

BODY ELECTRICAL

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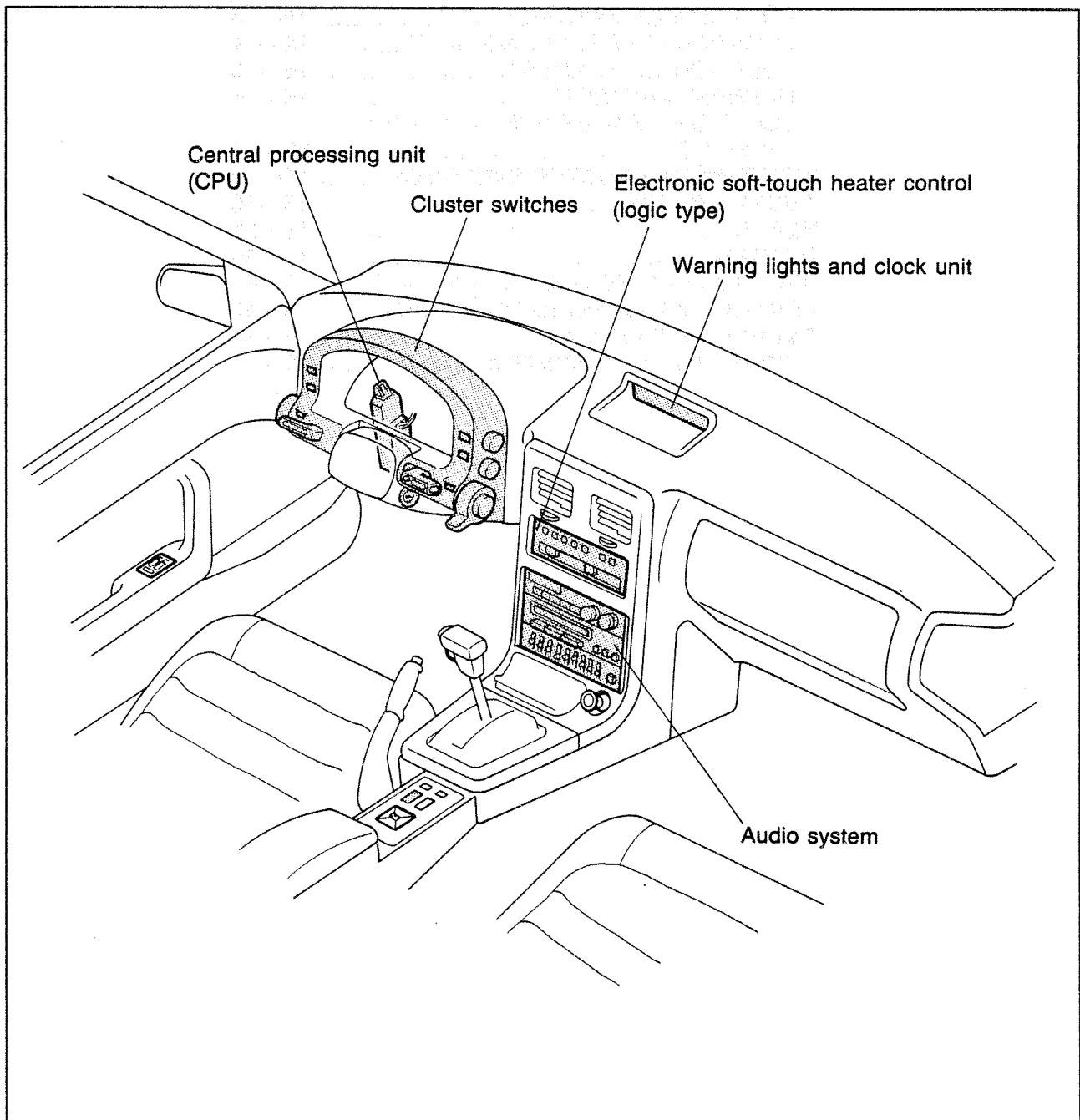
67G15X-501

OUTLINE

OUTLINE OF CONSTRUCTION

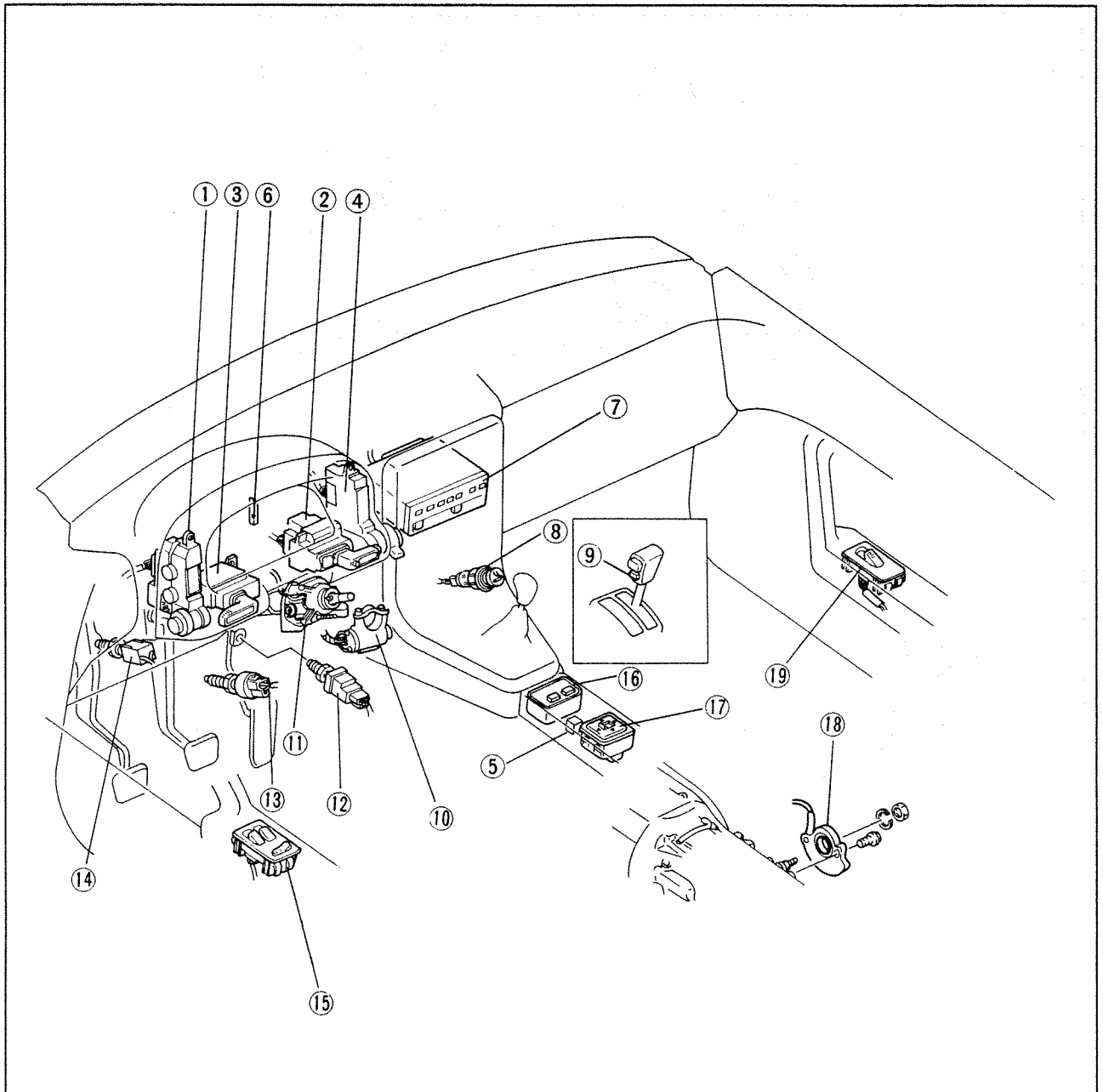
The new RX-7 is equipped with the following major items of electrical equipment:

1. For improved operation convenience...
 - The switches are arranged in a centralized cluster.
2. For improved comfort...
 - A high-sensitivity audio system is offered.
 - A soft-touch electronic (logic type) control heater switch system is provided.
3. For improved service and maintenance...
 - A Central Processing Unit (CPU) incorporating eight functions is provided.
4. For improved visibility...
 - The warning lights and clock are located in the top-center portion of the dash panel for easier visibility.



67G15X-502

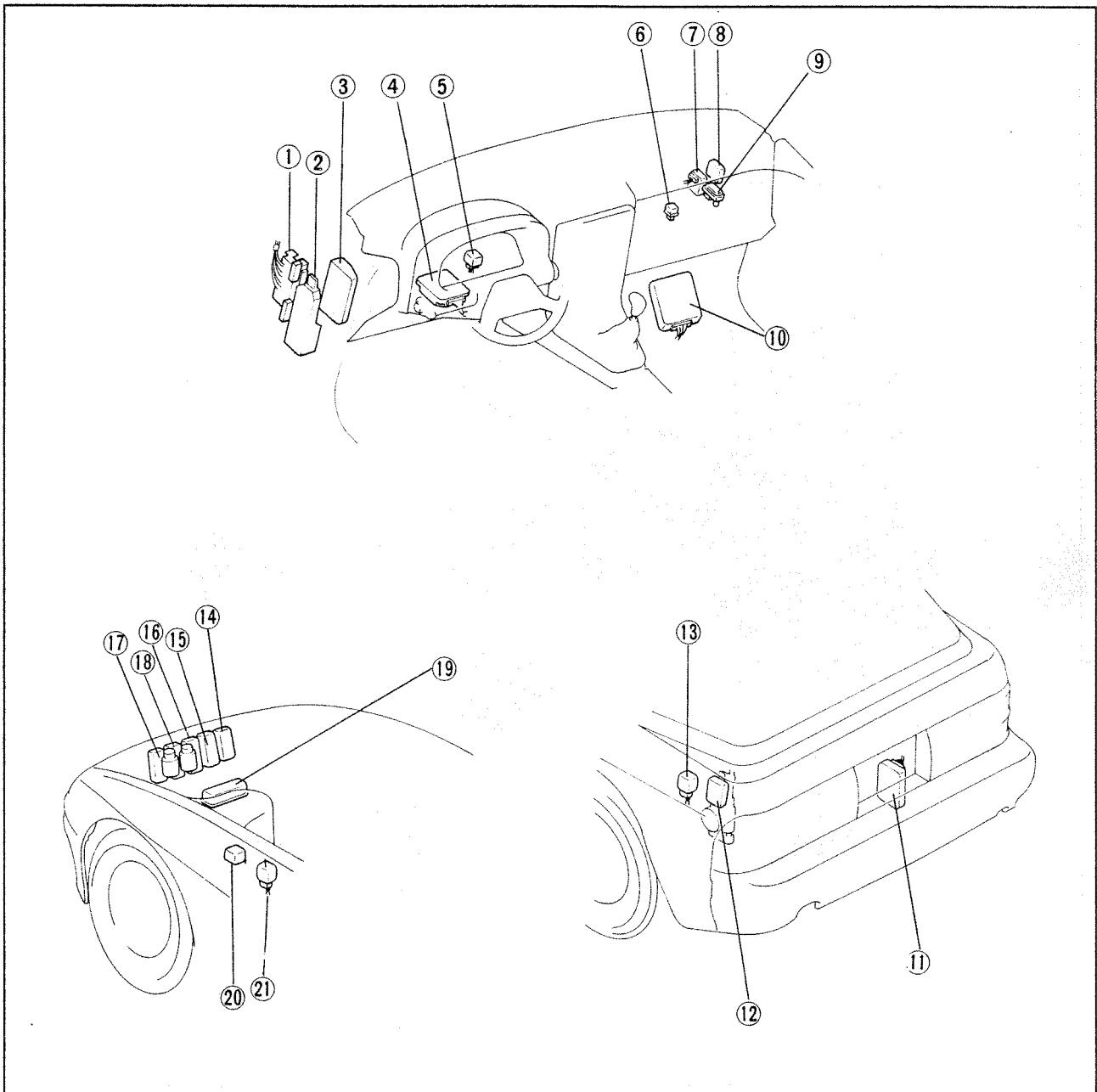
LOCATION OF SWITCHES



67G15X-503

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

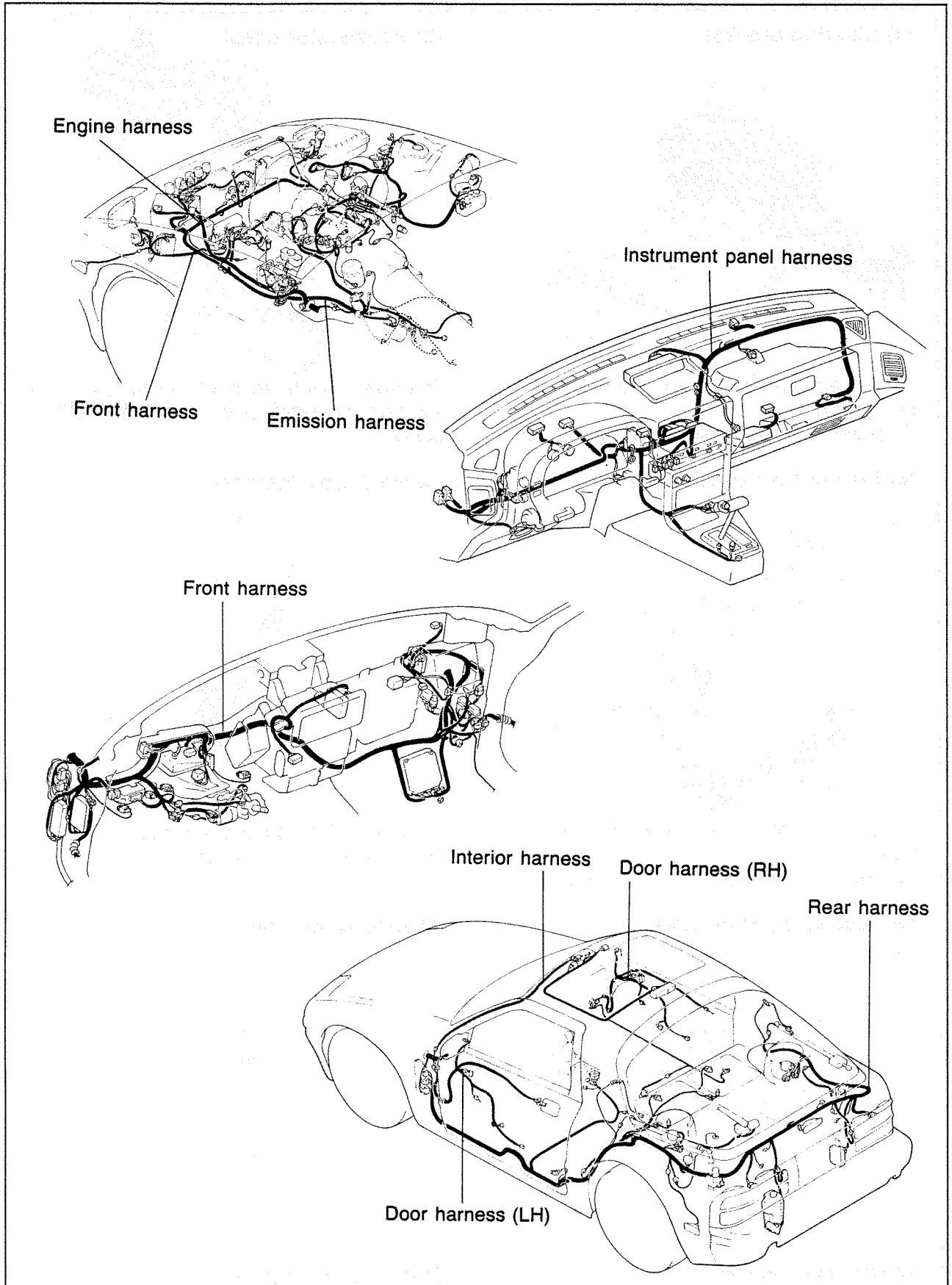
LOCATION OF RELAYS AND UNITS



67G15X-504

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

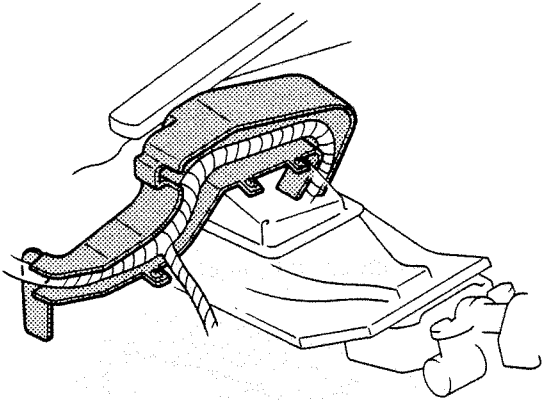
LOCATION OF HARNESSES



67U15X-505

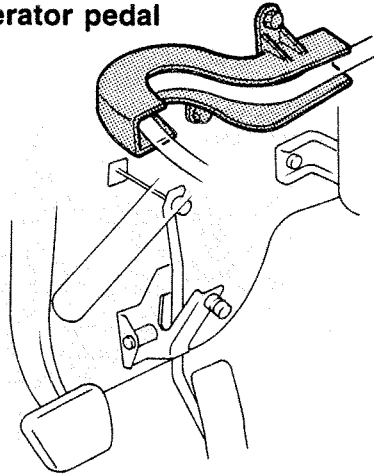
HARNESS PROTECTORS

(1) Steering bracket



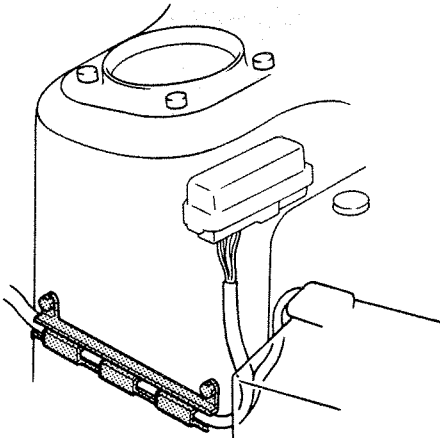
To prevent interference with natural ventilator (if equipped)
To prevent interference with clutch pedal

(2) Accelerator pedal



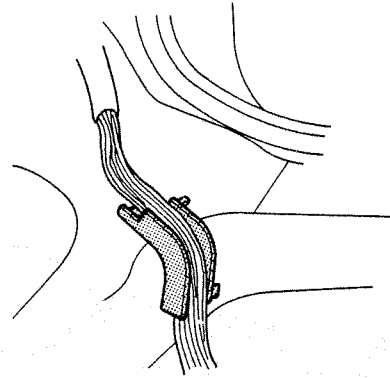
To prevent interference with accelerator pedal
To prevent interference with speedometer cable

(3) LH front suspension tower



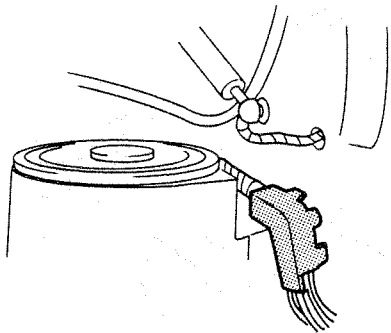
To prevent interference with power steering hose
To prevent interference with brake pipe

(4) No.3 crossmember



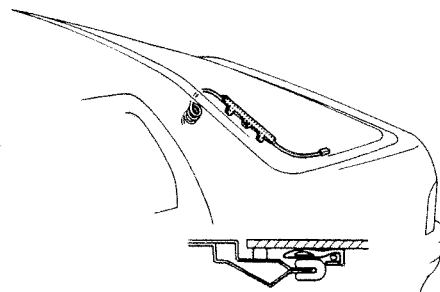
To prevent interference with trim
To improve mat arrangement

(5) Rear suspension tower



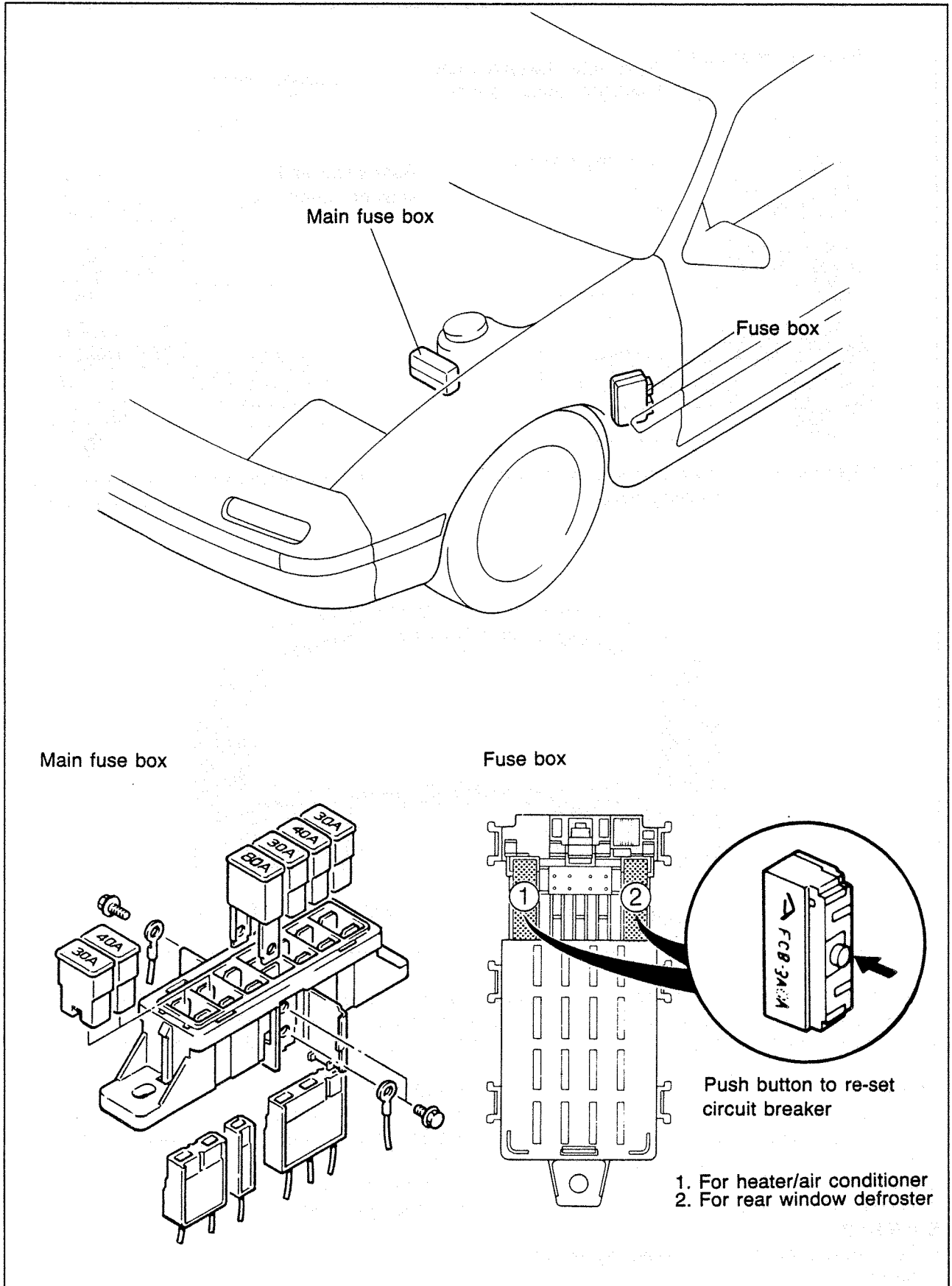
Interference with trim

(6) Rear hatch door

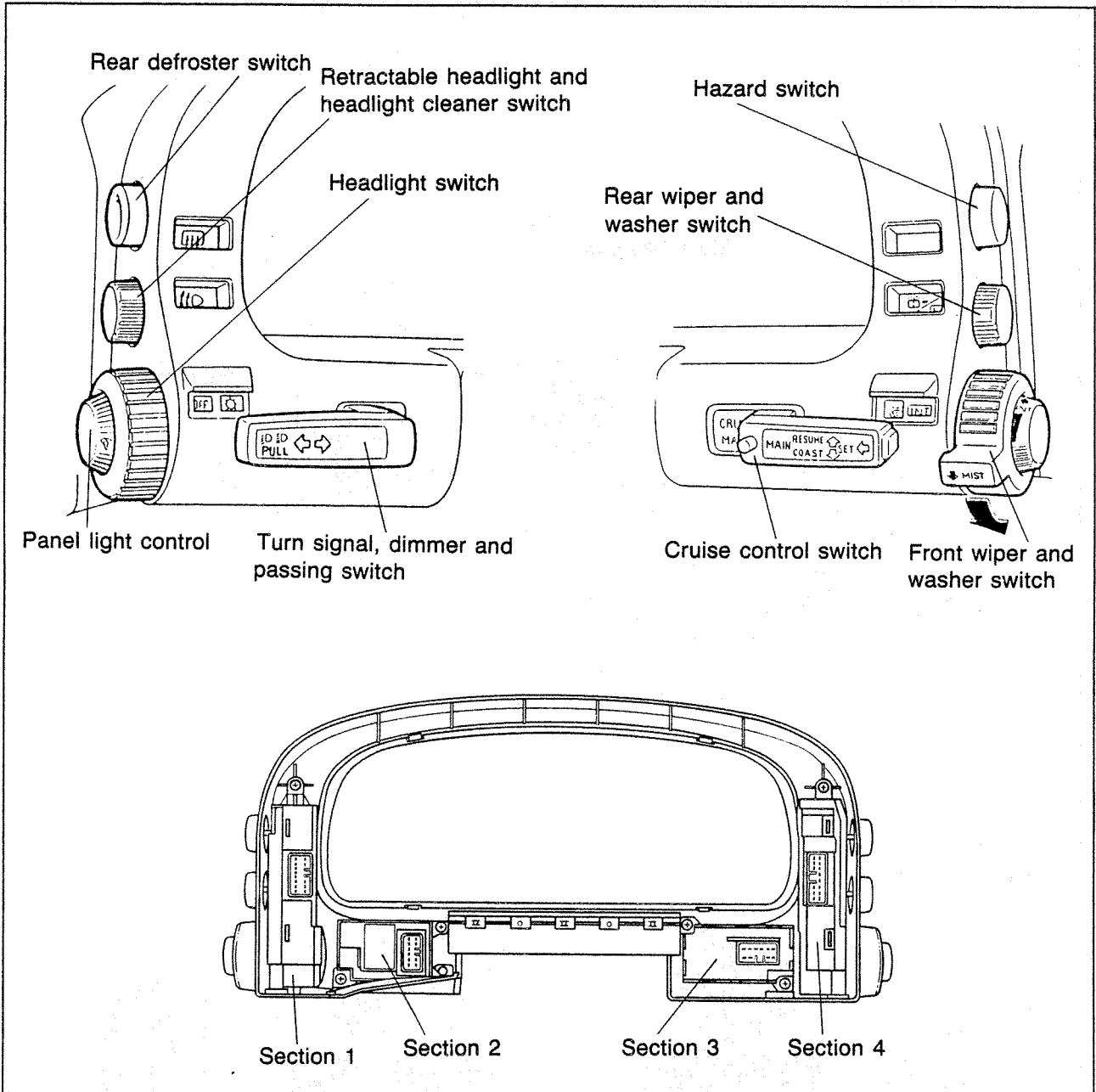


To improve appearance

LOCATION OF MAIN FUSE BOX AND FUSE BOX



INSTRUMENT CLUSTER SWITCHES



67U15X-507

- In order to improve operational convenience, switches at the upper part of the instrument panel have been centralized within the meter hood as a cluster switch arrangement.
- Switches have been separated into the following four sections (individual sections can be replaced):

