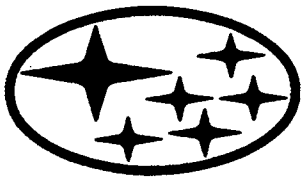
SUBARU

SVX

1992

Precaution for Supplemental Restraint System "Airbag"
The Supplemental Restraint System "Airbag" helps to reduce the risk or severity of injury to the driver in a frontal collision.
The Supplemental Restraint System consists of an airbag module (located in the center of the steering wheel), sensors, a control unit, warning light, wiring harness and spiral cable.
Information necessary to service the safety is included in the "5-5. SUPPLEMENTAL RESTRAINT SYSTEM" of this Service Manual.
WARNING:
- To avoid rendering the Airbag system inoperative, which could lead to personal injury or death in the event of a severe frontal collision, all maintenance must be performed by an authorized SUBARU dealer.
- Improper maintenance, including incorrect removal and installation of the Airbag system, can lead to personal injury caused by unintentional activation of the Airbag system.
- All Airbag system electrical wiring harnesses and connectors are covered with yellow outer insulation. Do not use electrical test equipment on any circuit related to the Supplemental Restraint System "Airbag".



S SPECIFICATIONS AND SERVICE DATA

Battery	Type		75D23L (MF)
	Capacity	Reverse capacity	111 minutes
		Cold cranking ampere	490 ampere
Combination meter	Speedometer		Cross coil type
	Odometer/Tripmeter		Pulse count (stepping motor drive)
	Temperature gauge		Thermistor-cross coil type
	Fuel gauge		Resistance cross coil type
	Tachometer		Electric impulse type
	Turn signal indicator light		12 V — 1.4 W
	Low fuel indicator light		12 V — 3 W
	Charge indicator light		12 V — 1.4 W
	Oil pressure indicator light		12 V — 1.4 W
	A.B.S. warning light		12 V — 1.4 W
	AT oil temp. warning light		12 V — 1.4 W
	Malfunction indicator lamp		12 V — 1.4 W
	High beam indicator light		12 V — 1.4 W
	Door open warning light		12 V — 1.4 W
	Seat belt warning light		12 V — 1.4 W
	Stop lamp warning light		12 V — 1.4 W
	Brake fluid and parking brake warning light		12 V — 1.4 W
	FWD warning light		12 V — 1.4 W
	Steering warning light		12 V — 1.4 W
	Airbag warning light		12 V — 1.12 W
	Meter illumination light		12 V — 3.4 W (x4) 3 W (x2) 1.4 W (x2)
	AT indicator	Power indicator light	12 V — 1.4 W
		Manual indicator light	12 V — 1.4 W
		P · R · N · D · 3 · 2 · 1	12 V — 1.12 W

Headlight	Outer	12 V — 55 W 9006/HB4	
	Inner	12 V — 65 W 9005/HB3	
Fog light		12 V — 55 W H3	
Front turn/parking light		12 V — 27/8 W	
Rear side marker		12 V — 5 W	
Rear combination light	Stop/tail light	12 V — 27/8 W	
	Turn signal light	12 V — 27W	
	Back-up light	12 V — 27 W	
License plate light		12 V — 5 W	
High-mount stop light		12 V — 5 W LED	
Room light		12 V — 8 W	
Spot light		12 V — 8 W	
Trunk room light		12 V — 5 W	
Courtesy light		12 V — 1.4 W	
Glove box light		12 V — 3.4 W	
Ash tray illumination light		12 V — 1.4 W	
Vanity mirror light		12 V — 2 W	
Step light		12 V — 1.4 W	
Front wiper	Speed	Low 50 ± 5 (rpm)	12 V (no load performance characteristics)
		High 75 ± 8 (rpm)	
	Current	Less than 4 A	
Rear wiper	Speed	40 ± 5 (rpm)	
	Current	Less than 2 A	
Horn		12 V — 420 ± 20 Hz	12 V — 350 ± 20 Hz
Cigarette lighter	Current	Less than 10 A	
	Illumination light	12 V — 1.4 W	

W SERVICE PROCEDURE

a. Before disassembling or reassembling parts, always disconnect battery ground cable. When repairing radio, clock, etc. which are provided with memory functions, record memory contents before disconnecting battery ground cable. Otherwise, these contents are cancelled upon disconnection.
b. Reassemble parts in reverse order of disassembly procedure unless otherwise indicated.
c. Adjust parts to specifications contained in this manual if so designated.
d. Connect connectors and hoses securely during reassembly.
e. After reassembly, ensure functional parts operate smoothly.

1. Audio

A: REMOVAL AND INSTALLATION

1. RADIO BODY

1) Lower steering wheel (Tilt adjustment) and move it back (Telescopic adjustment).
2) Remove lower cover.
3) While pushing switch box ASSY (in/out) from rear side of switch, disconnect connector and remove switch box ASSY.
4) Remove screws which secure visor, and remove visor.
Also disconnect clock connector.

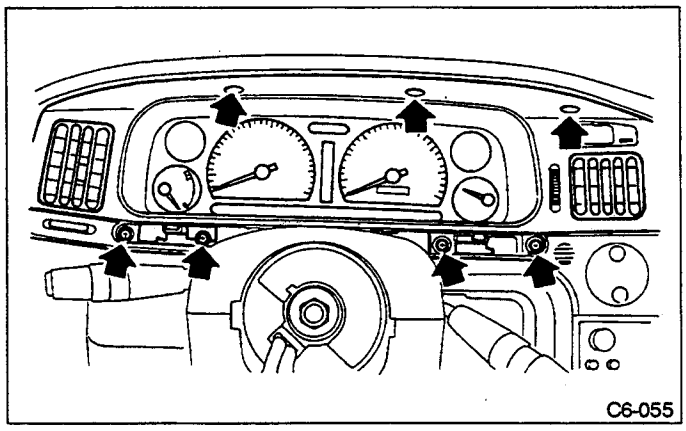


Fig. 1

5) Remove center ventilation grille.
6) Remove auto A/C amplifier.
7) Remove radio inner panel.
Be careful not to damage radio panel (inner).

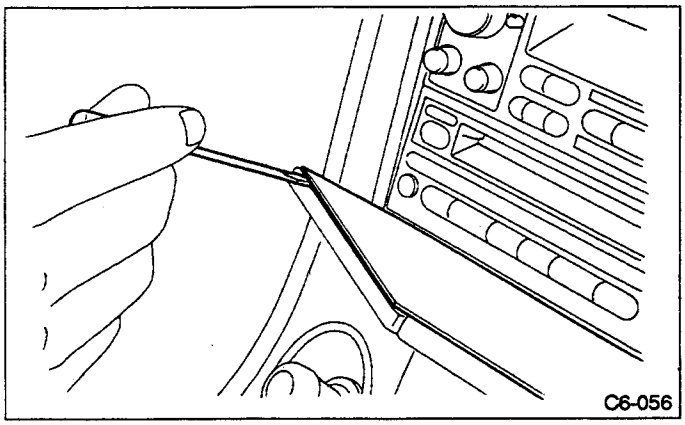


Fig. 2

8) Remove center panel.

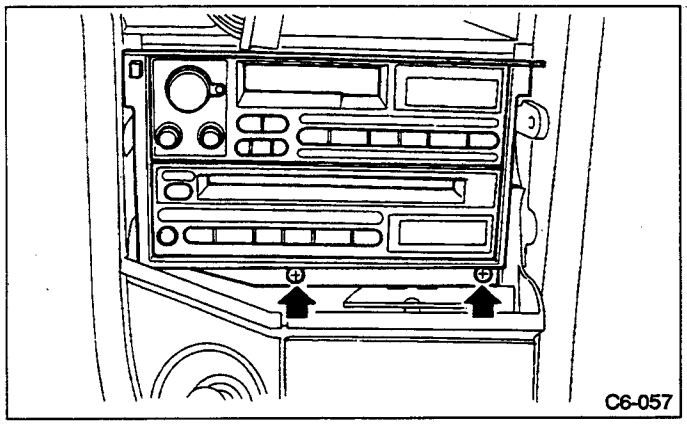


Fig. 3

9) Remove left-hand side cowl panel.
Roll floor carpet and disconnect antenna feeder cables (two places).

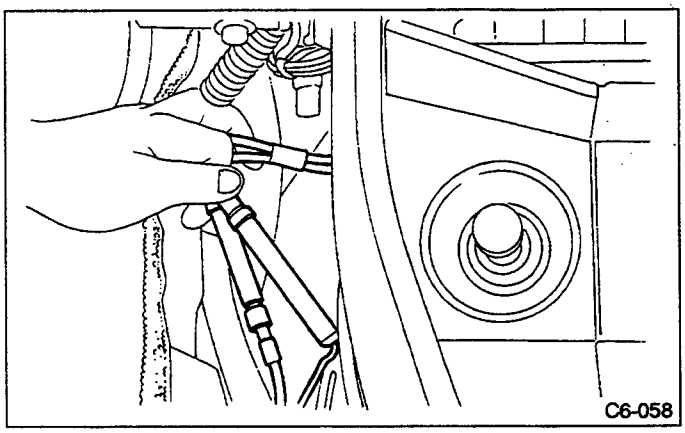


Fig. 4

10) Remove ashtray.
11) Remove screws, close radio panel and remove radio body.

Also disconnect radio connector.

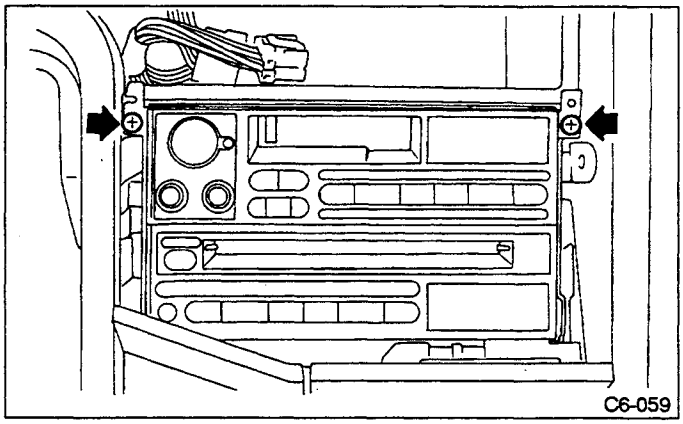


Fig. 5

Installation is in the reverse order of removal.

2. POWER ANTENNA

1) Remove trim panel.
2) Using PLIERS (86399PA000) and ENGINE TOOL (499897100), remove antenna nut.
3) Disconnect antenna feeder and connector.
4) Remove bolt.

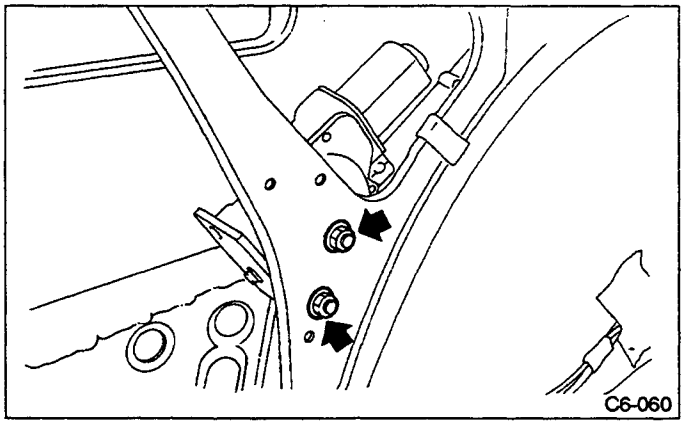


Fig. 6

5) Pull antenna and out from lower side.

Insert drain tube into its original position during installation.

3. FRONT SPEAKER

1) Remove front speaker using a small standard screwdriver.

Be careful not to damage instrument panel.

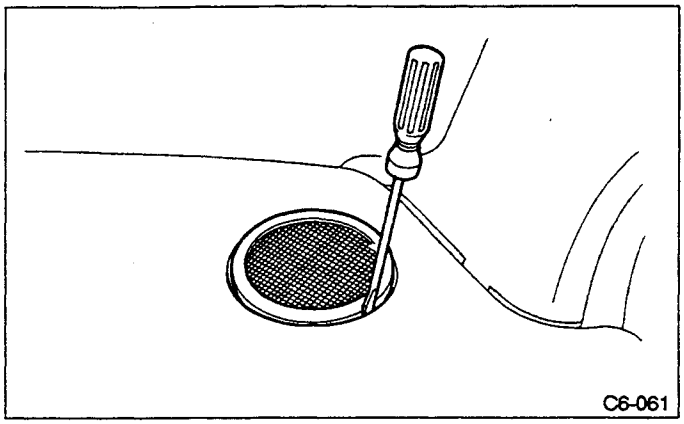


Fig. 7

2) Disconnect connector.

4. DOOR SPEAKER

1) Remove door trim.
2) Remove screws which secure door speaker.
3) Disconnect connector.

5. REAR SPEAKER

1) Remove rear backrest.
2) Remove left and right rear quarter trim panels.
3) Remove rear shelf trim panels.
4) Remove screws which secure rear speakers.
5) Disconnect connector and remove speakers.

2. Combination Meter

A: REMOVAL

1) Move steering wheel down (Tilt adjustment) and pull it back (Telescopic adjustment).
2) Remove lower cover.
3) While pushing switch box ASSY (in/out) from rear side of switch, disconnect connector and remove switch box ASSY.
4) Remove screws which secure visor, and remove visor.

Also disconnect clock connector.

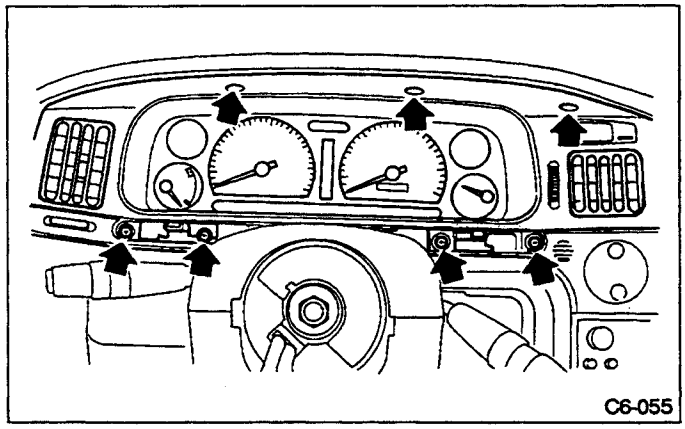


Fig. 8

5) Remove screws which secure combination meter, and pull combination meter out.

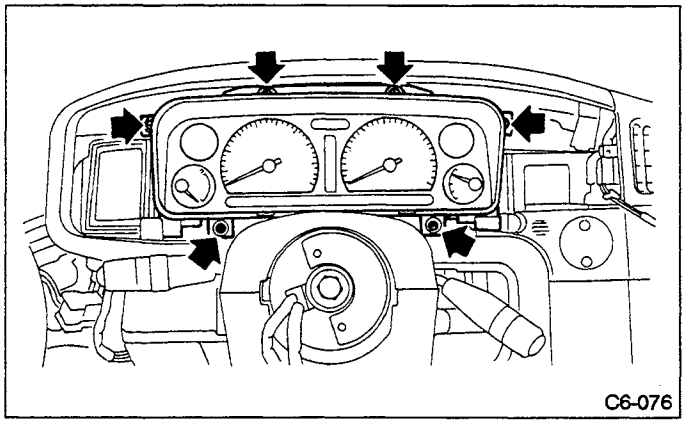


Fig. 9

B: INSTALLATION

1. COMBINATION METER

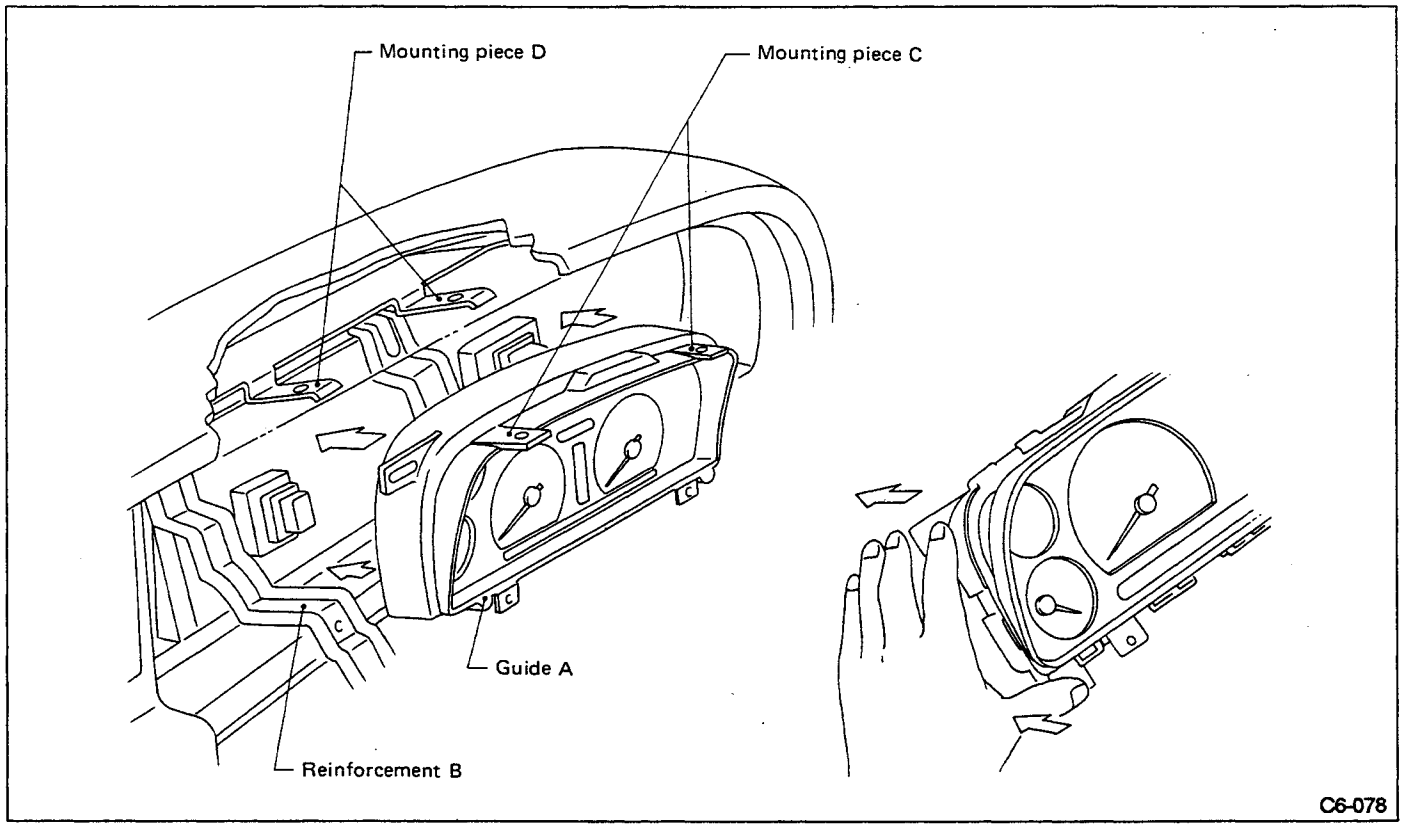


Fig. 10

1) Place combination meter guide A on reinforcement B.
2) Firmly position combination meter mounting piece C on mounting seat D of instrument panel.
3) Carefully set combination meter in position.
4) Secure combination meter using screws.

a. If combination meter is hard to set in position, do not force it in but gently move combination meter up or down or left or right within guide play (range) until it is positioned.
b. A force of less than 118 N (12 kg, 26 lb) is required to push combination meter in position. Force exceeding 118 N (12 kg, 26 lb) may damage it.

C: DISASSEMBLY AND ASSEMBLY

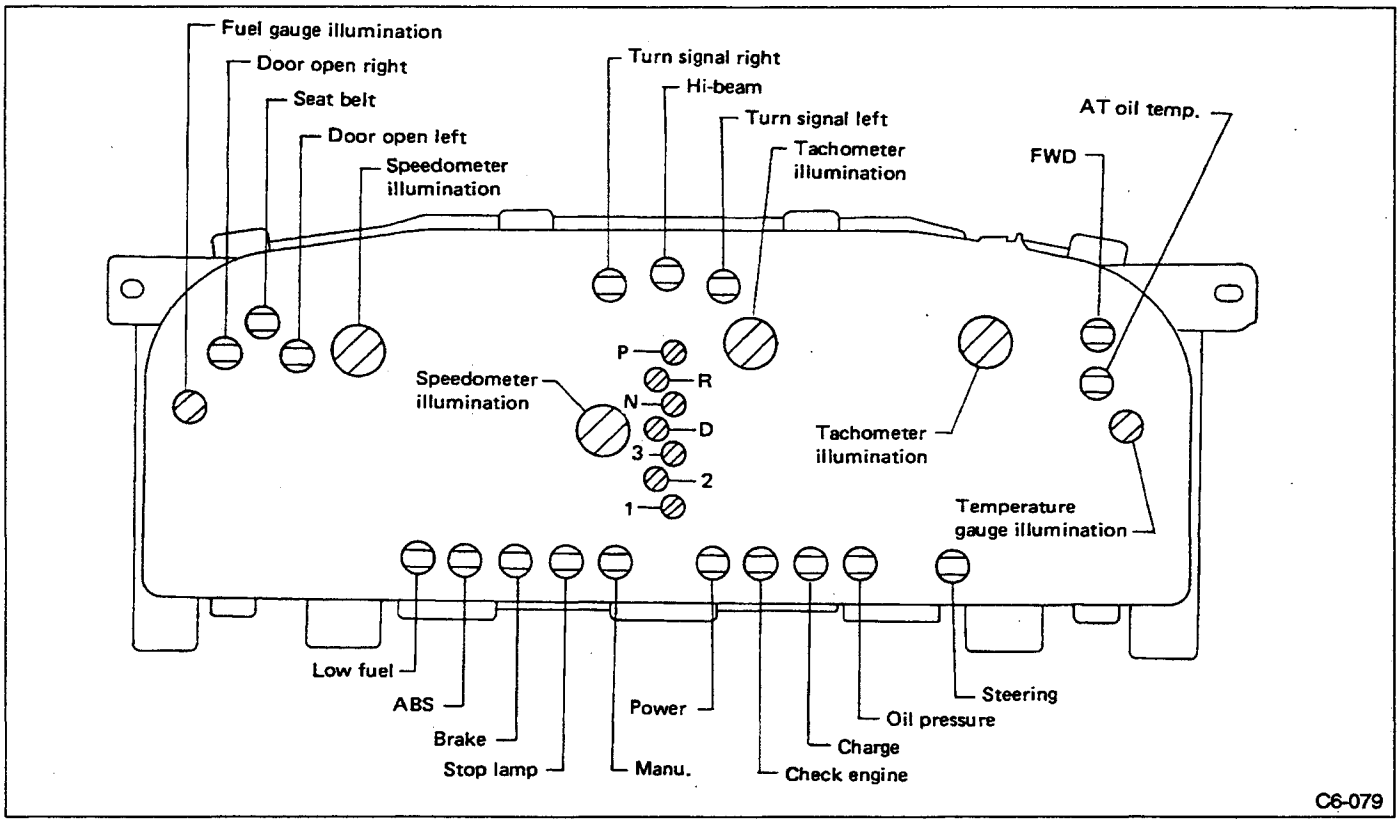


Fig. 11

1. BULB REPLACEMENT

Refer to figure.

2. METER ASSY

1) Remove following parts from combination meter:
   (1) Meter glass
   (2) Screws, and take out window plate.
2) Remove screws, and take out meter, gauge, etc.

Take care not to damage removed speedometer, tachometer etc.

Assembly is in the reverse order of disassembly.

D: INSPECTION

1. SPEEDOMETER

It is normal if the readings of speedometer are within the tolerances shown in the table 1, against the standard indicated speeds on the speedometer tester.

Table 1

Standard indicated speed (km/h or MPH)		20	40	60	80
Reading of speedometer	(km/h)	20 — 24	40 — 45	59.5 — 65	79 — 85
	(MPH)	20 — 23	40 — 43.5	59.5 — 63.5	79.5 — 84

2. TEMPERATURE GAUGE

Temperature gauge is operated by thermometer installed in water pipe.

Since thermometer resistance changes with voltage, voltage regulator is provided to prevent error in gauge indication due to voltage fluctuation.

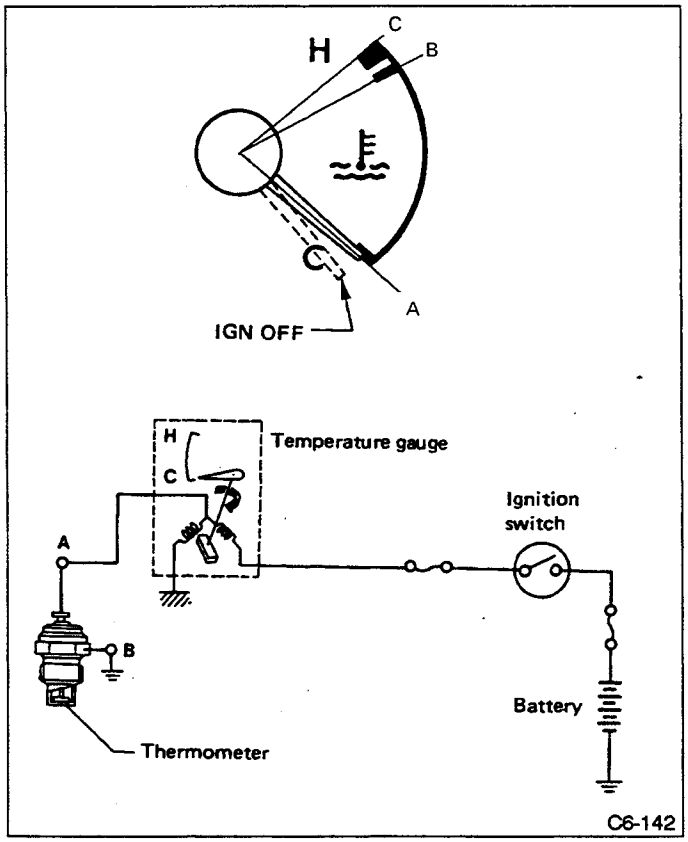


Fig. 12

It is normal if the readings of temperature gauge are within the tolerances of engine coolant temperature as shown in the following table against the standard resistance between point A and B indicated in the wiring diagram when ignition switch is "ON".

Readings of temperature gauge		Standard resistance
A	50°C (122°F)	180.5 Ω
B	120°C (248°F)	17.9 Ω
C	125°C (257°F)	15.9 Ω

3. FUEL GAUGE

Needle of fuel gauge remains indicating the amount of fuel in fuel tank after turning ignition switch to OFF position.

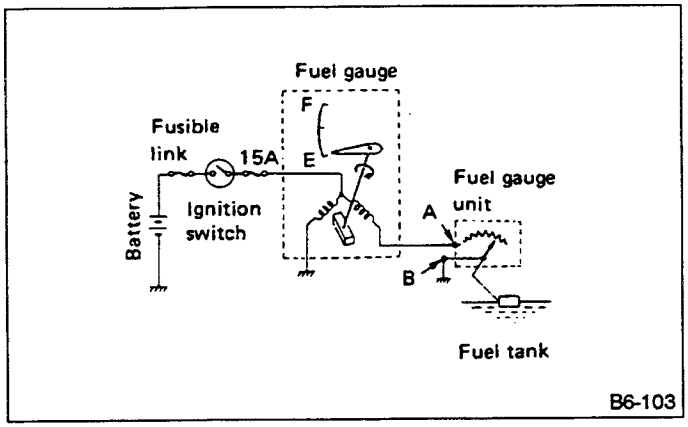


Fig. 13

It is normal if the readings of fuel gauge are within the tolerances of all length between "E" and "F" as shown in the following table, against the standard resistance between point A and B indicated in the wiring diagram when ignition switch "ON".

Reading of fuel gauge	Standard resistance	Tolerance of fuel gauge
E	100 Ω	+ 1/12 to − 1/24 of all length between "E" and "F"
1/2	55 Ω	—
F	10 Ω	+ 1/24 to − 1/12 of all length between "E" and "F"

4. TACHOMETER

It is normal if readings of tachometer are within the tolerances as shown in the following table, against the standard indicated speeds on tachometer tester.

Standard indicated speed (rpm)	1,000	2,000	3,000	4,000	5,000	6,000
Tolerance (rpm) − 30 to 60°C (− 22 to 140°F)	+ 75 − 75	+ 145 − 110	+ 180 − 110	+ 220 − 110	+ 255 − 100	+ 290 − 95

3. Cruise Control

A: SCHEMATIC

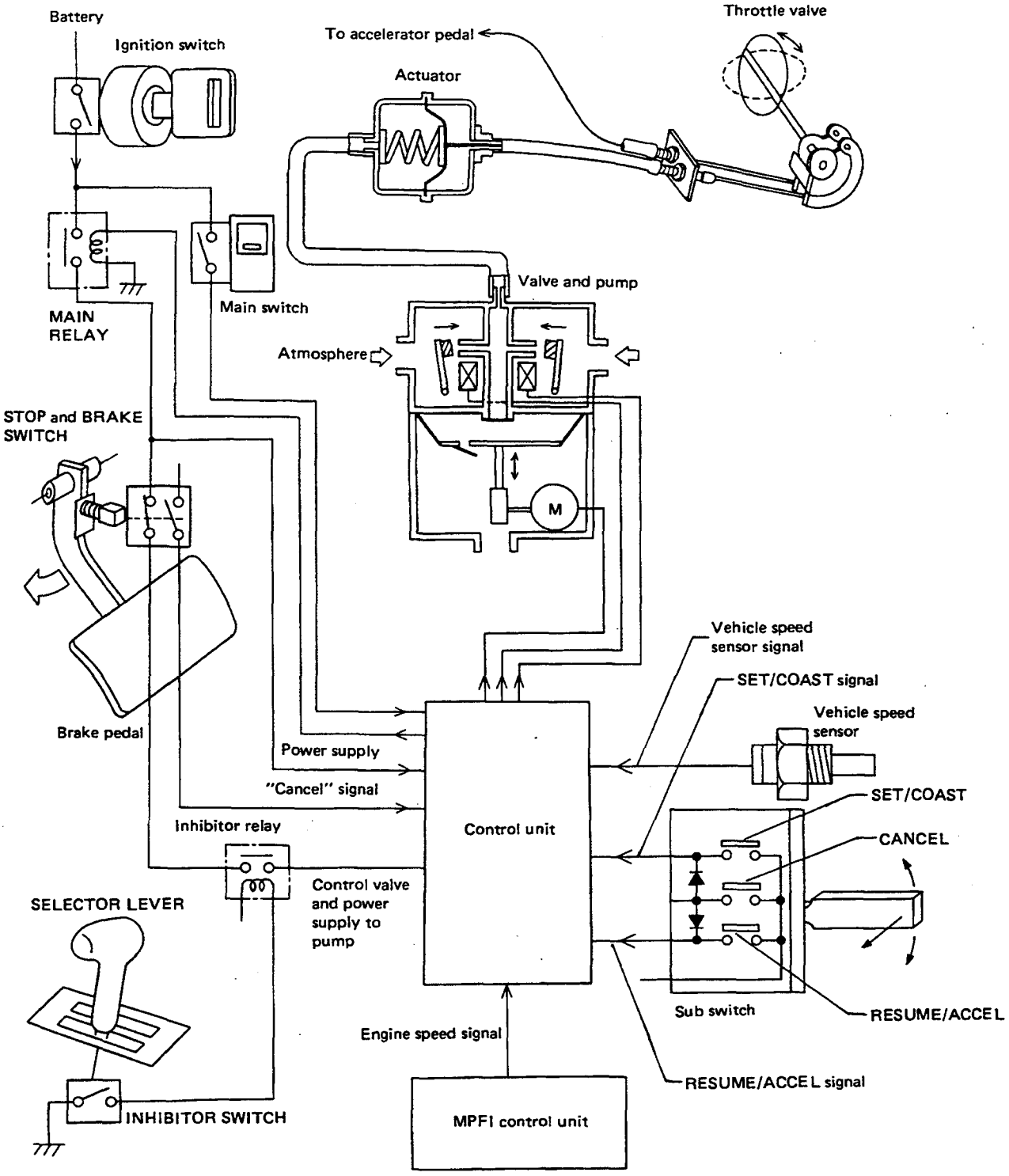


Fig. 14

B: DESCRIPTION

1. CONTROL AND OPERATION

Constant speed control	When actual driving speed is higher than "set" speed, cruise control system intermittently opens vent valve and moves throttle valve toward the close position. This occurs while comparing actual driving speed with "set" speed. When actual driving speed is lower than "set" speed, the system intermittently activates vacuum pump to move throttle valve toward the "open" direction.
"Set" control	When SET/COAST switch is pressed with main switch ON while vehicle is being driven a specifieds greater than 40 km/h (25 MPH), current flows so that vent and safety valves close. This then causes vacuum pump to intermittently activate to set throttle valve at position corresponding with accelerator pedal depression. Thus, vehicle is being driven at constant speed.
Deceleration control	When SET/COASTS switch is turned ON while vehicle is cruising, vent valve intermittently opens, partially closing throttle valve. This causes the vehicle to decelerate. When the switch is turned OFF, vehicle speed is stored in memory and vehicle is constantly driven at that speed.
Acceleration control	When RESUME/ACCEL switch is turned ON while vehicle is cruising, vacuum pump intermittently activates to partially open throttle valve. This causes vehicle to accelerate. When the switch is turned OFF, vehicle speed is stored in memory and vehicle is constantly driven at that speed.
Resume control	When RESUME/ACCEL switch is turned ON after cruise control is released, vehicle speed returns to that speed which was stored in memory just before cruise control was released. However, this occurs only when vehicle is being driven at a speed greater than 30 km/h (19 MPH).
Manual cancel control	When any of the following signals are entered, vent valve and safety valve open to release cruising speed. (1) Stop light switch ON signal (Brake pedal depressed) (2) Brake switch OFF signal (Brake pedal depressed) (3) Cancel switch ON signal (Control lever set to "CANCEL"). (4) Inhibitor switch ON signal (Selector lever set to "N")
Low speed limit control	When vehicle speed drops below 30 km/h (19 MPH), cruise control is automatically cancelled. The memorized speed will also be cleared. Cruise control at speed lower than 40 km/h (25 MPH) cannot be effected.
Release valve control	When vehicle speed increases 10 km/h (6 MPH) greater than memorized speed while vehicle is cruising (downgrade, etc.) actuator's vent valve as well as safety valve are turned OFF (to open to atmospheric pressure) so that vehicle decelerates. When vehicle decelerates within 8 km/h (5 MPH) greater than the memorized speed, vent and safety valve are turned ON (to shut out atmospheric pressure) so that cruise control resumes.
Auto, cancel control	When any of the following signals are entered while vehicle is cruising, actuator's vent valve as well as safety valve are turned OFF (to shut out atmospheric pressure). This cancels cruise control. (a) When vehicle speed drops below low speed limit 30 km/h (19 MPH), (b) When actuator's vent valve, safety valve, vacuum pump motor or harness circuit is shorted, (c) When actuator's vent valve, safety valve, vacuum pump or harness circuit are discontinued, (d) When ON signals are simultaneously emitted from SET/COAST and RESUME/ACCEL switches, or (e) When a vehicle speed signal that implies speed variation of greater than ± 25 km/h (± 16 MPH) per second is entered.

