

BODY ELECTRICAL SYSTEM

Return To Main Table of Contents

GENERAL	2
FUSIBLE LINK AND FUSE	5
IGNITION SWITCH	7
MULTIFUNCTION SWITCH	8
INSTRUMENT AND WARNING SYSTEM	17
LIGHTING SYSTEM	28
AUDIO SYSTEM	36
WINDSHIELD WIPER AND WASHER	49
CLOCK	55
CIGARETTE LIGHTER	56
SUN ROOF	58
HORN	60
POWER DOOR LOCK SYSTEM	62
POWER WINDOW	64
POWER DOOR MIRROR	70
TRUNK LID OPENER	73
TAC CONTROL SYSTEM.....	75
AUTOMATIC TRANSAXLE AND KEY LOCK	81
CONTROL SYSTEM	
PASSIVE SEAT BELT SYSTEM	85

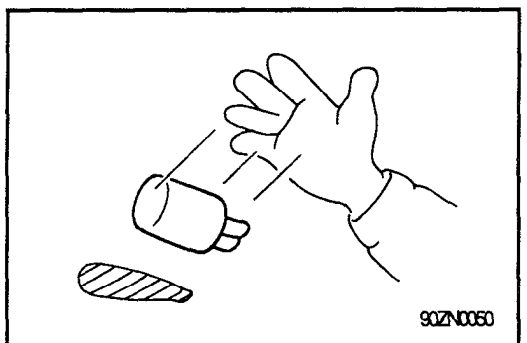
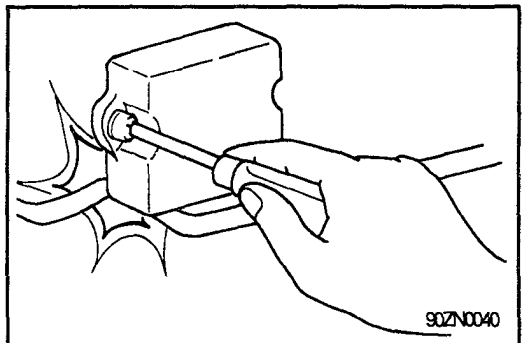
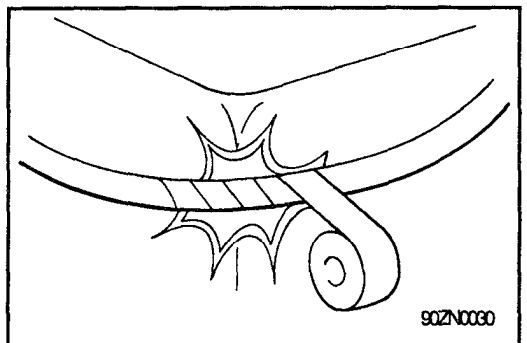
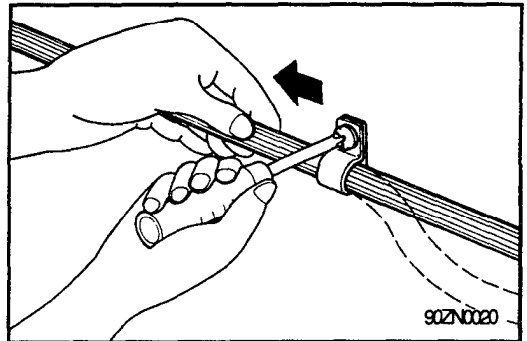
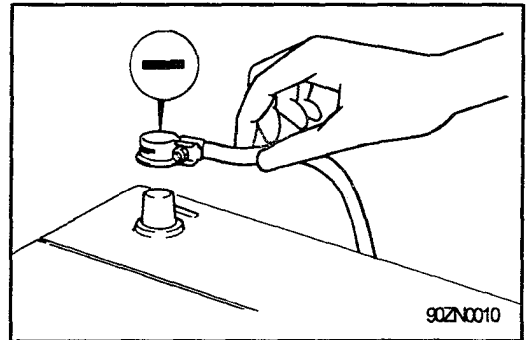
GENERAL SERVICING THE ELECTRICAL SYSTEM

1. Prior to servicing the electrical system, be sure to turn off the ignition switch and disconnect the battery ground cable.

NOTE:

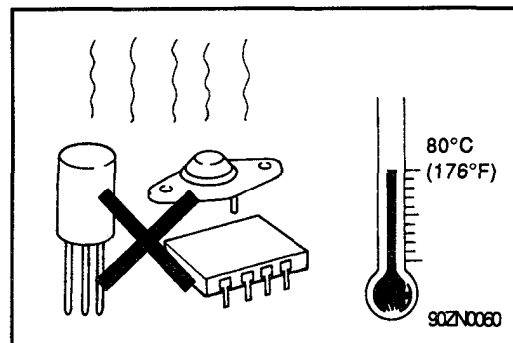
In the course of MFI or ELC system diagnosis, when the battery cable is removed, any diagnostic code retained by the computer will be cleared.

Therefore, if necessary, read the diagnostic codes before removing the battery cable.

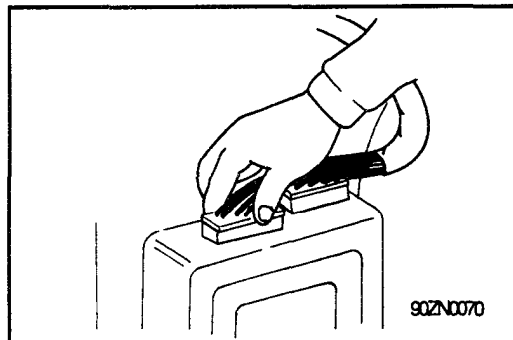


2. Secure the wiring harnesses by using clamps so that there is no slack. However, for any harness which passes to the engine or other vibrating parts of the vehicle, allow some slack within a range that does not allow the engine vibrations to cause the harness to come into contact with any of the surrounding parts, and then secure the harness by using a clamp.
3. If any section of a wiring harness interferes with the edge of a part, or a corner, wrap the section of the harness with tape or something similar in order to protect it from damage.
4. When installing any of the vehicle parts, be careful not to pinch or damage any of the wiring harnesses.
5. The sensors, relays, and electrical parts, must never be subjected to strong shocks. Do not allow them to fall when handling.

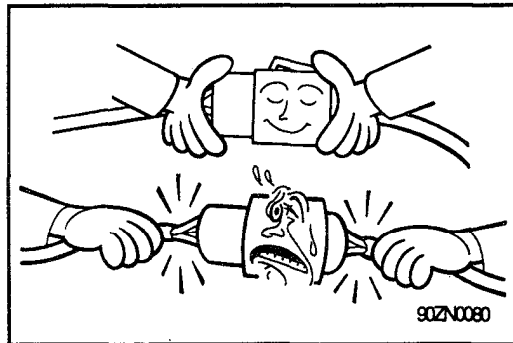
6. The electronic parts used in the computer, relays, etc. are readily damaged by heat. If there is a need for service operations that may cause the temperature to exceed 80°C (176°F), remove the electronic parts beforehand.



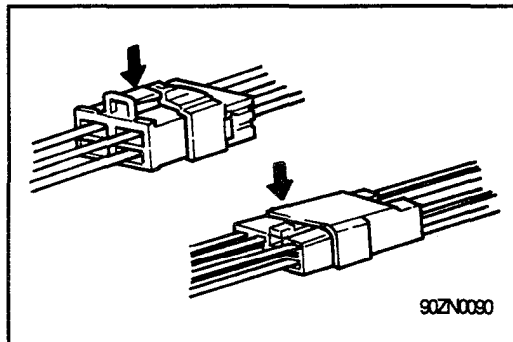
7. Loose connectors could be troubled. Make sure that connectors are connected securely.



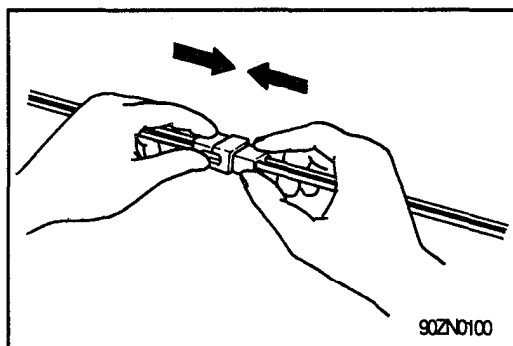
8. When removing a connector, be sure to pull only the connector, not the harness.



9. Remove connectors which have catches by pressing in the direction indicated by the arrows in the illustration.

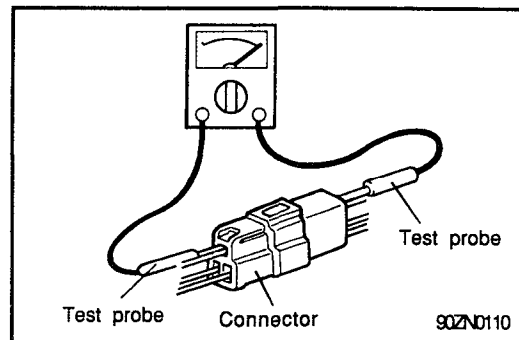


10. Connect connectors which have catches by inserting the connectors until a "snap" sound is heard.



11. When using a circuit tester to perform continuity or voltage checks on connector terminals, insert the test probe from the harness side.

If the connector is a scales connector, insert the test probe in through the hole in the rubber cap for the electrical wires, being careful not to damage the insulation of the wires; continue to insert the test probe until it contacts the terminal.

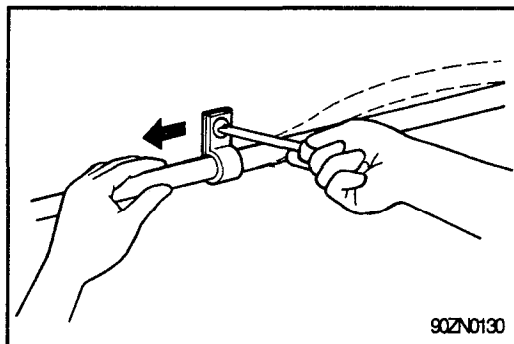
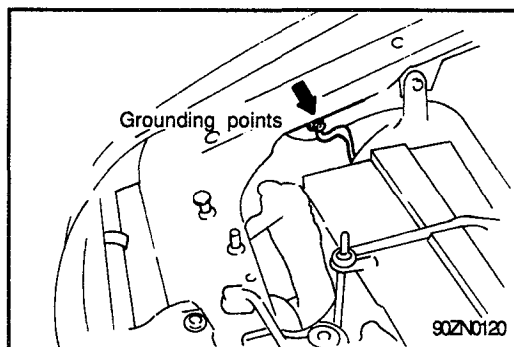


12. In order to avoid overloading the wiring, take the electrical current load of the optional equipment into consideration, and determine the appropriate wire size.

Nominal size	SAE gauge No.	Permissible current	
		In engine compartment	Other areas
0.3 mm ²	AWG 22	-	5A
0.5 mm ²	AWG 20	7A	13A
0.85 mm ²	AWG 18	9A	17A
1.25 mm ²	AWG 16	12A	22A
2.0 mm ²	AWG 14	16A	30A
3.0 mm ²	AWG 12	21A	40A
5.0 mm ²	AWG 10	31A	54A

CHECKING CABLES AND WIRES

1. Checking the terminal for tightness.
2. Check terminals and wires for corrosion by battery electrolyte, etc.
3. Check terminals and wires for open circuit or impending open circuit.
4. Check wire insulation and coating for damage, cracks and degrading.
5. Check conductive parts of terminals for contact with other metallic parts (vehicle body and other parts).
6. Check grounding parts to verify that there is continuity between attaching bolt(s) and vehicle body.
7. Check for incorrect wiring.
8. Check that wirings are so clamped as to prevent contact with sharp corners of the vehicle body, etc. or hot parts (exhaust manifold, pipe, etc.).
9. Check that wirings are clamped firmly to secure enough clearance from the fan pulley, fan belt and other rotating or moving parts.
10. Check that the wirings between the fixed parts such as the vehicle body and the vibrating parts such as the engine are made with adequate allowance for vibrations.



FUSIBLE LINK & FUSE

FUSIBLE LINK SPECIFICATIONS

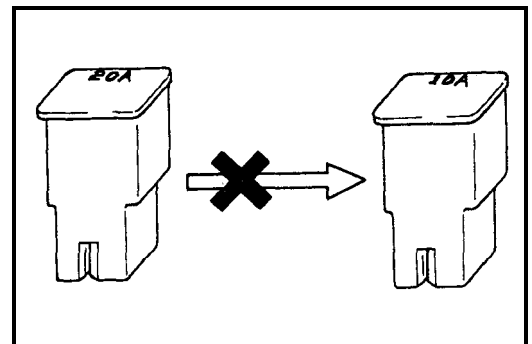
Item	Specifications																								
Main fusible link Type Ampere rating Housing color Location	Screw-up type 60 A Yellow Engine compartment (Connected with Battery (+) terminal)																								
Sub-fusible link Type Ampere rating & housing Color	Connector type <table><tr><th>Circuit Item</th><th>IGN</th><th>MPI</th><th>P/WDW</th><th>CON</th><th>BATT</th><th>LAMP</th><th>RAD</th></tr><tr><td>Ampere rating</td><td>30 A</td><td>20 A</td><td>30A</td><td>20 A</td><td>50 A</td><td>40 A</td><td>30 A</td></tr><tr><td>Housing Color</td><td>Pink</td><td>Blue</td><td>Pink</td><td>Blue</td><td>Red</td><td>Green</td><td>Pink</td></tr></table>	Circuit Item	IGN	MPI	P/WDW	CON	BATT	LAMP	RAD	Ampere rating	30 A	20 A	30A	20 A	50 A	40 A	30 A	Housing Color	Pink	Blue	Pink	Blue	Red	Green	Pink
Circuit Item	IGN	MPI	P/WDW	CON	BATT	LAMP	RAD																		
Ampere rating	30 A	20 A	30A	20 A	50 A	40 A	30 A																		
Housing Color	Pink	Blue	Pink	Blue	Red	Green	Pink																		
Location	Engine compartment (in the relay & fuse box)																								

INSPECTION

1. Check for a burnt fusible link with an ohmmeter (fusible link must be removed from holder prior to testing).
2. If a fusible link burns out, there is a short or some other problem in the circuit. Carefully determine the cause and correct it before replacing the fusible link.

NOTE:

The fusible link will burn out within 15 seconds if a higher current than specified flows through the circuit.



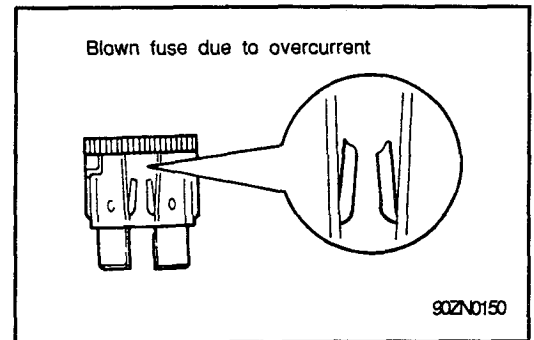
FUSE INSPECTION

When a fuse is blown, there are two probable causes as follows. Which of the two causes is responsible can be easily determined by visual check after removing the fuses.

1. Fuse blown due to over-current.

Prior to replacing the fuse with a new one, check the circuit for a short and the related parts for abnormal condition.

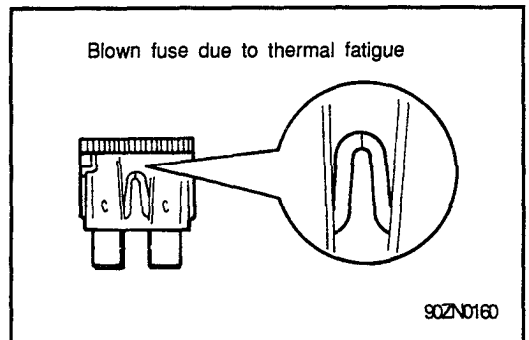
Only after the correction of a short or replacement of abnormal parts, should a fuse with same ampere rating be installed.



2. Fuse blown due to repeated current on-off.

Normally, this type of problem occurs after fairly long period of use and hence is less frequent than the above type.

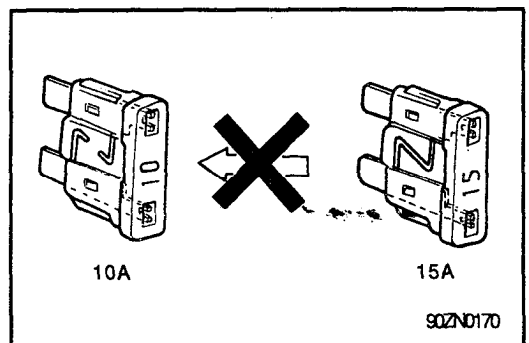
In this case, you may simply replace with a new fuse of the same capacity.



CAUTION:

A blade type fuse is identified by the numbered value in amperes.

If the fuse is burnt-out, be sure to replace a fuse with the same ampere rating. If a fuse of higher capacity than specified is used, parts may be damaged and the danger of fire also exists. When removing or inserting a fuse, please use a fuse puller in the fuse box.



IGNITION SWITCH (WITH DOOR WARNING SWITCH)

INSPECTION

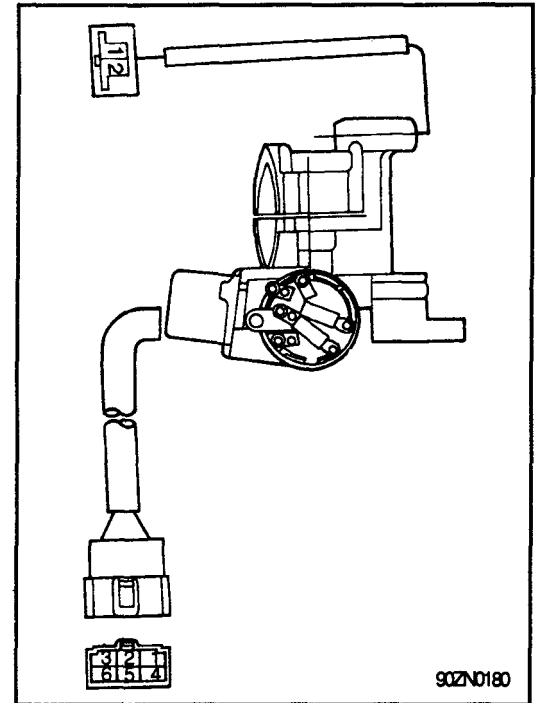
1. Remove the connector located under the steering column.
2. Check for continuity between terminals.

Position	Switch Terminal Key	Ignition switch					Door warning switch		Lock	
		1	2	4	5	6	1	2	RO	RE
LOCK	R								L	L
	I								L	F
ACC	I	○	—	○			○	○	F	F
ON	I	○	○	○	—	○			F	F
START	I			○	○	○			F	F

NOTE:

O - O : indicates that there is a continuity between terminals.

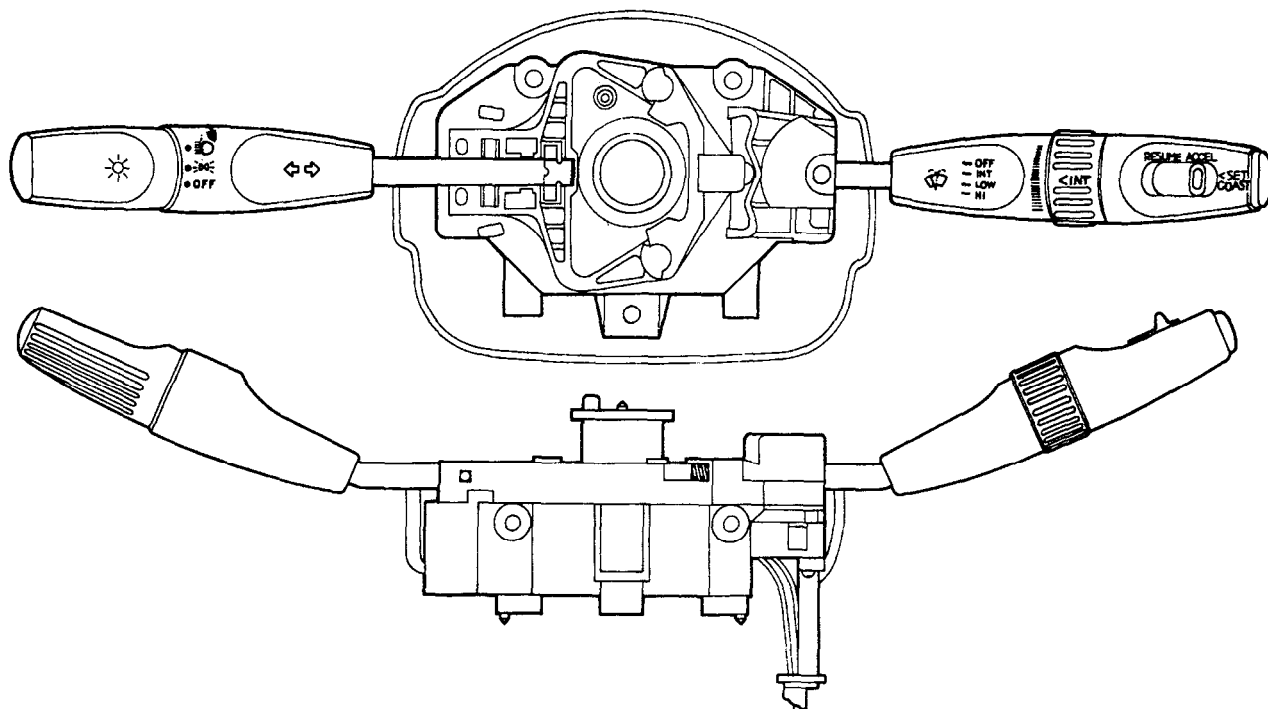
RO : Round the locking bar, RE : Return the locking bar,
R : Removed, I : Inserted, L : Lock, F : Free



**MULTIFUNCTION SWITCH
SPECIFICATIONS**

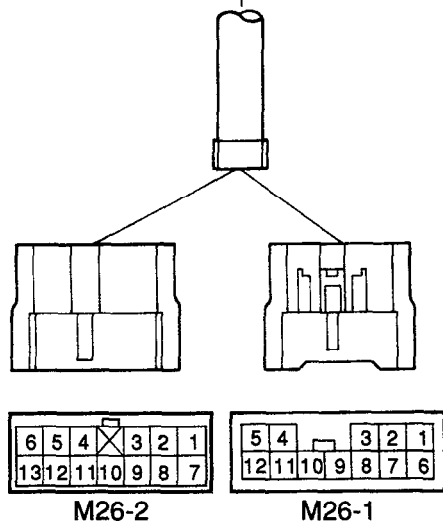
Items	Specifications
Rated Voltage	DC 12 V
Operating temperature range	-30° ~ +80°C (-22 ~ +176°F)
Rated load	
Dimmer & Passing switch	High : 15 A (Lamp load) Low : 10 A (Lamp load) Passing : 15 A (Lamp load)
Lighting & tail switch	Lighting : 1 A (Relay load) Tail : 0.7 A (Relay load)
Turn signal switch	5 A (Lamp load)
Wiper switch	Low, Hi : 4 A (Motor load) Int. : 0.22 ± 0.05 A (Relay load) Lock : MAX. 23 A (Motor load)
Washer switch	4 A (Motor load)
Cruise control switch	0.2 ± 0.1 A
Horn switch	7 A (Relay load)
Variable int. volume switch	MAX. 10 mA

COMPONENT (WITHOUT AIR BAG)



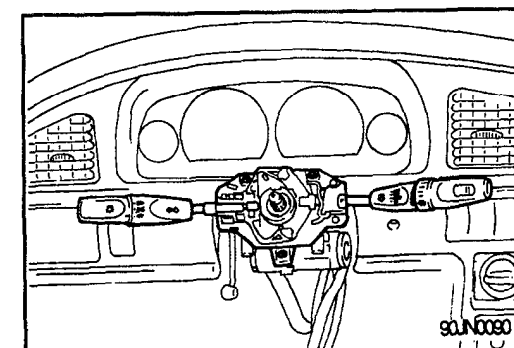
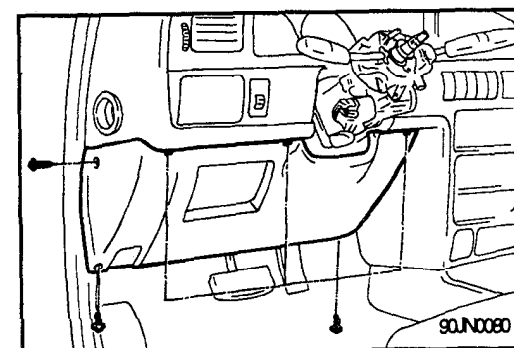
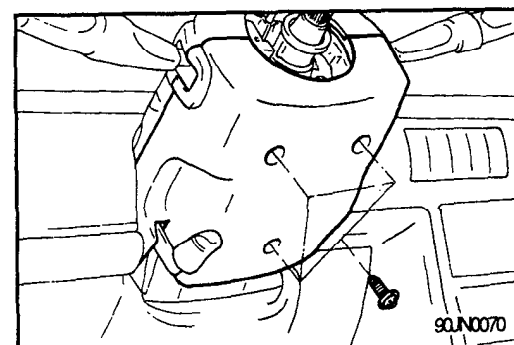
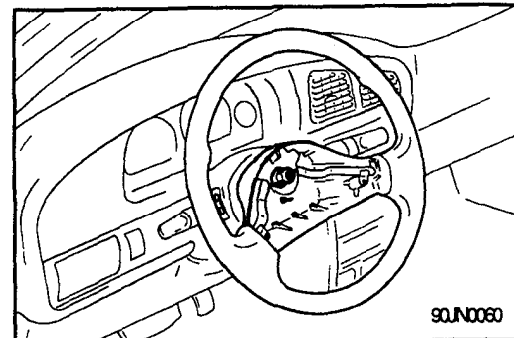
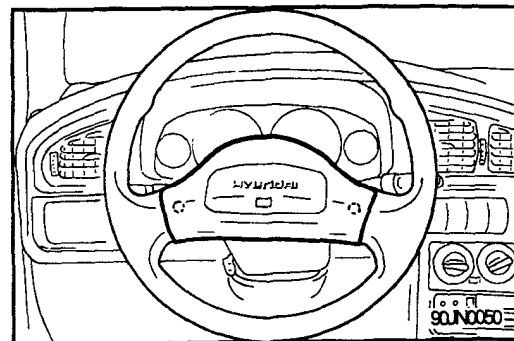
Circuit connection

Connector No.	Terminal No.	Wire size & color	Circuit	Description
M26-1	1	No Connection		
	2	0.85RL	INT	Intermittent wiper
	3	0.85RW	S	Wiper parking
	4	0.85RY	HI	Wiper high speed
	5	0.85YB	LOW	Wiper low speed
	6	No Connection		
	7	0.5WL	W	Washer switch
	8	0.85GB	HO	Horn
	9	0.85B	EW, EA	Wiper & washer, cruise ground
	10	0.3GW	INT(T)	Intermittent wiper
	11	0.3L	SET	Speed set coast
	12	0.3LgW	RES	Resume accel
M26-2	1	0.3YR	TS	Tail lamp switch
	2	1.25WB	HS(2)	Head lamp switch passing
	3	1.25RG	HU	Head lamp upper beam power
	4	1.25Br	HL	Head lamp lower beam power
	5	1.25B	EB	Dimmer & passing switch ground
	6	No Connection		
	7	0.3WL	HS(1)	Head lamp switch
	8	0.3B	EL	Lighting switch ground
	9	0.3G	F	Rear fog lamp
	10	0.5RW	TB	Flasher unit power
	11	0.5RL	TL	Turn signal lamp (LH) switch
	12	0.5RY	TR	Turn signal lamp (RH) switch
	13	No Connection		



REMOVAL AND INSTALLATION (WITHOUT A/BAG)

1. Remove the horn pad by loosening 2 screws and the horn switch connector.
2. Remove the steering wheel by loosening the steering wheel mounting nut.
3. Remove the steering column shroud. (3 screws)
4. Remove the lower crash pad. (6 screws)
5. Remove the cable band and harness connectors.
6. Remove the multifunction switch assembly by loosening the 3 screws shown in the illustration.
7. Installation is the reverse order of the removal procedure.



INSPECTION (WITHOUT A/BAG)

With the multifunction switch in each position, make sure that continuity exists between terminals below. If continuity is not as specified, replace the multifunction switch.

Lighting switch (Connector No.: M26-2)

Terminal Position	1	7	8	9
OFF				
I	○		○	
II	○	○	○	○

Dimmer and passing switch (Connector No.: M26-2)

Terminal Position	5	4	3	2
HU	○		○	
HL	○	○		
P	○		○	○

Turn signal switch (Connector No.: M26-2)

Hazard switch	Turn signal switch	Terminal 10	11	12
OFF	L	○	○	
	N			
	R	○		○

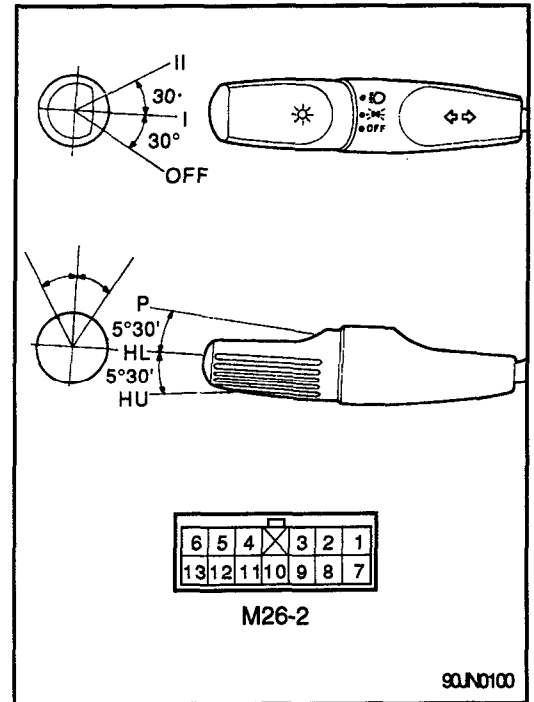
L : Left position
N : Neutral position
R : Right position

Wiper switch (Connector No.: M26-1)

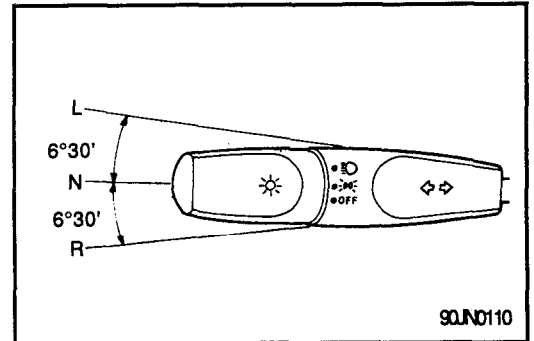
Terminal Position	5	4	3	2	9	10
OFF	○		○			
INT	○		○	○	○	○
LOW	○				○	
HI		○			○	

Washer switch (Connector No.: M26-1)

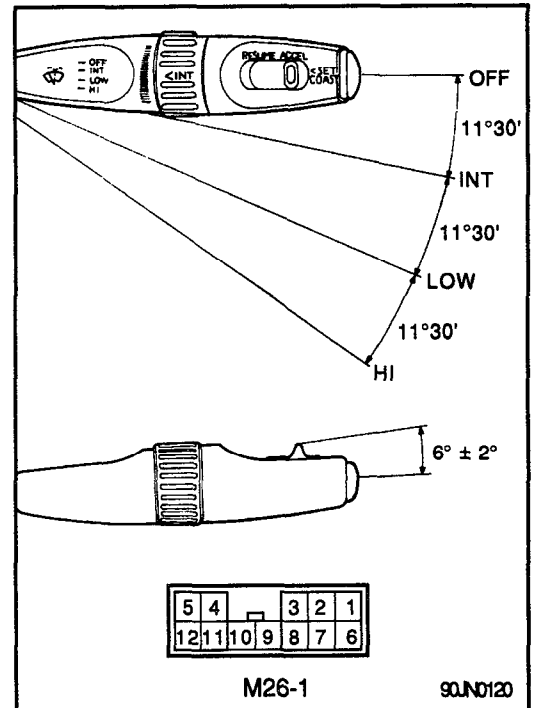
Terminal Position	7	9
OFF		
ON	○	○



90JND100



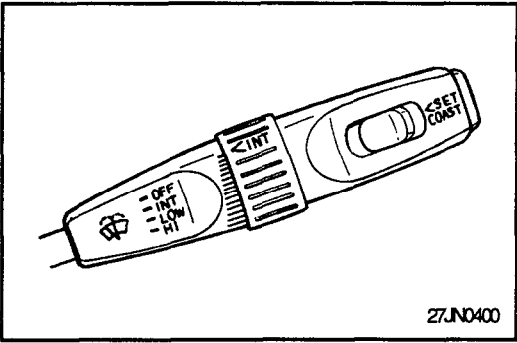
90JND110



90JND120

Cruise control switch (Connector No.: M26-1)

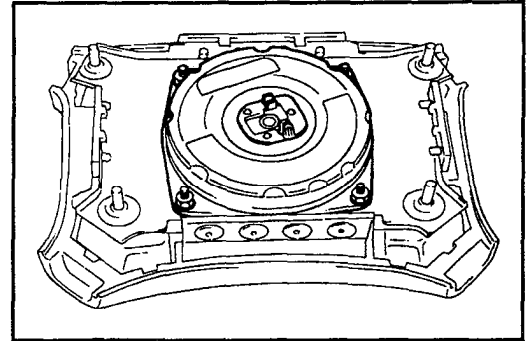
Terminal Position	12	11	9
RESUME			
OFF			
SET			



REMOVAL AND INSTALLATION (WITH AIR BAG)

CAUTION

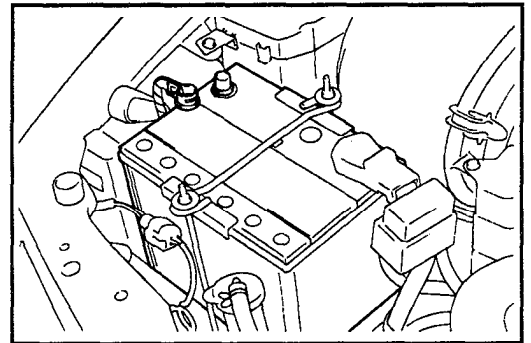
1. Never attempt to disassemble or repair the air bag module or clock spring.
If faulty, replace it.
2. Do not drop the air bag module or clock spring or allow contact with water, grease or oil.
Replace it if a dent, crack, deformation or rust are detected.
3. The air bag module should be stored on a flat surface and placed so that the pad surface is facing upward.
Do not place anything on top of it.
4. Do not expose the air bag module to temperature over 93°C (200°F).
5. After deployment of an air bag, replace the clock spring with a new one.
6. Wear gloves and safety glasses when handling an air bag that has already deployed.
7. An undeployed air bag module should only be disposed of in accordance with the procedures.



