ELECTRICAL SYSTEM

SECTION EL

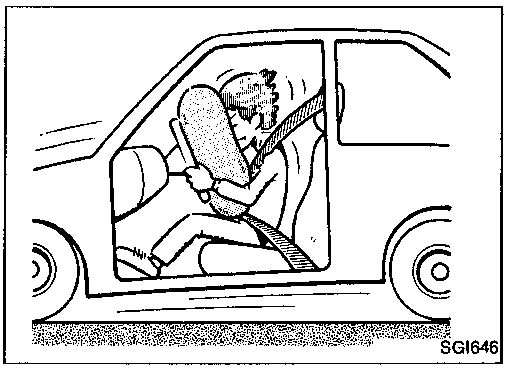
When you read wiring diagrams:
- **Read GI section, "HOW TO READ WIRING DIAGRAMS".**

When you perform trouble diagnoses, read GI section, "HOW TO FOLLOW FLOW CHART IN TROUBLE DIAGNOSES" and "HOW TO PERFORM EFFICIENT DIAGNOSIS FOR AN ELECTRICAL INCIDENT".

CONTENTS

CONTENTS (Cont'd.)

WIRING DIAGRAM REFERENCE CHART


SGI646

Supplemental Restraint System "AIR BAG"

The Supplemental Restraint System "Air Bag", used along with a seat belt, helps to reduce the risk or severity of injury to the driver and front passenger in a frontal collision. The Supplemental Restraint System consists of air bag module (located in the center of the steering wheel and on the instrument panel on the passenger side), a diagnostic sensor 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 increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, 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 air bag electrical wiring harnesses and connectors are covered with yellow outer insulation. Do not use electrical test equipment on any circuit related to the SRS SYSTEM.**

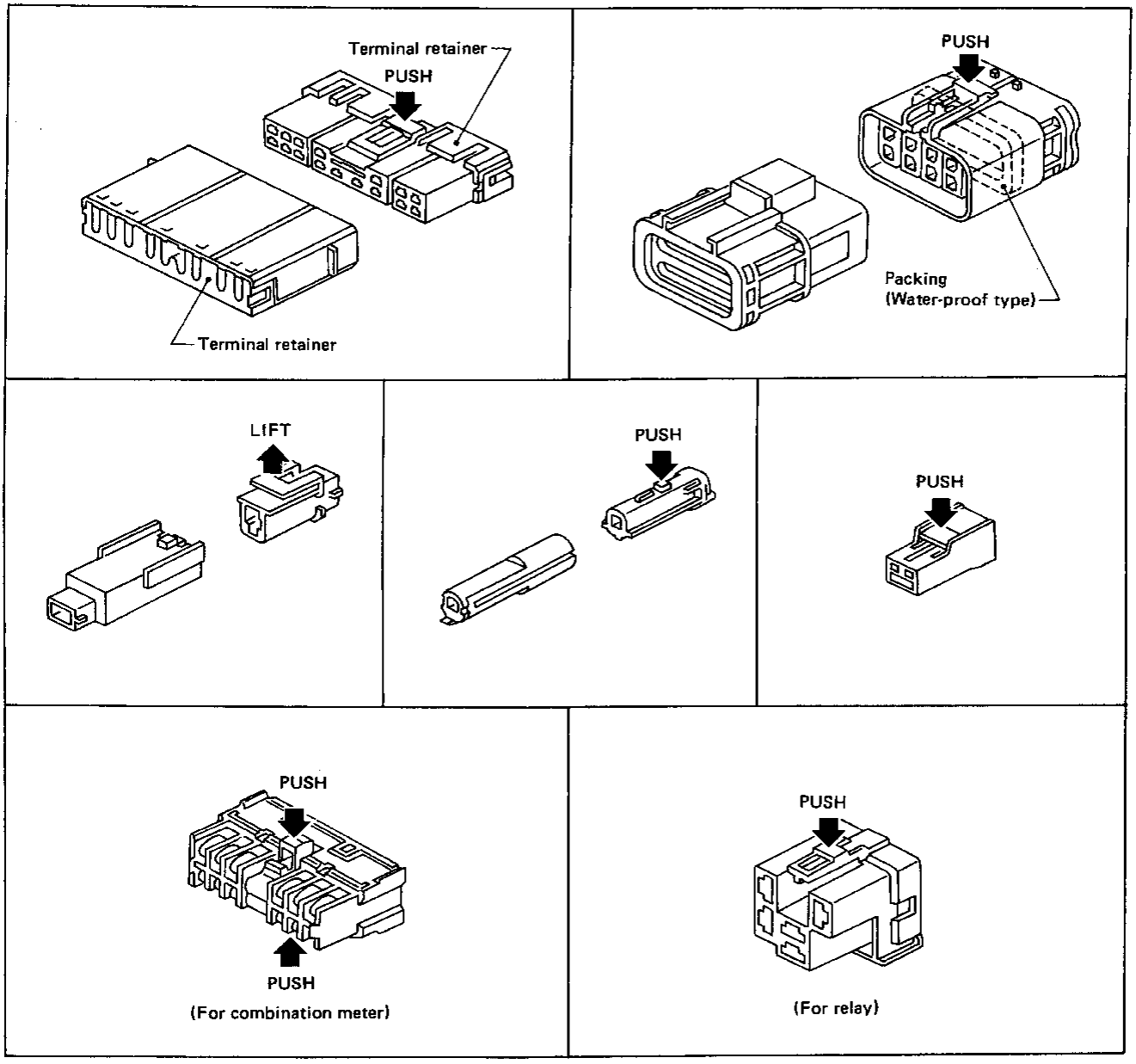
Description

HARNESS CONNECTOR

- All harness connectors have been modified to prevent accidental looseness 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]

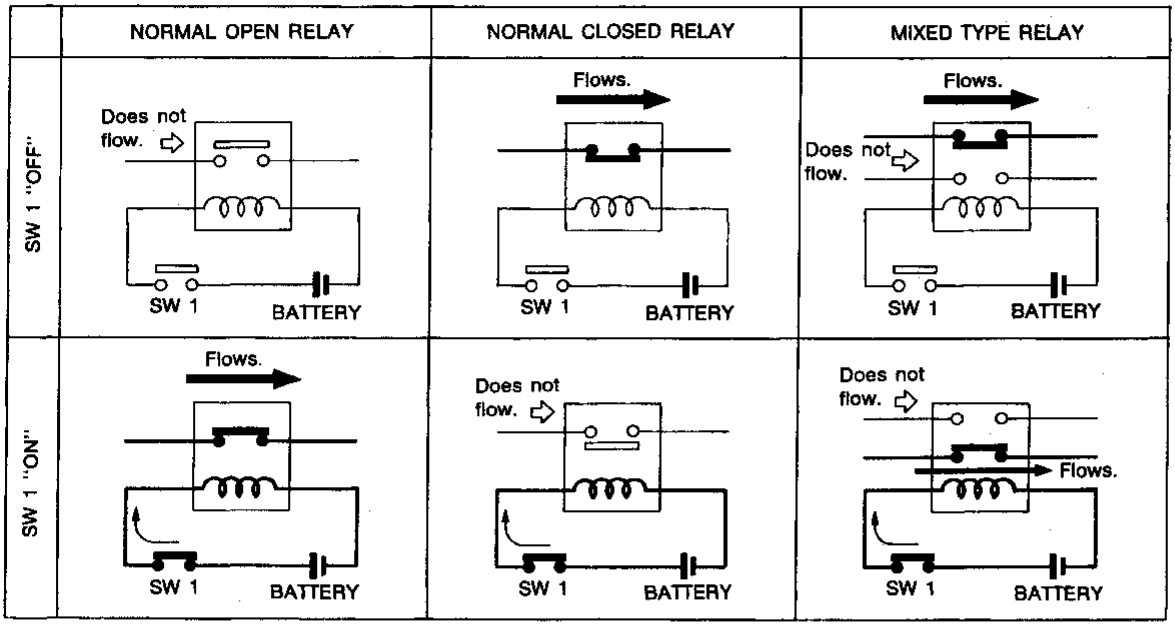


SEL769D

Description

NORMAL OPEN, NORMAL CLOSED AND MIXED TYPE RELAYS

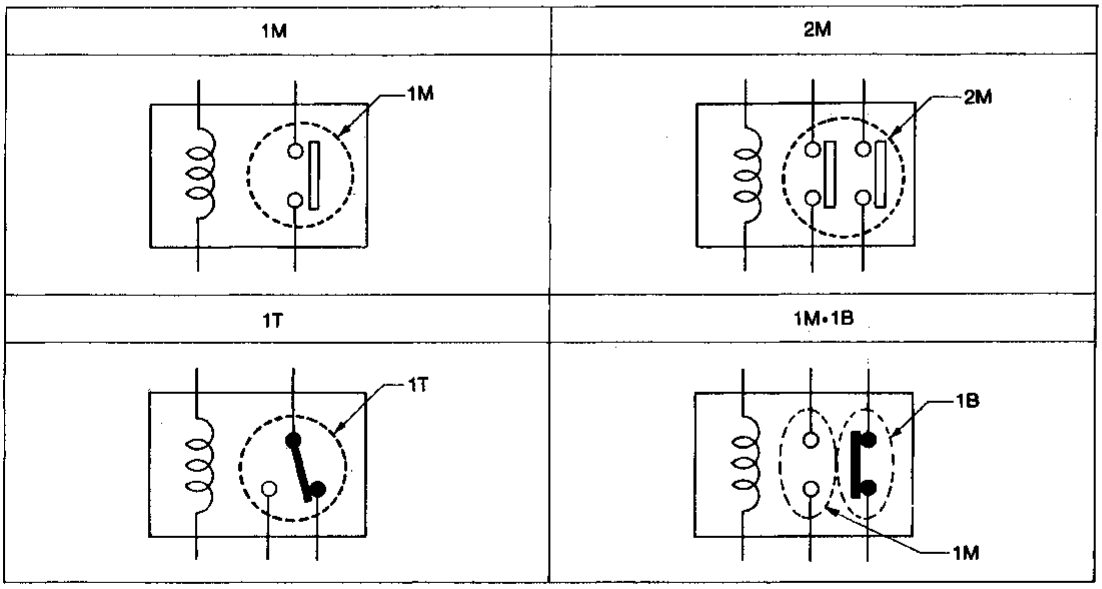
Relays can mainly be divided into three types: normal open, normal closed and mixed type relays.