Cruise control unit compares the actual car speed detected by feedback signals from speed sensor incorporated in transmission with the speed set in the memory memorized when set switch was turned on. A signal is then transmitted according to the difference between the two speeds.

This signal is transmitted to solenoid valves of valve ASSY located in engine compartment. The movement of actuator operates throttle valve through accelerator pedal and cable, thereby keeping the car speed constant.

2. SYSTEM CONSTRUCTION

Unit	Name	Function	Set	Cancel	Resume	Coast	Vehicle speed
Output signal (sensors)	Main switch	Supplies battery voltage to control unit after main switch is turned ON (with ignition switch ON).	O	O	O	O	O
	SET/COAST switch	Sends a SET/COAST signal to control unit.	O			O	
	RESUME/ ACCEL switch	Sends a RESUME/ACCEL signal to control unit.			O		
	Brake switch (NC)	Disconnects power supply to control valve and vacuum pump.	O	O			
	Stop light switch (NO)	Stops control unit's function and disconnects power supply to control valve and vacuum pump.	O	O			
	Inhibitor switch (NO)	Disconnects power supply to control valve and vacuum pump.	O	O			
	Set signal						O
	Vehicle speed sensor (in transmission)	Controls vehicle speed.	O	O	O	O	O
Control section	Built-in relay	A safety device to protect system from damage.	O	O	O	O	O
Output signal (actuators)	Vacuum pump motor	Produces vacuum pressure to activate vacuum diaphragm.	O	O	O		O
	Vent valve	Activates when controlling vehicle speed. (Vacuum pressure → Atmospheric pressure)	O	O	O	O	O
	Safety valve	Opens to introduce atmospheric pressure into system if vent valve malfunctions.	O	O	O	O	O

3. FAIL-SAFE FUNCTION

Fail-safe item	Cancel conditions	Operation
Cancels erroneous switch operation	A: • SET/COAST switch ON • RESUME/ACCEL switch ON B: • Brake switch OFF • Stop light switch ON (Brake pedal depressed) • Inhibitor switch ON (Shift lever set to "N")	When signals emitted from A and B groups are simultaneously entered, cruise control and memory speed will be or are cancelled. System resumes after SET/COAST switch is turned ON again.
Cancels erroneous circuit operation	• When control unit stops or erroneously operates. • When variations in vehicle speed signal is greater than 25 km/h/sec (16 MPH/sec). • When relay built into control unit remains ON. • When vacuum motor terminal or vent valve when motor drive circuit or vacuum motor circuit in control unit is shorted.	Cruise control and memory vehicle speed will be or are cancelled. Cruise control resumes after power supply is turned ON using ignition or main switch.
Cancels erroneous vehicle speed	When vehicle speed is at least 10 km/h (6 MPH) greater than memory speed.	Cruise control is interrupted (built-in relay OFF). It resumes (built-in relay ON) when vehicle speed is 8 km/h (5 MPH) less than memory speed.
Cancels abnormal output	When vacuum motor's output remains ON for at least 1 second, due to erroneous operation of control unit.	Cruise control is interrupted (built-in relay OFF). It resumes after ignition switch or main switch is turned OFF and then ON.
Cancels erroneous SET/COAST switch or RESUME/ACCEL switch operation	When SET/COAST switch or RESUME/ ACCEL switch is ON before main switch is turned ON.	Cruise control activates after two switches are turned OFF.

4. PUMP AND VALVE

Pump activated by a signal emitted from control unit produces vacuum pressure to operate actuator.

1) During acceleration

A signal emitted from control unit energizes solenoid to close valve A. This causes motor to move diaphragm in direction F so that valve C closes while valve D opens. As a result, Vacuum pressure applied to section E increases. With this increase in vacuum pressure, actuator moves control cable so that throttle valve opens.

2) During deceleration

A signal emitted from control unit energizes solenoid to open valve A. This causes section E to open to the atmosphere so that actuator moves control cable so that throttle valve closes. The above operation of throttle valve is repeated during acceleration and deceleration so that vacuum produced at section E is controlled to meet vehicle speed.

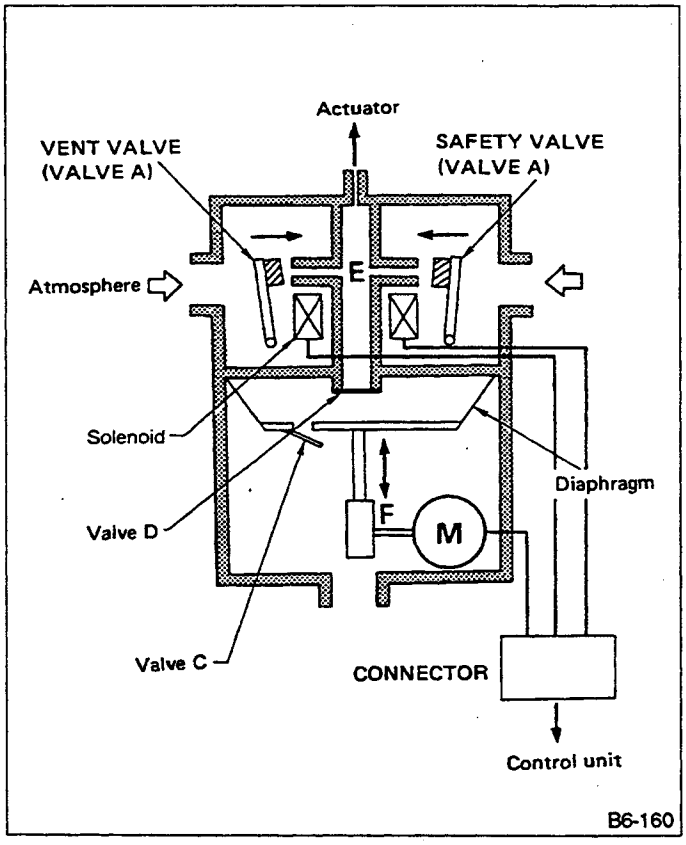


Fig. 15

Signal from control unit and valve operation

		Safety valve	Vacuum motor	Vent valve
System OFF		Open	Stop	Open
System ON	Memory < actual car speed	Close	Stop	Open
	Memory = actual car speed	Close	Stop	Close
	Memory > actual car speed	Close	Rotate	Close

5. ACTUATOR

The diaphragm is operated by vacuum or atmospheric pressure led by each valve, and this diagram movement actuates the wire cable via link ASSY to open or close the throttle valve. With the cruise control set to OFF (system OFF state), no diaphragm operation occurs as the atmospheric pressure is kept inside the actuator.

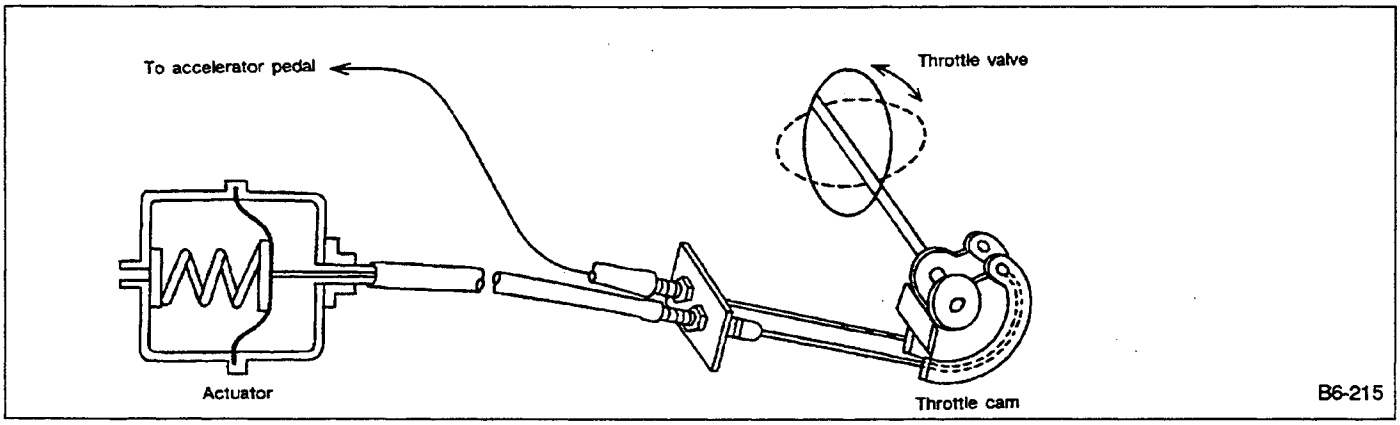


Fig. 16

6. ENGINE THROTTLE

The throttle body is equipped with two throttle cams. One cam is used during acceleration and the other during cruising, in order to open or close the throttle valve. These cams operate independently of each other. In other words, while one cam is operates, the other does not.

C: ADJUSTMENT

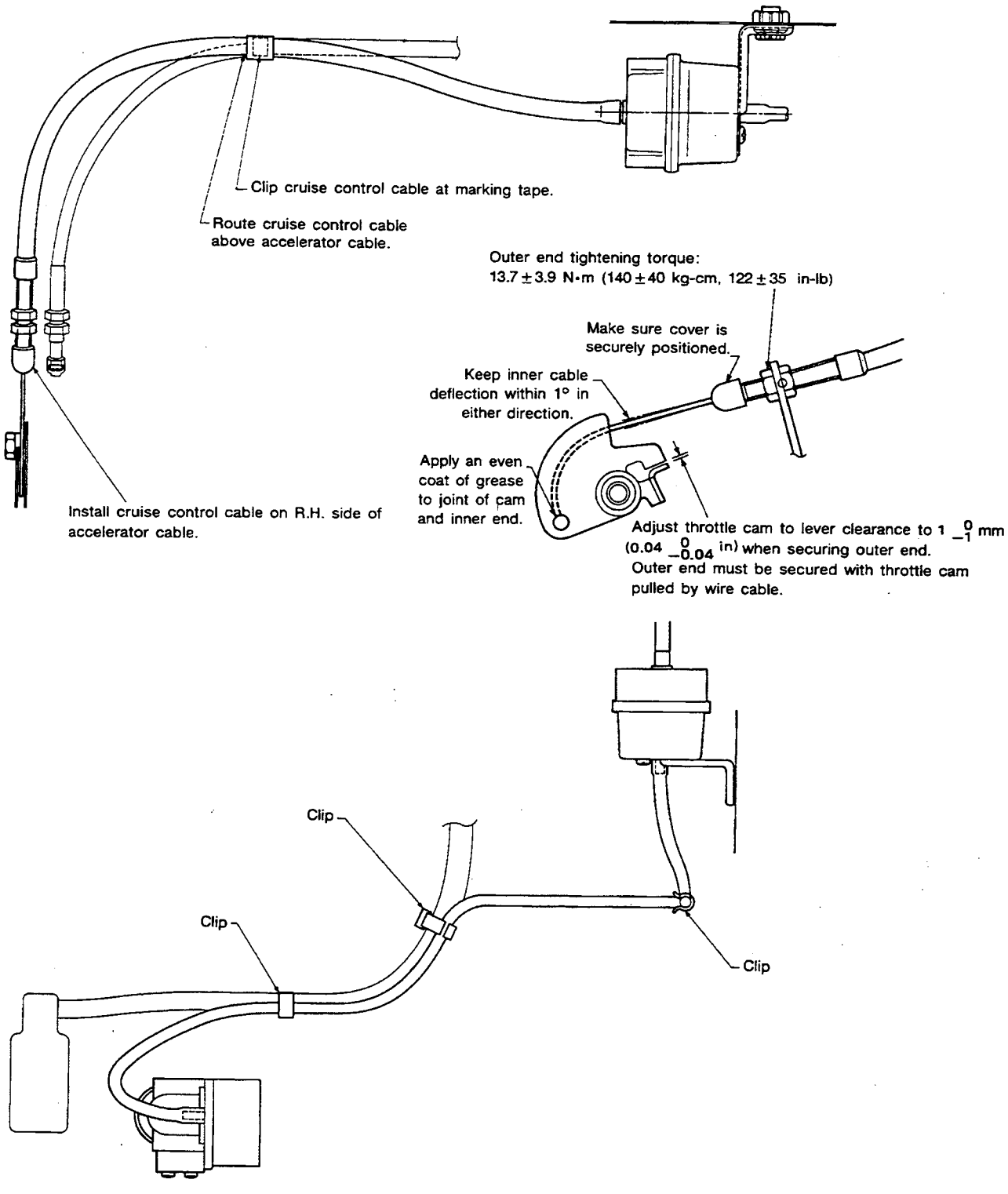


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Fig. 17

D: REMOVAL AND INSTALLATION

1. VACUUM PUMP

1) Remove battery.
2) Remove main fuse box securing bolts and move fuse box to the side.
3) Disconnect wiring harness connector and hose.
4) Remove attaching screws, and remove vacuum pump ASSY.

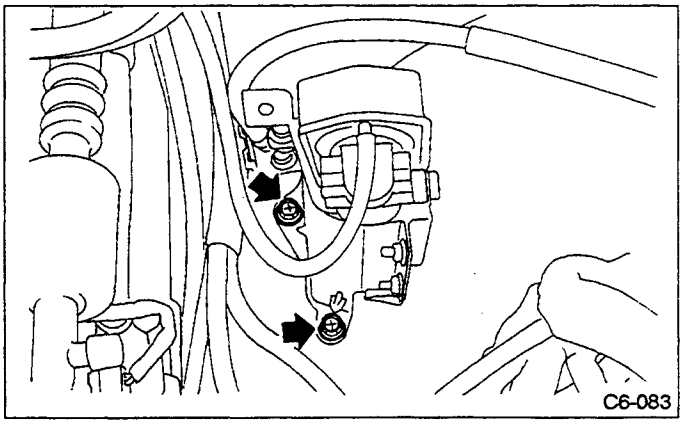


Fig. 18

Fit vacuum pump bracket onto protrusion on lower side of washer tank during installation.
Installation is in the reverse order of removal procedures.
a. Tighten securing nuts and bolts to a torque of 7.4 ± 2.5 N•m (75 ± 25 kg-cm, 65 ± 22 in-lb).
b. Insert connector until it locks.
c. Be careful not to twist or crush rubber hoses.
d. Do not slacken or tighten rubber hoses excessively when routing, maintaining a bend radius of greater than 30 mm (1.18 in).
e. Firmly connect rubber hoses and actuator, maintaining a clearance of less than 2 mm (0.08 in) between them.

2. ACTUATOR

1) Remove collector cover.
2) Remove the nut which secures control cable end to throttle cam, and remove control cable end.
3) Disconnect vacuum hose.
4) Remove clip band from control cable.
5) Remove attaching bolts and actuator ASSY.

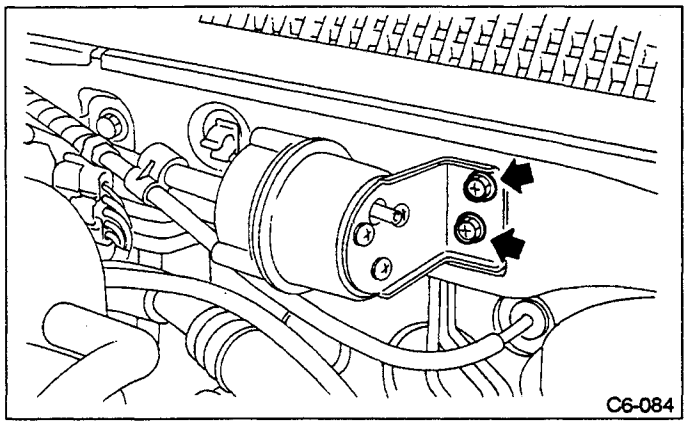


Fig. 19

Installation is in the reverse order of removal procedures.
a. Do not bend cable too sharply as this may degrade cable movement. Be sure to maintain a bending radius of greater than 80 mm (3.15 in).
b. Do not allow inner end of cable to bend or crush during installation as breakage may result.

E: DRIVING TESTS

Conduct road tests by selecting a smooth, flat road or use free rollers as road-test simulation.

1. MAIN SWITCH

1) Turn ignition switch ON.
2) Check that indicator light comes on when main switch is pressed (ON).
3) Check that indicator light goes out when main switch is pressed again (OFF).
4) Turn ignition switch OFF with main switch ON (which is indicated by illumination). Turn ignition switch ON again to ensure that indicator light remains off.

2. SUB SWITCH

1) Check that sub switch is properly set in "SET/COAST", "RESUME/ACCEL" or "CANCEL" mode.
2) Also check that sub switch returns to the original position when released.

3. CONSTANT-SPEED TEST

1) Turn main switch ON.
2) Drive vehicle at speed greater than 40 km/h (25 MPH).
3) Press sub switch to set in "SET/COAST" mode.
4) Ensure that vehicle is maintained at the speed set when sub switch was pressed.

4. ACCELERATION TEST

1) Set vehicle speed at speed greater than 40 km/h (25 MPH).

2) Ensure that vehicle continues to accelerate while holding sub switch in RESUME/ACCEL mode, and that vehicle maintains that optional speed when subswitch is released.

5. DECELERATION TEST

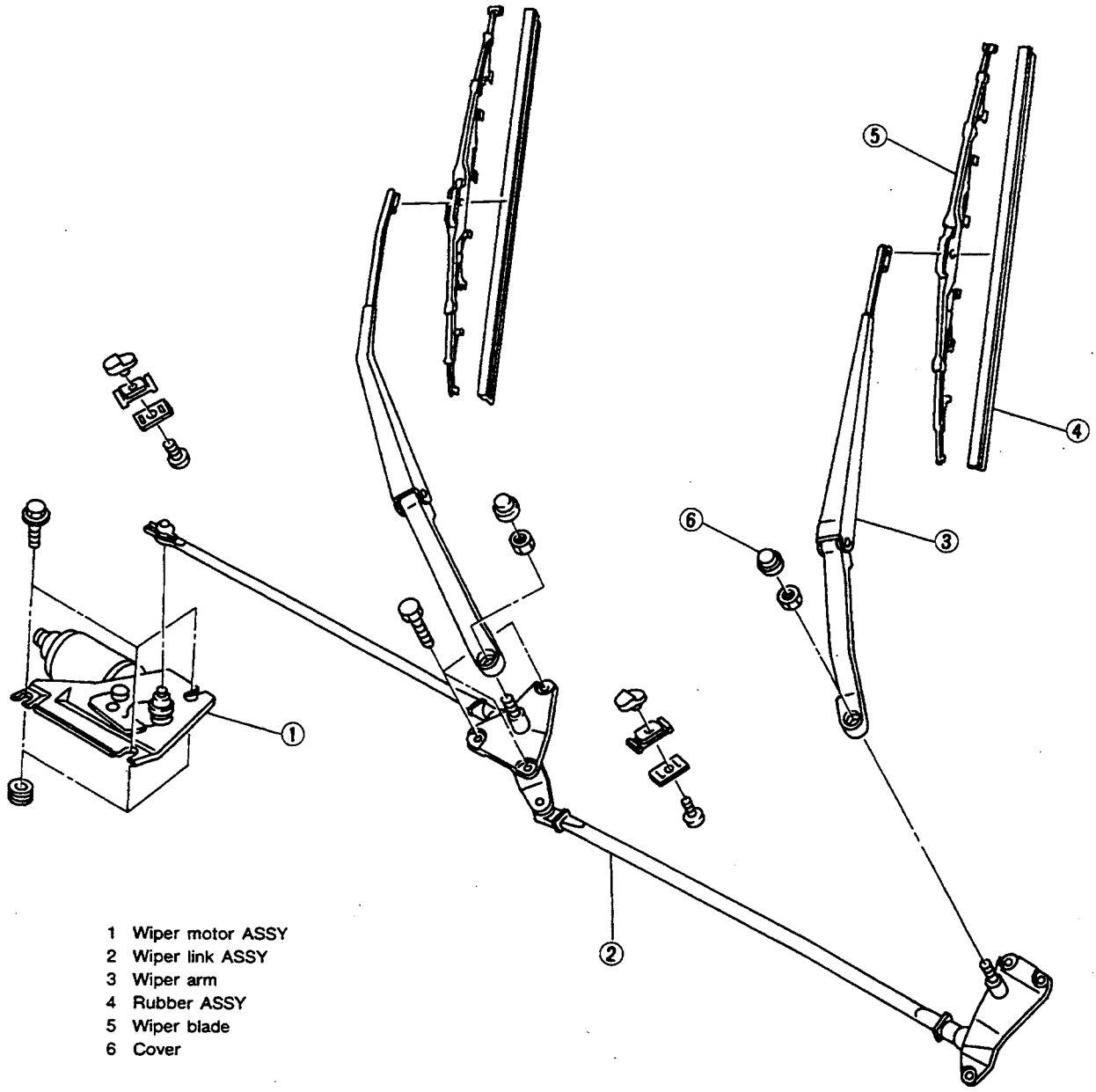
1) Set vehicle speed at optional speed greater than 40 km/h (25 MPH).
2) Ensure that vehicle continues to decelerate while holding sub switch in SET/COAST mode, and that it maintains that optional speed when subswitch is released.

When vehicle speed reaches the lower speed limit of 30 km/h (19 MPH) during deceleration, cruise control will be released.

6. CRUISE CONTROL CANCEL INSPECTION

1) Set vehicle speed at optional speed greater than 40 km/h (25 MPH).
2) Pull CANCEL section of sub-switch.
3) Ensure cruise control is cancelled.

4. Front Wiper and Washer



C6-062

Fig. 20

A: ON-CAR SERVICES

1. ADJUSTMENT

1) When wiper switch is in "OFF" position, adjust blades in original position as shown in illustration by changing wiper arm installation.

Be sure to adjust wiper blades after setting wiper select switch to "WINTER" to position them in WINTER position.

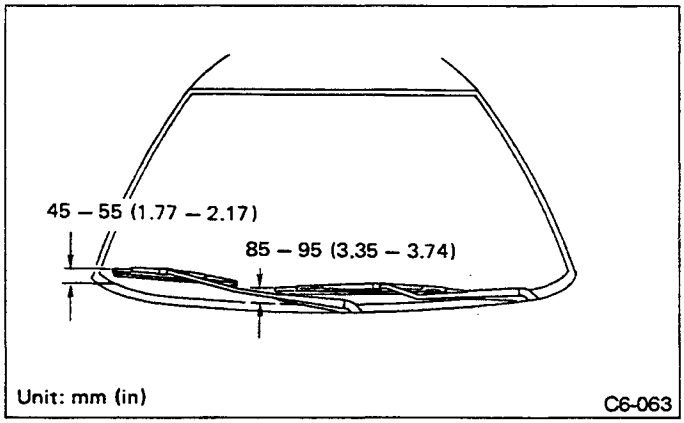


Fig. 21

2) Adjust washer ejecting point on windshield glass as shown in illustration when car stops.

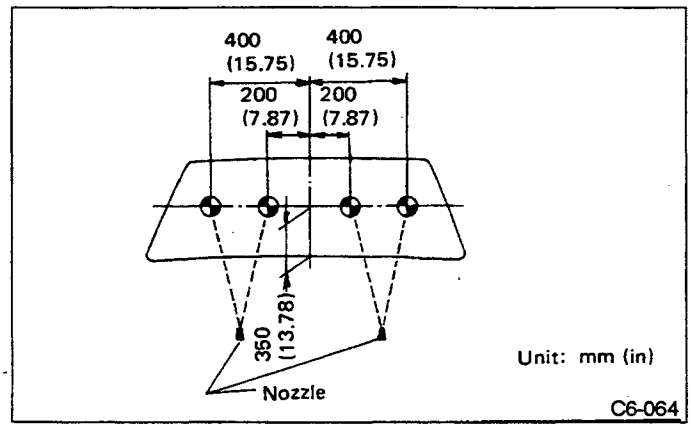


Fig. 22

B: REMOVAL AND INSTALLATION

1. WIPER ARM

1) Open front hood.
2) Remove cap. Remove the nut which secure wiper arm, and remove wiper arm.

2. WIPER MOTOR AND LINK

1) Detach weatherstrip and cowl net. Ref. to [5-1].

Apply silicone oil or soap water to both sides of cowl net to facilitate removal.

2) Remove wiper link from wiper motor.
3) Disconnect electric connector, and remove motor attaching bolts.
4) Remove wiper link ASSY attaching bolts.

Installation is in the reverse order of removal.

3. WASHER TANK

1) Remove cover.
2) Separate washer hoses at joint.
3) Disconnect connector.
4) Remove washer tank attaching bolts.

Installation is in the reverse order of removal.

Before installing washer tank, position locating boss (on lower side of washer tank) in hole on body.

Tightening torque:
4.4 — 7.4 N•m
(45 — 75 kg-cm, 39 — 65 in-lb)

4. NOZZLE

1) Disconnect washer hose from nozzle.
2) Push nozzle clip in direction A. (See Figure below.)
3) Remove nozzle from hood.

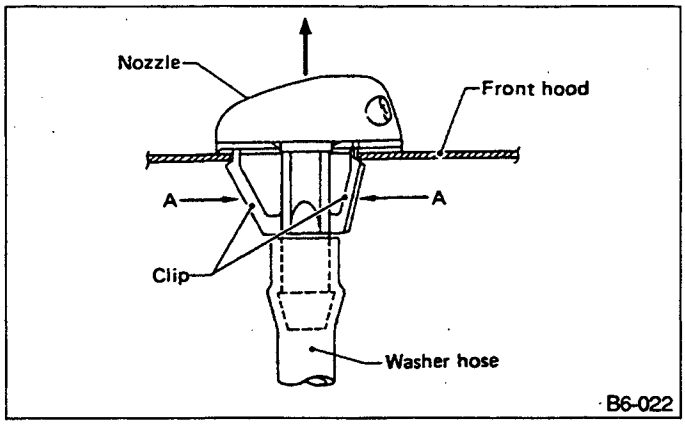


Fig. 23

5. Fuel Gauge

A: DESCRIPTION

1. A low fuel warning thermistor is installed in the main unit.
2. A combination thermistor and thermistor chamber has the function of a "delay" mechanism to prevent erroneous activation of the warning light when fuel is transferred to the sub-chamber for a short period of time.
3. The duration of the "delay" time is approximately 3 - 4 minutes at normal temperatures.
4. The low fuel warning light comes on 3 - 4 minutes after the ignition switch is turned to "ON", even when fuel left in the fuel system is below the warning level of [8.5 liters (9.0 US qt, 7.5 Imp qt)] .

B: INSPECTION

1. FUEL GAUGE UNIT

1) Float position

While moving float, determine point F (upper limit position) where float arm contacts stopper and point E (lower limit position).

2) Standard resistance of fuel gauge unit

When float is at point F (upper limit position) and point E (lower limit position), measure resistance between terminals.

Resistance		MAIN UNIT	SUB UNIT
Normal resistance (Ω)	F	1 — 3	1 — 3
	E	54.1 — 56.1	50.9 — 52.9

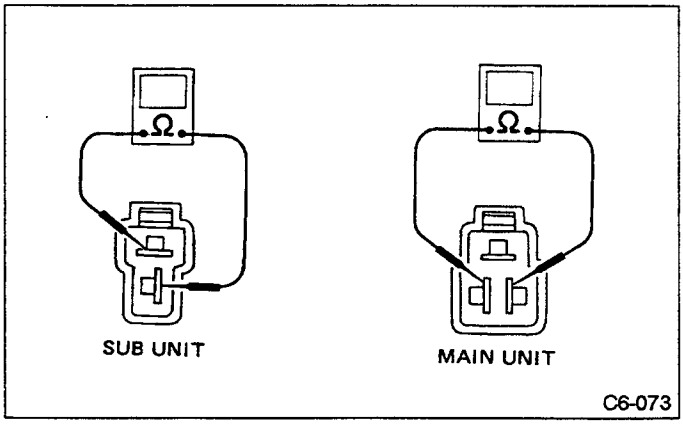


Fig. 24

3) Ensure that resistance gradually changes when float is slowly moved from point F to point E, and vice versa.

4) Low fuel warning sensor (thermistor)

Connect fuel gauge unit and test lamp (12V-3.0W) to battery, and connect terminal (2) to battery and terminal (5) to test lamp, respectively.

Ensure that test lamp remains off when fuel gauge unit is dipped in fuel and comes on when removed from fuel.

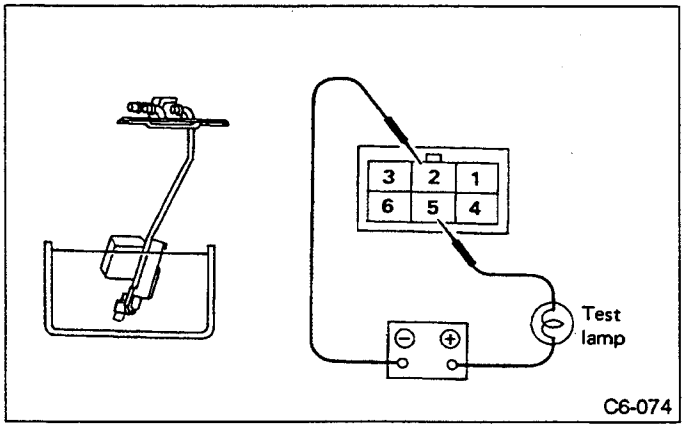


Fig. 25

6. Fuse

1) FUSIBLE LINK (FL)

If current increases beyond specified amperage, fusible metal melts and the circuit is broken, thus protecting cable and electrical equipment from burning.

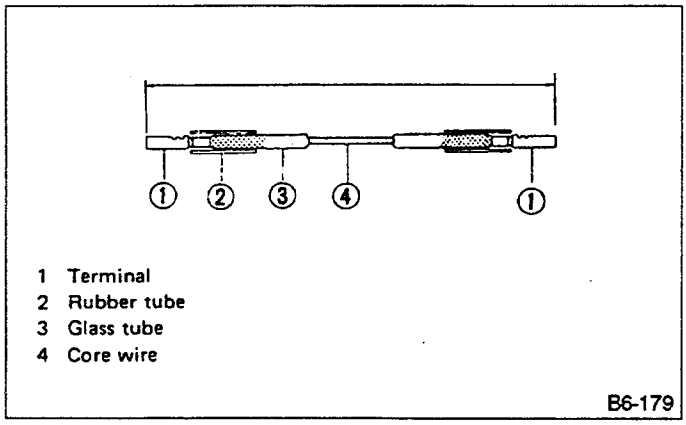


Fig. 26

a. When replacing fusible link, be sure to use one with the specified rating.

b. Blown fusible link is caused by short circuit in the source of electricity circuit or large amperage circuit, so careful check of cause and/or repair is necessary.

No.	Item	Nominal gauge size of conductor
		1.5 mm² (0.0023 sq in)
1	Voltage drop	47 mV
		Voltage drop across lug terminals should be less than the above value when a 10 ampere current flows through fusible link at room temperature.
2	Melting characteristics	Fusible link should melt within 15 seconds at a current flow of 200 amperes.

2) FUSE
The connection between each fuse and main electrical units/devices is as shown in the following illustration. (Also refer to the wiring diagram.)

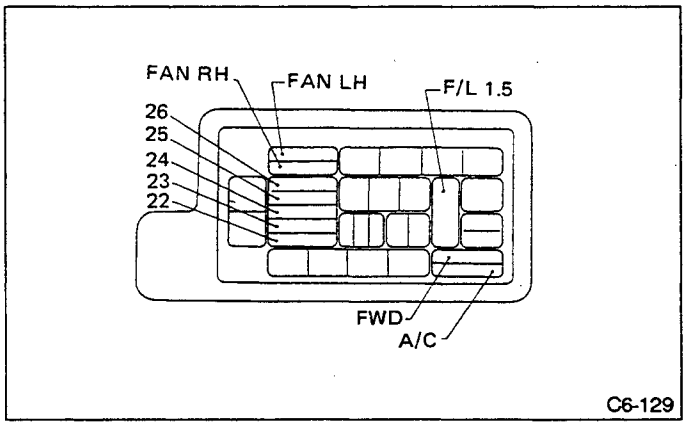


Fig. 27

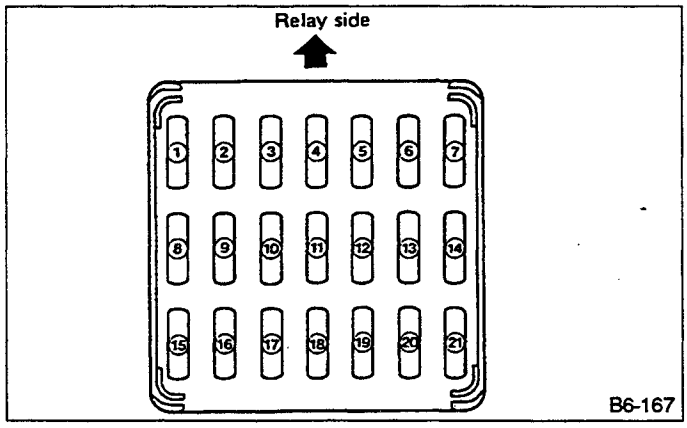


Fig. 28

7. Horn Switch

Before installing new horn switch, remove air bag module. Refer to [5-5 SRS] for removal procedures.