Section 1

- Hazard switch
- Rear wiper and washer switch
- Front wiper and washer switch

Section 2

- Cruise control switch

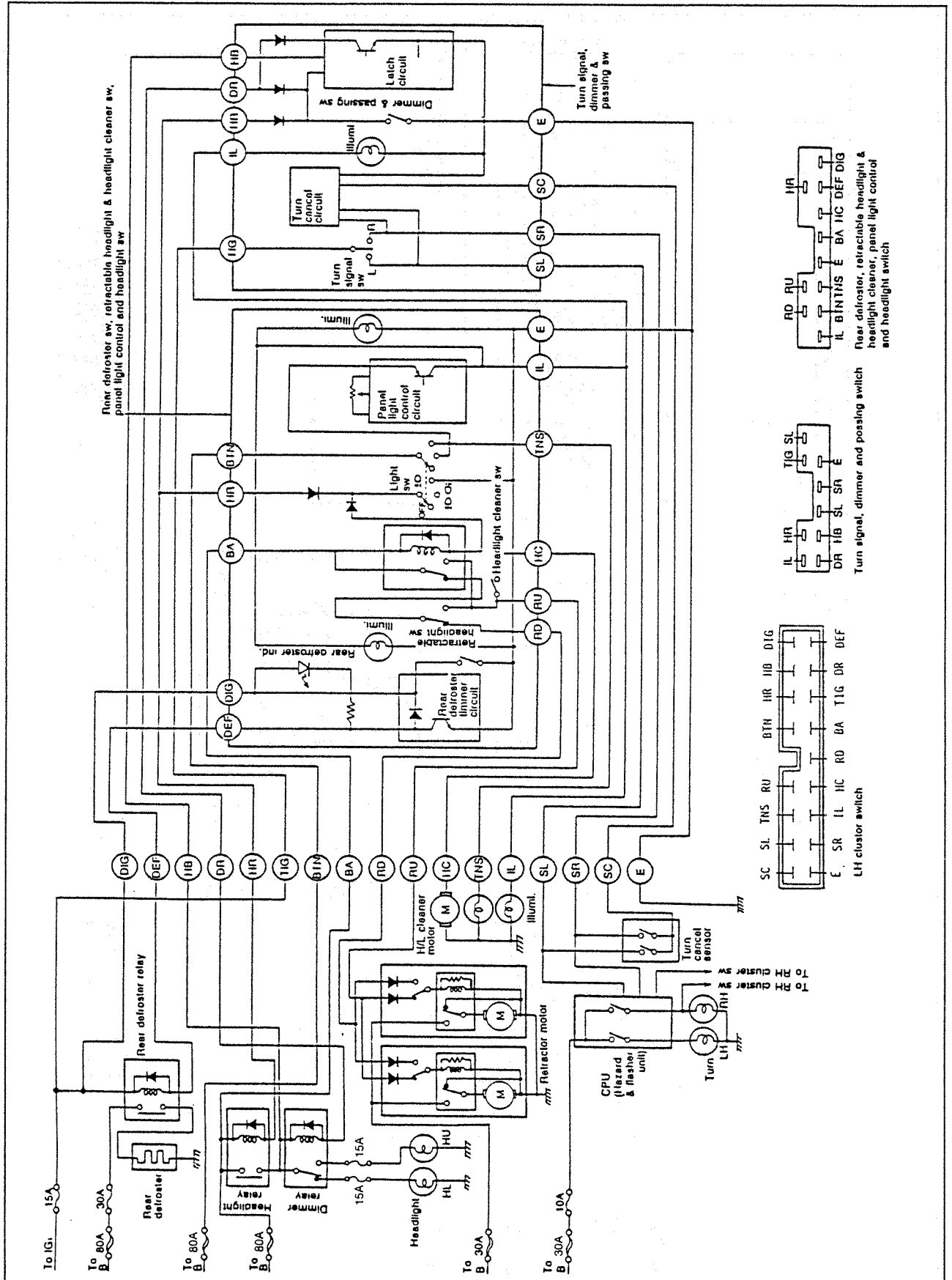
Section 3

- Turn signal, dimmer and passing signal switch

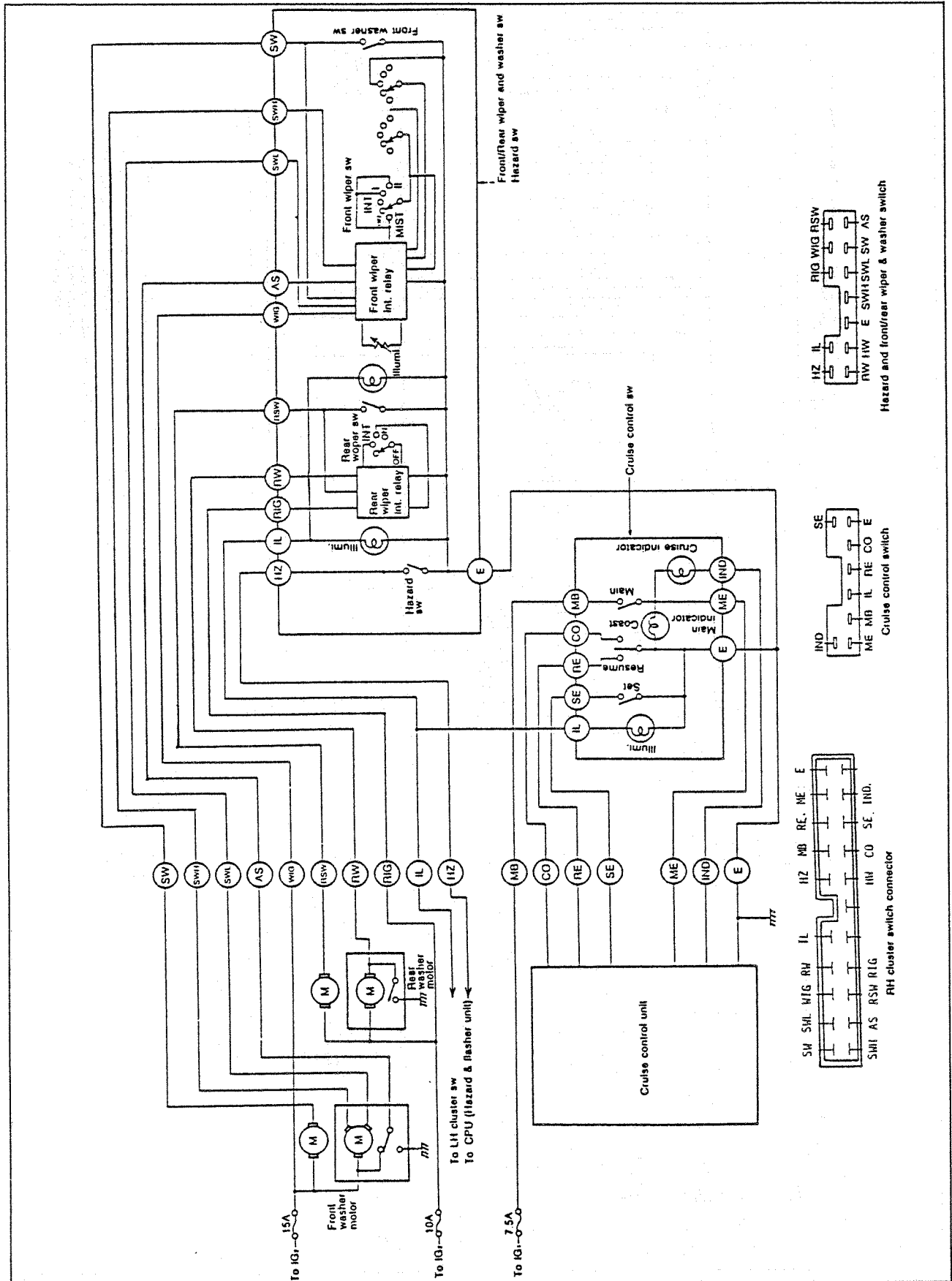
Section 4

- Rear defroster switch
- Retractable headlight and headlight cleaner switch
- Panel light control
- Headlight switch

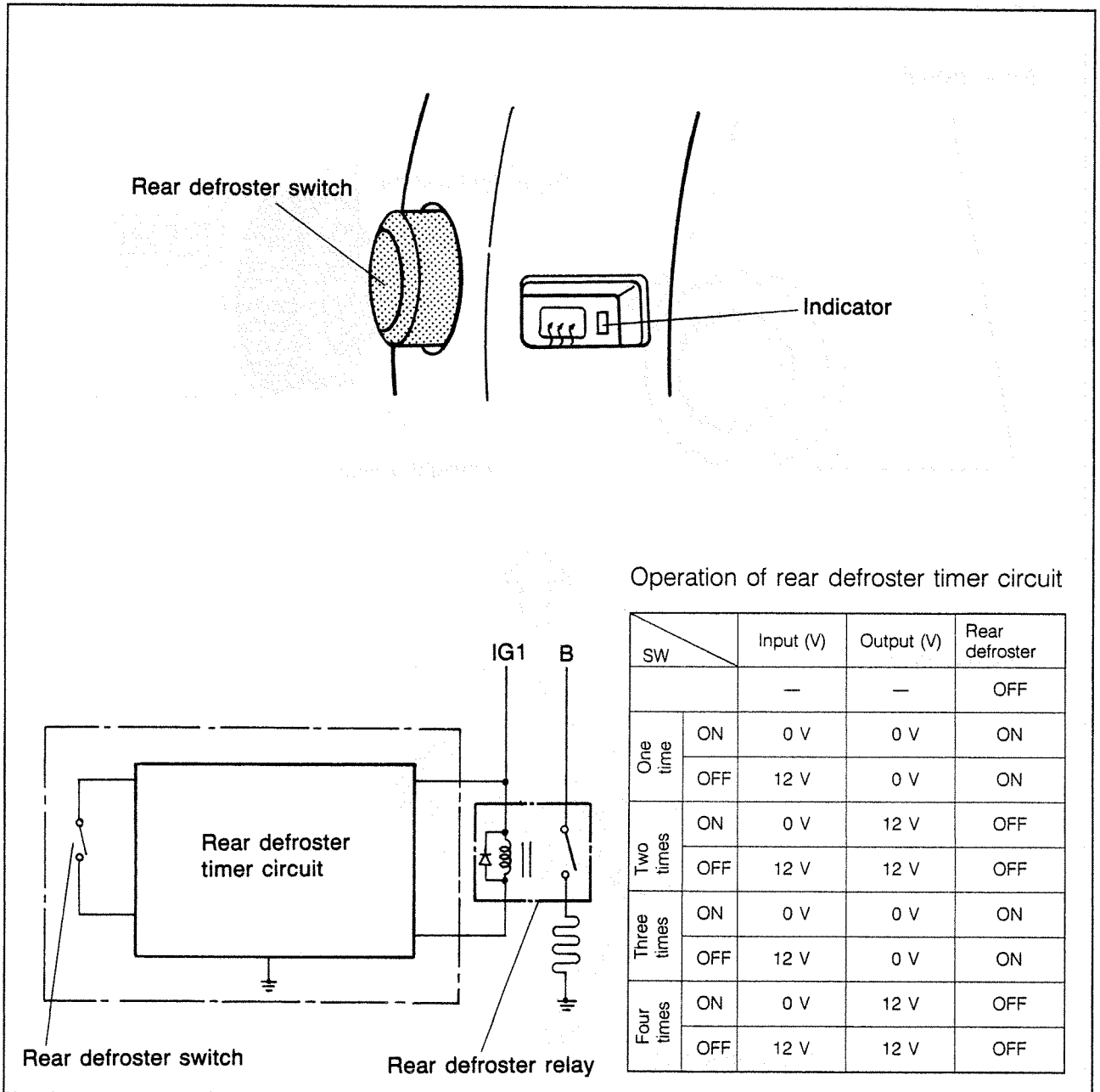
CIRCUIT DIAGRAM (L.H.SIDE)



CIRCUIT DIAGRAM (R.H.SIDE)



REAR DEFROSTER



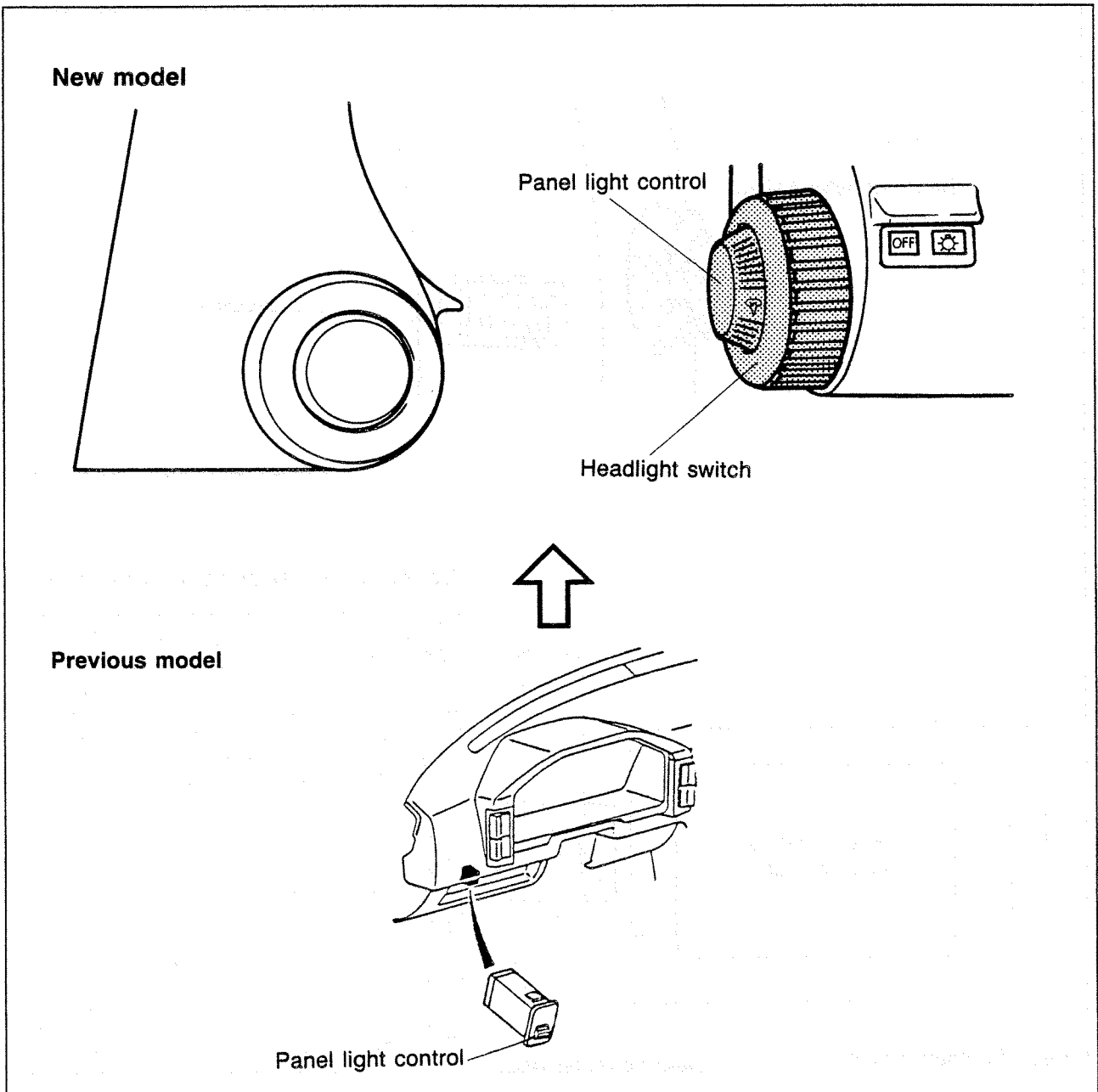
Operation of rear defroster timer circuit

SW		Input (V)	Output (V)	Rear defroster
		—	—	OFF
One time	ON	0 V	0 V	ON
	OFF	12 V	0 V	ON
Two times	ON	0 V	12 V	OFF
	OFF	12 V	12 V	OFF
Three times	ON	0 V	0 V	ON
	OFF	12 V	0 V	ON
Four times	ON	0 V	12 V	OFF
	OFF	12 V	12 V	OFF

67U15X-510

A timer circuit has been located within the switch in order to prevent battery discharge if the switch is not turned OFF. Therefore, the timer circuit is switched OFF **10 to 20** minutes after the switch is turned ON.

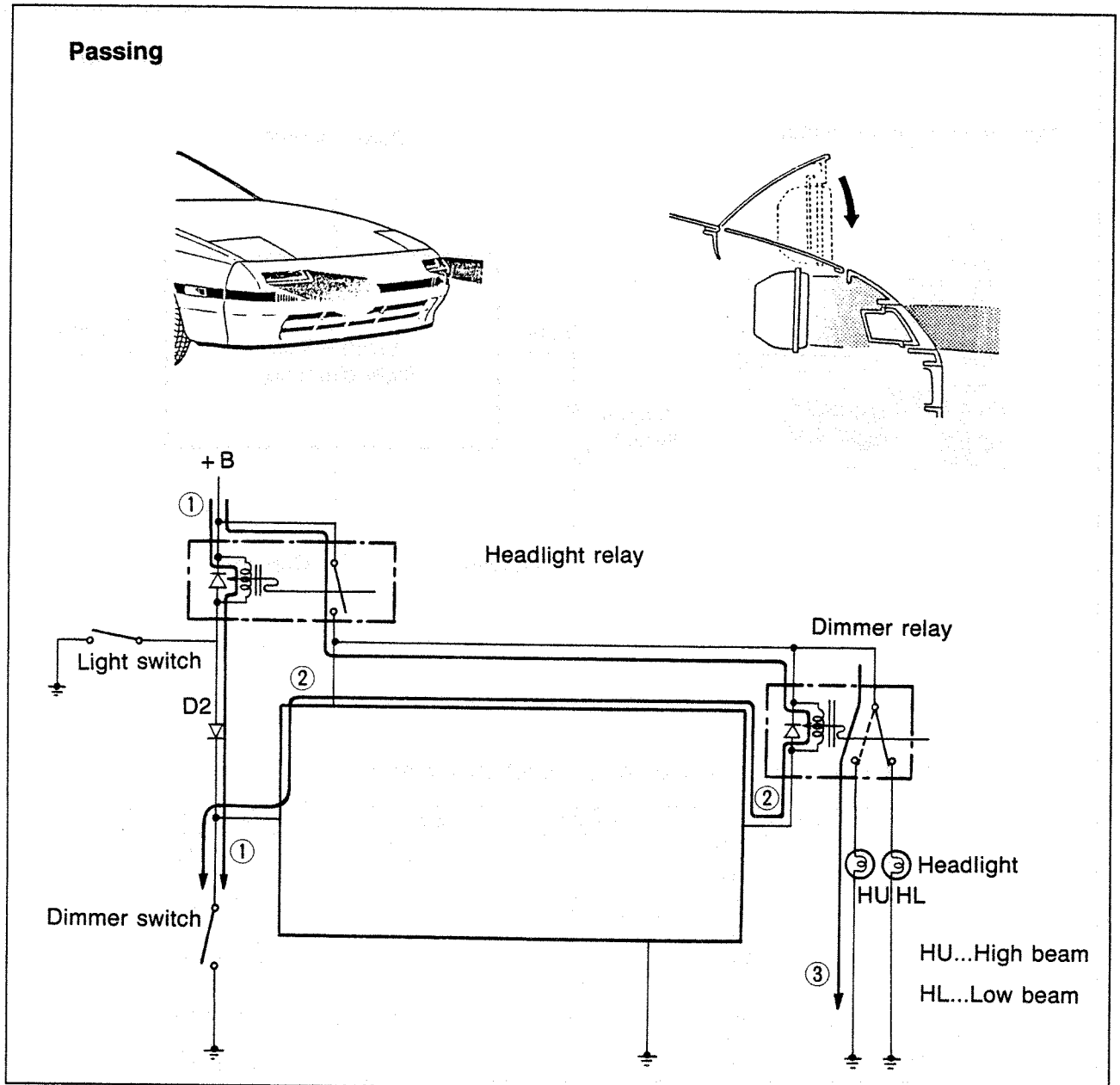
HEADLIGHT SWITCH AND PANEL LIGHT CONTROL



67U15X-511

The panel light control and headlight switch have been unified into one unit. The panel light control is a rotary type with 8 click-stop positions. Brightness of the panel lighting can be adjusted within a range of **25%** to **100%**. The headlight switch is a rotary type, with 3 positions (light switch OFF, parking and tail lights only, and ON).

TURN SIGNAL, DIMMER AND PASSING SIGNAL



67U15X-512

As a result of the newly-designed passing port windows, the passing signal can be used even when the light switch is OFF because the headlights shine through the ports. This design makes it unnecessary to raise the headlights.

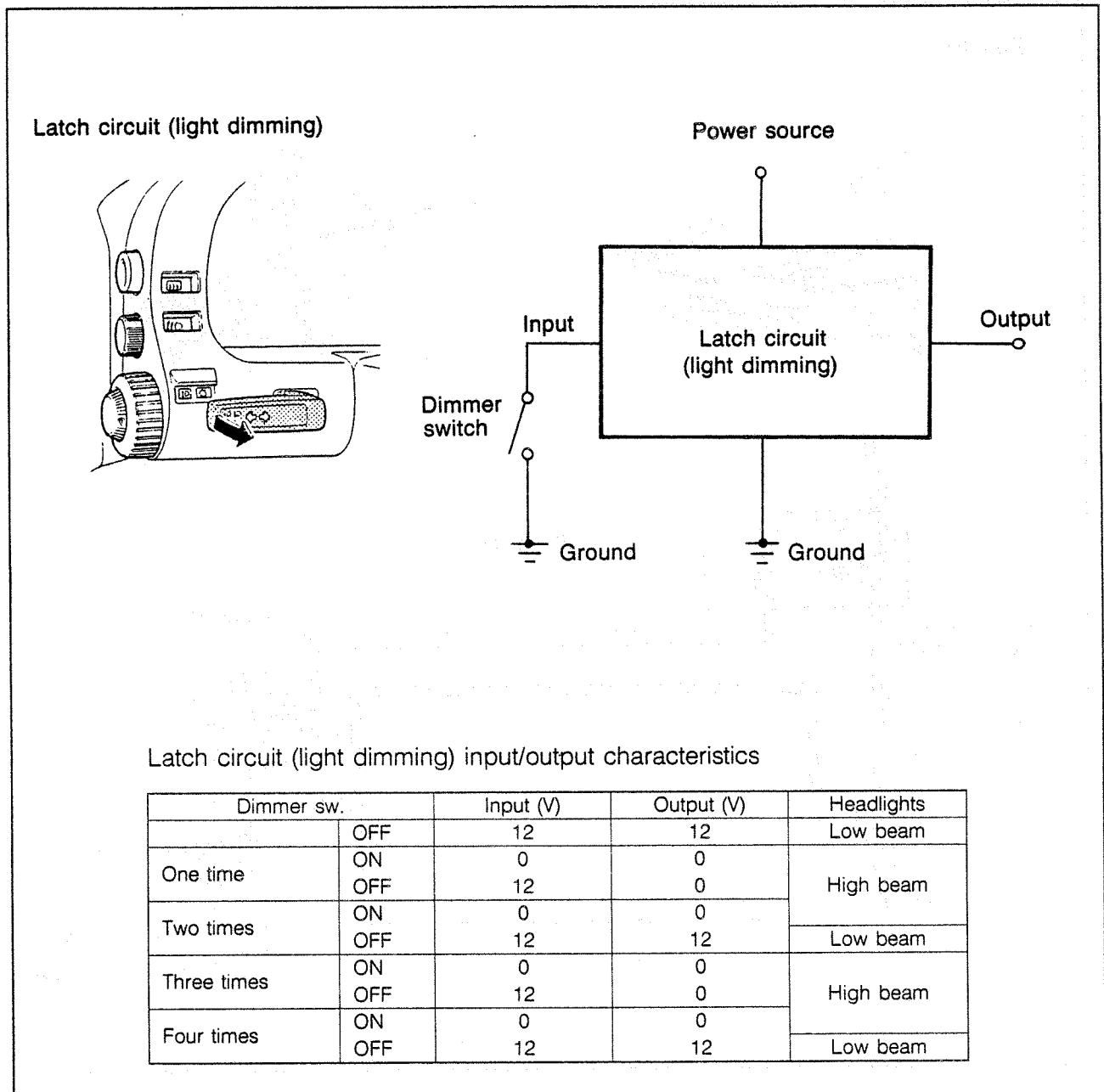
When light switch is OFF...

- When the dimmer switch is turned ON, current flows as shown by arrow (1), and the headlight relay contact is made. When this happens, current flows as shown by arrow (2), the dimmer relay contact is made, current flows as shown by arrow (3), and Hu illuminates.
- When the dimmer switch is released, the dimmer switch is turned OFF, the current flows represented by arrows (1), (2) and (3) stop, the headlight relay and dimmer relay are turned OFF, and Hu illumination stops.

A passing signal can be sent as a result of the repetition of the above.

In other words, by fluttering the left "flipper" with your fingers, you can quickly flash your headlights (signaling to pass another vehicle).

TURN SIGNAL, DIMMER AND PASSING SIGNAL



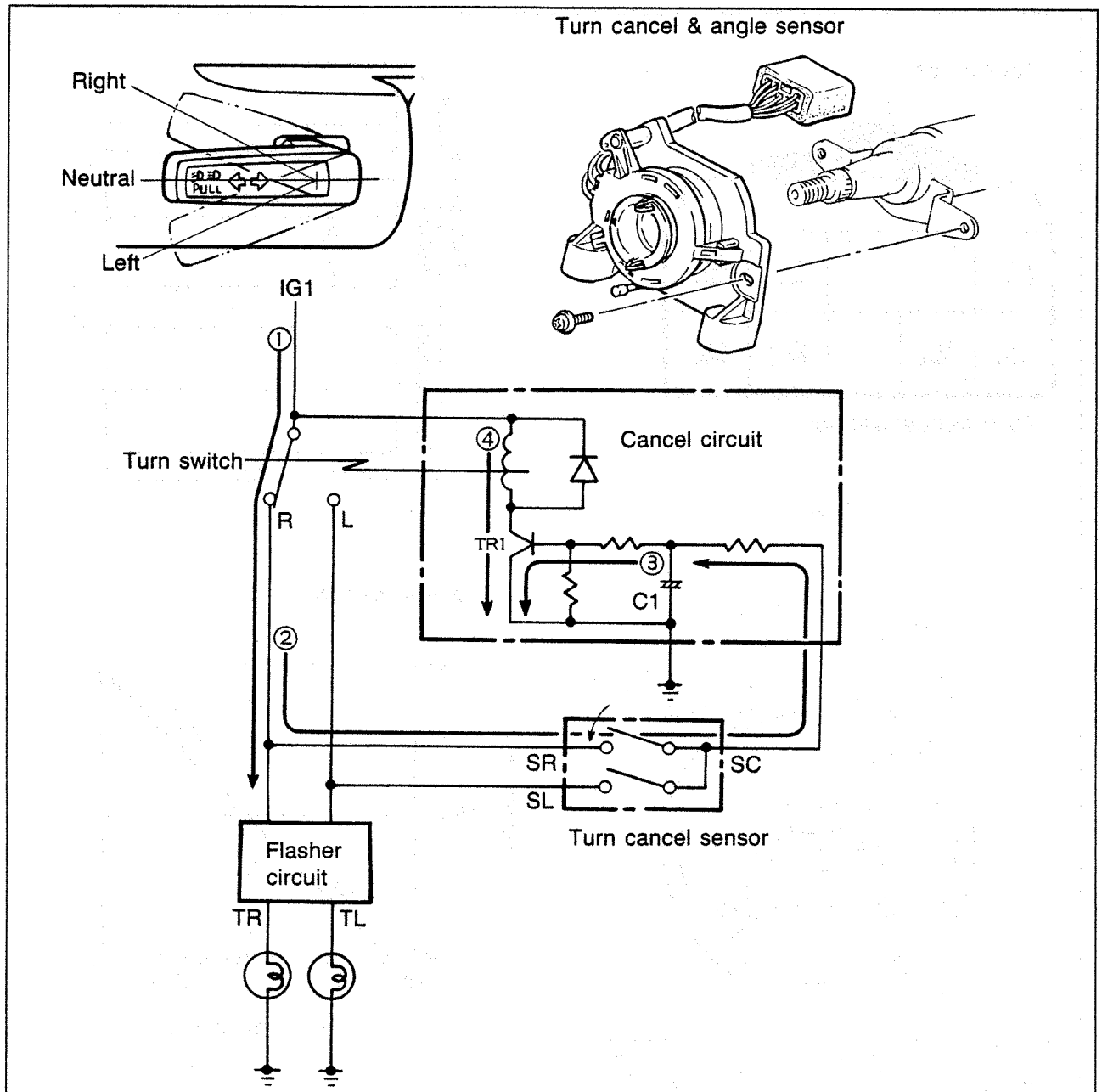
67U15X-513

The headlight dimmer control is electronic rather than mechanical. In other words, electronic circuitry changes the low beams to high beams.

