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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 module, warning light, wiring harness and roll connector.

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”.

1. Body Electrical

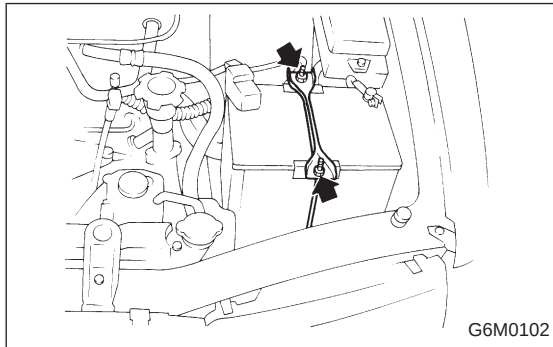
Battery	Type		MT model: 55D23L (MF)	AT model: 75D23L (MF)
	Capacity	Reverse capacity	MT model: 100 minutes	AT model: 120 minutes
		Cold cranking ampere	MT model: 430 amperes	AT model: 520 amperes
Combination meter	Speedometer		Eddy current type	
	Temperature gauge		Thermistor cross coil type	
	Fuel gauge		Resistance cross coil type	
	Tachometer		Electric impulse type	
	Turn signal indicator light		12 V — 1.4 W	
	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	
	CHECK ENGINE warning light		12 V — 1.4 W	
	HI-beam indicator light		12 V — 3.4 W	
	Door open warning light		12 V — 1.4 W	
	Seat belt warning light		12 V — 1.4 W	
	Brake fluid and parking brake warning light		12 V — 3.4 W	
	FWD warning light		12 V — 1.4 W	
	AIRBAG warning light		12 V — 1.4 W	
	Meter illumination light		12 V — 3.4 W	
	AT OIL TEMP. warning light		12 V — 1.4 W	
	Headlight			12 V — 60/55 W (Halogen)
Front turn signal light			12 V — 27 W	
Side turn light			12 V — 3.8 W	
Side marker/Parking light			12 V — 3.8 W	
Rear combination light		Tail/Stop light	12 V — 8/27 W	
		Turn signal light	12 V — 27 W	
		Back-up light	12 V — 27 W	
License plate light			12 V — 3.8 W	
High-mount stop light			Sedan: 12 V — 18 W	Wagon: 12 V — 13 W
Room light			12 V — 8 W	
Spot light			12 V — 8 W	
Trunk room light			12 V — 5 W	
Luggage room light			12 V — 5 W	
Selector lever illumination light			12 V — 1.7 W	

1. Precaution

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

CAUTION:

- Airbag system wiring harness is routed near the electrical parts and switch.
- All Airbag system wiring harness and connectors are colored yellow. Do not use electrical test equipment on these circuit.
- Be careful not to damage Airbag system wiring harness when servicing the ignition key cylinder.



2. Battery

A: REMOVAL AND INSTALLATION

- 1) Disconnect the positive (+) terminal after disconnecting the negative (-) terminal of battery.
- 2) Remove flange nuts from battery rods and take off battery holder.
- 3) Remove battery.

Tightening torque:

2.5 — 4.4 N·m (25 — 45 kg-cm, 22 — 39 in-lb)

NOTE:

- Clean battery cable terminals and apply grease to retard the formation of corrosion.
- Connect the positive (+) terminal of battery and then the negative (-) terminal of the battery.

B: INSPECTION

1. BATTERY

1) External parts

Check for the existence of dirt or cracks on the battery case, top cover, vent plugs, and terminal posts. If necessary, clean with water and wipe with a dry cloth.

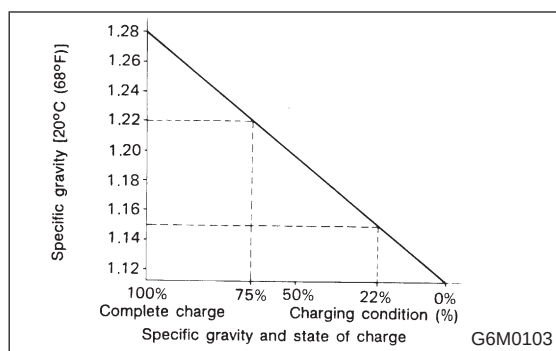
Apply a thin coat of grease on the terminal posts to prevent corrosion.

2) Electrolyte level

Check the electrolyte level in each cell. If the level is below MIN LEVEL, bring the level to MAX LEVEL by pouring distilled water into the battery cell. Do not fill beyond MAX LEVEL.

WARNING:

- Electrolyte has toxicity; be careful handling the fluid.
- Avoid contact with skin, eyes or clothing. Especially at contact with eyes, flush with water for 15 minutes and get prompt medical attention.
- Batteries produce explosive gasses. Keep sparks, flame, cigarettes away.
- Ventilate when charging or using in enclosed space.
- For safety, in case an explosion does occur, wear eye protection or shield your eyes when working near any battery. Never lean over a battery.
- Do not let battery fluid contact eyes, skin, fabrics, or paint-work because battery fluid is corrosive acid.
- To lessen the risk of sparks, remove rings, metal watch-bands, and other metal jewelry. Never allow metal tools to contact the positive battery terminal and anything connected to it WHILE you are at the same time in contact with any other metallic portion of the vehicle because a short circuit will be caused.



3) Specific gravity of electrolyte

Measure specific gravity of electrolyte using a hydrometer and a thermometer.

Specific gravity varies with temperature of electrolyte so that it must be corrected at 20°C (68°F) using the following Equation:

$$S_{20} = S_t + 0.0007 \times (t - 20)$$

S_{20} : Specific gravity corrected at electrolyte temperature of 20°C

S_t : Measured specific gravity

t : Measured temperature (°C)

Determine whether or not battery must be charged, according to corrected specific gravity.

Standard specific gravity: 1.220 — 1.290 [at 20°C (68°F)]

Measuring the specific gravity of the electrolyte in the battery will disclose the state of charge of the battery. The relation between the specific gravity and the state of charge is as shown in figure.

C: CHARGING

WARNING:

- Do not bring an open flame close to the battery at this time.

CAUTION:

- Prior to charging, corroded terminals should be cleaned with a brush and common baking soda solution.
- Be careful since battery electrolyte overflows while charging the battery.
- Observe instructions when handling battery charger.
- Before charging the battery on vehicle, disconnect battery ground terminal. Failure to follow this rule may damage alternator's diodes or other electrical units.

1. NORMAL CHARGING

Charge the battery at current value specified by manufacturer or at approximately 1/10 of battery's ampere-hour rating.

2. QUICK CHARGING

Quick charging is a method in which the battery is charged in a short period of time with a relatively large current by using a quick charger.

Since a large current flow raises electrolyte temperature, the battery is subject to damage if the large current is used for prolonged time. For this reason, the quick charging must be carried out within a current range that will not increase the electrolyte temperature above 40°C (104°F). It should be also remembered that the quick charging is a temporary means to bring battery voltage up to a fair value and, as a rule, a battery should be charged slowly with a low current.

CAUTION:

- **Observe the items in 1. NORMAL CHARGING.**
- **Never use more than 10 amperes when charging the battery because that will shorten battery life.**

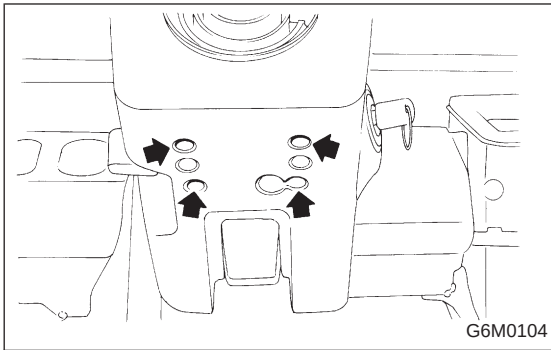
3. JUDGMENT OF BATTERY IN CHARGED CONDITION

- 1) Specific gravity of electrolyte is held at a specific value in a range from 1.250 to 1.290 for more than one hour.
- 2) Voltage per battery cell is held at a specific value in a range from 2.5 to 2.8 volts for more than one hour.

4. CHECK HYDROMETER FOR STATE OF CHARGE

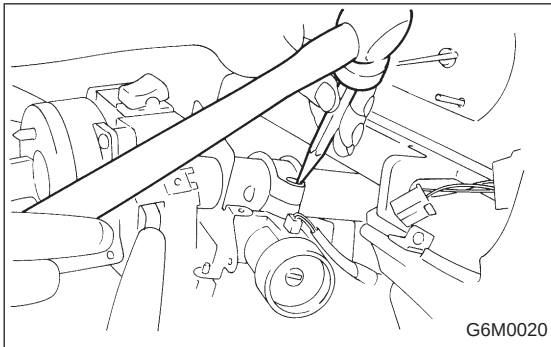
Hydrometer indicator	State of charge	Required action
Green dot	Above 65%	Load test
Dark dot	Below 65%	Charge battery
Clear dot	Low electrolyte	Replace battery* (If cranking complaint)

*: Check electrical system before replacement.



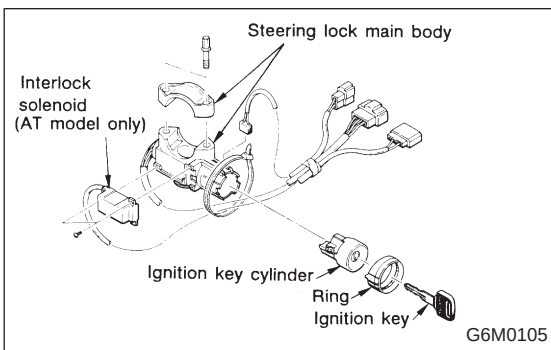
3. Ignition Key Switch

- 1) Remove screws, separate upper column cover and lower column cover.
- 2) Remove knee protector.
- 3) Remove meter visor.

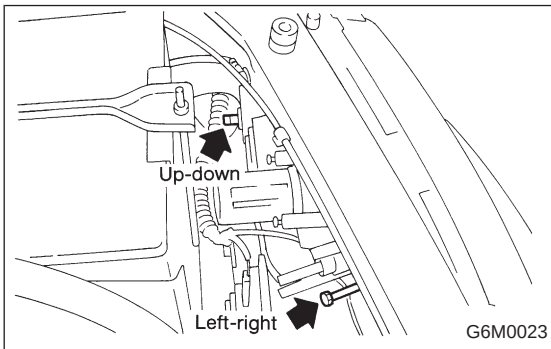


- 4) Disconnect ignition switch connector from body harness.

- 5) Using a drift and hammer, hit the torn bolt head to loosen and remove the ignition switch.



- 6) When installing, tighten the connecting bolt until its head twists off.



4. Lighting

A: ADJUSTMENT

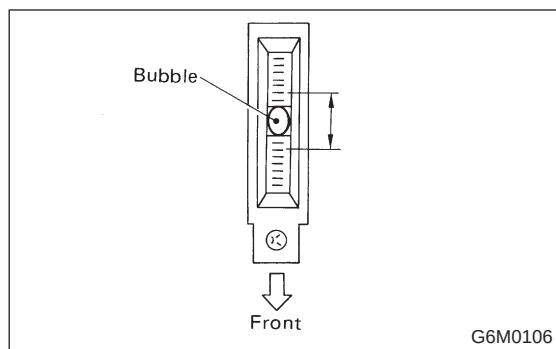
1. HEADLIGHT AIMING

Before checking the headlight aiming:

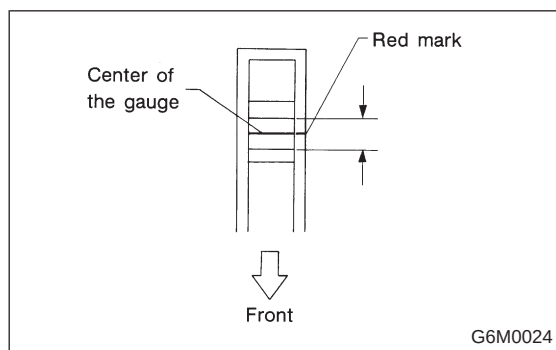
- Be sure that the area around the headlights has not sustained any accident damage or other type of deformation.
- Park the vehicle on level ground.
- Check the tires for correct inflation pressure.
- Make certain that the vehicle's gas tank is full and that someone is seated in the driver's seat.
- Bounce the vehicle several times to normalize the suspension.

NOTE:

- Adjust vertical aim first, then horizontal aim.
 - If headlight location is slightly shifted due to body deformity, etc., repair surface to be mated with headlight.
- <Ref. to 5-1 [S400].>



1) Look at the beam angle gauge (vertical movement). The bubble on the gauge should not deviate from the center of the gauge.



2) Look at the beam angle gauge (horizontal movement). The center mark (the red line on the inner scale) should not deviate from the red line on the outer case.

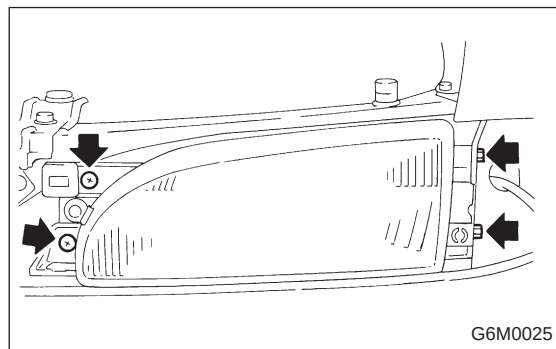
B: REMOVAL AND INSTALLATION

1. HEADLIGHT AND FRONT TURN SIGNAL LIGHT

- 1) Remove front grille and disconnect connector from headlight.
- 2) Remove screws which secure front turn signal light.
- 3) Remove front turn signal light while disconnecting connector.

NOTE:

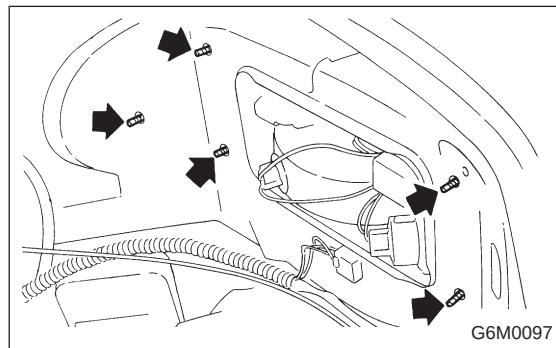
When installing, securely fit clip (on fender side) into locating (on front turn signal light side).



- 4) Remove screws and bolts which secure headlight and remove headlight.

Tightening torque:

6 — 7 N·m (0.6 — 0.7 kg-m, 4.3 — 5.1 ft-lb)



2. REAR COMBINATION LIGHT

- 1) Remove rear trim.
- 2) Remove nuts and disconnect connector.

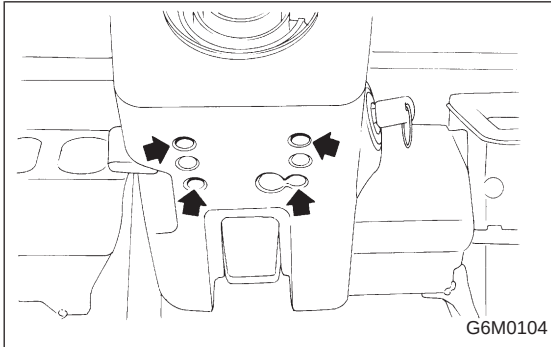
Tightening torque:

6 — 7 N·m (0.6 — 0.7 kg-m, 4.3 — 5.1 ft-lb)

- 3) Attach adhesive cloth tape to body area around rear combination light.
- 4) Using a standard screwdriver, carefully pry rear combination light off and away from the front of vehicle.

CAUTION:

- Do not pry rear combination light forcefully as this may scratch vehicle body.
- Remove all traces of adhesive tape from body before installation.
- Attach butyl rubber tape to back of rear combination light before installing rear combination light on body for sealing purposes.

**3. COMBINATION SWITCH (WITHOUT AIRBAG MODEL)**

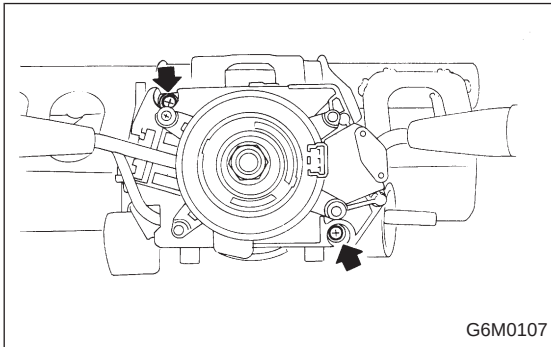
Refer to 5-5 [W5A0] as for removal of combination switch on airbag equipped model.

- 1) Remove steering wheel.
- 2) Remove screws which secure upper column cover to lower column cover.
- 3) Remove screws which secure knee protector and remove knee protector.

CAUTION:

When installing knee protector, ensure that harness is not caught by adjacent parts.

- 4) Disconnect connector from body harness and undo holddown band.

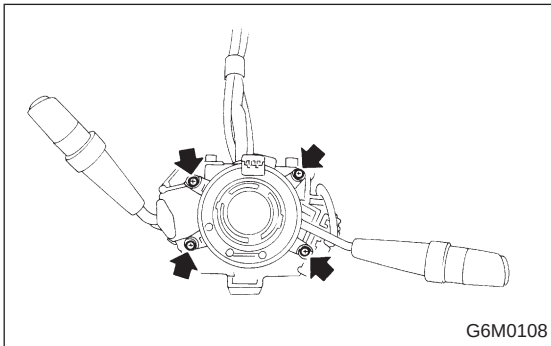


- 5) Remove screws which secure switch and remove switch.

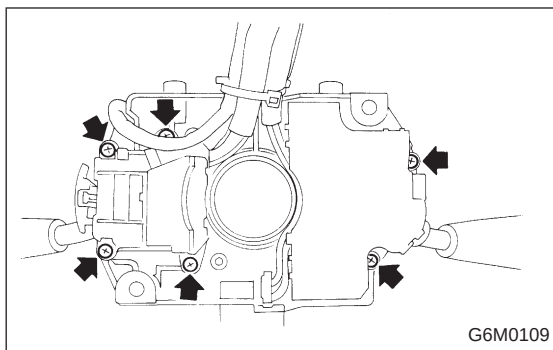
CAUTION:

During installation (with key interlock)

- When routing combination switch harness around steering system, do not place it over key interlock release knob.
- After installing lower column cover, ensure that key interlock release knob is accessible.

**C: DISASSEMBLY AND ASSEMBLY****1. COMBINATION SWITCH**

- 1) Remove screws which secure slip ring to combination switch, and remove slip ring.

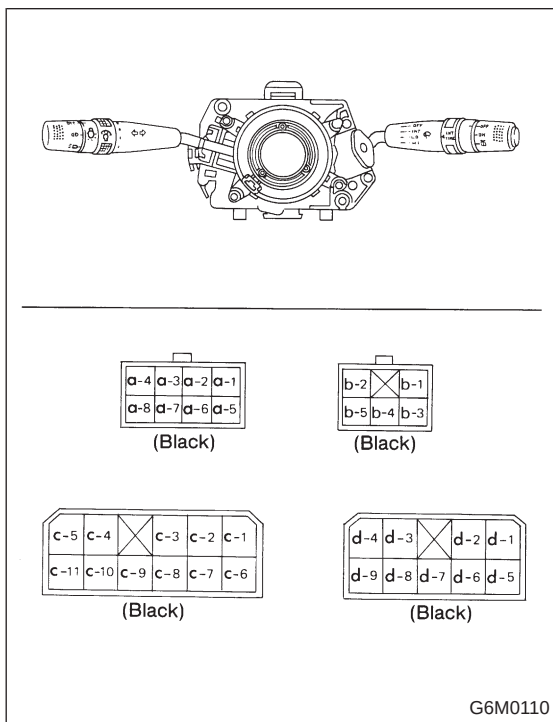


- 2) Remove screws which secure lighting switch, wiper and washer switch. Remove both switches.
Assembly is in the reverse order of disassembly.

D: INSPECTION

1. COMBINATION SWITCH (ON-CAR)

- 1) Remove instrument panel lower cover.
- 2) Remove lower column cover.



- 3) Unfasten holddown clip which secures harness, and disconnect connectors from body harness.

Move combination switch to respective positions and check continuity between terminals as indicated in the following tables.

LIGHTING SWITCH

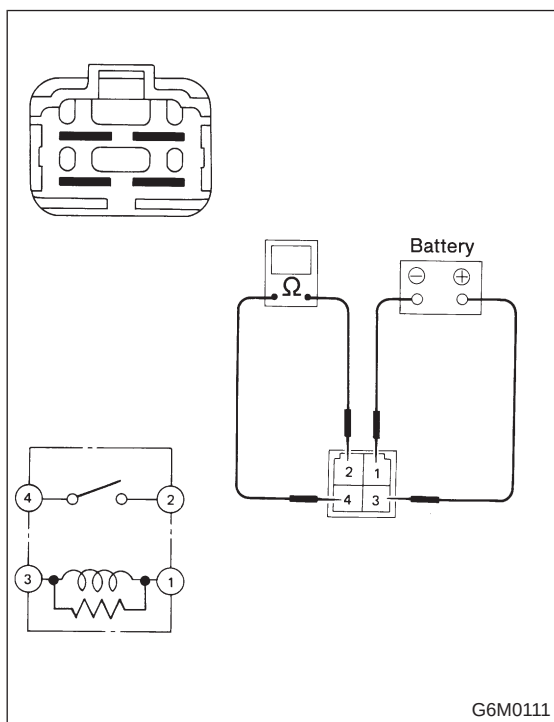
Terminal (Wire color)	c-1 (W)	c-2 (W)	c-3 (R)
Switch position			
OFF			
Tail	○	○	
Head	○	○	○

PARKING SWITCH

Terminal (Wire color)	c-10 (R)	c-11 (RG)	c-9 (RW)
Switch position			
OFF	○	○	
ON		○	○

DIMMER AND PASSING SWITCH

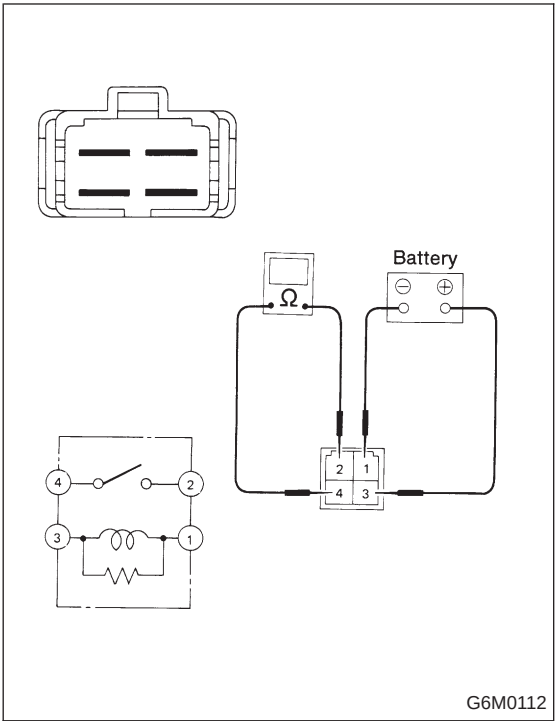
Terminal (Wire color)	a-3 (B)	a-2 (RB)	a-1 (RY)	a-4 (YR)
Switch position				
Flash	○		○	○
Low beam	○	○		
HI-beam	○		○	



2. HEADLIGHT RELAY

Check continuity between terminals (indicated in table below) when terminal (3) is connected to battery and terminal (1) is grounded.

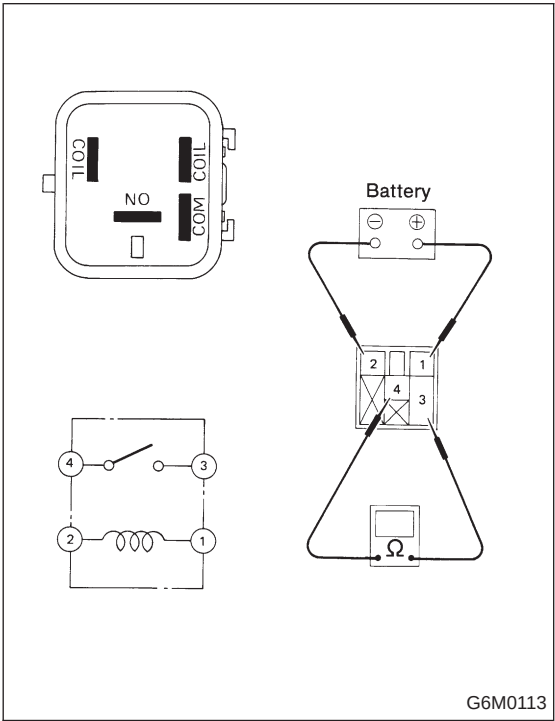
When current flows.	Between terminals (2) and (4)	Continuity exists.
When current does not flow.	Between terminals (2) and (4)	Continuity does not exist.
	Between terminals (1) and (3)	Continuity exists.



3. TAIL AND ILLUMINATION RELAY

Check continuity between terminals (indicated in table below) when terminal (3) is connected to battery and terminal (1) is grounded.

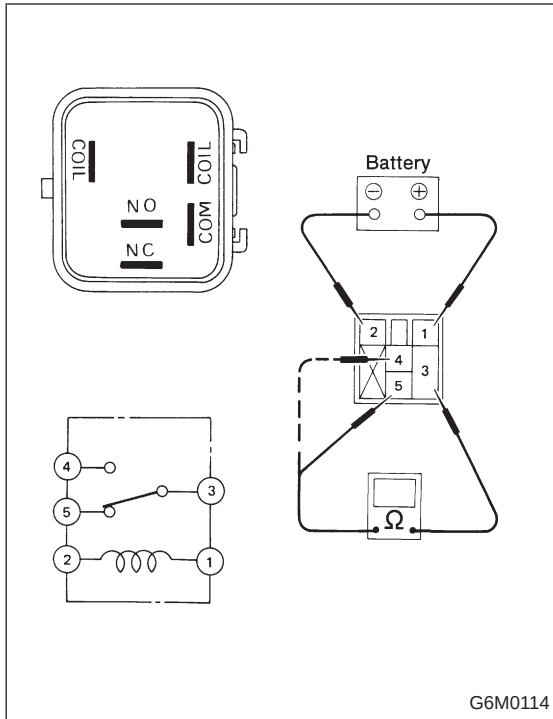
When current flows.	Between terminals (2) and (4)	Continuity exists.
When current does not flow.	Between terminals (2) and (4)	Continuity does not exist.
	Between terminals (1) and (3)	Continuity exists.



4. DAYTIME RUNNING LIGHT RELAY

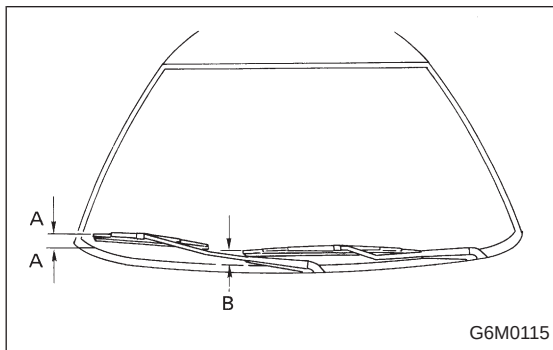
Check continuity between terminals (indicated in table below) when terminal (1) is connected to battery and terminal (2) is grounded.

When current flows.	Between terminals (3) and (4)	Continuity exists.
When current does not flow.	Between terminals (3) and (4)	Continuity does not exist.
	Between terminals (1) and (2)	Continuity exists.



Check continuity between terminals (indicated in table below) when terminal (1) is connected to battery and terminal (2) is grounded.

When current flows.	Between terminals (3) and (5)	Continuity does not exist.
	Between terminals (3) and (4)	Continuity exists.
When current does not flow.	Between terminals (3) and (5)	Continuity exists.
	Between terminals (3) and (4)	Continuity does not exist.
	Between terminals (1) and (2)	Continuity exists.



5. Front Wiper and Washer

A: ON-CAR SERVICES

1. ADJUSTMENT

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

Original position:

A: 15 — 30 mm (0.59 — 1.18 in)

B: 25 — 40 mm (0.98 — 1.57 in)

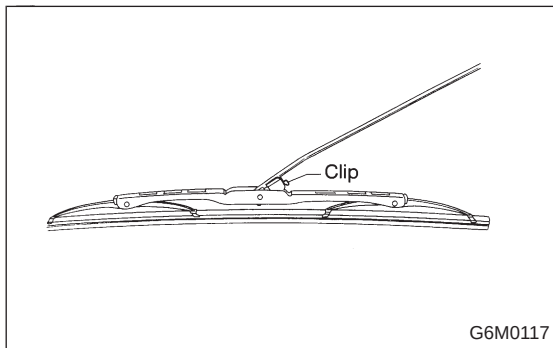
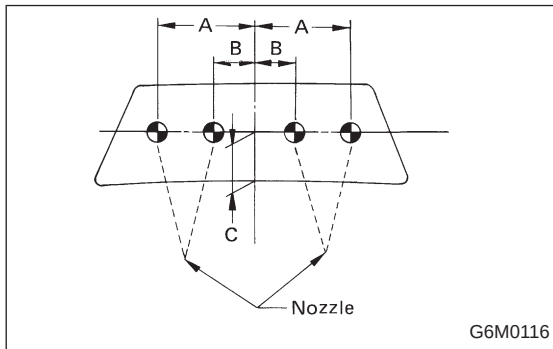
2) Adjust washer ejecting point on windshield glass as shown in figure when car stops.

Ejecting point:

A: 375 mm (14.76 in)

B: 150 mm (5.91 in)

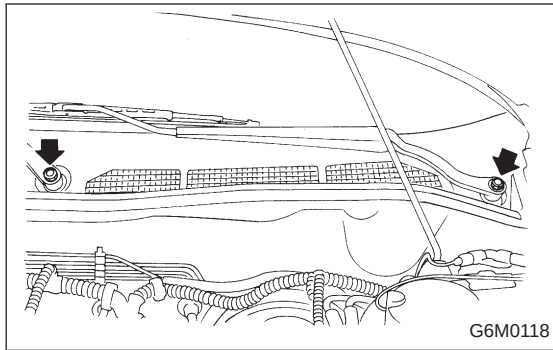
C: 350 mm (13.78 in)



B: REMOVAL AND INSTALLATION

1. BLADE

Pull out blade from arm while pushing up clip.



2. WIPER ARM

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

Tightening torque:

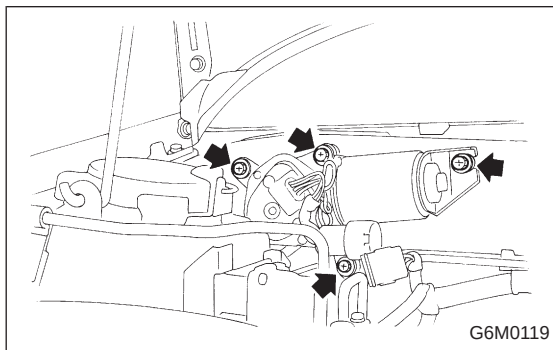
10 — 18 N·m (1.0 — 1.8 kg-m, 7 — 13 ft-lb)

3. WIPER MOTOR AND LINK

- 1) Detach weatherstrip and cowl net. <Ref. to 5-1.>

NOTE:

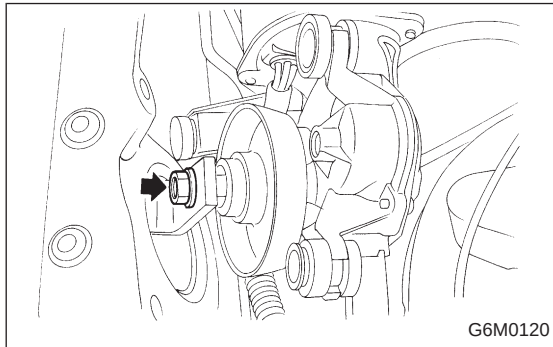
Apply silicone oil or soap water to both sides of cowl net to facilitate removal.



- 2) Disconnect electric connector, and remove motor attaching bolts.

Tightening torque:

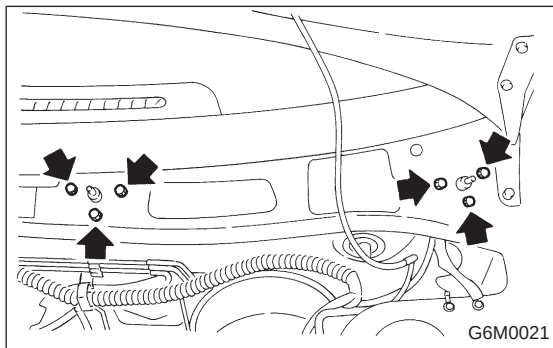
4.4 — 7.4 N·m (0.45 — 0.75 kg-m, 3.3 — 5.4 ft-lb)



- 3) Remove nut securing motor link on the back side of motor.

Tightening torque:

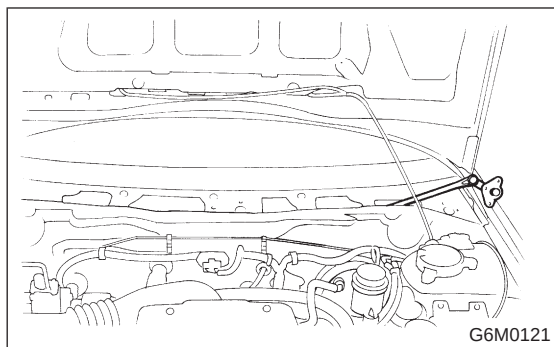
12 — 18 N·m (1.2 — 1.8 kg-m, 9 — 13 ft-lb)



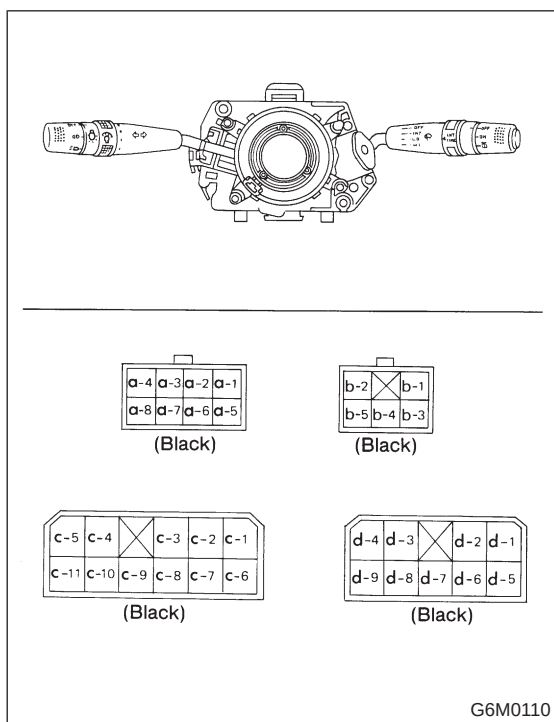
- 4) Remove nuts which secure sleeve unit.

Tightening torque:

4.4 — 7.4 N·m (0.45 — 0.75 kg-m, 3.3 — 5.4 ft-lb)



5) Remove wiper link from service hole in front panel.



C: INSPECTION

1. FRONT WIPER AND WASHER SWITCH

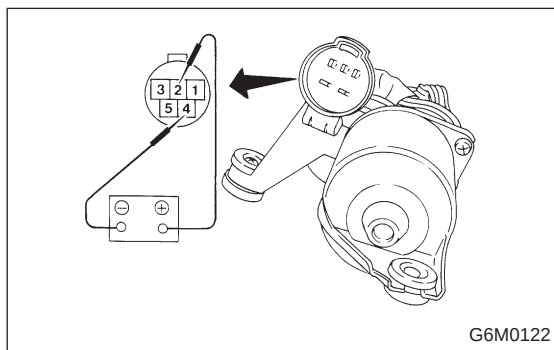
Set wiper switch to each position and check continuity between terminals (indicated in table below).

Wiper switch

Terminal (Wire color)		d-9 (Y)	d-8 (L)	d-6 (LY)	d-7 (LW)	INT1	INT2
Switch position							
OFF	OFF	○	○				
		x		x			
	MIST		○	○			
INT	OFF	○	○			○	○
		x		x			
	MIST		○	○		○	○
		x		x			
LO	OFF		○	○			
	MIST		○	○			
HI	OFF			○	○		
	MIST		○	○	○		

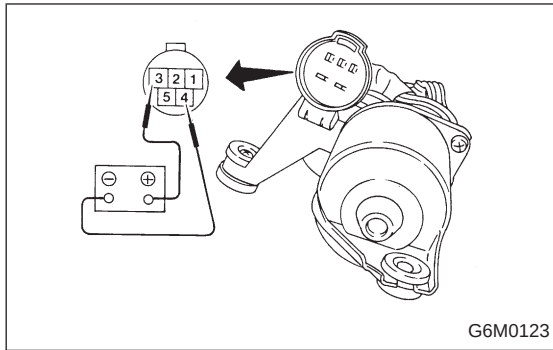
Washer switch

Terminal (Wire color)	d-5 (B)	d-2 (W)
Switch position		
OFF		
ON	○	○

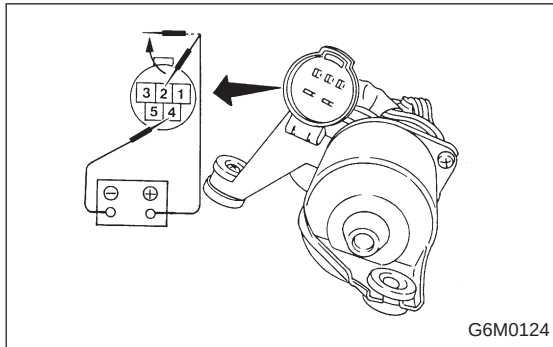


2. WIPER MOTOR

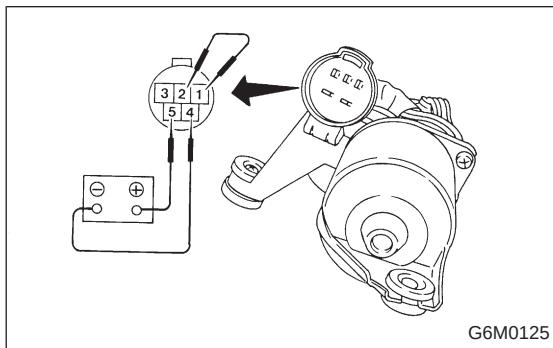
1) Check wiper motor operation at low speed.
Connect battery to wiper motor. Check wiper motor for proper operation at low speed.



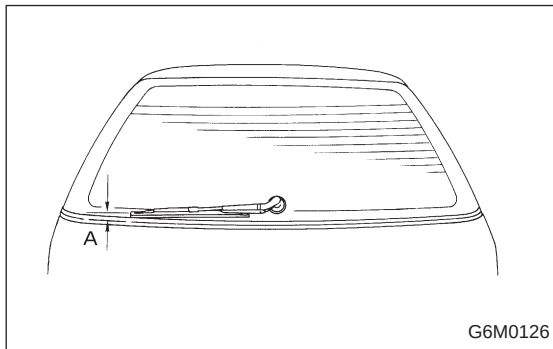
2) Check wiper motor operation at high speed. Connect battery wiper motor. Check wiper motor for proper operation at high speed.



3) Check wiper motor for proper stoppage. Connect battery to wiper motor. After operating wiper motor at low speed, disconnect battery to stop it.



Reconnect battery and ensure that wiper motor stops at "AUTO STOP" after operating at low speed.



6. Rear Wiper and Washer

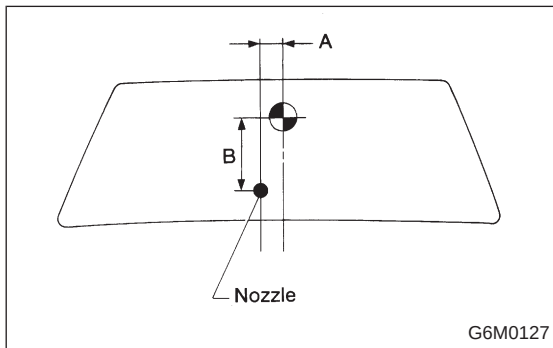
A: ON-CAR SERVICES

1. ADJUSTMENT

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

Original position:

A: 25 — 35 mm (0.98 — 1.38 in)

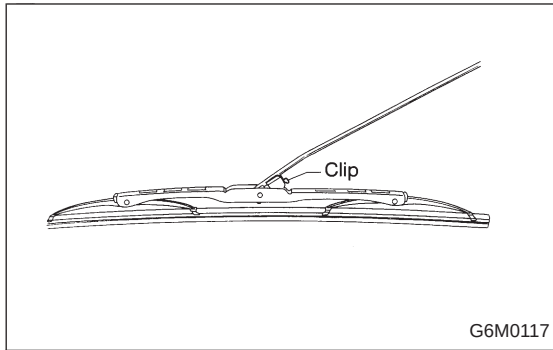


2) Adjust washer ejecting point on rear gate window as shown in figure when the car stops.

Ejecting point:

A: 25 mm (0.98 in)

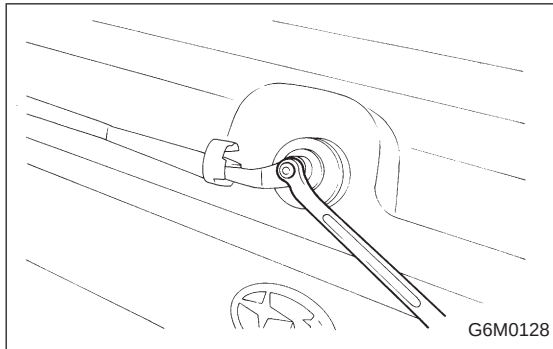
B: 200 — 300 mm (7.87 — 11.81 in)



B: REMOVAL AND INSTALLATION

1. BLADE

Pull out blade from arm while pushing up clip.

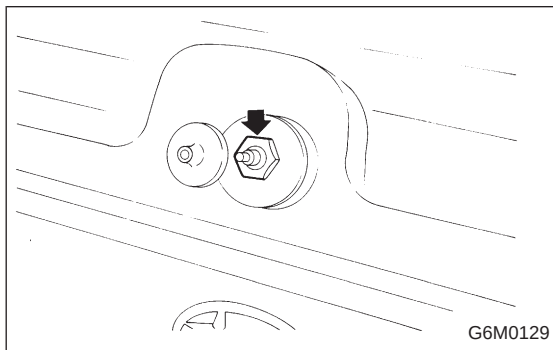


2. WIPER ARM

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

Tightening torque:

4.4 — 7.4 N·m (0.45 — 0.75 kg-m, 3.3 — 5.4 ft-lb)



3. WIPER MOTOR

- 1) Remove cap and special nut.

CAUTION:

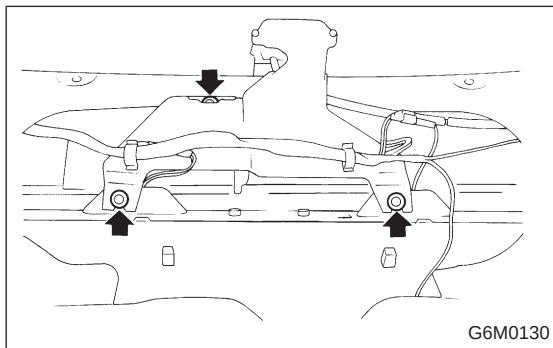
Be careful not to strike service tool against nozzle during removal.

Tightening torque:

6 — 9 N·m (0.6 — 0.9 kg-m, 4.3 — 6.5 ft-lb)

- 2) Remove rear gate trim. <Ref. to 5-2.>

- 3) Undo clips which secure harness, and disconnect connector.



- 4) Separate washer hoses at joint.

- 5) Remove attaching screws and take out wiper motor assembly.

CAUTION:

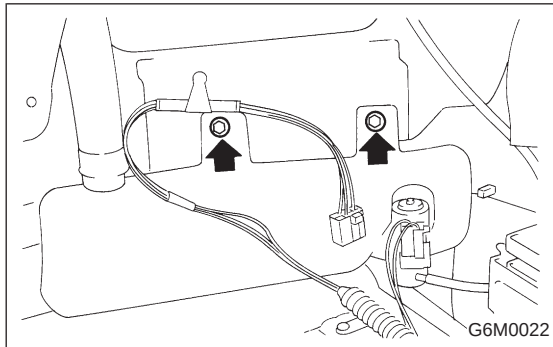
Be careful not to damage O-ring when removing wiper motor assembly.

Tightening torque:

4.4 — 7.4 N·m (0.45 — 0.75 kg-m, 3.3 — 5.4 ft-lb)

4. WASHER TANK

1) Remove rear quarter trim. <Ref. to 5-2.>



2) Disconnect washer hose and connector.

3) Remove attaching bolts.

Tightening torque:

4.4 — 7.4 N·m (0.45 — 0.75 kg-m, 3.3 — 5.4 ft-lb)

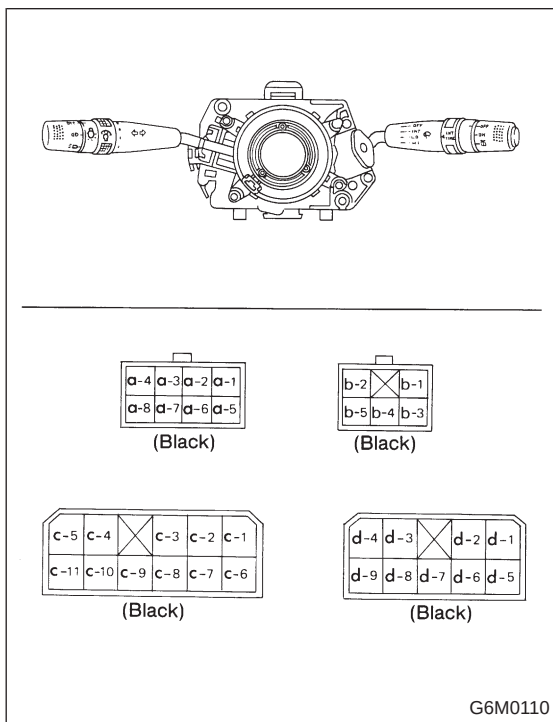
C: INSPECTION

1. REAR WIPER AND WASHER SWITCH

Set rear wiper and washer switch to each position and check continuity between terminals (indicated in table below).

WITHOUT INTERMITTENT REAR WIPER

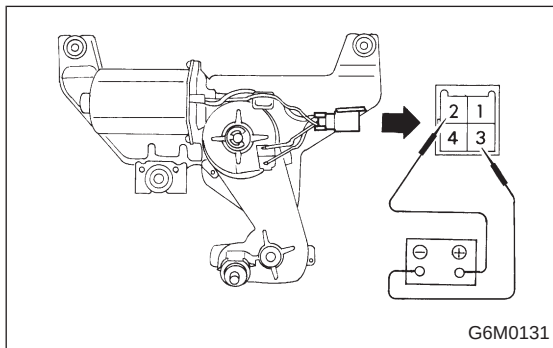
Terminal Switch position	d-2	d-1		d-3
WASH	○	○		○
OFF				
ON	○			○
WASH	○	○		○

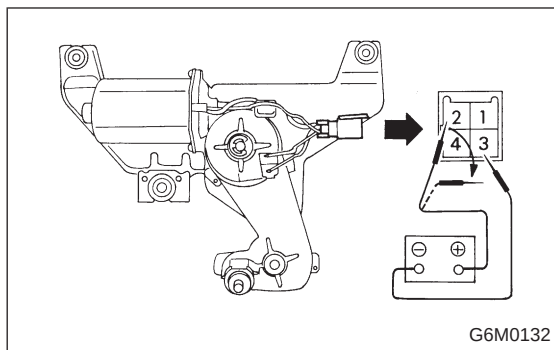


2. WIPER MOTOR

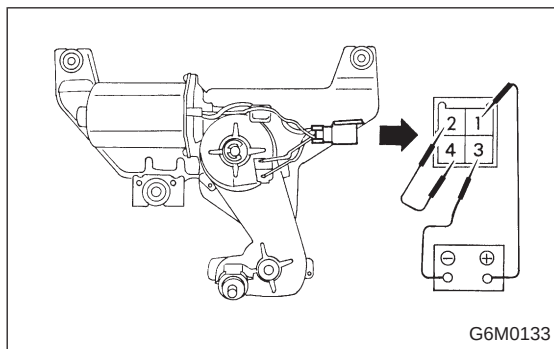
1) Operational check

Connect battery to wiper motor and check operation of wiper motor.

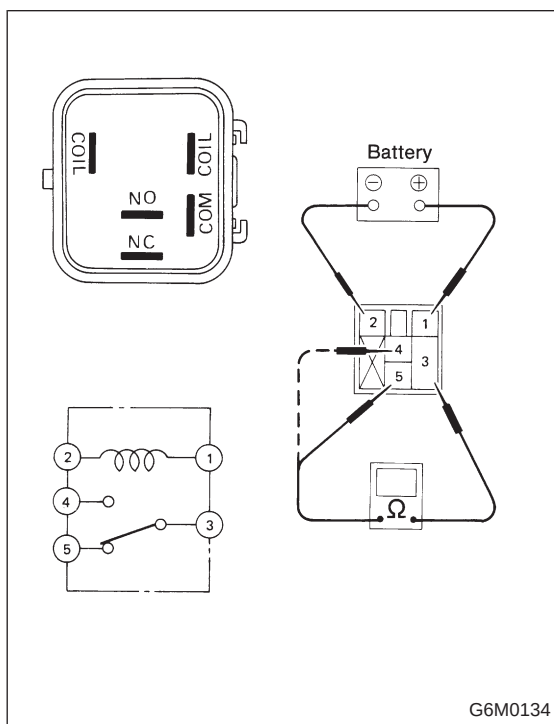




2) Check wiper motor for proper stoppage.
After operating wiper motor, disconnect battery from wiper motor.



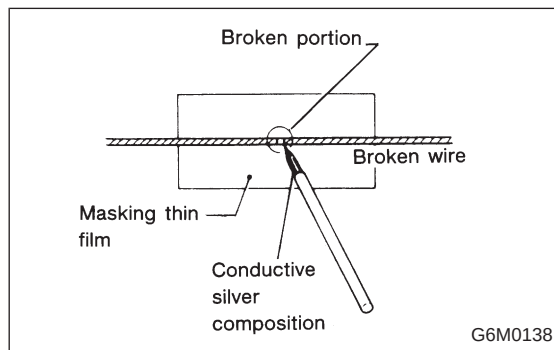
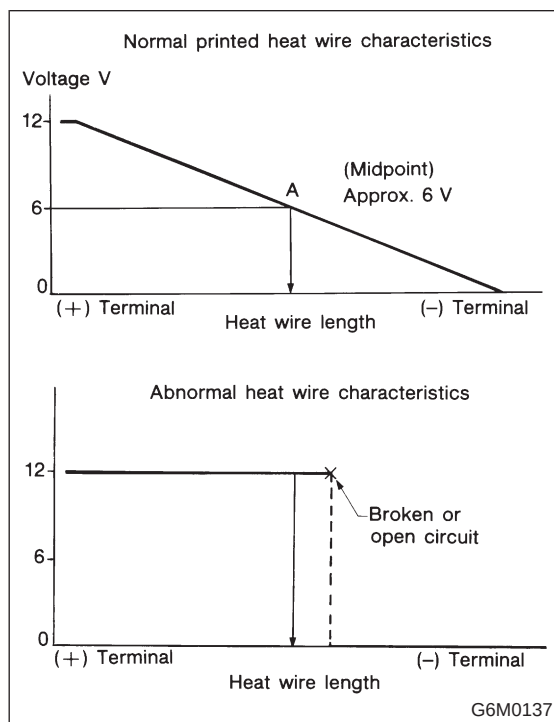
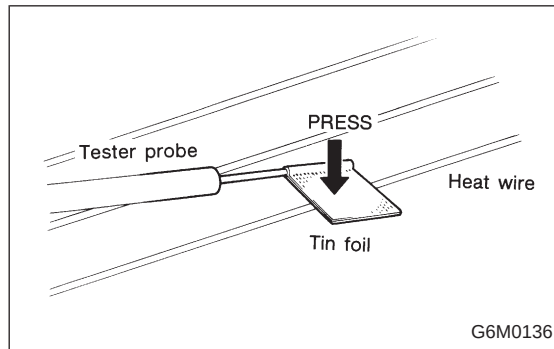
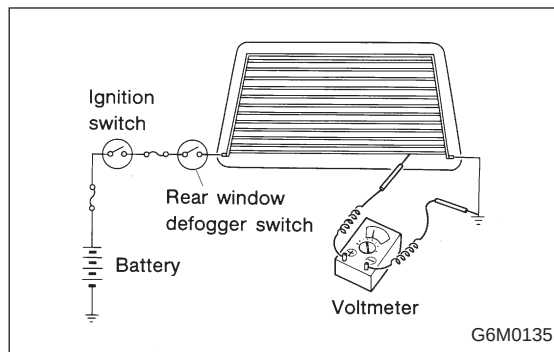
3) Reconnect battery and ensure that wiper motor stops at "AUTO STOP" after it has been operated.



3. REAR WIPER RELAY

Connect battery to terminal (1) and ground terminal (2).
Check continuity between terminals (indicated in table below).

When current flows.	Between terminals (3) and (5)	Continuity does not exist.
	Between terminals (3) and (4)	Continuity exists.
When current does not flow.	Between terminals (3) and (5)	Continuity exists.
	Between terminals (3) and (4)	Continuity does not exist.
	Between terminals (1) and (2)	Continuity exists.



7. 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.

NOTE:

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

- 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.

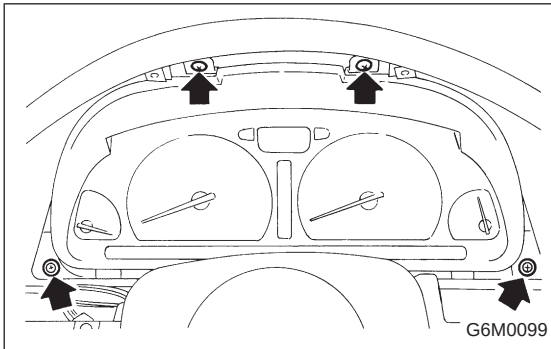
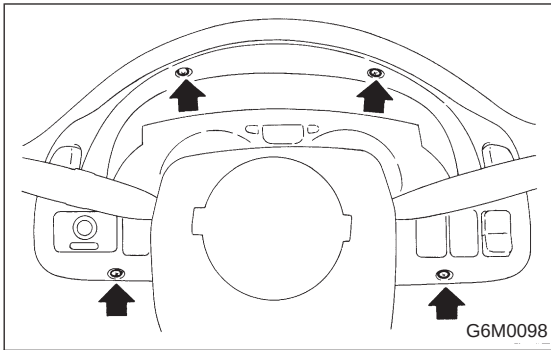
B: REPAIR

- 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.

8. Combination Meter

A: REMOVAL AND INSTALLATION

- 1) Move steering wheel down.
- 2) Remove screws which secure visor and remove visor.
- 3) Disconnect switch connectors.

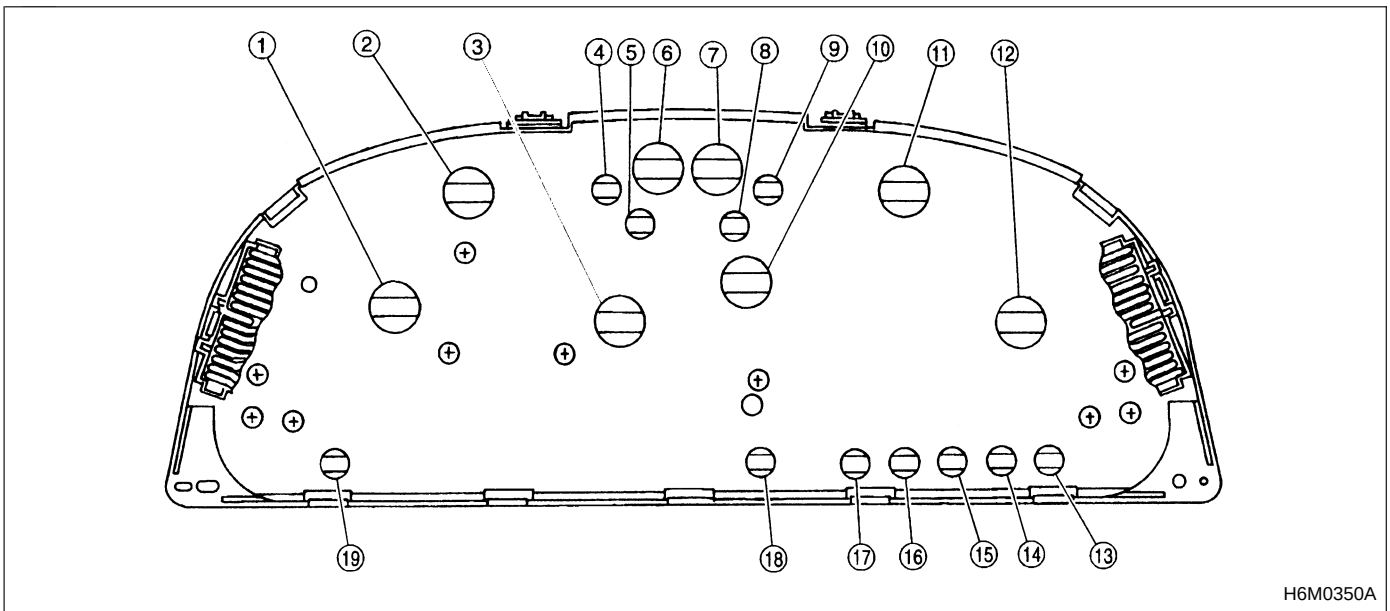


- 4) Remove screws which secure combination meter, and pull combination meter out.
- 5) Disconnect connector and speedometer cable from back of combination meter.

CAUTION:

When installing combination meter, be sure to connect speedometer cable and connectors to backside of combination meter.

B: BULB REPLACEMENT



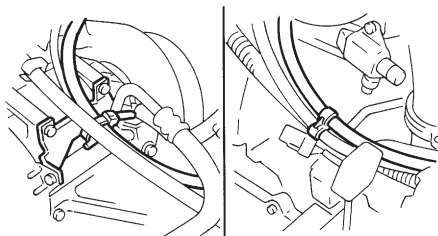
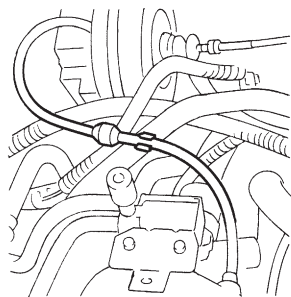
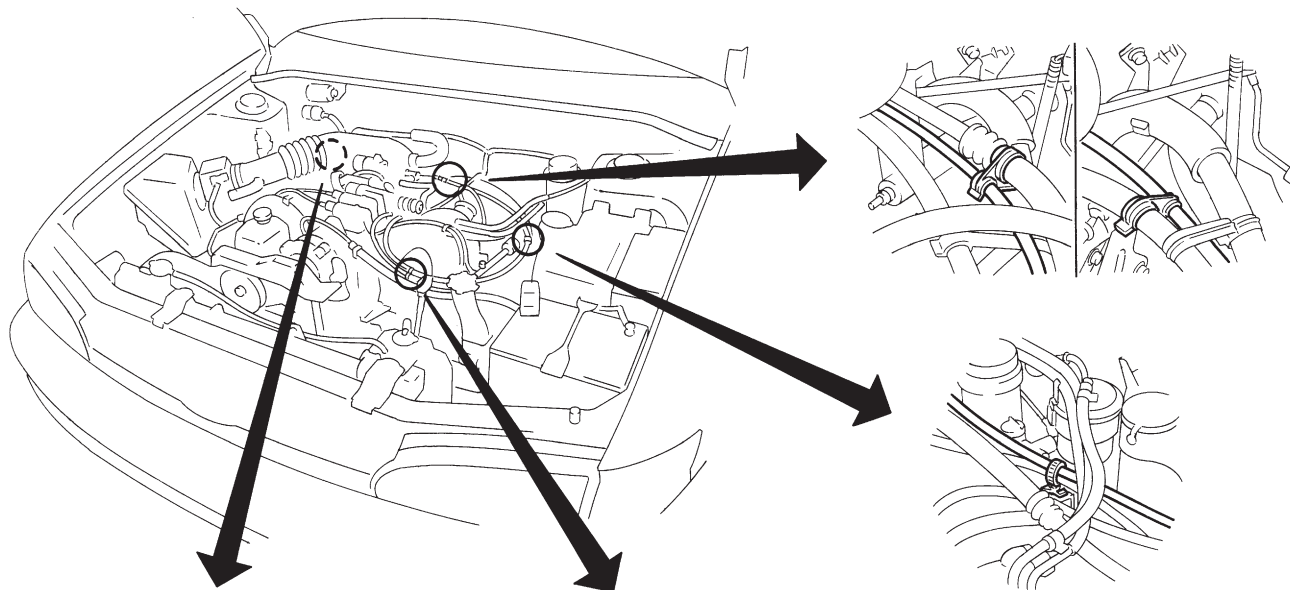
- ① Speedometer and fuel gauge
- ② Speedometer
- ③ Speedometer and AT indicator
- ④ Turn RH
- ⑤ Door open
- ⑥ Hi-beam
- ⑦ Brake

- ⑧ Seat belt
- ⑨ Turn LH
- ⑩ Tachometer and AT indicator
- ⑪ Tachometer
- ⑫ Tachometer and temperature gauge
- ⑬ Check engine

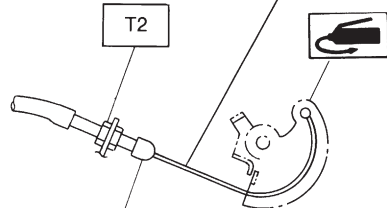
- ⑭ Charge
- ⑮ Oil pressure
- ⑯ AT oil temp.
- ⑰ A.B.S.
- ⑱ Rear defogger
- ⑲ FWD

9. Cruise Control AIRBAG

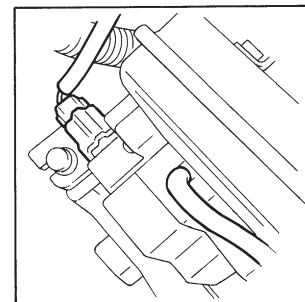
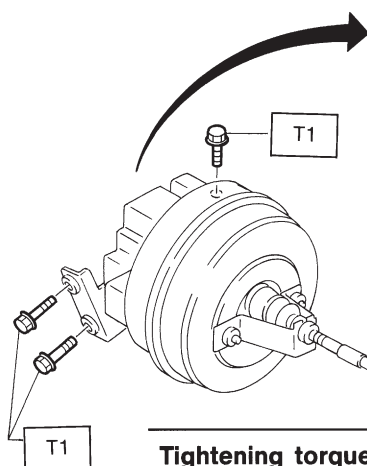
A: ADJUSTMENT



Adjust so that cable deflects
1 — 8 mm (0.04 — 0.31 in)
within the specified throttle link
free play range, and adjust the
outer end.



