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This file was not scanned to deprive Mazda of any money – it was scanned due to the rareness of the original manuals and the overwhelming need of the RX-7 owner to have this information so that they can accurately troubleshoot problems. Perhaps if Mazda's dealerships could support the Rotary Engine it wouldn't be so necessary for the owners to do so.



Many thanks to Anh Diep for scanning this file.

BODY ELECTRICAL SYSTEM

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87U15X-001

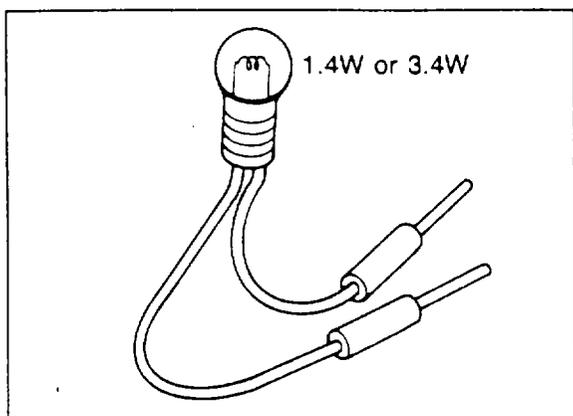
15 INTRODUCTION

INTRODUCTION

HOW TO USE THIS SECTION

A new wiring diagram style has been beginning with the '88 RX-7. Therefore, electrical circuit diagrams in this workshop manual may not be the same as in the wiring diagram.

87U15X-002



57U15X-004

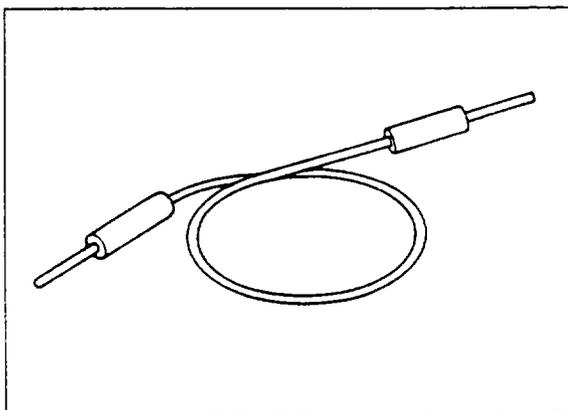
ELECTRICAL TROUBLESHOOTING TOOLS

Test Light

The test light, as shown in the figure, uses a 12V bulb. The two lead wires should be connected to probes. The test light is used for simple voltage checks and to check for short circuits.

Caution

When checking the control unit, never use a bulb over 3.4W.



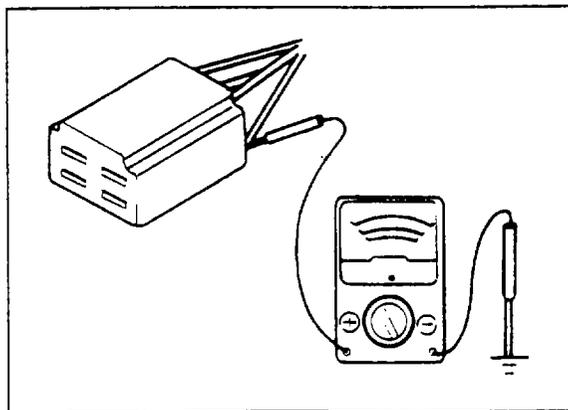
67U15X-002

Jumper Wire

The jumper wire is used for testing by short-circuiting switch terminals, and to verify the condition of ground connections.

Caution

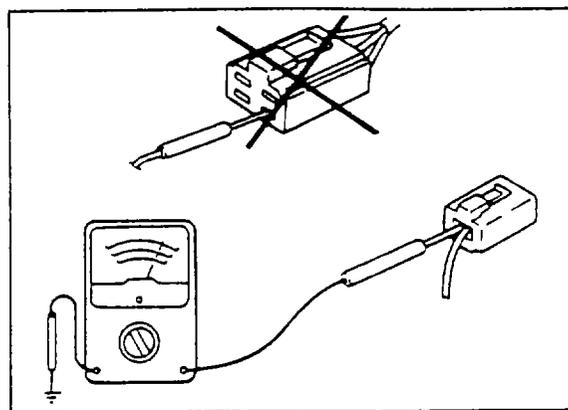
Do not connect the jumper wire between the power source line and the body ground, because doing so may burn or cause other damage to the harnesses.



47U15X-006

Voltmeter

The DC voltmeter is used for measuring circuit voltage. A voltmeter with a range of 15 V or more is used. It is used by connecting the positive (+) probe (the red lead wire) to the point where voltage is to be measured and connecting the negative (-) probe (the black lead wire) to the body ground.



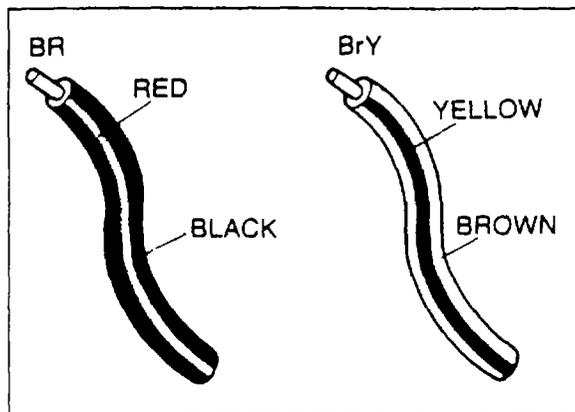
47U15X-007

Ohmmeter

The ohmmeter is used to measure the resistance between two points in a circuit, and is also used to check for continuity or short circuits.

Caution

Do not attempt to connect the ohmmeter to any circuit to which voltage is applied, because doing so may burn or otherwise damage the ohmmeter.



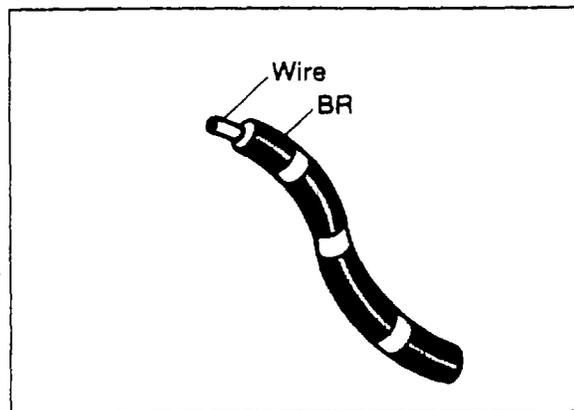
47U15X-008

PRECAUTIONS

Wiring Color Codes

Two-color wires are indicated by a 2-letter symbol. The first letter indicates the base color of the wire and the second indicates the color of the stripe.

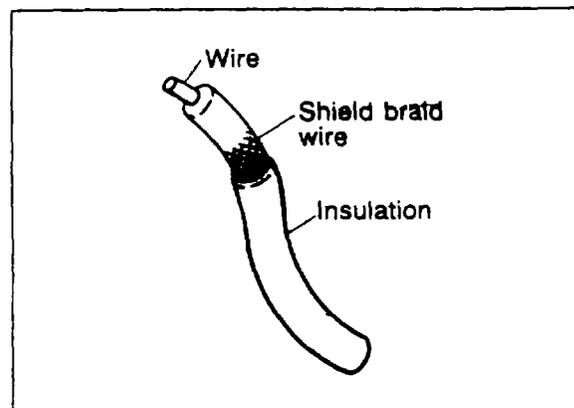
CODE	COLOR
B	BLACK
Br	BROWN
G	GREEN
L	BLUE
Lb	LIGHT BLUE
Lg	LIGHT GREEN
O	ORANGE
R	RED
Y	YELLOW
W	WHITE



77U15X-130

Thin Insulation Wire

To reduce the weight of the wiring harnesses, a thin coating of a new type high resistance insulation material is used.

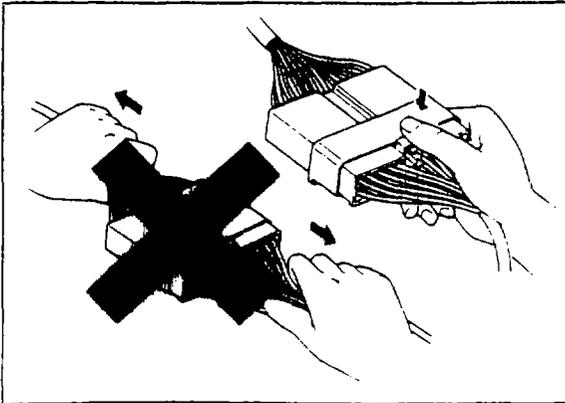


67U15X-004

Shielded Braid Wire

This wire is used to prevent malfunctions in those circuits that are important and susceptible to outside signals or interference, e.g.:

- Ignition coil signal
- O₂ sensor signal



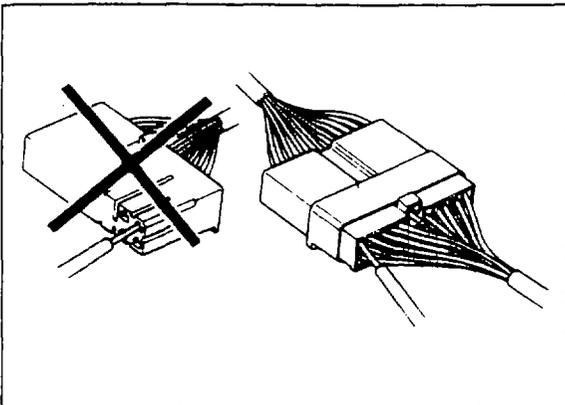
67U15X-005

Handling of Bulkhead-Type Connectors

Removal of the connector

The connector can be removed by pressing the lock lever.

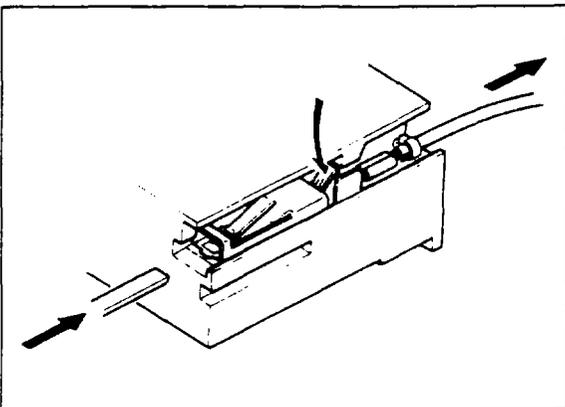
Do not pull on the wire when removing the connector; be careful to hold the connector itself when removing it.



47U15X-110

Inspection Notes

When a tester is used to check the continuity or to check the voltage, insert the tester probe from the wire harness side.



47U15X-011

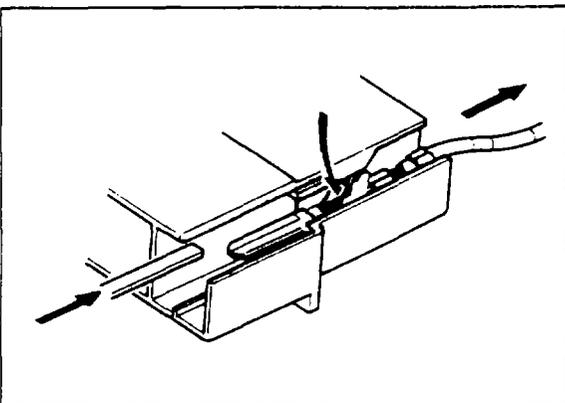
Replacement of Terminals

Use the appropriate tools to remove the terminal, as shown in the figure.

When installing a terminal, be sure to press it in until it locks securely.

Female type

Insert a push-tool or thin piece of metal from the terminal side of the connector, and then, with the locking tabs of the terminal pressed down, pull the terminal out from the rear side.

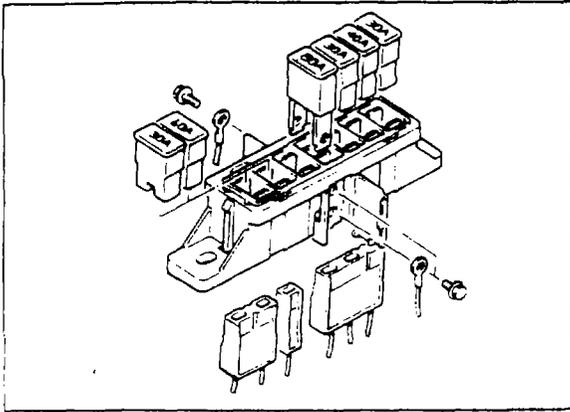


57U15X-012

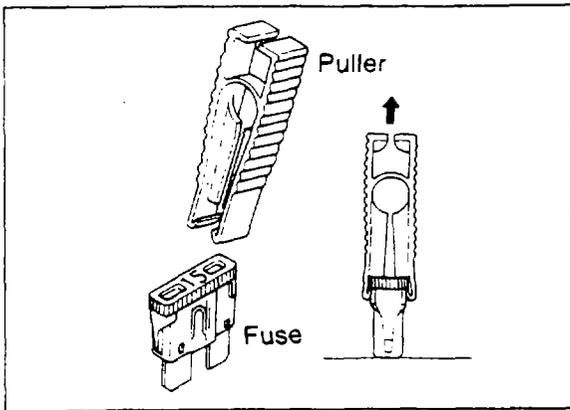
Male type

Same as the female type.

15 INTRODUCTION



77U15X-131



67U15X-007

Replacement of Fuses

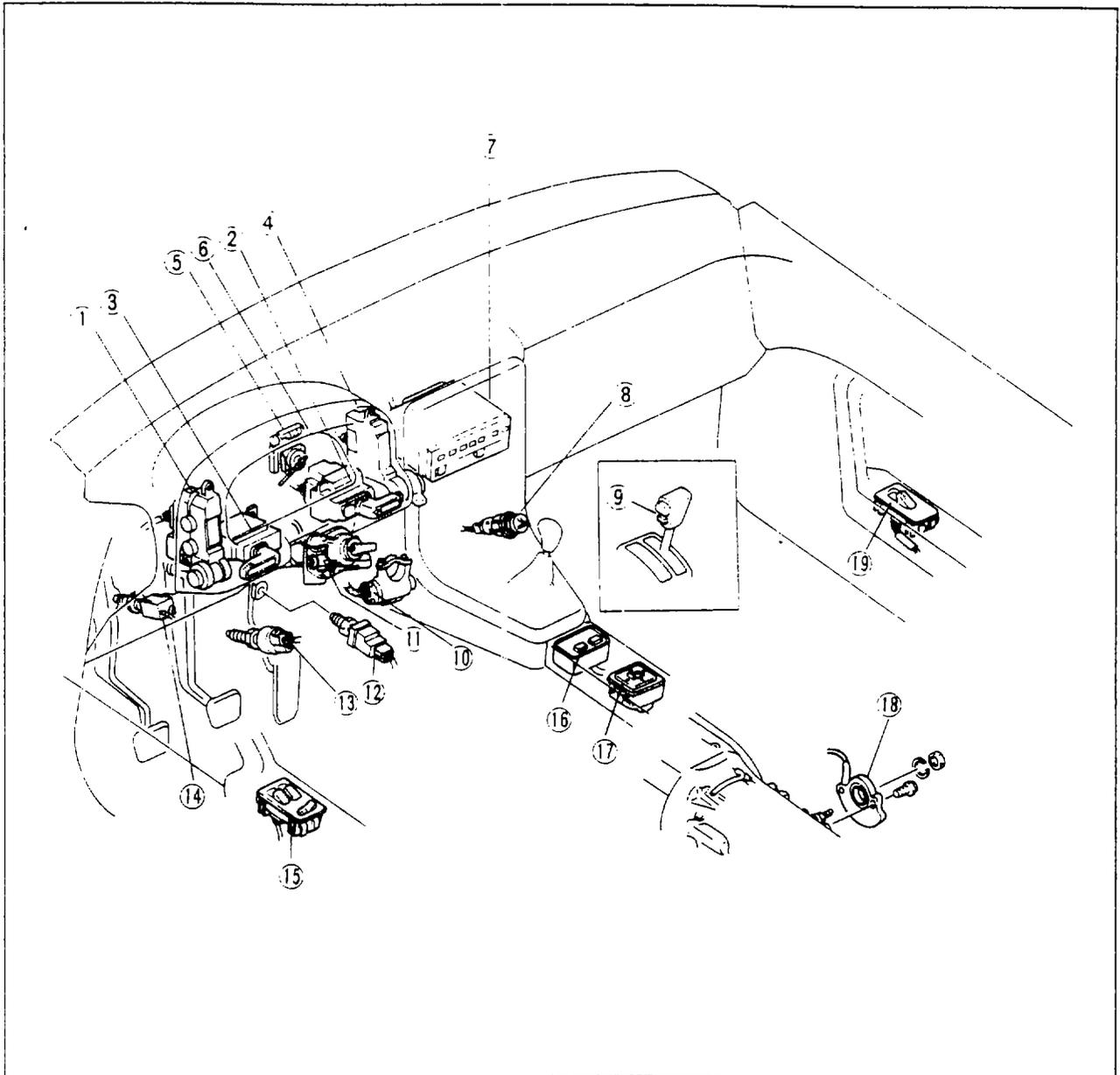
When replacing a fuse, be sure to replace it with one of the specified capacity.
If after a fuse has been replaced it fails again, there is probably a short in the circuit, therefore the wiring should be checked.

Caution

- a) Check that the negative battery terminal is disconnected before replacing a fuse.
- b) When replacing a fuse, use the supplied fuse puller.

OUTLINE

LOCATION OF SWITCHES

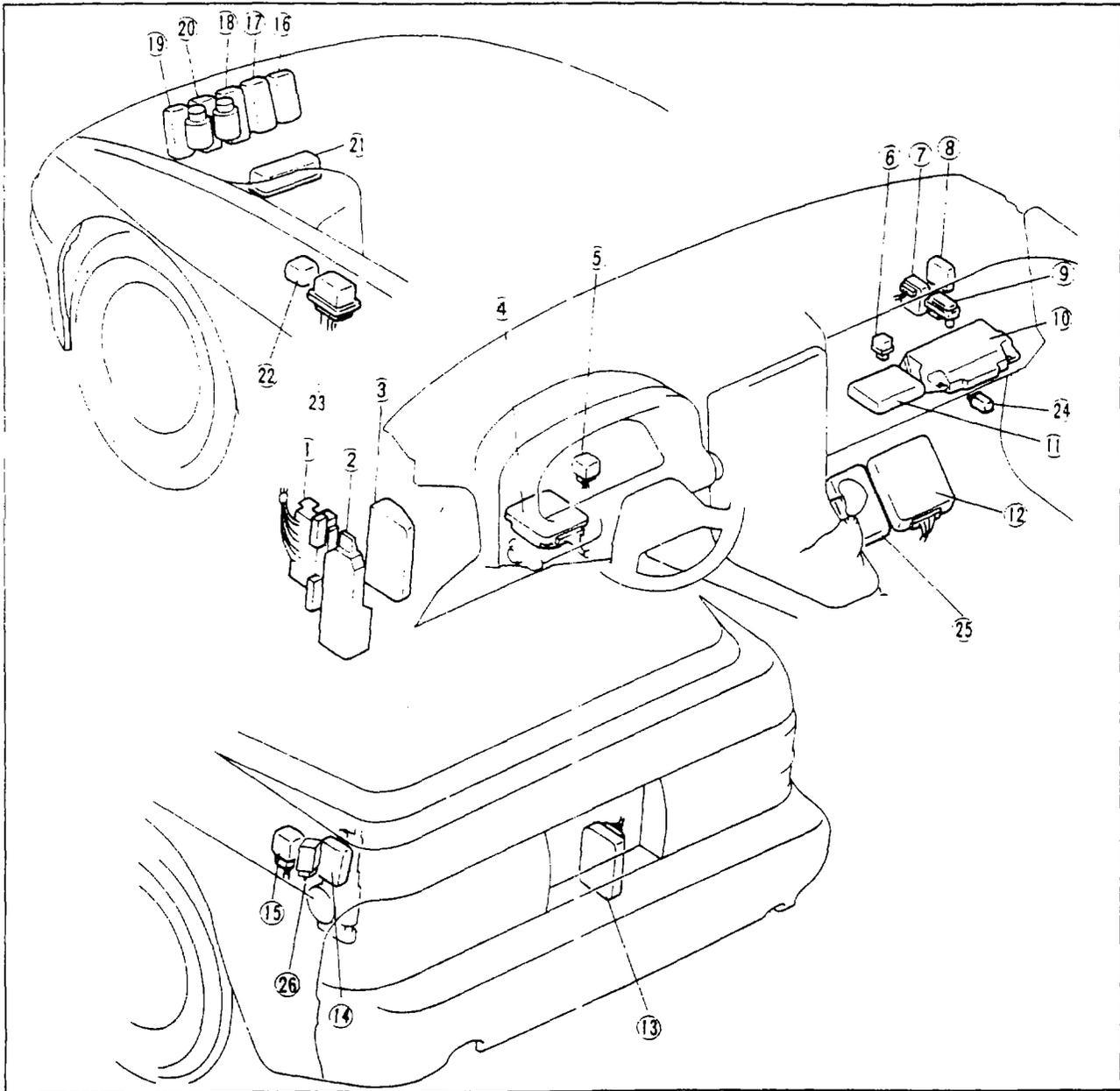


67U15X-250

- | | |
|--|-----------------------------------|
| 1. Cluster switch
(Rear defroster, retractable headlight and headlight cleaner, panel light control, headlight) | 7. Logicon switch |
| 2. Cluster switch (Cruise control) | 8. Cigarette lighter |
| 3. Cluster switch
(Turn signal, dimmer and passing) | 9. Overdrive control switch |
| 4. Cluster switch
(Hazard, rear wiper and washer, front wiper and washer) | 10. Ignition switch |
| 5. 20,000 miles switch (in meter) | 11. Turn cancel and angle sensor |
| 6. Speed sensor (in meter) | 12. Accelerator switch |
| | 13. Stop light switch |
| | 14. Clutch switch |
| | 15. Power window switch (Main) |
| | 16. Auto-adjust suspension switch |
| | 17. Remote control mirror switch |
| | 18. Inhibitor switch |
| | 19. Power window switch |

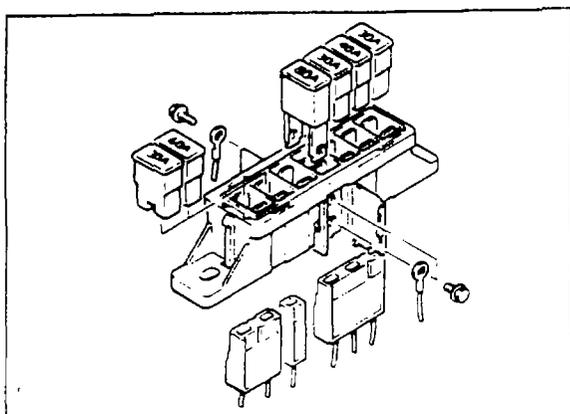
15 OUTLINE

LOCATION OF RELAYS AND UNITS



87U15X-003

- | | |
|---|---|
| 1. Fuse box | 12. Emission control unit |
| 2. Central processing unit
(Turn and hazard, lights off reminder buzzer,
key illumination timer, horn relay, seat belt
timer, buzzer, ALT warning light relay, stop
light warning relay, key reminder buzzer) | 13. Auto-adjust suspension control unit |
| 3. Cruise control unit | 14. Power antenna relay |
| 4. Power steering control unit | 15. Rear defroster relay |
| 5. Circuit opening relay (for EGI) | 16. Dimmer relay |
| 6. Heater relay | 17. Headlight relay |
| 7. Cooling fan control unit | 18. Cooling fan relay |
| 8. 4 A/T control unit | 19. Lock-up relay |
| 9. Atmospheric pressure sensor | 20. 4 A/T relay |
| 10. Speaker with amplifier | 21. Main fuse box |
| 11. Theft-deterrent control unit | 22. Starter cut relay |
| | 23. Main relay (for EGI) |
| | 24. Main relay (for ABS) |
| | 25. ABS control unit |
| | 26. Door lock control unit |

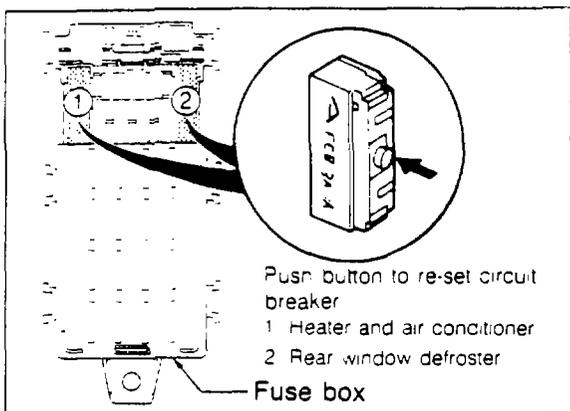


67U15X-00F

Replacement of Main Fuses

Disconnect the negative battery terminal.
 30A fuse: pull out and push in a new one.
 80A fuse:

1. Remove the main fuse box.
2. Open the cover.
3. Remove the terminals.
4. Pull out and push in a new fuse.



87U15X-004

Fuse box

Push button to reset circuit breaker.

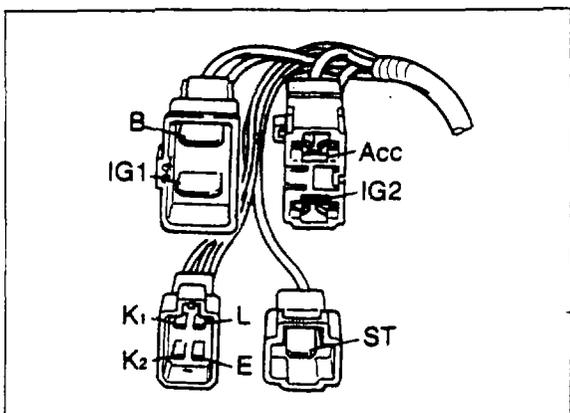
IGNITION SWITCH

INSPECTION

1. Use an ohmmeter to check the continuity of each terminal of the switch.
 If the continuity is not as specified, replace the switch.

Terminal	B	ACC	IG1	IG2	ST	L	E	K1	K2
Position									
LOCK								○—○	○—○
ACC	○—○							○—○	○—○
ON	○—○	○—○	○—○	○—○				○—○	○—○
START	○—○	○—○			○—○	○—○	○—○	○—○	○—○

○—○ : Indicates continuity



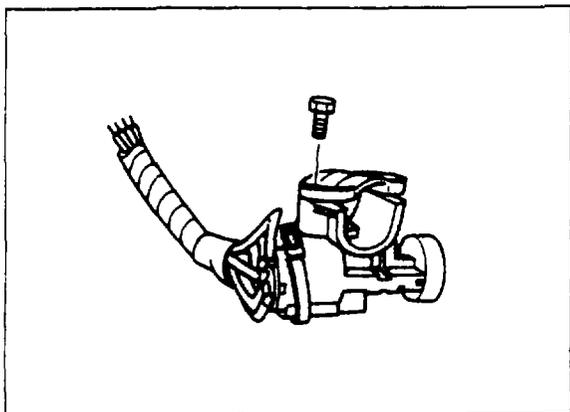
58U15X-008

REPLACING IGNITION SWITCH

1. Disconnect the negative battery cable.
2. Remove the column covers.
3. Disconnect the connectors from the wiring harness.
4. Remove the attaching screw.
5. Install in the reverse order of removal.

Caution

- 1) Fully insert the ignition key into the key cylinder before trying to operate the ignition switch.
- 2) If the ignition key is hard to rotate, check the condition of the key.
- 3) When a duplicate key is made, deburr the edges of the new key before using.



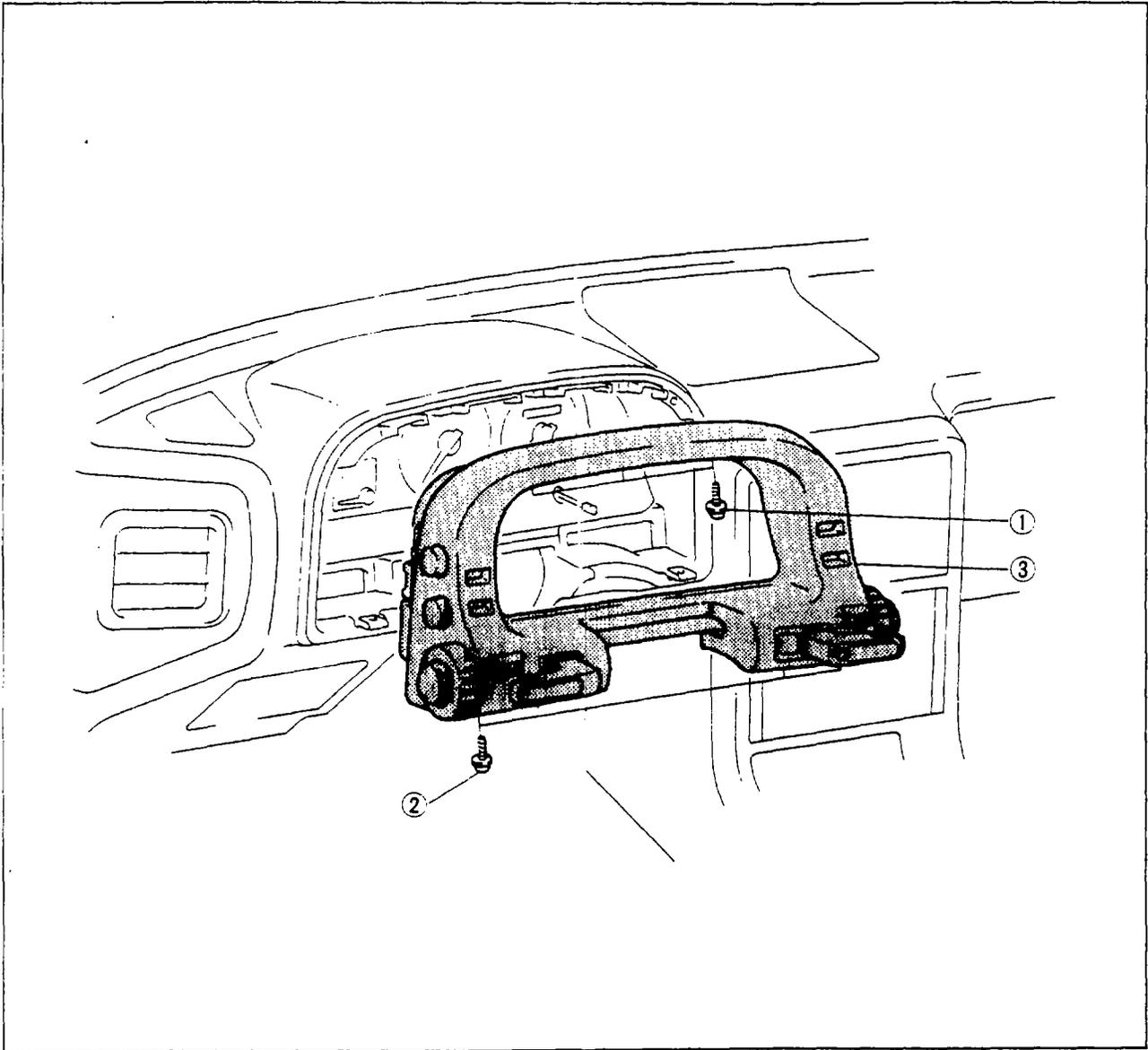
67U15X-010

15 CLUSTER SWITCH

CLUSTER SWITCH

REMOVAL AND INSTALLATION

1. Disconnect the negative battery cable. Remove in the sequence shown in the figure.
2. Install in the reverse order of removal.

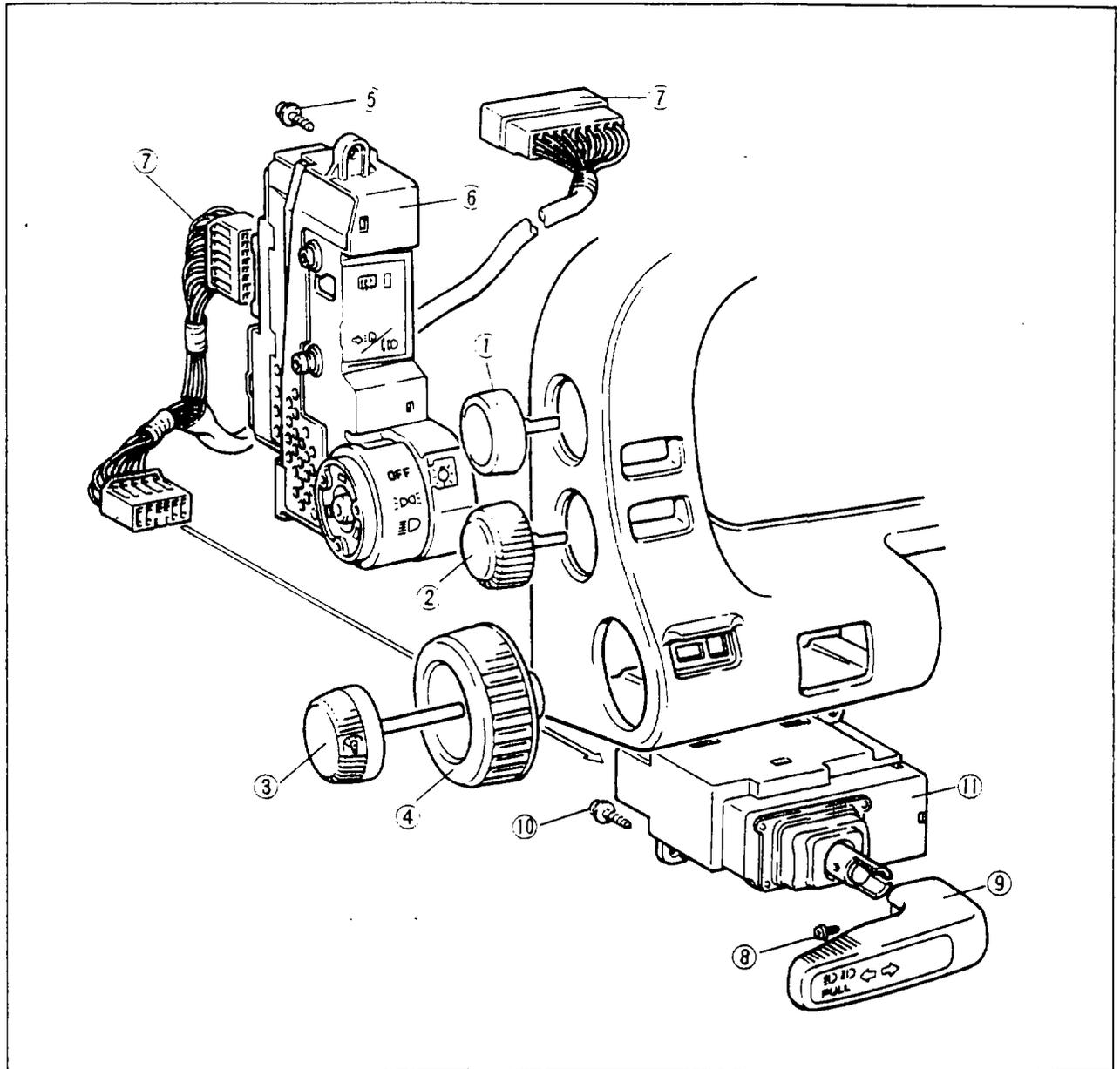


77U15X-058

1. Tapping screws
2. Tapping screws
3. Cluster switch

DISASSEMBLY AND ASSEMBLY (LEFT SIDE)

1. Disassemble in the sequence shown in the figure.
2. Assemble in the reverse order of disassembly.



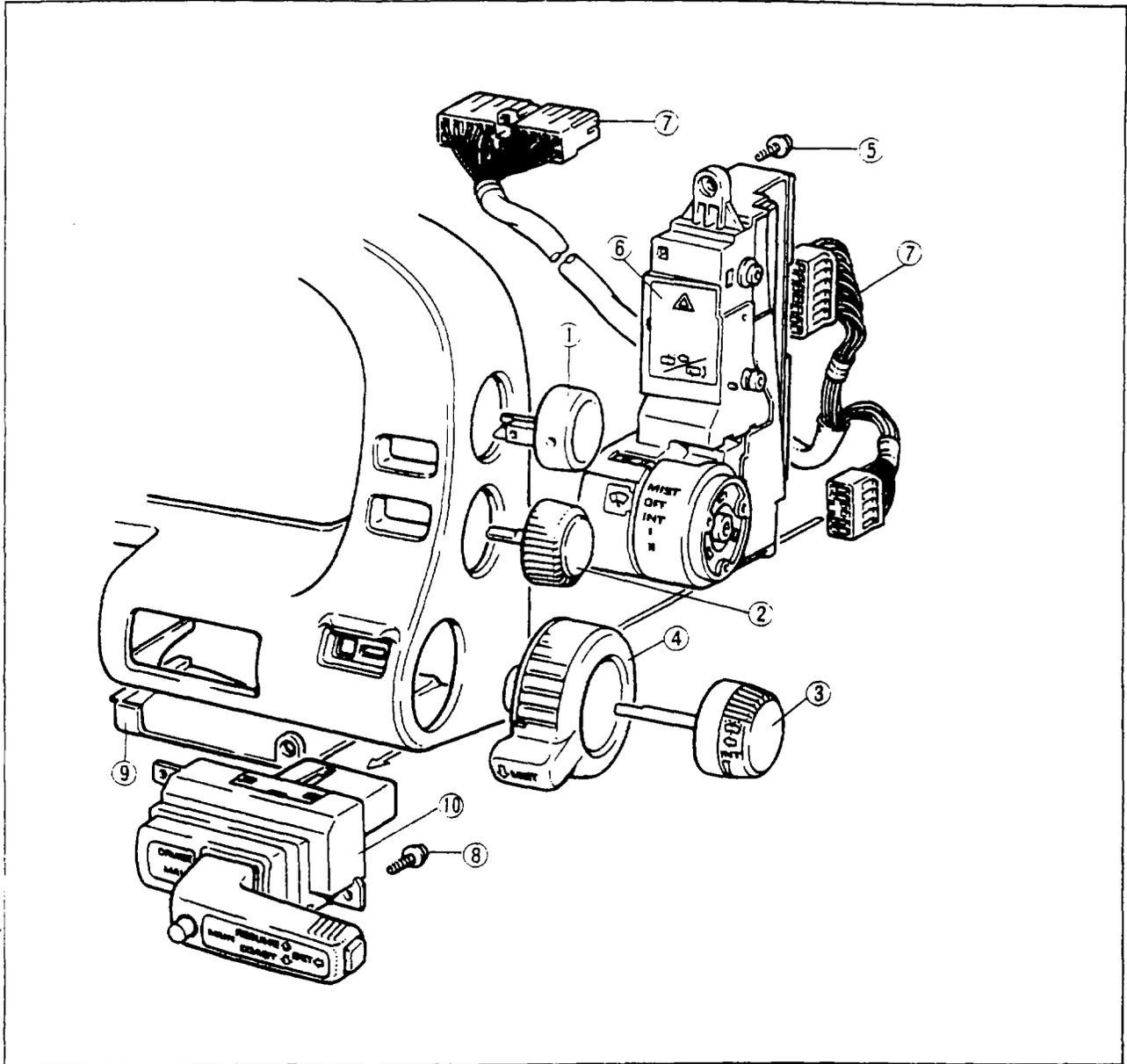
77U15X-059

- | | |
|--|---|
| 1. Knob (Rear defroster switch) | 7. Harness (Cluster switch L.H.) |
| 2. Knob (Retractable headlight and headlight cleaner switch) | 8. Screw and washer |
| 3. Knob (Panel light control) | 9. Knob (Turn signal, dimmer and passing switch) |
| 4. Knob (Headlight switch) | 10. Screw and washer |
| 5. Screw and washer | 11. Cluster switch (Turn signal, dimmer and passing switch) |
| 6. Cluster switch (Rear defroster, retractable headlight, headlight cleaner, panel light control and headlight switch) | |

15 CLUSTER SWITCH

DISASSEMBLY AND ASSEMBLY (RIGHT SIDE)

1. Disassemble in the sequence shown in the figure.
2. Assemble in the reverse order of disassembly.

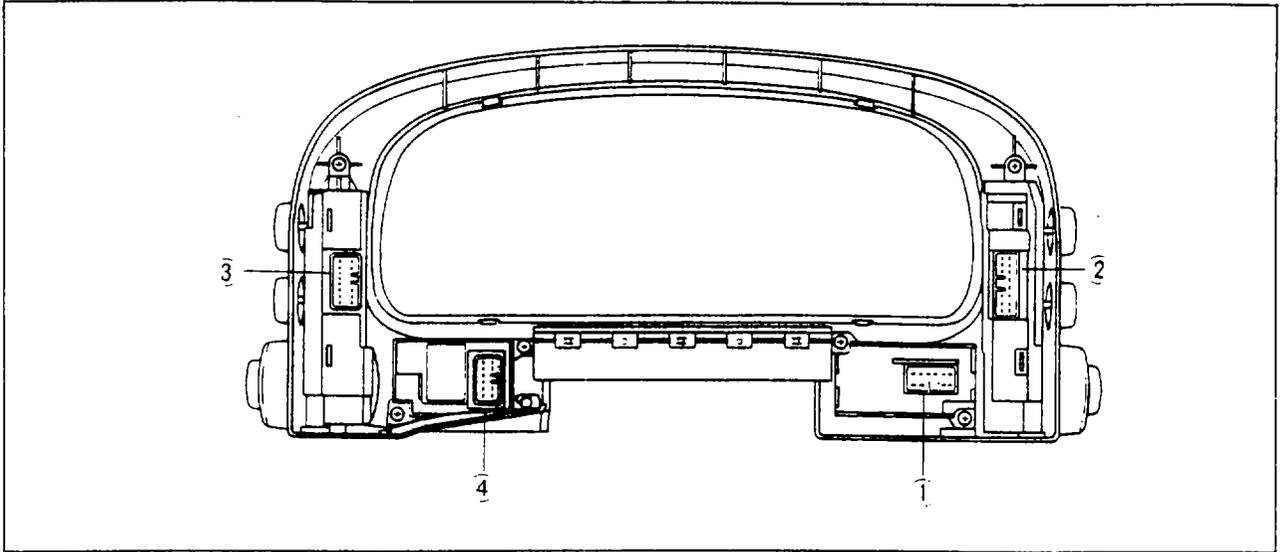


67U15X-256

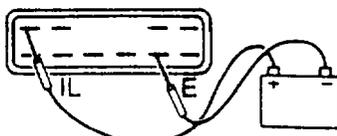
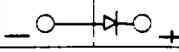
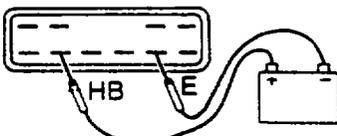
- | | |
|--|---|
| 1. Knob (Hazard switch) | 6. Cluster switch (Hazard, rear wiper & washer and front wiper & washer switch) |
| 2. Knob (Rear wiper and washer switch) | 7. Harness (Cluster switch RH) |
| 3. Knob (Front washer switch) | 8. Screw and washer |
| 4. Knob (Front wiper switch) | 9. Cover |
| 5. Screw and washer | 10. Cluster switch (Cruise control switch) |

INSPECTION

Check the continuity or voltage between terminals using a circuit tester and battery.