SEL881H

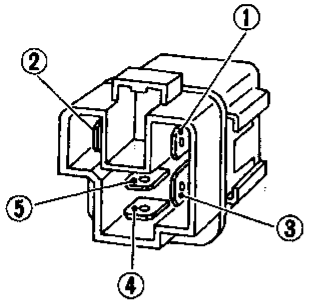
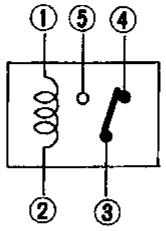
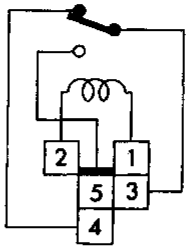
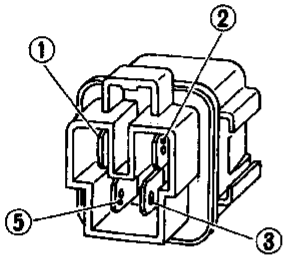
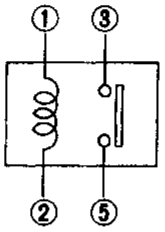
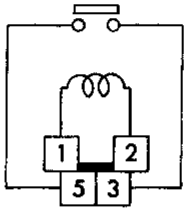
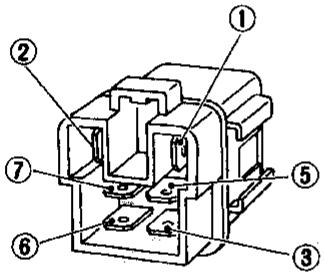
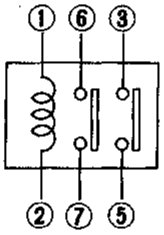
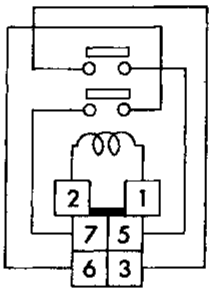
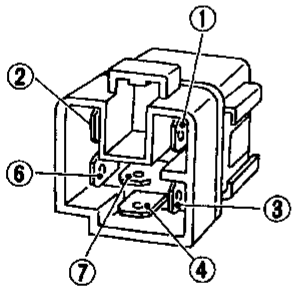
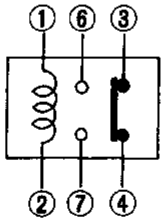
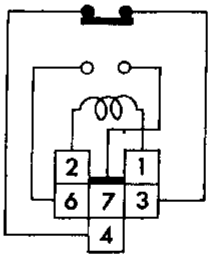
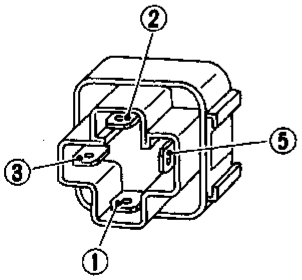
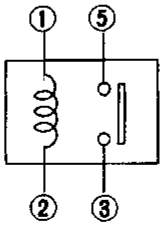
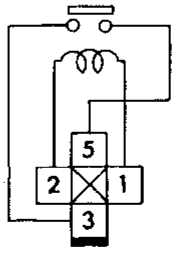
TYPE OF STANDARDIZED RELAYS

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



SEL882H

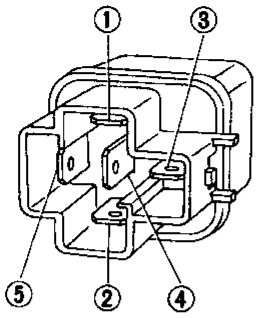
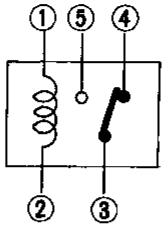
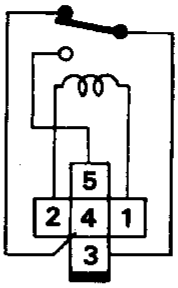
Description (Cont'd)

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

The arrangement of terminal numbers on the actual relays may differ from those shown above.

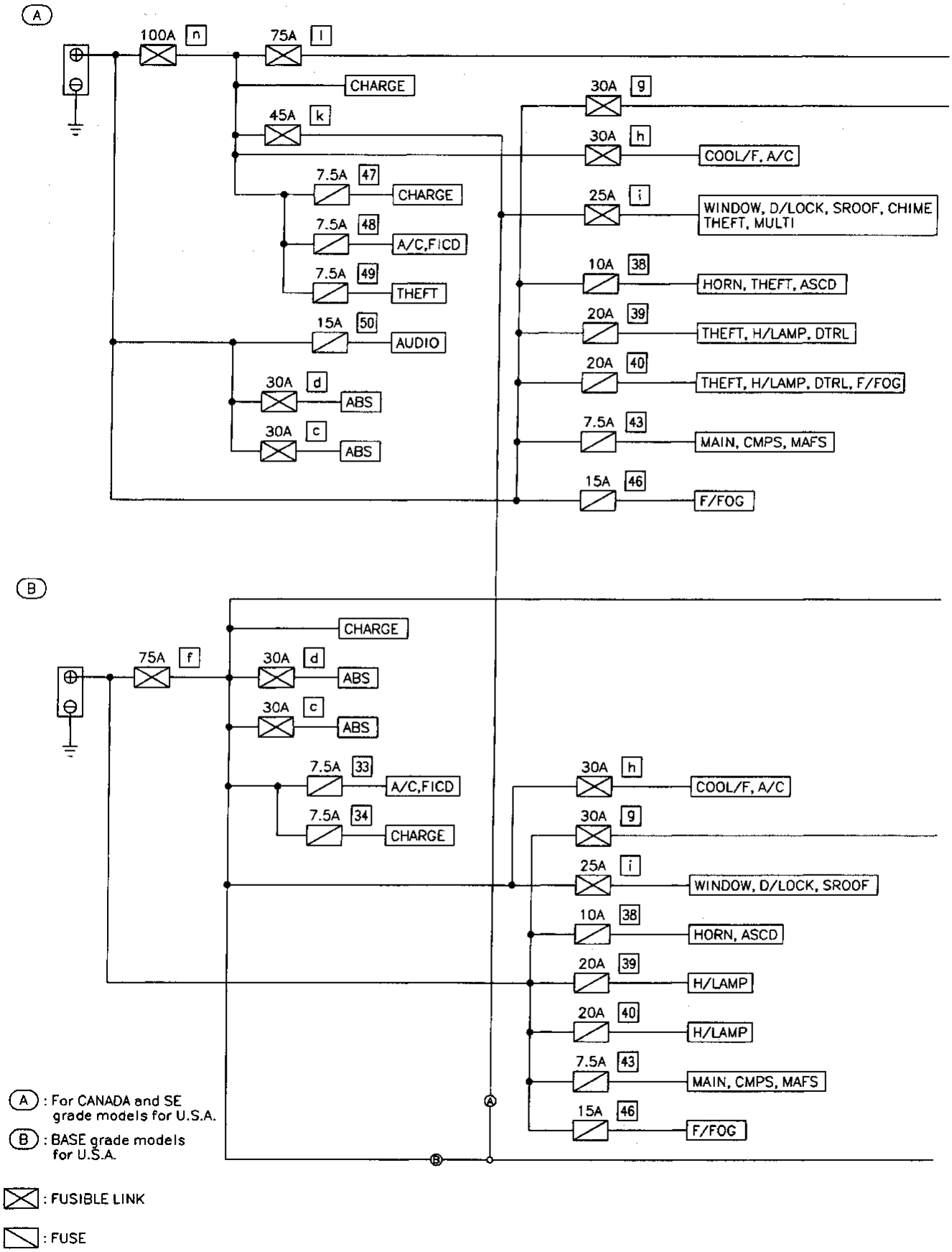
SEL871SA

Description (Cont'd)