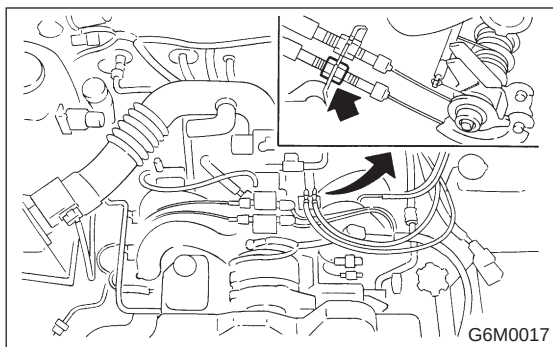
Cover must be inserted securely,
until top of cable touches cover
stopper.



Tightening torque: N·m (kg-m, ft-lb)

T1: 5.4 — 9.3 (0.55 — 0.95, 4.0 — 6.9)

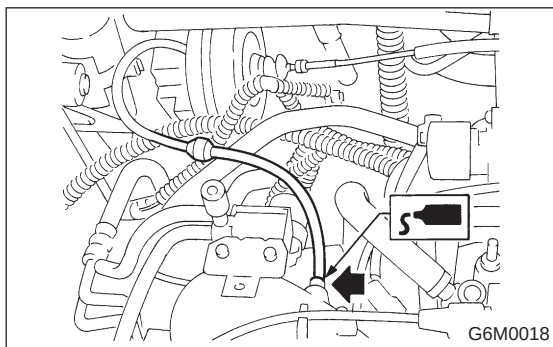
T2: 10 — 18 (1.0 — 1.8, 7 — 13)



B: REMOVAL AND INSTALLATION

1. ACTUATOR

- 1) Remove air intake duct. Remove the nut which secures control cable end to throttle cam, and remove control cable end.
- 2) Remove clip bands from control cable.



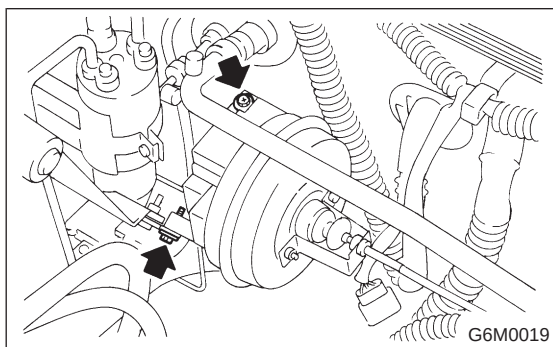
- 3) Disconnect cruise control hose from intake manifold.

CAUTION:

When inserting hose into intake manifold, apply sealant to hose.

Fluid packing:

THREE BOND 1105 or equivalent



- 4) Disconnect actuator connector.
- 5) Remove attaching bolts and actuator.

Tightening torque:

5.4 — 9.3 N·m (0.55 — 0.95 kg-m, 4.0 — 6.9 ft-lb)

CAUTION:

- Be careful not to apply excessive load to the wire cable when adjusting and/or installing; otherwise, the actuator may be deformed or damaged.
- Do not bend cable sharply with a radius less than 100; otherwise, cable may bend permanently, resulting in poor performance.
- When installing cable, be careful not to sharply bend or pinch the inner cable; otherwise, the cable may break.

2. STOP AND BRAKE SWITCH

<Ref. to 4-5.>

3. CLUTCH SWITCH

<Ref. to 4-5.>

4. CRUISE CONTROL MAIN SWITCH

- 1) Remove meter visor, and then remove cruise control main switch by pushing it outward.
- 2) Disconnect connector.

5. CRUISE CONTROL SUB SWITCH

- 1) Remove horn pad.
- 2) Disconnect horn switch connector and remove attaching screws.

WARNING:

Refer to 5-5 when removing or installing the module from the airbag equipped model.

C: 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

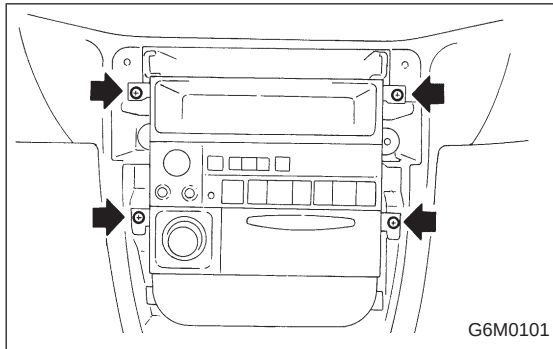
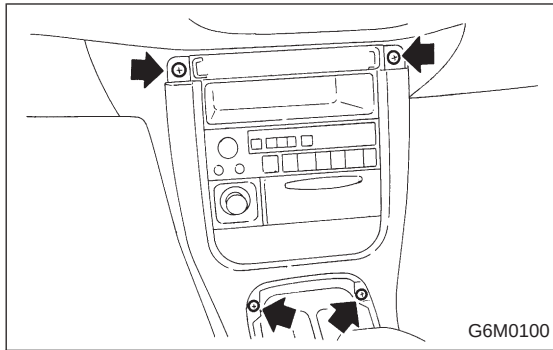
- 1) Set vehicle speed at speed greater than 40 km/h (25 MPH).
- 2) Ensure that vehicle continues to accelerate while holding sub switch in RESUME/ACCEL mode, and that vehicle maintains that optional speed when sub switch is released.

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 sub switch is released.

NOTE:

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



10. Radio, Speaker and Antenna

A: REMOVAL AND INSTALLATION

1. RADIO BODY

- 1) Remove cup holder.
- 2) Remove AT cover (AT model).
- 3) Remove screws which secure center panel. Remove center panel.
- 4) Remove fitting screws, and slightly pull radio out of instrument panel.
- 5) Disconnect electric connectors and antenna feeder cord.

2. FRONT SPEAKER

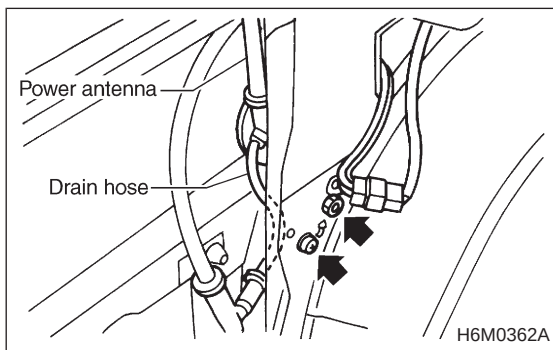
- 1) Remove door trim and disconnect connector. <Ref. to 5-2.>
- 2) Remove screws which secure front speaker. Remove speaker.

3. REAR SPEAKER (WAGON)

- 1) Remove rear quarter trim. <Ref. to 5-3.>
- 2) Remove nuts which secure speaker bracket.
- 3) Remove speaker and disconnect connector.

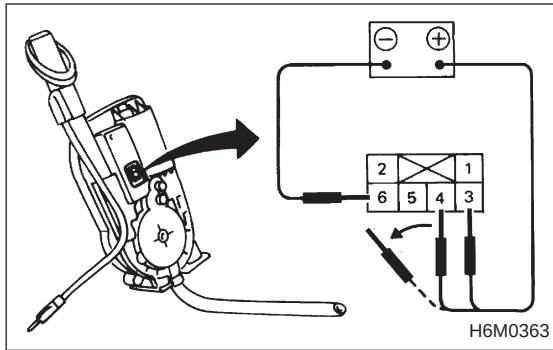
4. REAR SPEAKER (SEDAN)

- 1) Remove rear shelf trim panels. <Ref. to 5-3.>
- 2) Remove screws which secure rear speakers.
- 3) Disconnect connector and remove speakers.



5. POWER ANTENNA

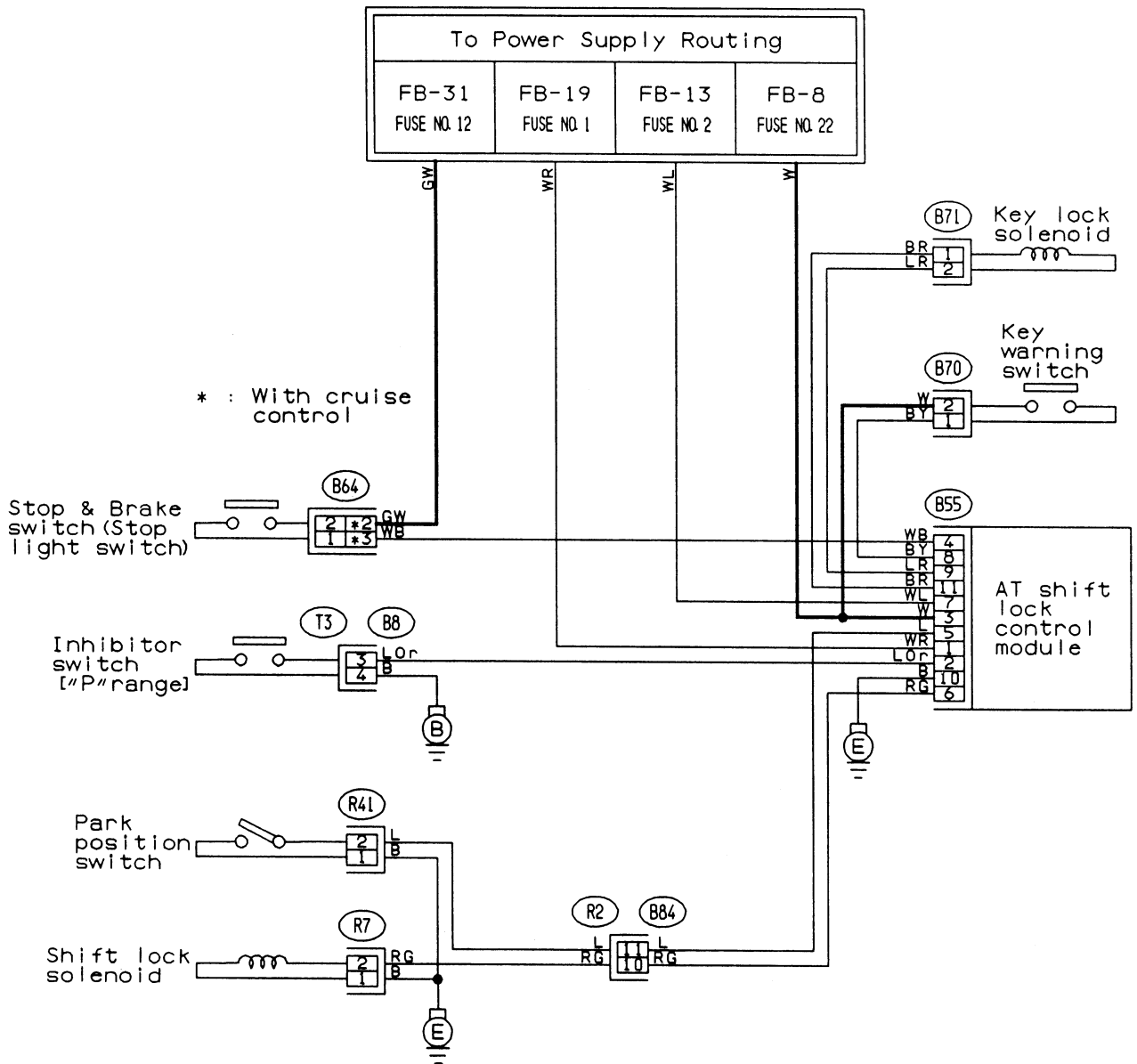
- 1) Remove left side trunk trim (SEDAN), or left side rear lower quarter trim (WAGON).
- 2) Remove nuts which secure power antenna.
- 3) Remove power antenna while disconnecting connector and water drain hose.

**B: INSPECTION****1. POWER ANTENNA**

- 1) Connect battery positive (+) terminal to terminal No. 3 and connect terminal No. 6 to ground. Ensure that antenna rod extends properly when battery positive (+) terminal is connected to terminal No. 4.
- 2) Ensure that antenna rod retracts properly when battery positive (+) terminal is disconnected from terminal No. 4.

1. AT Shift Lock System

A: WIRING DIAGRAM



(B70) (Black)



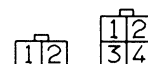
(R41) (R7) (Black)



(B71) (Black)

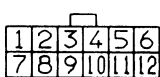


(B64) (Black)

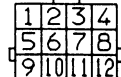


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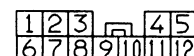
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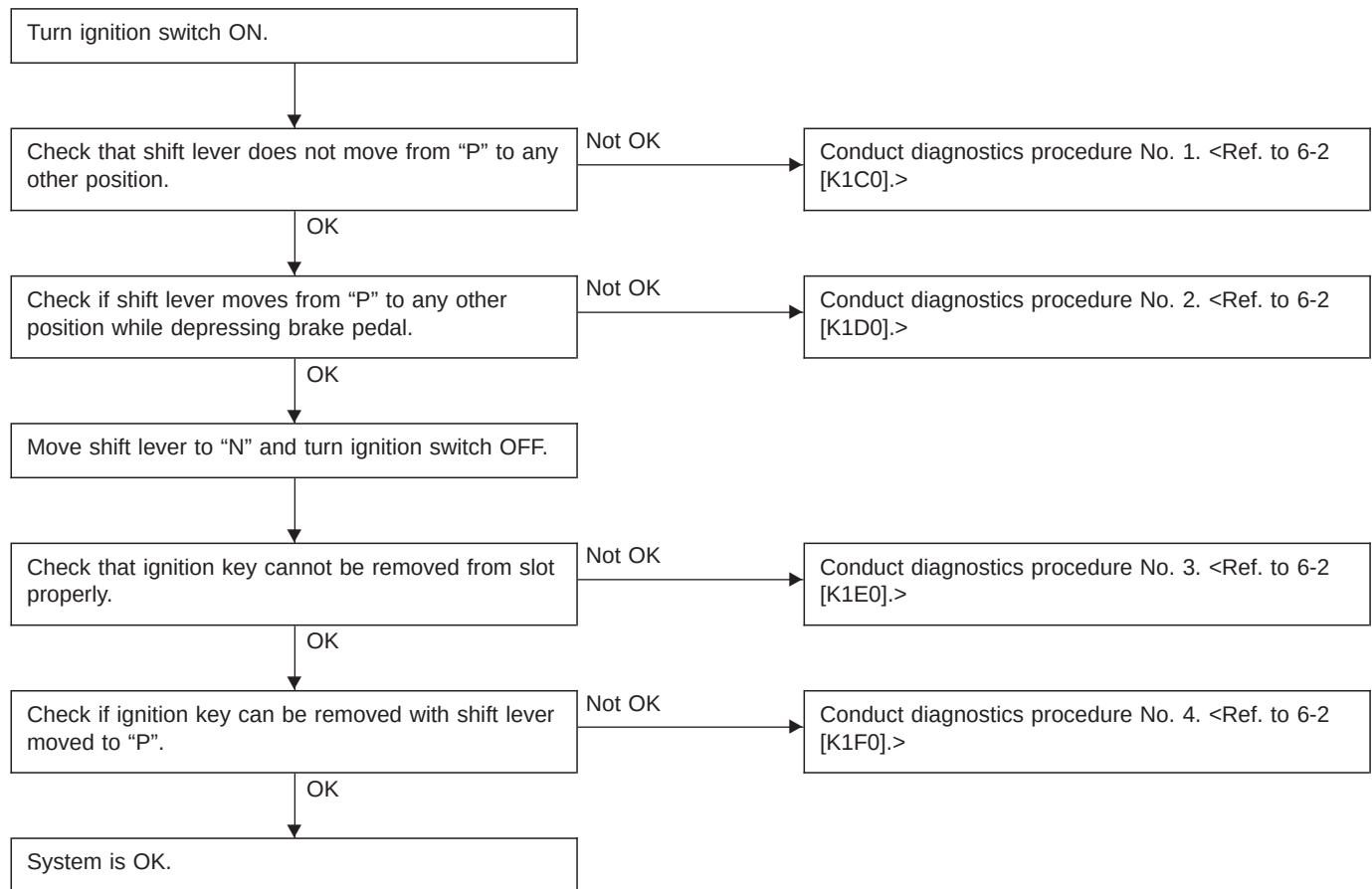


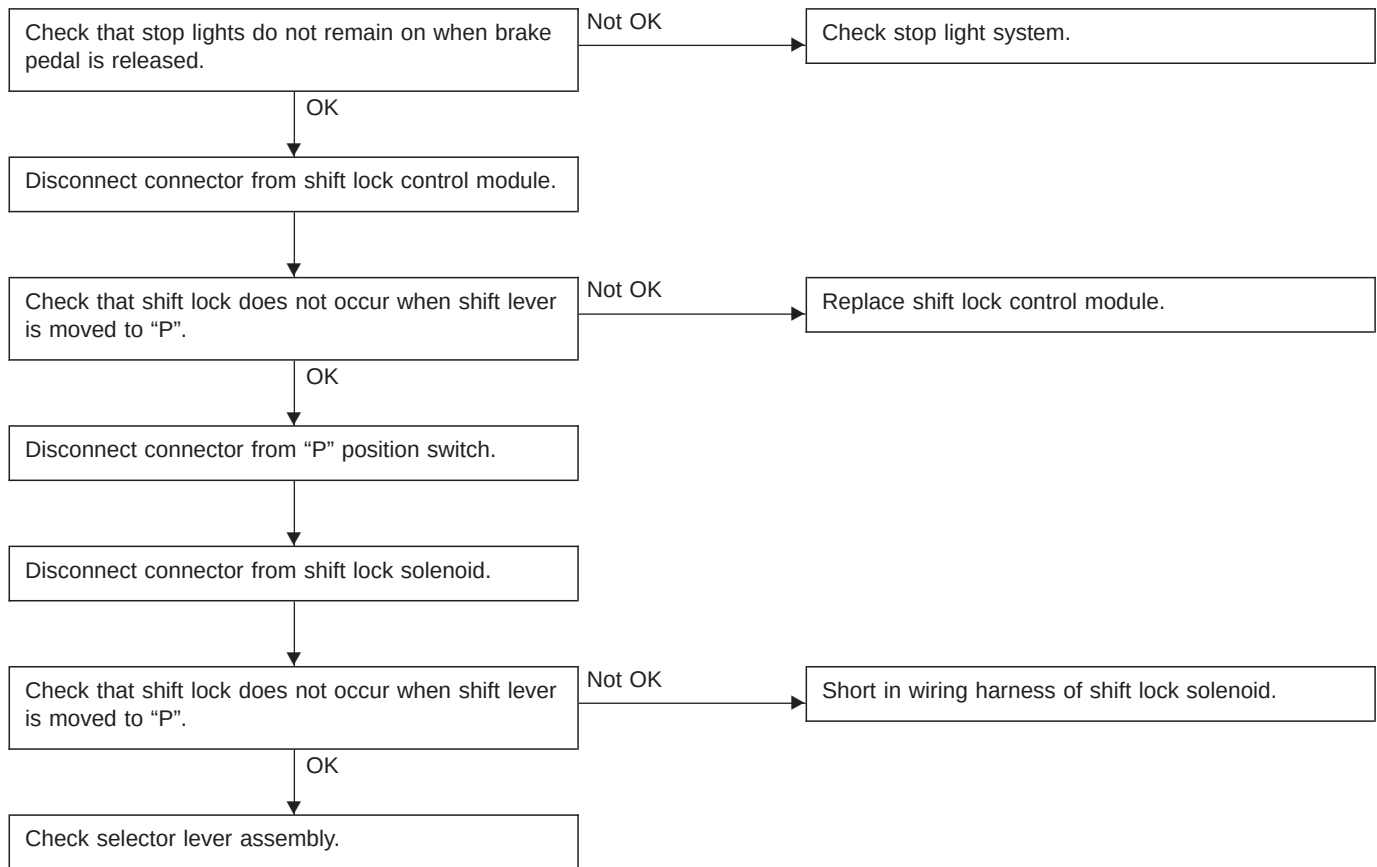
(B8) (Gray)



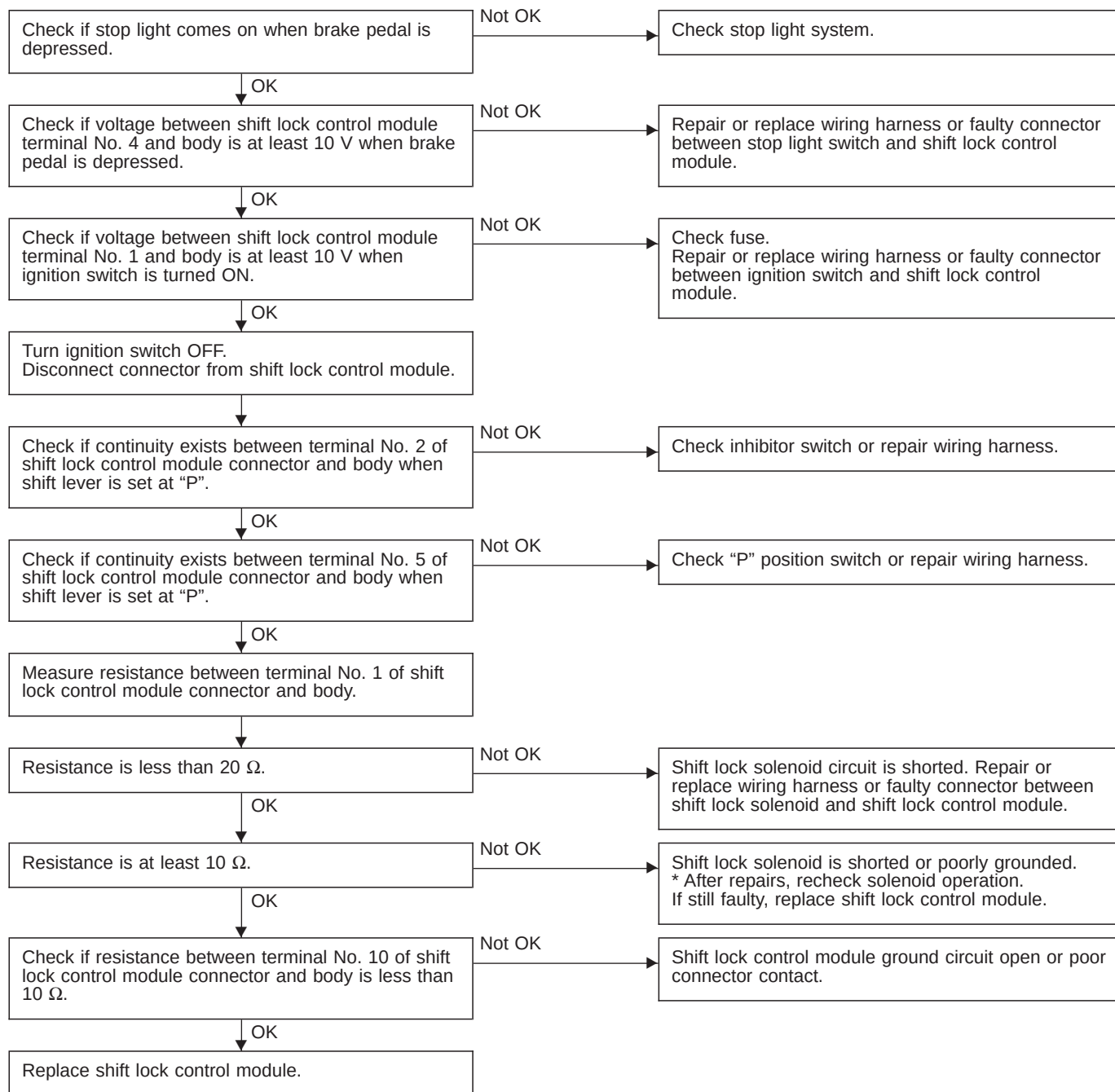
(B84) (Black)



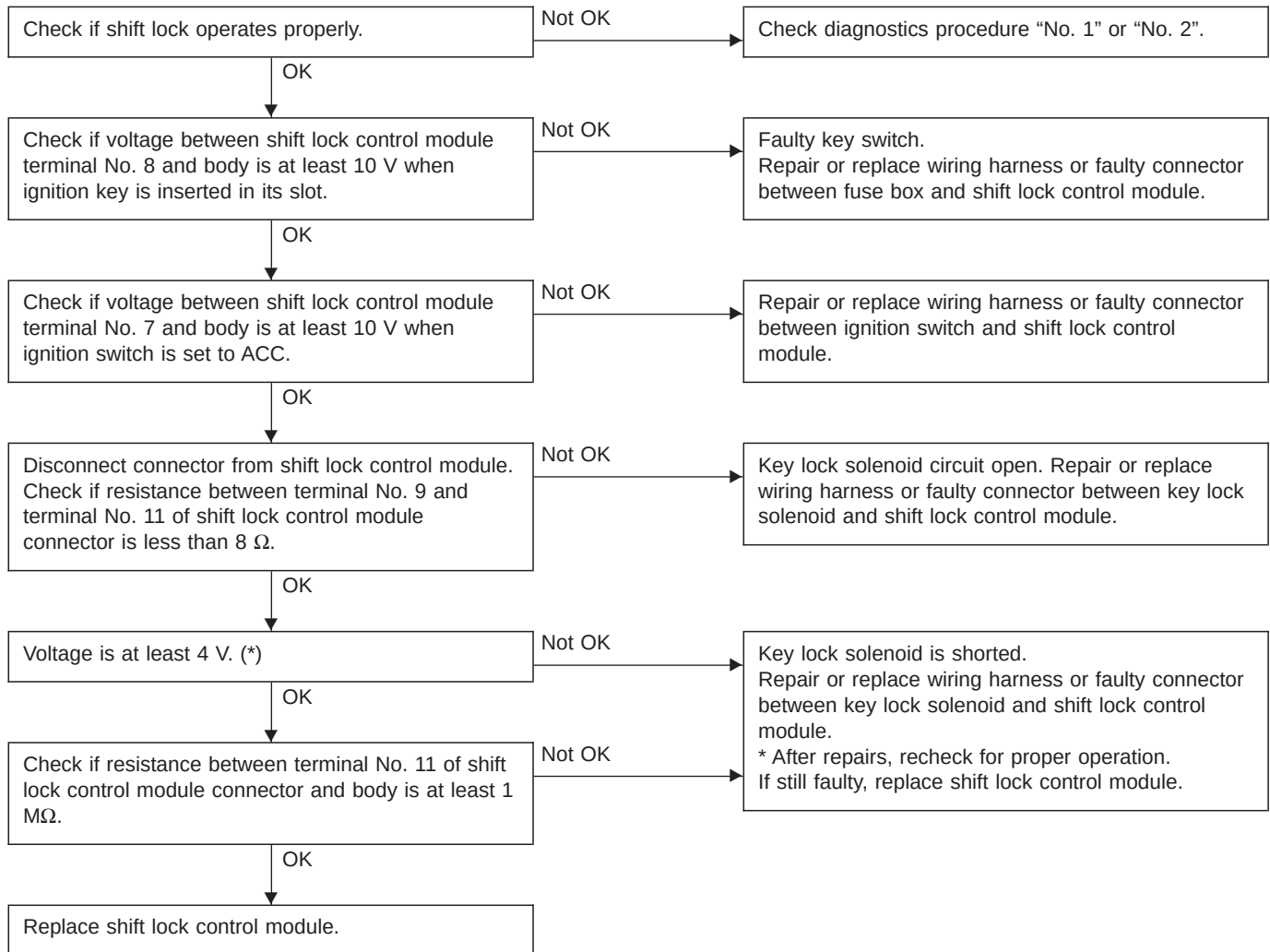
B: BASIC DIAGNOSTICS CHART

C: DIAGNOSTICS PROCEDURE No. 1

D: DIAGNOSTICS PROCEDURE No. 2 (SHIFT LOCK DOES NOT RELEASE.)

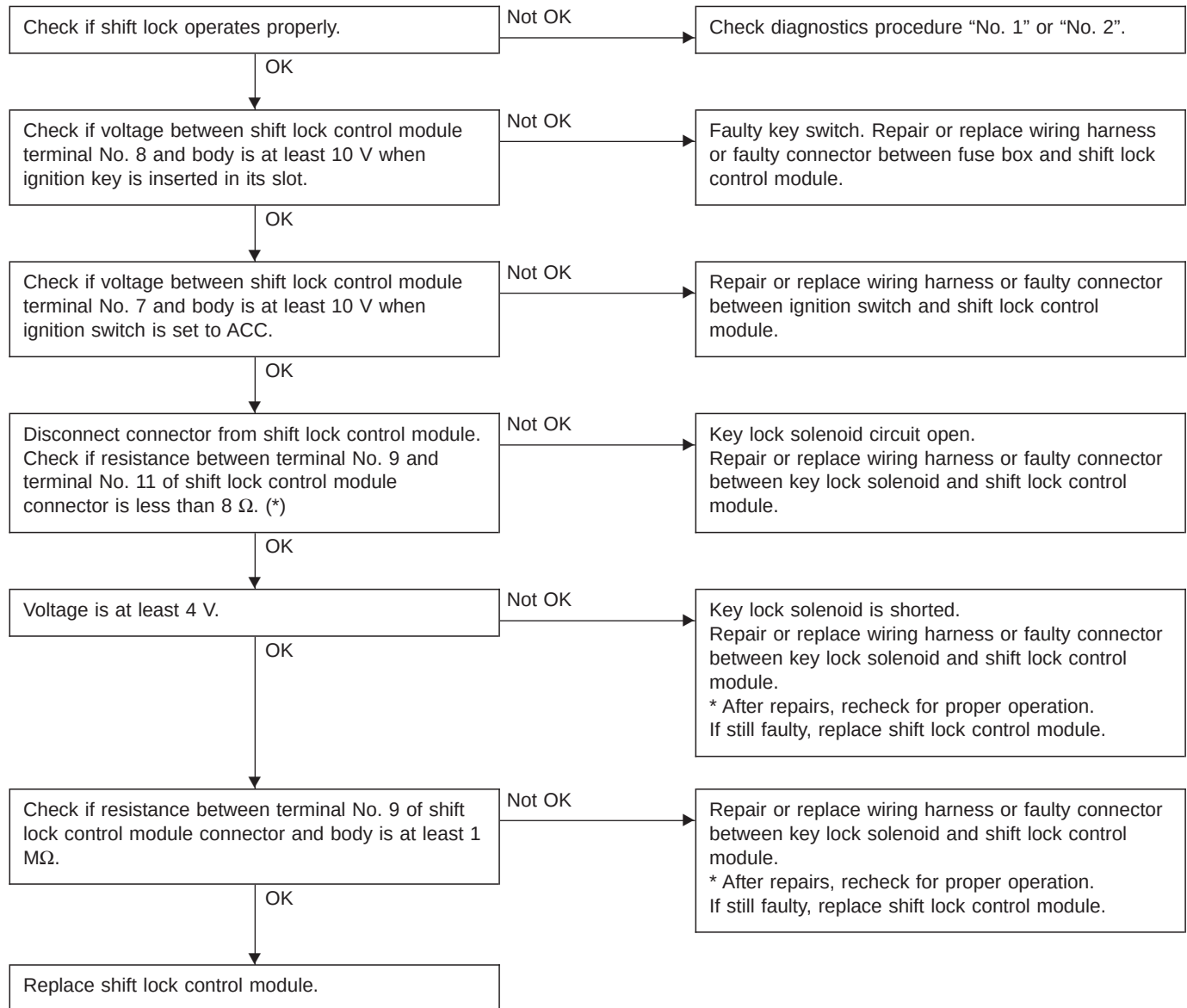


E: DIAGNOSTICS PROCEDURE No. 3 (KEY INTERLOCK DOES NOT OPERATE.)



***: When conducting operational checks of the key lock solenoid, do not apply 12 V to solenoid for more than one second, since this may break solenoid circuit.**

F: DIAGNOSTICS PROCEDURE No. 4 (KEY INTERLOCK DOES NOT RELEASE.)



***: When conducting operational checks of the key lock solenoid, do not apply 12 V to solenoid for more than one second, since this may break solenoid circuit.**

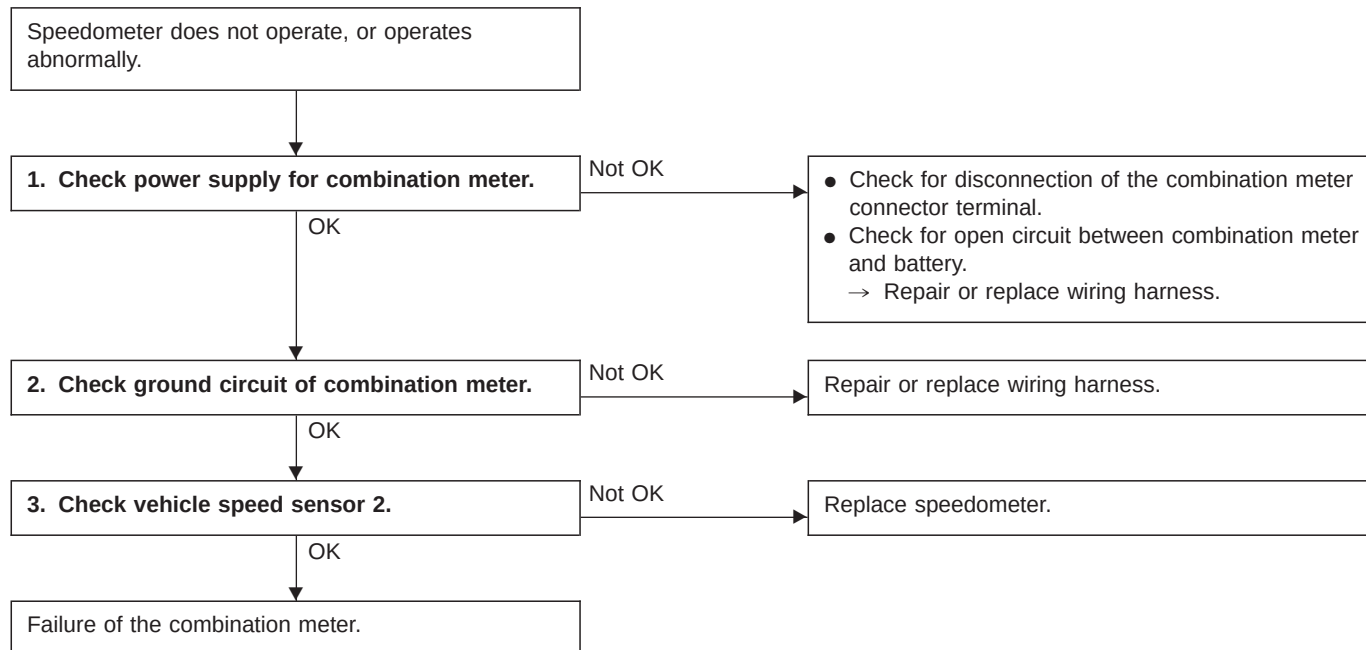
2. Combination Meter

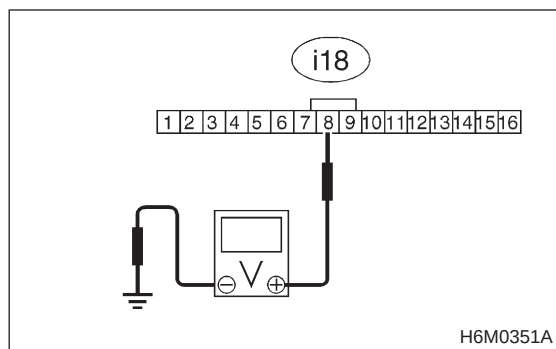
A: DIAGNOSTICS PROCEDURE

If speedometer does not operate, or operates abnormally, check combination meter circuit (shown in flow chart as described below).

CAUTION:

Make sure that trouble code of vehicle speed sensor 2 system appears in electrical system on-board diagnosis.

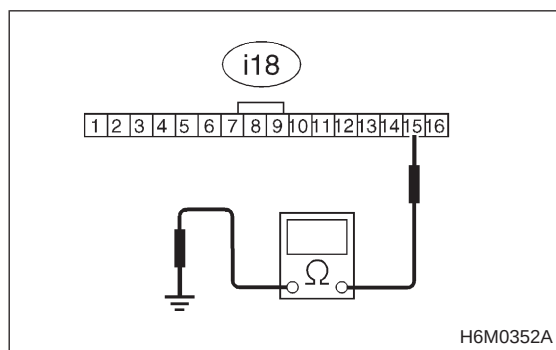




1. CHECK POWER SUPPLY FOR COMBINATION METER.

- 1) Remove combination meter.
- 2) Turn ignition switch to ON.
- 3) Measure voltage at combination meter connector terminal.

Connector & terminal / Specified voltage:
(i18) No. 8 — Body / 10 V, or more



2. CHECK GROUND CIRCUIT OF COMBINATION METER.

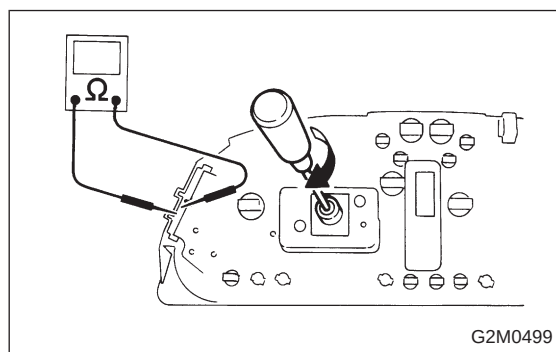
- 1) Turn ignition switch to OFF.
- 2) Measure resistance of harness connector between combination meter and body.

Connector & terminal / Specified resistance:
(i18) No. 15 — Body / 10 Ω, max.

3. CHECK VEHICLE SPEED SENSOR 2.

NOTE:

- If resistance between terminals of vehicle speed sensor 2 is out of specification, the sensor may have a failure.
- If resistance is OK, mechanical trouble may be present in combination meter, speedometer cable and speedometer drive/driven gears in transmission.



- 1) Remove combination meter.
- 2) Measure resistance between terminals of combination meter by rotating rotor of speedometer cable hole with screwdriver.

Terminals / Specified resistance:
*No. 8 — No. 15 / 10 Ω, max. ↔ 1 MΩ, min.
 (Four times per rotation)*

DIAGNOSTICS SECTION

FOREWORD

This portion of the service manual has been prepared to provide SUBARU service personnel with the necessary information and data for the correct maintenance and repair of SUBARU vehicles.

The diagnostics relating to the Electronic Control System which is made up of various electronic components (ECM's etc.) are explained in this manual. For the repair or exchange of defective parts, please refer to the SERVICE MANUAL (Repair Section). Please peruse and utilize this manual fully to ensure complete repair work for satisfying our customers by keeping their vehicle in optimum condition. When replacement of parts during repair work is needed, be sure to use SUBARU genuine parts.

All information, illustration and specifications contained in this manual are based on the latest product information available at the time of publication approval.

FUJI HEAVY INDUSTRIES LTD.

FUEL INJECTION SYSTEM	2-7
ON-BOARD DIAGNOSTICS II SYSTEM	2-7b
AUTOMATIC TRANSMISSION AND DIFFERENTIAL	3-2
AUTOMATIC TRANSMISSION AND DIFFERENTIAL (2200cc model)	3-2b
BRAKES	4-4
SUPPLEMENTAL RESTRAINT SYSTEM	5-5
BODY ELECTRICAL SYSTEM (CRUISE CONTROL)	6-2

Important safety notice

- Providing appropriate service and repair is a matter of great importance in the serviceman's safety maintenance and safe operation, function and performance which the SUBARU vehicle possesses.
- In case the replacement of parts or replenishment of consumables is required, genuine SUBARU parts whose parts numbers are designated or their equivalents must be utilized.
- It must be made well known that the safety of the serviceman and the safe operation of the vehicle would be jeopardized if the used any service parts, consumables, special tools and work procedure manuals which are not approved or designated by SUBARU.

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How to use this manual

- This Service Manual is divided into four volumes by section so that it can be used with ease at work. Refer to the Table of Contents, select and use the necessary section.

- GENERAL INFORMATION SECTION
- REPAIR SECTION
- DIAGNOSTICS SECTION
- WIRING DIAGRAM SECTION

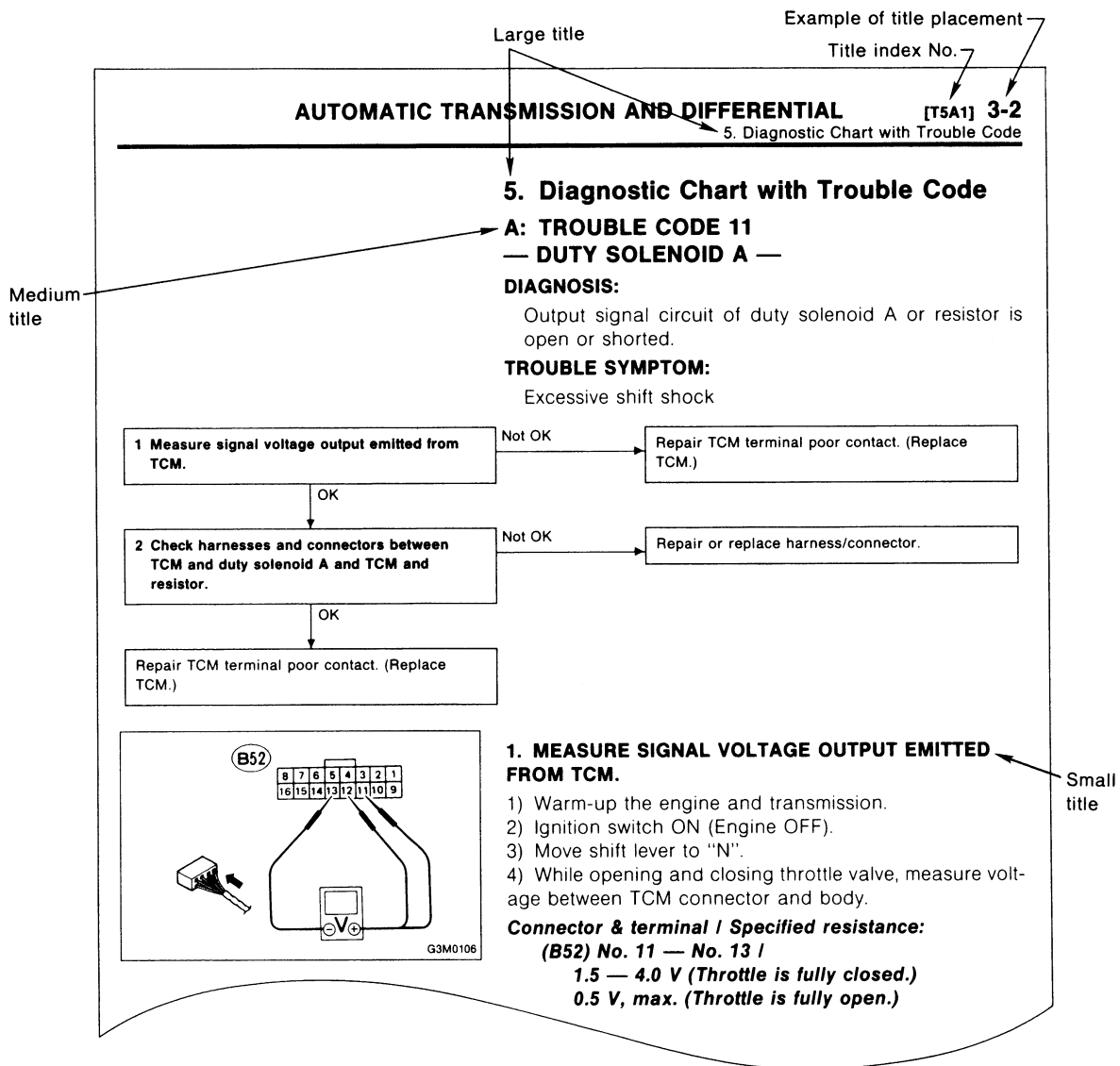
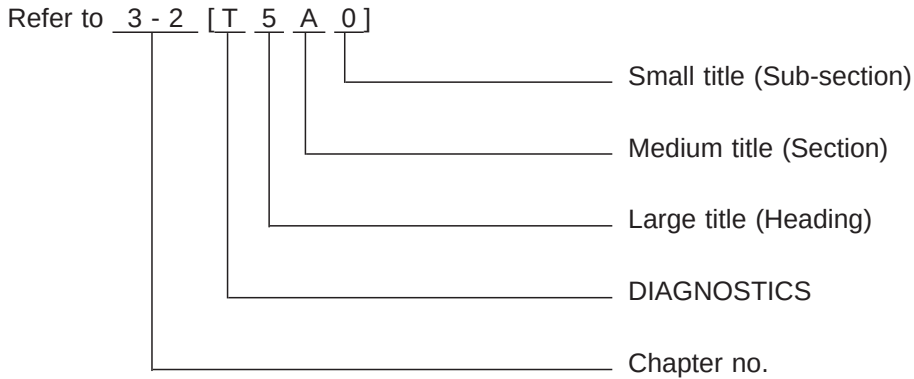
- The description of each area is provided with four types of titles different in size as shown below. The Title No. or Symbol prefixes each title in order that the construction of the article and the flow of explanation can be easily understood.

[Example of each title]

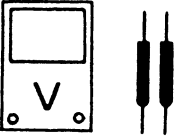
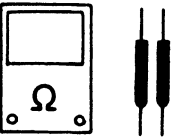
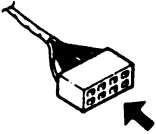
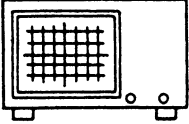
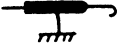
- | | |
|------------------------------|--|
| ● Area title: | T. DIAGNOSTICS |
| ● Large title (Heading): | 1. Diagnostics Chart with Select Monitor
(to denote the main item of explanation) |
| ● Medium title (Section): | A: BASIC DIAGNOSTICS CHART
(to denote the type of work in principle) |
| ● Small title (Sub-section): | 1. CHECK INPUT SIGNAL FOR ECM
(to denote a derivative item of explanation) |

- The Title Index No. is indicated on the top left (or right) side of the page as the book is opened. This is useful for retrieving the necessary portion.

(Example of usage)



- In this manual, the following symbols are used.

	Circuit tester Voltage measurement
	Circuit tester Resistance measurement
	The arrow indicates that insertion of the probe or numbering of the connector pins is made from the side indicated.
	The arrow indicates that insertion of the probe or numbering of the connector pins is made from the side indicated.
	Oscilloscope
	Oscilloscope probe

- WARNING, CAUTION, NOTE

- WARNING: Indicates the item which must be observed precisely during performance of maintenance services in order to avoid injury to the mechanics and other persons.
- CAUTION: Indicates that item which must be followed precisely during performance of maintenance services so as to avoid damage and breakage to the vehicle and its parts and components.
- NOTE: Indicates the hints, knacks, etc. which make the maintenance job easier.

Basic checks

DISCONNECTING CONNECTORS

- Always hold the connector itself.
CAUTION:
Don't pull the harness.



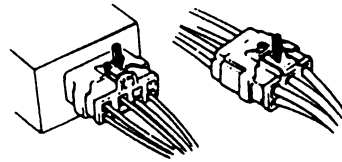
- To disconnect a locking connector, first re-lease the lock, then pull the connector off.
<Unlock by pulling the locking tab>



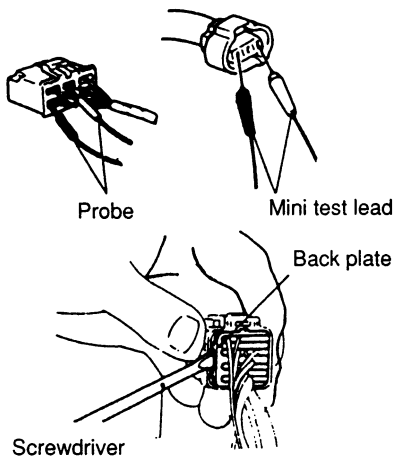
- Insert a connector by pushing it all the way in. If the connector is equipped with a locking device, push it in until a clicking sound is heard.



- <Unlock by pushing the locking tab>



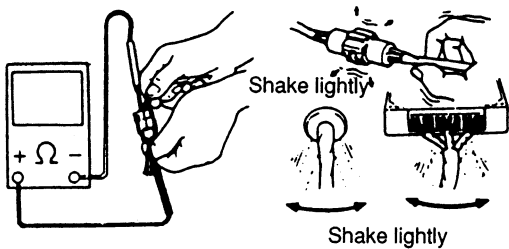
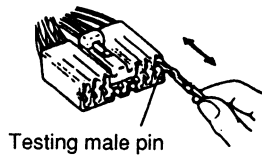
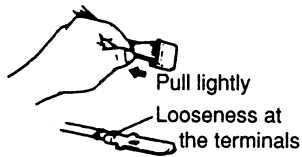
INSERTING A PROBE



- Generally, probes are inserted into connectors from the rear.
- Connectors equipped with shock protectors must be checked with a mini probe (thin), or it will be necessary to remove the shock protector.
- When removing the shock protector take care not to deform it; this also applies to waterproof connectors, which cannot be tested from the wire side.
- When the connector has a back plate, remove the plate after removing the projection of the plate first. (Be careful not to use excessive force, since the terminals might brake off).

CHECKING FOR POOR CONTACT ON PLUG-IN CONNECTORS

Poor contact Poor contact is frequently caused by corroded terminals, dirt, foreign substances, weak contact points between male and female connectors, etc. Quite often a plug with poor contact will work perfectly again after it has been pulled off and reconnected. If harness and connector checks do not reveal any defect, it can be assumed that an intermittent contact in a connector is the source of trouble.



Visual inspection

- Disconnect the two connector halves.
- Check the connector pins for signs of corrosion or foreign material.
- Check the connector for loose and damaged terminals, and make sure they are set correctly in the connector.

NOTE:

When the harness is pulled lightly, the terminals should not come out.

- Insert the male pin of the connector into the female pin, then pull it out.

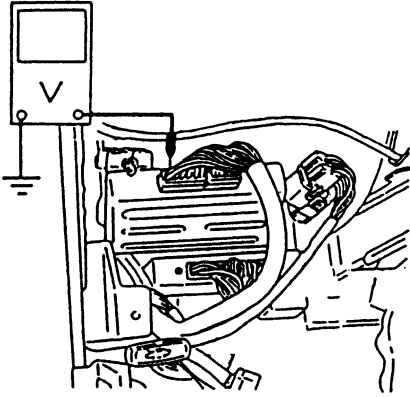
NOTE:

If one of the pins allows to pull out easily, it is a likely source of a malfunction.

- Shake lightly the connector and the harness, and check for sudden changes in voltage or resistance.

Diagnosis and checking procedure using instruments

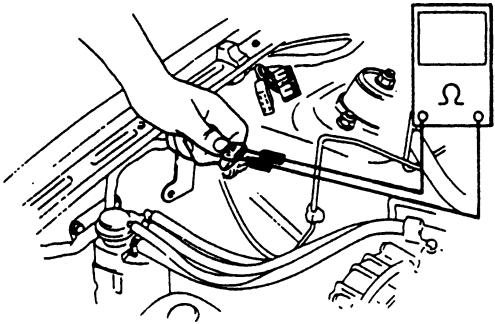
USING A CIRCUIT TESTER



J3-1012

- **Voltage check (range set to DC V)**

Connect the positive probe to the terminal to be tested, and the negative probe to body ground (or the ground terminal of the ECM)



J3-830

- **Checking the connection (range set to Ω)**

Measure the resistance and check for open or shorted wire in the harness or the connector.

NOTE:

This check must be carried out with both connectors disconnected.

(This avoids by-passing the connection through other circuits).

1) Check for open circuit (range: $\Omega \times 1K$)

Measure the resistance between the respective pins in both connectors.

Specified resistance:

1 M Ω , min. (No continuity) Open circuit

10 Ω , max. (Continuity) O.K.

2) Check for correct insulation value (range: $\Omega \times 1K$)

Measure the resistance between the pins in both connectors, as well as between the suspected pin and the body (body short).

Specified resistance:

1 M Ω , min. (No continuity) O.K.

10 Ω , max. (Continuity) Short circuit

- **Resistance measurement (range set to Ω)**

Measuring the internal resistance of sensors, solenoid valves etc. to check the operating condition of components.

NOTE:

- Select the appropriate range for measuring the internal resistance, or the measurement will result in an incorrect reading.

- Before changing the measurement range the gauge must be reset to zero.

USING A SUBARU SELECT MONITOR

With this testing procedure the defective component can be determined by directly monitoring input/output signals of the ECM or the trouble codes.

Features

- A variety of data can be checked without movements from the drivers seat, passenger's seat or from outside the vehicle.
- This unit allows the identification of the type of malfunction, for example whether the cause is an open or shorted wire in the input/output signal line, or whether the breakdown of a component is caused by a lack of maintenance.

Diagnosis

- Refer to the reference values for input/output and control data to determine whether the malfunction is caused by a worn out component, an open wire, a short etc.
- Perform the diagnostics procedure as described in chapter "Check based on trouble codes" by monitoring the trouble codes.

NOTE:

It will be easier to determine a malfunction if the vehicle data for normal conditions are available for comparison.

USING AN OSCILLOSCOPE

A malfunction can be determined by displaying the waveforms of input/output signals on the oscilloscope.

Diagnosis

A simple comparison of the waveforms may lead to an incorrect diagnosis. To exactly determine the sources of the malfunction it will be necessary to determine them under consideration about information other than waveforms.

Applying input/output signals

Connect the probe directly with the terminal of the signal.

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	3-2	Automatic Transmission and Differential
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	4-4	Brakes
	5-5	Supplemental Restraint System
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ENGINE ELECTRICAL SYSTEM

6-1

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1. Engine Electrical

A: SPECIFICATIONS

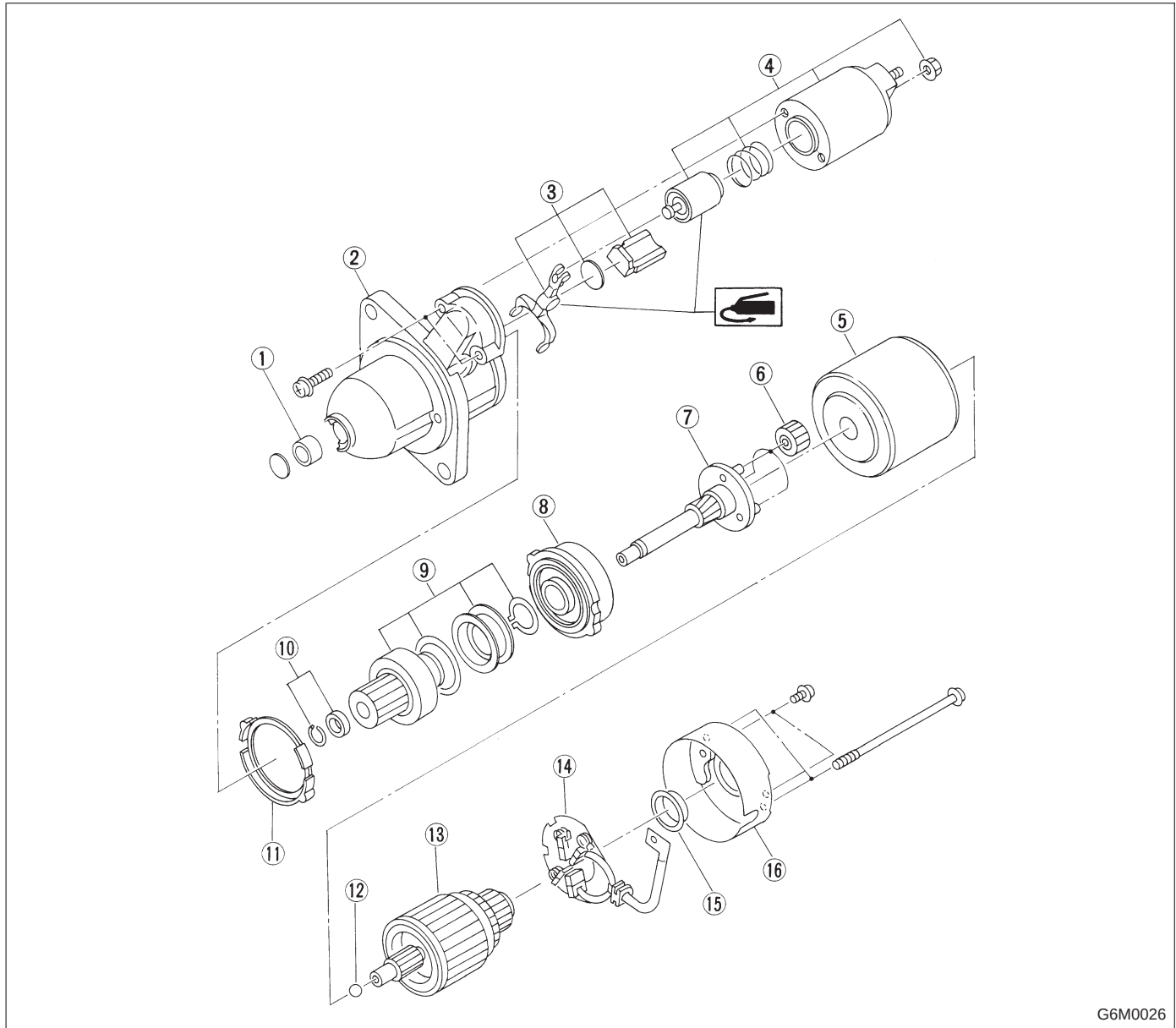
1. 1800 cc MODEL

Item			Designation	
Starter	Type		Reduction type	
	Model		MT M001T77181	AT M1T-75681
	Manufacturer		Mitsubishi Electric	
	Voltage and output		12 V — 1.0 kW	12 V — 1.4 kW
	Direction of rotation		Counterclockwise (when observed from pinion)	
	Number of pinion teeth		8	9
	No-load characteristics	Voltage	11 V	
		Current	90 A or less	
		Rotating speed	3,000 rpm or more	
	Load characteristics	Voltage	8 V	7.7 V
		Current	280 A or less	300 A or less
		Torque	8.5 N·m (0.87 kg-m, 6.3 ft-lb)	10 N·m (1.0 kg-m, 7 ft-lb)
		Rotating speed	980 rpm or more	1,000 rpm or more
	Lock characteristics	Voltage	4 V	
		Current	780 A or less	980 A or less
		Torque	17.6 N·m (1.80 kg-m, 13.0 ft-lb) or more	23 N·m (2.3 kg-m, 17 ft-lb) or more
Generator	Type		Rotating-field three-phase type, Voltage regulator built-in type	
	Model		A2T39091	
	Manufacturer		Mitsubishi Electric	
	Voltage and output		12 V — 75 A	
	Polarity on ground side		Negative	
	Rotating direction		Clockwise (when observed from pulley side)	
	Armature connection		3-phase Y-type	
	Output current		1,500 rpm — 30 A or more 2,500 rpm — 64 A or more 5,000 rpm — 76 A or more	
	Regulated voltage		14.1 — 14.8 V [20°C (68°F)]	
Ignition coil	Model		CM12-100	
	Manufacturer		HITACHI	
	Primary coil resistance		0.63 — 0.77 Ω	
	Secondary coil resistance		10.4 — 15.6 kΩ	
	Insulation resistance between primary terminal and case		More than 10 MΩ	
Spark plug	Type and manufacturer		BKR6E-11 NGK	
	Thread size mm		14, P = 1.25	
	Spark gap mm (in)		1.0 — 1.1 (0.039 — 0.043)	

2. 2200 cc MODEL

Item		Designation
Starter	Type	Reduction type
	Model	M001T75681
	Manufacturer	MITSUBISHI
	Voltage and output	12 V — 1.4 kW
	Direction of rotation	Counterclockwise (when observed from pinion)
	Number of pinion teeth	9
	No-load characteristics	Voltage
		Current
		Rotating speed
	Load characteristics	Voltage
		Current
		Torque
		Rotating speed
	Lock characteristics	Voltage
		Current
		Torque
Generator	Type	Rotating-field three-phase type, Voltage regulator built-in type
	Model	A2T39091
	Manufacturer	Mitsubishi Electric
	Voltage and output	12 V — 75 A
	Polarity on ground side	Negative
	Rotating direction	Clockwise (when observed from pulley side)
	Armature connection	3-phase Y-type
	Output current	1,500 rpm — 30 A or more 2,500 rpm — 64 A or more 5,000 rpm — 76 A or more
	Regulated voltage	14.5 ^{+0.3} _{-0.4} V [20°C (68°F)]
Ignition coil	Model	F-569-01R
	Manufacturer	Diamond
	Primary coil resistance	0.69 Ω ±10%
	Secondary coil resistance	21.0 k Ω ±15%
	Insulation resistance between primary terminal and case	More than 10 M Ω
Spark plug	Type and manufacturer	Alternate RC10YC4 CHAMPION (BKR6E-11 NGK K20PR-U11 NIPPONDENSO)
	Thread size mm	14, P = 1.25
	Spark gap mm (in)	1.0 — 1.1 (0.039 — 0.043)

1. Starter



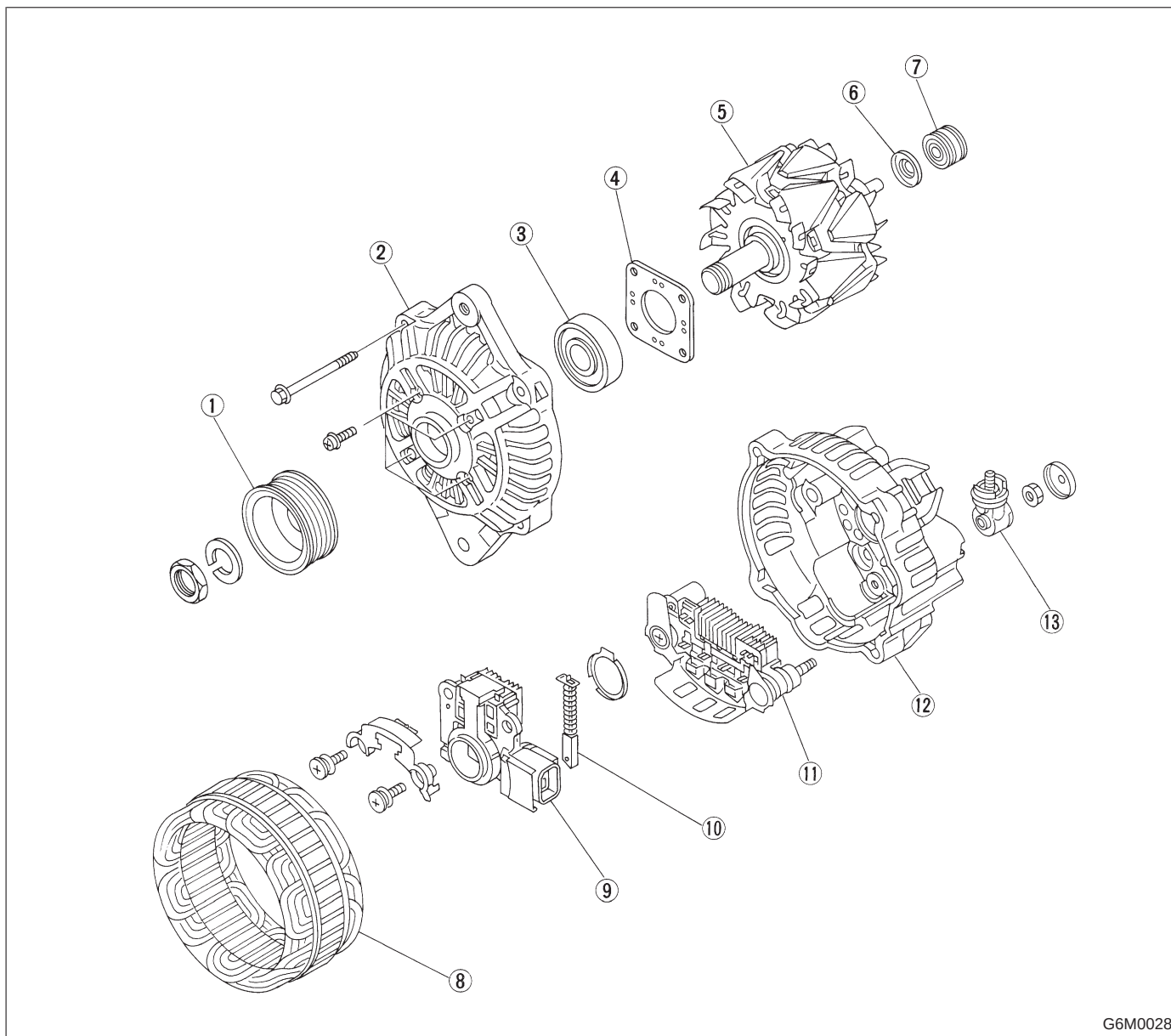
G6M0026

- ① Sleeve bearing
- ② Front bracket
- ③ Lever set
- ④ Magnet switch Assy
- ⑤ Yoke
- ⑥ Gear ASSY

- ⑦ Shaft ASSY
- ⑧ Internal gear ASSY
- ⑨ Over running clutch
- ⑩ Stopper set
- ⑪ Packing

- ⑫ Ball
- ⑬ Armature
- ⑭ Brush holder
- ⑮ Bearing
- ⑯ Rear bracket

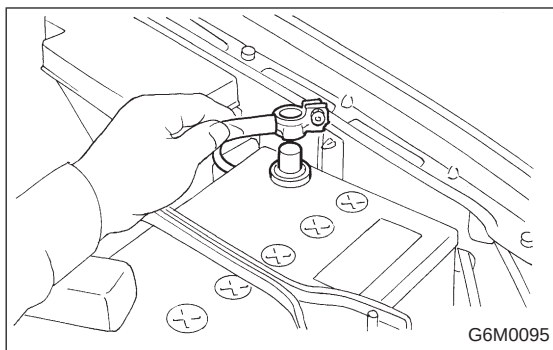
2. Generator



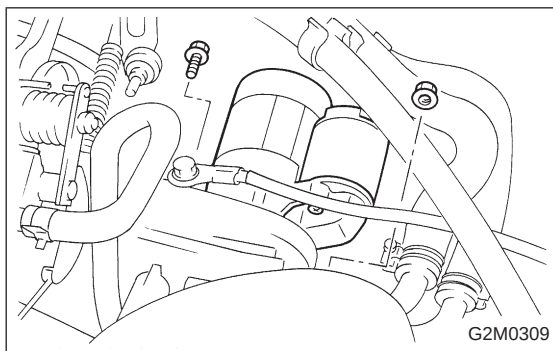
- ① Pulley
- ② Front cover
- ③ Ball bearing
- ④ Bearing retainer
- ⑤ Rotor

- ⑥ Holder
- ⑦ Bearing
- ⑧ Stator coil
- ⑨ Brush holder

- ⑩ Brush
- ⑪ IC regulator
- ⑫ Rear cover
- ⑬ Terminal



G6M0095



G2M0309

1. Starter

A: REMOVAL AND INSTALLATION

1) Disconnect battery ground cable.