Turn Signal, Dimmer and Passing Switch

Turn signal, dimmer and passing switch		Indicates continuity		
Turn signal switch		TIG	SR	 Continuity
	Right	○	○	
	Left	○	○	
Turn cancel circuit		Action	Result	
	Tilt right and apply 12 V to SC	Turn switch cancelled		
	Tilt left and apply 12 V to SL	Turn switch cancelled		
Illumination light (Turn signal, dimmer and passing switch)				
	_____	 ON		
Dimmer and passing switch				
Dimmer and passing switch		HR	E	 Continuity
	OFF			
ON		HR	E	
		HB	DR	Light
	Low Beam	○	○	OFF
	High Beam	○	○	ON

87U15X-005

15 CLUSTER SWITCH

②

Rear Window Defroster Switch
Retractable Headlight and
Headlight Cleaner Switch
Headlight Switch
Panel Light Control

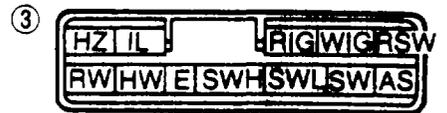


○—○ Indicates continuity

Rear window defroster switch			
Rear window defroster switch		TIG	E
OFF			
ON		○—○	
			Ohmmeter
			Continuity
Rear window defroster timer circuit			
		DEF—E	
OFF		12V	
ON		0V	
TIMER		10–20 min after switch turned on: 12V	
			Voltmeter
			E - DEF
Retractable headlight and headlight cleaner switch			
Retractable headlight switch		BA	RD RU
OFF		○—○	
ON		○—○	
			Ohmmeter
			Continuity
Headlight cleaner switch		BA	HC
OFF			
ON		○—○	
			Ohmmeter
			Continuity
Headlight switch			
Headlight switch		BTN	TNS HR E
OFF			
		○—○	
		○—○	○—○
			Ohmmeter
			Continuity
Retractable headlight control circuit			
		BA	RU
		○—○	
			Ohmmeter
			Continuity
Illumination light (Retractable headlight, headlight cleaner, and headlight switch)			
			ON
Panel light control			
			Illumination light
			All illumination lights on and controlled by panel light control switch
			Same as above

87U15X-006

Hazard Switch Rear Wiper and Washer Switch Front Wiper and Washer Switch



○—○ Indicates continuity

Hazard switch											
Hazard switch	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; height: 20px;">/</td> <td style="width: 50%;">HZ E</td> </tr> <tr> <td style="height: 20px;">OFF</td> <td></td> </tr> <tr> <td style="height: 20px;">ON</td> <td>○—○</td> </tr> </table>	/	HZ E	OFF		ON	○—○	Ohmmeter 	Continuity		
/	HZ E										
OFF											
ON	○—○										
Hazard indicator light											
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; height: 20px;">/</td> <td style="width: 50%;">Illumination light</td> </tr> <tr> <td style="height: 20px;">OFF</td> <td>OFF</td> </tr> <tr> <td style="height: 20px;">ON</td> <td>ON</td> </tr> </table>	/	Illumination light	OFF	OFF	ON	ON				
/	Illumination light										
OFF	OFF										
ON	ON										
Rear washer switch											
Rear washer switch	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; height: 20px;">/</td> <td style="width: 50%;">RSW E</td> </tr> <tr> <td style="height: 20px;">OFF</td> <td></td> </tr> <tr> <td style="height: 20px;">ON</td> <td>○—○</td> </tr> </table>	/	RSW E	OFF		ON	○—○	Ohmmeter 	Continuity		
/	RSW E										
OFF											
ON	○—○										
One-touch wiper circuit											
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; height: 20px;">/</td> <td style="width: 50%;">RW—E</td> </tr> <tr> <td style="height: 20px;">OFF</td> <td>Approx. 12V</td> </tr> <tr> <td style="height: 20px;">ON</td> <td>OV</td> </tr> <tr> <td style="height: 20px;">INT</td> <td>Check for clicking sound of the relay by connecting the battery as shown in the figure</td> </tr> </table>	/	RW—E	OFF	Approx. 12V	ON	OV	INT	Check for clicking sound of the relay by connecting the battery as shown in the figure	Voltmeter E — RW	
/	RW—E										
OFF	Approx. 12V										
ON	OV										
INT	Check for clicking sound of the relay by connecting the battery as shown in the figure										
Rear wiper switch											
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; height: 20px;">/</td> <td style="width: 50%;">RW—E</td> </tr> <tr> <td style="height: 20px;">OFF</td> <td>Approx. 12V</td> </tr> <tr> <td style="height: 20px;">INT</td> <td></td> </tr> <tr> <td style="height: 20px;">ON</td> <td>Check for clicking sound of the relay by connecting the battery as shown in the figure.</td> </tr> </table>	/	RW—E	OFF	Approx. 12V	INT		ON	Check for clicking sound of the relay by connecting the battery as shown in the figure.	Voltmeter E — RW	
/	RW—E										
OFF	Approx. 12V										
INT											
ON	Check for clicking sound of the relay by connecting the battery as shown in the figure.										
Illumination light (Rear wiper switch)											
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; height: 20px;">/</td> <td style="width: 50%;"></td> </tr> <tr> <td style="height: 20px;">ON</td> <td></td> </tr> </table>	/		ON		ON					
/											
ON											
Front washer switch											
Front washer switch	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; height: 20px;">/</td> <td style="width: 50%;">SW E</td> </tr> <tr> <td style="height: 20px;">OFF</td> <td></td> </tr> <tr> <td style="height: 20px;">ON</td> <td>○—○</td> </tr> </table>	/	SW E	OFF		ON	○—○	Ohmmeter 	Continuity		
/	SW E										
OFF											
ON	○—○										
One-touch wiper circuit											
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; height: 20px;">/</td> <td style="width: 50%;">SWH—E</td> </tr> <tr> <td style="height: 20px;">OFF</td> <td>Approx. 12V</td> </tr> <tr> <td style="height: 20px;">ON</td> <td>When switch pressed after 0.5 sec-OV</td> </tr> <tr> <td style="height: 20px;">OFF</td> <td>When switch released after 3 sec-12V</td> </tr> </table>	/	SWH—E	OFF	Approx. 12V	ON	When switch pressed after 0.5 sec-OV	OFF	When switch released after 3 sec-12V	Voltmeter E — SWH	
/	SWH—E										
OFF	Approx. 12V										
ON	When switch pressed after 0.5 sec-OV										
OFF	When switch released after 3 sec-12V										

15 CLUSTER SWITCH

Front wiper switch

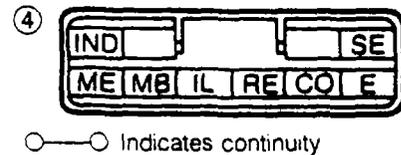
<p>MIST, II position</p>	SWH—E	Voltmeter	
	MIST	0V	E — SWH
<p>I position</p>	SWL—E	Voltmeter	
	I	0V	E — SWL
<p>INT position</p>	SWL—E	Voltmeter	
	AS—⊕	0V	E — SWL
	AS—⊖	0V	
	AS—⊕	Approx. —12V After few sec—0V	

Illumination light (Front wiper switch)

ON

77U15X-064

Cruise Control Switch



Cruise control switch

Cruise control switch	OFF						Ohmmeter Continuity
	MAIN	○—○					
	SET		○—○				
	RESUME			○—○			
	COAST				○—○		

Main switch

MAIN indicator ON

Indicator light

CRUISE indicator ON

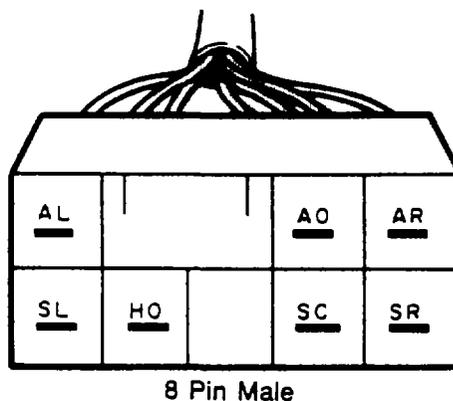
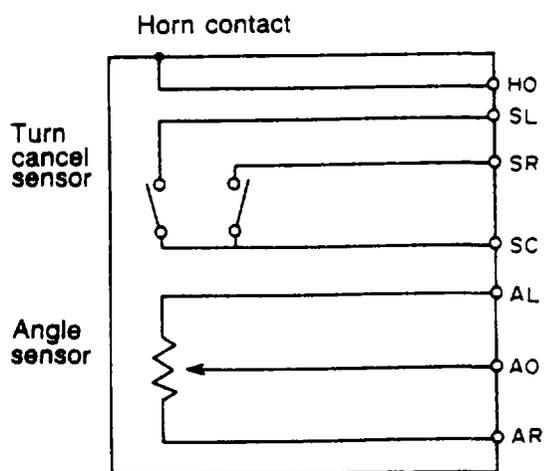
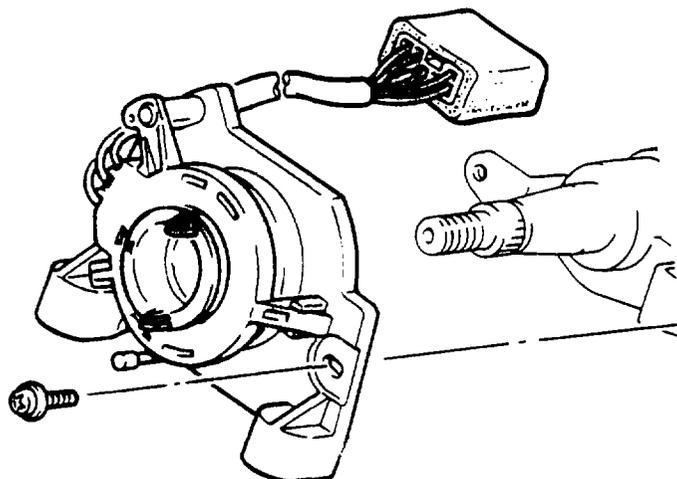
Illumination light (Cruise control switch)

ON

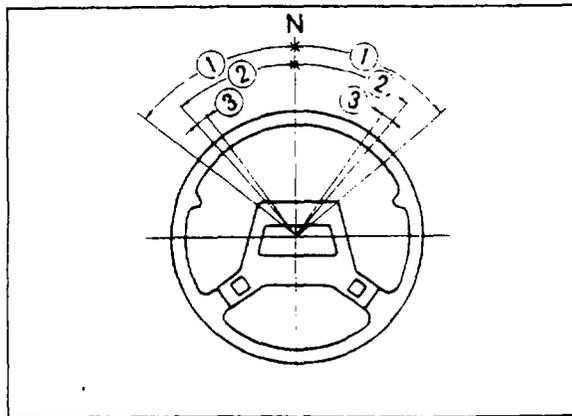
77U15X-065

TURN CANCEL AND ANGLE SENSOR

STRUCTURAL VIEW



15 TURN CANCEL AND ANGLE SENSOR

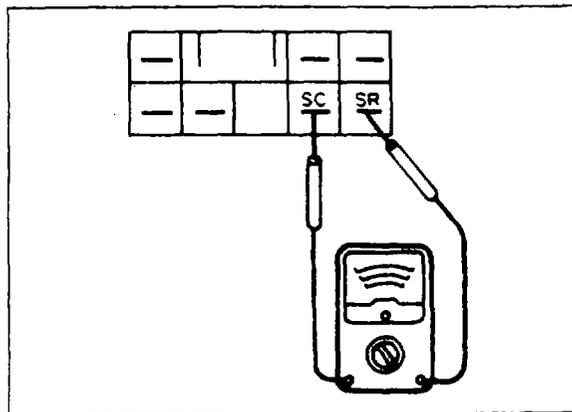


67U15X-011

INSPECTION

Function of turn cancel sensor

Steering wheel position	Angle
Cancel — set angle ①	53°—63°
Cancel angle ②	38°—48°
Contact ON angle ③	2°—8°

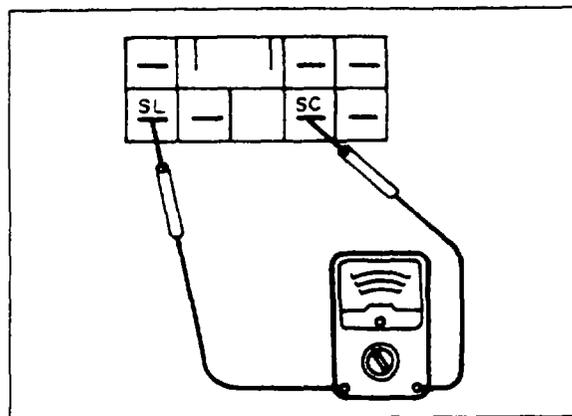


67U15X-012

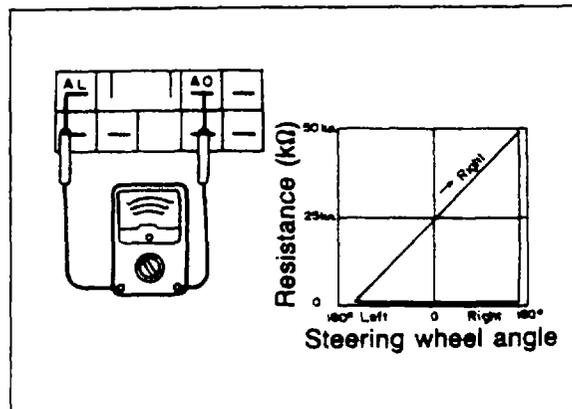
Checking Turn Cancel Sensor

1. Check the TURN fuse.
2. If the fuse is not burned, remove the column cover and disconnect the connector to the sensor.
3. Connect an ohmmeter to the connector terminals of the turn cancel sensor, and check the continuity when the steering wheel is turned as shown in the table below.

Terminal	Steering wheel position	Continuity
SC—SR	When turned 63° or more to the right from the straight-ahead position and returned to the straight-ahead position.	Yes
SC—SL	When turned 63° or more to the left from the straight-ahead position and returned to the straight-ahead position.	Yes



67U15X-013

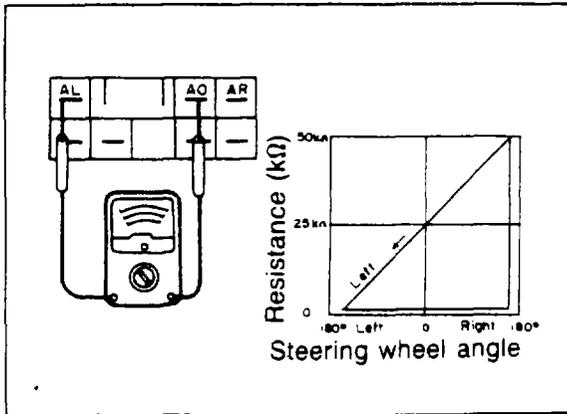


67U15X-014

Checking Angle Sensor

1. Remove the column cover, and disconnect the connector of the sensor.
2. Connect an ohmmeter to the connector terminals at the angle sensor, and perform the inspections described in the table below.

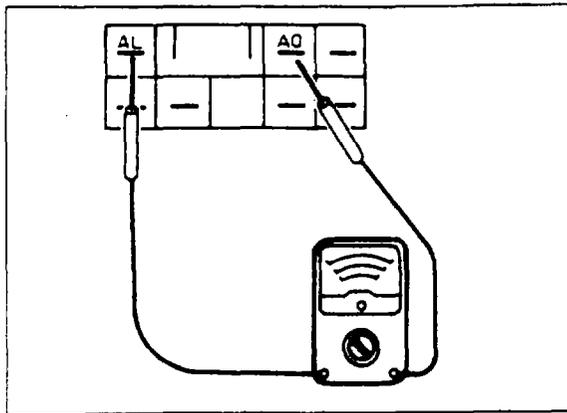
Terminal	Steering wheel position	Resistance value
AO—AL	Turn the wheel a little at a time from the straight-ahead position 180° to the right	Increases from approx. 25 kΩ to approx. 50kΩ
AO—AL	Straight-ahead position	Approx. 25 kΩ



67U15X-015

3. Connect an ohmmeter to the connector terminals of the sensor, and perform the inspections described in the table below.

Terminal	Steering wheel position	Resistance value
AO—AL	Turn the wheel a little at a time from the straight-ahead position 180° to the left.	Decreases from approx. 25 kΩ to approx. 200 Ω.
AR—AL	Straight-ahead position	Approx. 50 kΩ



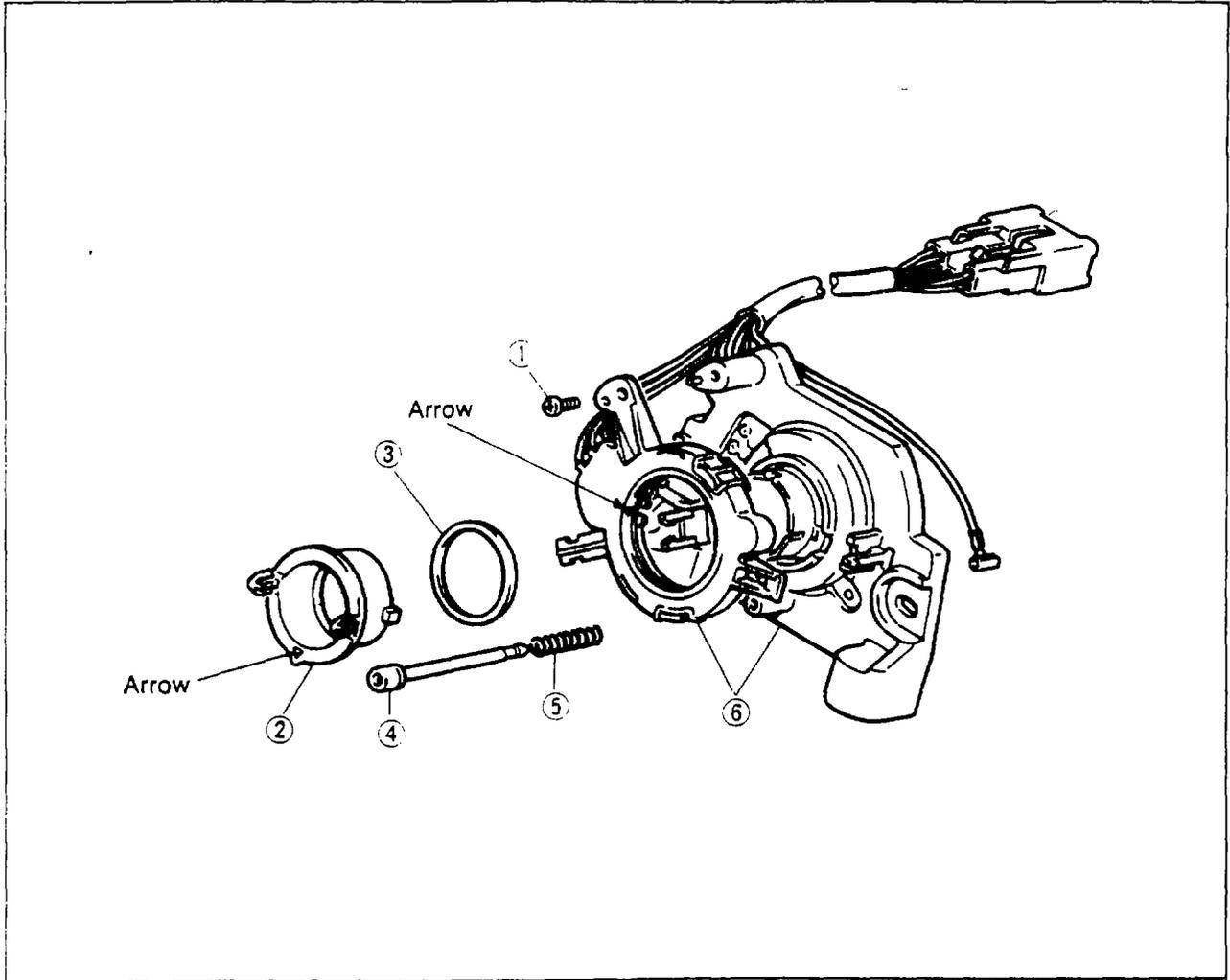
67U15X-016

Terminal	Steering wheel position	Resistance value
AO—AL	When turned 180° or more to the right from the straight-ahead position.	Resistance slowly and gradually increases after there is once an indication of approx. 200 Ω.
AO—AL	When turned 180° or more to the left from the straight-ahead position.	Resistance slowly and gradually decreases after there is once an indication of approx. 50 kΩ.

15 TURN CANCEL AND ANGLE SENSOR

DISASSEMBLY AND ASSEMBLY

1. Disassemble in the sequence shown in the figure.
2. Assemble in the reverse order of disassembly



67U15X-267

1. Tapping screw
2. Cancel cam
3. Washer

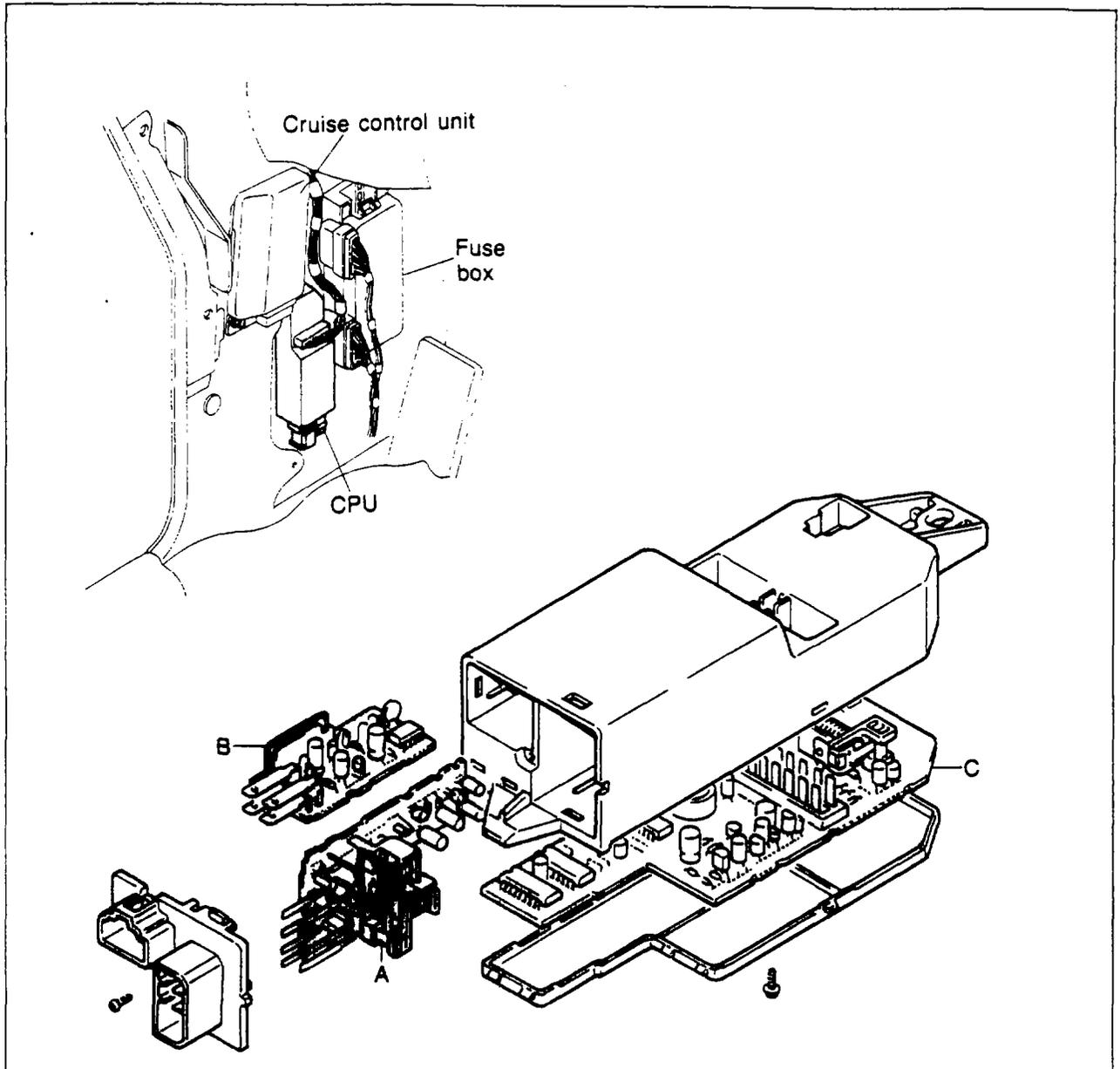
4. Horn contact
5. Contact spring
6. Turn cancel & angle sensor

Caution

Align the arrow heads when installing this sensor.

CENTRAL PROCESSING UNIT (CPU)

STRUCTURAL VIEW



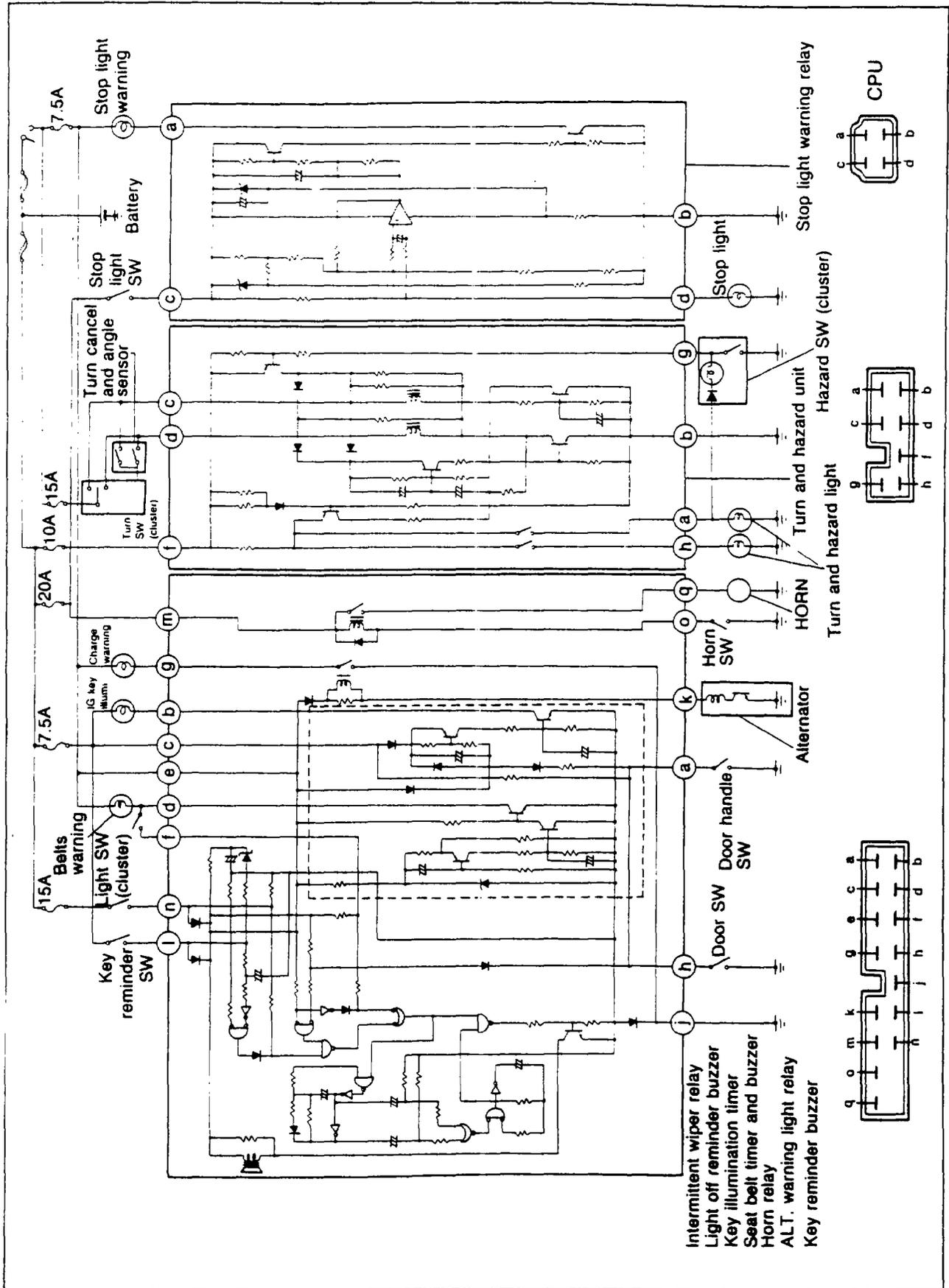
67U15X-268

Function	PCB type
Turn and hazard unit	A
Stop light warning relay	B
Light off reminder buzzer	C
Key illumination timer	C
Seat belt timer & buzzer	C
Horn relay	C
ALT warning light relay	C
Key reminder buzzer	C

Note: PCB.....Printed-circuit-board

15 CENTRAL PROCESSING UNIT (CPU)

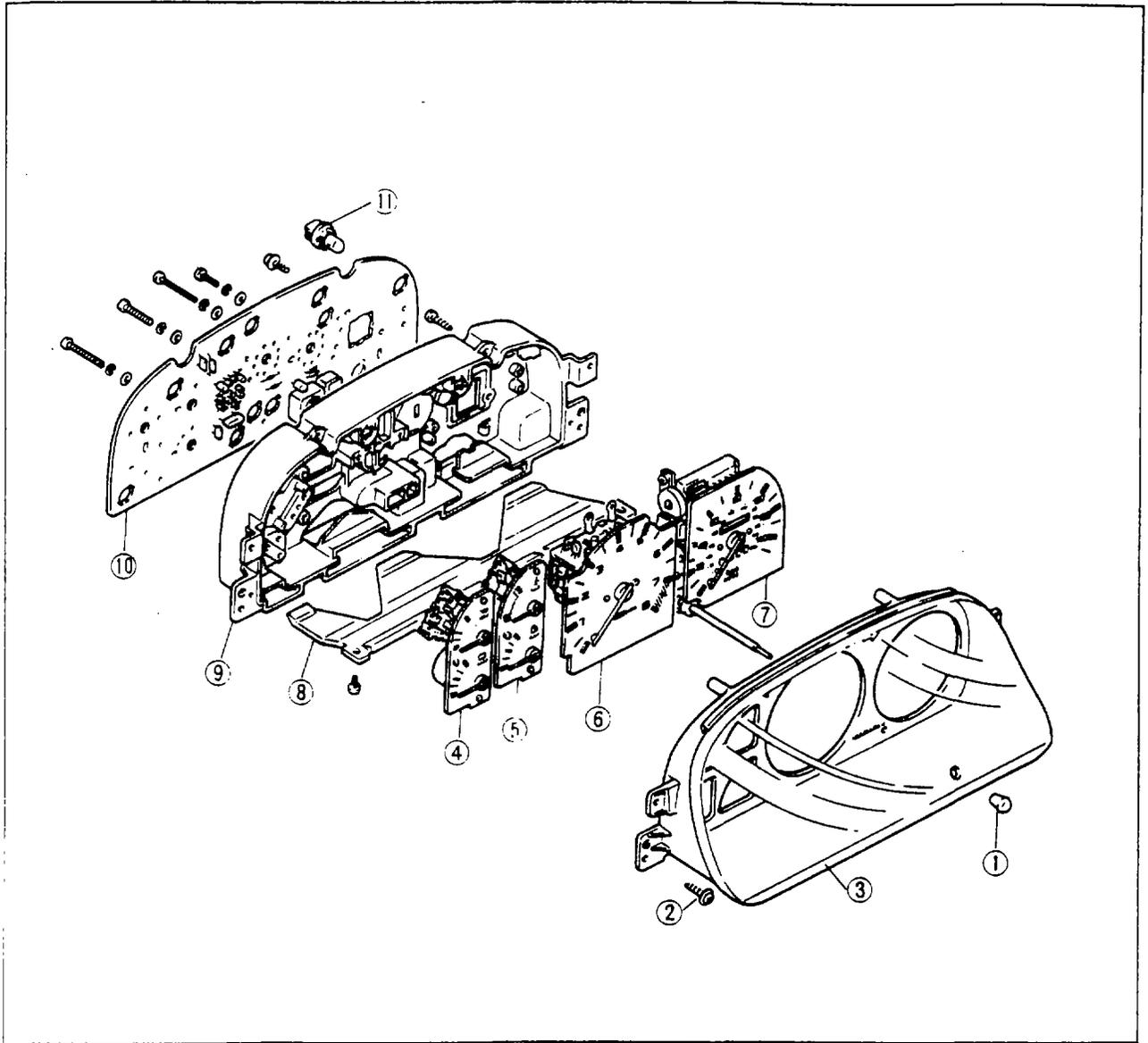
INTERCONNECTING DIAGRAM OF CENTRAL PROCESSING UNIT



METERS

DISASSEMBLY AND ASSEMBLY

1. Disassemble in the sequence shown in the figure.
2. Assemble in the reverse order of disassembly.



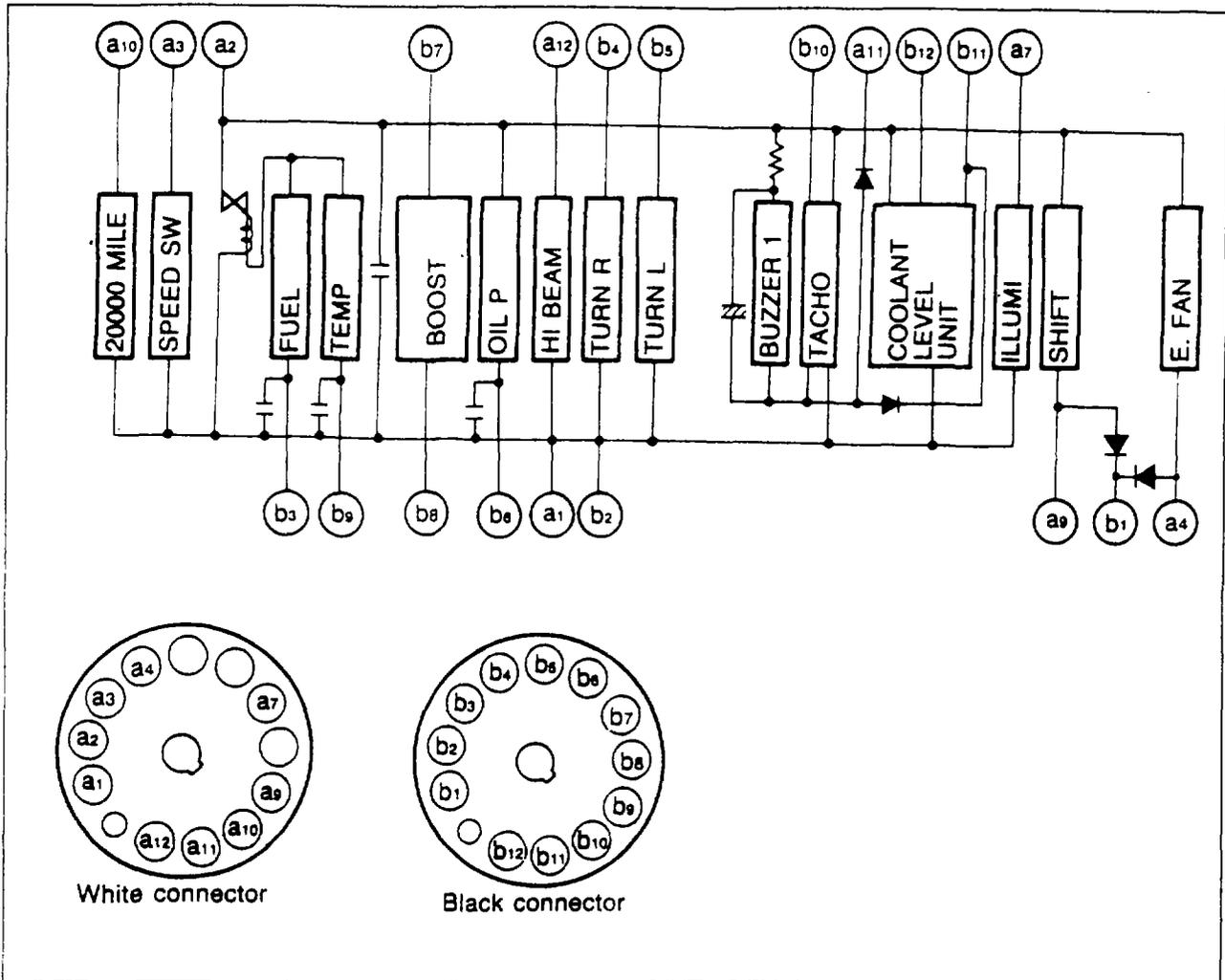
77U15X-067

- | | |
|---|---------------------------|
| 1. Trip meter knob | 6. Tachometer |
| 2. Screws | 7. Speedometer |
| 3. Front lens & window plate | 8. Plate |
| 4. Boost meter & oil pressure gauge (For turbo)
Voltmeter & oil pressure gauge (For non-turbo) | 9. Meter case |
| 5. Fuel & water temp. gauge | 10. Printed circuit board |
| | 11. Bulb & socket |

15 METERS

METER PRINTED CIRCUIT BOARD INSPECTION (TURBO MODEL)

1. Check the printed circuit board for damage or rust.
2. Use an ohmmeter to check for continuity at the connector terminals.

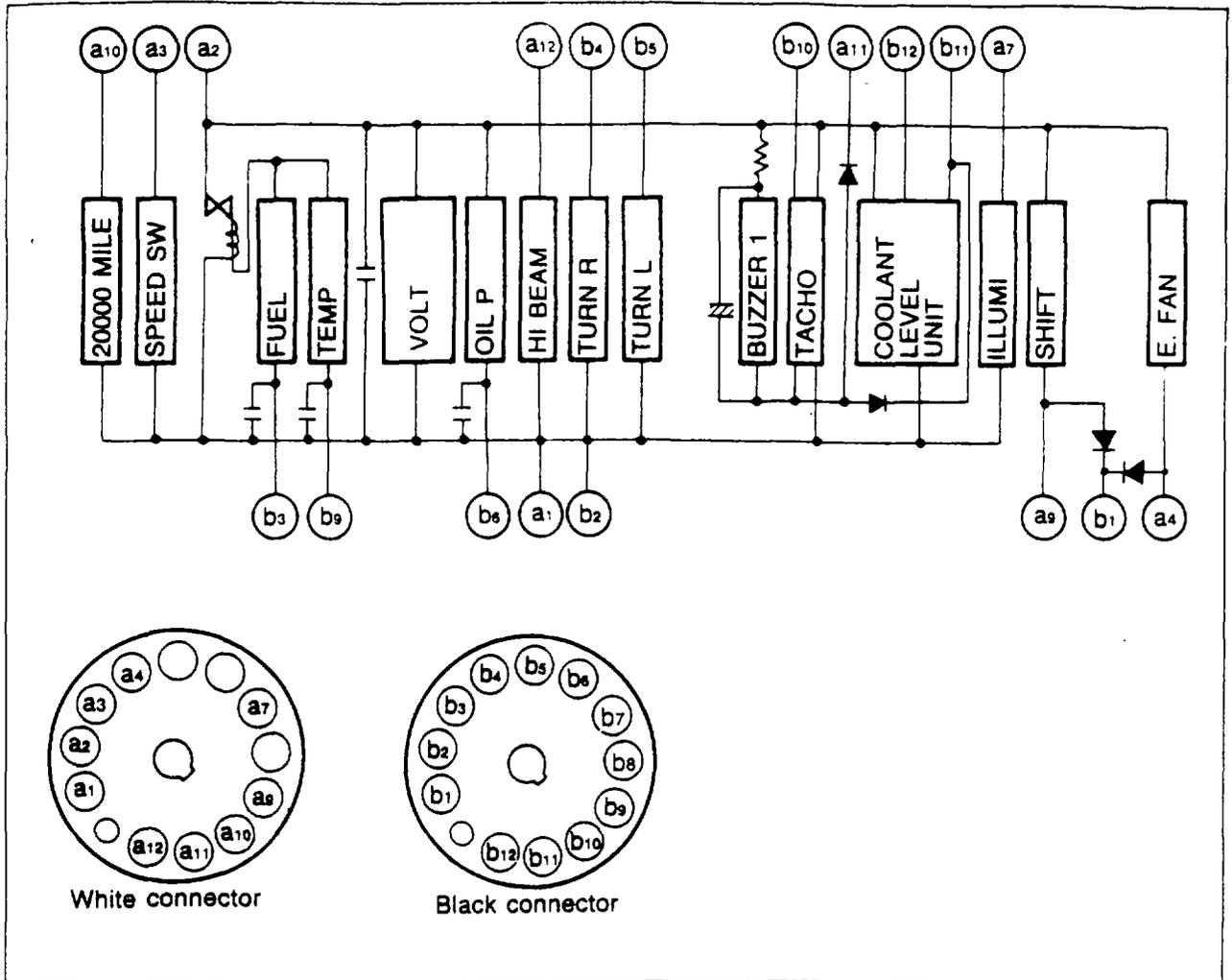


77U15X-068

No	Connections	No	Connections
a- 1	Ground	b- 1	ALT Warning light relay
a- 2	Ignition switch	b- 2	Ground
a- 3	Speed switch	b- 3	Fuel tank unit
a- 4	Cooling fan control unit	b- 4	Turn switch (Right)
a- 5	—	b- 5	Turn switch (Left)
a- 6	—	b- 6	Oil pressure gauge unit
a- 7	Light switch, illumination	b- 7	Boost signal
a- 8	—	b- 8	Boost ground
a- 9	Shift indicator light	b- 9	Water temp. gauge unit
a-10	20,000 mile switch	b-10	Ignition coil (—)
a-11	Oil level sensor	b-11	Coolant warning light
a-12	Light switch (High beam)	b-12	Coolant level sensor

METER PRINTED CIRCUIT BOARD INSPECTION (NON TURBO MODEL)

1. Check the printed circuit board for damage or rust.
2. Use an ohmmeter to check for continuity at the connector terminals.



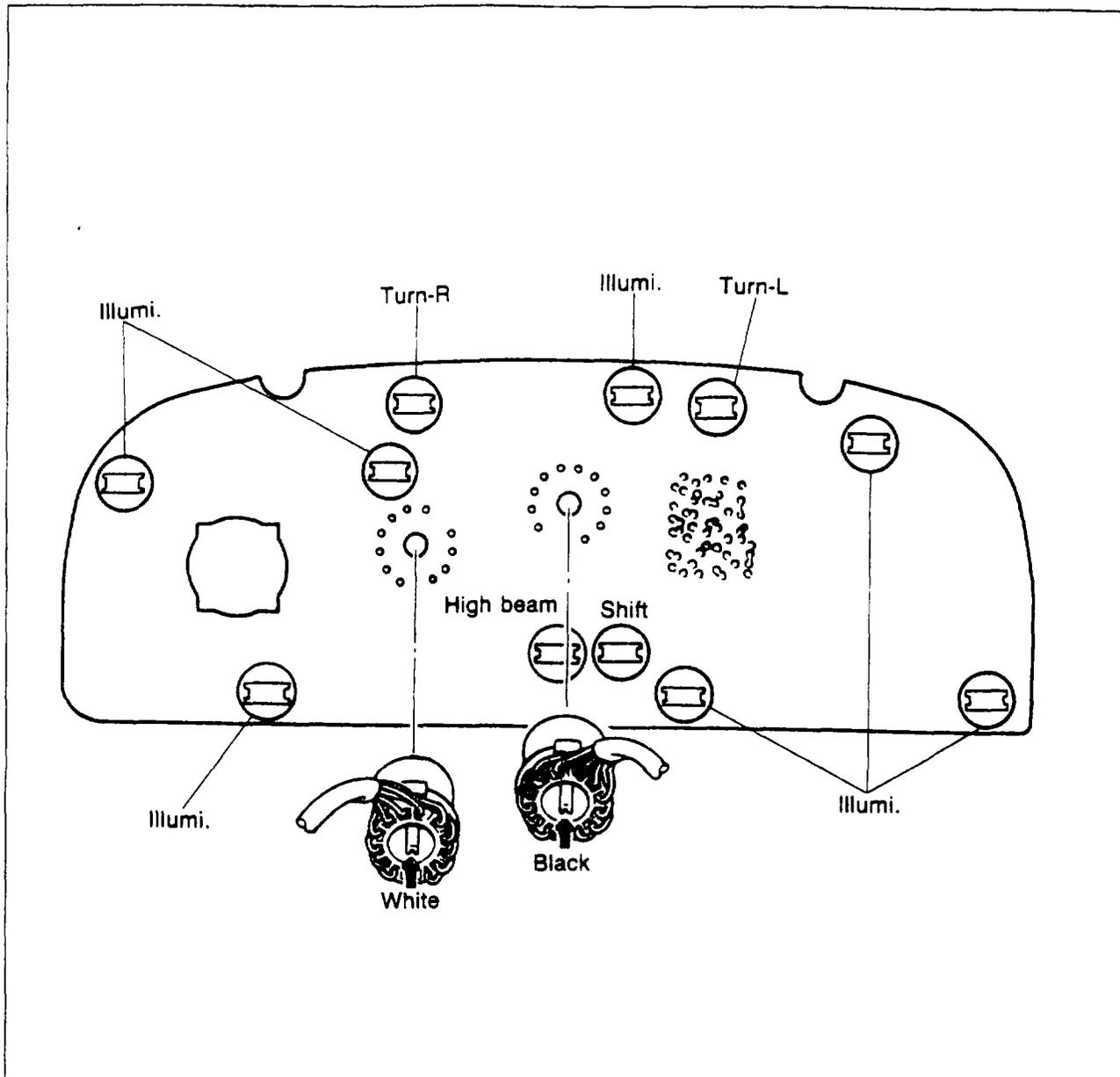
77U15X.069

No	Connections	No	Connections
a- 1	Ground	b- 1	ALT Warning light relay
a- 2	Ignition switch	b- 2	Ground
a- 3	Speed switch	b- 3	Fuel tank unit
a- 4	Cooling fan control unit	b- 4	Turn switch (Right)
a- 5	—	b- 5	Turn switch (Left)
a- 6	—	b- 6	Oil pressure gauge unit
a- 7	Light switch, illumination	b- 7	—
a- 8	—	b- 8	—
a- 9	Shift indicator light	b- 9	Water temp. gauge unit
a-10	20,000 mile switch	b-10	Ignition coil (—)
a-11	Oil level sensor	b-11	Coolant warning light
a-12	Light switch (High beam)	b-12	Coolant level sensor

15 METER

METER BULBS AND CONNECTOR LOCATIONS

1. All bulbs are 3.4W.
2. To disconnect a connector from a meter, press the retaining clip as shown in the figure.



67U15X-272

The meter (gauge cluster) uses #158 bulbs for night illumination. These are the familiar wedge-base type. Each bulb can simply be removed by pushing gently inward on the plastic holder and twisting. Then pull the holder back and out of the cluster housing. To remove the bulb itself from the holder, gently wiggle the glass side-to-side towards the brass contacts on the holder. This procedure will ease removal and help avoid unnecessary breakage.

TROUBLESHOOTING GUIDE

Problem	Possible Cause	Remedy	Page
Speedometer does not work	Defective speedometer cable Defective speedometer	Replace Replace	15—29
Speedometer fluctuation	Defective speedometer cable Defective speedometer	Replace Replace	15—29
Tachometer does not work	METER fuse blown Defective tachometer Faulty wiring	Replace Check Repair	15—29
Fuel gauge does not work	METER fuse blown Defective fuel gauge Defective fuel tank unit Ground or wiring	Replace Check Check Repair	15—30 31
Water temperature gauge does not work	METER fuse blown Defective water temperature gauge Defective water temperature gauge unit Faulty wiring	Replace Check Check Repair	15—32

87U15X-007

Standard indication (km/h)	Allowable range (km/h)
20	20— 22.7
40	40— 42.9
60	60— 63.5
80	80— 84.1
100	100—105.0
120	120—126.0
140	140—147.0
160	160—168.0
180	180—189.0

Standard indication (mph)	Allowable range (mph)
10	10—11.4
30	30—31.8
60	60—63.0
90	90—94.5

77U15X-015

Standard indication (rpm)	Allowable range (rpm)
1000	880—1,060
2000	1,970—2,150
3000	2,964—3,216
4000	3,976—4,264
5000	4,988—5,312
6000	6,000—6,360
7000	6,965—7,455

at 20°C (68°F)

67U15X-021

ON-VEHICLE INSPECTION

Speedometer

- Using a chassis dynamo, test the speedometer for allowable indication error, and check the operation of the odometer.
- Check the speedometer for fluctuation and/or abnormal noise.

Caution

- If significant fluctuation occurs or the speedometer does not move at all, remove and check the speedometer cable; if normal, replace the speedometer assembly.
- Tire wear and improper inflation increases speedometer error.

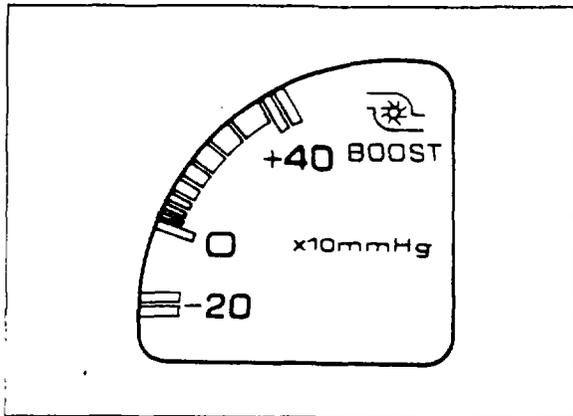
Tachometer

Compare a tester's rpm reading with the tachometer's indications. If there is significant error, replace the tachometer.

Caution

When removing or installing the tachometer, be careful not to drop it or subject it to sharp impact.

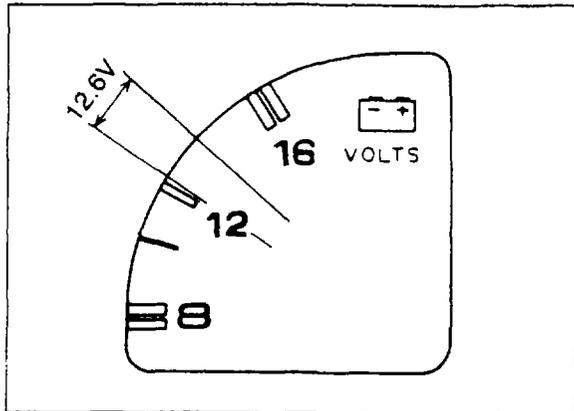
15 METERS



77U15X-016

Boost Meter (For turbo model)

1. Check that the boost meter pointer shows "0" position when the ignition switch is turned ON, and the pointer indicates "-200 mmHg" position when the engine is idling.
2. Check that the pointer moves to a higher than "0" position when the pressure in the intake manifold increases, or the turbo charger is operating.



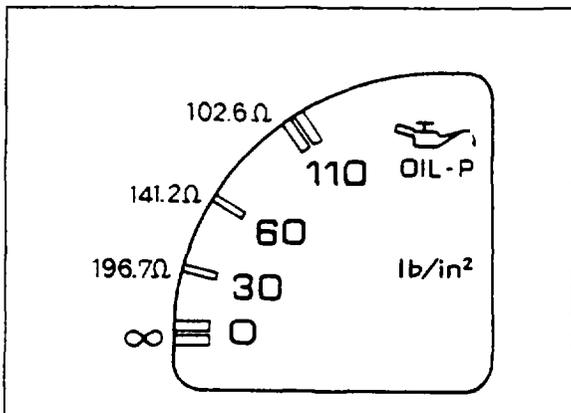
77U15X-071

Voltmeter (For non-turbo model)

1. Connect a voltmeter to the battery terminals and then start the engine.
2. Compare the voltmeter and vehicle voltmeter indications. If there is significant error, replace the vehicle voltmeter.

Note

The allowable indication error is twice the width of the needle.



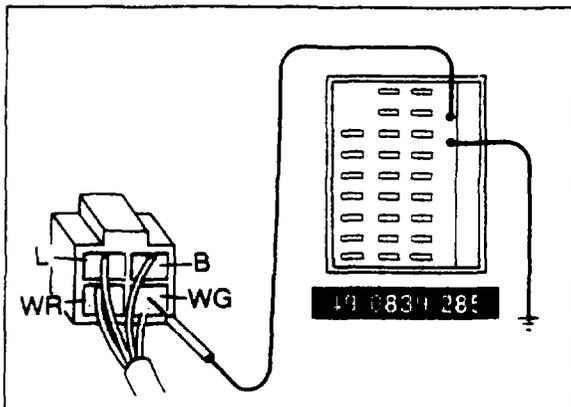
87U15X-008

Oil Pressure Gauge

1. Remove the connector from the gauge unit.
2. Connect the red lead wire of the **checker** (49 0839 285) to the connector, and the black lead wire to a body ground.
3. Turn ON the ignition switch and check that the needle indicator displays the correct values.

