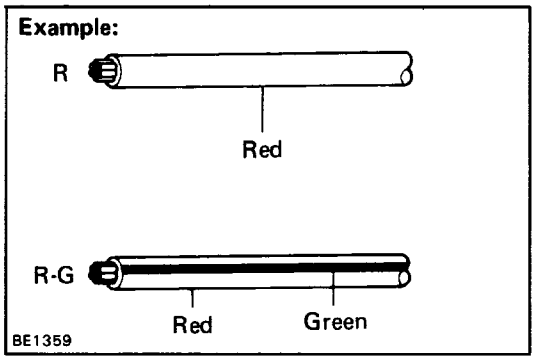
BODY ELECTRICAL SYSTEM



GENERAL INFORMATION

Wiring color code

Wire colors are indicated by an alphabetical code.

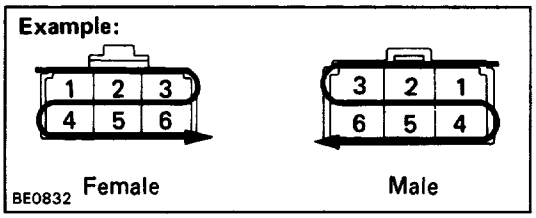
B = Black L = Blue R = Red

BR = Brown LG = Light Green V = Violet

G = Green O = Orange W = White

GR = Gray P = Pink * =Yellow

The first letter indicates the basic wire color and the sec–ond letter indicates the color of the stripe.



Connector

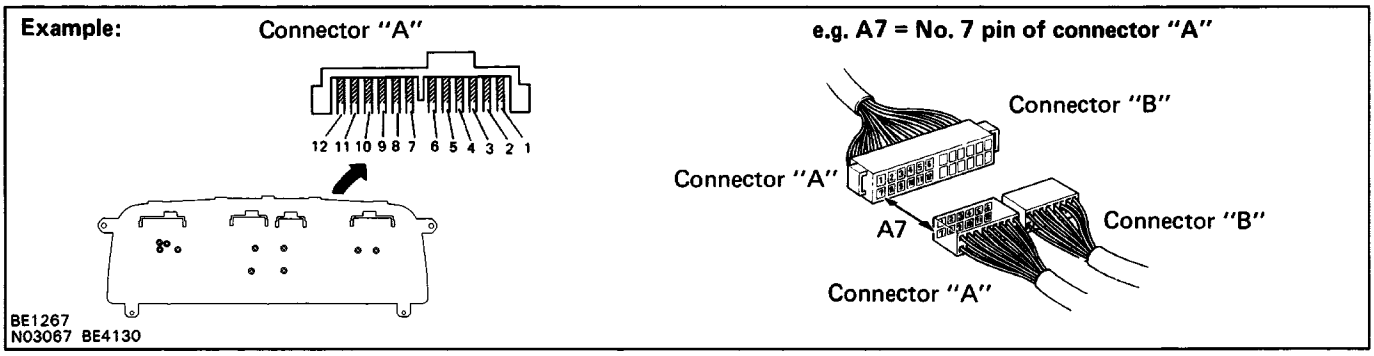
1. PIN NUMBER OF FEMALE CONNECTOR

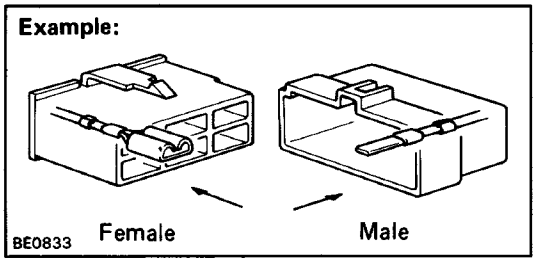
Numbered in order from upper left to lower right.

2. PIN NUMBER OF MALE CONNECTOR

Numbered in order from upper right to lower left.

HINT: When connectors with different or the same number of terminals are used with the same parts, each connector name (letter of the alphabet) and pin number is specified.





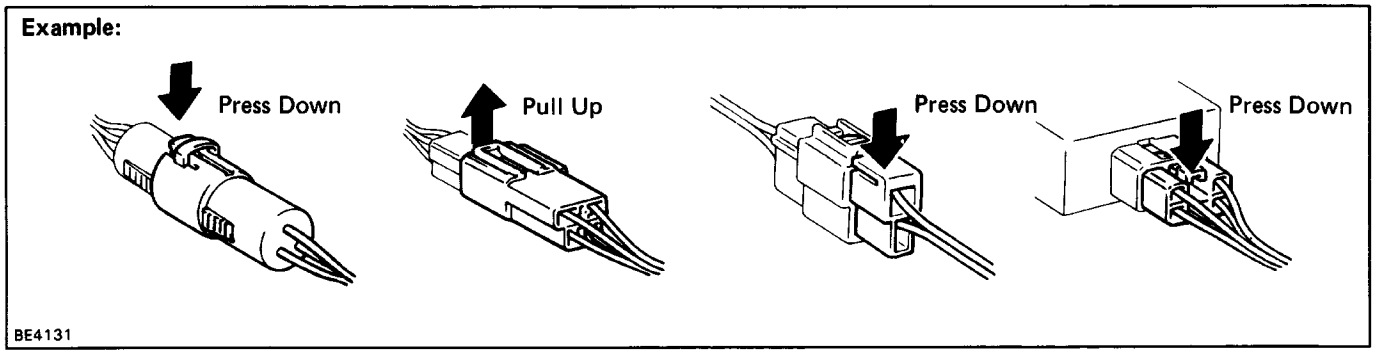
3. DISTINCTION OF MALE AND FEMALE CONNECTORS

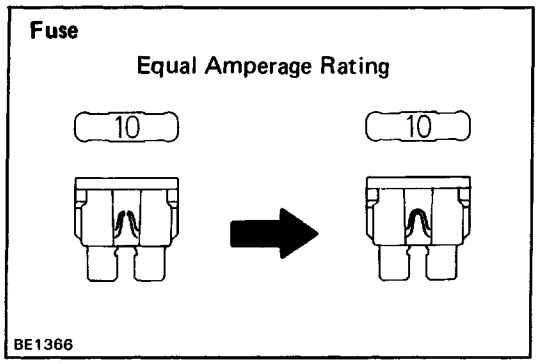
Male and female connectors are distinguished by shape of their internal pins.

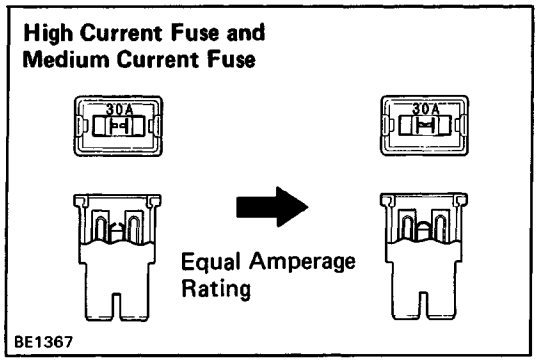
(a) All connectors are shown from the open end, and the lock is on top.

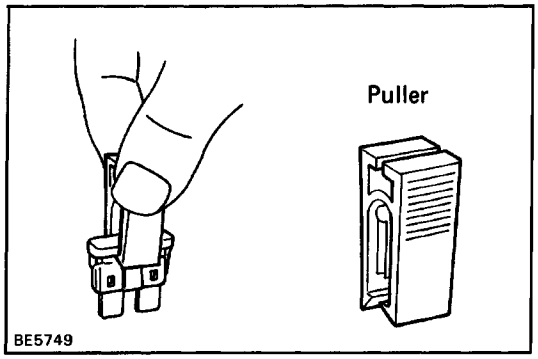
(b) To pull apart the connectors, pull on the connector itself, not the wires.

HINT: Check to see what kind of connector you are dis–connecting before pulling apart.









Replacement of High Current Fuse, Medium Current Fuse and Fuse

HINT: If replacing the fuse be sure to replace it with a fuse of fusible link with and equal amperege rating.

NOTICE:

1. Turn off all electrical components and the ignition switch before replacing a fuse or fusible link. Do not exceed the fuse or fusible link amperage 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 or fusible link continues to blow, a short circuit is indicated. The system must be checked by a qualified technician.

How to Inspect for System Inspection

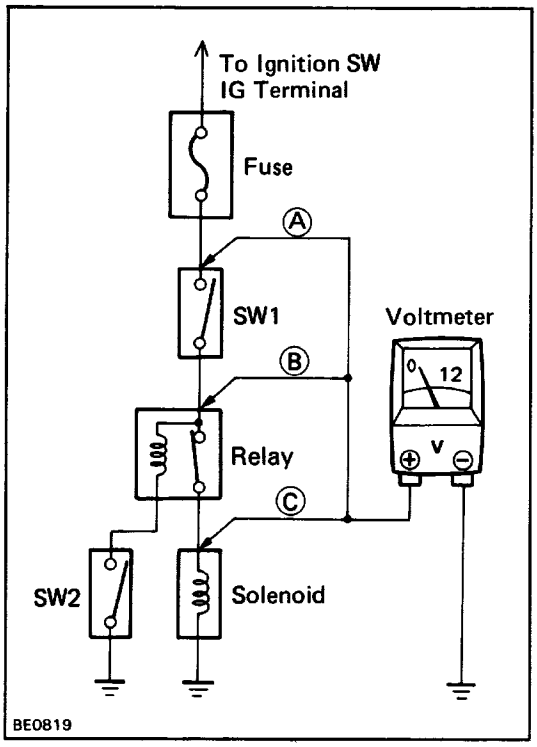
This inspection procedure is a simple troubleshooting which should be carried out on the vehicle during system operation and was prepared on the assumption of system component troubles (except for the wires and connectors, etc.).

Always inspect the trouble taking the following items into consideration.

- Ground point fault
- Open or short circuit of the wire harness
- Connector or terminal connection fault
- Fuse or fusible link fault

NOTICE:

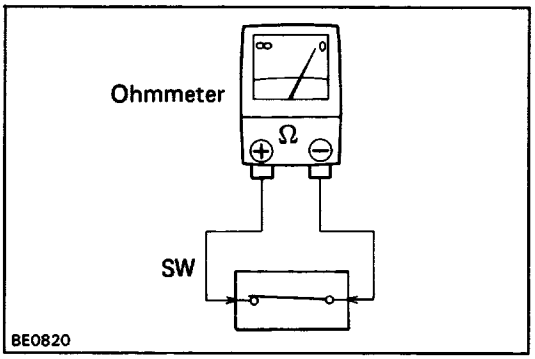
1. This is an on–vehicle inspection during system operations. Therefore, inspect the trouble with due regard for security.
2. In case of connecting the battery directly, be careful not to short circuit, and select the applicable voltage.



Check for Voltage

(a) Establish conditions in which voltage is present at the check point.
Example:
(A) Ignition switch on
(B) Ignition switch and switch 1 (SW 1) on.
(C) Ignition switch, switch 1 (SW 1) and relay on (switch 2 (SW2) off).

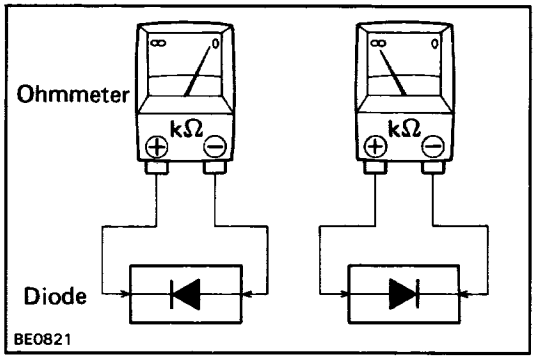
(b) Using a voltmeter, connect the negative (–) lead to a good ground point or negative (–) battery terminal and the positive (+) lead to the connector or component terminal. This check can be done with a test bulb instead of a voltmeter.



Check for Continuity and Resistance

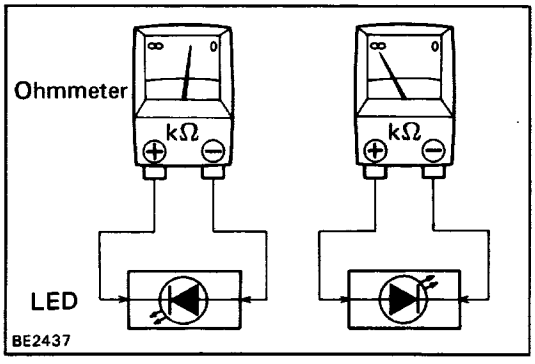
(a) Disconnect the battery terminal or wire so there is no voltage between the check points.

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



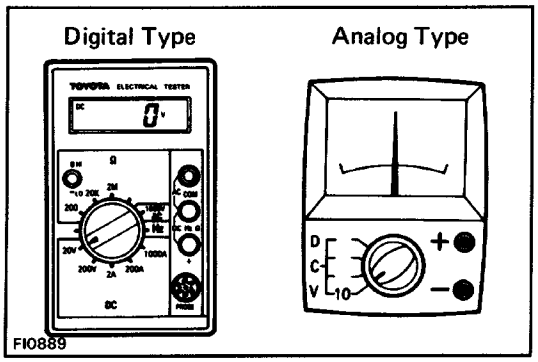
If the circuit has diodes, reverse the two leads and check again.
When contacting the negative (–) lead to the diode positive (+) side and the positive (+) lead to the negative (–) side, there should be continuity. When contacting the two leads in reverse, there should be no continuity.

HINT: Specifications may vary depending on the type of tester, so refer to the tester's instruction manual before performing the inspection.

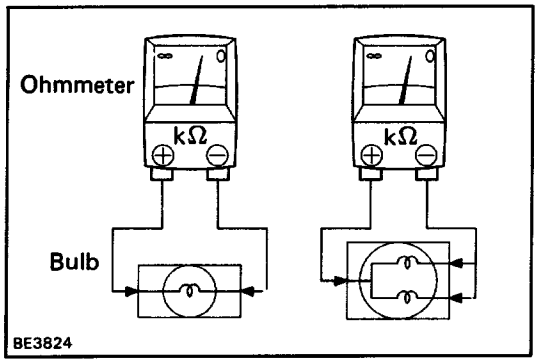


Check LED (Light Emitting Diode) in the same manner as that for diodes.

- Use a tester with a power source of 3 V or greater to overcome the circuit resistance.
- If a suitable tester is not available, apply battery positive voltage and check that the LED lights up.

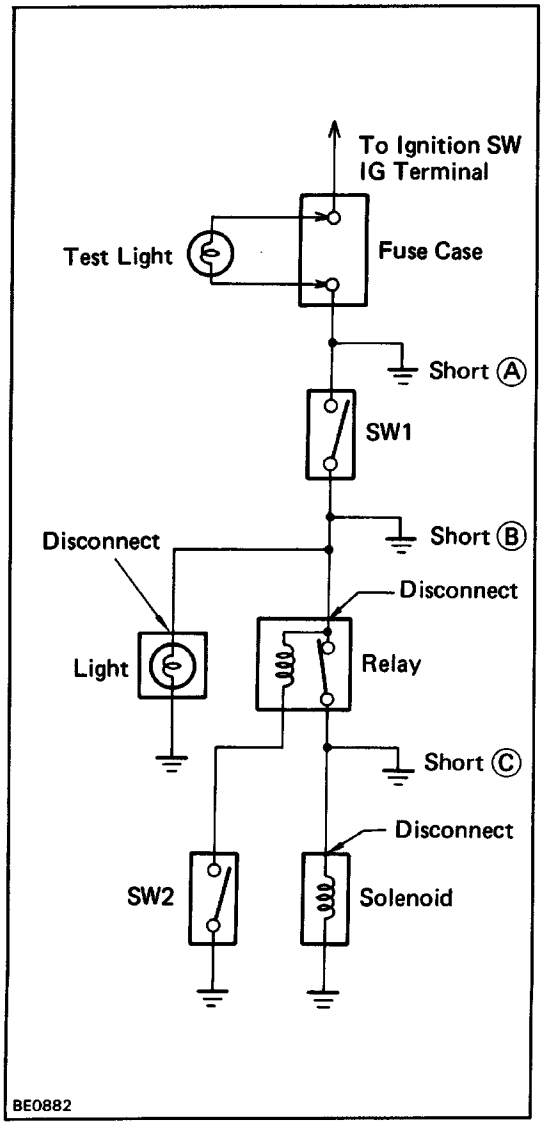


(c) Use a volt/ohmmeter with high impedance (10 k/V minimum) for troubleshooting of the electrical cir–cuit.



Check the Bulb

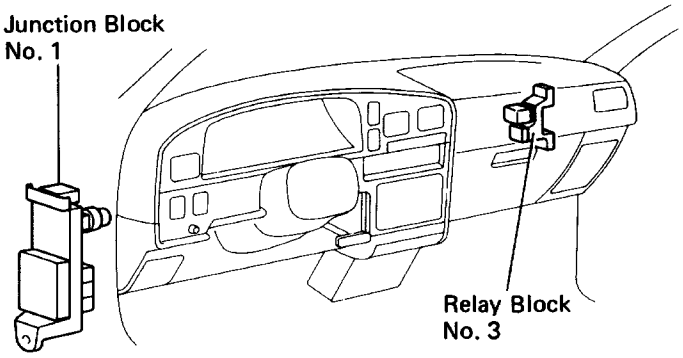
(a) Remove the bulb.
(b) There should be continuity between the respective terminals of the bulb together with a certain amount of resistance.
(c) Apply the two leads of the ohmmeter to each of the terminals.
(d) Apply battery positive voltage and check that the bulb light up.

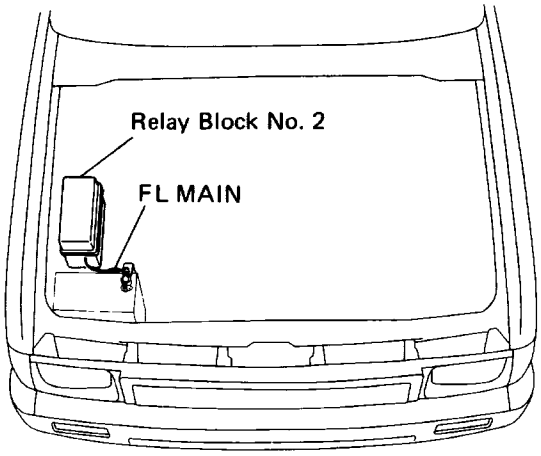


Check for Short Circuit

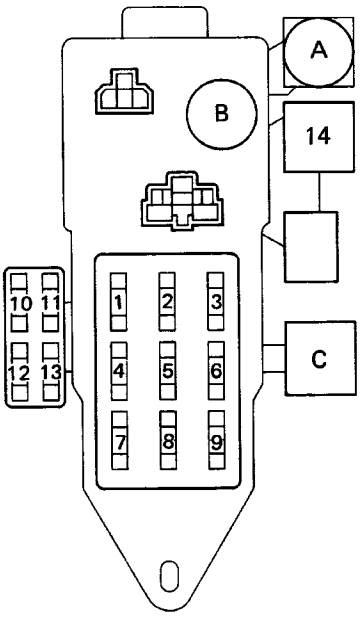
(a) Remove the blown fuse and eliminate all loads from the fuse.
(b) Connect a test bulb in place of the fuse.
(e) Establish conditions in which the test bulb comes on.
Example:
(A) Ignition switch on.
(B) Ignition switch and switch 1 (SW 1) on.
(C) Ignition switch, switch 1 (SW 1) and relay on (connect the relay) and switch 2 (SW2) off (or disconnect switch 2 (SW2)).
(d) Disconnect and reconnect the connectors while watching the test bulb.
The short lies between the connector where the test bulb stays lit and the connector where the bulb goes out.
(e) Find the exact location of the short by lightly shak–ing the problem wire along the body.

POWER SOURCE
Parts Location





Junction Block No. 1

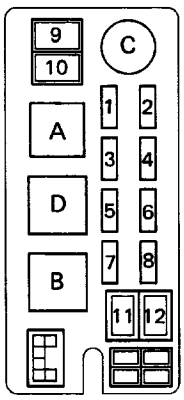


Fuses

1.	ENGINE	10A
2.	IGN	7.5A
3.	TAIL	15A
4.	WIPER	20A
5.	GAUGE	10A
6.	STOP	15A
7.	RADIO	7.5A
8.	CIG	15A
9.	TURN	10A
10.	REAR ANTILOCK	15A
11.	–	–
12.	ECM-IG	20A
13.	–	–
14.	POWER (w/ Power Door Lock and Power Window)	30A

Relays
A. Back Up Relay (USA)
DRL Relay No. 4 (Canada)
B. Taillight Control Relay
C. Horn Relay
14. Back Up Relay
(CANADA with column A/T)

Relay Block No. 2



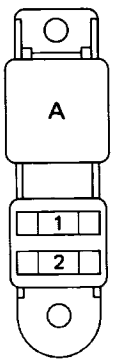
Fuses

1.	CHARGE	7.5A
2.	MFI	15A
3.	HAZ-HORN	15A
4.	DOME	15A
5.	(USA) HEAD (RH)	10A
6.	(USA) HEAD (LH)	10A
7.	–	–
8.	–	–
9.	GEN (H-fuse)	80A
10.	–	–
11.	AM1 (H-fuse)	40A or 60A
12.	AM2 (H-fuse) (CANADA)	30A

1.	DRL	7.5A
5.	HEAD LO (RH)	10A
6.	HEAD LO (LH)	10A
7.	HEAD HI (RH)	10A
8.	HEAD HI (LH)	10A

Relays
A. Headlight Dimmer Relay (CANADA)
B. Headlight Control Relay
C. MFI Relay
D. Starter Relay

Relay Block No. 3



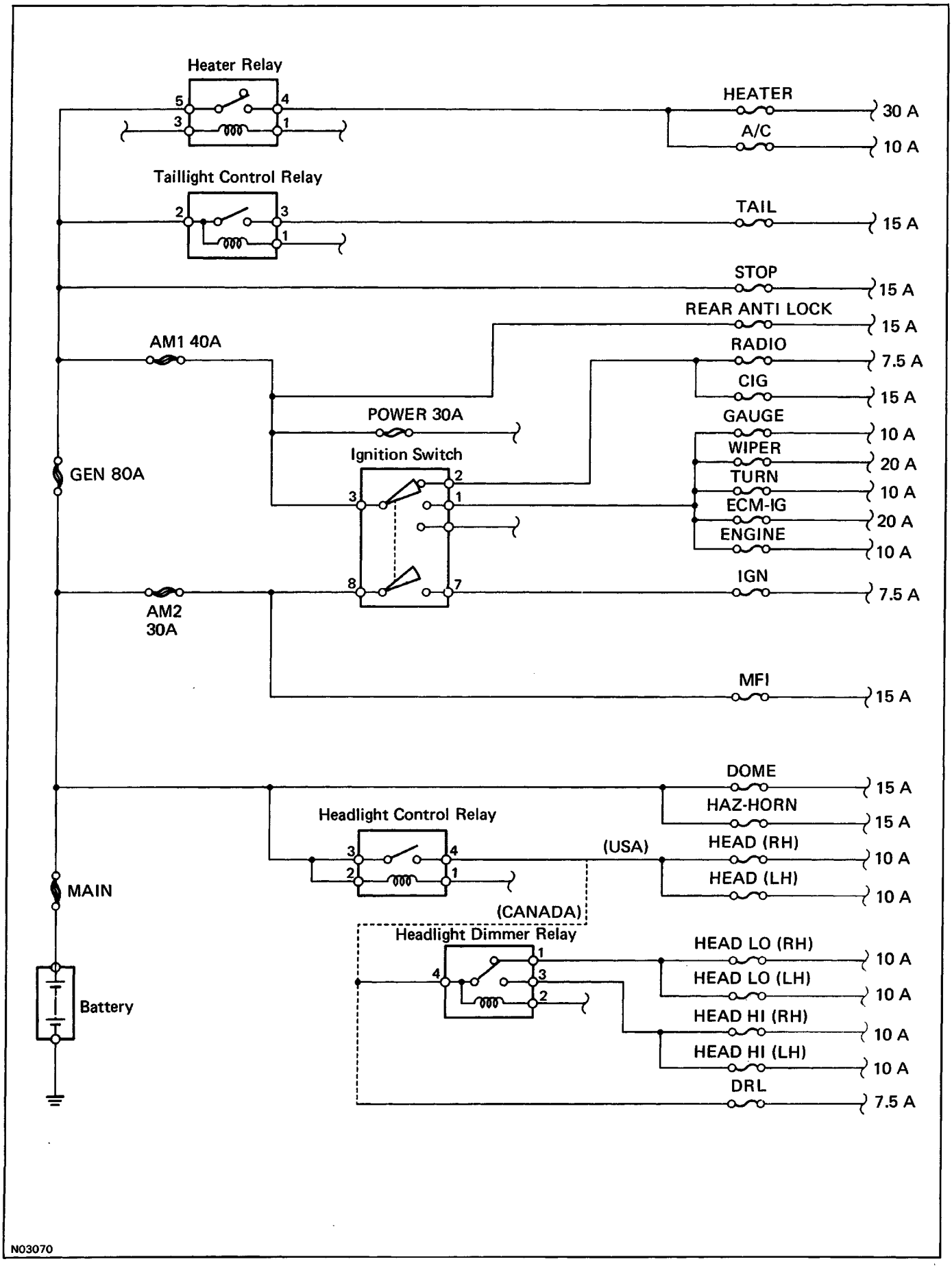
Fuses

1.	A/C	10A
2.	HEATER	30A

Relay
A. Heater Relay

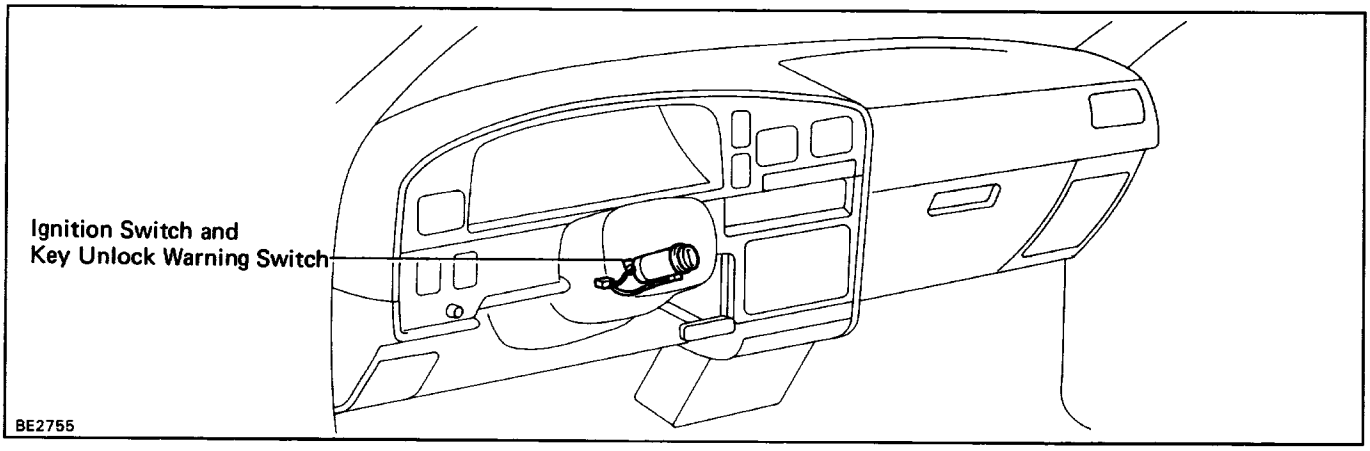
BE2946 BE2947
N02967 N02966
BE2950

Wiring Diagram

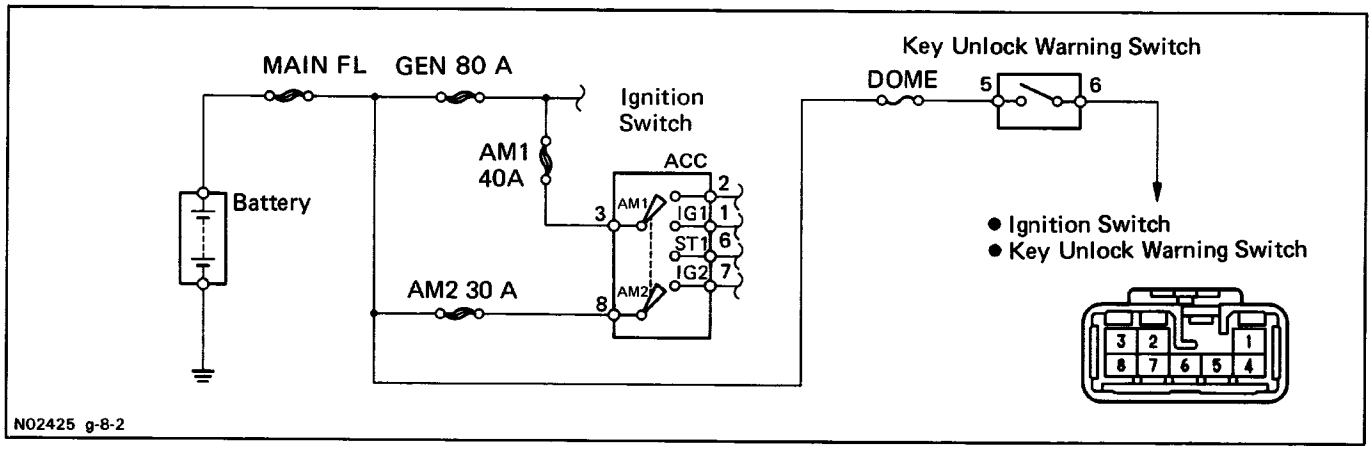


IGNITION SWITCH

Parts Location



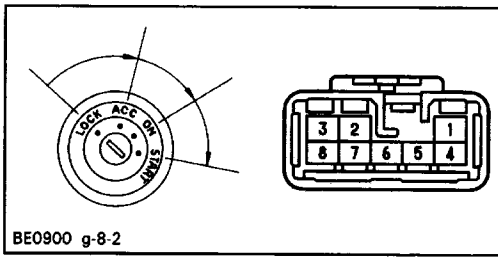
Wiring and Connector Diagrams



Parts Inspection

Ignition System

INSPECT SWITCH
(ignition Switch /Continuity)

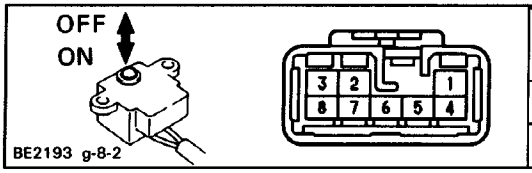


Terminal / Switch position	1	2	3	6	7	8
LOCK						
ACC		○—○	○—○			
ON	○	○—○	○—○		○—○	
START	○		○—○		○—○	

If continuity is not as specified, replace the switch.

Key Confine Prevention System

1. INSPECT SWITCH
(Key Unlock Warning Switch/Continuity)

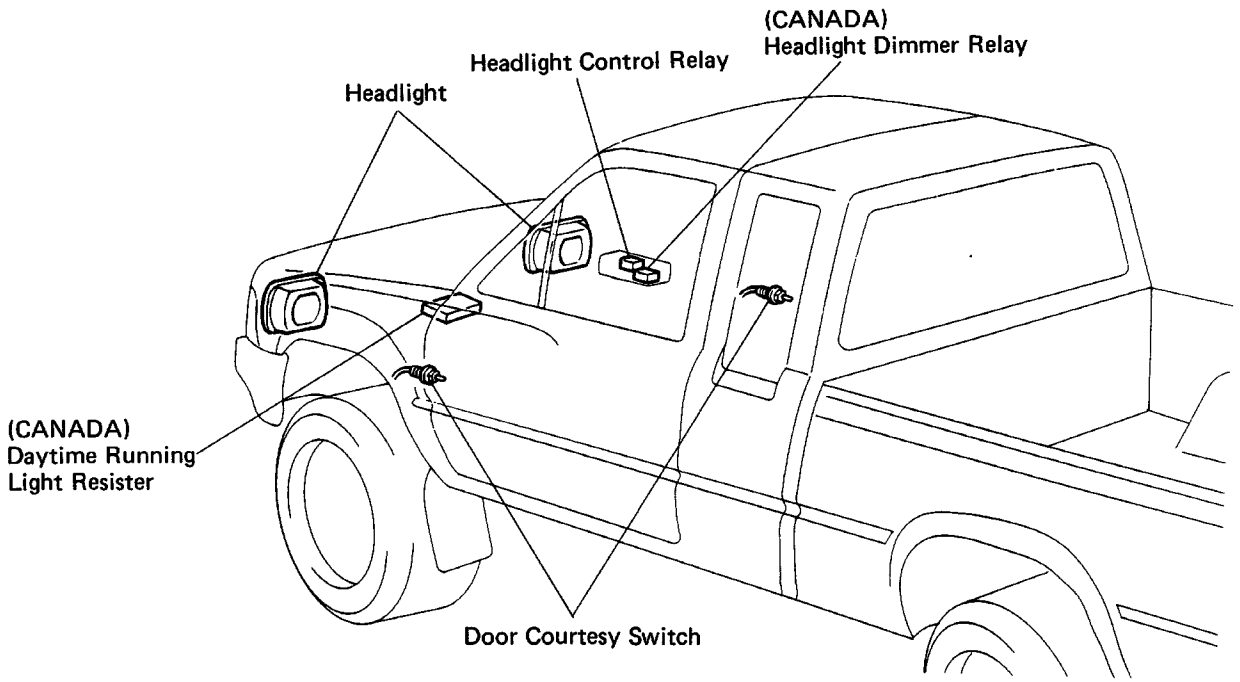


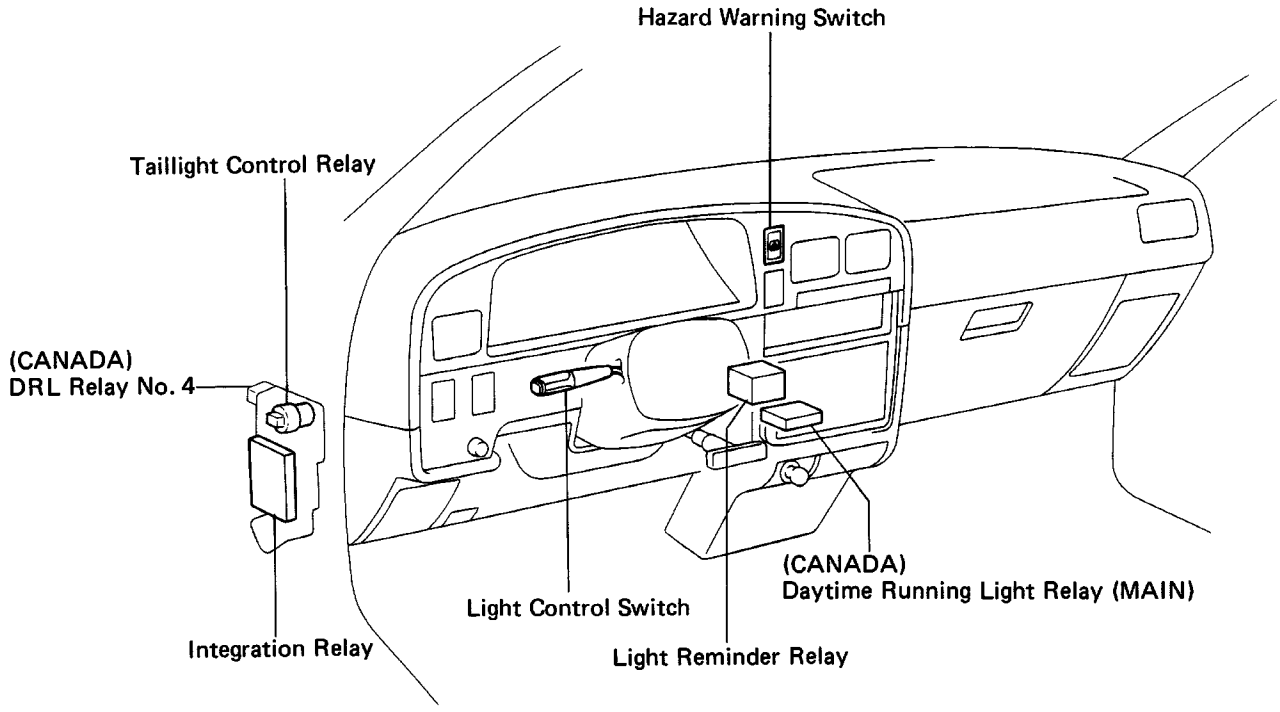
Terminal / Switch position	3	4
OFF (Key removed)		
ON (Key set)	○	○

(Door Courtesy Switch/Continuity)
See step 2 on page BE–42.
If continuity is not as specified, replace the switch.

2. INSPECT RELAY
See step 3 of Integration Relay on page BE–42.

LIGHTING SYSTEM
Parts Location

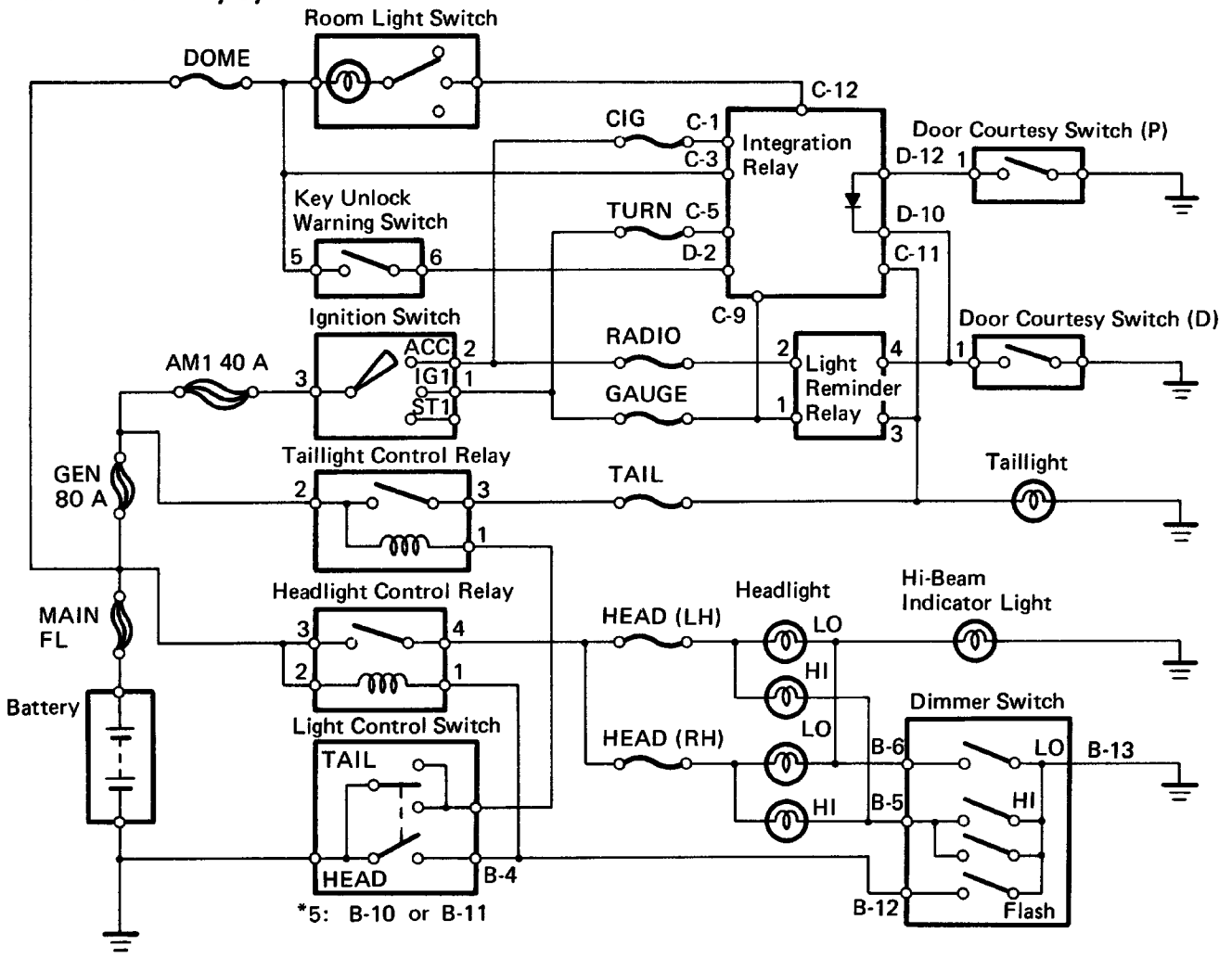




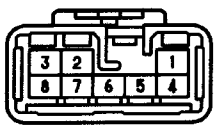
N03072
N03160

Wiring and Connector Diagrams

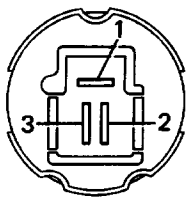
- **Headlight System (USA)**
- **Taillight System (USA)**
- **Lights-On Warning System**
- **Illuminated Entry System**



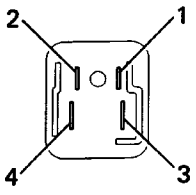
- Ignition Switch
- Key Unlock Warning Switch



Taillight Control Relay

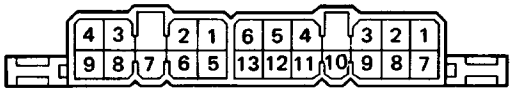


Headlight Control Relay

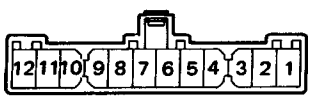


- Light Control Switch
- Dimmer Switch

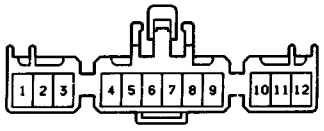
Connector "A" Connector "B"



Integration Relay
J/B Side: Connector "C"



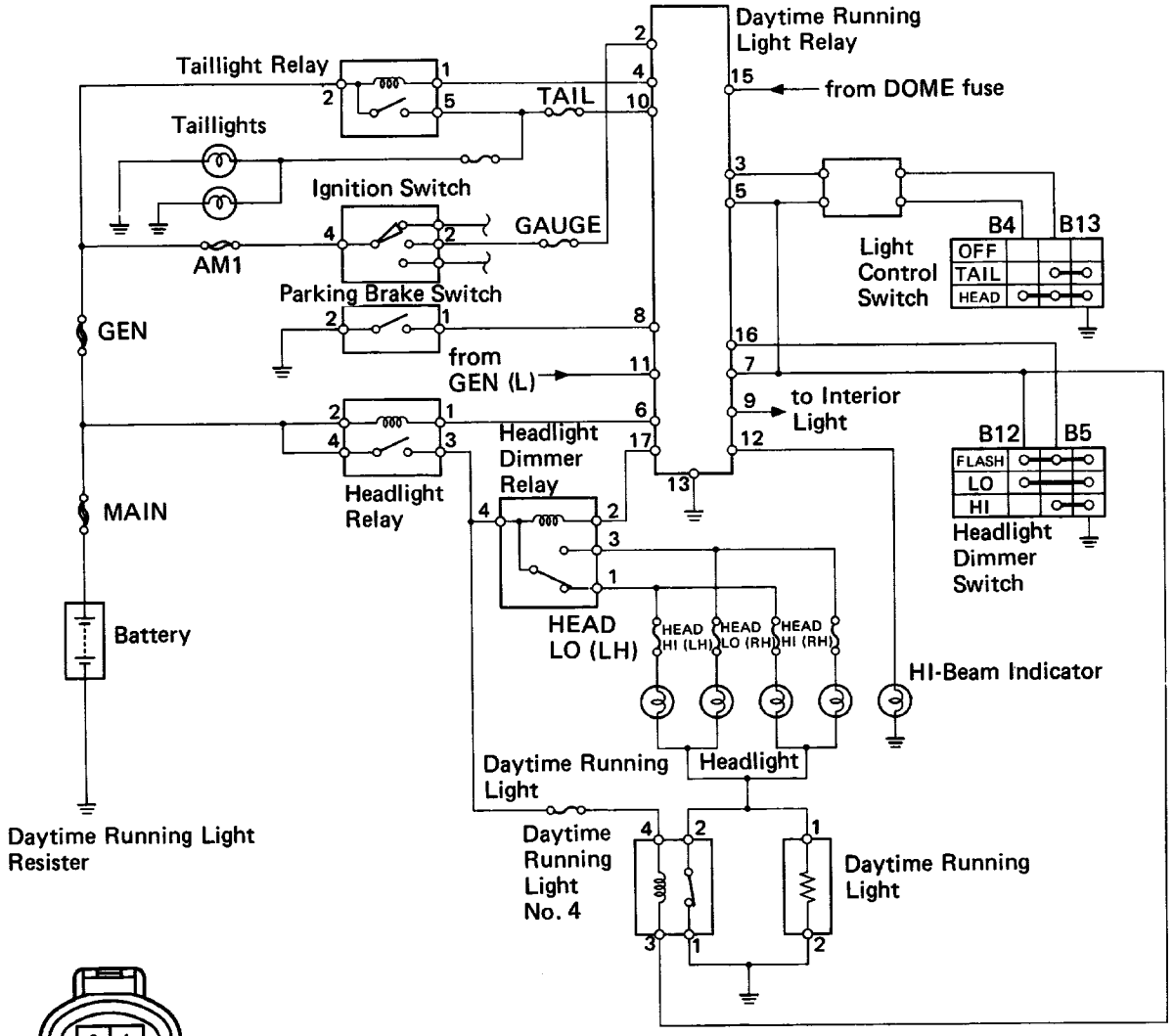
Wire Harness Side: Connector "D"

