ELECTRICAL SYSTEM

SECTION EL

When you read wiring diagrams:
- **Read GI section, "HOW TO READ WIRING DIAGRAMS".**

CONTENTS

CONTENTS (Cont'd)

WIRING DIAGRAM REFERENCE CHART

Supplemental Restraint System "AIR BAG"

The Supplemental Restraint System "Air Bag" helps to reduce the risk or severity of injury to the driver in a frontal collision. The Supplemental Restraint System consists of an air bag (located in the center of the steering wheel), sensors, a diagnosis unit, warning lamp, wiring harness and spiral cable. Information necessary to service the system safely is included in the **BF section** of this Service Manual.

WARNING:

a. **To avoid rendering the SRS 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 NISSAN dealer.**
b. **Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system.**
c. **All SRS electrical wiring harnesses and connectors are covered with yellow outer insulation. Do not use electrical test equipment on any circuit related to the SRS "Air Bag".**

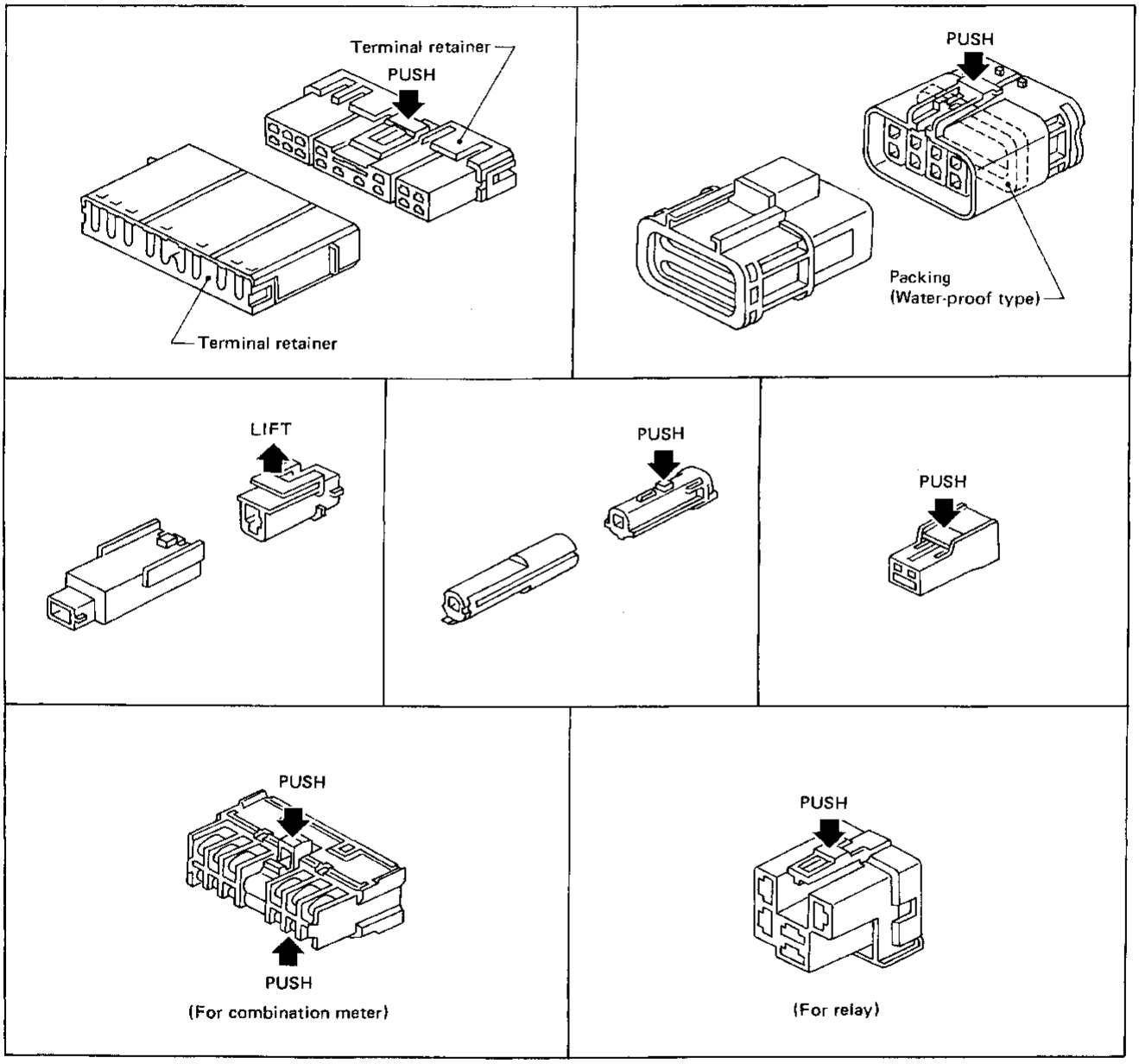
Description

HARNESS CONNECTOR

- All harness connectors have been modified to prevent accidental loosing or disconnection.
- The connector can be disconnected by pushing or lifting the locking section.

CAUTION:
Do not pull the harness when disconnecting the connector.

[Example]



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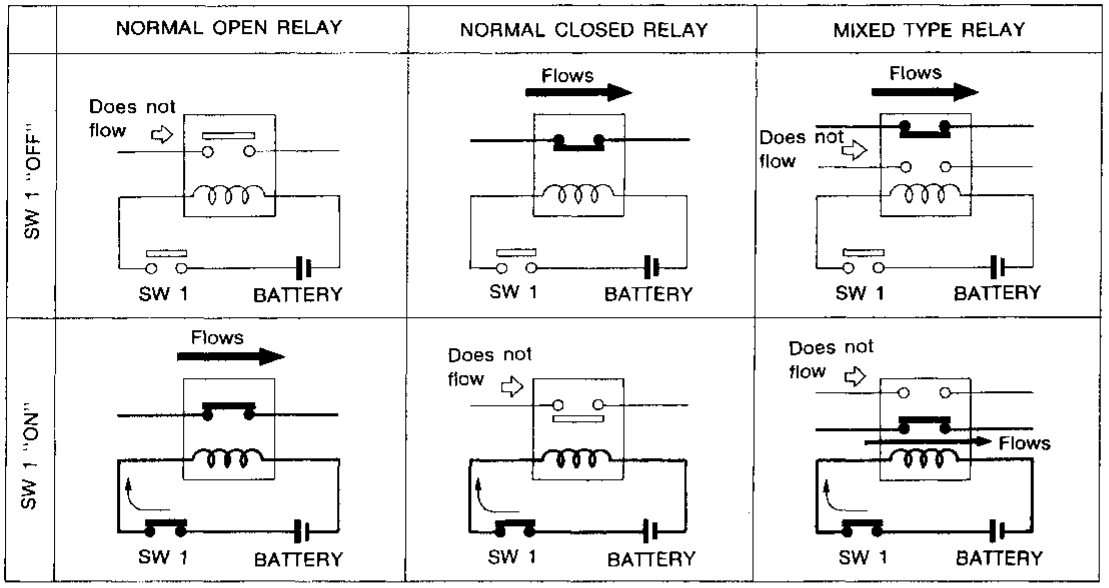
Description

NORMAL OPEN, NORMAL CLOSED AND MIXED TYPE RELAYS

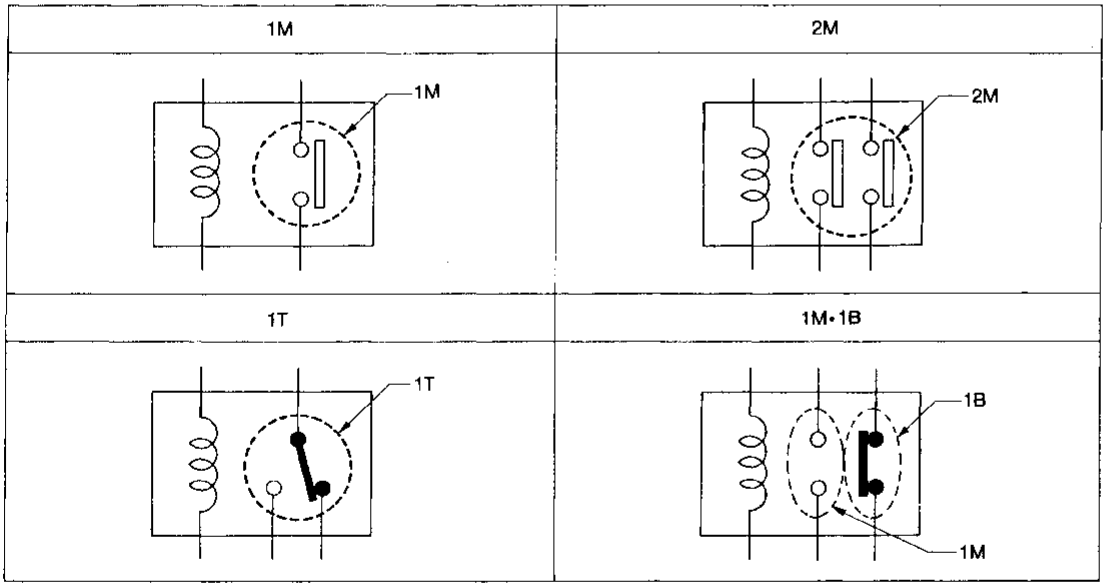
Relays can mainly be divided into three types: normal open, normal closed and mixed type relays.



SEL881H

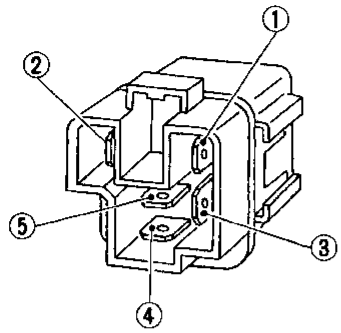
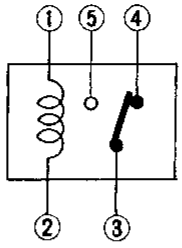
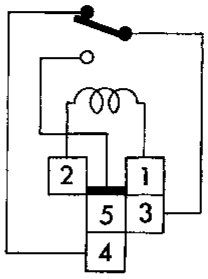
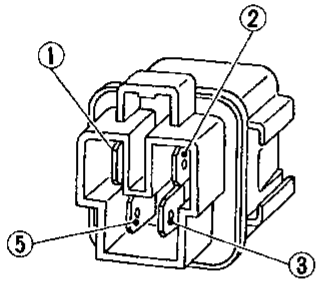
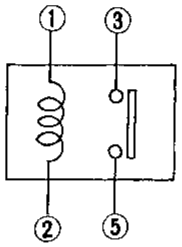
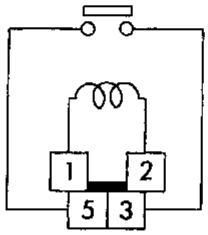
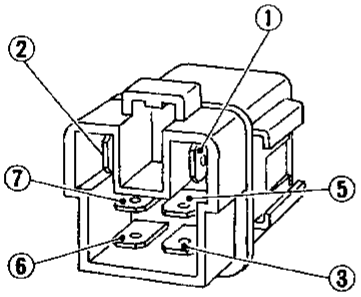
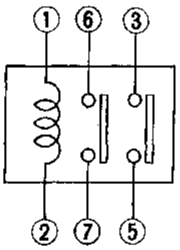
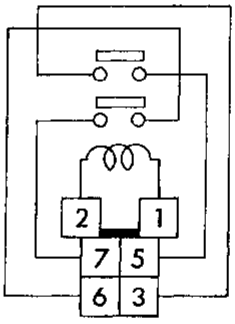
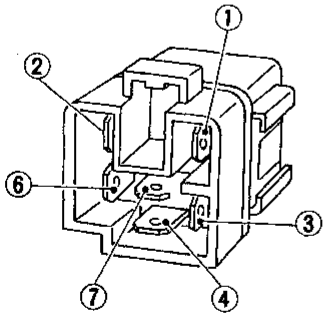
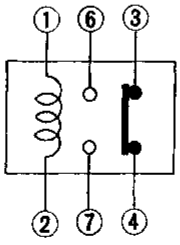
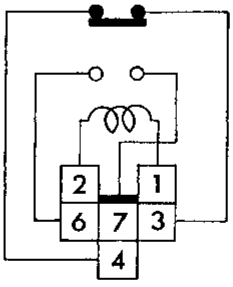
TYPE OF STANDARDIZED RELAYS

1M ... 1 Make
1T .... 1 Transfer
2M ..... 2 Make
1M·1B .... 1 Make 1 Break



SEL882H

Description (Cont'd)

Type	Outer view	Circuit	Connector symbol and connection	Case color
1T				BLACK
1M				BLUE or GREEN
2M				BROWN
1M•1B				GRAY

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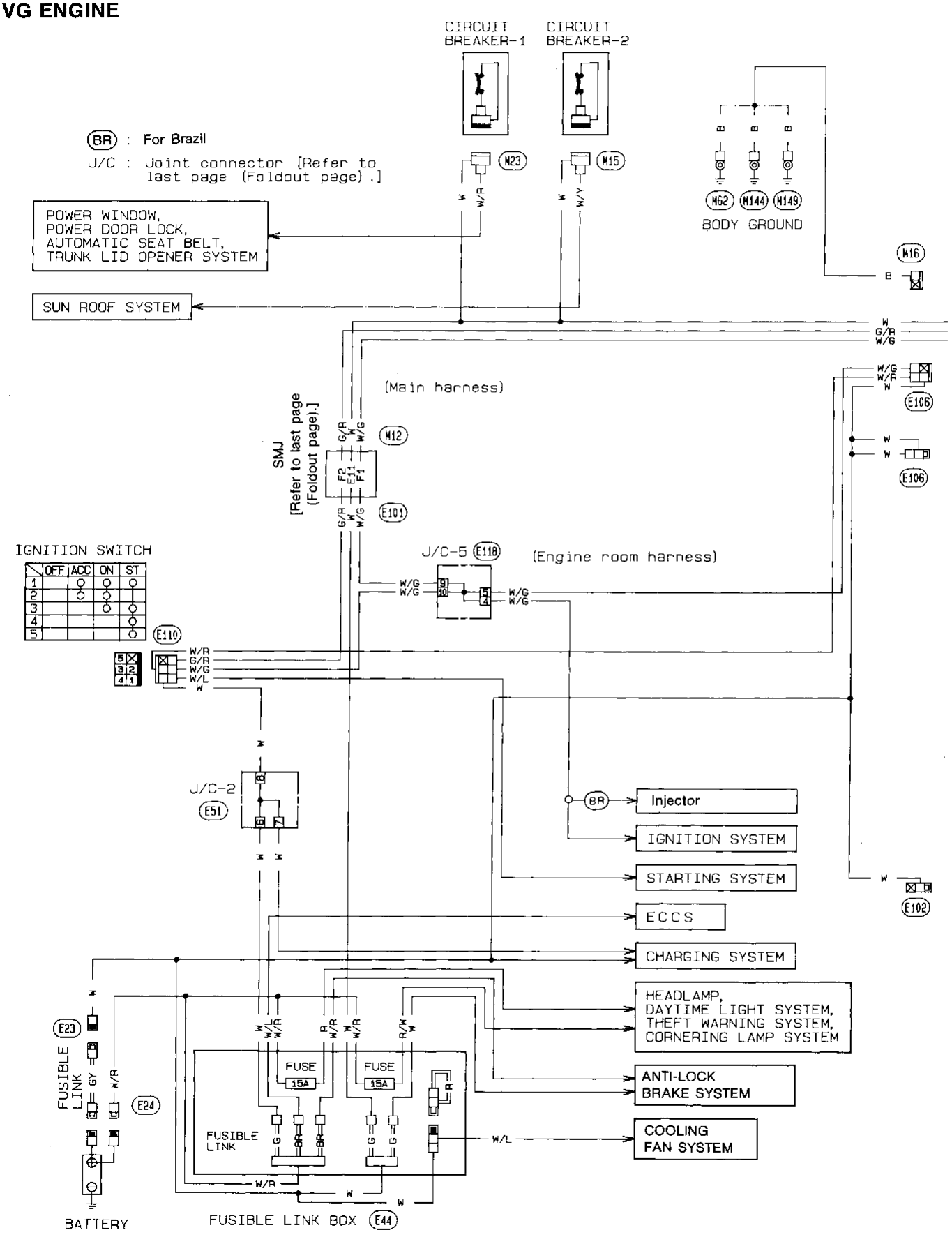
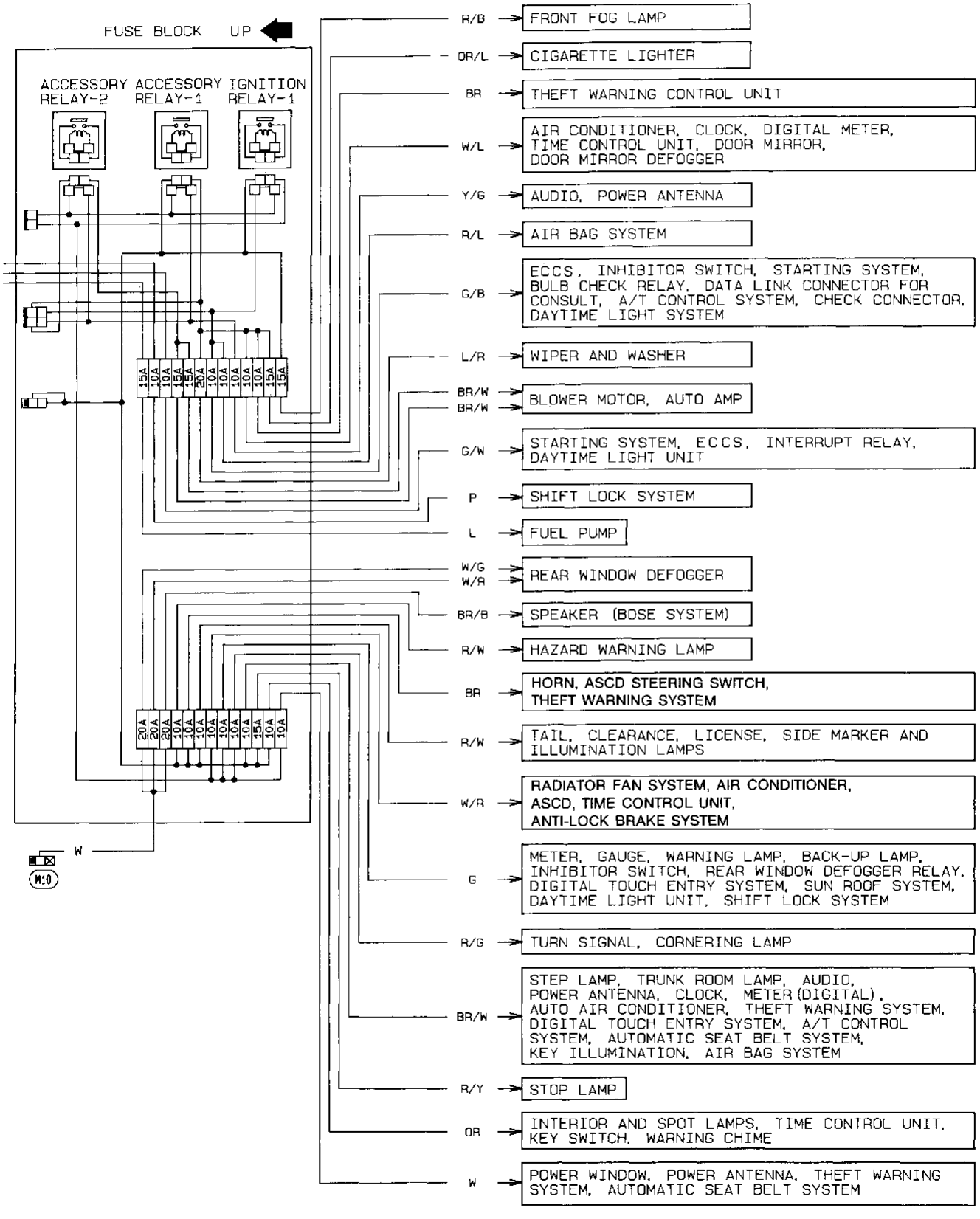
NOTE

Wiring Diagram

VG ENGINE



Wiring Diagram (Cont'd)



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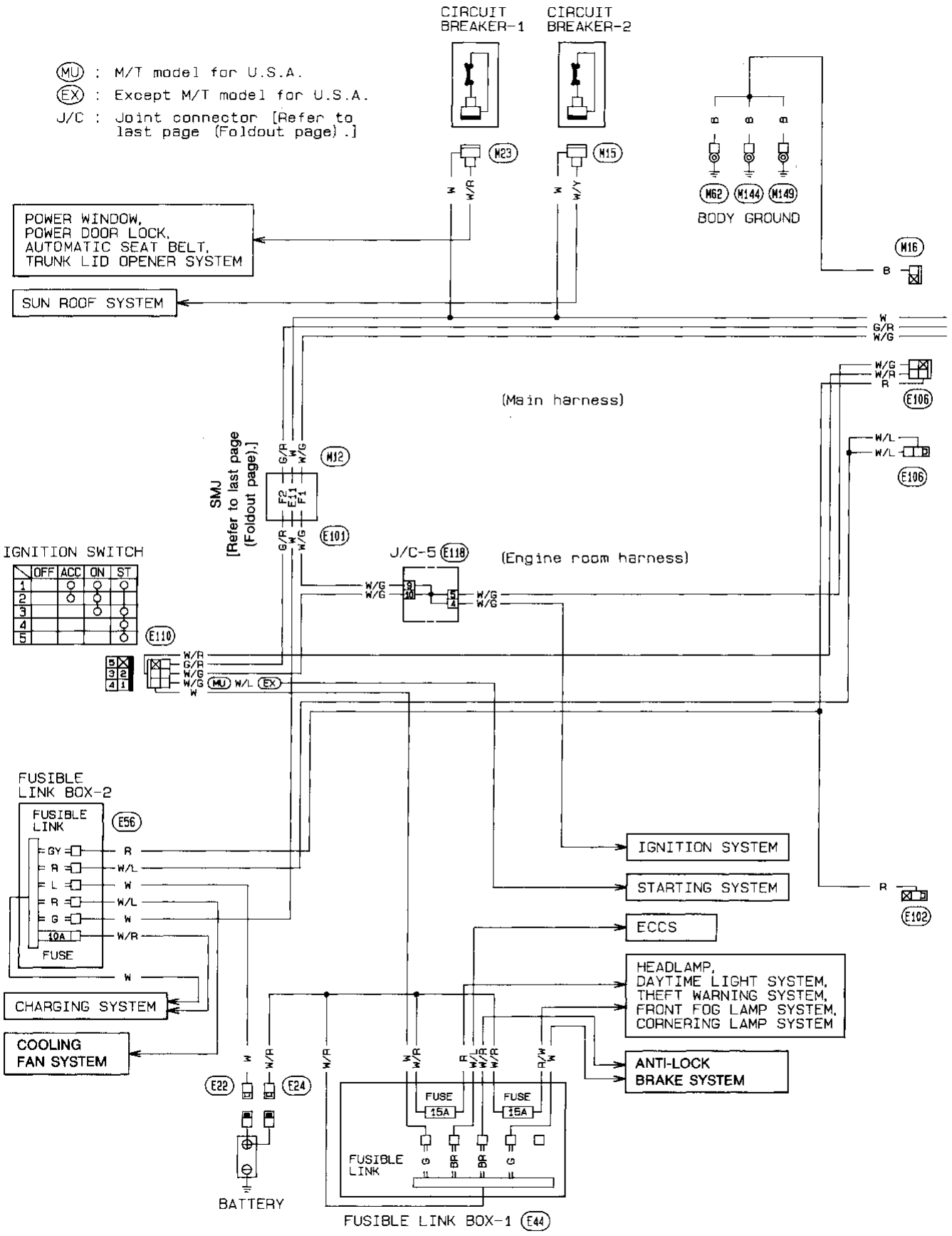
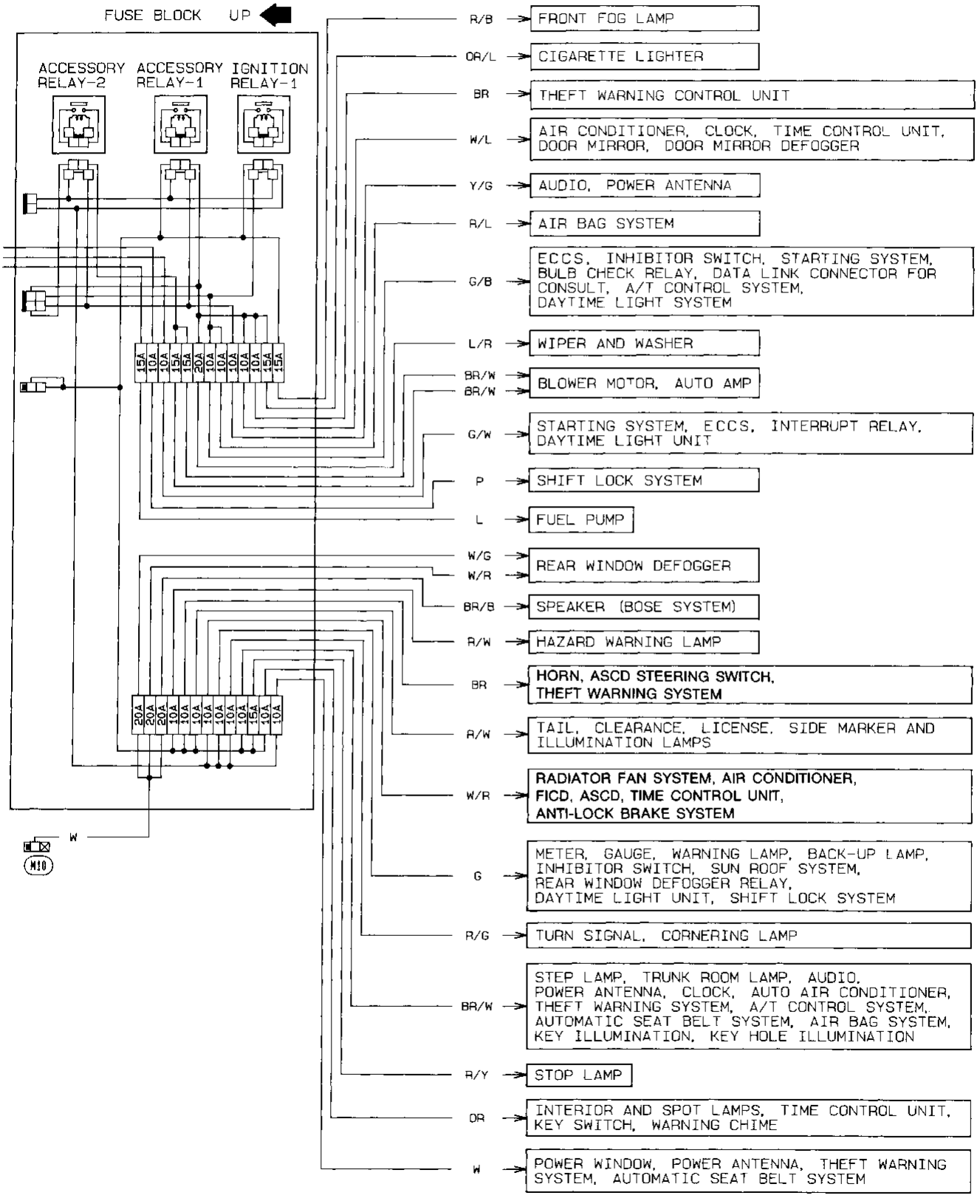
Wiring Diagram (Cont'd)

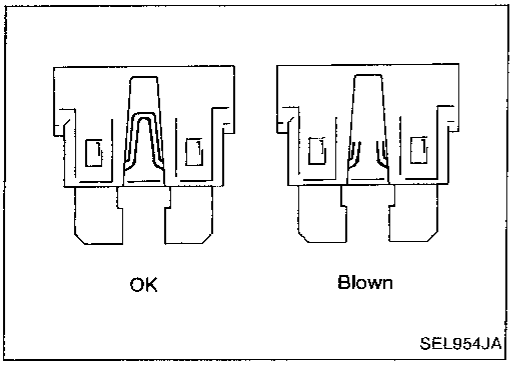
VE ENGINE



Wiring Diagram (Cont'd)

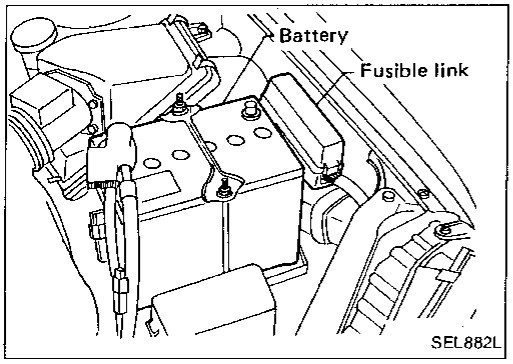


SEL690S



Fuse

a. If fuse is blown, be sure to eliminate cause of problem before installing new fuse.
b. Use fuse of specified rating. Never use fuse of more than specified rating.
c. Do not install fuse in oblique direction; always insert it into fuse holder properly.
d. Remove fuse for clock if vehicle is not used for a long period of time.



Fusible Link

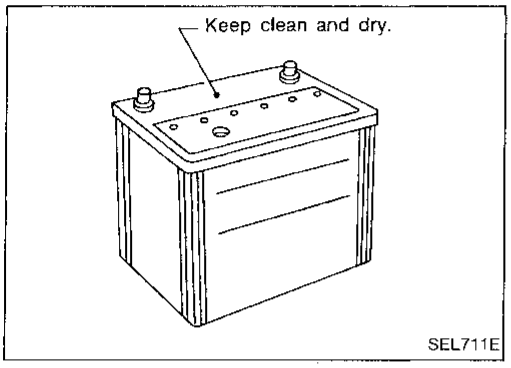
A melted fusible link can be detected either by visual inspection or by feeling with finger tip. If its condition is questionable, use circuit tester or test lamp.

CAUTION:

a. If fusible link should melt, it is possible that a critical circuit (power supply or large current carrying circuit) is shorted. In such a case, carefully check these circuits and eliminate cause of problem.
b. Never wrap periphery of fusible link with vinyl tape. Extreme care should be taken with this link to ensure that it does not come into contact with any other wiring harness, or vinyl or rubber parts.

CAUTION:

a. **If it becomes necessary to start the engine with a booster battery and jumper cables, use a 12-volt booster battery.**
b. **After connecting battery cables, ensure that they are tightly clamped to battery terminals for good contact.**
c. **Never add distilled water through the hole used to check specific gravity.**

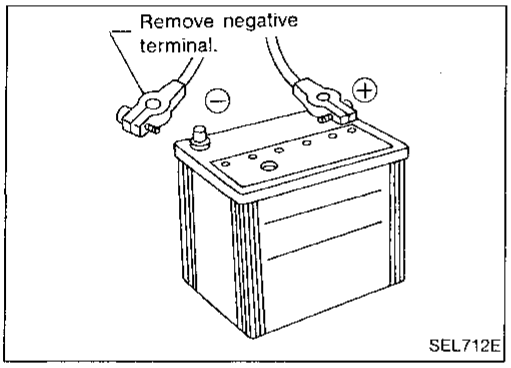


How to Handle Battery

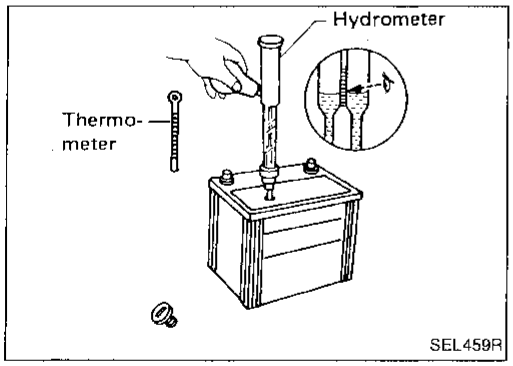
METHODS OF PREVENTING OVER-DISCHARGE

The following precautions must be taken to prevent over-discharging a battery.

- The battery surface (particularly its top) should always be kept clean and dry.
- The terminal connections should be clean and tight.
- At every routine maintenance, check the electrolyte level.



- When the vehicle is not going to be used over a long period of time, disconnect the negative battery terminal. (If the vehicle has an extended storage switch, turn it off.)



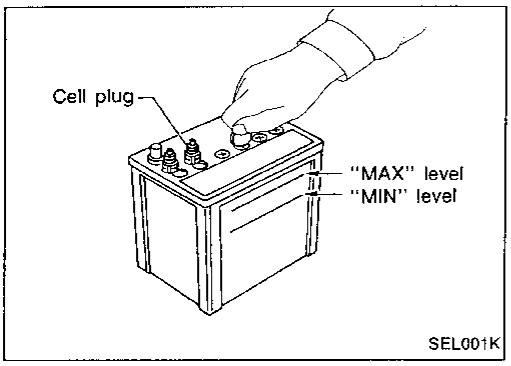
- Check the charge condition of the battery.
  Periodically check the specific gravity of the electrolyte. Keep a close check on charge condition to prevent over-discharge.

CHECKING ELECTROLYTE LEVEL

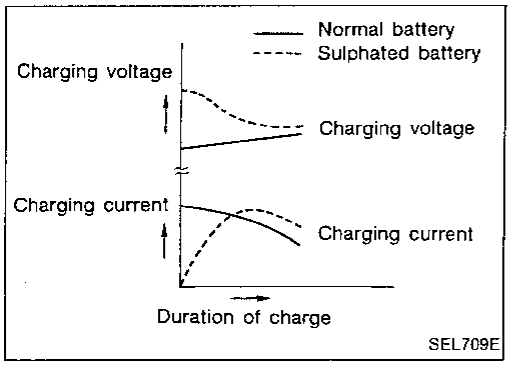
WARNING:

Do not allow battery fluid to come in contact with skin, eyes, fabrics, or painted surfaces. After touching a battery, do not touch or rub your eyes until you have thoroughly washed your hands. If the acid contacts the eyes, skin or clothing, immediately flush with water for 15 minutes and seek medical attention.

How to Handle Battery (Cont'd)



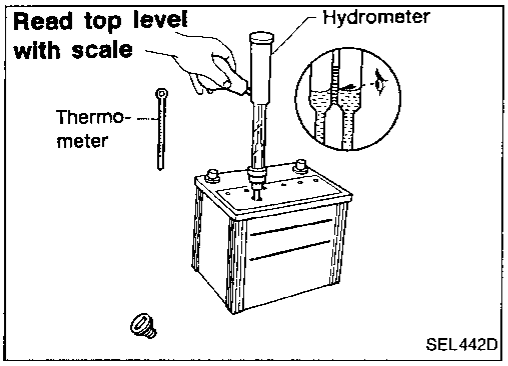
- Remove the cell plug using a suitable tool.
- Add distilled water up to the MAX level.



SULPHATION

When a battery has been left unattended for a long period of time and has a specific gravity of less than 1.100, it will be completely discharged, resulting in sulphation on the cell plates.

Compared with a battery discharged under normal conditions, the current flow in a "sulphated" battery is not as smooth although its voltage is high during the initial stage of charging, as shown in the figure at the left.



SPECIFIC GRAVITY CHECK

1. Read hydrometer and thermometer indications at eye level.

How to Handle Battery (Cont'd)

- Use the chart below to correct your hydrometer reading according to electrolyte temperature.

Hydrometer temperature correction

Battery electrolyte temperature °C (°F)	Add to specific gravity reading
71 (160)	0.032
66 (150)	0.028
60 (140)	0.024
54 (129)	0.020
49 (120)	0.016
43 (110)	0.012
38 (100)	0.008
32 (90)	0.004
27 (80)	0
21 (70)	–0.004
16 (60)	–0.008
10 (50)	–0.012
4 (39)	–0.016
–1 (30)	–0.020
–7 (20)	–0.024
–12 (10)	–0.028
–18 (0)	–0.032

Corrected specific gravity	Approximate charge condition
1.260 - 1.280	Fully charged
1.230 - 1.250	3/4 charged
1.200 - 1.220	1/2 charged
1.170 - 1.190	1/4 charged
1.140 - 1.160	Almost discharged
1.110- 1.130	Completely discharged

CHARGING THE BATTERY

CAUTION:

a. Do not "quick charge" a fully discharged battery.
b. Keep the battery away from open flame while it is being charged.
c. When connecting the charger, connect the leads first, then turn on the charger. Do not turn on the charger first, as this may cause a spark.
d. If battery electrolyte temperature rises above 60°C (140°F), stop charging. Always charge battery at a temperature below 60°C (140°F).

Charging rates:

Amps	Time
50	1 hour
25	2 hours
10	5 hours
5	10 hours

How to Handle Battery (Cont'd)

Do not charge at more than 50 ampere rate.

Note: The ammeter reading on your battery charger will automatically decrease as the battery charges. This indicates that the voltage of the battery is increasing normally as the state of charge improves. The charging amps indicated above refer to initial charge rate.

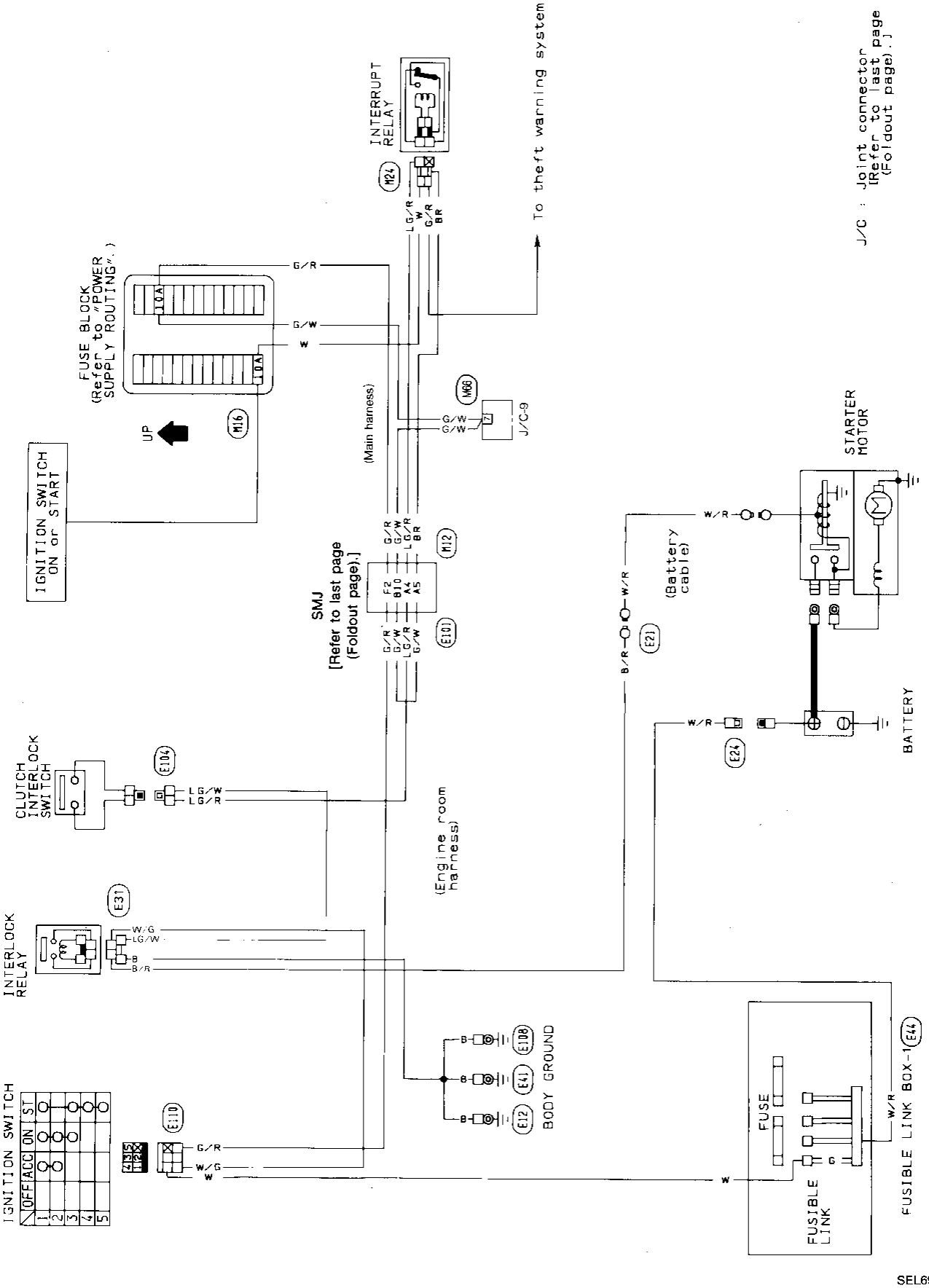
- **If, after charging, the specific gravity of any two cells varies more than .050, the battery should be replaced.**

Service Data and Specifications (SDS)

Applied area	U.S.A.	Optional for U.S.A. & Canada	Optional for Canada
Type	55D23L	80D26L	95D31L
Capacity V-AH	12-50	12-65	12-80
Cold cranking current (For reference value) A	356	582	622

Wiring Diagram

M/T MODEL FOR U.S.A.



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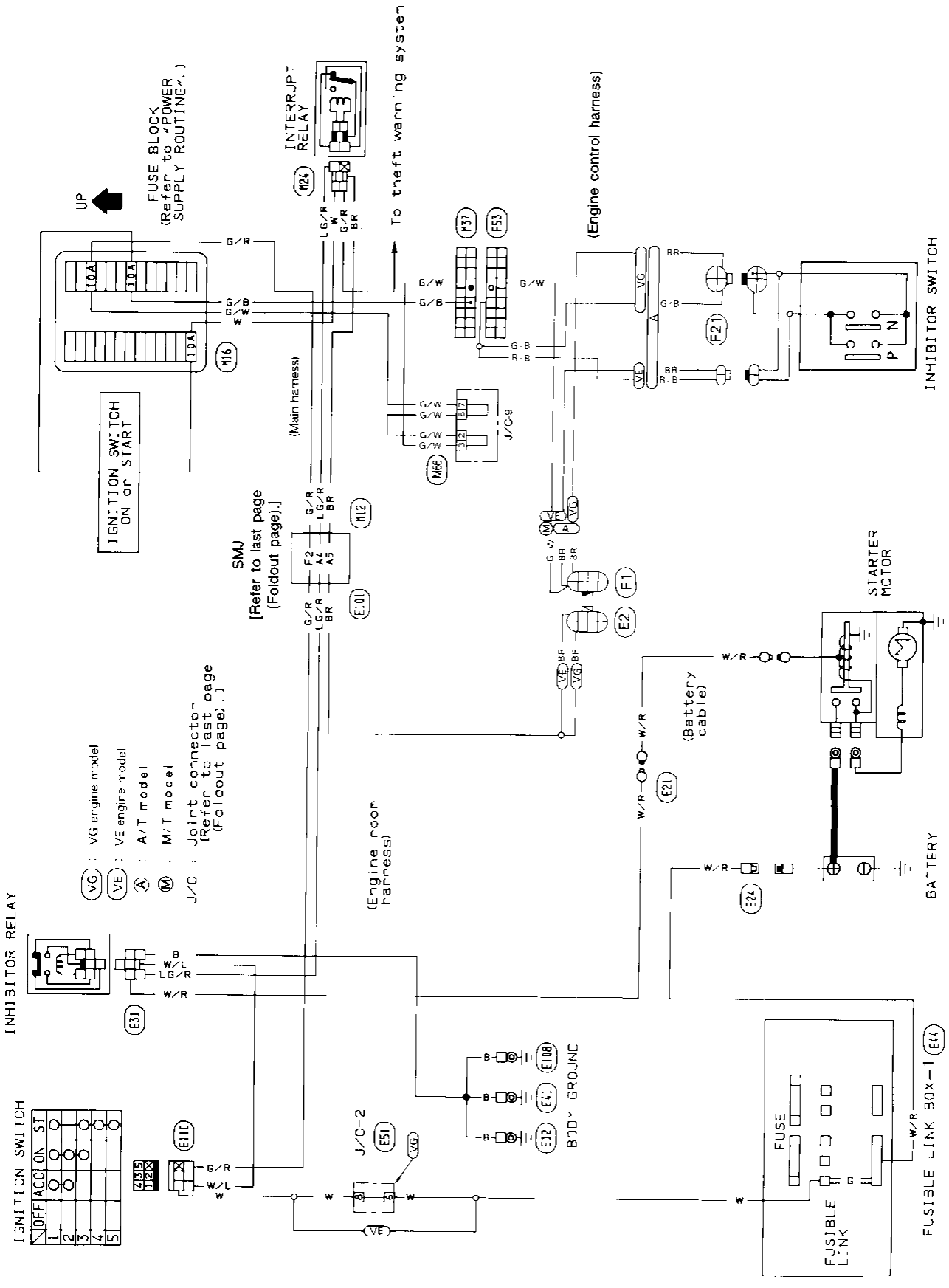
Wiring Diagram (Cont'd)

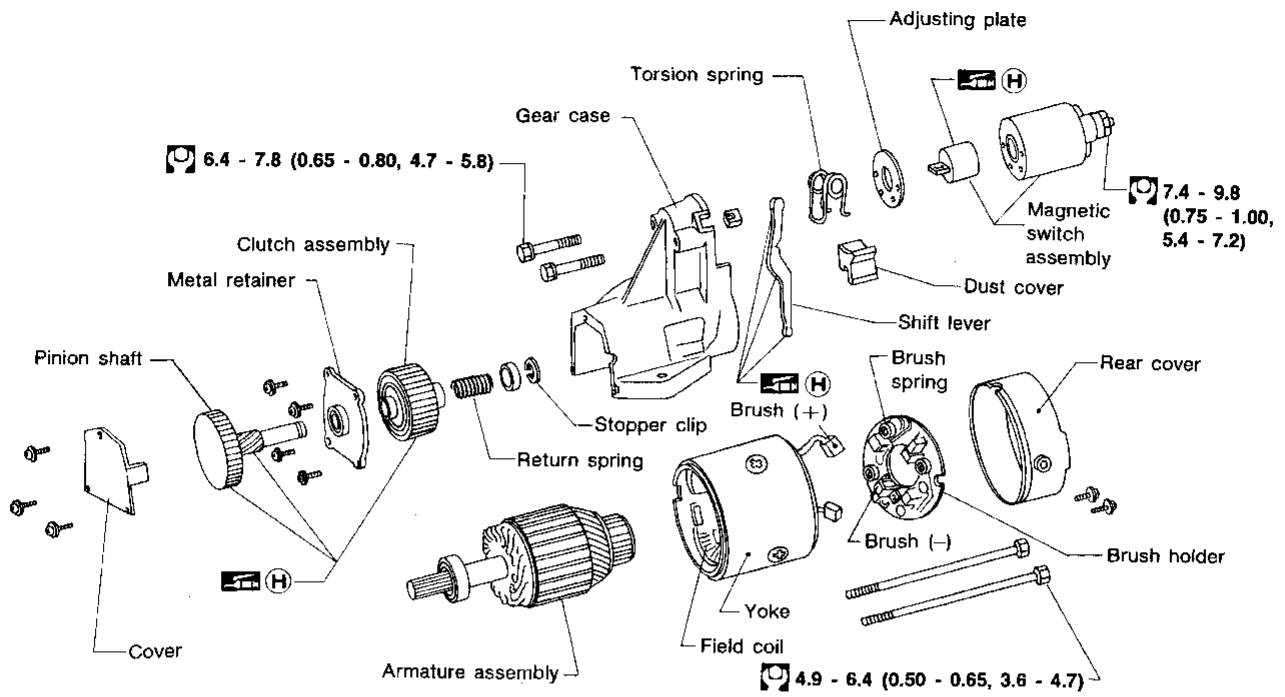
EXCEPT M/T MODEL FOR U.S.A.



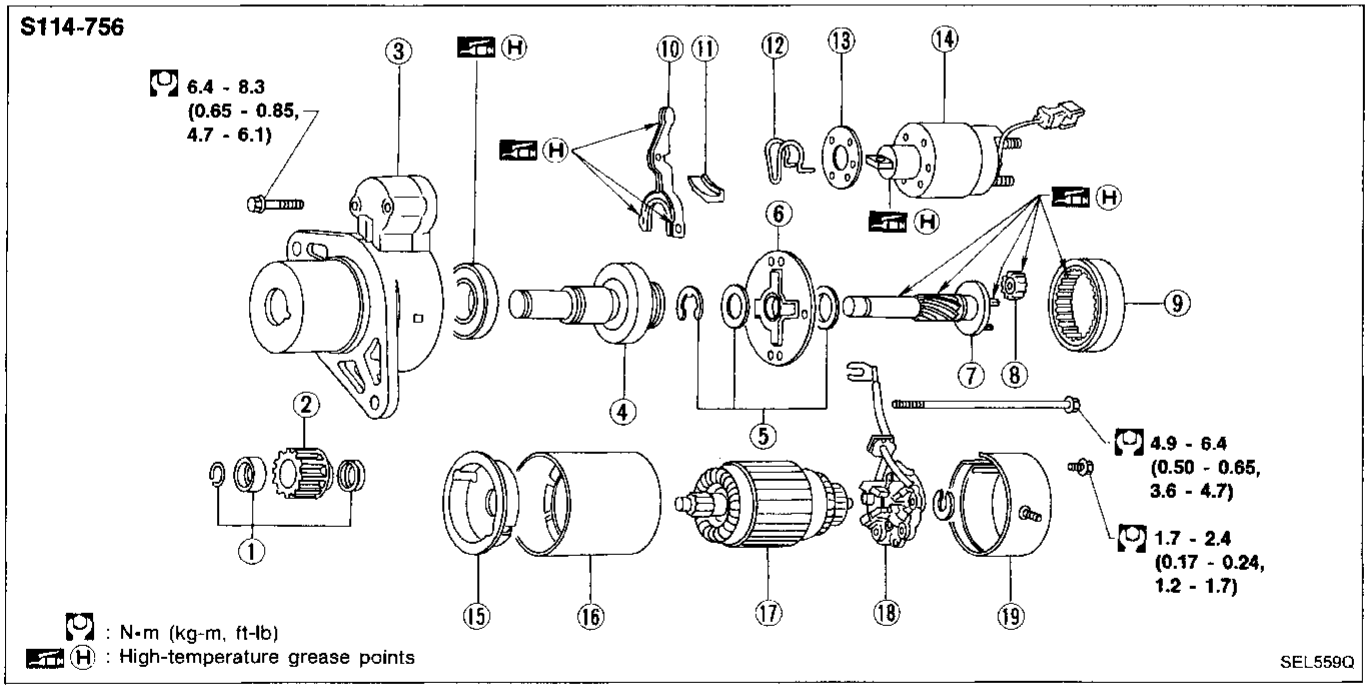
SEL692S

Construction

S114-461A



S114-756



① Pinion stopper
② Pinion gear
③ Gear case
④ Clutch assembly
⑤ Thrust washer
⑥ Center bracket (P)
⑦ Pinion shaft
⑧ Planetary gear
⑨ Internal gear
⑩ Shift lever
⑪ Dust cover
⑫ Return spring
⑬ Adjusting plate
⑭ Magnetic switch assembly
⑮ Center bracket (A)
⑯ Yoke assembly
⑰ Armature assembly
⑱ Brush holder
⑲ Rear cover

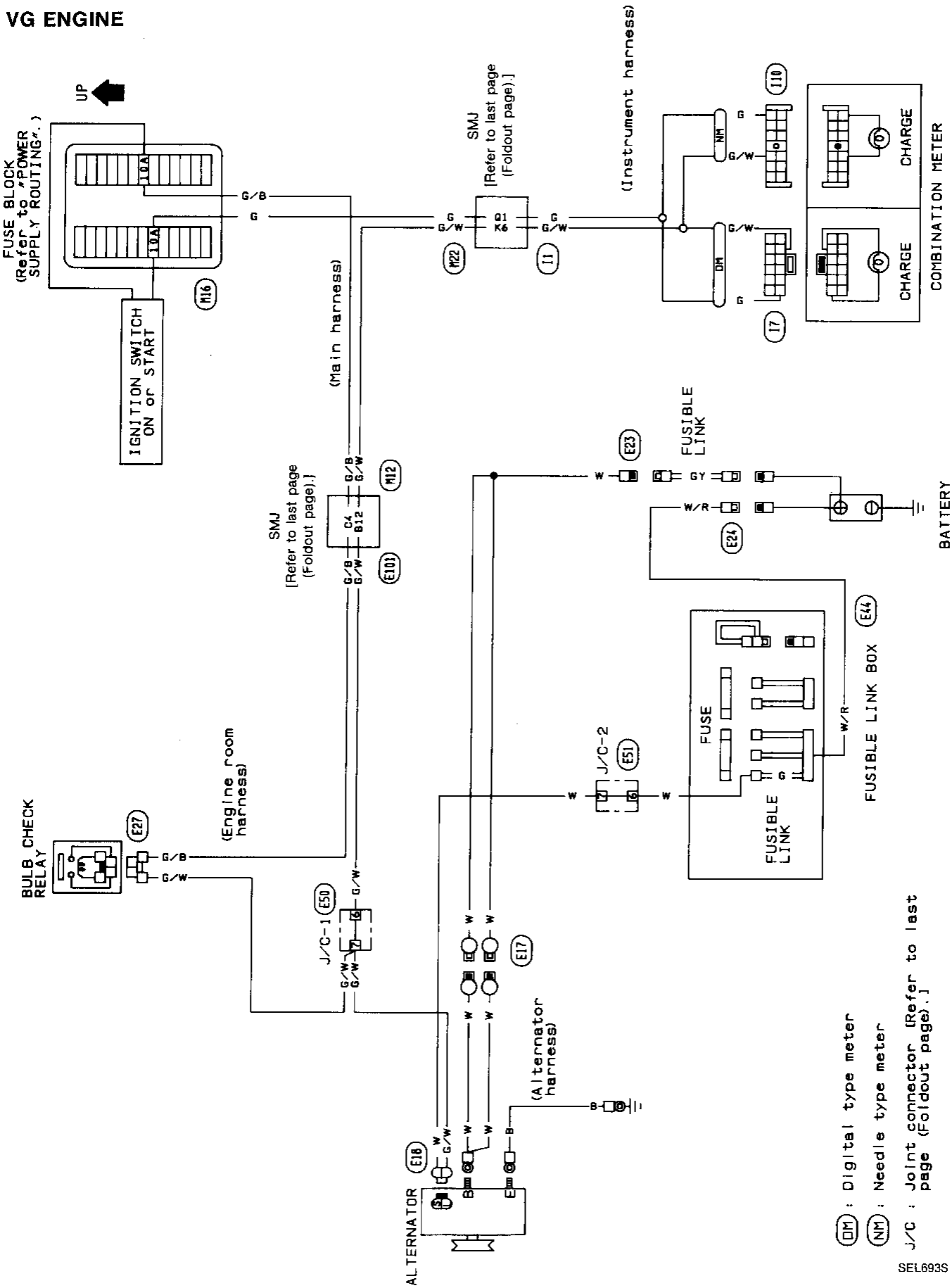
Service Data and Specifications (SDS)

STARTER

Type		S114-461A		S114-756
		HITACHI make		
		Reduction gear type		
Applied model		VG30E	VE30DE	
		A/T	M/T	A/T
System voltage	V	12		
No-load				
Terminal voltage	V	11.0		
Current	A	Less than 100		Less than 90
Revolution	rpm	More than 3,000		More than 2,950
Minimum diameter of commutator	mm (in)	32.0 (1.260)		
Minimum length of brush	mm (in)	12.0 (0.472)		11.0 (0.433)
Brush spring tension	N (kg, lb)	17.7 - 21.6 (1.8 - 2.2, 4.0 - 4.9)		
Movement in height of pinion assembly	mm (in)	0.05 - 0.8 (0.0020 - 0.0315)		—
Clearance of bearing metal and armature shaft	mm (in)	—		0.03 - 0.3 (0.0012 - 0.0118)
Clearance between pinion front edge and pinion stopper	mm (in)	—		0.05 - 1.5 (0.0020 - 0.0591)

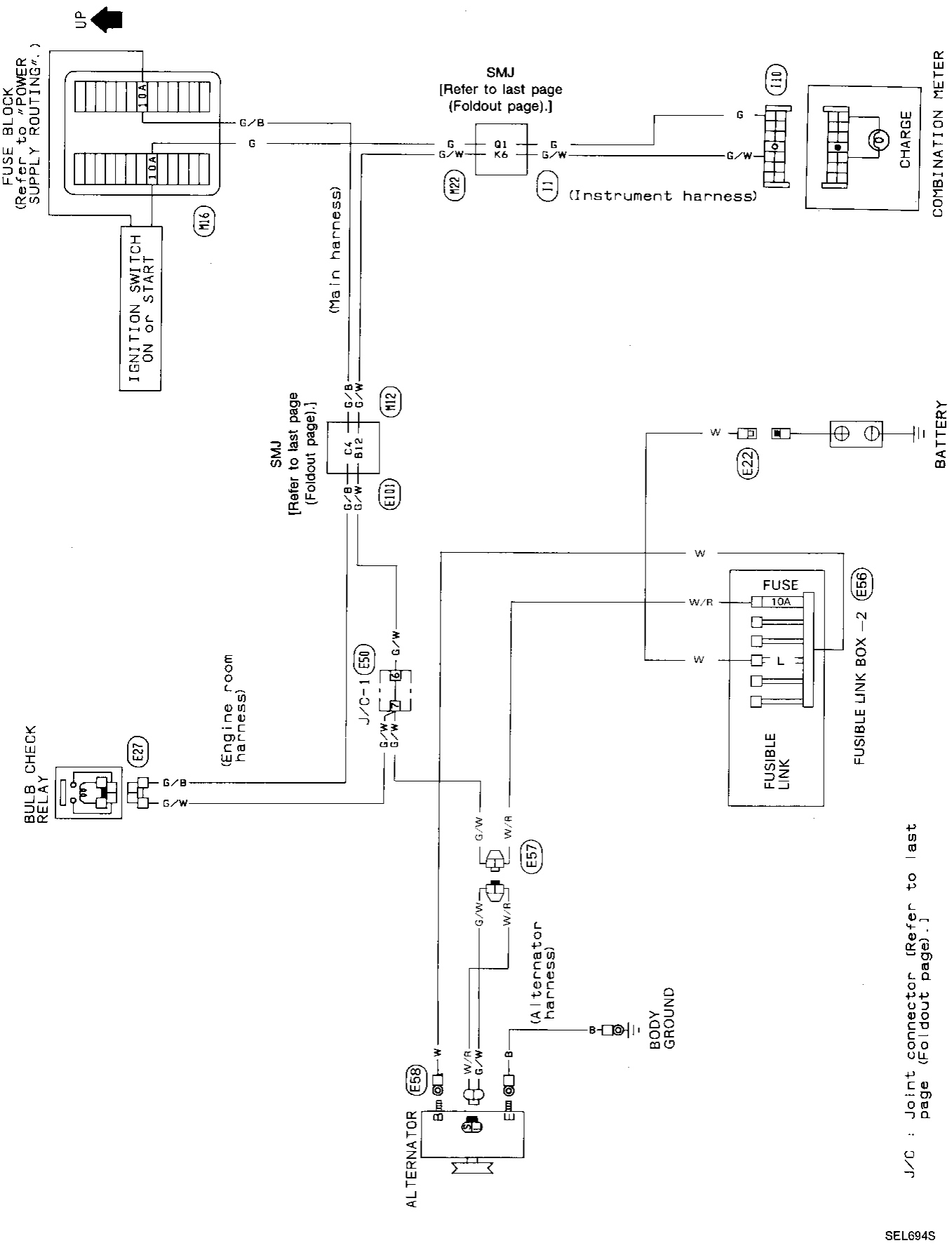
Wiring Diagram

VG ENGINE



Wiring Diagram (Cont'd)

VE ENGINE



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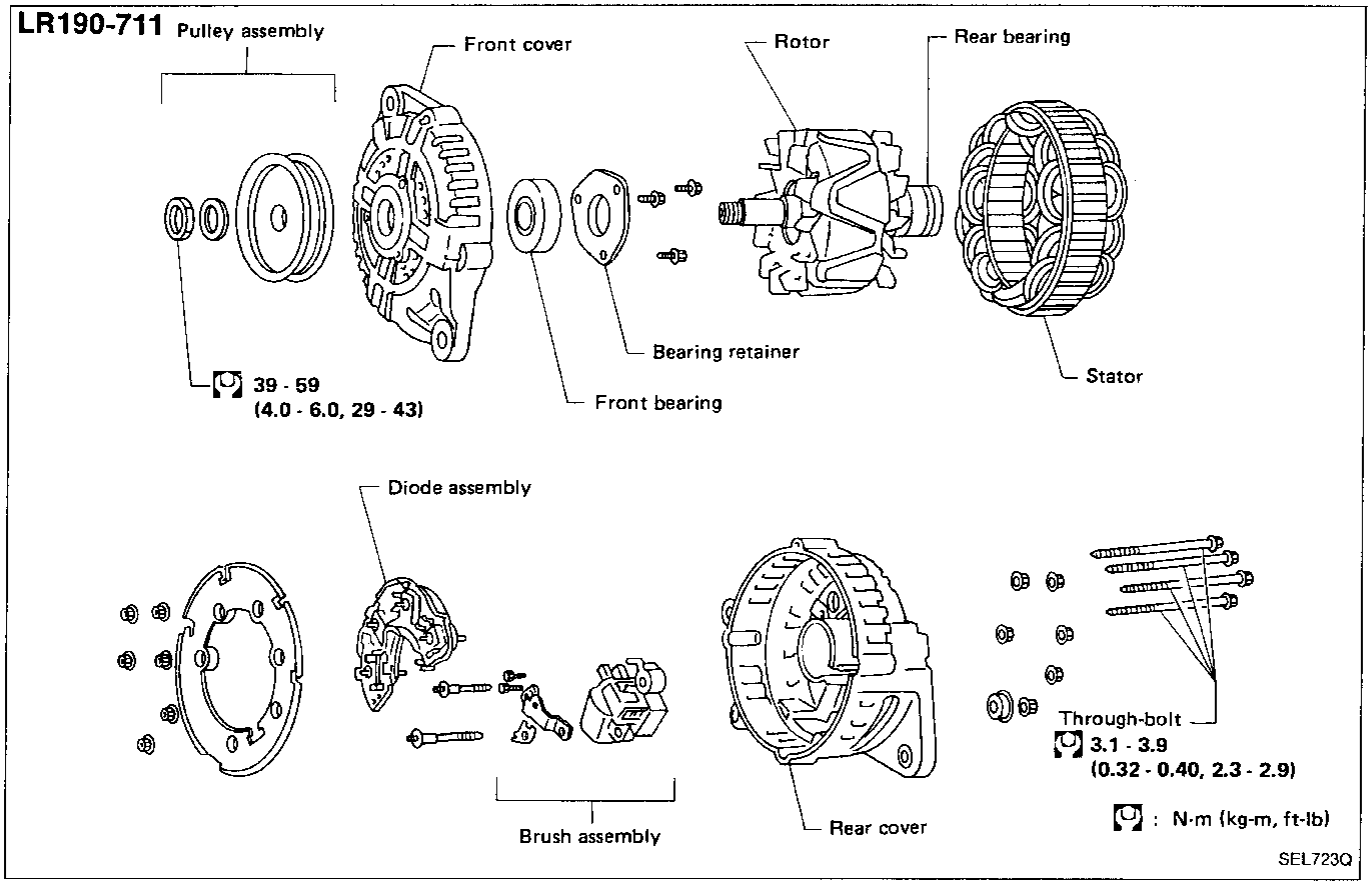
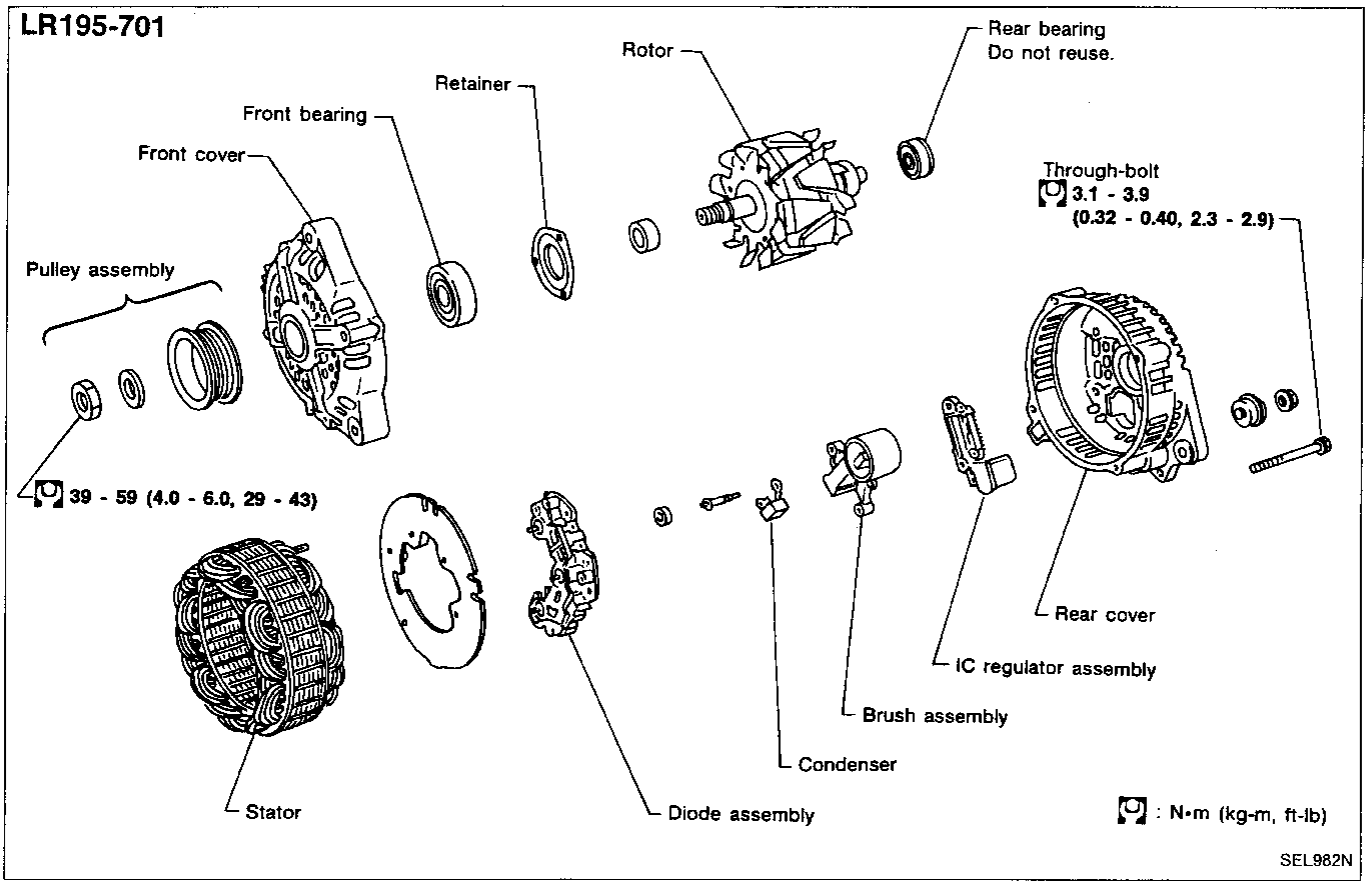
Construction



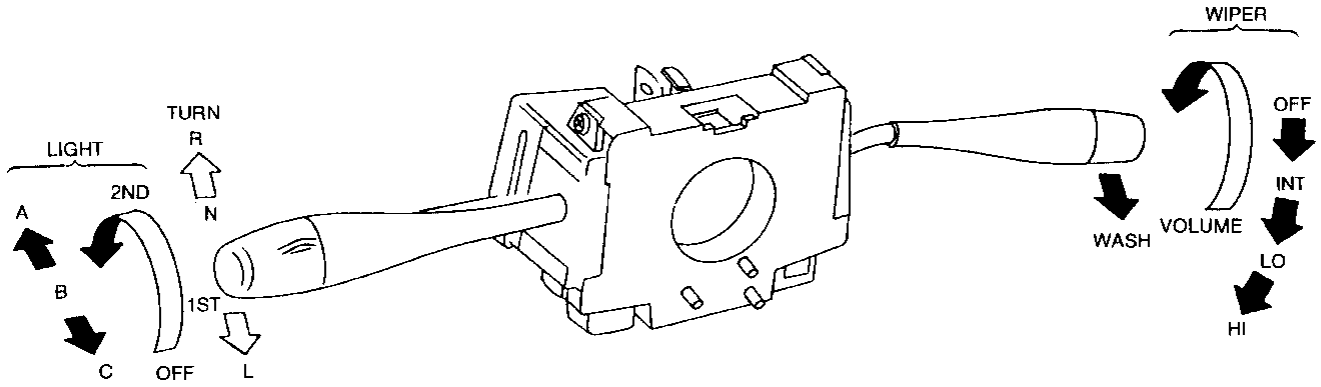


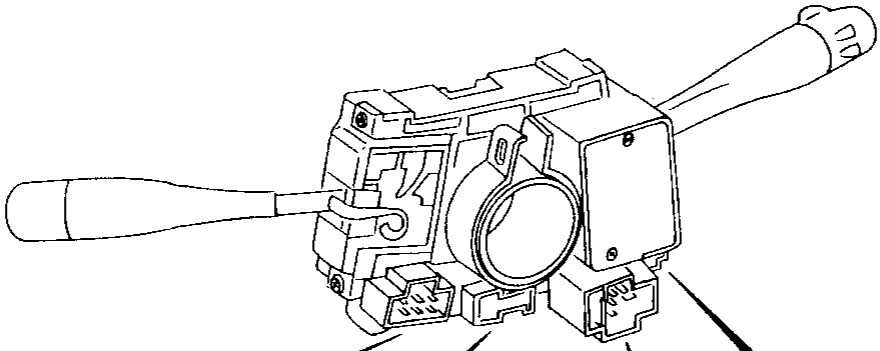
Service Data and Specifications (SDS)

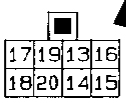
ALTERNATOR

Type		LR190-711	LR195-701
		HITACHI make	
Applied model		VG30E	VE30DE
Nominal rating	V-A	12-90	12-95
Ground polarity		Negative	
Minimum revolution under no-load (When 13.5 volts is applied)	rpm	Less than 950	
Hot output current (When 13.5 volts is applied)	A/rpm	More than 23/1,300 More than 63/2,500 More than 84/5,000	More than 34/1,300 More than 80/2,500 More than 91/5,000
Regulated output voltage	V	14.1 - 14.7	
Minimum length of brush	mm (in)	7.0 (0.276)	6.0 (0.236)
Brush spring pressure	N (g, oz)	1.079 - 2.550 (110 - 260, 3.88 - 9.17)	1.000 - 3.432 (102 - 350, 3.60 - 12.34)
Slip ring minimum diameter	mm (in)	30.6 (1.205)	
Rotor (Field coil) resistance	Ω	—	2.31

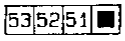
Combination Switch/Check



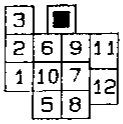




(Wiper)



(Horn and ASCD steering switch)
(Without air bag model)



(Light and Turn)

(Cornering)

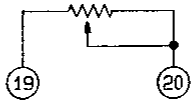
LIGHTING SWITCH

	OFF			1ST			2ND		
	A	B	C	A	B	C	A	B	C
5			○			○	○	○	○
6			○			○	○		○
7							○		
8			○			○	○	○	○
9			○			○	○		○
10							○		
11				○	○	○	○	○	○
12				○	○	○	○	○	○

WIPER SWITCH

	OFF	INT	LO	HI	WASH
13	○	○			
14	○	○			
15		○	○		
16				○	
17		○	○	○	○
18					○

INTERMITTENT WIPER VOLUME



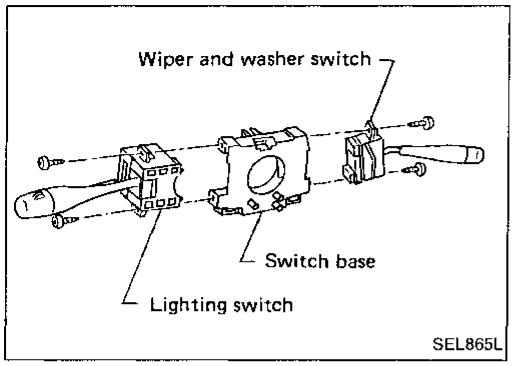
TURN SIGNAL SWITCH

	R	N	L
1	○		○
2	○		
3			○

CORNERING LAMP SWITCH

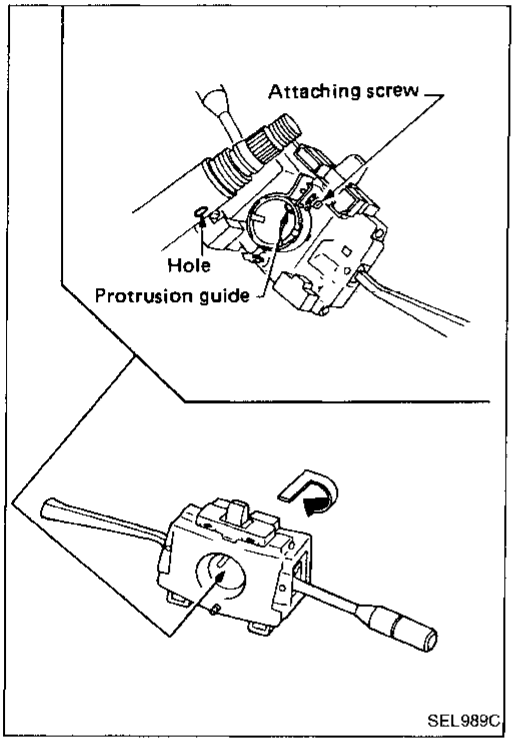
	R	N	L
61	○		○
62	○		
63			○

SEL602QA



Combination Switch/Replacement

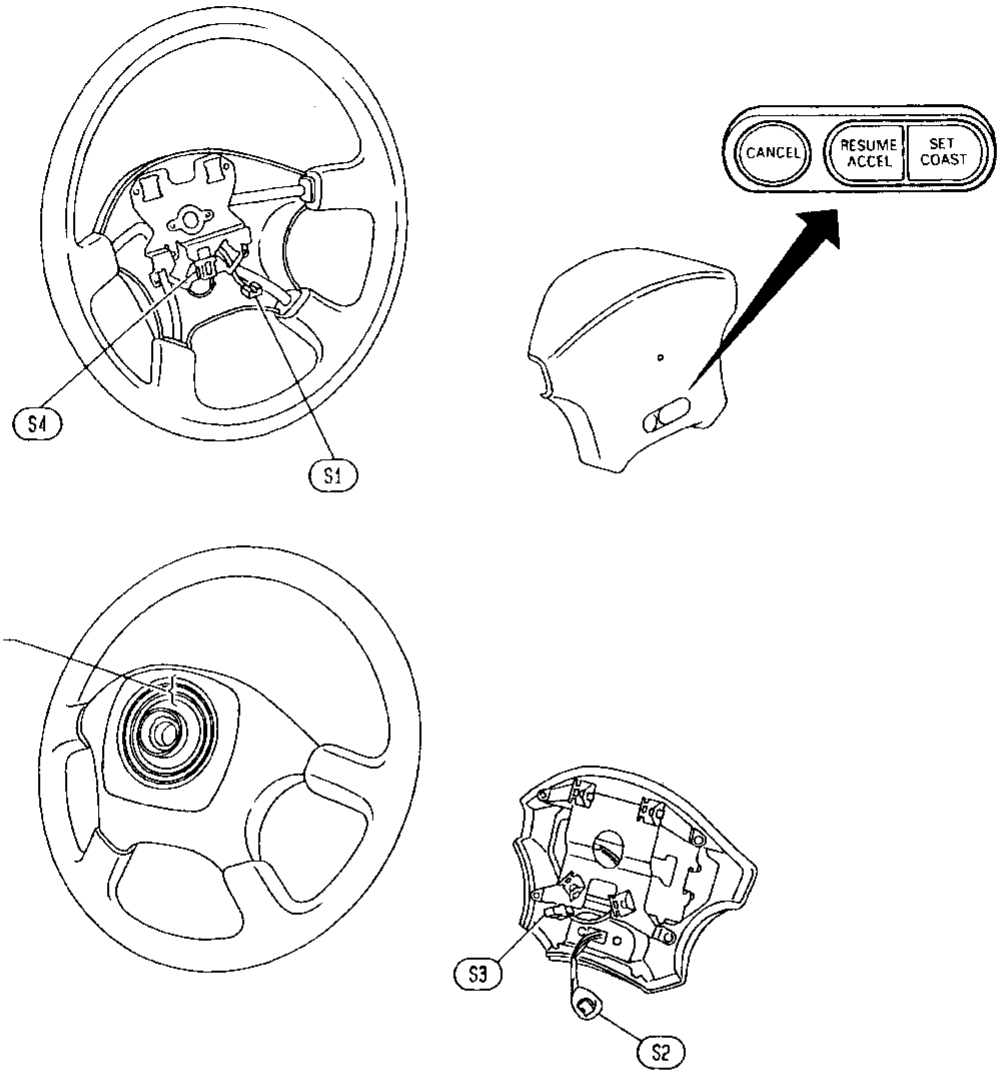
- Each switch can be replaced without removing combination switch base.