Note

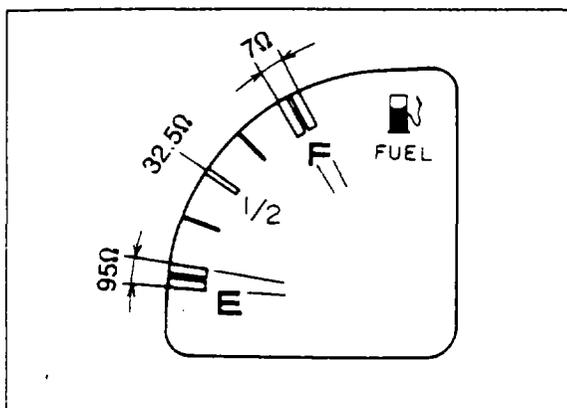
- a) Continue the above inspections for at least two minutes each to correctly judge the condition.
- b) The allowable indication error is twice the width of the needle.
- c) Oil pressure becomes low when engine is cold because eccentric shaft bypass valve operates.



67U15X-023

Fuel Gauge

1. Disconnect the connector from the fuel tank unit.
2. Connect the red lead wire of the **checker** (49 0839 285) to the connector, and the black lead wire to a body ground.

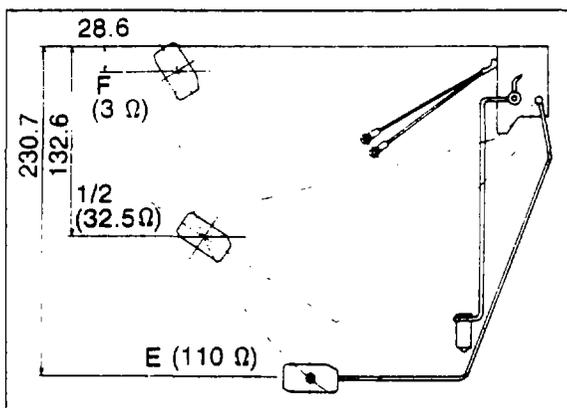


67U15X-024

3. Set the checker to the resistance values shown in the figure.
4. Turn ON the ignition switch and check that the needle indicator displays the correct values. If the needle displays the correct values, the fault is in the gauge unit; if not, the fault is in the meter.

Caution

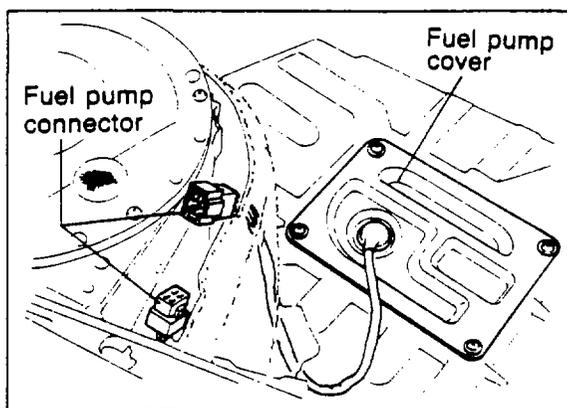
- a) Continue the above inspections for at least two minutes each to correctly determine the condition.
- b) The allowable indication error is twice the width of the needle.



67U15X-025

Fuel Tank Unit

1. Connect an ohmmeter to the tank unit.
2. Move the unit arm slowly from point (E) to point (F) and read the resistance value. If this value is not as specified, replace the unit.



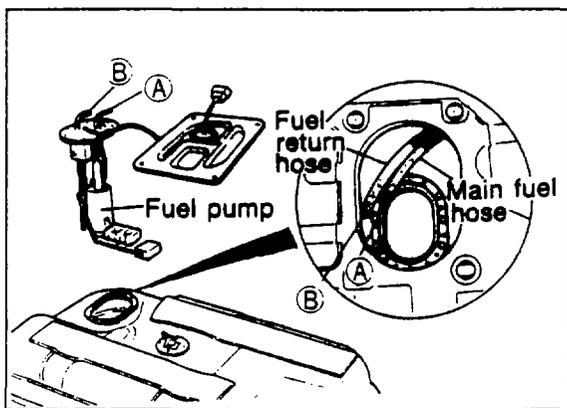
77U04A-229

Removal

Warning

Before performing the following procedures, release the fuel pressure from fuel line to eliminate possibly causing injury or a fire.

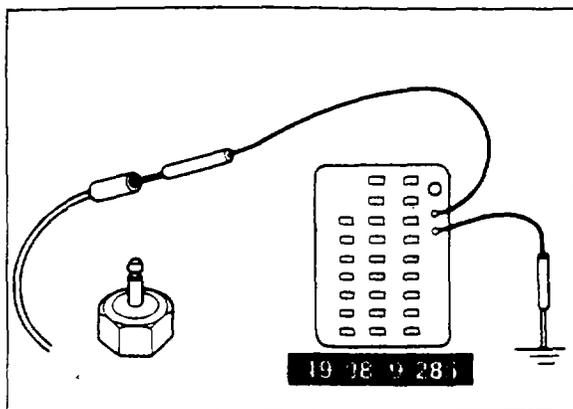
1. Lift up the rear mat.
2. Remove fuel pump cover.
3. Disconnect the fuel pump connector.
4. Disconnect the fuel main hose and the return fuel hose.
5. Remove the fuel pump screws.
6. Remove the fuel pump from the fuel tank.



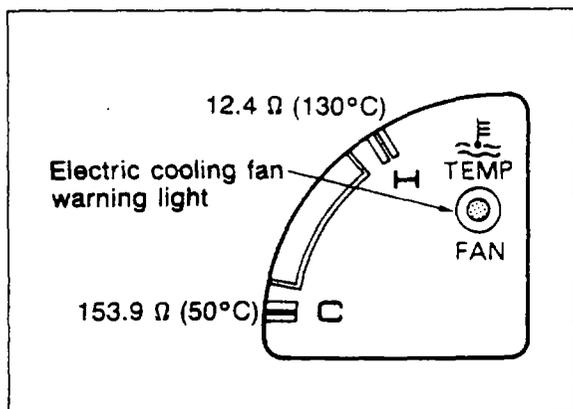
77U04A-230

Installation

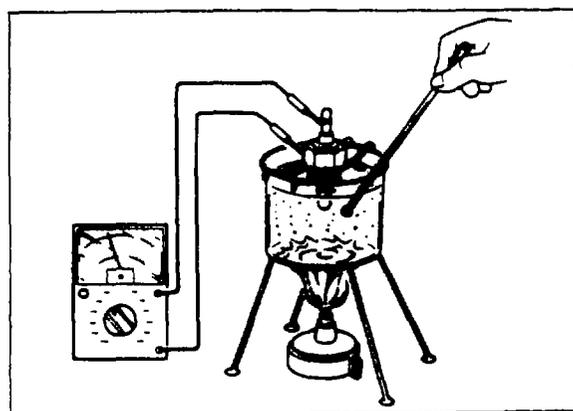
Install in the reverse order of removal.



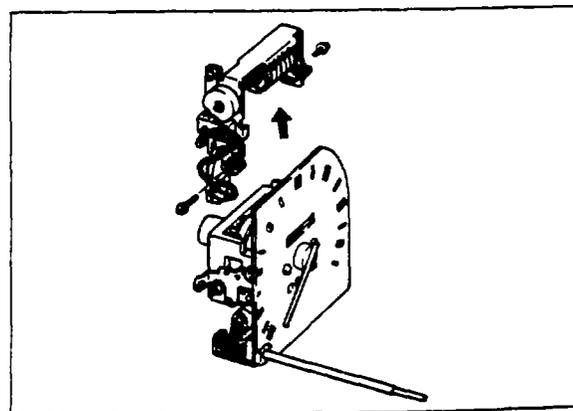
67U15X-028



77U15X-072



67U15X-030



67U15X-032

Water Temperature Gauge

1. Remove the connector from the gauge unit.
2. Connect the red lead wire of the **checker** (49 0839 285) to the connector, and the black lead wire to a body ground.
3. Set the **checker** to the resistance values shown in the figure.
4. Turn ON the ignition switch and check that the needle indicator displays the correct values. If the needle displays the correct values, the fault is in the gauge unit; if not, the fault is in the meter.

Note

- a) Continue the above inspections for at least two minutes each to correctly judge the condition.
- b) The allowable indication error is twice the width of the needle.

Cooling Fan Warning Light (with ABS model)

1. Disconnect the connector from the electrical cooling fan unit.
2. Connect (BR) terminal wire to a body ground.
3. Start the engine, check that the cooling fan warning light illuminates.
4. If there is no illumination, check the fuse, bulb and wiring harness.

Water Temperature Gauge Unit

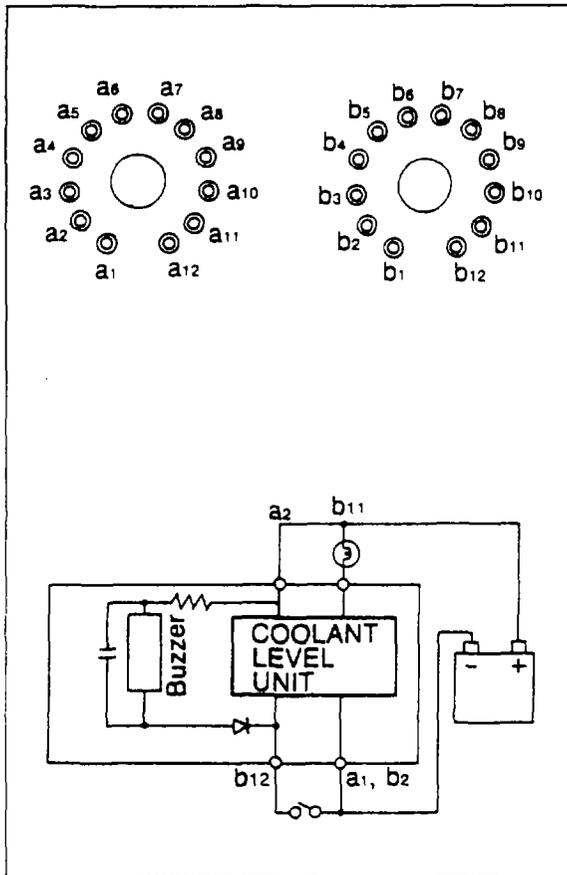
1. Remove the gauge unit.
2. Place the gauge unit in a container of water, and heat the water to 80°C (176°F).
3. Use an ohmmeter to measure the resistance.

Resistance: 57.7—49.3 Ω

20,000 mile Switch

Caution

When replacing the speedometer within 20,000 miles, continue to use the same 20,000 mile switch by transferring to the new speedometer.



67U15X-031

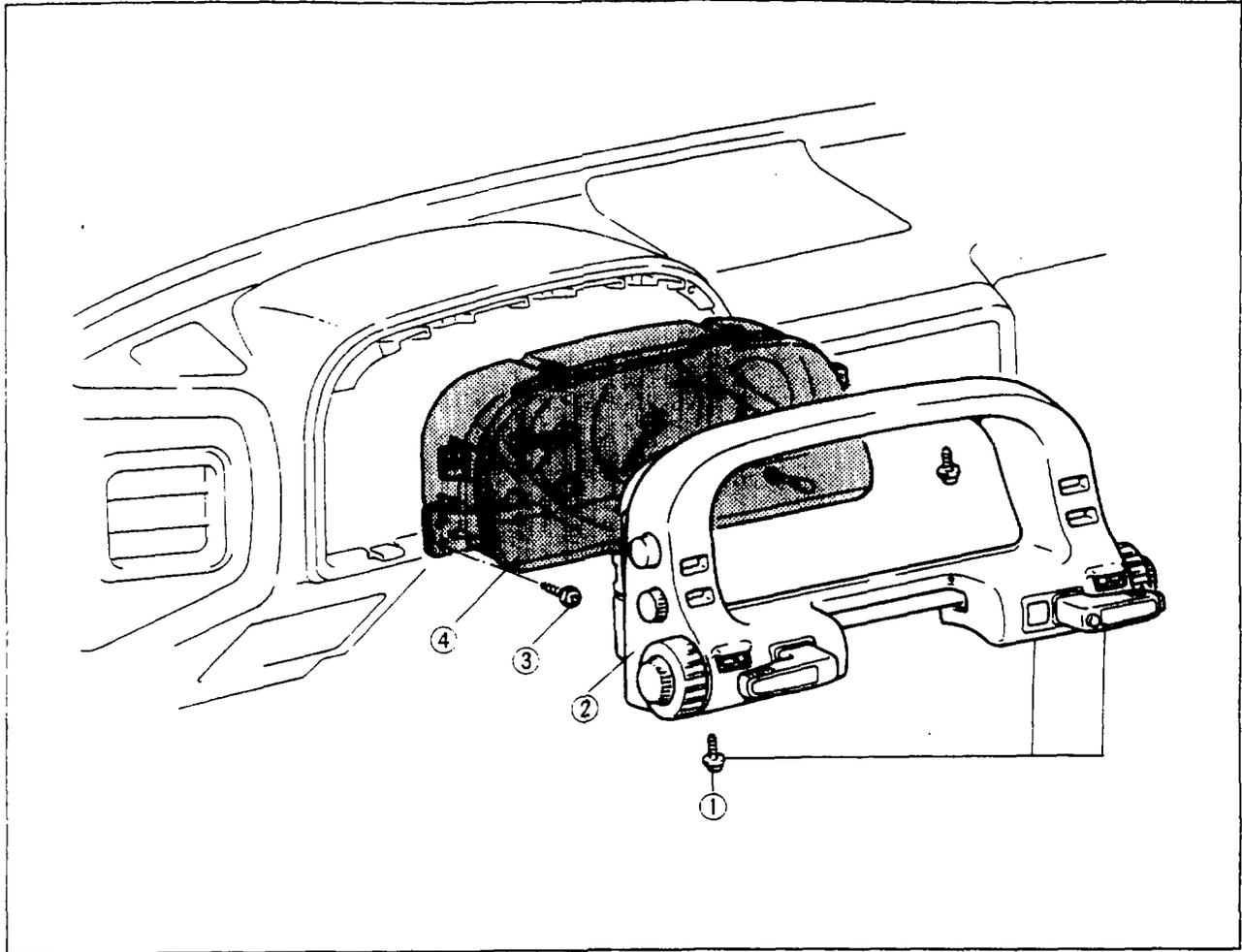
Coolant Level Sensor Unit

1. Remove the meters from the instrument panel.
2. Make connections between the unit and the battery as shown in the figure.
3. The unit is normal if the test bulb does not illuminate when the switch is closed, and if it does illuminate 9 to 16 seconds after the switch is opened.
4. Replace the meters if there is a malfunction.

15 METERS

REMOVAL AND INSTALLATION

1. Disconnect the negative battery cable. Remove in the sequence shown in the figure.
2. Assemble in the reverse order of disassembly.

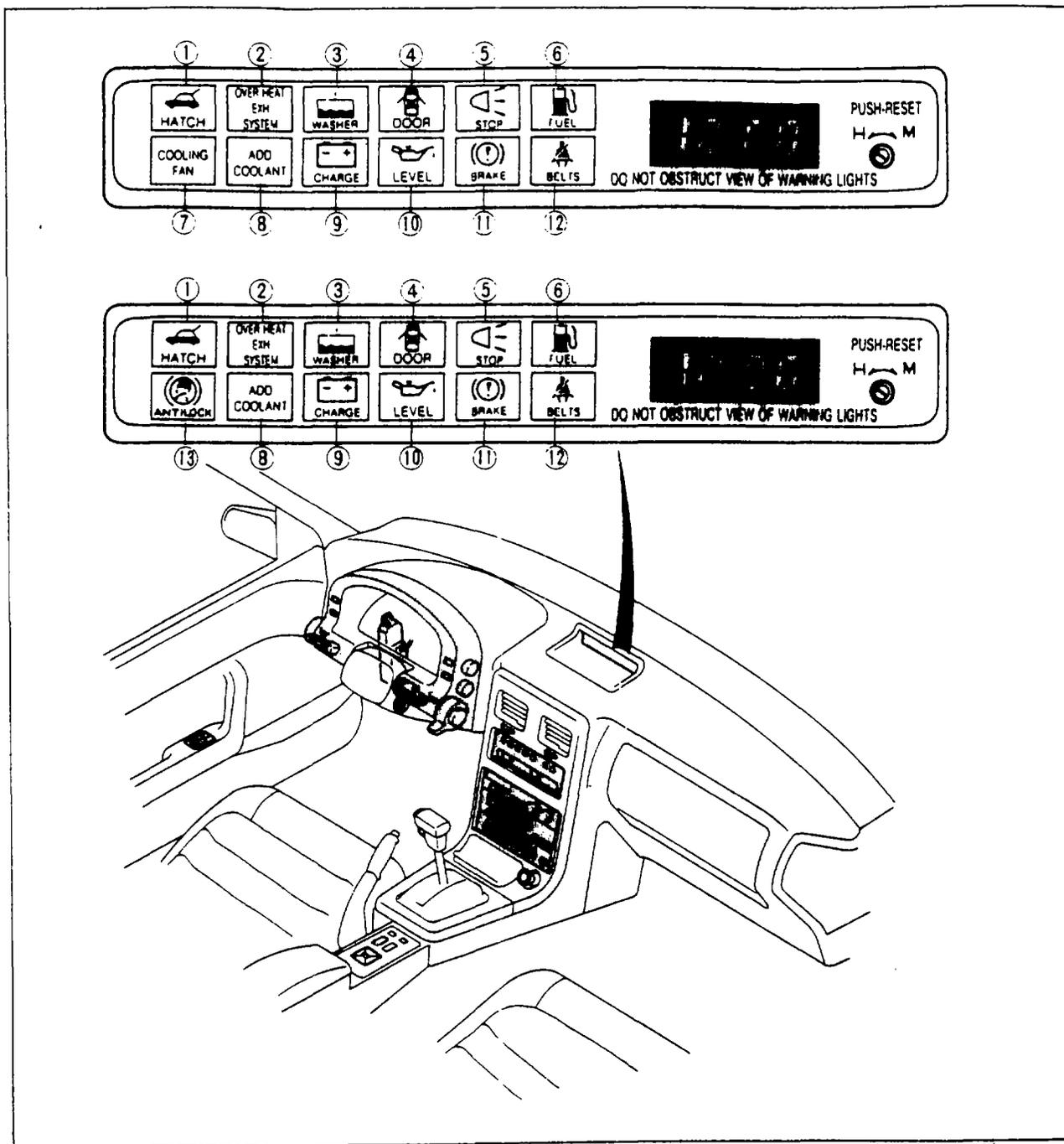


77U15X-011

1. Tapping screws
2. Cluster switch
3. Tapping screws
4. Meter

WARNING AND CLOCK UNIT

STRUCTURAL VIEW



1. Rear glass hatch ajar warning light
2. Over heat exhaust system warning light
3. Washer fluid low-level warning light
4. Door ajar warning light
5. Stop light malfunction warning light
6. Low-fuel level warning light
7. Cooling fan warning light

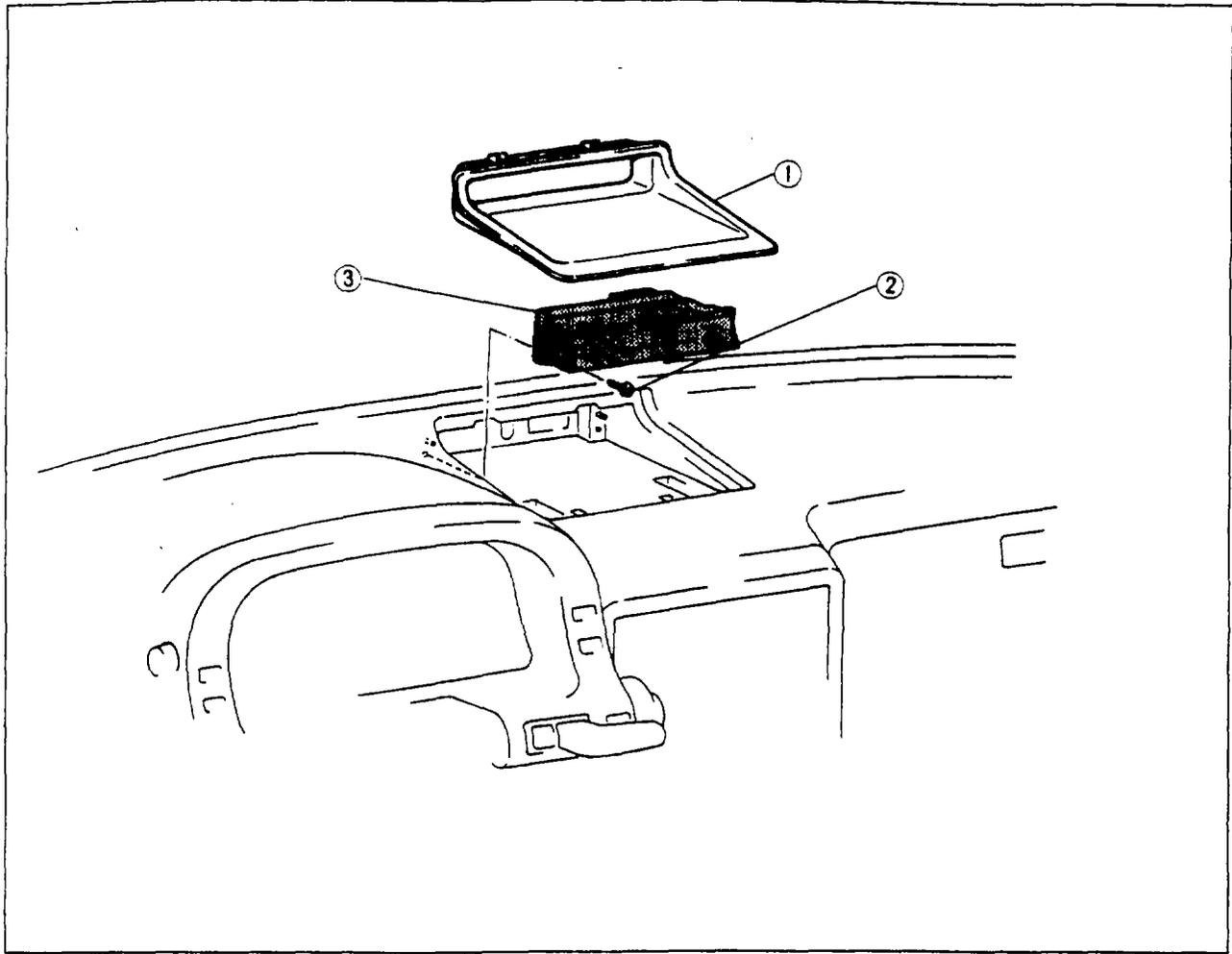
8. Coolant level warning light
9. Alternator warning light
10. Engine oil level warning light
11. Brake fluid level warning light
12. Seat belt warning light
13. ABS warning light

77U15X-074

15 WARNING AND CLOCK UNIT

REMOVAL AND INSTALLATION

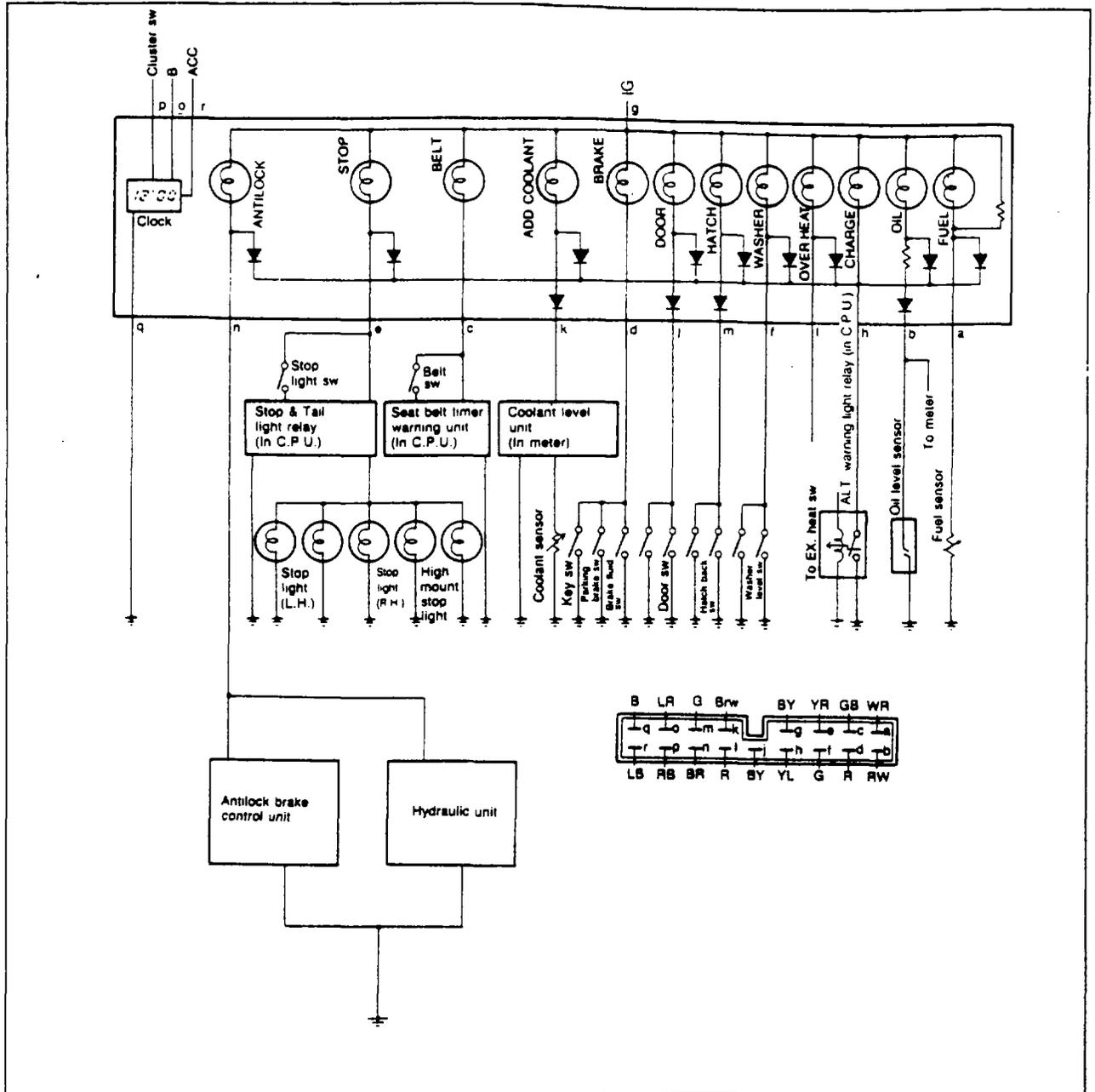
1. Disconnect the negative battery cable, remove in the sequence shown in the figure.
2. Install in the reverse order of removal.



67U15X-277

1. Clock bezel assembly
2. Tapping screw
3. Warning and clock unit

CIRCUIT DIAGRAM (WITH ABS MODEL)

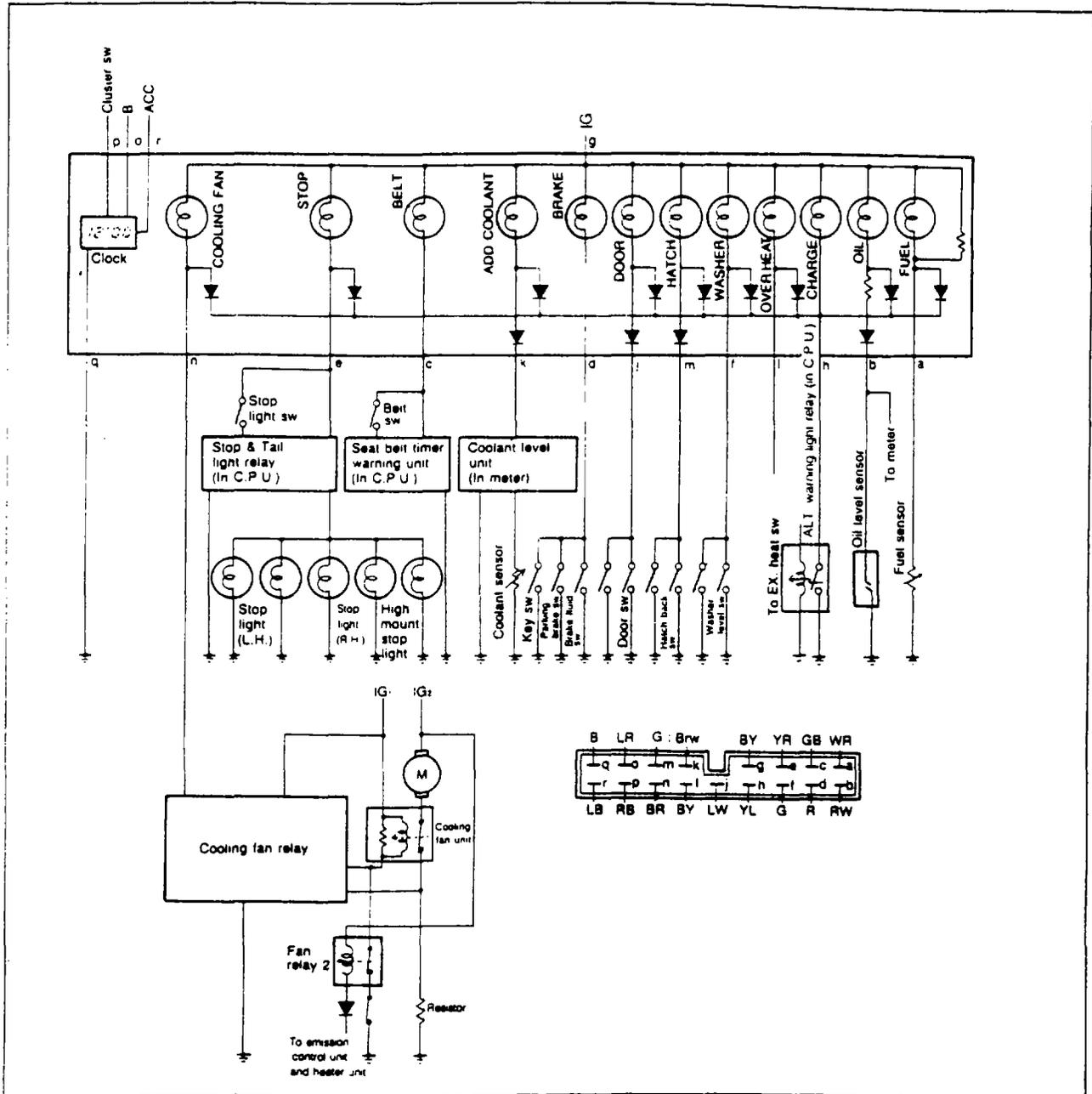


77U15X-075

No.	Connections	No.	Connections
a	Fuel tank unit	k	Meters
b	Oil level sensor	l	Emission control unit
c	Seat belt timer & buzzer (in CPU)	m	Rear hatch switch
d	Brake fluid level switch	n	Anti-lock brake control unit, Hydraulic unit
e	Stop light warning relay (in CPU)	o	Fuse box (battery)
f	Washer fluid level sensor	p	Cluster switch
g	Ignition switch	q	Ground
h	ALT warning light relay (in CPU)	r	Fuse box (accessory)
i	Door switch		

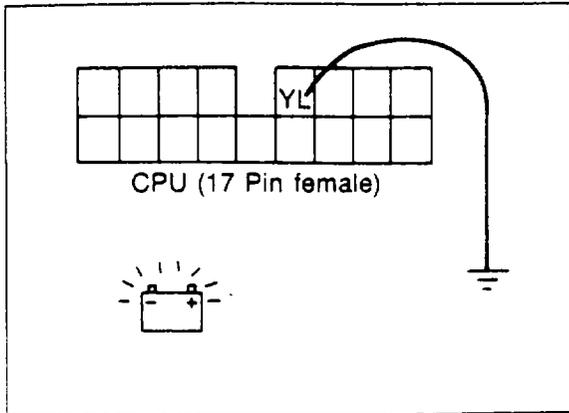
15 WARNING AND CLOCK UNIT

CIRCUIT DIAGRAM (WITHOUT ABS MODEL)



77U15X-076

No	Connections	No.	Connections
a	Fuel tank unit	k	Meters
b	Oil level sensor	l	Emission control unit
c	Seat belt timer & buzzer (in CPU)	m	Rear hatch switch
d	Brake fluid level switch	n	Cooling fan control unit
e	Stop light warning relay (in CPU)	o	Fuse box (battery)
f	Washer fluid level sensor	p	Cluster switch
g	Ignition switch	q	Ground
h	ALT warning light relay (in CPU)	r	Fuse box (accessory)
j	Door switch		

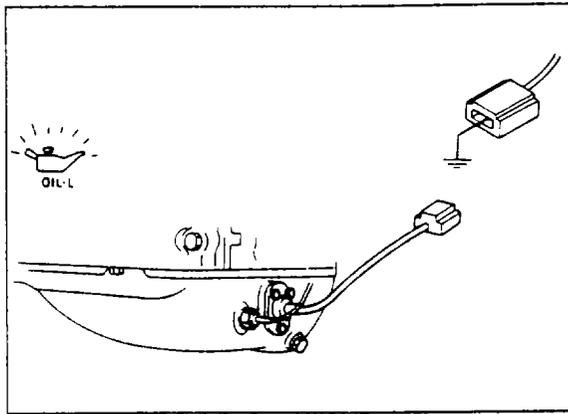


67U15X-035

INSPECTION OF CIRCUIT AND PARTS

Alternator Warning Light

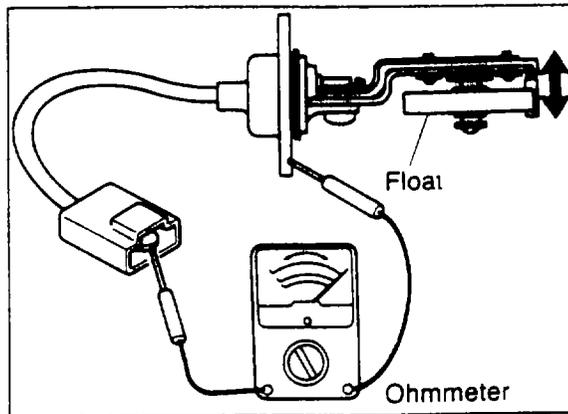
1. Disconnect the connector (17 pin) from the central processing unit.
2. Connect the (YL) terminal wire to a body ground.
3. Start the engine and check that the CHARGE warning light illuminates.



77U15X-077

Oil Level Warning Light

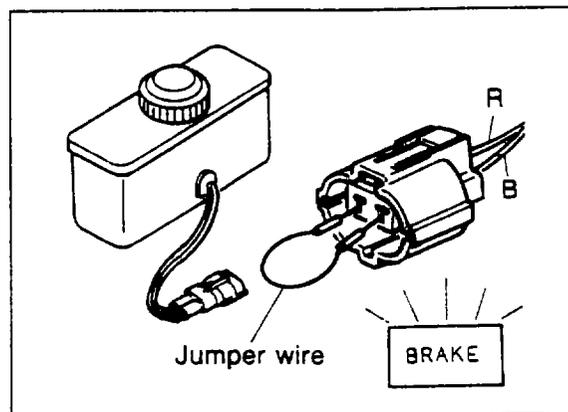
1. Disconnect the connector from the oil level sensor.
2. Connect the (RW) terminal wire to a body ground.
3. Start the engine and check that the OIL-L warning light illuminates.
4. If there is no illumination, check the fuse, bulb, and wiring harness.



67U15X-037

Oil Level Sensor

Connect an ohmmeter to the level sensor and check the continuity by moving the float up and down. When the float is in the upper position the ohmmeter should not show continuity, and when moved to the lower position it should show continuity. Replace the oil level sensor if it is not operating correctly.



67U15X-038

Brake System Warning Light

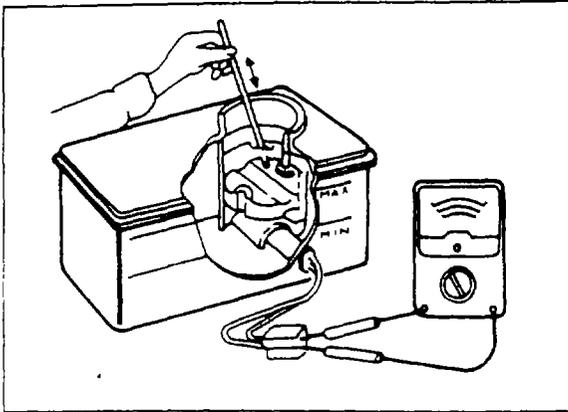
1. Disconnect the connector from the brake fluid level sensor.
2. Connect a jumper wire between the (R) and (B) terminal wire.
3. Start the engine and check that the BRAKE warning light illuminates.

Note

Check that the parking brake is fully released before checking.

4. If there is no illumination, check the fuse, bulb and wiring harness.

15 WARNING AND CLOCK UNIT



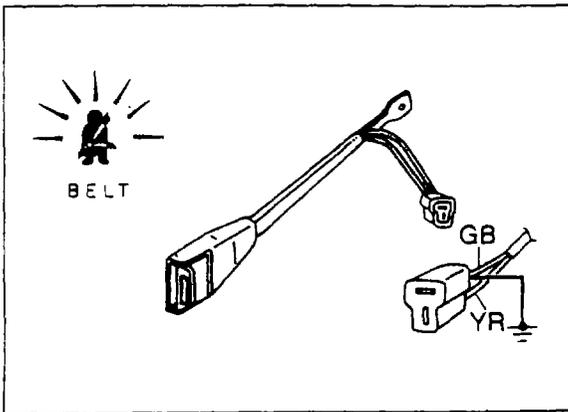
67U15X-038

Brake Fluid Level Sensor

Connect an ohmmeter to the terminals of the brake fluid level sensor connector.

Check for continuity when the float is moved up and down. The sensor is operating properly if there is continuity when the float is below the "MIN" mark, and if there is no continuity when the float is above the "MAX" mark.

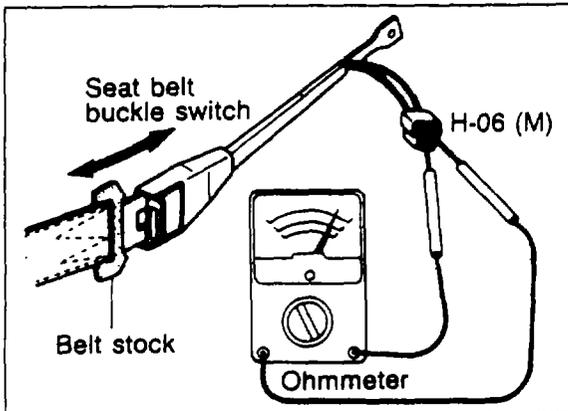
If the sensor does not pass this test, replace it.



67U15X-039

Seat Belt Warning Light

1. Disconnect the connector from the seat belt buckle switch (Driver's side).
2. Connect the (GB) connector terminal wire to a body ground.
3. Start the engine and check that the BELT warning light illuminates.
4. If there is no illumination, check the fuse, bulb, central processing unit, and wiring harness.



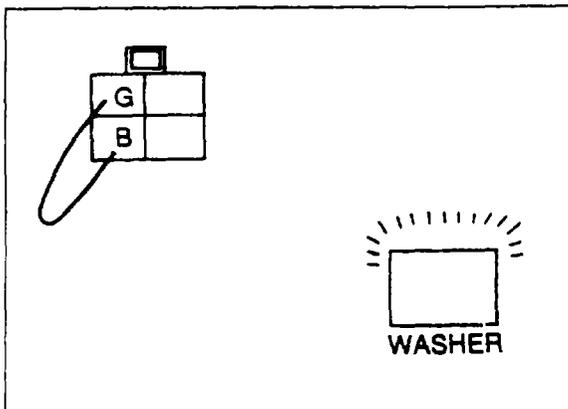
47U15X-041

Buckle Switch (Driver's Belt)

Insert the seat belt stock into the buckle, and use an ohmmeter to check for continuity of the switch.

Belt inserted.....no continuity

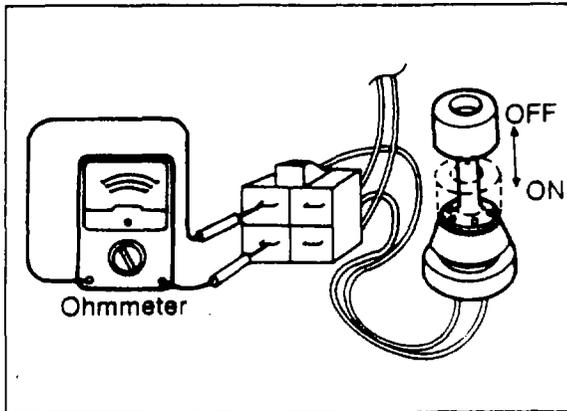
Belt not inserted.....continuity



67U15X-040

Washer Fluid Level Warning Light

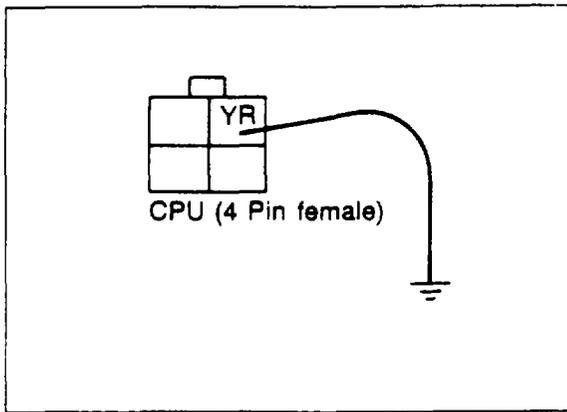
1. Disconnect the connector from the washer fluid level sensor.
2. Connect a jumper wire between the (G) and (B) terminal wire.
3. Start the engine and check that the WASHER warning light illuminates.
4. If there is no illumination, check the fuse, bulb and wiring harness.



67U15X-041

Washer Fluid Level Sensor

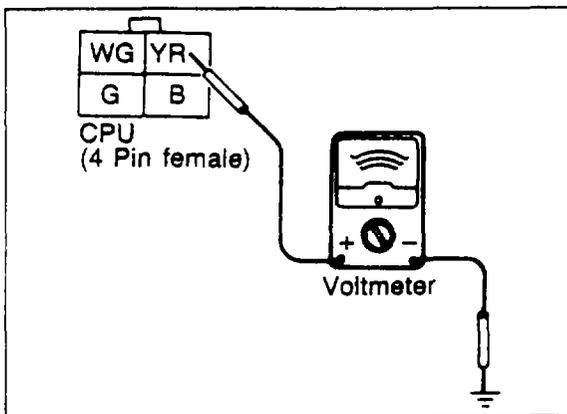
1. Connect the sensor connector to a tester.
2. Move the sensor float up and down.
3. Check that there is continuity when the float is at the lowest point.



67U15X-042

Stop Light Malfunction Warning Light

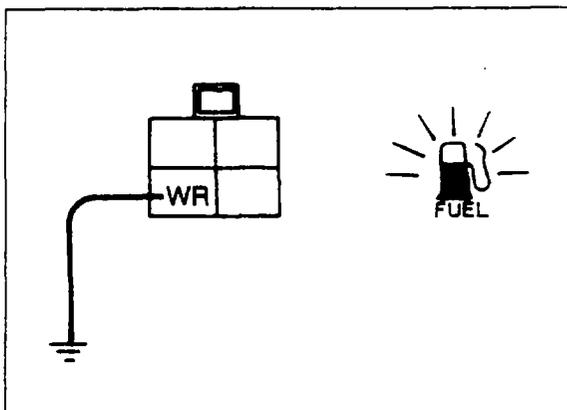
1. Disconnect the connector (4 pin) of the central processing unit.
2. Connect the (YR) terminal wire to a body ground.
3. Start the engine and check that the STOP LIGHT warning light illuminates.



67U15X-043

Stop Light Checker

1. Start the engine and check that there is voltage in the (YR) terminal wire of the connector (4 pin) of the central processing unit, and check that there is voltage in the (WG) terminal wire when the brake pedal is depressed.
2. Using an ohmmeter, check for continuity between the (B) terminal wire and a body ground.
3. After checking 1 and 2 above, check whether the stop light malfunction light illuminates or not when either the left or right 6-pin connector of the rear combination lights is disconnected. If it does not illuminate, replace the stop light checker.

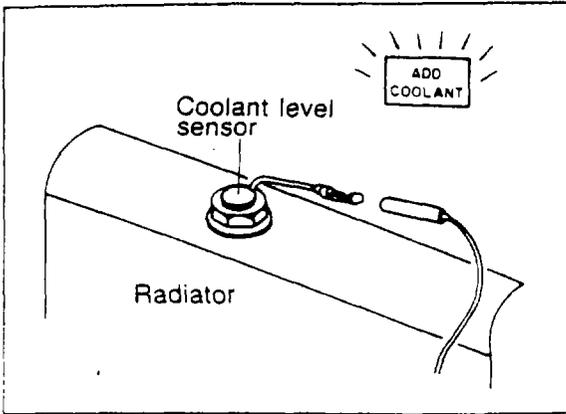


67U15X-044

Low Fuel Level Warning Light

1. Disconnect the connector from the fuel tank unit.
2. Connect the (WR) terminal wire to a body ground.
3. Start the engine and check that the FUEL warning light illuminates.
4. If there is no illumination, check the fuse, warning light and wiring harness.

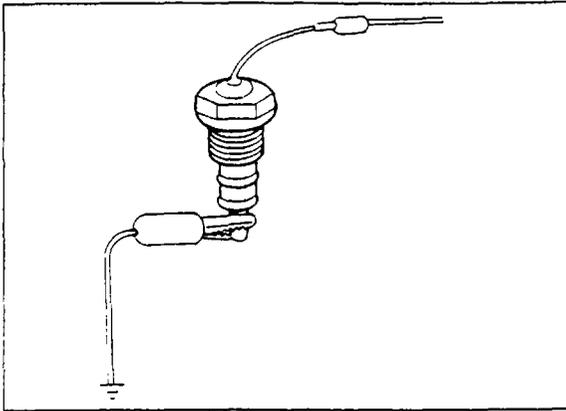
15 WARNING AND CLOCK UNIT



67U15X-046

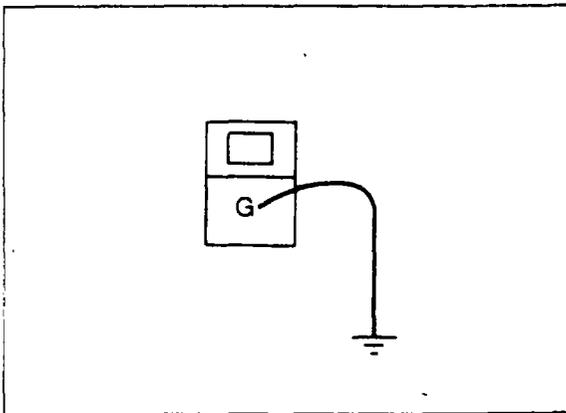
Coolant Level Warning Light

1. Disconnect the connector from the coolant level sensor.
2. Start the engine and check that the coolant warning light illuminates 9—16 seconds after starting the engine.
3. If there is no illumination, check the fuse, bulb, coolant level sensor unit, and wiring harness.