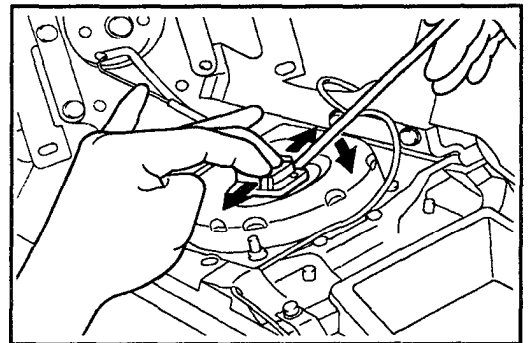
1. Disconnect the negative battery cable and keep secure from battery.

CAUTION

Wait at least 30 seconds after disconnecting the battery cable before doing any further work.

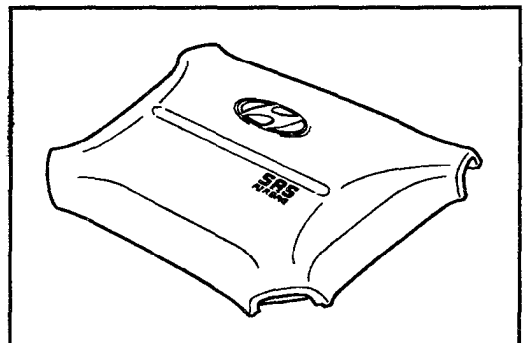


2. Remove the air bag module mounting nut using a socket wrench from the back side.
3. When disconnecting the connector of the clock spring from the air bag module, press the air bag's lock toward the outer side to spread it open. Use a screwdriver, as shown in the figure at the left, to pry so as to remove the connector gently.



CAUTION

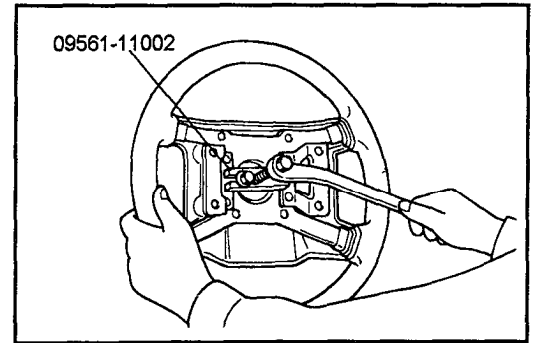
- o When disconnecting the air bag module-clock spring connector, take care not to apply excessive force to it.
- o The removed air bag module should be stored in a clean, dry place with the pad cover face up.



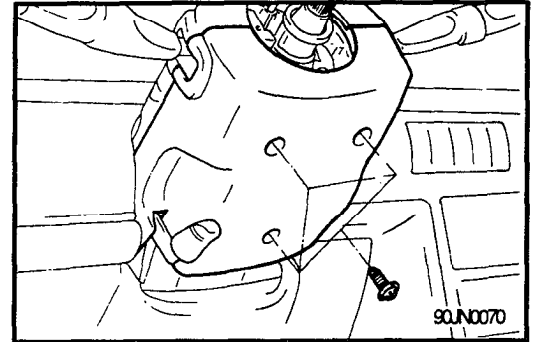
4. Remove the steering wheel by using a special too (09561-11002).

CAUTION

Do not hammer on the steering wheel. Doing so may damage the collapsible column mechanism.



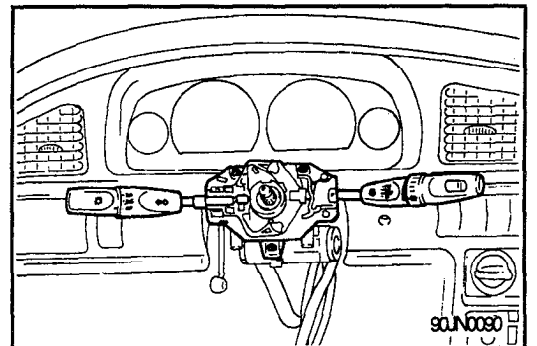
5. Remove the steering column shroud. (3 screws)



6. Remove the lower crash pad. (6 screws)
7. Remove the cable band and harness connectors.



8. Remove the multifunction switch assembly by loosening the 3 screws shown in the illustration.
9. Installation is the reverse order of the removal procedure.



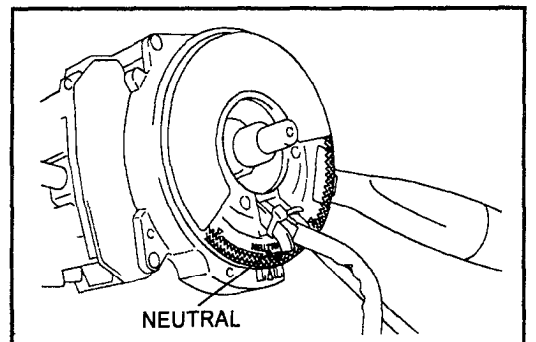
INSTALLATION FOR CLOCK SPRING

Align the mating mark and "NEUTRAL" position indicator of the clock spring, and, after turning the front wheels to the straight-ahead position, install the clock spring to the column switch.

CAUTION

If the clock spring's mating mark is not properly aligned, the steering wheel may not be completely rotational during a turn, or the flat cable within the clock spring may be severed, obstructing normal operation of the SRS and possibly leading serious injury to the vehicle's driver.

To inspect clock spring, refer to air bag group.



INSPECTION (WITH A/BAG)

With the multifunction switch in each position, make sure that continuity exists between terminals below. If continuity is not as specified, replace the multifunction switch.

Lighting switch (Connector No.: M26-4)

Terminal Position	1	2	4	3
OFF				
I	○	—	○	
II	○	○	○	○

Dimmer and passing switch (Connector No.: M26-5)

Terminal Position	1	2	4	3
HU	○	—	○	
HL	○	○		
P	○		○	○

Turn signal switch (Connector No.: M26-4)

Hazard switch	Turn signal switch	Terminal 10	9	8
OFF	L	○	○	
	N			
	R	○		○

L : Left position

N : Neutral position

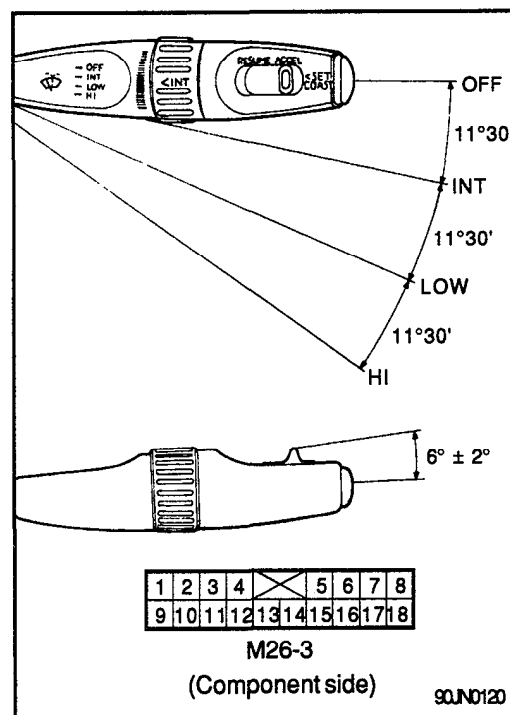
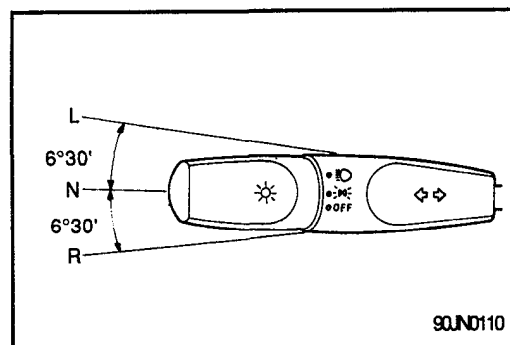
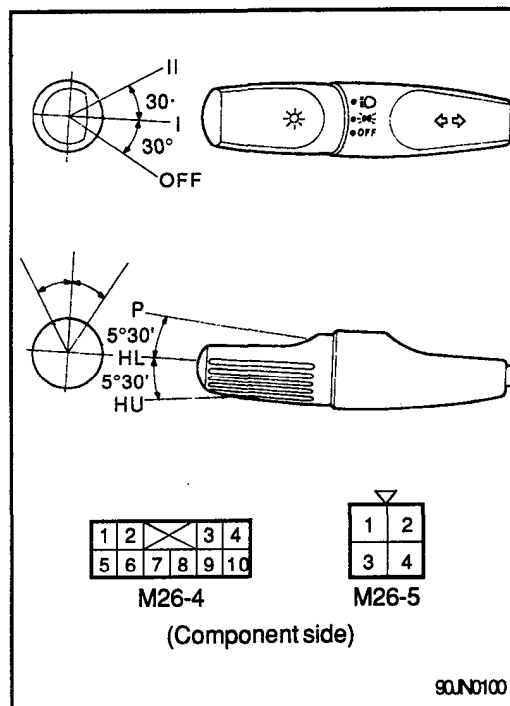
R : Right position

Wiper switch (Connector No.: M26-3)

Terminal Position	2	4	5	6	16	7
OFF	○	○				
INT	○	○	○	○	○	○
LOW	○				○	
HI		○	○	○	○	

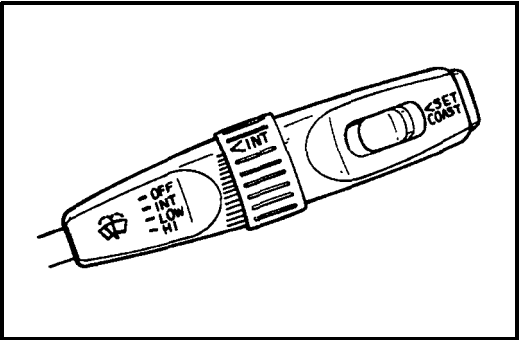
Washer switch (Connector No.: M26-3)

Terminal Position	8	16
OFF		
ON	○	○



Cruise control switch (Connector No. : M26-3)

Terminal Position	18	17	16
RESUME			
OFF			
SET			



INSTRUMENTS AND WARNING SYSTEM SPECIFICATIONS

Instrument cluster	Package type (flexible P.C.B. with push connection)	
Type	Transparent illumination - 3.4W x 3	
Illumination lamps	Indirect illumination - 1.2W x 2	
Indicator and warning lamps	Bulb wattage (W)	Illumination color
Battery charge	1.2	Red
Oil pressure	1.2	Red
Door ajar	1.2	Amber
Check engine	1.2	Amber
Brake failure	1.2	Red
Over-drive OFF	1.2	Amber
High beam	3.0	Blue
Seat belt	1.2	Red
Hazard	1.2	Red
Low fuel	3.0	Amber
Trunk lid open	1.2	Amber
Direction indicator (LH, RH)	1.2	Green
Air bag	1.2	Green
ABS	1.2	Green
Cruise	1.2	Green

SERVICE SPECIFICATIONS

Item	Specification																								
Speedometer	Eddy current push connection type																								
Type																									
Indication tolerance	<table><tr><td>Speed (MPH)</td><td>10</td><td>20</td><td>40</td><td>60</td><td>80</td><td>100</td><td>120</td></tr><tr><td>Tolerance (MPH)</td><td>±1.5</td><td>±1.5</td><td>±1.5</td><td>±1.5</td><td>±1.5</td><td>±1.5</td><td>±1.5</td></tr></table>	Speed (MPH)	10	20	40	60	80	100	120	Tolerance (MPH)	±1.5	±1.5	±1.5	±1.5	±1.5	±1.5	±1.5								
Speed (MPH)	10	20	40	60	80	100	120																		
Tolerance (MPH)	±1.5	±1.5	±1.5	±1.5	±1.5	±1.5	±1.5																		
	<table><tr><td>Speed (km/h)</td><td>20</td><td>40</td><td>60</td><td>80</td><td>100</td><td>120</td><td>140</td><td>160</td></tr><tr><td>Tolerance (km/h)</td><td>+4 0</td><td>+3 0</td><td>+4 0</td><td>+5 0</td><td>+5 0</td><td>+5.5 +0.5</td><td>+5.5 +0.5</td><td>+5.5 +0.5</td></tr></table>	Speed (km/h)	20	40	60	80	100	120	140	160	Tolerance (km/h)	+4 0	+3 0	+4 0	+5 0	+5 0	+5.5 +0.5	+5.5 +0.5	+5.5 +0.5						
Speed (km/h)	20	40	60	80	100	120	140	160																	
Tolerance (km/h)	+4 0	+3 0	+4 0	+5 0	+5 0	+5.5 +0.5	+5.5 +0.5	+5.5 +0.5																	
Tachometer	Electronic type																								
Type																									
Indication tolerance	<table><tr><td>Standard (RPM)</td><td>1,000</td><td>2,000</td><td>3,000</td><td>4,000</td><td>5,000</td><td>6,000</td><td>7,000</td></tr><tr><td>Tolerance (RPM)</td><td>±100</td><td>±125</td><td>±150</td><td>±150</td><td>±150</td><td>±180</td><td>±210</td></tr></table>	Standard (RPM)	1,000	2,000	3,000	4,000	5,000	6,000	7,000	Tolerance (RPM)	±100	±125	±150	±150	±150	±180	±210								
Standard (RPM)	1,000	2,000	3,000	4,000	5,000	6,000	7,000																		
Tolerance (RPM)	±100	±125	±150	±150	±150	±180	±210																		
Red zone	7500 - 9000 RPM																								
Fuel gauge	Air cored type (pointer remaining type)																								
Type																									
Standard & tolerance	<table><tr><td>Fuel level</td><td>E (Empty)</td><td>1/2</td><td>F (Full)</td></tr><tr><td>Scale angle</td><td>-30°</td><td>0°</td><td>+30°</td></tr><tr><td>Tolerance</td><td>±2.4°</td><td>±5°</td><td>±2.4°</td></tr><tr><td>Tolerance when assembled with fuel sender</td><td>+0° -5°</td><td>±7°</td><td>+7° -0°</td></tr><tr><td>Resistance (Ω)</td><td>95</td><td>32.5</td><td>7</td></tr></table>	Fuel level	E (Empty)	1/2	F (Full)	Scale angle	-30°	0°	+30°	Tolerance	±2.4°	±5°	±2.4°	Tolerance when assembled with fuel sender	+0° -5°	±7°	+7° -0°	Resistance (Ω)	95	32.5	7				
Fuel level	E (Empty)	1/2	F (Full)																						
Scale angle	-30°	0°	+30°																						
Tolerance	±2.4°	±5°	±2.4°																						
Tolerance when assembled with fuel sender	+0° -5°	±7°	+7° -0°																						
Resistance (Ω)	95	32.5	7																						
Temperature gauge	Air cored type (pointer-zero-position returning type)																								
Type																									
Standard & tolerance	<table><tr><td>Temperature (°C)</td><td>60</td><td>85</td><td>110</td><td>Red zone</td><td>125</td></tr><tr><td>Scale angle</td><td>-30°</td><td>-7°</td><td>-7°</td><td>26.5°</td><td>30°</td></tr><tr><td>Tolerance</td><td></td><td>+2° -3°</td><td>+2° -3°</td><td></td><td>±5°</td></tr><tr><td>Tolerance when assembled with temp. sender</td><td></td><td></td><td>+3° -2°</td><td></td><td>-4° +7°</td></tr></table>	Temperature (°C)	60	85	110	Red zone	125	Scale angle	-30°	-7°	-7°	26.5°	30°	Tolerance		+2° -3°	+2° -3°		±5°	Tolerance when assembled with temp. sender			+3° -2°		-4° +7°
Temperature (°C)	60	85	110	Red zone	125																				
Scale angle	-30°	-7°	-7°	26.5°	30°																				
Tolerance		+2° -3°	+2° -3°		±5°																				
Tolerance when assembled with temp. sender			+3° -2°		-4° +7°																				

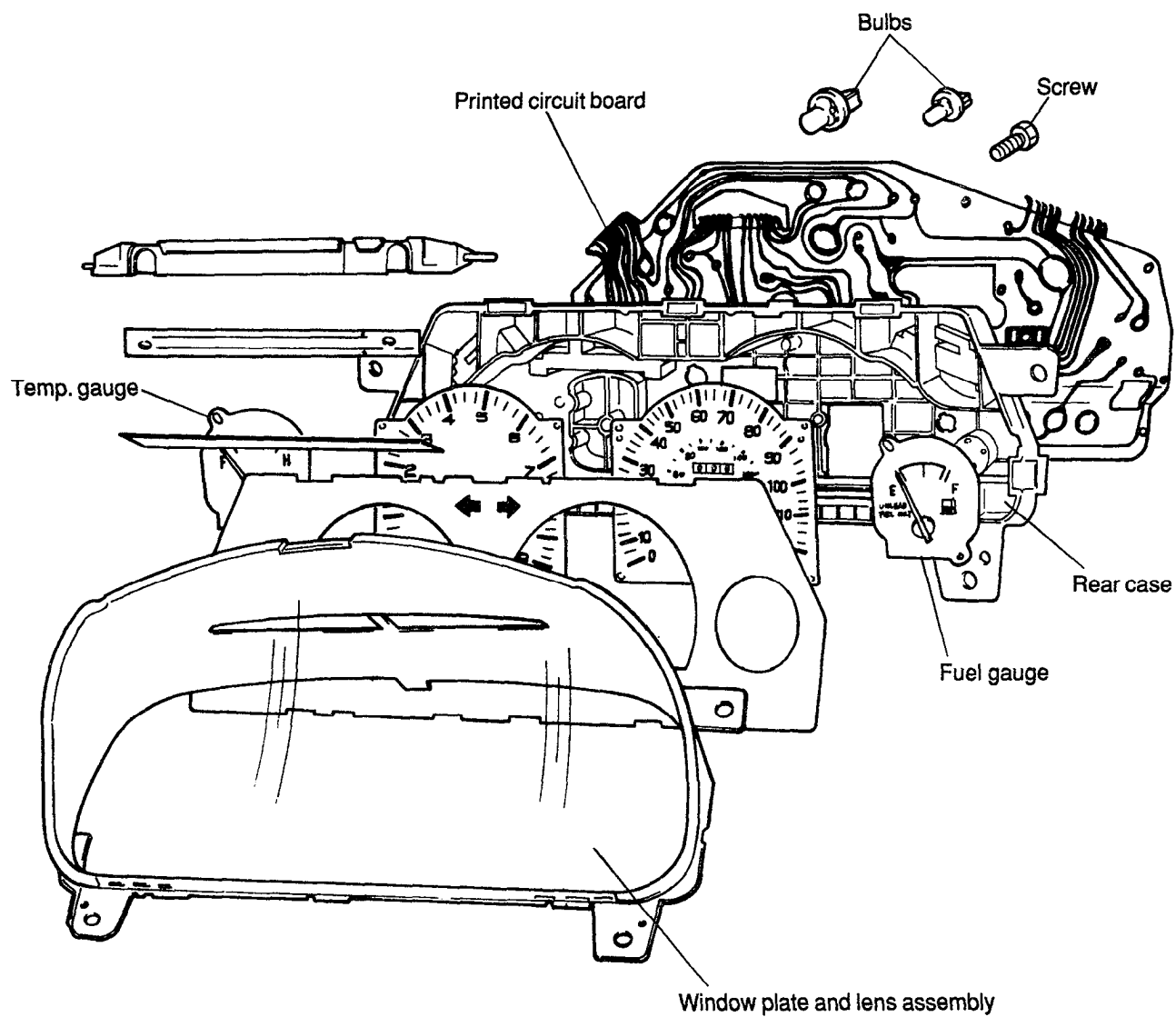
TROUBLESHOOTING

Problem	Probable cause	Remedy
Tachometer does not operate	No.10 fuse (10A) blown Tachometer faulty Wiring faulty	Check for short and replace fuse Check tachometer Repair if necessary
Fuel gauge does not operate	No.10 fuse (10A) blown Fuel gauge faulty Fuel sender faulty Wiring faulty	Check for short and replace fuse Check gauge Check fuel sender Repair if necessary
Low fuel warning lamp does not light	No.10 fuse (10A) blown Bulb burned out Fuel level sensor faulty Wiring or ground faulty	Check for short and replace fuse Replace bulb Check sensor Repair as necessary
ECT gauge does not operate	No. 10 (10A) fuse blown ECT sender faulty Water temperature sender faulty Wiring or ground faulty	Check for short and replace fuse Check gauge Check sender Repair if necessary
Oil pressure warning lamp does not light	NO. 10 (10A) fuse blown Bulb burned out Oil pressure sender faulty Wiring or ground faulty	Check for short and replace fuse Replace bulb Check sender Repair if necessary
Low brake fluid warning lamp does not light	NO. 10 (10A) fuse blown Bulb burned out Brake fluid level warning switch faulty Parking brake switch faulty Wiring or ground faulty	Check for short and replace fuse Replace bulb Check switch Check switch Repair if necessary
Open door warning lamp does not light	NO. 6 (15A) fuse blown Bulb burned out Door switch faulty Wiring or ground faulty	Check for short and replace fuse Replace bulb Check switch Repair if necessary
Seat belt warning lamp does not light	No.10 (10A) fuse blown Bulb burned out Buckle switch faulty Wiring or ground faulty	Check for short and replace fuse Replace bulb Check switch Repair if necessary

ECT : Engine Coolant Temperature

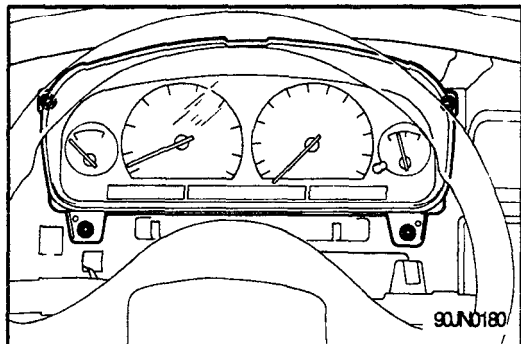
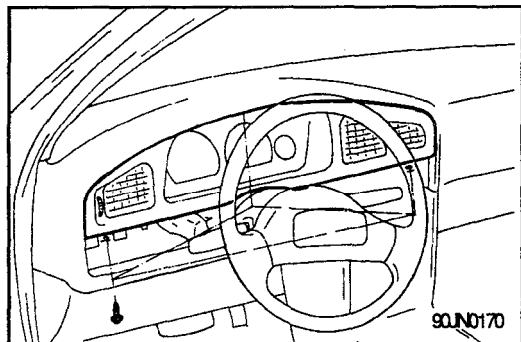
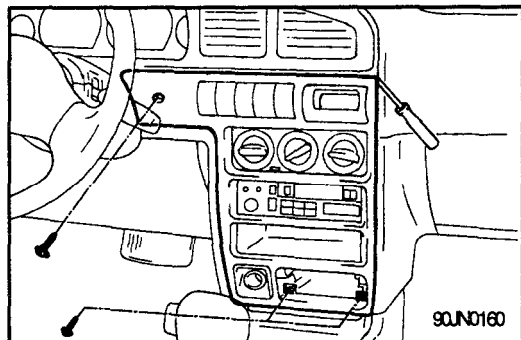
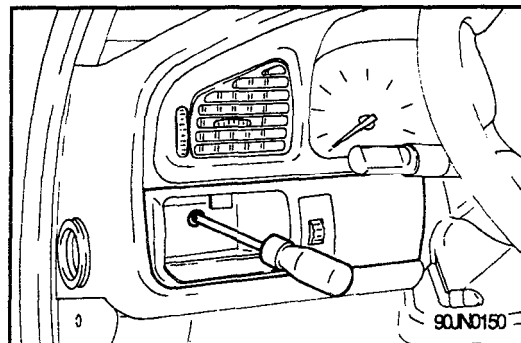
INSTRUMENT CLUSTER

COMPONENTS

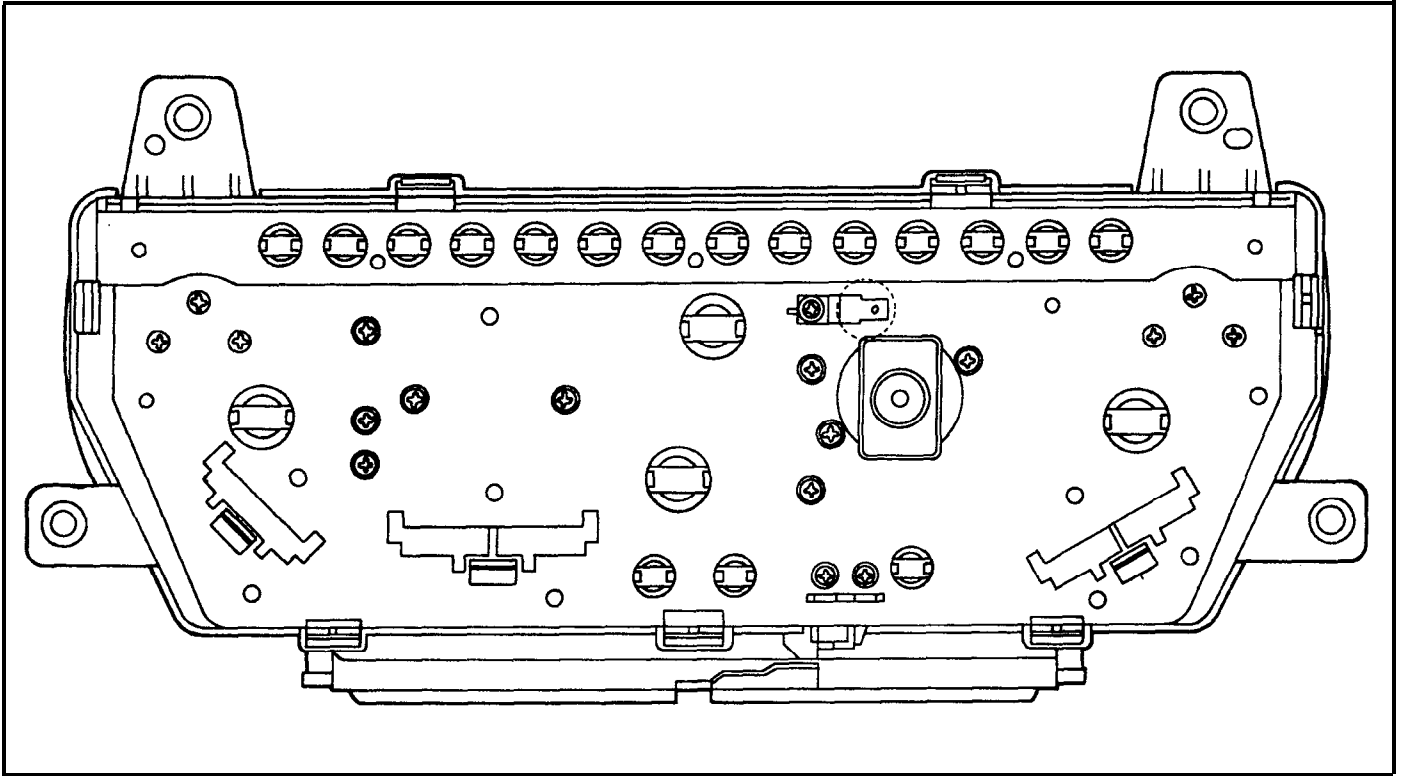


REMOVAL AND INSTALLATION

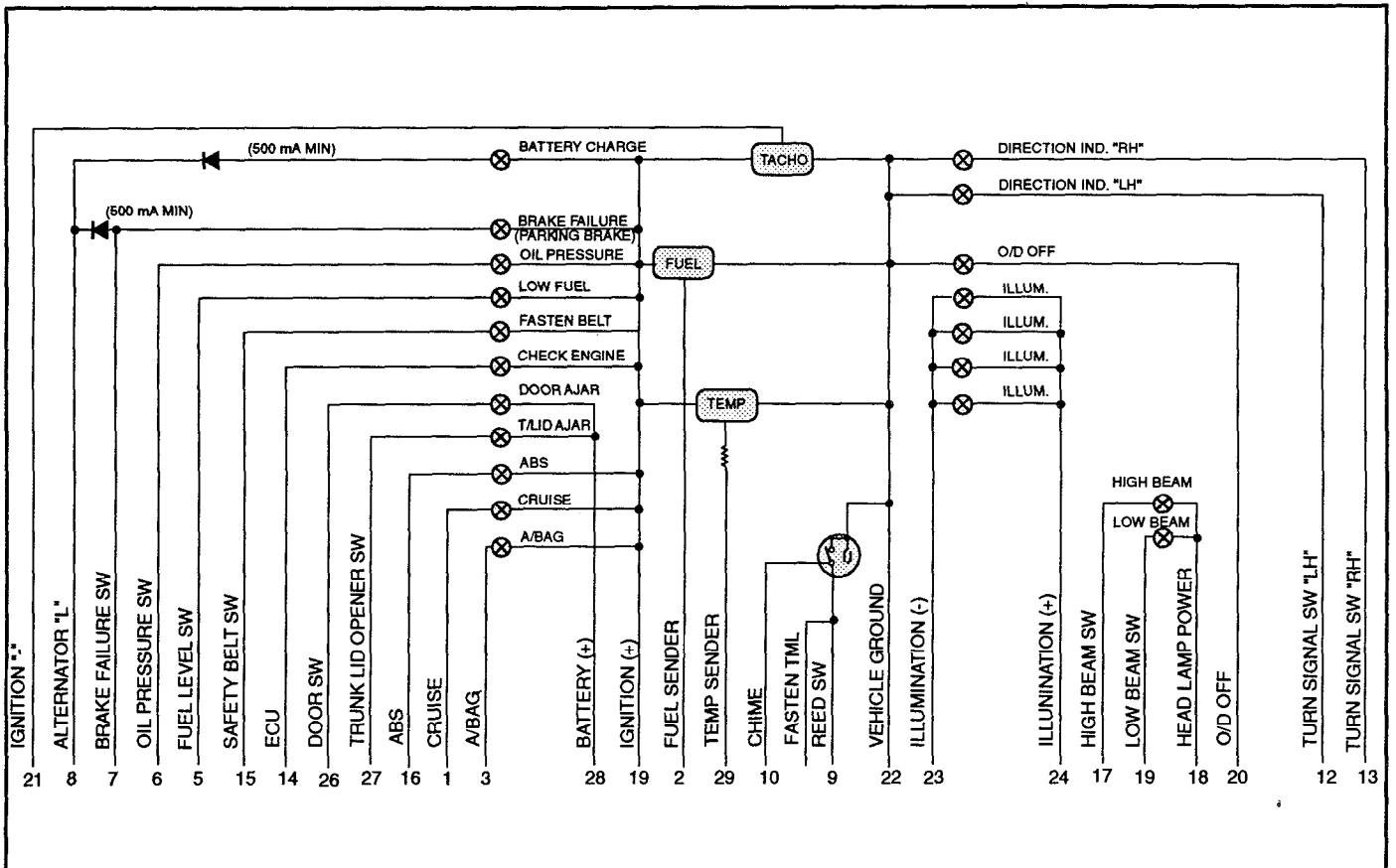
1. Disconnect the battery ground cable.
2. Remove the coin box. (Screw 1 EA)
3. Remove the ashtray and lower crash pad center facia panel. (Screw 3 EA)
4. Separate connectors. (Digital clock, Hazard switch, A/C switch, Rear defogger switch, cruise switch)
5. Remove three screws at the cluster facia panel.
6. Remove four screws retaining cluster and connectors.
7. Installation is the reverse order of removal.



PRINTED CIRCUIT BOARD



CIRCUIT DIAGRAM



SPEEDOMETER AND SPEEDOMETER CABLE

Speedometer inspection (on-vehicle)

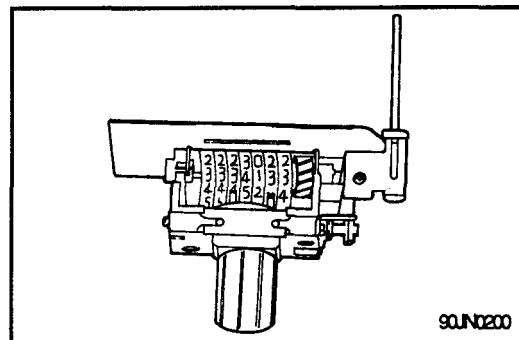
- Using a speedometer tester, ensure that any indication error is within tolerance limits.

NOTE

It should be noted that the excessive tire wear and tire over or under-inflation will cause indication errors.

Speed (MPH)	10	20	40	60	80	100	120
Tolerance (MPH)	±1.5	±1.5	±1.5	±1.5	±1.5	±1.5	±1.5

Speed (km/h)	20	40	60	80	100	120	140	160
Tolerance (km/h)	+4 0	+3 0	+4 0	+5 0	+5 0	+5.5 +0.5	+5.5 +0.5	+5.5 +0.5



- Check the speedometer for pointer fluctuation and abnormal noise.

NOTE

Pointer fluctuations can be caused by a faulty speedometer cable.

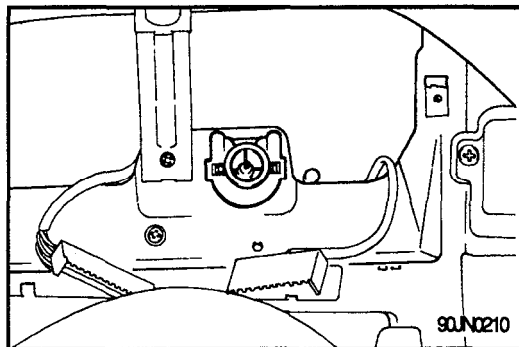
- Check to see if the odometer is functioning properly.

