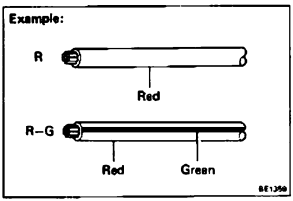
BODY ELECTRICAL SYSTEM



GENERAL INFORMATION

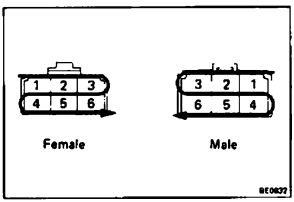
WIRING COLOR CODE

Wire colors are indicated by an alphabetical code.

B	= Black	L	= Blue	R	= Red
BR	= Brown	LG	= Light Green	V	= Violet
G	= Green	O	= Orange	W	= White
GR	= Gray	P	= Pink	Y	= Yellow

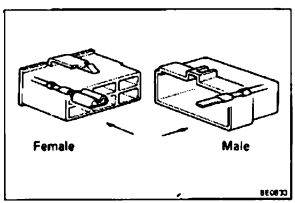
The first letter indicates the basic wire color and the second letter indicates the color of the stripe.

CONNECTOR

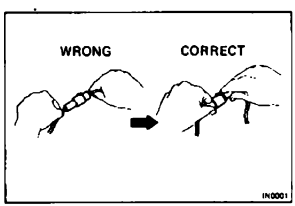


1. **PIN NUMBER OF FEMALE CONNECTOR**
   Numbered in order from upper left to lower right.

2. **PIN NUMBER OF MALE CONNECTOR**
   Numbered in order from upper right to lower left.



3. **DISTINCTION OF MALE AND FEMALE CONNECTORS**
   Male and female connectors are distinguished by shape of their internal pins.
   (a) All connectors are shown from the open end, and the lock is on top.

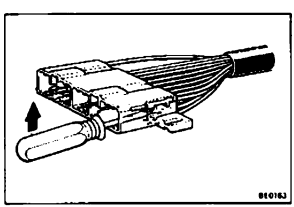


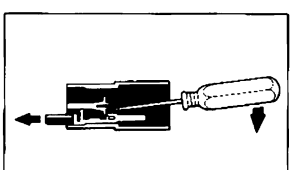
   (b) To pull apart the connectors, pull on the connector itself, not the wires.

REPLACEMENT OF COMBINATION SWITCH

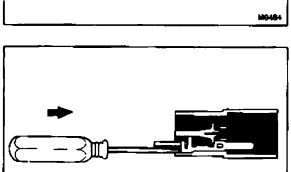
REMOVE TERMINALS FROM CONNECTOR

(a) From the open end, insert a miniature screwdriver between the locking lugs and terminal.





(b) Pry up the locking lugs with the screwdriver and pull the terminal out from the rear.

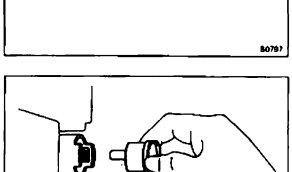


INSTALL TERMINALS TO CONNECTOR

(a) Push in the terminal until it is securely locked in the connector lug.

(b) Pull on the wire to confirm that it is securely locked.

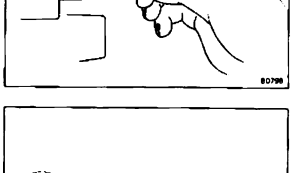
RESET CIRCUIT BREAKER



1. **REMOVE CIRCUIT BREAKER**

(a) Remove the kick panel.

(b) Remove the circuit breaker.

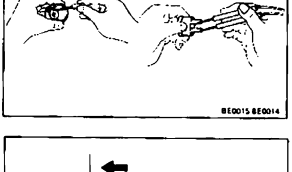


2. **RESET CIRCUIT BREAKER**

(a) Insert the needle into the reset hole and push it.

(b) Using an ohmmeter, check that there is continuity between both terminals of the circuit breaker.

If there is no continuity, replace the circuit breaker.



3. **INSTALL CIRCUIT BREAKER**

(a) Install the circuit breaker.

NOTE: If a circuit breaker continues to cut out, a short circuit is indicated. Have the system checked by a qualified technician.

(b) Install the kick panel.

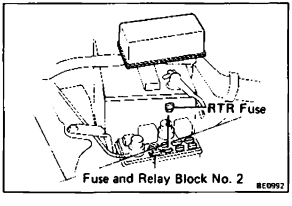
REPLACEMENT OF FUSES

Install new fuses with correct amperage ratings.

CAUTION:

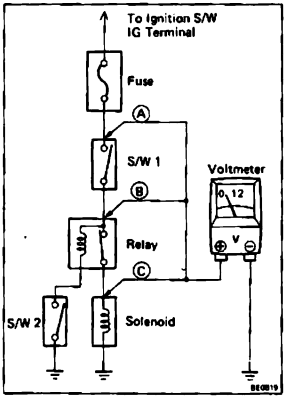
1. **Turn off all electrical components and the ignition switch before replacing a fuse. Do not exceed the fuse amp rating.**
2. **Always use a fuse puller for removing and inserting a fuse. Remove and insert straight in and out without twisting. Twisting could force open the terminals too much, resulting in a bad connection.**

If a fuse continues to blow, the circuit is probably shorted. Have the system checked by a qualified technician.



TAKE CARE WHEN INSPECTING HEADLIGHT CIRCUIT

WARNING: With the headlight switch OFF, disconnect the "RTR" (30A) fuse before beginning work.

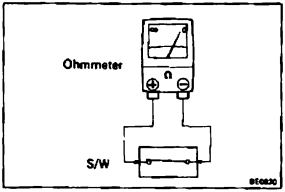


VOLTAGE CHECK

(a) Establish conditions in which voltage is present at the check point.

Example:
Ⓐ – Ignition S/W on
Ⓑ – Ignition S/W and S/W 1 on
Ⓒ – Ignition S/W, S/W 1 and Relay on (S/W 2 off)

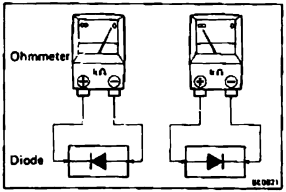
(b) Using a voltmeter, connect the negative lead to a good ground point or negative battery terminal, and the positive lead to the connector or component terminal. This check can be done with a test light instead of a voltmeter.



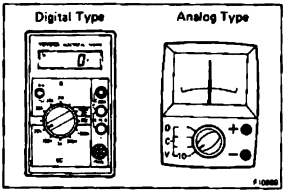
CONTINUITY AND RESISTANCE CHECK

(a) Disconnect the battery terminal or wire so there is no voltage between the check points.

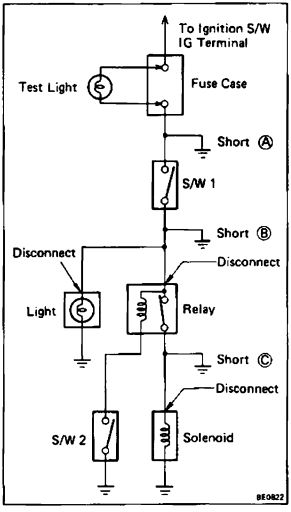
(b) Contact the two leads of an ohmmeter to each of the check points.



If the circuit has diodes, reverse the two leads and check again.
When contacting the negative lead to the diode positive side and the positive lead to the negative side, there should be continuity.
When contacting the two leads in reverse, there should be no continuity.



(c) Use a volt/ohmmeter with high impedance (10 kΩ/V minimum) for troubleshooting of the electrical circuit.



FINDING A SHORT CIRCUIT

(a) Remove the blown fuse and disconnect all loads of the fuse.

(b) Connect a test light in place of the fuse.

(c) Establish conditions in which the test light comes on.

Example:

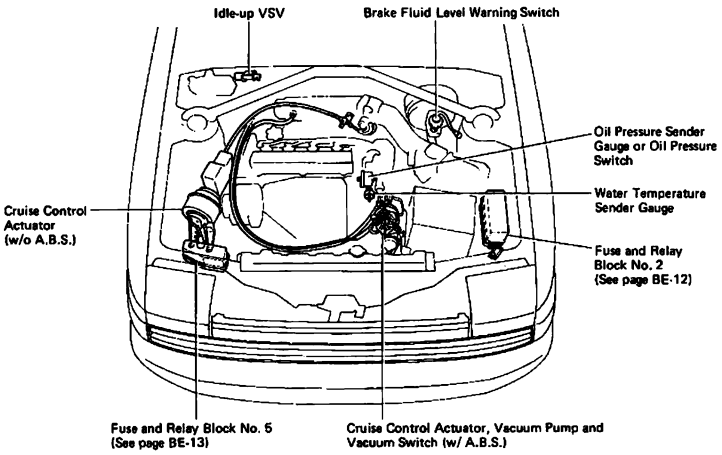
Ⓐ – Ignition S/W on
Ⓑ – Ignition S/W and S/W 1 on
Ⓒ – Ignition S/W, S/W 1 and Relay on (Connect the Relay) and S/W 2 off (or Disconnect S/W 2)

(d) Disconnect and reconnect the connectors while watching the test light.
The short lies between the connector where the test light stays lit and the connector where the light goes out.

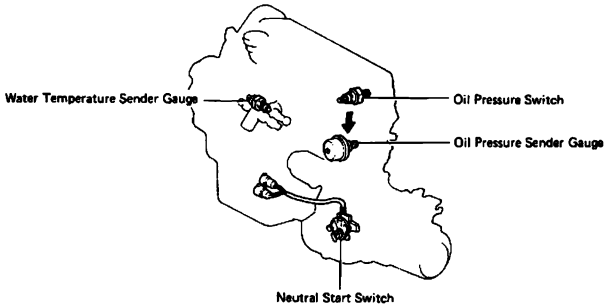
(e) Find the exact location of the short by lightly shaking the problem wire along the body.

LOCATION OF SWITCHES AND RELAYS

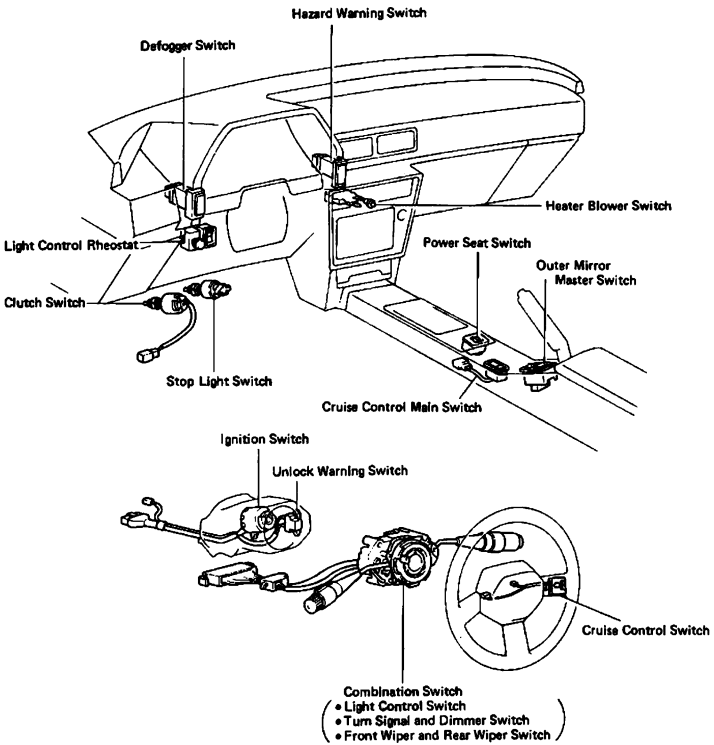
3S-GE Engine



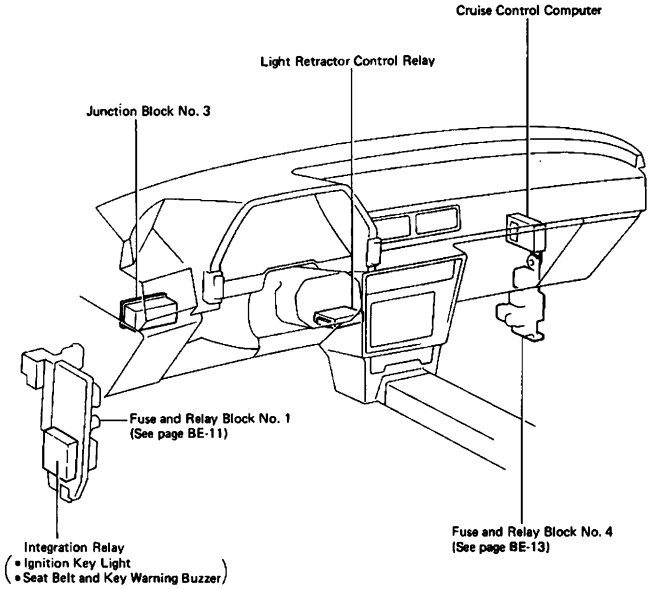
3S-FE Engine



LOCATION OF SWITCHES AND RELAYS (Cont'd)

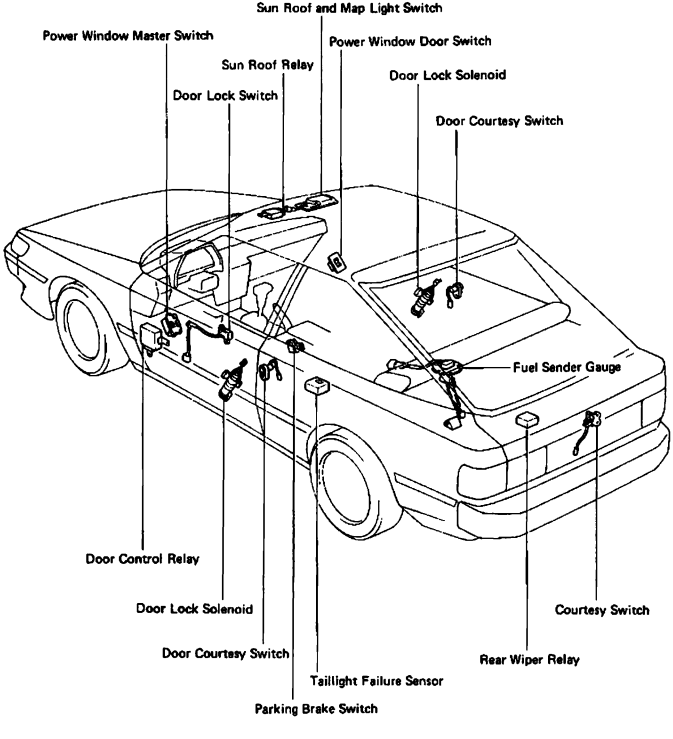


LOCATION OF SWITCHES AND RELAYS (Cont'd)



BE2118

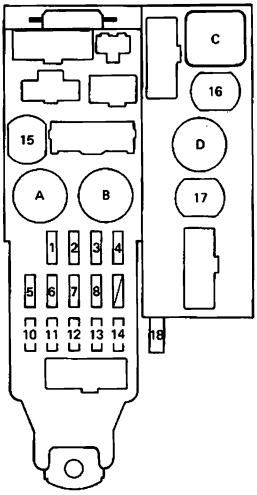
LOCATION OF SWITCHES AND RELAYS (Cont'd)



BE2119

FUSE AND RELAY BLOCKS

FUSE AND RELAY BLOCK NO. 1 (LOCATION: Driver's Side Kick Panel)



Fuses

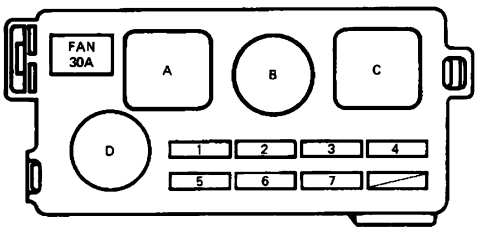
1. GAUGE 15 A
3. STOP 15 A
4. TAIL 15 A
5. CIG 15 A
6. RADIO 7.5 A
7. TURN 10 A
8. MIR-HTR 10 A
10. ENGINE 10 A
11. WIPER 20 A
12. ECU-IG 15 A
14. IGN 7.5 A
15. Circuit Breaker (Defogger)
16. Circuit Breaker (Door Lock)
17. Circuit Breaker (Power Window)
18. FOG 15 A

Relays

A. Defogger Relay
B. Taillight Control Relay
C. Turn Signal Flasher
D. Clutch Start Relay

FUSE AND RELAY BLOCKS (Cont'd)

FUSE AND RELAY BLOCK NO. 2 (LOCATION: Engine Compartment)
(3S-GE Engine)



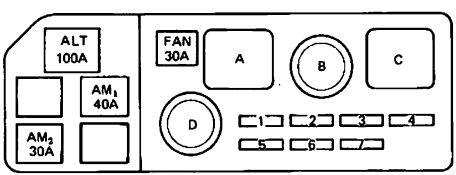
Fuses

1.	HEAD (LH)	15 A
2.	HAZ-HORN	15 A
3.	EFI	15 A
4.	CHARGE	7.5 A
5.	HEAD (RH)	15 A
6.	RTR	30 A
7.	DOME	20 A

Relays

A. Engine Main Relay
B. EFI Main Relay
C. Headlight Control Relay
D. Fan No. 1 Relay

(3S-FE Engine)



Fuses

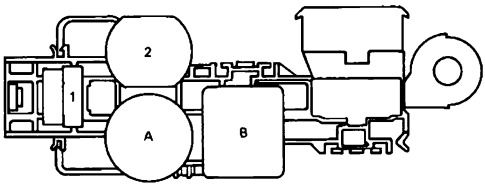
1.	HEAD (LH)	15 A
2.	HAZ-HORN	15 A
3.	EFI	15 A
4.	CHARGE	7.5 A
5.	HEAD (RH)	15 A
6.	RTR	30 A
7.	DOME	20 A

Relays

A. Engine Main Relay
B. EFI Main Relay
C. Headlight Control Relay
D. Fan No. 1 Relay

FUSE AND RELAY BLOCKS (Cont'd)

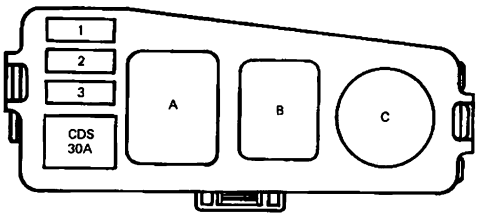
FUSE AND RELAY BLOCK NO. 4 (LOCATION: Passenger's Side Kick Panel)



Fuses
1. A/C 10 A
2. Circuit Breaker (Heater)

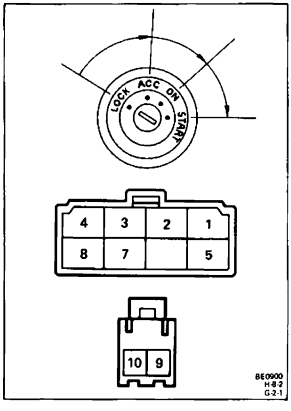
Relays
A. Horn Relay
B. Heater Relay

FUSE AND RELAY BLOCK NO. 5 (LOCATION: Engine Compartment)



Relays
A. A/C Fan No. 2 Relay
B. A/C Magnetic Clutch Relay
C. A/C Fan No. 3 Relay

BE0898
6E2121



IGNITION SWITCH

INSPECTION OF IGNITION SWITCH

INSPECT SWITCH CONTINUITY

Inspect the switch continuity between terminals.

Switch position \ Terminal		4	3	2	1	8	7	5	9	10
LOCK										
ACC		○	○							
ON		○	○	○		○	○			
START		○		○	○	○	○	○		
Unlock Warning	Normal									
	Push								○	○

If continuity is not as specified, replace the switch.