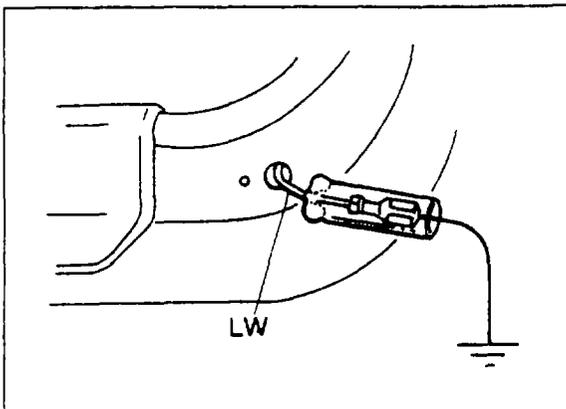
Coolant Level Sensor

1. Remove the level sensor and connect the connector.
2. With the sensor not grounded to the body, start the engine.
3. After checking that the warning light illuminates, ground the threaded part of the sensor.
4. If the warning light remains illuminated, the sensor is normal. If it does not, the sensor is faulty and should be replaced.



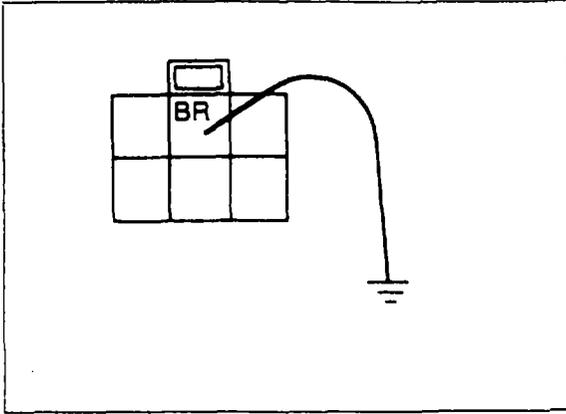
Rear Glass Hatch Ajar Warning Light

1. Disconnect the connector from the rear glass hatch connector.
2. Connect (G) terminal wire to a body ground.
3. Start the engine and check that the rear glass hatch ajar warning light illuminates.
4. If there is no illumination, check the fuse, bulb and wiring harness.



Door Ajar Warning Light

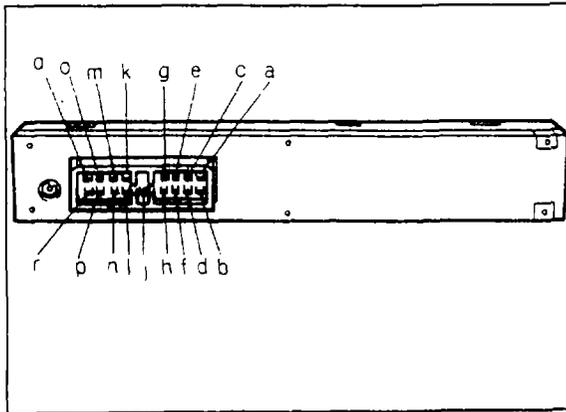
1. Disconnect the connector from the door switch.
2. Connect (LW) terminal wire to a body ground.
3. Start the engine, check that the door ajar warning light illuminates.



77U15X-078

Cooling Fan Warning Light (without ABS model)

1. Disconnect the connector from the electrical cooling fan unit.
2. Connect (BR) terminal wire to a body ground.
3. Start the engine, check that the COOLING FAN warning light illuminates.
4. If there is no illumination, check the fuse, bulb and wiring harness.



77U15X-120

ABS Warning Light (with ABS model)

1. Remove the clock bezel assembly.
2. Slide the warning and clock unit out from instrument panel.
3. Connect R wire (n terminal) to a body ground.
4. Start the engine, check that the ABS warning light illuminates.
5. If there is no illumination, check the fuse, bulb and wiring harness.

Overheat Exhaust System Warning Light

See section 4A or 4B.

15 LIGHTING SYSTEM

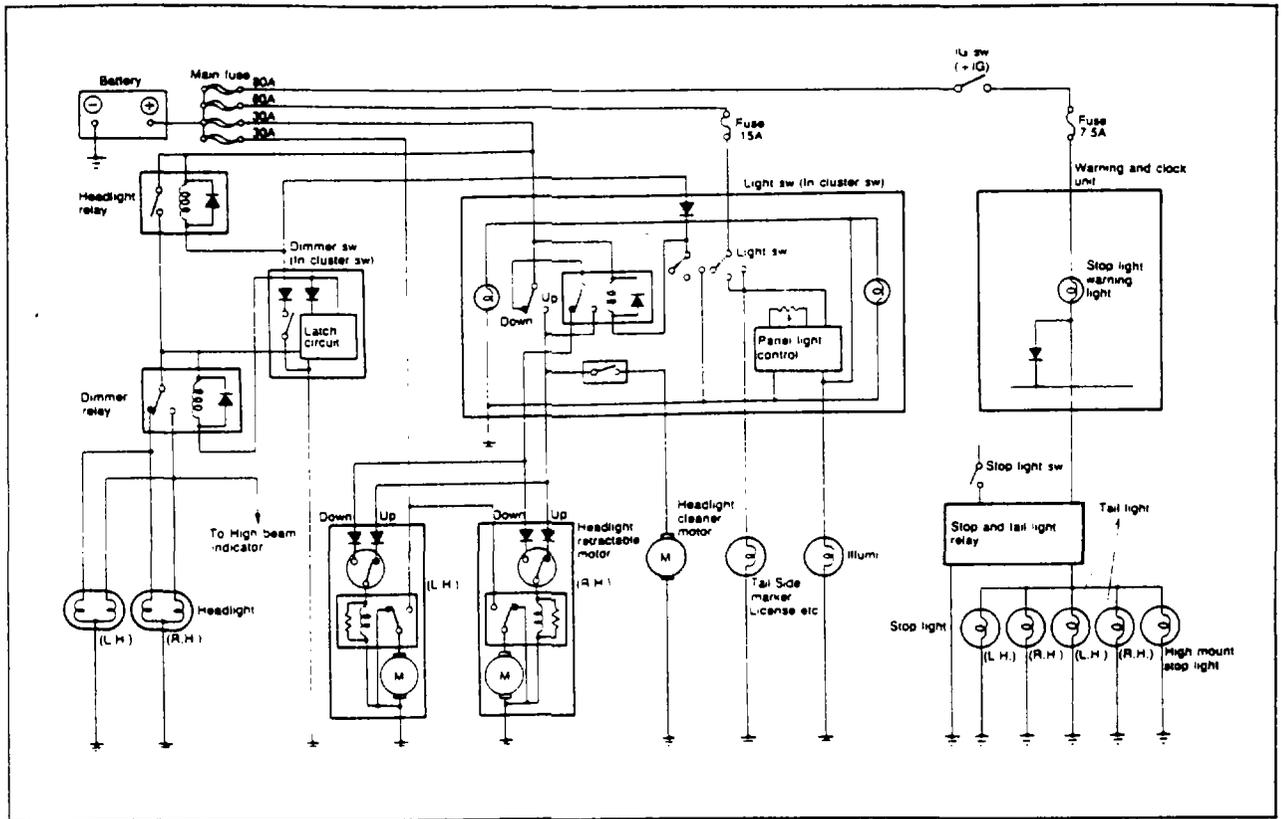
LIGHTING SYSTEM

TROUBLESHOOTING GUIDE

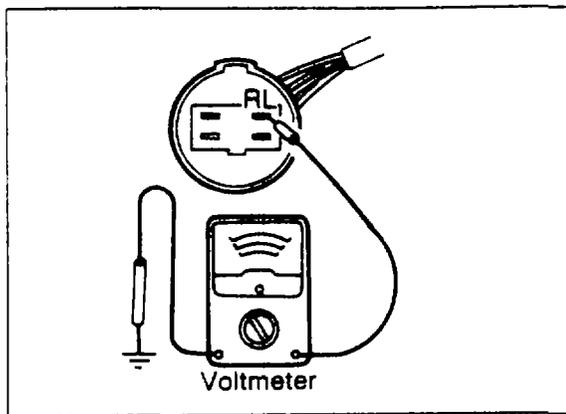
Problem	Possible Cause	Remedy	Page
Retractable head-light system does not work	Retractor fuse blown	Replace fuse and check for short	15—45
	Defective cluster switch	Check	15—45
	Defective retractor motor	Check	15—45
	Defective wiring or ground	Repair	15—45
Headlights do not come on	Main fuse blown	Replace main fuse and check for short	15—45
	Defective cluster switch	Check	15—45
	Defective wiring or ground	Repair	15—45
High beam lights do not operate	Defective cluster switch	Check	15—46
	Defective wiring	Repair	15—46
All exterior lights, tail lights and parking lights do not come on	TAIL, ILLUMI fuse blown	Replace fuse and check for short	15—46
	Defective cluster switch	Check	15—46
	Defective wiring or ground	Repair	15—46
Stop lights do not come on	HORN, STOP fuse blown	Replace fuse and check for short	15—46
	Defective stop light switch	Check or replace	15—46
	Defective wiring or ground	Repair	15—46
No illumination of instrument panel	Defective instrument panel light control	Check	15—47
Turn signals do not operate	METER, BACK fuse blown	Replace fuse and check for short	15—48
	Defective cluster switch	Check	15—48
	Defective central processing unit (Flasher unit)	Check	15—48

87U15X-009

CIRCUIT DIAGRAM



67U15X-279



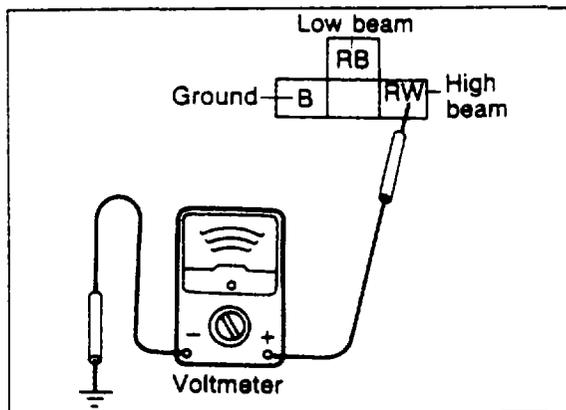
67U15X-051

INSPECTION OF CIRCUIT AND PARTS

Retractable Headlight System

(Retractable headlight system does not operate)

1. Check that the main fuse is not burned.
2. If the main fuse is not burned, connect a voltmeter to the (RL) wire of the connector for the retractor motor, and measure the voltage when the light switch or retractor switch is in the ON (UP) position.
3. If battery voltage is shown, there may be improper grounding of the motor or a malfunction of the motor.
4. If there is no voltage shown, a malfunction of the wiring or light switch and/or retractable switch may be the problem.

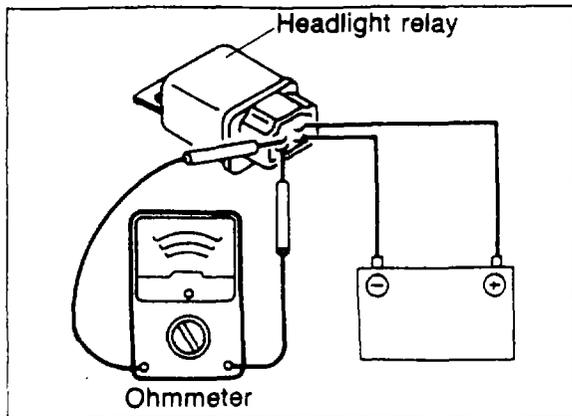


67U15X-052

(Headlights do not come on)

1. Check that the main fuse is not burned.
2. Check that battery voltage is applied to the (RB) or (RW) wires of the headlight connect when the light switch is in the ON position.
3. If battery voltage is shown, there may be a malfunction of the headlights or a bad ground connection.
4. If there is no voltage shown, check the headlight relay, dimmer relay and light switch.

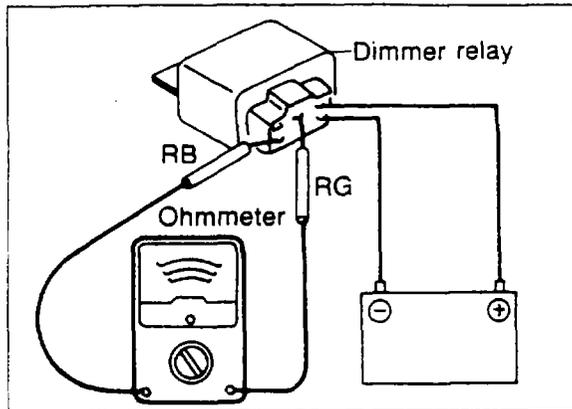
15 LIGHTING SYSTEM



67U15X-053

Headlight relay

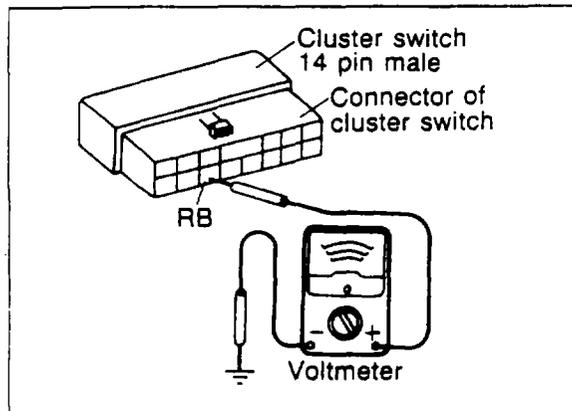
1. Connect the headlight relay, battery, and an ohmmeter as shown in the figure.
2. First check that there is continuity, then disconnect the battery and check that there is no continuity.
3. If the continuity is not as specified, replace the relay.



67U15X-054

Dimmer relay

1. Check that there is continuity between (RG) and (RB) wires.
2. Connect the dimmer relay, battery, and an ohmmeter as shown in the figure.
3. Check that there is no continuity, then disconnect the battery and check that there is continuity.
4. If the continuity is not as specified, replace the relay.

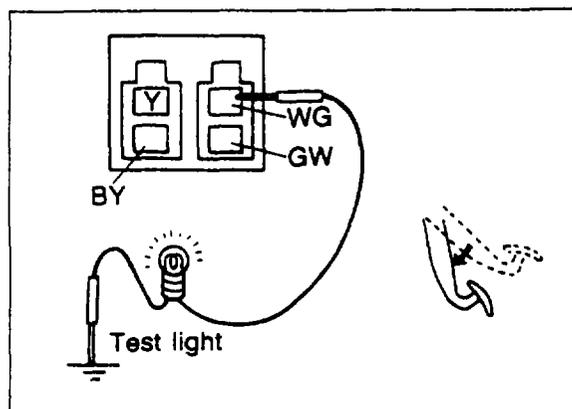


67U15X-055

Tail light System

(The tail lights do not light)

1. Check that a fuse is not burned.
2. If the fuse is not burned, connect a voltmeter to the (RB) wire of connector for the left cluster switch.
3. Check that battery voltage is applied when the headlight switch is in the ON position.
4. If there is no voltage shown, check the light switch. If battery voltage is shown, there may be poor contact of the connector connecting the front and rear harness.

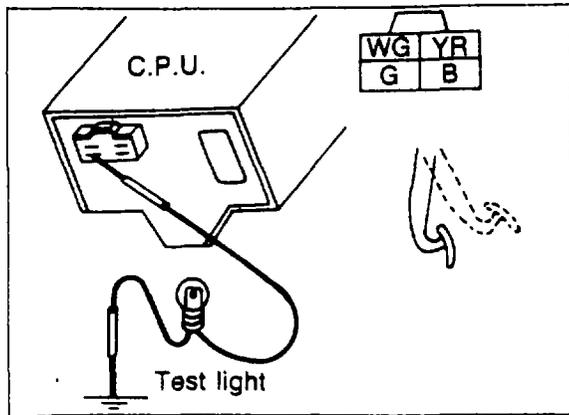


67U15X-056

Stop Light System

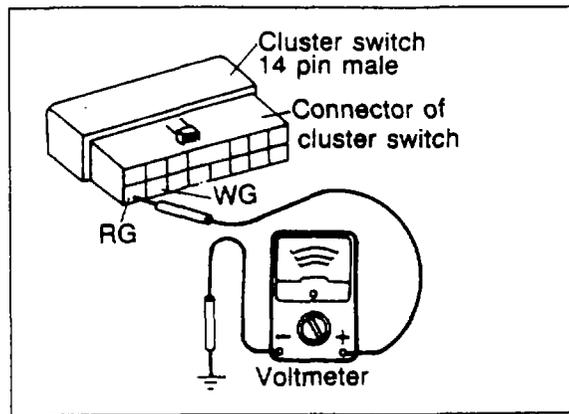
(The stop lights do not come on)

1. Check that a fuse is not burned.
2. If not, connect a test light between the (WG) wire of the stop light switch connector and a body ground, and check that the test light illuminates when the brake pedal is depressed.
3. If it does not illuminate, connect the test light to the (GW) wire and check that it illuminates. If it does, there may be a malfunction or improper adjustment of the stop light switch.



87U15X-057

4. If the test light does illuminate in step 2 above, connect the test light to the (G) wire of the stop light checker connector, and check that it illuminates when the brake pedal is depressed.
5. If it does not, there may be a malfunction of the stop light checker.
If it does illuminate, the stop light may be poorly grounded.



87U15X-010

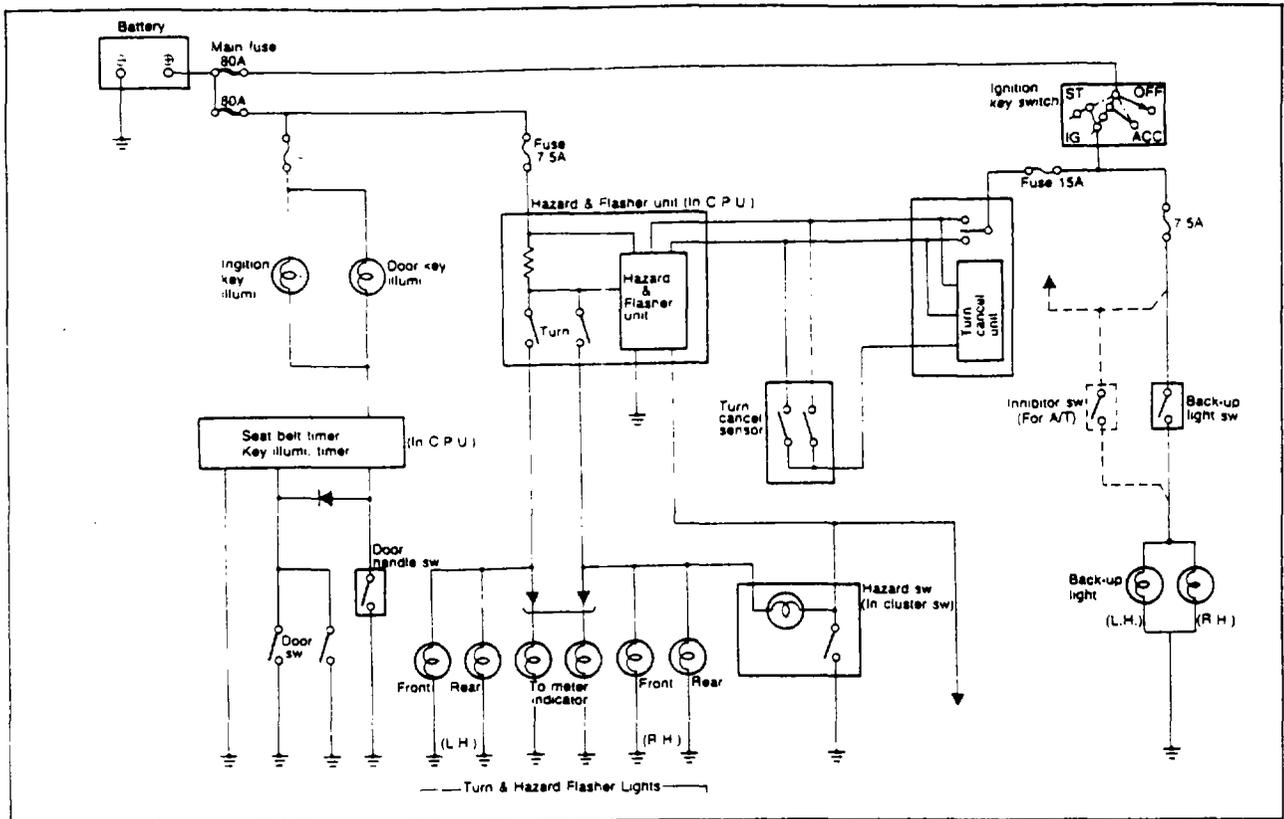
Illumination Light Control System (The illumination light does not illuminate)

1. Connect a voltmeter to the (RG) wire of the connector for the left cluster switch.
2. Check that voltage is applied when the headlight switch is moved to the tail light position and panel light control is in MAX position.
3. If there is approx. 12V, there may be a poor grounding of the illumination lights.
4. If there is no continuity, check that there is battery voltage to the (WG) wire.

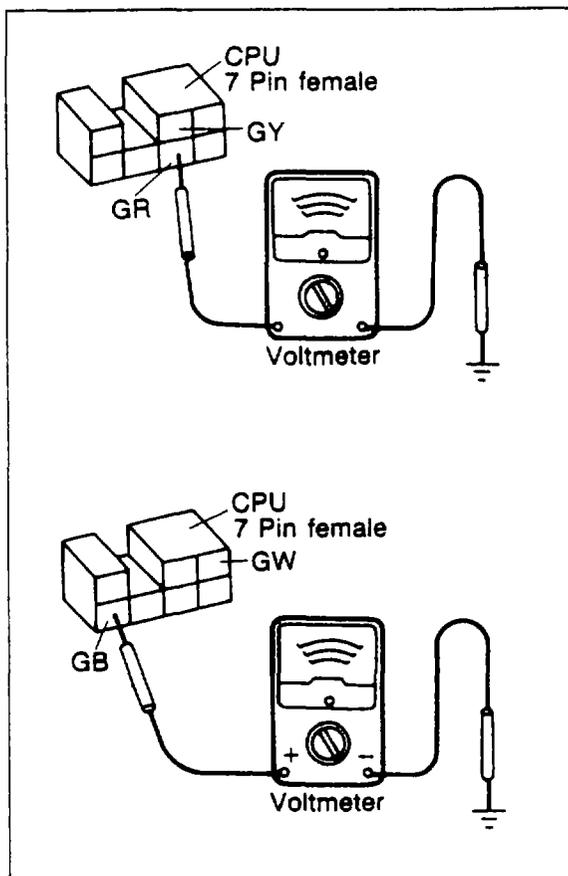
Checking the panel light control (Refer to page 15—16)

15 LIGHTING SYSTEM

CIRCUIT DIAGRAM



67U15X-280



67U15X-060

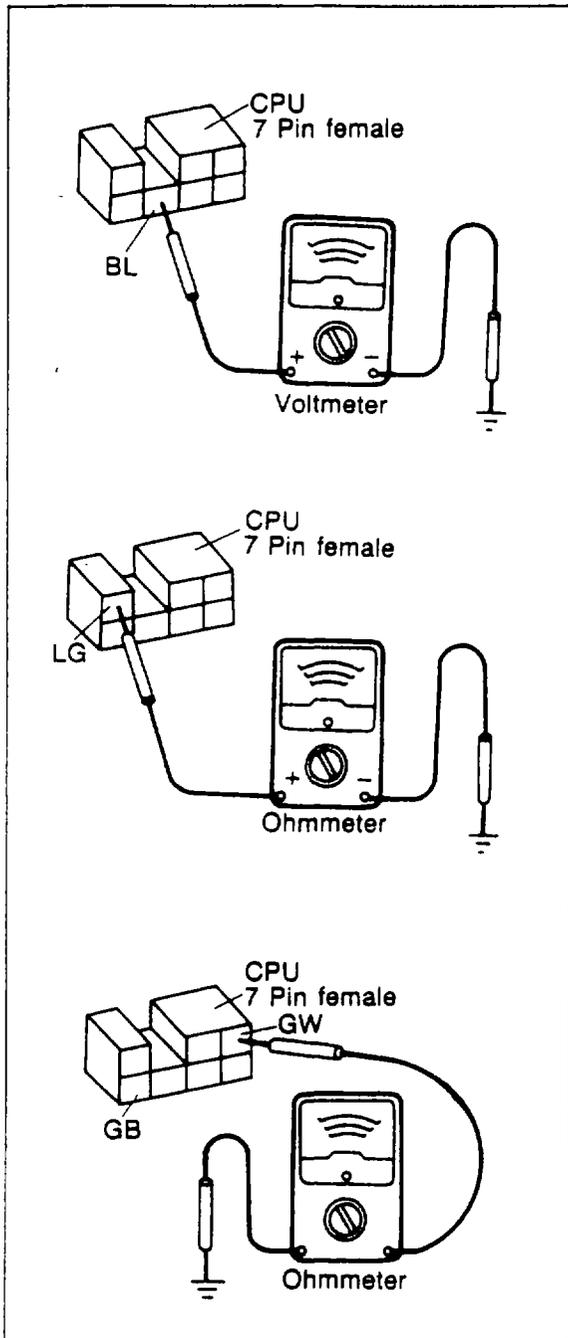
INSPECTION OF CIRCUIT AND PARTS

Turn Signal Light System (Turn signals do not function)

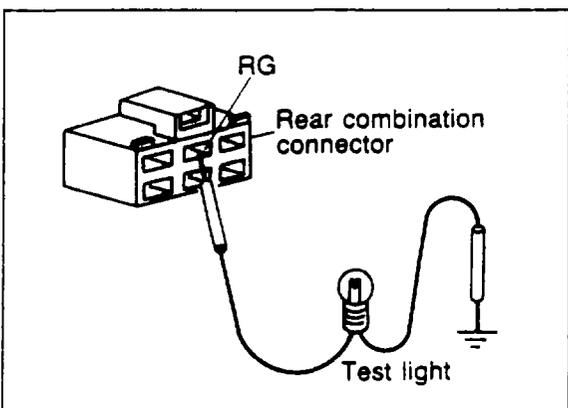
1. Check the turn fuse.
2. If OK, connect a voltmeter to the (GY) or (GR) wire of the central processing unit, and check that battery voltage is applied when the turn signal switch is ON while the ignition switch is ON. If not correct, there may be a malfunction of the turn signal switch.
3. If there is voltage, connect a voltmeter to the (GB) or (GW) wire of the turn and hazard unit and check that battery voltage is applied when the turn signal switch is ON while the ignition switch is ON. If not correct, check the printed board of the turn and hazard unit in the central processing unit.
4. If there is voltage, there may be a poor ground of the central processing unit.

(Turn signals work only for one direction)

Check the turn signal switch, or turn signal light ground.



77U15X-081



67U15X-062

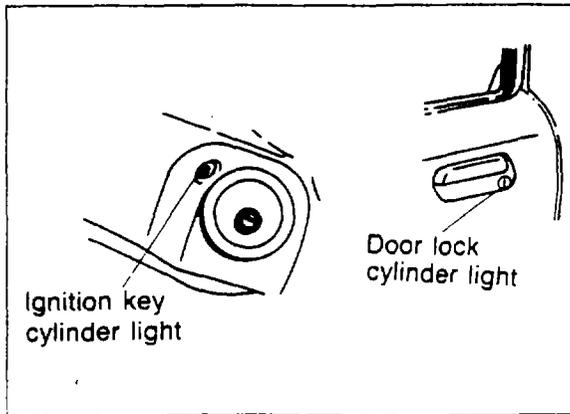
Hazard Warning Light System (Turn signals function but the hazard-warning light does not)

1. Check the hazard fuse.
2. If OK, connect a voltmeter to the (BL) wire of the turn and hazard unit in the central processing unit and check that battery voltage is applied.
3. If there is no voltage, check the wiring between the hazard fuse and the central processing unit.
4. If there is voltage, connect a voltmeter to the (LG) wire of the turn and hazard unit and check for no voltage when the hazard-warning light switch is ON.
5. If there is voltage, there may be a malfunction of the hazard warning light switch or a poor ground of the switch.
6. If there is no voltage, connect a voltmeter to (GB) or (GW) wire of the turn and hazard unit and check that battery voltage is applied when the hazard warning light switch is ON.
7. If there is no voltage, there may be a malfunction of the turn and hazard unit.
8. If there is voltage, check the wiring or ground.

Back-up Light System (Back-up lights do not come on)

1. Check the meter fuse.
2. If OK, connect a test light to the (RG) wire of the rear combination light connector. With the ignition switch ON, check that the test light illuminates when the shift lever is shifted to the reverse position.
3. If it illuminates, there may be a poor ground of the rear combination lights. If it does not illuminate, check the back-up switch and the wiring.

15 LIGHTING SYSTEM



67U15X 063

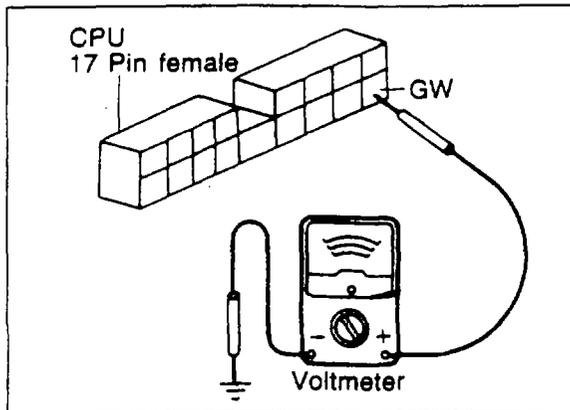
Door Lock Cylinder Light and Ignition Key Cylinder Light

(If only the door lock cylinder light illuminates)

The bulb may be burned out, or there may be a poor contact of the bulb connector.

(If only the key cylinder light illuminates)

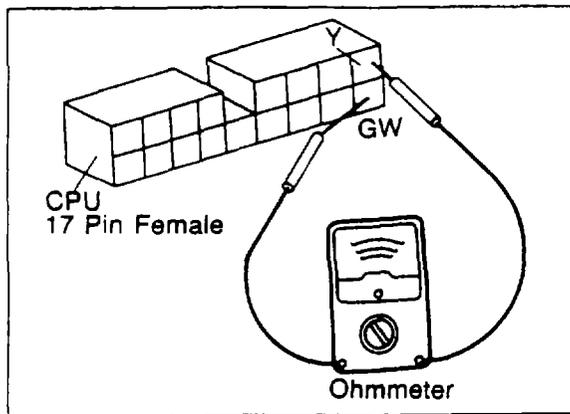
Check for a burned out bulb or for a poor contact of the bulb connector.



67U15X-064

(Neither comes on)

1. Check the room fuse.
2. If OK, connect a voltmeter to the (GW) wire for the key illumination timer of the central processing unit, and check that battery voltage is applied.
3. If there is no voltage, check the wiring. If there is voltage, the central processing unit may be poorly grounded or there may be a malfunction in the unit.



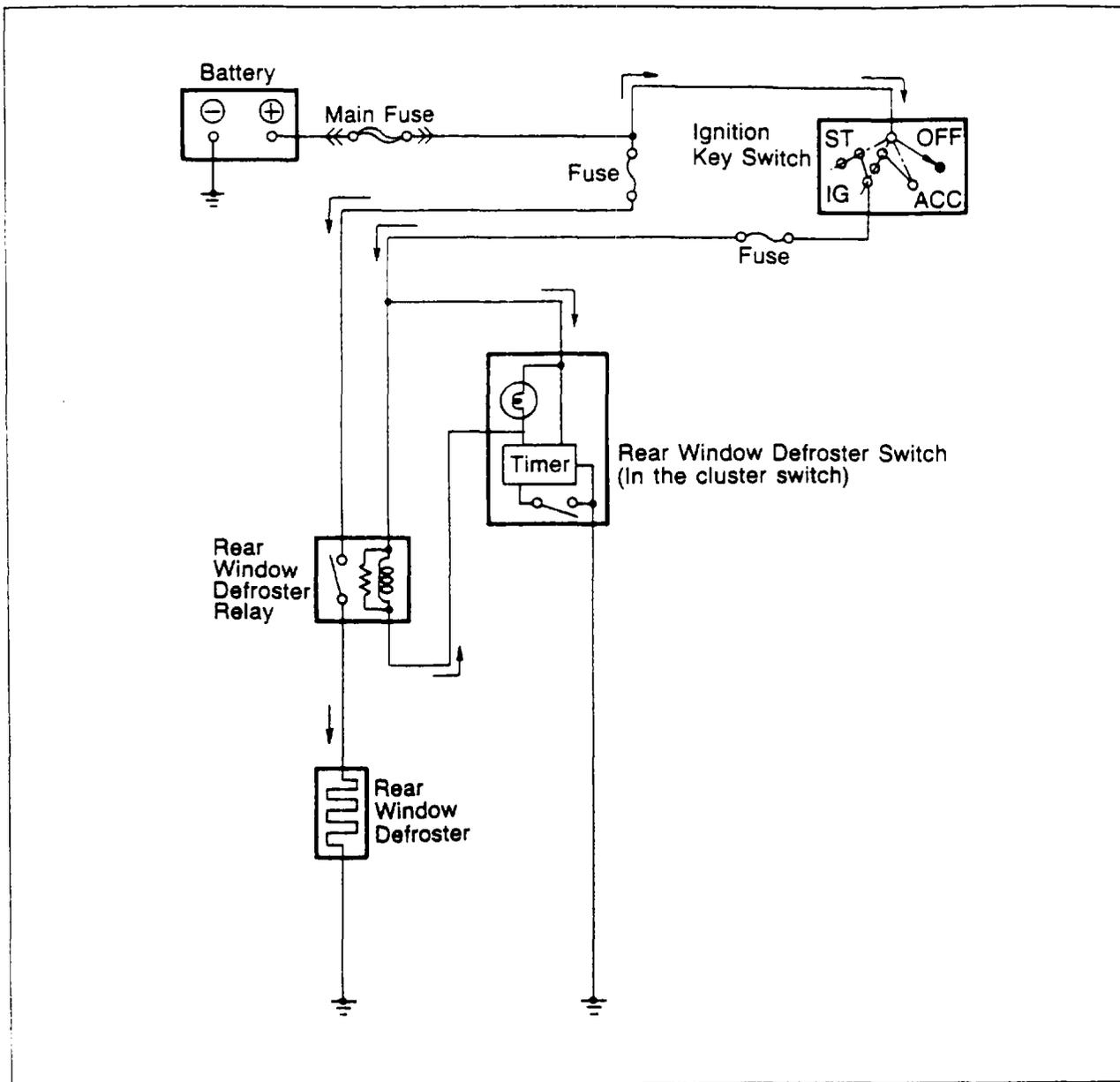
67U15X-065

(Door lock cylinder light does not come on)

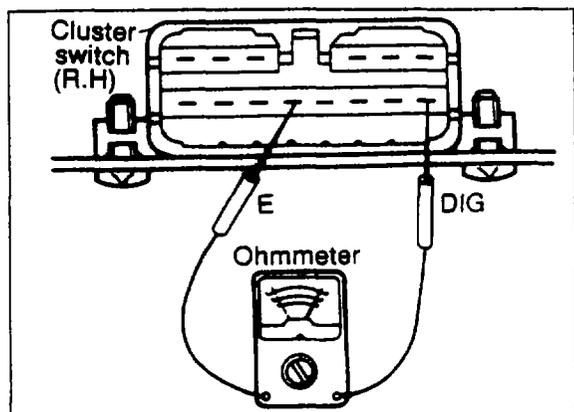
1. Disconnect the connector for key illumination timer of the central processing unit and connect an ohmmeter between (Y) and (GW) wire of the connector.
2. Check that there is continuity when the outer door handle is lifted.
3. If continuity is not as specified, replace the outer door lock switch.

REAR WINDOW DEFROSTER

CIRCUIT DIAGRAM



67U15X-281



67U15X-070

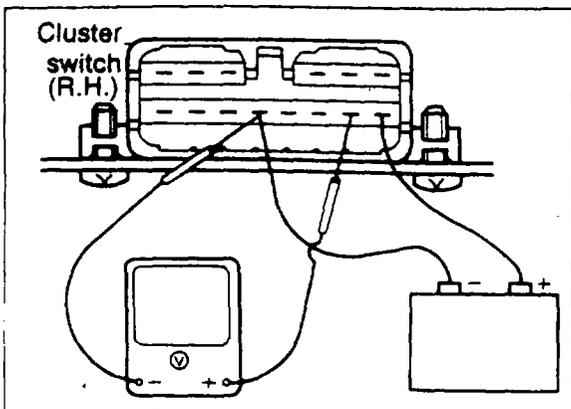
REAR WINDOW DEFROSTER SWITCH Inspection

Connect an ohmmeter to each of the terminals of the switch and check for continuity.

Terminal	Switch position	Continuity
DIG — E	ON	Yes
DIG — E	OFF	No

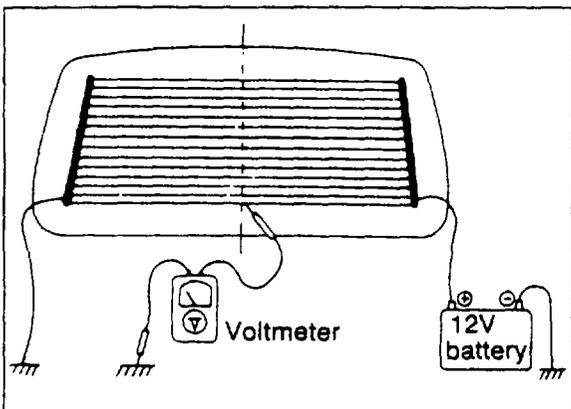
If continuity is not as specified, replace the switch.

15 REAR WINDOW DEFROSTER



87U15X-060

REAR WINDOW DEFROSTER TIMER CIRCUIT Inspection (Refer to page 15—16)



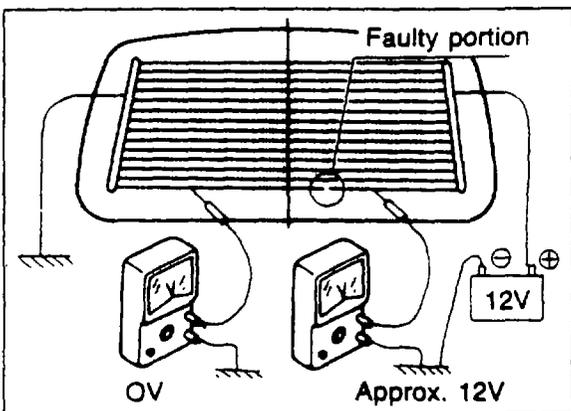
67U15X-072

REAR WINDOW DEFROSTER FILAMENT Inspection

1. Turn on the rear window defroster switch.
2. Connect the positive lead of a voltmeter to the center of each filament, and connect the negative lead to the body of the vehicle.

The standard voltage at the center of the filament is 6V. If the meter indication is higher than this value, the problem exists in the ground side of the filament.

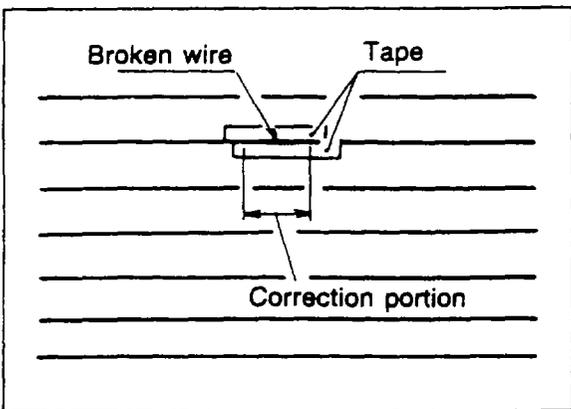
If the indication is low, or zero, the problem is between the center and the power side.



67U15X-073

Filament Correction

1. Clean the faulty portion using thinner or ethyl alcohol.
2. Apply tape to either side of the faulty portion, leaving the filament exposed.
3. Use a small paint brush or drafting pen to apply **silver paint** (No. 2835 77 600).
4. Completely dry the corrected portion by letting it stand [at a temperature of 20°C (68°F)] for 24 hours. [The corrected portion may also be dried in 30 minutes by using a blow dryer at 60°C (140°F).]



67U15X-074

Caution

- a) Do not turn on the rear window defroster until the paint is completely dry.
- b) Do not use gasoline or other solvents to clean the faulty portion.

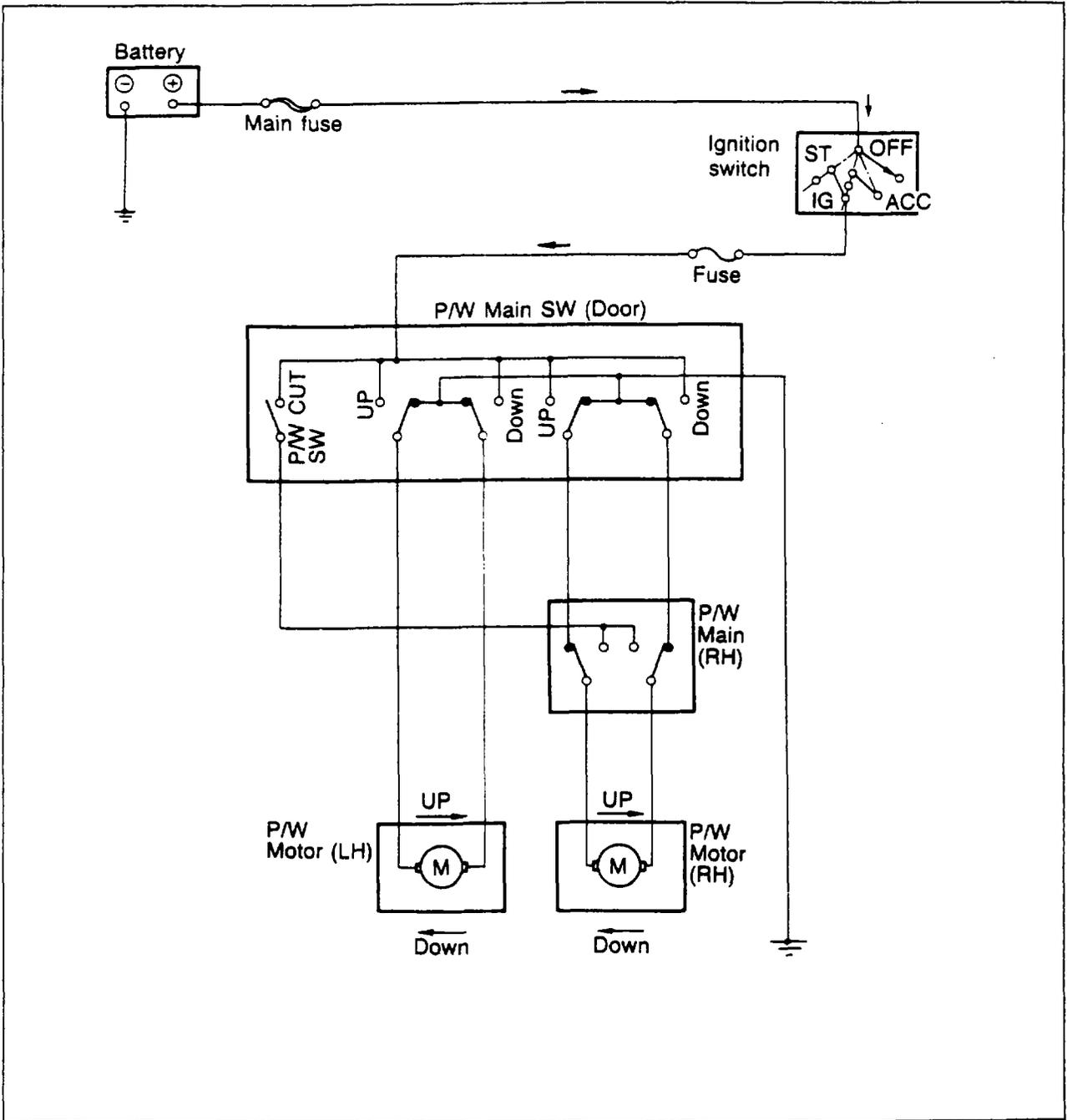
POWER WINDOW

TROUBLESHOOTING GUIDE

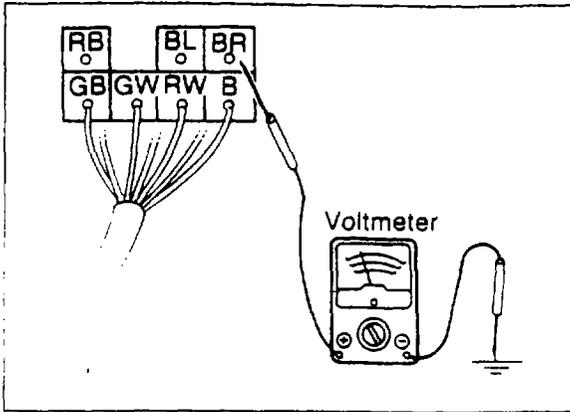
Problem	Possible Cause	Remedy	Page
Power window system does not work	POWER WINDOW fuse blown	Replace and check	15-54
	Defective power window switch	Check or replace	15-54
	Defective wiring or ground	Repair	
Only one side window does not work	Defective power window switch	Check	15-54
	Defective power window motor	Check or replace	15-55
	Defective wiring	Repair	

87U15X-011

CIRCUIT DIAGRAM



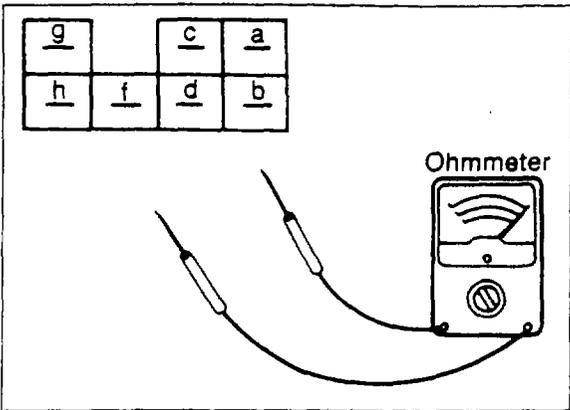
67U15X-076



67U15X-077

POWER WINDOW SWITCH Checking Circuit

1. Disconnect the connector from the power window switch.
2. Using a voltmeter, measure the voltage between the (BR) terminal and a body ground with the ignition switch ON.
3. If there is no voltage, check the fuse or repair the wiring harness.
4. Using an ohmmeter, check the ground connection between the (B) terminal and a body ground.



67U15X-078

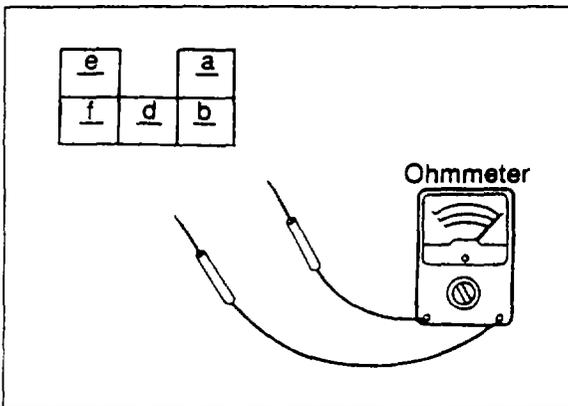
Checking Switches (Driver's side)

Use an ohmmeter to check for continuity of the terminals. If continuity is not as specified, replace the power window switch.

○—○ indicates continuity

Position		Terminal	a	b	c	d	f	g	h
Left switch	UP		○	○	○	○	○		○
	OFF		○	○	○	○	○	○	○
	DOWN		○	○	○	○	○	○	
Right switch	UP		○	○	○	○	○	○	○
	OFF		○	○	○	○	○	○	○
	DOWN		○	○	○	○	○	○	○

67U15X-079



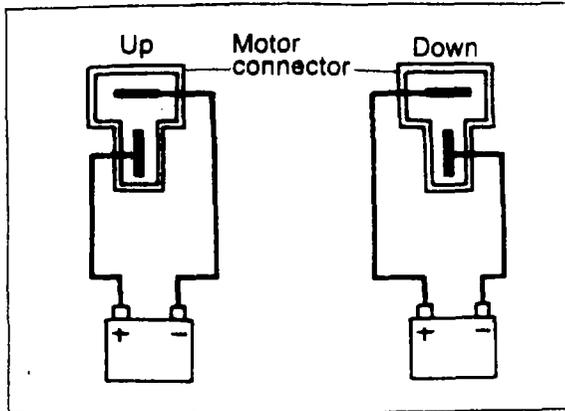
67U15X-080

Checking switches (Passenger's side)

Use an ohmmeter to check for continuity of the terminals. If continuity is not as specified, replace the power window switch.