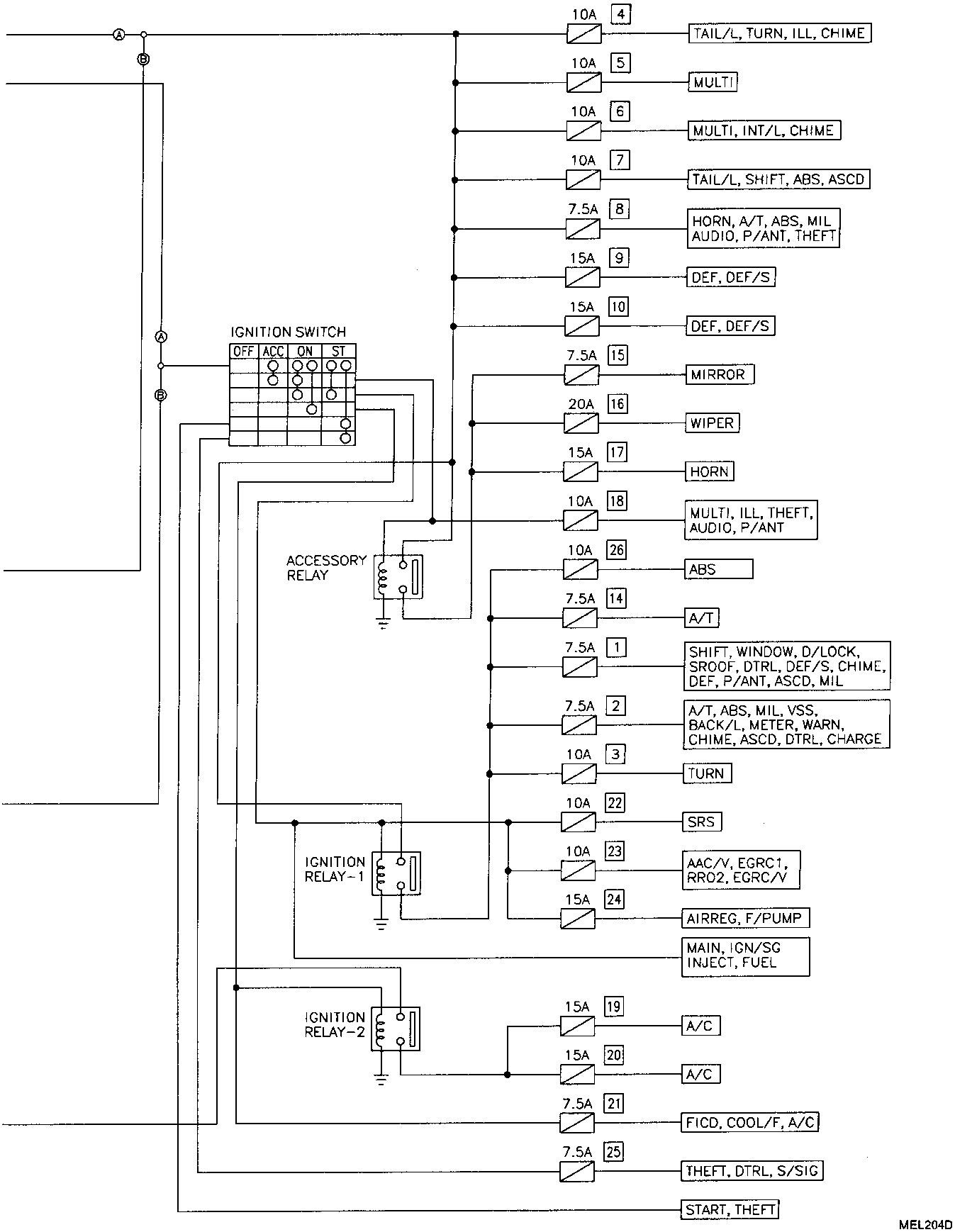
Type	Outer view	Circuit	Connector symbol and connection	Case color
1T				BLACK

MEL202B

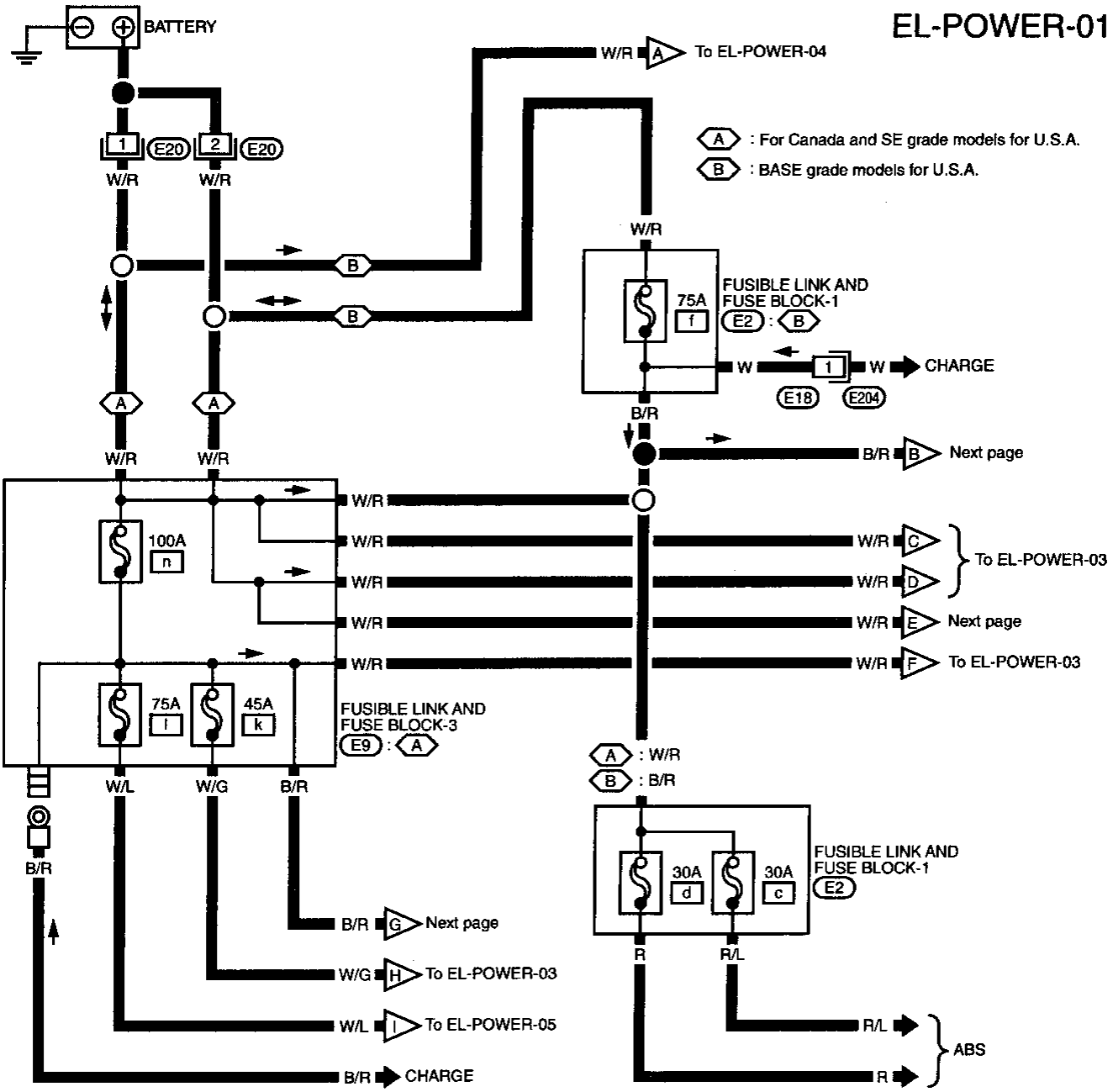
Schematic

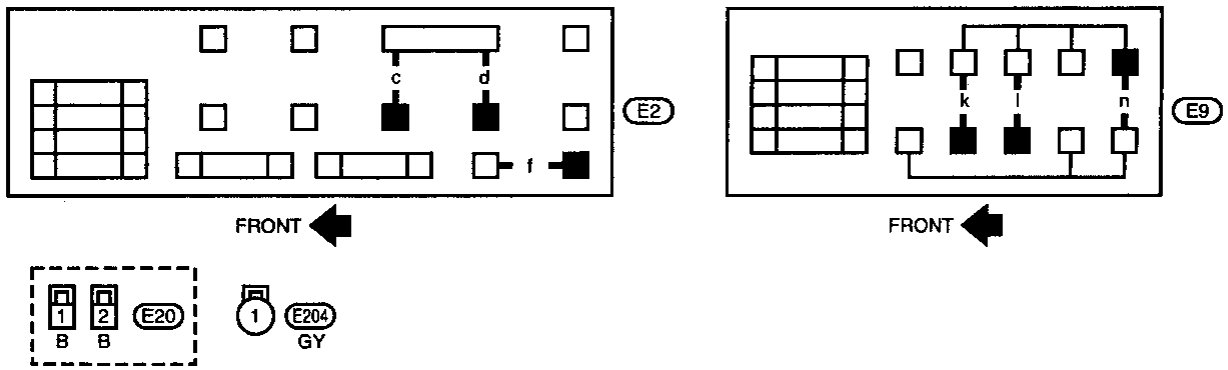

A
100A n
75A l
CHARGE
45A k
7.5A 47
CHARGE
7.5A 48
A/C,FICD
7.5A 49
THEFT
15A 50
AUDIO
30A d
ABS
30A c
ABS
30A g
30A h
COOL/F, A/C
25A i
WINDOW, D/LOCK, SROOF, CHIME THEFT, MULTI
10A 38
HORN, THEFT, ASCD
20A 39
THEFT, H/LAMP, DTRL
20A 40
THEFT, H/LAMP, DTRL, F/FOG
7.5A 43
MAIN, CMPS, MAFS
15A 46
F/FOG
B
CHARGE
75A f
30A d
ABS
30A c
ABS
7.5A 33
A/C,FICD
7.5A 34
CHARGE
30A h
COOL/F, A/C
30A g
25A i
WINDOW, D/LOCK, SROOF
10A 38
HORN, ASCD
20A 39
H/LAMP
20A 40
H/LAMP
7.5A 43
MAIN, CMPS, MAFS
15A 46
F/FOG
Ⓐ : For CANADA and SE grade models for U.S.A.
Ⓑ : BASE grade models for U.S.A.
: FUSIBLE LINK
: FUSE

Schematic (Cont'd)