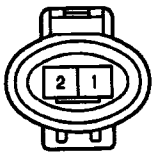


Light Reminder Relay

BE5627
g-8-2 BE2763 BE1838 BE0111
BE1851 S-12-1-B H-4-2

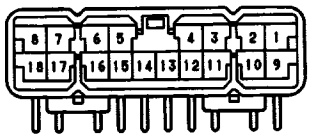
• Daytime Running Light System (CANADA)



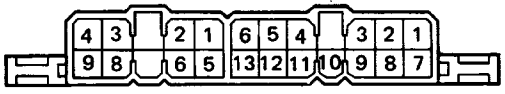


Daytime Running Light Relay

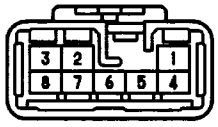
• Light Control Switch
• Headlight Dimmer Switch



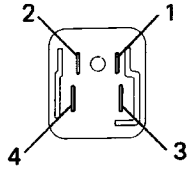
Connector "A" Connector "B"



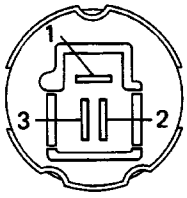
Ignition Switch



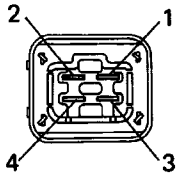
Daytime Running Light Relay and Headlight Control Relay



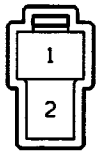
Taillight Control Relay



Headlight Dimmer Relay

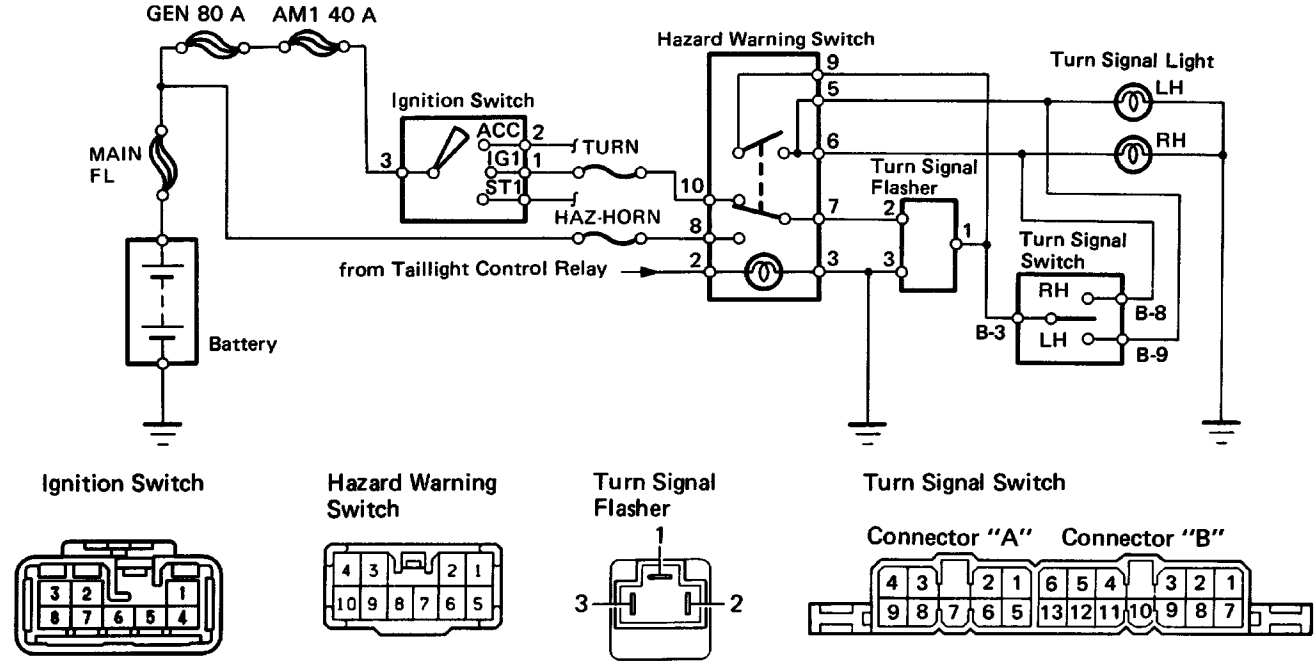


Parking Brake Switch



N02871
lg-2-2
e-18-2-A BE0111 g-8-2
BE1838 BE2763 BE1839 H-2-2

• Turn Signal and Hazard Warning System



Ignition Switch

Hazard Warning Switch

Turn Signal Flasher

Turn Signal Switch

Connector "A" Connector "B"

BE5629
g-8-2 S-10-2 BE2896 BE0111

Troubleshooting

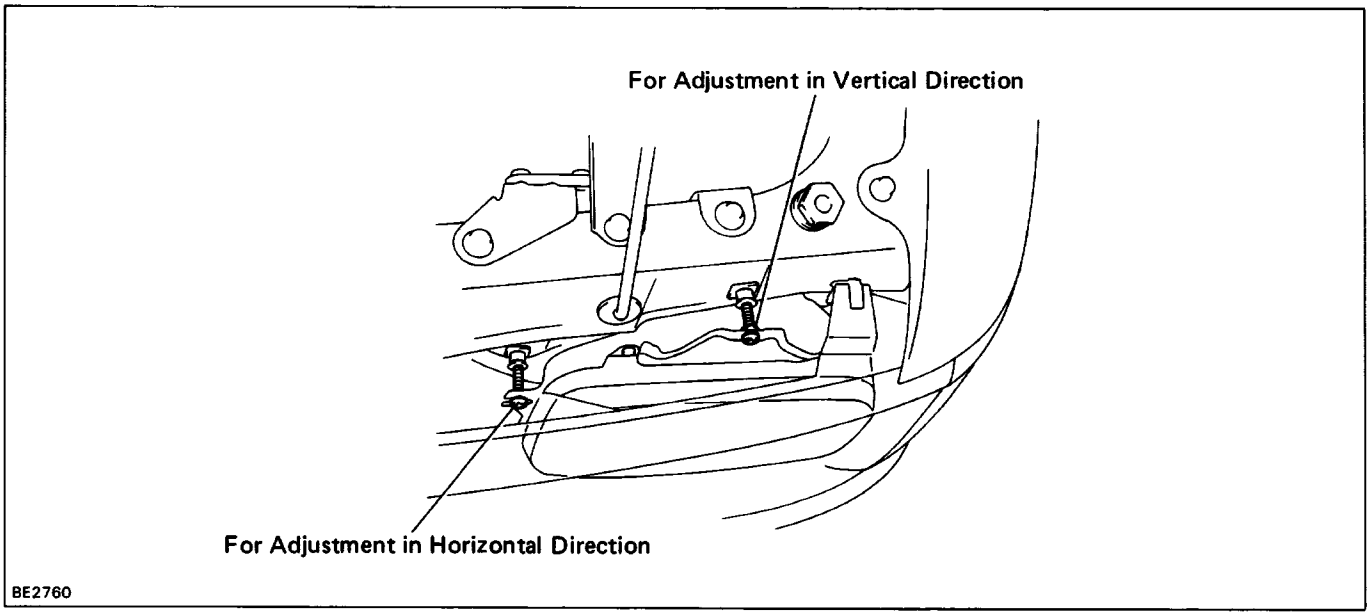
Problem	Possible cause	Remedy	Page
Only one light does not light up	Light bulb burned out Socket, wire or ground faulty	Replace sealed beam headlight Repair as necessary	
Headlights do not light up	Fusible link blown Headlight control relay faulty Light control/dimmer switch faulty Daytime running light relay faulty Wiring and ground faulty	Replace fusible link Check relay Check switch Check relay circuit Repair as necessary	BE–1 9 BE–1 9 BE–20
High beam headlights or headlight flashers do not operate	Light control/dimmer switch faulty Daytime running light really faulty Wiring or ground faulty	Check switch Check relay Repair as necessary	BE–1 9 BE–20
Tail, parking and license light do not light up	TAIL fuse blown Fusible link blown Taillight control relay faulty Light control relay faulty Daytime running light relay faulty Wiring or ground faulty	Replace fuse and check for short Replace fusible link Check relay Check switch Check relay Repair as necessary	BE–3 BE–19 BE–1 9 BE–20
Stop lights do not light up	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–3
Stop lights stay on	Stop light switch faulty	Adjust or replace switch	
Instrument lights do not light up (taillight light up)	Wiring or ground faulty	Repair as necessary	
Turn signal does not flash on one side	Turn signal switch faulty Wiring or ground faulty	Check switch Repair as necessary	BE–1 9

Troubleshooting (Cont'd)

Problem	Possible cause	Remedy	Page
Turn signal do not operate	HAZ–HORN fuse blown Turn signal flasher faulty Turn signal/hazard switch faulty Wiring or ground faulty	Replace fuse and check for short Check flasher Check switch Repair as necessary	BE–3 BE–23 BE–23
Hazard warning lights do not operate	HAZ–HORN fuse blown Turn signal flasher faulty Turn signal/hazard switch faulty Wiring or ground faulty	Replace fuse and check for short Check flasher Check switch Repair as necessary	BE–3 BE–23 BE–23
Daytime running light system does not operate	DOME fuse blown GAUGE fuse blown IG N fuse blown HEAD fuse blown TAIL fuse blown Headlight control relay faulty Taillight control relay faulty Dimmer relay faulty Ignition switch faulty Light control/dimmer switch faulty Wiring or ground faulty	Replace fuse and check for short Check relay Check relay Check relay Check switch Check switch Repair as necessary	BE–3 BE–1 9 BE–19 BE–20 BE–8 BE–1 9

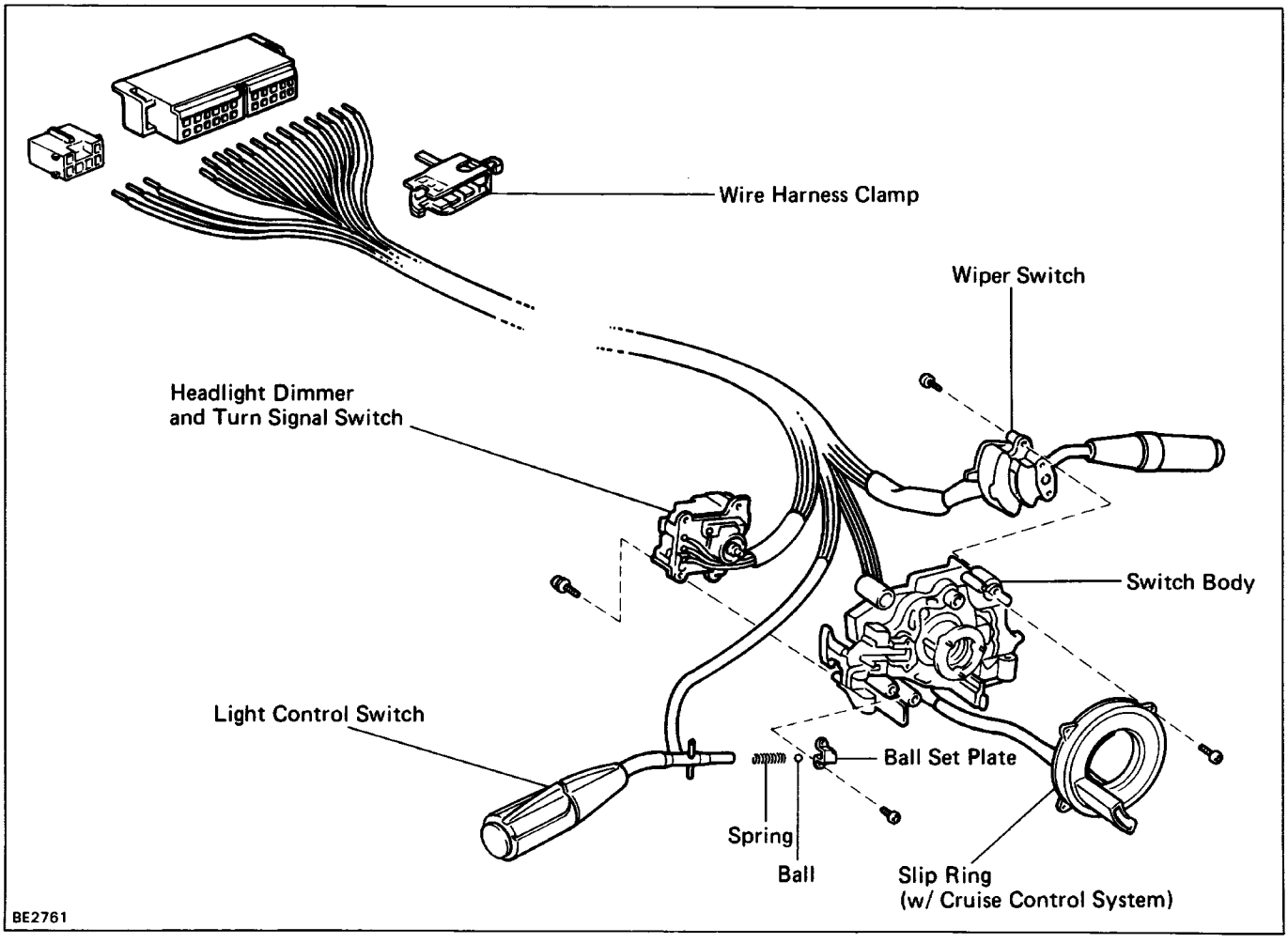
Parts Adjustment

Adjustment of Light Aiming



Parts Replacement

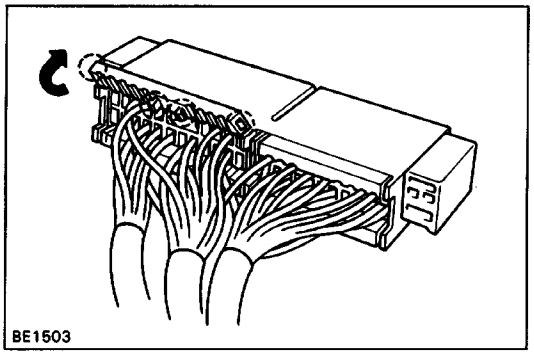
Components



Disassembly of Combination Switch

NOTICE: w/ Cruise Control System
To prevent damage to the slip ring when removing the steering wheel, be careful of the following points.

- **Keep the steering wheel in the "straight–ahead" steering position.**
- **Do not let the steering wheel strongly interfere with the connector part of the slip ring.**

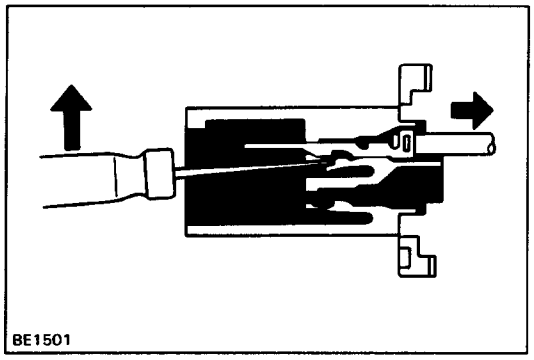

BE1503

1. REMOVE WIRE HARNESS CLAMP FROM WIRE HARNESS

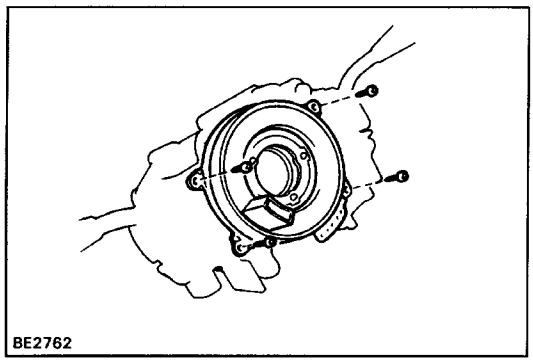
Pry loose– the two locking lugs and remove the clamp from the wire harness.

2. REMOVE TERMINALS FROM CONNECTOR

(a) Release four tabs and open the terminal cover.

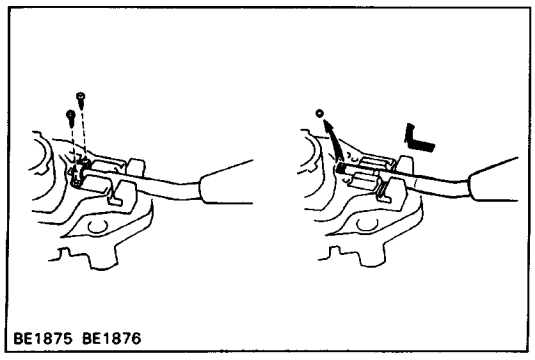

BE1501

(b) From the open end, insert a miniature screwdriver between the locking lug and terminal.
(c) Pry down the locking lug with the screwdriver and pull the terminal out from the rear.


BE2762

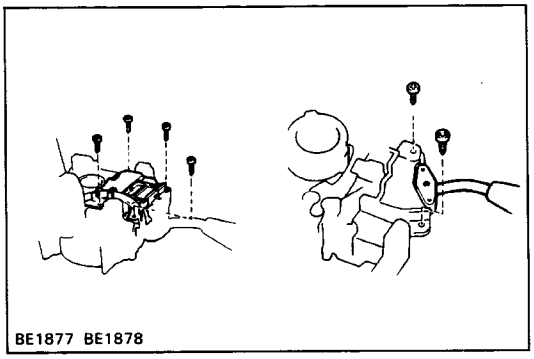
3. (w! Cruise Control System) REMOVE SLIP RING

Remove four screws and the slip ring from the switch body.


BE1875 BE1876

4. REMOVE LIGHT CONTROL SWITCH

(a) Remove two screws and the ball set plate from the switch body.
(b) Remove the ball and slide out the switch from the switch body with the spring.

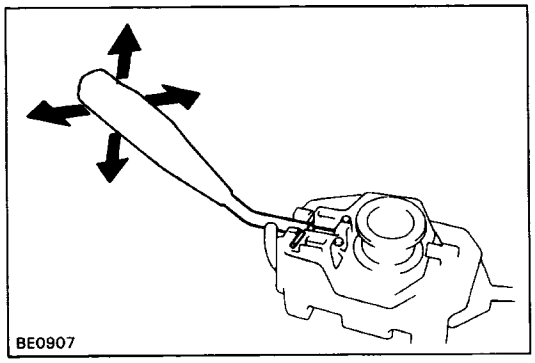

BE1877 BE1878

5. REMOVE HEADLIGHT DIMMER AND TURN SIGNAL SWITCH

Remove four screws and the switch from the switch body.

6. REMOVE WIPER AND WASHER SWITCH

Remove two screws and the switch from the switch body.

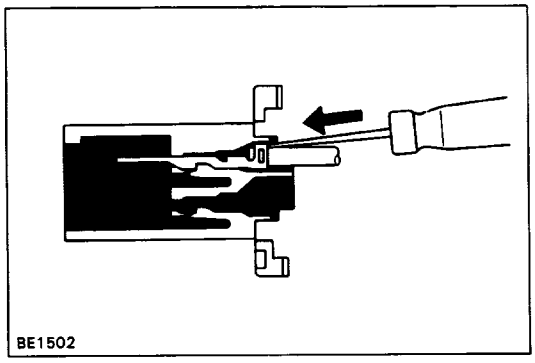

BE0907

Assembly of Combination Switch

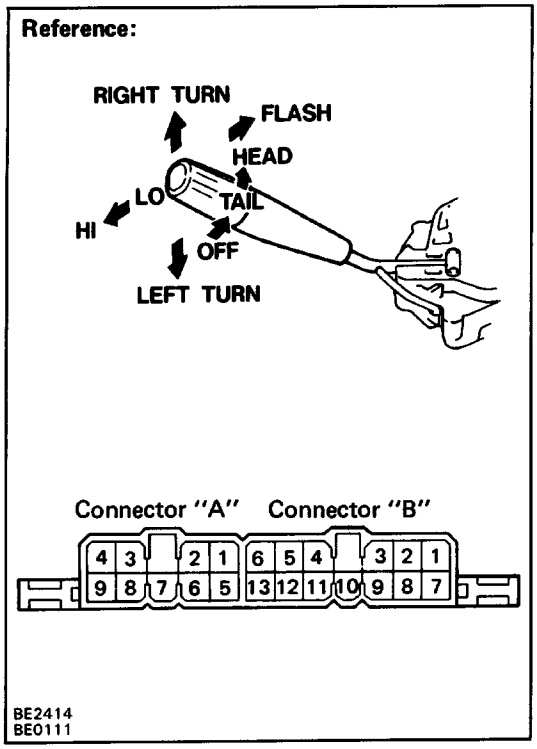
INSTALL PARTS OF COMBINATION SWITCH IN REVERSE SEQUENCE OF REMOVAL

HINT:

- After installing the light control switch to the switch body, insure that the switch operates smoothly.


BE1502

- Push in the terminal until it is securely locked in the connector lug.



Parts Inspection

Headlight, Taillight and Daytime Running Light System

1. INSPECT COMBINATION SWITCH

(Light Control Switch /Continuity)

Terminal (Color) / Switch position	B-10 (W)	B-11 (W)	B-4 (R)
OFF			
TAIL	○—○		
HEAD	○—○	○—○	

(Headlight Dimmer and Turn Signal Switch/Continuity)

Headlight Dimmer Switch

Terminal (Color) / Switch position	B-5 (R-Y)	B-6 (R-G)	B-12 (R-W)	B-13 (W-B)
Flash	○		○	○
Low beam		○		○
High beam	○			○

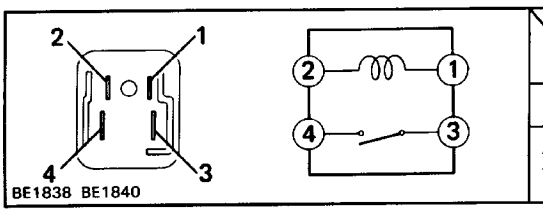
Turn Signal Switch

Terminal (Color) / Switch position	B-3 (G-W)	B-8 (G-Y)	B-9 (G-B)
Left turn	○		○
Neutral			
Right turn	○—○		

If continuity is not as specified, replace the switch.

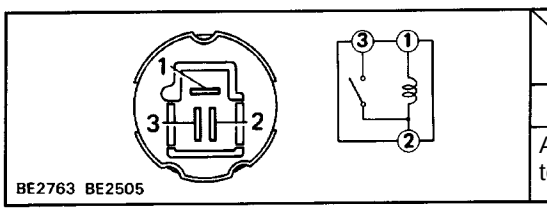
2. INSPECT RELAY

(Headlight Control Relay/Continuity)



Terminal / Condition	1	2	3	4
Constant	○	○		
Apply battery positive voltage to terminals 1 and 2.			○	○

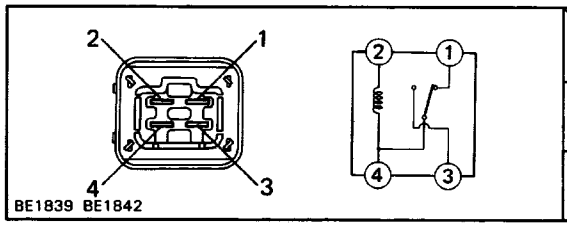
(Taillight Control Relay/Continuity)



Terminal / Condition	1	2	3
Constant	○	○	
Apply battery positive voltage to terminals 1 and 2.		○	○

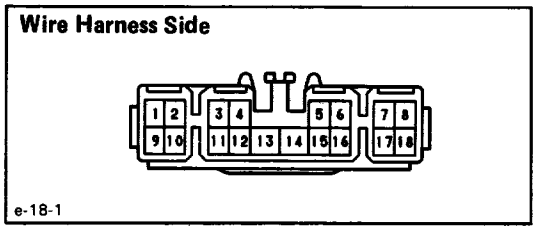
If continuity is not as specified, replace the relay.

(Headlight Dimmer Relay/Continuity)



Terminal / Condition	1	2	3	4
Constant	○			○
		○	∿	○
Apply battery positive voltage to terminals 2 and 4.			○	○

If continuity is not as specified, replace the relay.

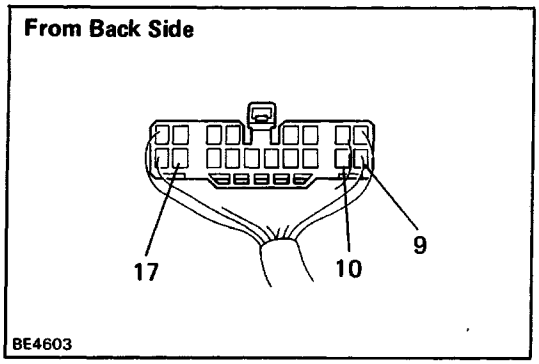


1. INSPECT DAYTIME RUNNING LIGHT RELAY

(Relay Circuit)

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

Check for	Tester connection	Condition		Specified value
Continuity	3 — Ground	Light control switch position	OFF	No continuity
			TAIL or HEAD	Continuity
	5 — Ground	Light control switch position	OFF or TAIL	No continuity
			HEAD	Continuity
	7 — Ground	Headlight dimmer switch position	Low beam or High beam	No continuity
			Flash	Continuity
	8 — Ground	Parking brake switch position	OFF (Parking brake lever released)	No continuity
			ON (Parking brake lever pulled up)	Continuity
	13 — Ground	Constant		Continuity
	16 — Ground	Headlight dimmer switch position	Low beam	No continuity
			High beam or Flash	Continuity
Voltage	2 — Ground 18 — Ground	Ignition switch position	LOCK or ACC	No voltage
			ON or START	Battery positive voltage
	4 — Ground 6 — Ground 15 — Ground	Constant		Battery positive voltage
	11 — Ground	Engine	Stop	No voltage
			Running	Battery positive voltage



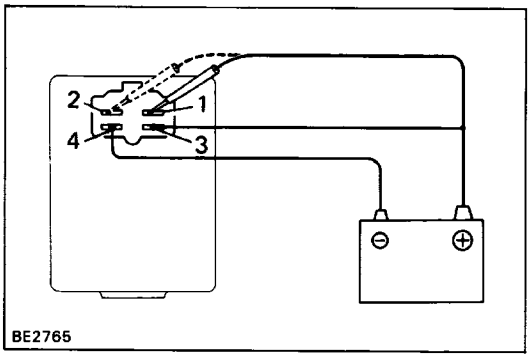
(Relay Circuit/Connector connected)
Connect the wire harness side connector to the relay and inspect wire harness side connector from the back side as shown.

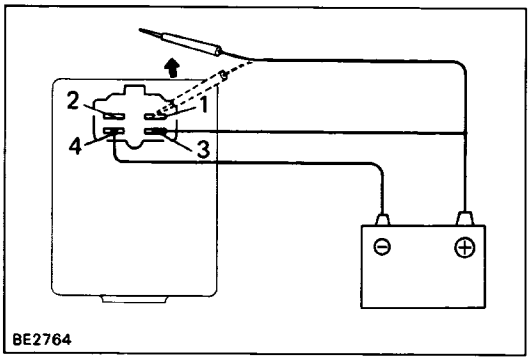
Check for	Tester connection	Condition		Specified value
Voltage	9 — Ground	Light control switch position	OFF	No voltage
			TAIL or HEAD	Battery positive voltage
	10 — Ground	Light control switch position	OFF	No voltage
			TAIL or HEAD	Battery positive voltage
	17 — Ground	Headlight dimmer switch position	Low beam or High beam	No voltage
			Flash	Battery positive voltage

If circuit is as specified, replace the relay.

4. INSPECT PARKING BRAKE SWITCH

(See page BE–39)





Lights–On Warning System

1. INSPECT DOOR COURTESY SWITCH

See combination meter on page BE–39.

2. INSPECT LIGHT REMAINDER RELAY

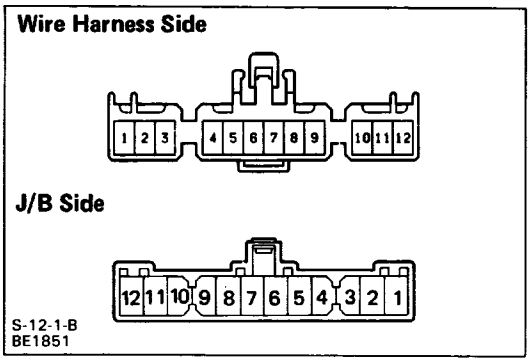
(Relay Circuit/Operation)

(a) Connect the positive (+) lead from the battery to terminal 3 and the negative (–) lead to terminal 4.

(b) Check that the buzzer does not sound when connected terminal 1 or 2 to the positive (+) lead.

(c) Check that the buzzer sounds when disconnecting terminal 1 or 2 from the positive (+) lead.

If operation is not as specified, replace the relay.



Illuminated Entry System

1. INSPECT DRIVER'S DOOR COURTESY SWITCH

See combination meter on page BE–40.

2. INSPECT INTEGRATION RELAY

(Relay Circuit)

Disconnect the connectors from the relay and inspect the connectors on the wire harness side and JIB side as shown in the chart.

(Wire Harness Side)

Check for	Tester connection	Condition		Specified value
Continuity	4 — Ground	Constant		Continuity
	7 — Ground	Constant		Continuity
	10 — Ground	Driver's door position	Closed (Courtesy switch OFF)	No continuity
			Opened (Courtesy switch ON)	Continuity

(JIB Side)

Check for	Tester connection	Condition	Specified value
Continuity	7 — Ground	Constant	Continuity
Voltage	3 — Ground	Constant	Battery positive voltage
	12 — Ground	Constant	Battery positive voltage

If the circuit is as specified, replace the relay.

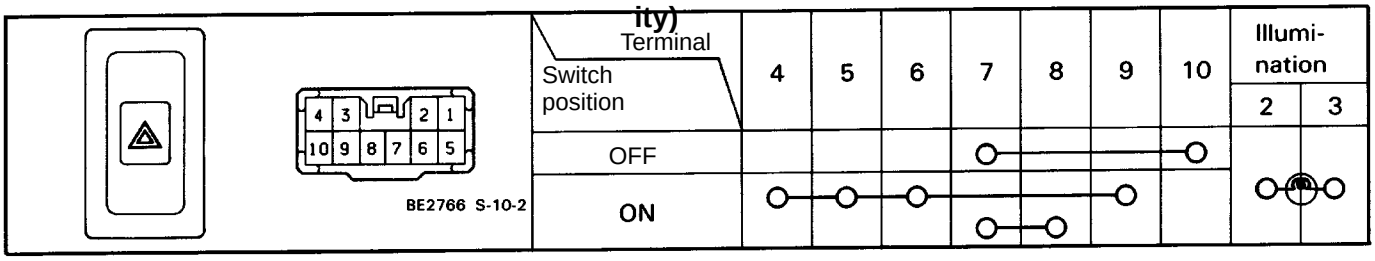
Turn Signal and Hazard Warning System

1. INSPECT SWITCHES

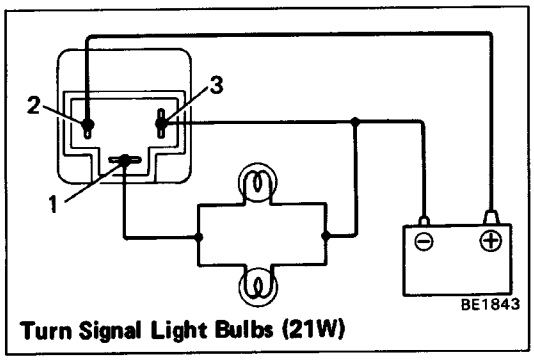
(Turn Signal Switch /Continuity)

See Headlight Dimmer and Turn Signal Switch on page BE–1 9.

(Hazard Warning Switch/Continuity)



If continuity is not as specified, replace the switch.



2. INSPECT TURN SIGNAL FLASHER

(Operation)

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

(b) Connect the two turn signal light bulbs parallel to each other to terminals 1 and 3, check that the bulbs flash.

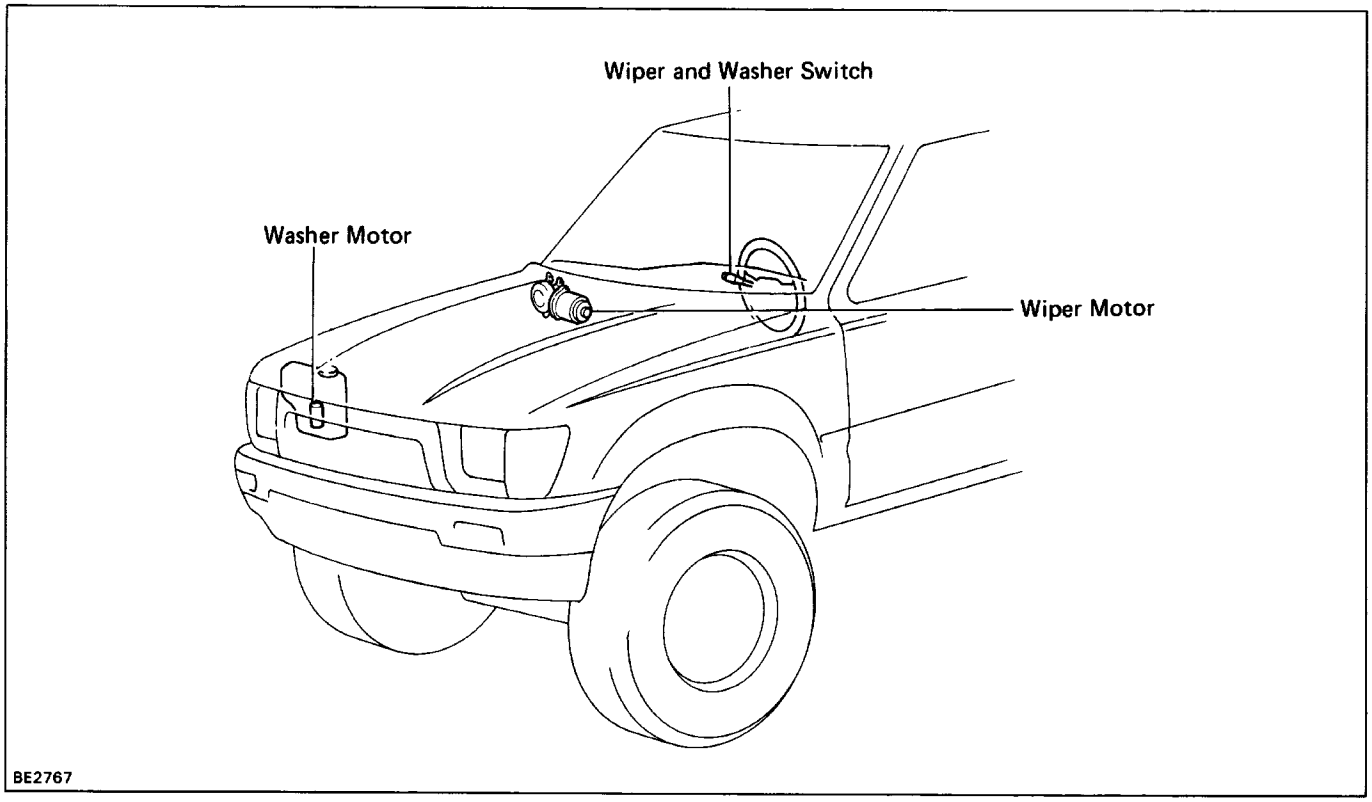
HINT: The turn signal lights should flash 60 to 120 times per minute.

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

If operation is not as specified, replace the flasher.

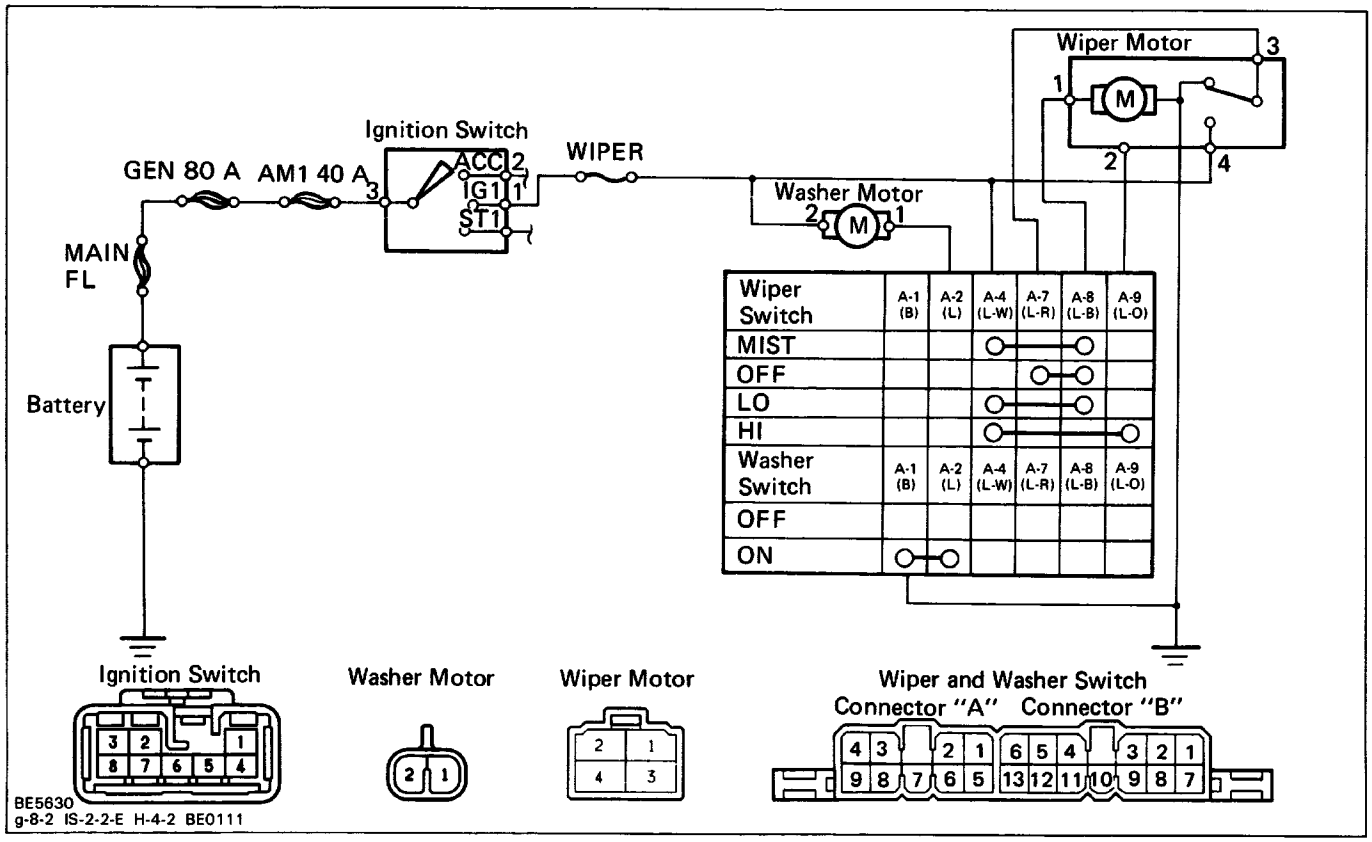
WIPER AND WASHER SYSTEM

Parts Location

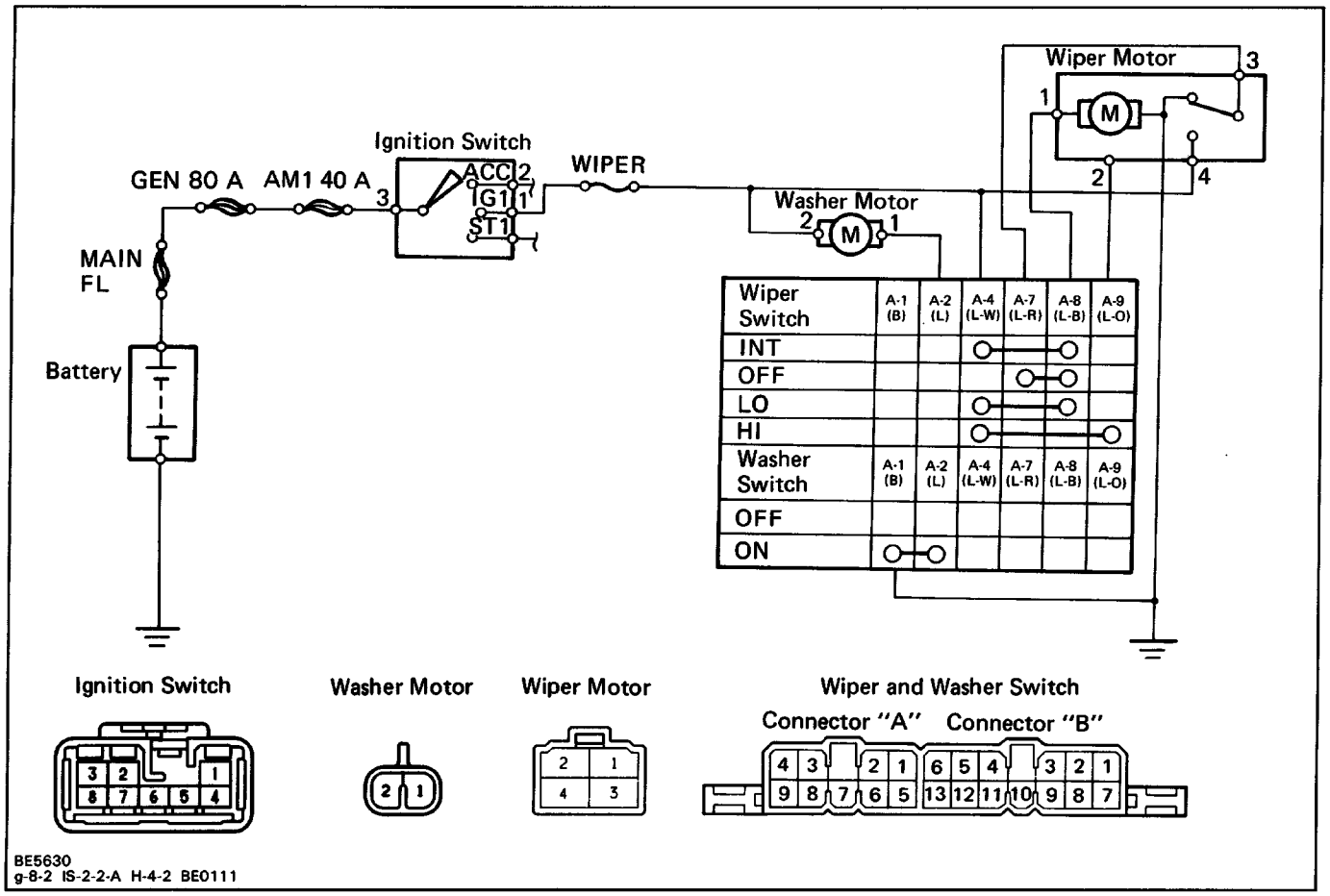


Wiring and Connector Diagrams

(w/ MIST Wiper)



(w/ Intermittent Wiper)

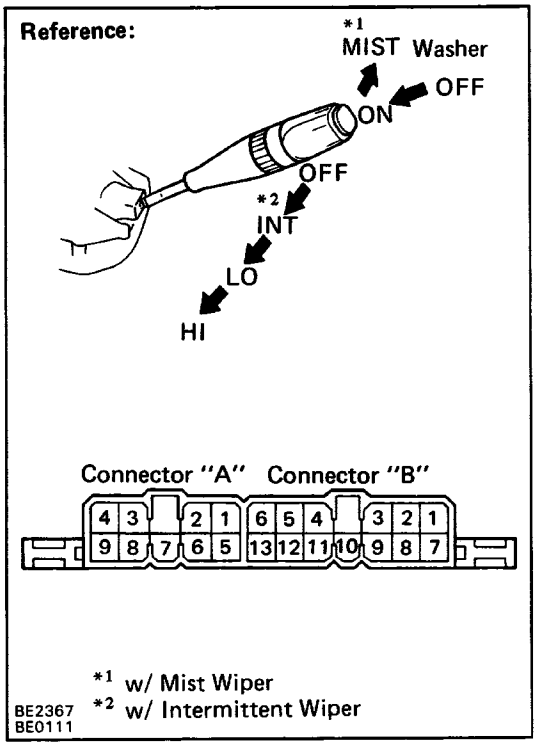


Troubleshooting

Problem	Possible cause	Remedy	Page
Wipers do not operate or return to off position	WIPER fuse blown	Replace fuse and check for short	BE–3
	Wiper motor faulty	Check motor	
	Wiper switch faulty	Check switch	BE–27
	Wiper or ground faulty	Repair as necessary	BE–26
Wipers do not operate in INT position	Wiper switch faulty	Check switch	BE–26
	Wiper motor faulty	Check motor	BE–27
	Wiring or ground faulty	Repair as necessary	
Washers do not operate	Washer hose or nozzle clogged	Repair as necessary	
	Washer motor faulty	Check motor	BE–28
	Washer switch faulty	Check switch	BE–28
	Wiring faulty	Repair as necessary	

Parts Replacement

See replacement of combination switch on pages BE–1 6 to 18.