○—○ indicates continuity

Position		Terminal	a	b	d	e	f
Passenger's side	UP		○	○	○	○	
	OFF		○		○	○	○
	DOWN			○	○	○	○



67U15X-08

POWER WINDOW MOTOR**Checking Motor**

1. Disconnect the connector of the power window motor. Then check that the window raises and lowers when battery voltage is applied directly to the motor connector, as shown in the figure.
2. Replace the motor if operation is not normal.

Caution

- a) Do not short-circuit the wiring to the body.
- b) Do not put your hand inside the door while checking.

15 REMOTE CONTROL MIRRORS

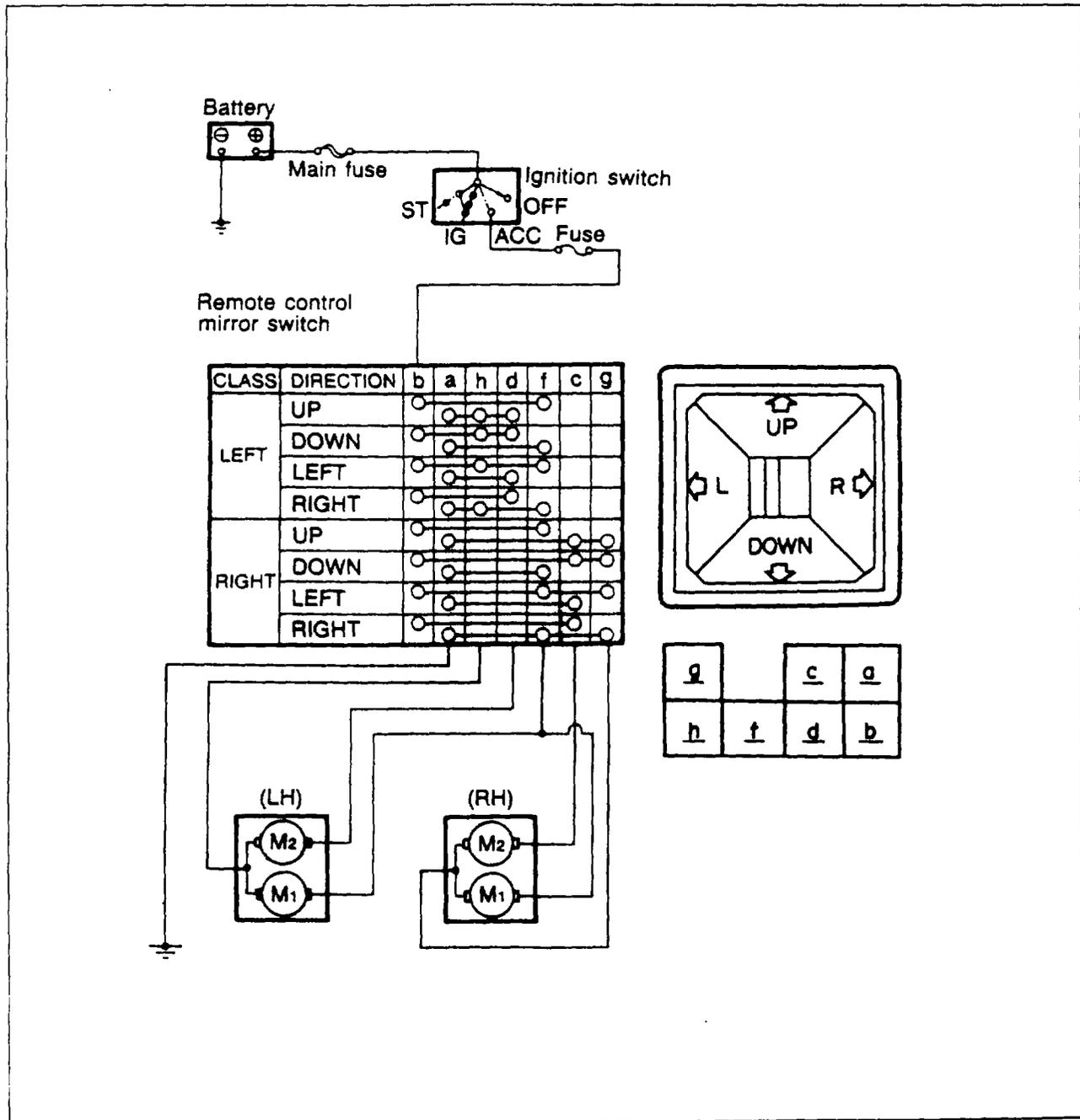
REMOTE CONTROL MIRRORS

TROUBLESHOOTING GUIDE

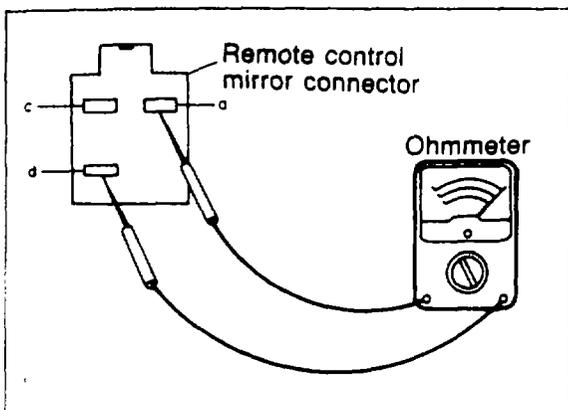
Problem	Possible Cause	Remedy	Page
Remote control mirrors do not work	CIGAR fuse blown	Replace fuse and check	15-56
	Defective remote control mirror switch	Check or repair	15-57
	Defective wiring	Repair	
Only one side mirror does not work	Defective remote control mirror switch	Check or repair	15-57
	Defective remote control mirror	Check or repair	15-57
	Defective wiring or ground	Repair	

87U15X-012

CIRCUIT DIAGRAM



87U15X-083



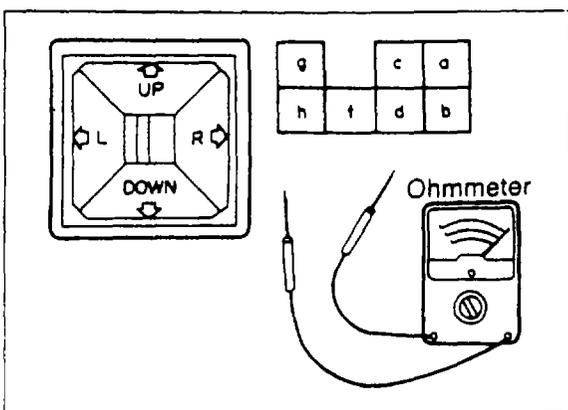
67U15X-084

REMOTE CONTROL MIRROR

Inspection

1. Connect an ohmmeter to the terminals of the mirror connector and check for continuity.

Terminal	Continuity
c — a	Yes
c — d	Yes
a — d	Yes



67U15X-085

REMOTE CONTROL MIRROR SWITCH

Inspection

Use an ohmmeter to check the continuity of the terminals of the switch.

If continuity is not as specified, replace the switch.

CLASS	DIRECTION	b	a	h	d	f	c	g
LEFT	UP	○	○	○	○	○		
	DOWN	○	○	○	○	○		
	LEFT	○	○	○	○	○		
	RIGHT	○	○	○	○	○		
RIGHT	UP	○	○	○	○	○	○	○
	DOWN	○	○	○	○	○	○	○
	LEFT	○	○	○	○	○	○	○
	RIGHT	○	○	○	○	○	○	○

○—○ Indicates continuity

15 WINDSHIELD WIPERS

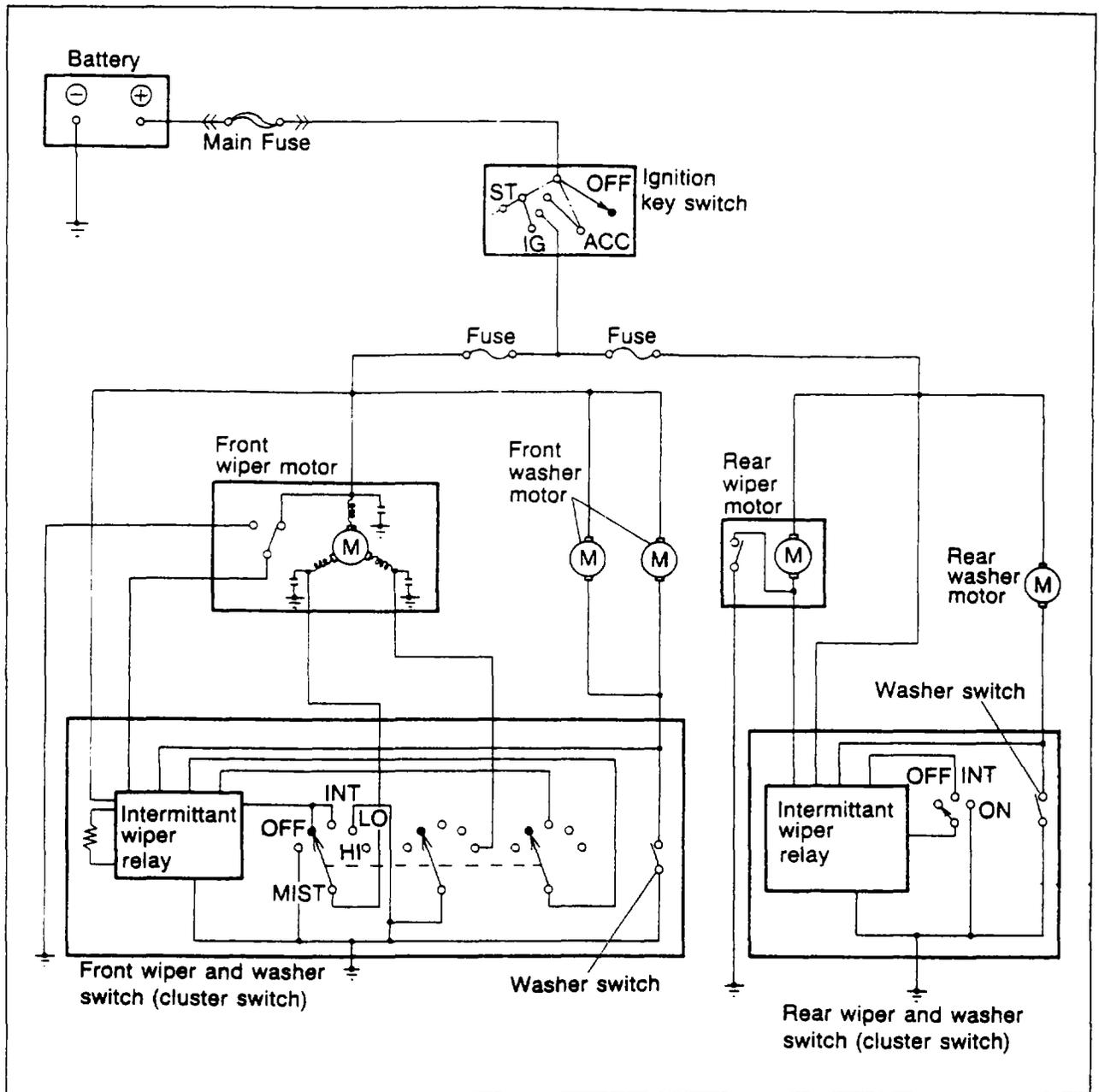
WINDSHIELD WIPERS

TROUBLESHOOTING GUIDE

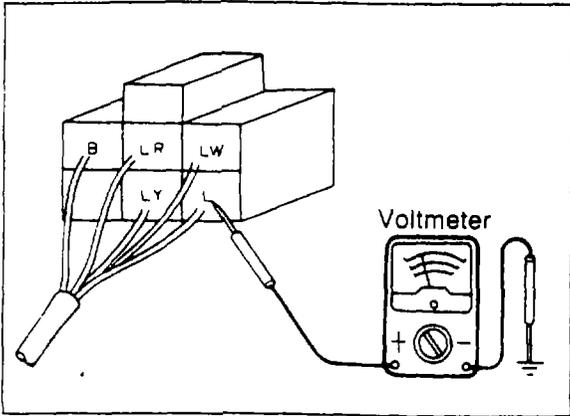
Problem	Possible Cause	Remedy	Page
Wipers do not work	WIPER fuse blown	Replace fuse and check	15—60
	Defective wiper motor	Check	15—60
	Defective cluster switch (wiper switch)	Check	15—17
	Defective wiring or ground	Repair	
Washers do not work	WIPER fuse blown	Replace fuse and check	15—60
	Defective washer motor	Check or replace	15—60
	Defective cluster switch (wiper and washer switch)	Check	15—17
	Defective wiring	Repair	
Rear wiper does not work	R. WIPER fuse blown	Replace fuse and check	15—60
	Defective rear wiper motor	Check	15—61
	Defective rear wiper switch	Check	15—17
	Defective wiring or ground	Repair	
Rear window washer does not work	Defective washer motor	Check or replace	15—61
	Defective washer switch	Check	15—17
	Defective wiring	Repair	

87U15X-013

CIRCUIT DIAGRAM



67U15X-087

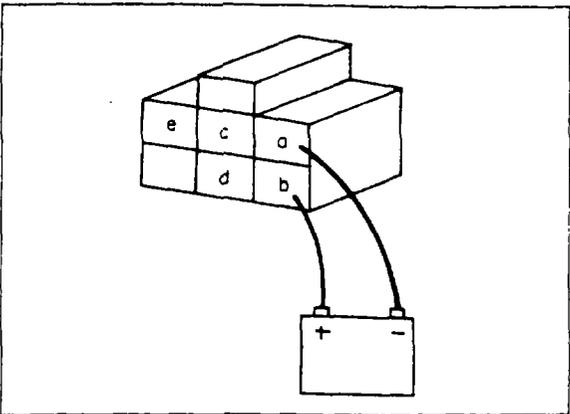


67U15X-088

WINDSHIELD WIPER MOTOR

Checking Circuit

1. Disconnect the connector from the wiper motor.
2. Using a voltmeter, measure the voltage between the (L) terminal wire and a body ground with the ignition switch ON.
3. If there is no voltage, check the fuse or repair the wiring harness.
4. Using an ohmmeter, check for continuity between (B) terminal wire and a body ground.

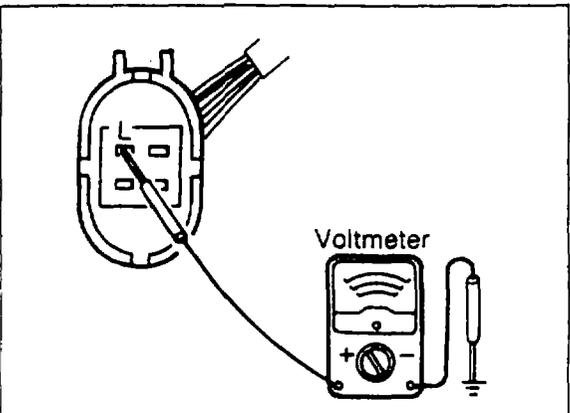


87U15X-014

Checking Wiper Motor

1. Connect the positive lead from the battery to (b) terminal wire of the motor connector.
2. Connect the negative lead to (a) terminal wire of the motor connector.
3. Check that motor turns at low speed.
4. Connect the negative lead to (c) of the motor connector.
5. Check that motor turns at high speed.

FRONT WIPER & WASHER SWITCH (Refer to page 15—17 and 18)

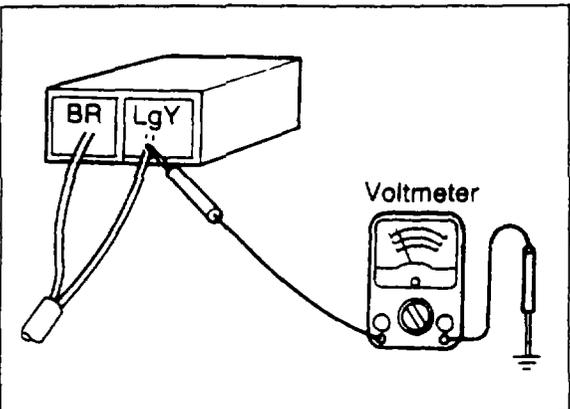


77U15X-087

FRONT WINDOW WASHER

Checking Washer Motor

1. Using a voltmeter, measure the voltage between the (L) terminal wire and body ground with the ignition switch ON.
2. If there is no voltage, check the fuse or repair the wiring harness.
3. If the (L) terminal voltage is normal, apply 12V to (a) terminal of washer motor and ground (b) terminal.
4. If the washer motor does not operate, replace the washer motor.

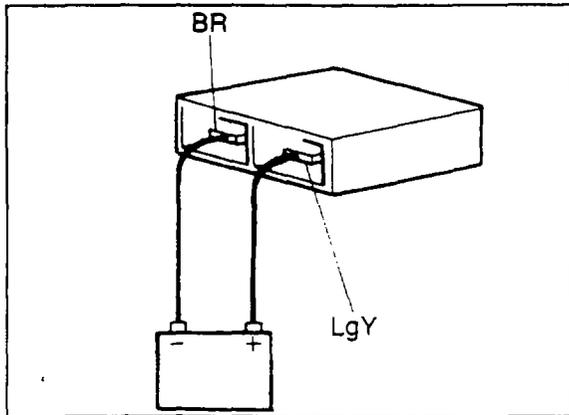


77U15X-088

REAR WIPER MOTOR

Checking Circuit

1. Using a voltmeter, measure the voltage between the (LgY) terminal wire and body ground with the ignition switch ON.
2. If there is no voltage, check the fuse or repair the wiring harness.

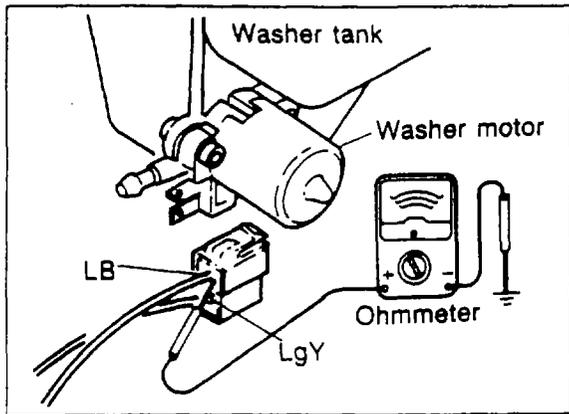


87U15X-061

Checking Wiper Motor

1. Connect the positive lead from the battery to (LgY) terminal wire of the motor connector.
2. Connect the negative lead to (BR) terminal wire of the motor connector.
3. Check that the motor turns.

REAR WIPER & WASHER SWITCH (Refer to page 15—17)



77U15X-090

REAR WASHER

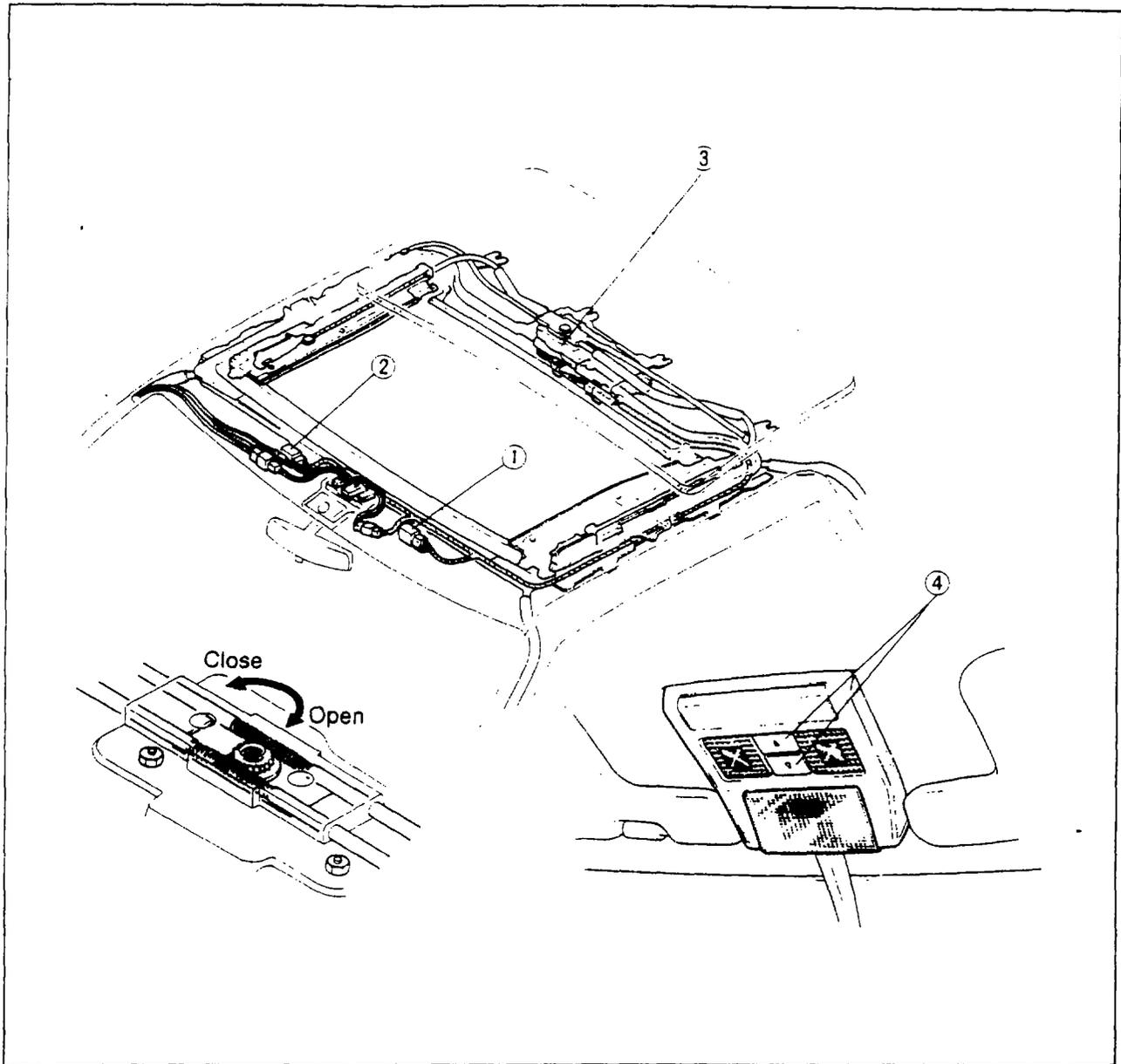
Checking Rear Washer Motor

1. Using a voltmeter, measure the voltage between the (LgY) terminal wire and a body ground with the ignition switch ON.
2. If there is no voltage, check the fuse or repair the wiring harness.
3. If the (LgY) terminal wire voltage is normal, connect the (LB) terminal wire to a body ground.
4. If the washer motor does not operate, replace the washer motor.

15 SLIDING SUNROOF

SLIDING SUNROOF

STRUCTURAL VIEW



77U15X-091

- 1. Relay No. 1
- 2. Relay No. 2

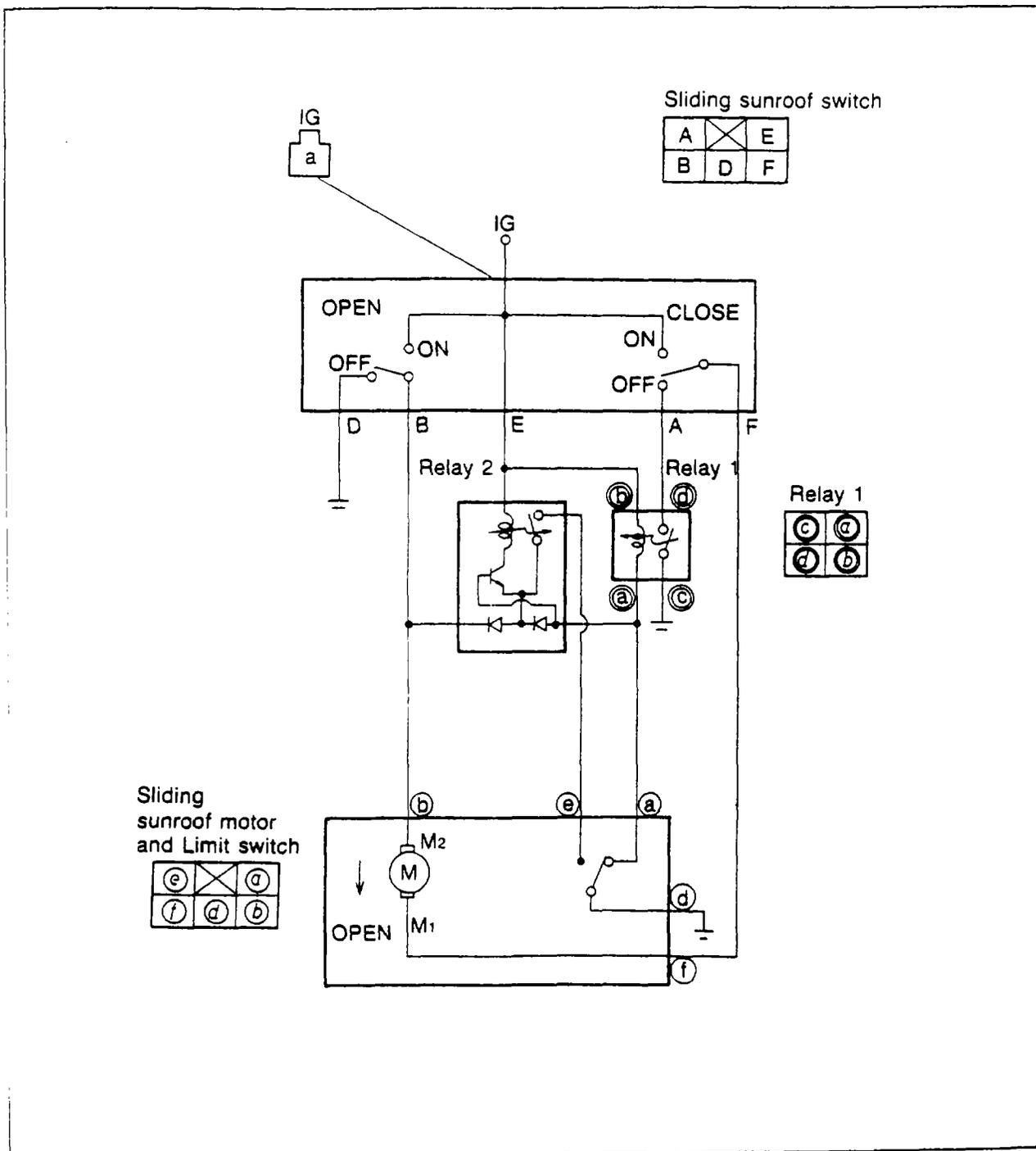
- 3. Sliding sunroof motor
- 4. Sliding sunroof switch

TROUBLESHOOTING GUIDE

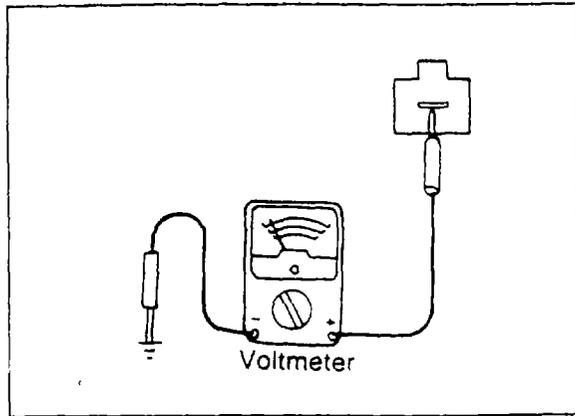
Problem	Possible cause	Remedy	page
Sunroof system does not work	SUNROOF fuse blown	Replace fuse and check	15-64
	Defective sunroof switch	Check	15-64
Sunroof does not tilt	Defective limit switch	Check	15-65

87U15X-015

CIRCUIT DIAGRAM



77U15X-093



67U15X-097

INSPECTION OF CIRCUIT AND PARTS

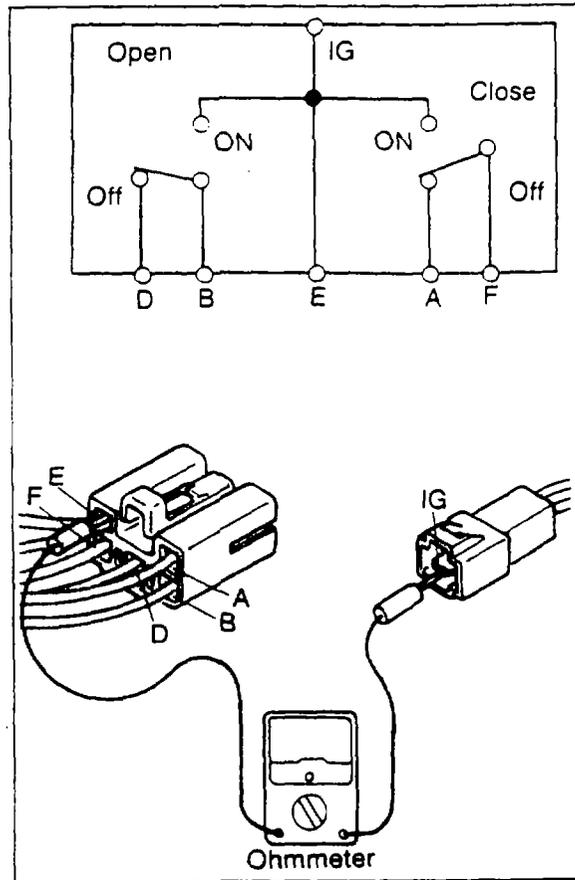
Sliding Sunroof Switch

Checking circuit

1. Disconnect the connector from the sliding sunroof switch.
2. Turn the ignition switch to ON.
3. Using a voltmeter, measure the voltage.

.....12V

4. If there is no voltage, check the fuse or repair the wiring harness.



67U15X-098

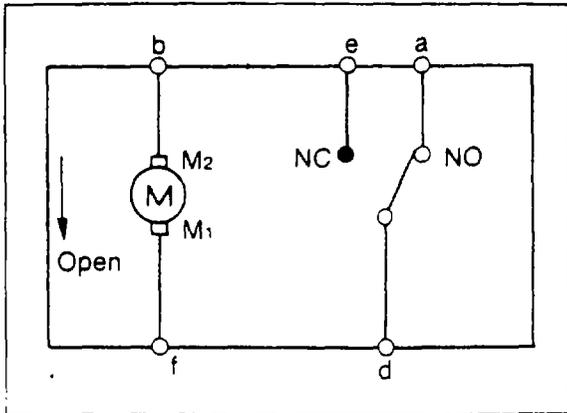
Checking sliding sunroof switch

1. Disconnect the connector from sliding sunroof switch
2. Using an ohmmeter, check for continuity at the terminals.

○—○ Indicates continuity

	IG	A	B	D	E	F
OFF	○			○—○	○	
Open	○	○—○		○—○	○	○
Close	○		○—○	○—○	○	○

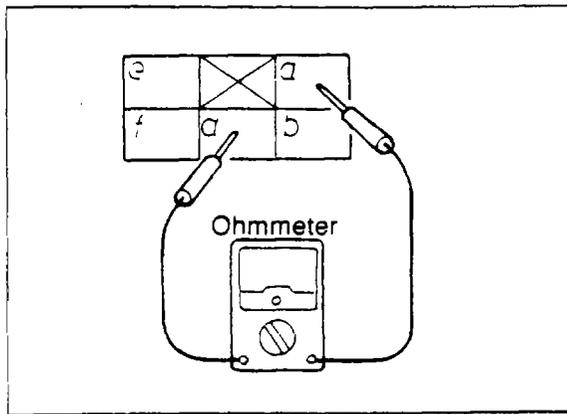
3. If there is no continuity, replace the sliding sunroof switch.



67U15X-099

Sliding Sunroof Motor and Limit Switch

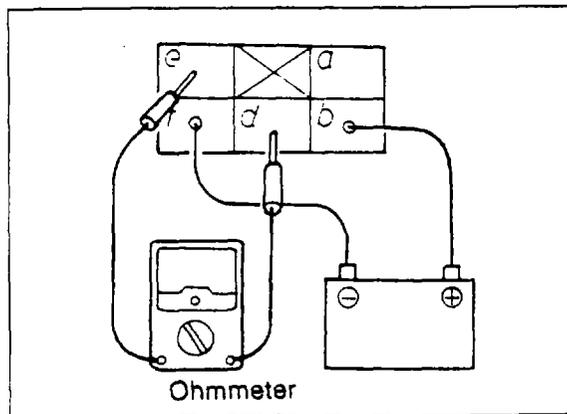
1. Disconnect the connector from the sliding sunroof motor.
2. Using an ohmmeter, check for continuity at the connector as follows.



67U15X-100

When closed

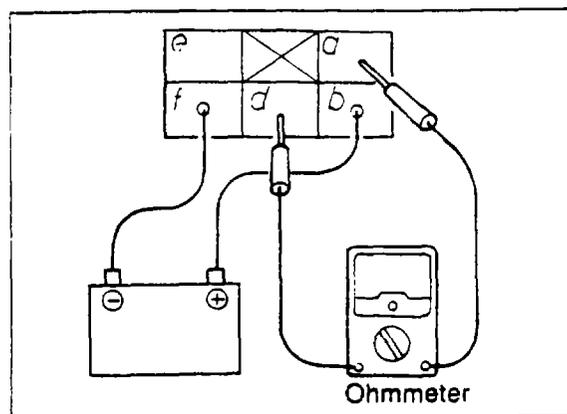
3. Check for continuity between (a) terminal and (d) terminal



67U15X-101

When tilted up

4. Check for continuity between (d) terminal and (e) terminal.

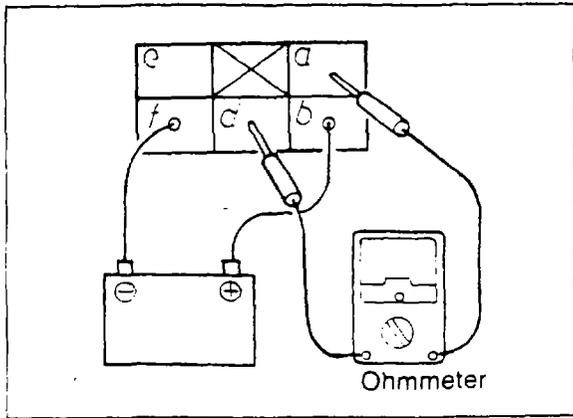


67U15X-012

When closed

5. Check for continuity between (a) terminal and (d) terminal.

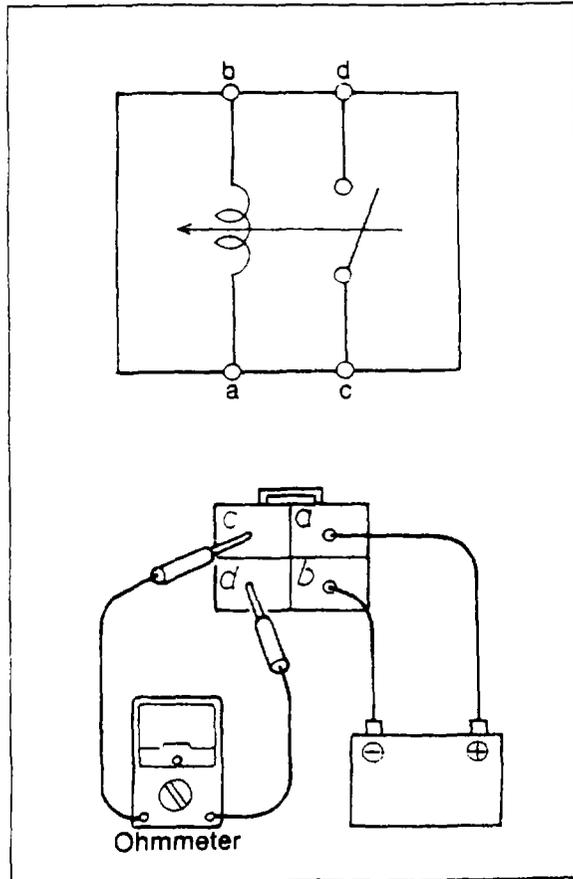
15 SLIDING SUNROOF



67U15X-103

When open

Check for continuity between (a) terminal and (d) terminal.



67U15X-104

Relay 1

Checking relay 1

1. Disconnect the connector from relay 1.
2. Using an ohmmeter, check for continuity at the terminals.

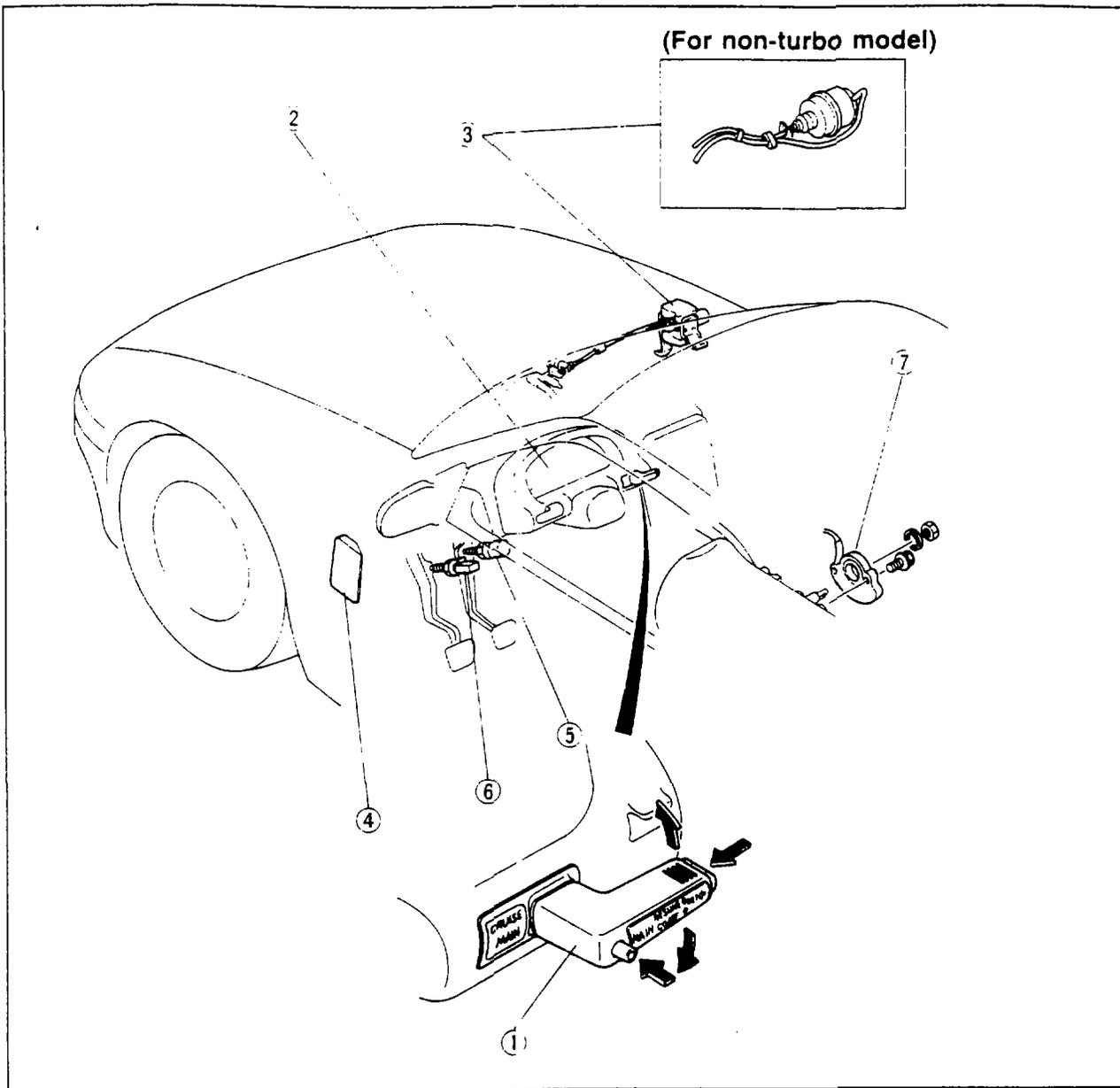
○—○ Indicates continuity

Battery		Continuity			
(+)	(-)	a	b	c	d
a	b			○—○	

3. If there is no continuity, replace the relay.

CRUISE CONTROL SYSTEM

STRUCTURAL VIEW

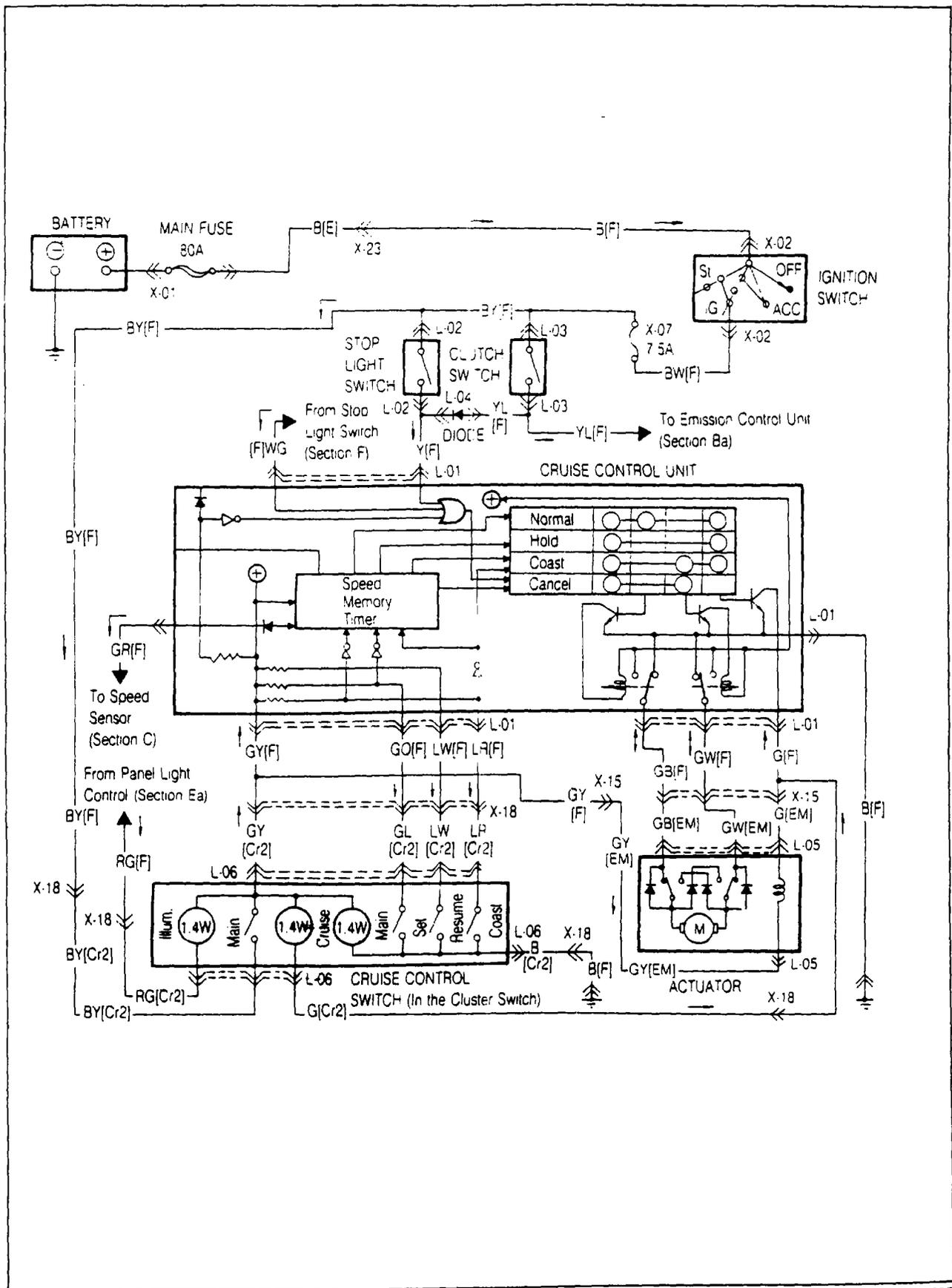


77U15X-094

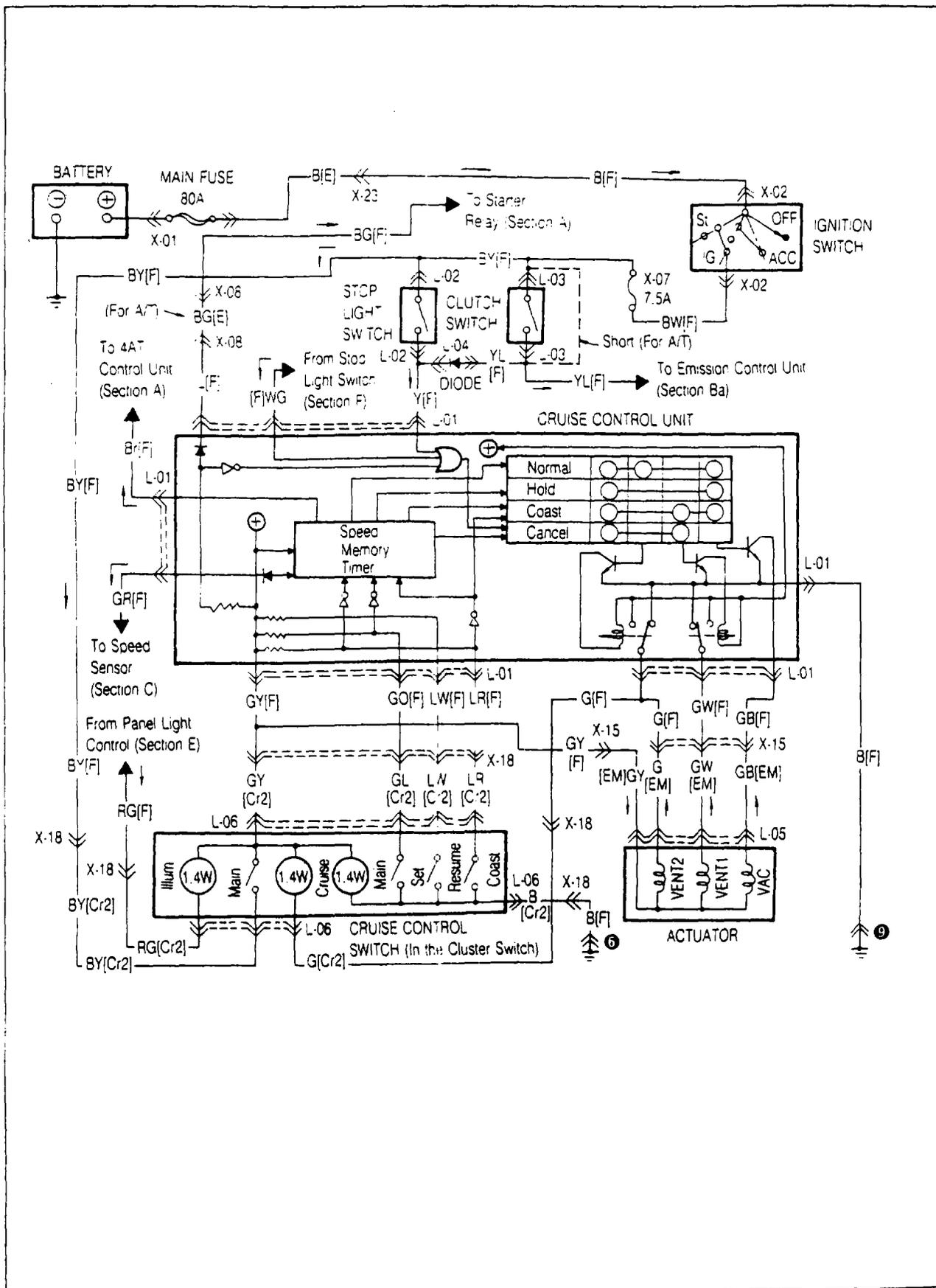
- | | |
|--------------------------------|-------------------------------------|
| 1. Cruise control switch | 5. Stop light switch |
| 2. Speed sensor (in the meter) | 6. Clutch switch (for M/T model) |
| 3. Actuator | 7. Inhibitor switch (for A/T model) |
| 4. Cruise control unit | |

15 CRUISE CONTROL SYSTEM

CIRCUIT DIAGRAM (TURBO MODEL)



CIRCUIT DIAGRAM (NON-TURBO MODEL)



15 CRUISE CONTROL SYSTEM

TROUBLESHOOTING GUIDE

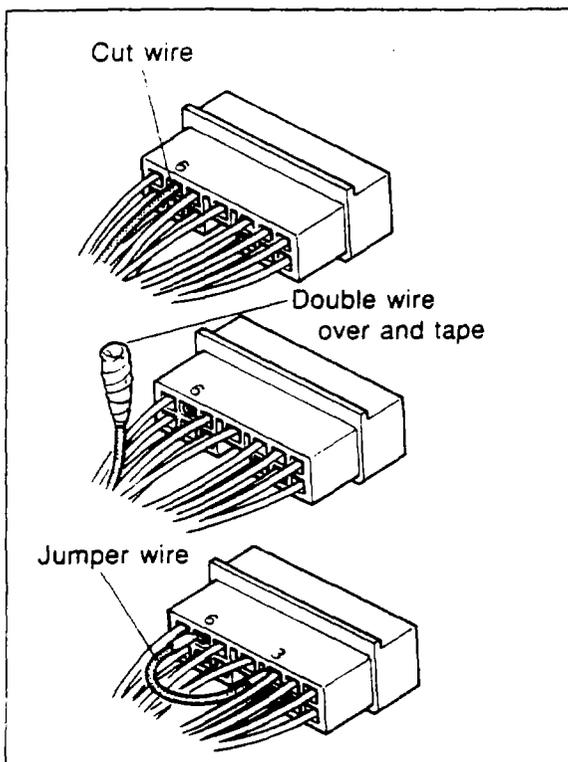
Problem	Possible	Remedy	Page
Cruise control system does not work	METER fuse blown	Replace	15-68, 69
	Defective main switch	Check	15-73
	Defective cruise control unit	Check	
	Defective actuator	Check	15-75
	Defective cruise control switch	Check	15-73
	Defective speed sensor	Check	15-74
	Defective clutch switch (M/T model only)	Adjust	15-73
	Defective stop switch	Adjust	15-73
	Defective inhibitor switch (A/T model only)	Adjust	15-73
	Defective wiring or ground	Repair	15-73
Speed setting cannot be cancelled	Defective cruise control unit	Check	
	Defective clutch switch (M/T model only)	Adjust	15-73
	Defective stop switch	Adjust	15-73
	Defective inhibitor switch (A/T model only)	Adjust	15-73
Set speed is not held	Defective actuator	Check	15-75
	Defective actuator control cable	Adjust	15-72
	Defective cruise control unit	Check	
	Defective speed sensor	Check	15-74
Cruise control system does not function immediately	Defective actuator	Check	15-75
	Defective actuator control cable	Adjust	15-72
	Defective cruise control switch	Check	15-73
	Defective cruise control unit	Check	

87U15X-016

ON-VEHICLE INSPECTION (USING ACC CHECKER 49 9200 010)

Note

1. The ACC Checker can not be used for checking the acutator on turbo models.
2. When checking the actuator on '86 and '87 models with **AUTOMATIC TRANSMISSION** using this checker, the checker should be modified as shown below in order to avoid damage of the 4 A/T control unit.



