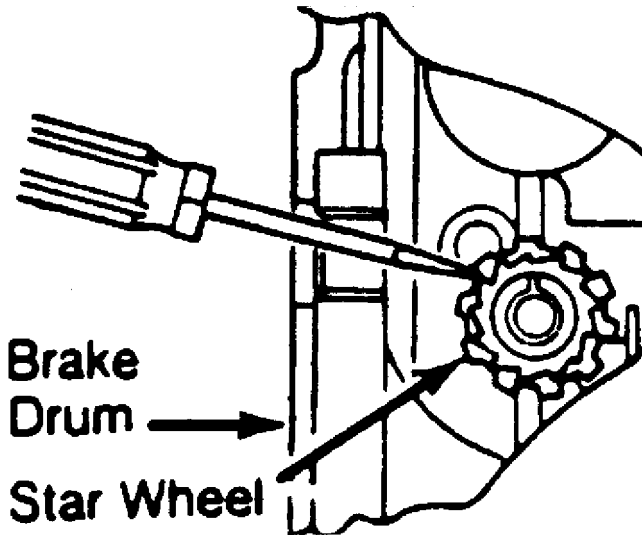


Fig. 1: Adjusting Rear Brake Shoe-to-Drum Position

2) Remove pawl lever hole plug. Insert a flat-tipped screwdriver through hole. Push on pawl lever self-adjuster and back off star wheel adjuster 3 to 4 notches, so wheel turns freely.

3) Repeat procedure for opposite side. Adjust parking brake and install plugs in adjusting holes.

PEDAL HEIGHT, FREE PLAY & STOP LIGHT SWITCH

1) Pedal height is measured from firewall to pedal pad center.

2) On other models, loosen lock nut on stop light switch and turn switch until correct pedal height is obtained. Tighten

lock nut and connect electrical connector.

3) Pedal free play should be .28-.35" (7-9 mm). On GLC, adjust light switch, tighten lock nut, and reconnect electrical connector. On all other models, loosen lock nut on operating rod. Turn rod until correct free play is obtained, and tighten lock nut.

BRAKE PEDAL HEIGHT ADJUSTMENT

Application	In. (mm)
RX7	7.5-7.7 (190-195)
B2000 & B2200	8.1-8.3 (205-211)

PARKING BRAKE

1) With service brakes properly adjusted, raise and support rear of vehicle. Remove parking brake lever boot or console, if necessary. Release brake lever. Turn adjusting screw or nut to obtain specified clearance. On Pickups, turn adjusting nut at equalizer under vehicle.

2) Lever should be pulled with a force of 22 lbs. (10 kg) to obtain a stroke of 5-9 notches on GLC, 6-8 notches on RX7, 7-9 notches on 626, and 5-10 notches on Pickups.

3) Reinstall brake lever boot or console. Remove supports and lower vehicle. On all models, operate parking brake several times and make sure rear wheels rotate freely.

NOTE: Ensure that rear brakes do not drag, and parking brake warning light is activated when lever is pulled 1 notch.

BRAKE WARNING LIGHT

Pickup & RX7 (If Equipped)

1) Light indicates parking brake is engaged and also warns of low fluid level. With engine running, light should glow when parking brake lever is pulled 1 notch and go off when lever is fully released.

2) To check warning light operation with engine running, release parking brake lever and ensure that light is off. Raise master cylinder reservoir cap and light should glow. If not, check switch and wire connector.

REMOVAL & INSTALLATION

FRONT DISC BRAKE PADS

Removal

1) Raise and support the front of vehicle. Remove wheels and detach brake hose attachment from shock absorber, if necessary.

2) On RX7, remove lower caliper guide pin and pivot caliper body up out of way. On Pickups, remove locking clips and stopper plates.

3) Remove caliper and hang from frame with wire. Do not disconnect brake hose. On all models, remove anti-rattle springs (clips), pads, and shims, if equipped.

Installation

1) To install, reverse removal procedure. Before mounting caliper, loosen bleed screw, and seat piston. Tighten bleed screw.

2) After pad installation, depress brake pedal several times.

to seat pads. Bleed hydraulic system, if required.

NOTE: Grease pad mounting support, caliper contact area, and shims with special grease (NLGI No. 2 or equivalent).

REAR DISC BRAKE PADS

Removal (RX7)

1) Raise and support rear of vehicle. Remove wheel. Disconnect parking brake cable from caliper. Remove lower caliper attaching bolt.

2) Lift lower side of caliper. Remove anti-rattle spring. Remove disc brake pads and shims.

Installation

1) Using Brake Piston Wrench (49 FA18 602), turn piston clockwise until piston is inserted into caliper fully.

2) Position piston so that dowel on pad will seat in piston stopper groove. To complete installation, reverse removal procedure.

FRONT DISC BRAKE CALIPER

Removal

1) Raise and support front of vehicle. Remove wheel and disconnect brake hose. On RX7, remove lower caliper bolt, lift caliper body, and remove by sliding toward inside of vehicle.

2) On Pickups, remove locking clips, stopper plates, and anti-rattle spring. Lift off caliper. Remove disc pads as previously described.

Installation

To install, reverse removal procedure and bleed hydraulic system.

REAR BRAKE CALIPER

Removal (RX7)

1) Raise and support rear of vehicle. Remove wheel and disconnect parking brake cable from caliper.

2) Remove caliper attaching bolt (lower side). Lift up caliper. Slide caliper toward inside of vehicle and remove caliper. Disconnect brake hose from caliper.

Installation

To install caliper, reverse removal procedure and bleed hydraulic system.

FRONT DISC BRAKE ROTOR

Removal (Pickups & RX7)

1) With caliper assembly removed, remove wheel hub grease cap, cotter pin, lock plate and ring adjusting lock nut.

2) Remove thrust washer and outer bearing from hub. Slide hub and rotor assembly from spindle. On Pickups, place wheel in a soft-jawed vise, scribe match marks, remove bolts attaching rotor to hub, and separate rotor from hub.

Installation

To install, reverse removal procedure, and tighten bolts attaching rotor to hub evenly. Adjust wheel bearings. See WHEEL BEARING ADJUSTMENT in SUSPENSION section.

REAR BRAKE DRUM

Removal (Pickups & RX7)

Raise and support rear of vehicle. Release parking brake. Remove wheel and brake drum retaining screws. On Pickups, thread retaining screws into tapped holes in brake drum to force brake drum off flange.

Installation (Pickup & RX7)

To install, reverse removal procedure. Tighten retaining screws evenly (if equipped).

REAR BRAKE SHOES

Removal (Pickup & RX7)

1) With brake drum removed, remove brake shoe return springs, retaining springs and guide pins. Remove brake shoes.
2) Remove parking brake strut and disconnect parking brake cable from operating lever of secondary shoe.

Installation

1) Lubricate adjusting screw threads and shoe contact points on backing plate with brake grease. Install parking brake operating lever to secondary shoe and secure with clip. Engage operating lever with parking brake cable.
2) Position operating strut between slots of shoes. Mount assembly to backing plate so slots in shoes are toward adjusting screws. Install return springs and retainer springs.

MASTER CYLINDER

Removal

1) Disconnect fluid level sensor coupler, if equipped. Disconnect and plug hydraulic lines at master cylinder to prevent entry of dirt and loss of fluid.
2) Remove nuts attaching master cylinder to firewall or power brake unit and remove master cylinder from vehicle. On RX7, remove proportioning valve by-pass bolt.

Installation

To install, reverse removal procedure and bleed hydraulic system.

POWER BRAKE UNIT

Removal

1) Remove master cylinder from power brake unit before removing power brake unit. Disconnect vacuum line at power brake unit.
2) From inside vehicle, remove cotter pin and clevis pin attaching push rod to brake pedal, and separate.
3) Remove nuts retaining power unit to firewall. Remove power brake unit and master cylinder as an assembly. Separate master cylinder from power brake unit.

Installation

To install, reverse removal procedure and bleed hydraulic system.

OVERHAUL

Disassembly

- 1) Thoroughly clean exterior of caliper and remove retainer and dust boot. Place a piece of wood in front of piston.
- 2) Apply compressed air to fluid inlet and remove piston. Tap caliper with plastic hammer, if required. Remove piston seal without damaging caliper bore.

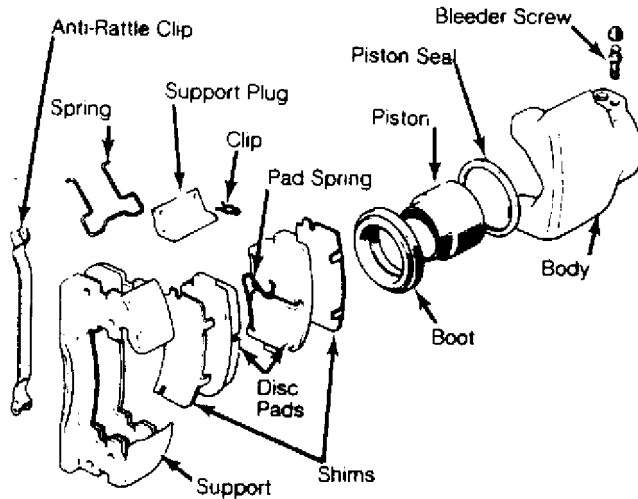


Fig. 2: Exploded View of Pickup Front Disc Brake Caliper

Inspection

- 1) Wash all parts in alcohol or brake fluid and air dry. Inspect cylinder bore and piston for scoring, scratches or rust. Replace defective parts.
- 2) Minor damage may be removed with crocus cloth. Always replace dust boot and piston seal when caliper is disassembled.

Reassembly

- 1) Apply clean brake fluid to cylinder bore, piston and piston seal. Seat piston seal in caliper bore.
- 2) Install piston carefully into cylinder bore and install dust boot and retainer.

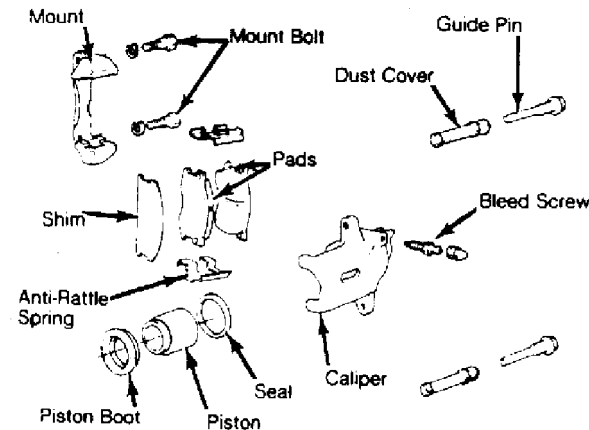


Fig. 3: Exploded View of Typical Front Brake Caliper

REAR DISC BRAKE CALIPER

Disassembly (RX7)

1) Remove dust boot retainer and boot. Turn piston counterclockwise with Disc Brake Piston Wrench (49 FA18 602), and screw out piston. Remove piston seal.

2) Remove boot retainer. Slip off boot. Remove snap ring. Compress conical spring in caliper with Spring Compressor (49 FA18 601), Valve Spring Lifter Arm (49 0636 100A), and Removing Plate (49 E301 144).

3) Remove parking brake crank, torsion spring and strut. Remove adjusting bolt and conical spring assembly. Press out needle roller bearings.

Inspection

1) Clean all parts in brake fluid or alcohol. Air dry parts. Inspect caliper bore for scratches, scoring or rust. Remove minor damage by polishing with crocus cloth.

CAUTION: Never use gasoline or kerosene when cleaning caliper parts.

2) Inspect needle roller bearing, strut, adjusting bolt, and parking brake crank for corrosion, wear or damage. Check torsion spring and conical spring for corrosion, weakness or damage.

3) Check piston and sleeve nut for excessive play. It should be within .012-.020" (.3-.5 mm).

Reassembly

1) Assemble caliper in reverse order of disassembly. Use new piston and dust seals. Three kinds of grease contained in seal kit must be used.

2) Use White grease on caliper slide and mounting bolts. Use Orange grease on bearings, adjusting bolt, strut and piston boot. Use Pink grease on piston seal.

3) Lubricate piston and caliper bore with clean brake fluid. Press in needle roller bearing so that arrow on bearing faces outward.

4) Assemble conical spring and adjusting bolt. See Fig. 4. Install adjusting bolt assembly, strut and torsion spring in caliper.

5) Install piston using Disc Brake Piston Wrench (49 FA18 602). Turn piston clockwise until piston is fully seated in caliper. Position piston after seating to ensure that dowel on brake pad fits in piston stopper groove.

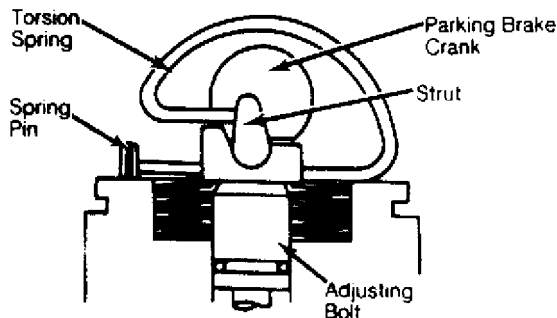


Fig. 4: Installing Conical Spring and Adjusting Bolt on RX7 Rear Caliper

Apply Orange grease, supplied in seal kit, to adjusting bolt.

WHEEL CYLINDERS

Disassembly

Remove dust boots. Remove pistons by pressing on cylinder cup to force out filling blocks and return spring.

Inspection

- 1) Clean all parts in alcohol or brake fluid. Check cylinder bore and pistons for scores, roughness or wear.
- 2) Check clearance between cylinder bore and pistons. Replace if clearance exceeds .006" (.15 mm). Check cups for deformation. Replace as necessary.

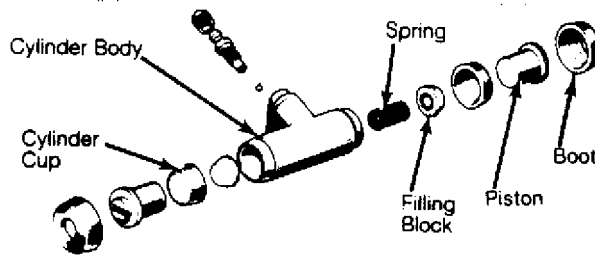


Fig. 5: Exploded View of Wheel Cylinder
Flat side of cylinder cups face outward.

Reassembly

Reverse disassembly procedure. Coat all parts with clean brake fluid before reassembly. Ensure that flat side of cylinder cups face outward.

MASTER CYLINDER

Disassembly

- 1) Thoroughly clean outside of master cylinder, and pour out any remaining brake fluid. If equipped, remove reservoir and dust boot. Depress primary piston assembly. See Fig. 6.
- 2) From rear of cylinder bore, remove retaining ring, washer, primary piston assembly, and return spring. Remove stopper bolt and secondary piston by blowing compressed air through outlet port. See Fig. 7.
- 3) Carefully remove the secondary piston assembly and return spring. Remove fittings, check valves and springs.

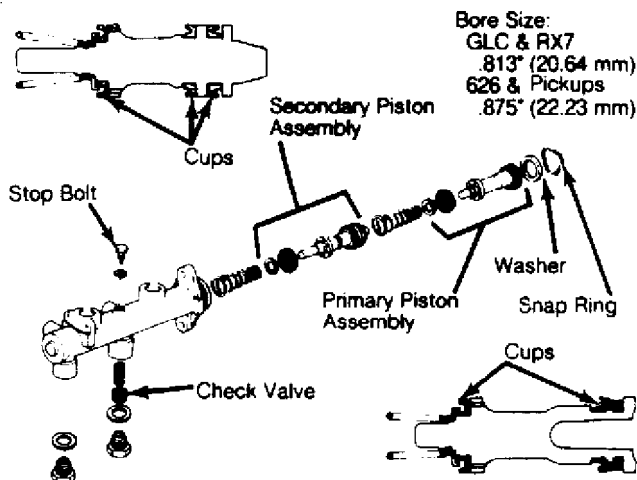


Fig. 6: Exploded View of Typical Master Cylinder
Some models may vary slightly.

Inspection

- 1) Clean all parts in alcohol or brake fluid. Check all parts for scoring, roughness or wear. Check clearance between pistons and cylinder wall.

2) If clearance exceeds .006" (.15 mm), replace parts as necessary. Remove all foreign matter from internal passages and recesses with compressed air.

3) Check cylinder cups for deformation and replace as required.

Reassembly

1) Reverse disassembly procedure. Coat all parts with clean brake fluid before reassembly. Use new gaskets, where needed, on hydraulic connections.

2) When assembled, make sure piston cups do not cover compensating ports. Insure that valve with hole in center, faces front side outlet hole.

POWER BRAKE UNIT

NOTE: Power brake units vary slightly between model applications. The following general overhaul procedures can be used if attention is paid to specific order of components.

Disassembly

1) Remove master cylinder and check valve from power unit. Place power unit in a vise with push rod up.

2) Scribe alignment marks on front and rear shells to assure reassembly in original position. Remove clevis, lock nut, and dust boot from rear shell.

CAUTION: Separate front and rear shells carefully. Spring tension may cause rear shell to release quickly.

3) Attach suitable bar-type tool to rear shell mounting studs. Press down on tool while rotating it clockwise to unlock rear shell.

4) Lift rear shell assembly from power unit, remove air silencer retainer, and separate diaphragm from power piston assembly. Remove valve rod with plunger assembly from rear shell.

5) Remove lock plate and press valve rod in to remove valve retainer key. Remove valve rod and plunger assembly. Remove air silencer and filter.

NOTE: Service valve rod plungers as an assembly.

6) Remove retainer and bearing. Never remove rear seal from rear shell unless seal is defective and a new one is available. Remove push rod, front seal, and support plate.

Inspection

1) Clean all parts and blow dry with compressed air. Inspect all rubber parts for cuts, nicks, deterioration or other damage.

2) Check power piston for cracks, distortion, chipping, and damaged seats. Inspect front and rear shells for scratches, scores, pits, dents or other damage. Replace any defective parts.

Reassembly

1) Reverse disassembly procedure. Apply silicone grease to parts before reassembly. When assembling rear shell to front shell, make sure index marks are aligned.

2) Before installing master cylinder to power unit, measure clearance between primary piston and power unit push rod. Clearance on RX7 should be .004-.012" (.1-.3 mm). Clearance on GLC and Pickups should be .004-.020" (.1-.5 mm).

3) On 626, clearance between push rod and piston should be

.016-.024" (.4-.6 mm), with no vacuum applied to power brake unit.
With vacuum applied to power brake unit, clearance should be 0-.010"
(0-.3 mm) . If clearance is not to specifications, correct by
adjusting push rod length.

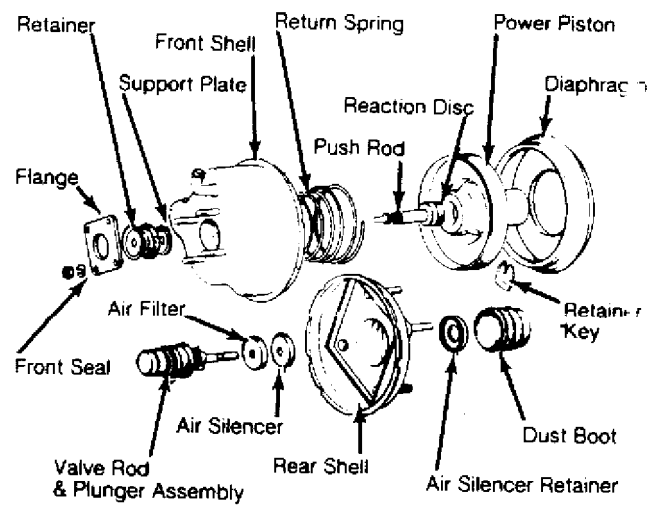


Fig. 7: Exploded View of Typical Power Brake Unit
Some models may vary slightly.

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS TABLE

Application	Ft. Lbs. (N.m)
Caliper Mounting Bracket	
Pickups	40-47 (55-65)
Caliper Guide Pin	33-40 (45-55)
RX7 Rear Caliper	22-30 (30-42)

DISC BRAKE SPECIFICATIONS

DISC BRAKE ROTOR SPECIFICATIONS TABLE

Application	
RX7	
Disc. Diameter	
Front In. (mm)	
Rear In. (mm)	
Lateral Runout	
Front In. (mm) .....	.004 (.10)
Rear In. (mm) .....	.004 (.10)
Parallelism	
Front In. (mm)	
Rear In. (mm)	
Original Thickness	
Front In. (mm) .....	.709 (18)
Rear In. (mm) .....	.394 (10)
Min. Refinish Thickness	
Front In. (mm)	
Rear In. (mm)	

Discard Thickness	
Front In. (mm)	.669 (17)
Rear In. (mm)	.354 (9)

B2000

Disc. Diameter In. (mm)	10.08 (256)
Lateral Runout In. (mm)	.004 (.10)
Parallelism In. (mm)	
Original Thickness In. (mm)	.472 (12)
Min. Refinish Thickness In. (mm)	
Discard Thickness In. (mm)	.433 (11)

B2200

Disc. Diameter In. (mm)	10.08 (256)
Lateral Runout In. (mm)	.004 (.10)
Parallelism In. (mm)	
Original Thickness In. (mm)	.787 (20)
Min. Refinish Thickness In. (mm)	
Discard Thickness In. (mm)	.748 (19)

DRUM BRAKE SPECIFICATIONS

DRUM BRAKE SPECIFICATIONS TABLE

Application

Mazda

RX7

Drum Diameter in. (mm)	7.87 (200)
Drum Width in. (mm)	
Max. Drum Refinish Diam. in. (mm) (1)	7.91 (201)
Wheel Cyl. Diameter in. (mm)	.750 (19.0)
Master Cyl. Diameter in. (mm)	.8125 (20.6)

B2000 & B2200

Drum Diameter in. (mm)	10.23 (260)
Drum Width in. (mm)	
Max. Drum Refinish Diam. in. (mm) (1)	10.27 (261)
Wheel Cyl. Diameter in. (mm)	.875 (22.2)
Master Cyl. Diameter in. (mm)	.875 (22.2)

END OF ARTICLE

BRAKE SYSTEM BLEEDING

Article Text

1984 Mazda RX7

For iluvmyrx7.com

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ARTICLE BEGINNING

1984 BRAKE SERVICING
HYDRAULIC BRAKE BLEEDING

DESCRIPTION

Hydraulic system bleeding is necessary any time air has been introduced into the system. Bleed brakes at all 4 wheels if master cylinder lines have been disconnected or master cylinder has run dry.

Bleeding may be done either by using pressure bleeding equipment or by manually pumping brake pedal and using bleeder tubes.

MANUAL BLEEDING

1) On Isuzu and Jaguar models, start engine and run at idle. On all other models, exhaust all vacuum from power unit by depressing brake pedal several times.

2) Fill master cylinder, then install clear vinyl bleeder hose onto first bleeder valve to be serviced. See BRAKE LINE BLEEDING SEQUENCE table. Place other end of hose in clear glass jar.

3) Partially fill jar with clean brake fluid, so end of hose is submerged in fluid. Open bleeder valve 1-2 turns. Depress brake pedal slowly through its full travel.

4) Close bleeder valve, then release pedal. Pump pedal several times to push air toward wheel cylinders. Repeat procedure until flow of brake fluid is clear, and shows no signs of air bubbles. Proceed to next bleeder valves.

NOTE: Check fluid level in master cylinder frequently during the bleeding sequence.

PRESSURE TANK BLEEDING

1) On Isuzu and Jaguar models, start engine and run at idle. On all other models, exhaust all vacuum from power unit by depressing brake pedal several times.

2) Clean the master cylinder cap and surrounding area, then remove cap. With pressure tank at least 1/3 full, connect tank to master cylinder using proper fitting adapter(s).

3) Attach bleeder hose to first bleeder valve to be serviced. See BRAKE LINE BLEEDING SEQUENCE table. Place other end of hose in a clean glass jar. Partially fill jar with clean brake fluid, until end of hose is submerged in fluid.

4) Open release valve on pressure bleeder. Unscrew bleeder valve 1-2 turns, noting fluid flow. When fluid flow into container is clear, and free of bubbles close bleeder valve securely.

5) Bleed remaining cylinders in correct sequence and in the same manner. Remove pressure tank from master cylinder and check fluid level of master cylinder reservoir.

BLEEDING PRESSURES (1)

Application	psi (kg/cm ²)
BMW	
733i	56 (3.9)
All Others	28 (2.0)
Porsche	32 (2.3)

Renault 30 (2.1)
 Volvo 50-60 (3.5-4.2)

- (1) - For models not listed, refer to pressure tank manufacturer's specifications.

BLEEDING SEQUENCE

See BRAKE LINE BLEEDING SEQUENCE table for proper bleeding sequence.

BRAKE LINE BLEEDING SEQUENCE

Application	Sequence
Audi & Volkswagon (1)	RR, LR, RF, LF
BMW (2)	Longest Line First
Chrysler Corp. Imports	
Colt & Colt Vista	LR, RF, RR, LF
All Others (3)	RR, LR, RF, LF
General Motors Imports	
Chevrolet Sprint	LR, RF, RR, LF
Honda	LF, RR, RF, LR
Isuzu	
I-Mark, P'UP & Trooper II (4) ..	Longest Line First
Impulse	RR, LR, RF, LF
Jaguar (4)	LR, RR, Front
Mazda	Longest Line First
Mercedes-Benz	Longest Line First
Mitsubishi	
Cordia, Tredia	LR, RF, RR, LF
All Others	RR, LR, RF, LF
Nissan	
Maxima	RR, LR, RF, LF
Pickup	Master Cyl., Comb Valve, Longest Line First
Pulsar & Sentra	RR, LF, LR, RF
200SX & 300ZX	LR, RR, RF, LF
All Others	Master Cyl., Longest Line First
Peugeot (5)	Longest Line First
Porsche (6)	LR, RR, RF, LF
Renault	Longest Line First
Saab	LR, RF, RR, LF
Subaru	Master Cylinder, FR, RF, RR, LF
Toyota	Longest Line First
Volvo (7)	RR, LR, RF, LF

- (1) - Before bleeding rear brakes, push brake pressure regulator in direction of rear axle.
- (2) - If equipped with 3 bleeder valves on each front caliper, bleed lower inboard valve first, then other 2 simultaneously.
- (3) - Pickup models do not require bleeding of RR
- (4) - Engine running at idle speed
- (5) - If pressure tank is used, bleed all wheels simultaneously.
- (6) - If equipped with inner and outer caliper bleeder valves, bleed outer valves first , then inner valves.
- (7) - Raise rear wheels a few inches higher than front wheels. Front calipers have 3 bleeder valves.

Bleed all 3 valves simultaneously.

END OF ARTICLE

COOLING SYSTEM SPECIFICATIONS

Article Text

1984 Mazda RX7

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ARTICLE BEGINNING

1984 ENGINE COOLING

Mazda Cooling System Specifications

626, GLC, Pickup & RX7

ENGINE COOLANT SPECIFICATIONS

THERMOSTAT

Thermostat is a wax pellet type. On B2000, B2200, GLC and RX7, thermostat begins opening at 177-182°F (80.5-89.5°C), and fully opens at 203°F (95°C). Thermostat on 626 begins opening at 187-193°F (86.5-89.5°C), and fully opens at 212°F (100°C).

RADIATOR CAP

Radiator cap pressure relief valve opens at approximately 13 psi (.9 kg/cm²).

COOLANT CAPACITY TABLE

Application	Quarts (L)
B2000	
Manual Transmission	
W/O Heater	7.0 (6.6)
W/Heater	7.6 (7.2)
Automatic Transmission	
W/O Heater	7.3 (6.9)
W/Heater	8.5 (8.0)
B2200	
W/O Heater	10 (9.5)
W/Heater	11.1 (10.5)
GLC	
Manual Transmission	
W/O Heater	5.3 (5.0)
W/Heater	5.8 (5.5)
Automatic Transmission	
W/O Heater	5.8 (5.5)
W/Heater	6.3 (6.0)
RX7	10 (9.5)
626	7.4 (7.0)

END OF ARTICLE

ENGINE COOLING FAN

Article Text

1984 Mazda RX7

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ARTICLE BEGINNING

1984 ENGINE COOLING
Mazda Engine Cooling Fans

626, GLC, Pickup & RX7

DESCRIPTION

The basic liquid cooling system consists of a radiator, water pump, thermostat, cooling fan, pressure cap, heater (if equipped), and various connecting hoses and cooling passages in the block and cylinder head. In addition, many cars use a fan clutch (incorporating a thermostatic control) or flexible fan blade. These reduce noise and power requirements at higher engine speeds.

Some models may use a thermostatic vacuum switch to advance ignition timing in the event of overheating. Most models use a coolant recovery system to prevent loss of anti-freeze.

MAINTENANCE

DRAINING

Remove radiator cap and open heater control valve to maximum heat position. Open drain cocks or remove plugs in bottom of radiator and in engine block. In-line engines usually have one plug or cock, while "V" type engines will have two, one in each bank of cylinders.

CLEANING

A good cleaning compound removes most rust and scale. Follow manufacturer's instructions in the use of cleaner. If considerable rust and scale has to be removed, flushing should be used. Clean radiator air passages by blowing with compressed air from back to front of radiator.

FLUSHING

CAUTION: Some manufacturers use an aluminum and plastic radiator on some models (identified by a note below the filler neck). Material used for cleaning and flushing must be compatible with aluminum, according to manufacturer's recommendations.

1) Back flushing is a very effective means of removing rust and scale from a cooling system. For best results, the radiator, engine and heater core should be flushed separately.

2) To flush radiator, connect flushing gun to water outlet of radiator and disconnect water inlet hose. Use a leadaway hose, connected to radiator inlet, to prevent flooding engine. Use air in short bursts only, as this will prevent damage to radiator. Continue flushing until water runs clear.

3) To flush engine, first remove thermostat and replace housing. Connect flushing gun to water outlet of engine. Disconnect heater hoses from engine. Flush using short air bursts until water runs clean. Flush heater core as described for radiator. Make sure heater valve is set to maximum heat position before flushing heater.

REFILLING

Engine should be running while refilling cooling system to

prevent air from being trapped in the engine block. After system is full, continue running engine until thermostat is open, then recheck fill level. Do not overfill system.

THERMOSTAT

1) Visually inspect thermostat for corrosion and proper sealing of valve and seat. If satisfactory, suspend thermostat and a thermometer in a container with a 50/50 mixture of anti-freeze and water. See Fig. 1.

2) Do not allow either thermostat or thermometer to touch bottom of container, as this concentration of heat could cause an incorrect reading. Heat water until thermostat just begins to open. Heat water until thermostat is completely open.

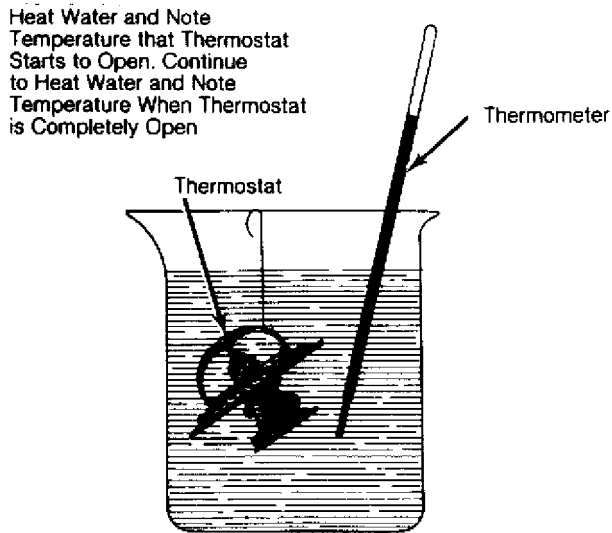


Fig. 1: Testing Thermostat in Anti-Freeze/Water Solution
Support thermometer so it does not touch bottom of container.

3) Read temperature on thermometer. This is the initial opening temperature and should be within specifications. Continue heating water until thermostat is fully open and note temperature. This is the fully opened temperature. If either reading is outside of specifications, replace thermostat, as it is not adjustable.

PRESSURE TESTING

A pressure testing tool is used to test both radiator cap and complete cooling system. Test as follows, following tool manufacturer's instructions.

Radiator Cap

Visually inspect radiator cap, then dip cap in water and connect to tester. Pump tester to bring pressure to upper limit of cap specifications. If cap fails to hold pressure within specifications, replace cap.

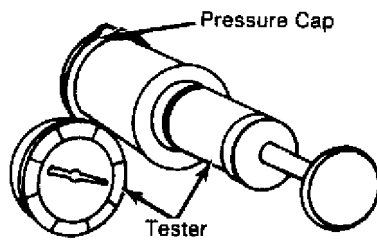


Fig. 2: Testing Radiator Pressure Cap
Wet cap gasket before testing.

Cooling System

1) With engine off, wipe radiator filler neck seat clean. Fill radiator to correct level. Attach tester to radiator and pump until pressure is at upper limit of radiator rating.

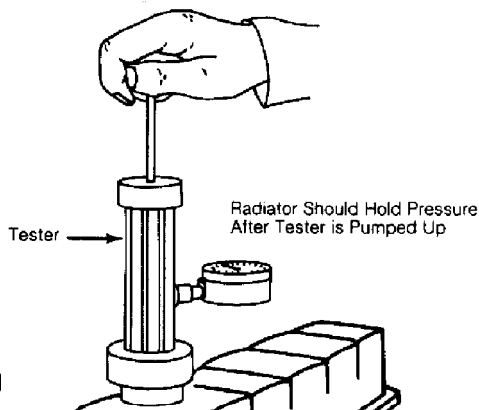
2) If pressure drops, inspect for external leaks. If no leaks are apparent, detach tester and run engine until normal operating temperature is obtained. Reattach tester and observe. If pressure builds up immediately, a possible leak exists from a faulty head gasket or crack in head or block.

CAUTION: Pressure may build up quickly. Release any excess pressure or cooling system damage may result.

3) If there is no immediate pressure build up, pump tester to within system pressure range (on radiator cap). Vibration of gauge pointer indicates compression or combustion leak into cooling system. Isolate leak by shorting each spark plug wire to cylinder block. Gauge pointer should stop or decrease vibration when leaking cylinder is shorted.

CAUTION: Do not disconnect spark plug wires while engine is operating, or operate engine with spark plug shorted for more than 1 minute, as catalytic converter may be damaged.

4) Remove engine and transmission (automatic only) oil dipsticks and check if water drops appear in oil. If so, a serious internal leak is indicated. If all checks are negative and system holds pressure for 2 minutes, there are no serious leaks in system.



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Fig. 3: Pressure Testing Cooling System
Pump up to specified pressure.

ANTI-FREEZE CONCENTRATION

NOTE: On models using aluminum engines or cooling system components, refer to Owners Manual for anti-freeze requirements and recommendations. Aluminum components require a different formulation of anti-freeze to prevent corrosion.

On all cooling systems, test anti-freeze concentration using anti-freeze tester. Tester should have a temperature-compensating feature, as failing to take temperature into consideration could cause an error as large as 30°F (16°C). Follow tester manufacturer's instructions for correct use of tester.

COOLANT RECOVERY SYSTEMS

DESCRIPTION

A coolant recovery system differs from other cooling systems in that an overflow bottle is connected to the radiator overflow hose. Overflow bottle is transparent or translucent to permit checking of coolant level without removing radiator cap. No adjustment or test is required except keeping vent hole or hose clean and checking pressure relief of radiator cap.

OPERATION

As coolant temperature rises and pressure in system exceeds pressure relief valve of radiator cap, excess coolant flows into overflow bottle. As engine cools and coolant contracts, vacuum is formed in the system. Vacuum draws coolant, stored in overflow bottle, back into radiator. In a properly maintained cooling system, the only coolant losses will be through evaporation.

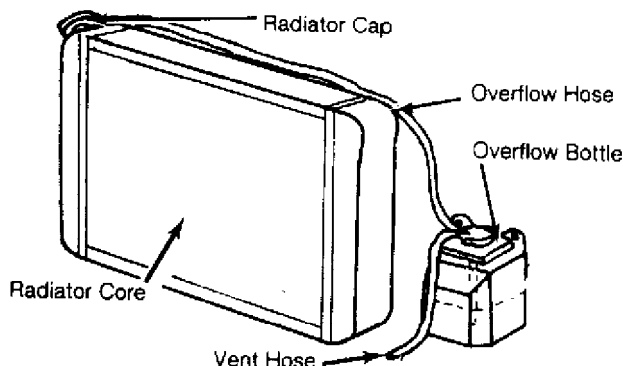


Fig. 4: Typical Coolant Recovery System

In a coolant recovery system the overflow bottle captures and releases coolant according to temperature.

THERMOSTATICALLY CONTROLLED ELECTRIC FANS

DESCRIPTION

Electrically-driven fans are actuated by thermal relay switches. Thermal switches turn fan motor on when necessary and shut fan motor off when not needed. Air conditioned vehicles are equipped with over-ride switches. These switches turn fan motor on whenever

motor control is returned to thermal relay.

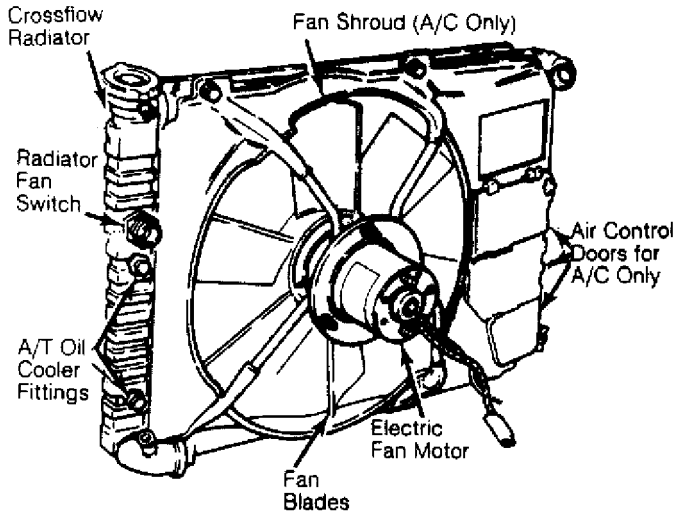


Fig. 5: Typical Thermostatically Controlled Electric Fan

TESTING

Disconnect fan motor wire connector and connect it with 14 gauge wire to a good 12-volt battery. If fan runs, motor is okay. This indicates car battery, thermal switch, radiator fan switch, coolant relay, timer relay, coolant temperature switch, or A/C relay may be defective. If fan motor does not run when connected directly to a good battery, replace fan motor.

VARIABLE SPEED COOLING FANS - FLEX-BLADE FANS

DESCRIPTION

This unit is a flexible blade assembly designed to flex blades as engine RPM increases. As RPM increases, blade pitch decreases, thereby saving power and decreasing noise level. Keep fan belt adjusted to proper tension as necessary.

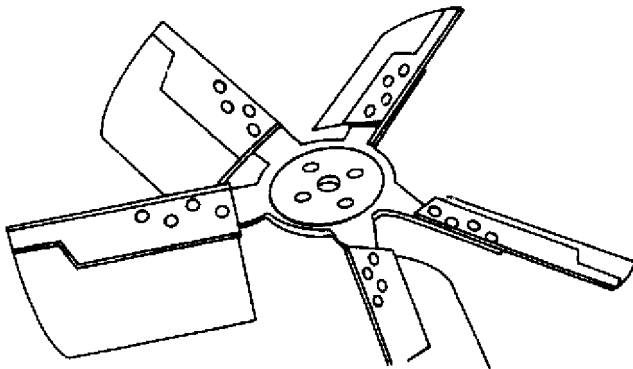


Fig. 6: Flex Blade Fan Assembly

VARIABLE SPEED FANS - FAN CLUTCH WITH THERMOSTATIC CONTROL

DESCRIPTION

Most air conditioned models use a thermostatically controlled fluid fan and torque control clutch. Thermal control drive is a silicone-filled coupling connecting fan to a fan pulley, and is operated by a control valve. Control valve is operated by a temperature sensitive bi-metallic coil or strip and controls flow of silicone through the clutch.

During periods of operation when radiator discharge air temperature is low, fan clutch speeds are slowed, decreasing load on fan belt. High radiator discharge air temperature causes bi-metallic coil or strip to allow a greater flow of silicone to enter clutch. This increases drag between driven member and driving member resulting in a higher fan speed and increased cooling.

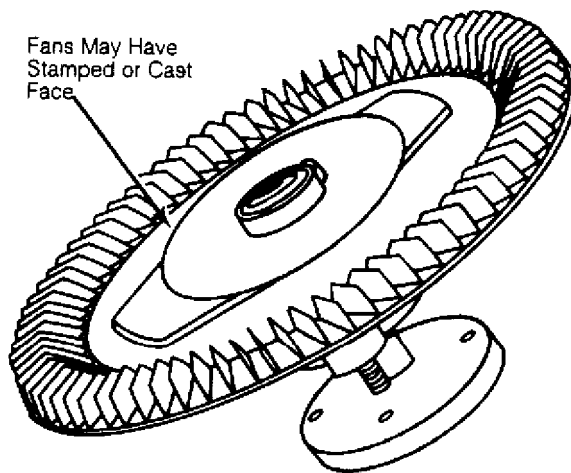


Fig. 7: Thermostatically Controlled Fan Assembly
Shown with stamped face and bi-metallic coil spring.

TESTING

In cases of engine overheating or insufficient air conditioning proceed with following tests:

- 1) Start with a cool engine to ensure complete fan clutch disengagement.
- 2) Cover radiator grille sufficiently to induce high engine temperature.
- 3) Start engine and operate at 2000 RPM. Turn on air conditioning if equipped.
- 4) A fan roar will be noticed when fan clutch engages.

NOTE: It will take approximately 5 to 10 minutes for temperature to become high enough to allow engagement of the fan clutch. While operating engine under these conditions, observe temperature light to prevent overheating. If hot light comes on, remove cover from radiator grille.

5) When clutch engages, remove radiator grille cover and turn A/C off to assist in engine cooling.

6) After several minutes fan clutch should disengage. This can be determined by a reduction in fan speed and roar. If fan fails to function as described, it should be replaced.

END OF ARTICLE

1.1L & 1.3L ROTARY

Article Text

1984 Mazda RX7

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Saturday, June 08, 2002 10:32PM

ARTICLE BEGINNING

1984 ENGINES

Mazda 1.1L & 1.3L Rotary

RX7

ENGINE CODING

ENGINE IDENTIFICATION

Engine identification number is stamped on front engine housing behind the distributor.

ENGINE IDENTIFICATION CODES TABLE

Application	Engine Code
RX7	
1.1L Rotary Carbureted	12A
1.3L Fuel Injected	13B

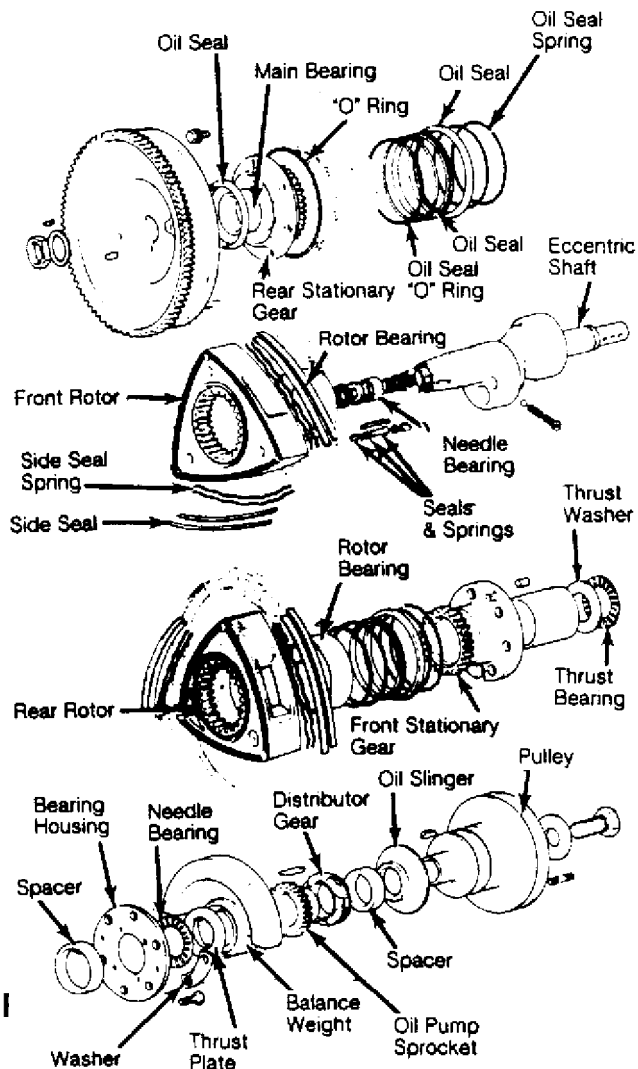
ENGINE

REMOVAL & INSTALLATION

Removal (1.1L)

1) Remove hood and disconnect battery ground cable. Drain engine oil and coolant. Remove engine under cover.

2) Disconnect following electrical wires: Primary and secondary ignition wires at coils, pick-up coil wiring connections, condenser lead, oil level sensor lead, temperature sensor and oil thermo sensor (except California vehicles).



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Fig. 1: Exploded View of Rotors & Eccentric Shaft Assembly

3) Remove air cleaner assembly. Disconnect following tubes and hoses: Oil hoses at cooler, radiator hoses, automatic transmission cooler lines (if equipped), heater hoses, fuel supply and return lines, vacuum and evaporative hoses, and air pipe at rear of intake manifold.

4) Remove cooling fan and drive assembly, radiator and fan shroud assembly. Remove alternator connectors. Disconnect throttle sensor connector.

5) Without disconnecting refrigerant lines, remove compressor and air conditioning condenser (if equipped) and tie out of way.

6) Disconnect choke heater connector. Disconnect accelerator, choke and hot start assist cables. Disconnect any remaining wires, tubes or linkages between engine and chassis at top of engine. Remove upper engine-to-transmission bolts.

7) Raise and support vehicle. Remove starter. Remove lower engine-to-transmission bolts. Remove exhaust pipe front cover. Remove nuts and bolts, and disconnect exhaust pipe from exhaust manifold. Support front catalytic converter.

8) Support front of transmission with jack and remove left

and right engine mount nuts. Attach sling to engine and take up slack. Pull engine forward to clear clutch shaft, and lift engine from vehicle.

Removal (1.3L)

1) Remove hood and disconnect battery ground cable. Drain engine oil and coolant. Remove engine under cover.

2) Disconnect following electrical components: Secondary ignition wires, oil pressure and level gauge connectors, oil and coolant temperature sensor connectors, air flow meter connector, oxygen sensor and fuel injector connectors.

3) Disconnect harness from vacuum solenoid valves, alternator, starter and ground connectors. Disconnect accelerator and cruise control cables.

4) Disconnect following tubes and hoses: Fuel and evaporation hoses, oil hoses, radiator, heater and air hoses. Remove air funnel hose from dynamic chamber and remove air cleaner assembly.

5) Disconnect power steering pump and A/C compressor from engine and tie out of way. Remove cooling fan, shroud and radiator. Disconnect metering oil pump connecting rod.

6) Disconnect following components from dynamic chamber assembly: Intake air temperature sensor connector, 8 vacuum hoses (mark for reinstallation), air supply valve connector, throttle sensor connector and wire terminal connector. Remove intake manifold retaining nuts and lift dynamic chamber assembly off of engine.

7) Raise and support vehicle. Remove starter. Remove engine-to-transmission bolts. Remove exhaust pipe front cover. Disconnect exhaust pipe from exhaust manifold and support front catalytic converter.

8) Support front of transmission with jack and remove left and right engine mount nuts. Attach sling to engine and take up slack. Being careful not to damage A/C condenser, pull engine forward to clear clutch shaft and lift engine from vehicle.

Installation (1.1L & 1.3L)

To install engine, reverse removal procedure ensuring that linkages, tubes and electrical connections are restored in original position. Refill all fluids to specified levels, warm up engine and check for leaks.

DISASSEMBLY

NOTE: To ease engine disassembly, manufacturer recommends use of special Engine Stand (49 0107 680A) and Hanger (49 1114 005).

1.1L & 1.3L

1) Loosen drive belts and hoses, and remove air pump and alternator. Disconnect metering oil pump connecting rod and hoses at metering oil pump outlets. Remove exhaust manifold cover. Remove intake manifold and carburetor on 1.1L engine, or injectors on 1.3L engine. Remove gasket and "O" ring.

2) Remove exhaust manifold, engine mount and distributor. Remove oil filter and cover from front housing. Remove water pump and A/C drive pulley (if equipped).

3) Turn engine over, and remove oil pan (Be sure to disconnect oil level sensor) and strainer. Install Flywheel Brake (49 1881 060) on manual transmission models, or Stopper (49 1881 055) on automatic transmission models.

4) Remove eccentric shaft pulley. Take off front cover with gasket, and slide distributor gear off shaft. Remove "O" ring from oil passage. Remove oil pump sprocket nut. See Fig. 2. Slide oil pump sprocket, eccentric shaft sprocket and drive chain off together.

Remove oil pump.

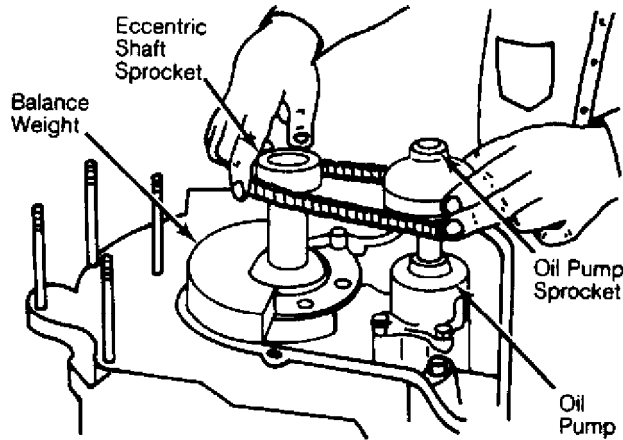


Fig. 2: Removing Oil Pump Drive and Sprocket
Pump drive and sprocket must be removed together.

5) Remove balance weight and bearing housing from front of engine. See Fig. 3.

6) On manual transmission models, remove clutch assembly. Remove flywheel nut using Socket (49-0820-035). Remove flywheel with puller. On automatic transmission models, mark position of drive plate on counterweight and remove drive plate. Remove flywheel nut using Socket (49-0820-035). Remove counterweight with puller.

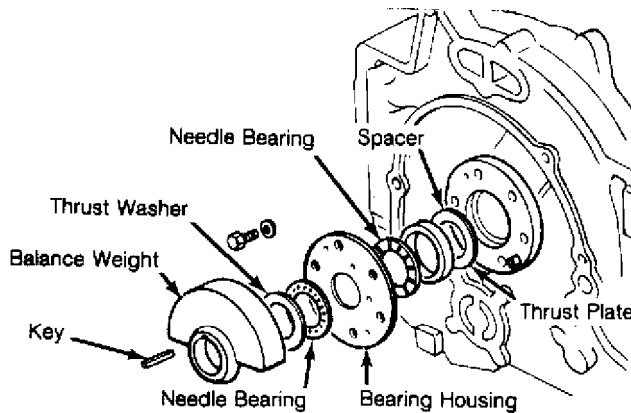


Fig. 3: Removing Balance Weight & Bearing Housing

7) On all models, remove rear housing bolts in sequence. See Fig. 4. Loosen in 2 or 3 steps. Lift rear housing off shaft. Remove any seals stuck to rotor sliding surface, and place them back in original positions. Remove seals and "O" rings from face of rear rotor housing.

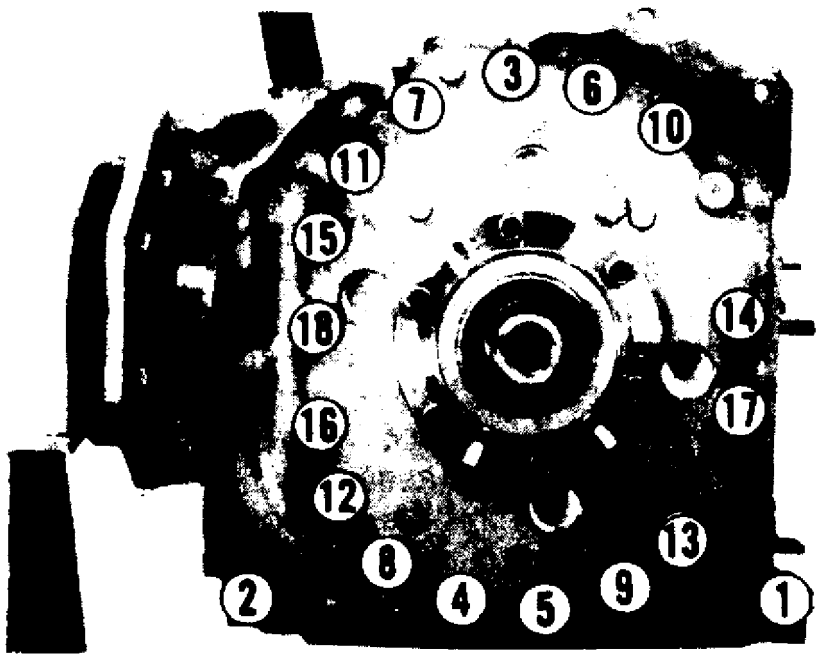


Fig. 4: Loosening Rear Housing Bolts
Loosen in 2 or 3 steps.

8) Attach Dowel Puller (49 0813 215A), and pull tubular dowels off rear rotor housing. See Fig. 5. Hold rotor housing by hand to keep it from moving up, and remove rear rotor housing. Be careful not to drop rotor apex seals and side pieces. Remove seals and "O" ring from front side of rear rotor housing.

9) Remove side pieces, apex seals and springs from rear rotor and store in order for reassembly. Remove all corner seals, corner seal springs, side seals and side seal springs and store in order for reassembly. Remove rear rotor, and place on clean pad with internal gear side down.

10) Remove seals and springs on remaining side of rotor, and store in order for reassembly. Place protector on seal inner lip, and remove outer seal with Remover (49 0813 225). Remove inner seal. Remove seals and springs and store in order for reassembly. Mark rear rotor for assembly identification.

11) Attach puller, and while holding housing down, pull tubular dowels off intermediate housing. Remove intermediate housing by sliding beyond rear rotor journal on eccentric shaft. Carefully lift out eccentric shaft to avoid damage to rotor bearing and main bearing. Repeat steps 7) through 10) to remove front rotor housing and rotor assembly.

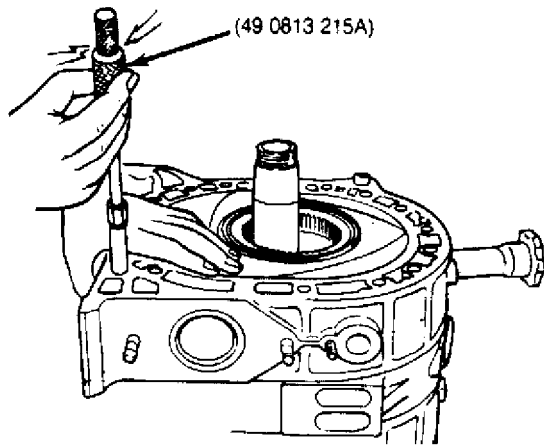


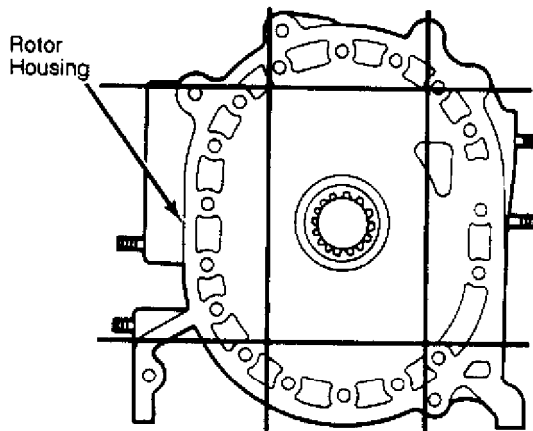
Fig. 5: Extracting Tubular Dowels from Engine Hold housing down with hand.

INSPECTION & OVERHAUL

Front, Intermediate & Rear Housings

1) Clean housings, using extra fine emery paper to remove carbon deposits from rotor running surface. Use ketone or thinner to remove sealing agent.

2) Check front, intermediate and rear housings for distortion. Place a straightedge across housing surface. See Fig. 6. Measure distortion by inserting feeler gauge between housing and straightedge. Replace housing if distortion limit exceeds .0016" (.04 mm).



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Fig. 6: Checking Housing Distortion With Straightedge Replace housing if warpage exceeds limit.

3) Remove oil pressure control valve and spring from front cover. Check for damage or corrosion. Replace if defective. Measure control valve spring free length.

4) On 1.1L engine, free length of oil pressure control valve spring should be 2.74" (69.6 mm). On 1.3L engine, free length of oil pressure control valve spring should be 2.87" (73 mm). Cap bolt and valve spring are painted Yellow on 1.1L engine only.

5) Using a dial indicator and gauge body, measure rotor sliding surface stepped wear pattern on the 3 housings. See Fig. 7.

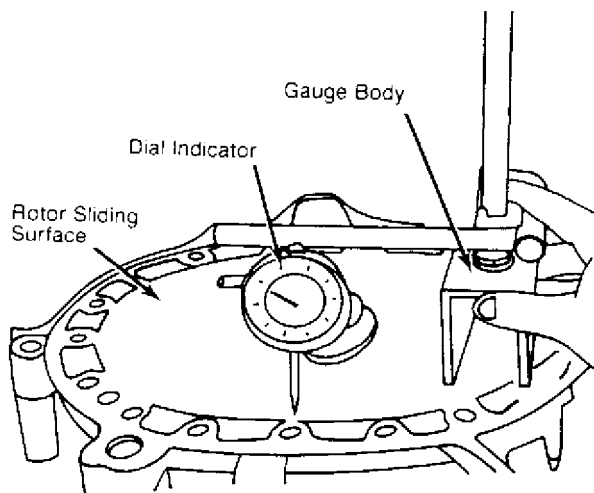


Fig. 7: Measuring Housing Wear with Dial Indicator
Check entire circumference of housing.

6) Check oil seal wear surface for variance. Check oil seal step by moving dial indicator from inside to outside of oil seal wear area. See Fig. 8.

OIL SEAL STEP WEAR TABLE

Location	Limit
Inside Oil Seal	
Tracing Mark .....	.0004" (.01 mm)
Outside Oil Seal	
Tracing Mark .....	.004" (.10 mm)
Oil Seal Step .....	.0008" (.02 mm)

7) Check side seal step wear by moving dial indicator around entire circumference of side seal tracing pattern. Side seal step wear limit is .0008" (.02 mm). See Fig. 8.

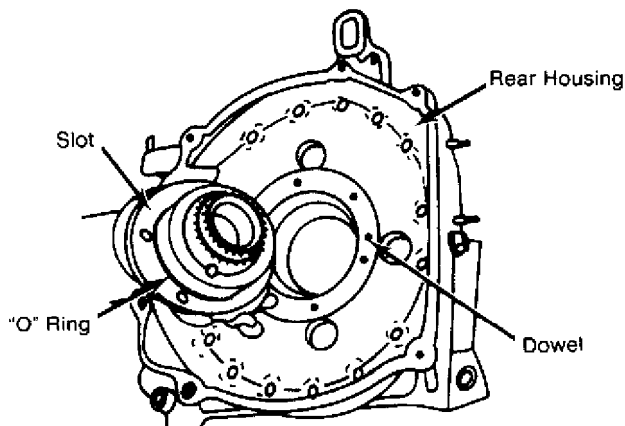


Fig. 8: Checking Oil Seal & Side Seal Step Wear
Replace housing if step wear exceeds limit.

8) Measure inner diameter of main bearing and outer diameter of bearing journal on eccentric shaft. Standard clearance is

replace bearing.

9) To replace front or rear main bearing, remove stationary gear retaining bolts. Using a Mandrel (49 0813 235), drive stationary gear out of housing.

10) Place stationary gear in a press. Use same mandrel and press main bearing out of stationary gear.

11) Install new bearings while aligning tang bearing with a slot of stationary gear. Press bearing into gear until adapter of mandrel just contacts stationary gear flange. Install the stationary gear into the housing, aligning the slot of the gear flange with the dowel pin on the housing. See Fig. 9.

NOTE: When installing rear main bearing, check condition of "O" ring and replace if necessary. Apply sealing agent on stationary gear flange prior to installing it on rear housing. Align pin and slot.

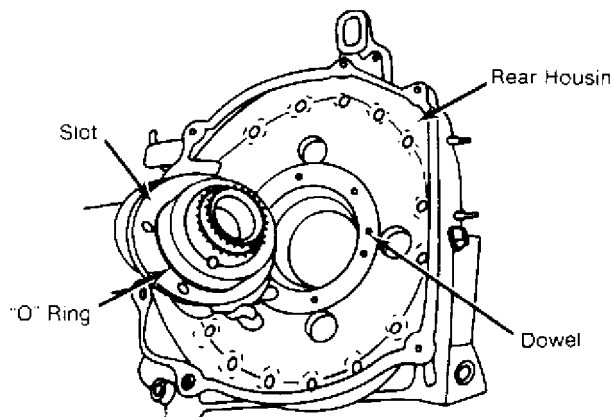


Fig. 9: Aligning Stationary Gear Slot & Dowel
Illustration applies to front and rear housings.

Rotor Housing

1) Inspect rotor housing for signs of water or gas leakage. Check for wear, scoring, cracking, flaking or any damage to chromium plated rotor running surface.

2) To clean housing, wipe off sealing agent or carbon in rotor running surface with a rag and ketone or thinner. Remove rust deposits in water cooling passages.

3) Place a straightedge across sealing surface of rotor housing and check for distortion with a feeler gauge. If distortion exceeds .0016" (.04 mm), replace housing. See Fig. 10.

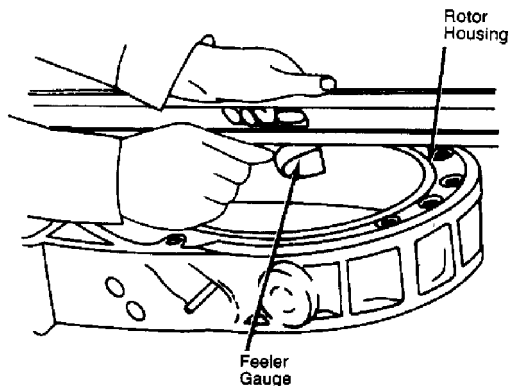


Fig. 10: Measuring Rotor Housing for Distortion
Replace if distortion exceeds limit.

4) Using an outside micrometer, measure rotor housing width at points A, B, C, and D in Fig. 11. Replace rotor housing if difference between point A and smallest value of points B, C and D exceeds .0024" (.06 mm).

NOTE: Rotor housing width variations exceeding .0024" (.06 mm) would indicate a possibility of gas or water leakage.

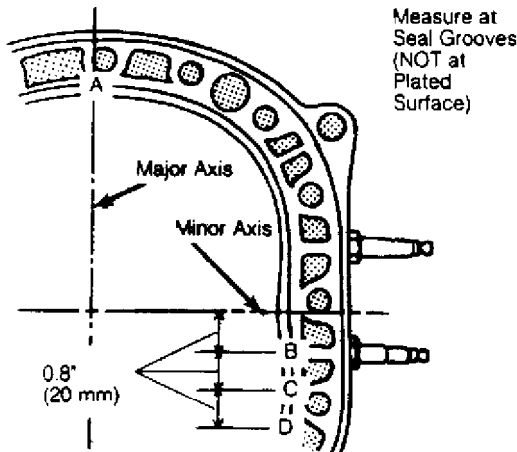


Fig. 11: Rotor Housing Width Check Points
Check width at A, B, C and D.

Rotors

1) Inspect rotor for wear or damage, and check internal gear for chips, cracks or scoring. Measure rotor width at 3 points on face of internal rotor gear. Compare maximum rotor width dimension with rotor housing width dimension "A" in Fig. 11 to determine clearance.

2) Clearance between housing width and rotor width should be .0047-.0074" (.12-.19 mm) on 1.1L engine, or .0047-.0083" (.12-.21 mm) on 1.3L engine. If clearance is greater than specified, replace rotor assembly.

3) If clearance is less than .004" (.10 mm), internal rotor gear is not seated. Strike internal gear lightly with plastic hammer to seat. Recheck clearance.

4) Measure inner diameter of rotor bearing and outside diameter of rotor bearing journal on eccentric shaft. Replace rotor bearing if clearance exceeds .0039" (.10 mm), or if damaged. See Rotor Bearing Replacement.

Rotor Oil Seal

With oil seal installed in rotor, measure contact lip width of seal. Seal must be replaced if contact width exceeds .020" (0.5 mm). Measure seal protrusion, and replace seal spring if protrusion is less than .020" (0.5 mm). See Fig. 12.

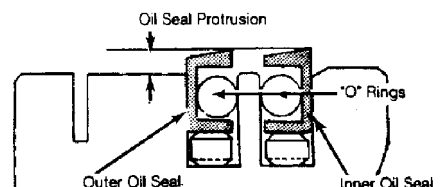


Fig. 12: Measuring Oil Seal Protrusion
Check for free movement of seals in groove.

Rotor Bearing Replacement

1) Place rotor on support so internal gear is facing downward. Using rotor bearing Replacer (49 0813 240), without adapter ring, press bearing out of rotor.

2) Place rotor on support with internal gear facing upward. Place a new rotor bearing on rotor with bearing lug in line with slot in rotor bore. Press new bearing (using tool with adapter) until bearing is flush with rotor boss. See Fig. 13.

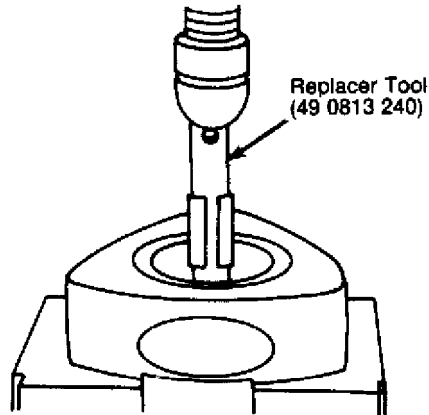


Fig. 13: Pressing Rotor Bearing from Rotor
Slot in rotor bore must be in line with bearing lug.

Apex Seal

1) Clean all carbon from apex seal and spring with cleaning solution (not emery paper). Measure height of apex seal with micrometer. See Fig. 14. Replace seal if height is less than .275" (7.0 mm).

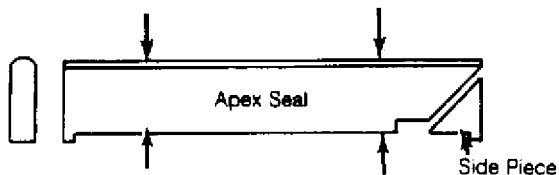


Fig. 14: Measuring Apex Seal Height
Clean thoroughly before measuring.

2) Check for warpage by measuring clearance between top surfaces of 2 apex seals with a feeler gauge. Replace all 3 seals if clearance exceeds .0024" (.06 mm). See Fig. 15.

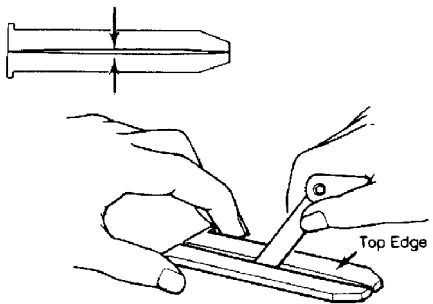


Fig. 15: Checking Apex Seal Warpage
Replace if clearance exceeds limits.

3) Using a feeler gauge, check gap between apex seal and

rotor groove. Standard clearance is .0020-.0035" (.05-.09 mm). Replace apex seal if gap exceeds .0059" (.15 mm).

4) Check apex seal spring height. See Fig. 16. Replace spring if free height is less than .2165" (5.5 mm) on 1.1L engine, or .150" (3.8 mm) on 1.3L engine.

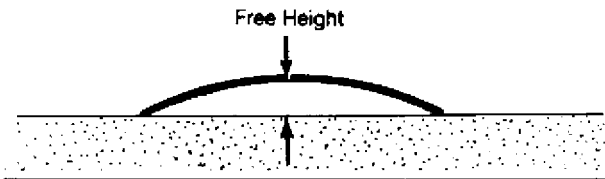


Fig. 16: Measuring Free Height of Apex Seal Spring

Side Seal

1) Remove all carbon from side seal and spring. With side seal and spring installed, press finger on seal and check that it moves freely in groove. Check that seal protrudes a minimum of .02" (.5 mm) above rotor face. If not, replace spring and recheck.

2) Check gap between side seal and groove with feeler gauge. Standard gap is .0012-.0031" (.03-.08 mm). Replace side seal if gap is .004" (.10 mm), or greater.

3) Install cylindrical corner seals in rotor and check gap between side seals and corner seals. See Fig. 18. Insert feeler gauge between end of side seal and round corner seal. Replace side seals if gap exceeds .016" (.4 mm).

4) When replacing side seals, adjust gap between side seal and corner seal by filing one end of side seal. Use a fine-cut file and shape cut to match contour of corner seal. Adjust gap to .002-.006" (.05-.15 mm).

Corner Seal

1) Clean carbon from corner seals and check for wear or damage. Check corner seal protrusion from rotor surface, and check free movement by pressing with finger. Replace corner seal springs and recheck if corner seals protrude less than .02" (.5 mm).

2) Measure corner seal bore wear in rotor using Gauge (49 0839 165). See Fig. 17.

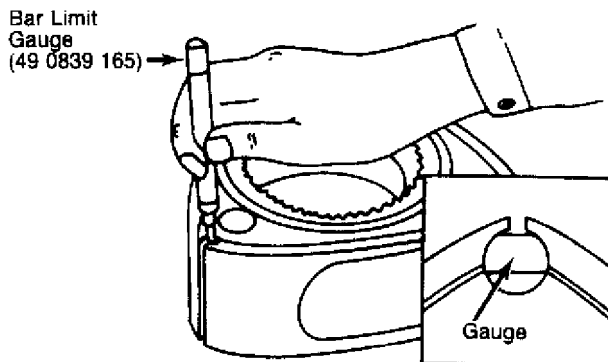


Fig. 17: Checking Corner Seal Bore Measurement
Replace rotor if both ends of gauge fit in gap.