LIGHTING
Troubleshooting

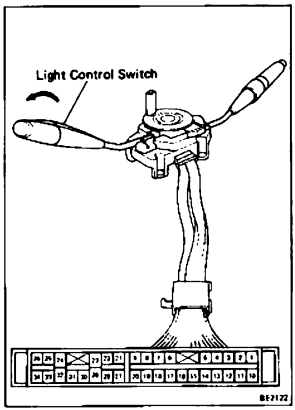
Problem	Possible cause	Remedy	Page
Only one light does not light (all exterior)	Light bulb burned out Socket, wire or ground faulty	Replace bulb Repair as necessary	
Headlights do not flip up	Fusible link blown RTR fuse blown Light retractor control relay faulty Light retractor motor faulty Wiring or ground faulty	Replace fusible link Replace fuse and check for short Check relay Check motor Repair as necessary	 BE-4 BE-19 BE-21
No headlights light	Fusible link blown Headlight control relay faulty Light control switch faulty Wiring or ground faulty	Replace fusible link Check relay Check switch Repair as necessary	 BE-17 BE-16
High beam headlights or headlight flasher do not operate	Light control switch faulty Wiring faulty	Check switch Repair as necessary	BE-16
Tail, parking and license lights do not light	TAIL fuse blown Fusible link blown Taillight control relay faulty Light control switch faulty Wiring or ground faulty	Replace fuse and check for short Replace fusible link Check relay Check switch Repair as necessary	BE-4 BE-18 BE-16
Stop lights do not light	STOP fuse blown Stop light switch faulty Wiring or ground faulty	Replace fuse and check for short Adjust or replace switch Repair as necessary	BE-4
Stop lights stay on	Stop light switch faulty	Adjust or replace switch	
Instrument lights do not light (taillights light)	Light control rheostat faulty Wiring or ground faulty	Check rheostat Repair as necessary	BE-24
Turn signal does not flash on one side	Turn signal switch faulty Wiring or ground faulty	Check switch Repair as necessary	BE-16
Turn signals do not operate	TURN 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	BE-4 BE-22 BE-16
Hazard warning lights do not operate	HAZ-HORN fuse blown Turn signal flasher faulty Hazard warning switch faulty Wiring or ground faulty	Replace fuse and check for short Check flasher Check switch Repair as necessary	BE-4 BE-22 BE-21

Light Control Switch, Headlight Dimmer Switch and Turn Signal Switch

INSPECTION OF LIGHT CONTROL SWITCH, HEADLIGHT DIMMER SWITCH AND TURN SIGNAL SWITCH

INSPECT CONTINUITY OF LIGHT CONTROL SWITCH, HEADLIGHT DIMMER SWITCH AND TURN SIGNAL SWITCH

Inspect the switch continuity between terminals.



Light control switch

Switch position \ Terminal (Wire color)	31 EL (W)	22 T	23 H (R)	20 U (G)
OFF				
UP	○			○
TAIL	○	○		○
HEAD	○	○	○	

Headlight dimmer switch

Switch position \ Terminal (Wire color)	29 ED (W-B)	23 HL (R-G)	32 HU (R-Y)	34 HF (R-W)
Flash	○		○	○
Low Beam	○	○		
High Beam	○		○	

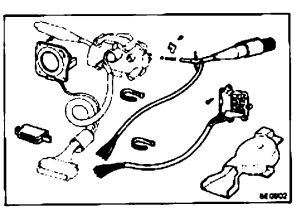
Turn signal switch

Switch position \ Terminal (Wire color)	25 TL (G-B)	21 TB (G-W)	28 TR (G-Y)
Left Turn	○	○	
Neutral			
Right Turn		○	○

If continuity is not as specified, replace the switch.

REPLACEMENT OF LIGHT CONTROL SWITCH, HEADLIGHT DIMMER SWITCH AND TURN SIGNAL SWITCH

REPLACE LIGHT CONTROL SWITCH, HEADLIGHT DIMMER SWITCH AND TURN SIGNAL SWITCH

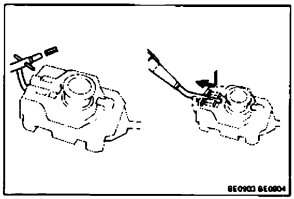


(a) Remove the terminals from the connector.
(See pages BE-2, 3)

(b) Remove the slip ring (w/Cruise control only).

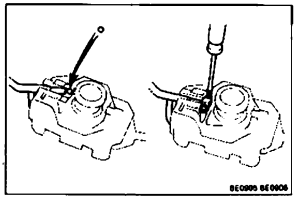
(c) Remove the light control switch.

(d) Remove the headlight dimmer and turn signal switch.

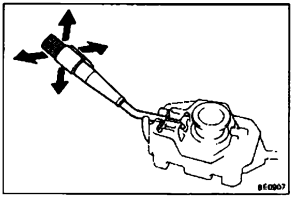


(e) Install the headlight dimmer switch.

(f) Insert the spring into the lever, and install the lever.



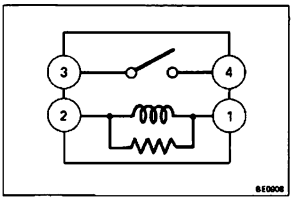
(g) Place the ball on the spring, position the lever at HI and install the plate with two screws.



(h) Insure that the switch operates smoothly.

(i) Install the slip ring (w/Cruise control only).

(j) Install the terminals to the connector.
(See pages BE-3, 16)



Headlight Control Relay

INSPECTION OF HEADLIGHT CONTROL RELAY

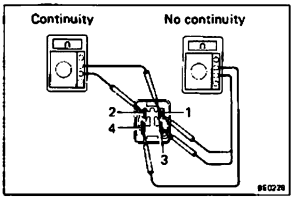
1. INSPECT RELAY CONTINUITY

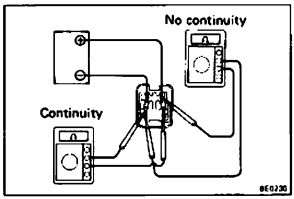
(a) Check that there is continuity between terminals 1 and 2.

(b) Check that there is no continuity between terminals 3 and 4.

(c) Check that there is no continuity between terminals 1 and 4.

If continuity is not as specified, replace the relay.





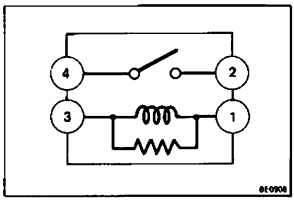
2. INSPECT RELAY OPERATION

(a) Apply battery voltage across terminals 1 and 2.

(b) Check that there is continuity between terminals 3 and 4.

(c) Check that there is no continuity between terminals 1 and 4.

If operation is not as specified, replace the relay.



Taillight Control Relay

INSPECTION OF TAILLIGHT CONTROL RELAY

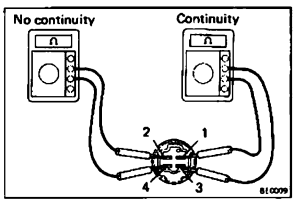
1. INSPECT RELAY CONTINUITY

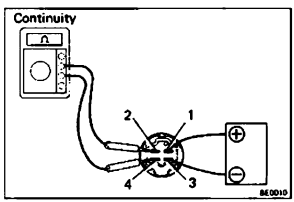
(a) Check that there is continuity between terminals 1 and 3.

(b) Check that there is no continuity between terminals 2 and 4.

(c) Check that there is no continuity between terminals 3 and 4.

If continuity is not as specified, replace the relay.





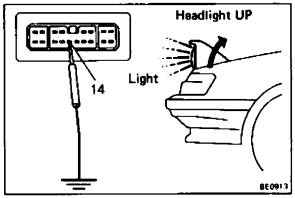
2. INSPECT RELAY OPERATION

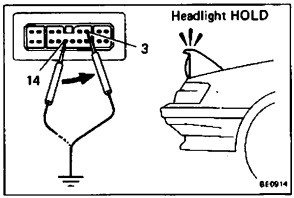
(a) Apply battery voltage across terminals 1 and 3.

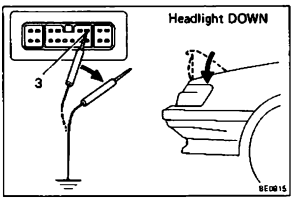
(b) Check that there is continuity between terminals 2 and 4.

(c) Check that there is no continuity between terminals 3 and 4.

If operation is not as specified, replace the relay.







Light Retractor Control Relay

INSPECTION OF LIGHT RETRACTOR CONTROL RELAY

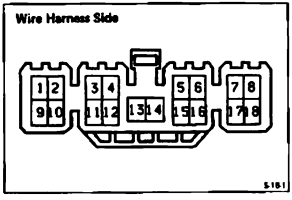
1. INSPECT LIGHT RETRACTOR RELAY OPERATION

(a) With the light control switch off, connector connected, and terminal 14 grounded, raise the headlights with the lights lit.

(b) Quickly ground terminal 3. The light will go out, but the headlight should remain up.

(c) When terminal 3 is taken off ground, the headlights should flip down.

If operation is not as specified, replace the relay.



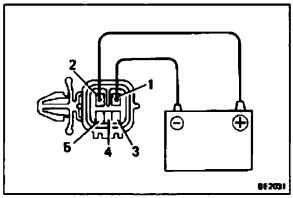
2. INSPECT RELAY CIRCUIT

Disconnect the relay connector and inspect the connector on the wire harness side as shown in the chart.

NOTE: This circuit includes the diode, if the circuit shows no continuity change the positive and negative probes and recheck the circuit.

Check item	Tester connection	Condition	Voltage or resistance
Voltage	8 – Ground	—	Battery voltage
Continuity	18 – Ground	—	Continuity
Voltage	4 – Ground	Ignition switch OFF or ACC	No voltage
		Ignition switch ON	Battery voltage
	2 – Ground	—	Battery voltage
	10 – Ground	—	Battery voltage
	15 – Ground	Door courtesy switch OFF (Door close)	Battery voltage
		Door courtesy switch ON (Door open)	No voltage
Continuity	3 – Ground	Light switch OFF or HEAD	No continuity
		Light switch HOLD or TAIL	Continuity
	13 – Ground	Light switch OFF or HOLD	No continuity
		Light switch TAIL or HEAD	Continuity
	14 – Ground	Light switch OFF, HOLD or HEAD and dimmer switch Low beam or High beam.	No continuity
		Light switch HEAD or Dimmer switch Flash	Continuity
	6 – Ground	—	Continuity
	16 – Ground	—	Continuity
	5 – 1	Headlight lowermost position	No continuity
		Headlight except lowermost position	Continuity
	7 – 1	Headlight lowermost position	No continuity
		Headlight except lowermost position	Continuity
	5 – 9	Headlight uppermost position	No continuity
		Headlight except uppermost position	Continuity
	7 – 9	Headlight uppermost position	No continuity
		Headlight except uppermost position	Continuity

If circuit is as specified, replace the relay.



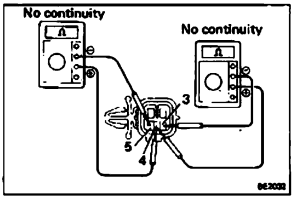
Light Retractor Motor

INSPECTION OF LIGHT RETRACTOR MOTOR

1. INSPECT MOTOR OPERATION

Connect the positive (+) lead from the battery to terminal 2 and connect the negative (–) lead to terminal 1. Check that the motor operates.

If there is no motor operation, replace the motor.



2. INSPECT DIODE CONTINUITY OF MOTOR

(a) Move the headlights to position except the uppermost or lowermost positions.

(b) Connect the ohmmeter positive (+) lead to terminal 4 and the negative (–) lead to terminal 5.

(c) Check that there is no continuity.

(d) Connect the ohmmeter positive (+) lead to terminal 4 and the negative (–) lead to terminal 3.

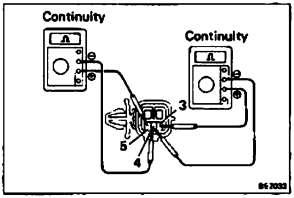
(e) Check that there is no continuity.

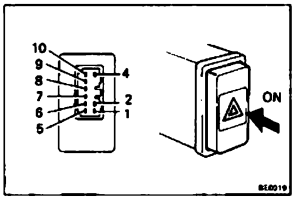
If there is continuity, replace the motor assembly.

(f) Reverse the test leads of the ohmmeter.

(g) Check that there is continuity.

If there is no continuity, replace the motor assembly.





Hazard Warning Switch

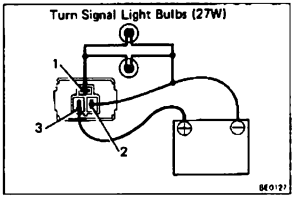
INSPECTION OF HAZARD WARNING SWITCH

INSPECT HAZARD WARNING SWITCH CONTINUITY

Inspect the switch continuity between terminals.

Switch position \ Terminal	9	4	10	2	6	7	8	5	1
OFF (Free)	o		o					o	o
ON (Lock)		o	o	o	o	o	o	o	o

If continuity is not as specified, replace the switch or bulb.



Turn Signal Flasher

INSPECTION OF TURN SIGNAL FLASHER

INSPECT FLASHER OPERATION

(a) Connect the positive (+) lead from the battery to terminal 3 and the negative (–) lead to terminal 2.

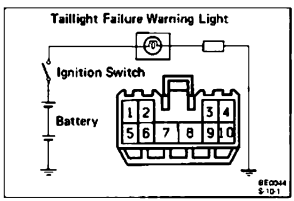
(b) Connect the two turn signal light bulbs parallel to each other to terminals 1 and 2.

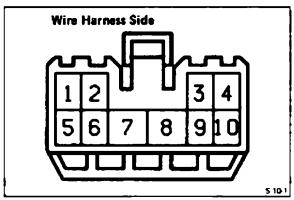
Check that the bulbs turn on and off.

NOTE: The turn signal lights should flash 60 to 120 times per minute.

If one of the front or rear turn signal lights has an open circuit, the number of flashes will be more than 140 per minute.

If operation is not as specified, replace the flasher.





Taillight Failure Sensor

INSPECTION OF TAILLIGHT FAILURE SENSOR

1. INSPECT WARNING LIGHT OPERATION

(a) Disconnect the connector from the failure sensor. Connect the terminal 3 of wire harness side connector and body ground.

(b) Remove CHARGE fuse and turn the ignition switch on. Check that the bulb lights.

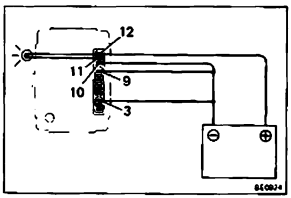
If operation is not correct, remove and test the bulb.

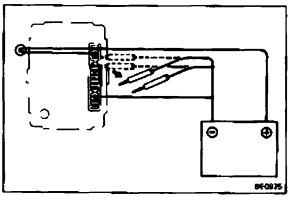
2. INSPECT FAILURE SENSOR CIRCUIT

Disconnect the failure sensor and inspect the connector on the wire harness side as shown in the following chart.

Check for	Tester connection	Condition		Specified value
Continuity	1 – Ground	Always		Continuity
Voltage	2 – Ground	Turn ignition switch to OFF or ACC		No voltage
		Turn ignition switch ON		Battery voltage
	3 – Ground	Turn ignition switch to OFF or ACC		No voltage
		Turn ignition switch ON	Remove CHARGE fuse	Battery voltage
			Install CHARGE fuse	No voltage
Continuity	4 – Ground	Always		Continuity
Voltage	7 – Ground	Stop light switch OFF (Brake pedal released)		No voltage
		Stop light switch ON (Brake pedal depressed)		Battery voltage
Continuity	9 – Ground	Always		Continuity
Voltage	10 – Ground	Turn light control switch OFF or HOLD		No voltage
		Turn light control switch TAIL or HEAD		Battery voltage

If circuit is correct as specified above, replace the failure sensor.





Integration Relay

INSPECTION OF INTEGRATION RELAY

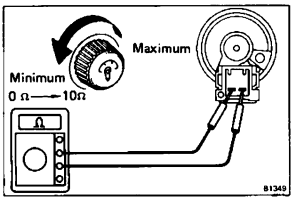
INSPECT RELAY OPERATION (KEY ILLUMINATION)

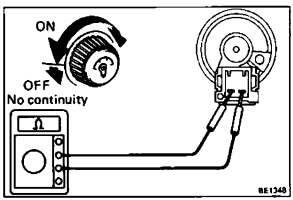
Connect the positive (+) lead from the battery to terminal 12. Connect the negative (–) lead to terminals 3, 9 and 10. Connect a 3.4W test bulb between terminals 11 and 12.

(a) Check that the bulb lights.

(b) Disconnect the negative (–) lead from terminals 9 and 10, and check that the bulb goes out 5 seconds later.

If operation is not as specified, replace the relay.





Light Control Rheostat

INSPECTION OF LIGHT CONTROL RHEOSTAT

INSPECT RHEOSTAT OPERATION

(a) Gradually change the brightness of rheostat from maximum to minimum, check that the resistance between terminals increases from 0 Ω to 10 Ω.

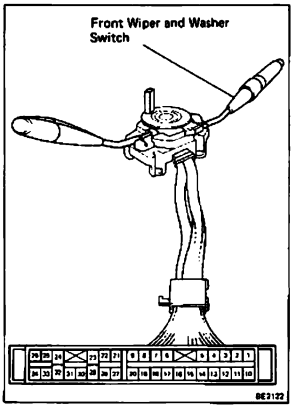
(b) Check that there is no continuity between terminals with the rheostat turned off.

If operation is not as specified, replace the rheostat.

WIPERS AND WASHERS

Troubleshooting

Problem	Possible cause	Remedy	Page	
			Front	Rear
Wipers do not operate or return to off position	WIPER fuse blown	Replace fuse and check for short	BE-4	BE-4
	Wiper motor faulty	Check motor	BE-27	BE-28
	Wiper switch faulty	Check switch	BE-25	BE-28
	Wiring or ground faulty	Repair as necessary		
Wipers do not operate in INT position	Wiper relay faulty	Check relay		BE-28
	Wiper switch faulty	Check switch	BE-25	BE-28
	Wiper motor faulty	Check motor	BE-27	BE-28
	Wiring or ground faulty	Repair as necessary		
Washers do not operate	Washer hose or nozzle clogged	Repair as necessary		
	Washer motor faulty	Replace motor		
	Washer switch faulty	Check switch	BE-25	BE-28
	Wiring faulty	Repair as necessary		



Front Wiper and Washer Switch

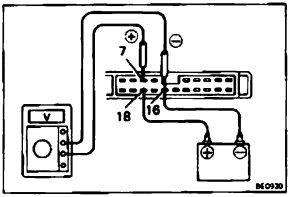
INSPECTION OF FRONT WIPER AND WASHER SWITCH

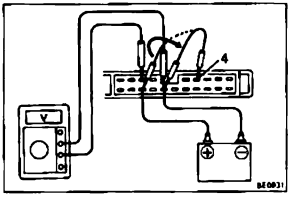
1. **INSPECT FRONT WIPER AND WASHER SWITCH CONTINUITY**

Inspect the switch continuity between terminals.

Switch	Switch position \ Terminal (Wire color)	18 +B (L-W)	13 +2 (L-O)	7 +1 (L-B)	4 +S (L-R)	16 Ew (B)	8 W (L)
Wiper	OFF			○	○		
	INT			○	○		
	LO	○	○	○			
	HI	○	○				
Washer	OFF						
	ON					○	○

If continuity is not as specified, replace the switch.





2. INSPECT INTERMITTENT OPERATION OF SWITCH

(a) Turn the wiper switch to INT position.

(b) Turn the INT switch to FAST position. (Variable type)

(c) Connect the positive (+) lead from the battery to terminal 18 and the negative (–) lead to terminal 16.

(d) Connect the positive (+) lead from the voltmeter to terminal 7 and the negative (–) lead to terminal 16.

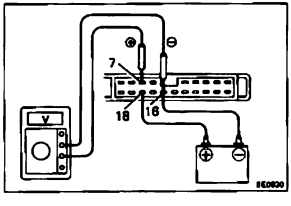
Check that the meter needle indicates battery voltage.

(e) After connecting terminal 4 to terminal 18, connect it to terminal 16.