When the main light switch is ON, a passing signal can be sent by using the dimmer flipper. At this time, the dimmer switching is controlled by the latch circuit (light dimming).

The latch circuit (light dimming) is simply a switching circuit which detects the OFF condition of the dimmer switch. As a safety measure, even if the headlight switch is turned OFF while the high beam is being used, the low beam is always selected the next time the headlight switch is turned ON.

TURN SIGNAL, DIMMER AND PASSING SIGNAL

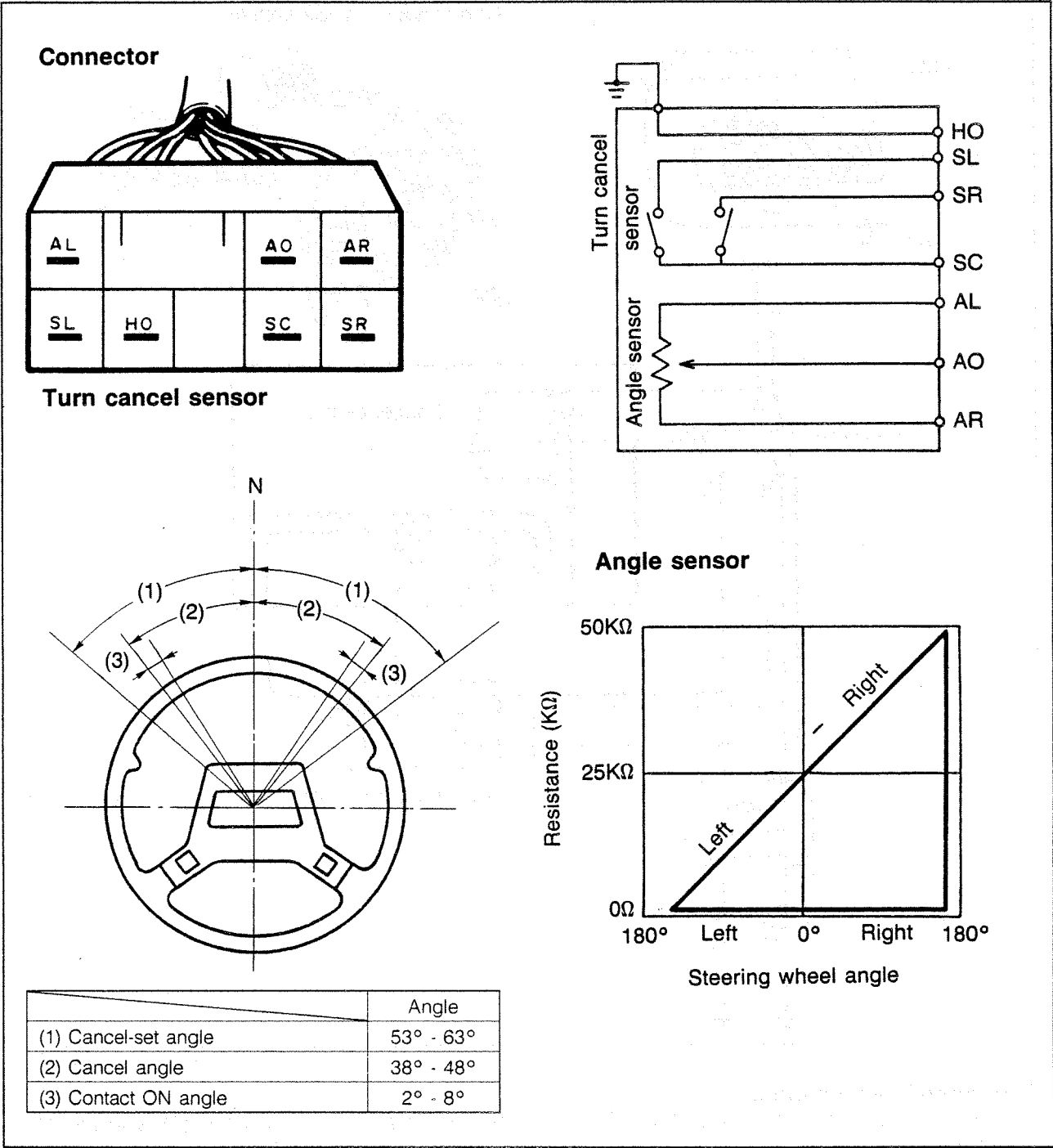


67U15G-514

Turn signal cancellation...

1. When the turn signal switch is at the R side, current flows as shown by arrow (1), and the flasher circuit is activated.
2. When the cancel signal (SR and SC are connected) of the turn cancel sensor is sent out, current flows as shown by arrow (2), and capacitor C1 is charged.
3. As the charging of capacitor C1 progresses, Tr1 base current flows as shown by arrow (3), and Tr1 is switched ON.
4. Because the Tr1 base current flows until the charge of C1 is discharged even if the turn cancel sensor contact is broken, Tr1 remains ON.
5. When the relay's coil is excited by Tr1 collector current such as shown by arrow (4), the solenoid is activated, the turn signal returns to the neutral position from the R contact, and the flasher circuit is interrupted.

TURN CANCEL AND ANGLE SENSOR



67U15X-515

The turn cancel sensor installed in the steering column has two functions:

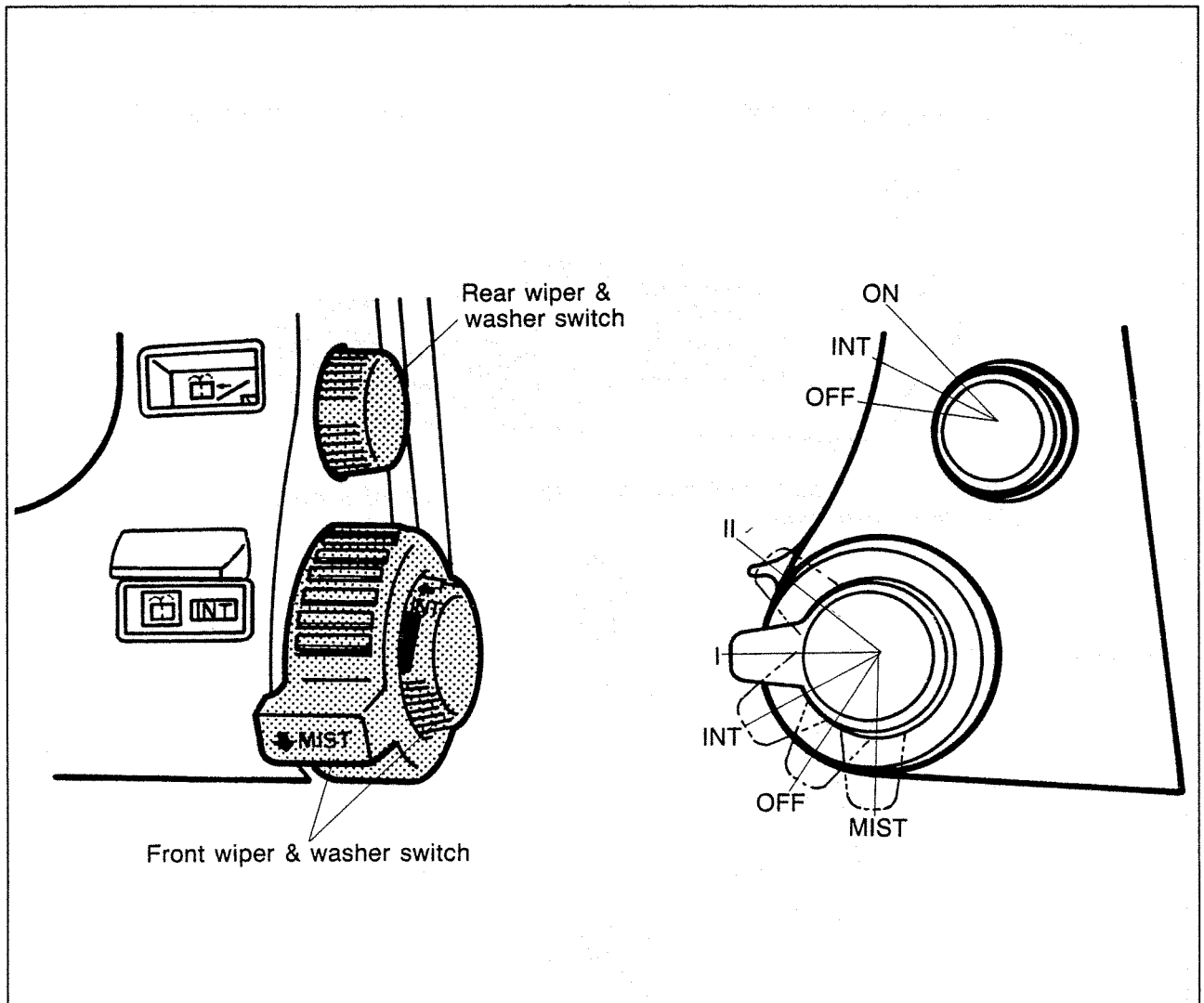
1. Cancel switch function...

When the steering wheel is returned from an angle of greater than **53°- 63°**, 12V is supplied to the cluster switch and the turn signal is cancelled.

2. Angle sensor function...

The angle sensor converts the steering angle amount into a resistance signal which is sent to the control boxes of the AAS and power steering.

WIPER AND WASHER SWITCH



67U15X-516

FRONT WIPERS

1. The "MIST" position is a new feature on the wiper switch.

Operation:

- When the wiper switch is turned to the MIST position and then released, the wipers operate at high speed one time only and the switch automatically returns to the OFF position.
 - If the wiper switch is held at the MIST position, the wipers operate at high speed until the switch is released.
2. An intermittent wiper relay (for time adjustment) is provided within the wiper switch. The time of the interval between wiper operations can be adjusted freely between **1.5** and **10** seconds.

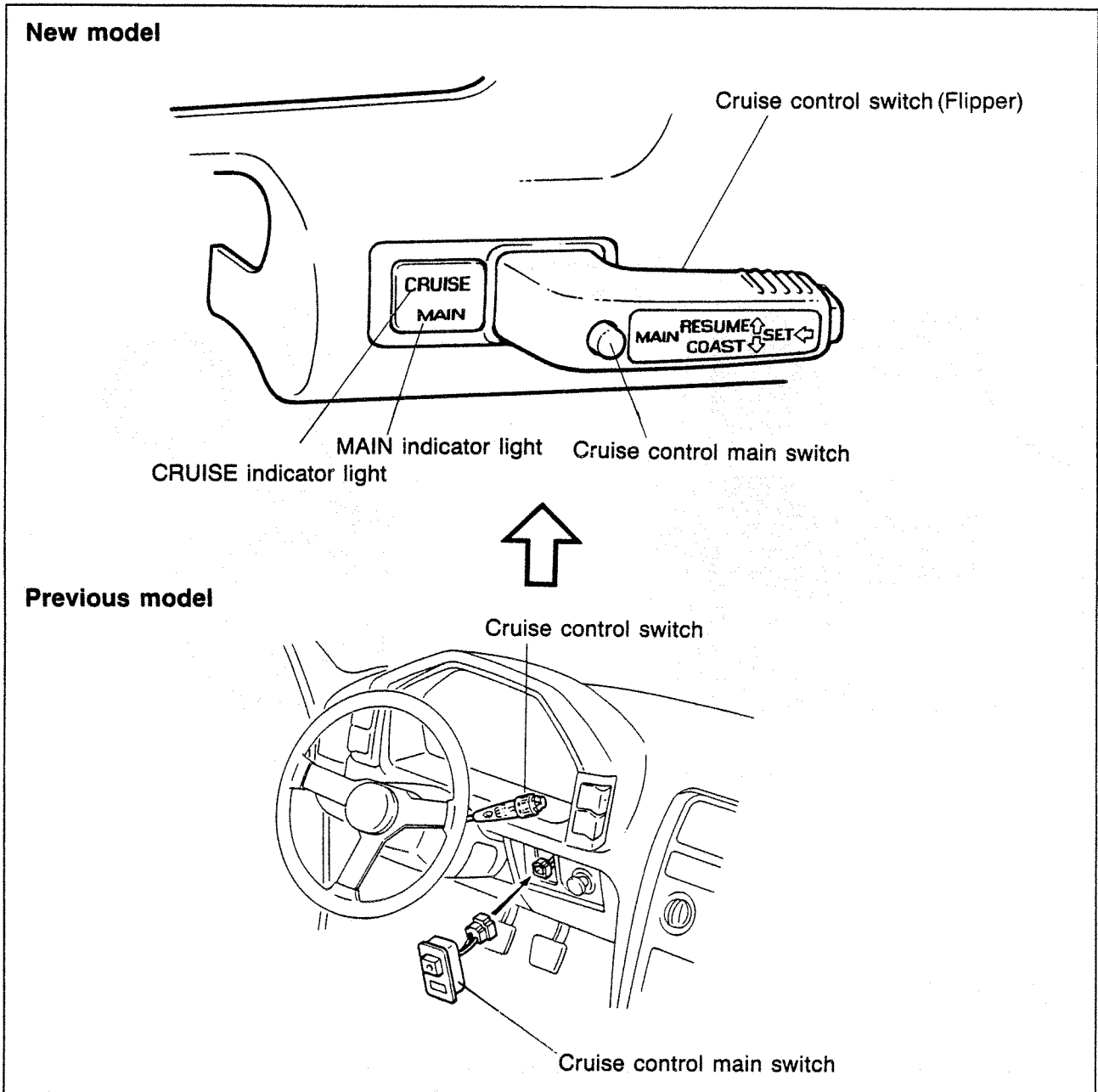
Minimum wiping interval: 1.5 seconds

Maximum wiping interval: 10 seconds

REAR WIPER

1. An intermittent wiper relay is provided within the wiper switch.
Wiping interval: approximately **6** seconds

CRUISE CONTROL SWITCH



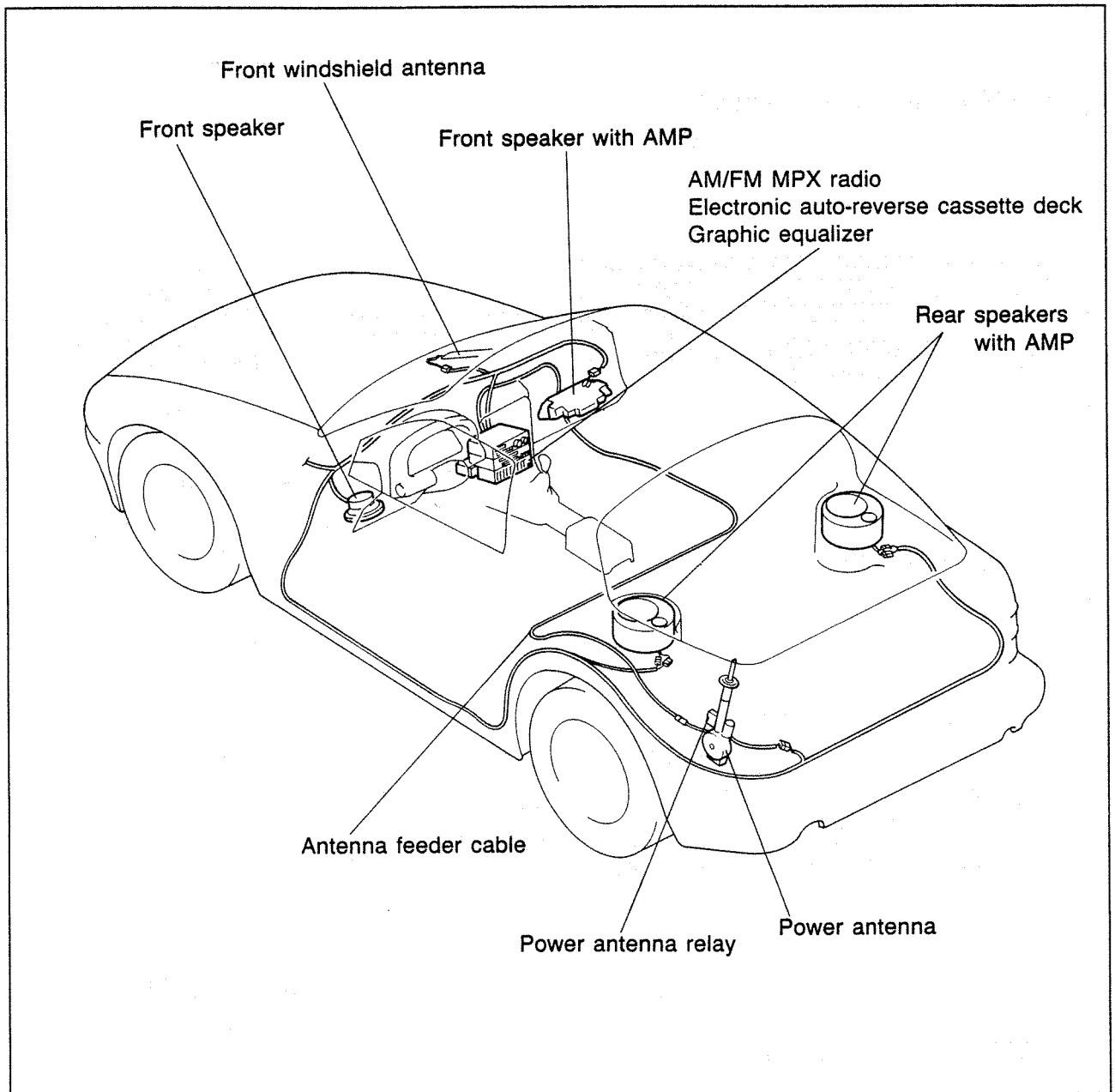
67U15X-517

The main switch button is in the cruise control flipper. An indicator light ("CRUISE") is a new feature on the cruise control switch unit; the "CRUISE" indicator light illuminates when the system is controlling cruise speed. The "MAIN" indicator lights up to show the main switch is on.

NOTE:

The light on the end of the main switch button is merely night illumination and should not be mistaken for an indicator!

AUDIO SYSTEM



67G15X-505

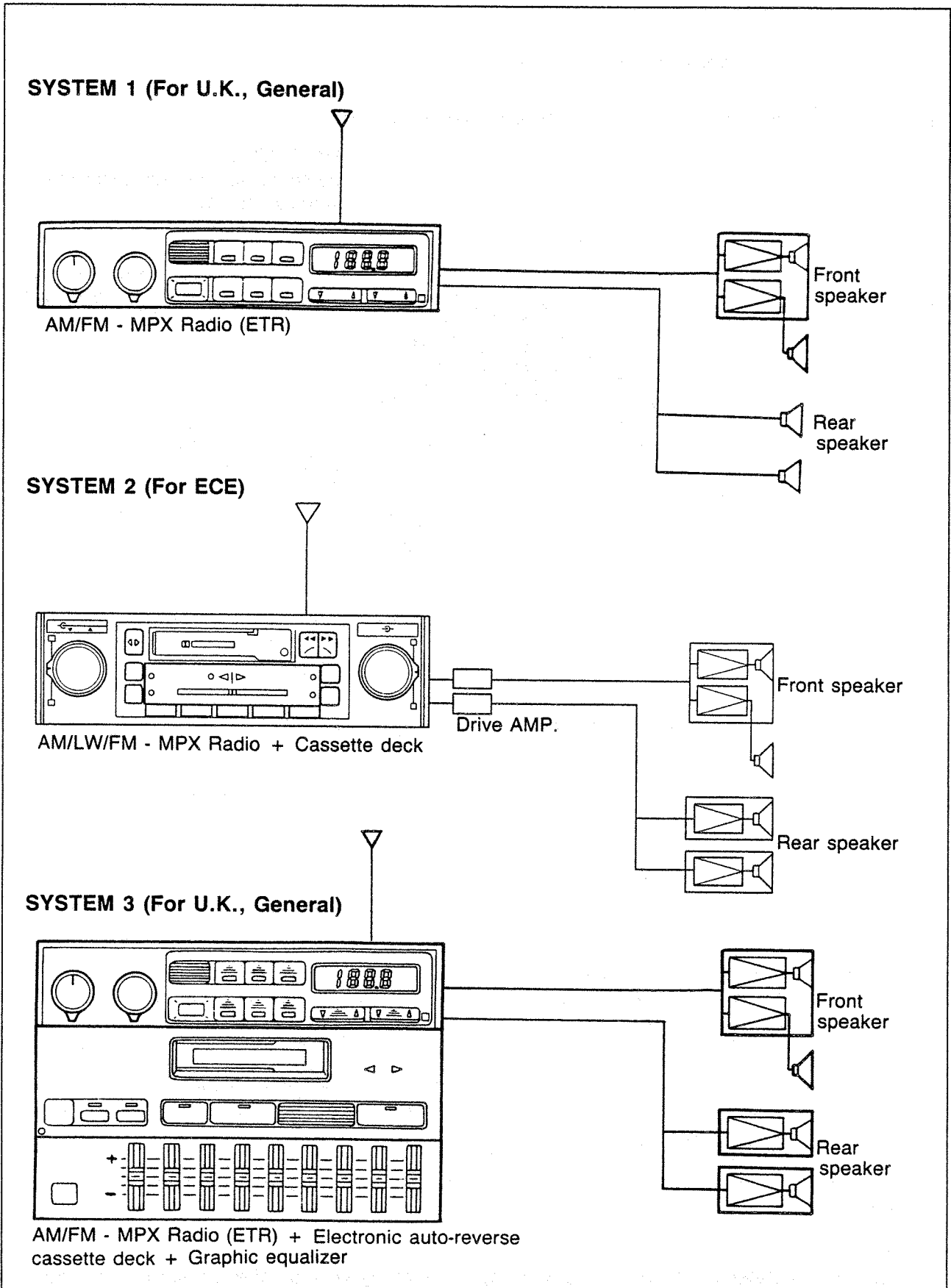
The major changes of the audio system compared to the previous RX-7 are as follows:

1. The volume control and other operation buttons have been moved from the right side to the left side for more convenient use.
2. In order to improve reception performance, a system using dual antennas and tuners (diversity tuning) has been adopted. (For Australia)
3. By including amplifiers (formerly separate) in the ETR and speakers, the DIN cord has been abolished. And, by including an amplifier in the speaker, each speaker can be independently controlled, thus making better sound reproduction possible.
4. The unit has been upgraded to receive AM stereo broadcasts. (For Australia)
5. The power antenna lowers when the ignition switch is turned OFF, as well as when the radio is turned OFF.

Caution

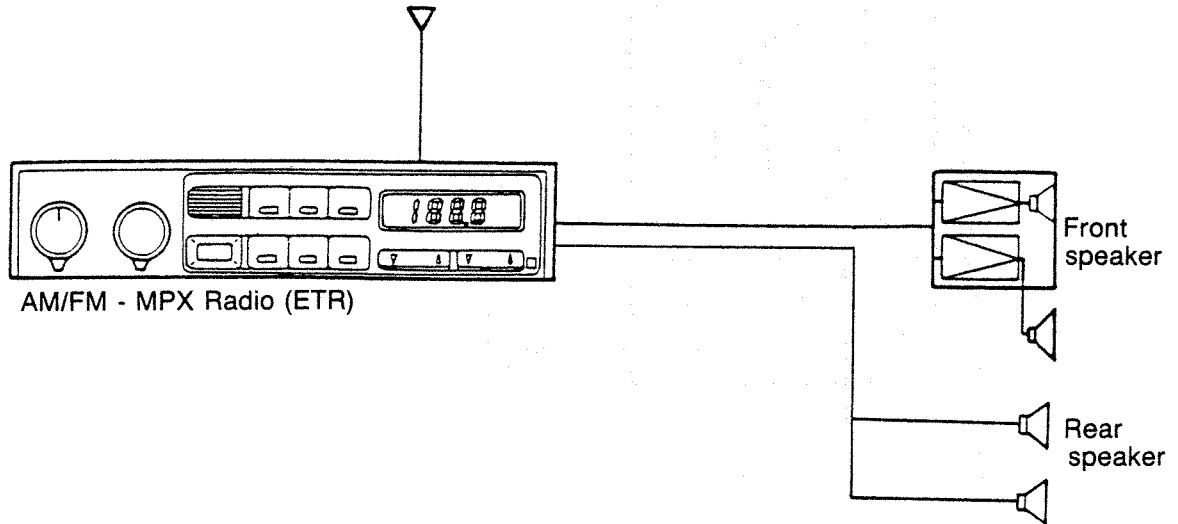
Because of delicate acoustic balancing, the factory seal on the speaker/amp assembly must not be broken. This means the assembly cannot be repaired.