Parts Inspection

Wiper System

1. INSPECT SWITCHES

(Wiper and Washer Switch/Continuity)

w/ Mist Wiper

Terminal (Color) / Switch position		A-1 (B)	A-2 (L)	A-4 (L-W)	A-7 (L-R)	A-8 (L-B)	A-9 (L-O)
Wiper	MIST			○		○	
	OFF				○	○	
	LO			○		○	
	HI			○			○
Washer	OFF						
	ON	○	○				

wI Intermittent Wiper

Terminal (Color) / Switch position		A-1 (B)	A-2 (L)	A-4 (L-W)	A-7 (L-R)	A-8 (L-B)	A-9 (L-O)
Wiper	MIST				○	○	
	INT			○		○	
	LO			○		○	
	HI			○			○
Washer	OFF						
	ON	○	○				

If continuity is not as specified, replace the switch.

(Wiper and Washer Switch /intermittent Wiper Operation)

(a) Turn the wiper switch to INT position.

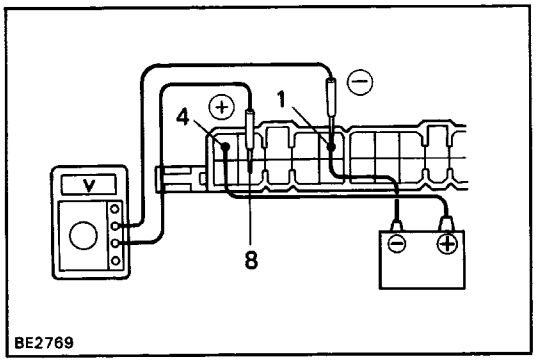
(b) (Variable Type)
Turn the intermittent time control switch to FAST position.

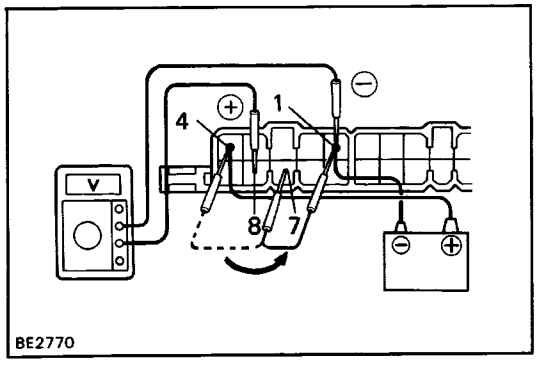
(c) Connect the positive (+) lead from the battery to terminal 4!9 and the negative (–) lead to terminal 1/9.

(d) Connect the positive (+) lead from the voltmeter to terminal 8I9 and the negative (–) lead to terminal 1/9, check that the meter needle indicates battery positive voltage.

(e) After connecting terminal 7I9 to terminal 419, con–nect to terminal 1/9.

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





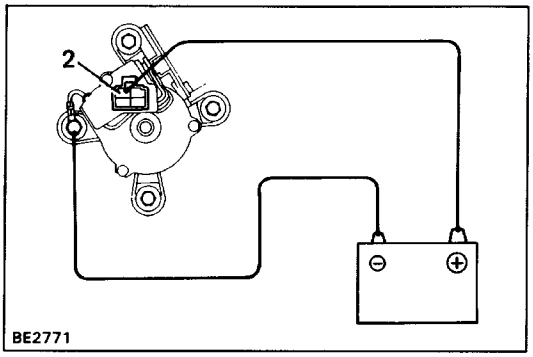
Non Variable Type

Switch position	Specified valve
INT	3.3 ± 1 sec. Battery positive voltage 0 volts

Variable Type

Switch position		Specified valve
INT	FAST	1.6 ± 1 sec. Battery positive voltage 0 volts
	LOW	10.7 ± 5 sec. Battery positive voltage 0 volts

If operation is not as specified, replace the switch.

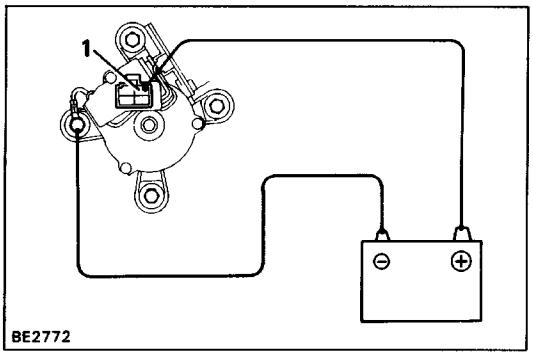


2. INSPECT MOTOR

(Operation at Low Speed)

Connect the positive (+) lead from the battery to terminal 2 and the negative (–) lead to the motor body, check that the motor operates at low speed.

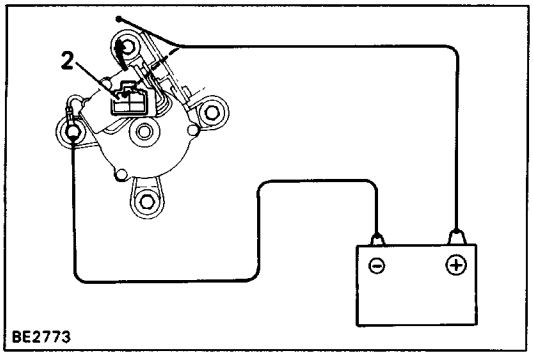
If operation is not as specified, replace the motor.



(Operation at High Speed)

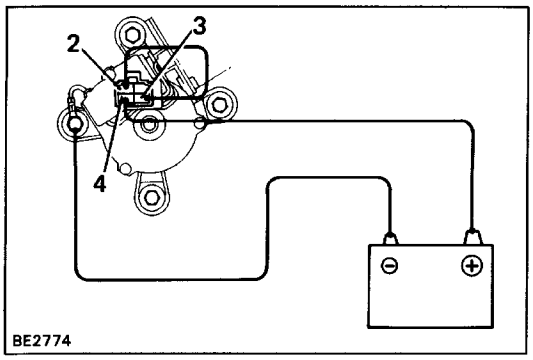
Connect the positive (+) lead from the battery to terminal 1 and the negative (–) lead to the motor body, check that the motor operates at high speed.

If operation is not as specified, replace the motor.



(Operation, Stopping at Stop Position)

(a) Operate the motor at low speed and stop the motor operation anywhere except at the stop position by disconnecting positive (+) lead from terminal 2.



(b) Connect terminals 2 and 3.

(c) Connect the positive (+) lead from the battery to terminal 4 and the negative (–) lead to the motor body, check that the motor stops running at the stop position after the motor operates again.

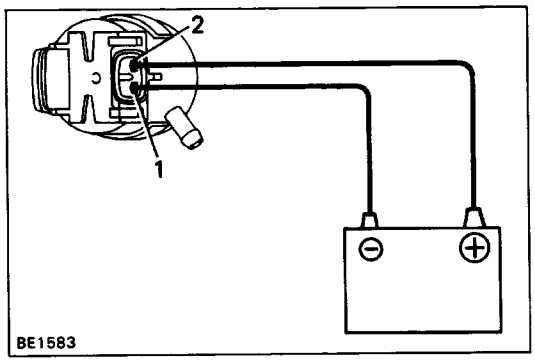
If operation is not as specified, replace the motor.

Washer System

1. INSPECT WASHER SWITCH

(Front Windshield Washer Switch)

See Wiper and Washer Switch on page BE–27.



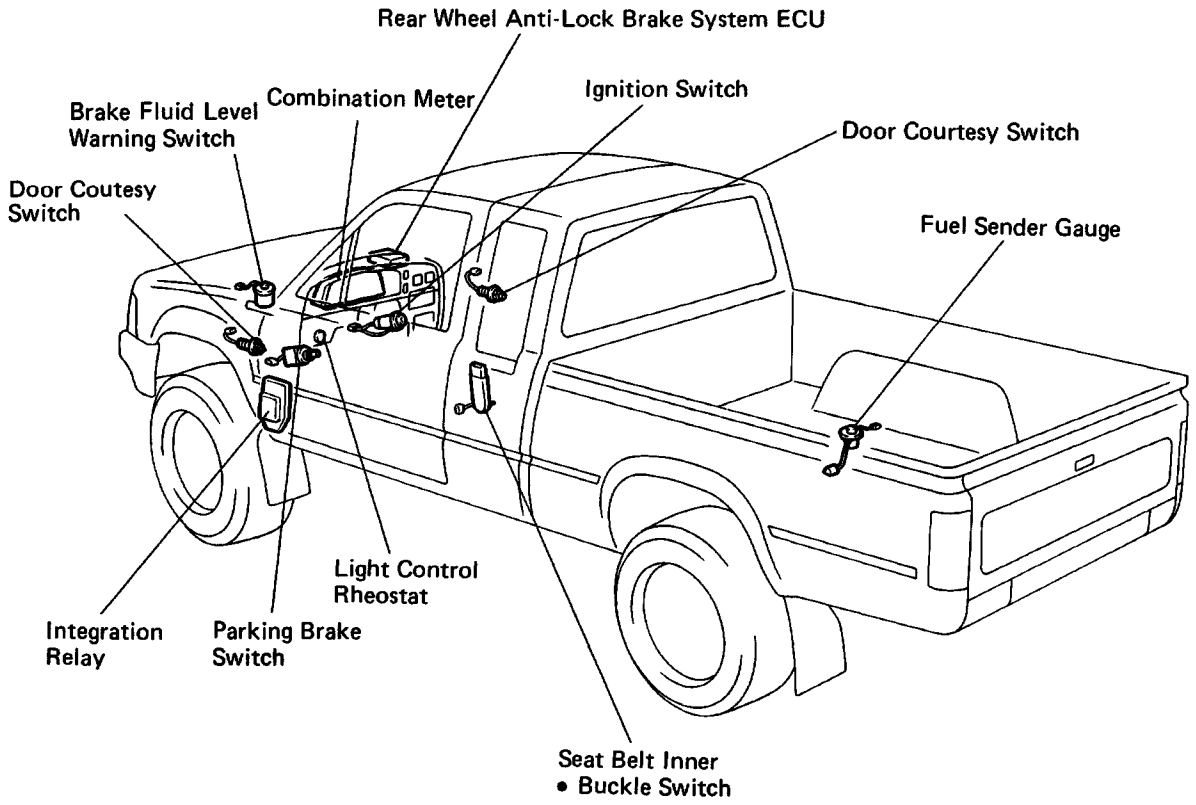
2. INSPECT WASHER MOTOR

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

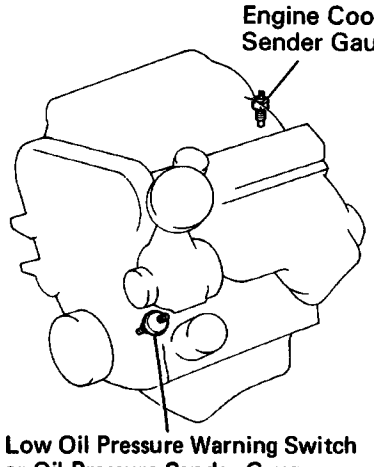
NOTICE: These tests must be performed quickly (Within 20 seconds) to prevent the coil from burning out.

If operation is not as specified, replace the motor.

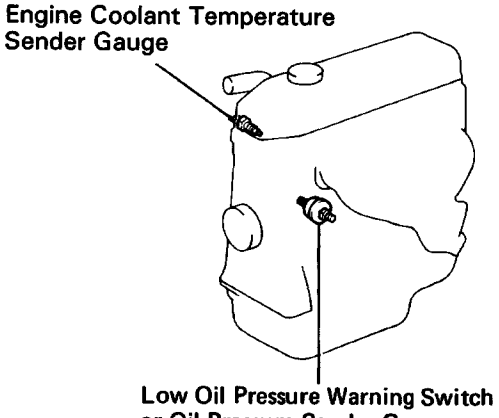
COMBINATION METER
Parts Location



3VZ-E Engine



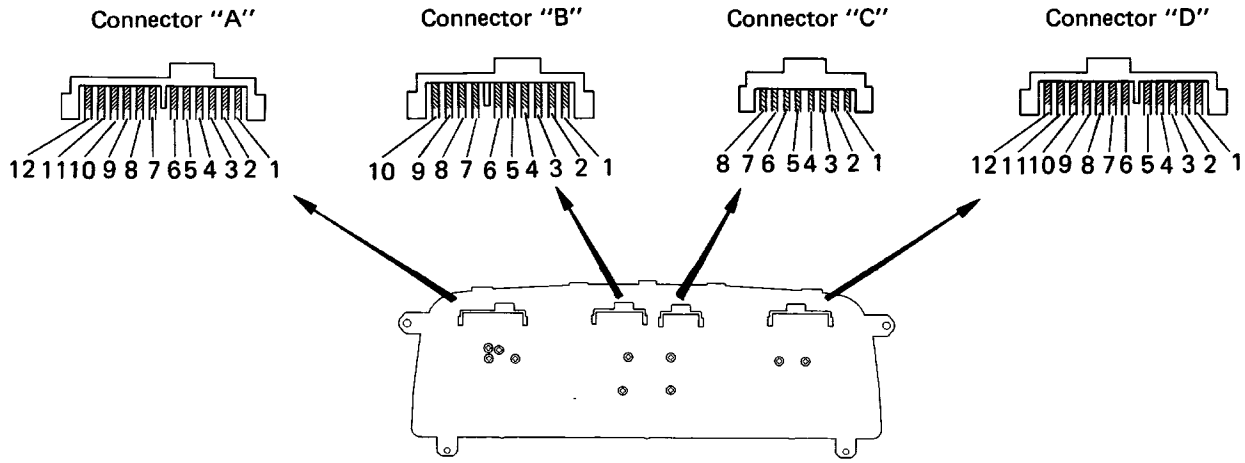
22R-E Engine



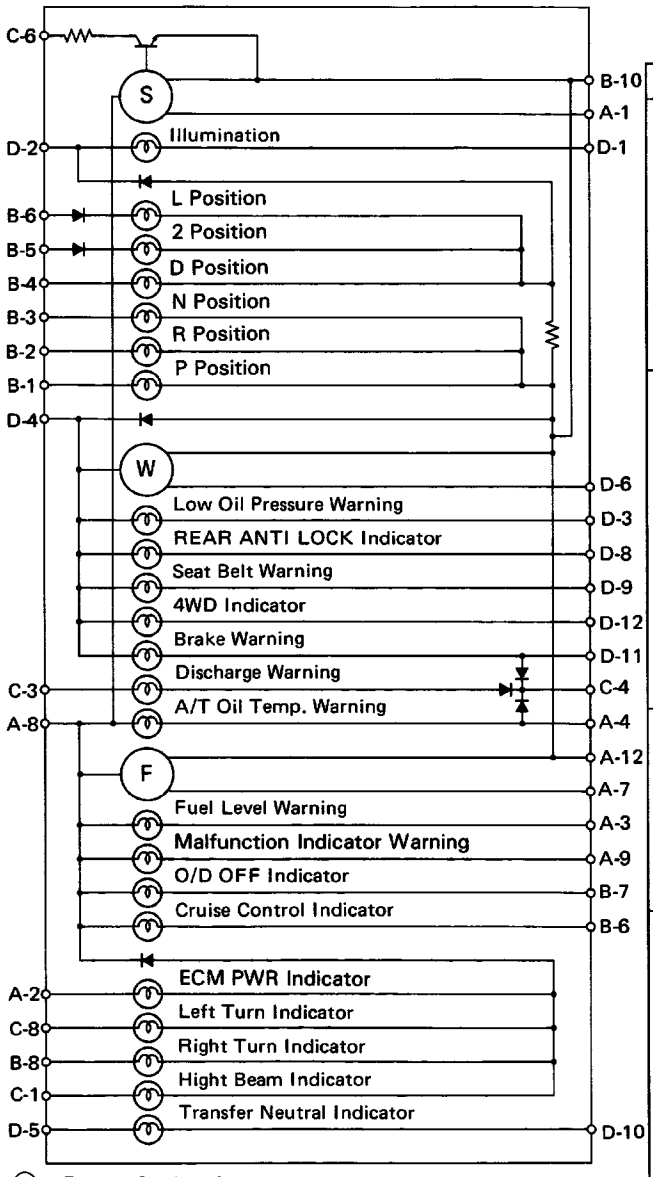
BE5631
BE2865 BE2866

Meter Circuit

(w/o Tachometer)



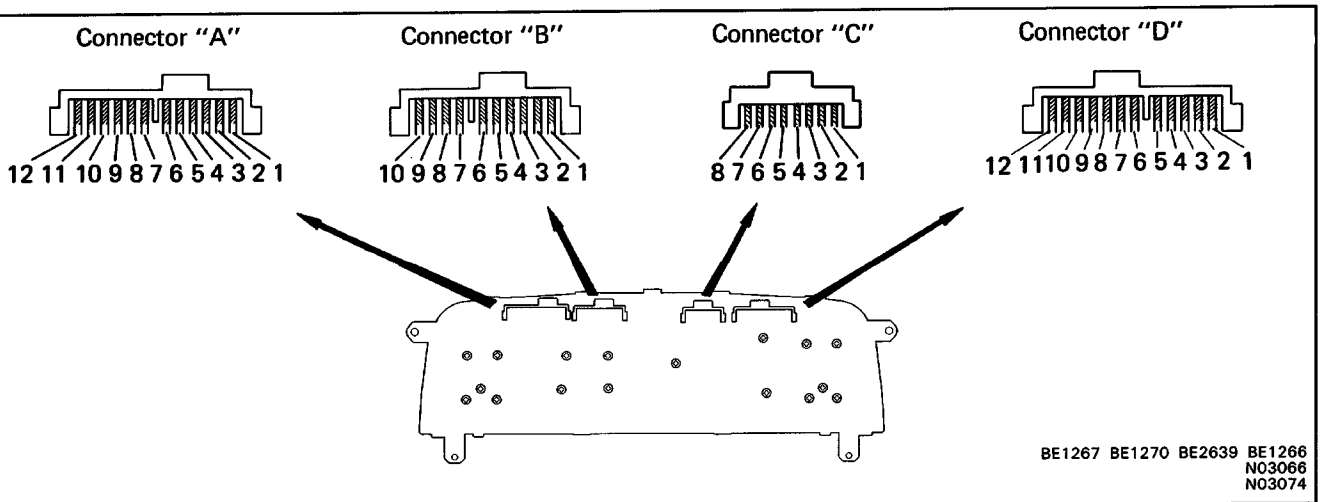
BE1267 BE1270 BE2639 BE1266
N03067
N02430



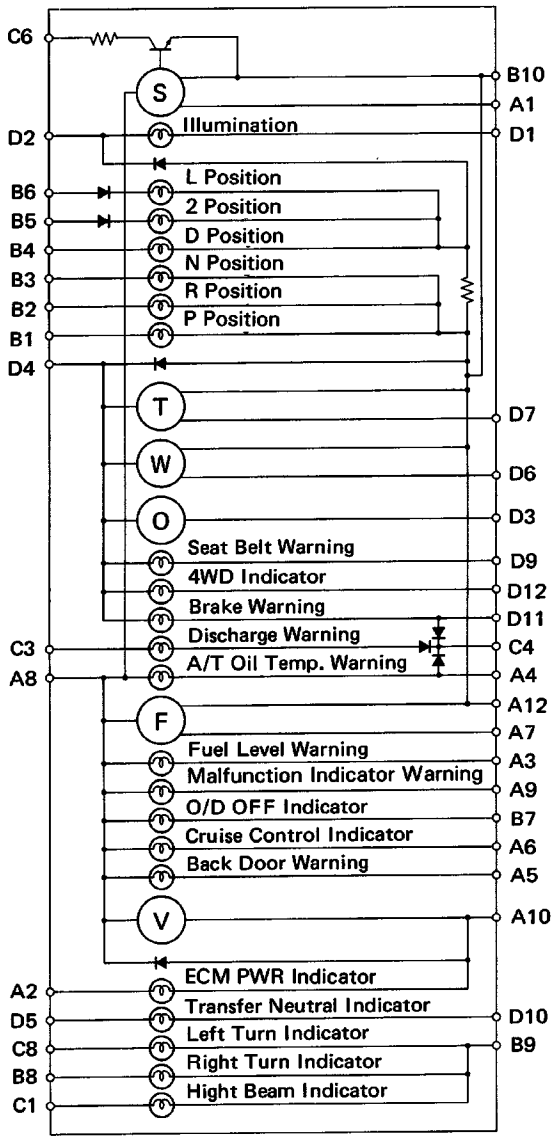
Ⓦ : Engine Coolant Temperature Gauge
Ⓕ : Fuel Gauge
Ⓢ : Speed Meter
Temp.: Temperature

No.		Wiring connector side
A	1	Speed Sensor SIG–VAL
	2	ETC Pattern select switch
	4	A/T Oil Temperature switch
	6	Cruise Control Main Switch
	7	Fuel Sender Gauge–Terminal 2
	8	GAUGE Fuse
	9	ECM
	12	Ground
B	1	Park/Neutral Position Switch
	2	Park/Neutral Position Switch
	3	Park/Neutral Position Switch
	4	Park/Neutral Position Switch
	5	Park/Neutral Position Switch
	6	Park/Neutral Position Switch
	7	O/D Main Switch
	8	Headlight Dimmer and Turn Signal Switch
	9	Ground
	10	Speed Sensor Ground
C	1	Headlight LO (LH)–(USA), HI (RH)–(CANADA)
	3	IG N Fuse
	4	CHARGE Fuse
	6	ECM
	8	Headlight Dimmer and Turn Signal Switch
D	1	(A/T) Light Control Rheostat–terminal 3 (M/T) Light Control Rheostat–terminal 2
	2	TAIL Fuse
	3	Low Oil Pressure Warning Switch
	4	GAUGE Fuse
	6	Engine Coolant Temperature Sender Gauge
	8	Rear Wheel Anti–Lock Brake System ECU
	9	Integration Relay–terminal 8 of mail connector
	11	Brake Fluid Level Warning Switch–terminal 1 and Parking Brake Switch–terminal 1
	12	Transfer Indicator Switch

(w/ Tachometer)



BE1267 BE1270 BE2639 BE1266
N03066
N03074



Ⓣ : Tachometer
Ⓦ : Engine Coolant Temperature Gauge
Ⓞ : Oil Pressure Gauge
Ⓕ : Fuel Gauge
Ⓥ : Volt Gauge
Ⓢ : Speed Meter
Temp.: Temperature

No.		Wiring connector side
A	1	Speed Meter SIG–VAL
	2	ECM Pattern Select Switch
	3	Fuel Sender Gauge–terminal 3
	4	A/T Oil Temperature Switch
	6	Cruise Control Main Switch
	7	Fuel Sender Gauge–terminal 4
	8	GAUGE Fuse
	9	ECM
	10	Ground
	12	Ground
B	1	Park/Neutral Position Switch
	2	Park/Neutral Position Switch
	3	Park/Neutral Position Switch
	4	Park/Neutral Position Switch
	5	Park/Neutral Position Switch
	6	Park/Neutral Position Switch
	7	O/D Main Switch
	8	Headlight Dimmer and Turn Signal Switch
	9	Ground
	10	Speed Sensor Ground
C	1	Headlight LO (LH)–(USA), H I (R H)–(CANADA)
	3	IGN Fuse
	4	CHARGE Fuse
	6	ECM
	8	Headlight Dimmer and Turn Signal Switch
D	1	Light Control Rheostat–(DLX Grade) terminal 2, (SR5 and SR5V6 Grades) terminal 3
	2	TAIL Fuse
	3	Oil Pressure Sender Gauge
	4	GAUGE Fuse
	6	Engine Coolant Temperature Sender Gauge
	7	Igniter
	8	Rear Wheel Anti–Lock Brake System ECU
	9	Integration Relay–terminal 8 of mail connector
	11	Brake Fluid Level Warning Switch–terminal 1 and Parking Brake Switch–terminal 1
	12	Transfer Indicator Switch

Troubleshooting

Problem	Possible cause	Remedy	Page
Gauges and indicator lights do not operate	GAUGE fuse faulty Wiring or ground faulty	Replace fuse and check for short Repair as necessary	BE–3
Voltmeter does not work	Voltmeter faulty Wiring or ground faulty	Check voltmeter Repair as necessary	BE–33
Tachometer does not operate	Tachometer faulty Wiring or ground faulty	Check tachometer Repair as necessary	BE–33
Fuel gauge does not operate	Receiver gauge faulty Sender gauge faulty Wiring or ground faulty	Check gauge Check gauge Repair as necessary	BE–34 BE–35
Engine Coolant temperature gauge does not operate	Receiver gauge faulty Wiring or ground faulty	Check gauge Repair as necessary	BE–36
Oil pressure gauge does not operate	Receiver gauge faulty Sender gauge faulty Wiring or ground faulty	Check gauge Check gauge Repair as necessary	BE–37 BE–38
Brake warning light does not light up	Bulb burned out Brake fluid level warning switch faulty Parking brake switch faulty Wiring or ground faulty	Replace bulb Check switch Check switch Repair as necessary	 BE–38 BE–39
Seat belt warning light does not light up	Bulb burned out Integration relay faulty Wiring or ground faulty	Replace bulb Check relay Repair as necessary	 BE–40
Discharge warning light does not light up	IGN fuse blown CHARGE fuse blown Bulb burned out Wiring or ground faulty	Replace fuse and check for short Replace fuse and check for short Replace bulb Repair as necessary	BE–3 BE–3

Standard indication	Allowable range
20	19 – 22
40	39 – 42.5
60	59.5 – 63.5
80	79.5 – 84
100	100 – 105

(km/h)

Standard indication	Allowable range
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

Parts Inspection
Speedometer System

1. INSPECT SPEEDOMETER (ON–VEHICLE)

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

HINT: The wear and tire over or under inflation will increase the indication error.

If error.

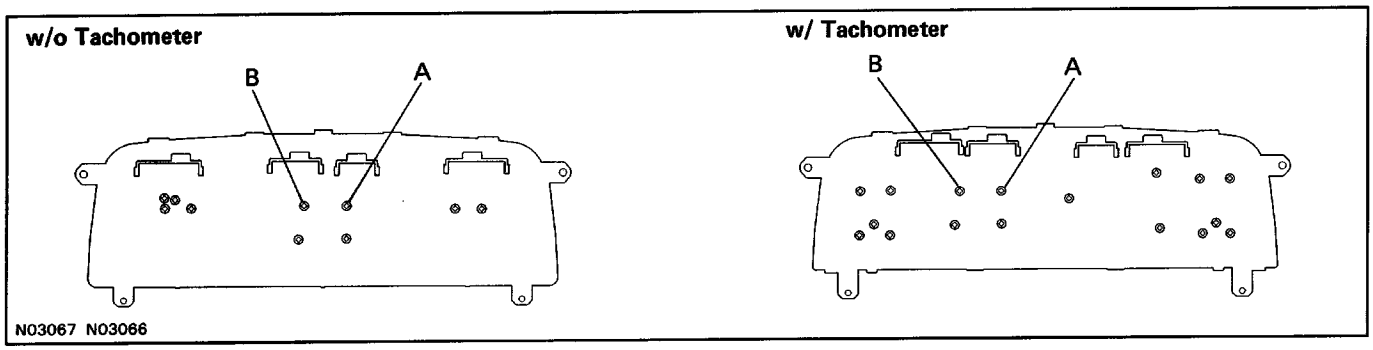
(b) Check the speedometer for pointer vibration and abnormal noise.

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

2. INSPECT SPEED SENSOR

Check that there is continuity between terminals A and B four times par each revolution of the speedometer shaft.

If operation is not as specified, replace the speedometer.



DC 13.5 V 200C (680F) rpm

Standard indication	Allowable range
700	610 – 750
3,000	2,850 – 3,150
5,000	4,850 – 5,150
7,000	6,790 – 7,210

Tachometer System

INSPECT TACHOMETER (ON–VEHICLE)

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

NOTICE:

- 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 heave shocks.

(b) Compare the tester and tachometer indications.

If error is excessive, replace the tachometer.

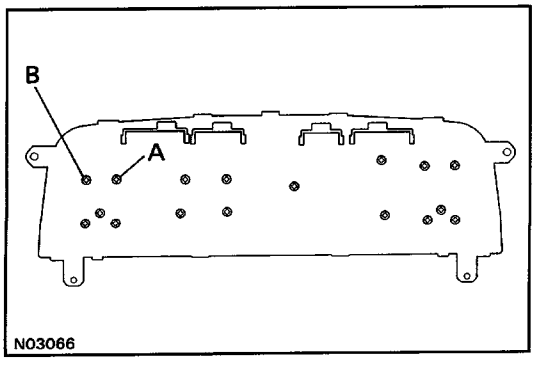
Volt Gauge System

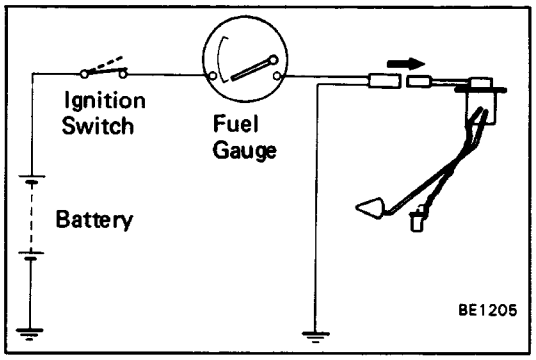
INSPECT VOLT GAUGE

Measure the resistance between terminals A and B.

Resistance: Approx. 347Ω

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



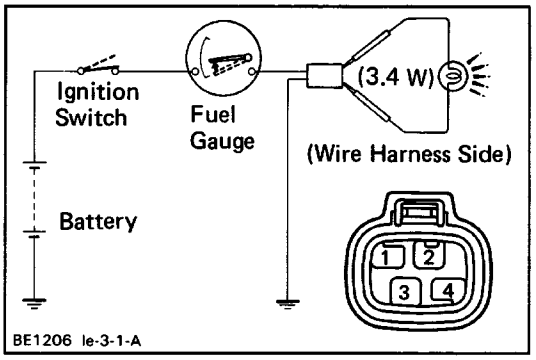


Fuel Gauge System

1. INSPECT RECEIVER GAUGE

(a) Disconnect the connector from the sender gauge.

(b) Turn the ignition switch ON, check that the receiver gauge needle indicates EMPTY.



(c) Connect terminals 1 and 2 on the wire harness side connector through a 3.4 W test bulb.

(d) Turn the ignition switch ON, check that the test bulb lights up and the receiver gauge needle moves towards the full side.

HINT: (wl Tachometer)
Because of the silicon oil in the gauge, it will take a short time for the needle to stabilize.

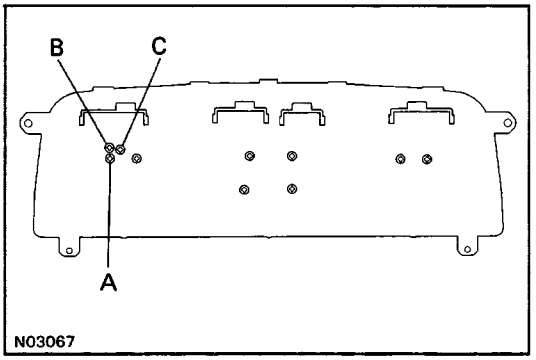
If operation is not as specified, inspect the receiver gauge resistance, and the voltage regulator (w/o Tachometer).

(Voltage Regulator: w/o Tachometer)

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

(b) Connect the positive (+) lead from the voltmeter to terminal C and the negative (–) lead to terminal B, check that the voltmeter needle vibrates near the 7 V position.

If voltage value is not as specified, replace the receiver gauge.

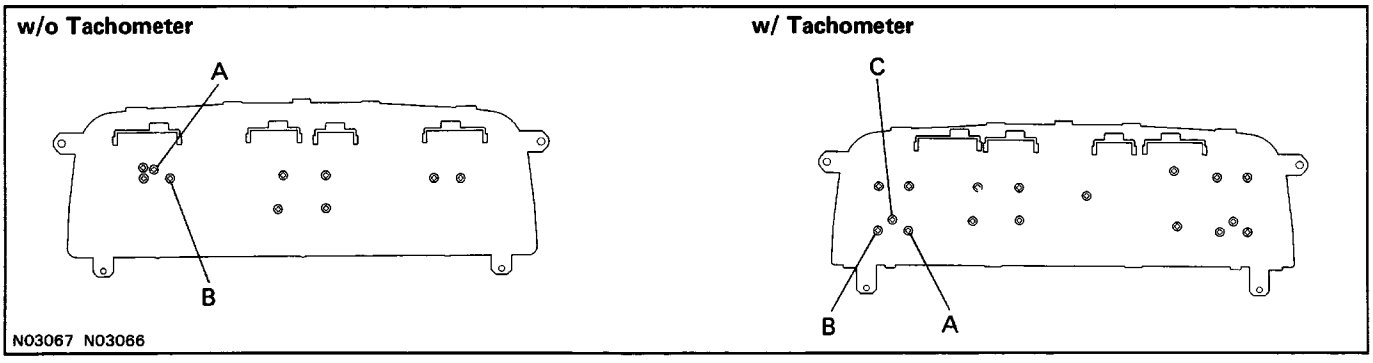


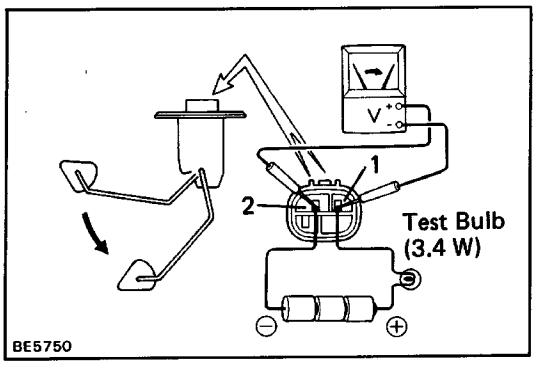
(Resistance)

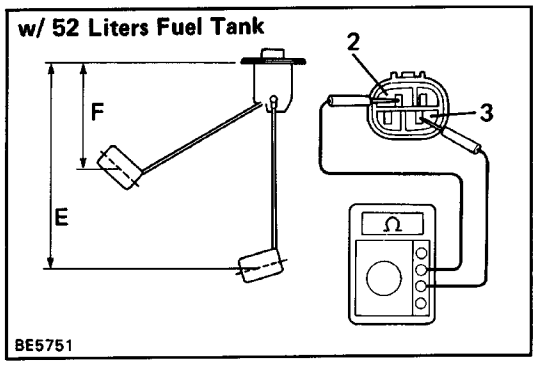
Measure the resistance between terminals.

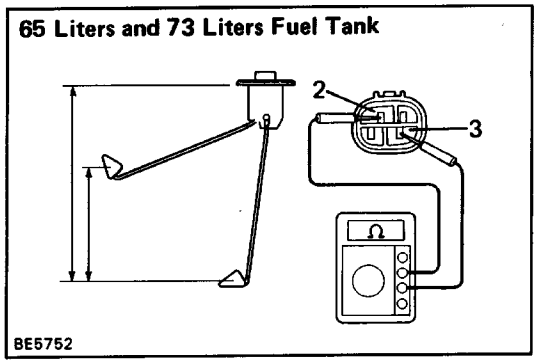
If resistance value is not as specified, replace the receiver gauge.

Between terminals	Resistance (Ω)	
	w/o Tachometer	wl Tachometer
A – B	Approx. 55	Approx. 123
A – C	–	Approx. 260
B – C	–	Approx. 137









2. INSPECT SENDER GAUGE

(Operation)

(a) Connect a series of three 1.5 v dry cell batteries.

(b) Connect the positive (+) lead from the dry cell bat–teries to terminal 2 through a 3.4 W test bulb and the negative (–) lead to terminal 1.

(c) Connect the positive (+) lead from the voltmeter to terminal 2 and negative (–) lead to terminal 1.

(d) Check that the voltage rises as the float is moved from the top to bottom position.

If operation is not as specified, replace the sender gauge.

(Resistance)

Measure the resistance between terminals 1 and 3.

wl 52 Liters Fuel Tank

Float position mm (in.)		Resistance 1Ω)
F	Approx. 121 (4.76)	Approx. 3
E	Approx. 263 (10.35)	Approx. 110

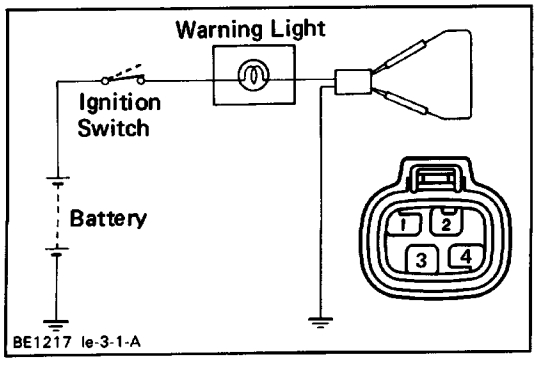
wl 65 Liters Fuel Tank

Models	Float position		Resistance (Ω)
2WD	F	Approx. 96 (3.78)	Approx. 3
	E	Approx. 281 (11.06)	Approx. 110
4WD	F	Approx. 108 (4.25)	Approx. 3
	E	Approx. 300 (11.81)	Approx. 110

w/ 73 Liters Fuel Tank

Float position		Resistance (Ω)
F	Approx. 116 (4.57)	Approx. 3
E	Approx. 319 (12.56)	Approx. 110

If resistance value is not as specified, replace the sender gauge.



Fuel Level Warning System

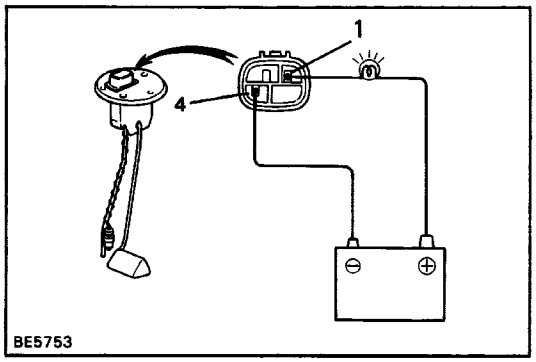
1. INSPECT WARNING LIGHT

(a) Disconnect the connector form the sender gauge.

(b) Connect terminals 1 and 3 on the wire harness side connector.

(c) Turn the ignition switch ON, check that the warning light will come on.

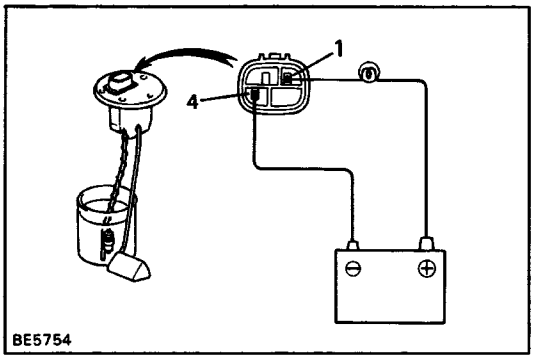
If the warning light does not come on, test the bulb.



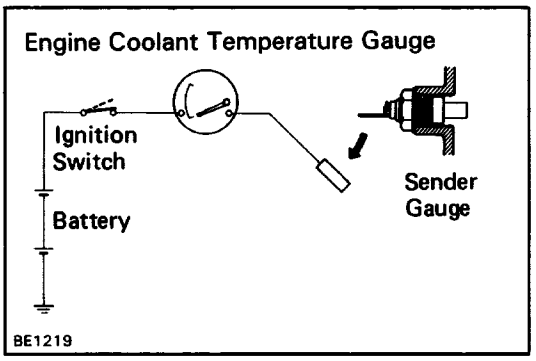
2. INSPECT WARNING SWITCH

(a) Apply battery positive voltage between terminals 1 and 4 through a 3.4 W test bulb, check the bulb lights up.

HINT: It will take a short time for the bulb to light up.



(b) Submerge the switch in fuel, check that the bulb goes out.
If operation is not as specified, replace the sender gauge.



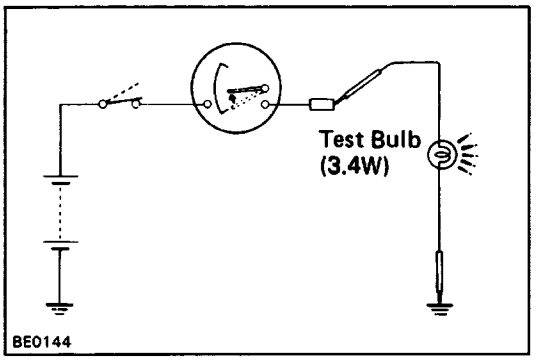
Engine Coolant Temperature Gauge System

INSPECT RECEIVER GAUGE

(Operation)

(a) Disconnect the connector from the sender gauge.

(b) Turn the ignition switch ON, check that the receiver gauge needle indicates cool.



(c) Ground terminal on the wire harness side connector through a 3.4 W test bulb.

(d) Turn the ignition switch ON, check that the bulb lights up and the receiver gauge needle moves to–wards the hot side.

If operation is not as specified, replace the sender gauge. Then, recheck the system.

If operation is not as specified, measure the receiver gauge resistance.

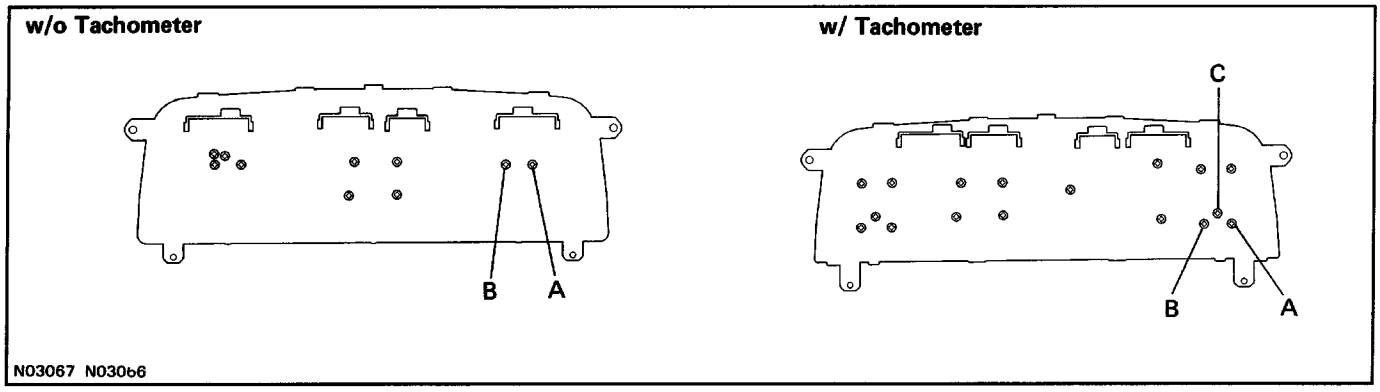
Between terminals	Resistance (Ω)	
	w/o Tachometer	w/ Tachometer
A → B	Approx. 25	Approx. 57
A → C	–	Approx. 135
B → C	–	Approx. 217

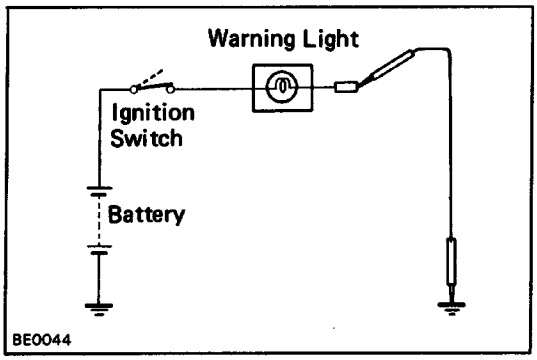
(Resistance)

Measure the resistance between terminals.

HINT: Connect the test leads so that the current form the ohmmeter can flow according to the above order.

If resistance value is not as specified, replace the receiver gauge.





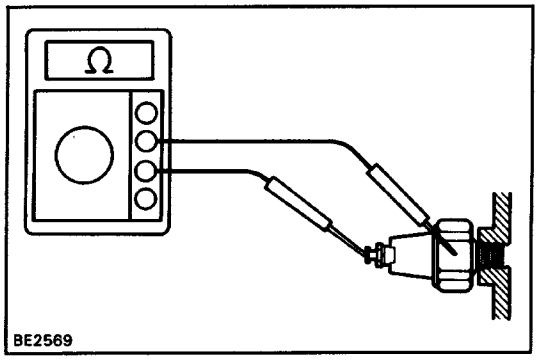
Low Oil Pressure Warning System

1. INSPECT WARNING LIGHT

(a) Disconnect the connector from the warning switch and ground terminal on the wire harness side con–nector.

(b) Turn the ignition switch ON, check that the warning light will come on.

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



2. INSPECT WARNING SWITCH

(a) Disconnect the connector from the switch.

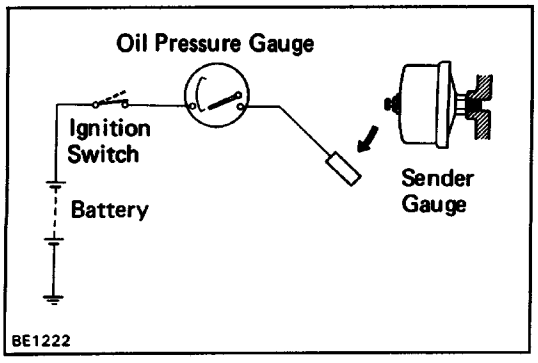
(b) Check that there is continuity between terminal and ground with the engine stopped.

(c) Check that there is no continuity between terminal and ground with the engine running.

HINT: Oil pressure should be over 0.3 kg/cm2 (4.3 psi, 29 kPa).

If operation is not as specified, replace the switch.