Then, check that the voltage rises from 0 volts to battery voltage with in the times as shown in the table.

INT time control switch position	Voltage
FAST	Approx. 3 sec. Battery voltage 0 volt
SLOW	12 ± 5 sec. Battery voltage 0 volt
Non variable type	4.1 ± 1 sec. Battery voltage 0 volt

If operations are not as specified, replace the wiper and washer switch.

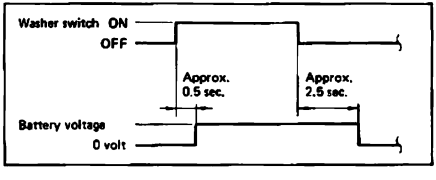


3. INSPECT WASHER SWITCH OPERATION

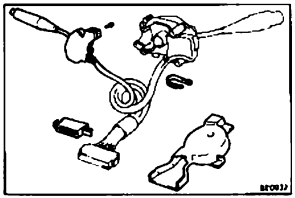
(a) Connect the positive (+) lead from the battery to terminal 18 and the negative (–) lead to terminal 16.

(b) Connect the positive (+) lead from the voltmeter to terminal 7 and the negative (–) lead to terminal 16.

(c) Push in the washer switch. Check that the voltage changes as shown in the table.



If operation is not as specified, replace the wiper and washer switch.



REPLACEMENT OF WIPER AND WASHER SWITCH

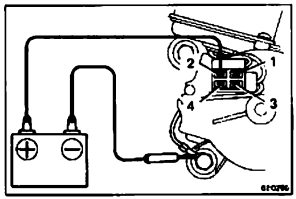
REPLACE WIPER AND WASHER SWITCH

(a) Remove the terminals from the connector.
(See pages BE-2, 3)

(b) Remove the wiper and washer switch.

(c) Install the wiper and washer switch.

(d) Install the terminals to the connector.
(See pages BE-3, 25)



Front Wiper Motor

INSPECTION OF FRONT WIPER MOTOR

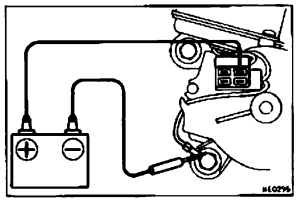
1. INSPECT THAT MOTOR OPERATES AT LOW SPEED

(a) Disconnect the connector from the wiper motor.

(b) Connect the positive (+) lead from the battery to terminal 2. Connect the negative (–) lead to the motor body.

(c) Check that the motor operates at low speed.

If operation is not as specified, replace the motor.

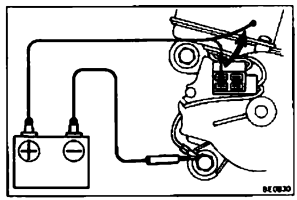


2. INSPECT THAT MOTOR OPERATES AT HIGH SPEED

(a) Connect the positive (+) lead from the battery to terminal 1. Connect the negative (–) lead to the motor body.

(b) Check that the motor operates at high speed.

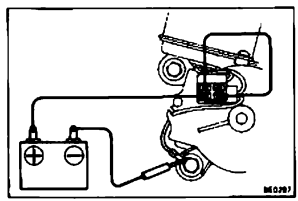
If operation is not as specified, replace the motor.



3. INSPECT THAT MOTOR OPERATES, STOPPING AT STOP POSITION

(a) Operate the motor at low speed.

(b) Stop motor operation anywhere except at the off position by disconnecting terminal 2.

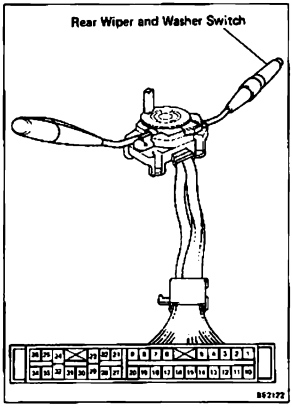


(c) Connect terminals 2 and 3.

(d) Connect the positive (+) lead from the battery to terminal 4.

(e) Check that the motor stops running at the off position after the motor operates again.

If operation is not as specified, replace the motor.



Rear Wiper and Washer Switch

INSPECTION OF REAR WIPER AND WASHER SWITCH

INSPECT SWITCH CONTINUITY

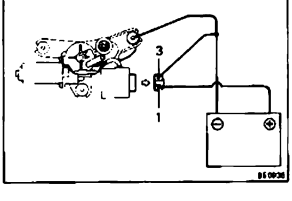
Inspect the switch continuity between terminals.

Switch position \ Terminal (Wire color)	16 Ew (B)	2 WR (V)	10 C_1R (O)	1 +1R (GR)
Washer I	○	○		
OFF				
INT	○		○	
ON	○			○
Washer II	○	○		○

If continuity is not as specified, replace the switch.

REPLACEMENT OF REAR WIPER AND WASHER SWITCH

(See Front Wiper and Washer Switch on page BE-25)

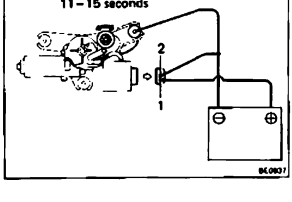


Rear Wiper Motor and Relay

INSPECTION OF REAR WIPER MOTOR AND RELAY

1. INSPECT RELAY AND MOTOR OPERATES

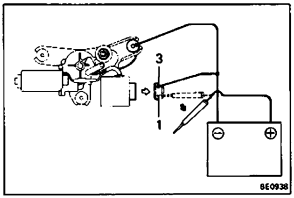
Check that the motor operates after connecting the positive (+) battery lead to terminal 1 and the negative (–) battery lead to both terminal 3 and motor body.



2. INSPECT INTERMITTENT OPERATION OF RELAY

Check that the motor operates intermittently for 10 – 15 seconds after connecting the positive (+) battery lead to terminal 1 and the negative (–) battery lead to both terminal 2 and motor body.

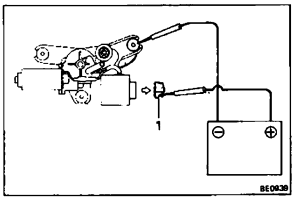
If operation is not as specified, replace the relay.



3. **INSPECT THAT MOTOR OPERATES, STOPPING AT STOP POSITION**

(a) Start motor operation by connecting the positive (+) battery lead to terminal 1 and the negative (–) battery lead to both terminal 3 and motor body.

(b) Stop motor operation anywhere except stop position by disconnecting terminal 1.



(c) Connect the positive (+) lead from the battery to terminal 1. Connect the negative (–) lead to the motor body.

(d) Check that the motor stops running at the off position after the motor operates again.

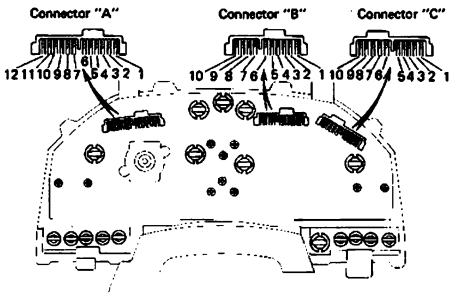
If operation is not as specified, replace the motor.

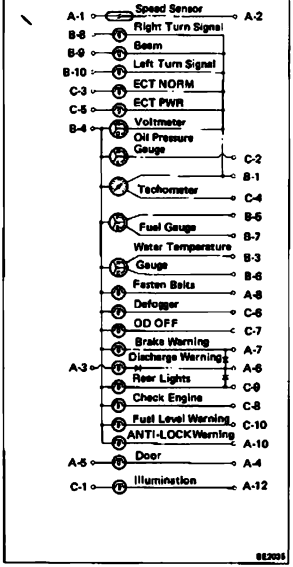
INSTRUMENTS, GAUGES AND WARNING LIGHTS

Troubleshooting

Problem	Possible cause	Remedy	Page
Tachometer does not work	"GAUGE" fuse blown	Replace fuse and check for short	BE-4
	Tachometer faulty	Check tachometer	BE-32, 57
	Wiring or ground faulty	Repair as necessary	
Fuel gauge does not work	"GAUGE" fuse blown	Replace fuse and check for short	BE-4
	Fuel gauge faulty	Check gauge	BE-33, 58
	Sender gauge faulty	Check sender gauge	BE-34, 58
	Wiring or ground faulty	Repair as necessary	
Water temperature gauge does not work	"GAUGE" fuse blown	Replace fuse and check for short	BE-4
	Water temperature gauge faulty	Check gauge	BE-35, 58
	Sender gauge faulty	Check sender gauge	BE-35, 59
	Wiring or ground faulty	Repair as necessary	
Oil pressure gauge does not work	"GAUGE" fuse blown	Replace fuse and check for short	BE-4
	Oil pressure gauge faulty	Check gauge	BE-36
	Sender gauge faulty	Check sender gauge	BE-36
	Wiring or ground faulty	Repair as necessary	
Low oil pressure light does not light	"GAUGE" fuse blown	Replace fuse and check for short	BE-4
	Bulb burned out	Replace bulb	BE-59
	Oil pressure switch faulty	Check switch	BE-59
	Wiring or ground faulty	Repair as necessary	
Brake warning light and indicator light does not light	"GAUGE" fuse blown	Replace fuse and check for short	BE-4
	Bulb burned out	Replace bulb	
	Brake fluid level warning switch faulty	Check switch	BE-36, 60
	Parking brake switch faulty	Check switch	BE-37, 60
	Wiring or ground faulty	Repair as necessary	

Combination Meter and Gauge





COMBINATION METER CIRCUIT

No.		Wiring connector side
A	1	TCCS ECU, Cruise Control ECU and ECT ECU
	2	Ground
	3	IGN Fuse
	4	Door Courtesy Switch
	5	DOME Fuse
	6	CHARGE Fuse
	7	Parking Brake Switch and Brake Fluid Level Warning Switch
	8	Seat Belt Warning Relay
	10	A.B.S. Computer
	12	Light Control Rheostat
B	1	Ground
	3	Water Temperature Gauge
	4	GAUGE Fuse
	5	Ground
	6	Ground
	7	Fuel Sender Gauge
	8	Turn Signal Switch
	9	Headlight Dimmer Switch
	10	Turn Signal Switch
C	1	TAIL Fuse
	2	Oil Pressure Sender Gauge
	3	ECT Select Switch NORM
	4	IIA or Ignition Coil
	5	ECT Select Switch PWR
	6	Rear Window Defogger Switch
	7	OD Main Switch
	8	TCCS ECU
	9	Light Failure Sensor
	10	Fuel Sender Gauge

Speedometer

ON-VEHICLE INSPECTION OF SPEEDOMETER

(a) Using a speedometer tester, inspect the speedometer for allowable indication error and check the operation of the odometer.

NOTE: Tire wear and tire over or under inflation will increase the indication error.

Standard indication (km/h)	Allowable range (km/h)
20	18 – 23
40	40 – 44
60	60 – 64.5
80	80 – 85
100	100 – 105
120	120 – 125.5
140	140 – 146
160	160 – 167

Standard indication (mph)	Allowable range
20	20 – 23
40	40 – 43
60	60 – 64
80	83 – 84.5
100	100 – 105
120	120 – 125.5

If error is excessive, replace the speedometer.

(b) Check the speedometer for pointer vibration and abnormal noises.

NOTE: Pointer vibration can be caused by a loose speedometer cable.

Tachometer

ON-VEHICLE INSPECTION OF TACHOMETER

(a) Connect a tune-up test tachometer, and start the engine.

CAUTION:

- **Reversing the connection of the tachometer will damage the transistors and diodes inside.**
- **When removing or installing the tachometer, be careful not to drop or subject it to heavy shocks.**

(b) Compare the tester and tachometer indications.

Temp. and volts \ rpm		700	3,000	5,000	7,000
25°C DC 13.5V	3S-GE	+20 −120	±200	±200	±300
	3S-FE	+20 −120	±200	±200	±300

If error is excessive, replace the tachometer.

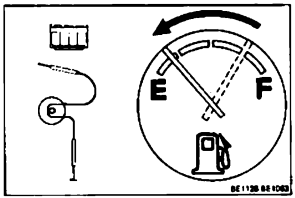
Voltmeter

INSPECTION OF VOLTMETER

INSPECT VOLTMETER

Compare the tester and voltmeter indications.

If error is excessive, replace the voltmeter.

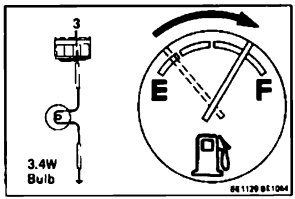


Fuel Gauge

INSPECTION OF FUEL GAUGE

1. INSPECT RECEIVER GAUGE OPERATION

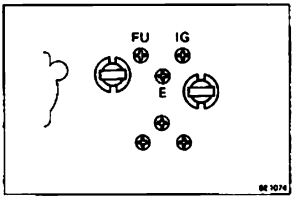
(a) Disconnect the connector from the fuel sender gauge. Turn the ignition switch on. Check that the bulb lights and that the receiver gauge needle moves to the empty position.



(b) Connect a 3.4W bulb between terminal 3 and body ground. Check that the bulb lights and that the receiver gauge needle operates.

NOTE: Because of the silicon oil in the gauge, it will take about 90 seconds for the needle to stabilize.

If indications are not correct, remove and test the receiver gauge.

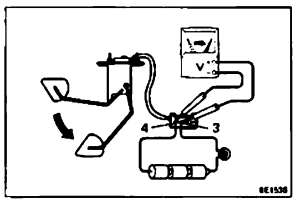


2. MEASURE RECEIVER GAUGE RESISTANCE BETWEEN TERMINALS

Measure the resistance between terminals.

Between terminals	Resistance (Ω)
IG – FU	Approx. 101.9
FU – E	Approx. 101.3
IG – E	Approx. 203.2

If each resistance value is not as shown in the table above, replace the receiver gauge.

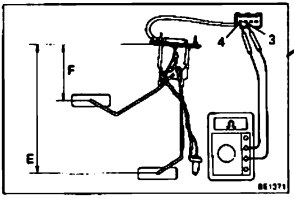


3. INSPECT SENDER GAUGE OPERATION

(a) Connect a series of three 1.5V dry cell batterys.

(b) Connect the positive (+) lead from the dry cell batterys to terminal 3 through a 3.4W test bulb and the negative (–) lead to terminal 4.

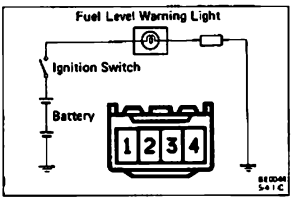
(c) Check that the voltage rises between terminals 3 and 4 as the float is moved from the top to bottom position.



(d) Measure the resistance between terminals 3 and 4 for each float position.

Float position	mm (in.)	Resistance (Ω)
F	81 ± 4 (3.19 ± 0.16)	4 ± 1
E	186 ± 4 (7.32 ± 0.16)	110 ± 7.7

If each resistance value is not as shown in the table above, replace the sender gauge.



Fuel Level Warning

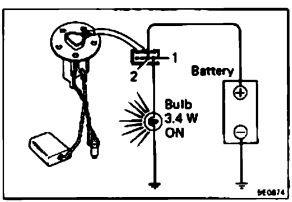
INSPECTION OF FUEL LEVEL WARNING

1. INSPECT WARNING LIGHT OPERATION

(a) Disconnect the connector from the fuel level warning switch. Connect the terminal 2 of wire harness side connector and body ground.

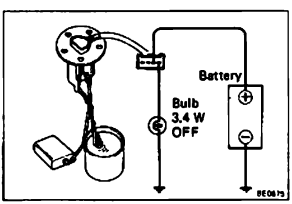
(b) Turn the ignition switch. Check that the bulb lights.

If operation is not correct, remove and test the bulb.



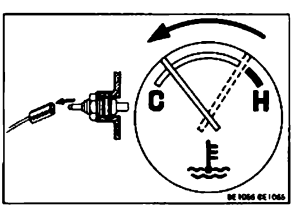
2. INSPECT LEVEL WARNING SWITCH OPERATION

(a) Apply battery voltage between terminals 1 and 2 through a 3.4W bulb. Check that the bulb lights.



(b) Submerge the switch in gasoline. Check that the bulb goes out.

If operation is not correct, replace the sender gauge.

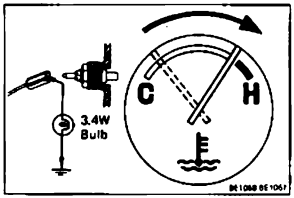


Water Temperature Gauge

INSPECTION OF WATER TEMPERATURE GAUGE

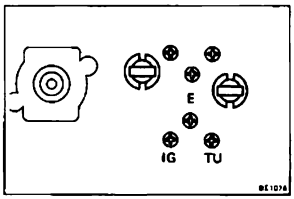
1. INSPECT RECEIVER GAUGE OPERATION

(a) Disconnect the connector from the sender gauge. Turn the ignition switch on. Check that the receiver gauge needle moves to the cold position.



(b) Ground the terminal through a 3.4W bulb as shown. Turn the ignition switch on. Check that the bulb lights and that the receiver gauge needle operates.

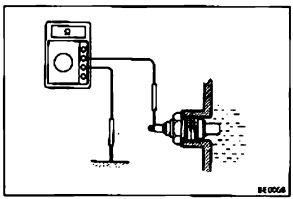
If indications are not correct, remove and test the receiver gauge.



2. MEASURE RECEIVER GAUGE RESISTANCE BETWEEN TERMINALS

Measure the resistance between terminals.
If each resistance value is not as shown in the table below, replace the receiver gauge.

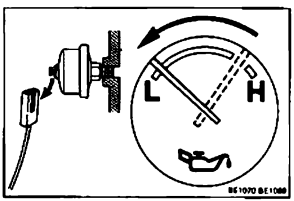
Between terminals	Resistance (Ω)
IG – TU	Approx. 56
TU – E	Approx. 201.8
IG – E	Approx. 145.8



3. MEASURE SENDER GAUGE RESISTANCE

Measure the resistance between terminal and body ground.
If each resistance value is not as shown in the table below, replace the sender gauge.

Water temperature °C (°F)	Resistance (Ω)	
	Yazaki	Nippondenso
50 (122)	–	$226^{+33.6}_{-30.6}$
80 (140)	152.7	–
115 (239)	$26.4^{+2.2}_{-2.6}$	$26.4^{+1.71}_{-2.21}$

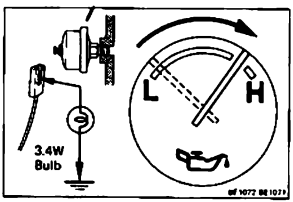


Oil Pressure Gauge

INSPECTION OF OIL PRESSURE GAUGE

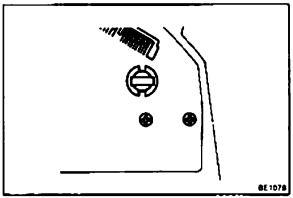
1. INSPECT RECEIVER GAUGE OPERATION

(a) Disconnect the connector from the sender gauge. Turn the ignition switch on. Check that the receiver gauge needle moves to the low position.



(b) Connect a 3.4W bulb between terminal and body ground. Check that the bulb lights and that the receiver gauge needle operates.

If indications are not correct, remove and test the receiver gauge.

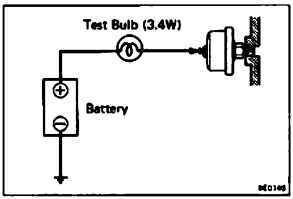


2. MEASURE RECEIVER GAUGE RESISTANCE BETWEEN TERMINALS

Measure the resistance between terminals.

Resistance: Approx. 42 Ω

If resistance value is not correct, replace the receiver gauge.

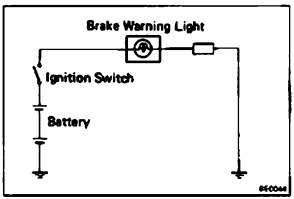


3. INSPECT SENDER GAUGE OPERATION

(a) Disconnect the connector from the sender gauge.