Speedometer cable inspection

- Check the cable for kinks, bends or damages in routing. If the conditions are severe, replace cable.
- After disconnecting cable, check the core for kinks, burrs or bent tips.

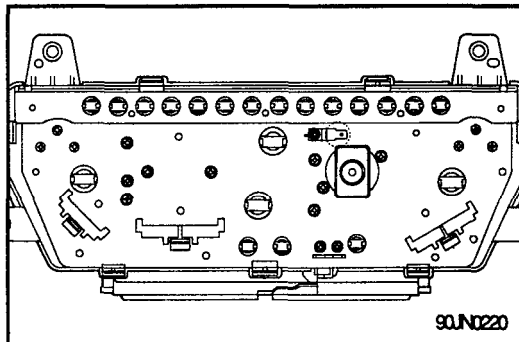
NOTE

When installing a cable, it is necessary that extra care should be taken to verify that the stopper of the cable is fitted properly into the speedometer groove and the cable is routed properly to eliminate any kinks.



Reed switch inspection

- Remove the instrument cluster.
- Use an ohmmeter to check for continuity, or no continuity between the test points as the speedometer cable is rotated.

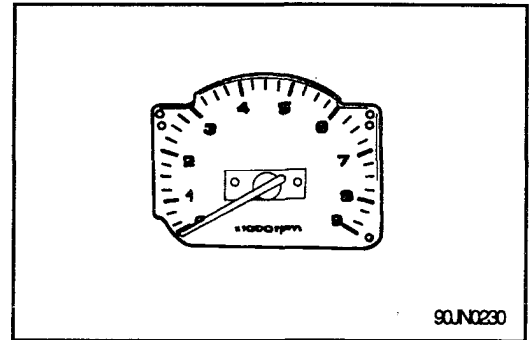


TACHOMETER

On-vehicle inspection

1. Connect the multi-use tester to the diagnosis connector in the fuse box, or install a tachometer.
2. With engine started, compare the readings of the tester with that of the tachometer.
Replace tachometer if tolerance is excessive.

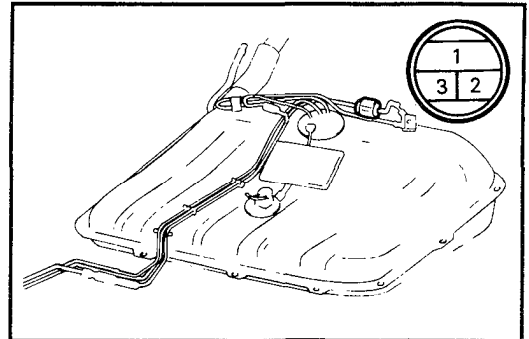
Standard (RPM)	1,000	2,000	3,000	4,000	5,000	6,000	7,000
Tolerance (RPM)	±100	±125	±150	±150	±150	±180	±210



FUEL GAUGE AND FUEL SENDER

Fuel gauge operation check (in-vehicle)

1. Raise the vehicle and disconnect the fuel sender connector
2. Ground the harness side connector (terminal 2) via 12V, 3.4 W bulb.
3. Turn the ignition switch to the ON position.
4. Check to be sure that the test bulb flashes and that the indicator moves gradually to the "F" position.



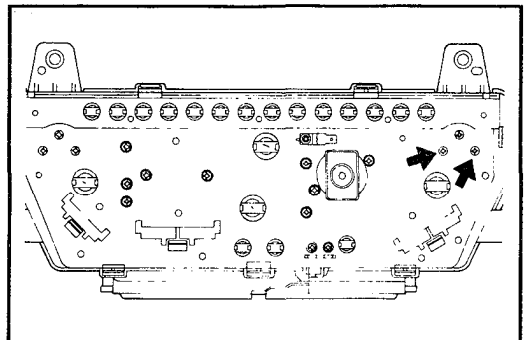
Fuel gauge inspection

1. Remove the instrument cluster.
2. Measure the resistance between terminals.

Standard resistance : 55Ω

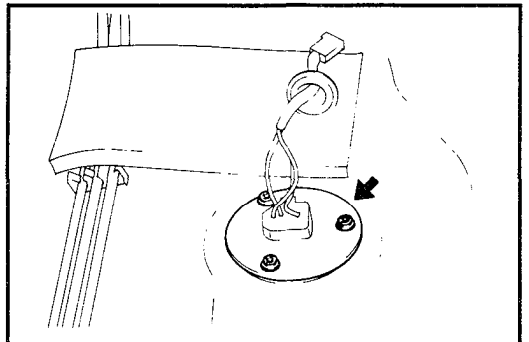
NOTE :

If the resistance value is extremely low, there may be a short in the coil; if it is extremely high, there may be a broken wire or some other problems in the coil.



Fuel sender inspection

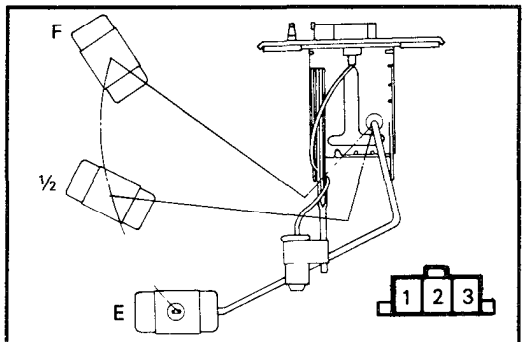
1. Remove the rear seat assembly,
2. Remove the fuel sender assembly.



3. Using an ohmmeter, measure the resistance between terminals 2 and 3 at each float level.

Float position	E	1/2	F
Resistance Ω	95	32.5	7

4. Check that resistance changes smoothly when the float is moved to "E" or "F".



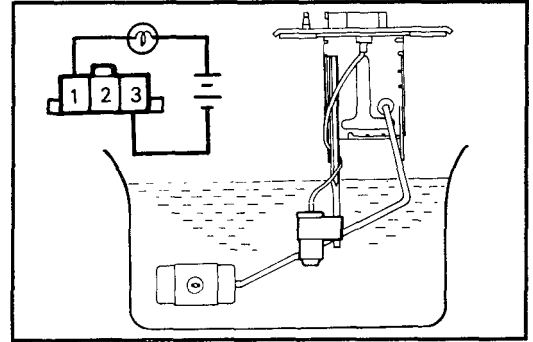
Low fuel level sensor inspection

1. Connect the sender with a test lamp (12V, 3.4W) to the battery and immerse it in the water.
2. The lamp should be off while thermistor is submerged in the water, and should illuminate when the sender is taken out of the water.

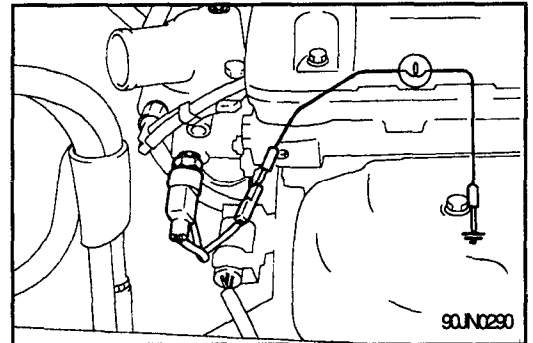
NOTE :

If there is a malfunction, replace the fuel sender as an assembly.

After completing this test, wipe the sender dry and install it in the fuel tank.

**WATER TEMPERATURE GAUGE AND SENDER****Water temperature gauge operation check (in-vehicle)**

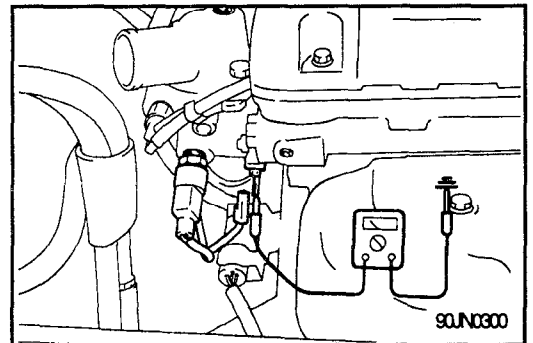
1. Remove the harness connector from water temperature sender located in engine compartment.
2. Ground the harness side connector via 12V, 3.4W bulb.
3. Turn the ignition switch to ON position.
4. Check to be sure that the test bulb flashes and that the indicator moves.

**Water temperature sender inspection**

Using an ohmmeter, measure the resistance between terminal and ground.

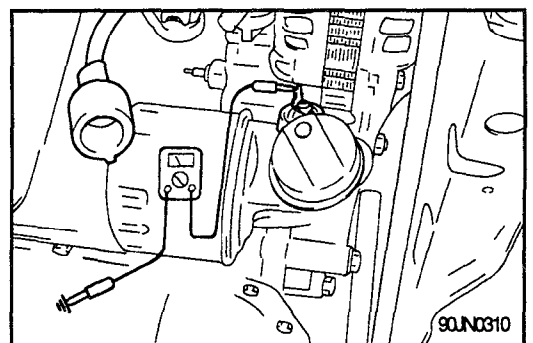
If the resistance is out of specification, replace the sender.

Temperature °C (°F)	60 (140)	80 (176)	110 (230)	125 (257)
Resistance Ω	125	48.4	24	15.2

**OIL PRESSURE SWITCH AND WARNING LAMP****Oil pressure switch inspection**

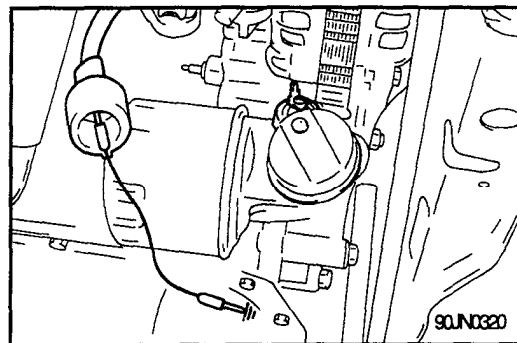
1. Pull out the connector from the oil pressure switch located at the cylinder block.
2. Check for continuity between the switch terminal and ground under condition of pressure below.

Switch ON pressure
 $0.3 \pm 0.1 \text{ kg/cm}^2$ ($29.4 \pm 9.8 \text{ kPa}$, $4.3 \pm 1.4 \text{ psi}$)

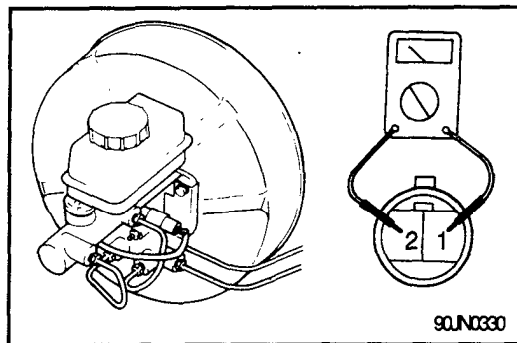


Oil pressure warning lamp inspection

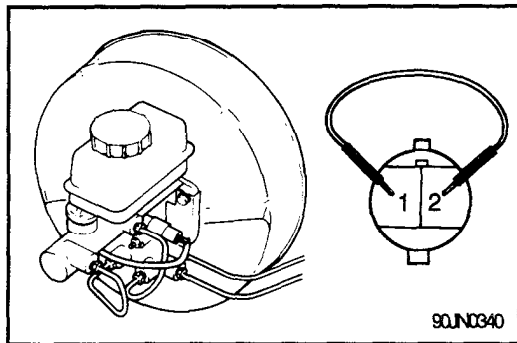
1. Pull out the connector from the oil pressure switch.
2. Ground the harness side connector.
3. Ensure that the oil pressure warning lamp lights when the ignition switch is turned ON.

**BRAKE FLUID LEVEL WARNING SWITCH AND LAMP****Brake fluid level warning switch inspection**

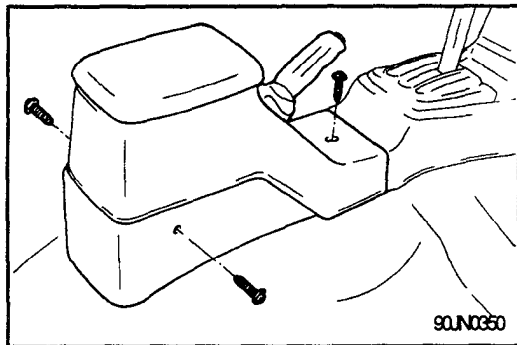
1. Remove the connector from the switch located at brake fluid reservoir.
2. Ensure that the continuity exists between switch terminals 1 and 2 while pressing down the switch (float) with a rod.

**Brake fluid level warning lamp inspection**

1. Start the engine.
2. Release the parking brake.
3. Release the connector from the brake fluid level warning switch.
4. Ground the connector at the harness side.
5. Ensure that the warning lamp lights.

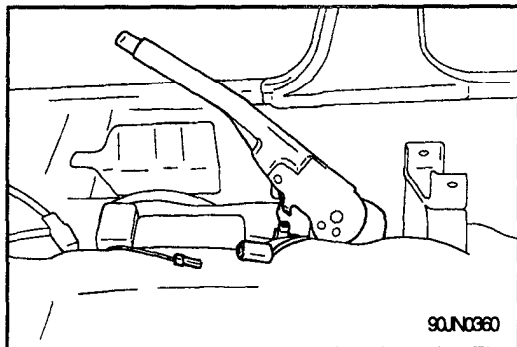
**Parking brake switch inspection**

1. Remove the rear console assembly.



2. Disconnect the connector of parking brake switch.
3. Check continuity between terminal and body ground.

Parking lever position	Continuity
Pulled ON	Conductive (0Ω)
Released OFF	Non-conductive ($\infty\Omega$)

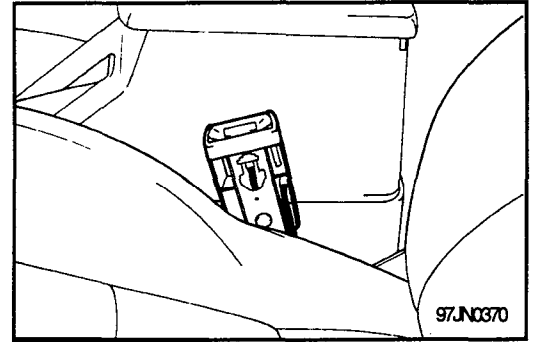


SEAT BELT WARNING SWITCH AND LAMP

Seat belt switch inspection

1. Remove the connector from the switch.
2. Check for continuity between terminals.

Seat belt condition	Continuity
Fastened	Non-conductive ($\infty\Omega$)
Not fastened	Conductive (0Ω)



Seat belt warning lamp inspection

With the ignition switch turned ON, ensure that the lamp glows.

Seat belt condition	Warning lamp
Fastened	Off
Not fastened	Glows for about six seconds

LIGHTING SYSTEM SPECIFICATION

Front combination lamp		
Headlamp	W	60/45
Position lamp	W	4
Turn signal lamp	W	28/8
Front side marker lamp	W	5
Rear combination lamp		
Tail and stop lamp	W	8/27
Turn signal lamp	W	27
Sack up lamp	W	27
Side marker lamp	W	5
Interior lamp		
Luggage compartment lamp	W	5
Door lamp	W	5
High mounted stop lamp	W	17
Room lamp	W	10
Map lamp	W	5
Overhead console lamp	W	10
(Vehicles only with soonroof)		
Licence plate lamp	W	8
Flasher unit		
Turn signal blinking frequency	C/M	85 ± 10 at 12.8V
Hazard warning blinking frequency	C/M	80 ± 12 at 12.8V

TROUBLESHOOTING

P r o b l e m	Possible cause	Remedy
Only one lamp does not light (all exterior)	Bulb burnt out Socket, wire or ground faulty	Replace bulb Repair as necessary
Headlamps do not light	Bulb burned out Fusible link blown Headlamp relay faulty Lighting switch faulty Wiring or ground faulty	Replace bulb Replace fusible link Check relay Check switch Repair as necessary
Tail, and licence lamp do not light	Tail fuse blown Fusible link blown Taillamp relay faulty Lighting switch faulty Wiring or ground faulty	Replace fuse and check for short Replace fusible link Check relay Check switch Repair as necessary
Stop lamps do not light	Circuit fuse blown Stop lamp switch faulty Wiring or ground faulty	Replace fuse and check for short Adjust or replace switch Repair as necessary
Stop lamps stay on	Bulb burned out Stop lamp switch faulty	Replace bulb Adjust or replace switch
Instrument lamps do not light (taillamps light)	Lamp control rheostat faulty Wiring or ground faulty	Check rheostat Repair as necessary
Turn signal does not flash on one side	Bulb burned out Turn signal switch faulty Wiring or ground faulty	Replace bulb Check switch Repair as necessary
Turn signal does not operate	Turn signal fuse blown Turn signal flasher faulty Turn signal switch faulty Wiring or ground faulty	Replace fuse and check for short Check flasher Check switch Repair as necessary
Hazard warning lamp does not operate	Hazard fuse blown Hazard warning flasher faulty Hazard switch faulty Wiring or ground faulty	Replace fuse and check for short Check flasher Check switch Repair as necessary

HEADLAMP AIMING

PRE-AIMING INSTRUCTIONS

The headlamps should be aimed with the proper beam-setting equipment, and in accordance with the equipment manufacturer's instructions.

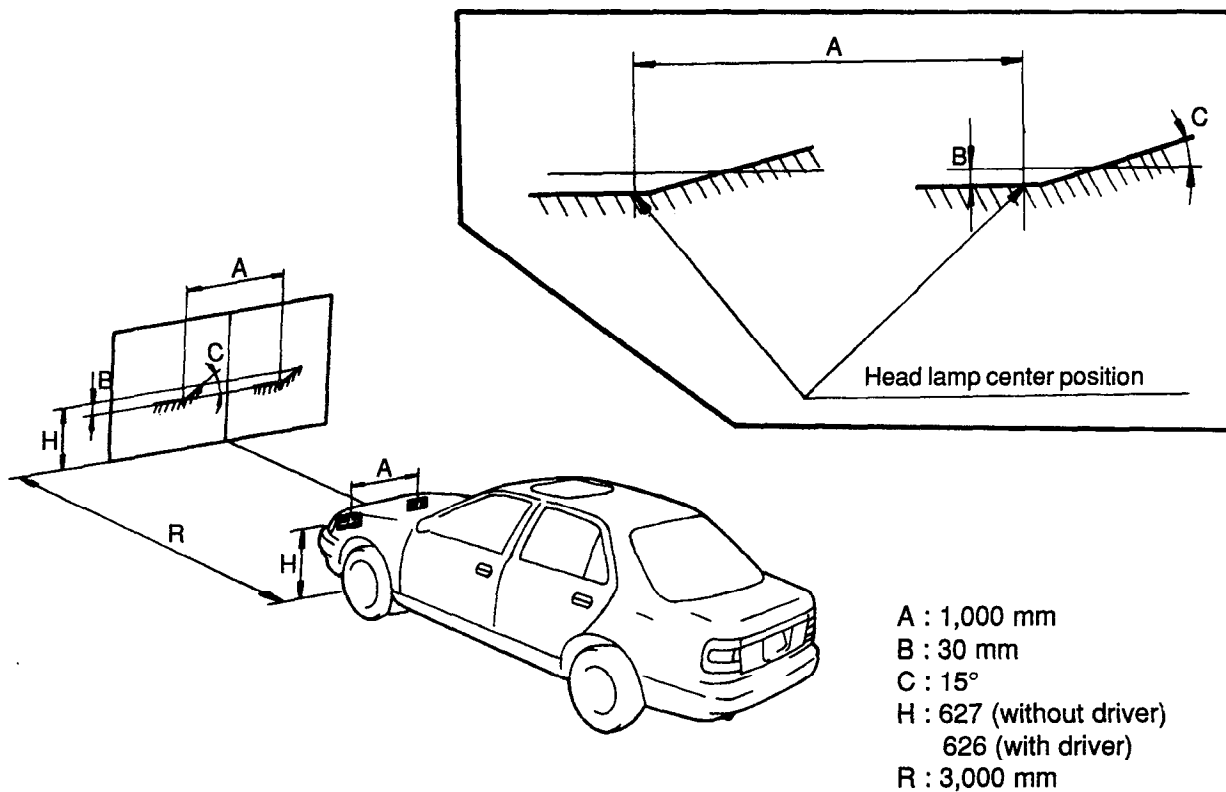
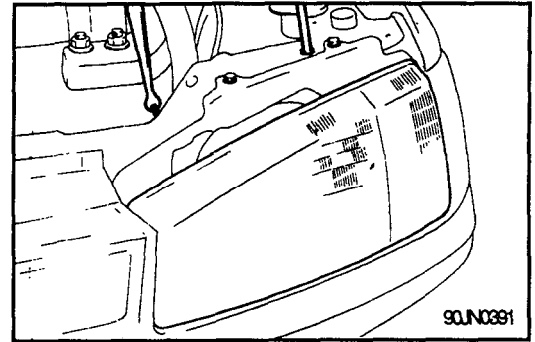
NOTE:

If there are any regulations pertinent to the aiming of headlamps in the area where the vehicle is to be used, adjust so as to meet those requirements.

Alternately turn the adjusting bolts to adjust the headlamp aiming. If beam-setting equipment is not available, proceed as follows:

1. Inflate the tires to the specified pressure and remove the load from the vehicle except a driver, spare tire, tool.
2. The vehicle should be placed on the flat floor.
3. Draw vertical lines (vertical lines passing through respective headlamp centers) and a horizontal line (horizontal line passing through center of headlamps) on the screen.
4. With the headlamp and battery normal condition, aim the headlamps.

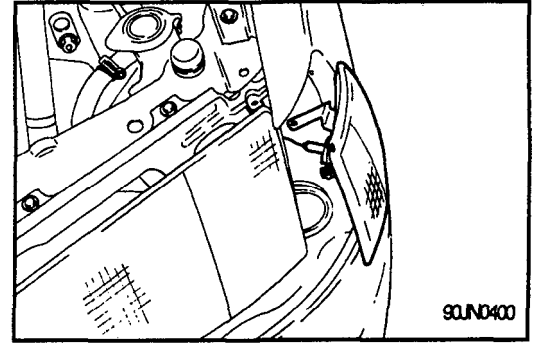
Make the vertical and horizontal adjustment of the lower beam to the standard values by using the adjusting knobs.



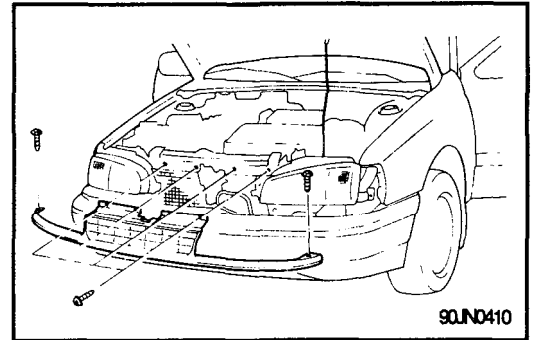
REPLACEMENT OF LAMPS

Headlamp (Position lamp incorporated)/ Turn Signal Lamp

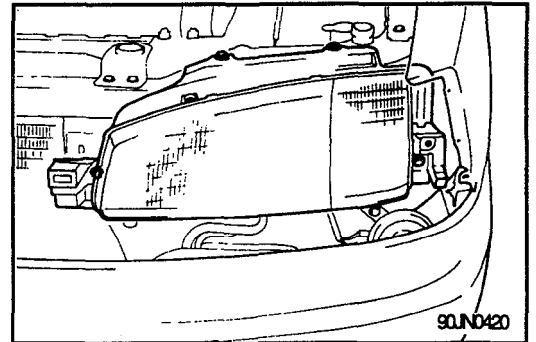
1. Disconnect the battery negative terminal.
2. After loosening the screw, pull out the turn signal lamp.



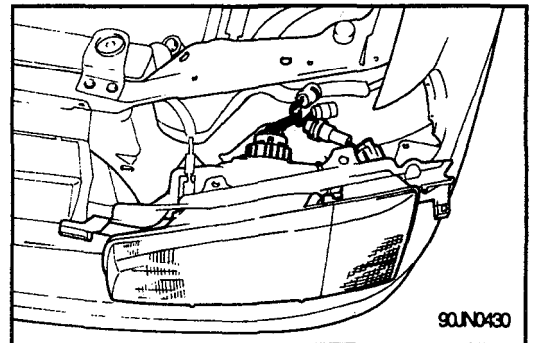
3. Remove the radiator grille.



4. Remove the headlamp assembly.



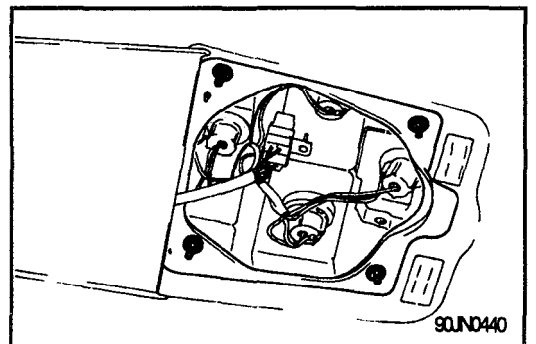
5. Disconnect the headlamp connector.
6. Installation is the reverse order of removal.



Tightening torque	N.m (kg.cm, lb.ft)
Turn signal lamp	3-5 (30-50, 2.2-3.6)
Headlamp	3-5 (30-50, 2.2-3.6)
Radiator grille	0.5-1.0 (5-10, 0.4-0.7)

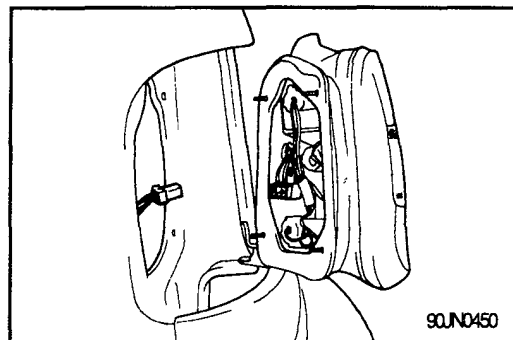
Rear Combination Lamp

1. Disconnect the negative terminal from the battery.
2. Open the trunk lid.
3. With rear luggage cover opened, loosen the 4 mounting nuts.



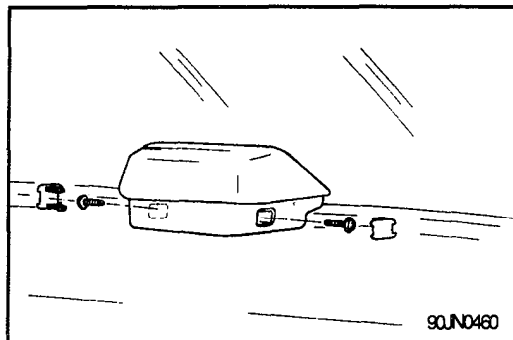
4. After disconnecting the connector, remove the lamp assembly.
5. Installation is the reverse order of removal.

Tightening torque of rear combination lamp
 2-2.5 N.m (20-25 kg.cm, 1.4-1.8 lb.ft)

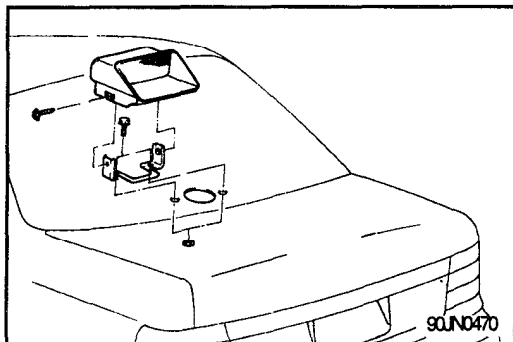


High Mounted Stop Lamp

1. Disconnect the battery negative terminal.
2. Using a screw driver, detach 2 blanking covers on both sides of the lamp.
3. Loosen the mounting screws.

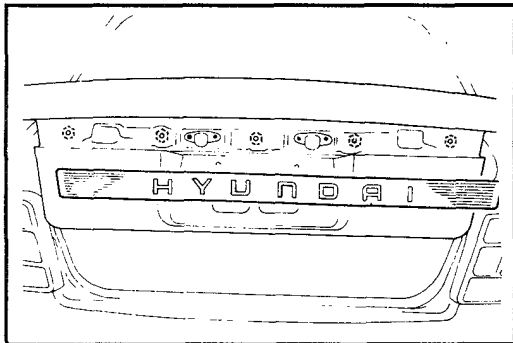


4. Remove the lamp assembly from the rear package trim.
5. Disconnect the connector from main harness.
6. Installation is the reverse order of removal.



Licence Plate Lamp

1. Disconnect the battery negative terminal.
2. Remove the back panel upper garnish by loosening 5 nuts.

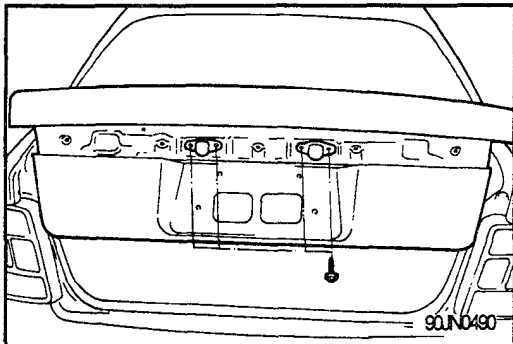


3. Remove the licence plate lamp assembly.
4. Disconnect the connector from the harness.
5. Installation is the reverse order of removal.

Tightening torque

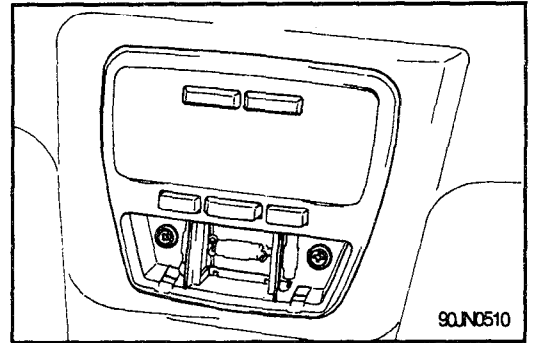
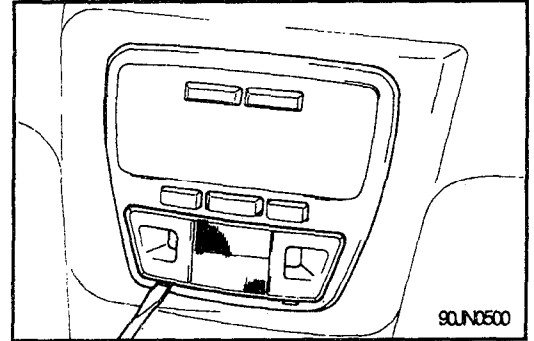
Backpanel upper garnish mounting nut
 2.0-2.5 N.m (20-25 kg.cm, 1.4-1.8 lb.ft)

Licence plate lamp mounting screw
 0.5-1.0 N.m (5-10 kg.cm, 0.4-0.7 lb.ft)



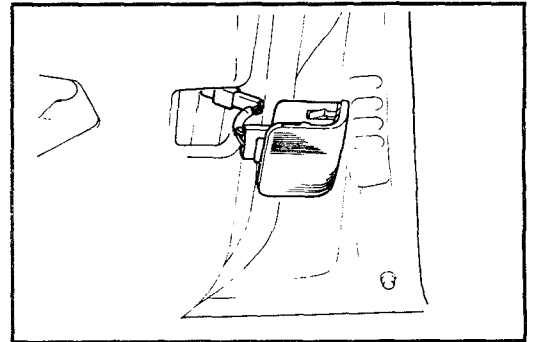
Overhead Console Lamp (Vehicles with sunroof)

1. Disconnect the battery negative terminal.
2. Using a screw driver, detach the overhead console lamp lens.
3. Remove the lamp assembly from the head lining by loosening 2 screws.
4. Disconnect the connector from the roof harness.
5. Installation is the reverse order of removal.



Door Lamp

1. Disconnect the battery negative terminal.
2. Remove the door lamp while inserting the screw driver as shown.
3. Disconnect the connector from door harness.
4. Installation is the reverse order of removal.



INSPECTION OF COMPONENTS

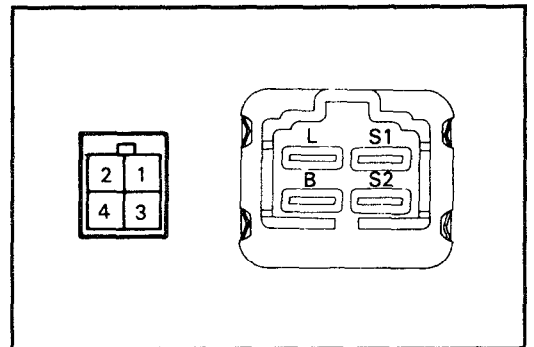
Relay (Headlamp & Taillamp)

1. Pull out the headlamp relay from the relay box in engine compartment.
2. Check for continuity between terminals.

Terminal Position	1	2	3	4
When de-energized	○	—	○	
When energized	⊕	—	⊖	○

NOTE:

1. ○—○ indicates that there is continuity between the terminals.
2. ⊕—⊖ indicates power supply connection.



Flasher Unit

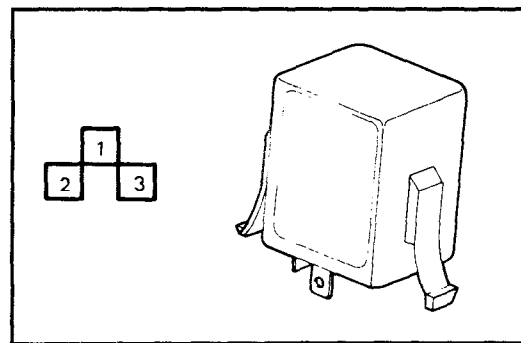
1. Remove the flasher unit from the relay box in passenger compartment.
2. Connect the positive (+) lead from the battery to terminal 3 and the negative (-) lead to terminal 2.
3. Connect the two turn signal lamps parallel to each other to terminal 1 and 2, check that the bulbs turn on and off.

NOTE

The turn signal lamps should flash 75 to 95 times per minute.

If one of the front or rear turn signal lamps has an open circuit, the number of flashes will be more than 120 per minute.