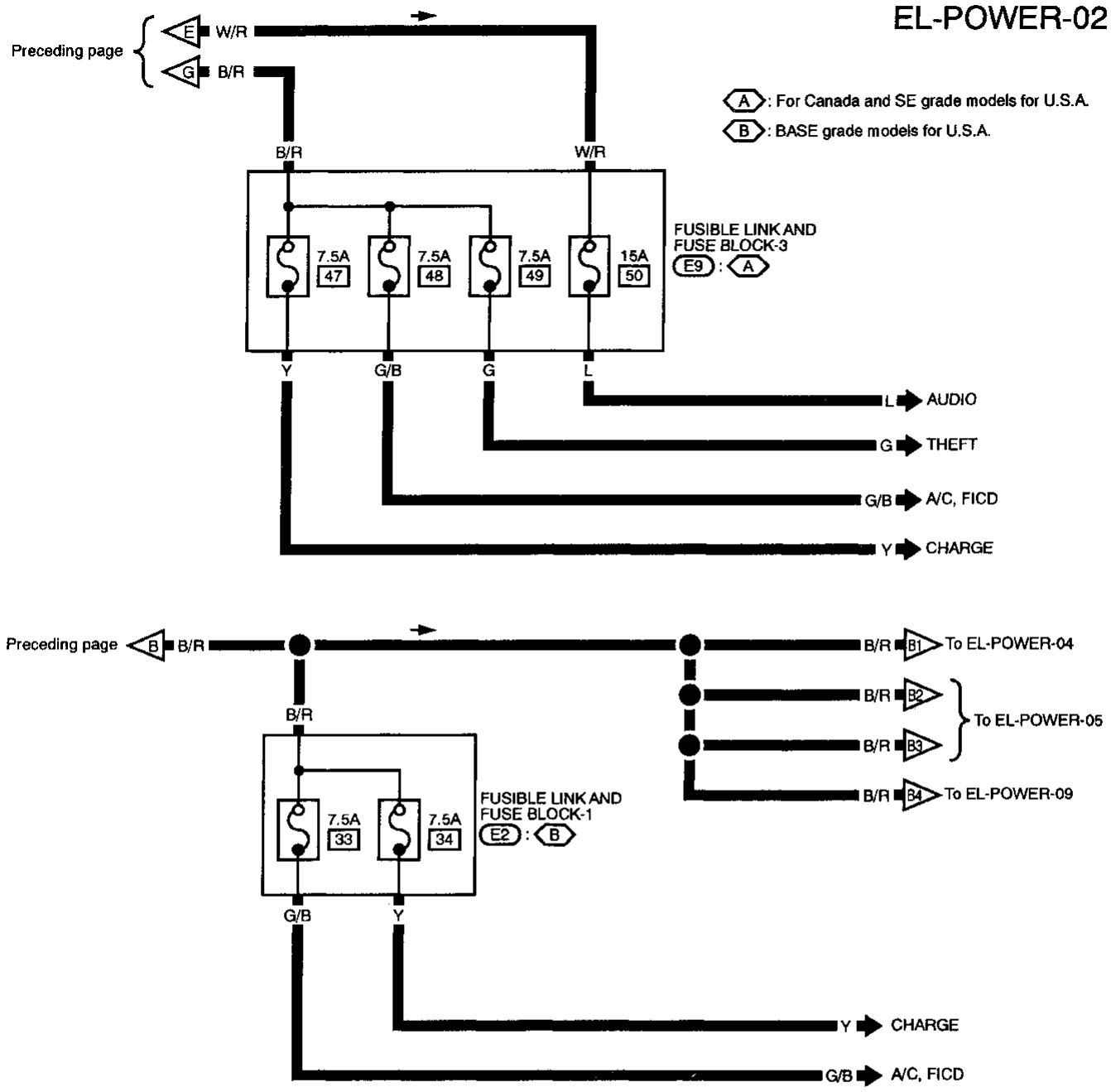
Wiring Diagram — POWER —

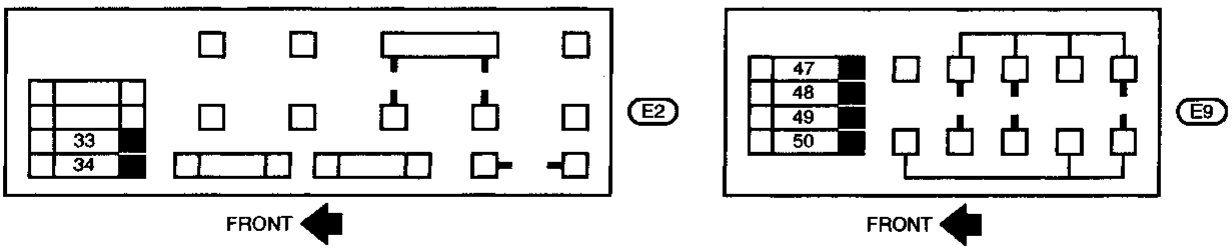




MEL205D

Wiring Diagram — POWER — (Cont'd)

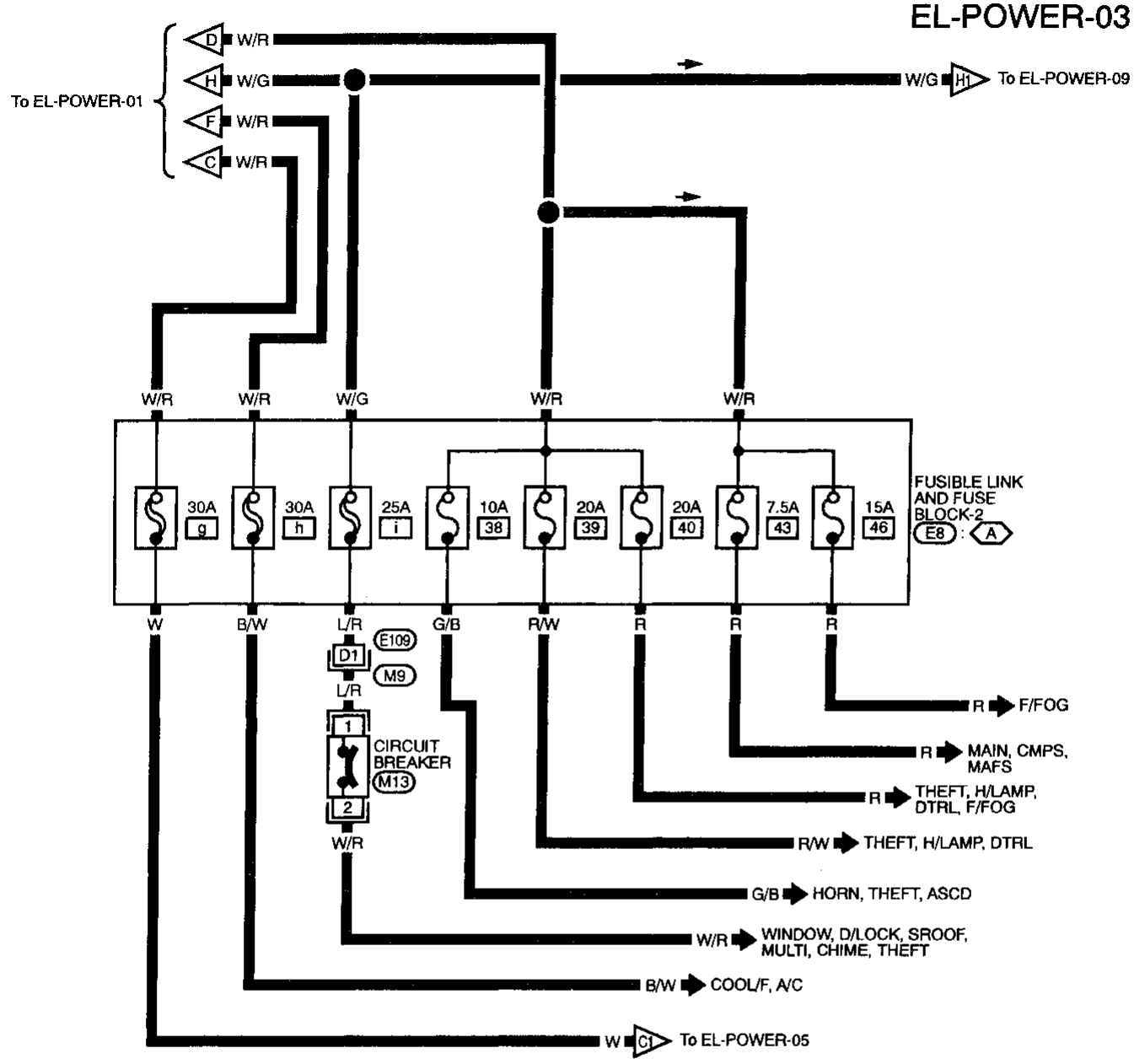




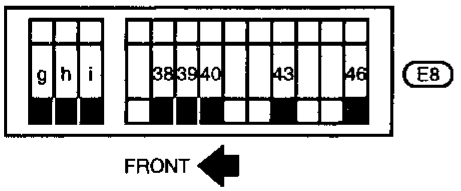
MEL206D

Wiring Diagram — POWER — (Cont'd)

EL-POWER-03



A : For Canada and SE grade models for U.S.A.