2) Disconnect connector and terminal from starter.

3) Remove starter from transmission.

4) Installation is in the reverse order of removal.

Tightening torque:

46 — 54 N·m (4.7 — 5.5 kg-m, 34 — 40 ft-lb)

B: TEST

1. SWITCH ASSEMBLY OPERATION

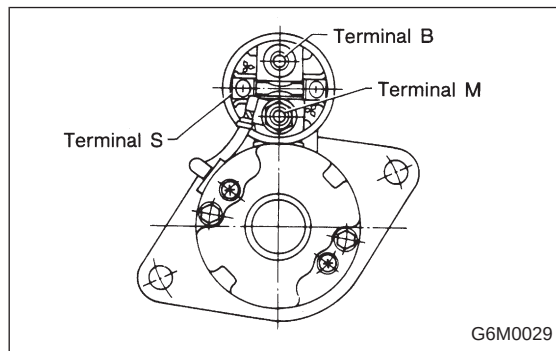
1) Connect terminal S of switch assembly to positive terminal of battery with a lead wire, and starter body to ground terminal of battery. Pinion should be forced endwise on shaft.

CAUTION:

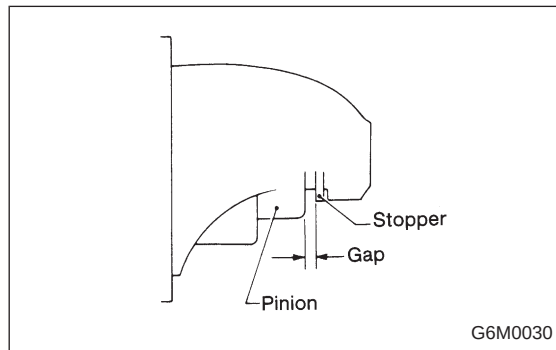
With pinion forced endwise on shaft, starter motor can sometimes rotate because current flows, through pull-in coil, to motor. This is not a problem.

2) Disconnect connector from terminal M, and connect positive terminal of battery and terminal M using a lead wire and ground terminal to starter body.

In this test set up, pinion should return to its original position even when it is pulled out with a screwdriver.



G6M0029



G6M0030

2. PINION GAP

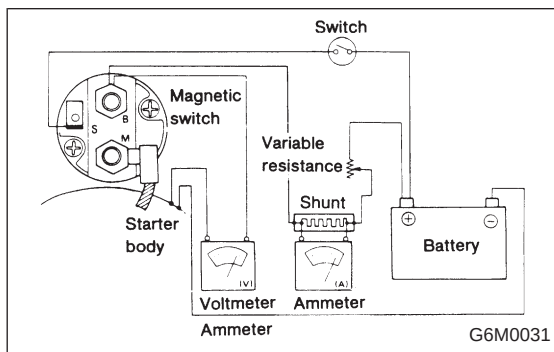
1) With pinion forced endwise on shaft, as outlined in step 1) above, measure pinion gap.

Pinion gap:

0.5 — 2.0 mm (0.020 — 0.079 in)

If motor is running with the pinion forced endwise on the shaft, disconnect connector from terminal M of switch assembly and connect terminal M to ground terminal (-) of battery with a lead wire. Next, gently push pinion back with your fingertips and measure pinion gap.

2) If pinion gap is outside specified range, remove or add number of adjustment washers used on the mounting surface of switch assembly until correct pinion gap is obtained.



3. PERFORMANCE TEST

The starter should be submitted to performance tests whenever it has been overhauled, to assure its satisfactory performance when installed on the engine.

Three performance tests, no-load test, load test, and lock test, are presented here; however, if the load test and lock test cannot be performed, carry out at least the no-load test.

For these performance tests, use the circuit shown in figure.

1) No-load test

With switch on, adjust the variable resistance to obtain 11 V, take the ammeter reading and measure the starter speed. Compare these values with the specifications.

No-load test (Standard):

Voltage / Current

11 V / 90 A max.

Rotating speed

3,000 rpm / min.

2) Load test

Apply the specified braking torque to starter. The condition is satisfactory if the current draw and starter speed are within specifications.

Load test (Standard):

Voltage / Load

7.7 V / 10 N·m (1.0 kg-m, 7 ft-lb)

Current / Speed

300 A max. / 1,000 rpm / min.

3) Lock test

With starter stalled, or not rotating, measure the torque developed and current draw when the voltage is adjusted to the specified voltage.

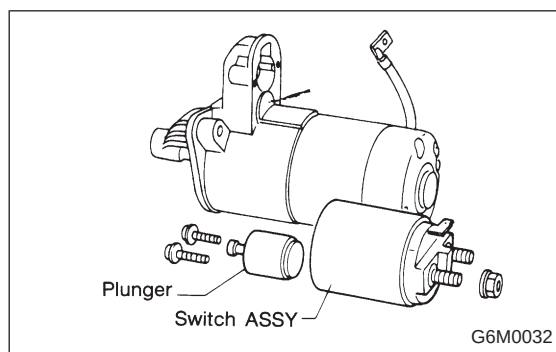
Lock test (Standard):

Voltage / Current

4 V / 980 A max.

Torque

23 N·m (2.3 kg-m, 17 ft-lb) min.

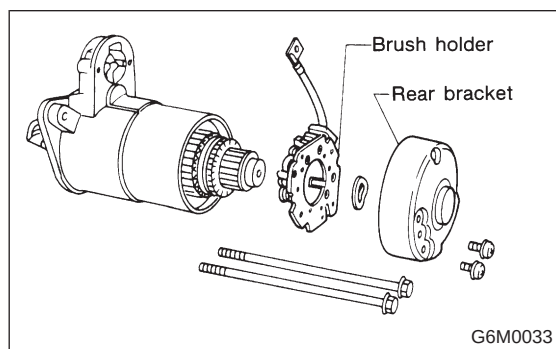
**C: DISASSEMBLY**

1) Loosen nut which holds terminal M of switch assembly, and disconnect connector.

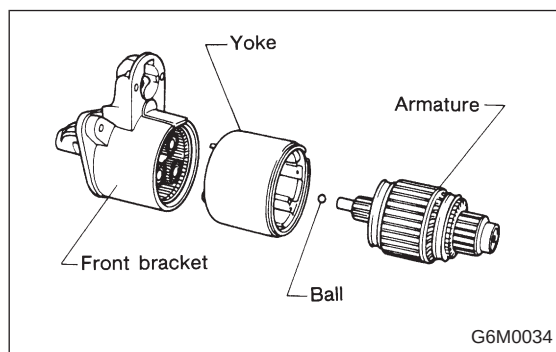
2) Remove bolts which hold switch assembly, and remove switch assembly, plunger and plunger spring from starter as a unit.

CAUTION:

Be careful because pinion gap adjustment washer may sometimes be used on the mounting surface of switch assembly.



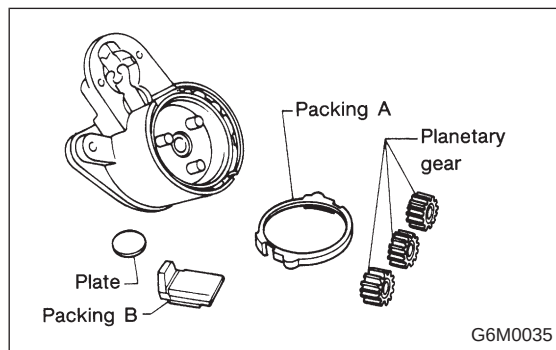
3) Remove both through-bolts and brush holder screws, and detach rear bracket and brush holder.



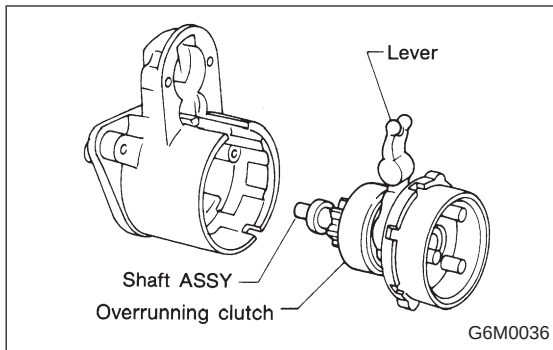
4) Remove armature and yoke. Ball used as a bearing will then be removed from the end of armature.

CAUTION:

Be sure to mark an alignment mark on yoke and front bracket before removing yoke.



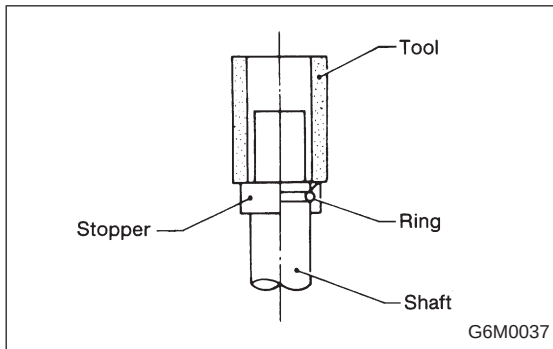
5) Remove packing A, three planetary gears, packing B and plate.



6) Remove shaft assembly and overrunning clutch as a unit.

CAUTION:

Record the direction of lever before removing.



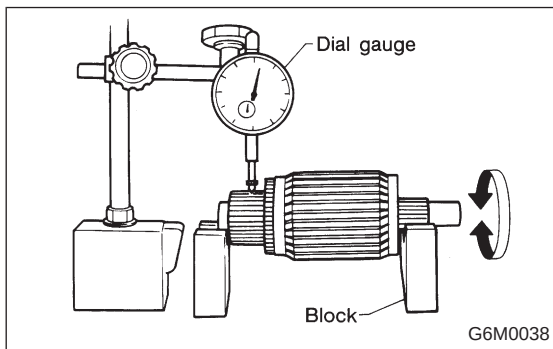
7) Remove overrunning clutch from shaft assembly as follows:

- (1) Remove stopper from ring by lightly tapping a fit tool placed on stopper.
- (2) Remove ring, stopper and clutch from shaft.

D: INSPECTION

1. ARMATURE

1) Check commutator for any sign of burns or rough surfaces or stepped wear. If wear is of a minor nature, correct it by using sand paper.



2) Run-out test

Check the commutator run-out and replace if it exceeds the limit.

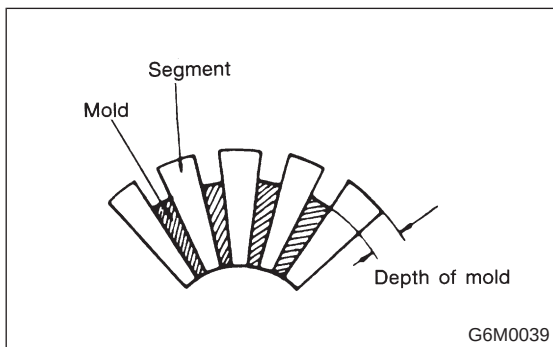
Commutator run-out:

Standard

0.05 mm (0.0020 in)

Service limit

Less than 0.10 mm (0.0039 in)

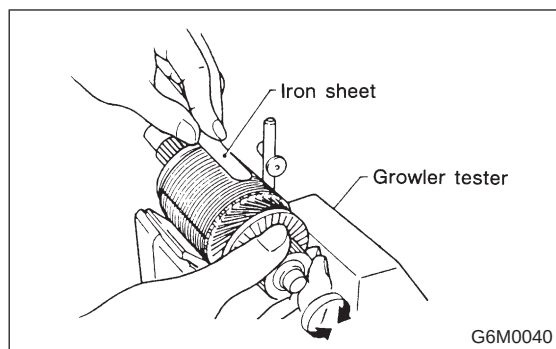


3) Depth of segment mold

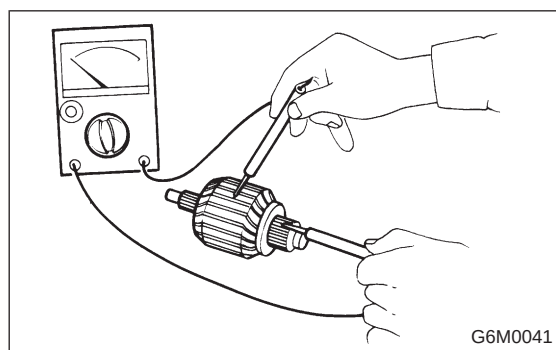
Check the depth of segment mold.

Depth of segment mold:

0.5 — 0.8 mm (0.020 — 0.031 in)

**4) Armature short-circuit test**

Check armature for short-circuit by placing it on growler tester. Hold a hacksaw blade against armature core while slowly rotating armature. A short-circuited armature will cause the blade to vibrate and to be attracted to core. If the hacksaw blade is attracted or vibrates, the armature, which is short-circuited, must be replaced or repaired.

**5) Armature ground test**

Using circuit tester, touch one probe to the commutator segment and the other to shaft. There should be no continuity. If there is a continuity, armature is grounded. Replace armature if it is grounded.

2. YOKE

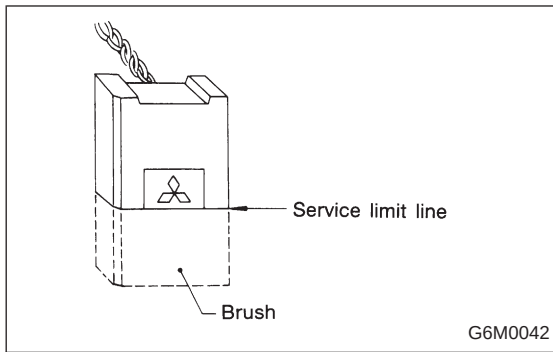
Make sure pole is set in position.

3. OVERRUNNING CLUTCH

Inspect teeth of pinion for wear and damage. Replace if it damaged. Rotate pinion in direction of rotation (clockwise). It should rotate smoothly. But in opposite direction, it should be locked.

CAUTION:

Do not clean overrunning clutch with oil to prevent grease from flowing out.



4. BRUSH AND BRUSH HOLDER

1) Brush length

Measure the brush length and replace if it exceeds the service limit.

Replace if abnormal wear or cracks are noticed.

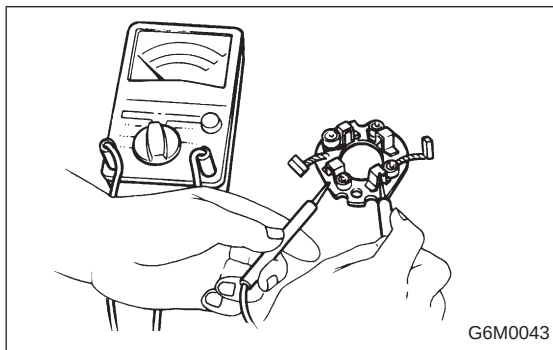
Brush length:

Standard 17.0 mm (0.669 in)

Service limit 11.5 mm (0.453 in)

2) Brush movement

Be sure brush moves smoothly inside brush holder.



3) Insulation resistance of brush holder

Be sure there is no continuity between brush holder and its plate.

4) Brush spring force

Measure brush spring force with a spring scale. If it is less than the service limit, replace brush spring.

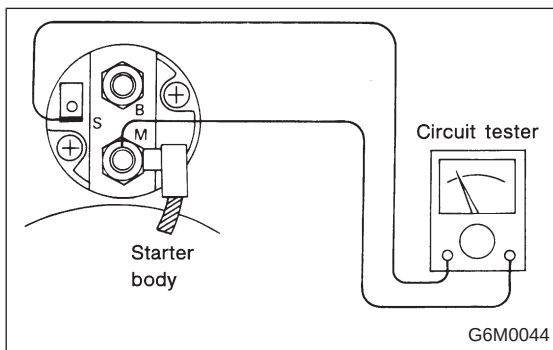
Brush spring force:

Standard

18.6 N (1.9 kg, 4.2 lb) (when new)

Service limit

6.9 N (0.7 kg, 1.5 lb)



5. SWITCH ASSEMBLY

Be sure there is continuity between terminals S and M, and between terminal S and ground. Use a circuit tester (set in "ohm").

Also check to be sure there is no continuity between terminal M and B.

Terminal / Specified resistance:

S — M / 10 Ω, max.

S — Ground / 10 Ω, max.

M — B / 1 MΩ, min.

E: ASSEMBLY

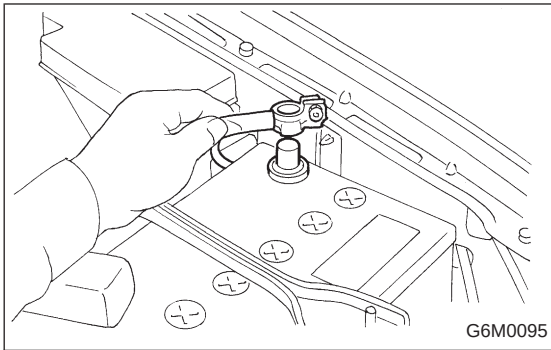
Assembly is in the reverse order of disassembly procedures. Observe the following:

1) Carefully assemble all parts in the order of assembly and occasionally inspect nothing has been overlooked.

2) Apply grease to the following parts during assembly.

- Front bracket sleeve bearing
- Armature shaft gear
- Outer periphery of plunger
- Mating surface of plunger and lever
- Gear shaft splines
- Mating surface of lever and clutch
- Ball at the armature shaft end
- Internal and planetary gears

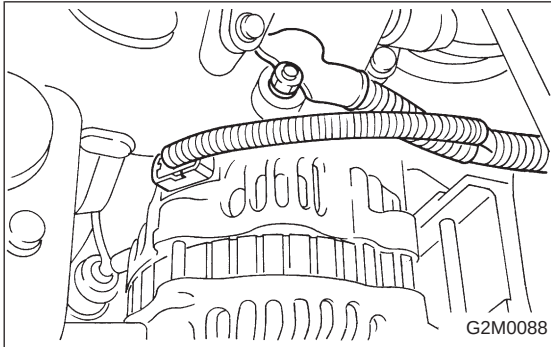
3) After assembling parts correctly, check to be sure starter operates properly.



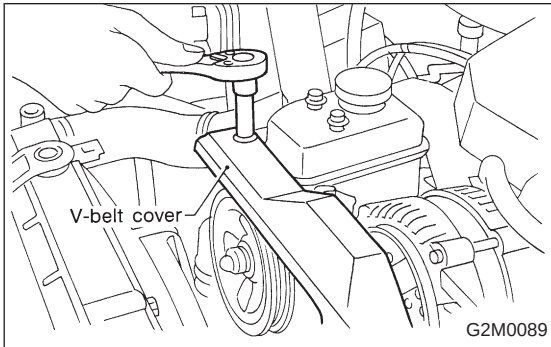
2. Generator

A: REMOVAL AND INSTALLATION

1) Disconnect battery ground cable.

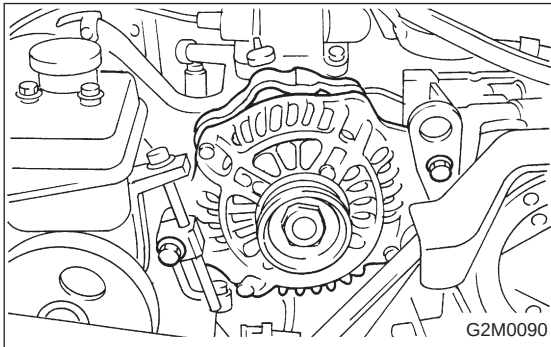


2) Disconnect connector and terminal from generator.

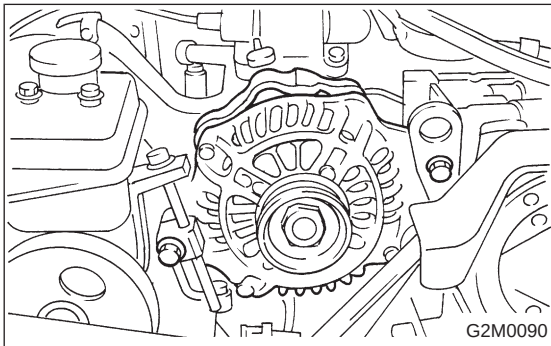


3) Remove V-belt cover.

4) Remove front side V-belt.



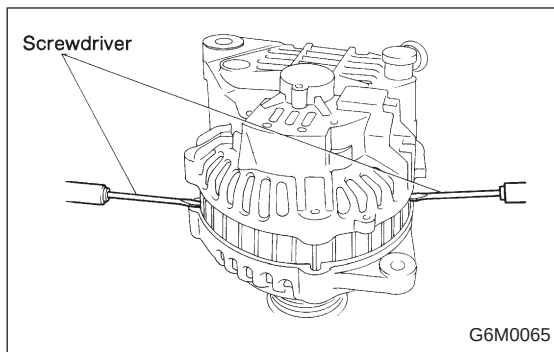
5) Remove bolts which install generator onto bracket.



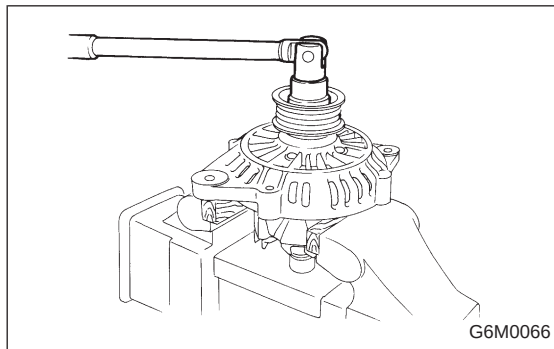
6) Installation is in the reverse order of removal.

CAUTION:

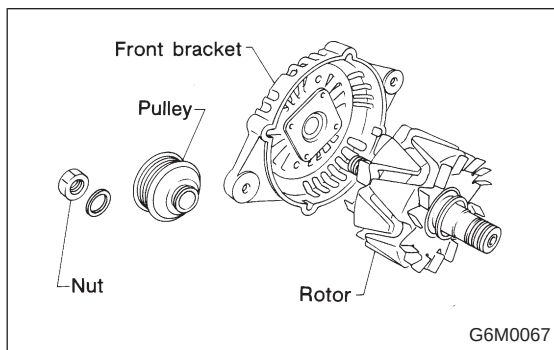
Check and adjust V-belt tension. <Ref. to 1-5 [W1A0].>

**B: DISASSEMBLY**

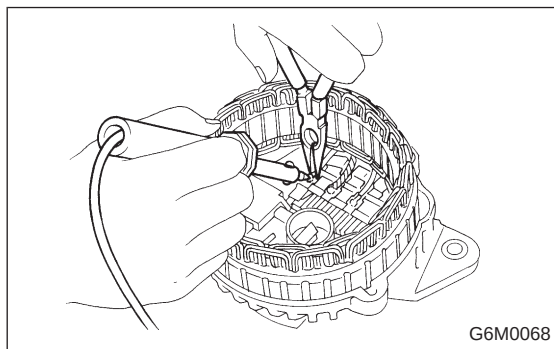
1) Remove the four through-bolts. Then insert the tip of a flat-head screwdriver into the gap between the stator core and front bracket. Pry them apart to disassemble.



2) Hold rotor with a vise and remove pulley nut.

**CAUTION:**

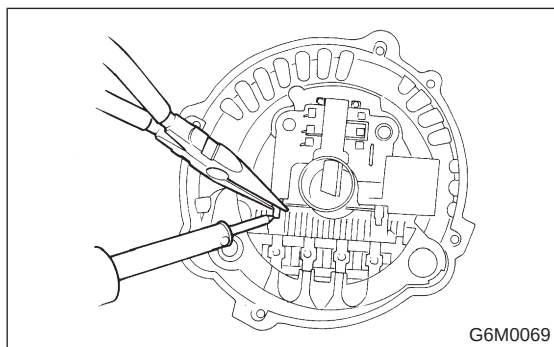
When holding rotor with vise, insert aluminum plates or wood pieces on the contact surfaces of the vise to prevent rotor from damage.



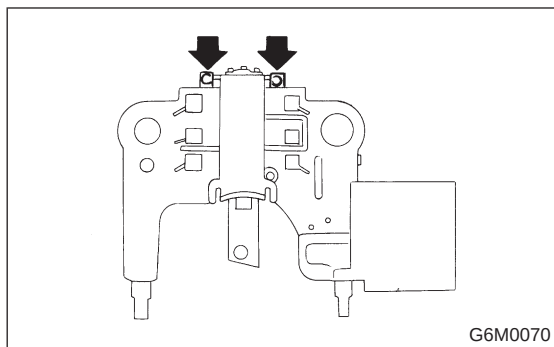
3) Unsolder connection between rectifier and stator coil to remove stator coil.

CAUTION:

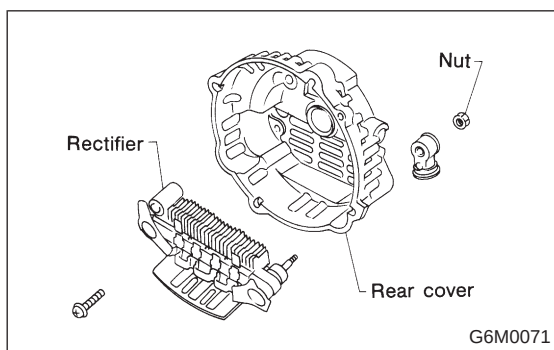
Finish the work rapidly (less than three seconds) because the rectifier cannot withstand heat very well.



4) Remove screws which secure IC regulator to rear cover, and unsolder connection between IC regulator and rectifier to remove IC regulator.



5) Remove the brushes by unsoldering at the pigtails.



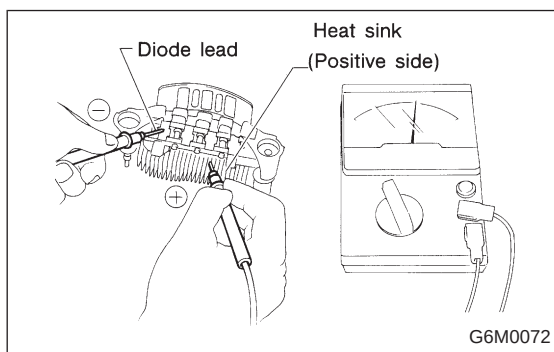
6) Remove the nut and insulating bushing at terminal B. Remove rectifier.

C: INSPECTION AND REPAIR

1. DIODE

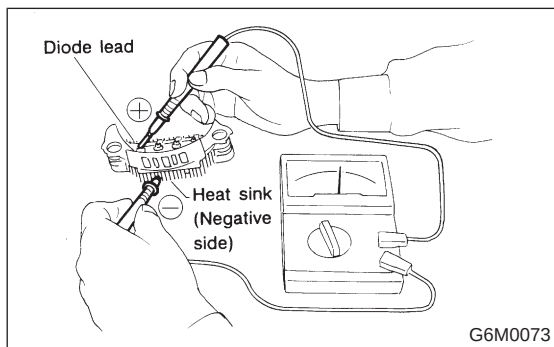
CAUTION:

Never use a megger tester (measuring use for high voltage) or any other similar measure for this test; otherwise, the diodes may be damaged.



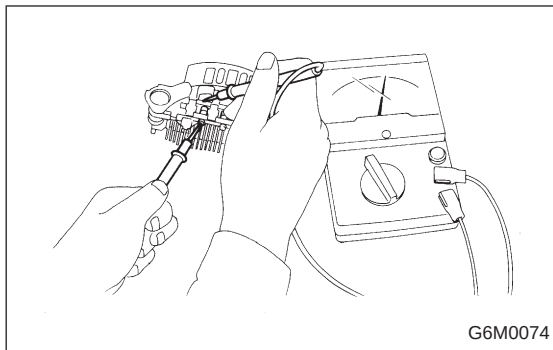
1) Checking positive diode

Check for continuity between the diode lead and the positive side heat sink. The positive diode is in good condition if continuity exists only in the direction from the diode lead to the heat sink.



2) Checking negative diode

Check for continuity between the negative side heat sink and diode lead. The negative diode is in good condition if continuity exists only in the direction from the heat sink to the diode lead.



3) Checking trio diode

Check the trio diode using a circuit tester. It is in good condition if continuity exists only in one direction.

2. ROTOR

1) Slip ring surface

Inspect slip rings for contamination or any roughness of the sliding surface. Repair slip ring surface using a lathe or sand paper.

2) Slip ring outer diameter

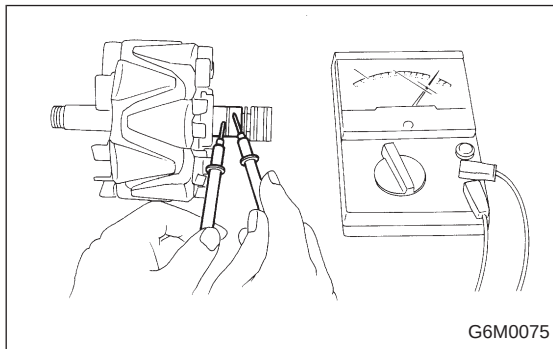
Measure slip ring outer diameter. If slip ring is worn replace rotor assembly.

Slip ring outer diameter:**Standard**

22.7 mm (0.894 in)

Limit

22.1 mm (0.870 in)



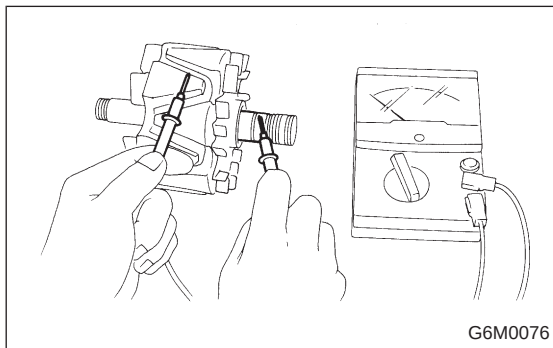
3) Continuity test

Check resistance between slip rings using circuit tester. If the resistance is not within specification, replace rotor assembly.

Specified resistance:

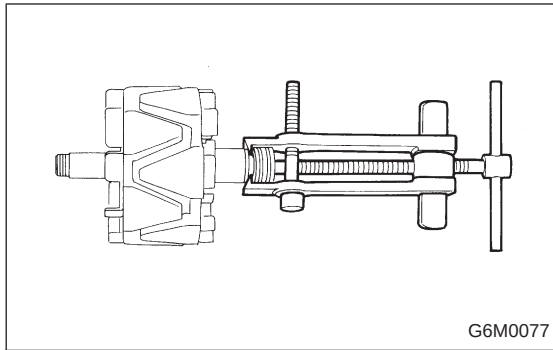
Approx. 3 Ω (A2T39091)

Approx. 2 — 6 Ω (A2T37291)



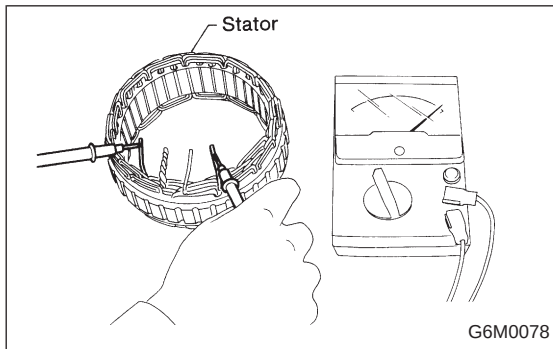
4) Insulation test

Check continuity between slip ring and rotor core or shaft. If continuity exists, the rotor coil is short-circuited, and so replace rotor assembly.



5) Ball bearing (rear side)

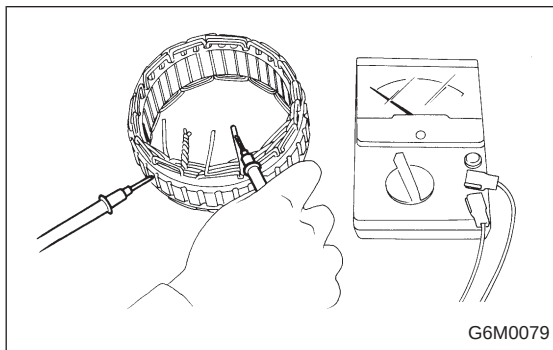
- (1) Check rear ball bearing. Replace if it is noisy or if rotor does not turn smoothly.
- (2) The rear bearing can be removed by using common bearing puller.



3. STATOR

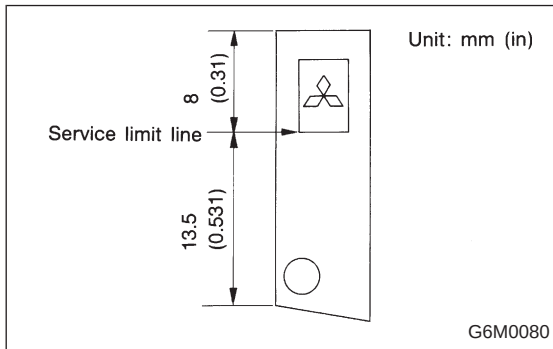
1) Continuity test

Inspect stator coil for continuity between each end of the lead wires. If there is no continuity between individual lead wires, the lead wire is broken, and so replace stator assembly.



2) Insulation test

Inspect stator coil for continuity between stator core and each end of the lead wire. If there is continuity, the stator coil is short-circuited, and so replace stator assembly.



4. BRUSH

- 1) Measure the length of each brush. If wear exceeds the service limit, replace the brush. Each brush has the service limit mark on it.

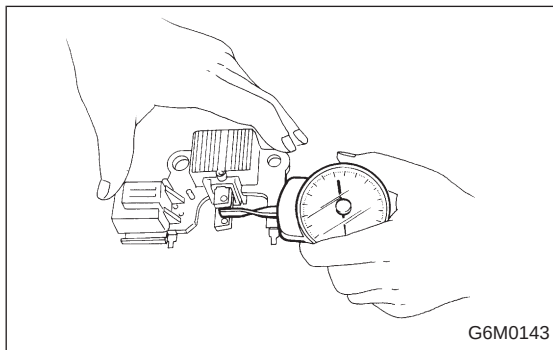
Brush length:

Standard

21.5 mm (0.846 in)

Service limit

8.0 mm (0.315 in)

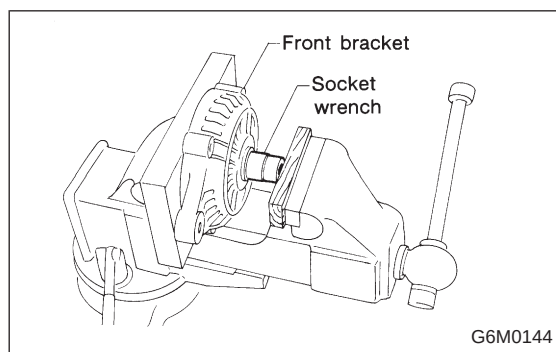


2) Checking brush spring for proper pressure

Using a spring pressure indicator, push the brush into the brush holder until its tip protrudes 2 mm (0.08 in). Then measure the pressure of the brush spring. If the pressure is less than 3.236 N (330 g, 11.64 oz), replace the brush spring with a new one. The new spring must have a pressure of 5.786 to 6.963 N (590 to 710 g, 20.81 to 25.04 oz).

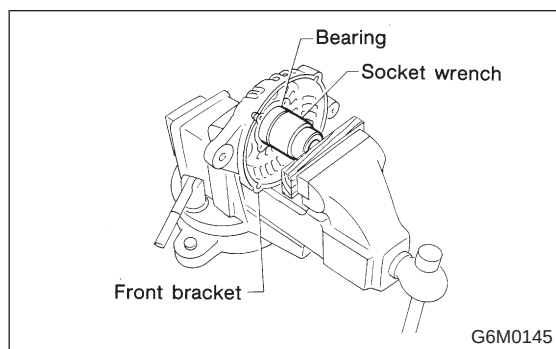
5. BEARING (FRONT SIDE)

1) Check front ball bearing. If resistance is felt while rotating, or if abnormal noise is heard, replace the ball bearing.



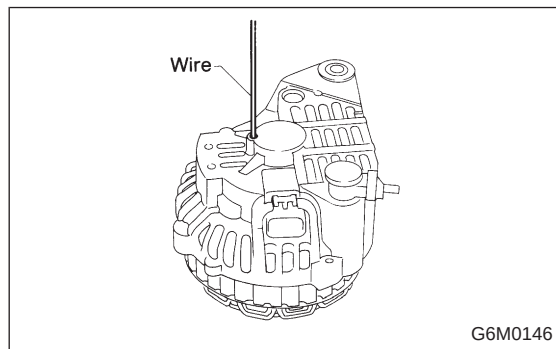
2) Replacing front bearing

- (1) Remove front bearing retainer.
- (2) Closely install a fit tool on the bearing inner race. Press the bearing down out of front bracket with a hand press or vise. A socket wrench can serve as the tool.



- (3) Set a new bearing and closely install a fit tool on the bearing outer race. Press the bearing down into place with a hand press or vise. A socket wrench can serve as the tool.

- (4) Install front bearing retainer.



D: ASSEMBLY

To assemble, reverse order of disassembly.

1) Pulling up brush

Before assembling, press the brush down into the brush holder with your finger and secure in that position by passing a [2 mm (0.08 in) dia. length 4 to 5 cm (1.6 to 2.0 in)] wire through the hole shown in the figure.

CAUTION:

Be sure to remove the wire after reassembly.

- 2) Heat the rear bracket [50 to 60°C (122 to 140°F)] and press the rear bearing into the rear bracket. Then lubricate the rear bracket.

- 3) After reassembly, turn the pulley by hand to check that the rotor turns smoothly.

3. Spark Plug

A: REMOVAL AND INSTALLATION

CAUTION:

All spark plugs installed on an engine, must be of the same heat range.

Spark plug:

- 1800 cc model

NGK: BKR6E-11

CHAMPION: RC8YC4

- 2200 cc model

CHAMPION: R10YC4

(Alternate)

NGK: BKR6E-11

NIPPONDENSO: K20PR-U11

- 1) Remove spark plug cords by pulling boot, not cord itself.
- 2) Remove spark plugs.
- 3) When installing spark plugs on cylinder head, use spark plug wrench.

Tightening torque (Spark plug):

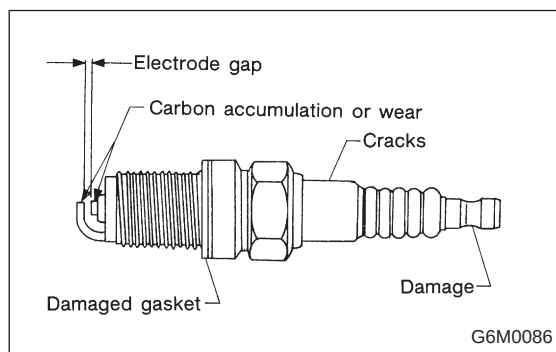
21 ± 3 N·m (2.1 ± 0.3 kg·m, 15.2 ± 2.2 ft·lb)

CAUTION:

The above torque should be only applied to new spark plugs without oil on their threads.

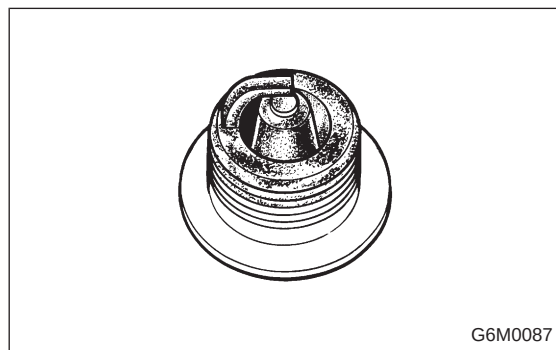
In case their threads are lubricated, the torque should be reduced by approximately 1/3 of the specified torque in order to avoid their over-stressing.

- 4) Connect spark plug cords.



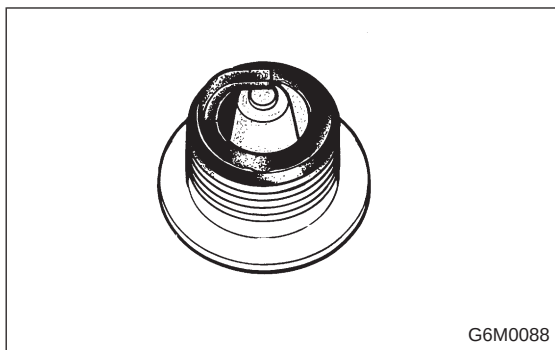
B: INSPECTION

Check electrodes and inner and outer porcelain of plugs, noting the type of deposits and the degree of electrode erosion.



- 1) Normal

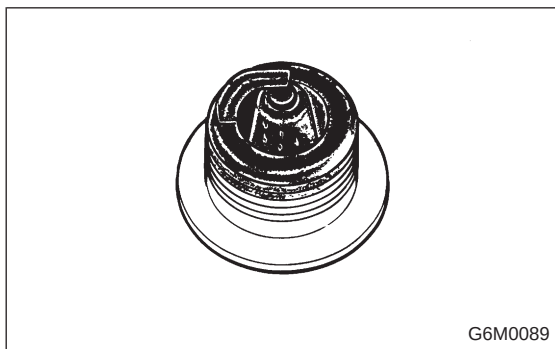
Brown to grayish-tan deposits and slight electrode wear indicate correct spark plug heat range.



2) Carbon fouled

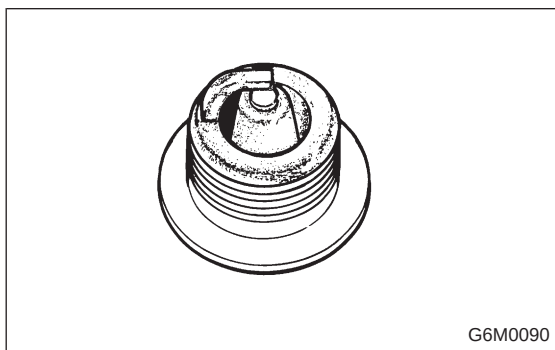
Dry fluffy carbon deposits on insulator and electrode are mostly caused by slow speed driving in city, weak ignition, too rich fuel mixture, dirty air cleaner, etc.

It is advisable to replace with plugs having hotter heat range.



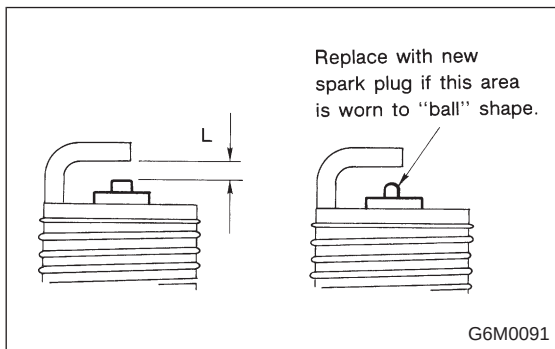
3) Oil fouled

Wet black deposits show excessive oil entrance into combustion chamber through worn rings and pistons or excessive clearance between valve guides and stems. If same condition remains after repair, use a hotter plug.



4) Overheating

White or light gray insulator with black or gray brown spots and bluish burnt electrodes indicate engine overheating. Moreover, the appearance results from incorrect ignition timing, loose spark plugs, wrong selection of fuel, hotter range plug, etc. It is advisable to replace with plugs having colder heat range.



C: CLEANING AND REGAPPING

Clean spark plugs in a sand blast type cleaner.

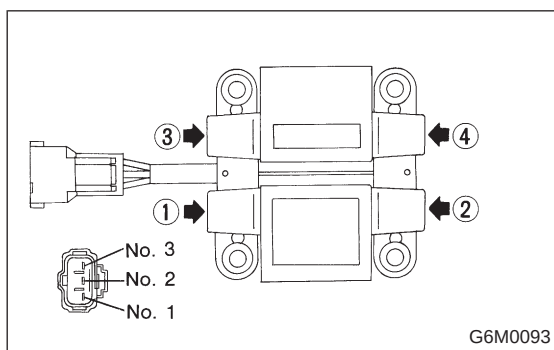
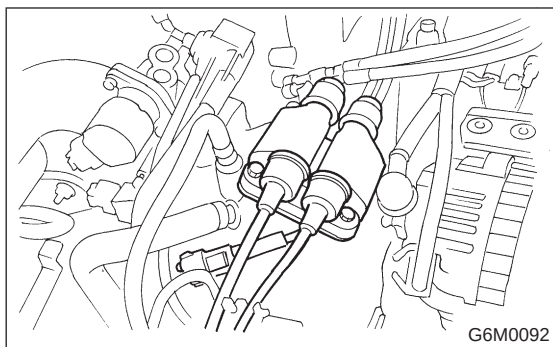
Avoid excessive blasting. Clean and remove carbon or oxide deposits, but do not wear away porcelain.

If deposits are too stubborn, discard plugs.

After cleaning spark plugs, recondition firing surface of electrodes with file. Then correct the spark plug gap using a gap gauge.

Spark plug gap: L

1.0 — 1.1 mm (0.039 — 0.043 in)



4. Ignition Coil

A: REMOVAL AND INSTALLATION

- 1) Disconnect battery ground cable.
- 2) Disconnect connector from ignition coil.
- 3) Remove ignition coil.
- 4) Installation is in the reverse order of removal.

CAUTION:

Be sure to connect wires to their proper positions.
Failure to do so will damage unit.

B: INSPECTION

Using accurate tester, inspect the following items, and replace if defective.

- 1) Primary resistance
- 2) Secondary coil resistance

CAUTION:

If the resistance is extremely low, this indicates the presence of a short-circuit.

Specified resistance:

● 1800 cc model

[Primary side]

Between ① and ②

Between ③ and ④

MT model 0.62 — 0.76 Ω

AT model 0.63 — 0.77 Ω

[Secondary side]

Between terminal No. 1 and No. 2

Between terminal No. 2 and No. 3

MT model 17.9 — 24.5 k Ω

AT model 10.4 — 15.6 k Ω

● 2200 cc model

[Primary side]

Between ① and ②

Between ③ and ④

0.69 $\Omega \pm 10\%$

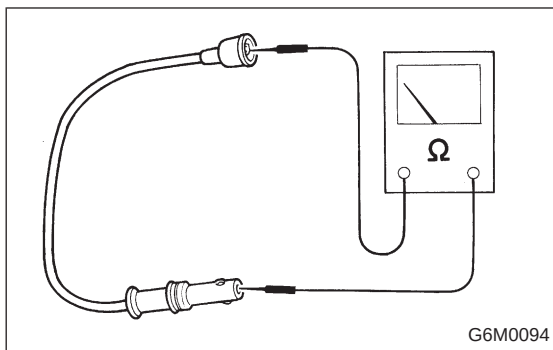
[Secondary side]

Between terminal No. 1 and No. 2

Between terminal No. 2 and No. 3

21.0 k $\Omega \pm 15\%$

- 3) Insulation between primary terminal and case: 10 M Ω or more.



5. Spark Plug Cord

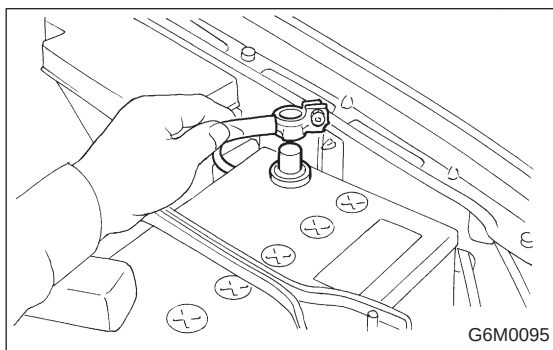
A: INSPECTION

Check for:

- 1) Damage to cords, deformation, burning or rust formation of terminals.
- 2) Resistance values of cords.

Resistance value:

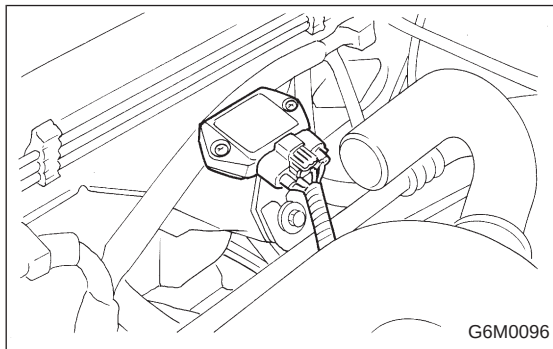
- **1800 cc model**
 - #1 and #3 cords 4.95 — 11.56 kΩ
 - #2 cord 4.86 — 11.33 kΩ
 - #4 cord 5.24 — 12.23 kΩ
- **2200 cc model**
 - 5.12 — 12.34 kΩ



6. Ignitor

A: REMOVAL AND INSTALLATION

- 1) Disconnect battery ground cable.

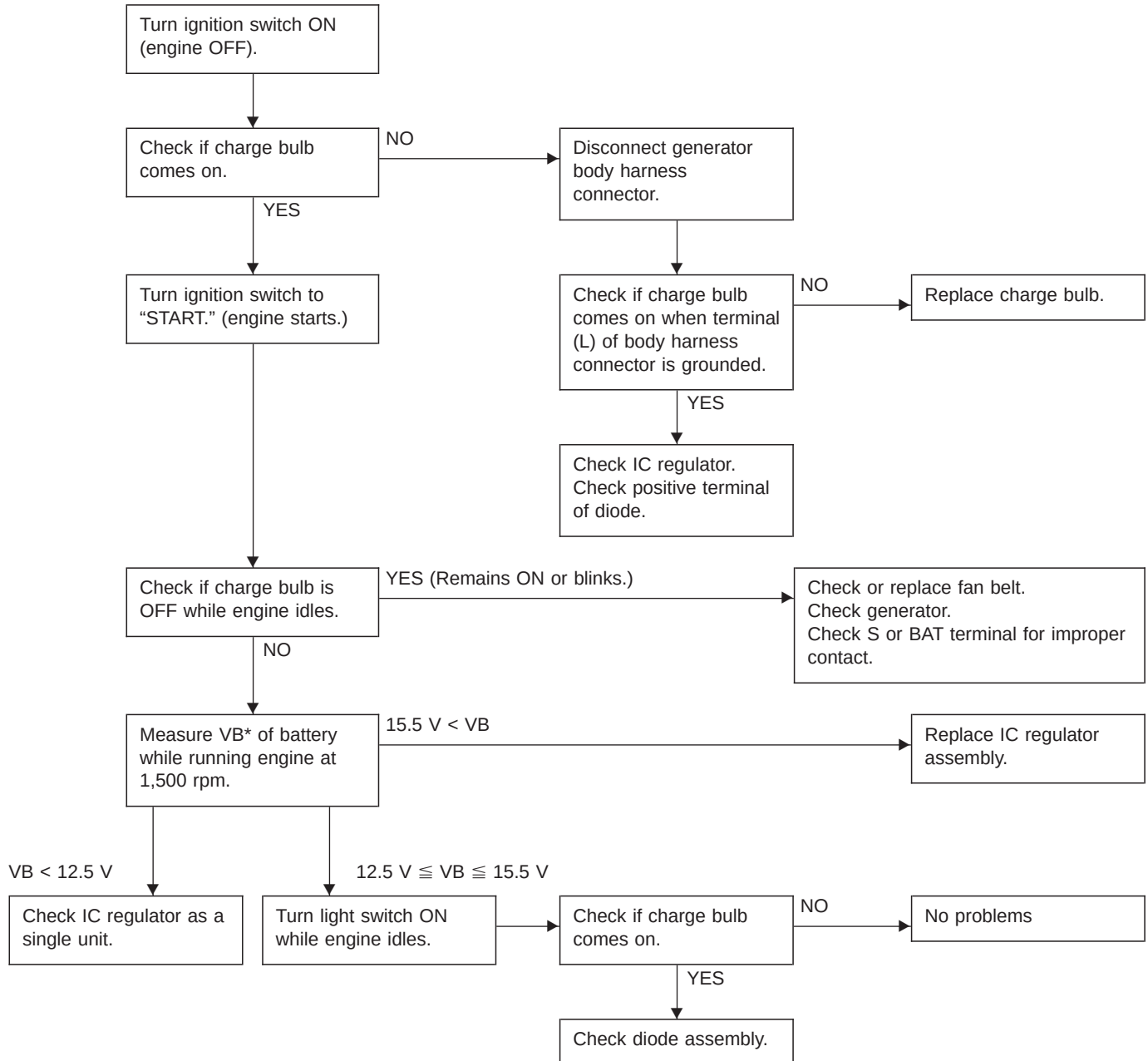


- 2) Disconnect connector from ignitor.
- 3) Remove screws which hold ignitor onto body.
- 4) Installation is in the reverse order of removal.

1. Starter

Trouble		Probable cause
Starter does not start.	Magnet switch does not operate. (no clicks are heard.)	Magnet switch poor contact or discontinuity of pull-in coil circuit
		Improper sliding of magnet switch plunger
	Magnet switch operates. (clicks are issued.)	Poor contact of magnet switch's main contact point
		Layer short of armature
		Contaminants on armature commutator
		High armature mica
		Improper grounding of yoke field coil
		Insufficient carbon brush length
		Insufficient brush spring pressure
Starter starts but does not crank engine.	Failure of pinion gear to engage ring gear	Worn pinion teeth
		Improper sliding of overrunning clutch
		Improper adjustment of stud bolt
	Clutch slippage	Faulty clutch roller spring
Starter starts but engine cranks too slowly.		Poor contact of magnet switch's main contact point
		Layer short of armature
		Discontinuity, burning or wear of armature commutator
		Poor grounding of yoke field coil
		Insufficient brush length
		Insufficient brush spring pressure
Starter overruns.		Abnormal brush wear
		Magnet switch coil is a layer short.

2. Generator



*: Terminal voltage

WIRING DIAGRAM SECTION

FOREWORD

This portion of the service manual has been prepared to provide SUBARU service personnel with the necessary information and data for the correct maintenance and repair of SUBARU vehicles.

This manual includes the procedures for maintenance disassembling, reassembling, inspection and adjustment of components and diagnostics for guidance of both the fully qualified and the less-experienced mechanics.

Please peruse and utilize this manual fully to ensure complete repair work for satisfying our customers by keeping their vehicle in optimum condition. When replacement of parts during repair work is needed, be sure to use SUBARU genuine parts.

All information, illustration and specifications contained in this manual are based on the latest product information available at the time of publication approval.

WIRING DIAGRAM	6-3
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Important safety notice

- Providing appropriate service and repair is a matter of great importance in the serviceman's safety maintenance and safe operation, function and performance which the SUBARU vehicle possesses.
- In case the replacement of parts or replenishment of consumables is required, genuine SUBARU parts whose parts numbers are designated or their equivalents must be utilized.
- It must be made well known that the safety of the serviceman and the safe operation of the vehicle would be jeopardized if he used any service parts, consumables, special tools and work procedure manuals which are not approved or designated by SUBARU.