- To remove combination switch base, remove base attaching screw and turn after pushing on it.

Steering Switch/Check

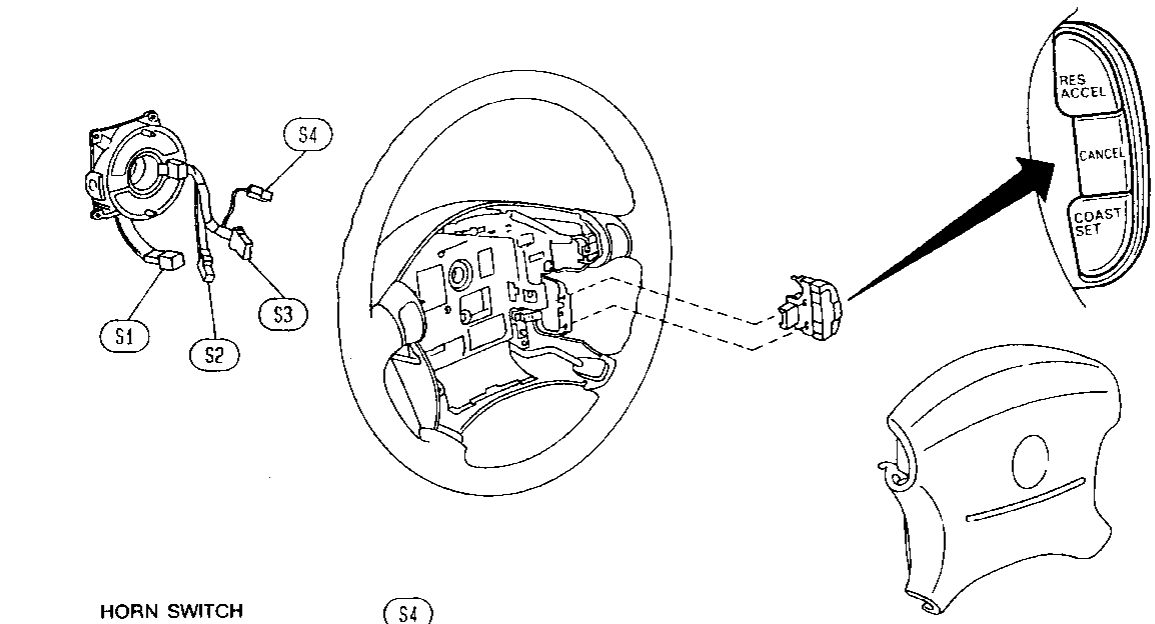
WITHOUT AIR BAG SYSTEM

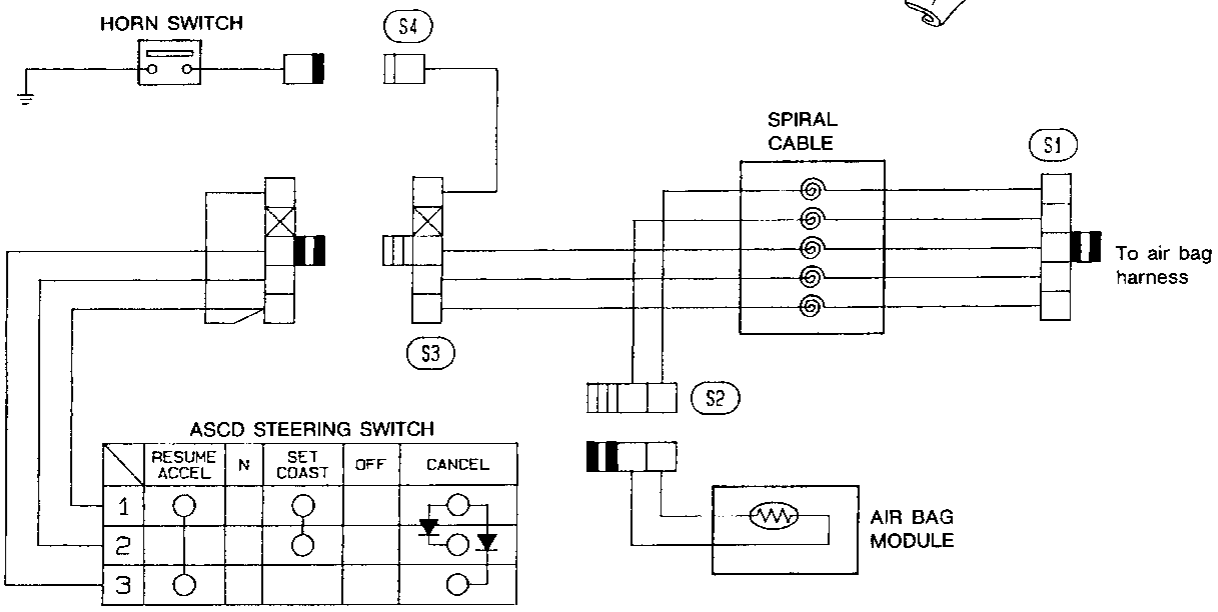


SEL603QA

Steering Switch/Check (Cont'd)

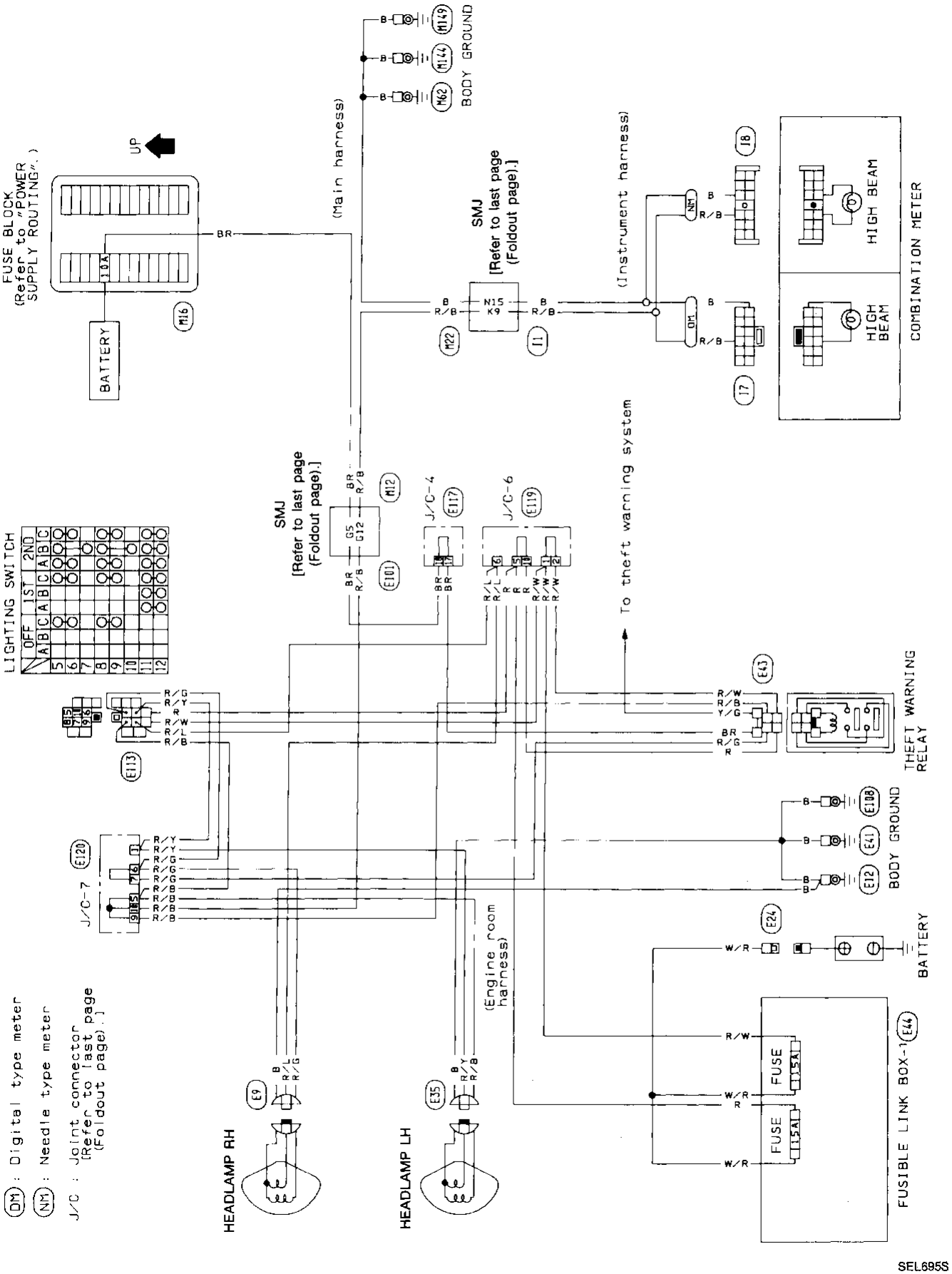
WITH AIR BAG SYSTEM





SEL604QA

Wiring Diagram (For U.S.A.)



SEL695S

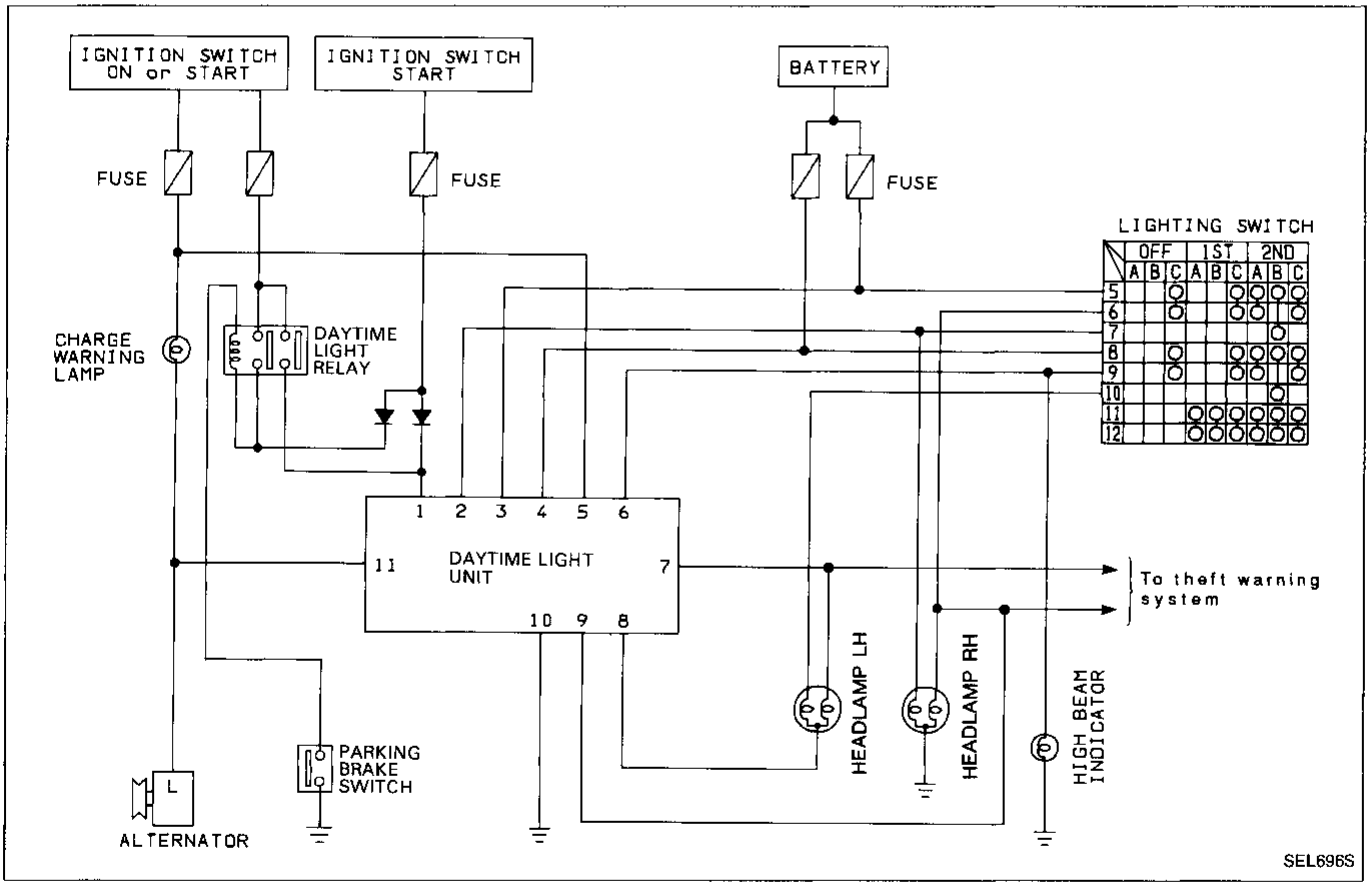
Operation (Daytime light system for Canada)

After starting the engine with the lighting switch in the "OFF" position or "1ST" position, the headlamp high beam automatically turns on. Lighting switch operations other than the above are the same as conventional light systems.

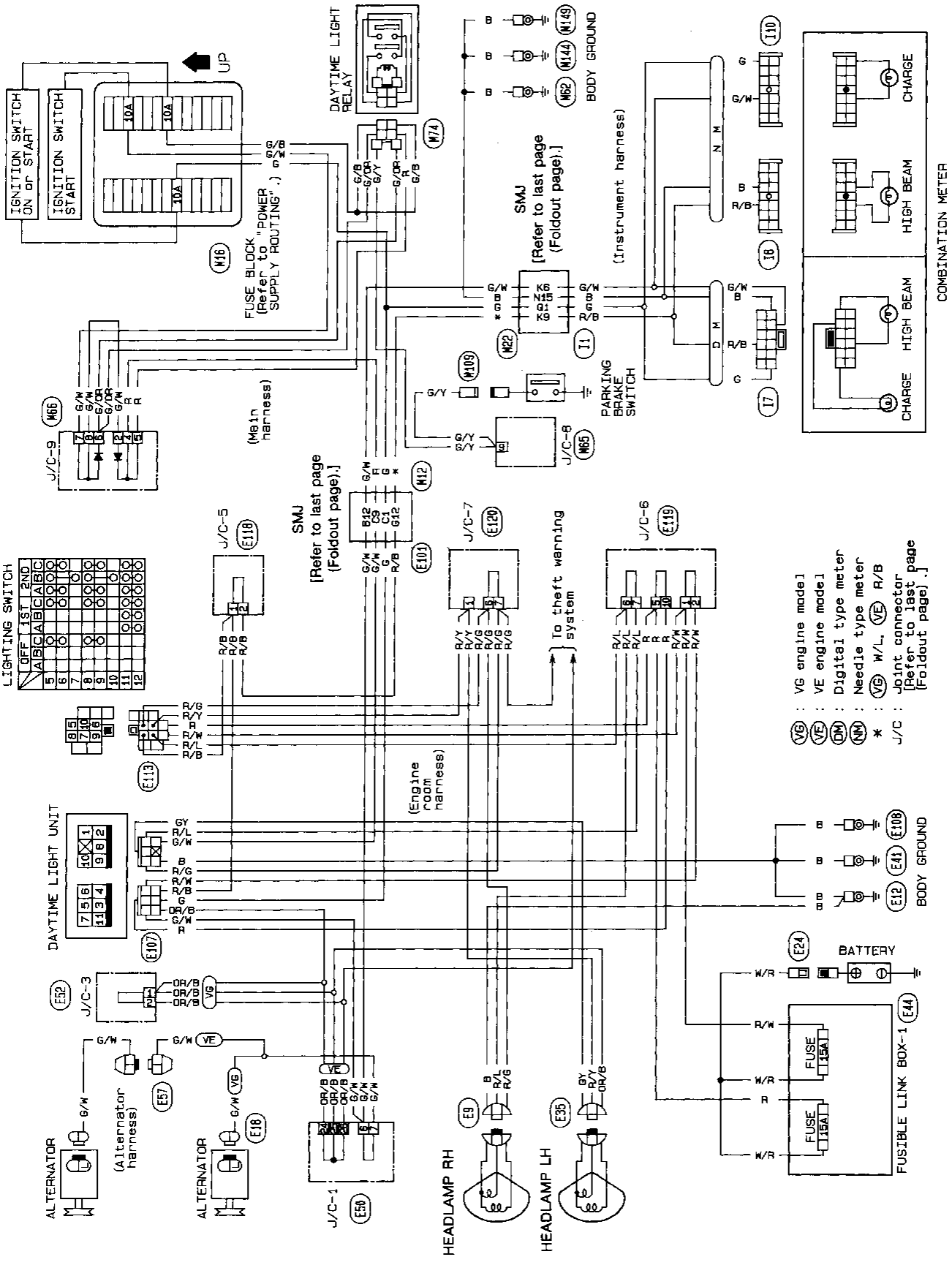
Engine		With engine stopped									With engine running								
Lighting switch		OFF			1ST			2ND			OFF			1ST			2ND		
		A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
Headlamp	High beam	X	X	○	X	X	○	○	X	○	△*	△*	○	△*	△*	○	○	X	○
	Low beam	X	X	X	X	X	X	X	○	X	X	X	X	X	X	X	X	○	X
Clearance and tail lamp		X	X	X	○	○	○	○	○	○	X	X	X	○	○	○	○	○	○
License and instrument illumination lamp		X	X	X	○	○	○	○	○	○	X	X	X	○	○	○	○	○	○

○ : Lamp "ON"
X : Lamp "OFF"
△ : Lamp dims.
□ : Added functions
*: When starting the engine with the parking brake released, the daytime light will come ON.
When starting the engine with the parking brake pulled, the daytime light won't come ON.

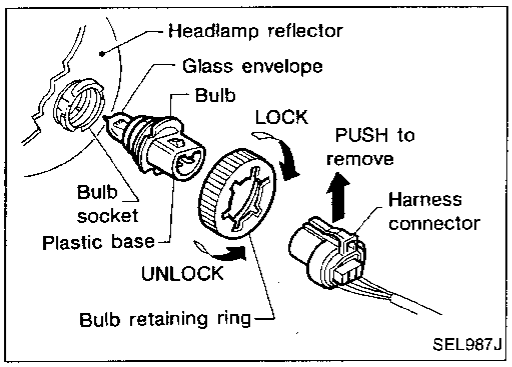
Schematic (Daytime light system for Canada)



Wiring Diagram (For Canada)



SEL697S



Bulb Replacement

The headlamp is a semi-sealed beam type which uses a replaceable halogen bulb. The bulb can be replaced from the engine compartment side without removing the headlamp body.

- **Grasp only the plastic base when handling the bulb. Never touch the glass envelope.**

1. Disconnect the battery cable.
2. Turn the bulb retaining ring counterclockwise until it is free from the headlamp reflector, and then remove it.
3. Disconnect the harness connector from the back side of the bulb.
4. Remove the headlamp bulb carefully. Do not shake or rotate the bulb when removing it.
5. Install in the reverse order of removal.

CAUTION:

- **Do not leave the bulb out of the headlamp reflector for a long period of time as dust, moisture, smoke, etc. may enter the headlamp body and affect the performance of the headlamp. Thus, the headlamp bulb should not be removed from the headlamp reflector until just before a replacement bulb is to be installed.**

Aiming Adjustment

When performing headlamp aiming adjustment, use an aiming machine, aiming wall screen or headlamp tester. For operating instructions of any aimer, it should be in good repair, calibrated and used according to respective operation manuals supplied with the unit.

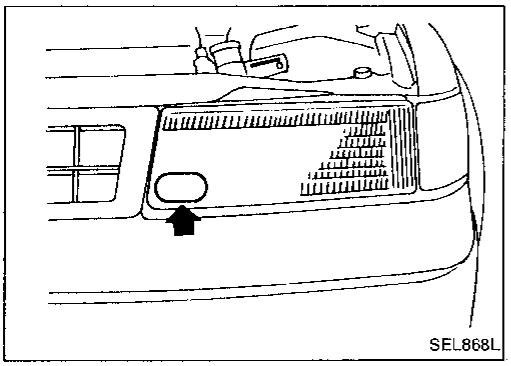
If any aimer is not available, aiming adjustment can be done as follows:

For details, refer to the regulations in your own country.

a. Keep all tires inflated to correct pressures.

b. Place vehicle and tester on one and same flat surface.

c. See that there is no-load in vehicle (coolant, engine oil filled up to correct level and full fuel tank) other than the driver (or equivalent weight placed in driver's position).



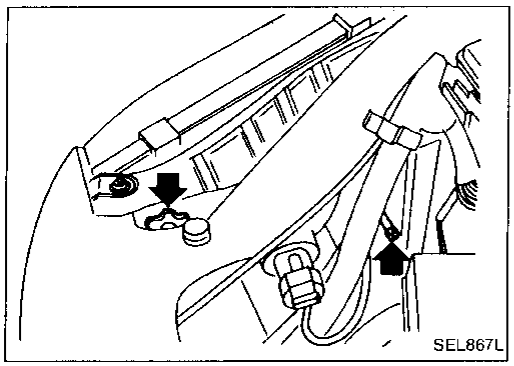
AIMER ADJUSTMENT MARK

When using a mechanical aimer, adjust adapter legs to the data marked on the headlamps.

Example:

4H 2V
- 2V: Vertical side: 2
- 4H: Horizontal side: 4

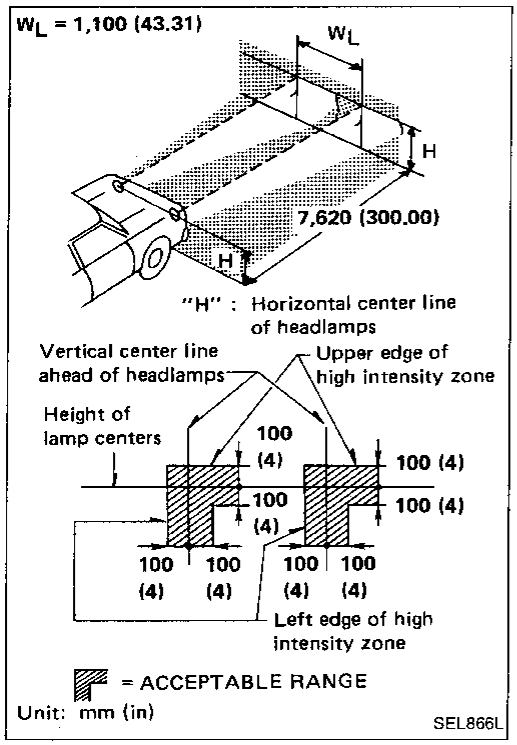
Aiming Adjustment (Cont'd)



LOW BEAM

1. Turn headlamp low beam on.
2. Use adjusting screws to perform aiming adjustment.

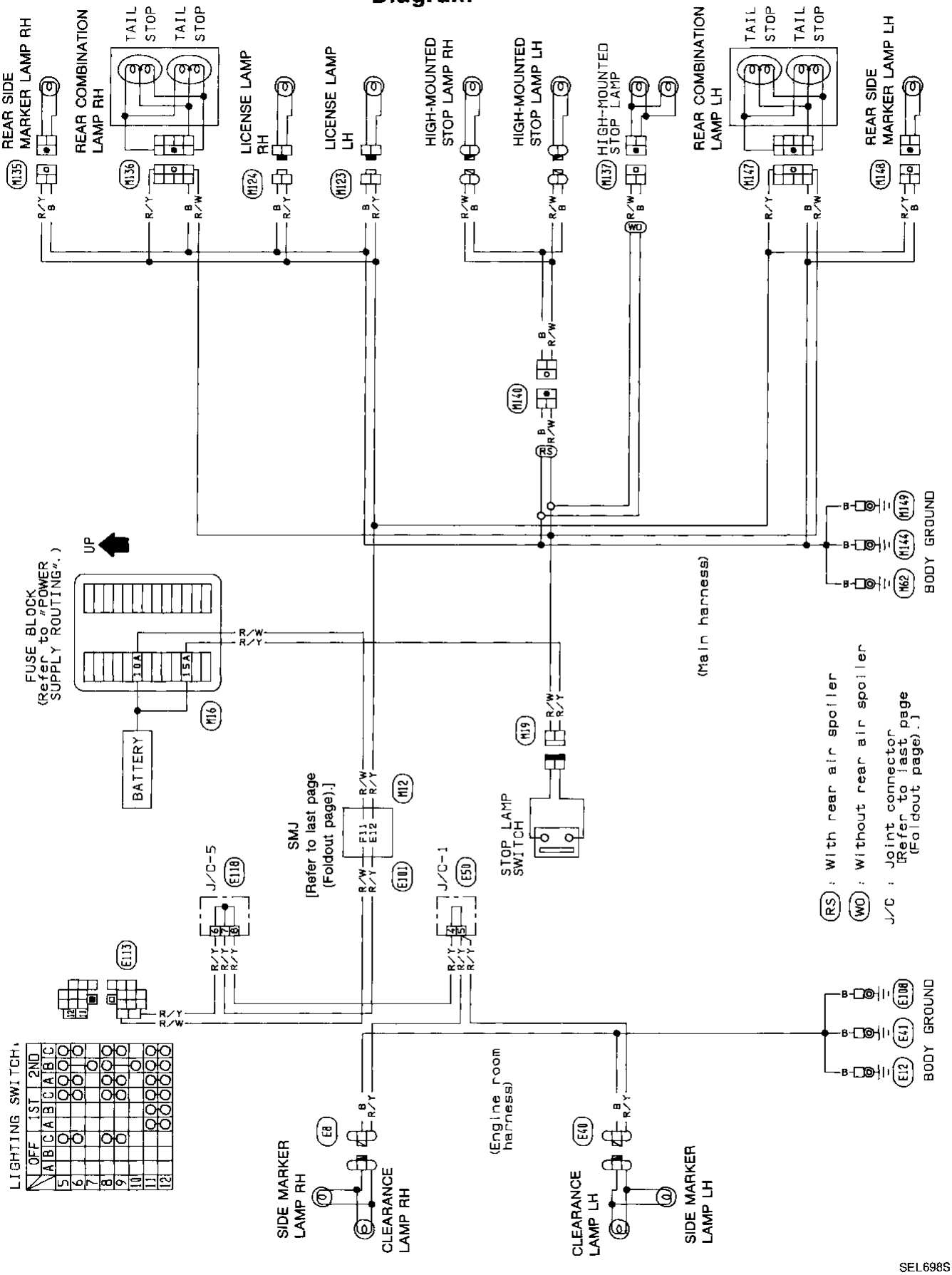
- **First tighten the adjusting screw all the way and then make adjustment by loosening the screw.**



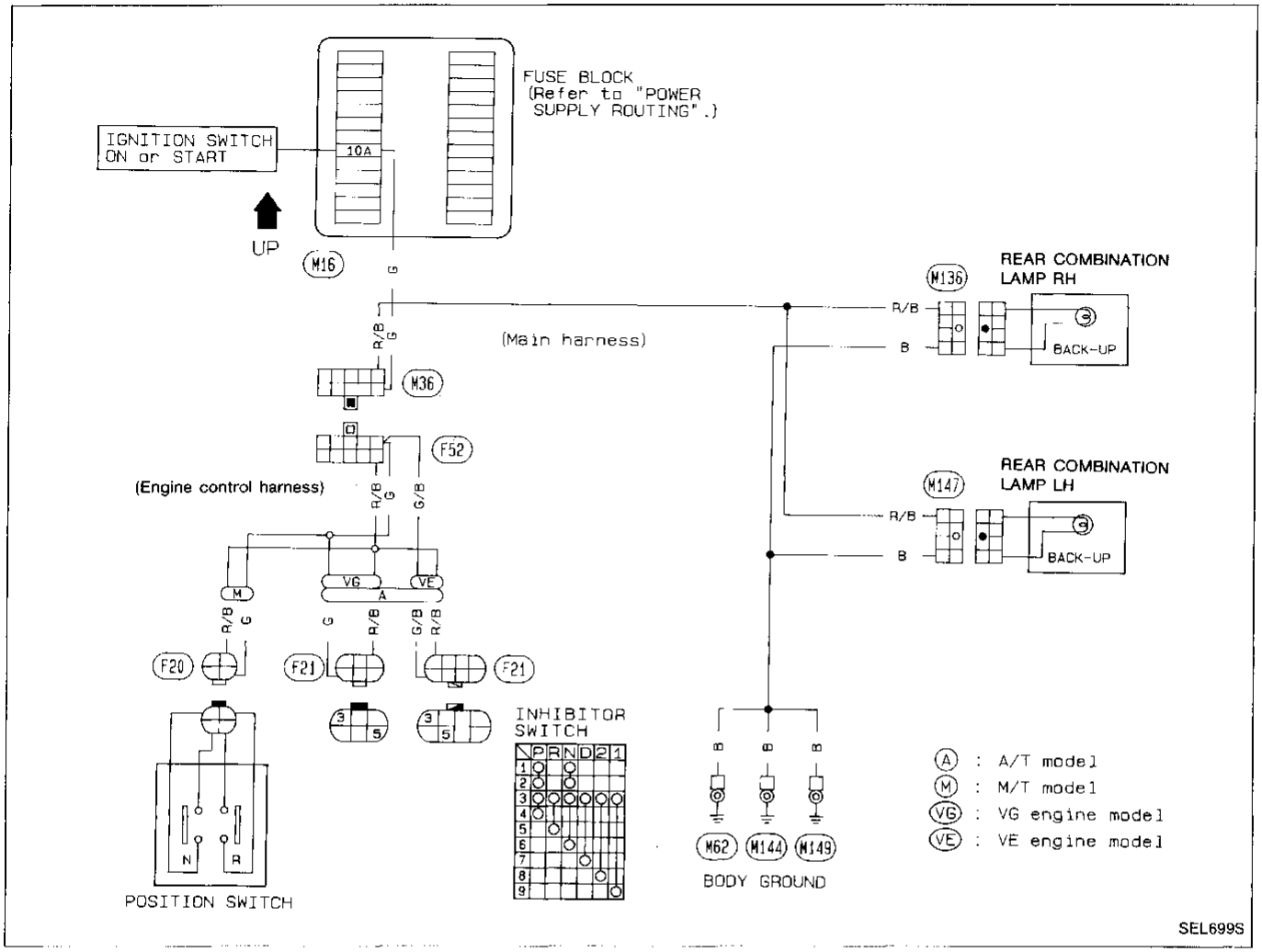
- **Adjust headlamps so that upper edge and left edge of high intensity zone are within the acceptable range as shown at left.**
- **Dotted lines in illustration show center of headlamp.**

"H": Horizontal center line of headlamps
"W_L": Distance between each headlamp center

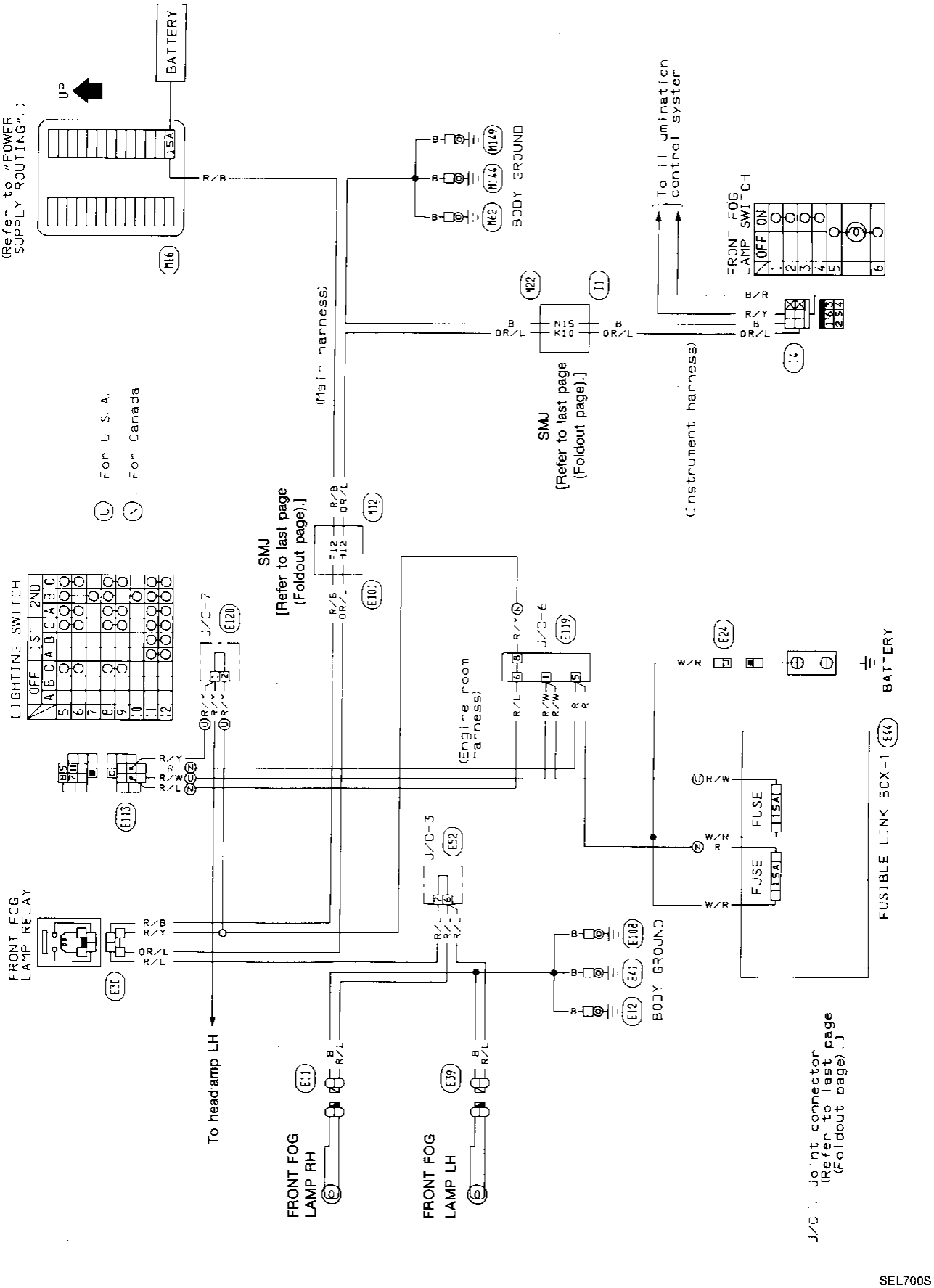
Clearance, License, Tail and Stop Lamps/Wiring Diagram



Back-up Lamp/Wiring Diagram

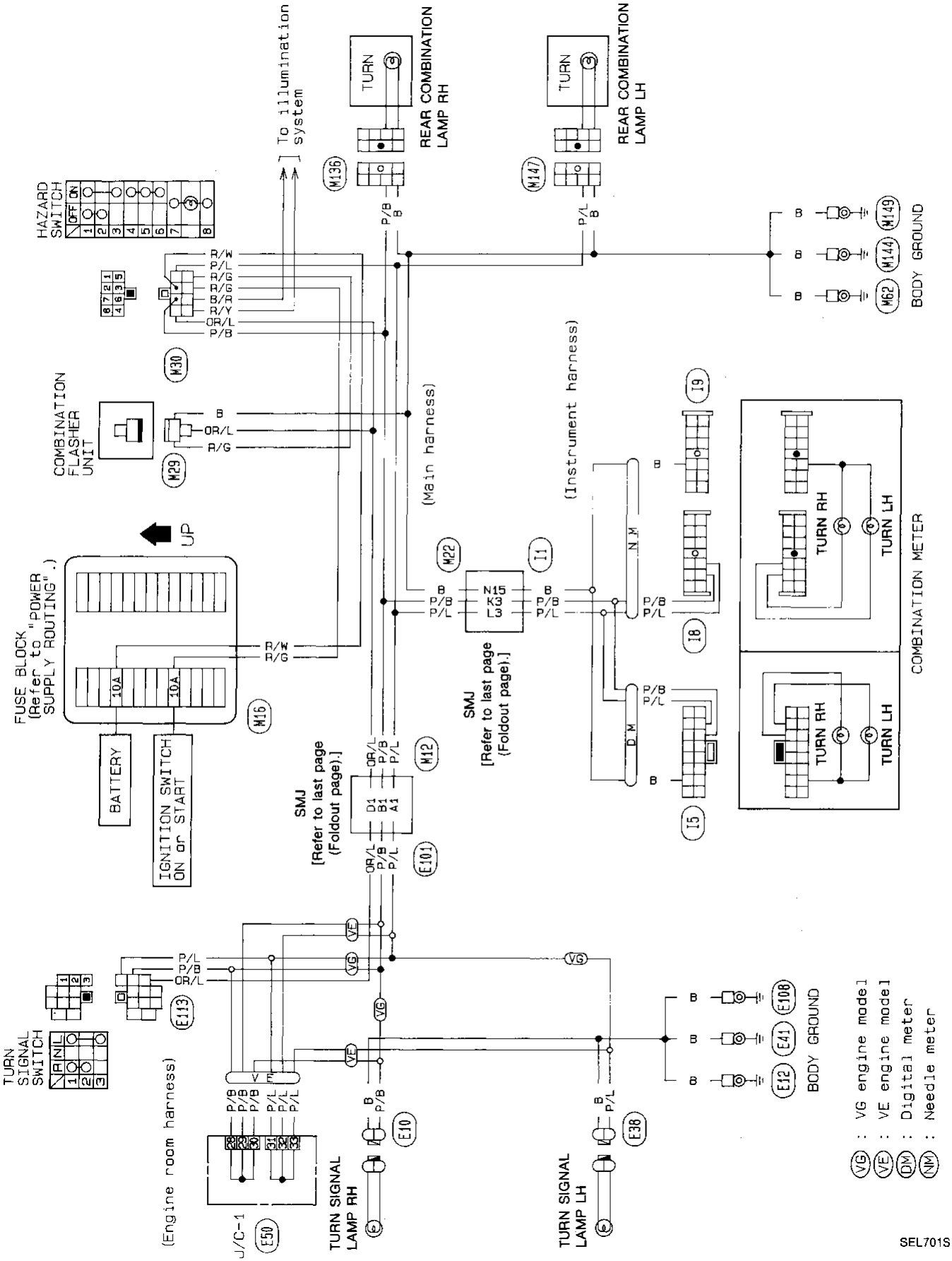


Front Fog Lamp/Wiring Diagram

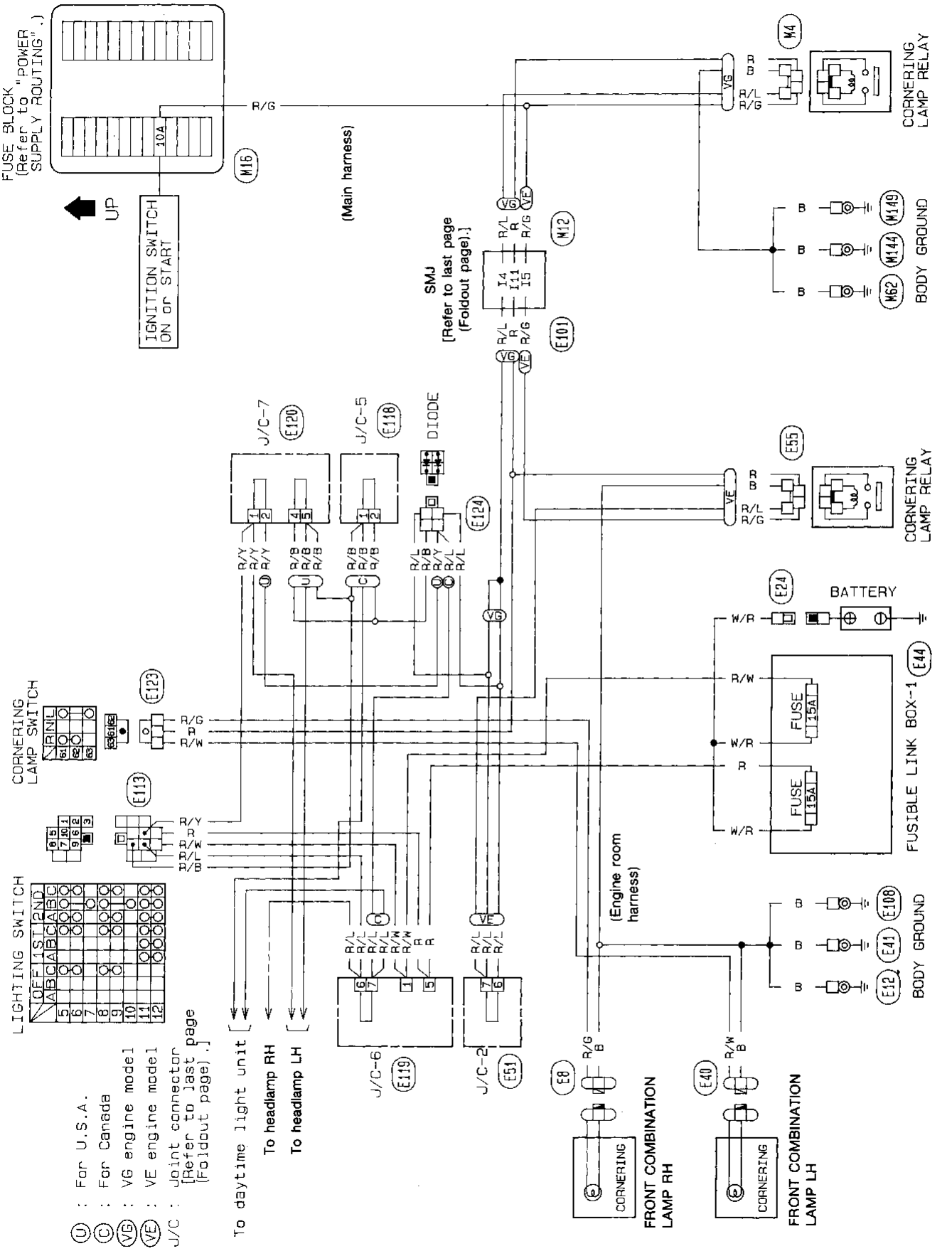


SEL700S

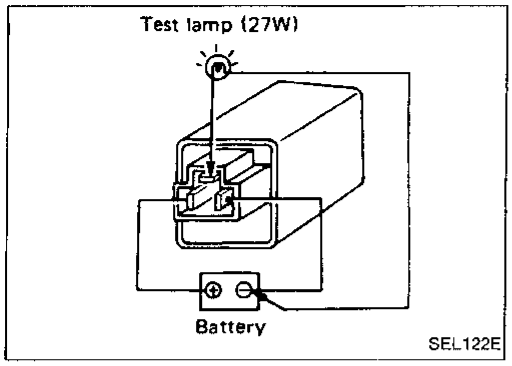
Turn Signal and Hazard Warning Lamps/Wiring Diagram



Cornering Lamp/Wiring Diagram



SEL702S



Combination Flasher Unit Check

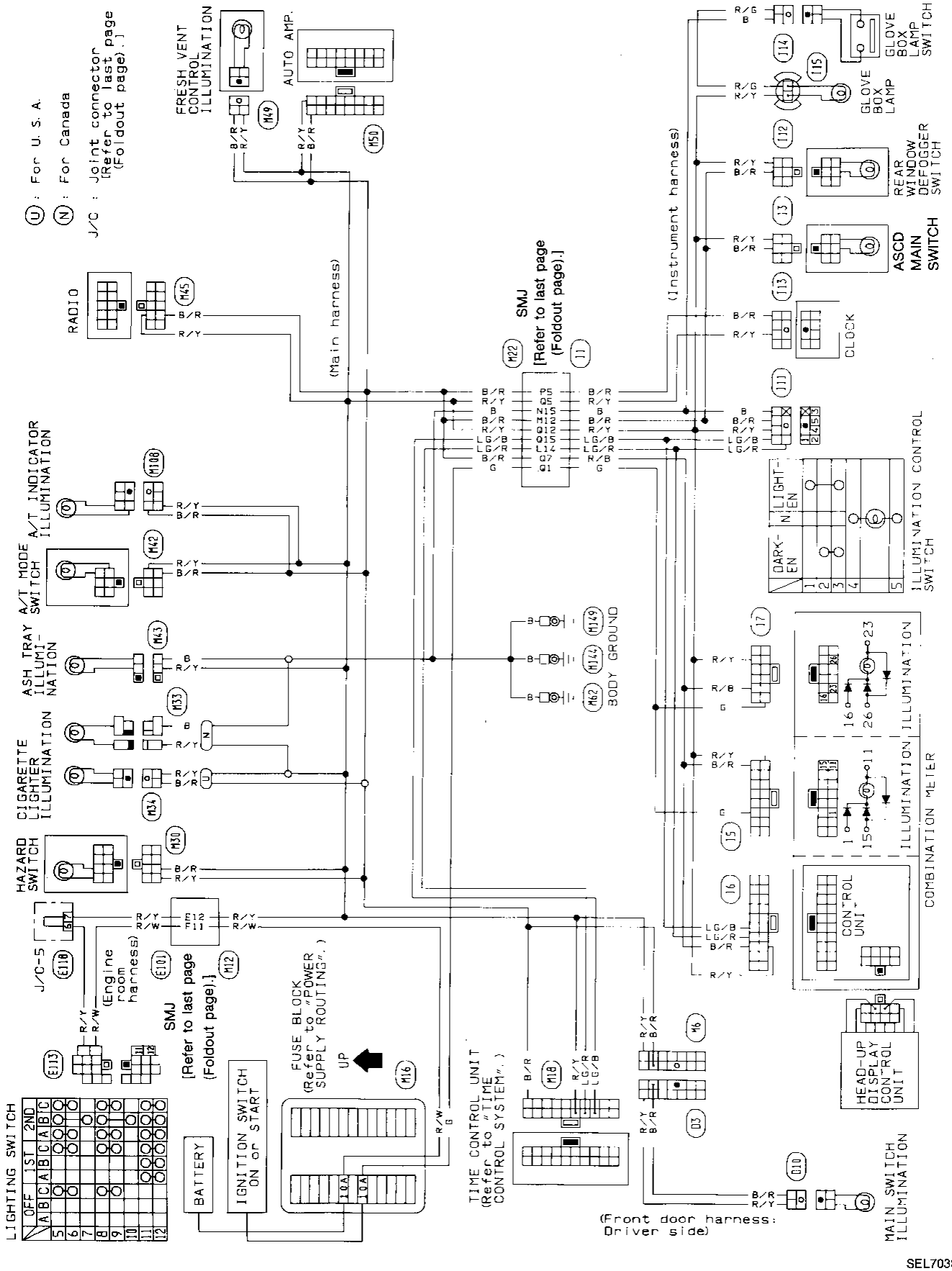
- Before checking, ensure that bulbs meet specifications.
- Connect a battery and test lamp to the combination flasher unit, as shown. Combination flasher unit is properly functioning if it blinks when power is supplied to the circuit.

Bulb Specifications

	Wattage (12 volt)
Headlamp (Semi-sealed beam)	
High/low	65/45
Front turn signal lamp	27
Front combination lamp	
Cornering/Front clearance	27/8
Front side marker	3.8
Front fog lamp	55
Rear combination lamp	
Turn signal	27
Stop/Tail	27/8
Back-up	27
Rear side marker lamp	3.8
License plate lamp	7.5
High-mounted stop lamp	18
Interior lamp	10
Spot lamp	10
Step lamp	3.4
Trunk room lamp	3.4

Illumination/Wiring Diagram

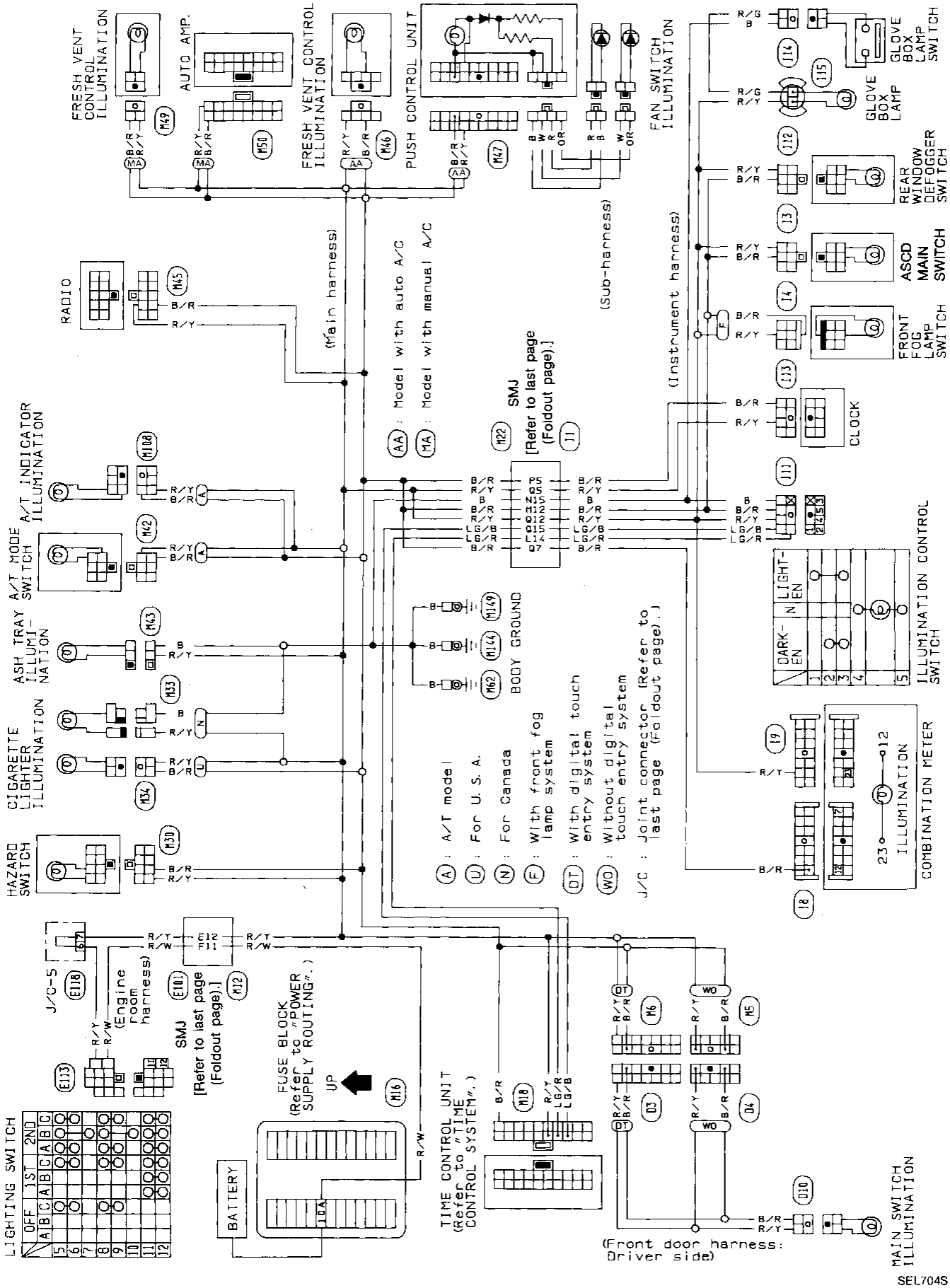
DIGITAL TYPE COMBINATION METER



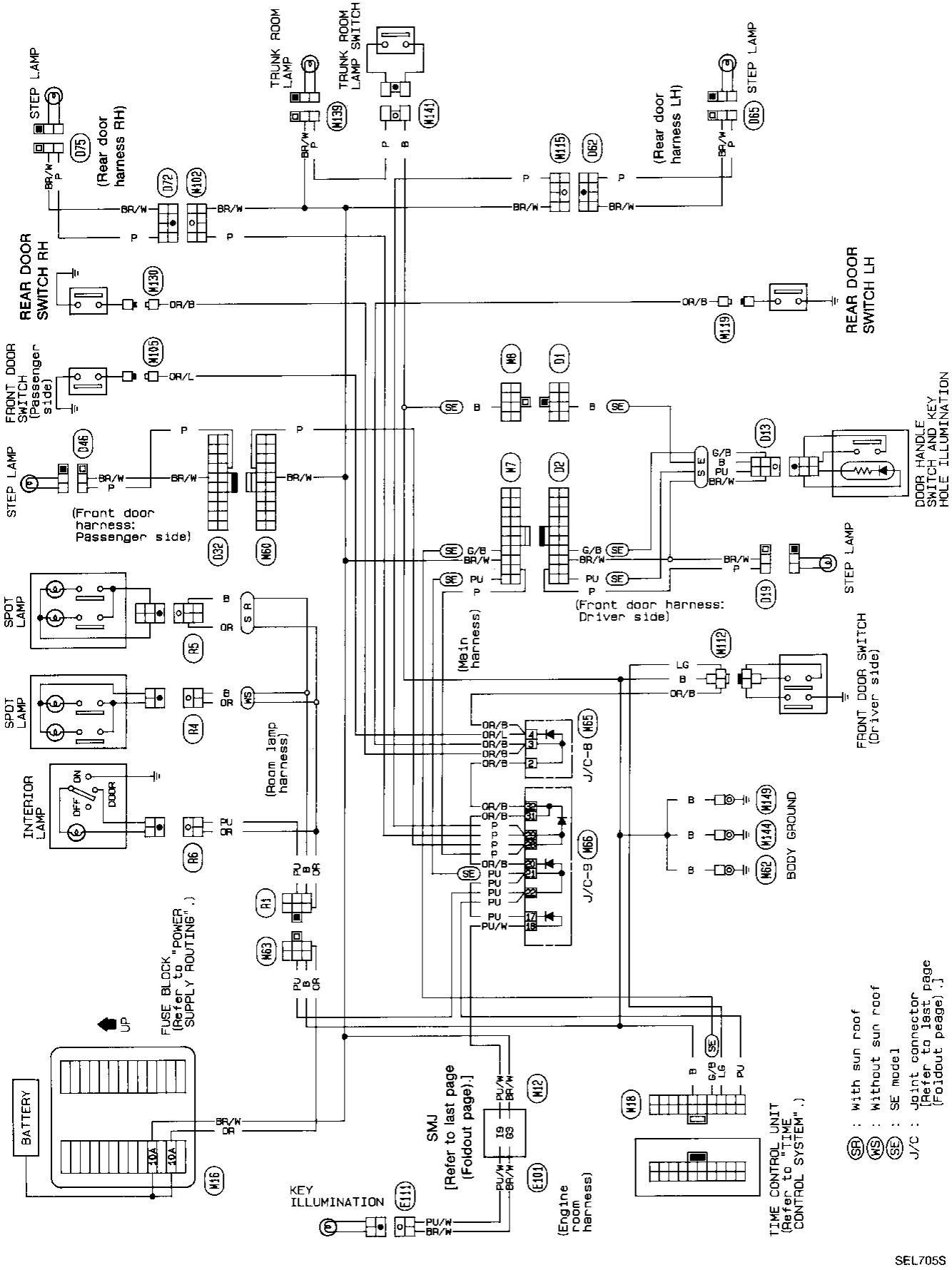
SEL703S

Illumination/Wiring Diagram (Cont'd)

NEEDLE TYPE COMBINATION METER

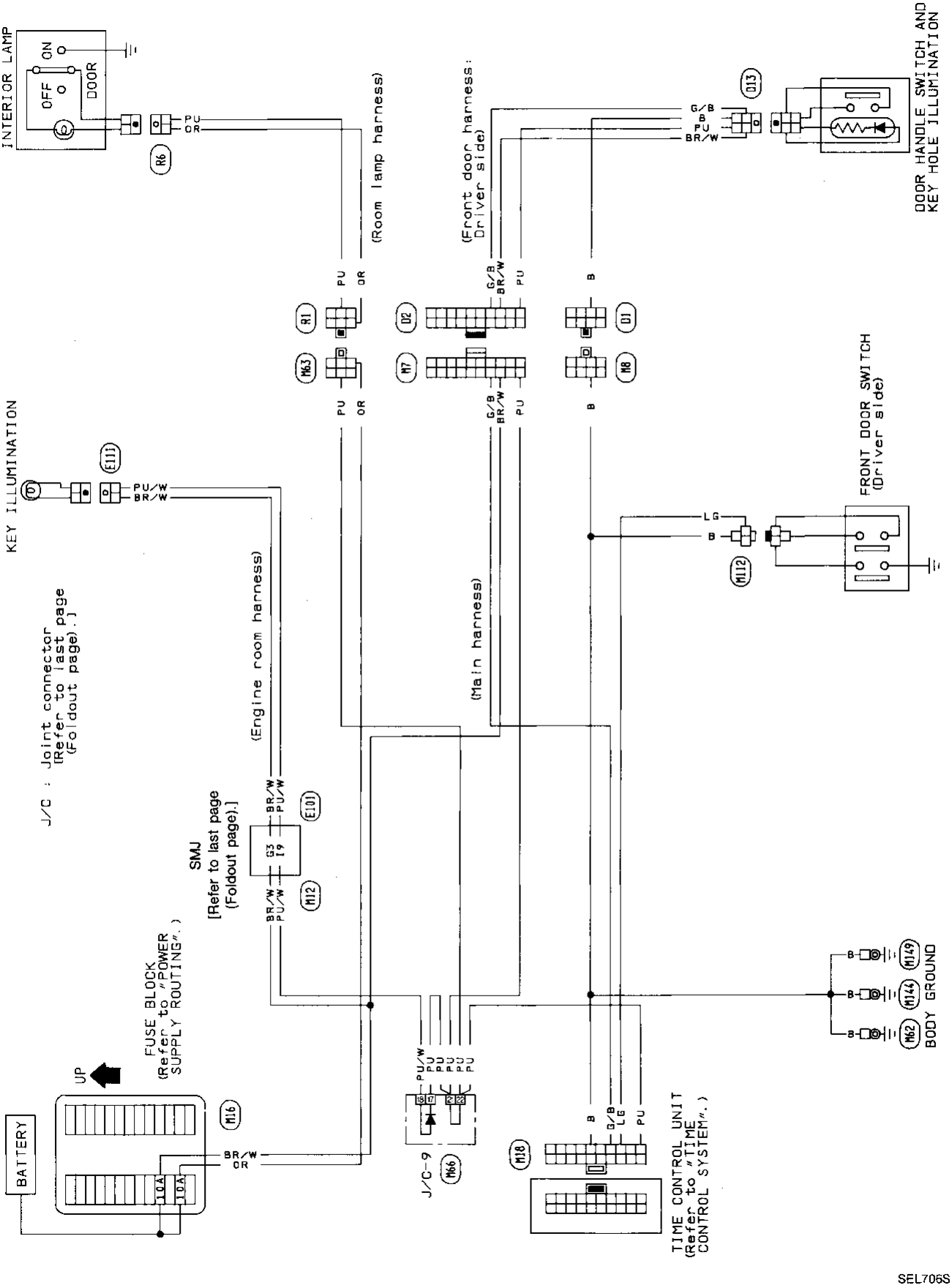


Interior, Spot, Step and Trunk Room Lamps/Wiring Diagram



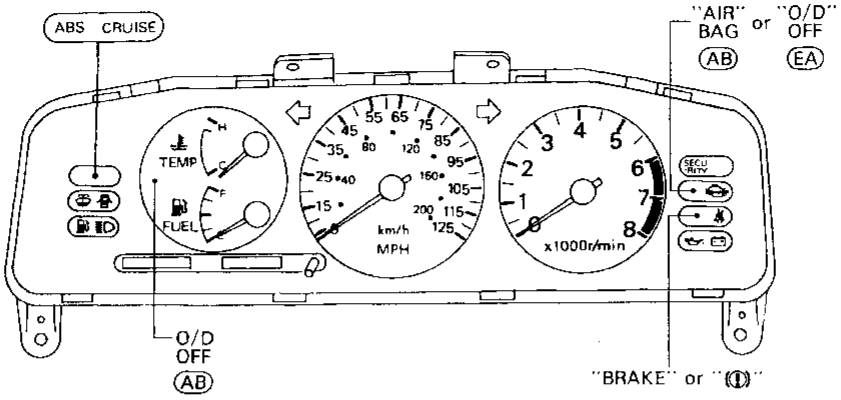
SEL705S

Illuminated Entry System and Key Illumination/ Wiring Diagram

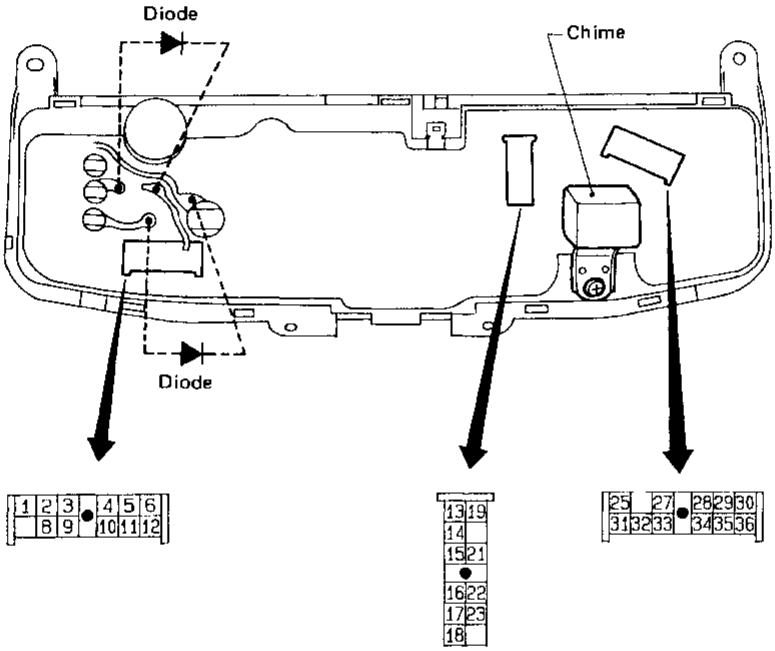


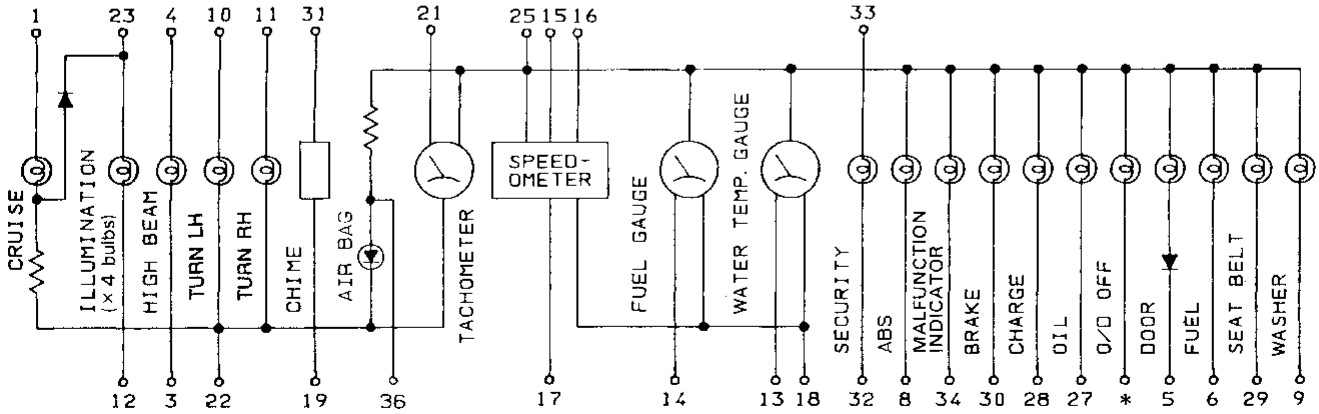
SEL706S

Combination Meter



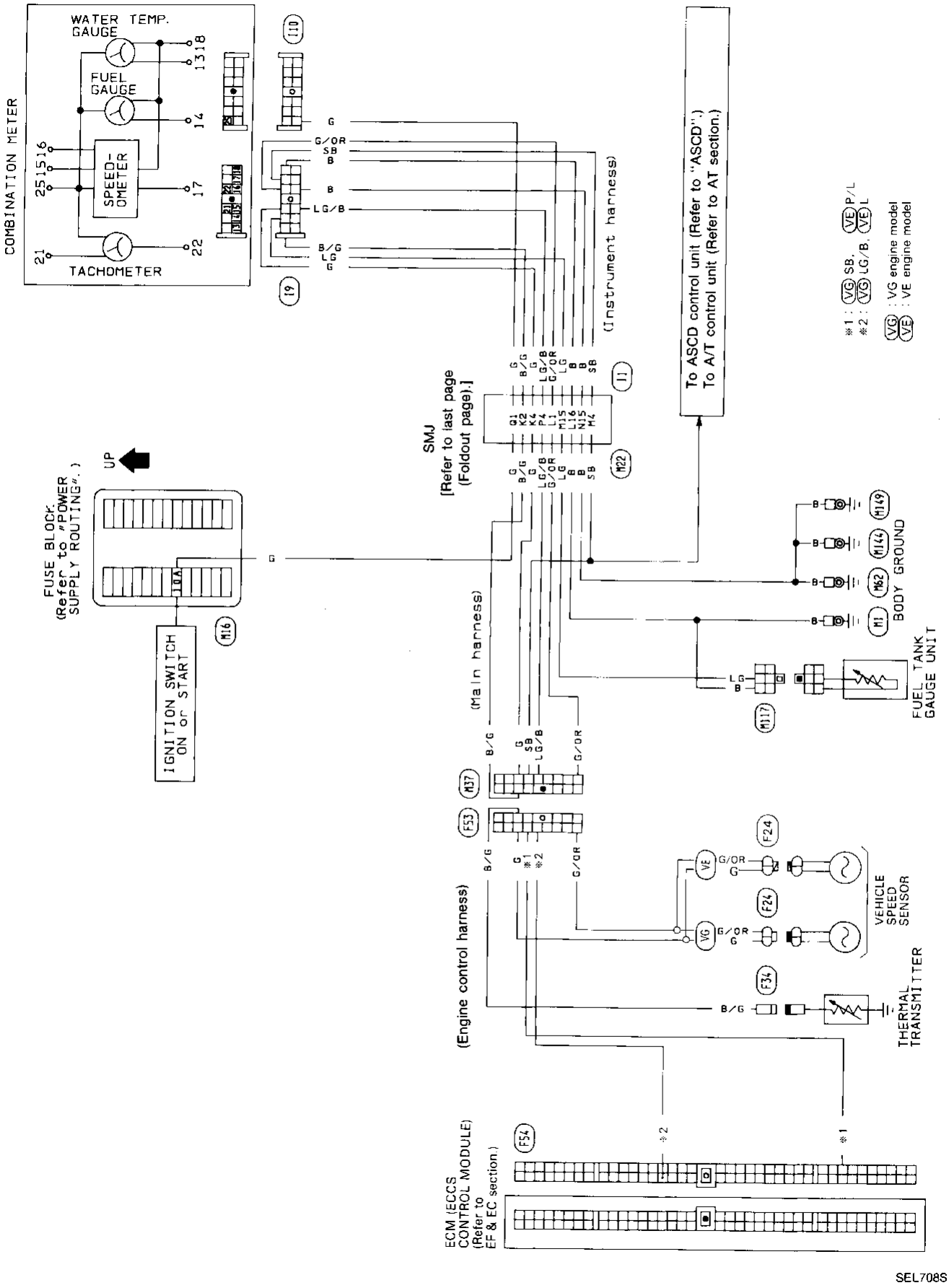
(AB) : With air bag model
(EA) : Without air bag model
* ..... (AB) : 2
(EA) : 35





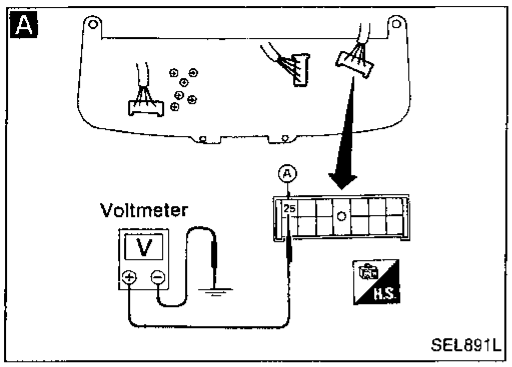
SEL707S

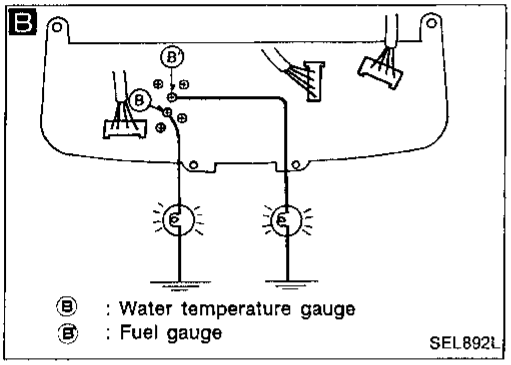
Speedometer, Tachometer, Temp., and Fuel Gauges/Wiring Diagram

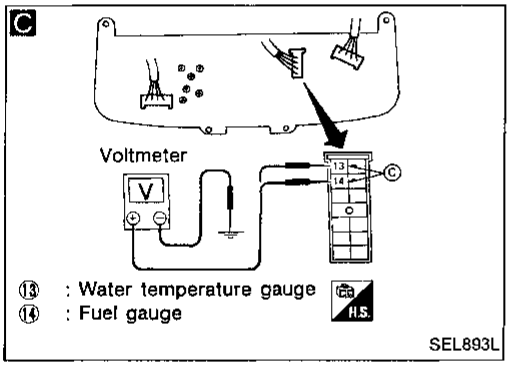


SEL708S

Inspection/Fuel Gauge and Water Temperature Gauge







INSPECTION START

A

CHECK POWER SOURCE.
1) Turn ignition switch "ON".
2) Check voltage between terminal Ⓐ and ground.
Battery voltage should exist.

NG → Check the following items.
1) Harness continuity between battery terminal and combination meter
2) Ignition relay
3) Fusible link and fuse
4) Ignition switch

OK ↓

B

CHECK GAUGE OPERATION.
1) Turn ignition switch "ON".
2) Connect terminals Ⓑ and ground with wire for **less than 10 seconds.**
3) Check operation of gauge.
Gauge should move smoothly to full scale.

NG → Repair or replace gauge.

OK ↓

C

Check harness continuity between component and combination meters Ⓒ.

NG → Repair or replace.

OK ↓

CHECK COMPONENT.
Check gauge units and harness.
Refer to "Fuel Tank Gauge Unit Check" (EL-47), "Thermal Transmitter Check" (EL-47).

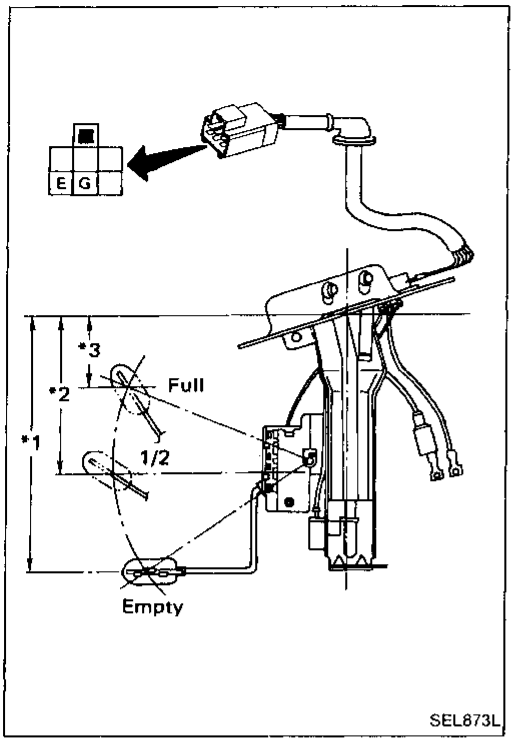
NG → Repair or replace.
Refer to FE section (Fuel tank gauge unit).

OK ↓

Reinstall any part removed.

↓

INSPECTION END



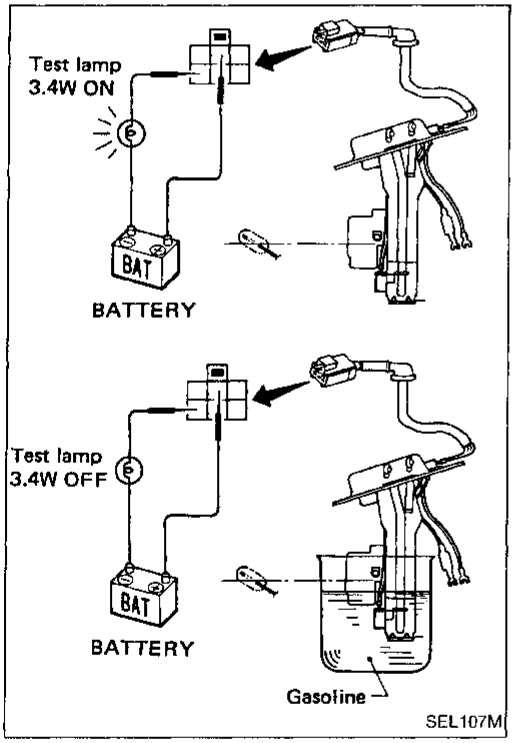
Fuel Tank Gauge Unit Check

- For removal, refer to FE section.