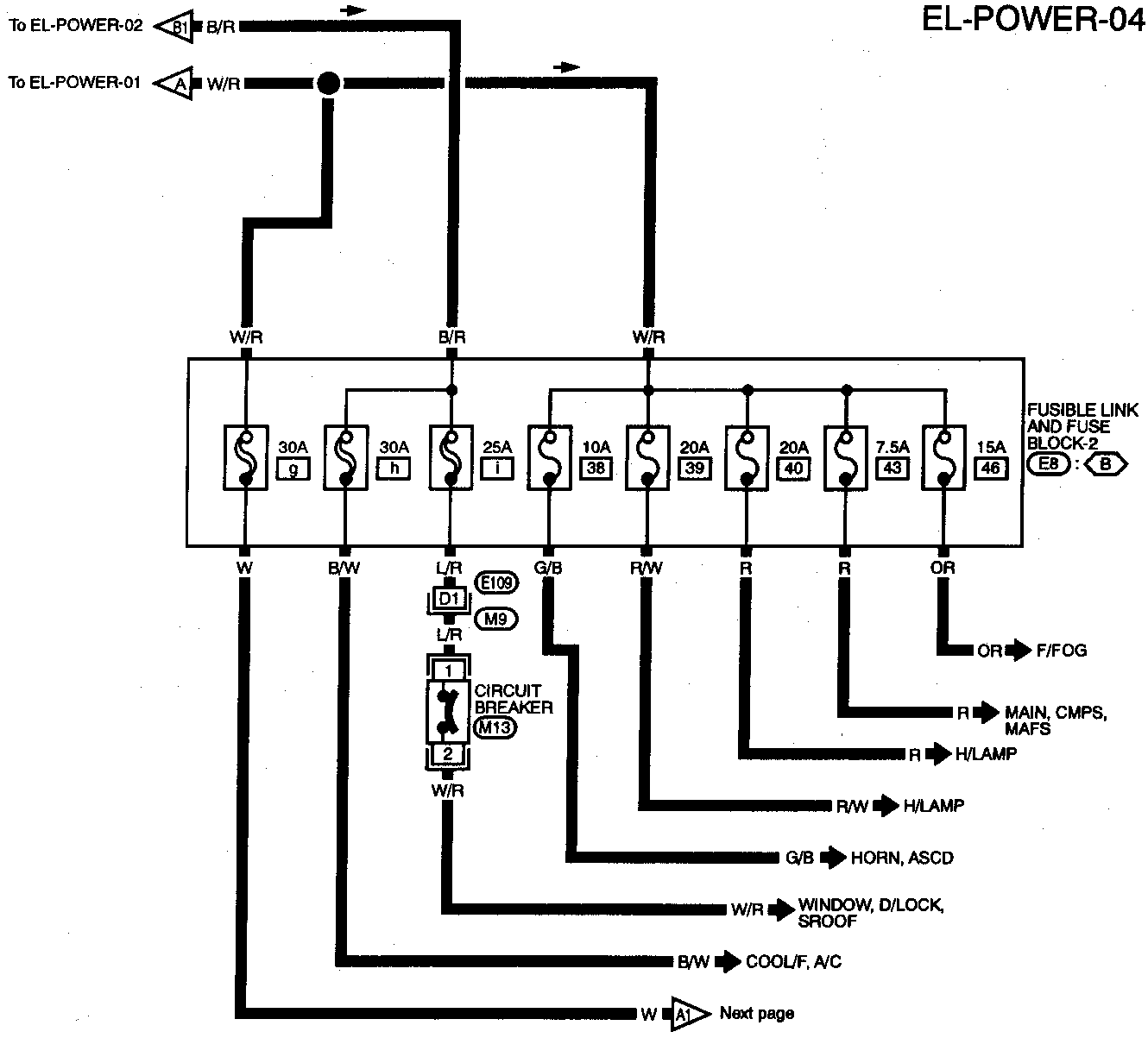


Refer to last page (Foldout page).
M9 , E109

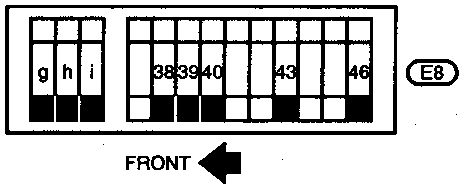
MEL207D

Wiring Diagram — POWER — (Cont'd)

EL-POWER-04



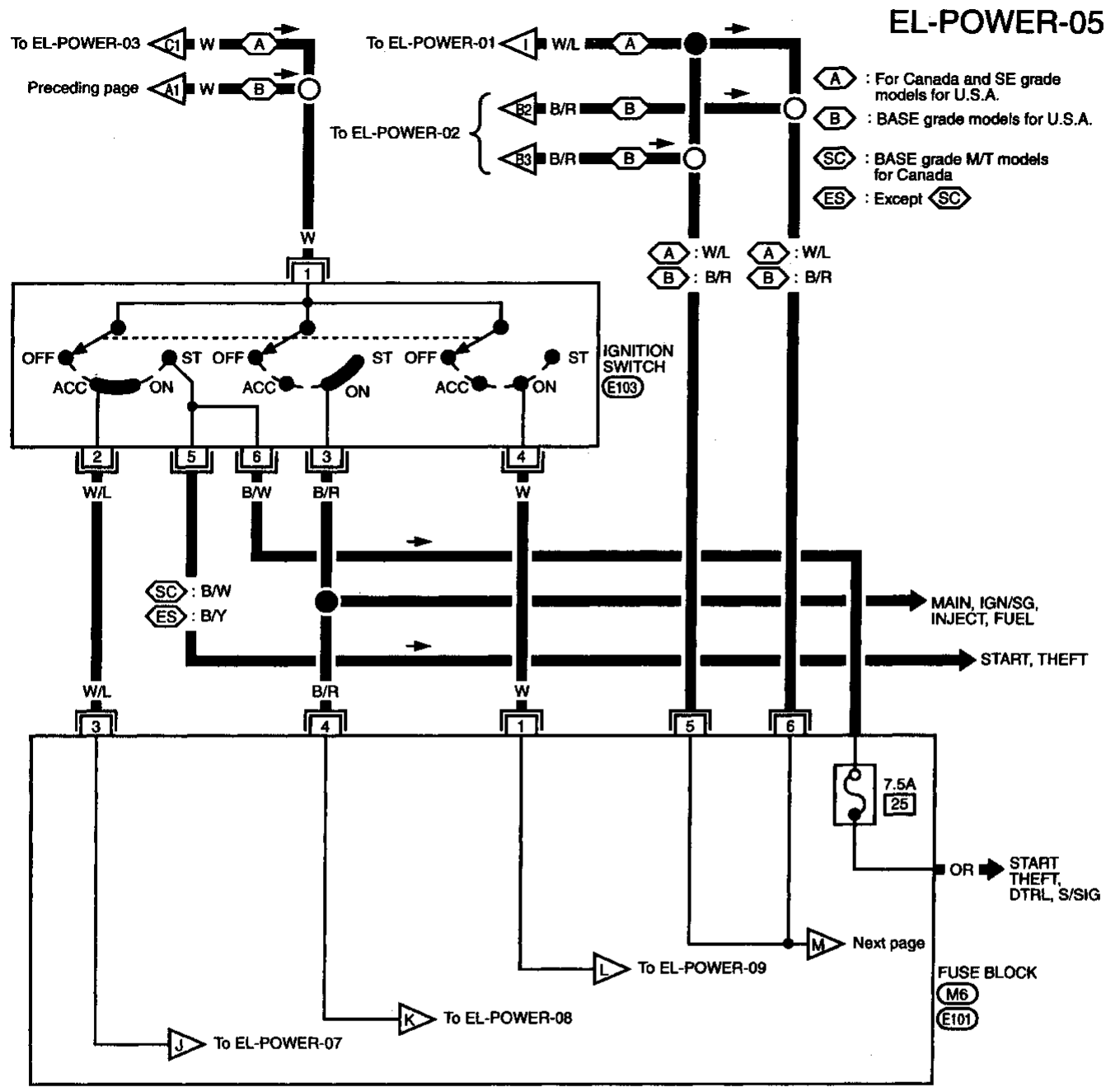
B : BASE grade models for U.S.A.

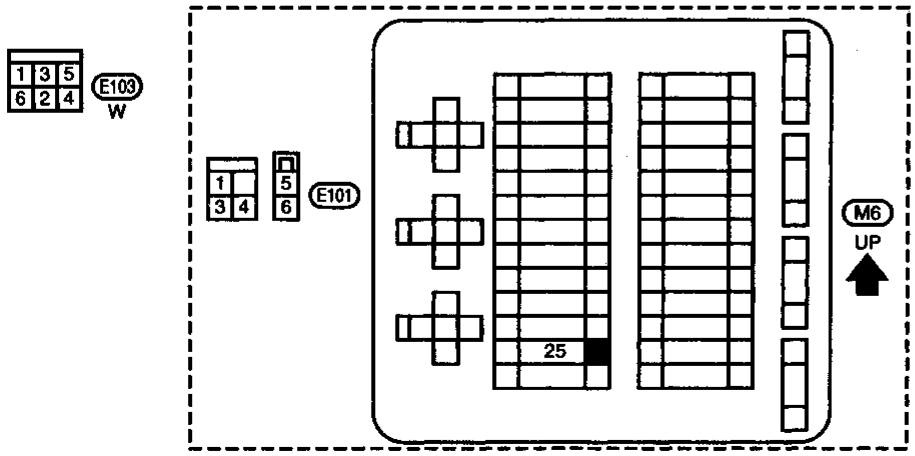


Refer to last page (Foldout page).
M9 , E109

MEL208D

Wiring Diagram — POWER — (Cont'd)