A: REMOVAL AND INSTALLATION

Do not allow current to flow through or scratch air bag module ASSY when removing or installing it.

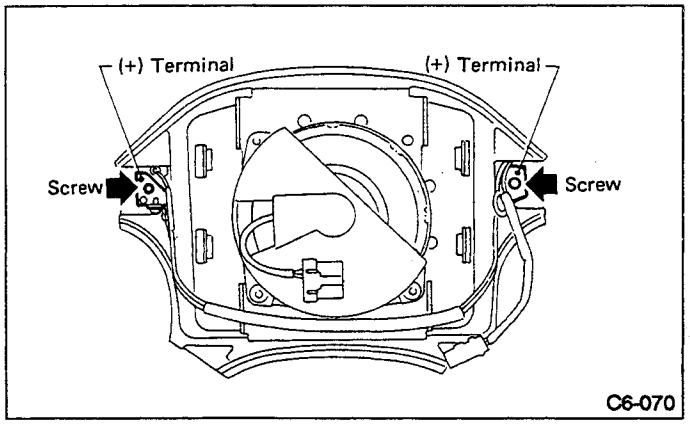


Fig. 29

1) Remove horn harness from clips.
2) Slide and remove horn harness connector from inflator cover.
3) Disconnect positive (+) terminal from horn button.
4) Remove horn button retaining screw.
5) Remove horn button ASSY.
Installation is in the reverse order of removal.

8. Headlight

A: HEADLIGHT AIMING

Before checking the headlight aim:
1) Be sure that the area around the headlights has not sustained any accident damage or other type of deformation.
2) Park the vehicle on level ground.
3) Check the tires for correct inflation pressure.
4) Make certain that the vehicle's gas tank is full and that someone is seated in the driver's seat.

5) Bounce the vehicle several times to normalize the suspension.

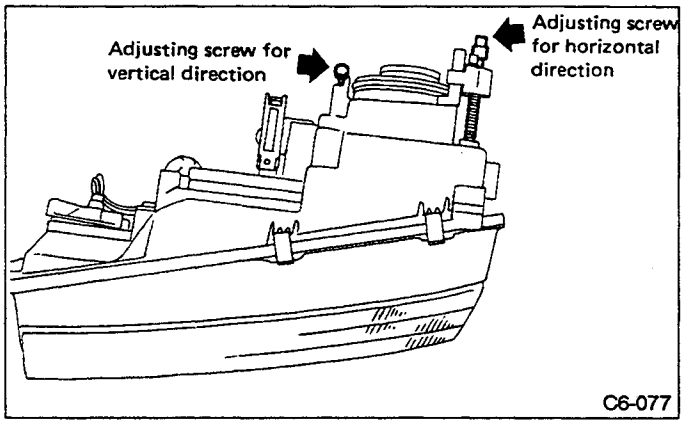


Fig. 30

1. Look at the beam angle gauge (vertical movement). The bubble on the gauge should not deviate from the center of the gauge by more than two marks on the gauge's upward or downward scale.

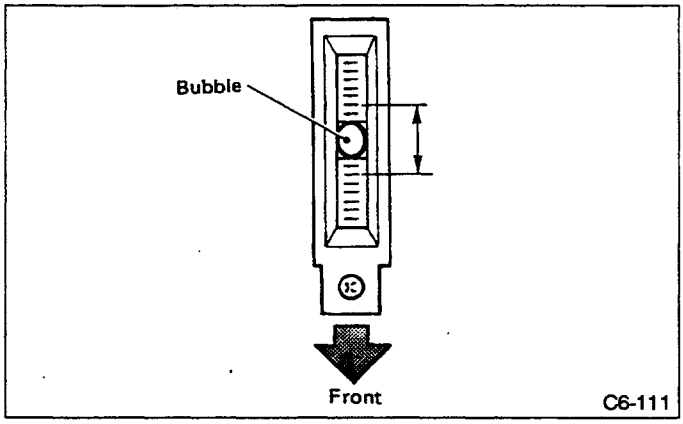


Fig. 31

2. Look at the beam angle gauge (horizontal movement). The black mark should not deviate from the center of the gauge by more than one mark on either side of the gauge.

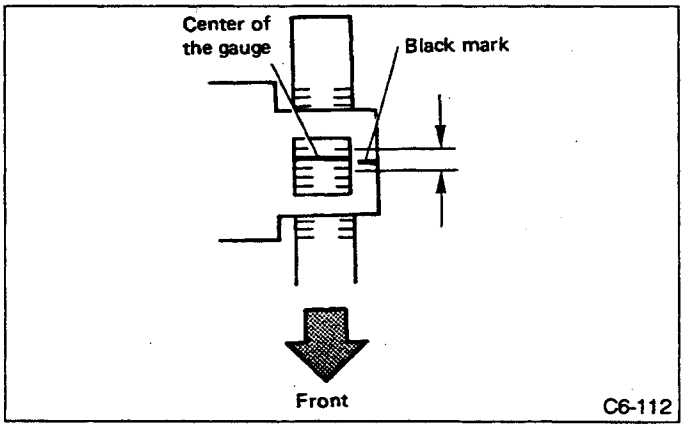


Fig. 32

a. Adjust vertical aim first, then horizontal aim.
b. If headlight location is slightly shifted due to body deformity, etc., repair surface to be mated with headlight. ⟨Refer to [5-1].⟩

9. Rear Window Defogger

A: INSPECTION

1. HEAT WIRES

1) Start the engine so that battery is being charged.
2) Turn defogger switch ON.
3) Check each heat wire at its center position for discontinuity by setting direct-current voltmeter.
Normal indication is about 6 volts.

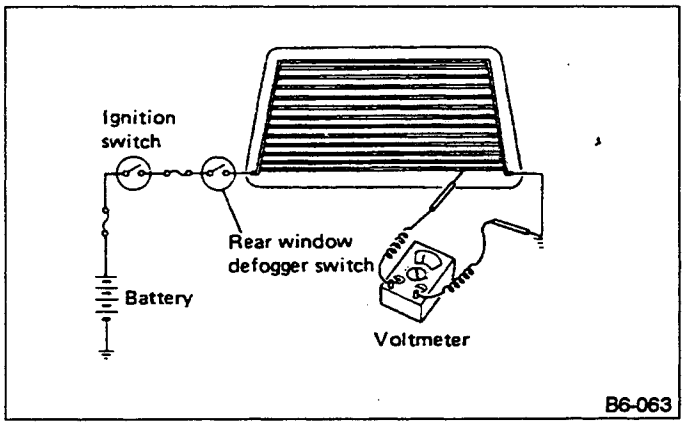


Fig. 33

When measuring voltage, wind a piece of tin foil around the tip of the negative probe and press the foil against the wire with your finger.

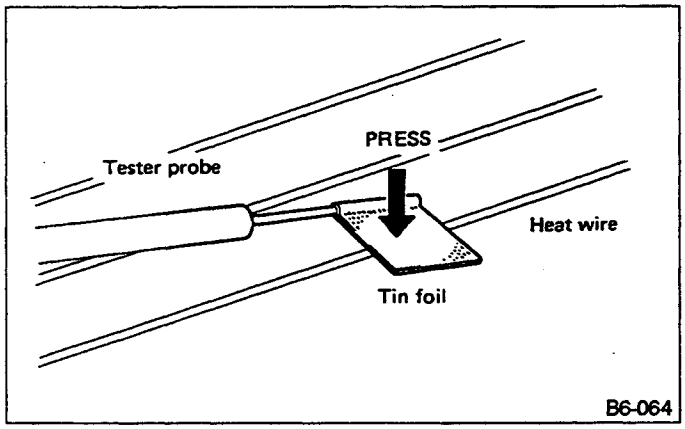


Fig. 34

4) When tester indicates 12 volts when its probe reaches point "A", a broken circuit occurs between point "A" and the negative terminal. Slowly move tester probe toward the negative terminal while contacting it on heat wire to locate point where tester indication changes abruptly (0 volts). This is the point where a broken circuit occurs.

When tester indicates 0 volts when its probe reaches point "A", a broken circuit occurs between point "A" and the positive terminal. Locate a point where tester indication changes abruptly (12 volts) while slowly moving tester probe toward the positive terminal.

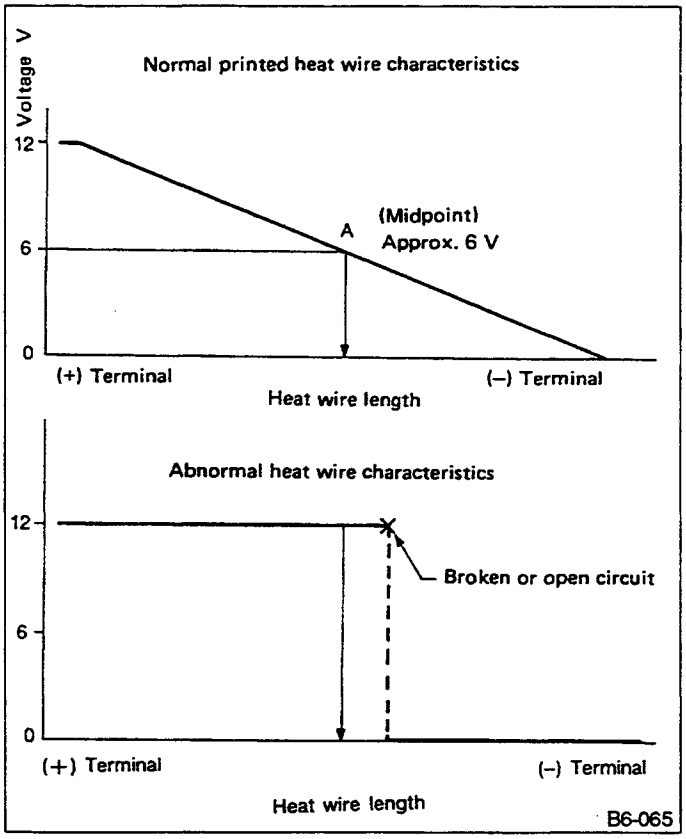


Fig. 35

B: REPAIR

1) Clean broken wire and its surrounding area.
2) Cut off slit on (used) thin film by 0.5 mm (0.020 in) width and 10 mm (0.39 in) length.
3) Place the slit on glass along the broken wire, and deposit conductive silver composition (DUPONT No. 4817) on the broken portion.
4) Dry out the deposited portion.
5) Inspect the repaired wire for continuity.

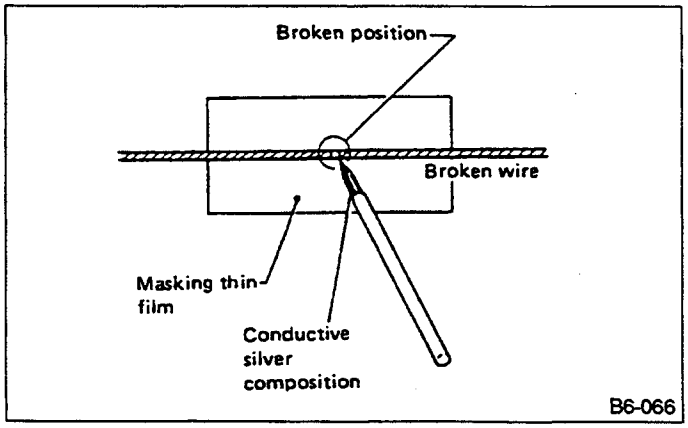


Fig. 36

10. Rear Wiper and Washer

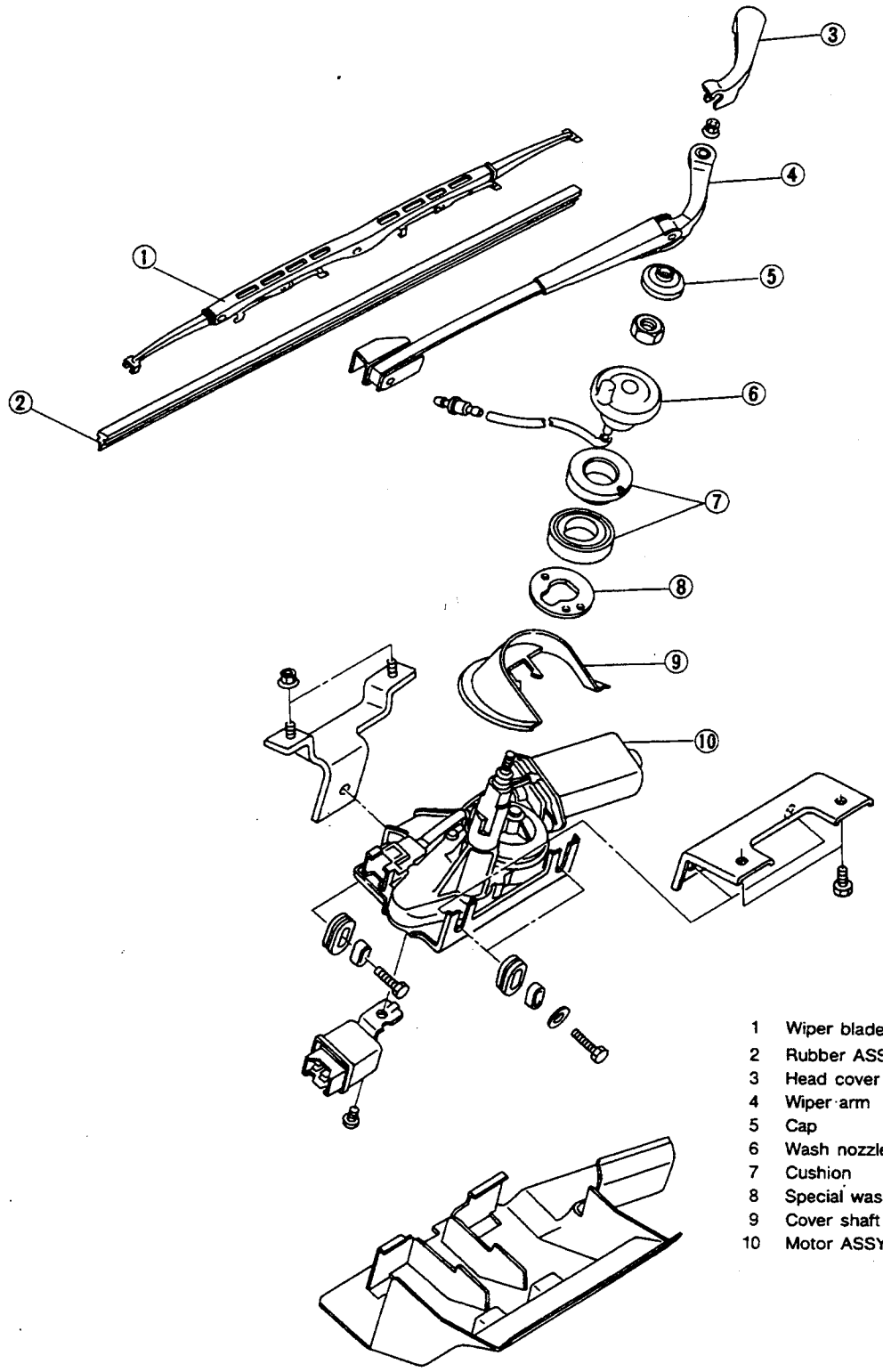


Fig. 37

A: ON-CAR SERVICES

1. ADJUSTMENT

1) Adjust wiper blade in original position as shown in the illustration by changing wiper arm installation.

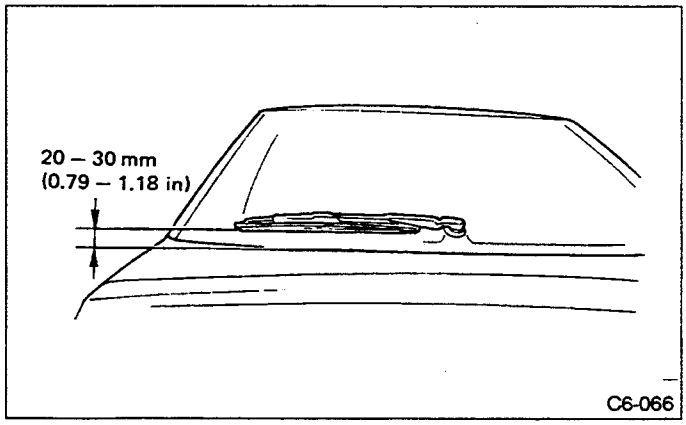


Fig. 38

2) Adjust washer ejecting point on rear gate window as shown in the illustration when the car stops.

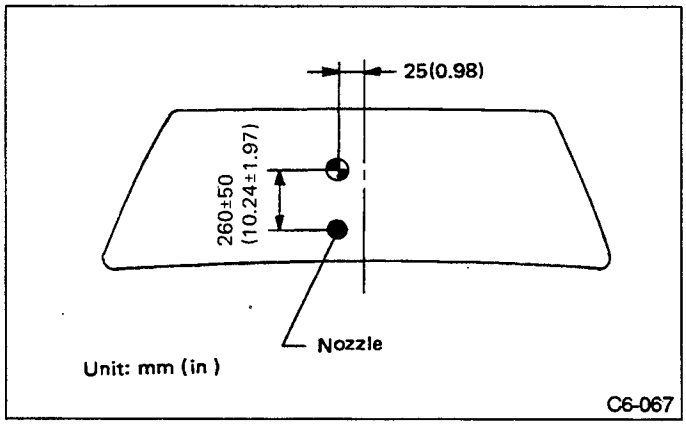


Fig. 39

B: REMOVAL AND INSTALLATION

1. WIPER ARM

1) Remove head cover.
2) Remove nut and wiper arm.

2. WIPER MOTOR

1) Remove cap and special nut.

Be careful not to strike service tool against nozzle during removal.

2) Remove rear gate trim. Ref. to [5-3].
3) Disconnect connector (Motor & relay).
4) Separate washer hoses at joint.
5) Remove attaching screws and take out wiper motor ASSY.

Be careful not to damage O-ring when removing wiper motor ASSY.

3. WASHER TANK

1) Remove rear quarter trim. Ref. to [5-3].
2) Disconnect washer hose and motor connector.
3) Remove attaching bolts.

W SERVICE PROCEDURE

11. Security System

A: SCHEMATIC

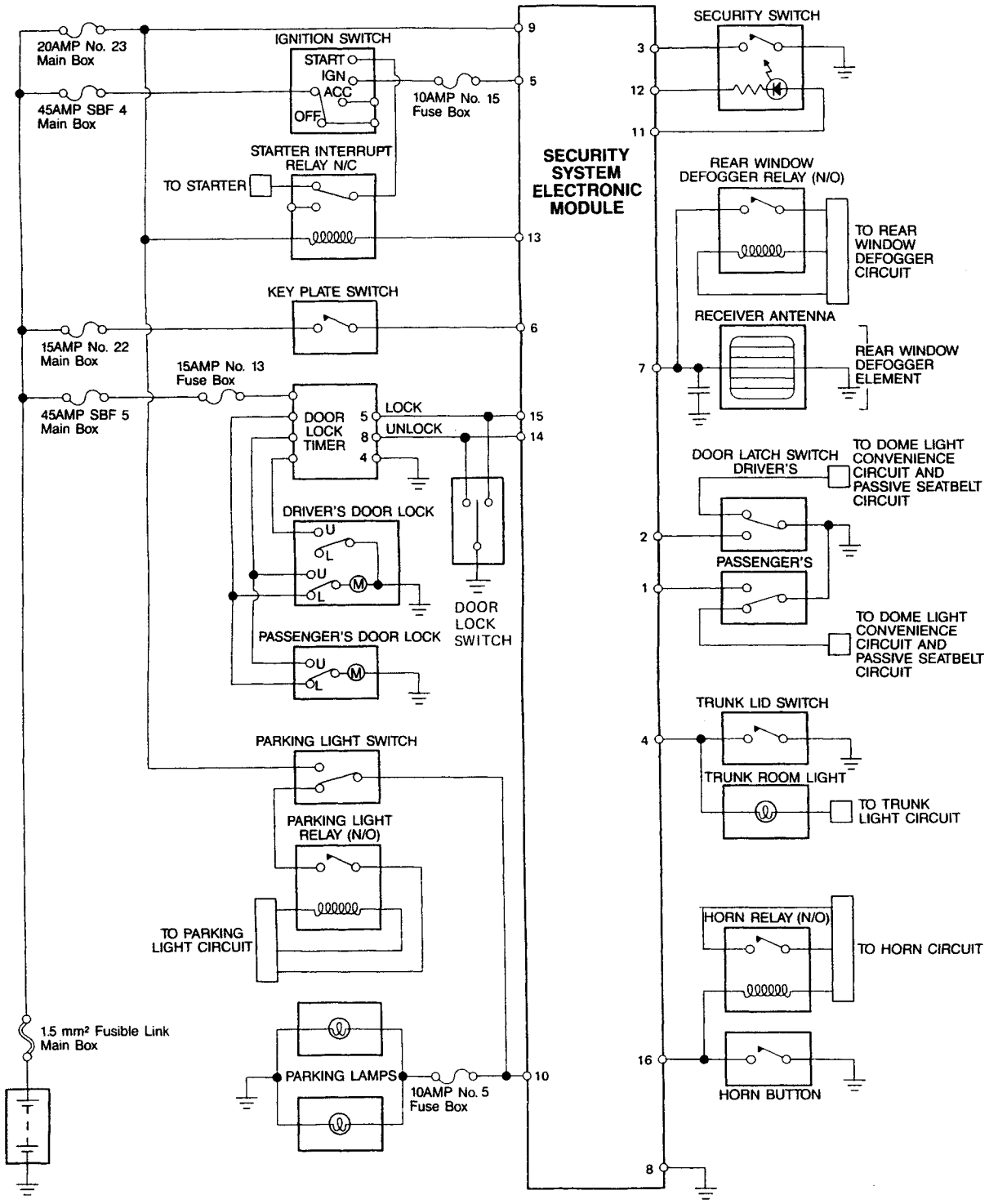


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Fig. 1

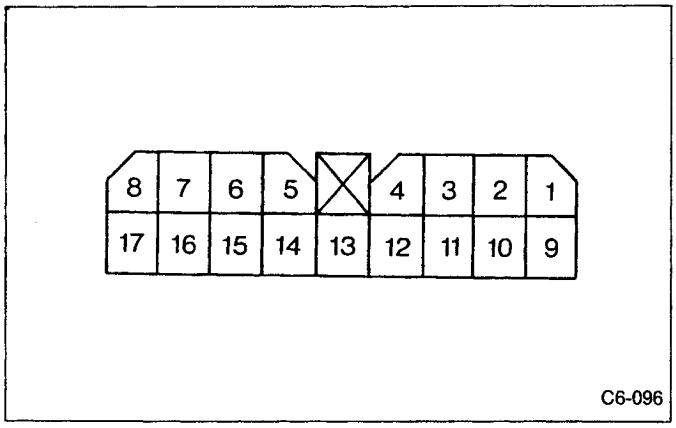


Fig. 2

PIN	FUNCTION
1	PASSENGER DOOR LATCH SWITCH
2	DRIVERS DOOR LATCH SWITCH
3	SECURITY SWITCH
4	TRUNK LID SWITCH
5	IGNITION
6	KEY PLATE SWITCH
7	RECEIVER ANTENNA
8	GROUND
9	+12 VOLTS
10	PARKING LIGHT
11	LED + (INDICATOR)
12	LED – (INDICATOR)
13	STARTER
14	UNLOCK-DOOR LOCK ACTUATOR
15	LOCK-DOOR LOCK ACTUATOR
16	HORN
17	OPEN

1. FUNCTION AND OPERATION

(1) The security system monitors the dome and trunk light circuits to sense unauthorized entry into the vehicle. The system senses impacts to the vehicle resulting from possible suspicious activity. The system will sound the horn and flash the parking lights if entry or impact is detected. When actively armed, the system will disable the starter. The starter circuit is deactivated through a relay which interrupts the circuit.

(2) The remove transmitter arms or disarms the system. The remote arm and disarm also provides driver convenience of locking and unlocking the doors. The security system communicates with the door lock timer unit to lock and unlock the doors. When disarming, the system turns the on dome light illuminating the interior for entering the vehicle in the dark.

1) Passive Arming

The system arms automatically 27 seconds after the dome light dims off. If a door or the trunk is opened within the 27 second exit delay, the system waits until all doors and trunk are closed to begin a new 27 second cycle.

The doors will not lock automatically when the system arms.

2) Passive Disarming

The system can be disarmed by turning the ignition switch to the ON position. When a door is opened the parking lights flash and a clicking noise is heard counting down the 17 second entry delay before the alarm sound.

3) Active Arming

The system arms/disarms when the remote transmitter button is pressed. Along with the arm/disarm signal, the doors lock/unlock. The doors and trunk must be closed securely and the parking lights switched OFF for the system to arm.

4) Active Disarming

The system disarms when the remote transmitter button is pressed. The transmitter also disarms the system for passively armed. The doors automatically unlock with the disarm signal.

5) Alarm Activation

The alarm sounds if the doors or trunk are opened after the system is armed. A sudden shock such as breaking a window or not disarming the system before the end of the 17 second entry delay also sets off the alarm.

6) Alarm

The alarm sounds for 2 minutes. The system rearms if all sensors are returned to a normal state. If the sensors are not returned to a normal state, the alarm continues to sound in 2 minute cycles to a total of 10 minutes.

7) Starter Interrupt

Withe the system actively armed, the system disables the starter circuit. The starter will not operate unless the system is disarmed actively.

The system must be disarmed with the remote transmitter if armed with the remote transmitter for the engine to start.

8) Emergency By-Pass

If the remote transmitter is lost or broken the starter interrupt can be by-passed allowing the engine to start. The following procedure must be used to activate the emergency by-pass.

1. Enter the vehicle.

The alarm will sound as the door is opened.

2. Securely close the door.
Do not change the position of the Security Switch or leave the doors or trunk open, otherwise the alarm will sound for 10 minutes before the engine can be started.
3. Turn on the parking lights.
The alarm will sound for two minutes.
4. Start the engine by turning the ignition switch.
5. Turn off the parking light switch.

9) Red Indicator Light
The red indicator light signals the status of the system. Under normal conditions the light will flash approximately every two seconds. If an intrusion has been sensed and the alarm was activated the indicator light will flash a code showing the type of intrusion as follows:

Number of Flashes	Point of Intrusion
2	Door
4	Shock Sensor Activated
5	Use of non-authorized remote transmitter.
8	Ignition tampering

10) Panic Mode
The security system will automatically sound the alarm if the remote transmitter button is held down for more than 3 seconds. To deactivate the panic mode hold the button for 8 seconds or turn the ignition switch to the on position.

11) Warn-Away
Minor impacts or shocks to the vehicle will cause the system to sound the horn as a warning. If 3 minor shocks are sensed within 7 seconds then the alarm will sound a normal 2 minute alarm cycle.

12) Horn Signal
The horn provides feedback for the driver that the system responded to the remote transmitter. The horn will sound a single tone when armed and two tones when disarmed. A third tone will sound indicating the alarm was activated.

2. STARTER INTERRUPT RELAY
The relay, activated by a signal from the electronic control unit, interrupts the starter circuit keeping the starter from operating.

1) Passive Arming: The starter circuit functions normally. The system will not activate the starter interrupt relay if passively armed.

2) Active Arming: The system interrupts the starter circuit if actively armed. The electronic control unit grounds the coil side of the relay, opening the relay switch contacts, interrupting the starter circuit.

3. REMOTE TRANSMITTER
The remote transmitter is a hand-held device which transmits a radio signal to the system providing an arm or disarm command. The signal also locks or unlocks the doors.

C: SHOCK SENSOR ADJUSTMENT

The system shock sensor is preset and requires no additional adjustments unless requested by the consumer. The adjustment screw for the shock sensor is located in the end of the electronic control unit. The sensor sensitivity can be fine tuned changing the level of impact required to set off the alarm. To reduce sensitivity turn the screw counter-clockwise. Increase sensitivity by turning the screw clockwise.

D: PROTECTIVE FUSE

A 1 amp fuse is located in the end of the electronic control unit near the shock sensor adjustment screw. The fuse protects the circuit board from power serges or shorts. To replace the fuse place a screwdriver in the end of the fuse holder and turn counter-clockwise. The fuse and holder rotates outward.

Do not change the position of the shock sensor adjustment.

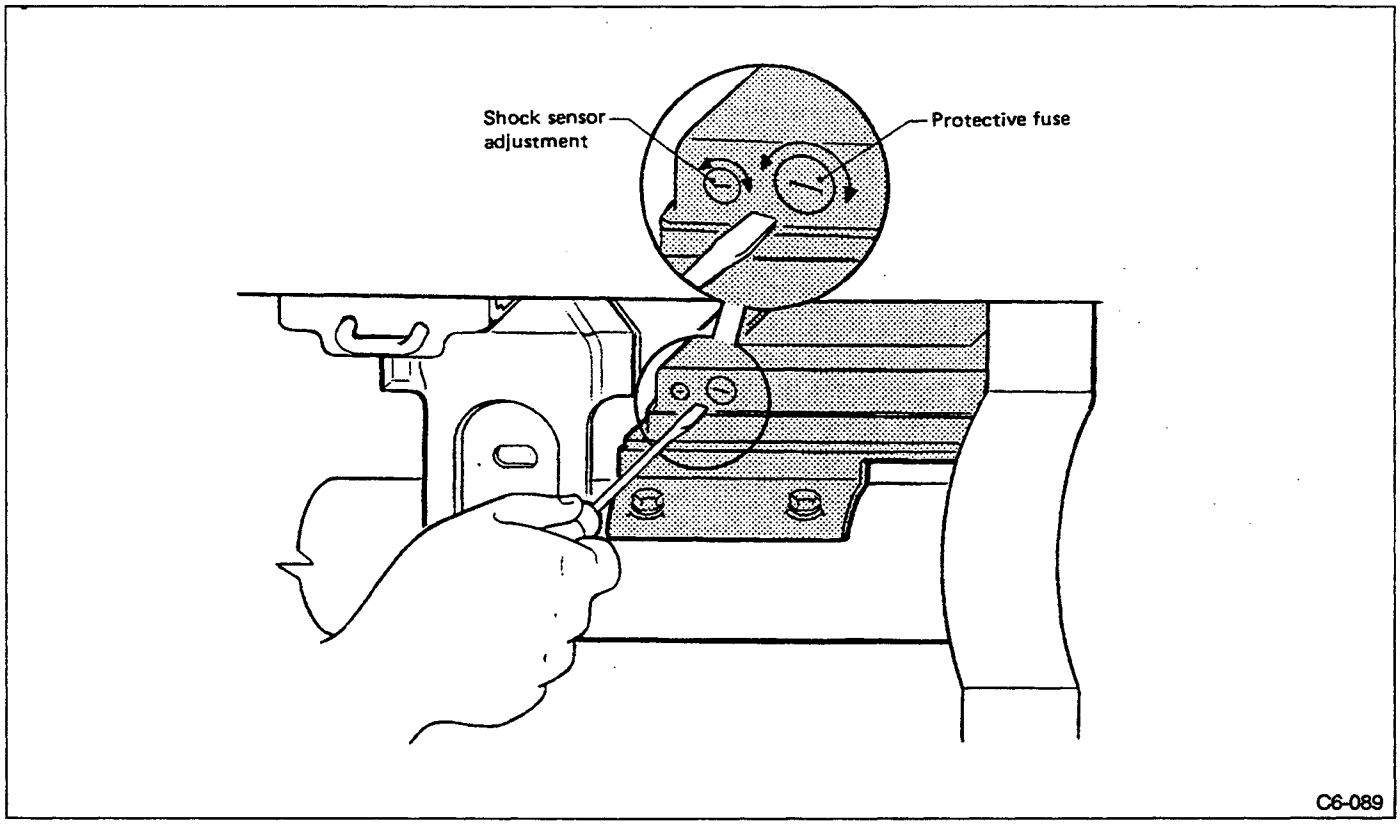


Fig. 42

E: REMOVAL AND INSTALLATION

1. ELECTRONIC CONTROL MODULE

1) Remove glove box door and inner panel.
2) Remove glove box door switch assembly and brace.
3) Remove the two attaching bolts from the electronic control module bracket.
4) Gently pull the electronic control unit away from inside the dash. Disconnect the connector from the back of the control unit.

Reprogram the remote transmitter code to the electronic control unit whenever the connector or battery has been disconnected.