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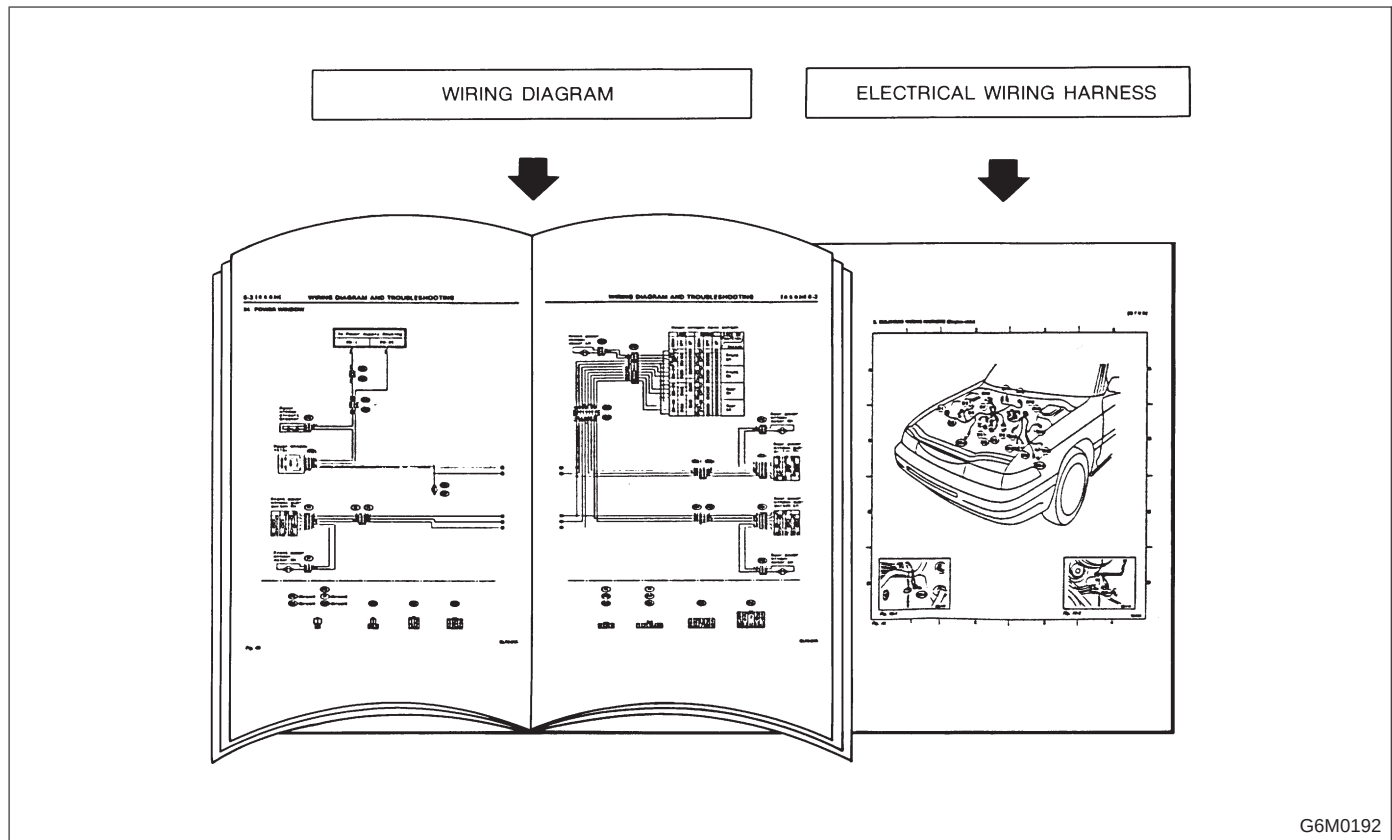
1. General Description

1. HOW TO USE THIS MANUAL

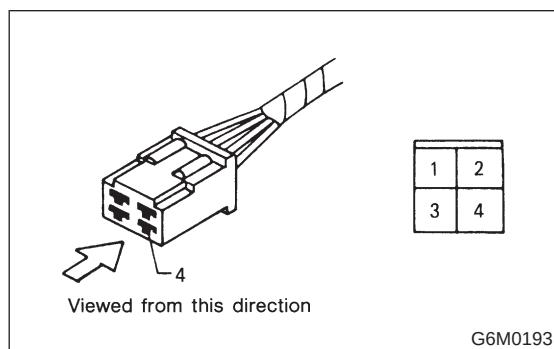
The description of the electrical system is divided into the charging system, starting system, etc.

1) First, open to the necessary electrical system section and wiring diagram.

2) Next, open the foldout page of the electrical wiring diagram. By observing the electrical wiring harness' illustrations (front, instrument panel, etc.), the wiring diagram connector can be located.



G6M0192



G6M0193

2. WIRING DIAGRAM

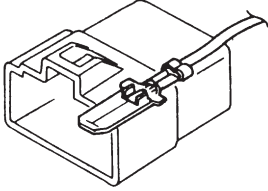
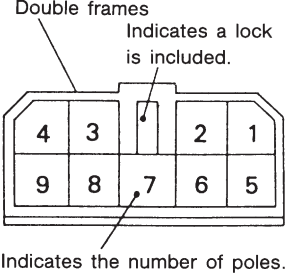
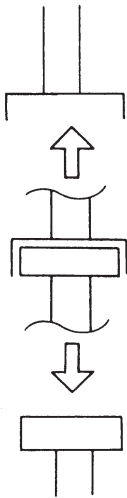
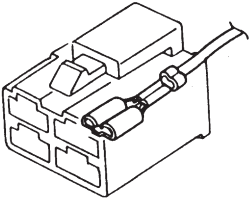
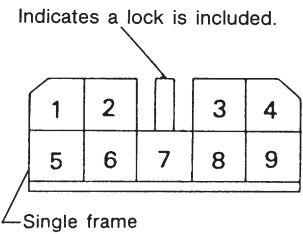
The wiring diagram of each system is illustrated so that you can understand the path through which the electric current flows from the battery.

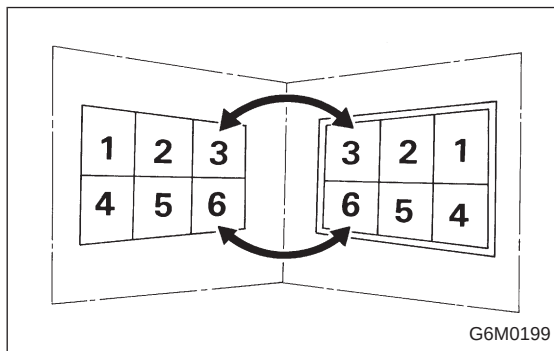
Sketches and codes are used in the diagrams. They should read as follows:

1) Each connector and its terminal position are indicated by a sketch of the connector in a disconnected state which is viewed from the front, as shown in figure.

2) The number of poles or pins, presence of a lock, and pin number of each terminal are indicated in the sketch of each connector.

In the sketch, the highest pole number refers to the number of poles which the connector has. For example, the sketch of the connector shown in figure indicates the connector has 9 poles.

Connector used in vehicle	Connector shown in wiring diagram		
	Sketch	Symbol	Number of poles
 G6M0194	 G6M0196	 G6M0198	Numbered in order from upper right to lower left.
 G6M0195	 G6M0197	 G6M0198	Numbered in order from upper left to lower right.

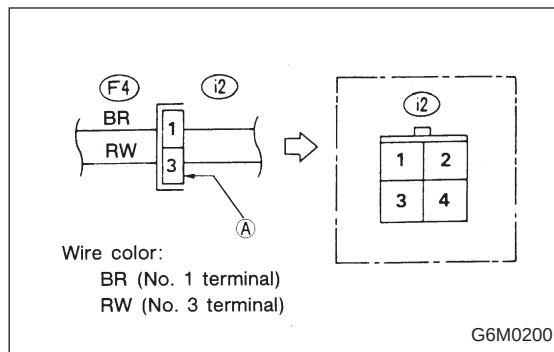


When one set of connectors is viewed from the front side, the pole numbers of one connector are symmetrical to those of the other. When these two connectors are connected as a unit, the poles which have the same number are joined.

3) Electrical wiring harness

The connectors are numbered along with the number of poles, external colors, and mating connections in the accompanying list.

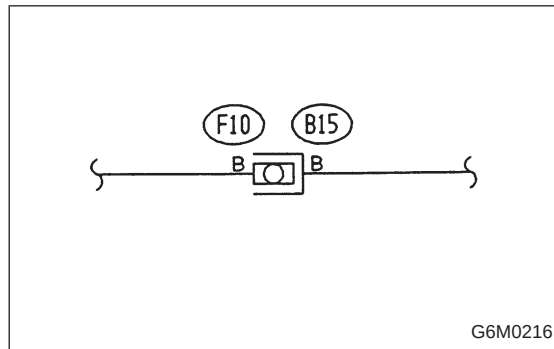
1. General Description



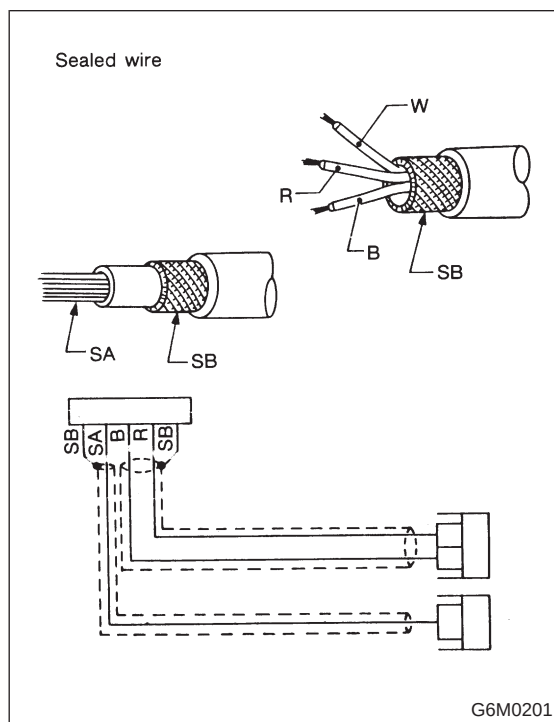
4) The sketch of each connector in the wiring diagram usually shows the "A" side of the connector. The relationship between the wire color, terminal number and connector is described in figure.

NOTE:

A wire which runs in one direction from a connector terminal sometimes may have a different color from that which runs in the other direction from that terminal.

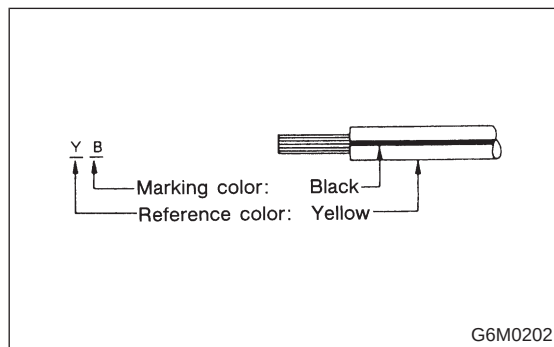


5) In wiring diagram, connectors which have no terminal number refer to one-pole types. Sketches of these connectors are omitted intentionally.



6) The following color codes are used to indicate the colors of the wires used.

Color code	Color
L	Blue
B	Black
Y	Yellow
G	Green
R	Red
W	White
Br	Brown
Lg	Light green
Gr	Gray
P	Pink
Or	Orange
Lb	Light Blue
V	Violet
SA	Sealed (Inner)
SB	Sealed (Outer)



7) The wire color code, which consists of two letters (or three letters including Br or Lg), indicates the standard color (base color of the wire covering) by its first letter and the stripe marking by its second letter.

8) The table below lists the nominal sectional areas and allowable currents of the wires.

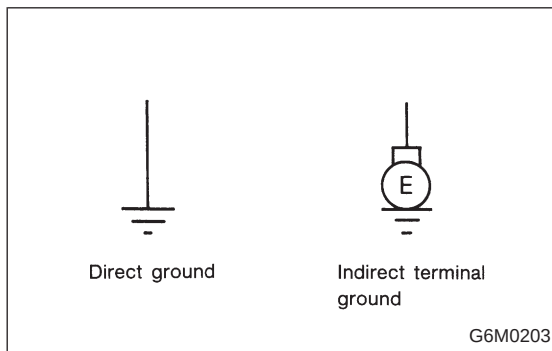
Nominal sectional area mm ²	No. of strands/ strand diameter	Outside diameter of finished wiring mm	Allowable current Amps/40°C
0.3	7/0.26	1.8	7
0.5	7/0.32	2.2 (or 2.0)	12
0.75	30/0.18	2.6 (or 2.4)	16
0.85	11/0.32	2.4 (or 2.2)	16
1.25	16/0.32	2.7 (or 2.5)	21
2	26/0.32	3.1 (or 2.9)	28
3	41/0.32	3.8 (or 3.6)	38
5	65/0.32	4.6 (or 4.4)	51
8	50/0.45	5.5	67

CAUTION:

● When replacing or repairing a wire, be sure to use the same size and type of the wire which was originally used.

NOTE:

- The allowable current in the above table indicates the tolerable amperage of each wire at an ambient temperature of 40°C (104°F).
- The allowable current changes with ambient temperature. Also, it changes if a bundle of more than two wires is used.



9) Each unit is directly grounded to the body or indirectly grounds through a harness ground terminal. Different symbols are used in the wiring diagram to identify the two grounding systems.

The ground points shown in the wiring diagram refer to the following:

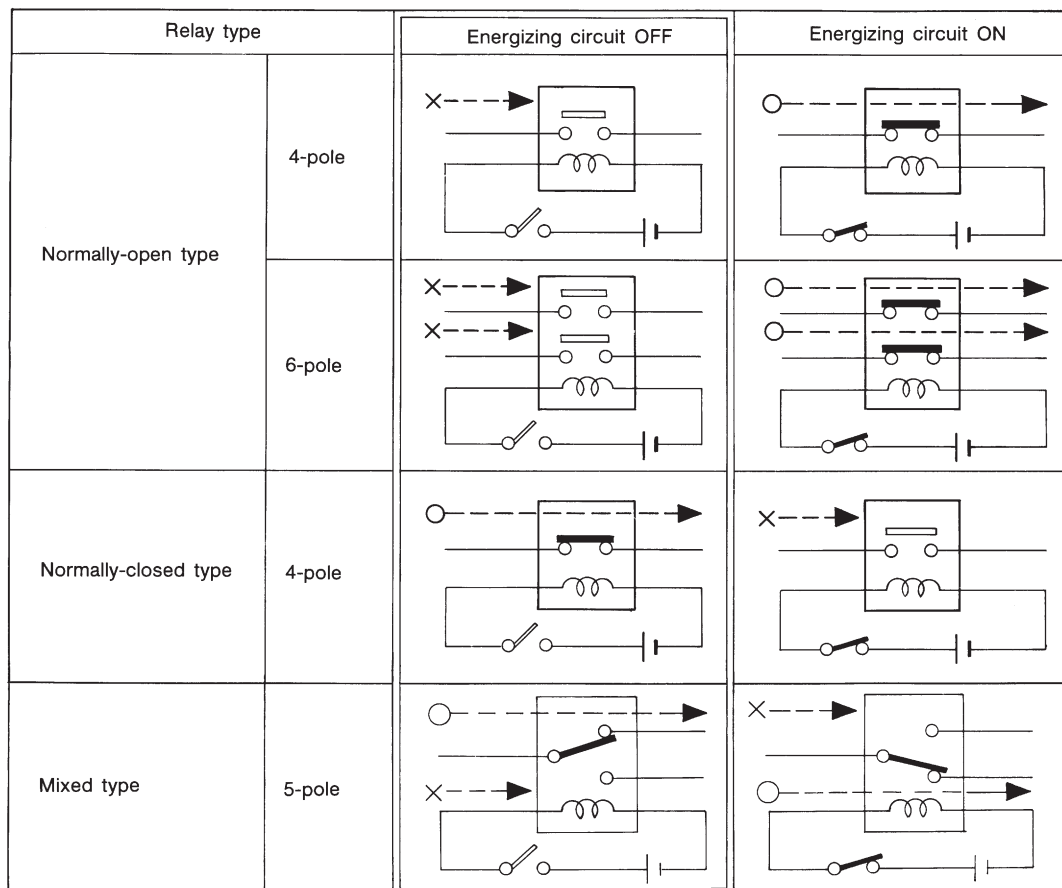
- (GB) Body ground
- (GE) Engine ground
- (GR) Radio ground
- (GD) Rear defogger ground

All wiring harnesses are provided with a ground point which should be securely connected.

10) Relays are classified as normally-open or normally-closed.

The normally-closed relay has one or more contacts.

The wiring diagram shows the relay mode when the energizing circuit is OFF.

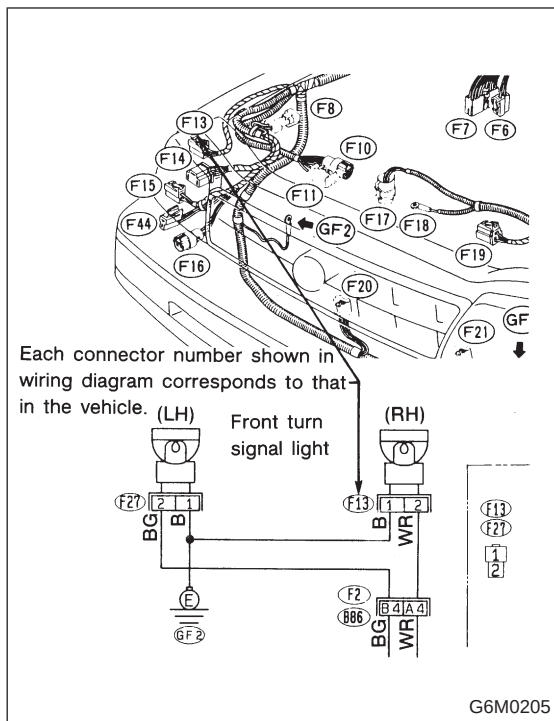


G6M0204

Key to symbols:

○ → : Current flows.

X → : Current does not flow.



11) Each connector number shown in the wiring diagram corresponds to that in the wiring harness. The location of each connector in the actual vehicle is determined by reading the first character of the connector (for example, a “F” for F8, “i” for i16, etc.) and the type of wiring harness. The first character of each connector number refers to the area or system of the vehicle, as indicated in table below.

Symbol	Wiring harness and Cord
F	Front wiring harness LH & RH
B	Bulkhead wiring harness
E	Engine wiring harness, Engine module wiring harness
T	Transmission cord
D	Door cord LH & RH, Rear door adapter cord LH & RH
I	Instrument panel wiring harness
R	Rear wiring harness, Rear defogger cord Room light cord, Fuel tank cord, Sunroof cord, Rear gate cord, Rear gate lock adapter cord
P	Power window main harness

2. Basic Diagnostics Procedure

The most important purpose of diagnostics is to determine which part is malfunctioning quickly, to save time and labor.

A: IDENTIFICATION OF TROUBLE SYMPTOM

Determine what the problem is based on the symptom.

B: PROBABLE CAUSE OF TROUBLE

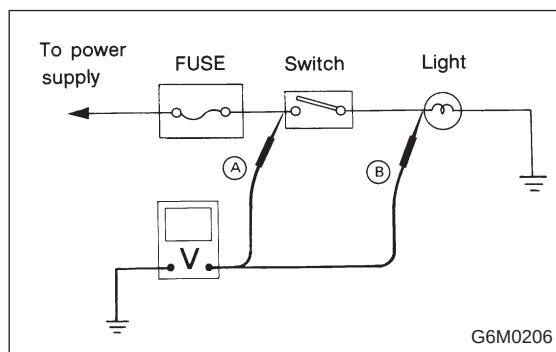
Look at the wiring diagram and check the system's circuit. Then check the switch, relay, fuse, ground, etc.

C: LOCATION AND REPAIR OF TROUBLE

- 1) Using the diagnostics narrow down the causes.
- 2) If necessary, use a voltmeter, ohmmeter, etc.
- 3) Before replacing certain component parts (switch, relay, etc.), check the power supply, ground, for open wiring harness, poor connectors, etc. If no problems are encountered, check the component parts.

D: CONFIRMATION OF SYSTEM OPERATION

After repairing, ensure that the system operates properly.



E: INSPECTION

1. VOLTAGE MEASUREMENT

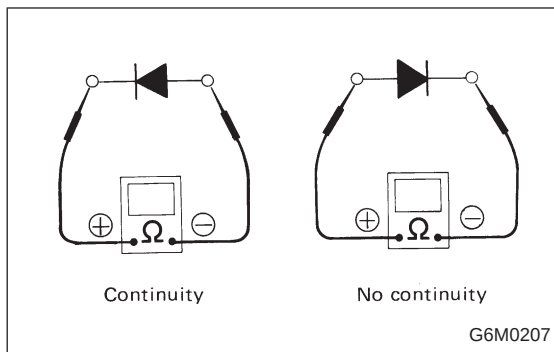
- 1) Using a voltmeter, connect the negative lead to a good ground point or negative battery terminal and the positive lead to the connector or component terminal.
- 2) Contact the positive probe of the voltmeter on connector (A).

The voltmeter will indicate a voltage.

- 3) Shift the positive probe to connector (B). The voltmeter will indicate no voltage.

With test set-up held as it is, turn switch ON. The voltmeter will indicate a voltage and, at the same time, the light will come on.

- 4) The circuit is in good order. If a problem such as a lamp failing to light occurs, use the procedures outlined above to track down the malfunction.



2. CIRCUIT CONTINUITY CHECKS

1) Disconnect the battery terminal or connector so there is no voltage between the check points. Contact the two leads of an ohmmeter to each of the check points.

If the circuit has diodes, reverse the two leads and check again.

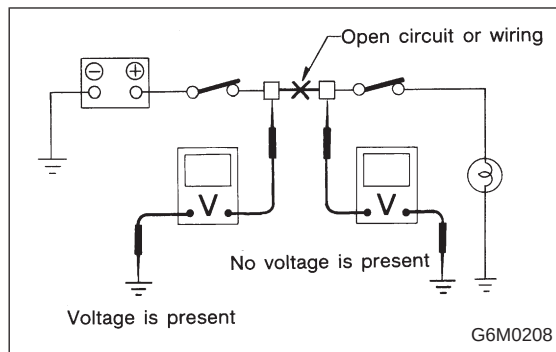
2) Use an ohmmeter to check for diode continuity.

When contacting the negative lead to the diode positive side and the positive lead to the negative side, there should be continuity.

When contacting the two leads in reverse, there should be no continuity.

3) Symbol “o—o” indicates that continuity exists between two points or terminals. For example, when a switch position is “3”, continuity exists among terminals 1, 3 and 6, as shown in table below.

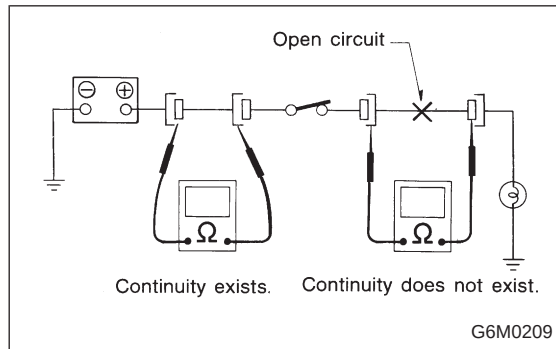
Terminal Switch Position	1	2	3	4	5	6
OFF						
1	○				○	○
2	○			○		○
3	○		○			○
4	○	○				○



3. HOW TO DETERMINE AN OPEN CIRCUIT

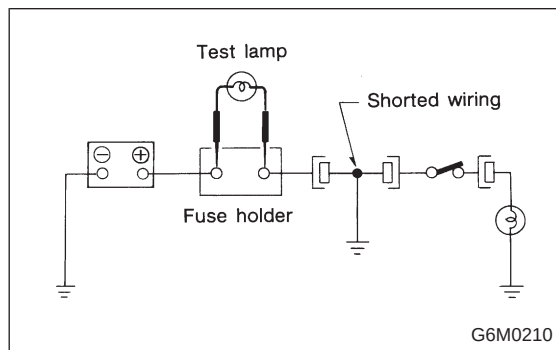
1) Voltmeter Method

An open circuit is determined by measuring the voltage between respective connectors and ground using a voltmeter, starting with the connector closest to the power supply. The power supply must be turned ON so that current flows in the circuit. If voltage is not present between a particular connector and ground, the circuit between that connector and the previous connector is open.



2) Ohmmeter method

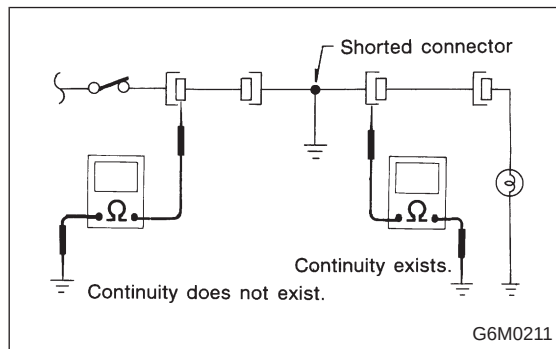
Disconnect all connectors affected, and check continuity in the wiring between adjacent connectors. When the ohmmeter indicates "infinite", the wiring is open.



4. HOW TO DETERMINE A SHORTCIRCUIT

1) Test lamp method

Connect a test lamp (rated at approximately 3 watts) in place of the blown fuse and allow current to flow through the circuit. Disconnect one connector at a time from the circuit, starting with the one located farthest from the power supply. If the test lamp goes out when a connector is disconnected, the wiring between that connection and the next connector (farther from the power supply) is shorted.



2) Ohmmeter method

Disconnect all affected connectors, and check continuity between each connector and ground. When ohmmeter indicates continuity between a particular connector and ground, that connector is shorted.

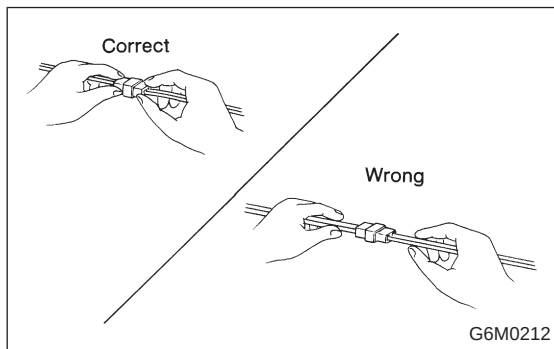
3. Working Precautions

1. PRECAUTIONS WHEN WORKING WITH THE PARTS MOUNTED ON THE VEHICLE

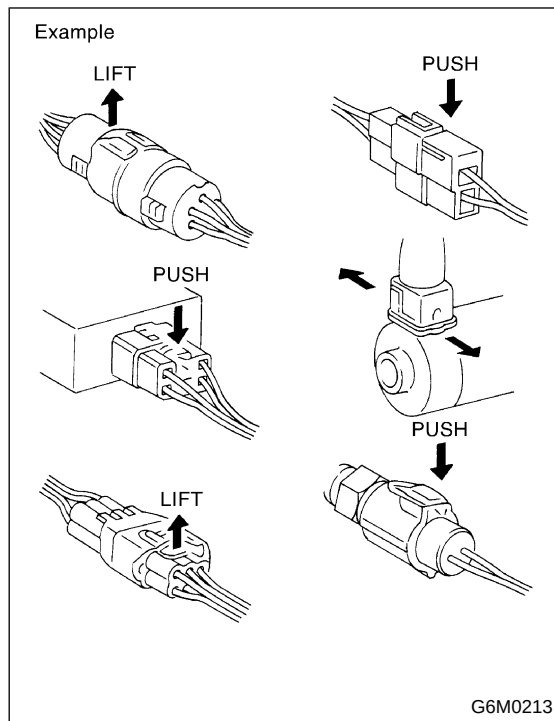
- 1) When working under a vehicle which is jacked-up, always be sure to use safety stands.
- 2) The parking brake must always be applied during working. Also, in automatic transmission vehicles, keep the select lever set to the P (Parking) range.
- 3) Be sure the workshop is properly ventilated when running the engine. Further, be careful not to touch the belt or fan while the engine is operating.
- 4) Be careful not to touch hot metal parts, especially the radiator and exhaust system immediately after the engine has been shut off.

2. PRECAUTIONS IN TROUBLE DIAGNOSIS AND REPAIR OF ELECTRIC PARTS

- 1) The battery cable must be disconnected from the battery's (-) terminal, and the ignition switch must be set to the OFF position, unless otherwise required by the diagnostics.
- 2) Securely fasten the wiring harness with clamps and slips so that the harness does not interfere with the body end parts or edges and bolts or screws.
- 3) When installing parts, be careful not to catch them on the wiring harness.

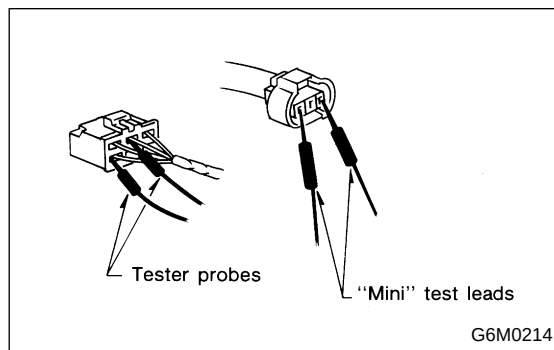


- 4) When disconnecting a connector, do not pull the wires, but pull while holding the connector body.



5) Some connectors are provided with a lock. One type of such a connector is disconnected by pushing the lock, and the other, by moving the lock up. In either type the lock shape must be identified before attempting to disconnect the connector.

To connect, insert the connector until it snaps and confirm that it is tightly connected.



6) When checking continuity between connector terminals, or measuring voltage across the terminal and ground, always contact tester probe(s) on terminals from the wiring connection side. If the probe is too thick to gain access to the terminal, use "mini" test leads.

To check water-proof connectors (which are not accessible from the wiring side), contact test probes on the terminal side being careful not to bend or damage the terminals.

7) Sensors, relays, electrical unit, etc., are sensitive to strong impacts.

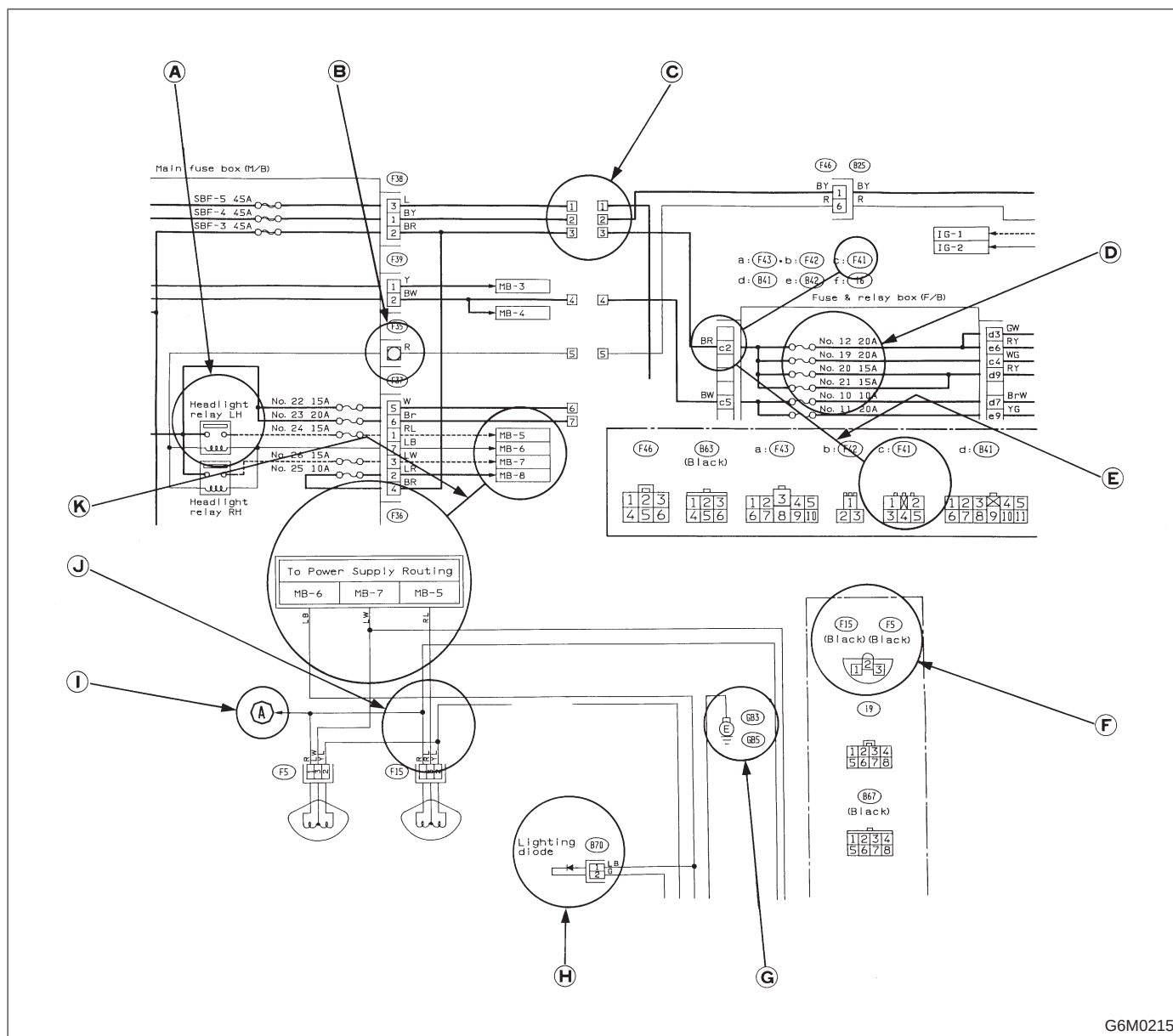
Handle them with care so that they are not dropped or mishandled.

ABBREVIATION LIST

Abbr.	Full name
A.B.S.	Antilock Brake System
ACC	Accessory
A/C	Air Conditioning
AD	Auto Down
AT	Automatic Transmission
AU	Auto Up
+B	Battery
DN	Down
DRL	Daytime Running Light
E	Ground
F/B	Fuse & Joint Box
FL1.5	Fusible link 1.5 mm ²
IG	Ignition
Illumi.	Illumination

Abbr.	Full name
LH	Left Hand
Lo	Low
M	Motor
M/B	Main Fuse Box
MG	Magnet
Mi	Middle
MPFI	Multi Point Fuel Injection Model
OP	Optional Parts
PASS	Passing
RH	Right Hand
SBF	Slow Blow Fuse
ST	Starter
SW	Switch
UP	Up
WASH	Washer

4. How to Use Wiring Diagram



G6M0215

A: RELAY

A symbol used to indicate a relay.

B: CONNECTOR-1

The sketch of the connector indicates the one-pole types.

C: WIRING CONNECTION

Some wiring diagrams are indicated in foldouts for convenience. Wiring destinations are indicated where necessary by corresponding symbols (as when two pages are needed for clear indication).

D: FUSE NO. & RATING

The "FUSE No. & RATING" corresponds with that used in the fuse box (main fuse box, fuse and joint box.)

E: CONNECTOR-2

1. Each connector is indicated by a symbol.
2. Each terminal number is indicated in the corresponding wiring diagram in an abbreviated form.
3. For example, terminal number "C2" refers to No. 2 terminal of connector (C:F41) shown in the connector sketch.

F: CONNECTOR SKETCH

1. Each connector sketch clearly identifies the shape and color of a connector as well as terminal locations. Non-colored connectors are indicated in natural color.
2. When more than two types of connector number are indicated in a connector sketch, it means that the same type connectors are used.

G: GROUND

Each grounding point can be located easily by referring to the corresponding wiring harness.

H: DIODE

A symbol is used to indicate a diode.

I: WIRE TRACING ON EXTENDED WIRING DIAGRAMS

For a wiring diagram extending over at least two pages, a symbol (consisting of the same characters with arrows), as shown below, facilitates wire tracing from one page to the next.

A ↔ A, B ↔ B

J: SYMBOLS OF WIRE CONNECTION AND CROSSING

Symbol

Refers to wires which are connected and branched at the "dot" point.



Symbol

Refers to wires which are crossed but not connected.

K: POWER SUPPLY ROUTING

A symbol is used to indicate the power supply in each wiring diagram.

"MB-5", "MB-6", etc., which are used as power-supply symbols throughout the text, correspond with those shown in the POWER SUPPLY ROUTING in the wiring diagram.

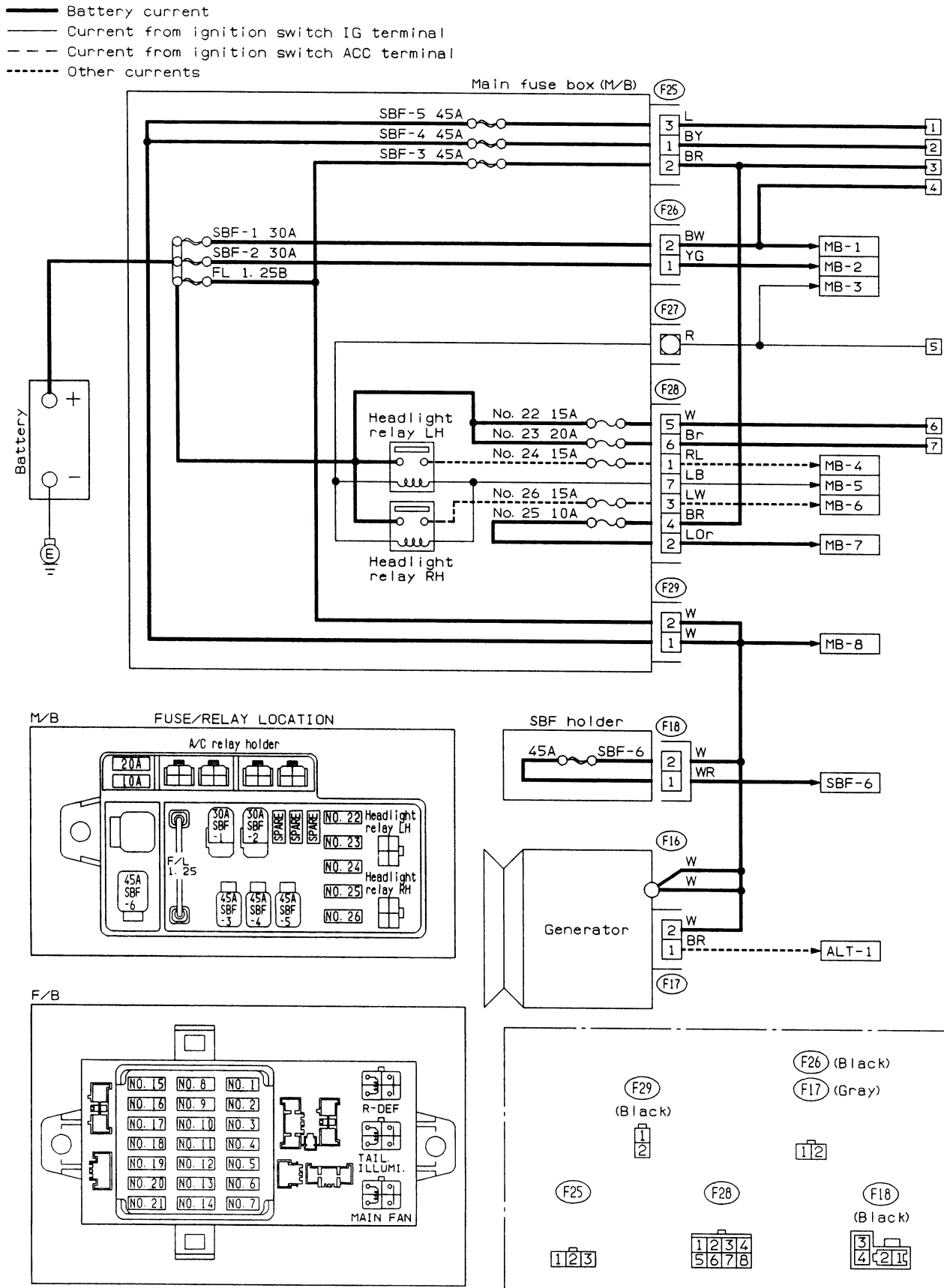
Accordingly, using the POWER SUPPLY ROUTING and wiring diagrams permits service personnel to understand the entire electrical arrangement of a system.

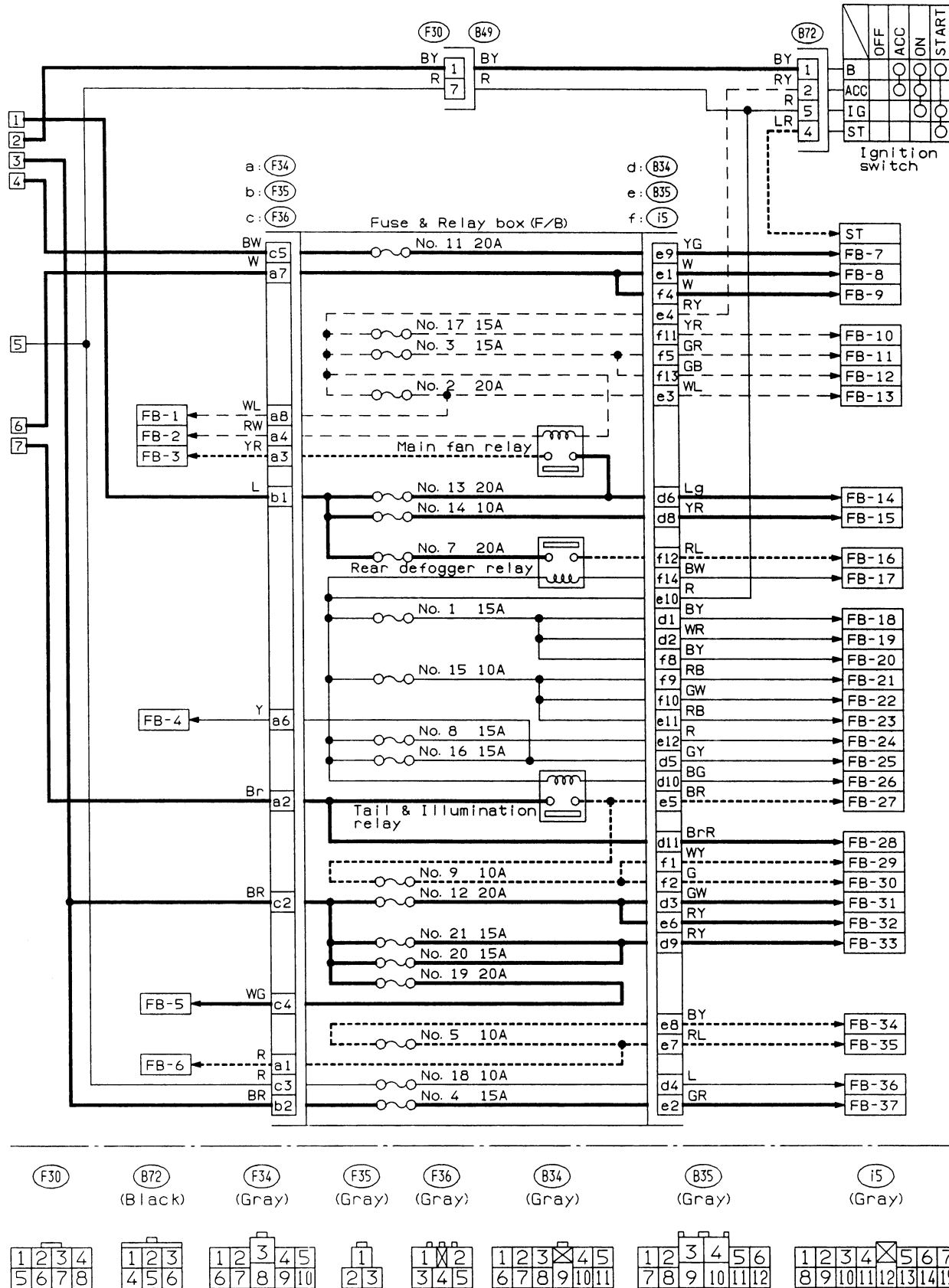
SYMBOLS AND ABBREVIATIONS

A number of symbols and abbreviations are used in each wiring diagram to easily identify parts or circuits.

5. Wiring Diagram

1. POWER SUPPLY ROUTING

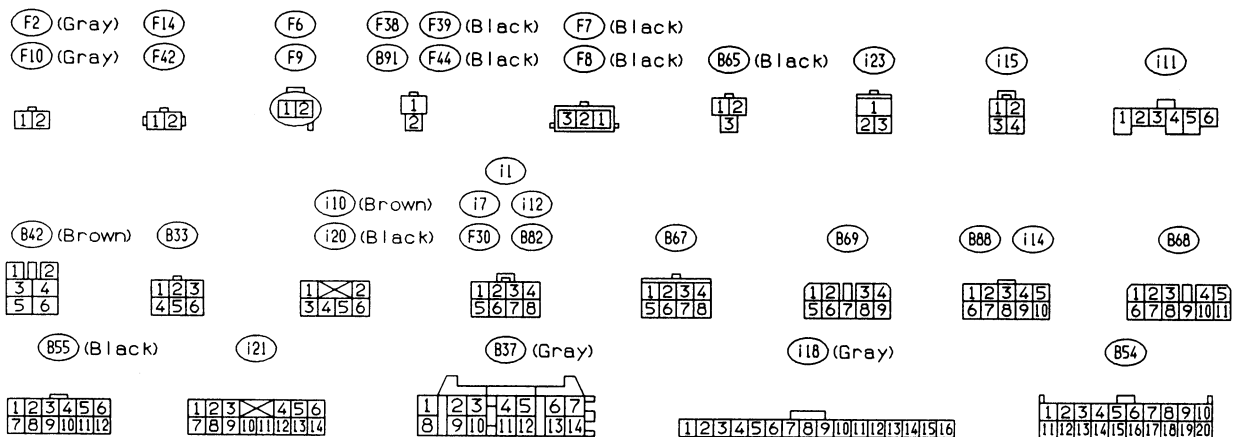
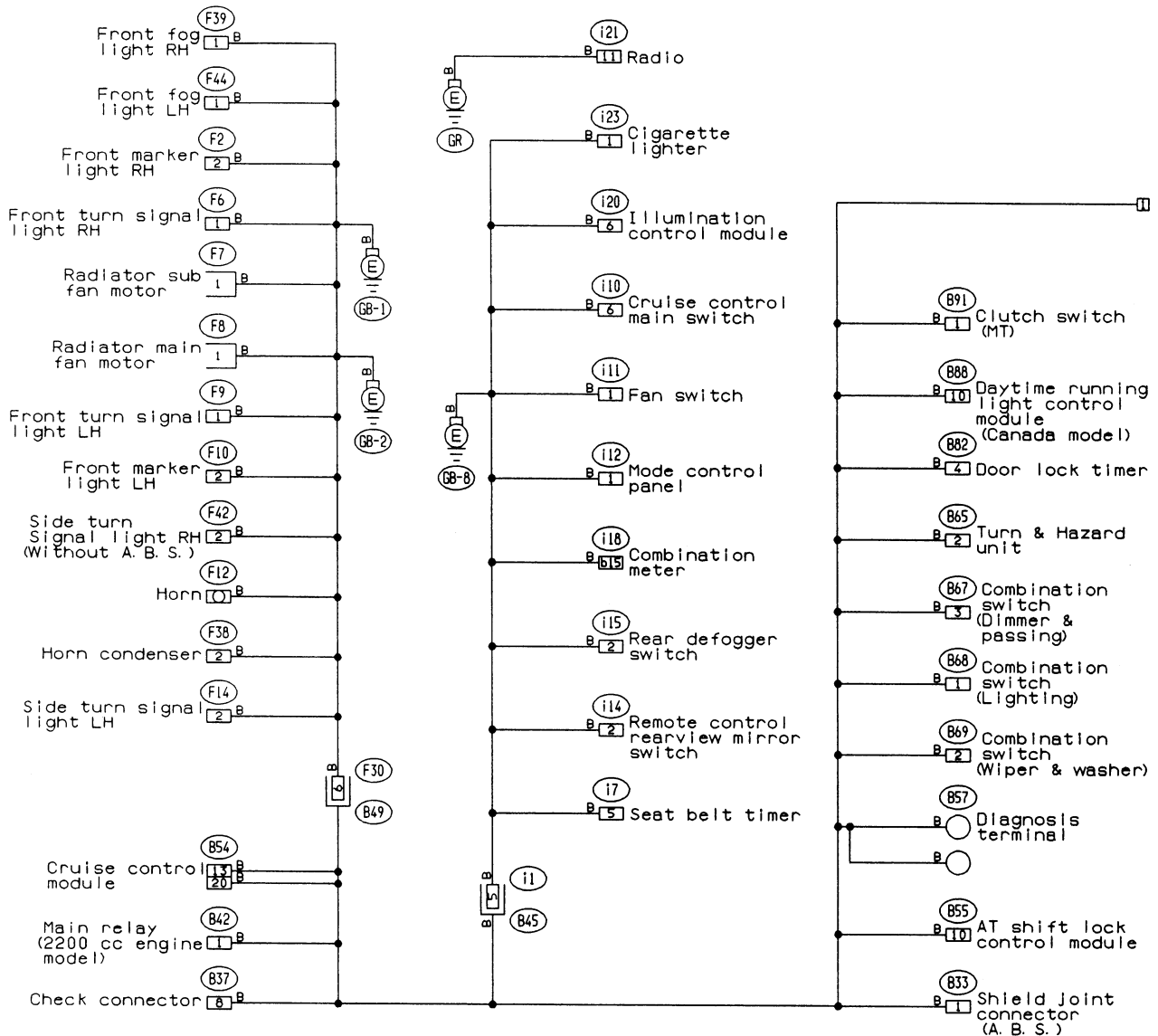


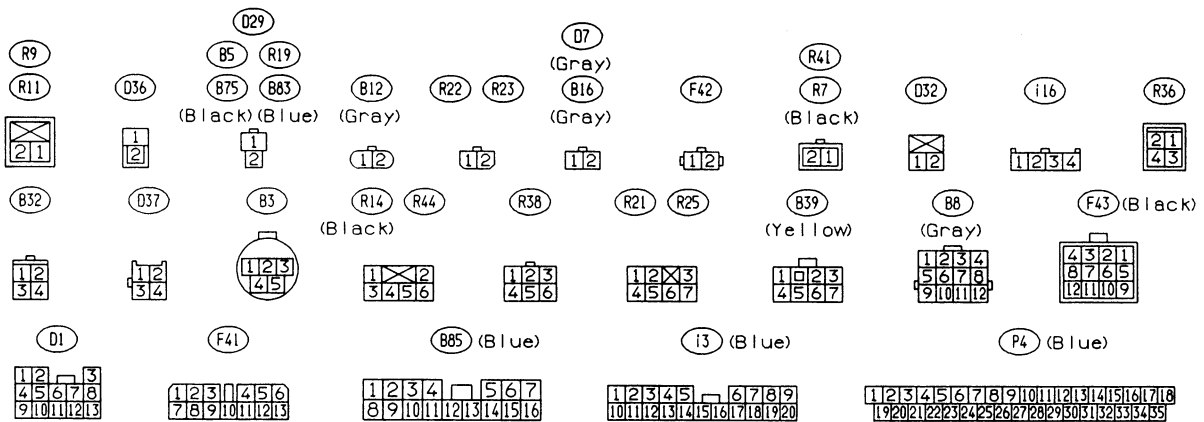


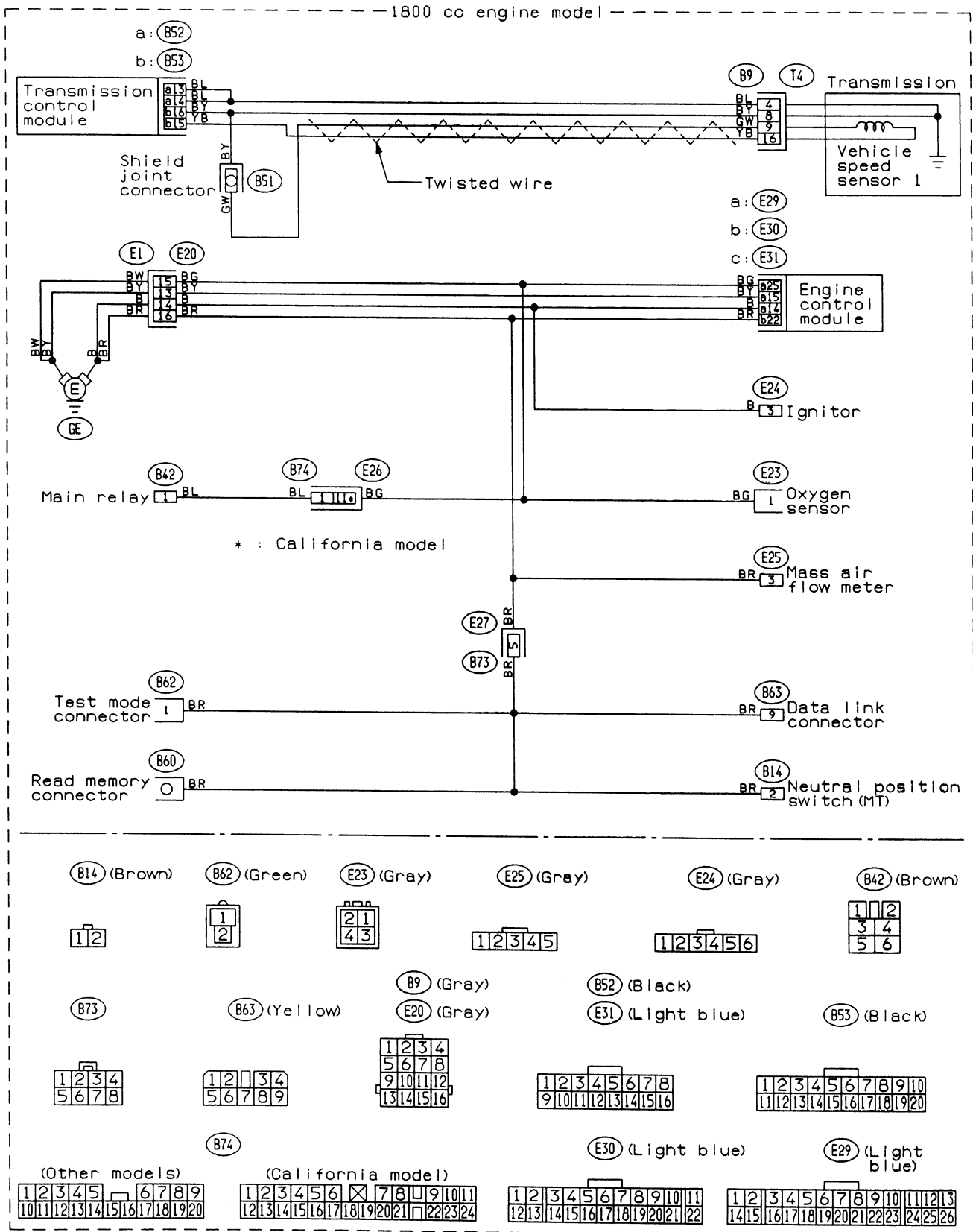
No.	LOAD: SYSTEM No.
MB-1	P/W CIRCUIT BREAKER: 21, 31
MB-2	MAIN RELAY: 13 FUEL PUMP RELAY: 13
MB-3	A/C FUSE: 3, 22
MB-4	HEADLIGHT LH: 17
MB-5	DIODE (LIGHTING): 17 LIGHTING SWITCH: 17 DRL CONTROL MODULE: 17
MB-6	HEADLIGHT RH: 17 COMBINATION METER: 17
MB-7	RADIO: 7 SPOT LIGHT: 27 COMBINATION METER: 27 FUSE BOX ILLUMINATION: 27 ROOM LIGHT: 27 LUGGAGE ROOM LIGHT: 27 TRUNK LOOM LIGHT: 27
MB-8	A/C FUSE: 22
SBF-6	HYDRAULIC UNIT: 4
ALT-1	COMBINATION METER: 9, 20 DRL CONTROL MODULE: 17
ST	AT CONTROL MODULE: 5 INHIBITOR SWITCH: 13, 17, 29 ENGINE CONTROL MODULE: 13 STARTER INTERLOCK RELAY: 17, 29
FB-1	FRONT WASHER MOTOR: 14
FB-2	DIODE (A/C): 22
FB-3	MAIN FAN MOTOR: 22
FB-4	AT CONTROL MODULE: 5 FUEL PUMP RELAY: 13 ENGINE CONTROL MODULE: 13 IGNITION COIL: 13
FB-5	HYDRAULIC UNIT: 4 MAIN FAN MOTOR: 22
FB-6	FRONT CLEARANCE LIGHT LH. RH: 18
FB-7	DOOR LOCK TIMER: 12
FB-8	AT SHIFT LOCK CONTROL MODULE: 6 KEY WARNING SWITCH: 6, 26
FB-9	HAZARD SWITCH: 32
FB-10	RADIO: 7
FB-11	CIGARETTE LIGHTER: 16
FB-12	REMOTE CONTROLLED REARVIEW MIRROR SWITCH: 25
FB-13	AT SHIFT LOCK CONTROL MODULE: 6 FRONT WIPER MOTOR: 14 FRONT WIPER SWITCH: 14 REAR WASHER MOTOR: 24 REAR WIPER RELAY: 24 REAR WIPER MOTOR: 24

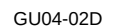
No.	LOAD: SYSTEM No.
FB-14	MAIN FAN RELAY 2: 22
FB-15	AT CONTROL MODULE: 5 ENGINE CONTROL MODULE: 13
FB-16	REAR DEFOGGER: 23
FB-17	COMBINATION METER: 23 REAR DEFOGGER SWITCH: 23
FB-18	BACK-UP LIGHT SWITCH: 8 INHIBITOR SWITCH: 8
FB-19	AT SHIFT LOCK CONTROL MODULE: 6
FB-20	HAZARD SWITCH: 32
FB-21	MODE CONTROL PANEL: 3 COMBINATION METER: 4, 5, 9, 13, 15, 19, 20, 26 SEAT BELT TIMER: 26
FB-22	COMBINATION METER: 28
FB-23	FRESH/RECIRC ACTUATOR: 3 EVAPORATION THERMOSWITCH: 3 BLOWER MOTOR RELAY: 3 CHECK CONNECTOR: 4, 5, 11, 13, 28 DRL CONTROL MODULE: 17 DRL RELAY: 17 DRL HI-BEAM RELAY: 17 P/W AND SUNROOF RELAY: 21, 31
FB-24	AIRBAG CONTROL MODULE: 28
FB-25	AIRBAG CONTROL MODULE: 28
FB-26	LIGHTING SWITCH: 18
FB-27	PARKING LIGHT SWITCH: 18
FB-28	PARKING LIGHT SWITCH: 18
FB-29	COMBINATION METER: 5, 18 ILLUMINATION LIGHTS: 18
FB-30	ILLUMINATION CONTROL MODULE: 18 ILLUMINATION LIGHTS: 18
FB-31	STOP LIGHT SWITCH: 5, 6, 11, 30
FB-32	HORN RELAY: 11, 16
FB-33	BLOWER MOTOR RELAY: 3
FB-34	PARKING LIGHT SWITCH: 18
FB-35	REAR COMBINATION LIGHT LH. RH: 18 LICENSE PLATE LIGHT LH. RH: 18
FB-36	A.B.S. G SENSOR: 14 A.B.S. CONTROL MODULE: 4 CRUISE CONTROL MODULE: 11 CRUISE CONTROL MAIN SWITCH: 11