OUTLINE OF AUDIO

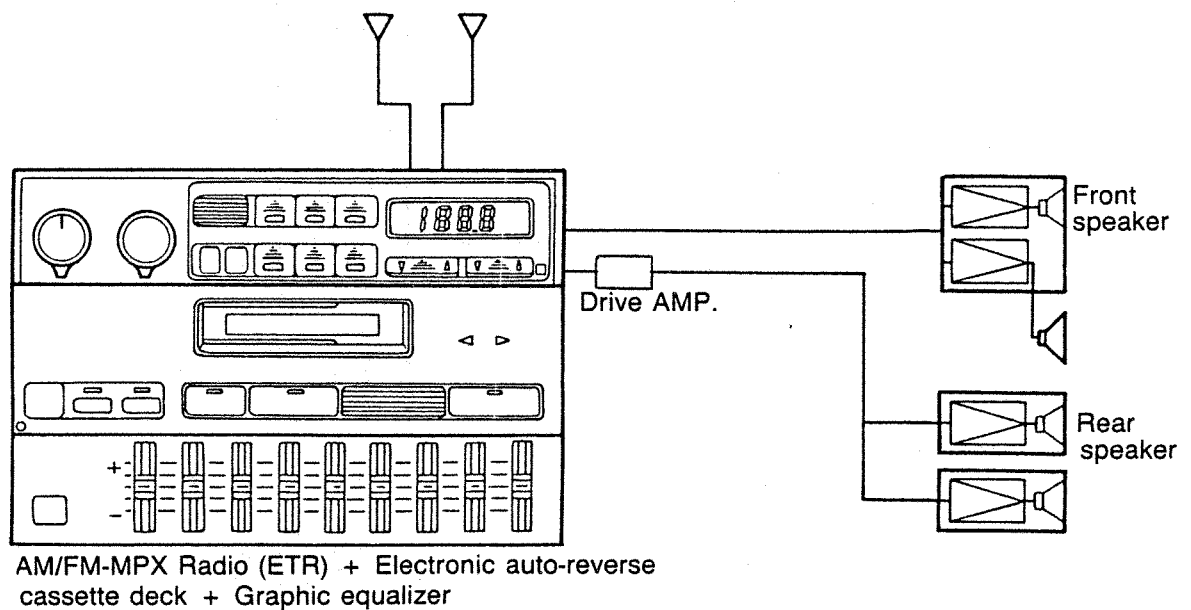


OUTLINE OF AUDIO (For Australia)

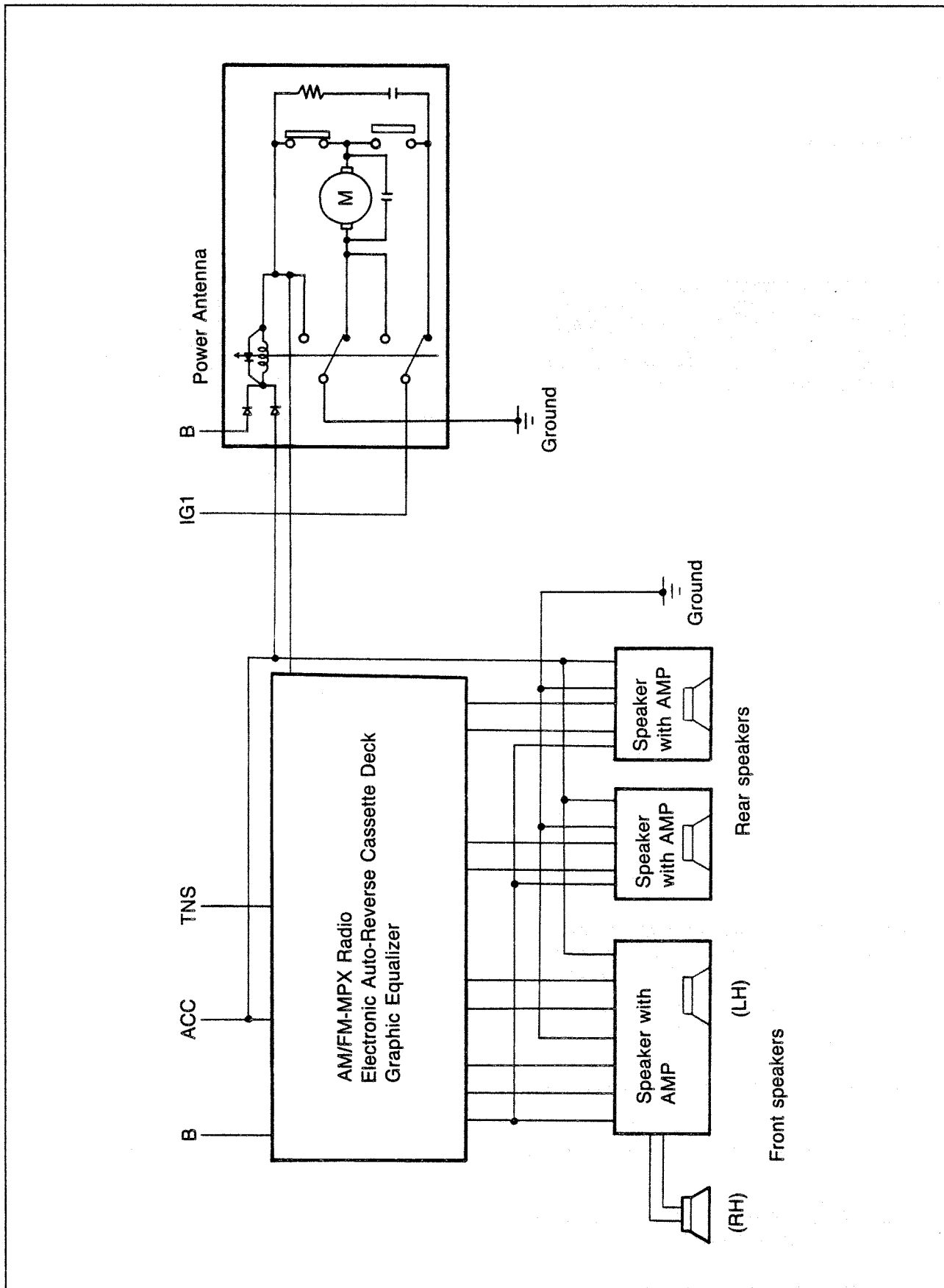
SYSTEM 1



SYSTEM 2

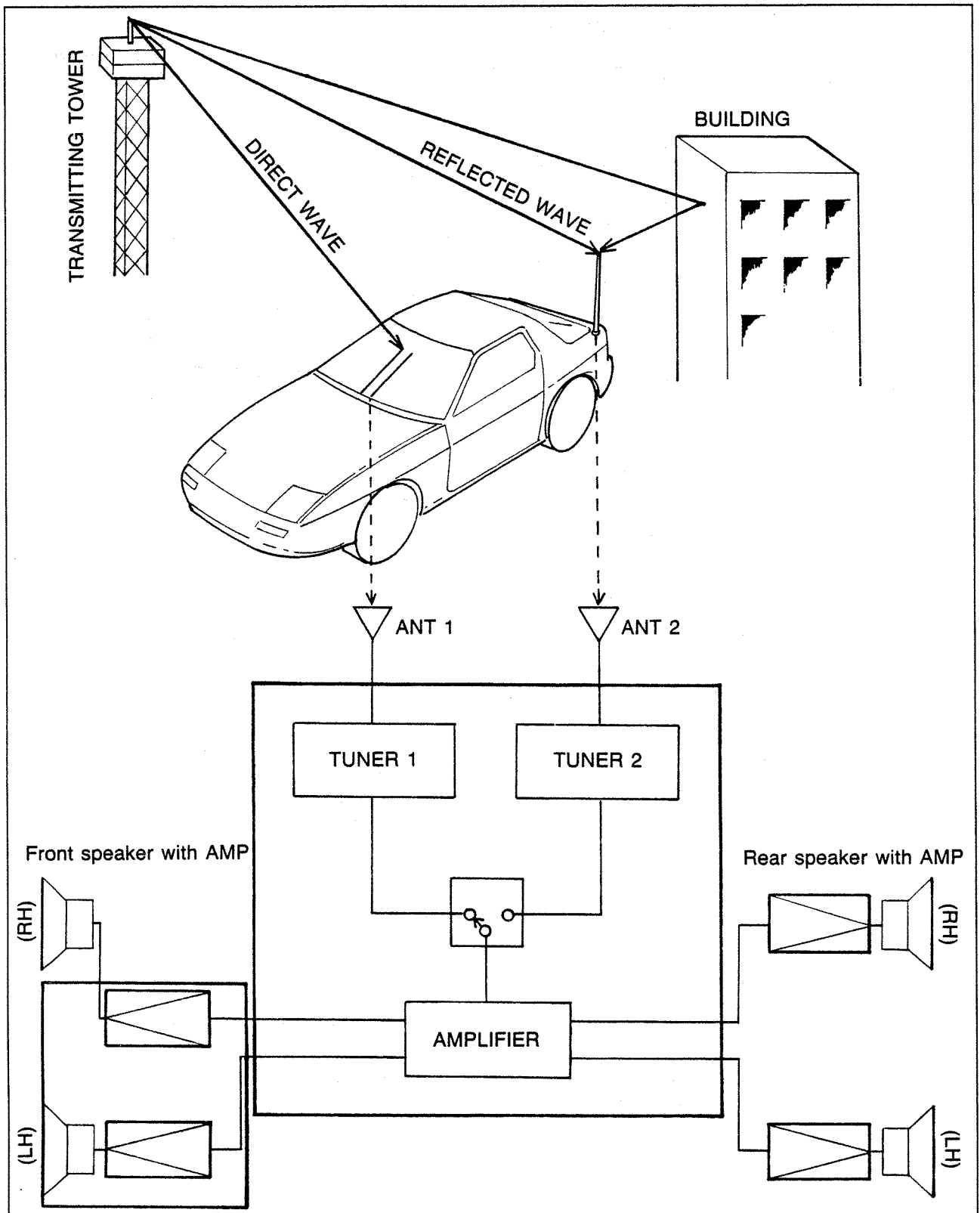


AUDIO CIRCUIT DIAGRAM (For Australia)



67G15X-508

DIVERSITY (DUAL) TUNING SYSTEM for FM (For Australia)

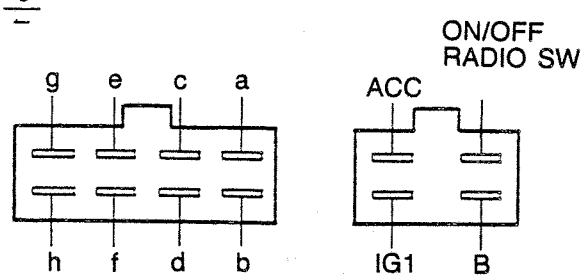
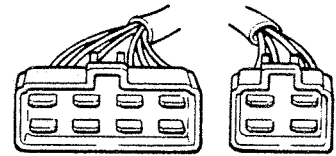
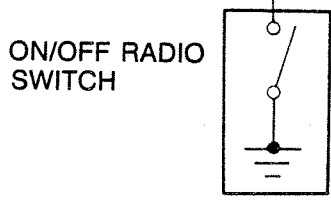
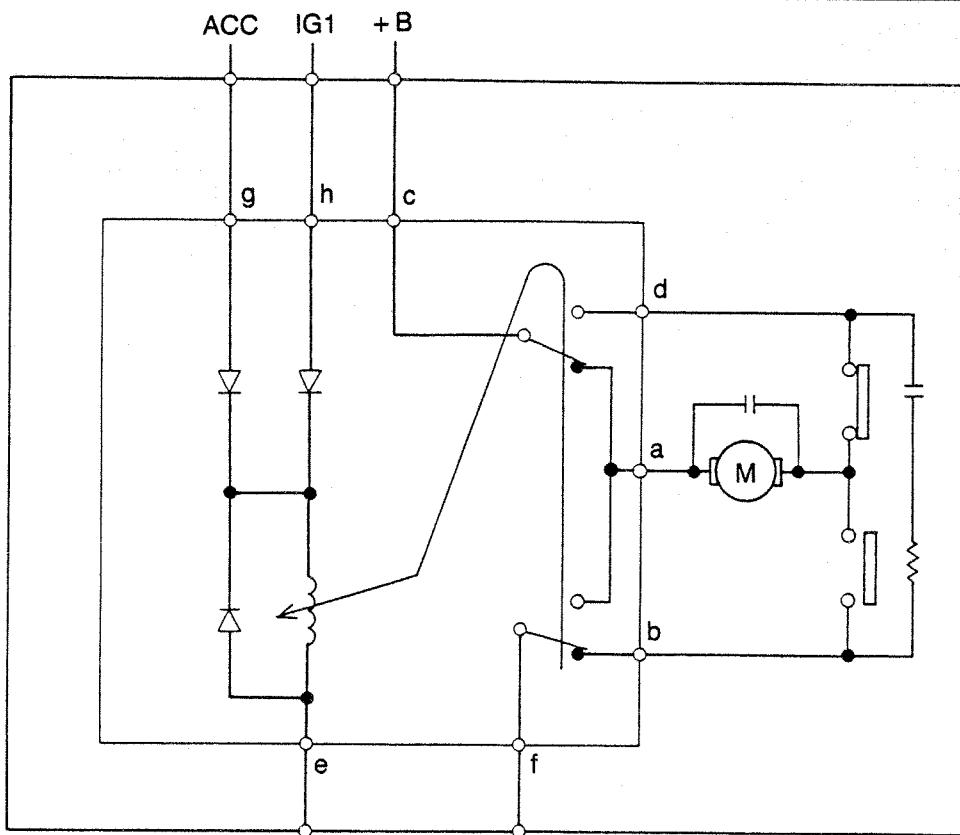


67G15X-509

Diversity (dual) tuning system for FM

The system now includes two antennas and tuners so that stereo broadcasts can be better received by automatic selection of whichever antenna provides the best reception conditions.

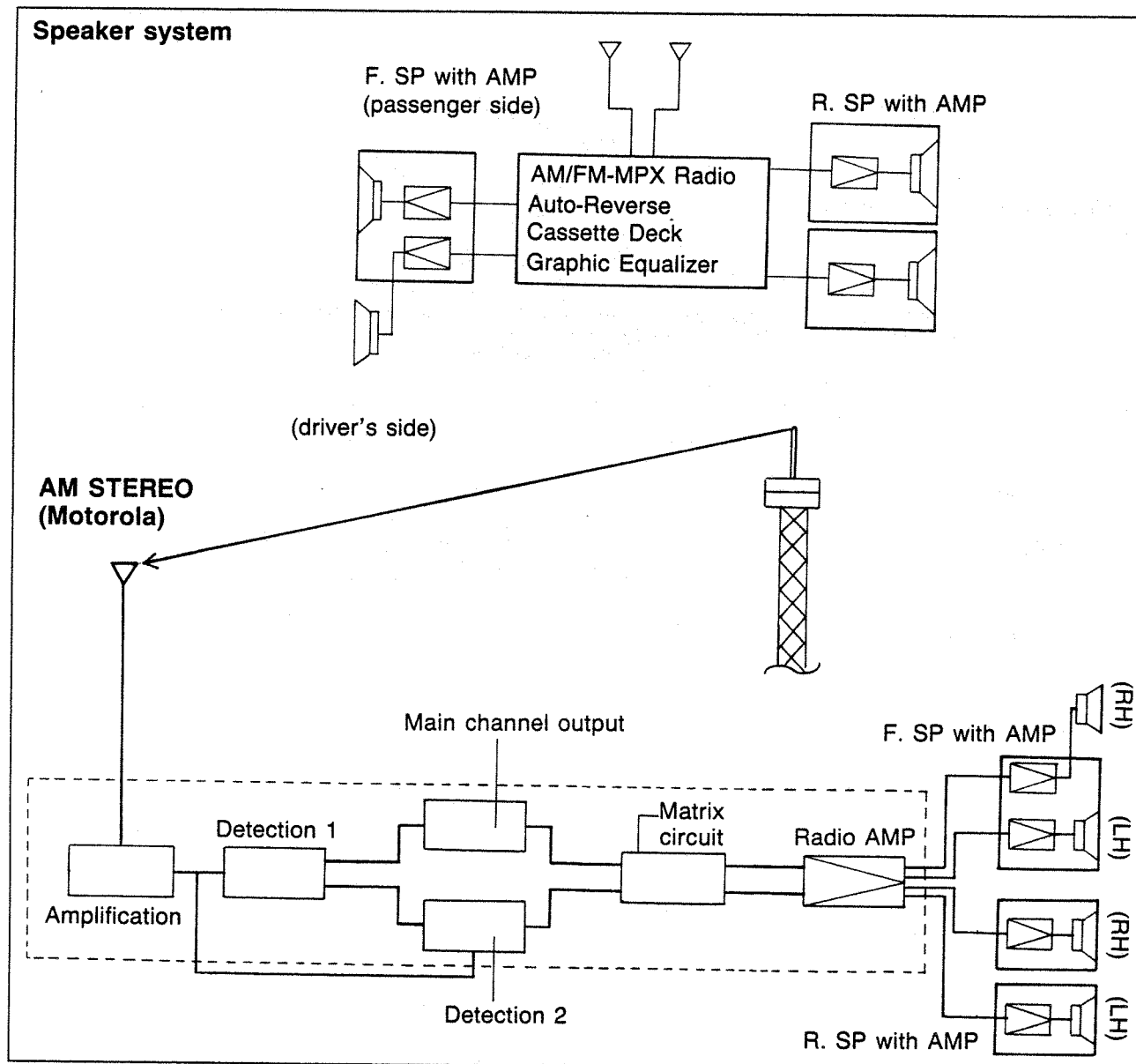
POWER ANTENNA CIRCUIT



	ON/OFF RADIO SW	ACC or IG	Terminal connection				
			a	b	c	d	f
UP	○	○	○		○	○	○
DOWN	X	○	○		○		
	○	X		○			○

○ ON
X OFF
○—○ Indicates continuity

FEATURES OF SPEAKER SYSTEM & AM STEREO



67G15X-510

SPEAKER SYSTEM

High-quality sound is possible because of independently-controlled speakers (right to left and front to rear). Each speaker has its own amplifier.

FAD knob controls front-to-rear speaker fade (balance)

BAL knob controls right-to-left speaker balance

AM STEREO SYSTEM (For Australia)

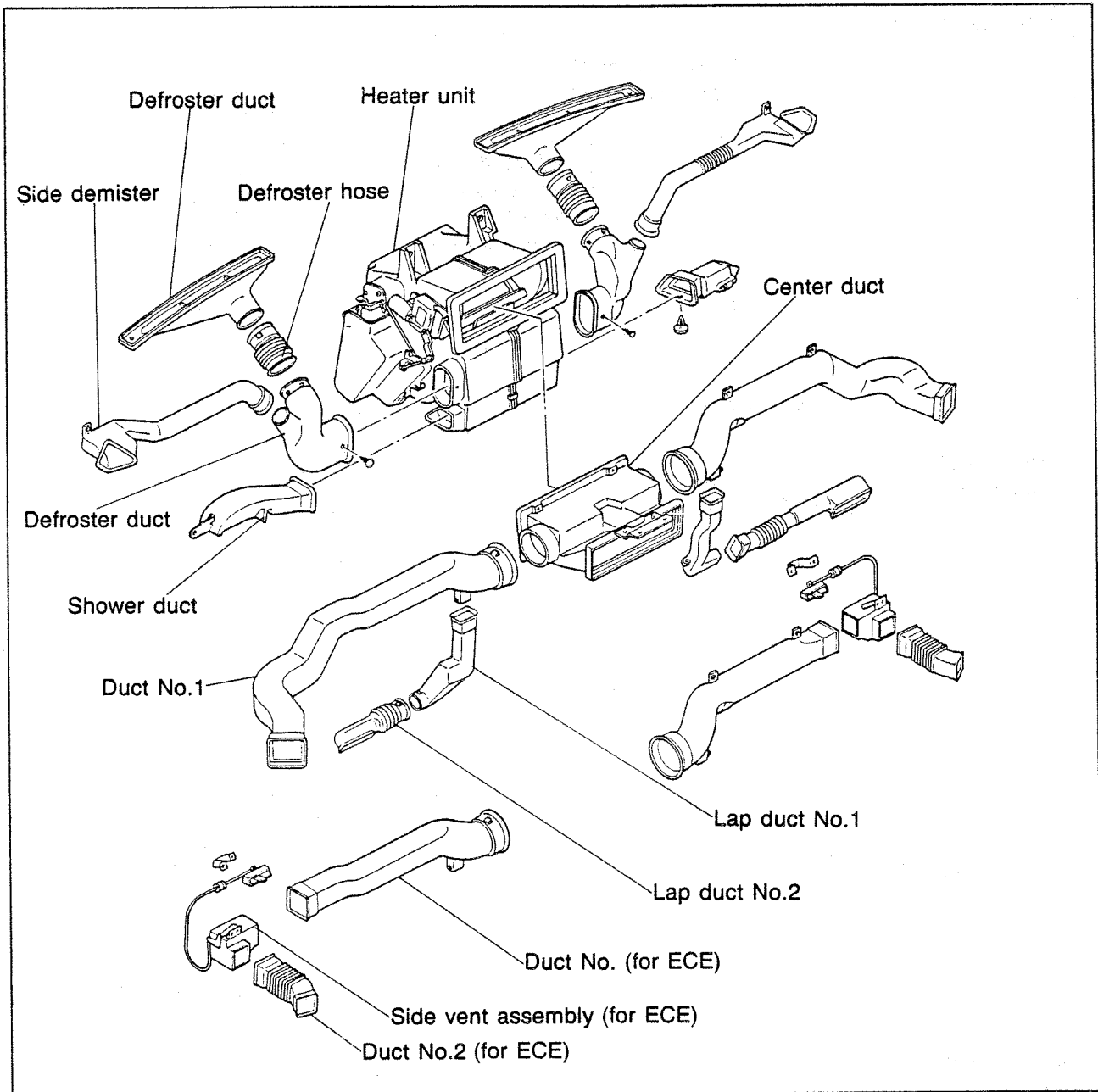
The type of receiver system used by Mazda is Motorola-designed.

There are now approximately 33 stations which transmit AM stereo in Australia.

(AM STEREO OPERATION)

When tuned to an AM stereo station, setting the band width (BW) selector to the WIDE position (with the button out), will enable you to enjoy higher fidelity sound from your radio. In the narrow position (with the button depressed), the band width selector reduces unwanted radio noise. The position of the button alternates each time the button is pressed.

HEATER



67U15X-530

In order to upgrade the product, the following points have been changed compared to the previous model.

Changes related to the heater controls:

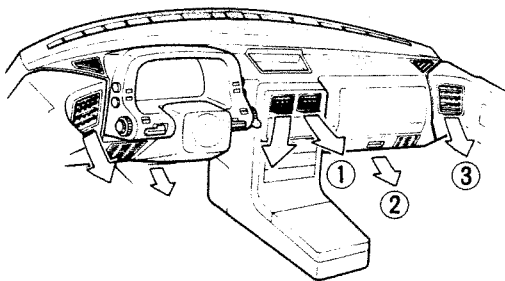
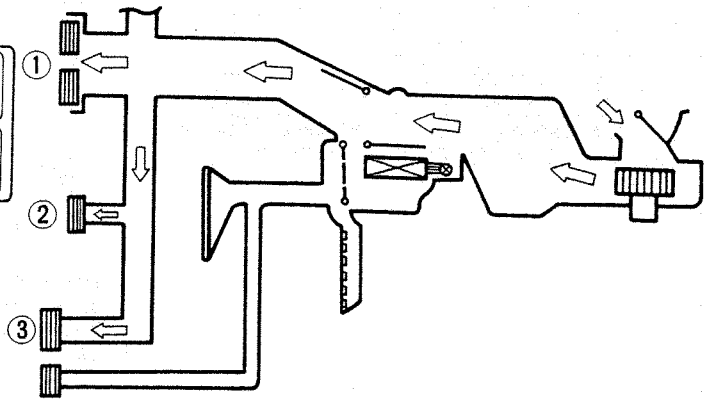
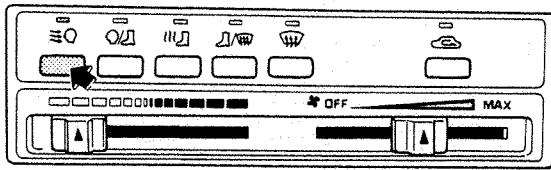
1. All models have been equipped with electronic logic-mode type heater controls.
2. The temperature control is a sliding type, making possible continuously variable adjustment of the temperature.
3. The air-volume control is a sliding type, making possible continuously variable adjustment of the air flow volume.
4. A heat/defrost mode has been adopted. As a result, cold region heating and front window visibility have been improved.

Changes related to the air volume and ducts:

1. Air flow volume has been increased approximately 30% by changing the position of the air intake/outlet ports of the side defroster and the blower motor.
2. Heating performance at the heat mode has been increased by utilizing shower ducts.

AIR FLOW DIAGRAM

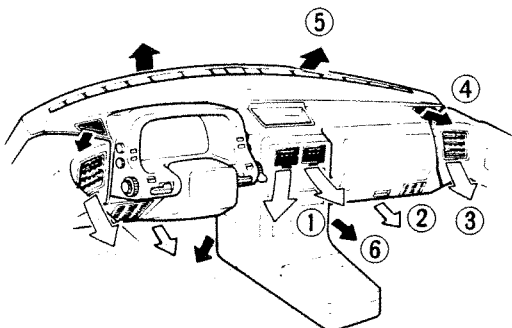
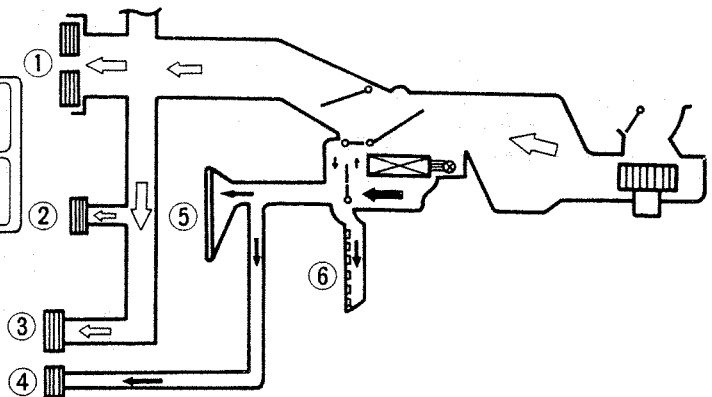
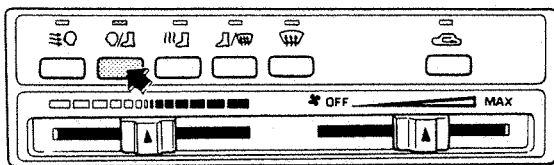
To ventilate the vehicle



← Fresh air

- ① To face
- ② To knee
- ③ To face

Bi-level

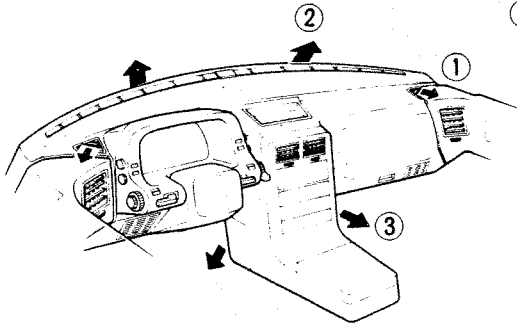
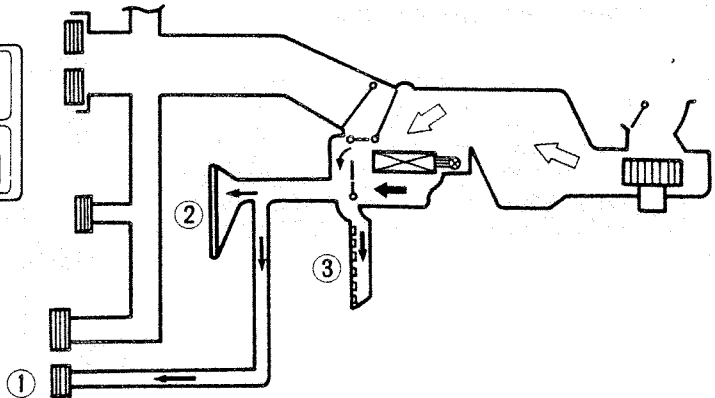
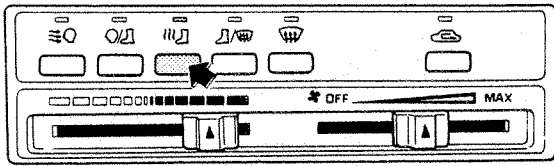


← Fresh air

▬ Warm air

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

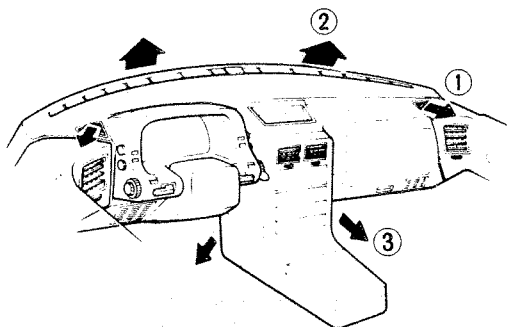
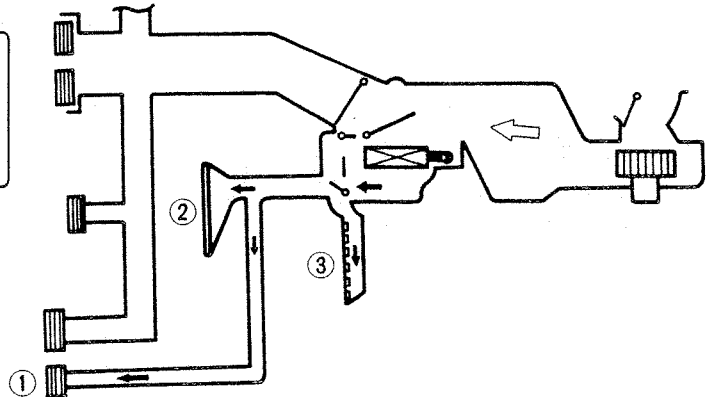
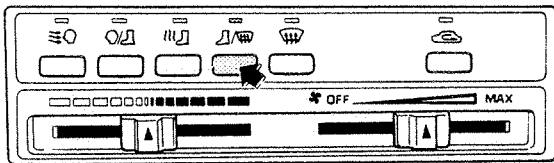
To heat the vehicle



↖ Fresh air
 ↗ Warm air

- ① To side window
- ② To front window
- ③ To floor

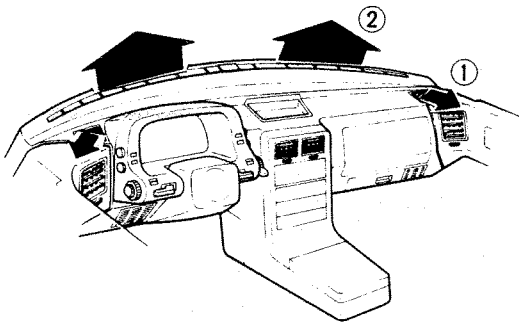
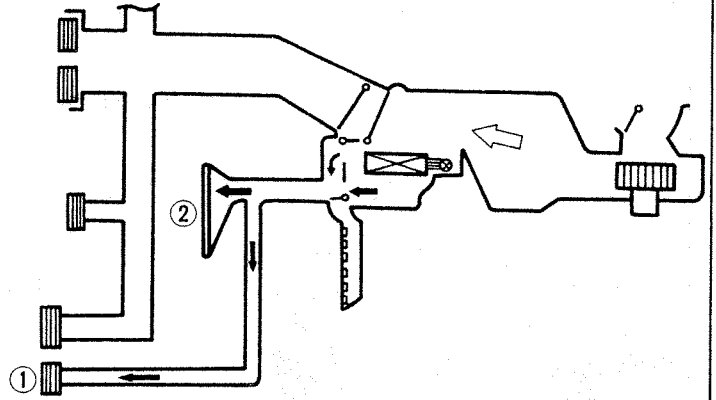
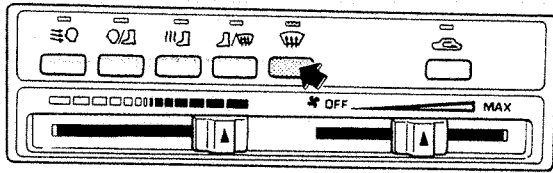
To heat and defrost