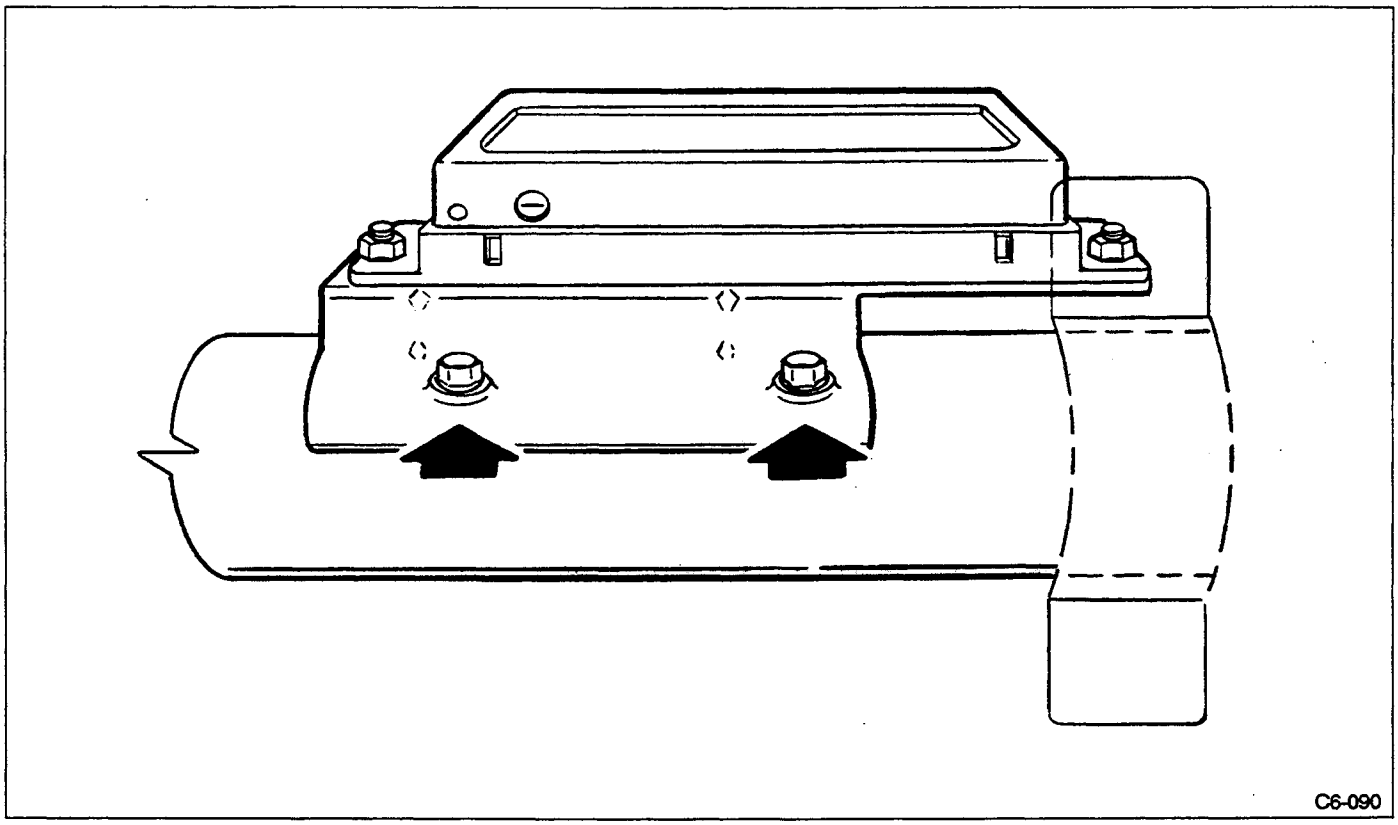


Fig. 43

2. STARTER INTERRUPT RELAY

1) Disconnect the connector from the bottom of the relay.
2) Remove the attaching bolt.

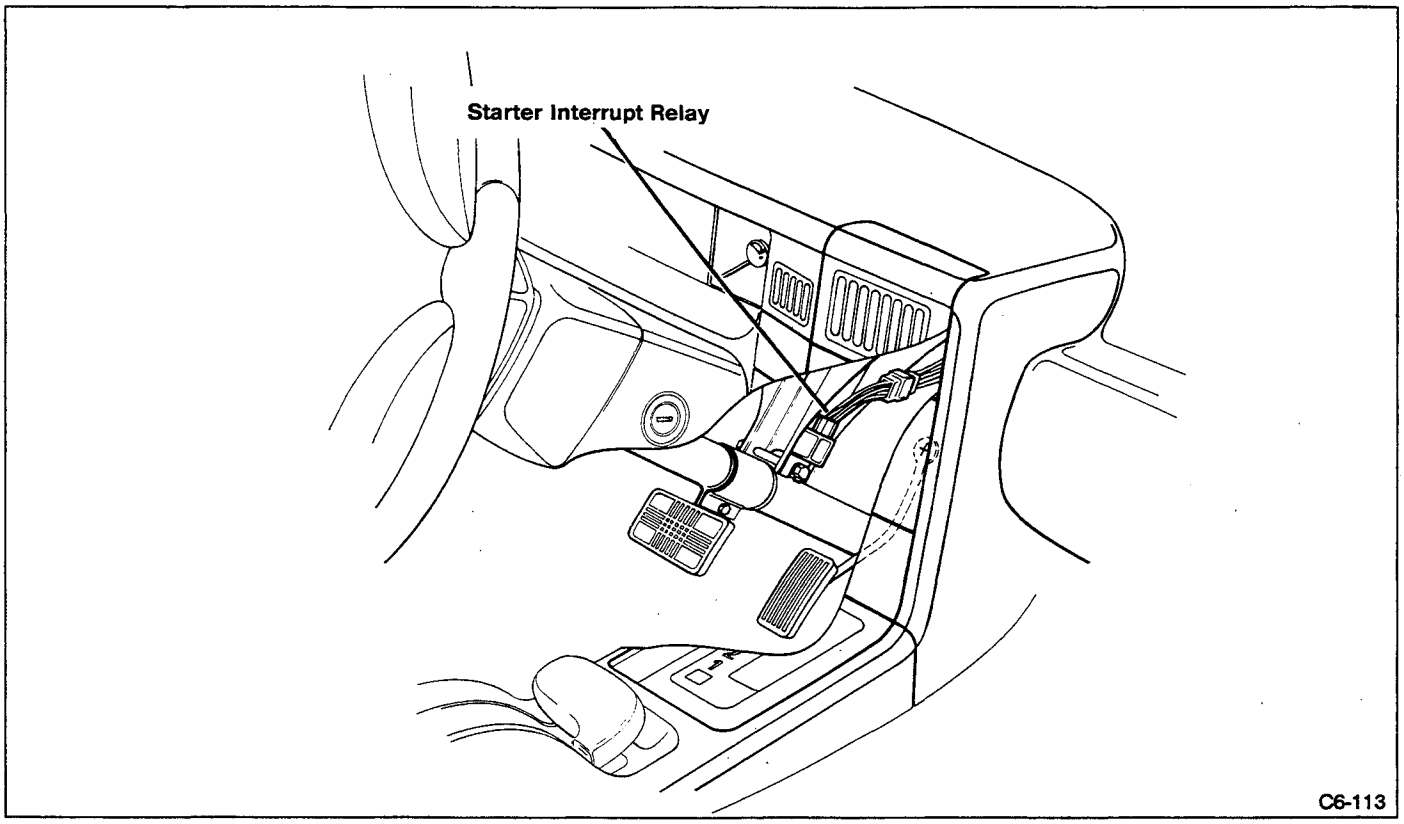


Fig. 44

3. REMOTE TRANSMITTER BATTERIES

1) Remove the four screws from the back of the remote transmitter housing.
2) Turn the remote transmitter over and gently lift off the top cover.

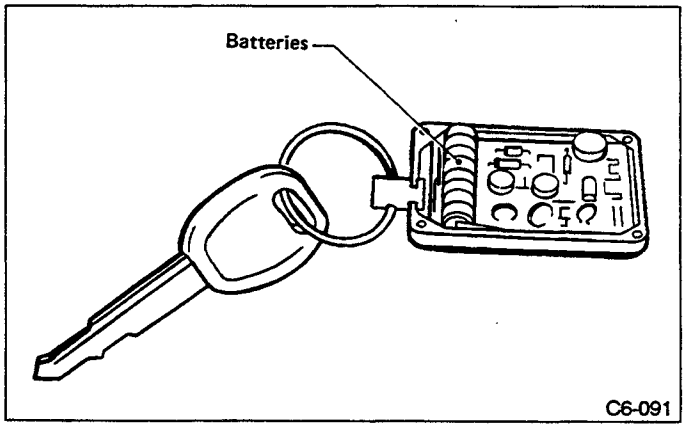


Fig. 45

4. PROGRAMMING THE REMOTE TRANSMITTER CODES

The remote transmitter codes must be reprogrammed whenever the battery or wiring connector for the electronic control unit has been disconnected. The electronic control unit clicks and the parking lights flash as a signal the transmitter codes need to be reprogrammed.

Press the button on each remote transmitter twice and one more time on one of the transmitters: a total of five (5) times. The electronic control unit must receive five transmitter codes for the system to operate.

F: FUNCTION TESTS

1. PASSIVE ARMING

1) Cycle the ignition ON to OFF. Exit the vehicle.
2) Securely close all doors and trunk lid.
3) The system should automatically arm 27 seconds after the dome light dimes out.
4) Open a door. The system should sound the alarm 17 seconds after the door was opened. The system will click and flash the parking lights during the 17 second entry delay.
5) Allow the system to passively arm once again. Open the trunk lid. The alarm should sound immediately, (press the remote transmitter button to stop the alarm).

6) Allow the system to passively arm once again. Open the door and turn the ignition on. The system should not sound the alarm after 17 seconds.

2. ACTIVE ARMING

1) Securely close all doors and trunk lid.
2) Actively arm the system by pressing the button on the remote transmitter. The system should arm and lock the doors. The arming is signaled by a single flash of the parking lights and a tone from the horn.
3) Open a door by unlocking with the key. The alarm should sound immediately when the door is opened.
4) Attempt to start the engine. The engine should not start.
5) Disarm the system by pressing the button on the remote transmitter. The alarm should stop sounding.
6) Actively arm the system once again.
7) Open the trunk lid by unlocking with the key. The alarm should sound immediately when the trunk is opened. Stop the alarm by pressing the remote transmitter button.
8) Roll down the driver's door window.
9) Securely close all doors.
10) Actively arm the system once again by pressing the remote transmitter button.
11) Reach through the open driver's door window and press the main switch OFF. The alarm should sound immediately when the main switch is pressed OFF.
12) Disarm the system and stop the alarm by pressing the remote transmitter button.

3. SHOCK SENSOR

1) Unlatch the hood.
2) Arm the system.
3) Open the hood by 102 mm (4 in). Let the hood fall freely. The alarm should sound when the hood closes.
4) Stop the alarm by pressing the remote transmitter button.

4. SECURITY SWITCH

1) Turn the ignition ON.
2) Press the Security Switch OFF. Turn OFF the ignition. The indicator light should remain ON - no flashing.
3) Press the remote transmitter button. The system should lock the doors but not arm.
4) Unlock a door with the key and open. The alarm should not sound.

5. EMERGENCY BY-PASS

1) Actively arm the system by pressing the remote transmitter button.
2) Open a door by unlocking with the key. The alarm should sound as soon and the door is opened.
3) Enter and securely close the door.
4) Turn the parking lights on.
5) Wait for the system to complete the two (2) minute alarm cycle.
6) Attempt to start the engine. The engine should start.

6. PANIC MODE

1) Securely close all doors and trunk lid.
2) Continuously press the remote transmitter button for more than 3 seconds. The alarm should begin to sound after 3 seconds.
3) Continuously press the remote transmitter button for more than 8 seconds to turn off the panic mode alarm.

G: COMPONENT LOCATIONS

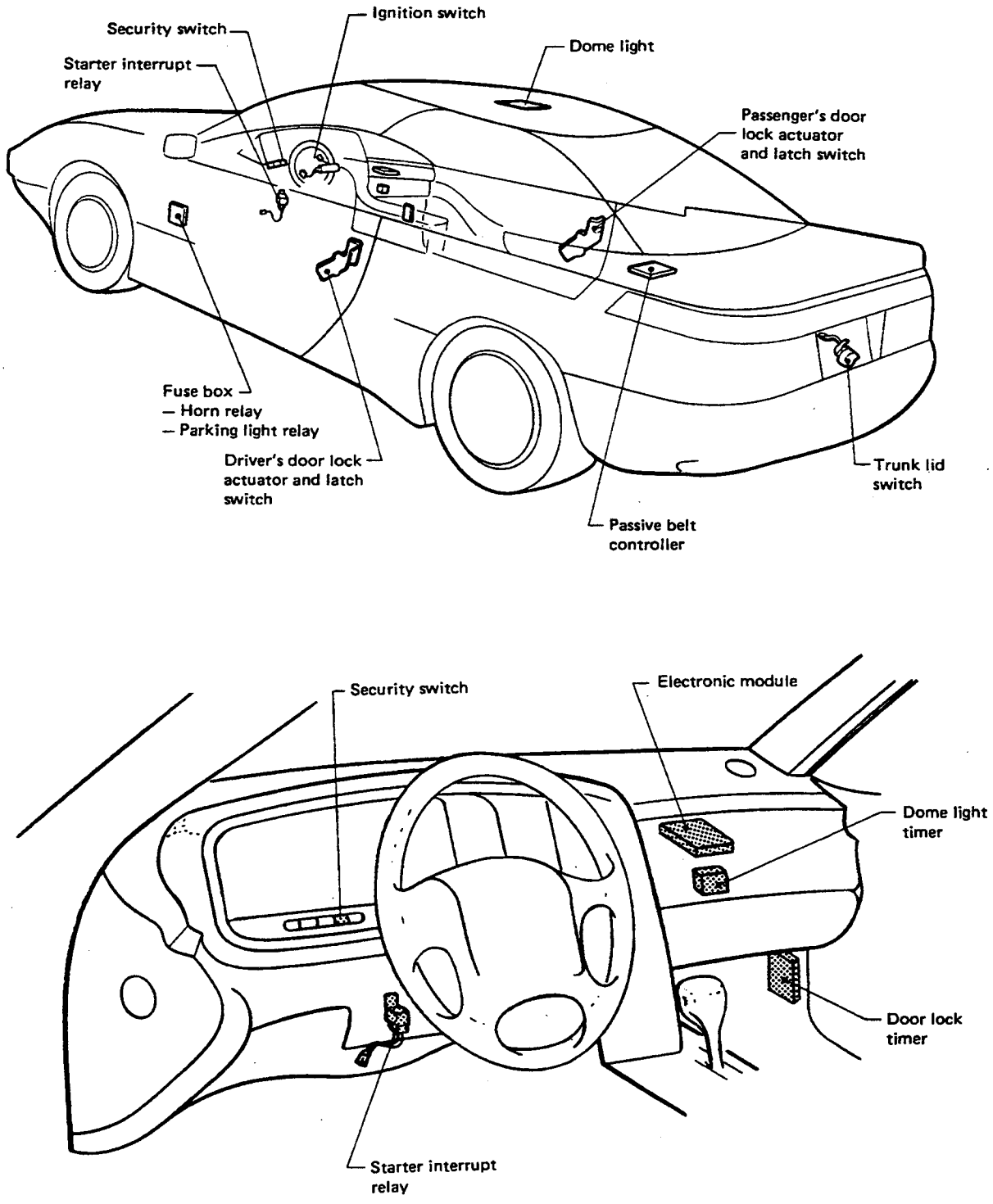
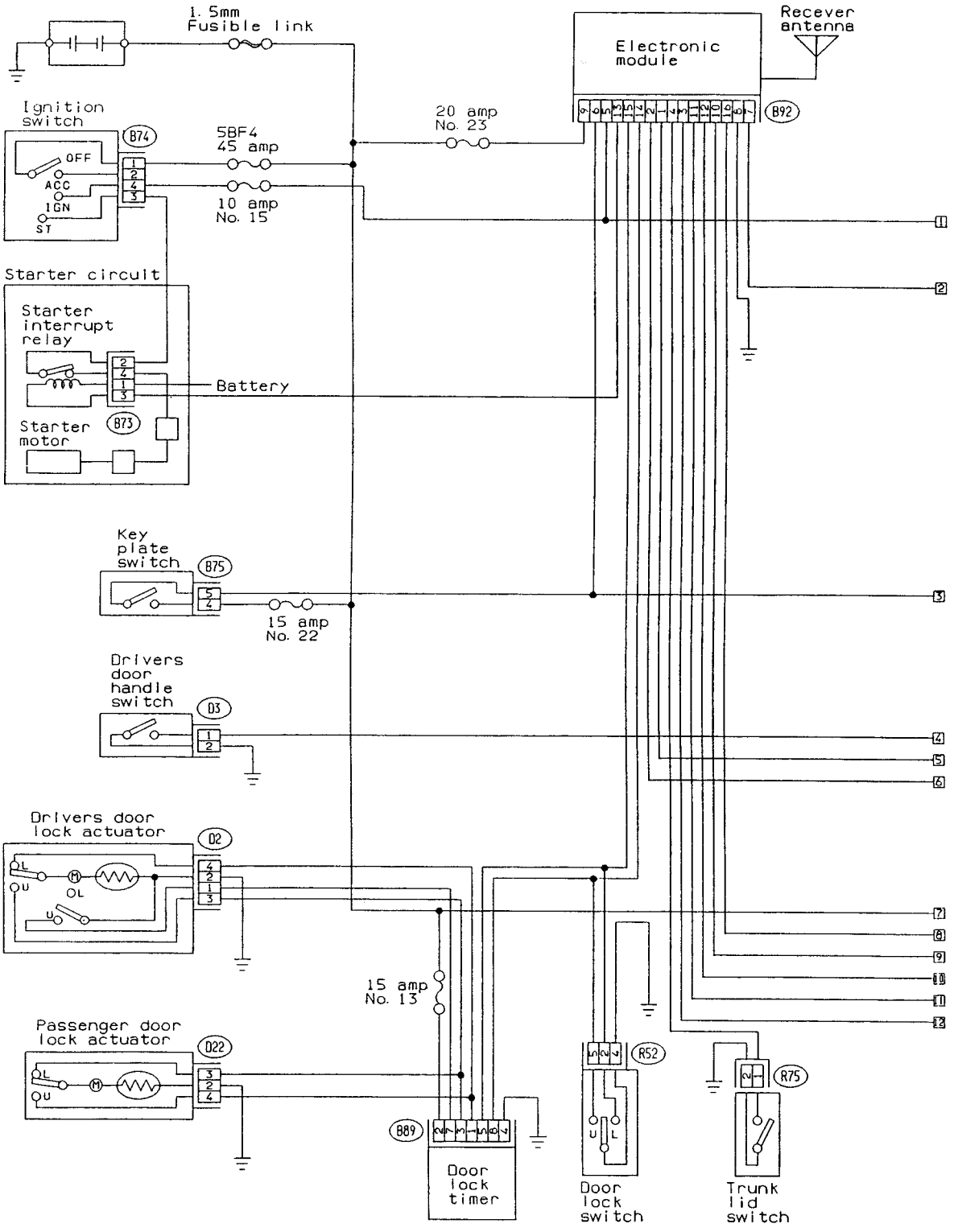


Fig. 46

H: SECURITY SYSTEM WIRING DIAGRAM

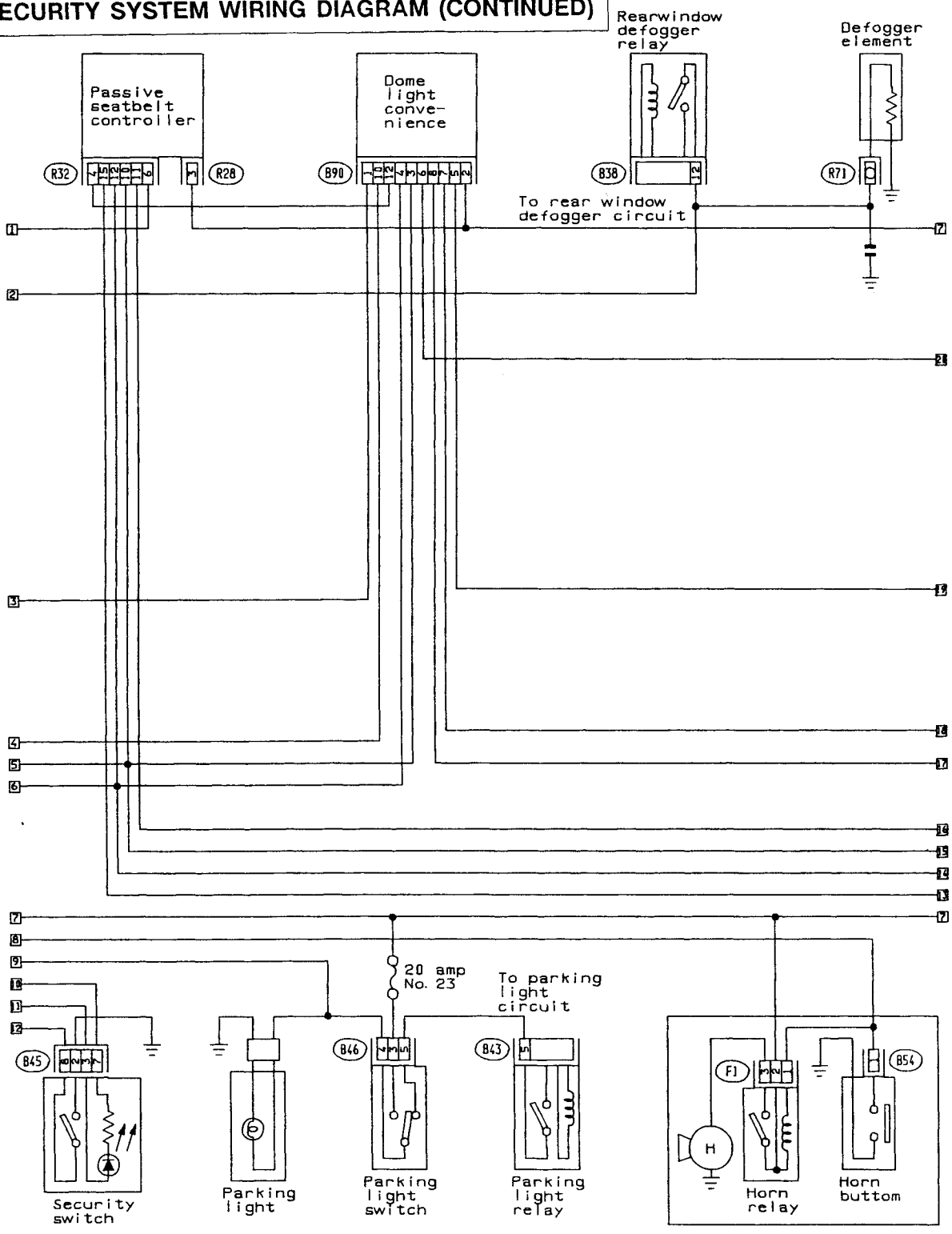


C6-207

Fig. 3

Continued on next page

H: SECURITY SYSTEM WIRING DIAGRAM (CONTINUED)

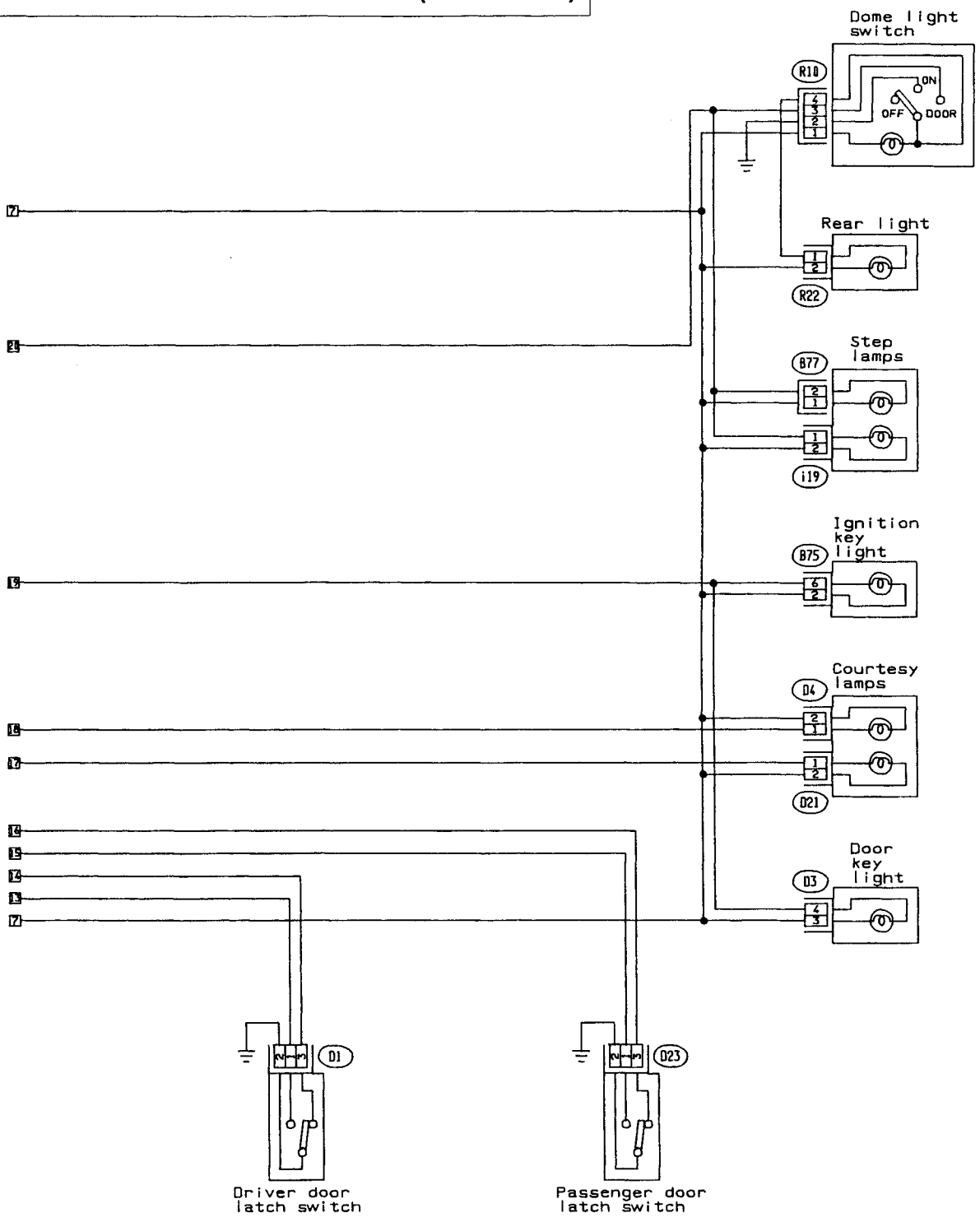


C6-094

Fig. 4

Continued on next page

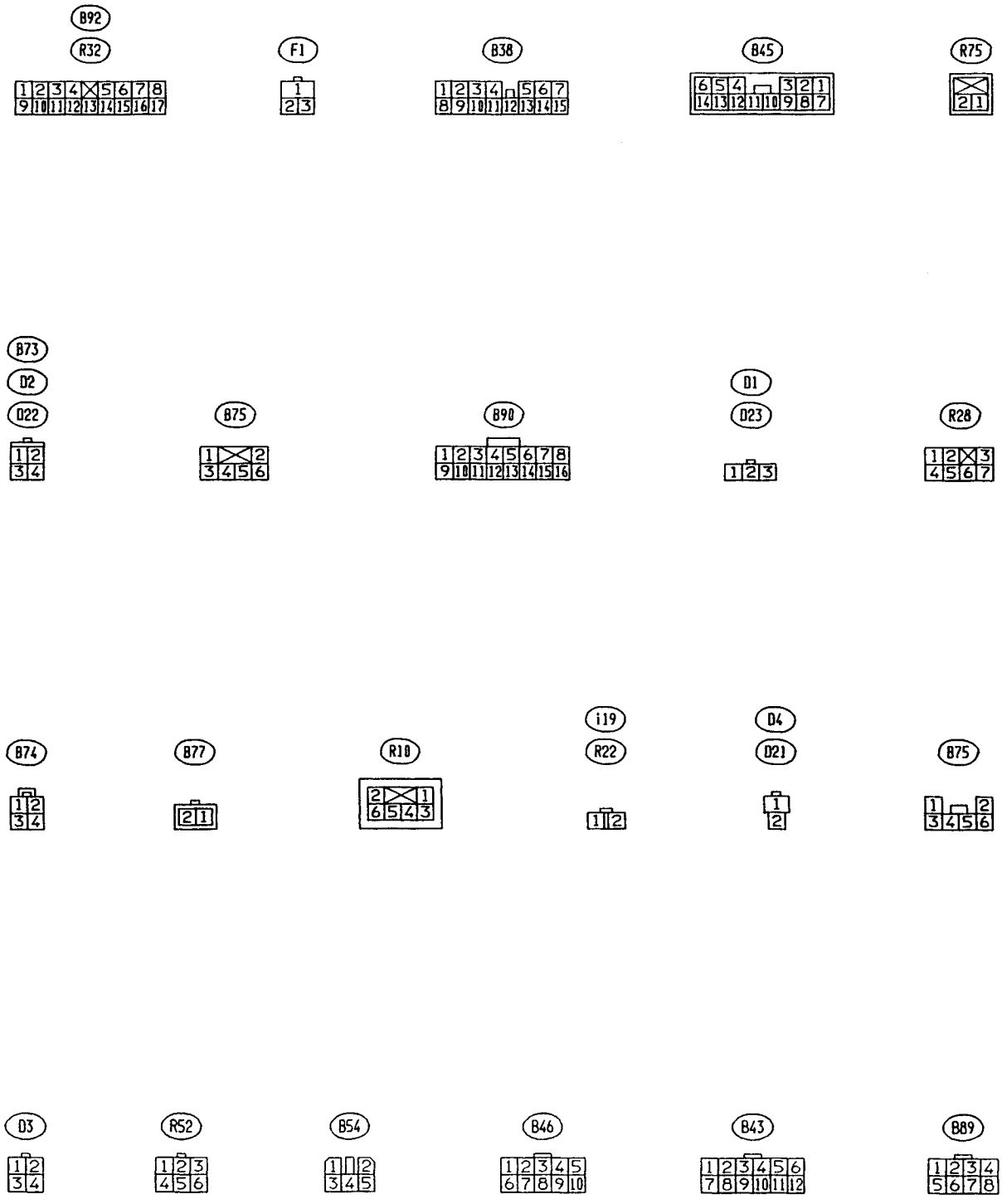
H: SECURITY SYSTEM WIRING DIAGRAM (CONTINUED)