Oil Pressure Gauge System

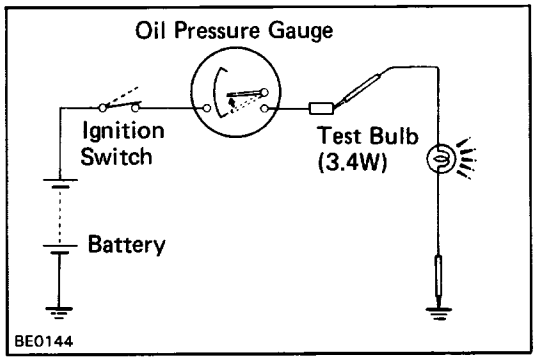


1. INSPECT RECEIVER GAUGE

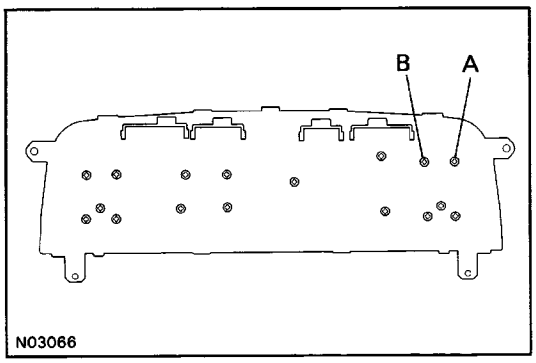
(Operation)

(a) Disconnect the connector from the sender gauge.

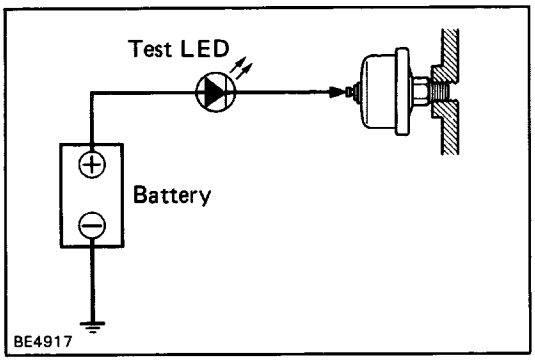
(b) Turn the ignition switch ON, check that the receiver gauge needle indicates LOW.



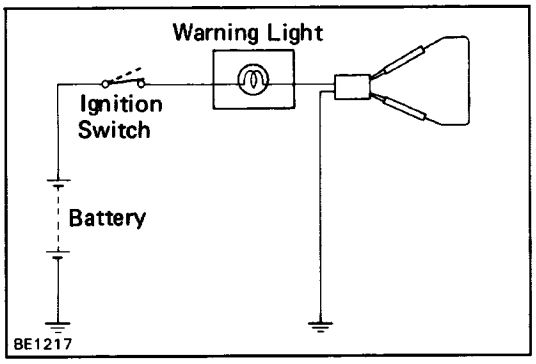
(e) Ground terminal on the wire harness side connector through a 3.4 W test bulb.
(d) Turn the ignition switch ON, check that the bulb lights up and the receiver gauge needle moves to the
high side.
If operation is not as specified, measure the receiver
gauge resistance.



(Resistance)
Measure the resistance between terminals A and B.
Resistance: Approx. 25Ω
If resistance value is not as specified, replace the receiver
gauge.

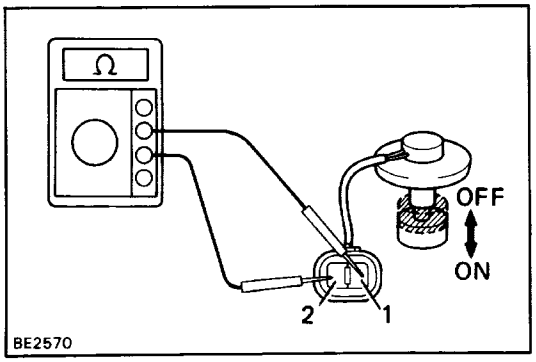


2. INSPECT SENDER GAUGE
(a) Disconnect the connector from the sender gauge.
(b) Apply battery positive voltage to the sender gauge terminal through a test LED.
(c) Check that the bulb does not light when the engine is stopped.
(d) Check that the LED flashes when the engine is running. The number of flashed should vary with engine speed.
If operation is not as specified, replace the sender gauge.

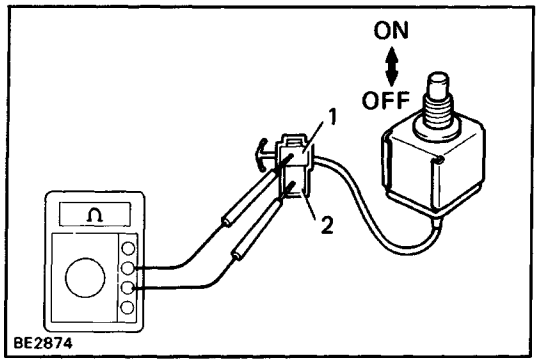


Brake Warning System

1. INSPECT WARNING LIGHT
(a) Disconnect the connectors from the level warning switch and parking brake switch.
(b) Connect terminals on the wire harness side connector of the level warning switch connector.
(c) Remove the CHARGE fuse and turn the ignition switch ON, check that the warning light will come on.
If the warning light does not come on, test the bulb.



2. INSPECT SWITCHES
(Brake Fluid Level Warning Switch)
(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.



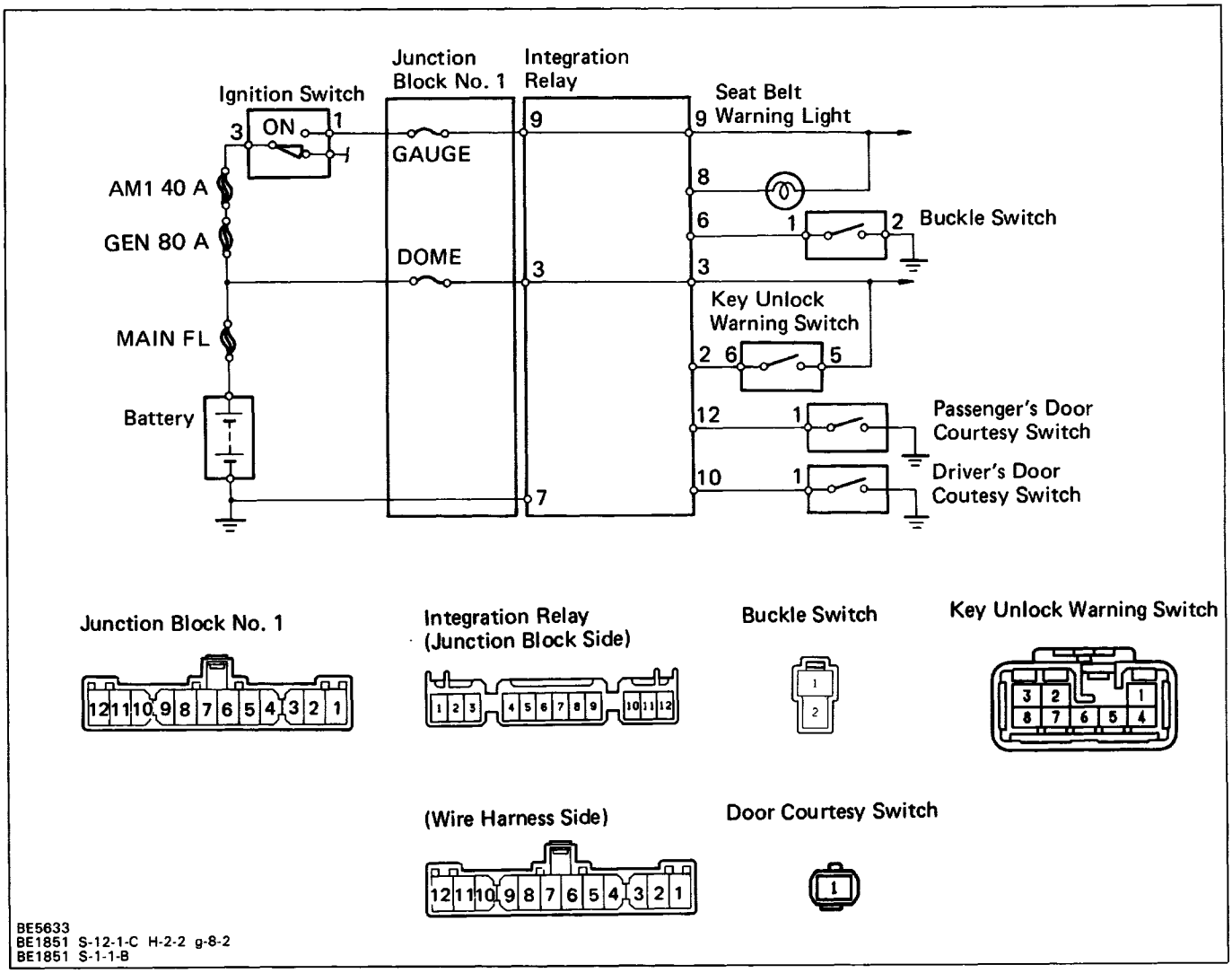
(Parking Brake Switch)

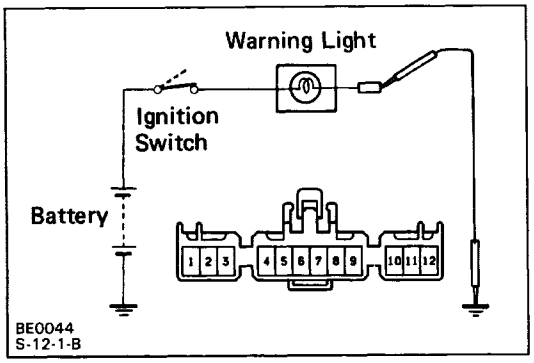
(a) Check that there is continuity between terminals with the switch ON (switch pin released).

(b) Check that there is no continuity between terminals with the switch OFF (switch pin pushed).

If operation is not as specified, replace the switch.

Seat Belt Warning System





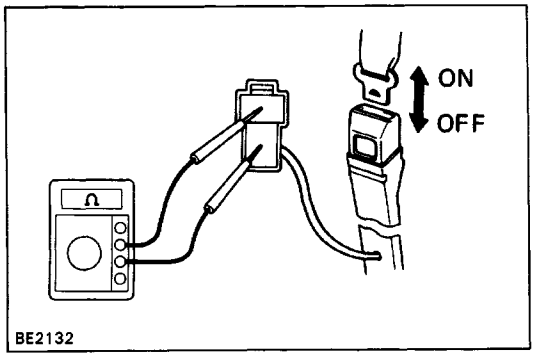
1. INSPECT WARNING SWITCH

(a) Disconnect the wire harness side connector from the integration relay.

(b) Ground terminal 8 on the wire harness side connec–tor.

(c) Turn the ignition switch ON, check that the warninc light lights up.

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

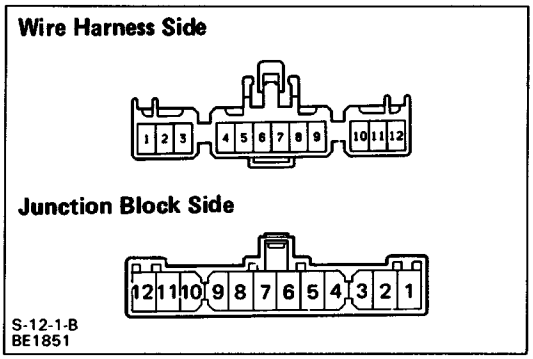


2. INSPECT BUCKLE SWITCH

(a) Check that there is continuity between terminal: with the switch ON (belt unfastened).

(b) Check that there is no continuity between terminal; with the switch OFF (belt fastened).

If operation is not as specified, replace the seat belt inner assembly.



3. INSPECT INTEGRATION RELAY

Remove the integration relay and inspect the connectors on the wire harness side and the junction block side as shown in the chart.

Wire Harness Side

Check for	Tester connection	Condition		Specified value
Continuity	2 – 3	Key unlock warning switch position	OFF (Ignition key removed)	No continuity
			ON (Ignition key set)	Continuity
	6 – Ground	Buckle switch position	OFF (Belt fastened)	No continuity
			ON (Belt unfastened)	Continuity
	8 – 9	Constant		*Continuity
	10 – Ground	Driver's door courtesy switch position	OFF (Door closed)	No continuity
			ON (Door opened)	Continuity
	12 – Ground	Passenger's door cour–tesy switch position	OFF (Door closed)	No continuity
			ON (Door opened)	Continuity
*There is resistance because this circuit is included the bulb.				

Junction Block Side

Check for	Tester connection	Condition		Specified value
Continuity	7 – Ground	Constant		Continuity
Voltage	3 – Ground	Constant		Battery positive voltage
	9 – Ground	Ignition switch position	LOCK or ACC	No voltage
			ON	Battery positive voltage

If circuit is as specified, replace the relay.

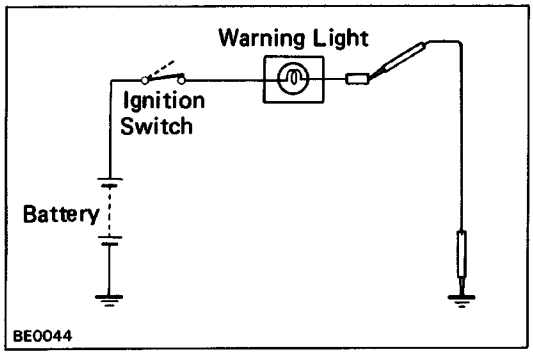
Open Door Warning System

1. INSPECT WARNING LIGHT

(a) Disconnect the connector from the door courtesy switch and ground terminal on the wire harness side.

(b) Turn the ignition switch ON, check that the warning light lights up.

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

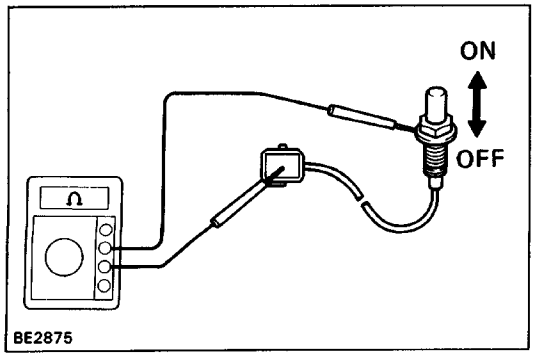


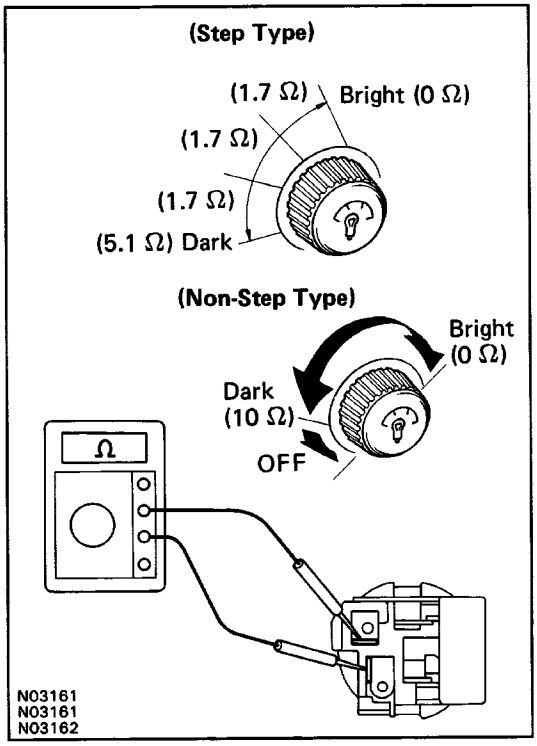
2. INSPECT COURTESY SWITCH

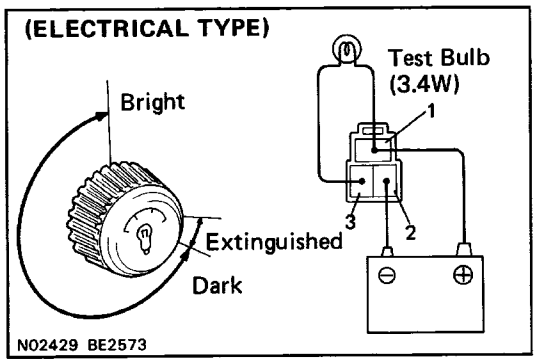
(a) Check that there is continuity between terminal and the switch body with the switch ON (switch pin released).

(b) Check that there is no continuity between terminal and the switch body with the switch OFF (switch pin pushed in).

If operation is not as specified, replace the switch.







Illumination Control System

INSPECT LIGHT CONTROL RHEOSTAT

1. STEP TYPE (w/ o Tachometer)

Gradually turn the rheostat knob from the bright side to dark side, check that the resistance between terminals increases from approximately 0 to 5.1Ω.

If operation is not as specified, replace the rheostat.

2. NON–STEP TYPE (wI Tachometer)

(a) Turn the rheostat knob OFF, check that there is no continuity between terminals. (Rheostat knob turned to fully counterclockwise)

(b) Gradually, turn the rheostat knob from the dark side to bright side, check that the resistance decreases from 10 to 0 ohm. (Rheostat knob turned to clock–wise)

If operation is not as specified, replace the rheostat.

3. ELECTRICAL TYPE (wI All AIT Vehicle)

(a) Connect terminals 1 and 3 through a 3.4 W test bulb.

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

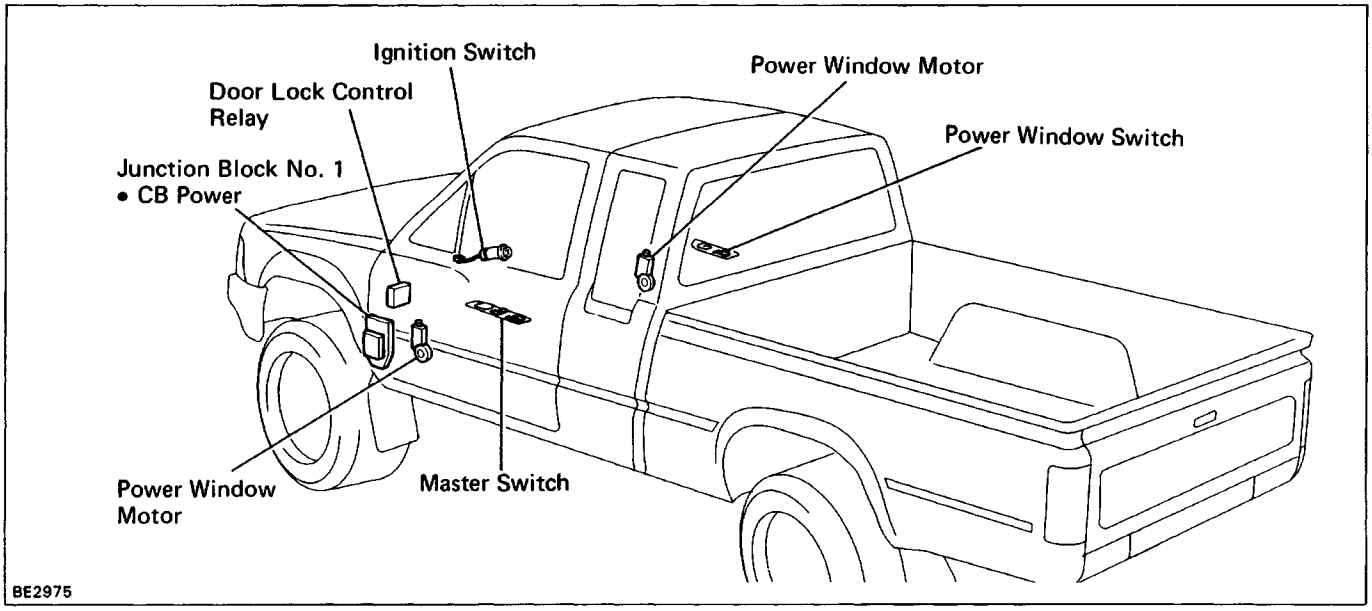
(c) Turn the rheostat knob to fully counterclockwise check that the test bulb goes out.

(d) Gradually turn the rheostat knob to clockwise, check that the test bulb brightness changes from dark to bright.

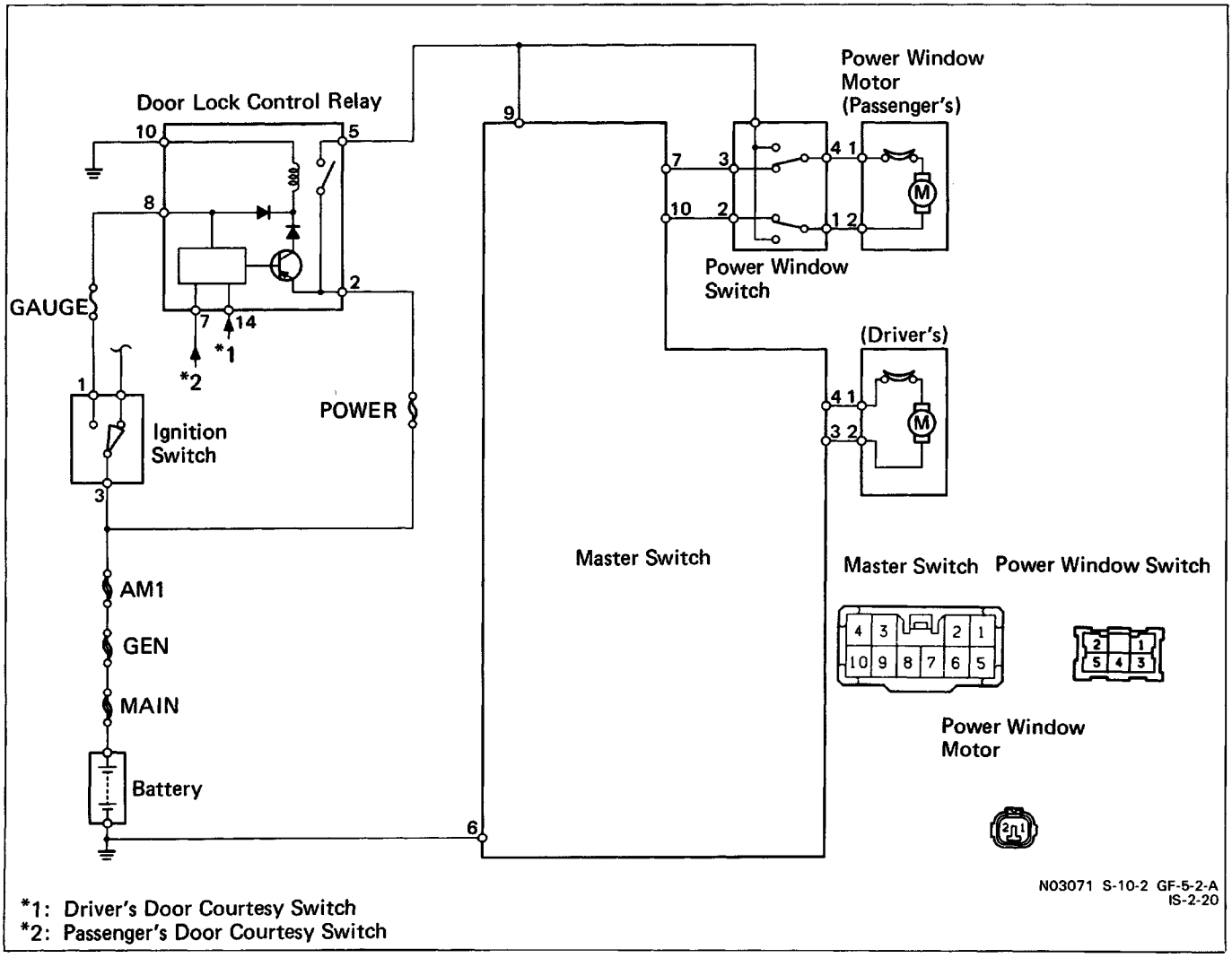
If operation is not as specified, replace the rheostat.

POWER WINDOW CONTROL SYSTEM

Parts Location



Wiring and Connector Diagrams



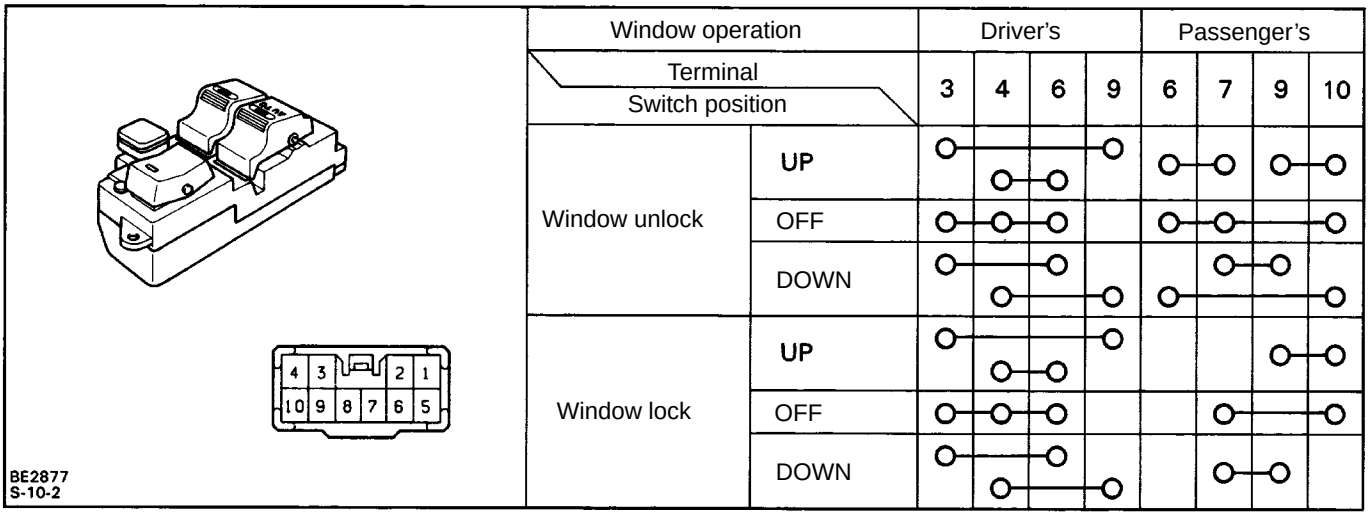
Troubleshooting

Problem	Possible cause	Remedy	Page
Power window does not operate at all	GAUGE fuse blown	Replace fuse and check for short	BE–3
	Door lock control relay faulty	Check relay	
	Wiring or ground faulty	Repair as necessary	BE–51
One touch power window does not operate	Power window master switch faulty	Check switch	BE–44
Only one window does not operate	Power window switch faulty	Check switch	BE–46
	Power window motor faulty	Check motor	BE–46
	Wiring or ground faulty	Repair as necessary	

Parts Inspection

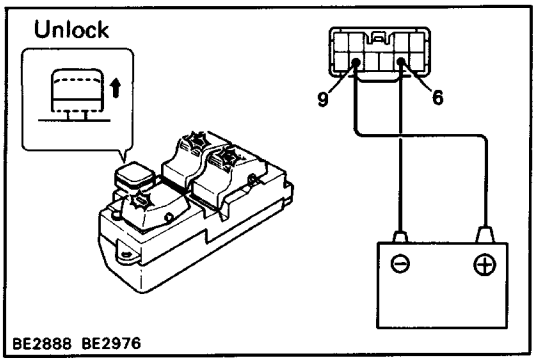
1. INSPECT SWITCHES

(Master Switch/Continuity)



Window operation		Driver's				Passenger's			
Terminal / Switch position		3	4	6	9	6	7	9	10
Window unlock	UP	○		○	○	○	○	○	○
	OFF	○	○	○		○	○		○
	DOWN	○		○		○		○	
			○		○		○		○
Window lock	UP	○			○			○	○
	OFF	○	○	○			○		○
	DOWN	○		○			○	○	
			○		○				

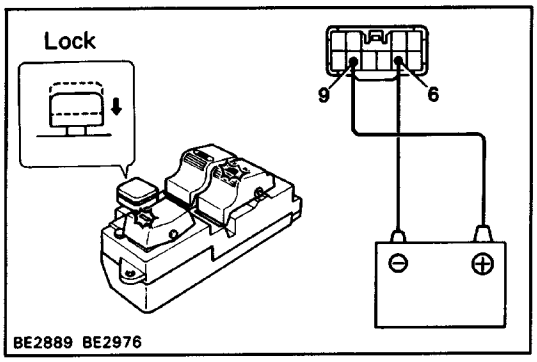
If continuity is not as specified, replace the switch.



(Master Switch: Illumination)

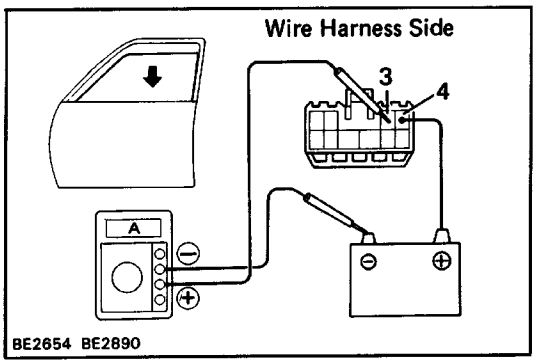
(a) Set the window lock switch to the unlock position.

(b) Connect the positive (+) lead from the battery to terminal 9 and negative (–) lead to terminal6, check that all the illuminations light up.



(c) Set the window lock switch to the lock position, check that the passenger's power window switch illumination goes out.

If operation is not as specified, replace the master switch.



(Master Switch: One Touch Power Window System)

Inspection using an ammeter:

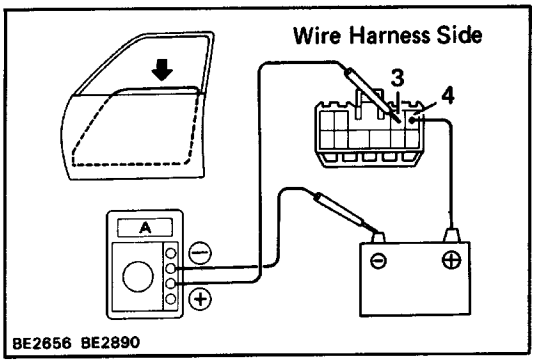
(a) Disconnect the connector from the master switch.

(b) Connect the positive (+) lead from the ammeter to terminal 3 on the wire harness side connector and the negative (–) lead to negative terminal of the battery.

(c) Connect the positive (+) lead from the battery to terminal 4 on the wire harness side connector.

(d) As the window goes down, check that the current flows approximately 7 A.

(e) Check that the current increases approximately 14.5 A or more when the window stops going down.



HINT: The circuit breaker opens some 4–40 seconds after the window stops going down, so the check must be made before the circuit breaker operates.

If operation is not as specified, replace the master switch.

Inspection using an ammeter with a current–measuring probe:

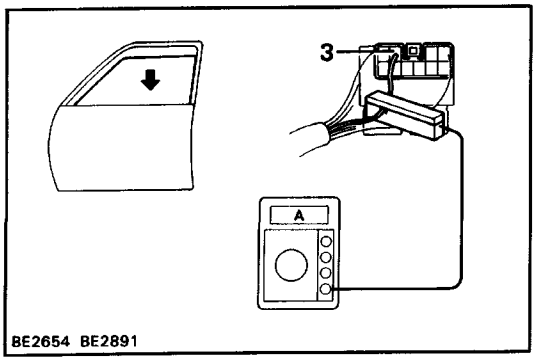
(a) Remove the master switch with connector con–nected.

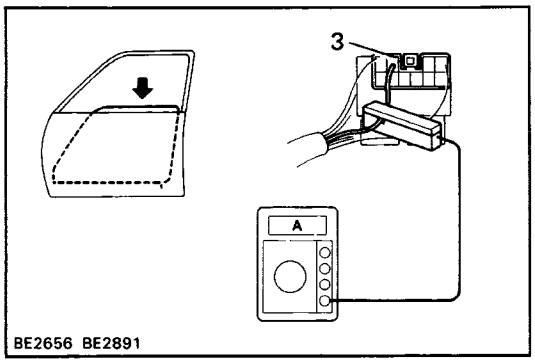
(b) Attach a current–measuring probe to terminal 3 of the wire harness.

i Turn the ignition switch ON and set the power win–

dow switch in the down position.

(d) As the window goes down, check that the current flows approximately 7 A.

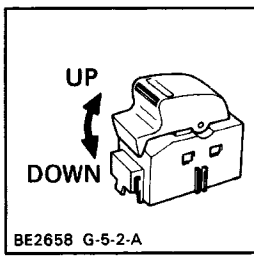




(e) Check that the current increases approximately 14.5 A or more when the window stops going down.

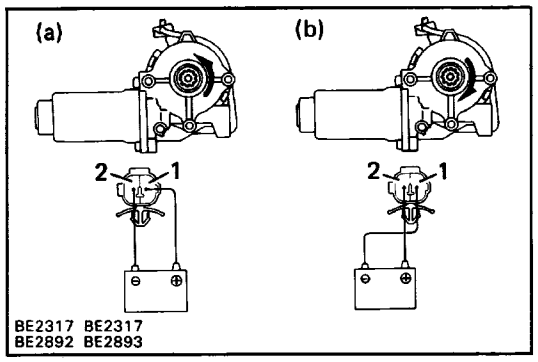
HINT: The circuit breaker opens some 4–40 seconds after the window stops going down, so that check must be made before the circuit breaker operates.
If operation is not as specified, replace the master switch.

(Power Window Switch/ Continuity)



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

If continuity is not as specified, replace the switch.



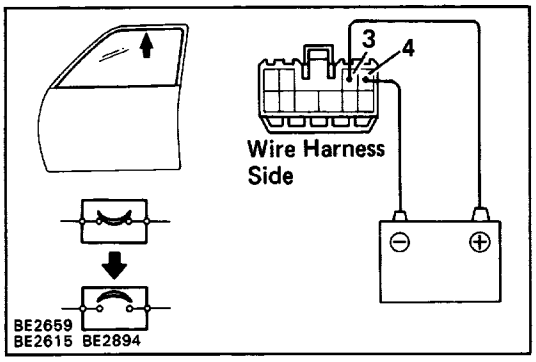
2. INSPECT POWER WINDOW MOTOR

(Left Side Door Motor/ Motor Operation)

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

(b) Reverse the polarity, check that the motor turns clockwise.

If operation is not as specified, replace the motor.



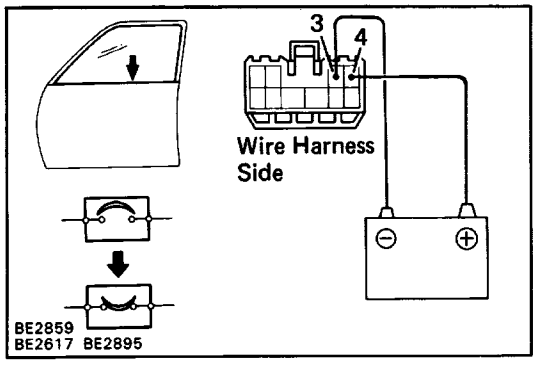
(Left Side Door Motor/ Circuit Breaker Operation)

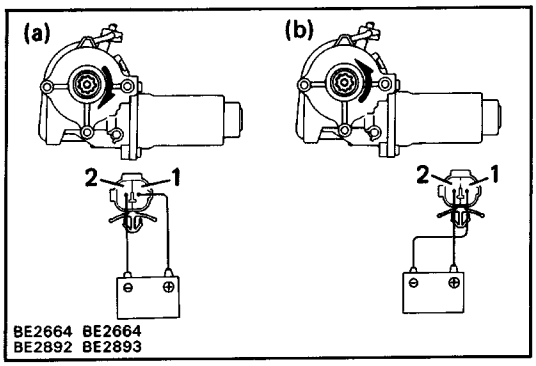
(a) Disconnect the connector from the master switch.

(b) Connect the positive (+) lead from the battery to terminal 3 and negative (–) lead to terminal 4 on the wire harness side connector, and raise the window to full closed position.

(c) Continue to apply voltage, check that there is a circuit breaker operation noise within approximately 4 to 40 seconds.

(d) Reverse the polarity, check that the window begins to descend within approximately 60 seconds.
If operation is not as specified, replace the motor.



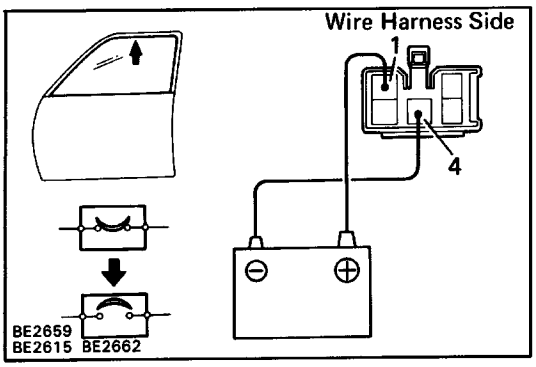


(Right Side Door Motor/ Motor Operation)

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

(b) Reverse the polarity, check that the motor turns counterclockwise.

If operation is not as specified, replace the motor.



(Right Side Door Motor/ Circuit Breaker Operation)

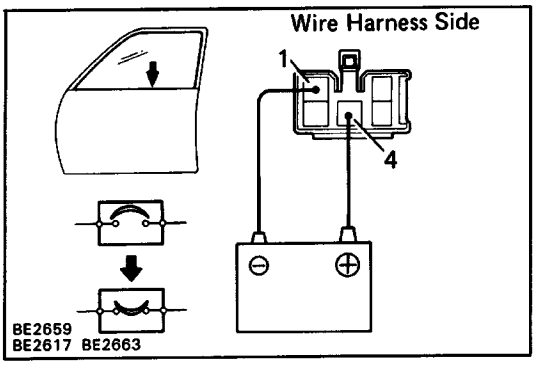
(a) Disconnect the connector from the power window switch.

(b) Connect the positive (+) lead from the battery to terminal 1 and negative (–) lead to terminal 4 on the wire harness side connector, and raise the window to full closed position.

(c) Continue to apply voltage, check that there is a circuit breaker operation noise within approximately 4 to 40 seconds.

(d) Reverse the polarity, check that the window begins to descend within approximately 60 seconds.

If operation is not as specified, replace the motor.

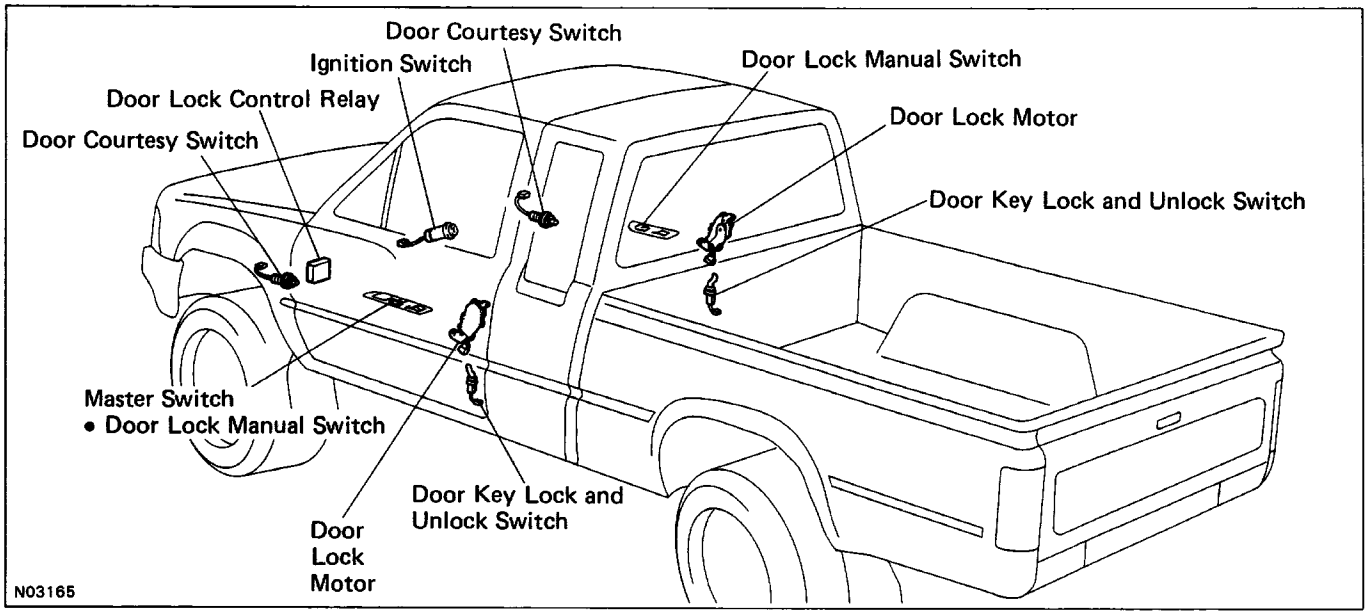


3. INSPECT DOOR LOCK CONTROL RELAY

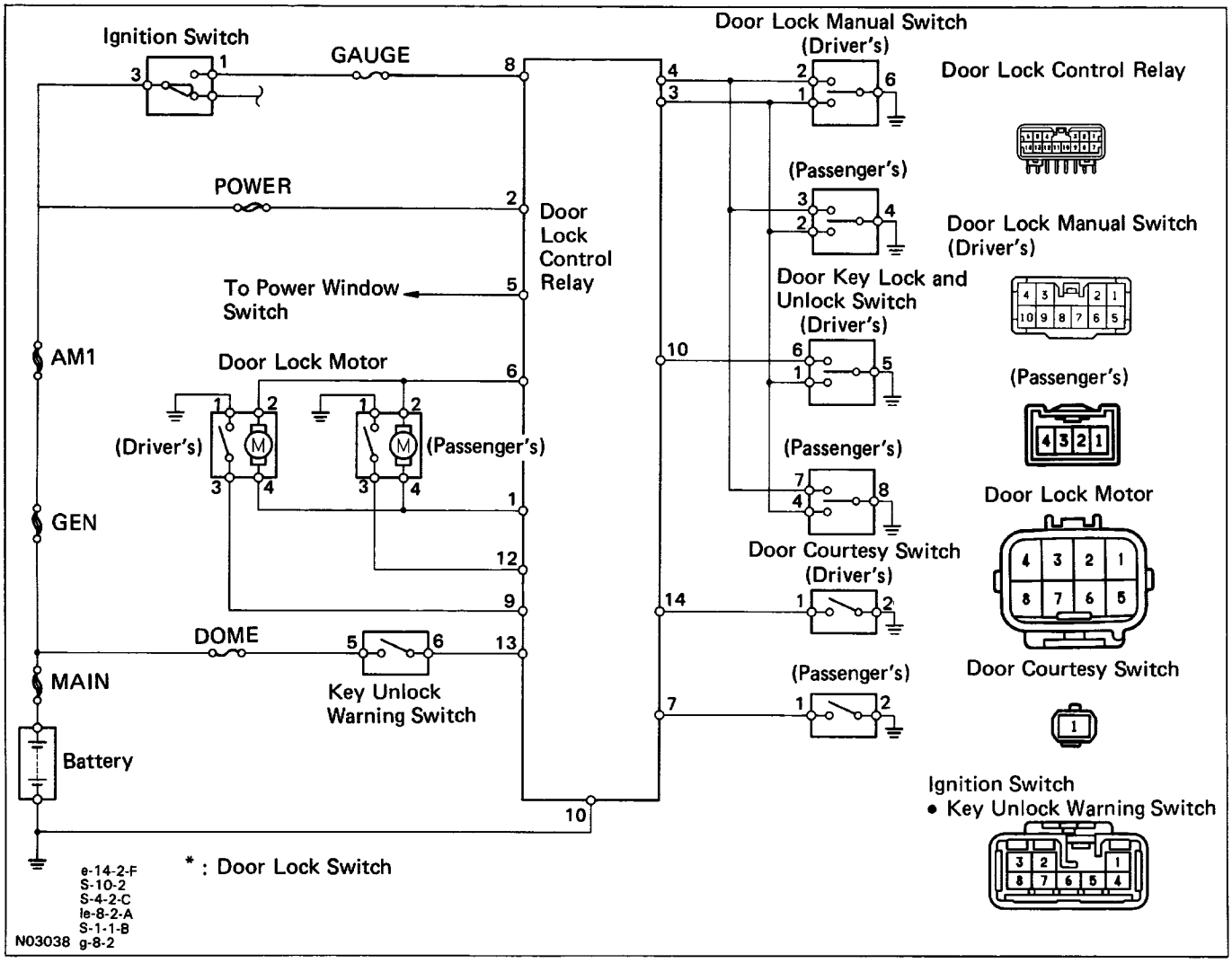
See step 3 of Power Door Lock Control System on page BE–52.