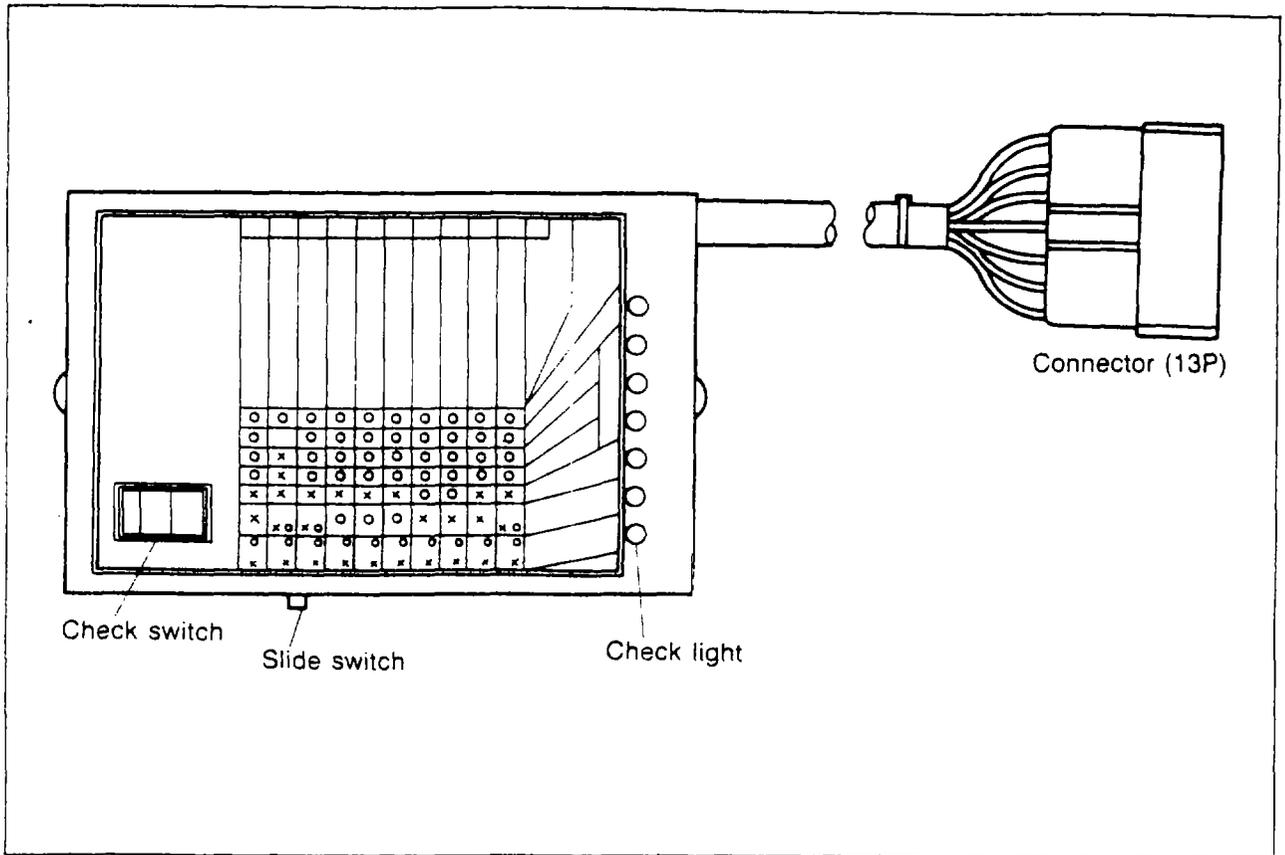
77U15X-121

Modification Procedure

1. "CUT" the lead wire at terminal no.6 indicated on ACC Checker connector.
2. Tape exposed end of wire cut in step 1 as shown.

This modification does not affect the usage of the ACC checker except when used on the '81 RX-7 and 626 models. When the modified ACC Checker is used on these models, use a jumper wire and jump across terminal no.6 to 3 indicated on ACC checker connector as shown.

ACC Checker (49 9200 010)



Function of the ACC CHECKER

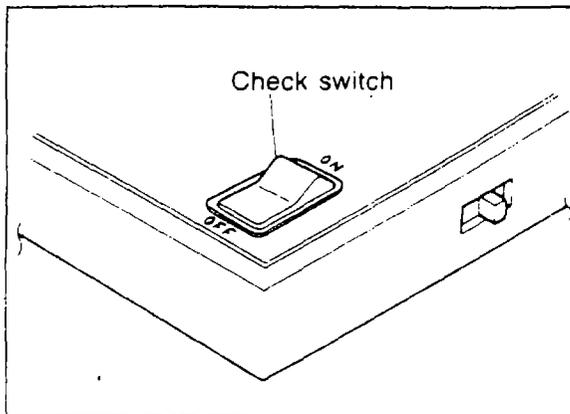
A. Check lights

Each item is verified by a check light, as described below.

Check light	Check items
MAIN SW.	Ignition switch, fuse, main switch and associated wiring harness terminals and connectors
ACTUATOR—VAC	VAC coil continuity in the actuator and associated harness
ACTUATOR—VENT 2	VENT 2 coil continuity in the actuator and associated harness
ACTUATOR—VENT 1	VENT 1 coil continuity in the actuator and associated harness
CLUTCH/BRAKE SW.	Clutch switch (M/T vehicles only), brake switch and associated harness
COMBINATION	"SET", "COAST" and "RESUME" positions in the combination switch and associated harness
GENERATOR	Speed sensor output and associated harness

47U15X-102

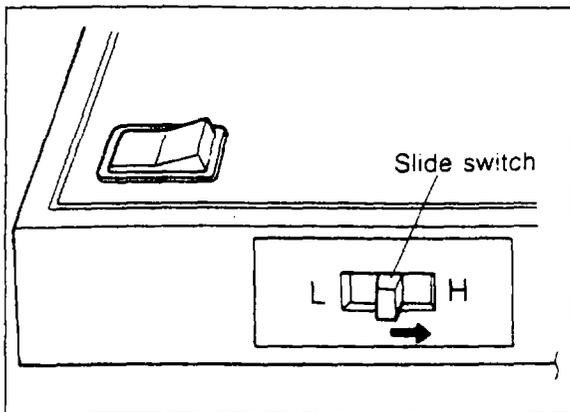
15 CRUISE CONTROL SYSTEM



67U15X-110

B. Check switch

The check switch is equipped in the ACC Checker to check the actuator operation while the engine is running. When the check switch is held on after the engine is started, the engine speed increases to approximately 2,000 to 3,000 rpm and is maintained at that level. When the check switch is then released, the engine speed decreases to idle speed.



67U15X-111

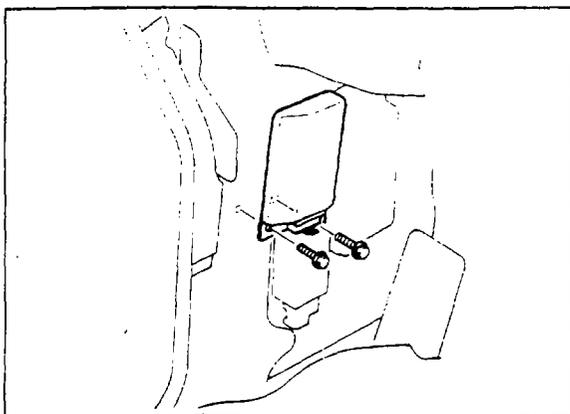
C. Slide switch

Set the slide switch in the H position before the check switch is used.

The engine rpm will increase to approximately 2,000 to 3,000 rpm, and will remain steady.

Note

If engine speed does not increase and remains in the 2,000 to 3,000 rpm range, adjust the freeplay of the actuator inner cable.



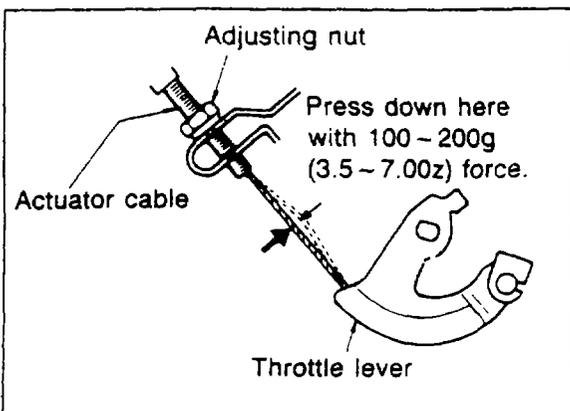
67U15X-112

Preparation

1. Depress the lock hook of the harness connector.

Check that the ignition switch and main switch is off and remove the connector from the cruise control unit.

Connect the harness connector to the ACC Checker.



67U15X-113

2. Checking freeplay of actuator inner cable

Remove the clip and adjust the nut so that the actuator control cable play is as follows when the cable is pressed lightly.

Free play of actuator inner cable:

1—3 mm (0.039—0.118 in)

Checking the System

Check table

○ : Light ON
X : Light OFF

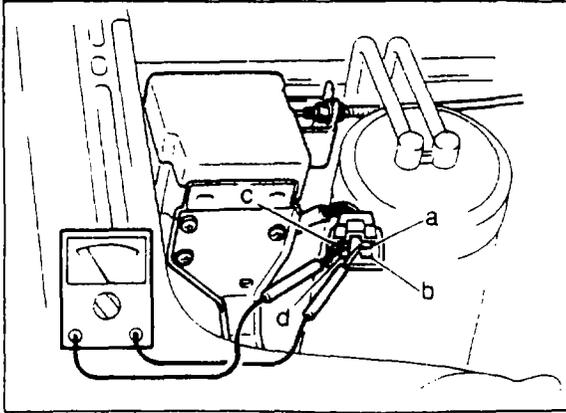
CHECK ITEMS AND CONDITIONS	CHECK LIGHTS (correct response)						TROUBLESHOOTING (INCORRECT RESPONSE)	
	MAIN SW.	ACTUATOR			CLUTCH/BRAKE SW.	COMBINATION/INH. SW.		GENERATOR
		VAC	VENT 2	VENT 1				
1. MAIN SW. CONTINUITY: • Ignition switch ON • Main switch ON	○	○	○	○	X	M/T X	○ or X	ALL LIGHTS OFF: Check ignition switch, main switch, fuse, and associated harness terminals and connectors
2. INHIBITOR SW. CONTINUITY: • Ignition and main switch ON. • Shift lever in "D" (A/T) • Depress brake pedal	○	○	○	○	X	X	○ or X	COMBINATION/INH. SW. LIGHT ON: Check inhibitor switch and associated harness
3. BRAKE SW. CONTINUITY • Ignition and main switch ON • Shift lever in "D" (A/T) • Depress brake pedal	○	○	○	○	○	X	○ or X	CLUTCH/BRAKE SW. LIGHT OFF: Check brake switch and associated harness
4. CLUTCH SW. CONTINUITY • Ignition switch ON • Main switch ON • Depress clutch pedal	○	○	○	○	○	X	○ or X	CLUTCH/BRAKE SW. LIGHT OFF: Check clutch switch and associated harness
5. "SET" POSITION OF COMBINATION SWITCH: • Ignition switch ON • Main switch ON • Shift lever in "D" (A/T) • Push to "SET" position of combination switch	○	○	○	○	X	○	○ or X	COMBINATION/INH. SW. LIGHT OFF: Check "SET" position of combination switch and associated harness
6. "COAST" POSITION OF COMBINATION SWITCH • Ignition switch ON • Main switch ON • Shift lever in "D" (A/T) • Turn to "COAST" position of combination switch	○	○	○	○	X	○	○ or X	COMBINATION/INH. SW. LIGHT OFF: Check "COAST" position in combination switch and associated harness
7. "RESUME" POSITION OF COMBINATION SWITCH • Ignition switch ON • Main switch ON • Shift lever in "D" (A/T) • Turn to "RESUME" position of combination switch	○	○	○	○	X	○	○ or X	COMBINATION/INH. SW. LIGHT OFF: Check "RESUME" position of combination switch and associated harness

67U15X-114

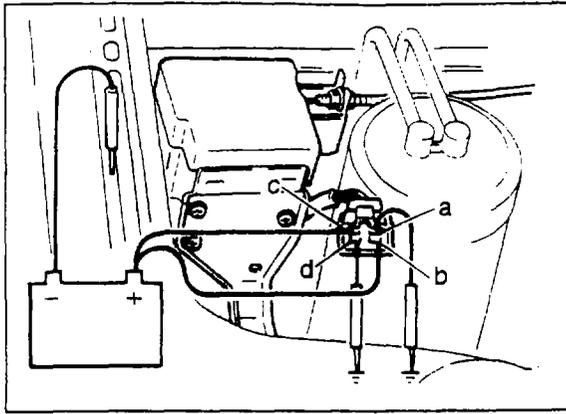
15 CRUISE CONTROL SYSTEM

CHECK ITEMS AND CONDITIONS	CHECK LIGHTS (correct response)						TROUBLESHOOTING (INCORRECT RESPONSE)	
	MAIN SW.	ACTUATOR			CLUTCH/BRAKE SW.	COMBINATION/INH. SW.		GENERATOR
		VAC	VENT 2	VENT 1				
8. START ENGINE • Shift lever in "N" position (A/T)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	X	M/T X	<input type="radio"/> or X	—
9. ACTUATOR OPERATION. • After engine is started, set the slide switch to "H". Then turn check switch "ON" and hold in "ON" position Note Check that engine speed increases. If over 4,000 rpm, release the switch immediately.	<input type="radio"/>	X ↓ <input type="radio"/>	X	X	X	M/T X	<input type="radio"/> or X	If engine speed does not increase and remain in the 2,000 to 3,000 rpm range, fault may be with actuator and associated harness
10. SPEED SENSOR OUTPUT • Drive vehicle slowly with engine idling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	X	X	<input type="radio"/> ↓ X	IF GENERATOR LIGHT does not flash, fault may be with speed sensor and associated harness.

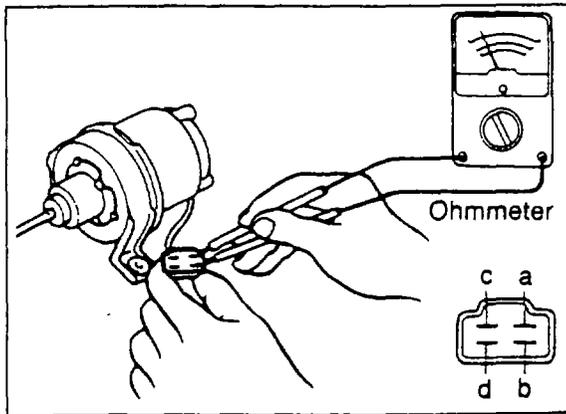
67U15X-115



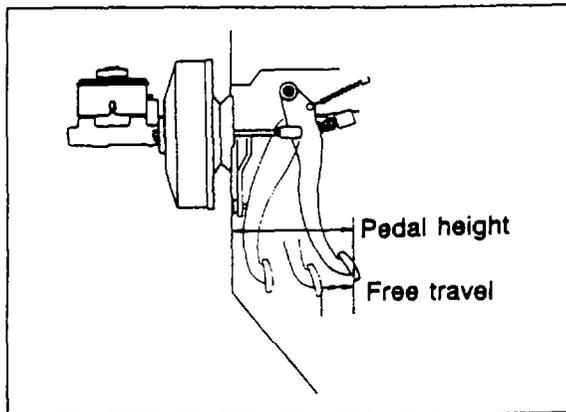
77U15X-098



77U15X-022



77U15X-099



77U15X-023

INSPECTION

Actuator (turbo model)

1. Measure the actuator clutch solenoid resistance using an ohmmeter.

Check terminal	Resistance
c — a	Approx. 20 ohms

2. Check continuity at the terminals of the actuator connector.

Check terminal	Continuity
c — a	Yes
b — d	Yes

3. Connect battery power and ground as follows, and check the operation of the control cable.

Terminal condition				Operation condition of control cable
a	b	c	d	
Ground	Power	Power	Ground	Pull
Ground	—	Power	—	Stop
Ground	Ground	Power	Power	Extend
—	—	—	—	Release

Actuator (non-turbo model)

Measure the actuator solenoid resistance using an ohmmeter.

Check terminals	Resistance
c — a	Approx. 23 to 40 Ω
c — b	
c — d	

Clutch switch, Brake switch

When servicing these switches, adjust them so that the corresponding pedal height is as specified.

Pedal height:

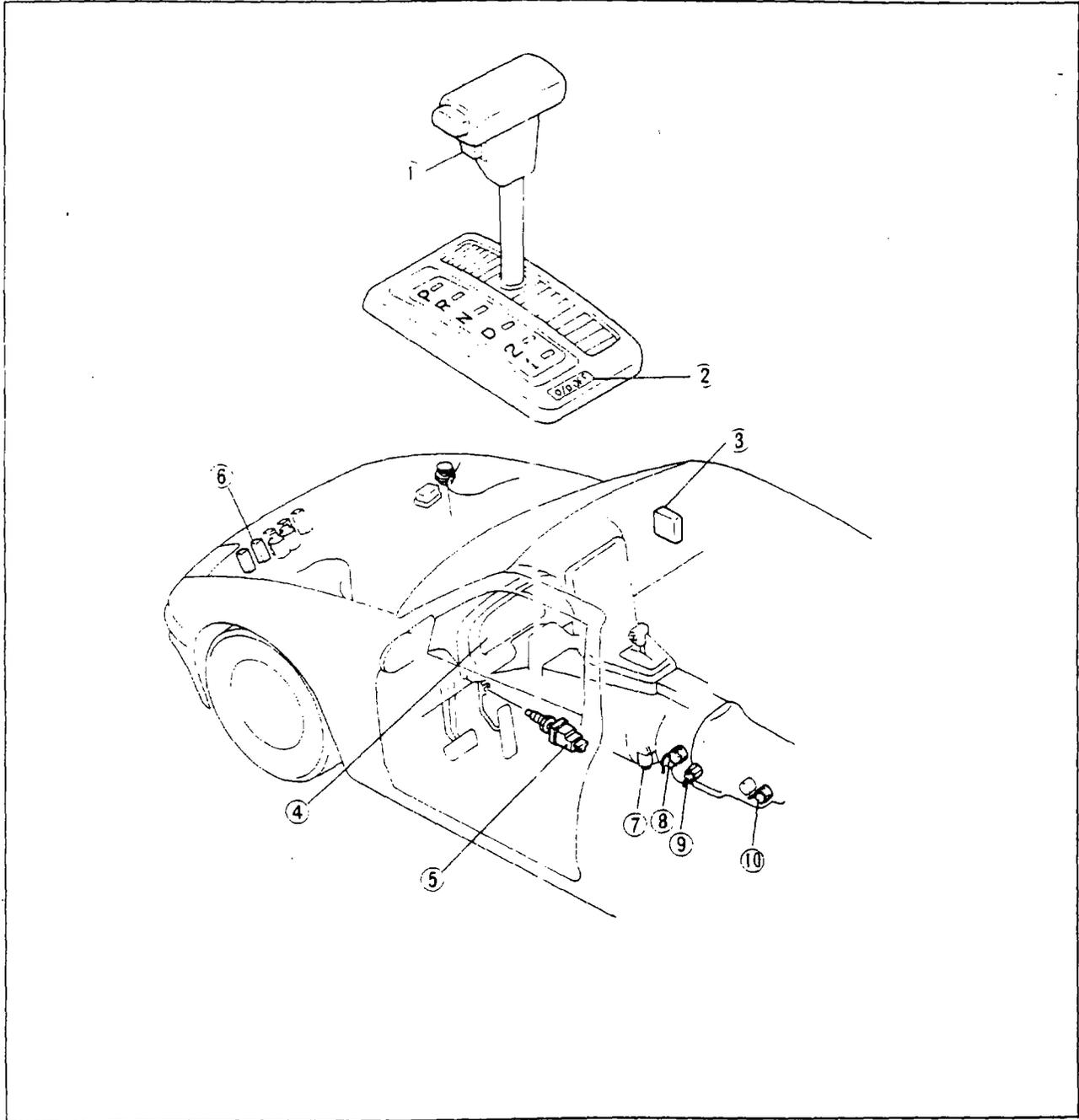
Clutch.....220—225 mm (8.661—8.858 in)

Brake.....205—210 mm (8.070—8.268 in)

15 OVERDRIVE SYSTEM

OVERDRIVE SYSTEM (FOR NON-TURBO MODEL)

STRUCTURAL VIEW

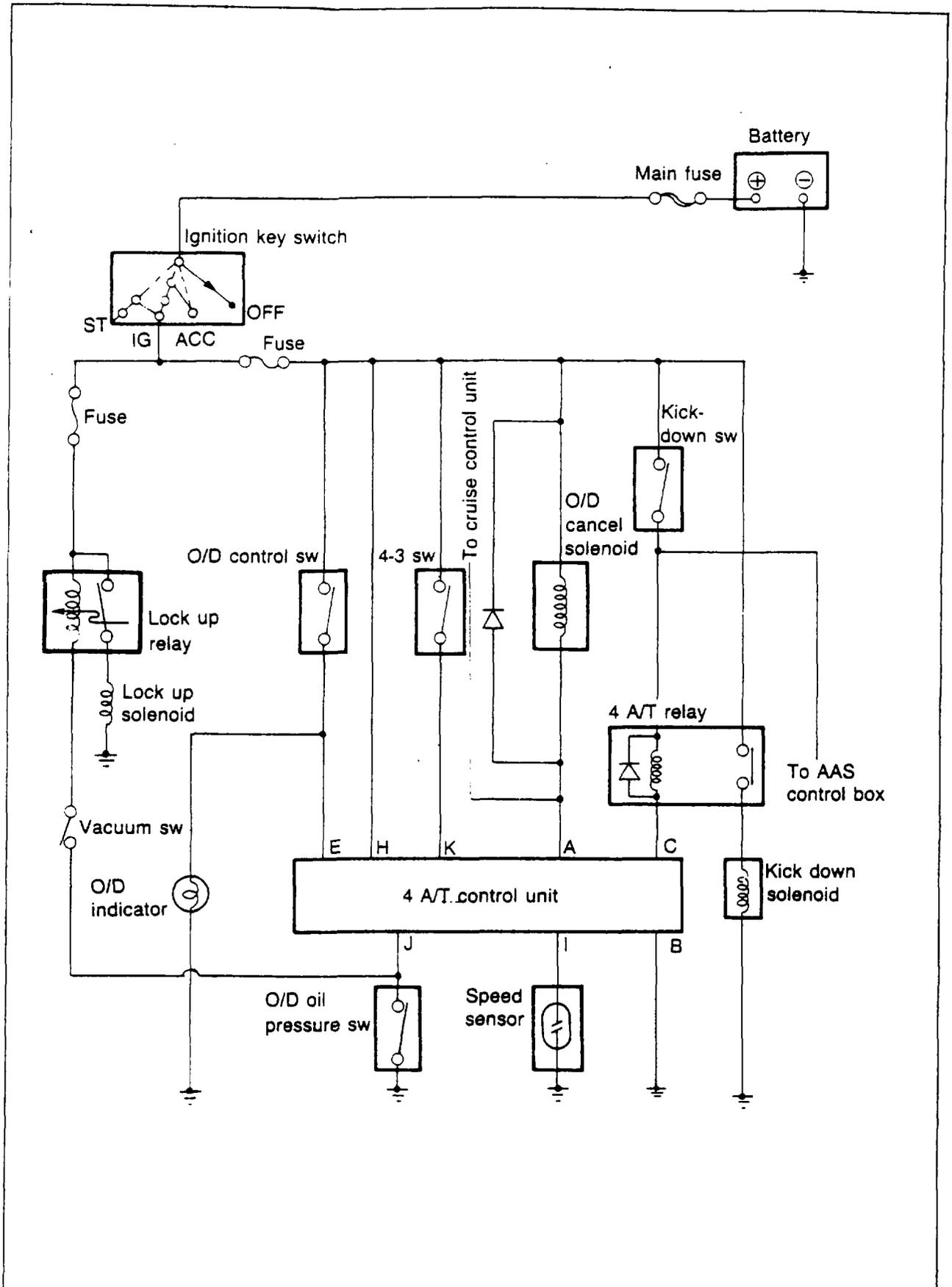


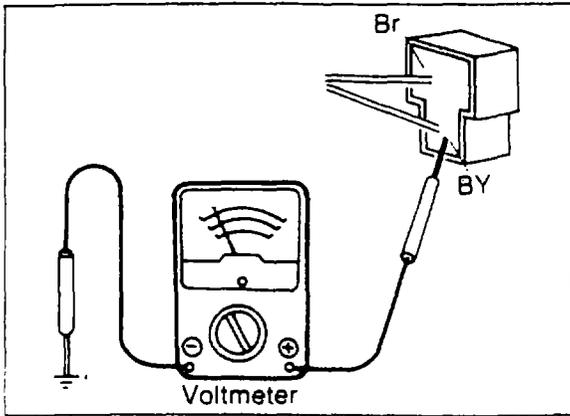
67U15X-118

1. Overdrive control switch
2. Overdrive indicator
3. 4 A/T control unit
4. Speed sensor (In meter)
5. Kickdown switch

6. 4 A/T relay
7. Lock-up control solenoid
8. Overdrive cancel solenoid
9. Overdrive oil pressure switch
10. Kickdown solenoid

CIRCUIT DIAGRAM

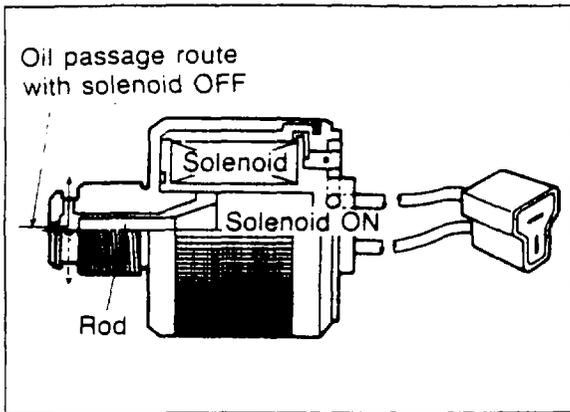




77U15X-100

INSPECTION OF CIRCUIT AND PARTS Overdrive Cancel Solenoid Checking circuit

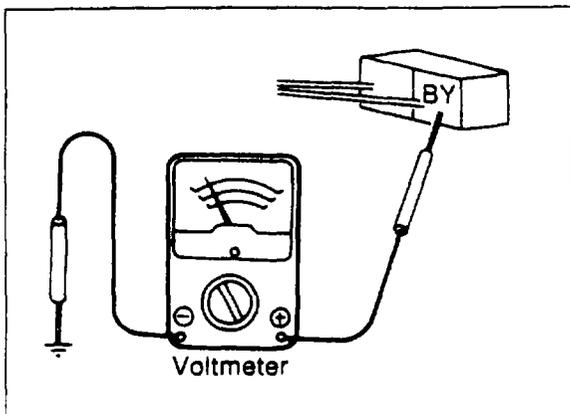
1. Disconnect the connector from the overdrive cancel solenoid.
2. Using a voltmeter, measure the voltage between the (Br) wire and a body ground with the ignition switch ON.
3. If there is no voltage, check the fuse or repair the wiring harness.



67U15X-121

OD Cancel Solenoid Inspection

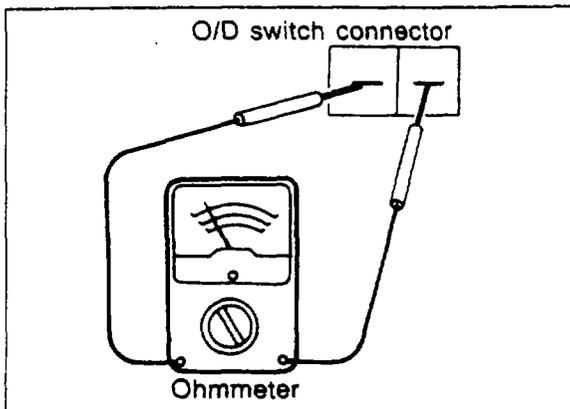
Check the opening and closing of the oil passage by applying 12V to the OD cancel solenoid. The oil passage should close with the current applied to the solenoid and open when the current is cut off.



67U15X-122

Overdrive Control Switch Checking circuit

1. Disconnect the connector from OD control switch.
2. Using a voltmeter, measure the voltage between the (BY) wire and a body ground with the ignition switch ON.
3. If there is no voltage check the fuse or repair the wiring harness.

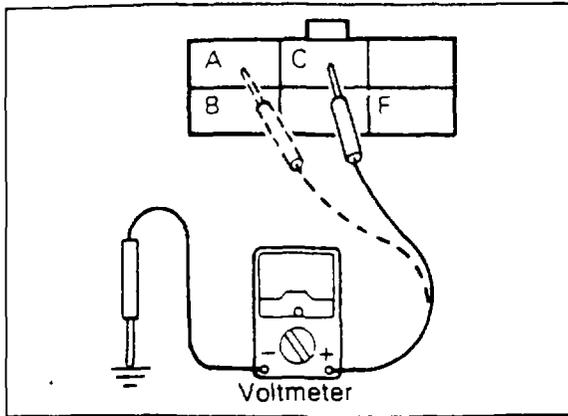


67U15X-123

Checking control switch

1. Using an ohmmeter, check the continuity of the switch as shown in the figure. Check that there is continuity when the switch is OFF, and that there is no continuity when the switch is pressed ON.
2. If the continuity is not as specified, replace the switch.

15 OVERDRIVE SYSTEM



67U15X-124

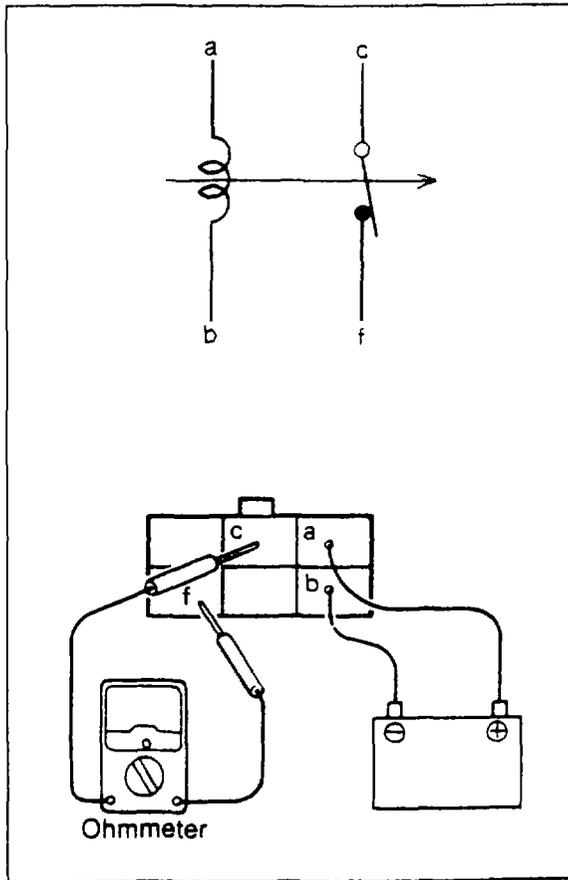
Lock-up Relay

Checking circuit

1. Disconnect the connector from lock-up relay.
2. Turn the ignition switch ON.
3. Using a voltmeter, measure the voltage between (a) and (c) terminal and ground.

.....12V

4. If there is no voltage, check the fuse or repair the wiring harness.



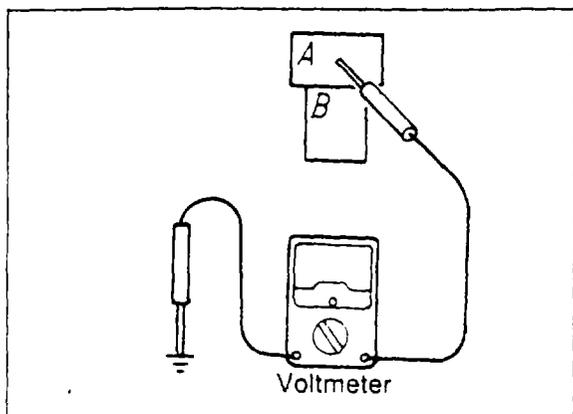
77U15X-101

Checking lock-up relay

1. Using an ohmmeter, check for continuity between (c) terminal and (d) terminal.

a—b	c—f
0V	Continuity
12V	No continuity

2. If the continuity is not as specified, replace the relay.



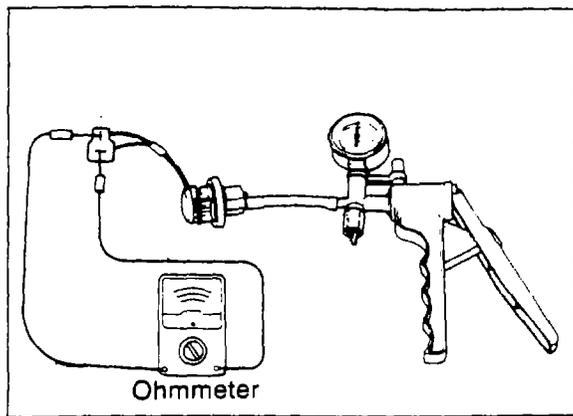
67U15X-126

Vacuum Switch Checking circuit

1. Disconnect the connector from vacuum switch.
2. Turn the ignition switch to ON.
3. Using a voltmeter, measure the voltage between (A) terminal and ground.

.....12V

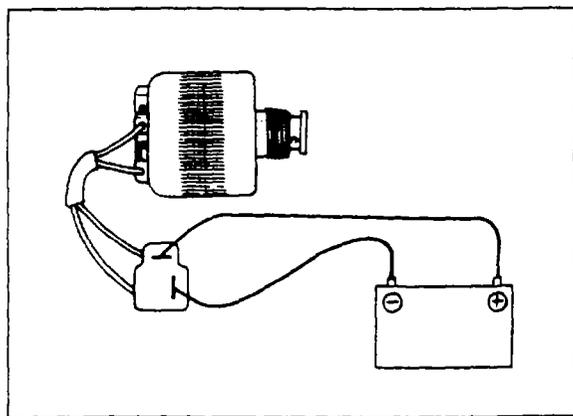
4. If there is no voltage, check the fuse or repair the wiring harness.



67U15X-127

Checking vacuum switch

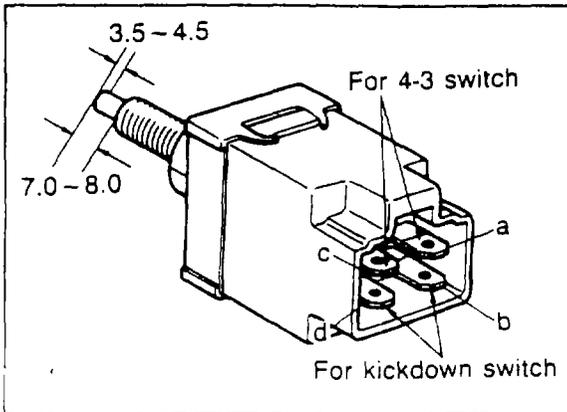
1. Connect the ohmmeter to each terminal.
2. Check that there is continuity when **410—440 mmHg (-16.1—-17.3 inHg)** vacuum is applied.
3. If there is no continuity or the continuity is not as specified, replace the switch.



67U15X-128

Lock-up Solenoid

Check the opening and closing of the oil passage by applying 12V to the lock-up control solenoid. The oil passage should close with the current applied to the solenoid and open when the current is cut off.

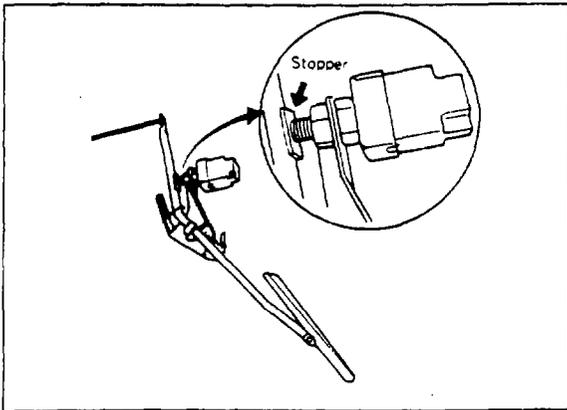


77U15X-102

4-3 Switch and Kickdown Switch

Checking switch

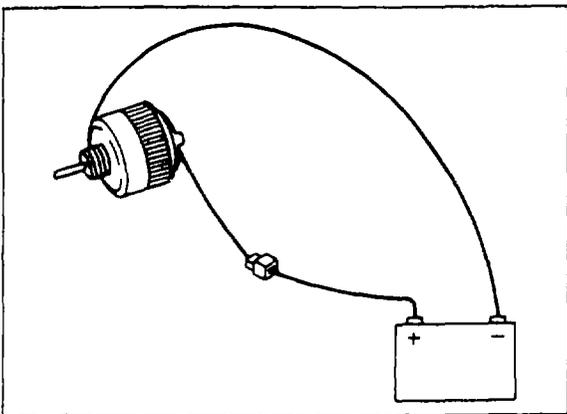
1. The 4-3 switch function is normal when continuity between (a) and (c) terminals is attained with the tip of the switch depressed approx. **3.5 (0.138 in) to 4.5 (0.177 in) mm**.
2. The kickdown switch function is normal when continuity between (b) and (d) terminals is attained with the tip of the switch depressed approx. **7.0 (0.276 in) to 8.0 (0.315 in) mm**.



67U15X-130

Adjustment procedures

1. Depress the accelerator fully.
2. Adjust the 4-3 and kickdown switch stopper to where it contacts the accelerator pedal.
3. Secure the switch with the lock nut.

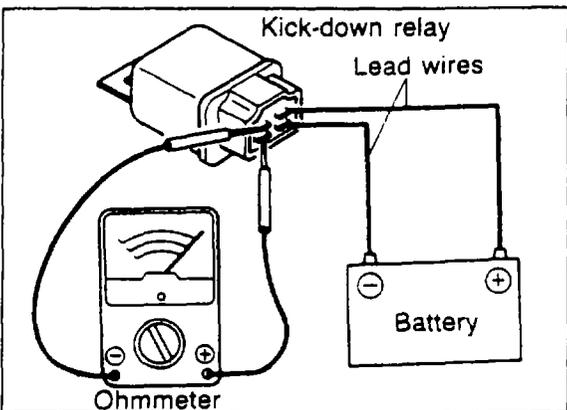


67U15X-131

Kickdown Solenoid

Checking kickdown solenoid

The kickdown solenoid function is normal when a "click" sound is heard when 12V is applied to the kickdown solenoid.



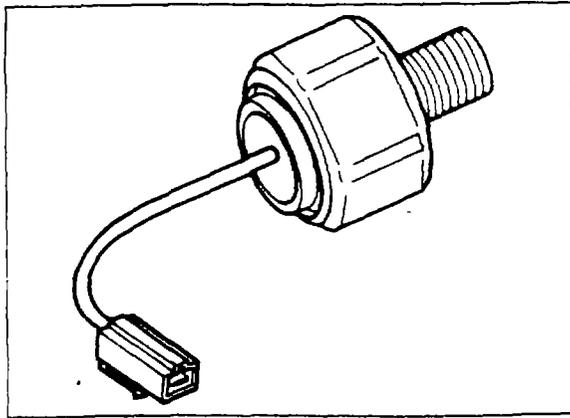
67U15X-132

4 A/T Relay

Checking 4 A/T relay

1. Connect the 4 A/T relay, battery, and an ohmmeter as shown in the figure.
2. First check that there is continuity, then disconnect the battery and check that there is no continuity.
3. If the continuity is not as specified, replace the relay.

15 OVERDRIVE SYSTEM



67U15X-133

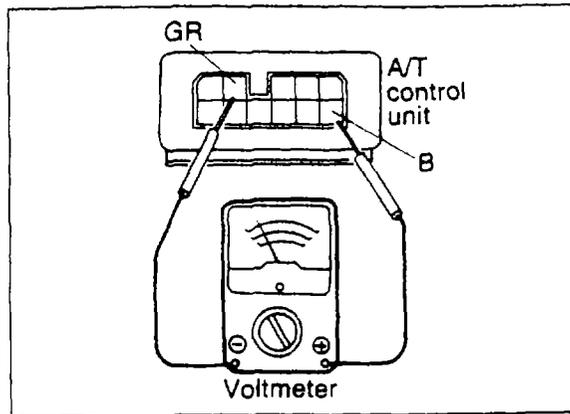
Overdrive Oil Pressure Switch Checking overdrive oil pressure switch

The OD oil pressure switch function is normal when the following conditions are satisfied.

Illuminating

Pressure Under 0.5 kg/cm² ON Conduction
Shut-off Over 3.0 kg/cm² OFF Conduction
Pressure

(The inspection is performed under air pressurization.)

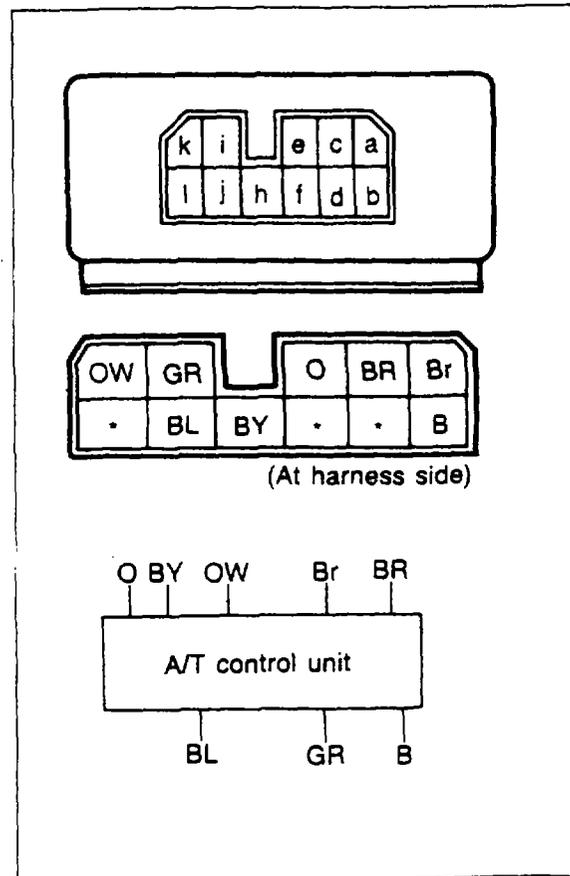


67U15X-134

Speed Sensor

Checking speed sensor output

1. Connect a voltmeter and the A/T control unit as shown in the figure.
2. Start the engine and drive the vehicle slowly with the engine idling.
3. Check that the voltmeter indication alternates between 12V and 0V.