C6-095

Continued on next page

SECURITY SYSTEM CONNECTOR IDENTIFICATION



C6-208

Fig. 6

I: SENSORS AND SWITCHES

1. STARTER INTERRUPT RELAY AND CONNECTOR ADAPTOR

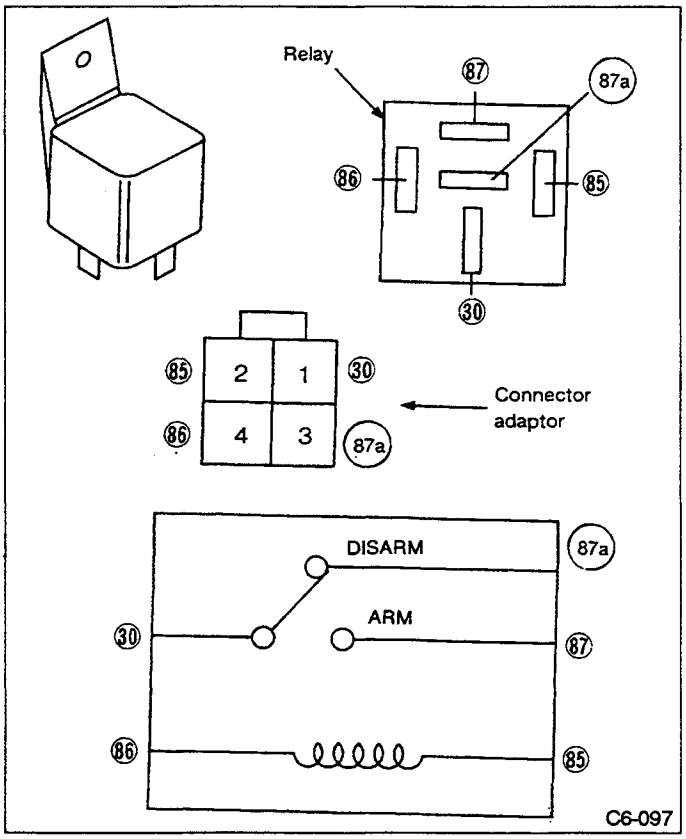


Fig. 51

PIN	ARM	DIS. ARM
85	+ 12V	+ 12V
86	EARTH	OPEN
87a	OPEN	●
30	●	●
87	●	OPEN

2. KEY PLATE SWITCH

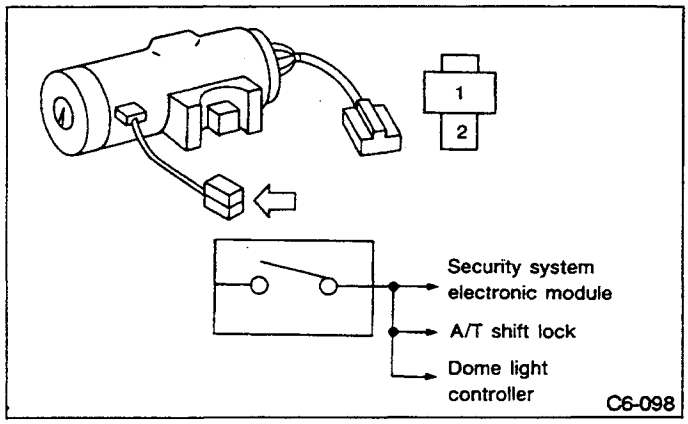


Fig. 52

PIN	KEY IN	KEY OUT
1	+ 12V	+ 12V
2	+ 12V	OPEN

3. IGNITION SWITCH

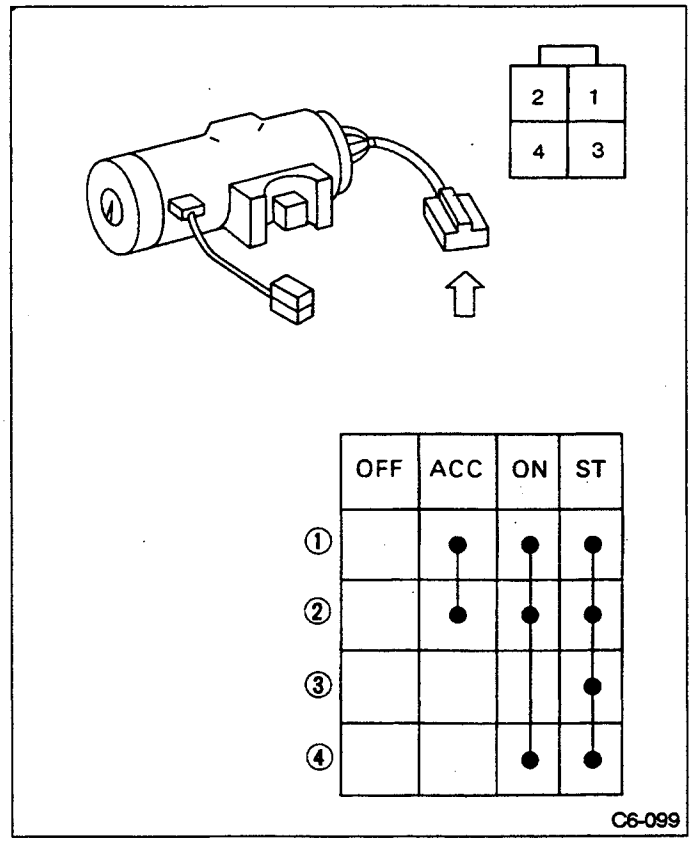


Fig. 53

PIN	OFF	ACC	ON	ST
1	+ 12V	+ 12V	+ 12V	+ 12V
2	OPEN	+ 12V	+ 12V	+ 12V
3	OPEN	OPEN	OPEN	+ 12V
4	OPEN	OPEN	+ 12V	+ 12V

4. HORN BUTTON

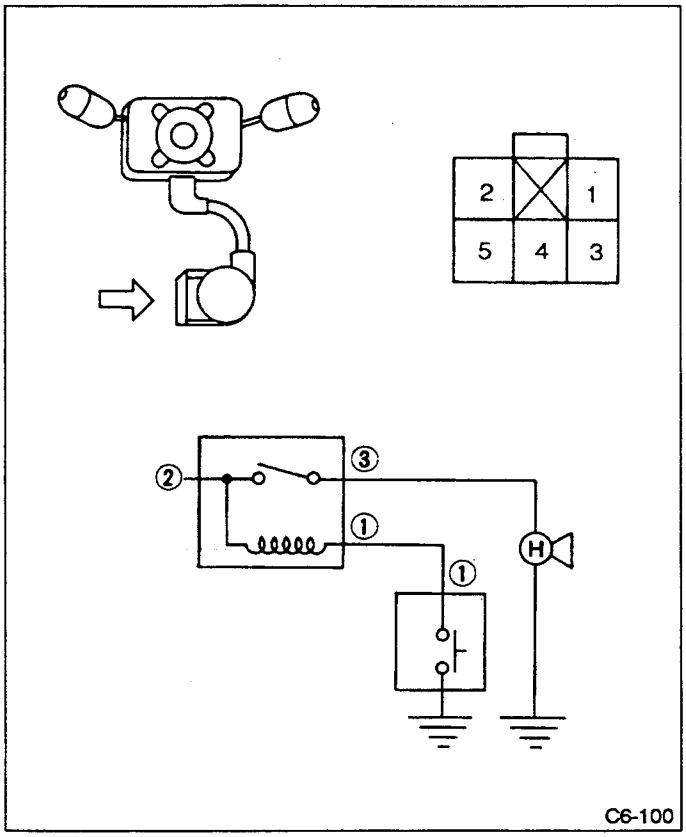


Fig. 54

PIN	HORN ON	HORN OFF	ALARM ON
1	EARTH	+ 12V	EARTH
2	+ 12V	+ 12V	+ 12V
3	+ 12V	OPEN	+ 12V
4	N/A	N/A	N/A
5	N/A	N/A	N/A

5. SECURITY SWITCH

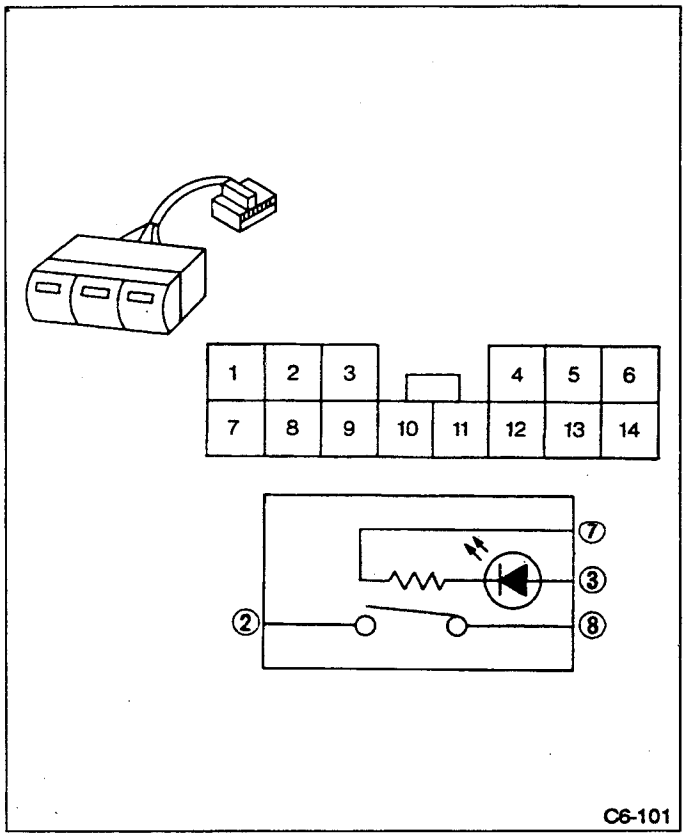


Fig. 55

PIN	SYSTEM ON	SYSTEM OFF
2	EARTH	EARTH
8	EARTH	OPEN
7	LED CONTROL	
3	LED CONTROL	

6. DOME LIGHT SWITCH

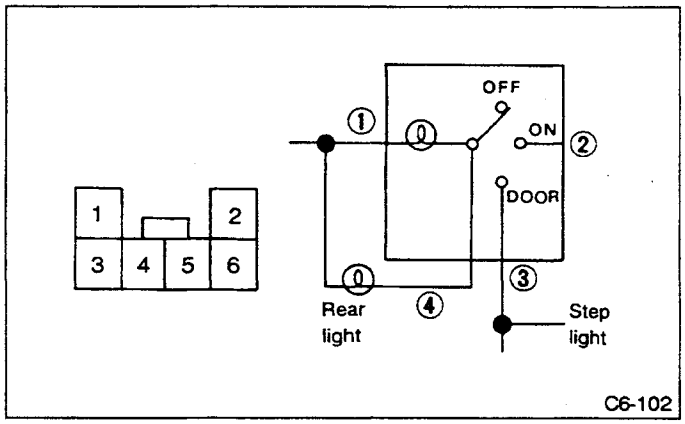


Fig. 56

PIN	OFF	ON	DOOR
1	+ 12V	+ 12V	+ 12V
2	EARTH	EARTH	EARTH
3	TIMER	TIMER	TIMER
4	OPEN	EARTH	TIMER
5			
6			

7. TRUNK LID SWITCH

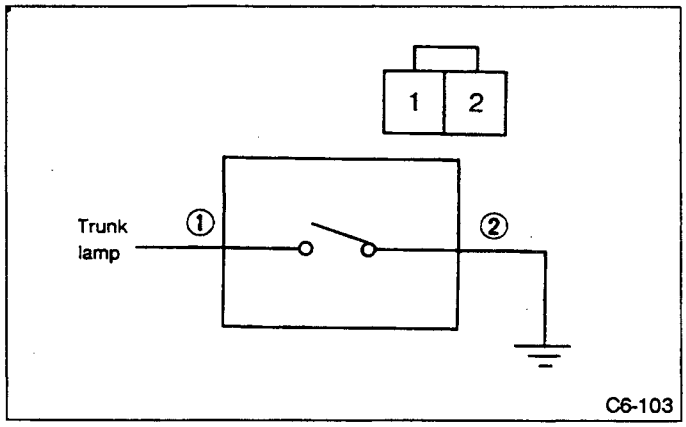


Fig. 57

PIN	TRUNK OPEN	TRUNK CLOSED
1	EARTH	OPEN
2	N/A	N/A

8. DOOR HANDLE SWITCH

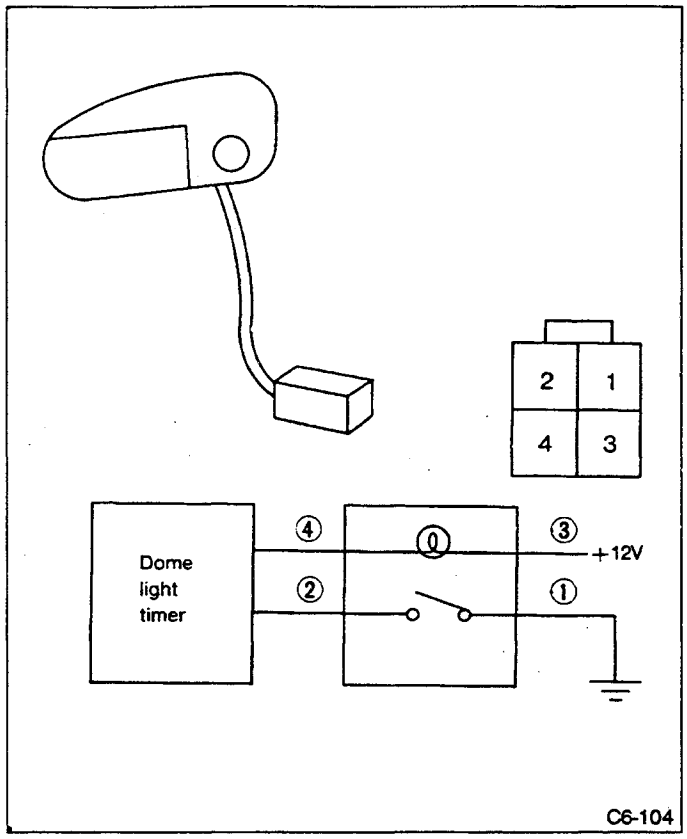


Fig. 58

PIN	HANDLE NEUTRAL	HANDLE UP
1	OPEN	EARTH
2	TIMER	
3	+ 12V KEY LIGHT	
4	TIMER	

9. DRIVERS DOOR LOCK ACTUATOR

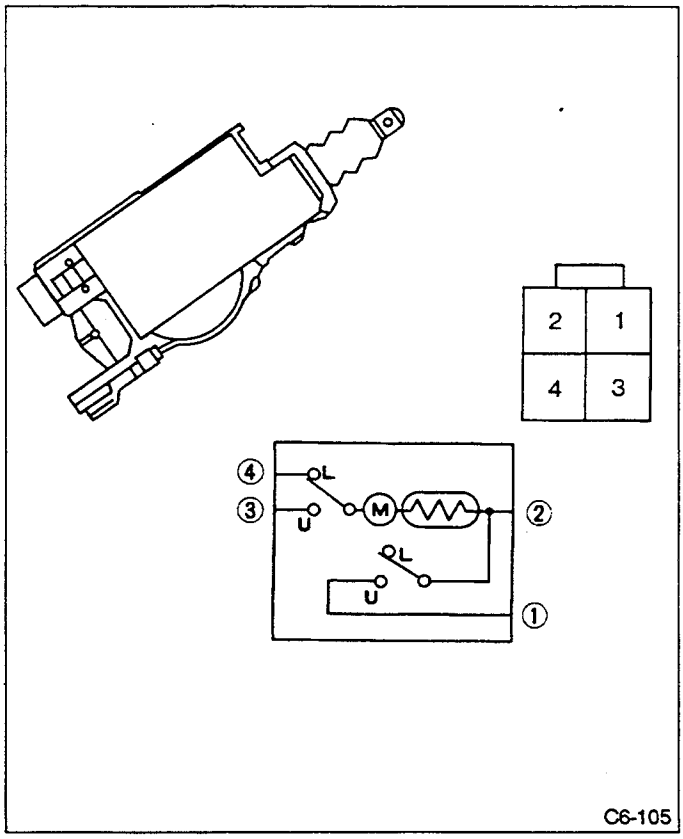


Fig. 59

PIN	LOCK	UNLOCK
1	OPEN	EARTH
2	EARTH	EARTH
3	EARTH	+ 12V
4	+ 12V	EARTH

10. PASSENGERS DOOR LOCK ACTUATOR

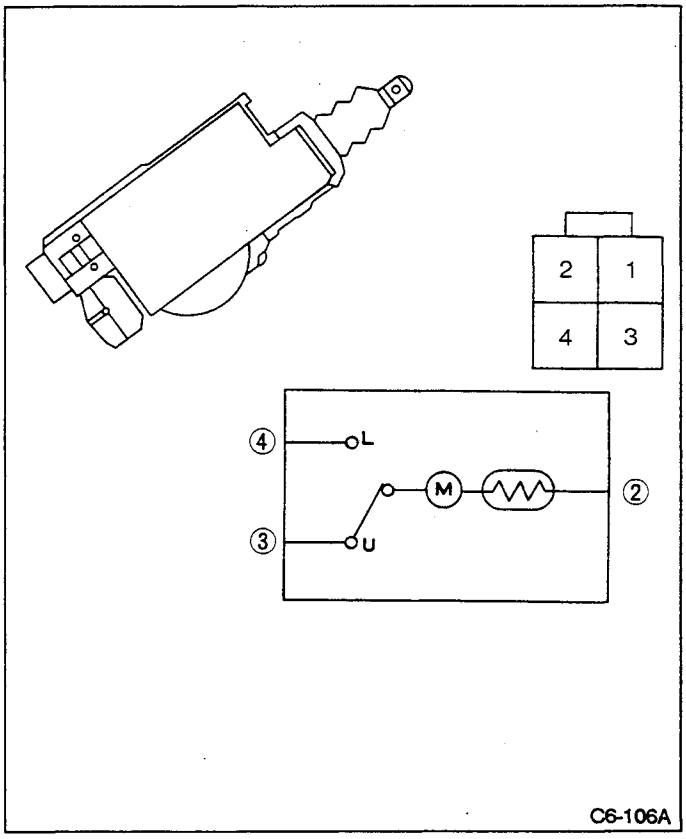


Fig. 60

PIN	LOCK	UNLOCK
1	OPEN	OPEN
2	EARTH	EARTH
3	+ 12V	EARTH
4	EARTH	+ 12V

11. DOOR LATCH SWITCHES

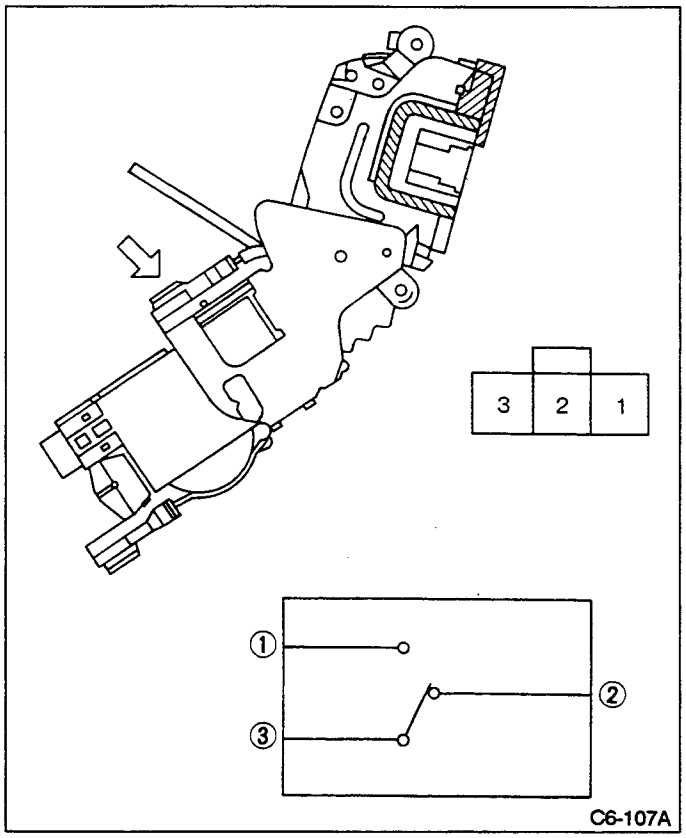


Fig. 61

DRIVERS			PASSENGERS		
PIN	LOCK	UNLOCK	PIN	LOCK	UNLOCK
1	EARTH	OPEN	1	OPEN	EARTH
2	EARTH	EARTH	2	EARTH	EARTH
3	OPEN	EARTH	3	EARTH	OPEN

12. HORN AND PARKING LIGHT RELAYS

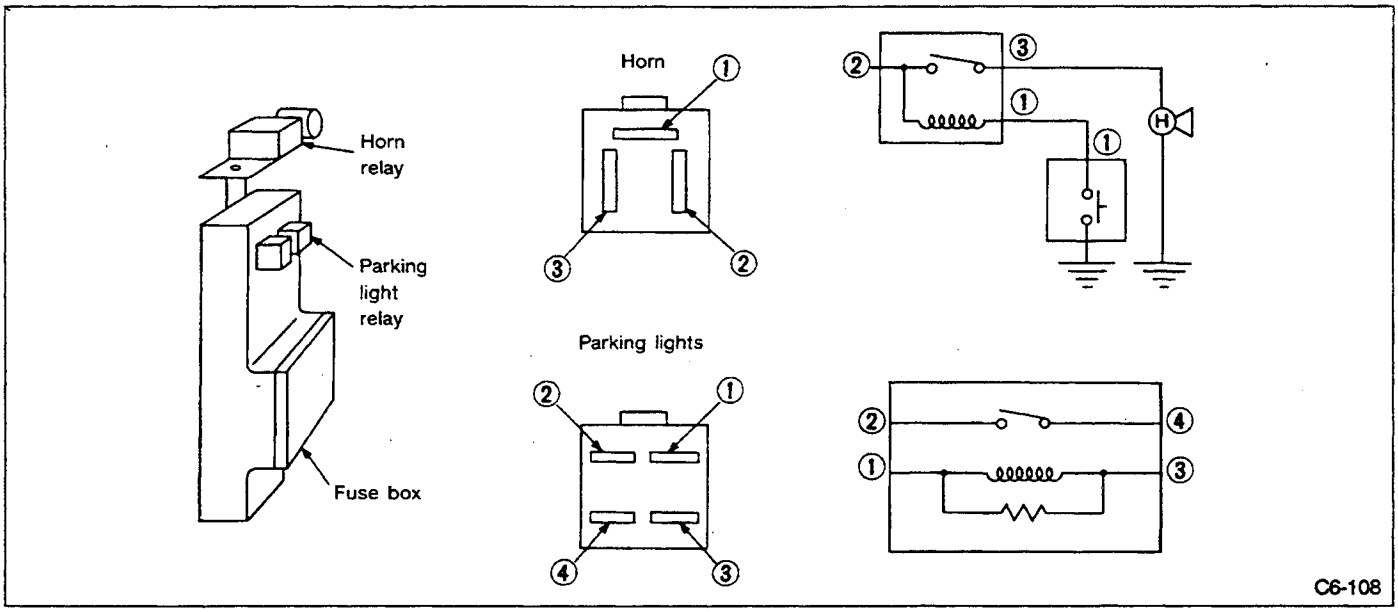
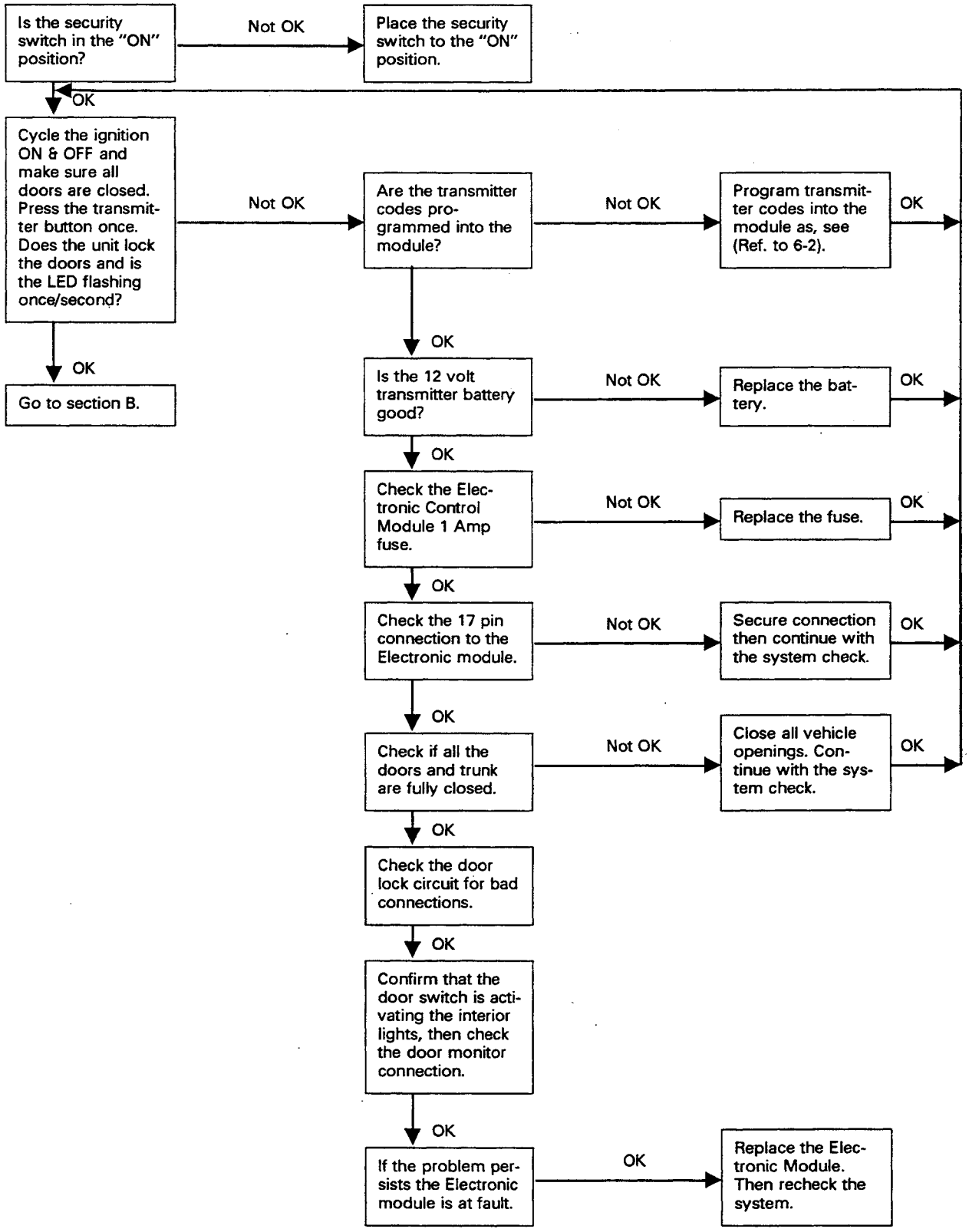


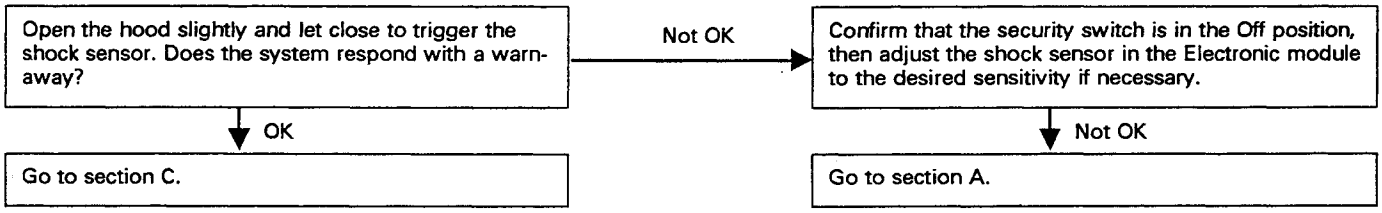
Fig. 62

PIN	HORN OFF	HORN ON	ALARM ON	PIN	LIGHT OFF	LIGHT ON	ALARM ON
1	OPEN	EARTH	EARTH	1	IGN	IGN	+ 12V
2	+ 12V	+ 12V	+ 12V	2	OPEN	+ 12V	+ 12V
3	OPEN	+ 12V	+ 12V	3	OPEN	EARTH	EARTH
				4	+ 12V	+ 12V	+ 12V

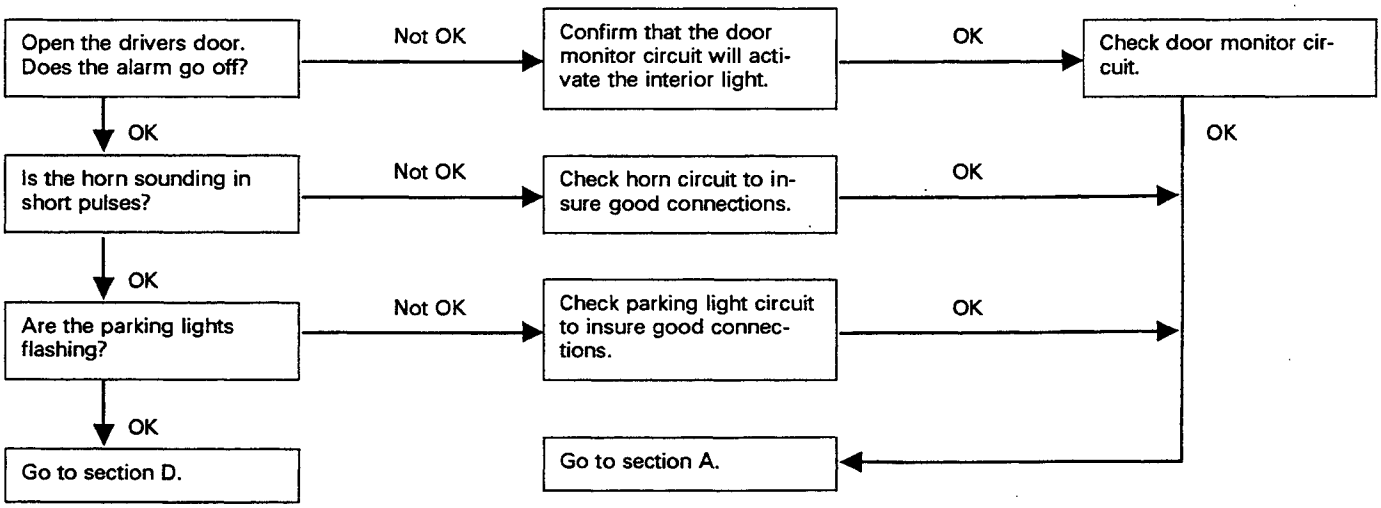
J: INSPECTION OF ACTIVE ARMING



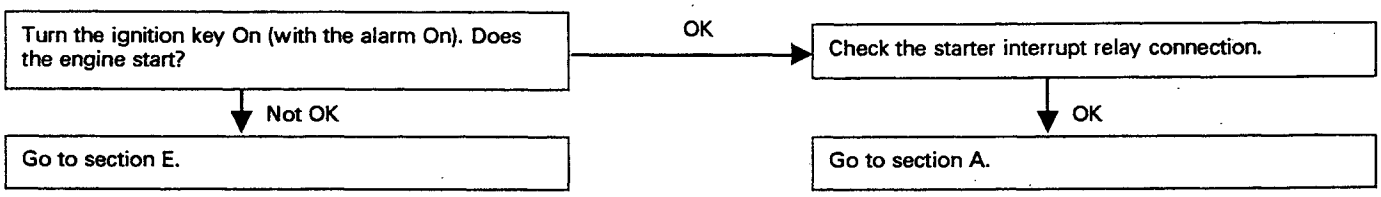
K: INSPECTION OF SHOCK SENSOR



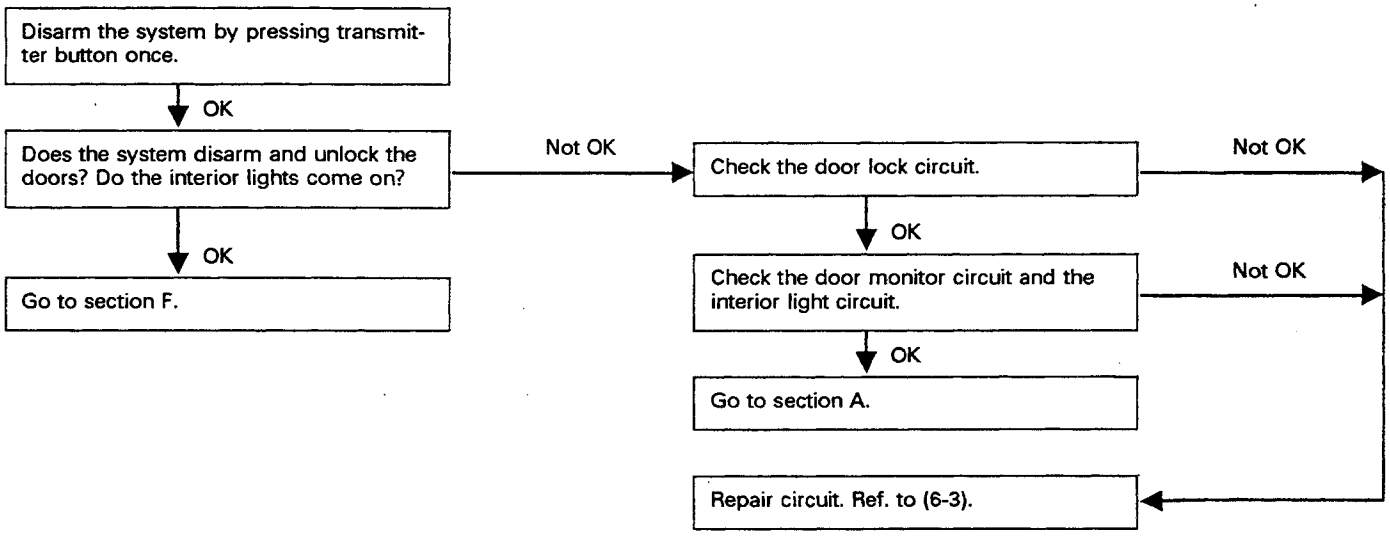
L: INSPECTION OF DRIVER DOOR CIRCUIT



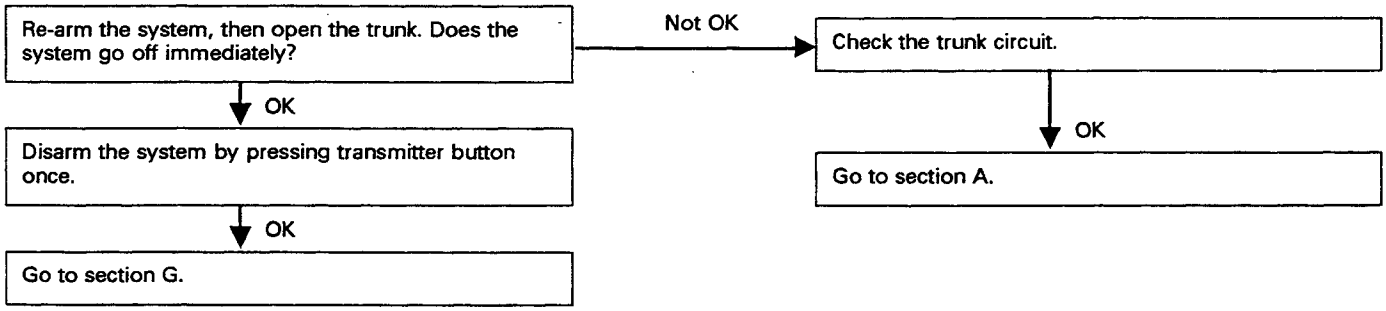
M: INSPECTION OF STARTER CUT SYSTEM



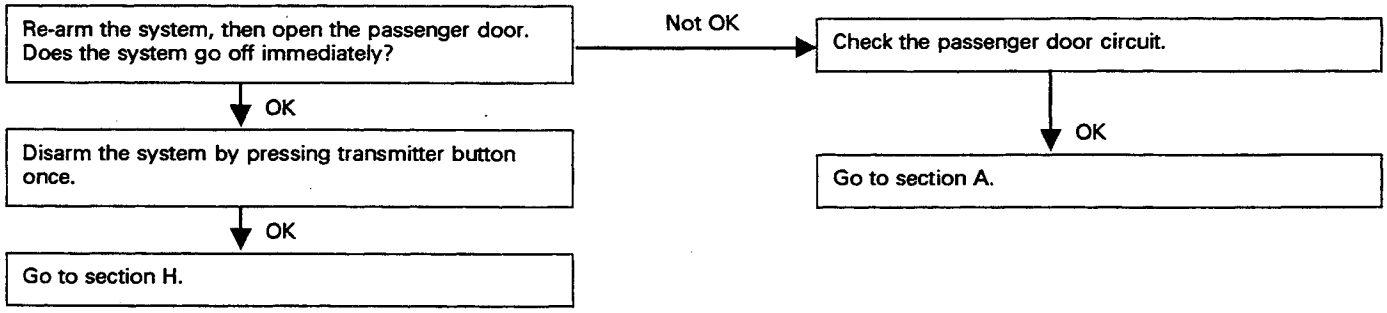
N: INSPECTION OF DOOR LOCK SYSTEM



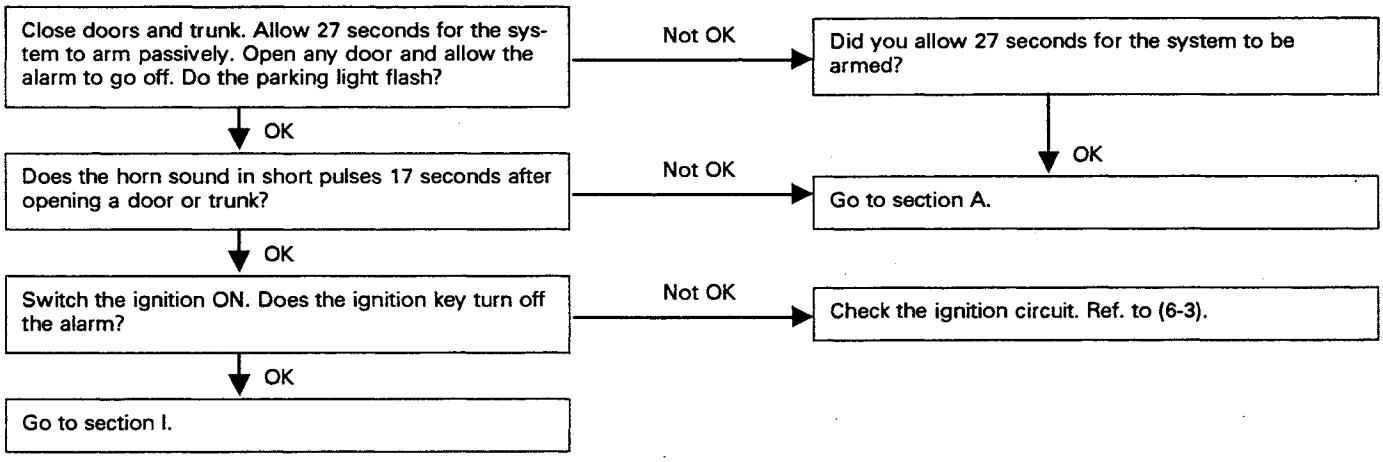
O: INSPECTION OF TRUNK CIRCUIT



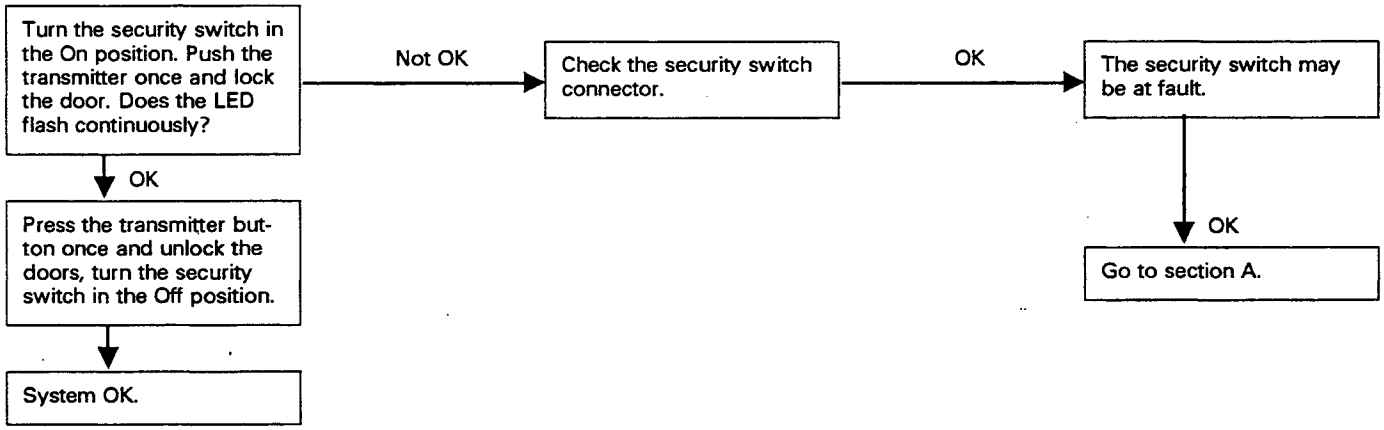
P: INSPECTION OF PASSENGER DOOR CIRCUIT



Q: INSPECTION OF PASSIVE ARMING



R: INSPECTION OF SECURITY SWITCH



12. Time Control Unit

A time control unit equipped with various control functions is installed to reduce harnesses as well as to increase space and reliability.