2. GROUND DISTRIBUTION



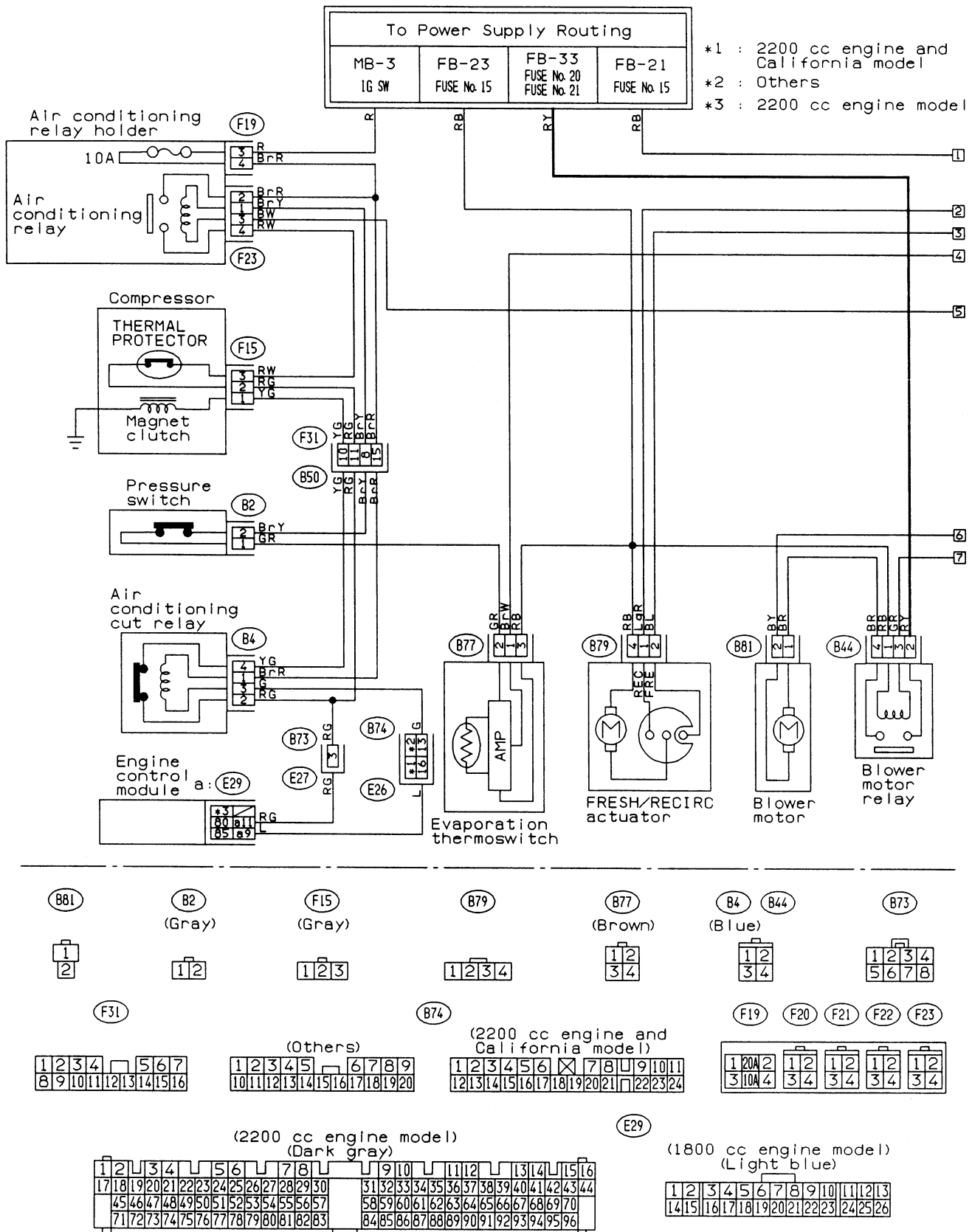


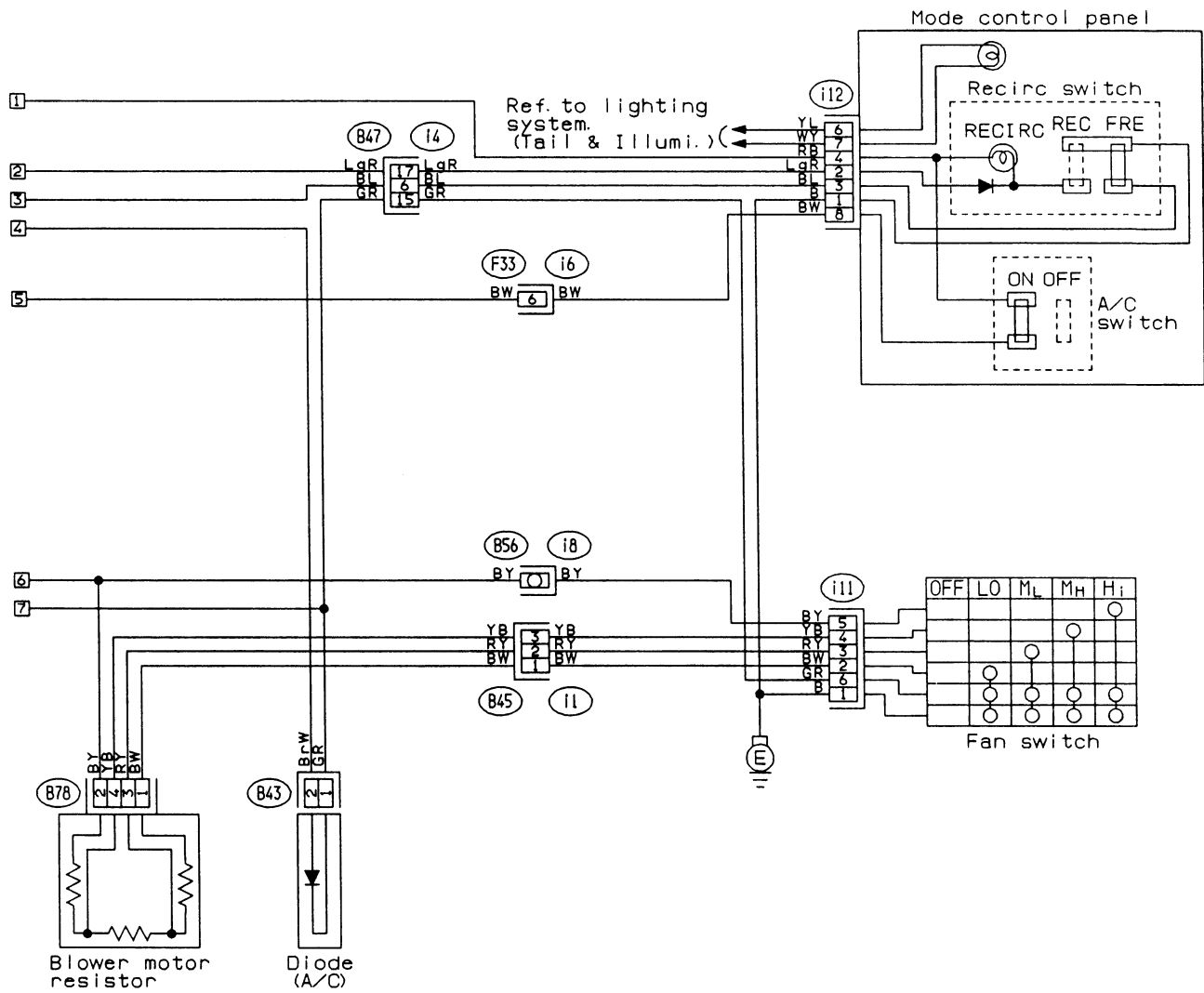




3. AIR CONDITIONING SYSTEM

• With A/C





B43 (Black)



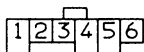
B78



F33 (Black)



i11



i1 i12

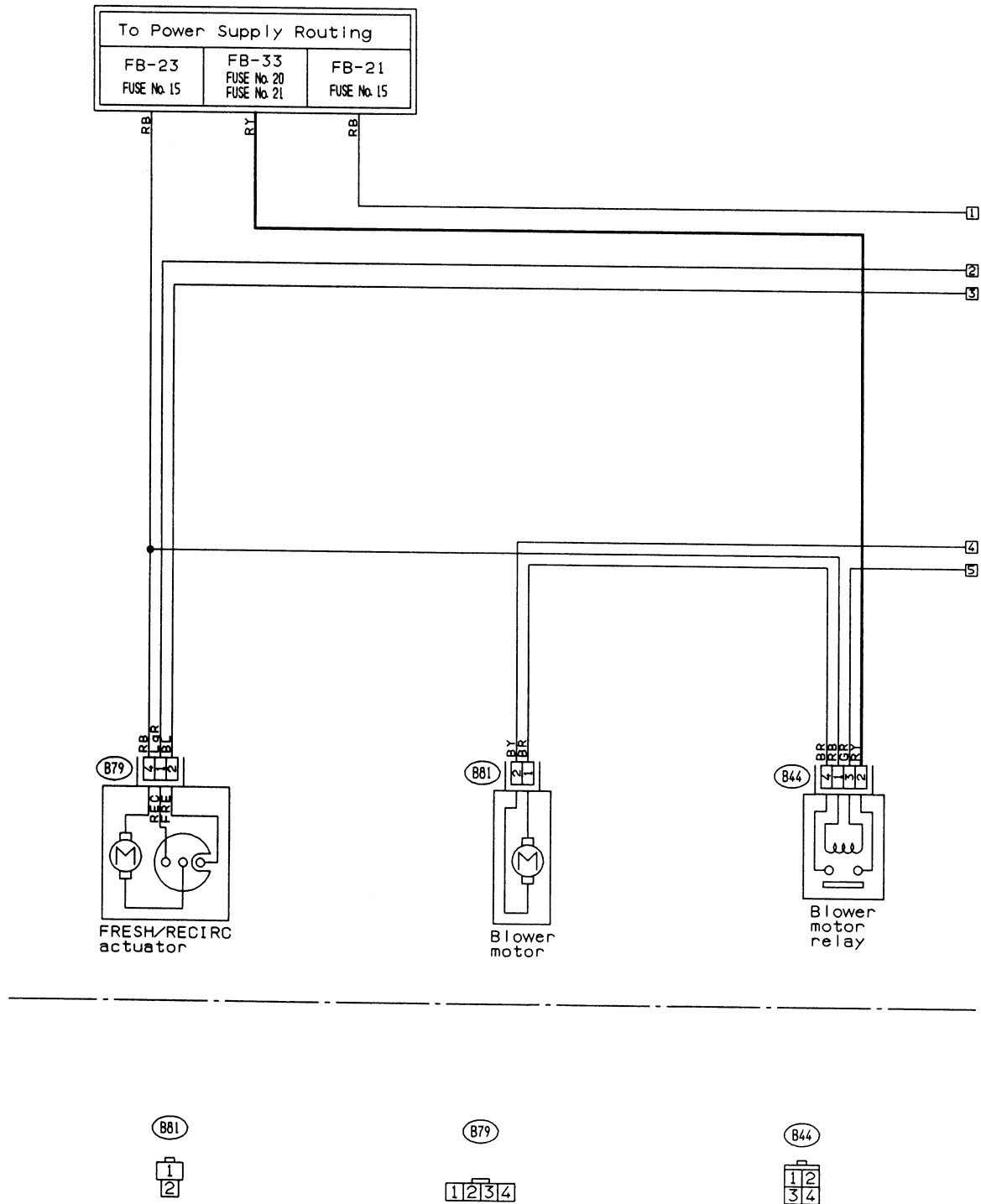


i4

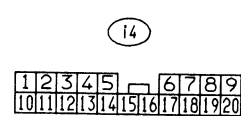
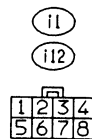
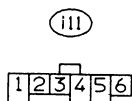
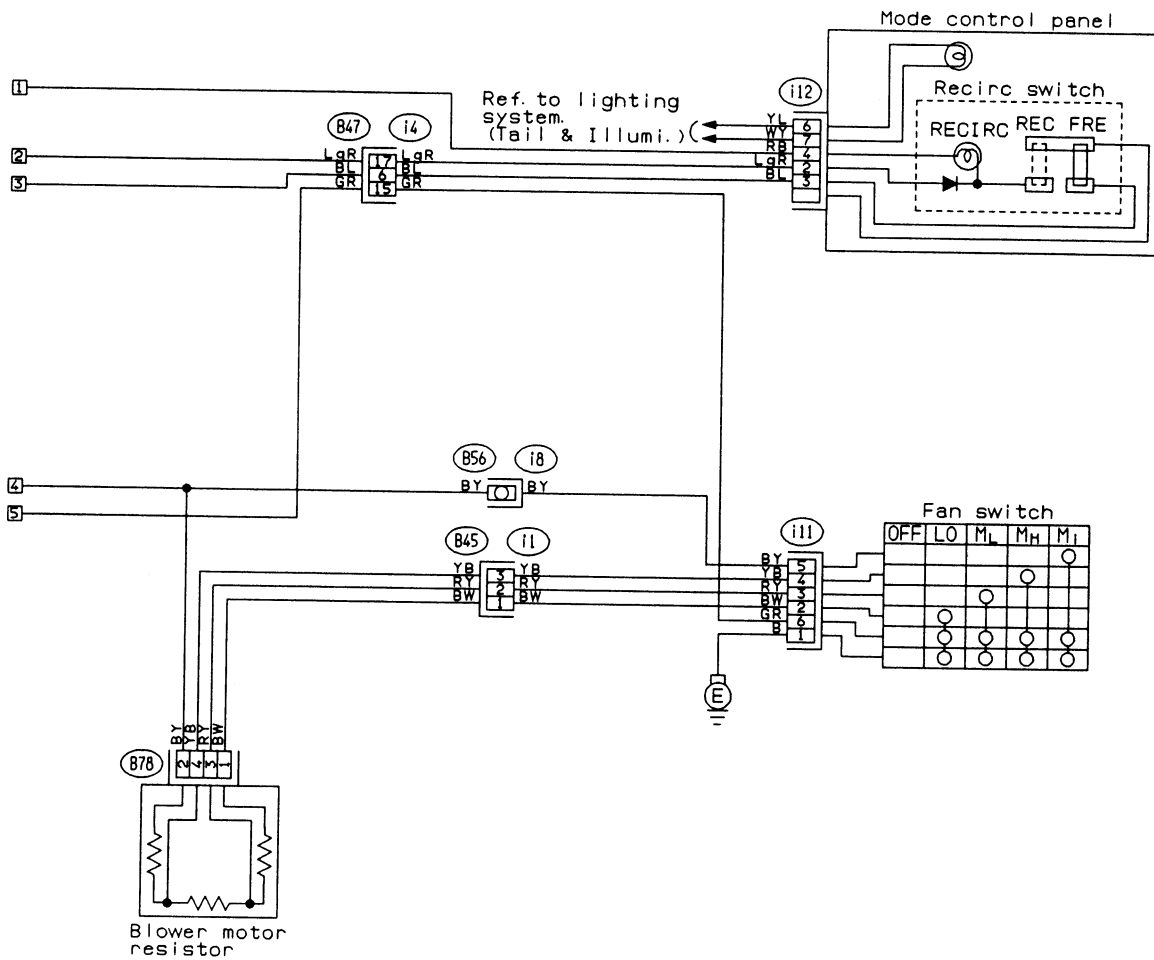


3. AIR CONDITIONING SYSTEM

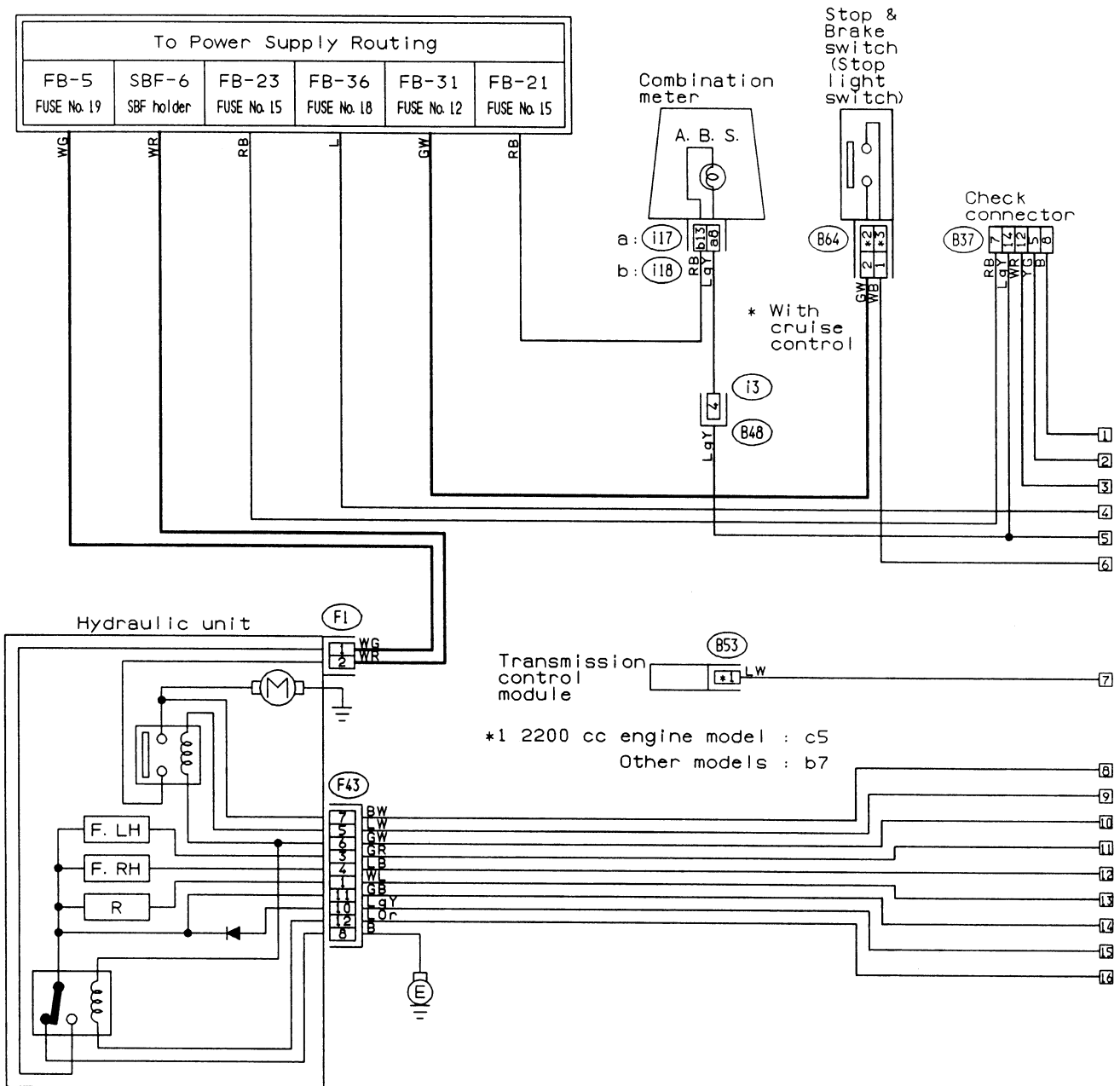
• Without A/C

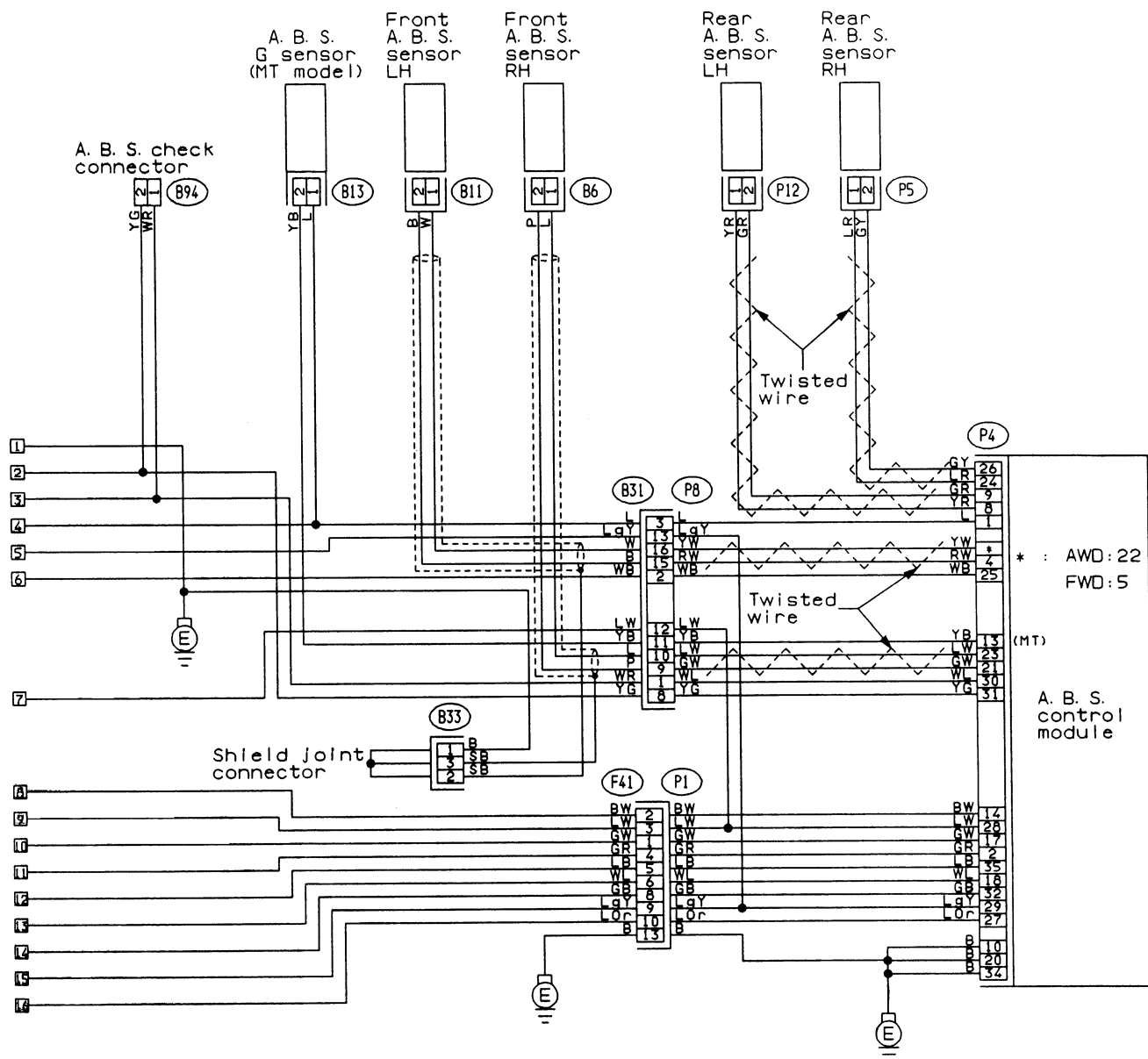


GU78-01A

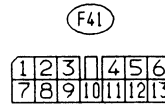
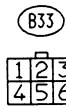


4. ANTI-LOCK BRAKE SYSTEM

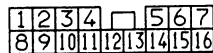




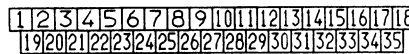
(Gray) B6 P5 (Gray)
 (Black) B13 (Gray) B11 P12 (Gray)



P8 (Black)

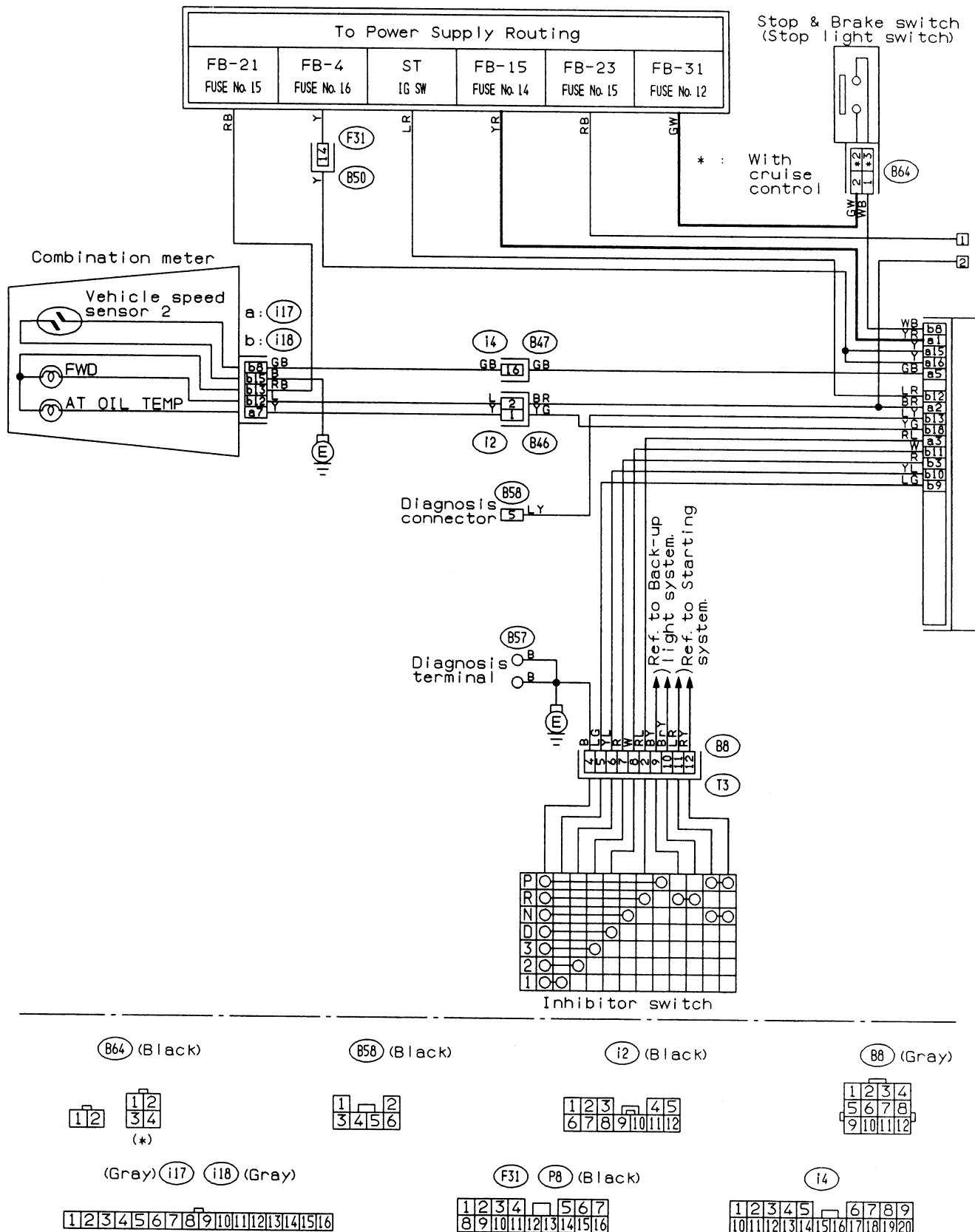


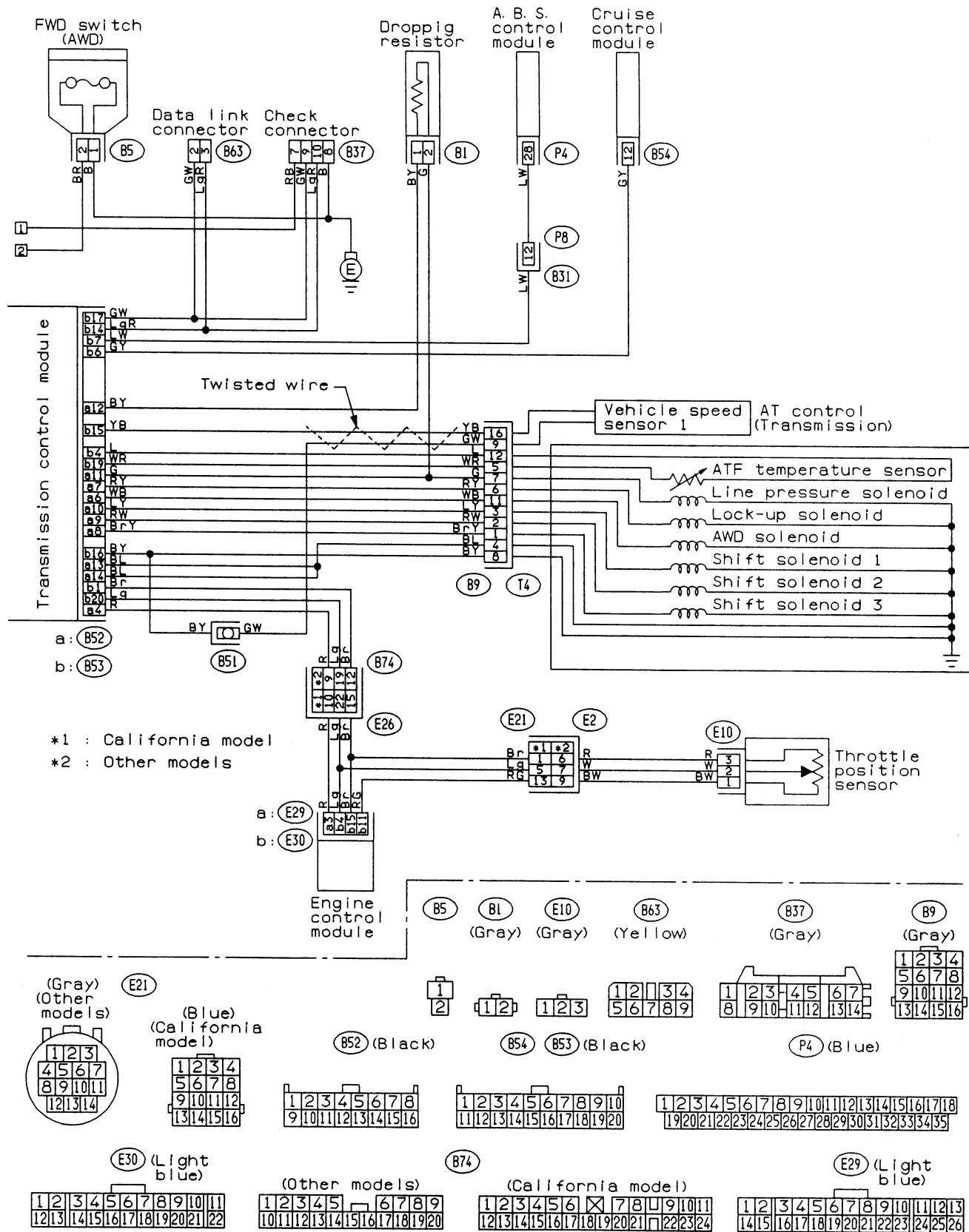
P4 (Blue)



5. A/T CONTROL SYSTEM

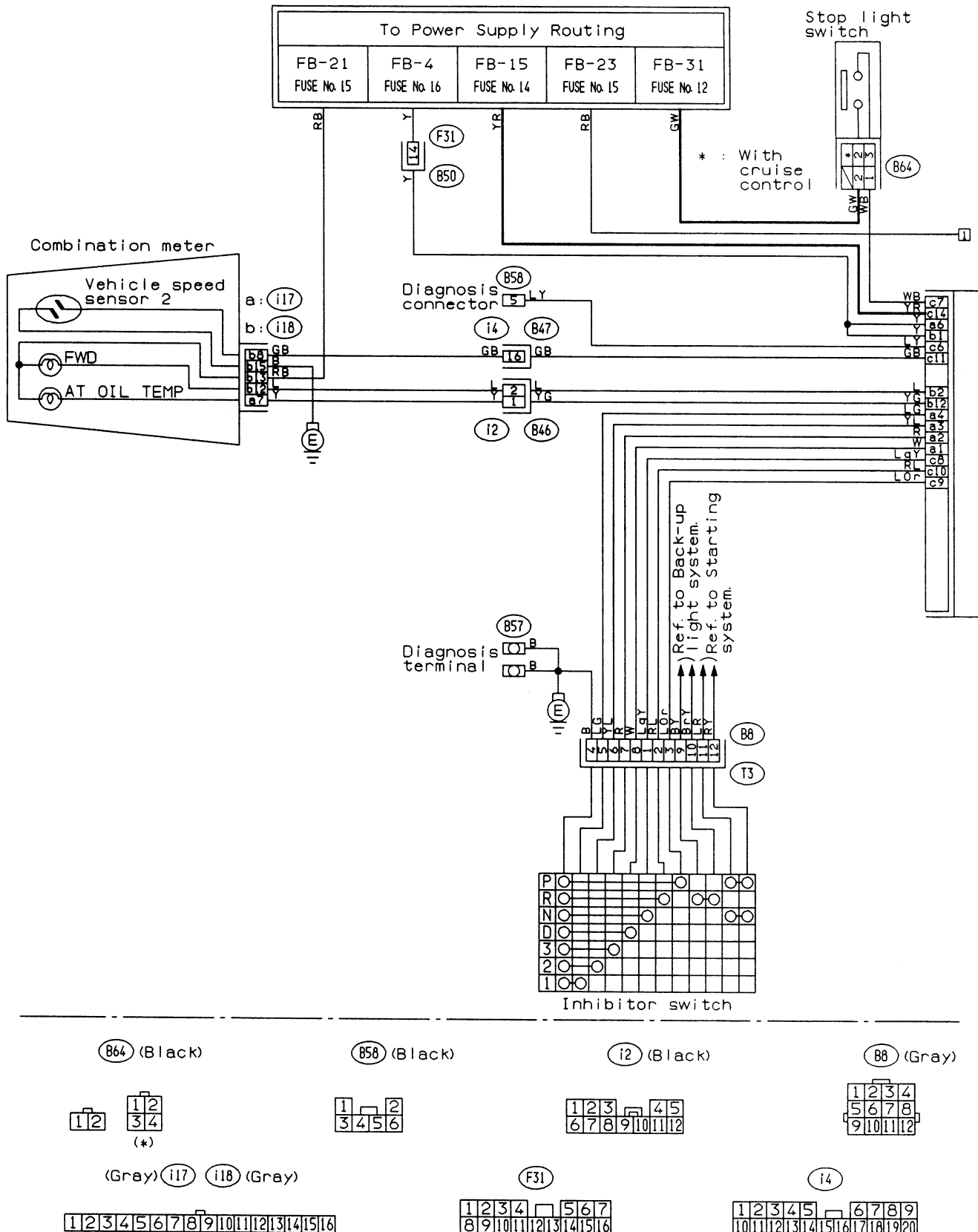
● 1800 cc engine model

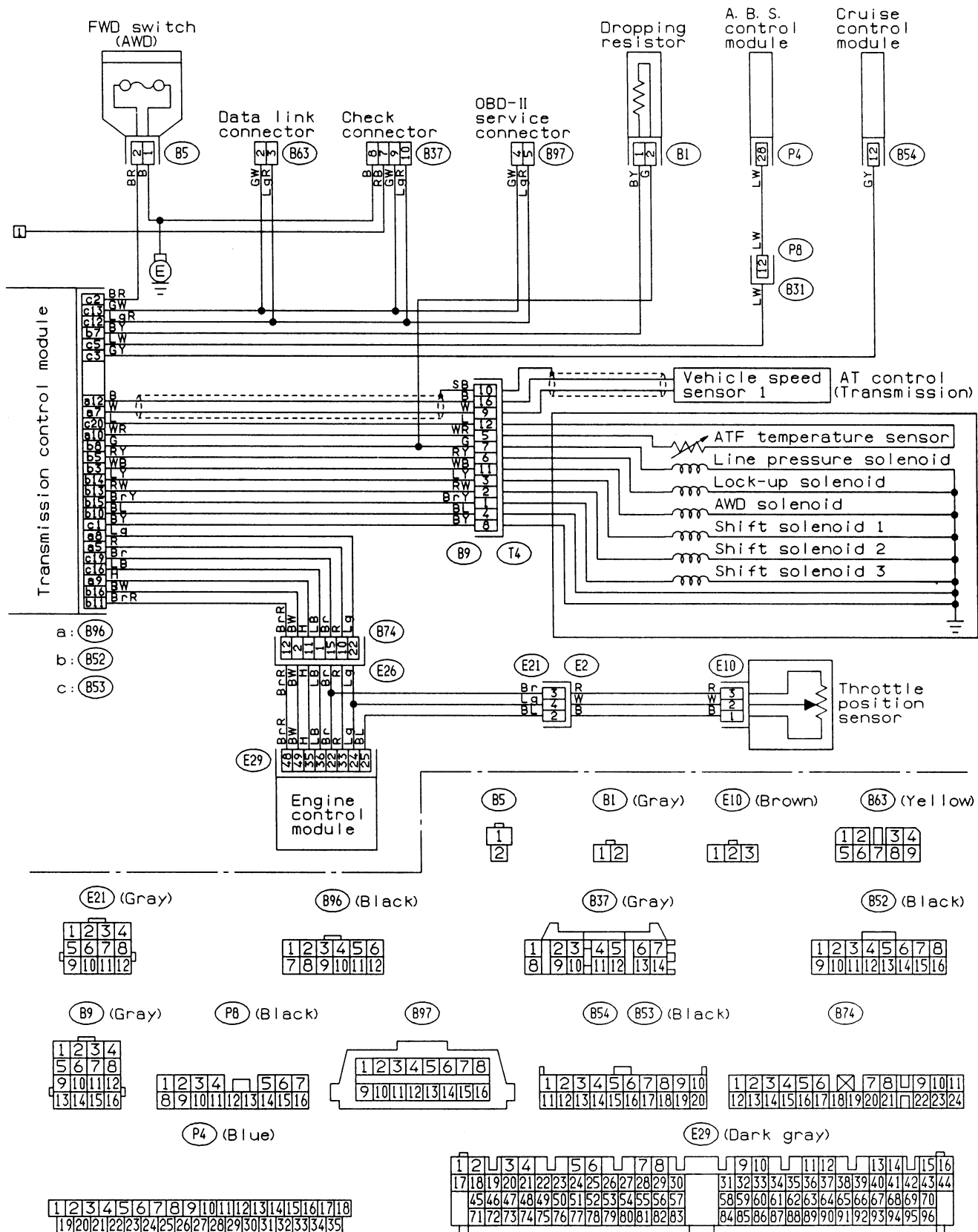




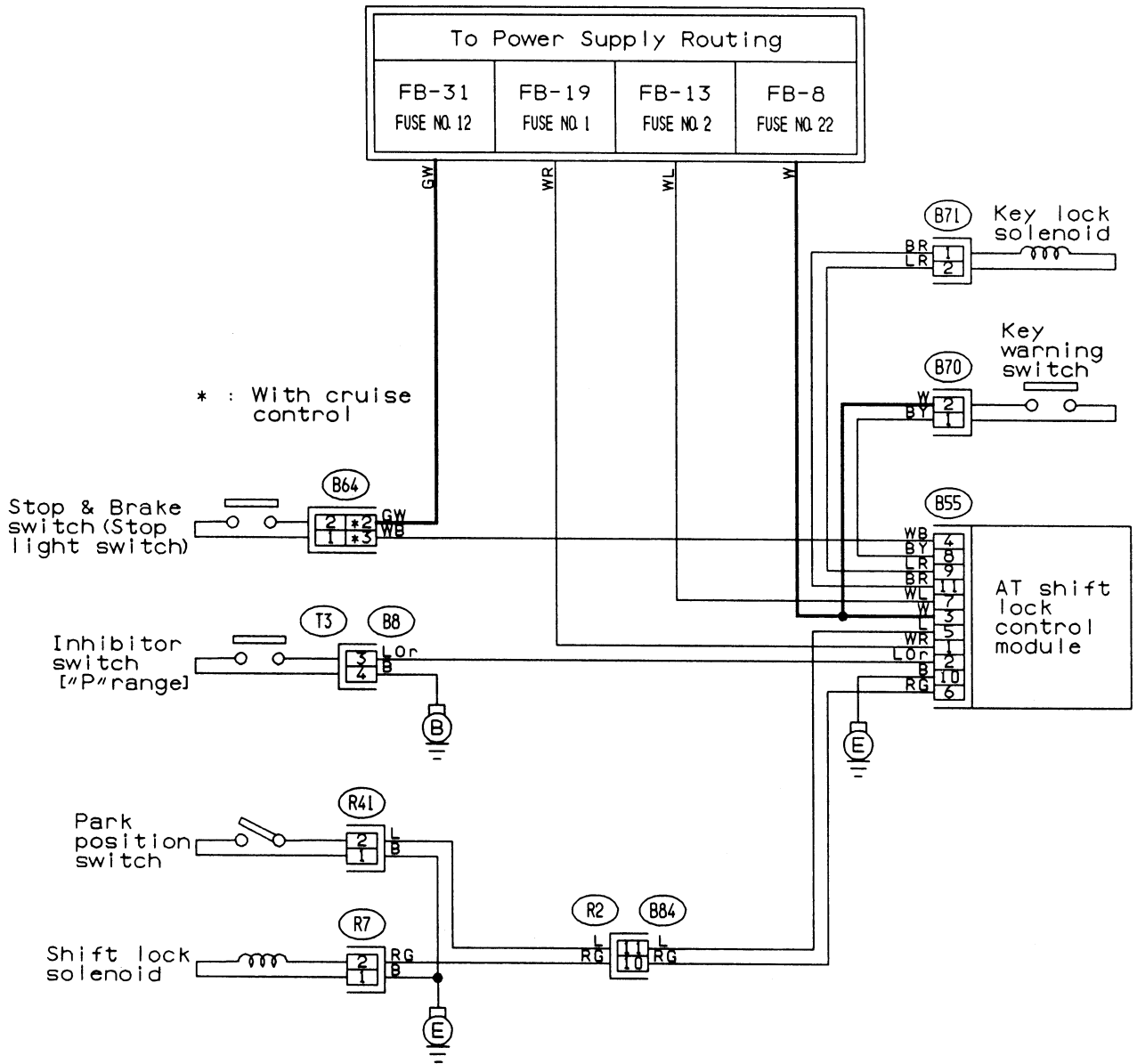
5. A/T CONTROL SYSTEM

● 2200 cc engine model





6. A/T SHIFT LOCK SYSTEM



(B70) (Black)



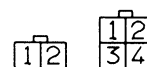
(R41) (R7) (Black)



(B71) (Black)

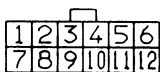


(B64) (Black)

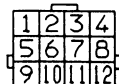


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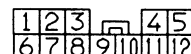
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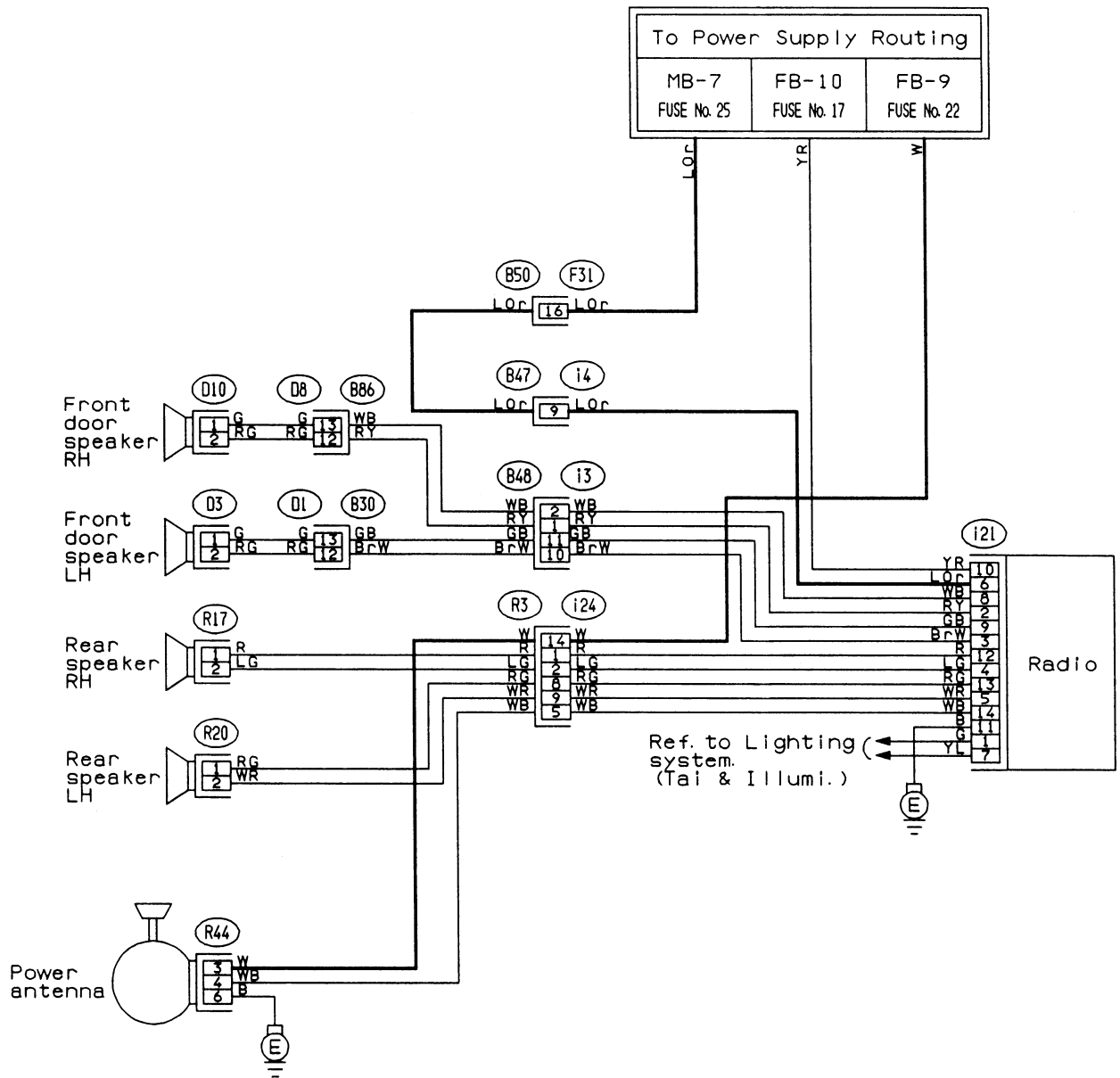
(B8) (Gray)



(B84) (Black)



7. AUDIO SYSTEM



D3 D10



R17 R20

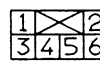


Wagon

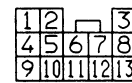


Sedan
(Black)

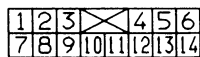
R44



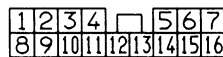
D1 D8



i21



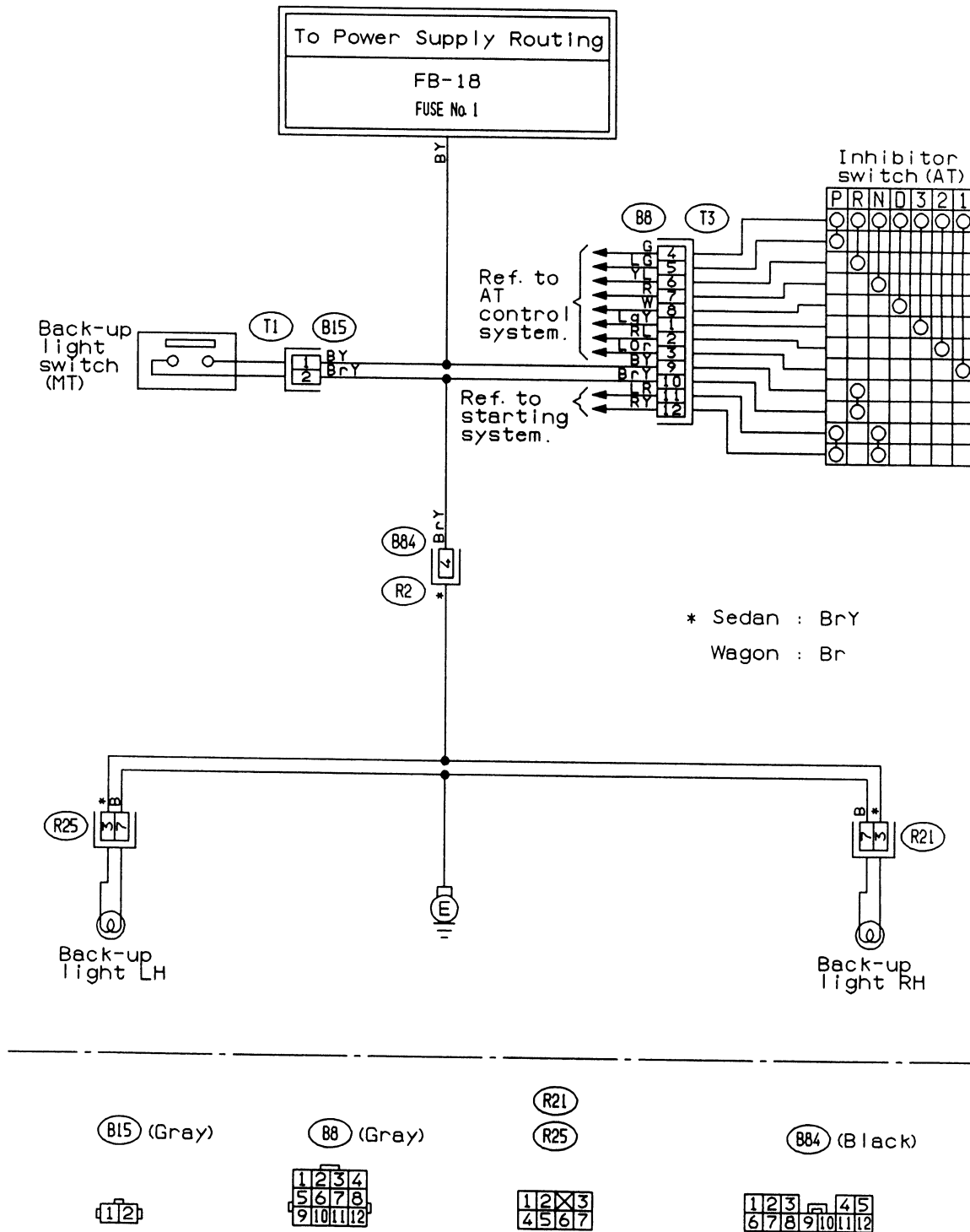
i24 F31



i4 i3 (Blue)

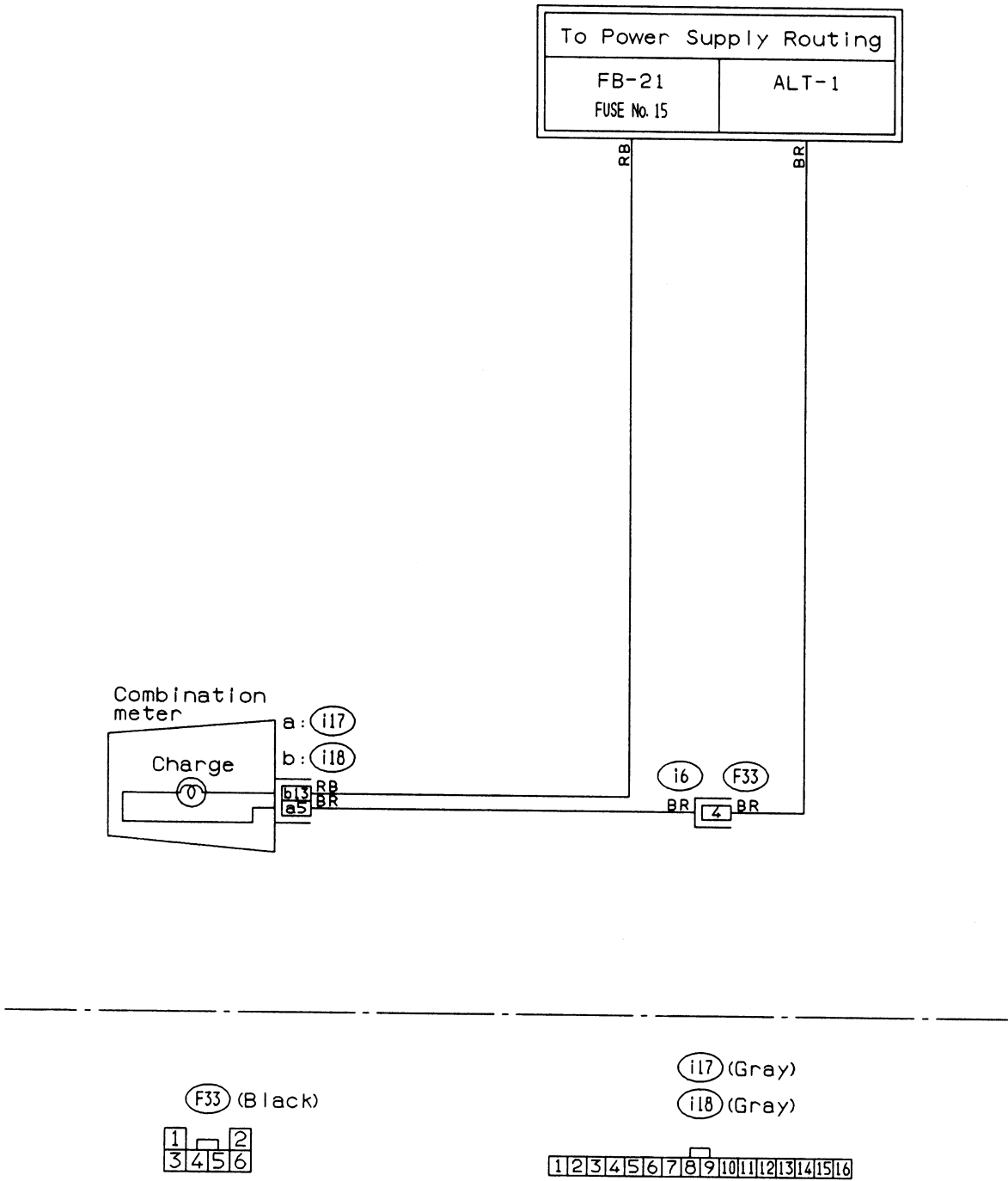


8. BACK-UP LIGHT SYSTEM

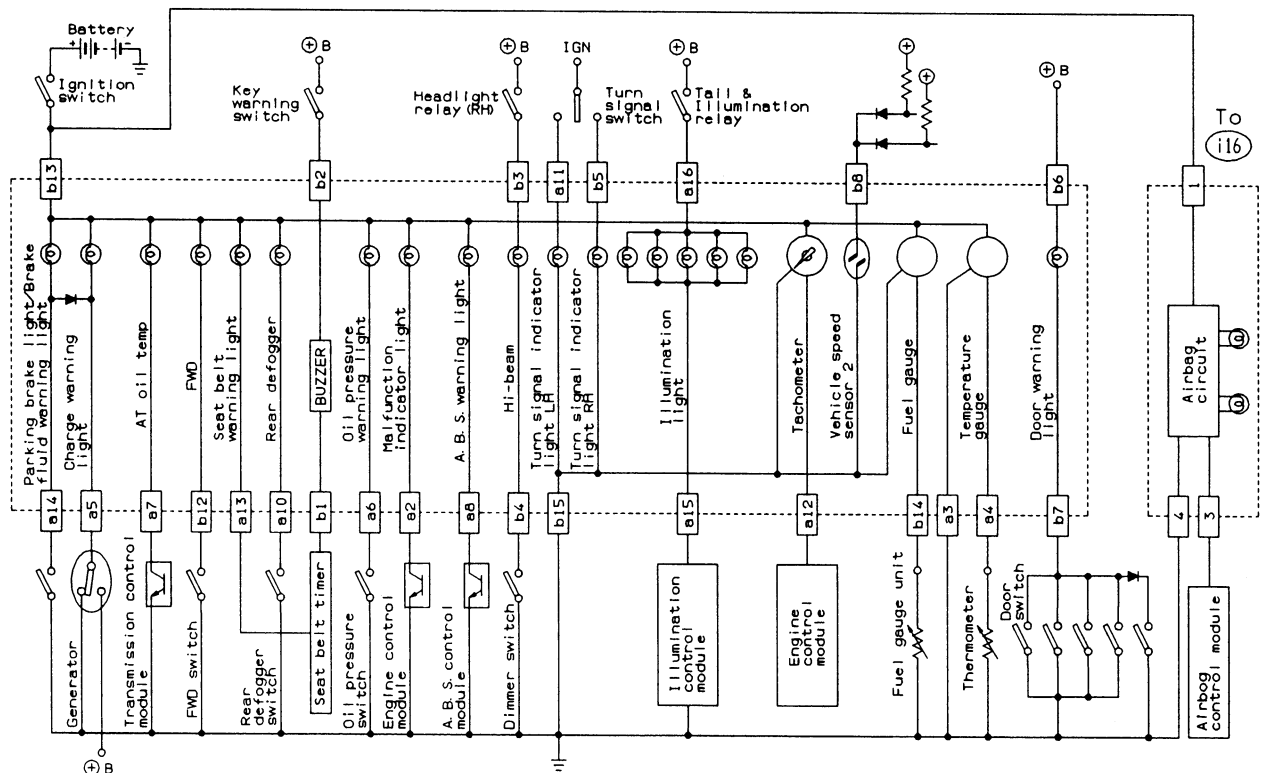
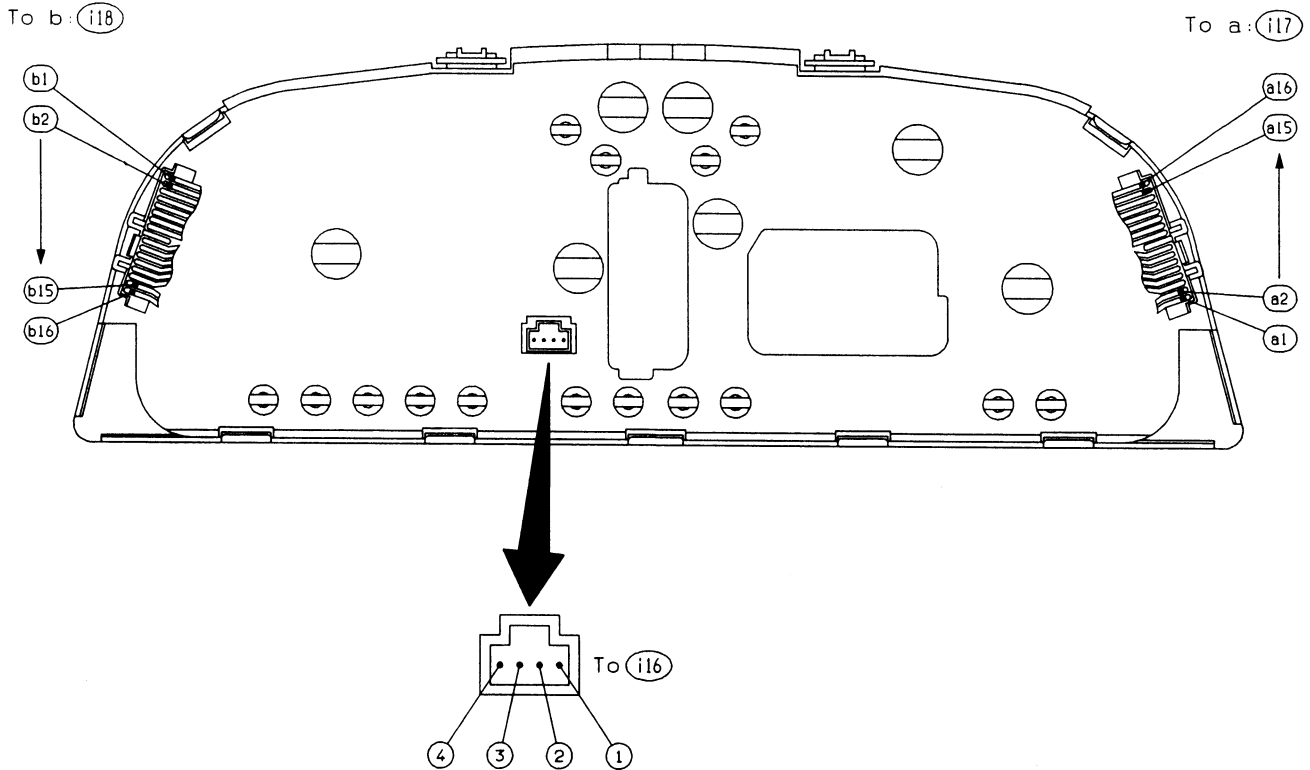


GU29-01

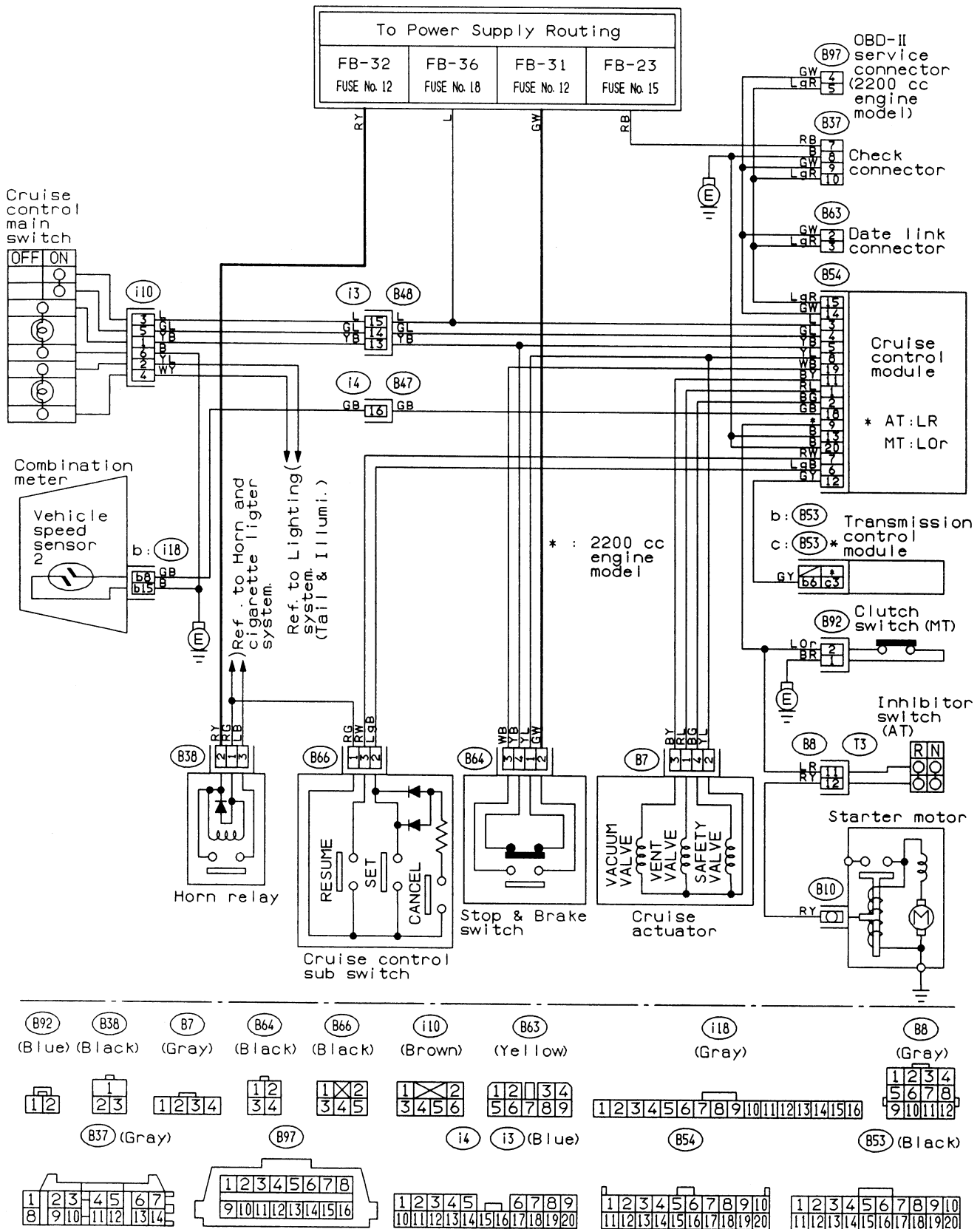
9. CHARGING SYSTEM



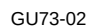
10. COMBINATION METER



11. CRUISE CONTROL SYSTEM

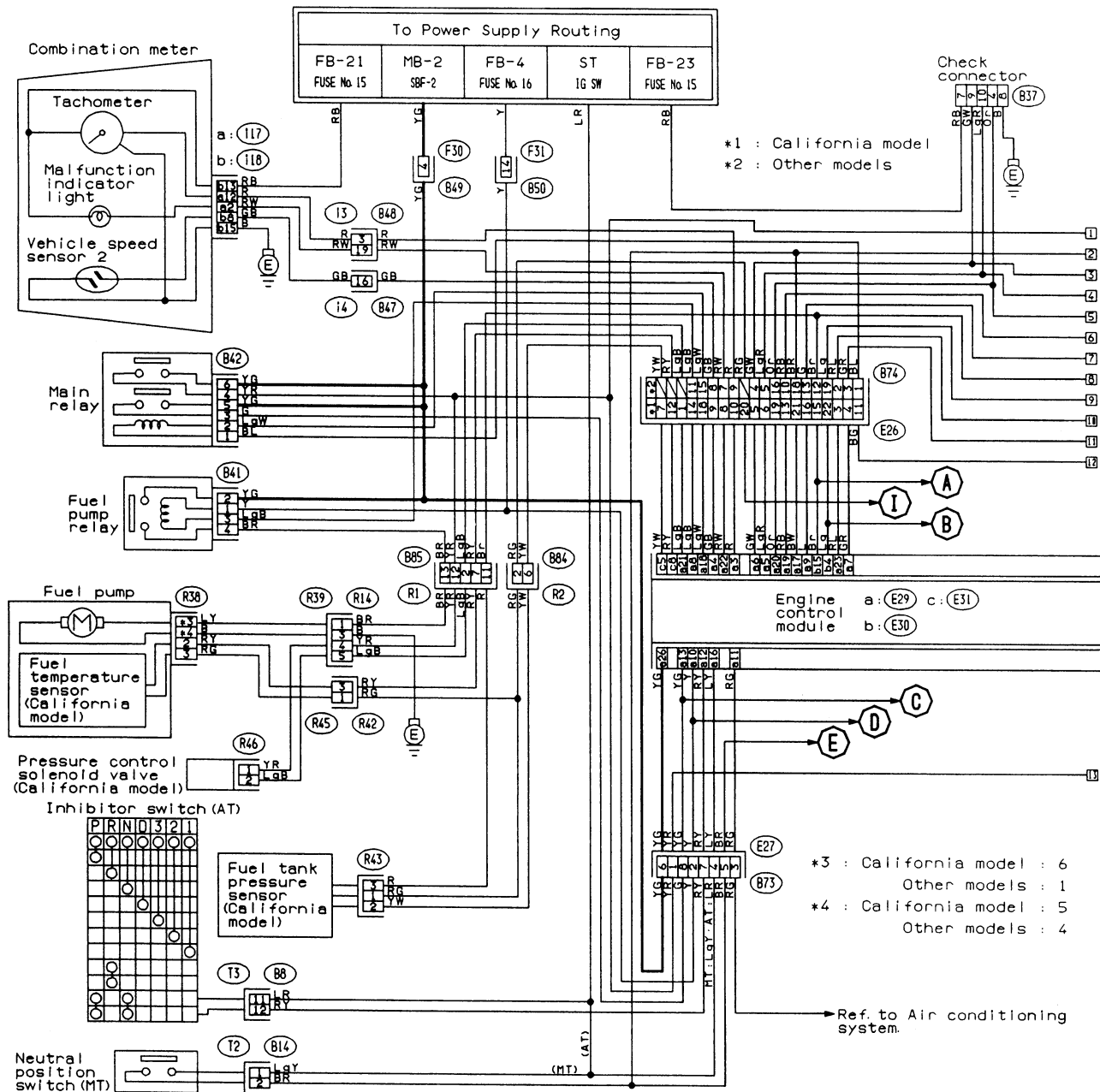


er Supply Routing	
7	MB-7
11	FUSE No. 25



13. ENGINE ELECTRICAL SYSTEM

● 1800 cc engine model



(Black) R46 B14 (Brown) R43 B41 (Green) R45 R14 (Black) R38 B42 (Brown)