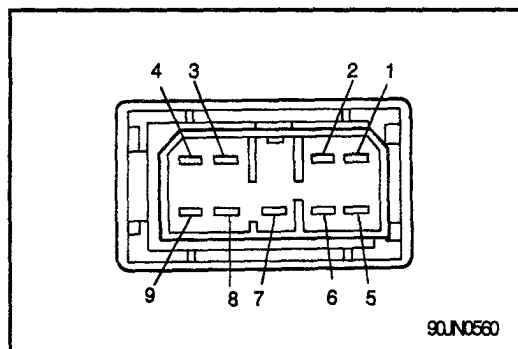
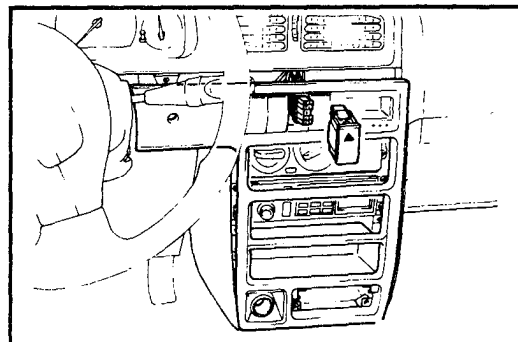
If operation is not as specified, replace the flasher unit.



Hazard Switch

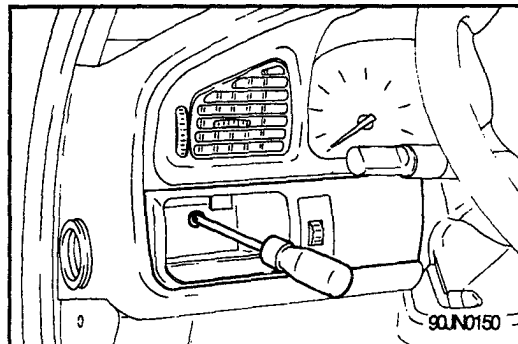
1. Disconnect the battery negative terminal.
2. Remove the hazard switch from the lower crash pad center facia panel.
3. Disconnect the connector from crash pad harness.
4. Operate the switch and check for continuity between terminals by using an ohmmeter.

Terminal Position	3	4	9	2	6	7	8	1	5
OFF	○	—	○					○	○
ON		○	○	○	○	○	○		

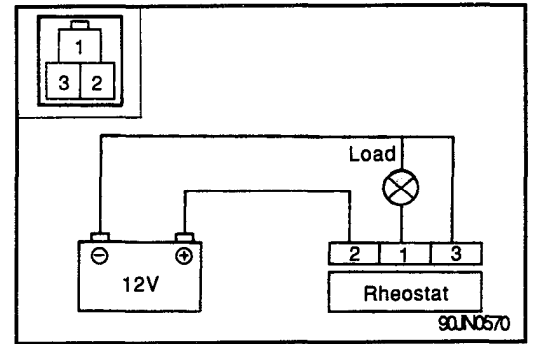


Rheostat

1. Disconnect the battery negative terminal.
2. Open coin box cover and remove the coin box assembly, with rheostat.
3. Disconnect the rheostat from crash pad harness.
4. Remove the rheostat from the coin box.

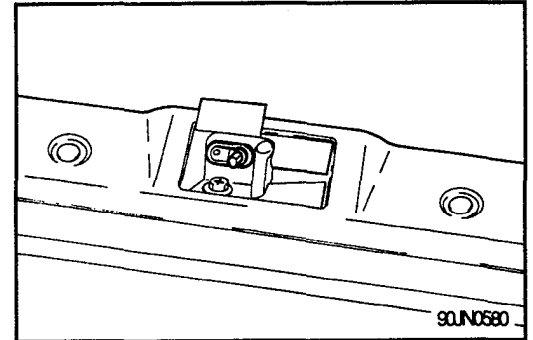


5. Check for intensity of lamp load.
If the light intensity of the lamps changes smoothly without any flickering when the rheostat is turned, it can be assumed that the rheostat is functioning properly.



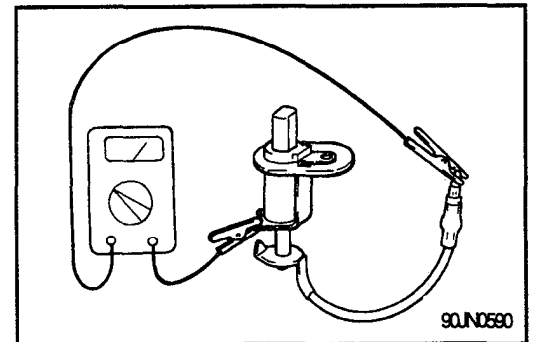
Luggage Compartment Lamp Switch

1. Disconnect the battery negative terminal.
2. Remove the luggage compartment lamp switch from the trunk lid striker.
3. Disconnect the connector from rear harness.



4. Check for continuity between terminal and body while pushing the rod.

Switch rod condition	Continuity
Pushed (OFF)	Non-conductive ($\infty\Omega$)
Released (ON)	Conductive (0Ω)



AUDIO SPECIFICATIONS

AM/FM RADIO WITH CASSETTE

Item	H810 (Base)	H820 (Mid)	H565 (Deluxe)
Radio			
Receiving band	AM/FM1/FM2	←	←
Tuning type	E.T.R	←	←
Memory (AM/FM)	6/12	←	←
Frequency range			
AM	530-1,710 KHz	530-1,710 KHz	
FM	87.9-108	←	←
Tape player			
Deck type	Mechanical	Full logic	←
Eject type	Key off release	←	←
Reproducing type	Auto reverse	←	←
Amplifier			
Output power	Max. 20W x 2CH	Max. 25W x 4CH	Max. 25W x 4CH
Volume type	Rotary	←	←
Compact disc player			
Frequency response			20KHz to 20KHz ± 3dB
Signal to noise ratio			NOM. 80dB (with IHF-A)

ANTENNA

Items	Specifications
Manual antenna	
Type	Telescopic rod
Insulating resistance	MIN. 100 MΩ (at DC 500 V megger)
Electrostatic capacity	80 ± 8 PF, 75Ω
Power antenna	
Rated Voltage	DC 12V
Operating amperage	Max. 6A (Lock Current Max 15A)
Insulating resistance	MIN. 100 MΩ (at DC 500V megger)
Electrostatic capacity	80 ± 8 PF, 75Ω

COMPACT DISC PLAYER TROUBLESHOOTING

Symptoms	Cause	Solution
<ul style="list-style-type: none"> o Skips o Stuck on one track o Disc ejects during play 	<ul style="list-style-type: none"> o Scratches o Fingerprint marks or dust (Unclean surfaces) 	<ul style="list-style-type: none"> o Handle disc by edge only. o Keep disc clean by using a cleaning kit specifically designed for compact discs.
	<ul style="list-style-type: none"> o Pin holes 	<ul style="list-style-type: none"> o Check for pin holes by holding disc up to a light aspect and observing it. o Defective disc should not be used in player.
<ul style="list-style-type: none"> o Disc loads but ejects after a few seconds 	<ul style="list-style-type: none"> o Disc is not centered on clamping mechanism. 	<ul style="list-style-type: none"> o Disc center hole can be defective during manufacturing process. o Defective disc should not be used in player.
	<ul style="list-style-type: none"> o Rough edges 	<ul style="list-style-type: none"> o Rough edges may touch mechanism parts and can be corrected by lightly sanding disc edges.
<ul style="list-style-type: none"> o Disc loads but function switch won't operate and display is erratic. o Error indication 	<ul style="list-style-type: none"> o Battery voltage drop or a momentary loss of B+. 	<ul style="list-style-type: none"> o When replacing or charging vehicle battery, reset button should be depressed to restore normal function.
	<ul style="list-style-type: none"> o Laser diode protection circuit is being activated due to excessive scratches or environmental heat. 	<ul style="list-style-type: none"> o An excessive scratched disc may cause the tracking servo to move more than necessary, resulting in internal heat build up. o Remove disc and allow CD. player to return to a safe operating temperature before re-inserting.

TROUBLESHOOTING

There are 5 areas where a problem can occur: the wiring harness, radio, cassette tape deck, speaker, and the antenna. Your job in troubleshooting is to isolate the problem to a particular area.

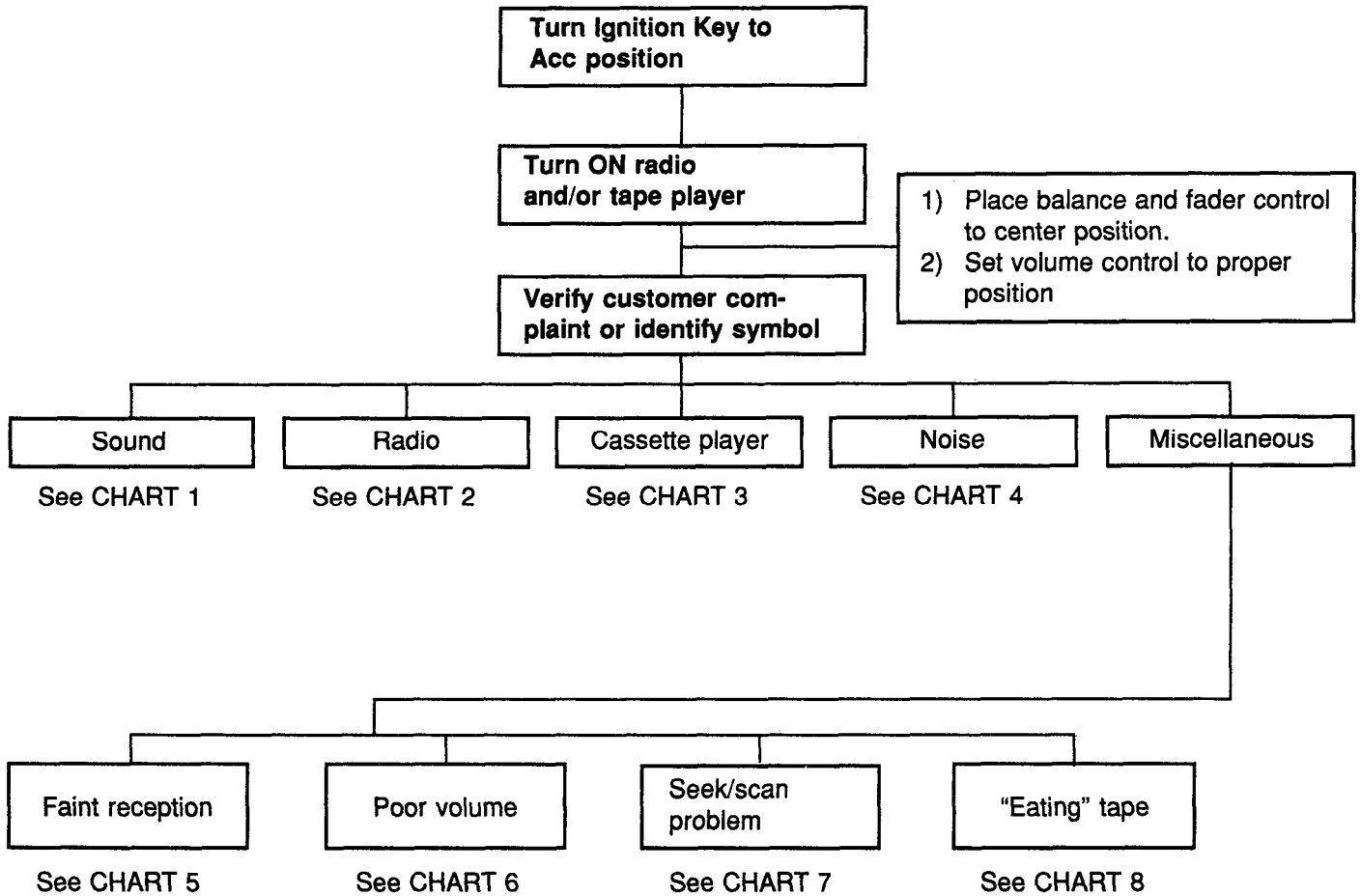
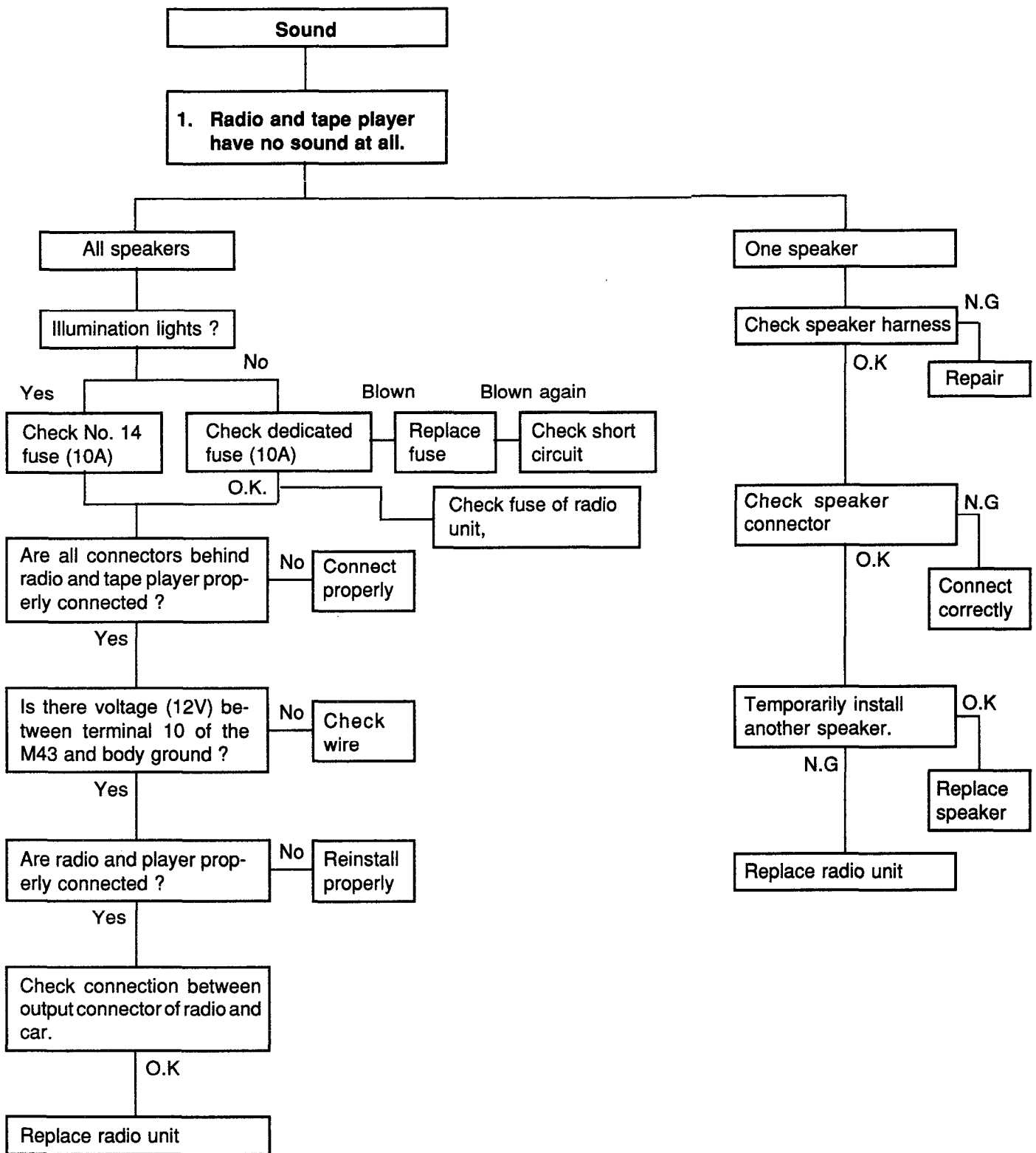


CHART 1



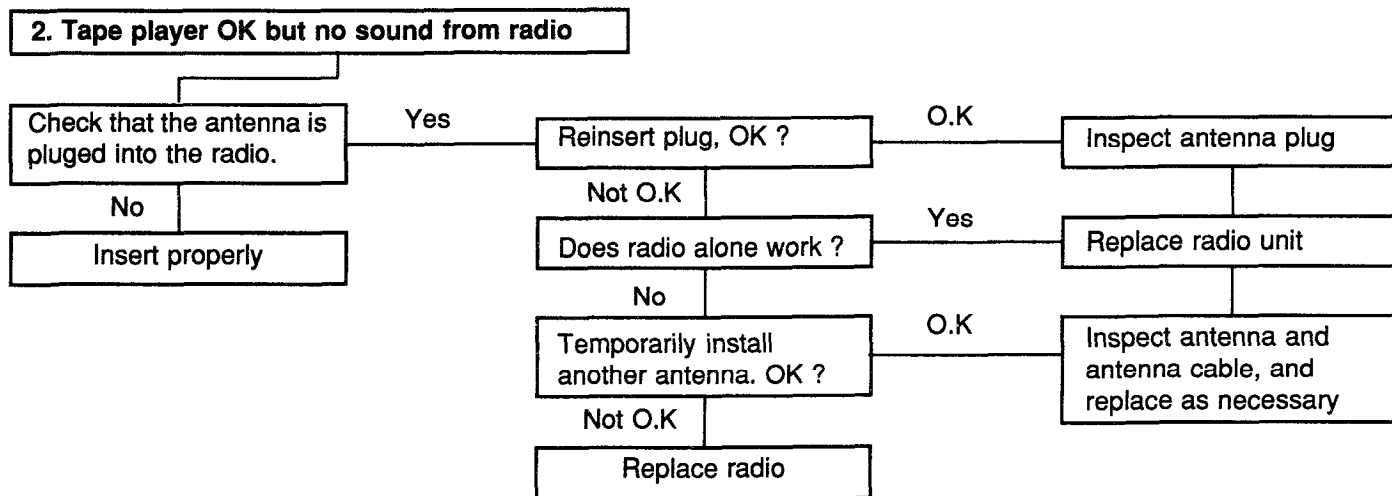
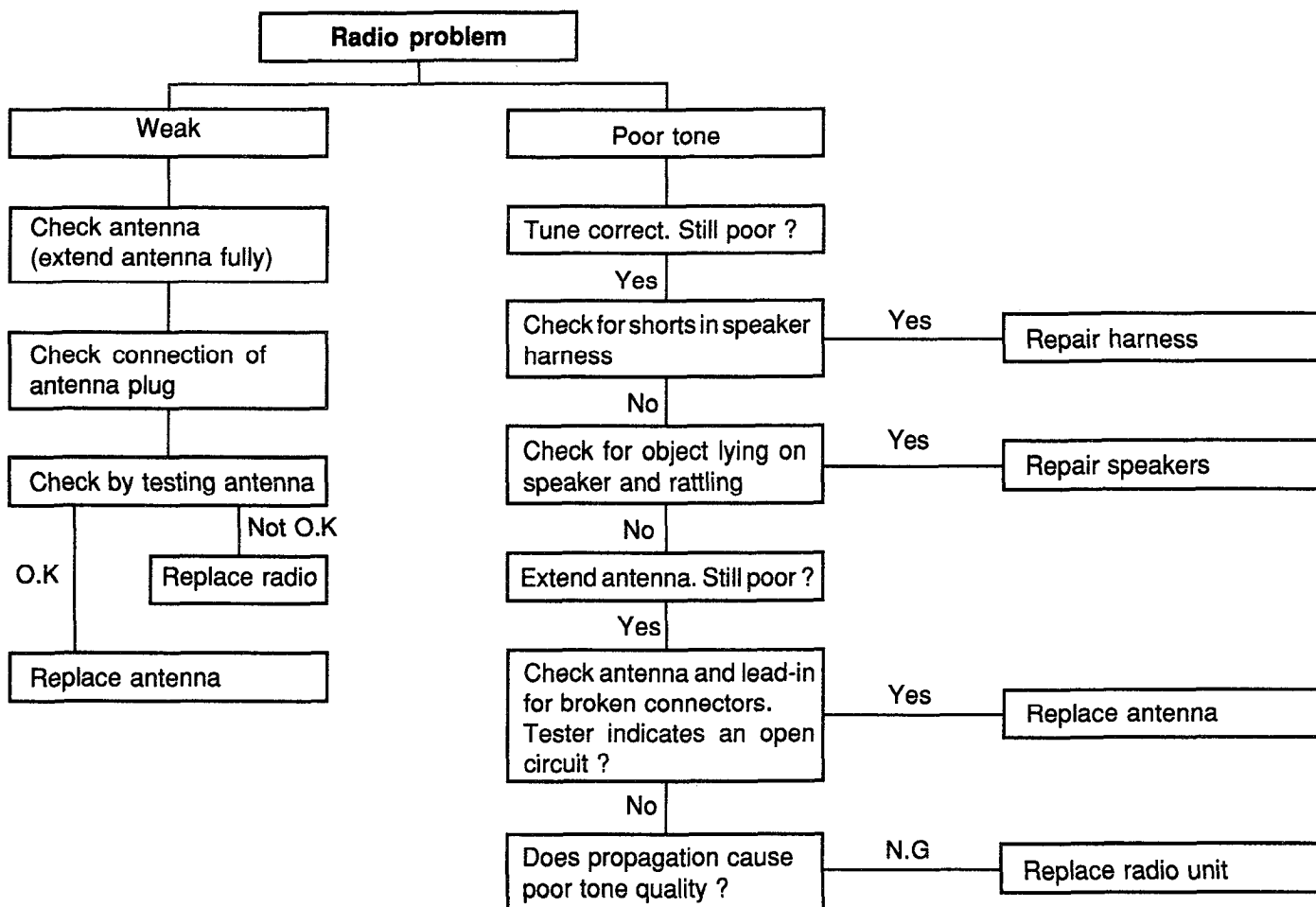


CHART 2



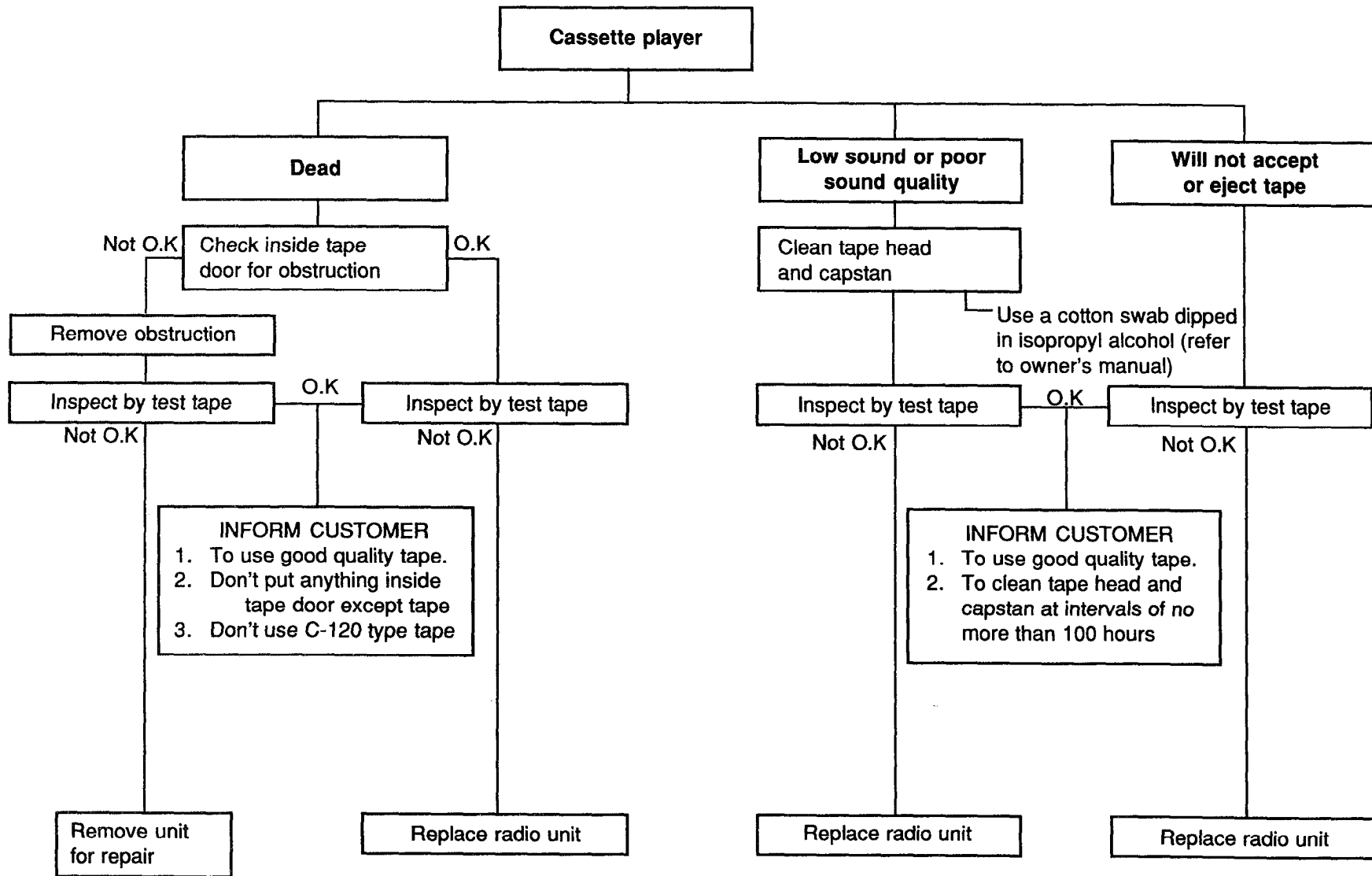


CHART 4

1. RADIO

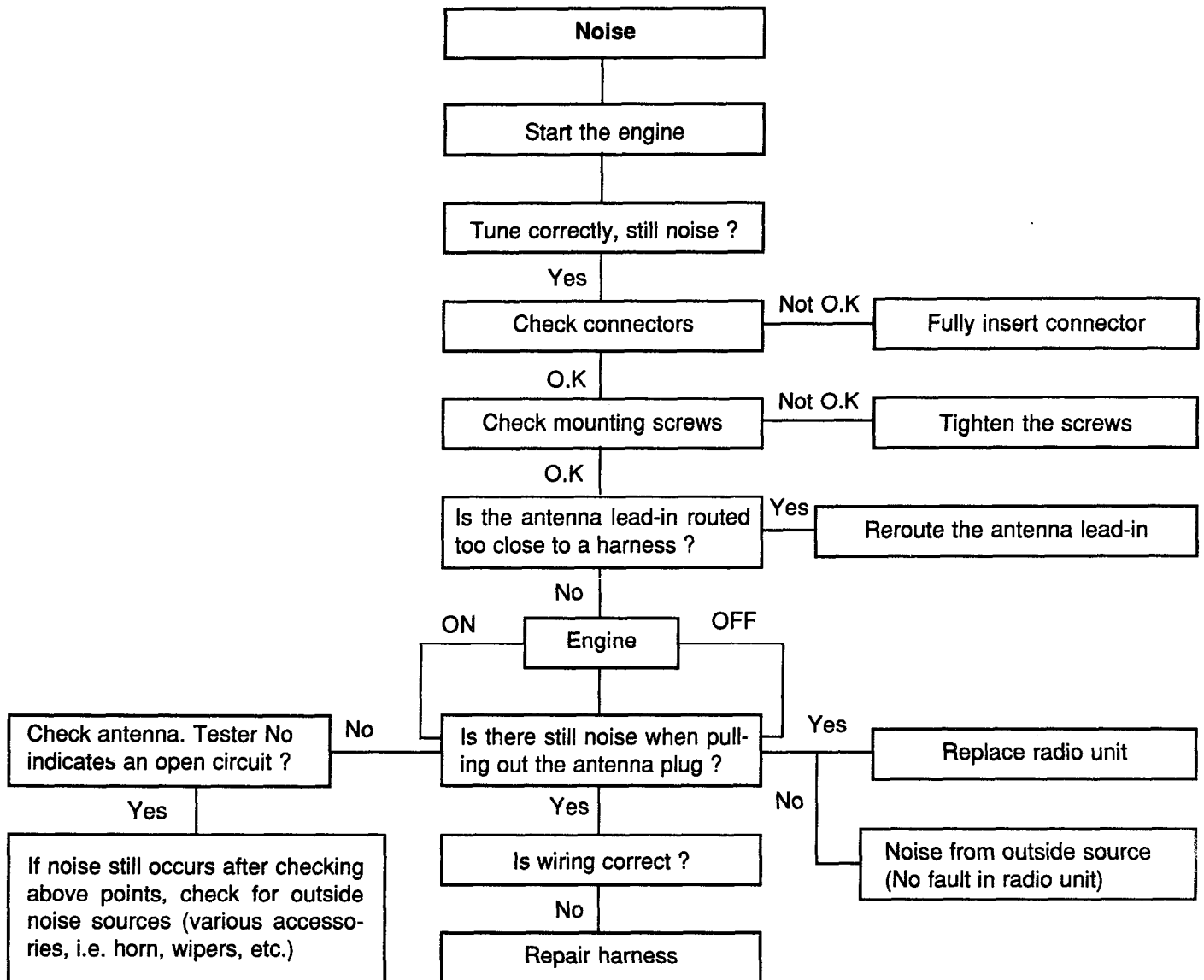


CHART 4 (Continued)

2. TAPE

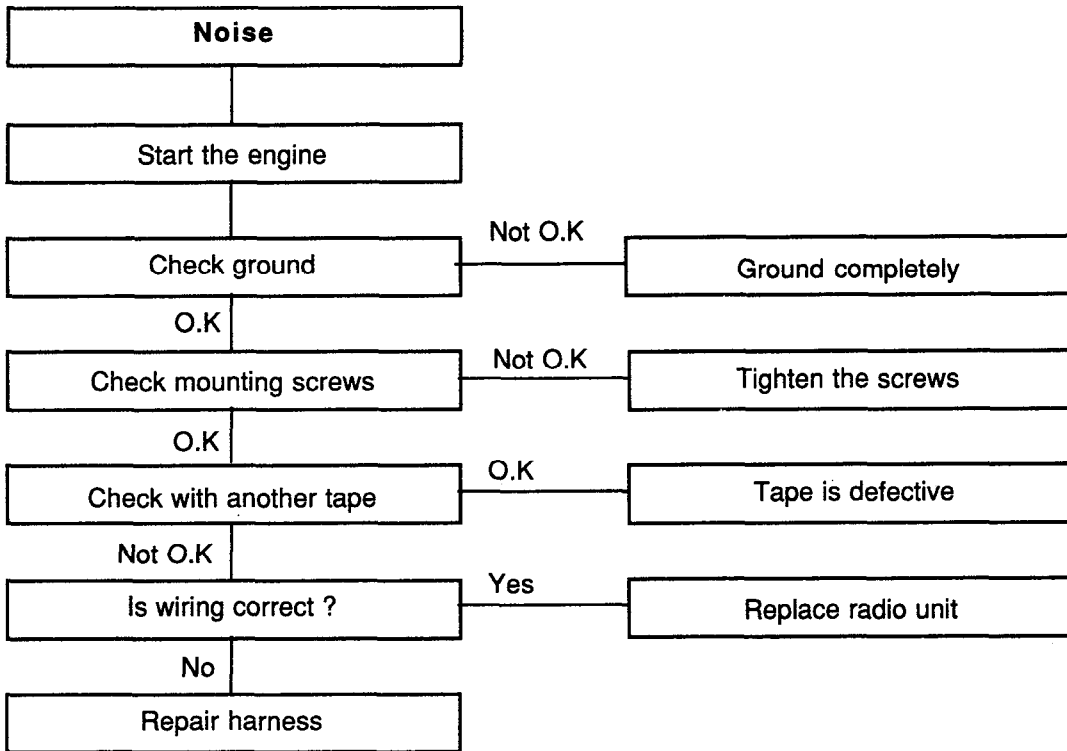
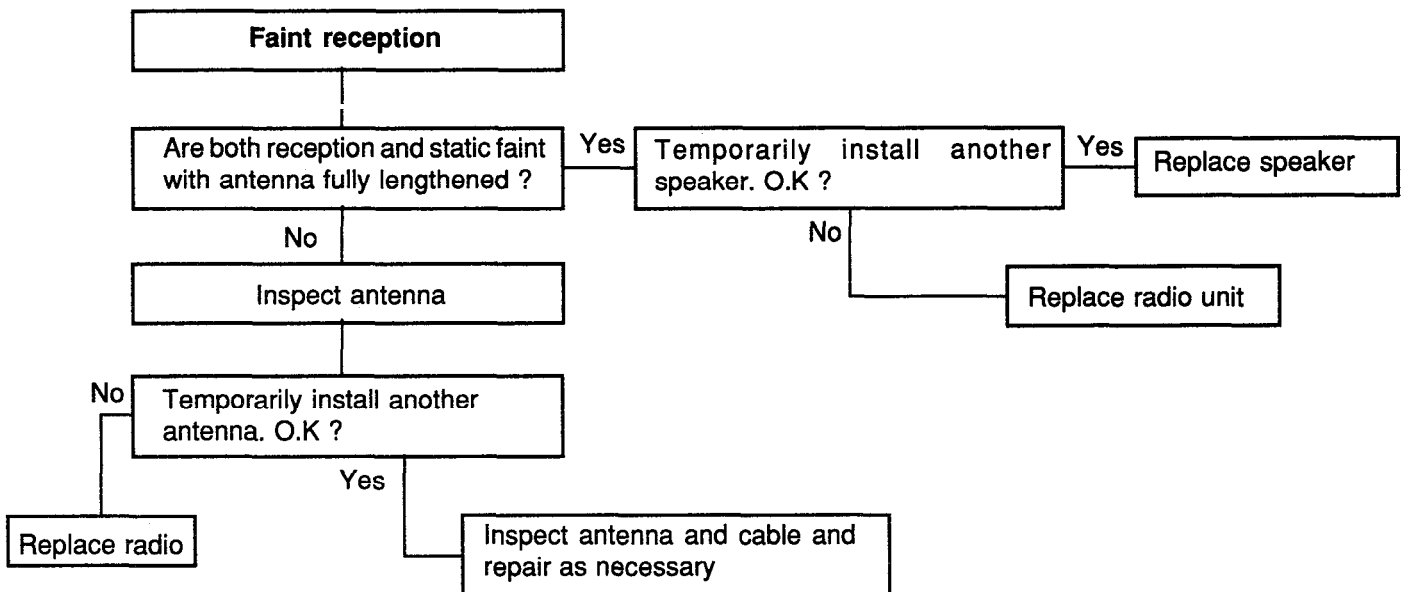
**CHART 5**