POWER DOOR LOCK CONTROL SYSTEM

Parts Location



Wiring and Connector Diagrams



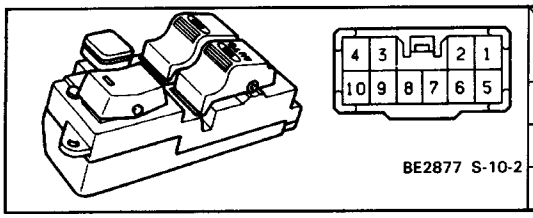
Troubleshooting

Problem	Possible cause	Remedy	Page
Door lock system does not operate at all	GAUGE fuse blown Door lock solenoid faulty Door lock control relay faulty Wiring or ground faulty	Replace fuse and check for short Check solenoid Check relay Repair as necessary	BE–3 BE–50 BE–51
Door lock system does not operate by manual switch	Door lock manual switch faulty Door lock control relay faulty Wiring or ground faulty	Check switch Check relay Repair as necessary	BE–49 BE–51
Door lock system does not operate by door key	Door key lock and unlock switch faulty Door lock control relay faulty Wiring or ground faulty	Check switch Check relay Repair as necessary	BE–49 BE–51

Parts Inspection

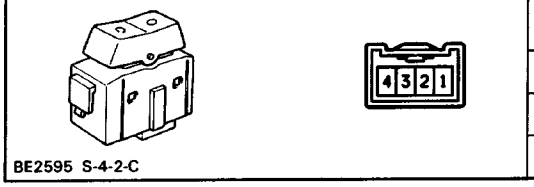
1. INSPECT SWITCHES

(Driver's Door Lock Manual Switch: in Master Switch/ Continuity)



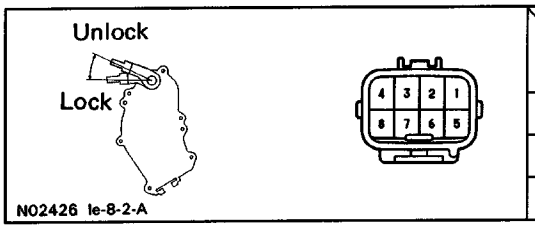
Terminal / Switch position	1	2	6
LOCK		○	○
OFF			
UNLOCK	○		○

(Passenger's Door Lock Manual Switch/ Continuity)



Terminal / Switch position	2	3	4
LOCK		○	○
OFF			
UNLOCK	○		○

(Door Key Lock and Unlock Switch/ Continuity)



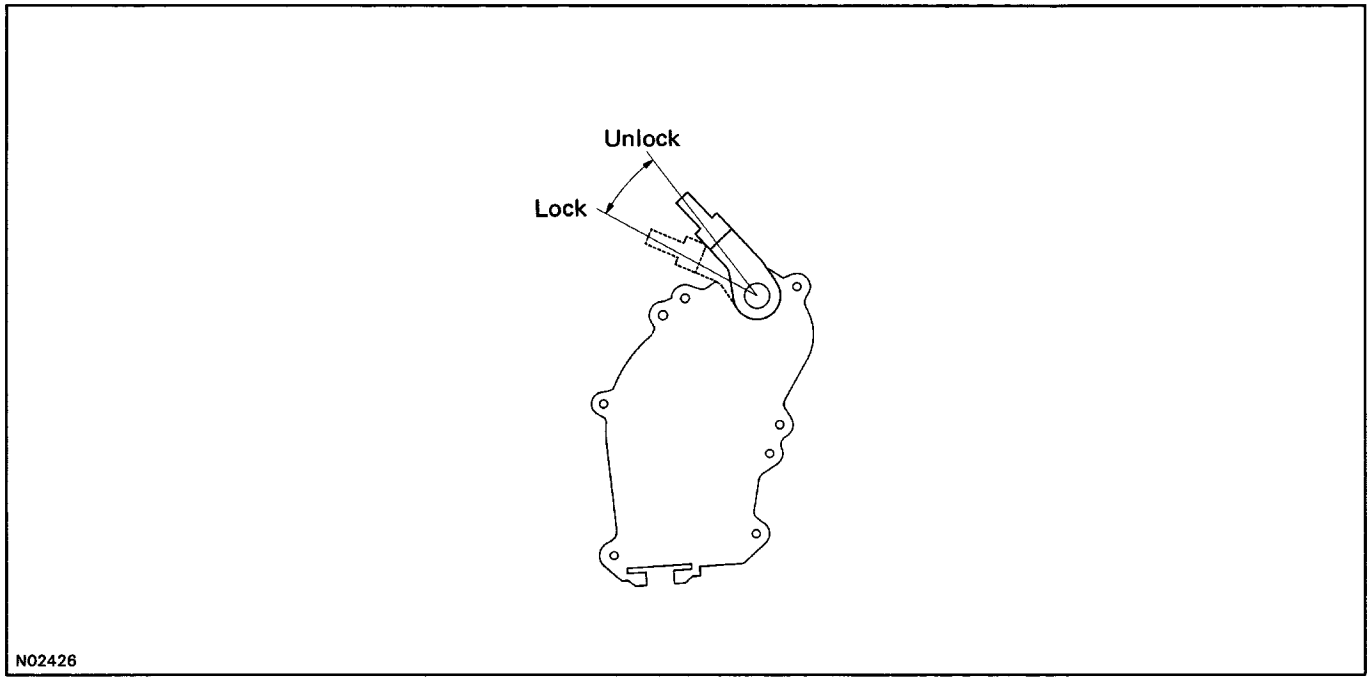
Terminal / Switch position	RH 4 LH 1	8 5	7 6
LOCK		○	○
OFF			
UNLOCK	○	○	

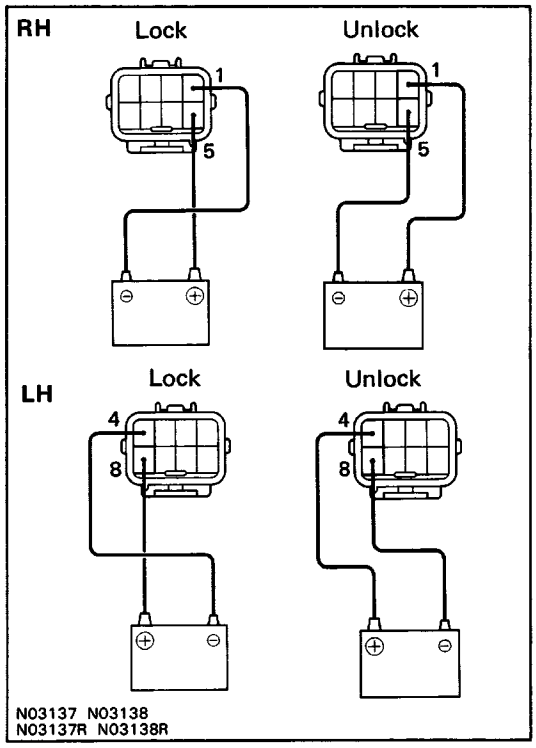
If continuity is not as specified, replace the switch.

(Key Unlock Warning Switch/ Continuity)
See Step l of Key Confine Prevention System on page BE–9.
(Door Courtesy Switch/ Continuity)
See Step of Open Door Warning System on page BE–41.

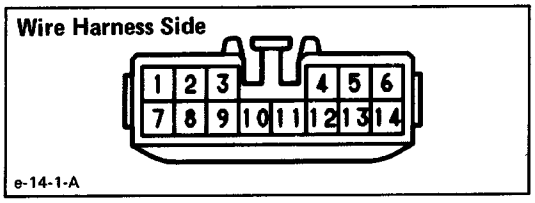
HINT: Door key lock and unlock switch is built into the front door lock assembly.

2. INSPECT DOOR LOCK MOTOR
(Motor Operation)





(a) Connect the positive (+) lead from the battery to terminal 1 and the negative (–) lead to terminal 5, check that the door lock link moves to UNLOCK position.
(b) Remove the polarity, check that the door lock link move to LOCK position.
If operation is not as specified, replace the door lock assembly.
(c) Connect the positive (+) lead from the battery to terminal 4 and the negative (–) lead to terminal 8, check that the door lock link moves to UNLOCK position.
(d) Remove the polarity, check that the door lock link move to lock position.
If operation is not as specified, replace the door lock assembly.

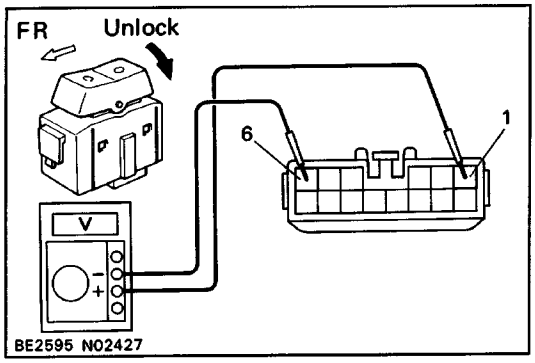


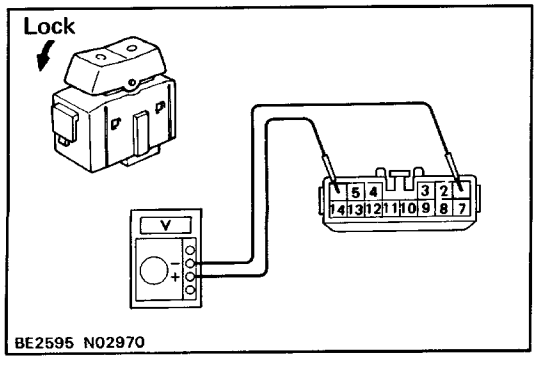
3. INSPECT DOOR LOCK CONTROL RELAY (Relay Circuit)

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

Check for	Tester connection	Condition		Specified value
Continuity	3 — Ground	Door lock manual switch or door key lock and unlock switch position	OFF or LOCK	No continuity
			Unlock	Continuity
	4 — Ground	Door lock manual switch or door key lock and unlock switch position	OFF or Unlock	No continuity
			Lock	Continuity
	7 — Ground	Passenger's door courtesy switch position	OFF (Door closed)	No continuity
			ON (Door opened)	Continuity
	9 — Ground	Driver's door lock switch position	Unlock	Continuity
			Lock	No continuity
	11 — Ground	Constant		Continuity
	12 — Ground	Passenger's door lock switch po–sition	Unlock	Continuity
			Lock	No continuity
	14 — Ground	Driver's door courtesy switch position	OFF (Door–closed)	No continuity
			ON (Door opened)	Continuity
Voltage	2 — Ground	Constant		Battery positive voltage
	8 — Ground	Ignition switch position	LOCK or ACC	No voltage
			ON	Battery positive voltage
	13 — Ground	Key unlock warning switch posi–tion	OFF (Ignition key removed)	No voltage
			ON (Ignition key set)	Battery positive voltage

If circuit is as specified, inspect the door lock signal and key–off power window signal.



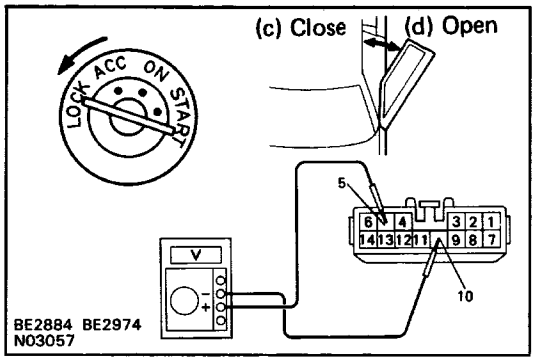


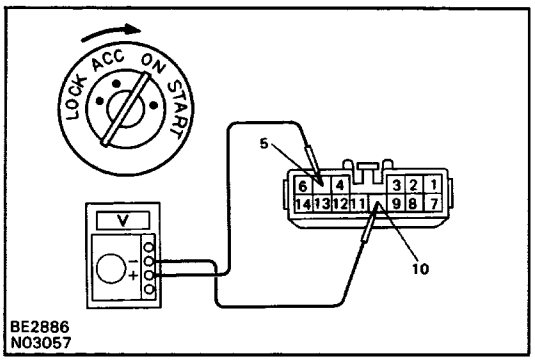
(Door Lock Signal)

HINT: When the relay circuit is as specified, inspect the door lock signal.

(a) Connect the connector to the relay.
(b) Connect the positive (+) lead from the voltmeter to terminal 1 and negative (–) lead to terminal 6.
(c) Set the door lock manual switch to UNLOCK, check that the voltage rises from 0 V to battery positive voltage for approximately 0.2 seconds.
(d) Reverse the polarity of the voltmeter leads.
(e) Set the door–lock manual switch to LOCK, check that the voltage rises from 0 V to battery positive voltage for approximately 0.2 seconds.

If operation is not as specified, replace the relay.





(Key–Off Power Window Signal)

HINT: When the relay circuit is as specified, inspect the key–off power window signal.

(a) Connect the connector to the relay.

(b) Connect the positive (+) lead from the voltmeter to terminal 5 and negative (–) lead to terminal 10.

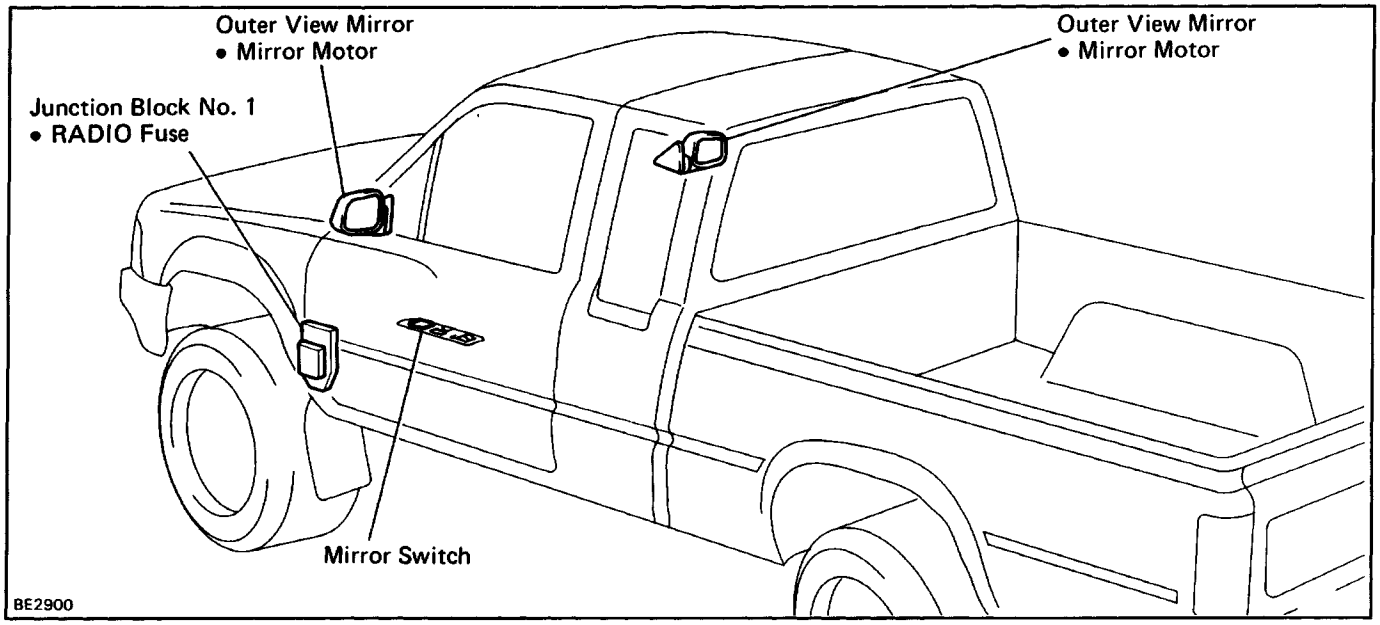
(c) Close the door with ignition switch turned to LOCK or ACC, check that the meter needle indicates battery positive voltage.

(d) Open the door, check that the meter needle indicates 0 V.

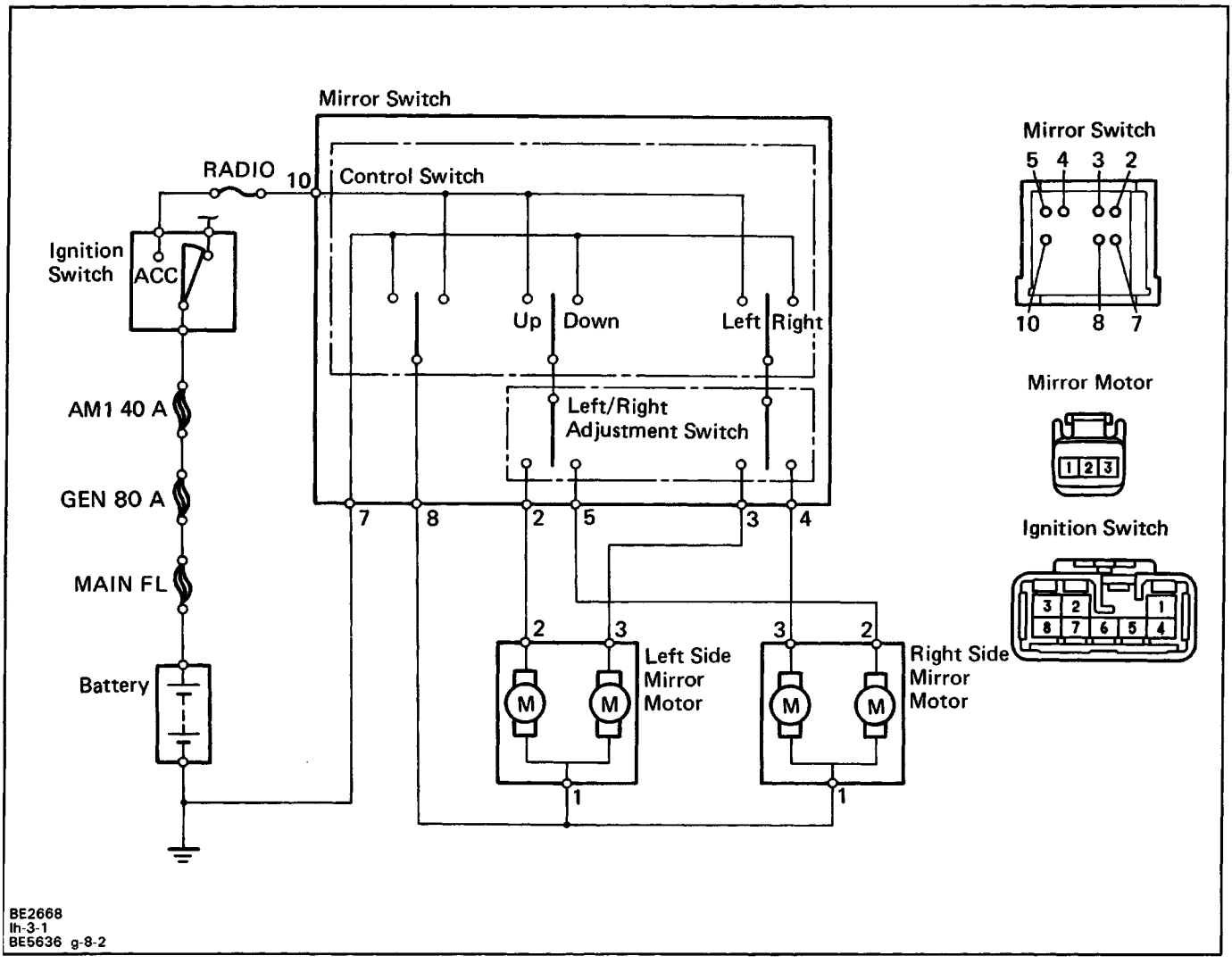
(e) Turn the ignition switch ON, check that the meter needle indicates battery positive voltage again.
If operation is not as specified, replace the relay.

POWER MIRROR CONTROL SYSTEM

Parts Location



Wiring and Connector Diagrams

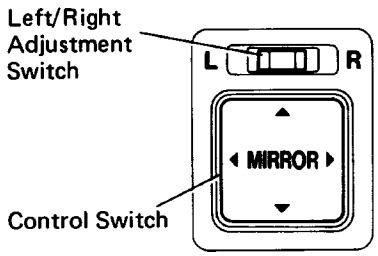


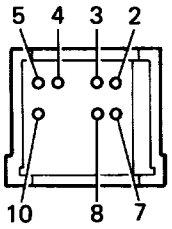
Troubleshooting

Problem	Possible cause	Remedy	Page
Remote control mir–ror system does not operate	RADIO fuse blown	Replace fuse and check for short	BE–3
	Mirror switch faulty	Check switch	
	Mirror motor faulty	Check motor	BE–54
	Wiring or ground faulty	Repair as necessary	BE–55

Parts Inspection

1. INSPECT MIRROR SWITCH (CONTINUITY)

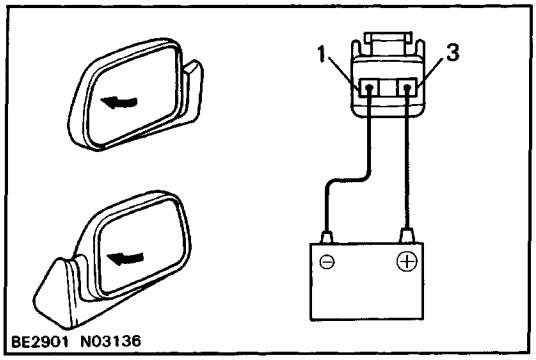




BE2357 BE2989

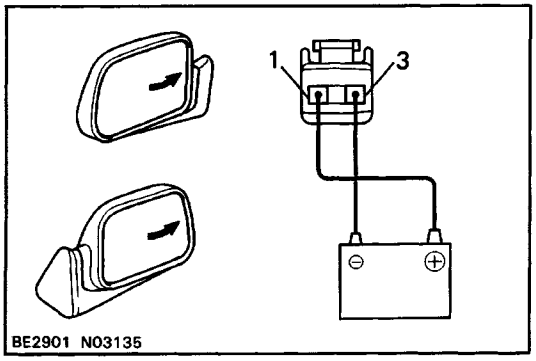
Left/Right adjustment switch position	LEFT SIDE					OFF			RIGHT SIDE				
Terminal / Control switch position	2	3	7	8	10	7	8	10	4	5	7	8	10
OFF													
UP	○		○	○	○	○	○			○	○	○	○
DOWN	○		○	○	○		○	○		○	○	○	○
LEFT		○	○	○	○	○	○		○		○	○	○
RIGHT		○	○	○	○		○	○	○		○	○	○

If continuity is not as specified, replace the switch.

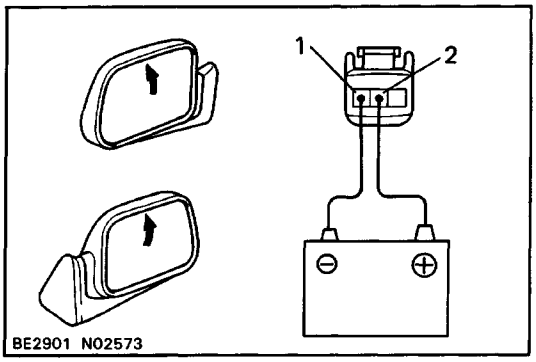


2. INSPECT MIRROR MOTOR

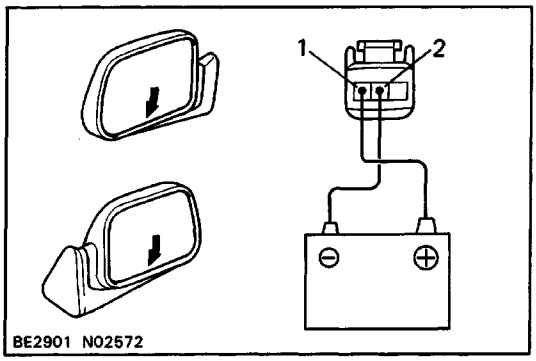
(a) Connect the positive (+) lead from the battery to terminal 3 and negative (–) lead to terminal 1, check that the mirror turns to left side.



(b) Reverse the polarity, check that the mirror turns to right side.



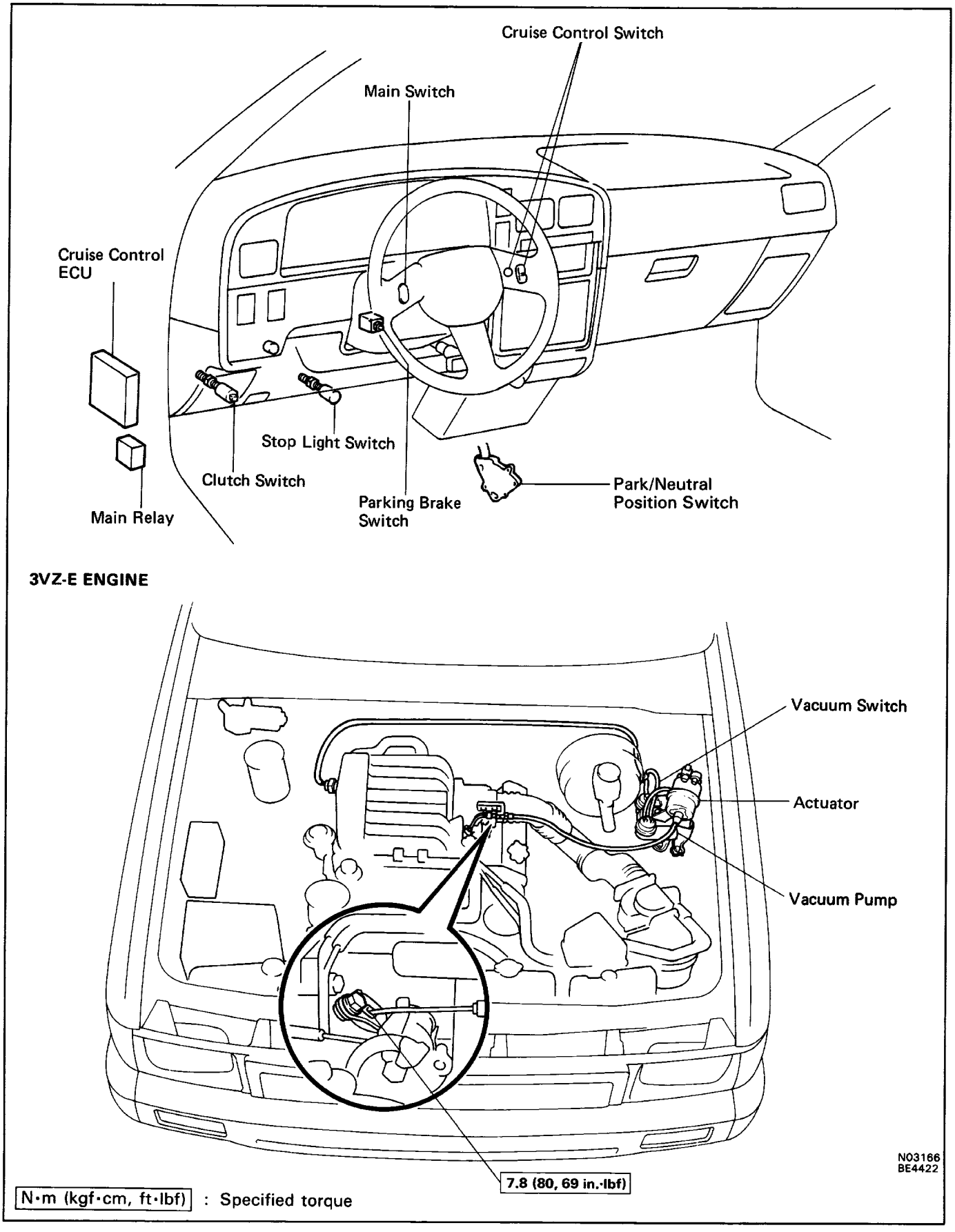
(c) Connect the positive (+) lead from the battery to terminal 2 and the negative (–) lead to terminal 1, check that the mirror turns upward.



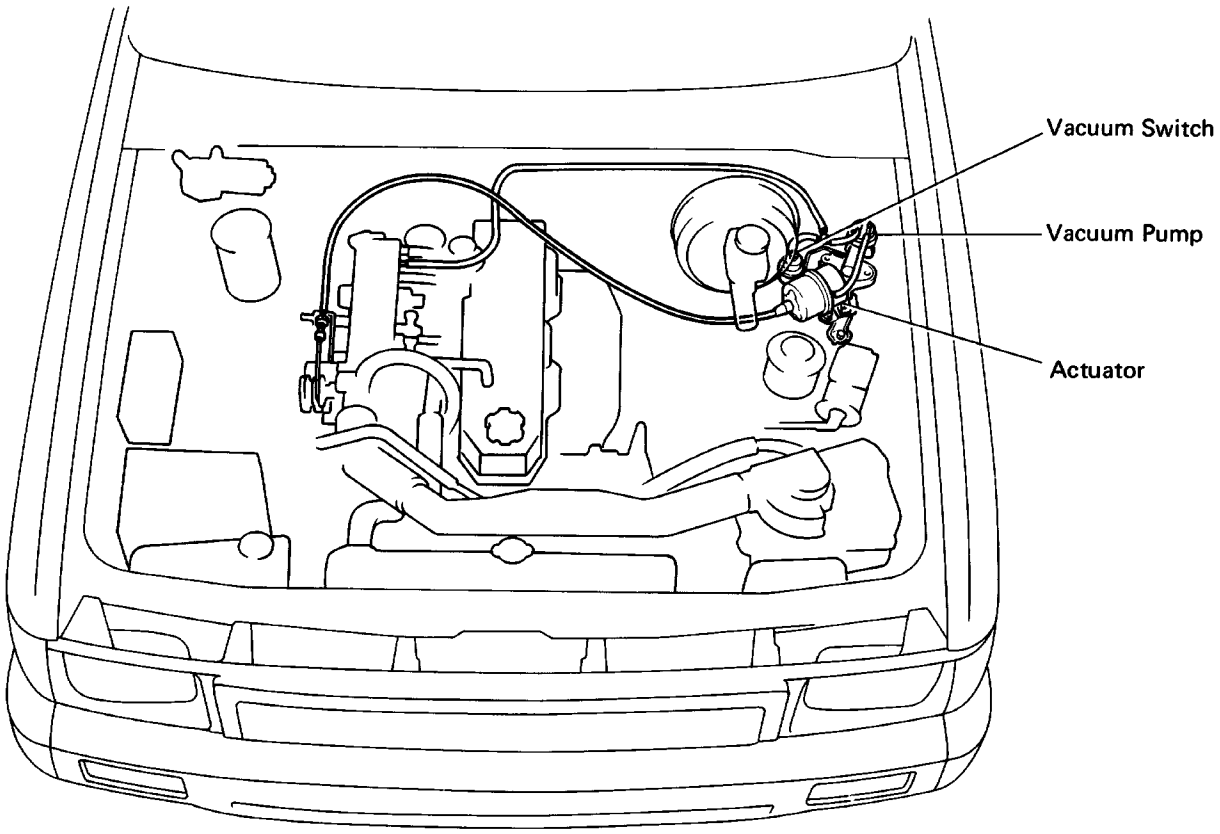
(d) Reverse the polarity, check that the mirror turns downward.

If operation is not as specified, replace the mirror assembly.

CRUISE CONTROL SYSTEM
Parts Location

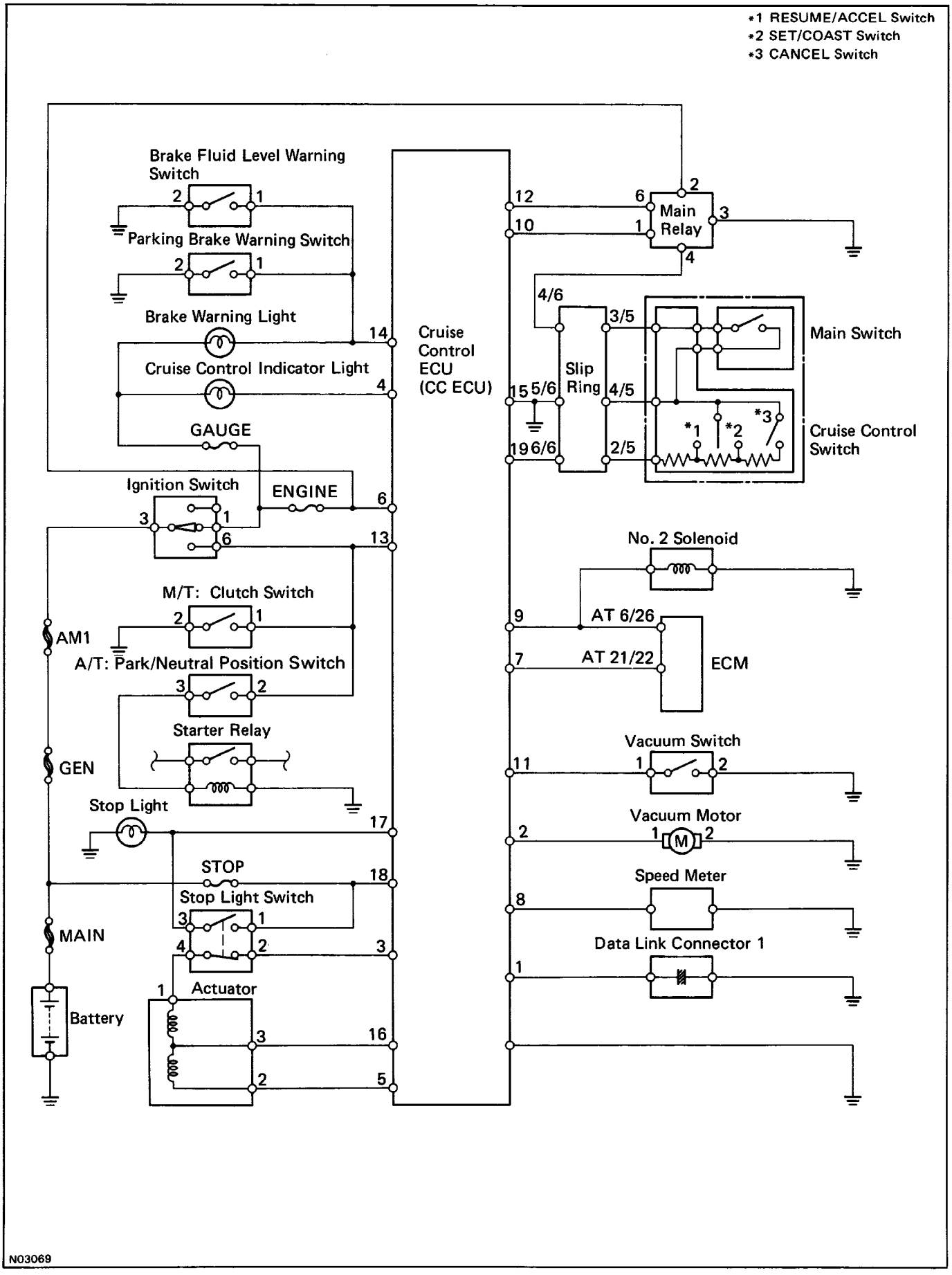


22R-E ENGINE



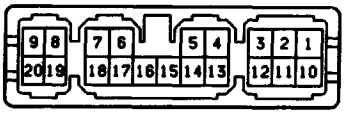
BE3035

Wiring Diagram



Connector Diagrams

Cruise Control ECU

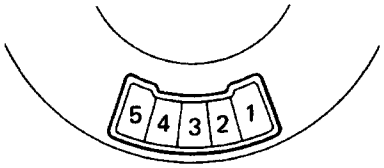


Main Relay

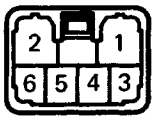
Main Switch

Cruise Control Switch

Slip Ring Speed
(Control Switch Side)



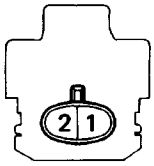
(Wire Harness Side)



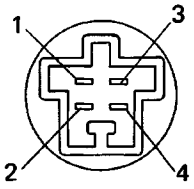
Actuator

Vacuum Pump

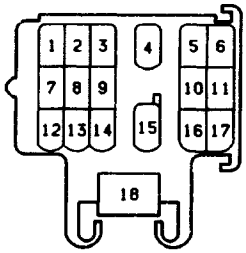
Vacuum Switch



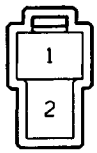
Stop Light Switch



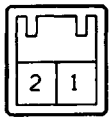
Data Link Connector 1



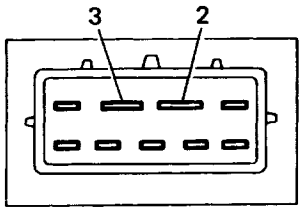
Parking Brake Switch



Clutch Switch



Park/Neutral Position Switch



S-20-2 S-6-2 IS-2-2-C S-5-1-B GA-2-1-C
BE1930 S-6-2 IS-3-2-A
IS-2-2-0 BE5756 SH18-1
H-2-2 G-2-2 BE1485

System Description

Standby Operation

- When the ignition switch is turned ON (IG), current flows from the battery to terminal 6 of the Cruise Control ECU (hereafter called ECU).
- When the ignition switch is turned ON (IG), current flows from the battery to terminal 2 of the Main Relay.

Operation

1. MAIN SWITCH OPERATION

When the main switch is pushed ON, current flows from terminal 2 of the main relay → terminal 4 →terminal 4!6 of the slip ring–i terminal 3I5–terminal 3/5 → of the cruise control switch (hereafter called SCS)–i terminal 1/2 → terminal 1 of the main switch–terminal 2 →/terminal 2I2 of the SCS → ter–minal 4I5 → terminal 4/5 of the slip ring → terminal 5/6 → ground.
As a result, the main relay turned ON → current flows to terminal 12 of ECU.
After that, current flows through the ”CRUISE” indicator light to terminal 4 of the ECU.
Therefore, the main switch remains on and continues to supply current to terminal 12 of the ECU.

2. SPEED CONTROL SWITCH OPERATION

The cruise control switch controls the SET, COAST, RESUME, ACCEL and CANCEL functions.
When the each speed control switch is pushed ON, sends a signal (each voltage) from terminal 2I5 of the SCS → terminal 2l5 of the slip ring → terminal 6/6 → terminal 19 of the ECU.
Then, the vehicle speed at the moment the switch (SET position) is released is registered in memory.

3. SPEED CONTROL OPERATION

When the vehicle speed is set by the cruise control switch, the ECU send a signal from terminal 3 of the ECU terminal 2 of the stop light switch → terminal 4 → terminal 1 of the actuator (release valve side).
At the same time, the ECU sends a signal from terminal 5 of the ECU → terminal 2 of the actuator (control valve side).
Then, the actuator increases or decreases the throttle valve opening angle in accordance with the sig–nal from the ECU.

4. CANCEL OPERATION

The Cruise Control System is provided with several types of the cancel, such as the cruise control switch (CANCEL), the stop light switch, the parking brake switch and the park/neutral position switch (AM or clutch switch (M/T).

(a) Cruise Control Switch (CANCEL)

When the cruise control switch (CANCEL) is pushed ON, sends a cancellation signal from terminal 2/5 of the SCS → terminal 2I5 of the slip ring → terminal 6/6 → terminal 9 of the ECU.

(b) Parking Brake Switch

When the parking brake lever is pulled, the parking brake switch turned ON → Sends a cancella–tion signal (ground voltage) to terminal 14 of the ECU.

(c) Park/Neutral Position Switch (A/T)

When the shift lever is set to the ”N” or ”P” position, the park/neutral position switch turned ON → sends a cancellation signal (ground voltage) to terminal 14 of the ECU.

(d) Clutch Switch (M/T)

When the clutch pedal is depressed, the clutch switch is turned ON → sends a cancellation signal (ground voltage) to terminal 13 of the ECU.

(e) Stop Light Switch

When the brake pedal is depressed, the SW B of stop light switch is turned OFF → the release valve (in actuator) is opened, and the SW A of stop light switch is turned ON → sends a cancel–lation signal to terminal 17 of the ECU.

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

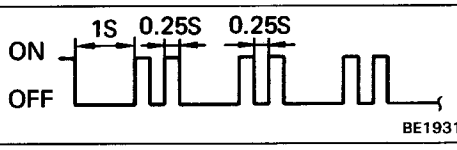
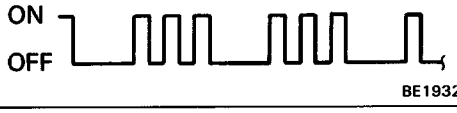
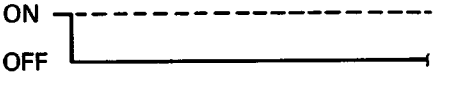
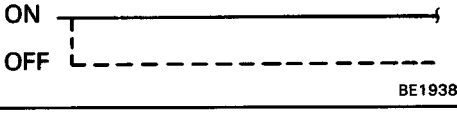
Diagnosis System

Output of Diagnostic Trouble Code

READ DIAGNOSTIC TROUBLE CODE

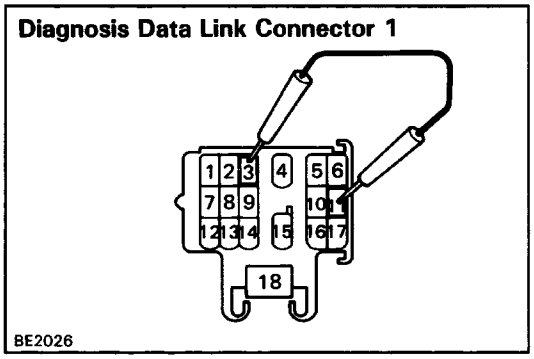
(Type A)

(a) Turn the ignition switch on.
(b) Push the SET/COAST switch on, and keep it on.
(c) Push the main switch on.
(d) Check that the indicator light ”CRUISE” light–on in the combination meter and after 3 seconds check that the indicator light ”CRUISE” blinks.
(e) Turn the SET/COAST switch off.
(f) Meet the conditions listed below.
(g) Read the diagnostic trouble code on the indicator light ”CRUISE”.

No.	Conditions	Indication code	Diagnosis
1	Push the cruise control switch SET/COAST on.		SET/COAST circuit is normal.
2	Push the cruise control switch RESUMEIACCEL on.		RESUMEIACCEL circuit is normal.
3	Vacuum switch is turned ON.		Vacuum switch circuit is normal.
4	Each cancel switch turned ON. • Cruise control switch (to CANCEL) • Stop light switch • Park/Neutral Position switch (to N or P Position) • Clutch switch • Parking brake switch		Each cancel switch is normal.
5	Drive approx. 40 km/h (25 mph) or over.		Speed sensor circuit is normal.
6	Drive approx. 40 km/h (25 mph) or below.		Speed sensor circuit is normal.

HINT:

- Indication codes appear in order from No. 1.
- If there is no indication code, perform diagnosis and inspection. (See page BE–64)
- Indication is stopped, when the MAIN switch is re–pushed.



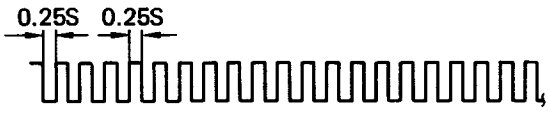
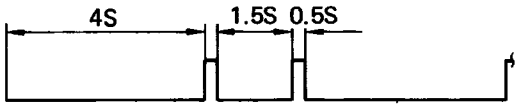
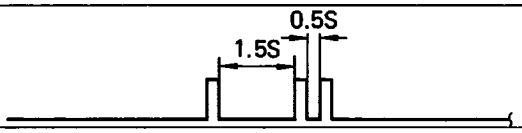
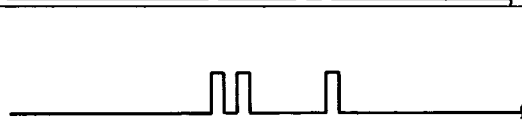
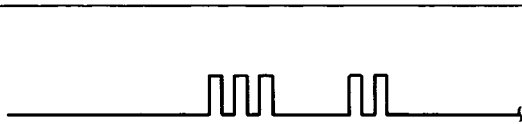
(Type6)

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

(b) While stopping, connect terminals 3 and 1 1 of the data link connector 1.

HINT: Should the ignition switch turned off, the diagnostic trouble code will be erased from the computer memory.

(c) Read the diagnostic trouble code on the indicator light "CRUISE".

Indication code		Diagnosis
		Normal.
11		Control valve circuit of actuator is abnormal.
12		Release valve circuit of actuator is abnormal.
21		Speed sensor circuit is abnormal.
23		*Vehicle speed has decreased by 16 km/h (10 mph) or more from the set speed.
32		SET/COAST switch signal and RESUMEIACCEL switch signal stay on simultaneously.
34		Control switch does not turn off before switching.
* If the set speed can be maintained when the speed control switch is again set at SET/COAST, there is no malfunction .		

When 41 code is indicated, replace the cruise control ECU.

41	

HINT:

¿

- Indication codes appear in order from No. 11
- If there is no indication code, perform diagnosis and inspection. (See page BE–84)

Troubleshooting

You will find the troubles easier using the table well shown below. In this table, each number shows the priority of causes in troubles. Check each part in order.