1. CONTROL FUNCTIONS

1) Rear window intermittent wiper:
   7 ± 3 seconds
2) OFF delay interconnected with rear window washer:
   2.5 ± 0.6 seconds
3) Rear defogger timer:
   15 ± 4 minutes
4) Illumination control:
   12 — 100% (duty ratio)
5) Interior light timer:
   10 ± 3 seconds
6) Ignition key hole illumination OFF delay:
   10 ± 3 seconds
7) Door key hole illumination OFF delay:
   10 ± 3 seconds
8) Courtesy light OFF delay:
   10 ± 3 seconds
9) Step light OFF delay:
   10 ± 3 seconds
10) Illumination dim cancel signal control (inter- connected with lighting switch)
11) Built-in warning buzzer (for unfastened seat belts, ignition key left in slot)

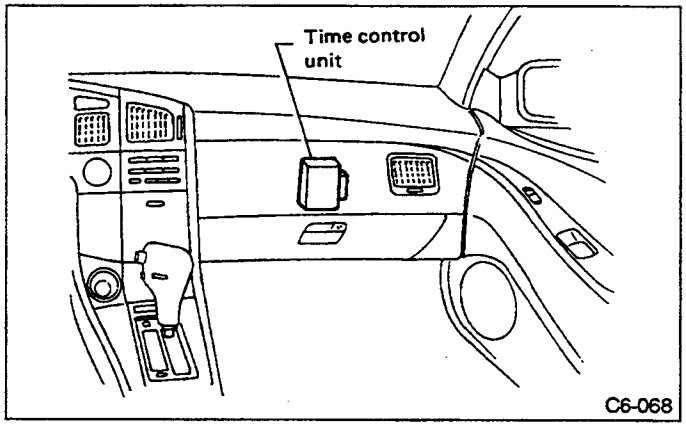
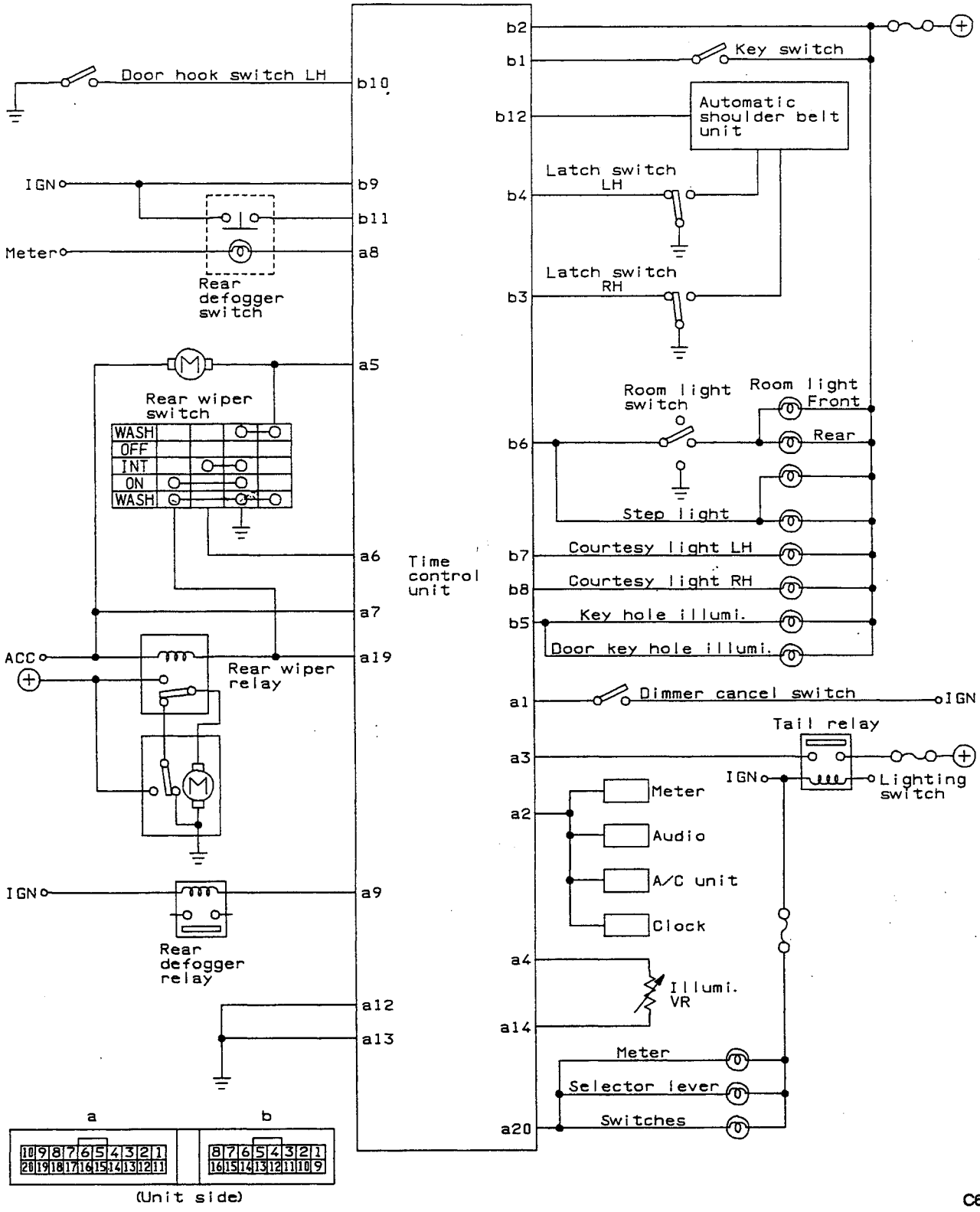


Fig. 63

2. DIAGRAM



C6-069

Fig. 64

13. Vehicle Speed Sensor

A: DESCRIPTION

1. MECHANISM

The vehicle speed sensor is a rotating type that utilizes a magnetic resistance element (MRE). The MRE is a two-dimensional magnetic sensor whose resistance value varies with changes in the direction of the magnetic field. When the multi-pole ring magnet built into the sensor rotates along with the revolution of the transmission's driven gear, the direction of the magnetic field applied to the MRE cyclically changes by the same number of magnet poles, causing a cyclical change in the resistance value of the MRE. This change in the resistance value is shaped to a rectangular waveform through a built-in IC which produces it as a pulse output.

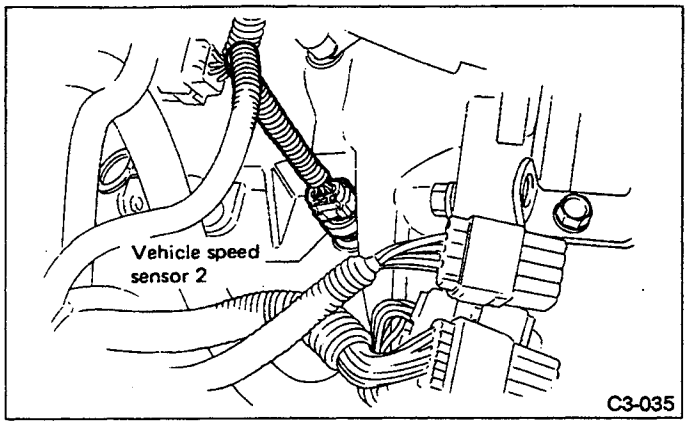


Fig. 65

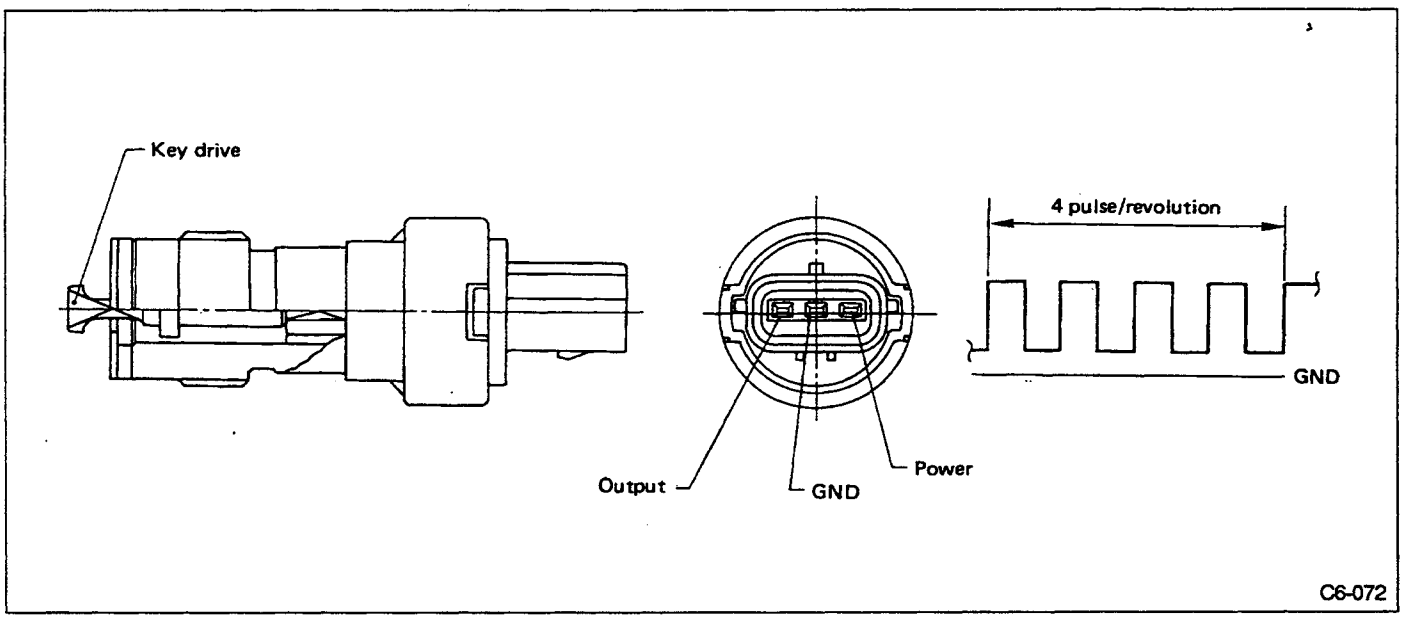


Fig. 66

2. GENERAL PRECAUTIONS

1) Be careful not to drop or bump sensor as this may break built-in magnet.
2) Drive key is designed to separate from vehicle speed sensor. Be careful not to lose it or forget to install.
3) Vehicle speed sensor is installed in part (which contains bearings, etc., finished to a high degree of accuracy). Do not allow foreign matter (filings, sand, etc.) to get into it.
4) When checking output of vehicle speed sensor as a single unit, ensure test leads are connected to their correct terminals. Failure to do this may damage internal IC.
5) Discard vehicle speed sensor after removal; replace with new one.

B: REMOVAL

a. Be careful when removing vehicle speed sensor immediately after driving vehicle for a while as temperature around it is high.
b. Before removing vehicle speed sensor, clean dirt, etc. from surrounding areas. Take care not to allow foreign matter to get into mounting hole.
1) Remove collector cover.
2) Disconnect vehicle speed sensor connector.
3) Turn and remove vehicle speed sensor.
4) Remove key and packing.

C: INSTALLATION

a. Ensure sensor mounting hole is clean and free of foreign matter.
b. Apply grease to tip end of key to prevent key from falling off sensor.
c. Align tip end of key with key groove on end of speedometer shaft during installation.
1) Hand tighten vehicle speed sensor, then tighten it using tool.
Tightening torque required for sensor to reach bottom of transmission:

0.39 — 0.88 N•m
(4.0 — 9.0 kg-cm, 3.5 — 7.8 in-lb)

a. When torque must be applied that exceeds 0.88 N•m (9.0 kg-cm, 7.8 in-lb), the key and key groove on end of speedometer may not be aligned properly. Remove the key, align it correctly and reassemble.
b. Sensor threads are secured by Locktite. The reassembly must be completed within 5 minutes before Locktite dries.
2) Tighten vehicle speed sensor further to specified torque.

5.9 ± 1.5 N•m
(60 ± 15 kg-cm, 52 ± 13 in-lb)

T TROUBLESHOOTING (For Cruise Control) AIRBAG

1. Self Diagnosis

1. GENERAL

The self-diagnosis function of the cruise control system uses an external select monitor. The self-diagnosis function operates in two categories — the cruise cancel conditions diagnosis and real-time diagnosis, which are used depending on the type of problems.

Applicable cartridge No.: 498348500

- Cruise cancel conditions diagnosis

This category of diagnosis requires actual vehicle driving in order to determine the cause, (as when cruise speed is cancelled during driving although no cruise cancel condition is not entered).

⇩

Cruise control unit memory stores the last "cancel" condition which occurred during driving. The code number corresponding with the last cruise "cancel" may be shown on the select monitor display.

a. The cruise control memory stores not only the last cruise "cancel" which occurred (although "cancel" operation is not entered by the driver), but also the "cancel" condition input by the driver.
b. The last cruise "cancel" only is stored in the select monitor memory.
c. The content of memory is cleared when ignition switch or cruise main switch is turned OFF.

- Real-time diagnosis

The real-time diagnosis function is used to determine whether or not the input of output signal system is in good order, according to signal emitted from switches, sensors, etc.

Vehicle cannot be driven at cruise speed because problems occurs in the cruise control system or its associated circuits.

⇩

Dummy signals are manually entered from select monitor's keyboard, etc., to determine whether or not the vacuum pump motor circuit, etc. are in good order.

2. SELF-DIAGNOSIS PROCEDURES USING SELECT MONITOR

1) Connect select monitor to connector (B35).
2) Turn ignition switch ON, then turn cruise main switch ON.
3) Turn select monitor's power ON. All LED's will come on. Select monitor display will read, as shown below, after several seconds.

```
SELECT   SYSTEM
EGI:0,   OTHERS :/
```

4) Press "/" three times.

```
SELECT   SYSTEM
C/C:0,   OTHERS :/
```

5) Press "0."

```
CRUISE          (F00)
CONTROL
```

If cruise main switch is OFF, error 2 will appear. Turn cruise main switch ON and repeat steps 2.

6) Press "F", "B", "0", and "ENT" in that order, and enter the desired designated code ("FB0", for example), or press scroll key to select the code.

3. DIAGNOSIS OF CRUISE CANCEL CONDITIONS

1) Connect select monitor.
2) Turn ignition and cruise main switch ON, and set select monitor in "FB0" mode.
3) Start engine and drive vehicle at at least 40 km/h (25 MPH) with cruise speed set.
4) If cruise speed is cancelled itself (without doing any cancel operations), a trouble code will appear on select monitor display.

a. A trouble code will also appear when cruise cancel is effected by driver. Do not confuse.
b. Have a co-worker ride in vehicle to assist in diagnosis during driving.
5) Trouble code will be cleared by turning ignition or cruise main switch OFF.

Function code indication		Item to measure		Contents of diagnosis
Code No.	Abbreviation	Trouble code	Abbreviation	
FB0	CANCEL	10	OK	Normal
		11	BR/ST/CL or N	Input signals from brake switch, stop lamp switch, inhibitor switch.
		12	E/G REV	Engine speed (rpm) limiter
		13	SPEED LIM	Low-speed control limiter
		14	SET+ RESUME	Simultaneous entry of two signals (Shorted circuit)
		21	MOTOR	Faulty motor or motor drive system
		22	VENT VALVE	Faulty vent valve and valve drive system
		23	C/U RELAY	Faulty relay built into cruise control unit
		24	SP SENSOR	Faulty vehicle speed sensor
		25	RESUME SW	Faulty resume switch

4. REAL-TIME DIAGNOSIS

1) Switch system diagnosis
   (1) Connect select monitor.
   (2) Turn ignition switch and cruise main switch ON.
   (3) Set select monitor in FA0 mode.
   (4) Ensure that normal indication is displayed when controls are operated as indicated below:
   - When SET/COAST switch is pressed.
   - WHEN RESUME/ACCEL switch is pressed.
   - When brake pedal is depressed. (Stop and brake switch turns ON.)
   - When select lever is set to "N"

LED's come on shortly after switches are pressed.

Function code indication		Item to measure	Content of items to be monitored
Code No.	Abbreviation		
FA0	1. SE	SET/COAST switch	LED 1 comes on when switch is turned ON.
	2. RE	RESUME/ACCEL switch	LED 2 comes on when switch is turned ON.
	4. ST	Stop light switch	LED 4 comes on when switch is turned ON (brake pedal is depressed)
	5. BR	Brake switch / inhibitor switch	• Brake switch [Set in the D range]. LED 5 comes on when brake pedal is depressed. • LED 5 comes on when select lever is set to "N".

2) Output system diagnosis
(1) Connect select monitor.
(2) Turn ignition switch and cruise main switch ON (with engine OFF).
(3) Set select lever in "D" range.
(4) Set select monitor in FB1 mode. The display will read as shown below, until input OK (which indicates no problems) is present.
However, you can change this display to another mode as desired.

O U T P U T	(F B I)
r e a d y ?	Y e s : 0

(5) After ensuring that select lever is set to "P" or "N" range, press "0".

For example, pressing "0" in "N" range shows "31 MOTOR" (which indicates a faulty motor) on display because power supply to vacuum pump motor is disconnected. When this is shown, set select lever to "D" range and turn cruise main switch OFF. Then start all over again after main switch is turned ON again.

Function code indication		Item to measure		Contents of diagnosis
Code No.	Abbreviation	Trouble code	Abbreviation	
FB1	OUTPUT	10	OK	Normal
		31	MOTOR	Open or shorted vacuum pump motor circuit/harness
		32	VENT VALVE	Open or shorted vent circuit/harness
		33	C/U RELAY	Deposited safety relay built into cruise control unit
		34	C/U VENT V	Faulty vent valve drive circuit of cruise control unit
		35	C/U MOTOR	Faulty vacuum pump motor drive circuit

5. DATA SHOWN ON SELECT MONITOR DISPLAY

Indication of function code		Item to measure	Contents of items to be monitored
Code No.	Abbreviation		
F 00	CRUISE CONTROL	Cruise control unit identification	Reads ROM ID number of cruise control unit to display a possible communication state.
F 01	VSP (MPH)	Vehicle speed (MPH)	Displays vehicle speed data (in miles/h) determined by cruise control unit in relation to signal emitted from vehicle speed sensor on transmission.
F 02	VSP (km/h)	Vehicle speed (km/h)	Displays vehicle speed in km/h.
F 03	EREV (rpm)	Engine speed	Displays engine rpm determined by cruise speed control unit in relation to reference signal emitted from crank angle sensor.

2. I/O Signal of Cruise Control Unit

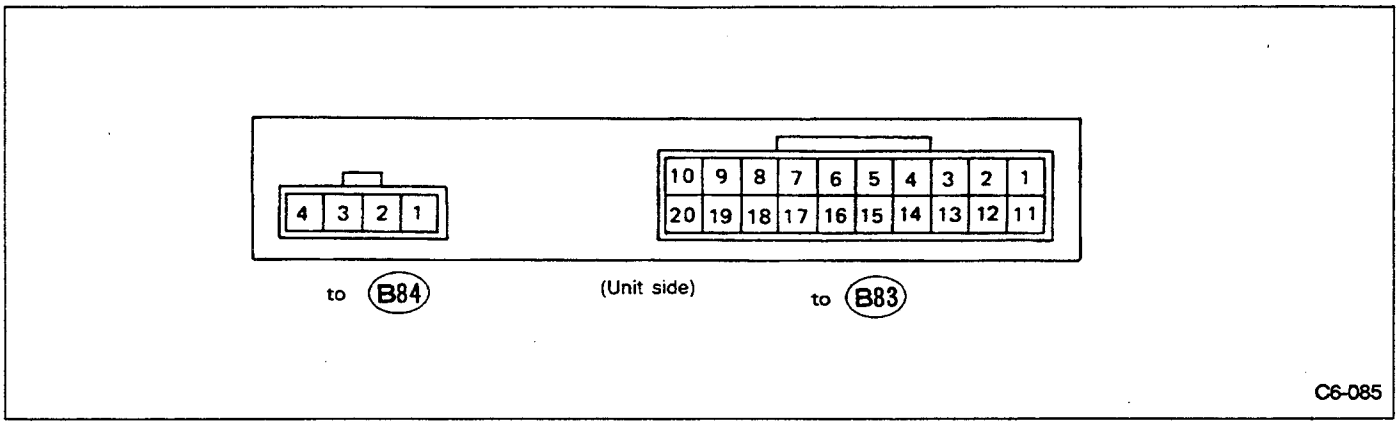


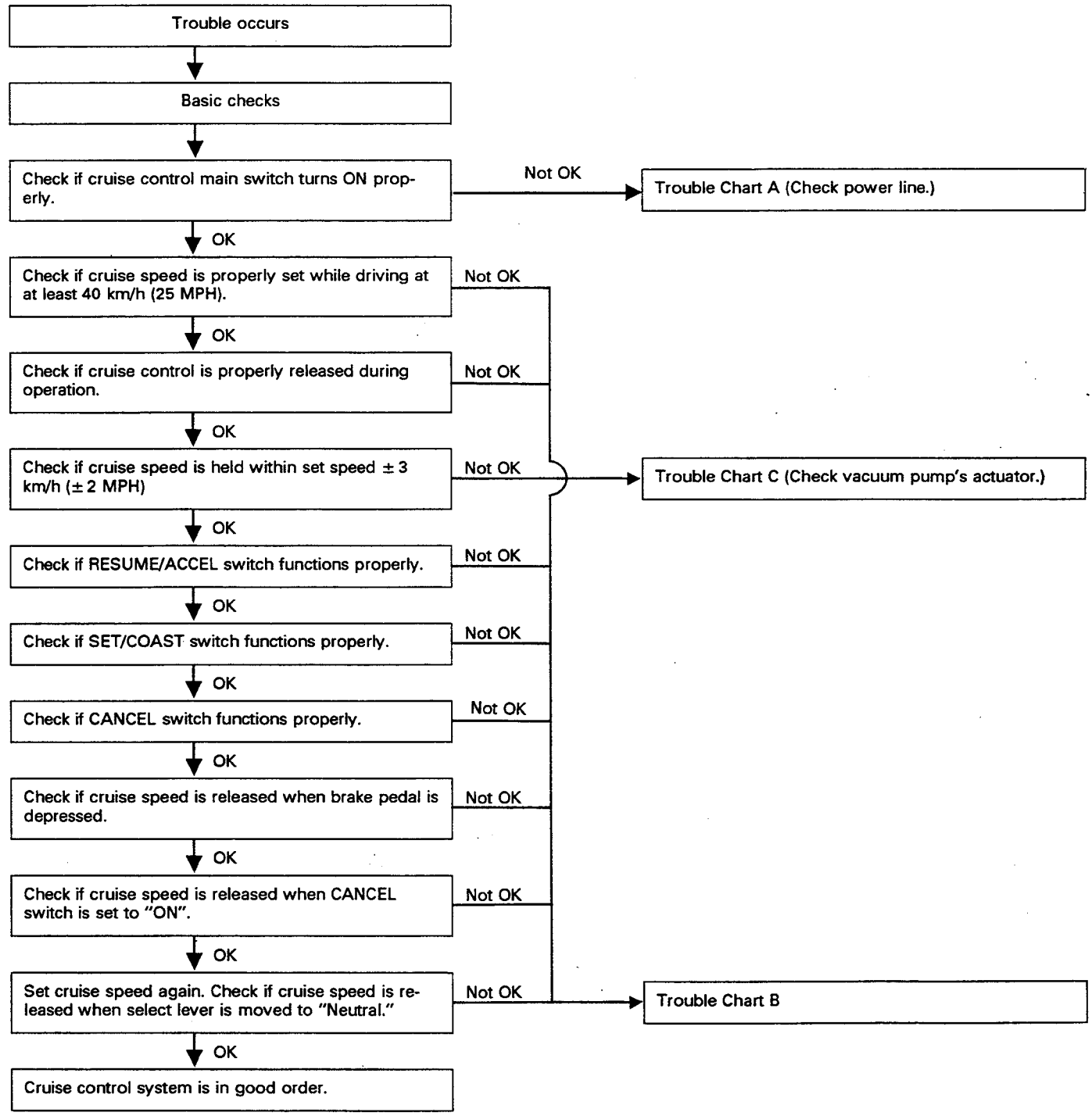
Fig. 67

Content	Connector No.	Terminal No.	Measuring conditions and I/O signals (ignition switch ON and engine idling)
Main switch	B84	1	• When main switch is pressed, battery voltage is present; when it is released, approximately 6.5 volts are present. • When main switch is OFF, "0" volts are present.
Main relay (solenoid)		2	• When main switch is turned ON, indicator comes on and battery voltage is present. • When main switch is turned OFF, "0" volts are present.
Main relay (contacts)		4	↑
Engine speed (rpm) signal	B83	2	When engine starts, a pulse signal is entered (Observe using an oscilloscope.)
Vehicle speed sensor		7	When all four wheels are raised off ground and any wheel is rotated manually, approximately 5 and 0 volt pulse signals are alternately sent to cruise control unit.
Brake switch		15	Set select lever to any position other than "P" or "N", with main switch ON. Then check that: • 0 volts are present when brake pedal is depressed. • Battery voltage is present when brake pedal is released, or • 0 volts are present when select lever is set to "P" or "N". • Battery voltage is present when select lever is in any position other than "P" or "N".
Stop light switch		20	With ignition switch ON or OFF: • Depress brake pedal to check that battery voltage is present. • "0" volts are present with brake pedal released.
SET/COAST switch		18	• When switch is turned ON, battery voltage is present. • When switch is turned OFF, "0" volts are present.
RESUME/ACCEL switch		19	↑
Set signal		11	ECU emits a ground-level signal while driving vehicle at at least 40 km/h (25 MPH) with SET switch ON.
Power supply to vacuum motor, vent valve and safety valve		14	• "0" volts are present when vehicle is stopped. • Battery voltage is present while cruise control system is operating.
Vacuum motor output		8	• Power supply is ON when vehicle is stopped. • ON-and-OFF (0 and 12 volts) operation is alternately repeated while cruise control is operating.
Vent valve output		9	↑

Voltage at terminals (11, 14, 8 and 9) cannot be checked unless vehicle is driving at cruising speed.

3. Basic Troubleshooting Procedure

A: BASIC TROUBLESHOOTING CHART



B: BASIC CHECKS

1. CHECK CABLE AND VACUUM HOSE

1) Cable installation
- Ensure that cruise control cable is attached to the left of accelerator cable (on accelerator pedal side).
- Ensure that accelerator cable throttle cam does not move when cruise control throttle cam is moved by hand.
- Ensure that throttle cam moves smoothly.

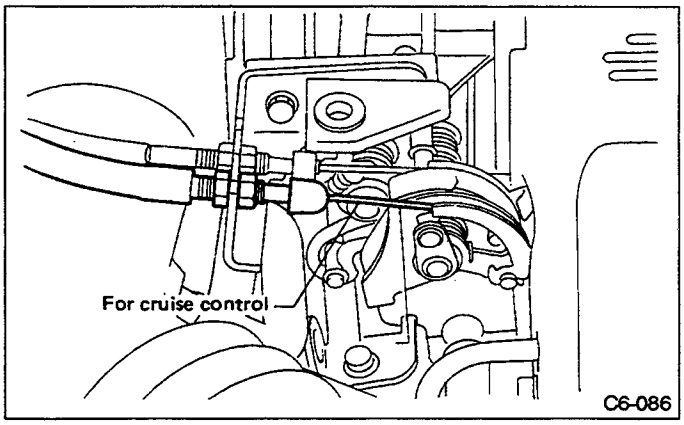


Fig. 68

2) Cable free play
- Ensure that throttle cam-to-lever clearance is within specifications.

Standard value: 1 mm (0.04 in)

If clearance is not within specifications, adjust cable at its outer end.

- Ensure that cap is positioned in groove.

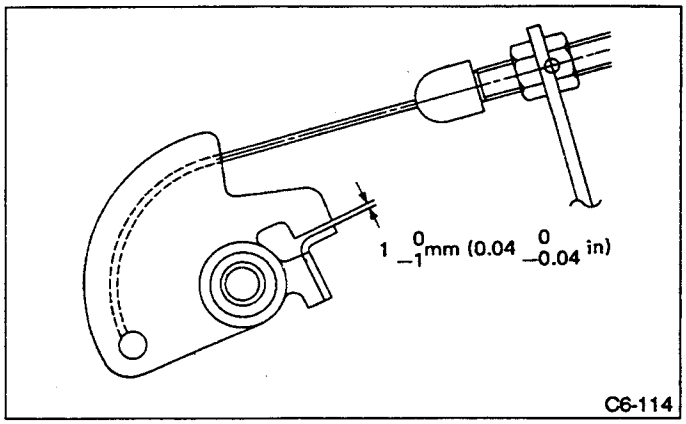


Fig. 69

3) Vacuum hose
Check vacuum hose (which connects vacuum pump and diaphragm) for disconnection or cracks.