1 2

1 2 3

1 2 3 4

1 2 3 4

1 2 3 4 5 6

1 2 3 4 5 6

1 2 3 4 5 6

F30 B73

B8 (Gray)

B84 (Black)

B37 (Gray)

(Gray) 117 118 (Gray)

1 2 3 4 5 6 7 8

1 2 3 4 5 6 7 8 9 10 11 12

1 2 3 4 5 6 7 8 9 10 11 12

1 2 3 4 5 6 7 8 9 10 11 12 13 14

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

B85 (Blue)

F31

14 13 (Blue)

(Other models)

(California model)

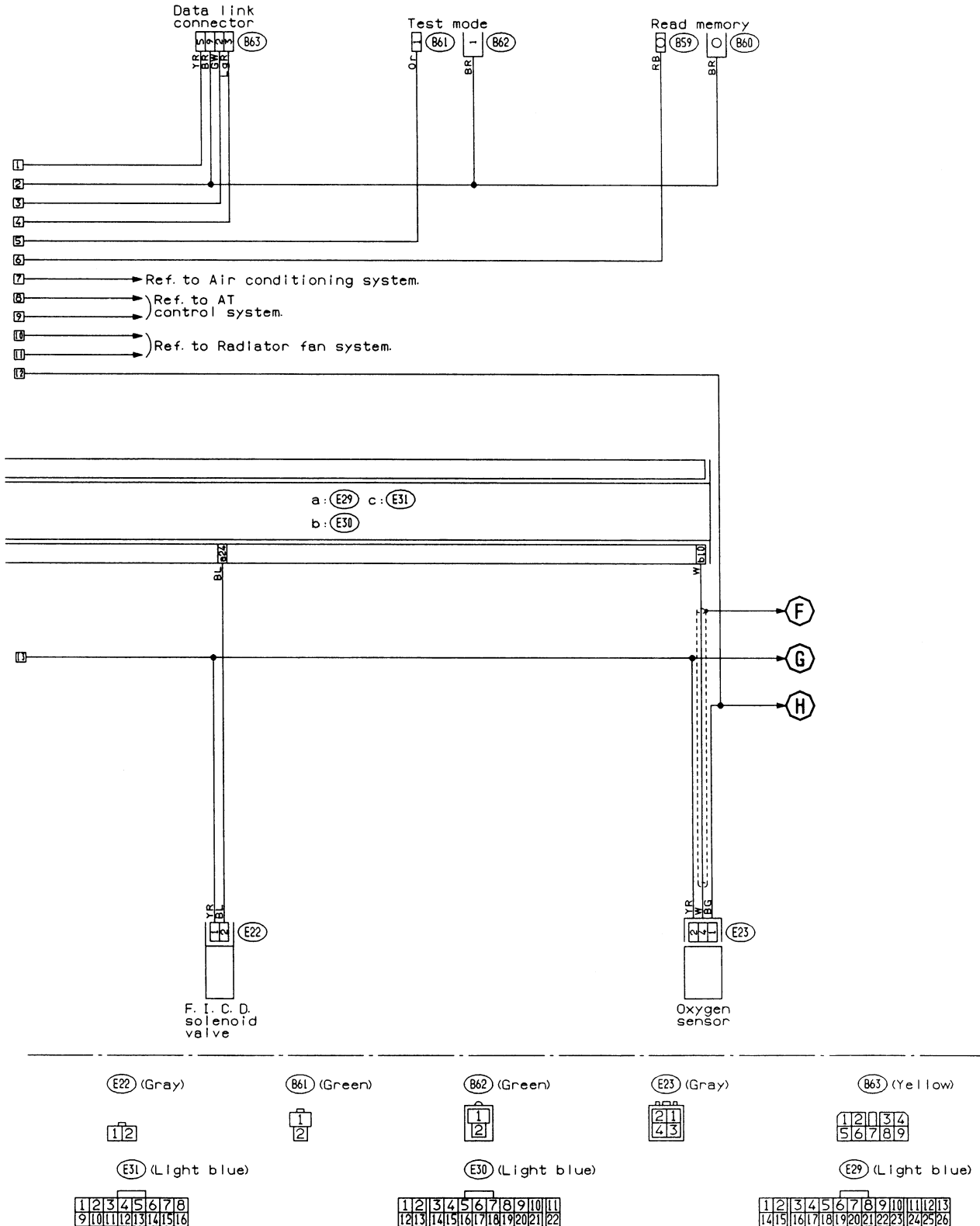
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

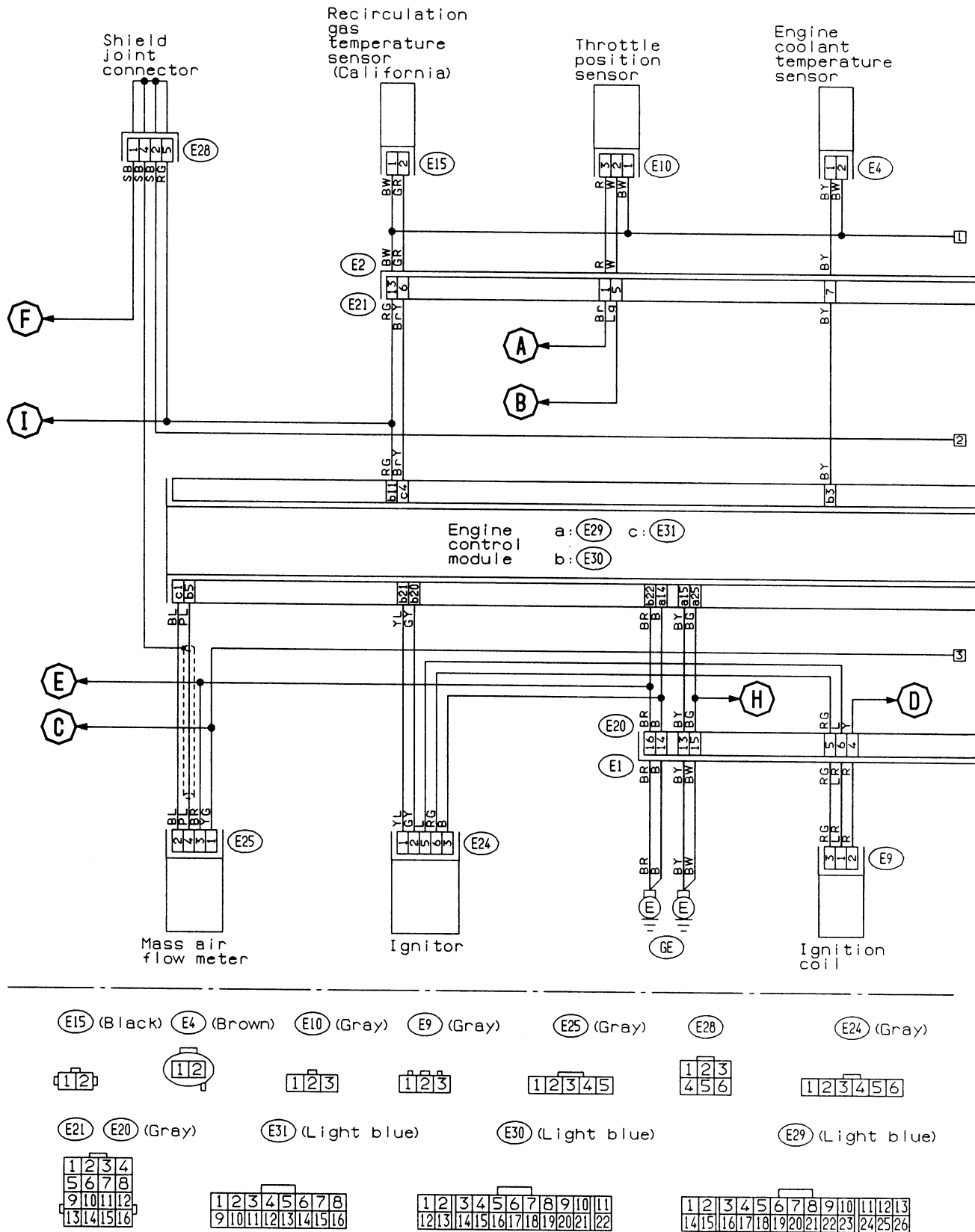
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

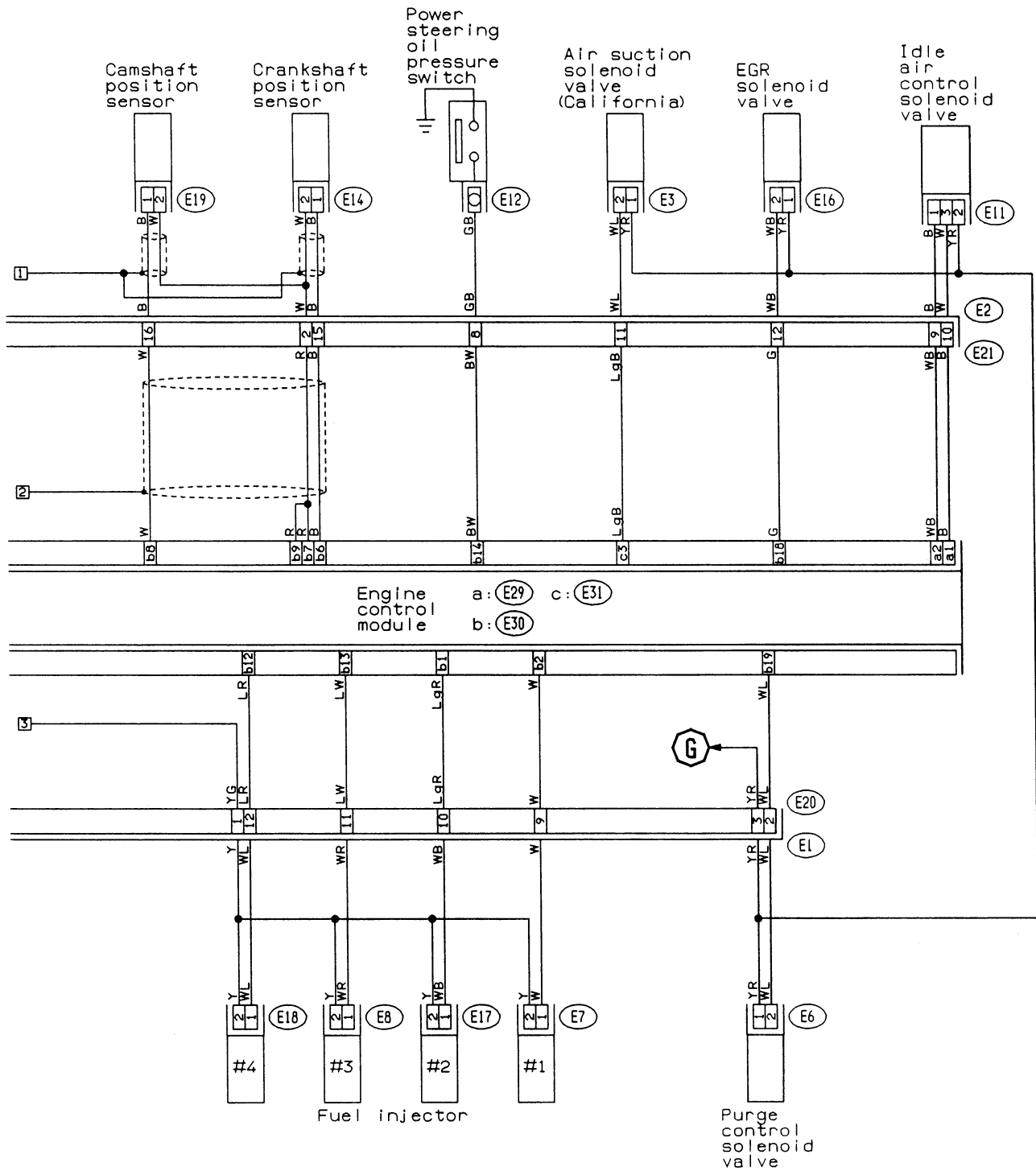
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24



5. Wiring Diagram

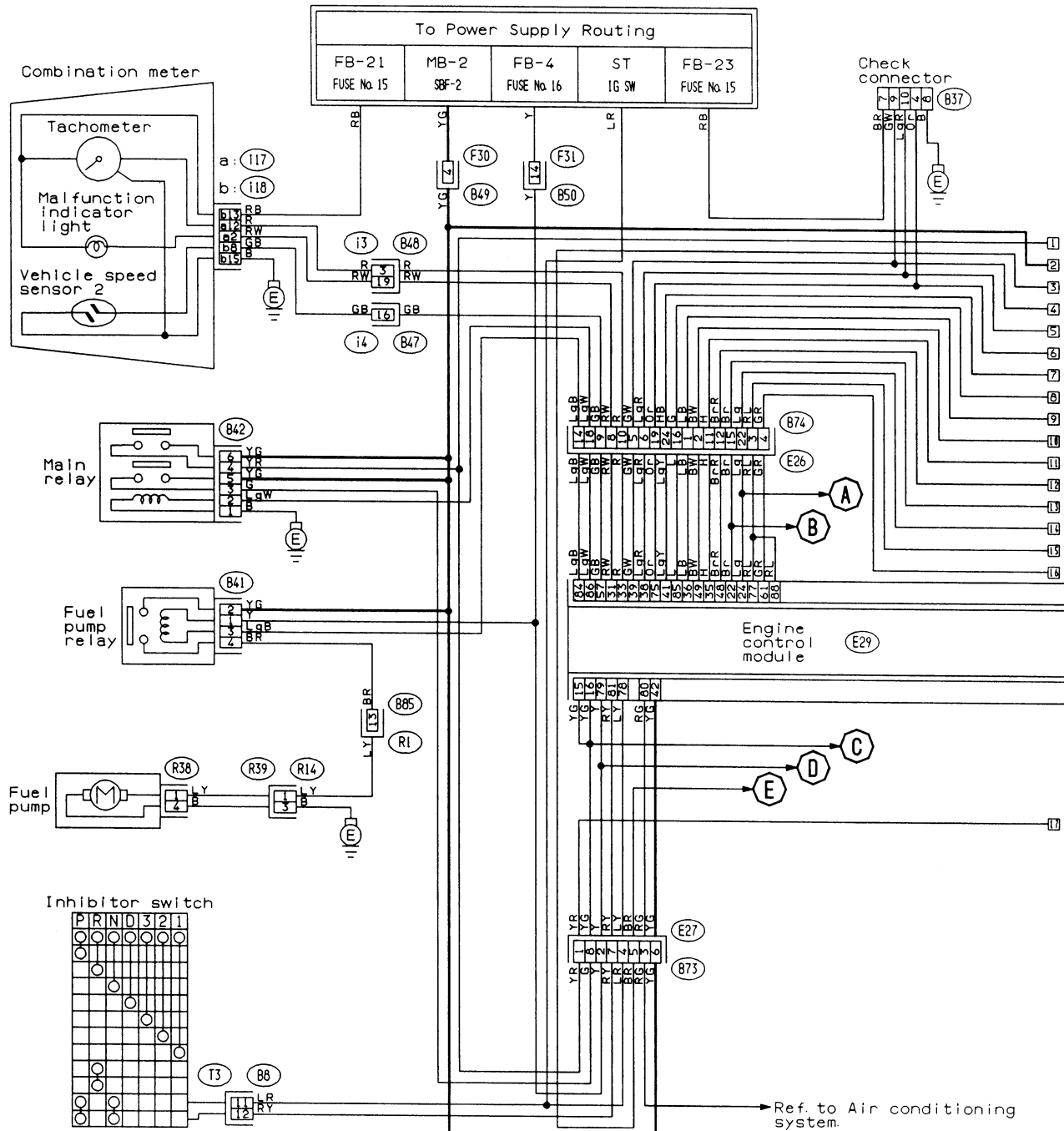




- | | | | | | |
|--------------|--------|------|--------------|-------------|--------------|
| (E19) (Gray) | (Gray) | (E7) | (E17) (Gray) | (E3) (Gray) | (E11) (Gray) |
| (E14) (Gray) | (Gray) | (E8) | (E18) (Gray) | (E6) (Blue) | |
| | | | | | |
| | | | | | |

13. ENGINE ELECTRICAL SYSTEM

● 2200 cc engine model



(B41) (Green) (R14) (Black) (R38) (B42) (Brown) (F30) (B73) (B8) (Gray) (B37) (Gray)

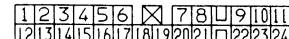
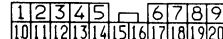
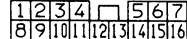
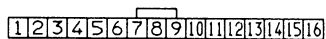


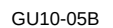
(Gray) (i17) (i18) (Gray)

(F31) (B85) (Blue)

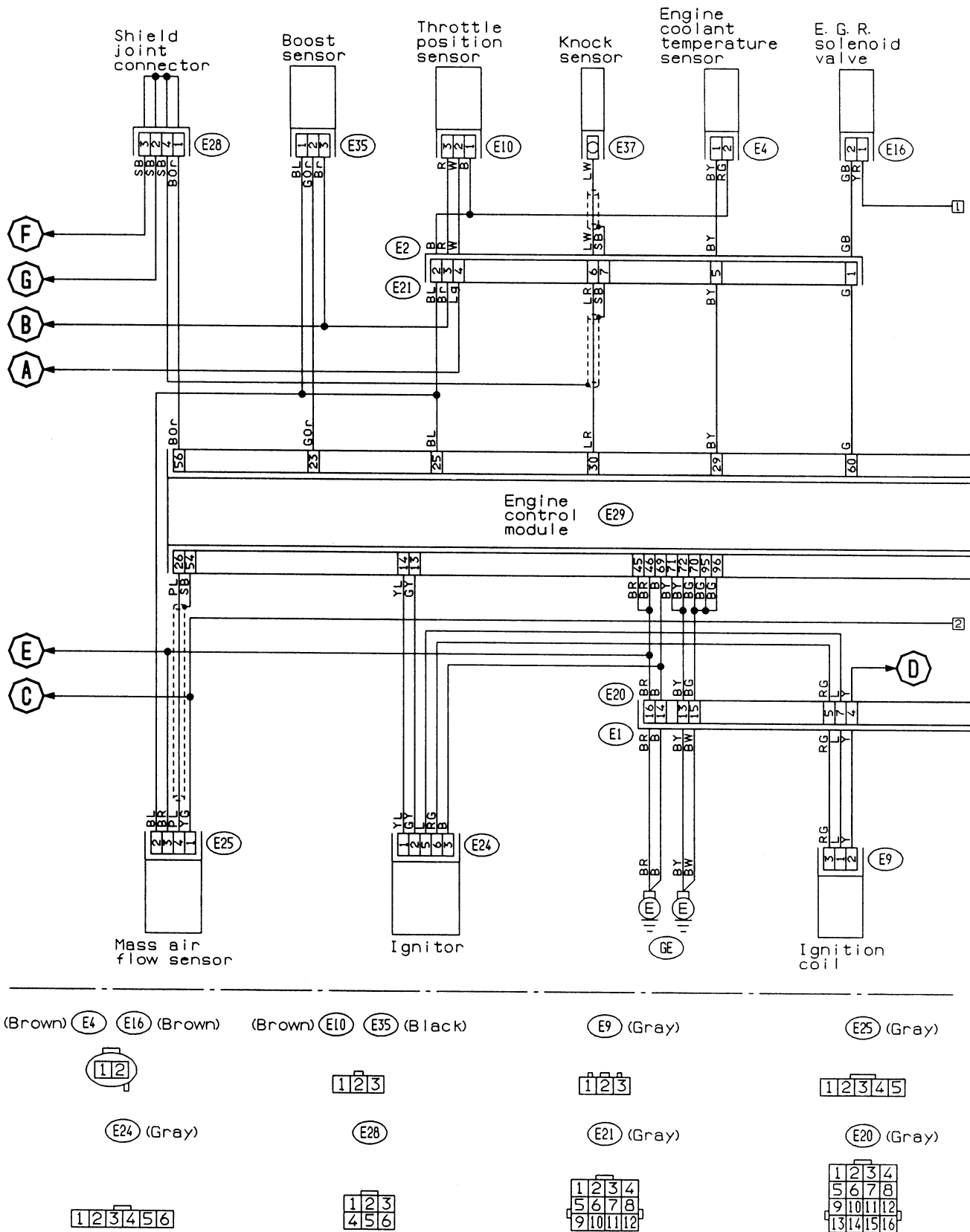
(i4) (i3) (Blue)

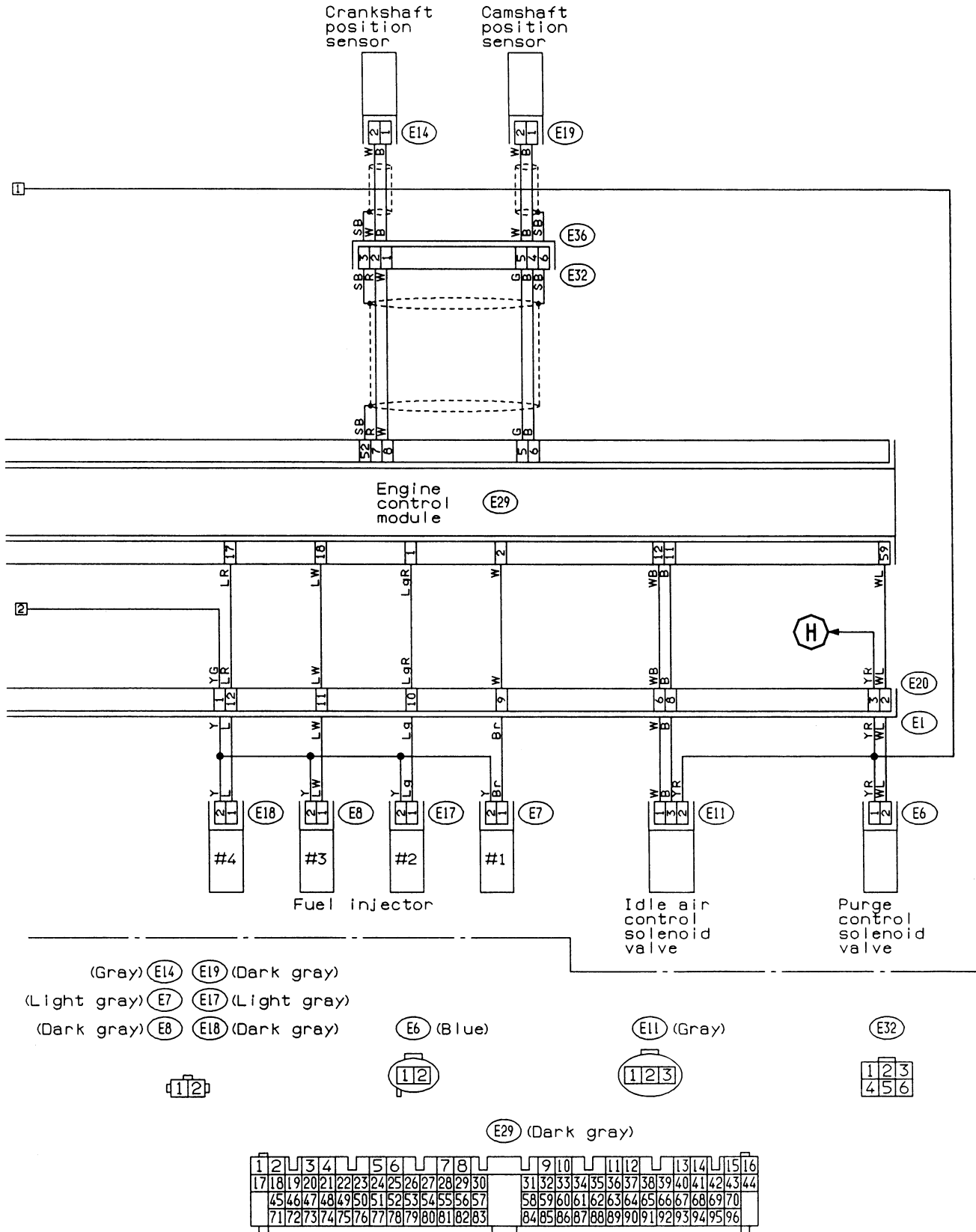
(B74)



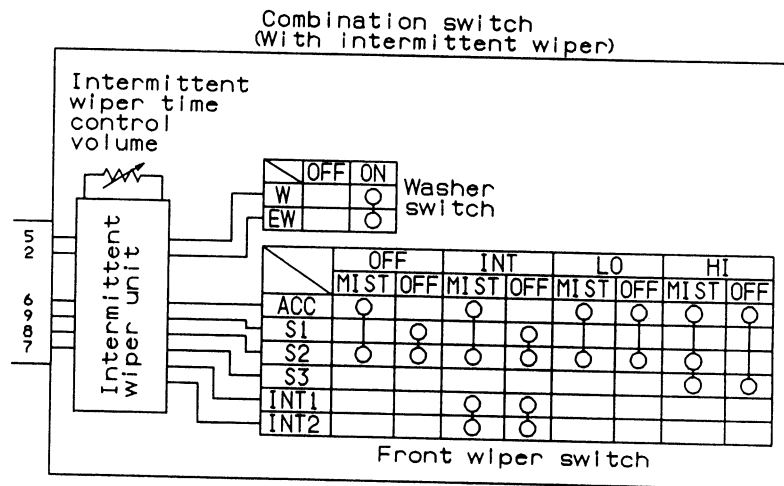
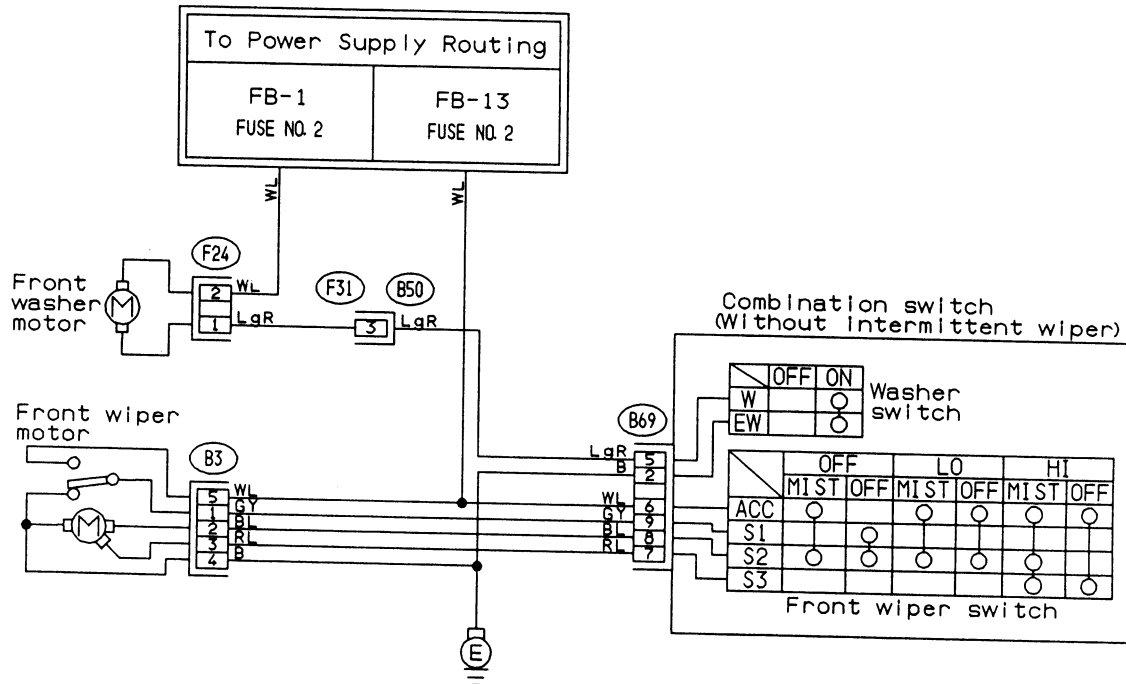


5. Wiring Diagram





14. FRONT WIPER AND WASHER SYSTEM

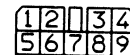
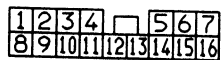


F24
(Green)

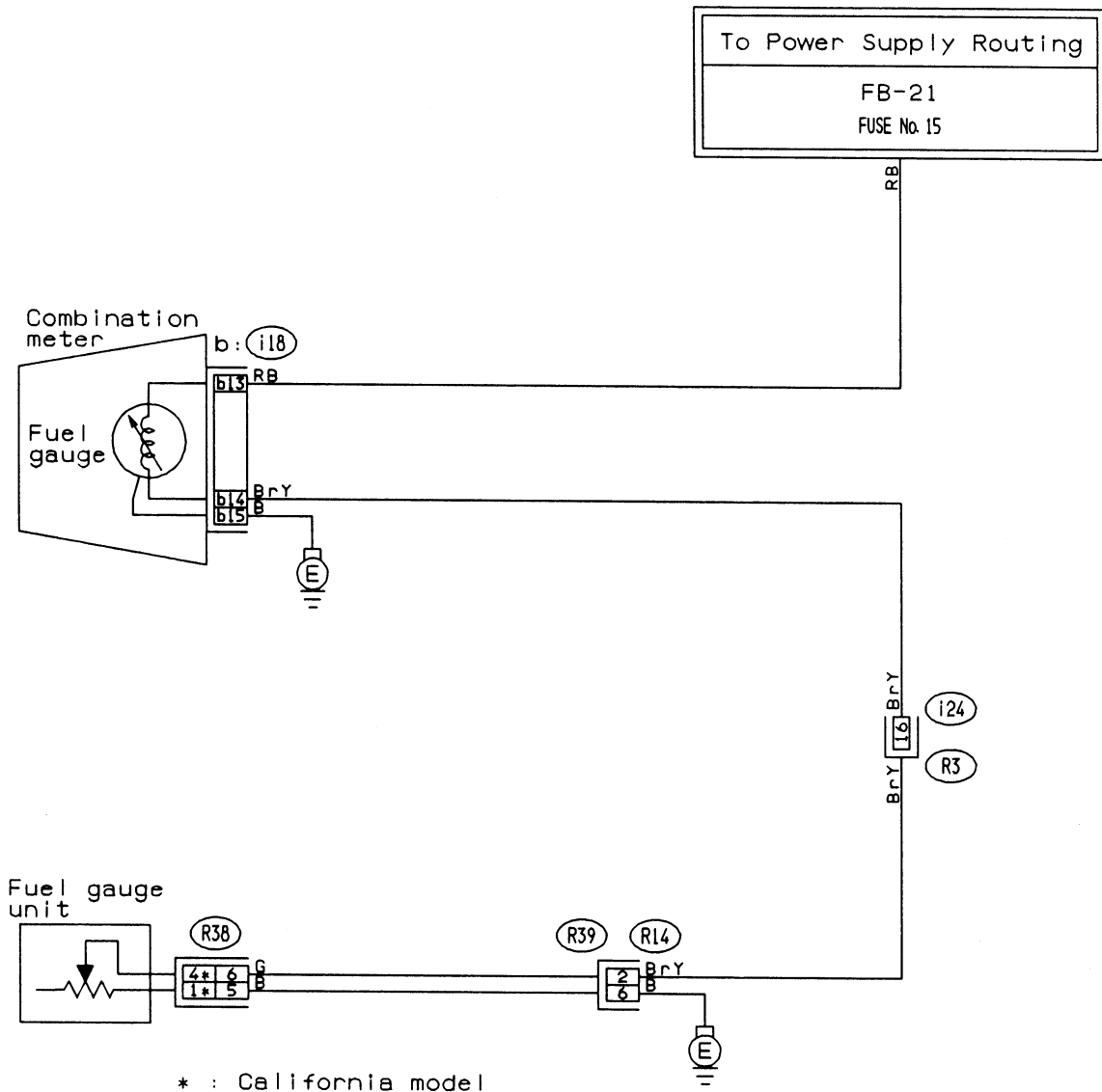
F31

B3

B69



15. FUEL GAUGE SYSTEM



R14 (Black)

R38

i18 (Gray)

i24

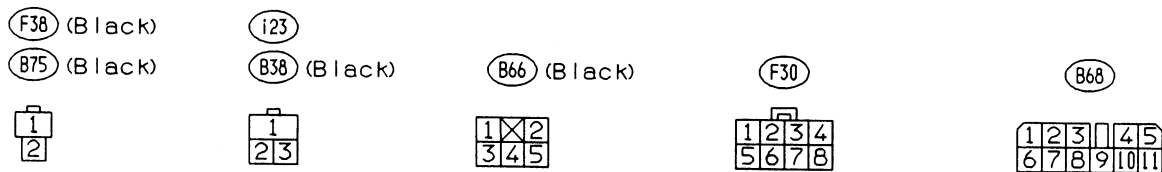
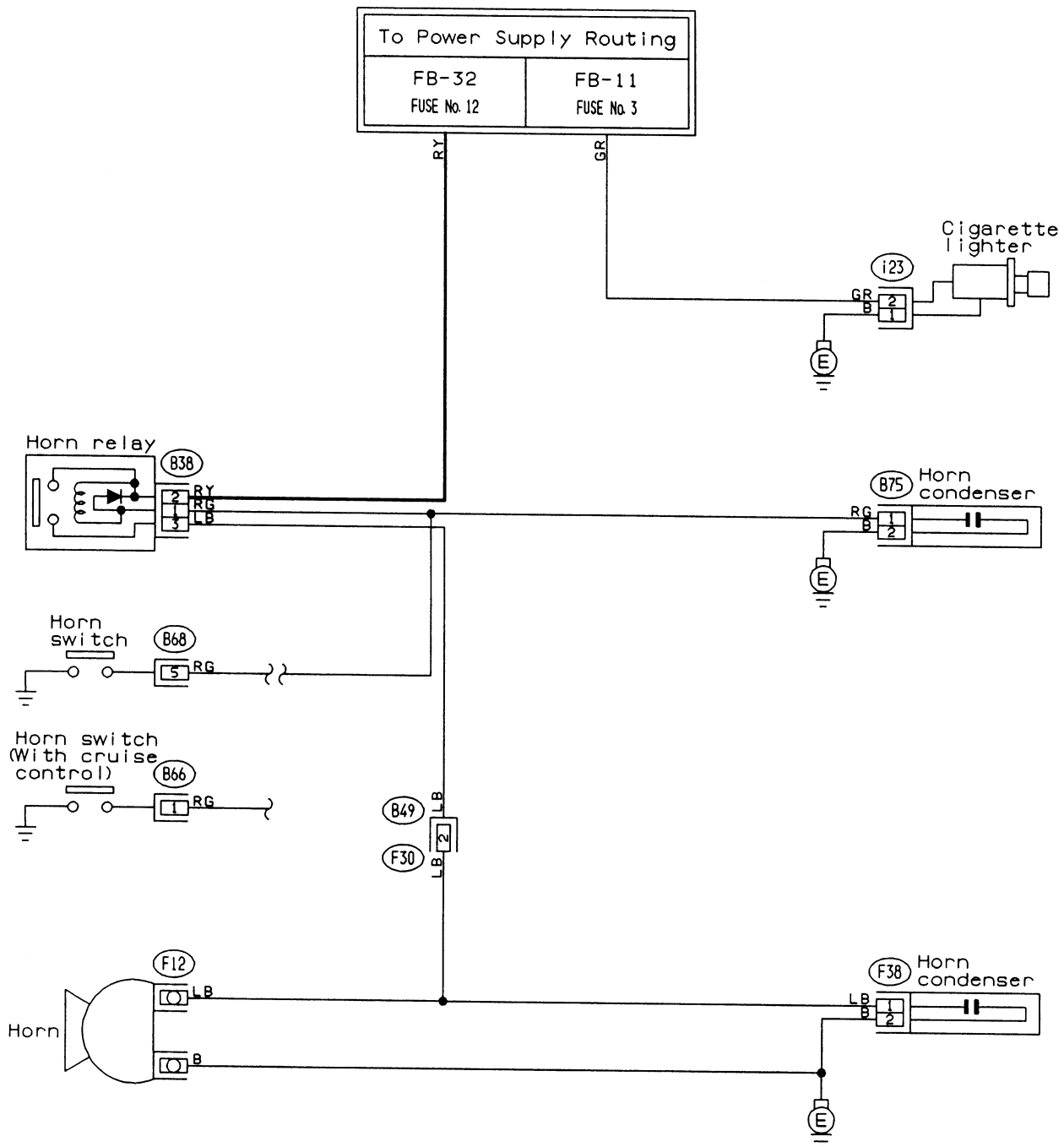
1	2	3
4	5	6

1	2	3
4	5	6

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----

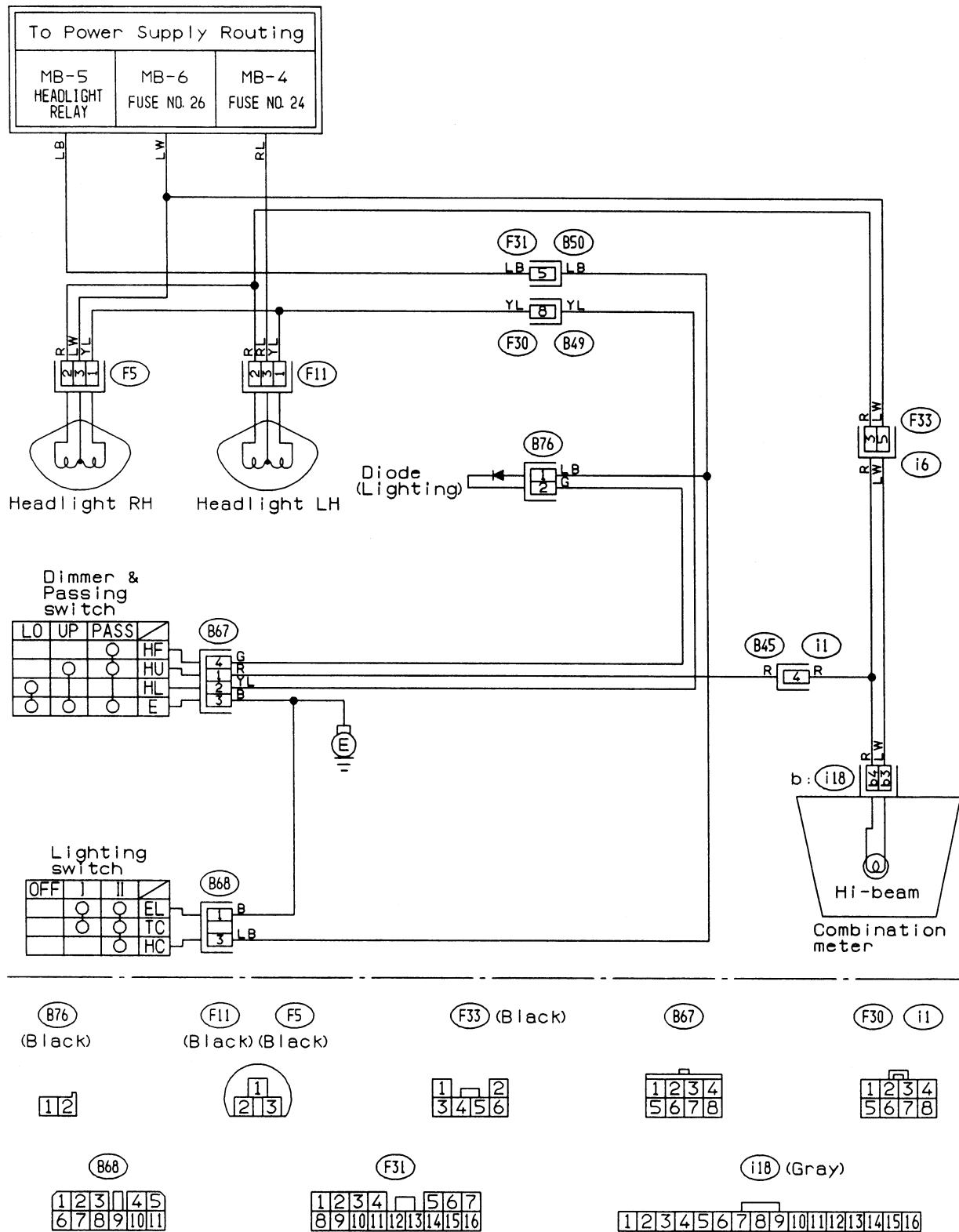
1	2	3	4			5	6	7
8	9	10	11	12	13	14	15	16

16. HORN AND CIGARETTE LIGHTER SYSTEM



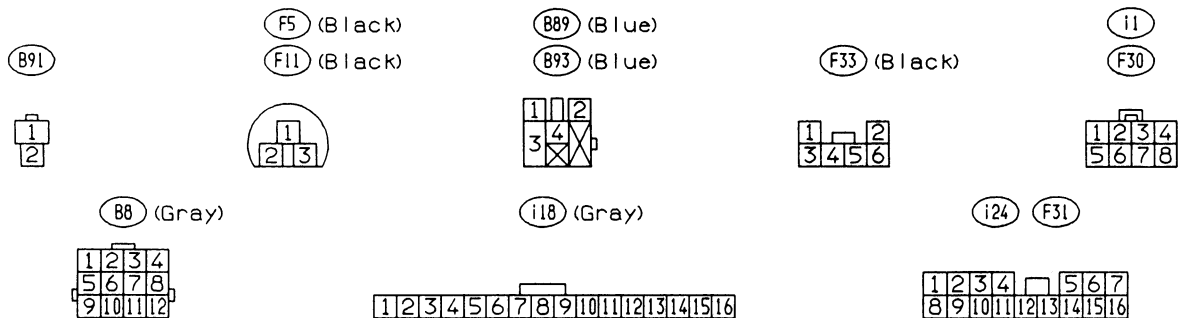
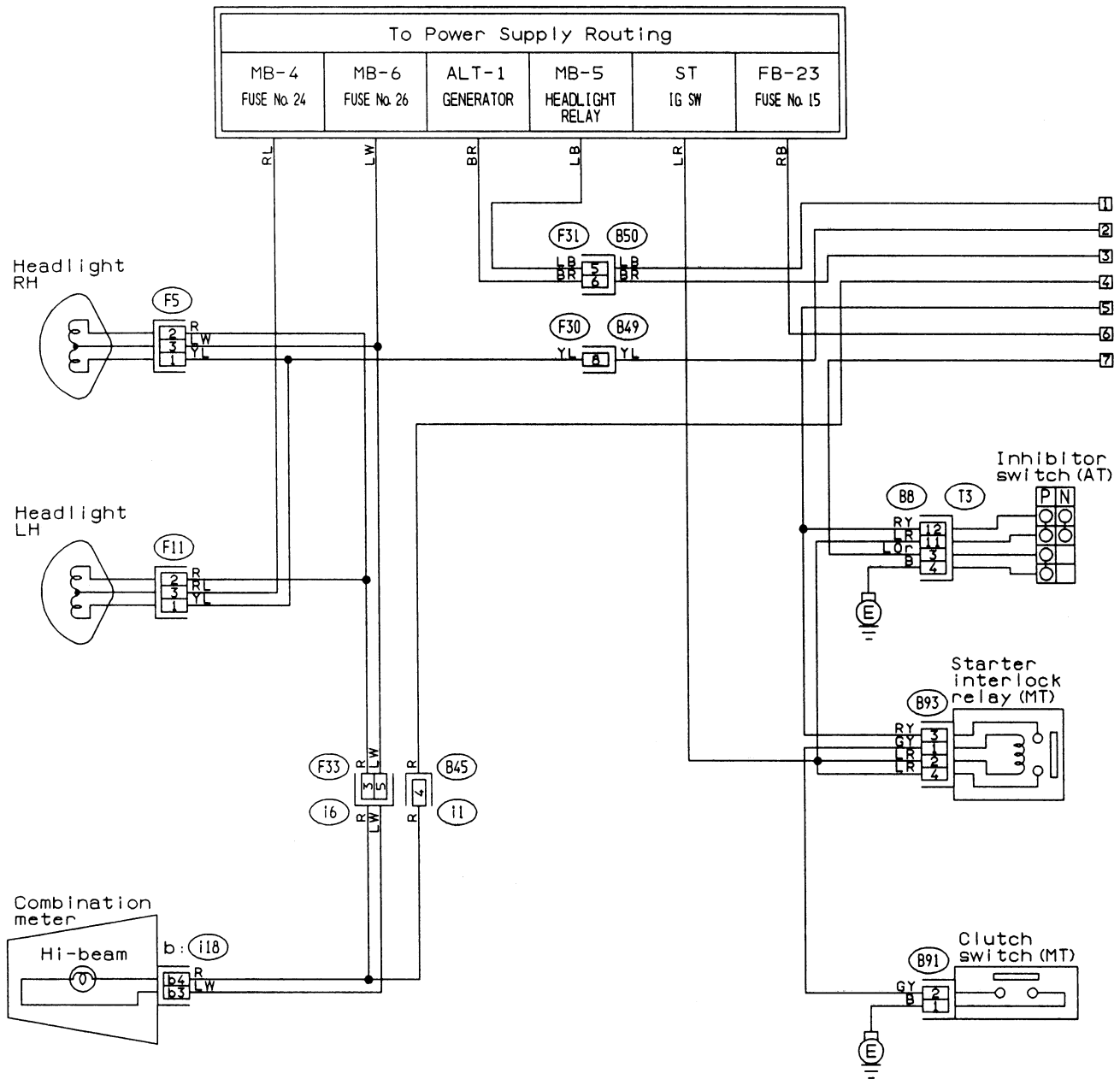
17. LIGHTING (HEADLIGHT) SYSTEM

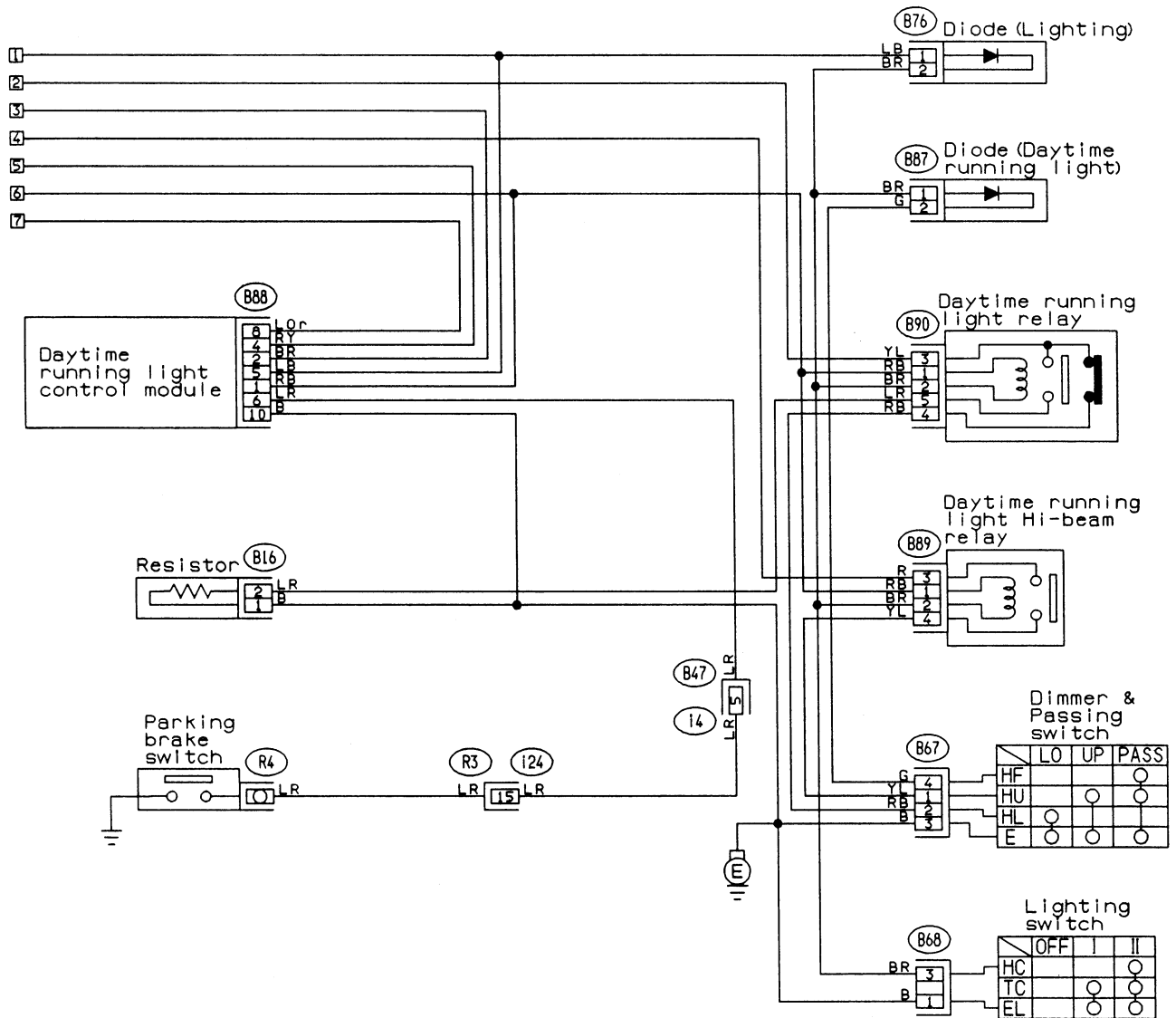
● U.S.A. model



17. LIGHTING (HEADLIGHT) SYSTEM

● Canada model





(B76) (Black)

(B87) (Black)

(B16) (Gray)

(B90) (Black)

(B67)

(B88)

1 2

1 2

1 2
3 4
5 6

1 2 3 4
5 6 7 8

1 2 3 4 5
6 7 8 9 10

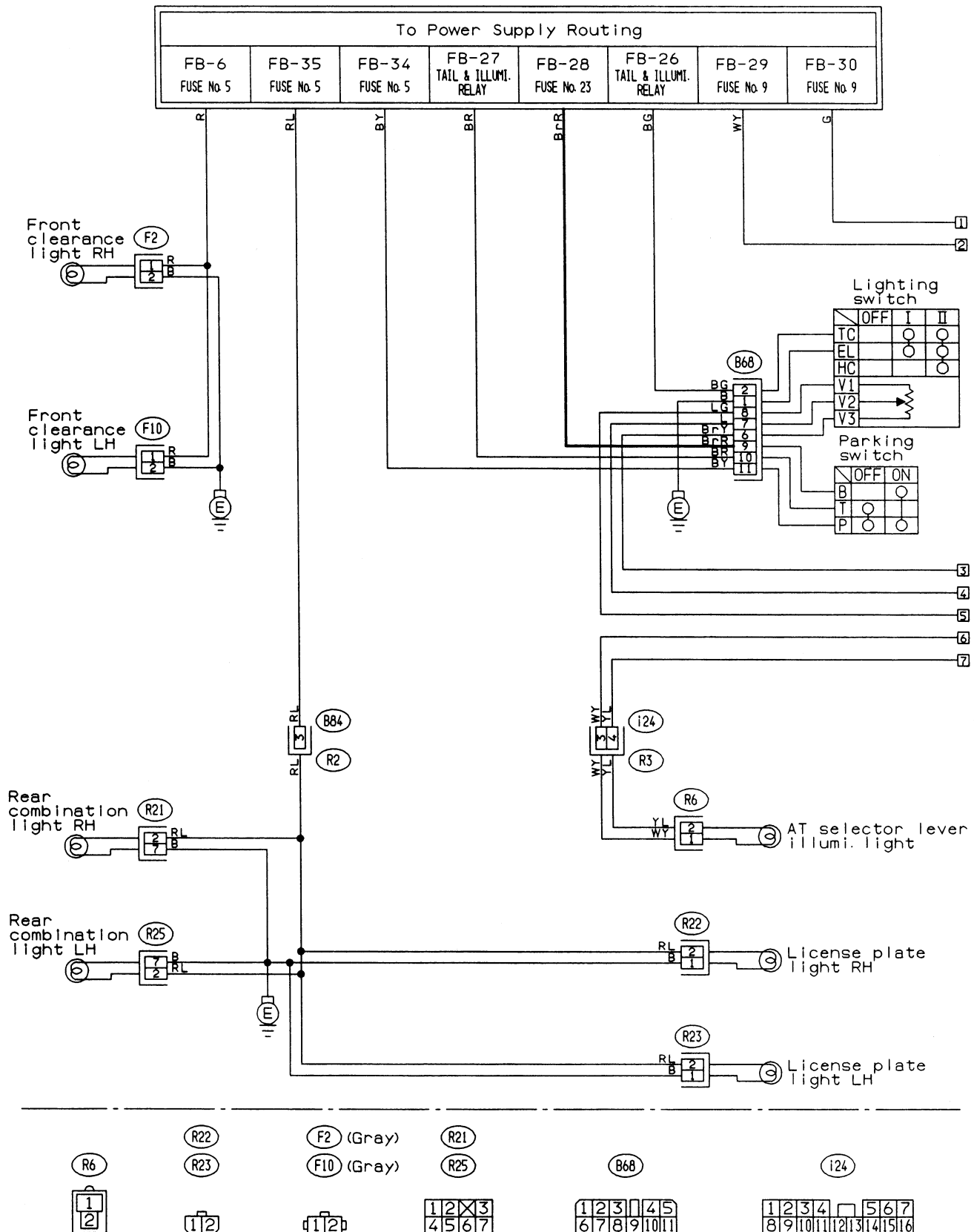
(B68)

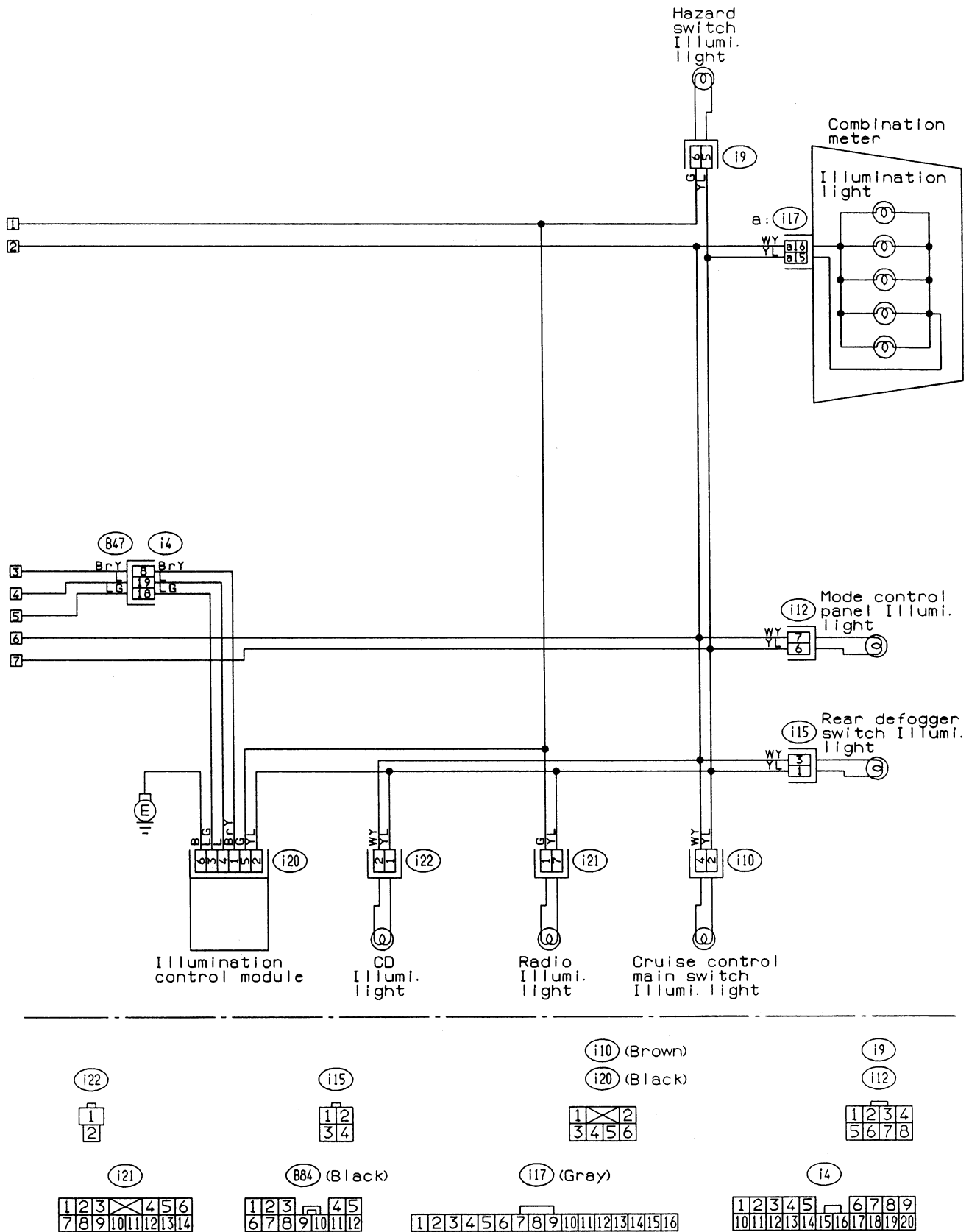
1 2 3 4 5
6 7 8 9 10 11

(i4)