Check the resistance between terminals Ⓖ and Ⓔ.

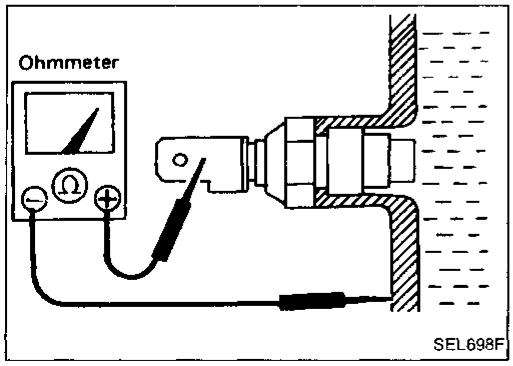
Ohmmeter (+)	Ohmmeter (−)	Float position		mm (in)	Resistance Ω
G	E	*3	Full	48 (1.89)	Approx. 4 - 6
		*2	1/2	112 (4.41)	27 - 34
		*1	Empty	172 (6.77)	78 - 85

*1 and *3: When float rod is in contact with stopper.



Fuel Warning Lamp Sensor Check

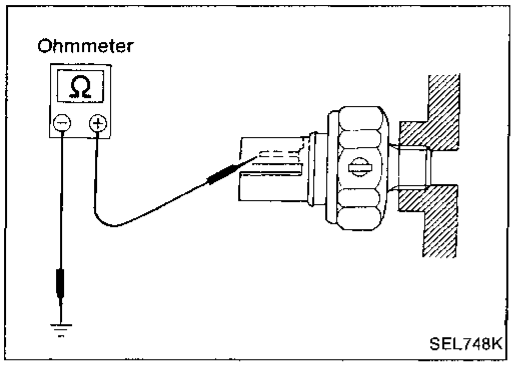
- It will take a short time for the bulb to light.



Thermal Transmitter Check

Check the resistance between the terminals of thermal transmitter and body ground.

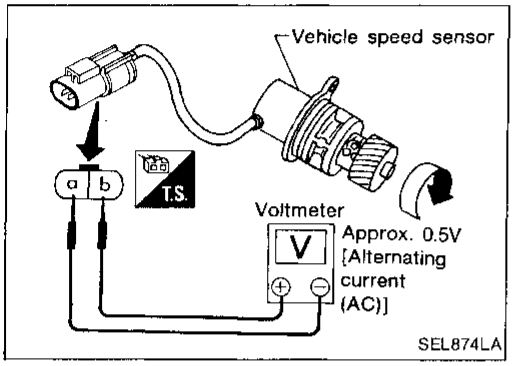
Water temperature	Resistance
60°C (140°F)	Approx. 70 - 90Ω
100°C (212°F)	Approx. 21 - 24Ω



Oil Pressure Switch Check

	Oil pressure kPa (kg/cm^2, psi)	Continuity
Engine start	More than 10 - 20 (0.1 - 0.2, 1.4 - 2.8)	NO
Engine stop	Less than 10 - 20 (0.1 - 0.2, 1.4 - 2.8)	YES

Check the continuity between the terminals of oil pressure switch and body ground.

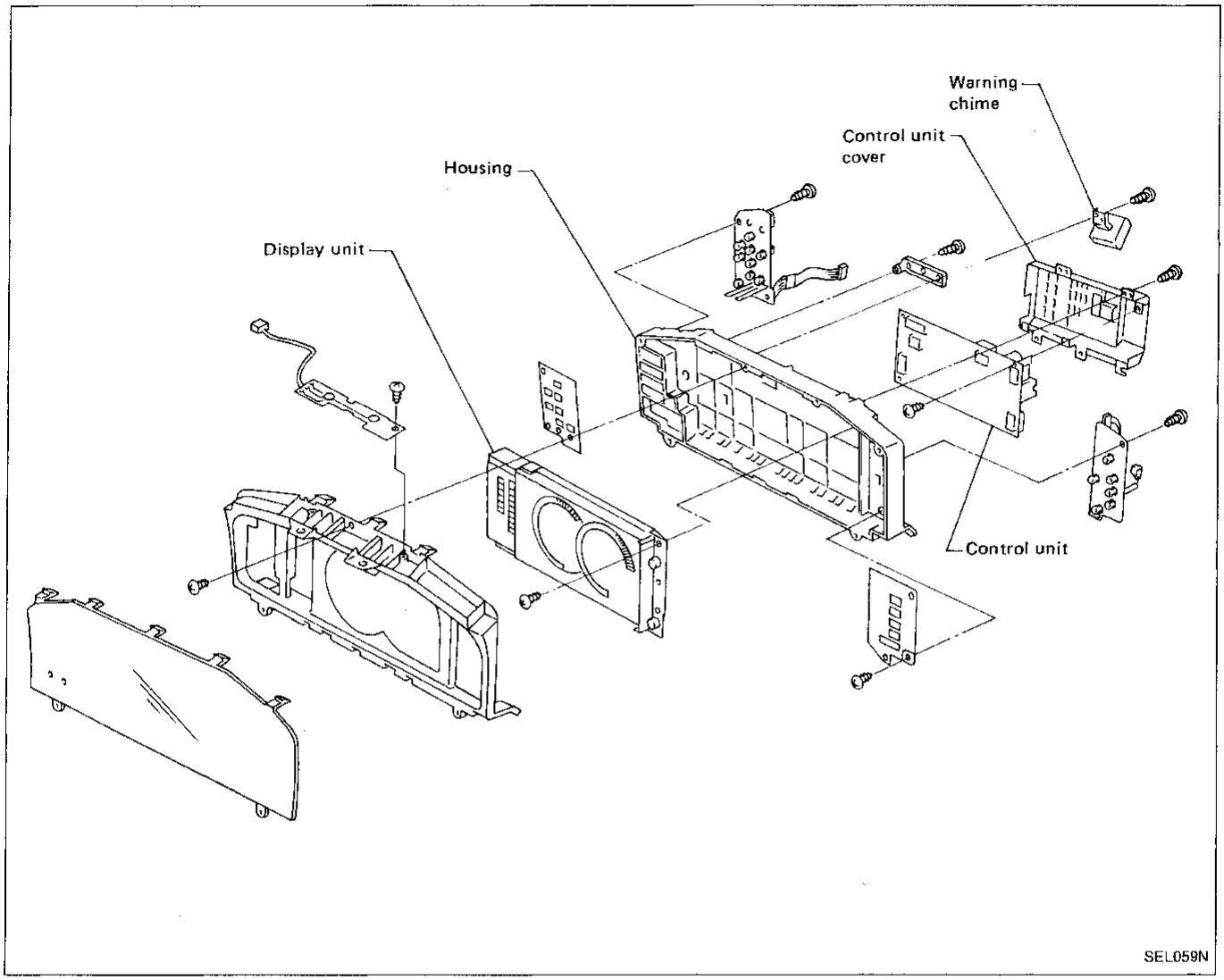


Vehicle Speed Sensor Signal Check

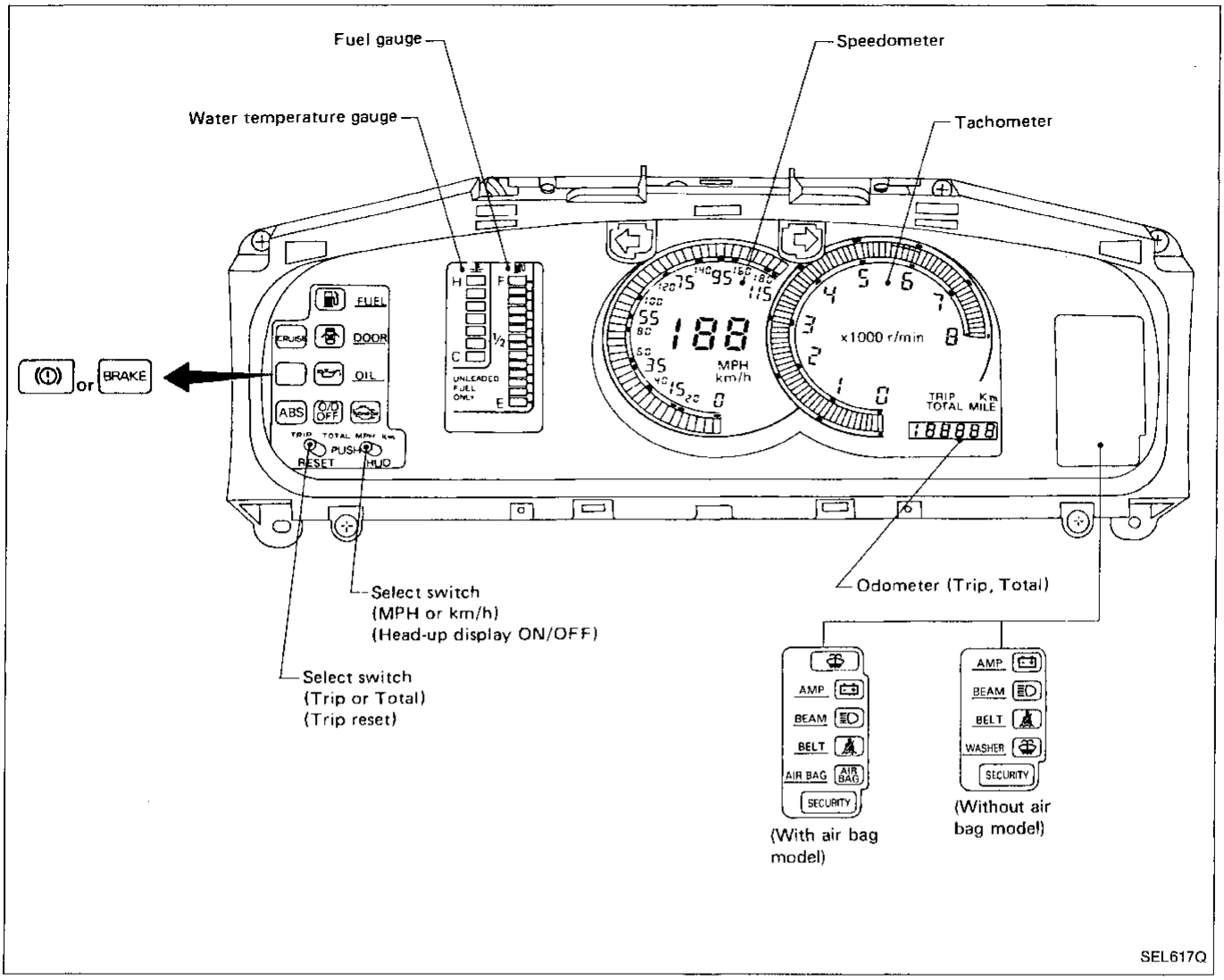
1. Remove vehicle speed sensor from transmission.
2. Turn speedometer pinion quickly and measure voltage across ⓐ and ⓑ.

Combination Meter

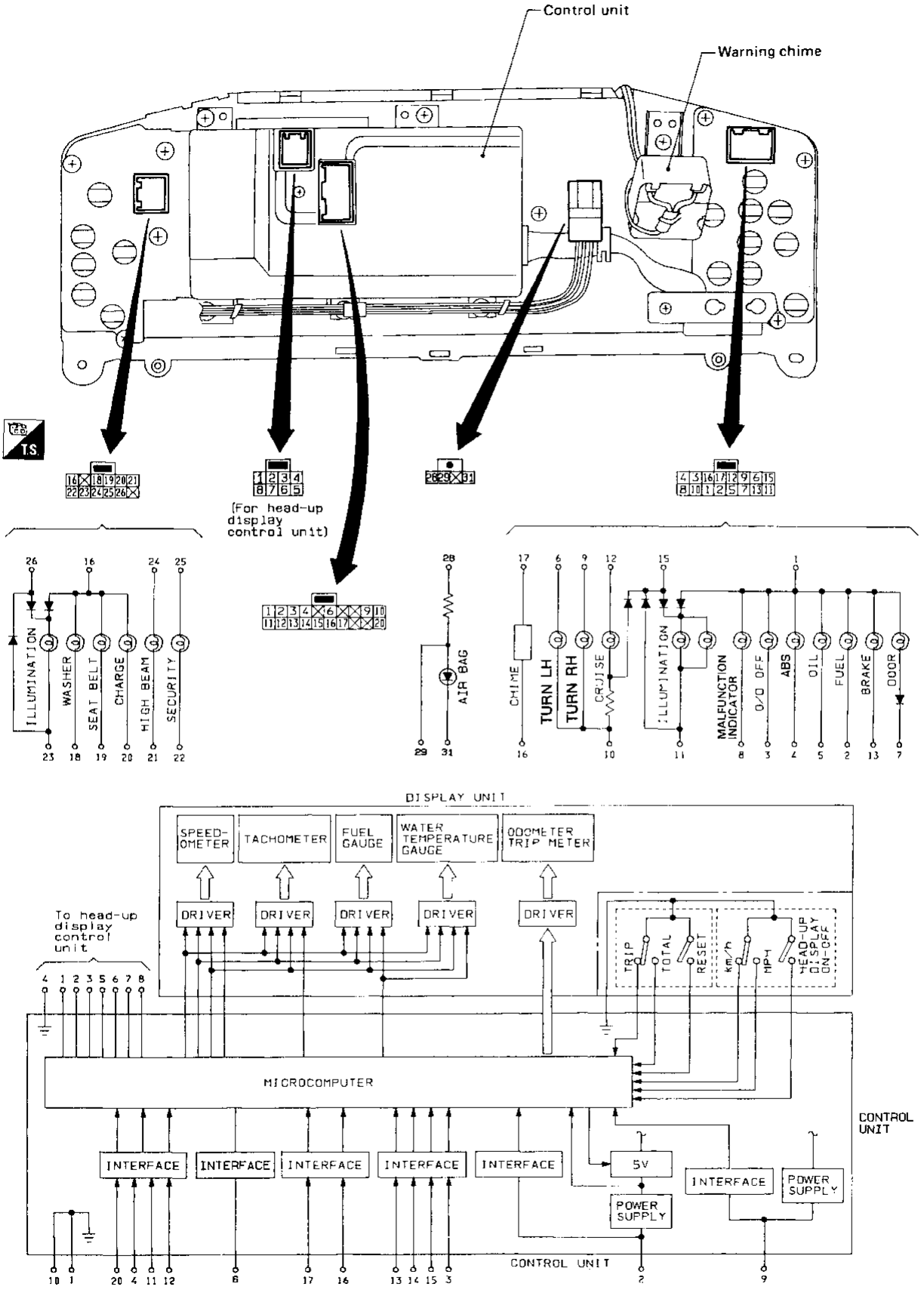
CAUTION:
No electrical terminal should be touched with bare hands.



Combination Meter (Cont'd)

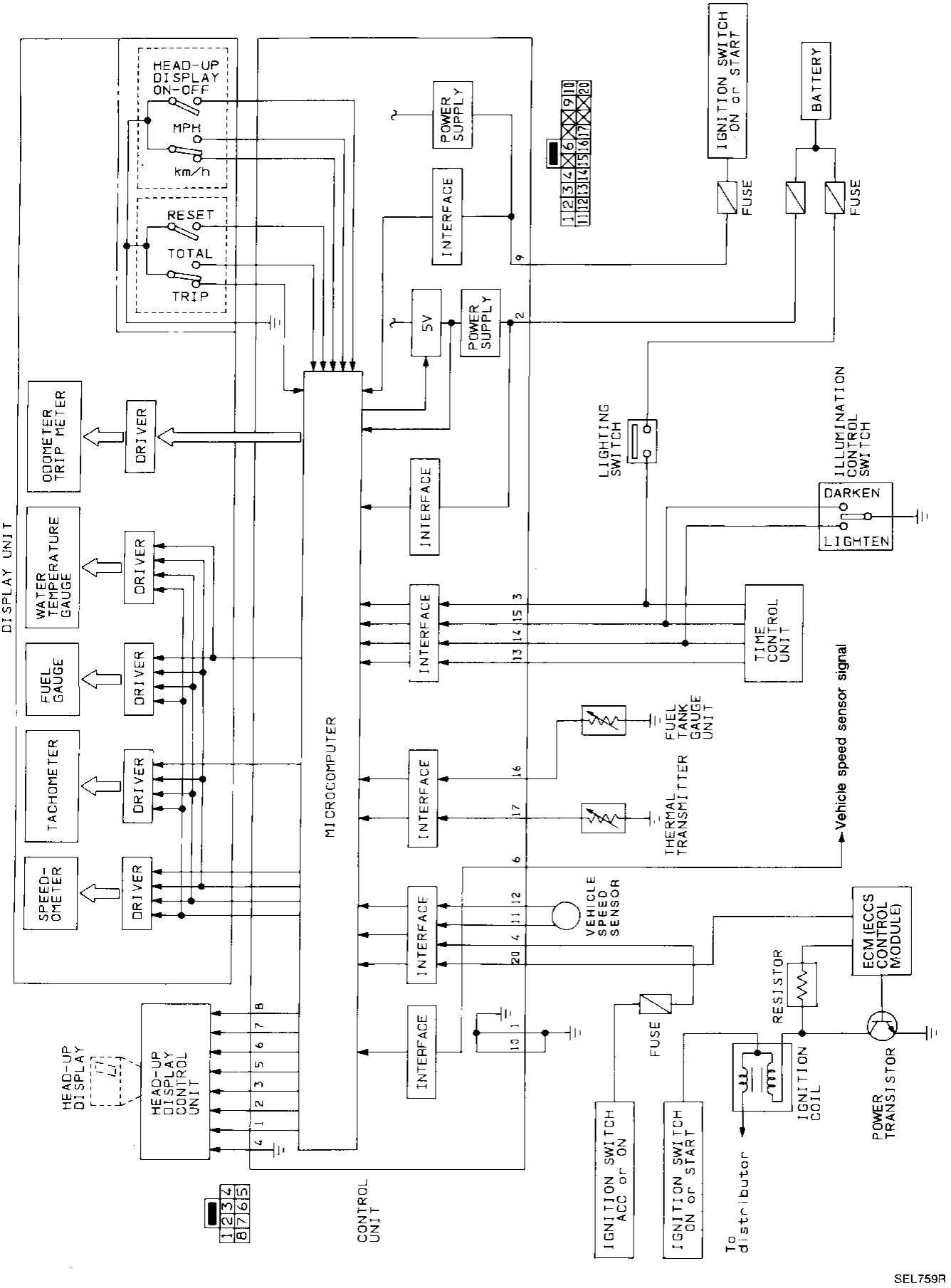


Combination Meter (Cont'd)



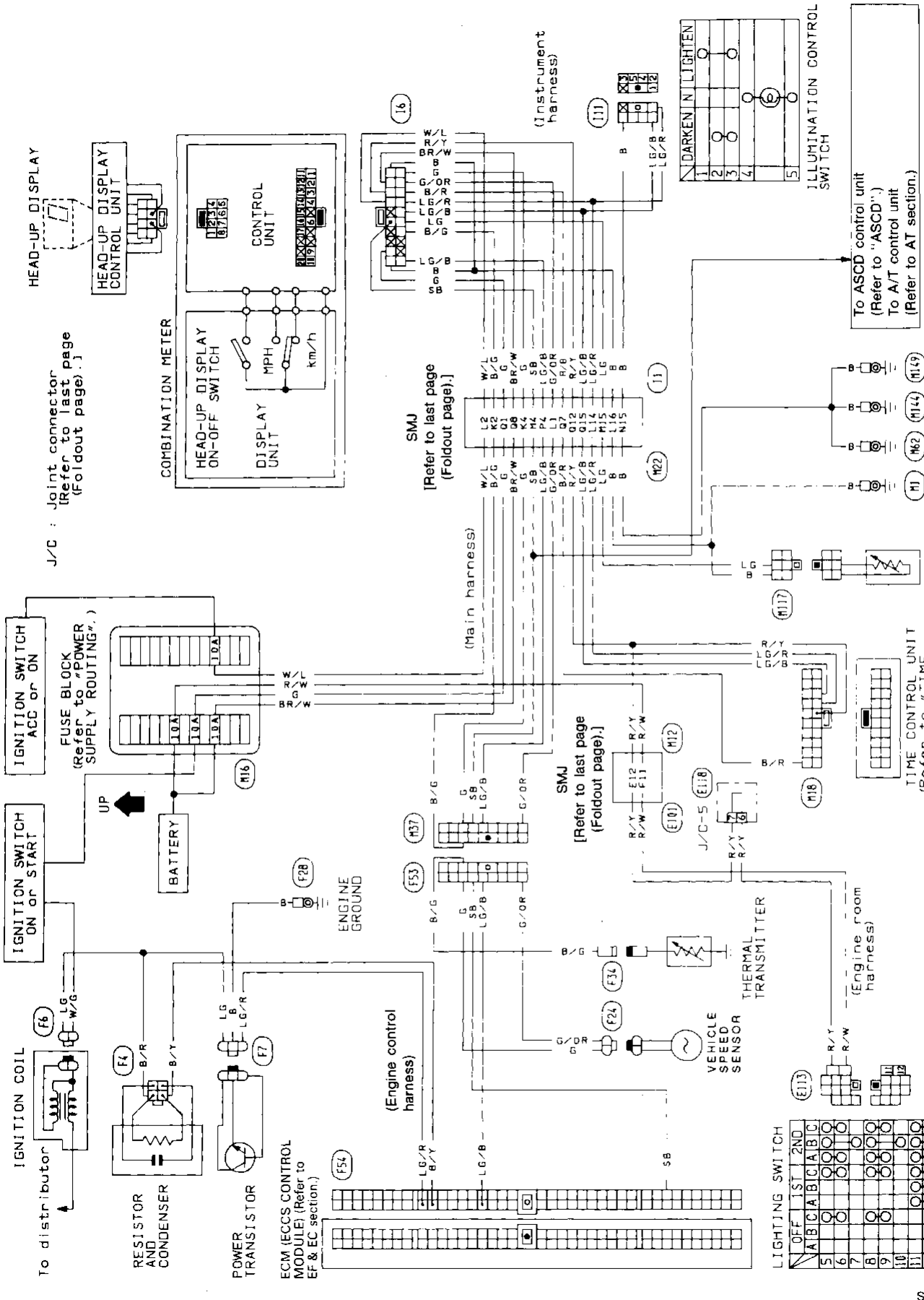
SEL709S

Schematic



SEL759R

Wiring Diagram



SEL710S

Trouble Diagnoses

SYMPTOM CHART

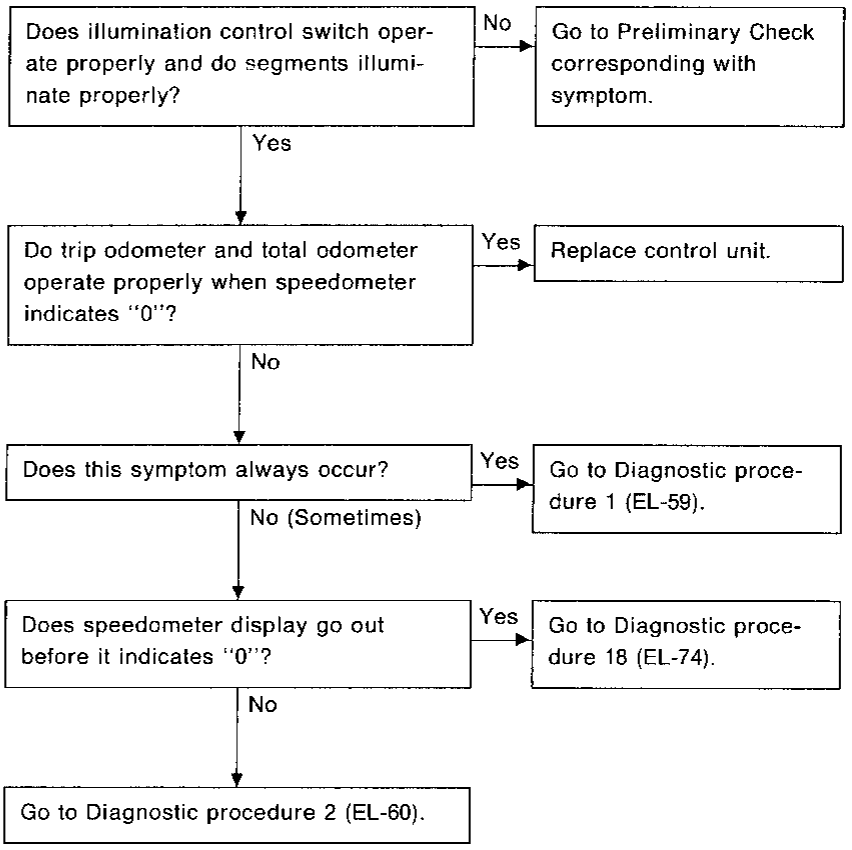
Reference page	EL-55	EL-55	EL-56	EL-57	EL-57	EL-57	EL-58	EL-59	EL-60	EL-61	EL-62	EL-63	EL-64	EL-65	EL-66	EL-66	EL-67	EL-68	EL-69	EL-70	EL-71	EL-71	EL-72	EL-73	EL-74	EL-76	EL-77
Symptom	Preliminary check 1	Preliminary check 2	Preliminary check 3	Preliminary check 4	Preliminary check 5	Preliminary check 6	Preliminary check 7	Diagnostic procedure 1	Diagnostic procedure 2	Diagnostic procedure 3	Diagnostic procedure 4	Diagnostic procedure 5	Diagnostic procedure 6	Diagnostic procedure 7	Diagnostic procedure 8	Diagnostic procedure 9	Diagnostic procedure 10	Diagnostic procedure 11	Diagnostic procedure 12	Diagnostic procedure 13	Diagnostic procedure 14	Diagnostic procedure 15	Diagnostic procedure 16	Diagnostic procedure 17	Diagnostic procedure 18	Self-check: Segment check	Self-check: Fuel gauge quick check
Speedometer indicates zero ("0") even when driving.	○							○	○																○		
Illumination control for head-up display fails to function.		○										○	○														
Illumination control for combination meter fails to function.			○											○	○												
All segments of combination meter remain illuminated.				○													○	○									
Some combination meter segments remain illuminated, illuminate dimly, do not illuminate or blink.					○												○	○								○	
Some head-up display segments remain illuminated, illuminate dimly, do not illuminate or blink.						○										○						○				○	
Segments fail to illuminate.							○													○	○		○		○	○	
Indicated value of speedometer changes irregularly or is incorrect.									○																		
Indicated value of water temperature gauge is incorrect.										○																○	
Indicated value of fuel gauge is incorrect.											○															○	○
Trip meter does not maintain memory.																			○								
Indicated value of odometer changes irregularly or is incorrect.																								○			

Trouble Diagnoses (Cont'd)

PRELIMINARY CHECK

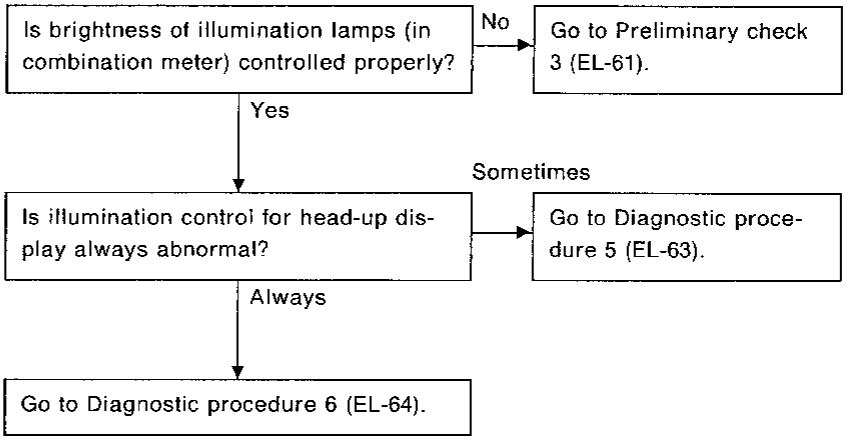
Preliminary check 1

Speedometer indicates zero ("0") even when driving.



Preliminary check 2

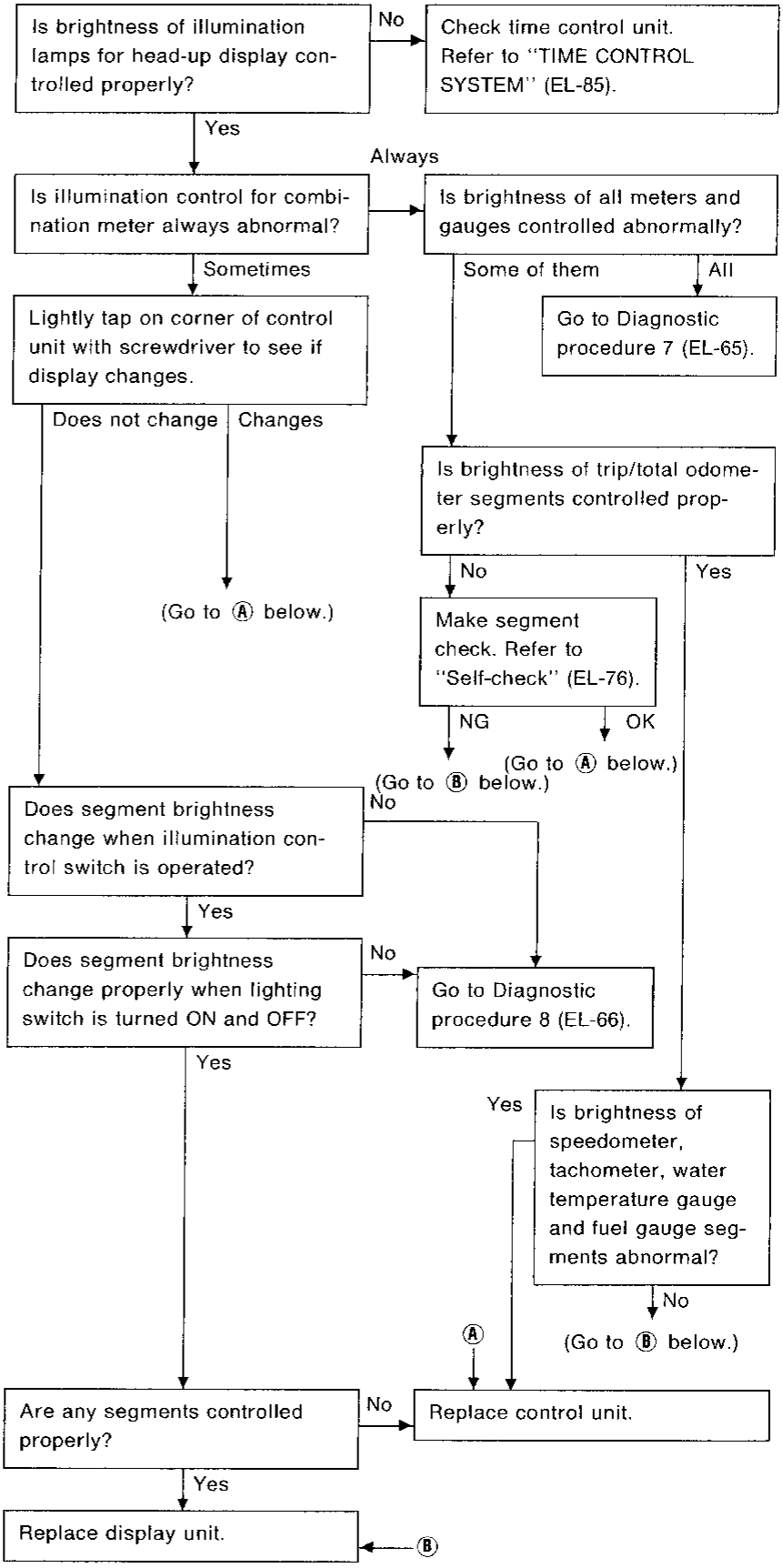
Illumination control for head-up display fails to function.



Trouble Diagnoses (Cont'd)

Preliminary check 3

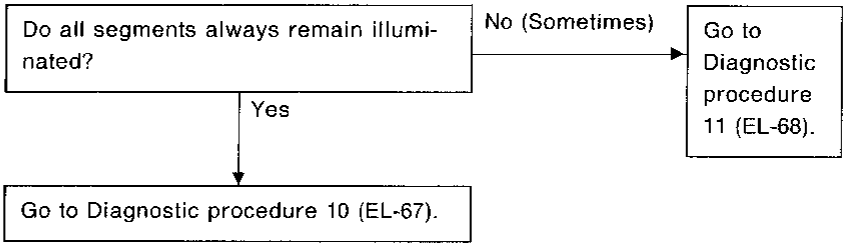
Illumination control for combination meter fails to function.



Trouble Diagnoses (Cont'd)

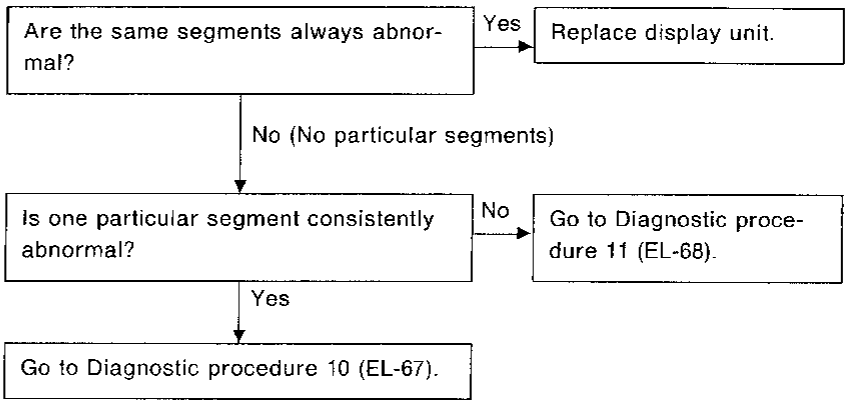
Preliminary check 4

All segments of combination meter remain illuminated.



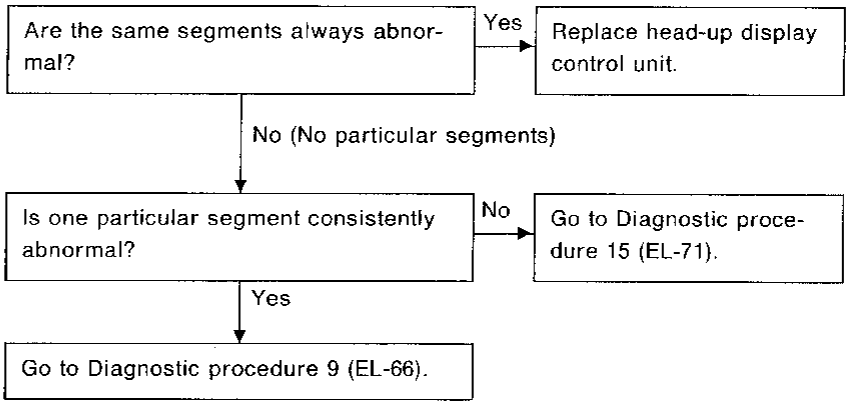
Preliminary check 5

Some combination meter segments remain illuminated, illuminate dimly, do not illuminate or blink.



Preliminary check 6

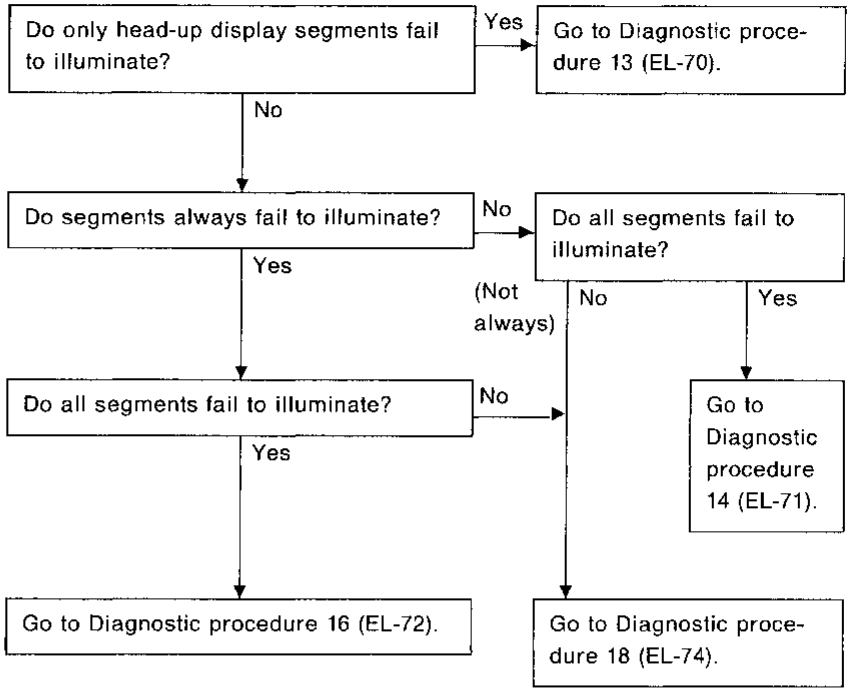
Some head-up display segments remain illuminated, illuminate dimly, do not illuminate or blink.



Trouble Diagnoses (Cont'd)

Preliminary check 7

Segments fail to illuminate.

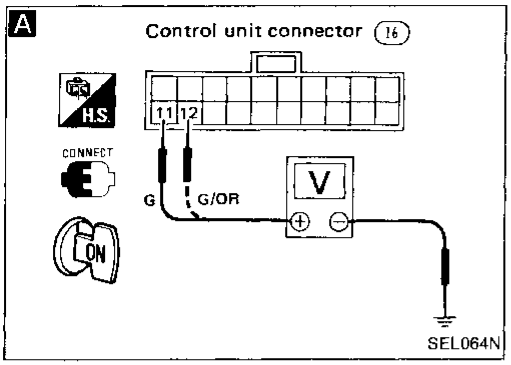


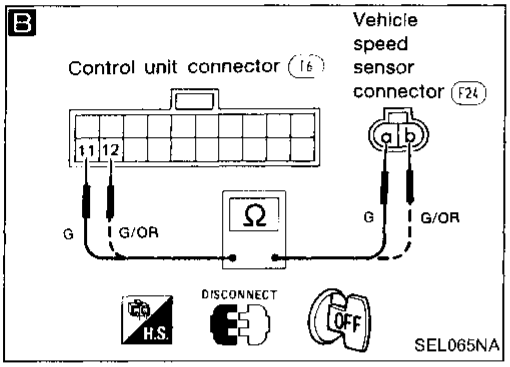
Trouble Diagnoses (Cont'd)

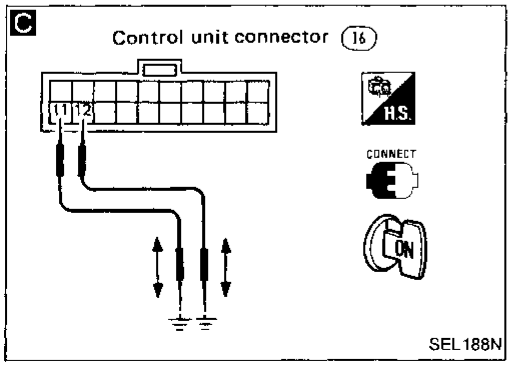
DIAGNOSTIC PROCEDURE

Diagnostic procedure 1

SYMPTOM: Speedometer always indicates zero ("0") when driving.







A

Check voltage between control unit harness terminals No. (11), (12) and body ground.

Terminal No.		Voltage V
⊕	⊖	
(11)	Body ground	3 - 5*
(12)		0

*: When disconnecting vehicle speed sensor

OK → Check control unit connector. Refer to "Connector and Harness Check" (EL-76).

OK → (Go to Ⓐ below.)

NG → (Go to Ⓑ below.)

NG → Check installation and signals of vehicle speed sensor. Refer to "Vehicle Speed Sensor Signal Check" (EL-79).

NG → Reinstall or replace vehicle speed sensor.

Ⓑ

OK

B

Check continuity between control unit harness terminals and vehicle speed sensor terminals.

Terminal No.		Continuity
Control unit	Vehicle speed sensor	
(11)	ⓐ	Yes
(12)	ⓑ	

NG → Repair harness or connector.

Check connectors ((16), (11), (M22), (M37), (F53) and (F24)) and harness. Refer to "Connector and Harness Check" (EL-76).

OK

C

Check control unit by imitative signals.
Disconnect vehicle speed sensor connector.
Connect suitable jumper wires to control unit harness terminals No. (11) and (12), and ground jumper wires alternately and quickly.
Speedometer should indicate several numbers.

Ⓐ

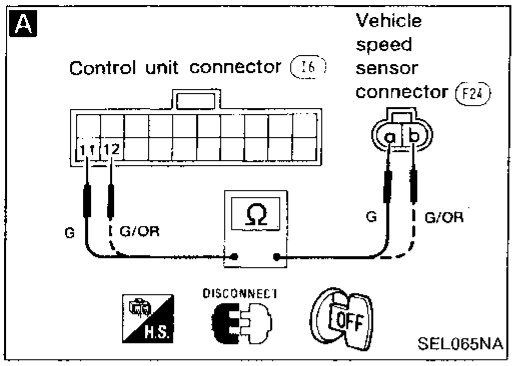
OK → Repair harness or connector.

NG → Replace control unit.

Trouble Diagnoses (Cont'd)

Diagnostic procedure 2

SYMPTOM: Indicated value of speedometer changes irregularly or is incorrect.



Check installation and signals of vehicle speed sensor.
Refer to "Vehicle Speed Sensor Signal Check" (EL-79).

NG → Reinstall or replace vehicle speed sensor.

OK ↓

A

Check continuity between control unit harness terminals and vehicle speed sensor terminals.

Terminal No.		Continuity
Control unit	Vehicle speed sensor	
⑪	ⓐ	Yes
⑫	ⓑ	

NG → Repair harness or connector .

Check connectors ((16), (11), (M22), (M37), (F53) and (F24)) and harness.
Refer to "Connector and Harness Check" (EL-76).

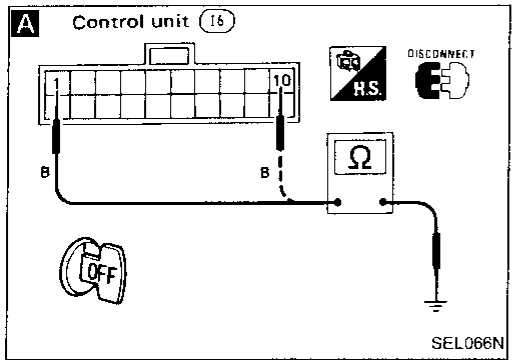
OK ↓

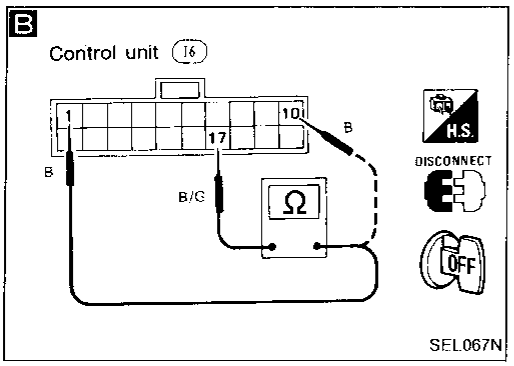
Replace control unit.

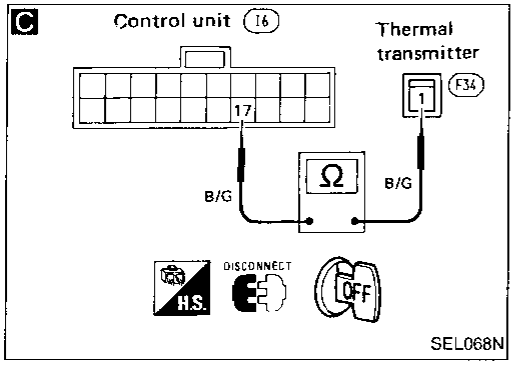
Trouble Diagnoses (Cont'd)

Diagnostic procedure 3

SYMPTOM: Indicated value of water temperature gauge is incorrect.







A

Check continuity between control unit harness terminals No. ①, ⑩ and body ground.
Continuity should exist.

NG → Repair harness, connector or body ground M1.

OK ↓

B

Disconnect connector from control unit, and measure resistance between control unit harness terminal No. ⑰ and ① (or ⑩).
Compare measured resistance with gauge indication (before disconnecting connector).
Gauge indication is swayed by water temperature.

Segment	Resistance Ω
7	Less than 17
4	18 - 119
1	More than 189

NG → Check connector I6. Refer to "Connector and Harness Check" (EL-76).

OK ↓

While making segment checks (Refer to "Self-check" EL-76 .), lightly tap on corner of control unit with screwdriver to see if display changes.

Yes → Check connector I6. Refer to "Connector and Harness Check" (EL-76).

NG → Repair harness or connector.

OK → (Go to A below.)

No ↓

Check thermal transmitter. Refer to "Thermal Transmitter Check" (EL-78).

NG → Replace thermal transmitter.

OK ↓

C

Check continuity between control unit harness terminal No. ⑰ and thermal transmitter harness terminal No. ①.
Continuity should exist.

NG → Repair harness or connector.

Check connectors (I6, I1, M22, M37, F53 and F34) and harness. Refer to "Connector and Harness Check" (EL-76).

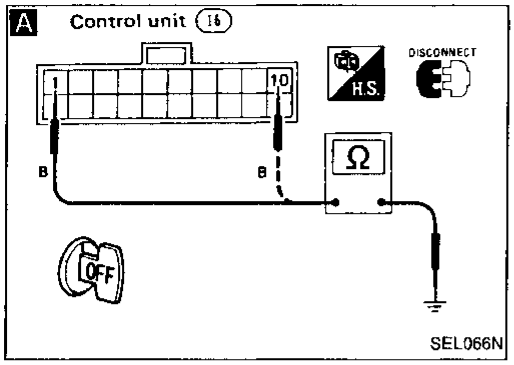
OK ↓

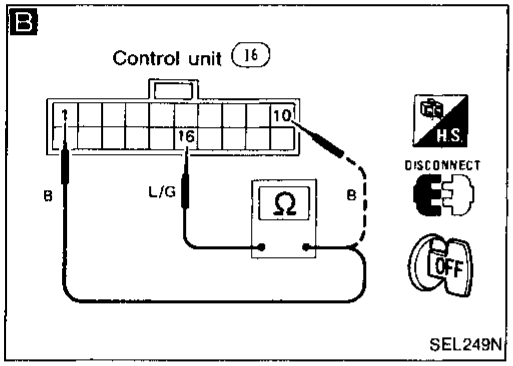
Replace control unit. ← A

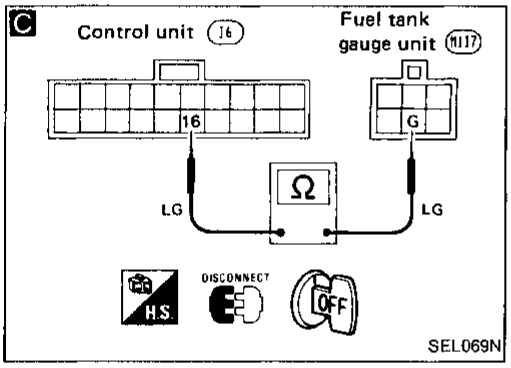
Trouble Diagnoses (Cont'd)

Diagnostic procedure 4

SYMPTOM: Indicated value of fuel gauge is incorrect.







A

Check continuity between control unit harness terminal No. ①, ⑩ and body ground.
Continuity should exist.

NG → Repair harness, connector or body ground (M1).

OK ↓

B

Disconnect connector from control unit, and measure resistance between control unit harness terminal No. ⑯ and ① (or ⑩).
Compare measured resistance with gauge indication (before disconnecting connector).
Gauge indication is swayed by the amount of fuel.

Segment	Resistance Ω
14	Less than 23
7	120 - 365
1	More than 581

NG →

OK ↓

While making fuel quick check (Refer to "Self-check" EL-77.), lightly tap on corner of control unit with screwdriver to see if display changes.

Yes → Check connector (16). Refer to "Connector and Harness Check" (EL-76).

NG → Repair harness or connector.

OK → (Go to Ⓐ below.)

No ↓

Check fuel tank gauge unit. Refer to "Fuel Tank Gauge Unit Check" (EL-78).

NG → Replace fuel tank gauge unit.

OK ↓

C

Check continuity between control unit harness terminal No. ⑯ and fuel tank gauge unit harness terminal No. Ⓖ.
Continuity should exist.

NG → Repair harness or connector.

Check connectors ((16), (11), (M22) and (M117)) and harness.
Refer to "Connector and Harness Check" (EL-76).

OK ↓

Replace control unit. ← Ⓐ

Trouble Diagnoses (Cont'd)

Diagnostic procedure 5

SYMPTOM: Illumination control for head-up display sometimes fail to function.

Check head-up display control unit connector.
Refer to "Connector and Harness Check" (EL-76).

NG → Repair harness or connector.

OK ↓

Is segment brightness of combination meter controlled properly?

No → Go to Diagnostic procedure 7 (EL-65).

Yes ↓

Measure voltage between terminal No. ⑥ and ④ of head-up display control unit connector using a circuit tester (set in AC range).

Illumination control switch	Lighting switch OFF		Lighting switch ON	
Step	Duty (%)	Voltage (V)	Duty (%)	Voltage (V)
1	100	0	35	Approx. 5.6
2	60	Approx. 5.7	0.45	Approx. 1.3
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
15	0.3	Approx. 0.6	0.115	Approx. 0.6
16	0.2	Approx. 0.4	0.11	Approx. 0.5

OK ↓

Replace head-up display control unit.

NG ↓

Check head-up display control unit connector.
Refer to "Connector and Harness Check" (EL-76).

OK ↓

Replace control unit.

NG ↓

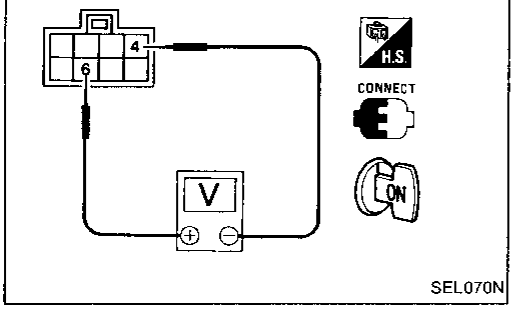
Repair harness or connector.

Trouble Diagnoses (Cont'd)

Diagnostic procedure 6

SYMPTOM: Illumination control for head-up display always fails to function.

A Head-up display control unit connector



SEL070N

A

Measure voltage between terminal No. ⑥ and ④ of head-up display control unit connector using a circuit tester (set in AC range).

Illumination control switch	Lighting switch OFF		Lighting switch ON	
Step	Duty (%)	Voltage (V)	Duty (%)	Voltage (V)
1	100	0	35	Approx. 5.6
2	60	Approx. 5.7	0.45	Approx. 1.3
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
15	0.3	Approx. 0.6	0.115	Approx. 0.6
16	0.2	Approx. 0.4	0.11	Approx. 0.5

OK → Replace head-up display control unit.

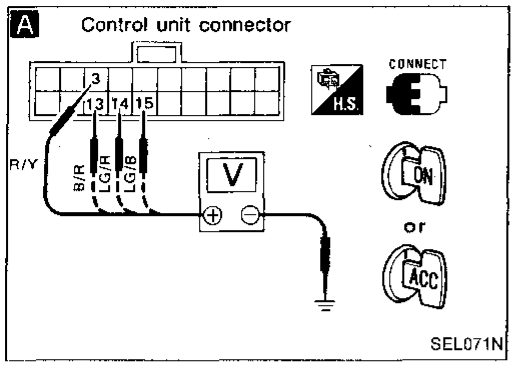
NG → Check head-up display control unit connector. Refer to "Connector and Harness Check" (EL-76).

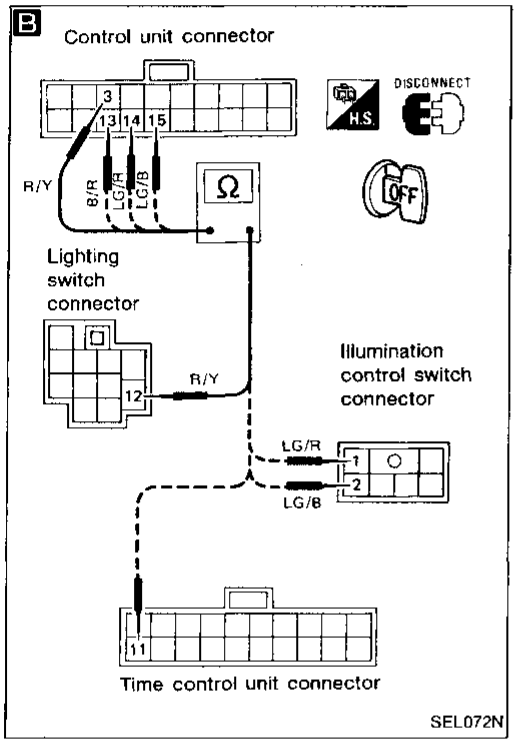
- OK → Replace control unit.
- NG → Repair harness or connector.

Trouble Diagnoses (Cont'd)

Diagnostic procedure 7

SYMPTOM: Illumination control for combination meter always fails to function.





A

Measure voltage between control unit connector terminals (indicated in table below) and ground.

			Voltage V			
Ignition switch			ACC		ON	
Lighting switch			OFF	ON	OFF	ON
Terminal No.	⑬		0	12	0	12
	⑲		0	Less than 12	0	Less than 12
	⑭	*1	0	0	0	0
		*2	0	12	More than 3	12
	⑮	*3	0	0	0	0
		*2	0	12	More than 3	12

*1: Illumination control switch is turned ON to "BRIGHTEN" side.
*2: Illumination control switch is OFF.
*3: Illumination control switch is turned ON to "DARKEN" side.

NG → **B**

Check continuity between control unit terminals No. ⑬, ⑲, ⑭, ⑮ and each units' terminal.

Terminal No.		Continuity
⑬	⑫ *1	Yes
⑲	⑪ *2	
⑭	① *3	
⑮	② *3	

*1: Lighting switch
*2: Time control unit
*3: Illumination control switch

Check connectors (M6, M11, M1, M22, M18, M12, E101, E118 and E113) and harness.
Refer to "Connector and Harness Check" (EL-76).

NG → Repair harness or connector.

OK ↓

Check control unit connector.
Refer to "Connector and Harness Check" (EL-76).

NG → Repair harness or connector.

OK ↓

Is brightness of any segments controlled properly?

No → Replace control unit.

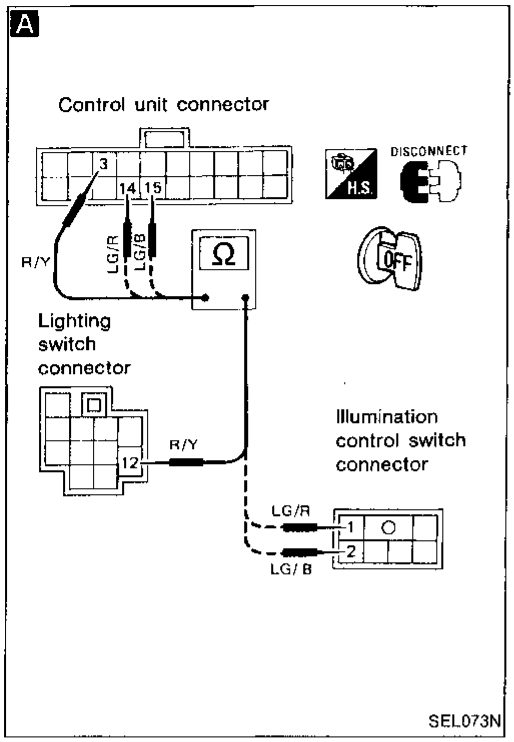
Yes ↓

Replace display unit.

Trouble Diagnoses (Cont'd)

Diagnostic procedure 8

SYMPTOM: Illumination control for combination meter sometimes fails to function.



A Check continuity between control unit terminals No. ③, ⑭, ⑮ and each units' terminal.

NG → Repair harness or connector.

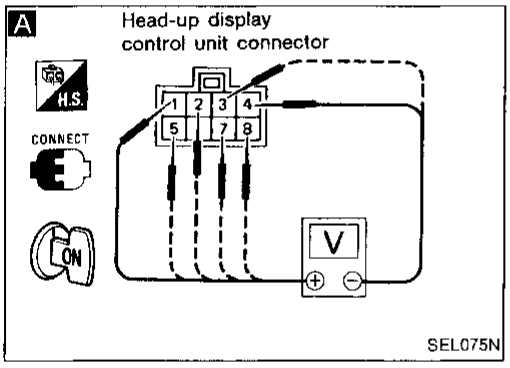
Terminal No.		Continuity
③	⑫ *1	Yes
⑭	① *2	
⑮	② *2	

*1: Lighting switch
*2: Illumination control switch

Check connectors (I6, I11, I1, M22, M12, E101, E118 and E113) and harness.
Refer to "Connector and Harness Check" (EL-76).

OK ↓

Replace control unit.



Diagnostic procedure 9

SYMPTOM: All head-up display segments always illuminate, or some segments remain illuminated, illuminate dimly, do not illuminate or blink at all times.

A

Measure voltage between head-up display control unit connector terminals (indicated in table below.)

NG → Check head-up display control unit connector.
Refer to "Connector and Harness Check" (EL-76).

NG → Repair harness or connector.

OK → Replace control unit.

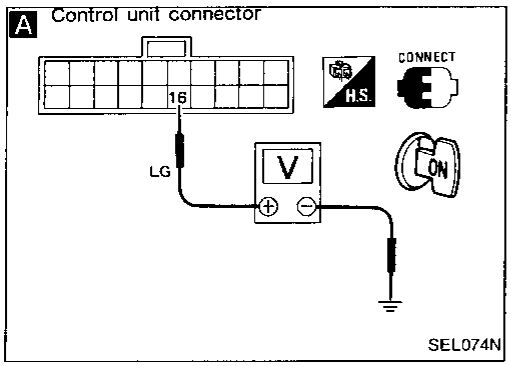
Voltmeter range		Terminal No.		Voltage V
DC		①	④	Approx. 12
AC		⑤		Approx. 1.3
		⑦		Approx. 1.5
		⑧		Approx. 1
	*1	②	③	Approx. 1.7
	*2	②	③	0

*1: Head-up display switch ON
*2: Head-up display switch OFF

Trouble Diagnoses (Cont'd)

Diagnostic procedure 10

SYMPTOM: All segments of combination meter illuminate, or some segments remain illuminated, illuminate dimly, do not illuminate or blink at all times.



A

Disconnect fuel tank gauge unit connector.
Check voltage (AC range) between control unit harness terminal No. ⑯ and body ground.
Voltage: Approx. 1V

NG → (Go to Ⓐ below.)

OK

Do all segments of a particular meter/gauge illuminate erroneously?

Yes → While making segment checks (Refer to "Self-check" EL-76.), lightly tap on corners of combination meter and control unit several times with screwdriver to see if display changes.

No

Ⓑ

Are any abnormal segments controlled properly in response to operation of illumination control switch?

No → Ⓒ

Yes → (Go to Ⓒ below.)

Do abnormal segment indications repeat periodically?

Yes → Ⓒ → Replace display unit.

No → Ⓐ → Replace control unit.

Changes → Do any abnormal segments illuminates dimly or blink when the other normal segments are illuminated?

Yes → Does abnormal segment indication change?

Yes → (Go to Ⓑ below.)

No → Replace control unit.

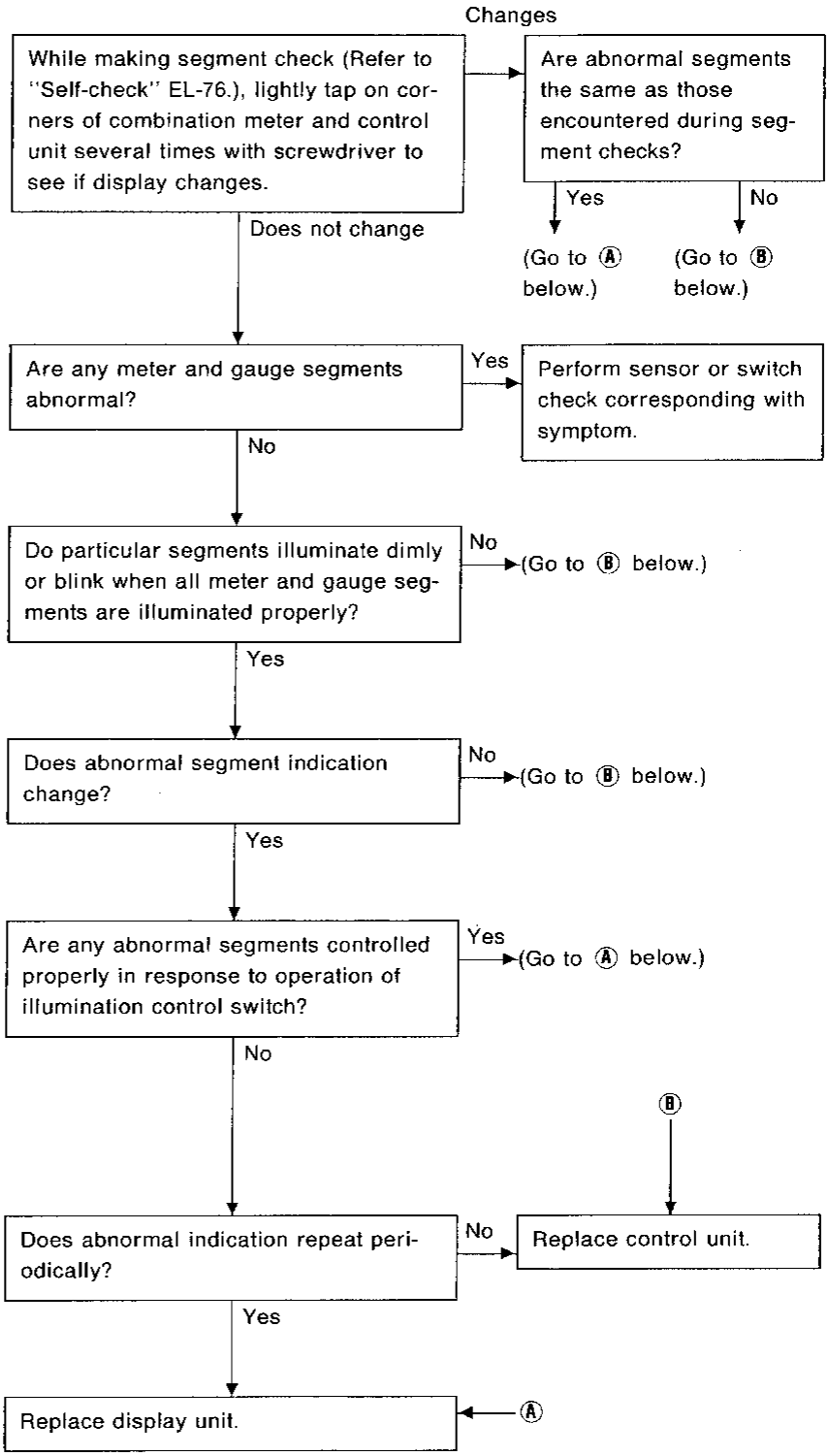
No → (Go to Ⓐ below.)

Does not change → Perform sensor or switch check corresponding with symptom.

Trouble Diagnoses (Cont'd)

Diagnostic procedure 11

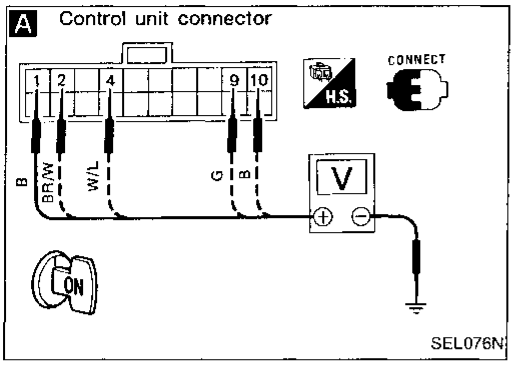
SYMPTOM: All segments of combination meter sometimes illuminate, or some segments remain illuminated, illuminate dimly, blink or do not illuminate occasionally.

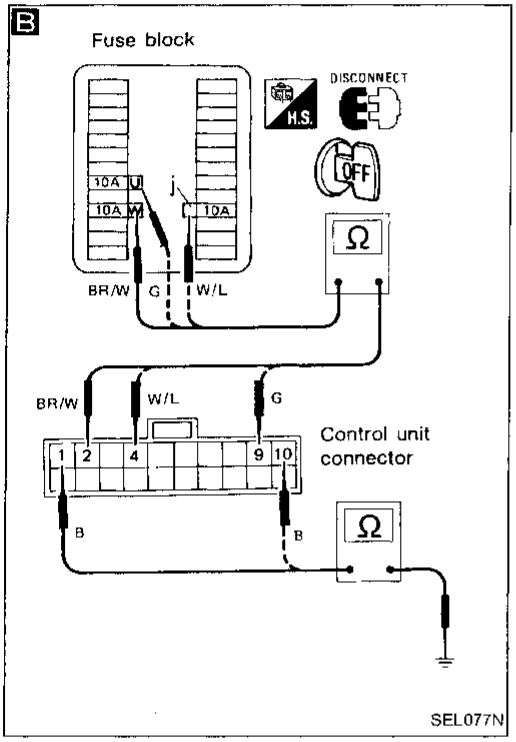


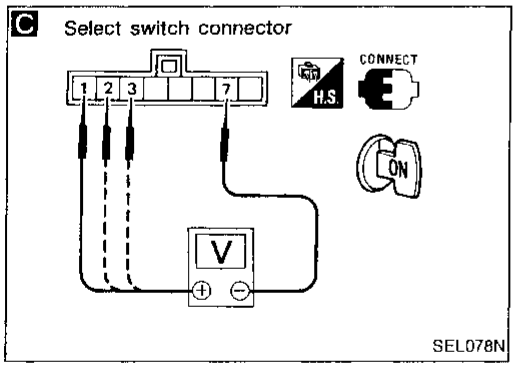
Trouble Diagnoses (Cont'd)

Diagnostic procedure 12

SYMPTOM: Trip meter does not maintain memory.







Does trip meter indication appear approximately 3 seconds after ignition switch is turned ON?

No → (Go to Ⓐ below.)

Yes ↓

Does clock work properly?

No → Check and repair power supply circuit. Refer to "POWER SUPPLY ROUTING" (EL-8).

Yes ↓

A

Check voltage between control unit harness terminals and body ground.

Terminal No. ⊕	Terminal No. ⊖	Voltage V
①	Body ground	0
②		Approx. 12
④		Approx. 12
⑨		Approx. 12
⑩		0

NG → **B**

Check continuity between control unit harness terminals and fuse block or body ground.

Terminal No. ⊕	Terminal No. ⊖	Continuity
ⓦ	②	Yes
ⓙ	④	
ⓤ	⑨	
①	Body ground	
⑩		

NG → Repair harness, connector or body ground (M1).

OK ↑

OK ↓

C

Measure voltage between select switch connector terminals (indicated in table below).

NG → Replace select switch.

		Terminal No. ⊕	Terminal No. ⊖	Voltage V
Trip or Total	Trip	①	⑦	0
		③		5
	Total	①		5
		③		0
Reset	OFF	②		5
	ON	②		0

OK ↓

Check connector (I6) and harness. Refer to "Connector and Harness Check" (EL-76).

NG → Repair harness or connector.

OK ↓

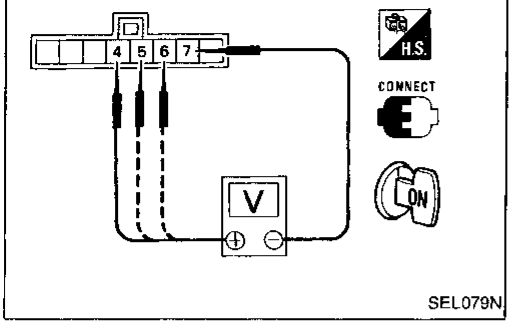
Replace control unit.

Trouble Diagnoses (Cont'd)

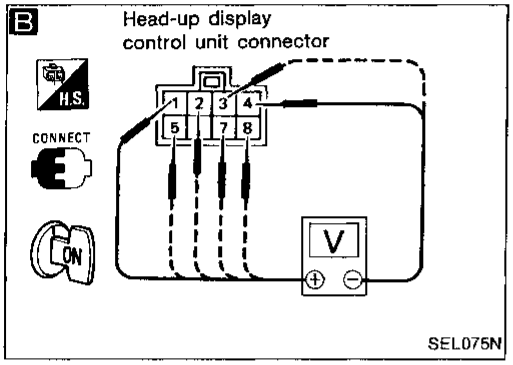
Diagnostic procedure 13

SYMPTOM: Head-up display segments do not illuminate.

A Select switch connector



B Head-up display control unit connector



A

Measure voltage between select switch connector terminals (indicated in table below).

NG → Check head-up display ON-OFF switch.

Terminal No.		⊕	⊖	Voltage V
MPH or km/h	MPH	④	⑦	0
		⑥		5
	km/h	④		5
		⑥		0
Head-up display	OFF	⑤		5
	ON	⑤		0

OK ↓

Do head-up display segments always fail to illuminate when switch is ON?

No (Sometimes) → Check head-up display control unit connector. Refer to "Connector and Harness Check" (EL-76).

Yes ↓

B

Check voltage between head-up display control unit connector terminals (indicated in table below).

NG → Check head-up display control unit connector. Refer to "Connector and Harness Check" (EL-76).

Voltmeter range		Terminal No.		Voltage V
DC		①	④	Approx. 12
AC		⑤		Approx. 1.3
		⑦		Approx. 1.5
		⑧		Approx. 1
	*1	②	③	Approx. 1.7
	*2	②	③	0

*1: Head-up display switch ON
*2: Head-up display switch OFF

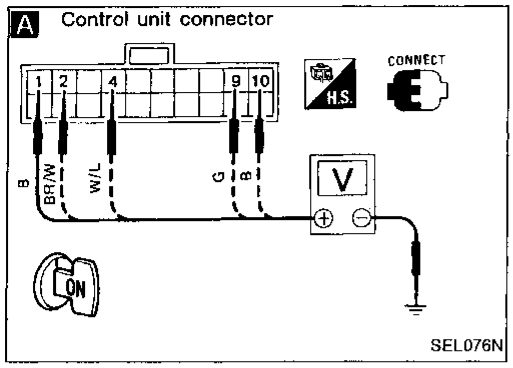
NG → Repair harness or connector.

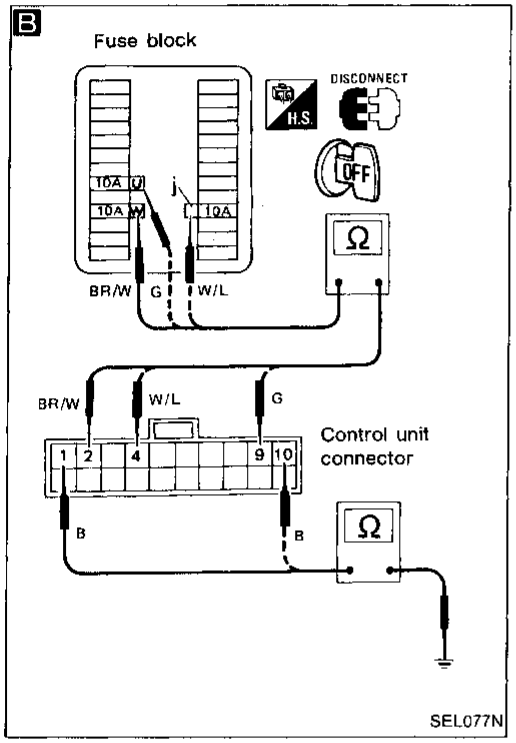
OK → Replace control unit.

OK ↓

Replace head-up display control unit.

Trouble Diagnoses (Cont'd)





Diagnostic procedure 14

SYMPTOM: All segments sometimes do not illuminate.

A

Check voltage between control unit harness terminals and body ground.

Terminal No. ⊕	Terminal No. ⊖	Voltage V
①	Body ground	0
②		Approx. 12
④		Approx. 12
⑨		Approx. 12
⑩		0

NG → **B**

OK → Replace control unit.

B

Check continuity between control unit harness terminals and fuse block or body ground.

Terminal No. ⊕	Terminal No. ⊖	Continuity
⑯	②	Yes
⑰	④	
⑪	⑨	
①	Body ground	
⑩		

NG → Repair harness, connector or body ground (M1).

OK → Check and repair power supply circuit. Refer to "POWER SUPPLY ROUTING" (EL-8).

Diagnostic procedure 15

SYMPTOM: All head-up display segments sometimes illuminate, or some segments remain illuminated, illuminate dimly, do not illuminate or blink occasionally.

Check head-up display control unit connector. Refer to "Connector and Harness Check" (EL-76).

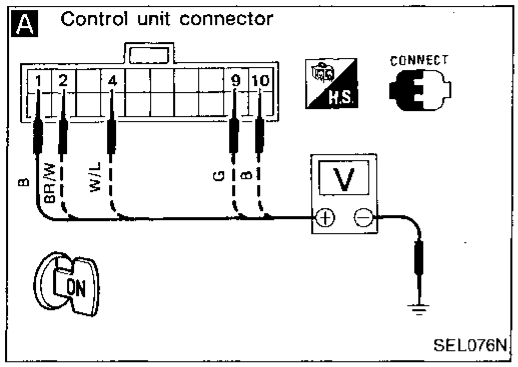
NG → Repair harness or connector.

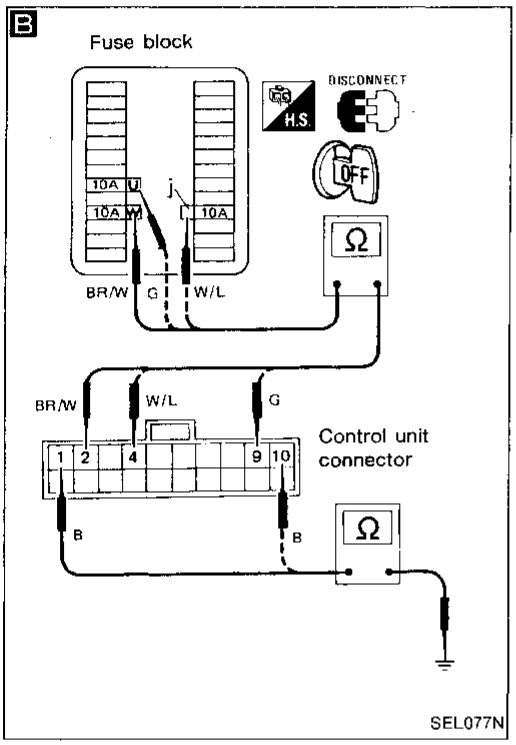
OK → Replace head-up display control unit.