2. CRUISE CONTROL UNIT CHECK

When a problem occurs in cruise control unit or its associated circuits, basic checks must first be conducted at the power supply, ground circuit, various terminal voltages, etc. Cruise control unit is not easily accessible for removal. In addition, a select monitor can be utilized, as required, to conduct "real-time" diagnosis or easily determine whether or not the cruise control unit is malfunctioning.

1) Cruise control unit removal
Cruise control unit can be extracted after glove box are removed.

2) Disconnect cruise control unit connector. Use harness on body side to check cruise control unit condition.

3) Power supply check (ignition switch ON)

	Connector & terminal No.		Ignition switch ON
Main switch	B84	No. 1	Battery voltage is present when main switch is continuously pressed; 0 volts are present when main switch is released.
Main relay (solenoid)		No. 2	Battery voltage is present when main switch is continuously pressed; 0 volts are present when main switch is released.
Main relay (contacts)		No. 4	↑

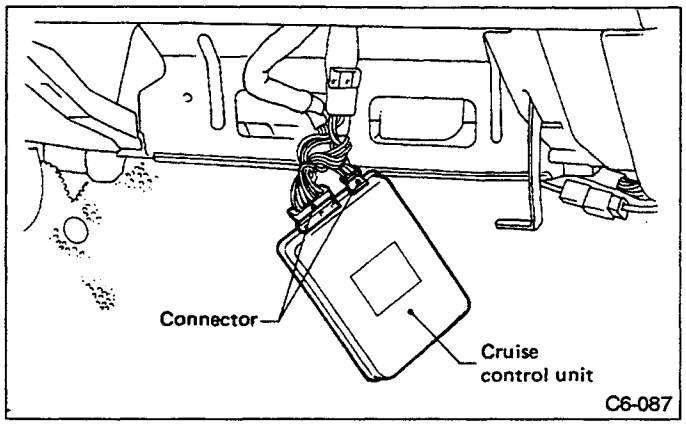


Fig. 70

4) Continuity check
Check continuity between terminals (indicated in table below).

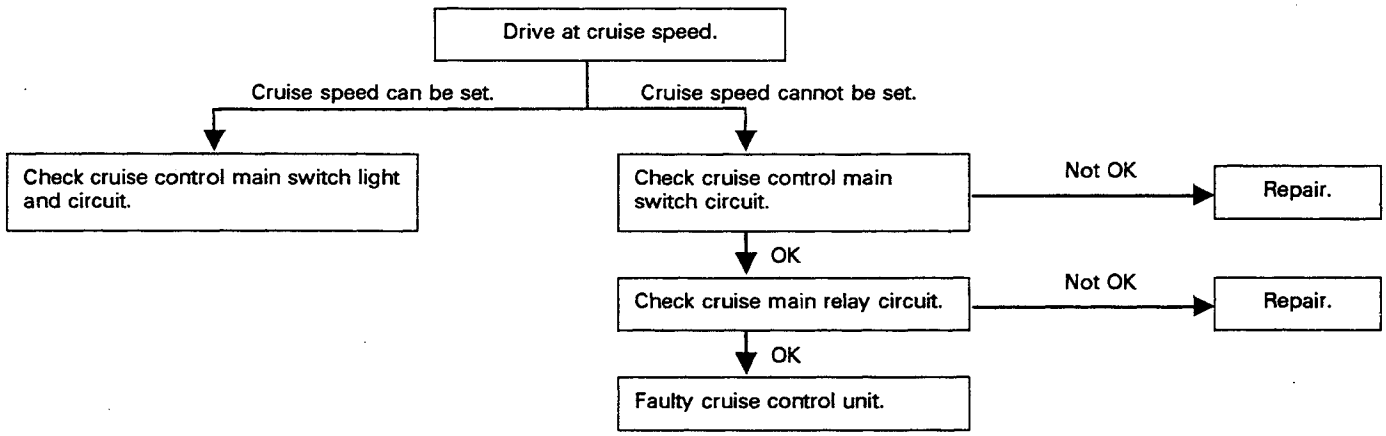
Connector & Terminal / Specified
(B83) No. 10 — Body / 1 Ω max.

〈For reference〉

Engine speed signal	(B83)	No. 2	A pulse signal is present when engine starts.
Vehicle speed sensor		No. 7	A pulse signal (approx. 0 — 5 volts) is present when all four wheels are raised off ground and one of them is rotated.
Brake switch		No. 15	Turn main switch ON. Move select lever to any position other than "P" or "N". Under this condition, 0 volts are present when brake pedal is depressed and battery voltage is present when brake pedal is released.
Stop light switch		No. 20	Battery voltage (Brake pedal depressed) 0 V (Brake pedal released)
SET/COAST switch		No. 18	Battery voltage (switch ON) 0 V (switch OFF)
RESUME/ACCEL switch		No. 19	Same as above

4. Trouble Chart A

Cruise control main switch fails to turn ON.



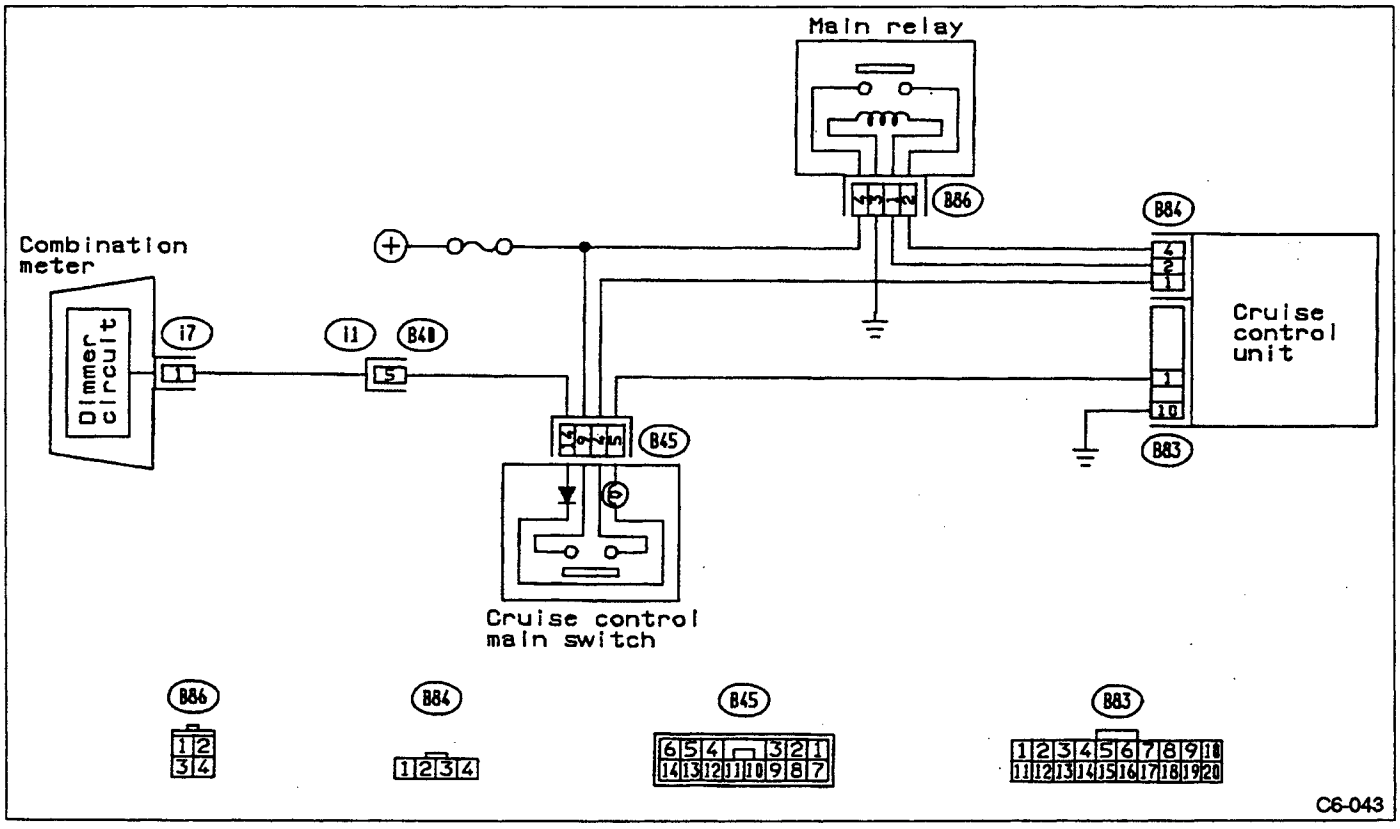


Fig. 71

A: CHECK INDICATOR AND CIRCUIT IN CRUISE CONTROL MAIN SWITCH

CONTENT OF DIAGNOSIS:
Bulb failure or open harness of the indicator circuit in the cruise control main switch.

TROUBLE SYMPTOM:
Cruise control can be set normally indicator does not come on (when main switch is pressed).

1	Check cruise control main switch.	Not OK	Replace bulb.
	↓ OK		
2	Check circuit between cruise control unit and cruise control main switch indicator light.	Not OK	Wiring repair If no output from the cruise control unit, replace the cruise control unit.

1. CHECKING THE INDICATOR LIGHT IN THE CRUISE CONTROL MAIN SWITCH

1) Remove cruise main switch.
2) Measure resistance value between cruise control main switch terminals.

Terminal/Specified resistance:
No. 5 — No. 14/Approx. 160Ω

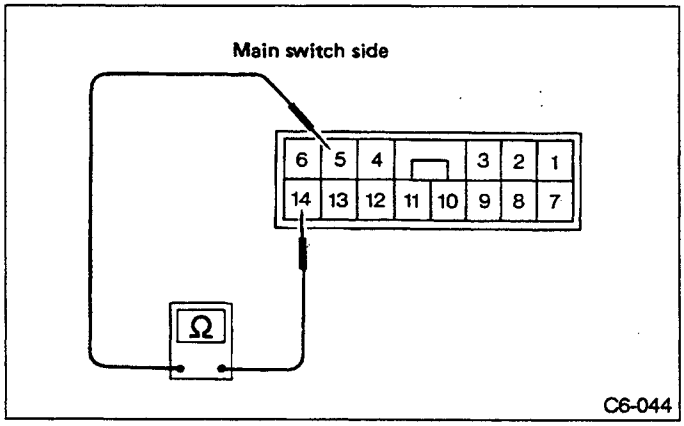


Fig. 72

2. CHECK CIRCUIT BETWEEN CRUISE CONTROL UNIT AND CRUISE CONTROL MAIN SWITCH INDICATOR LIGHT

1) Cruise control unit and body
Measure voltage between cruise control main switch and body. (Perform this measurement by turning ON the ignition switch and the cruise control main switch.)

Connector & terminal/Specified voltage:
(B84) No. 4 — Body/10 — 13 V
(B83) No. 1 — Body/10 — 13 V

B: CHECK CRUISE CONTROL MAIN SWITCH AND MAIN RELAY

CONTENT OF DIAGNOSIS:
Faulty cruise control main switch or relay, or open harness.

TROUBLE SYMPTOM:
Cruise control main switch is not turned ON and cruise control cannot be set.

1	Check fuse (No. 18).	Not OK	Melted fuse → repair the shorted part of the circuit. → Fuse replace.
	↓ OK		
2	Check cruise control main switch.	Not OK	Open harness → repair. Faulty main switch → replace.
	↓ OK		
3	Check harness between cruise control main switch and cruise control unit.	Not OK	Repair harness.
	↓ OK		
4	Check main relay.	Not OK	Replace relay.
	↓ OK		
	Faulty in the cruise control unit.		

- If main relay operates, this circuit operates normally. Whether main relay is normal or not can be checked by operating sound. (When turning ON ignition switch and main switch, a click sound heard from glove box side is normal.)

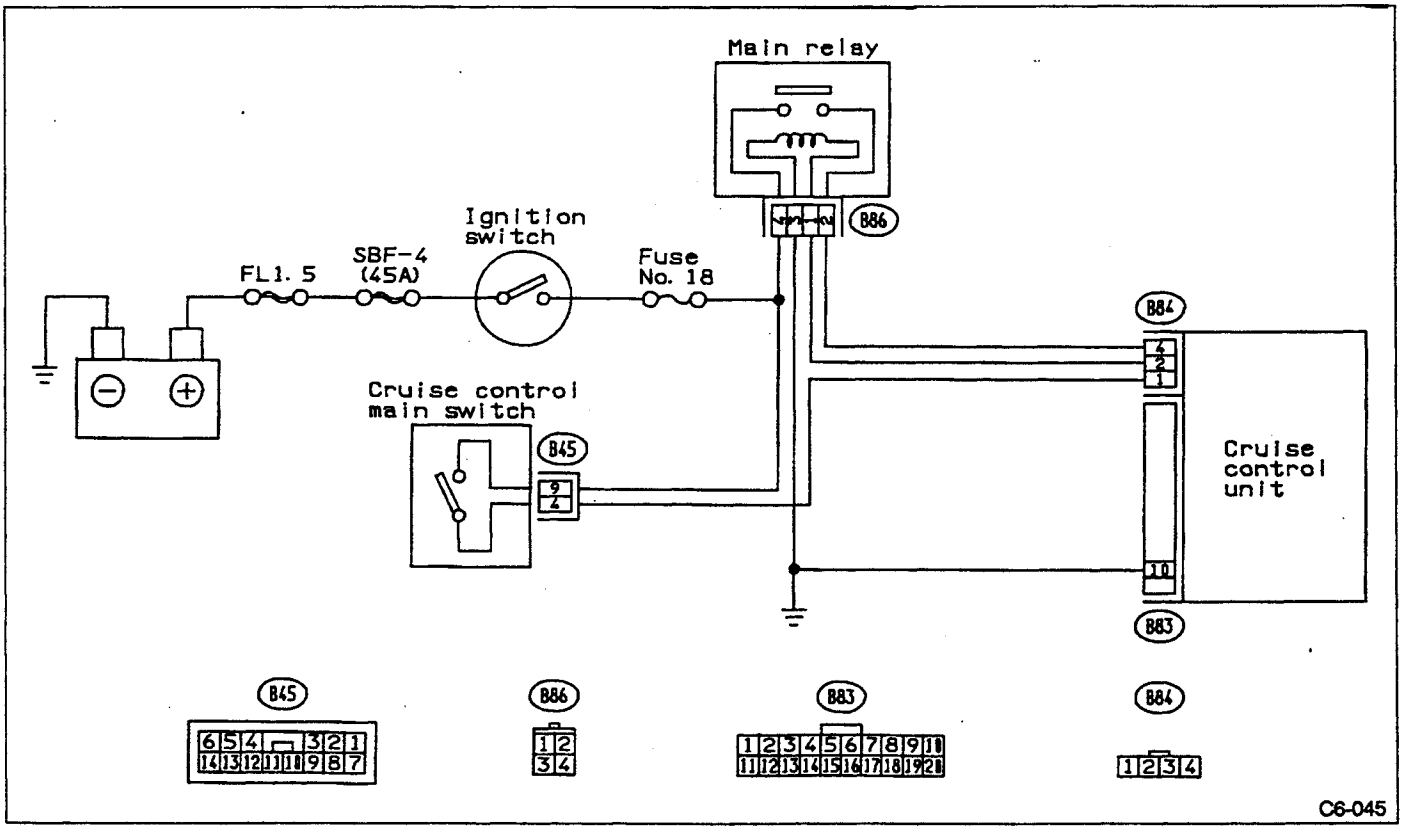


Fig. 73

1. CHECK FUSE (No. 18)

1) Check fuse (No. 18)
Test circuit with a tester.
2) Checking voltage of the ignition power source
Turn ignition switch ON and measure the voltage between the fuse box connector and the body.

Connector & terminal/Specified voltage:
(B44) No. 4 — Body/10 — 13 V

2. CHECKING CRUISE CONTROL MAIN SWITCH

1) Cruise control main switch
Turn ignition switch ON and measure the voltage between cruise control main switch connector and body.

Connector & terminal/Specified voltage:
(B45) No. 9 — Body/10 — 13 V

2) Check ON/OFF function of main switch
Measure resistance between main switch and terminal.

Terminal/Specified resistance:
No. 4 — No. 9/0 Ω(Switch ON)
1 MΩ min (Switch OFF)

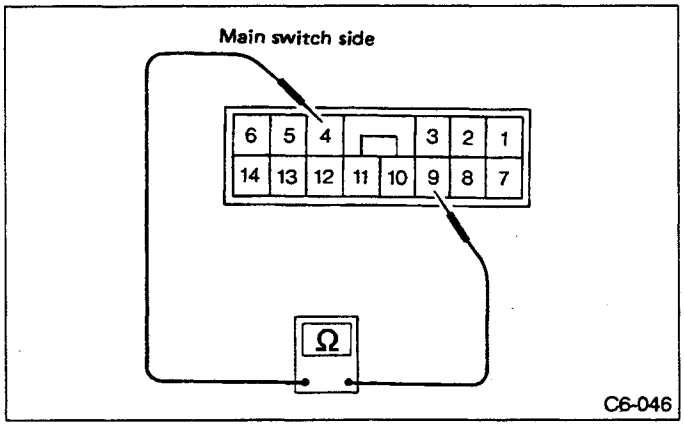


Fig. 74

3. CHECKING HARNESS BETWEEN CRUISE CONTROL MAIN SWITCH AND THE CRUISE CONTROL UNIT

To check whether harnesses are normal or not, measure voltage at each of the terminals as the distance between connectors is long.
1) Turn ignition switch ON.
2) Turn cruise main switch ON.
3) Measure voltage between each of terminals and body.

Connector & terminal/Specified voltage:
(B45) No. 9 — Body/10 — 13 V
(B45) No. 4 — Body/10 — 13 V
(B84) No. 1 — Body/10 — 13 V

4. CHECKING MAIN RELAY

1) Turn ignition switch ON.
2) Check voltage at main relay power source. (Tighten main relay together the cruise control unit. Black connector) Measure the voltage between the main relay and the body.
Measure the voltage between the main relay and the body.

Connector & terminal/Specified voltage:
(B86) No. 4 — Body/10 — 13 V

3) Check main relay operation
Measure resistance between contact point side terminals when applying battery power to exciting coil side (No. 1-3).

- Whether relay is normal or not can be easily checked by relay operation sound. (When turning ignition switch and cruise control main switch ON, a click sound heard from left side of glove box is normal.)

Terminal/Specified resistance:
No. 2 — No. 4/0 Ω(with 12 V connection)
1 MΩ min (without 12 V connection)

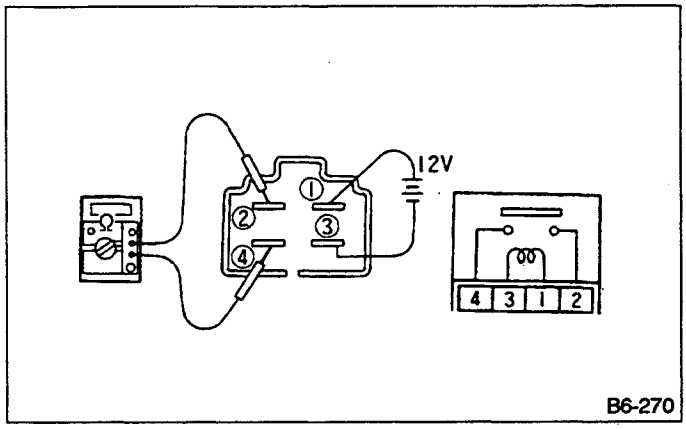
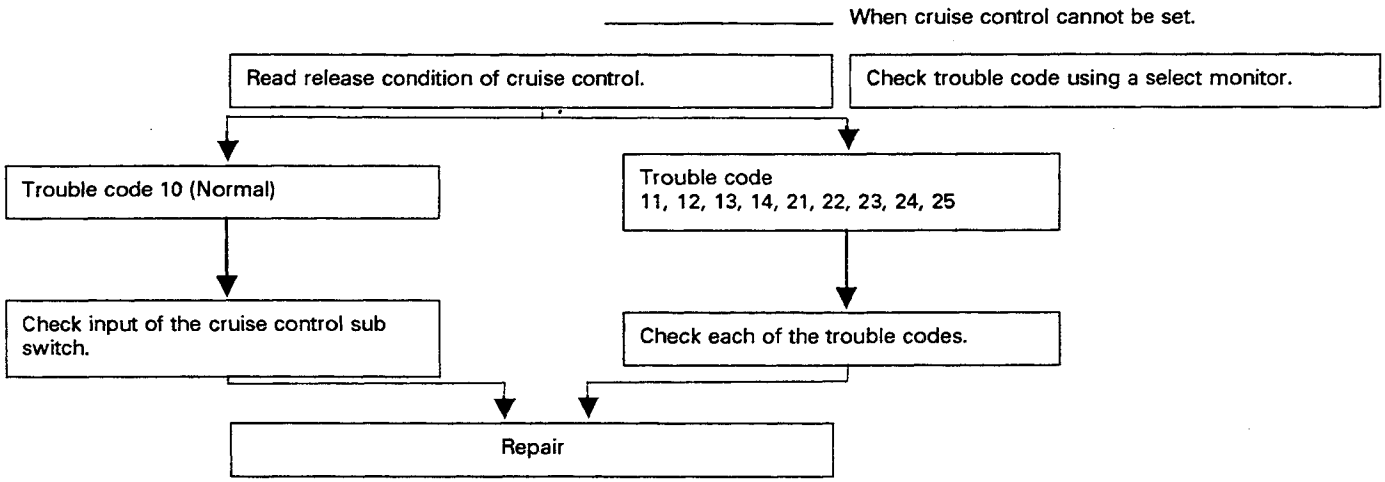


Fig. 75

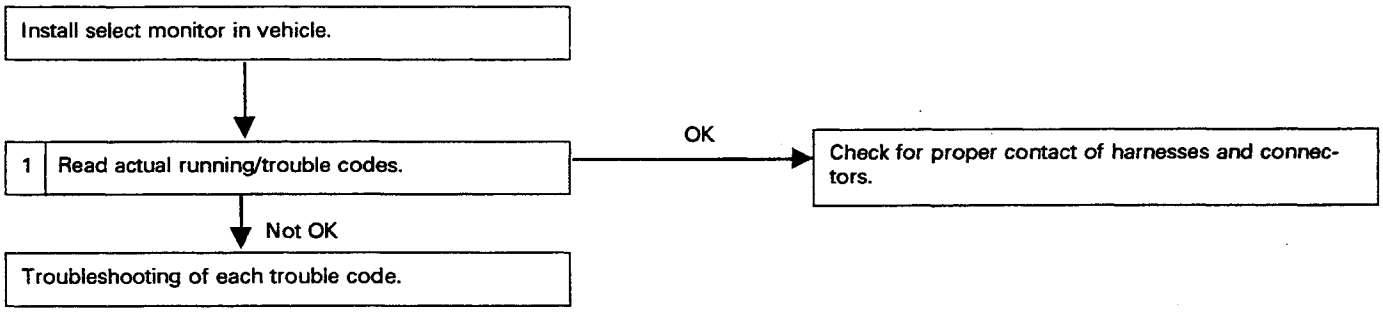
5. Trouble Chart B



A: CHECK TROUBLE CODE WITH A SELECT MONITOR.

CONTENT OF DIAGNOSIS:
Read trouble code.

TROUBLE SYMPTOMS:
- Cruise control cannot be set.
- Cruise control is occasionally released.



- By checking the trouble codes, it can be read through a self diagnosis, but it is effective to use a select monitor.

1. READING THE TROUBLE CODE

- Measuring condition: continuous running until cruise control is released.

```
C A N C E L                    ( F B 0 )
1 1                  B R / S T / CL or N
```

- Operation of the function keys: [F] [B] [0] [ENT]
- Indication: Always perform diagnosis while vehicle is running, and immediately indicate trouble code number when release condition occurs.

B: CHECK INPUT OF CRUISE CONTROL SUB SWITCH.

CONTENT OF DIAGNOSIS:
SET/COAST SW or disconnection of the wiring or short circuit, RESUME/ACCEL SW or disconnection of the wiring or short circuit

TROUBLE SYMPTOM:
The cruise control cannot be set, or it is cancelled immediately.
RESUME/ACCEL cannot be operated.

1 Check the signal using a select monitor.
- OK → Check for disconnection of the harnesses and connectors.
- Not OK ↓

2 Check the cruise sub switch.
- Not OK → Failure in the power source system - Check the horn relay circuit. Failure in the switch or harnesses - replace.
- OK ↓

Failure of the Cruise control unit.

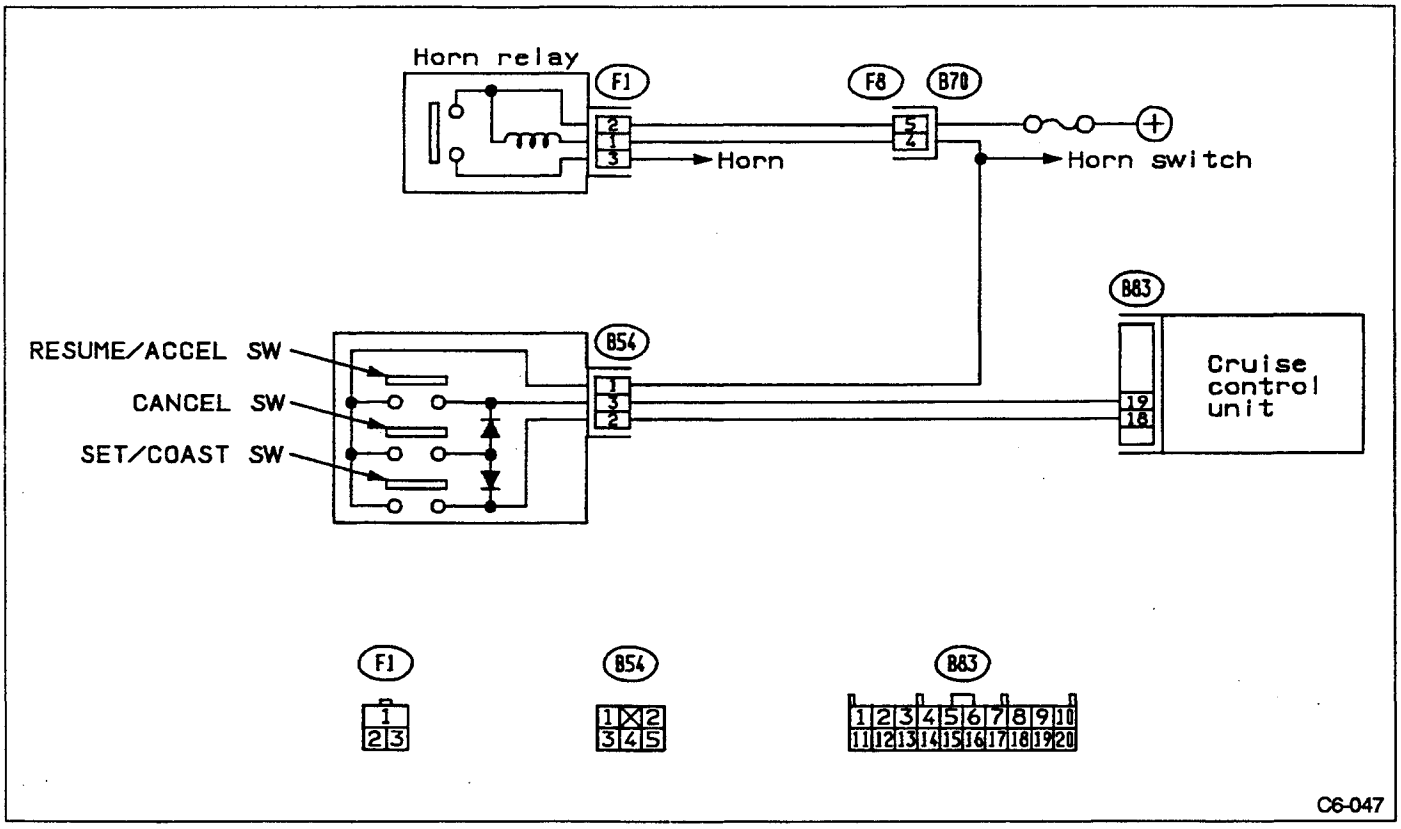


Fig. 76

1. CHECK WITH SELECT MONITOR

1) Measuring condition: Turn ON the ignition switch and cruise main switch.

- Operation of the function keys: F A O ENT
  When pushing the SET SW: [1] LED goes out - lights.
- When pushing the RESUME SW: [2] LED goes out - lights.
- When pushing the CANCEL SW: [1] [2] LEDs go out - light.

2. CHECK CRUISE CONTROL SUB SWITCH

1) Separate connector from sub switch connector. (Use together with horn power supply.)
2) Check voltage between sub switch connector and body.

Connector & terminal/Specified voltage:
(B54) No. 1 — Body/10 — 13 V

---

3) Check for harness short circuit between sub switch and cruise control unit.

Connector & terminal/Specified resistance:
(B54) No. 2 — Body/1 MΩ min
(B54) No. 3 — Body/1 MΩ min

---

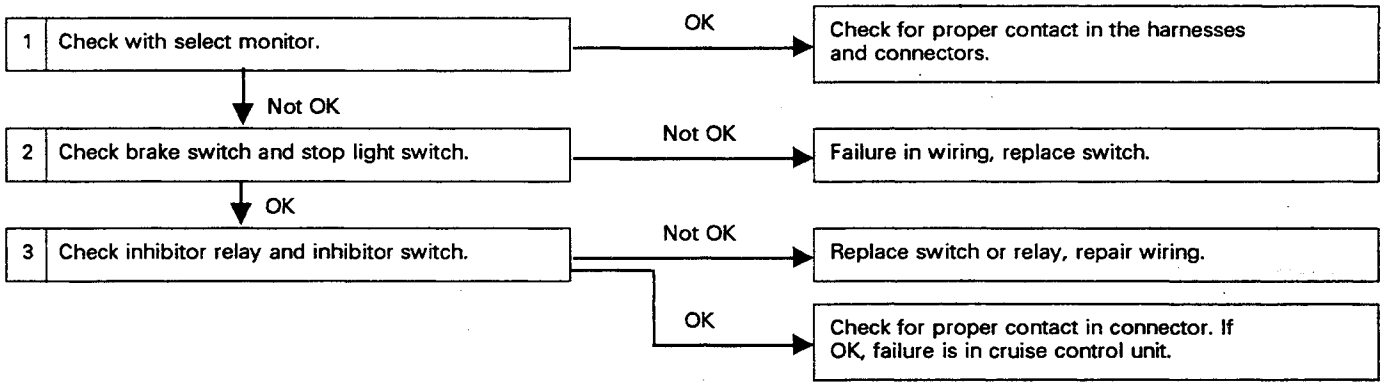
4) Check inner switch of the cruise control sub-switch. Check continuity at switch side connector.

Connector & terminal:
(B54) No. 1 — 2 [SET/COAST SWITCH]
(B54) No. 1 — 3 [RESUME/ACCEL SWITCH]
(B54) No. 1 — 2
No. 1 — 3 [CANCEL SWITCH]
Specified voltage:
0 Ω(Switch ON)
1 MΩ min (Switch OFF)

C: TROUBLE CODE 11 (STOP LIGHT SW, BRAKE SW AND INHIBITOR SW)

CONTENTS OF DIAGNOSIS:
- Failure or disconnection of the stop light switch and brake switch.
- Failure or disconnection of the inhibitor relay and inhibitor switch.

TROUBLE SYMPTOM:
The cruise control cannot be set.



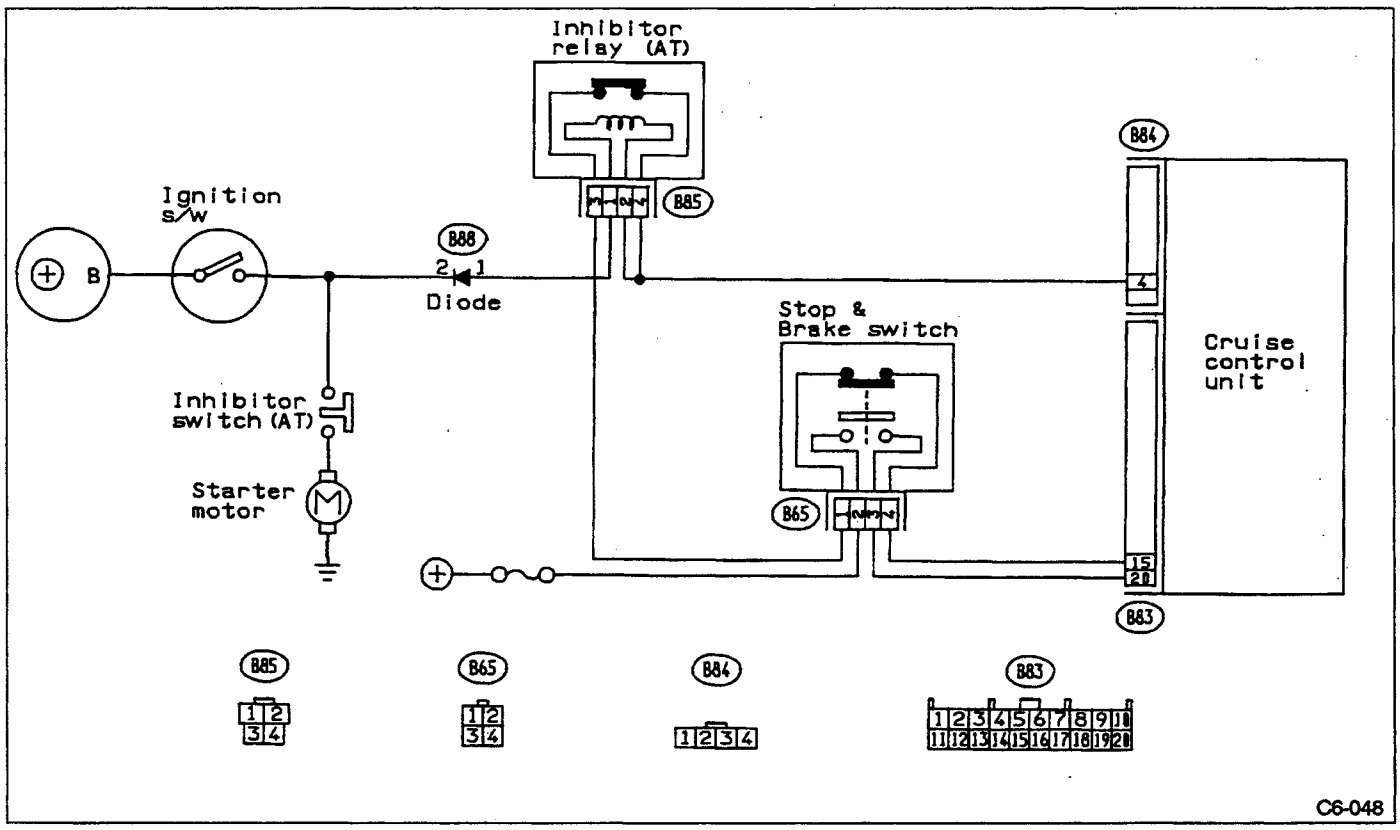


Fig. 77

1. CHECK WITH SELECT MONITOR

- Measurement condition: Turn ignition switch ON. Turn cruise main switch ON.
- Operation of the function keys: F A O ENT

(1) When depressing brake pedal (Set in the D range)
Stop light switch:
4 LED goes out - lights.
Brake switch:
5 LED goes out - lights.