3) If neither end of gauge fits into bore, use original corner seal. If "Go" end only fits into bore, use new corner seal. If both ends of gauge fit into bore, replace rotor.

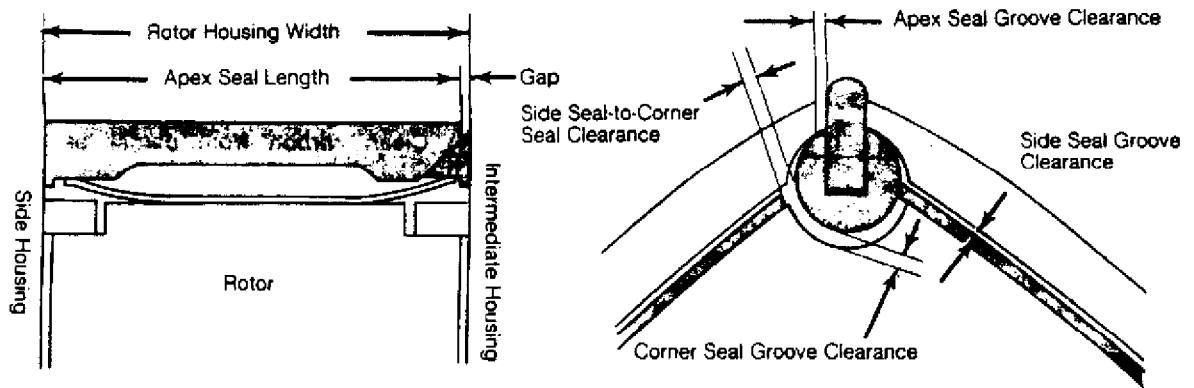


Fig. 18: Measuring Apex, Side & Corner Seal Clearance

Eccentric Shaft

1) Thoroughly clean eccentric shaft in cleaning solution and blow out oil passages with compressed air. Inspect shaft for scratching or scoring of bearing journals and possible blocked oil passages.

2) Place eccentric shaft in 2 "V" blocks. Mount a dial indicator and check runout of both ends by rotating shaft slowly. Runout equals one-half of the largest difference shown by dial indicator. Replace shaft if runout exceeds .0024" (.06 mm).

3) Measure eccentric shaft main and rotor journal diameters. See Eccentric Shaft Main and Rotor Bearings Specifications.

4) Oil passages in eccentric shaft are sealed by a blind plug in rear of shaft. Inspect plug for looseness or oil leakage. If leaking, remove plug with an Allen wrench, and install new "O" ring. Tighten plug.

5) Inspect needle bearings in end of shaft for wear or damage. Check oil jet for weak spring and stuck or damaged steel check ball. Inspect front needle bearing, bearing housing, and thrust plate for wear or damage.

6) Inspect front cover and rear stationary gear oil seals for leaks, replace as necessary. When replacing seals, do not coat outside of seal with lubricant or sealer.

7) Ensure that auxiliary port valve turns freely when inserted in side of engine housing. Slight wear or abrasion is normal on valve surface. Replace valve if damaged, cracked or abnormally worn.

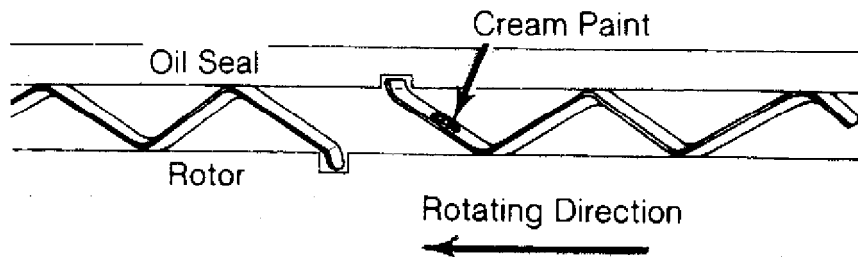
REASSEMBLY

Oil Seals

1) Place rotor on rubber pad or cloth. Install oil seal springs in their respective rotor grooves. Fit each spring edge in stopper hole.

2) Ensure oil seal springs have been painted in Cream or Blue color: Cream colored springs must be placed on front edge faces of rotors and blue springs on rear faces of rotors. When installing, painted side of spring must face oil seal (upward). See Fig. 19.

On Front Face of Rotor



On Rear Face of Rotor

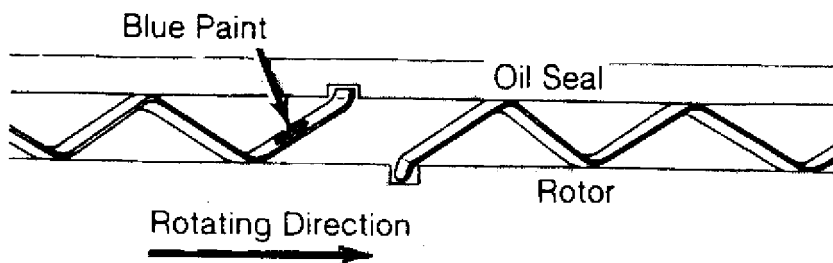


Fig. 19: Installing Oil Seal Spring on Rotor
Painted side of spring must face oil seal.

3) Insert new "O" ring in each oil seal. Install inner oil seal to each side of rotor as follows: Position oil seal to groove so square edge of spring fits in stopper notch of oil seal. Press into position by using a used inner oil seal so lip of inner oil seal sinks into position approximately .016" (.4 mm) below surface of rotor.

4) Install outer oil seal so square edge of spring fits in stopper notch of oil seal. Slowly push oil seal in position with fingers. Confirm smooth movement of each oil seal by pressing oil seal.

5) Check oil seal protrusion. Install oil seal springs and oil seals on the other side of rotor. Take care not to deform lip of oil seal.

Apex, Corner & Side Seals

1) Before installing apex seal, cut the assist piece to a length of .08-.011" (2.0-2.8 mm). Peel off paper and install assist piece on apex seal. See Fig. 20.

2) With rotor internal gear facing upward, install apex seals without springs and side pieces into rotor grooves. Position apex seal with side piece end toward rear side of rotor. Install the

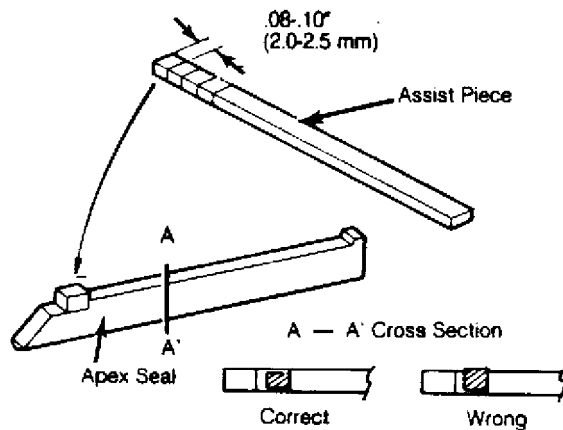


Fig. 20: Installing Assist Piece on Apex Seal
Check each seal for smooth movement.

3) Install corner springs and seals into bores, then install side seals and springs into proper grooves. Ensure smooth movement of each seal by pressing its head. Install a large rubber ring around outside of rotor to prevent apex seals from falling out.

Installing Front Rotor

Mount front housing on engine stand and place front rotor assembly on housing. Use care not to drop seals into port. Mesh internal and stationary gears so that one rotor apex is set to one of 4 positions on housing. See Fig. 21.

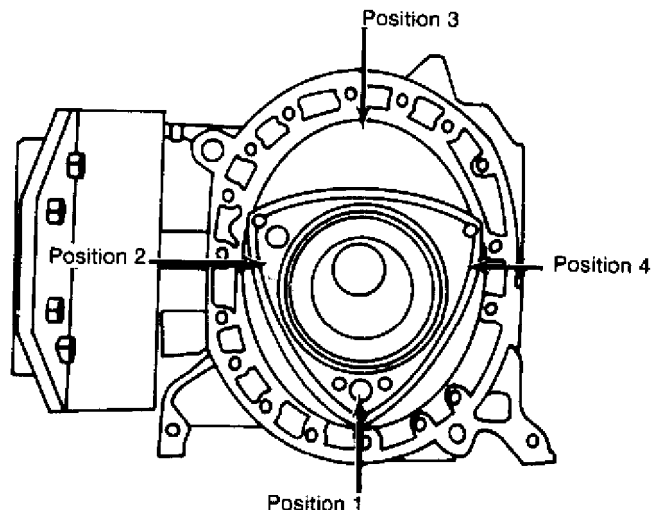


Fig. 21: Positioning Rotor Apex for Reassembly
Use care not to drop seal into port.

Installing Eccentric Shaft

Lubricate front rotor journal and main journal on shaft with engine lubricant. Being careful not to damage rotor and main bearings, insert eccentric shaft into housing.

1.1L & 1.3L ROTARY Article Text (p. 14) 1984 Mazda RX7 For iluvmyrx7.com Copyright © 1998 Mitchell Repair Infor

Installing Front Rotor Housing

NOTE: Front and rear rotor housings are not interchangeable, ensure that they are installed in correct sequence.

1) Apply sealing agent to front side of rotor housing, and

apply a light coating of MOS2 (molybdenum disulphide) grease to surfaces on front and rear housing. See Fig. 22.

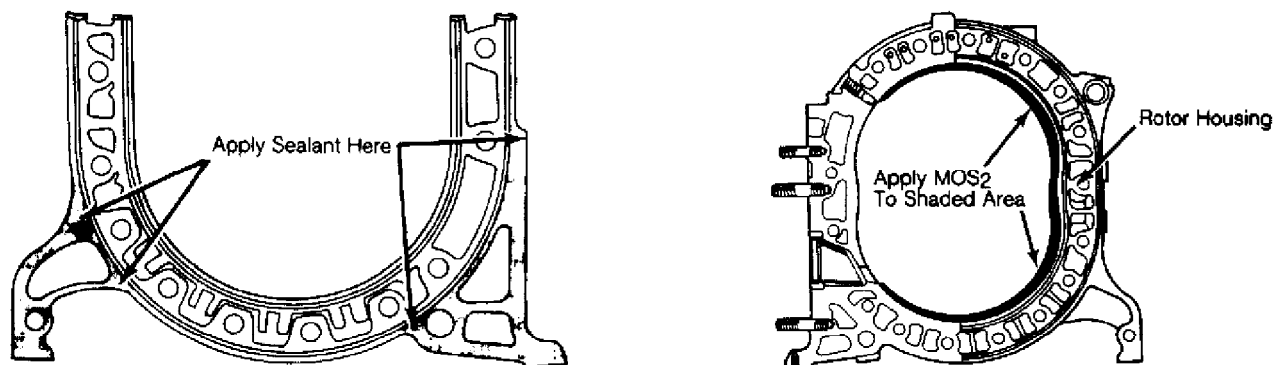


Fig. 22: Applying Sealing Agent & MOS2 to Rotor Housing
Apply MOS2 (Molybdenum disulphide) to shaded areas on front and rear housings.

2) To ensure greater sealing rubber durability, install a protector behind each inner sealing rubber. See Fig. 23. Install new "O" ring, sealing rubbers and protector in front side of engine housing. Apply light coat of petroleum jelly to hold seals in place.

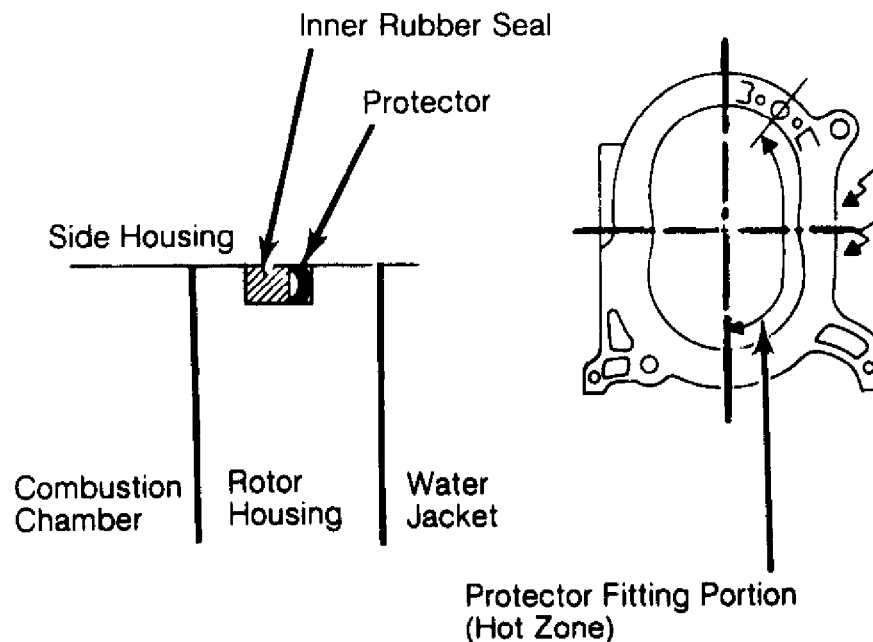


Fig. 23: Installing Protectors for Inner Sealing Rubbers
Apply light coat of petroleum jelly to hold seals in place.

NOTE: Inner sealing rubber is square type. The wider white line of sealing rubber should face toward combustion chamber and seam of rubber should be placed as shown in Fig. 24. Do not stretch sealing rubbers.

3) Invert front rotor housing using care that seals remain in position, and install on front housing. Lubricate tubular dowels and insert through front rotor housing holes into rotor housing.

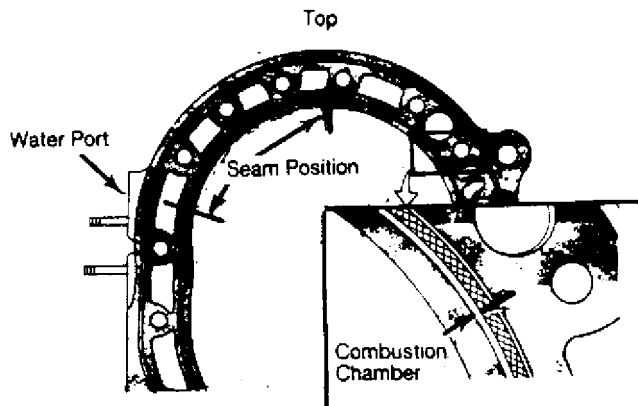


Fig. 24: Positioning Inner Sealing Rubber
Wider white line of sealing rubber must face toward combustion chamber.

4) Insert apex seal springs so that both ends of spring support back side of apex seal. Install soft seal into corner seal. Install corner seal springs and seals into bores.

5) Install side pieces in proper positions on end of apex seals. Lubricate with engine oil. Check that side pieces are set correctly on springs. See Fig. 25.

6) Apply sealing agent on the rear side of front housing. See Fig. 22. Install new "O" ring, sealing rubbers and protector on rear side of front housing. Lubricate seals and sliding surfaces of front rotor housing with engine oil.

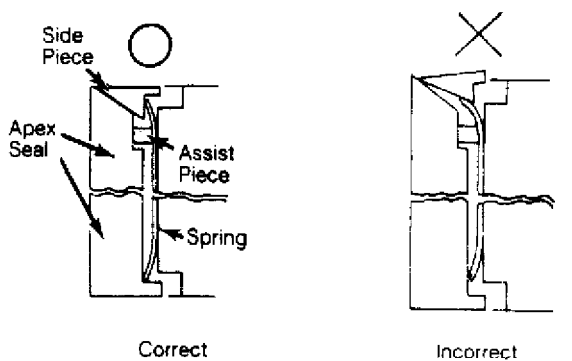


Fig. 25: Positioning Apex Seal and Spring
Check side piece for correct installation.

Installing Intermediate Housing

1) Pull eccentric shaft outward approximately 1.0" (25 mm), but not more than 1.5" (38 mm).

2) Rotate eccentric shaft until eccentric portion points to 2 o'clock position. Carefully install intermediate housing over eccentric shaft and set on front rotor housing.

Installing Rear Rotor & Housing

To install rear rotor and housing, follow same procedures for installing front rotor and front rotor housing.

Lubricate stationary gear and main bearing with engine oil. Install rear housing onto rear rotor housing, and turn rear rotor slightly to engage rear housing stationary gear with rear rotor internal gear.

Tightening Rear Housing Bolts

Place new sealing washers on housing bolts and oil bolt threads. Tighten bolts in increasing steps and according to sequence pattern. See Fig. 26. Turn eccentric shaft to make sure rotation is light and smooth.

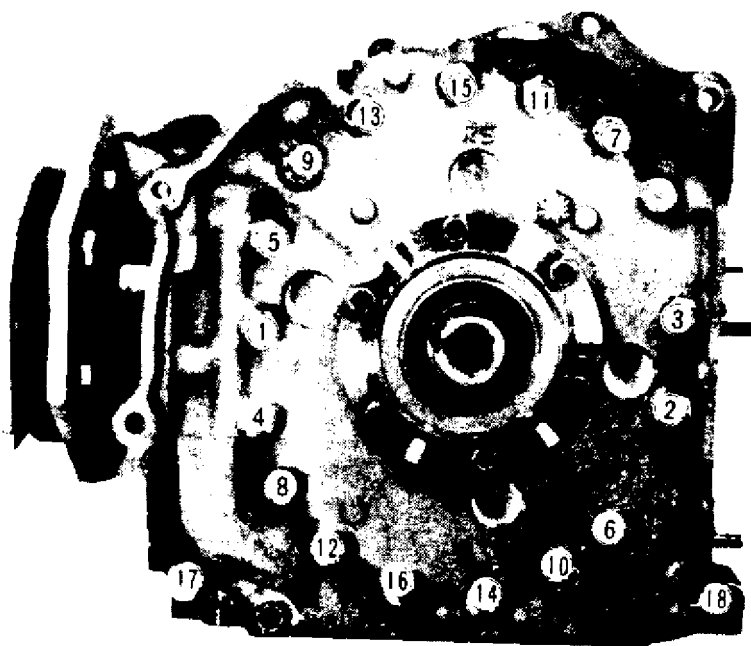


Fig. 26: Tightening Rear Housing Bolts in Sequence
Replace all housing bolt sealing washers when engine is overhauled.

Flywheel Installation

(Manual Transmission)

- 1) Lubricate rear housing oil seal with engine oil and install flywheel key on eccentric shaft. Install flywheel on eccentric shaft.
- 2) Apply sealer to lock nut surface that contacts flywheel. Hold flywheel with Flywheel Brake (49 1881 060), and tighten lock nut to specification.
- 3) Hold clutch disc in position with Clutch Disc Center (49 0813 310 or equivalent). Mount clutch cover and pressure plate assembly on flywheel, and align "O" marks of clutch cover and flywheel.
- 4) Install 4 standard and 2 reamer bolts finger tight. Avoid distortion of pressure plate cover by tightening bolts in increasing steps.

Counterweight & Drive Plate Installation

(Automatic Transmission)

- 1) Lubricate rear housing oil seal with engine oil and install key on eccentric shaft. Align counterweight with key and install on eccentric shaft.

- 2) Apply sealer to lock nut surface that contacts

counterweight. Hold counterweight with Stopper (49 1881 055), and tighten lock nut. Install drive plate on counterweight with hole in counterweight and drive plate aligned.

Eccentric Shaft End Play Adjustment

1) Turn engine so front is up. Install thrust plate with chamfer downward. Slide spacer and needle bearing on eccentric shaft. Lubricate shaft and bearings, and install bearing housing.

NOTE: If bearing housing has not been removed, use care that center of needle bearing in bearing housing comes to center of eccentric shaft and that spacer is seated on thrust plate.

2) Lubricate and install needle bearing, thrust washer, and balance weight on shaft. Install oil pump assembly on front housing and keys in oil pump and eccentric shaft keyways. Place oil pump drive chain on oil pump sprocket and eccentric shaft sprocket. Install sprockets on shafts.

3) Align keyways of eccentric shaft sprocket and balance weight. Install key. Install distributor drive gear, with "F" mark on gear facing front of engine. Install eccentric shaft pulley on shaft. Use new washer, and tighten pulley bolt to specification.

4) Turn engine so top is up. Attach a dial indicator on the flywheel or counterweight so it contacts rear housing. Move flywheel or counterweight back and forth.

5) Standard end play is .0016-.0028" (.04-.07 mm). If end play is more than .0035" (.09 mm) grind spacer on surface plate with emery paper or install thinner spacer. If end play is less than .0016" (.04 mm), install thicker spacer.

6) Oversize spacers are available in 5 sizes from .3181" to .3150" (8.08 mm to 8.00 mm), and are identified by stamped letter "X", "K", "Y", "V", and "Z" respectively. Recheck end play after installing spacer.

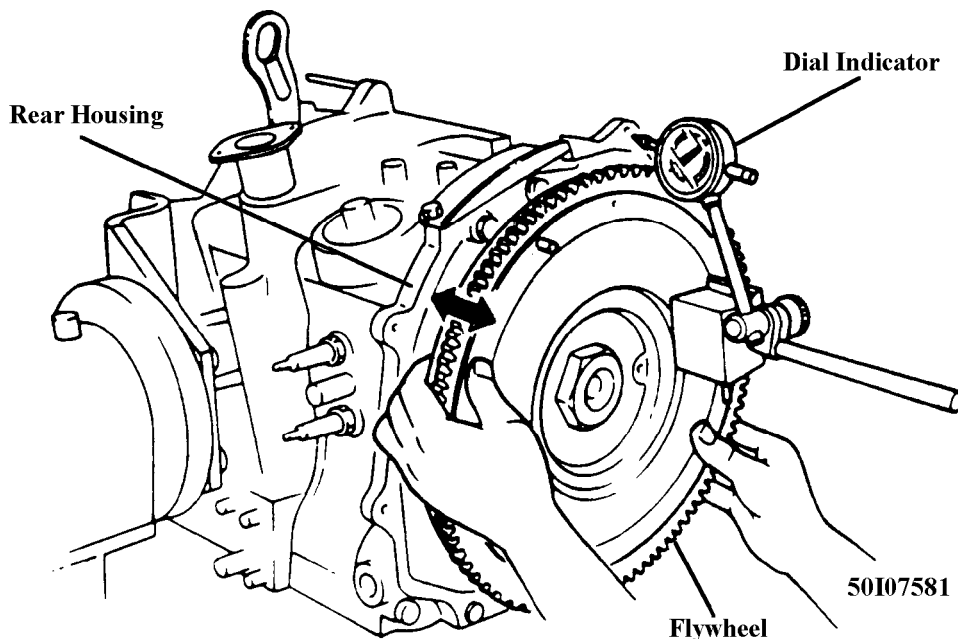


Fig. 27: Measuring Eccentric Shaft End Play
Standard end play is .0016-.0028" (.04-.07 mm).

Installing Front Cover & Eccentric Shaft Pulley

1) Turn engine upright and remove eccentric shaft pulley.

Tighten oil pump sprocket nut and bend lock washer tab.

2) Check oil pump chain slack measurement by pressing finger against chain. See Fig. 31. Replace chain if slack exceeds .47" (12 mm).

3) Install new "O" ring on front housing oil passage. Lubricate front cover oil seal and install front cover and gasket on front housing. Using a new washer, install pulley on eccentric shaft. Tighten pulley bolt to specification.

Installing Oil Strainer & Oil Pan

1) Invert engine so bottom of engine is up. Install oil strainer and gasket on front housing. Cut off excess gasket along oil pan mounting surface.

2) Apply a .16-.24" (4-6 mm) continuous bead of sealer (silicone base) on mounting surface of oil pan (to inside of bolt holes). Install gasket on oil pan. Apply a similar bead of sealer to gasket. Install pan and tighten bolts. Reconnect oil level sensor.

Installing Water Pump

On 1.1L engine, position gasket and water pump on front housing and tighten mounting bolts. On 1.3L engine, install shims between front cover and water pump housing at points 2 and 4. See Fig. 28. Tighten bolts and nuts in sequence.

NOTE: On 1.3L engine, failing to install shims at points 2 and 4 between front cover and water pump housing will cause coolant leakage. See Fig. 28.

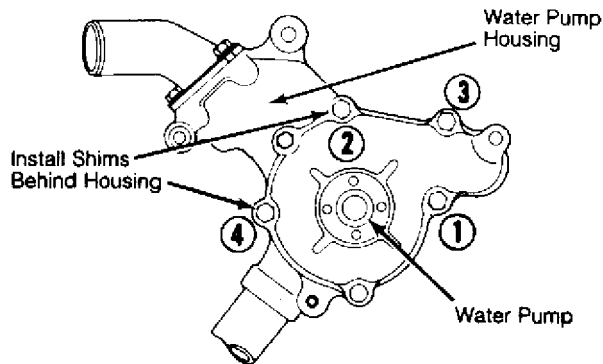


Fig. 28: Installing Water Pump Housing on 1.3L Engine
Install shims behind housing at points 2 and 4 to prevent coolant leakage.

Installing Oil Filter Body

On 1.1L engine, install 2 "O" rings and oil filter on oil cooler. Install oil cooler on rear housing and install front cover and oil cooler side oil pipes. First tighten front cover oil pipe, then tighten oil cooler side pipe.

On 1.3L engine, install 2 "O" rings on oil filter body and install on engine.

Installing Distributor

1) Rotate eccentric shaft until Yellow mark (leading timing mark) on pulley aligns with indicator pin on front cover. Align notch on distributor housing with punch mark on driven gear.

2) Insert distributor and lock nut. Turn distributor housing until a trigger wheel blade aligns with pick-up coil. Tighten lock nut.

Installing External Components

1.1L Engine

1) Install exhaust manifold, engine mount, intake manifold with carburetor, alternator and drive belt.

2) Install air pump with spacer in original position (between engine and upper air pump housing mount). Install drive belt and all other external components. Before removing engine from stand, install engine hanger bracket to front cover.

1.3L Engine

1) Install exhaust manifold gasket and exhaust manifold on engine. Install hot air duct and absorber plate on exhaust manifold.

2) Install auxiliary ports in side of engine housing with larger sides of auxiliary port valve shafts facing index mark on gasket. See Fig. 29. Install "O" rings, gasket and intake manifold on engine.

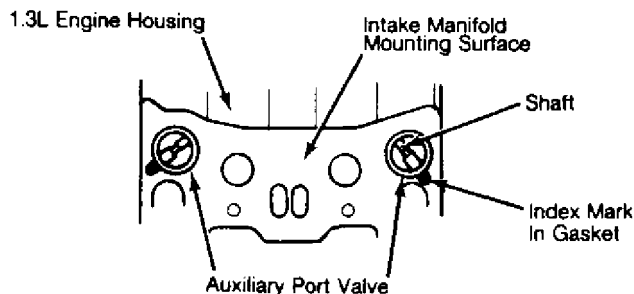


Fig. 29: Installing Auxiliary Port Valves on 1.3L Engine
Larger end of shaft must face index mark.

3) Install metering oil pump lines, fuel injection nozzles, delivery pipe assembly, dynamic chamber, vacuum solenoids and vacuum hoses.

4) Install alternator, air pump and drive belts.

ENGINE OILING

ENGINE OILING SYSTEM

A two rotor oil pump produces pressure necessary for proper internal engine lubrication. Oil pump is mounted on front housing and is chain driven by eccentric shaft. Oil pressure is limited by a regulator valve and pressure control valve. Full flow oil filter and oil cooler are used on both 1.1L and 1.3L engines.

Both engines use a metering oil pump to ensure proper rotor seal lubrication. On 1.1L engine, metering oil pump delivers oil to carburetor where it mixes with air/fuel mixture.

On 1.3L engine, metering oil pump delivers oil to intake manifold and also to direct oil ports located in both rotor housings. Metering pump control lever is actuated by a rod connected to throttle lever.

Oil pressure control valve is located in front cover and is designed to open at 114 psi (8 kg/cm²). On 1.1L engine, free length of oil pressure control valve spring should be 2.74" (69.6 mm). On 1.3L engine, free length of oil pressure control valve spring should be 2.87" (73 mm). Cap bolt and valve spring are painted yellow on 1.1L engine only.

Oil pressure regulator valve relieves pressure above 71 psi (4.9 kg/cm²) at 3000 RPM. Its spring length (free length) should be 1.83" (46.4 mm).

Oil cooler contains a by-pass valve which opens when oil

pressure exceeds 43 psi at 140° F (3 kg/cm² at 60° C).

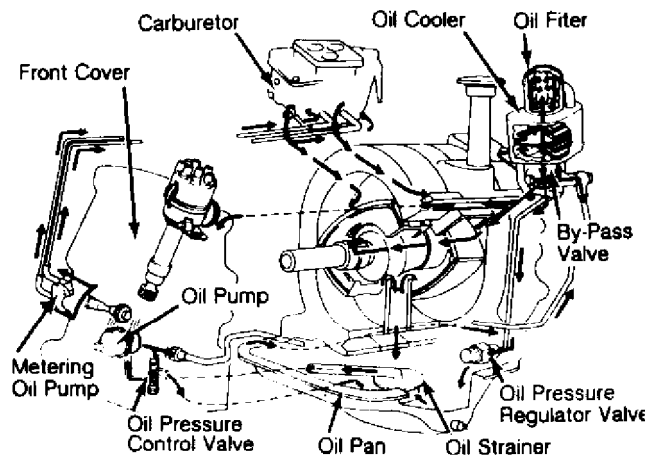


Fig. 30: Mazda 1.1L Engine Oiling System

CRANKCASE CAPACITY

Crankcase capacity for 1.1L engine is 4.9 qts. (4.6L), including filter. Crankcase capacity for 1.3L engine is 5.8 qts. (5.6L), including filter.

OIL FILTER

A full-flow, disposable cartridge-type filter is mounted on the rear housing.

NORMAL OIL PRESSURE

Normal oil pressure is 13-38 psi (.9-2.7 kg/cm²) at idle speed, 64-78 psi (4.5-5.5 kg/cm²) at 3000 RPM.

OIL PUMP

NOTE: Oil pump is mounted on the front engine housing and must be overhauled with front engine cover removed.

Removal & Inspection

1) Remove front engine cover. Check oil pump drive chain slack by pressing finger against chain and measuring slack. If measurement exceeds .47" (12 mm), replace drive chain. See Fig. 31.

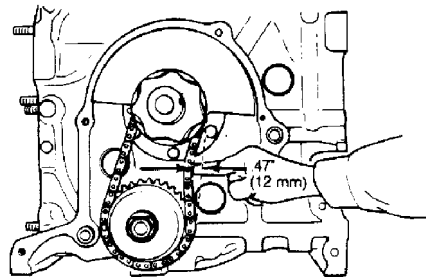


Fig. 31: Measuring Oil Pump Drive Chain Slack
Replace chain if slack exceeds limit.

2) Disassemble oil pump in following order: Remove snap **1.1L & 1.3L ROTARY**Article

ring, rear outer and inner rotor, key, lock screw and middle plate. Remove front outer and inner rotor, key shaft, spring pin, and front outer rotor. See Fig. 32.

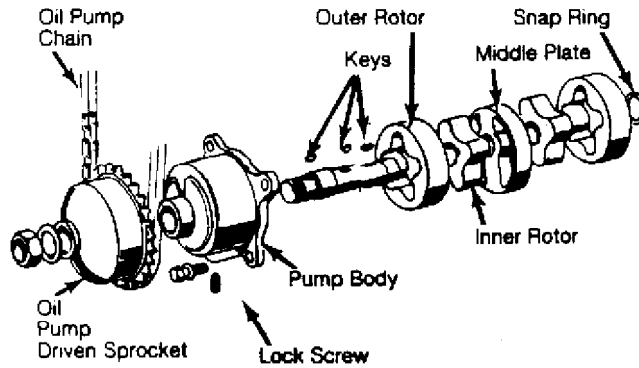


Fig. 32: Exploded View of Oil Pump Assembly

3) Insert a feeler gauge between lobes of both rotors and check clearance. Replace both rotors if clearance exceeds .006" (.15 mm).

4) Check clearance between outer rotor and pump housing with a feeler gauge. If clearance exceeds .012" (.30 mm), replace rotor or housing.

5) Place straightedge across pump body mounting surface, and check rotor end play with feeler gauge. Place straightedge across oil pump body mounting surface on front engine housing and check clearance. If beyond .006" (.15 mm), surface oil pump body by grinding.

Assembly & Installation

1) To assemble oil pump, reverse disassembly procedure. Assembly marks on inner and outer rotors must be aligned and facing front engine housing. Apply Loctite to locking screw and install in pump body. Align locking screw with recess portion of middle plate.

2) Prime and install oil pump. Tighten bolts and rotate shaft by hand checking for smooth rotation. Install sprockets and chain and install front cover as previously outlined in this article. See Installing Front Cover and Eccentric Shaft Pulley.

METERING OIL PUMP

1.1L Engine

1) Check and adjust clearance between metering pump lever and washer. See Fig. 33. Clearance must not exceed .04" (1.0 mm).

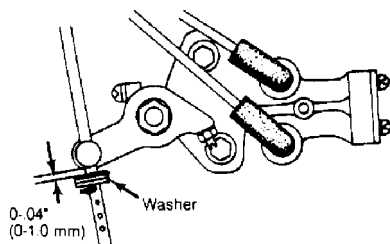


Fig. 33: Adjusting Metering Pump Control Rod
Adjust clearance by changing washers.

2) Measure oil output by warming engine to normal operating temperature and disconnecting oil metering hoses from carburetor. **1.1L & 1.3L ROTARY Article T**

Place hoses in measuring cylinder.

3) Start engine and run at 2,000 RPM. When oil flow from hoses becomes steady, measure output volume for 6 minutes. Pump should discharge .07-.08 oz. (2.0-2.4 cc) in 6 minutes. Replace metering oil pump if output is not within volume specified.

NOTE: Rotors will not be receiving oil through air intake during test. Add small amount of clean oil to carburetor or air intake to provide proper lubrication during testing.

1.3L Engine

1) Check metering pump clearance by setting fast idle cam against metering pump actuating lever. See Fig. 34.

2) Check and adjust clearance of metering pump rod at pump lever. See Fig. 33. Clearance must not exceed .04" (1 mm).

3) Remove oil metering check valves from intake manifold and rotor housings. Test each check valve by applying low air pressure to oil supply end. Air should pass through valve. Apply low air pressure to opposite end of each valve and check that air flow is blocked.

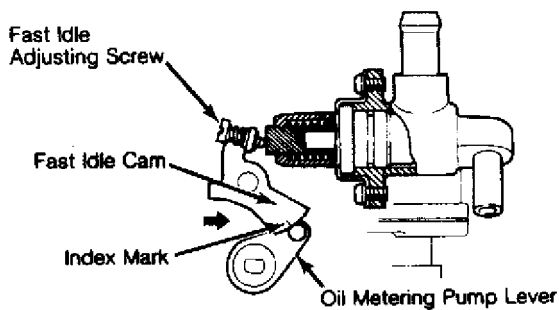


Fig. 34: Checking Oil Metering Pump Rod Clearance on 1.3L Engine

OIL COOLER

Inspection

Check the oil cooler for damage, cracks, or leaks. Replace the oil cooler if defective.

On 1.3L engine, check oil cooler by-pass valve operation by draining engine oil, removing plug from bottom of oil cooler, and removing by-pass valve from bottom of oil cooler. Submerge by-pass valve in a container of engine oil heated to 149° F (65° C). Check that valve protrudes a minimum of .2" (5 mm).

Removal & Installation

1.1L Engine

1) Remove water hoses installed on the inlet and outlet sides of cooler. Remove oil pipe and sealing washer. Remove oil cooler and filter housing as an assembly.

2) Remove "O" rings. Do not disassemble. Replace as an assembly if necessary. To install, reverse removal procedure. Use new filter, "O" rings, and sealing washer. Add engine oil and coolant. Start engine and check for leaks.

WATER PUMP

Removal

1) Drain cooling system. Remove air cleaner, water temperature switch connector, air conditioner drive belt, and air pump drive belt.

2) Remove alternator, cooling fan, and drive belts. Remove 1.1L & 1.3L ROTARY Article

air conditioning pulley (if equipped). Disconnect radiator hoses and remove water pump.

Disassembly

- 1) Press pulley boss off of pump shaft. Remove snap ring.
- 2) While supporting pump body, apply pressure to rear end of shaft to press shaft, spacer, and bearing assembly out through front of pump body. See Fig. 35.
- 3) Remove impeller and seal assembly from pump body. Press bearings and spacer from shaft.

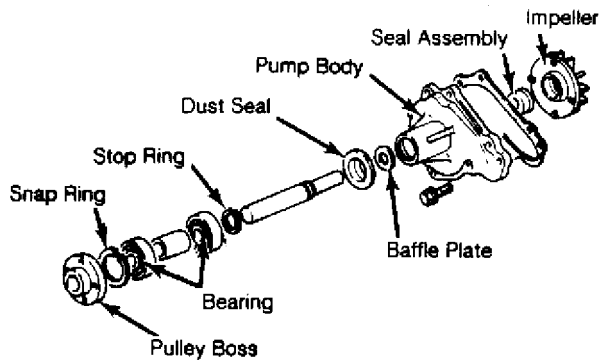


Fig. 35: Exploded View of Water Pump

Reassembly

- 1) Install stop ring and dust seal on shaft. Drive baffle plate onto taper of shaft.
- 2) Press rear bearing onto shaft with sealed side rearward until it contacts stop ring. Press shaft and bearing assembly into pump body.
- 3) Place spacer on shaft. Install front bearing (sealed side forward) until snap ring can be installed. Press pulley boss onto pump shaft.
- 4) Install seal assembly into the body. Press impeller onto shaft until it is flush with end of shaft.

Installation

Install water pump as previously outlined in engine reassembly procedure. Adjust drive belt tension and refill cooling system.

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS TABLE

Application	Ft. Lbs. (N.m)
Eccentric Shaft Pulley	72-87 (98-118)
Exhaust Manifold	
1.1L	32-43 (44-59)
1.3L	23-34 (32-47)
Flywheel Lock Nut	289-362 (393-492)
Intake Manifold	
1.1L	14-19 (19-26)
1.3L	12-17 (16-23)
Oil Cooler (1.1L Only)	
Oil Pipe Nut	29-36 (40-50)
Oil Cooler Bolt	43-61 (60-85)
Oil Pump Sprocket	23-34 (32-47)

Pressure Plate	13-20 (18-27)
Rear Housing Bolts	23-27 (32-38)
Water Pump	13-20 (18-27)

ENGINE SPECIFICATIONS

GENERAL SPECIFICATIONS

GENERAL SPECIFICATIONS TABLE

Displacement	
Cu. In.	70
Liters	1.1
Fuel System	4 Bbl.
HP @ RPM .....	...
Torque Ft. @ RPM .....	...
Compr. Ratio	9.4:1
Rotor Housing Width	2.7559 (70)
Displacement	
Cu. In.	80
Liters	1.3
Fuel System	Fuel Inj.
HP @ RPM .....	...
Torque Ft. @ RPM .....	...
Compr. Ratio	9.4:1
Rotor Housing Width	3.1497 (80)

ROTOR SPECIFICATIONS

ROTOR HOUSING, INTERMEDIATE HOUSING & ROTOR SPECIFICATIONS TABLE

Application	In. (mm)
1.1L	
Front	
Rotor Housing	
Width	2.7559 (70)
Distortion Limit .....	.0024 (.06)
Front, Intermediate & Rear Housing	
Width	1.575 (40)
Distortion Limit .....	.0016 (.40)
Rotor	
Width In (mm)	2.748 (69.8)
Housing-to-Rotor Protrusion .....	.0047-.0075 (.12-.19)
Land Protrusion .....	...
Center	
Front, Intermediate & Rear Housing	
Width	1.969 (50)
Distortion Limit .....	.0016 (.40)
Rear	
Rotor Housing	
Width	2.7559 (70)
Distortion Limit .....	.0024 (.06)
Front, Intermediate & Rear Housing	
Width	2.362 (60)
Distortion Limit .....	.0016 (.40)
Rotor	

Width In (mm)	2.748 (69.8)
Housing-to-Rotor Protrusion	.0047-.0075 (.12-.19)
Land Protrusion	...

1.3L

Front

Rotor Housing

Width	3.1497 (80)
Distortion Limit	.0024 (.06)

Front, Intermediate & Rear Housing

Width	1.575 (40)
Distortion Limit	.0016 (.40)

Rotor

Width	3.144 (79.85)
Housing-to-Rotor Protrusion	.0047-.0083 (.12-.21)
Land Protrusion	...

Center

Front, Intermediate & Rear Housing

Width	1.969 (50)
Distortion Limit	.0016 (.40)

Rear

Rotor Housing

Width	3.1497 (80)
Distortion Limit	.0024 (.06)

Front, Intermediate & Rear Housing

Width	2.362 (60)
Distortion Limit	.0016 (.40)

Rotor

Width	3.144 (79.85)
Housing-to-Rotor Protrusion	.0047-.0083 (.12-.21)
Land Protrusion	...

APEX SEAL SPECIFICATIONS

APEX SEAL SPECIFICATIONS TABLE

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

1.1L

Length	2.748 (69.8)
Seal Width	.1181 (3.0)
Height	.3347 (8.5)

Seal-To-Housing

Clearance	...
Wear Limit	...

Seal-To-Rotor

Groove Clearance	.0020-.0035 (.05-.09)
Wear Limit	.0059 (.15)

1.3L

Length	3.148 (79.8)
Seal Width	.1181 (3.0)
Height	.3347 (8.5)

Seal-To-Housing

Clearance	...
Wear Limit	...

Seal-To-Rotor

Groove Clearance	.0020-.0035 (.05-.09)
Wear Limit	.0059 (.15)

SIDE SEAL SPECIFICATIONS

SIDE SEAL SPECIFICATIONS TABLE

Application	In. (mm)
Thickness .....	.0394 (1.0)
Width .....	.1378 (3.5)
Seal-To-Groove	
Clearance .....	.0012-.0031 (.03-.08)
Limit .....	.0039 (.10)
Side Seal-To-Corner Seal	
Clearance .....	.0020-.0059 (.05-.15)
Limit .....	.0157 (.40)

SHAFT & ROTOR BEARING SPECIFICATIONS

ECCENTRIC SHAFT MAIN & ROTOR BEARINGS SPECIFICATIONS TABLE

Application	In. (mm)
Main Bearings	
Journal Diameter	1.6929 (43)
Clearance .....	.0016-.0031 (.04-.08)
Eccentric Shaft End Play .....	.0016-.0028 (.04-.07)
Rotor Bearings	
Journal Diameter	2.9134 (74)
Clearance .....	.0016-.0031 (.04-.08)

CORNER SEAL SPECIFICATIONS

CORNER SEAL SPECIFICATIONS TABLE

Application	In. (mm)
Diameter .....	.4331 (11.0)
Height .....	.2756 (7.0)
Seal-To-Groove	
Clearance .....	...
Limit .....	...
Side Seal-To-Corner Seal	
Clearance .....	.0020-.0059 (.05-.15)
Limit .....	.0157 (.40)

OIL SEAL SPECIFICATIONS

OIL SEAL SPECIFICATIONS TABLE

Application	In (mm)
Height .....	.2205 (5.6)
Seal Lip Contact Width	
Standard	Less than .02 (Less than .5)
Limit .....	...

PORT TIMING SPECIFICATIONS

Application	Specification
1.1L	
Intake	
Open (ATDC)	32°
Close (ABDC)	40°
Exhaust	
Open (BBDC)	75°
Close (ATDC)	38°
1.3L	
Intake	
Open (ATDC)	(1) 32°
Close (ABDC)	(2) 40°
Exhaust	
Open (BBDC)	75°
Close (ATDC)	38°
(1) - 32° Primary and Secondary, and 45° Auxiliary.	
(2) - 40° Primary, 30° Secondary, and 70° Auxiliary.	

END OF ARTICLE

1.2L ENG FLYWHEEL THREAD HOLE MODIFICATIONS CAT. 40, NO. 003/84

Article Text

1984 Mazda RX7

For iluvmyrx7.com

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Saturday, June 08, 2002 10:33PM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

FLYWHEEL MODIFICATION

Model: 1984 RX-7
Bulletin No.: 003/84
Date: 7/31/84
Category: 40

DESCRIPTION

The thread pitch of the two holes in the flywheel has been changed from 1.50mm to 1.25mm in order that the same puller can be used to remove the flywheel for manual transmission and the counter weight for automatic transmission. Because of this change, the flywheel puller (4908 23 300A) cannot be used for the modified flywheel. When removing the flywheel, use the counter weight puller (4908 39 305A).

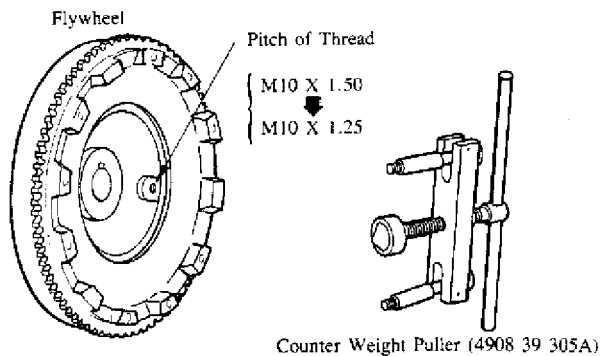


Fig. 1: Flywheel Modifications

VIN OF PRODUCTION CHANGE

12A:	JM1FB331 E0834333	May, 1984
13B:	JM1FB332 E0834333	May, 1984

PARTS INFORMATION

NEW PART NO.	OLD PART NO.	DESCRIPTION	MODEL	INTERCHANGEABLE
N231 11 700A	N231 11 700	Flywheel	12A	NEW = OLD
N304 11 700A	N304 11 700	Flywheel	13B	NEW = OLD

END OF ARTICLE

1.2L HARD CRANK/NO START - CARBON IN ROTOR/HOUSING CAT. 1, NO. 103/83

Article Text

1984 Mazda RX7

For iluvmyrx7.com

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Saturday, June 08, 2002 10:34PM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

HARD CRANKING

Models	RX7
Bulletin No.	103/83
Category	1
Date	5/7/83
Symptom	Hard Cranking/No Start

DESCRIPTION

If RX-7 vehicles have not been in use for a long period of time and the engine is cranked with a weak battery, hard cranking may occur due to carbon trap.

When the vehicles have been stored for such a long period of time carbon accumulated on the rotor surface may be flaked off, and it can be trapped between the rotor and rotor housing by the sweeping motion of the apex seals only when the engine is started. It will not occur when the engine is running.

To verify carbon trap, the following two conditions must be confirmed:

- 1) The problem occurred when the engine was started.
- 2) The apex seal can be observed through one of the leading spark plug holes. (If carbon trap occurs, the rotor will always stop at this location).

If carbon trap is verified, please use the following procedure:

Procedure:

I. For vehicles with manual transmission:

- 1) Disconnect the negative battery cable and remove the spark plugs.
- 2) Hoist the vehicle, remove the starter and install the Flywheel Turning Tool, P/N 49FA 42 065. This special tool is newly established for vehicles with manual transmission.
- 3) Turn the Flywheel Turning Tool counterclockwise (as shown in Fig. 1 until the force is reduced considerably).

CAUTION: Do not turn the Flywheel in the direction of normal engine rotation.

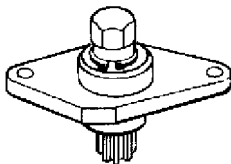


Fig. 1: View of Flywheel Turning tool (49FA 42 065)

- 4) Remove the special tool (Fig. 2) and reinstall the starter.

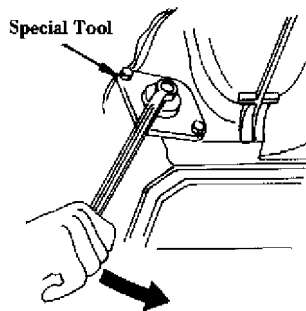


Fig. 2: Using Flywheel Turning Tool

- 5) Lower the vehicle. Turn the front pulley clockwise, facing the rear of the car, with a 19mm wrench. At the same time, inject 20-30 cc of engine oil through carburetor. Do not exceed the specified quantity of oil.
- 6) Turn the engine approximately five (5) revolutions to make certain the engine rotates freely.

NOTE: Do not use the starter to rotate the engine.

- 7) Install the spark plugs.
- 8) Check that the battery is fully charged.
- 9) Start the engine and warm up to normal operating temperature.
- 10) Stop the engine. Remove the spark plugs and check compression. If the compression is over 6.0 kg/cm², the repair is completed.

II. For vehicles with automatic transmission:

- 1) Disconnect the negative battery cable and remove the spark plugs.
- 2) Remove the inspection plate from the converter housing. (Fig. 3).

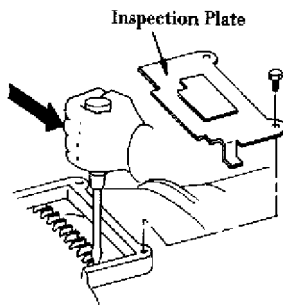


Fig. 3: Removing Inspection Plate From Converter Housing

- 3) Insert a standard screwdriver through the inspection hole. Turn the flywheel by prying against the flywheel teeth and converter housing as shown until the force is reduced considerably.

CAUTION: Do not turn the flywheel in the direction of normal engine rotation.

1.2L HARD CRANK/NO START - CARBON IN ROTOR/HOUSING CAT. 1, NO. 103/88le Text (p. :

- 4) Follow the procedure in I, steps 5-10.

END OF ARTICLE

1.3L ENG CLUTCH VIB - REPL FLYWHEEL ALIGNMENT PINS CAT. 6, NO. 002/86

Article Text

1984 Mazda RX7

For iluvmyrx7.com

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Saturday, June 08, 2002 10:35PM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

CLUTCH ALIGNMENT PINS

Models 1983-86 RX-7
Bulletin No. 002/86
Category 6
Date 4/8/86
Symptom Clutch Vibration

DESCRIPTION

Replacement flywheels for the 1983-1986 RX-7 are shipped without clutch alignment pins. These pins are necessary to accurately align the clutch cover to the flywheel during assembly. Failure to use the alignment pins will result in vibration of the flywheel and clutch assembly. See Fig. 1.

When replacing the flywheel, please order the pin by the part number listed below.

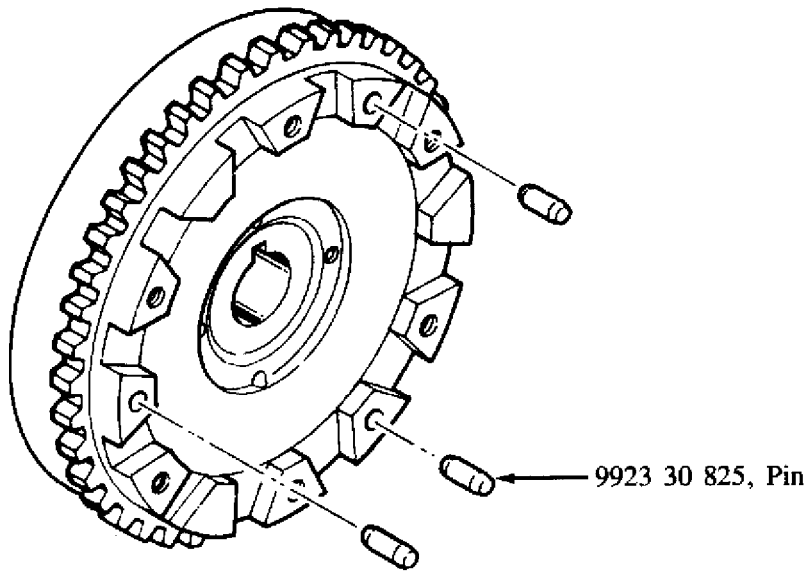


Fig. 1: 83-86 RX7 Flywheel and Alignment Pins

PARTS INFORMATION

PART NUMBER	DESCRIPTION	QTY
9923 30 825	Knock Pin	3

END OF ARTICLE

1.3L ENG ECCENTRIC SHAFT PULLEY TIMING MARK CAUTION CAT. 1, NO. 007/84

Article Text

1984 Mazda RX7

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Saturday, June 08, 2002 10:35PM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

ECCENTRIC SHAFT PULLEY

Model: RX-7

Bulletin No.: 007/84

Date: 10/8/84

Category: 1

DESCRIPTION

No alignment dowels are provided for aligning the eccentric shaft pulley to the eccentric shaft on later model RX-7 vehicles. Consequently, the pulley may be misaligned during reinstallation, resulting in an incorrect location of the timing mark.

For this reason, whenever the eccentric shaft pulley is removed, please mark the location of the timing mark on the pulley in relation to the eccentric shaft in order that the pulley may be reinstalled correctly.

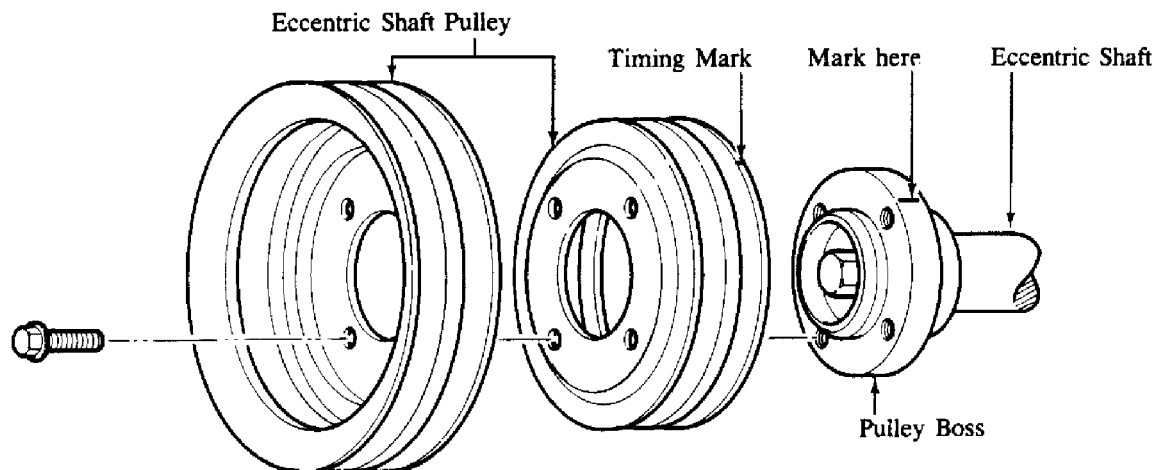


Fig. 1: Marking Location of Timing Mark

END OF ARTICLE

RX-7 OIL REPLACEMENT TIP

Article Text

1984 Mazda RX7

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Saturday, June 08, 2002 10:37PM

ARTICLE BEGINNING

TECHNICAL INFORMATION TIP

RX-7 OIL FILTER REPLACEMENT

YEAR(S): All RX-7 Engines
MANUFACTURER: Mazda
MODELS: RX-7

ISSUE: OIL FILTER REPLACEMENT

The oil filter is mounted face down on Mazda RX-7 engines. This makes filter replacement an unnecessarily messy job. To cut down on the spilled oil, punch two holes in the top of the filter to let the filter drain into the crankcase. Remove the drain plug, then let the filter drain while the crankcase drains. Now you can remove an empty filter rather than a full one (due to the check valve inside the filter). No more mess filters dripping all over the top of the engine.

Courtesy of Import Service Magazine
with thanks to:

A.J. Diamant
LMT Auto Repair
Columbia, Maryland

REFERENCE NUMBER: MAZ0045AP

NOTE: This information has been obtained from sources generally believed to be reliable. Use your own judgment before relying on this data. Neither the suppliers of these Technical Information Tips, nor Mitchell International, guarantees or assumes responsibility for data accuracy or completeness, nor is liability assumed by the suppliers of these Technical Information Tips or Mitchell International for any claims or damages resulting from the use of this information.

END OF ARTICLE

A - ENGINE/VIN ID

Article Text

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Saturday, June 08, 2002 10:41PM

ARTICLE BEGINNING

1983-88 ENGINE PERFORMANCE
Mazda VIN Code Identification

RX7

MODEL IDENTIFICATION

JM1FC3311K0200001

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬ ⑭ ⑮ ⑯ ⑰

1 Manufacturing Country

J • Japan

2 Make

M • Mazda Motors Corp., Japan

3 Type

1 • Passenger Car

V • Passenger Car

4-5 Model

FB • RX7 (1983-85)

FC • RX7 (1986-91)

6-7 Body Style

33 • Hatchback

35 • Convertible

8 Modification Code

1 • 13BE Rotary

2 • 13BT Rotary (Turbo)

9 VIN Check Digit

1 • Constant For All Models

10 Vehicle Model Year

D • 1983

E • 1984

F • 1985

G • 1986

H • 1987

J • 1988

K • 1989

L • 1990

M • 1991

11 Assembly Plant

0 • Hiroshima, Japan

12-17 Serial Number

• Sequential Production Number

90E05047

Fig. 1: VIN Code Identification

VIN CODE ID EXPLANATION

Numbers preceding the explanations in the legend below refer to the sequence of characters as listed on VIN identification label in Fig. 1. The legend listed below will also be found in Fig. 1.

1 Manufacturing Country

J * Japan

2 Make

M * Mazda Motors Corp., Japan

3 Type

1 * Passenger Car

V * Passenger Car

4-5 Model

FB * RX7 1983-85

FB * RX7 1986-88

6-7 Body Style

33 * HB RX7

35 * Convertible

8 Modification Code

1 * Not Specified By Manufacturer

9 VIN Check Digit

1 * Constant For All Models

10 Vehicle Model Year

D * 1983

E * 1984

F * 1985

G * 1986

H * 1987

J * 1988

11 Assembly Plant

0 * Hiroshima, Japan

12-17 Serial Number

* Sequential Production Number

END OF ARTICLE

AIR INJECTION SYSTEM - CARBURETED

Article Text

1984 Mazda RX7

For iluvmyrx7.com

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Saturday, June 08, 2002 10:42PM

ARTICLE BEGINNING

1984 Exhaust Emission Systems
CARBURETED MODELS
AIR INJECTION SYSTEM

DESCRIPTION

This system controls CO, HC and NOx emissions by injecting secondary air into the exhaust system to cause further burning of exhaust gases. System consists of an air pump, 2 check valves, an air control valve, relief solenoid valve, switching solenoid valve, heat hazard sensor and catalytic converters.

Air is drawn from the clean side of the air cleaner by the air pump and directed to the air control valve under pressure. From the air control valve, secondary air is directed (by the switching solenoid valve) "downstream" to the pellet converter or "upstream" to the exhaust port.

The secondary air system contains 2 check valves to prevent exhaust gas from leaking back into the air pump. The switching solenoid valve directs secondary air through the air control valve "downstream" and/or "upstream", based upon engine temperature, manifold vacuum and engine speed.

The relief solenoid valve controls the amount of air injected according to intake manifold vacuum. Under normal operating conditions, part of the secondary air supplied by the air pump is directed back to the air cleaner. The heat hazard sensor lights an exhaust temperature warning light on the instrument panel if exhaust temperatures become excessive.

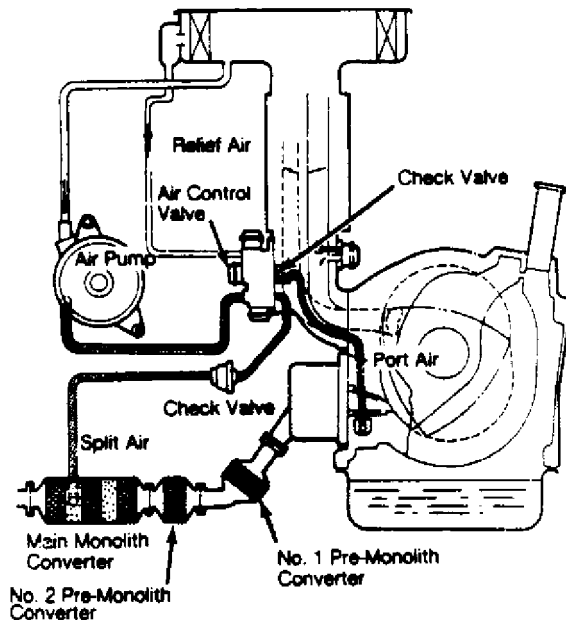


Fig. 1: Mazda RX7 Air Injection System

TESTING

AIR PUMP

- 1) With engine at normal operating temperature, inspect all hose connections for leaks. Check for pump noise and belt tension.
- 2) Stop engine and disconnect air line at air control valve. Connect hose to a pressure gauge. Connect tachometer to engine.
- 3) Start engine and run at idle speed. Gauge should register more than 1.64 psi (.12 kg/cm²) with engine at 800 RPM. If pump pressure is below specification, replace air pump.

CHECK VALVES

Intake Manifold Valve

Disconnect the air hose at the air control valve. Connect a tachometer to the engine. Start the engine. Disconnect the connector from air switching solenoid valve. Increase engine speed to 1500 RPM. Watch for exhaust leak. If leak exists, replace check valve.

Conveter Air Line Valve

Disconnect the air hose at the rear side of the intake manifold. Connect a tachometer to the engine. Start the engine. Increase engine speed to 1500 RPM. Watch for exhaust leak at air pipe opening. If leak exists, replace check valve.

AIR CONTROL VALVE

- 1) After ensuring air pump and all hoses are correct, check carburetor and air control valve attaching nuts for tightness. Warm engine to normal operating temperature. Stop engine and connect a tachometer.
- 2) Disconnect air cleaner-to-air control valve hose at air cleaner. Place a finger over the hose opening. Increase the engine speed and make sure that air flows out when the engine speed is 1500-2500 RPM or higher.
- 3) Run the engine at idling speed. Disconnect the vacuum sensing tube (from relief solenoid valve to pipe) at the pipe. Air should flow out from the air hose. Reconnect the vacuum sensing tube and the air hose.
- 4) Disconnect the split air hose (from check valve to intake manifold) at the intake manifold. Place a finger over the port opening. Disconnect the vacuum sensing tube (from switching solenoid to pipe) at the pipe.
- 5) Air should flow out from the port. Reconnect the vacuum sensing tube and split air hose. If air control valve does not respond as described, replace air control valve.

RELIEF SOLENOID VALVE

- 1) Disconnect vacuum sensing tubes from relief solenoid valve and vacuum pipe. Blow through solenoid valve from vacuum sensing tube "B" in Fig. 2. Air should pass through valve and escape from port "C".
- 2) Disconnect electrical connector from relief solenoid valve and connect battery power to solenoid terminals. Blow through valve from the vacuum sensing tube "B". Air should pass through valve and escape through port "A" of the valve. If valve does not respond as described, replace valve.

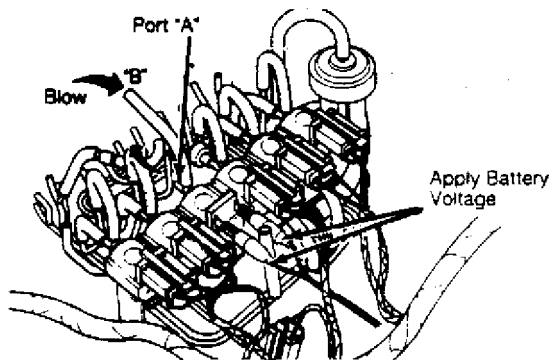


Fig. 2: Testing Relief Solenoid Valve

RELIEF SOLENOID VALVE SIGNAL CHECK

1) Warm engine to normal operating temperature. Connect tachometer to engine. Disconnect connector from throttle sensor and connect a jumper wire between terminals "A" and "C" of connector. See Fig. 3.

2) Disconnect the vacuum sensing tube (from relief solenoid valve to pipe) at the pipe. Place a finger over the vacuum sensing tube opening. Start engine. Air should be sucked into the tube.

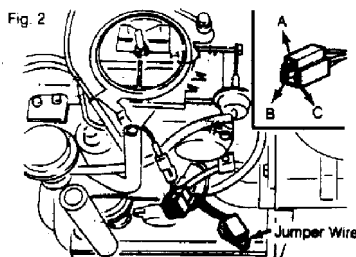
3) Increase engine speed. Air should not be sucked into the tube when engine speed is 3600-4400 RPM or higher. Disconnect the connector from the catalyst thermosensor. Gradually increase the engine speed and make sure that air is not sucked into the tube when the engine speed is 1000-2000 RPM or higher.

4) Reconnect the connector to the catalyst thermosensor. Disconnect the jumper wire and connect the connector to the throttle sensor. Disconnect the sensor from the heat hazard sensor and connect a jumper wire to both terminals of the connector. Make sure that air is not sucked into the tube at any engine speed.

5) Disconnect the jumper wire and connect the connector to the heat hazard sensor. Stop the engine and disconnect the connector from the number 2 water temperature switch on the radiator. Disconnect the connector from the number 1 water temperature switch.

6) Connect a jumper wire to both terminals of the connector. Pull the choke knob out about .6" (15 mm). Start the engine. Gradually increase the engine speed and make sure that air is not sucked into the tube when the engine speed is 1000-2000 RPM or more.

7) Connect the vacuum sensing tube to the pipe. Stop the engine and connect the jumper wire. Connect connector to the number 1 water temperature switch.



AIR INJECTI

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Fig. 3: Testing Relief Solenoid Valve Signal

SWITCHING SOLENOID VALVE

1) Disconnect vacuum sensing tubes from switching solenoid

valve and vacuum pipe. Blow through switching valve from vacuum sensing tube "B". See Fig. 2. Air should pass through valve and escape from port "C".

2) Disconnect electrical connector from switching solenoid valve and connect battery power to terminals on valve. Blow through hose again. Air should pass through valve and escape through port "A" of the valve. If valve does not respond as described, replace switching solenoid valve.

SWITCHING SOLENOID VALVE SIGNAL CHECK

1) Warm engine to normal operating temperature. Connect tachometer to engine. Disconnect the connector from the throttle sensor and connect a jumper wire to terminals "A" and "C" of the connector. Disconnect the vacuum sensing tube (from switching solenoid valve to pipe) at the pipe. See Fig. 3.

2) Place a finger over the vacuum sensing tube opening and make sure air is sucked into the tube. Gradually increase the engine speed and make sure that air is not sucked into the tube when engine RPM is 1000-2000 RPM or more.

3) Disconnect the connector from the number 1 water temperature switch and connect a jumper wire to both terminals of the connector. Pull the choke knob out about .6" (15 mm). Increase the engine speed and make sure that air is sucked into the tube at any engine speed.

4) Disconnect the jumper wire from water temperature switch connector and reconnect the connector to water temperature switch. Disconnect the jumper wire from terminals "A" and "C" and connect the connector to the throttle sensor.

5) Gradually increase the engine speed and make sure air is sucked into tube at any engine speed. Air should not be sucked into the tube if the engine is accelerated quickly. Reconnect the vacuum sensing tube to pipe.

WATER TEMPERATURE SWITCHES

1) Remove number 1 switch from water pump. Remove number 2 switch from radiator lower tank. Place switch in water with a thermometer and heat water gradually. On the number 1 switch, check the temperature at which continuity does not exist between both terminals in the connector.

2) On the number 1 switch, check the temperature at which continuity exists between both terminals in the connector. For the number 1 switch, there should be no continuity at temperatures above 146-169°F (63.5-76.5°C). For the number 2 switch, continuity should exist temperatures above 52-66°F (12-18°C).

CHOKE SWITCH & MAGNET

Disconnect the connector from the choke switch. Check the continuity between the numbered terminals in the connector using an ohmmeter. With choke knob pulled out .3-.5" (8-12 mm), there should be continuity between terminals 3 and 7 if switch is okay. With knob in any position, there should be continuity between terminals 6 and 8 if choke magnet is okay.

diaphragm shaft. Before installing air horn, make necessary float adjustments.

ADJUSTMENT SPECIFICATIONS

CARBURETOR ADJUSTMENT SPECIFICATIONS

Application	Specification
RX7	
Float Level In. (mm)	.61-.65 (15.5-16.5)
Float Drop In. (mm)	1.98-2.02 (50.5-51.5)
Choke Linkage In. (mm)	.040-.047 (1.0-1.2)
Accel. Cable Free Play In. (mm)	.04-.12 (1.0-3.0)
Choke Valve Opening In. (mm)	.22-.24 (5.6-6.2)

END OF ARTICLE

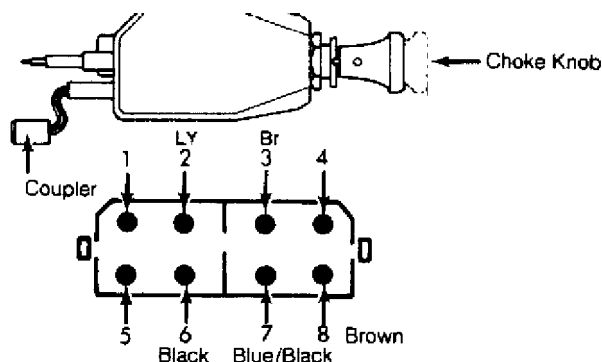


Fig. 4: Testing Choke Switch and Choke Magnet

CHOKE RELAY

Disconnect the connector from the relay. Check the continuity between the numbered terminals using an ohmmeter. With battery voltage applied between terminals 6 (positive) and 5 (negative), there should be continuity between 3 and 4 and no continuity between 1 and 2. With no power applied, there should be continuity between 1 and 2 and no continuity between 3 and 4.

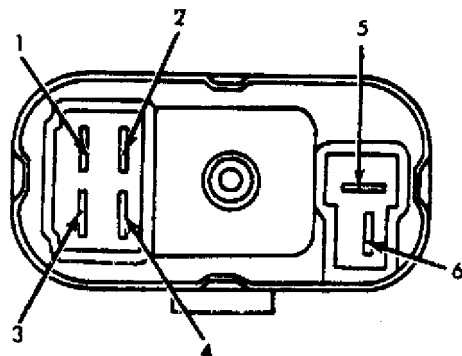


Fig. 5: Checking Choke Relay

HEAT HAZARD SENSOR

1) Turn ignition on; "Overheat Exh. System" warning light should glow. Start engine and warning light should go out. Remove passenger seat, fold back carpeting and disconnect heat hazard sensor connector.