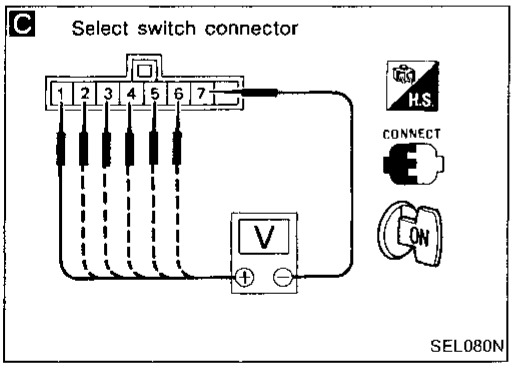
Trouble Diagnoses (Cont'd)

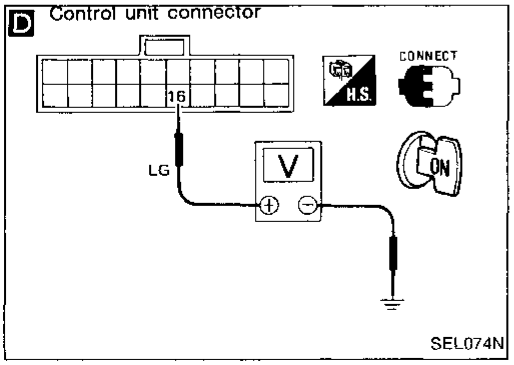
Diagnostic procedure 16

SYMPTOM: All segments always do not illuminate.









A

Check voltage between control unit harness terminals and body ground.

Terminal No.		Voltage V
⊕	⊖	
①	Body ground	0
②		Approx. 12
④		Approx. 12
⑨		Approx. 12
⑩		0

NG → **B**

B

Check continuity between control unit harness terminals and fuse block or body ground.

Terminal No.		Continuity
⊕	⊖	
⑭	②	Yes
⑪	④	
⑫	⑨	
①	Body ground	
⑩		

NG → Repair harness, connector or body ground (M1).

OK → Check and repair power supply circuit. Refer to "POWER SUPPLY ROUTING" (EL-8).

OK

C

Check voltage between select switch connector terminals (indicated in table below).

Terminal No.		⊕	⊖	Voltage V
Trip or Total	Trip	①	⑦	0
		③		5
	Total	①		5
		③		0
Reset	OFF	②		5
	ON	②		0
MPH or km/h	MPH	④		0
		⑥		5
	km/h	④		5
		⑥		0
Head-up display	OFF	⑤		5
	ON	⑤		0

NG → (Go to Ⓑ on next page.)

OK

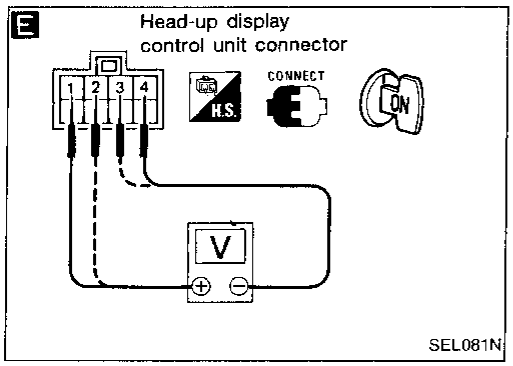
D

Disconnect fuel tank gauge unit.
Check voltage (AC range) between control unit harness terminal No. ⑯ and body ground.
Voltage: Approx. 1V

NG → (Go to Ⓑ on next page.)

OK → (Go to Ⓐ on next page.)

Trouble Diagnoses (Cont'd)



Ⓐ

E

Measure voltage between head-up display control unit connector terminals (indicated in table below.)

NG → (Go to Ⓑ below.)

Voltmeter range		Terminal No.		Voltage V
DC		①	④	Approx. 12
AC	*1	②	③	Approx. 1.7
	*2	②	③	0

*1: Head-up display switch ON
*2: Head-up display switch OFF

OK ↓

Extract display unit from control unit. Check display unit connector terminals for bends. Straighten bent terminals as necessary.
Reconnect control unit to display unit and turn ignition switch ON.

NG → Replace display unit.

OK ↓

Replace control unit. ← Ⓑ

Diagnostic procedure 17

SYMPTOM: Indicated value of odometer changes irregularly or is incorrect.

Make segment check.
Refer to "Self-check" (EL-76).

NG → Replace display unit.

OK ↓

Does speedometer indicate zero even when driving?

Yes → Go to Diagnostic procedure 1 (EL-59).

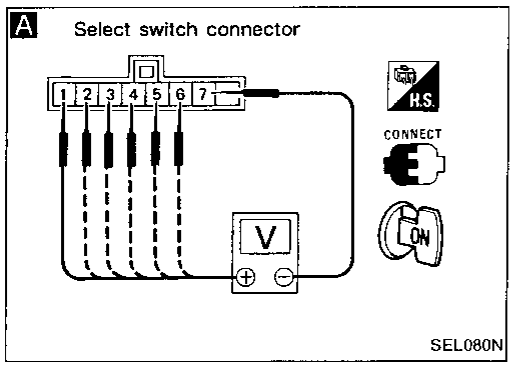
No ↓

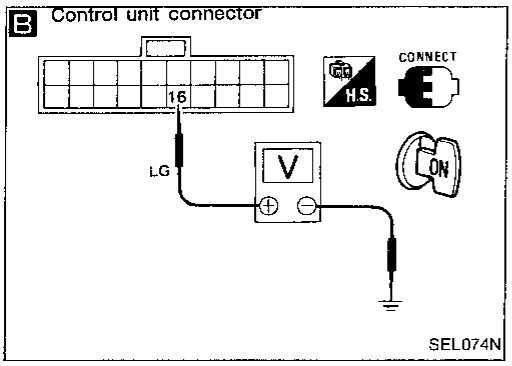
Replace control unit.

Trouble Diagnoses (Cont'd)

Diagnostic procedure 18

SYMPTOM: Particular segments always or sometimes do not illuminate.





While making segment checks several times (Refer to "Self-check" EL-76.), lightly tap on corner of control unit with screwdriver to see if display changes.

Changes → (Go to Ⓑ on next page.)

Does not change

Ⓐ

Measure voltage between select switch connector terminals (indicated in table below.)

NG → (Go to Ⓑ on next page.)

Terminal No.		⊕	⊖	Voltage V
Trip or Total	Trip	①	⑦	0
		③		5
	Total	①		5
		③		0
Reset	OFF	②		5
	ON	②		0
MPH or km/h	MPH	④		0
		⑥		5
	km/h	④		5
		⑥		0
Head-up display	OFF	⑤		5
	ON	⑤		0

OK

Ⓑ

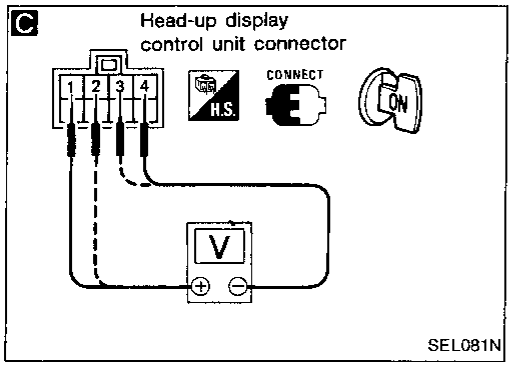
Disconnect fuel tank gauge unit.
Check voltage (AC range) between control unit harness terminal No. ⑯ and body ground.
Voltage: Approx. 1V

NG → (Go to Ⓑ on next page.)

OK

(Go to Ⓐ on next page.)

Trouble Diagnoses (Cont'd)



Ⓐ

C

Measure voltage between head-up display control unit connector terminals (indicated in table below.)

NG → (Go to Ⓑ below.)

Voltmeter range		Terminal No.		Voltage V
DC		①	④	Approx. 12
AC	*1	②	③	Approx. 1.7
	*2	②	③	0

*1: Head-up display switch ON
*2: Head-up display switch OFF

OK ↓

Extract display unit from control unit. Check display unit connector terminals for bends. Straighten bent terminals as necessary.
Re-connect control unit to display unit and turn ignition switch ON.

NG → Replace display unit.

OK ↓

Replace control unit. ← Ⓑ

Connector and Harness Check

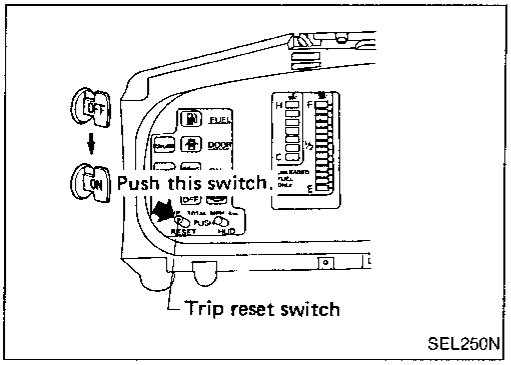
1. Checks while monitoring meter indication (with unit connected and ignition switch ON).

(a) Connector
- While holding harness close to connector, twist connector
- Lightly pull or push harness corresponding with terminal affected.
- Lightly tap on harness.

(b) Harness
- Lightly tap on harness.
- Move harness up and down, and left and right.

If poor contact exists, indication value will change or disappear.

2. Check terminals for bends.



Self-check

SEGMENT CHECK

Turn ignition switch from "OFF" to "ON" while pushing trip reset switch. Release this switch after segment check operation starts.

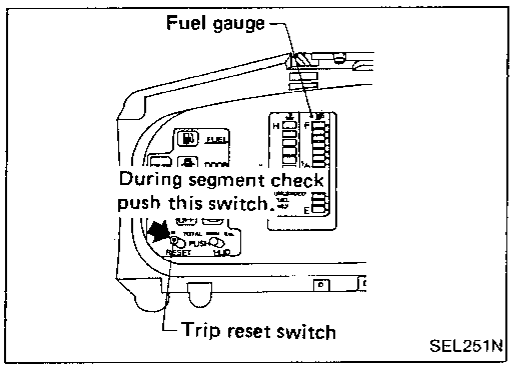
Sequence of segment check

Segments of central speedometer
↓
Index segments of speedometer (Mile → km)
↓
Numbers of circular speedometer (Mile → km)
↓
Frames and index segments of tachometer
↓
Scale segments of speedometer (in turn)
↓
Segments of odometer
↓
Scale segments and numbers of tachometer (in turn)
↓
Water temperature gauge
↓
Fuel gauge
↓
Head-up display
↓
Normal display condition (End of self-check)

Self-check (Cont'd)

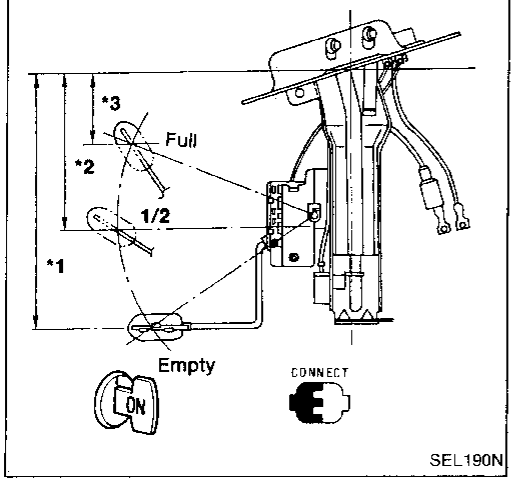
FUEL GAUGE QUICK CHECK

In this mode, fuel gauge indication responds to signals from fuel tank gauge without delay.
During display check, push trip reset switch again, and fuel gauge quick check mode will start.



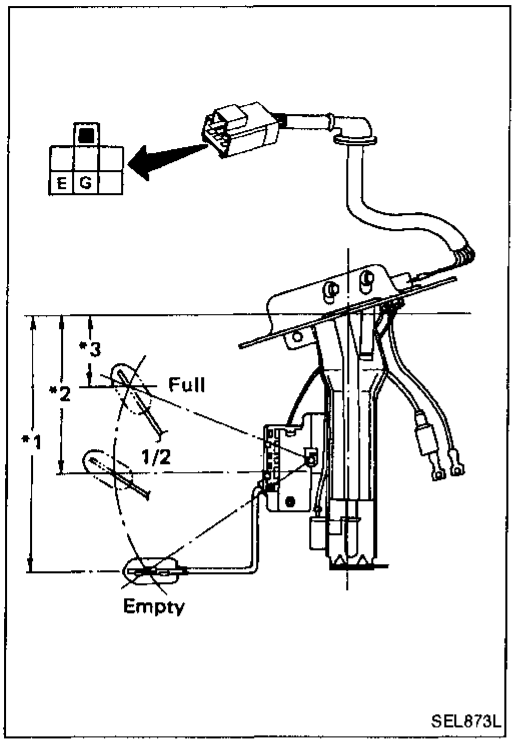
Remove fuel tank gauge unit from fuel tank. Refer to FE section ("FUEL SYSTEM"). Connect connector (M117) and move float as shown in the figure.
Fuel gauge indication should change in proportion to the movement of fuel tank gauge.

Float position mm (in)			Number of lighted segments
*3	Full	47 (1.85)	14
*2	1/2	121 (4.76)	7
*1	Empty	172 (6.77)	0



WARNING:

- **When ignition switch is turned on, fuel pump works for a short time. If fuel hoses are disconnected from fuel tubes in this operation, put fuel hoses in a container in order not to spill fuel from fuel pump.**
- **Do not work fuel pump in the air repeatedly. Otherwise it will be broken due to lack of lubrication.**



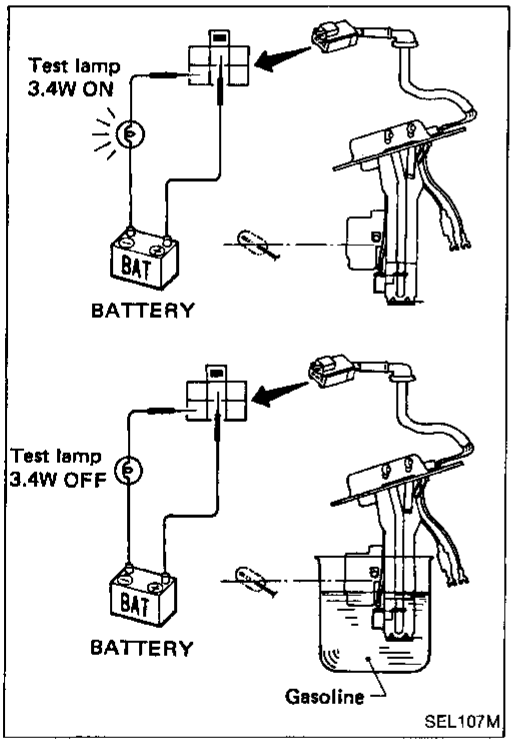
Fuel Tank Gauge Unit Check

- For removal, refer to FE section.

Check the resistance between terminals Ⓖ and Ⓔ.

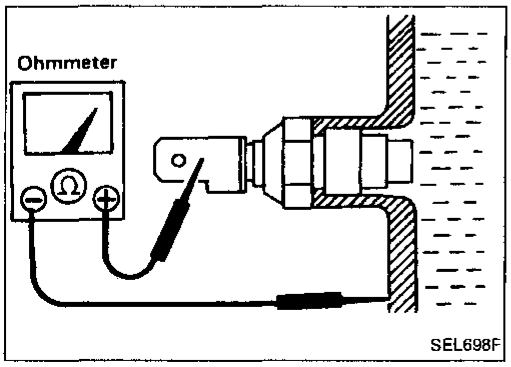
Ohmmeter (+)	Ohmmeter (–)	Float position mm (in)			Resistance Ω
G	E	*3	Full	47 (1.85)	15 - 18
		*2	1/2	121 (4.76)	178 - 195
		*1	Empty	172 (6.77)	929 - 1,009

*1 and *3: When float rod is in contact with stopper.



Fuel Warning Lamp Sensor Check

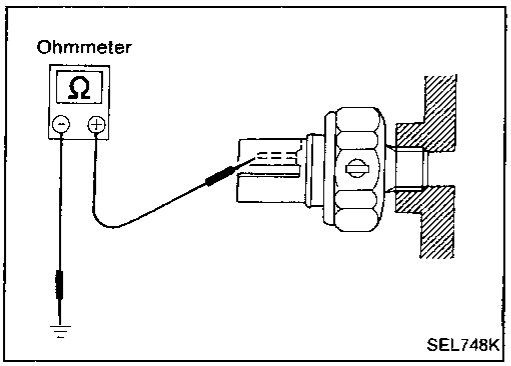
- It will take a short time for the bulb to light.



Thermal Transmitter Check

Check the resistance between the terminals of thermal transmitter and body ground.

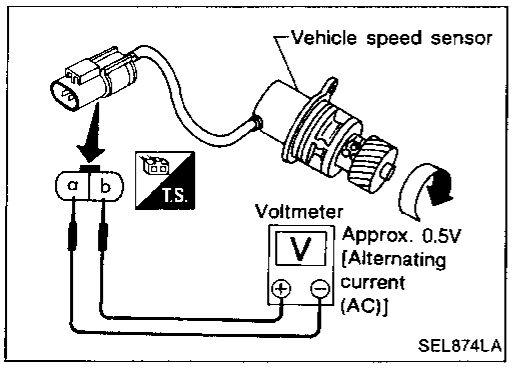
Water temperature	Resistance
60°C (140°F)	Approx. 70 - 90Ω
100°C (212°F)	Approx. 21 - 24Ω



Oil Pressure Switch Check

	Oil pressure kPa (kg/cm², psi)	Continuity
Engine start	More than 10 - 20 (0.1 - 0.2, 1.4 - 2.8)	NO
Engine stop	Less than 10 - 20 (0.1 - 0.2, 1.4 - 2.8)	YES

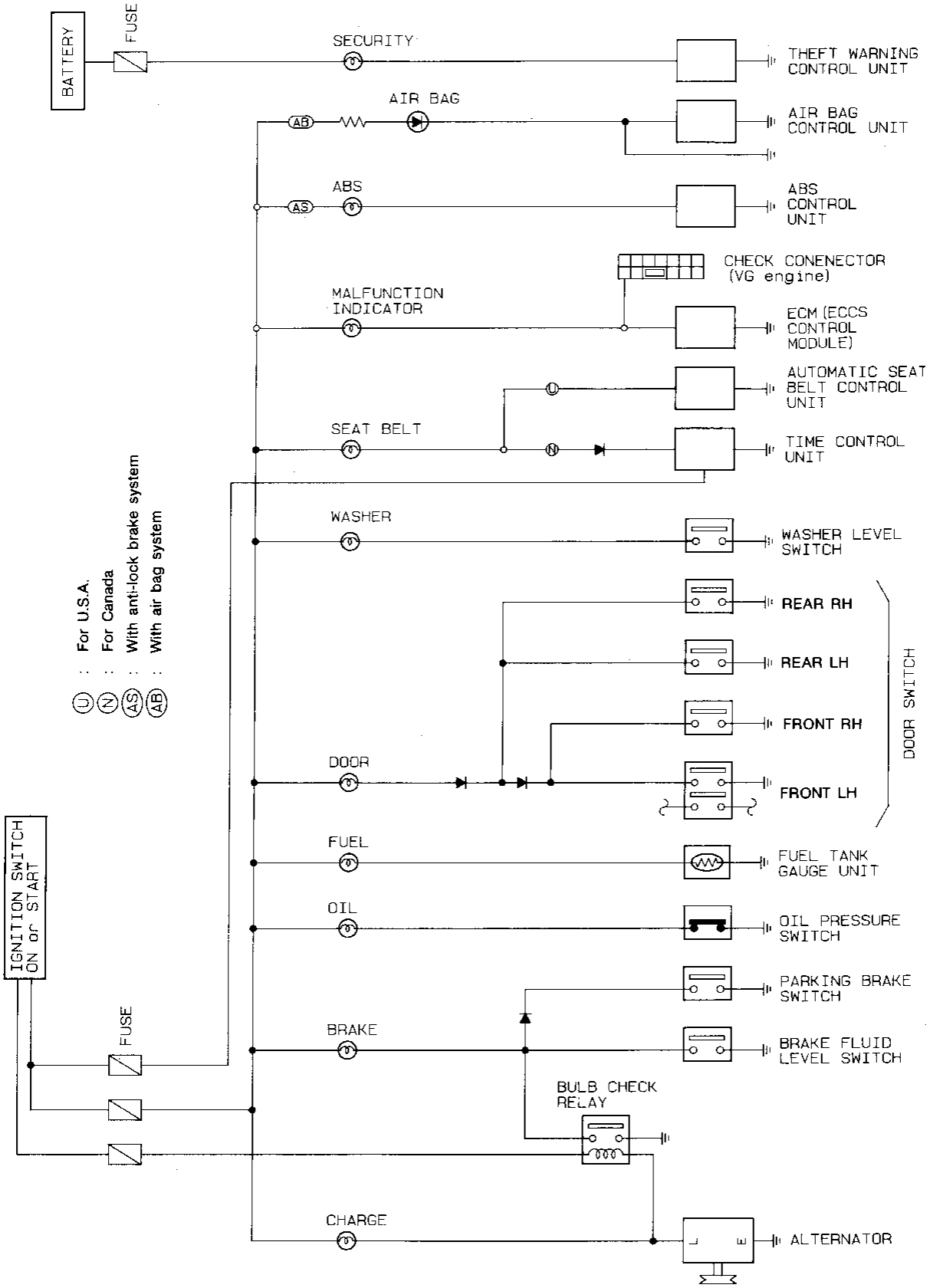
Check the continuity between the terminals of oil pressure switch and body ground.



Vehicle Speed Sensor Signal Check

1. Remove vehicle speed sensor from transmission.
2. Turn speedometer pinion quickly and measure voltage across ⓐ and ⓑ.

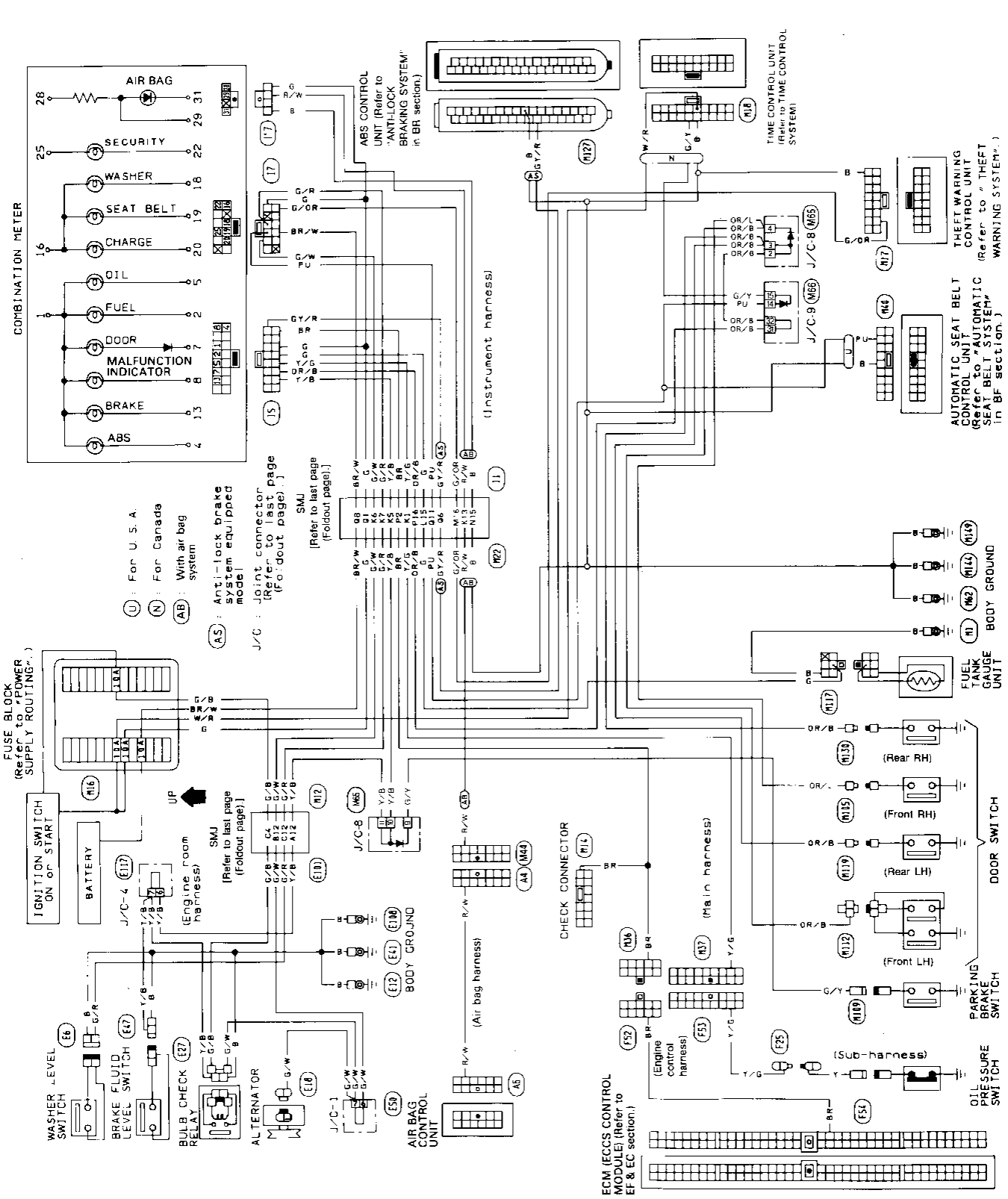
Warning Lamps/Schematic



SEL711S

Warning Lamps/Wiring Diagram

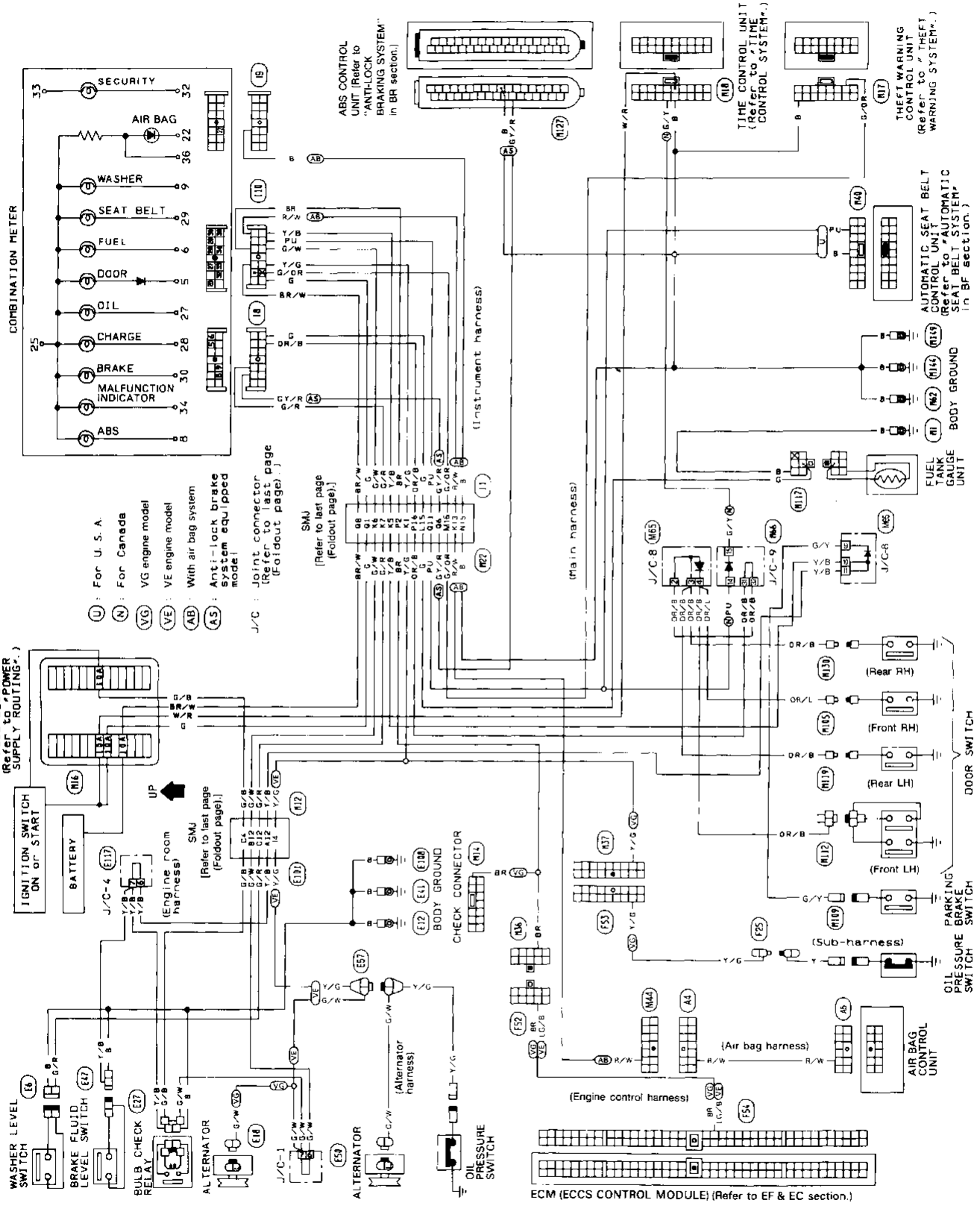
DIGITAL TYPE COMBINATION METER



SEL712S

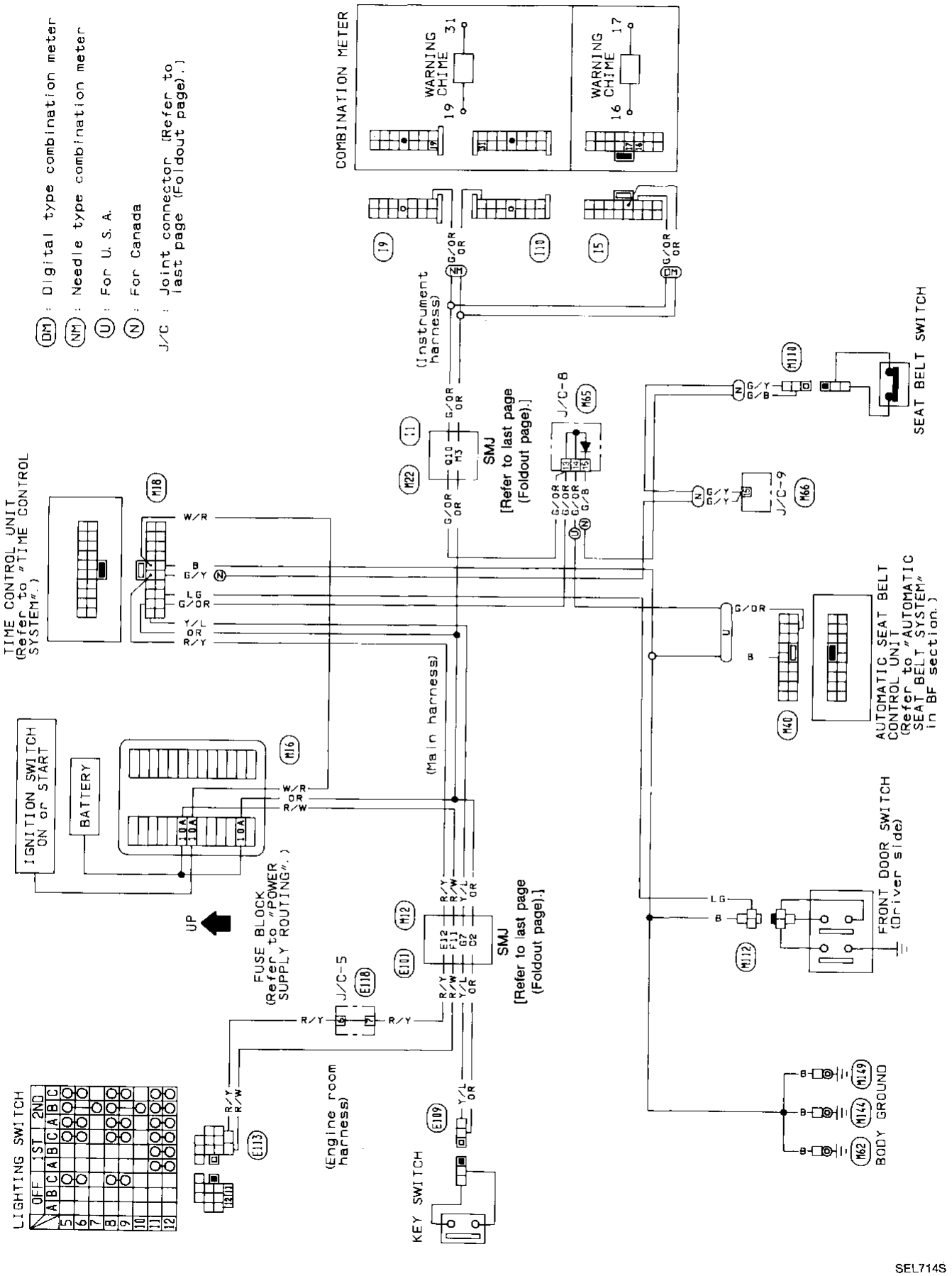
Warning Lamps/Wiring Diagram (Cont'd)

NEEDLE TYPE COMBINATION METER

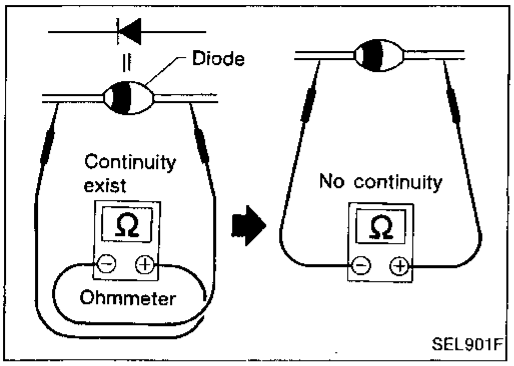


SEL713S

Warning Chime/Wiring Diagram



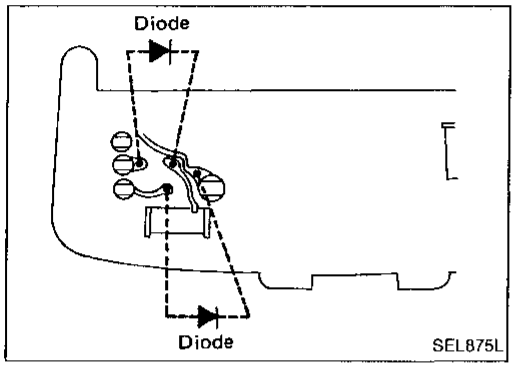
SEL714S



Diode Check

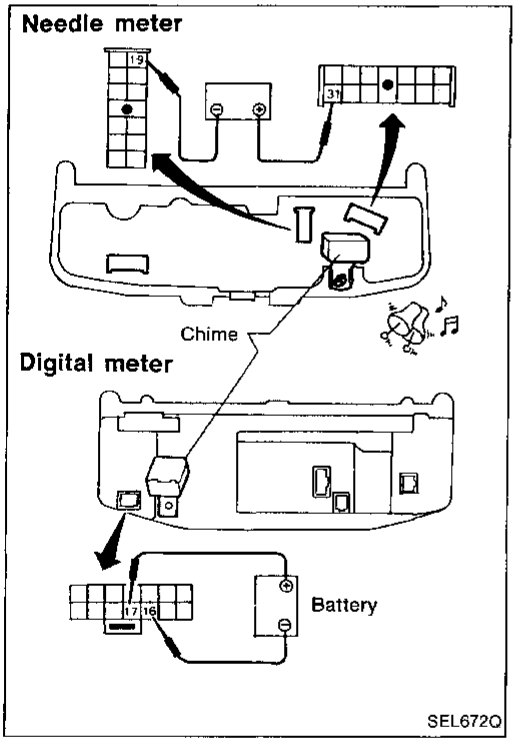
- Check continuity using an ohmmeter.
- Diode is functioning properly if test results are as shown in the figure at left.

NOTE: Specifications may vary depending on the type of tester. Before performing this inspection, be sure to refer to the instruction manual of your tester.



- Diodes for warning lamps are built into the combination meter printed circuit.

Refer to "Combination Meter" (EL-44).



Warning Chime Check

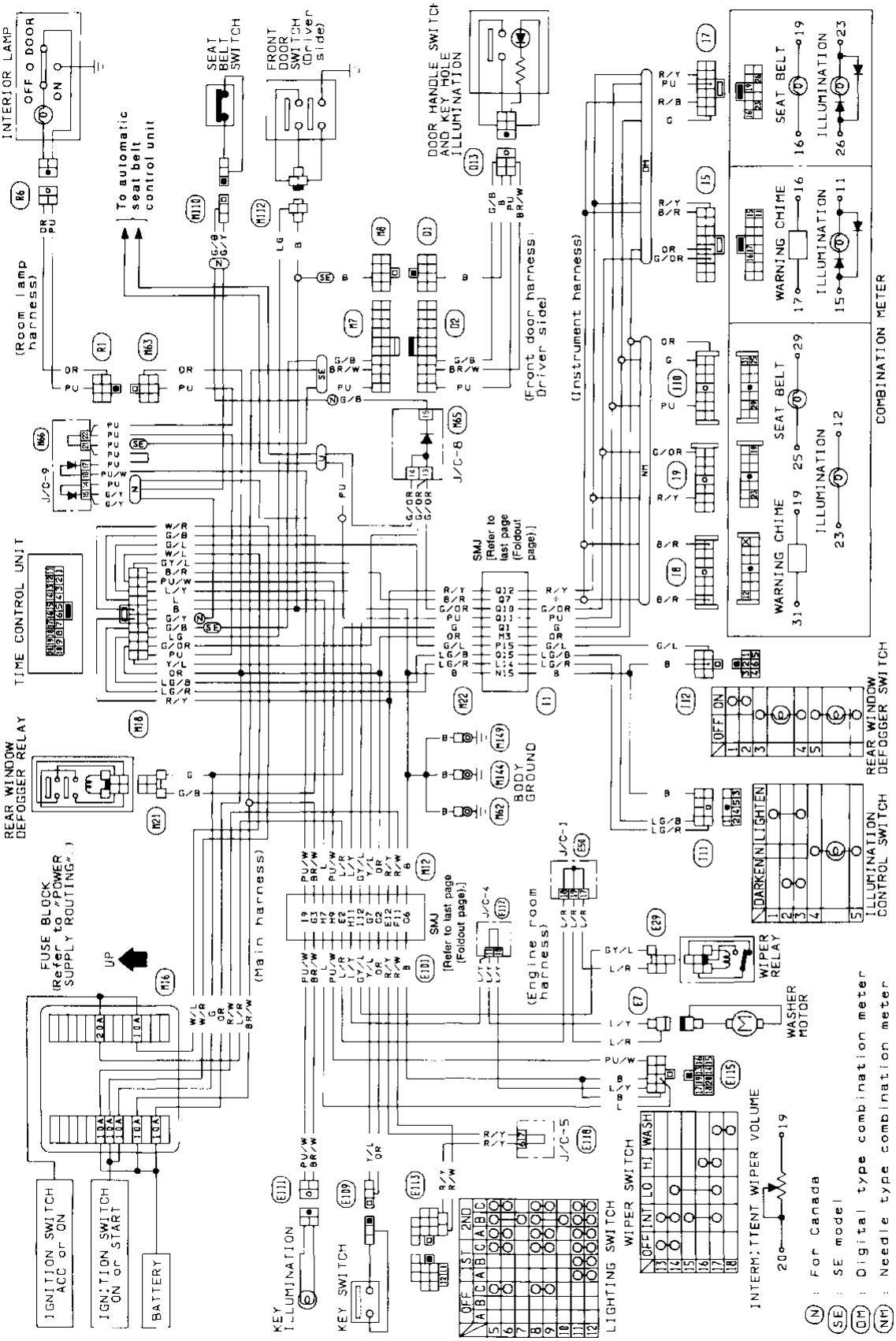
Description

FUNCTION

- Time control unit has the following functions.

Item		Details of control
1,2	Intermittent wiper control	Regulates intermittent time from approximately 3 to 23 seconds depending on the intermittent wiper volume setting.
3	Washer and wiper combination control	Wiper is operated in conjunction with washer switch.
4	Light warning chime timer	When driver's door is opened with light switch ON and ignition switch OFF, warning chime sounds.
5	Ignition key warning chime timer	When driver's door is opened with ignition switch OFF, warning chime sounds.
6	Seat belt warning chime timer	Sounds warning chime for about 7 seconds if ignition switch is turned "ON" when seat belt switch is "ON" (seat belt is unfastened).
7	Seat belt warning lamp timer	Seat belt warning lamp blinks for about 7 seconds when ignition switch is turned to "ON".
8	Rear defogger timer	Rear defogger operates for about 15 minutes when defogger switch is ON.
9	Interior lamp timer	Fades out interior lamp when driver's side door is opened and closed.
10	Door key hole illumination	Illuminates for about 7 seconds when door outside handle is pulled.
11	Illumination control	The brightness of the instrument panel light can be adjusted.

Wiring Diagram



SEL715S

Trouble Diagnoses

SYMPTOM CHART

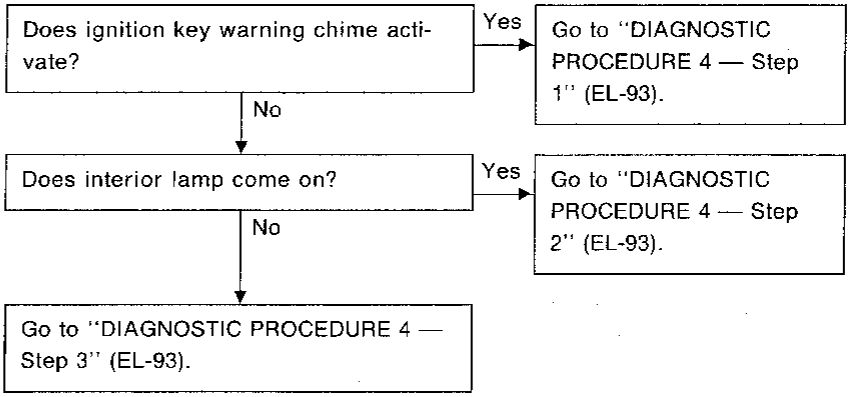
PROCEDURE		Preliminary Check			Main power Supply and Ground Circuit Check	Diagnostic Procedure										
REFERENCE PAGE		EL-88	EL-88	EL-88	EL-89	EL-91	EL-92	EL-92	EL-93	EL-94	EL-95	EL-96	EL-96	EL-97	EL-98	EL-99
SYMPTOM		Procedure 1	Procedure 2	Procedure 3	Main power supply and Ground circuit	Diagnostic procedure 1	Diagnostic procedure 2	Diagnostic procedure 3	Diagnostic procedure 4	Diagnostic procedure 5	Diagnostic procedure 6	Diagnostic procedure 7	Diagnostic procedure 8	Diagnostic procedure 9	Diagnostic procedure 10	Diagnostic procedure 11
Wiper & washer	Intermittent wiper does not operate.				○	○										
	Intermittent time of wiper cannot be adjusted.						○									
	Wiper and washer activate individually but not in combination.							○								
Warning	Light warning chime does not activate.	○			○				○							
	Ignition key warning chime does not activate.		○		○					○						
	Seat belt warning chime does not activate.			○	○						○					
	Seat belt warning lamp does not come on, or does not go off after coming on.				○							○				
Rear defogger	Rear defogger does not activate, or go off after activating.				○								○			
Illumination	Interior lamp does not fade out after driver's door is closed.				○									○		
	Door key hole illumination does not come on even if door handle is pulled.				○										○	
	Illumination control does not actuate.															○

Trouble Diagnoses (Cont'd)

PRELIMINARY CHECK

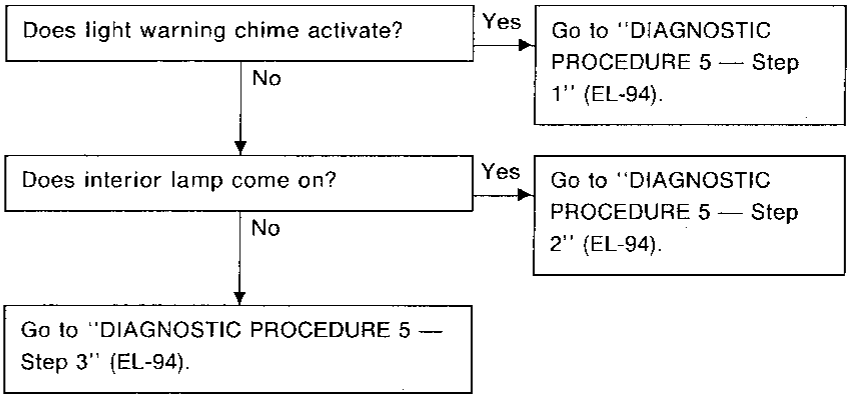
Preliminary check 1

- **Light warning chime does not activate.**



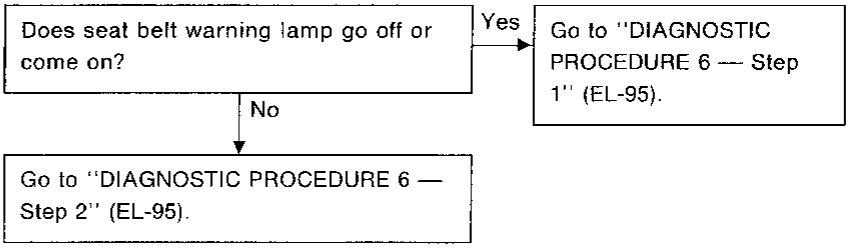
Preliminary check 2

- **Ignition key warning chime does not activate.**



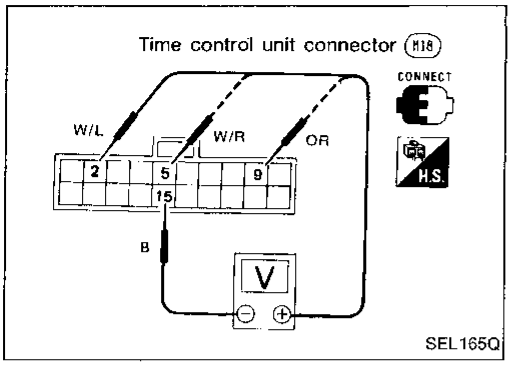
Preliminary check 3

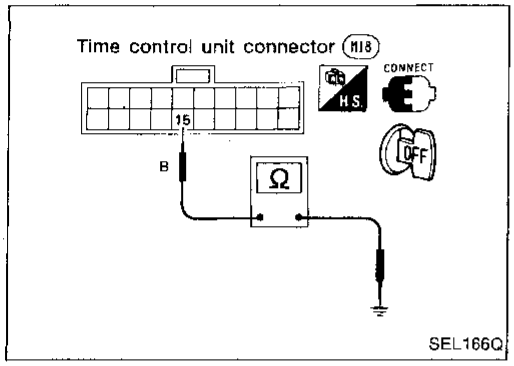
- **Seat belt warning chime does not activate.**



Trouble Diagnoses (Cont'd)

MAIN POWER SUPPLY AND GROUND CIRCUIT CHECK





Main power supply

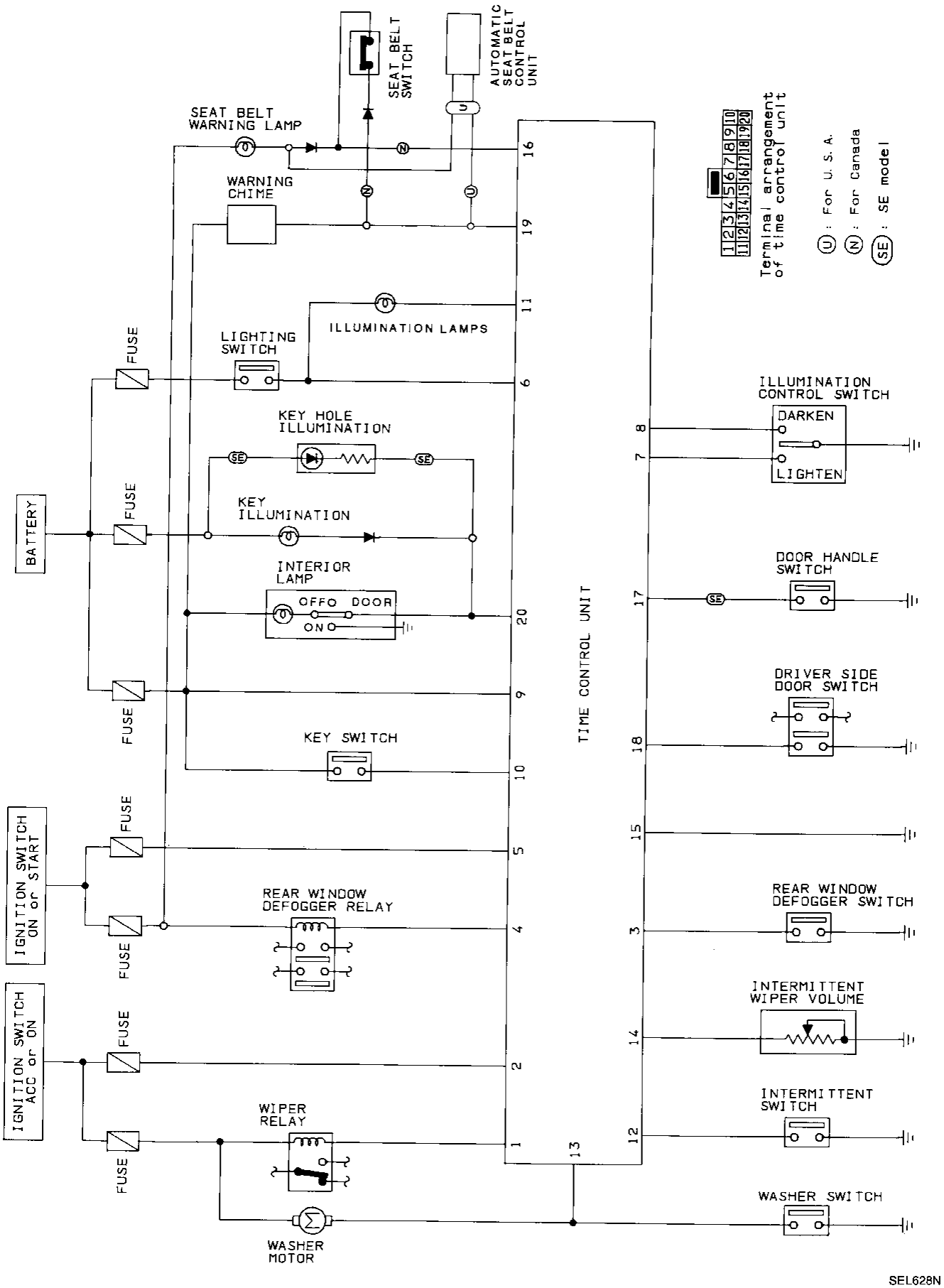
Terminals	Battery voltage existence condition		
	Ignition switch position		
	OFF	ACC	ON
⑨ - ⑮	Yes	Yes	Yes
⑤ - ⑮	No	No	Yes
② - ⑮	No	Yes	Yes

Ground circuit

Terminals	Continuity
⑮ - Ground	Yes

Trouble Diagnoses (Cont'd)

CIRCUIT DIAGRAM FOR QUICK PINPOINT CHECK



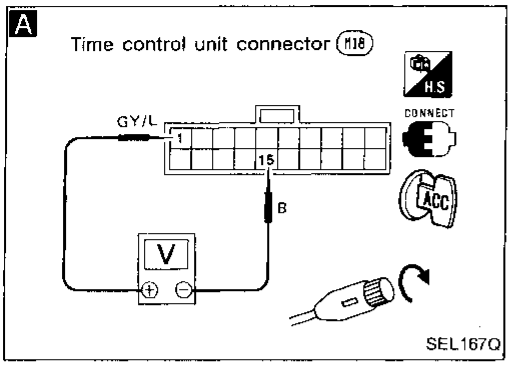
SEL628N

Trouble Diagnoses (Cont'd)

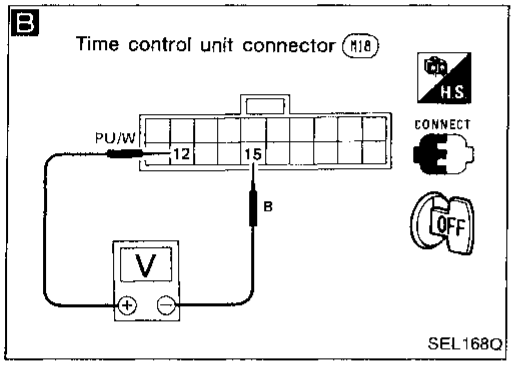
DIAGNOSTIC PROCEDURE 1

SYMPTOM: Intermittent wiper does not operate.

A



B



A

WIPER RELAY OUTPUT SIGNAL CHECK
1) Turn ignition switch to "ACC".
2) Turn wiper switch to "INT" or "OFF".
3) Measure voltage between control unit harness terminals ① and ⑮.

Condition of wiper switch	Voltage [V]
OFF	Approx. 12
INT	Pointer swings from 0 to 12 every 3 to 23 seconds

OK → Check wiper amp. Refer to "WIPER AND WASHER" (EL-100).

- OK → Check wiper amp. circuit.
- NG → Replace wiper amp.

NG ↓

B

INTERMITTENT SWITCH INPUT SIGNAL CHECK
Measure voltage between control unit harness terminals ⑫ and ⑮.

Condition of wiper switch	Voltage [V]
OFF	Approx. 12
INT	0

NG → Check wiper switch. Check harness continuity between TCU and wiper switch.

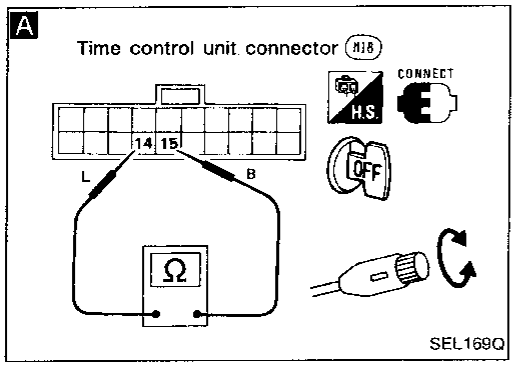
OK ↓

Replace control unit.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 2

SYMPTOM: Intermittent time of wiper cannot be adjusted.



A

INTERMITTENT WIPER VOLUME INPUT SIGNAL CHECK
Measure resistance between control unit harness terminals ⑭ and ⑮ while turning intermittent wiper volume.

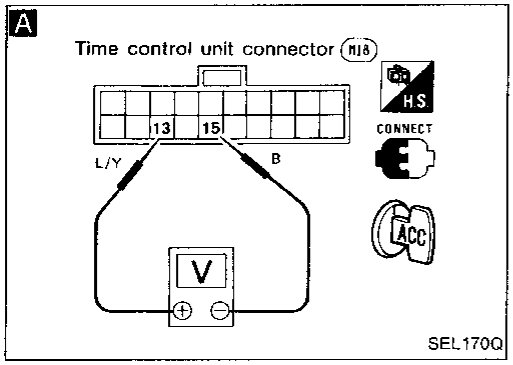
Position of wiper knob	Resistance [Ω]
S	0
L	Approx. 1 k

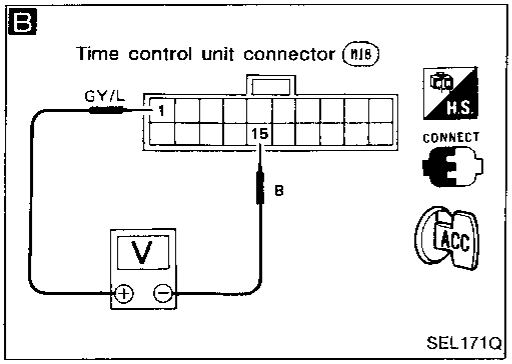
OK → Replace control unit.

NG → Check intermittent wiper volume. Check harness continuity between TCU and wiper switch.

DIAGNOSTIC PROCEDURE 3

SYMPTOM: Wiper and washer activate individually but not in combination.





A

WASHER SWITCH INPUT SIGNAL CHECK
1) Turn ignition switch to "ACC".
2) Measure voltage between control unit harness terminals ⑬ and ⑮.

Condition of washer switch	Voltage [V]
OFF	Approx. 12
ON	0

NG → Check harness continuity between TCU and washer switch.

OK

B

WIPER AMP. OUTPUT SIGNAL CHECK
Measure voltage between control unit harness terminals ① and ⑮ after operating washer switch.
0V for approx. 3 seconds after washer has operated.

NG → Replace control unit.

OK → Replace wiper amp.

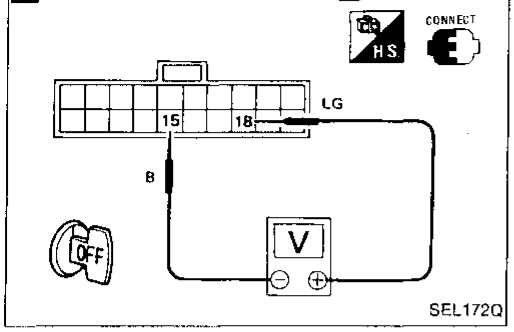
Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 4

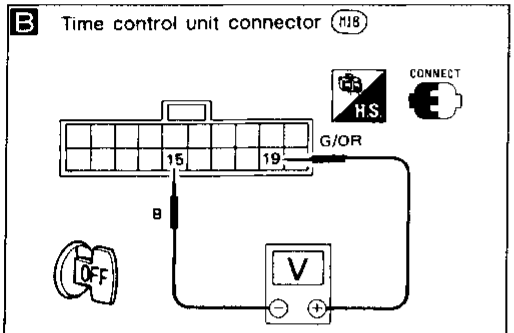
SYMPTOM: Light warning chime does not activate.

- Perform "PRELIMINARY CHECK — Procedure 1" before referring to the following flow chart.

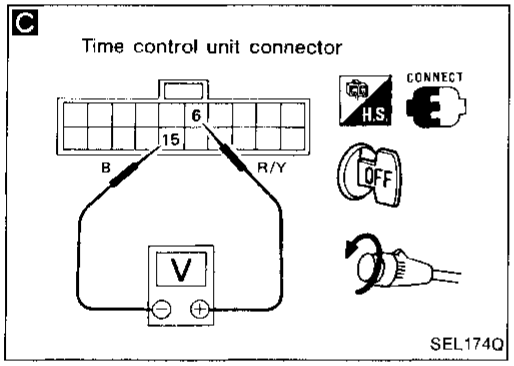
A Time control unit connector (M18)



B Time control unit connector (M18)



C Time control unit connector



A

Step 3

DOOR SWITCH INPUT SIGNAL CHECK
Measure voltage between control unit harness terminals ⑱ and ⑮.

Condition of driver's door	Voltage [V]
Door is closed	Approx. 12
Door is open	0

NG → Check door switch. Check harness continuity between TCU and door switch.

OK ↓

B

Step 2

CHIME OUTPUT SIGNAL CHECK
Measure voltage between control unit harness terminals ⑲ and ⑮.

Condition of driver's door	Voltage [V]
Door is closed	Approx. 12
Door is open	Pointer deflects intermittently

OK → Check chime. Check harness continuity between TCU and chime.

NG ↓

C

Step 1

LIGHT SWITCH INPUT SIGNAL CHECK
Measure voltage between control unit harness terminals ⑥ and ⑮.

Condition	Voltage [V]
Light switch is ON	Approx. 12
Light switch is OFF	0

NG → Check light switch. Check harness continuity between TCU and light switch.

OK ↓

Replace control unit.

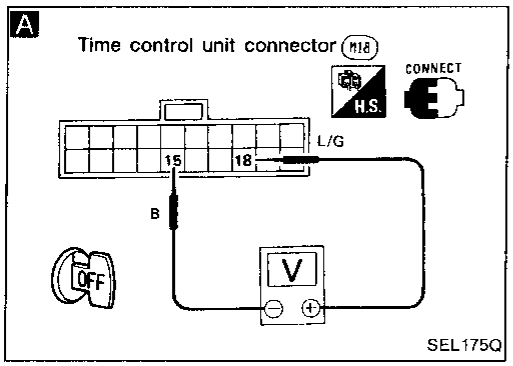
Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 5

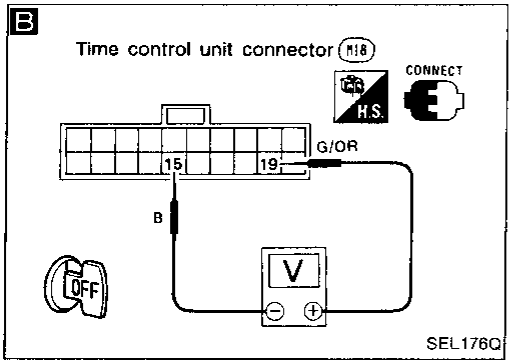
SYMPTOM: Ignition key warning chime does not activate.

- Perform "PRELIMINARY CHECK — Procedure 2" before referring to the following flow chart.

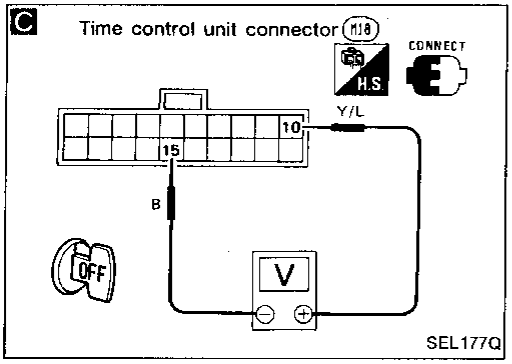
A



B



C



A

Step 3

DOOR SWITCH INPUT SIGNAL CHECK
Measure voltage between control unit harness terminals ⑱ and ⑮.

Condition of driver's door	Voltage [V]
Door is closed	Approx. 12
Door is open	0

NG → Check door switch.
Check harness continuity between TCU and door switch.

OK ↓

B

Step 2

CHIME OUTPUT SIGNAL CHECK
Measure voltage between control unit harness between ⑲ and ⑮.

Condition of driver's door	Voltage [V]
Door is closed	Approx. 12
Door is open	Pointer deflects intermittently

OK → Check chime.
Check harness continuity between TCU and chime.

NG ↓

C

Step 1

IGNITION KEY SWITCH INPUT SIGNAL CHECK
Measure voltage between control unit harness terminals ⑩ and ⑮.

Condition	Voltage [V]
Key is inserted	Approx. 12
Key is pulled	0

NG → Check ignition key switch.
Check harness continuity between TCU and ignition key switch.

OK ↓

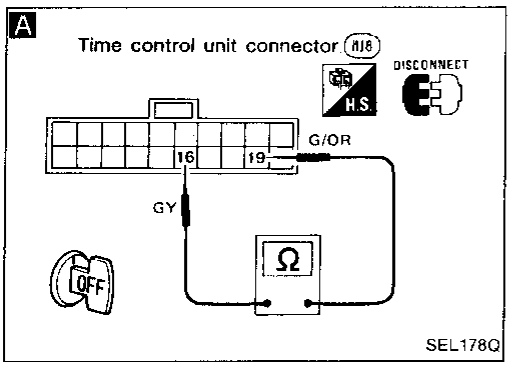
Replace control unit.

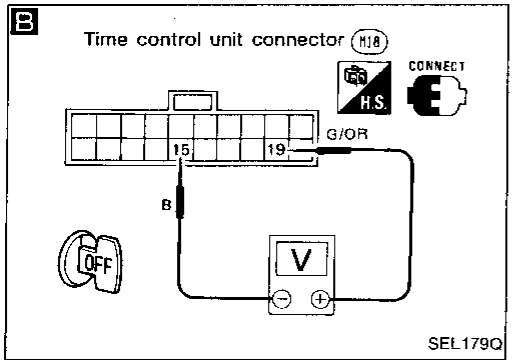
Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 6

SYMPTOM: Seat belt warning chime does not activate.

- Perform "PRELIMINARY CHECK — Procedure 3" before referring to the following flow chart.





A Step 2

SEAT BELT SWITCH INPUT SIGNAL CHECK
Check continuity between control unit harness terminals ⑯ and ⑲.

Condition	Continuity
Unfastened	Yes
Fastened	No

NG → Check seat belt switch. Check harness continuity between TCU and seat belt switch.

OK ↓

B Step 1

CHIME OUTPUT SIGNAL CHECK
1) Connect TCU harness connector.
2) Turn ignition switch "ON".
3) Measure voltage between control unit harness terminals ⑲ and ⑮.

Condition of seat belt	Voltage [V]
Unfastened	Pointer deflects intermittently
Fastened	Approx. 12

OK → Check chime. Check harness continuity between TCU and chime.

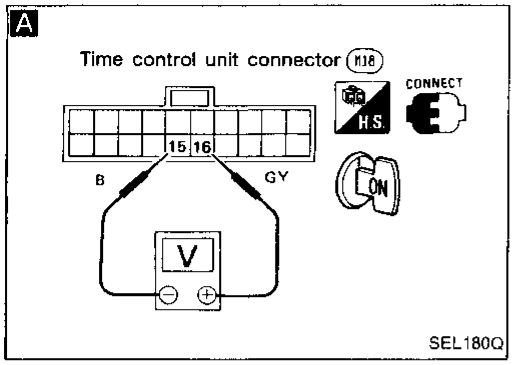
NG ↓

Replace control unit.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 7

SYMPTOM: Seat belt warning lamp does not comes on, or does not go off after coming on.



A

WARNING LAMP OUTPUT SIGNAL CHECK
1) Connect TCU harness connector.
2) Turn ignition switch "ON", after connecting control unit harness terminals ⑯ and ⑮.
3) Does voltmeter needle keep swinging for about 7 seconds after ignition switch has been turned "ON"?

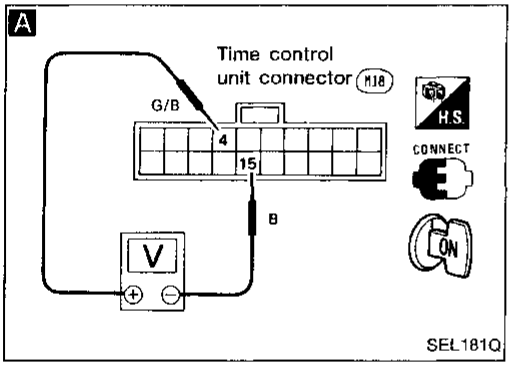
Yes → Check warning lamp. Check harness continuity between TCU and warning lamp.

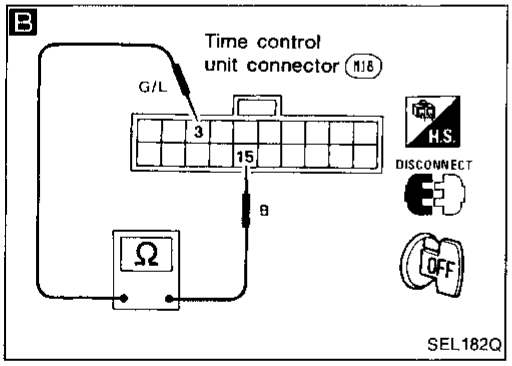
No ↓

Replace control unit.

DIAGNOSTIC PROCEDURE 8

SYMPTOM: Rear defogger does not activate, or does not go off after activating.





A

REAR WINDOW DEFOGGER OUTPUT SIGNAL CHECK
Measure voltage between control unit harness ④ and ⑮.

Condition of defogger switch	Voltage [V]
Defogger switch is "OFF"	Approx. 12
Defogger switch is "ON"	0

OK → Check rear window defogger relay. Check rear window defogger circuit.

NG ↓

B

REAR WINDOW DEFOGGER SWITCH INPUT SIGNAL CHECK
1) Disconnect TCU harness connector.
2) Check continuity between control unit harness terminals ③ and ⑮.

Condition of defogger switch	Continuity
Defogger switch is "OFF"	No
Defogger switch is "ON"	Yes

NG → Check rear window defogger switch. Check harness continuity between TCU and rear window defogger switch.

OK ↓

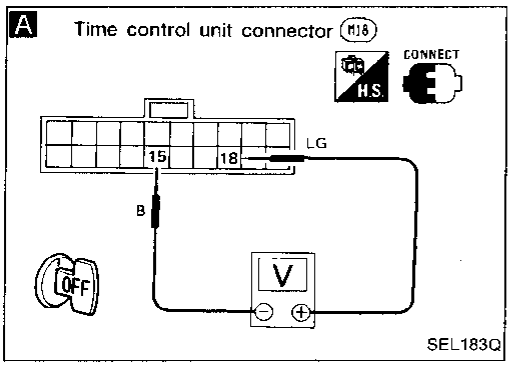
Replace control unit.

Trouble Diagnoses (Cont'd)

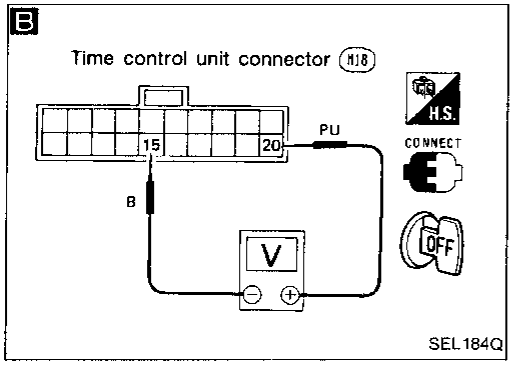
DIAGNOSTIC PROCEDURE 9

SYMPTOM: Interior lamp does not fade out after driver's door is closed.

A



B



A

DOOR SWITCH INPUT SIGNAL CHECK
Measure voltage between control unit harness terminals ⑱ and ⑮.

Condition of driver's door	Voltage [V]
Door is closed	Approx. 12
Door is open	0

NG → Check door switch. Check harness continuity between TCU and door switch.

OK ↓

B

INTERIOR LAMP SIGNAL CHECK
Measure voltage between control unit harness terminals ⑳ and ⑮.

Condition of driver's door	Voltage [V]
Door is closed	0 → Approx. 12
Door is open	0

OK → Check interior lamp and harness between TCU and interior lamp.

NG ↓

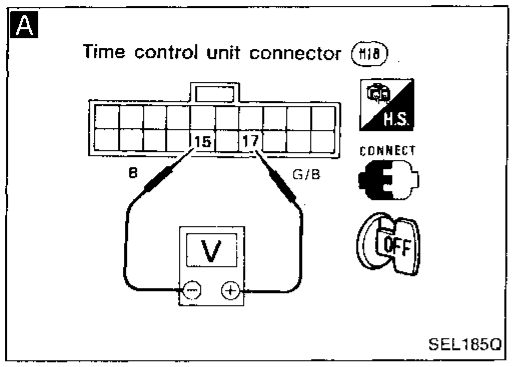
Replace control unit.

Trouble Diagnoses (Cont'd)

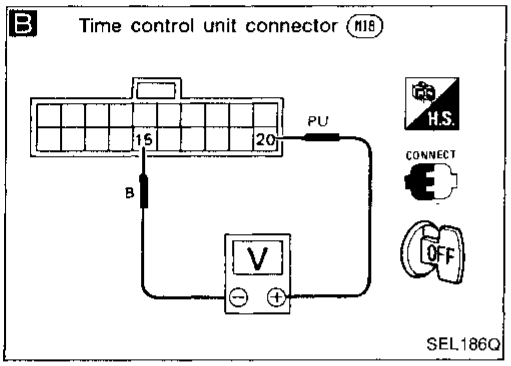
DIAGNOSTIC PROCEDURE 10

SYMPTOM: Door key hole illumination does not come on even if door handle is pulled.

A



B



A

DOOR SWITCH INPUT SIGNAL CHECK
Measure voltage between control unit harness terminals ⑰ and ⑮.

Condition of driver's handle	Voltage [V]
Handle is pulled	0
Handle is released	Approx. 12

NG → Check door handle switch. Check harness continuity between TCU and door handle switch.

OK ↓

B

KEY HOLE ILLUMINATION SIGNAL CHECK
Measure voltage between control unit harness terminals ⑳ and ⑮.

Condition of driver's door	Voltage [V]
Door is closed	0 → Approx. 12
Door is open	0

OK → Check key hole illumination and harness between TCU and key hole illumination.

NG ↓

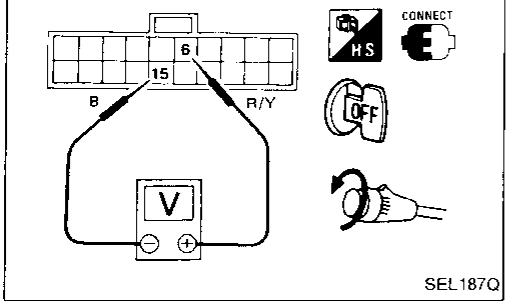
Replace TCU.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 11

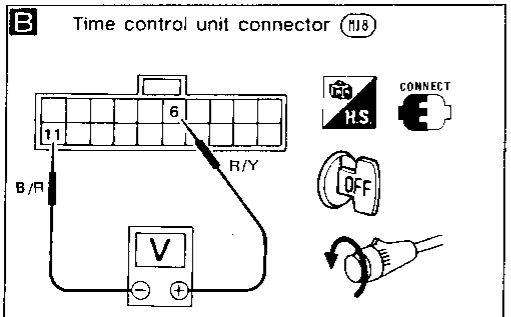
SYMPTOM: Illumination control does not actuate.

A Time control unit connector (M18)



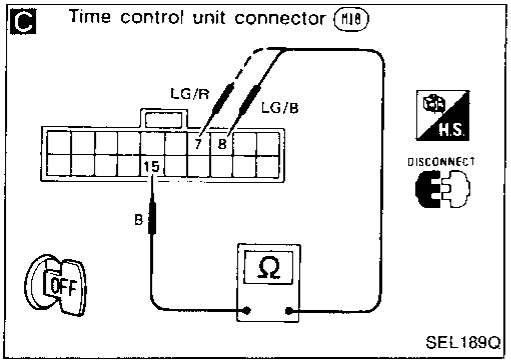
SEL187Q

B Time control unit connector (M18)



SEL188Q

C Time control unit connector (M18)



SEL189Q

A

LIGHT SWITCH INPUT SIGNAL CHECK
Measure voltage between control unit harness terminals ⑥ and ⑮.

Condition	Voltage [V]
Light switch is on	Approx. 12
Light switch is off	0

NG → Check light switch.
Check harness continuity between TCU and light switch.

OK ↓

B

ILLUMINATION CIRCUIT CHECK
Measure voltage between control unit harness terminals ⑥ and ⑪.

Condition	Voltage [V]
Light switch is on	Approx. 12
Light switch is off	0

NG → Check meter illumination.
Check harness continuity of illumination circuit.

OK ↓

C

ILLUMINATION CIRCUIT CHECK
Measure resistance between control unit harness terminals ⑦ or ⑧ and ⑮.