1 2 3 4 5 6 7 8 9
10 11 12 13 14 15 16 17 18 19 20

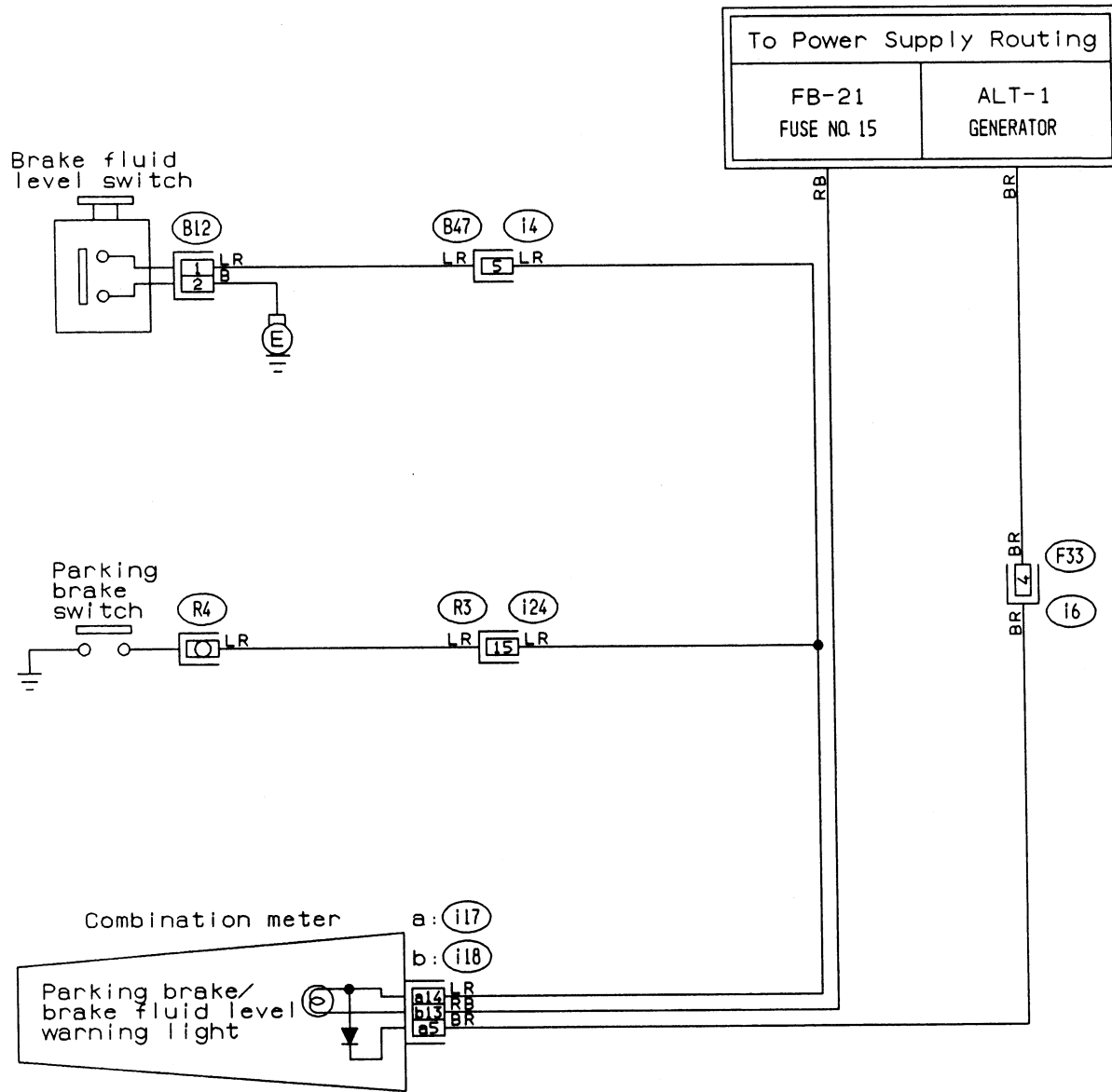
18. LIGHTING (TAIL LIGHT-ILLUMINATION LIGHT-etc.) SYSTEM







20. PARKING BRAKE AND BRAKE FLUID LEVEL WARNING SYSTEM



B12 (Gray)

F33 (Black)

i17 (Gray)

i18 (Gray)

12

1 2
3 4 5 6

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

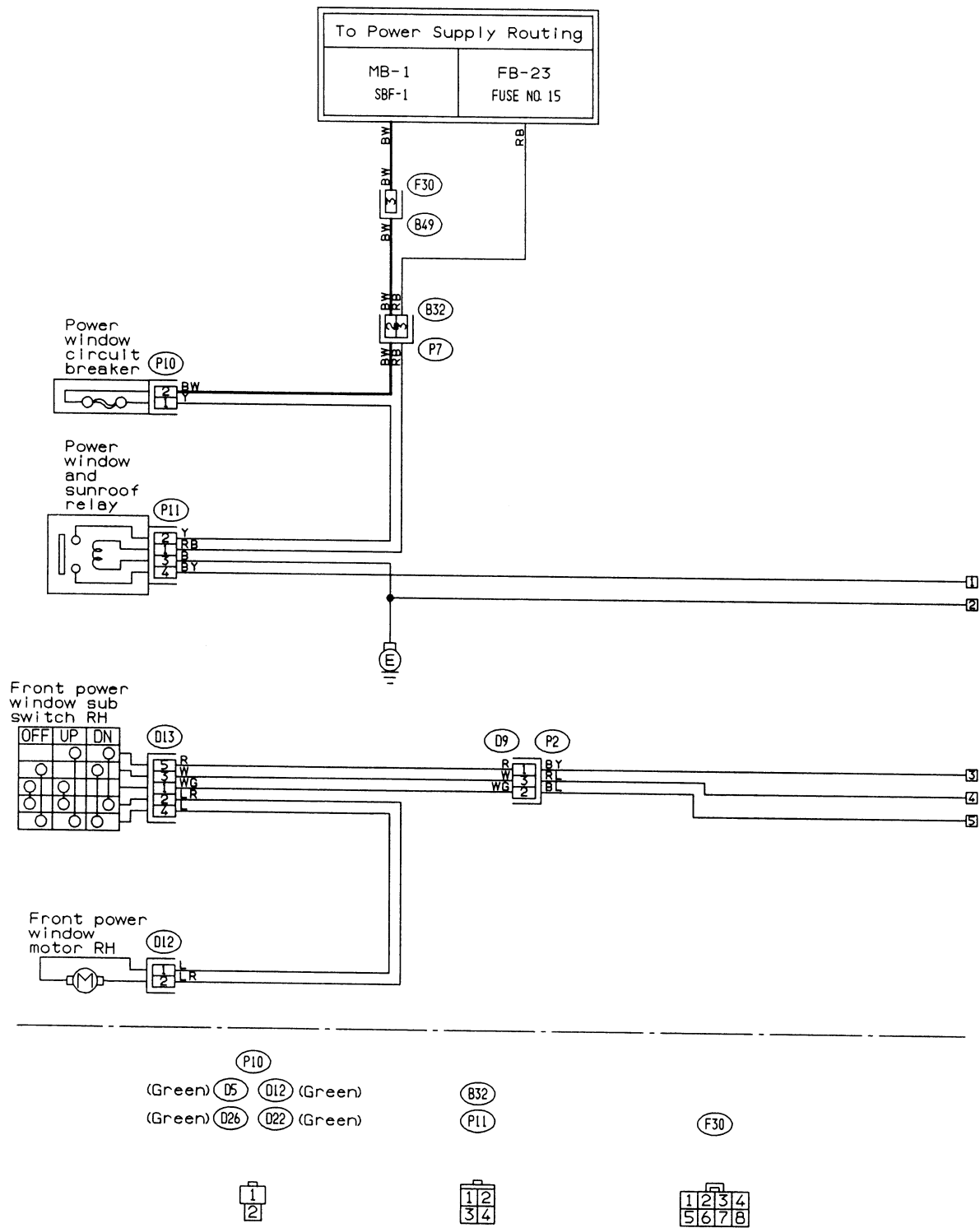
i24

1 2 3 4 5 6 7
8 9 10 11 12 13 14 15 16

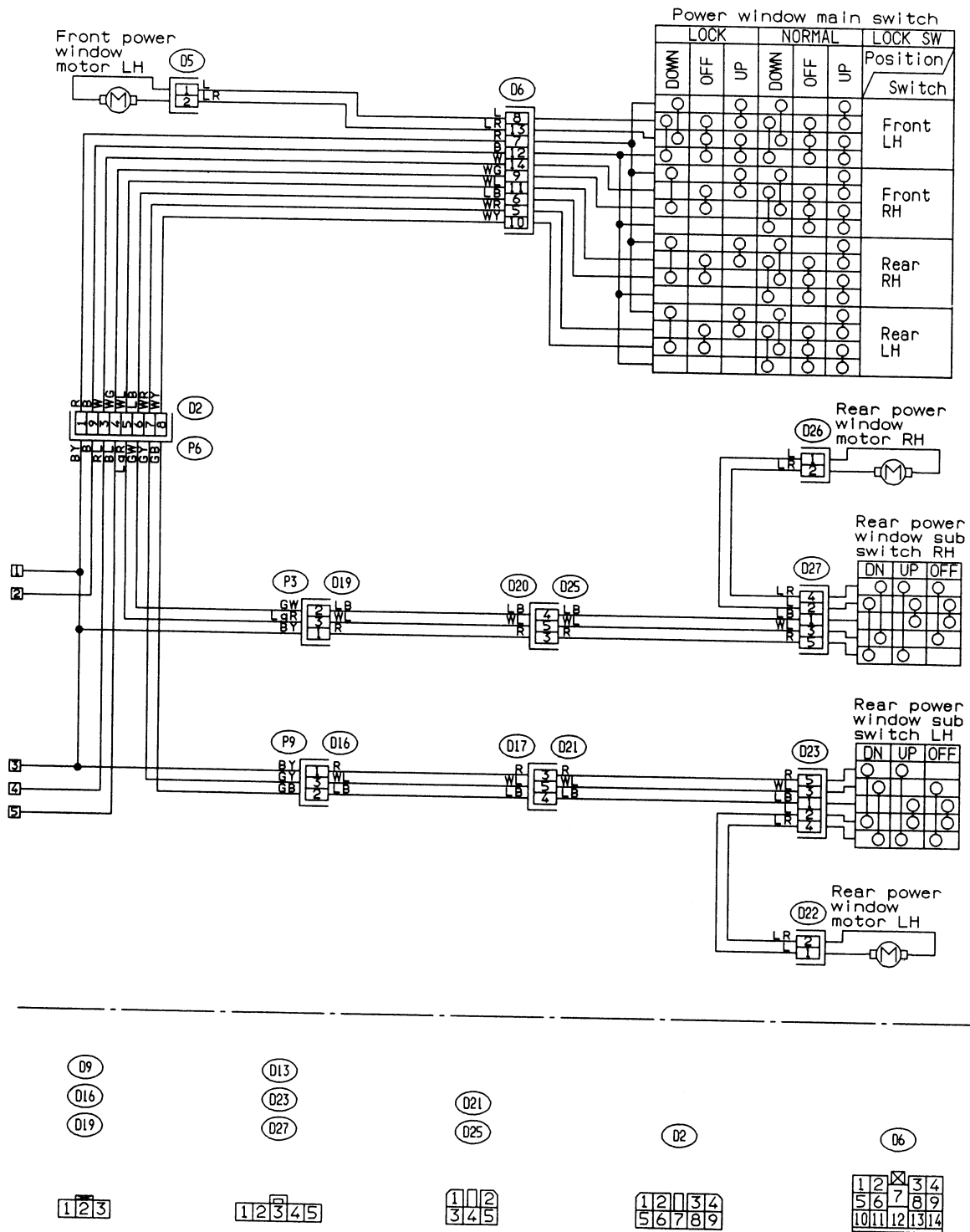
i4

1 2 3 4 5 6 7 8 9
10 11 12 13 14 15 16 17 18 19 20

21. POWER WINDOW SYSTEM



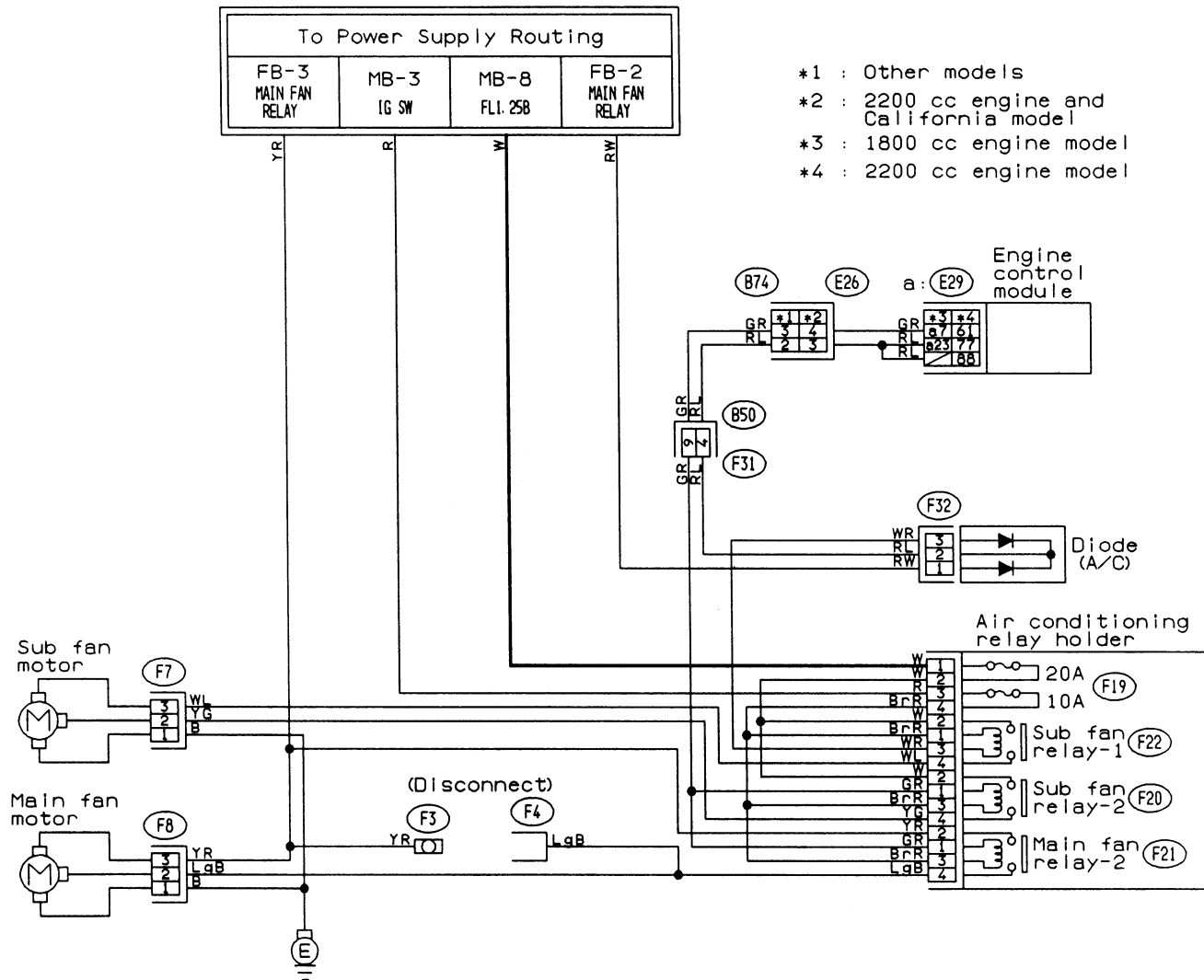
GU70-01A



GU70-01B

22. RADIATOR FAN SYSTEM

● With A/C



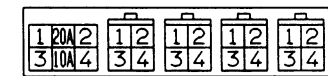
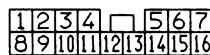
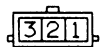
(F7) (Black)

(F8) (Black)

(F32) (Orange)

(F31)

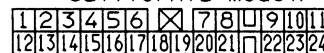
(F19) (F20) (F21) (F22) (F23)



A/C relay holder (Black)

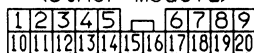
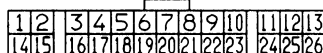
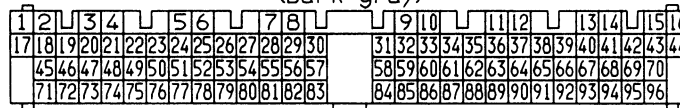
(B74)

(2200 cc engine and California model)



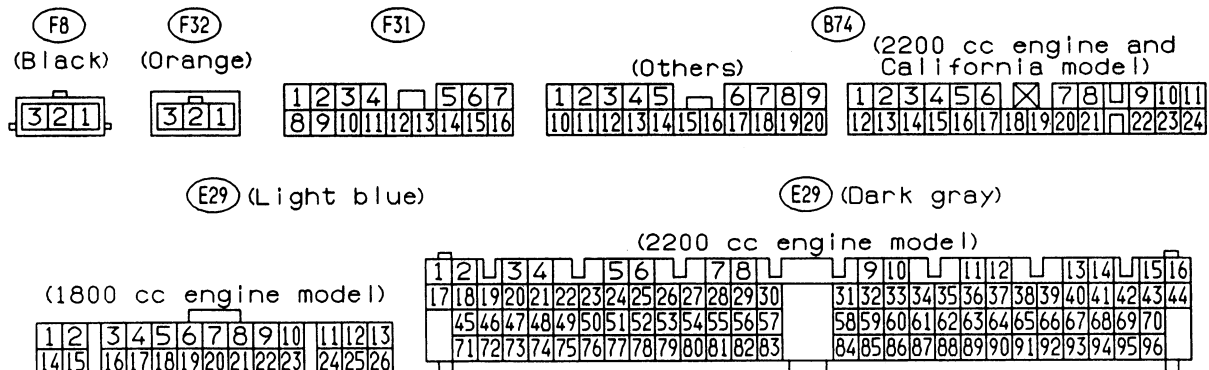
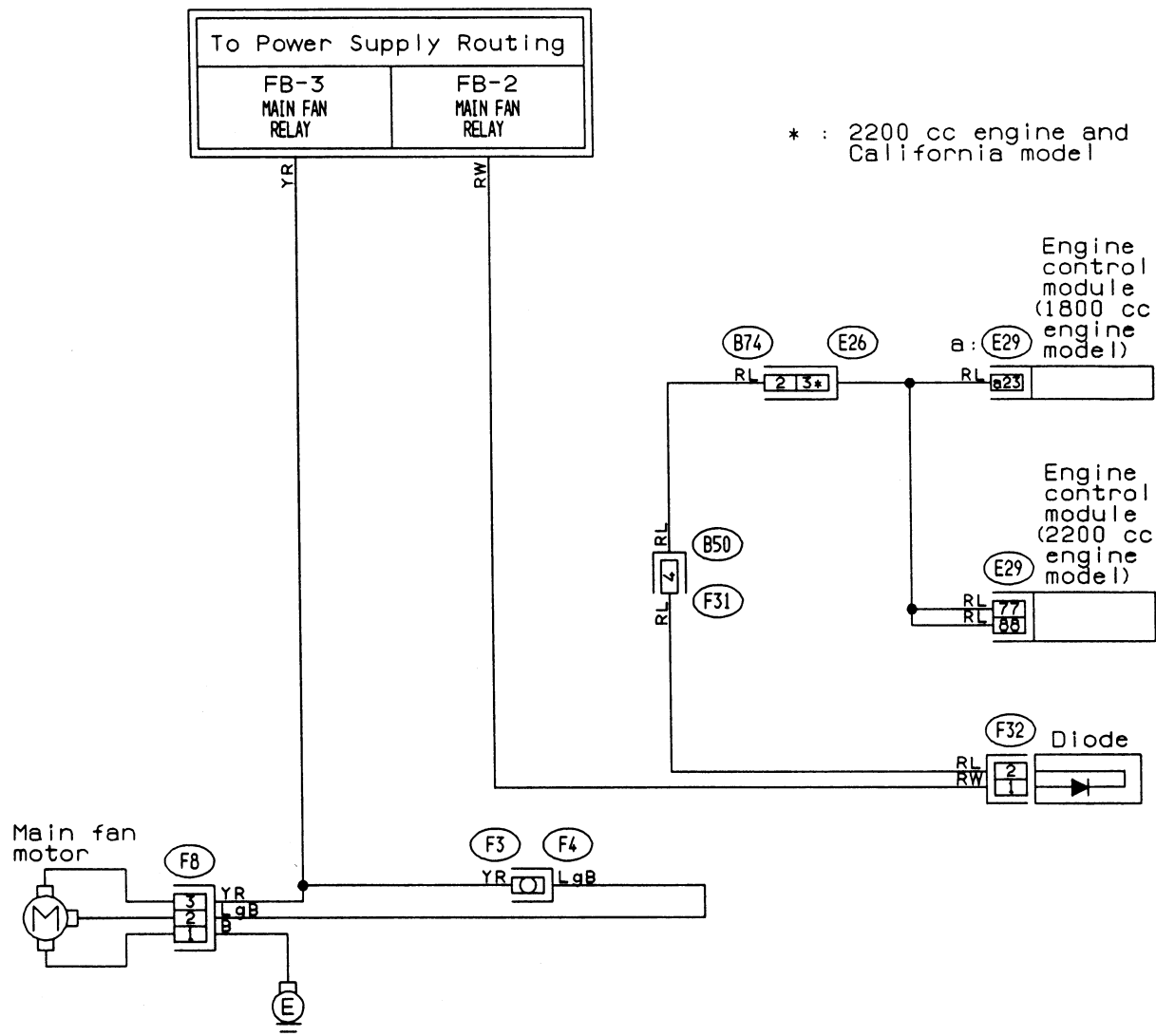
(E29)

(Other models)

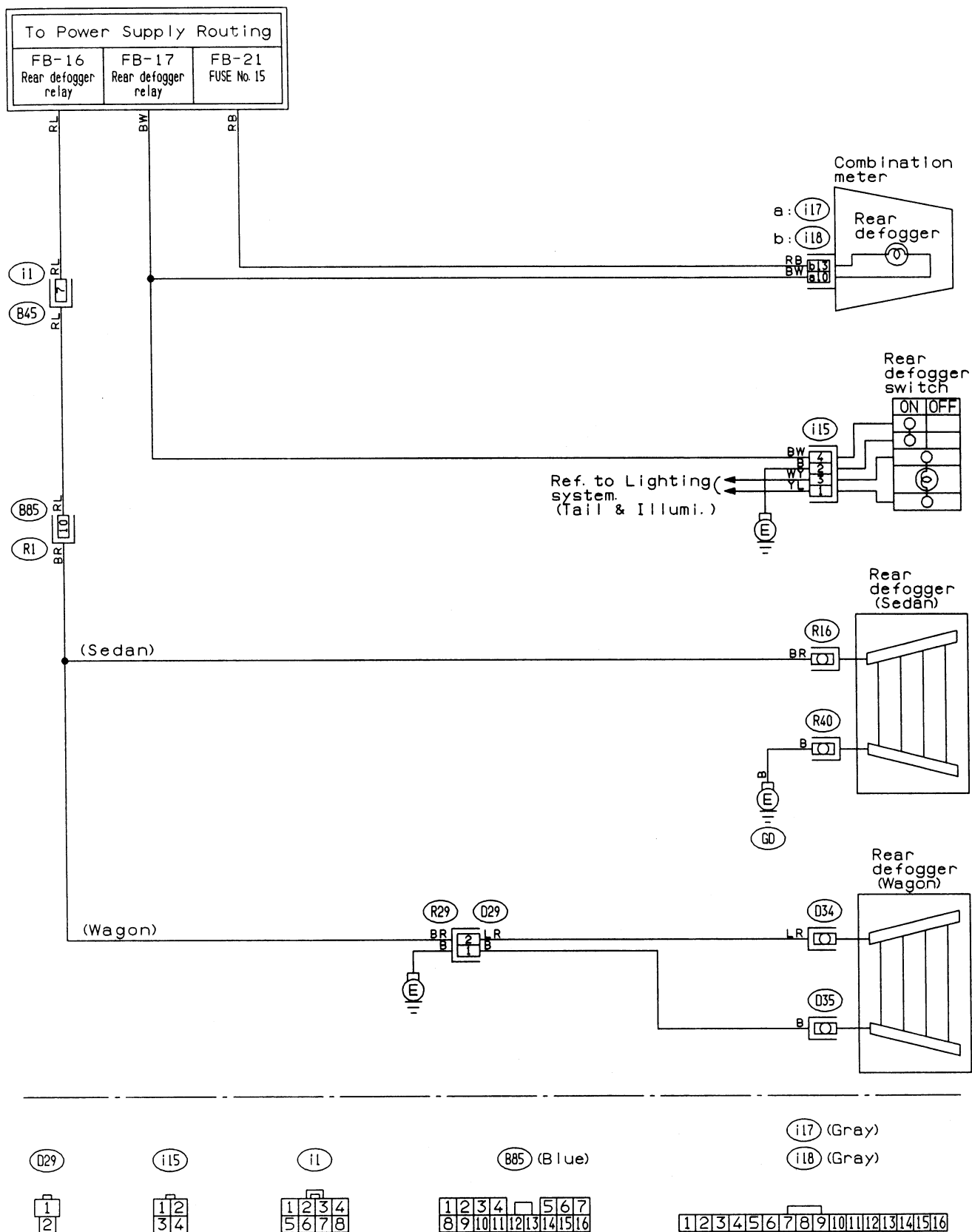
(1800 cc engine model)
(Light blue)(2200 cc engine model)
(Dark gray)

22. RADIATOR FAN SYSTEM

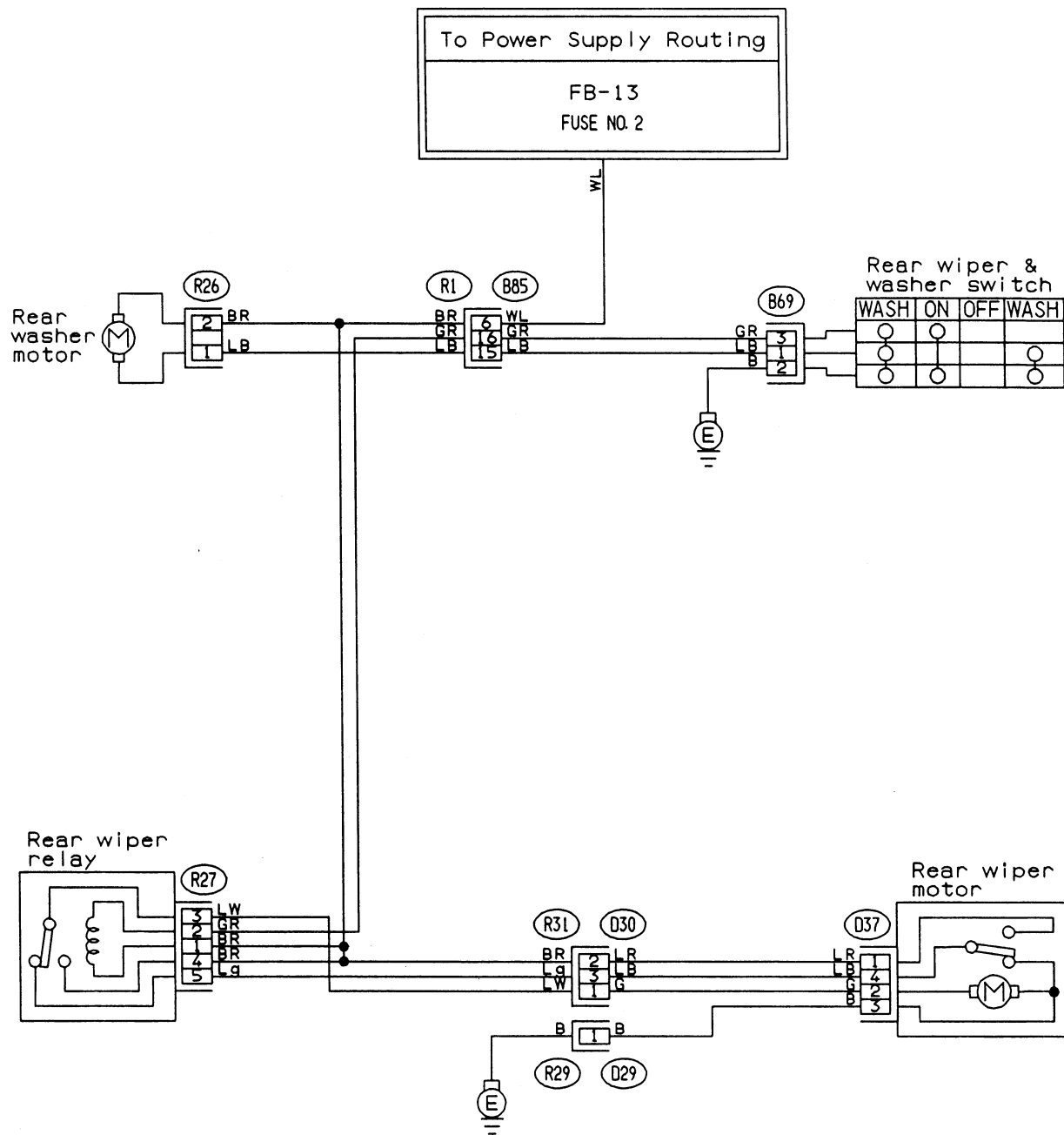
● Without A/C



23. REAR WINDOW DEFOGGER SYSTEM



24. REAR WIPER AND WASHER SYSTEM



(R26) (Green)

(D29)

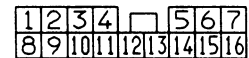
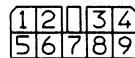
(D37)

(D30)

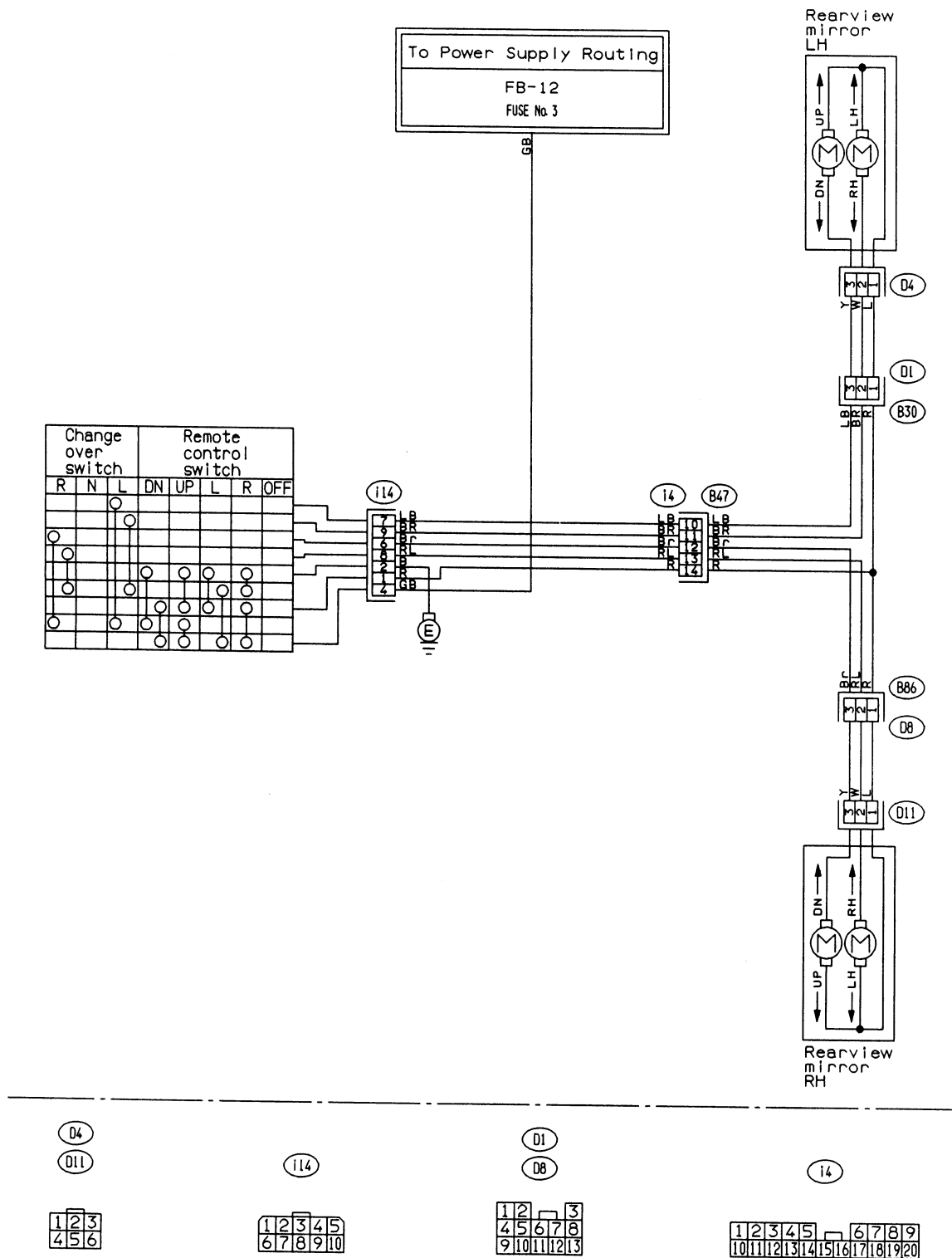
(R27) (Black)

(B69)

(B85) (Blue)

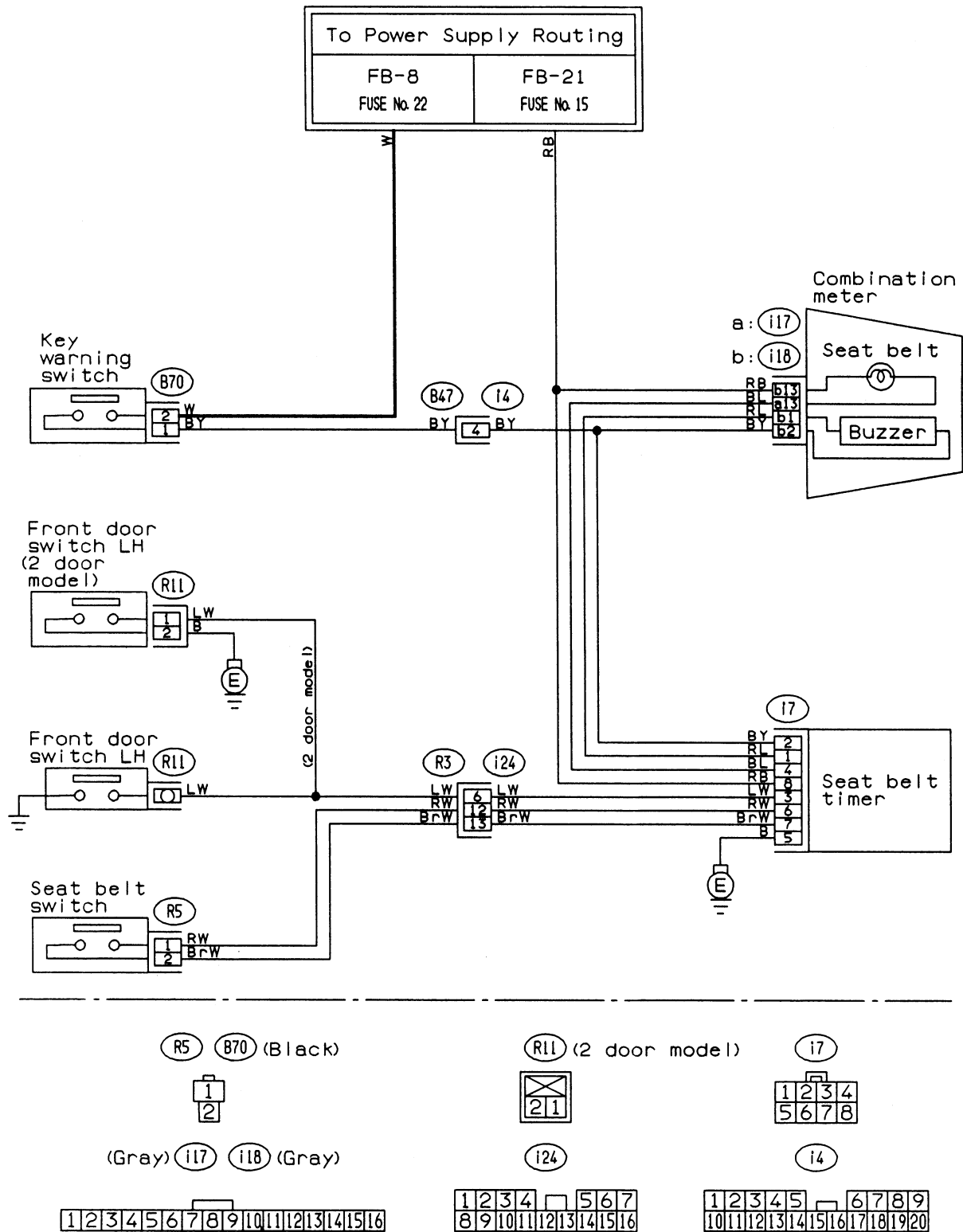


25. REMOTE CONTROL REARVIEW MIRROR SYSTEM

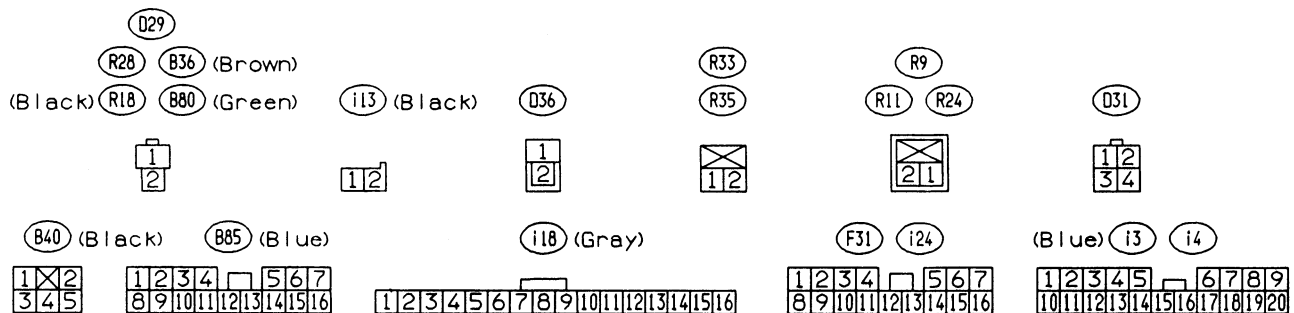
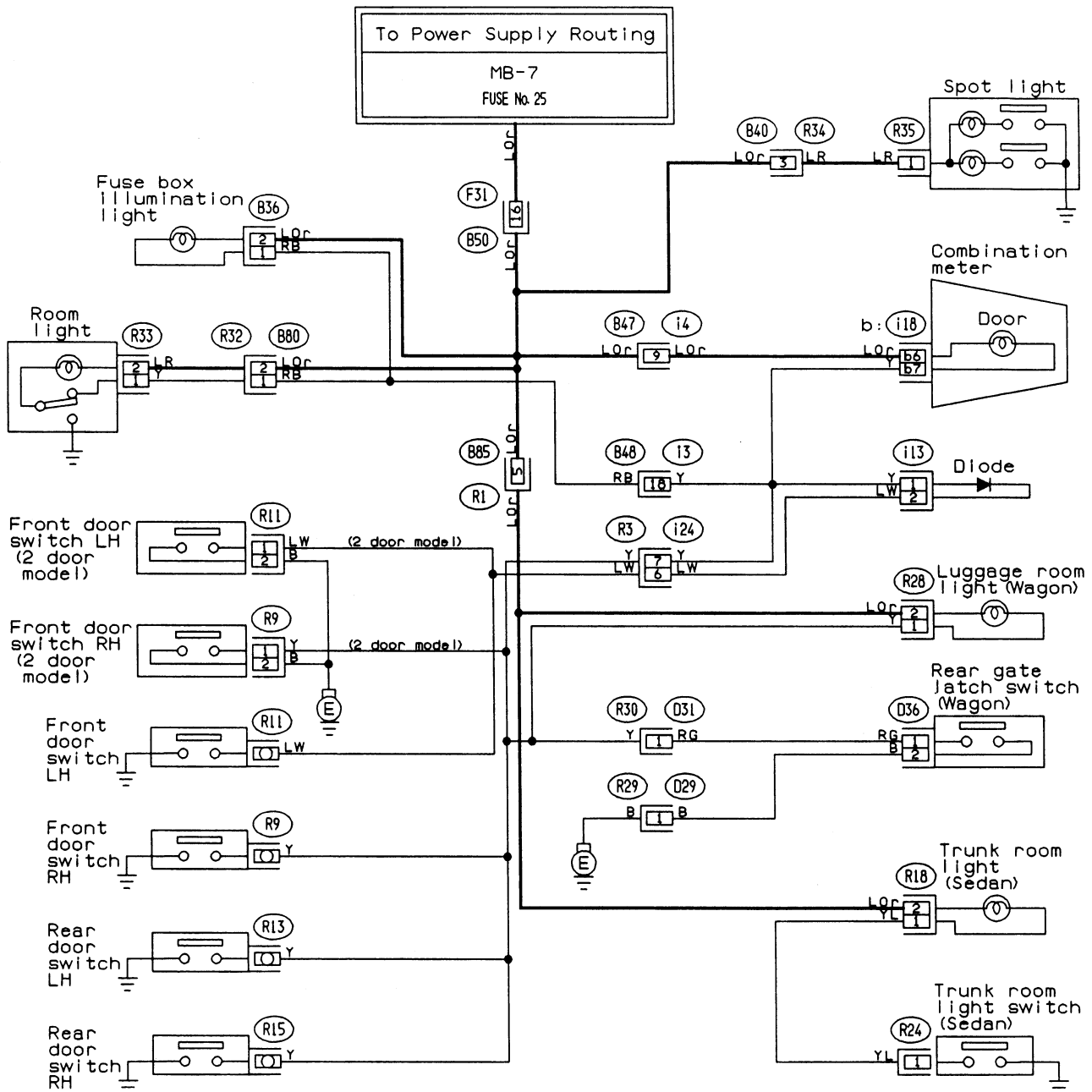


GU79-01

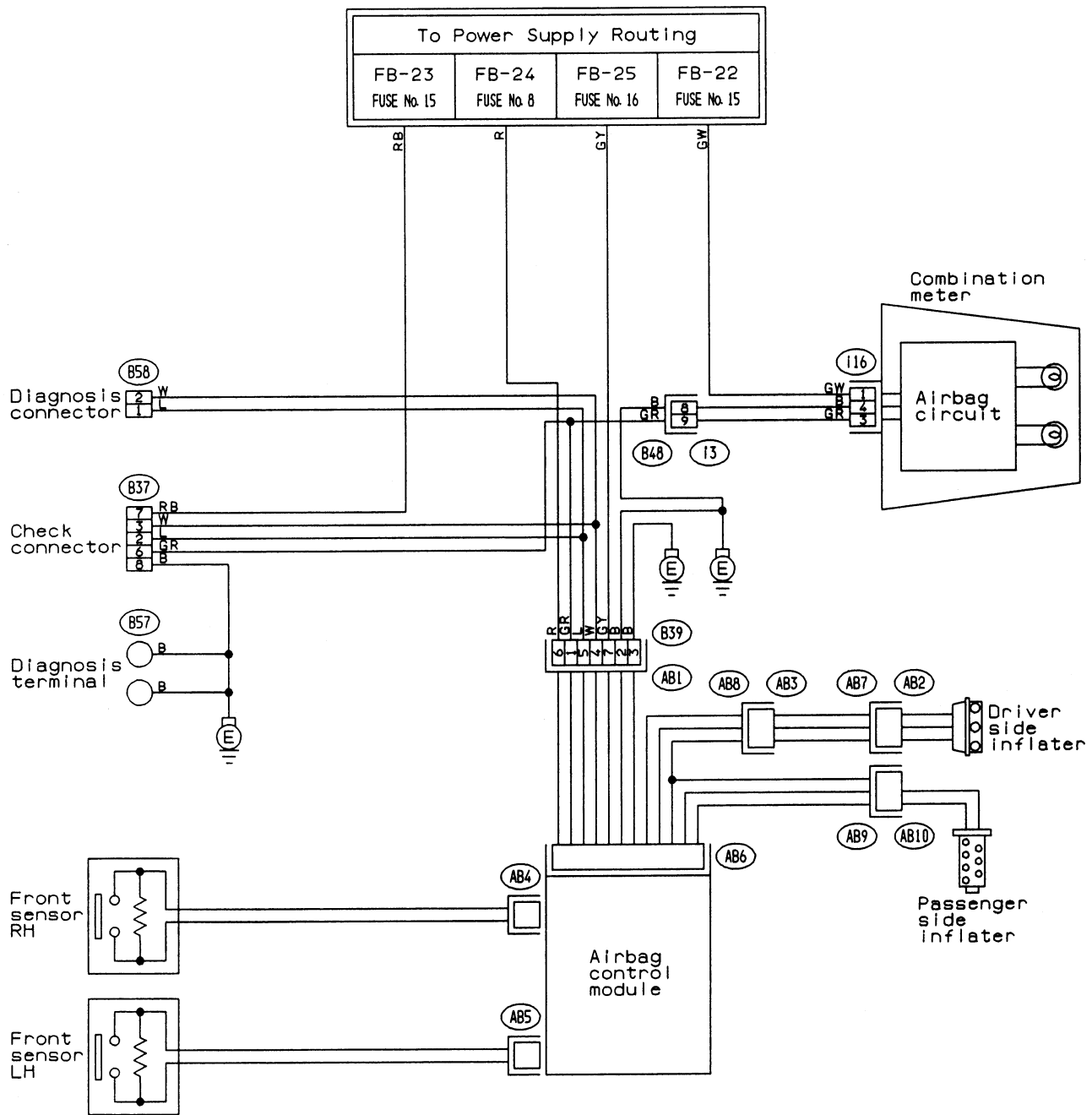
26. SEAT BELT WARNING AND KEY WARNING SYSTEM



27. SPOT LIGHT, ROOM LIGHT, FUSE BOX LIGHT, LUGGAGE AND TRUNK ROOM LIGHT SYSTEM



28. SRS (AIRBAG SYSTEM)



(116)

(B58) (Black)

(B39) (Yellow)

1 2 3 4

1 2
3 4 5 6

1 2 3
4 5 6 7

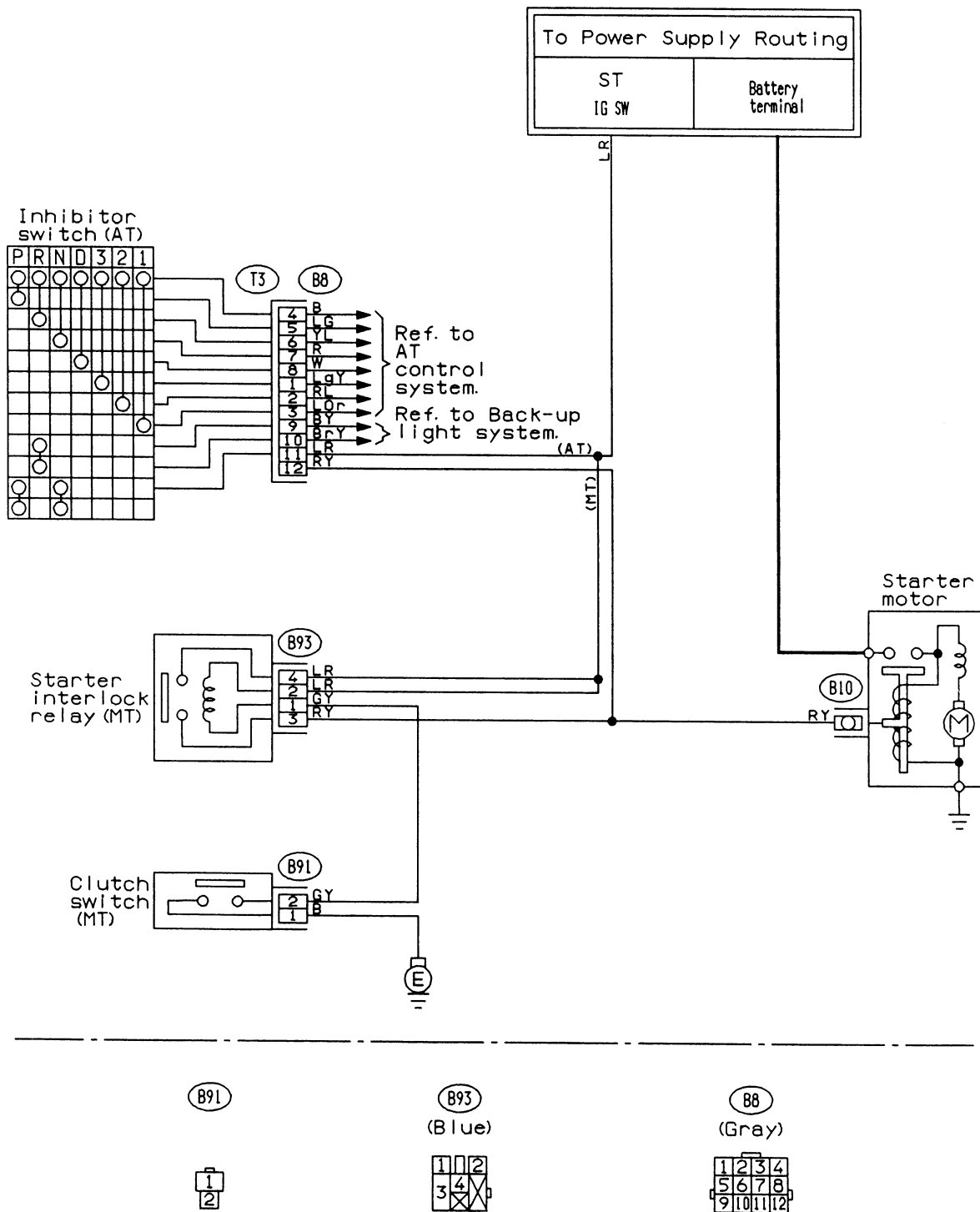
(B37) (Gray)

(13) (Blue)

1 2 3 4 5 6 7
8 9 10 11 12 13 14

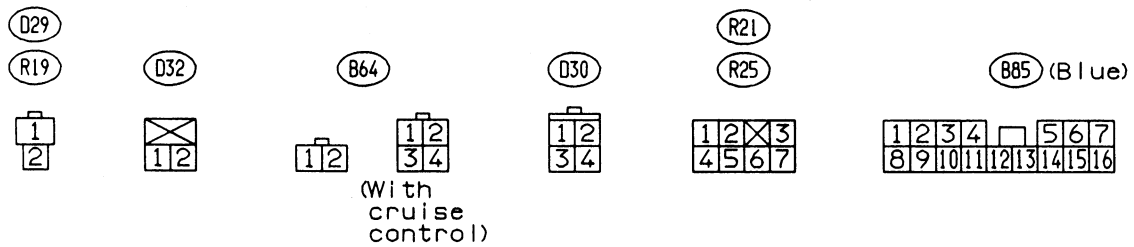
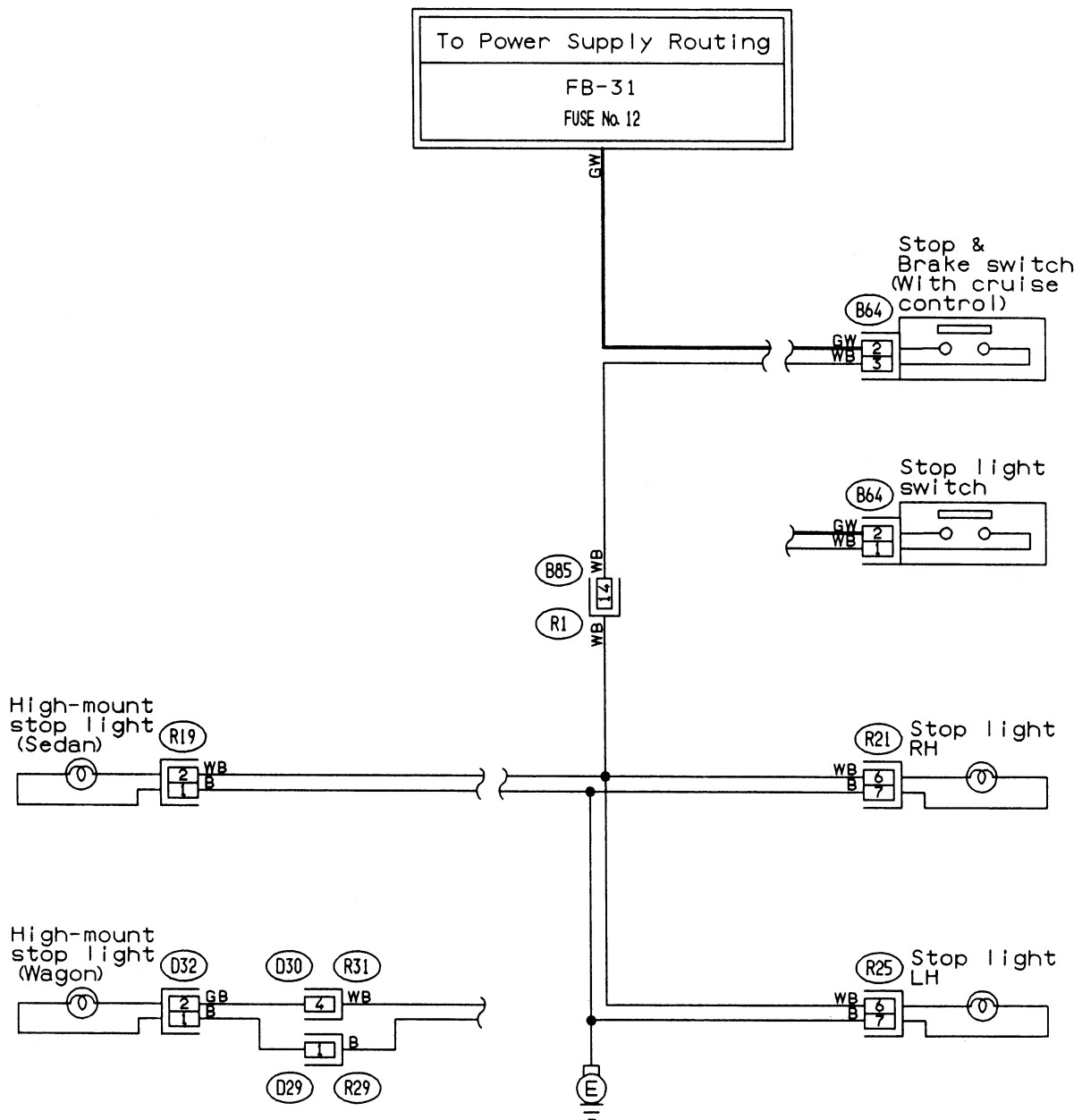
1 2 3 4 5 6 7 8 9
10 11 12 13 14 15 16 17 18 19 20

29. STARTING SYSTEM

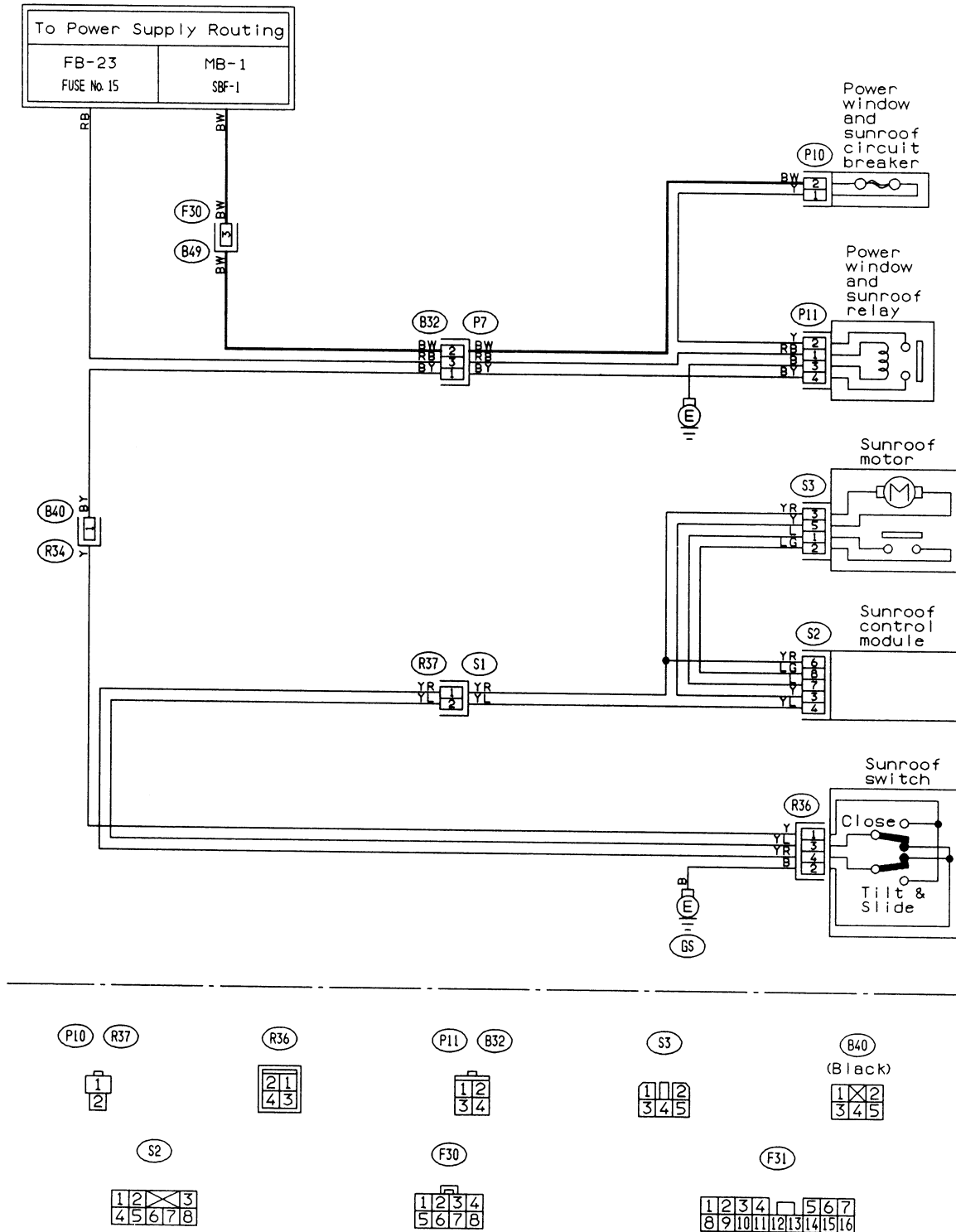


GU03-01

30. STOP LIGHT SYSTEM

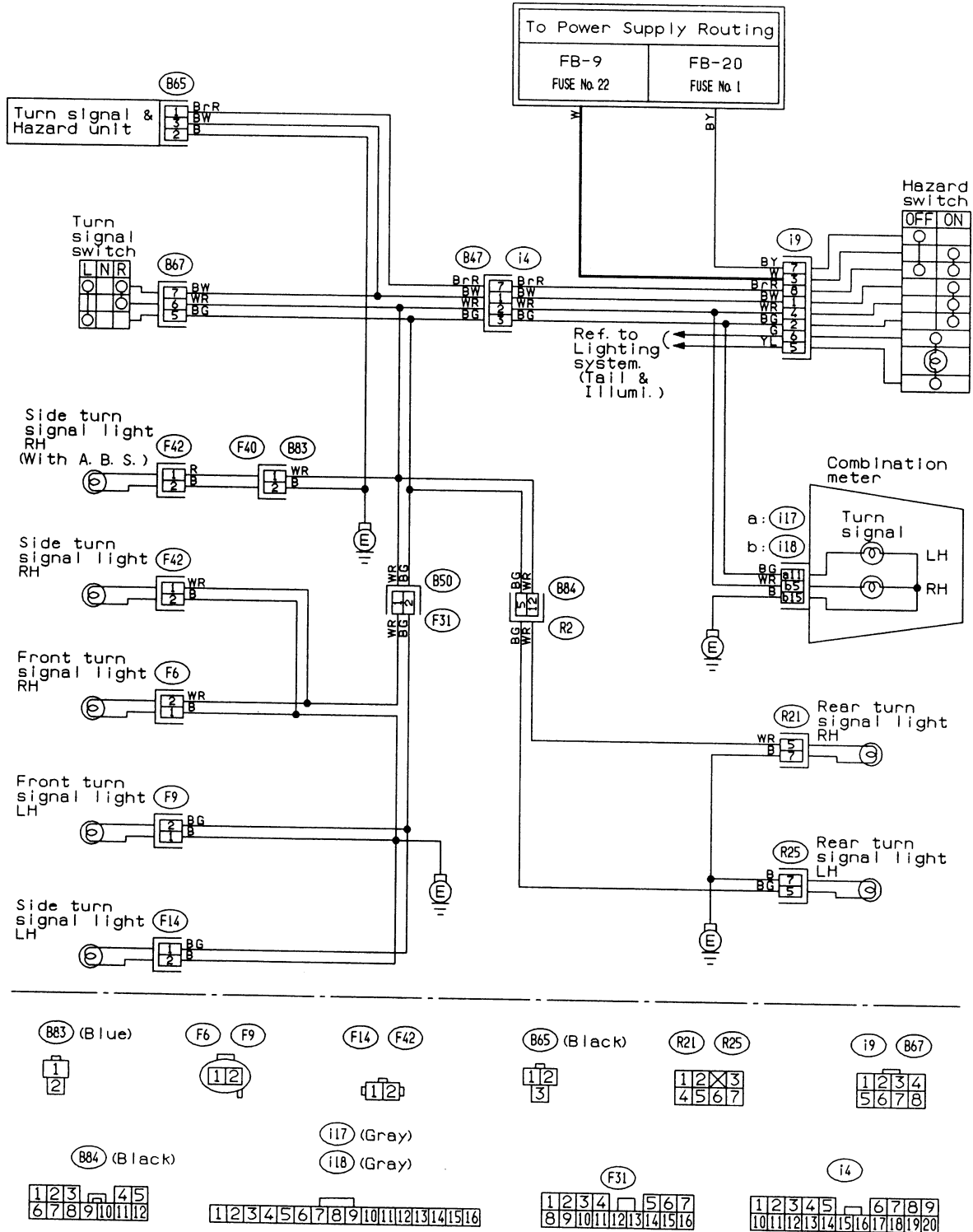


31. SUNROOF SYSTEM



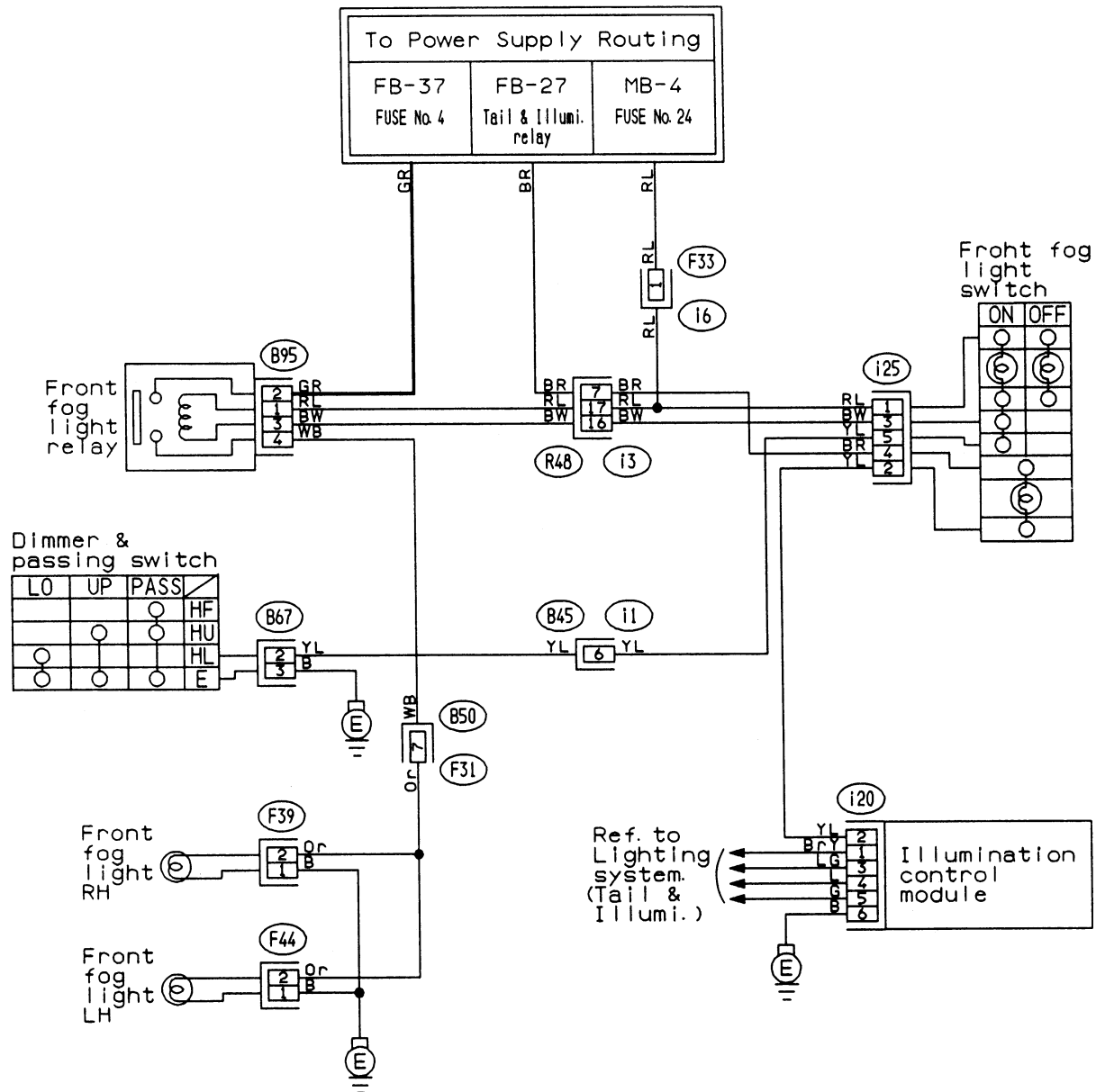
GU75-01

32. TURN SIGNAL AND HAZARD SYSTEM



GU26-01

33. FRONT FOG LIGHT SYSTEM



(Black) (F39) (F44) (Black) (B95) (Black)