(b) Connect a 12V battery to the sender gauge terminal in series with a 3.4W bulb. Check that the bulb does not light when the engine is stopped, and flashes when the engine is running.
The number of flashes should vary with engine speed.

If operation is not correct, replace the sender gauge.



Brake Warning

INSPECTION OF BRAKE WARNING

1. INSPECT WARNING LIGHT OPERATION

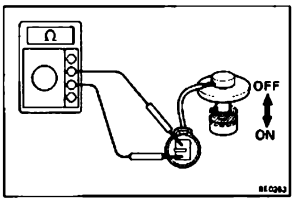
(a) Disconnect the connectors from the level warning switch and parking brake switch.

(b) Connect the terminals on the wire harness side of the level warning switch connector.

(c) Remove the CHARGE fuse and turn the ignition switch ON.

Check that the warning light lights.

If the warning light does not light, test the bulb.

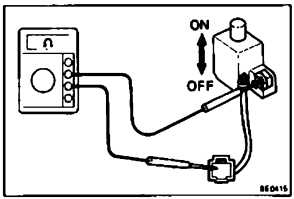


2. INSPECT LEVEL WARNING SWITCH OPERATION

(a) Check that there is no continuity between terminals with the switch OFF (float up).

(b) Check that there is continuity between terminals with the switch ON (float down).

If operation is not as specified, replace the switch.



3. INSPECT PARKING BRAKE SWITCH OPERATION

(a) Check that there is continuity between the terminal and switch set nut with the switch pin released (parking brake lever pulled up).

(b) Check that there is no continuity between the terminal and switch set nut with the switch pin pushed in (parking brake lever released).

If operation is not as specified, replace the switch.

REAR WINDOW DEFOGGER

Troubleshooting

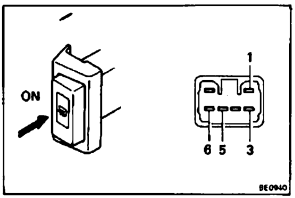
Problem	Possible cause	Remedy	Page
Rear window defogger does not work	Circuit breaker OFF	Reset breaker and check for short	BE-4
	GAUGE fuse blown	Replace fuse and check for short	BE-4
	Defogger switch faulty	Check switch	BE-37
	Defogger relay faulty	Check relay	BE-37
	Defogger wire broken	Check wires	BE-38
	Wiring and ground faulty	Repair as necessary	

Rear Window Defogger Switch

INSPECTION OF DEFOGGER SWITCH (w/o Timer)

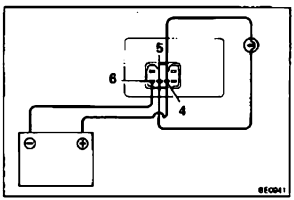
INSPECT SWITCH CONTINUITY

Inspect the switch continuity between terminals.



Switch position \ Terminal	5	6	1	3
OFF (Free)			○	○
ON (Lock)	○	○	○	○

If continuity is not as specified, replace the switch or bulb.



(w/ Timer)

INSPECT SWITCH OPERATION

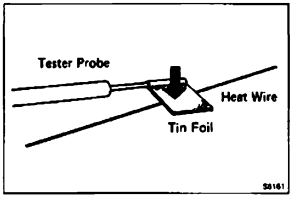
(a) Connect the positive (+) lead from the battery to terminal 4 and connect the negative (–) lead to terminal 6. Connect terminals 4 and 5 through a 3.4W test bulb.

(b) Push the defogger switch ON. Check that the bulb lights for 12 to 18 minutes, then the bulb goes out.

If operation is not as specified, replace the switch.

Rear Window Defogger Relay

(See Taillight Control Relay on page BE-18)



Rear Window Defogger Wires

CAUTION:

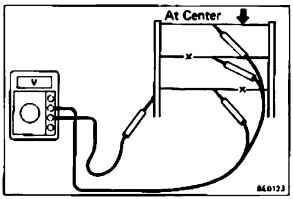
- When cleaning the glass, use a soft, dry cloth, and wipe the glass in the direction of the wire. Take care not to damage the wires.
- Do not use detergents or glass cleaners with abrasive ingredients.
- When measuring voltage, wind a piece of tin foil around the tip of the negative probe and press the foil against the wire with your finger as shown.

INSPECTION OF REAR WINDOW DEFOGGER WIRES

1. INSPECT FOR WIRE BREAKAGE

(a) Turn the ignition switch to ON.

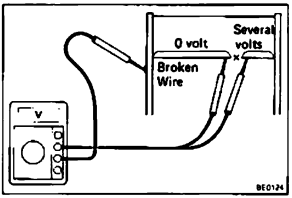
(b) Turn the defogger switch to ON.



(c) Inspect the voltage at the center of each heat wire as shown.

Voltage	Criteria
Approx. 5V	Okay (No break in wire)
Approx. 10V or 0V	Broken wire

NOTE: If there are 10V, the wire is broken between the center of the wire and positive (+) end. If there is no voltage, the wire is broken between the center of the wire and ground.



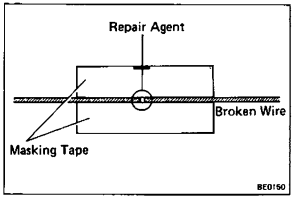
2. INSPECT FOR WIRE BREAKAGE POINT

(a) Place the voltmeter positive (+) lead against the defogger positive (+) terminal.

(b) Place the voltmeter negative (–) lead with the foil strip against the heat wire at the positive (+) terminal end and slide it toward the negative (–) terminal end.

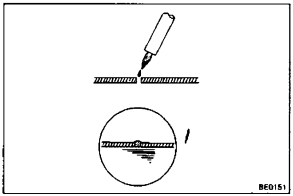
(c) The point where the voltmeter deflects from zero to several volts is the place where the heat wire is broken.

NOTE: If the heat wire is not broken, the voltmeter will indicate 0V at the positive (+) end of the heat wire but gradually increase to about 12V as the meter probe is moved to the other end.



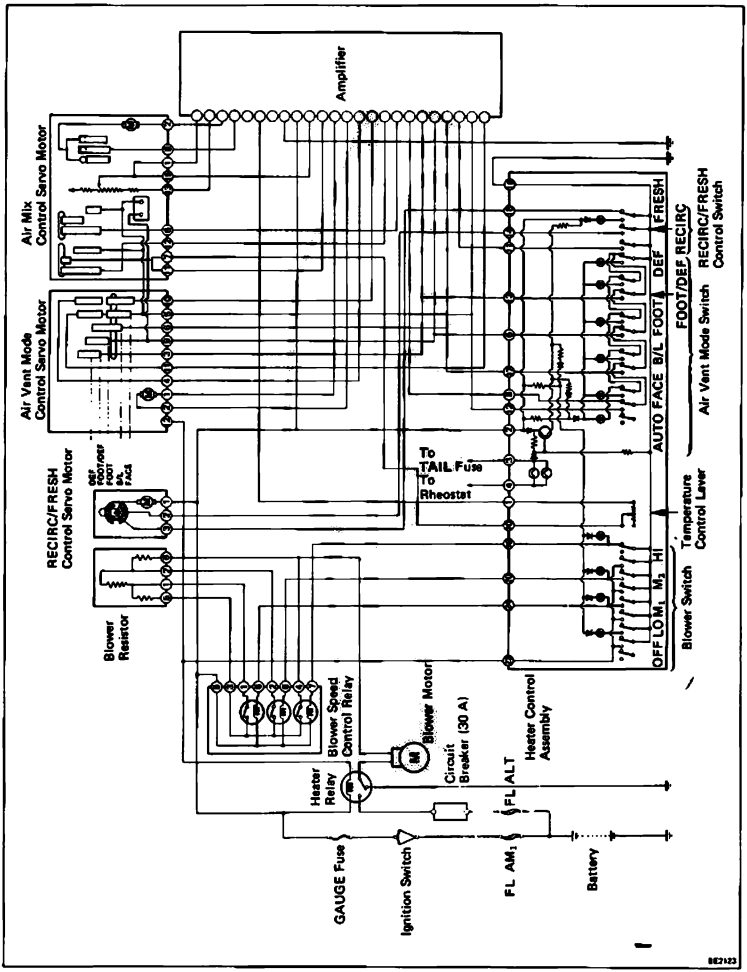
REPAIR OF REAR WINDOW DEFOGGER WIRES

1. CLEAN BROKEN WIRE TIPS WITH CLEANER
2. PLACE MASKING TAPE ALONG BOTH SIDES OF WIRE TO BE REPAIRED



3. REPAIR DEFOGGER WIRES
   (a) Thoroughly mix the repair agent (Dupont paste No. 4817).
   (b) Using a fine tip brush, apply a small amount to the wire.
   (c) After a couple of minutes, remove the masking tape.
   (d) Allow to stand at least 24 hours.

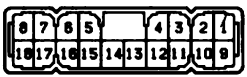
HEATER
Wiring Diagram (Push Type)



Connectors

Heater Control Assembly

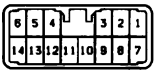
Connector "A"



Connector "B"

Amplifier

Connector "A"

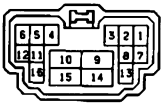


Air Vent Mode Control Servo Motor

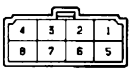
Connector "B"

RECIRC/FRESH Control Servo Motor

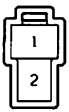
Air Mix Control Servo Motor



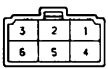
Blower Speed Control Relay



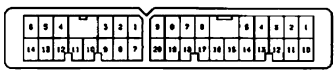
Blower Motor



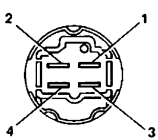
Blower Resistor



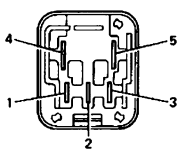
Light Control Switch



Taillight Control Relay



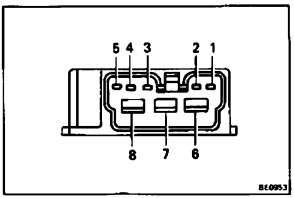
Heater Relay



S-1B2-A S-14 2-B S-1B2-A
S-B-2 S-13-2 GA-3-2
SH-16-2 M-B-2 H-2-2
H-6-2 V-34-2
BE0005 BE1013

Troubleshooting

Problem	Possible cause	Remedy	Page	
			Push	Lever
Blower does not work when fan switch is on	Heater circuit breaker OFF	Reset breaker and check for short	BE-3	BE-3
	GAUGE fuse blown	Replace fuse and check for short	BE-4	BE-4
	Heater relay faulty	Check relay	BE-43	BE-43
	Blower speed control relay faulty	Check control relay	BE-45	
	Heater blower switch faulty	Check switch	BE-45	BE-42
	Heater blower resistor faulty	Check resistor	BE-43	BE-43
	Heater blower motor faulty	Check motor		
	Wiring or ground faulty	Repair as necessary		
Incorrect temperature output	Control cables broken or binding	Check cables		BE-49
	Servo motor faulty	Check servo motor	BE-47	
	Heater hoses leaking or clogged	Replace hoses		
	Water valve faulty	Replace water valve		
	Air dampers broken	Repair air dampers		
	Air ducts clogged	Repair air ducts		
	Heater radiator leaking or clogged	Repair heater radiator		
	Heater control unit faulty	Repair control unit		



Heater Blower Switch (Lever Type)

INSPECTION OF HEATER BLOWER SWITCH

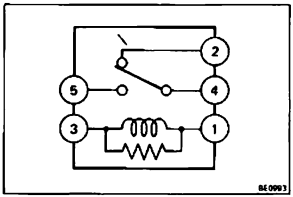
INSPECT SWITCH CONTINUITY

Inspect the heater blower switch continuity.

Switch position \ Terminal	6	5	1	2	8	*3	*4
OFF	○					○	○
LO	○	○				○	○
■	○	○	○			○	○
■	○	○		○		○	○
HI	○	○			○	○	○

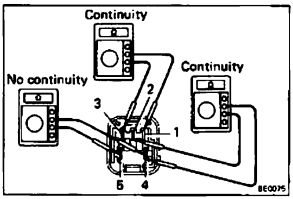
*For illumination light

If continuity is not as specified, replace the switch.



Heater Relay

INSPECTION OF HEATER RELAY



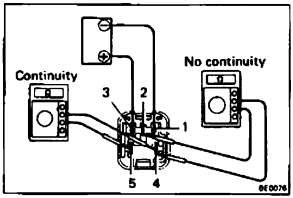
1. INSPECT RELAY CONTINUITY

   (a) Check that there is continuity between terminals 1 and 3.

   (b) Check that there is continuity between terminals 2 and 4.

   (c) Check that there is no continuity between terminals 4 and 5.

   If continuity is not as specified, replace the relay.



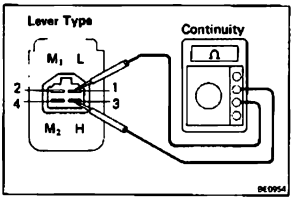
2. INSPECT RELAY OPERATION

   (a) Apply battery voltage across terminals 1 and 3.

   (b) Check that there is continuity between terminals 4 and 5.

   (c) Check that there is no continuity between terminals 2 and 4.

   If operation is not as specified, replace the relay.



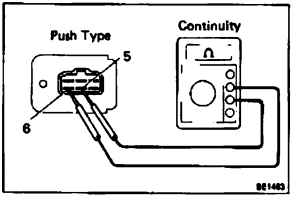
Heater Blower Resistor

INSPECTION OF HEATER BLOWER RESISTOR

INSPECT RESISTOR CONTINUITY

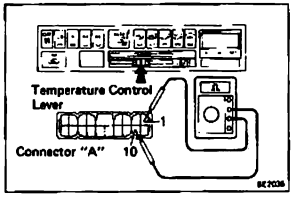
(Lever type)

Check that there is continuity between terminals 1 and 3.
If there is no continuity, replace the resistor.



(Push type)

Check that there is continuity between terminals 5 and 6.
If there is no continuity, replace the resistor.



Heater Control Assembly (Push Type)

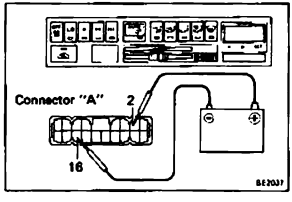
INSPECTION OF HEATER CONTROL ASSEMBLY

1. MEASURE TEMPERATURE CONTROL LEVER RESISTANCE

Measure the resistance between terminals A1 and A10 for each lever position.

Lever position	Resistance (kΩ)
Max. Cool	∞
Middle	1.5 ± 0.2
Max. Warm	0

If each resistance value is not as shown in the table above, replace the heater control assembly.



2. INSPECT INDICATOR LIGHT OPERATION

(a) Connect the positive (+) battery lead to terminal A2 and the negative (–) battery lead to terminal A16.

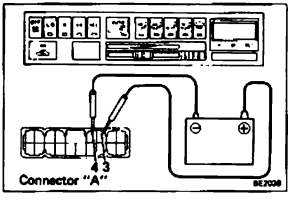
(b) With the blower button pushed in, check that the indicator light is lit. (The indicator light will not go on when the blower button is in the OFF position.)

(c) With the RECIRC/FRESH control button pushed in, check that the (RECIRC) indicator light is lit.

(d) Next, press the RECIRC/FRESH control button in again (FRESH) and check that the indicator light goes off.

(e) Press each of the mode buttons in and check that their indicator lights go on.

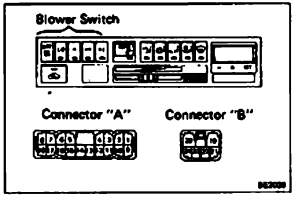
If operation is not as specified, replace the heater control.



3. INSPECT ILLUMINATION OPERATION

Check that the illumination lights come on when the positive (+) battery lead is connected to terminal A3, and the negative (–) battery lead is connected to terminal A4.

If operation is not as specified, inspect the bulbs.

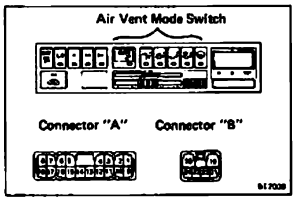


4. **INSPECT BLOWER SWITCH CONTINUITY**

Inspect the blower switch continuity between terminals.

Switch position \ Terminal	A16	B23	B24	B20	B19
OFF					
LO	○	○			
■	○	○	○		
■■	○	○		○	
HI	○	○			○

If continuity is not as specified, replace the heater control.

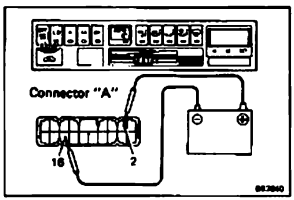


5. **INSPECT AIR VENT MODE SWITCH CONTINUITY**

Inspect the mode switch continuity between terminals.

Switch position \ Terminal	A16	A5	A12	A17	A6	A13	A11
AUTO	○	○					
FACE	○		○				
BI-LEVEL	○			○			
FOOT	○				○		
FOOT/DEF	○					○	
DEF	○						○

If continuity is not as specified, replace the heater control.



6. **INSPECT RECIRC/FRESH CONTROL SWITCH OPERATION**

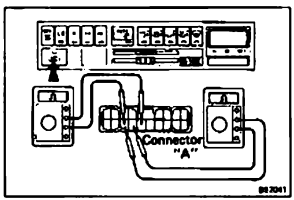
(a) With the positive (+) battery lead connected to terminal A2, and the negative (–) battery lead connected to terminal A16, check that the RECIRC indicator light comes on.

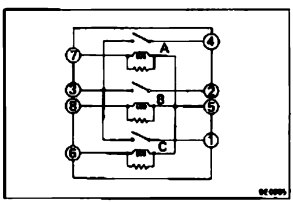
(b) Remove the battery leads.

(c) Check that there is continuity between terminals A15 and A16, and no continuity between terminals A14 and A16 with the control switch is FRESH.

(d) Check that there is continuity between terminals A14 and A16, and no continuity between terminals A15 and A16 with the control switch is RECIRC.

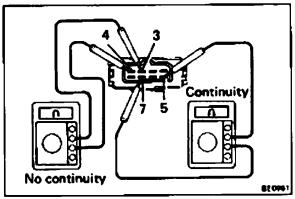
If operation is not as specified, replace the heater control.





Blower Speed Control Relay (Push Type)

INSPECTION OF BLOWER SPEED CONTROL RELAY

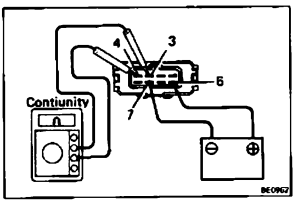


1. **INSPECT RELAY "A" CONTINUITY**

(a) Check that there is continuity between terminals 5 and 7.

(b) Check that there is no continuity between terminals 3 and 4.

If continuity is not as specified, replace the relay.

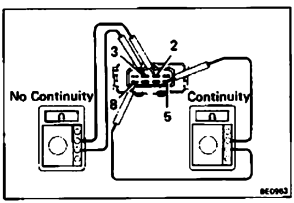


2. **INSPECT RELAY "A" OPERATION**

(a) Apply battery voltage across terminals 5 and 7.

(b) Check that there is continuity between terminals 3 and 4.

If operation is not as specified, replace the relay.

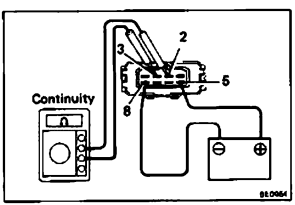


3. **INSPECT RELAY "B" CONTINUITY**

(a) Check that there is continuity between terminals 5 and 8.

(b) Check that there is no continuity between terminals 2 and 3.

If continuity is not as specified, replace the relay.

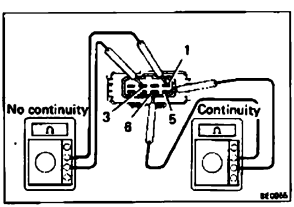


4. **INSPECT RELAY "B" OPERATION**

(a) Apply battery voltage across terminals 5 and 8.