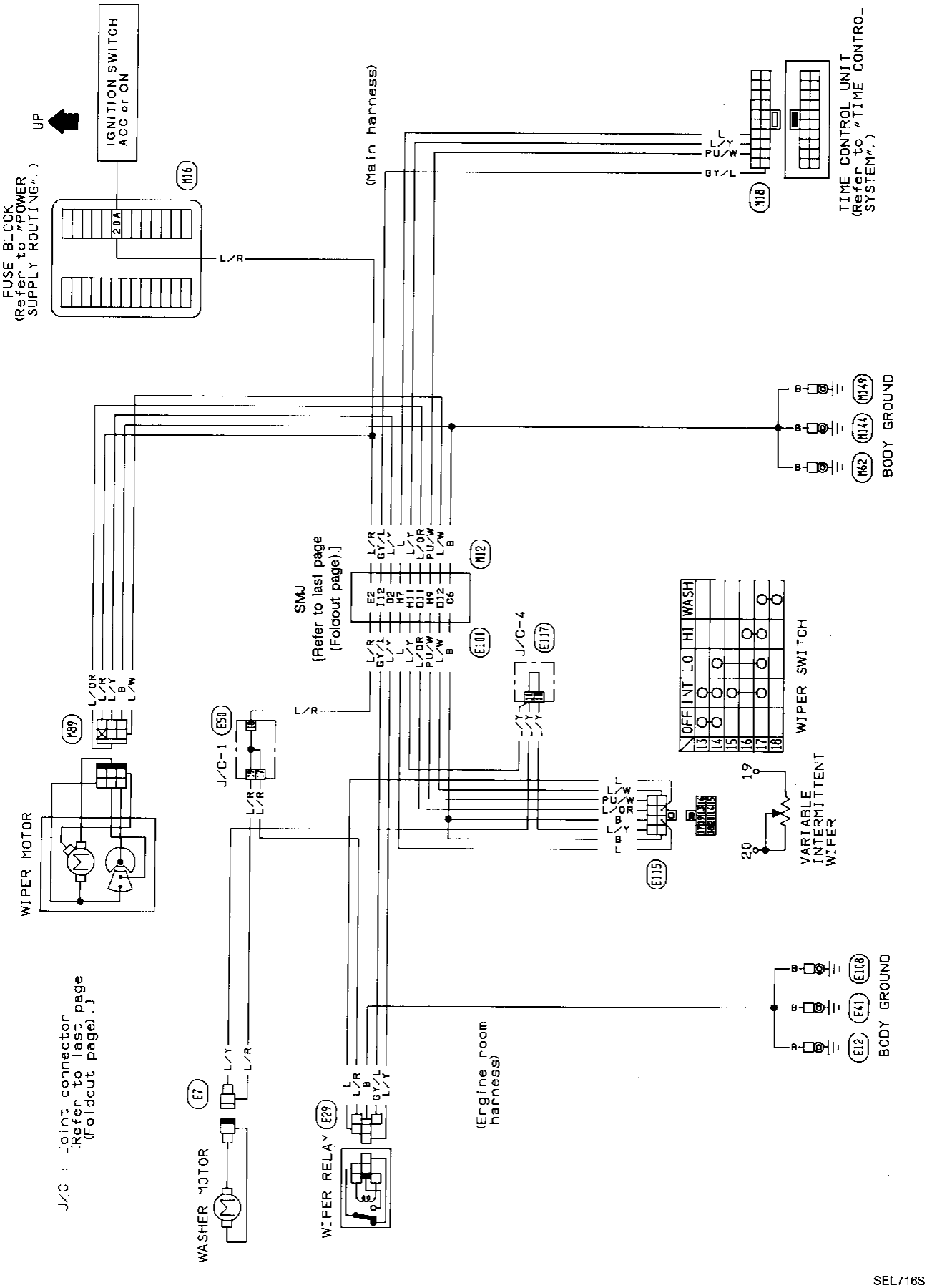
Terminals		Illumination control switch condition	Resistance [Ω]
⑧	⑮	DARK	0
		BRIGHT	Except 0
⑦	⑮	DARK	Except 0
		BRIGHT	0

NG → Check illumination control switch.
Check harness continuity between TCU and illumination switch.

OK ↓

Replace TCU.

Front Wiper and Washer/Wiring Diagram



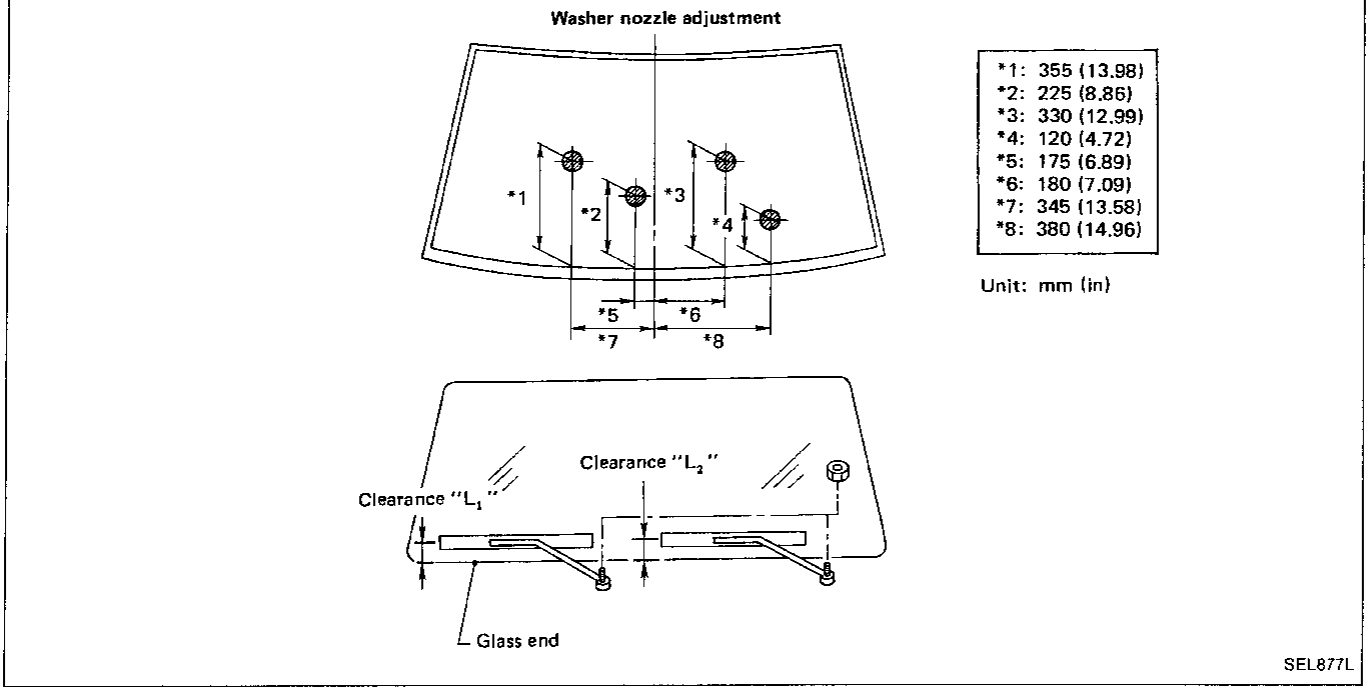
SEL716S

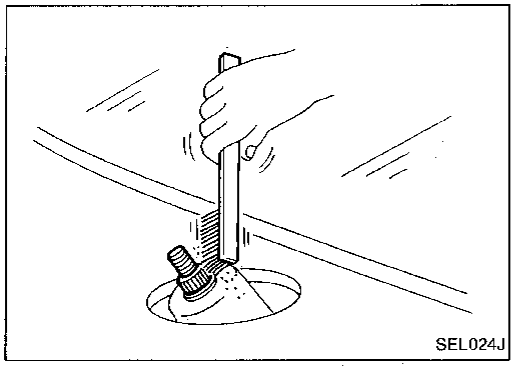
Installation

1. Prior to wiper arm installation, turn on wiper switch to operate wiper motor and then turn it "OFF" (Auto Stop).
2. Lift the blade up and then set it down onto glass surface to set the blade center to clearance "L_1" or "L_2" immediately before tightening nut.
3. Eject washer fluid. Turn on wiper switch to operate wiper motor and then turn it "OFF".
4. Ensure that wiper blades stop within clearance "L_1" & "L_2".
   Clearance "L_1": 22 - 32 mm (0.87 - 1.26 in)
   Clearance "L_2": 43 - 53 mm (1.69 - 2.09 in)

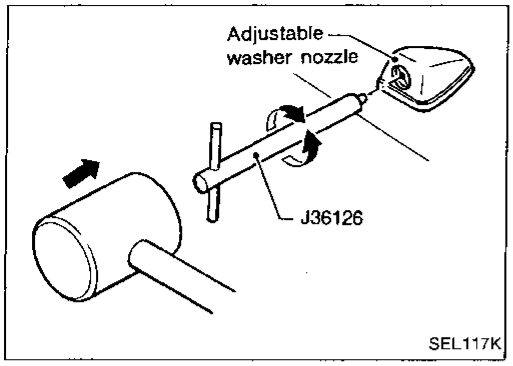
- Tighten windshield wiper arm nuts to specified torque.
  Windshield wiper:
  17 - 23 N·m (1.7 - 2.3 kg-m, 12 - 17 ft-lb)

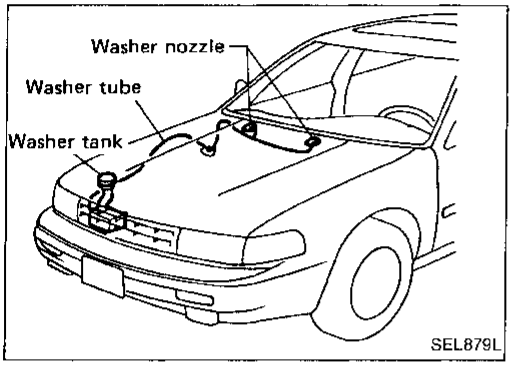
Windshield wiper and washer





- **Before reinstalling wiper arm, clean up the pivot area as illustrated. This will reduce possibility of wiper arm looseness.**



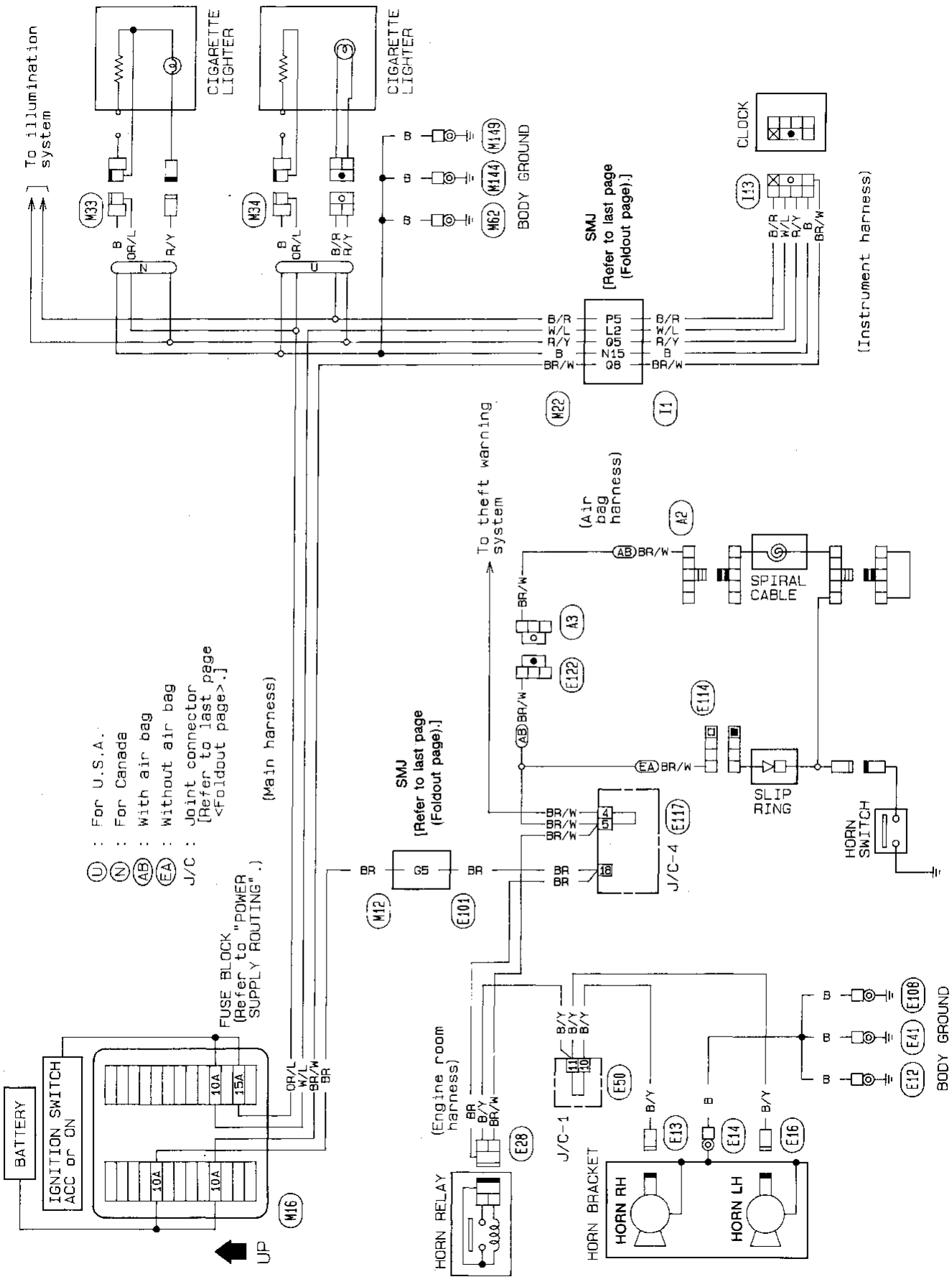


Washer Nozzle Adjustment

- Using Tool J36126, adjust windshield washer nozzle to correct its spray pattern.

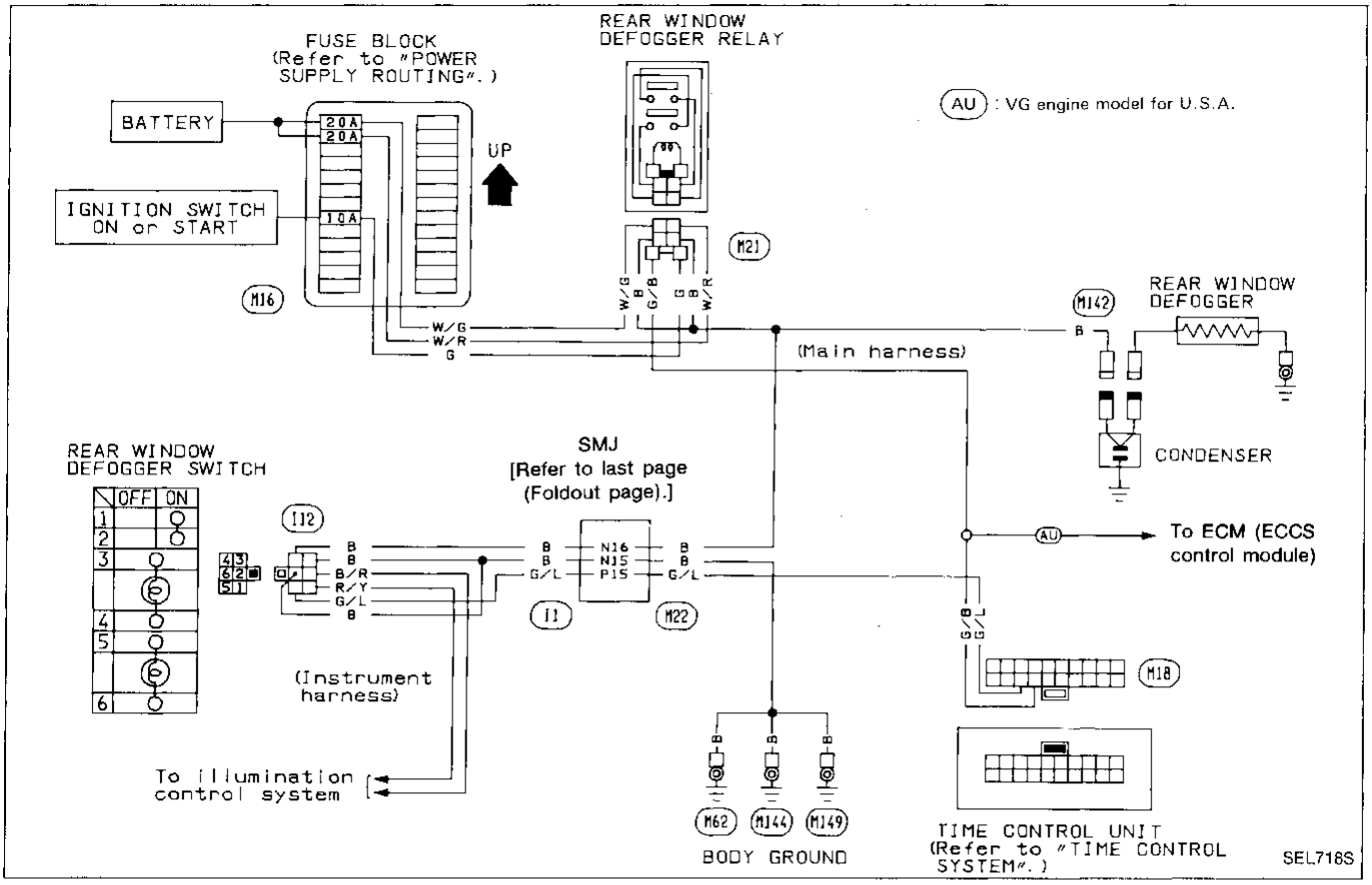
Before attempting to turn the nozzle, gently tap the end of the tool to free the nozzle.
This will prevent "rounding out" the small female square in the center of the nozzle.

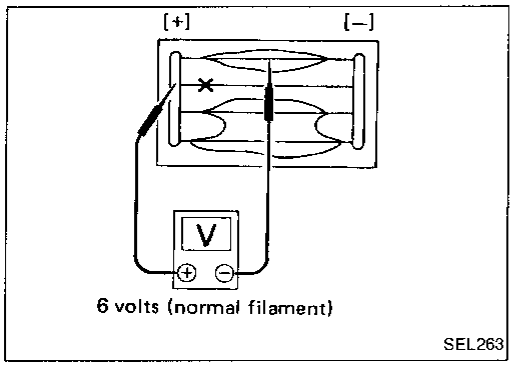
Wiring Diagram



SEL717S

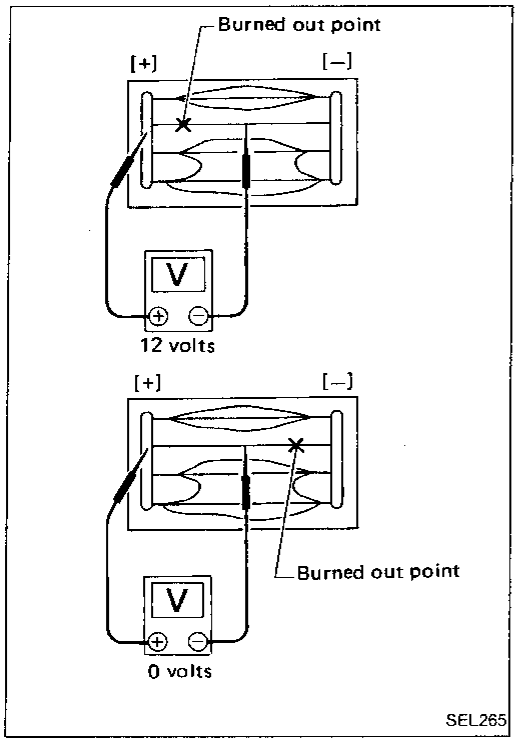
Wiring Diagram



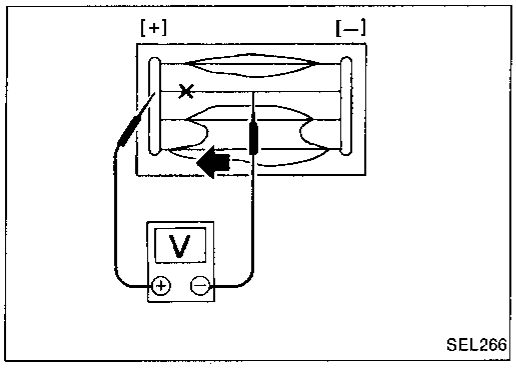


Filament Check

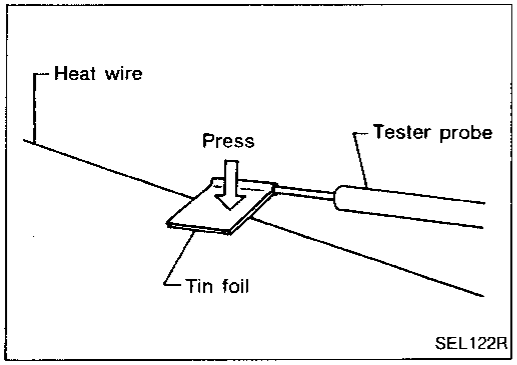
1. Attach probe circuit tester (in volt range) to middle portion of each filament.



2. If a filament is burned out, circuit tester registers 0 or 12 volts.



3. To locate burned out point, move probe to left and right along filament to determine point where tester needle swings abruptly.

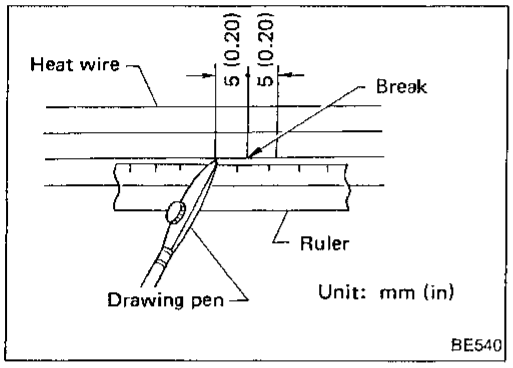


- **When measuring voltage, wind a piece of tin foil around the top of the negative probe and press the foil against the wire with your finger as shown.**

Filament Repair

REPAIR EQUIPMENT

1. Conductive silver composition (Dupont No. 4817 or equivalent)
2. Ruler 30 cm (11.8 in) long
3. Drawing pen
4. Heat gun
5. Alcohol
6. Cloth



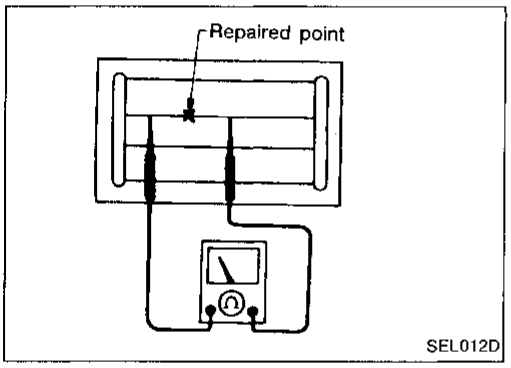
REPAIRING PROCEDURE

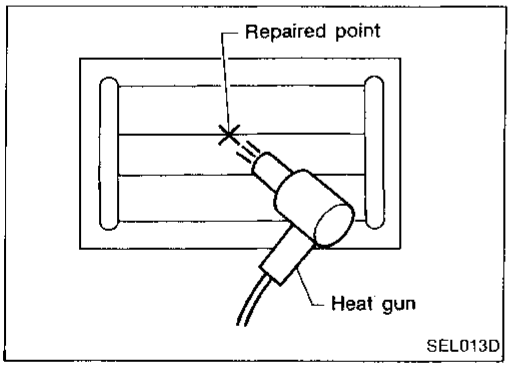
1. Wipe broken heat wire and its surrounding area clean with a cloth dampened in alcohol.
2. Apply a small amount of conductive silver composition to tip of drawing pen.

Shake silver composition container before use.

3. Place ruler on glass along broken line. Deposit conductive silver composition on break with drawing pen. Slightly overlap existing heat wire on both sides [preferably 5 mm (0.20 in)] of the break.
4. After repair has been completed, check repaired wire for continuity. This check should be conducted 10 minutes after silver composition is deposited.

Do not touch repaired area while test is being conducted.

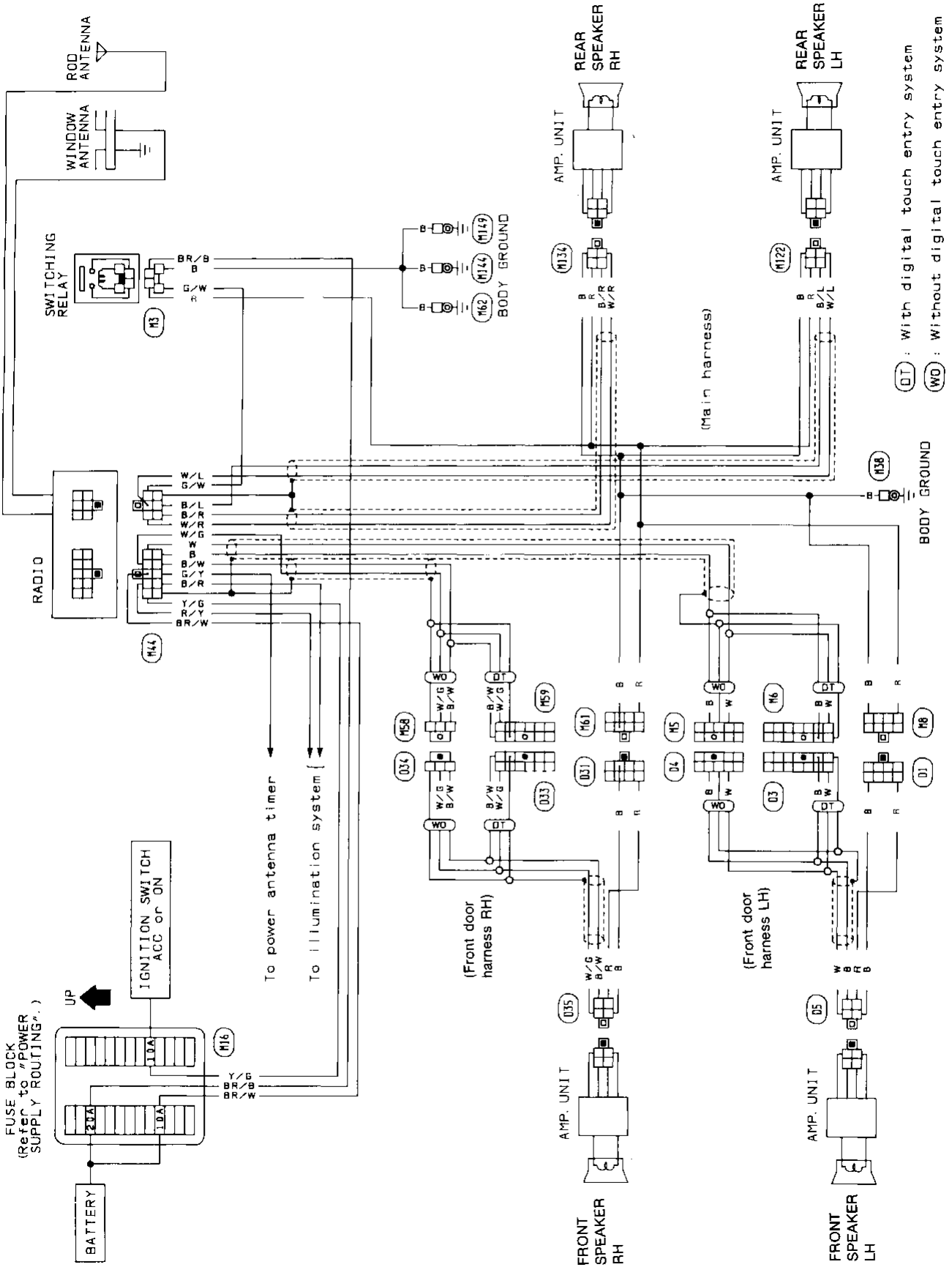




5. Apply a constant stream of hot air directly to the repaired area for approximately 20 minutes with a heat gun. A minimum distance of 3 cm (1.2 in) should be kept between repaired area and hot air outlet. If a heat gun is not available, let the repaired area dry for 24 hours.

Audio/Wiring Diagram

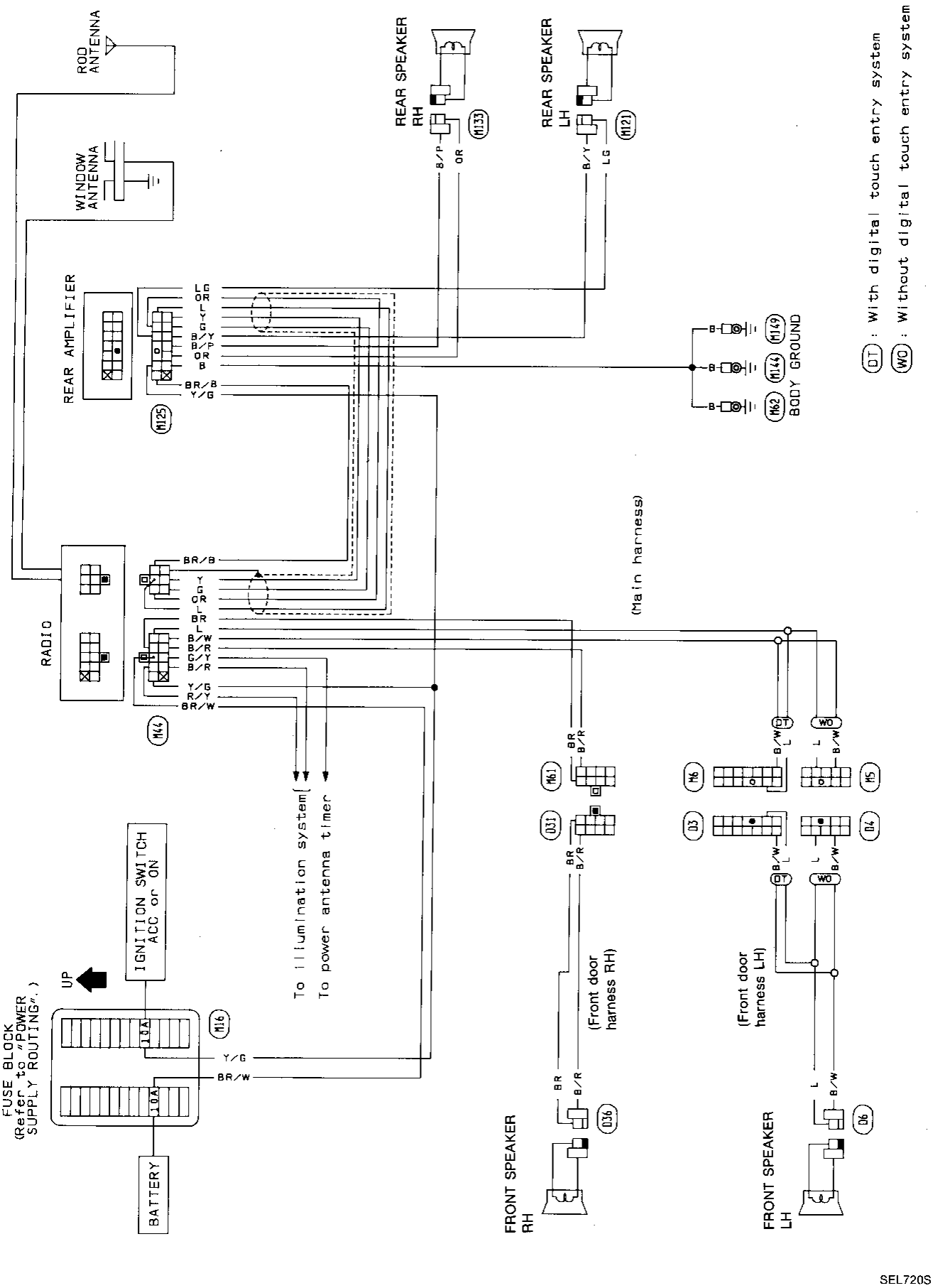
BOSE SYSTEM



SEL719S

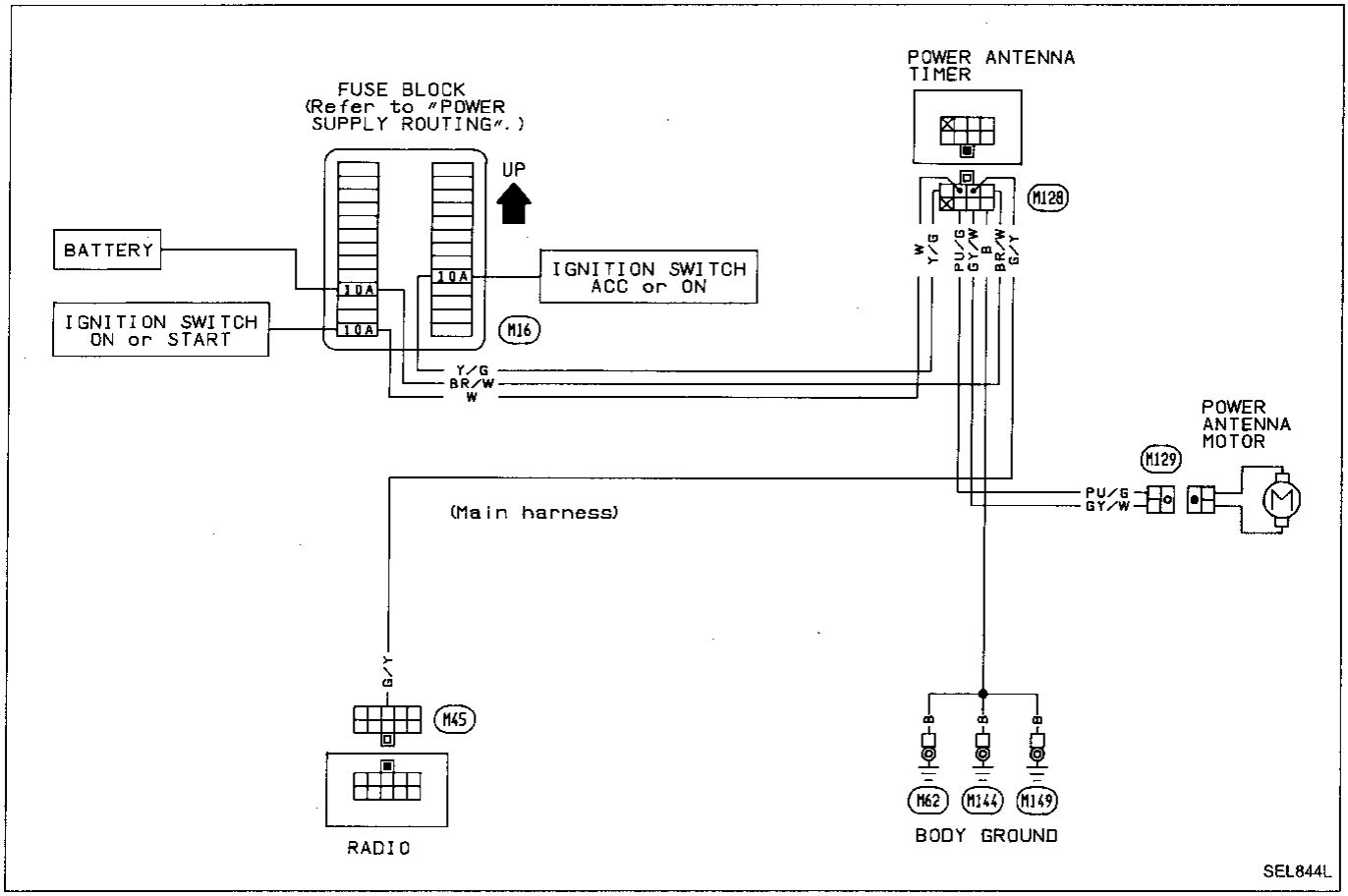
Audio/Wiring Diagram (Cont'd)

EXCEPT BOSE SYSTEM

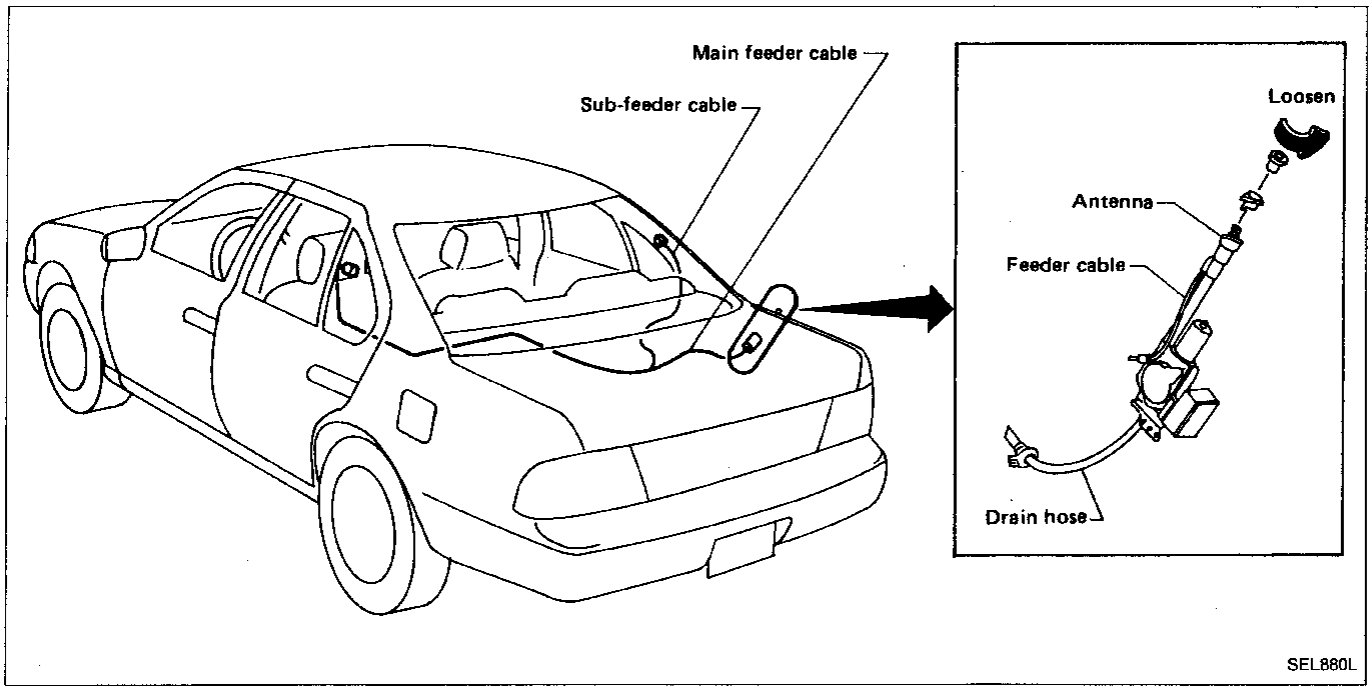


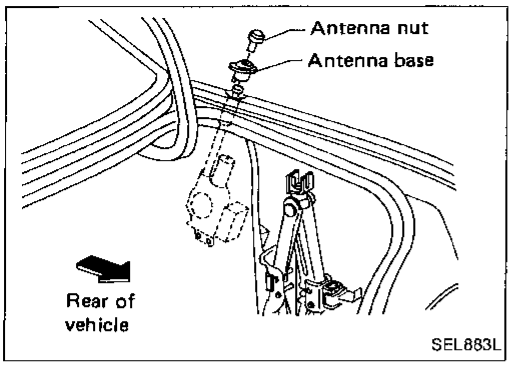
SEL720S

Power Antenna/Wiring Diagram



Location of Antenna

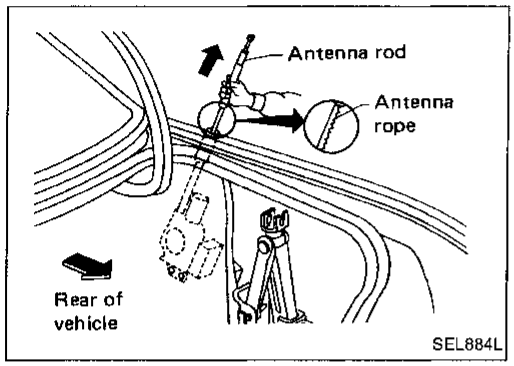




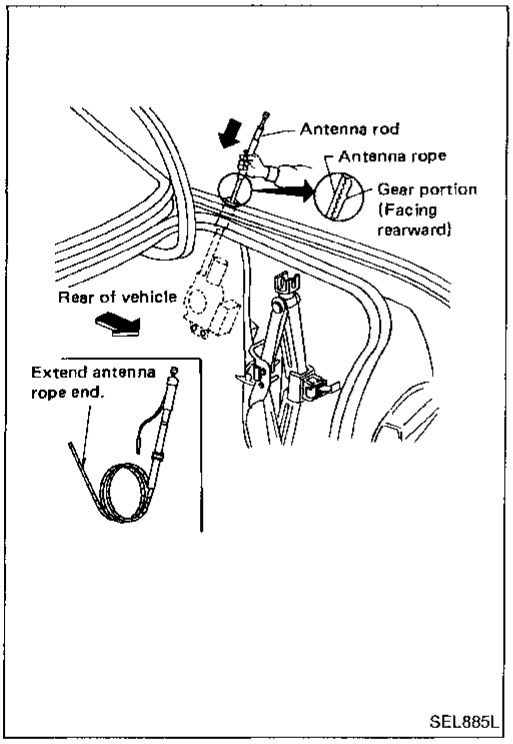
Antenna Rod Replacement

REMOVAL

1. Remove antenna nut and antenna base.

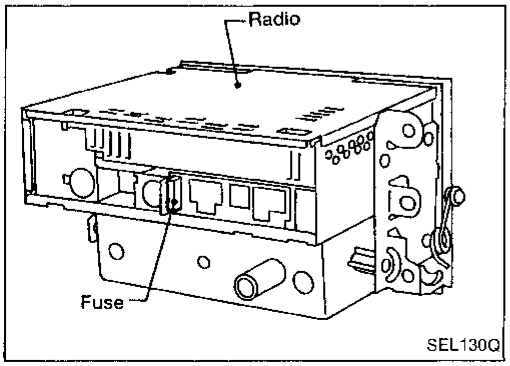


2. Withdraw antenna rod while raising it by operating antenna motor.

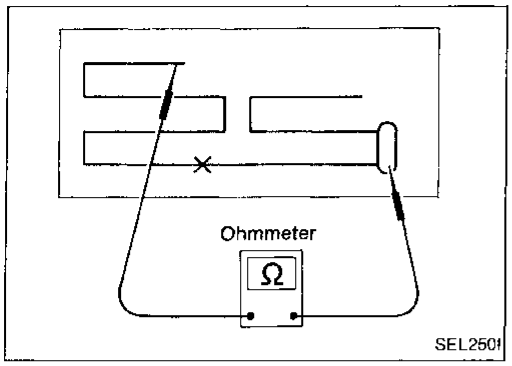


INSTALLATION

1. Lower antenna rod by operating antenna motor.
2. Insert gear section of antenna rope into place with it facing toward antenna motor.
3. As soon as antenna rope is wound on antenna motor, stop antenna motor. Insert antenna rod lower end into antenna motor pipe.
4. Retract antenna rod completely by operating antenna motor.
5. Install antenna nut and base.



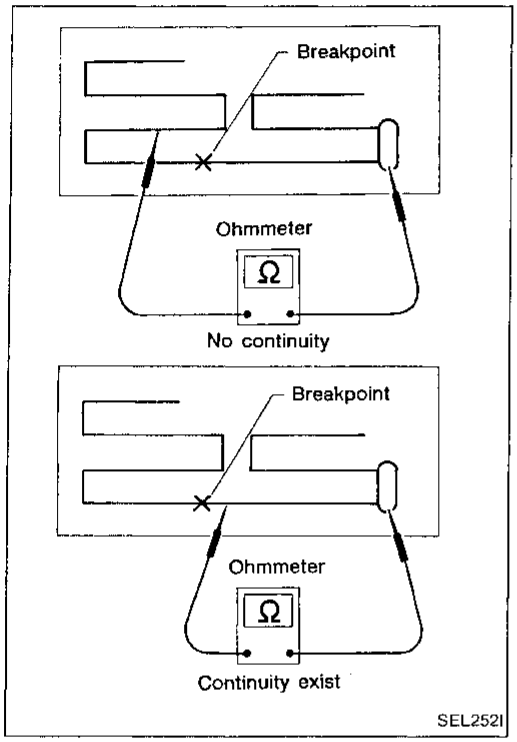
Radio Fuse Check



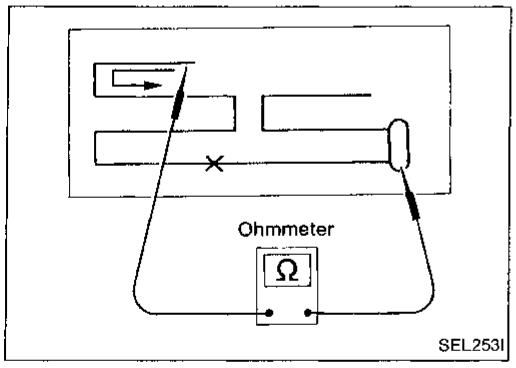
Window Antenna Repair

ELEMENT CHECK

1. Attach probe circuit tester (in ohm range) to antenna terminal on each side.



2. If an element is broken, no continuity will exist.



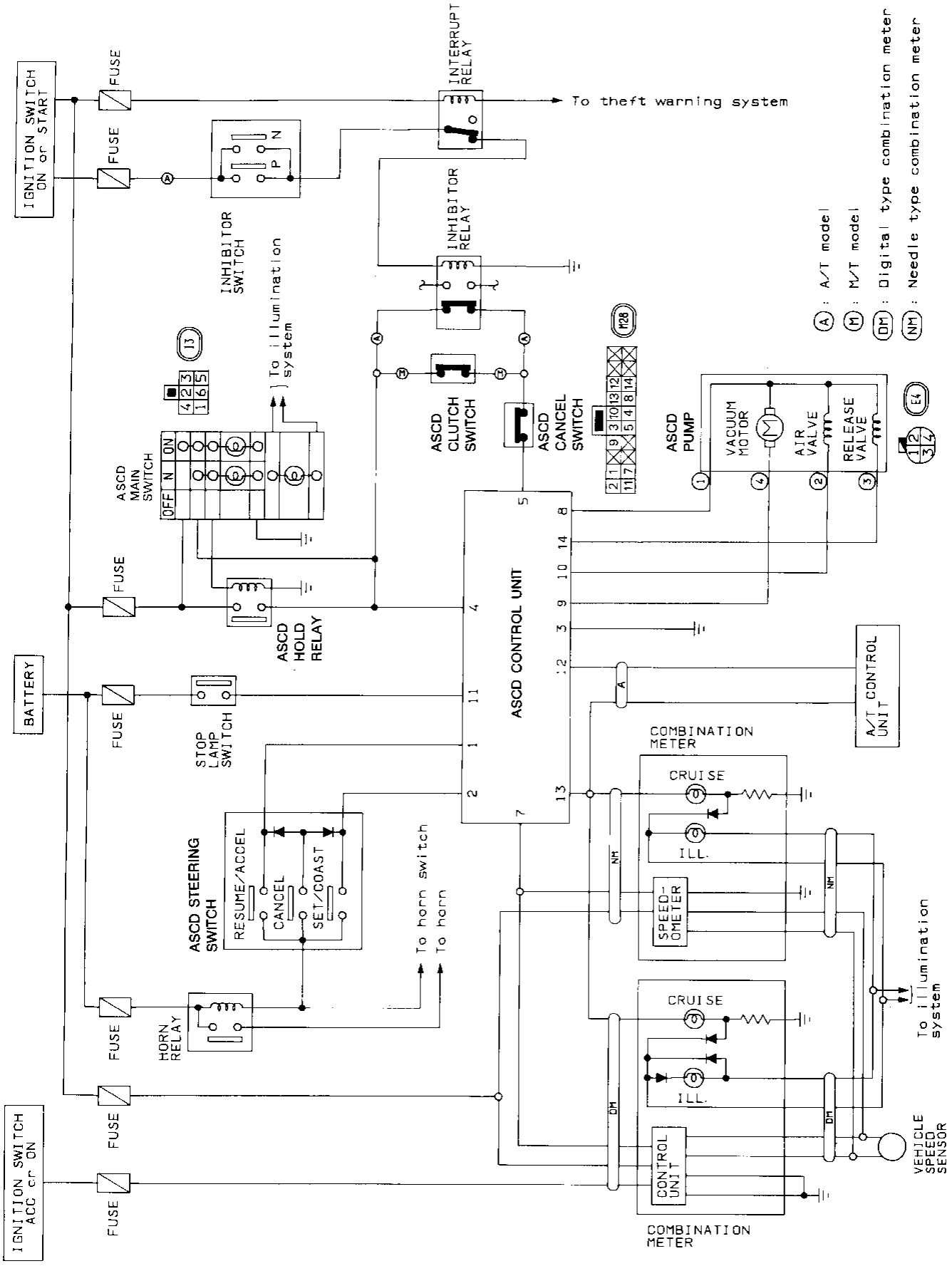
3. To locate broken point, move probe to left and right along element to determine point where tester needle swings abruptly.

ELEMENT REPAIR

Refer to REAR WINDOW DEFOGGER "Filament Repair" (EL-106).

NOTE

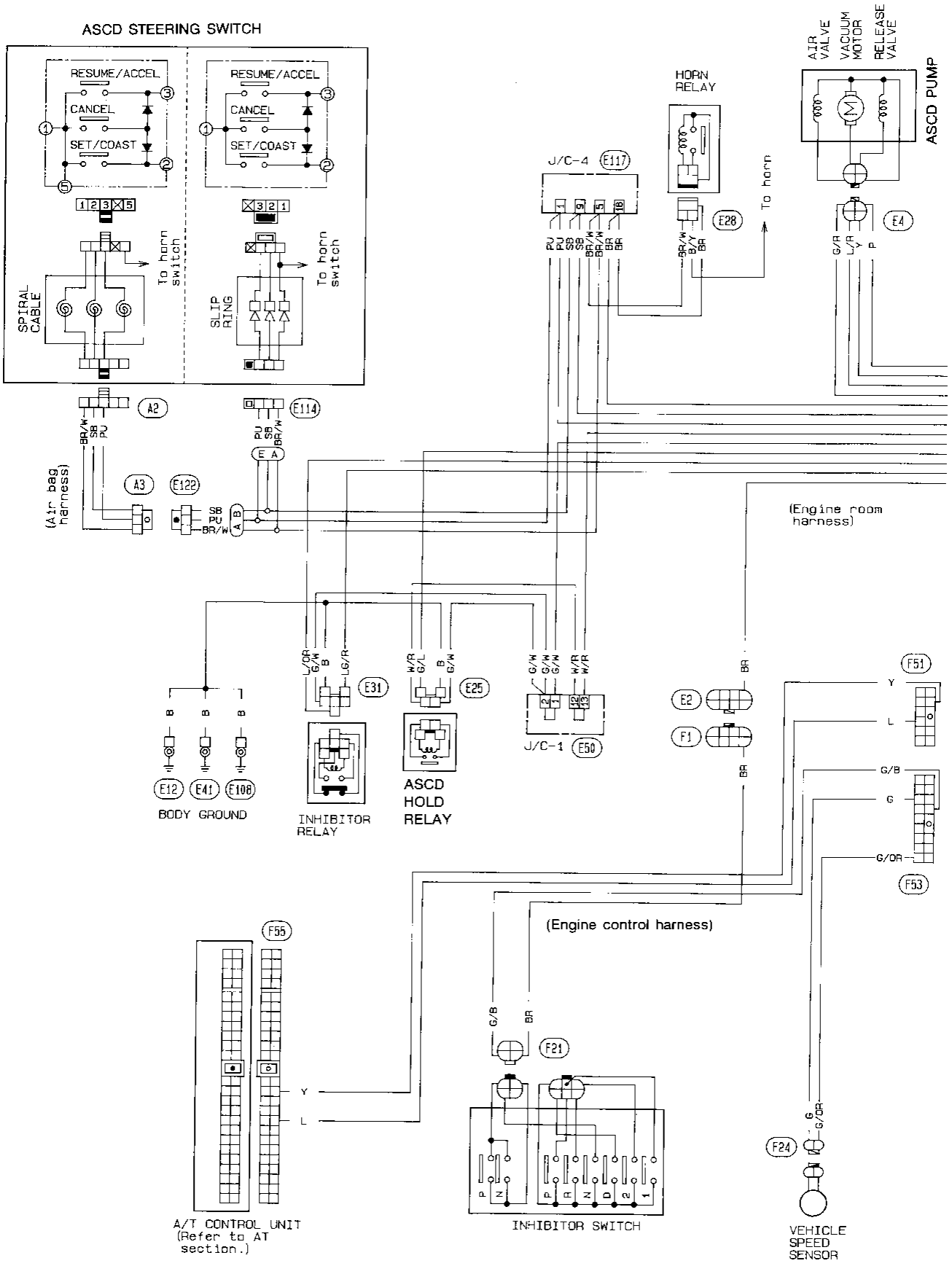
Schematic



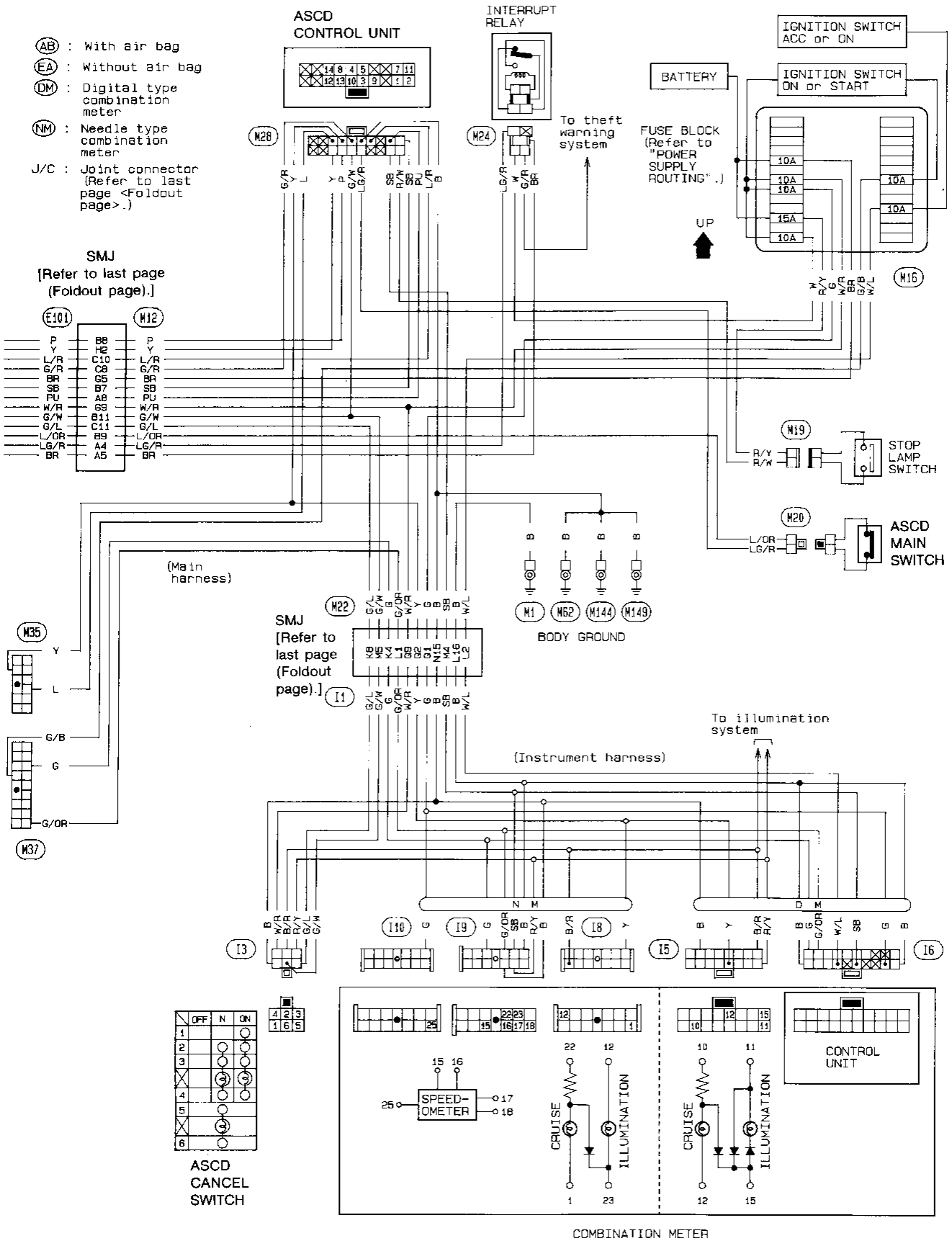
SEL721S

Wiring Diagram

VG ENGINE

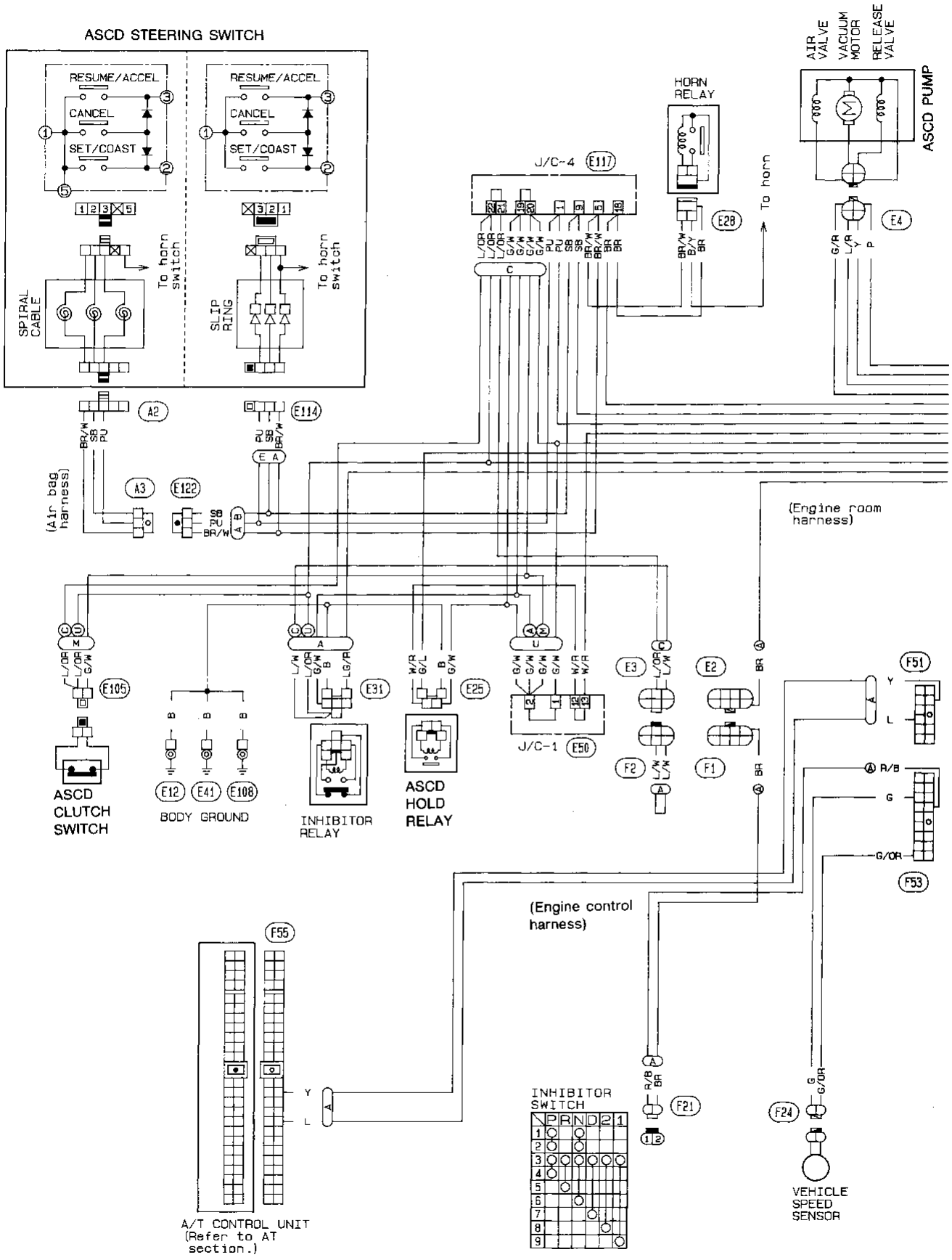


Wiring Diagram (Cont'd)

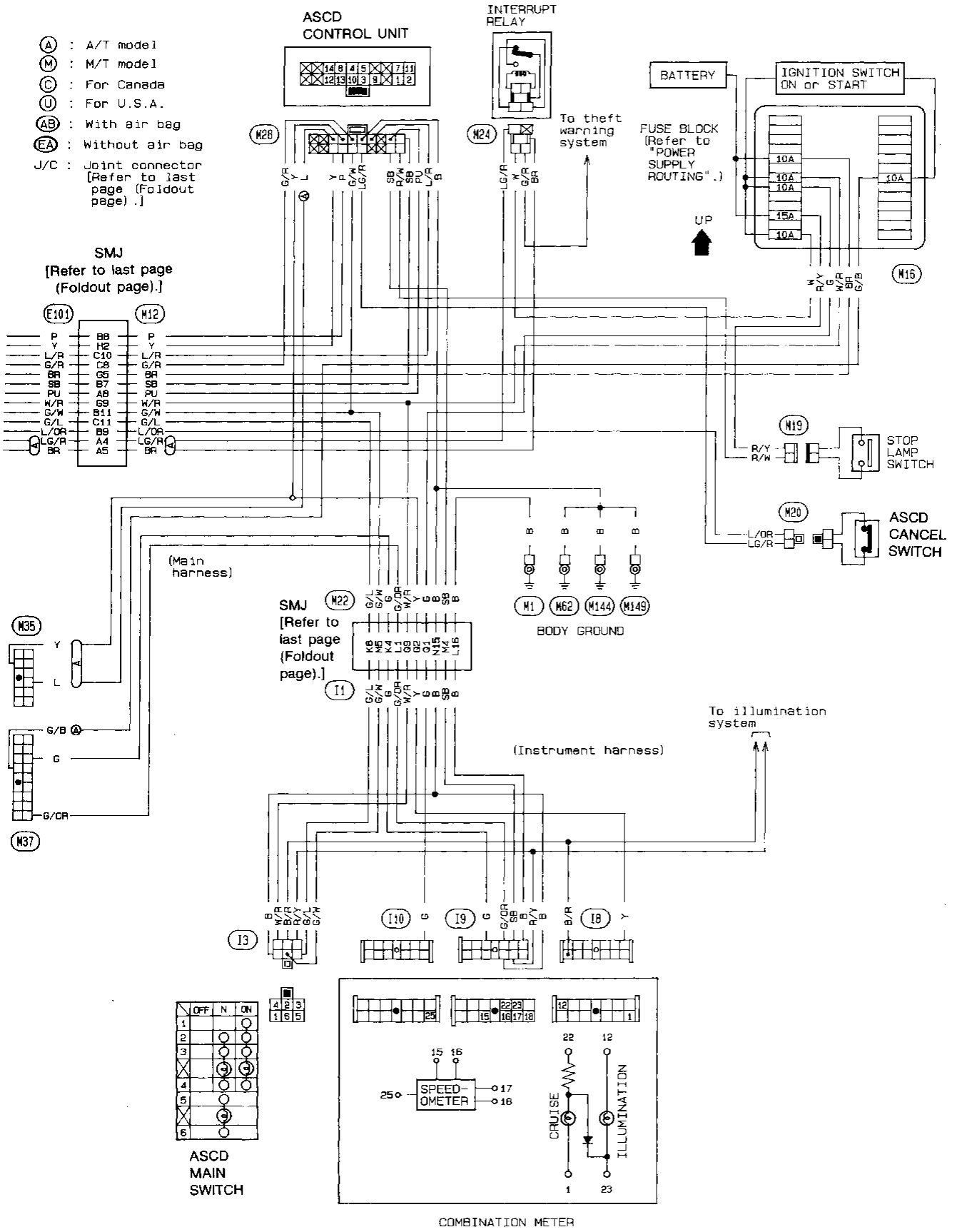


Wiring Diagram (Cont'd)

VE ENGINE

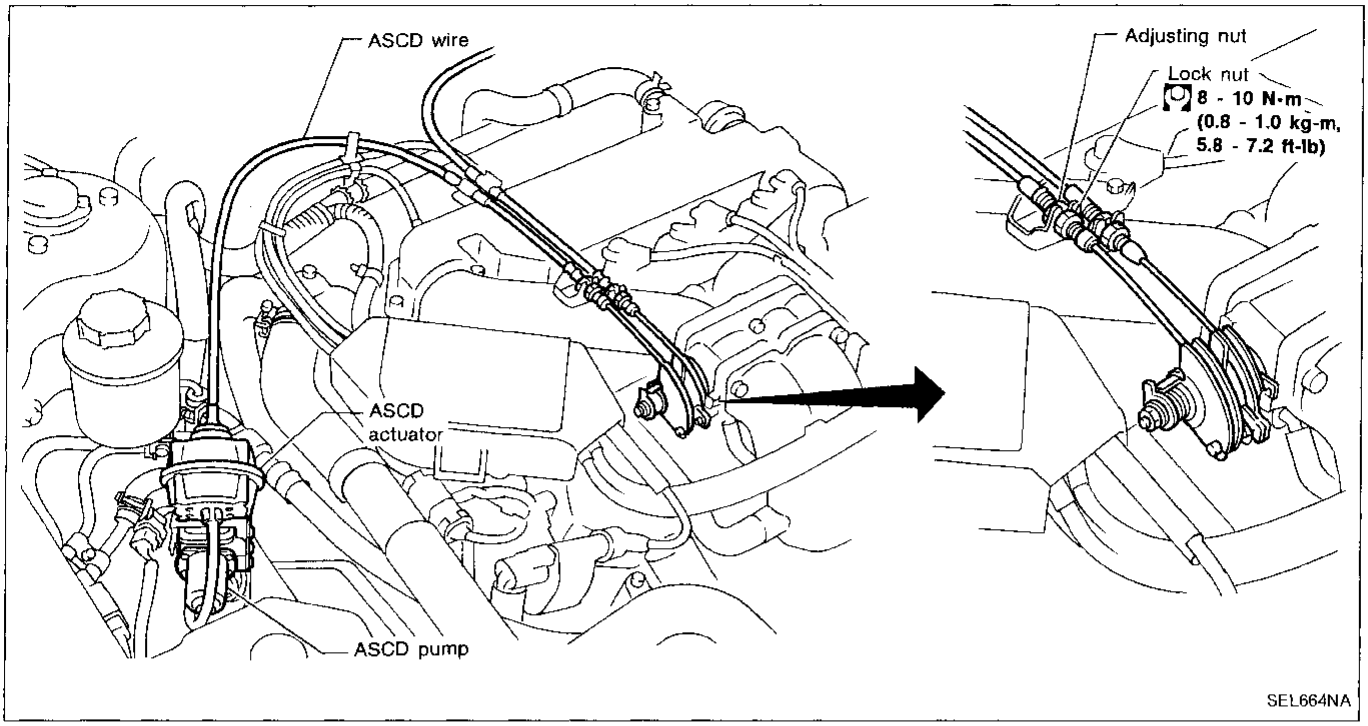


Wiring Diagram (Cont'd)



SEL723S

ASCD Wire Adjustment



CAUTION:

- **Be careful not to twist ASCD wire when removing it.**
- **Do not tense ASCD wire excessively during adjustment.**

After confirming that accelerator wire is properly adjusted, adjust the tension of ASCD wire in the following manner.

(1) After adjusting the length of the accelerator wire, turn a securing nut by 1/2 to 1 turn from throttle open starting position to the wire loosening direction to fix. (Must be securing carried out to prevent response delay of operation of the ASCD.)

(2) Securely tighten lock nut to hold adjusting nut in place.

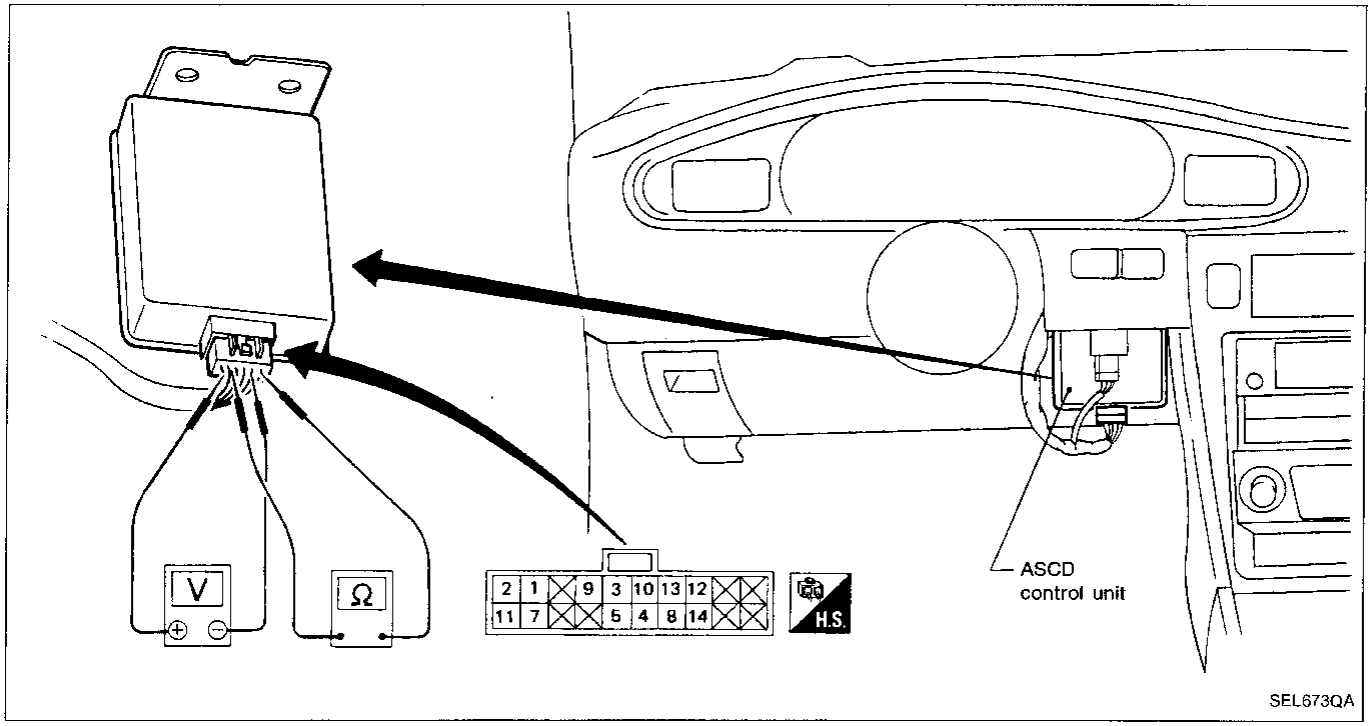
- For ASCD cancel switch and clutch switch adjustment, refer to BR and CL sections.

Trouble Diagnoses

Symptom	DIAGNOSTIC PROCEDURE
ASCD control unit cannot be set properly.	1
Resume switch will not operate.	2
Cancel switch will not operate.	3
Set speed cannot be canceled.	4
Engine hunts.	5
Large difference between set vehicle and actual speed.	6

PREPARATION FOR TROUBLE-DIAGNOSIS

1. Remove lower trim.
2. Remove ASCD control unit with harness connected.
3. Perform check from harness side using circuit tester, with harness connector connected.



GROUND CIRCUIT CHECK

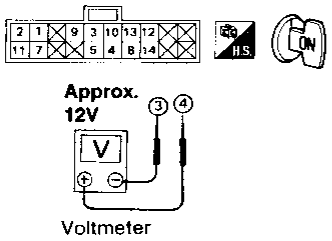
- Check continuity between ③ and body ground.

Trouble Diagnoses (Cont'd)

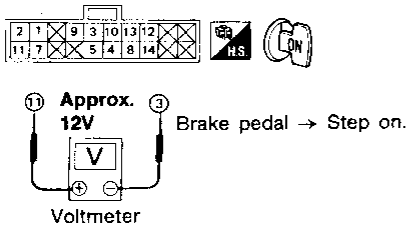
DIAGNOSTIC PROCEDURE-1

ASCD control unit cannot be set properly.

POWER SUPPLY CIRCUIT CHECK
1. Turn ASCD main switch to "ON".
2. Check voltage between ④ and ③.

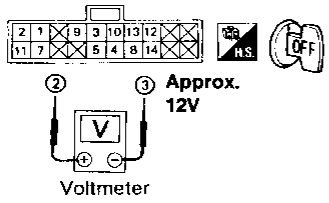


CUT-OFF CIRCUIT CHECK
1. Step on brake pedal.
2. Turn ASCD main switch to "ON".
3. Check voltage between ⑪ and ③.



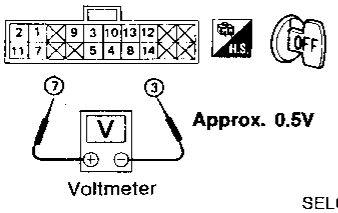
SEL640QA

SET SWITCH CIRCUIT CHECK
1. Push ASCD set switch.
2. Check voltage between ② and ③.