2) Warning light should glow when jumper wire is connected to both terminals of the connector. If warning light does not respond as outlined, remove and test sensor. Wrap sensor and a thermometer in aluminum foil (electrical connector must be exposed for access).

3) Place sensor and thermometer (wrapped in aluminum foil) in container filled with oil. Place a second thermometer in container of oil. See Fig. 6.

4) Connect a battery and test lamp to sensor connector. Test lamp should glow. Gradually heat oil. Test lamp should go OFF when temperature inside aluminum foil is 248-284°F (120-140°C). If sensor does not respond as outlined, replace heat hazard sensor.

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NOTE: Do not heat oil above 302°F (150°C).

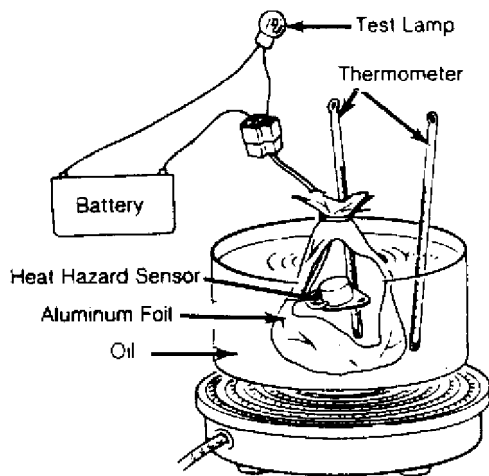


Fig. 6: Testing Heat Hazard Sensor

PORT AIR SOLENOID VALVE

1) Warm up engine and run at idle speed. Connect a tachometer to engine. Disconnect the connector from the throttle sensor and connect a jumper wire to "A" and "C" terminals of the connector. See Fig. 3. Connect a voltmeter to the port air solenoid terminal and ground.

2) Increase engine speed and watch voltmeter. With engine speed below 3000 RPM, voltage should be below 2 volts. With engine speed between 3000-4000 RPM, voltage should be about 12 volts. At above 4000 RPM, voltage should be below 2 volts.

3) Disconnect the jumper wire from "A" and "C". Position the vehicle securely on a rolling load tester. Increase the vehicle speed to to 50 MPH. At speeds below 50 MPH, reading should be below 2 volts. At speed above 50 MPH, voltage should be approximately 2 volts.

CATALYST THERMO SENSOR

Disconnect the connector for the catalyst thermo sensor and check for continuity. Sensor is no good if there is no continuity.

END OF ARTICLE

AIR INJECTION SYSTEM - EFI

Article Text

1984 Mazda RX7

For iluvmyrx7.com

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Saturday, June 08, 2002 10:42PM

ARTICLE BEGINNING

1984 EXHAUST EMISSION SYSTEM

Mazda Air Management Systems - Fuel Injected Models

RX7

DESCRIPTION

The air management system consists of the following sub-systems: Air Injection, Secondary Air Control, Air Induction and By-Pass Air Control. The air injection system controls CO, HC and NOx emissions by injecting secondary air into the exhaust system to cause further burning of exhaust gases. System consists of an air pump, 2 check valves, an air control valve, relief solenoid valve, switching solenoid valve, heat hazard sensor and catalytic converters.

Air is drawn from the clean side of the air cleaner by the air pump and directed to the air control valve under pressure. From the air control valve, secondary air is directed (by the switching solenoid valve) "downstream" to the pellet converter or "upstream" to the exhaust port.

The air induction system brings air into the engine for combustion functions. The system consists of : Air Cleaner, Air Flow Meter, Air Funnel, Throttle Chamber, Dynamic Chamber and Intake Manifold.

The secondary air control system contains 2 check valves to prevent exhaust gas from leaking back into the air pump. The switching solenoid valve directs secondary air through the air control valve "downstream" and/or "upstream", based upon engine temperature, manifold vacuum and engine speed.

The By-Pass Air Control System (BAC) controls the amount of by-pass air to maintain idling speed. System is controlled by a vent solenoid valve and vacuum solenoid valve.

COMPONENT OPERATION

CONTROL VALVES

Air Control Valve

Directs air to 1 of 3 locations; exhaust port, 3-way catalyst or back to the relief silencer. Consists of air relief valve, air switching valve and anti-afterburn valve.

Air Supply Valve

Supplies by-pass air into dynamic chamber during A/C and power steering operation.

By-Pass Air Control Valve

Controls amount of by-pass air to maintain idling speed. Controlled by vent solenoid valve and vacuum solenoid valve.

Check & Cut Valve

Releases excessive pressure or vacuum in fuel tank to atmosphere. Prevents fuel loss if vehicle overturns.

Relief Solenoid Valve

Relieves secondary air to air cleaner when unnecessary.

Split Air Solenoid Valve

Controls amount of split air. The valve increases split air

when the overdrive switch is open.

Switching Solenoid Valve

Switches secondary air to exhaust port or rear catalyst.

Vacuum Control Solenoid Valve

Cuts out vacuum to distributor during deceleration.

SENSORS

Heat Hazard Sensor

Detects floor temperature and sends signal to relief solenoid valve control unit.

Intake Air Temperature Sensor

Detects intake air temperature and controls pressure control valve and BAC valve through control unit.

Water Thermo Sensor

Detects engine coolant temperature and sends signal to control unit.

SWITCHES

Clutch and Neutral Switches

Detects in-gear condition and sends signal to control unit. Clutch switch closes when clutch pedal is depressed and opens when pedal is released. Neutral switch closes when transmission is in neutral and opens when transmission is in gear.

Overdrive Switch

Controls ACV solenoid, when transmission is in 5th gear the over drive switch is open. All other gears the overdrive switch is closed.

Vacuum Switch

Detects intake manifold vacuum and sends signal to control unit. The vacuum switch opens when theres approx. 15 in. Hg of vacuum.

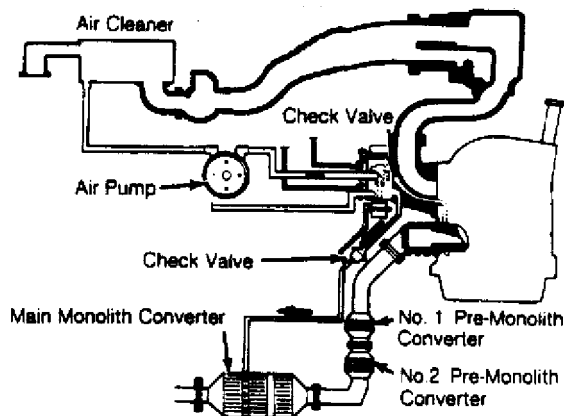


Fig. 1: Air Injection System (RX7 Fuel Injected Models)

TESTING

AIR INJECTION & SECONDARY AIR CONTROL

AIR INJECTION SYSTEM

Air Pump

1) With engine at normal operating temperature, inspect all hose connections for leaks. Check for pump noise and belt tension.

2) Stop engine and disconnect air line at air control valve. Connect hose to a pressure gauge. Connect tachometer to engine. See Fig. 2.

3) Start engine and run at idle speed. Gauge should register more than 1.64 psi (.12 kg/cm²) with engine at 800 RPM. If pump pressure is below specification, replace air pump.

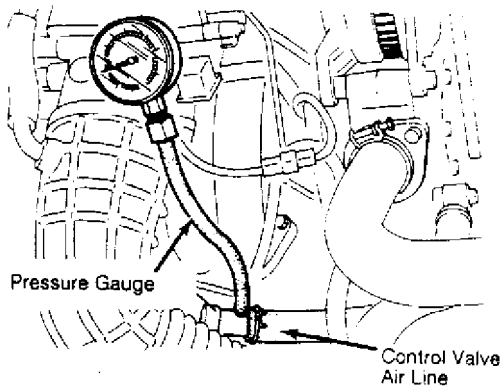


Fig. 2: Connecting Pressure Gauge to Air Pump

Intake Manifold Check Valve

Disconnect the air hose at the air control valve. Connect a tachometer to the engine. Start the engine. Disconnect the connector from air switching solenoid valve. Increase engine speed to 1500 RPM. Watch for exhaust leak. If leak exists, replace check valve.

Converter Air Line Check Valve

Disconnect the air hose at the rear side of the intake manifold. Connect a tachometer to the engine. Start the engine. Increase engine speed to 1500 RPM. Watch for exhaust leak at air pipe opening. If leak exists, replace check valve.

Air Control Valve

1) After ensuring air pump and all hoses are correct, check carburetor and air control valve attaching nuts for tightness. Warm engine to normal operating temperature. Stop engine and connect a tachometer.

2) Disconnect air cleaner-to-air control valve hose at air cleaner. Place a finger over the hose opening. Increase the engine speed and make sure that air flows out when the engine speed is 1500-2500 RPM or higher. See Fig. 3.

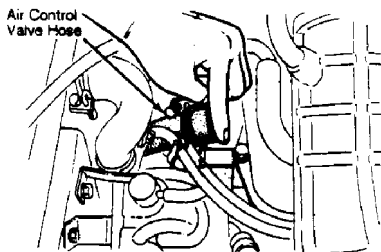


Fig. 3: Checking Air Control Valve

3) Run the engine at idling speed. Disconnect the vacuum

should flow out from the air hose. Reconnect the vacuum sensing tube and the air hose.

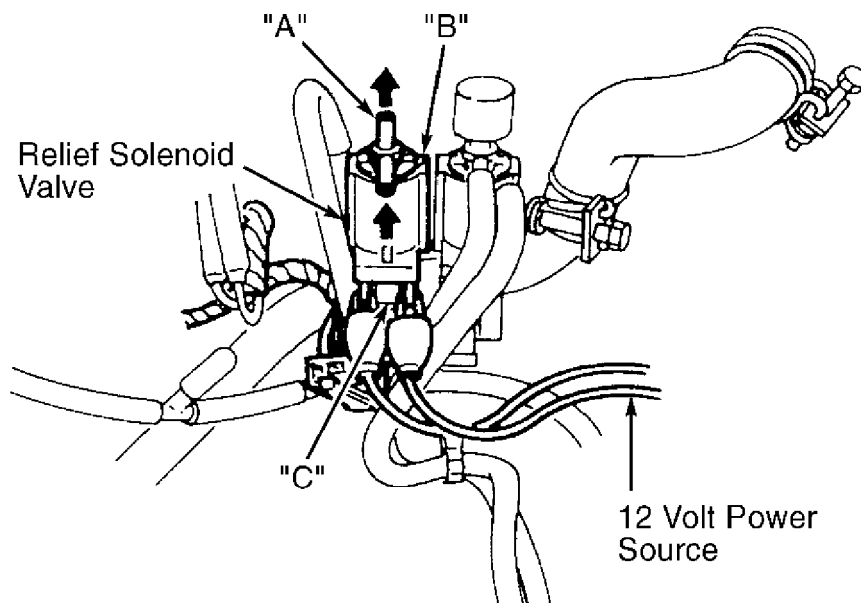
4) Disconnect the split air hose (from check valve to intake manifold) at the intake manifold. Place a finger over the port opening. Disconnect the vacuum sensing tube (from switching solenoid to pipe) at the pipe.

5) Air should flow out from the port. Reconnect the vacuum sensing tube and split air hose. If air control valve does not respond as described, replace air control valve.

Relief Solenoid Valve

1) Disconnect vacuum sensing tubes from relief solenoid valve and vacuum pipe. Blow through solenoid valve from vacuum sensing tube "B", air should pass through valve and escape from port "C".

2) Disconnect electrical connector from relief solenoid valve and connect battery power to solenoid terminals. Blow through valve from the vacuum sensing tube "B". Air should pass through valve and escape through port "A" of the valve. If valve does not respond as described, replace valve. See Fig. 4.



38858

Fig. 4: Testing Relief Solenoid Valve

Switching Solenoid Valve

1) Disconnect vacuum sensing tubes from switching solenoid valve and vacuum pipe. Blow through switching valve from vacuum sensing tube "B". Air should pass through valve and escape from port "C".

2) Disconnect electrical connector from switching solenoid valve and connect battery power to terminals on valve. Blow through hose "B" again. Air should pass through valve and escape through port "A" of the valve. If valve does not respond as described, replace switching solenoid valve.

Switching Solenoid Valve Signal Check

1) Warm engine to normal operating temperature. Connect tachometer to engine. Disconnect the connector from the throttle sensor and connect a jumper wire to terminals of the connector. Disconnect the vacuum sensing tube (from switching solenoid valve to pipe) at the pipe.

2) Place a finger over the vacuum sensing tube opening and

make sure air is sucked into the tube. Gradually increase the engine speed and make sure that air is not sucked into the tube when engine RPM is 1000-2000 RPM or more.

3) Disconnect the connector from the number 1 water temperature switch and connect a jumper wire to both terminals of the connector. Pull the choke knob out about .6" (15 mm). Increase the engine speed and make sure that air is sucked into the tube at any engine speed.

4) Disconnect the jumper wire from water temperature switch connector and reconnect the connector to water temperature switch. Disconnect the jumper wire from terminals and connect the connector to the throttle sensor.

5) Gradually increase the engine speed and make sure air is sucked into tube at any engine speed. Air should not be sucked into the tube if the engine is accelerated quickly. Reconnect the vacuum sensing tube to pipe.

Water Temperature Switches

1) Remove number 1 switch from water pump. Remove number 2 switch from radiator lower tank. Place switch in water with a thermometer and heat water gradually. On the number 1 switch, check the temperature at which continuity does not exist between both terminals in the connector.

2) On the number 1 switch, check the temperature at which continuity exists between both terminals in the connector. For the number 1 switch, there should be no continuity at temperatures above 146-169°F (63.5-76.5°C). For the number 2 switch, continuity should exist temperatures above 52-66°F (12-18°C).

BY-PASS AIR CONTROL SYSTEM

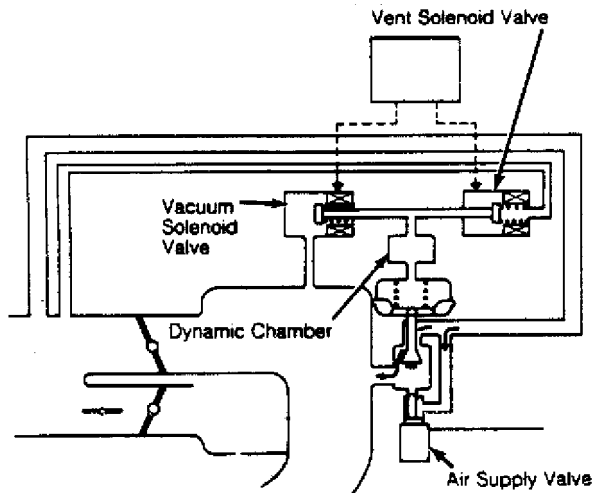


Fig. 5: By-Pass Air Control System Diagram

BY-PASS AIR CONTROL SYSTEM

By-Pass Air Control System Check

1) Warm up engine and run at idling speed. Turn headlight switch on and disconnect vent and vacuum solenoid valve connector.

2) Connect vent and vacuum solenoid valve connector and make sure that engine speed increases to 800 RPM. If RPM does not increase, perform component test.

Vent Solenoid Valve

AIR INJECTION SYSTEM

1) Disconnect intake tube from vent solenoid and remove connector. Blow through vent solenoid valve from intake tube and make sure that air does not pass.

2) Apply power to vent solenoid terminals. See Fig. 6. Blow through vent solenoid valve from intake tube and make sure that air passes. If vent solenoid does not pass air, replace unit.

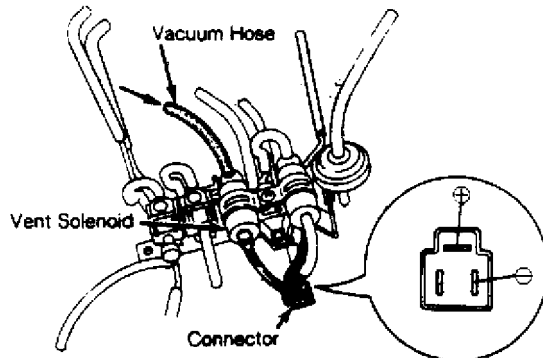


Fig. 6: Vent Solenoid Valve

Vacuum Solenoid Valve

1) Disconnect vacuum hose from solenoid valve. Remove vacuum solenoid valve connector. Blow through vacuum solenoid valve from connecting tube side and make sure that air passes through solenoid valve. See Fig. 7.

2) Apply electrical power to vacuum solenoid connector. Blow through vent solenoid valve from vacuum supply side and make sure that air does not pass. If air passes through valve, replace unit.

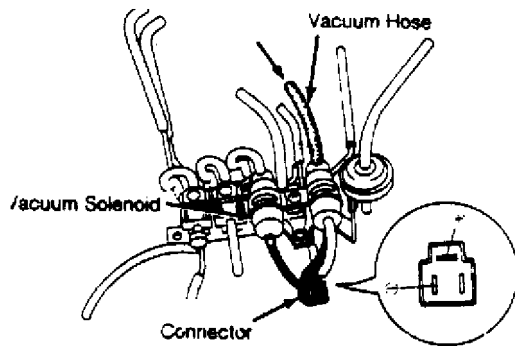


Fig. 7: Air Supply Valve

Air Supply Valve

1) Start engine and run at idling speed. Turn A/C switch on and make sure that engine speed does not decrease.

2) Disconnect air supply valve connector and make sure that engine speed decreases. Reconnect air supply valve connector and make sure that engine speed increases to idling speed (800 RPM). If air supply valve does not function, replace unit. See Fig. 8.

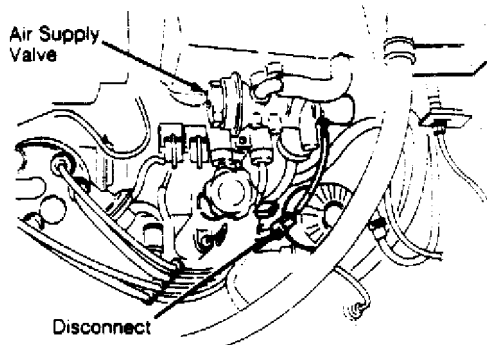


Fig. 8: Testing Air Supply Valve

Adjusting Air Supply Valve

1) Warm up engine and run at idling speed. Connect a tachometer to engine. Disconnect vent and vacuum solenoid valve connector.

2) Disconnect vent and vacuum solenoid valve connector. Check idling speed and adjust, if necessary. Disconnect air supply valve connector and apply electrical power to air supply.

3) Make sure engine speed is within 1000-1700 RPM. If engine speed is not within the RPM range, remove blind cap and adjust engine speed by turning adjusting. After adjusting, install blind cap.

Power Steering Switch

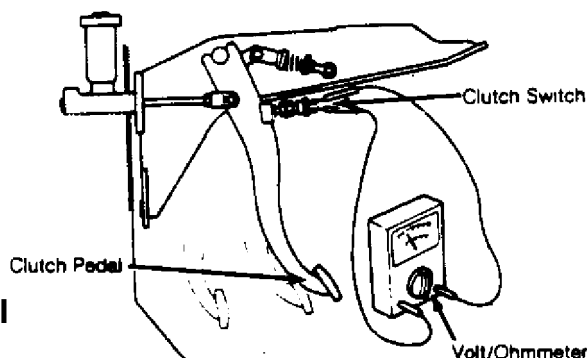
1) Start engine and run at idling speed. Disconnect power steering switch connector.

2) Connect a volt/ohmmeter to the power steering switch. Turn steering wheel either right or left, and make sure there is continuity between switch terminals.

3) When oil pressure is above 427 psi (30.0 kg/cm²), power steering switch should be closed. When oil is below 427 psi (30.0 kg/cm²), power steering switch should be open.

Clutch Switch

Disconnect clutch switch connector. Connect volt/ohmmeter to clutch switch, and then check continuity between switch terminals. When clutch pedal is depressed, switch should be closed. When clutch pedal is released, switch should be open. See Fig. 9.



AIR INJECTI

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Fig. 9: Testing Clutch Switch

Neutral Switch

Disconnect neutral switch connector. Connect volt/ohmmeter to neutral switch, and then check continuity between switch. When

transmission is in neutral, switch should be closed. When transmission is in gear, switch should be open. See Fig. 10.

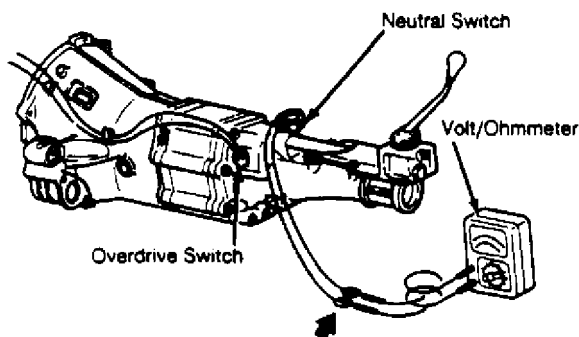


Fig. 10: Testing Neutral Switch

AIR INDUCTION SYSTEM

Throttle Chamber

1) The No. 1 secondary throttle valve starts to open when the primary valve opens 15° and completely opens at the same time when the primary valve fully opens.

2) Check the clearance between the primary throttle valve and the wall of the throttle bore when the No. 1 secondary valve starts to open.

3) If the clearance is not within .043-.067" (1.1-1.7 mm), bend the tab until the proper clearance is obtained. See Fig. 11.

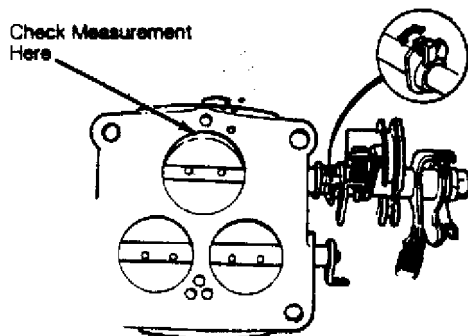


Fig. 11: Checking Throttle Valve Clearance

Fast Idle Operation

1) For this check the engine and throttle chamber must be at 77°F (25°C). For proper fast idle operation the matching mark on fast idle cam must be aligned with center of cam roller.

2) If the matching mark and center of the cam roller do not align, turn the cam adjusting screw until proper alignment is obtained. See Fig. 12.

NOTE: Fast idle adjustment is unnecessary unless it has been tampered with.

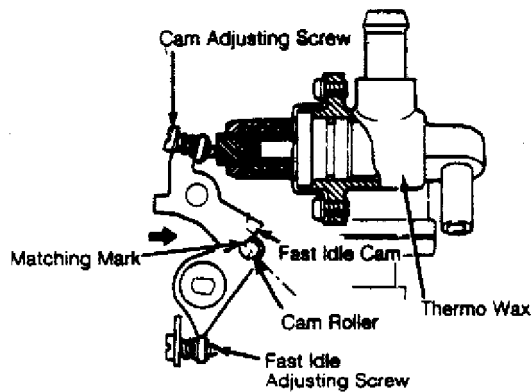


Fig. 12: Checking Fast Idle Cam

3) When the connect matching mark aligns with the center of the cam roller, clearance (throttle chamber to primary throttle valve) should be .016-.02" (.4-.5 mm). If clearance is off, turn the fast idling adjusting screw to bring into specifications.

Accelerator Linkage

Remove the air funnel and, with the accelerator pedal fully depressed, observe the position of the throttle valves. They should be horizontal (wide open position). Check that the accelerator linkage returns fully and does not bind. See Fig. 13.

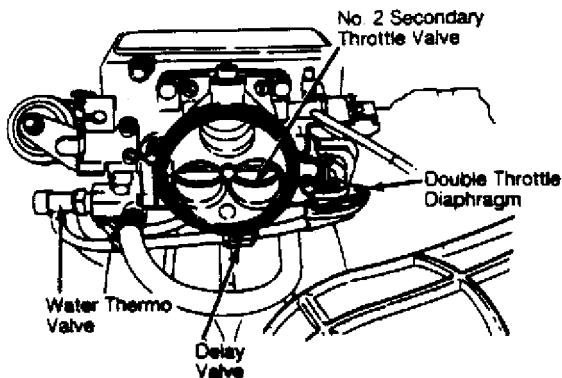


Fig. 13: Checking Accelerator Linkage

Double Throttle Diaphragm

1) Disconnect vacuum sensing tube from double throttle diaphragm. Apply vacuum of more than 7.8 in. Hg to the double throttle diaphragm.

2) Make sure that the No.2 secondary throttle valve is fully closed to its movable range. Check the calibration of the double throttle diaphragm. It should start to open 4.7 in Hg and be fully opened 0-1.8 in Hg. See Fig. 14.

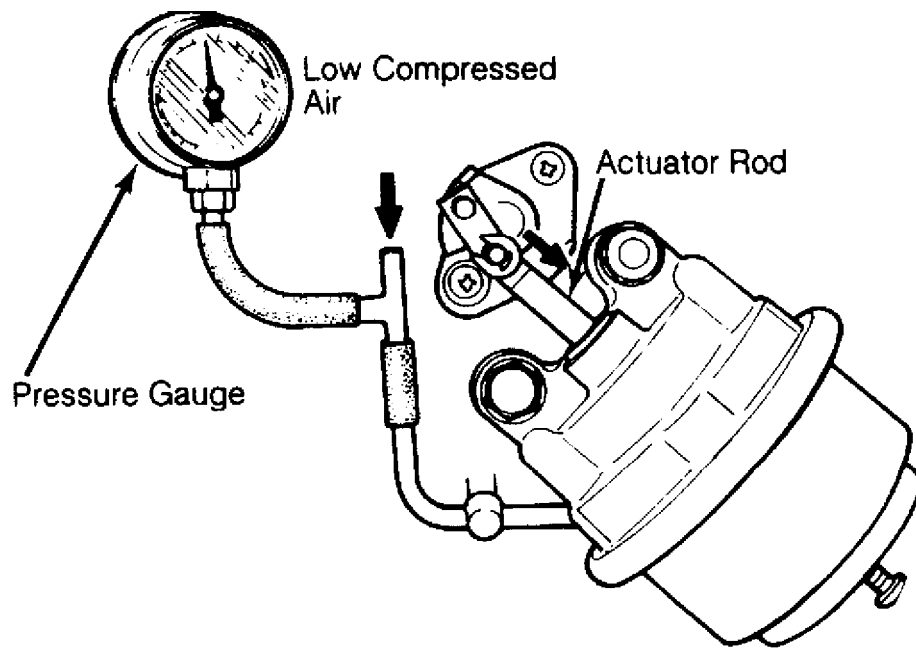


Fig. 14: Checking Double Throttle Diaphragm

Delay Valve

1) Disconnect vacuum delay valve. Connect approx. 3.5 Ft. of vacuum tube to the vacuum pump tester. Completely shut the other side of the vacuum delay valve with your thumb.

2) Apply a vacuum of over 19.7 in. Hg by using the vacuum pump tester. Release your thumb from vacuum delay valve and check time required for vacuum reading to decrease to 3.9 in. Hg from 15.7 in. Hg in approx. 13 seconds.

Water Thermo Valve

1) Remove water thermo valve from engine. Immerse water thermo valve in a container of water.

2) Heat up water gradually and observe the temperature. Below approx. 140°F (60°C) air should pass from top vacuum line to bottom vacuum line. Above approx. 140°F (60°C) air should pass from bottom vacuum line too orifice on top of thermo valve.

Actuator & Auxiliary Port Valve

Remove air hose and connect a pressure gauge to the valve. Apply low compressed air to the actuator and check operation. To start movement approx. 1.8 psi. To finish movement approx. 2.7 psi.

END OF ARTICLE

CARBURETOR - NIKKI 4-BBL

Article Text

1984 Mazda RX7

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Saturday, June 08, 2002 10:43PM

ARTICLE BEGINNING

1984 Nikki Carburetors
NIKKI 4-BARREL

Mazda RX7

DESCRIPTION

Carburetor is of 4-barrel, 2-stage design. Primary stage includes idle system, slow speed circuit, accelerator pump system and main metering system. In addition, Federal models are equipped with a sub-zero starting device which admits fluid into the primary stage.

Secondary stage contains secondary vacuum diaphragm operating system, stepping circuit and main metering system. Choking is accomplished through a semi-automatic choke. Other features include a deceleration control system, automatic choke return, hot start assist, idle compensation and dashpot (manual transmission).

ADJUSTMENTS

NOTE: For all on-vehicle adjustments not covered in this article, see the appropriate TUNE-UP article.

FLOAT LEVEL

- 1) Before assembling air horn to main body, adjust float level. Invert air horn and allow float to hang by its own weight.
- 2) Measure clearance between float and air horn gasket. See Fig. 1. Clearance should be .61-.65" (15.5-16.5 mm). If not within specifications, bend float seat to adjust.

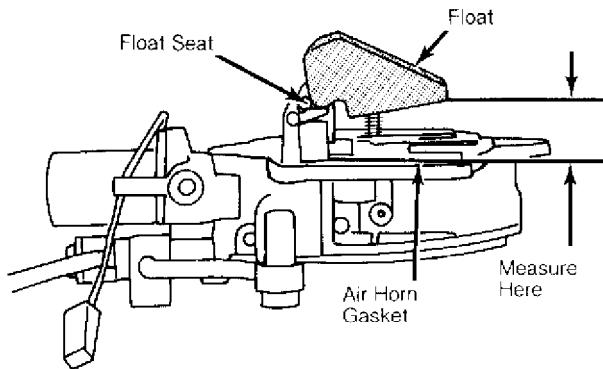


Fig. 1: Float Level Adjustment

FLOAT DROP

Turn air horn upright and allow float to hang by its own weight. Measure distance between bottom of float and air horn gasket. See Fig. 2. Distance should be 1.98-2.02" (50.5-51.5 mm). If not, bend float stop to adjust.

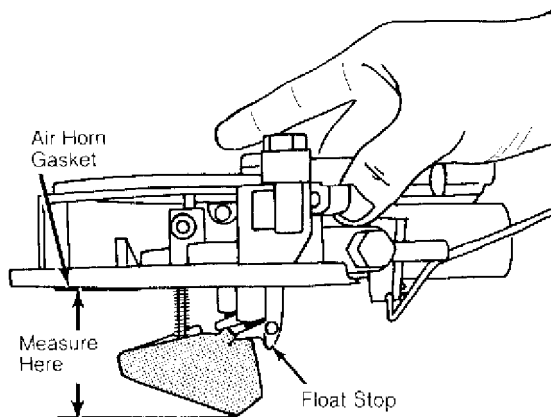


Fig. 2: Float Drop Adjustment

CHOKE LINKAGE

(FAST IDLE OPENING ANGLE)

Close choke valve fully and measure clearance between primary throttle valve and wall of throttle bore. Set clearance to .040-.047" (1.0-1.2 mm) by bending fast idle rod. See Fig. 3.

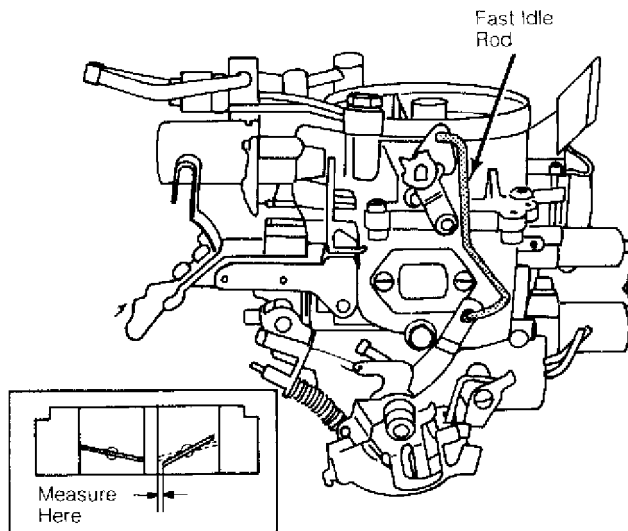


Fig. 3: Choke Linkage (Fast Idle Opening Angle)
Bend fast idle rod to adjust.

CHOKE VALVE OPENING ANGLE

NOTE: Choke diaphragm No. 1 is the dual diaphragm assembly, choke diaphragm No. 2 is the single diaphragm assembly.

1) Disconnect both vacuum sensing tubes from No. 1 vacuum diaphragms. Pull choke lever link out fully and hold in place. Apply more than 19.7 in. Hg to inner diaphragm. See Fig. 4.

2) Clearance should be .22-.24" (5.5-6.2 mm). Apply more than 19.7 in. Hg to both diaphragms and measure clearance again. Clearance should be .45-.51" (11.5-13.0 mm).

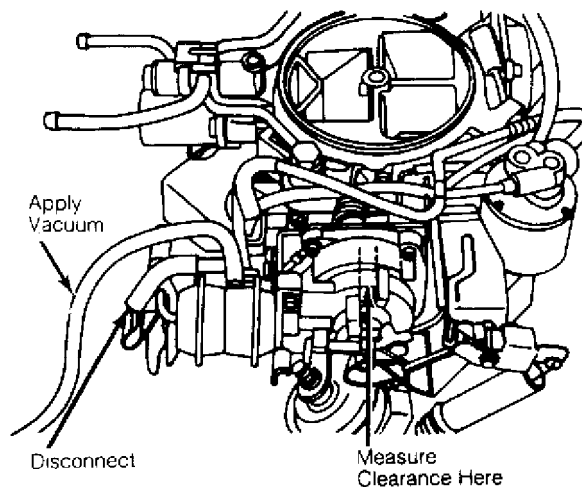


Fig. 4: Choke Valve Opening Angle Adjustment

NO. 2 CHOKE DIAPHRAGM

- 1) Disconnect vacuum sensing tube from No. 2 vacuum diaphragm. Pull choke lever link out fully and hold in place. Choke valve should close fully. (Cool bi-metallic coil if necessary).
- 2) Apply more than 19.7 in. Hg to vacuum diaphragm and measure clearance between choke valve and wall of air horn. Clearance should be .057-.070" (1.46-1.80 mm).

CHOKE DIAPHRAGM OPERATION

(NO. 1 & NO. 2 DIAPHRAGMS)

Remove air cleaner. Start engine and run at idle. Disconnect both vacuum sensing tubes from No. 1 diaphragm and one from the No. 2 diaphragm. Each diaphragm shaft should move outward from diaphragm.

CHECKING CHOKE DELAY

VALVE OPERATION

NOTE: Automatic transmission must be in Neutral.

- 1) Warm engine to normal operating temperature. Stop engine and remove air cleaner assembly. Disconnect inner vacuum sensing tube from choke diaphragm No. 1.
- 2) Start the engine and run at idle speed. Diaphragm shaft should move fully inward within 26-38 seconds after reconnecting vacuum sensing tube to No. 1 choke diaphragm.

CHECKING AUTOMATIC

CHOKE RELEASE

- 1) With engine cold and ignition "OFF", pull choke knob out fully and release. Knob should return automatically and freely. Connect tachometer to engine.
- 2) Start engine and set engine speed at 2000 RPM with choke knob. As engine temperature reaches range, choke knob should return automatically and freely. See Fig. 5.

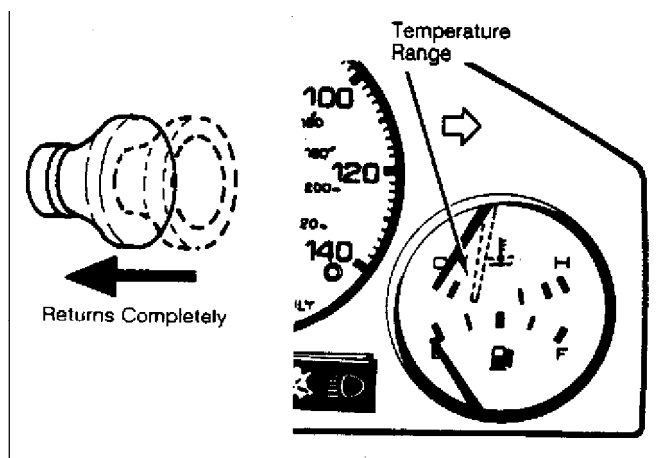


Fig. 5: Checking Automatic Choke Release

CHECKING CARBURETOR HEATER

- 1) Disconnect electrical connector from No. 1 water temperature switch and connect jumper wire to both terminals of connector. Connect tachometer to engine.
- 2) Disconnect carburetor heater electrical connector and connect voltmeter to connector. Start engine and set engine speed at 2000 RPM with choke knob.
- 3) With choke knob pulled out, current should flow to carburetor heater lead. Current should not flow to heater lead with choke knob pushed in.
- 4) Connect ohmmeter between carburetor heater lead and carburetor body. If ohmmeter shows no movement, carburetor heater is defective and must be replaced.

CHECKING CHOKE MAGNET

Disconnect connector from choke switch. Using an ohmmeter, connect leads to terminals 6 and 8 of connector. Continuity should exist with choke knob in any position. With knob pulled out .4-.8" (8-12 mm), continuity should exist between terminals 3 and 7. See Fig. 6.

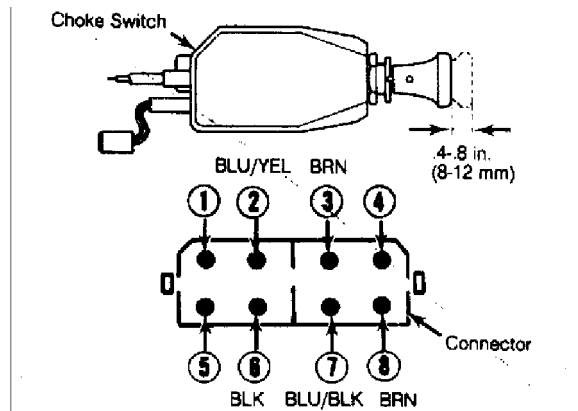


Fig. 6: Checking Choke Switch and Magnet
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CHECKING CHOKE RELAY

1) Disconnect connector from relay. Using an ohmmeter without power applied, connect leads between terminals 1 and 2. There should be continuity between terminals 1 and 2, but not between 3 and 4.

2) Connect battery power to terminal 6 and ground terminal 5. Continuity should now exist between terminals 3 and 4, but not at terminals 1 and 2.

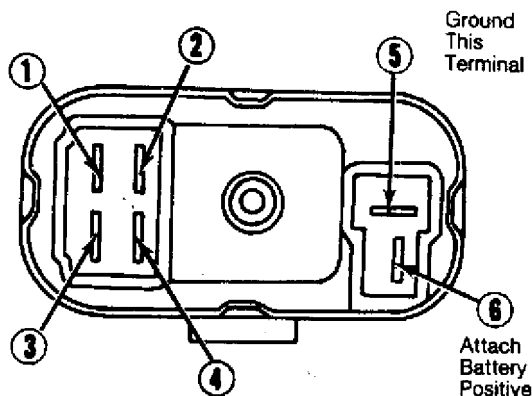


Fig. 7: Checking Choke Relay Continuity
Continuity should exist at terminals 1 and 2 without power applied; at terminals 3 and 4 with power applied.

HOT START ASSIST CABLE

Pull hot start assist motor inner cable until stopper lever touches start lever. Check for free play of .4-.8" (1-2 mm). See Fig. 8. If free play is not within specified range, loosen screw, adjust free play, and retighten screw.

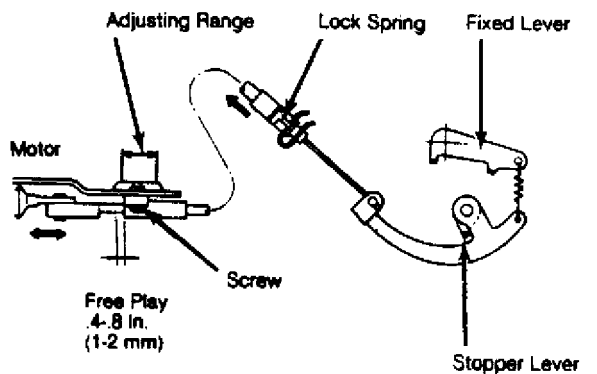


Fig. 8: Hot Start Assist Cable Adjustment

HOT START ASSIST RELAY

Disconnect connector from relay. Using an ohmmeter without power applied, continuity should exist between terminals 1 and 4. Connect battery power to terminal 2 and ground terminal 3. No continuity should exist between terminals 1 and 4. See Fig. 9.

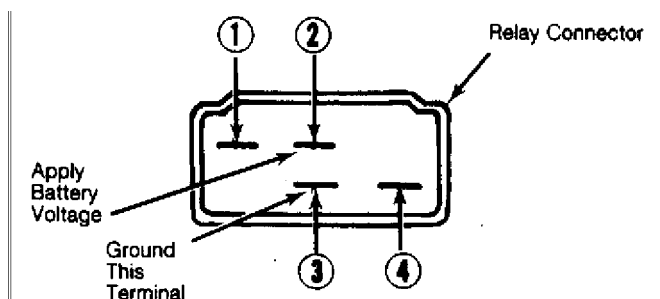


Fig. 9: Checking Hot Assist Relay

There should be no continuity between terminals 1 and 4 with power applied; continuity should exist without power.

THROTTLE OPENER

A/C Models Only

- 1) Turn off all accessories. Remove fuel filler cap. Disconnect and plug idle compensator tube at air cleaner. Connect tachometer to engine and warm engine to normal operating temperature.
- 2) Disconnect electrical connector from air switching solenoid valve (Gray color). Disconnect and plug vacuum sensing tubes from leading vacuum control units on distributor.

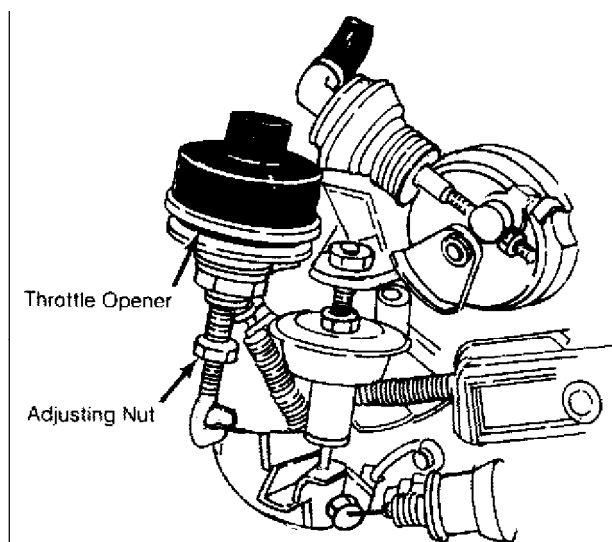


Fig. 10: Throttle Opener Adjustment (A/C Models Only)

- 3) Turn off air conditioner switch. Disconnect electrical connector from air conditioner solenoid. Connect battery power to one terminal in connector and ground other terminal.
- 4) Throttle opener should operate and engine speed should increase to 1150-1250 RPM in Neutral. If engine speed is not to specification, turn adjusting screw. See Fig. 10.

CHECKING ALTITUDE COMPENSATOR

NOTE: Altitude compensator must be checked at altitudes of 1640-1920 ft. (500-1500 m).

CARBURETOR, NIKKI 4-BB Article Text (p. 6)

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- 1) Remove air cleaner and start engine. Engine should run smoothly at specified idle. Place finger over slow port on carburetor air horn; idle speed should drop.

2) If idle speed did not drop, remove compensator valve and blow through valve from both ports. Air should pass through compensator valve. If not replace altitude compensator valve.

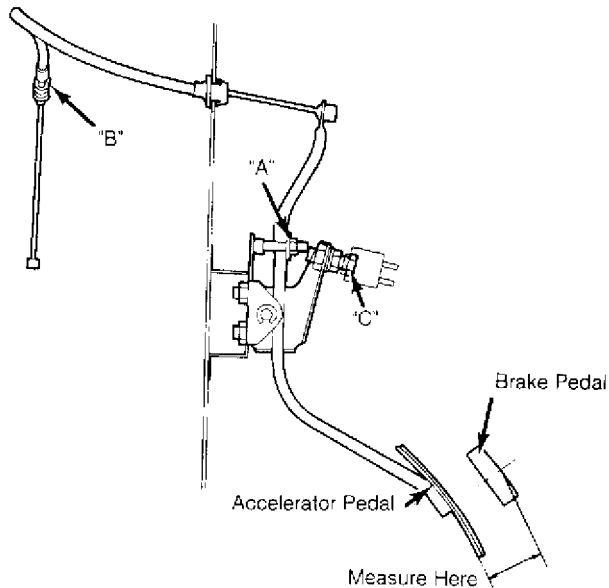


Fig. 11: Adjusting Accelerator Cable and Pedal Height

ACCELERATOR CABLE ADJUSTMENT

1) Check accelerator pedal position. Pedal should be 1.5-1.9" (37-47 mm) lower than brake pedal. See Fig. 11. If necessary, adjust nut "A" to obtain correct position.

2) Cable free play at carburetor should be .04-.12" (1-3 mm). To adjust free play, adjust nut "B". Depress accelerator to floor and check that throttle valves are wide open. If necessary, adjust stopper bolt.

OVERHAUL

NOTE: Disassembly and assembly procedures will vary from vehicle to vehicle due to emissions equipment and type of transmission. Some carburetors may not have all parts referred to in the following procedures.

DISASSEMBLY

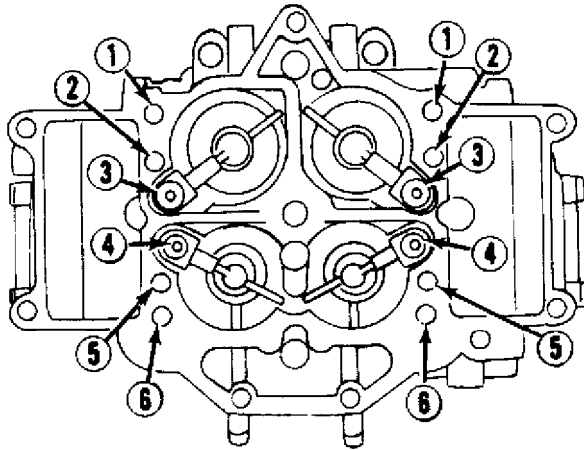
1) Remove vacuum sensing tubes for altitude compensator valve and choke delay valve. Remove choke heater lead, choke diaphragm No. 2 vacuum sensing tube and altitude compensator valve.

2) Remove throttle opener and bracket assembly, No. 1 choke diaphragm vacuum sensing tube, dashpot diaphragm and bracket assembly (Man. Trans. only) and throttle return spring.

3) Remove sub-return spring, return spring bracket, bi-metal spring housing and bracket assembly. Remove split pin and fast idle rod, hot start assist lever spring and bracket assembly and choke lever.

4) Remove the choke return diaphragm and bracket, No. 2 choke diaphragm and air horn assembly from main body. Disconnect float pin and remove float, needle valve, spring, valve stem and retainer.

5) From main body, remove accelerator pump rod, secondary throttle valve rod, throttle sensor and main body attaching bolts. Remove main body from throttle body.



- 1 - Secondary No. 2 Step Air Bleed
- 2 - Secondary Step Jet
- 3 - Secondary Main Air Bleed
- 4 - Primary Main Air Bleed
- 5 - Primary Slow Jet
- 6 - Primary No. 2 Slow Air Bleed

Fig. 12: Removing Jets and Air Bleeds

6) Remove secondary throttle attaching screws, cover, return spring, pin and clip, diaphragm, housing and gasket. Remove "E" clip, washer and shaft, accelerator pump lever, attaching screws, cover, diaphragm and return spring.

7) From main body, remove accelerator pump injection screw, nozzle, gasket, weight, outlet check valve, check valve seat, weight and inlet check valve. Remove retainer, blind plug and washer, primary main jet and secondary main jet.

8) Remove air bleeds and jets. See Fig. 12. Using a hacksaw, remove idle limiter cap by cutting through limiter cap, 0.4" (10 mm) from cap end. Remove and discard mixture adjusting screw and spring.

CLEANING & INSPECTION

1) Wash all parts in clean solvent and clear all passages using compressed air. Never use wire for cleaning jets, orifices or passages. Inspect air horn, main body and throttle body for cracks or breakage.

2) Inspect choke shaft and throttle shaft for wear, linkage and connecting rods for bends, and return springs for damage. Inspect float, needle valve and seat and strainer for damage.

3) To check air vent solenoid for proper operation, apply battery voltage to solenoid valve, valve stem should pull into valve body. Replace solenoid if it fails to operate properly.

REASSEMBLY

1) To reassemble, reverse the disassembly procedure, using new gaskets. Avoid mixing primary and secondary system parts having similar shape. When installing new mixture screw, seat lightly and back out 3 turns for initial adjustment.

2) When installing bi-metal spring housing, fit choke shaft lever to choke shaft. To install bi-metal spring housing, fit choke shaft lever to choke shaft.

CHOKE RETURN & HOT START ASSIST SYSTEM

Article Text

1984 Mazda RX7

For iluvmyrx7.com

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Saturday, June 08, 2002 10:45PM

ARTICLE BEGINNING

1984 Exhaust Emission Systems
MAZDA RX7 CHOKE RETURN & HOT
START ASSIST SYSTEMS

DESCRIPTION

The Choke Return system prevents the choke knob from being left unreturned to prevent overheating of the exhaust system. The Hot Start Assist system opens the throttle valve partially during cranking of warm engine to optimize air/fuel mixture to improve starting.

The choke return system components include No. 1 water temperature switch, choke relay, choke magnet and choke switch. The hot start assist system components include No. 1 water temperature switch, hot start relay and hot start motor.

OPERATION

CHOKE RETURN SYSTEM

When cold engine is started with assist of choke knob, the knob is held in pulled position by the choke magnet. Full release of choke knob is achieved as engine coolant temperature reaches 158°F (70°C). The No. 1 water temperature switch stops the flow of electrical current to magnet and the choke knob is released.

HOT START ASSIST SYSTEM

During cranking of a warm engine, the No. 1 water temperature switch provides power to the hot start relay when starter is engaged. When hot start relay is activated, the hot start motor pulls the hot start cable which opens the throttle valve.

TESTING

CHOKE RETURN SYSTEM

- 1) With engine cold and ignition switch "OFF", pull choke knob out fully. Choke knob should return automatically.
- 2) Connect tachometer to engine. Start engine and set engine speed at 2000 RPM with choke knob. With engine running, choke knob should automatically return when engine temperature indicator is in position shown in Fig. 1.

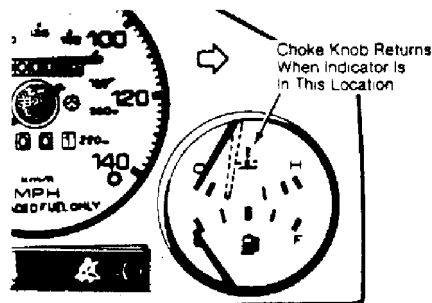


Fig. 1: Engine Temperature Indication for Release of Choke Knob

CHOKE MAGNET

Disconnect electrical connector from choke switch. Using an ohmmeter, check continuity between terminals. Continuity should exist between terminals number 6 and number 8. See Fig. 2.

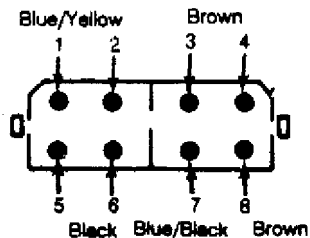


Fig. 2: Choke Switch Terminal Numbering

HOT START ASSIST SYSTEM

1) Inspect hot start assist cable and linkage for proper installation, no binding or sticking, and full return. Warm engine to normal operating temperature and stop engine.

2) Disconnect leading and trailing primary wires from ignition coils. Crank engine. Hot start lever should open throttle valve. If hot start system does not respond as outlined, check hot start assist relay.

HOT START ASSIST RELAY

Disconnect electrical connector from hot start relay. Using an ohmmeter, check continuity between the number 1 and number 4 terminals. Continuity should exist without power applied. Continuity should not exist when power is applied to number 2 (positive) and number 3 (negative) without power applied.

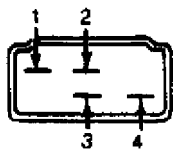


Fig. 3: Hot Start Assist Relay Terminal Numbering

HOT START ASSIST CABLE ADJUSTMENT

Pull the start assist motor inner cable until the stopper lever touches to the start lever and check free play. Free play should be .04-.08" (1-2 mm). If not within specifications, loosen cable and adjust.

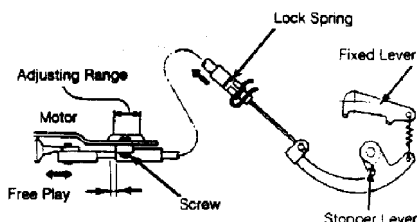


Fig. 4: Adjusting Hot Start Relay Cable

DECELERATION CONTROL SYSTEM - CARBURETED

Article Text

1984 Mazda RX7

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Saturday, June 08, 2002 10:45PM

ARTICLE BEGINNING

1984 Exhaust Emission Systems
MAZDA RX7 CARBURETED MODELS
DECELERATION CONTROL SYSTEM

DESCRIPTION

The deceleration system is designed to maintain a balanced air/fuel mixture during deceleration. System consists of 2 anti-afterburn valves, shutter solenoid valve, coasting/shutter valve, throttle sensor, dashpot (manual transmission models) and connecting hoses and wiring.

OPERATION

The number 2 anti-afterburn valve (located below air cleaner) is actuated by the shutter solenoid valve to supply additional air from air cleaner to intake manifold at initial deceleration to prevent afterburning of fuel. The coasting/shutter valve work together to supply air (coasting valve) and fuel (shutter valve) during deceleration to prevent backfiring.

TESTING

NO. 1 ANTI-AFTERBURN VALVE

1) Warm up engine and run at idle speed. Disconnect the air pump hose at the air pump. Place a finger over the air hose opening and make sure that air is not sucked into the air hose at idling speed.

2) Increase the engine speed more than 3000 RPM and then decrease rapidly. Make sure the air is sucked into the air hose for a few seconds while decelerating. Replace air control valve if it does not operate properly.

NO. 2 ANTI-AFTERBURN VALVE

1) Warm engine and run at idling speed. Disconnect the air hose running from air cleaner to number 2 anti-afterburn valve and make sure that air is not sucked into the air hose at idling speed.

2) Increase the engine speed more than 3000 RPM and then decrease the speed rapidly. Make sure the air is sucked into the air hose for a few seconds while decelerating. Replace air control valve if it does not operate properly.

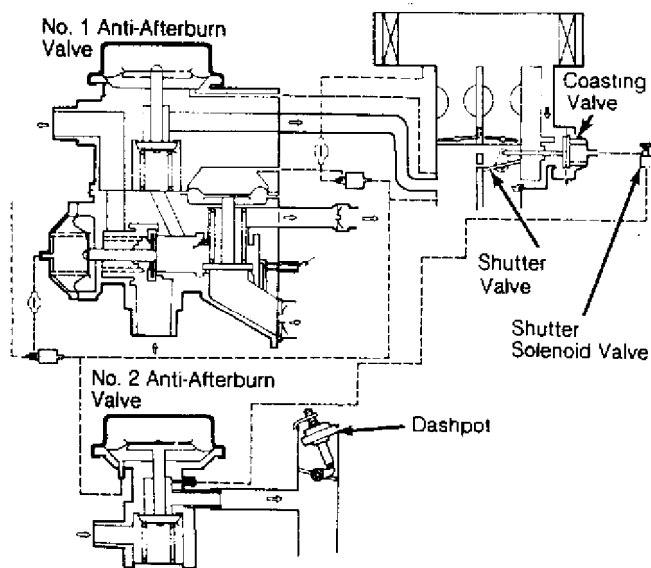
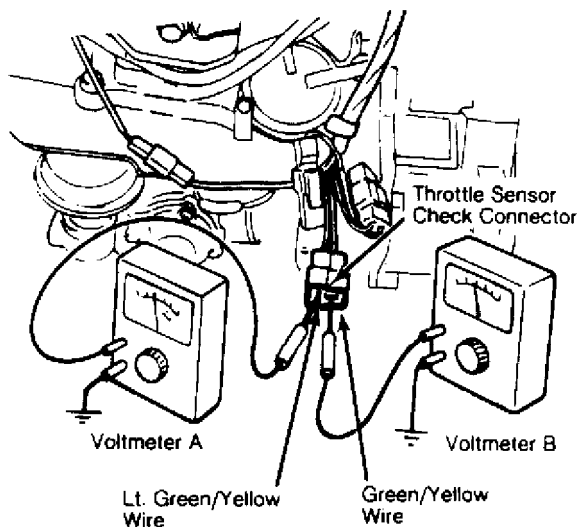


Fig. 1: Deceleration Control System

THROTTLE SENSOR

1) Warm engine to normal operating temperature. Stop engine and connect tachometer. Disconnect Brown connector under air cleaner on carbon canister side of engine.

2) Using 2 voltmeters, connect negative lead of each voltmeter to each terminal in connector. Connect positive leads to "B" terminal of alternator. See Fig. 2.



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Fig. 2: Voltmeters Connected to Adjust Throttle Sensor

3) Start engine. Quickly decelerate engine from 3000 RPM and make sure that current flows to both terminals when engine speed is 1000-1200 RPM. If current does not flow to both terminals at specified speed, adjust throttle sensor.

4) To adjust sensor, remove cap from adjusting screw. Adjust timing of current flowing to voltmeter A in Fig. 2 by turning adjusting screw. Turning screw clockwise causes current to flow

earlier and turning screwing counterclockwise causes current to flow later. See Fig. 3.

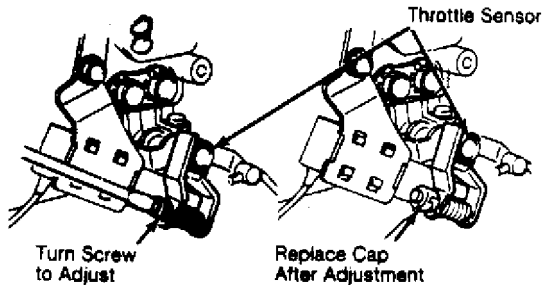


Fig. 3: Throttle Sensor Adjusting Screw Location

4) After adjustment, install cap over throttle sensor adjusting screw. Remove voltmeters and reconnect Brown connector. Remove tachometer.

SHUTTER SOLENOID VALVE

1) Disconnect vacuum sensing tubes from shutter solenoid valve (Yellow color dot). Blow through solenoid valve through vacuum hose "B" shown in Fig. 4; . Make sure air passes through the valve and comes out port "C".

2) Disconnect electrical connector and apply battery power to terminals on solenoid valve. Blow through hose again. Air should pass through valve and come out the air filter "A" of the valve.

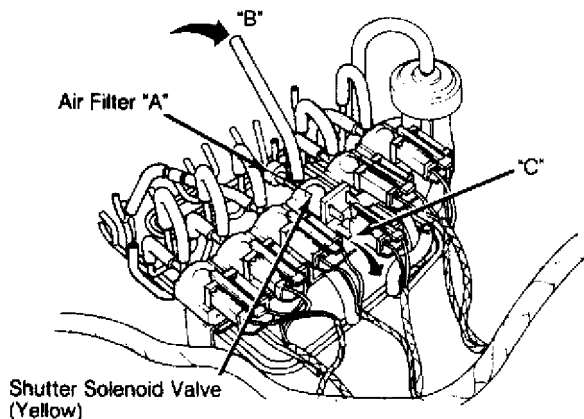


Fig. 4: Testing Shutter Solenoid Valve

SHUTTER SOLENOID VALVE SIGNAL CHECK

1) Warm engine to normal operating temperature and run at idle speed. Connect a tachometer to engine. Disconnect the connector from throttle sensor. Disconnect the air hose from the coasting valve to air cleaner at the air cleaner.

2) Place a finger over the air hose opening and make sure the air is not sucked into the air hose at idling speed. Increase the engine speed more than 3000 RPM and then decrease rapidly. Make sure the air is sucked into the air hose until the engine speed decreases to 1000-1200 RPM.

3) On automatic transmissions, shift into "P" or "N". Current should NOT flow to solenoid valve terminal at any engine speed. If solenoid valve does not respond as described, replace shutter solenoid valve.

DECELERATION CONTROL !

DASHPOT (MAN. TRANS. ONLY)

1) Remove air cleaner. Check that dashpot rod does not bind throttle lever movement. Quickly operate throttle lever fully and make sure dashpot rod extends quickly.

2) Release throttle lever and make sure that throttle lever returns slowly to idle position after it has touched dashpot rod. Connect tachometer to engine. Start engine and warm to operating temperature.

3) Ensure engine idle speed is adjusted to specification. Operate throttle lever until it is away from dashpot rod. Slowly decrease engine speed and check speed at which throttle lever just touches dashpot rod. It should be 3800-4200 RPM. If not, loosen lock nut and turn dashpot diaphragm to adjust engine speed.

END OF ARTICLE

DECELERATION CONTROL SYSTEM - EFI

Article Text

1984 Mazda RX7

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Saturday, June 08, 2002 10:46PM

ARTICLE BEGINNING

1984 Exhaust Emission Systems
MAZDA RX7 FUEL INJECTED MODELS
DECELERATION CONTROL SYSTEM

DESCRIPTION

The deceleration system is designed to maintain a balanced air/fuel mixture during deceleration. This helps prevent backfiring. System consists of a fuel cut operation, throttle sensor, anti-afterburn valve, and dashpot.

FUEL CUT SYSTEM TEST

During deceleration above a certain engine speed, fuel is not injected from injectors. Fuel cut speeds are listed in the Fuel Cut Speeds table. To check fuel cut operation, hold engine speed at 2000 RPM and make sure engine speed varies when throttle sensor is pushed in with a finger.

Fuel Cut Speeds Chart

Application	RPM
In Neutral	1500-1600
In Gear	1200-1300

DECELERATION

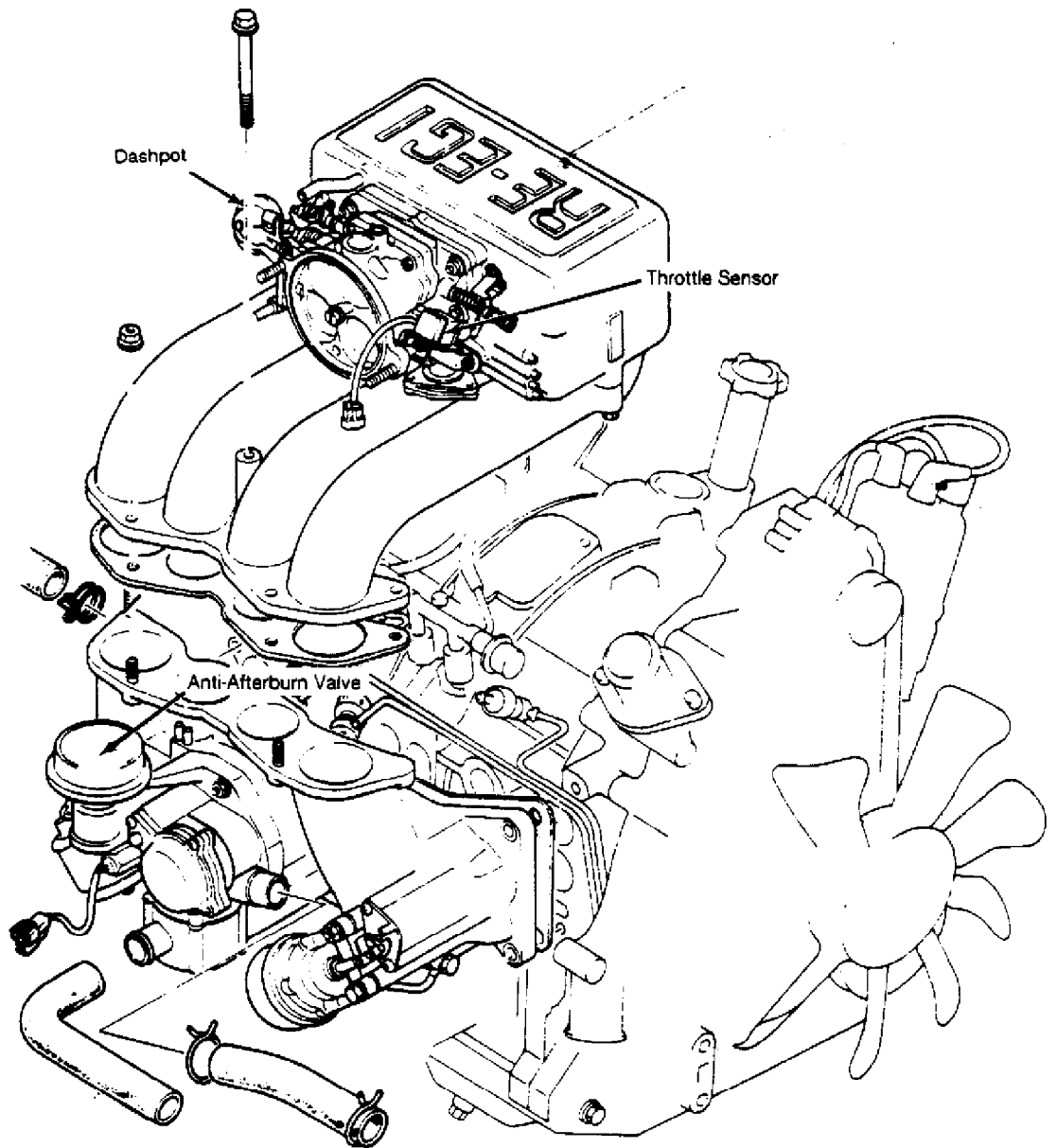


Fig. 1: Deceleration Control System

THROTTLE SENSOR TEST

1) To check and adjust throttle sensor, proceed as follows. Warm up engine then turn it off. Connect voltmeters to checking connector (Green) as shown in Fig. 2.

2) Turn ignition switch on and check to see if current flows to one of the voltmeters. If current flows to both voltmeters or does not flow at all, turn throttle sensor adjusting screw until current flows to one of the voltmeters.

3) If current flows to both voltmeters, turn adjusting screw counterclockwise. If current does not flow at all, turn adjusting screw clockwise. After adjusting, install cap onto adjusting screw.

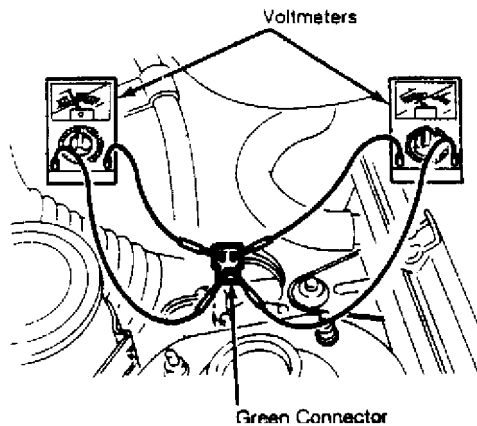


Fig. 2: Voltmeters Connected to Adjust Throttle Sensor

4) Disconnect connector for throttle sensor. Connect an ohmmeter to throttle sensor as shown in Fig. 3. Open throttle valve and observe ohmmeter reading. At idle reading should be about 1000 ohms. Wide open reading should be about 5000 ohms.

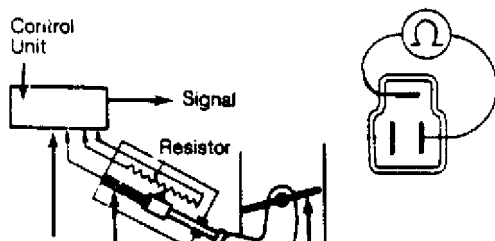


Fig. 3: Throttle Sensor Ohmmeter Connection

ANTI-AFTERBURN VALVE TEST

1) Warm up engine and run it at idling speed. Disconnect air hose (air control valve-to-air pump) at air pump. Place a finger over air hose opening and make sure that air is not sucked into air hose at idling speed.

2) Increase engine speed more than 3000 RPM then decrease engine speed rapidly. Make sure that air is sucked into air hose for a few seconds while decelerating. Replace air cntrl valve, if necessary.

DASHPOT TEST

1) Check that dashpot rod does not keep throttle lever from returning to idle stop. Quickly operate throttle lever fully and make sure dashpot rod extends quickly.

2) Release throttle lever and make sure throttle lever returns slowly to idle position after it has touched dashpot rod. Connect tachometer to engine. Start engine and warm to operating temperature. Make sure engine operates at specified idle speed.

3) Operate throttle lever until it is away from dashpot rod. Slowly decrease engine speed and check speed at which throttle lever just touches dashpot rod. It should be 2350-2650 RPM. If not, loosen lock nut and turn dashpot diaphragm to adjust engine speed.

END OF ARTICLE

EMISSION APPLICATION

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Saturday, June 08, 2002 10:46PM

ARTICLE BEGINNING

1984 ENGINE EMISSIONS
Mazda Emission Control Applications

626, GLC, Pickup, RX7

EMISSION CONTROL DEVICE APPLICATIONS

EMISSION CONTROL DEVICE APPLICATIONS TABLE

B2000 2.0L
PCV, AIS, EVAP, OC, EGR, AAV (1), ECC, DCS, HIC, ITCS, PAS (2), TOCS
B2000 2.2L Diesel
PCV, EGR
GLC 1.5L
PCV, TAC, AIS, EVAP, OC, EGR, AAV (1), ASV, DCS, DP, ECC, PAS, TOCS
RX7
TAC (3), EVAP, OC (3), O2, AAV, DCS, DP, ECC, EFE, EGI (4), HIC (3), ITCS, MCS
626 2.0L
PCV, TAC, AIS, EVAP, OC, O2, AAV, DCS, EEC, ITCS, PAS, TOCS

(1) - A/T only.
(2) - Federal models only.
(3) - With 12A engines only.
(4) - With 13B engines only.