(b) Check that there is continuity between terminals 2 and 3.

If operation is not as specified, replace the relay.

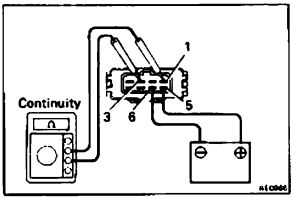


5. **INSPECT RELAY "C" CONTINUITY**

(a) Check that there is continuity between terminals 5 and 6.

(b) Check that there is no continuity between terminals 1 and 3.

If continuity is not as specified, replace the relay.

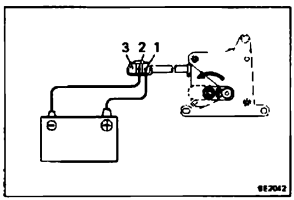


6. INSPECT RELAY "C" OPERATION

(a) Apply battery voltage across terminals 5 and 6.

(b) Check that there is continuity between terminals 1 and 3.

If operation is not as specified, replace the relay.

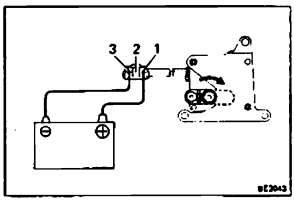


RECIRC/FRESH Control Servo Motor (Push Type)

INSPECTION OF SERVO MOTOR

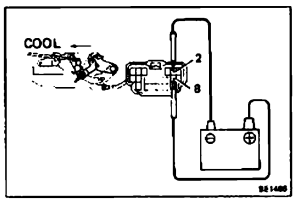
INSPECT SERVO MOTOR OPERATION

(a) With the positive (+) lead from the battery connected to terminal 1 and negative (–) lead connected to terminal 2, check that the lever moves smoothly from FRESH to RECIRC.



(b) With the positive (+) lead from the battery connected to terminal 1 and negative (–) lead connected to terminal 3, check that the lever moves smoothly from RECIRC to FRESH.

If operation is not as specified, replace the servo motor.

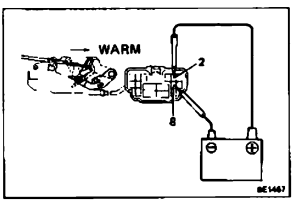


Air Mix Control Servo Motor (Push Type)

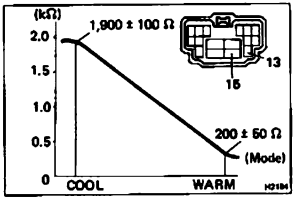
INSPECTION OF AIR MIX CONTROL SERVO MOTOR

INSPECT SERVO MOTOR OPERATION

(a) With the positive (+) battery lead connected to terminal 8, and the negative (–) battery lead connected to terminal 2, check that the lever moves smoothly from WARM to COOL.



(b) With the positive (+) battery lead connected to terminal 2, and the negative (–) battery lead connected to terminal 8, check that the lever moves smoothly from COOL to WARM.

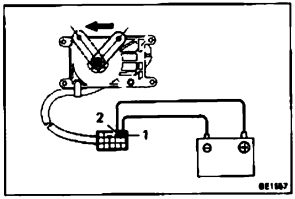


(c) While operating the servo motor from either points (a) or (b), measure the resistance values of terminals 13 and 15.

Position	Resistance (Ω)
COOL	1,900 ± 100
WARM	200 ± 50

The resistance values from COOL to WARM will successively decrease.

If operation is not as specified, replace the servo motor.

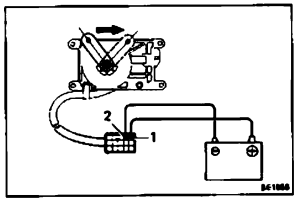


Air Vent Mode Control Servo Motor (Push Type)

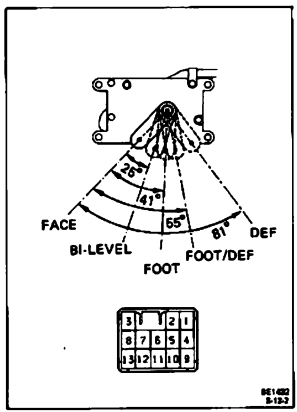
INSPECTION OF SERVO MOTOR

INSPECT SERVO MOTOR OPERATION

(a) Connect the positive (+) lead from the battery to terminal 2 and negative (–) lead to terminal 1, check that the lever moves smoothly from FACE to DEF.



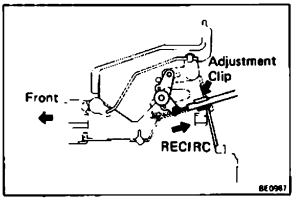
(b) Connect the positive (+) lead from the battery to terminal 1 and negative (–) lead to terminal 2, check that the lever moves smoothly from DEF to FACE.



(c) Check for continuity between terminal as shown below.

Lever position \ Terminal	3	5	4	6	10	11	9
FACE							
BI-LEVEL		○	⊣⊢		○		
FOOT		○	⊣⊢	○	○		
FOOT/DEF		○	⊣⊢	○	○		⊣⊢ ○
DEF	○	⊣⊢	○	○		○	⊣⊢ ○

If operation is not as specified, replace the motor.

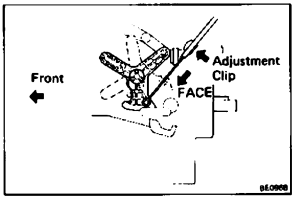


Heater Control (Lever Type)

ADJUSTMENT OF HEAT CONTROL

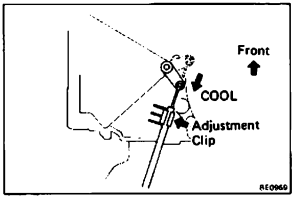
1. **SET AIR INLET DAMPER**

   Set the air inlet damper and control lever to "RECIRC."



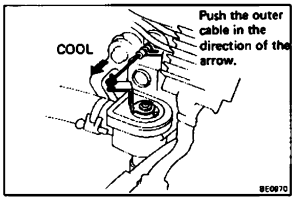
2. **SET MODE SELECTOR DAMPER**

   Set the mode selector damper and control lever to "FACE."



3. **SET AIR MIX DAMPER**

   Set the air mix damper and control lever to "COOL."



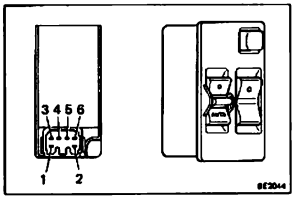
4. **SET WATER VALVE**

   Set the water valve and control lever to "COOL."

   NOTE: Place the water valve lever on "COOL" and while pushing the outer cable in the "COOL" direction, clamp the outer cable to the water valve bracket.

5. **TEST CONTROL CABLE OPERATION**

   Move the control levers right and left and check for stiffness or binding through the full range of the levers.



POWER WINDOW

Power Window Master Switch

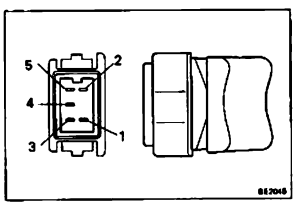
INSPECTION OF POWER WINDOW MASTER SWITCH

INSPECT SWITCH CONTINUITY

Inspect the switch continuity between terminals.

Operation window		Driver's side				Passenger's side			
Switch position \ Terminal		1	2	6	5	1	3	4	5
Window Unlock	UP	○	○	○	○	○	○	○	○
	OFF		○	○	○		○	○	○
	DOWN	○			○	○		○	
Window Lock	UP	○	○	○	○	○	○		
	OFF		○	○	○		○	○	
	DOWN	○			○	○		○	

If continuity is not as specified, replace the switch.



Power Window Door Switch

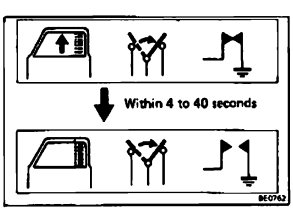
INSPECTION OF POWER WINDOW DOOR SWITCH

INSPECT SWITCH CONTINUITY

Inspect the switch continuity between terminals.

Switch position \ Terminal	5	1	2	3	4
UP	○	○		○	○
OFF		○	○	○	○
DOWN	○		○		○

If continuity is not as specified, replace the switch.

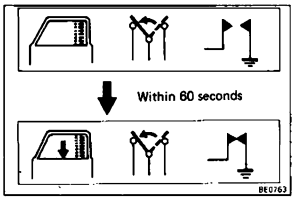


Power Window Motor

INSPECTION OF POWER WINDOW MOTOR

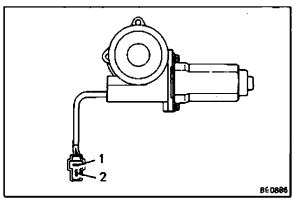
1. INSPECT CIRCUIT BREAKER OPERATION

   (a) With the window in the full closed position, hold the power window switch in "UP" position and check that there is a circuit breaker operation noise within 4 to 40 seconds.



(b) With the window in the full closed position, hold the switch in "DOWN" and check that the window begins to descend within 60 seconds.

If operation is not as specified, replace the motor.

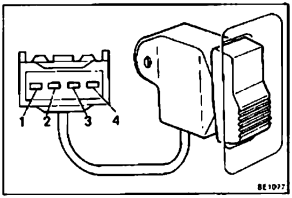


2. INSPECT MOTOR OPERATION

(a) Connect the positive (+) lead from the battery to terminal 1 and negative (–) lead to terminal 2, and check that the motor turns.

(b) Connect the positive (+) lead from the battery to terminal 2 and negative (–) lead to terminal 1, and check that the motor turns the opposite way.

If operation is not as specified, replace the motor.



DOOR LOCK CONTROL SYSTEM

Door Lock Control Switch

INSPECTION OF DOOR LOCK CONTROL SWITCH

INSPECT SWITCH CONTINUITY

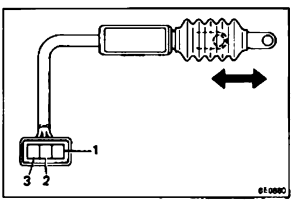
Inspect the switch continuity between terminals.

Switch position \ Terminal	3	4	1
LOCK	○		○
OFF			
UNLOCK		○	○

If continuity is not as specified, replace the switch.

Unlock Warning Switch

(See page BE-14)



Door Lock Key Switch

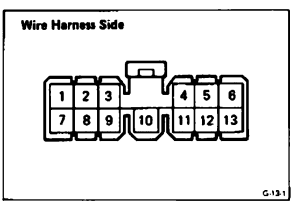
INSPECTION OF DOOR LOCK KEY SWITCH

INSPECT CONTINUITY OF DOOR LOCK KEY SWITCH

Inspect the switch continuity between terminals.

Switch position \ Terminal	3	2	1
LOCK	○	○	
UNLOCK		○	○

If continuity is not as specified, replace the switch.



Door Lock Control Relay

INSPECTION OF DOOR LOCK CONTROL RELAY

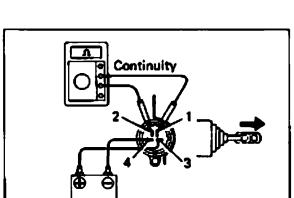
INSPECT DOOR LOCK CONTROL RELAY CIRCUIT

(a) Disconnect the relay connector and inspect the connector on the wire harness side as shown in the following chart.

Check For	Tester Connection	Condition	Specified Value
Continuity	1 – Body ground	LH door opened	Continuity
		LH door closed	No continuity
Voltage	2 – Body ground	—	Battery voltage
Continuity	6 – Body ground	Turn the following switches, one by one to lock • Control switch • LH door key switch • RH door key switch	Continuity
		Turn the following switches, one by one to except lock • Control switch • LH door key switch • RH door key switch	No continuity
	7 – Body ground	RH door opened	Continuity
		RH door closed	No continuity
	9 – Body ground	LH door lock switch to unlock	Continuity
		LH door lock switch to lock	No continuity
	10 – Body ground	—	Continuity
	11 – Body ground	RH door lock switch to unlock	Continuity
		RH door lock switch to lock	No continuity
	12 – Body ground	Set unlock warning switch ON (Insert ignition key)	Continuity
		Set unlock warning switch OFF(Remove ignition key)	No continuity
	13 – Body ground	Turn the following switches, one by one to unlock • Control switch • LH door key switch • RH door key switch	Continuity
		Turn the following switches, one by one to except unlock • Control switch • LH door key switch • RH door key switch	No continuity

(b) Connect the positive (+) lead from the battery to terminal 3 and the negative (–) lead to terminal 4, check that the solenoids operate unlock direction. Then, reverse the polarity, check that the solenoids operate lock direction. If any of the solenoids does not operate, remove and test the solenoid.

If circuit operation is correct, replace the relay.



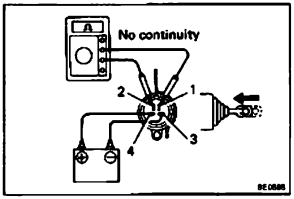
Door Lock Solenoid

INSPECTION OF DOOR LOCK SOLENOID

INSPECT SOLENOID OPERATION

(a) Connect the positive (+) lead from the battery to terminal 3. Connect the negative (–) lead to terminal 4. Check that the solenoid operates in the unlock direction.

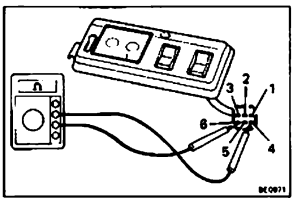
(b) Check that there is continuity between terminals 1 and 2.



(c) Connect the positive (+) lead from the battery to terminal 4. Connect the negative (−) lead to terminal 3. Check that the solenoid operates in the lock direction.

(d) Check that there is no continuity between terminals 1 and 2.

If operation is not as specified, replace the solenoid.



SUN ROOF

Sun Roof Switch

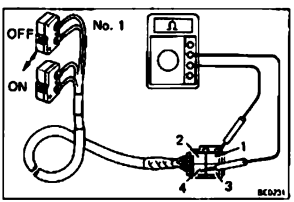
INSPECTION OF SUN ROOF SWITCH

INSPECT SWITCH CONTINUITY

Inspect the switch continuity between terminals.

Switch position		Terminal (Wire color) 1 (GR)	2 (R-W)	3 (G-W)	4 (W-B)	5 (R-Y)	6 (G-Y)
Slide switch	OPEN			○	○		
	CLOSE				○		○
Tilt switch	DOWN		○		○		
	UP				○	○	
Map light	ON	○			○		
	OFF						

If continuity is not as specified, replace the switch.



Limit Switch

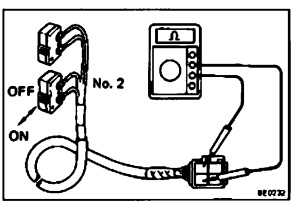
INSPECTION OF LIMIT SWITCH

1. INSPECT NO. 1 SWITCH CONTINUITY

(a) Check that there is continuity between terminals 1 and 4 when the No. 1 switch is ON.

(b) Check that there is no continuity between terminals 1 and 4 when the No. 1 switch is OFF.

If continuity is not as specified, replace the switch.

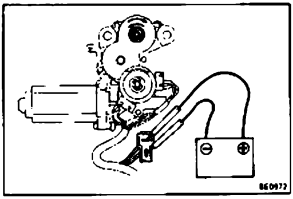


2. INSPECT NO. 2 SWITCH CONTINUITY

(a) Check that there is continuity between terminals 2 and 4 when the No. 2 switch is ON.

(b) Check that there is no continuity between terminals 2 and 4 when the No. 2 switch is OFF.

If continuity is not as specified, replace the switch.
(See page BO-51)



Sun Roof Motor

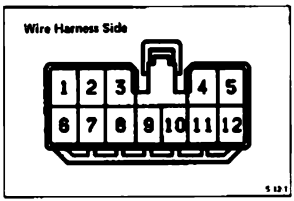
INSPECTION OF SUN ROOF MOTOR

INSPECT MOTOR OPERATION

(a) Connect the positive (+) lead from the battery to terminal 1 and the negative (–) lead to terminal 2 and check that the motor turns clockwise.

(b) Connect the positive (+) lead from the battery to terminal 2 and the negative (–) lead to terminal 1 and check that the motor turns counterclockwise.

If operation is not as specified, replace the motor.



Sun Roof Control Relay

INSPECTION OF SUN ROOF CONTROL RELAY

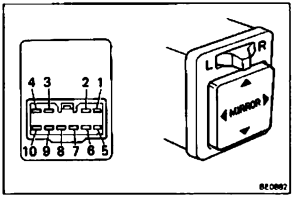
INSPECT RELAY VOLTAGE AND CONTINUITY

(a) Disconnect the relay connector and inspect the connector on the wire harness side as shown in the below.

Check for	Tester connection	Condition	Specified value
Continuity	2 – Body ground	Push sun roof switch to UP	Continuity
		Push sun roof switch to except UP	No continuity
	4 – Body ground	Limit switch No. 2 on	Continuity
		Limit switch No. 2 off	No continuity
Voltage	6 – Body ground	Turn ignition switch on	Battery voltage
		Turn ignition switch off	No voltage
Continuity	7 – Body ground	Push sun roof switch to CLOSE	Continuity
		Push sun roof switch to except CLOSE	No continuity
	8 – Body ground	Push sun roof switch to OPEN	Continuity
		Push sun roof switch to except OPEN	No continuity
	9 – Body ground	Push sun roof switch to DOWN	Continuity
		Push sun roof switch to except DOWN	No continuity
	10 – Body ground	Limit switch No. 1 on	Continuity
		Limit switch No. 1 off	No continuity
	12 – Body ground	—	Continuity

(b) Connect the positive (+) lead from the battery to terminal 1 and the negative (–) lead to terminal 5, check that the sun roof (motor) operates to close and tilt up. Then, reverse the polarity, check that the sun roof (motor) operates to tilt down and open. If motor dose not operate, remove and test the motor.

If circuit operation is correct, replace the relay.



REMOTE CONTROL MIRROR

Mirror Switch

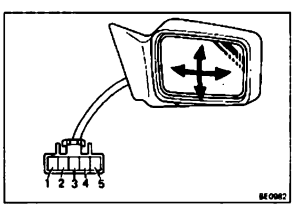
INSPECTION OF MIRROR SWITCH

INSPECT SWITCH CONTINUITY

Inspect the switch continuity between terminals.

Mirror	Left					Right			
Switch position \ Terminal	10	9	1	4	3	4	1	2	6
UP	○—○			○—○		○—○		○—○	
DOWN	○—○		○—○			○—○		○—○	
LEFT		○—○		○—○		○—○			
RIGHT		○—○	○—○			○—○			

If continuity is not as specified, replace the switch.



Remote Control Mirror

INSPECTION OF REMOTE CONTROL MIRROR

INSPECT MIRROR OPERATION

(a) Connect the positive (+) lead from the battery to terminal 3 and negative (–) lead to terminal 4, and check that the mirror moves downward.

Then, reverse the polarity, and check that the mirror revolution is reversed.

(b) Connect the positive (+) lead from the battery to terminal 3 and negative (–) lead to terminal 2, and check that the mirror moves to the right.

Then, reverse the polarity, and check that the mirror revolution is reversed.

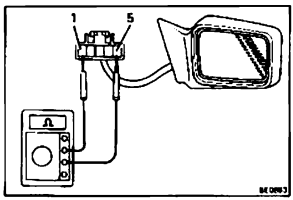
If operation is not as specified, replace the mirror.

MIRROR HEATER

Rear Window Defogger and Mirror Heater Switch

INSPECTION OF REAR WINDOW DEFOGGER SWITCH

(See page BE-37)



Mirror Heater

INSPECTION OF MIRROR HEATER

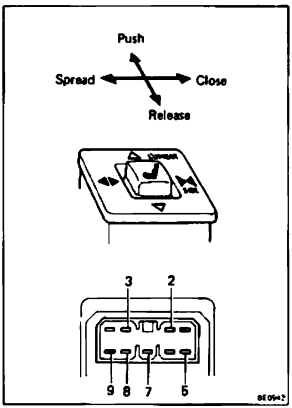
MEASURE MIRROR HEATER RESISTANCE

Measure the resistance between terminals 1 and 5.