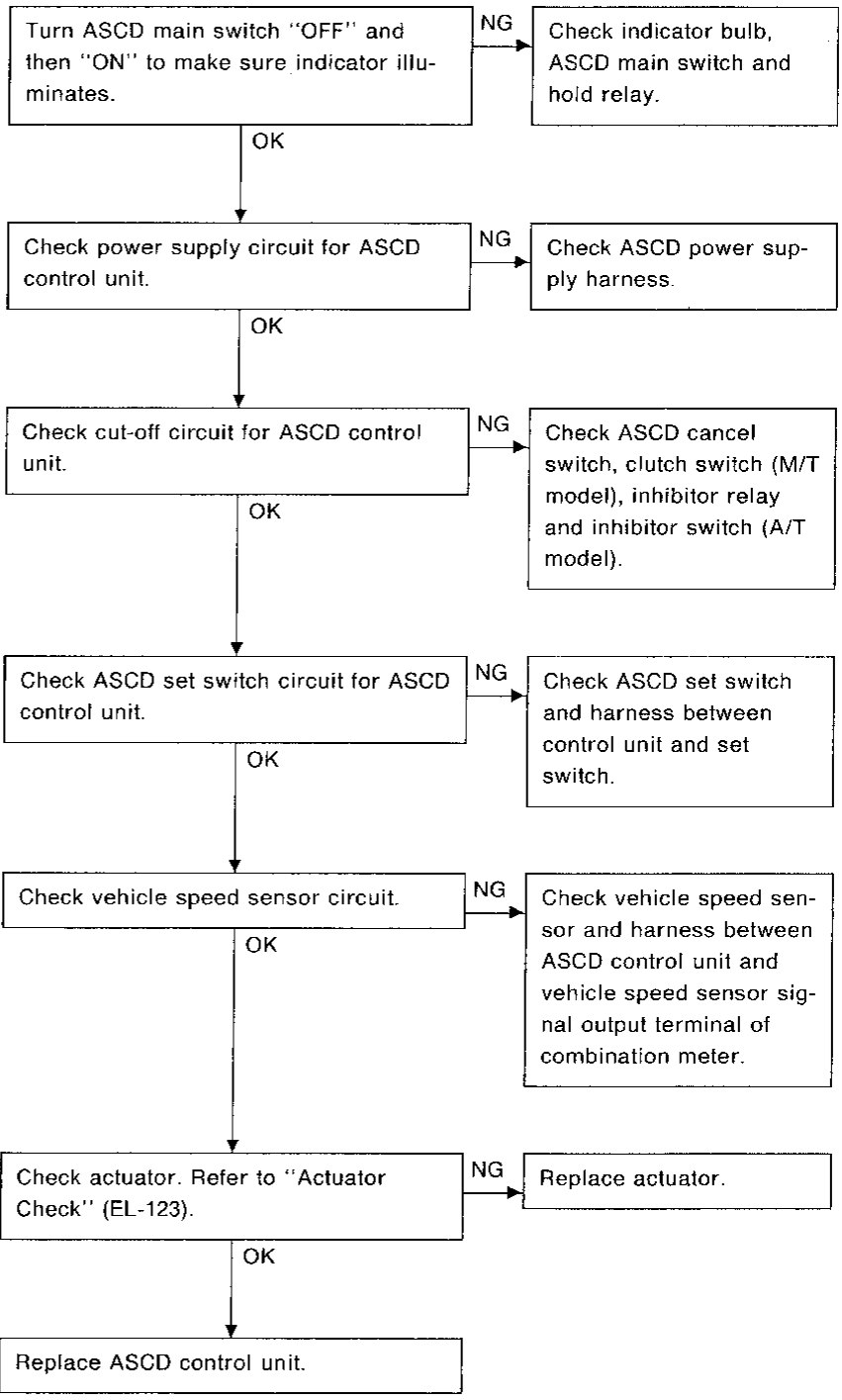


VEHICLE SPEED SENSOR CIRCUIT CHECK
1. Disconnect vehicle speed sensor from transmission.
2. Connect a voltmeter between ⑦ and ③.
3. Slowly turn vehicle speed sensor by hand to make sure voltmeter pointer deflects.

● **Voltmeter pointer deflects twice per rotation of pinion.**



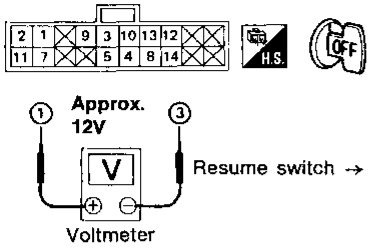
SEL641QA



Trouble Diagnoses (Cont'd)

RESUME SWITCH CIRCUIT CHECK

1. Turn resume switch to "ON".
2. Check voltage between ① and ③



SEL549R

DIAGNOSTIC PROCEDURE-2

Resume switch will not operate.

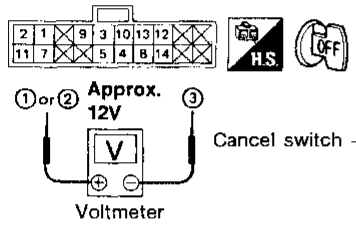
Check resume switch circuit. → NG → Check resume switch.

OK ↓

Replace ASCD control unit.

CANCEL SWITCH CIRCUIT CHECK

1. Turn cancel switch to "ON".
2. Check voltage between ② and ③ or ① and ③.



SEL550R

DIAGNOSTIC PROCEDURE-3

Cancel switch will not operate.

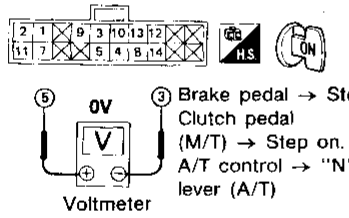
Check cancel switch circuit. → NG → Check cancel switch.

OK ↓

Replace ASCD control unit.

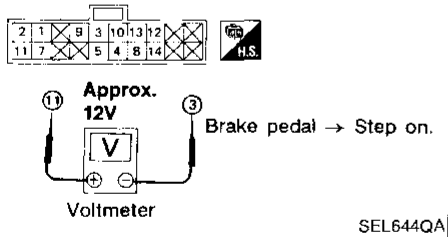
CUT-OFF CIRCUIT CHECK

1. Turn ASCD main switch to "ON".
2. Turn ASCD main switch to "ON" again.
3. Step on brake pedal.
4. Step on clutch pedal (M/T) or shift in "N" range (A/T).
5. Check voltage between ⑤ and ③.



STOP LAMP CIRCUIT CHECK

1. Step on brake pedal.
2. Check voltage between ⑪ and ③.



SEL644QA

DIAGNOSTIC PROCEDURE-4

Set speed cannot be canceled.

Check cut-off circuit. → NG → Check ASCD cancel switch, clutch switch (M/T model), inhibitor relay and inhibitor switch (A/T model).

OK ↓

Check stop lamp circuit. → NG → Check stop lamp switch and power supply harness.

OK ↓

Check actuator. Refer to "Actuator Check" (EL-123). → NG → Replace actuator.

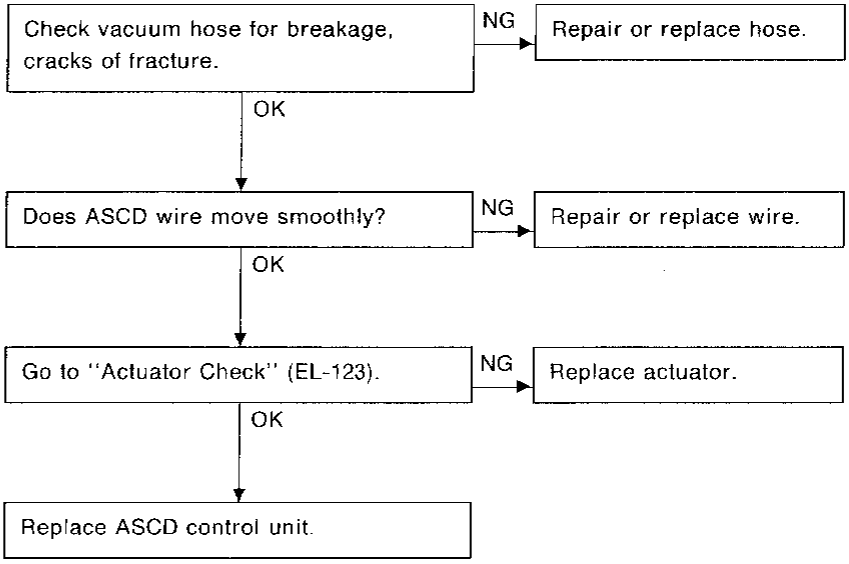
OK ↓

Replace ASCD control unit.

Trouble Diagnoses (Cont'd)

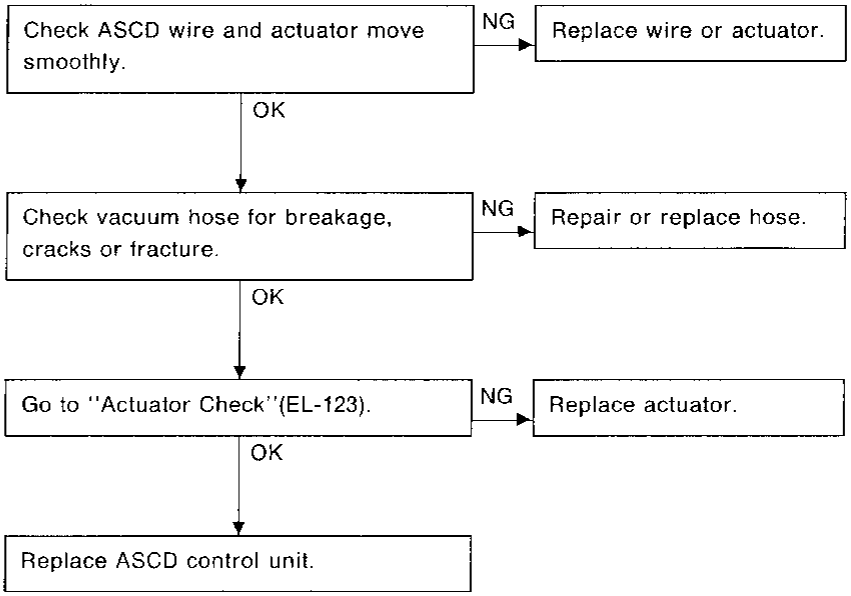
DIAGNOSTIC PROCEDURE-5

Engine hunts.



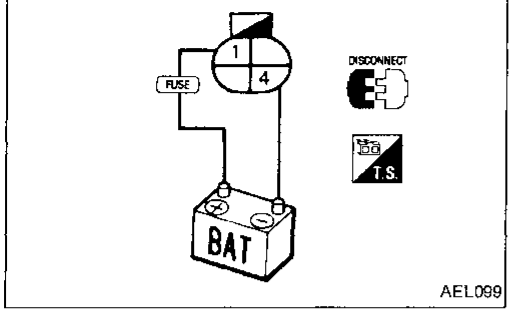
DIAGNOSTIC PROCEDURE-6

Large difference between set vehicle speed and actual speed.



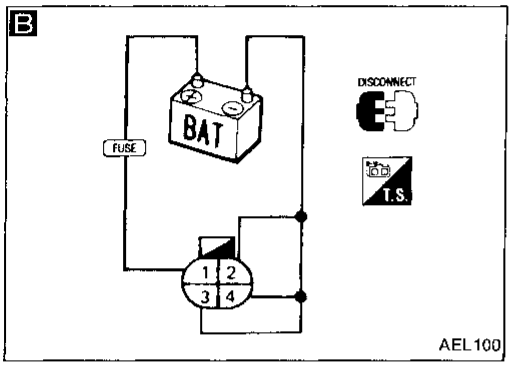
A

ASCD pump connector



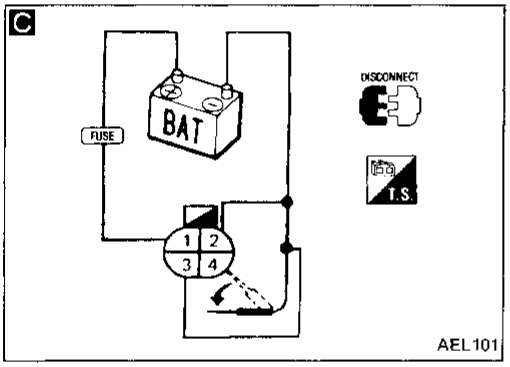
AEL099

B



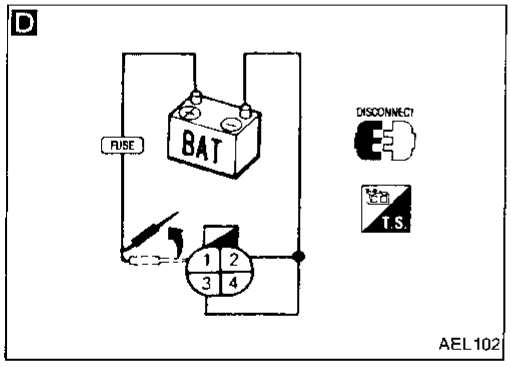
AEL100

C



AEL101

D



AEL102

Actuator Check

1. Disconnect ASCD actuator/ASCD pump connector.
2. Check ASCD actuator/ASCD pump operations as shown.

A

Check to see if motor starts when 12V DC is applied across ① and ④.

NG → Replace ASCD actuator assembly.

OK ↓

B

Check to see if ASCD wire is pulled when 12V DC is applied across ①, ②, ③ and ④.

NG → Replace ASCD actuator assembly.

OK (Wire is pulled.) ↓

C

Check to see if ASCD wire returns to original position 50 to 60 seconds after disconnecting lead from ④.

NG → Replace ASCD actuator assembly.

OK (Wire does not return.) ↓

D

Disconnect lead from ① to see if ASCD wire returns immediately.

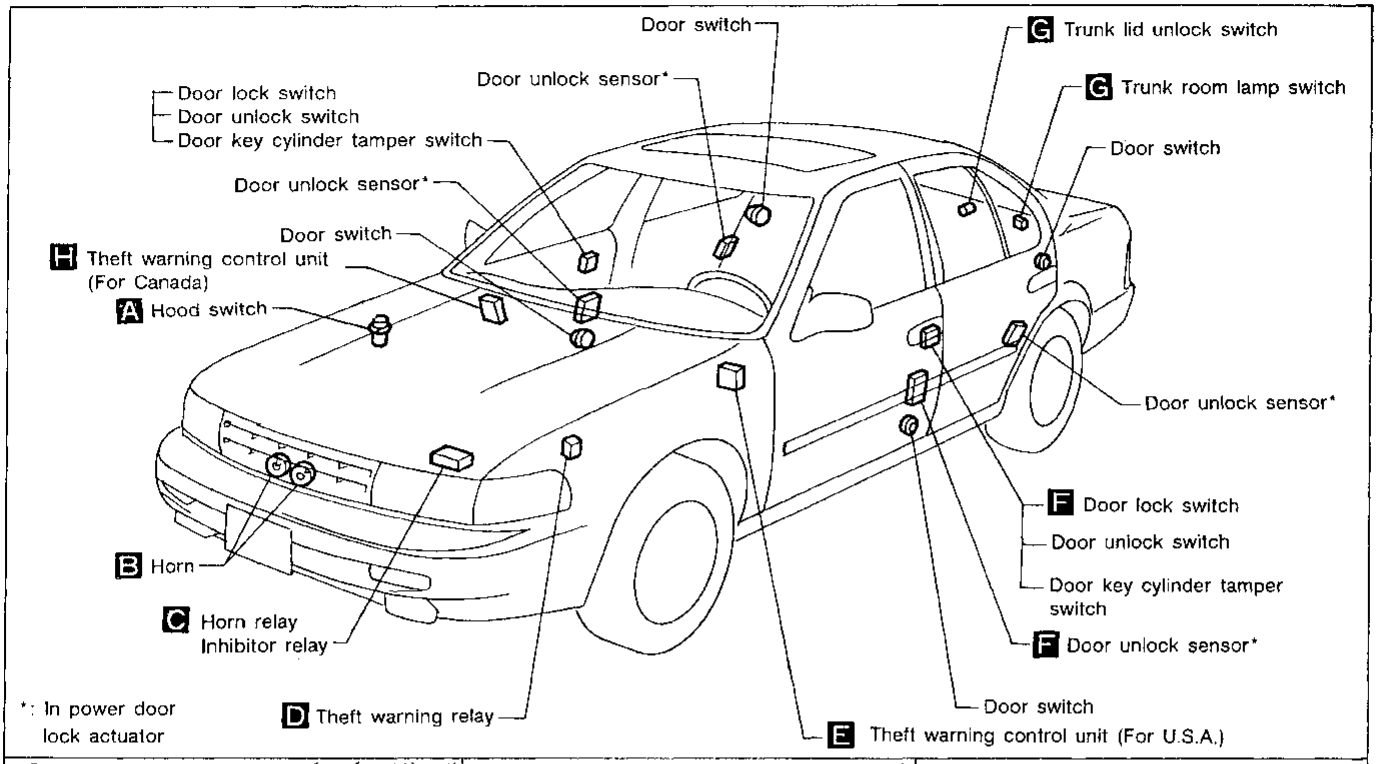
NG → Replace ASCD actuator assembly.

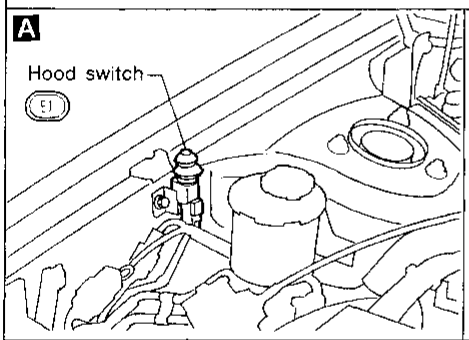
OK (Wire returns.) ↓

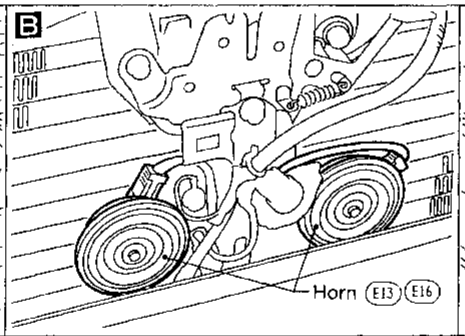
ASCD actuator/ASCD pump are OK.

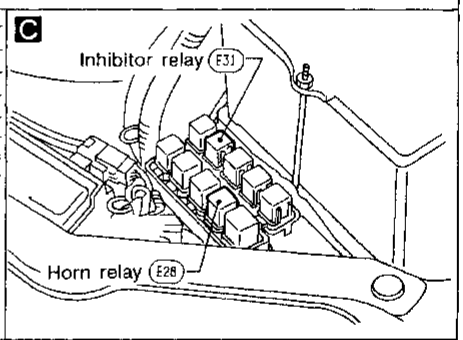
NOTE

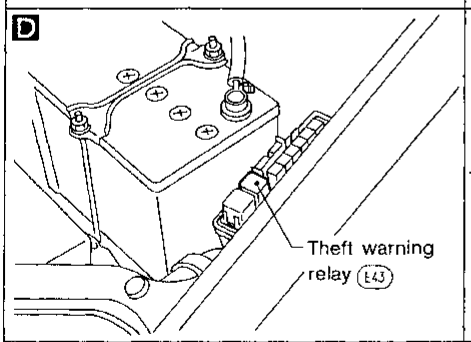
Component Parts and Harness Connector Location

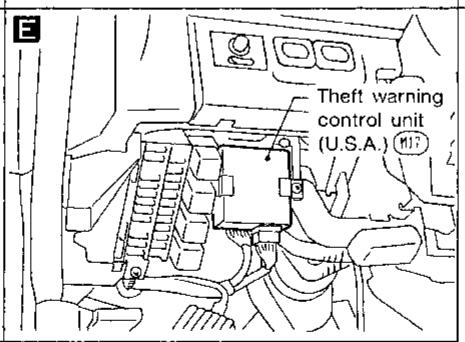


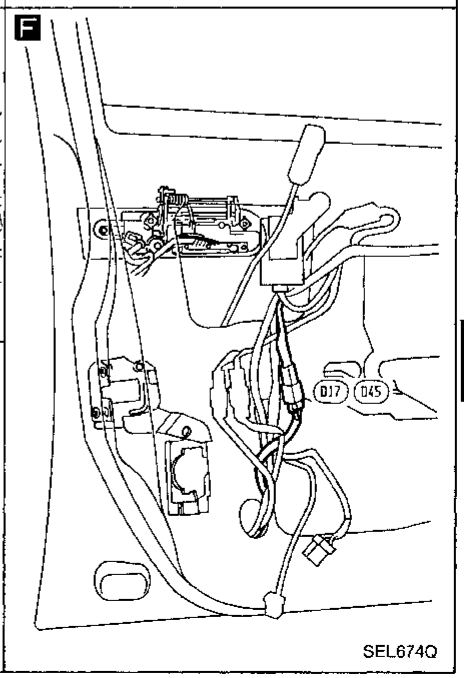


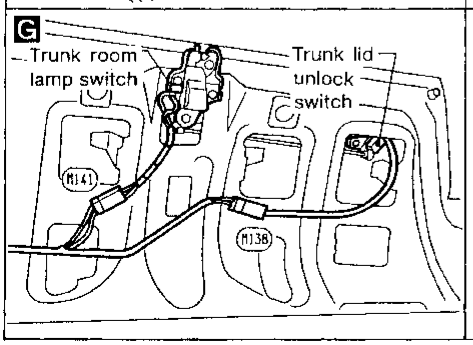


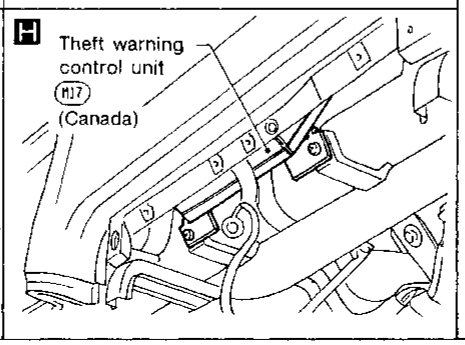






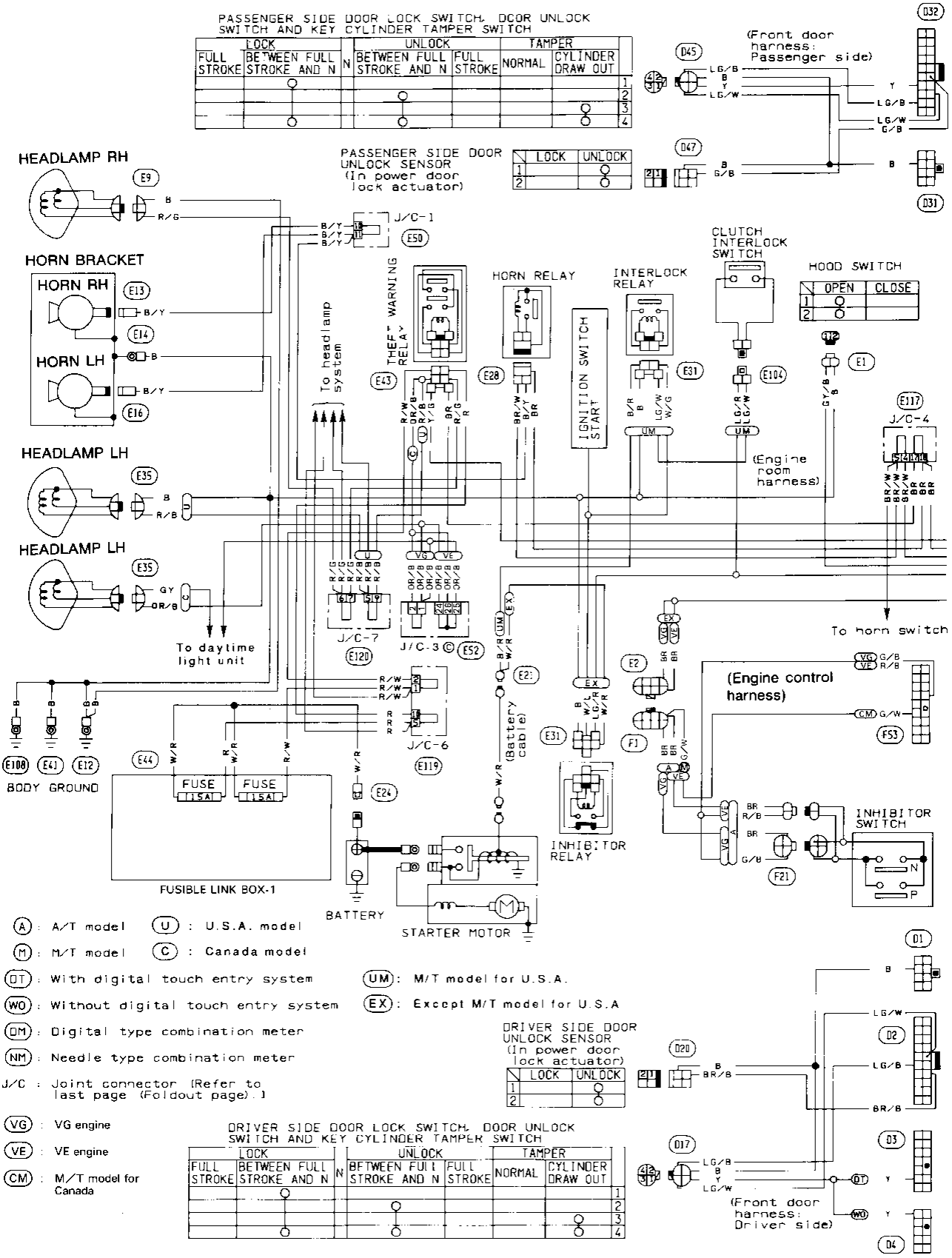






SEL674Q

Wiring Diagram



(A) : A/T model (U) : U.S.A. model

(M) : M/T model (C) : Canada model

(DT) : With digital touch entry system (UM) : M/T model for U.S.A.

(WO) : Without digital touch entry system (EX) : Except M/T model for U.S.A

(DM) : Digital type combination meter

(NM) : Needle type combination meter

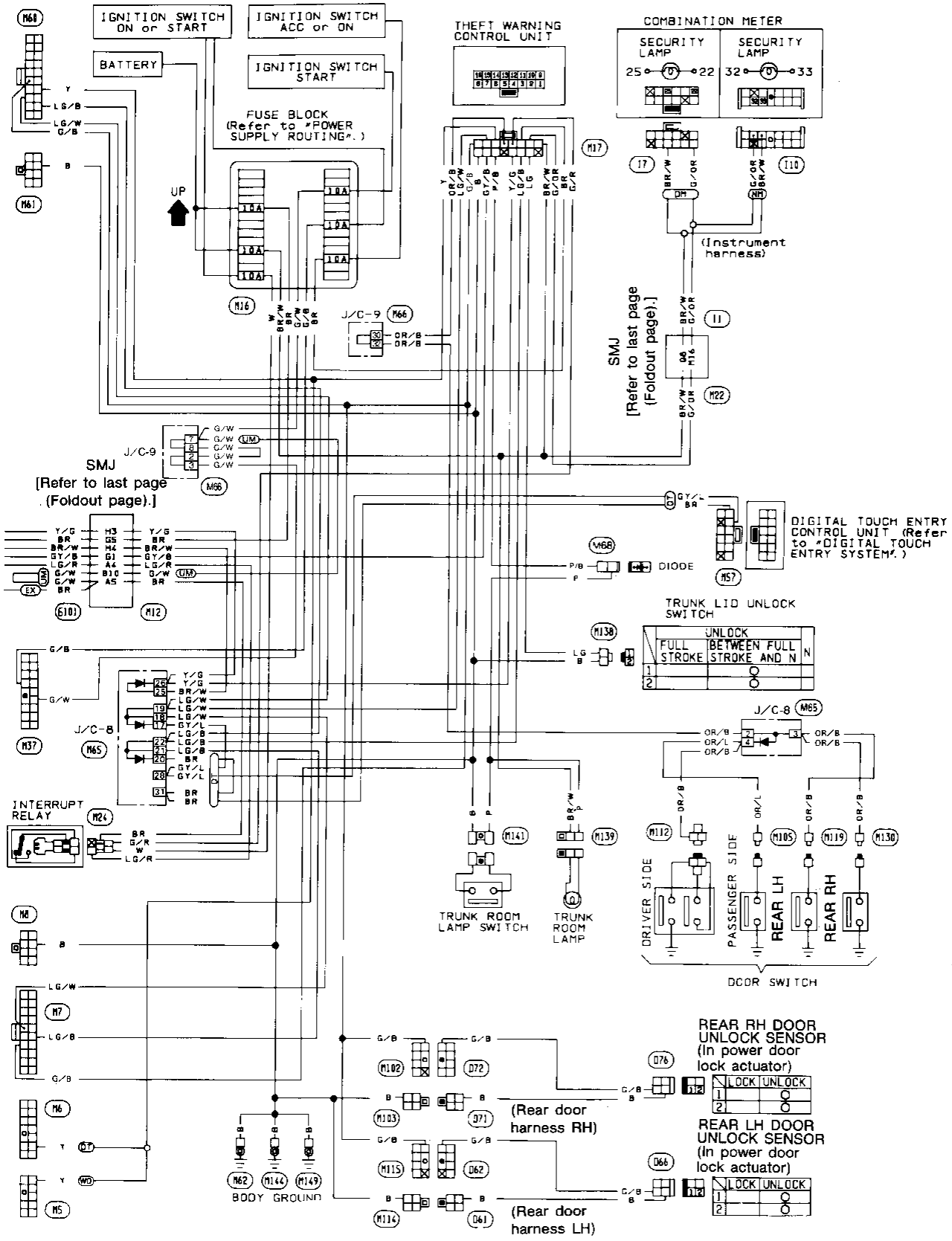
J/C : Joint connector (Refer to last page (Foldout page).)

(VG) : VG engine

(VE) : VE engine

(CM) : M/T model for Canada

Wiring Diagram (Cont'd)

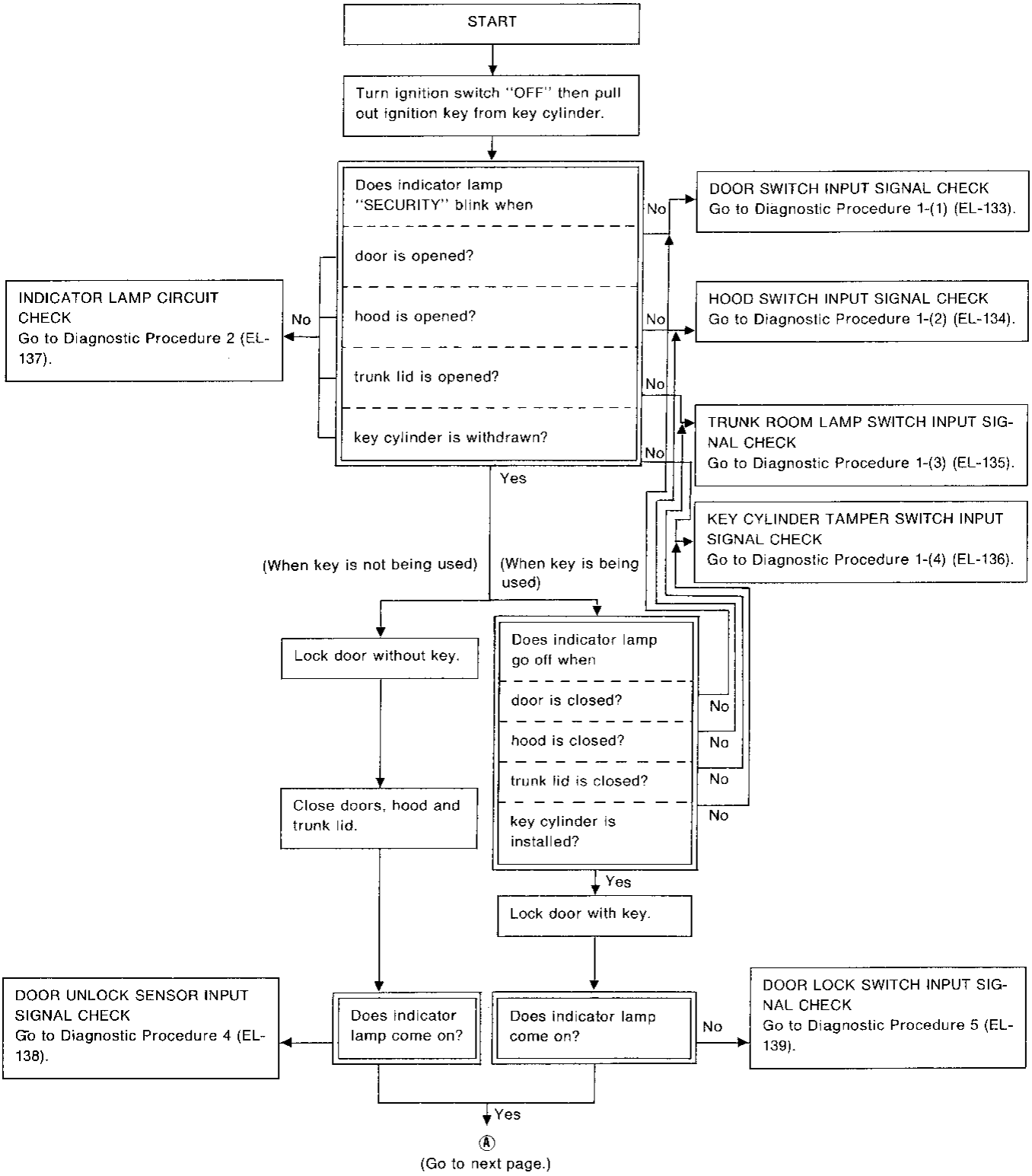


SEL724S

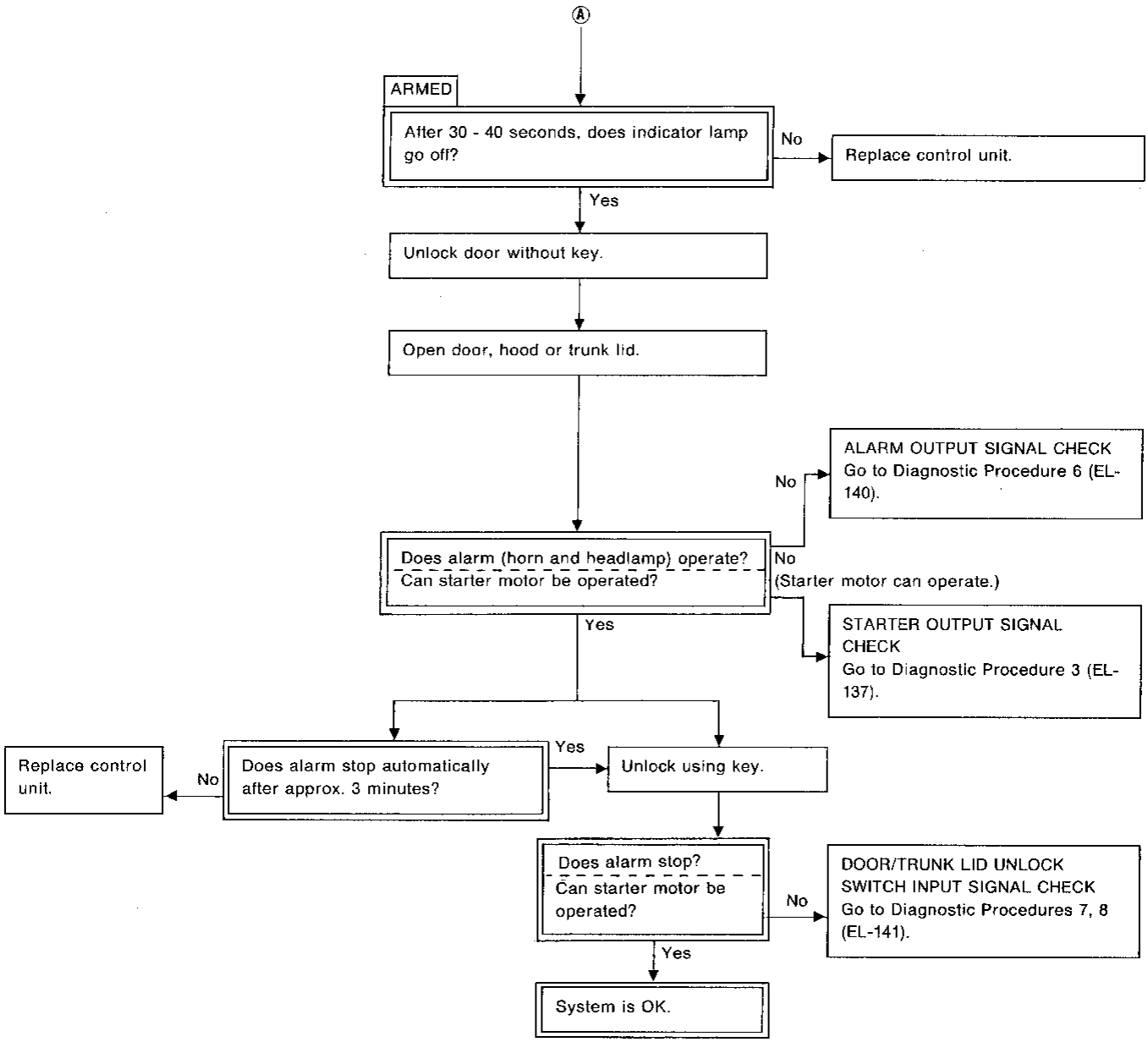
Trouble Diagnoses

SYSTEM OPERATION CHECK

If ignition switch is set in the "ACC" position in the step of START to ARMED or in the ARMED state shown in this flow chart, the system operation is canceled.

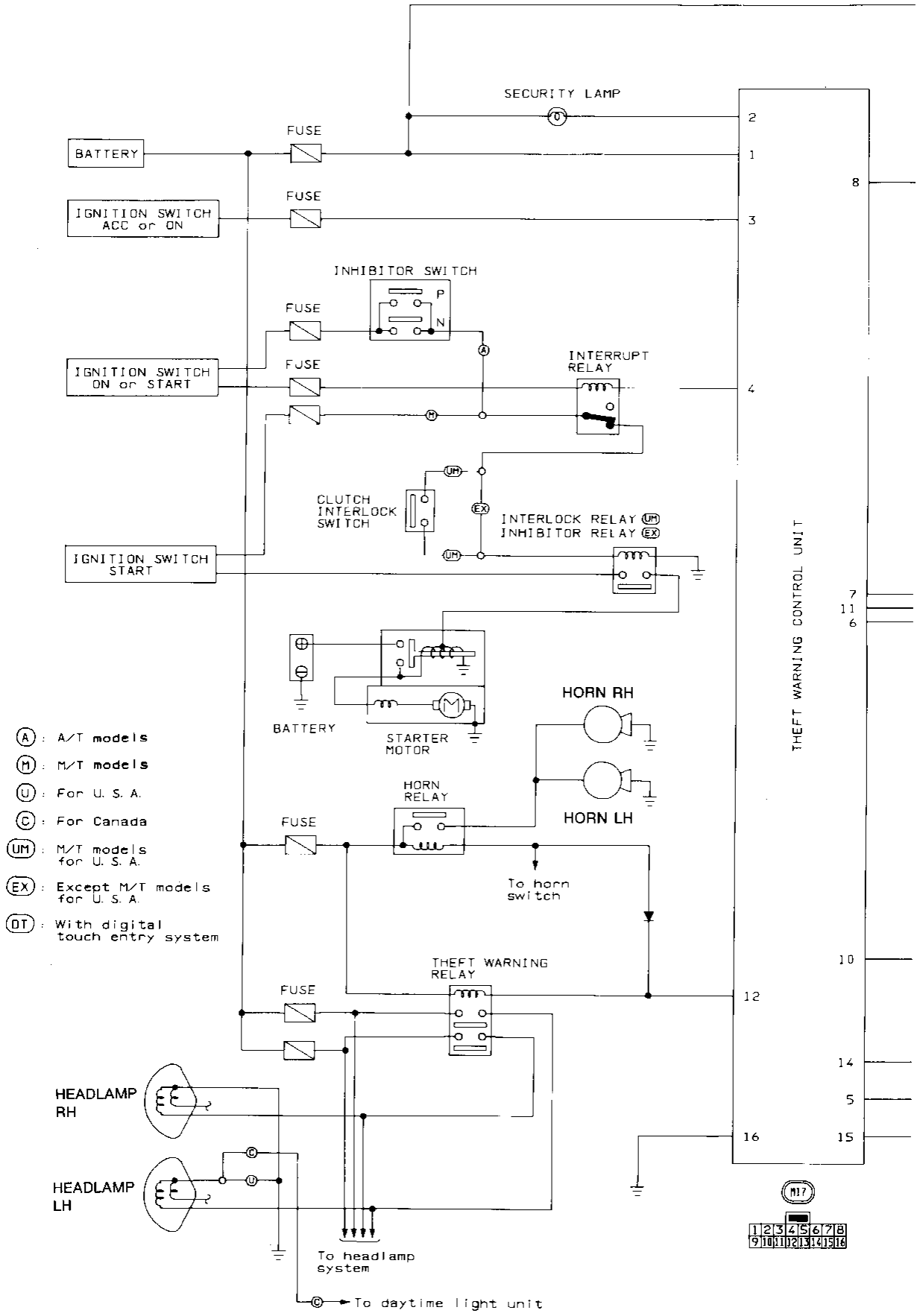


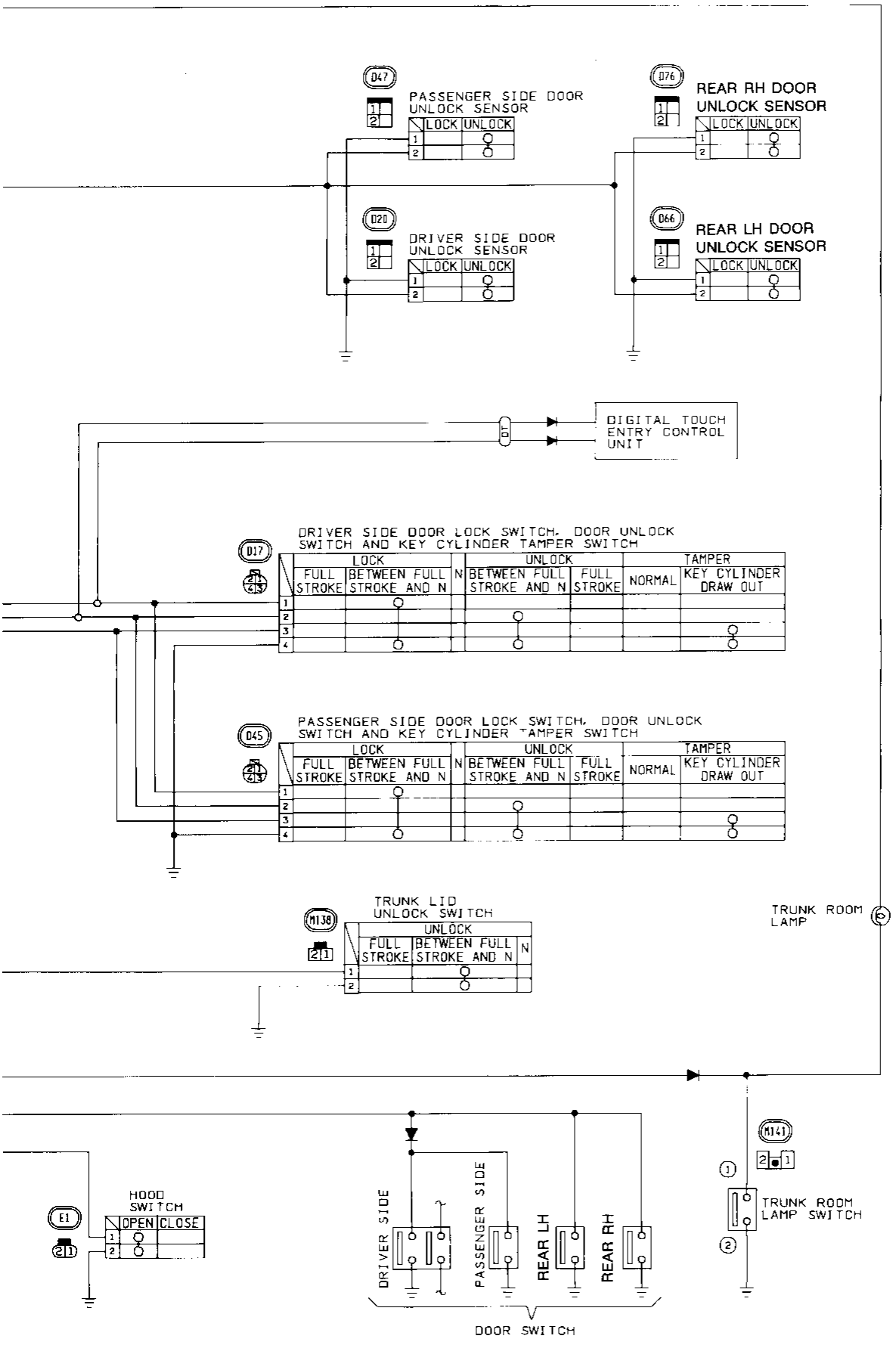
Trouble Diagnoses (Cont'd)



Trouble Diagnoses (Cont'd)

CIRCUIT DIAGRAM FOR QUICK PINPOINT CHECK

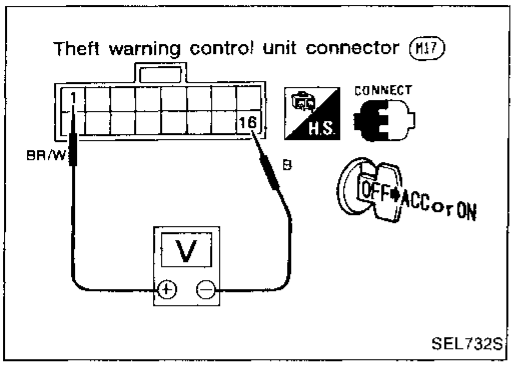



D47
PASSENGER SIDE DOOR UNLOCK SENSOR
LOCK UNLOCK
D76
REAR RH DOOR UNLOCK SENSOR
LOCK UNLOCK
D20
DRIVER SIDE DOOR UNLOCK SENSOR
LOCK UNLOCK
D66
REAR LH DOOR UNLOCK SENSOR
LOCK UNLOCK
DIGITAL TOUCH ENTRY CONTROL UNIT
DRIVER SIDE DOOR LOCK SWITCH, DOOR UNLOCK SWITCH AND KEY CYLINDER TAMPER SWITCH
D17
LOCK
FULL STROKE
BETWEEN FULL STROKE AND N
N
UNLOCK
BETWEEN FULL STROKE AND N
FULL STROKE
TAMPER
NORMAL
KEY CYLINDER DRAW OUT
PASSENGER SIDE DOOR LOCK SWITCH, DOOR UNLOCK SWITCH AND KEY CYLINDER TAMPER SWITCH
D45
M138
TRUNK LID UNLOCK SWITCH
UNLOCK
FULL STROKE
BETWEEN FULL STROKE AND N
N
TRUNK ROOM LAMP
E1
HOOD SWITCH
OPEN CLOSE
DRIVER SIDE
PASSENGER SIDE
REAR LH
REAR RH
DOOR SWITCH
M141
TRUNK ROOM LAMP SWITCH

SEL725S

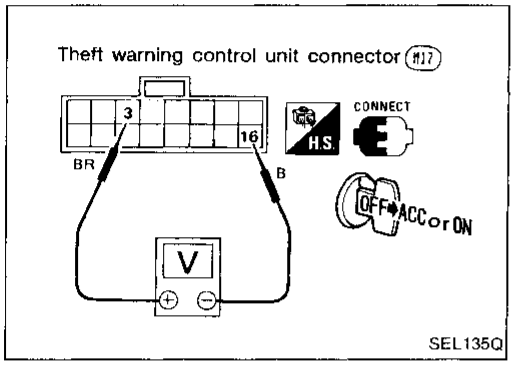
Trouble Diagnoses (Cont'd)

POWER SUPPLY AND GROUND CIRCUIT CHECK



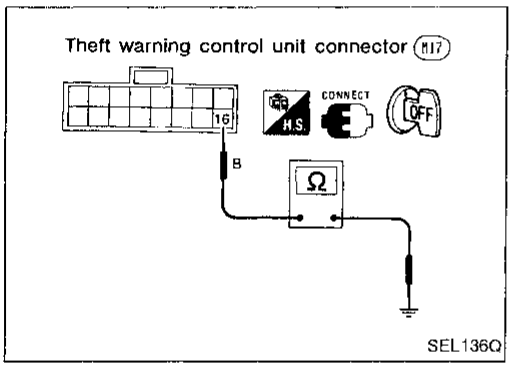
Main power supply circuit check

Terminals	Ignition switch position		
	OFF	ACC	ON
① - ⑯	Battery voltage	Battery voltage	Battery voltage



Power supply circuit check for system cancel

Terminals	Ignition switch position		
	OFF	ACC	ON
③ - ⑯	0V	Battery voltage	Battery voltage



Ground circuit check

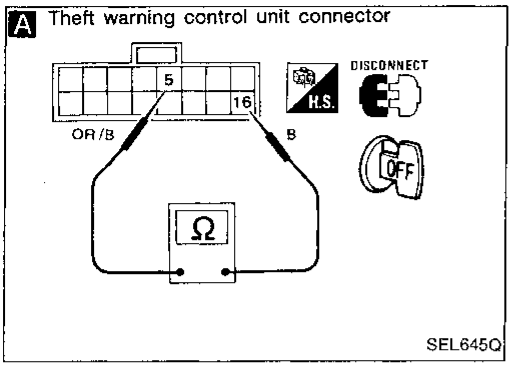
Terminals	Continuity
⑯ - Ground	Yes

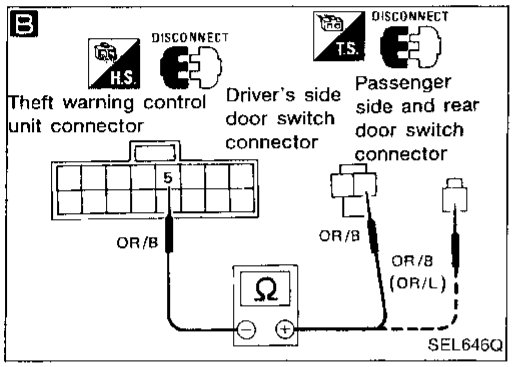
Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 1

SYMPTOM:
- **Indicator lamp does not blink.**
- **Indicator lamp remains blinking.**

Diagnostic procedure 1-(1)





A

DOOR SWITCH INPUT SIGNAL CHECK
Check continuity between control unit harness terminals ⑤ and ⑯.

Condition	Continuity
All doors are closed	No
At least one door is open	Yes

OK → Go to Diagnostic Procedure 2 (EL-137).

NG ↓

DOOR SWITCH CHECK
Refer to "Electrical Components Inspection" (EL-143).

NG → Replace door switch.

OK ↓

B

DOOR SWITCH CIRCUIT CHECK
Check harness continuity between control unit harness terminal ⑤ and door switch harness terminal.
Continuity should exist.

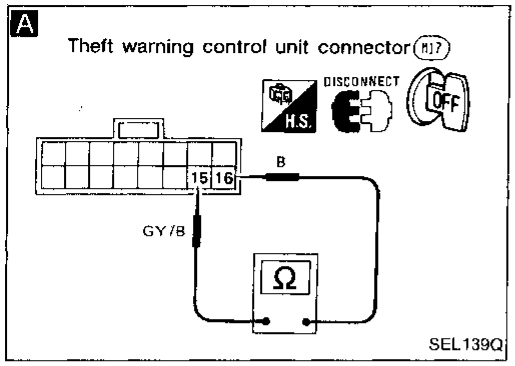
NG → Repair harness or connectors.

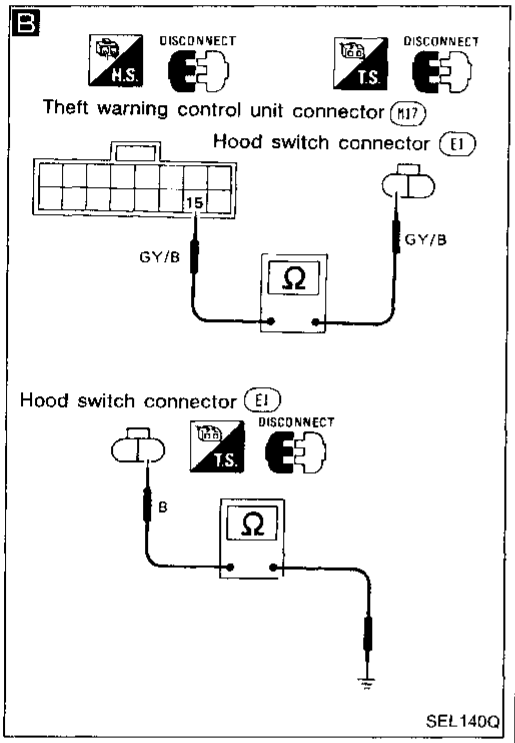
OK ↓

CHECK THE CONNECTIONS AT EACH CONNECTOR.

Trouble Diagnoses (Cont'd)

Diagnostic procedure 1-(2)





A

HOOD SWITCH INPUT SIGNAL CHECK
Check continuity between control unit harness terminals ⑮ and ⑯.

Condition	Continuity
Hood is open	Yes
Hood is closed	No

OK → Go to Diagnostic Procedure 2 (EL-137).

NG ↓

Check hood switch and hood fitting condition.

NG → Adjust installation of hood switch or hood.

OK ↓

HOOD SWITCH CHECK
Refer to "Electrical Components Inspection" (EL-143).

NG → Replace hood switch.

OK ↓

B

HOOD SWITCH CIRCUIT CHECK
- Check harness continuity between control unit harness terminal ⑮ and hood switch harness terminal.
- Check harness continuity between hood switch terminal and body ground.

Continuity should exist.

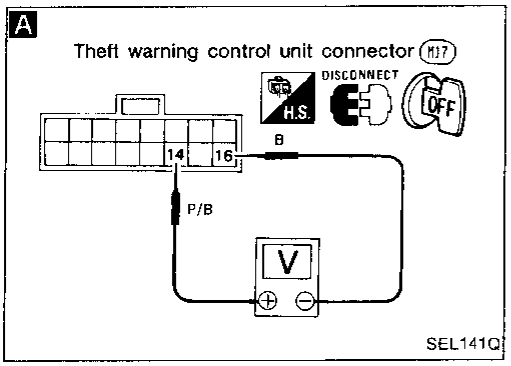
NG → Repair harness or connectors.

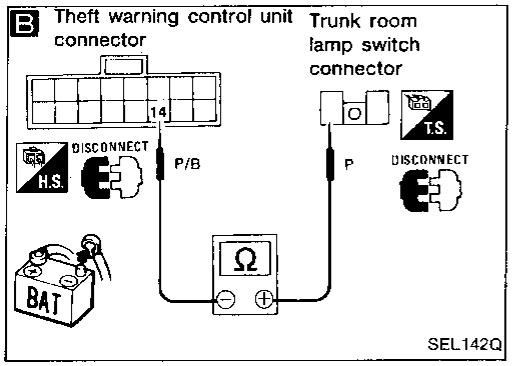
OK ↓

CHECK THE CONNECTIONS AT EACH CONNECTOR.

Trouble Diagnoses (Cont'd)

Diagnostic procedure 1-(3)





A

TRUNK ROOM LAMP SWITCH INPUT SIGNAL CHECK
Check voltage between control unit harness terminals ⑭ and ⑯.

Condition	Voltage
Trunk lid is open	Approx. 0V
Trunk lid is closed	Approx. 12V

OK → Go to Diagnostic Procedure 2 (EL-137).

NG ↓

Does trunk room lamp come on?

Yes → B

No ↓

TRUNK ROOM LAMP SWITCH CHECK
Refer to "Electrical Components Inspection" (EL-143).

OK → B

NG ↓

Replace trunk room lamp switch.

B

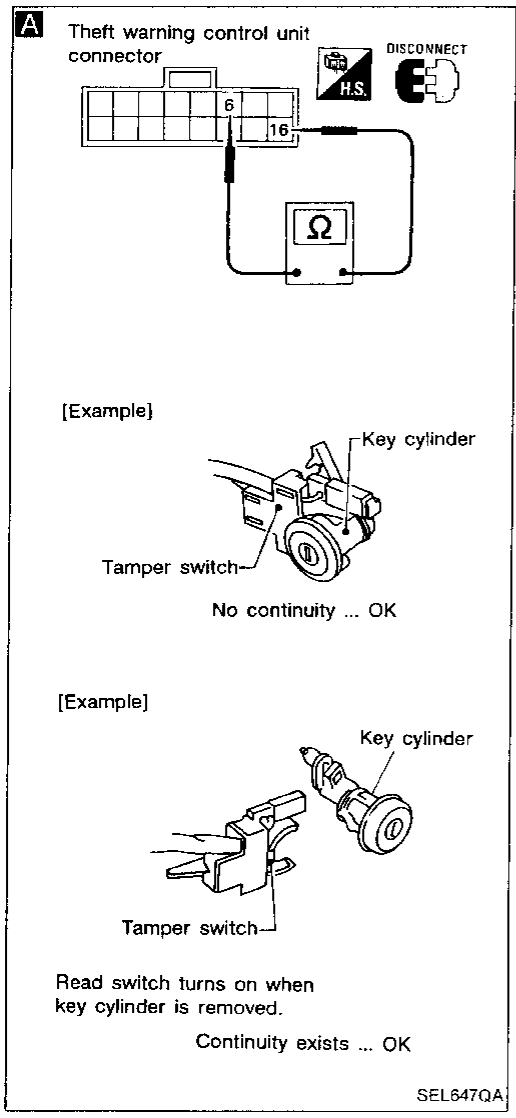
TRUNK ROOM LAMP SWITCH CIRCUIT CHECK
Check harness continuity between control unit harness terminal ⑭ and trunk room lamp harness terminal.

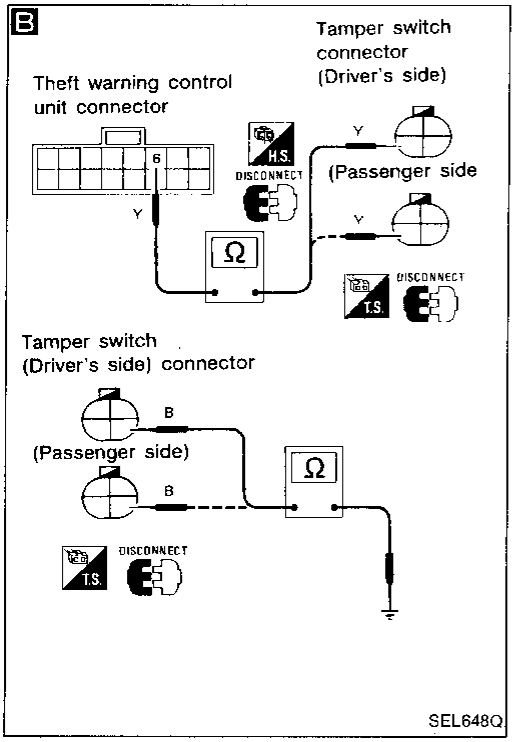
OK ↓

CHECK THE CONNECTIONS AT EACH CONNECTOR.

Trouble Diagnoses (Cont'd)

Diagnostic procedure 1-(4)





A

KEY CYLINDER TAMPER SWITCH INPUT SIGNAL CHECK
Check continuity between control unit harness terminals ⑥ and ⑯.

Condition	Continuity
Normal	No
Removed	Yes

OK → Go to Diagnostic Procedure 2 (EL-137).

NG ↓

KEY CYLINDER TAMPER SWITCH CHECK
Refer to "Electrical Components Inspection" (EL-144).

NG → Replace key cylinder tamper switch.

OK ↓

B

KEY CYLINDER TAMPER SWITCH CIRCUIT CHECK
- Check harness continuity between control unit harness terminal ⑥ and tamper switch harness terminal.
- Check harness continuity between tamper switch terminal and body ground.

Continuity should exist.

NG → Repair harness or connectors.

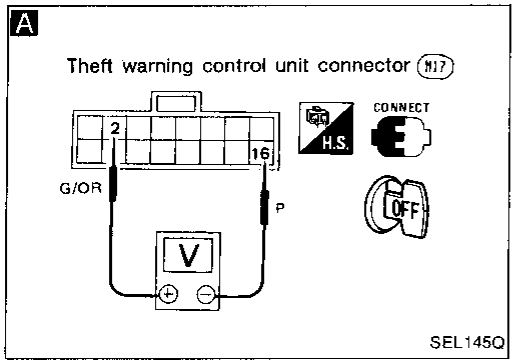
OK ↓

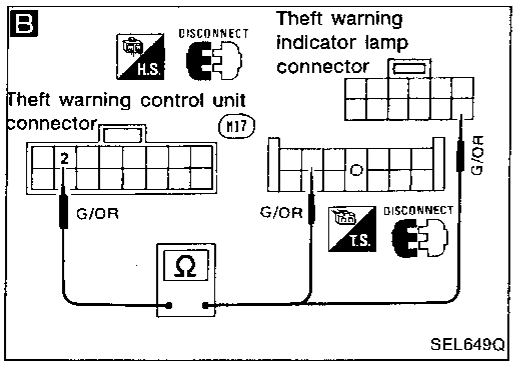
CHECK THE CONNECTIONS AT EACH CONNECTOR.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 2

SYMPTOM: Indicator lamp does not blink.





A

INDICATOR LAMP OUTPUT SIGNAL CHECK
Check voltage between control unit harness terminals ② and ⑯.
Pointer of voltmeter should deflect intermittently.

NG → Replace control unit.

OK ↓

CHECK INDICATOR LAMP.

NG → Replace indicator lamp.

OK ↓

B

INDICATOR LAMP CIRCUIT CHECK
Check harness continuity between control unit harness terminal ② and indicator lamp harness terminal.
Continuity should exist.

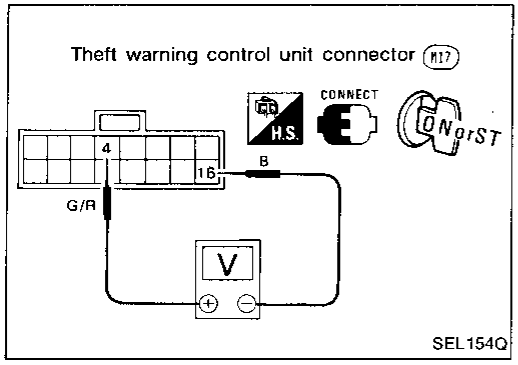
NG → Repair harness or connectors.

OK ↓

CHECK THE CONNECTIONS AT EACH CONNECTOR.

DIAGNOSTIC PROCEDURE 3

SYMPTOM: STARTER MOTOR can be operated. (Starter killed phase)



STARTER MOTOR KILL OUTPUT SIGNAL CHECK
Check voltage between control unit harness terminals ④ and ⑯ when ignition switch is turned to ON or "START".

Approx. 12V → Replace control unit.

Approx. 0 volt ↓

Check interrupt relay.

NG → Replace interrupt relay.

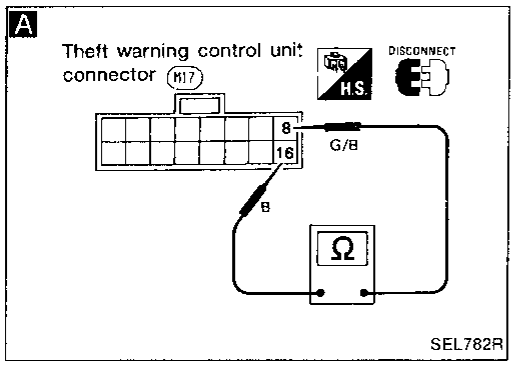
OK ↓

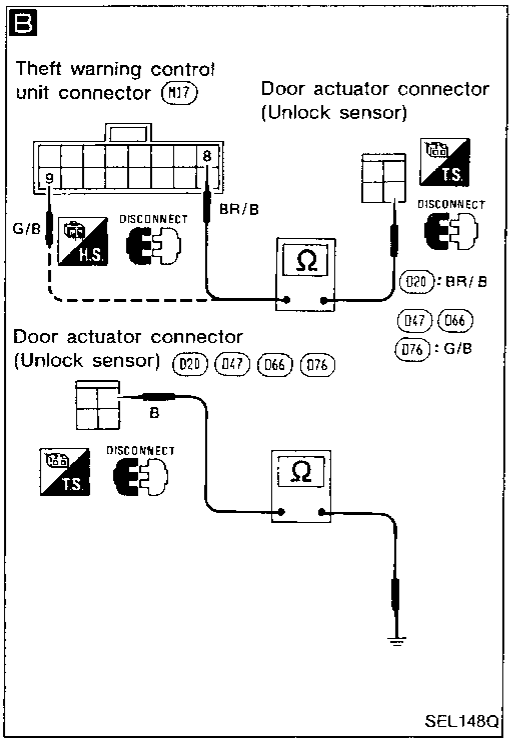
Repair harness between control unit and interlock relay/inhibitor relay.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 4

SYMPTOM: Indicator lamp does not come on.





A

DOOR UNLOCK SENSOR INPUT SIGNAL CHECK

Check continuity between control unit harness terminals ⑧ and ⑯.

Condition	Continuity
All locked	No
At least one door is unlocked	Yes

OK → Go to Diagnostic Procedure 5 (EL-139).

OK → Replace control unit.

NG

DOOR UNLOCK SENSOR CHECK

Refer to "Electrical Components Inspection" (EL-144).

NG → Replace door lock actuator.

OK

B

DOOR UNLOCK SENSOR CIRCUIT CHECK

- Check harness continuity between control unit harness terminals ⑧, ⑨ and door actuator terminal.
- Check harness continuity between door actuator terminal and body ground.

Continuity should exist.

NG → Repair harness or connectors.

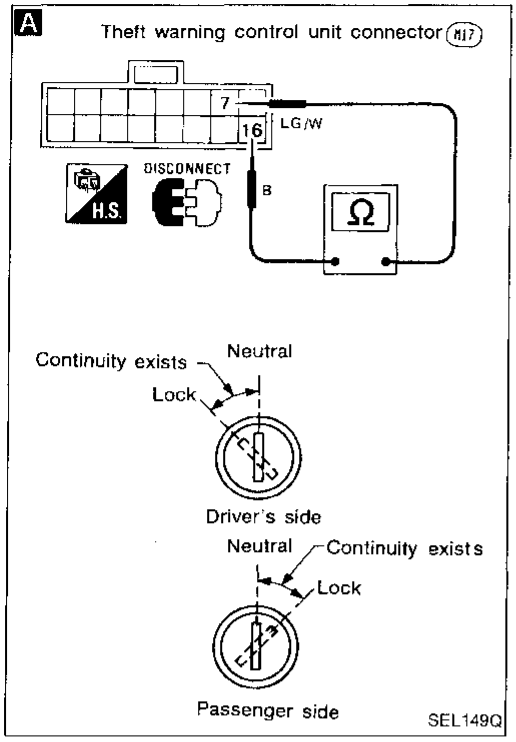
OK

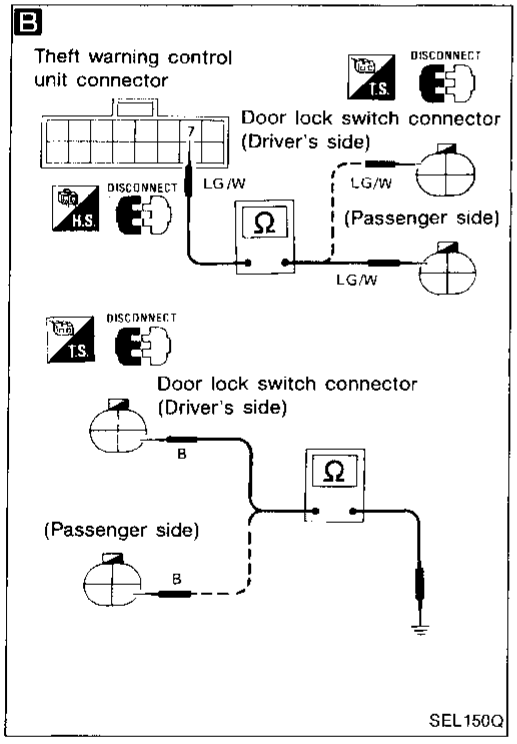
CHECK THE CONNECTIONS AT EACH CONNECTOR.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 5

SYMPTOM: Indicator lamp does not come on.





A

DOOR LOCK SWITCH INPUT SIGNAL CHECK (LOCK SIGNAL)
Check continuity between control unit harness terminals ⑦ and ⑯.

Key position	Continuity
Neutral/Lock	No
Between neutral and lock	Yes

OK → Go to Diagnostic Procedure 4 (EL-138).

OK → Replace control unit.

NG

DOOR LOCK SWITCH CHECK
Refer to "Electrical Components Inspection" (EL-144).

NG → Replace key cylinder switch.

OK

B

DOOR LOCK SWITCH CIRCUIT CHECK
- Check harness continuity between control unit harness terminal ⑦ and door lock switch terminal.
- Check harness continuity between door lock switch terminal and body ground.

Continuity should exist.

NG → Repair harness or connectors.

OK

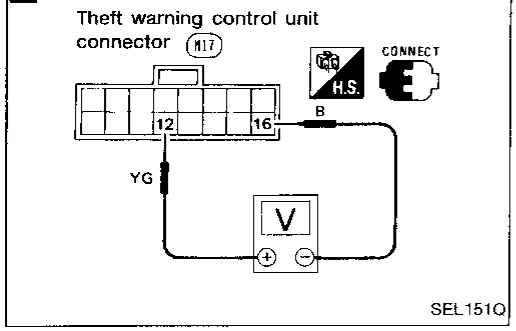
CHECK THE CONNECTIONS AT EACH CONNECTOR.

Trouble Diagnoses (Cont'd)

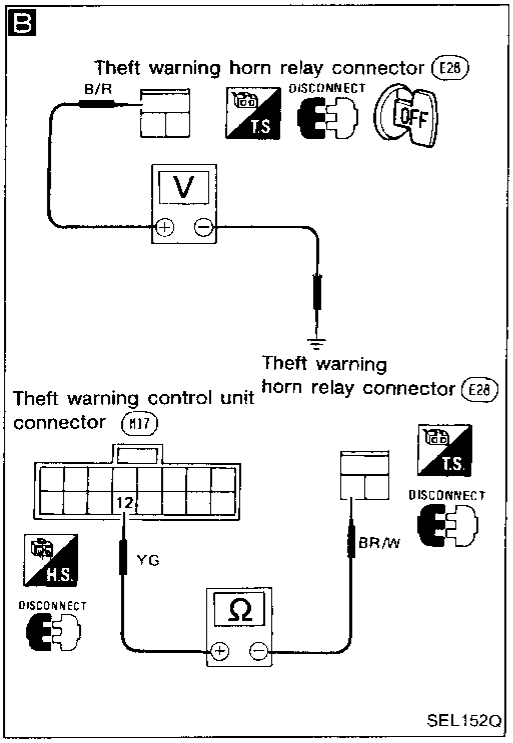
DIAGNOSTIC PROCEDURE 6

SYMPTOM: Alarm does not operate.

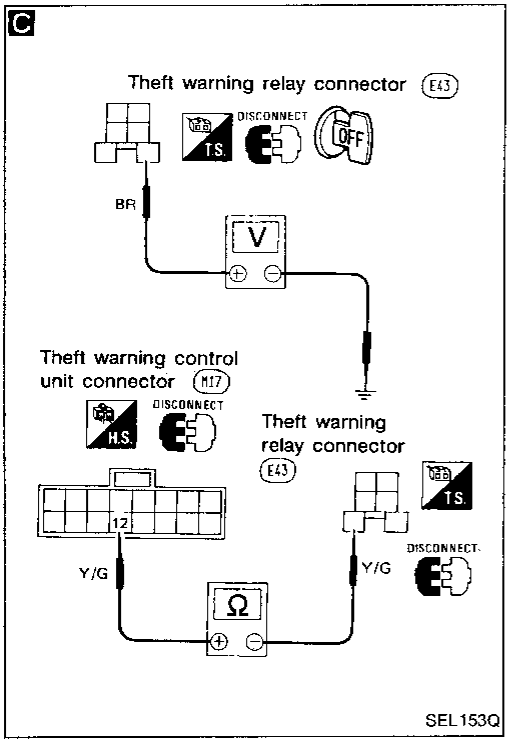
A



B



C



A

ALARM SIGNAL OUTPUT CHECK
Check voltage between control unit harness terminals ⑫ and ⑯.

Condition	Voltmeter
Except alarm phase	12V
Alarm phase	Pointer deflects intermittently

NG → Replace control unit.

OK ↓

Check theft warning horn relay. NG → Replace relay.

OK ↓

B

THEFT WARNING HORN CIRCUIT CHECK
Check if voltage across theft warning horn relay harness terminal and body is 12V.
Check continuity between theft warning horn relay terminal and control unit harness terminal ⑫.
Continuity should exist.

NG → Repair harness or connectors.

OK ↓

Check theft warning relay. NG → Replace theft warning relay.

OK ↓

C

THEFT WARNING HEADLAMP CIRCUIT CHECK
Check if voltage across theft warning relay harness terminal and body is 12V.
Check continuity between theft warning relay terminal and control unit harness terminal ⑫.

NG → Repair harness or connectors.

OK ↓

Does headlamp come on when turning lighting switch "ON"?

No → Check headlamp system. Refer to "HEADLAMP" (EL-29).

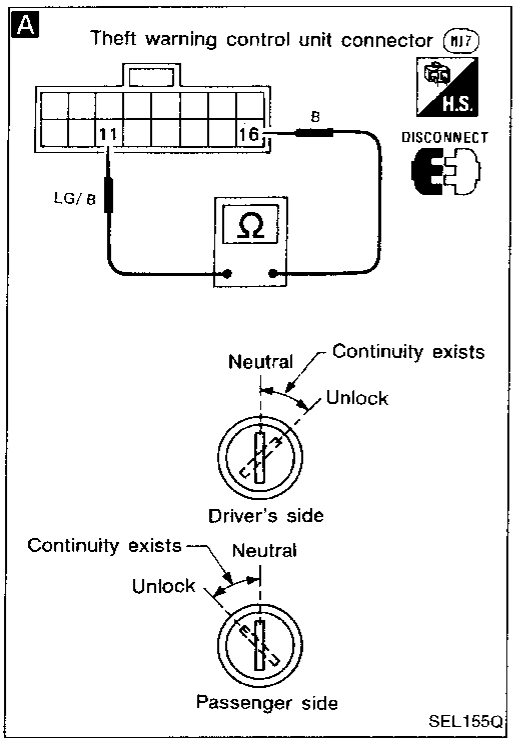
Yes ↓

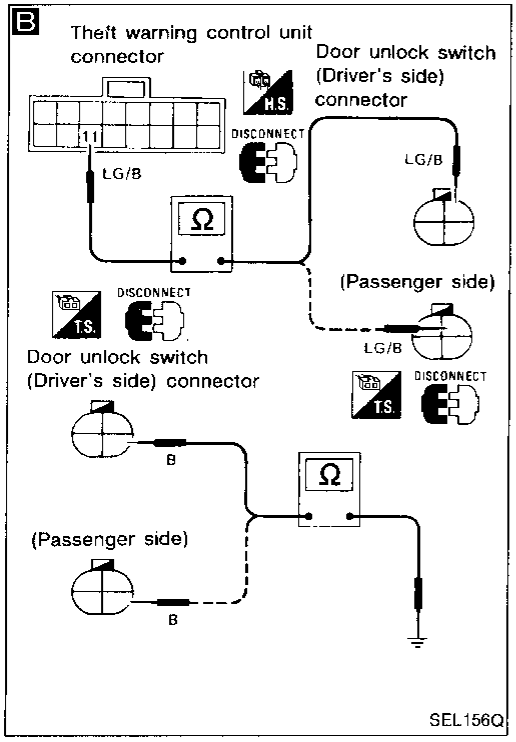
Repair harness and connectors between lamp relay and headlamp.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 7

SYMPTOM: Alarm does not stop even if stop signal is given.





A

DOOR UNLOCK SWITCH INPUT SIGNAL CHECK (UNLOCK SIGNAL)
Check continuity between control unit harness terminals ⑪ and ⑯.

Key position	Continuity
Neutral/Unlock	No
Between neutral and unlock	Yes

OK → Replace control unit.

NG ↓

DOOR UNLOCK SWITCH CHECK
Refer to "Electrical Components Inspection" (EL-144).

NG → Replace key cylinder switch.