CHART 6

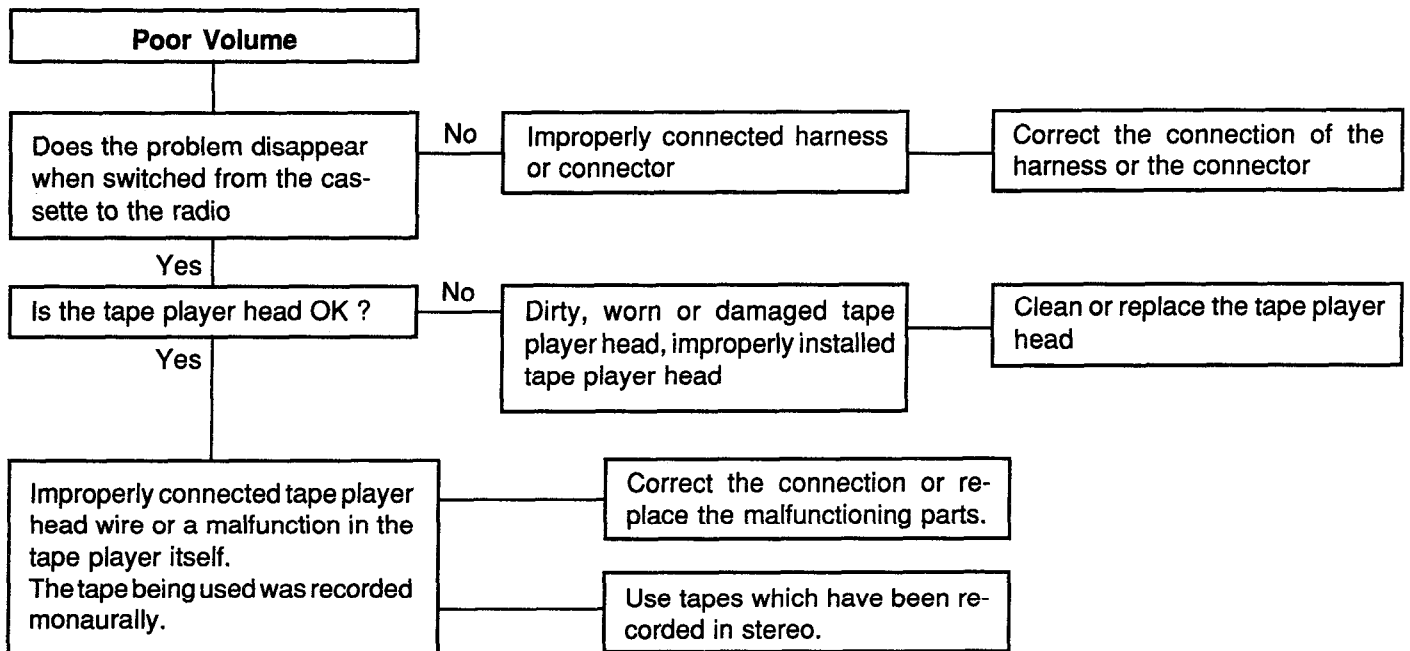


CHART 7

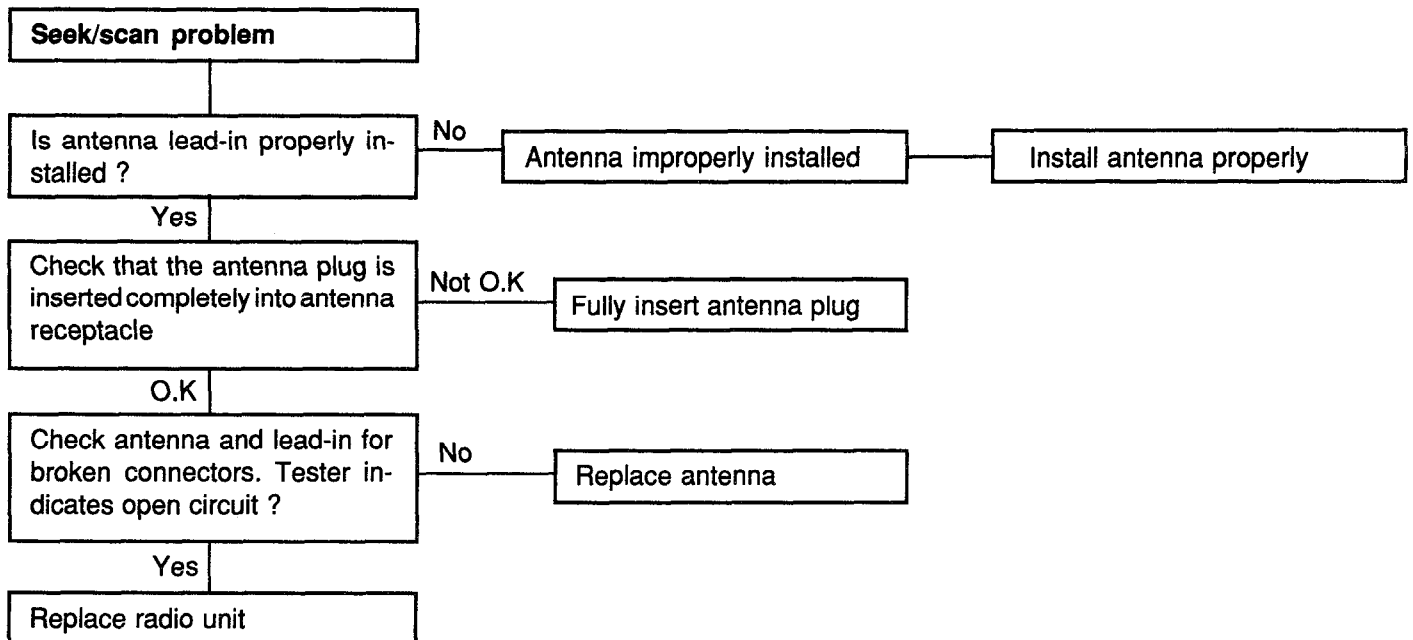
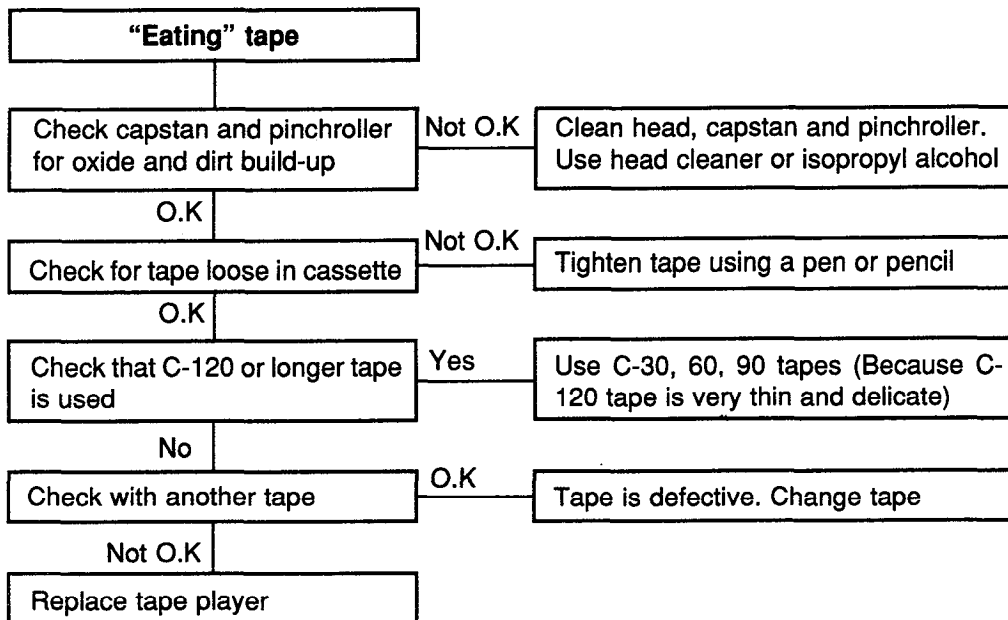


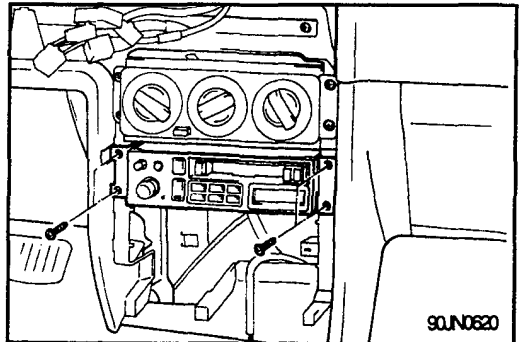
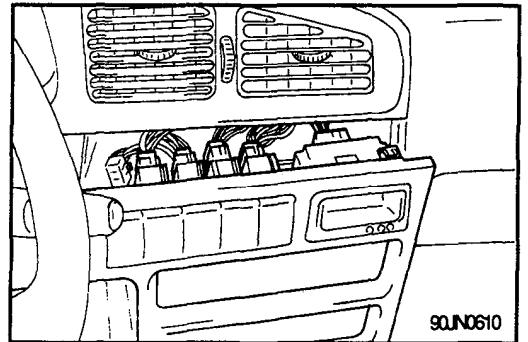
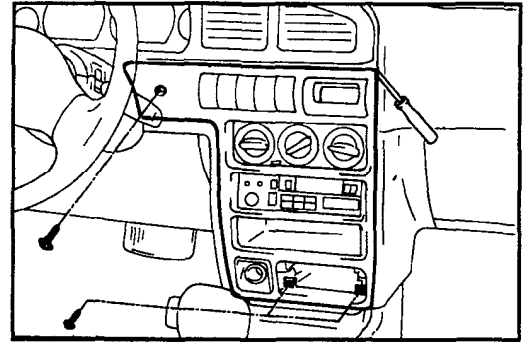
CHART 8



REMOVAL AND INSTALLATION

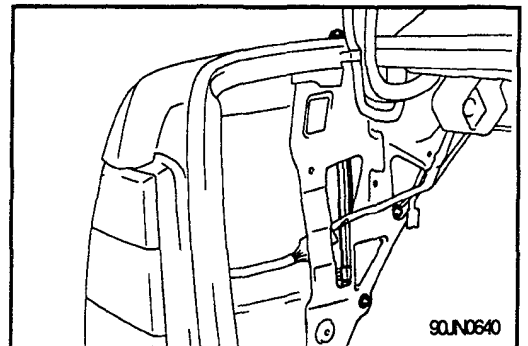
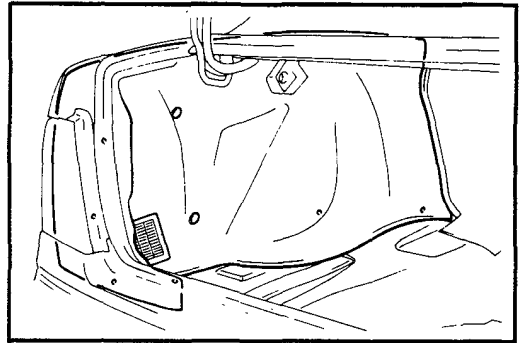
Radio Unit

1. Remove the facia panel mounting screws.
2. Disconnect the 5 connectors as shown.
3. Unscrew the radio mounting screws and remove the radio unit from the mounting bracket.
4. Installation is the reverse order of preceding steps.



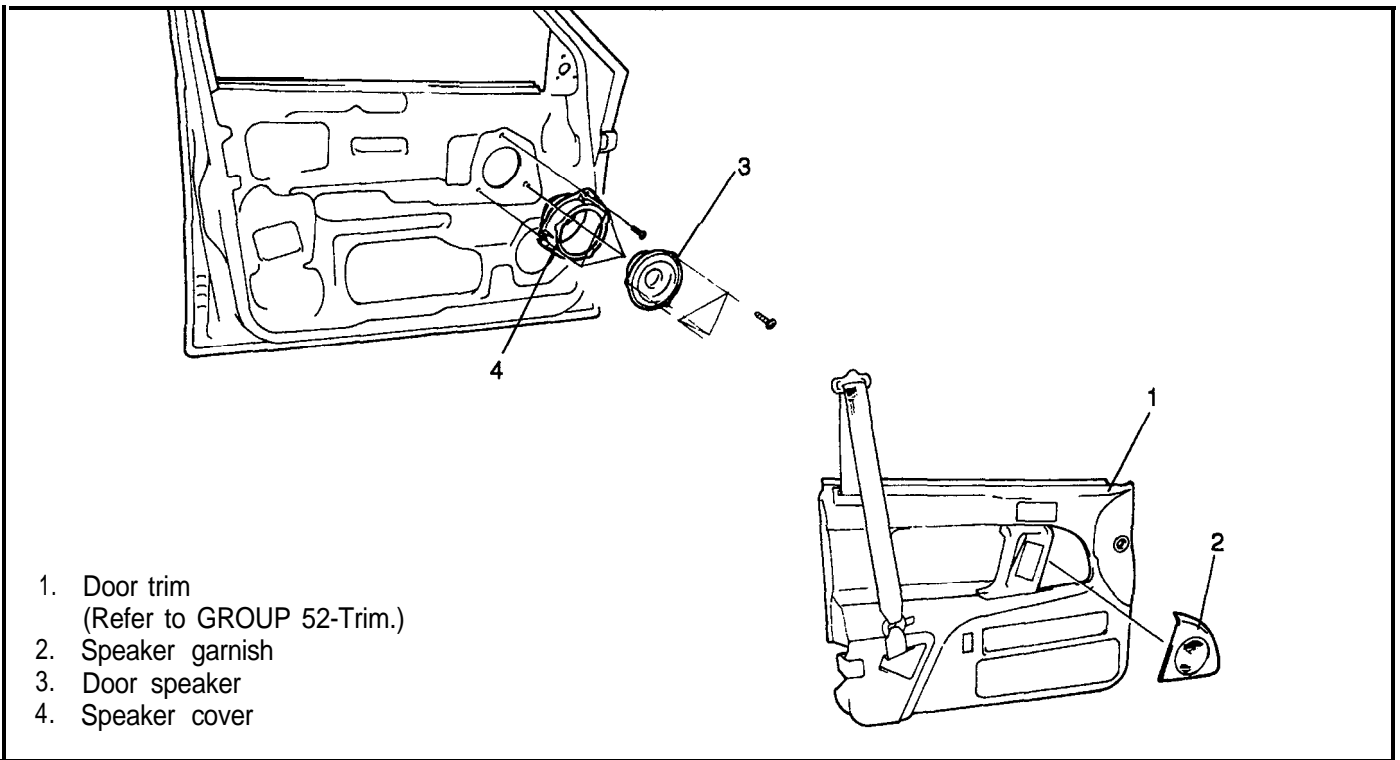
ANTENNA (AUTOMATIC)

1. Remove the luggage side trim.
2. Remove the antenna mounting nuts and tapping screw for ground.
3. Disconnect the wiring connector and antenna cable.
3. Remove the antenna assembly.
4. Installation is the reverse order of preceding steps.

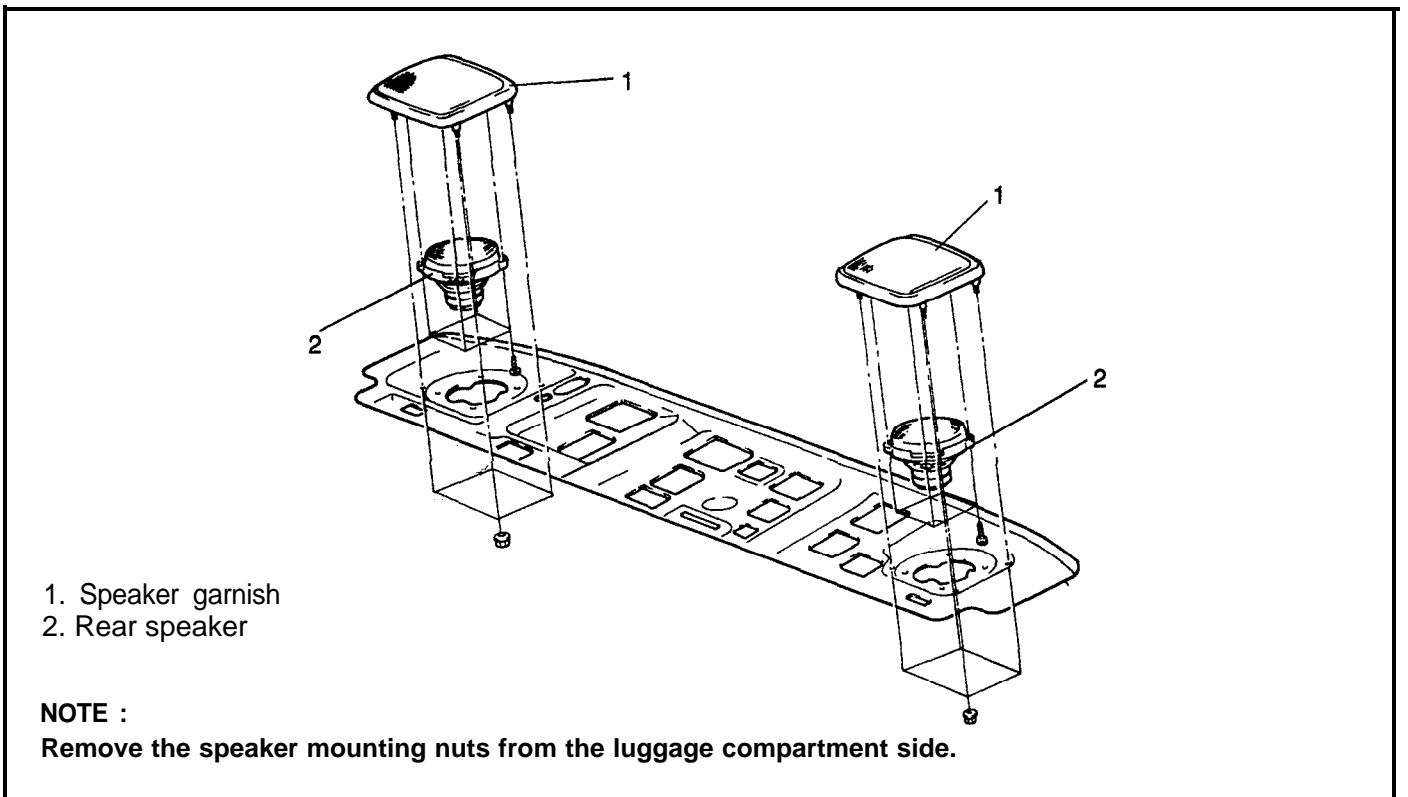


SPEAKER REMOVAL AND INSTALLATION

Front door Speaker



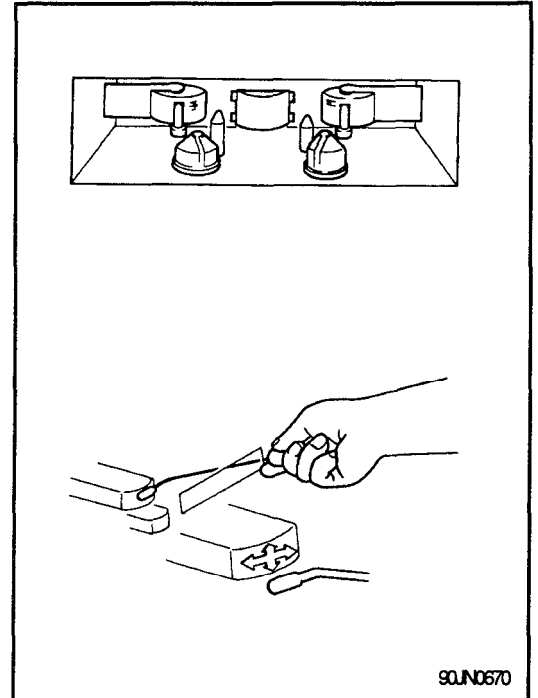
Rear Speaker



SERVICE ADJUSTMENT PROCEDURES

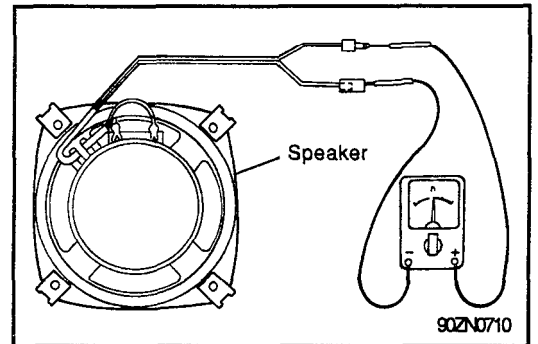
TAPE HEAD AND CAPSTAN CLEANING

1. To obtain optimum performance, clean the head and capstan as often as necessary, depending upon frequency of use and tape cleanliness.
2. To clean the tape head and capstan, use a cotton swab dipped in ordinary rubbing alcohol. Wipe the head and capstan.



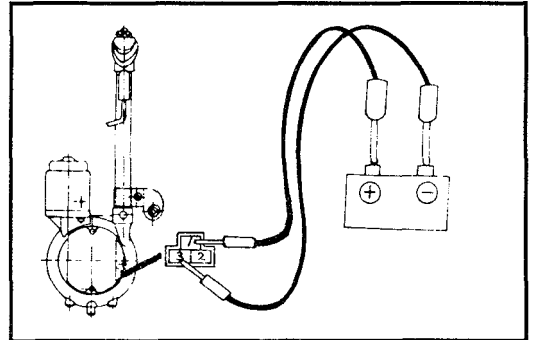
SPEAKER CHECKING

1. Check the speaker by using an ohmmeter. If an ohmmeter indicates the impedance of the speaker when checking between the speaker (+) and speaker (-) of the same channel, the speaker is ok.
2. If clicking sound is emitted from the speaker when the ohmmeter plugs touch the speaker terminals, the speaker is okay.



ANTENNA (AUTOMATIC) INSPECTION

Connect the motor terminals directly to the battery and check that the motor operates smoothly. Next, reverse the polarity and check that the motor operates smoothly in the reverse direction.



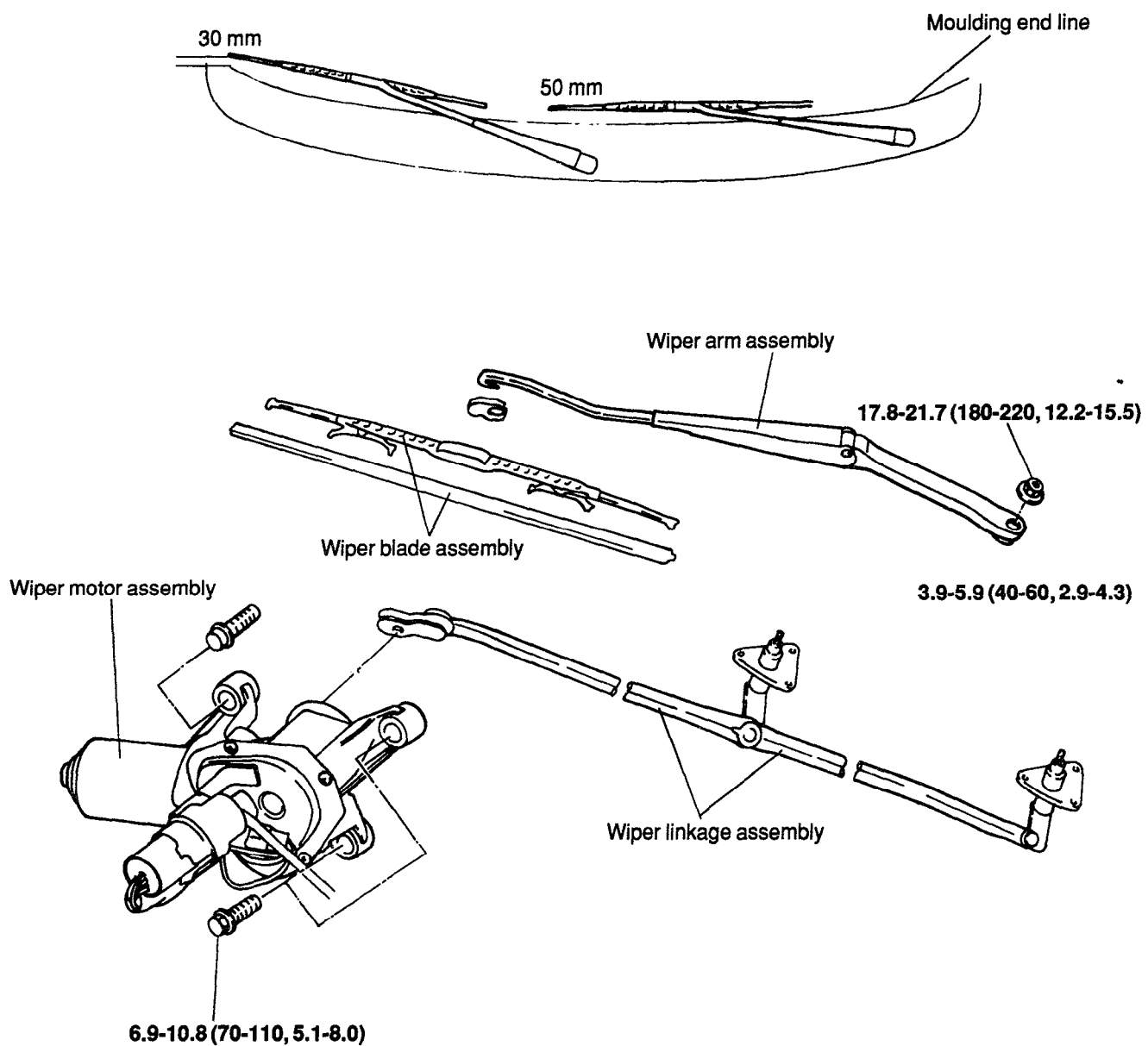
WINDSHIELD WIPER AND WASHER SPECIFICATIONS

Items	Specification
Wiper motor Speed/current at 10 kg.cm load test (1.0 Nm, 0.7 lb.ft) Speed/current at 40 kg.cm load test (3.9 Nm, 2.9 lb.ft) Current when locking	Low : 48-56 rpm/3.5A or less High : 64-78 rpm/4.5A or less Low : 40-48 rpm/5.5A or less High : 56-68 rpm/7A or less Low : 20A or less High : 22A or less
Wiper arm and blade Arm spring type Arm pressure Driver side Passenger side Blade rubber length Driver side Passenger side Wiping angle Driver side Passenger side	Tension type 800 ± 50 g or less 650 ± 50 g or less 500 mm 480 mm 81° ± 1° 96° ± 2°
Windshield washer Motor type Pump type Current Discharge pressure Flow rate Overload capacity (Continuous operation) With water Without water	DC ferrite magnet type Centrifugal type 3.8A or less 1.2 kg/cm ² or more 1,320 cc/min. or more 60 sec. or less 20 sec. or less

TROUBLESHOOTING

Problem	Possible cause	Remedy
Wipers do not operate or return to off position.	Wiper fuse (No.11; 15A) blown Wiper motor faulty Wiper switch faulty Wiring or ground faulty	Check for short and replace fuse Check motor Check switch Repair as necessary
Wipers do not operate in INT position	TACU faulty Wiper switch faulty Wiper motor faulty Wiring or ground faulty	Check TACU Check switch Check motor Repair as necessary

COMPONENTS



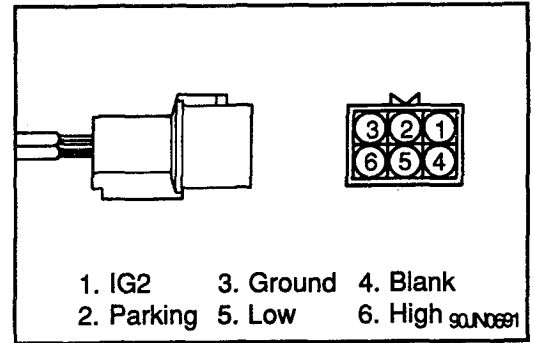
TIGHTENING TORQUE : Nm (kg.cm, lb.ft)

SERVICE ADJUSTMENT PROCEDURES

WIPER MOTOR

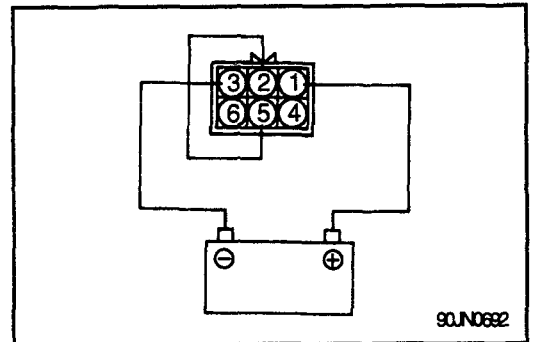
Speed operation check

1. Remove the connector from the wiper motor.
2. Attach the positive (+) lead from the battery to terminal 5 and the negative (-) lead to terminal 3.
3. Check that the motor operates at low speed.
4. Connect the positive (+) lead from the battery to terminal 6 and the negative (-) lead to terminal 3.
5. Check that the motor operates at high speed.



Automatic stop operation check

1. Operate the motor at low speed.
2. Stop the motor operation anywhere except at the off position by disconnecting terminal 5.
3. Connect terminals 5 and 2.
4. Attach the positive (+) lead from the battery to terminal 1.
5. Check that the motor stops running at the off position.



WINDSHIELD WIPER AND WASHER SWITCH

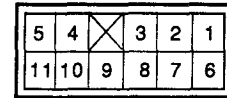
INSPECTION

Check the switch for continuity between the terminals.

Terminal Position	5	4	3	2	9	10
OFF	○	—	○			
INT	○	—	○	○	○	○
LO	○	—	—	—	○	
HI		○	—	—	○	

Terminal Position	7	9
OFF		
ON	○	○

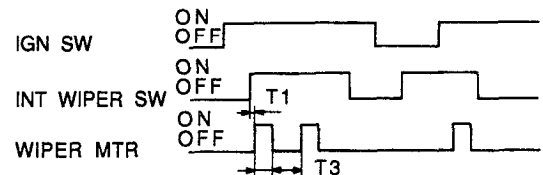
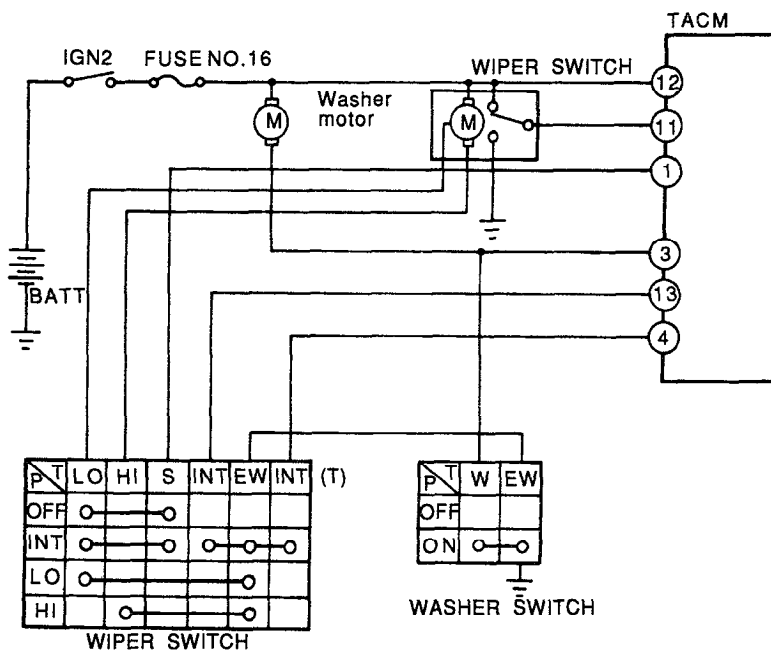
If continuity is not as specified, replace the switch.



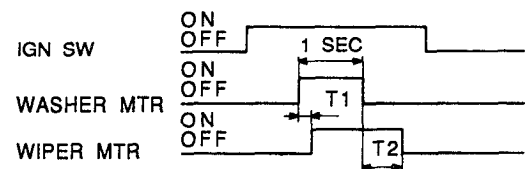
M26-1

TACM (For Windshield Wiper/Washer)

CIRCUIT DIAGRAM



T1 = Within 0.5 sec
T3 = 1.5 ± 0.7 sec (at VR=0 kΩ)
~ 10.5 ± 3 sec (at VR=50 KΩ)



T1 = 0.4-1.2 sec.
T2 = 2.0-4.7 sec.

REMOVAL AND INSTALLATION

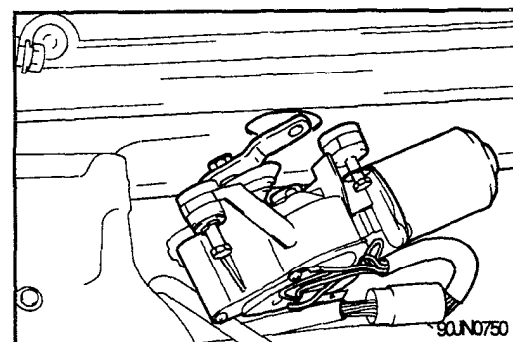
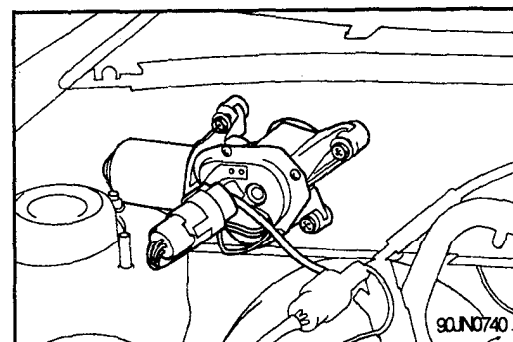
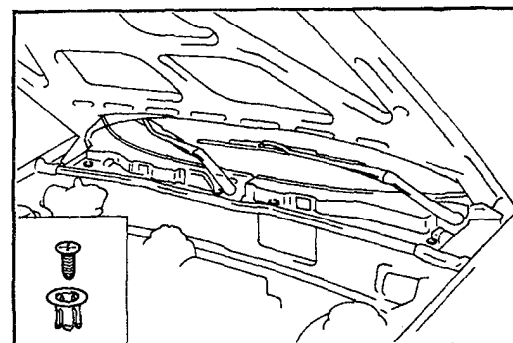
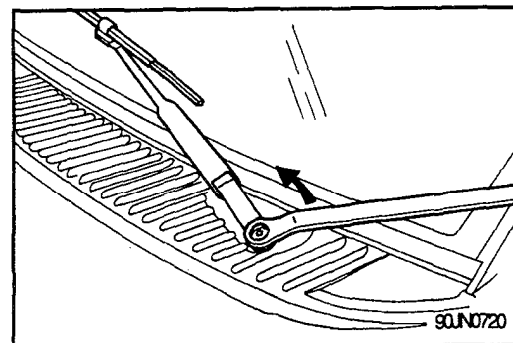
Removal

1. Remove the wiper arm mounting nut.

NOTE

Care must be taken not to scratch in the engine hood.