(2) When setting shift lever in N position (Inhibitor relay signal)
5 LED goes out - lights.

2. CHECK BRAKE SWITCH AND STOP LIGHT SWITCH

1) Remove connector of stop light switch.
2) Check circuit between each terminal while depressing brake pedal.

Pedal operation	Brake switch Between No. 1-4	Stop light switch Between No. 2-3
Depressing the brake pedal	Circuit failure	Circuit normal
Without depressing the brake pedal	Circuit normal	Circuit failure

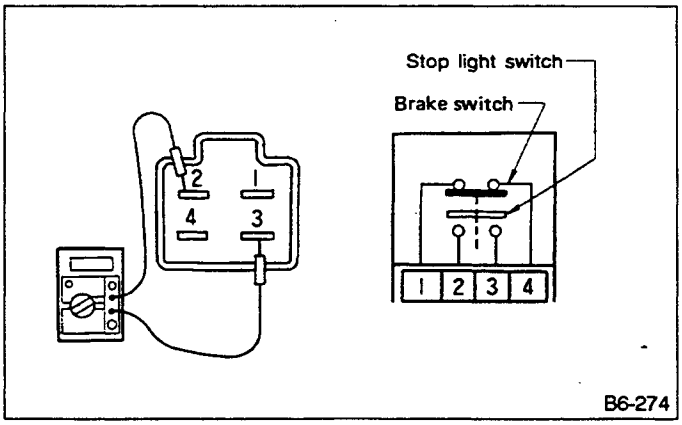


Fig. 78

3. CHECK INHIBITOR RELAY AND INHIBITOR SWITCH (N RANGE)

1) Check inhibitor relay and inhibitor switch.
Turn ignition switch and cruise main switch ON when setting the shift lever to the N position. Operation sounds will be heard when relay contact points are separated.
2) Check inhibitor relay.
When applying 12 V power to terminals No. 1 to 2 of inhibitor relay.

Terminal/Specified resistance:
No. 3 — No. 4/1 MΩ min

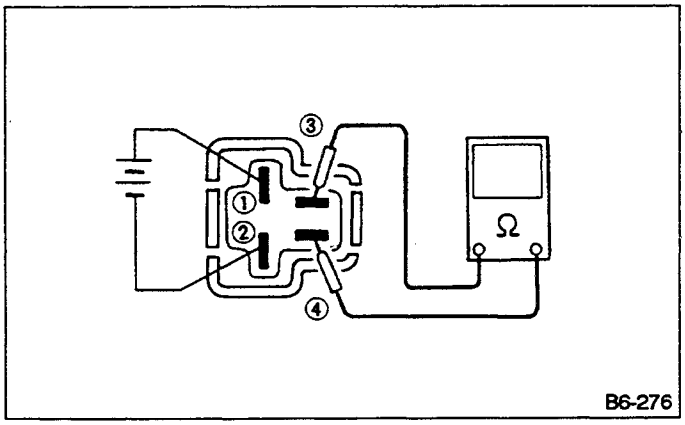


Fig. 79

3) Item check for inhibitor switch
When engine starts in the N range (the starter rotates), N range contact point of the inhibitor is normal.
4) Check the wiring harnesses.

D: TROUBLE CODE 12 (FAILURE OF ENGINE REVOLUTION INPUT SIGNAL)

CONTENT OF DIAGNOSIS:
Short circuit of engine revolution input signal from MPFI control unit

TROUBLE SYMPTOM:
Cruise control cannot be set. (Cancelled immediately)

1	Check rotation signal with select monitor.	OK →	Check for proper contact of harness.

Not OK ↓

After checking harnesses between cruise control unit and ECU (MPFI), check MPFI system.

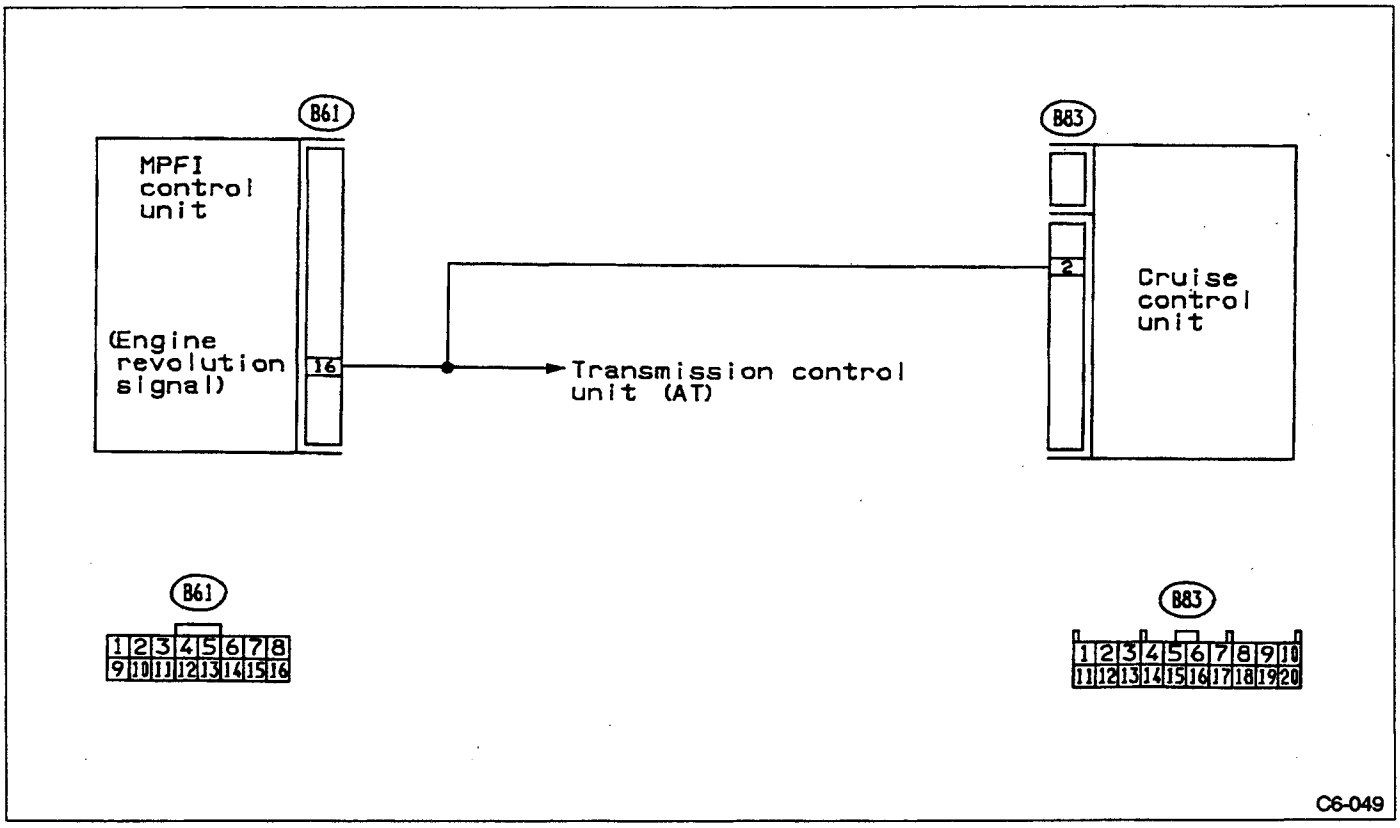


Fig. 80

1. CHECK WITH SELECT MONITOR

- Measurement condition: idling or 2,000 rpm

E R E V	F 0 3 2,000 rpm

- Operation of function keys: F | 0 | 3 | ENT

Standard value: ± 100 rpm

Reference: Indicated value for disconnection or short circuit: 0 — 1 km/h

E: TROUBLE CODE 13 AND 24 - MALFUNCTION IN SPEED SENSOR SYSTEM

CONTENT OF DIAGNOSIS:
Disconnection or short circuit of speed sensor

TROUBLE SYMPTOM:
Cruise control cannot be set. (Cancelled immediately)

1	Check speed signal with select monitor.	OK	Failure in cruise control unit.
	↓ Not OK		
2	Perform a circuit test between B9 No. 1 to B83 No. 7. Perform a circuit test of the vehicle speed sensor and earth system.	OK	Failure in speed sensor.
	↓ Not OK		
	Repair harnesses and connectors.		

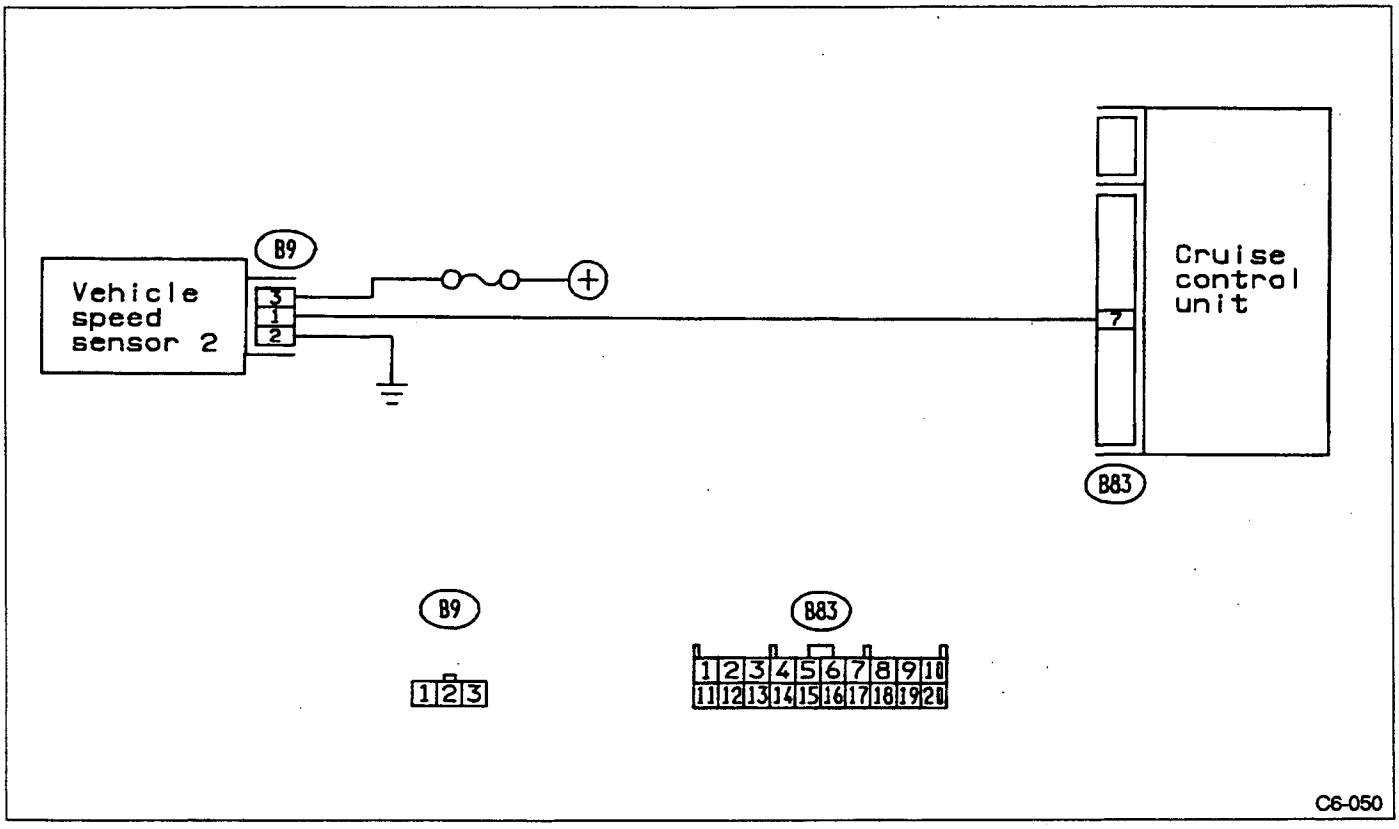


Fig. 81

1. CHECK VEHICLE SPEED SIGNAL WITH SELECT MONITOR

- Driving condition: Running at speed greater than 40 km/h (25 MPH)

V S P	(F 0 2)
	90 km / h

- Operation of the function keys: F 0 2 ENT

Standard value: ± 16km/h (± 10 MPH)

Reference:
- When there is a failure in the speed sensor, the indicated value of the meter will be incorrect.
- When there is a disconnection or short circuit in the harness between vehicle speed sensor and the cruise control unit, the indicated value will be 0 — 1 km/h.

2. CIRCUIT TEST FOR EACH HARNESSES

1) Separate connectors from vehicle speed sensor and cruise control unit.
2) Perform a circuit test in the harnesses.

Connector & terminal/Specified resistance:
(B9) No. 11 — (B83) No.7/1 Ω max

F: TROUBLE CODE 14 - SIMULTANEOUS INPUT OF SET/COAST AND RESUME/ACCEL SW SIGNALS (CANCEL SW "ON")

CONTENT OF DIAGNOSIS:
Short circuit inside the sub switch.

TROUBLE SYMPTOM:
Cruise control cannot be set.
Cancelled immediately.

1	Check short circuit of cruise control sub-switch.	Not OK →	Replace the switch.
	↓ OK		
	Check for short circuit in harness between switch and cruise control unit.		

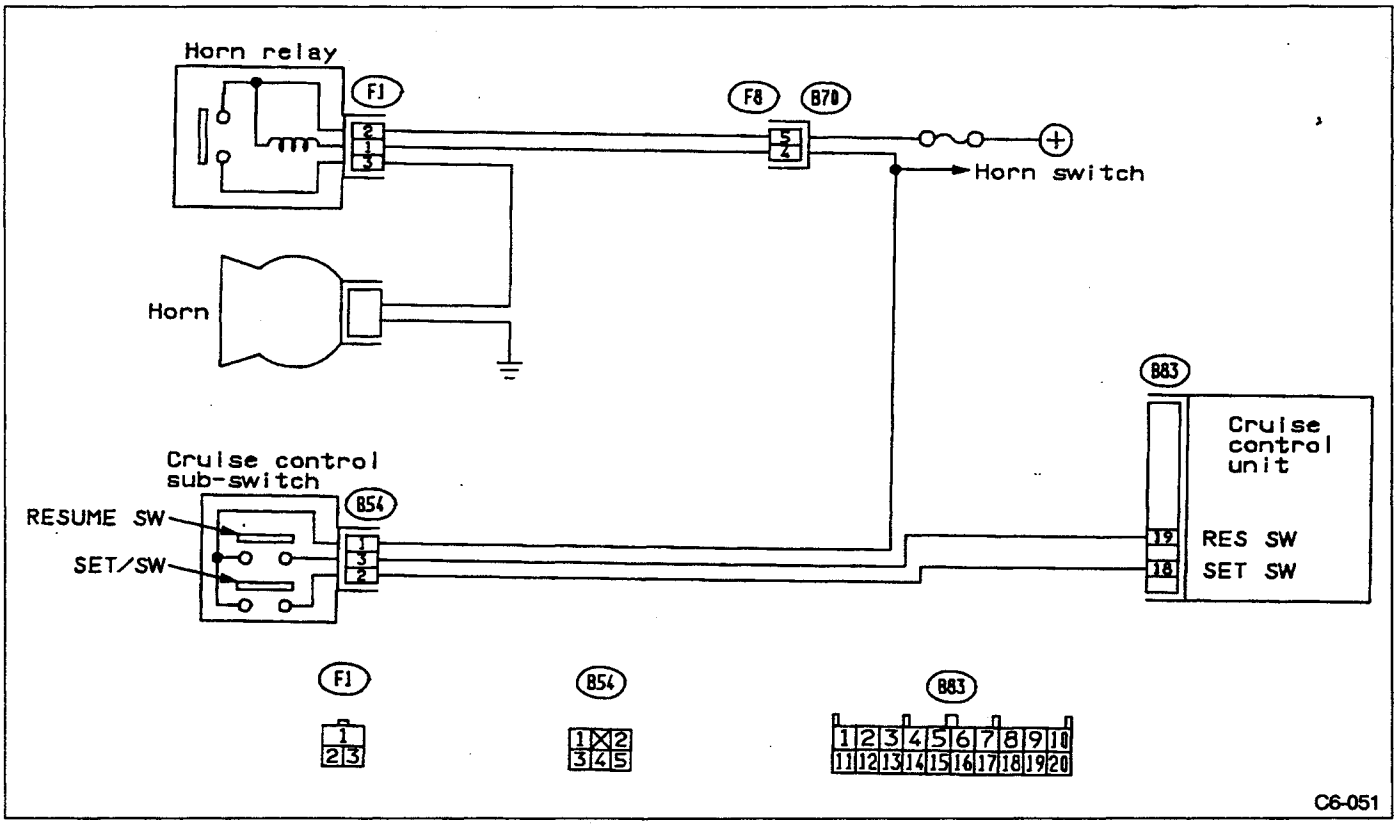


Fig. 82

1. CHECK FOR SHORT CIRCUIT OF CRUISE CONTROL SUB SWITCH

1) Separate connector of cruise control sub- switch.
2) Perform a circuit test between each of terminals while pushing the sub switch.
Measure resistance between each terminal of cruise control sub switch.

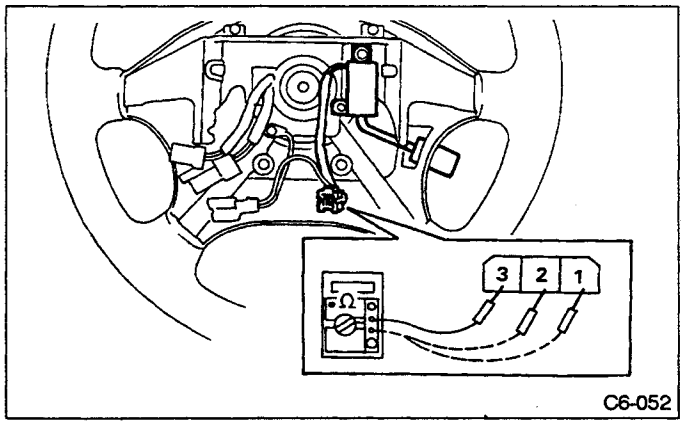


Fig. 83

Terminal/Specified resistance:
No. 1 — No. 2/0 Ω(SET switch ON)
No. 1 — No. 3/0 Ω(RESUME switch ON)
No. 1 — No. 2/Approx. 20 Ω(CANCEL switch ON)
No. 1 — No. 3/Approx. 20 Ω

G: TROUBLE CODE 21 AND 22 (MALFUNCTION IN CRUISE VACUUM PUMP AND VENT VALVE)

CONTENT OF DIAGNOSIS:
Open or poor contact of the vacuum pump motor and vent valve

TROUBLE SYMPTOM:
Cruise control cannot be set. (Or cancelled immediately)

1	Check with select monitor.	OK	Check for poor contact in harness and connector.
	↓ Not OK		
2	Measure resistance of vacuum pump and vent valve.	Not OK	Malfunction in vacuum pump and vent valve.
	↓ OK		
3	Perform a circuit test in harness between cruise control unit, vacuum pump and vent valve.	Not OK	Failure in harness.
	↓		
	Faulty cruise control unit (Check input and output voltage).		

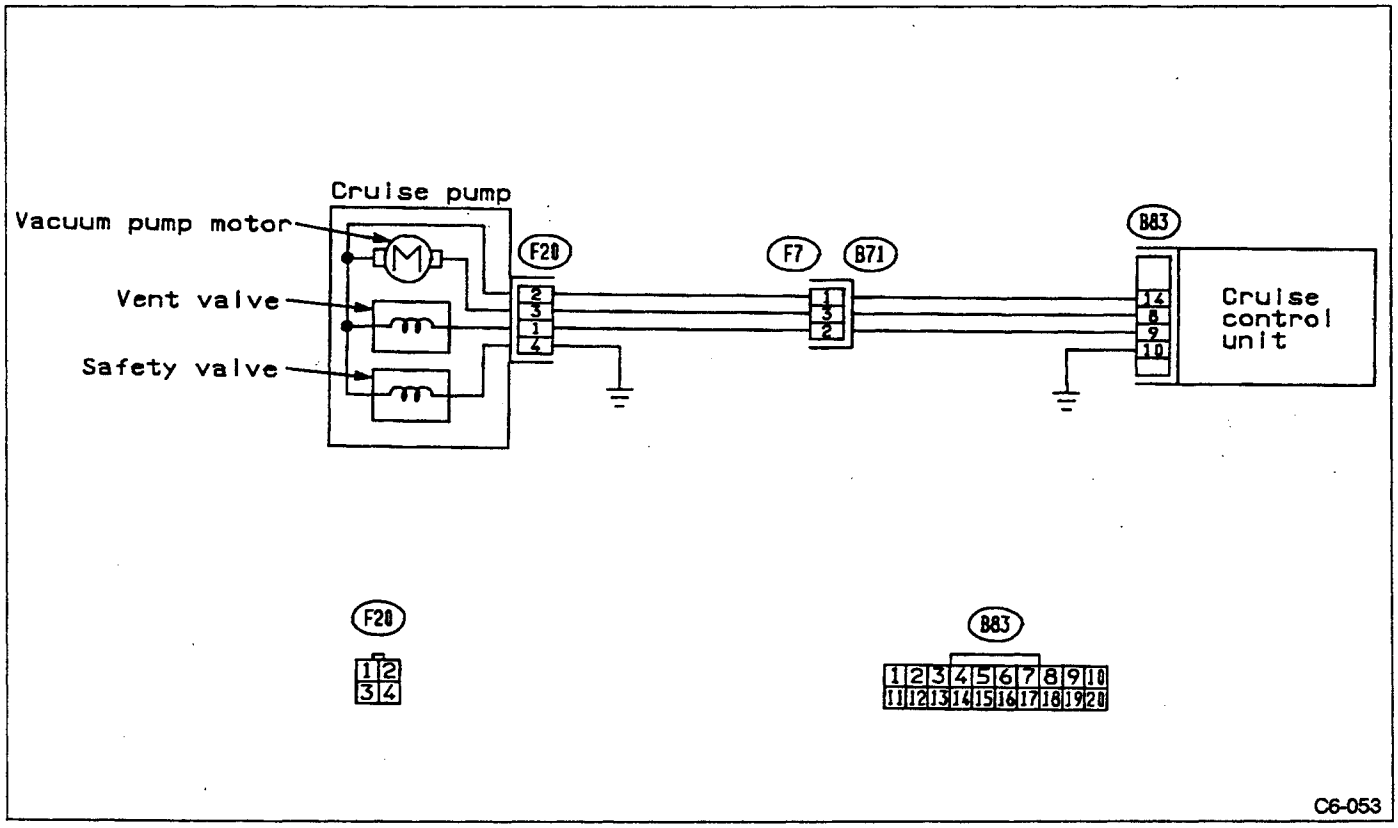


Fig. 84

1. CHECK WITH SELECT MONITOR

1) Turn engine OFF.
2) Connect select monitor.
3) Turn ignition switch ON (the engine is OFF) and turn cruise control main switch ON.
4) Operation of function keys: F B 1 ENT
5) Confirm that the select lever is set in any other than the P, N range, then depress the 0 key.

The code number of the failuring parts will be indicated.

"Failure of the 31 MOTOR" will be indicated when setting in the P, N range. In this case, turn OFF the cruise main switch once, then turn it ON again and perform the same procedure.

F B 1 ENT

```
OUTPUT              (FBI)
ready ?             Yes : 0
```

⇩

0

⇩

```
OUTPUT              (FBI)
31 MOTOR
```

Normal: Code (10)

Reference	Code No. of malfunction
• Open or short circuit in vacuum motor and harness	31
• Open or short circuit in valve and harness	32
• Faulty valve drive circuit in cruise control unit	34
• Faulty motor drive circuit in cruise control unit	35
• Built-in relay of cruise control unit is stuck	33

2. MEASUREMENT OF COIL RESISTANCE IN VACUUM PUMP AND VENT VALVE

1) Separate the connector.
2) Measure the resistance value of the vacuum pump and vent valve. (Range Ω x 1)

Connector & terminal/Specified resistance:
No. 2 — No. 3/100 — 110 Ω
No. 2 — No. 1/Approx. 53 Ω
No. 2 — No. 4/Approx. 53 Ω

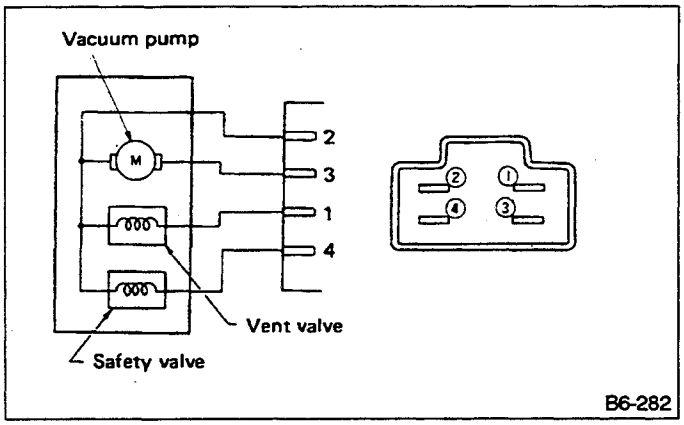


Fig. 85

3. CIRCUIT TEST IN HARNESS BETWEEN CRUISE CONTROL UNIT AND VACUUM MOTOR.

1) Separate both sides of connectors.
2) Perform a circuit test between each of the harnesses.

Connector & terminal/Specified resistance:
(B83) No. 14 — (F20) No. 2/1 Ω max.
(B83) No. 8 — (F20) No. 3/1 Ω max.

H: TROUBLE CODE 23 - MALFUNCTION IN BUILT-IN RELAY OF CRUISE CONTROL UNIT

CONTENT OF DIAGNOSIS:
Welding of built-in relay of cruise control unit

TROUBLE SYMPTOM:
Cruise canceling function does not operate, but fuel-safe function operates.

Perform real time diagnosis (FB1 mode) with select monitor, and replace cruise control unit when TROUBLE CODE 33 is indicated.

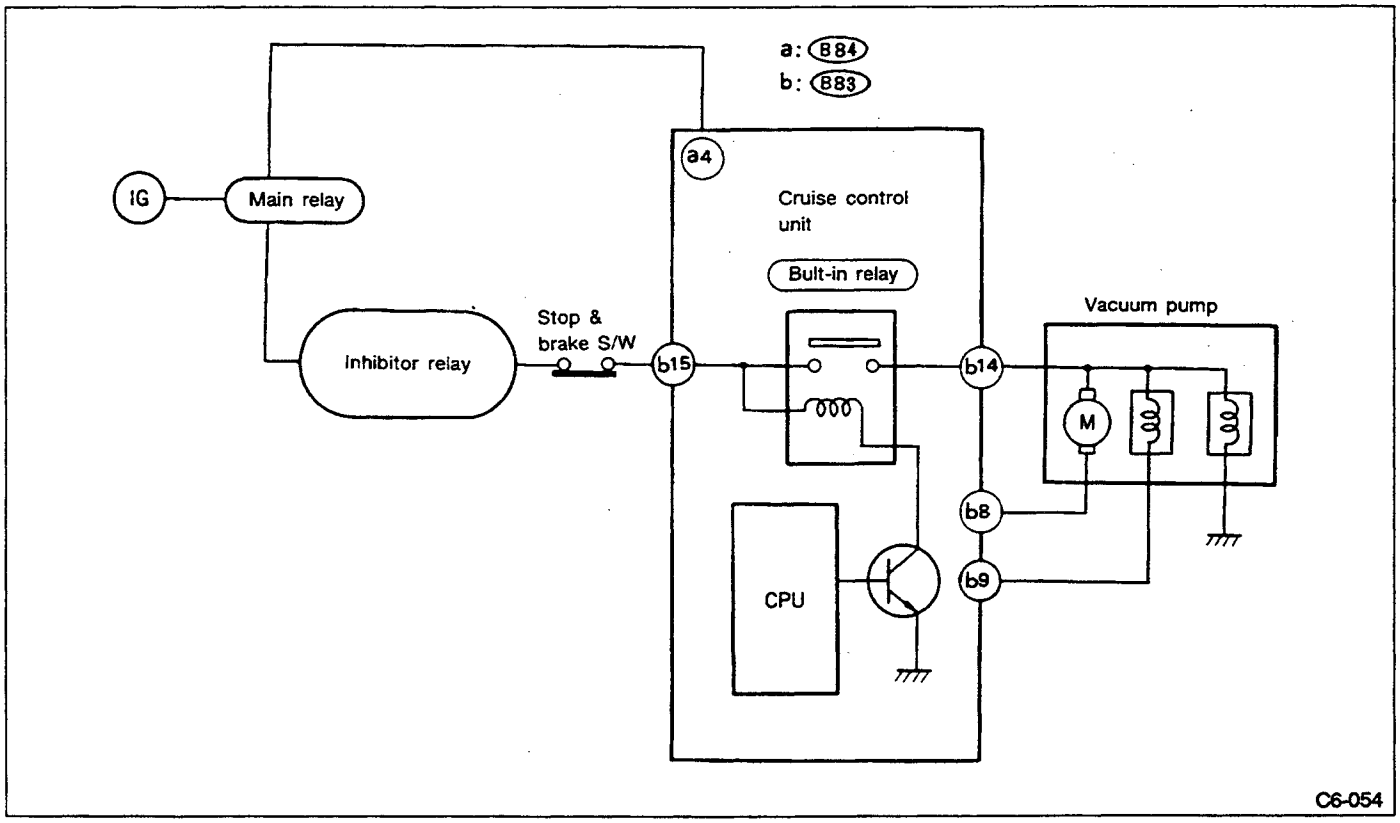


Fig. 86

6. Trouble Chart C

When not running at a fixed speed.

Check vehicle speed input signal with select monitor.

↓ (At first, confirm that vehicle speed signal is input normally.)

Check operation of vacuum pump and actuator ASSY.

↓ Check operation of actuator while forcely operating vacuum pump.

Repair.

A: CHECK OPERATION OF VACUUM PUMP AND ACTUATOR ASSY

CONTENT OF DIAGNOSIS:
Sticking of air leaves of vacuum pump and actuator, or sticking of valve and actuator diaphragm

TROUBLE SYMPTOM:
Cannot run at set speed ± 3 km/h (± 2 MPH).

1 Check for leakage and sticking of actuator valve. → Not OK → Replace the actuator ASSY.

↓ OK

Faulty cruise control unit.

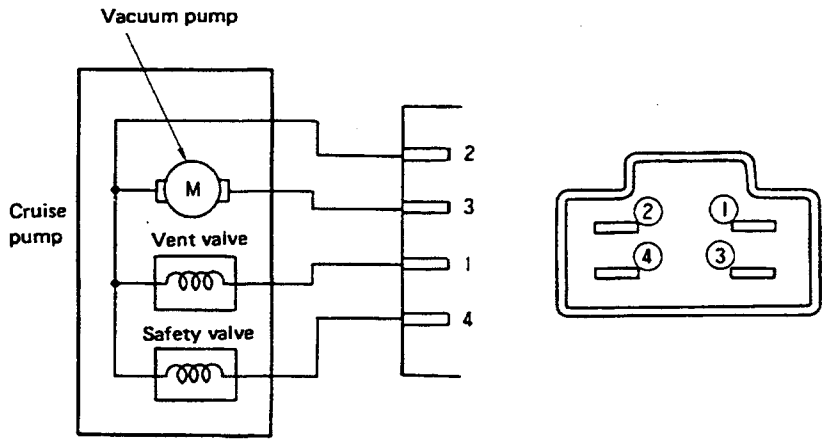


Fig. 87

1. CHECK FOR LEAKAGE AND STICKING OF ACTUATOR VALVE

1) Separate connector from vacuum pump.
2) Check for leakage of valve. (Perform this check when engine is OFF.)
Apply battery voltage (+) to cruise vacuum pump connector No. 2, and connect No. 1 and No. 4 to ground.
After connecting No. 3 to ground, throttle vehicle should be fully opened within 3 seconds.
In case it closes too late: valve leakage
3) Check for sticking of valve.
Remove battery power source from No. 2.
After removing, throttle valve should be fully closed within 3 seconds.
In case it closes too late : valve sticking
: sticking of the actuator diaphragm