OK ↓

B

DOOR UNLOCK SWITCH CIRCUIT CHECK
- Check harness continuity between control unit harness terminal ⑪ and door unlock switch terminal.
- Check harness continuity between door unlock switch terminal and body ground.

Continuity should exist.

NG → Repair harness or connectors.

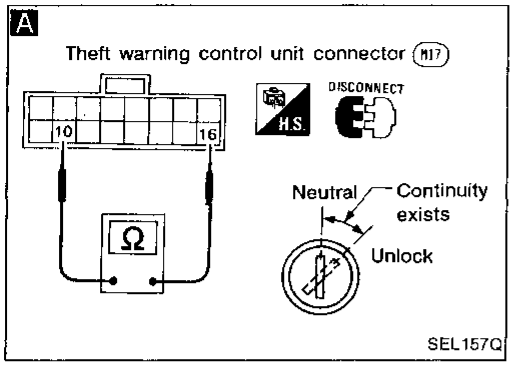
OK ↓

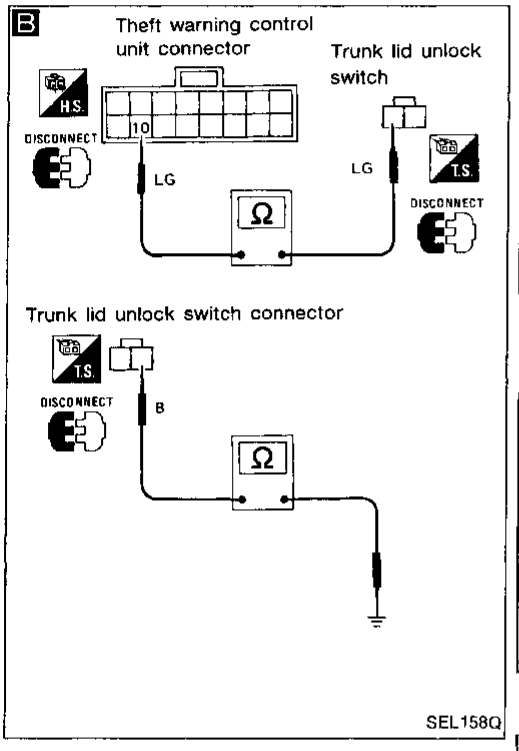
CHECK THE CONNECTIONS AT EACH CONNECTOR.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 8

SYMPTOM: Alarm does not stop even if stop signal is given.





A

TRUNK LID UNLOCK SWITCH INPUT SIGNAL CHECK (UNLOCK SIGNAL)
Check continuity between control unit harness terminals ⑩ and ⑯.

Key position	Continuity
Neutral/Unlock	No
Between neutral and unlock	Yes

OK → Replace control unit.

NG ↓

TRUNK LID UNLOCK SWITCH CHECK
Refer to "Electrical Components Inspection" (EL-144).

NG → Replace key cylinder switch.

OK ↓

B

TRUNK LID UNLOCK SWITCH CIRCUIT CHECK
- Check harness continuity between control unit harness terminal ⑩ and trunk lid unlock switch terminal.
- Check harness continuity between trunk lid unlock switch terminal and body ground.

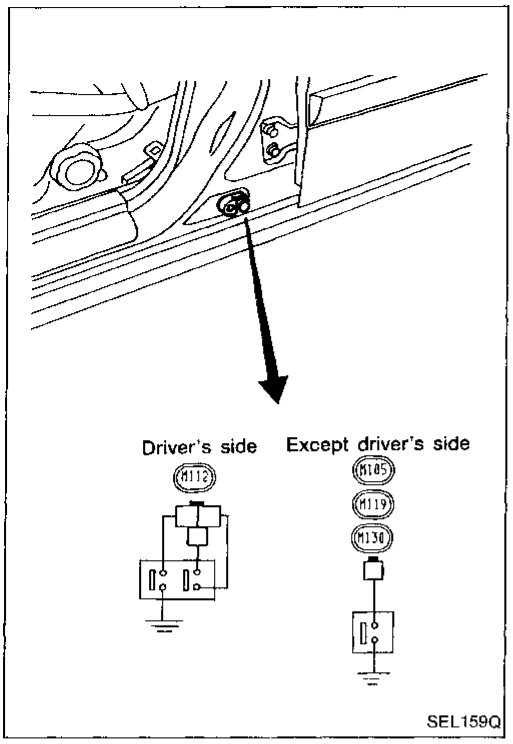
NG → Repair harness or connectors.

OK ↓

CHECK THE CONNECTIONS AT EACH CONNECTOR.

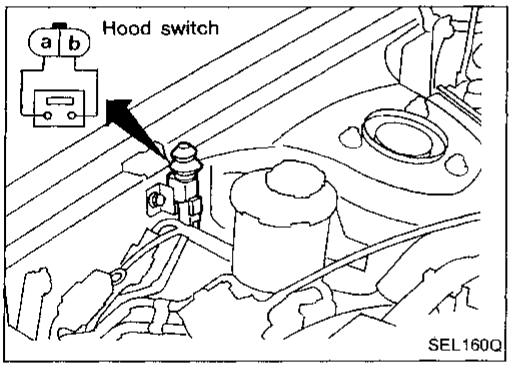
Trouble Diagnoses (Cont'd)

ELECTRICAL COMPONENTS INSPECTION



Door switches

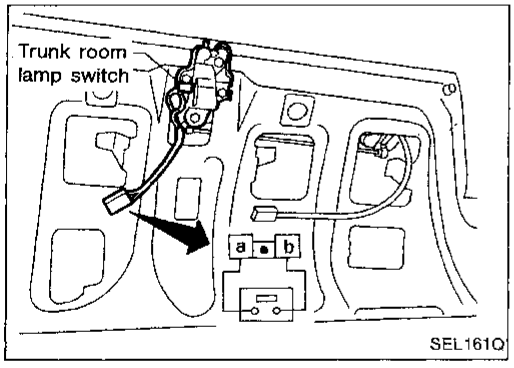
Check continuity between terminal and switch body.



Hood switch

Check continuity between terminals when hood switch is pushed and released.

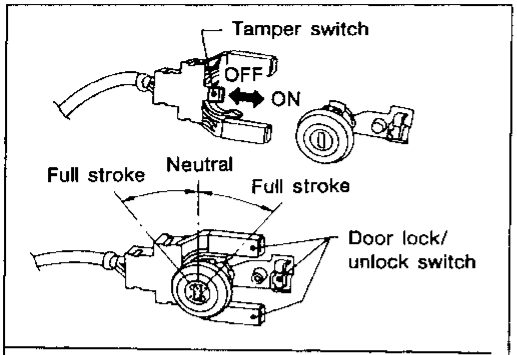
Terminal	Pushed	Released
a		○
b		○

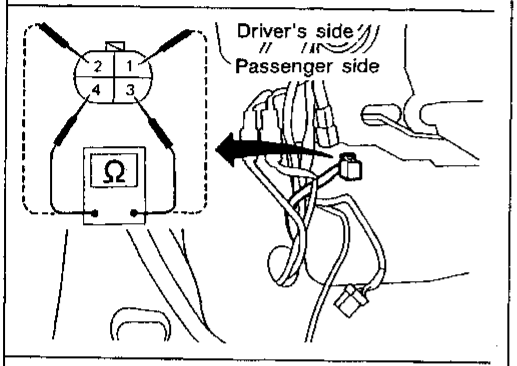


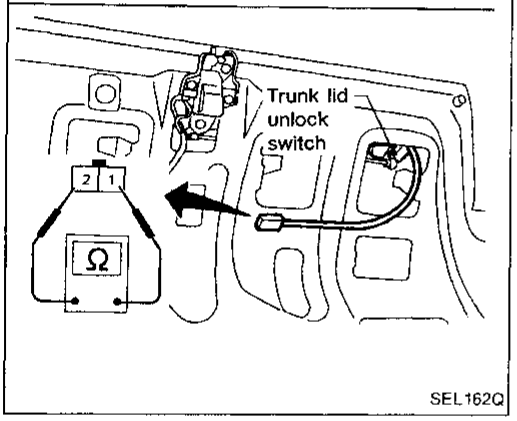
Trunk room lamp switch

Terminal	Trunk lid	
	Closed	Open
a		○
b		○

Trouble Diagnoses (Cont'd)







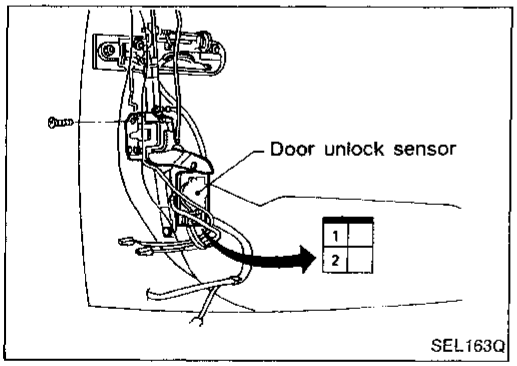
Key cylinder tamper switch, door lock switch and door unlock switch

- **Door**

	TAMPER SWITCH		DOOR LOCK SWITCH			DOOR UNLOCK SWITCH	
	Key cylinder is installed	Key cylinder is removed	Full stroke	Between full stroke and neutral	Neutral	Between full stroke and neutral	Full stroke
1				○			
2						○	
3		○					
4		○		○		○	

- **Trunk lid**

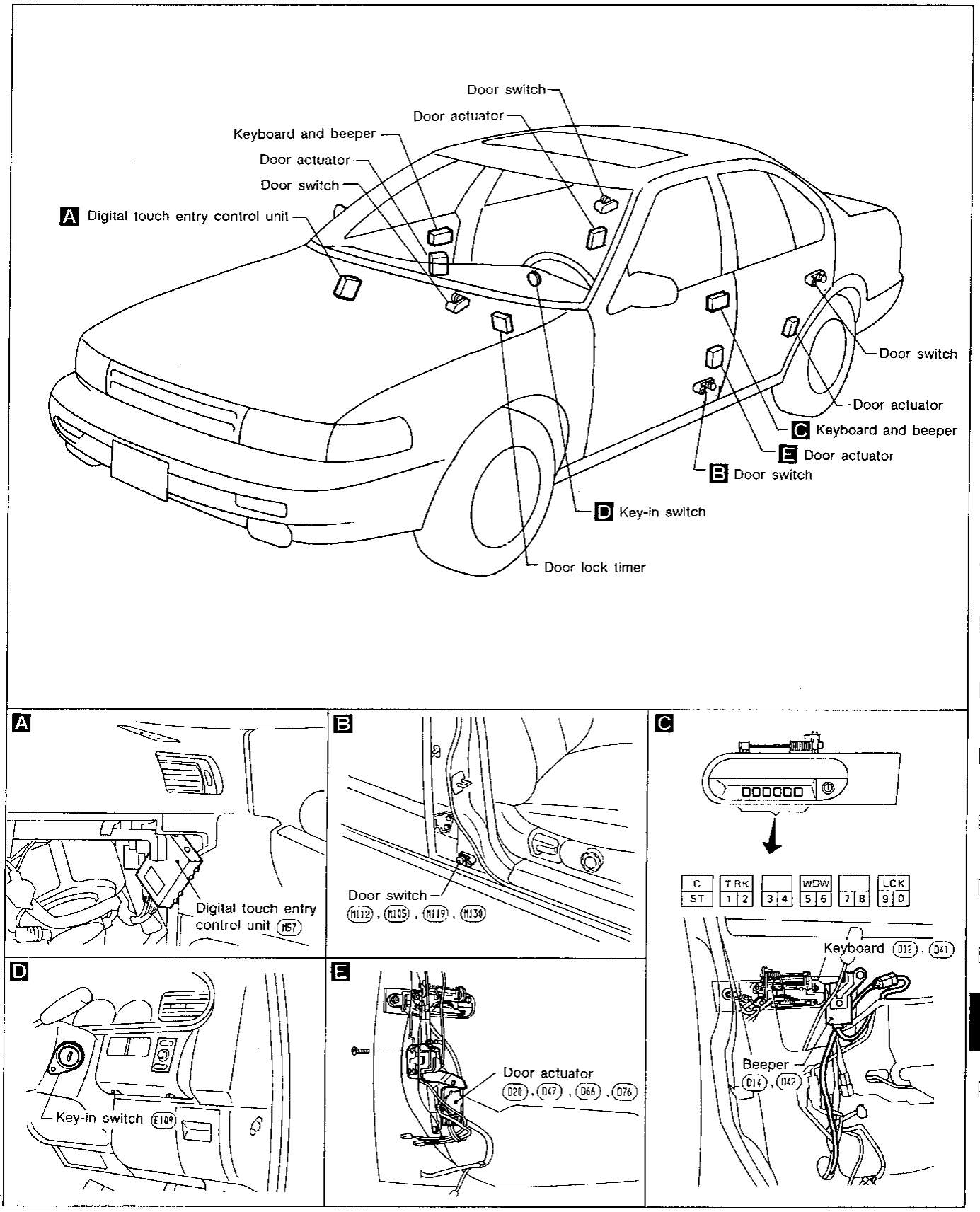
	TAMPER SWITCH		Trunk lid unlock switch		
	Key cylinder is installed	Key cylinder is removed	Full stroke	Between full stroke and neutral	Neutral
1				○	
2		○			
3		○		○	



Door unlock sensor

	LOCK	UNLOCK
1		○
2		○

Component Parts and Harness Connector Location



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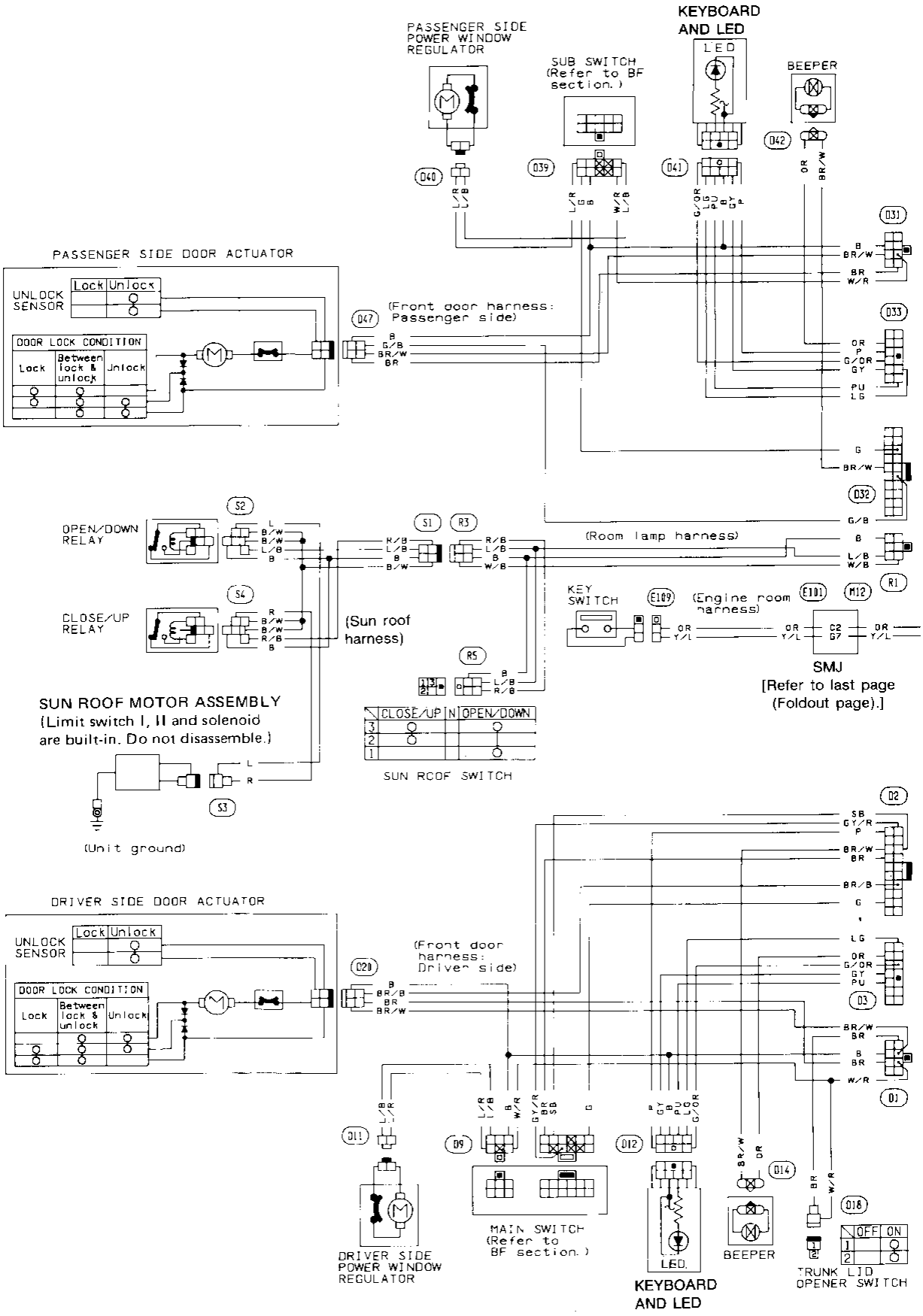
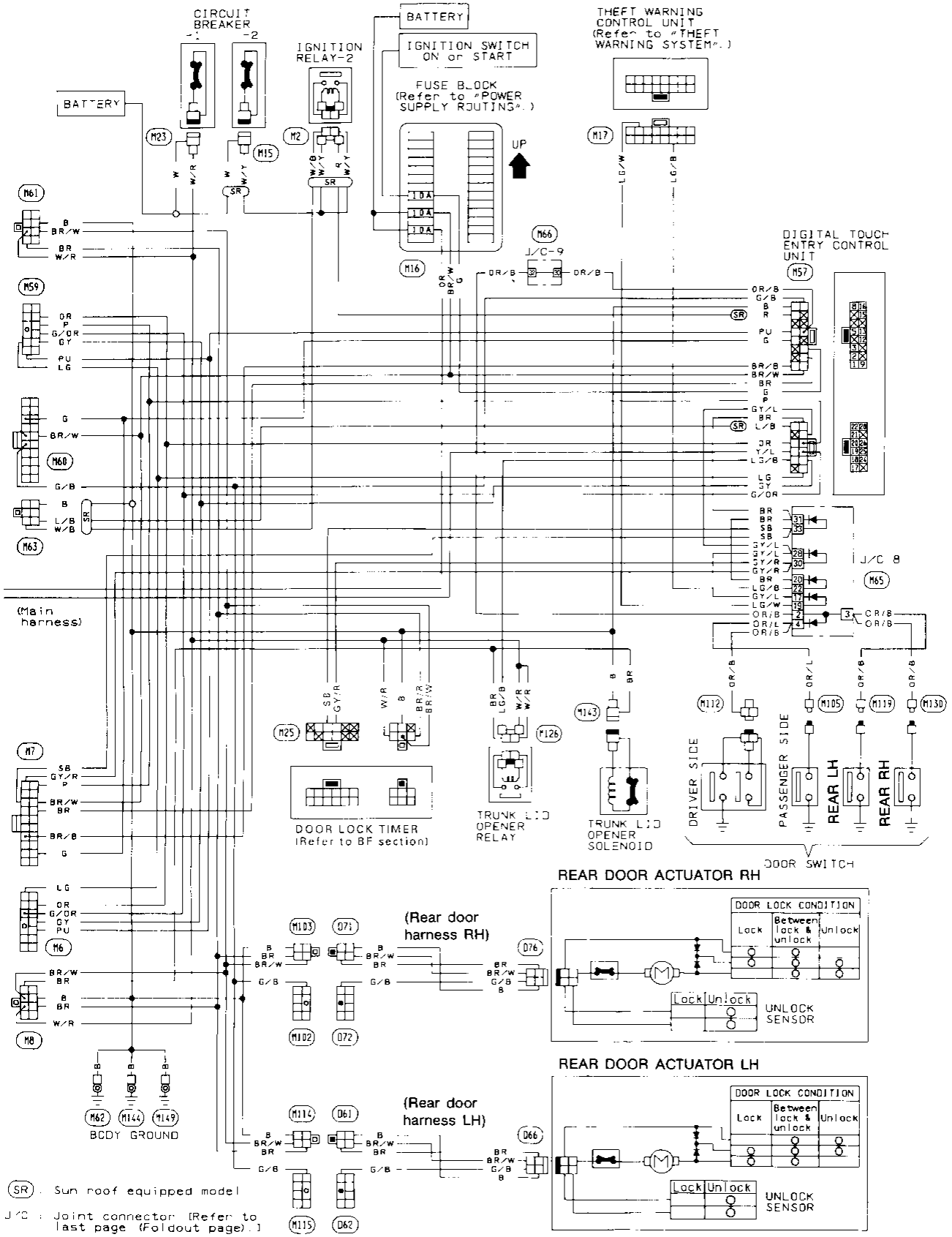
Wiring Diagram



Wiring Diagram (Cont'd)



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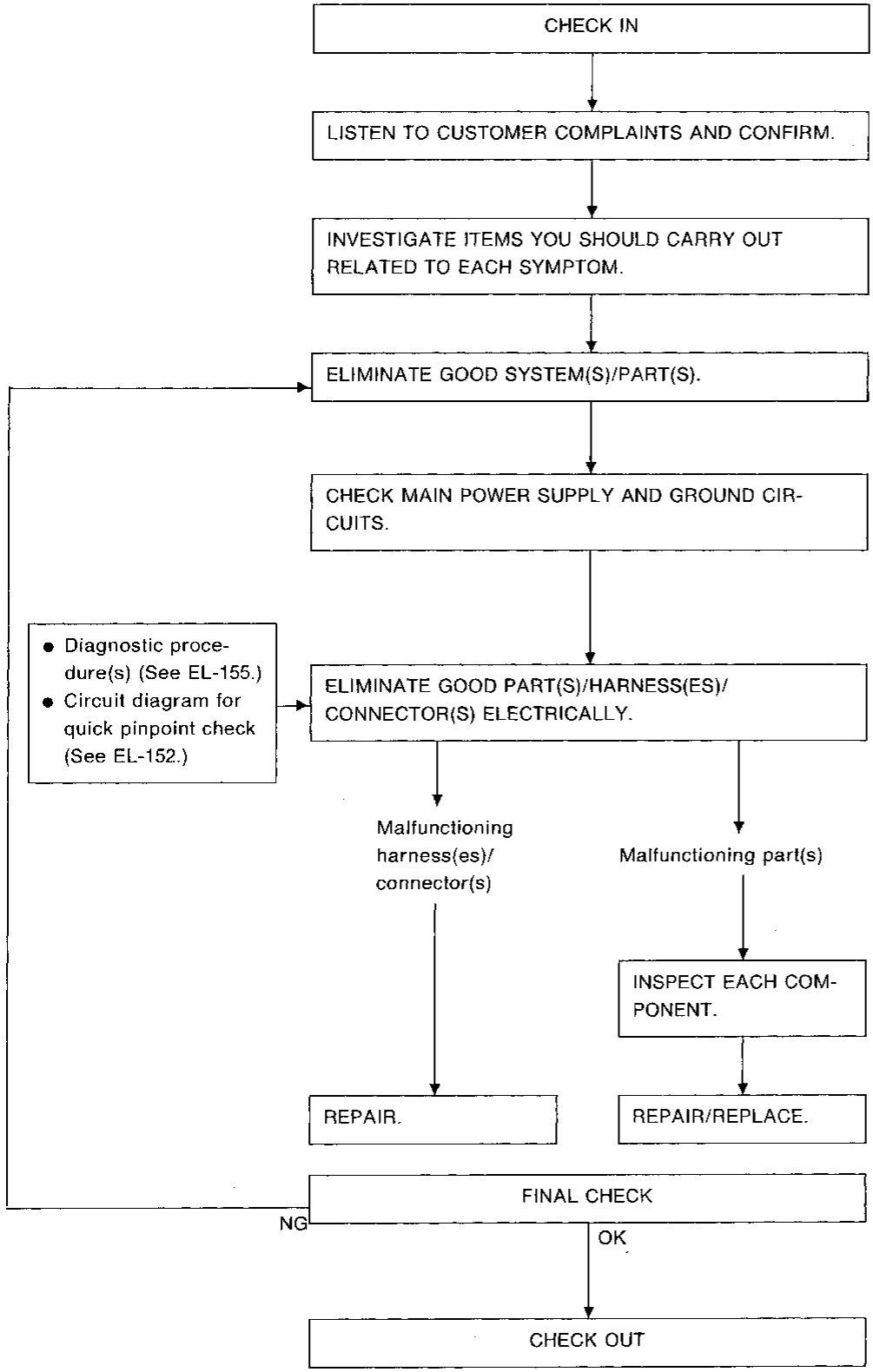
Trouble Diagnoses

CONTENTS

Trouble Diagnoses (Cont'd)

HOW TO PERFORM TROUBLE DIAGNOSES FOR QUICK AND ACCURATE REPAIR

Work flow

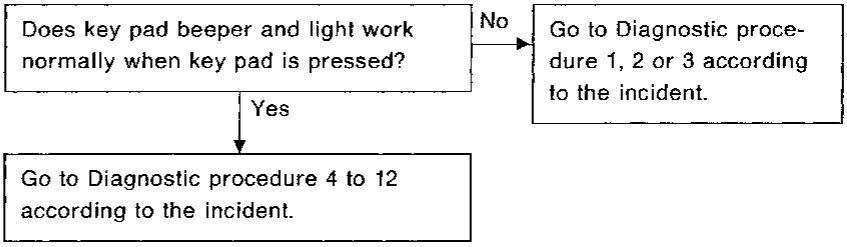


Trouble Diagnoses (Cont'd)

PRELIMINARY CHECK

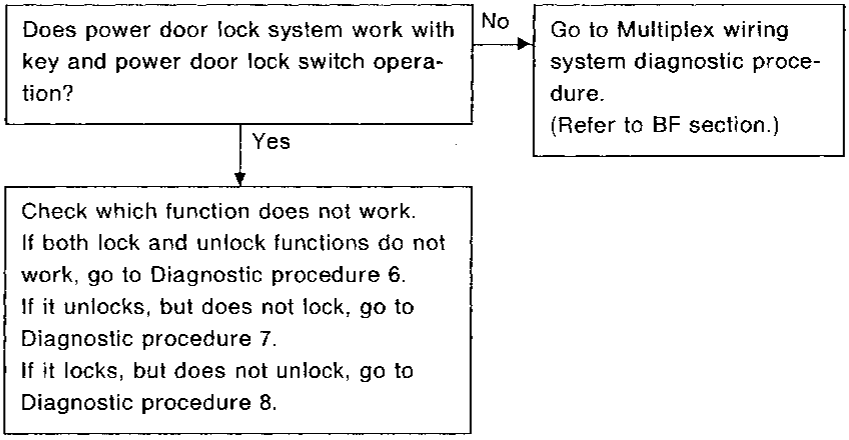
Preliminary check 1

- Door lock system does not work normally with key pad operation.
- Front windows do not open with key pad operation.
- Sun roof does not open with key pad operation.
- Trunk lid does not open with key pad operation.



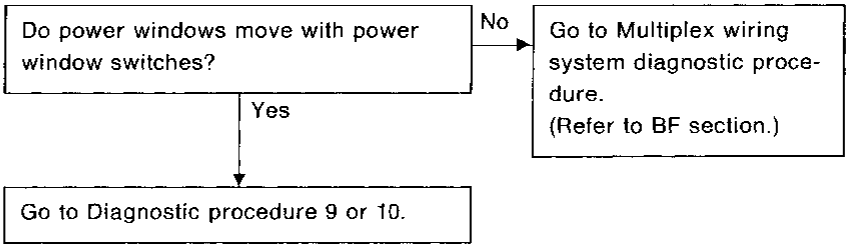
Preliminary check 2

Power door lock system does not work with key pad operation.



Preliminary check 3

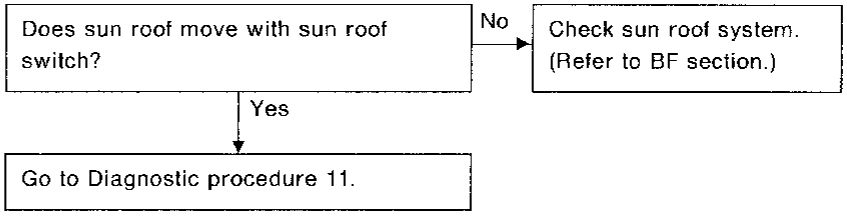
Front windows do not open with key pad operation.



Trouble Diagnoses (Cont'd)

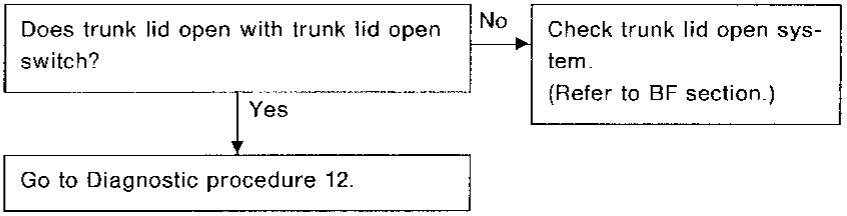
Preliminary check 4

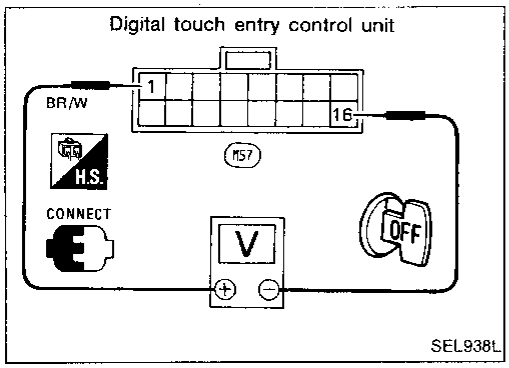
Sun roof does not open with key pad operation.



Preliminary check 5

Trunk lid does not open with key pad operation.

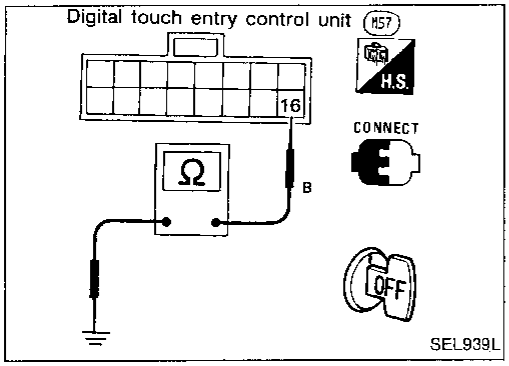




MAIN POWER SUPPLY AND GROUND CIRCUIT CHECK

Power supply circuit check for digital touch entry control unit

Check if 12V exists across digital touch entry control unit harness connector terminals ① and ⑯.

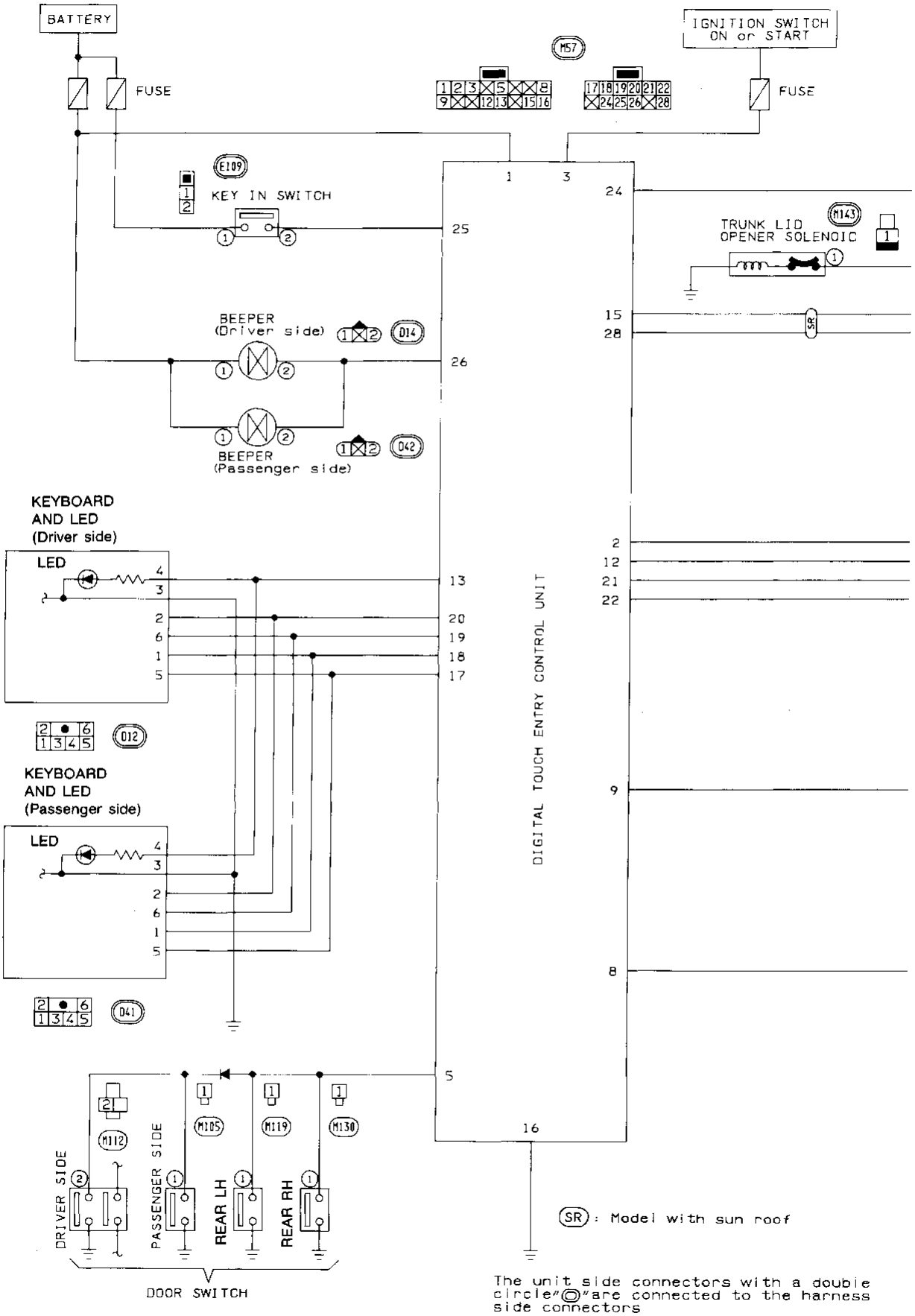


Ground circuit check for digital touch entry control unit

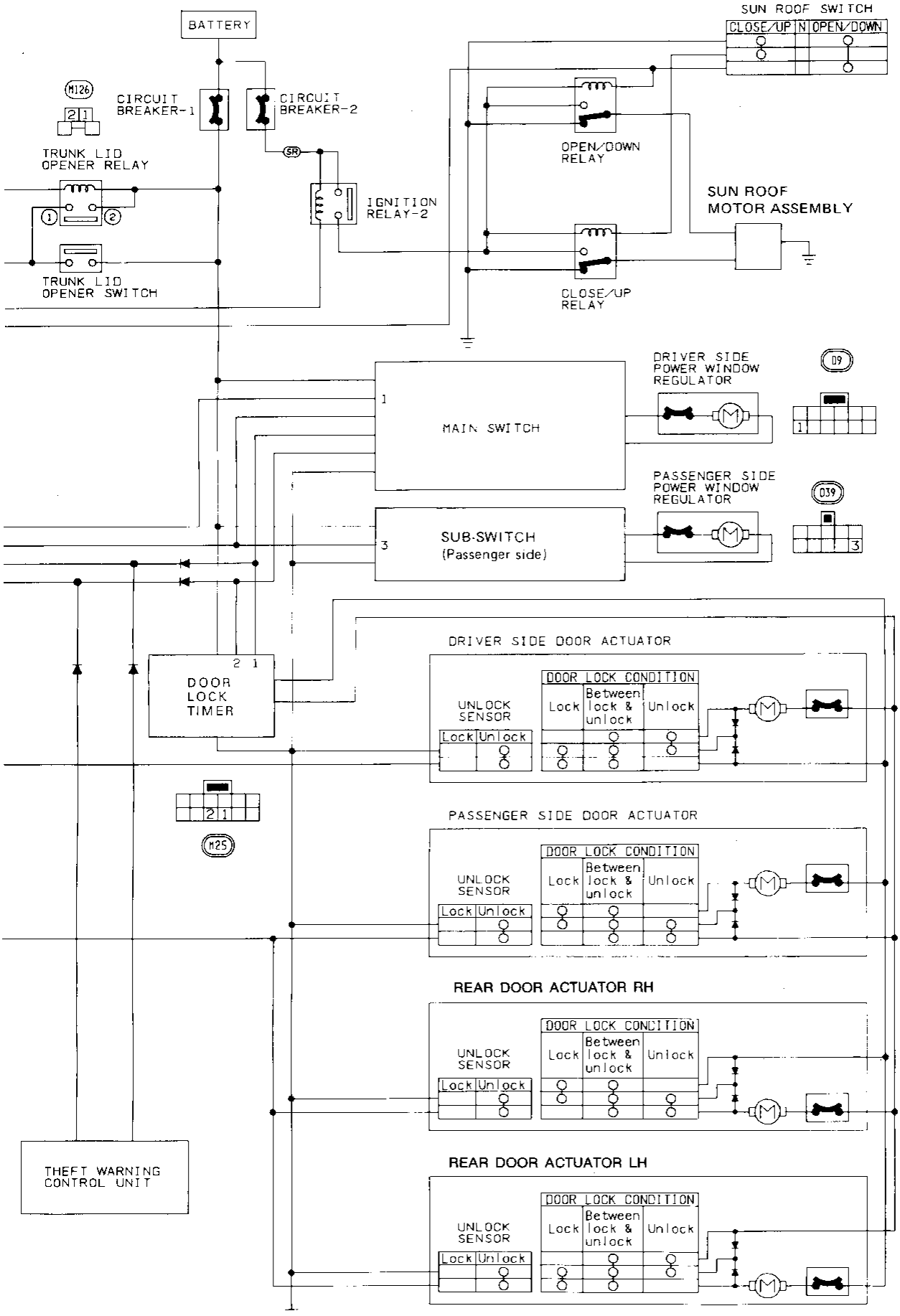
Check for continuity between digital touch entry control unit harness connector terminal ⑯ and body.

Trouble Diagnoses (Cont'd)

CIRCUIT DIAGRAM FOR QUICK PINPOINT CHECK



Trouble Diagnoses (Cont'd)



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Trouble Diagnoses (Cont'd)

SYMPTOM CHART

PROCEDURE	Preliminary Check					Main Power Supply and Ground Circuit Check		Diagnostic Procedure														Electrical Components Inspection			
REFERENCE PAGE	EL-150	EL-150	EL-150	EL-151	EL-151	EL-151	EL-151	EL-155	EL-156	EL-157	EL-158	EL-158	EL-159	EL-159	EL-160	EL-161	EL-161	EL-162	EL-162	EL-163	EL-163	EL-164	EL-164	EL-164	EL-165
SYMPTOM	Preliminary check 1	Preliminary check 2	Preliminary check 3	Preliminary check 4	Preliminary check 5	Power supply circuit	Ground circuit	Diagnostic procedure 1	Diagnostic procedure 2	Diagnostic procedure 3	Diagnostic procedure 4	Diagnostic procedure 5	Diagnostic procedure 6	Diagnostic procedure 7	Diagnostic procedure 8	Diagnostic procedure 9	Diagnostic procedure 10	Diagnostic procedure 11	Diagnostic procedure 12	Diagnostic procedure 13	Diagnostic procedure 14	Key board	Beeper	Key switch	Door switch
When key pad is pressed, it does not beep and light does not glow.						○	○	○														○	○		
When key pad is pressed, it beeps but light does not glow.						○			○													○			
When key pad is pressed, it does not beep but light glows.							○			○												○	○		
When a fixed number is entered, a long beep is not heard.	○										○											○	○		
After a fixed number has been entered, registration sound (repeated beeps) is not heard even if code number entered.	○											○													
Both door lock and unlock functions do not work with key pad operation.	①	②											○												
Doors do not lock when key pad (LCK 9 0) is pressed.	①	②													○									○	○
Doors do not unlock when code number is entered.	①	②														○									
Driver side window does not open with key pad operation.	①		②														○								
Passenger side window does not open with key pad operation.	①		②															○							
Sun roof does not open with key pad operation	①			②															○						
Trunk lid does not open with key pad operation.	①				②															○					
Door locks if key pad (LCK 9 0) is pressed when key is inserted in steering lock.																					○			○	
Door locks if key pad (LCK 9 0) is pressed when door left ajar.														○											○

①, ②: The number means checking order.

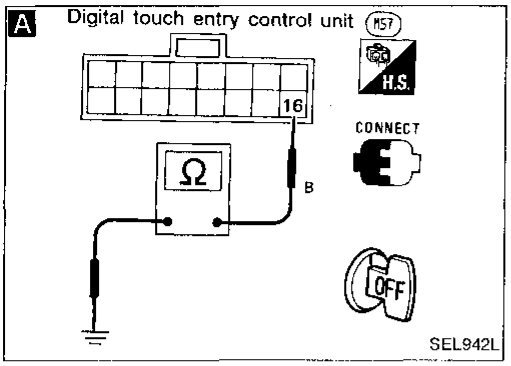
Trouble Diagnoses (Cont'd)

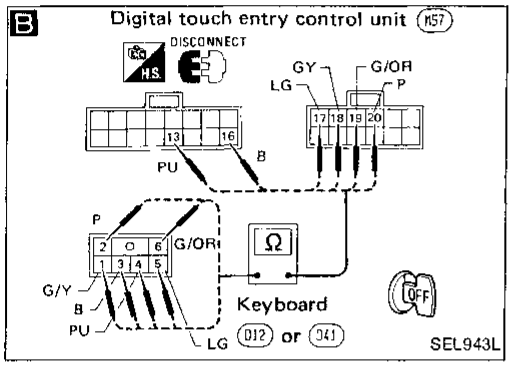
DIAGNOSTIC PROCEDURE

Diagnostic procedure 1

SYMPTOM: When key pad is pressed, it does not beep and light does not glow.

Perform Main power supply circuit and Ground circuit check before referring to the following flow chart.





A

Key board check

Check for continuity between terminals No. ⑯ and ⑰, ⑱, ⑲ and ⑳.

Pushed keypad	One terminal	Other terminals ⑰	⑱	⑲	⑳
(C ST)	⑯	○			○
(TRK 1 2)			○		○
3 4				○	○
WDW 5 6		○	○		
7 8			○	○	
(LCK 9 0)		○		○	

NG → B

OK → Perform Diagnostic procedure 2 and 3.

B

Check circuit continuity between each terminal on keyboard and control unit.

Terminal No. Keyboard	Control unit	Continuity
①	⑱	Yes
②	⑳	
③	⑯	
④	⑬	
⑤	⑰	
⑥	⑲	

OK → Check keyboard. (Refer to Electrical Components Inspection.) (EL-164)

NG → Replace keyboard.

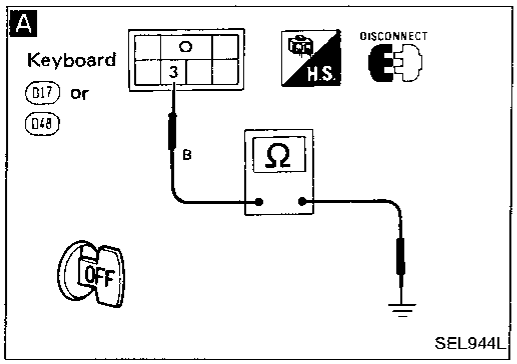
NG → Repair harness and connector.

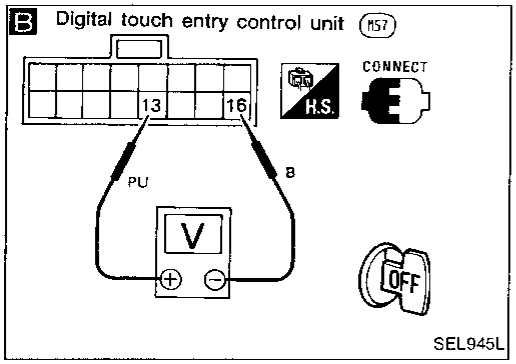
Trouble Diagnoses (Cont'd)

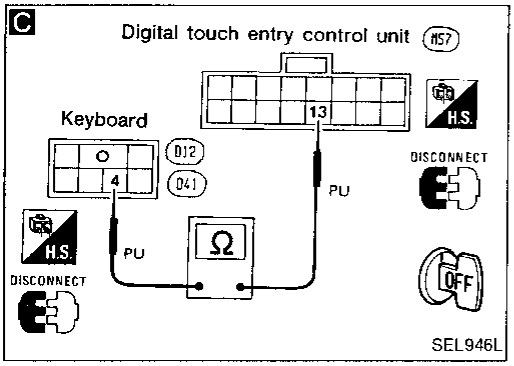
Diagnostic procedure 2

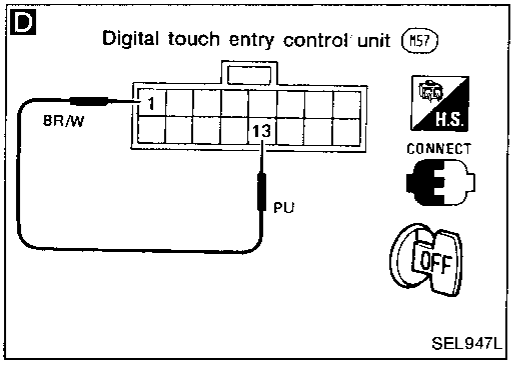
SYMPTOM: When key pad is pressed, it beeps but light does not glow.

- Perform Main power supply circuit check before referring to the following flow chart.









A

Key pad illumination ground circuit check

Check for continuity between terminal No. ③ and body.

NG → Repair harness and connector.

OK ↓

B

Illumination power supply circuit check

Check if voltage across terminals No. ⑬ and ⑯ is more than 6V when key pad is pressed.

NG → C

C

Check circuit continuity between each terminal on keyboard and control unit.

Terminal No.		Continuity
Keyboard	Control unit	
④	⑬	Yes

Repair harness and connector.

OK ↓

D

LED check

Connect terminals No. ⑬ and ① to see if light glows.

NG → Replace keyboard.

OK ↓

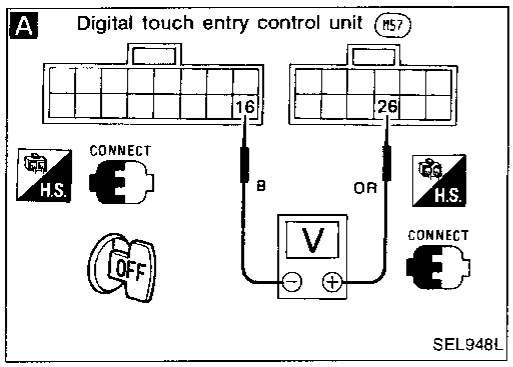
Replace control unit.

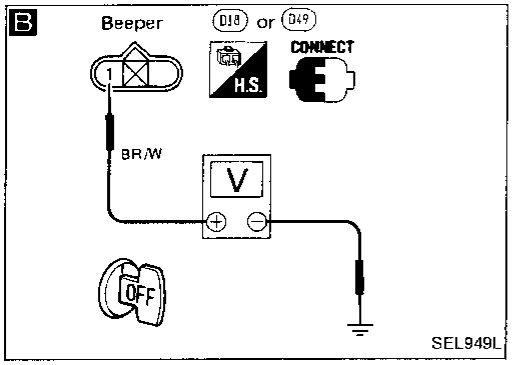
Trouble Diagnoses (Cont'd)

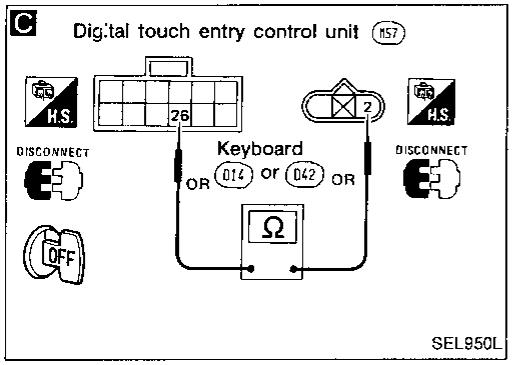
Diagnostic procedure 3

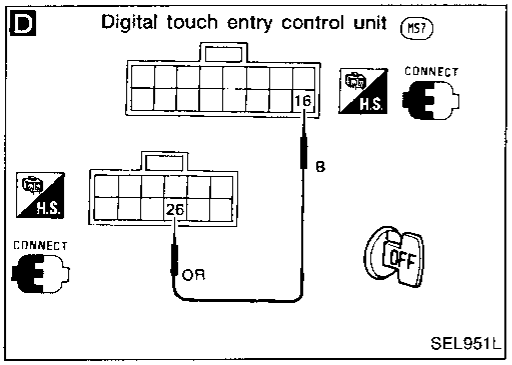
SYMPTOM: When key pad is pressed, it does not beep but light glows.

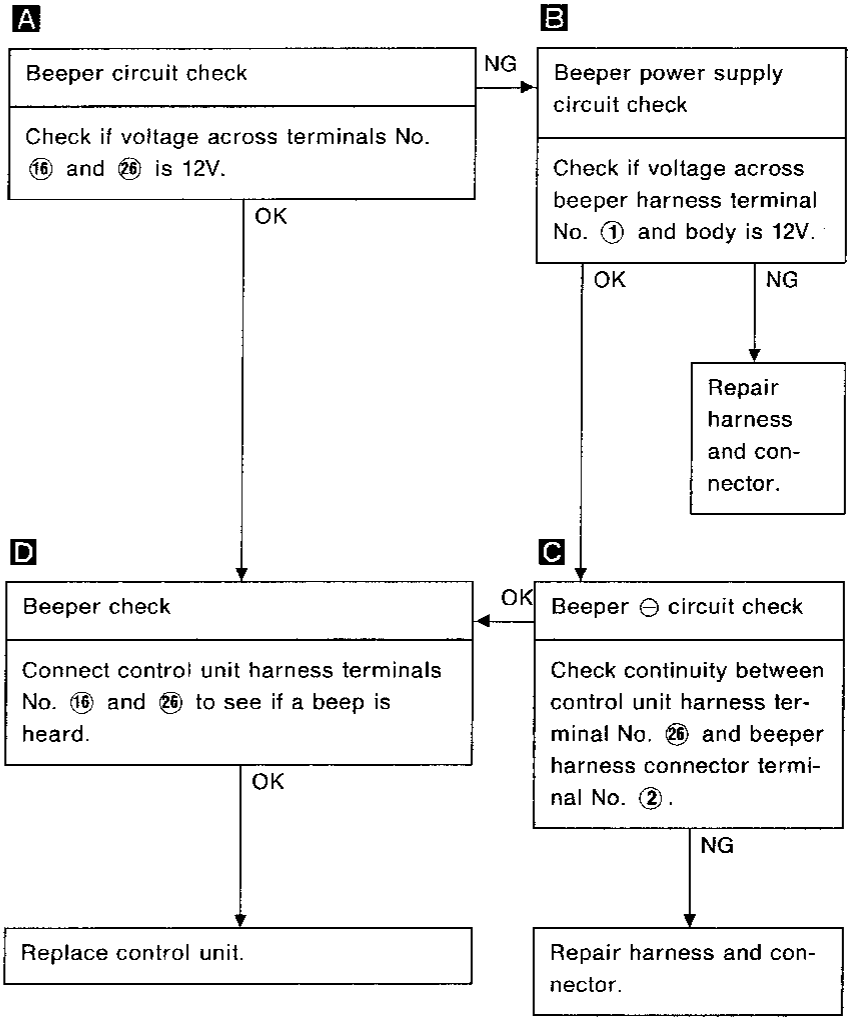
- Perform Ground circuit check before referring to the following flow chart.









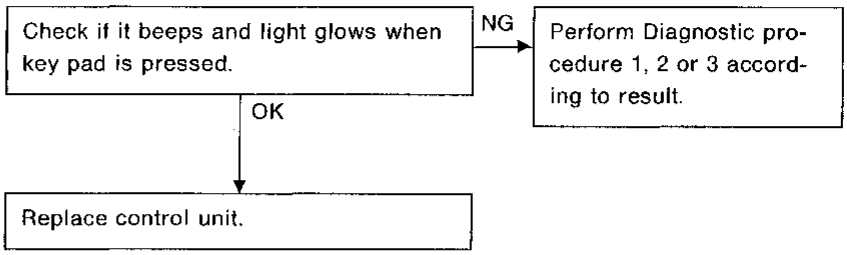


Trouble Diagnoses (Cont'd)

Diagnostic procedure 4

SYMPTOM: When a fixed number is entered, a long beep is not heard.

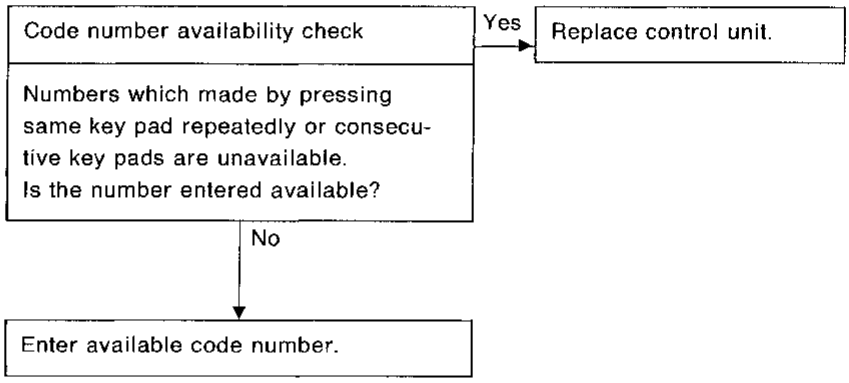
- Perform Preliminary check 1 before referring to the following flow chart.



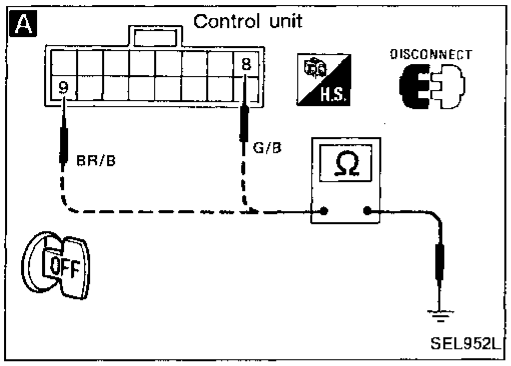
Diagnostic procedure 5

SYMPTOM: After a fixed number has been entered, registration sound (repeated beeps) is not heard even if code number is entered.

- Perform Preliminary check 1 before referring to the following flow chart.



Trouble Diagnoses (Cont'd)



Diagnostic procedure 6

SYMPTOM: Both door lock and unlock functions do not work with key pad operation.

Perform Preliminary check 1 and 2 before referring to the following flow chart.

A

Unlock sensor circuit check

Check continuity between control unit harness terminal No. ⑧ or ⑨, and body.

Terminal No. (8) and body

	Assist side	Rear		Continuity
		LH	RH	
Door lock condition	Lock	Lock	Lock	No
	Unlock	Lock	Lock	Yes
	Lock	Unlock	Lock	
	Lock	Lock	Unlock	

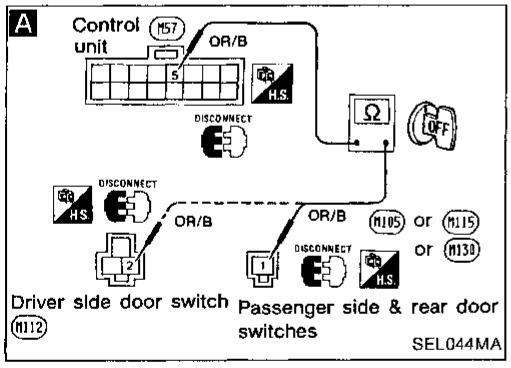
Terminal No. (9) and body

	Driver side	Continuity
Door lock condition	Lock	No
	Unlock	Yes

NG → Repair harness and connector between control unit and each door lock actuator.

OK ↓

Perform Diagnostic procedure 7 and 8.



Diagnostic procedure 7

SYMPTOM: Door locks if key pad (LCK 9 0) is pressed when door is left ajar.

A

Check door switches.
(Refer to Electrical Components Inspection.) (EL-165)

NG → Replace door switch(es).

OK ↓

Door switch circuit check

Check continuity between each terminal on door switch and control unit.

NG → Repair harness and connector.

OK ↓

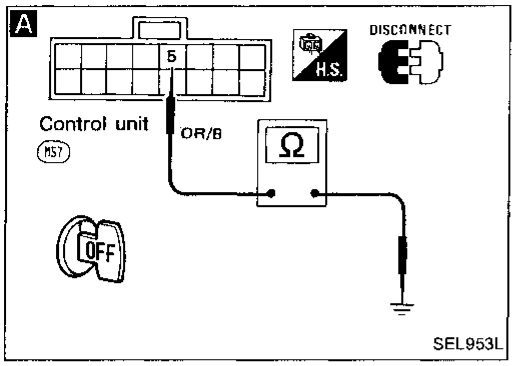
Replace control unit.

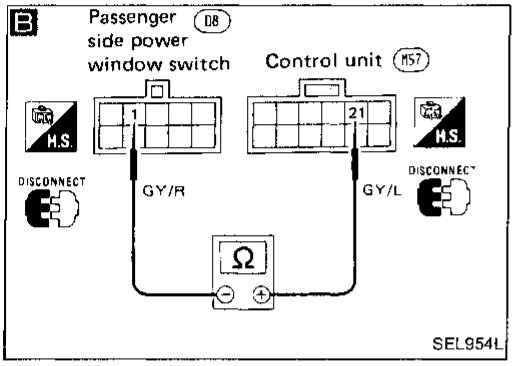
Trouble Diagnoses (Cont'd)

Diagnostic procedure 8

SYMPTOM: Doors do not lock when key pad (LCK 9 0) is pressed.

- Perform Preliminary check 1 and 2 before referring to the following flow chart.





A

Door switch circuit check

Check continuity between control unit harness terminal No. ⑤ and body.

	Driver door	Assist door	Rear door LH	Rear door RH	Continuity
Door condition	Open	Open	Open	Open	No
	Close	Open	Open	Open	Yes
	Open	Close	Open	Open	
	Open	Open	Close	Open	
	Open	Open	Open	Close	

NG → Repair harness and connector between control unit and each door switch.

OK ↓

B

Lock signal circuit continuity check

Check continuity between control unit harness terminal No. ㉑ and passenger side power window switch harness terminal No. ①.

NG → Repair harness and connector.

OK ↓

Check door switches.
Refer to "Electrical Components Inspection" (EL-165).

NG → Replace door switch(es).

OK ↓

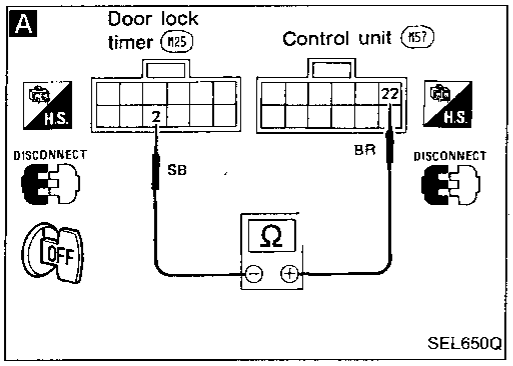
Check key in switch.
Refer to "Electrical Components Inspection" (EL-164).

NG → Replace key switch.

OK ↓

Replace control unit.

Trouble Diagnoses (Cont'd)



Diagnostic procedure 9

SYMPTOM: Doors do not unlock when code number is entered.

- Perform Preliminary check 1 and 2 before referring to the following flow chart.

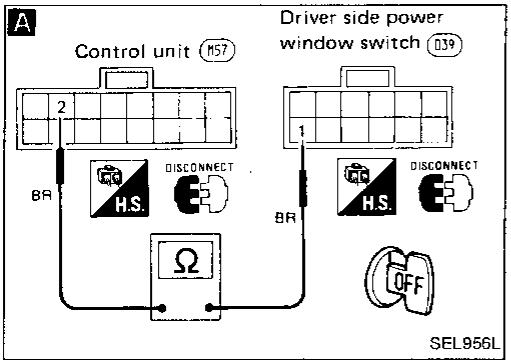
A

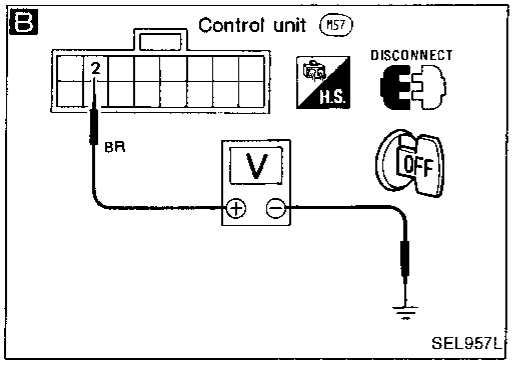
Unlock signal circuit continuity check → NG → Repair harness and connector.

Check continuity between control unit harness terminal No. (22) and door lock timer harness terminal No. (2).

↓ OK

Replace control unit.





Diagnostic procedure 10

SYMPTOM: Driver side window does not open with key pad operation.

- Perform Preliminary check 1 and 3 before referring to the following flow chart.

A

Driver side window open signal circuit continuity check → NG → Repair harness and connector.

Check continuity between control unit harness terminal No. (2) and driver side power window switch harness terminal No. (1).

↓ OK

B

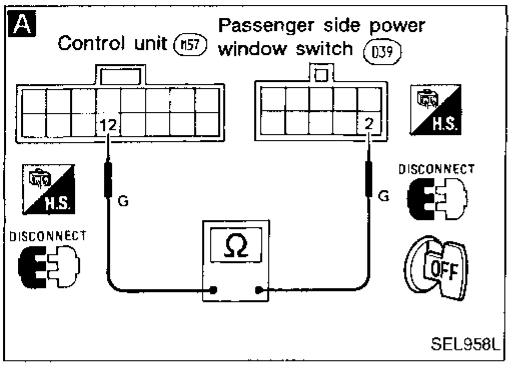
Driver side power window switch circuit check → NG → Replace driver side power window switch.

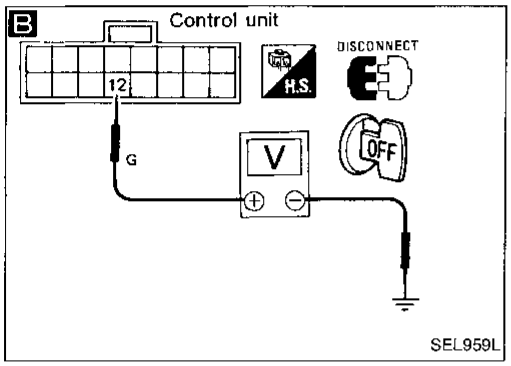
Check if voltage across control unit harness terminal No. (2) and body.

↓ OK

Replace control unit.

Trouble Diagnoses (Cont'd)





Diagnostic procedure 11

SYMPTOM: Passenger side window does not open with key pad operation.

- Perform Preliminary check 1 and 3 before referring to the following flow chart.

A

Passenger side window open signal circuit continuity check	NG	Repair harness and connector.
Check continuity between control unit harness terminal No. ⑫ and passenger side power window switch harness terminal No. ③.		

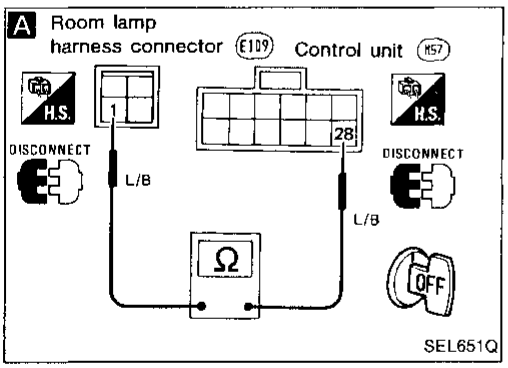
OK

B

Passenger side power window switch circuit check	NG	Replace passenger side power window switch.
Check if voltage across control unit harness terminal No. ⑫ and body is 12V.		

OK

Replace control unit.



Diagnostic procedure 12

SYMPTOM: Sun roof does not open with key pad operation.

- Perform Preliminary check 1 and 4 before referring to the following flow chart.

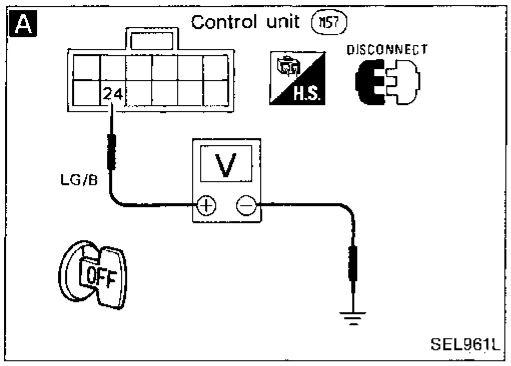
A

Sun roof open signal circuit continuity check	NG	Repair harness and connector.
Check continuity between control unit harness terminal No. ㉘ and room lamp harness terminal No. ①.		

OK

Replace control unit.

Trouble Diagnoses (Cont'd)



Diagnostic procedure 13

SYMPTOM: Trunk lid does not open with key pad operation.

- Perform Preliminary check 1 and 5 before referring to the following flow chart.

Check trunk lid opener relay. → NG → Replace relay.

OK ↓

A

Trunk lid opener signal circuit check → NG → Repair harness and connector.

Check if voltage across control unit harness terminal No. ㉔ and body is 12V.

OK ↓

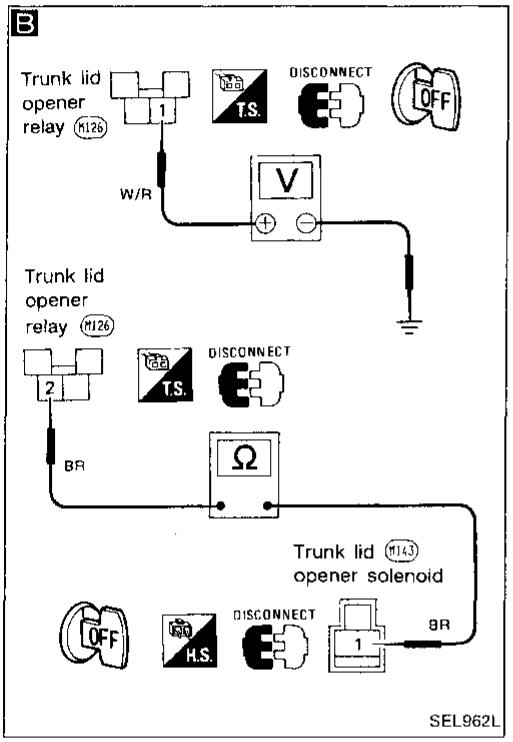
B

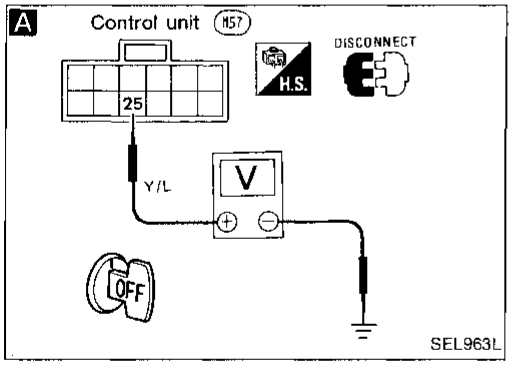
Trunk lid opener relay circuit continuity check → NG → Repair harness and connector.

Check if voltage across trunk lid opener relay harness terminal No. ① and body is 12V.
And check continuity between trunk lid opener relay terminal No. ② and trunk lid opener solenoid harness terminal No. ①.

OK ↓

Replace control unit.





Diagnostic procedure 14

SYMPTOM: Door locks if key pad (LCK 9 0) is pressed when key is inserted in steering lock.

A

Key switch circuit check → NG → B Harness check

Check if 12V exists across control unit harness terminal No. ㉕ and body, when key is inserted in key cylinder. And it becomes 0V, when key is removed from key cylinder.

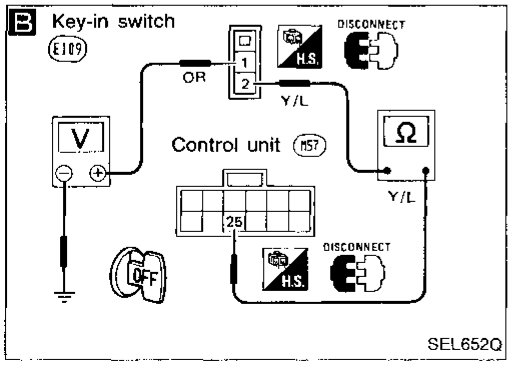
Check if 12V exists across key-in switch harness terminal No. ① and body. And check continuity between key switch harness terminal No. ② and control unit harness terminal No. ㉕.

OK ↓

Replace control unit.

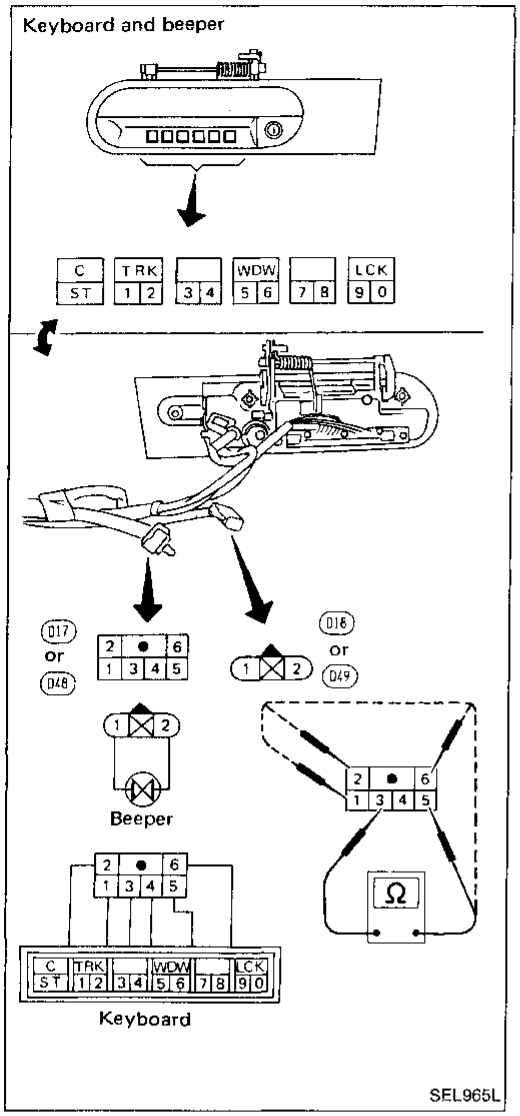
OK → Replace key switch.

NG → Repair harness and connector.



Trouble Diagnoses (Cont'd)

ELECTRICAL COMPONENTS INSPECTION



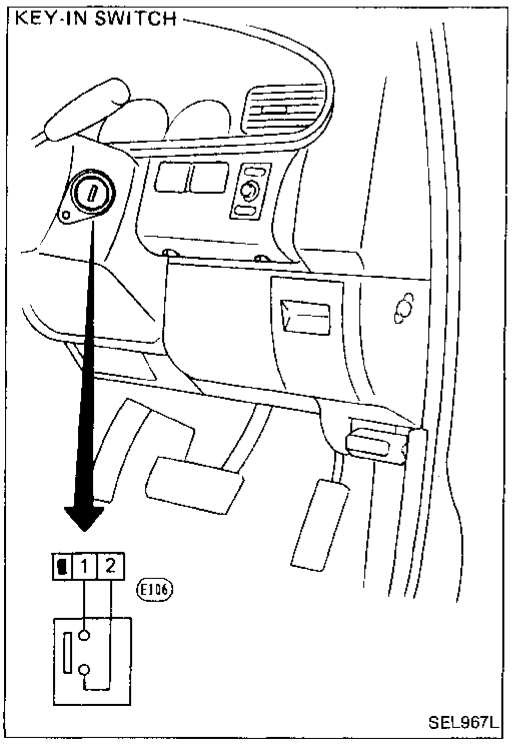
Keyboard

Check continuity between terminals by pushing each key pad.

Pushed keypad	One terminal	Other terminals			
		⑤	①	⑥	②
C ST	③	○			○
TRK 1 2			○		○
3 4				○	○
WDW 5 6		○	○		
7 8			○	○	
LCK 9 0		○		○	

Beeper

Check if it beeps when 12V is supplied.

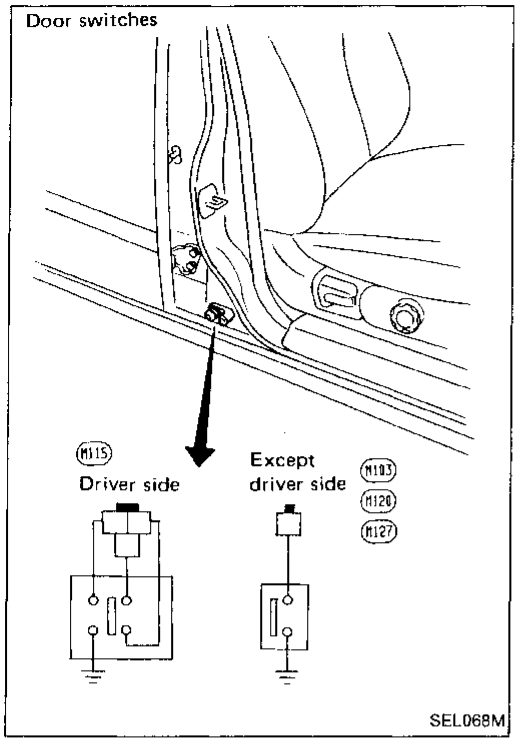


Key switch

Check continuity between terminals when key is inserted in, and removed from key cylinder.