77U15X-103

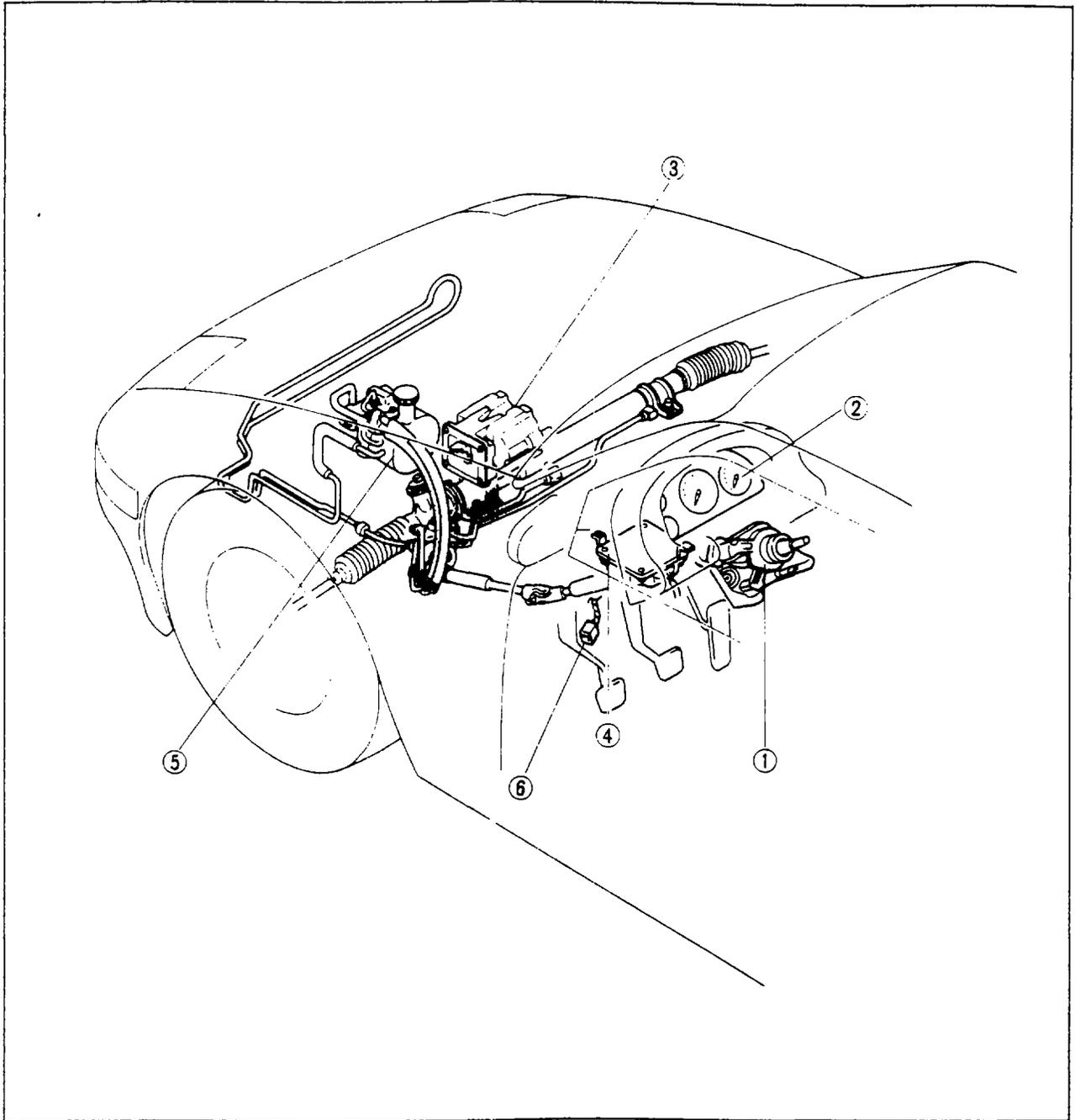
A/T Control Unit

A/T control unit terminal connections

Terminal	Wiring color	Connecting to.....
a	Br	From overdrive cancel solenoid
b	B	Ground
c	BR	From kickdown switch
d	*	Not used
e	O	From overdrive control switch
f	*	Not used
h	BY	7.5 fuse (from IG switch)
i	GR	Speed sensor (in meter)
j	BL	Overdrive oil pressure switch
k	OW	From 4-3 switch (in the kickdown switch)
l	*	Not used

SPEED SENSING POWER STEERING (P/S)

STRUCTURAL VIEW



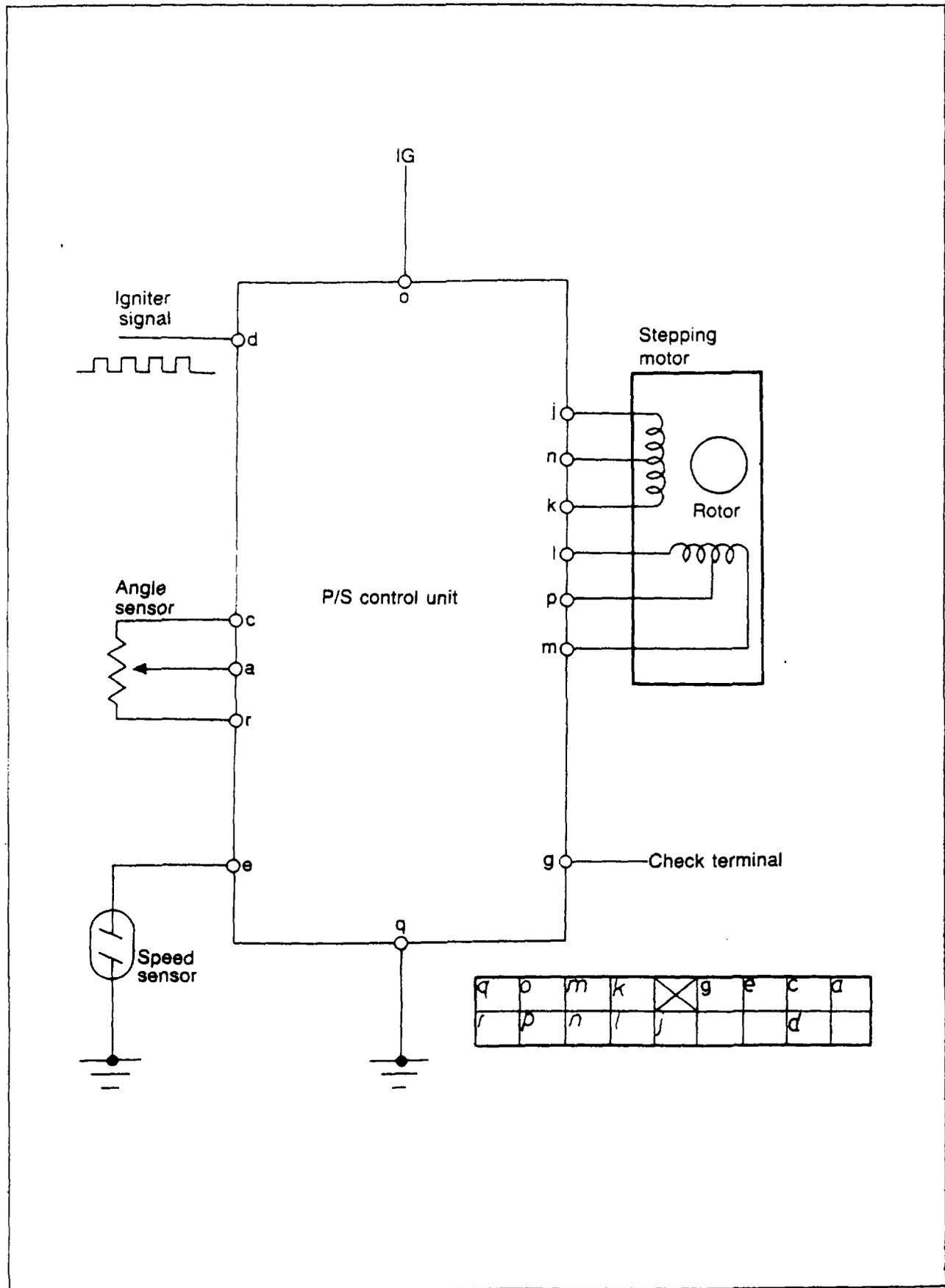
87U15X-062

- 1. Turn cancel and angle sensor
- 2. Speed sensor (in meter)
- 3. Igniter signal

- 4. P/S control unit
- 5. Motor
- 6. Check terminal

15 SPEED SENSING POWER STEERING (P/S)

CIRCUIT DIAGRAM

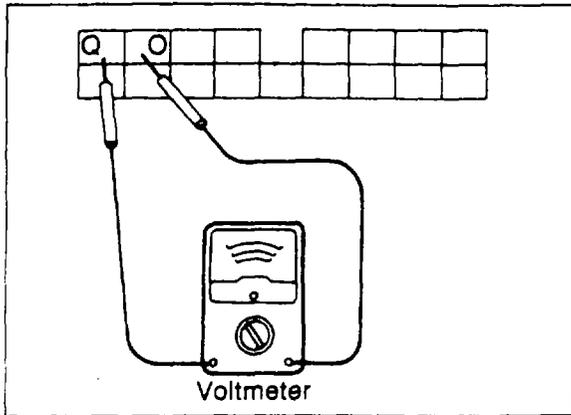


FAIL-SAFE FUNCTION

Failure	Description		Power steering effect
Malfunction of engine speed sensor	Vehicle speed signal is input but engine speed signal is not input		Normal control
Malfunction of vehicle speed sensor	No vehicle speed signal but engine speed signal of 2,200 rpm received for over 30 seconds	Below 80 km/h (50 mph)	Steering effort adjusted as to vehicle speed 80 km/h (50 mph)
		Above 80 km/h (50 mph)	Steering effort maintained as at vehicle speed when failure occurred.
Malfunction of steering angle sensor	Vehicle speed over 40 km/h (25 mph) and sensor output shows more than 35° steering angle continuously for over 80 seconds		Steering effort decreased slightly at all speeds above 40 km/h (25 mph)
Malfunction of stepping motor output	Abnormal signal caused by damage, disconnection, short-circuit, etc., of stepping motor circuit		Power supply to stepping motor cancelled and steering effort adjusted as to vehicle speed 80 km/h (50 mph)
Malfunction of control unit	Control unit malfunction		Power supply to stepping motor cancelled and steering effort adjusted as to vehicle speed 80 km/h (50 mph)

77U15X-104

15 SPEED SENSING POWER STEERING (P/S)



67U15X-139

INSPECTION P/S Control Unit Checking circuit

1. Disconnect the connector from the P/S control unit.
2. Turn the ignition switch to ON.
3. Using a voltmeter, measure the voltage between (O) terminal and (Q) terminal.

.....12V

4. If there is no voltage, check the fuse or repair the wiring harness.

Self-diagnosis function

Function	Operation	Voltage output *2
Abnormality occurs to engine speed signal	When vehicle speed signal input and no engine speed signal input (short circuit, broken wire, etc.)	12V 0V
Abnormality occurs to steering sensor signal	60 seconds after broken wire or short circuit occurs to sensors or harnesses when vehicle speed above 40 Km/h (25 mph)	12V 0V
Abnormality occurs to speed sensor signal	60 seconds after engine speed signal of 2,200 rpm continues for 30 seconds	12V 0V
Abnormality occurs to stepping motor signal or microcomputer	When there are broken wires or short circuits in coils or harnesses and microcomputer malfunctions and cannot control system	12V 0V *1
	When there are circuit troubles other than with microcomputer	12V 0V

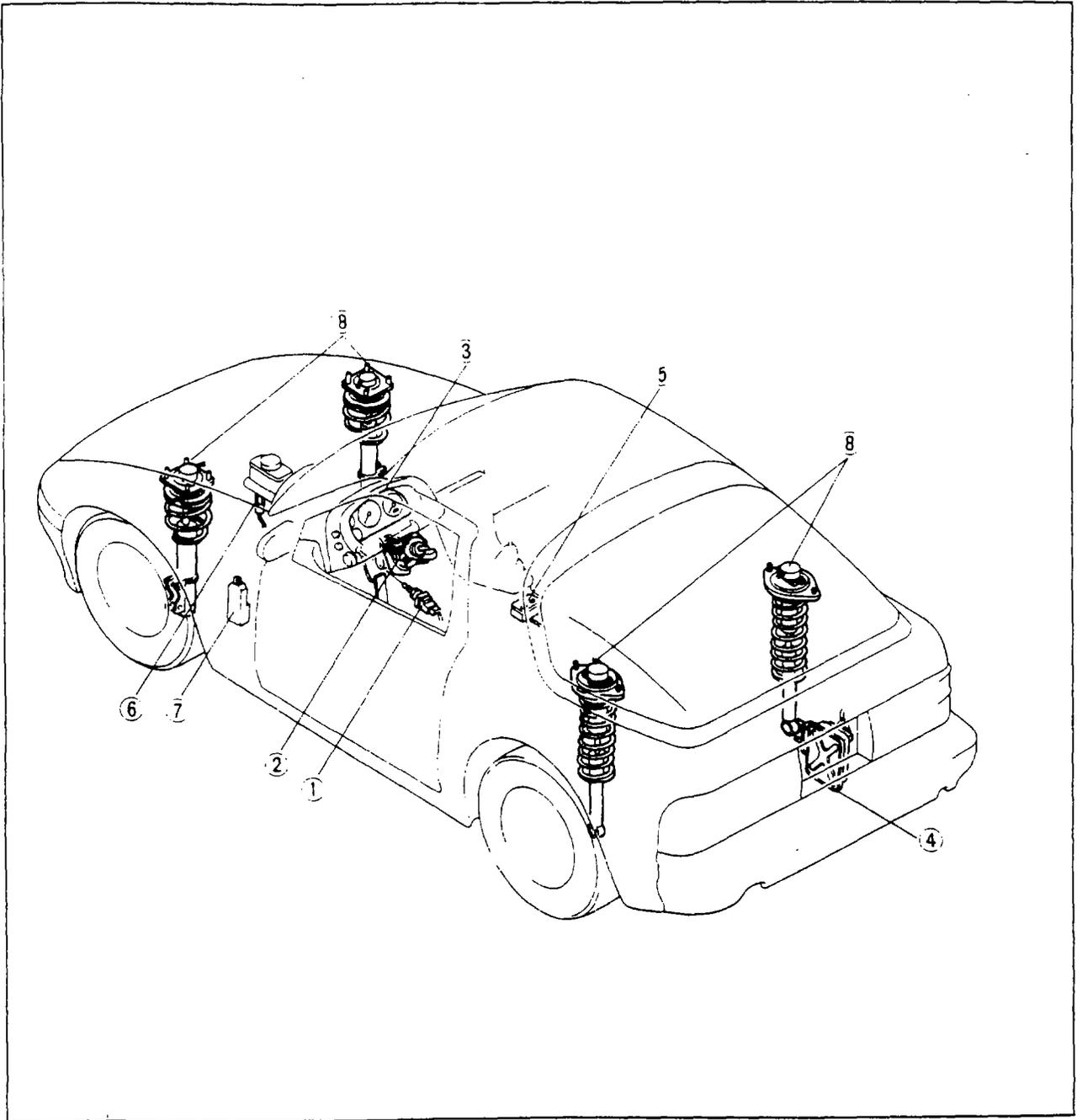
87U15X-063

NOTE:

- *1 In this pattern, check the stepping motor before checking the control unit.
- *2 Voltage output can be detected at check terminal.

AUTO ADJUST SUSPENSION (AAS) (FOR NON-TURBO MODEL)

STRUCTURAL VIEW



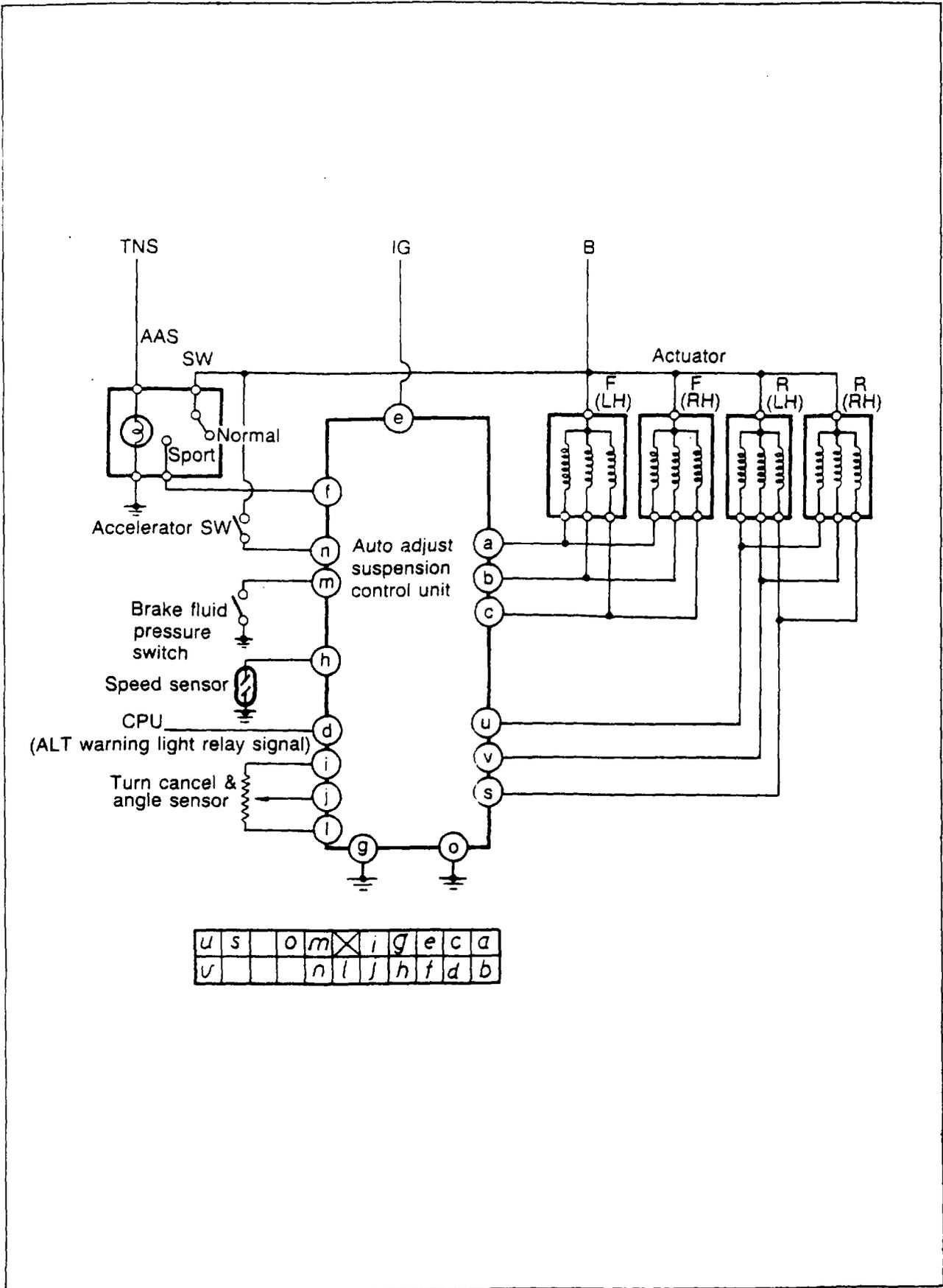
77U15X-051

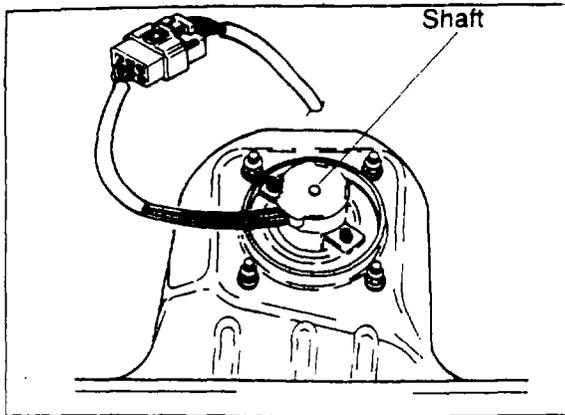
- 1. Accelerator switch
- 2. Turn cancel & angle sensor
- 3. Speed sensor (in meter)
- 4. AAS control unit

- 5. AAS switch
- 6. Brake fluid pressure switch
- 7. ALT warning light relay signal (in CPU)
- 8. Actuator

15 AUTO ADJUST SUSPENSION (AAS)

CIRCUIT DIAGRAM





77U15X-052

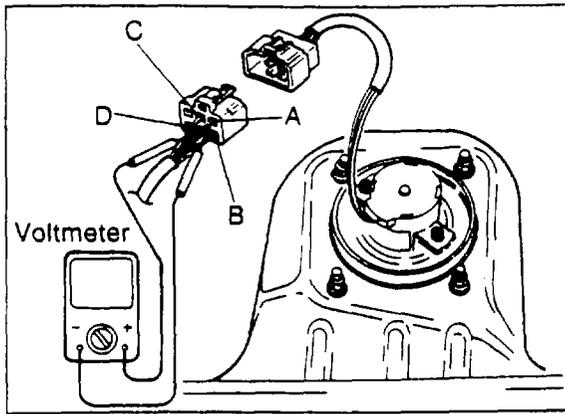
INSPECTION OF CIRCUIT AND PARTS

Checking Actuator

1. Turn the ignition switch to ON and start the engine.
2. Alternately switch ON the "NORMAL" and "SPORT" switches. Check that the shaft of the actuator installed on the front and rear damper operates.

Note

The actuator must not be disassembled.



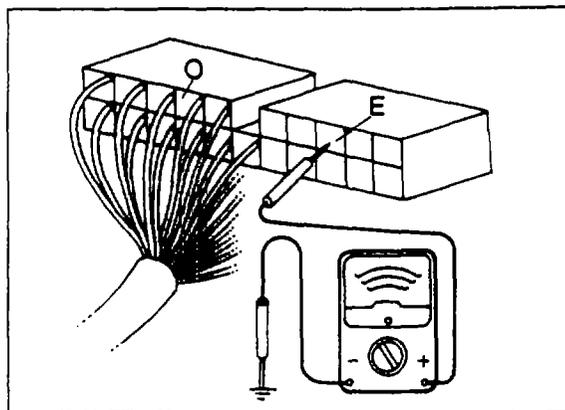
77U15X-053

3. Check as follows if the motor is not operating:
 - (1) Turn the ignition switch to ON.
 - (2) Disconnect the connector of the actuator which is not operating and connect a voltmeter to the connector (4-pin) at the chassis side (harness side).
 - (3) Measure the voltage of the terminals.

	Terminal	SPORT/NORMAL setting	Voltage
+	D	When sport is pressed	Approx. 1 sec., 12V .1
-	A		
+	D	When NORMAL is pressed	Approx. 1 sec., 12V .1
-	C		

*1 The voltmeter will indicate approx. 12V for only approx. 1 sec. after the "Sport" or "Normal" switch is pushed.

If voltage is normal, there may be a malfunction in the actuator.



67U15X-145

- (4) If the results of the check in (3) indicate a problem, disconnect the connector of the AAS control unit, and check the voltage or continuity of the terminals.

Terminal (O) ↔ Body ground continuity

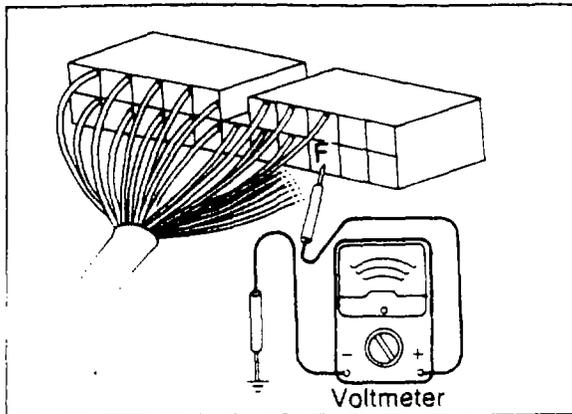
Terminal (E) ↔ Body ground 12V

(Turn the ignition sw to ON)

If the results are not correct, check or repair the power supply or the ground circuit.

If they are normal, there may be a malfunction in the control switch or the control unit.

15 AUTO ADJUST SUSPENSION (AAS)



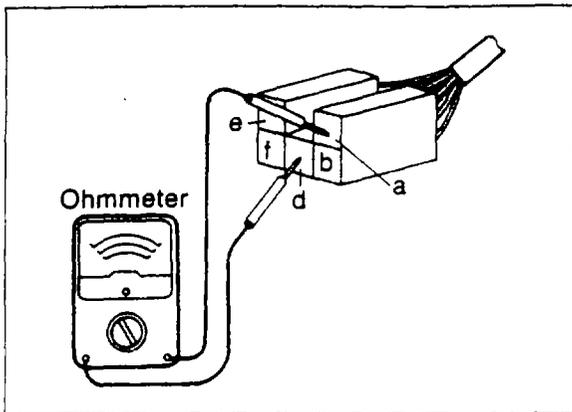
67U15X-146

System check of AAS switch

1. Turn the ignition switch to ON.
2. Disconnect the connector of the AAS control unit and connect a voltmeter to the (F) terminal of the connector (21-pin) at the chassis side (harness side).
3. Check that there is voltage when SPORT is pressed ON.

Terminal	Wiring color	Voltage
F	LY	12V

If not correct, there may be a malfunction in the AAS switch or damage to or disconnection of the wiring harness.



67U15X-147

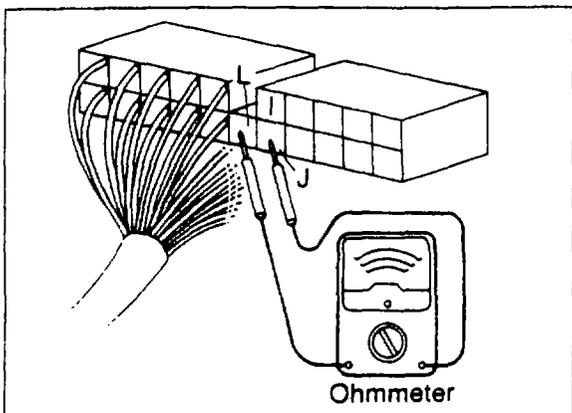
Checking AAS switch

1. Disconnect the connector of the AAS switch and connect an ohmmeter to the connector (5-pin) at the switch side.
2. Check for continuity of the terminals.

Terminal	Switch position	Continuity
a to d	When SPORT is pressed ON.	Yes

System check of angle sensor

1. Turn the ignition switch ON.
2. Disconnect the connector of the AAS control unit, connect a tester to the connector (21-pin) at the chassis side (harness side), and check the resistance.



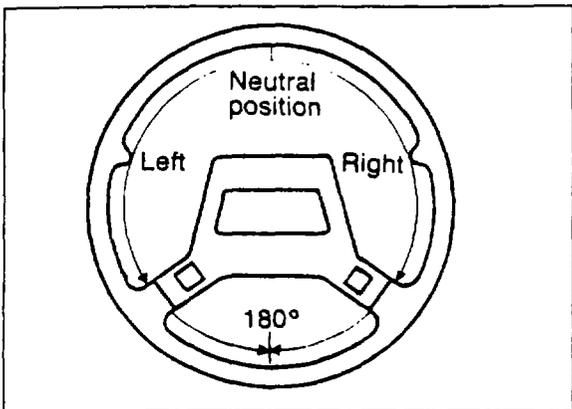
67U15X-148

Terminal	Steering position	Resistance
I to J	Turn gradually from neutral position 180° to the right	Resistance increases from approx. 25 kΩ to 50 kΩ
I to J	Neutral position	Approx. 25 kΩ
I to J	Turn gradually from neutral position 180° to the left	Resistance decreases from approx. 25 kΩ to 200 Ω
I to L	Neutral position	Approx. 50 kΩ

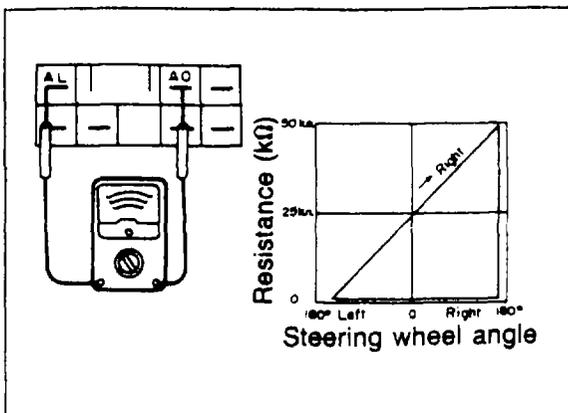
Note

Terminal	Steering position	Resistance
I to J	When turned more than 180° to right from straight-ahead position	Resistance slowly and gradually increases after indication of approx. 200 Ω
I to J	When turned more than 180° to left from straight-ahead position	Resistance slowly and gradually decreases after indication of approx. 50 kΩ

If the resistances measured in the above system check are not correct, there is probably a fault in the wiring harness.



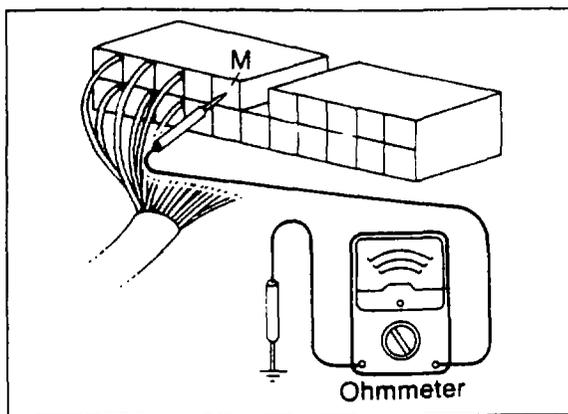
67U15X-149



87U15X-064

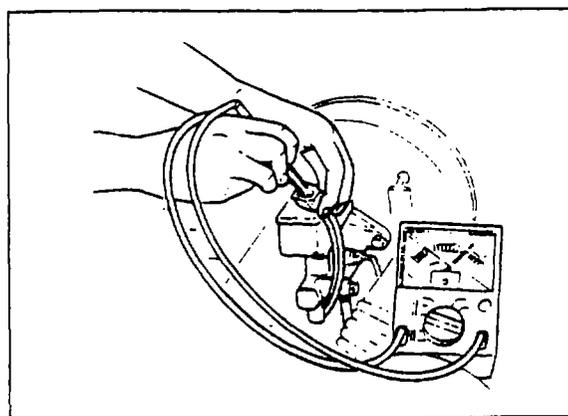
CHECKING ANGLE SENSOR

Refer to pages 15—20 and 21.



System check of brake fluid pressure switch

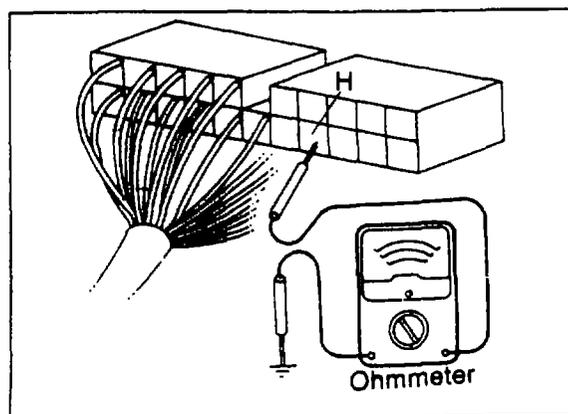
1. Disconnect the connector of the AAS control unit and connect a tester between the (M) terminal of the connector (21-pin) at the harness side and a ground.
2. Check that there is continuity when the brake pedal is depressed with force.
If there is no continuity, there may be a malfunction of the brake fluid pressure switch or damage to or disconnection of the wiring harness. If there is continuity, there may be a malfunction of the control unit.



67U15X-151

Checking brake fluid pressure switch

1. Disconnect the connector of the brake fluid pressure switch and connect a tester between the terminals of the connector.
2. Depress the brake pedal firmly. Check that there is continuity at this time.

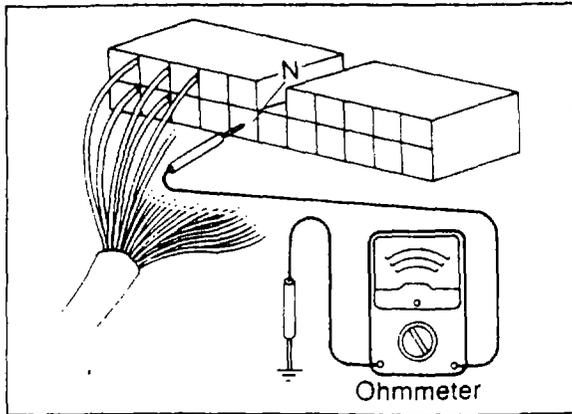


67U15X-152

System check of vehicle speed sensor

1. Disconnect the connector of the AAS control unit, and connect a tester to the (H) terminal of the connector (21-pin) at the harness side
2. Jack up the rear of the vehicle, and check to be sure that there is alternately continuity and no continuity when a rear tire is turned manually.
3. If there is no continuity, there may be a malfunction of the vehicle speed sensor or damage to or disconnection of the harness.

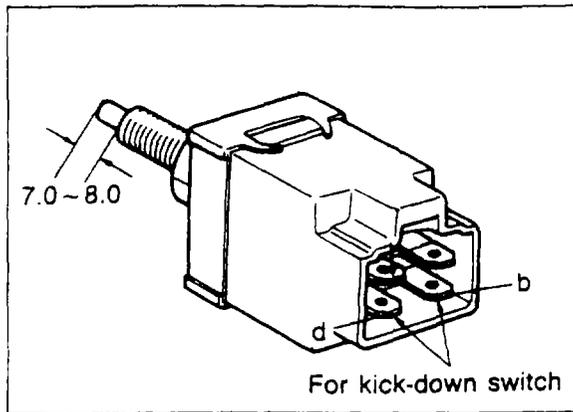
15 AUTO ADJUST SUSPENSION (AAS)



67U15X 153

System check of accelerator switch

1. Disconnect the connector of the AAS control unit and connect a continuity tester between the (N) terminal of the connector (21-pin) at the harness side and a ground.
2. Check that there is continuity when the accelerator pedal is depressed 3/4 of the way.
If there is no continuity when the above test is made, there may be a malfunction of the accelerator switch, or damage or disconnection of the wiring harness.



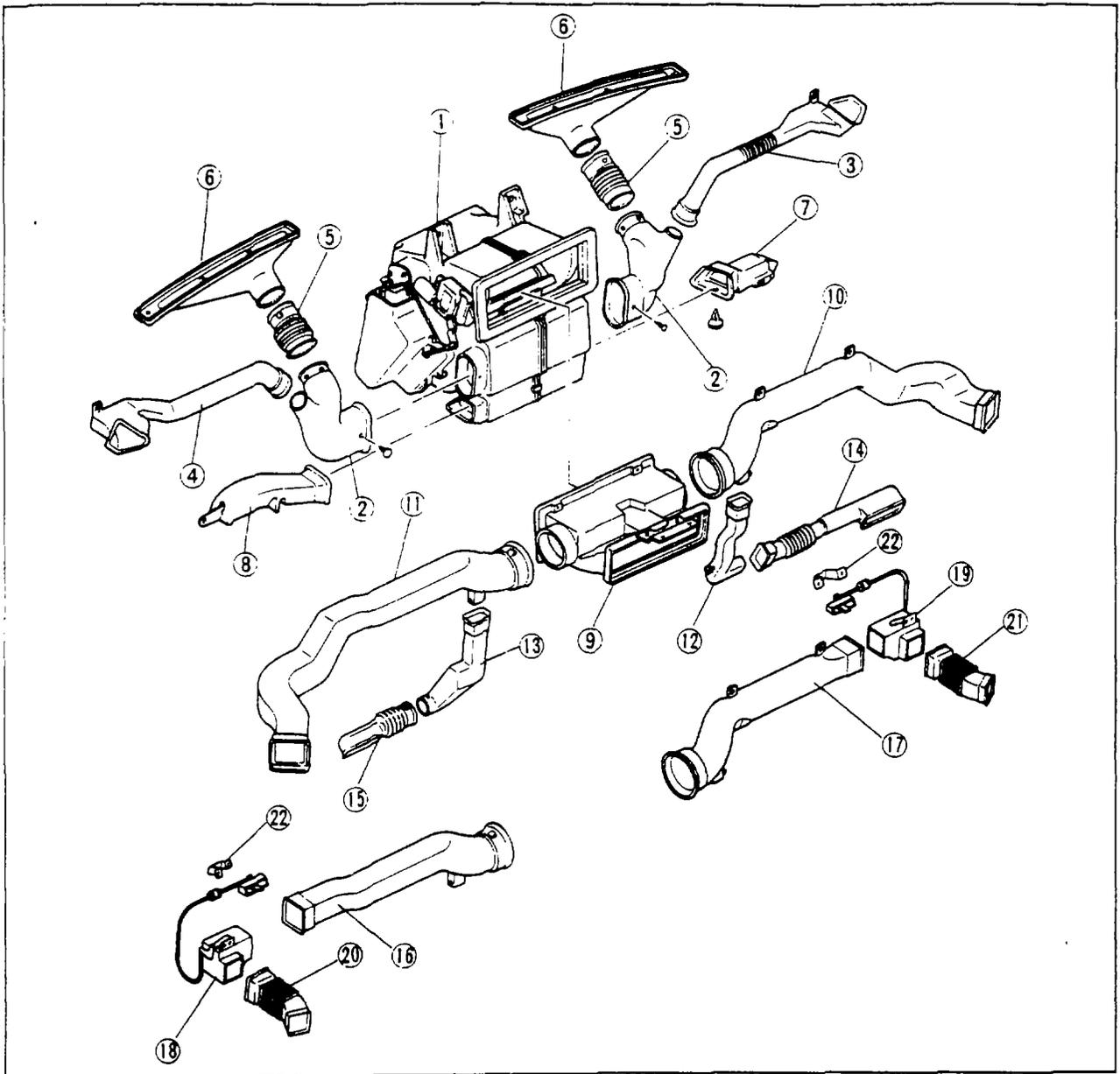
67U15X-154

Checking accelerator switch

The accelerator switch function is normal when continuity between (b) and (d) terminals is attained with the tip of the switch depressed approximately 7.0 to 8.0 mm (0.276—0.315 in).

HEATER

STRUCTURAL VIEW



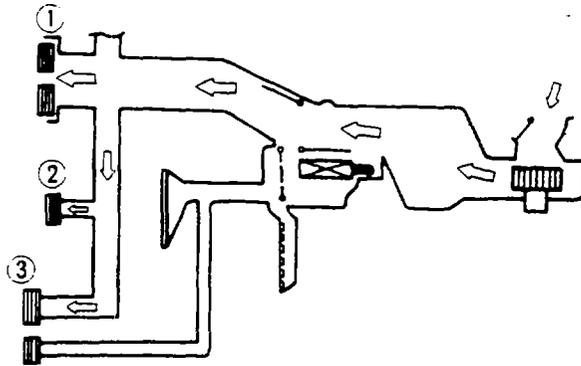
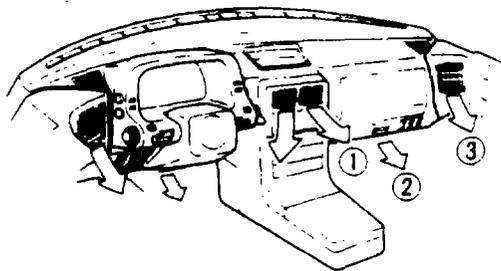
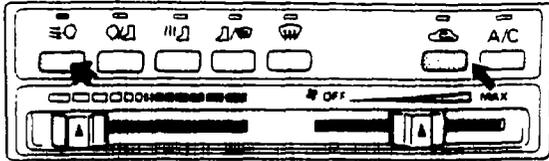
67U15X-183

- | | |
|-----------------------|--|
| 1. Heater unit | 12. Lap duct No. 1 (RH) |
| 2. Defroster duct | 13. Lap duct No. 1 (LH) |
| 3. Side demister (RH) | 14. Lap duct No. 2 (RH) |
| 4. Side demister (LH) | 15. Lap duct No. 2 (LH) |
| 5. Defroster hose | 16. Duct No. 1 (LH) (For Canada) |
| 6. Defroster duct | 17. Duct No. 1 (RH) (For Canada) |
| 7. Shower duct (RH) | 18. Side vent assembly (LH) (For Canada) |
| 8. Shower duct (LH) | 19. Side vent assembly (RH) (For Canada) |
| 9. Center duct | 20. Duct No. 2 (LH) (For Canada) |
| 10. Duct No. 1 (RH) | 21. Duct No. 2 (RH) (For Canada) |
| 11. Duct No. 1 (LH) | 22. Bracket (For Canada) |

15 HEATER

HEATER MODE AND AIR FLOW DIAGRAMS

To ventilate the vehicle

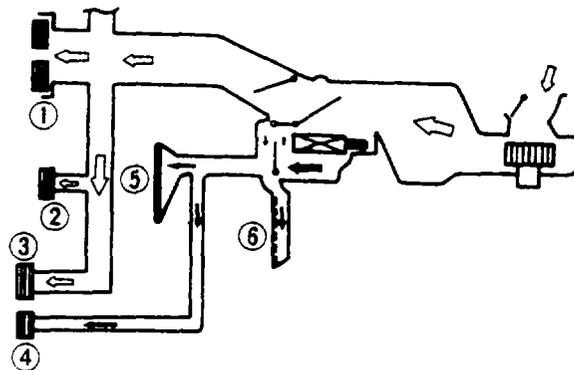
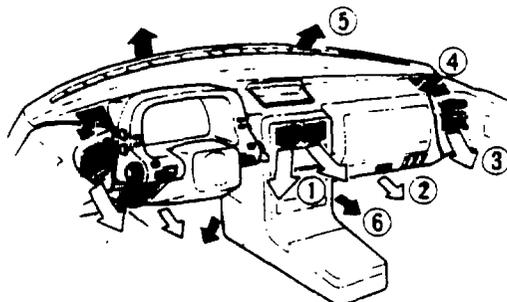
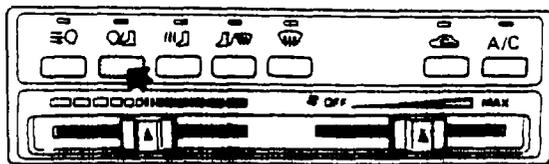


← Fresh air

- ① To face
- ② To lap
- ③ To face

67U15X-184

Bi-level operation



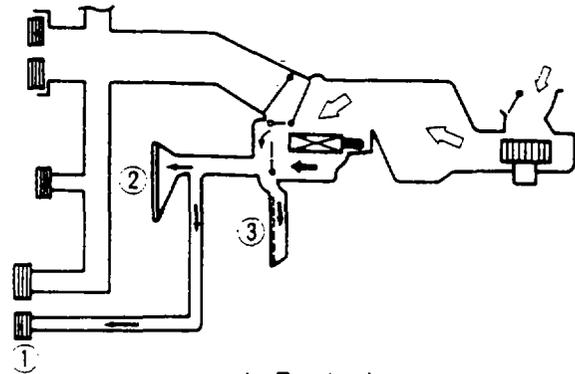
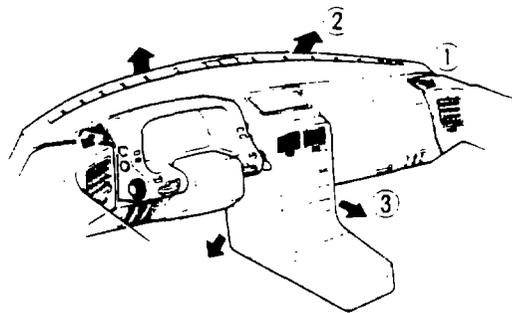
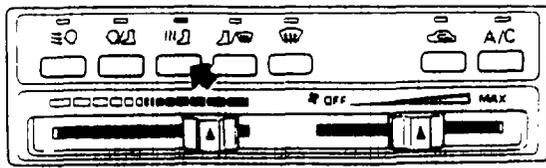
← Fresh air

← Warm air

- ① To face
- ② To lap
- ③ To face
- ④ To side window
- ⑤ To front window
- ⑥ To floor

67U15X-185

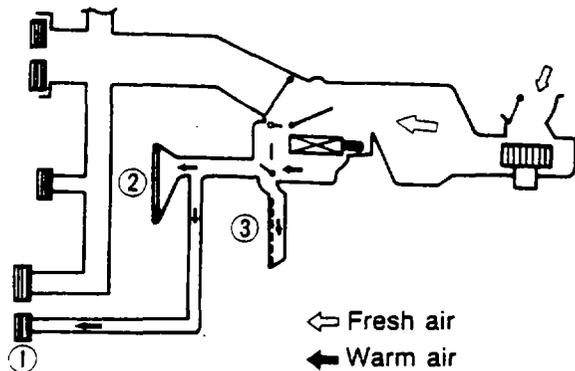
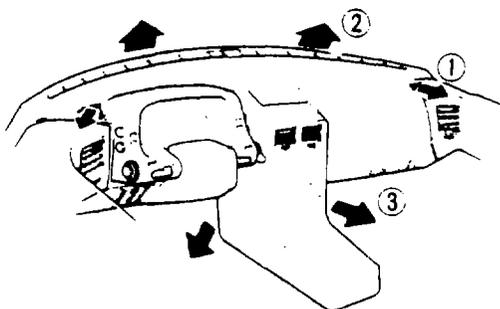
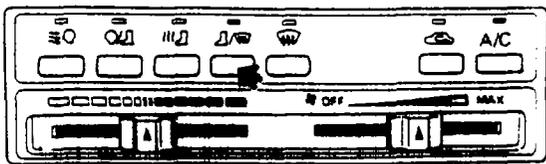
To heat the vehicle



- ↔ Fresh air
- Warm air
- ① To side window
- ② To front window
- ③ To floor

67U15X-186

To heat and defrost

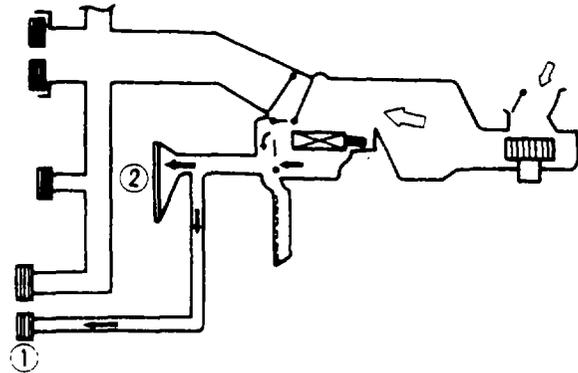
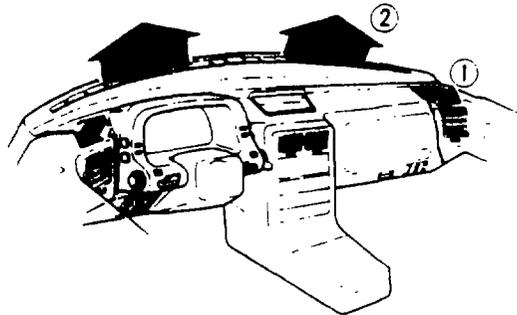
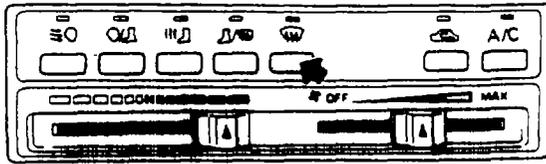


- ↔ Fresh air
- Warm air
- ① To side window
- ② To front window
- ③ To floor

67U15X-187

15 HEATER

To defrost the windshield glass



- ↔ Fresh air
- ← Warm air
- ① To side window
- ② To front window

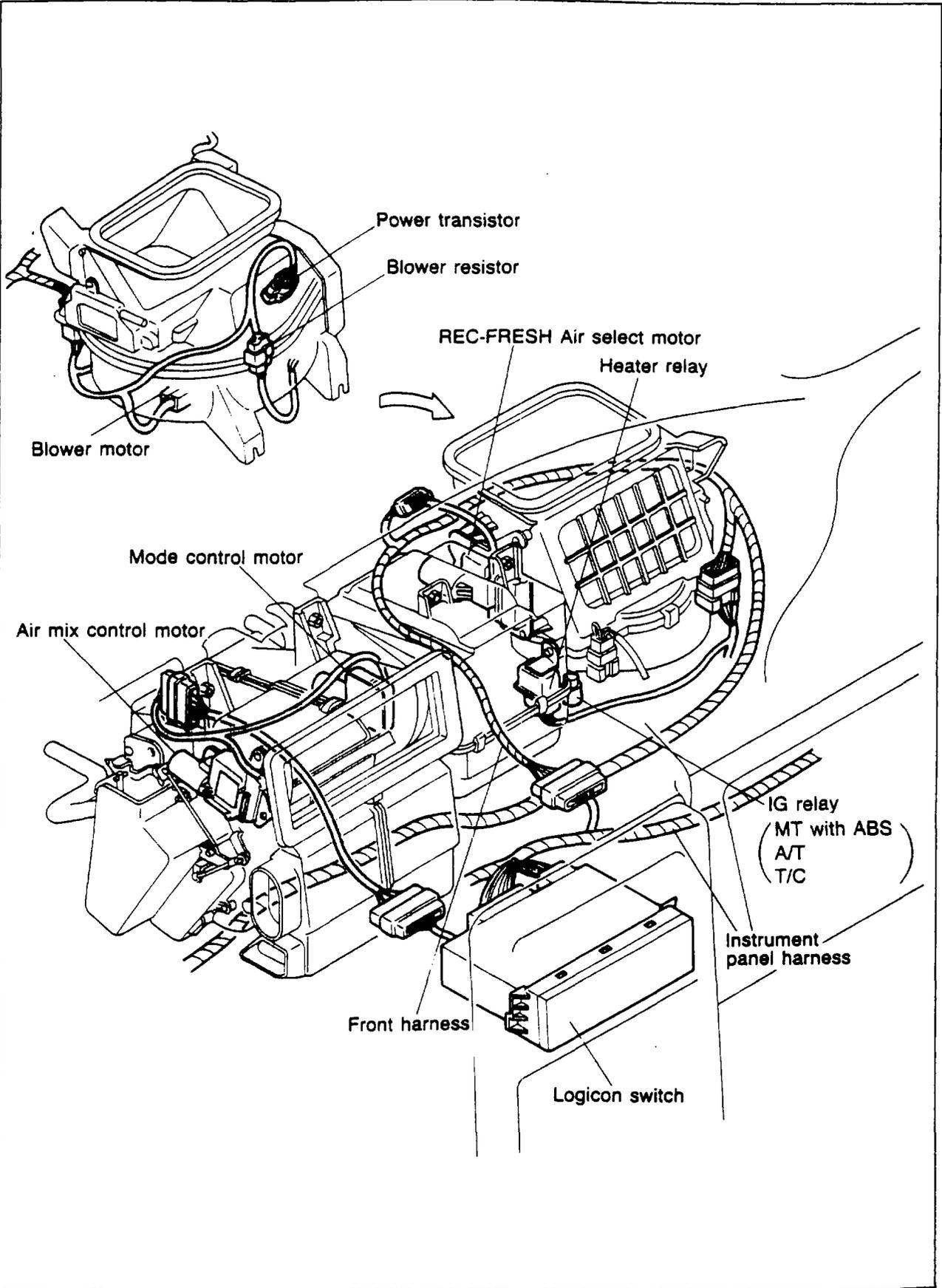
67U15X-188

Operation of doors

	Vent	Bi-level	Heat	Heat/Def	Def
Vent door	Open	Midway	Closed	Closed	Closed
Def door	Closed	Open	Open	Open	Open
Heat door	Closed	Open	Open	Midway	Closed