Resistance: 5 – 30Ω

If resistance value is not correct, replace the mirror.

NOTE: The resistance value increases as the temperature rises.



POWER SEAT

Power Seat Switch

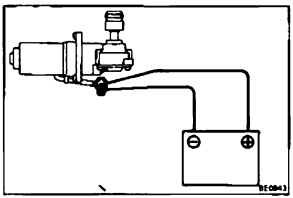
INSPECTION OF POWER SEAT SWITCH

INSPECT SWITCH CONTINUITY

Inspect the switch continuity between terminals.

Switch position \ Terminal		7	8	2	9	5	3
LUMBAR	Push	○		○			
			○		○		
	Off		○	○	○		
	Release	○			○		
			○	○			
SIDE	Spread	○				○	
			○				○
	Off		○			○	○
	Close	○					○
			○			○	

If continuity is not as specified, replace the switch.



Power Seat Motors

INSPECTION OF POWER SEAT MOTORS

INSPECT MOTOR OPERATION

(a) Apply battery voltage to both terminals of the connector and check that the motor operates.

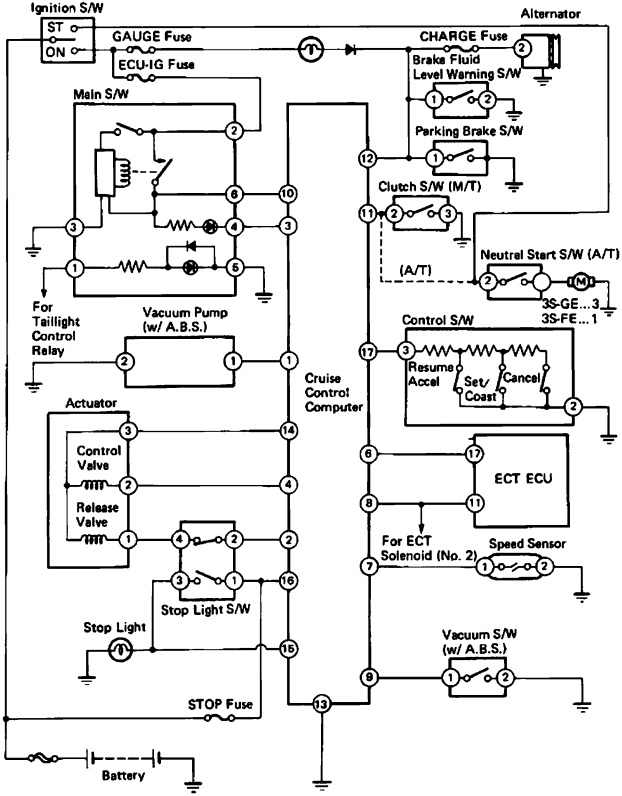
(b) Then, reverse the polarity, and check that the motor revolution is reversed.

(c) Similarly check the other motors.

If operation is not as specified, replace the motor.

CRUISE CONTROL SYSTEM

Wiring Diagram



Connectors

Cruise Control Computer

Main S/W

Control S/W

Parking Brake S/W

Neutral Start Switch

(3S-GE)

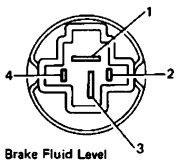
(3S-FE)

Actuator

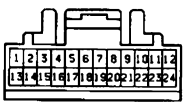
Clutch S/W

Speed Sensor

Stop Light Switch



ECT Computer
Wire Harness Side

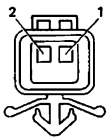


Alternator
Wire Harness Side

Brake Fluid Level
Warning Switch

Vacuum S/W
(w/ A.B.S.)

Vacuum Pump
(w/ A.B.S.)



5-1B-2-A, S-6-2, GA-3-1
H-1-2, BH-6-2-A, BH-4-2-A, BE2124
H-3-2, IS-2-2-B, BE0336
R-24-1, IA-3-1-C, IC-2-2
BE2047, BE2048

System Description

The system description is as follows:

When the ignition switch is turned on, the current is led from the battery to Terminal 2 of the Main switch.

1. **Main Switch Operation**

   When the CCS main s/w is turned on, the current flows through Terminal 2 → Terminal 3 of the CCS main s/w → body ground.
   And then, turn on (closes) the relay contact in the main s/w. As a result, current flows from Terminal 2 → Terminal 6 of the main s/w → So it is supplied to Terminal 10 of the CCS computer.
   Also, current flows from Terminal 2 → the indicator light → Terminal 4 of main switch s/w → Terminal 3 of CCS computer.
   Therefore, the main s/w remains on and continues to supply current to the CCS computer.

2. **Control Switch Operation**

   The control s/w controls the SET, COAST, RESUME, ACCEL and CANCEL functions.
   When the control s/w is turned to each position → Sends a signal (each voltage) to Terminal 3 of control switch → Terminal 17 of CCS computer.
   Then, the vehicle speed at the moment the S/W (SET) is released is registered in memory.

3. **Speed Control Operation**

   When the vehicle speed is set by the control s/w, the CCS computer sends a signal from Terminal 2 of CCS computer to Terminal 2 → Terminal 4 of stop light s/w → Terminal 1 of actuator (release valve side).
   At the same time, the CCS computer sends a signal from terminal 4 of the CCS computer to Terminal 2 of actuator (control valve side).
   Then, the actuator increases or decreases the throttle valve opening angle in accordance with the signal from the CCS computer.

4. **Cancel Switch Operation**

   The CCS is provided with several types of cancel s/w, such as the Control s/w (CANNCEL), the Stop Light s/w, the Parking Brake s/w, the Neutral Start s/w and the clutch s/w.

   (a) Speed Control s/w (CANCEL)
   When the Control s/w is turned to CANCEL → Sends a cancellation signal to the Terminal 3 of control s/w → Terminal 17 of CCS computer.

   (b) Parking Brake s/w
   When the parking brake lever is pulled, the Parking Brake s/w turned on → Sends a cancellation signal (earth voltage) to the Terminal 12 of the CCS computer.

   (c) Neutral Start s/w (A/T)
   When the shift lever is set to the N or P range, the Neutral Start s/w goes on → Sends a cancellation signal (earth voltage) to the Terminal 11 of CCS computer.

   (d) Clutch s/w
   When the clutch pedal is depressed, the Clutch s/w goes on → Sends a cancellation signal (earth voltage) to Terminal 11 of CCS computer.

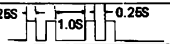
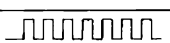
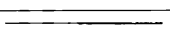
   (e) Stop Light s/w
   When the brake pedal is depressed, s/w A of the stop light s/w is turned off → the release valve (in actuator) is opened, and s/w B of the stop light s/w is turned on → Sends a cancelation signal to Terminal 16 of CCS computer.

Therefore, the operation of the CCS is canceled and the actuator is shut off due to the operation of these switches.

Diagnosis System

OUTPUT OF DIAGNOSTIC CODES

1. READ TYPE A CODE
   (a) Turn the ignition switch on.
   (b) Push the set/coast switch on, and keep it on.
   (c) Push the main switch on.
   (d) Push the set/coast switch off.
   (e) Meet the conditions listed below.
   (f) Read the diagnostic code on the main switch indicator.

No.	Conditions	Indication Code	Diagnosis
1	Set/coast switch on	ON / OFF 	Set/coast switch circuit is normal.
2	Resume/accel switch on	ON / OFF 	Resume/accel switch circuit is normal.
3	Vacuum switch on (w/ A.B.S. only)	ON / OFF 	Vacuum switch circuit is normal.
4	Each cancel switch on (Stop light switch, Parking brake switch, Clutch switch, Neutral start switch, Cancel switch)	ON / OFF	Each cancel switch circuit is normal.
5	Drive 40 km/h (25 mph) or over	ON / OFF 	Speed sensor circuit is normal.
6	Drive 30 km/h (19 mph) or below	ON / OFF 	Speed sensor circuit is normal.

BE0088

NOTE:
- Checking of No. 4 code is done with the jacked up and engine idling.
- If there is no indication code, perform diagnosis and inspection. (See page BE-64)

2. READ TYPE B CODE

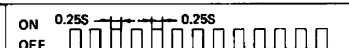
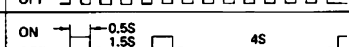
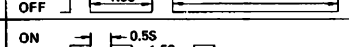
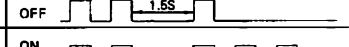
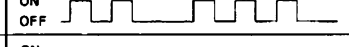
(a) If while driving with the cruise control on, the system is cancelled by a malfunction in either the actuator, speed sensor, or control switch circuit, the main switch indicator will blink 5 times.

(b) While driving at a speed of 16 km/h (10 mph) or less, press the SET/COAST switch three times in two seconds.

NOTE: In order to save the diagnostic code a malfunction has occured, always inspect with the ignition and main switches on.

Should the power be cut, the diagnostic code will be erased from the computer memory.

(c) Read the diagnostic code on the main switch indicator.

Indication Code		Diagnosis
		Normal.
11		Actuator circuit is abnormal.
21		Speed sensor signal circuit is abnormal.
23		Speed sensor signal circuit is abnormal. Actuator circuit is abnormal.
31		Resume/accel switch circuit is abnormal.

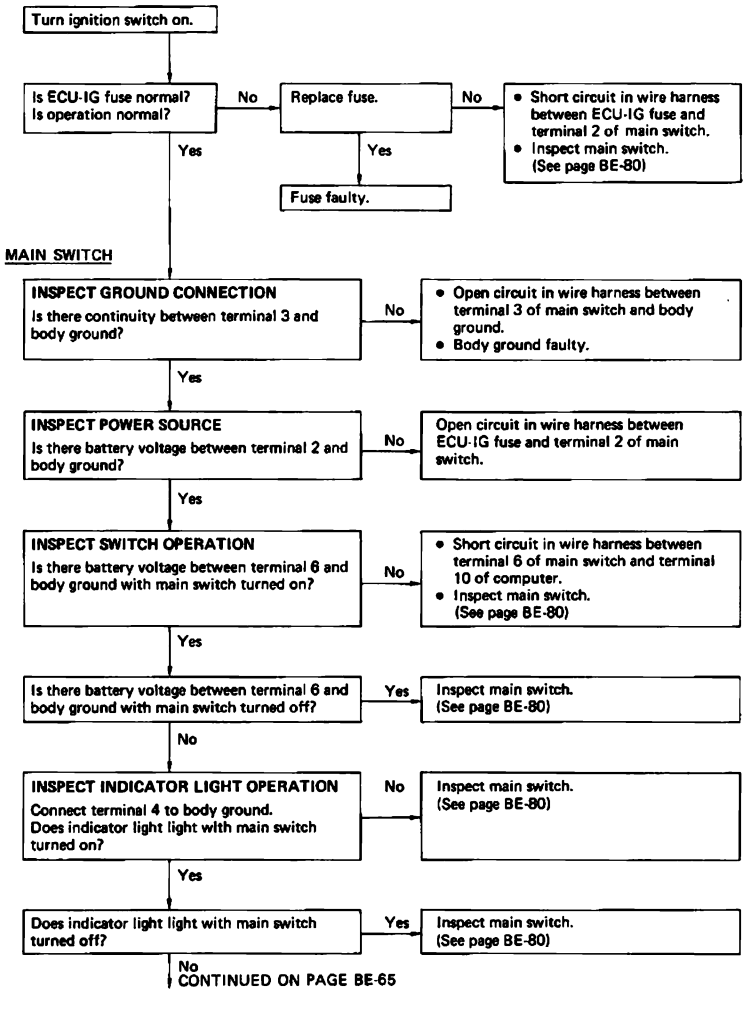
NOTE:

- Indication codes appear in order from No. 11.
- Indication is stopped when vehicle speed is over 16 km/h (10 mph) or main switch is turned off.
- If there is no indication code, perform diagnosis and inspection. (See page BE-64)

Troubleshooting

Problem	Inspection Item		No.
Cruise control does not operate.	(a) Inspect type A codes.	No. 1 NO No. 2 NO No. 3 NO No. 4 NO No. 5 NO No. 6 NO	B C K F to J E E
	(b) Inspect type B codes.	11 21 23 31	D E D, E C
	(c) All codes are normal.		A, D, E
Vehicle speed does not fluctuate when set switch pushed on.	Inspect No. 1 of type A code.	OK NO	D B
Vehicle speed does not decrease when coast switch pushed on.			
Vehicle speed does not accelerate when accel switch pushed on.	Inspect No. 2 of type A code.	OK NO	D C
Vehicle speed does not return to memorized speed when resume switch pushed on.			
Setting speed deviates on high side.	———	———	D, E
Setting speed deviates on low side.			
Return and acceleration response is sluggish. (w/ A.B.S. only)	Inspect No. 3 of type A code.	OK NO	D K
Setting speed does not fluctuate when set switch pushed on.	Inspect No. 4 of type A code.	OK NO	D F
Setting speed does not cancel when brake pedal depressed.	Inspect No. 4 of type A code.	OK NO	D G
Setting speed does not cancel when parking brake lever pulled.	Inspect No. 4 of type A code.	OK NO	D H
Setting speed does not cancel when clutch pedal depressed (M/T only).	Inspect No. 4 of type A code.	OK NO	D I
Setting speed does not cancel when shifted to "N" range (A/T only).	Inspect No. 4 of type A code.	OK NO	D J
Speed can be set below about 40 km/h (25 mph).	Inspect No. 5 of type A code. Inspect No. 6 of type A code.	OK NO	D E
Cruise control will not disengage even about 40 km/h (25 mph).			
A short period after the O/D cut, (Approx. within 14 seconds) the O/D will resume.	———	———	L

A INSPECTION OF POWER SOURCE CIRCUIT



CONTINUED ON PAGE BE-65

CONTINUED FROM PAGE BE-64

COMPUTER

Disconnect connector from computer and inspect connector on wire harness side as follows.

INSPECT GROUND CONNECTION
Is there continuity between terminal 13 and body ground?
No → • Open circuit in wire harness between terminal 13 and body ground.
• Body ground faulty.

Yes

INSPECT POWER SOURCE
Is there battery voltage between terminal 10 and body ground with main switch turned on?
No → Open circuit in wire harness between terminal 10 of computer and terminal 6 of main switch.

Yes

INSPECT INDICATOR LIGHT CIRCUIT
Connect terminal 3 to body ground.
Does indicator light light with main switch turned on?
No → Open circuit in wire harness between terminal 3 of computer and terminal 4 of main switch.

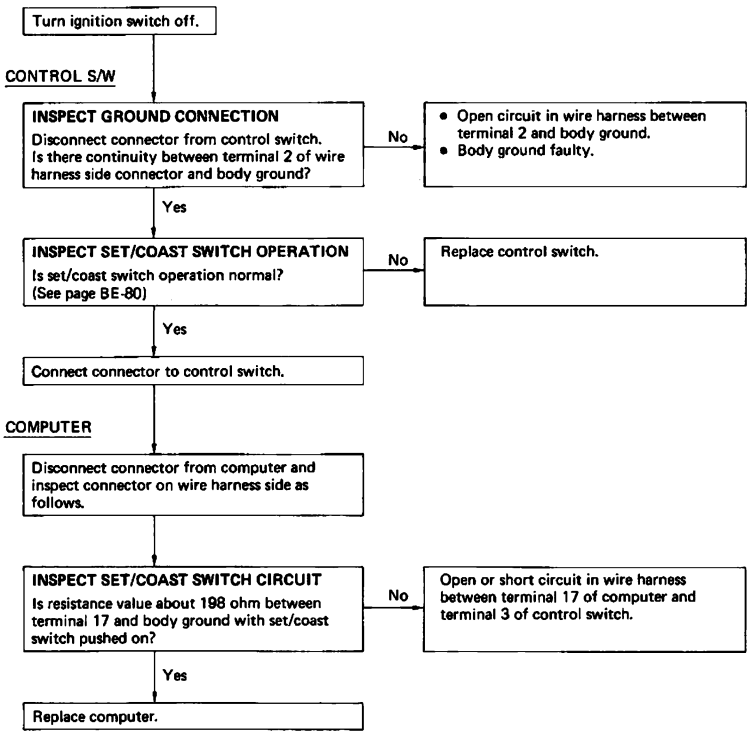
Yes

Disconnect connector from main switch.
Is there continuity between terminal 3 and body ground?
Yes → Short circuit in wire harness between terminal 3 of computer and terminal 4 of main switch.

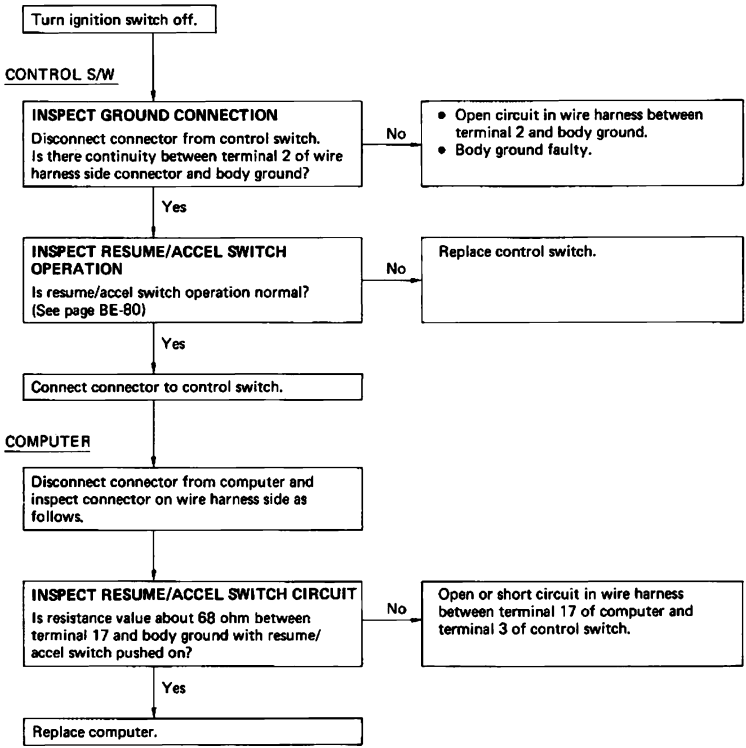
No

Replace computer.

B INSPECTION OF SET/COAST SWITCH CIRCUIT



C INSPECTION OF RESUME/ACCEL SWITCH CIRCUIT



D INSPECTION OF ACTUATOR CIRCUIT

Turn ignition switch off.

VACUUM HOSE

Are there cracks or other damage on the vacuum hose? — Yes → Replace vacuum hose.

No

ACTUATOR

INSPECT CABLE FREEPLAY
Is control cable freeplay less than 10 mm (0.39 in.) ? — No → Adjust control cable freeplay.

Yes

INSPECT ACTUATOR OPERATION
Disconnect connector from actuator.
Is actuator operation normal?
(See page BE-82) — No → Replace actuator.

Yes

STOP LIGHT S/W

INSPECT STOP LIGHT SWITCH CIRCUIT
Disconnect connector from stop light switch.
Is there continuity between terminal 4 of wire harness side connector and body ground? — Yes → Short circuit in wire harness between terminal 1 of actuator and terminal 4 of stop light switch.

No

Connect connector to actuator.
Is there continuity between terminal 4 of wire harness side connector and body ground? — No → Open circuit in wire harness between terminal 1 of actuator and terminal 4 of stop light switch.

Yes

INSPECT STOP LIGHT SWITCH OPERATION
Is stop light switch operation normal?
(See page BE-80) — No → Replace stop light switch.

Yes

Connect connector to stop light switch.

CONTINUED ON PAGE BE-69

CONTINUED FROM PAGE BE-68

COMPUTER

Disconnect connector from computer and inspect connector on wire harness side as follows.

INSPECT STOP LIGHT SWITCH CIRCUIT

Is there continuity between terminals 2 and 14 with stop light switch released ?