↖ Fresh air
 ↗ Warm air

- ① To side window
- ② To front window
- ③ To floor

To defrost the windshield glass



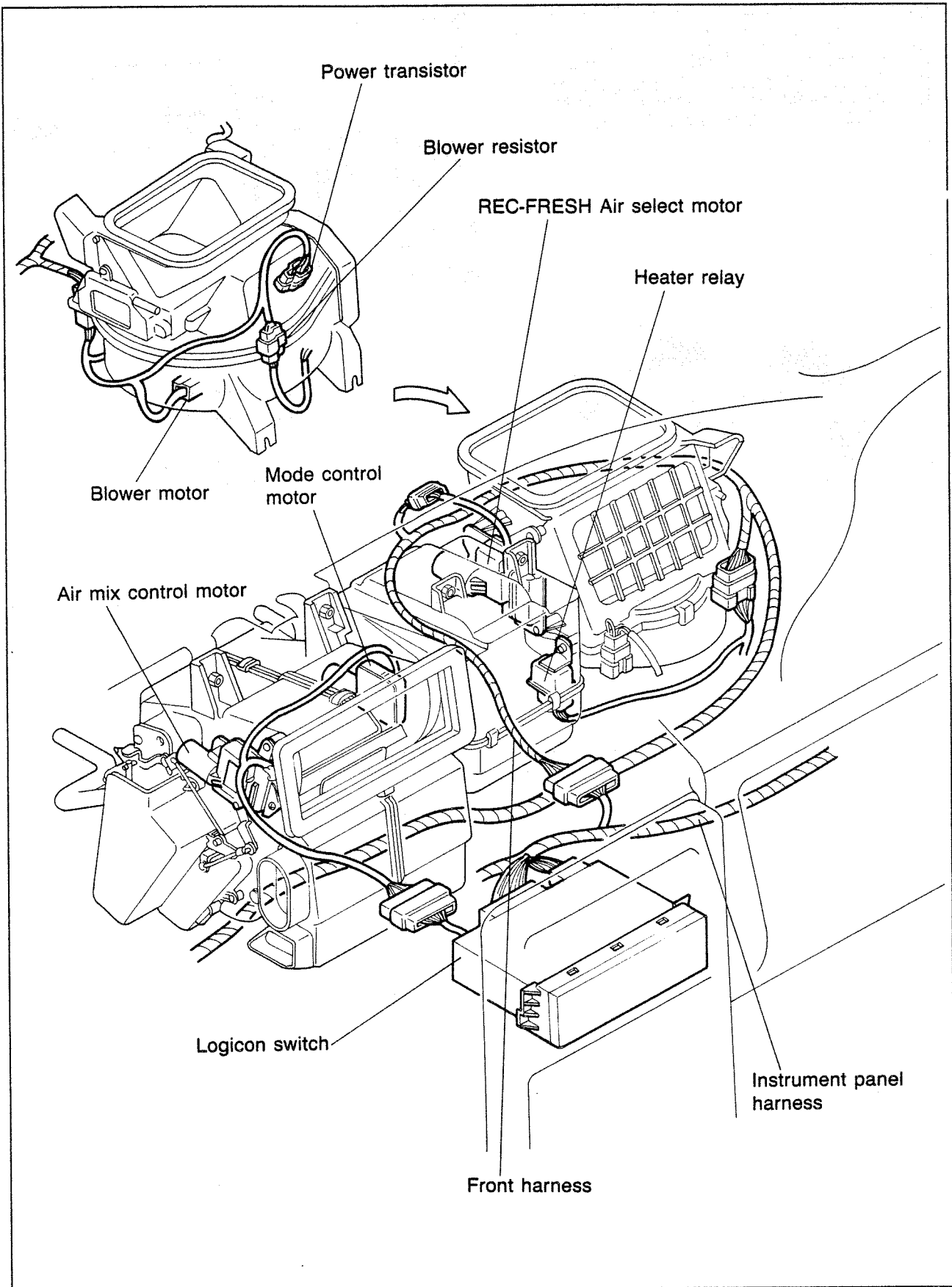
↖ Fresh air
 ↗ Warm air

① To side window
 ② To front window

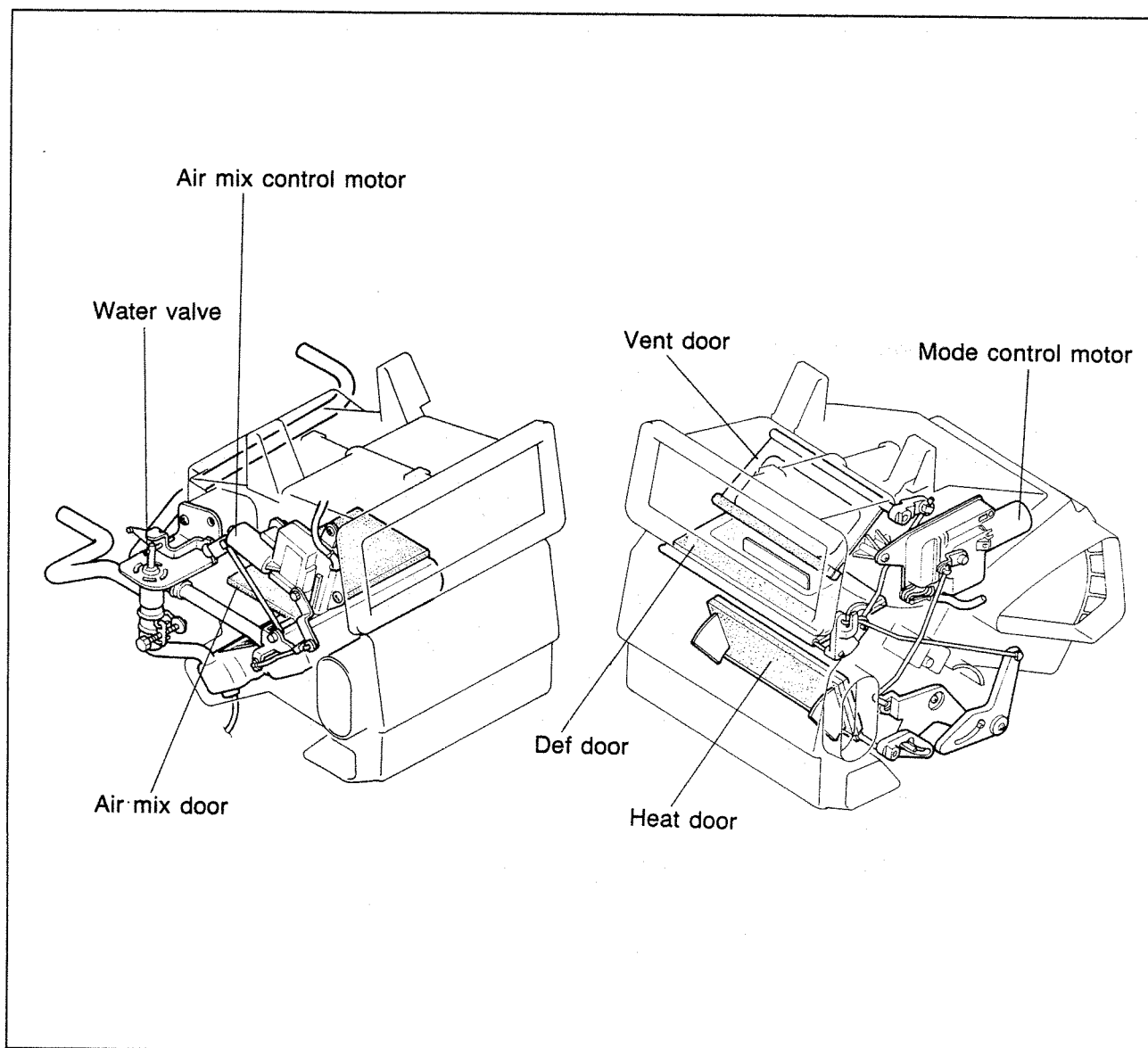
67U15X-564

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

LOCATION OF EACH MOTOR AND WIRING HARNESS



HEATER UNIT

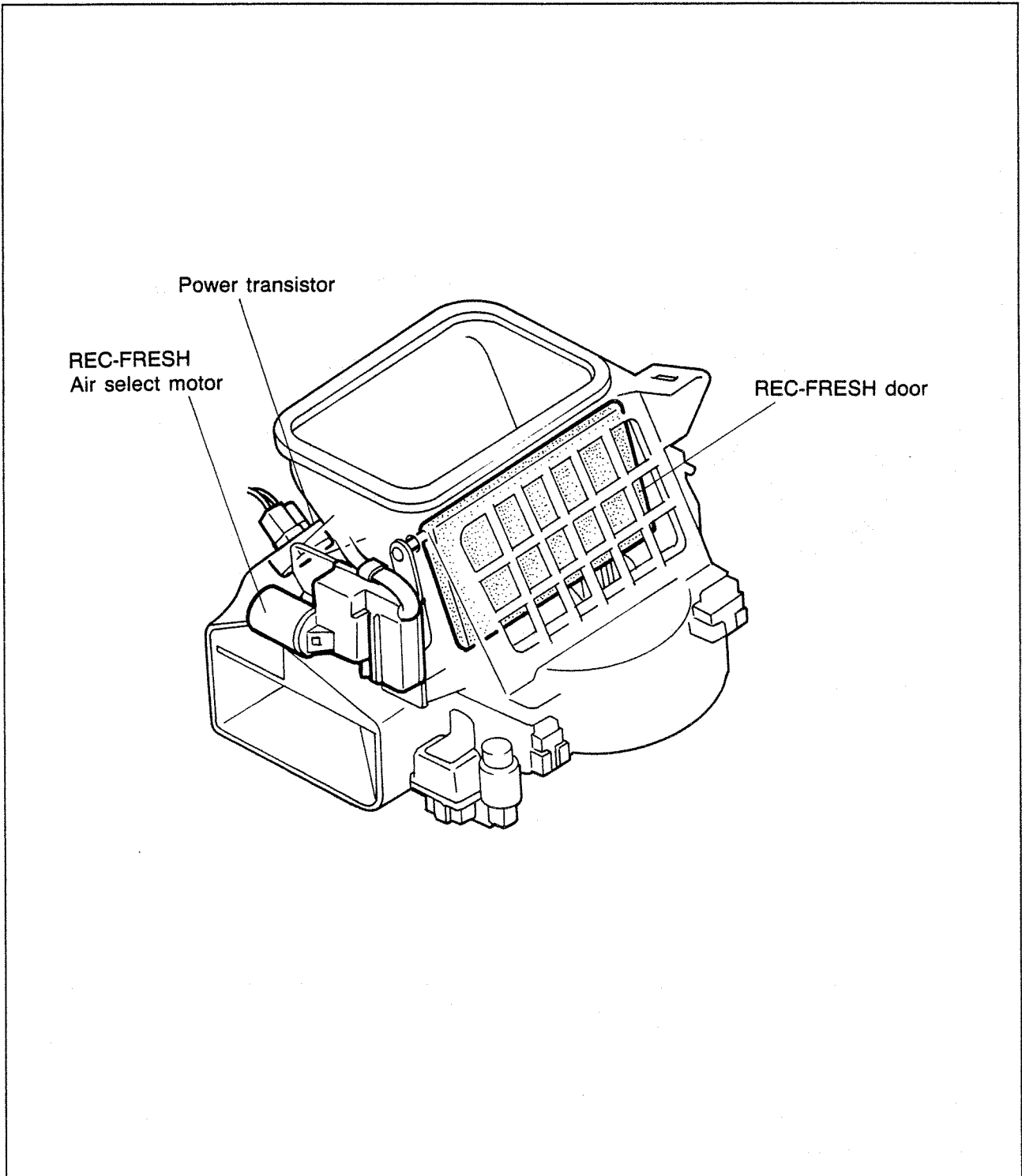


67U15X-534

Air flow volume has been increased by increasing the size of the heater unit. In addition, a motor for mode door drive and a motor for air-mix door drive have been installed (in the heater unit) in conjunction with the adoption of logic-mode controls. The temperature is controlled by the opening and closing of the water valve and the air-mix door by the motor for the air-mix door.

Temperature control lever	Water valve	Air-mix door
MAX. COLD position	Closed; so no water flows to heater core.	Completely closed; so no air flows to heater core.
Mid-way between COLD and HOT	Open; so water flows to heater core.	Mid-way between fully open and fully closed; so air flows to heater core and vent.
MAX. HOT position	Same as above	Completely open; so air flows to heater core.

BLOWER UNIT

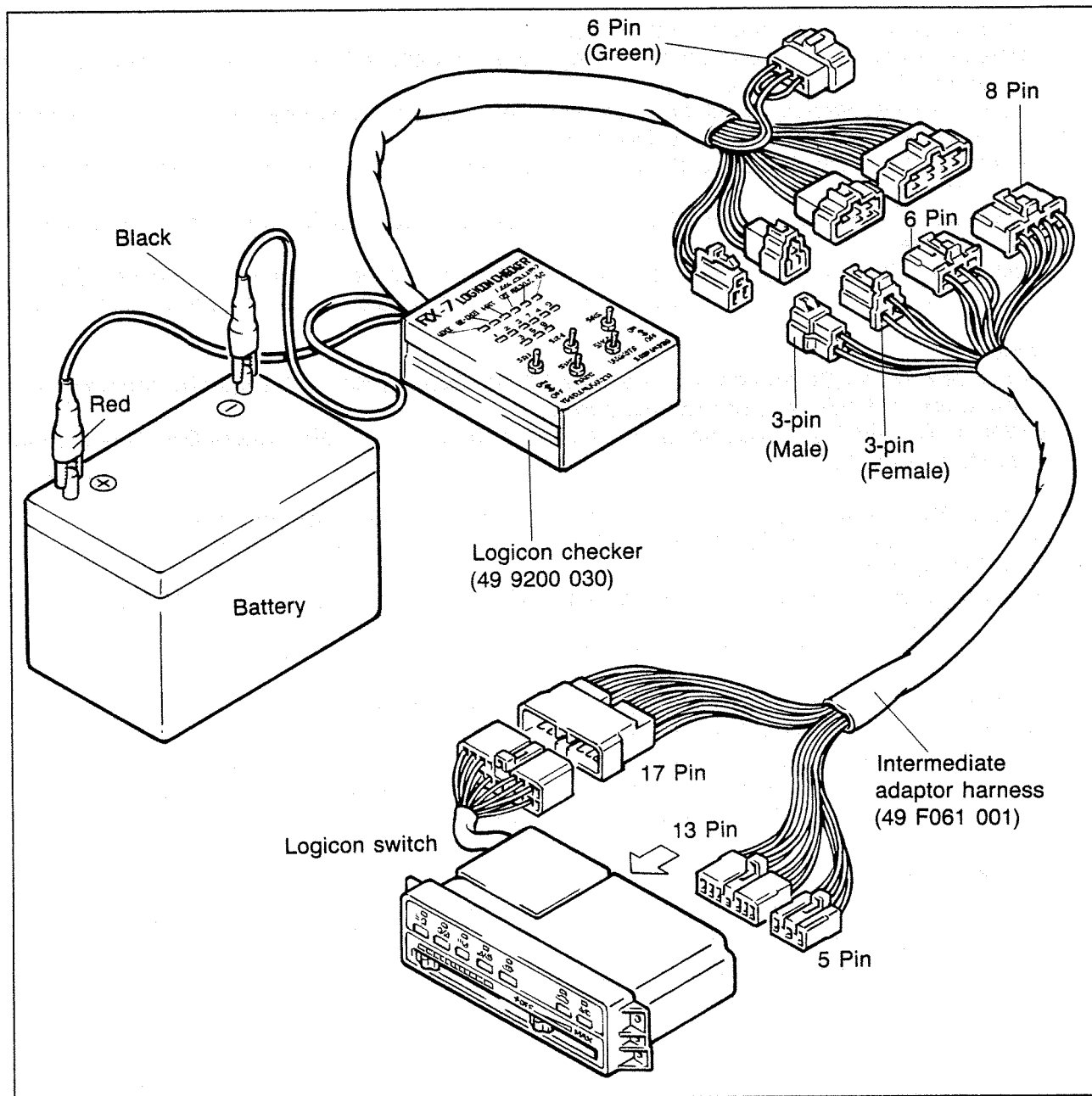


67G15X-511

In order to increase the air flow volume, the capacity of the blower motor has been changed from the previous 180 watts to 200 watts.

In order to improve the heating speed efficiency when the REC/FRESH air door is moved to take in fresh air, the inside air mixing door (installed to the REC/FRESH changeover door) is opened by its own weight. As a result, inside air also enters from the inside air mixing door in accordance with FRESH air.

LOGICON CHECKER



67U15X-536

A special Logicon checker has not been developed for this model. Instead, an **intermediate adaptor harness (49 F061 001)** has been adapted for the present **Logicon checker (49 9200 030)**. Make connections as shown in the figure above.

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

HOW TO USE THE LOGICON CHECKER

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

Note

- a) The red No. 1 LED will go off when the REC-FRESH switch is turned ON while using the checker, but this is a normal function.
- b) When the HEAT/DEF button is pushed ON, the red NO. 4 LED comes ON. This indicates correct operation.

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

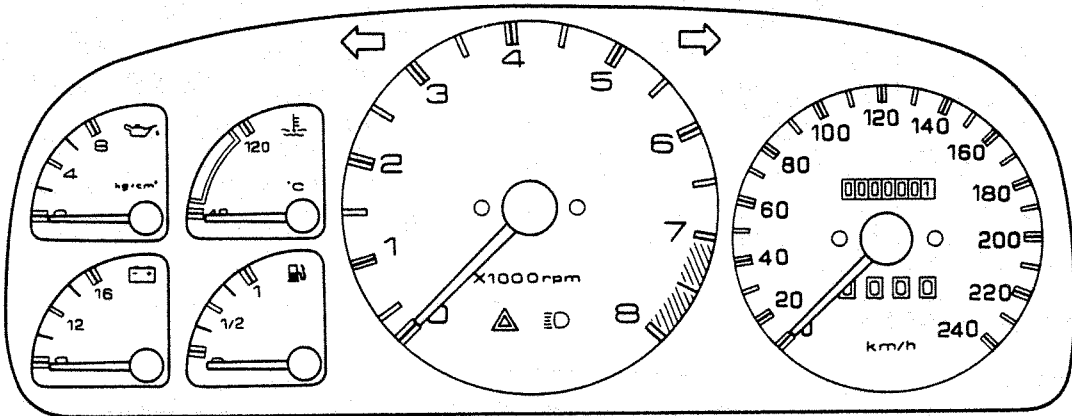
Logic-control switch									Checker					Checker													
VENT	VENT/ HEAT	HEAT	HEAT/ DEF	DEF	A/C	REC	ILLUMI		Switch					(RED) LED				(GREEN) LED									
									SW1	SW2	SW3	SW4	SW5	1	2	3	5	6	7	8	VENT	VENT/ HEAT	HEAT	RED4	DEF	A/C	REC
X	X	X	X	X	X	X	X	X	○	X	X	X	X	○	X	○	X	○	X	○	X	X	X	X	X	X	X
X	X	X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

○.....ON X.....OFF

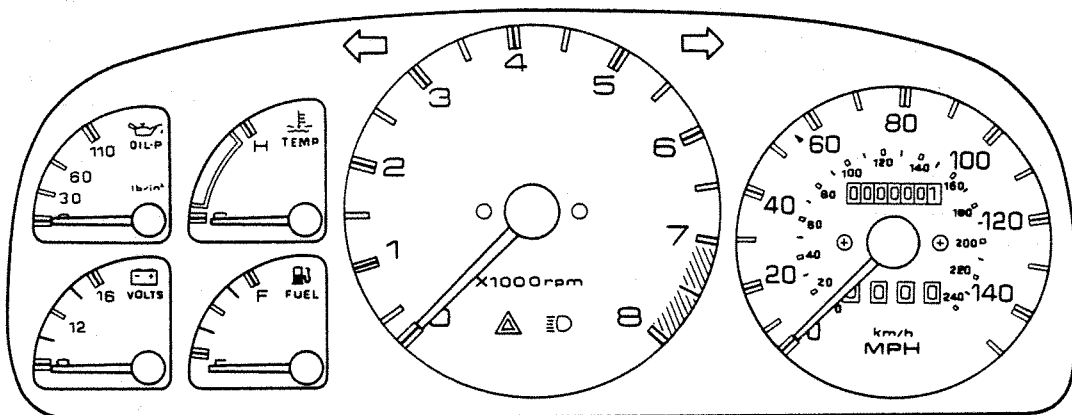
67U15X-537

METER (GAUGE CLUSTER)

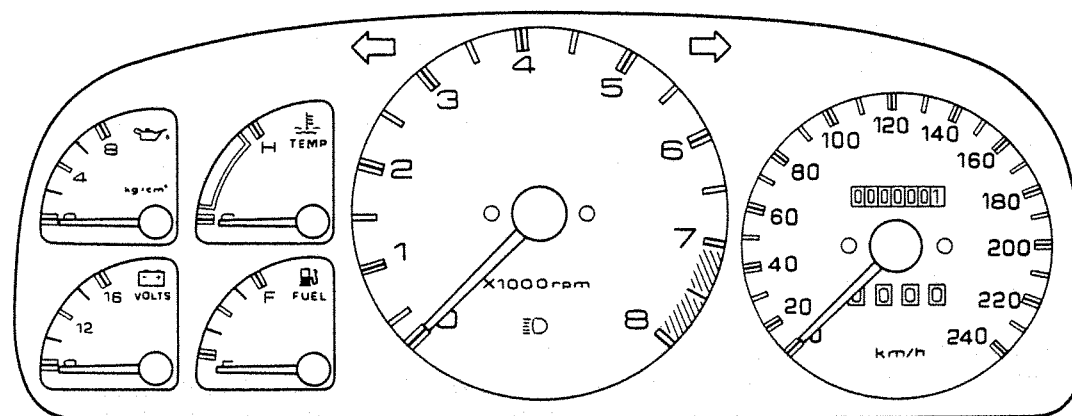
1. For ECE



2. For U.K.

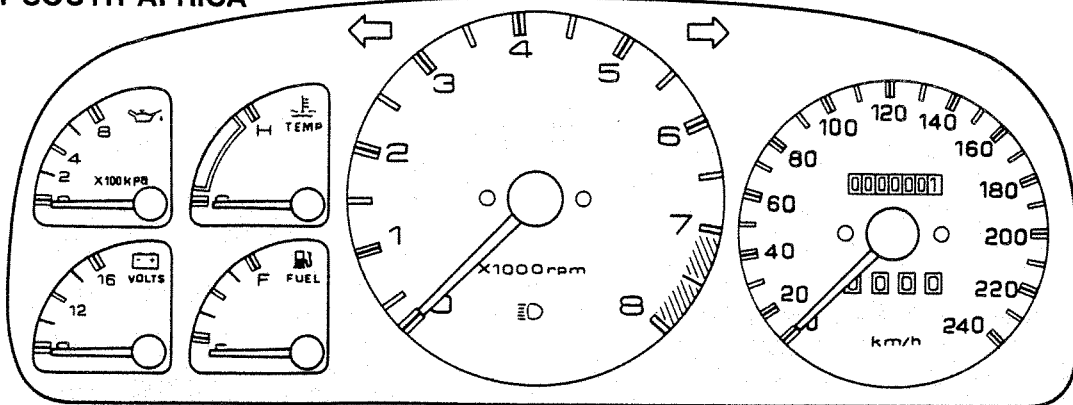


3. For AUSTRALIA, MIDDLE EAST



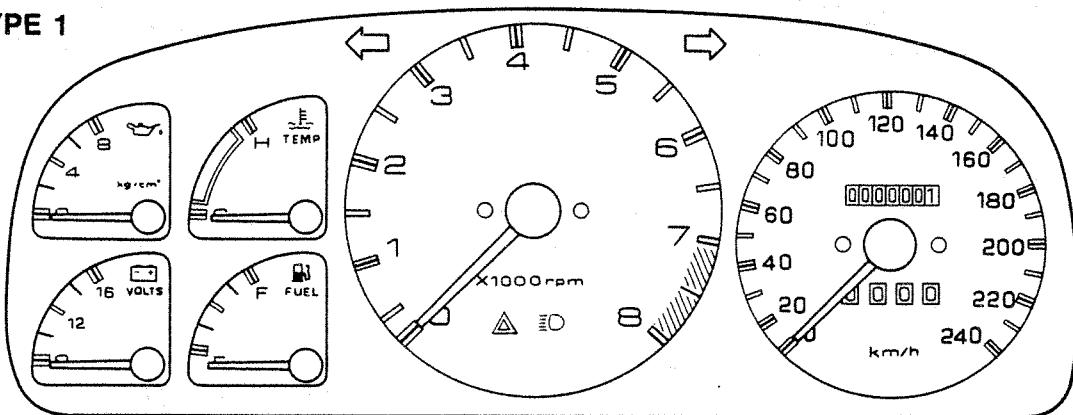
METER (GAUGE CLUSTER)

4. For SOUTH AFRICA

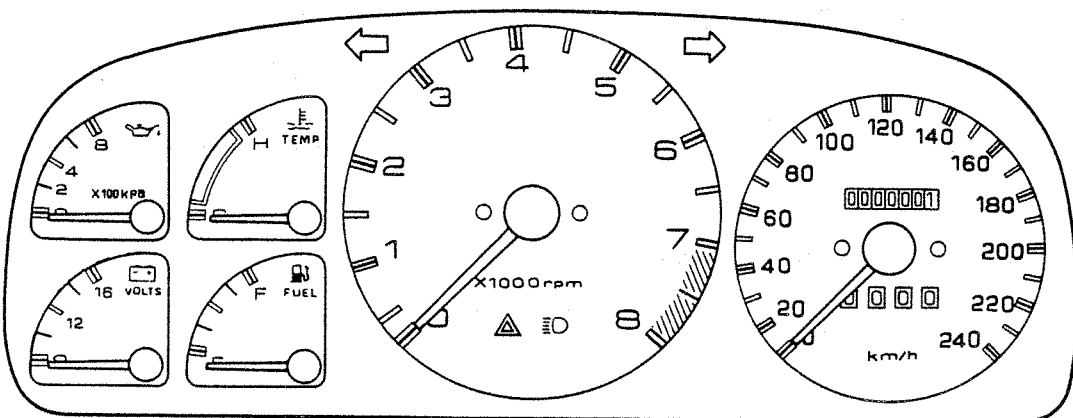


5. For R.H. GENERAL

TYPE 1



TYPE 2



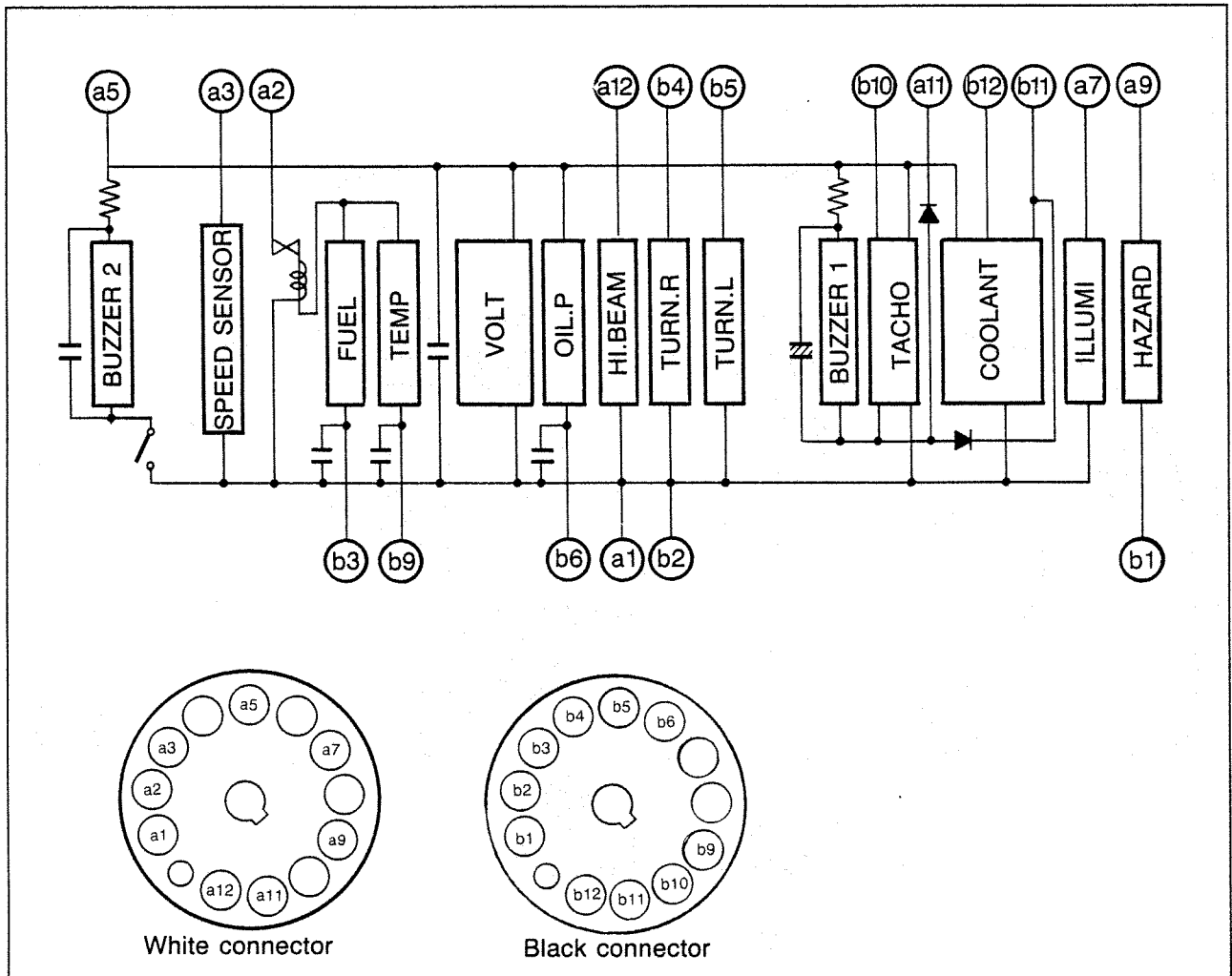
67G15X-513

The major changes of the combination meter, compared to the previous RX-7 are as follows.