KEY	INSERT	DRAW
1	○	
2	○	

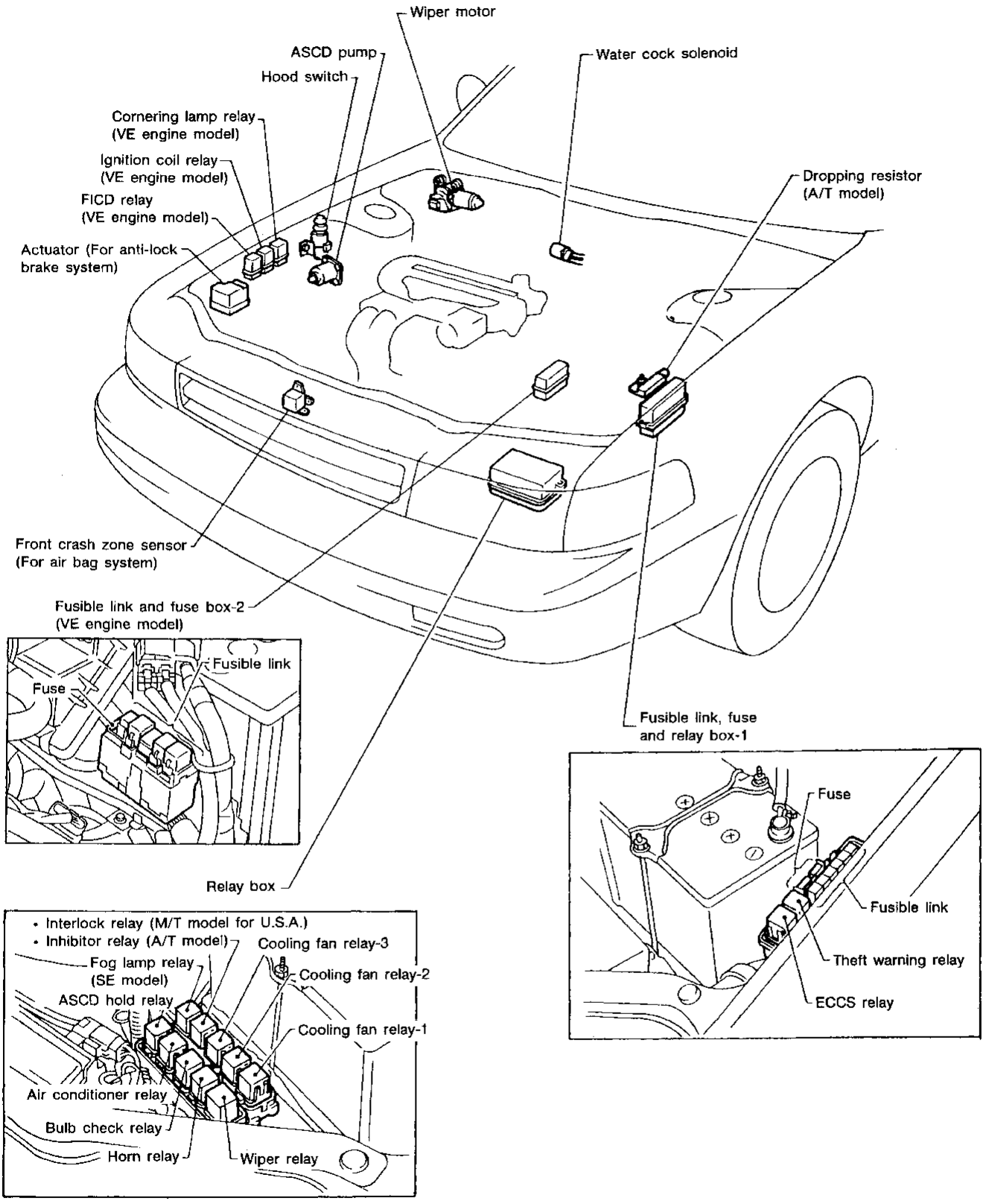
Trouble Diagnoses (Cont'd)



Door switches

Check continuity between terminal and switch body.

Engine Compartment



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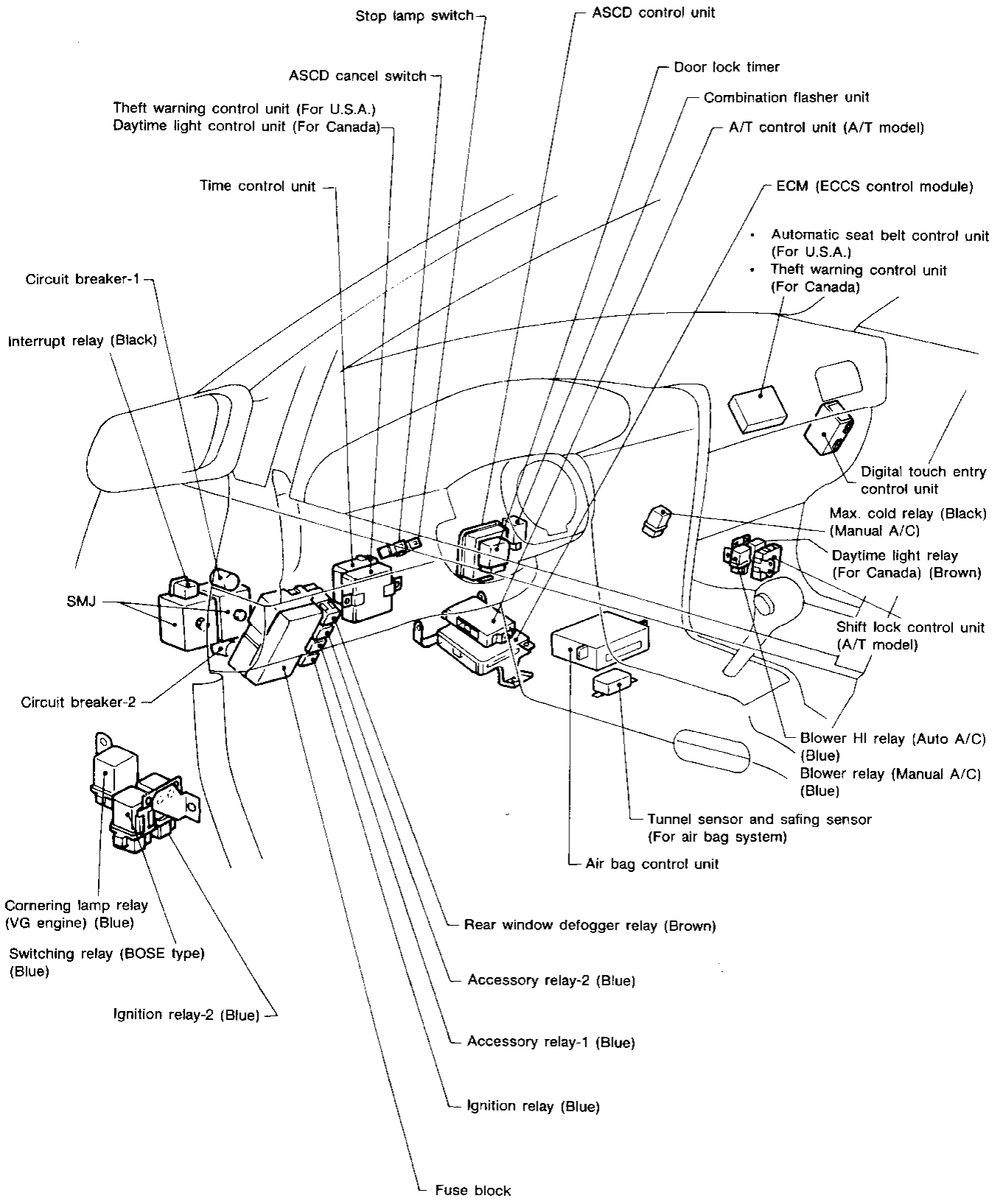
Passenger Compartment



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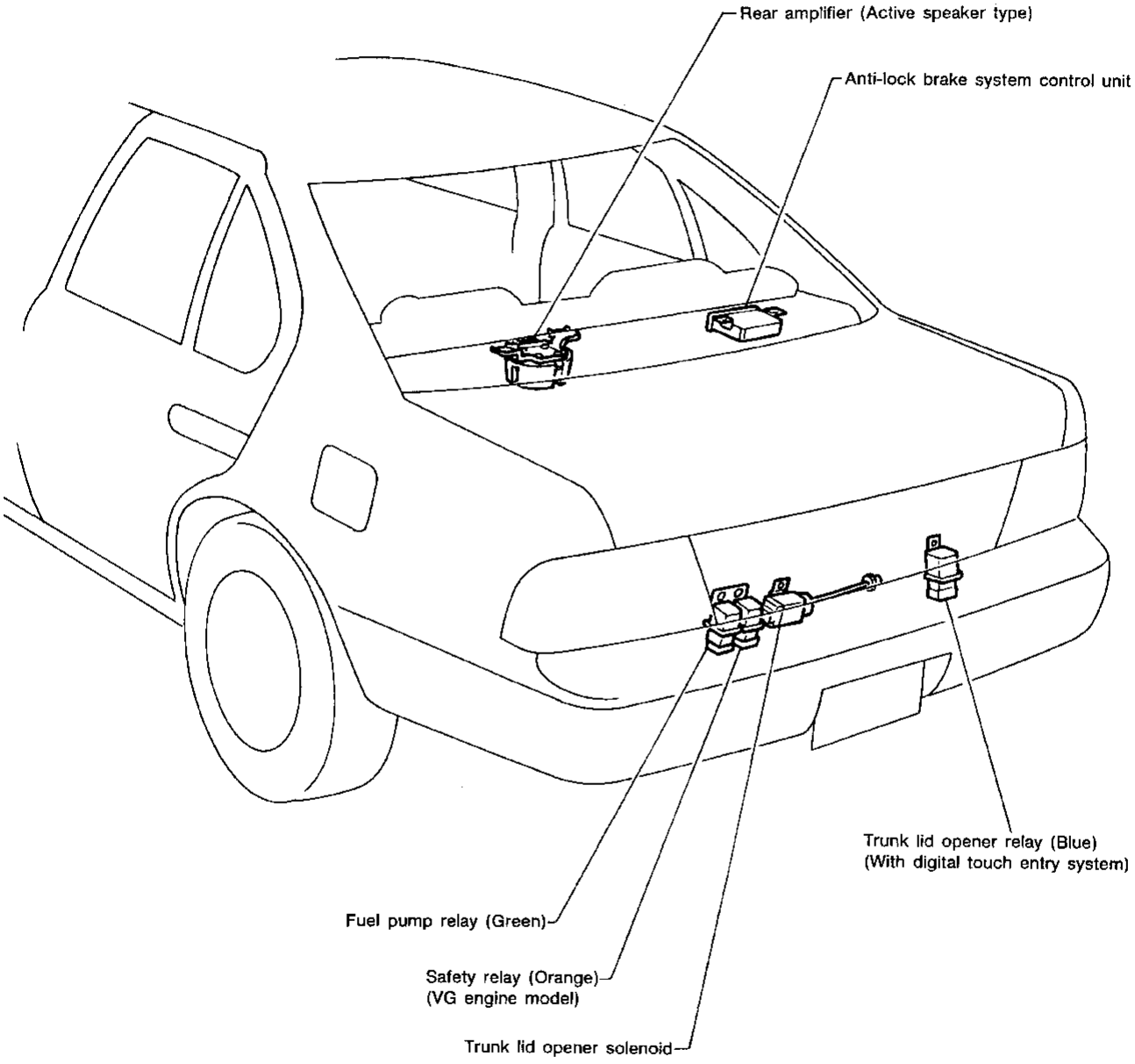
Luggage Compartment



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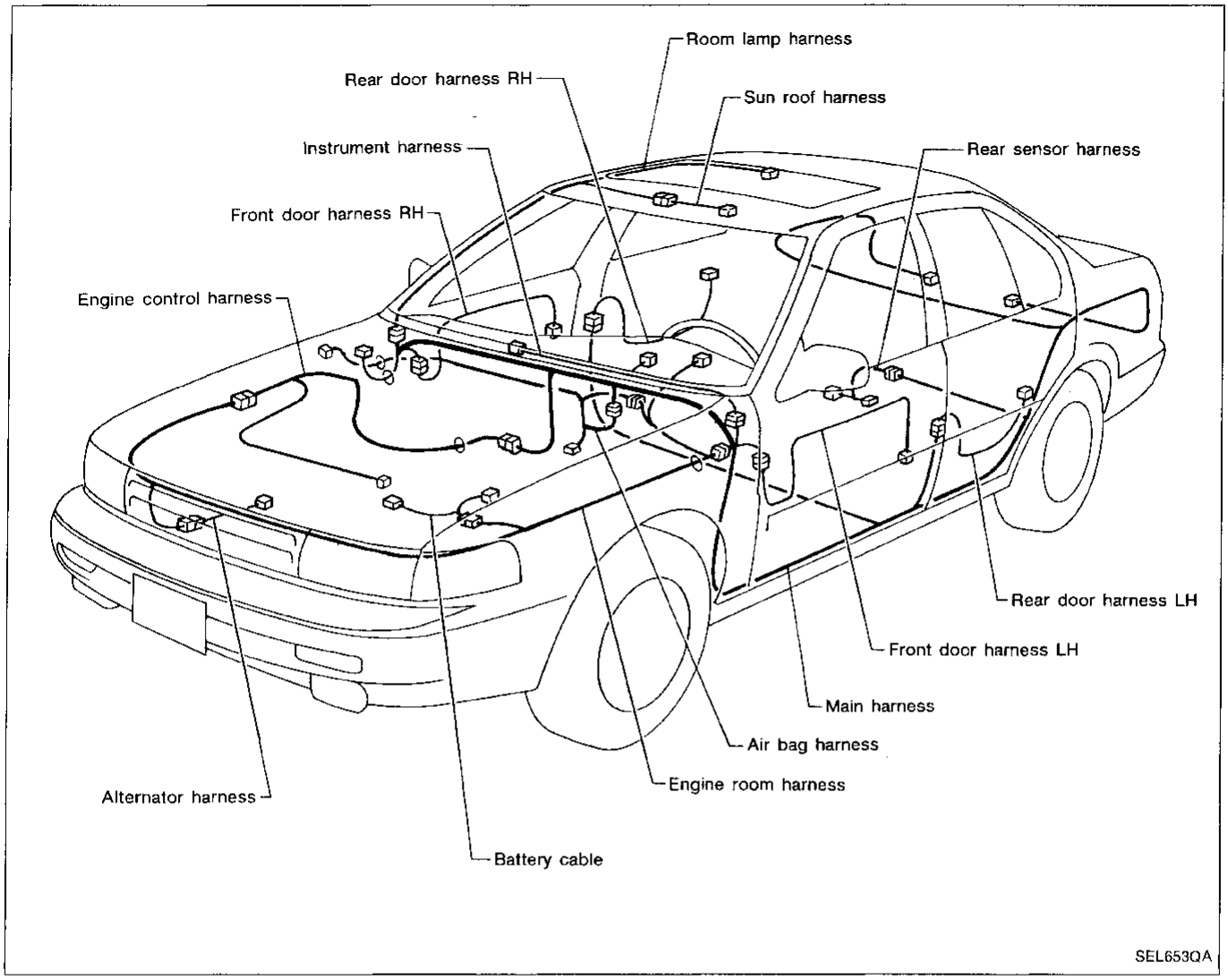
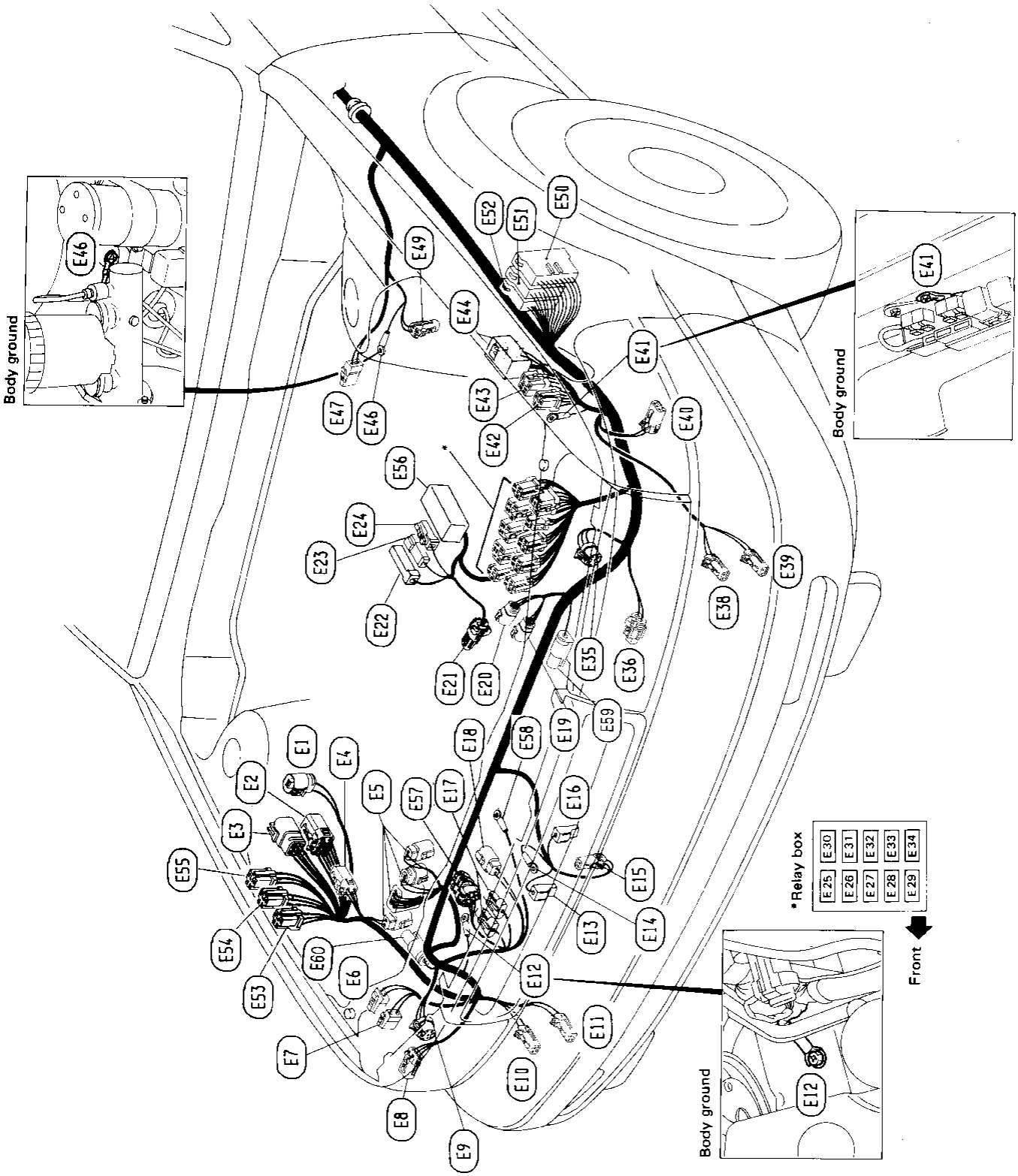
Outline


Room lamp harness
Rear door harness RH
Sun roof harness
Instrument harness
Rear sensor harness
Front door harness RH
Engine control harness
Rear door harness LH
Front door harness LH
Main harness
Air bag harness
Engine room harness
Alternator harness
Battery cable
SEL653QA

Engine Room Harness

ENGINE COMPARTMENT



Engine Room Harness (Cont'd)

E1 : Hood switch
E2 : To (F1)
E3 : To (F2)
E4 : ASCD pump
E5 : Actuator (For anti-lock brake system)
E6 : Washer sensor
E7 : Washer motor
E8 : Front combination lamp RH
E9 : Headlamp RH
E10 : Front turn signal lamp RH
E11 : Front fog lamp RH (SE model)
E12 : Body ground
E13 : Horn RH
E14 : Horn ground
E15 : Ambient sensor (Auto A/C)
E16 : Horn LH
E17 : To alternator harness (VG engine model)
E18 : Alternator (VG engine model)
E19 : Cooling fan motor-1
E20 : Cooling fan motor-2
E21 : To battery cable
E22 : Battery (VE engine model)
E23 : Fusible link (VG engine model)
E24 : Battery
E25 : ASCD hold relay
E26 : Air conditioner relay
E27 : Bulb check relay
E28 : Horn relay
E29 : Wiper relay
E30 : Fog lamp relay (SE model)
E31 : Inhibitor relay (A/T model)
Interlock relay (M/T model for U.S.A.)
E32 : Cooling fan relay-3
E33 : Cooling fan relay-2
E34 : Cooling fan relay-1
E35 : Headlamp LH
E36 : Dual-pressure switch
E38 : Front turn signal lamp LH
E39 : Front fog lamp LH (SE model)
E40 : Front combination lamp LH
E41 : Body ground
E42 : ECCS relay
E43 : Theft warning relay
E44 : Fusible link box-1
E46 : Body ground (For anti-lock brake system)
E47 : Brake fluid level switch
E49 : Front sensor LH
(For anti-lock brake system)
E50 : Joint connector-1
E51 : Joint connector-2
E52 : Joint connector-3
E53 : FICD relay
E54 : Ignition coil relay
E55 : Cornering lamp relay
E56 : Fusible link box-2
E57 : To alternator harness (VE engine model)
E58 : Alternator
E59 : Check connector
(For tacho tester)
E60 : Check connector
(For timing light)

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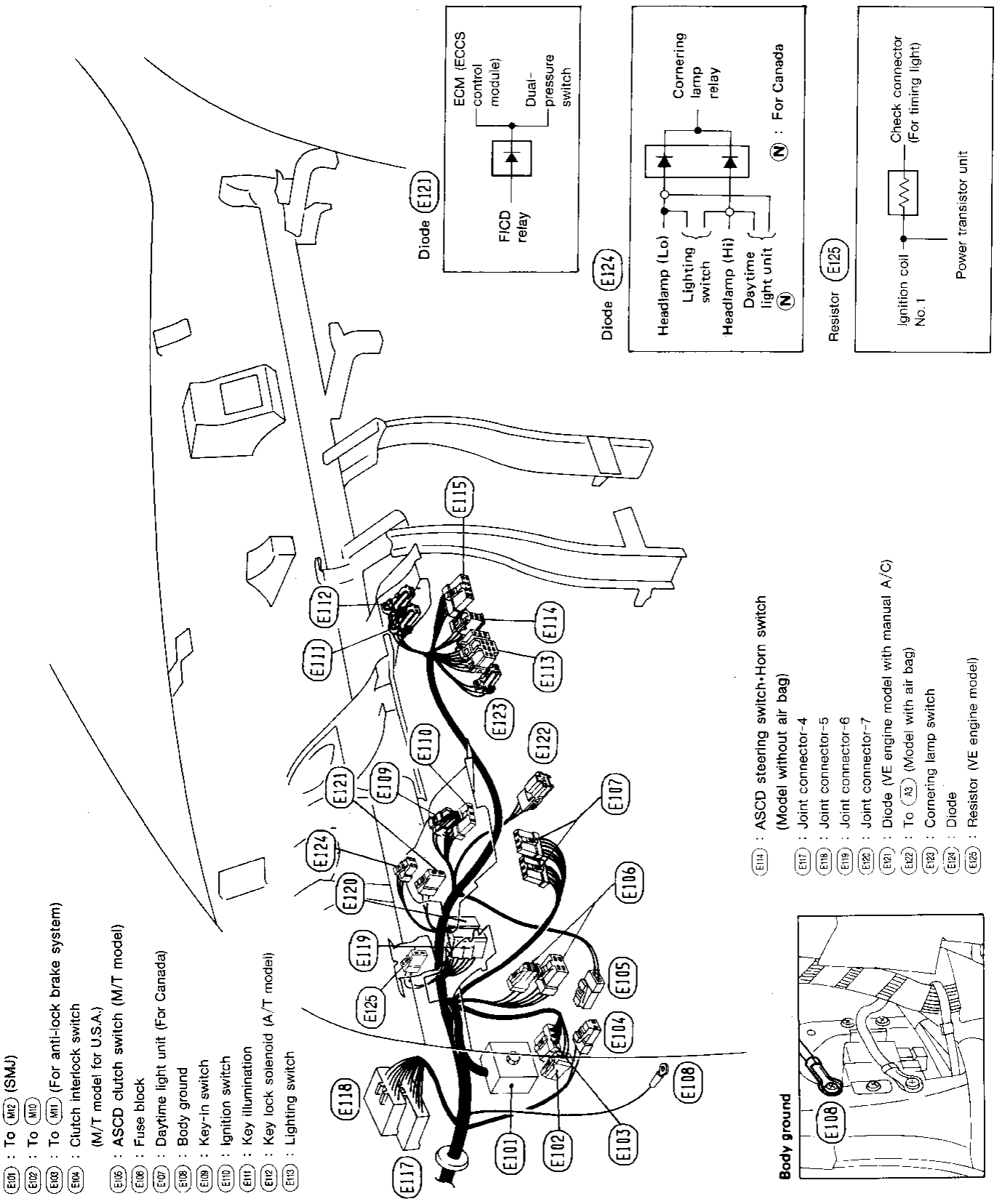
Engine Room Harness (Cont'd)

PASSENGER COMPARTMENT



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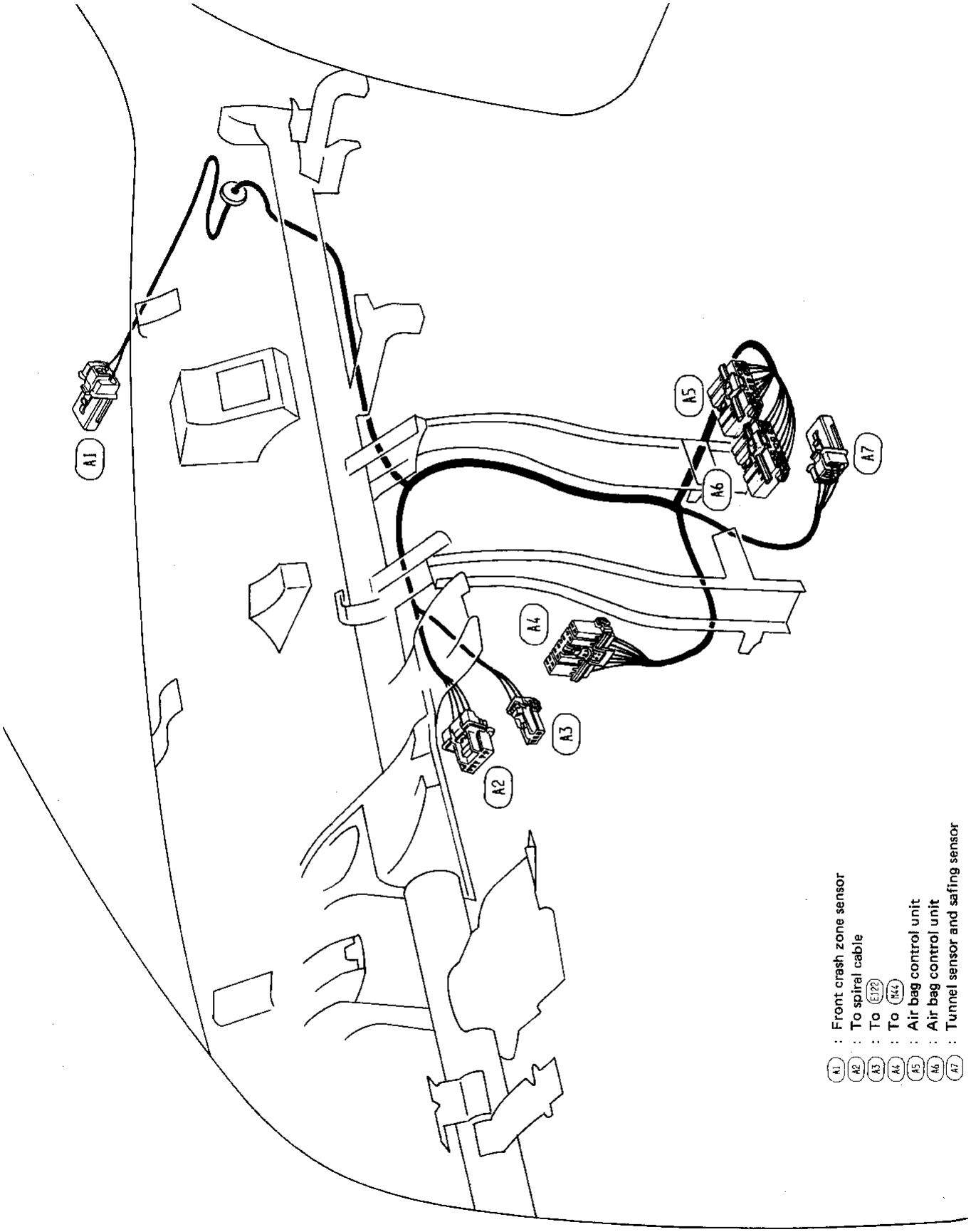
Air Bag Harness



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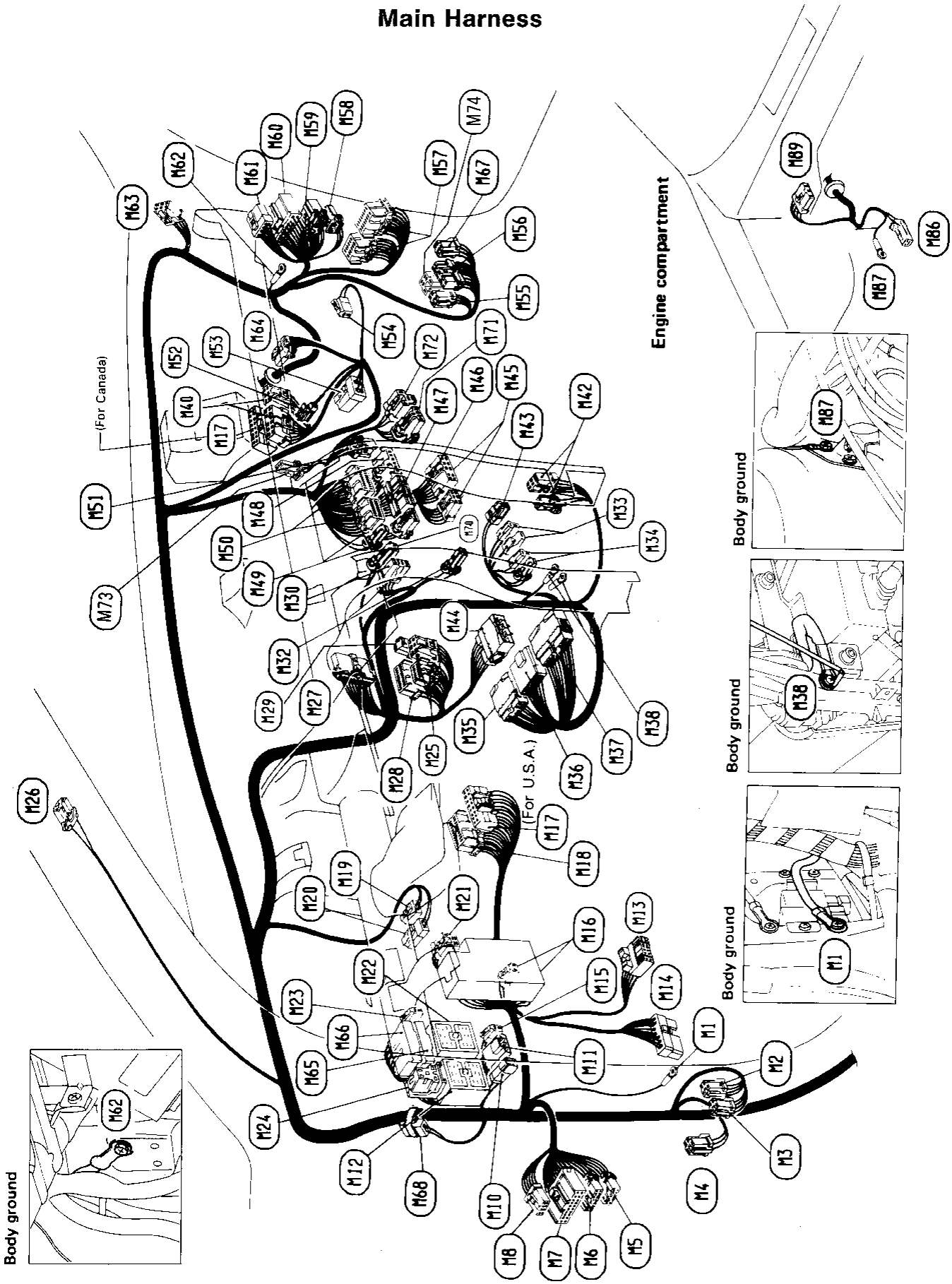
Main Harness

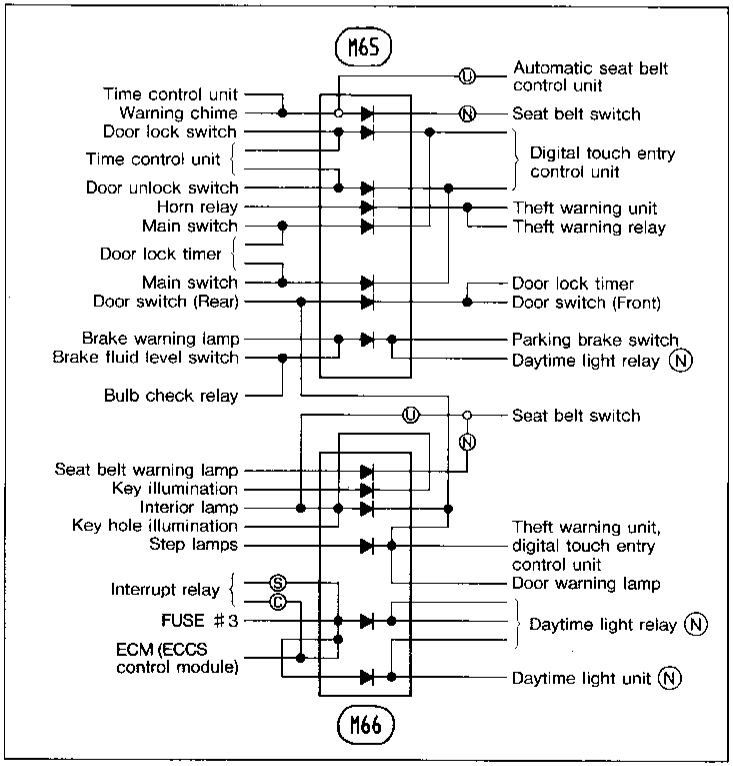


(M1) : Body ground
(M2) : Ignition relay-2
(M3) : Switching relay (BOSE type)
(M4) : Cornering lamp relay (VG engine)
(M5) : To (D4) (Without digital touch entry system)
(M6) : To (D3) (With digital touch entry system)
(M7) : To (D2)
(M8) : To (D1)
(M10) : To (E102)
(M11) : To (E103) (For anti-lock braking system)
(M12) : To (E101) (SMJ)
(M13) : Data link connector for CONSULT
(M14) : Check connector (VG engine model)
(M15) : Circuit breaker-2
(M16) : Fuse block
(M17) : Theft warning control unit
(M18) : Time control unit
(M19) : Stop lamp switch
(M20) : ASCD cancel switch
(M21) : Rear window defogger relay
(M22) : To (I1) (SMJ)
(M23) : Circuit breaker-1
(M24) : Interrupt relay
(M25) : Door lock timer
(M26) : Front limit switch LH (For U.S.A.)
(M27) : Mode door motor
(M28) : ASCD control unit
(M29) : Combination flasher unit
(M30) : Hazard switch
(M32) : In-vehicle sensor (Auto A/C)
(M33) : Cigarette lighter (For Canada)
(M34) : Cigarette lighter (For U.S.A.)
(M35) : To (F51) (A/T model)
(M36) : To (F52)
(M37) : To (F53)
(M38) : Body ground
(M40) : Automatic seat belt control unit (For U.S.A.)
(M42) : A/T mode switch (A/T model)
(M43) : Ash tray illumination
(M44) : To (A4) (Model with air bag)
(M45) : Radio
(M46) : Full cold switch and fresh vent control illumination (Manual A/C)
(M47) : Push control unit (Manual A/C)
(M48) : Fan switch (Manual A/C)
(M49) : Fresh vent control illumination (Auto A/C)
(M50) : Auto air conditioner amp. (Auto A/C)
(M51) : Air mix door motor (Auto A/C)
(M52) : Intake sensor (Auto A/C)
(M53) : Fan control amp. (Auto A/C)
Resistor (Manual A/C)
(M54) : Blower motor
(M55) : Blower HI relay (Auto A/C)
(M56) : Shift lock control unit (A/T model)
(M57) : Digital touch entry control unit (GXE model)
(M58) : To (O34) (With BOSE type speaker without digital touch entry system)
(M59) : To (O33) (With digital touch entry system)
(M60) : To (O32)
(M61) : To (O31)
(M62) : Body ground
(M63) : To (R1)
(M64) : Intake door motor
(M65) : Joint connector-8
(M66) : Joint connector-9
(M67) : Blower relay (Manual A/C)
(M68) : Diode
(M70) : Vent mode switch (Manual A/C)
(M71) : Maximum cold door motor (Manual A/C)
(M72) : Maximum cold relay (Manual A/C)
(M73) : Thermo control amplifier
(M74) : Daytime light relay (For Canada)

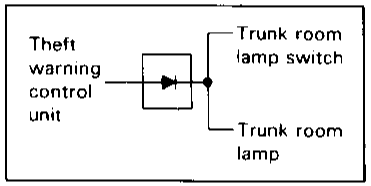
Engine compartment

(M86) : Front sensor RH (For anti-lock brake system)
(M87) : Body ground (For anti-lock brake system)
(M89) : Wiper motor

Diode (In joint connector-8 (M65), in joint connector-9 (M66))

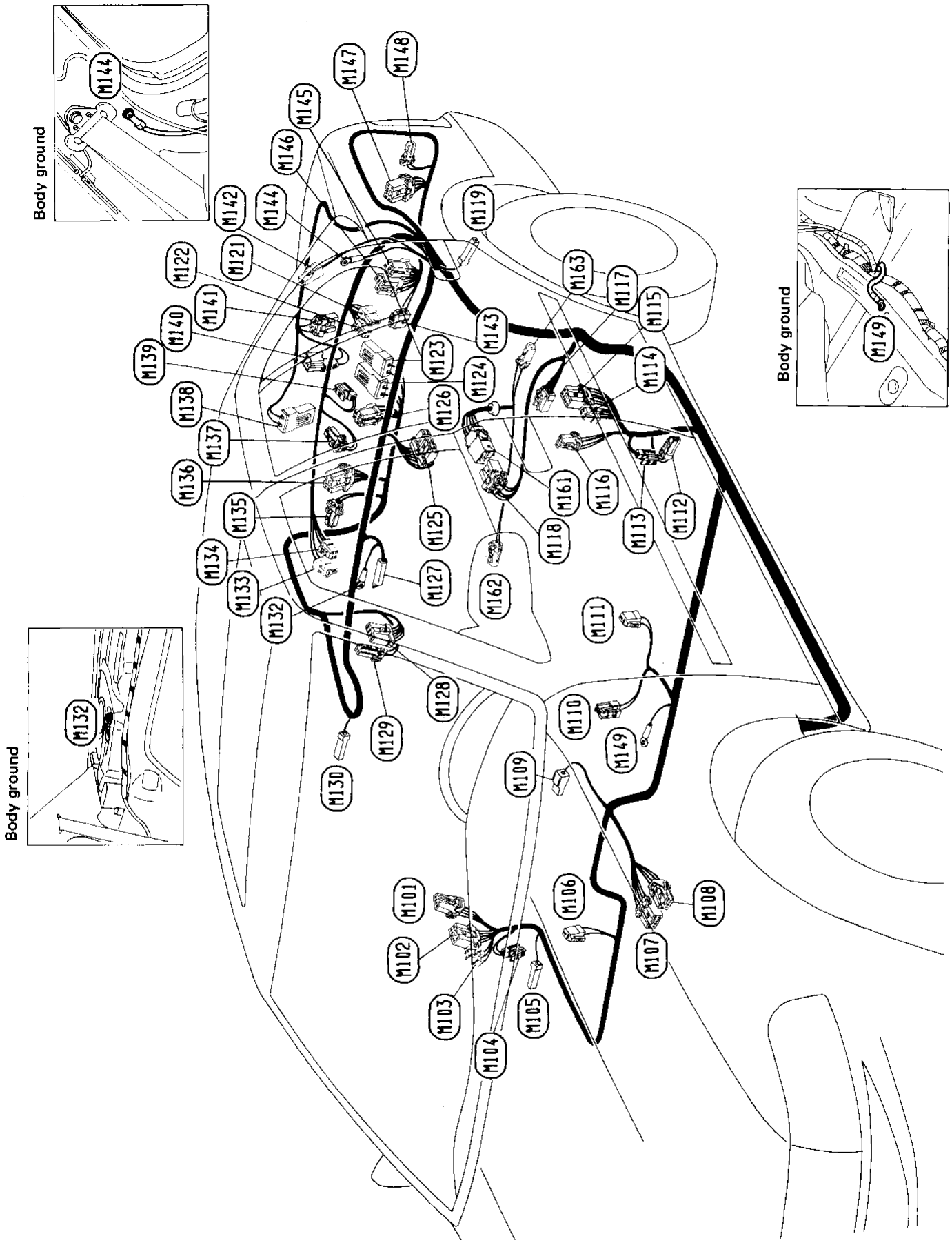


Diode (M68)



(U) : For U.S.A.
(N) : For Canada
(S) : M/T model for U.S.A.
(C) : M/T model for Canada

Main Harness (Cont'd)



(M101) : Rear limit switch and shoulder belt buckle switch RH (For U.S.A.)
(M102) : To (D72)
(M103) : To (D71)
(M104) : Drive motor RH (For U.S.A.)
(M105) : Front door switch RH
(M106) : To power seat harness RH
(M107) : Shift lock solenoid and detention switch (A/T model)
(M108) : Overdrive switch and A/T indicator illumination (A/T model)
(M109) : Parking brake switch
(M110) : Lap belt buckle switch (For U.S.A.)
Seat belt switch (For Canada)
(M111) : To power seat harness LH
(M112) : Front door switch LH
(M113) : Drive motor LH (For U.S.A.)
(M114) : To (D61)
(M115) : To (D62)
(M116) : Rear limit switch and shoulder belt buckle switch LH (For U.S.A.)
(M117) : Fuel tank gauge unit
(M118) : To (M16) (For anti-lock brake system)
(M119) : Rear door switch LH
(M121) : Rear speaker LH (Active speaker type)
(M122) : Rear speaker LH (BOSE type)
(M123) : License lamp LH
(M124) : License lamp RH
(M125) : Rear amplifier (Active speaker type)
(M126) : Trunk lid opener relay (With digital touch entry system)
(M127) : Anti-lock braking system control unit
(M128) : Power antenna timer
(M129) : Power antenna motor
(M130) : Rear door switch RH
(M132) : Body ground (For anti-lock brake system)
(M133) : Rear speaker RH (Active speaker type)
(M134) : Rear speaker RH (BOSE type)
(M135) : Rear side marker lamp RH
(M136) : Rear combination lamp RH
(M137) : High-mounted stop lamp (Without rear air spoiler)
(M138) : Trunk lid unlock switch
(M139) : Trunk room lamp
(M140) : High-mounted stop lamp (With rear air spoiler)
(M141) : Trunk room lamp switch
(M142) : Rear window defogger
(M143) : Trunk lid opener solenoid
(M144) : Body ground
(M145) : Fuel pump relay
(M146) : Safety relay (VG engine model)
(M147) : Rear combination lamp LH
(M148) : Rear side marker LH
(M149) : Body ground

Rear sensor harness (For anti-lock brake system)

(M161) : To (M118)
(M162) : Rear sensor RH
(M163) : Rear sensor LH

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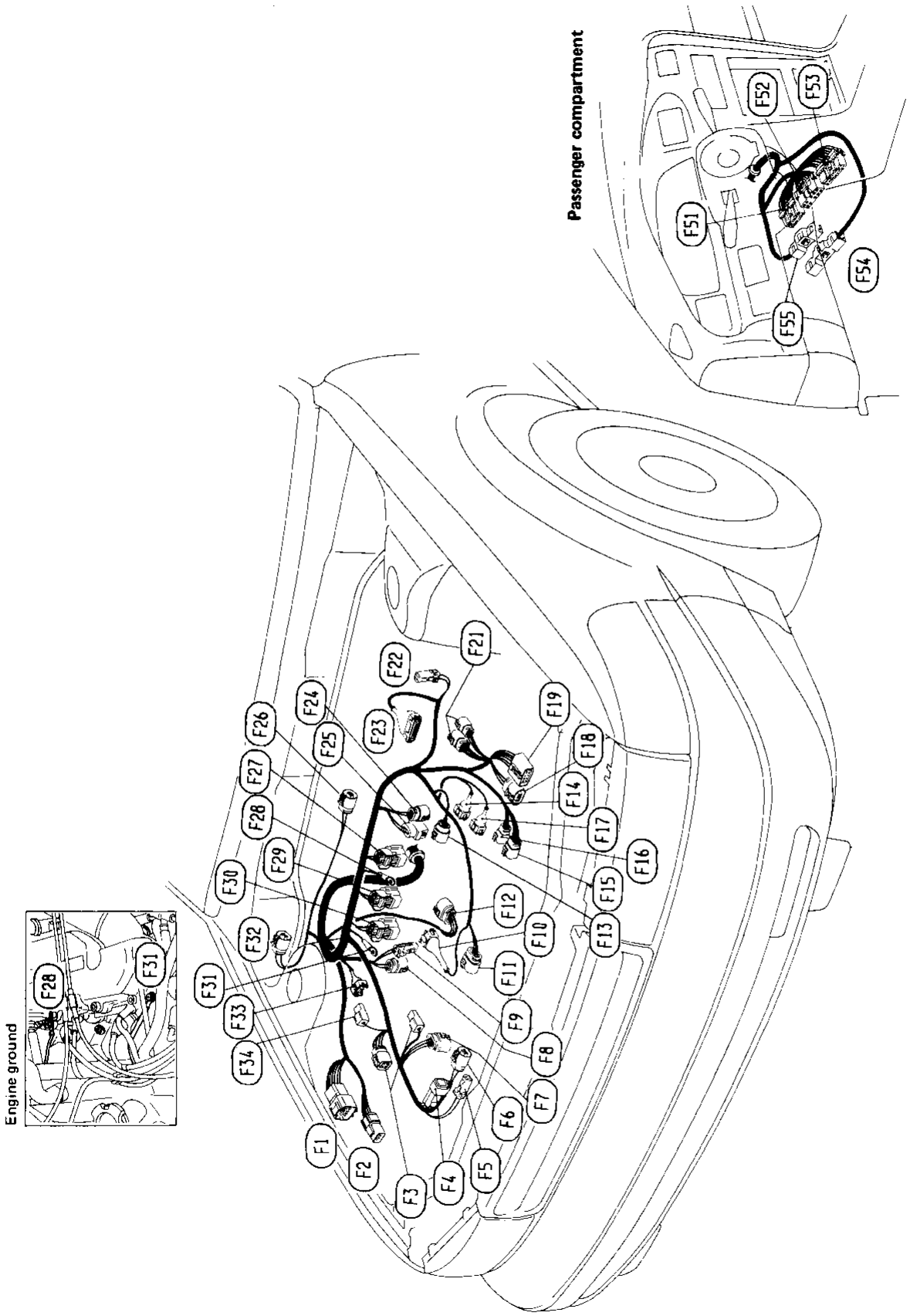
Engine Control Harness

VG ENGINE



F1 : To E2
F2 : To E3
F3 : Camshaft position sensor
F4 : Resistor and condenser
F5 : Compressor
F6 : Ignition coil
F7 : Power transistor
F8 : To knock sensor sub-harness
F9 : Not used
F10 : Throttle position switch
F11 : Throttle position sensor
F12 : Heated oxygen sensor
F13 : EGR temperature sensor (For California)
F14 : EGRC-solenoid valve
F15 : IACV-AAC valve
F16 : To injector sub-harness
F17 : Power valve control solenoid valve
F18 : Revolution sensor
F19 : To terminal cord assembly
F21 : Inhibitor switch
F22 : Dropping resistor
F23 : Mass air flow sensor
F24 : Vehicle speed sensor
F25 : To oil pressure switch sub harness
F26 : To water cock solenoid sub-harness
F27 : Injector No. 5
F28 : Engine ground
F29 : Injector No. 3
F30 : Injector No. 1
F31 : Engine ground
F32 : Power steering oil pressure switch
F33 : Engine coolant temperature sensor
F34 : Thermal transmitter

Passenger compartment

F51 : To M35
F52 : To M36
F53 : To M37
54A : ECM (ECCS control module)
F55 : A/T control unit

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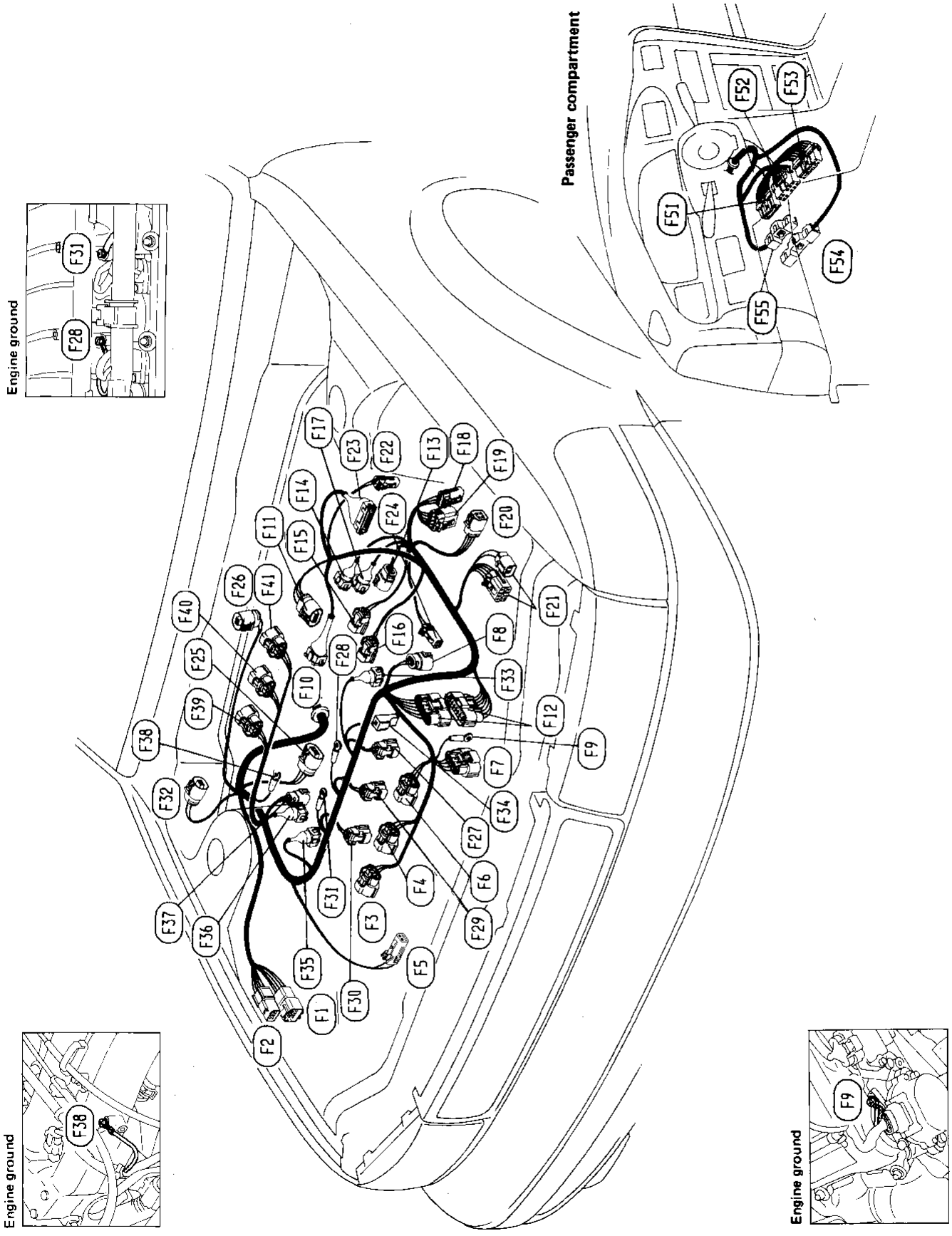
Engine Control Harness (Cont'd)

VE ENGINE



F1 : To E2
F2 : To E3
F3 : Ignition coil No. 2
F4 : Ignition coil No. 4
F5 : Compressor
F6 : Ignition coil No. 6
F7 : Camshaft position sensor
F8 : To knock sensor sub-harness
F9 : Engine ground
F10 : Throttle position switch
F11 : Throttle position sensor
F12 : Power transistor unit
F13 : EGR temperature sensor (For California)
F14 : EGRC-solenoid valve
F15 : IACV-AAC valve
F16 : IACV-FICD solenoid valve
F17 : Power valve control solenoid valve (M/T model)
F18 : Revolution sensor (A/T model)
F19 : To terminal cord assembly (A/T model)
F20 : Neutral and reverse position switch (M/T model)
F21 : Inhibitor switch (A/T model)
F22 : Dropping resistor (A/T model)
F23 : Mass air flow sensor
F24 : Vehicle speed sensor
F25 : Heated oxygen sensor
F26 : To water cock solenoid sub-harness
F27 : Injector No. 6
F28 : Engine ground
F29 : Injector No. 4
F30 : Injector No. 2
F31 : Engine ground
F32 : Power steering oil pressure switch
F33 : Engine coolant temperature sensor
F34 : Thermal transmitter
F35 : VTC solenoid valve-LH
F36 : VTC solenoid valve-RH
F37 : To injector sub-harness
F38 : Engine ground
F39 : Ignition coil No. 1
F40 : Ignition coil No. 3
F41 : Ignition coil No. 5

Passenger compartment

F51 : To M35 (A/T model)
F52 : To M36
F53 : To M37
F54 : ECM (ECCS control module)
F55 : A/T control unit (A/T model)

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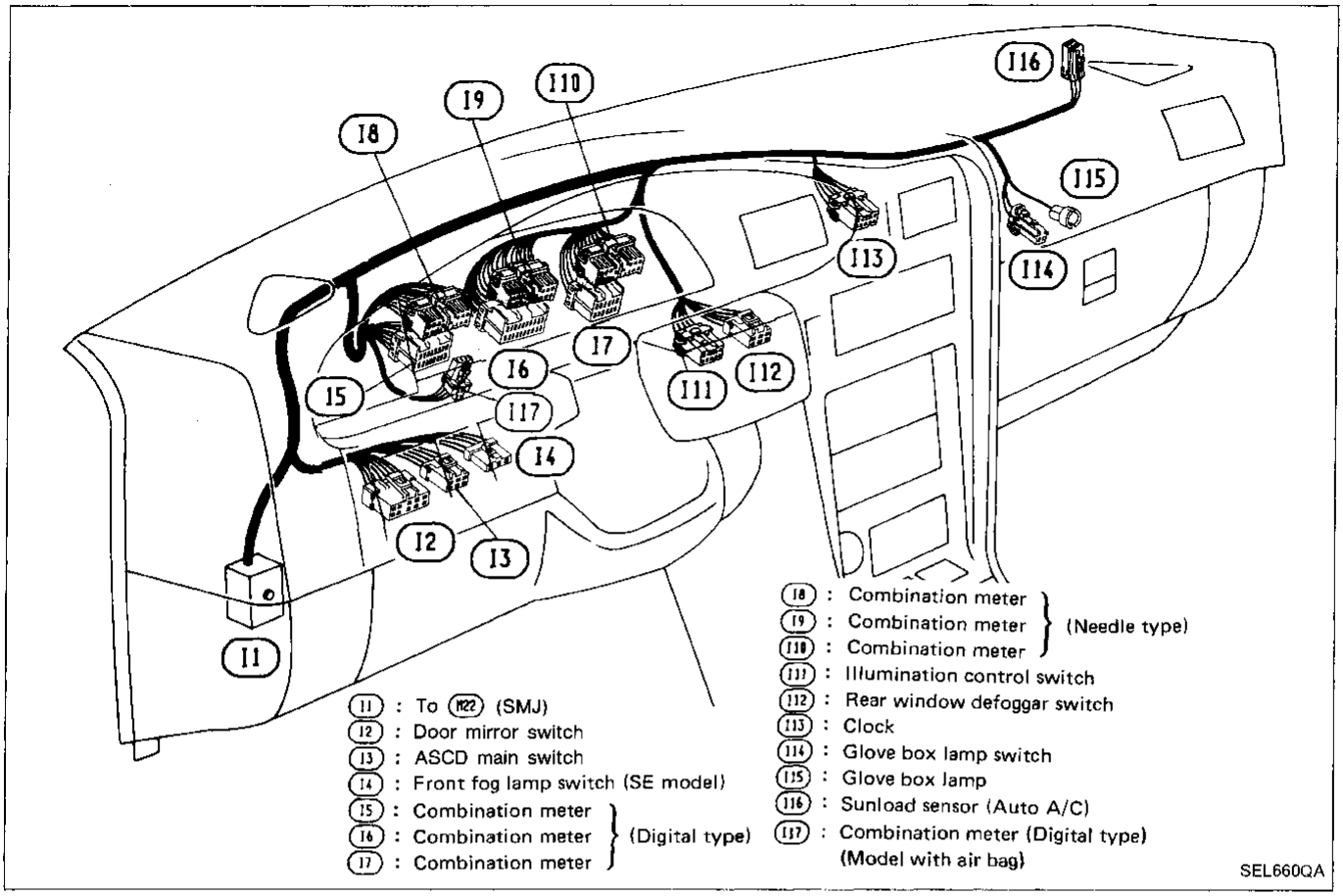
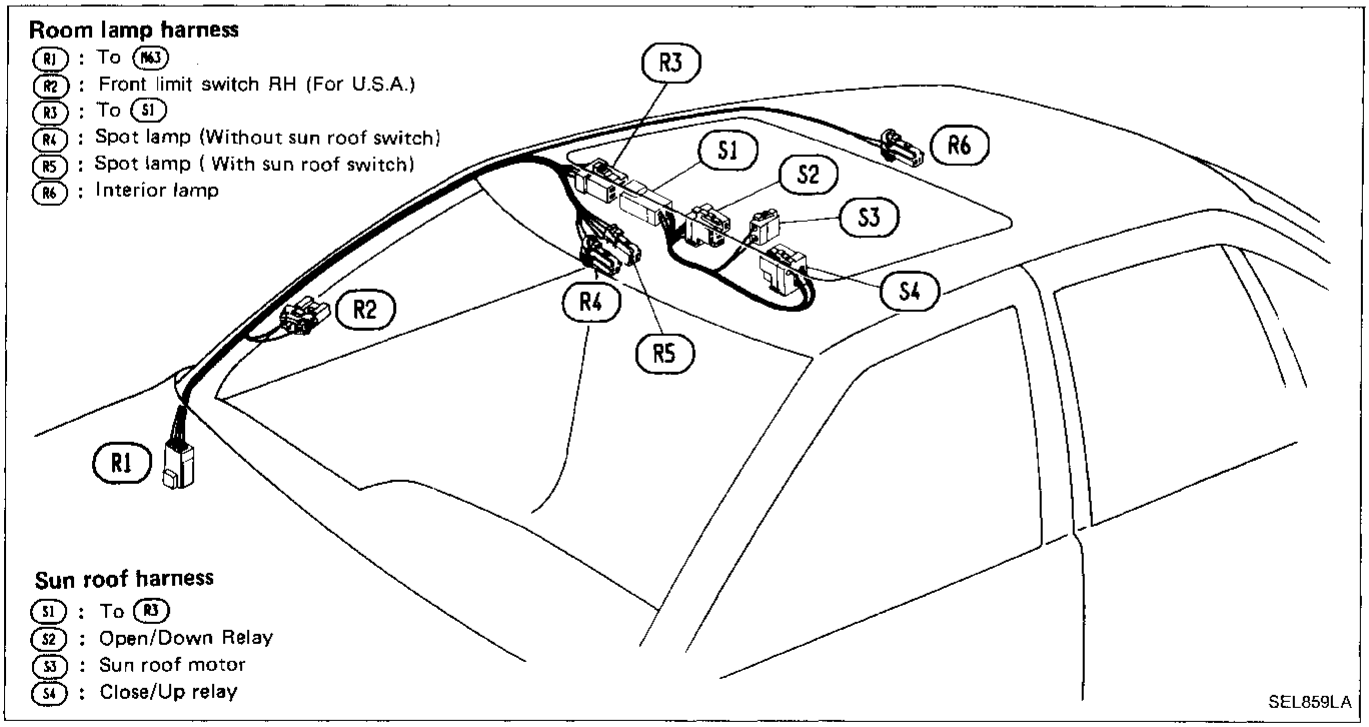
Instrument Harness

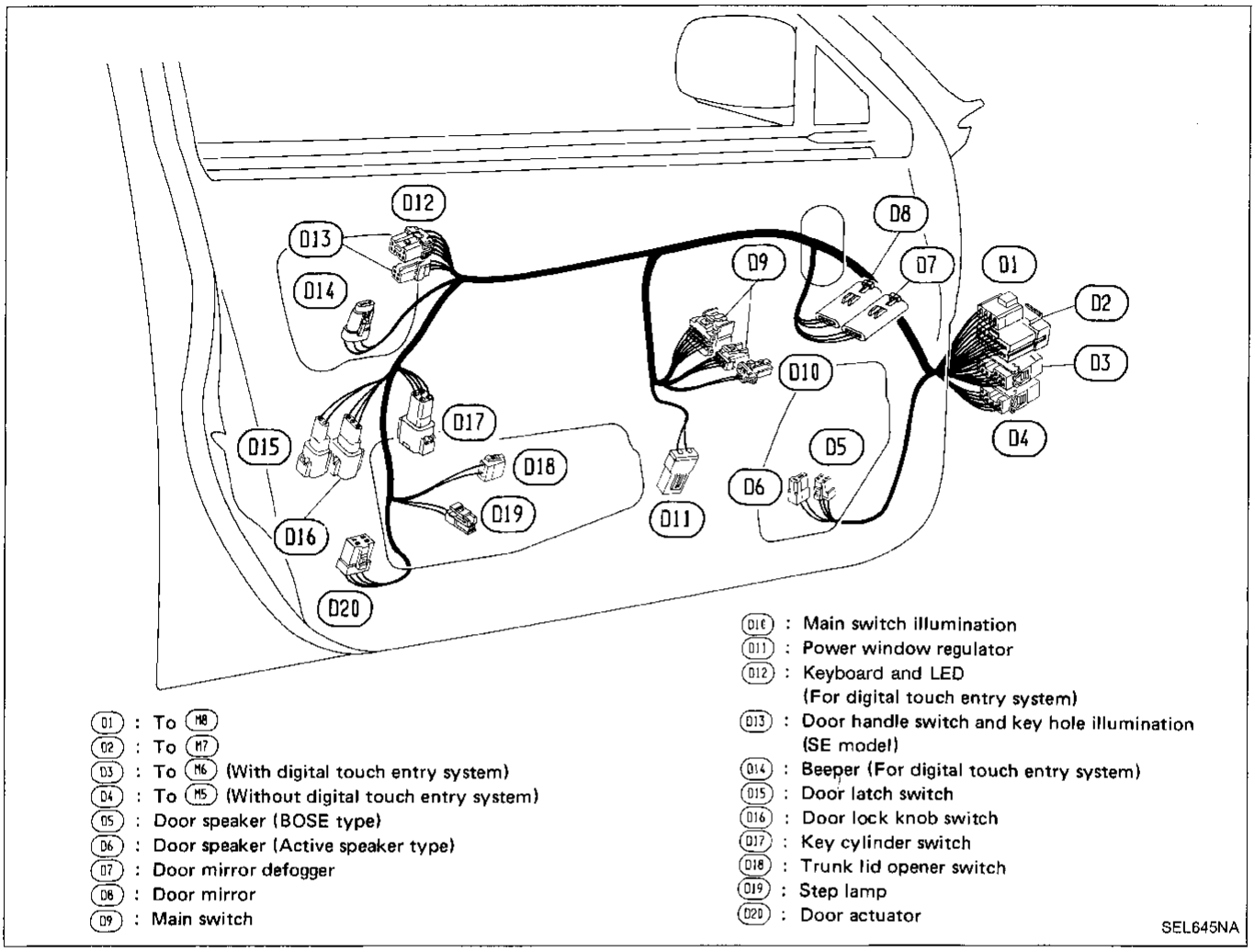


Room Lamp and Sun Roof Harness



Door Harness (LH side)

FRONT DOOR HARNESS



D1 : To M8
D2 : To M7
D3 : To M6 (With digital touch entry system)
D4 : To M5 (Without digital touch entry system)
D5 : Door speaker (BOSE type)
D6 : Door speaker (Active speaker type)
D7 : Door mirror defogger
D8 : Door mirror
D9 : Main switch
D10 : Main switch illumination
D11 : Power window regulator
D12 : Keyboard and LED (For digital touch entry system)
D13 : Door handle switch and key hole illumination (SE model)
D14 : Beeper (For digital touch entry system)
D15 : Door latch switch
D16 : Door lock knob switch
D17 : Key cylinder switch
D18 : Trunk lid opener switch
D19 : Step lamp
D20 : Door actuator

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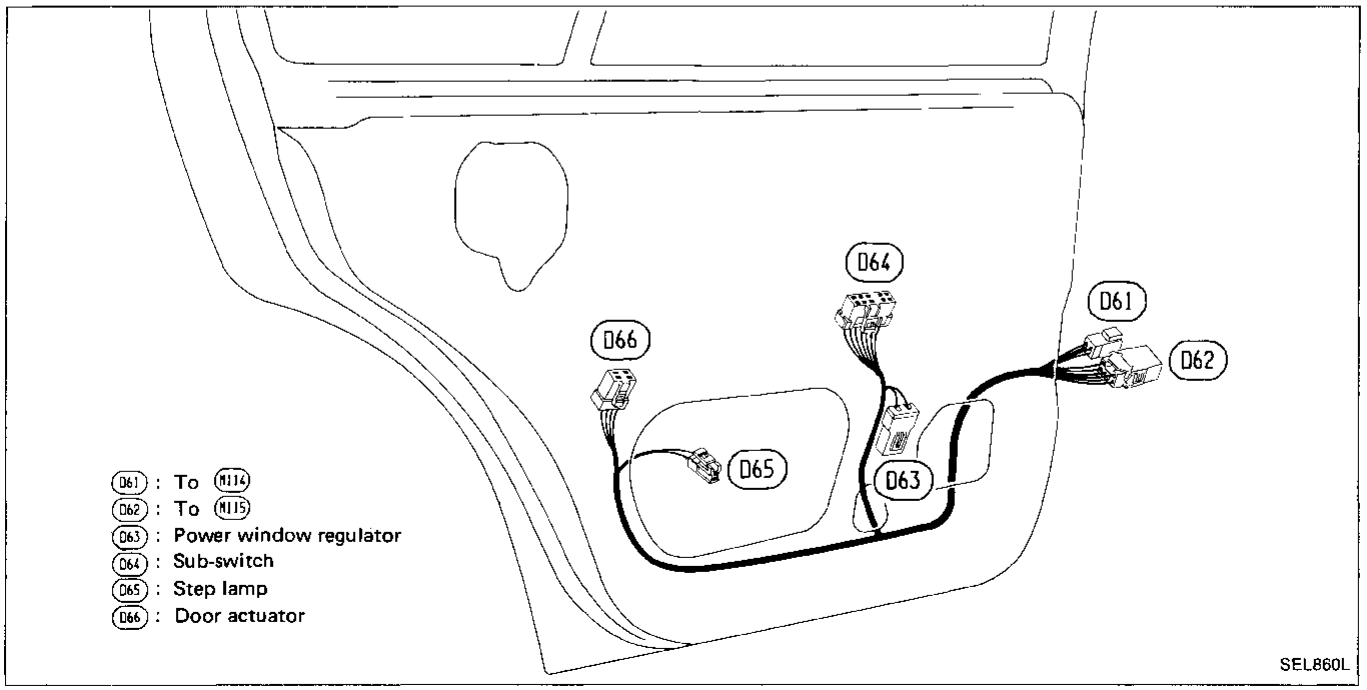
REAR DOOR HARNESS



D61 : To M114
D62 : To M115
D63 : Power window regulator
D64 : Sub-switch
D65 : Step lamp
D66 : Door actuator

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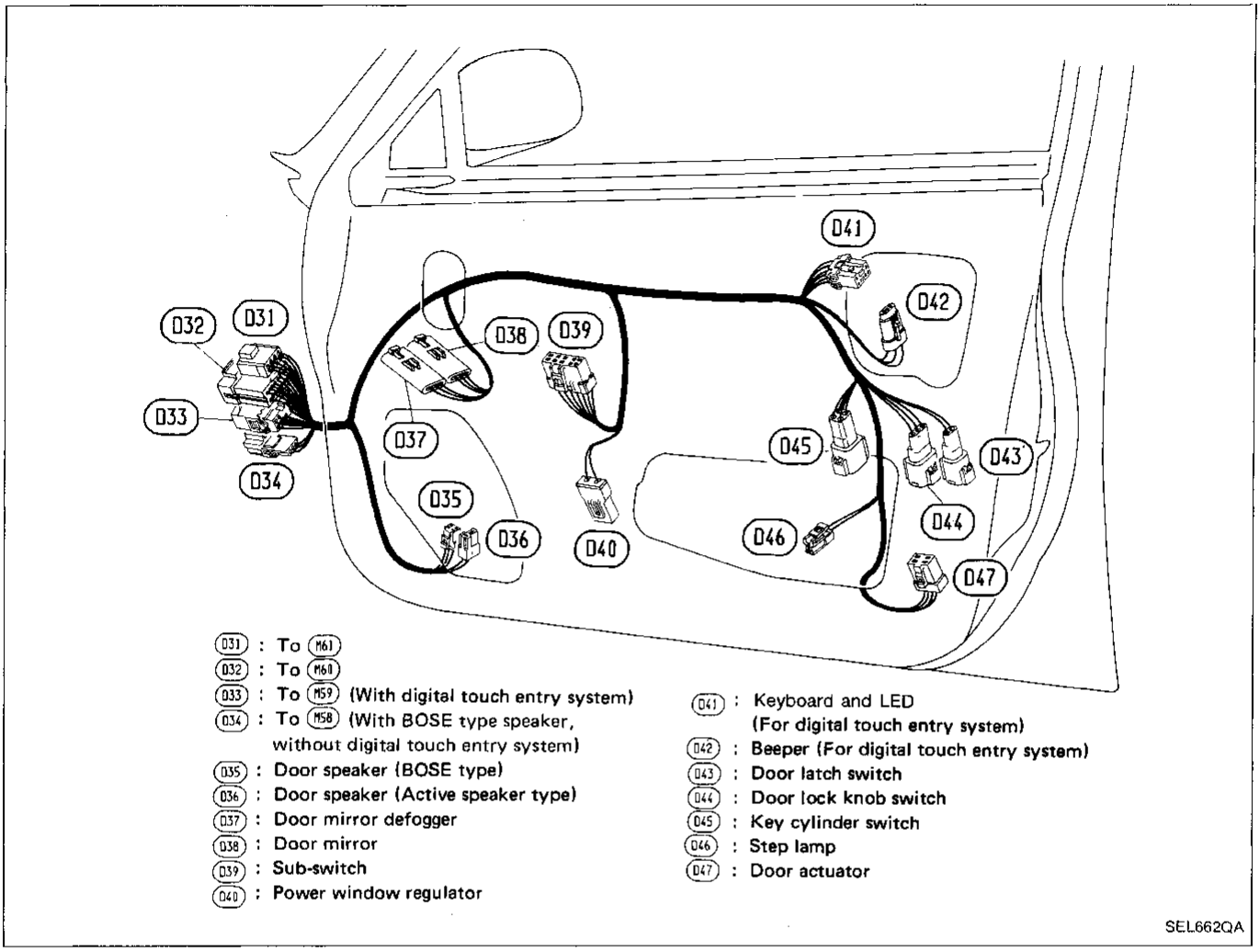
Door Harness (RH side)

FRONT DOOR HARNESS



D31 : To M61
D32 : To M60
D33 : To M59 (With digital touch entry system)
D34 : To M58 (With BOSE type speaker, without digital touch entry system)
D35 : Door speaker (BOSE type)
D36 : Door speaker (Active speaker type)
D37 : Door mirror defogger
D38 : Door mirror
D39 : Sub-switch
D40 : Power window regulator
D41 : Keyboard and LED (For digital touch entry system)
D42 : Beeper (For digital touch entry system)
D43 : Door latch switch
D44 : Door lock knob switch
D45 : Key cylinder switch
D46 : Step lamp
D47 : Door actuator

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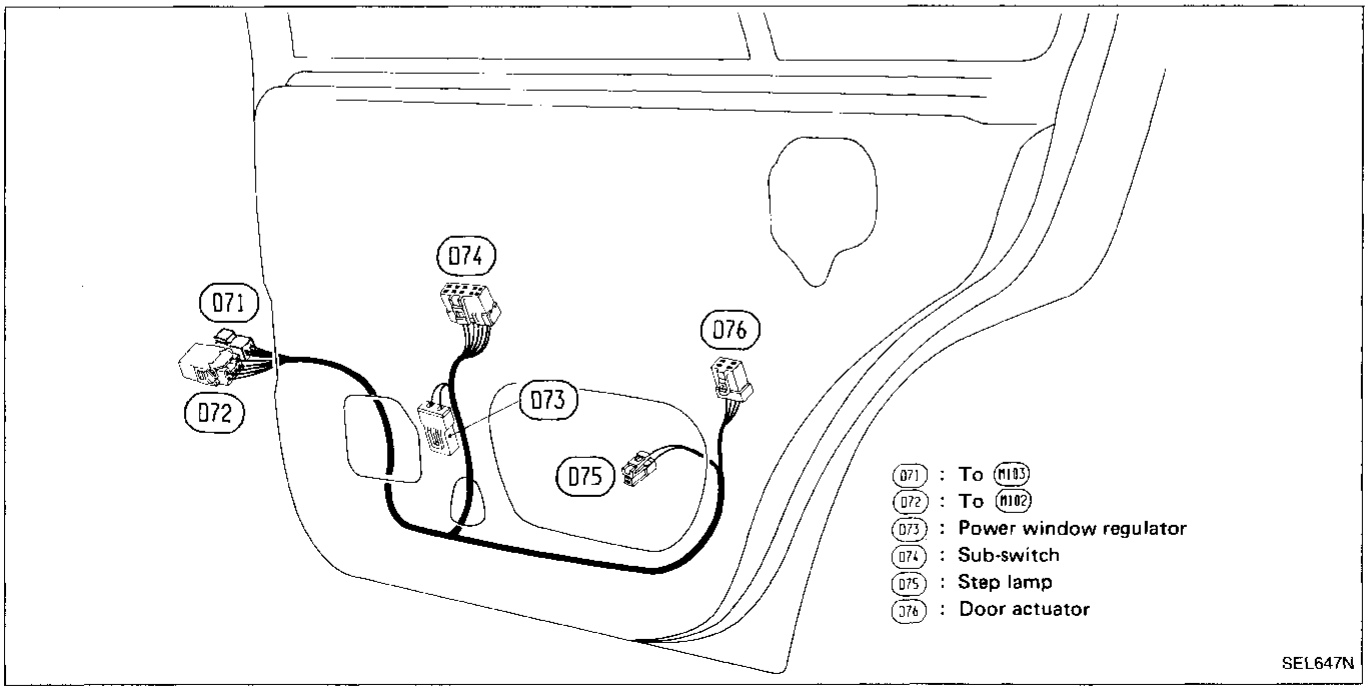
REAR DOOR HARNESS



D71 : To M103
D72 : To M102
D73 : Power window regulator
D74 : Sub-switch
D75 : Step lamp
D76 : Door actuator

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