Chart No.					C	A	B	E	G, H	F	I	I	D		
Inspection Item / Diagnosis Code / Problem	Type B	Type A		ECU	Actuator	Main Switch	Control Switch	Stop Light Switch	Clutch Switch or Park/ Neutral Position Switch	Parking Brake Switch	Vacuum Switch	Vacuum Pump	Speed Sensor' or Speedometer Cable	Speedometer Cable Function	Others
• "CRUISE" indicator light blinks 5 time. • Cruise control system does not set. • Cruise control system does not operate.	11			2	1										
	12			3	1			2							
	21			2									1		
	23			6	2						5	4	3	1	*2
	32			2			1								
	Normal	5	OK	8	7	1	2	3	4	5				6	*3
			NG	2									1		
Setting speed deviated on high or low side.		3	OK	6	5						4	3	2	1	
			NG								1				
Vehicle speed fluctuates when speed con–trol switch turned to SET.				4	3								1	2	
Setting speed does not cancel when brake pedal depressed.		4	OK	3	1			2							
			NG	2				1							
Setting speed does not cancel when park–ing brake lever pulled.		4	OK	2	1										
			NG	2						1					
Setting speed does not cancel when shifted to "N" position. (A/T)		4	OK	2	1										
			NG	2					1						
Setting speed does not cancel when clutch pedal depressed. (M/T)		4	OK	2	1										
			NG	2					1						
Vehicle speed does not decrease when cruise control switch turned to COAST.		1	OK	3	1									2	
			NG	2			1								
Vehicle speed does not accelerate when cruise control switch turned to ACCEL.		2	OK	3	1									2	
			NG	2			1								
Vehicle speed does not return to memo–rized speed when control switch turned on RESUME.		2	OK	3	1									2	
			NG	2			1								
Setting speed does not cancel when cruise control switch turned to CANCEL.		4	OK	2	1										
			NG	2			1								
Speed can be set below about 40 km/h (25 mph).		5	OK	2	1										
			NG	2									1		
Cruise control will not disengage even at about 40 km/h (25 mph).		5	OK	2	1										
			NG	3									1	2	
Acceleration response is sluggish when cruise control switch turned to "ACCEL" or "RESUME".		3	OK	4	3							2		1	*2
			NG								1	2			

" : in the Speedometer Vacuum Hose *3: Vacuum Hose & Brake Fluid

Inspection Chart

A **INSPECTION OF POWER SOURCE CIRCUIT**

Turn ignition switch on

Is ENGINE fuse normal?

No → Replace fuse. Is operation normal?

No → • Short circuit in wire harness between ENGINE fuse and terminal 2 of main relay.
• Inspect main relay. (See page BE–82)

Yes

Yes → Fuse faulty.

MAIN RELAY

INSPECT GROUND CONNECTION
Disconnect connector from main relay.
Is there continuity between terminal 3 of main relay and ground?

No → • Open circuit in wire harness between terminal 3 of main relay and ground.
• Ground faulty.

Yes

INSPECT POWER SOURCE
Is there battery positive voltage between terminal 2 of main relay and ground with ignition switch turned on?

No → Open circuit in wire harness between ENGINE fuse and terminal 2 of main relay.

Yes

INSPECT MAIN RELAY OPERATION
Is main relay operation normal?
(See page BE–81)

No → Main relay faulty.
Replace main relay. Then recheck system.

Yes

Is there continuity between terminal 6 on wire harness side connector and ground?

Yes → Short circuit in wire harness between terminals6 of main relay and 12 of CC ECU.

No

Is there continuity between terminal 1 on wire harness side connector and ground?

Yes → Short circuit in wire harness between terminals 1 of main relay and 10 of CC ECU.

No

CONTINUED ON NEXT PAGE

CONTINUED FROM PREVIOUS PAGE

Disconnect combination switch connector.

Is there continuity between terminal 4 of main relay connector on wire harness side and ground?

Yes → Short circuit in wire harness between terminals 4 of main relay and 4I6 of slip ring.

No

Connect connector to main relay.

SLIP RING

Disconnect connectors from slip ring.

INSPECT POWER SOURCE
Is there battery positive voltage between terminal 4I6 on wire harness side connector and ground with ignition switch turned on?

No → Open circuit in wire harness between terminals 4 of wire harness side connector and 4I6 of slip ring.

Yes

INSPECT GROUND CONNECTION
Is there continuity between terminal 5I6 on wire harness side connector and ground?

No → Open circuit in wire harness side between terminal 5I6 of slip ring and ground.

Yes

INSPECT SLIP RING CONTINUITY
Is slip ring continuity normal?
(See page BE–81)

No → Slip ring faulty.
Replace slip ring. Then recheck system.

Yes

MAIN SWITCH

Disconnect connector from main switch.

Is there continuity between terminals 1I2 and 3I5 of speed control switch?

No → Open circuit in speed control switch between terminals 1/2 and 3I5.

Yes

INSPECT MAIN SWITCH CONTINUITY
Is main switch continuity normal?
(See page BE–80)

No → Main switch faulty.
Replace main switch. Then recheck system.

Yes

CONTINUED ON NEXT PAGE

CONTINUED FROM PREVIOUS PAGE

Is there continuity between terminals 2I2 and 4I5 of speed control switch?
No → Open circuit in cruise control switch between terminals 2I2 and 4I5.

Yes

Connect connectors to slip ring.

INSPECT POWER SOURCE
Is there battery positive voltage between terminal 1/2 of cruise control switch and ground with ignition switch turned on?
No → Short circuit in wire harness between terminals 1/2 and 3/5 of cruise control switch.

Yes

Connect connector to main switch.

ECU

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

INSPECT GROUND CONNECTION
Is there continuity between terminal 15 and ground?
No →
- Open circuit in wire harness between terminal 15 and ground.
- Ground faulty.

Yes

INSPECT POWER SOURCE
Is there battery positive voltage between terminal 12 and ground with ignition switch and main switch is turned on?
No → Open circuit in wire harness between terminals 12 of CC ECU and 6 of main relay.

Yes

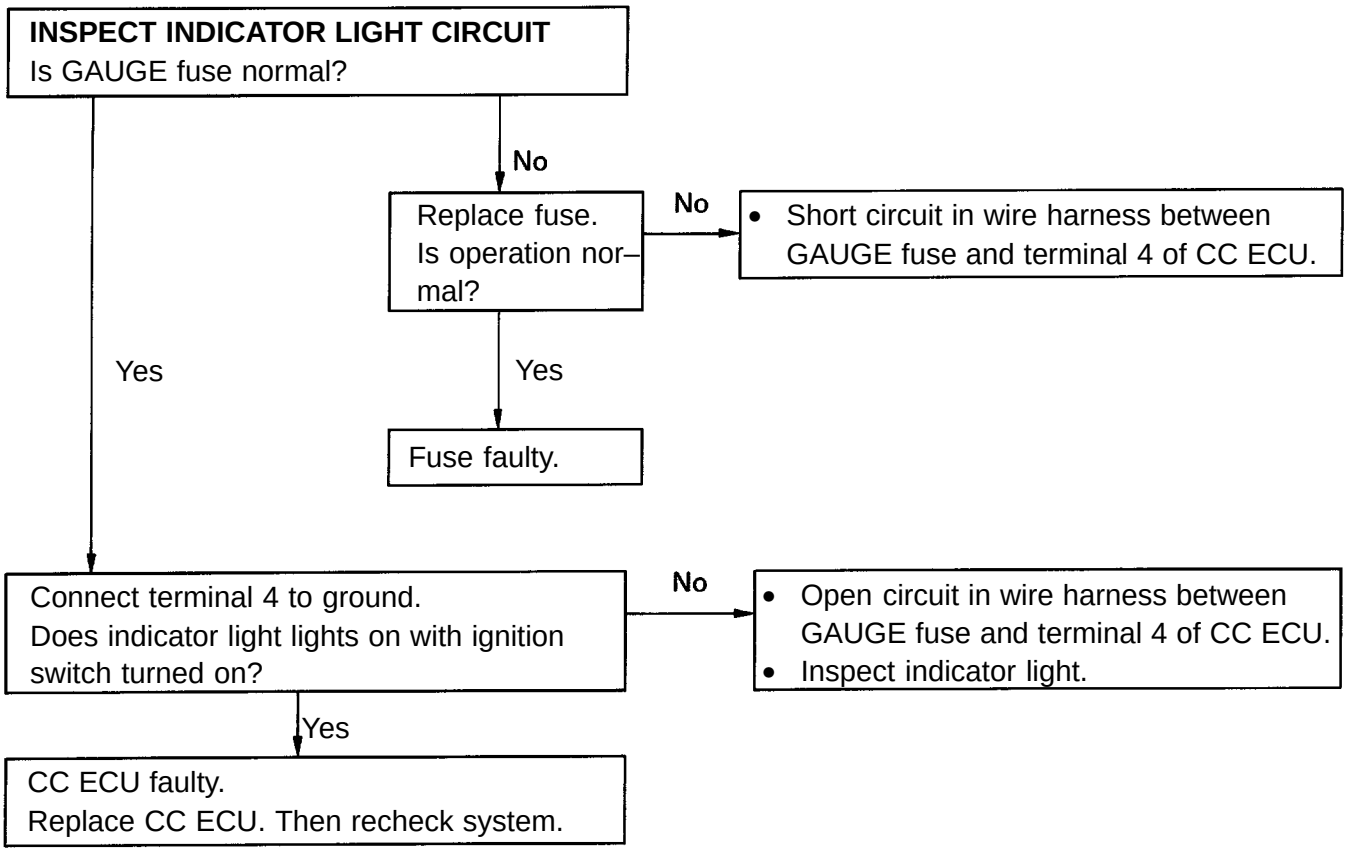
Disconnect connector from main relay.

Is there continuity between terminals 10 of CC ECU and 1 of main relay wire harness side connector?
No → Open circuit in wire harness between terminals 10 of CC ECU and 1 of main relay.

Yes

CONTINUED ON NEXT PAGE

CONTINUED ON PREVIOUS PAGE



B INSPECTION OF CRUISE CONTROL SWITCH CIRCUIT

Turn ignition switch off.

CRUISE CONTROL SWITCH

Disconnect connector from control switch.

INSPECT CONTROL SWITCH
Is control switch operation normal?
(See page BE–81)

No → Speed control switch faulty.
Replace cruise control switch. Then re–check system.

Yes

SLIP RING

Disconnect connector from slip ring.

INSPECT GROUND CONNECTION
Is there continuity between terminal 5I6 on wire harness side connector and ground?

No →
- Open circuit in wire harness between terminal 5I6 of slip ring and ground.
- Ground faulty.

Yes

INSPECT SLIP RING CONTINUITY
Is slip ring continuity normal?
(See page BE–82)

No → Slip ring faulty.
Replace slip ring. Then recheck system.

Yes

ECU

Connect connectors to slip ring.
Disconnect connector from CC ECU and in–spect connector on wire harness side as fol–lows.

INSPECT GROUND CONNECTION
Is there continuity between terminal 15 and ground?

No →
- Open circuit in wire harness between terminal 15 of CC ECU and ground.
- Ground faulty.

Yes

INSPECT CRUISE CONTROL SWITCH CIRCUIT
Is there no continuity between terminals 19 and 15 with control switch is off?

No → Short circuit in wire harness between ter–minal 19 of CC ECU and terminal 6I6 of slip ring.

Yes

Is there approx. 68Ω between terminals 19 and 15 with control switch RESUME/ACCEL is pushed on?

No → Open circuit in wire harness between ter–minal 19 of CC ECU and terminal 6I6 of slip ring.

Yes

CC ECU faulty.
Replace CC ECU. Then recheck system.

C INSPECTION OF ACTUATOR CIRCUIT

Turn ignition switch off.

VACUUM HOSE

Are there cracks or other damage on the vacuum hose?

Yes → Vacuum hose faulty.
Replace vacuum hose. Then recheck system.

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 → Actuator faulty.
Replace actuator. Then recheck system.

Yes

Is there continuity between terminal 3 on wire harness side connector and ground?

No → Open circuit in wire harness between terminal 3 of actuator and terminal 16 of ECU.

Yes

STOP LIGHT SWITCH

INSPECT STOP LIGHT SWITCH CIRCUIT
Disconnect connector from stop light switch.
Is there continuity between terminal 4 of wire harness side connector and ground?

Yes → Short circuit in wire harness between terminal 1 of actuator and terminal 4 of stop light switch.

No

Connect the connector to actuator.
Is there continuity between terminal 4 of wire harness side connector and ground?

No → Open circuit in wire harness between terminal 1 of actuator and terminal 4 of stop light switch. .

Yes (There is resistance approx. 71Ω)

INSPECT STOP LIGHT SWITCH CONTINUITY
Is stop light switch continuity normal?
(See page BE–80)

→ Replace stop light switch. Then recheck system.

Yes

Connect connector to stop light switch.

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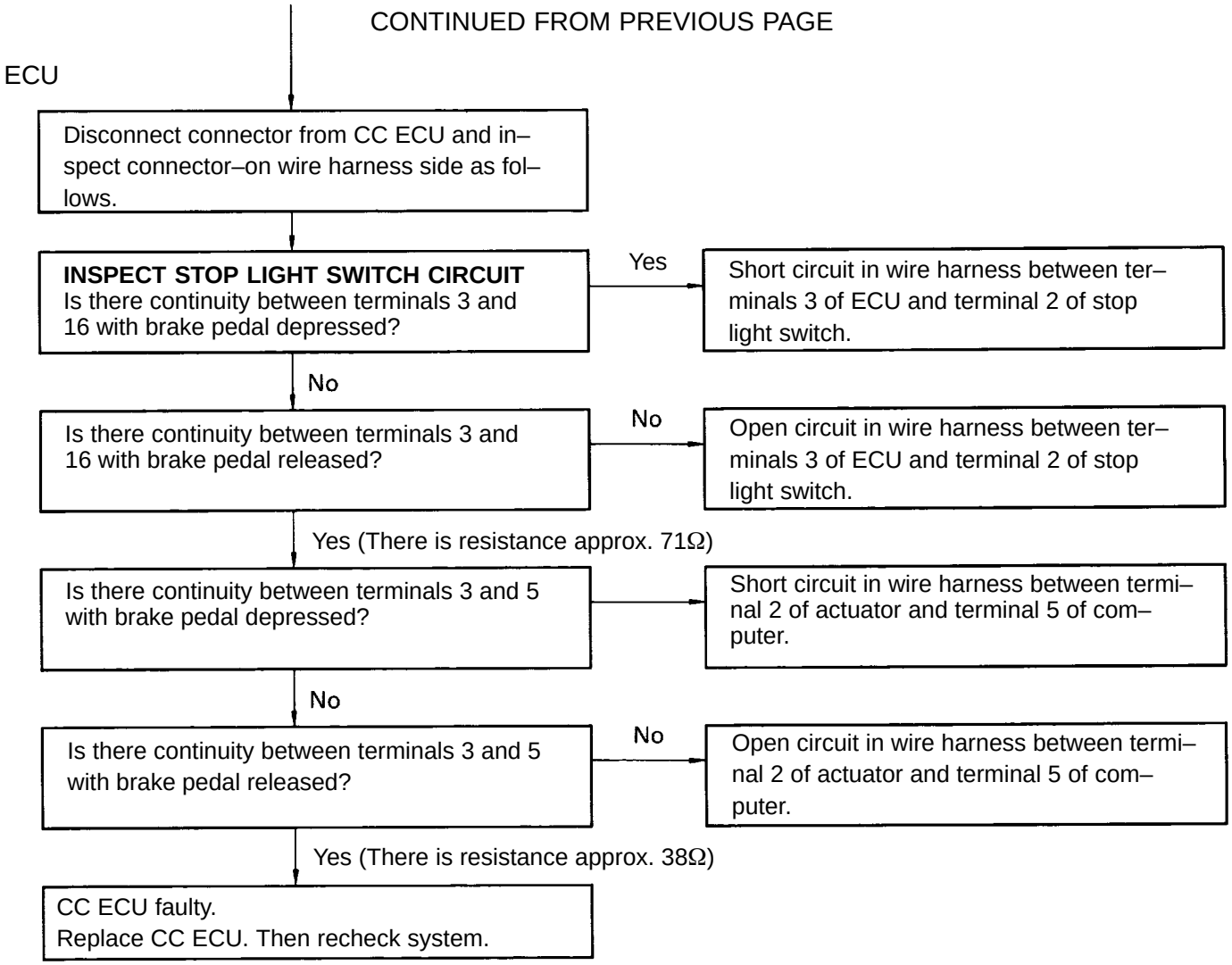
CONTINUED FROM PREVIOUS PAGE
ECU
Disconnect connector from CC ECU and inspect connector–on wire harness side as follows.
INSPECT STOP LIGHT SWITCH CIRCUIT
Is there continuity between terminals 3 and 16 with brake pedal depressed?
Yes
Short circuit in wire harness between terminals 3 of ECU and terminal 2 of stop light switch.
No
Is there continuity between terminals 3 and 16 with brake pedal released?
No
Open circuit in wire harness between terminals 3 of ECU and terminal 2 of stop light switch.
Yes (There is resistance approx. 71Ω)
Is there continuity between terminals 3 and 5 with brake pedal depressed?
Short circuit in wire harness between terminal 2 of actuator and terminal 5 of computer.
No
Is there continuity between terminals 3 and 5 with brake pedal released?
No
Open circuit in wire harness between terminal 2 of actuator and terminal 5 of computer.
Yes (There is resistance approx. 38Ω)
CC ECU faulty.
Replace CC ECU. Then recheck system.

D INSPECTION OF SPEED SENSOR CIRCUIT

SPEED METER CABLE

INSPECT SPEED METER CABLE
Does not meter fluctuate when driving at a steady speed?

Yes → Meter cable faulty.
Replace meter cable. Then recheck system.

No

Turn ignition switch off.

SPEED SENSOR

Disconnect connector from combination meter.

INSPECT GROUND CONNECTION
Is there continuity between terminal6 of wire harness side connector and ground?

No →
- Open circuit in wire harness between terminal B of combination meter and ground.
- Ground faulty.

Yes

INSPECT SPEED SENSOR OPERATION
Is there sensor operation normal?
(See page BE–33).

No → Speed sensor faulty.
Replace speed sensor. Then recheck system.

Yes

Connect connectors to combination meter.

ECU

Disconnect connector from CC ECU and inspect connector on wire harness side as follows.
Turn ignition switch on.

INSPECT SPEED SENSOR CIRCUIT
Does the voltage between terminal 8 and ground change repeatedly from OV to approx. 5V or more when speedometer shaft is turned?

No → Open or short circuit in wire harness between terminal 8 of CC ECU and terminal A of combination meter.

Yes

CC ECU faulty.
Replace CC ECU. Then recheck system.

E INSPECTION OF STOP LIGHT SWITCH CIRCUIT

Turn ignition switch off.

Is STOP fuse normal? — No → Replace fuse. Is operation normal? — No → Short circuit in wire harness between terminal 18 of CC ECU or terminal 1 of stop light switch and fuse.

Yes

Yes → Fuse faulty.

STOP LIGHT SWITCH

INSPECT GROUND CONNECTION
Disconnect connector from stop light switch.
Is there continuity between terminal 3 of wire harness side connector and ground?

No →
- Open circuit in wire harness between terminal 3 and ground.
- Bulb burned out.
- Ground faulty.

Yes

INSPECT STOP LIGHT SWITCH CONTINUITY
Is stop light switch continuity normal?
(See page BE–80).

No → Stop light faulty.
Replace stop light switch. Then recheck system.

Yes

Connect connector to stop light switch.

ECU

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

INSPECT STOP FUSE CIRCUIT
Is there battery positive voltage between terminal 17 and ground with brake pedal released?

Yes → Short circuit in wire harness between terminal 17 of CC ECU and STOP fuse.

No

Is there battery positive voltage between terminal 17 and ground with brake pedal depressed?

No → Open circuit in wire harness between terminal 17 of CC ECU and STOP fuse.

Yes

CC ECU faulty.
Replace CC ECU. Then recheck system.

F INSPECTION OF PARKING BRAKE SWITCH CIRCUIT

Turn ignition switch off.

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 ground?

No →
- Open circuit in wire harness between terminal 2 of brake fluid level warning switch.
- Ground faulty.

Yes ↓

INSPECT BRAKE WARNING SWITCH
Is brake fluid level warning switch operation normal?
(See page BE–38)

No → Brake warning switch faulty.
Replace brake warning switch.

Yes ↓

Connect the connector to brake warning switch.

PARKING BRAKE SWITCH

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

No →
- Open circuit in wire harness between terminal 2 of parking brake switch.
- Ground faulty.

Yes ↓

INSPECT PARKING BRAKE SWITCH OPERATION
Is parking brake switch operation normal?
(See page BE–40)

No → Replace parking brake switch.

Yes ↓

Connect connector to parking brake switch.

ECU

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

Ignition switch turned on.

Is there no voltage between terminal 14 and ground with parking brake lever pulled up?

No → Open circuit in wire harness between terminal 14 of ECU and terminal 1 of parking brake switch or brake warning light.

Yes ↓

Is there battery positive voltage between terminal 14 and body ground with parking brake released?

No → Short circuit in wire harness between terminal 14 of ECU and terminal 1 of parking brake switch, terminal 1 of brake fluid level warning switch or brake warning light.

Yes ↓

CC ECU faulty.
Replace CC ECU. Then recheck system.

G INSPECTION OF CLUTCH SWITCH CIRCUIT

Turn ignition switch off.

CLUTCH SWITCH

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

No → Open circuit in wire harness between terminal 2 of the clutch switch and ground.

Yes

INSPECT CLUTCH SWITCH CONTINUITY
Is clutch switch continuity normal?
(See page BE–81)

No → Replace clutch switch.

Yes

Connect connector to clutch switch.

ECU

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

INSPECT CLUTCH SWITCH CIRCUIT
Is there continuity between terminal 13 and ground when clutch pedal is depressed?

No → Open circuit in wire harness between terminal 13 of ECU and terminal 1 of clutch switch.

Yes

CC ECU faulty.
Replace CC ECU. Then recheck system.

H INSPECTION OF PARK/NEUTRAL POSITION SWITCH CIRCUIT

Turn ignition switch off.

PARK/NEUTRAL POSITION SWITCH

INSPECT GROUND CONNECTION
Disconnect connector from park/neutral position switch.
Is there continuity between terminal 3 of wire harness side connector and ground?

No → Open circuit in wire harness between terminal 3 of park/neutral position switch and ground.

Yes

INSPECT PARK/NEUTRAL POSITION SWITCH OPERATION
Is park/neutral position switch operation normal?
(See page AT–26, 79, 137 or 196)

No → Replace park/neutral position switch.

Yes

Connect connector to park/neutral position switch.

ECU

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

INSPECT PARK/NEUTRAL POSITION SWITCH CIRCUIT
Is there continuity between terminal 13 and ground when shifted to ”N” and ”P” position?

No → Open circuit in wire harness between terminal 13 of ECU and terminal 2 of park /neutral position switch.

Yes

CC ECU faulty.
Replace CC ECU. Then recheck system.

INSPECTION OF VACUUM CIRCUIT

Turn ignition switch off.

VACUUM HOSE

Are there cracks or other damage on the vacuum hose?

Yes → Replace vacuum hose.

No

VACUUM SWITCH

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

No →
- Open circuit in wire harness between terminal 2 of vacuum switch and ground.
- Ground faulty.

Yes

INSPECT VACUUM SWITCH OPERATION
Is vacuum switch normal?
(See page BE–82)

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 ground?

No →
- Open circuit in wire harness between terminal 2 of vacuum pump and ground.
- Ground faulty.

Yes

INSPECT VACUUM PUMP OPERATION
Is vacuum pump operation normal?
(See page BE–82)

No → Replace vacuum pump.

Yes

Connect connector to vacuum switch and pump.

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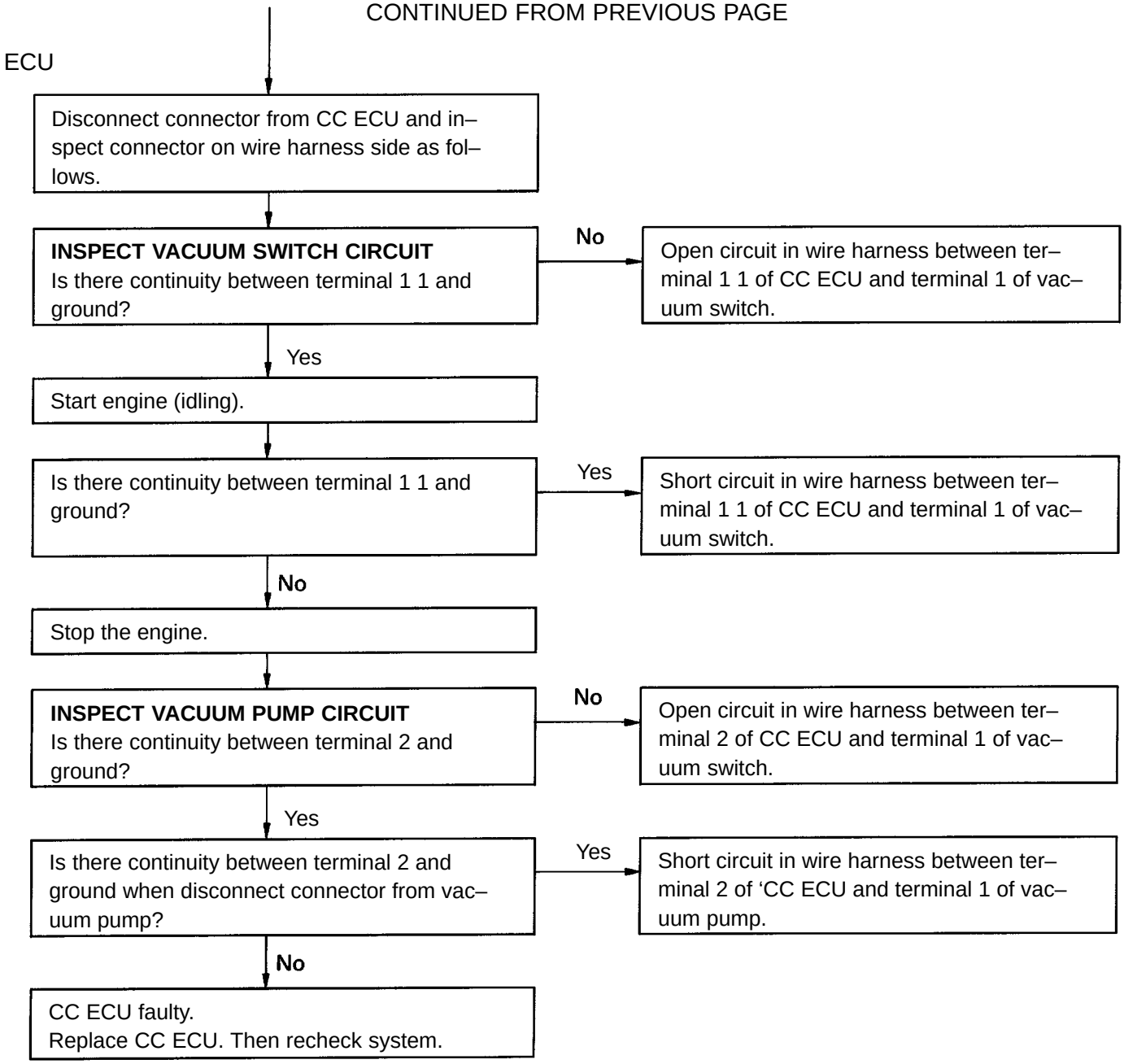


J INSPECTION OF ECM SOLENOID CIRCUIT

Start engine (idling).

ECM

Is there battery positive voltage between terminal 6126 of ECM and ground?

No → Short or open circuit in wire harness between terminal 6/26 of ECM and terminal 9 of CC ECU.

Yes

Is there voltage approx. 5V between terminal 7 of CC ECU and ground?

No → Short or open circuit in wire harness between terminal 7 of CC ECU and terminal of EC M .

Yes

Stop engine.

ECU

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

INSPECT ECM SOLENOID CIRCUIT
Is there continuity between terminal 9 and terminal 6126 of ECM?

No → Open circuit in wire harness between terminal 9 of CC ECU and terminal 6I26 of ECM.

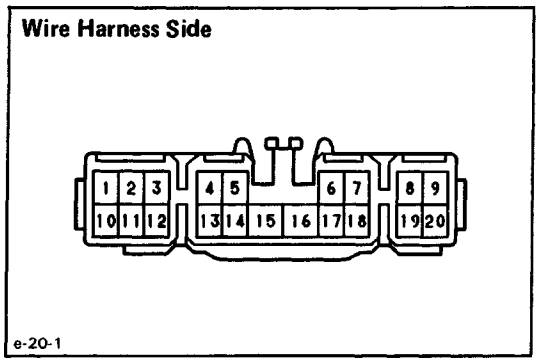
Yes

Is resistance value about 11–15Ω between terminal 9 and ground?

No → Open or short circuit in wire harness between terminal 9 of CC ECU and terminal of ECM or No. 2 solenoid.

Yes

CC ECU faulty.
Replace CC ECU. Then recheck system.



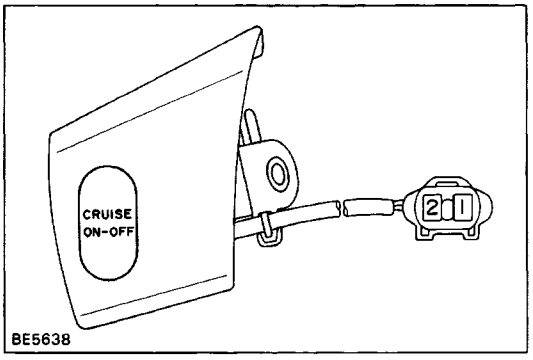
Cruise Control ECU Circuit Inspection of ECU Circuit

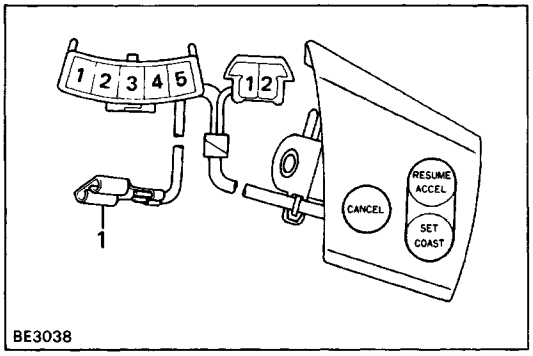
Disconnect the connector from the ECU and inspect the connector on the wire harness side as shown below.

Connection or Measure item	Check for	Tester Connection	Condition		Specified valve
Data Link Connector 2	Continuity	1 – Ground	Short terminals between "Te" and "El"		Continuity
			Released		No continuity
Vacuum pump		2 – Ground	Constant		Continuity *1
Speed sensor (in combination meter)		8 – Ground	Vehicle moving slowly		1 pulse each 40 cm approx. (15.75 in.)
Vacuum switch		11 – Ground	Vacuum	No vacuum	Continuity
				More than 70 + 30 mmHg 6.69 f 1.18 in. Hg 22.66 + 4.0 kPa	No continuity
Park/Neutral Position switch (A/T)		13 – Ground	Shift position	"N" or "P" position	Continuity
				⍰, ,.2⍰, ⍰p⍰ or "R" position	No continuity
Clutch switch (M/T)		13 – Ground	Clutch pedal position	Depressed	Continuity
				Released	No continuity
Parking brake switch		14 – Ground	Parking brake lever position	Pulled	Continuity
				Released	No continuity
Body ground		15 – Ground	Constant		Continuity
Stop light switch		17 – 18	Brake pedal position	Depressed	Continuity *1
				Released	No continuity
CANCEL switch	Resistance	19 – Ground	Cruise control switch position	CANCEL switch is pushed	Approx. 4180
				Released	No continuity
RESUMEIACCEL switch		19 – Ground		RESUME/ACCEL switch is pushed	Approx. 68Ω
				Released	No continuity
SET/COAST switch		19 – Ground		SET/COAST switch is pushed	Approx. 1980
				Released	No continuity
Stop light switch and actuator (release valve)		3 – 16	Brake pedal position	Depressed	No continuity
				Released	Approx. 71Ω
Actuator (control valve)		5 – 16	Constant		Approx. 380
No. 2 solenoid valve		9 – Ground	Constant		less than 1511
GAUGE fuse and indicator light	Voltage	4 – Ground	Ignition switch position	ON	Battery positive voltage
				LOCK, ACC	No voltage
ENGINE fuse		6 – Ground	Ignition switch position	ON	Battery positive voltage
				LOCK, ACC	No voltage
O/D circuit		7 – Ground	Ignition SW position	ON	Approx. 5V or more
				LOCK or ACC	No voltage
ENGINE fuse, main switch and main relay		10 – Ground	Ignition switch ON and MAIN switch position	ON	less than 0.3 V
				OFF	No voltage
		12 – Ground	Ignition switch ON –and MAIN switch position	ON	Battery positive voltage
				OFF	No voltage

* 1 There is resistance in the circuit.

If circuit is as specified, replace the ECU.





Parts Inspection

1. INSPECT SWITCHES
(Main Switch/Continuity)

Terminal / Switch position	1	2
OFF		
ON	○	○

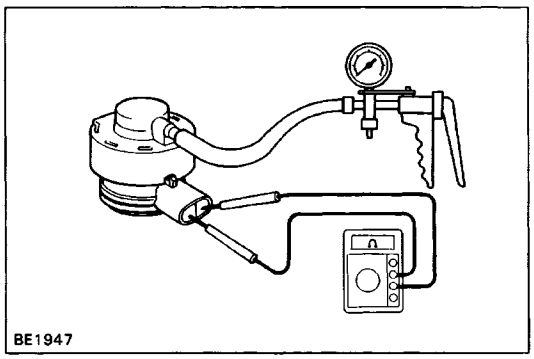
If continuity is not as specified, replace the switch.
(Cruise Control Switch /Continuity)

Terminal / Condition	1/2	2/2	3/5	4/5
Constant	○		○	
		○		○

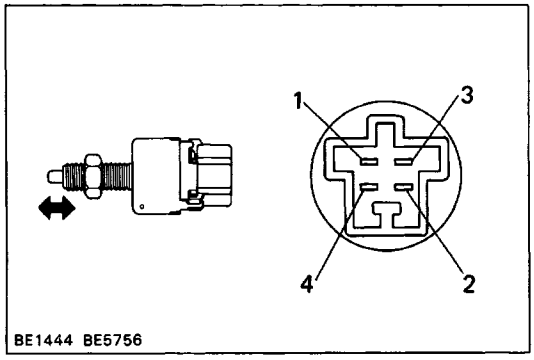
If continuity is not as specified, replace the switch.
(Cruise Control Switch/Resistance)
Measure the resistance value between terminals 2/5 and 4I5 or 2I2.

Switch position	RESISTANCE (Ω)
OFF	No continuity
RESUME/ACCEL	Approx. 68
SET/COAST	Approx. 198
CANCEL	Approx. 418

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



(Vacuum Switch /Operation)
(a) Check that there is continuity between terminals with no vacuum.
(b) Check that there is no continuity between terminals with a vacuum of 170 ± 30mmHg (6.69 ± 1.18 in. Hg, 22.66 ± 4. 00 kPa) or above.
If operation is not as specified, replace the switch.

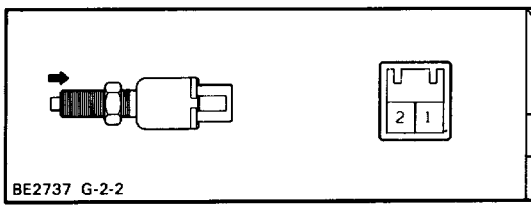


(Stop Light Switch /Continuity)
Inspect the switch continuity between terminals.

Terminals / Switch position	1	2	3	4
Switch pin free (Brake pedal depressed)	○		○	
Switch pin pushed in (Brake pedal released)		○		○

If continuity is not as specified, replace the switch.

(Clutch Switch /Continuity)
Inspect the switch continuity between terminals.



Condition \ Terminal	1	2
Switch pin free (Clutch pedal depressed)	○	○
Switch pin pushed in (Clutch pedal released)		

If continuity is not as specified, replace the switch.

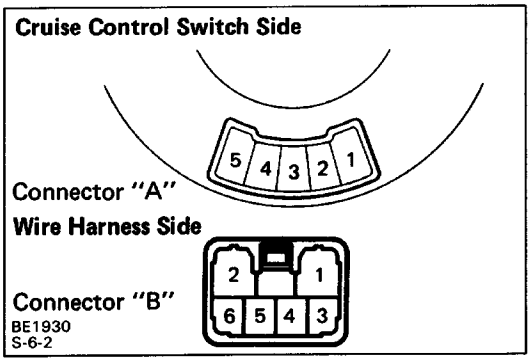
(Brake Fluid Level Warning Switch/Operation)
See step 2 on page BE–39.

(Parking Brake Switch/Operation)
See step 2 on page BE–40.

(Park/Neutral Position Switch /Operation)
See pages AT–26, 79, 137 or 196.

2. INSPECT SPEED SENSOR
See step 2 on page BE–34.

3. INSPECT SLIP RING
(Continuity)
Inspect the continuity between terminals.



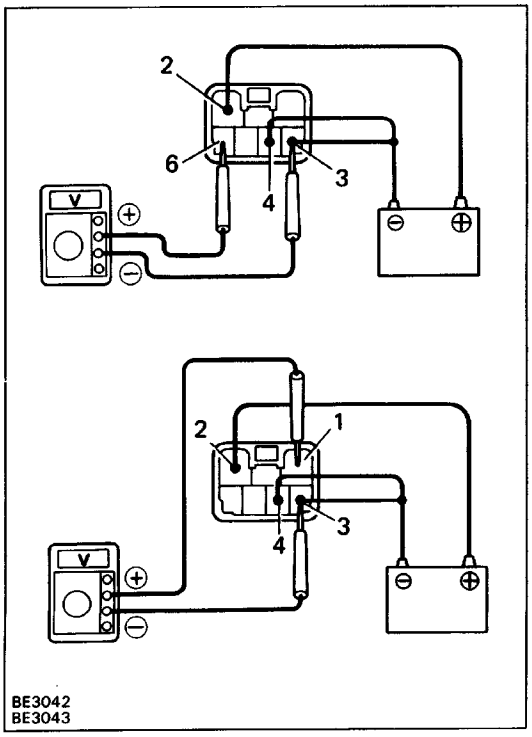
Condition \ Terminal	A-2	A-3	A-4	B-4	B-5	B-6
Constant	○					○
		○		○		
			○		○	

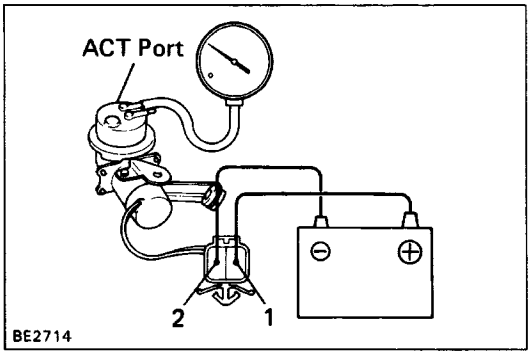
If continuity is not as specified, replace the slip ring.

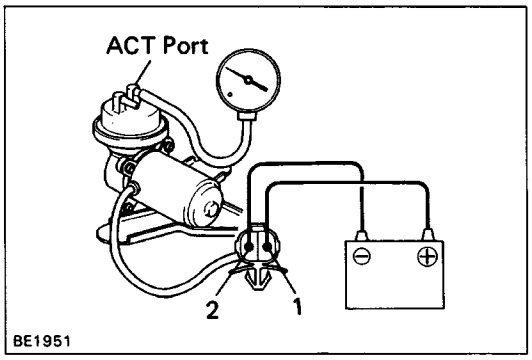
4. INSPECT MAIN RELAY
(Operation)

(a) Connect the positive (+) lead from the battery to terminal 2 and the negative (–) lead to terminals 3 and 4.
(b) Connect the positive (+) lead from the voltmeter to terminal 6 and the negative (–) lead to terminal 3, check that there is battery positive voltage.
(c) Change the positive (+) lead to terminal 1, check that there is voltage less than 0.3V.

If operation is not as specified, replace the relay.







5. INSPECT VACUUM PUMP

(3VZ–E Engine)

(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 a vacuum of 200 mmHg (7.87 in. Hg, 26.7 kPa) or above.

If operation is not as specified, replace the pump.

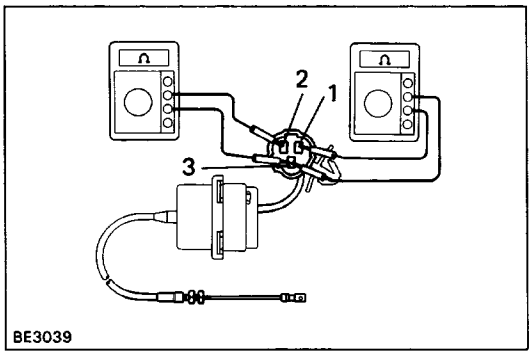
(22R–E Engine)

(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 a vacuum of 200 mm Hg (7.87 in.Hg, 26.7 kPa) or above.

If operation is not as specified, replace the pump.



6. INSPECT ACTUATOR

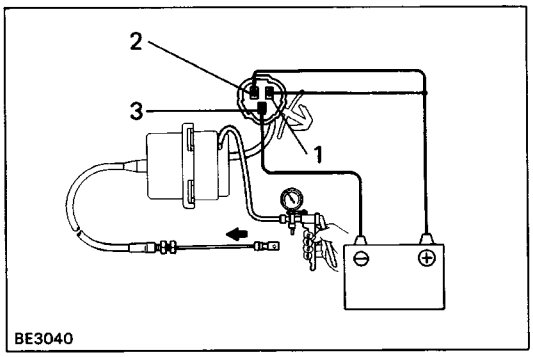
(Resistance)

Measure the resistance value between terminals as fol–lows.

Resistance: 1–3 Approx. 71Ω

2–3 Approx. 38Ω

If the resistance value is not as specified, replace the ac–tuator.



(Operation)

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

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

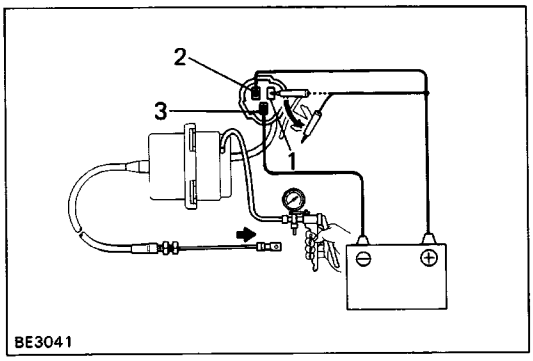
Cable stroke: Approx. 36 mm (1.42 in.)

(c) With the vacuum stabilized, check that the control cable does not return.

HINT: As you apply and hold the vacuum with the vac–uum pump, the drawn in diaphragm will in some cases return. This does not indicate a malfunction. Actuator leakage is allowable.

(d) Disconnect terminal 1 or 2 and check that the con–trol cable returns to its original position and the vac–uum returns to 0 mmHg (0 in. Hg, 0 kPa).

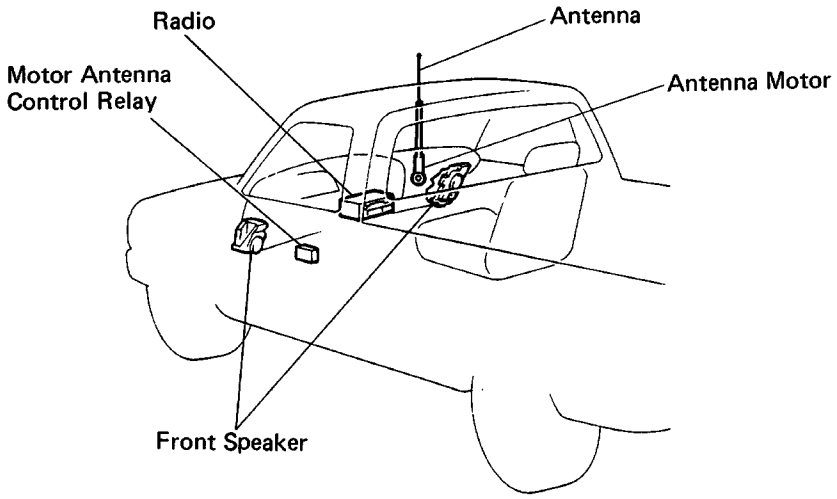
If operation is not as specified, replace the actuator.