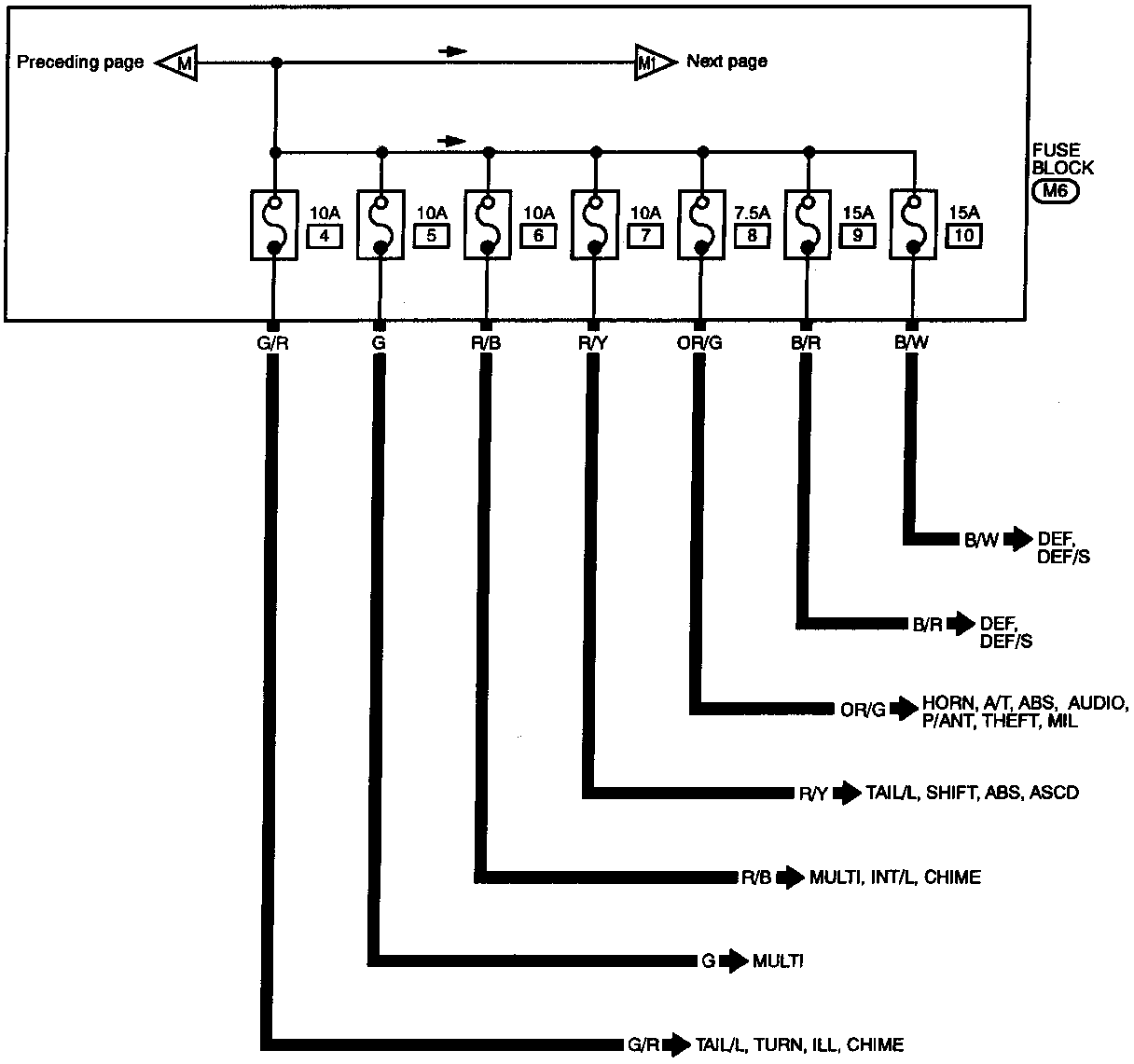


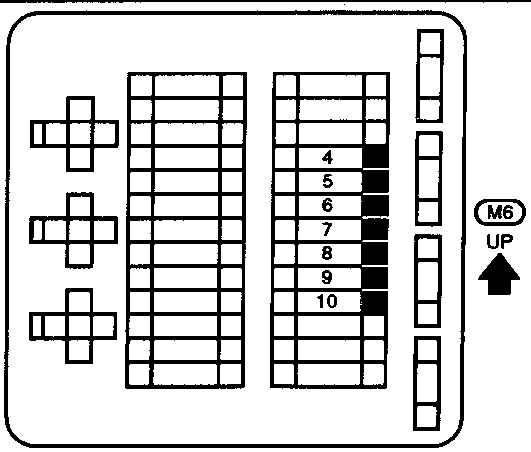


MEL209D

Wiring Diagram — POWER — (Cont'd)

EL-POWER-06



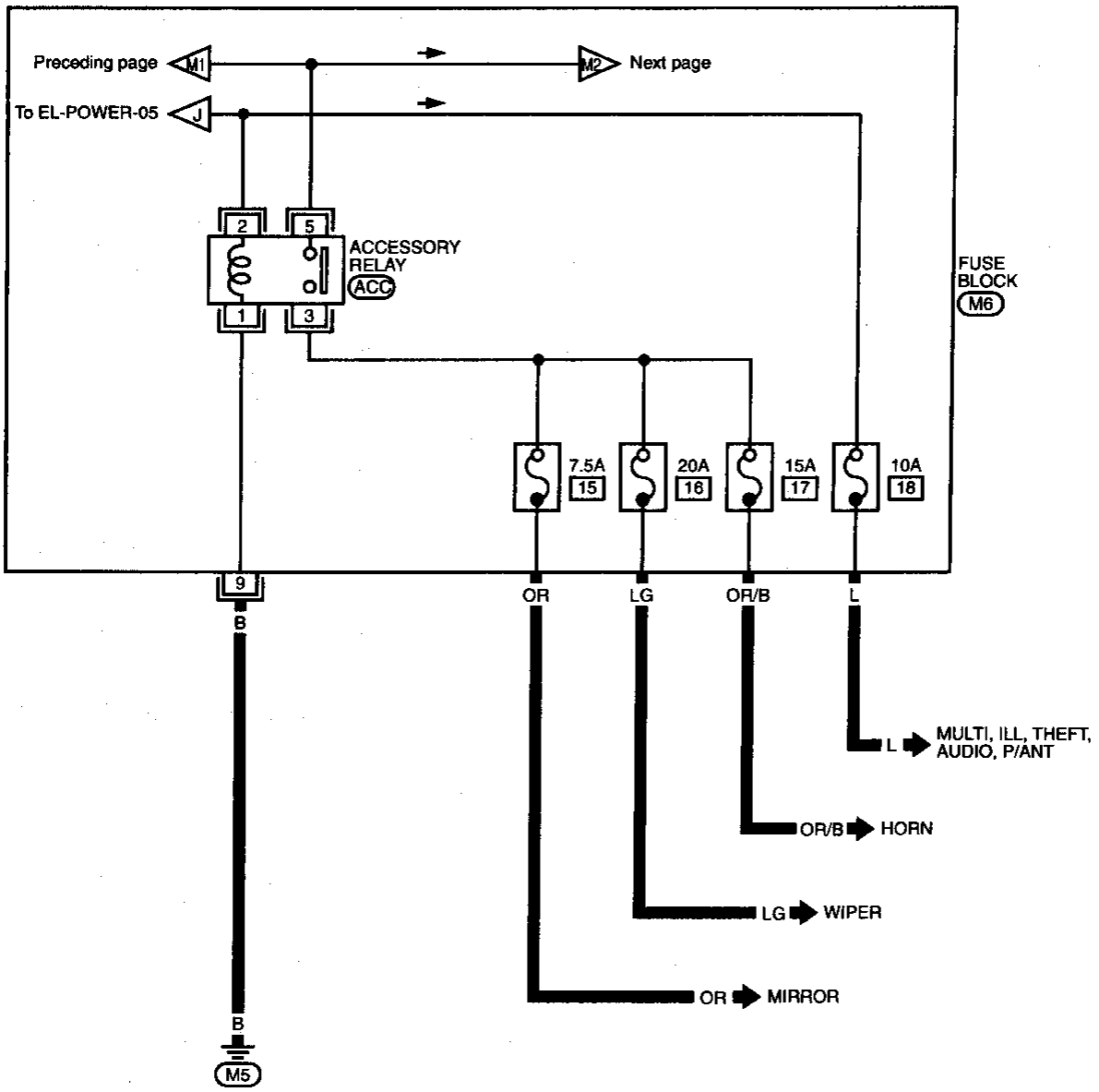


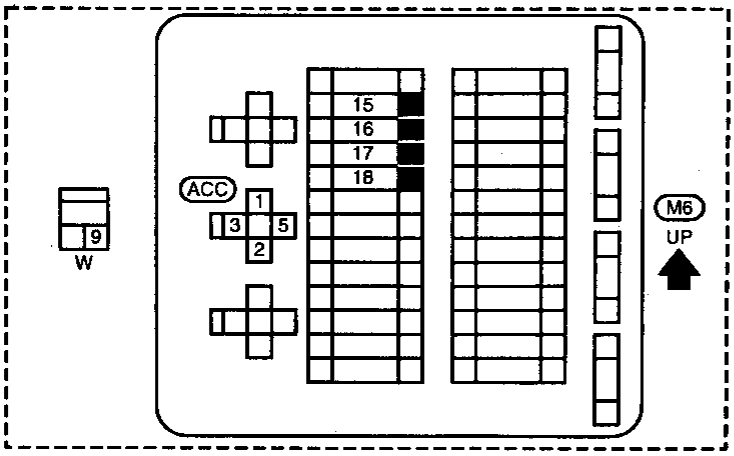
MEL210D

GI MA EM LC EC FE CL MT AT PD FA RA BR ST BF HA EL IDX

Wiring Diagram — POWER — (Cont'd)