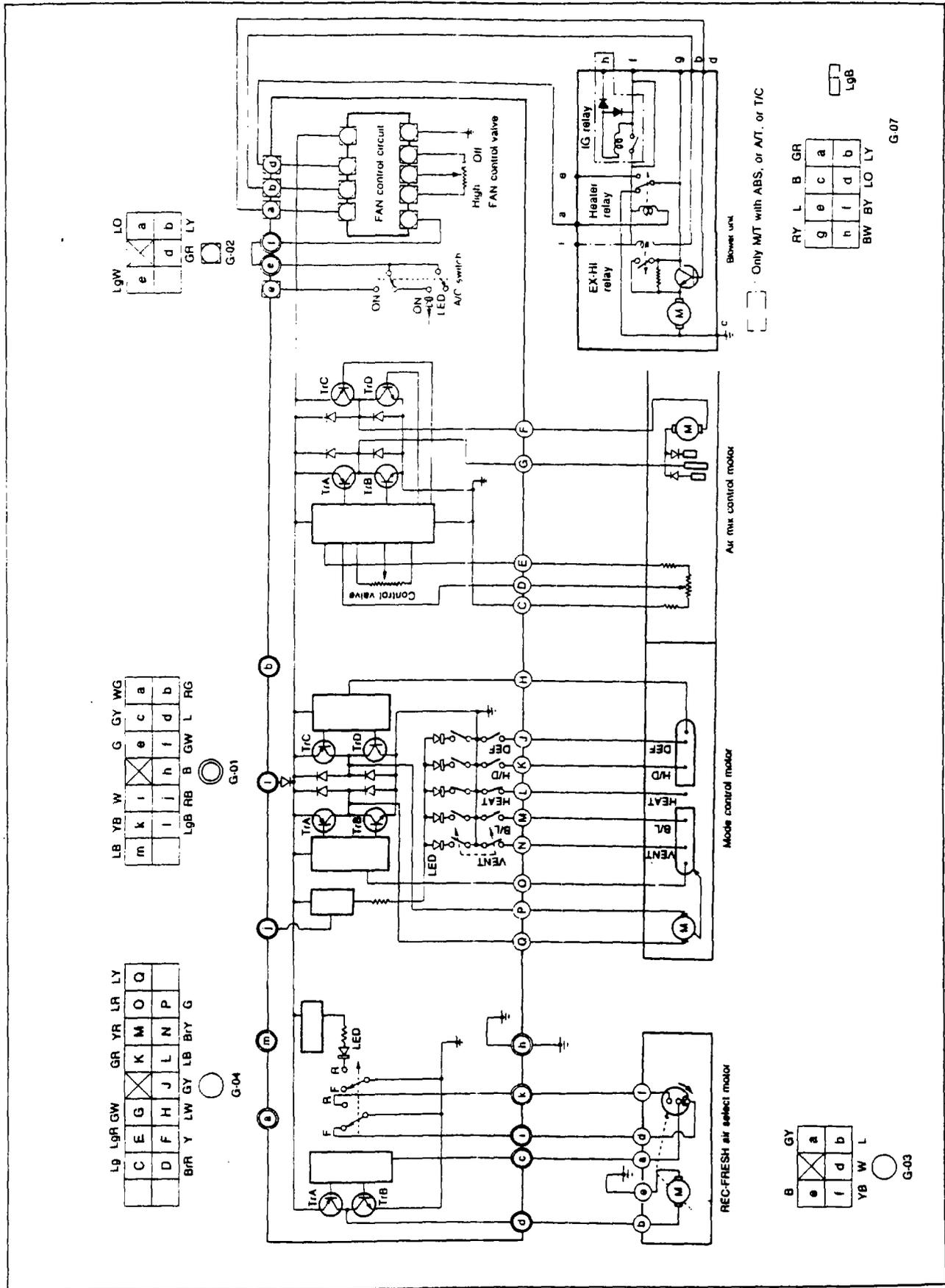
87U15X-017

LOCATION OF EACH MOTOR AND WIRING HARNESS

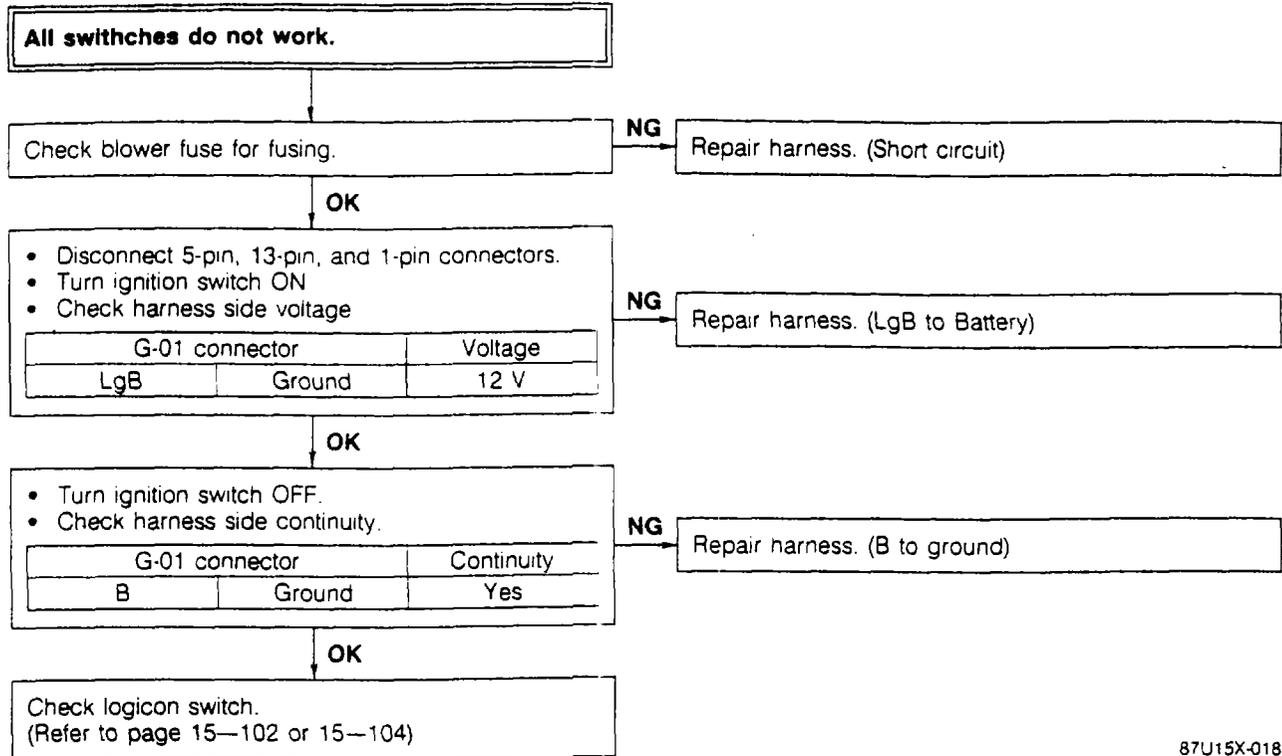


15 HEATER

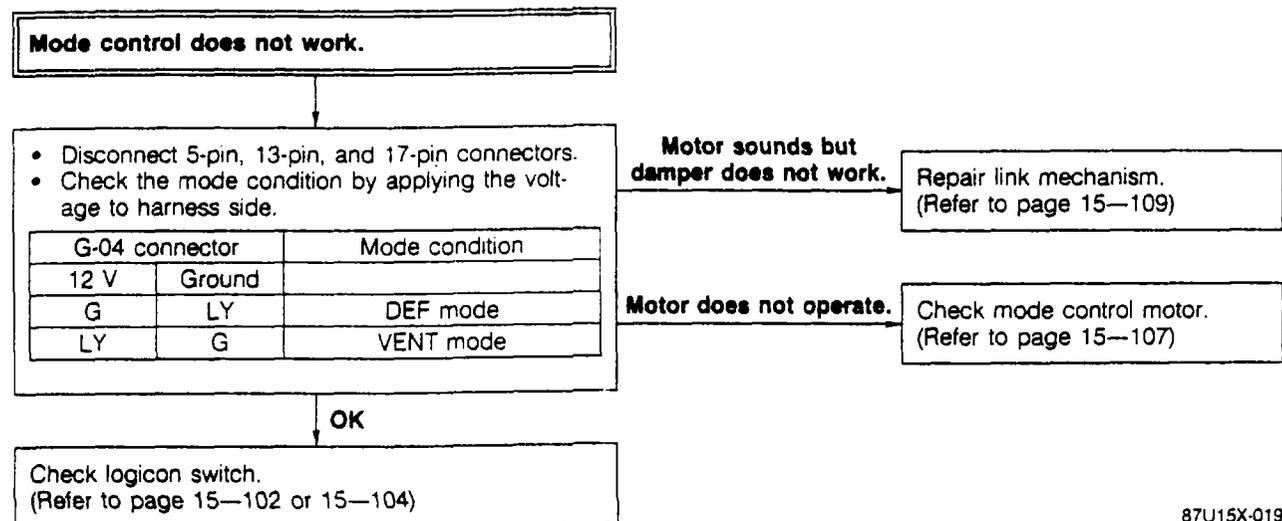
CIRCUIT DIAGRAM



TROUBLESHOOTING

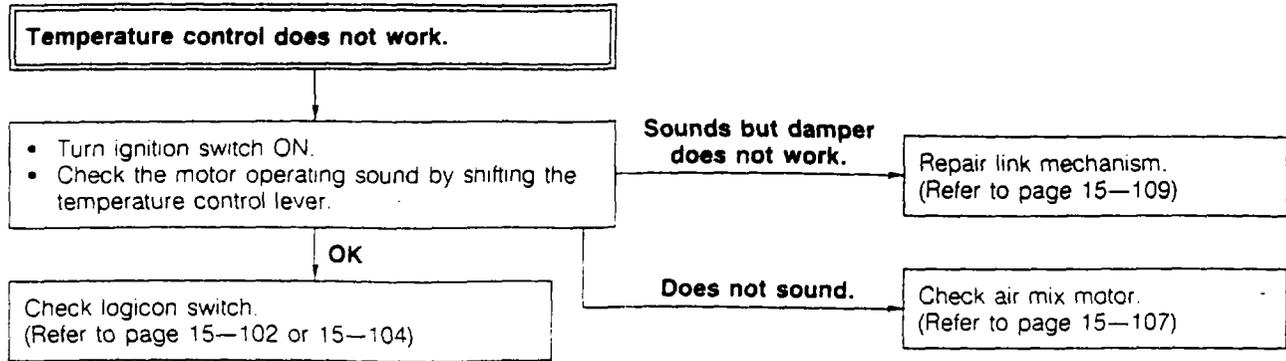


87U15X-018

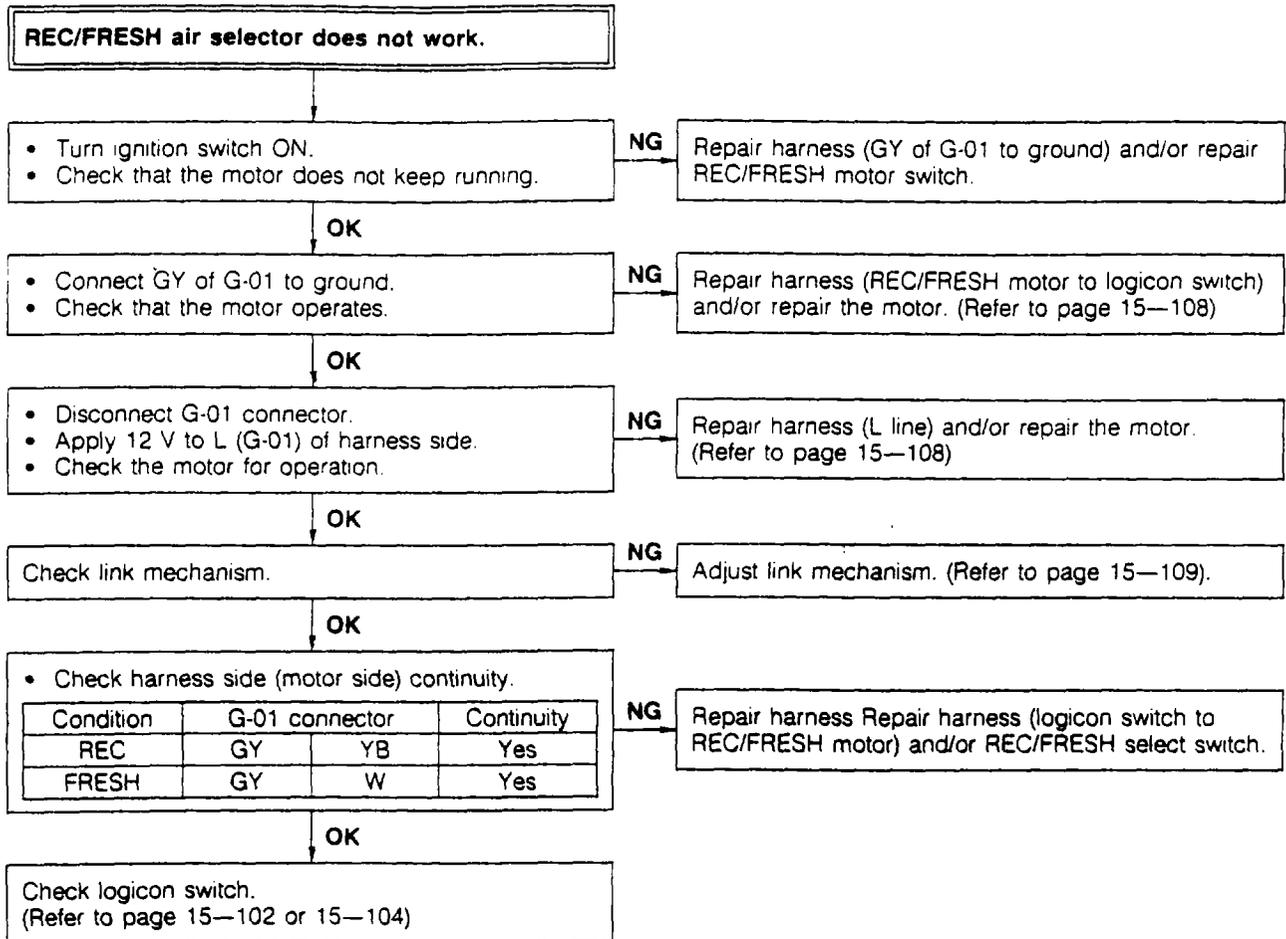


87U15X-019

15 HEATER



87U15X-020



87U15X-021

Indicators do not dim when headlight ON.

- Disconnect G-01 connector.
- Check harness side voltage.

Condition	G-01 connector	Voltage	
Headlight ON	RB	Ground	12 V

NG Repair harness. (RB (G-01) to light switch)

OK

Check logicon switch.
(Refer to page 15—102 or 15—104)

87U15X-022

Illumination for temperature and blower control lever do not illuminate when headlight ON. (Motor works properly)

- Disconnect G-01 connector.
- Check harness side voltage.

Condition	G-01 connector	Voltage	
Headlight ON Max brightness	RG	Ground	12 V

NG Repair harness. (RG (G-01) to panel light control)

OK

Check logicon switch.
(Refer to page 15—102 or 15—104)

87U15X-023

Blower motor does not work.

- Turn ignition switch ON.
- Set fan switch ON.

Check blower motor circuit breaker.

NG Repair harness. (Blower motor to circuit breaker)

OK

Check voltage.

	G-07 connector	Result	Action
1	L	Ground	12 V Repair harness (L to circuit breaker)
2	BY	Ground	12 V Repair harness (BY to Battery)
3	BY	B	12 V Repair harness (B to ground)
4	BY	GR	12 V Repair harness (GR (G-07) to GR (G-02)), or replace heater relay and/or IG relay (if equipped)

OK

Check logicon switch.
(Refer to page 15—102 or 15—104)

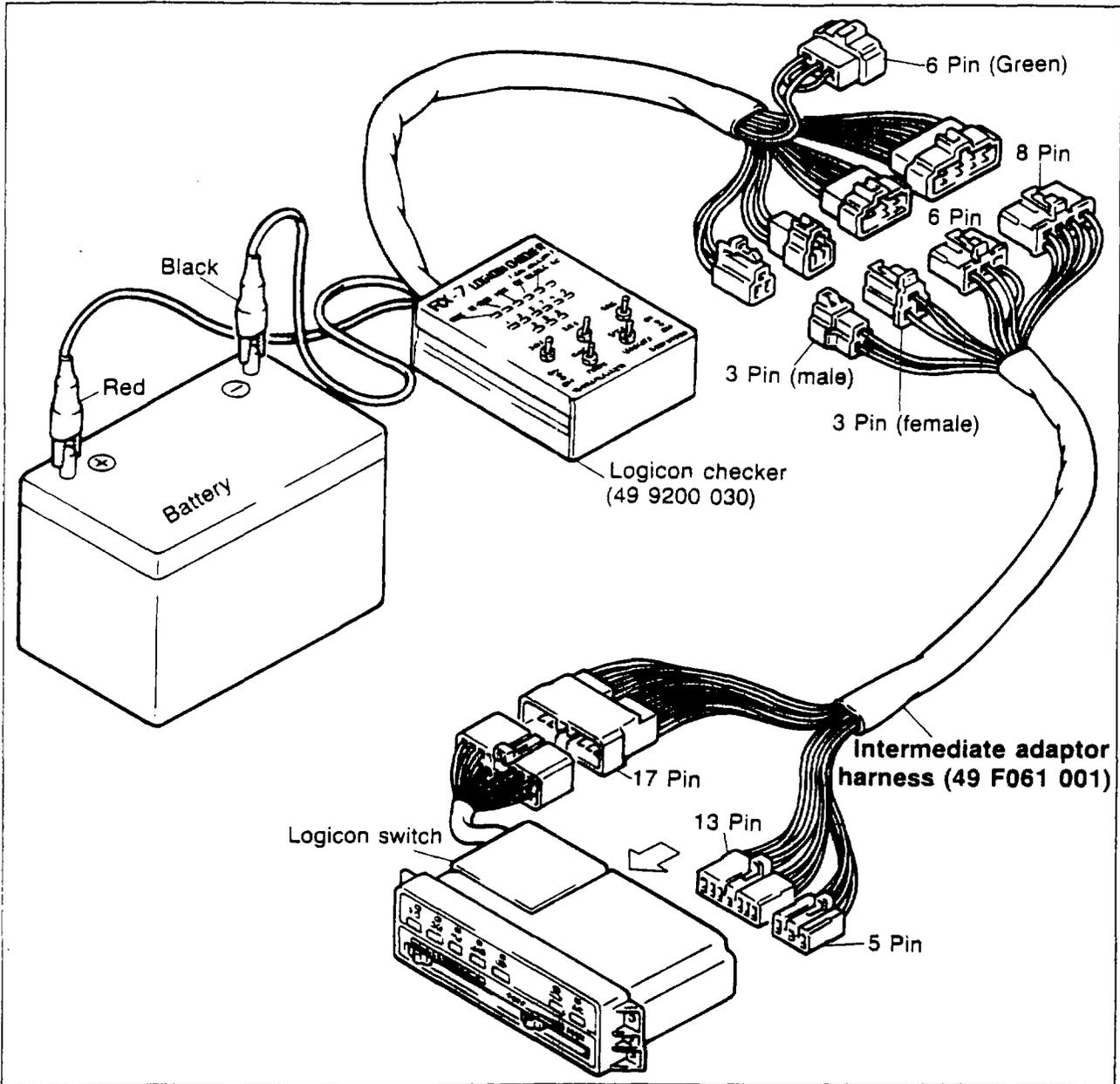
OK

Replace blower motor

87U15X-024

15 HEATER

INSPECTION Logicon Checker



67U15X-195

A special Logicon Checker has not been developed for this model. Instead, an intermediate adaptor harness has been adopted for the present **Logicon Checker** (49 9200 030).

Make connections as shown in the above figure.

Note that the green connector (at the Logicon Checker side) need not be connected, because it is for the lever-type heater control of the previous model.

How to use the Logicon Checker

1. Set each switch of the checker in the OFF position.
2. Connect the red wire to the positive (+) terminal of the battery. Now connect the black wire to the negative (—) terminal of the battery.
3. Securely connect each connector of the mode-control switch to the white connectors of the checker.
4. Set the power switch (SW1) to the ON position.
At this time red LEDs No. 1, 3, 6, and 8 will illuminate when the REC-FRESH switch turned OFF. If one of the Logicon switches is turned ON, the green LED corresponding to that switch will illuminate.
5. Press the control switches in order, and check that the corresponding green LED on the checker illuminates. If the LED does not illuminate, the problem is in the Logicon switch.

Note

a) The red No. 1 LED will go off when the REC-FRESH switch is turned ON while using the checker, but this is a normal function.

b) When the HEAT/DEF button is pushed ON, the red NO. 4 LED comes on. This indicates correct operation.

6. Operate SW 3, SW 4 and SW 5 of the checker and perform the following checks.
 - Check that LED No. 2 illuminates and LED No. 3 goes off when the SW3 lever is moved to the ON position.
 - Check that LED No. 5 illuminates and LED No. 6 goes off when the SW4 lever is moved to the ON position.
 - Check that LED No. 7 illuminates and LED No. 8 goes off when the SW5 lever is moved to the ON position.
 If the red LEDs do not function as described above, the problem is in the Logicon switch itself.
7. Set the illumination switch (SW2) to ON.
Check the indicator lights of the Logicon buttons. Perform the test described in step 5 and check to see if the indicator light of each Logicon button is in the dimmed mode.
If not, the problem is in the Logicon switch itself.

Logicon switch									Checker					Checker																
VENT	VENT/ HEAT	HEAT	HEAT/ DEF	DEF	A/C	REC	ILLUM	REC	Switch					(RED) LED				(GREEN) LED												
									SW1	SW2	SW3	SW4	SW5	1	2	3	5	6	7	8	VENT	VENT/ HEAT	HEAT	RED4	DEF	A/C	REC			
x	x	x	x	x	x	x	x	x	○	x	x	x	x	○	x	○	x	○	x	○	x	x	x	x	x	x	x	x		
x	x	x	x	x	x	○	x	○	x	x	x	x	x	x	○	x	○	x	○	x	x	x	x	x	x	x	○			
○ LED illumination according to switch ON/OFF								x	x	○	x	x	x	x	○	x	○	x	○	x	○	○ LED illumination according to switch ON/OFF								x
x	x	x	○	x	x	x	○	○	○	x	x	x	○	x	○	x	○	x	○	x	x	x	○	x	x	x	x			
x	x	x	○	x	x	x	x	○	x	○	x	x	○	○	x	x	○	x	○	x	x	x	○	x	x	x	x			
x	x	x	○	x	x	x	x	○	x	x	x	○	○	x	○	x	○	x	○	x	x	x	○	x	x	x	x			

○ . ON x . OFF

15 TROUBLE SHOOTING

Checking logicon switch

Air mix control circuit

No.	Procedure	Result	Action
1	<ul style="list-style-type: none"> Remove all connectors from logicon switch. Apply 12V to LgB (G-01 of logicon side) and connect B (G-01 of logicon side) to ground. Set temperature control knob to center. 	/	/
2	<ul style="list-style-type: none"> Connect BrR and LgR (G-04 of logicon side). Check voltage between Y and GW (G-04 of logicon side). 	12V	Replace logicon switch.
3	<ul style="list-style-type: none"> Disconnect BrR and LgR. Connect Lg and BrR (G-04 of logicon side). Check voltage between GW and Y (G-04 of logicon side). 	12V	Replace logicon switch.

OK

Repair harness (Logicon switch to air mix motor) or repair air mix motor.

87U15X-026

Mode control circuit

No	Procedure	Result	Action																		
1	Checking each mode. <ul style="list-style-type: none"> Remove all connectors from logicon switch. Check logicon side continuity on each condition. <table border="1" style="width: 100%; margin-top: 10px;"> <thead> <tr> <th>Condition</th> <th>G-01 connector (Connect 100 ⊖ lead)</th> <th>G-04 connector (Connect ⊖ lead)</th> </tr> </thead> <tbody> <tr> <td>VENT</td> <td></td> <td>BrY</td> </tr> <tr> <td>B/L</td> <td></td> <td>YR</td> </tr> <tr> <td>HEAT</td> <td>B</td> <td>LB</td> </tr> <tr> <td>H/D</td> <td></td> <td>GR</td> </tr> <tr> <td>DEF</td> <td></td> <td>GY</td> </tr> </tbody> </table>	Condition	G-01 connector (Connect 100 ⊖ lead)	G-04 connector (Connect ⊖ lead)	VENT		BrY	B/L		YR	HEAT	B	LB	H/D		GR	DEF		GY	Continuity	Replace logicon switch.
Condition	G-01 connector (Connect 100 ⊖ lead)	G-04 connector (Connect ⊖ lead)																			
VENT		BrY																			
B/L		YR																			
HEAT	B	LB																			
H/D		GR																			
DEF		GY																			
2	Checking mode LED. <ul style="list-style-type: none"> Remove all connectors from logicon switch. Check LED for lighting on each condition. <table border="1" style="width: 100%; margin-top: 10px;"> <thead> <tr> <th>Condition</th> <th>G-01 connector (Apply 0V)</th> <th>G-01 connector (Apply 12V)</th> </tr> </thead> <tbody> <tr> <td>VENT</td> <td></td> <td></td> </tr> <tr> <td>B/L</td> <td></td> <td></td> </tr> <tr> <td>HEAT</td> <td>B</td> <td>LgB</td> </tr> <tr> <td>H/D</td> <td></td> <td></td> </tr> <tr> <td>DEF</td> <td></td> <td></td> </tr> </tbody> </table>	Condition	G-01 connector (Apply 0V)	G-01 connector (Apply 12V)	VENT			B/L			HEAT	B	LgB	H/D			DEF			LED lights	Replace logicon switch.
Condition	G-01 connector (Apply 0V)	G-01 connector (Apply 12V)																			
VENT																					
B/L																					
HEAT	B	LgB																			
H/D																					
DEF																					
3	Checking mode motor circuit. <ul style="list-style-type: none"> Remove all connectors from logicon switch. Check logicon side voltage on each condition. <table border="1" style="width: 100%; margin-top: 10px;"> <thead> <tr> <th>Condition</th> <th>G-04 connector (connect ⊖ lead)</th> <th>G-04 connector (Connect ⊕ lead)</th> </tr> </thead> <tbody> <tr> <td>Apply 12V to LgB (G-01), 0V to B (G-01) and LR (G-04)</td> <td>G</td> <td>LY</td> </tr> <tr> <td>Apply 12V to LgB (G-01), 0V to B (G-01) and LW (G-04)</td> <td>LY</td> <td>G</td> </tr> </tbody> </table>	Condition	G-04 connector (connect ⊖ lead)	G-04 connector (Connect ⊕ lead)	Apply 12V to LgB (G-01), 0V to B (G-01) and LR (G-04)	G	LY	Apply 12V to LgB (G-01), 0V to B (G-01) and LW (G-04)	LY	G	12V	Replace logicon switch.									
Condition	G-04 connector (connect ⊖ lead)	G-04 connector (Connect ⊕ lead)																			
Apply 12V to LgB (G-01), 0V to B (G-01) and LR (G-04)	G	LY																			
Apply 12V to LgB (G-01), 0V to B (G-01) and LW (G-04)	LY	G																			

87U15X-027

REC/FRESH control circuit

No.	Procedure	Result	Action									
1	Checking REC/FRESH select circuit. • Remove all connectors from logicon switch. • Check logicon side continuity on each condition.	Continuity	Replace logicon switch.									
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">Condition</th> <th style="width: 35%;">G-01 connector (Connect ⊖ lead)</th> <th style="width: 35%;">G-01 connector (Connect ⊕ lead)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">FRESH</td> <td style="text-align: center;">B</td> <td style="text-align: center;">W</td> </tr> <tr> <td style="text-align: center;">REC</td> <td style="text-align: center;">B</td> <td style="text-align: center;">YB</td> </tr> </tbody> </table>			Condition	G-01 connector (Connect ⊖ lead)	G-01 connector (Connect ⊕ lead)	FRESH	B	W	REC	B	YB
Condition	G-01 connector (Connect ⊖ lead)			G-01 connector (Connect ⊕ lead)								
FRESH	B	W										
REC	B	YB										
2	Checking REC/FRESH LED. • Remove all connectors from logicon switch. • Check LED for lighting.	LED lights when REC. Does not light when FRESH.	Replace logicon switch.									
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">Condition</th> <th style="width: 35%;">G-01 connector (Apply 0V)</th> <th style="width: 35%;">G-01 connector (Apply 12V)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">FRESH</td> <td style="text-align: center;">B</td> <td style="text-align: center;">LgB</td> </tr> <tr> <td style="text-align: center;">REC</td> <td style="text-align: center;">B</td> <td style="text-align: center;">LgB</td> </tr> </tbody> </table>			Condition	G-01 connector (Apply 0V)	G-01 connector (Apply 12V)	FRESH	B	LgB	REC	B	LgB
Condition	G-01 connector (Apply 0V)			G-01 connector (Apply 12V)								
FRESH	B	LgB										
REC	B	LgB										
3	Checking REC/FRESH motor circuit. • Remove all connectors from logicon switch. • Check logicon side voltage on each condition.	12V	Replace logicon switch									
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">Condition</th> <th style="width: 35%;">G-01 connector (Connect ⊖ lead)</th> <th style="width: 35%;">G-01 connector (Connect ⊕ lead)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Apply 12V to LgB (G-01).0V to B (G-01).</td> <td style="text-align: center;">L</td> <td style="text-align: center;">LgB</td> </tr> </tbody> </table>			Condition	G-01 connector (Connect ⊖ lead)	G-01 connector (Connect ⊕ lead)	Apply 12V to LgB (G-01).0V to B (G-01).	L	LgB			
Condition	G-01 connector (Connect ⊖ lead)			G-01 connector (Connect ⊕ lead)								
Apply 12V to LgB (G-01).0V to B (G-01).	L			LgB								
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">Condition</th> <th style="width: 35%;">G-01 connector (Connect ⊖ lead)</th> <th style="width: 35%;">G-01 connector (Connect ⊕ lead)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Connect GY (B-01) and B (G-01).</td> <td style="text-align: center;">B</td> <td style="text-align: center;">L</td> </tr> </tbody> </table>			Condition	G-01 connector (Connect ⊖ lead)	G-01 connector (Connect ⊕ lead)	Connect GY (B-01) and B (G-01).	B	L			
Condition	G-01 connector (Connect ⊖ lead)	G-01 connector (Connect ⊕ lead)										
Connect GY (B-01) and B (G-01).	B	L										

87U15X-028

A/C control circuit

No.	Procedure	Result	Action							
1	Checking A/C switch. • Remove all connectors from logicon switch. • Check logicon side continuity on each condition.	Continuity when A/C switch ON, Discontinuity when OFF.	Replace logicon switch							
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">Condition</th> <th style="width: 35%;">G-01 connector (Connect ⊖ lead)</th> <th style="width: 35%;">G-02 connector (Connect ⊕ lead)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">A/C switch ON</td> <td rowspan="2" style="text-align: center;">G</td> <td rowspan="2" style="text-align: center;">LgW</td> </tr> <tr> <td style="text-align: center;">A/C switch OFF</td> </tr> </tbody> </table>			Condition	G-01 connector (Connect ⊖ lead)	G-02 connector (Connect ⊕ lead)	A/C switch ON	G	LgW	A/C switch OFF
Condition	G-01 connector (Connect ⊖ lead)			G-02 connector (Connect ⊕ lead)						
A/C switch ON	G	LgW								
A/C switch OFF										
2	Checking A/C LED. • Remove all connectors from switch. • Check LED for lighting.	LED lights when A/C switch ON. Does not light when OFF.	Replace logicon switch							
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">Condition</th> <th style="width: 35%;">G-01 connector (Apply 0V)</th> <th style="width: 35%;">G-01 Connector (Apply 12V)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">A/C switch ON</td> <td rowspan="2" style="text-align: center;">B and G</td> <td rowspan="2" style="text-align: center;">LgB</td> </tr> <tr> <td style="text-align: center;">A/C switch OFF</td> </tr> </tbody> </table>			Condition	G-01 connector (Apply 0V)	G-01 Connector (Apply 12V)	A/C switch ON	B and G	LgB	A/C switch OFF
Condition	G-01 connector (Apply 0V)			G-01 Connector (Apply 12V)						
A/C switch ON	B and G	LgB								
A/C switch OFF										

87U15X-029

15 TROUBLE SHOOTING

Dim indicator circuit

No.	Procedure	Result	Action
1	<ul style="list-style-type: none"> Remove all connectors from logicon switch. Apply 12V to LgB (G-01) of logicon side, 0V to B (G-01) and G (G-01) of logicon side. Check LED for lighting in each condition (VENT, B/L, HEAT, H/D, DEF, REC/FRESH, A/C) 	LED lights	Replace logicon switch
2	<ul style="list-style-type: none"> Apply 12V to RB. Check that LED dims in each condition (VENT, B/L, HEAT, H/D, DEF, REC/FRESH, A/C) 	LED dims	Replace logicon switch.

87U15X-030

Illumination circuit

Procedure	Result	Action
<ul style="list-style-type: none"> Remove all connectors from logicon switch. Apply 12V to LgB (G-01) of logicon side, 0V to B (G-01) of logicon side. Check illumination for working when applying 12V to RG (G-01) of logicon side. 	Illumination works	Replace logicon switch.

87U15X-031

Blower motor circuit

No.	Procedure	Result	Action
1	Checking heater-relay output <ul style="list-style-type: none"> Remove all connectors from logicon switch. Apply 12V to LgB (G-01) of logicon side, 0V to B (G-01) of logicon side. Connect check bulb (1.4 - 3.4 W) between 12 V and GR (G-02) of logicon side. Check bulb for lighting when fan control lever is other than OFF. 	Bulb lights	Replace fan amp and check again. If not as result, replace logicon switch.
2	Checking A/C signal output <ul style="list-style-type: none"> Remove all connectors from logicon switch. Apply 12V to LgB (G-01) of logicon side, 0V to B (G-01) of logicon side. Connect check bulb (1.4 - 3.4 W) between 12V and GW (G-01) of logicon side. Check bulb for lighting when fan control lever is other than OFF. 	Bulb lights	Replace fan amp and check again. If not as result, replace logicon switch.
3	Checking EX-HI relay output <ul style="list-style-type: none"> Remove all connectors from logicon switch. Apply 12V to LgB (G-01) of logicon side, 0V to B (G-01) of logicon side. Connect check bulb (1.4 - 3.4 W) between 12V and LY (G-02) of logicon side. Check bulb for lighting when fan control lever is in MAX. 	Bulb lights	Replace fan amp and check again. If not as result, replace logicon switch.
4	Checking power transistor output <ul style="list-style-type: none"> Remove all connectors from logicon switch. Apply 12V to LgB (G-01) of logicon side, 0V to B (G-01) of logicon side. Connect voltmeter ⊖ lead to B (G-01) of logicon side, ⊕ lead to LO (G-02) of logicon switch. Compare voltage. 	OFF < MAX	Replace fan amp and check again. If not as result, replace logicon switch.

87U15X-032

Checking mode control motor

No.	Procedure	Result	Action				
1	<ul style="list-style-type: none"> Remove all connectors from logicon switch. Check motor side resistance. <div style="text-align: center; border: 1px solid black; width: fit-content; margin: 10px auto;"> <table border="1"> <tr><td colspan="2" style="text-align: center;">G-04 connector</td></tr> <tr><td style="text-align: center;">G</td><td style="text-align: center;">LY</td></tr> </table> </div>	G-04 connector		G	LY	17—21 Ω at 20°C	Replace motor
G-04 connector							
G	LY						
2	<ul style="list-style-type: none"> Remove all connectors from logicon switch. Check motor operation. <div style="text-align: center; border: 1px solid black; width: fit-content; margin: 10px auto;"> <table border="1"> <tr><td colspan="2" style="text-align: center;">G-04 connector</td></tr> <tr><td style="text-align: center;">Apply 12V to G</td><td style="text-align: center;">Apply 0V to LY</td></tr> </table> </div>	G-04 connector		Apply 12V to G	Apply 0V to LY	Motor operates and stops at DEF position.	Check link mechanism. (Refer to page 15—109)
G-04 connector							
Apply 12V to G	Apply 0V to LY						
3	<ul style="list-style-type: none"> Remove all connectors from logicon switch. Check motor operation. <div style="text-align: center; border: 1px solid black; width: fit-content; margin: 10px auto;"> <table border="1"> <tr><td colspan="2" style="text-align: center;">G-04 connector</td></tr> <tr><td style="text-align: center;">Apply 12V to LY</td><td style="text-align: center;">Apply 0V to G</td></tr> </table> </div>	G-04 connector		Apply 12V to LY	Apply 0V to G	Motor operates and stops at VENT position.	Check link mechanism. (Refer to page 15—109)
G-04 connector							
Apply 12V to LY	Apply 0V to G						

87U15X-033

Checking air mix motor

No.	Procedure	Result	Action				
1	<ul style="list-style-type: none"> Remove all connectors from logicon switch. Check motor side resistance. <div style="text-align: center; border: 1px solid black; width: fit-content; margin: 10px auto;"> <table border="1"> <tr><td colspan="2" style="text-align: center;">G-04 connector</td></tr> <tr><td style="text-align: center;">GW</td><td style="text-align: center;">Y</td></tr> </table> </div>	G-04 connector		GW	Y	17—21 Ω at 20°C	Replace motor.
G-04 connector							
GW	Y						
2	<ul style="list-style-type: none"> Remove all connectors from logicon switch. Check motor operation. <div style="text-align: center; border: 1px solid black; width: fit-content; margin: 10px auto;"> <table border="1"> <tr><td colspan="2" style="text-align: center;">G-04 connector</td></tr> <tr><td style="text-align: center;">Apply 12V to Y</td><td style="text-align: center;">Apply 0V to GW</td></tr> </table> </div>	G-04 connector		Apply 12V to Y	Apply 0V to GW	Motor operates and stops at MAX-HOT position.	Check link mechanism. (Refer to page 15—109)
G-04 connector							
Apply 12V to Y	Apply 0V to GW						
3	<ul style="list-style-type: none"> Remove all connectors from logicon switch. Check motor operation. <div style="text-align: center; border: 1px solid black; width: fit-content; margin: 10px auto;"> <table border="1"> <tr><td colspan="2" style="text-align: center;">G-04 connector</td></tr> <tr><td style="text-align: center;">Apply 12V to GW</td><td style="text-align: center;">Apply 0V to Y</td></tr> </table> </div>	G-04 connector		Apply 12V to GW	Apply 0V to Y	Motor operates and stops at MAX-COLD position.	Check link mechanism. (Refer to page 15—109)
G-04 connector							
Apply 12V to GW	Apply 0V to Y						
4	<ul style="list-style-type: none"> Remove all connectors from logicon switch. Check temperature control resistance of motor side. <div style="text-align: center; border: 1px solid black; width: fit-content; margin: 10px auto;"> <table border="1"> <tr><td colspan="2" style="text-align: center;">G-04 connector</td></tr> <tr><td style="text-align: center;">LgR</td><td style="text-align: center;">Lg</td></tr> </table> </div>	G-04 connector		LgR	Lg	4—6 Ω at 20°C	Replace motor.
G-04 connector							
LgR	Lg						

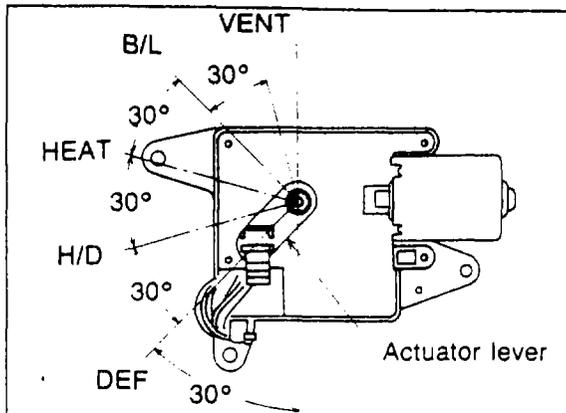
87U15X-034

15 TROUBLE SHOOTING

Checking REC/FRESH select motor

No.	Procedure	Result	Action				
1	<ul style="list-style-type: none"> • Remove G-03 connector. • Check motor side resistance. <div style="border: 1px solid black; width: 100%; text-align: center; margin: 10px 0;"> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2" style="padding: 2px;">G-03 connector</td> </tr> <tr> <td style="width: 50%; padding: 2px;">L</td> <td style="width: 50%; padding: 2px;">B</td> </tr> </table> </div>	G-03 connector		L	B	17—21 Ω at 20°C	Replace motor.
G-03 connector							
L	B						
2	<ul style="list-style-type: none"> • Remove G-03 connector. • Check motor operation. <div style="border: 1px solid black; width: 100%; text-align: center; margin: 10px 0;"> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2" style="padding: 2px;">G-03 connector</td> </tr> <tr> <td style="width: 50%; padding: 2px;">Apply 12V to L</td> <td style="width: 50%; padding: 2px;">Apply 0V to B</td> </tr> </table> </div>	G-03 connector		Apply 12V to L	Apply 0V to B	Motor operates.	Replace motor.
G-03 connector							
Apply 12V to L	Apply 0V to B						

87U15X-035

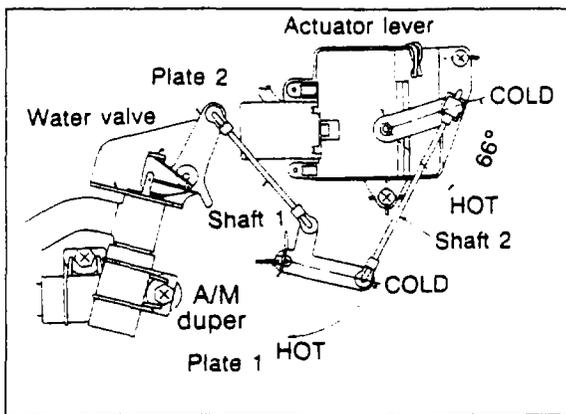


67U15X-224

Link Mechanism

1. Correct Stopping Position Mode Control

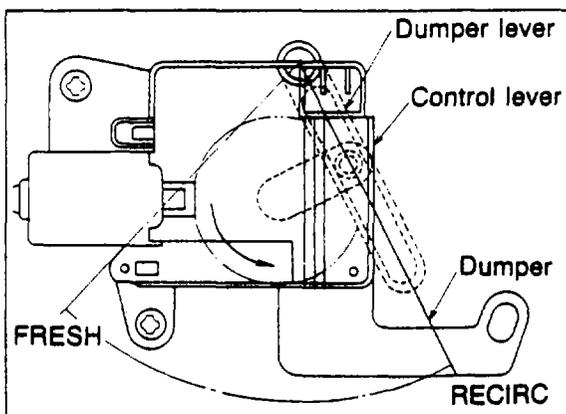
The correct stopping position of the actuator lever is as shown in the figure.



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Temperature Control

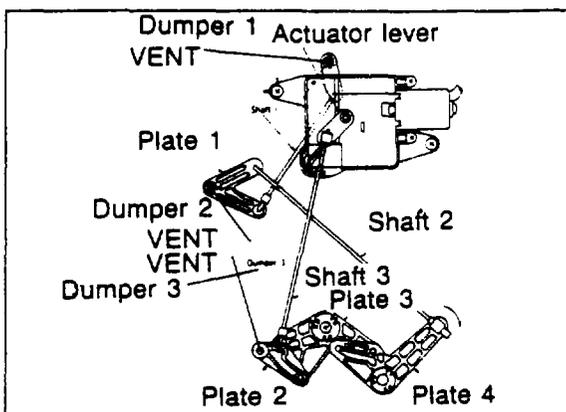
The correct stopping positions of the actuator levers are as shown in the figure.



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REC-FRESH Air Control

The correct stopping position of the actuator lever is as shown in the figure.



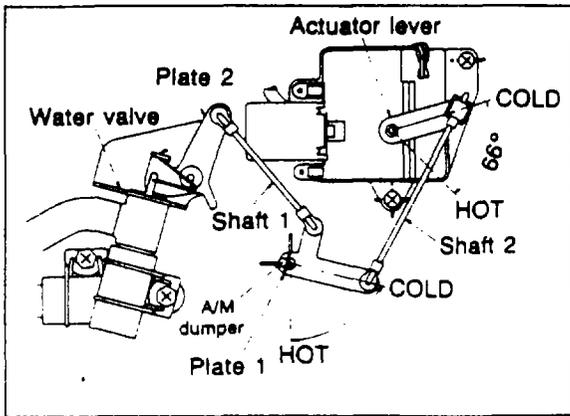
67U15X-227

2. Installation of Actuator

Mode Control

1. Install the actuator to the heater case using three screws.
2. Install shaft 2 to plate 4. Then, set damper 1 making sure it is completely shut (VENT. position).
3. After setting the control lever to the "VENT" position install shaft 3 to the actuator lever.

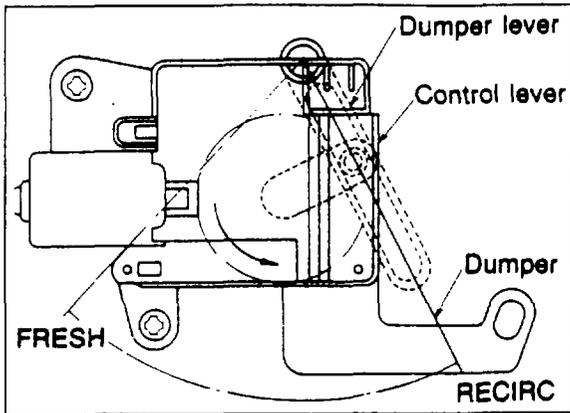
15 HEATER



67U15X-229

Temperature Control

1. Confirm that the actuator lever is located at MAX-COLD position.
2. Install the actuator on the heater case using three screws.
3. Set the water valve to the fully shut (MAX-COLD position) and install shaft 2 to the actuator lever.



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REC-FRESH Air Control

1. Connect the actuator lever to the damper lever.
2. Install the actuator to the blower case.