ABBREVIATION DEFINITIONS

ABBREVIATIONS DEFINITIONS TABLE

Abbreviation	Description
AAV	Anti-Afterburn Valve
ACD	Auxiliary Control Device
AI	Air Injection
AIS	Air Injection System
ASV	Air Suction Valve
CEC	Computerized Engine Controls
CRV	Coasting Richer Valve
DCS	Deceleration Control System
DP	Dashpot
ECC	Electronic Controlled Carburetor
EEC	Electronic Engine Control
EFE	Early Fuel Evaporation
EGI	Electronic Gasoline Injection
EGR	Exhaust Gas Recirculation
EVAP	Evaporative Emission Control
FCO	Fuel Cut-Off
HIC	Hot Idle Compensator
IC	Integrated Control
ITCS	Ignition Timing Control System

MCS	.....	Mixture Control System
OC	.....	Oxydation Catalyst
O2	.....	Oxygen Sensor
PAS	.....	Pulse Air System
PCV	.....	Positive Crankcase Ventilation
SPK	.....	Spark
TAC	.....	Thermostatic Air Cleaner
TOCS	.....	Throttle Opener Cont. System
TWC	Three-Way Catalyst

END OF ARTICLE

FUEL EVAPORATION SYSTEM

Article Text

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Saturday, June 08, 2002 10:46PM

ARTICLE BEGINNING

1984 Fuel Evaporation Systems
MAZDA ROTARY ENGINE

RX7

DESCRIPTION

System prevents escape of fuel vapors into atmosphere. Components include a non-vented fuel tank with integral vapor separator, check and cut valve (located at fuel tank), charcoal canister, air vent solenoid valve (12A carbureted engine), purge valve and connecting hoses.

OPERATION

When engine is not running, fuel vapors from fuel tank, float bowl (12A carbureted engine), and engine are routed through vent lines to charcoal canister where they are adsorbed. When engine is running above idle, purge valve opens and fuel vapors are drawn from canister and engine into intake manifold for burning. The purge valve operates as the PCV valve and controls crankcase ventilation and fuel evaporation.

CHECK & CUT VALVE

This valve has 3 functions: When fuel tank pressure becomes too high, valve releases pressure to atmosphere. When vacuum becomes too high, valve allows air into tank to prevent tank from collapsing. If vehicle is overturned, valve prevents fuel leakage by sealing the line with a check ball.

AIR VENT SOLENOID VALVE

When ignition key is off, air vent solenoid valve opens, allowing fuel vapors in float bowl to travel to canister. When ignition key is on, solenoid valve closes float bowl vent.

PURGE VALVE

A vacuum operated purge valve directs crankcase, fuel tank, and canister vapors into intake manifold when the throttle is opened.

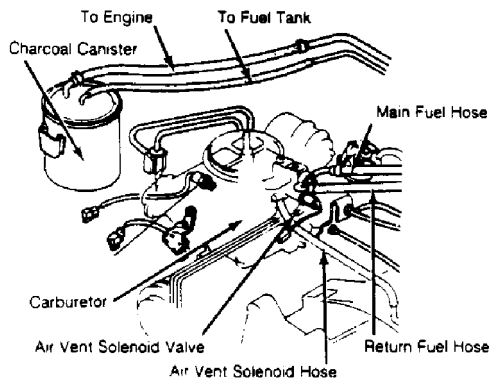


Fig. 1: Mazda RX7 Canister and Air Vent Solenoid Location

TESTING

EVAPORATION LINE

From canister, remove evaporation hose leading to fuel tank. Connect "U" tube pressure gauge to evaporation hose.

NOTE: Evaporation line test is the same as on piston engines. To complete testing procedure, see "TESTING, Evaporation Line" in "Mazda Piston Engine" article in this section.

CHECK & CUT VALVE

NOTE: Check and cut valve test is the same as on piston engines. See "TESTING, Check and Cut Valve" in "Mazda Piston Engine" article in this section.

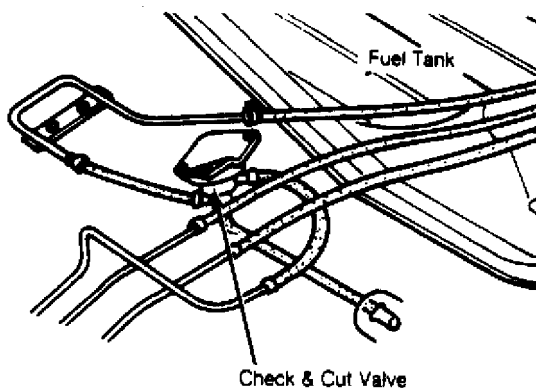


Fig. 2: Locating Check and Cut Valve on RX7

AIR VENT SOLENOID VALVE

Check solenoid air vent hose for cracks or damage. Disconnect solenoid air vent hose from line. With ignition switch off, slowly blow through hose. Air should pass through solenoid. Turn ignition switch on, and blow through hose again. Air should not pass through valve. If valve does not operate as described, replace valve.

PURGE VALVE

NOTE: Purge valve test is outlined in Mazda article in "Crankcase Ventilation" section. See "TESTING, Rotary Engines."

MAINTENANCE

Check system function every 15,000 miles. Check and Cut Valve should be tested every 25,000 miles. Replace parts as necessary.

END OF ARTICLE

FUEL INJECTION SYSTEM

Article Text

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Saturday, June 08, 2002 10:47PM

ARTICLE BEGINNING

1984-85 Fuel Injection
MAZDA

RX7

DESCRIPTION

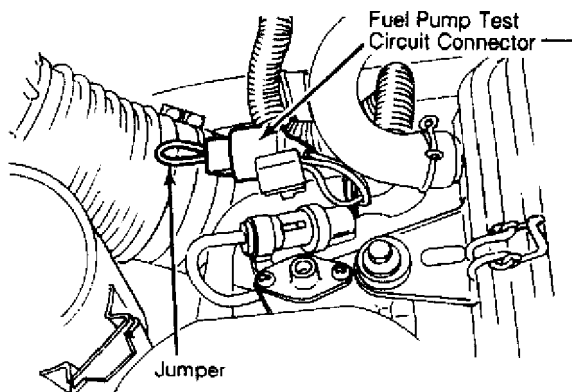
The electronically controlled fuel injection system precisely meters the amount of fuel injected in each rotor. The Electronic Control Unit (ECU) is the "brain" of the system.

The fuel delivery system consists of a fuel tank, filter, pump, injectors, pressure regulator and pulsation damper. The air delivery system consists of an airflow meter, air funnel, throttle chamber, dynamic chamber and intake manifold.

OPERATION

The ECU uses input information to determine fuel output from the following sensors and devices: airflow meter, throttle sensor, intake air temperature sensor, atmospheric pressure sensor, engine RPM (ignition pulse), coolant temperature, oxygen sensor and intake manifold vacuum sensor.

After receiving the input information, the ECU will determine the correct fuel pressure at the injectors by sending a signal to the pressure regulator control solenoid valve. The ECU will also control the fuel delivery volume by timing the duration of injector "ON" time.



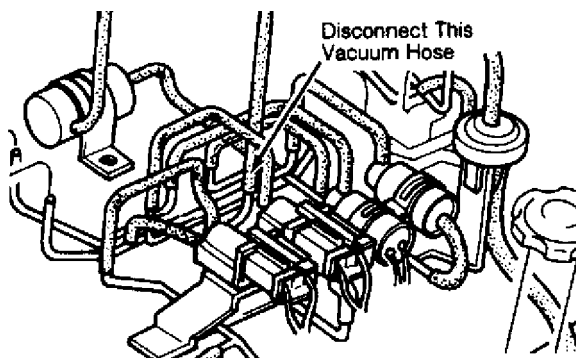
35533

Fig. 1: Testing Fuel Pump Output Pressure

FUEL PUMP PRESSURE TEST

1) Disconnect negative battery terminal. Using a shop rag wrapped around main fuel hose, disconnect main fuel hose from fuel line. Connect a pressure gauge to line and reconnect negative battery terminal.

2) Turn ignition on and jumper across 2 terminals of fuel pump test circuit connector. See Fig. 1. Fuel pump pressure should be 50-71 psi (3.5-5.0 kg/cm²).



35534

Fig. 2: Disconnecting Vacuum Hose from Fuel Pressure Regulator Control Valve

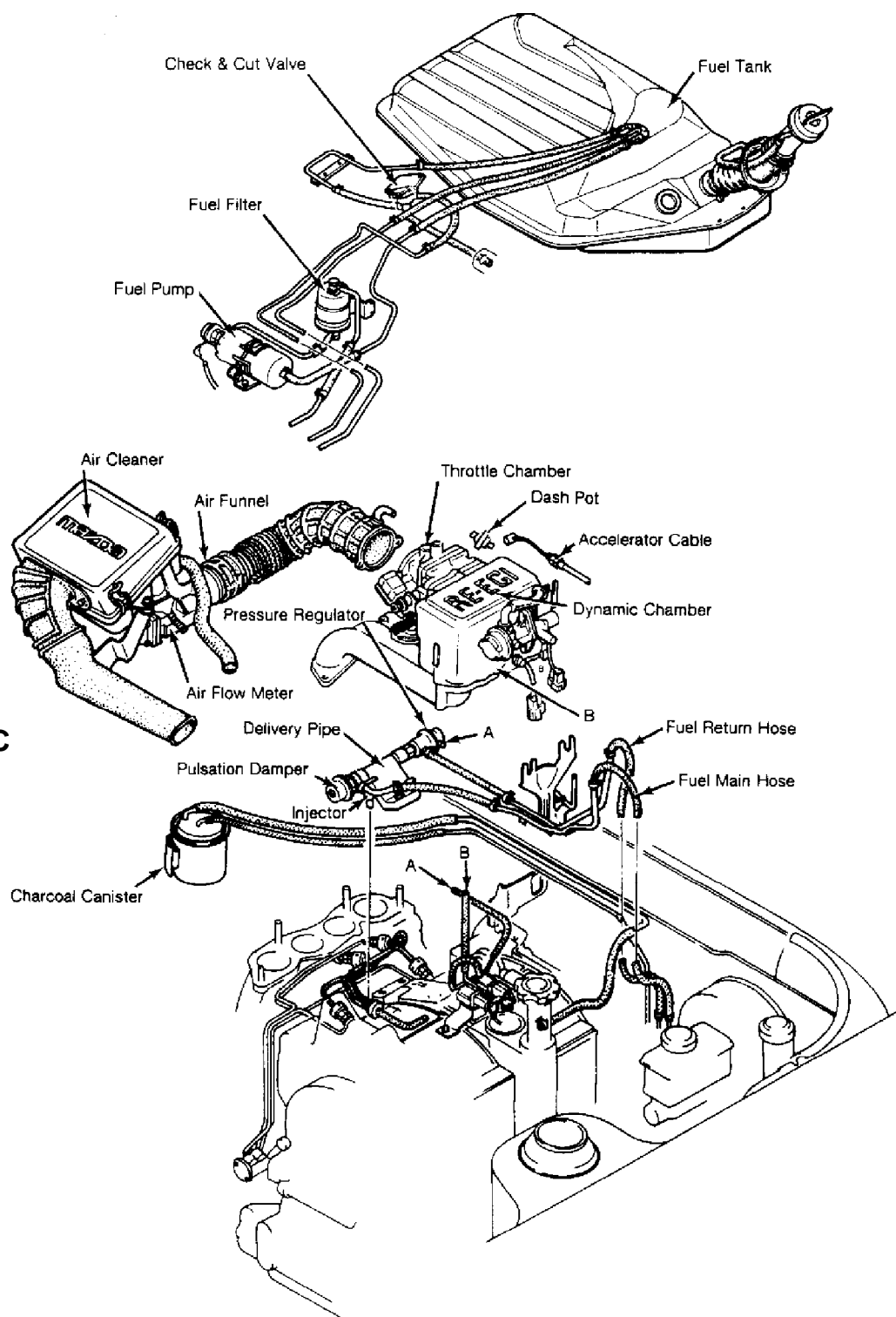
PRESSURE REGULATOR FUEL PRESSURE

1) Disconnect negative battery terminal. Using a shop rag wrapped around main fuel hose, disconnect main fuel hose from fuel line. Using 3-way connector, connect pressure gauge to main fuel line.

2) Reconnect negative battery terminal. Start engine. Disconnect vacuum hose between pressure regulator and pressure regulator control valve at control valve. See Fig. 2.

3) With vacuum hose disconnected and engine idling, fuel pressure should be approximately 37 psi (2.6 kg/cm²). Reconnect vacuum hose to control valve and measure pressure. Fuel pressure should be approximately 28.5 psi (2 kg/cm²). If not, replace fuel pressure regulator.

FUEL INJEC



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35536

Fig. 3: Mazda RX7 Fuel Injection System Components

FUEL INJECTOR TESTS

INJECTOR OPERATION

1) Using a mechanic's stethoscope, listen to each injector for normal "clicking" operating noise at idle and under acceleration.

2) If both injectors do not operate, ensure that there is continuity in wire between trailing coil and terminal "U" of ECU connector. If there is continuity, check main fusible link located next to left strut tower.

3) If okay, turn ignition on and ensure that main relays (2) click each time key is turned on. Main relays are located behind left strut tower and are cylindrical in shape.

4) If main relays do not click when key is turned on, check that battery voltage is present at main relay connector number 2 (Black/White wire). If not, repair open in circuit.

INJECTOR RESISTANCE

With electrical connector removed from injector, measure resistance between injector terminals. Injector resistance must be in range of 1.5-3.0 ohms. If not, replace injector.

INJECTOR FUEL LEAKAGE & DELIVERY VOLUME

1) Remove dynamic chamber and loosen delivery pipe attaching bolts. Using wire, tie injectors tightly onto delivery pipe.

CAUTION: Ensure that injectors are tied tightly to fuel delivery pipe. Failure to do so will cause fuel to spray out of loose connections and cause fire hazard.

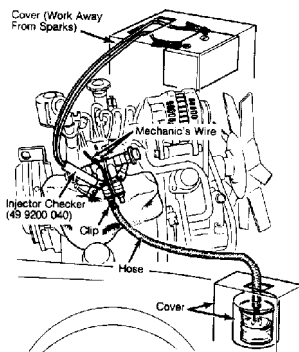
2) Turn ignition on and jumper between 2 terminals of fuel pump test circuit connector. See Fig. 1. With system pressurized, there should be no fuel leakage at injectors.

3) Leave system pressurized for 5 minutes and note any leakage. Only a very slight amount of fuel leakage is acceptable.

4) Remove jumper from fuel pump test connector. Attach piece of hose between injector and a graduated cylinder. Connect Injector Checker (49 9200 040) to injector electrical connector. See Fig. 4.

CAUTION: Be extremely careful when connecting injector checker to battery; always work away from sparks or open flames.

5) Turn ignition on, jumper fuel pump test connector and energize injector by connecting injector checker's leads to battery voltage. Measure injector fuel delivery volume for 15 seconds. Volume produced in 15 seconds should be 5-6.7 oz. (.15-.2 L).

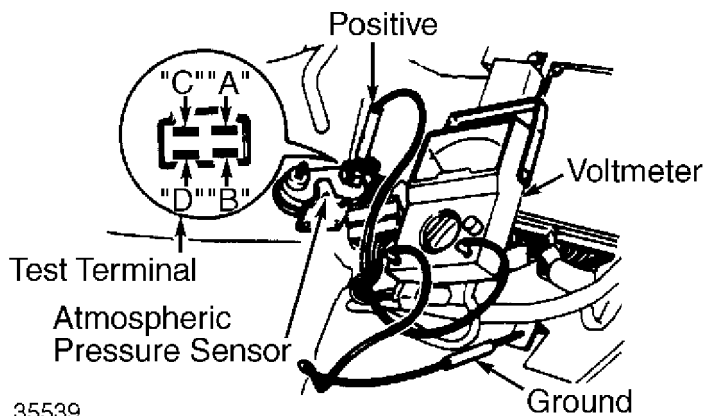


PULSATION DAMPER TEST

Start engine and run at idle. Place finger over pulsation damper and ensure damper pulsates. If not, replace pulsation damper.

ATMOSPHERIC PRESSURE SENSOR TEST

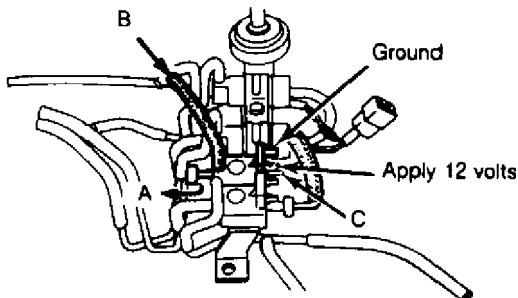
Turn ignition on. Using a voltmeter connected to the atmospheric pressure sensor terminal "D", measure voltage. See Fig. 5. Voltage should be 3.5-4.5 volts at sea level, or 2.5-3.5 volts above an altitude of 6500 ft. (2000 m).



35539
Fig. 5: Testing Atmospheric Pressure Sensor

PRESSURE REGULATOR CONTROL VALVE TEST

- 1) Disconnect vacuum hoses from control valve. Blow into valve port "B" and ensure that air passes out of valve through air filter port "C". See Fig. 6.
- 2) Remove connector from control valve and energize control valve by applying 12 volts to switch terminal. Ground other terminal. Blow into valve port "B" and ensure that air passes out of valve through port "C". If not, replace control valve.



35538
Fig. 6: Testing Pressure Regulator Control Valve

INTAKE AIR TEMPERATURE SENSOR TEST

Remove intake air temperature sensor from dynamic chamber. Using a heat lamp, ohmmeter and thermometer, measure resistance of sensor at various temperatures. See INTAKE AIR TEMPERATURE SENSOR RESISTANCE specification table.

INTAKE AIR TEMPERATURE SENSOR RESISTANCE

Temperature	Ohms
68°F (20°C)	45,650-37,350
122°F (50°C)	13,040-10,660
185°F (85°C)	3850-3150

THROTTLE SENSOR TEST

For complete throttle sensor testing procedures, see the ROTARY TUNE-UP article in the TUNE-UP section.

COOLANT TEMPERATURE SWITCH TEST

Coolant temperature switch is located in radiator. Using an ohmmeter, check that switch closes in the 52-66°F (12-18°C) temperature range.

COOLANT THERMO SENSOR TEST

Coolant thermo sensor is located in water pump. Using an ohmmeter, check sensor resistance at various temperatures. See COOLANT THERMO SENSOR RESISTANCE specification table.

COOLANT THERMO SENSOR RESISTANCE

Temperature	Ohms
-4°F (-20°C)	17,820-14,580
68°F (20°C)	2690-2210
176°F (80°C)	352-288

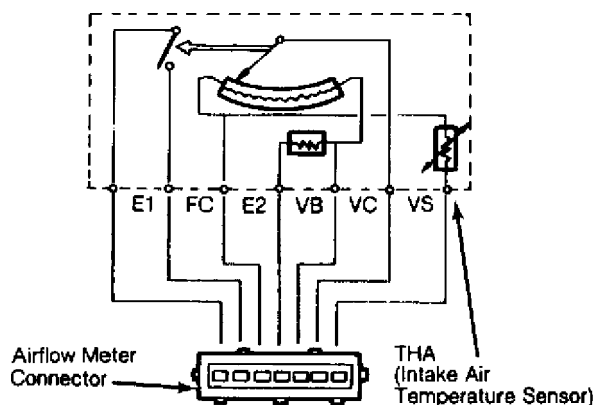
AIRFLOW METER TEST

Visually check airflow meter body for cracks or damage. Using an ohmmeter, check resistance between airflow meter connector terminals. See Fig. 7. See AIRFLOW METER RESISTANCE specification table for resistance values.

AIRFLOW METER RESISTANCE

Terminal	Ohms
E2 to VS	20-400
E2 to VC	100-300
E2 to VB	200-400
E2 to THA (1)	
-4°F (-20°C)	10,000-20,000
32°F (0°C)	4000-7000
68°F (20°C)	2000-3000
104°F (40°C)	900-1300
140°F (60°C)	400-700
E1 to FC	No Continuity

(1) - Intake air temperature sensor.



35540
Fig. 7: Checking Airflow Meter Resistance

AIRFLOW MEASURING PLATE TEST

Using a screwdriver, depress measuring plate fully and measure resistance between terminals on airflow meter connector. See AIRFLOW MEASURING PLATE RESISTANCE table for resistance values.

AIRFLOW MEASURING PLATE RESISTANCE

Terminals	Ohms
E1 to FC	
Plate Fully Closed	No Continuity
Plate Fully Open	0
E2 to VS	
Plate Fully Closed	20-400
Plate Fully Open	20-1000

FUEL INJECTORS R & I

REMOVAL

- 1) Remove dynamic chamber assembly by removing air funnel, accelerator cable, throttle sensor connector, metering oil pump connecting rod and coolant hoses.
- 2) Disconnect negative battery cable, terminal cover, vacuum hoses, air supply valve connector and intake air temperature sensor connector.
- 3) Lift chamber assembly off of intake manifold and cover intake manifold ports. Remove delivery pipe from top of injectors and remove injectors.

INSTALLATION

Install new "O" rings on injectors and lubricate with gasoline. To install injectors, reverse removal procedure. Check for fuel leakage before installing dynamic chamber.

FUEL PUMP R & I

REMOVAL

1) Remove storage compartment located behind driver's seat. Disconnect fuel pump connector and raise vehicle on hoist.
2) Remove pump bracket clamp bolt. Disconnect and plug inlet and outlet hoses. Remove fuel pump from bracket.

INSTALLATION

To install, reverse removal procedure. Check for fuel leakage.

IDLE SPEED ADJUSTMENT

For complete adjustment procedures, see the ROTARY TUNE-UP article in the TUNE-UP section.

END OF ARTICLE

FUEL PUMP - ELECTRIC

Article Text

1984 Mazda RX7

For iluvmyrx7.com

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Saturday, June 08, 2002 10:48PM

ARTICLE BEGINNING

1984 Electric Fuel Pump
MAZDA

RX7, PICKUP

DESCRIPTION & OPERATION

Pulsating electric fuel pump is mounted near fuel tank on frame member. Power is supplied when ignition switch is in "RUN" position. This circuit is protected by a 15 amp fuse (20 amp on RX7) at fuse panel. In-line fuel filter must be changed within recommended mileage interval before performing tests. If in doubt, install new filter.

TESTING

PRESSURE TEST

Fuel Pump (Carburetted Models)

1) Remove air cleaner assembly and disconnect fuel line at carburetor. Connect pressure gauge with restrictor and a flexible hose. See Fig. 1. Disconnect connector from fuel pump cut relay and connect a jumper wire. See Fig. 2.

2) Turn ignition on and briefly vent the system into container by opening hose restrictor. Pressure should stabilize at 2.8-3.6 psi (.19-.25 kg/cm²). If not within specifications, and lines and filter are in satisfactory condition, replace pump.

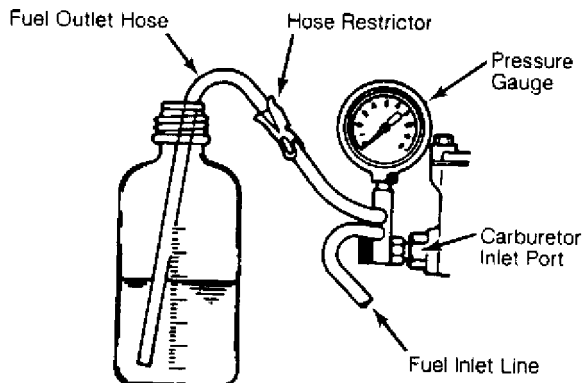


Fig. 1: Fuel Pump Pressure and Volume Test

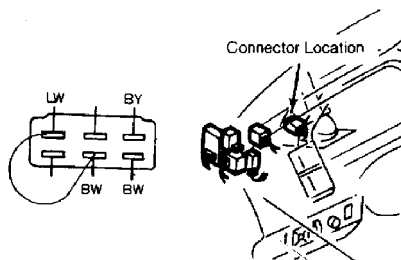


Fig. 2: Installing Jumper Wire

Fuel Pump (Fuel Injected Models)

1) Disconnect battery negative cable from battery. Disconnect

fuel main hose from fuel pipe. Connect a pressure gauge.

NOTE: Cover the hose with waste cloth since fuel is splashed out when disconnecting the hose.

2) Reconnect battery negative terminal. After turning ignition switch to "ON" position, short-circuit fuel pump short circuit terminal to start pump. See Fig. 3. Measure fuel pressure. Outlet pressure should be 49.8-71.1 psi (3.5-5 kg/cm²).

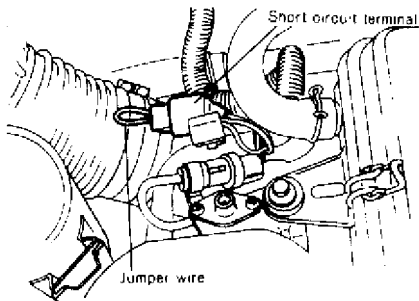


Fig. 3: Location of Short Circuit Terminal

Pressure Regulator (Fuel Injected Models)

1) Disconnect battery negative terminal. Disconnect fuel main hose from fuel pipe. Connect pressure gauge between fuel main hose and pipe by using 3-way joint.

NOTE: Cover hose with waste cloth since fuel is splashed out when disconnecting the hose.

2) Connect battery negative terminal, and start engine. Disconnect vacuum hose connected to pressure regulator at pressure regulator control valve. Measure fuel pressure at idle. Pressure should be 36.97 psi (2.6 kg/cm²). Connect vacuum hose as it was, and measure fuel pressure. Pressure should be 28.44 psi (2.0 kg/cm²).

VOLUME TEST

With fuel pressure within limits, open restrictor for one minute and measure fuel expelled. If not within specifications, check for restrictions in tank, line or filter. Replace pump if required.

FUEL PUMP VOLUME

Application	Volume	
	Qt./Min.	(cc/Min.)
RX7 (Carbureted Only)	1.5	(1400)
Pickup	0.8	(800)

REMOVAL & INSTALLATION

FUEL PUMP

Removal & Installation (B2000)

Disconnect negative battery cable. Unplug connector at fuel pump. Disconnect inlet and outlet hoses at fuel pump. Remove fuel pump-to-mounting bracket nuts and remove pump. To install, reverse removal procedure.

Removal & Installation (RX7)

Remove rear floor mat and disconnect fuel pump electrical lead. Raise and support vehicle. Remove fuel pump cover. Disconnect inlet and outlet hoses from pump. Remove fuel pump. To install, reverse removal procedure.

PRESSURE REGULATOR

Removal & Installation

1) Remove intake manifold. Disconnect vacuum hose and fuel return hose.

NOTE: Cover starter motor with waste cloth to absorb any fuel splashed on it.

2) Remove pressure regulator mounting nut and remove pressure regulator. To install, reverse removal procedure and check for fuel leaks.

END OF ARTICLE

IGNITION CONTROL SYSTEM - CARBURETED

Article Text

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Saturday, June 08, 2002 10:49PM

ARTICLE BEGINNING

1984 Exhaust Emission Systems
MAZDA RX7 CARBURETED MODELS
IGNITION CONTROL SYSTEM

DESCRIPTION

The Ignition Control system is used to regulate vacuum advance of leading and trailing distributor systems. In addition, this system helps reduce CO and HC emissions by aiding pellet converter warm-up during cold engine starts.

System consists of leading and trailing components of the distributor system, vacuum control solenoid valve and connecting wiring and tubing.

OPERATION

The Ignition Control system operates when engine is cold and running between 1000-1200 RPM and when engine is hot during quick deceleration from 3000 RPM.

TESTING

NOTE: For additional information and adjustments on distributor spark timing, see appropriate information in "Mazda RX7 Systems & Tune-Up Service Procedures," article in this section.

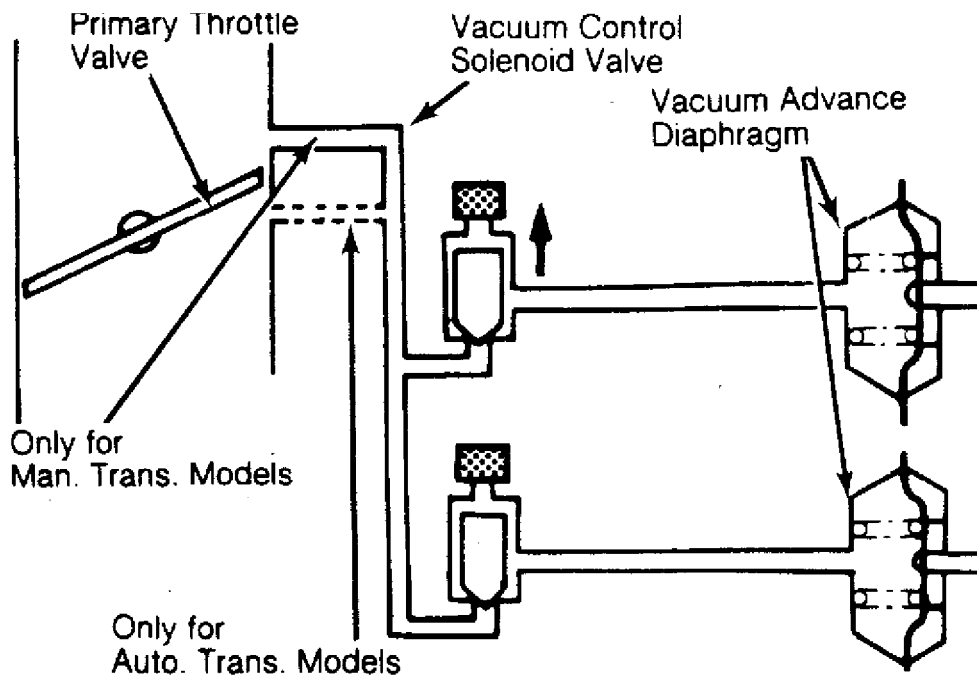


Fig. 1: Ignition Control System

VACUUM CONTROL SOLENOID VALVE
SIGNAL CHECK

Leading Vacuum Control

Solenoid Valve Signal

1) Warm up engine to normal operating temperature. Connect a tachometer to engine. Disconnect the vacuum sensing tube (from leading vacuum advance diaphragm to pipe) at the pipe. Place a finger over the pipe opening and make sure that air is not sucked into the pipe.

2) Gradually increase the engine speed and make sure that air is sucked into the pipe when the engine speed is 1000-2000 RPM or more. Decrease the engine speed from 4000 RPM rapidly and make sure air is not sucked into pipe while decelerating.

3) On vehicles with automatic transmissions, run the engine at idling speed and make sure that air is sucked into the pipe when the shift lever is in the "R", "D", "D1" or "D2" positions. On all models, disconnect the connector from the number 1 water temperature switch.

4) Connect a jumper wire to both terminals in the connector. Pull out the choke knob about .6" (15 mm) and make sure that air is not sucked into the pipe at any engine speed. Stop the engine and disconnect the connector for the number 2 water temperature switch on the radiator.

5) Pull the choke knob out about .6" (15 mm) and start the engine. Increase the engine speed and make sure that air is sucked into the pipe when the engine speed is 1000-2000 RPM or more.

Trailing Vacuum Control Solenoid

Valve Signal

1) Warm up engine to normal operating temperature. Connect a tachometer to engine. Disconnect the vacuum sensing tube (from trailing vacuum advance diaphragm to pipe) at the pipe. Place a finger over the pipe opening and make sure that air is not sucked into the pipe.

2) Gradually increase the engine speed and make sure that air is sucked into the pipe when the engine speed is 2900-3100 RPM or more. Decrease the engine speed from 4000 RPM rapidly and make sure air is not sucked into pipe while decelerating.

3) On vehicles with automatic transmissions, run the engine at idling speed and make sure that air is sucked into the pipe when the shift lever is in the "R", "D", "D1" or "D2" position. On all models, disconnect the connector from the number 1 water temperature switch and connect a jumper wire to both terminals in the connector.

4) Pull out the choke knob about .6" (15 mm) and make sure that air is not sucked into the pipe at any engine speed. Stop the engine and disconnect the connector for the number 2 water temperature switch on the radiator. Pull the choke knob out about .6" (15 mm) and start the engine. Increase the engine speed and make sure that air is sucked into the pipe when the engine speed is 1000-2000 RPM or more.

VACUUM SOLENOID VALVE

Leading Valve

1) Disconnect the vacuum solenoid sensing tubes from the solenoid valve and vacuum pipe. Blow through the solenoid valve from the vacuum sensing tube "B". Make sure the air passes through the valve and comes out the air filter "C".

2) Disconnect the connector from the leading vacuum control valve and connect battery power to terminals on the valve. Blow through the valve from the vacuum sensing tube "B". Make sure the air passes through the valve and comes out the port "A" of the valve.

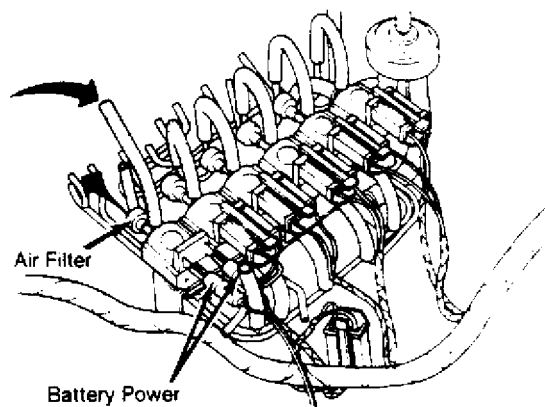
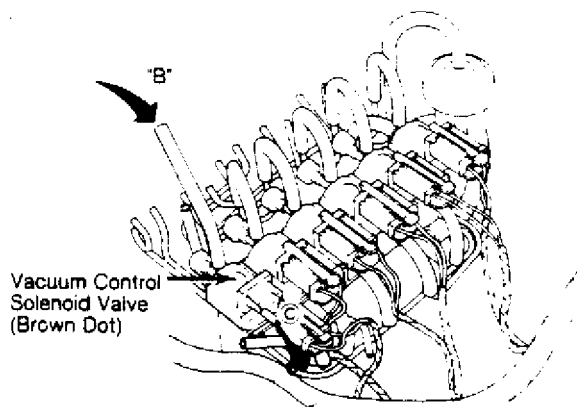


Fig. 2: Testing Leading Vacuum Control Solenoid Valve

Trailing Valve

1) Disconnect the vacuum solenoid sensing tubes from the solenoid valve and vacuum pipe. Blow through the solenoid valve from the vacuum sensing tube "B". Make sure the air passes through the valve and comes out the air filter "C".

2) Disconnect the connector from the trailing vacuum control valve and connect battery power to terminals on the valve. Blow through the valve from the vacuum sensing tube "B". Make sure the air passes through the valve and comes out the port "A" of the valve.

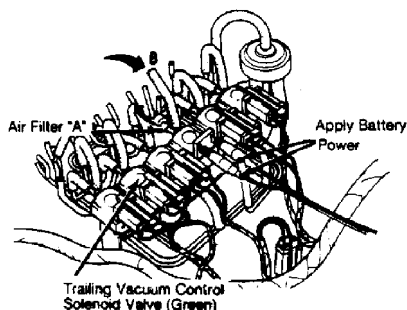


Fig. 3: Testing Trailing Vacuum Control Solenoid Valve

IGNITION CONTROL SYSTEM - EFI

Article Text

1984 Mazda RX7

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Saturday, June 08, 2002 10:49PM

ARTICLE BEGINNING

1984 Exhaust Emission Systems

MAZDA RX7 FUEL INJECTED MODELS IGNITION CONTROL SYSTEM

DESCRIPTION

The Ignition Control system is used to regulate vacuum advance of leading and trailing distributor systems. In addition, this system helps reduce CO and HC emissions by aiding pellet converter warm-up during cold engine starts.

System consists of leading and trailing components of the distributor system, vacuum control solenoid valve and connecting wiring and tubing.

OPERATION

The Ignition Control system operates when engine is cold and running between 1000-1200 RPM and when engine is hot during quick deceleration from 3000 RPM.

TESTING

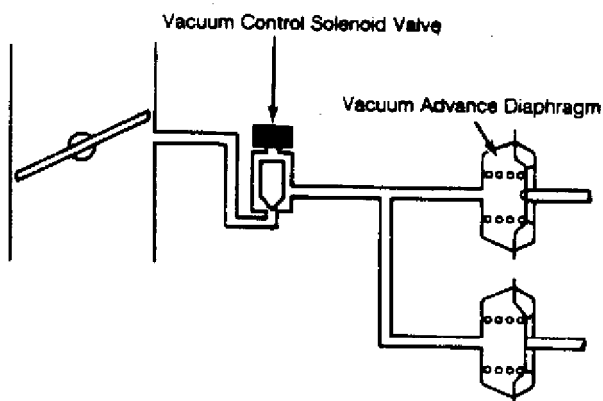


Fig. 1: Ignition Control System

VACUUM CONTROL SOLENOID VALVE

Checking for Signal

1) Warm up engine to normal operating temperature. Connect a tachometer to engine. Disconnect the vacuum sensing tube (from leading vacuum advance diaphragm to pipe) at pipe. Place a finger over pipe opening and make sure air is not sucked into pipe. See Fig. 2.

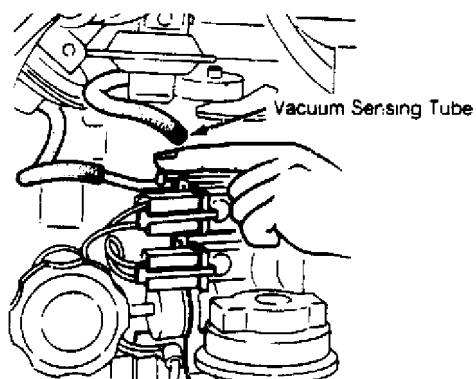


Fig. 2: Checking for Signal

2) Gradually increase engine speed and make sure air is sucked into pipe when engine speed is 1000-1200 RPM or more. Decrease the engine speed from 4000 RPM rapidly and make sure air is not sucked into pipe while decelerating. Turn A/C switch on and make sure air is sucked into pipe at idling speed.

Testing for Faulty Valve

1) Disconnect vacuum sensing tubes from solenoid valve and vacuum pipe. Blow through solenoid valve from port "B". Make sure air passes through valve and comes out from air filter "C". See Fig. 3.

2) Disconnect connector from vacuum control solenoid valve and connect battery power to terminals on valve. Blow through valve from port "B". Make sure air passes through valve and comes out from port "A" of valve.

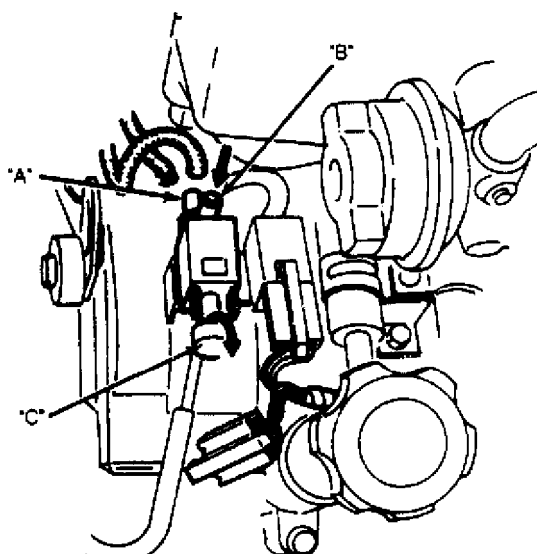


Fig. 3: Testing vacuum control solenoid valve

END OF ARTICLE

IGNITION SYSTEM

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ARTICLE BEGINNING

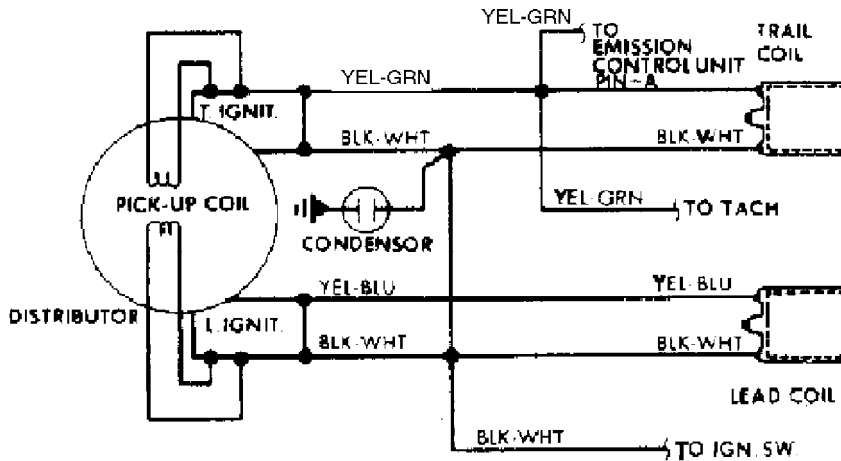
1984 Distributors & Ignition Systems

MITSUBISHI ELECTRONIC IGNITION - MAZDA ROTARY ENGINE

Mazda RX7

DESCRIPTION

The Mitsubishi electronic ignition system, used on the Mazda RX7 rotary engine, is unique in that it has 2 sets of spark plugs (leading and trailing). There is one set in the front rotor housing and one in the rear rotor housing. See Fig. 1. There are also 2 ignition coils, 2 pick-up coils located in the distributor, and 2 coil-to-distributor high tension wires.



29012

Fig. 1: Schematic of RX7 Ignition System

There are 2 separate ignitors, mounted externally on the distributor housing. One is for the leading side and the other for the trailing side. Other system components include a battery, ignition switch, ignition control switches, (water temperature, altitude, etc.), and various relays.

All models are equipped with an ignition control system and centrifugal advance mechanisms. All models have vacuum control units for both leading and trailing sides.

OPERATION

A reluctor (signal rotor) is mounted on the reluctor (rotor) shaft. It turns inside 2 magnetic pick-up coils, one for the leading side and one for the trailing side. See Fig. 2.

As each tooth of the reluctor approaches and then passes the leading pick-up coil, a signal is generated. It is sent to the leading ignitor, which breaks the primary circuit in the leading ignition coil.

As each tooth passes the leading pick-up coil, the previous passing tooth approaches and becomes aligned with the trailing pick-up coil. This triggers a signal to the trailing ignitor, which breaks the primary circuit in the trailing ignition coil.

Therefore, immediately after the leading spark plug fires, the trailing spark plug also fires, providing more complete and

efficient combustion while reducing HC and CO emissions.

As the primary circuit is broken in the leading and trailing ignition coils, a voltage surge occurs in the secondary circuit of the ignition coils. This high voltage is transmitted through the leading and trailing high tension wires to the distributor, rotor and spark plugs.

An emission control unit is also included in the ignition control system, along with different sensing switches to provide proper timing under varying engine operating conditions.

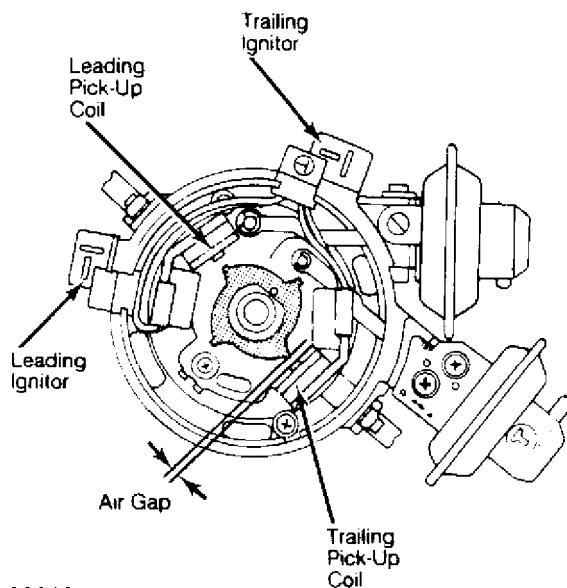
ADJUSTMENTS

RELUCTOR-TO-

PICK-UP COIL AIR GAP

1) Remove distributor cap and rotor. Turn distributor shaft until the extended tooth of the reluctor (signal rotor) aligns with core of pick-up coil. See Fig. 2.

2) Using a feeler gauge, check for .020-.035" (.5-.9 mm) air gap. If gap is incorrect, replace pick-up coil and bearing assembly or distributor drive shaft, as required.



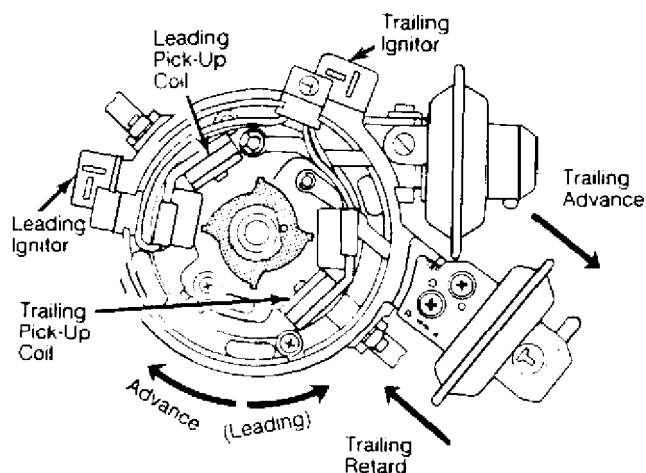
29013

Fig. 2: Adjusting Distributor Air Gap
Check air gap at all teeth and both pick-up coils.

IGNITION TIMING

1) To adjust leading timing, loosen distributor lock nut, and rotate distributor housing until correct timing is obtained. See Fig. 3.

2) To adjust trailing timing, loosen the screws securing the trailing vacuum unit. Move the vacuum unit outward (to advance) or inward (to retard). Retighten screws when correct timing is obtained.



29014

Fig. 3: Adjusting Ignition Timing

Distributor position determines leading timing. Vacuum unit position adjusts trailing timing.

TESTING

HIGH TENSION WIRE

RESISTANCE CHECK

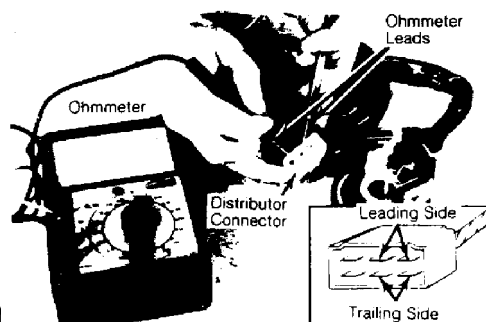
Turn ignition switch "OFF". Connect ohmmeter leads to each end of coil-to-distributor high tension wire. Resistance should not exceed 16,000 ohms (plus or minus 400 ohms) per 39.37" (1 m).

IGNITION COIL RESISTANCE CHECK

Set an ohmmeter in the low scale. With ignition switch turned "OFF", and coil wires disconnected, attach ohmmeter leads to primary terminals of leading coil and then trailing coil. Primary resistance should be 1.22-1.48 ohms for each ignition coil.

PICK-UP COIL RESISTANCE CHECK

1) Set an ohmmeter in the x100 scale. Turn ignition switch "OFF". Disconnect connector between ignitor and distributor. See Fig. 4.



IGNITION SYSTEM

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Fig. 4: Ohmmeter Hookup for Pick-Up Coil Resistance Check

Replace pick-up coil & bearing plate if reading is not 600-700 ohms.

2) Connect ohmmeter leads to leading terminals and then to trailing terminals. Resistance should be 600-700 ohms at 68° F (20°

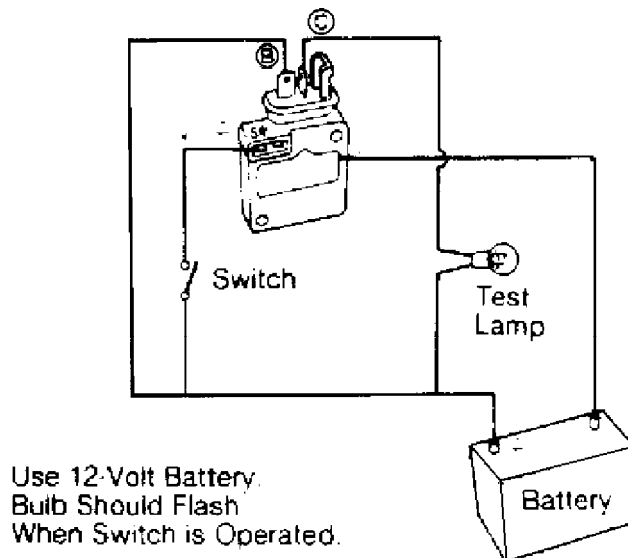
C) for each set of pick-up coils. If not, replace pick-up coil and bearing assembly.

PICK-UP COIL OPERATION CHECK

- 1) With distributor connector still disconnected, touch ammeter leads to leading terminals and then to trailing terminals.
- 2) Place a screwdriver against core of pick-up coil being tested. Indicator of meter should move each time screwdriver is taken quickly away from core. If not, replace pick-up coil and bearing assembly.

IGNITOR CHECK

1) Remove ignitor from distributor base. Make a circuit as shown in Fig. 5 using wire and a test bulb. Use a 12 volt bulb of less than 10 watts.



29016
Fig. 5: Test Lamp Hookup for Checking Ignitor Operation
Bulbs should flash when switch is operated.

2) Quickly operate switch "ON " and "OFF", and make sure test lamp flashes. If not, replace ignitor.

OVERHAUL

DISASSEMBLY

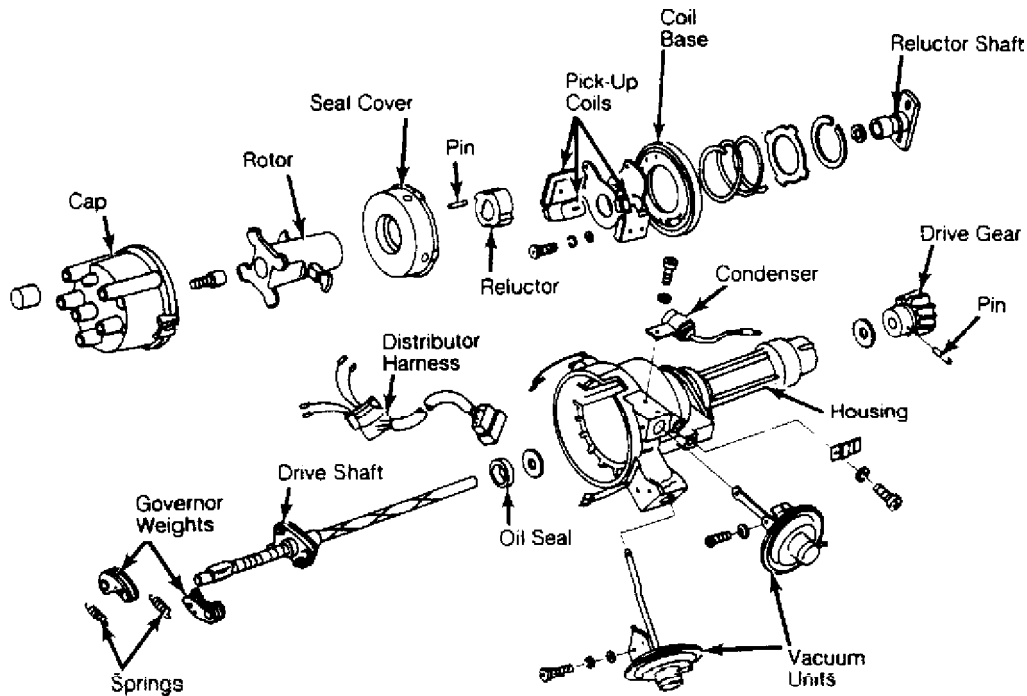
- 1) Remove distributor cap, rotor and seal cover. See Fig. 6. Remove ignitors and attaching screws from distributor housing. Remove clips holding vacuum diaphragm links. Remove attaching screws and vacuum control units from distributor housing. Remove condenser.
- 2) Remove reluctor shaft attaching screw from end of shaft. Remove pick-up coil base bearing attaching screws. Remove reluctor, reluctor shaft, pick-up coils and coil base bearing assembly from top of distributor drive shaft.
- 3) Remove reluctor from reluctor shaft, using puller. Remove spring pin. Remove governors by removing springs. Drive lock pin out of drive gear, using a small drift. Remove gear and washers. Remove IGL

drive shaft through top of distributor housing.

REASSEMBLY

1) Inspect distributor cap and rotor for cracks, carbon tracks, and burned or corroded terminals.

2) Assemble distributor in reverse order of disassembly, noting the following: Install reluctor shaft onto distributor drive shaft, engaging slots of reluctor shaft and governor pins. Install pick-up coil and coil base bearing assembly and tighten attaching screws. Install reluctor on shaft, driving spring pin in with a punch.



29017

Fig. 6: Disassembled View of RX7 Mitsubishi Distributor

END OF ARTICLE

MIXTURE CONTROL SYSTEM - CARBURETED MODELS

Article Text

1984 Mazda RX7

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Saturday, June 08, 2002 10:51PM

ARTICLE BEGINNING

1984 Exhaust Emission Systems
MAZDA RX7 CARBURETED MODELS
MIXTURE CONTROL SYSTEM

RX7

DESCRIPTION

Mixture control system controls air/fuel mixture ratio to maintain optimum emission levels under a variety of operating conditions. System consists of richer solenoid, various air bleeds, altitude compensator and main air bleed control solenoid valve.

OPERATION

Signals from the electronic control unit (ECU) control the richer solenoid and main air bleed control solenoid valve to control fuel mixture.

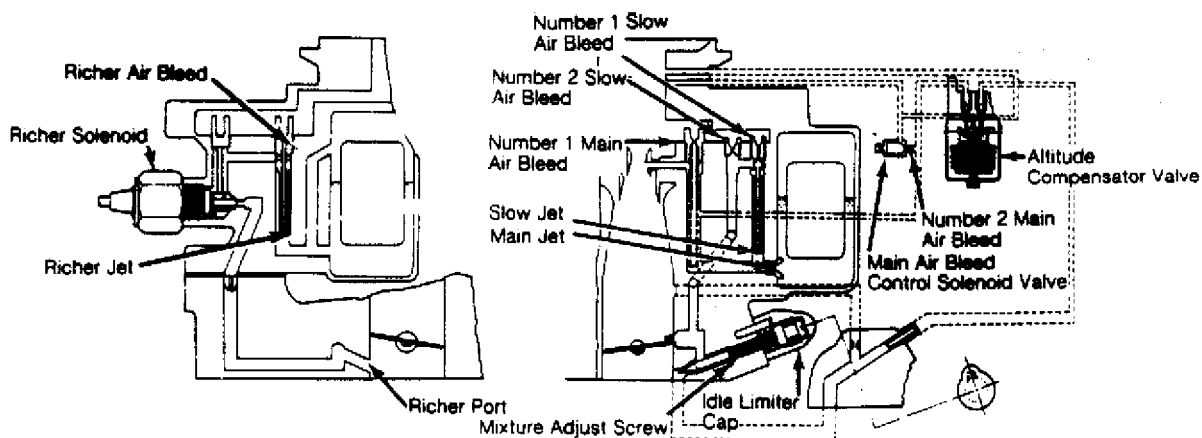


Fig. 1: Mixture Control System

TESTING

MAIN AIR BLEED CONTROL SOLENOID VALVE

1) Warm up engine and run at idling speed. Connect a tachometer to the engine. Disconnect the connector from the throttle sensor and connect a jumper wire to "A" and "C" terminals of the connector.

2) Connect a voltmeter to the main air bleed control solenoid (Brown) terminal and ground. Increase the engine speed and observe the meter reading. At any engine speed between idle and 3000 RPM, voltage should be approximately 12 volts.

3) Between 3000-4000 RPM, voltage should be below 2 volts. At more than 4000 RPM, voltage should be approximately 12 volts. Disconnect the jumper wire connected to "A" and "C" terminals and connect the connector to the throttle sensor.

4) Position the vehicle securely on a rolling road-tester. Increase the vehicle speed and observe the voltmeter reading. At speeds below 50 MPH, voltage should be approximately 12 volts. Above 50 MPH, voltage should be less than 2 volts.

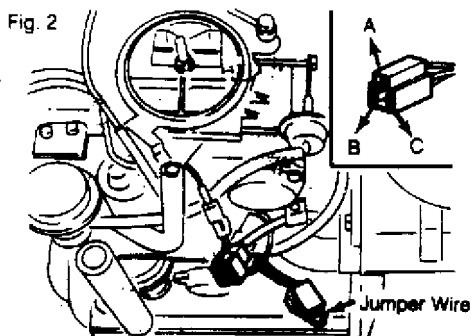


Fig. 2: Checking Signal for Main Air Bleed Control Solenoid Valve

RICHER SOLENOID VALVE SIGNAL

1) Start the engine and run at idle speed. Connect a voltmeter to the richer solenoid valve terminal and ground, and take reading. Voltage should be 12 volts. Increase the engine speed more than 1500 RPM and then decrease it.

2) Voltmeter should show below 2 volts for 30 seconds when the engine speed becomes 1100 RPM or less. Disconnect the vacuum sensing tube of the vacuum switch at the idle compensator and take a voltmeter reading. Voltage should be zero.

3) Reconnect the vacuum sensing tube to the idle compensator. Disconnect the connector for the clutch switch. Depress the clutch pedal and shift into first through fifth gears. Increase the engine speed more than 1500 RPM and then decrease it. Voltmeter should read 12 volts.

RICHER SOLENOID VALVE

Start the engine and run at idling speed. Ground the richer solenoid terminal and make sure a clicking sound can be heard.

VACUUM SWITCH

Remove the vacuum switch. Connect a vacuum pump to the vacuum switch. Connect an ohmmeter to the vacuum switch, and check continuity between terminals. With 0-4.7 in. Hg vacuum applied, switch should be open. With more than 4.7 in. Hg vacuum applied, switch should be closed.

CLUTCH SWITCH

Disconnect clutch switch connector. Connect an ohmmeter to the clutch switch, and check the continuity between the switch terminals. There should be continuity when pedal is depressed, and none when released.

NEUTRAL SWITCH

Disconnect neutral switch connector. Connect an ohmmeter to the switch, and check the continuity between the switch terminals. There should be continuity when transmission is in neutral range, and none when in other ranges.

END OF ARTICLE

MIXTURE CONTROL SYSTEM - CARBURETED M

PCV SYSTEM

Article Text

1984 Mazda RX7

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Saturday, June 08, 2002 10:52PM

ARTICLE BEGINNING

1984 Crankcase Ventilation
MAZDA

B2000, B2200, GLC, RX7 & 626

DESCRIPTION & OPERATION

PISTON ENGINE MODELS

Gasoline

The PCV system includes 2 hoses and a PCV valve. Crankcase vapors are normally drawn from valve cover through PCV valve and into intake manifold. A hose from the air cleaner to the valve cover supplies fresh air to the crankcase.

When intake manifold vacuum drops due to heavy loads, the amount of blow-by exceeds the capacity of the PCV valve. Air then flows directly from the valve cover into the air cleaner and carburetor. When engine is not running, the PCV valve is closed and vapors are stored in the crankcase.

Diesel

The crankcase ventilation system on diesel engines consists of a breather hose connecting an upper chamber in valve cover with air intake. Oil baffle plates are located in upper chamber of valve cover. Blow-by gases are fed into the air intake and prevented from entering the atmosphere. Servicing is limited to keeping breather hose and passages free of obstructions.

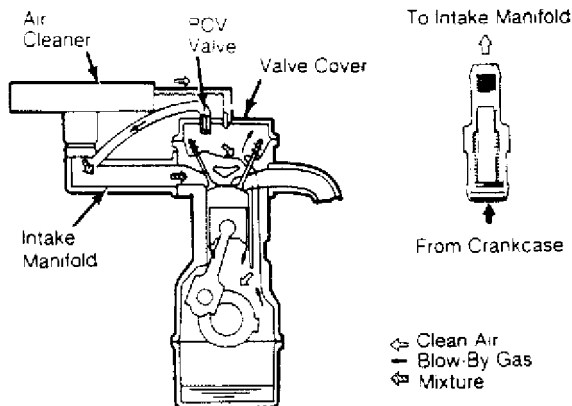


Fig. 1: 626 Crankcase Ventilation System
Note direction of flow.

ROTARY ENGINE MODELS

The crankcase ventilation system on the rotary engine (RX7) is an integral part of the fuel evaporation system. A vacuum operated purge valve directs crankcase, fuel tank, and canister vapors into intake manifold when the throttle is opened.

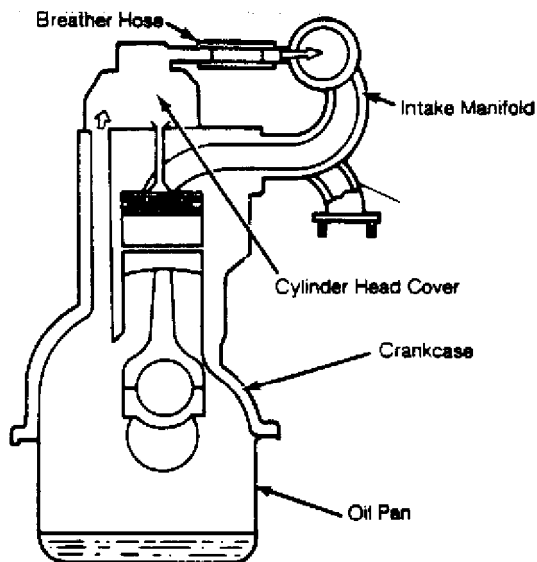


Fig. 2: B2200 Diesel Pickup Crankcase Ventilation System

TESTING

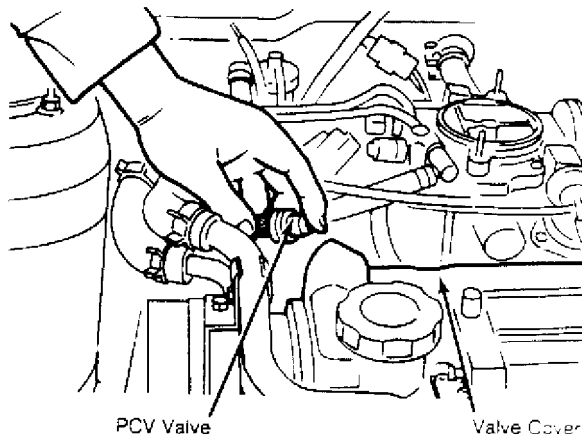
PISTON ENGINE MODELS

GLC

Remove PCV valve. Blow through valve with mouth pressure from valve cover side of valve. Air should pass through. Blow through valve from opposite end. Air should not pass through. If valve does not operate as described, replace valve.

626

With engine idling at normal operating temperature, remove PCV valve from valve cover. Close off valve opening with finger and check that idle speed drops. If idle speed does not drop, replace valve. See Fig. 3.



PCV SYSTEM Article Text (p. 2) 1984 Mazda RX7 For iluvmyrx7.com Copyright © 1998 Mitchell Repair Information Com
PCV valve is connected to ventilation hose.

B2000

With engine at normal operating temperature and key off, remove hose from PCV valve. Run engine at idle and place finger over

the PCV valve inlet. If idle speed does not drop, replace PCV valve.

NOTE: To replace PCV valve on California models with automatic transmissions and on all Federal models, first remove carburetor. Carburetor removal is not necessary on other B2000 models.

ROTARY ENGINE MODELS

1) Disconnect purge valve-to-oil filler tube hose from purge valve. Start engine and run at idle speed. Place finger over open purge valve port and feel that no vacuum is present. See Fig. 4.

2) Increase engine speed to 2000 RPM and feel that vacuum is present at purge valve port. If valve does not operate as outlined, replace purge valve.

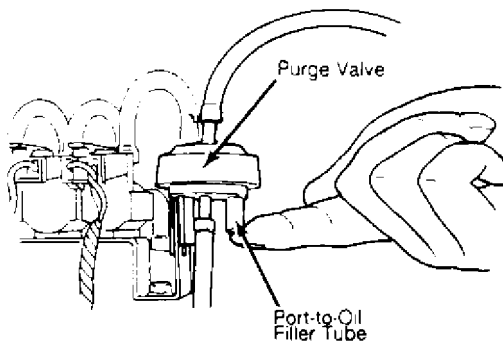


Fig. 4: RX7 Rotary Engine Purge Valve
Check air flow at port leading to oil filler tube.

MAINTENANCE

Check PCV system operation every 30,000 miles or 30 months.

END OF ARTICLE

VACUUM DIAGRAMS

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ARTICLE BEGINNING

1984 Exhaust Emission Systems
MAZDA RX7 VACUUM DIAGRAMS

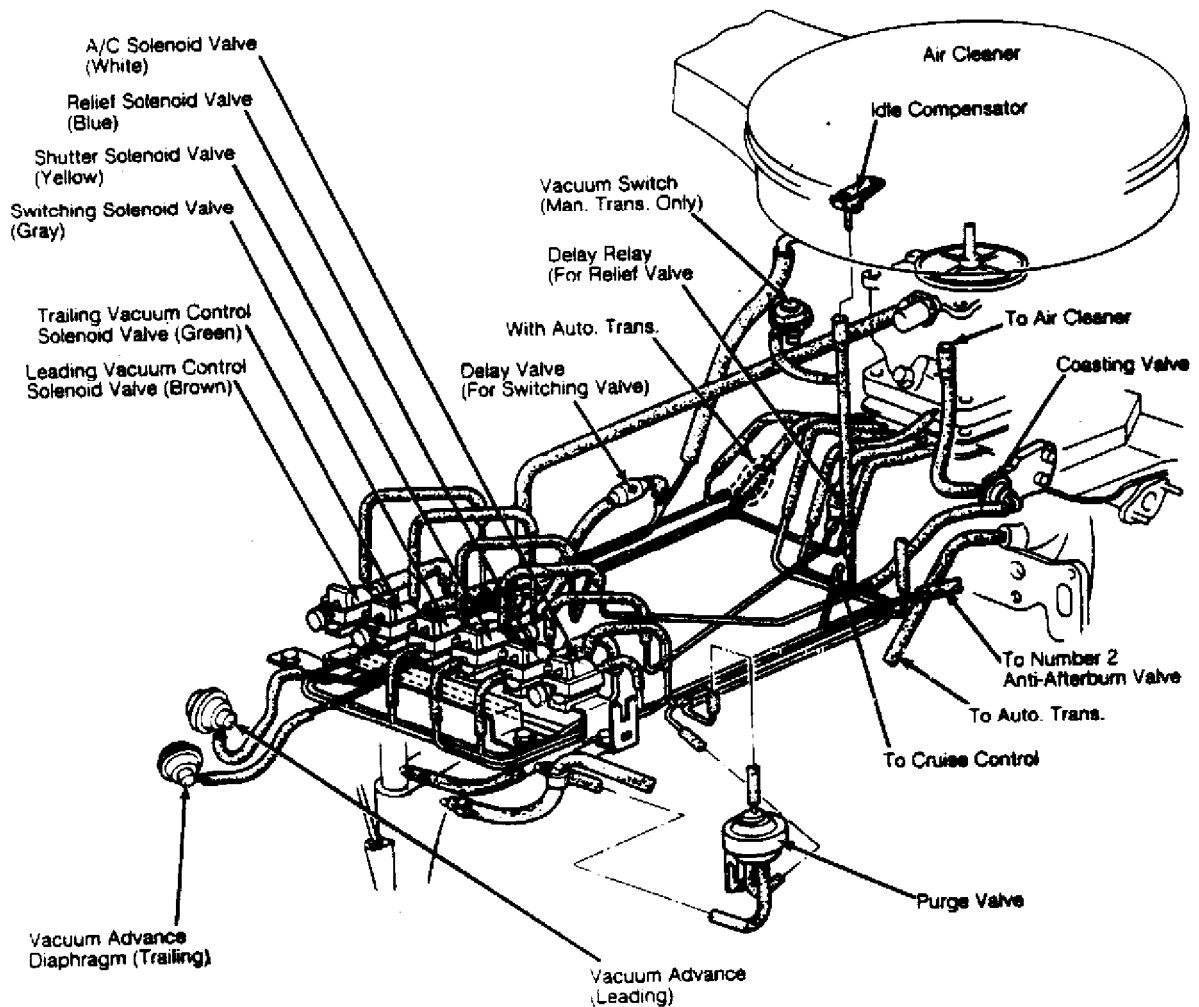
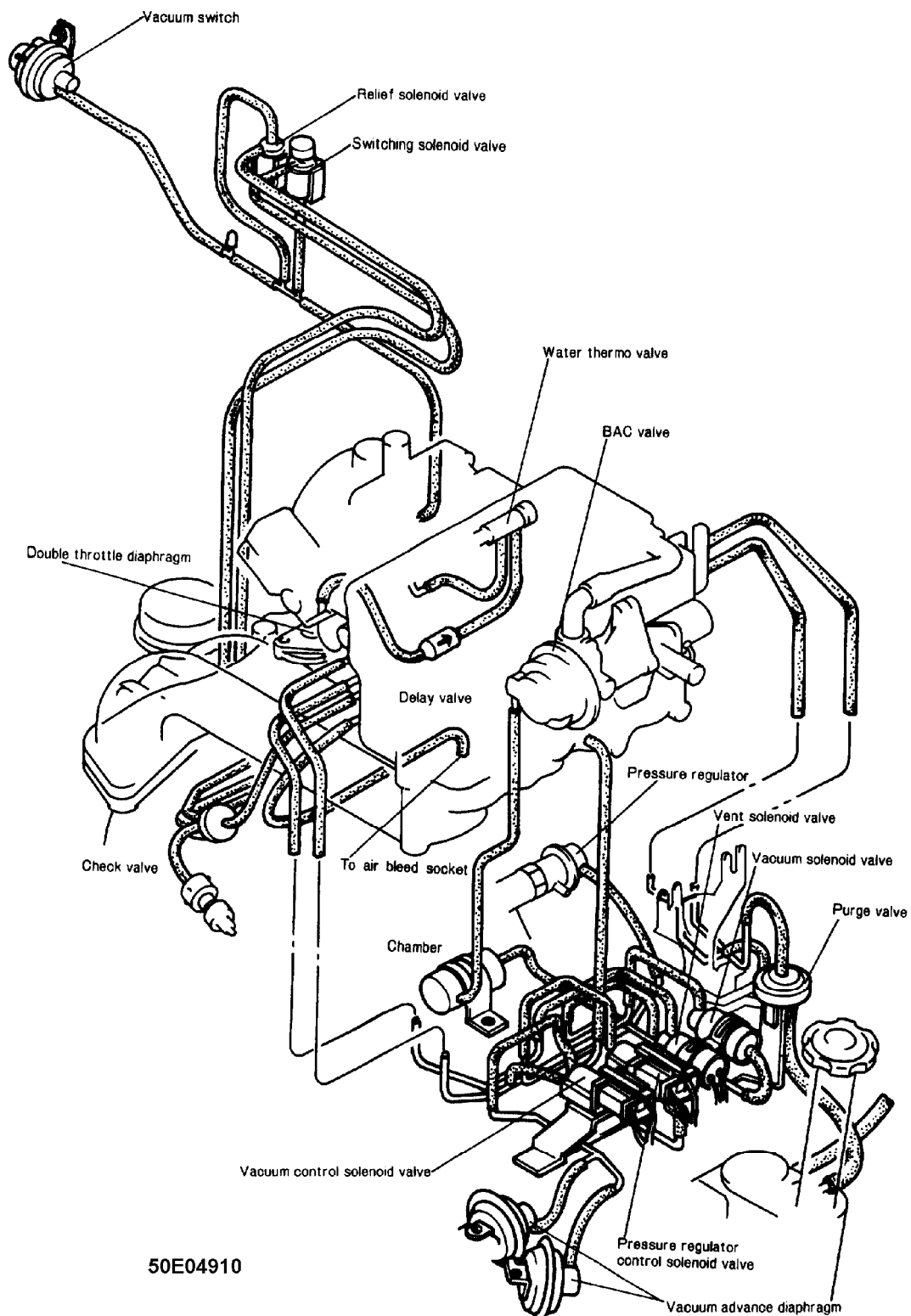


Fig. 1: Vacuum Diagram For Carbureted RX7 Models



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VACUUM DIAGRAM FOR FUEL INJECTED RX7 MODELS
 Fig. 21 Vacuum Diagram for Fuel Injected RX7 Models Copyright © 1990 Mitchell Repair Inform

END OF ARTICLE

TUNE-UP - ROTARY

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Saturday, June 08, 2002 10:52PM

ARTICLE BEGINNING

1984 Mazda Rotary Tune-Up
TUNE-UP

RX7

IDENTIFICATION

ENGINE IDENTIFICATION

The RX7 will have one of two engines, a carbureted model and a EGI (Electronic Gasoline Injection) model, regulated by a computer. The engine code for both models is stamped on the rear rotor housing, to the rear of the oil filter. The engine serial number is stamped on the front rotor housing behind the distributor.