2. Remove wiper arm and blade assembly.



3. Remove the cowl top sealing cap.
4. Remove the cowl top cover.

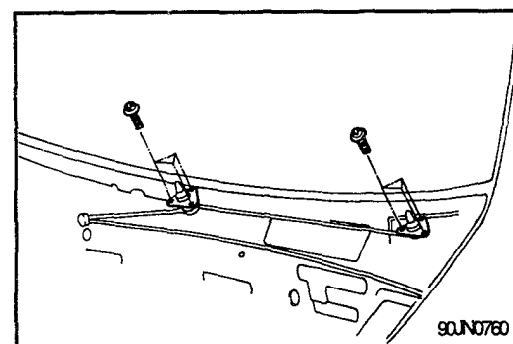
5. Remove the wiper motor connector.
6. Remove the wiper motor mounting bolt.

7. Disconnect the motor from the link, then remove the motor assembly.

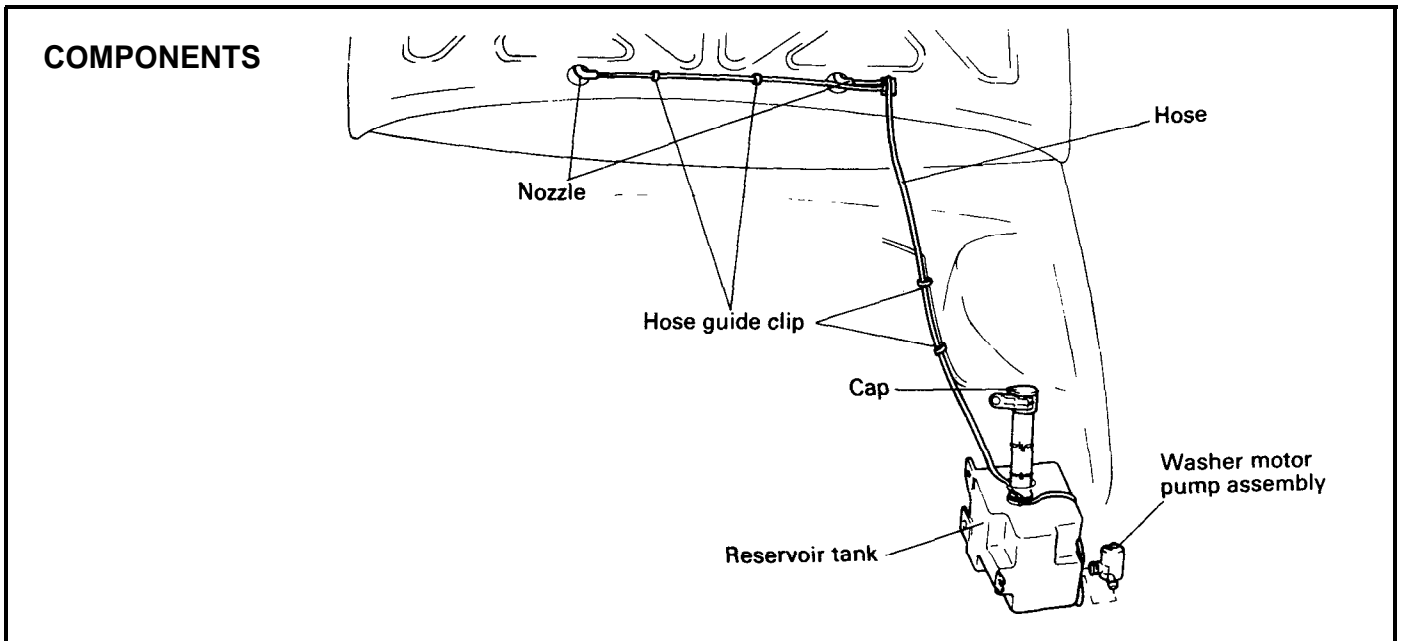
NOTE

When removing the wiper motor only, it can be done by steps 5 to 7.

8. Remove the wiper link mounting bolt.
9. Take out wiper link assembly from the cowl top panel.



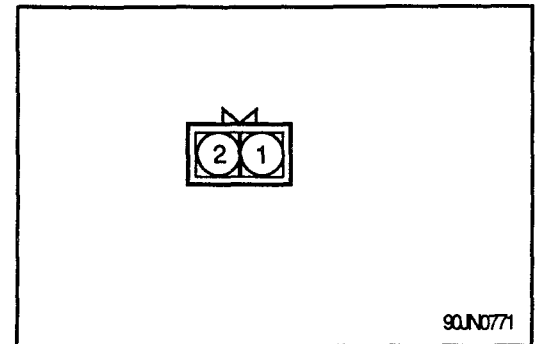
WINDSHIELD WASHER



INSPECTION

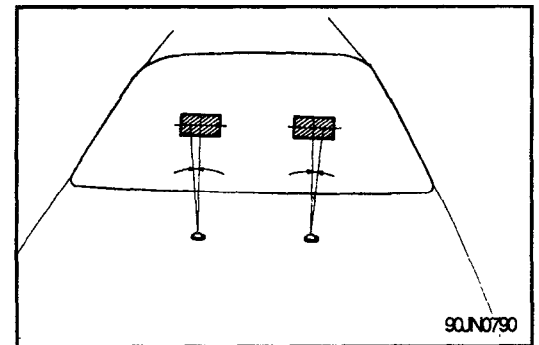
Washer Motor

1. With the washer motor connected to the washer tank, fill the washer tank with water.
2. Connect battery positive (+) and negative (-) cables to terminals 2 and 1 respectively to see that the washer motor runs and water is pumped.



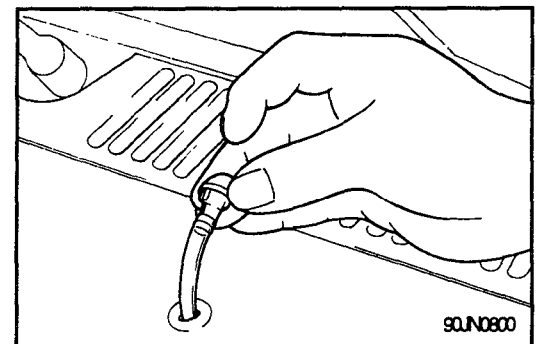
Washer Nozzle

1. Disconnect washer hose from the nozzle and then pressing the pawls to the back side of engine hood, detach washer nozzle.
2. After installation, place a wire in the injection port of nozzle and adjust the direction of washer fluid by moving the wire.



Nozzle Bracket

1. Check the washer fluid contact point.
2. Adjust the washer fluid contact point by using a metal wire to move the washer nozzle ball.
3. If the amount of washer fluid sprayed is too small, check for clogged, bent or crushed washer tube.



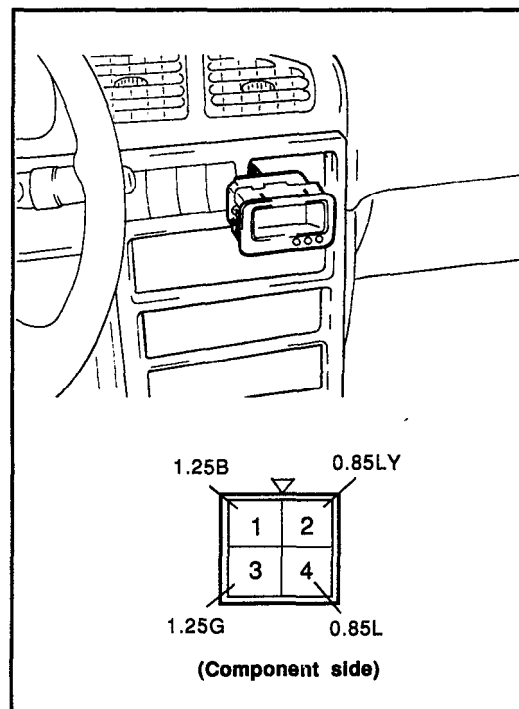
CLOCK SPECIFICATIONS

Items	Specifications
Display method Operating voltage range Operating temperature range Current consumption (with DC 13V)	Vacuum Fluorescent display DC 6V ~ DC 16V -40°C ~ +90°C (-104°F ~ +194°F) Max. 5 mA (With display illuminated) Max. 150 mA (Without display illuminated)

TROUBLESHOOTING

Inspect each terminal for applicable table.

Terminal	Condition	indiction
1	Constant	Battery voltage
2	Constant	Continuity
3	Turn ignition switch ON	Battery voltage
4	Turn Taillamp switch ON	

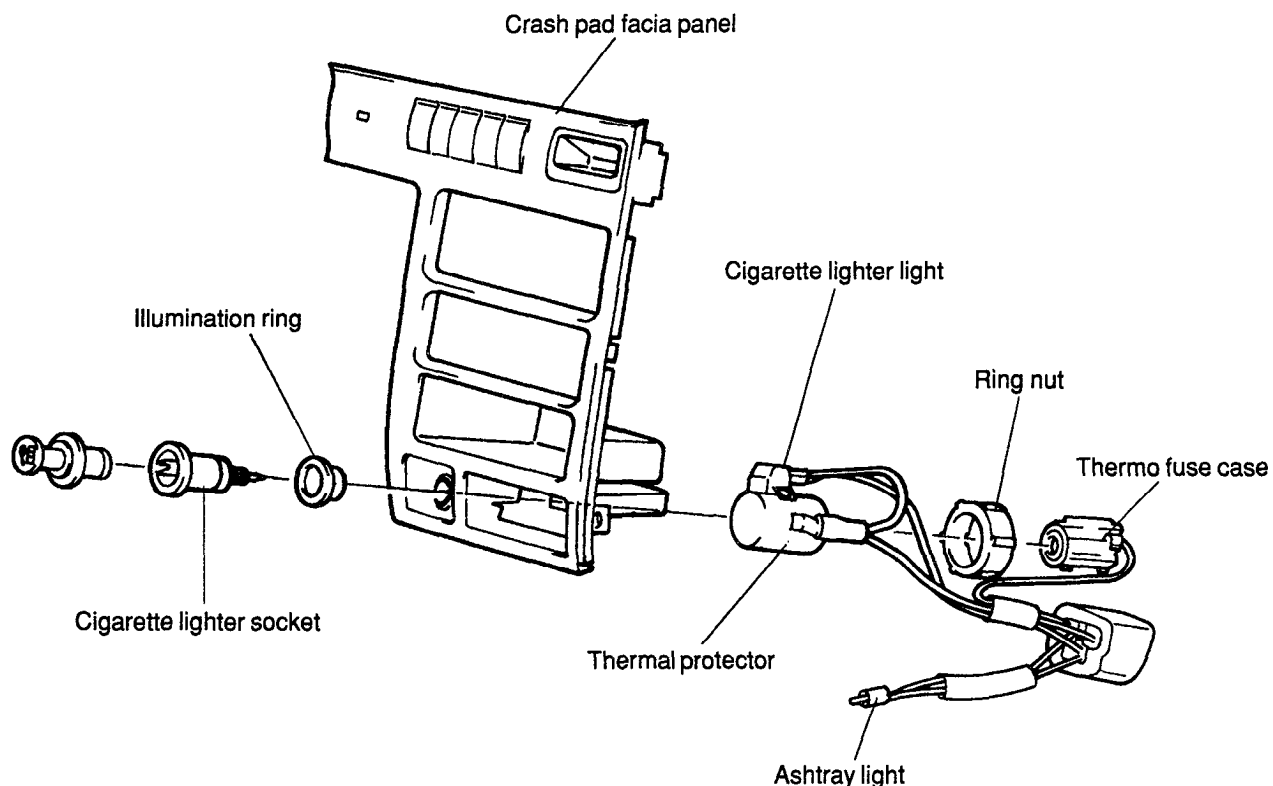


CIGARETTE LIGHTER SPECIFICATIONS

items	Specification
Maximum power consumption	120 W
insulation resistance	MIN. 5MΩ (at the 500V megger)
Return time	13 \pm 5 sec. (after pushing the lighter in)
Break temperature of fuse °C (°F)	138 ~ 151 °C (278.4 ~ 303.4°F)

REMOVAL AND INSTALLATION

1. After removing the ashtray, remove the facia panel mounting 3 screws.
2. Then disconnect the 3-p connector from the cigarette lighter.
3. Disconnect the thermal fuse case from the socket end.
4. Remove the ring nut and separate the cigarette lighter socket from the thermal protector.



NOTE:

When installing the cigarette lighter, align each lug on the illumination ring and cigarette lighter socket with the groove of the hole, then position the bulb case on the thermal protector between the stoppers of the center panel.

INSPECTION

1. Take out the plug.
2. Examine the element spot connection for remnants of tobacco and other materials.
3. Using an ohmmeter, check for the continuity of the element.

Cautions for use of the cigarette lighter socket as auxiliary power

1. When using a 'plug-in" type of accessory, do not use anything with a load of more than 120W.
2. It is recommended that only the lighter be inserted into the holder.

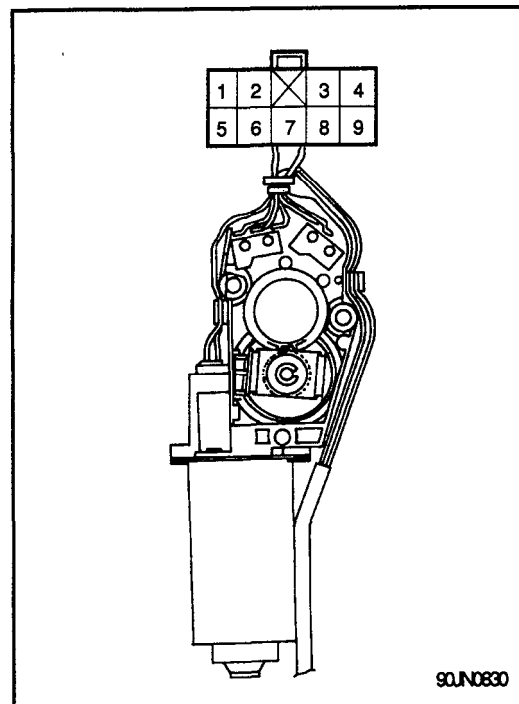
SUNROOF SPECIFICATIONS

Items	Specifications
Sun roof motor Rated voltage Operating voltage Testing voltage No load rotation and electric current insulating resistance Sun roof relay Rated voltage Rated load Operating voltage Excitation current Voltage drop (between both terminals) Sun roof motor switch Rated load Type of operation Operating force	DC 12V DC 9 ~ 15V DC 13±0.2V MAX. 180 rpm, MAX. 6 A MIN. 1 (with 200 V megger) DC 12V Motor 6 A Lock 15 A DC 9 ~ 15V MAX. 250 mA MAX. 0.15 V DC 12 V, 0.2 A (relay load) Push ON and self return 0.3 ~ 0.75 kg

INSPECTION

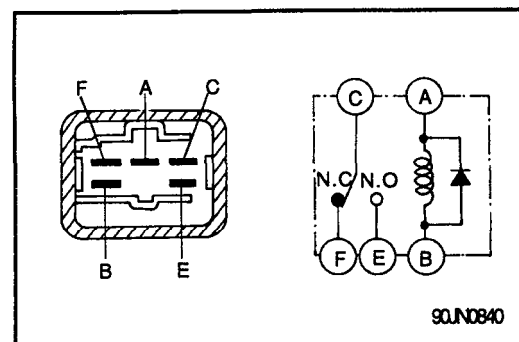
Motor

1. Disconnect the motor connector.
2. Apply DC 12V to the 0.85L wire and ground the 0.858 wire.
3. Check that the motor turns in the direction to tilt up and closed position.
4. Reverse the connections and check that the motor turns from open, to closed, to tilt up position.



Relay

1. Check the continuity between the terminals "A" and "B", "C" and "F" by using an ohmmeter.
2. Apply DC 12 to the terminal "A".
3. Ground the terminal "B".
4. Check for continuity between the terminals "C" and "E".



Switch

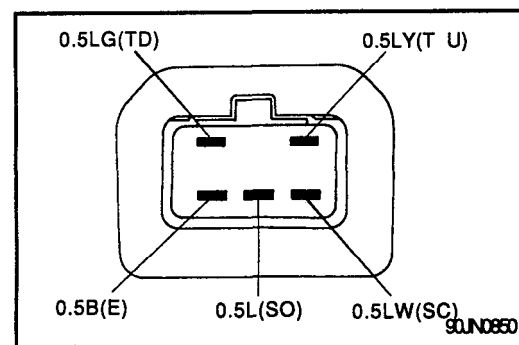
Use an ohmmeter to check the continuity of the switch.
If the continuity is not as specified, replace the switch.

Terminal Position		SO	SC	TU	TD	E
OFF						
Slide switch	Open	○	—	—	—	○
	Close		○	—	—	○
Tilt switch	Up			○	—	○
	Down				○	○

NOTE :

SO : Slide open
TU : Tilt up

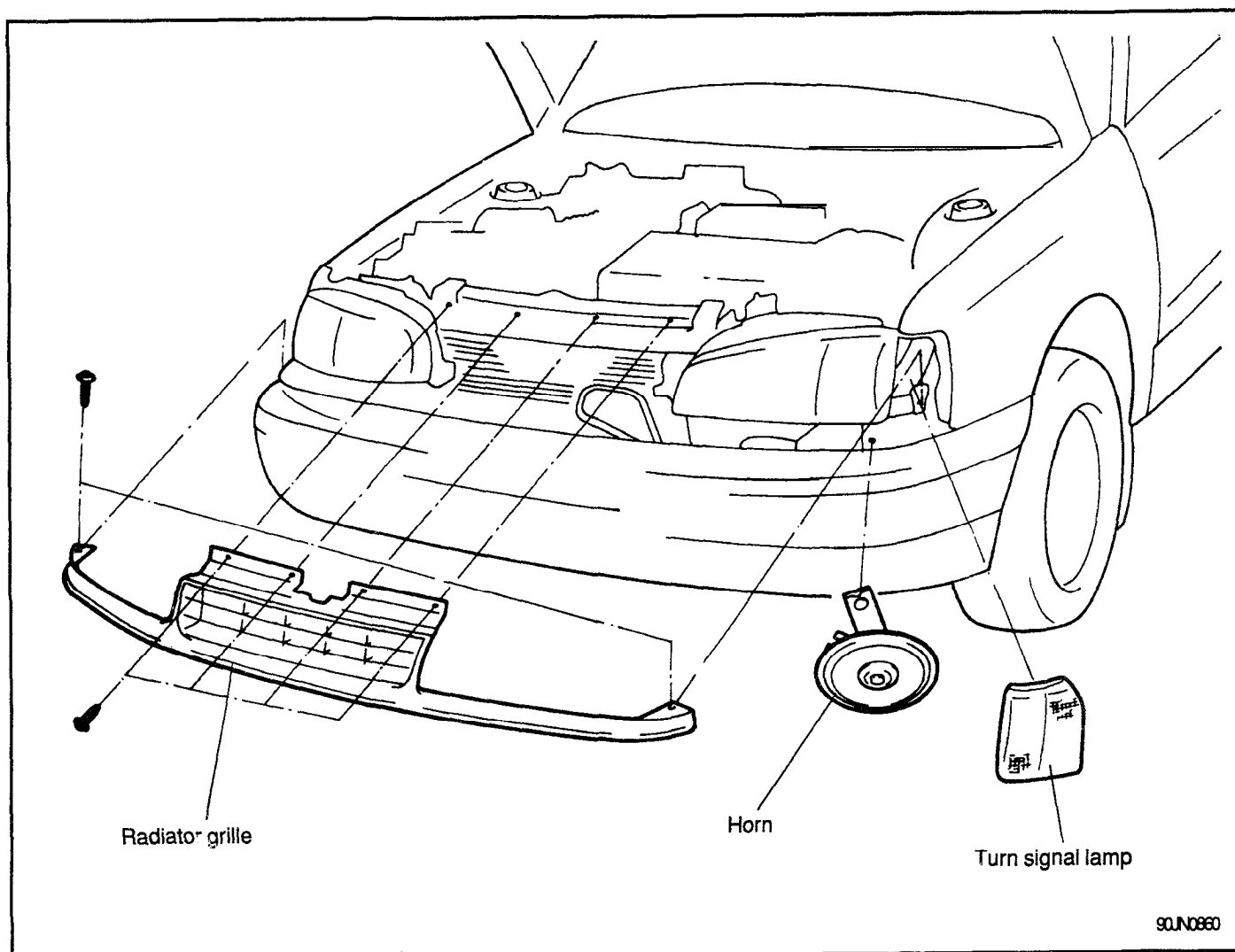
SC : Slide close
TD : Tilt down



HORN SPECIFICATIONS

Items	Specifications
Type	Plate
Rated voltage	DC 12V
Power consumption	Max. 3.5A (at DC 12V)
Sound level	110 ± 5 dB (atDC12V)
Horn effective voltage	DC 10V ~ DC 14.5V
Operating temperature range	-40°C ~ +80°C (-104°F ~ +176°F)
Fundamental frequency	
Low pitch	350 ± 20 Hz
High pitch	415 ± 20 Hz

REMOVAL AND INSTALLATION

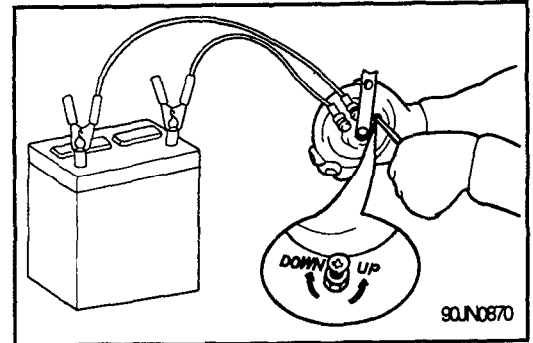


ADJUSTMENT

Operate the horn, and adjust the tone to a suitable level (by turning the adjusting screw).

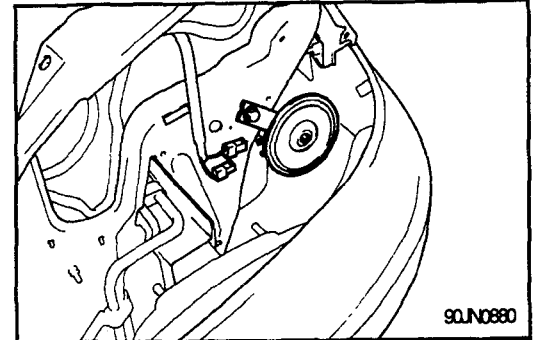
CAUTION

After the adjustment, apply a small amount of paint around the screw head to keep it from loosening.



INSPECTION

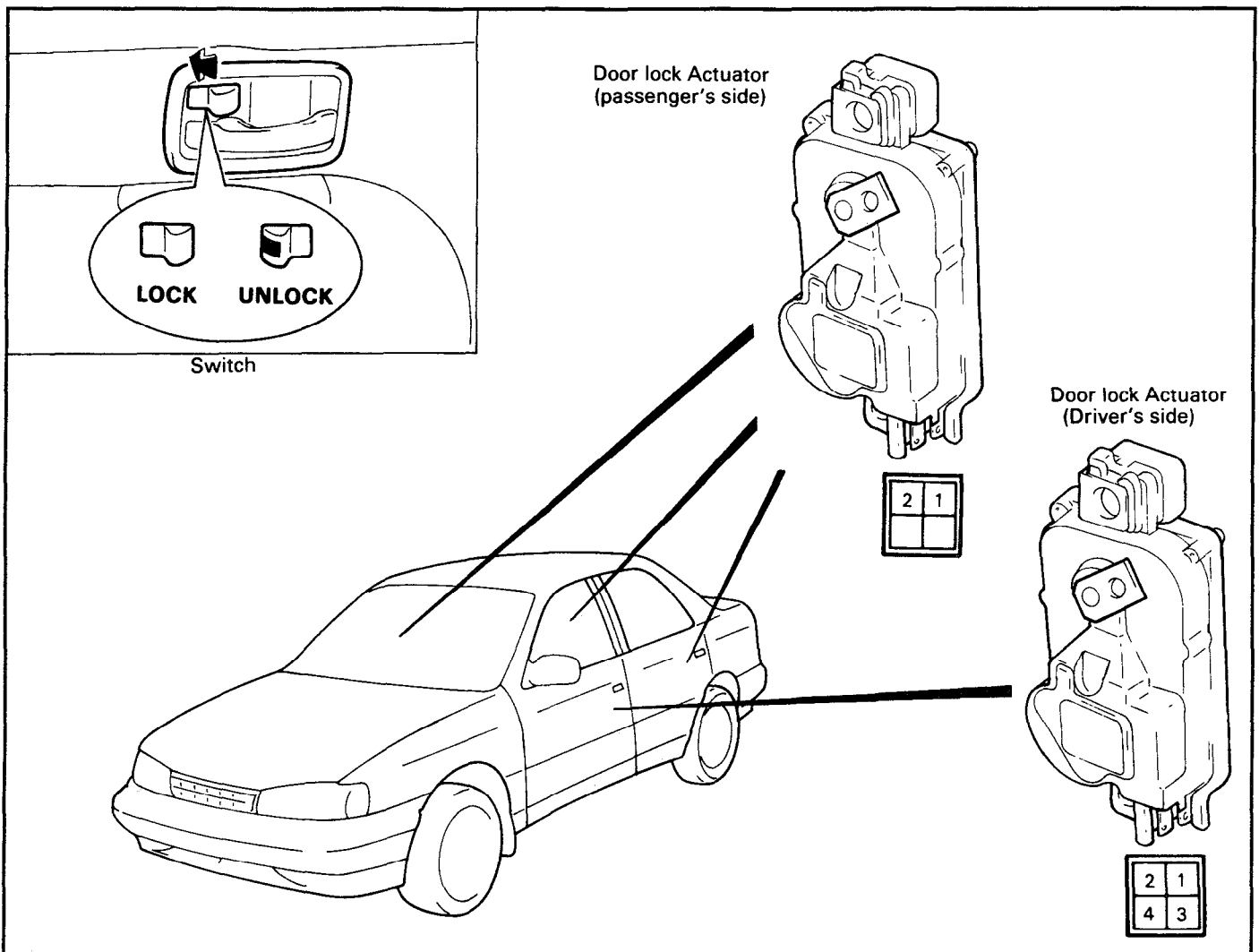
1. Test the horn by connecting battery voltage to the A and B terminals.
2. The horn should sound, if the horn fails to sound, replace it.



POWER DOOR LOCK SYSTEM SPECIFICATIONS

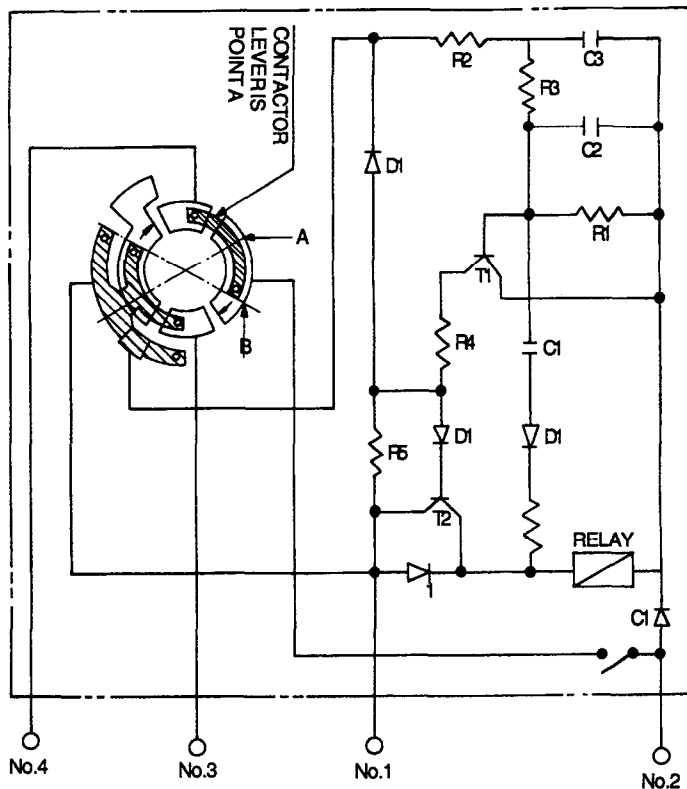
Items	Specifications
Rated voltage	DC 12V
Operating voltage range	DC 9V ~ 15V
Lock current	Max. 5A
Manual operating force	3.2 kg.cm (at DC 9 V)
Operating temperature	-30°C ~ +80°C
Stroke	21.8

COMPONENTS



DOOR LOCK CONTROL SWITCH

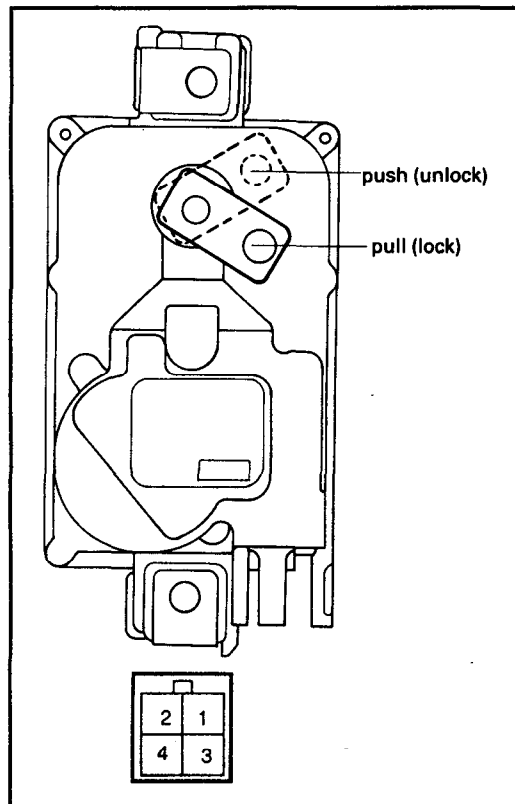
Circuit Diagram



INSPECTION

1. Disconnect the 4 pin connector from the front door wiring harness.
2. Test door lock control switch operation.

Direction Terminal	1	2	3	4
A-D				
C-B				



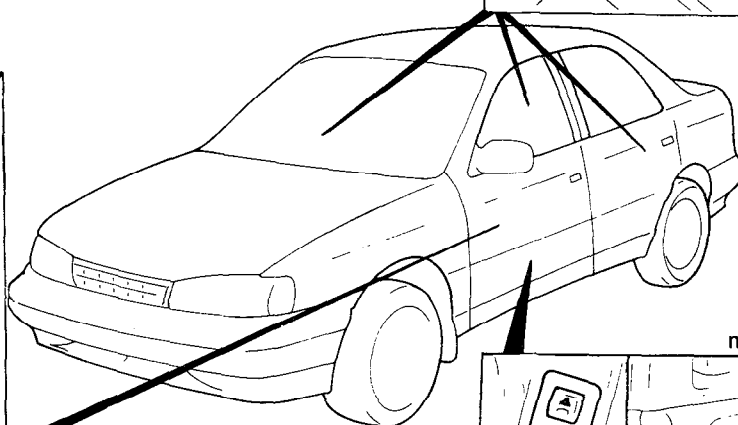
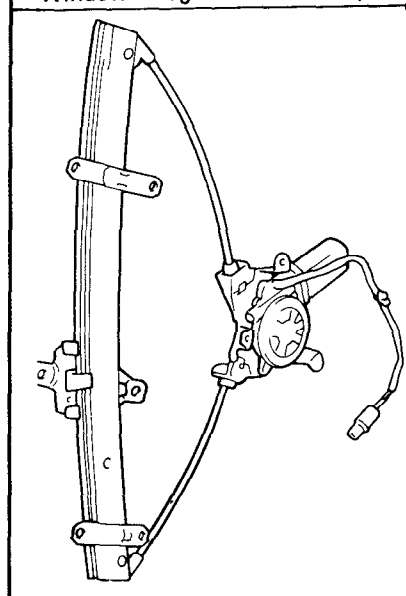
POWER WINDOW SPECIFICATIONS

Items	Specifications
Power window motor	
Rated voltage	DC 13.5 V
Rated current	6 A or less
Temperature	-40 ~ 80°C (-40 ~ +176°F)
Electrical source (Motor terminal voltage)	DC 11 ~ 15V
Power window relay	
Rated voltage	DC 12V
Range of voltage used	DC 10 ~ 15 V
Rated load current	20A
Exciting coil rated current	MAX. 150 mA (at 24°C)
Voltage drop between terminal	0.3 V or less
Power window switch (Main)	
Rated voltage	DC 12V
Range of voltage used	DC 10 I 16V
Operating temperature	-30 ~ +80°C (-22 ~ +176°F)
Rated load current	10A
Voltage drop	0.4 V or less
Insulating resistance	1 M Ω or more (by DC 500 V megger)
Consumption current	0.35 A or less (DC 12V, AT 20°C \pm 10%)
Power window switch (Sub.)	
Rated voltage	DC 13V
Rated current	10 A
Voltage drop	0.3 V or less
Operating temperature	-30 ~ +80°C (-22 ~ +176°F)

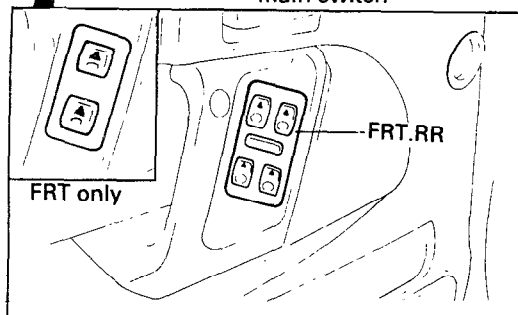
COMPONENTS

Sub switch

Window Regulator Assembly



main switch



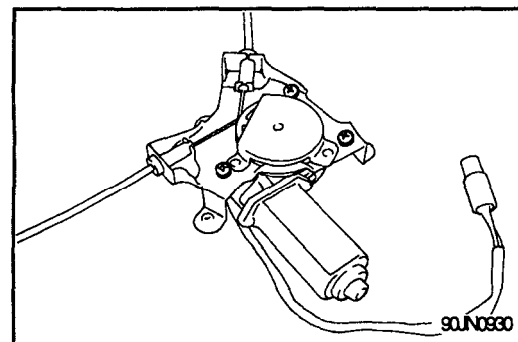
POWER WINDOW MOTOR

Removal

1. Detach the regulator assembly.
2. Disconnect the power window motor from the regulator assembly.

CAUTION

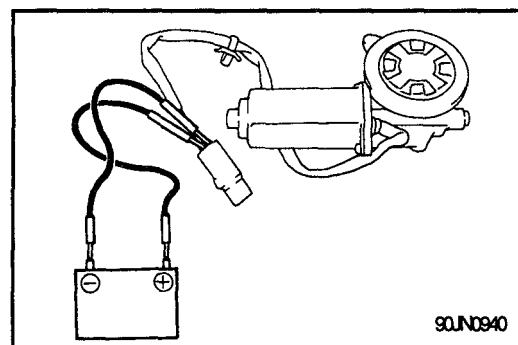
When loosening the connecting screws of the regulator and the motor assembly, the compressed force of the regulator spring may cause the regulator arm to spring up.