1. Because of the inclusion of a coolant unit in the meter, the wiring from the buzzer to the coolant unit has been eliminated.
2. The following changes have been made for improved design:
 - The warning lights have been moved from the meter to the clock recess area.
 - The method for indicator needle illumination has been changed from a light-emitting indicator needle to an indirect-type illumination.

METER PRINTED CIRCUIT BOARD INSPECTION

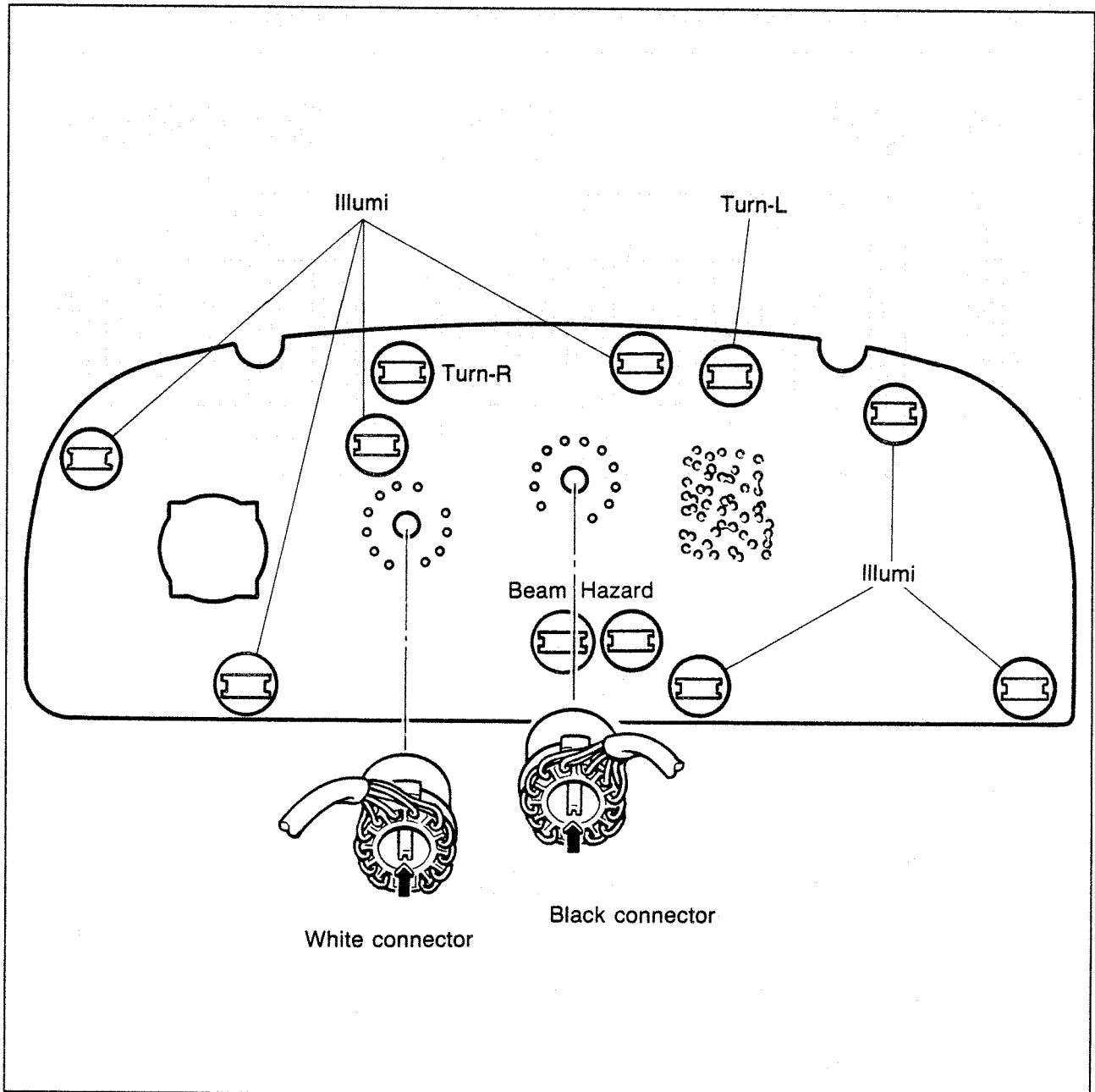
1. Check the printed circuit board for damage or rust.
2. Use an ohmmeter to check for continuity in the connector terminal and indicator light.



67G15X-514

NO	CONNECTIONS	NO	CONNECTIONS
a- 1	Ground	b- 1	Hazard ⊖
a- 2	Ignition SW	b- 2	Ground
a- 3	Speed sensor	b- 3	Fuel tank unit
a- 4	—	b- 4	Turn SW (RH)
a- 5	Ignition SW + Buzzer 2	b- 5	Turn SW (LH)
a- 6	—	b- 6	Oil pres. gauge unit
a- 7	Light SW illumi.	b- 7	—
a- 8	—	b- 8	—
a- 9	Hazard ⊕	b- 9	Water temp. gauge unit
a-10	—	b-10	Ignition coil (-)
a-11	Oil level sensor	b-11	Coolant warning light
a-12	Light SW (high beam)	b-12	Coolant level sensor

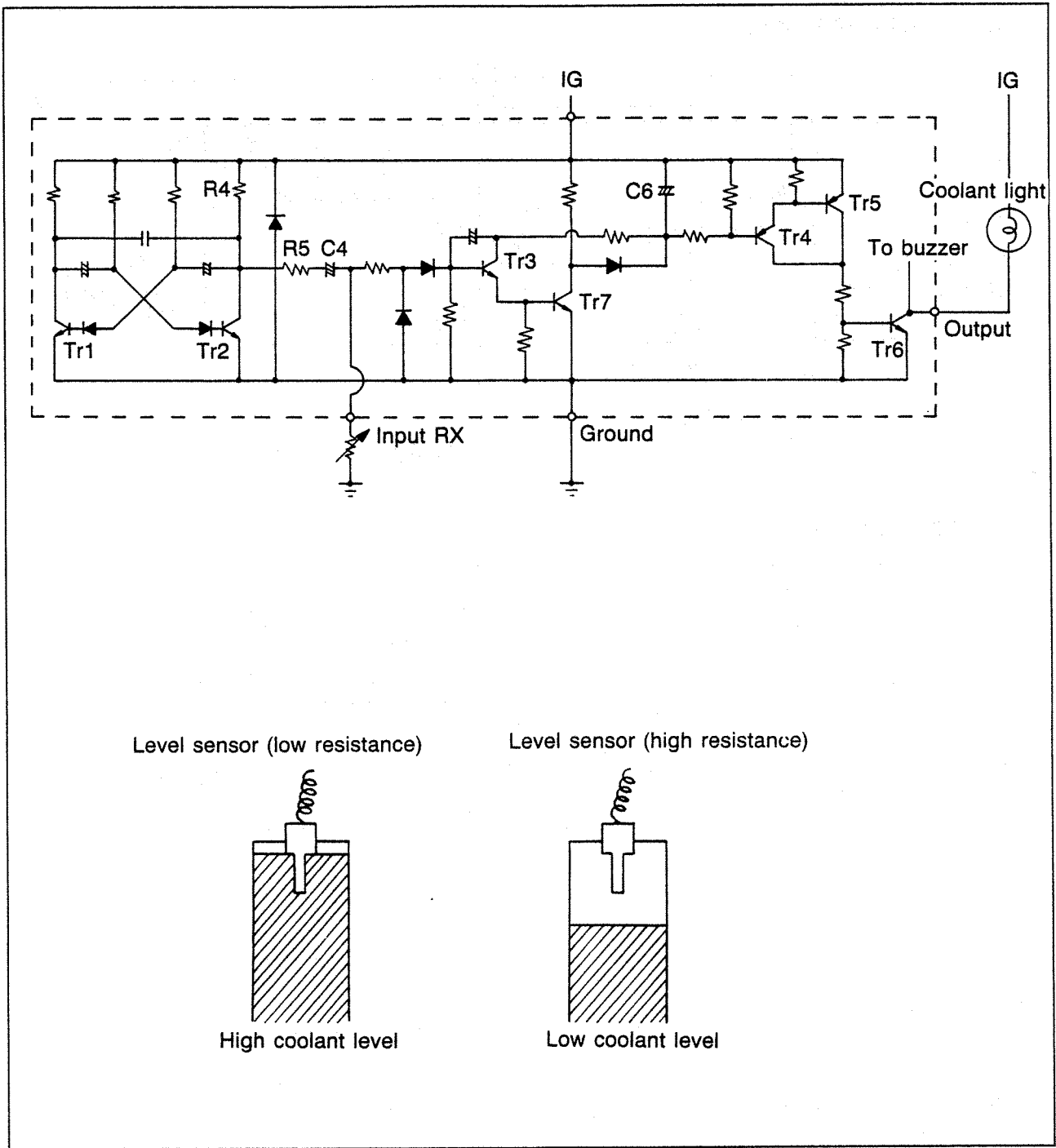
HOW TO CHECK THE METER (GAUGE CLUSTER) BULBS



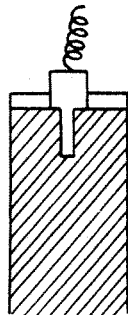
67G15X-515

The meter (gauge cluster) uses **3.4 w bulbs** for night illumination. These are the familiar wedge-base type. Each bulb can simply be removed by pushing gently inward on the plastic holder and twisting. Then pull the holder back and out of the cluster housing. To remove the bulb itself from the holder, gently wiggle the glass side-to-side towards the brass contacts on the holder. This procedure will ease removal and help you to avoid unnecessary breakage.

COOLANT LEVEL SENSOR

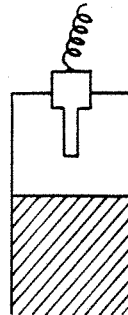


Level sensor (low resistance)



High coolant level

Level sensor (high resistance)



Low coolant level

67U15X-541

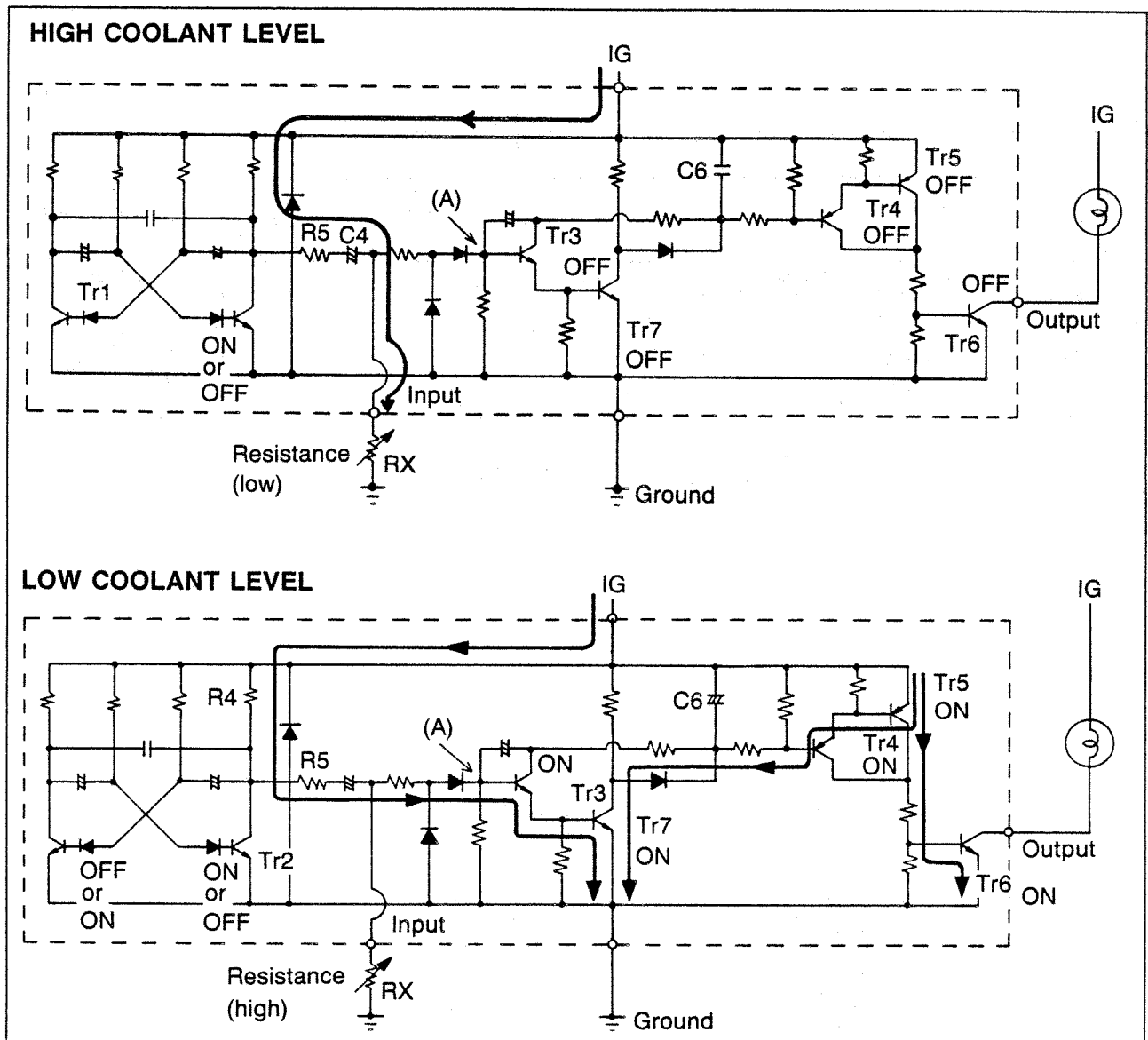
The coolant level sensor unit functions as follows:

When the level of the coolant in the radiator becomes low, the unit senses that resistance of the level sensor has become high and the warning light illuminates **9 - 16** seconds later.

The reason for incorporating the **9 - 16** second delay circuit is to prevent the warning light from illuminating as a result of fluctuations in the level of the coolant in the radiator.

A level sensor is installed in the radiator. The current in the level sensor flows from the level sensor to the coolant and then to ground. If DC were to flow to the level sensor it would cause electrolytic corrosion, eventually causing holes in the radiator. To prevent this, current is applied intermittently to the level sensor.

OPERATION OF THE COOLANT LEVEL UNIT



67U15X-542

High coolant level...

- (1) When Tr2 of the multi-vibrator is OFF, current flows from R4 to R5 to C4 to level sensor to ground, and C4 is charged.
- (2) When Tr2 is switched ON, C4 is discharged when the charged current flows from C4 to R5 to Tr2 to ground. When this charging and discharging is repeated, AC (alternating current) is applied to the level sensor.

When the level sensor is dampened by coolant, voltage at point (A) isn't high enough to switch Tr3 and Tr7 ON, because the resistance of the level sensor is low. Consequently, the warning lamp does not illuminate.

Low coolant level...

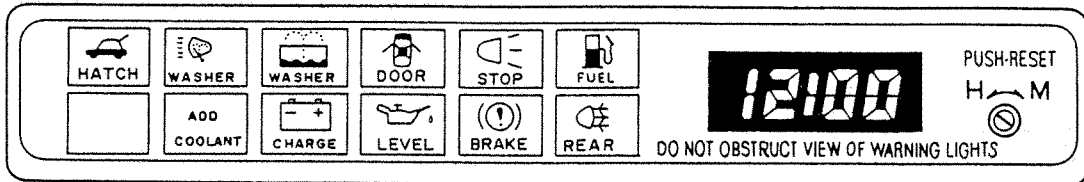
When the level sensor is not dampened by coolant, the resistance of the level sensor becomes high. The result is that the potential at point (A) becomes high, current flows as shown by arrow (1), and Tr3 and Tr7 are switched ON.

Even if Tr7 is then turned ON, there is a delay caused by C6. In other words, after 9 to 16 seconds, current flows as shown by arrow (2). The result is that Tr4 is turned ON.

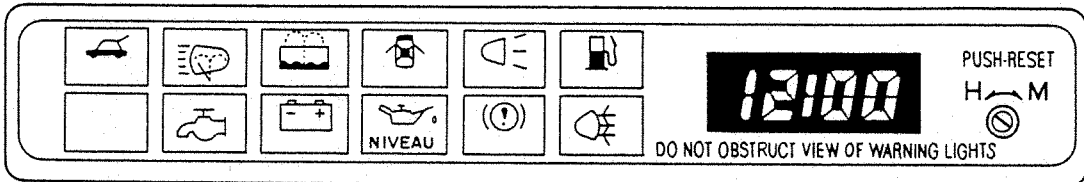
Then, when Tr4 is switched ON, current flows as shown by arrow (3), and the coolant level warning light illuminates.

WARNING LIGHTS AND CLOCK UNIT

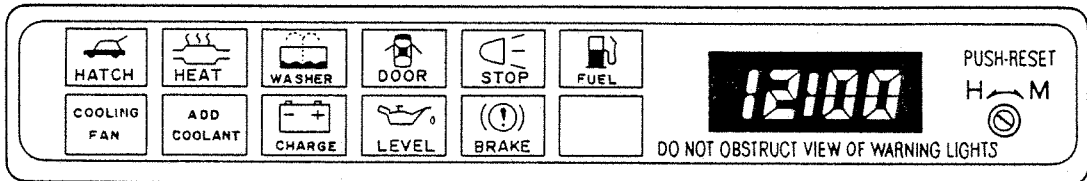
1. For ECE, U.K.



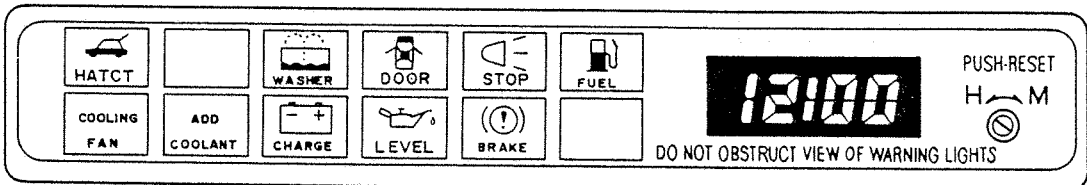
2. For FRANCE



3. For AUSTRALIA



4. For MIDDLE EAST



67G15X-516

The installation position of the warning unit has been changed from within the meter (gauge cluster) to the center of the instrument panel in order to improve the layout design. In addition, the clock has also been incorporated within the warning unit.

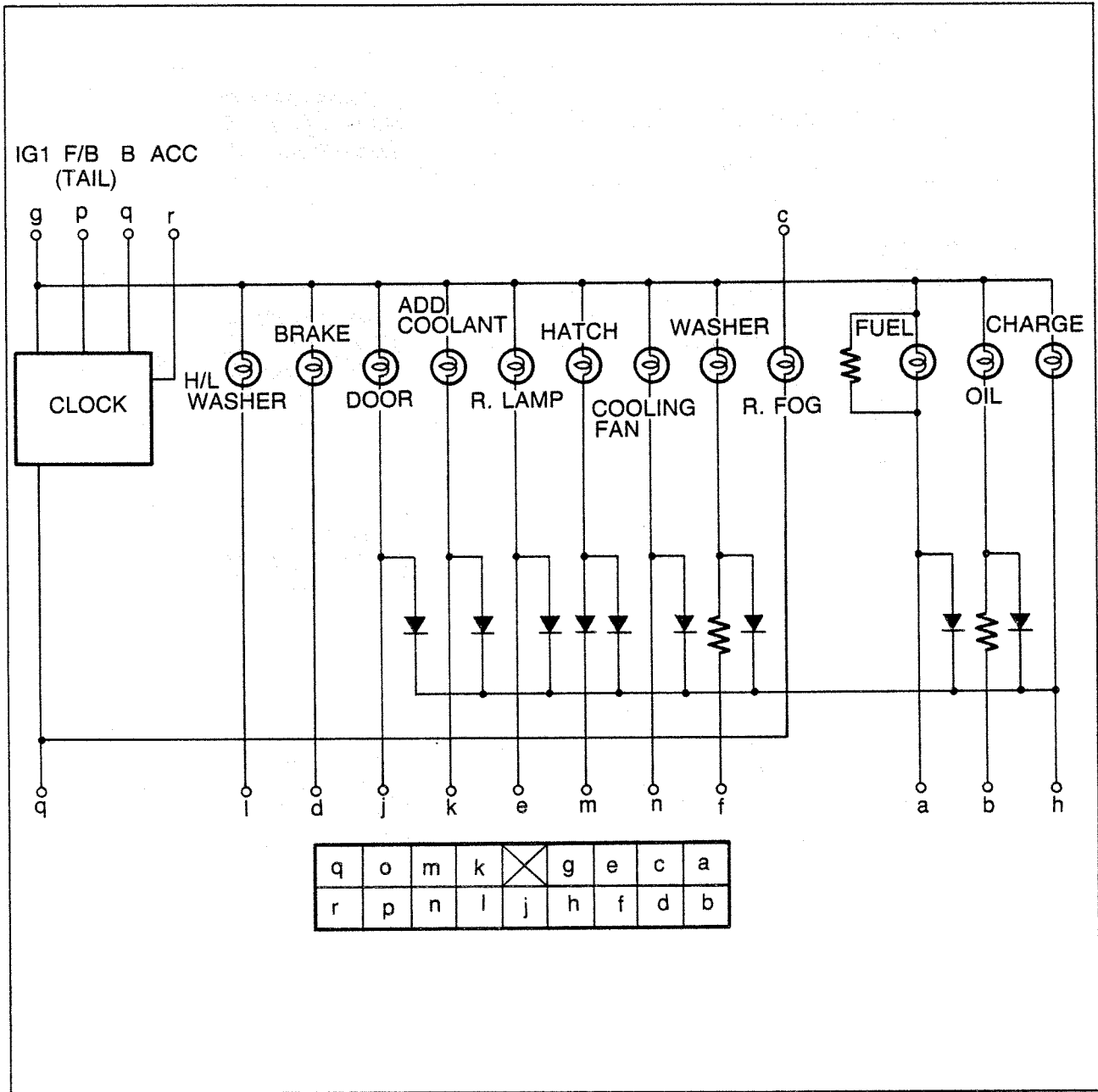
Note

When coolant level and engine oil level warning lights illuminate, the buzzer also sounds. The bulbs are special 1.4W units with a built-in plastic base. This base twists into the circuit board inside the unit.

Operation

Warning item	Buzzer operation
Coolant level warning light	In order to prevent illumination as a result of fluctuations in the coolant level, there is a 9 to 16-second delay (timer). After that time has passed, the buzzer sounds until coolant is added.
Engine oil level warning light	Buzzer sounds until engine oil is added.