EL-POWER-07

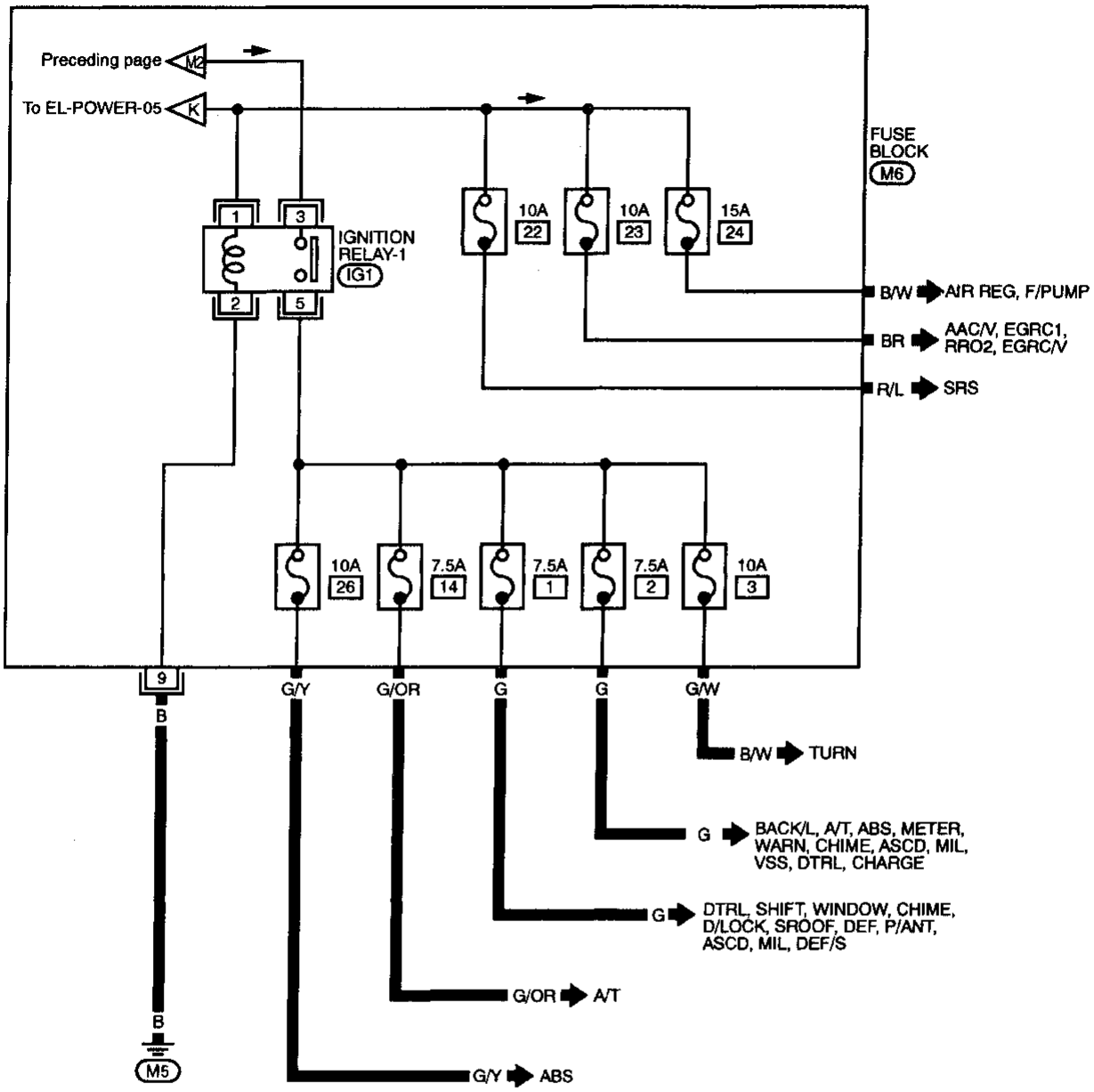


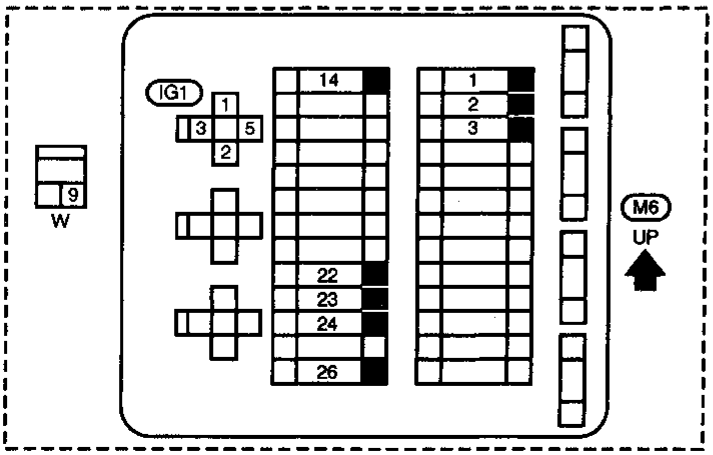


MEL211D

Wiring Diagram — POWER — (Cont'd)

EL-POWER-08

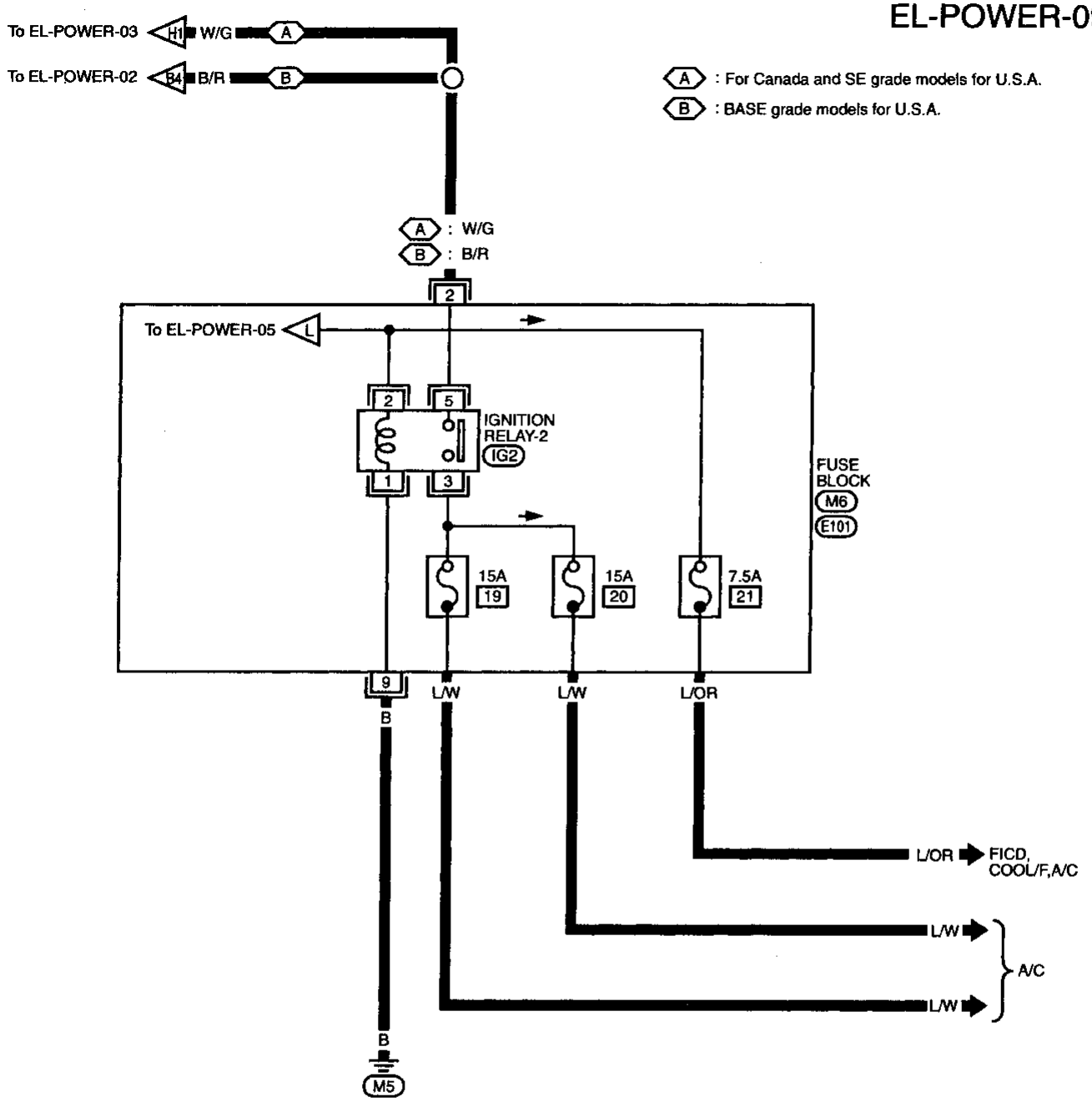


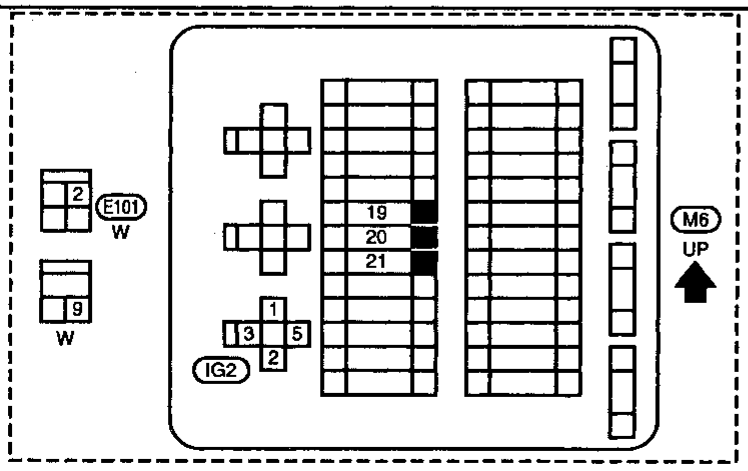


MEL212D

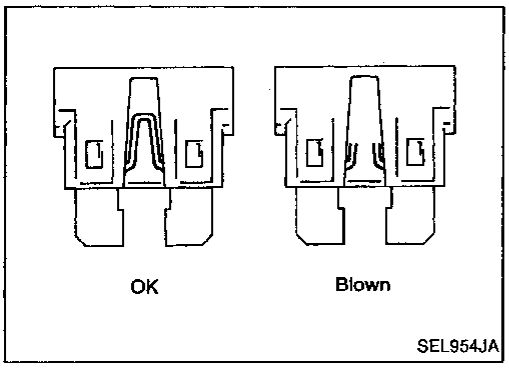
Wiring Diagram — POWER — (Cont'd)