90JN0330

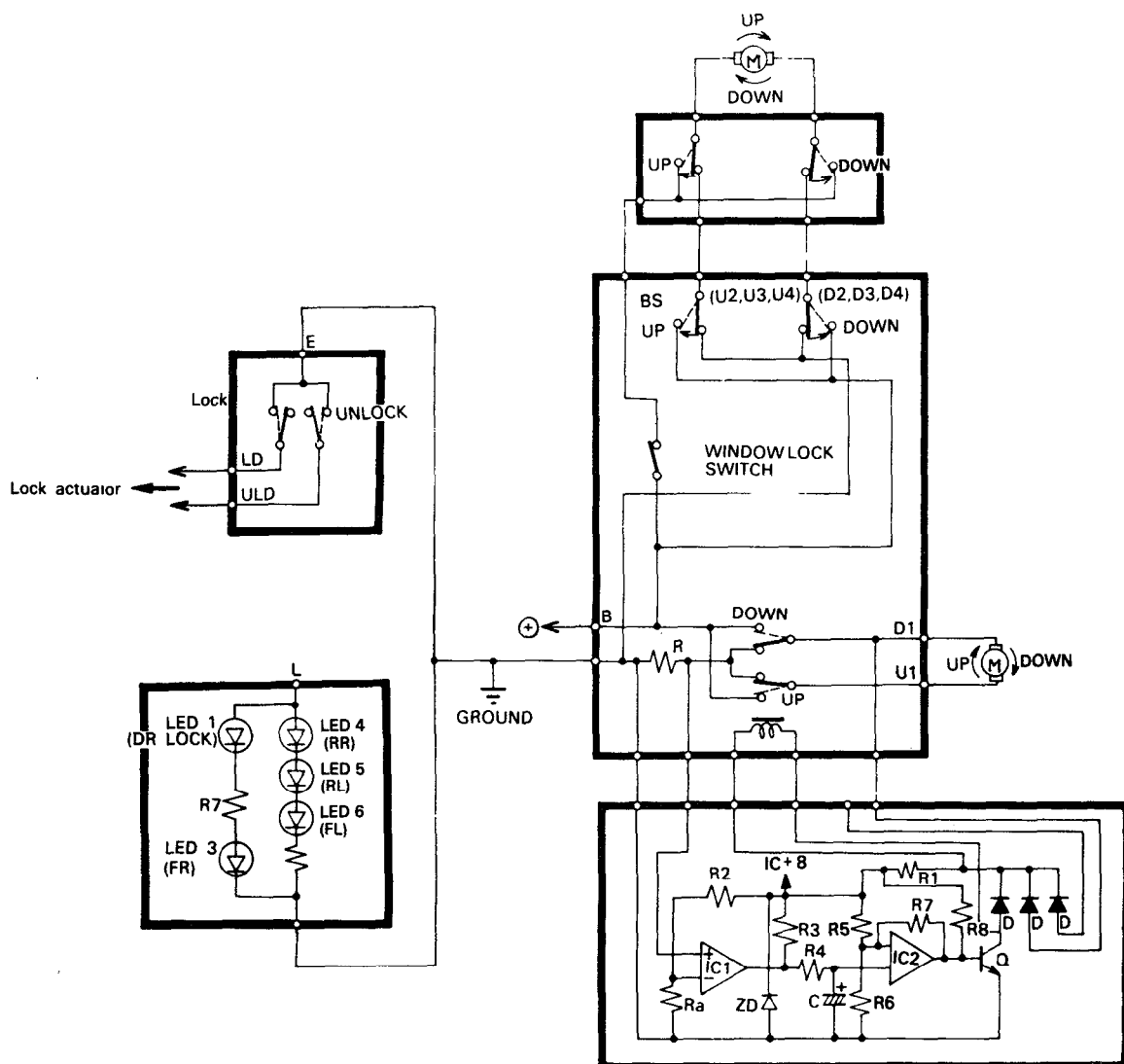
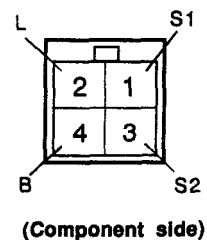
Inspection

Connect the motor terminals directly to the battery and check that the motor operates smoothly. Next reverse the polarity and check that the motor operates smoothly in the reverse direction. The operation is abnormal, replace the motor.



90JN0940

1. Remove the power window relay from the relay box.
2. The relay should be operated, if the relay fails to operate, replace it.



Inspection

1. Disconnect the power window main switch.
2. Operate the switch, and check for continuity between the terminals.
3. If continuity is not as specified, replace the switch.

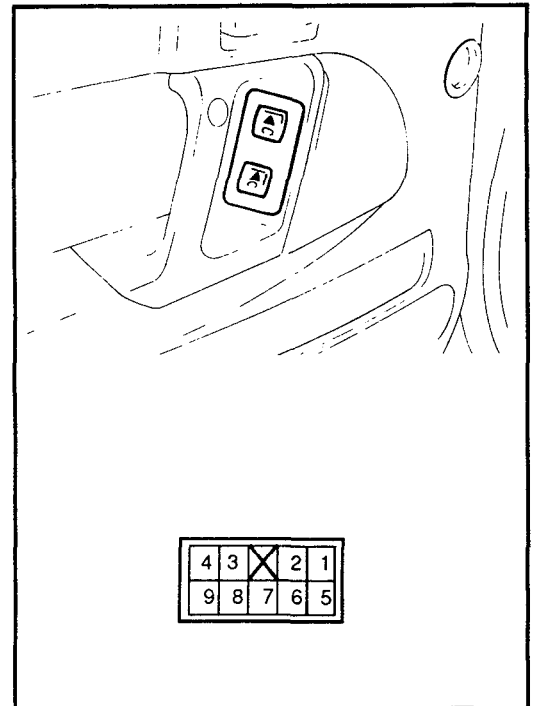
For front door control only

P \ T	Front (LH)				Front (RH)			
	B	U1	D1	E	B	U2	D2	E
UP	○	○	○	○	○	○	○	○
OFF	○	○	○			○	○	○
DOWN	○	○	○	○	○	○	○	○

[Connection Diagram]

NO	CIRCUIT	WIRE SIZE & COLOR
1	D1	AV 1.25 Br
2	U2	AV 1.25 YL
3	U1	AV 1.25 LW
4	BS	AV 1.25 RW
5	N.C	-
6	L	AV 0.5 GW
7	E	AV 2.0 B
8	B	AV 2.0 YR
9	D2	AV 1.25 GL



* N.C. : No-Connection



[FRT, RR]

TERMINAL POSITION	FRT, LH (RH)				FRT, RH (LH)				RR, LH				RR, RH			
	B	U1	D1	E	B	U	2D	2E	B	U3	D3	E	B	U4	D4	E
UP																
OFF																
DOWN																

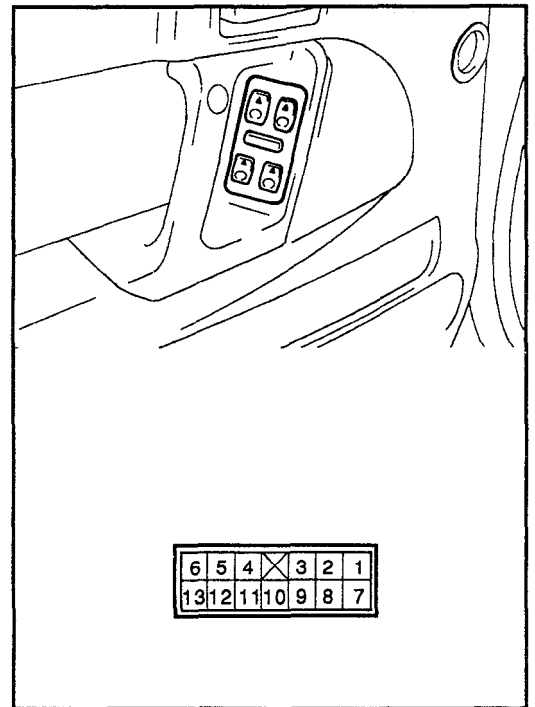
[Connection Diagram]

P	T	B	BS
	NORMAL		
LOCK			

Window Lock Switch

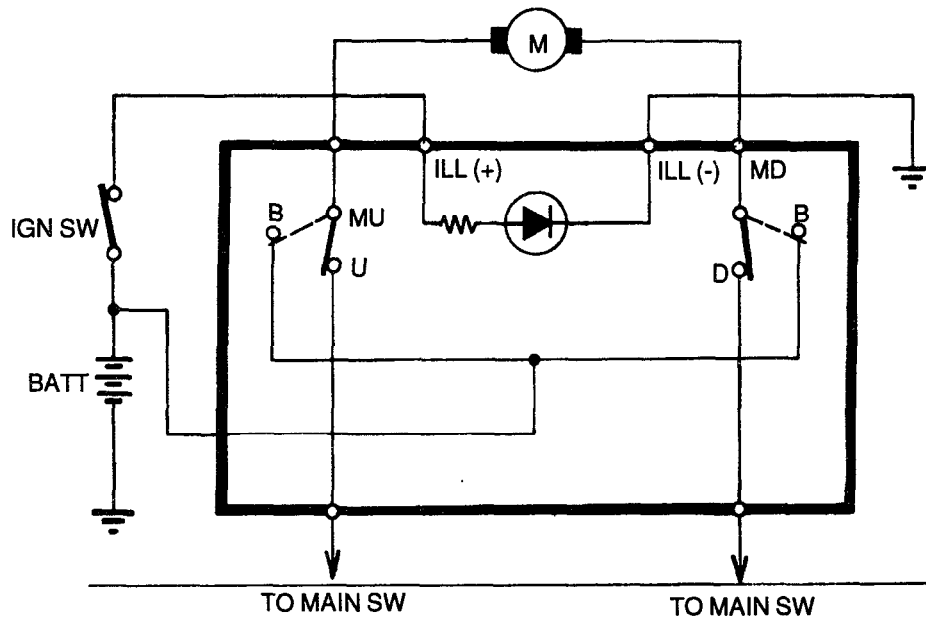
No.	CIRCUIT	WIRE SIZE COLOR
1	N.C	-
2	B	AV 2.0 YR
3	U4	AV 1.25 Y
4	U1	AV 1.25 LW
5	U2	AV 1.25 YL
6	U3	AV 1.25 YG
7	L	AV 0.5 GW
8	E	AV 2.0 B
9	D4	AV 1.25 YBr
10	BS	AV 1.25 RW
11	D1	AV 1.25 Br
12	D2	AV 1.25 GL
13	D3	AV 1.25 LB

* N.C : No-Connection



POWER WINDOW SUB SWITCH

Circuit

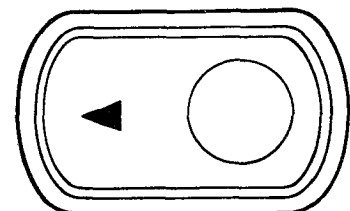
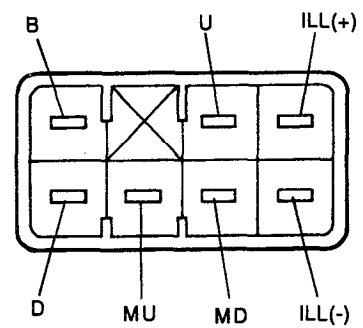


Inspection

Operate the switch, and check for the continuity between the terminals.

If continuity is not as specified, replace the switch.

Terminal name Switch position	B	D	U	MD	MU	ILL(+)	ILL(-)
UP	○	○	○	○	○	○	○
OFF		○	○	○	○	○	○
DOWN	○		○	○	○	○	○

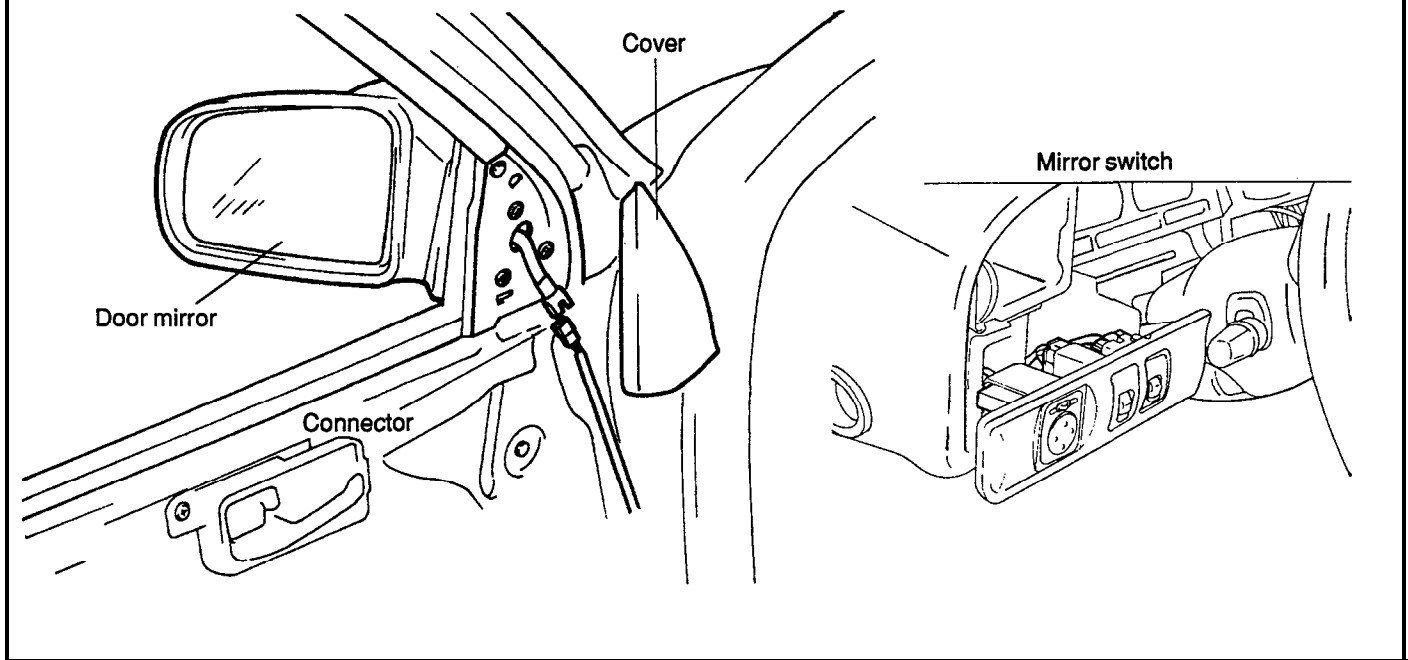


POWER DOOR MIRROR SPECIFICATIONS

Items	Specifications
Remote control mirror actuator Rated voltage Rated current Travel speed Current consumption Adjustment angle Remote control mirror switch Rated voltage Rated current	DC 12V 60 mA $3^{\circ} \pm 1^{\circ}$ /sec at DC 12V Max. 150 mA 9° (up. down. right. left) DC 12V 0.2 A (MAX. 0.5 A)

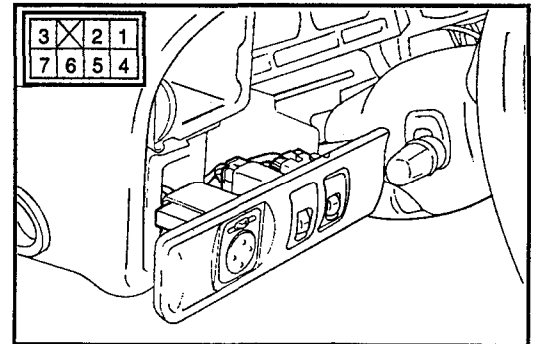
TROUBLESHOOTING

Problem	Possible cause	Remedy
Door lock system does not operate at all	POWER fuse blown Door lock actuator faulty Wiring or ground faulty	Replace fuses and check for short Check actuator Repair as necessary
Door lock system does not operate by manual switch	Door lock manual switch faulty Wiring faulty	Check switch Repair as necessary
Door lock system does not operate by door key	Door key lock and unlock switch faulty Wiring faulty Door lock link disconnected	Check switch Repair as necessary Connect link

COMPONENTS**INSPECTION****Mirror Switch**

1. Remove the remote control mirror switch from rear console box.
2. Check for continuity between the terminals in each switch position according to the table.

Class	Terminal No.	1	2	3	4	5	6	7
	Direction	B(+)	E(-)	HR	C	VR	HL	VL
LH	UP	○	○	—	○			○
	DOWN	○	○	—	○			○
	LEFT	○	○	—	○		○	
	RIGHT	○	○	—	○		○	
RH	UP	○	○	—	○	○		
	DOWN	○	○	—	○	○		
	LEFT	○	○	○	○			
	RIGHT	○	○	○	○			

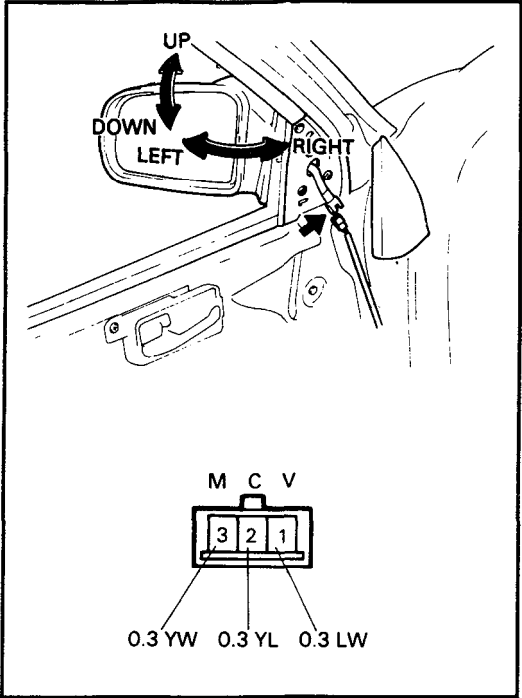
**NOTE**

VL : Vertical left
 VR : Vertical right
 HL : Horizontal left
 HR : Horizontal right

Mirror Actuator

- 1. Disconnect the 3-p Connector from the mirror
- 2. Test actuator operation

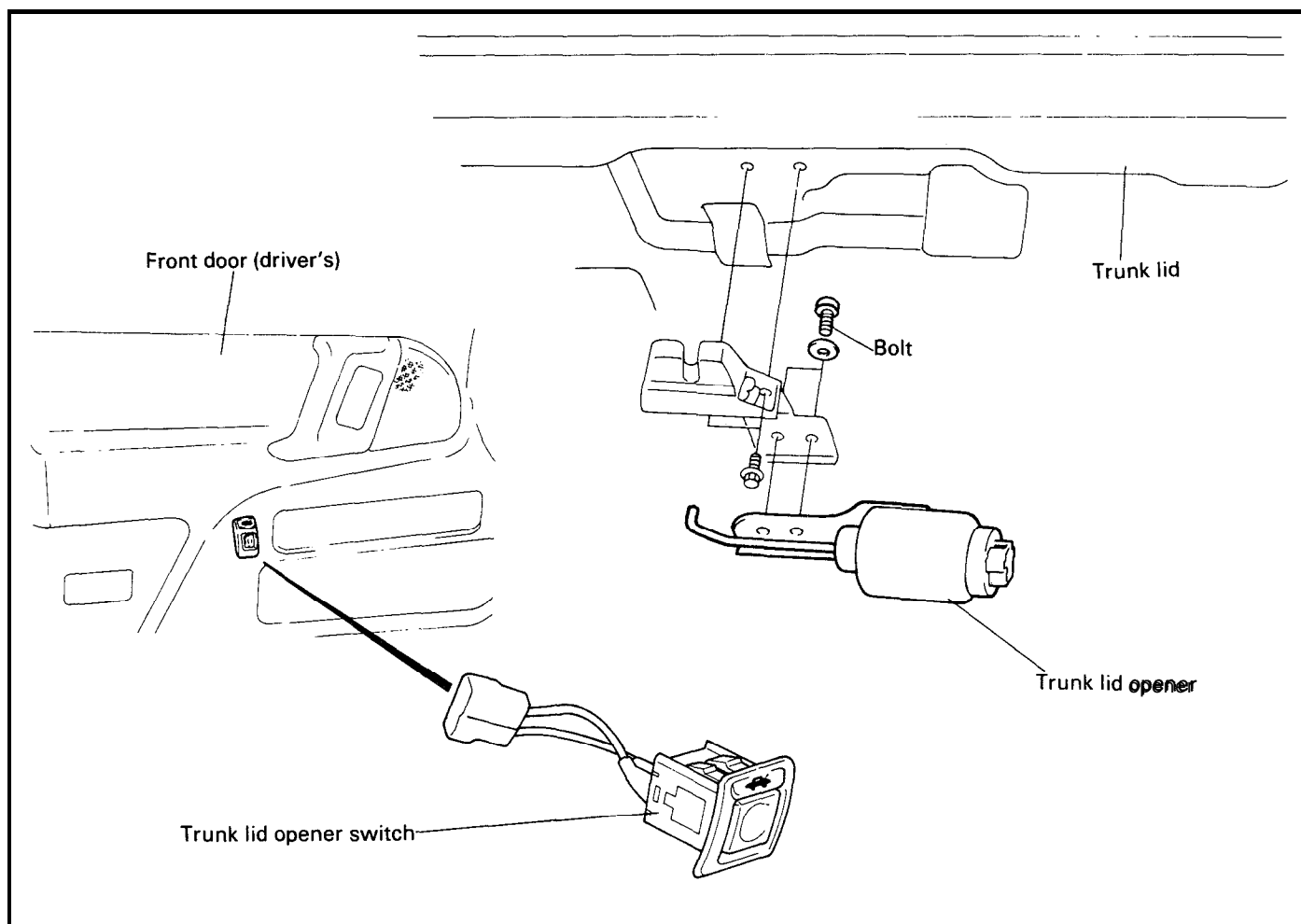
Terminal Direction	Power Supply	Ground	1	2	3
UP	○	○	○	○	
DOWN	○	○	○	○	
LIFT	○	○		○	○
RIGHT	○	○		○	○



TRUNK LID OPENER SPECIFICATIONS

items	Specifications
Trunk lid opener	
Rated voltage	DC 12V
Rated current	Max. 12A
Initial pulling torque	Min. 3.6 kg
Circuit breaker (at 7.5 A)	
Trip time	4 ~ 9 sec.
Recovery time	5 sec.
Trunk lid opener switch	
Rated voltage	DC 12V
Current consumption	21A
Operating force	0.5 ~ 1.1 kg



COMPONENTS



INSPECTION

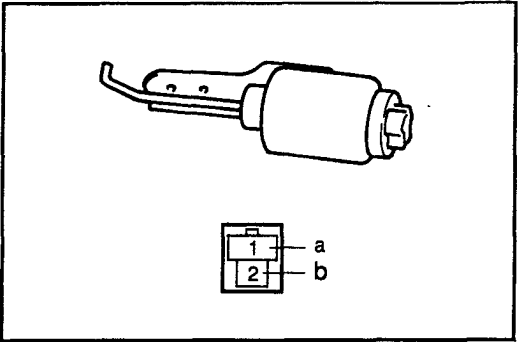
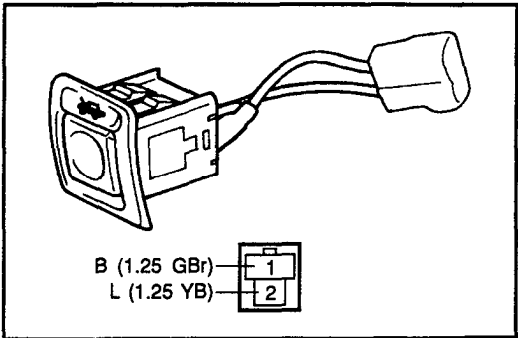
Trunk Lid Opener Switch

Remove the trunk lid opener switch and check continuity between the terminals

P \ T	B	L
OFF		
ON		

Trunk Lid Opener

Remove the trunk lid opener and check continuity between the terminal "a" and "b".
If there is no continuity, replace it.

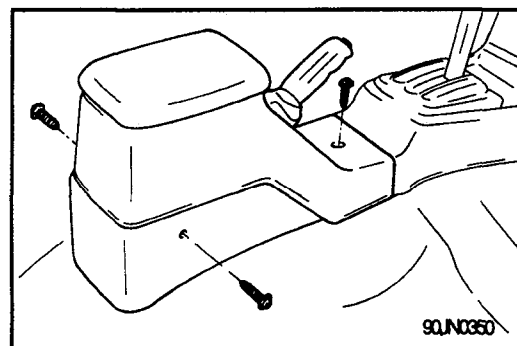


TIME AND ALARM CONTROL SYSTEM (TAC SYSTEM) SPECIFICATIONS

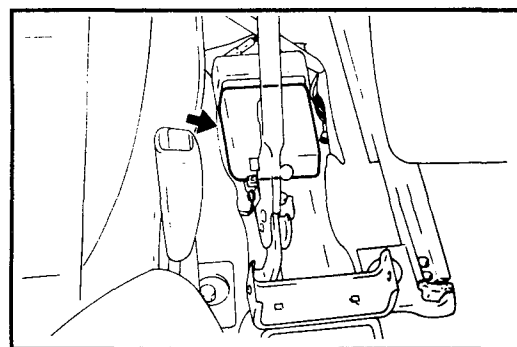
Items	Specifications
Rated voltage	DC. 12 V
Operating voltage range	DC. 9 16 V
Operating temperature range	-30° ~ +80°C (-22°F ~ +176°F)
Rated load	
Variable intermittent wiper	MAX. 5 A (Inductance load)
Rear defogger (heated) timer	DC. 14.3 V, 200 W (Resistance load)
Seat belt warning	DC. 12 V, 1.2 W (Lamp load)
	DC. 13.5 V, 350 mA (Inductance load)
	DC. 13.5 V, 350 mA (Inductance load)
Door warning	

REMOVAL

1. Remove the rear console. (3 Screws)
2. Separate connectors. (E.C.T switch, Remote control mirror switch)



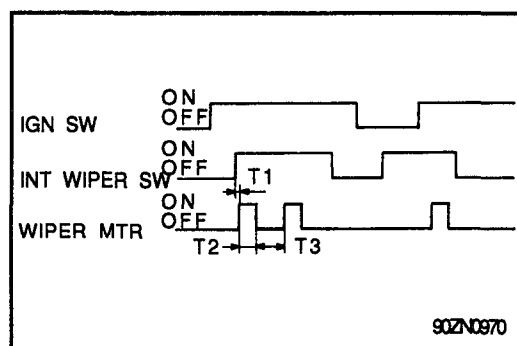
3. Remove 2 screws retaining TACM bracket.
4. Installation is the reverse order of the removal step.



INSPECTION

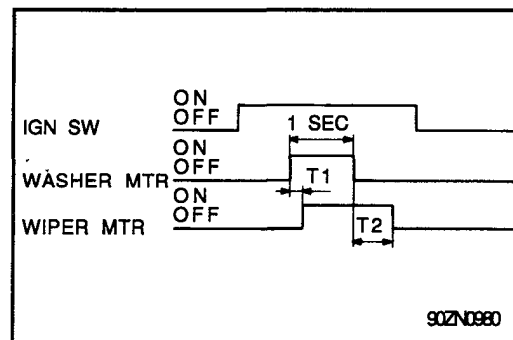
Intermittent Wiper

1. Operating characteristic :
 - T₁ : MAX. 0.5 sec.
 - T₂ : Time of wiper motor 1 rotation.
 - T₃ : 1.5 ± 0.7 sec. (VR=0 kΩ) | 10.5 ± 3 sec. (VR=50 kΩ)
3. Variable resistance (VR) : 50 ± 10 kΩ



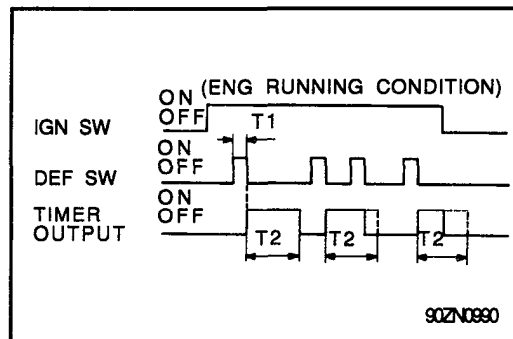
Washer

1. Operating characteristic :
2. T_1 : 0.4 ~ 1.2 sec.
 T_2 : 2.0 ~ 4.7 sec.
3. This function should be operated preferentially even though the variable intermittent wiper is operating.



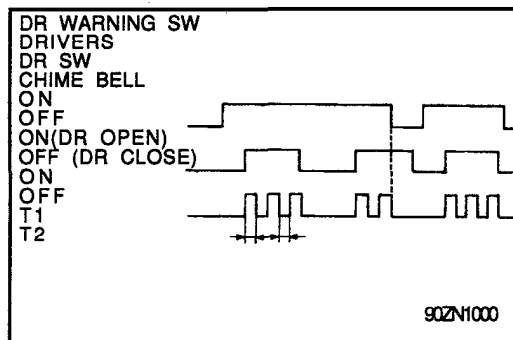
Rear Defogger Timer

1. Operating characteristic :
2. T_1 : 0.5 sec.
 T_2 : 10 ± 3 min.



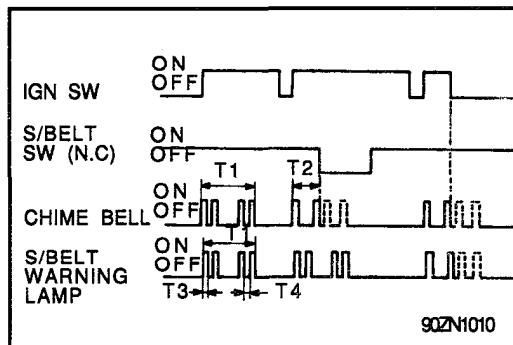
Door Warning

1. Operating characteristic :
2. T_1, T_2 : 0.3 ± 0.1 sec.



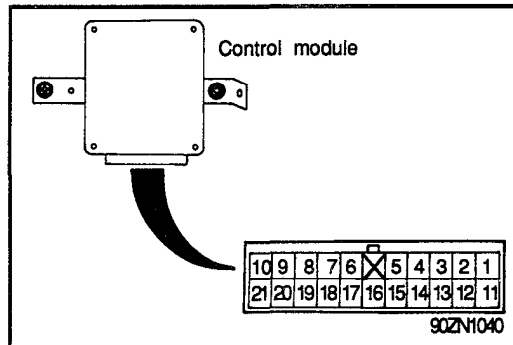
Seat Belt Warning

1. Operating characteristic :
2. T_1 : 6 ± 1 sec.
 T_2 : MAX. 6 ± 1 sec.
 T_3, T_4 : 0.3 ± 0.1 sec.



CONTROL MODULE

1. After tracing the problem to the control module, replace it with a new one. Check for proper operation.
2. If system operates properly, the original control module is faulty.



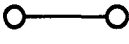


REAR WINDOW DEFOGGER (HEATED GLASS) SPECIFICATIONS

Items	Specifications
Rear window defogger (heated) switch	
Rated voltage	DC 12V
Operating force	0.3 ~ 1.0 kg
Insulating resistance	MIN. 5MΩ (DC 500 V megger)
Indicator lamp	1.2 W
Rear window heated glass	
Rated voltage	DC 12V
Power consumption	185 \pm 10 W (per sheet)

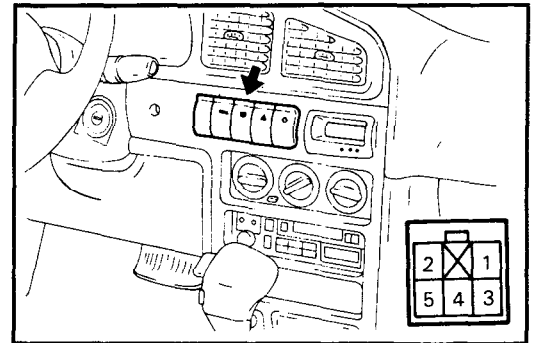
REAR WINDOW DEFOGGER SWITCH

INSPECTION

Disconnect the defogger switch connector from the wiring harness. Operate the switch, and check the continuity between the terminals.

Terminal Position	4	5	2	1	3
OFF					
ON					

If continuity is not as specified, replace the switch.