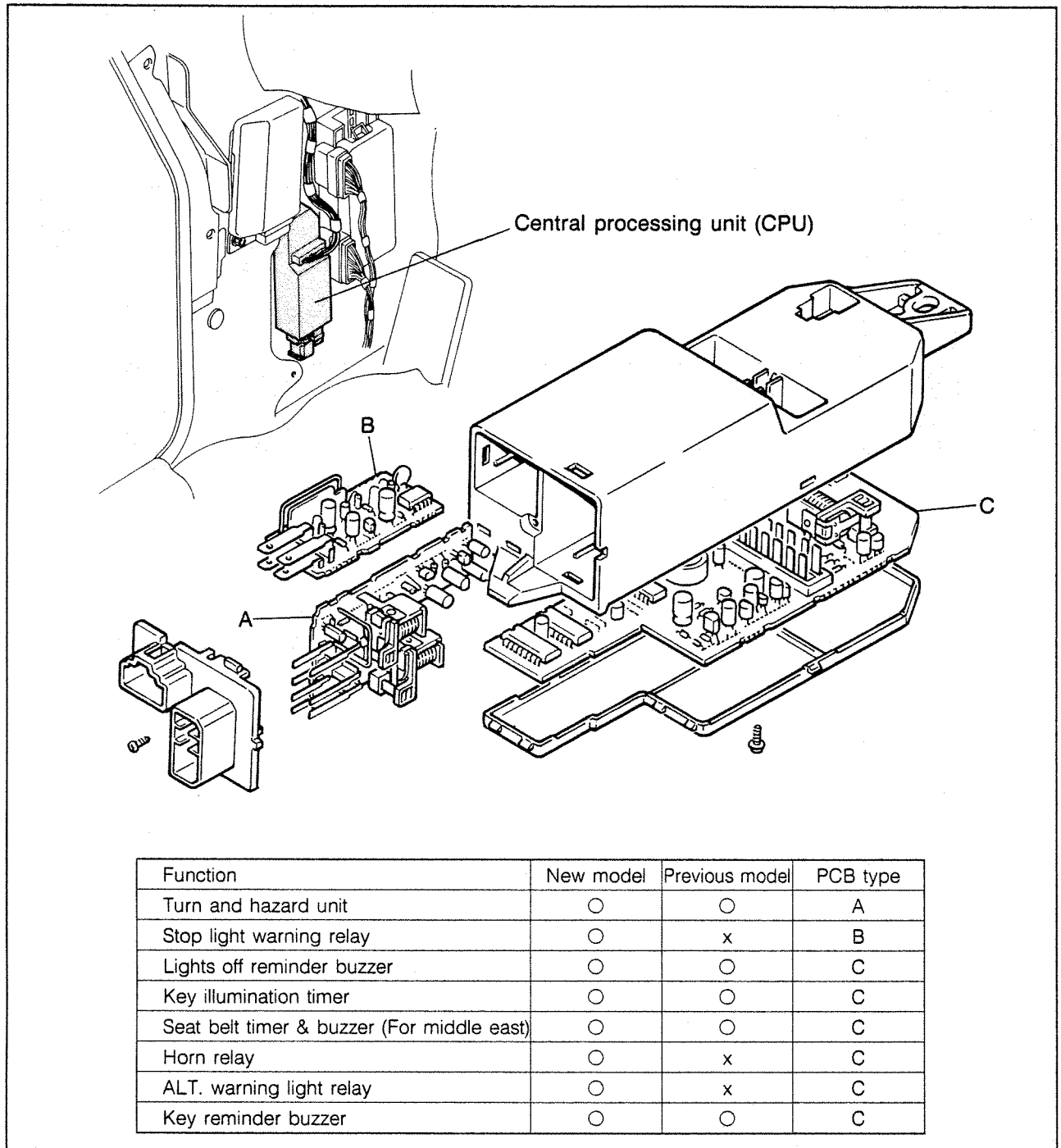
CIRCUIT DIAGRAM



67G15X-515

NO	CONNECTIONS	NO	CONNECTIONS
a	Fuel tank unit	k	Coolant level sensor
b	Oil level sensor	l	Headlight washer sensor
c	Rear fog	m	Rear hatch switch
d	Brake fluid level switch	n	Cooling fan control unit
e	Stop light warning relay (in CPU)	o	Fuse box (Battery)
f	Washer fluid level sensor	p	Fuse box (Tail)
g	Ignition switch	q	Ground
h	ALT. warning light relay (in CPU)	r	Fuse box (Accessory)
j	Door switch		

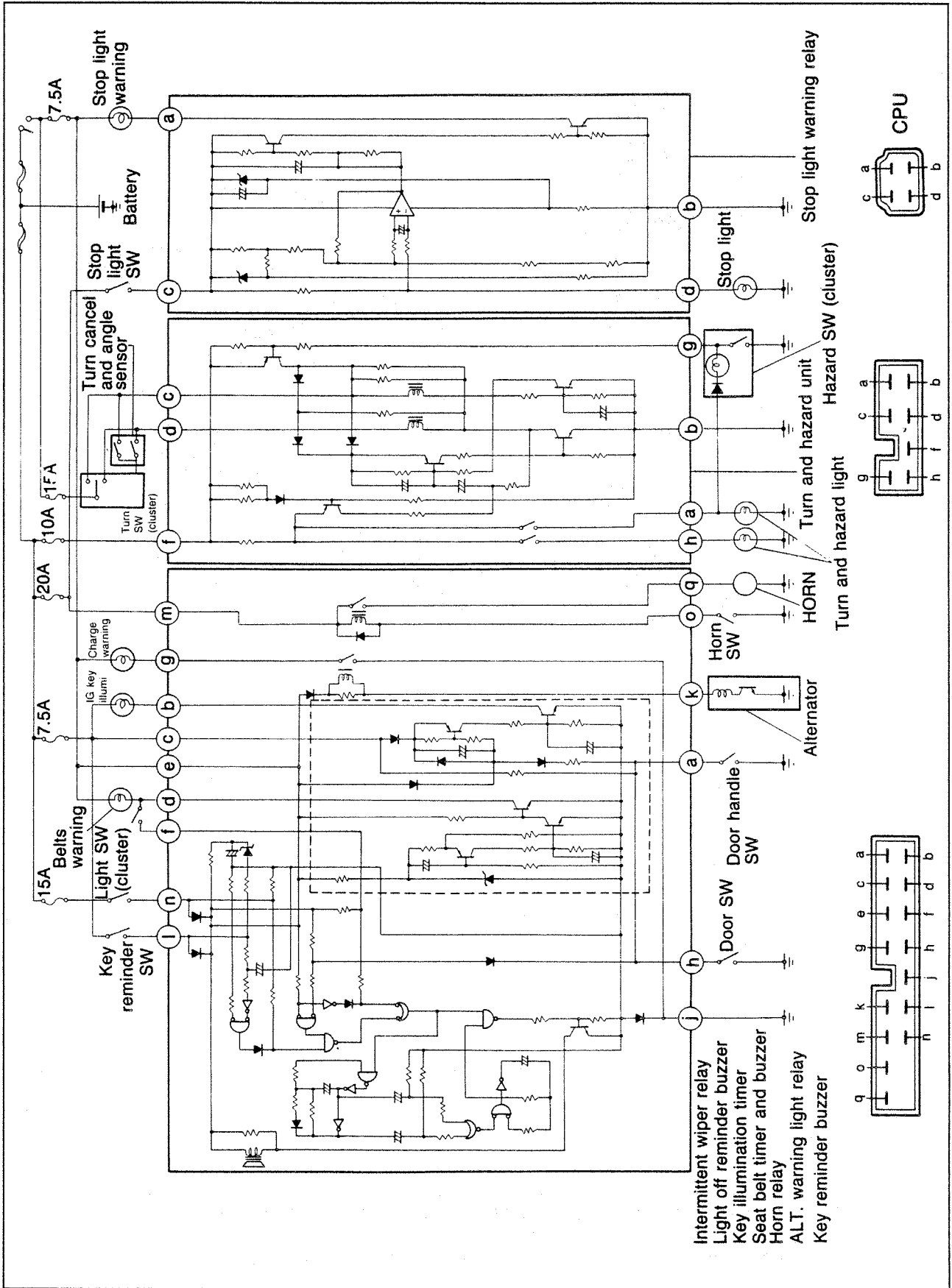
CENTRAL PROCESSING UNIT (CPU)



67G15X-518

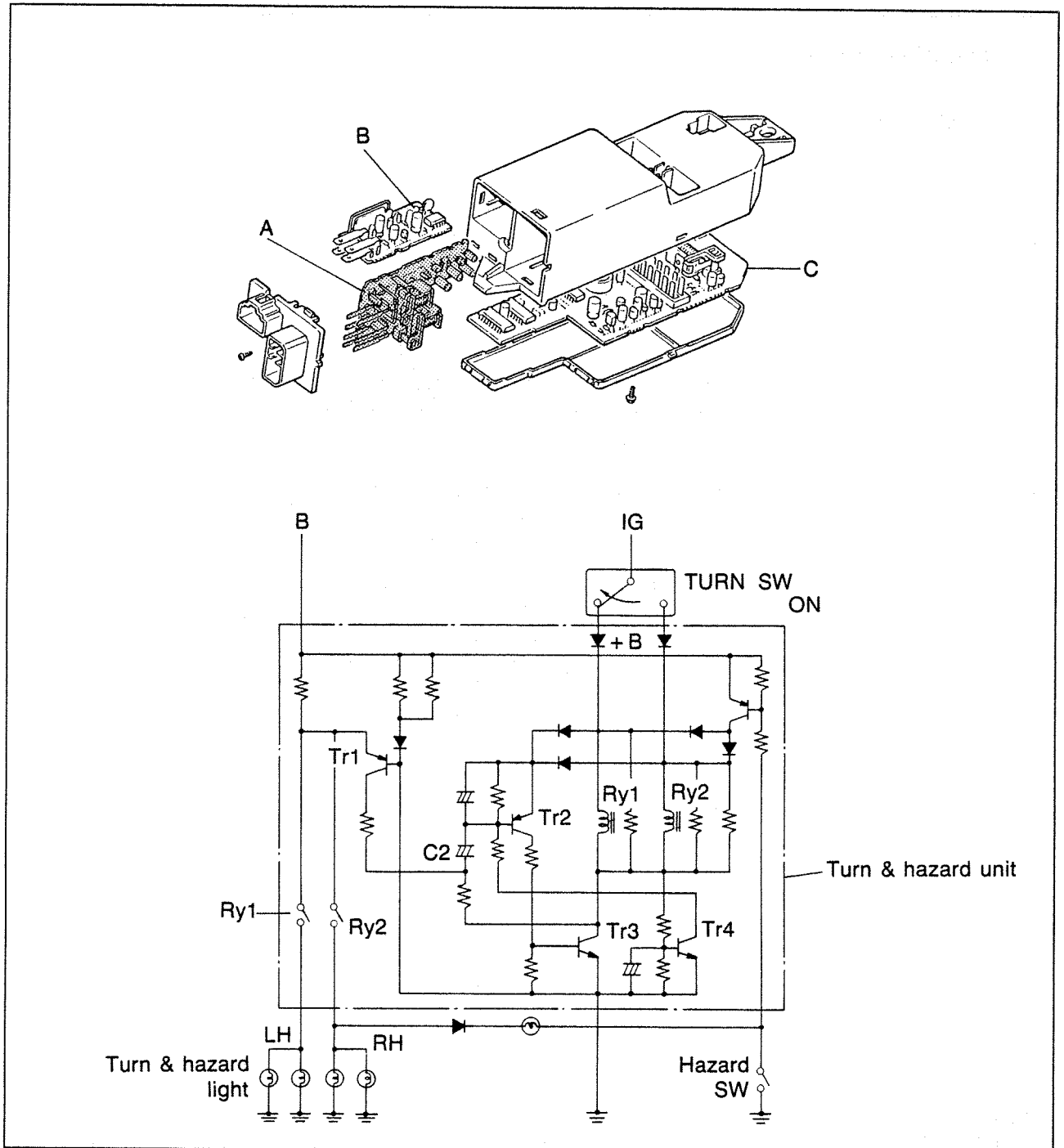
- The first 8 functions above are included in the CPU, but the intermittent wiper relay is no longer in the CPU. The relay is in the R.H. side cluster switch.
- The CPU now contains three separate printed circuit boards (A, B, & C in the chart above). Each of these printed-circuit boards are replaceable, but care should be used not to touch the face of the new circuit board. Oils and sweat from your fingers can cause an eventual short-circuit. Replace the corresponding circuit board if any of the first 8 functions above fail to operate.
- The unit or the checker will not function properly if a bulb other than the specified wattage (or bulb number) is used for the turn and hazard signal lights or the stop lights.
- If one of four stop lights fails, the stop light warning light will illuminate.

INTER CONNECTING DIAGRAM OF CENTRAL PROCESSING UNIT



67U15X-547

TURN AND HAZARD UNIT



67U15X-548

- The turn & hazard signal switch has been changed from inside the combination switch to inside the cluster switch.
For this reason, current to flash the turn & hazard signal lights cannot be sent to the turn & hazard signal switch in the cluster switch. Consequently, the flow of current to the bulbs is controlled by two relays.
- The flashing count of the turn & hazard signal lights is normally **70 - 105** times/minute, but this increases to 160 times/minute if one of the four bulbs fails.

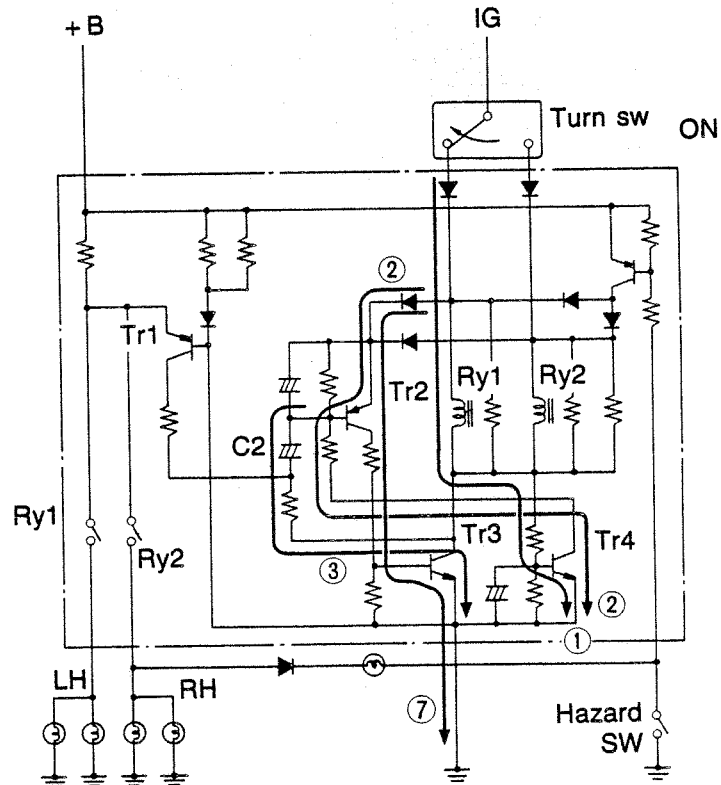
Note

Do not install lights with a wattage or bulb number other than that specified.

TURN AND HAZARD UNIT

Operation of turn

Charging



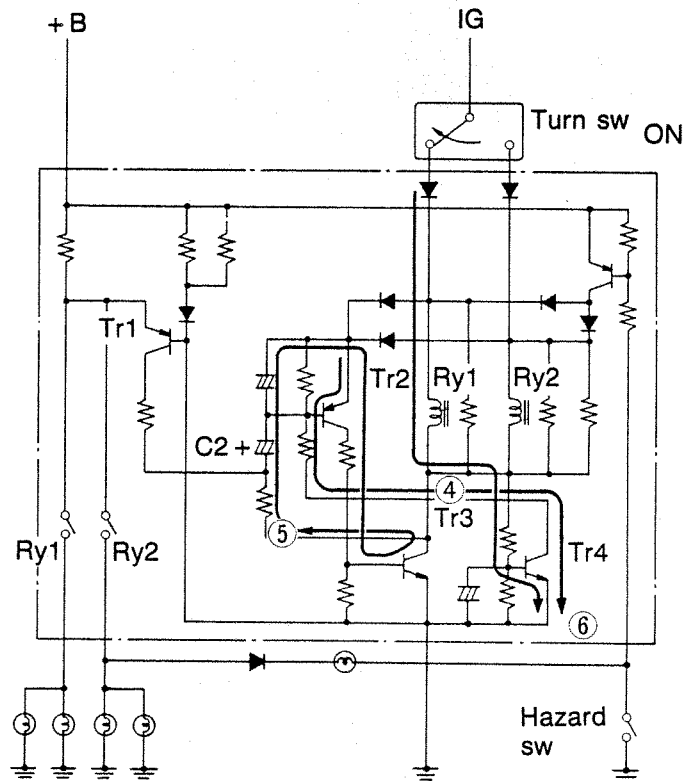
67U15X-549

Charging

- When the turn-signal switch is turned ON, current flows as shown by arrow (1), with the result that Tr4 is switched ON.
- Then, when Tr4 is switched ON, current flows as shown by arrow (2), with the result that Tr2 is switched ON. When Tr2 is switched ON, current flows as shown by arrow (7), with the result that Tr3 is switched ON.
- When Tr3 is switched ON, current flows to the RY1 excitation coil, and the RY1 contact moves to the ON position. The result is that the turn-signal lights on the left side are illuminated.
- Then, when Tr3 is switched ON, the arrow (1) current stops flowing, with the result that Tr4 is switched OFF. At this time, the arrow (2) current stops flowing, but the capacitor (C2) charging current flows as shown by arrow (3).
Therefore, because Tr2 and Tr3 are held ON, the turn-signal lights continue to illuminate.

OPERATION OF TURN UNIT- DISCHARGING

Operation of turn Discharging



67U15X-566

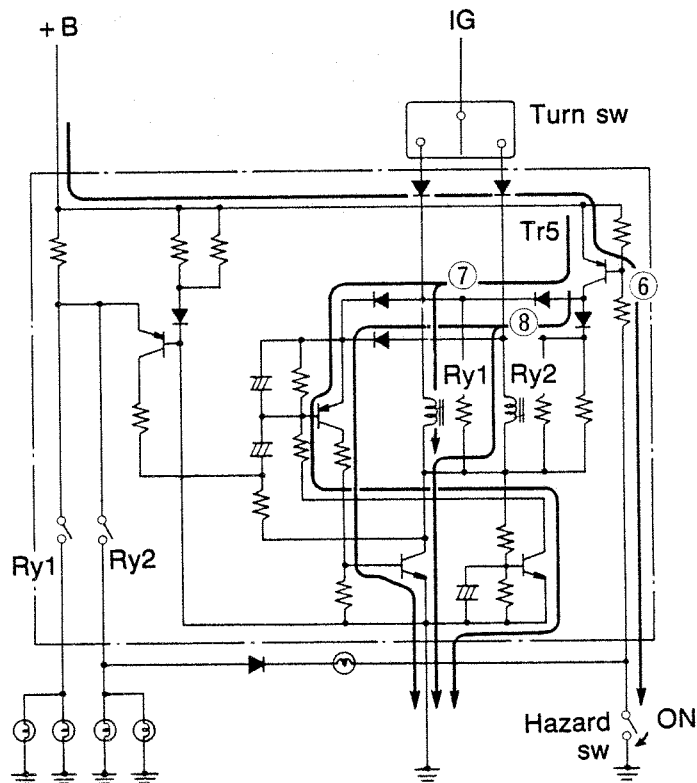
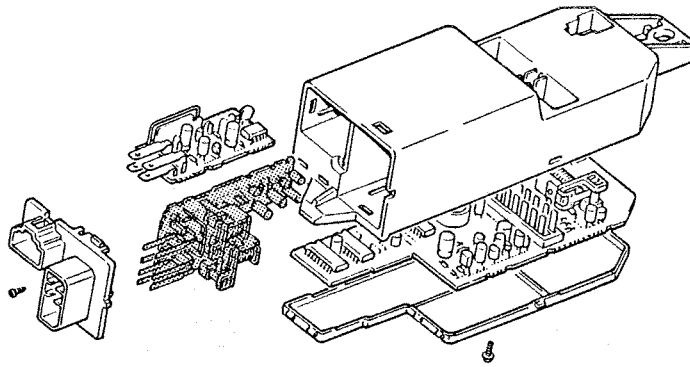
Discharging:

- When the charging of C2 is completed, Tr2 and Tr3 are switched OFF, with the result that the current flow to the excitation coil of relay 1 stops. Then, because the relay 1 contact moves to the OFF position, the turn-signal lights are switched OFF.
- When Tr3 is switched OFF, current flows as shown by arrow (6), with the result that Tr4 is switched ON, and current flows as shown by arrow (4). However, because Tr2 is reverse-biased by the discharge (5) of C2, Tr2 and Tr3 remain OFF and Tr4 remains ON until the discharging of C2 is finished.
- When the discharging of C2 is finished, Tr2 is switched ON by the arrow (4) current, with the result that the turn-signal lights illuminate once again.

TURN AND HAZARD UNIT

Hazard-warning lights operation

Under normal conditions



67U15X-550

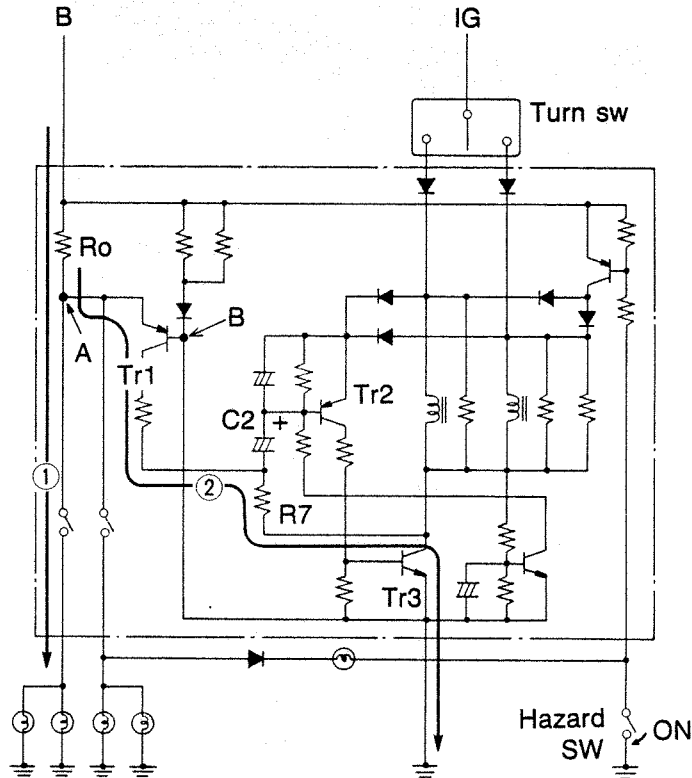
Hazard-warning switch ON

- When the hazard-warning switch is turned ON, current flows as shown by arrow (6), with the result that Tr5 is switched ON and current flows as shown by arrow (7) and arrow (8).
- In other words, the result is the same as if both the left and right turn-signal switches were to be switched ON at the same time. As a result, relay 1 and relay 2 synchronize operation, resulting in both the left and right lights flashing.

TURN AND HAZARD UNIT

Operation of turn

Failure of one bulb:

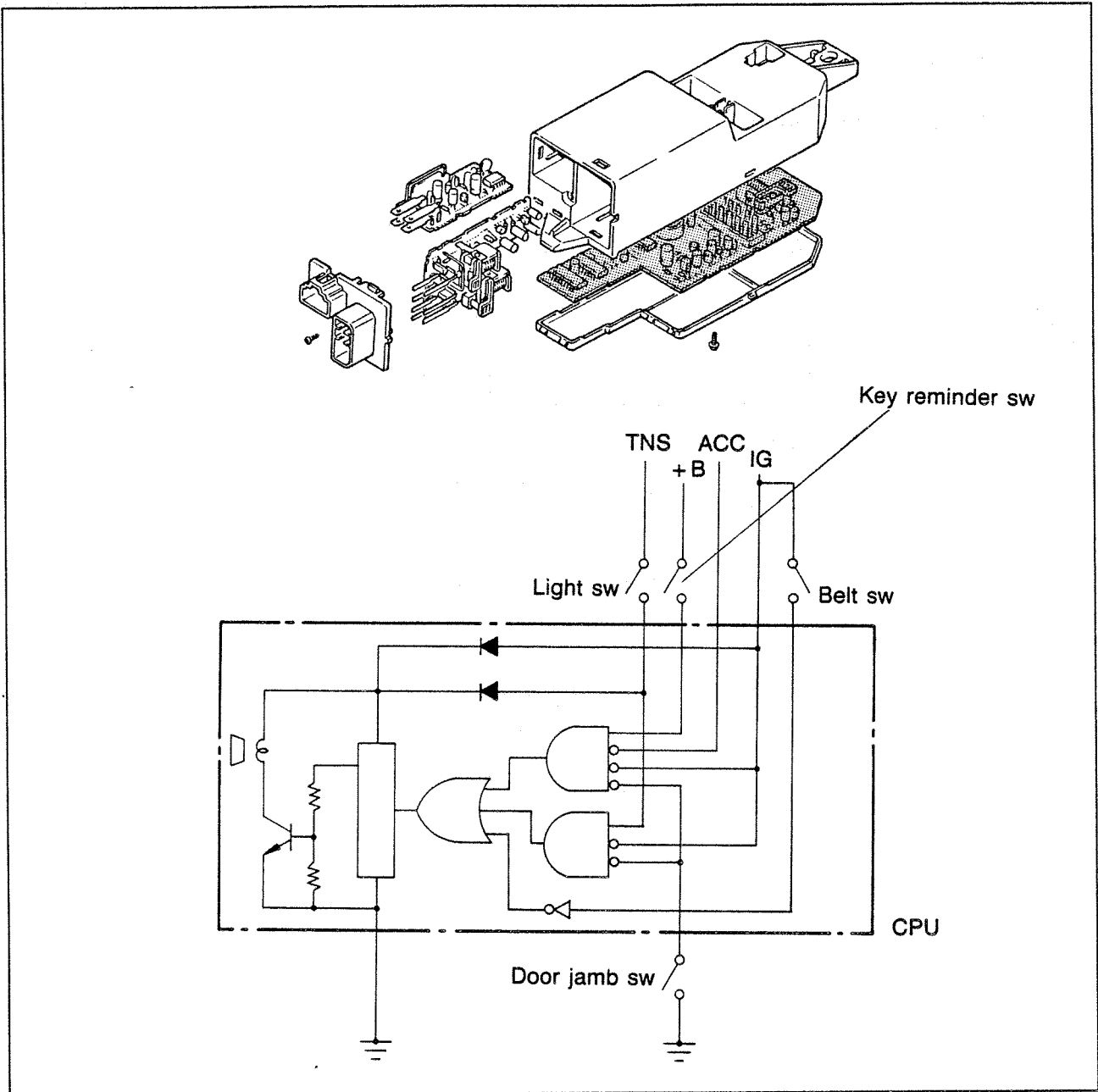


67U15X-567

Failure of one bulb

- When one bulb of the four fails, the lamp current (1) is reduced. When this occurs, the potential at point A becomes high, resulting in a great difference of potential between point A and point B. This condition causes Tr1 to be switched ON.
- Consequently, current flows as shown by arrow (2) and the charging voltage of C2 becomes small.
- As a result, the charging time and discharging time become shorter, and the flashing count becomes 160 times/minute or more.

BUZZER



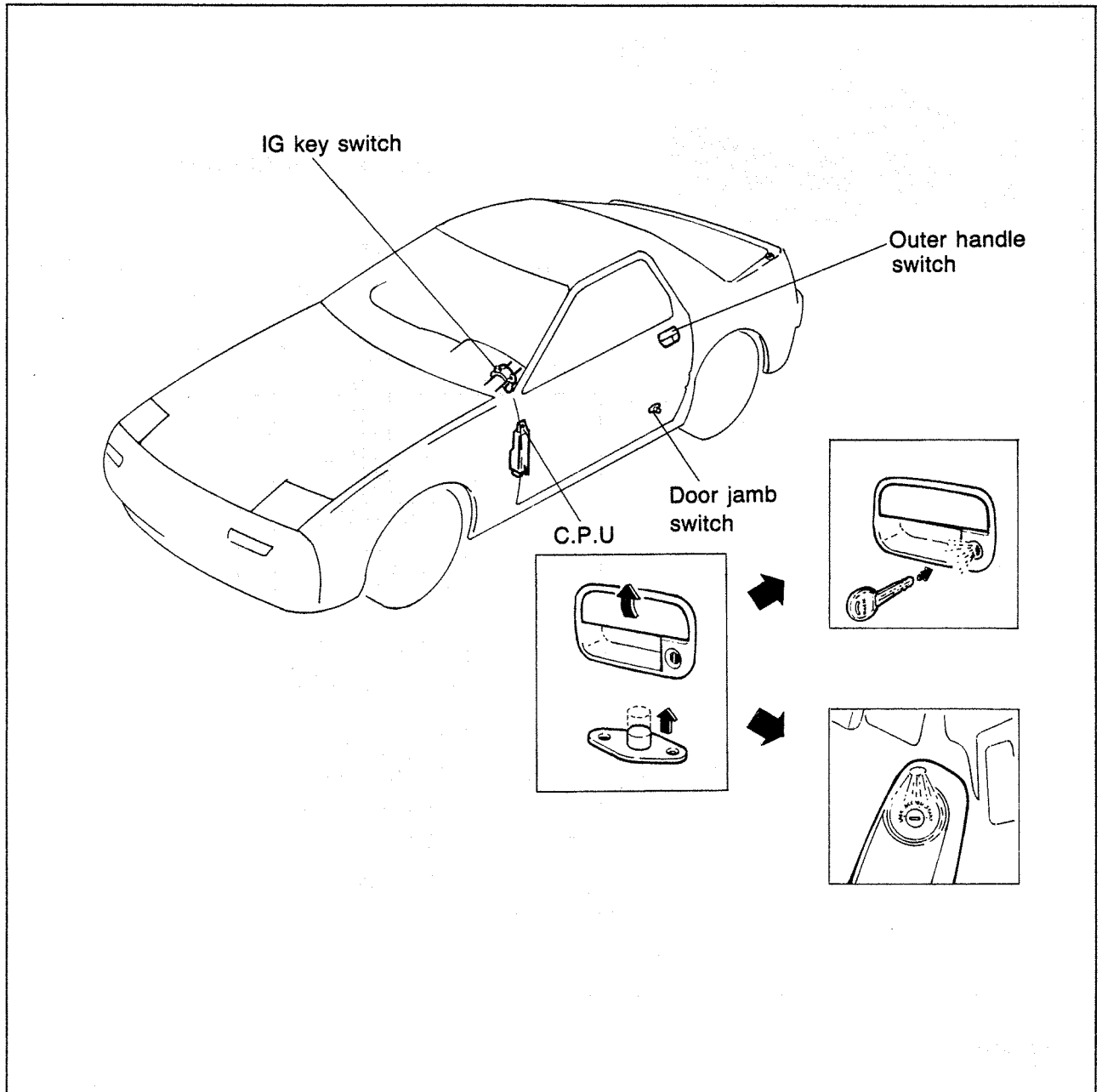
67U15X-551

This buzzer combines 3 functions:(1) A key-reminder buzzer, (2) A lights off reminder buzzer, (3) A seat belt buzzer.