ENGINE CODE

Application	Code
1.1L Carbureted	12A
1.3L Fuel Injected	13B

TESTING

ENGINE COMPRESSION

The manufacturer recommends using a special compression tester (49 0820 280K or 49 H075 280). Compression testers for piston engines will read only the highest pressure of the 3 combustion chambers in the rotor housing.

Warm engine to operating temperature. On 12A engine, remove both trailing spark plugs. On 13B engine remove trailing spark plug on chamber being tested only.

COMPRESSION SPECIFICATIONS TABLE

Application	Specification
Min. Compression Pressure	85 psi (6.0 kg/cm ²)
Max. Variation	21 psi (1.5 kg/cm ²)
Compression Ratio	9.4:1

SPARK PLUGS

SPARK PLUG TYPE

Nippondenso No.	NGK No.
W25EDR14	BR8EQ14

SPARK PLUG SPECIFICATIONS TABLE

Gap: In. (mm)	Torque: Ft. Lbs. (N.m)
0.055 (1.4)	11 (15)

HIGH TENSION WIRE RESISTANCE

Carefully remove high tension wires from spark plugs and distributor cap. Using an ohmmeter, measure resistance of wires while gently twisting wires. If resistance is not to specifications, or fluctuates from infinity to any value, replace high tension wire(s).

HIGH TENSION WIRE RESISTANCE

Application	Ohms
All Models	4880 per Foot

ADJUSTMENTS

DISTRIBUTOR

All models are equipped with Mitsubishi electronic ignition with 2 pickup coils. Air gap is nonadjustable.

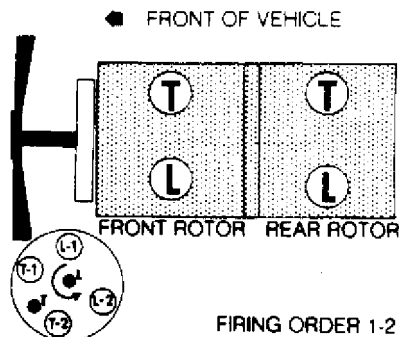


Fig. 1: Firing Order and Distributor Rotation

IGNITION TIMING

NOTE: On vehicles equipped with automatic transmission, block the wheels and place selector lever in "D" position.

1) Warm engine to normal operating temperature. Connect a tachometer, then connect timing light to leading (lower) spark plug of front rotor. Start engine and run at idle speed.

2) Aim timing light at timing indicator pin on front cover and check ignition timing. Rotate distributor to correct timing, if necessary. Tighten distributor lock nut and recheck timing.

3) Connect timing light to trailing (upper) plug of front rotor. Start engine and check timing. If not correct, loosen vacuum unit attaching screws. Move vacuum unit in or out to adjust trailing timing. Remove test equipment.

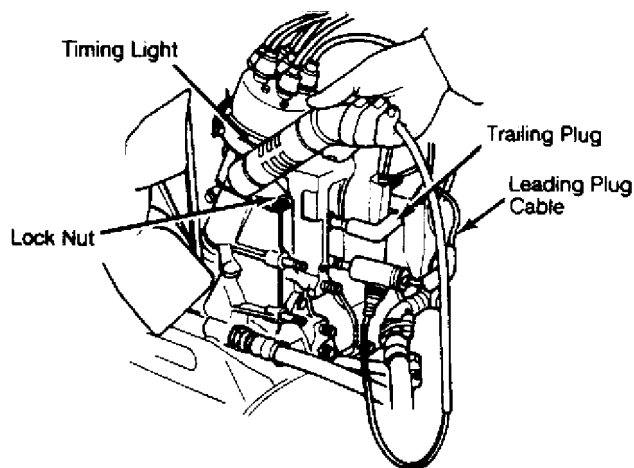


Fig. 2: Connecting Timing Light
Check leading plug timing first.

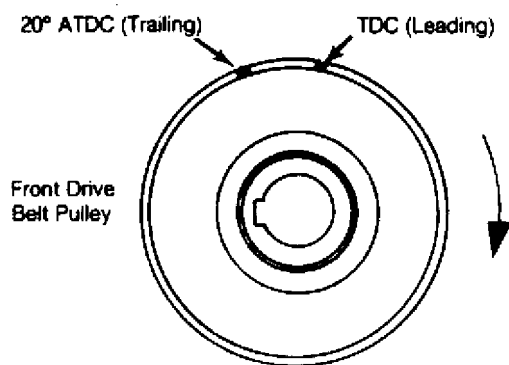


Fig. 3: Ignition Timing Mark Location

IGNITION TIMING (ATDC @ 800 RPM)

Application	Timing
Leading	
Carbureted Models	0°
Fuel Injected Models	5°
Trailing	
Carbureted Models	20°
Fuel Injected Models	20°

IDLE SPEED

Carbureted Models

- 1) Switch off all accessories. Remove fuel filler cap. Disconnect and plug idle compensator tube at air cleaner. Connect tachometer to engine. Ensure parking brake is engaged and wheels are blocked.
- 2) On manual transmission models, make sure dashpot rod does not keep throttle lever from returning to stop. On air conditioned models, make sure throttle opener does not keep throttle lever from returning to stop.

- 3) Warm engine to normal operating temperature. Place automatic transmission in "D". Check idle speed. Adjust curb idle speed to specification by turning throttle adjusting screw.

Fuel Injected Models

1) Turn off all accessories. Connect a tachometer to engine. Ensure parking brake is engaged and wheels are blocked. Remove fuel filler cap. Warm up engine until it reaches normal operating temperature.

2) Check and adjust throttle sensor before adjusting idle speed. Disconnect vent and vacuum solenoid harness connector located near oil filler hole. See Fig. 4.

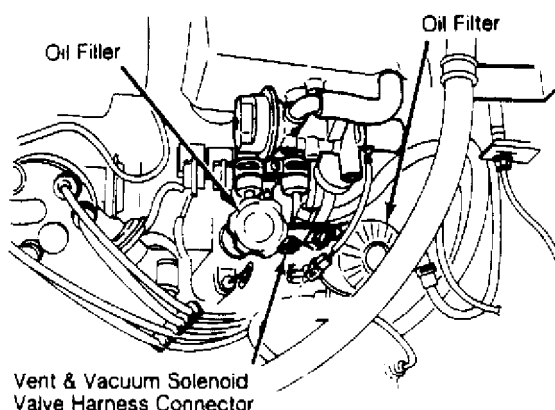


Fig. 4: Vent and Vacuum Solenoid Harness Connector
Disconnect harness before adjusting idle speed on EFI Models.

3) Place transmission in Neutral and check idle speed. Adjust idle speed by removing plug and turning air adjusting screw. See Fig. 5. After adjustment, reinstall plug and reconnect vent and vacuum solenoid harness connector. Install fuel filler cap and remove tachometer.

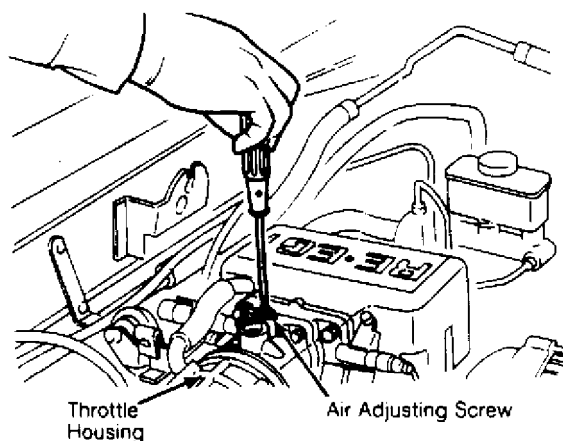


Fig. 5: Adjusting Idle Speed on Fuel Injected Models
Remove plug and turn air adjusting screw to obtain idle speed.

IDLE SPEED

Application	RPM
Carbureted Models	(1) 750
Fuel Injected Models	800

(1) - Man. Trans. in Neutral & Auto. Trans. in "D".

IDLE MIXTURE

NOTE: Mixture adjustment is not part of normal tune-up procedure and should not be performed unless carburetor is overhauled or vehicle fails emissions testing.

Carbureted Models

1) Idle mixture adjustment requires removal of carburetor to remove limiter cap. Using a hacksaw, cut through limiter cap and mixture screw 0.4" (10 mm) from cap end. Remove mixture screw and install new mixture screw.

2) To install new mixture screw, tighten screw lightly and ensure it is fully seated. Back screw out 3 turns for preliminary adjustment. Reinstall carburetor with new gaskets and warm engine to normal operating temperature.

3) To adjust idle mixture, set idle speed to idle set specification by turning throttle set screw (automatic transmission in "N"). Set idle speed to highest RPM obtainable by turning mixture screw. Reset idle speed to idle set specification by turning throttle screw. See Fig. 6.

4) Turn mixture screw until lean drop specification is obtained (automatic transmission in "N"). On automatic transmission, shift transmission to "D" and set idle speed to curb idle specification by turning throttle screw.

MIXTURE ADJUSTMENT (CARBURETED MODELS ONLY)

Application	Idle Set RPM	Lean Drop RPM
Man. Trans.	770	750
Auto. Trans. (1)	870	840

(1) - Transmission in Neutral.

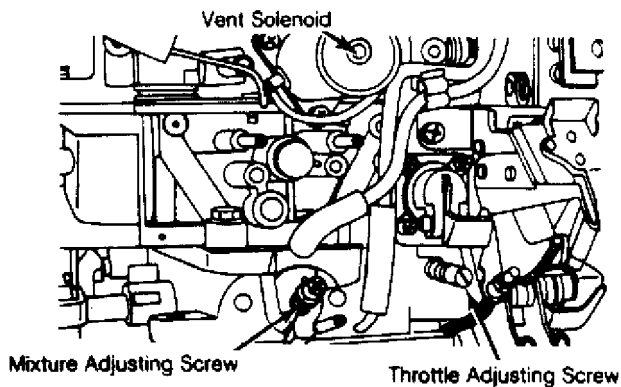


Fig. 6: Carburetor Adjusting Screw Locations

Fuel Injected Models

1) With ignition off, disconnect harness connector at variable resistor on airflow meter and connect ohmmeter leads to variable resistor. If resistance is not 500-4500 ohms between terminals A-C and B-C, replace resistor and adjust mixture.

2) Switch off all accessories. Remove fuel filler cap and connect tachometer to engine. Warm engine to operating temperature. Check and adjust throttle sensor as required. Disconnect vent and vacuum solenoid valve harness connector. See Fig. 4.

3) Adjust idle speed by turning air adjusting screw. Turn

variable resistor to obtain highest idle speed. Turn air adjusting screw to set idle speed. Turn variable resistor counterclockwise until idle speed is 780 RPM and then turn resistor clockwise until idle speed is 800 RPM.

4) Connect vent and vacuum solenoid harness. Install plug over air adjusting screw. Fill space above variable resistor screw with adhesive (N304 23 795). Remove tachometer and install fuel filler cap.

THROTTLE SENSOR

Carbureted Models

1) Warm engine to normal operating temperature. Stop engine and connect tachometer. Disconnect Brown connector under air cleaner on carbon canister side of engine.

2) Using 2 voltmeters or 12-volt, 3-watt bulbs, connect negative lead of each voltmeter to each terminal in connector. Connect positive leads to "B" terminal of alternator. See Fig. 7.

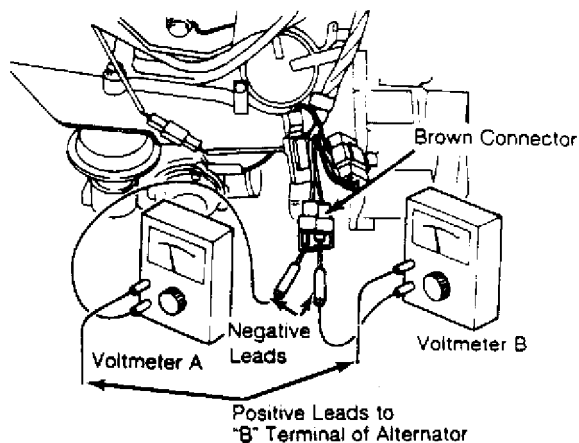


Fig. 7: Voltmeters Connected to Adjust Throttle Sensor
This applies only to carbureted models.

3) Start engine. Quickly decelerate engine from 3000 RPM and make sure that current flows to both voltmeters or bulbs at the same time. If current does not flow at the same time, adjust throttle sensor.

4) To adjust sensor, remove cap from adjusting screw. Adjust timing of current flowing to voltmeter "A" in Fig. 7 by turning adjusting screw. Turning screw clockwise causes current to flow earlier and turning screw counterclockwise causes current to flow later. See Fig. 8.

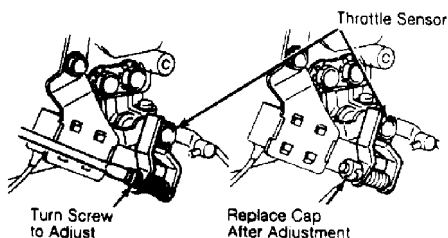


Fig. 8: Throttle Sensor Adjusting Screw Location
This applies to carbureted models.

5) After adjustment, install cap over throttle sensor adjusting screw. Remove voltmeters and reconnect Brown connector. **TUNE-UP - ROTARY**Article

Remove tachometer.

Fuel Injected Models

1) Warm engine to operating temperature. Stop engine and disconnect Green connector. Using 2 voltmeters, connect leads to Green connector terminals. See Fig. 9. Turn ignition on and observe voltmeters. Current should flow to 1 of the voltmeters.

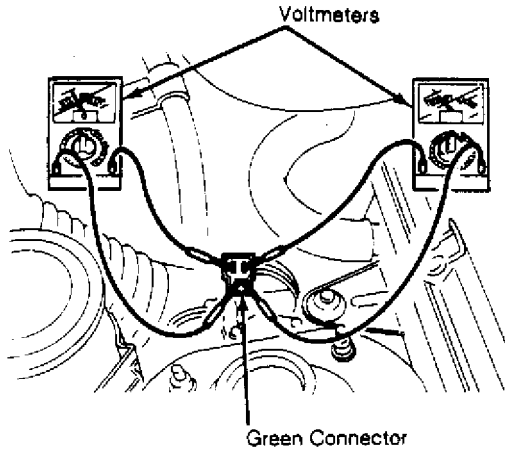


Fig. 9: Voltmeters Connected to Adjust Throttle Sensor
This applies to fuel injected models.

2) If current flows to both voltmeters, remove throttle sensor adjusting screw cap and turn adjusting screw counterclockwise. If current does not flow to either voltmeter, turn adjusting screw clockwise. See Fig. 10. Remove test equipment. Reconnect Green connector and insert cap over throttle adjusting screw.

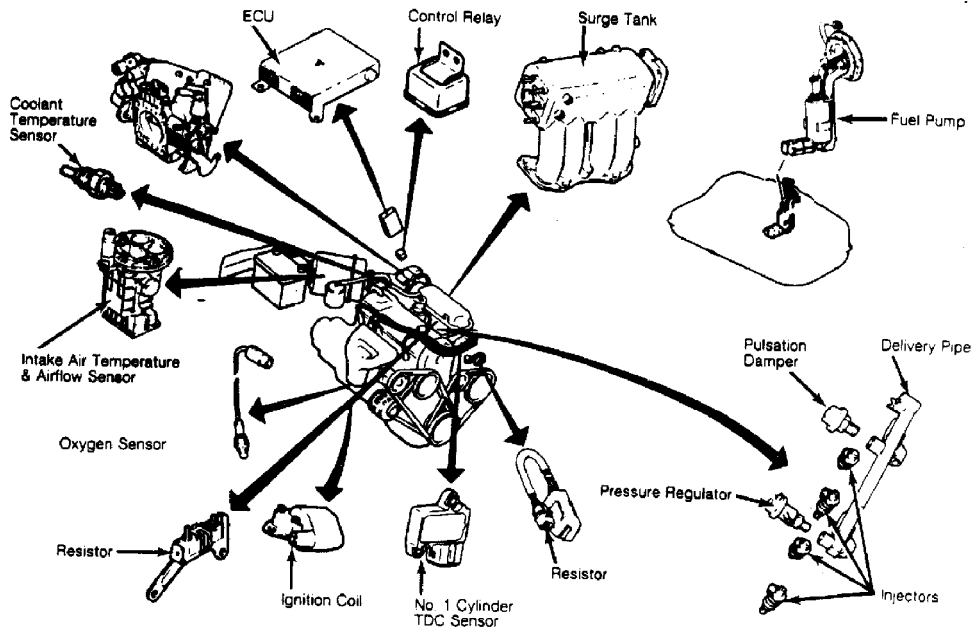


Fig. 10: Adjusting Throttle Sensor
Turn adjusting screw to adjust current flow to voltmeters.

COLD (FAST) IDLE RPM

NOTE: Carburetor must be removed to check and/or adjust fast idle.

Carbureted Models Only
Adjust fast idle by setting angle of primary throttle valve with choke valve fully closed. Clearance between primary throttle valve and throttle bore should be .040-.047" (1.0-1.2 mm). If not to specification, bend fast idle rod until correct clearance is obtained.

SERVICING

EMISSION CONTROL

See EMISSIONS section.

SPECIFICATIONS

IGNITION

Distributor
All models are equipped with Mitsubishi electronic ignition with 2 pickup coils. Air gap is nonadjustable.

IGNITION COIL RESISTANCE - OHMS @ 68°F (20°C)

Application	Primary	Secondary
All Models	.9	N/A

FUEL SYSTEM

FUEL PUMP PERFORMANCE

Application	Pressure: psi (kg/cm²)	Volume in 30 Sec.: Pints (L)
Carbureted	2.8-3.6 (.2-.3)	3.0 (1.4)
Fuel Injected	49.8-71.1 (3.5-5.0)	3.6 (1.7)

Carburetor
Carbureted models use a Nikki 4-Bbl. carburetor.

Fuel Injection
Fuel injected models employ the EGI (Electronic Gasoline Injection) system.

BATTERY

BATTERY SPECIFICATIONS TABLE

Application	Amp Hr. Capacity
Standard	50
Optional	55

STARTER

All models are equipped with a Mitsubishi starter using an
TUNE-UP - ROTARY Article Text (p. 8) 984 Mazda RX7 For iluvmyrx7.com Copyright © 1998 Mitchell Repair Informa

STARTER SPECIFICATIONS TABLE

Application	Volts	Amps	Test RPM
Man. Trans.	11.5	60	6500
Auto. Trans.	11.5	100	3500

ALTERNATOR

All models are equipped with a Mitsubishi alternator.

ALTERNATOR SPECIFICATIONS TABLE

Application	Rated Amp Output
All Models	50

ALTERNATOR REGULATOR

All models are equipped with a Mitsubishi voltage regulator.

REGULATOR OPERATING VOLTAGE @ 68°F (20°C)

Application	Voltage
All Models	13.5

BELT ADJUSTMENT

BELT ADJUSTMENT

Application	(1) Deflection In. (mm)
Alternator Belt .....	.5-.7 (13-17)
Air Pump Belt .....	.43-.51 (11-13)
A/C Belt .....	.39-.47 (10-12)
Pwr. Stg. Belt .....	.39-.47 (10-12)

(1) - Deflection is with 22 lbs. (10 kg) pressure applied midway on longest belt run.

INTERVALS

REPLACEMENT INTERVALS

Component	Interval (Miles)
Engine Oil	7500
Oil Filter	(1) 15,000
Air Filter	30,000
Spark Plugs	30,000

(1) - Every 7500 miles under severe conditions.

CAPACITIES

FLUID CAPACITIES

Application	Quantity
Crankcase (Includes Filter)	
Carbureted Models	4.9 qts. (4.6L)
Fuel Injected Models	5.8 qts. (5.6L)
Cooling System (Includes Heater)	10.0 qts. (9.5L)
Man. Trans. (SAE 90)	1.8 qts. (1.7L)
Auto Trans. (ATF Type F)	7.9 qts. (7.5L)
Rear Axle (SAE 90)	
Standard	2.6 pts. (1.2L)
Limited Slip	3.4 pts. (1.6L)
Fuel Tank	16.4 gals. (63L)

END OF ARTICLE

1.2L ENG NO POWER/STUMBLE/ROUGH IDLE/BUCKING CAT. 4, NO. 014/85

Article Text

1984 Mazda RX7

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Saturday, June 08, 2002 10:54PM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

APPLICATION

1981-85 RX7 (High Altitude Vehicles)

SUBJECT

No Power, Stumble, Rough Idle, Bucking, Etc.

REFERENCE

Mazda Motors Corp., Service Bulletin, No. 4 014/85, August, 1985

CONDITION & CAUSE

Some 1981-85 RX7 high altitude vehicles may exhibit one or more of the following driveability problems:

- * Lack of acceleration, hesitation on acceleration
- * No power under load
- * Engine stumble, surge or bucking below approximately 3000 RPM
- * Rough idle

One or more of the above conditions may be caused by the altitude compensator valve. The altitude compensator valve is attached to the carburetor to supply additional air into the carburetor at high altitudes (1640-4920 ft.)

REPAIR

- 1) Remove the altitude compensator valve. Blow through the valve from port "A" and "B". Above 4920 feet, air from port "A" should exit from port "D" and air into port "B" exits from port "C".
- 2) Below 1640 feet air should not pass through valve. If not, replace the altitude compensator valve (N249 20 770).

END OF ARTICLE

1.2L HARD CRANK/NO START - CARBON IN ROTOR/HOUSING CAT. 1, NO. 103/83

Article Text

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Saturday, June 08, 2002 10:55PM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

HARD CRANKING

Models	RX7
Bulletin No.	103/83
Category	1
Date	5/7/83
Symptom	Hard Cranking/No Start

DESCRIPTION

If RX-7 vehicles have not been in use for a long period of time and the engine is cranked with a weak battery, hard cranking may occur due to carbon trap.

When the vehicles have been stored for such a long period of time carbon accumulated on the rotor surface may be flaked off, and it can be trapped between the rotor and rotor housing by the sweeping motion of the apex seals only when the engine is started. It will not occur when the engine is running.

To verify carbon trap, the following two conditions must be confirmed:

- 1) The problem occurred when the engine was started.
- 2) The apex seal can be observed through one of the leading spark plug holes. (If carbon trap occurs, the rotor will always stop at this location).

If carbon trap is verified, please use the following procedure:

Procedure:

I. For vehicles with manual transmission:

- 1) Disconnect the negative battery cable and remove the spark plugs.
- 2) Hoist the vehicle, remove the starter and install the Flywheel Turning Tool, P/N 49FA 42 065. This special tool is newly established for vehicles with manual transmission.
- 3) Turn the Flywheel Turning Tool counterclockwise (as shown in Fig. 1 until the force is reduced considerably).

CAUTION: Do not turn the Flywheel in the direction of normal engine rotation.

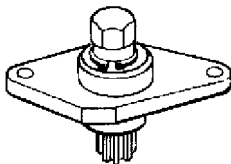


Fig. 1: View of Flywheel Turning tool (49FA 42 065)

- 4) Remove the special tool (Fig. 2) and reinstall the starter.

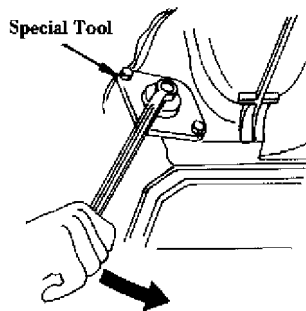


Fig. 2: Using Flywheel Turning Tool

- 5) Lower the vehicle. Turn the front pulley clockwise, facing the rear of the car, with a 19mm wrench. At the same time, inject 20-30 cc of engine oil through carburetor. Do not exceed the specified quantity of oil.
- 6) Turn the engine approximately five (5) revolutions to make certain the engine rotates freely.

NOTE: Do not use the starter to rotate the engine.

- 7) Install the spark plugs.
- 8) Check that the battery is fully charged.
- 9) Start the engine and warm up to normal operating temperature.
- 10) Stop the engine. Remove the spark plugs and check compression. If the compression is over 6.0 kg/cm², the repair is completed.

II. For vehicles with automatic transmission:

- 1) Disconnect the negative battery cable and remove the spark plugs.
- 2) Remove the inspection plate from the converter housing. (Fig. 3).

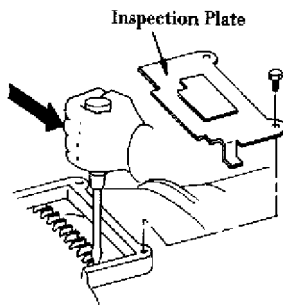


Fig. 3: Removing Inspection Plate From Converter Housing

- 3) Insert a standard screwdriver through the inspection hole. Turn the flywheel by prying against the flywheel teeth and converter housing as shown until the force is reduced considerably.

CAUTION: Do not turn the flywheel in the direction of normal engine rotation.

1.2L HARD CRANK/NO START - CARBON IN ROTOR/HOUSING CAT. 1, NO. 103/88le Text (p. :

- 4) Follow the procedure in I, steps 5-10.

END OF ARTICLE

1.3L ENG NO START/BLOWN FUSE - SHORT IN WIRE HARNESS CAT. 15, NO. 012/85

Article Text

1984 Mazda RX7

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Saturday, June 08, 2002 10:55PM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

APPLICATION

1979-84 RX7

SUBJECT

"ENGINE" Fuse Blows/No Start

REFERENCE

Mazda Motors Corp., Service Bulletin, No. 15 012/85, September, 1985

CONDITION & CAUSE

Some 1979-84 RX7 vehicles may exhibit an "ENGINE" fuse that blows, preventing the engine from starting. This problem may be caused by an electrical short circuit in the wiring harness.

REPAIR

Check for a short circuit in the wire harness in the area of the thermostat and air hose to the air cleaner. See Fig. 1.

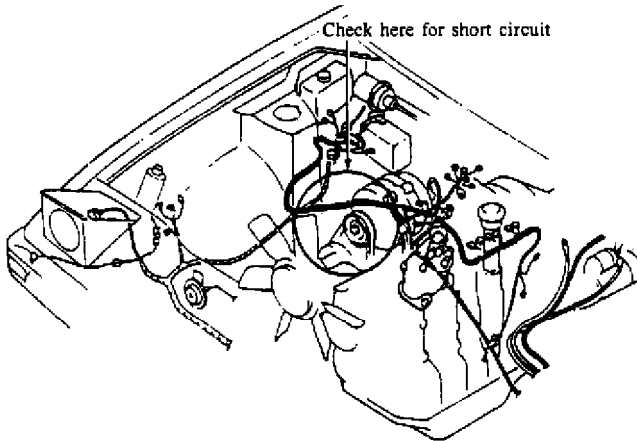


Fig. 1: View of Wiring Harness

END OF ARTICLE

1.3L ENG SECONDARY AIR CONTROL SYSTEM MODIFICATION CAT. 4, NO. 002/84

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Saturday, June 08, 2002 10:56PM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

SECONDARY AIR CONTROL SYSTEM MODIFICATION

Model: 1984 RX-7 (12A)

Bulletin No.: 002/84

Date: 7/13/84

Category: 4

DESCRIPTION

The Secondary Air Control System has been modified since the production date of March 1984.

Now air is injected behind the No. 1 pre-month converter when the Port Air Switching Valve (newly added to the Air Control Valve) is open. Port and split air operation remain the same as previous years.

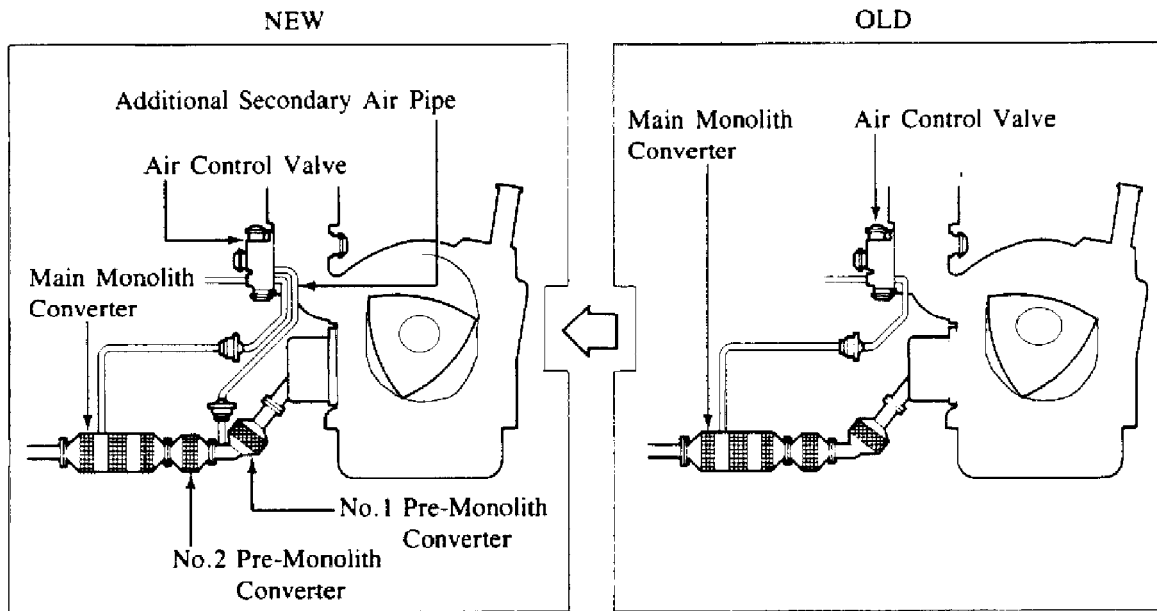


Fig. 1: Secondary Air Control System Modification

OPERATION

The Port Air Switching Valve will open between 3,000-4,000 rpm or above 50 mph.

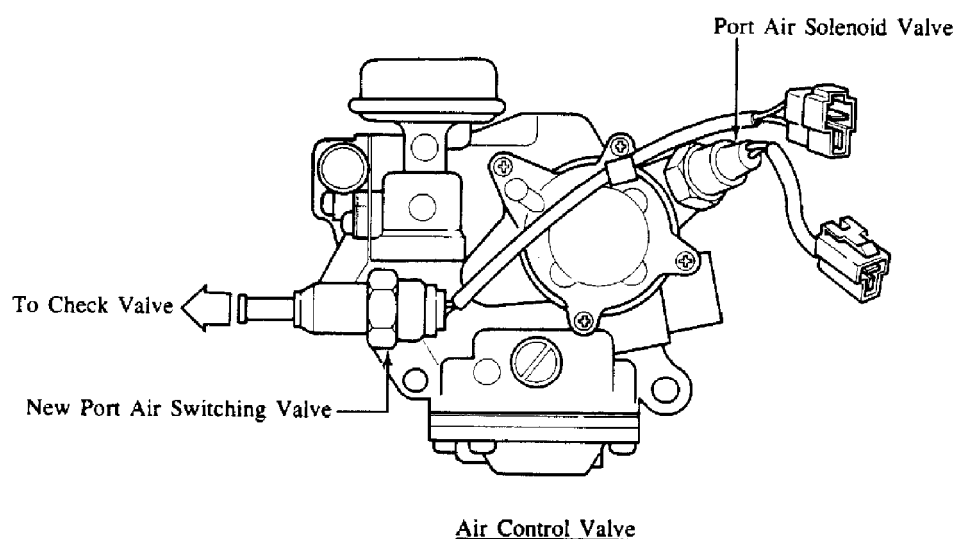
VIN OF PRODUCTION CHANGE

RX-7 (12A): JMIFB331 E0824687 March, 1984

PARTS INFORMATION

PART NUMBER		DESCRIPTION	QTY	INTERCHANGEABILITY	APPLIED MODEL
NEW	OLD				
N249 13 720B	N249 13 720A	Air Control Valve	1	NO	M/T (Federal)
N250 13 720A	N250 13 720	Air Control Valve	1	NO	A/T (Federal)
N251 13 720B	N251 13 720A	Air Control Valve	1	NO	M/T (California)
N252 13 720A	N252 13 720	Air Control Valve	1	NO	A/T (California)
N249 18 941D	N249 18 941C	Control Unit	1	NEW → OLD	M/T
N250 18 941C	N250 18 941B	Control Unit	1	NEW → OLD	A/T
N249 18 051F	N249 18 051E	Engine Wiring	1	NEW → OLD	
N250 20 725	—	Solenoid Valve	1	NO	
N249 40 718	—	Air Hose	1	NO	
N249 40 720	—	Air Pipe	1	NO	
N249 40 780C	N249 40 780B	No.1 Pre-Converter	1	NO	
N304 40 814E	N304 40 814D	Protector	1	NEW → OLD	M/T
N250 40 814E	N250 40 814D	Protector	1	NEW → OLD	A/T
FA54 67 010K	FA54 67 010J	Front Harness	1	NEW → OLD	

Fig. 2: Parts Information Table



1.3L ENG SE

Fig. 3: Air Control Valve Assembly

2/84le Text (p.

CHECKING PROCEDURE

PORT AIR SWITCHING VALVE

Checking Port Air Switching Valve:

1. Warm up the engine and run it at idling speed.
2. Connect a tachometer to the engine.
3. Disconnect the connector from the throttle sensor and connect a jumper wire to A and C terminals of the connector.

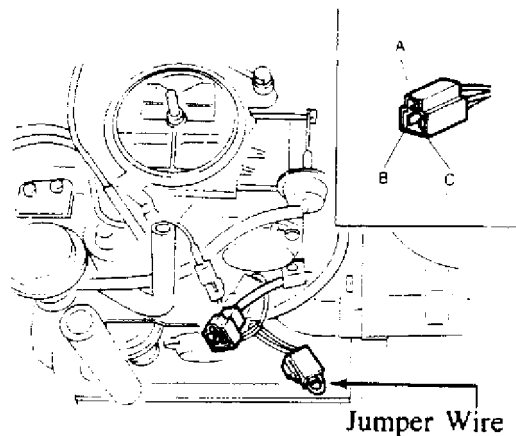


Fig. 4: Jumper Wire Installation

4. Connect a voltmeter to the port air switching valve (R) terminal and ground.
5. Increase the engine speed and observe the voltmeter reading.

Engine Speed (rpm)	Voltage (V)
Idling speed - 3.000	approx. 12
3,000-4,000	below 2
more than 4.000	approx. 12

6. Disconnect the jumper wire connected in step 3 and connect the connector to the throttle sensor.

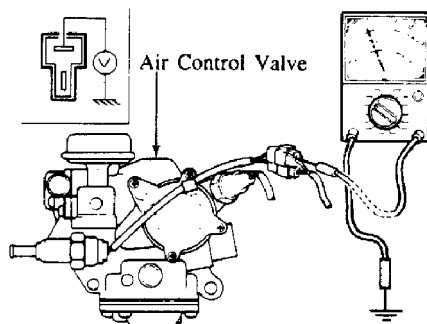
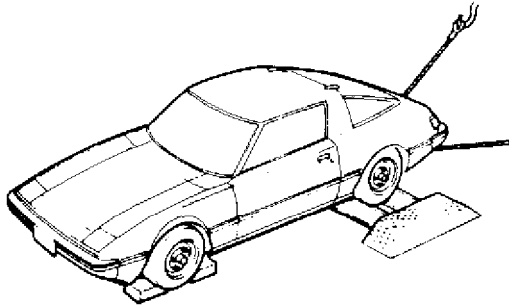


Fig. 5: Voltmeter Connections

7. Position the vehicle on a rolling-road tester. See Fig. 6

WARNING: Use wire rope to secure the vehicle on the rolling-road tester. See Fig. 6

forward.



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the Air Control Valve the wiring harness has been

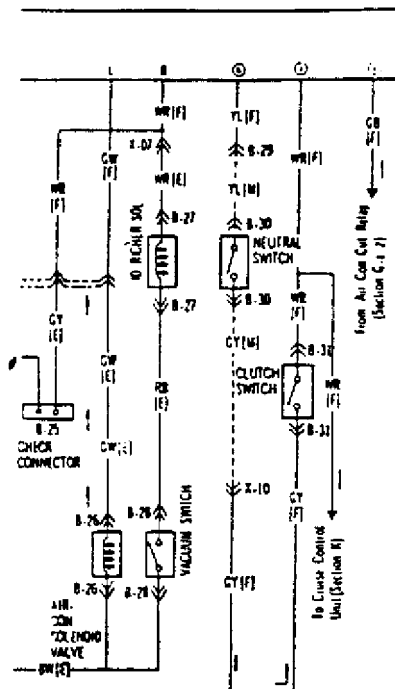


Fig. 6: Positioning Vehicle on Road Tester

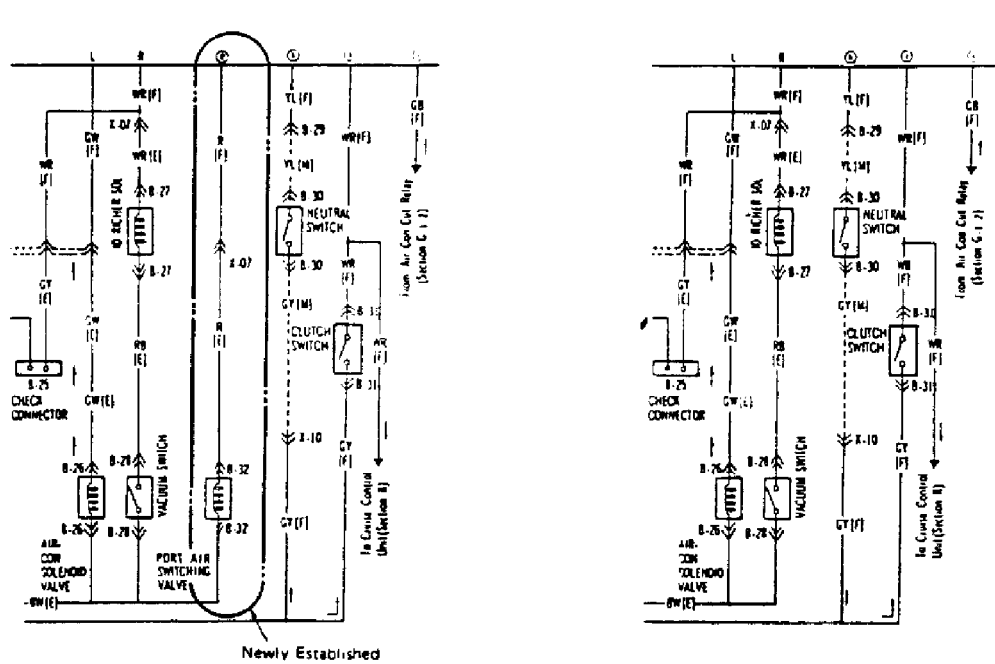
8. Increase the vehicle speed and observe the voltmeter reading.

Below 50 MPH - approx. 12V

Above 50 MPH - below 2V

Due to the addition of the Port Air Switching Valve in the Air Control Valve the wiring harness has been changed as shown in Fig. 7.

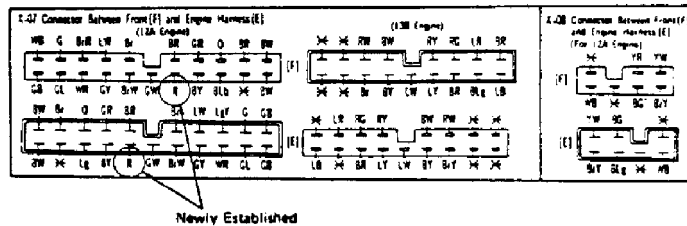
1.3L ENG SECONDARY AIR



B-07 Fuel Pump[F] 	B-08 Air Vent Solenoid Valve[E] 	B-09 Throttle Sensor[F]
B-14 Heat Hazard Sensor[WB] 	B-15 No. 2 Water Temp Switch[F] 	B-16 Vacuum Control Solenoid Valve [Y][E]
B-23 APL Solenoid Valve[E] 	B-24 Shutter Solenoid Valve[E] 	B-25 Check Connector[E]
B-32 Port Air Switching Valve[E] 	A-09 Inert Connector[F] 	1.3L 1.6L

Newly Established

Fig. 7: Wiring Harness Modifications



1.3L ENG SE

Fig. 8: View of Fuse Panel

1.3L ENG STALL/POOR IDLE - THROTTLE SENSOR ADJ CAT. 4, NO. 009/84

Article Text

1984 Mazda RX7

For iluvmyrx7.com

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Saturday, June 08, 2002 10:56PM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

IDLE SPEED ADJUSTMENT

Model: 1984-1985 RX-7 (13B)

Bulletin No.: 009/84

Date: 10/26/84

Symptom: Stall, Poor Idle

Category: 4

DESCRIPTION

Improper adjustment of the idle speed may cause poor idle stability or engine stall when coming to a stop. Either of these problems are encountered, please follow the Checking Procedure described.

CHECKING PROCEDURE

1. Warm up the engine to the normal operating temperature. Confirm that the fast idle cam separates from the roller as shown. If the fast idle cam is contacting the roller, the engine is not fully warmed. (Fig. 1)
2. Stop the engine and turn the key to the "ON" position.

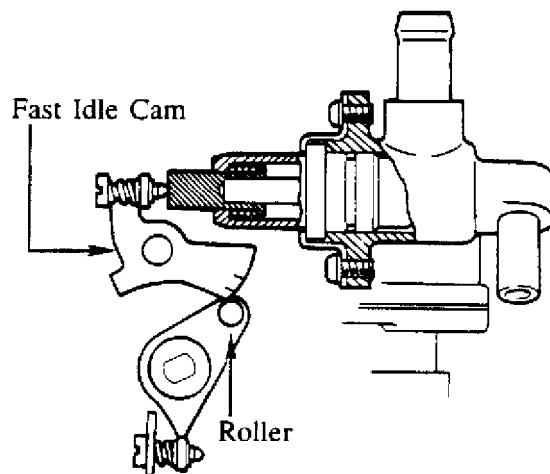


Fig. 1: View of Fast Idle Cam

3. Connect the voltmeter to the throttle sensor checking connector (Green) and check the voltage as shown. (Fig. 2)

(a) Terminal (A) - approximately 12v & Terminal(B) - 0v:
Throttle sensor adjustment is OK, Go to Step 4.

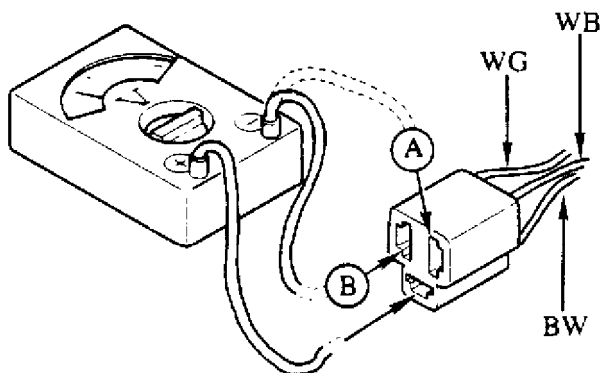


Fig. 2: Checking Throttle Sensor Voltage

(b) Terminal (A) - approximately 12v & Terminal(B) - approximately 12v: Throttle sensor out of adjustment. Adjust as follows:

Turn the adjust screw counter-clockwise until the voltage at terminal(B) becomes 0. Then turn the adjust screw an additional 1/4 to 1/2 turn counter-clockwise. Confirm that the voltages at terminals (A) and (B) are as shown in Step 3(a).

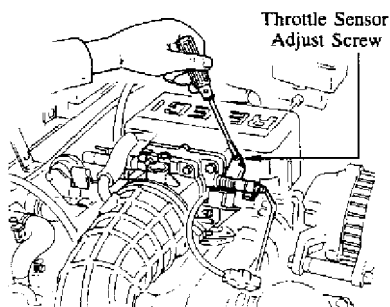


Fig. 3: Adjusting Throttle Sensor

(c) Terminal (A) - 0v &
Terminal (B) - 0v:

Throttle sensor out of adjustment. Adjust as follows:

Turn the adjust screw clockwise until the voltage at terminal (A) becomes approximately 12v. Then turn the adjust screw an additional 1/4 to 1/2 turn clockwise. Confirm that the voltages at terminals (A) and (B) are as shown in Step 3(a). (Fig. 3)

4. Start the engine and run it at idle.

5. Disconnect the connector for the vent and vacuum solenoid valves.
Turn all accessories off. (Fig. 4)

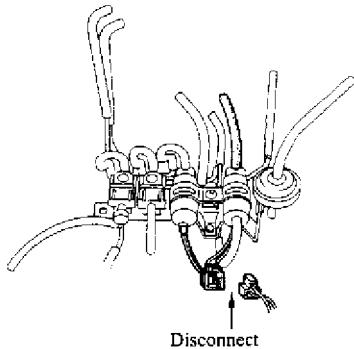


Fig. 4: Disconnecting Solenoid Valves Connector

Check the idle speed. Adjust the idle speed to specification, if necessary, by turning the air adjust screw. (Fig. 5)

Idle speed: 800 rpm

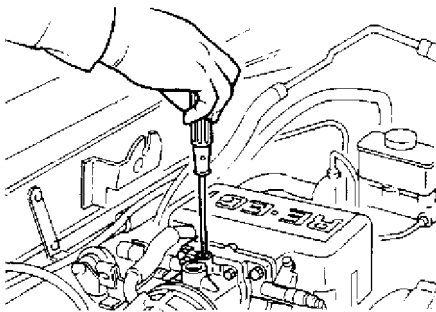


Fig. 5: Adjusting Idle Speed

Use a jumper wire to ground the LW wire for the air supply valve as shown. Confirm that the engine speed increases to 1000-1070 rpm. (Fig. 6)

NOTE: Step 7 must be done with the connector for vent and vacuum solenoid valves disconnected

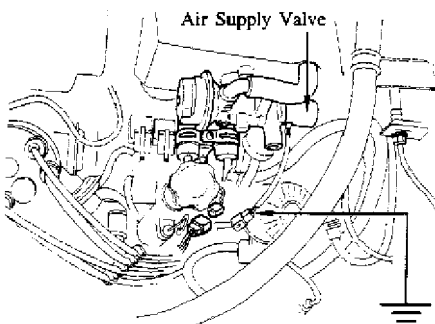


Fig. 6: View of Air Supply Valve

Adjust the engine speed to specification, if necessary, by turning the air supply valve adjust screw as shown. (Fig. 5)

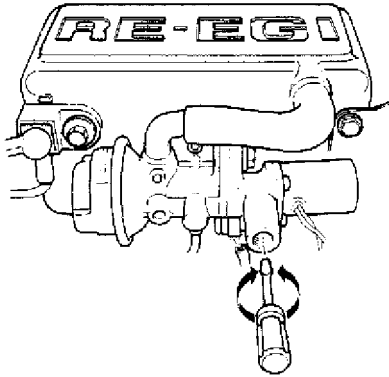


Fig. 7: Adjusting Engine Speed

Reconnect the vent and vacuum solenoid valve connectors disconnected in Step 5.

END OF ARTICLE

BAD SHUTTER VALVE CAUSES ROUGH IDLE/NO IDLE

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1984 Mazda RX7

For iluvmyrx7.com

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Saturday, June 08, 2002 11:00PM

ARTICLE BEGINNING

TECHNICAL INFORMATION TIP

ROTARY ROUGH IDLE

YEAR(S): 1982-85
MANUFACTURER: Mazda
MODELS: RX-7
DATE OF ISSUE: June 1993

ISSUE: BAD SHUTTER VALVE CAUSES ROUGH IDLE/NO IDLE

A bad shutter valve may cause a rough or no idle on 1982-85 Mazda RX-7 models. To test the shutter valve, remove the hose from the valve (it's located below the carburetor) and check for vacuum. If there is vacuum at idle, the shutter valve is bad and should be replaced.

Another thing to check that may be causing your idle problems is the vacuum hose that leads from the carburetor to the AA valve. This large hose may be burned or split at the bend in the hose near the intake manifold and can introduce a large vacuum leak if it's leaking.

Courtesy of Import Service Magazine
with thanks to:

Bill Jasper
Charles Levy Motor Company
Columbus, Georgia

REFERENCE NUMBER: MAZ0518AP

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END OF ARTICLE

HI IDLE SPRRD OR HUNTING IDLE - NEW THROTTLE BODY CAT. 4, NO. 008/84

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Saturday, June 08, 2002 10:57PM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

HIGH IDLE SPEED OR IDLE SPEED HUNTING

Model: 1984 RX-7 (13B)
Category: 4
Bulletin No.: 008/84
Date: 10/15/84

DESCRIPTION

If you encounter either of the following problems on 1984 RX-7 (13B) vehicles with the engine fully warmed, please follow the repair procedure described.

1. Engine speed hunts between approximately 1500-2000 rpm at idle.
2. Engine speed stays approximately 1200-1500 rpm at idle.

REPAIR PROCEDURE

1. Throttle Body.

Rotate the secondary throttle valve lever counter-clockwise by hand as shown while the idle speed is high or hunting.

If this procedure corrects the problem, the high idle is due to sticking of the secondary throttle valve, shown in Fig. 1. Replace the throttle chamber (N304 20 S00B) in this case.

If this procedure does not correct the problem, go to Step 2.

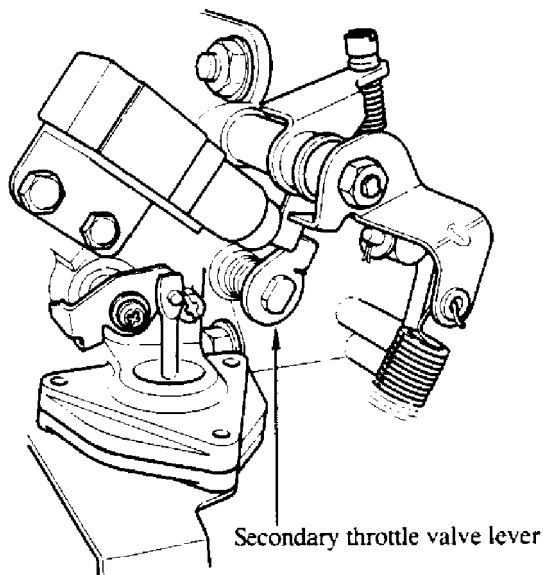


Fig. 1: View of Secondary Throttle Valve Lever

2. Vent Solenoid Valve.

Disconnect the vacuum hose (Fig. 2) from the vent solenoid valve and

plug the inlet port of the vent solenoid valve with a finger as shown in Fig. 3 while the idle speed is high or hunting.

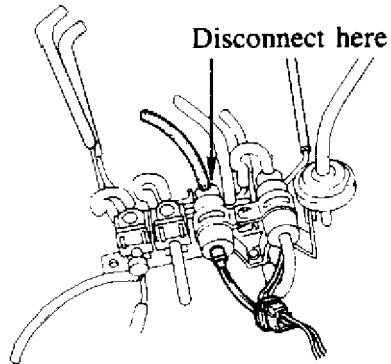


Fig. 2: Disconnecting Vent Solenoid Valve Vacuum Hose

If this procedure corrects the problem, the high idle is due to a faulty vent solenoid valve. Replace the vacuum switch valve (N304 13 240), which includes the vent solenoid valve, in this case.

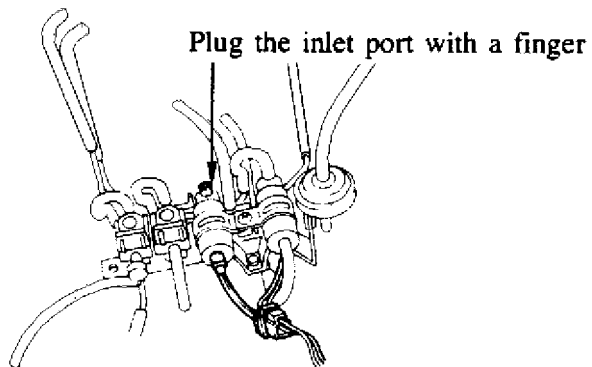


Fig. 3: Plugging Vent Solenoid Valve Inlet Port

END OF ARTICLE

TAS (THROTTLE ADJUSTMENT SCREW) LOCATION/ADJUSTMENT CAT. F, NO. 014/98

Article Text

1988 Mazda RX7

For iluvmyrx7.com

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Tuesday, June 11, 2002 09:33AM

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.

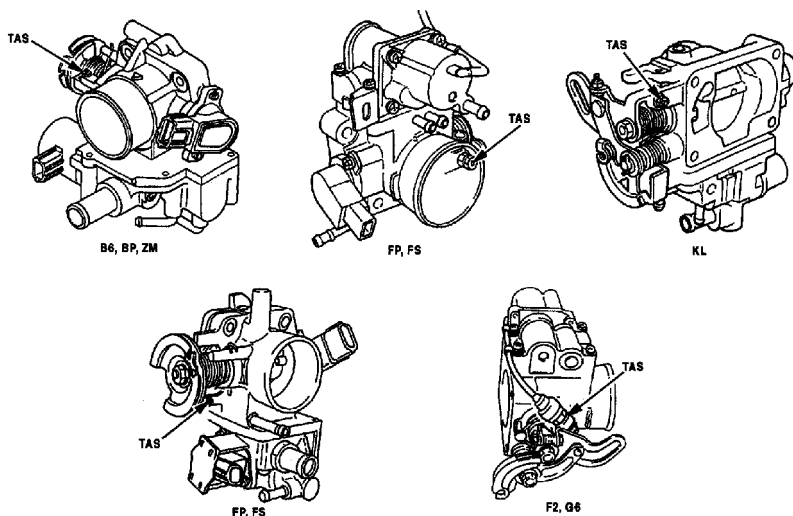


Fig. 1: Throttle Adjustment Screw Locations

END OF ARTICLE

WHISTLE NOISE FROM CHECK & CUT VALVES - REPL VALVES CAT. 4, NO. 015/85

Article Text

1984 Mazda RX7

For iluvmyrx7.com

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Saturday, June 08, 2002 10:59PM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

APPLICATION

1980-85 RX7 & 1981-85 GLC

SUBJECT

Whistle Noise From Check & Cut Valve

REFERENCE

Mazda Motors Corp., Service Bulletin, No. 4 015/85, September, 1985

CONDITION & CAUSE

Some 1980-85 RX7 and 1981-85 GLC vehicles may exhibit a whistle noise from the check and cut valve. The whistle noise is most noticeable at high temperature and low fuel level, and can be heard from the rear of the vehicle.

REPAIR

Replace the check and cut valve with the new service component (RX7 - 8341-42-910, GLC - BA01-42-910).

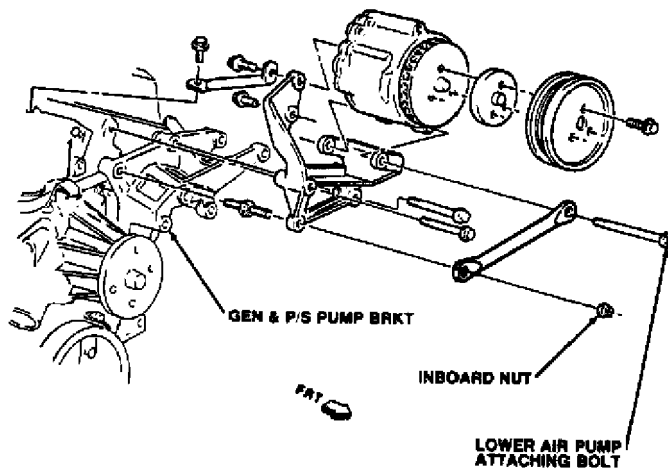


Fig. 1: Anything Installation

END OF ARTICLE

MAINTENANCE INFORMATION

Article Text

1984 Mazda RX7

For iluvmyrx7.com

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Sunday, June 09, 2002 06:07AM

ARTICLE BEGINNING

1983-91 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.

(VIN)	J	M	1	F	C	3	3	1	1	K	0	2	0	0	0	0	1
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

- 1 - Manufacturing Country
J * Japan
- 2 - Make
M * Mazda Motors Corp., Japan
- 3 - Type
1 * Passenger Car
V * Passenger Car
- 4-5 - Model
FB * RX7 (1983-85)
FC * RX7 (1986-91)
- 6-7 - Body Style
33 * Hatchback
35 * Convertible
- 8 - Modification Code
1 * 13BE Rotary
2 * 13BT Rotary (Turbo)
- 9 - VIN Check Digit
1 * Constant For All Models

10 - Vehicle Model Year

D * 1983
E * 1984
F * 1985
G * 1986
H * 1987
J * 1988
K * 1989
L * 1990
M * 1991

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

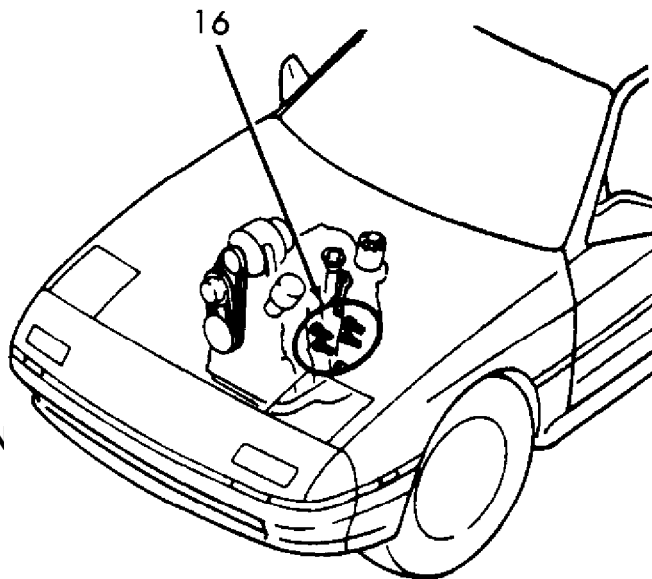
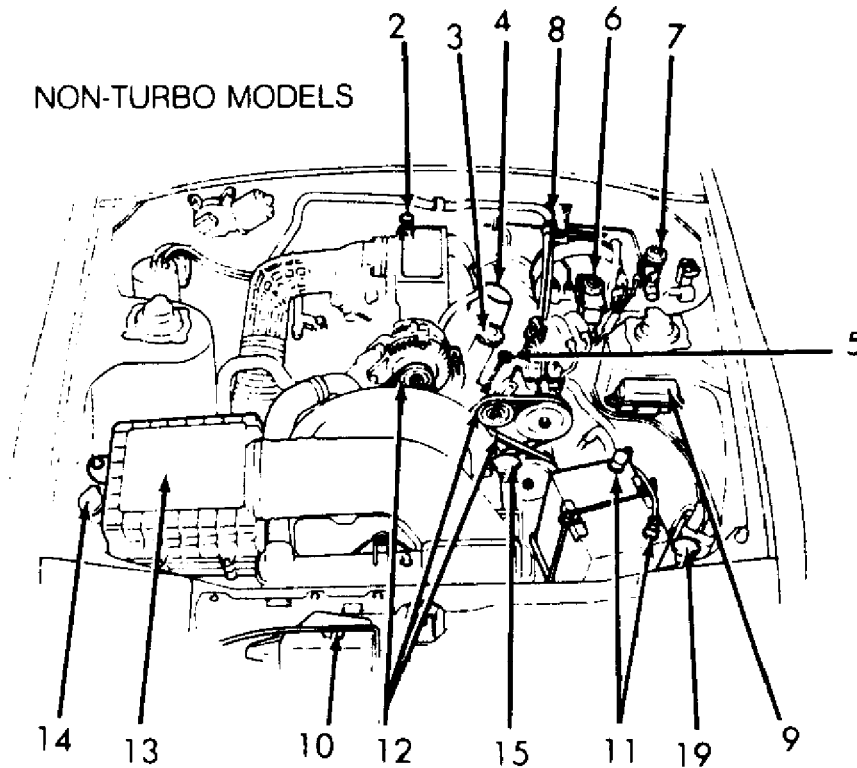
- * Driven More Than 10 Miles Daily
- * No Operating Conditions From Severe Service Schedule

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

NON-TURBO MODELS

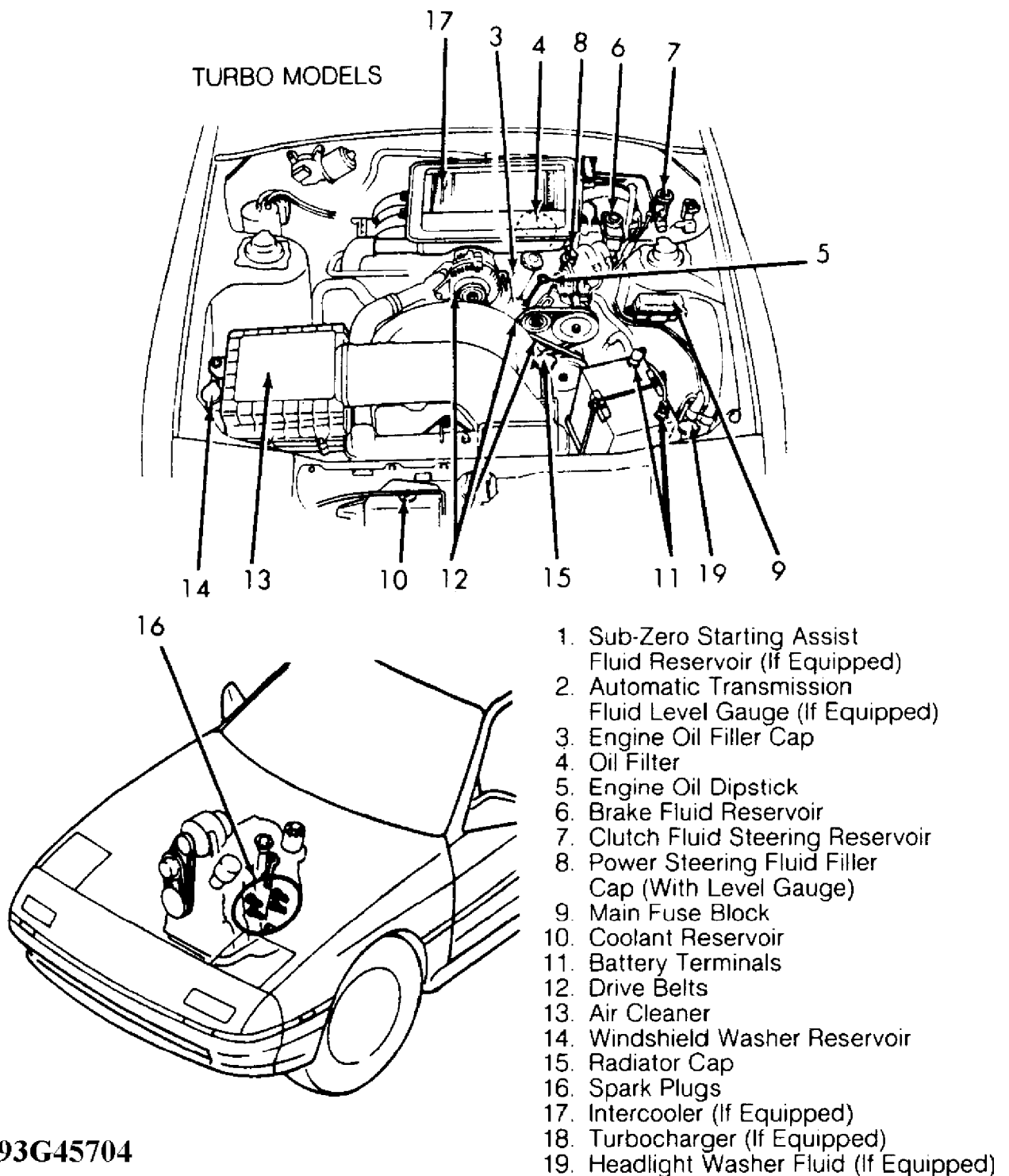


1. Sub-Zero Starting Assist Fluid Reservoir (If Equipped)
2. Automatic Transmission Fluid Level Gauge (If Equipped)
3. Engine Oil Filler Cap
4. Oil Filter
5. Engine Oil Dipstick
6. Brake Fluid Reservoir
7. Clutch Fluid Steering Reservoir
8. Power Steering Fluid Filler Cap (With Level Gauge)
9. Main Fuse Block
10. Coolant Reservoir
11. Battery Terminals
12. Drive Belts
13. Air Cleaner
14. Windshield Washer Reservoir
15. Radiator Cap
16. Spark Plugs
17. Intercooler (If Equipped)
18. Turbocharger (If Equipped)
19. Headlight Washer Fluid (If Equipped)

MAINTENAN

93F45703

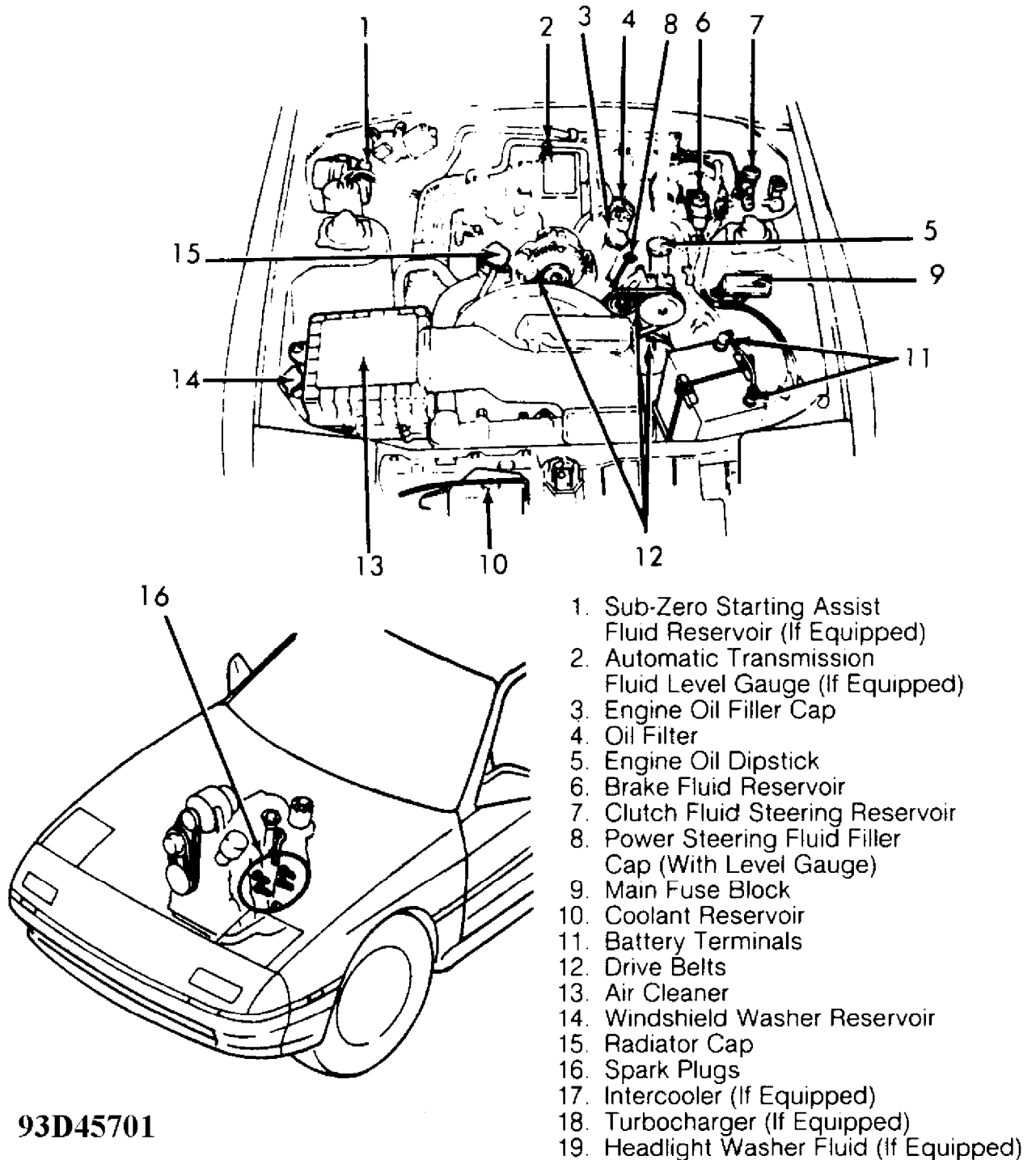
Fig. 1: Service Point Locations (Typical Non-Turbo Engine)
Courtesy of Mazda Motor of America, Inc.