No → Open circuit in wire harness between terminals 2 and 14 of computer.

Yes

Is there continuity between terminals 2 and 14 with stop light switch depressed?

Yes → Short circuit in wire harness between terminals 2 and 14 of computer.

No

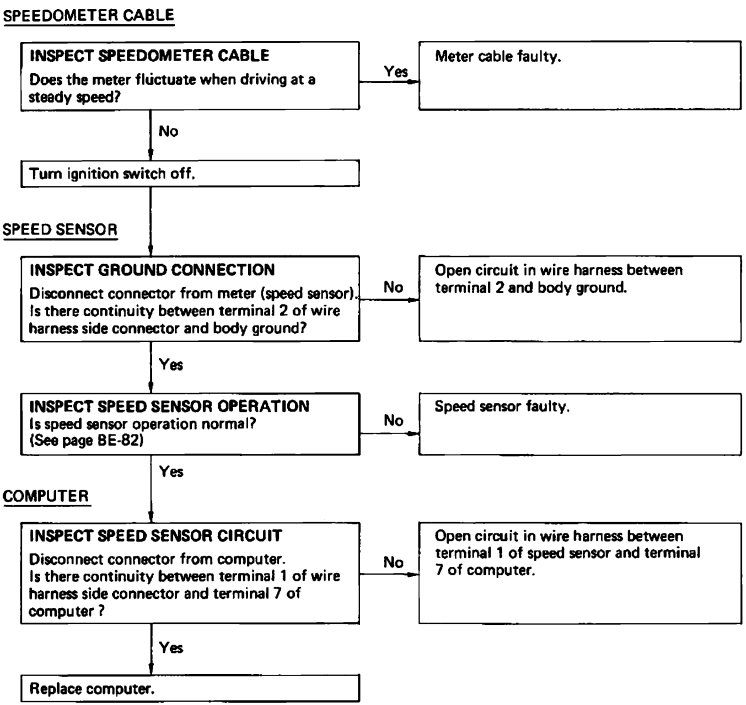
Is there continuity between terminals 4 and 14?

No → Open circuit in wire harness between terminals 4 and 14 of computer.

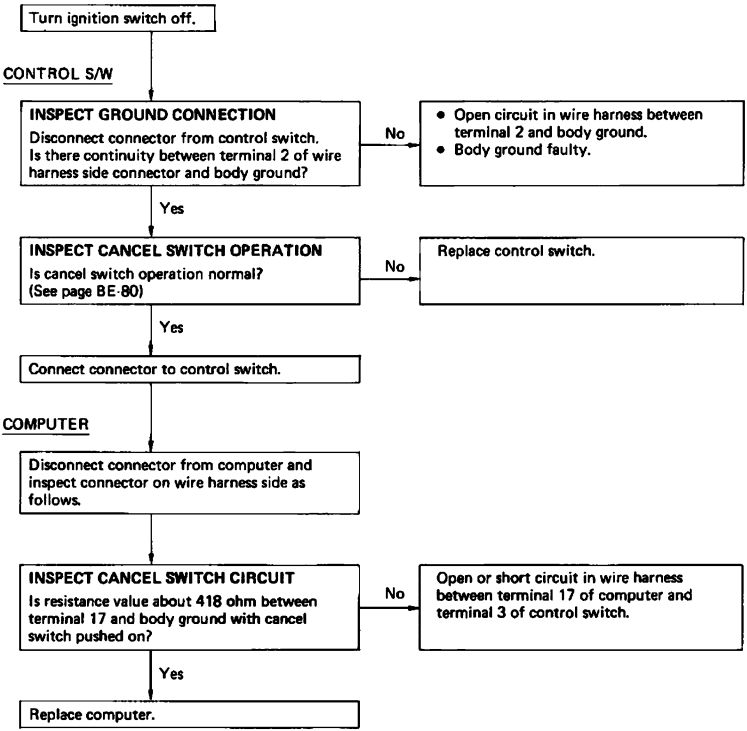
Yes

Replace computer.

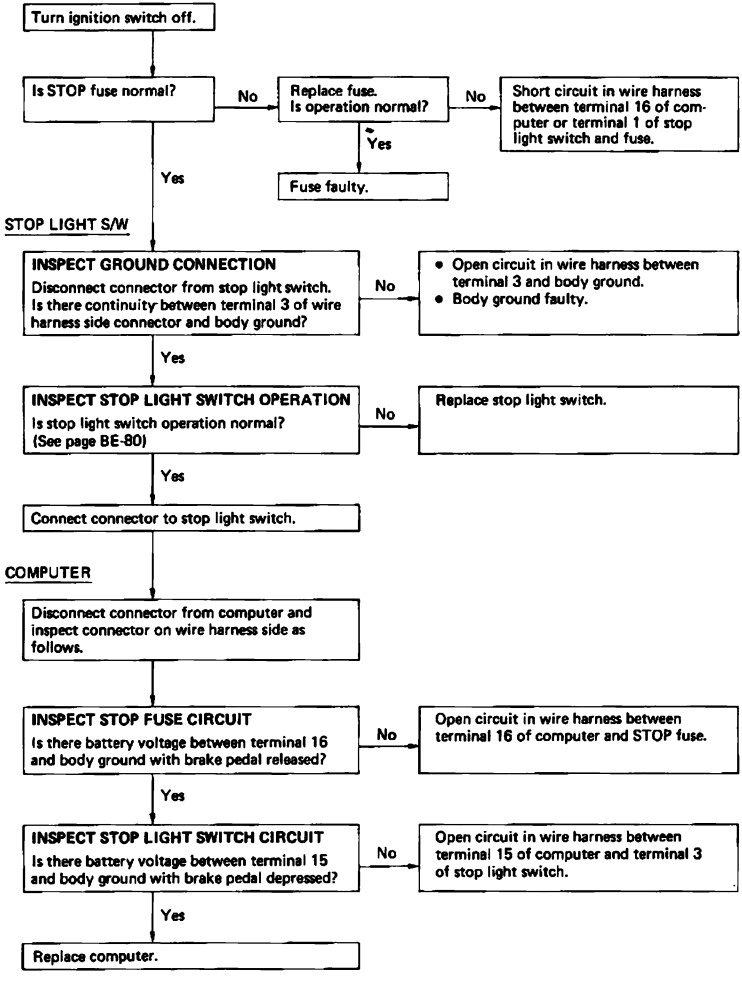
E INSPECTION OF SPEED SENSOR CIRCUIT



F INSPECTION OF CANCEL SWITCH CIRCUIT



G INSPECTION OF STOP LIGHT SWITCH CIRCUIT



H INSPECTION OF PARKING BRAKE SWITCH CIRCUIT

Turn ignition switch off.

ALTERNATOR

INSPECT ALTERNATOR OPERATION
Is alternator operation normal ?
(See page CH-4)

No → Replace alternator.

Yes

BRAKE FLUID LEVEL WARNING SWITCH

INSPECT GROUND CONNECTION
Disconnect connector from brake fluid level warning switch. Is there continuity between terminal 2 of wire harness side connector and body ground ?

No →
- Open circuit in wire harness between terminal 2 and body ground.
- Body ground faulty.

Yes

INSPECT LEVEL WARNING SWITCH
Is brake fluid level warning switch operation normal ?
(See page BE-36)

No → Replace brake fluid level warning switch.

Yes

Connect the connector to brake warning switch.

PARKING BRAKE SWITCH

INSPECT PARKING BRAKE SWITCH OPERATION
Disconnect connector from parking brake switch.
Is parking brake switch operation normal ?
(See page BE-81)

No → Replace parking brake switch.

Yes

Connect connector to parking brake switch.

COMPUTER

Disconnect connector from computer and inspect connector on wire harness side as follows.

Remove CHARGE fuse and ignition switch turned on.

Is there no voltage between terminal 12 and body ground with parking brake lever pulled up ?

No → Open circuit in wire harness between terminal 12 of computer and terminal 1 of parking brake switch.

Yes

Is there battery voltage between terminal 12 and body ground with parking brake lever released ?

No → Short circuit in wire harness between terminal 12 of computer and terminal 1 of parking brake switch, terminal 1 of brake fluid level warning switch or terminal 2 of alternator.

Yes

Replace computer.

I INSPECTION OF CLUTCH SWITCH CIRCUIT

Turn ignition switch off.

CLUTCH S/W

INSPECT GROUND CONNECTION
Disconnect connector from clutch switch.
Is there continuity between terminal 2 of wire harness side connector and body ground?

No → • Open circuit in wire harness between terminal 2 and body ground.
• Body ground faulty.

Yes

INSPECT CLUTCH SWITCH OPERATION
Is clutch switch operation normal?
(See page BE-81)

No → Replace clutch switch.

Yes

Connect connector to clutch switch.

COMPUTER

Disconnect connector from computer and inspect connector on wire harness side as follows.

INSPECT CLUTCH SWITCH CIRCUIT
Is there continuity between terminal 11 and body ground with clutch pedal depressed?

No → Open circuit in wire harness between terminal 11 of computer and terminal 3 of clutch switch.

Yes

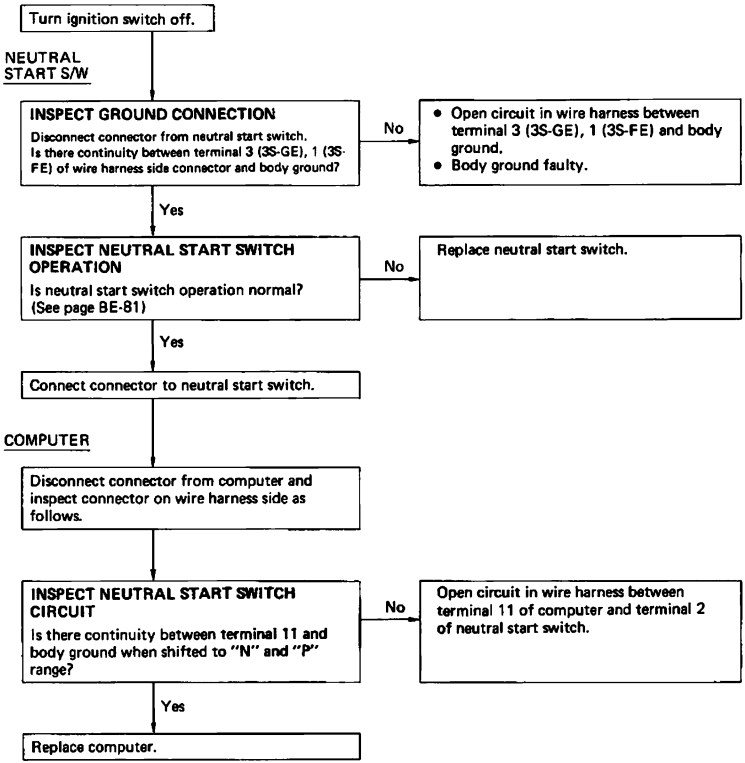
Is there continuity between terminal 11 and body ground with clutch pedal released?

Yes → Short circuit in wire harness between terminal 11 of computer and terminal 3 of clutch switch.

No

Replace computer.

J INSPECTION OF NEUTRAL START SWITCH CIRCUIT



K INSPECTION OF VACUUM CIRCUIT (w/ A.B.S. only)

Turn ignition switch off.

No

VACUUM HOSE

Are there cracks or other damage on the vacuum hose ?

Yes → Replace vacuum hose.

No

VACUUM S/W

INSPECT VACUUM SWITCH CIRCUIT
Disconnect connector from vacuum switch.
Is there continuity between terminal 2 of vacuum switch and body ground ?

No →
- Open circuit in wire harness between terminal 2 and body ground.
- Body ground faulty.

Yes

INSPECT VACUUM SWITCH OPERATION
Is vacuum switch operation normal ?
(See page BE-83)

No → Replace vacuum switch.

Yes

VACUUM PUMP

INSPECT GROUND CONNECTION
Disconnect connector from vacuum pump.
Is there continuity between terminal 2 of wire harness side connector and body ground ?

No →
- Open circuit in wire harness between terminal 2 and body ground.
- Body ground faulty.

Yes

INSPECT VACUUM PUMP OPERATION
Is vacuum pump operation normal ?
(See page BE-83)

No → Replace vacuum pump.

Yes

Connect connector to vacuum switch and pump.

CONTINUED ON PAGE BE-77

CONTINUED FROM PAGE BE-76

COMPUTER

Diesconnect connector from computer and inspect connector on wire harness side as follows.

INSPECT VACUUM SWITCH CIRCUIT
Is there continuity between terminal 9 and body ground ?

No → Open circuit in wire harness between terminal 9 of computer and terminal 1 of vacuum switch.

Yes

Start engine (idling).

Is there continuity between terminal 9 and body ground ?

Yes → Short circuit in wire harness between terminal 9 of computer and terminal 1 of vacuum switch.

No

Stop the engine.

INSPECT VACUUM PUMP CIRCUIT
Is there continuity between terminal 1 and body ground ?

No → Open circuit in wire harness between terminal 1 of computer and terminal 1 of vacuum pump.

Yes

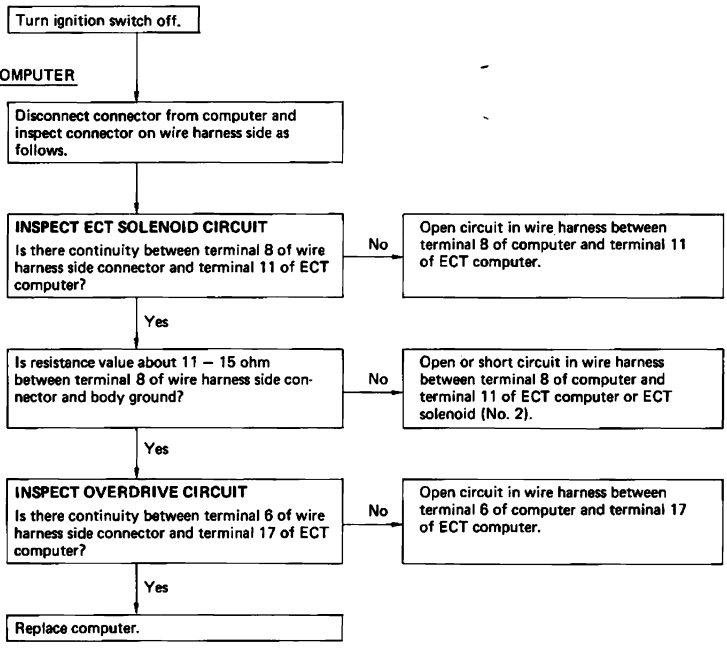
Is there continuity between terminal 1 and body ground when disconnect connector from vacuum pump ?

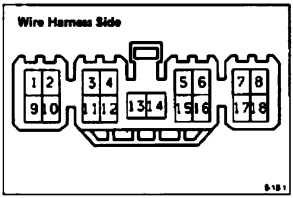
Yes → Short circuit in wire harness between terminal 1 of computer and terminal 1 of vacuum pump.

No

Replace computer.

L INSPECTION OF ECT SOLENOID CIRCUIT



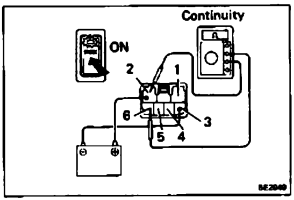


Cruise Control Computer Circuit

INSPECTION OF COMPUTER CIRCUIT

Disconnect the computer connector and inspect the connector on wire harness side as shown in the below.

Connection or measure item	Check for	Tester connection	Condition	Specified value
Stop Fuse	Voltage	16 – Body ground	—	Battery voltage
Stop Light Switch	Voltage	15 – Body ground	Brake pedal depressed	Battery voltage
			Brake pedal released	No voltage
Stop Light Switch and Release Valve	Resistance	2 – 14	Brake pedal released	Approx. 68 ohm
Control Valve	Resistance	4 – 14	—	Approx. 30 ohm
Main Switch	Voltage	10 – Body ground	Turn ignition switch and main switch on	Battery voltage
			Turn ignition switch and main switch off	No voltage
Main Switch (indicator circuit)	Voltage	3 – Body ground	Turn ignition switch and main switch on	Battery voltage
			Turn ignition switch and main switch off	No voltage
Control Switch (set/coast)	Resistance	17 – Body ground	Push set/coast switch on	Approx. 198 ohm
Control Switch (resume/accel)	Resistance	17 – Body ground	Push resume/accel switch on	Approx. 68 ohm
Control Switch (cancel)	Resistance	17 – Body ground	Push cancel switch on	Approx. 418 ohm
Speed Sensor	Continuity	7 – Body ground	Vehicle moving slowly	1 pulse each 40 cm (15.75 in.)
Clutch Switch (M/T) or Neutral Start Switch (A/T)	Continuity	11 – Body ground	Clutch pedal depressed or shifted into "N" and "P" range	Continuity
			Clutch pedal released or shifted into only range except "N" range	No continuity
Parking Brake Switch	Voltage	12 – Body ground	Remove CHARGE fuse and ignition switch turned on with parking brake lever pulled up.	No voltage
			Remove CHARGE fuse and ignition switch turned on with parking brake lever released.	Battery voltage
Vacuum Switch (w/ A.B.S. only)	Continuity	9 – Body ground	Apply vacuum about 170 mmHg (6.69 in.Hg, 22.7 kPa)	No continuity
			No vacuum	Continuity
Vacuum Pump (w/ A.B.S. only)	Continuity	1 – Body ground	—	Continuity
Body Ground	Continuity	13 – Body ground	—	Continuity



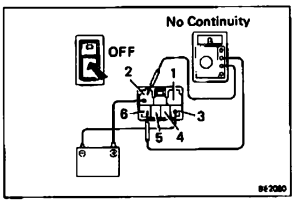
Main Switch

INSPECTION OF MAIN SWITCH

INSPECT SWITCH CONTINUITY

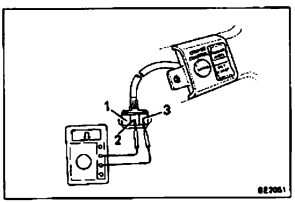
(a) Connect the positive (+) lead from the battery to terminal 2 and the negative (–) lead to terminal 3.

(b) Check that there is continuity between terminals 2 and 6 with the main switch pushed on.



(c) Check that there is no continuity between terminals 2 and 6 with the main switch pushed off.

If continuity is not as specified, replace the switch.



Control Switch

INSPECTION OF SWITCH

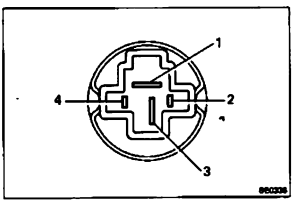
INSPECT SWITCH RESISTANCE

Inspect the switch resistance value between terminals 2 and 3 at each switch position.

Switch position	Resistance value (Ω)
RESUME/ACCEL	68
SET/COAST	198
CENCEL	418

If resistance value is not as specified, replace the switch.

Stop Light Switch



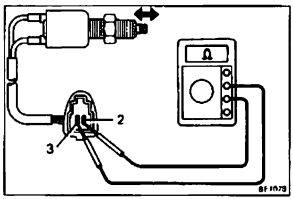
INSPECTION OF SWITCH

INSPECT SWITCH CONTINUITY

Inspect the switch continuity between terminals.

Terminal / Switch position	1	2	3	4
Switch free	o		o	
Switch Pin pushed		o		o

If continuity is not as specified, replace the switch.



Clutch Switch

INSPECTION OF SWITCH

INSPECT SWITCH CONTINUITY

(a) Check that there is continuity between terminals 2 and 3 with the switch free.
(Clutch pedal depressed)

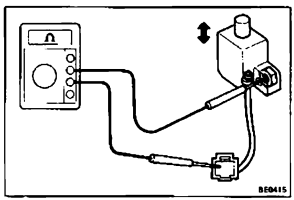
(b) Check that there is no continuity between terminals 2 and 3 with switch pin pushed.
(Clutch pedal released)

If continuity is not as specified, replace the switch.