The conditions in which the buzzer will sound for each function are as follows:

	Key reminder switch	Door jamb sw	Light sw	Alternator F terminal signal	IG SW	Seat belt SW
Key reminder buzzer	ON	ON	—	—	—	
Lights off reminder buzzer	—	ON	ON	Do not generate	—	—
Seat belt buzzer (4 - 8 sec.)	—	—	—	—	ON	ON

KEY ILLUMINATION TIMER



67U15X-552

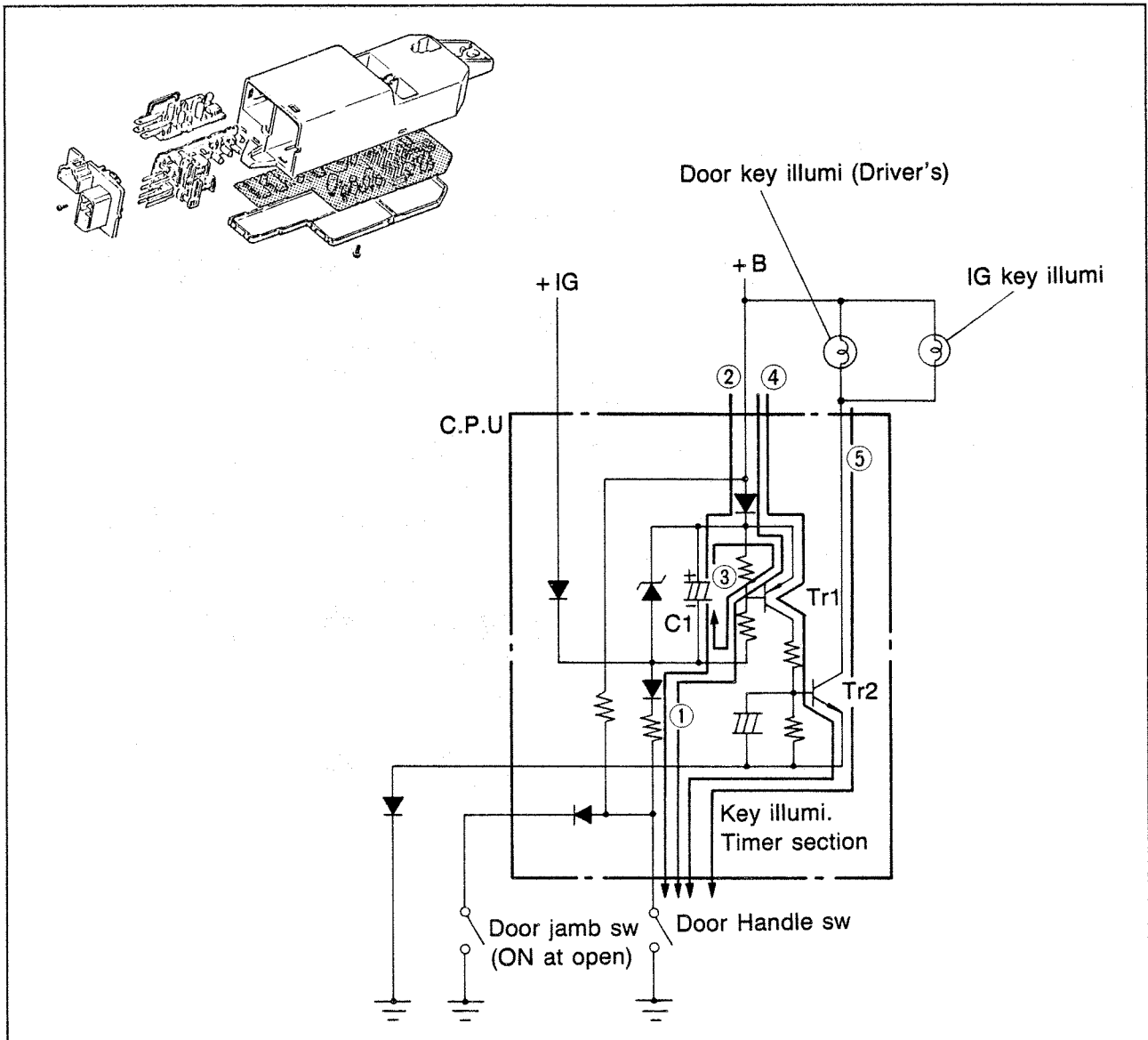
Functions of this circuit:

When either the outer door handle switch or the door jamb switch is turned ON, the keyhole in the driver's outer door handle and the ignition keyhole are illuminated for **7** to **23** seconds.

The component parts are described below:

1. Outer door handle switch (installed in the outer door handle on the driver's side).
2. Light for illumination of the door outer handle keyhole.
3. Light for illumination of the ignition keyhole
4. Door jamb switches (at doors on both sides)
5. Timer to control the length of time the keyholes are illuminated.

KEY ILLUMINATION TIMER (CHARGING & DISCHARGING)



67U15X-568

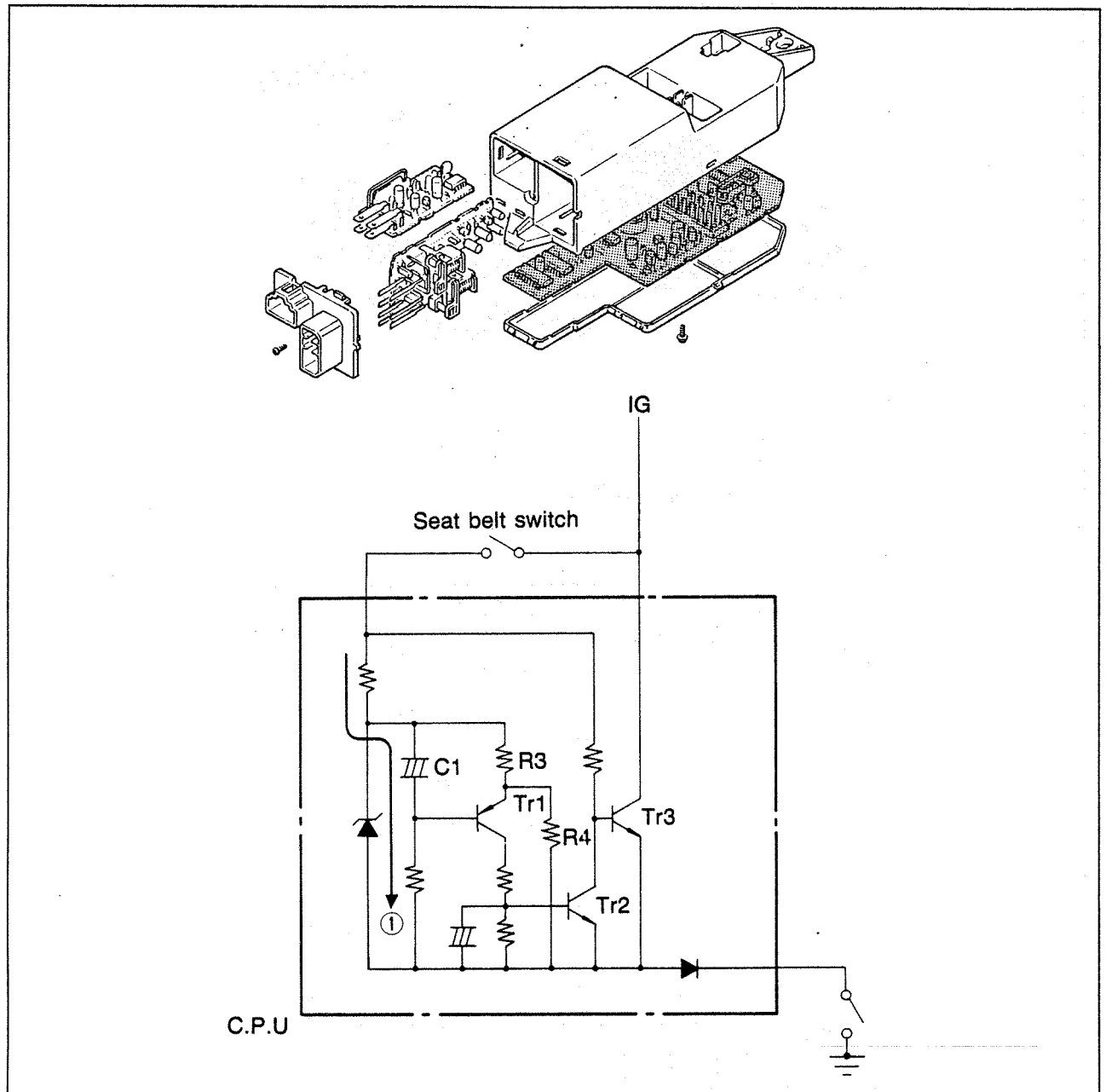
Charging...

- (1) When the door handle switch or door jamb switch is turned ON, current flows as shown by arrow (1) and arrow (2). The result is that Tr1 is switched ON.
- (2) Consequently, when Tr1 is switched ON, current flows as shown by arrow (4) between the Tr1 emitter and collector, with the result that Tr2 is switched ON, and current flows as shown by arrow (5). As a result, the illumination light illuminates.
- (3) The capacitor (C1) is charged when current flows as shown by arrow (2).

Discharging...

- (4) When the door handle switch or door jamb switch is turned OFF, the current which flowed as shown by arrow (1) stops, but current flows as shown by arrow (3) because of the discharge of C1.
- (5) As a result, because Tr2 is held ON, the illumination light continues to illuminate.
- (6) When the discharging of C1 finishes, the flow of current as shown by arrow (3) stops, and Tr1 is switched OFF (about 15 seconds after the door jamb switch or door handle switch is turned OFF). At the same time, Tr2 is also switched OFF, and, as a result, the keyhole illumination light is switched OFF.

SEAT BELT TIMER (For Middle East)



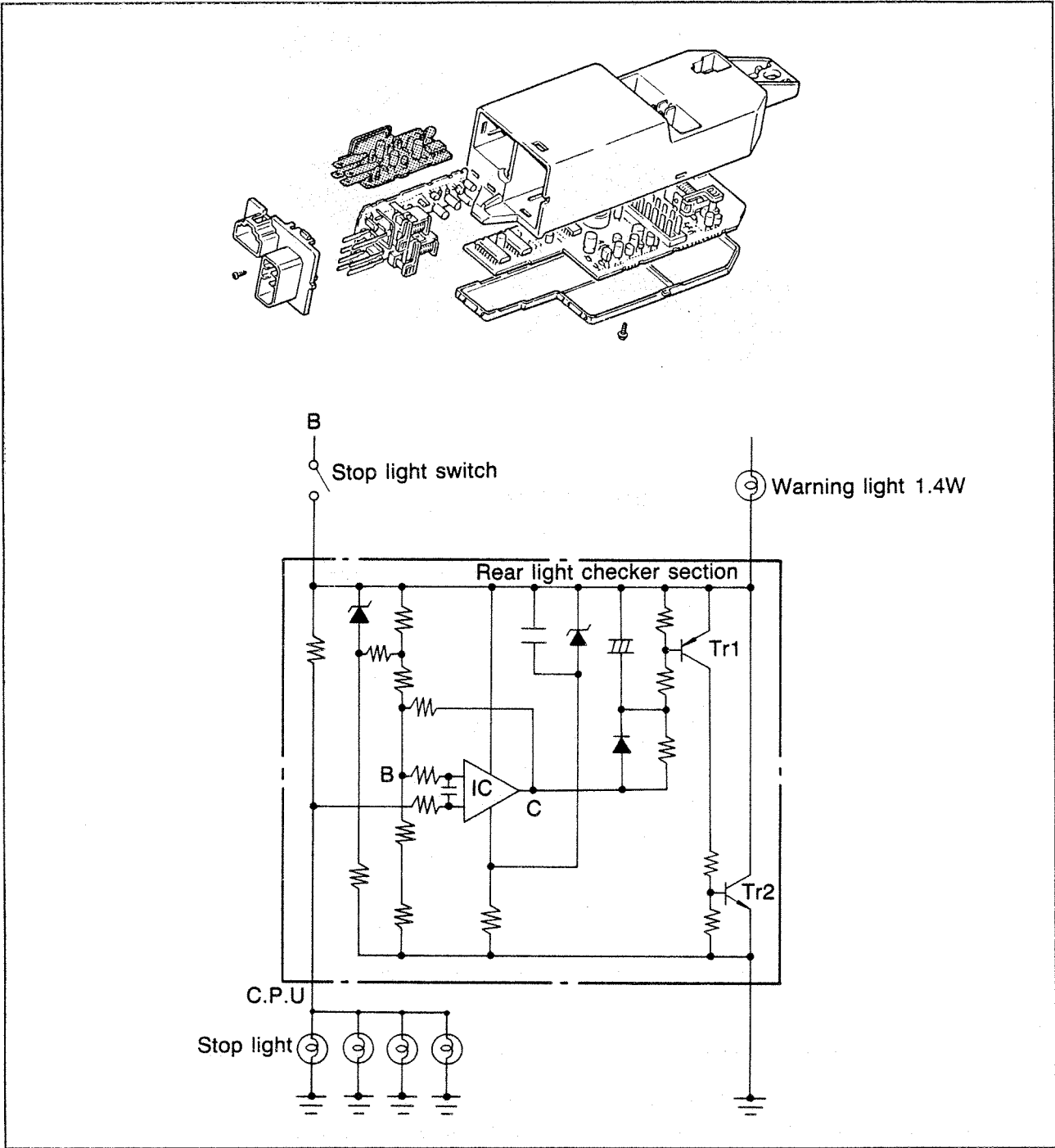
67G15X-519

When the ignition is turned ON while the seat belt switch is ON and the buzzer sounds. After 4 to 8 seconds, operation of the buzzer is stopped by the timer incorporated in this circuit.

CIRCUIT OPERATION

- When the ignition is switched ON, current flows as shown by arrow (1) and voltage becomes higher at both ends of C1.
- However, because the Tr1 emitter voltage is voltage-divided by the resistors (R3 and R4), Tr1 is reverse-biased. Therefore Tr1 is switched OFF, Tr2 is switched OFF and Tr3 is switched ON.
- Tr1 is switched ON when the capacitor (C1) voltage is charged for 5 seconds to the voltage which will switch Tr1 ON. Now Tr2 is switched ON and Tr3 is switched OFF.

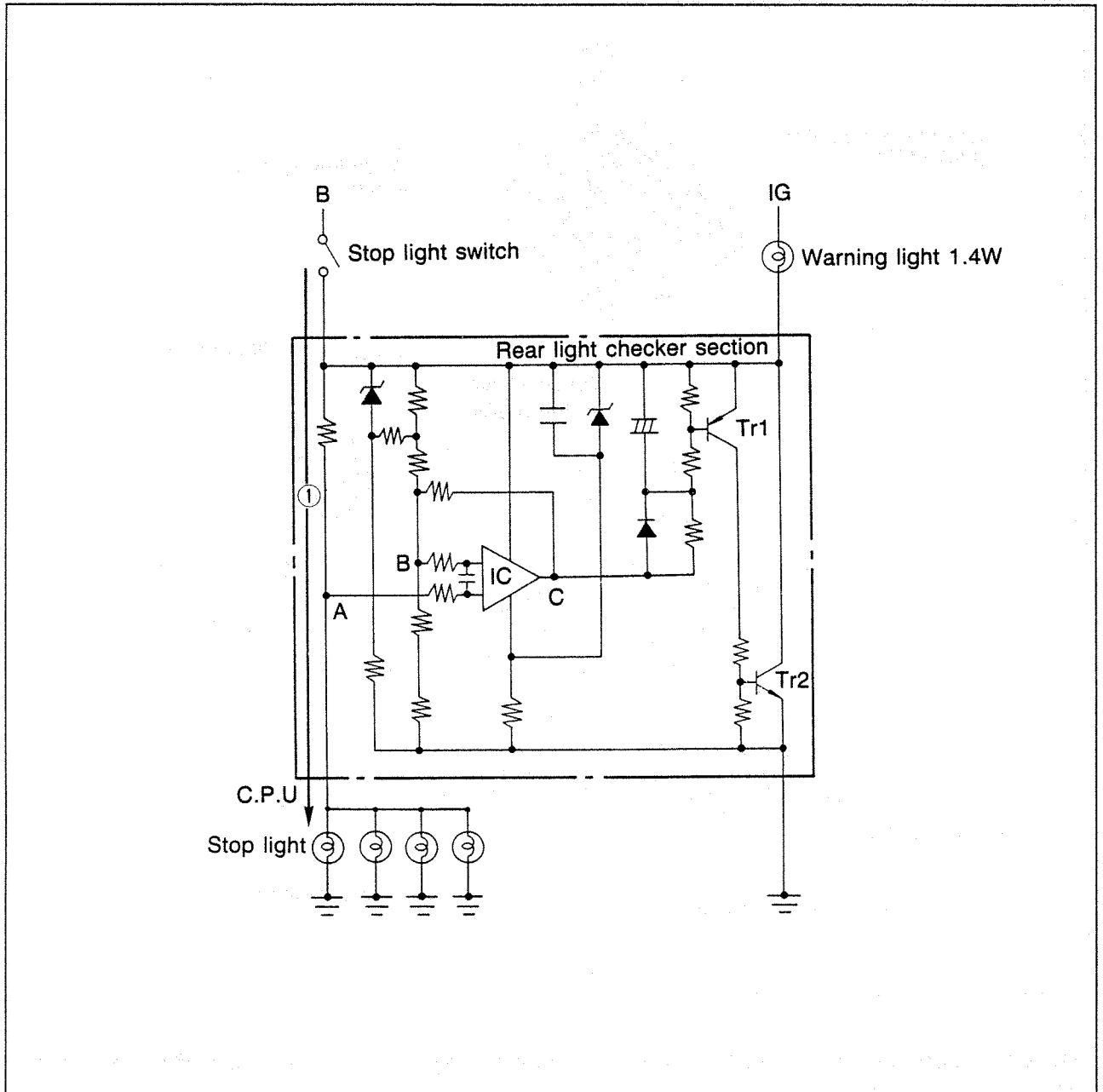
STOP WARNING LIGHT RELAY



67U15X-554

The function of this circuit is to illuminate the warning light only if one of the five stop lights has failed. This circuit is energized only when the stop light switch is ON. The checker is connected into the stop light circuit in series. It detects the change of potential at point A in the checker when a stop light has failed. This is compared to the potential at point A when the stop lights are normal. When a stop light failure is detected, the warning light illuminates. For this reason, a stop light of other than the specified wattage or bulb number must not be used.

STOP WARNING LIGHT RELAY



67U15X-569

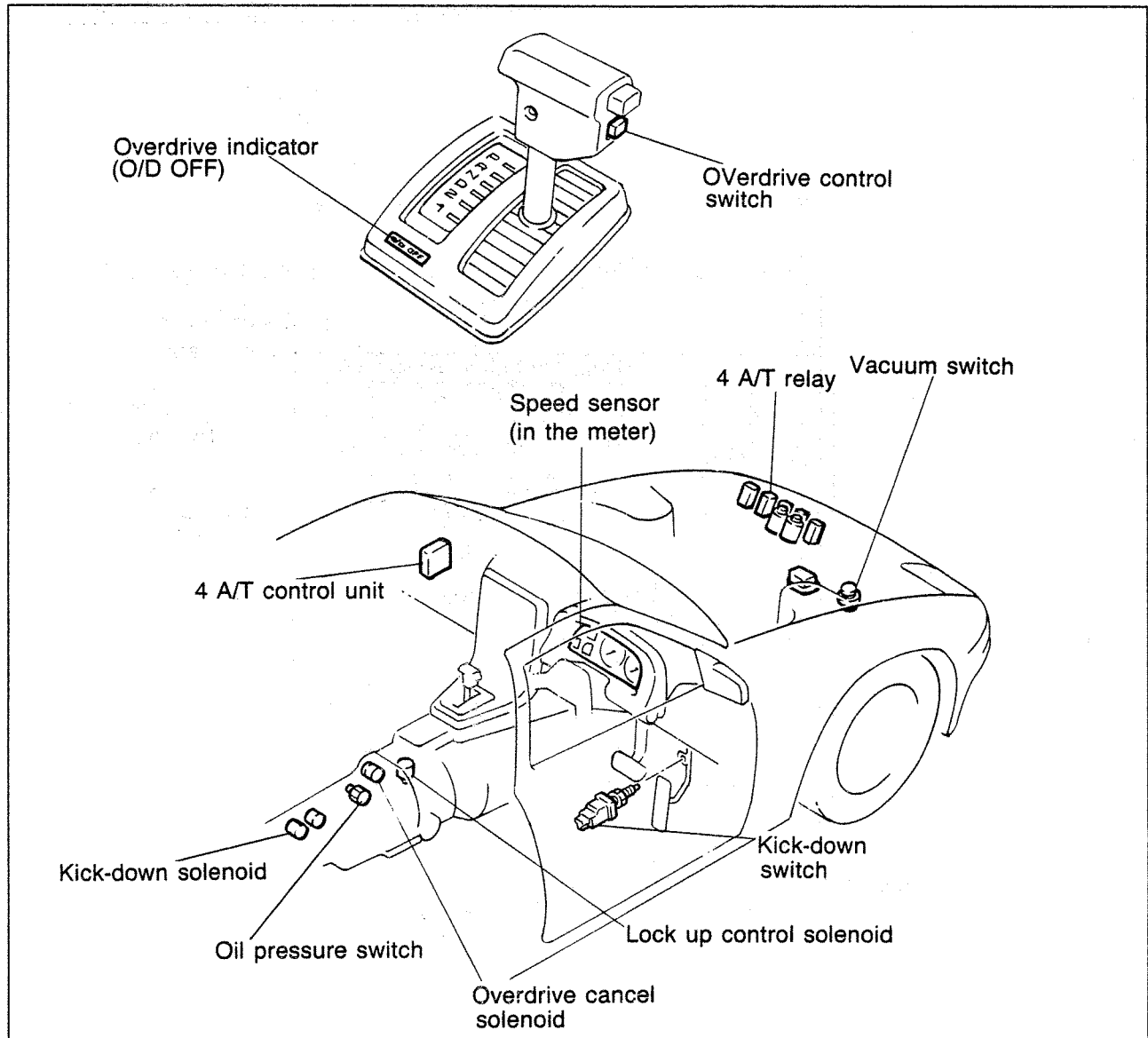
When normal...

- When the stop switch is turned ON, current flows as shown by arrow (1) and the stop lights are illuminated.
- Because the potential at point A is lower than the potential at point B at that time, the output (C) of the comparator reaches a HIGH level.
- Because for that reason Tr1 and Tr2 are not switched ON, the warning light does not illuminate.

Failure of one light...

- If one stop light fails, the current flowing to the stop lights is reduced and the potential at point A becomes higher than the potential at point B.
- Because the output (C) of the comparator drops to a LOW level, Tr1 and Tr2 are switched ON. This causes the warning light to illuminate.

OVERDRIVE SYSTEM (For Australia)



67G15X-520

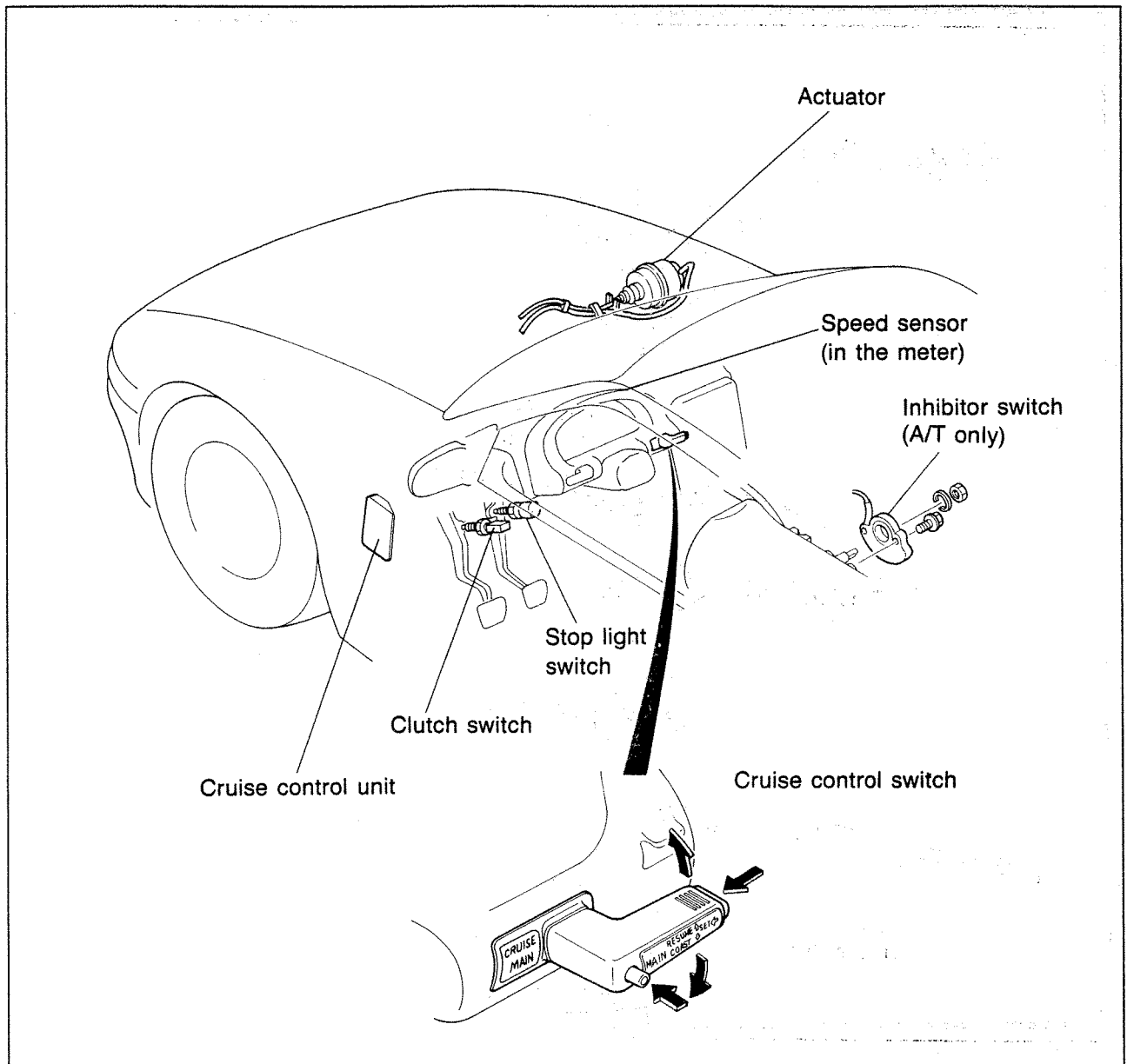
Because the position of the overdrive switch has been changed to the side of the shift-knob, operation has been improved.

The overdrive indicator light's function is to remind the driver that the overdrive switch is OFF and that it should be pushed ON when conditions permit.

Changes

Item	Model	New model	Previous model
Location of overdrive switch		Side of shift knob	Upper part of shift indicator panel
Location of overdrive indicator light		Upper part of shift indicator panel	In meter (gauge cluster)
The overdrive indicator light comes on		When ignition switch is ON and overdrive switch is OFF. Indicator light: O/D OFF	When overdrive switch is ON and driving gear in overdrive. Indicator light: O/D

CRUISE CONTROL SYSTEM



67U15X-558

On the previous model, the cruise-control lever and the cruise-control main switch were in different positions. In order to improve operational performance, they have been unified and located in a "FLIPPER" at the right side of the meter hood.

In addition, the main switch and the indicator lights for constant-speed driving are also to the left of the set-resume control "FLIPPER". The CRUISE indicator light illuminates when the system is controlling vehicle speed.

NOTE FOR AUTOMATIC TRANSMISSION MODELS:

Cruise control works in conjunction with overdrive on automatic transmission models. When the vehicle is being driven in overdrive and the "SET" button is pressed or the flipper lifted to "RESUME", the transmission will automatically downshift to drive ("D") range for smooth acceleration. The transmission will upshift to overdrive when the vehicle speed has increased to within 2 MPH (3.0 Km/h) of the pre-set speed.