93G45704

Fig. 2: Service Point Locations (Typical Turbo Engine)
 Courtesy of Mazda Motor of America, Inc.

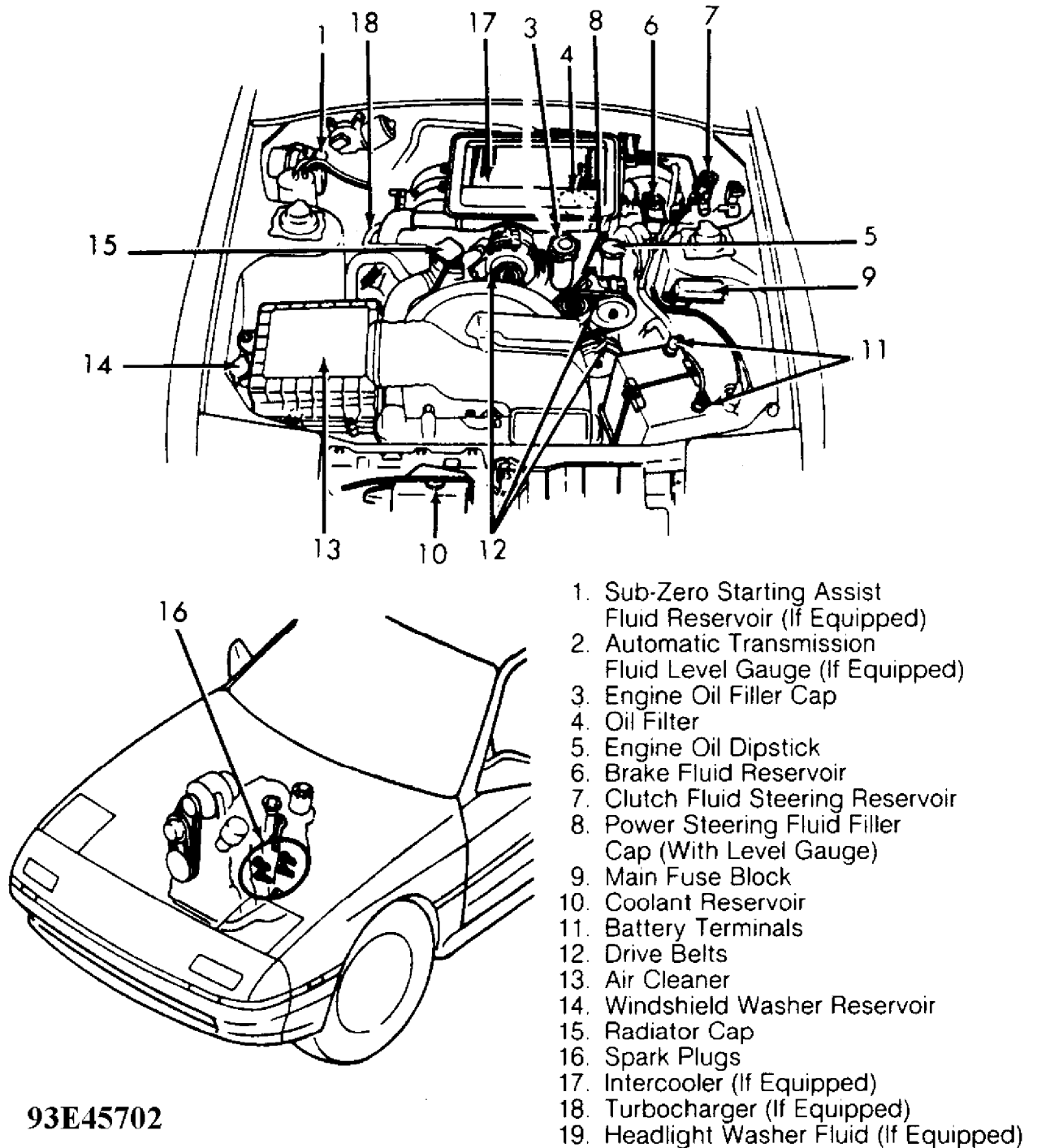
MODELS WITH SUB-ZERO STARTING ASSIST



93D45701

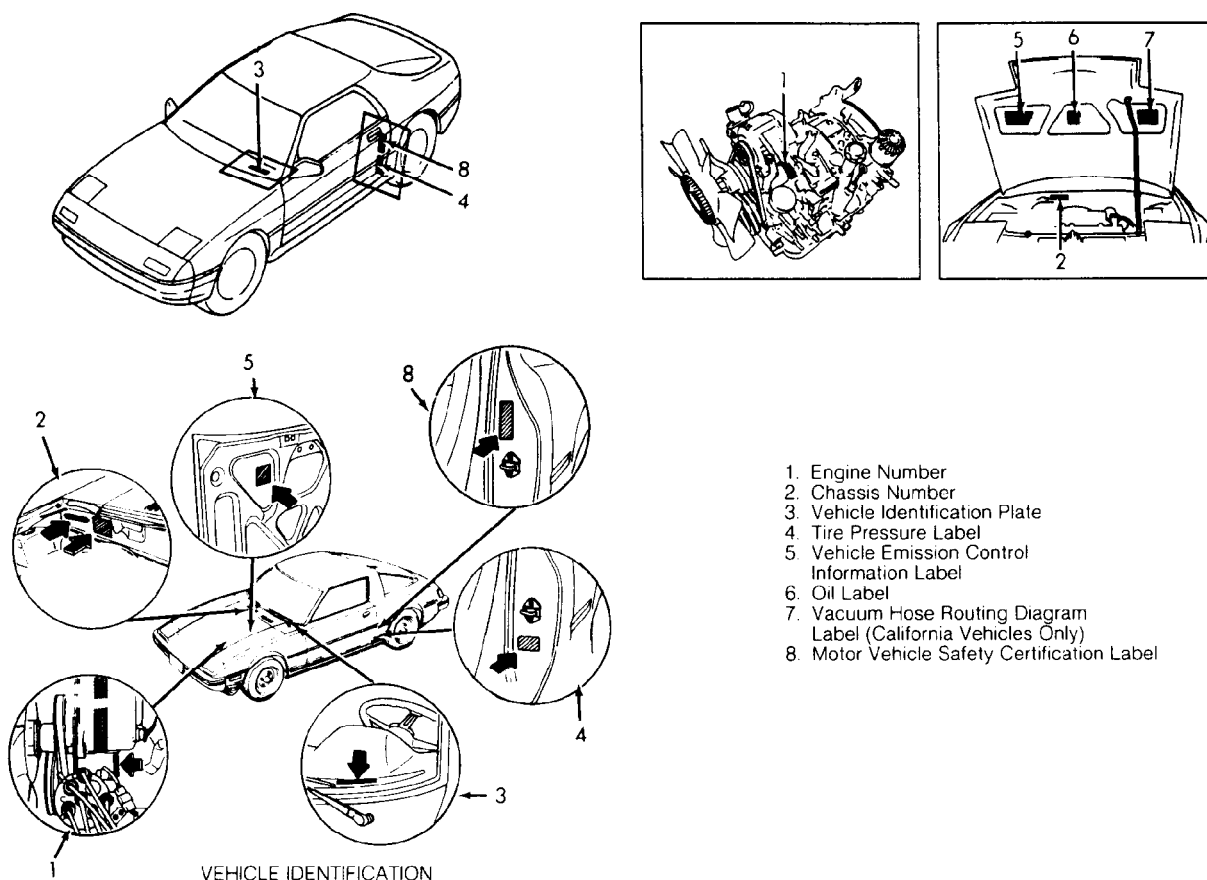
Fig. 3: Service Point Locations (Non-Turbo W/Sub-Zero Start Assist)

TURBO MODELS WITH SUB-ZERO STARTING ASSIST



93E45702

Fig. 4: Service Point Locations (Turbo W/Sub-Zero Start Assist)
Courtesy of Mazda Motor of America, Inc.



90/05054
Fig. 5: Information Label 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
RX7		
Automatic Transmission	2.1	3.7
Manual Transmission	2.1	4.1

LUBRICATION SPECIFICATIONS

LUBRICATION SPECIFICATIONS TABLE

Application	Fluid Specifications
Brake Fluid	SAE J1703 or FMVSS116 DOT 3
Engine Oil	
Minimum Temperature	
Less Than 0°F (-18°C)	SAE 5W-30 API SG/CD
Automatic Transmission	ATF M-III or Dexron IIE

Manual Transmission	SAE 75W-90 GL-5
Power Steering Fluid	Dexron-II ATF
Rear Axle	SAE 80W-90 GL-5

FLUID CAPACITIES

FLUID CAPACITIES TABLE

Application	Quantity
A/C System R-12 Refrigerant Capacity	
1983-85	36 Ozs.
1986-89	
Nippondenso Compressor	22-25 Ozs.
Sanden Compressor	30 Ozs.
1990-91	26.5-28 Ozs.
Automatic Transaxle	7.7-7.9 Qts. (7.3-7.5L)
Cooling System	
1983-85	9.0-10.0 Qts. (8.5-9.5L)
1986-91	
Non-Turbo	7.7 Qts. (7.3L)
Turbo	9.2 Qts. (8.7L)
Engine Oil	4.4-4.7 Qts. (4.2-4.4L)
Fuel Tank	
1983-87	16.6 Gals. (63L)
1988-91	18.5 Gals. (70L)
Manual Transmission Oil	2.1-2.6 Qts. (2.0-2.5L)
Rear Axle Oil	
Turbo	1.3-1.5 Qts. (1.2-1.4L)
Non-Turbo	1.4-1.7 Qts. (1.3-1.6L)

WHEEL & TIRE SPECIFICATIONS

WHEEL & TIRE SPECIFICATIONS TABLE

Wheel Size	Tire Size
15 x 6 in. (Steel Non-Directional)	205/60 VR15
15 x 6.5" (Alloy, Directional)	205/60 VR15
16 x 7.0" (Alloy, Directional)	205/55 R16 88V
15 x 4T (Steel, Temporary)	T135/70 D15
15 x 4T (Alloy, Temporary)	T135/70 D16

TIRE INFLATION

TIRE INFLATION SPECIFICATIONS

Application (1)	Specification psi (kg/cm ²)
Normal Loads	32 (2.2)
Temporary Spare	60 (4.2)

(1) - Tire inflation label is located near top of driver's door.

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 (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 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

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.

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.

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 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.

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.

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

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. For 1991 model, the warranty lasts for a period of 5 years or 60,000 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, whichever 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)

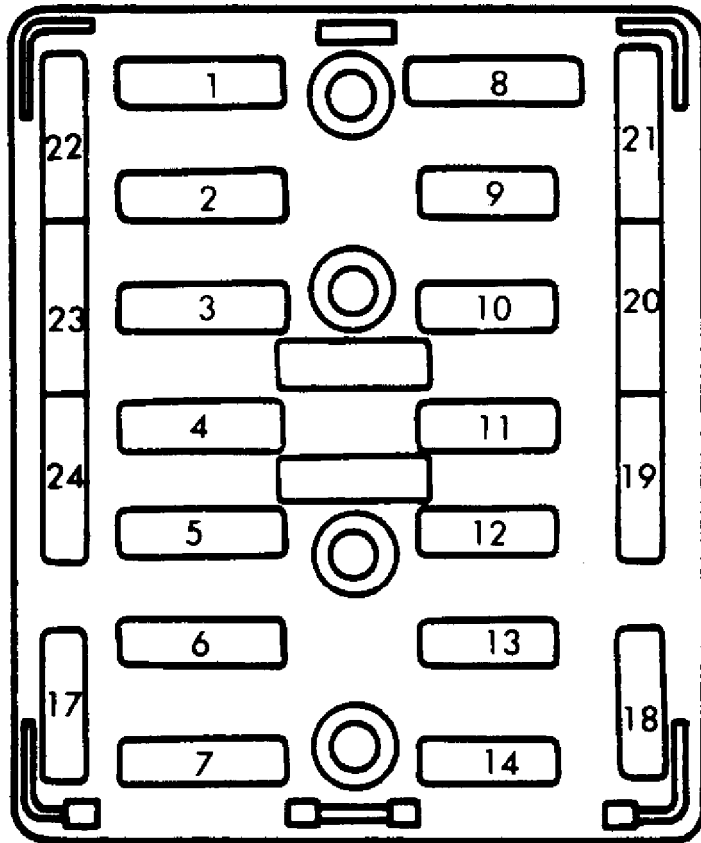
- * Air Flow Meter
- * Throttle Body
- * E.G.I. Control Unit
- * Monolithic Catalytic Converter
- * Fuel Pump Assembly

FUSES & CIRCUIT BREAKERS

FUSE PANEL LOCATION

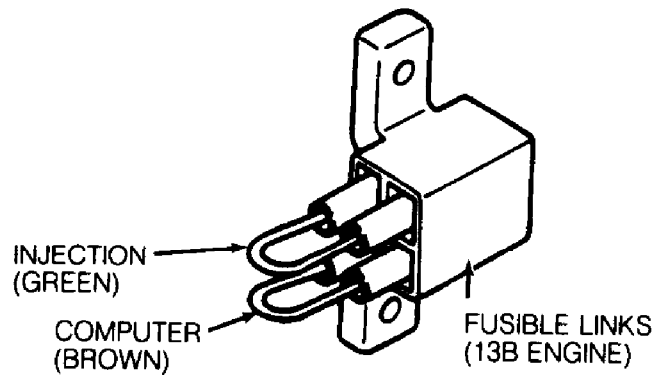
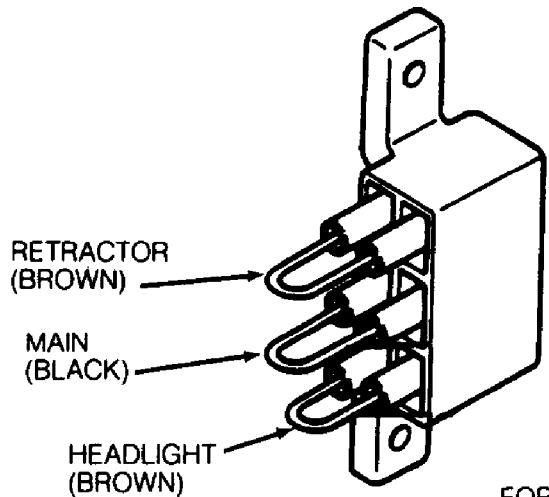
The main fuse block is located at the right rear side of the engine compartment and contains high amperage fuses which protect multiple circuits. Fuse box located above driver's left knee, accessible through a removable cover, contains fuses for individual circuits.

FUSE PANEL & FUSE BLOCK IDENTIFICATION (1983-85)



93C45387

Fig. 6: Fuse Panel Identification (1983-85)
Courtesy of Mazda Motor of America Inc.



FOR 12A & 13B ENGINE VEHICLES

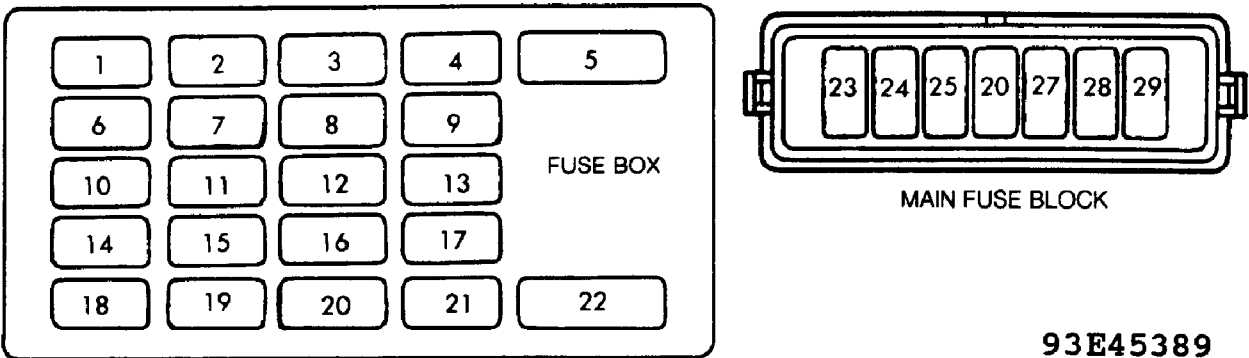
93D45388

Fig. 7: Fuse Block Identification (1983-85)
Courtesy of Mazda Motor of America Inc.

- 1 - Empty
- 2 - 15 Amp

- 3 - 15 Amp
Hazard Warning Lights
- 4 - 10 Amp
Taillights
- 5 - 20 Amp
Roof Opener
- 6 - 10 Amp
Cigarette Lighter
- 7 - 20 Amp
Radio & Antenna
- 8 - 15 Amp
Gauges & Back-Up Lights
- 9 - 20 Amp
Engine
- 10 - 30 Amp
Power Windows
- 11 - 20 Amp
Heater Blower
- 12 - 15 Amp
Rear Defogger
- 13 - 15 Amp
Windshield Wipers
- 14 - 10 Amp
Rear Wiper
- 15 - Empty
- 16 - Empty
- 17 - Empty
- 18 - Empty
- 19 - 15 Amp
Air Conditioning
- 20 - Empty
- 21 - Empty
- 22 - Empty
- 23 - Empty
- 24 - Empty

FUSE PANEL & FUSE BLOCK IDENTIFICATION (1986-90)



93E45389

FUSE PANEL CIRCUITS

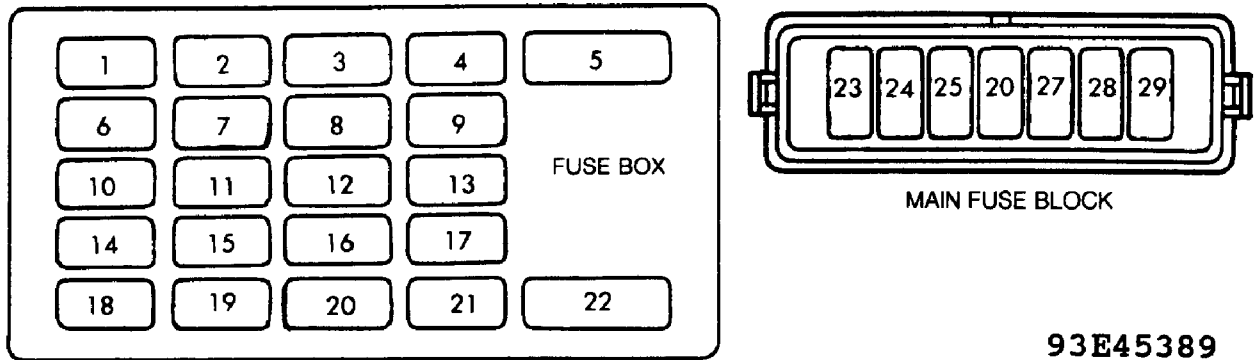
Fig. 8: Fuse Panel & Fuse Block Identification (1986-90)
Courtesy of Mazda Motor of America, Inc.

Fuse & Circuit Breaker Identification

- 1 - 30 Amp
Rear Defogger
- 2 - 15 Amp
Headlights

- 3 - 30 Amp
Power Windows, AAS System
- 4 - 15 Amp
Cooling Fan System
- 5 - 15 Amp
Front Foglight
- 6 - 10 Amp
Power Door Lock, Power Antenna
- 7 - 15 Amp
Turn Lights, Hazard Lights, Rear Window Defogger, Passive
Shoulder Belt
- 8 - 15 Amp
Front Wiper & Washer, DRL System, Heater, A/C, Diagnostic
Module
- 9 - 30 Amp
Passive Shoulder Belt
- 10 - 7.5 Amp
Courtesy Lights, Cargo & Interior Lights, Stoplight, Warning
& Buzzer Or Chime, Door Lock Cylinder & Ignition Key Cylinder
Light, EGI, Emission Control System, Warning & Clock System,
Theft System, ECAT
- 11 - 10 Amp
Back-Up Light, Cruise Control, Shift Lock System, ECAT,
Gauges, Clock, Cooling Fan
- 12 - 10 Amp
Rear Wiper/Washer (Coupe)
- 13 - 15 Amp
Anti-Lock Brake System
- 14 - 10 Amp
Turn Lights, Hazard Lights
- 15 - 15 Amp
ECAT, Fuel System, EGI & Emission Control System
- 16 - 30 Amp
Convertible Top System
- 17 - 10 Amp
Cigarette Lighter, Warning & Clock, Remote Control Mirror,
Heater & A/C
- 18 - 30 Amp
Heater & A/C
- 19 - 20 Amp
Stoplight, Cruise Control
- 20 - 10 Amp
Rear Window Defogger, Starter, Charge System, Shift Lock,
ECAT, Power Antenna & Steering, Horn, Stoplight
- 21 - 15 Amp
Air Bag, Diagnostic Module, (Conv.) Sun Roof, Anti-Lock Brake
System, AAS System (Coupe)
- 22 - 20 Amp
Audio System
- 23 - 60 Amp
BTN, Light Switch, Heater, A/C
- 24 - 30 Amp
Headlights
- 25 - 30 Amp
Headlight Retractor
- 26 - 30 Amp
EGI & Emission System
- 27 - 100 Amp
Starter & Charge System
- 28 - 60 Amp
Anti-Lock Brake System
- 29 - 30 Amp
Back-Up Battery (Air Bag)

FUSE PANEL & FUSE BLOCK IDENTIFICATION (1991)



93E45389

FUSE PANEL CIRCUITS

Fig. 9: Fuse Panel & Fuse Block Identification (1991)
Courtesy of Mazda Motor of America, Inc.

Fuse & Circuit Breaker Identification

- 1 - 20 Amp
Audio System
- 2 - 15 Amp
Sun Roof, Anti-Lock Brake System
- 2 - 15 Amp (Convertible)
Air Bag, Diagnostic Module
- 3 - 10 Amp
Rear Window Defogger, Starter, Charge System, Shift Lock System, ECAT, Power Antenna, Horn, Stoplight, Power Steering
- 4 - 20 Amp
Stoplight, Cruise Control System
- 5 - 30 Amp
Heater & A/C
- 6 - 10 Amp
Clock, Remote Control Mirror, Heater & A/C
- 7 - 30 Amp
Convertible Top System
- 8 - 15 Amp
ECAT, Fuel System, EGI & Emission Control System
- 9 - 10 Amp
Turn Lights, Hazard Lights
- 10 - 15 Amp (Except Convertible)
Anti-Lock Brake System
- 11 - 10 Amp (Except Convertible)
Rear Wiper & Washer
- 12 - 10 Amp
Back-Up Light, Cruise Control System, Shift Lock System, ECAT, Gauges, Clock, Cooling Fan
- 13 - 7.5 Amp
Cargo Light, Courtesy Lights, Interior Lights, Stoplights, Warning & Buzzer Or Chime, Door Lock Cylinder & Ignition Key Cylinder Light, EGI, Emission Control System, Warning Clock System, Theft System, ECAT
- 14 - 30 Amp (Except Convertible)
Passive Shoulder Belt
- 15 - 15 Amp
Front Wiper & Washer, DRL System Heater & A/C Diagnostic Module
- 16 - 15 Amp

Turn Lights, Hazard Lights, Rear Window Defroster, Passive
Shoulder Belt

17 - 10 Amp
Power Door Lock System & Antenna

18 - 15 Amp
Front Foglight

19 - 15 Amp
Cooling Fan

20 - 30 Amp
Power Window

21 - 15 Amp
Headlight

22 - 30 Amp
Rear Window Defroster

23 - 30 Amp
EGI

24 - Blank

24 - 30 Amp (Convertible)
Air Bag

25 - 30 Amp
Head

26 - 100 Amp
Main

27 - 60 Amp (Except Convertible)
Anti-Lock Brake System

28 - 60 Amp
BTN

29 - 30 Amp
Retractor

END OF ARTICLE

SCHEDULED SERVICES

Article Text

1984 Mazda RX7

For iluvmyrx7.com

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Sunday, June 09, 2002 06:10AM

ARTICLE BEGINNING

1983-91 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 (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 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

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.

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.

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 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.

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.

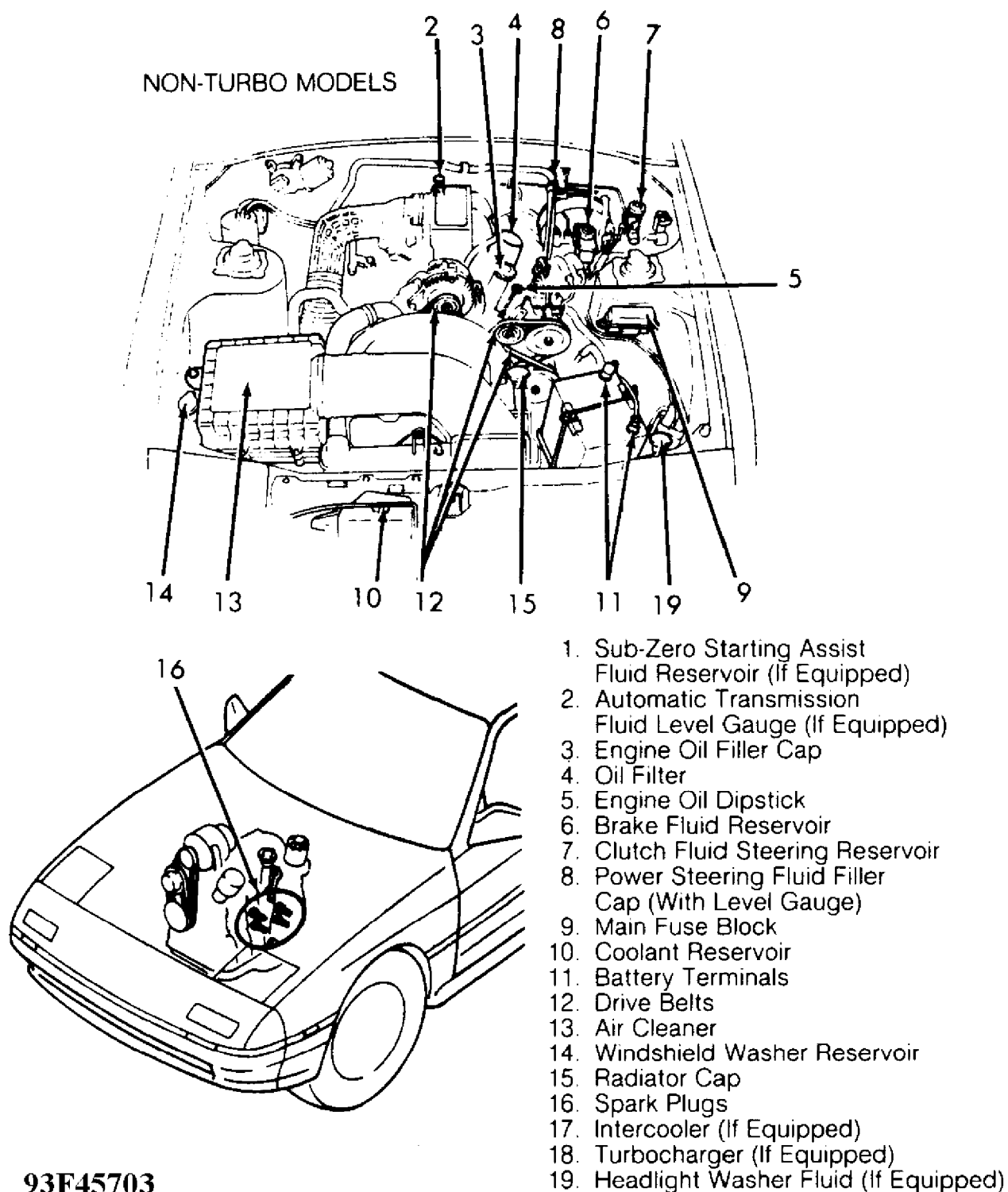
RADIATOR FAN

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

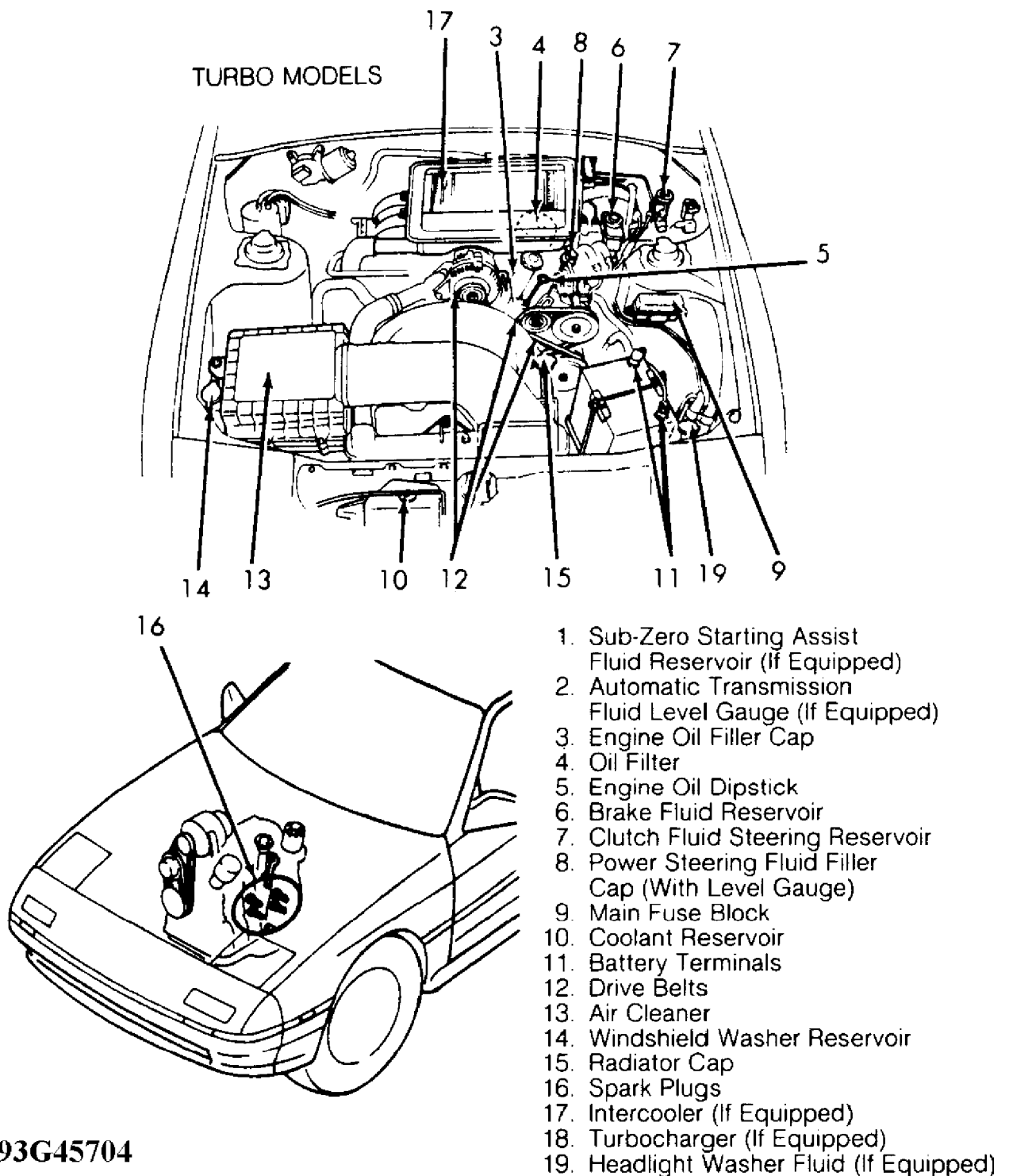
CAUTION: Do not race engine immediately after starting. When stopping engine, allow engine to idle for approximately 60 seconds before shutting it off. Failure to do so may cause turbocharger damage due to lack of oil flowing to the turbocharger bearings.

SERVICE POINT LOCATIONS



93F45703

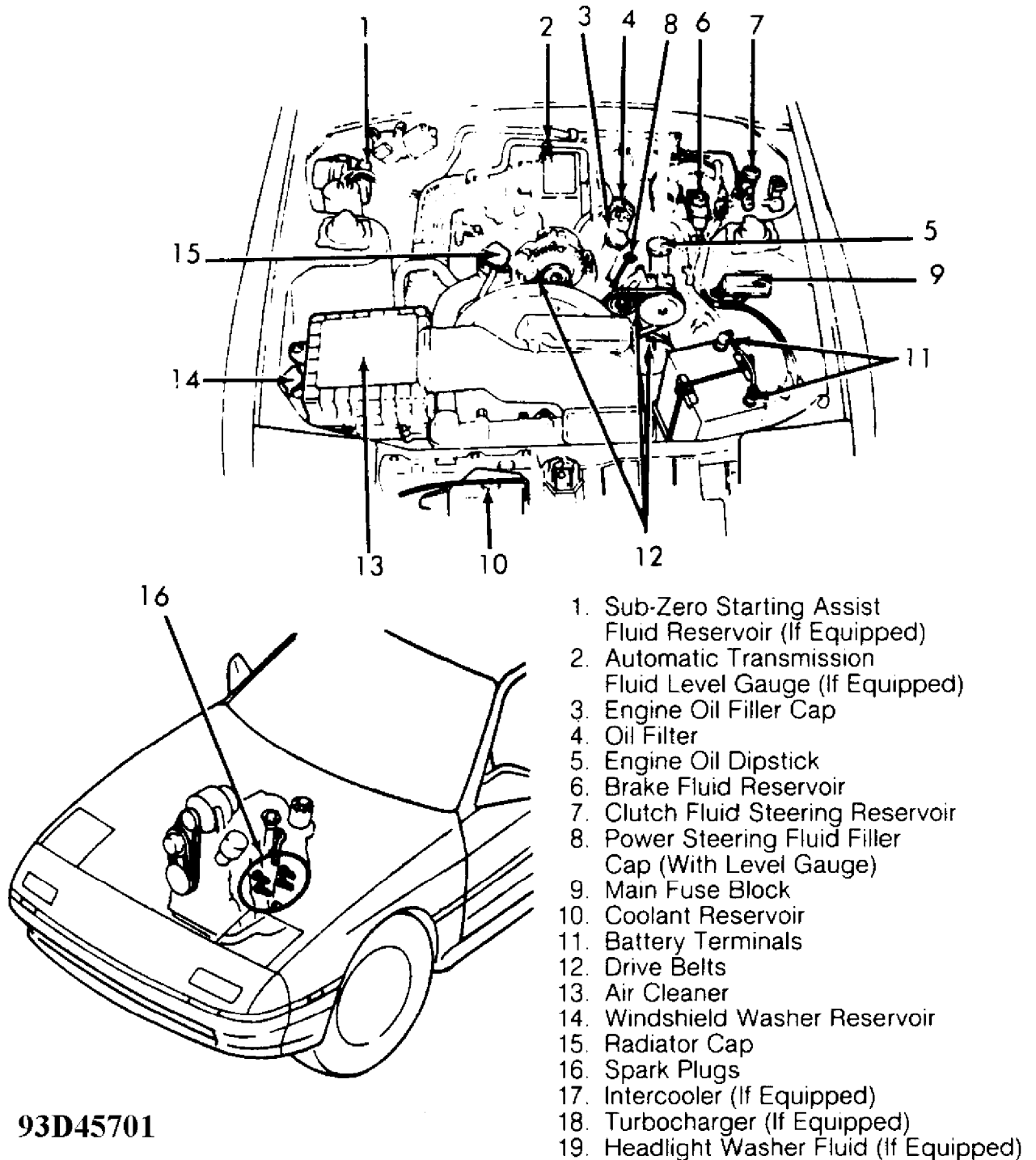
Fig. 1: Service Point Locations (Typical Non-Turbo Engine)



93G45704

Fig. 2: Service Point Locations (Typical Turbo Engine)
 Courtesy of Mazda Motor of America, Inc.

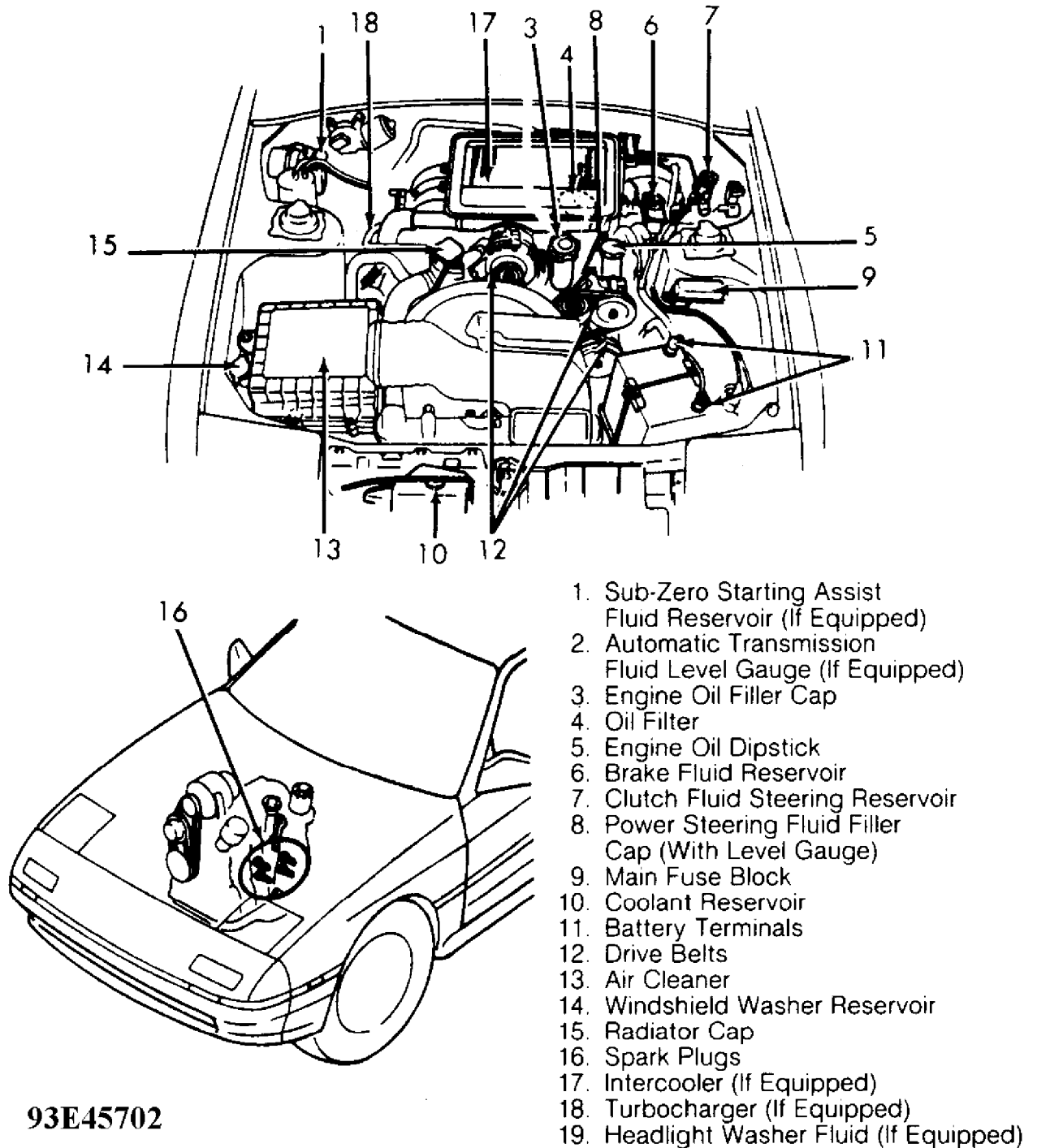
MODELS WITH SUB-ZERO STARTING ASSIST



93D45701

Fig. 3: Service Point Locations (Non-Turbo W/Sub-Zero Start Assist)

TURBO MODELS WITH SUB-ZERO STARTING ASSIST



93E45702

Fig. 4: Service Point Locations (Turbo W/Sub-Zero Start Assist)
 Courtesy of Mazda Motor of America, Inc.

SCHEDULED SERVICE INTERVALS Mazda RX7 For iluvmyrx7.com Copyright © 1998 Mitchell Repair

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)

NOTE: The following services are to be performed on vehicles subjected to severe service. See SEVERE & NORMAL SERVICE DEFINITIONS. This service is to be performed in addition to the normal services listed in the NORMAL MAINTENANCE SERVICE SCHEDULES.

SEVERE SERVICE CONDITIONS/ACTIONS TABLE

Condition	Action	Item	Perform Every (1)
Repeated Short Distance Driving	Replace	Turbo: Oil & Filter	3,000 Miles or 3 Months
	Replace	Non-Turbo: Oil & Filter	5,000 Miles or 5 Months
	Replace	M/T Fluid	30,000 Miles
	Replace	Rear Axle Oil	30,000 Miles
Dusty Conditions	Replace	Turbo: Oil & Filter	3,000 Miles or 3 Months
	Replace	Non-Turbo: Oil & Filter	5,000 Miles or 5 Months
	Replace	M/T Fluid	30,000 Miles
	Replace	Rear Axle Oil	30,000 Miles
Extended Use Of Brakes	Replace	Turbo: Oil & Filter	3,000 Miles or 3 Months
	Replace	Non-Turbo: Oil & Filter	5,000 Miles or 5 Months
	Replace	M/T Fluid	30,000 Miles
	Replace	Rear Axle Oil	30,000 Miles

Corrosive Materials On The Roads		Filter	
	Replace	Non-Turbo: Oil & Filter	5,000 Miles or 5 Months
	Replace	M/T Fluid	30,000 Miles
	Replace	Rear Axle Oil	30,000 Miles
Rough Or Muddy Roads	Replace	Turbo: Oil & Filter	3,000 Miles or 3 Months
	Replace	Non-Turbo: Oil & Filter	5,000 Miles or 5 Months
	Replace	M/T Fluid	30,000 Miles
	Replace	Rear Axle Oil	30,000 Miles
Extended Idling Or Low Speed Operation	Replace	Turbo: Oil & Filter	3,000 Miles or 3 Months
	Replace	Non-Turbo: Oil & Filter	5,000 Miles or 5 Months
	Replace	M/T Fluid	30,000 Miles
	Replace	Rear Axle Oil	30,000 Miles
Extended Operation In Extreme Temperatures	Replace	Turbo: Oil & Filter	3,000 Miles or 3 Months
	Replace	Non-Turbo: Oil & Filter	5,000 Miles or 5 Months
	Replace	M/T Fluid	30,000 Miles
	Replace	Rear Axle Oil	30,000 Miles
(1) - Perform these services at the mileage or number of months (since the last time), whichever comes first.			

NORMAL MAINTENANCE SERVICE SCHEDULES

CAUTION: 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.

7,500 MILE (12,000 KM) SERVICE

7,500 MILE (12,000 KM) SERVICE

Service Or Inspect	
	Check Fluid Levels and Fluid Condition
	Inspect Coolant Level, Hoses and Clamps

SCHEDULED SERVICE

	Inspect Exhaust System			
	Inspect C/V Joint Boots			
	Inspect Brake Linings			
	Lubricate Chassis			
Replace				
	Engine Oil			
	Oil Filter			
Lubrication Specifications				
Application			Specification	
Engine Oil				
Minimum Temperature				
Greater Than 0°F (-18°C)		.....	SAE 10W-30	API SG/CD
Maximum Temperature				
Less Than 0°F (-18°C)		.....	SAE 5W-30	API SG/CD
Fluid Capacities				
Application			Quantity	
Engine Oil		.....	4.4-4.7 Qts.	(4.2-4.4L)

15,000 MILE (24,000 KM) SERVICE

15,000 MILE (24,000 KM) SERVICE

Service Or Inspect
Verify Last Major Service Was Performed
Idle Speed
Check Fluid Levels and Fluid Condition
Inspect Coolant Level, Hoses and Clamps
Check Coolant Strength
Check Exhaust System & Heat Shielding
Check C/V Joint Boots
Clean Battery and Battery Terminals
Inspect/Adjust Accessory Drive Belts (Replace if Required)
Inspect Fuel/Tank/Cap/Lines
Check Operation of Horn, Wipers/Washers & All Exterior Lights
Inspect Condition of Wiper Blades

SCHEDULED SERVICE

	Check Headlight Alignment
	Check Body Drain Holes
	Check Seat Belt Webbing and Release Mechanisms
	Check Parking Brake Operation
	Check Shift Interlock Operation
	Lubricate Weatherstripping with Silicone
	Lubricate Door Hinges
	Lubricate Door Locks
	Check Steering Rack Boots
	Inspect Steering Linkage/Front Suspension
	Lubricate Steering Linkage & Suspension
	Lubricate Chassis
	Inspect Brake System Hoses & Lines
	Inspect Front Brake Pads, Rotors and Calipers
	Lubricate Caliper Slide Rails
	Inspect Rear Brake Pads, Rotors and Calipers
	Inspect Shocks/Struts for Leakage
	Inspect Tire Wear Pattern
	Rotate Tires and Adjust Air Pressure (Including Spare)
	Replace
	Engine Oil
	Oil Filter
Lubrication Specifications	
Application Specification	
Engine Oil	
Minimum Temperature	
Greater Than 0°F (-18°C)	SAE 10W-30 API SG/CD
Maximum Temperature	
Less Than 0°F (-18°C)	SAE 5W-30 API SG/CD
Fluid Capacities	
Application Quantity	
Cooling System	
1983-85	9.0-10.0 Qts. (8.5-9.5L)
1986-91	
Turbo	9.2 Qts. (8.7L)
Non-Turbo	7.7 Qts. (7.3L)

SCHEDULED SERVICE

Engine Oil	4.4-4.7 Qts. (4.2-4.4L)
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22,500 MILE (36,000 KM) SERVICE

22,500 MILE (36,000 KM) SERVICE

Service Or Inspect	
	Verify Last Major Service Was Performed
	Check Fluid Levels and Fluid Condition
	Inspect Coolant Level, Hoses and Clamps
	Inspect Exhaust System
	Inspect C/V Joint Boots
	Inspect Brake Linings
	Lubricate Chassis
Replace	
	Engine Oil
	Oil Filter
Lubrication Specifications	
Application	Specification
Engine Oil	
Minimum Temperature	
Greater Than 0°F (-18°C)	SAE 10W-30 API SG/CD
Maximum Temperature	
Less Than 0°F (-18°C)	SAE 5W-30 API SG/CD
Fluid Capacities	
Application	Quantity
Engine Oil	4.4-4.7 Qts. (4.2-4.4L)

30,000 MILE (48,000 KM) SERVICE

30,000 MILE (48,000 KM) SERVICE

Service Or Inspect	
	Verify Last Major Service Was Performed
	Check Fluid Levels and Fluid Condition
	Inspect Coolant Level, Hoses and Clamps
	Engine Coolant Level Warning System
	Check Exhaust System & Heat Shielding

SCHEDULED SERVICE

	Clean Battery and Battery Terminals
	Inspect/Adjust Accessory Drive Belts (Replace if Required)
	Inspect Underhood Wiring Harnesses and Connections
	Inspect Emission Control Vacuum Hoses and Connections
	Inspect Thermostatic Air Cleaner (If Equipped)
	Inspect Distributor Cap & Rotor (If Equipped)
	Inspect Spark Plug Wires
	Inspect PCV Valve and Hoses
	Inspect EGR Valve and Hoses
	Check Ignition Timing
	Idle Speed
	Inspect Fuel/Tank/Cap/Lines
	Check Operation of Horn, Wipers/Washers & All Exterior Lights
	Inspect Condition of Wiper Blades
	Check Headlight Alignment
	Check Body Drain Holes
	Check Seat Belt Webbing and Release Mechanisms
	Check Parking Brake Operation
	Check Shift Interlock Operation
	Lubricate Weatherstripping with Silicone
	Lubricate Door Hinges
	Lubricate Door Locks
	Check Steering Rack Boots
	Check C/V Joint Boots
	Inspect Steering Linkage/Front Suspension
	Lubricate Steering Linkage & Suspension
	Lubricate Chassis
	Suspension Bushings, Springs, Arms & Rear Jounce Bumpers
	Toe Control Hub & Control Link
	Lubricate Front Wheel Bearings
	Inspect Brake System Hoses & Lines

SCHEDULED SERVICE

	Inspect Front Brake Pads, Rotors and Calipers
	Lubricate Caliper Slide Rails
	Inspect Rear Brake Pads, Rotors and Calipers
	Inspect/Repack Rear Wheel Bearings
	Inspect Shocks/Struts for Leakage
	Inspect Tire Wear Pattern
	Rotate Tires and Adjust Air Pressure (Including Spare)
	Replace
	Engine Oil
	Oil Filter
	Air Filter Element
	Spark Plugs
	PCV Filter
	Drain, Flush and Refill Engine Coolant
	Manual Transmission Oil
	Rear Axle Oil
	Lubrication Specifications
Application	Specification
Engine Oil	
Minimum Temperature	
Greater Than 0°F (-18°C)	SAE 10W-30 API SG/CD
Maximum Temperature	
Less Than 0°F (-18°C)	SAE 5W-30 API SG/CD
Manual Transmission	SAE 75W-90 GL-5
Rear Axle	SAE 80W-90 GL-5
	Fluid Capacities
Application	Quantity
Automatic Transmission Fluid	7.7-7.9 Qts. (7.3-7.5L)
Cooling System	
1983-85	9.0-10.0 Qts. (8.5-9.5L)
1986-91	
Turbo	9.2 Qts. (8.7L)
Non-Turbo	7.7 Qts. (7.3L)
Engine Oil	4.4-4.7 Qts. (4.2-4.4L)
Manual Transmission Oil	2.1-2.6 Qts. (2.0-2.5L)
Rear Axle Oil	
Turbo	1.3-1.5 Qts. (1.2-1.4L)
Non-Turbo	1.4-1.7 Qts. (1.3-1.6L)
	Service Labor Times
Application	Hours

SCHEDULED SERVICE

Automatic Transmission	2.1
Manual Transmission	2.1

37,500 MILE (60,000 KM) SERVICE

37,500 MILE (60,000 KM) SERVICE

Service Or Inspect	
	Verify Last Major Service Was Performed
	Check Fluid Levels and Fluid Condition
	Inspect Coolant Level, Hoses and Clamps
	Inspect Exhaust System
	Inspect C/V Joint Boots
	Inspect Brake Linings
	Lubricate Chassis
Replace	
	Engine Oil
	Oil Filter
Lubrication Specifications	
Application	Specification
Engine Oil	
Minimum Temperature Greater Than 0°F (-18°C)	SAE 10W-30 API SG/CD
Maximum Temperature Less Than 0°F (-18°C)	SAE 5W-30 API SG/CD
Fluid Capacities	
Application	Quantity
Engine Oil	4.4-4.7 Qts. (4.2-4.4L)

45,000 MILE (72,000 KM) SERVICE

45,000 MILE (72,000 KM) SERVICE

Service Or Inspect	
	Verify Last Major Service Was Performed
	Idle Speed
	Check Fluid Levels and Fluid Condition
	Inspect Coolant Level, Hoses and Clamps

SCHEDULED SERVICE

	Check Coolant Strength
	Check Exhaust System & Heat Shielding
	Check C/V Joint Boots
	Clean Battery and Battery Terminals
	Inspect/Adjust Accessory Drive Belts (Replace if Required)
	Inspect Fuel/Tank/Cap/Lines
	Check Operation of Horn, Wipers/Washers & All Exterior Lights
	Inspect Condition of Wiper Blades
	Check Headlight Alignment
	Check Body Drain Holes
	Check Seat Belt Webbing and Release Mechanisms
	Check Parking Brake Operation
	Check Shift Interlock Operation
	Lubricate Weatherstripping with Silicone
	Lubricate Door Hinges
	Lubricate Door Locks
	Check Steering Rack Boots
	Inspect Steering Linkage/Front Suspension
	Lubricate Steering Linkage & Suspension
	Lubricate Chassis
	Inspect Brake System Hoses & Lines
	Inspect Front Brake Pads, Rotors and Calipers
	Lubricate Caliper Slide Rails
	Inspect Rear Brake Pads, Rotors and Calipers
	Inspect Shocks/Struts for Leakage
	Inspect Tire Wear Pattern
	Rotate Tires and Adjust Air Pressure (Including Spare)
	Replace
	Engine Oil
	Oil Filter
	Lubrication Specifications

SCHEDULED SERVICE

Application	Specification
Engine Oil	
Minimum Temperature Greater Than 0°F (-18°C)	SAE 10W-30 API SG/CD
Maximum Temperature Less Than 0°F (-18°C)	SAE 5W-30 API SG/CD
Fluid Capacities	
Application	Quantity
Cooling System	
1983-85	9.0-10.0 Qts. (8.5-9.5L)
1986-91	
Turbo	9.2 Qts. (8.7L)
Non-Turbo	7.7 Qts. (7.3L)
Engine Oil	4.4-4.7 Qts. (4.2-4.4L)

52,500 MILE (84,000 KM) SERVICE

52,500 MILE (84,000 KM) SERVICE

Service Or Inspect	
<input type="checkbox"/>	Verify Last Major Service Was Performed
<input type="checkbox"/>	Check Fluid Levels and Fluid Condition
<input type="checkbox"/>	Inspect Coolant Level, Hoses and Clamps
<input type="checkbox"/>	Inspect Exhaust System
<input type="checkbox"/>	Inspect C/V Joint Boots
<input type="checkbox"/>	Inspect Brake Linings
<input type="checkbox"/>	Lubricate Chassis
Replace	
<input type="checkbox"/>	Engine Oil
<input type="checkbox"/>	Oil Filter
Lubrication Specifications	
Application	Specification
Engine Oil	
Minimum Temperature Greater Than 0°F (-18°C)	SAE 10W-30 API SG/CD
Maximum Temperature Less Than 0°F (-18°C)	SAE 5W-30 API SG/CD
Fluid Capacities	
Application	Quantity
Engine Oil	4.4-4.7 Qts. (4.2-4.4L)

SCHEDULED SERVICE

60,000 MILE (96,000 KM) SERVICE

60,000 MILE (96,000 KM) SERVICE

	Service Or Inspect
	Verify Last Major Service Was Performed
	Check Fluid Levels and Fluid Condition
	Inspect Coolant Level, Hoses and Clamps
	Engine Coolant Level Warning System
	Check Exhaust System & Heat Shielding
	Clean Battery and Battery Terminals
	Inspect/Adjust Accessory Drive Belts (Replace if Required)
	Inspect Underhood Wiring Harnesses and Connections
	Inspect Emission Control Vacuum Hoses and Connections
	Inspect Thermostatic Air Cleaner (If Equipped)
	Inspect Distributor Cap & Rotor (If Equipped)
	Inspect Spark Plug Wires
	Inspect PCV Valve and Hoses
	Inspect EGR Valve and Hoses
	Check Ignition Timing
	Idle Speed
	Inspect Fuel/Tank/Cap/Lines
	Check Operation of Horn, Wipers/Washers & All Exterior Lights
	Inspect Condition of Wiper Blades
	Check Headlight Alignment
	Check Body Drain Holes
	Check Seat Belt Webbing and Release Mechanisms
	Check Parking Brake Operation
	Check Shift Interlock Operation
	Lubricate Weatherstripping with Silicone
	Lubricate Door Hinges
	Lubricate Door Locks
	Check Steering Rack Boots

SCHEDULED SERVICE

	Check C/V Joint Boots
	Inspect Steering Linkage/Front Suspension
	Lubricate Steering Linkage & Suspension
	Lubricate Chassis
	Suspension Bushings, Springs, Arms & Rear Jounce Bumpers
	Toe Control Hub & Control Link
	Lubricate Front Wheel Bearings
	Inspect Brake System Hoses & Lines
	Inspect Front Brake Pads, Rotors and Calipers
	Lubricate Caliper Slide Rails
	Inspect Rear Brake Pads, Rotors and Calipers
	Inspect/Repack Rear Wheel Bearings
	Inspect Shocks/Struts for Leakage
	Inspect Tire Wear Pattern
	Rotate Tires and Adjust Air Pressure (Including Spare)
	Replace
	Engine Oil
	Oil Filter
	Air Filter Element
	Spark Plugs
	PCV Filter
	Drain, Flush and Refill Engine Coolant
	Manual Transmission Oil
	Rear Axle Oil
	Lubrication Specifications
Application	Specification
Engine Oil	
Minimum Temperature	
Greater Than 0°F (-18°C)	SAE 10W-30 API SG/CD
Maximum Temperature	
Less Than 0°F (-18°C)	SAE 5W-30 API SG/CD
Manual Transmission	SAE 75W-90 GL-5
Rear Axle	SAE 80W-90 GL-5
Fluid Capacities	

SCHEDULED SERVICE

Application	Quantity
Automatic Transmission Fluid	7.7-7.9 Qts. (7.3-7.5L)
Cooling System	
1983-85	9.0-10.0 Qts. (8.5-9.5L)
1986-91	
Turbo	9.2 Qts. (8.7L)
Non-Turbo	7.7 Qts. (7.3L)
Engine Oil	4.4-4.7 Qts. (4.2-4.4L)
Manual Transmission Oil	2.1-2.6 Qts. (2.0-2.5L)
Rear Axle Oil	
Turbo	1.3-1.5 Qts. (1.2-1.4L)
Non-Turbo	1.4-1.7 Qts. (1.3-1.6L)
Service Labor Times	
Application	Hours
Automatic Transmission	3.7
Manual Transmission	4.1

67,500 MILE (108,000 KM) SERVICE

67,500 MILE (108,000 KM) SERVICE

Service Or Inspect	
	Verify Last Major Service Was Performed
	Check Fluid Levels and Fluid Condition
	Inspect Coolant Level, Hoses and Clamps
	Inspect Exhaust System
	Inspect C/V Joint Boots
	Inspect Brake Linings
	Lubricate Chassis
Replace	
	Engine Oil
	Oil Filter
Lubrication Specifications	
Application	Specification
Engine Oil	
Minimum Temperature	
Greater Than 0°F (-18°C)	SAE 10W-30 API SG/CD
Maximum Temperature	
Less Than 0°F (-18°C)	SAE 5W-30 API SG/CD
Fluid Capacities	
Application	Quantity

SCHEDULED SERVICE

Engine Oil	4.4-4.7 Qts. (4.2-4.4L)
------------------	-------------------------

75,000 MILE (120,000 KM) SERVICE

75,000 MILE (120,000 KM) SERVICE

Service Or Inspect
Verify Last Major Service Was Performed
Idle Speed
Check Fluid Levels and Fluid Condition
Inspect Coolant Level, Hoses and Clamps
Check Coolant Strength
Check Exhaust System & Heat Shielding
Check C/V Joint Boots
Clean Battery and Battery Terminals
Inspect/Adjust Accessory Drive Belts (Replace if Required)
Inspect Fuel/Tank/Cap/Lines
Check Operation of Horn, Wipers/Washers & All Exterior Lights
Inspect Condition of Wiper Blades
Check Headlight Alignment
Check Body Drain Holes
Check Seat Belt Webbing and Release Mechanisms
Check Parking Brake Operation
Check Shift Interlock Operation
Lubricate Weatherstripping with Silicone
Lubricate Door Hinges
Lubricate Door Locks
Check Steering Rack Boots
Inspect Steering Linkage/Front Suspension
Lubricate Steering Linkage & Suspension
Lubricate Chassis
Inspect Brake System Hoses & Lines
Inspect Front Brake Pads, Rotors and Calipers
Lubricate Caliper Slide Rails

SCHEDULED SERVICE

	Inspect Rear Brake Pads, Rotors and Calipers			
	Inspect Shocks/Struts for Leakage			
	Inspect Tire Wear Pattern			
	Rotate Tires and Adjust Air Pressure (Including Spare)			
	Replace			
	Engine Oil			
	Oil Filter			
	Lubrication Specifications			
Application		Specification		
Engine Oil				
Minimum Temperature				
Greater Than 0°F (-18°C)		SAE 10W-30	API SG/CD	
Maximum Temperature				
Less Than 0°F (-18°C)		SAE 5W-30	API SG/CD	
Fluid Capacities				
Application		Quantity		
Cooling System				
1983-85		9.0-10.0	Qts. (8.5-9.5L)	
1986-91				
Turbo		9.2	Qts. (8.7L)	
Non-Turbo		7.7	Qts. (7.3L)	
Engine Oil		4.4-4.7	Qts. (4.2-4.4L)	

82,500 MILE (132,000 KM) SERVICE

82,500 MILE (132,000 KM) SERVICE

Service Or Inspect
Verify Last Major Service Was Performed
Check Fluid Levels and Fluid Condition
Inspect Coolant Level, Hoses and Clamps
Inspect Exhaust System
Inspect C/V Joint Boots
Inspect Brake Linings
Lubricate Chassis
Replace
Engine Oil
Oil Filter

SCHEDULED SERVICE

Lubrication Specifications	
Application	Specification
Engine Oil	
Minimum Temperature Greater Than 0°F (-18°C)	SAE 10W-30 API SG/CD
Maximum Temperature Less Than 0°F (-18°C)	SAE 5W-30 API SG/CD
Fluid Capacities	
Application	Quantity
Engine Oil	4.4-4.7 Qts. (4.2-4.4L)

90,000 MILE (144,000 KM) SERVICE

90,000 MILE (144,000 KM) SERVICE

Service Or Inspect
Verify Last Major Service Was Performed
Check Fluid Levels and Fluid Condition
Inspect Coolant Level, Hoses and Clamps
Engine Coolant Level Warning System
Check Exhaust System & Heat Shielding
Clean Battery and Battery Terminals
Inspect/Adjust Accessory Drive Belts (Replace if Required)
Inspect Underhood Wiring Harnesses and Connections
Inspect Emission Control Vacuum Hoses and Connections
Inspect Thermostatic Air Cleaner (If Equipped)
Inspect Distributor Cap & Rotor (If Equipped)
Inspect Spark Plug Wires
Inspect PCV Valve and Hoses
Inspect EGR Valve and Hoses
Check Ignition Timing
Idle Speed
Inspect Fuel/Tank/Cap/Lines
Check Operation of Horn, Wipers/Washers & All Exterior Lights
Inspect Condition of Wiper Blades

SCHEDULED SERVICE

	Check Headlight Alignment
	Check Body Drain Holes
	Check Seat Belt Webbing and Release Mechanisms
	Check Parking Brake Operation
	Check Shift Interlock Operation
	Lubricate Weatherstripping with Silicone
	Lubricate Door Hinges
	Lubricate Door Locks
	Check Steering Rack Boots
	Check C/V Joint Boots
	Inspect Steering Linkage/Front Suspension
	Lubricate Steering Linkage & Suspension
	Lubricate Chassis
	Suspension Bushings, Springs, Arms & Rear Jounce Bumpers
	Toe Control Hub & Control Link
	Lubricate Front Wheel Bearings
	Inspect Brake System Hoses & Lines
	Inspect Front Brake Pads, Rotors and Calipers
	Lubricate Caliper Slide Rails
	Inspect Rear Brake Pads, Rotors and Calipers
	Inspect/Repack Rear Wheel Bearings
	Inspect Shocks/Struts for Leakage
	Inspect Tire Wear Pattern
	Rotate Tires and Adjust Air Pressure (Including Spare)
	Replace
	Engine Oil
	Oil Filter
	Air Filter Element
	Spark Plugs
	PCV Filter
	Drain, Flush and Refill Engine Coolant
	Manual Transmission Oil

SCHEDULED SERVICE

Rear Axle Oil	
Lubrication Specifications	
Application	Specification
Engine Oil	
Minimum Temperature	
Greater Than 0°F (-18°C)	SAE 10W-30 API SG/CD
Maximum Temperature	
Less Than 0°F (-18°C)	SAE 5W-30 API SG/CD
Manual Transmission	SAE 75W-90 GL-5
Rear Axle	SAE 80W-90 GL-5
Fluid Capacities	
Application	Quantity
Automatic Transmission Fluid	7.7-7.9 Qts. (7.3-7.5L)
Cooling System	
1983-85	9.0-10.0 Qts. (8.5-9.5L)
1986-91	
Turbo	9.2 Qts. (8.7L)
Non-Turbo	7.7 Qts. (7.3L)
Engine Oil	4.4-4.7 Qts. (4.2-4.4L)
Manual Transmission Oil	2.1-2.6 Qts. (2.0-2.5L)
Rear Axle Oil	
Turbo	1.3-1.5 Qts. (1.2-1.4L)
Non-Turbo	1.4-1.7 Qts. (1.3-1.6L)
Service Labor Times	
Application	Hours
Automatic Transmission	2.1
Manual Transmission	2.1

97,500 MILE (156,000 KM) SERVICE

97,500 MILE (156,000 KM) SERVICE

Service Or Inspect	
Verify Last Major Service Was Performed	
Check Fluid Levels and Fluid Condition	
Inspect Coolant Level, Hoses and Clamps	
Inspect Exhaust System	
Inspect C/V Joint Boots	
Inspect Brake Linings	
Lubricate Chassis	
Replace	
Engine Oil	

SCHEDULED SERVICE

Oil Filter	
Lubrication Specifications	
Application	Specification
Engine Oil	
Minimum Temperature	
Greater Than 0°F (-18°C)	SAE 10W-30 API SG/CD
Maximum Temperature	
Less Than 0°F (-18°C)	SAE 5W-30 API SG/CD
Fluid Capacities	
Application	Quantity
Engine Oil	4.4-4.7 Qts. (4.2-4.4L)

105,000 MILE (168,000 KM) SERVICE

105,000 MILE (168,000 KM) SERVICE

Service Or Inspect	
Verify Last Major Service Was Performed	
Idle Speed	
Check Fluid Levels and Fluid Condition	
Inspect Coolant Level, Hoses and Clamps	
Check Coolant Strength	
Check Exhaust System & Heat Shielding	
Check C/V Joint Boots	
Clean Battery and Battery Terminals	
Inspect/Adjust Accessory Drive Belts (Replace if Required)	
Inspect Fuel/Tank/Cap/Lines	
Check Operation of Horn, Wipers/Washers & All Exterior Lights	
Inspect Condition of Wiper Blades	
Check Headlight Alignment	
Check Body Drain Holes	
Check Seat Belt Webbing and Release Mechanisms	
Check Parking Brake Operation	
Check Shift Interlock Operation	
Lubricate Weatherstripping with Silicone	

SCHEDULED SERVICE

	Lubricate Door Hinges
	Lubricate Door Locks
	Check Steering Rack Boots
	Inspect Steering Linkage/Front Suspension
	Lubricate Steering Linkage & Suspension
	Lubricate Chassis
	Inspect Brake System Hoses & Lines
	Inspect Front Brake Pads, Rotors and Calipers
	Lubricate Caliper Slide Rails
	Inspect Rear Brake Pads, Rotors and Calipers
	Inspect Shocks/Struts for Leakage
	Inspect Tire Wear Pattern
	Rotate Tires and Adjust Air Pressure (Including Spare)
	Replace
	Engine Oil
	Oil Filter
	Lubrication Specifications
ApplicationSpecification	
Engine Oil	
Minimum Temperature	
Greater Than 0°F (-18°C)	SAE 10W-30 API SG/CD
Maximum Temperature	
Less Than 0°F (-18°C)	SAE 5W-30 API SG/CD
Fluid Capacities	
ApplicationQuantity	
Cooling System	
1983-85	9.0-10.0 Qts. (8.5-9.5L)
1986-91	
Turbo	9.2 Qts. (8.7L)
Non-Turbo	7.7 Qts. (7.3L)
Engine Oil	4.4-4.7 Qts. (4.2-4.4L)

112,500 MILE (180,000 KM) SERVICE

112,500 MILE (180,000 KM) SERVICE

Service Or Inspect
Verify Last Major Service Was Performed

SCHEDULED SERVICE

	Check Fluid Levels and Fluid Condition			
	Inspect Coolant Level, Hoses and Clamps			
	Inspect Exhaust System			
	Inspect C/V Joint Boots			
	Inspect Brake Linings			
	Lubricate Chassis			
	Replace			
	Engine Oil			
	Oil Filter			
	Lubrication Specifications			
Application		Specification		
Engine Oil				
Minimum Temperature				
Greater Than 0°F (-18°C)		.....	SAE 10W-30	API SG/CD
Maximum Temperature				
Less Than 0°F (-18°C)		.....	SAE 5W-30	API SG/CD
Fluid Capacities				
Application		Quantity		
Engine Oil		.....	4.4-4.7 Qts.	(4.2-4.4L)

120,000 MILE (192,000 KM) SERVICE

120,000 MILE (192,000 KM) SERVICE

Service Or Inspect
Verify Last Major Service Was Performed
Check Fluid Levels and Fluid Condition
Inspect Coolant Level, Hoses and Clamps
Engine Coolant Level Warning System
Check Exhaust System & Heat Shielding
Clean Battery and Battery Terminals
Inspect/Adjust Accessory Drive Belts (Replace if Required)
Inspect Underhood Wiring Harnesses and Connections
Inspect Emission Control Vacuum Hoses and Connections
Inspect Thermostatic Air Cleaner (If Equipped)
Inspect Distributor Cap & Rotor (If Equipped)

SCHEDULED SERVICE

Inspect Spark Plug Wires
Inspect PCV Valve and Hoses
Inspect EGR Valve and Hoses
Check Ignition Timing
Idle Speed
Inspect Fuel/Tank/Cap/Lines
Check Operation of Horn, Wipers/Washers & All Exterior Lights
Inspect Condition of Wiper Blades
Check Headlight Alignment
Check Body Drain Holes
Check Seat Belt Webbing and Release Mechanisms
Check Parking Brake Operation
Check Shift Interlock Operation
Lubricate Weatherstripping with Silicone
Lubricate Door Hinges
Lubricate Door Locks
Check Steering Rack Boots
Check C/V Joint Boots
Inspect Steering Linkage/Front Suspension
Lubricate Steering Linkage & Suspension
Lubricate Chassis
Suspension Bushings, Springs, Arms & Rear Jounce Bumpers
Toe Control Hub & Control Link
Lubricate Front Wheel Bearings
Inspect Brake System Hoses & Lines
Inspect Front Brake Pads, Rotors and Calipers
Lubricate Caliper Slide Rails
Inspect Rear Brake Pads, Rotors and Calipers
Inspect/Repack Rear Wheel Bearings
Inspect Shocks/Struts for Leakage
Inspect Tire Wear Pattern

SCHEDULED SERVIC

	Rotate Tires and Adjust Air Pressure (Including Spare)		
	Replace		
	Engine Oil		
	Oil Filter		
	Air Filter Element		
	Spark Plugs		
	PCV Filter		
	Fuel Filter		
	Drain, Flush and Refill Engine Coolant		
	Manual Transmission Oil		
	Rear Axle Oil		
	Lubrication Specifications		
Application		Specification	
Engine Oil			
Minimum Temperature			
Greater Than 0°F (-18°C)		SAE 10W-30	API SG/CD
Maximum Temperature			
Less Than 0°F (-18°C)		SAE 5W-30	API SG/CD
Manual Transmission		SAE 75W-90	GL-5
Rear Axle		SAE 80W-90	GL-5
	Fluid Capacities		
Application		Quantity	
Automatic Transmission Fluid		7.7-7.9 Qts.	(7.3-7.5L)
Cooling System			
1983-85		9.0-10.0 Qts.	(8.5-9.5L)
1986-91			
Turbo		9.2 Qts.	(8.7L)
Non-Turbo		7.7 Qts.	(7.3L)
Engine Oil		4.4-4.7 Qts.	(4.2-4.4L)
Manual Transmission Oil		2.1-2.6 Qts.	(2.0-2.5L)
Rear Axle Oil			
Turbo		1.3-1.5 Qts.	(1.2-1.4L)
Non-Turbo		1.4-1.7 Qts.	(1.3-1.6L)
	Service Labor Times		
Application		Hours	
Automatic Transmission		3.7	
Manual Transmission		4.1	

LUBRICATION SPECIFICATIONS

LUBRICATION SPECIFICATIONS TABLE

SCHEDULED SERVICE

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/SF/SG
Maximum Temperature	
Less Than 0°F (-18°C)	SAE 5W-30 API/SF/SG
Manual Transmission	SAE 75W-90 GL-4, GL-5
Power Steering Fluid	Dexron-II ATF Or Equivalent
Rear Axle	SAE 80W-90 GL-5

FLUID CAPACITIES

FLUID CAPACITIES TABLE

Application	Quantity
A/C System R-12 Refrigerant Capacity	
1983-85	36 Ozs.
1986-89	
Nippondenso Compressor	22-25 Ozs.
Sanden Compressor	30 Ozs.
1990-91	26.5-28 Ozs.
Automatic Transmission Fluid	7.7-7.9 Qts. (7.3-7.5L)
Cooling System	
1983-85	9.0-10.0 Qts. (8.5-9.5L)
1986-91	
Turbo	9.2 Qts. (8.7L)
Non-Turbo	7.7 Qts. (7.3L)
Engine Oil	4.4-4.7 Qts. (4.2-4.4L)
Fuel Tank	
1983-87	16.6 Gals. (63L)
1988-91	18.5 Gals. (70L)
Manual Transmission Oil	2.1-2.6 Qts. (2.0-2.5L)
Rear Axle Oil	
Turbo	1.3-1.5 Qts. (1.2-1.4L)
Non-Turbo	1.4-1.7 Qts. (1.3-1.6L)

END OF ARTICLE

SERVICE INDICATOR & WARNING LIGHTS

Article Text

1984 Mazda RX7

For iluvmyrx7.com

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Sunday, June 09, 2002 06:10AM

ARTICLE BEGINNING

1983-91 MAINTENANCE

Mazda Service Indicator & Warning Lights

RX7

SERVICE INDICATOR & WARNING LIGHTS

The warning lights will come on with the ignition. Any warning light which does not come with the ignition must be checked and repaired.