(i25) (i20) (Black)

(F33) (Black)

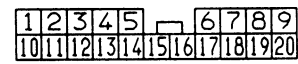
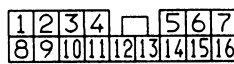
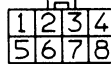


(B67)

(i1)

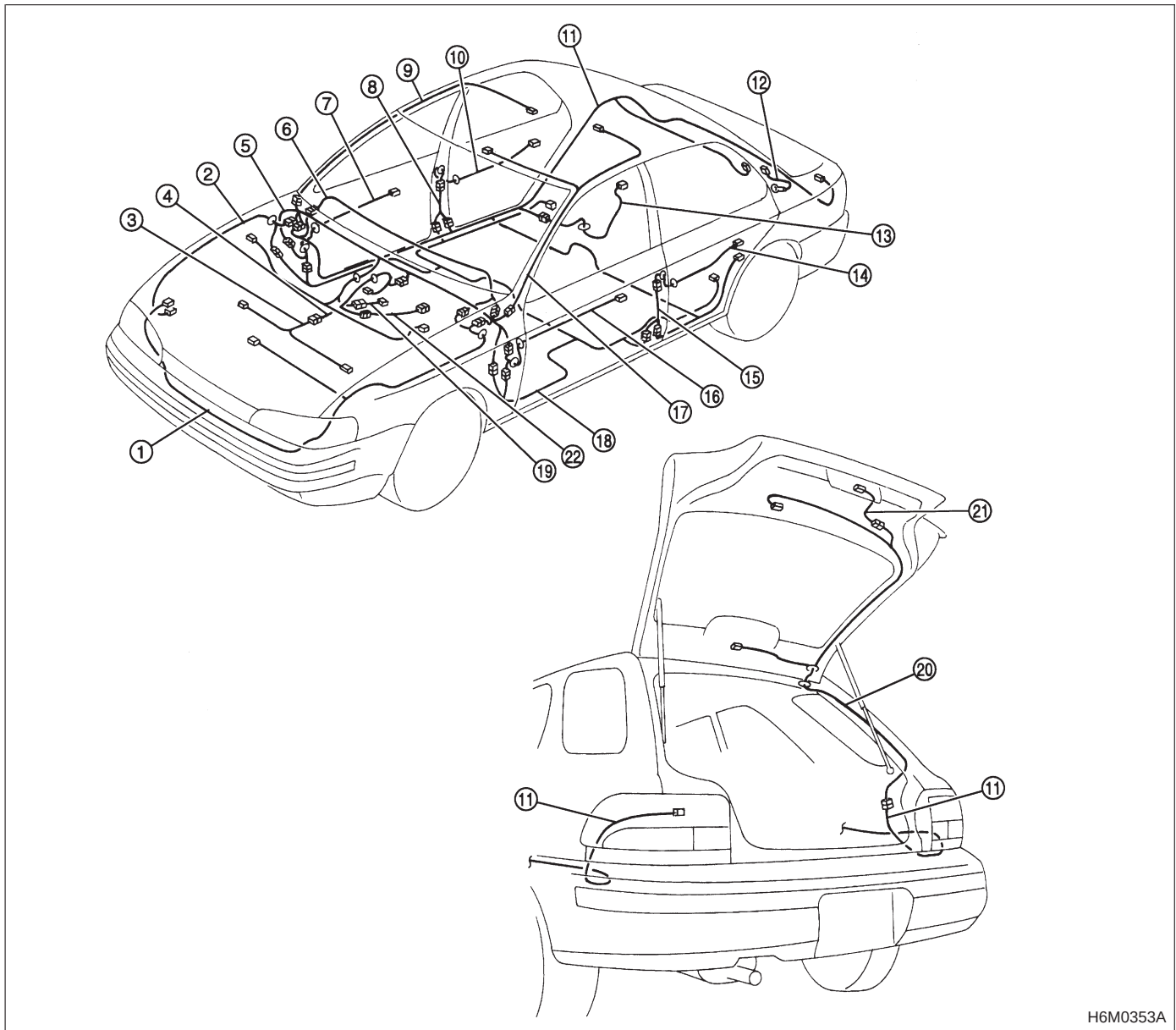
(F31)

(i3) (Blue)



GU22-01

6. Electrical Wiring Harness and Ground Point



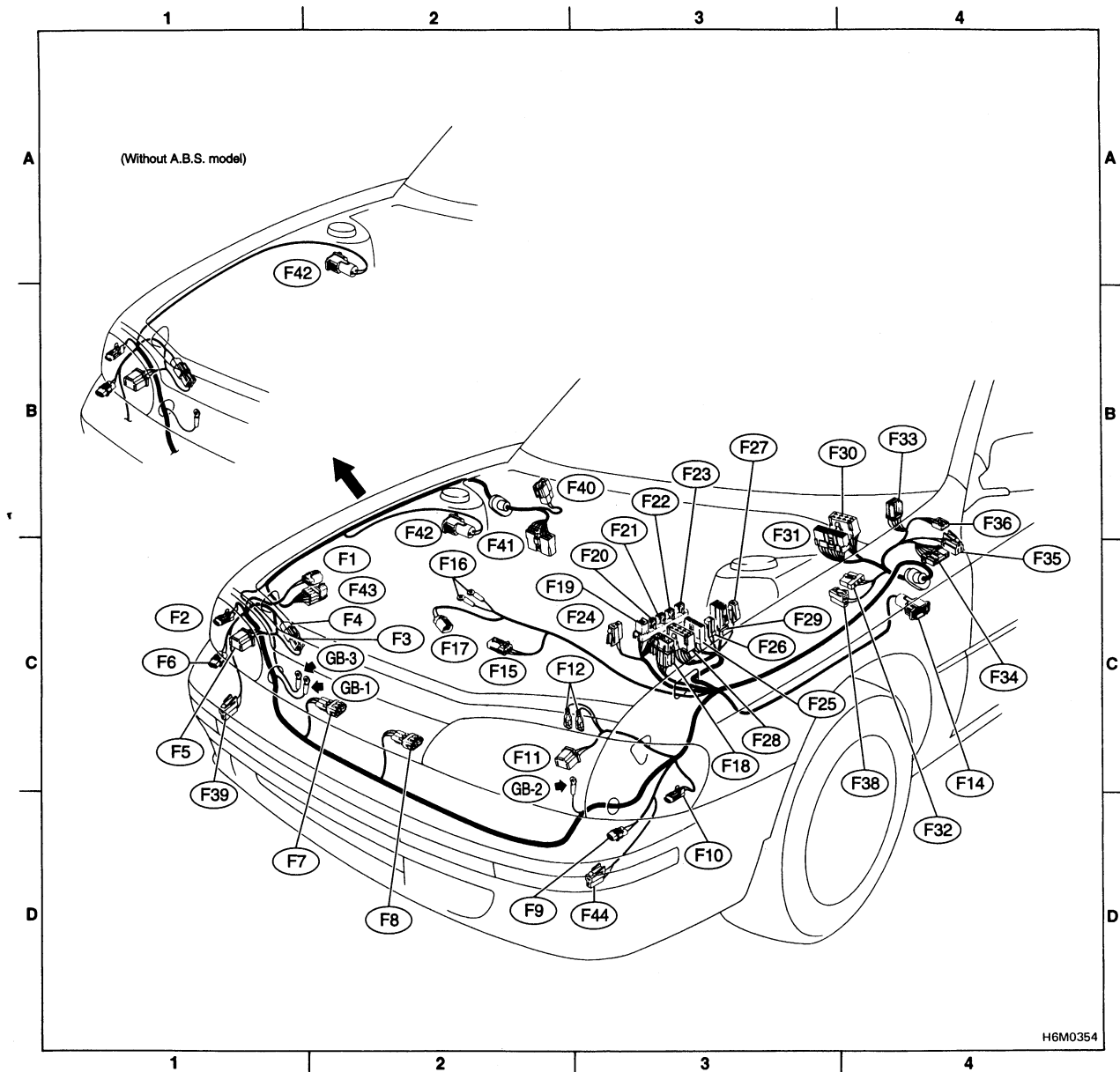
H6M0353A

- | | |
|-----------------------------------|-----------------------------------|
| ① Front wiring harness LH | ⑫ Rear defogger cord (Ground) |
| ② Front wiring harness RH | ⑬ Fuel tank cord |
| ③ Engine wiring harness | ⑭ Rear door cord LH |
| ④ Engine module wiring harness | ⑮ Rear door adapter cord LH |
| ⑤ Bulkhead wiring harness | ⑯ Front door cord LH |
| ⑥ Instrument panel wiring harness | ⑰ Sunroof cord or spot light cord |
| ⑦ Front door cord RH | ⑱ Power window main harness |
| ⑧ Rear door adapter cord RH | ⑲ Transmission cord |
| ⑨ Room light cord | ⑳ Rear gate cord |
| ⑩ Rear door cord RH | ㉑ Rear gate lock adapter cord |
| ⑪ Rear wiring harness | ㉒ Rear oxygen sensor cord |

Connector			Connecting to	
No.	Pole	Color	No.	Name
F1	2	Gray		Hydraulic unit
F2	2	Gray		Front marker light RH
F3	1	Black	F4	A/C short connector
F4	1	Black	F3	
F5	3	Black		Headlight RH
F6	2	★		Front fan signal light RH
F7	3	Black		Sub fan motor
F8	3	Black		Radiator main fan motor
F9	2	★		Front turn signal light LH
F10	2	Gray		Front marker light LH
F11	3	Black		Headlight LH
F12	1 x 2	★		Horn
F14	2	★		Side turn signal light LH
F15	3	Gray		A/C compressor
F16	1 x 2	★		Generator
F17	2	Gray		
F18	4	Black		SBF holder
F19	4	Black		A/C fuse (Relay holder)
F20	4	Black		A/C sub fan relay-2 (Relay holder)
F21	4	Black		A/C main fan relay (Relay holder)
F22	4	Black		A/C sub fan relay-1 (Relay holder)
F23	4	Black		A/C relay (Relay holder)
F24	2	Green		Front washer motor
F25	3	★		M/B
F26	2	Black		
F27	1	Brown		
F28	8	★		
F29	2	Black		
F30	8	★	B49	Bulkhead wiring harness
F31	16	★	B50	
F32	3	Orange		A/C diode
F33	6	Black	i6	Instrument panel wiring harness
F34	10	Gray		F/B
F35	3	Gray		
F36	5	Gray		
F38	2	Black		Horn condenser
F39	2	Black		Front fog light RH
F40	2	Blue	B83	Bulkhead wiring harness
F41	13	★	P1	Power window main harness
F42	2	★		Side turn signal light RH
F43	12	Black		Hydraulic unit
F44	2	Black		Front fog light LH

★: Non-colored

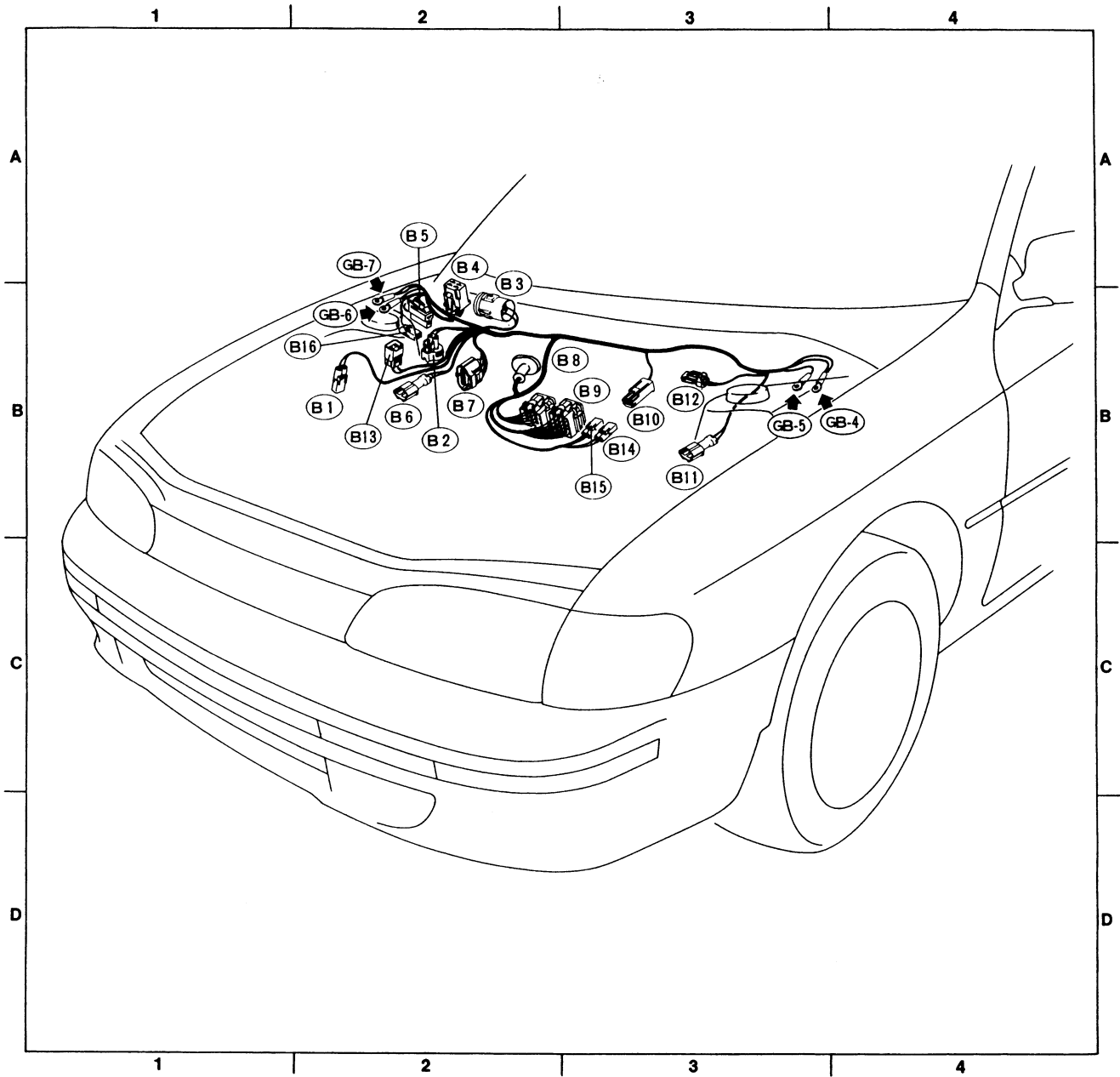
1. FRONT WIRING HARNESS AND GROUND POINT



H6M0354

Connector			Connecting to	
No.	Pole	Color	No.	Name
B1	2	Gray		AT dropping resistor
B2	2	Gray		A/C pressure switch
B3	5			Front wiper motor
B4	4	Blue		A/C cut relay
B5	2			FWD switch (AT)
B6	2	Gray		A.B.S. front sensor RH
B7	4	Gray		Cruise control actuator
B8	12	Gray	T3	Transmission (AT)
B9	16	Gray	T4	
B10	1	Black		Starter (Magnet)
B11	2	Gray		A.B.S. front sensor LH
B12	2	Gray		Brake fluid level switch
B13	2	Black		A.B.S. G sensor (MT)
B14	2	Brown	T2	Neutral position switch (MT)
B15	2	Gray	T1	Back-up light switch (MT)
B16	2	Gray	T1	Resistor (DRL)

2. BULKHEAD WIRING HARNESS AND GROUND POINT (IN ENGINE ROOM)



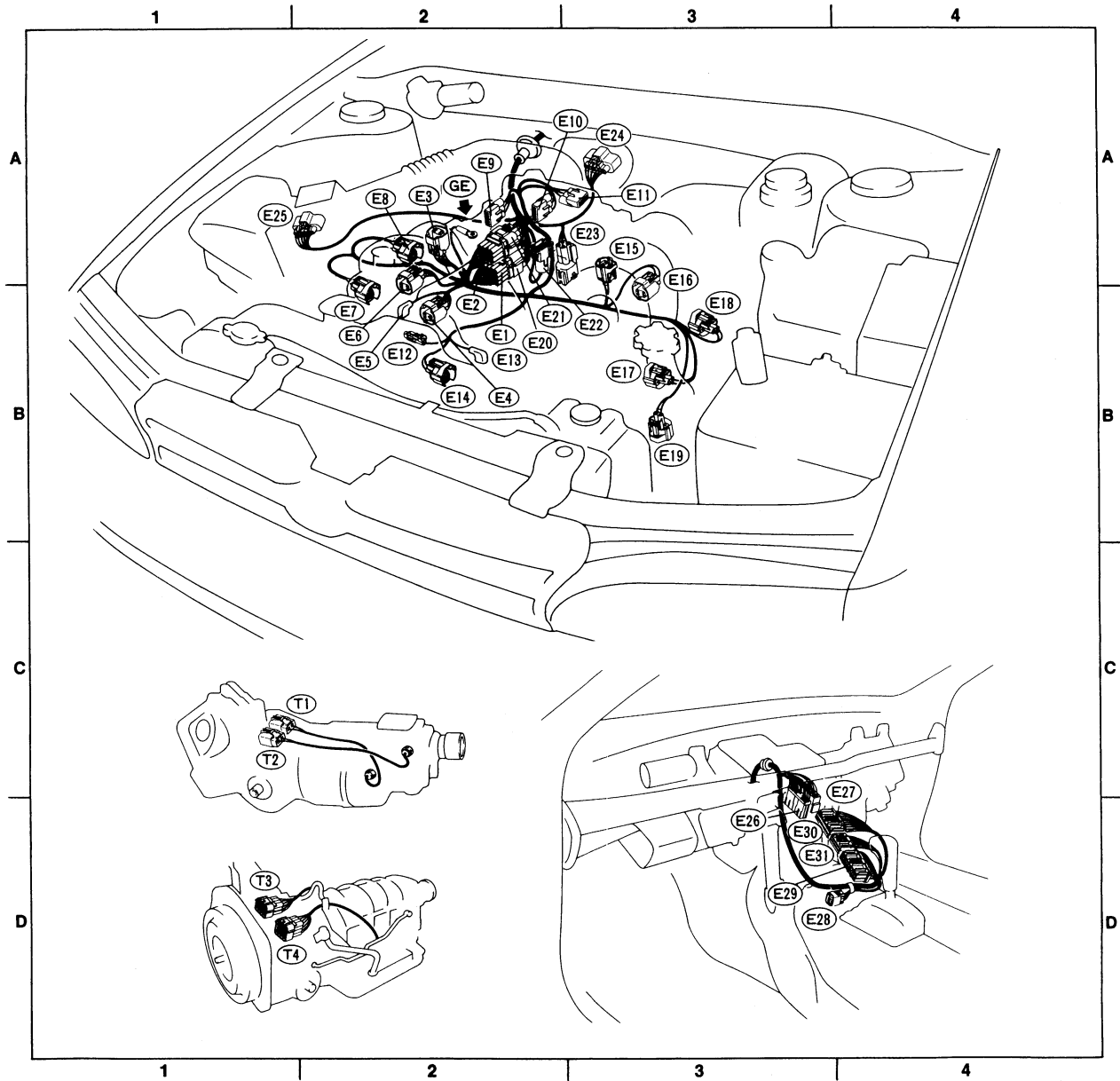
G6M0218

Connector			Connecting to	
No.	Pole	Color	No.	Name
E1	16	Gray	E20	Engine module wiring harness
E2	14	Gray	E21	
E3	2	Gray		Air suction solenoid valve (California)
E4	2	Brown		Engine coolant temperature sensor
E5	1	★		Thermometer
E6	2	Blue		Purge control solenoid valve
E7	2	Gray		Injector #1
E8	2	Gray		Injector #3
E9	3	Gray		Ignition coil
E10	3	Gray		Throttle position sensor
E11	3	Gray		Idle air control solenoid
E12	1	Gray		Power steering oil pressure switch
E13	1	★		Oil pressure switch
E14	2	Gray		Crankshaft position sensor
E15	2	Black		Recirculation gas temperature sensor (California)
E16	2	Brown		EGR solenoid valve
E17	2	Gray		Injector #2
E18	2	Gray		Injector #4
E19	2	Gray		Camshaft position sensor
E20	16	Gray	E1	Engine wiring harness
E21	16	★	E2	
E22	2	Gray		FICD solenoid
E23	4	Gray		Oxygen sensor
E24	6	Gray		Ignitor
E25	5	Gray		Mass air flow meter
E26	20	★	B74	Bulkhead wiring harness
	24	★	B74	Bulkhead wiring harness (California model)
E27	8	★	B73	Bulkhead wiring harness
E28	6	★		Shield joint connector
E29	26	Light blue		Engine control module
E30	22	Light blue		
E31	16	Light blue		

Connector			Connecting to	
No.	Pole	Color	No.	Name
T1	2	Gray	B15	Bulkhead wiring harness (MT)
T2	2	Brown	B14	
T3	12	Gray	B8	Bulkhead wiring harness (AT)
T4	16	Gray	B9	

★: Non-colored

3. ENGINE WIRING HARNESS · TRANSMISSION CORD AND GROUND POINT (1800 cc engine model)



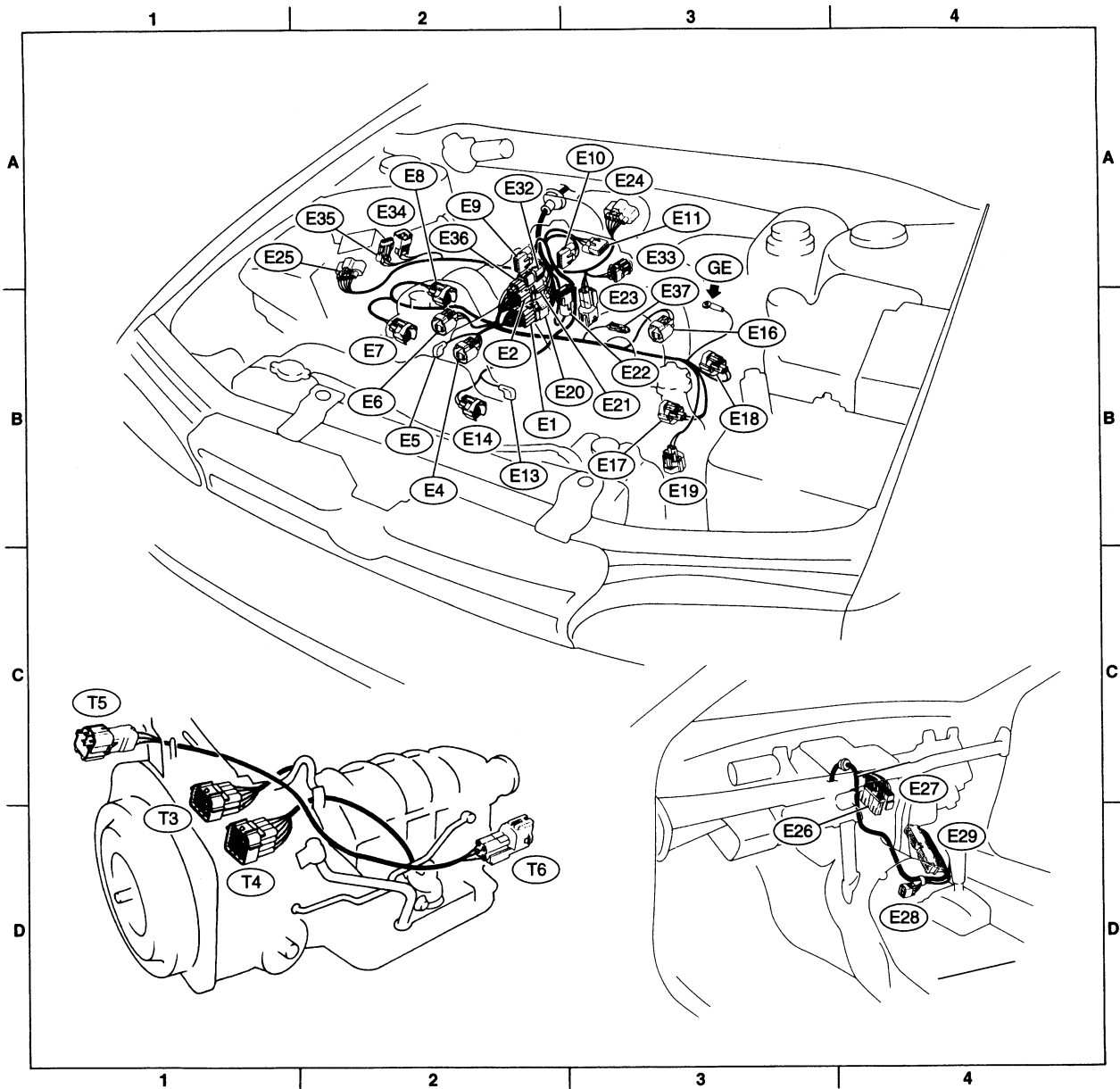
Connector			Connecting to	
No.	Pole	Color	No.	Name
E1	16	Gray	E20	Engine module wiring harness
E2	12	Gray	E21	
E4	2	Brown		Engine coolant temperature sensor
E5	1	★		Thermometer
E6	2	Blue		Purge control solenoid valve
E7	2	Light gray		Injector #1
E8	2	Dark gray		Injector #3
E9	3	Gray		Ignition coil
E10	3	Brown		Throttle position sensor
E11	3	Gray		Idle air control solenoid
E13	1	★		Oil pressure switch
E14	2	Gray		Crankshaft position sensor
E16	2	Brown		E.G.R. solenoid valve
E17	2	Light gray		Injector #2
E18	2	Dark gray		Injector #4
E19	2	Dark gray		Camshaft position sensor
E20	16	Gray	E1	Engine wiring harness
E21	12	Gray	E2	
E22	2	Gray		FICD solenoid valve
E23	4	★		Front oxygen sensor
E24	6	Gray		Ignitor
E25	5	Gray		Mass air flow sensor
E26	24	★	B74	Bulkhead wiring harness
E27	8	★	B73	
E28	6	★		Shield joint connector
E29	96	Dark gray		Engine control module
E32	6	★	E36	Engine wiring harness

E33	4	Gray	T5	Rear oxygen sensor cord
E34	2	Brown		Pressure source switching solenoid
E35	3	Black		Pressure sensor
E36	6	★	E32	Engine module wiring harness
E37	1	Gray		Knock sensor

Connector			Connecting to	
No.	Pole	Color	No.	Name
T3	12	Gray	B8	Bulkhead wiring harness
T4	16	Gray	B9	
T5	4	Gray	E33	Engine module wiring harness
T6	4	Gray		Rear oxygen sensor

★: Non-colored

4. ENGINE WIRING HARNESS · TRANSMISSION CORD AND GROUND POINT (2200 cc engine model)



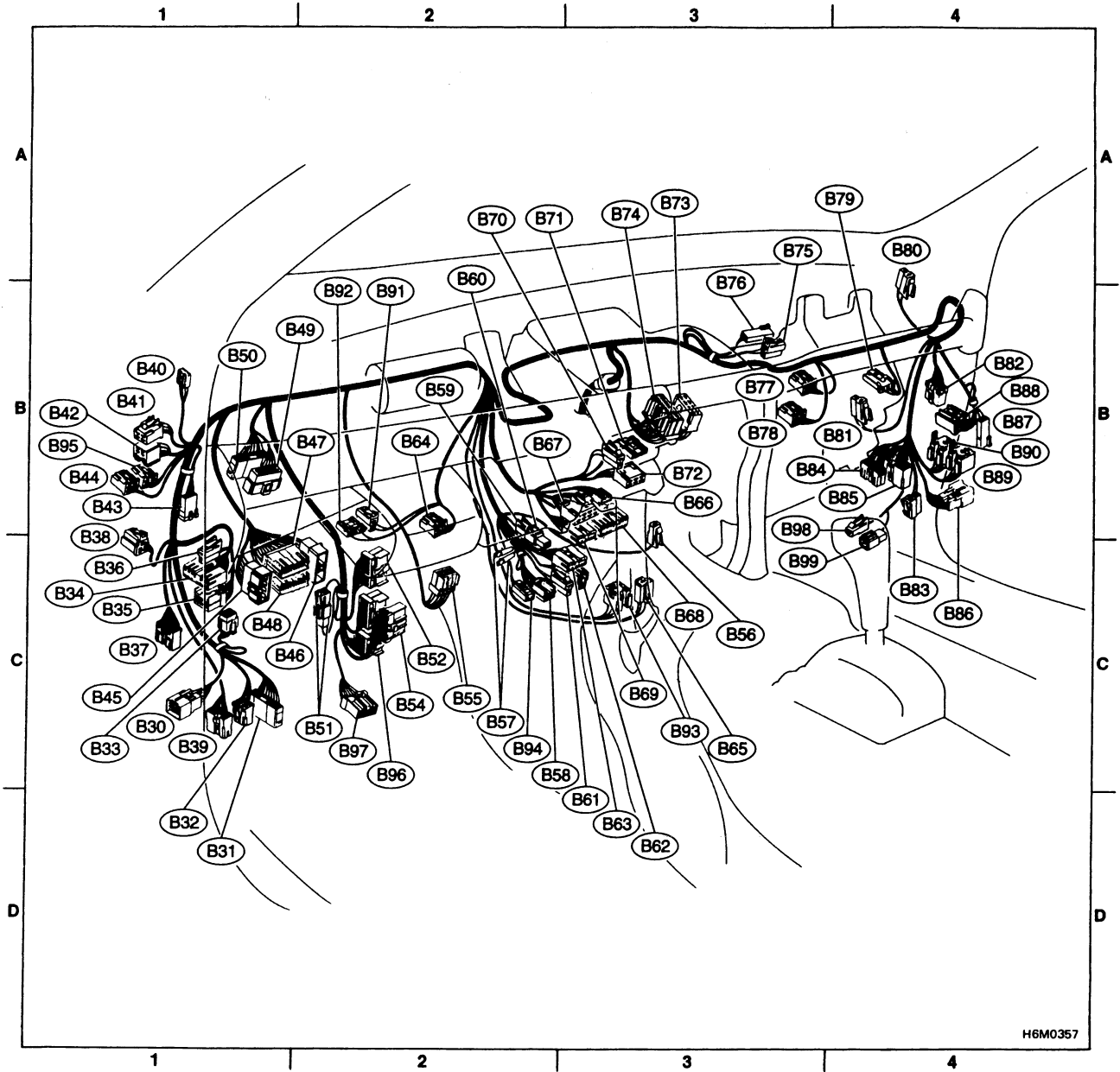
6. Electrical Wiring Harness and Ground Point

Connector			Connecting to	
No.	Pole	Color	No.	Name
B30	13	★	D1	Front door cord LH
B31	16	Black	P8	Power window main harness
B32	4	★	P7	
B33	6	★		Shield joint connector (A.B.S.)
B34	11	Gray		F/B
B35	12	Gray		
B36	2	Brown		F/B illumination light
B37	14	Gray		Check connector
B38	3	Black		Horn relay
B39	7	Yellow		SRS (Airbag) harness
B40	5	Black	R34	Sunroof cord
B41	4	Green		Fuel pump relay
B42	6	Brown		Main relay
B43	2	Black		Diode (A/C)
	4	Brown		Diode (A/C) (California model)
B44	4	★		Blower relay
B45	8	★	i1	Instrument panel wiring harness
B46	12	Black	i2 AT	
B47	20	★	i4	
B48	20	Blue	i3	
B49	8	★	F30	Front wiring harness LH
B50	16	★	F31	
B51	1 x 2	★		Twist joint connector (AT)
B52	16	Black		Transmission control module
B53	20	Black		
B54	20	★		Cruise control module
B55	12	Black		AT shift lock control module
B56	1	Blue	i8	Instrument panel wiring harness
B57	1 x 2	★		Diagnosis terminal (Ground)
B58	6	Black		Diagnosis connector (Airbag model)
B59	1	Black	B60	Read memory connector (Transit connector)
B60	1	Black	B59	Normally disconnected
B61	2	Green	B62	Test mode connector
B62	2	Green	B61	Normally disconnected
B63	9	Yellow		Date link connector
B64	4	Black		Stop and brake switch (With cruise control)
	2	Black		Stop light switch
B65	3	Black		Turn & hazard unit
B66	5	Black		Cruise control sub switch

Connector			Connecting to	
No.	Pole	Color	No.	Name
B67	8	★		Combination switch (Lighting switch)
B68	11	★		Combination switch
B69	9	★		Combination switch
B70	2	Black		Key warning switch
B71	2	Black		Key lock solenoid
B72	6	Black		Ignition switch
B73	8	★	E27	Engine module wiring harness
B74	20	★	E26	Engine module wiring harness
	24	★	E26	Engine module wiring harness (California and 2200 cc model)
B75	2	Black		Horn condenser
B76	2	Black		Diode (Lighting)
B77	4	Brown		Evaporator thermoswitch
B78	4	★		Blower motor resistor
B79	4	★		FRESH/RECIRC actuator
B80	2	Green	R32	Room light cord
B81	2	★		Blower motor
B82	8	★		Door lock timer
B83	2	Blue	F40	Front wiring harness RH (With A.B.S. model)
B84	12	Black	R2	Rear wiring harness
B85	16	Blue	R1	
B86	13	★	D8	Front door cord RH
B87	2	Black		Diode (Daytime running light) (Canada model)
B88	10	★		Daytime running light control module (Canada model)
B89	4	Blue		Daytime running light HI beam relay (Canada model)
B90	5	Black		Daytime running light relay (Canada model)
B91	2	★		Clutch switch (MT)
B92	2	Blue		Clutch switch (MT — cruise control)
B93	4	Blue		Starter interlock relay (MT)
B94	2	Black		Check connector (A.B.S.)
B95	4	Black		Front fog light relay
B96	12	Black		Transmission control module (2200 cc model)
B97	16	Gray		OBD-II service connector (2200 cc model)
B98	1	Green		Test mode connector
B99	1	Green		(2200 cc model)

★: Non-colored

5. BULKHEAD WIRING HARNESS (IN COMPARTMENT)

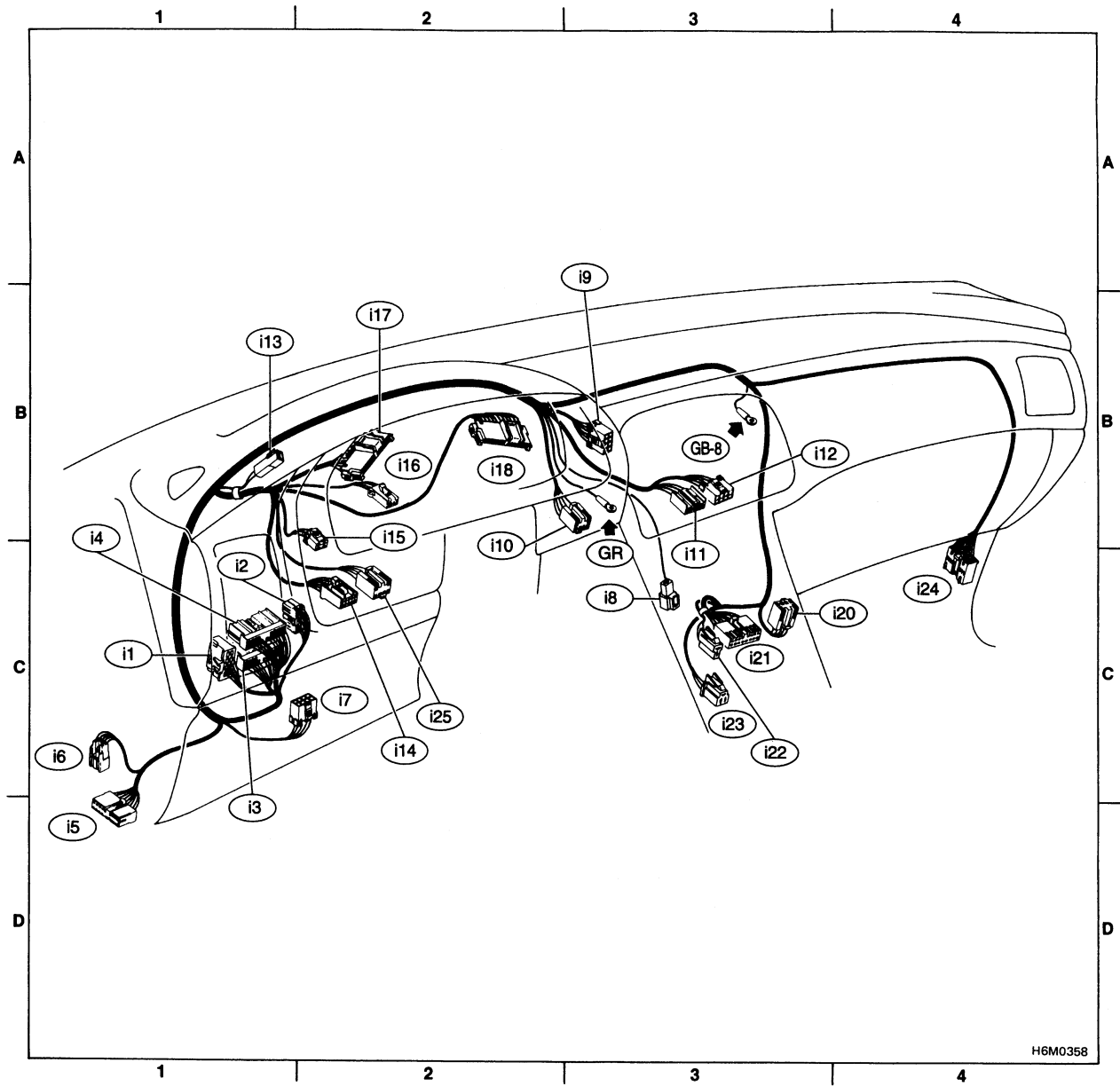


H6M0357

Connector			Connecting to	
No.	Pole	Color	No.	Name
i1	8	★	B45	Bulkhead wiring harness
i2	12	Black	B46 AT	
i3	20	Blue	B48	
i4	20	★	B47	
i5	15	Gray		F/B
i6	6	Black	F33	Front wiring harness LH
i7	8	★		Seat belt timer
i8	1	Blue	B56	Bulkhead wiring harness
i9	8	★		Hazard switch
i10	6	Brown		Cruise control main switch
i11	6	★		Fan switch
i12	8	★		Mode control panel
i13	2	Black		Diode (Seat belt)
i14	10	★		Remote control rearview mirror switch
i15	4	★		Rear defogger switch
i16	4	★		Combination meter (Airbag warning)
i17	16	Gray		Combination meter
i18	16	Gray		
i20	6	Black		Illumination control module
i21	14	★		Radio
i22	2	★		CD illumination light
i23	3	★		Cigarette lighter
i24	16	★	R3	Rear wiring harness
i25	6	★		Front fog light switch

★: Non-colored

6. INSTRUMENT PANEL WIRING HARNESS AND GROUND POINT

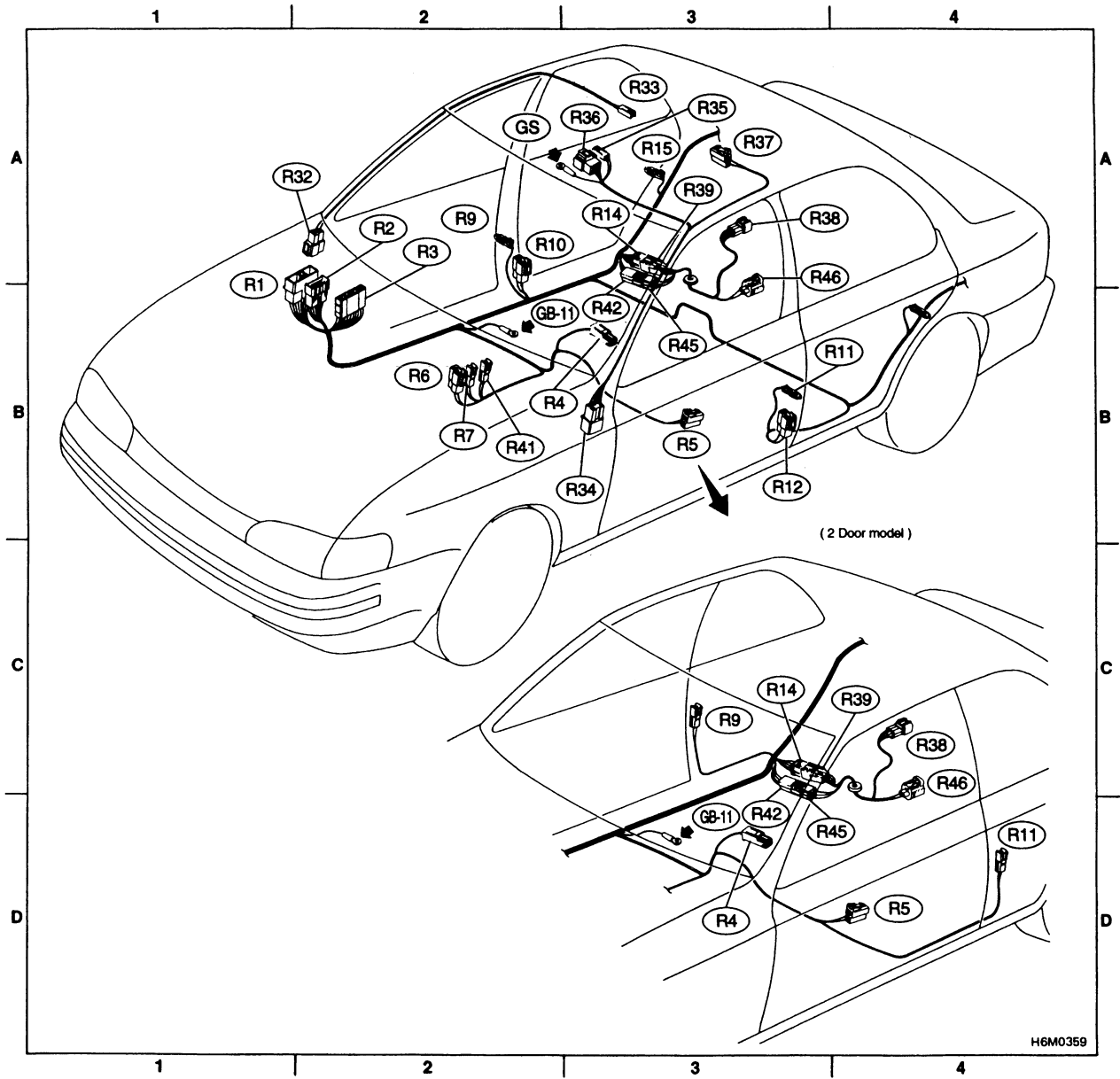


H6M0358

Connector			Connecting to	
No.	Pole	Color	No.	Name
R1	16	Blue	B85	Bulkhead wiring harness
R2	12	Black	B84	
R3	16	★	i24	Instrument panel wiring harness
R4	1	Black		Parking brake switch
R5	2	★		Seat belt switch
R6	2	★		Select lever illumination light (AT)
R7	2	Black		Shift lock solenoid (AT)
R9	1	Brown		Front door switch RH
R10	2	Pink	D18	Rear door cord RH
R11	1	Brown		Front door switch LH
R12	2	Pink	D15	Rear door cord LH
R13	1	Brown		Rear door switch LH
R14	6	Black	R39	Fuel tank cord
R15	1	Brown		Rear door switch RH
R32	2	Green	B80	Bulkhead wiring harness
R33	2	★		Room light
R34	5	Black	B40	Bulkhead wiring harness
R35	2	★		Spot light
R36	4	★		Sunroof switch
R37	2	★		Sunroof motor
R38	6	★		Fuel gauge unit
R39	6	Black	R14	Rear wiring harness
R41	2	★		Park position switch (AT)
R42	4	★	R45	Fuel tank cord (California model)
R45	4	★	R42	Rear wiring harness (California model)
R46	2	Black		Pressure control solenoid valve (California model)

★: Non-colored

7. REAR WIRING HARNESS AND GROUND POINT

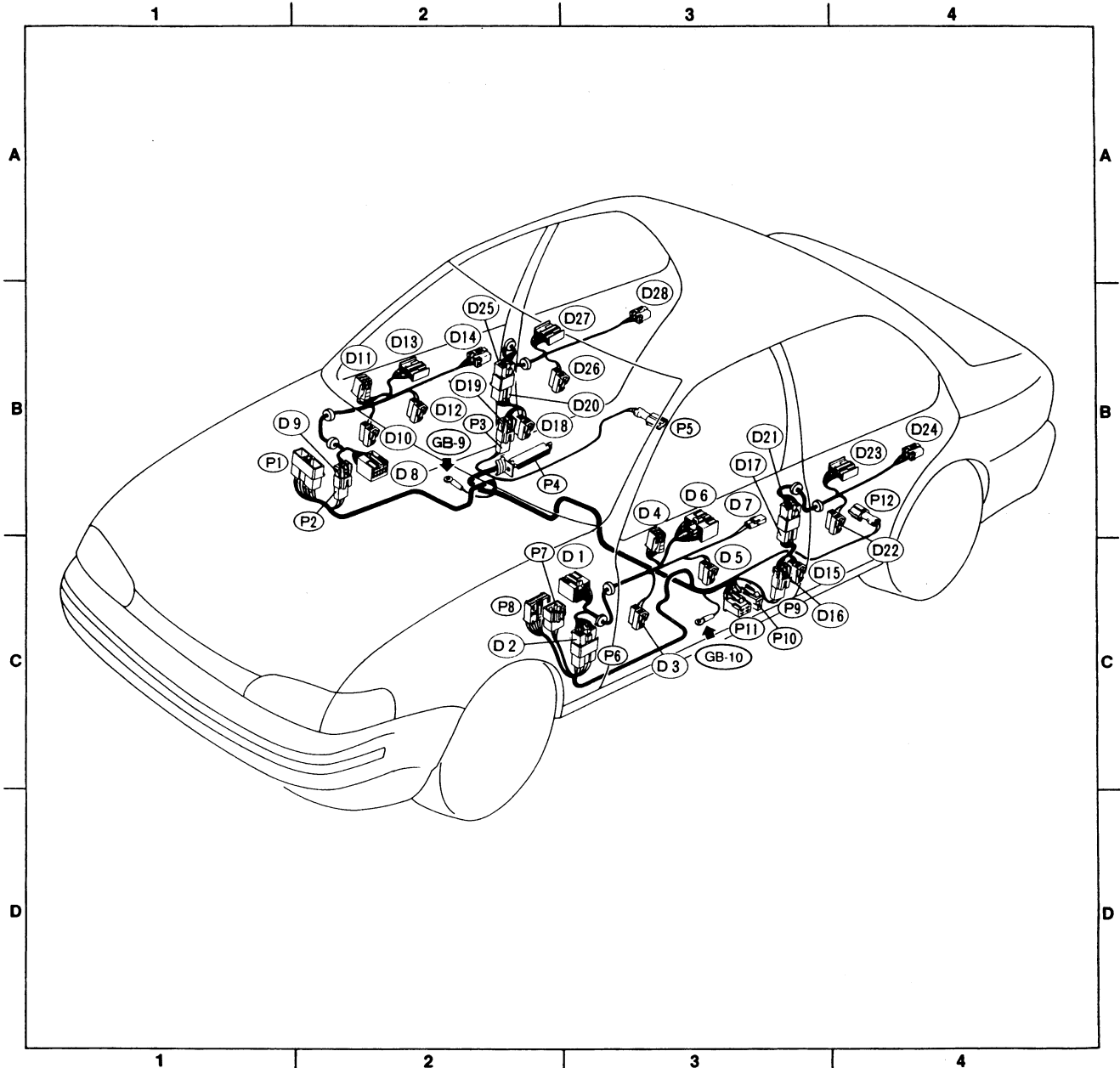


H6M0359

Connector			Connecting to	
No.	Pole	Color	No.	Name
P1	13		F41	Front wiring harness RH
P2	3		D9	Front door cord RH
P3	3		D19	Rear door adapter cord RH
P4	35	Blue		A.B.S. control module
P5	2	Gray		Rear A.B.S. sensor RH
P6	9		D2	Front door cord LH
P7	4		B32	Bulkhead wiring harness
P8	16	Black	B31	
P9	3		D16	Rear door adapter cord LH
P10	2			Power window circuit breaker
P11	4			Power window and sunroof relay
P12	2	Gray		Rear A.B.S. sensor LH

Connector			Connecting to	
No.	Pole	Color	No.	Name
D1	13		B30	Bulkhead wiring harness
D2	9		P6	Power window main harness
D3	2			Front speaker LH
D4	6			Remote control rearview mirror LH
D5	2	Green		Front power window motor LH
D6	14			Power window main switch
D7	2	Gray		Front door lock switch LH
D8	13		B86	Bulkhead wiring harness
D9	3		P2	Power window main harness
D10	2			Front speaker RH
D11	6			Remote control rearview mirror RH
D12	2	Green		Front power window motor RH
D13	5			Front power window sub switch RH
D14	4			Front door lock actuator RH
D15	2	Pink	R12	Rear wiring harness
D16	3		P9	Power window main harness
D17	5		D21	Rear door cord LH
D18	2	Pink	R10	Rear wiring harness
D19	3		P3	Power window main harness
D20	5		D25	Rear door cord RH
D21	5		D17	Rear door adapter cord LH
D22	2	Green		Rear power window motor LH
D23	5			Rear power window sub switch LH
D24	4			Rear door lock actuator LH
D25	5		D20	Rear door adapter cord RH
D26	2	Green		Rear power window motor RH
D27	5			Rear power window sub switch RH
D28	4			Rear door lock actuator RH

8. POWER WINDOW MAIN HARNESS, DOOR CORD AND GROUND POINT

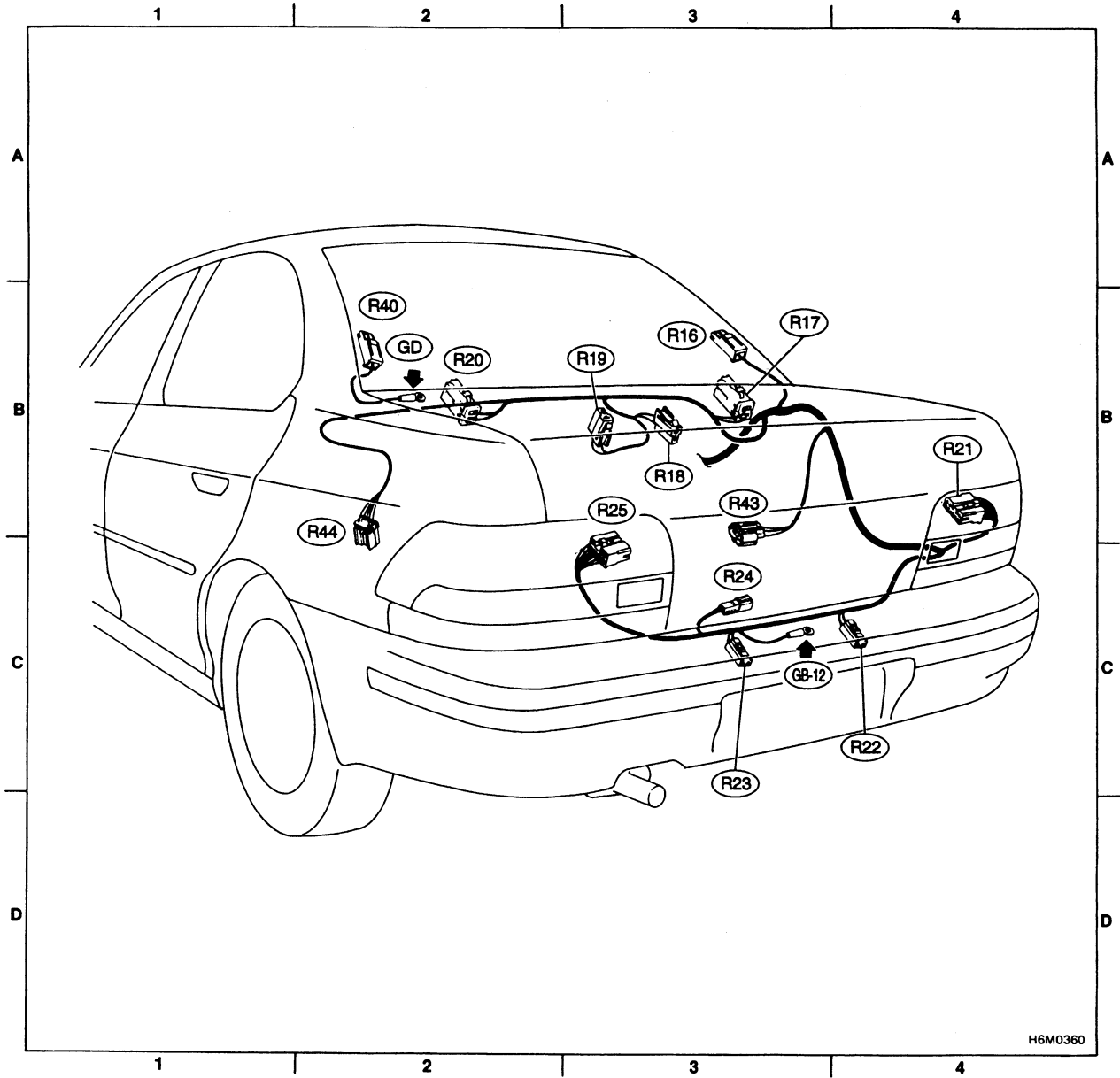


G6M0226

Connector			Connecting to	
No.	Pole	Color	No.	Name
R16	1	Black		Rear defogger (Power)
R17	2	Black		Rear speaker RH
R18	2	Black		Trunk room light
R19	2	★		High-mount stop light
R20	2	Black		Rear speaker LH
R21	7	★		Rear combination light RH
R22	2	★		License plate light RH
R23	2	★		License plate light LH
R24	2	★		Trunk room light switch
R25	7	★		Rear combination light LH
R40	1	Black		Rear defogger (Ground)
R43	3	★		Fuel tank pressure sensor (California model)
R44	6	★		Power antenna

★: Non-colored

9. REAR END WIRING HARNESS AND GROUND POINT OF SEDAN



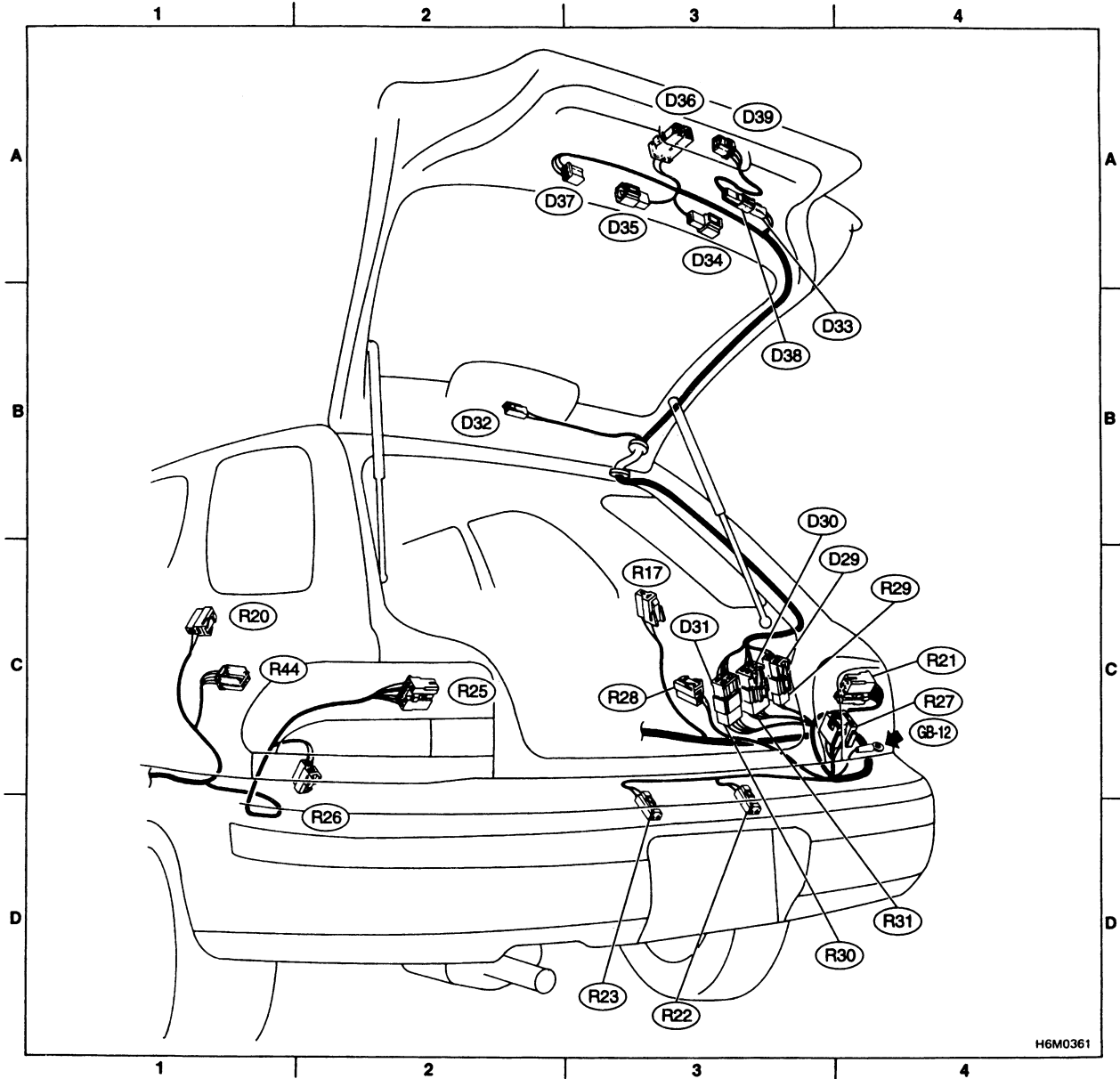
H6M0360

Connector			Connecting to	
No.	Pole	Color	No.	Name
R17	2	★		Rear speaker RH
R20	2	★		Rear speaker LH
R21	7	★		Rear combination light RH
R22	2	★		License plate light RH
R23	2	★		License plate light LH
R25	7	★		Rear combination light LH
R26	2	Green		Rear washer motor
R27	5	Black		Rear wiper relay
R28	2	★		Luggage room light
R29	2	★	D29	Rear gate cord
R30	4	★	D31	
R31	4	★	D30	
R44	6	★		Power antenna

Connector			Connecting to	
No.	Pole	Color	No.	Name
D29	2	★	R29	Rear wiring harness
D30	4	★	R31	
D31	4	★	R30	
D32	2	★		High-mount stop light
D33	2	★	D38	Rear gate lock adapter cord
D34	1	★		Rear defogger (Power)
D35	1	★		Rear defogger (Ground)
D36	2	★		Rear gate latch switch
D37	4	★		Rear wiper motor
D38	2	★	D33	Rear gate cord
D39	4	★		Rear gate lock actuator

★: Non-colored

10. REAR END WIRING HARNESS AND GROUND POINT OF WAGON



H6M0361

H6M0361