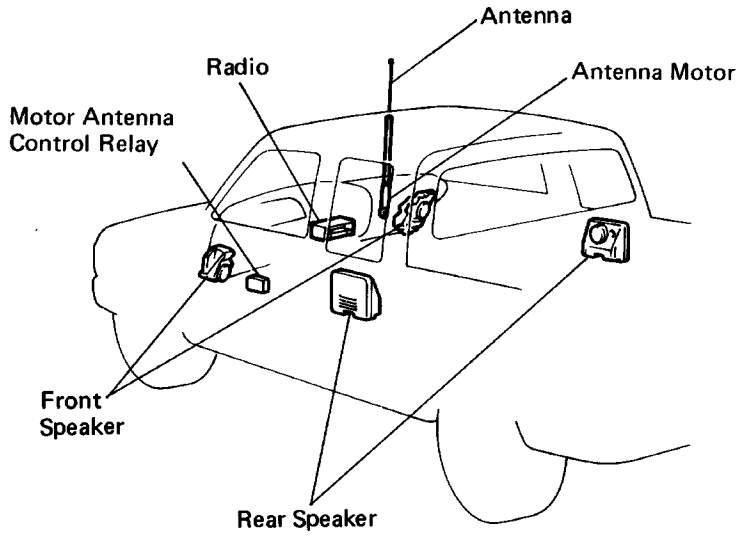
AUDIO SYSTEM

Parts Location

2-Speaker Type



4-Speaker Type



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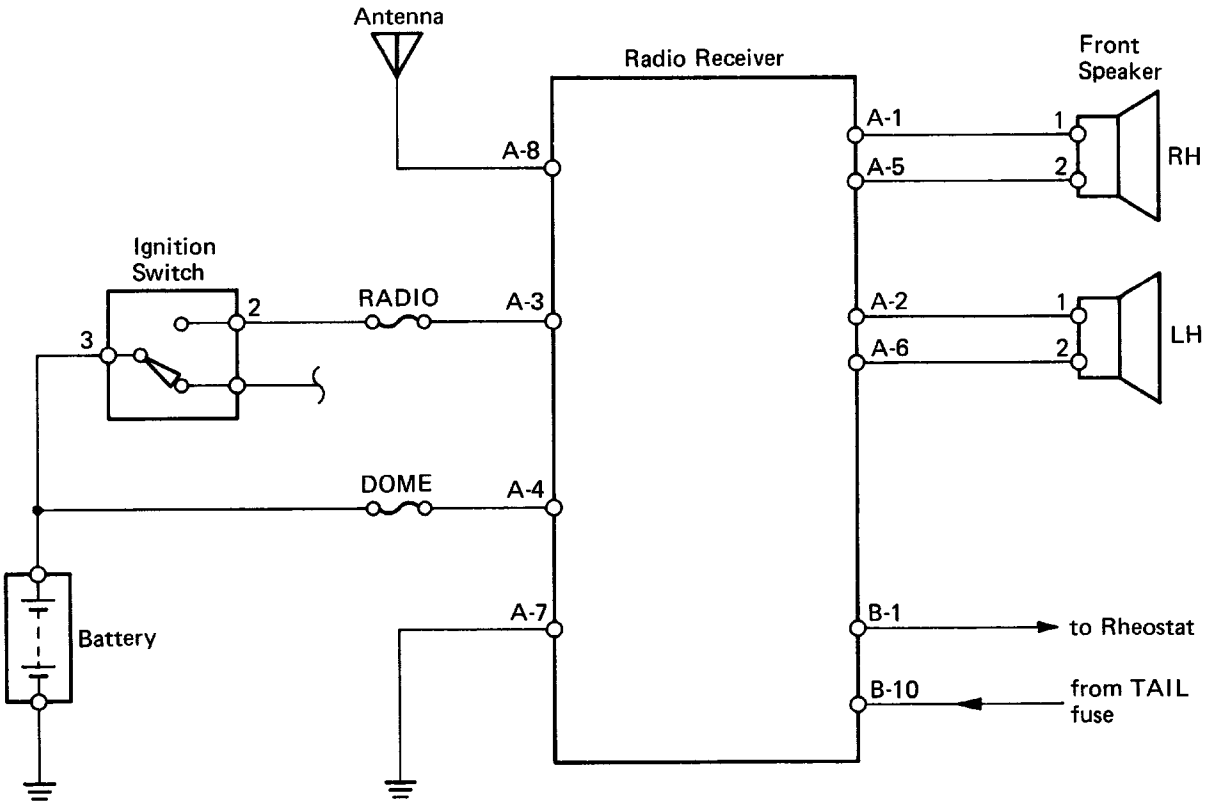
BE2942

Wiring and Connector Diagrams

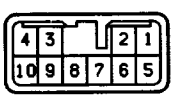
Radio: Simbol R



The POWER SOURCE CIRCUIT has been simplified. For full details, see page BE-8.

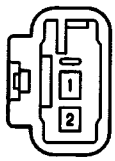
Radio Receiver

Connector "A"



Connector "B"

Front Speaker



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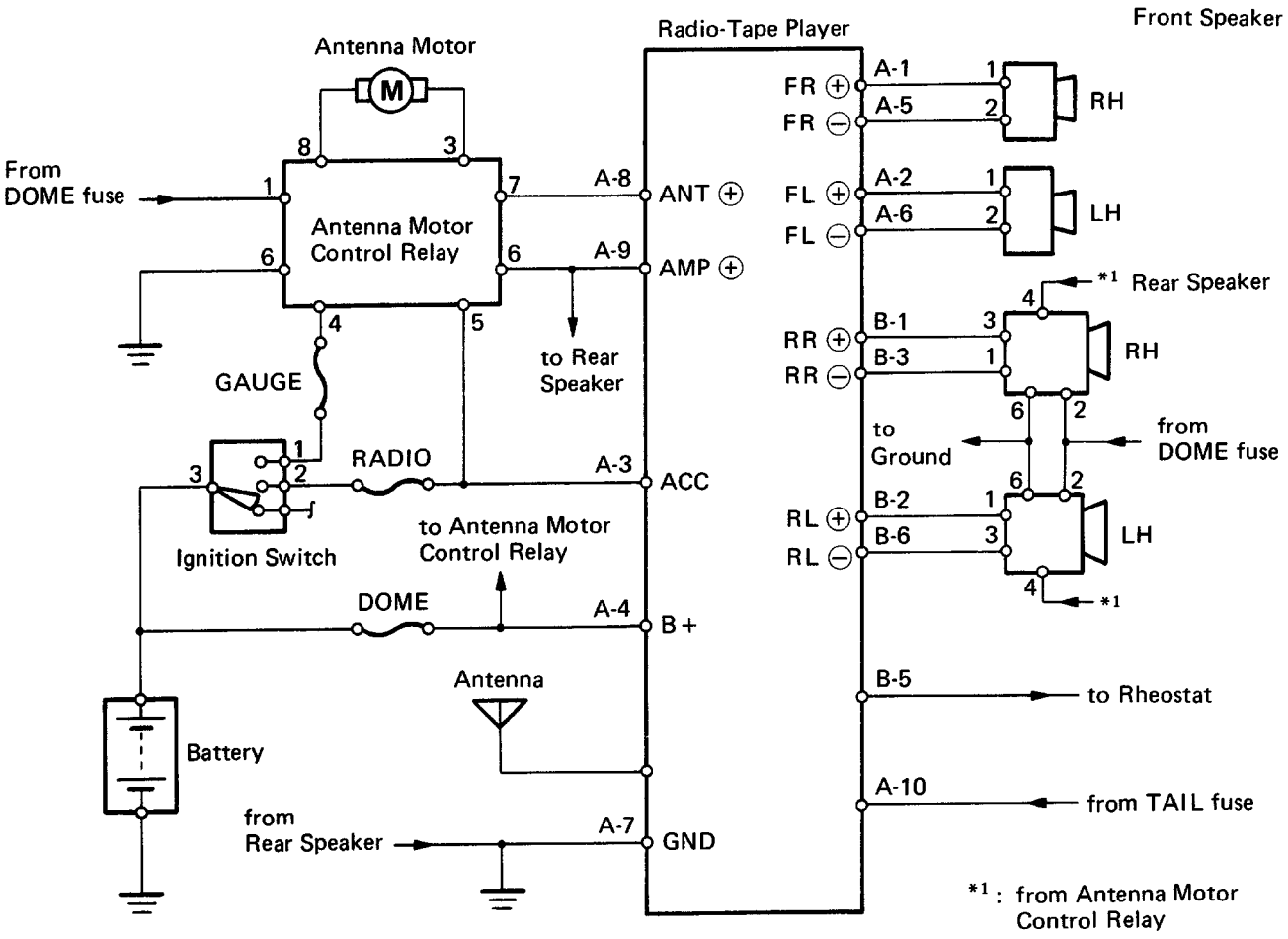
S-10-2-A e-1-2 e-2-2-E

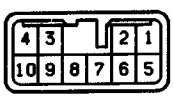
Radio-Tape Player Unit: Simbol U



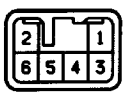
The POWER SOURCE CIRCUIT has been simplified. For full datils, see page BE-8.

Radio-Tape Player

Connector "A"

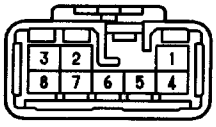


Connector "B"

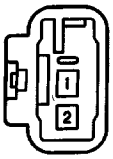


Antenna Motor Control Relay

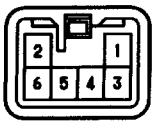
Ignition Switch



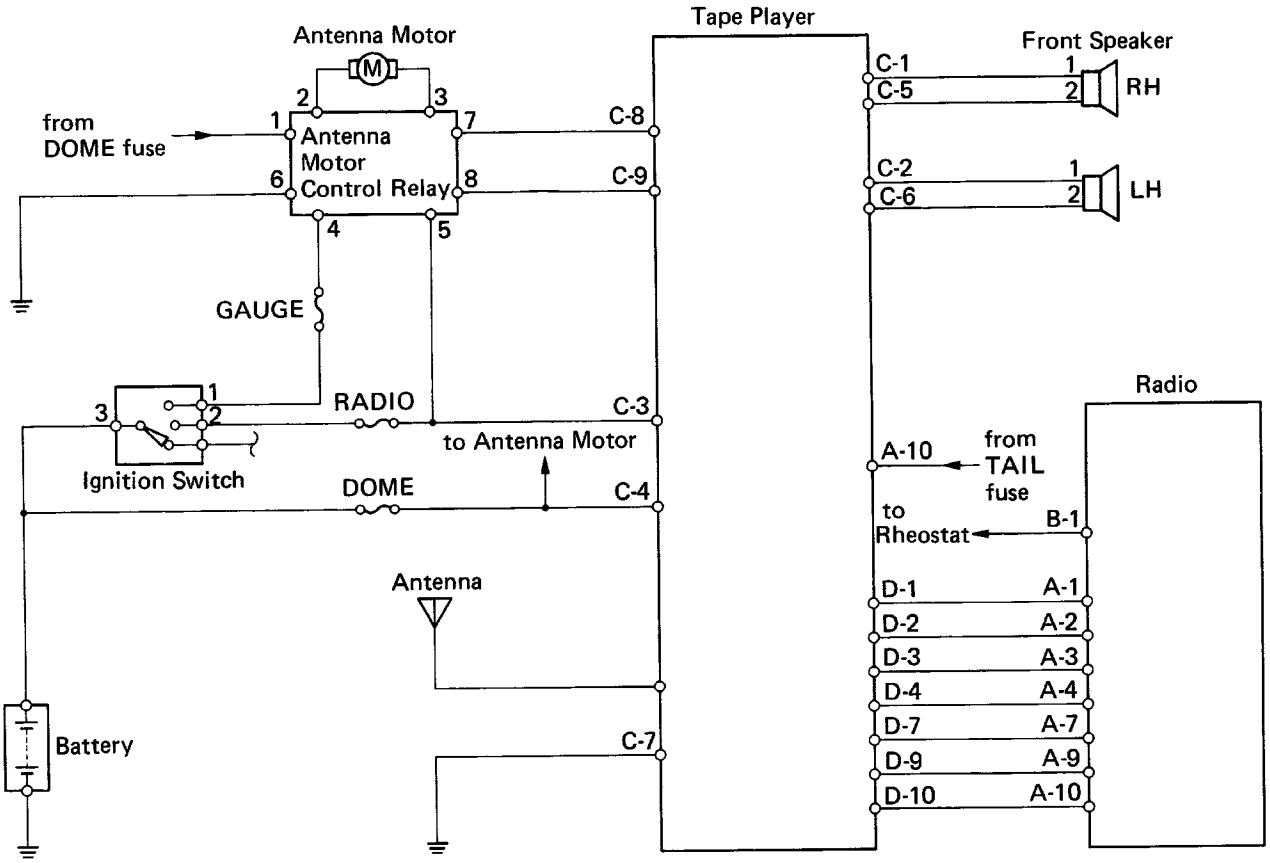
Front Speaker



Rear Speaker



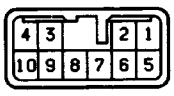
Radio-Tape Player (Separate): Simbol S



The POWER SOURCE CIRCUIT has been simplified. For full details, see page BE-8.

Radio

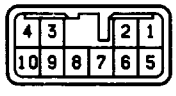
Connector "A"



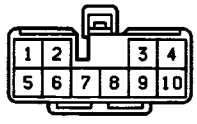
Connector "B"

Tape Player

Connector "C"

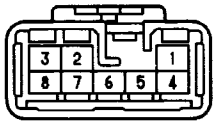


Connector "D"

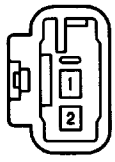


Antenna Motor Control Relay

Ignition Switch

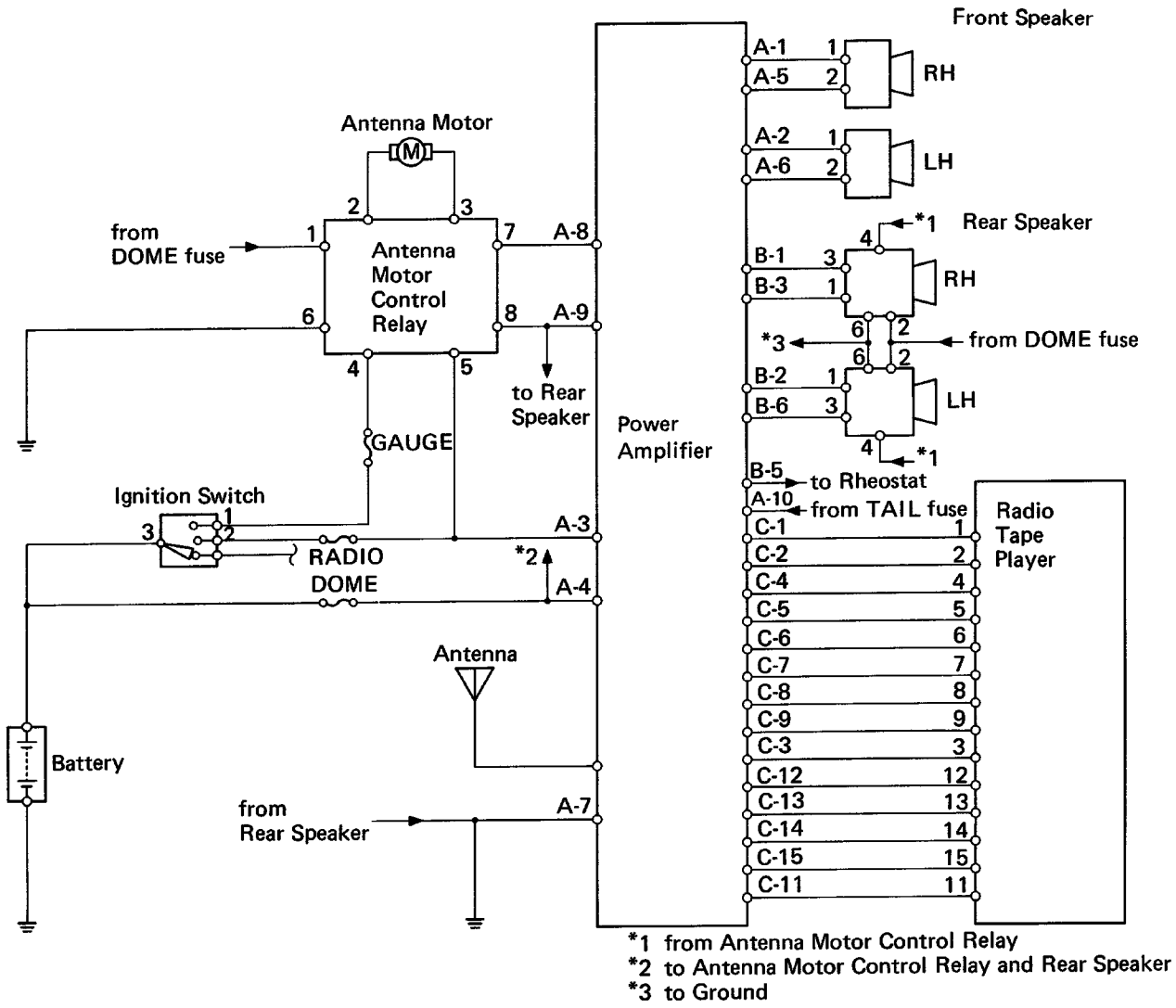


Front Speaker



N02968
S-10-2-A e-1-2 S-10-2-A S-10-1-A
G-9-2 e-8-2 g-8-2 e-2-2-E

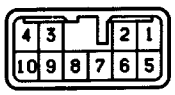
Radio-Tape Player Unit (Separate Power Amplifier): Simbol P



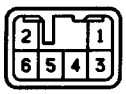
The POWER SOURCE CIRCUIT has been simplified. For full details, see page BE-8.

Power Amplifier

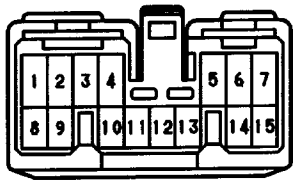
Connector "A"



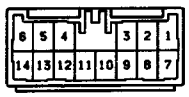
Connector "B"



Connector "C"

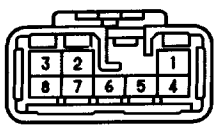


Radio-Tape Player

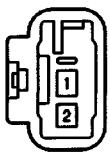


Antenna Motor Control Relay

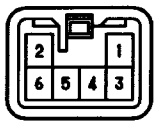
Ignition Switch



Front Speaker



Rear Speaker



N03036
S-10-2-A S-6-2-E h-15-1-A Y-14-2
e-8-2 g-8-2 e-2-2-E le-6-2-A

System Description

RADIO WAVE BAND

The radio wave bands used in radio broadcasting are as follows:

Frequency	30kHz	300kHz	3MHz	30MHz	300MHz
Designation	LF	MF	HF	VHF	
Radio wave	LM	AM (MW)	SW	FM (UKW)	
Modulation method	Amplitude modulation			Frequency modulation	

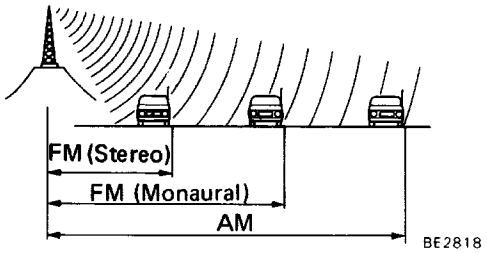
LF: Low Frequency MF: Medium Frequency HF: High Frequency VHF: Very High Frequency

HINT: In this section, the term "'AM" includes LW, MW and SW, and the term "FM" includes UKW.

SERVICE AREA

There is great difference in the size of the service area for AM, FM monaural, and FM stereo broadcasting. Thus it may happen that FM broadcast cannot be received even though AM comes in very clearly.

Not only does FM stereo have the smallest service area, but it also picks up static and other types of interference ("noise") the most easily.

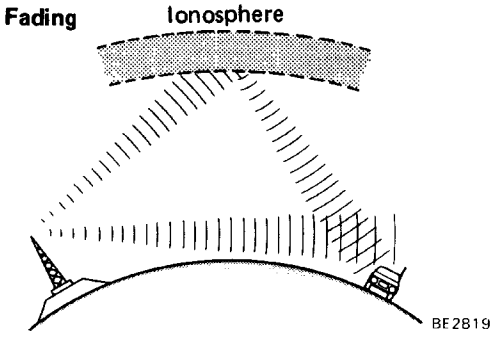


RECEPTION PROBLEMS

Besides the problem of static, there are also the problems called "fading", "multipath", and "fade out". These problems are caused not by electrical noise but by the na–ture of the radio waves themselves.

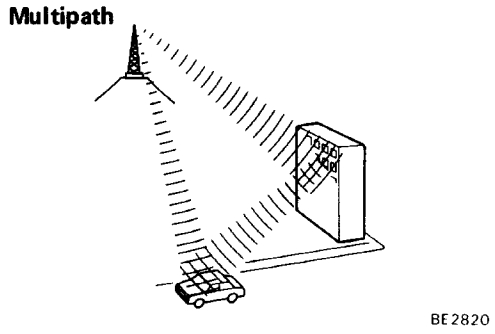
Fading

Besides electrical interference, AM broadcasts are also susceptible to other types of interference, especially at night. This is because AM radio waves bounce off the ionosphere at night. These radio waves then interfere with the signals from the same transmitter that reach the vehicle's antenna directly. This type of interference is called "fading".



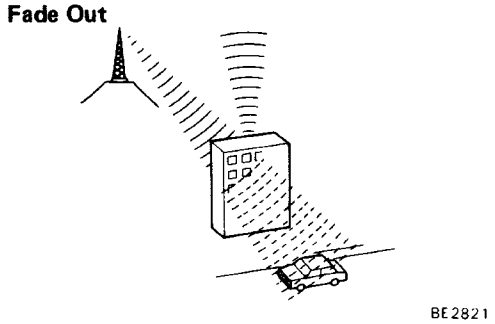
Multipath

One type of interference caused by the bouncing of radio waves off of obstructions is called "multipath". Mul–tipath occurs when a signal from the broadcast transmit–ter antenna bounces off of buildings and mountains and interferes with the signal that is received directly.



Fade Out

Because FM radio waves are of higher frequencies than AM radio waves, they bounce off of buildings, moun–tains, and other obstructions. For this reason, FM signals often seem to gradually disappear or fade away as the vehicle goes behind a building or other obstruction. This is called "fade out".



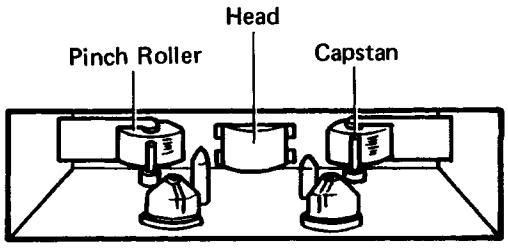
MAINTENANCE OF TAPE PLAYER

Head Cleaning

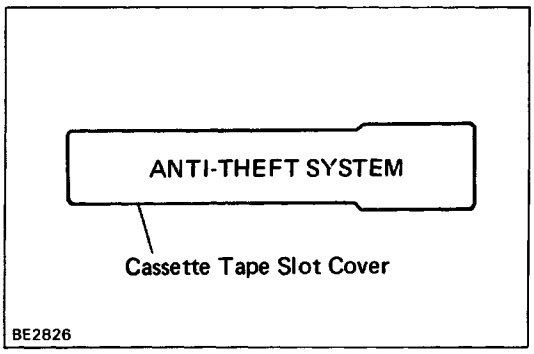
(a) Raise the cassette door with your finger. Next using a pencil or like object, push in the guide.

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

Example:



C0192



Anti–Theft System

The anti–theft system is only provided for audio systems equipped with an Acoustic Flavor function.

HINT: The words ”ANTI–THEFT SYSTEM” are dis–played on the cassette tape slot cover.
For operation instructions for the anti–theft system, please consult the audio system section in the Owner’s Manual (hereafter called O/M).

1. SETTING SYSTEM

The system is in operation once the customer has pushed the required buttons and entered the customer–selected 3–digit ID number.
(Refer to the O/M section, ”SETTING THE ANTI–THEFT SYSTEM”).

HINT:

- When the audio system is shipped the ID number has not been input, so the anti–theft system is not in operation.
- If the ID number has not been input, the audio system remains the same as a normal audio system.

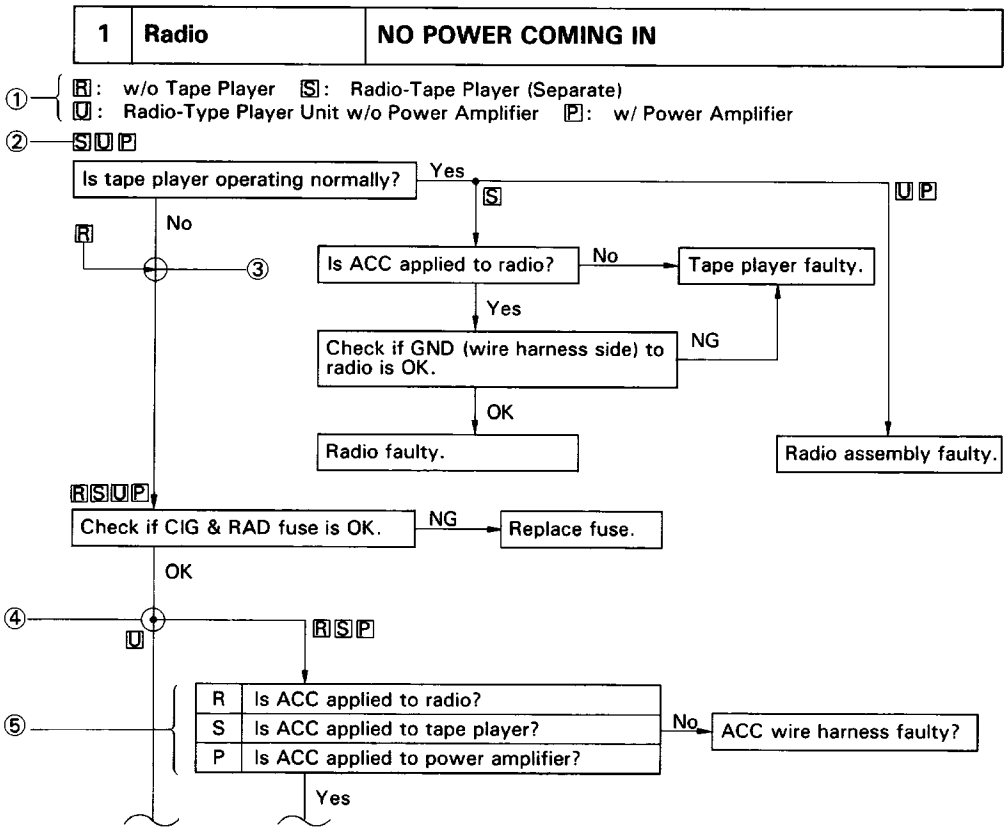
2. ANTI–THEFT SYSTEM OPERATION

If the normal electrical power source (connector or battery terminal) is cut off, the audio system be–comes inoperable, even if the power supply resumes.

3. CANCELLING SYSTEM

The ID number chosen by the customer is input to cancel the anti–theft system.
(Refer to the O/M section, ”IF THE SYSTEM IS ACTIVATED”)
HINT: To change or cancel the ID number, please refer to the O/M section, ”CANCELLING THE SYSTEM”.

HOW TO USE DIAGNOSTIC CHART



① Audio system type and symbol used.
HINT: Confirm the applicable type of audio system.

② Symbol for type of audio system the question applies to.

HINT: If the audio system type is not applicable, proceed to next question below.

③ Junction without black circle.

HINT: Proceed to next question below.

④ Junction with black circle.
HINT: Proceed to question for applicable audio system type.

⑤ HINT: Select question for applicable audio system type.

Troubleshooting

NOTICE: when replacing the internal mechanism (computer part) of the audio system, be careful that no part of your body or clothing comes in contact with the terminals of the leads from the IC, etc. of the re–placement part (spare part).

HINT: This inspection procedure is a simple troubleshooting which should be carried out on the vehicle during system operation and was prepared on the assumption of system component troubles (except for the wires and connectors, etc.).

Always inspect the trouble taking the following items into consideration.

- Open or short circuit of the wire harness
- Connector or terminal connection fault
- For audio systems with anti–theft system, troubleshooting items marked (*) indicate that ”Trouble–shooting for ANTI–THEFT SYSTEM” should be carried out first.

Problem		No.
Radio	No power coming in.	*1
	Power coming in, but radio not operating.	*2
	Noise present, but AM–FM not operating.	3
	Either speaker does not work.	4
	Either AM or FM does not work.	5
	Reception poor (Volume faint).	5
	Few preset tuning bands.	5
	Sound quality poor.	6
	Cannot set station select button.	7
	Preset memory disappears.	7
Tape Player	Cassette tape cannot be inserted.	8
	Cassette tape inserts, but no power.	*9
	Power coming in, but tape player not operating.	10
	Either speaker does not work.	11
	Sound quality poor (Volume faint).	12
	Tape jammed, malfunction with tape speed or auto–reverse.	13
	APS, SKIP, RPT buttons not operating.	14
	Cassette tape will not eject.	* 15
Antenna	Antenna–related.	16
Noise	Noise produced by vibration or shock while driving.	17
	Noise produced when engine starts.	18

Troubleshooting for ANTI–THEFT SYSTEM

Turn Ignition key from LOCK position to ACC position.

Display A:
ID Number is set.

"SEC" display disappears after 1 second.

No

Yes

Display E:
ANTI–THEFT SYSTEM operation condition.
(ID number input error 10 times or more.

Take to designated radio service station.

Display B.

Radio switch ON.

Display B

Refer to each malfunction item.

Display D

Normal operation.

Radio switch ON.

OK

Normal operation.

NG

Cancel ID number, refer to each malfunction item.

ANT–THEFT SYSTEM operation condition.
(ID number input error 9 times or less.)
Input ID number to cancel ANTI–THEFT SYSTEM, and check display.

Display A–B

Radio switch ON.

Display D

ANTI–THEFT SYSTEM cancelled.
Check audio system again.

OK

Normal operation.

NG

Cancel ID number, refer to each malfunction item.

Display B

Refer to each mal–function item.

Display E

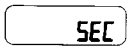
Take to designated radio service station.

Display C → A

ANT–THEFT SYSTEM not cancelled.
OD number input error 9 times or less.)

(Liquid Crystal Display (LCD) or VFD for Audio System)

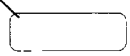
Display "A"



BE2814

Display "B"

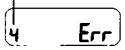
Blank,
No Illumination



BE2815

Display "C"

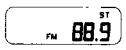
Error Times



BE2816

Display "D" Example:

Radio Display



BE2817

Display "E"

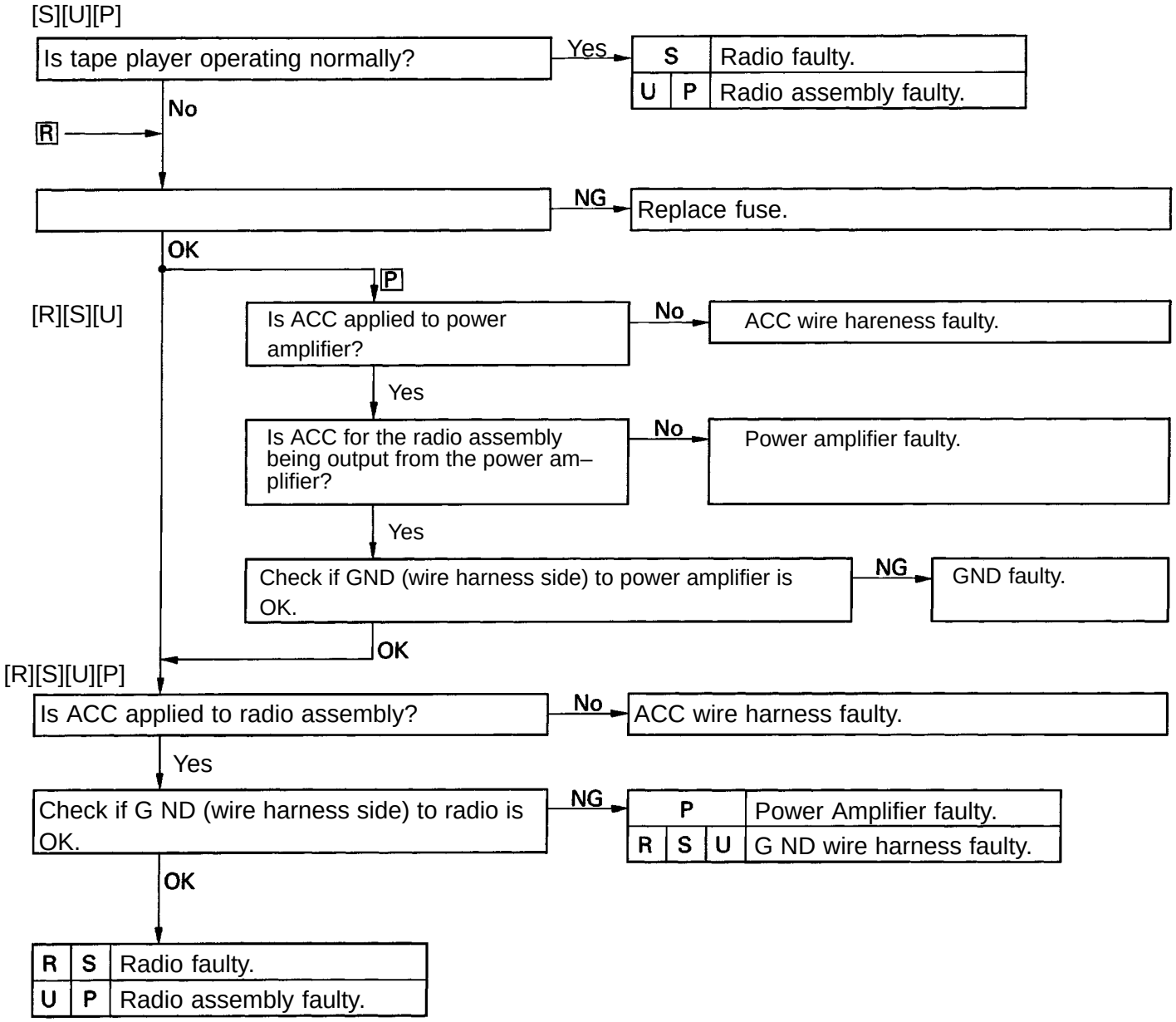
BE5521

HINT:

- Refer to Owner's Manual for operation details of ANTI–THEFT SYSTEM.
- When the ID number has been cancelled, reset the same number after completing the operation, or in–form the customer that it has been cancelled.

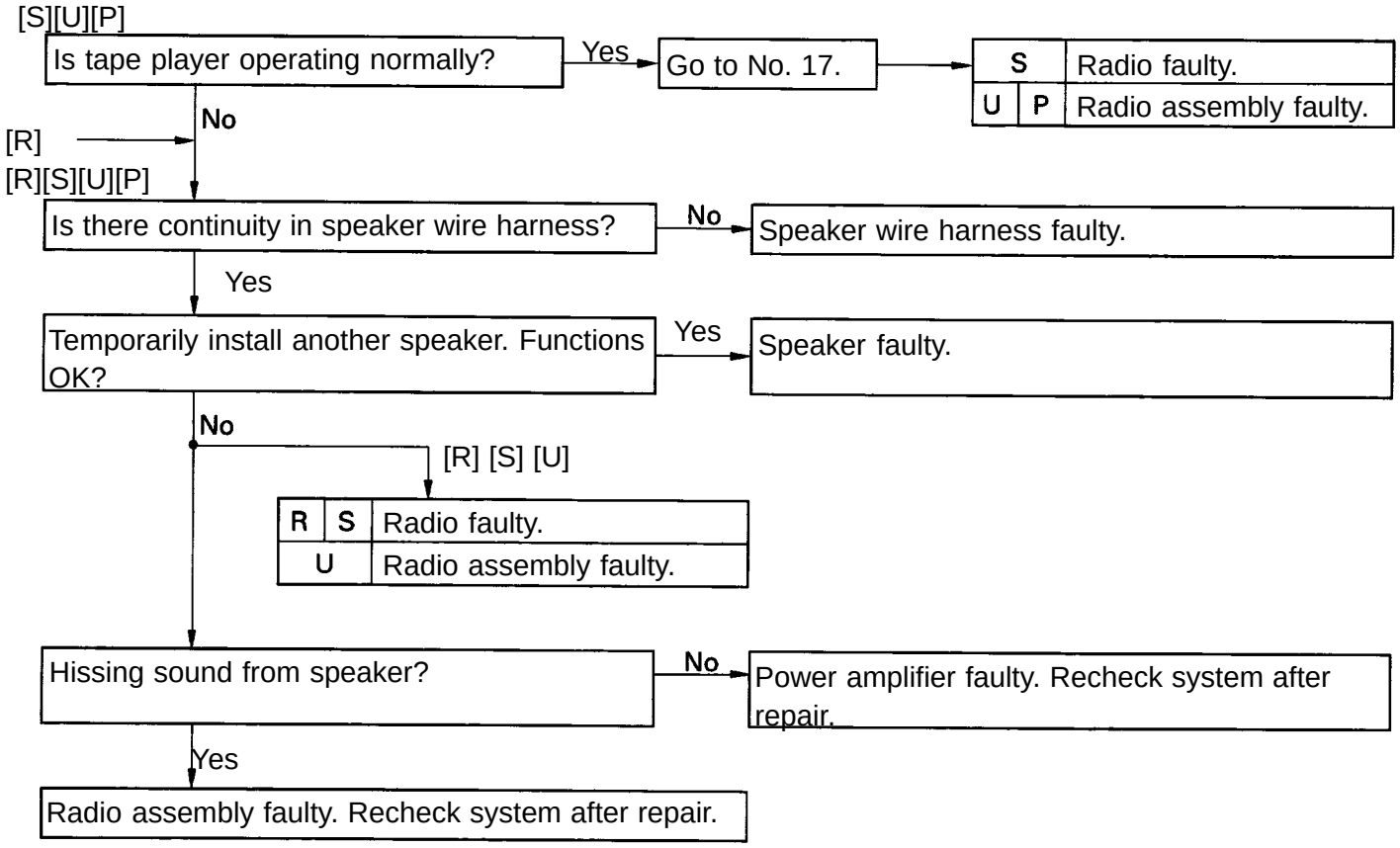
1	Radio	NO POWER COMING IN

[R] Radio [S]: Radio + Tape Player [U]: Radio–Tape Player (Built–in Power Amplifier)
[P] Radio–Tape Player (Separate Power Amplifier)



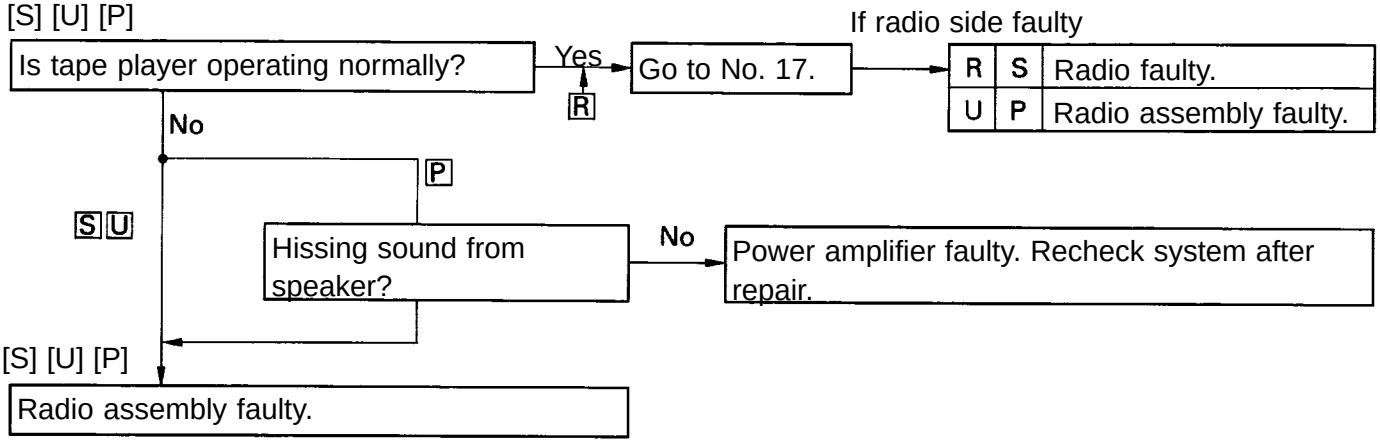
2 Radio — POWER COMING IN, BUT RADIO NOT OPERATING

[R] Radio [S] Radio + Tape Player [U] Radio–Tape Player (Built–in Power Amplifier)
[P] Radio–Tape Player (Separate Power Amplifier)



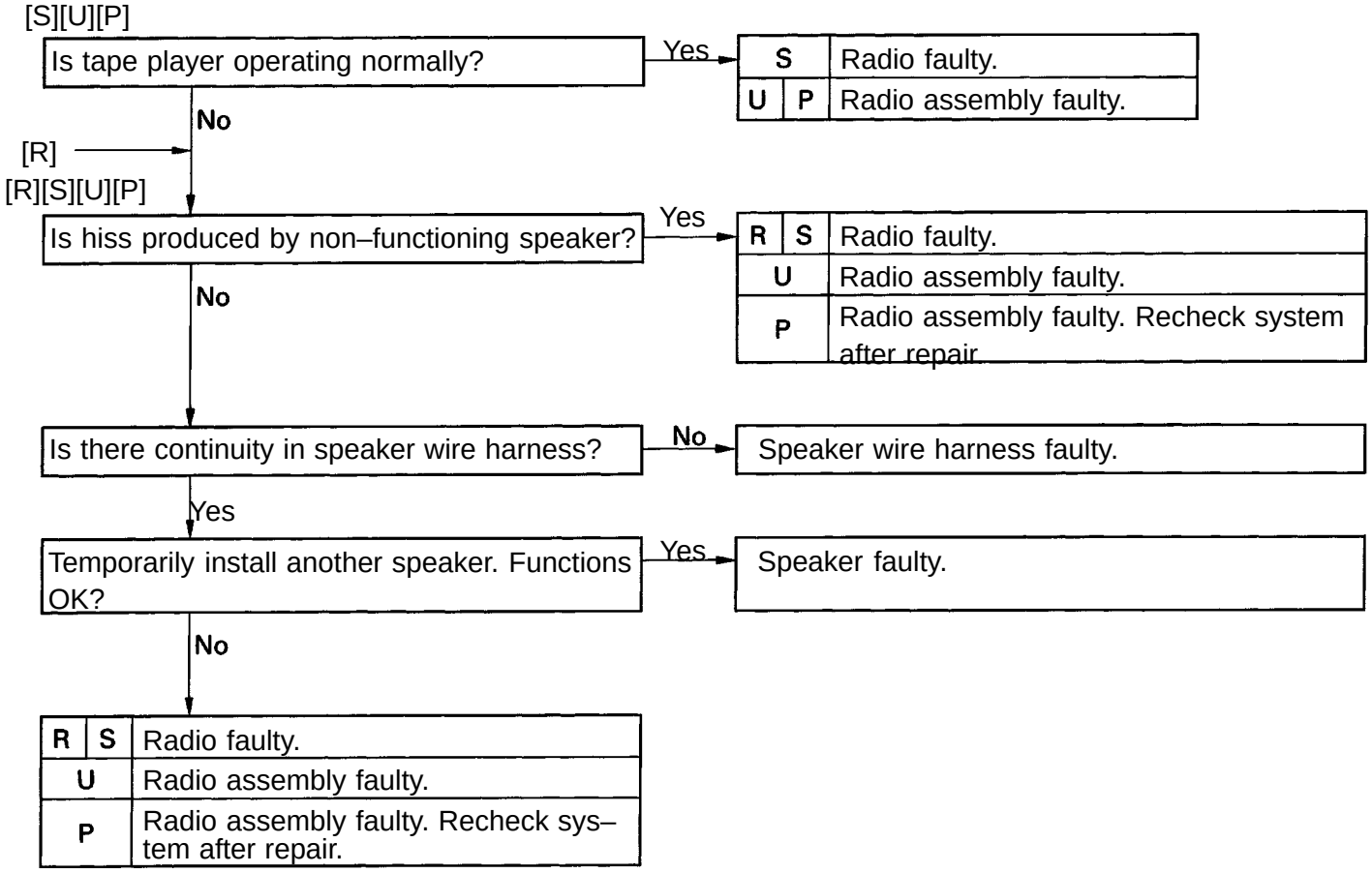
3 Radio — NOISE PRESENT, BUT AM–FM NOT OPERATING

[R] Radio [S]: Radio + Tape Player [U]: Radio–Tape Player (Built–in Power Amplifier)
[P] Radio–Type Player (Separate Power Amplifier)



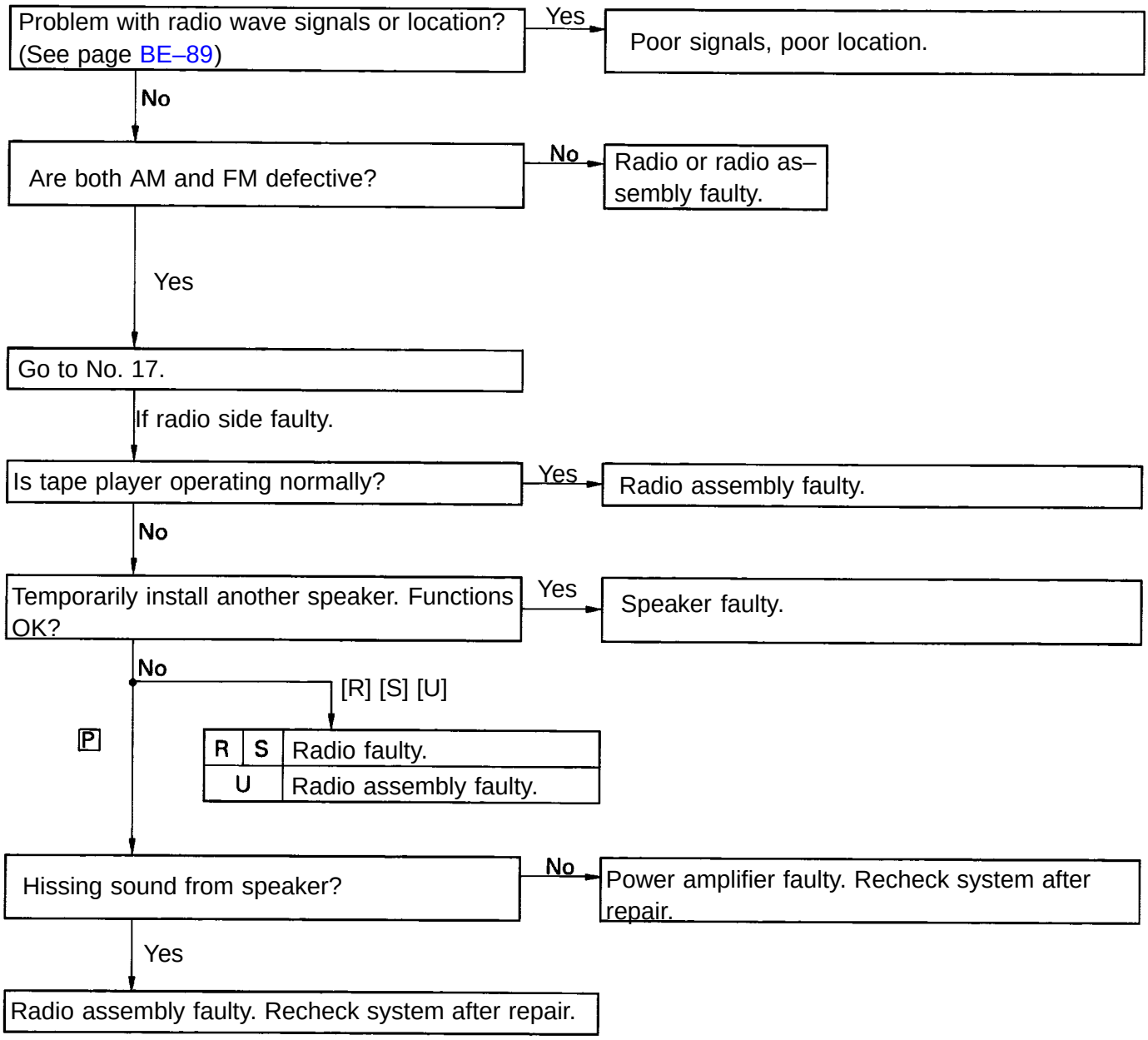
4	Radio	EITHER SPEAKER DOES NOT WORK

[R] Radio [S] Radio + Tape Player [U] Radio–Tape Player (Built–in Power Amplifier)
[P] Radio–Tape Player (Separate Power Amplifier)