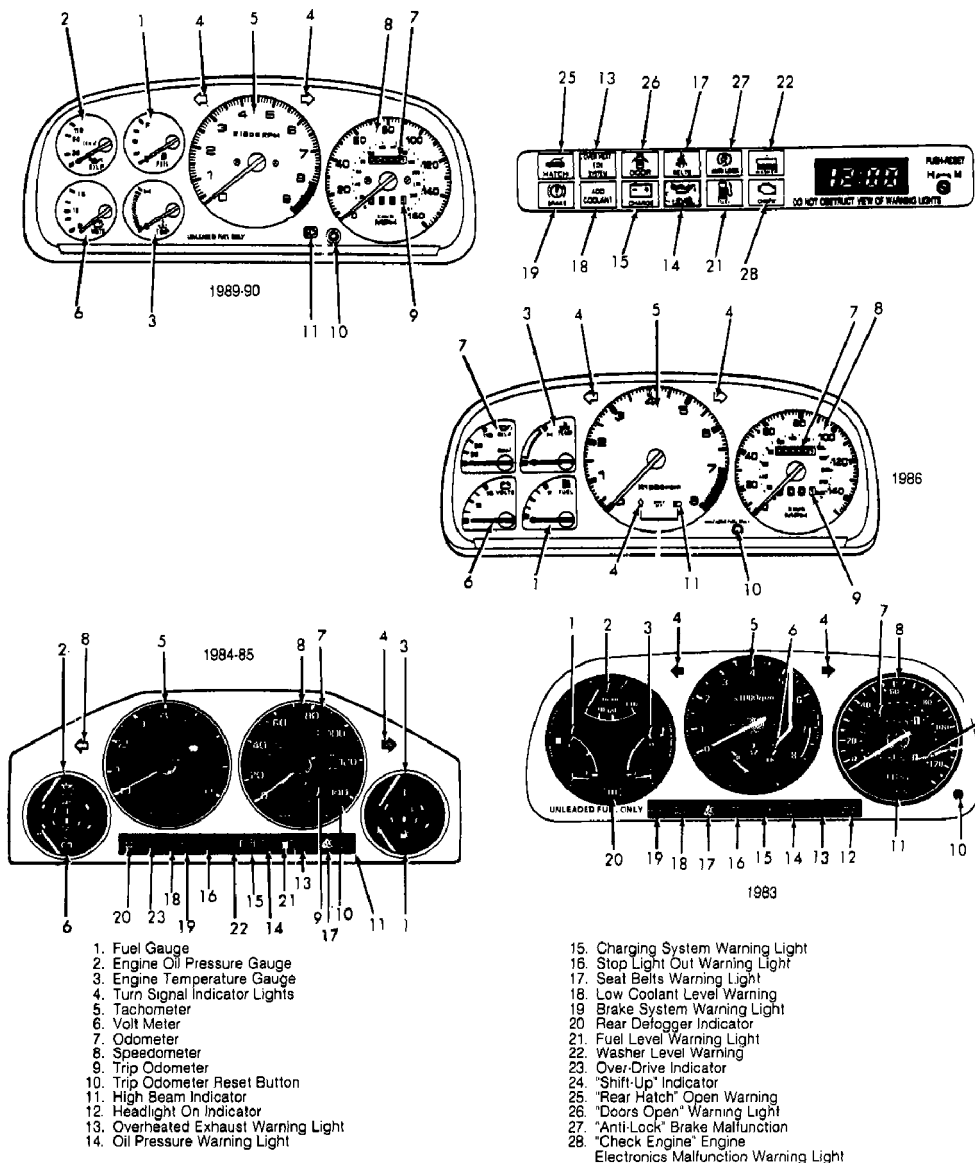


Fig. 1: Dash Gauges & Warning Lights
Courtesy of Mazda Motor of America Inc.

BRAKE SYSTEM WARNING LIGHT

Light comes on with parking brake. If light remains on, with parking brake off, fluid must be checked.

SEAT BELT WARNING

Light and beeper will go on for about 6 seconds, or until driver's belt is locked, when ignition is turned on.

CHARGE SYSTEM WARNING LIGHT

Warning indicates a malfunction of either the alternator or the electrical wiring system.

MALFUNCTION INDICATOR LIGHT

CHECK light indicates a fault in the electronic engine control system, sensors or emission components.

SUPPLEMENTAL DRIVER RESTRAINT SYSTEM WARNING LIGHT (IF EQUIPPED)

AIR BAG light indicates a system malfunction by flashing or continuous illumination.

HEADLIGHT HIGH BEAM INDICATOR

Indicates headlight high beam is on.

HEADLIGHT RETRACTOR INDICATOR

Comes on while headlights are retracting or extending. If indicator remains on check and repair headlight retractor.

HAZARD WARNING LIGHT

Flashes with hazard warning lights.

KEY REMINDER WARNING

A beep sounds if the key is left in the ignition and the door is opened.

END OF ARTICLE

TRANSMISSION REMOVAL & INSTALLATION - M/T

Article Text

1984 Mazda RX7

For iluvmyrx7.com

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Sunday, June 09, 2002 06:11AM

ARTICLE BEGINNING

Manual Transmission Removal

1983 Mazda RWD Models

REMOVAL & INSTALLATION

Removal

1) Disconnect negative battery cable. Place gearshift lever in neutral position, and remove gearshift knob. Remove console box (if equipped) and gearshift lever. B2000 gearshift lever components include a wave washer, shim and bushing.

2) On RX-7, remove air cleaner and upper transmission-to-engine bolts. On all other models, raise and support vehicle and drain transmission. Disconnect and remove drive shaft. Disconnect and/or remove under cover, exhaust components and emission control components as required.

3) Remove clutch slave cylinder and place out of the way without removing hydraulic line. Disconnect and remove starter, speedometer cable, back-up light wires and other electrical connections.

4) Place jack under rear of engine, protecting oil pan with wooden block. Position transmission jack under transmission and remove transmission-to-engine mounting bolts. If equipped, remove transmission-to-crossmember bolts, crossmember-to-frame bolts and crossmember. Slide transmission back until input shaft is cleared. Remove from vehicle.

Installation

To install, reverse removal procedure, ensuring that splines in input shaft align with those in clutch disc.

END OF ARTICLE

TRANSMISSION SERVICING - M/T

Article Text

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Sunday, June 09, 2002 06:12AM

ARTICLE BEGINNING

Manual Transmission Servicing

1984 Mazda

LUBRICATION

SERVICE INTERVALS

Replace fluid every 30,000 miles.

CHECKING FLUID LEVEL

B2000 (1986) & RX7

Fluid should be up to bottom of fill hole.

GLC & 626

Remove speedometer cable and driven gear from transaxle case.

Use "L" and "F" marks on driven gear to determine fluid level. If necessary, add oil through driven gear opening.

RECOMMENDED FLUID

Hypoid SAE 80W/90 (API GL-4 or GL-5).

FLUID CAPACITY

TRANSMISSION REFILL CAPACITIES TABLE

Application		Quantity
B2000		
4-Speed	.....	1.6 qts. (1.5L)
5-Speed	.....	1.8 qts. (1.7L)
RX7	.....	1.8 qts. (1.7L)
GLC	.....	3.4 qts. (3.2L)
626	.....	3.6 qts. (3.4L)

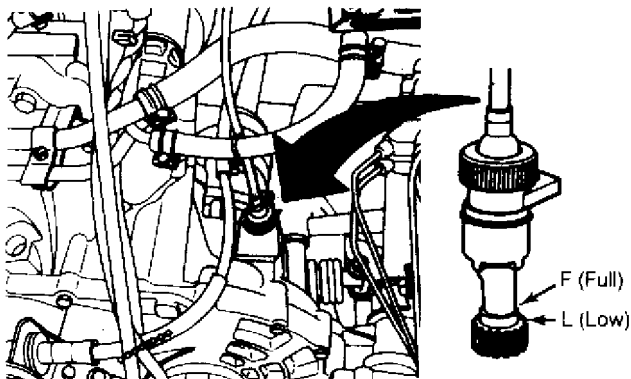


Fig. 1: GLC & 626 Oil Level Gauge
GLC location shown; 626 is similar.

ADJUSTMENTS

LINKAGE

No external linkage adjustment is required.

END OF ARTICLE

1.2/1.3L ENG CLUTCH CHATTER/JUDDER - NEW DISC CAT. 6, NO. 003/86

Article Text

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Sunday, June 09, 2002 06:12AM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

APPLICATION

1983-86 RX7

SUBJECT

Clutch Chatter/Judder

REFERENCE

Mazda Motors Corp., Service Bulletin, No. 6 003/86, April, 1986

CONDITION & CAUSE

Some 1983-86 RX7 vehicles may exhibit clutch chatter/judder. This condition may be caused by the clutch disc.

REPAIR

To repair the above mentioned complaint, install a new service clutch disc.

NEW SERVICE COMPONENT APPLICATION & PART NUMBER	
Application	Part Number

Clutch Disc	
1983-85 (12A)	N203 16 460B
1984-85 (13B), 1986	N303 16 460

END OF ARTICLE

HARD SHIFT TO 2ND GEAR AFTER COLD START - NEW PARTS CAT. J, NO. 004/92

Article Text

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Sunday, June 09, 2002 06:13AM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

HARD SHIFT TO 2ND GEAR AFTER COLD START

Model(s): 1980-91 Mazda RX-7 (non-turbo)
1990-91 Mazda Miata

Category: J
Bulletin No.: 004/92
Date: 7/7/92

DESCRIPTION

Hard shifting into second gear before the vehicle has had sufficient time to warm up may be caused by insufficient clearance between 2nd gear synchronizer ring and the 1-2 clutch hub. Design changes have been made to the 2nd gear synchronizer ring and clutch hub sleeve to correct this problem since April 1, 1991.

If you experience hard shifting into 2nd gear after a cold start with an RX-7 (non-turbo) or Miata produced prior to April 1, 1991, replace the 2nd gear synchronizer ring and 1-2 clutch sleeve (or 1-2 clutch hub set) with redesigned ones. Refer to the appropriate service information for installation procedures.

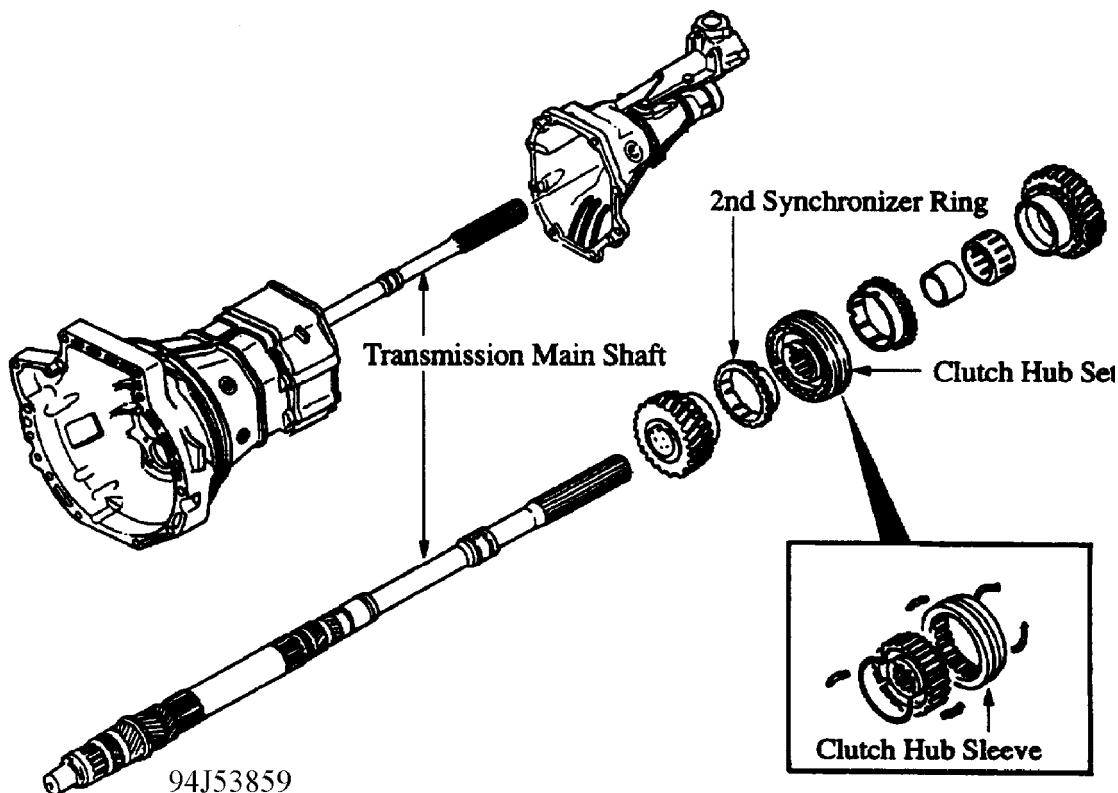


Fig. 1: 2nd Gear Synchronizer Ring and Assembly

VIN OF PRODUCTION CHANGE

MX-5 Miata

JM1NA351*M*232720

April 1, 1991

RX-7 (non-turbo)

JM1FC3***M0906971

April 1, 1991

PARTS INFORMATION TABLE

Part Number		Description	Qty	Interchange -ability
New	Old			
M502 17 265C	M502 17 265B	2nd Synchronizer Ring	1	New-Old
M503 17 262A	M503 17 262	1-2 Clutch Hub Sleeve	1	New-Old
M505 17 260B	M505 17 260A	1-2 Clutch Hub Set	1	New-Old

WARRANTY INFORMATION

(Applies to Vehicles Covered Under Warranty.)

Warranty Type Code: A

Customer Comment Code: 99

Damage Code: 99

Part No. of Main Cause: M502 17 265C (Qty. 1)

Related Parts: M503 17 262A (Qty. 1)

M505 17 260B (Qty. 1)

Miata

RX-7

Operation No: J0315XRX

J0315ARX

Labor Hours: 5.2 Hrs.

5.1 Hrs

END OF ARTICLE

HARD SHIFT TO 2ND GEAR AFTI

M & R TYPE TRANS HARD SHIFT COLD - NEW GEAR OIL CAT. 7, NO. 062/89

Article Text

1984 Mazda RX7

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Sunday, June 09, 2002 06:14AM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

HARD SHIFT IN LOW TEMPERATURE

Models RX-7, 929 & B-Series (M/T)
Bulletin No. 062/89
Category 7
Date 6/6/89
Symptom Hard Shift in Low Temperature

DESCRIPTION

In order to improve shift feeling on manual transmission in low temperature, the gear oil has been changed to SAE75W-90 as shown below.

	Previous Oil		Current Oil
RX-7	SAE80W-90	—>	SAE75W-90
929	SAE75W-80	—>	SAE75W-90
B2200	SAE75W-80	—>	SAE75W-90
B2600	SAE75W-80	—>	SAE75W-90

VIN OF PRODUCTION CHANGE

RX-7:	JM1FC****	10626727	July 9, 1988
929:	JM1HC****	K0200684	July 9, 1988
B2200:	JM2UF113*	J0401564	July 9, 1988
	JM2UF213*	J0401564	July 9, 1988
	JM2UF313*	J0401564	July 9, 1988
B2600i:	JM2UF414*	K0746274	November 15, 1988
	JM2UF416*	K0746274	November 15, 1988

If you encounter vehicles which were produced before the modification and have the problem mentioned above, replace the gear oil with SAE75W-90.

NOTE: Do not mix engine oil or ATF into transmission gear oil. Also, do not use it instead of manual transmission gear oil since it may result in scoring of the gears and premature wear of shift rods.

END OF ARTICLE

MANUAL TRANSMISSION SHIM ADJUSTMENTS CAT. J, NO. 001/90

Article Text

1984 Mazda RX7

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Sunday, June 09, 2002 06:17AM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

MANUAL TRANSMISSION SHIM ADJUSTMENTS

Model: Mazda 1981-90 RX-7 & B-Series, 1988-90 929, 1999-90 MPV,
1990 MX-5 Miata

Date: March 2, 1990

No: 001/90

Group: J

DESCRIPTION

On vehicles (1981-90 RX7 and B-Series, 1988-90 929, 1989-90 MPV, 1990 MXS) with rear-wheel-drive and manual transmissions, the shim adjustments of 5th gear and the mainshaft rear bearing have been changed.

This bulletin contains the new shim adjustment procedures.

There are different shim adjustment procedures for Type-M and Type-R manual transmissions. Use the chart in Fig. 1 to reference the correct type of transmission.

MANUAL TRANSMISSION APPLICATION CHART

Model	Year Type	'81	'82	'83	'84	'85	'86	'87	'88	'89	'90
RX-7	M	○	○	○	○	○	○	○	○	○	○
	R	—	—	—	—	—	—	○	○	○	○
B2000	M	○	○	○	○	—	○	—	—	—	—
	R	—	—	—	—	—	—	—	—	—	—
B2200	M	—	○	○	○	—	—	○	○	○	○
	R	—	—	—	—	—	—	—	—	—	—
B2600	M	—	—	—	—	—	—	—	—	—	—
	R	—	—	—	—	—	—	○	○	○	○
929	M	—	—	—	—	—	—	—	—	—	—
	R	—	—	—	—	—	—	—	○	○	—
MX-5	M	—	—	—	—	—	—	—	—	—	○
	R	—	—	—	—	—	—	—	—	—	—
MPV	M	—	—	—	—	—	—	—	—	—	—
	R	—	—	—	—	—	—	—	—	○	○

○ = Equipped

93J51770

Fig. 1: Manual Transmission Application Chart

1. Install the synchronizer ring and 5th gear.
2. Insert the steel ball and thrust washer.
3. Install only the two 3.0mm (0.118 in) thick "C", washers in the front mainshaft groove and hold them with the retaining ring. See Figure 2.

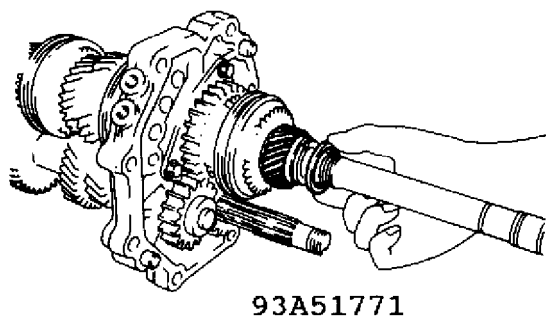


Fig. 2: Retaining Ring Installation (M-Type)

Note: If the "C" washers are not pushed fully forward in the mainshaft groove the measurement will be incorrect.

4. While pushing the "C" washers forward, measure the clearance between the thrust washer and "C" washers. (See Fig. 3).

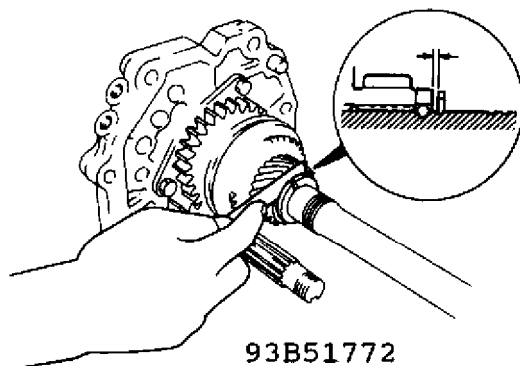


Fig. 3: Measuring Clearance Between Thrust Washer & "C" Washer (M-Types)

If the clearance is not as specified select the proper thrust washer.
Standard Clearance: Refer to the appropriate Service Information for the vehicle being repaired.

MAINSHAFT REAR BEARING

1. Drive on the mainshaft rear bearing using the SST, fully seating it against the front "C" washers. See Fig. 4.

2. Install the original "C" washers and hold them with the retaining ring.

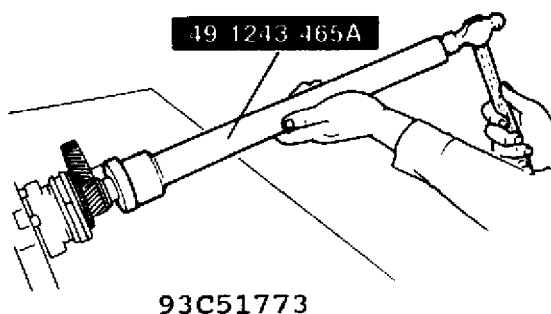


Fig. 4: Installing Rear Bearing (M-Types)

NOTE: If the "C" washers will not fit into the rear mainshaft groove, select the proper thickness "C" washers. Ensure both "C" washers at this position are the same thickness.

3. Measure the clearance between the "C" washers and mainshaft rear bearing. See Fig. 5. If the clearance is not as specified, select the proper "C" washers.

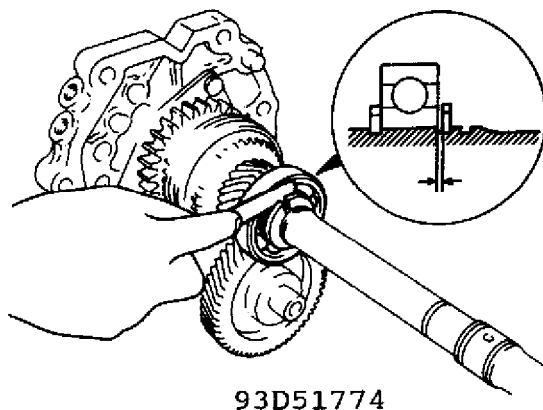


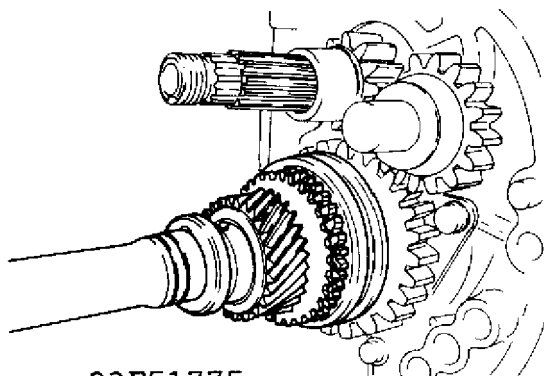
Fig. 5: Measuring Clearance Between "C" Washer & Rear Bearing (M-Type)

Standard Clearance: Refer to the appropriate Service Information for the vehicle being repaired.

R-TYPE

5th Gear

1. Install the synchronizer ring and 5th gear.
2. Install the steel ball and thrust washer.
3. Install only the two 3.0mm (0.118 in) thick "C" washers in the front mainshaft groove and hold them with the retaining rings. See Fig. 6.

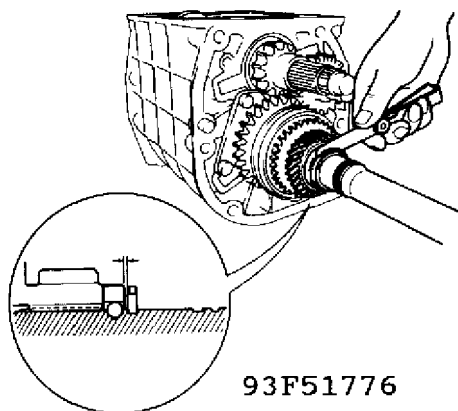


93E51775

Fig. 6: Retaining Ring Installation (R-Type)

Note: If the "C" washers are not pushed fully forward in the mainshaft groove the measurement will be incorrect.

4. While pushing the "C" washers forward, measure the clearance between the "C" washers and thrust washer. (See Fig. 7).



93F51776

Fig. 7: Measuring Clearance Between "C" Washers & Thrust Washer (R-Type)

Standard Clearance: Refer to the appropriate service information for the vehicle being repaired.

MAINSHAFT REAR BEARING

1. Drive on the mainshaft rear bearing using a suitable pipe, fully seating it against the front "C" washers. See Fig. 8.
2. Install the original "C" washers and hold them with the retaining ring.

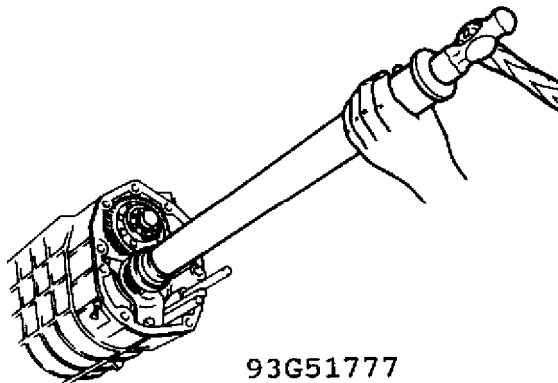


Fig. 8: Rear Bearing Installation (R-Type)

Note: If the "C" washers will not fit into the rear mainshaft groove, select the proper thickness "C" washers. Ensure both "C" washers at this position are the same thickness.

3. Measure the clearance between the "C" washers and mainshaft rear bearing. See Fig. 9.
If the clearance is not as specified, select the proper "C" washers.

Standard Clearance: Refer to the appropriate service information for the vehicle being repaired.

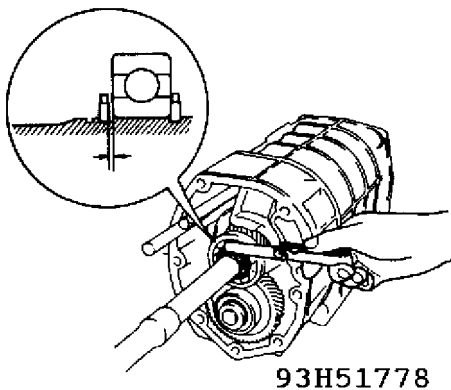


Fig. 9: Measuring Clearance Between "C" Washer and Rear Bearing (R-Type)

MANUAL TRANS MODIFIED COUNTERSHAFT LOCK NUT CAT. 7, NO. 010/85

Article Text

1984 Mazda RX7

For iluvmyrx7.com

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Sunday, June 09, 2002 06:15AM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

ROLLER BEARING & MAIN SHAFT

Models 1985 RX-7 & 1984 B2000/B2200
Bulletin No. 010/85
Category 7
Date 5.13.85

DESCRIPTION

To further improve the reliability of the transmission, the following modifications have been made.

1. The roller bearing has been enlarged and the recess in the main drive gear has been enlarged to accept the new roller bearing. See Fig. 1.

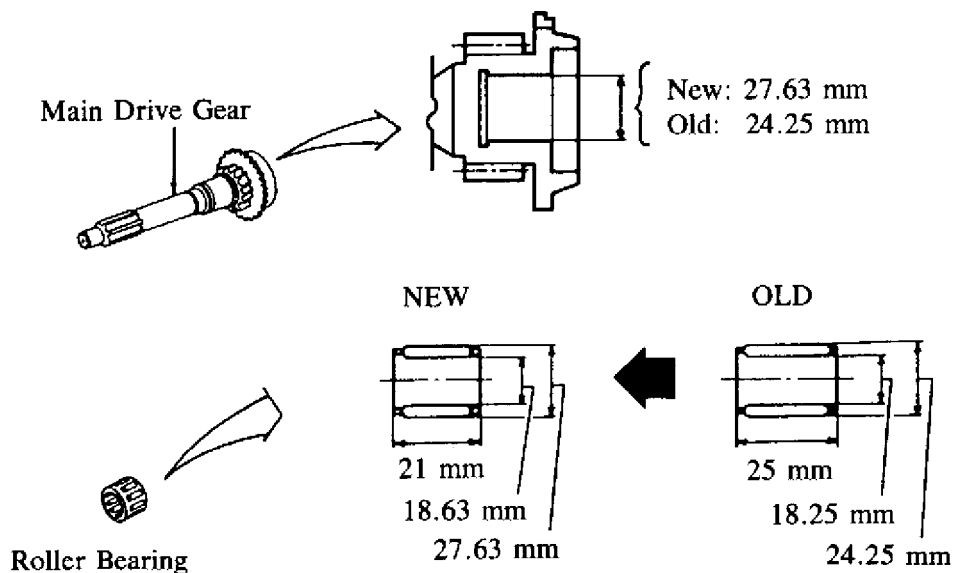


Fig. 1: Modified Main Shaft & Roller Bearing

2. The method of retaining the bearing on the main shaft has been changed from clips to thrust washers with retaining rings. See Figure 2.

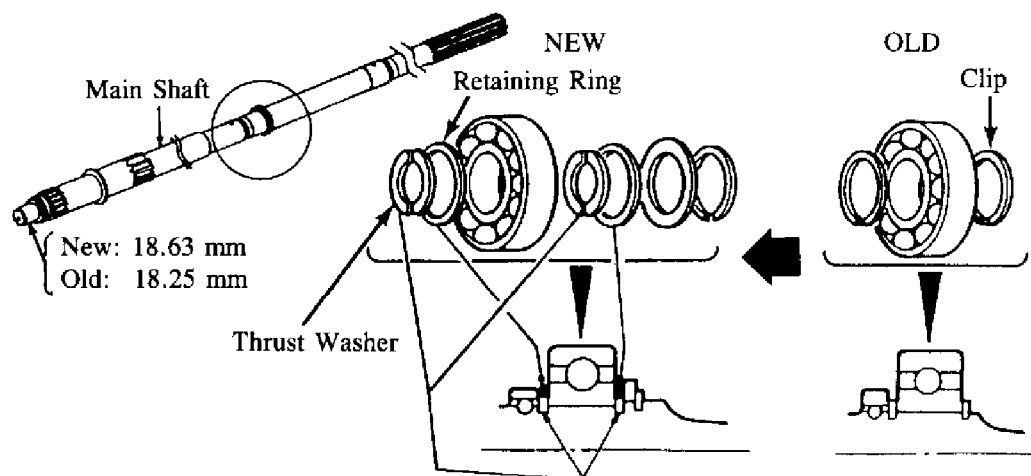


Fig. 2: New Main Shaft Retaining Method

VIN OF PRODUCTION CHANGE

RX-7			
12A:	JM1FB331 F0876904	December, 1984	
13B:	JM1FB332 F0876904	December, 1984	
B2000			
Short Bed:	JM2UC121 E0919987	December, 1984	
Long Bed:	JM2UC221 E0844354	December, 1984	
B2200			
Short Bed:	JM2UD121 E0801687	December, 1984	
Long Bed:	JM2UD221 E0803537	December, 1984	

PARTS INFORMATION (RX-7)

NEW PART NO.	OLD PART NO.	DESCRIPTION	APPLIED MODEL/ DESCRIPTION	INTER CHANGEABILITY
M506 17 201A	M506 17 201	Main Drive Gear	(12A)	NO
M502 17 221A	M502 17 221	Main Shaft	(12A)	NO
M506 17 201A	M506 17 201	Main Drive Gear	(13B)	NO
M505 17 221A	M505 17 221	Main Shaft	(13B)	NO
M501 17 210	0249 17 210B	Roller Bearing	—	NO
0839 17 305B	—	Retaining Ring	—	—
0884 17 632B	0884 17 632A	Thrust Washer	(T=6.2)	NO
0884 17 633B	0884 17 633A	Thrust Washer	(T=6.3)	NO
0884 17 634B	0884 17 634A	Thrust Washer	(T=6.5)	NO
0884 17 635B	0884 17 635A	Thrust Washer	(T=6.6)	NO
M501 17 651	0862 17 641A	Thrust Washer	(T=3.0)	NO
M501 17 653	0862 17 642A	Thrust Washer	(T=3.1)	NO
M501 17 654	0862 17 643A	Thrust Washer	(T=3.2)	NO
M501 17 655	0862 17 644A	Thrust Washer	(T=2.9)	NO
M501 17 652	—	Ring	—	—
9995 52 640	—	Adjust Washer	—	—

PARTS INFORMATION (B2000/B2200)

APPLIED

INTER

NEW PART NO.	OLD PART NO.	DESCRIPTION	MODEL/ DESCRIPTION	CHANGEABILITY
4114 17 201A	4114 17 201	Main Drive Gear	B2000	NO
M502 17 221A	M502 17 221	Main Shaft	B2000	NO
M502 17 201A	M502 17 201	Main Drive Gear	B2200	NO
M502 17 221A	M502 17 221	Main Shaft	B2200	NO
MSO1 17 210	0249 17 210B	Roller Bearing	—	NO
0839 17 305B	—	Retaining Ring	—	—
0884 17 632B	0884 17 632A	Thrust Washer	(T=6.2)	NO
0884 17 633B	0884 17 633A	Thrust Washer	(T=6.4)	NO
0884 17 634B	0884 17 634A	Thrust Washer	(T=6.5)	NO
0884 17 635B	0884 17 635A	Thrust Washer	(T=6.6)	NO
M501 17 651	0862 17 641A	Thrust Washer	(T=3.0)	NO
M501 17 653	0862 17 642A	Thrust Washer	(T=3.1)	NO
M501 17 655	0862 17 644A	Thrust Washer	(T=2.9)	NO
M501 17 652	—	Ring	—	—
9995 52 640	—	Adjust Washer	—	—

END OF ARTICLE

MANUAL TRANS NEW BEARING COVER BOLTS/TORQUE CAT. 7, NO. 002/84

Article Text

1984 Mazda RX7

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Sunday, June 09, 2002 06:16AM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

MODIFICATION OF BEARING COVER BOLTS

Model: B2000, B2200, & RX-7

Bulletin No.: 002/84

Date: 3/28/84

Category: 7

DESCRIPTION

The bolts attaching the transmission bearing cover have been strengthened and the tightening torque has been increased to improve the durability of the transmission.

BOLT INFORMATION TABLE

Identification mark on the bolt head: Old: 6T

Old: 6T

New: 8T

Bolt torque:

Old: 160 - 230 kg-cm (11.6 - 16.7 ft-lb)

New: 180 - 270 kg-cm (13.0 - 19.6 ft-lb)

Identification mark on the bolt head:

Old: 6T

New: 8T

Bolt torque:

Old: 160-230 kg-cm (11.6-16.7 ft-lb)

New: 180-270 kg-cm (13.0-19.6 ft-lb)

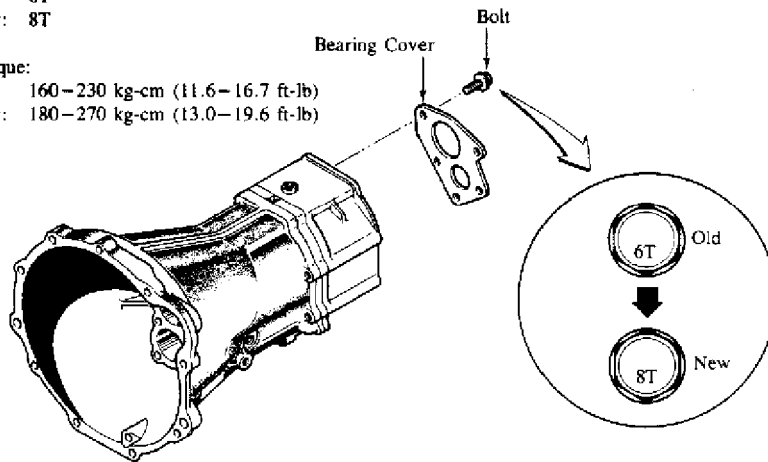


Fig. 1: Bearing Cover Bolt Modification

VIN OF PRODUCTION CHANGE

B2000	Short Bed:	JM2UC121	E0841838	February,	1984
	Long Bed:	JM2UC221	E0818017	February,	1984
B2200	Short Bed:	JM2UD121	E0800931	February,	1984
	Long Bed:	JM2UD221	E0801401	February,	1984
RX-7	12A:	JM1FB331	E0819695	February,	1984
	13B:	JM1FB332	E0819695	February,	1984

PARTS INFORMATION

NEW PART NO.	OLD PART NO.	DESCRIPTION	QTY	INTERCHANGEABILITY
9078 12 820	9080 12 820	Bolt	5	NEW = OLD

END OF ARTICLE

MODIFIED REAR BEARING FASTENER CAT. 7, NO. 009/85

Article Text

1984 Mazda RX7

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ARTICLE BEGINNING

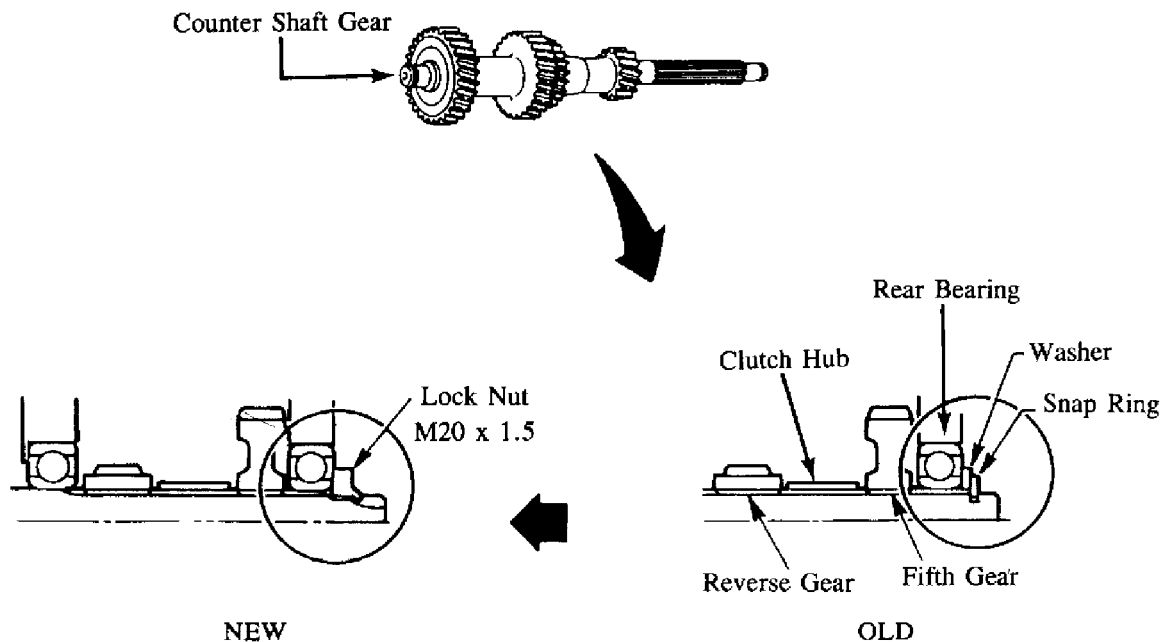
TECHNICAL SERVICE BULLETIN

COUNTER SHAFT GEAR & LOCK NUT

Models 1985 RX-7 & 1984 B2000/B2200
Bulletin No. 009/85
Category 7
Date 5/13/85

DESCRIPTION

In order to retain the rear bearing on the counter shaft gear more securely, the snap ring has been replaced by a lock nut. See Fig. 1.



NOTES:

- Tighten the lock nut to: 94–145 ft-lb
127–196 N-m
13–20 kg-m

- Stake the lock nut as shown:



or



Fig. 1: Counter Shaft Gear & Lockup

VIN OF PRODUCTION CHANGE

RX-7

12A:

JMIFB331 F0874076

November, 1984

13B:	JMIFB332 F0874076	November, 1984
B2000		
Short Bed:	JM2UC121 E0915651	November, 1984
Long Bed:	JM2UC221 E0843304	November, 1984
B2200		
Short Bed:	JM2UD121 E0801669	November, 1984
Long Bed:	JM2UD221 E0803494	November, 1984

PARTS INFORMATION

NEW PART NO.			OLD PART NO.		DESCRIPTION	APPLIED MODEL	INTER- CHANGEABILITY
M505	17	300B	MS05	17 300A	Counter Shaft Gear	RX-7 (12A)	NO
M508	17	301D	M508	17 301C	Counter Shaft Gear	RX-7 (13B)	NO
8943	17	301E	8943	17 301D	Counter Shaft Gear	B2000/B2200	NO
M501	17	309			Lock Nut	ALL	—
	—		0419	17 288	Adjust Shim	ALL	—
	—		0419	17 291	Adjust Shim	ALL	—
	—		0419	17 292	Adjust Shim	ALL	—
	—		0419	17 293	Adjust Shim	ALL	—
	—		9957	32 000	Snap Ring	ALL	—

END OF ARTICLE

MANUAL TRANS REVISED FRONT BEARING CAT. 7, NO. 003/84

Article Text

1984 Mazda RX7

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Sunday, June 09, 2002 06:17AM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

TRANSMISSION FRONT BEARING MODIFICATION

Model: 1984 RX-7, B2000, & B2200

Bulletin No.: 003/84

Date: 4/17/84

Category: 7

DESCRIPTION

The front bearing in the transmission has been changed to a heavy duty type since the production date of January, 1984.

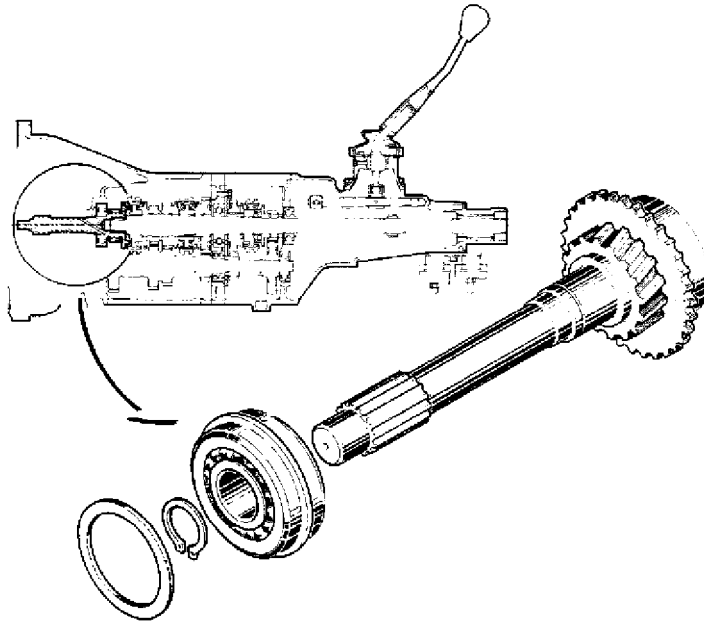


Fig. 1: New Transmission Front Bearing

VIN OF PRODUCTION CHANGE

RX-7	12A:	JM1F8331 E0815218	January, 1984
B2000	Short Bed:	JM2UC121 E0835560	January, 1984
	Long Bed:	JM2UC221 E0815129	January, 1984
B2200	Short Bed:	JM2UD221 E0800844	January, 1984
	Long Bed:	JM2UD221 E0801282	January, 1984

BEARING PARTS INFORMATION

NEW PART NO.	OLD PART NO.	DESCRIPTION	INTERCHANGEABLE
M502 17 295	9960 63 3063	Ball Bearing	NEW = OLD

Note:

1. This modification has been already taken place on the 1984

RX-7 13B's since the beginning of production.

2. The following heavy duty type bearings are also available for the service part.

ADDITIONAL PARTS INFORMATION

PART NUMBER		DESCRIPTION	APPLIED MODEL
HEAVY DUTY TYPE	STANDARD TYPE		
M502 17 298	9960 66 3063	Ball Bearing	79-82 626
M503 17 297	0821 17 297		79-84 RX7
M502 17 299	9960 66 3043		77-78 B1800
			79-84 B2000
			82-84 B2200

END OF ARTICLE

CLUTCH

Article Text

1984 Mazda RX7

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Sunday, June 09, 2002 06:20AM

ARTICLE BEGINNING

1984 Clutch

Mazda: B2000, 2200, RX7

DESCRIPTION

The clutch assembly for all models is a single plate, dry disc, diaphragm spring type. The clutch release system used on RX7, B2000 and B2200 Pickups is hydraulic, using a firewall-mounted master cylinder and a slave cylinder attached to the clutch housing.

REMOVAL & INSTALLATION

CLUTCH ASSEMBLY

Removal

1) Disconnect negative battery cable. Place shift lever in Neutral. Remove shift knob. Remove console box (if equipped). Remove shift lever dust boot, lever and related components. On RX7, remove air cleaner.

2) On all models, raise and support vehicle. Drain transmission. Remove drive shaft. Remove under covers. Remove any interfering exhaust components. Remove clutch slave cylinder without discharging system.

3) On all models, remove starter, speedometer cable and related electrical connections. Place support under rear end of engine. Remove bolts attaching transmission to engine. Remove crossmember.

4) Slide transmission back until input shaft is clear of bell housing. Remove transmission from vehicle. Install Flywheel Holding Tool (49 0118 271A) for B2000, (49 E301 060) for B2200 or (49 1881 060) for RX7. Index mark pressure plate-to-flywheel position.

5) Install clutch assembly Alignment Tool (49 SE01 310). Loosen pressure plate mounting bolts evenly, in a diagonal pattern. Remove clutch disc and pressure plate. Remove release bearing and fork. See Fig. 1.

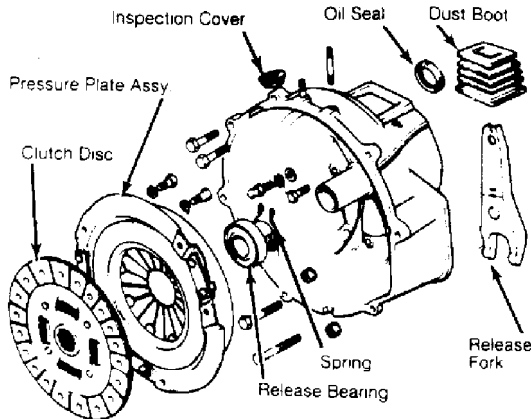


Fig. 1: Exploded View of RWD Clutch Assembly

Inspection

1) Check disc for loose rivets, worn springs or oil contamination. Minimum lining height above rivet heads is .012" (.).

30 mm). On RX7, minimum disc free thickness is .276" (7 mm) and .327" (8.3 mm) on Pickup models.

2) Inspect flywheel and pressure plate friction surfaces for burns, scoring or grooves. Friction surface warpage limit is .002" (.05 mm). Resurface or replace flywheel and/or pressure plate as necessary. If flywheel ring gear is replaced, ensure the chamfer on flywheel teeth faces engine.

3) Mount clutch disc on input shaft. Check runout using dial indicator. Maximum runout is .039" (1 mm). Check disc hub and input shaft splines for excessive wear. Hub must slide smoothly on input shaft splines.

Installation

1) Lightly coat input shaft splines and release bearing contact areas with MOS2 grease. Use clutch alignment tool to center clutch assembly. Clutch cover and flywheel "O" alignment marks must be aligned.

2) Tighten pressure plate bolts evenly, in diagonal pattern. To complete installation, reverse removal procedure.

RELEASE BEARING & FORK

Removal & Installation

1) With clutch assembly removed, remove release bearing and fork. Check release bearing by turning by hand in thrust direction. Replace if bearing feels rough or noisy.

2) Inspect release fork for cracks or damage. Replace if necessary. Lightly apply molybdenum grease to clutch component contact areas and sliding surfaces. To complete installation, reverse removal procedure.

CLUTCH MASTER CYLINDER

Removal & Installation

Disconnect hydraulic line and mounting nuts from master cylinder. Unhook clutch pedal from push rod. Remove cylinder. To install, reverse removal procedure and bleed hydraulic system.

CLUTCH SLAVE CYLINDER

Removal & Installation

Raise and support vehicle. Disconnect fluid hose and plug. Remove nuts attaching slave cylinder to clutch housing. Remove cylinder. To install, reverse removal procedure and bleed hydraulic system.

PILOT BEARING

Removal & Installation (RX7)

With clutch components removed, check pilot bearing for roughness, looseness and any damage. If necessary, remove bearing and oil seal with Puller (49 1285 071). To install new bearing, use Driver (49 0823 072A). Apply MP grease to bearing and install oil seal.

Removal & Installation (Except RX7)

Pilot bearing is pressed into flywheel. To replace, install flywheel holding tool and remove flywheel. Using arbor press and driver, press old bearing out. Press new bearing in until it is flush with flywheel surface. Lubricate with MP grease. Install flywheel and holding tool. Tighten mount bolts evenly, in a diagonal pattern.

FLYWHEEL

Removal & Installation (RX7)

1) With clutch assembly removed, lock flywheel in position using holding tool. Loosen and remove lock nut with Box Wrench (49 0820 035). Remove flywheel using Puller (49 0823 300A). Turn tool handle and lightly tap puller head. Once lock nut is loose, DO NOT drop flywheel.

2) Inspect rear oil seal for leakage and replace as necessary. Before installing flywheel, apply sealer to surface of lock nut that contacts flywheel and install. Tighten lock nut to specification. To complete installation, reverse removal procedure.

OVERHAUL

CLUTCH MASTER CYLINDER

NOTE: Master cylinders used on B2000 and B2200 Pickup have a different external appearance, but procedure is the same.

Disassembly

1) Drain brake fluid. On RX7, remove reservoir connector bolt and reservoir. On B2000 and B2200 Pickups, remove hydraulic line adapter, washer, 1-way valve, spring and pin.

2) Remove piston stop ring, washer and piston assembly. Separate piston, cups and return spring. See Fig. 2. Clean parts in denatured alcohol or brake fluid. Blow dry with compressed air.

3) Check all parts for wear, damage or deformation. Standard piston-to-cylinder bore clearance is .001-.004" (.032-.102 mm). If clearance exceeds .006" (.15 mm), replace master cylinder. Coat all components with clean brake fluid before assembly.

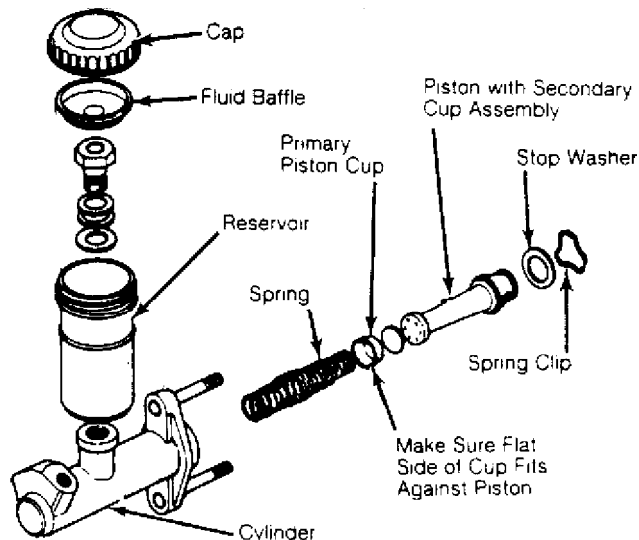


Fig. 2: Exploded View of Clutch Master Cylinder

Reassembly

1) Install primary cup with flat side against piston. Ensure compensating port is open. To complete assembly, reverse disassembly procedure. After assembly, fill reservoir with clean brake fluid.

2) Bench bleed master cylinder by holding finger over outlet port and operating piston with screwdriver. Pump piston until air is ejected at outlet port and fluid pressure is felt. Install master cylinder and bleed hydraulic system.

CLUTCH SLAVE CYLINDER

Disassembly

With slave cylinder removed, detach dust boot and release rod. Remove piston and cup assembly from cylinder, using compressed air if required. Remove spring, bleeder screw and valve. See Fig. 3.

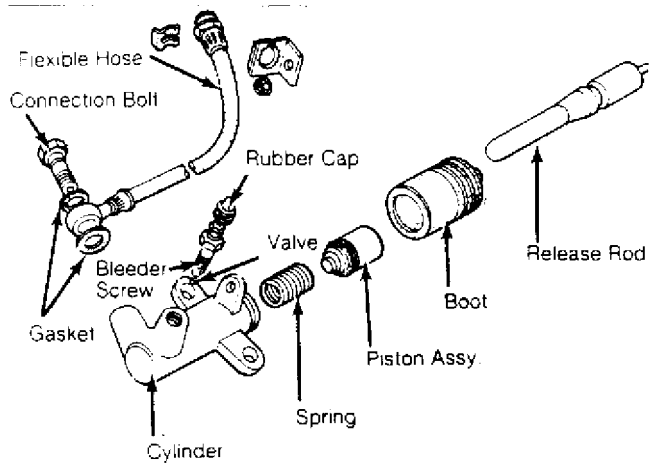


Fig. 3: Exploded View of Clutch Slave Cylinder

Reassembly

1) Wash parts in clean brake fluid or denatured alcohol. Blow dry with compressed air. Check all parts for wear or damage. Standard piston-to-slave cylinder bore clearance is .0016-.0049" (.040-.125 mm). If cylinder bore-to-piston clearance exceeds .006" (.15 mm), replace piston and/or cylinder.

2) Before assembly, coat pistons and cups with clean hydraulic fluid. To complete reassembly, reverse disassembly procedure.

ADJUSTMENTS

CLUTCH PEDAL HEIGHT

On RX7 and Pickup, measure distance from center of upper surface of pedal pad-to-dash insulator. To adjust height, loosen lock nut. Turn stopper bolt. Tighten lock nut after adjustment is made. See Fig. 4.

CLUTCH PEDAL FREE PLAY

On RX7 and Pickups, adjust clutch pedal free play, measured at pedal pad, to .02-.12" (0.6-3.0 mm). Loosen lock nut and turn pedal stopper bolt to specification. Tighten lock nut. See Fig. 4.

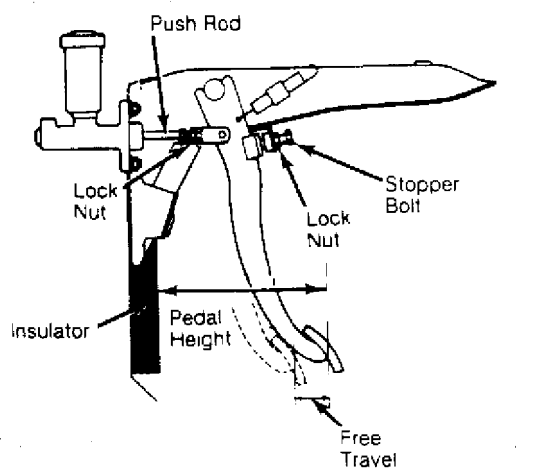


Fig. 4: Clutch Adjustment Location
Check clutch pedal for proper height and free play.

CLUTCH PEDAL HEIGHT SPECIFICATIONS TABLE

Application	In. (mm)
RX7	7.5-7.7 (190-195)
B2000	8.07-8.20 (205-210)
B2200	8.46-8.66 (215-220)

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS TABLE

Application	Ft. Lbs. (N.m)
Flywheel-to-Crankshaft	
B2000	112-118 (155-163)
B2200	95-137 (131-190)
Flywheel-to-Eccentric Shaft (RX7)	289-362 (400-500)
Pressure Plate-to-Flywheel	13-20 (18-27)

END OF ARTICLE

DRIVE AXLE

Article Text

1984 Mazda RX7

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Sunday, June 09, 2002 06:21AM

ARTICLE BEGINNING

1984 Drive Axles
MAZDA

RX7, B2000 Pickup, B2200 Pickup

DESCRIPTION

Axle housing is banjo type with removable differential carrier and semi-floating drive axles. Ring and pinion are hypoid type, in which centerline of pinion is set below centerline of ring gear.

Differential case may be either 2 pinion or 4 pinion design. The drive axles are retained in housing by ball bearings and bearing retainers at axle housing outer ends. A clutch pack limited slip unit is available on RX7 models.

AXLE RATIO & IDENTIFICATION

All Mazda models use one basic type of rear axle assembly. Any differences in servicing procedures will be noted where they occur.

Axle ratio on all B2200 and B2000 Pickup automatic transmission models is 3.90:1, on B2000 Pickup manual transmission models is 3.31:1 and on RX7 models is 3.93:1 (4.08:1 on models equipped with E.G.I. system). To determine axle ratio, divide number of ring gear teeth by number of pinion teeth.

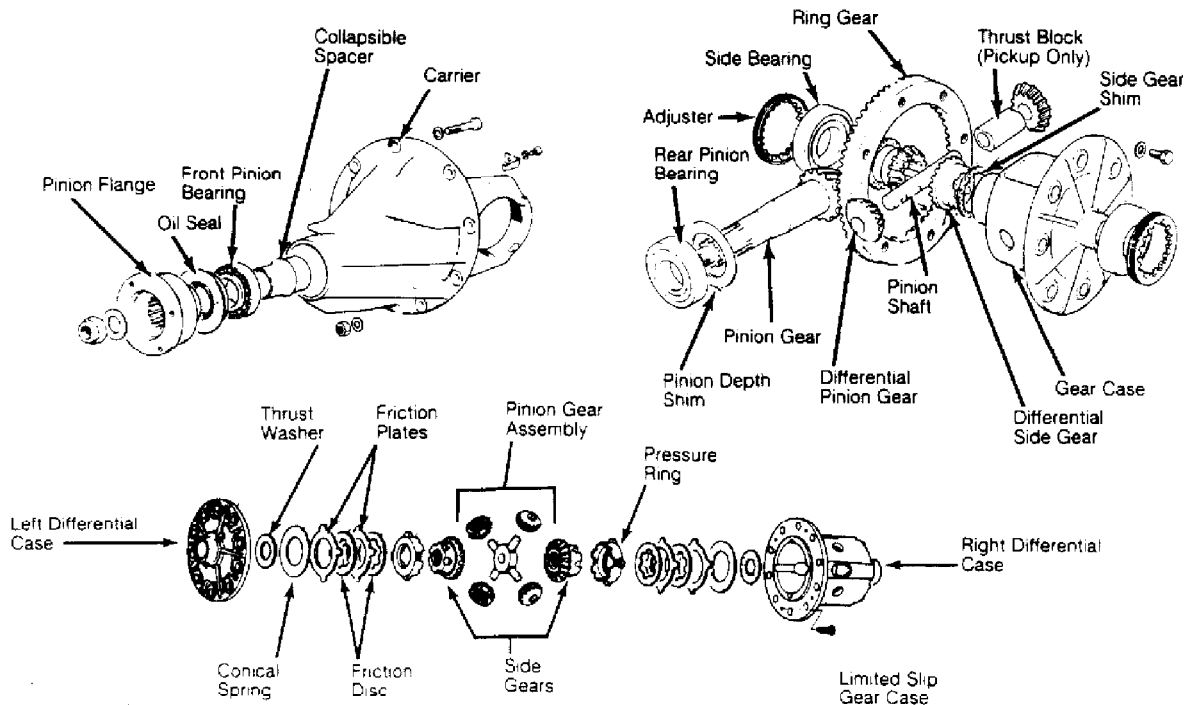


Fig. 1: Exploded View of Mazda Rear Axle Assembly

REMOVAL & INSTALLATION

AXLE SHAFTS & BEARINGS

Removal

1) Raise and support vehicle. Remove wheel. Remove brake drum and brake shoes. Disconnect and plug hydraulic line from wheel cylinder. Disconnect parking brake cable. On RX7 models with rear disc brakes, remove caliper and brake rotor.

2) From inboard side of backing plate, remove nuts from 4 axle housing through bolts. Pull drive axle, backing plate, bearing housing (Pickup models) and shims (if equipped) from axle housing with Drive Axle Puller (49 0223 630B). Remove oil seal from axle housing.

3) On Pickup models, loosen lock nut with Rear Shaft Bearing Wrench (49 0603 622A). Remove lock nut and washer. Using Bearing Pullers (49 0187 520 and 49 0187 523), remove bearing and housing assembly from drive axle. Remove backing plate. Remove bearing, spacer and oil seal from housing.

4) On RX7 models, grind notch in bearing collar and then remove collar with chisel. Press bearing and backing plate from axle using Bearing Separators (49 8531 746 and 49 0259 747).

Installation

1) Install backing plate and spacer on shaft with chamfered edge of spacer must face drive axle flange. Using Bearing Attachment (49 1011 748), press bearing onto shaft until seated. Press new bearing collar onto shaft without any lubricant.

CAUTION: Do not press bearing and collar onto shaft at the same time. If bearing collar requires less than 2.7 tons pressure (2,451 kg) to install, replace bearing collar.

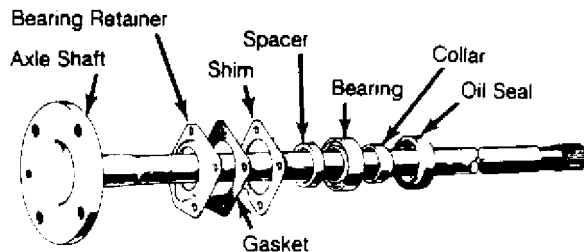


Fig. 2: Exploded View of RX7 Axle Shaft Assembly
Chamfered edge of spacer must face drive axle flange.

2) Apply a light coat of grease to oil seal and install oil seal in housing. Temporarily mount drive axle and backing plate on axle housing with mounting nuts.

3) Install dial indicator on backing plate and check drive axle end play. End play should be .002-.006" (.05-.15 mm) on Pickups and 0-.004" (0-.1 mm) on RX7 models.

4) On Pickup models only, if both drive axles were removed, the end play of each shaft must be measured separately. Insert one axle shaft and check end play. The end play for first drive axle installed should be .026-.033" (.65-.85 mm).

NOTE: Adjust end play for first drive axle before inserting second drive axle. Use shims to adjust end play.

5) The end play for the second drive axle installed should be set to normal end play clearance of .002-.006" (.05-.15 mm).

6) After installing correct shim pack, install and tighten all attaching bolts and nuts. Install brake shoes and drum. Connect

system.

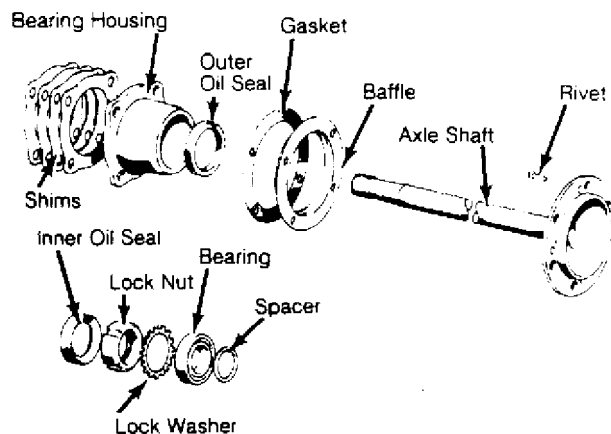


Fig. 3: Exploded View of Pickup Axle Shaft Assembly

If both drive axles were removed, end play of each shaft must be measured separately.

DIFFERENTIAL CARRIER

Removal

- 1) Raise and support vehicle with jack stands. Remove drain plug and drain rear axle lubricant. Remove drive axles.
- 2) Mark drive shaft and pinion flange for reassembly reference. Disconnect drive shaft. Remove attaching nuts and withdraw carrier from axle housing.

Installation

To install, reverse removal procedure. Make sure to refill axle with lubricant.

OVERHAUL

DISASSEMBLY

- 1) Mount carrier in a repair stand. Punch identification marks on side bearing supports of carrier, differential bearing caps and side bearing adjusters. Remove adjuster lock plates, loosen bearing cap attaching nuts or bolts, and slightly back off adjusters to relieve preload.
- 2) Remove bearing caps and adjusters, then withdraw differential assembly from carrier, making sure side bearing races remain with their respective bearings.
- 3) Using Puller (49 0839 425C), remove side bearings from gear case. Straighten lock tabs, remove ring gear attaching bolts and separate ring gear from gear case.
- 4) On limited slip differentials, gradually loosen attaching screws until distance between left and right half of differential case is about 0.12" (3 mm). Then carefully separate differential halves. Remove following parts: Thrust washer, conical spring, friction plate, friction disc, pressure ring, side gear, pinion gear and spider. Keep parts in order for reassembly. See Fig. 1.
- 5) On conventional differentials, drive out differential pinion shaft lock pin with a punch and remove pinion shaft. Rotate pinion gears 90° and remove gears, thrust washer, thrust block (if equipped) and differential side gears.
- 6) Remove pinion nut and pinion flange. Remove drive pinion

and rear bearing assembly, adjusting shims (if equipped), spacer and bearing collar (if used). Remove front oil seal and withdraw front pinion bearing.

7) Using a press, remove rear bearing from drive pinion, then lift off pinion adjusting shim. If necessary for replacement, use a drift punch and remove pinion bearing races from carrier.

8) Inspect all parts for chipped or worn teeth, damaged bearing journals, cracks, flaking or any damage. Replace defective parts as necessary.

NOTE: It may be necessary to tap end of pinion with a soft hammer to remove from carrier.

REASSEMBLY & ADJUSTMENT

Case Assembly

1) Install a thrust washer on each differential side gear and install into case. Through openings in gear case, insert pinion gears exactly 180° opposite each other. Rotate pinion gears 90° so holes in gears line up with pinion shaft holes in gear case. Insert pinion shaft through case and pinion gears.

2) On limited slip differential, measure thickness of 2 conical springs and record measurements. Measure thickness of clutch pack excluding conical springs. Check clearance by subtracting total of these measurements from inside dimension of case.

3) If clearance is excessive, use oversize friction disc. Standard clearance is 0-.0079" (0-.20 mm). Maximum clearance is .0394" (1.0 mm). Friction discs are available in .0827" (2.1 mm) oversize.

4) Measure thickness of side gears with thrust washers in place. Check clearance by subtracting thickness from inside dimension of case. Standard clearance is .0063-.0165" (.16-.42 mm). Maximum clearance is .0315" (.8 mm). Thrust washers are available in .0709" (1.8 mm) oversize.

5) Install parts in following order into right side differential case: Thrust washer, conical spring, friction plate, friction disc, friction plate, friction disc, pressure ring, side gear, pinion gear and spider assembly, side gear, pressure ring, friction disc, friction plate, friction disc, friction plate, conical spring and thrust washer. See Fig. 1.

6) Install left side differential case. Securely tighten differential case attaching screws. On standard differential, check backlash between side gears and pinion gears. Backlash should be 0-.004" (0-.10 mm) on RX7 models and 0-.008" (0-.20 mm) on Pickup models. If not, install selective thrust washers to bring backlash within specifications.

NOTE: Always use same thickness thrust washer for both side gears.

7) If equipped with thrust block, remove pinion shaft, install thrust block and reinstall pinion shaft. On all models, install lock pin into case to secure pinion shaft. Using a punch, stake lock pin hole to prevent pin from working loose.

8) On all models, mount ring gear on case, then install and tighten ring gear attaching bolts. If removed, install differential side bearings.