REAR HEATED (DEFOGGER) GLASS PRINTED HEATER LINK CHECK

NOTE :

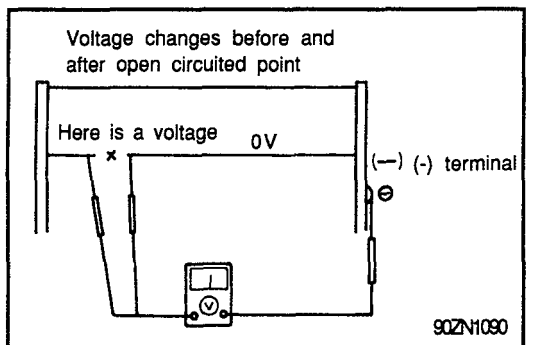
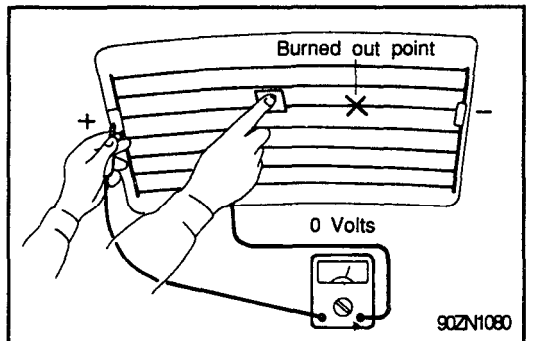
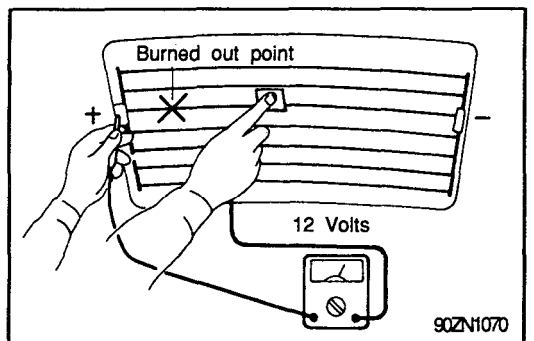
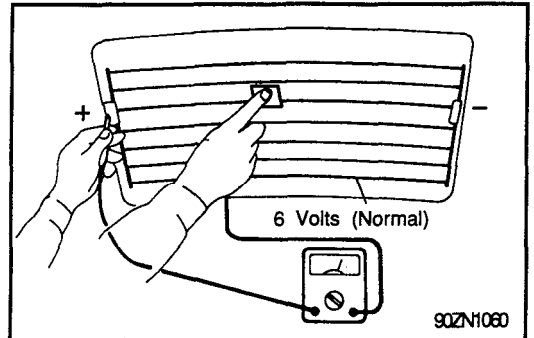
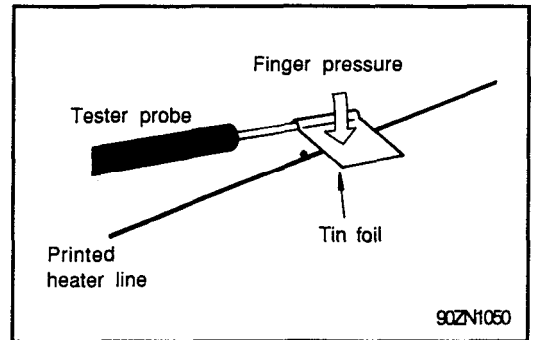
Wrap tin foil around the end of the voltmeter test lead to prevent damaging the heater line. Apply finger pressure on the tin foil, moving the tin foil along the grid line to check for open circuits.

1. Turn on the defogger switch and use a voltmeter to measure the voltage of each heater line at the glass center point. If a voltage of approximately 6V is indicated by the voltmeter, the heater line of the rear window is considered satisfactory.

2. If a heater line is burned out between the center point and (+) terminal, voltmeter will indicate 12 volts.

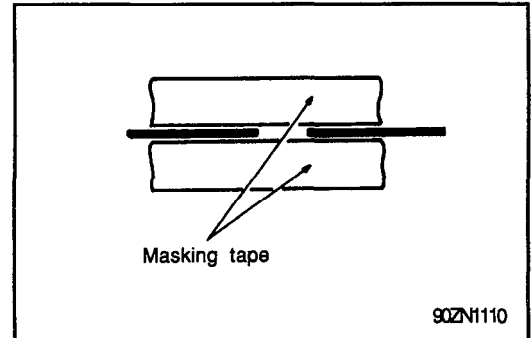
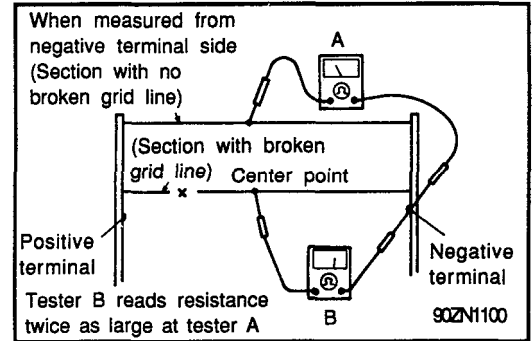
3. If a heater line is burned out between the center point and (-) terminal, the voltmeter will indicate 0 volt.

4. To check for open circuits, slowly move the test lead in the direction that the open circuit seems to exist. Try to find a point where a voltage is generated or changes to 0V. The point where the voltage has changed is the open-circuited point.



Defogger OFF

5. Use an ohmmeter to measure the resistance of each heater line. The section with a broken heater line will indicate a resistance twice that of other section. In the affected section, move the test to a position where resistance sharply changes.

**Repair**

Provide the following items:

1. Conductive paint
2. Paint thinner
3. Masking tape
4. Silicone remover
5. Thin brush

Wipe the glass adjacent to the broken heater line, clean with silicone remover and attach the masking tape as shown. Shake the conductive paint container well, and apply three coats with a brush at intervals of about 15 minutes apart. Remove the tape and allow sufficient time for drying before applying power.

For a better finish, scrape away excess deposits with a knife after completely dried. (allow 24 hours)

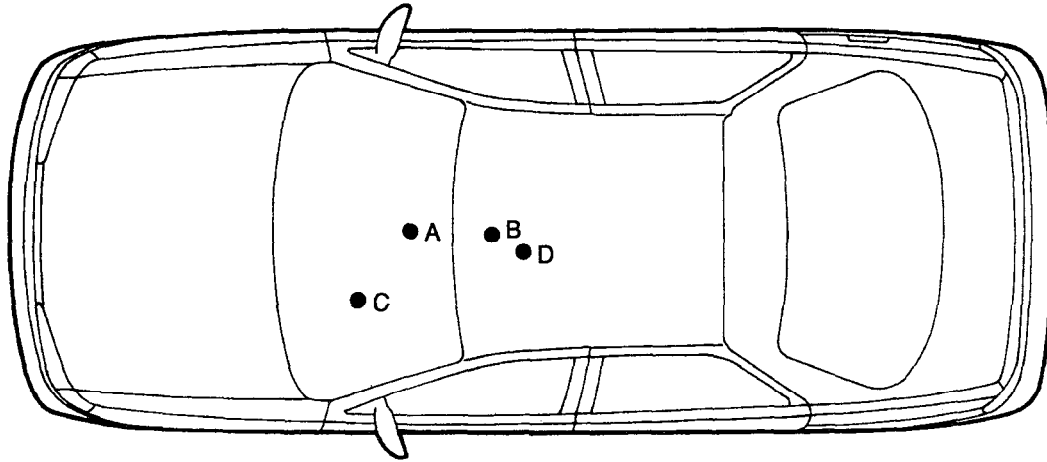
NOTE :

After repairing, clean the glass with a soft dry cloth or wipe along the grid line with a slightly moistened cloth.

AUTOMATIC TRANSAXLE AND KEY LOCK CONTROL SYSTEM SPECIFICATION

Items	Specifications
Control unit	
Rated voltage	DC 12V
Operating voltage range	DC 9 ~ 16V
Operating temperature range	-30°C ~ +80°C (22°F ~ +176°F)
Rated load	MAX. 1A (A/T solenoid) MAX. 0.8A (Key lock solenoid)
A/T solenoid	
Rated voltage	DC 12V
Rated current	1 A (MAX. 2A)
Operating voltage range	DC9 ~ 16V
Operating temperature range	-30°C ~ +80°C (22°F ~ +176°F)
Operating force	
Initial pull in force	0.4 kg.cm (at 12V, 20°C)
Spring force	0.2 kg.cm (at 12V, 20°C)
Holding force	1.5 kg.cm (at 12V, 20°C)
Key lock solenoid	
Operating voltage range	DC 9 I 16V
Operating temperature range	30°C ~ +80°C (22°F ~ +176°F)
Exciting current	MAX. 0.9A
Operating force	
Pull in force	MIN. 0.17 kg.cm (at DC 7.5 ± 0.1V)
Holding force	MIN. 0.25 kg.cm (at DC 6 ± 0.1V)
Parking position switch	
Rated load	1A (resistance load, at DC 12V)
Operating force	0.8 ± 0.2 kgf
Operating temperature range	30°C ~ +80°C (22°F ~ +176°F)

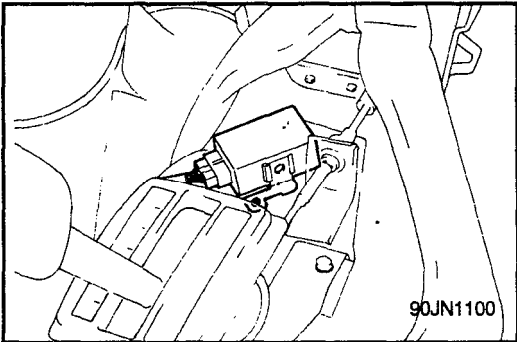
COMPONENTS LAYOUT



- A. Under parking brake lever
- B. Shift lever assembly
- C. Ignition key
- D. Shift lever assembly

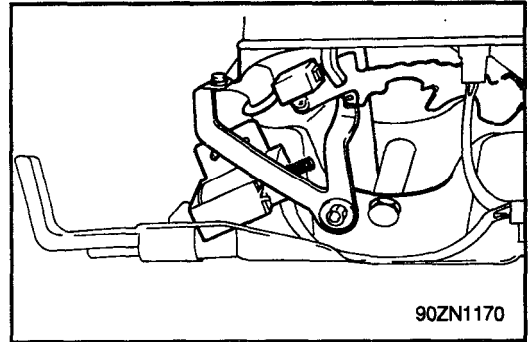
90JN1090

A. Control unit



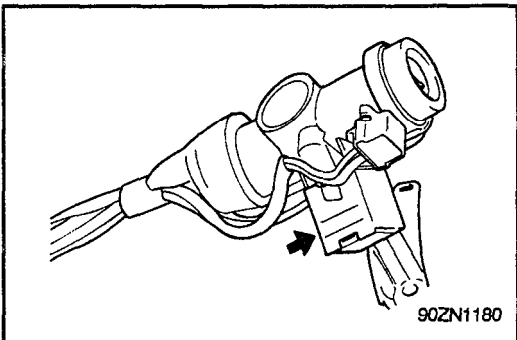
90JN1100

B. A/T solenoid



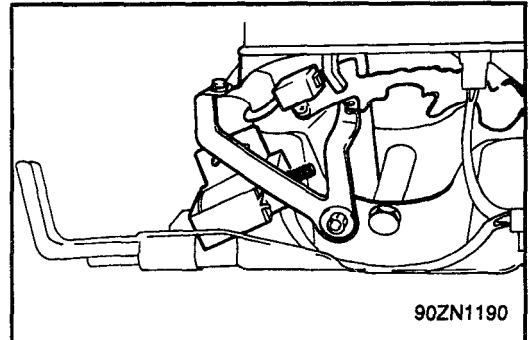
90ZN1170

C. Key lock solenoid



90ZN1180

D. P/position switch/Key lock switch

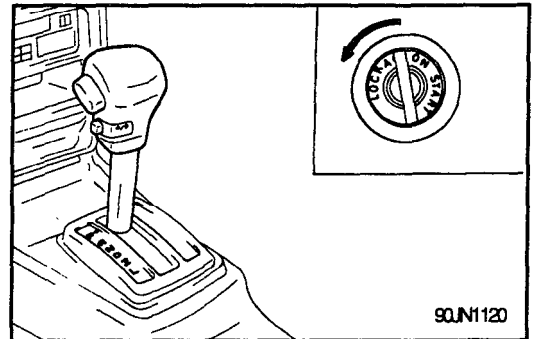
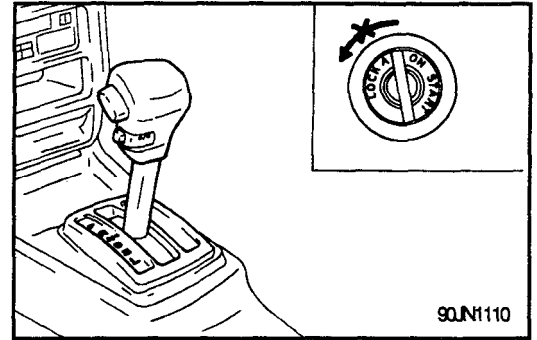


90ZN1190

SYSTEM CHECK

KEY LOCK SYSTEM

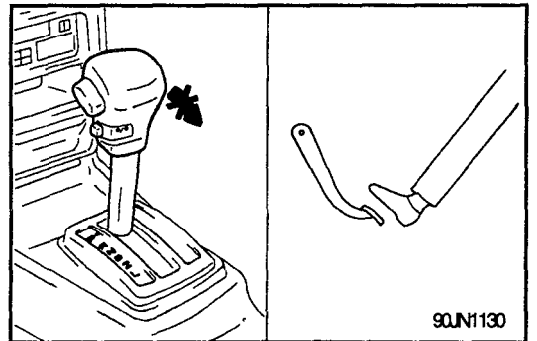
1. Check that the ignition key cannot be turned to "LOCK (OFF)" position, when the position of the shift lever is not in "P" position.
2. Check that the ignition key turns to the "LOCK (OFF)" position, when the shift lever is set to the "P" position.



SHIFT' LOCK SYSTEM

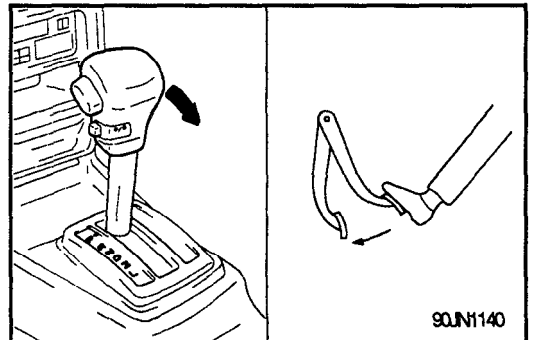
1. Check that under the following conditions, the shift lever cannot be moved from the "P" position to any other position.

IGNITION KEY POSITION : "ON"
BRAKE PEDAL: NOT DEPRESSED
BUTTON : PRESSED

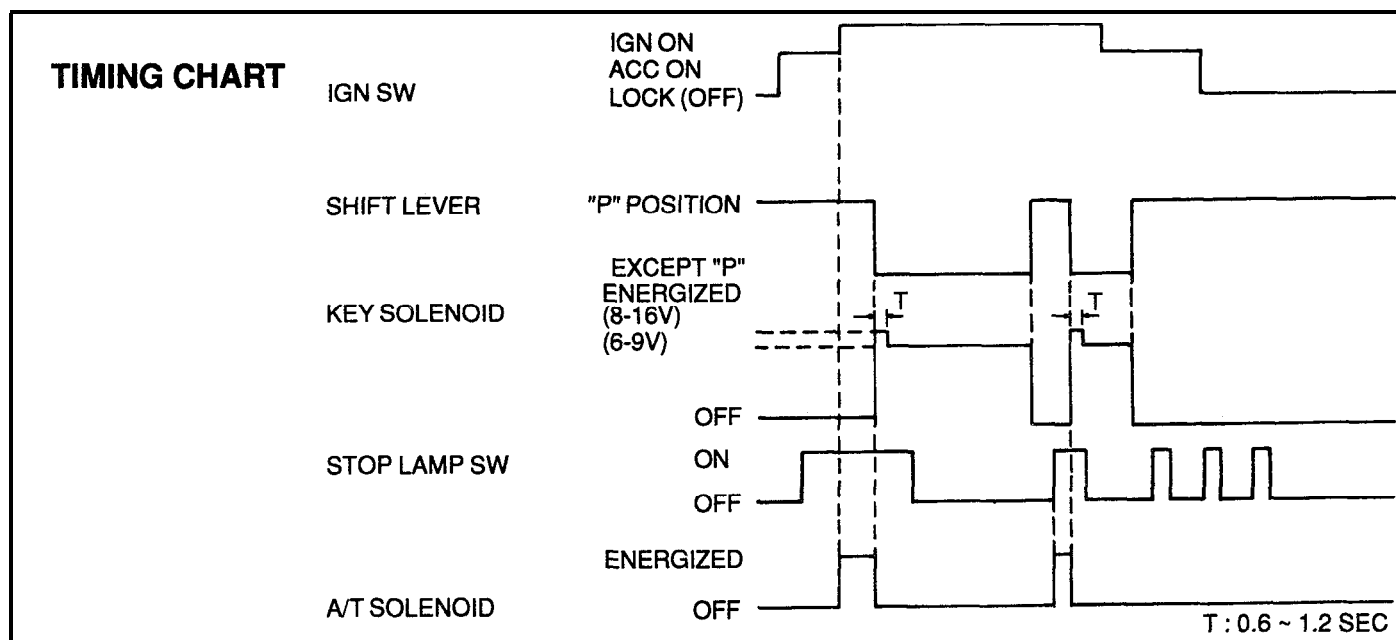


2. Check that under the following conditions, the shift lever can be moved from the "P" position to other position.

IGNITION KEY POSITION : "ON"
BRAKE PEDAL: DEPRESSED
BUTTON : PRESSED



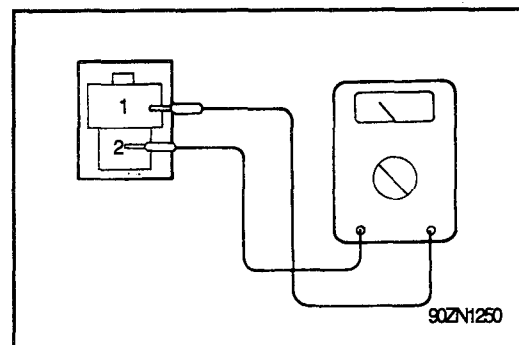
INSPECTION



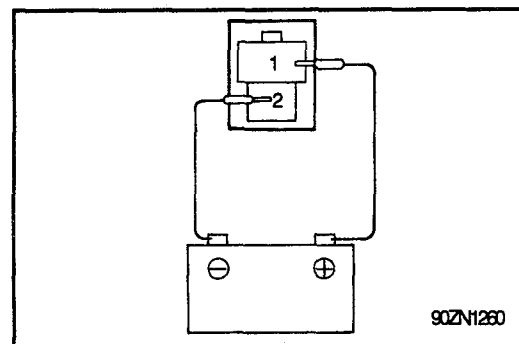
AUTOMATIC TRANSAXLE SOLENOID

1. Remove the solenoid connector.
2. Using an ohmmeter, measure the resistance between terminals.

Standard resistance : 12 - 16Ω



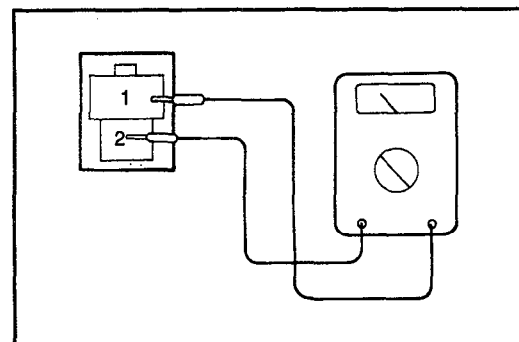
3. Attach the positive (+) lead from the battery to terminal #1. and the negative (-) lead to terminal #2.
4. Check that an operation noise can be heard from the solenoid.



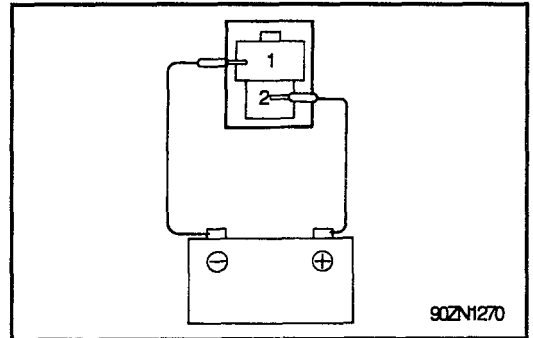
KEY LOCK SELENOID

1. Remove the solenoid connector.
2. Using an ohmmeter, measure the resistance between terminals.

Standard resistance : 12.5 - 16.5Ω



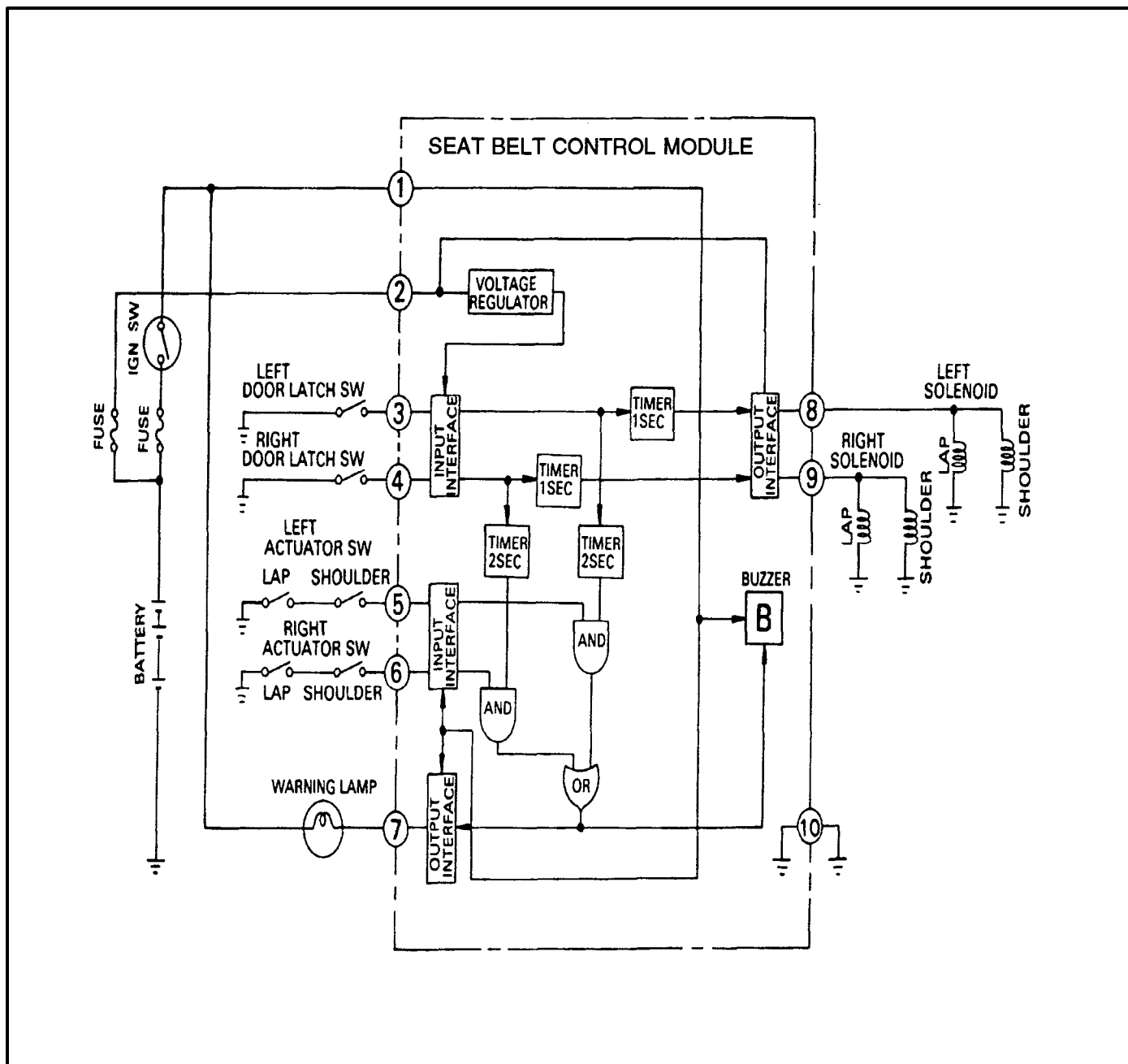
3. Attach the positive (+) lead from the battery to terminal #2. and the negative (-) lead to terminal #1.
4. Check that an operating noise can be heard from the solenoid.



PASSIVE SEAT BELT SPECIFICATIONS OF CONTROL UNIT

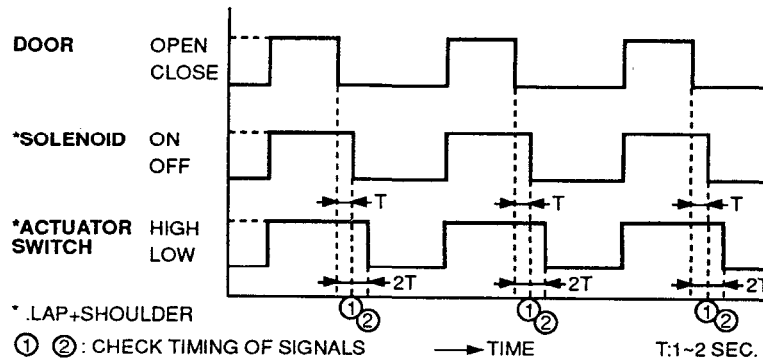
Items	Specification
Rated voltage	DC 12V DC 8.0V - 16.0V
Operation voltage range	
Rated load	
Solenoid	35Ω x 2 (parallel)/seat belt
Warning lamp	1.2W (at DC 12V)
Buzzer	70 - 72 dB (between 1 Meter)
Actuator switch	DC 8V 6mA or more
Door latch switch	DC 5V 4mA or more
Voltage drop	
Solenoid circuit	1.5V or less
Warning lamp circuit	1.5V or less
Static current	2mA or less
Conditions : Door closed	
Ignition switch OFF	
Actuator switch closed	
Solenoid OFF	
Lamp and Buzzer OFF	

BLOCK DIAGRAM



TIMING CHART/OPERATION MODE

Normal operation mode



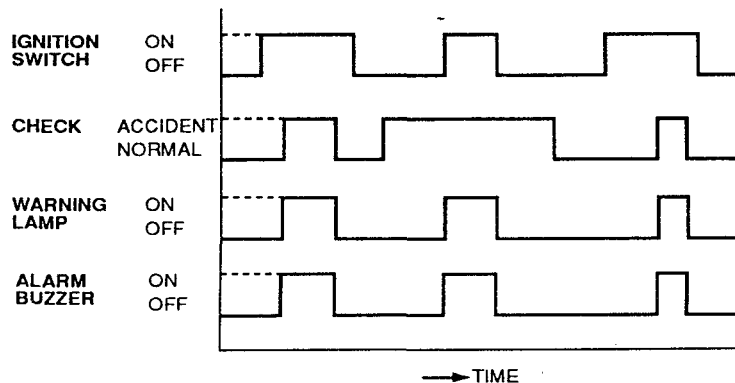
1. When door is opened

According to door open signal (by door latch switch) control unit actuates solenoid mounted in seat belt retractor, and makes VSI sensor inoperative state.

2. When door is closed

According to door close signal, control unit deactuates solenoid 1.0^{+1}_{-0} seconds after door close signal, and then VSI sensor becomes operating state.

Alarm operation



Control unit outputs alarm signal when the following conditions are met simultaneously.

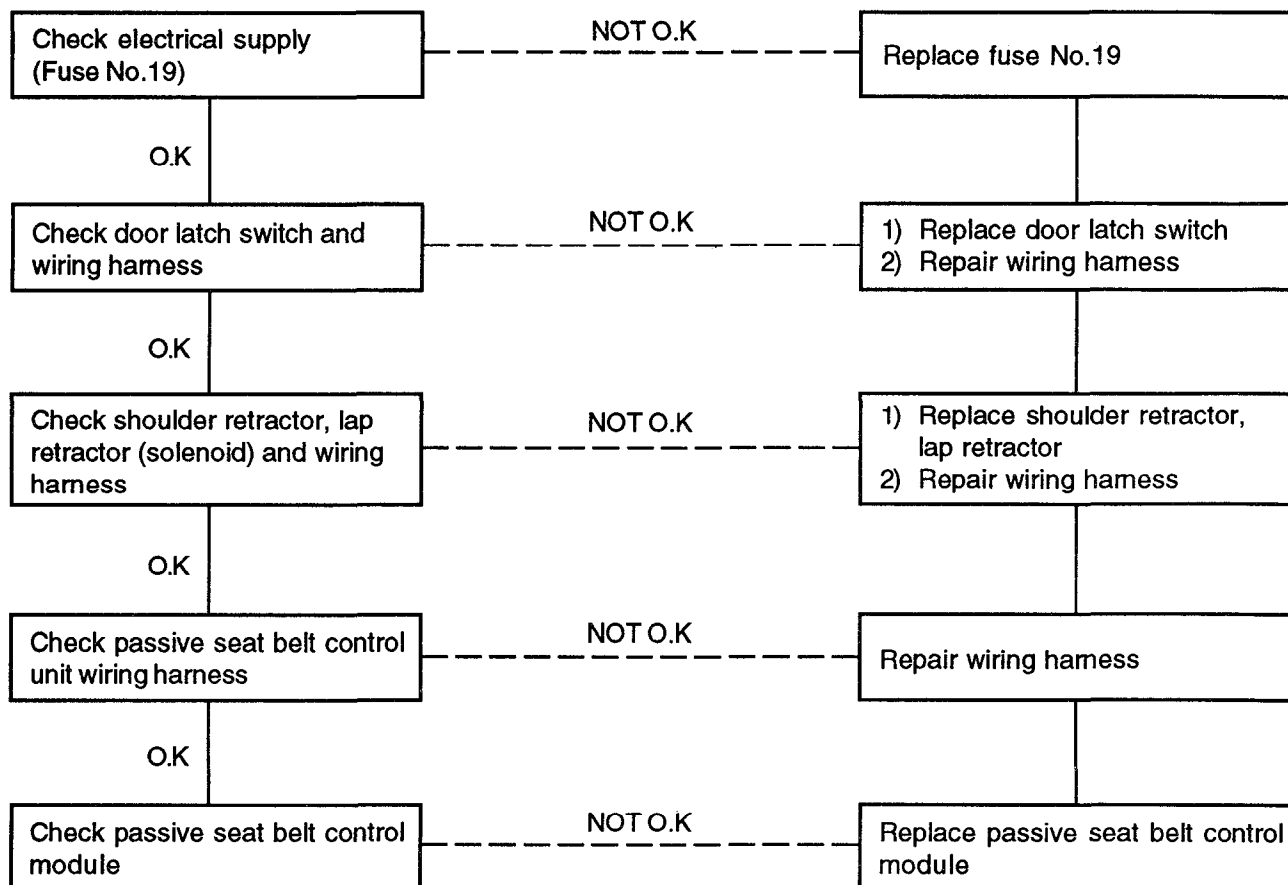
- o Ignition switch is ON.
- o Solenoid signal is OFF.
- o Actuator switch is HIGH for 1.0^{+2}_{-0} seconds after solenoid operation.

NOTE

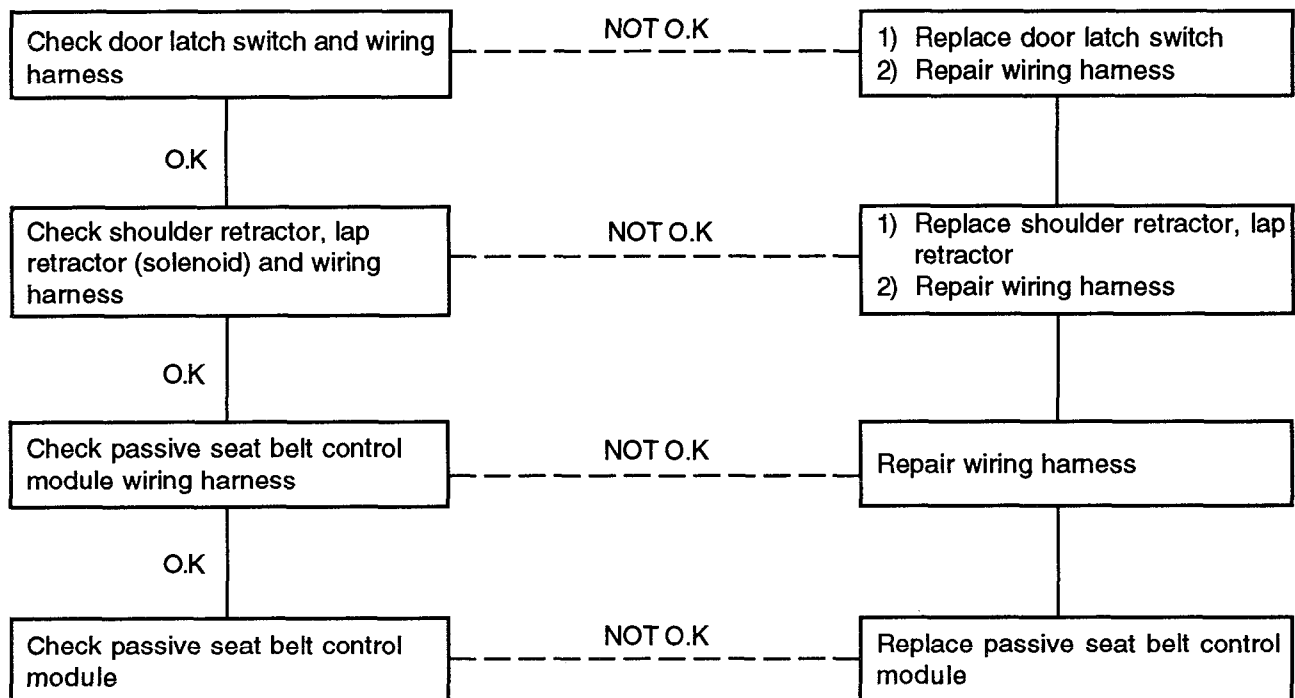
Actuator switch high means that plunger is pulled in solenoid.

TROUBLESHOOTING

Symptom 1. Seat belt locking (with door opened)



Symptom 2. Seat belt unlocking (when door is closed)



Symptom 3. Buzzer alarm warning (when ignition switch is ON)