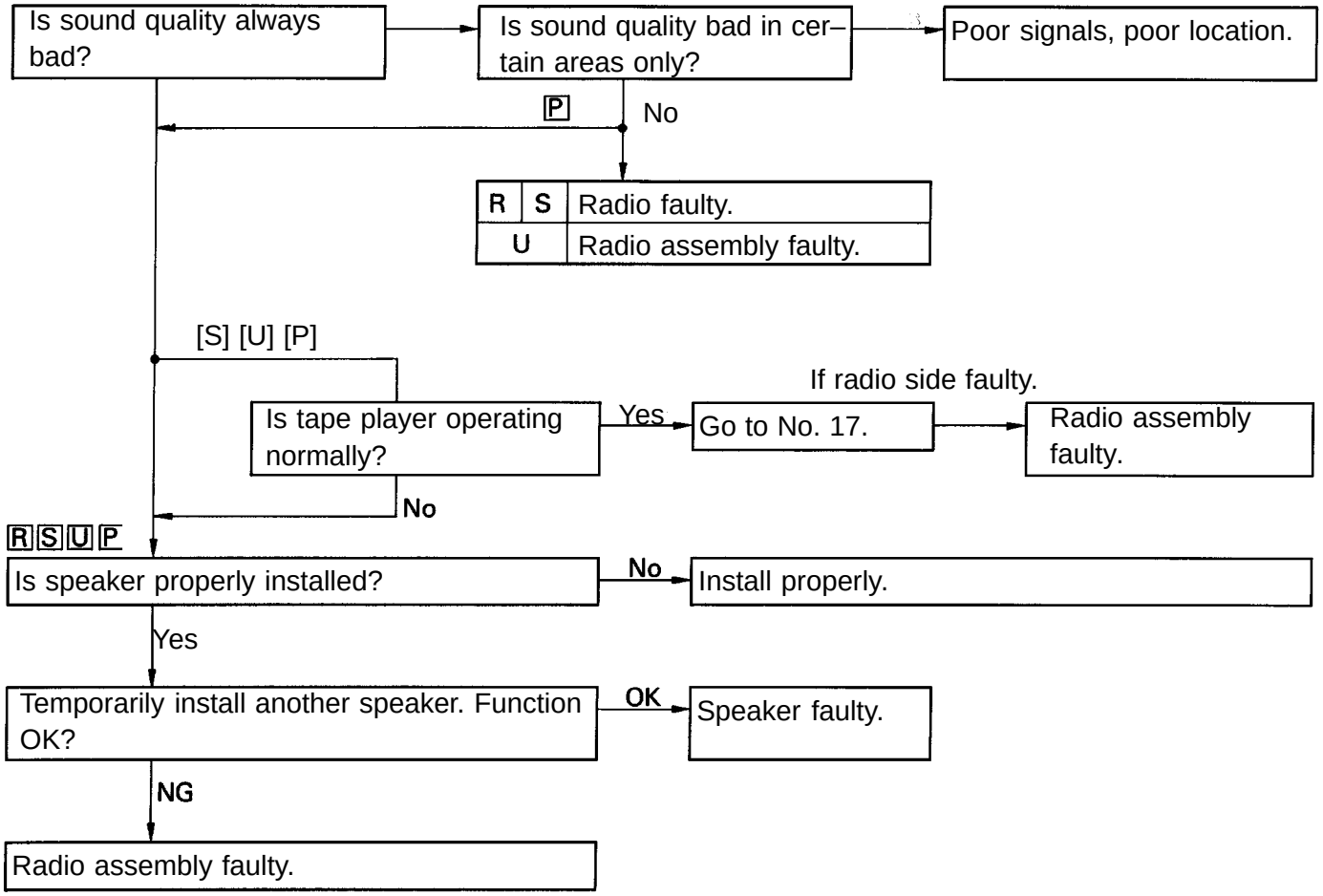
5	Radio	EITHER AM OR FM DOES NOT WORK, RECEPTION POOR (VOLUME FAINT), FEW PRESET TUNING BANDS

[R] Radio [S] Radio + Tape Player [U] Radio–Tape Player (Built–in Power Amplifier)
[P] Radio–Tape Player (Separate Power Amplifier)



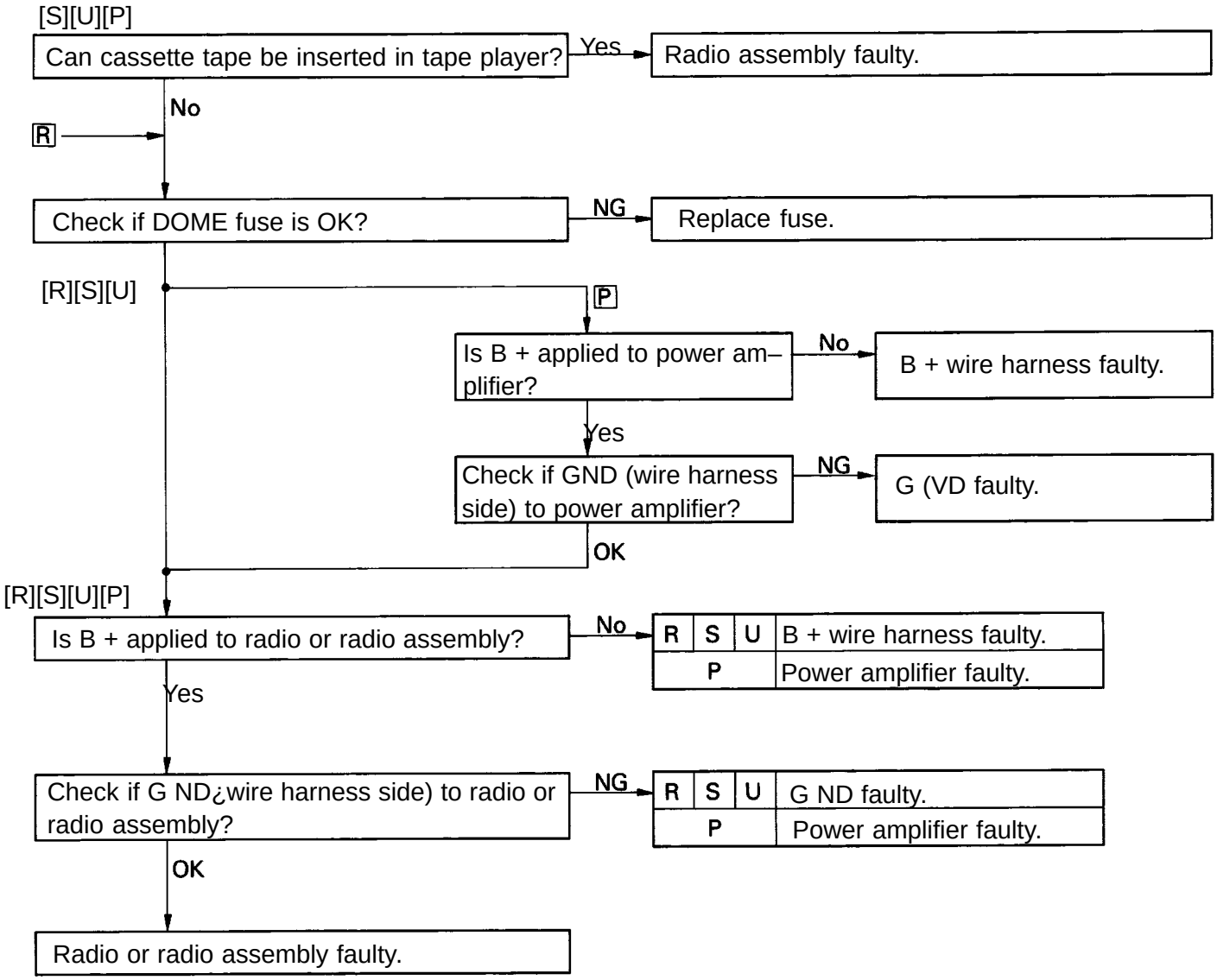
6 Radio — SOUND QUALITY POOR

[E] Radio [S] Radio + Tape Player [U] Radio–Tape Player (Built–in Power Amplifier)
[P] Radio–Tape Player (Separate Power Amplifier)



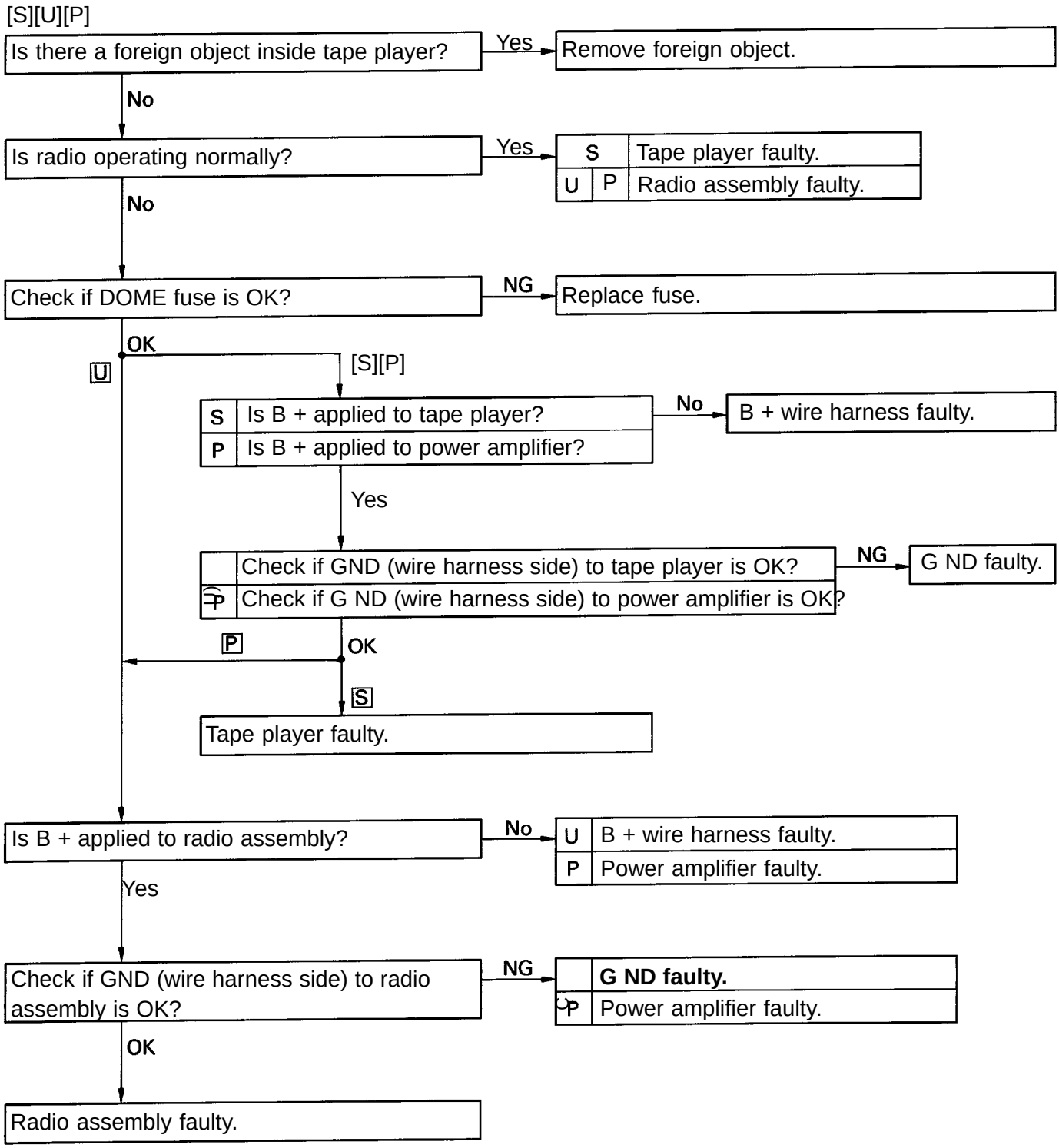
7	Radio	CANNOT SET STATION SELECT BUTTON, PRESET MEMORY DISAPPEARS

[R] Radio [S] Radio + Tape Player [U] Radio–Tape Player (Built–in Power Amplifier)
[P] Radio–Tape Player (Separate Power Amplifier)



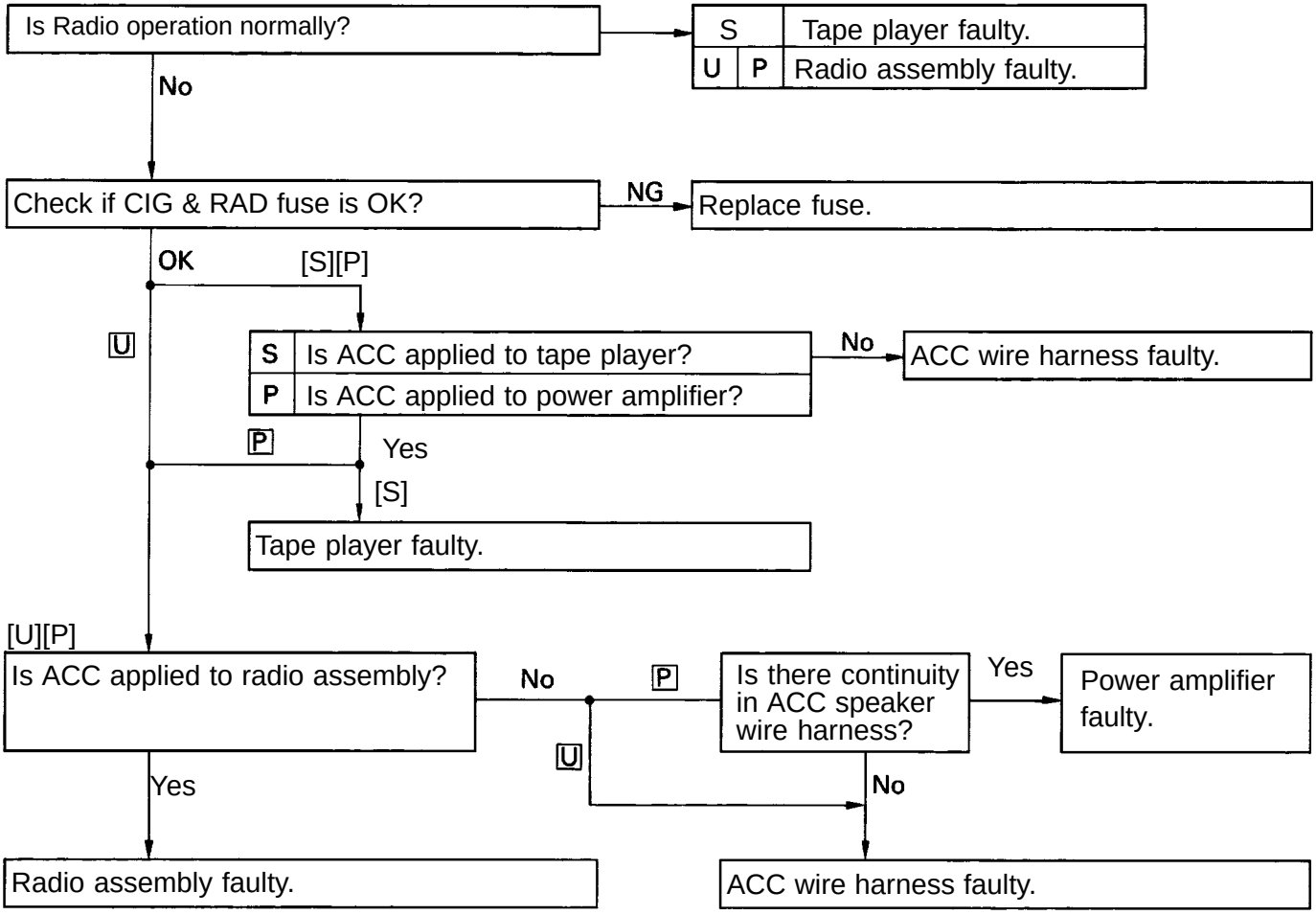
8 Tape Player — CASSETTE TAPE CANNOT BE INSERTED

[S] Radio + Tape Player [U] Radio–Tape Player (Built–in Power Amplifier)
[P] Radio–Tape Player (Separate Power Amplifier)



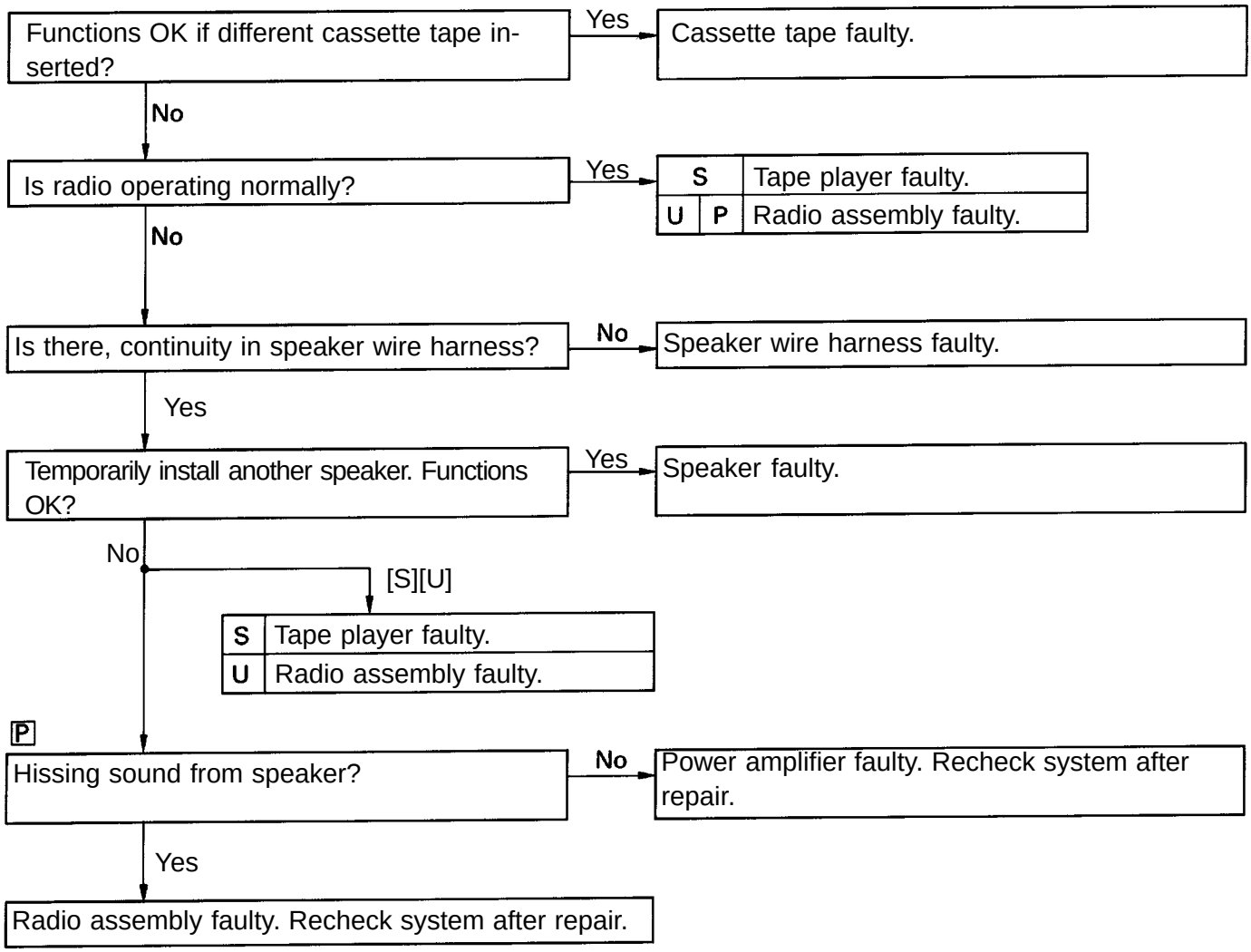
9	Tape Player	CASSETTE TAPE INSERTS, BUT NO POWER

[S] Radio + Tape Player [U] Radio–Tape Player (Built–in Power Amplifier)
[P] Radio–Tape Player (Separate Power Amplifier)



10	Tape Player	POWER COMING IN, BUT TAPE PLAYER NOT OPERATING

[S] Radio + Tape Player [U] Radio–Tape Player (Built–in Power Amplifier)
[P] Radio–Tape Player (Separate Power Amplifier)



11	Tape Player	EITHER SPEAKER DOES NOT WORK

[S] Radio + Tape Player [U] Radio–Tape Player (Built–in Power Amplifier)
[P] Radio–Tape Player (Separate Power Amplifier)

Is radio operating normally?

Yes →

S		Tape player faulty.
U	P	Radio assembly faulty.

No ↓

Is hiss produced by non–functioning speaker?

Yes →

S	Tape player faulty.
U	Radio assembly faulty.
P	Radio assembly faulty. Recheck system after repair.

No ↓

Is there continuity in speaker wire harness?

No → Speaker wire harness faulty.

Yes ↓

Temporarily install another speaker. Functions OK?

OK → Speaker faulty.

NG ↓

S	Tape player faulty.
U	Radio assembly faulty.
P	Radio assembly faulty. Recheck system after repair.

12 Tape Player — SOUND QUALITY POOR (VOLUME FAINT)

[S] Radio + Tape Player [U] Radio–Tape Player (Built–in Power Amplifier)
[P] Radio–Tape Player (Separate Power Amplifier)

- Functions OK if different cassette tape inserted? — Yes → Cassette tape faulty.
- No → Operates normally after cleaning the heads? (See page BE–90) — Yes → Head dirty.
- No → Is radio operating normally? — Yes → Radio assembly faulty.
- No → Is speaker properly installed? — No → Install properly.
- Yes → Temporarily install another speaker. Functions OK? — Yes → Speaker faulty.
- No →

S	Tape player faulty.
U	Radio assembly faulty.
P	Radio assembly faulty. Recheck system after repair.

13 Tape Player — TAPE JAMMED, MALFUNCTION WITH TAPE SPEED OR AUTO–REVERSE

[S] Radio + Tape Player [U] Radio–Tape Player (Built–in Power Amplifier)
[P] Radio–Tape Player (Separate Power Amplifier)

- Functions OK if different tape (less than 120 mins.) is inserted? — Yes → Cassette tape faulty.
- No → Is there a foreign object inside tape player? — Yes → Remove foreign object.
- No → Operates normally after cleaning the heads? (See page BE–90) — Yes → Head dirty.
- No →

S		Tape player faulty.
U	P	Radio assembly faulty.

14	Tape Player	APS, SKIP, RPT BUTTONS NOT OPERATING

[S] Radio + Tape Player [U] Radio–Tape Player (Built–in Power Amplifier)
[P] Radio–Tape Player (Separate Power Amplifier)

Functions OK if different cassette tape inserted? — No → Radio assembly faulty.

Yes →

Cassette tape faulty. (Less than 3 secs. of silence between songs (APS, RPT). Less than 15 secs. of silence (SKIP).)

15	Tape Player	CASSETTE TAPE WILL NOT EJECT

[S] Radio + Tape Player [U] Radio–Tape Player (Built–in Power Amplifier)
[P] Radio–Tape Player (Separate Power Amplifier)

Is tape player operating normally? — No → Cassette tape jammed.

Yes →

Is radio operating normally? — Yes →

S		Tape player faulty.
U	P	Radio assembly faulty.

Check if DOME fuse is OK? — NG → Replace fuse.

OK →

Is B + applied to power amplifier? — No → B + wire harness faulty.

Yes →

S		Is B + applied to tape player?
U	P	Is B + applied to radio assembly?

No → Is there continuity in B + wire harness between power amplifier and radio assembly? — Yes → Power amplifier faulty.

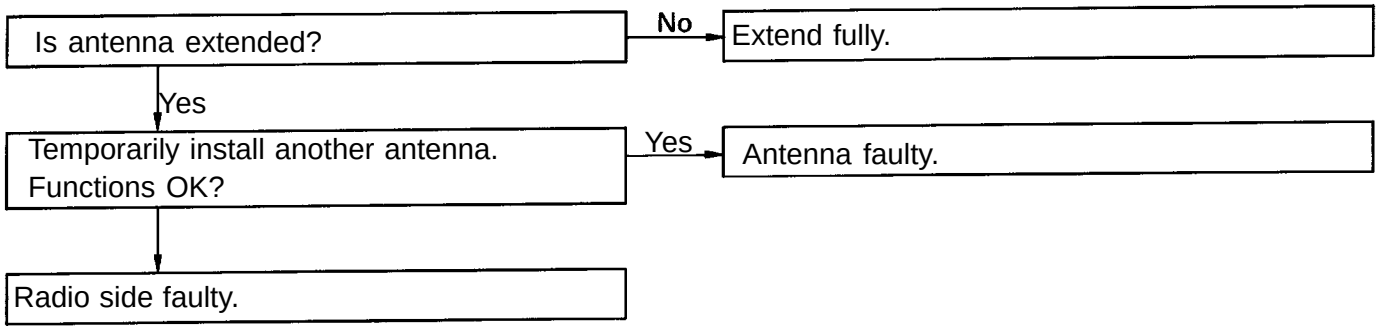
No → B + wire harness faulty.

Yes →

S		Tape player faulty.
U	P	Radio assembly faulty.

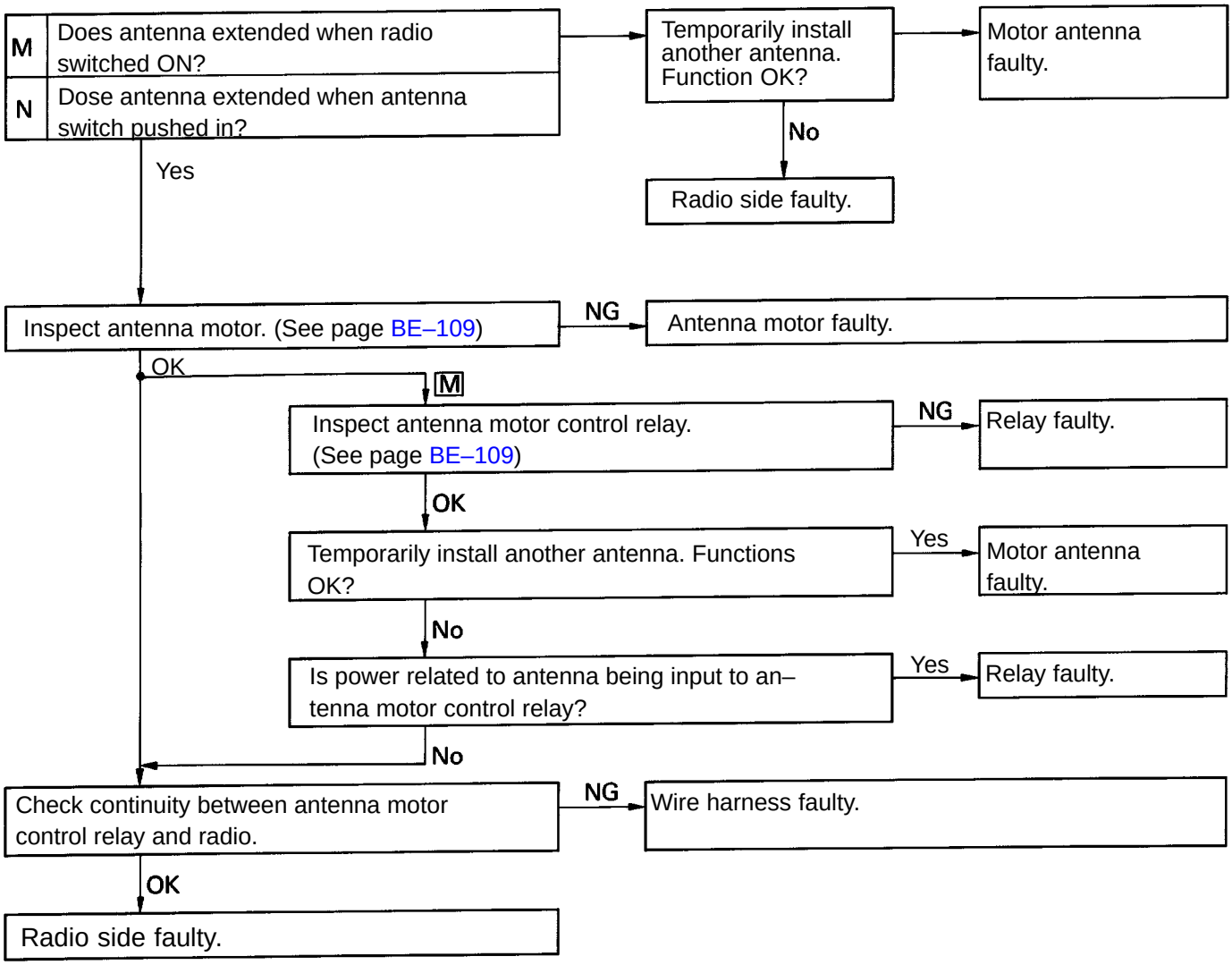
16	Antenna	ANTENNA–RELATED

24–a: Pole Antenna

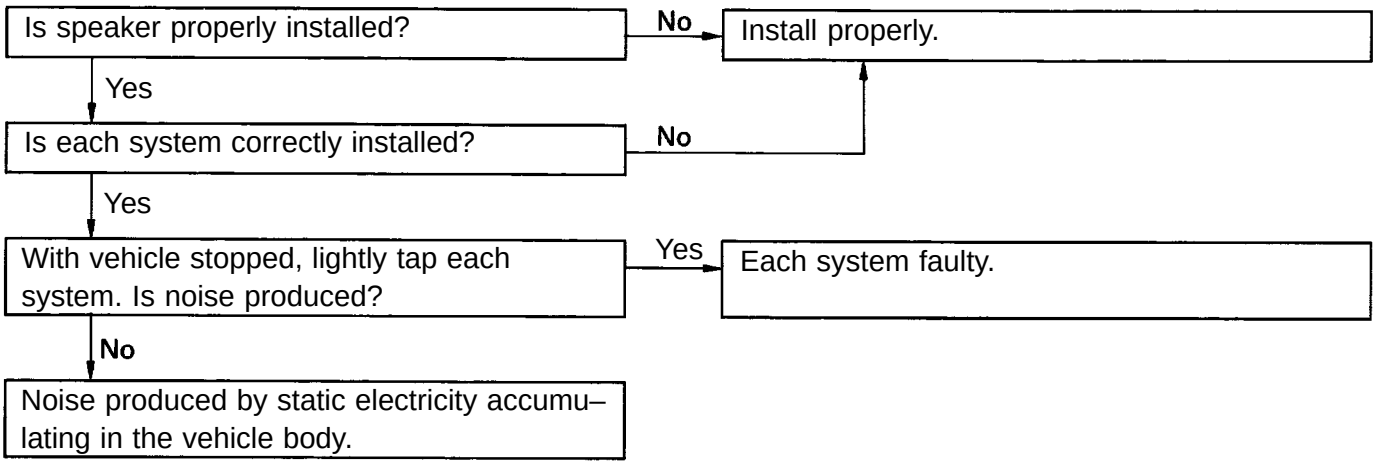


24–b: Motor Antenna

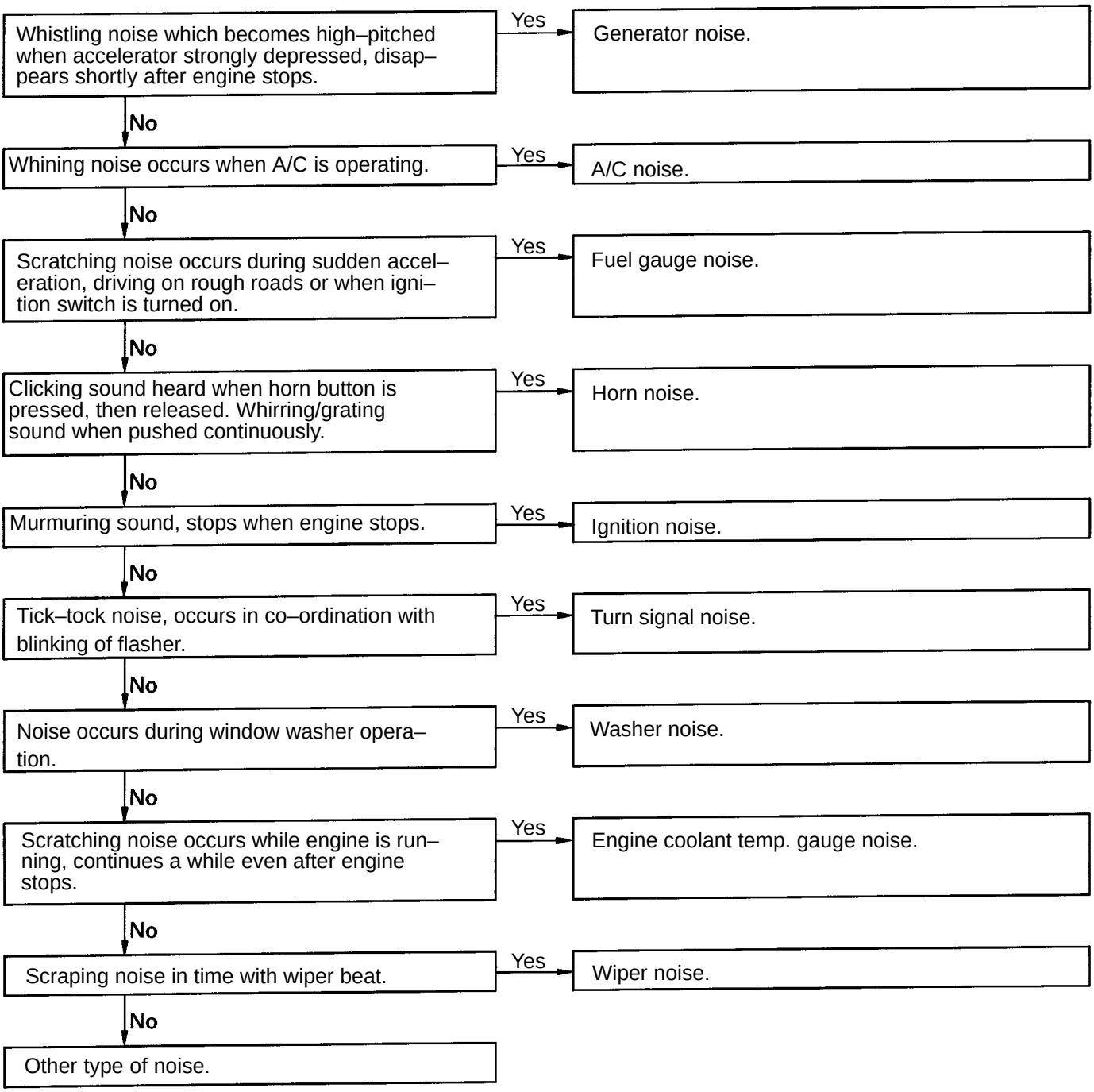
[M] : Motor Antenna (Radio Linked Type) 0 : Motor Antenna (Except Radio–Linked Type)

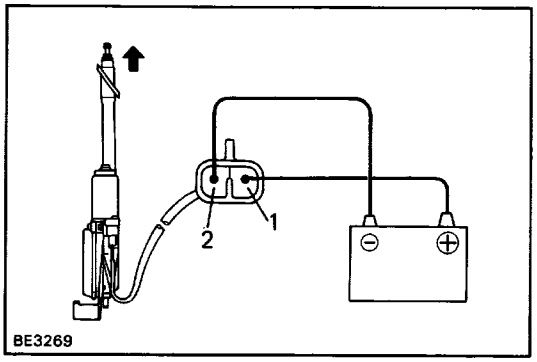


17	Noise	NOISE PRODUCED BY VIBRATION OR SHOCK WHILE DRIVING



18	Noise	NOISE PRODUCED WHEN ENGINE STARTS





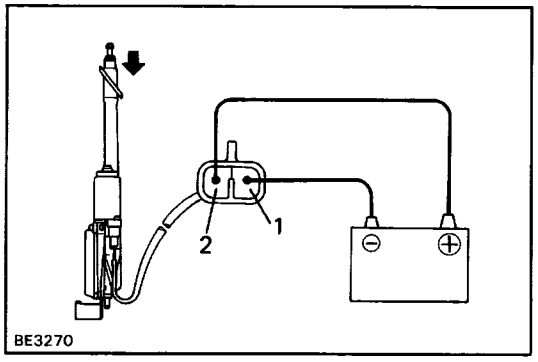
Parts Inspection

1. INSPECT ANTENNA MOTOR

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

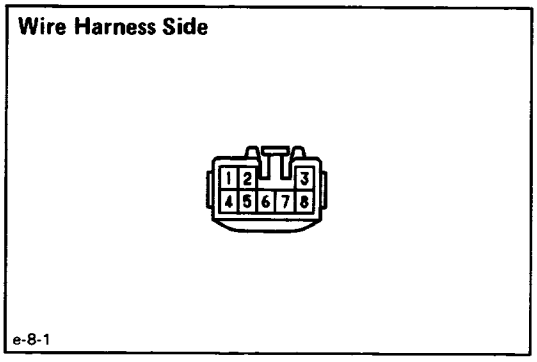
(b) Check that the motor turns (moves upward).

NOTICE: These tests must be performed quickly (within 3–5 seconds) to prevent the coil from burning out.



(c) Then, reverse the polarity, check that the motor turns the opposite way (moves downward).

NOTICE: These tests must be performed quickly (within 3–5 seconds) to prevent the coil from burning out.



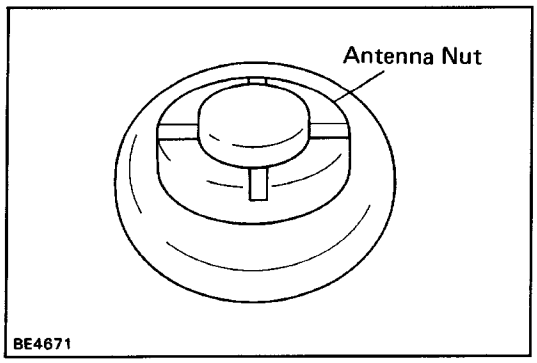
2. INSPECT ANTENNA MOTOR CONTROL RELAY

(Relay Circuit)

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

Check for	Tester connection	Condition			Specified value
Continuity	1 – 4	Constant			Continuity
	2 – Ground	Constant			Continuity
Voltage	3 – Ground	Constant			Battery positive voltage
	5 – Ground	Ignition switch position	LOCK		No voltage
			ACC or ON		Battery positive voltage
	6 – Ground	Ignition swtich position	LOCK		No voltage
			ACC or ON	Radio switch and cassette OFF	No voltage
				Radio switch or cassette ON	Battery positive voltage
	8 – Ground	Ignition switch position	LOCK		No voltage
			ACC or ON	Radio switch OFF or cassette ON	No voltage
				Radio switch ON and cassette OFF	Battery positive voltage
	9 – Ground	Ignition switch position	LOCK or ACC		No voltage
			ON		Battery positive voltage

If circuit is as specified, replace the relay.



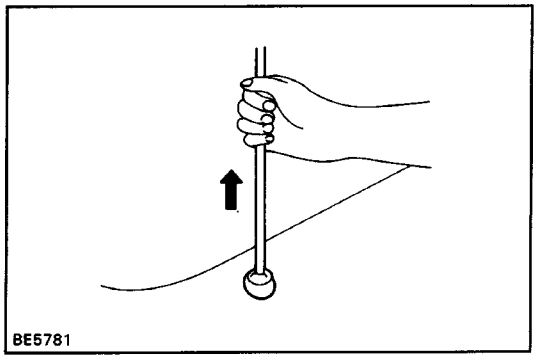
REMOVAL AND INSTALLATION OF ANTENNA ROD

1. REMOVE ANTENNA ROD

HINT: Perform this operation with the battery negative (–) cable connected to the battery terminal.

(a) Turn the ignition switch to ”LOCK” position.

(b) Remove the antenna nut.



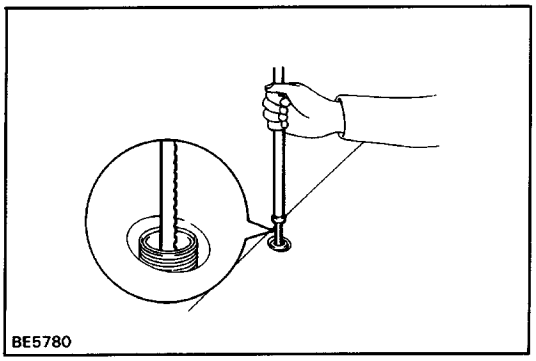
(c) Press the ”AM” button on the radio receiver, and si–multaneously turn the ignition switch to ”ACC” po–sition.

HINT:

- The rod will extend fully and be released from the mo–tor antenna.
- After removing the antenna rod, leave the ignition switch at ”ACC”.

2. INSTALL ANTENNA ROD

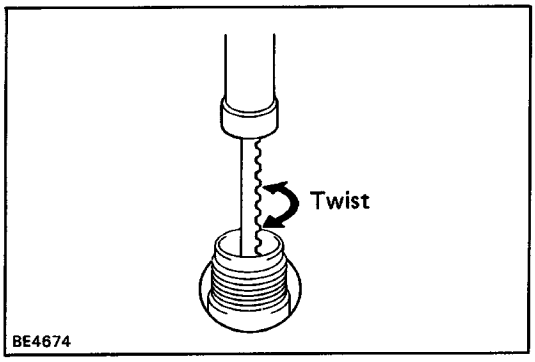
(a) Insert the cable of the rod until it reaches the bot–tom.



HINT:

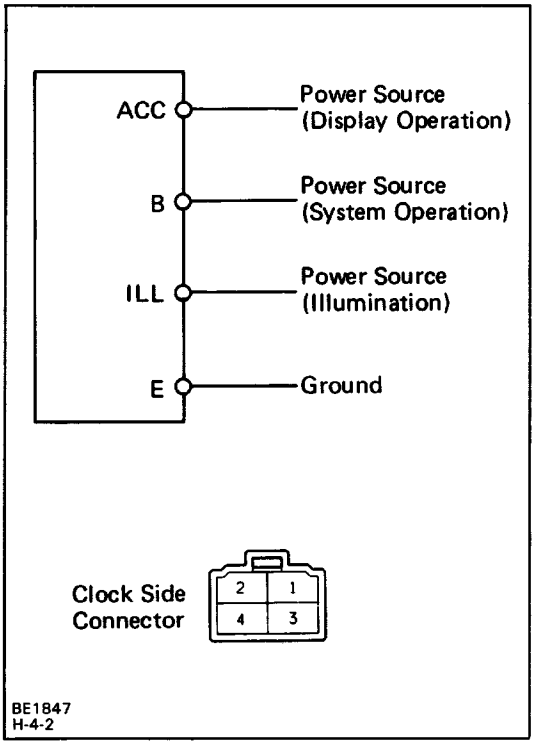
- When inserting the cable, the teeth on the cable must face toward the rear of the vehicle.
- Insert the antenna approx. 300 mm (11.8 in.)

(b) Wind the cable to retract the rod by turning the igni–tion switch to ”LOCK” position.



HINT:

- If the ignition switch is already in ”LOCK” position, perform step 1
  (c) first, then turn the ignition switch to ”ACC” position.
- In case the cable is not wound, twist it as shown in the illustration.
- Even if the rod has not retracted fully, install the an–tenna nut and inspect the antenna rod operation. It will finally retract fully.
  (c) Inspect the antenna rod operation by pushing the radio wave band select buttons.



CLOCK

Troubleshooting

As shown in the illustration, those are clock circuit and connector diagrams. Inspect each terminal for applicable trouble.

Terminals		Condition	Specified value
1	E	Constant	Continuity
2	ILL	Turn light control switch ON	Battery positive voltage
3	B	Constant	
4	ACC	Turn ignition switch ACC	

Allowable error: ± 1.5 seconds/day