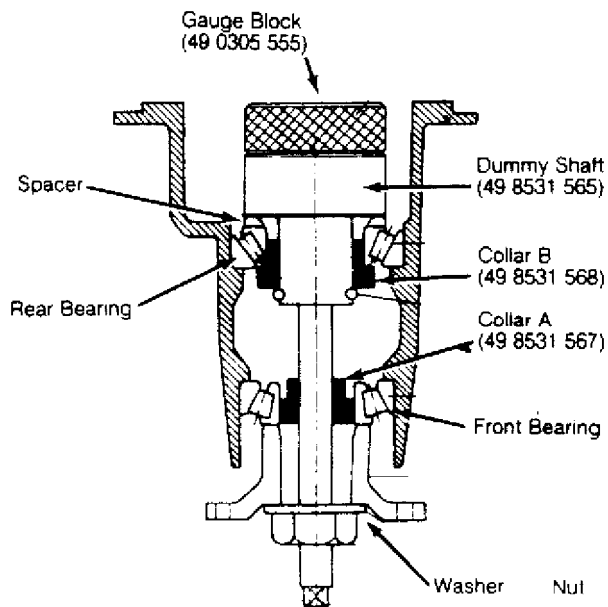


Fig. 4: Dummy Pinion Shaft and Gauge Block
Never use collapsible spacer when checking pinion depth.

Drive Pinion Depth

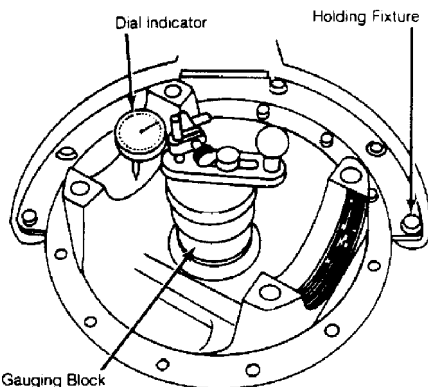
1) Make sure differential bearing bores are free of dirt and burrs. Install front and rear bearing races. Install spacer, rear bearing, Collar "B" (49 8531 568) and Dummy Drive Pinion (49 8531 565) in carrier and hold in place with "O" ring. See Fig. 4.

2) Install front bearing, Collar "A" (49 8531 567), companion flange and washer. Tighten nut so that drive pinion turns freely.

3) Install dial indicator on Gauge Body (49 0727 570), place gauge body on a surface plate and preload indicator. When preloaded, turn outer ring of dial indicator to zero.

4) Place Gauge Block (49 0660 555) on pinion and position indicator assembly on block so button of indicator contacts lowest portion of differential bearing support bore. Measure both bearing bores.

NOTE: DO NOT install collapsible spacer when checking pinion depth.



DRIVE AXLE

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Fig. 5: Measuring Drive Pinion Installed Height
The use of a dial indicator, pinion gauge set and gauge block are required for this procedure.

5) Record the amount the indicator moves in a "+" (plus) or "-" (minus) direction from zero. Remove gauging assembly and pinion from carrier. Check rear face of pinion for the machining correction figure.

6) Add bearing bore measurements together and divide by 2. If pinion is marked "+" (plus), SUBTRACT amount specified on pinion from dial indicator reading; if marked "-" (minus), ADD amount to indicator reading.

NOTE: Figures on pinion are in hundredths of a millimeter.

7) Select correct pinion depth adjusting shim to be used for reassembly. Position correct shim on pinion and install pinion bearing. See PINION DEPTH ADJUSTING SHIMS chart.

PINION DEPTH ADJUSTING SHIMS

Identification	Thickness
Mark	In. (mm)
08 .....	.121 (3.08)
11 .....	.122 (3.11)
14 .....	.124 (3.14)
17 .....	.125 (3.17)
20 .....	.126 (3.20)
23 .....	.127 (3.23)
26 .....	.128 (3.26)
29 .....	.130 (3.29)
32 .....	.131 (3.32)
35 .....	.132 (3.35)
38 .....	.133 (3.38)
41 .....	.134 (3.41)
44 .....	.135 (3.44)
47 .....	.137 (3.47)

Pinion Bearing Preload

1) Install collapsible spacer onto drive pinion assembly and install in carrier. Place front bearing in position on pinion. Hold pinion fully forward and drive pinion bearing over pinion until seated.

2) Apply grease to pinion oil seal lip and install seal into carrier. Install flange on pinion by tapping with soft hammer. Install pinion washer and nut.

3) Before tightening nut (when pinion preload is zero), check oil seal drag using a torque wrench. Tighten pinion nut to initial torque specifications as shown in INITIAL PINION NUT TORQUE chart.

INITIAL PINION NUT TORQUE

Application	Ft. Lbs. (N.m)
Pickups	145 (197)
RX7	94 (130)

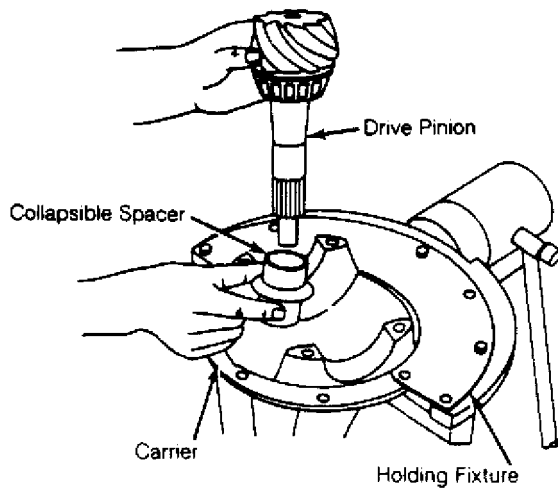


Fig. 6: Installing Drive Pinion Bearing Collapsible Spacer
If preload specifications are exceeded, collapsible spacer must be replaced.

4) With nut tightened to initial torque value, check preload using a torque wrench mounted on pinion nut. If preload is not as specified in specification table, continue tightening nut and checking preload until specified preload is obtained.

CAUTION: Preload builds quickly. Nuts should be tightened a little at a time and preload checked after each slight amount of tightening.

Backlash & Side Bearing Preload

1) Place differential case assembly into carrier making sure index marks on ring and pinion gears are aligned. See Fig. 7. Install bearing adjusters and bearing caps, then tighten bearing cap nuts or bolts finger tight.

2) Turn adjusters with a spanner wrench until bearing end play is eliminated and some backlash exists between ring gear and pinion. Slightly tighten one bearing cap nut or bolt on each side of carrier and measure backlash.

3) Mount a dial indicator to carrier flange so button of indicator contacts one of the ring gear teeth at a right angle. Check backlash between ring and pinion gears.

4) Using the spanner wrench, turn both bearing adjusters equally until backlash is as specified in AXLE ASSEMBLY SPECIFICATIONS table.

5) Differential bearing preload (case spread) is obtained by tightening both bearing adjusters equally. Tighten adjusters until distance between pilot sections of side bearing caps is 7.3004-7.3033" (185.43-185.50 mm) on RX7 or 8.485-8.0513" (204.428-204.50 mm) on Pickups.

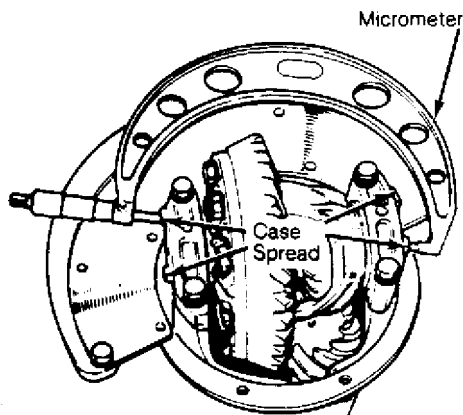


Fig. 7: Adjusting Differential Bearing Preload (Case Spread)
When adjusting side bearing preload, care must be taken not to affect the ring and pinion gear backlash.

AXLE ASSEMBLY SPECIFICATIONS TABLE

Application	INCH	Lbs. (N.m)
Pinion Bearing Preload (1)		
Pickups	11.3-15.6	(1.27-1.76)
RX7	7.8-12.2	(.88-1.37)
Side Bearing Preload		
Pickups	4-13	(.45-1.47)
RX7	5-18	(.56-2.03)
	In.	(mm)
Ring & Pinion Backlash		
Pickups	.0075-.0083	(.19-.21)
RX7	.0035-.0043	(.09-.11)
Side Gear & Pinion Backlash		
Pickups	0-.008	(0-0.2)
RX7	0-.004	(0-0.1)
	Qts.	(L)
Oil Capacity		
Pickups	1.4	(1.3)
RX7	1.3	(1.2)

(1) - Without oil seal installed.

TORQUE SPECIFICATIONS

TIGHTENING SPECIFICATIONS TABLE

Application	INCH	Lbs. (N.m)
Pinion Nut		
Pickups	145-253	(197-344)
RX7	94-130	(128-177)
Ring Gear-to-Differential Case		
Pickups	54-61	(72-83)
RX7	51-61	(69-83)
Differential Bearing Cap Bolts		
Pickups	41-59	(56-80)
RX7	27-38	(37-52)

NEW SERVICE DIFFERENTIAL ASEMBLY REPLACEMENT INFO CAT. 9, NO. 007/86

Article Text

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ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

APPLICATION

1984-85 RX7 & 1986-87 B2000

SUBJECT

New Service Differential Assembly

REFERENCE

Mazda Motors Corp., Service Bulletin, No. 9 007/86, September, 1986

SERVICE INFORMATION

The manufacturer has released new service differential assemblies as service parts for 1984-87 RX7 and 1986-87 B2000 vehicles. The new service differential assemblies (1984-85 - M0Y5 27 200, 1986-87 B2000 - M0Z5 27 200) have gear cases with increased wear resistance.

END OF ARTICLE

REAR WHEEL DRIVE PINION HEIGHT ADJUSTMENT INFO CAT. 9, NO. 014/83

Article Text

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ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

PINION HEIGHT ADJUSTMENT

Models	All Rear Drive Models
Bulletin No.	014/83
Category	9
Date	12/23/83

DESCRIPTION

If the differential pinion height adjustment is necessary for rear wheel drive vehicles, the number on the end surface of the drive pinion should be used to obtain the adjustment value.

There are two types of markings:

1. Handwritten marking with electric pen. This number should be used for the adjustment value. See Fig. 1.

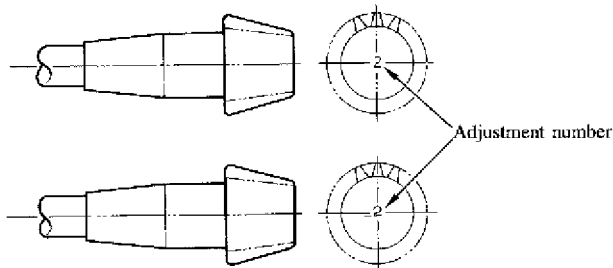


Fig. 1: Location of Adjustment Numbers

2. No handwritten marking. If there is no handwritten marking on the end surface of the drive pinion, the adjustment value is zero (0).

NOTE:

1. There are some cases of numbers stamped on the end surface of the drive pinion, however, these numbers do not indicate the adjustment value.
2. It is essential to check tooth contact after assembling the differential even though the pinion height adjustment has been made. Please refer to the Service Information for the proper tooth contact.

END OF ARTICLE

STEERING COLUMN

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ARTICLE BEGINNING

1984 STEERING

Mazda - Steering Columns

RX7

DESCRIPTION

Steering columns used on these models incorporate a collapsible steering shaft.

REMOVAL & INSTALLATION

STEERING COLUMN

Removal

1) Disconnect battery ground cable. Remove horn cap. Remove steering wheel with steering wheel puller. Remove steering column covers. Disconnect combination switch coupler and remove switch.

2) Remove lock assembly. Remove steering column mounting bolts. Remove steering column jacket.

3) Disconnect center link from pitman arm using Puller (49-0118-850C). Remove pitman arm from sector shaft using Puller (49-0223-695E).

4) Remove steering gear housing attaching bolts. Remove steering gear housing assembly through engine compartment. See Fig. 1.

Inspection

Check all components for damage or wear. Check steering shaft for bend or damage.

Installation

To install, reverse removal procedure. Ensure there is clearance between column cover and steering wheel.

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS TABLE

Application	Ft. Lbs. (N.m)
Column Bracket Bolts	12-17 (16-23)
Steering Wheel Nut	29-36 (40-50)
Steering Gear Housing to Frame	32-40 (44-55)
Pitman Arm to Sector Shaft	58-87 (80-120)
Pitman Arm to Center Link	22-33 (30-45)

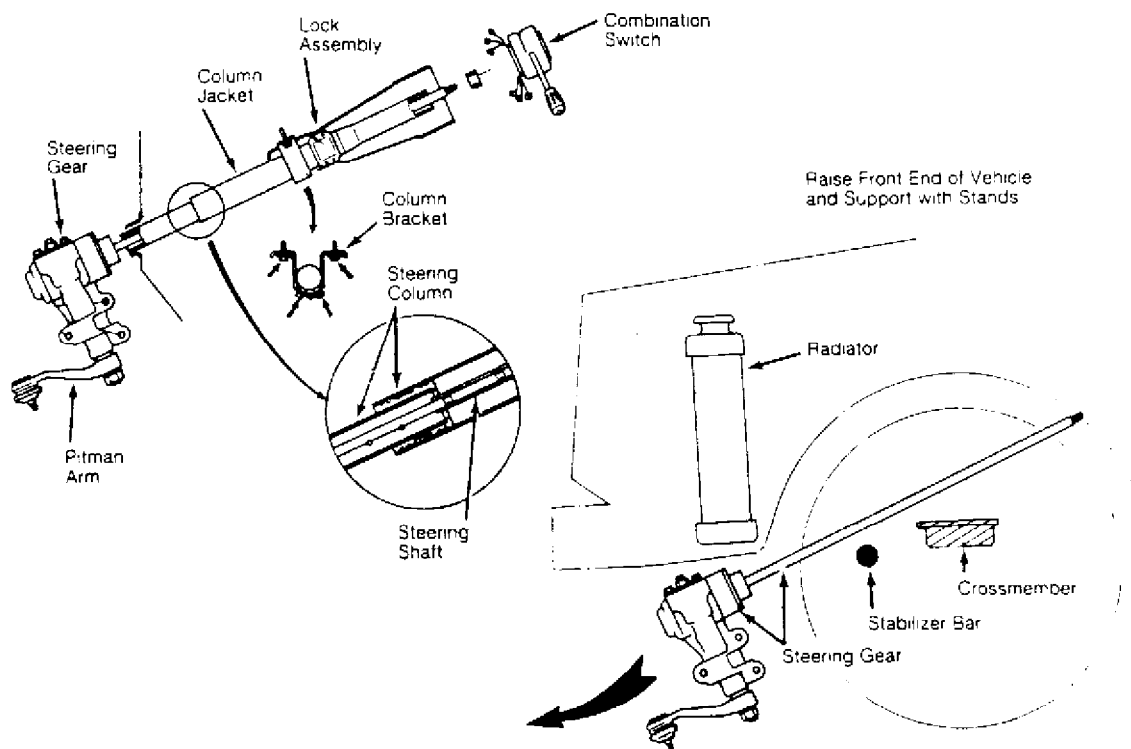


Fig. 1: RX7 Steering Column

END OF ARTICLE

STEERING COLUMN SWITCHES

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ARTICLE BEGINNING

1984 STEERING

Mazda - Steering Wheel & Column Switches

626, GLC, Pickup, RX7

REMOVAL & INSTALLATION

STEERING WHEEL & COMBINATION SWITCH

Removal

1) Disconnect battery ground cable. Pull off horn cap. Place front wheels in straight-ahead position. Index mark column shaft and steering wheel.

2) Remove steering column shrouding. Disconnect electrical connectors. To disconnect electrical connections on RX7, remove air duct at base of steering column.

3) On all models, remove steering shaft stop ring, cancel cam and spring. Remove retaining screws and combination switch assembly.

NOTE: Wiper switch can be removed with or without combination switch attached.

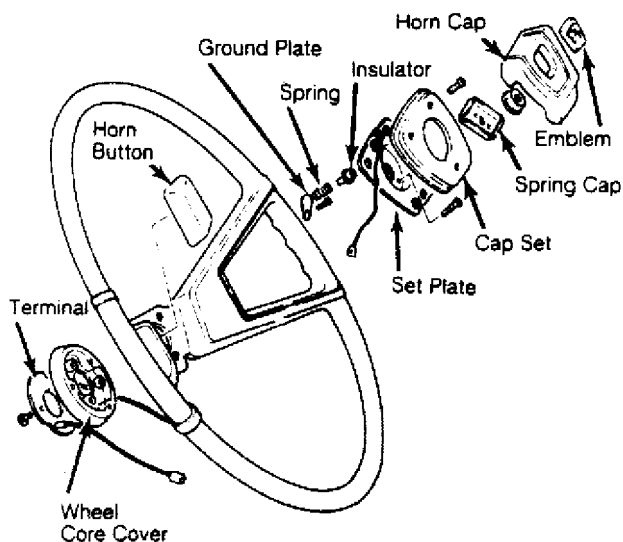


Fig. 1: Typical Mazda Steering Wheel Assembly

Installation

To install, reverse removal procedure.

IGNITION SWITCH

Removal

1) Remove steering wheel as previously outlined. Remove column shrouding. Remove combination switch. Disconnect electrical connector.

2) Remove screw attaching switch contact housing to steering lock body and slide out contact housing. See Fig. 2.

Installation

To install, reverse removal procedure.

STEERING LOCK

Removal

Remove steering wheel, column shrouding and combination switch. File slot in bolt attaching steering lock body to column shaft (in order to remove bolt with screwdriver) and remove bolt. Remove steering lock.

Installation

To install, reverse removal procedure. Tighten new shear bolts until heads break off.

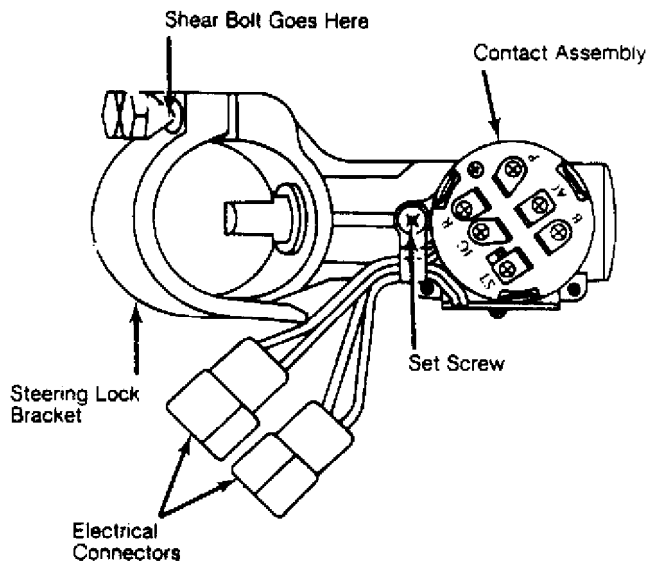


Fig. 2: Exploded View of Ignition Switch (Except Pickup)

END OF ARTICLE

STEERING GEAR - MANUAL

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ARTICLE BEGINNING

1984 STEERING

Mazda - Steering Gears & Linkage - Recirculating Ball

B2000, B2200, RX7

DESCRIPTION

Steering gear is a recirculating ball-type with a variable ratio, depending on turning angle of sector shaft. The worm gear and steering shaft are an integral, and non-separable, unit.

Steering linkage for all models include a non-adjustable center link, 2 adjustable tie rods, an idler arm assembly, and pitman arm.

ADJUSTMENT

NOTE: Adjustments are performed during assembly portion of overhaul. See OVERHAUL in this article.

REMOVAL & INSTALLATION

STEERING GEAR

Removal (B2000 & B2200 Pickups)

1) Remove steering wheel and column. Remove air cleaner and brake master cylinder. On column shift models remove the lower bracket from the selection rod and shift rod.

2) Raise front end and disconnect center link from pitman arm using appropriate puller. Remove bolts and nuts holding steering gear to frame and remove steering gear.

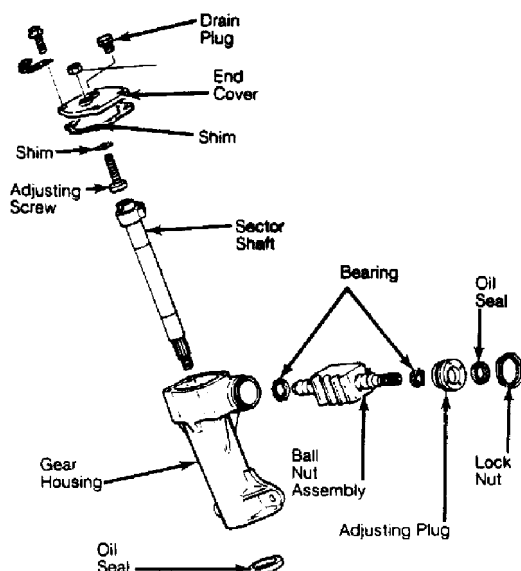


Fig. 1: Exploded View of Steering Gear Assembly (B2000 and B2200 Pickups)

Removal (RX7)

1) Disconnect negative battery cable. Remove steering wheel

and switches. Remove hood, steering column covers and air duct. Disconnect couplers of combination switch and remove the switch assembly.

2) Raise and support front of vehicle. Disconnect pitman arm and center link. Remove nuts and bolts retaining steering gear housing to body. Remove steering gear assembly from vehicle through engine compartment.

Installation (All Models)

To install, reverse removal procedure, ensuring any shims which were removed are installed in original positions.

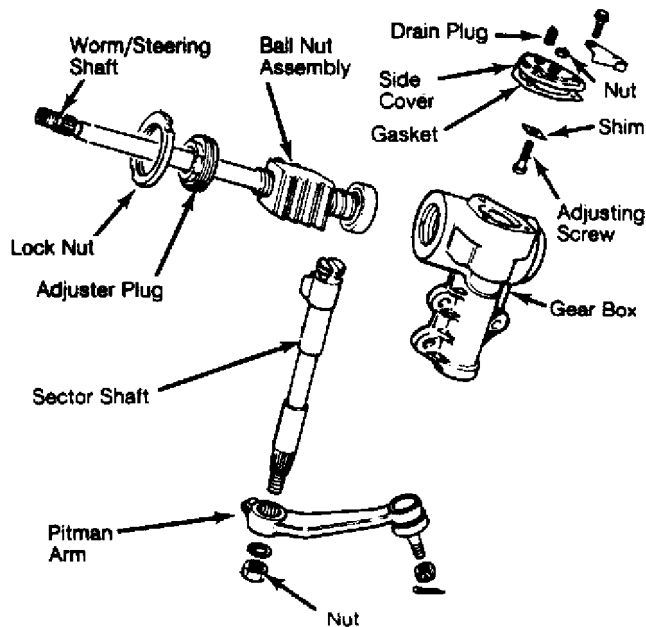


Fig. 2: Exploded View of Steering Gear Assembly (RX7)

STEERING LINKAGE

Steering linkage may be removed as an assembly or as individual components. Whenever tie rod setting is disturbed, toe-in must be reset.

OVERHAUL

DISASSEMBLY

Steering Gear

1) On all models, drain gear oil from housing. Remove pitman arm from sector shaft, if not removed previously. Remove sector shaft adjusting screw lock nut. Remove side cover attaching bolts and remove side cover by turning adjusting screw clockwise.

2) Remove sector shaft adjusting screw and shim from sector shaft. Remove sector shaft carefully to avoid damage to oil seal.

3) On B2000 and B2200 models, remove lock ring, adjusting plug with oil seal, outer bearing, worm ball nut assembly and inner bearing.

4) On RX7, remove ball nut/worm gear adjusting plug lock nut. Then remove adjusting plug and withdraw ball nut, worm gear and steering shaft assembly from gear housing.

INSPECTION

1) Check the action of ball nut assembly on the worm gear. If movement is not smooth for full length of travel, replace worm and ball nut assembly. Worm and ball nut are not serviced separately.

2) Check worm bearings and cups, sector shaft gear surface, and oil seal. Check clearance between sector shaft and housing bore. Clearance should be .004" (.1 mm) or less. If any component is defective, replace it.

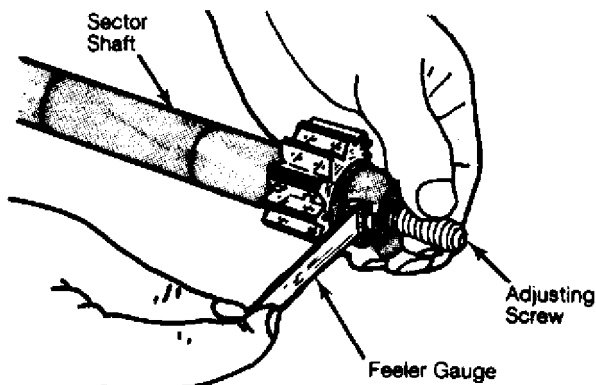


Fig. 3: Checking Sector Shaft Adjusting Screw End Clearance

REASSEMBLY & ADJUSTMENT

Steering Gear

Replace oil seals if necessary. Insert worm gear, ball nut assembly into gear housing. Check preload of worm ball nut.

Worm Bearing Preload

1) Check preload (without sector shaft) with a spring scale and 3.9" (10 cm) attachment, preload reading should be .44-1.10 lbs. (.2-.5 kg).

2) Loosen lock nut and tighten or loosen adjusting screw if preload is not to specifications. Tighten lock nut securely.

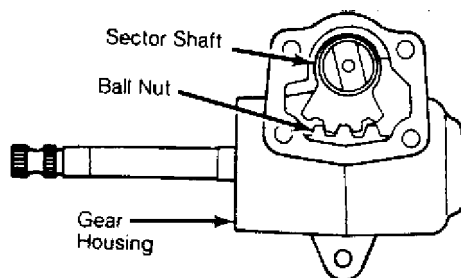


Fig. 4: Aligning Sector Shaft to Ball Nut

Sector Shaft End Play

1) Check clearance between sector shaft adjusting screw and sector shaft. Insert shim so that final clearance will be .004" (.1 mm) or less. Insert sector shaft with ball nut. See Fig. 4.

2) Insert adjusting screw and shim in sector shaft. Place side cover and gasket over adjusting screw and turn adjusting screw until cover is in place, then install cover bolts.

1) Install pitman arm to sector shaft. Install and tighten retaining nut. Measure pitman arm backlash. If necessary, turn sector adjusting screw until zero backlash is obtained.

2) Tighten adjusting screw lock nut, taking care not to disturb backlash adjustment.

3) Check worm shaft rotating torque. Attach an INCH lb. torque wrench to steering shaft upper end. If not to specifications, adjust as necessary. See FINAL WORM BEARING PRELOAD table. Fill gear housing with Lubricant (API GL-4 SAE 90).

FINAL WORM BEARING PRELOAD TABLE

Application	INCH Lbs. (N.m)
B2000 & B2200	5.2-7.8 (.57-.86)
RX7	1.3-2.7 (.14-.30)

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS TABLE

Application	Ft. Lbs. (N.m)
Pitman Arm-to-Sector Shaft	
B2000 & B2200	58-87 (80-120)
RX7	108-130 (150-180)
Tie Rod Lock Nut	
B2000 & B2200	22-33 (30-45)
RX7	51-58 (70-80)

END OF ARTICLE

SUSPENSION - FRONT

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ARTICLE BEGINNING

1984 SUSPENSION

Mazda - Suspension - Front

RX7

DESCRIPTION

Mazda uses independent front suspension with MacPherson type struts. Strut assemblies mount between lower control arms and upper fender panels. Strut assemblies consist of inner shock absorbers and coil springs surrounding outside of strut tube housing.

The steering knuckle is connected to lower control arm and strut. Lower control arms pivot at crossmember and are connected by ball joints to steering knuckle. Some models are equipped with a stabilizer bar. Strut rods are installed to maintain alignment and stability.

ADJUSTMENT

WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES

See WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES in WHEEL ALIGNMENT section.

WHEEL BEARING ADJUSTMENT

1) Raise and support vehicle. Remove brake caliper and support out of the way. Remove brake caliper adapter. Remove grease cap, cotter pin and nut lock. Tighten spindle nut to 18-22 ft. lbs. (24-30 N.m).

2) Turn hub a few times to seat bearings. Loosen nut. Install one wheel bolt and attach spring scale. Gradually tighten spindle nut until a preload reading of 1.0-1.4 lbs. (.45-.64 kg) is obtained.

BALL JOINT CHECKING

1) Disconnect strut assembly and tie rod end from steering knuckle arm. Check ball joint dust boot for cracks or other damage. Rotate ball joint stud several times to settle ball joint.

2) Attach spring scale to tie rod hole. Support knuckle with finger and measure torque required to turn ball joint. If scale reading is less than 1 lbs. (0.5 kg), replace ball joint and lower control arm as an assembly.

REMOVAL & INSTALLATION

WHEEL BEARING

Removal

1) Raise and support vehicle. Remove wheel assembly. Remove brake caliper and support out of the way. Remove brake caliper adapter. Remove grease cap, cotter pin, nut lock and spindle nut.

2) Remove washer and outer wheel bearing. Remove hub/rotor assembly. Remove grease seal and inner wheel bearing. Remove wheel bearing outer races, if required.

Installation

To install, reverse removal procedure. Adjust wheel bearings. See WHEEL BEARING ADJUSTMENT in this article.

LOWER CONTROL ARM

Removal

Raise and support vehicle. Remove wheel assembly. Remove bolts attaching steering knuckle arm to strut assembly. Disconnect tie rod end. Disconnect stabilizer bar. Disconnect strut rod on. Remove steering knuckle arm. Remove lower control arm pivot bolt and remove lower control arm.

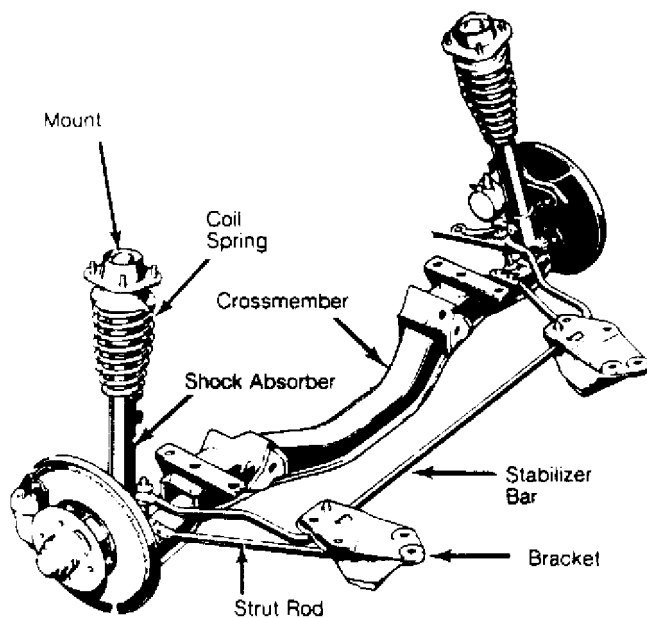


Fig. 1: Front Suspension

Installation

To install, reverse removal procedure. Tighten lower control arm pivot bolt to specified torque with vehicle resting on ground.

STRUT ASSEMBLY

Removal

NOTE: Note position of triangle on top of strut assembly before removing strut assembly.

1) Raise and support vehicle. Remove wheel assembly. Remove brake caliper and hang out of the way. Remove grease cap, cotter pin, nut lock and spindle nut. Remove washer and outer wheel bearing. Remove hub/rotor assembly.

2) Remove backing plate. Disconnect brake line from strut assembly. Remove bolts attaching steering knuckle arm to strut assembly. Remove nuts attaching strut assembly. Remove strut.

Disassembly

1) Clamp strut in vise. Compress coil spring. Remove cap, lock nut and washer from top of piston rod. Remove strut assembly mount, thrust bearing and spring seat. Remove coil spring, dust boot and damper.

2) Remove cap and nut from top of piston rod. Remove coil spring and damper. **SUSPENSION - FRONT** Article Text (p. 2) 1984 Mazda RX7 For iluvmyrx7.com Copy

rod. Pull piston rod and pressure tube assembly out of strut tube.
Remove strut from vise and drain fluid, if used.

NOTE: Do not remove piston rod, guide or base valve from pressure tube. Service as a complete assembly only.

Inspection

Check strut tube for cracks or damage. Check rubber parts for deterioration or damage. Inspect coil spring for signs of fatigue or damage. Replace parts as needed.

Reassembly

1) Clamp strut in vise. Insert pressure tube and piston rod assembly into strut tube. Fill strut tube with 7.61 oz. (225 cc) of shock absorber fluid.

2) Fit Pilot (49 0259 590) over threads of piston rod. Apply grease to lip of oil seal and insert cap nut through pilot onto piston rod. Tighten cap nut and pull out piston rod. Seat piston and tighten cap nut. Install coil spring and remaining hardware in reverse order of disassembly.

Installation

1) To install, reverse removal procedure. Place triangle in its original position. Adjust wheel bearings. See WHEEL BEARING ADJUSTMENT in this article. Measure the distance between level ground and headlights.

2) The difference between headlights should not exceed 0.59" (15mm). If height is not within specifications, adjust the difference by inserting adjusting plates between mount and front suspension tower. Do not use more than two adjusting plates on one side.

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS TABLE

Application	Ft. Lbs. (N.m)
Backing Plate-to-Steering Knuckle	25-33 (34-45)
Ball Joint-to-Steering Knuckle	43-51 (58-69)
Brake Caliper Adapter-to-Strut	25-33 (34-45)
Brake Caliper Bolts	33-40 (45-54)
Lower Control Arm-to-Frame	29-40 (39-54)
Stabilizer Bar Brackets	37-45 (44-55)
Strut Assembly Cap Nut	
w/Oil Filled Strut	36-43 (49-58)
w/Cartridge Type Damper	58-108 (79-146)
Strut Assembly-to-Body	17-22 (23-30)
Strut Assembly Lock Nut	47-59 (64-80)
Strut Assembly-to-Steering Knuckle	43-51 (58-69)
Strut Rod-to-Frame	80-108 (108-146)
Strut Rod-to-Lower Control Arm	40-50 (54-68)
Tie Rod-to-Knuckle	22-33 (30-45)

END OF ARTICLE

SUSPENSION - REAR

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ARTICLE BEGINNING

1984 SUSPENSION

Mazda Rear Suspension

RX7

DESCRIPTION

The RX7 rear suspension consists of upper and lower control links, vertically mounted shock absorbers and coil springs. A 3-piece Watts linkage is used to control side-to-side movement. A stabilizer bar is installed in some models.

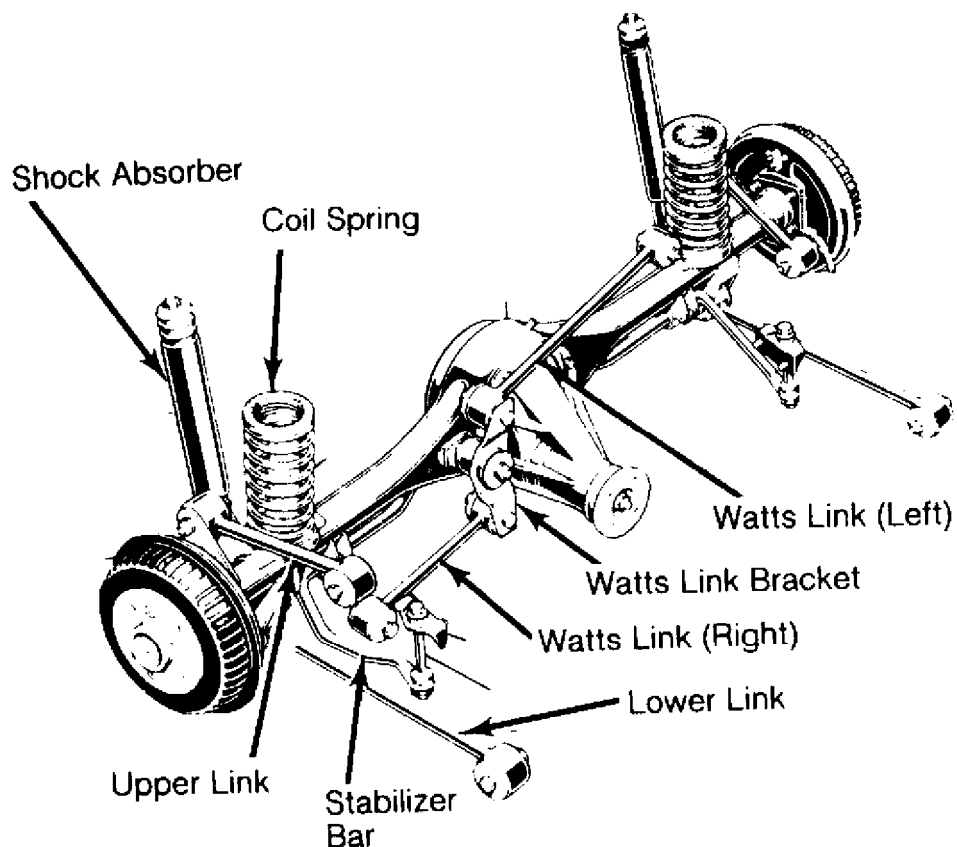


Fig. 1: RX7 Rear Suspension Assembly

REMOVAL & INSTALLATION

COIL SPRING

Removal (RX7)

Raise vehicle and support lower link brackets (front side). Remove wheel assemblies. Support rear axle housing. Disconnect shock absorber lower end. Disconnect upper and lower link pivot bolts at axle housing. Disconnect front end of stabilizer bar, if used. Disconnect Watt links at axle housing. Slowly lower rear axle and remove coil springs.

Installation

To install, reverse removal procedures. Install coil spring with painted mark pointing toward rear of vehicle. Install left hand shock absorber lower end attaching bolt with head pointing toward center of vehicle. Tighten hardware to specified torque with vehicle resting on floor.

SHOCK ABSORBER

Removal (RX7)

Raise vehicle and support lower link bracket (front side). Remove wheel assembly. Remove side trim in luggage compartment and disconnect shock absorber upper end. Disconnect shock absorber lower end and remove shock absorber.

Installation

To install, reverse removal procedures. Install left hand shock absorber lower end attaching bolt with head pointing toward center of vehicle.

UPPER/LOWER LINKS & WATT LINKS

Removal (RX7)

Raise vehicle and support lower link bracket (front side). Support rear axle if Watt links are being removed. Remove wheel assemblies. Remove link attaching hardware and remove links.

Installation

To install, reverse removal procedures. Install Watt link with painted mark near hub and facing front of vehicle. Install upper link rear bolt with head pointing toward center of Vehicle. Tighten hardware to specified torque with vehicle resting on floor.

STABILIZER BAR

Removal (RX7)

Raise vehicle and support lower link bracket (front side) Remove wheel assemblies. Remove stabilizer bar attaching hardware and remove stabilizer bar.

Installation

To install, reverse removal procedures. Tighten hardware to specified torque with vehicle resting on floor.

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS TABLE

Application	Ft. Lbs. (N.m)
Shock Absorber Bolt (Lower End)	
RX7	47-59 (64-80)
Stabilizer Bar Brackets	
RX7	27-38 (37-52)
Upper/Lower Link Bolts	
RX7	56-76 (76-103)
Watt Link-to-Body/Bracket	
RX7	47-59 (64-80)
Watt Link Bracket-to-Axle	
RX7	56-76 (76-103)

JACKING & HOISTING

Article Text

1984 Mazda RX7

For iluvmyrx7.com

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Sunday, June 09, 2002 06:28AM

ARTICLE BEGINNING

1984 Jacking & Hoisting
MAZDA

NOTE: These illustrations are not intended to represent exact structure of each vehicle's frame, underbody or body outline. They are presented only to give the mechanic some point of reference.

FRAME & UNDERBODY

The following illustrations indicate areas (parts) of the underbody and frame which may be used to raise and support the vehicle, using either floor jack or hoist. These points are indicated by shaded areas on the frame. See Fig. 1.

OUTERBODY

Those points designated on the outline of the body were specifically designed to facilitate the use of the vehicle's own jack. These jacking points are indicated by circular dots on the outline of the body. See Fig. 1. If floor jack or hoist is employed, extreme care should be exercised to avoid damaging the outer body shell.

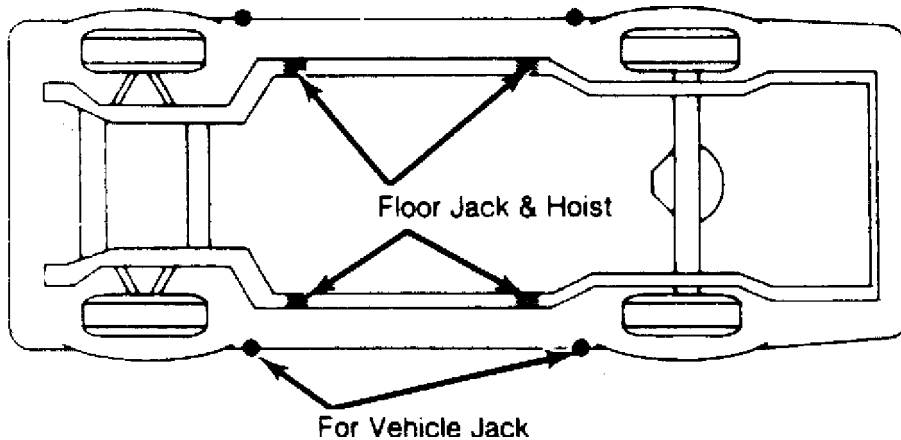
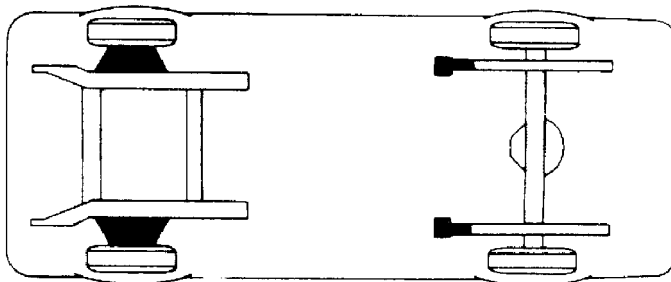
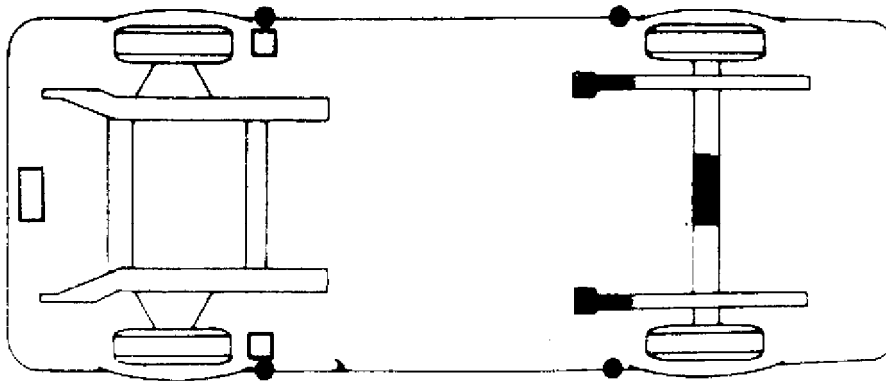


Fig. 1: Floor Jack, Floor Hoist & Vehicle Jack



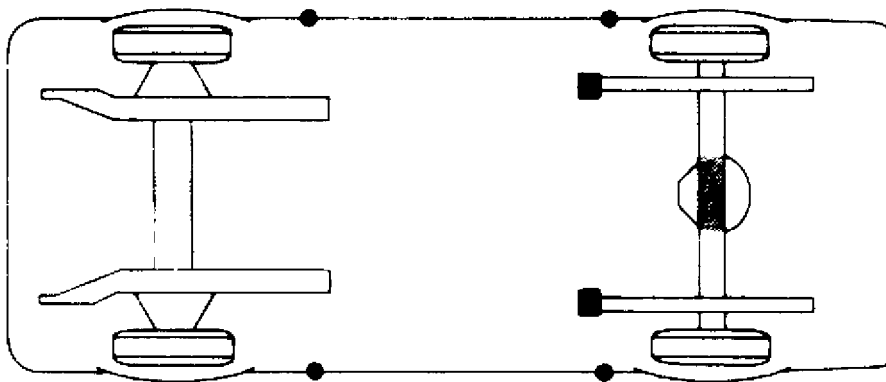
Mazda B2000 & B2200

Fig. 2: B2000 & B2200 Lifting Points



Mazda GLC & 626

Fig. 3: GLC & 626 Lifting Points



Mazda RX7

Fig. 4: RX7 Lifting Points

END OF ARTICLE

PRE-ALIGNMENT CHECKS

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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

WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES

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Sunday, June 09, 2002 06:30AM

ARTICLE BEGINNING

1984 Wheel Alignment
MAZDA

ADJUSTMENT

TIRE INFLATION (COLD)

Before attempting to check or adjust wheel alignment, ensure that tires are properly inflated. Refer to manufacturer's specifications given in owner's manual.

CASTER

B2000 & B2200 Pickups

Change shims between upper control arm shaft and support bracket and turn upper control arm shaft until specifications are obtained.

GLC

Caster is not adjustable. If caster is not to specifications, inspect suspension for excessive wear or damage. Replace components as necessary.

RX7 & 626

1) Caster and camber angles are adjusted together by changing position of strut support. Remove 4 nuts attaching strut support to fender apron.

2) Raise front of vehicle and support with jack stands. Press strut downward and change position of support according to the STRUT SUPPORT TABLE and Fig. 1.

3) Tighten strut support mounting nuts to 17-22 ft. lbs. (23-30 N.m). Lower vehicle and recheck caster and camber.

STRUT SUPPORT TABLE

Strut Position	Caster	Camber
A 0°	0°	0°
B 90°	28°	0°
C 180°	28°	28°
D 270°	0°	28°

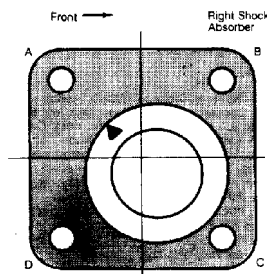


Fig. 1: RX7 & 626 Caster & Camber Adjustment Using Strut Support

CAMBER

B2000 & B2200 Pickups

Adjust by adding or subtracting shims between upper arm shaft and support bracket until specifications for camber are within limits.

GLC

1) Raise and support front end with jack stands. Place vehicle in straight-ahead position.

2) Remove 2 mounting nuts holding strut support to fender apron. Push mounting block down, turn 180° and tighten mounting nuts. Note a triangular shaped mark on mounting block. Rotating mark away from engine changes camber to the negative side. Rotating mark in opposite direction, the opposite happens. Check camber angle.

RX7 & 626

NOTE: See procedure given under RX7 & 626 Caster adjustment.

TOE-IN

626 (Front)

Loosen lock nuts and turn tie rods equal amounts. Both tie rods are right-threaded. To increase, turn right tie rod toward front of vehicle. To decrease, turn left tie rod toward rear of vehicle by the same amount. One full turn equals .24" (6 mm). If boot is twisted or dented, loosen band and straighten boot.

All Other Models (Front)

1) Raise front of vehicle. Turn wheels by hand and mark a line in center of each tire tread. Place vehicle in straight-ahead position and lower vehicle to ground.

2) Measure distance between marked lines at both front and rear of wheel. Make sure measurements are made equal distances from ground.

3) Loosen lock nuts and turn tie rods until adjustment is correct. Tighten lock nuts with bolts horizontal and below rod. This procedure will prevent interference with center link.

626 (Rear)

1) Release emergency brake. Mark front and back of tire at same height as center of wheel. Mark center lower section of crossmember. Points marked on tires and crossmember form a triangle and are reference points for adjusting rear toe-in.

2) Turn spacer (star wheel) to make the points from rear of tire to center of crossmember equal. See Fig. 2. Turn both right and left spacers the same amount to adjust toe-in.

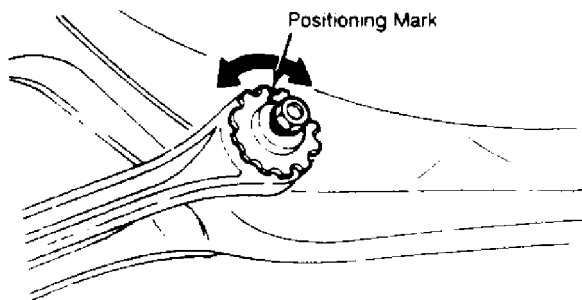


Fig. 2: 626 Star Wheel Adjustment

3) On GLC only, check parallelism of body and rear wheel. Use existing mark on rear of tire and hole on each side member. Measure from hole on one side to the rear of tire. Repeat on the

other hole and tire. If measurements are not equal, loosen 2 crossmember mounting nuts on each side. Move crossmember so measurement is within .2" (5 mm).

WHEEL ALIGNMENT SPECIFICATIONS

WHEEL ALIGNMENT SPECIFICATIONS TABLE

Application	Specification
Mazda	
B2000 & B2200 Pickups	
Caster (Degrees)	1
Camber (Degrees)	+1/3 to 1 1/4
Toe-in (Inches)	0 to 1/8
Toe-Out on Turns (Degrees)	
Inner	
Outer	
GLC	
Caster (Degrees)	+1 11/12 +/- 3/4
Camber (Degrees)	+11/12 +/- 1/2
Toe-in (Inches)	0 +/- 1/8
Toe-Out on Turns (Degrees)	
Inner	
Outer	
RX7	
Caster (Degrees)	+3 2/3 +/- 1/2 (1)
Camber (Degrees)	+1 +/- 1/2 (2)
Toe-in (Inches)	0 to 1/4
Toe-Out on Turns (Degrees)	
Inner	
Outer	
626	
Caster (Degrees)	+1 2/3 +/- 3/4
Camber (Degrees)	+1/3 +/- 1/2
Toe-in (Inches)	+1/8 +/- 1/8 (3)
Toe-Out on Turns (Degrees)	
Inner	
Outer	
(1) - Left side only, right side specifications are 4 1/6 +/- 1/2.	
(2) - For 13" tires only, 14" tires specifications are 7/12 +/- 1/2.	
(3) - Rear specifications are 0 +/- 1/8.	

END OF ARTICLE

ALUMINUM WHEEL CENTER CAP REMOVAL INFORMATION CAT. 12, NO. 001/84

Article Text

1984 Mazda RX7

For iluvmyrx7.com

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Sunday, June 09, 2002 06:31AM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

APPLICATION

1984 GLC, RX7 & 626

SUBJECT

Aluminum Wheel Center Cap Removal

REFERENCE

Mazda Motors Corp., Service Bulletin, No. 001/84, October, 1984

SERVICE INFORMATION

If center cap removal from the aluminum wheel is necessary, use a hammer or other wooden tool to tap the cap out of the wheel from the inner side of the wheel. Do not use a screwdriver to pry the cap out from the outer side of the wheel as this will damage the wheel.

END OF ARTICLE

ALUMINUM WHEEL TIRE CHANGE - CENTER HUB DAMAGE INFO CAT. 12, NO. 002/85

Article Text

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Sunday, June 09, 2002 06:32AM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

TIRE CHANGERS FOR ALUMINUM WHEEL

Models	RX-7, 626 & GLC
Bulletin No.	002/85
Category	12
Date	6/17/85

DESCRIPTION

If standard tire changers are used to change tires on aluminum wheels, damage will occur to the center hub. See Fig. 1.

The manufacturers listed below offer adapters for use on their tire changers when changing tires on aluminum wheels. Call the number listed for the nearest representative. Ask for the Mag Tool Adapter.

FCC	- (800) 362-8326
AMMCO	- (312) 689-1111
COATS	- (800) 323-0661

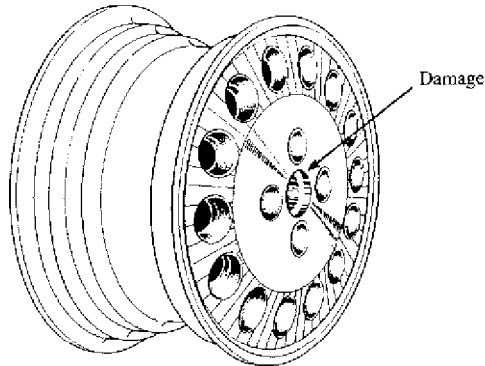


Fig. 1: RX7, 626 & GLC Aluminum Wheel

END OF ARTICLE

WIRING DIAGRAM SYMBOLS

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1984 Mazda RX7

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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 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.

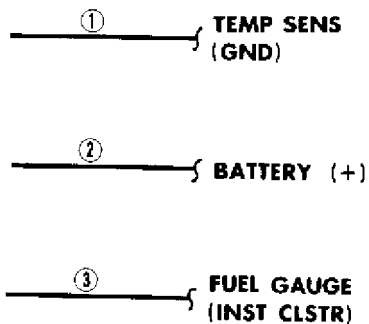


Fig. 1: Identifying Tie-Off Symbols

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.

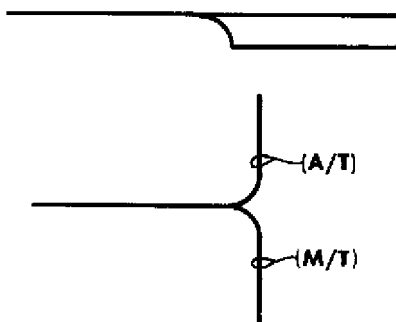


Fig. 2: Identifying Option Symbols

COLOR ABBREVIATIONS IDENTIFICATION

COLOR ABBREVIATIONS

Color	Normal	Optional
Black	BLK	BK
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

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)

Fig. 9:  DEFOGGER GRID


Fig. 10:  FUSE


Fig. 11:  FUSIBLE LINK


Fig. 12:  GROUND


Fig. 13:  GLOW PLUG, RESISTOR (In-Line) or MIRROR HEATER


Fig. 14:  INJECTOR, PHOTOCCELL

Fig. 15: Internal Fuse, Thermal Limiter



INTERNAL FUSE,
THERMAL LIMITER

Fig. 16: Lamp (Dual Element)



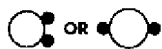
LAMP (Dual Element)

Fig. 17: Lamp (Single Element)



LAMP (Single Element)

Fig. 18: Motor



MOTOR

Fig. 19: Resistor (Internal)



RESISTOR (Internal)

Fig. 20: Sensor, Thermistor



SENSOR, THERMISTOR

Fig. 21: Solenoid



SOLENOID

Fig. 22: Solid State Device, Transistor



SOLID STATE DEVICE,
TRANSISTOR

Fig. 23: Switch (Internal)



SWITCH (Internal)

Fig. 24: Two Pin Switch



TWO PIN SWITCH

Fig. 25: Variable Resistor or Potentiometer



VARIABLE RESISTOR
OR POTENTIOMETER

END OF ARTICLE

ARTICLE BEGINNING

1984 Wiring Diagrams
Mazda

RX7

IDENTIFICATION

1984 Mazda RX7

- COMPONENT LOCATIONS:
- C-16 A/C CONTROLS
 - F-5/D-4 A/C CUT RLY.
 - D-4/E-5 A/C CUT RLY.
 - B-15 A/C FROST WARN. SW.
 - B-15 A/C REFRIG. PRESS. SW.
 - D-3/F-7 A/C RLY. #1
 - F-7 A/C RLY. #2
 - E-4 A/C SOL. VALVE
 - C-7 A/C V. RLY. & SOL.
 - B-6 AIR FLOW METER
 - E-2 AIR VENT SOL. VALVE
 - C-6 AIR TEMP. SENSOR
 - E-4 A.P.L. SOL. VALVE
 - A-3 ALTERNATOR
 - A-3 A/T CONTROL UNIT
 - A-1 BATTERY FUS. LINKS.
 - D-7 BACK-UP LT. SW.
 - A-6 BRAKE FLUID LEVEL SW.
 - E-2 CARBURETOR MTR.
 - E-15 CENTRAL PROCESSING UNIT
 - F-4 CHECK CONN.
 - A-4 CHOKE & CHECK RLY.
 - E-13 CHOKE SW. & MAGNET
 - E-11 CIRCUIT OPENING RLY.
 - F-4/F-5 CLUTCH SW.
 - E-5 CONTROL UNIT
 - B-3 COOLANT LEVEL SENSOR
 - A-11 COOLANT LEVEL UNIT
 - E-16 COURTESY LTS.
 - D-8 CRUISE CONTROL
 - A-10 DR. FLASHER
 - F-16 DOOR SWS.
 - F-2/C-5 EMISSION CONTR.
 - C-5 FAIL CHECK CONTR.
 - E-16 FUEL DOOR RELEASE
 - B-5 FUEL INJECTORS
 - B-5 FUEL PUMP (EGI)
 - E-2 FUEL PUMP & CUT RLY. (CARB.)
 - D-18 FUEL TANK UNIT
 - F-10 FUSE BOX
 - B-9 GLOVE & STORAGE BOX LTS.
 - A-9 HAZARD SW.
 - A-9 HEADLT. SW.
 - C-1 HEADLT. CLEANER MTR.
 - D-1 HEADLT. RETRACT MTRS.
 - A-10 HEADLT. RETRACT SW.
 - D-2/E-4 HEAT HAZARD SENS.
 - C-1 HORNS
 - D-11 HORN RLY.
 - B-1 HOT START RLY. & MTR.
 - E-4 1D RICHER SOL.
 - F-12 IGN. SW.
 - F-11/A-5 IGN. SWS.
 - E-7/B-2 INHIB. SW.
 - B-11 INST. ILLUM. LTS.
 - C-13 INST. PANEL
 - B-11 INST. PANEL CONTROL UNIT
 - C-4 KICKDOWN SOL.
 - C-3 KICKDOWN SW. & RLY.
 - D-3 MAB VALVE #2
 - A-5 MAIN RLY.
 - F-4/D-5 NEUT. SW.
 - B-3 OIL LEVEL SENSOR
 - A-6 OIL PRESS. SW.
 - C-7 O' CHECK CONN.
 - B-7 O' SENSOR
 - B-3 OSCILLATOR
 - C-2 OVERDRIVE CANCEL SOL.
 - C-11 OVERDRIVE SW.
 - C-7 OVER TOP SW.
 - E-6 P.R.C.V. SOL.
 - D-18 PWR. ANTENNA
 - E-14 PWR. MIRROR
 - D-4/E-5 PWR. STEERING PRESS. SW.
 - E-8 PWR. STEERING CONTROL
 - B-14 PWR. WOODS
 - E-16 REAR HATCH RELEASE
 - B-7 REAR WIPERS
 - C-18 REAR WOOD. DEFOG. GRID
 - E-5/D-3 RELIEF VALVE SOL.
 - E-4 SHUTTER SOL. VALVE
 - A-1 STARTER MTR.
 - D-11 STOP LT. SW. & CHECKER
 - E-3/E-6 SWITCHING VALVE SOL.
 - B-2 SUBZER. SW. & SENS.
 - F-2 THERMO SENSOR
 - E-3/D-7 THROTTLE SENS.
 - B-8 TRANS. OIL PRESS. SW.
 - E-6/C-2 VAC. CONTR. SOLS.
 - D-5 VAC. PRESS. SENSOR
 - E-6 V.S.V. SOL.
 - C-5 VAC. SW.
 - F-13 WATER TEMP. SW. #1
 - D-2 WATER TEMP. SW. #2
 - D-5 WATER TEMP. SW. (EGI)
 - A-6 WATER TEMP. SENDER
 - B-6 WATER TEMP. SENSOR (EGI)
 - A-7 W/SHIELD WIPERS

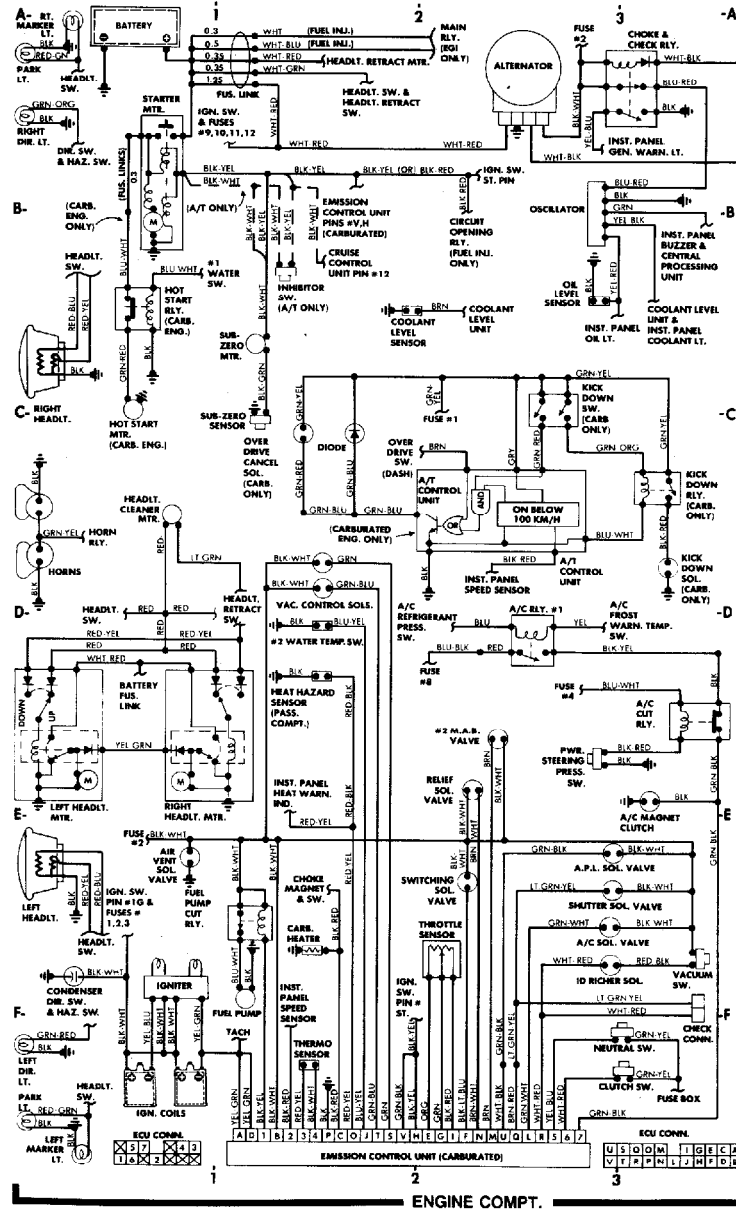


Fig. 1: Engine Compartment

RX7 (Cont.)



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1984 Mazda

RX7 (Cont.)

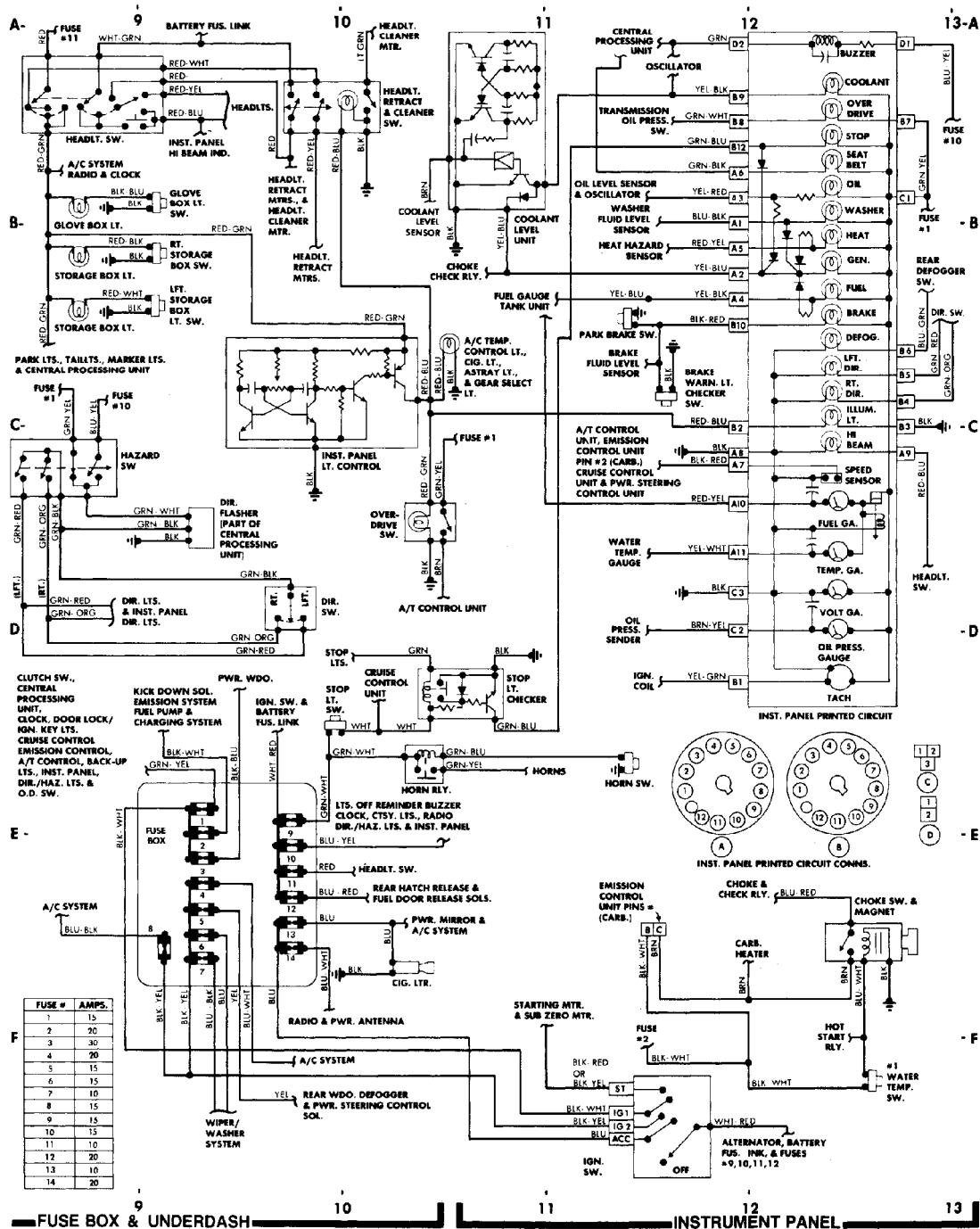


Fig. 3: Fuse Block & Underdash (Cont.) & Instrument Panel
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RX7 (Cont.)

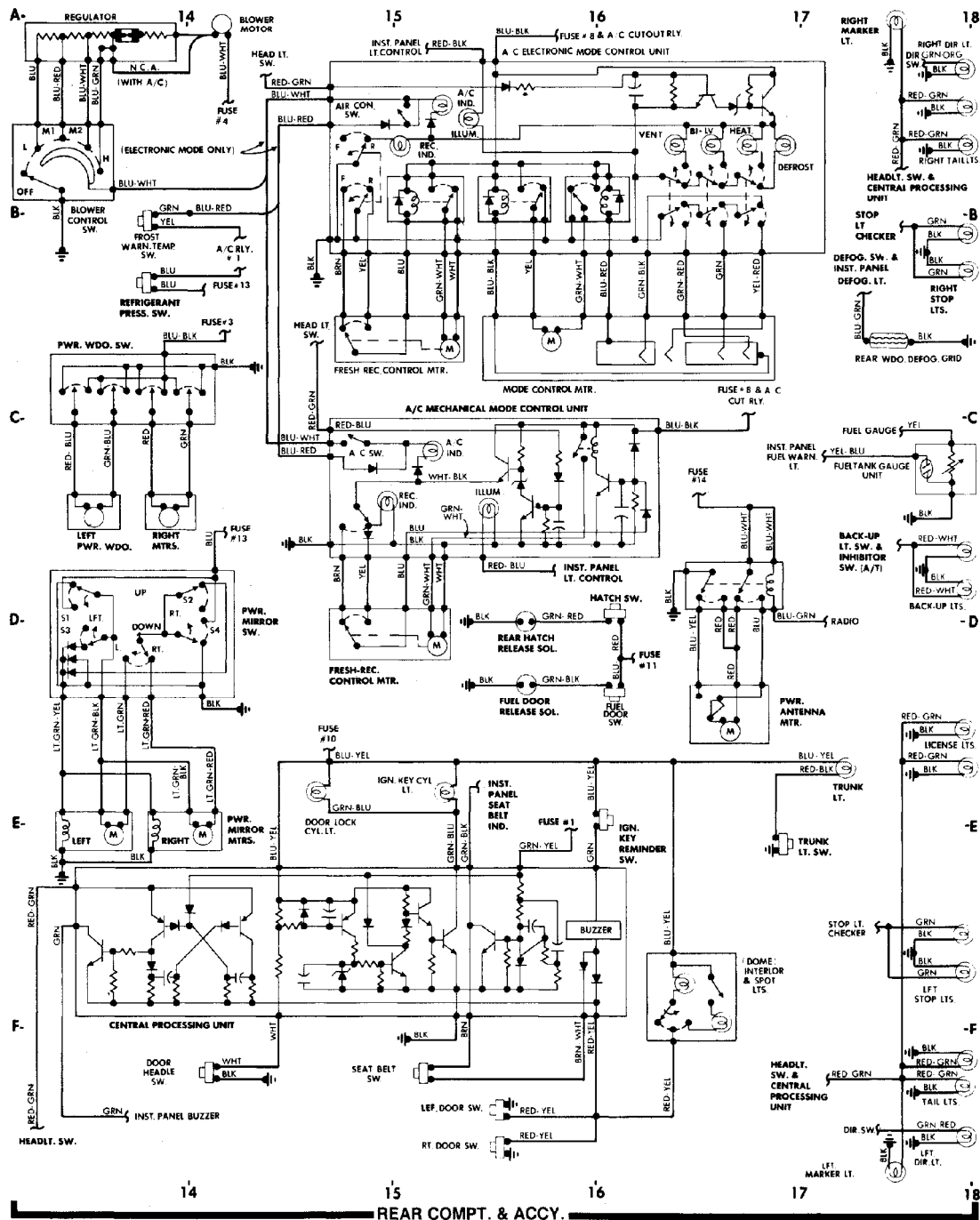


Fig. 4: Rear Compartment & Accessories
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