Parking Brake Switch

INSPECTION OF SWITCH

INSPECT SWITCH OPERATION



(a) Check that there is continuity between the terminal and screw hole with the switch free.
(Parking brake lever pulled up)

(b) Check that there is no continuity between the terminal and screw hole with the switch pin pushed.
(Parking brake lever released)

If operation is not as specified, replase the switch.

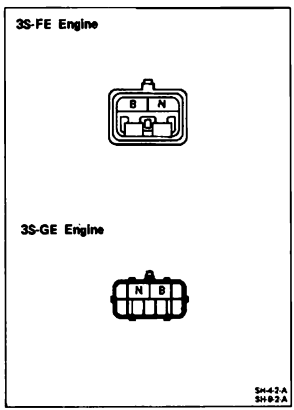
Neutral Start Switch

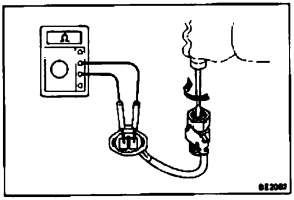
INSPECTION OF SWITCH

INSPECT SWITCH CONTINUITY

Check that there is continuity between terminals B and N with switch position "P" and "N" ranges.

If continuity is not as specified, replace the switch.





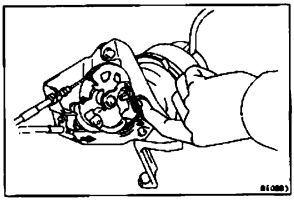
Speed Sensor

INSPECTION OF SPEED SENSOR

INSPECT SENSOR CONTINUITY

Check that there is continuity between terminals four times per each revolution of the shaft.

If continuity is not as specified, replace the sensor.



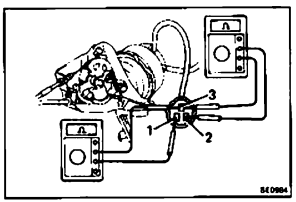
Actuator

INSPECTION OF ACTUATOR

1. INSPECT CONTROL CABLE FREEPLAY

Inspect that the control cable freeplay is less than 10 mm (0.39 in.)

If freeplay is not as specified, adjust the control cable freeplay.

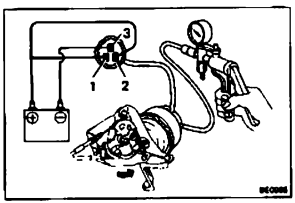


2. INSPECT ACTUATOR RESISTANCE

Measure the resistance value between terminals as follows.

Resistance: 2 – 3 approx. 30 Ω
1 – 3 approx. 68 Ω

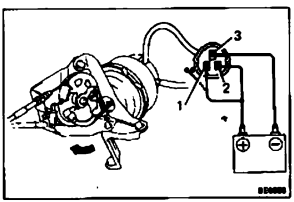
If the resistance value is not as specified, replace the actuator.



3. INSPECT ACTUATOR OPERATION

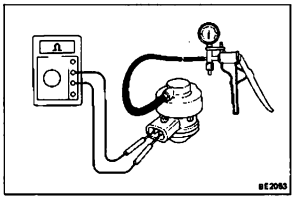
(a) Connect the positive (+) lead from battery to terminals 1 and 2, and the negative (–) lead to terminal 3.

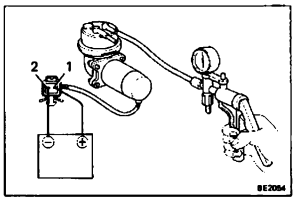
(b) Slowly apply vacuum from 0 – 300 mmHg (0 – 11.81 in.Hg, 0 – 40.0 kPa), and check that the control cable can be pulled smoothly.



(c) Disconnect terminal 1 or 2 and check that the control cable returns to its original position and the vacuum returns to 0 mmHg (0 in.Hg, 0 kPa).

If operation is not as specified, replace the actuator.





Vacuum Switch (w/ A.B.S. only)

INSPECTION OF SWITCH

INSPECT SWITCH OPERATION

(a) Check that there is no continuity between terminals with a vacuum of 170 ± 10 mmHg (6.69 ± 0.39 in.Hg, 22.7 ± 1.3 kPa) or above.

(b) Check that there is continuity between terminals with no vacuum.

If operation is not as specified, replace the switch.

Vacuum Pump (w/ A.B.S. only)

INSPECTION OF PUMP

INSPECT VACUUM PUMP OPERATION

(a) Connect a vacuum gauge to the ACT side of the pump.

(b) Connect the positive (+) lead from the battery to terminal 1 and the negative (−) lead to terminal 2.

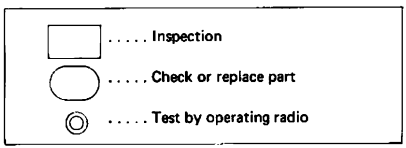
(c) Check that there is the vacuum of 200 mmHg (7.87 in.Hg, 26.7 kPa) or above.

If operation is not as specified, replace the pump.

RADIO, STEREO TAPE PLAYER AND ANTENNA

Troubleshooting

DESCRIPTION OF SYMBOLS



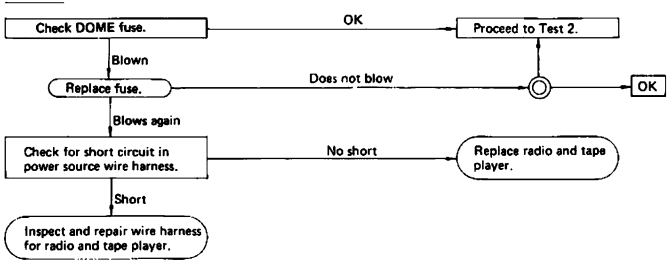
1. DEAD RADIO AND TAPE PLAYER

(a) No power to radio or tape player, or power but no sound.

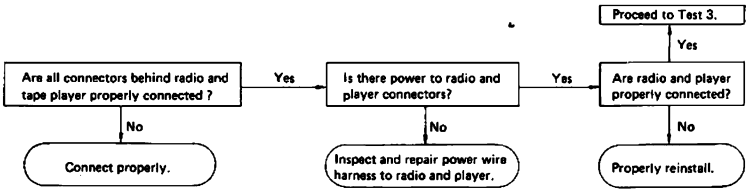
Possible causes:

- Blown DOME fuse
- Short circuit or broken wire in power source wire harness
- Loose connectors behind radio and tape player
- Loose speaker connector
- Defective speaker
- Broken wire in speaker wire harness
- Improperly installed radio or tape player
- Defective radio or tape player

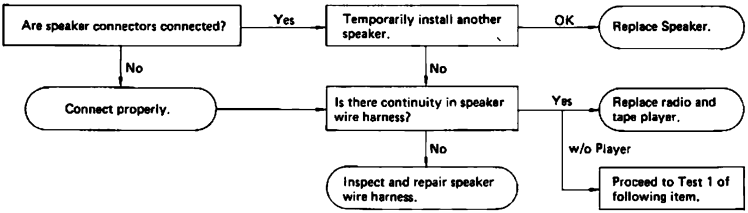
TEST 1



TEST 2



TEST 3

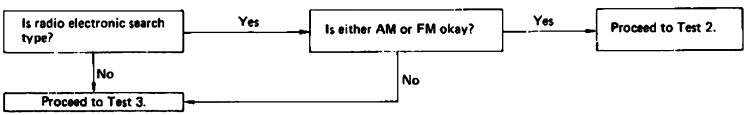


(b) Tape player okay but no sound from either the AM or FM band.

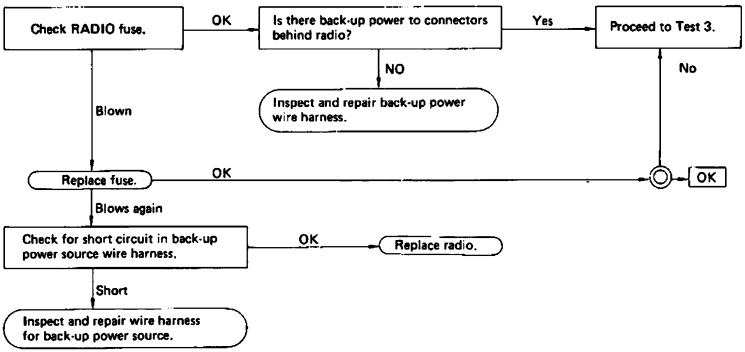
Possible causes:

- Antenna disconnected
- Antenna plug not properly connected
- Defective antenna
- Defective antenna cable
- Defective radio or tape player
- Blown RADIO fuse
- Short circuit or broken wire in wire harness for back-up power source

TEST 1

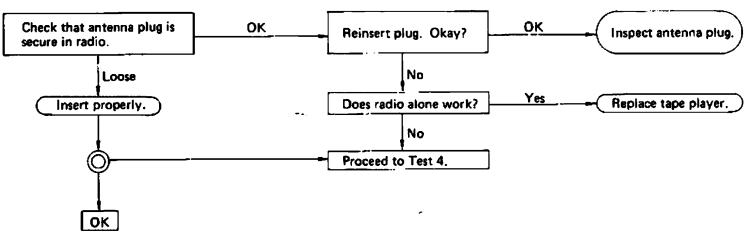


TEST 2

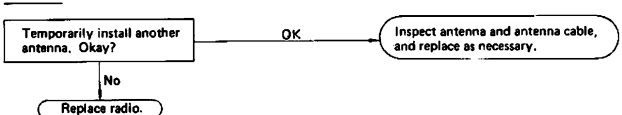


NOTE: Back-up power refers to the storage voltage for preset tuning. This is applied even when the ignition switch is OFF.

TEST 3



TEST 4

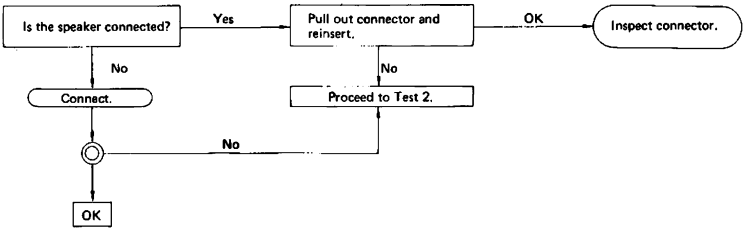


(c) No sound from one speaker.

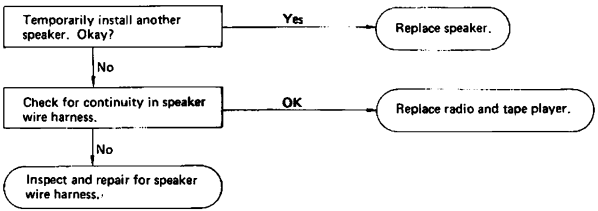
Possible causes:

- Loose speaker connector
- Broken wire in speaker wire harness
- Defective speaker
- Defective radio and tape player

TEST 1



TEST 2

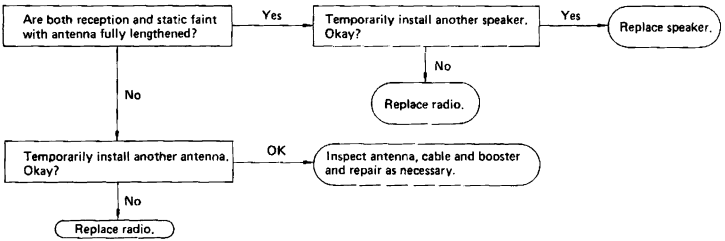


2. FAINT RECEPTION

Possible causes:

- Defective antenna or antenna cable
- Defective speaker
- Defective radio

TEST



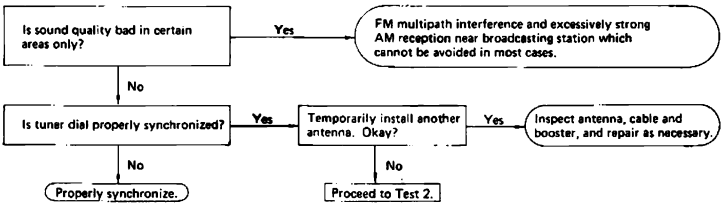
3. BAD SOUND QUALITY

(a) Sound quality bad when radio played.

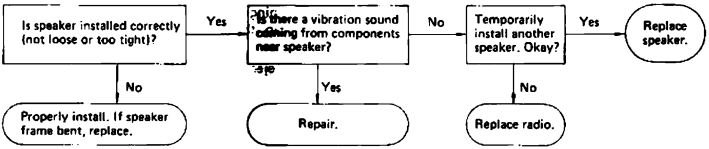
Possible causes:

- Multipath interference of excessive interception
- Tuner dial not synchronized with station
- Defective antenna or antenna cable
- Speaker improperly installed
- Vibration sound from components near speaker
- Defective speaker
- Defective radio

TEST 1



TEST 2



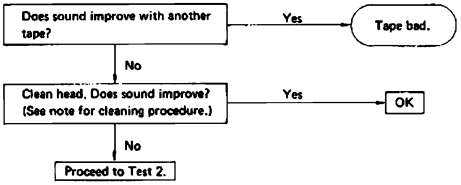
NOTE: FM distortion tends to increase sharply if the tuner is not synchronized.

(b) Sound quality bad when tape player played.

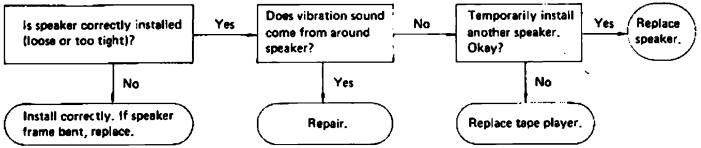
Possible causes:

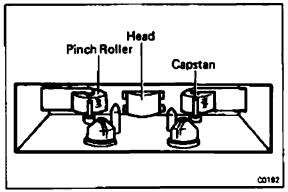
- Bad tape
- Dirty head
- Incorrectly installed speaker
- Vibration noise from around speaker
- Defective speaker
- Defective tape player

TEST 1



TEST 2





NOTE: Head cleaning procedure.

(1) Raise the cassette door with your finger. Next, using a pencil or like object, push in the guide as shown.

(2) Using a cleaning pen or cotton applicator soaked in alcohol, clean the head surface, pinch rollers and capstans.

(3) Push in the "eject" button.

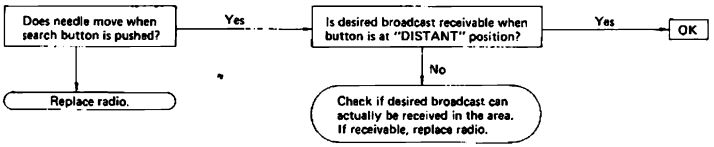
4. DEFECTIVE AUTO-SEARCH MECHANISM

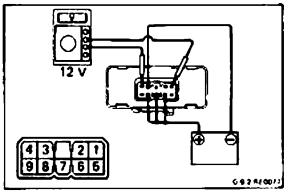
Manual search possible but automatic search mechanism does not function or does not stop at all receivable stations.

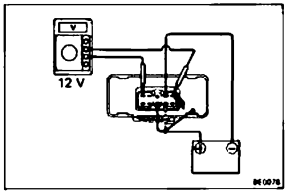
Possible causes:

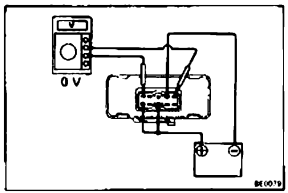
- Poor search sensitivity (SENS button)
- Defective radio

TEST









Antenna Motor Control Relay

INSPECTION OF ANTENNA MOTOR CONTROL RELAY

1. INSPECT RELAY OPERATION (ANTENNA UP)
   (a) Connect the voltmeter positive (+) lead to terminal 1 and the negative (–) lead to terminal 4.
   (b) Connect the positive (+) lead from the battery to terminals 6, 7 and 8. Connect the negative (–) lead to terminal 3.
   (c) Check that there is battery voltage.

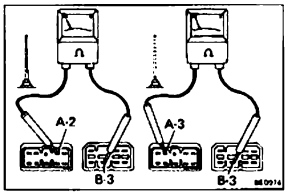
   NOTE: Measure the voltage within 7 seconds after connecting the positive (+) battery lead to terminal 8.

2. INSPECT RELAY OPERATION (ANTENNA DOWN)
   (a) Connect the voltmeter positive (+) lead to terminal 4 and the negative (–) lead to terminal 1.
   (b) Connect the positive (+) lead from the battery to terminals 6 and 7. Connect the negative (–) lead to terminal 2.
   (c) Disconnect the positive (+) battery lead from terminal 6.
   (d) Check that there is battery voltage.

   NOTE: Measure the voltage within 7 seconds after disconnecting the positive (+) battery lead from terminal 6.

3. INSPECT RELAY OPERATION (ANTENNA STOP)
   (a) Connect the voltmeter positive (+) lead to terminal 1 and the negative (–) lead to terminal 4.
   (b) Connect the positive (+) lead from the battery to terminals 7 and 9. Connect the negative (–) lead to terminal 2.
   (c) Check that there is no battery voltage.

   If operation is not as specified, replace the relay.



Antenna Motor

INSPECTION OF ANTENNA MOTOR

INSPECT LIMIT SWITCH OPERATION

(a) If the motor stops with the antenna up, check that there is no continuity between terminals A-2 and B-3.

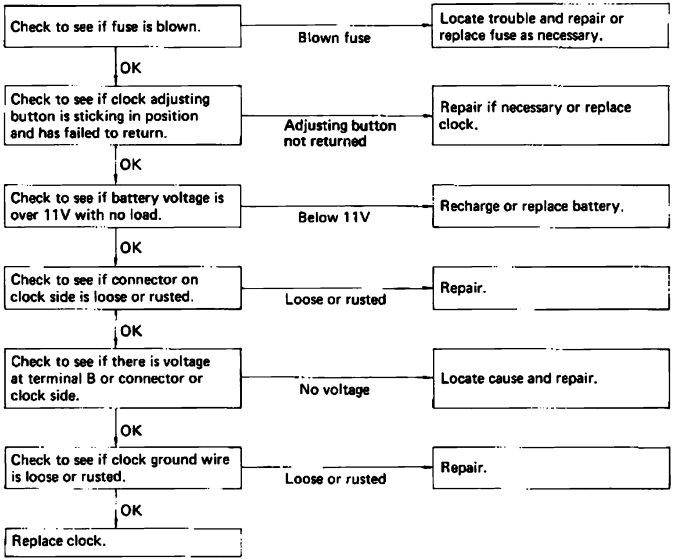
(b) If the motor stops with the antenna down, check that there is no continuity between terminals A-3 and B-3.

If continuity is not as specified, replace the motor.

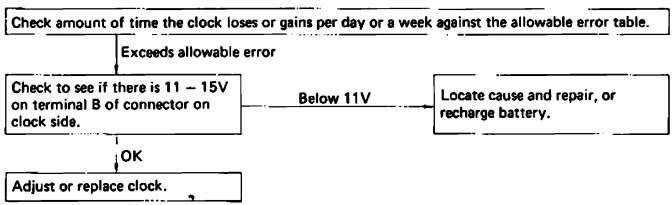
CLOCK

Troubleshooting

CLOCK WILL NOT OPERATE



CLOCK LOSES OR GAINS TIME



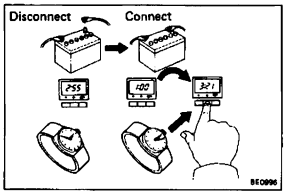
1. **INSPECT ALLOWABLE ERROR OF CLOCK**

Check the allowable error of the clock.

Allowable error (per day): ± 1.5 seconds

2. **ADJUSTMENT OF CLOCK**

Adjustment of the quartz clock requires a precise digital counter. Adjustment must be made in a shop specified by the manufacturer.



3. **STARTING OF CLOCK**

(a) Connect the battery terminal.

(b) Check the clock to see that it is running, and then set it to the correct time.

NOTE: Whenever the battery terminal is disconnected, make sure to set the clock to the correct time after reconnecting it.