EL-POWER-09



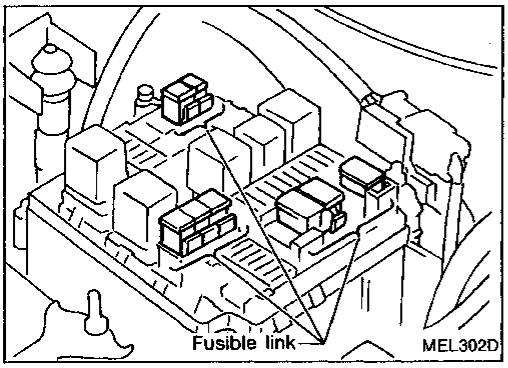


MEL213D



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 partially install fuse; 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

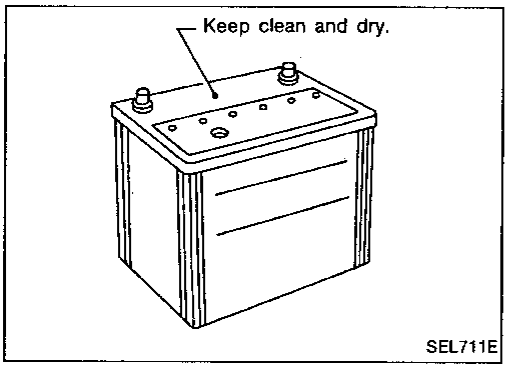
A melted fusible link can be detected either by visual inspection or by feeling with finger tip. If its condition is questionable, use circuit tester or test lamp.

CAUTION:

a. **If fusible link should melt, it is possible that critical circuit (power supply or large current carrying circuit) is shorted. In such a case, carefully check and eliminate cause of problem.**
b. **Never wrap outside of fusible link with vinyl tape. Important: Never let fusible link touch any other wiring harness, 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.**

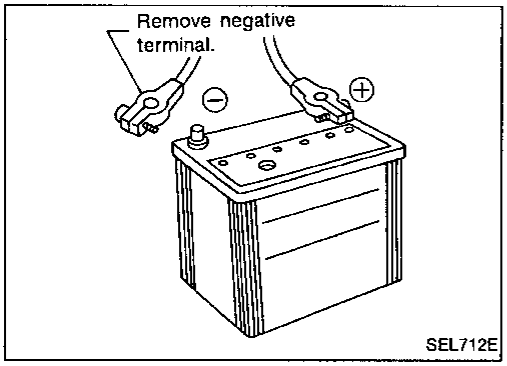


How to Handle Battery

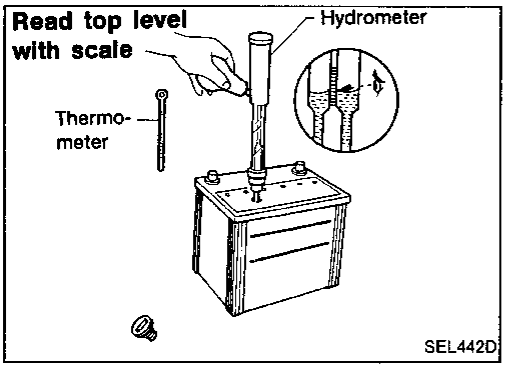
METHODS OF PREVENTING OVER-DISCHARGE

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. This also applies to batteries designated as "low maintenance" and "maintenance-free".



- 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.)



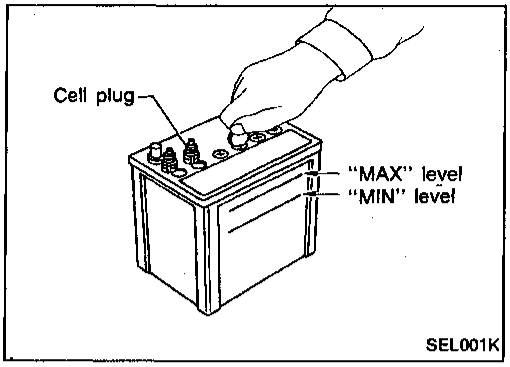
- Check the charge condition of the battery.
  Periodically check the specific gravity of the electrolyte. Keep a close check on charge condition to prevent over-discharge.

CHECKING ELECTROLYTE LEVEL

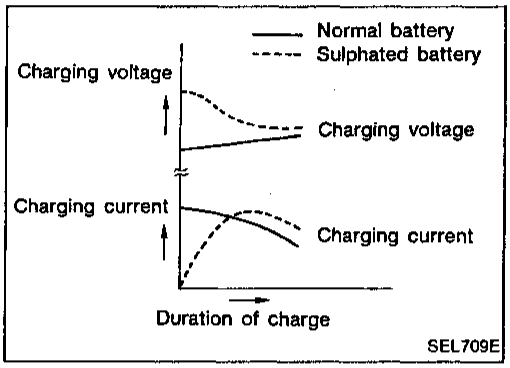
WARNING:

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 acid contacts 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.

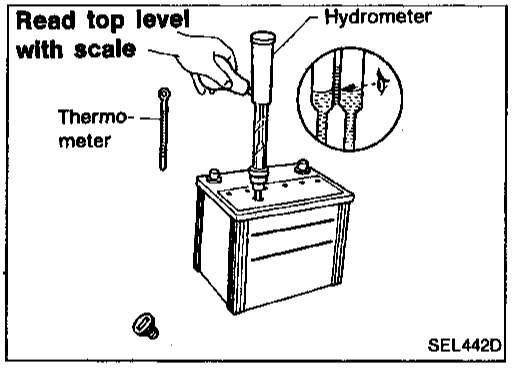


SULPHATION

A battery will be completely discharged if it is left unattended for a long time and the specific gravity will become less than 1.100. This may result in sulphation on the cell plates.

To determine if a battery has been "sulphated", note its voltage and current when charging it. As shown in the figure, less current and higher voltage are observed in the initial stage of charging sulphated batteries.

A sulphated battery may sometimes be brought back into service by means of a long, slow charge, 12 hours or more, followed by a battery capacity test.



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		USA	Canada
Type		55D23R	65D26R
Capacity	V-AH	12-60	12-65
Cold cranking current (For reference value)	A	356	413

System Description

M/T MODELS FOR USA

Power is supplied at all times
- to ignition switch terminal ①
- through 30A fusible link (letter g , located in the fusible link and fuse box).

With the ignition switch in the START position, power is supplied
- through terminal ⑤ of the ignition switch
- to clutch interlock relay terminal ③.

For models with theft warning system

Power is supplied at all times
- through 7.5A fuse (No. 8 , located in the fuse block)
- to theft warning relay-2 terminal ①.

With the ignition switch in the START position, power is supplied
- through 7.5A fuse (No. 25 , located in the fuse block)
- to theft warning relay-2 terminal ③.

If the theft warning system is triggered, terminal ② of the theft warning relay-2 is grounded and power to the clutch interlock relay is interrupted.

When the theft warning system is not operating, power is supplied
- through theft warning relay-2 terminal ④
- to clutch interlock relay terminal ①.

For models without theft warning system

With the ignition switch in the START position, power is supplied
- through terminal ⑤ of the ignition switch
- to clutch interlock relay terminal ①.

Ground is supplied to clutch interlock relay terminal ②, when the clutch pedal is depressed through the clutch interlock switch and body grounds (E42).

The clutch interlock relay is energized and power is supplied
- from terminal ⑤ of the clutch interlock relay
- to terminal ② of the starter motor windings.

The starter motor plunger closes and provides a closed circuit between the battery and the starter motor. The starter motor is grounded to the engine block. With power and ground supplied, cranking occurs and the engine starts.

M/T MODELS FOR CANADA

For models with theft warning system

Power is supplied at all times
- through 7.5A fuse (No. 8 , located in the fuse block)
- to theft warning relay-2 terminal ①.

With the ignition switch in the START position, power is supplied
- from ignition switch terminal ⑤
- to theft warning relay-2 terminal ③.

If the theft warning system is triggered, terminal ② of the theft warning relay-2 is grounded and power to the starter motor is interrupted.

When the theft warning system is not operating, power is supplied
- through theft warning relay-2 terminal ④
- to terminal ② of the starter motor windings.

For models without theft warning system

With the ignition switch in the START position, power is supplied
- from ignition switch terminal ⑤
- directly to terminal ② of the starter motor windings.

The starter motor plunger closes and provides a closed circuit between the battery and the starter motor. The starter motor is grounded to the engine block. With power and ground supplied, cranking occurs and the engine starts.

System Description (Cont'd)

A/T MODELS

Power is supplied at all times
- to ignition switch terminal ①
- through 30A fusible link (letter [g], located in the fusible link and fuse box).

For USA models with theft warning system

Power is supplied at all times
- through 7.5A fuse (No. [8], located in the fuse block)
- to theft warning relay-2 terminal ①.

With the ignition switch in the START position, power is supplied
- from ignition switch terminal ⑤
- to theft warning relay-2 terminal ③.

If the theft warning system is triggered, terminal ② of the theft warning relay-2 is grounded and power to the inhibitor switch is interrupted.

When the theft warning system is not operating, power is supplied
- through theft warning relay-2 terminal ④
- to inhibitor switch terminal ②
- through inhibitor switch terminal ①, with the selector lever in the P or N position
- to terminal ② of the starter motor windings.

For USA models without theft warning system

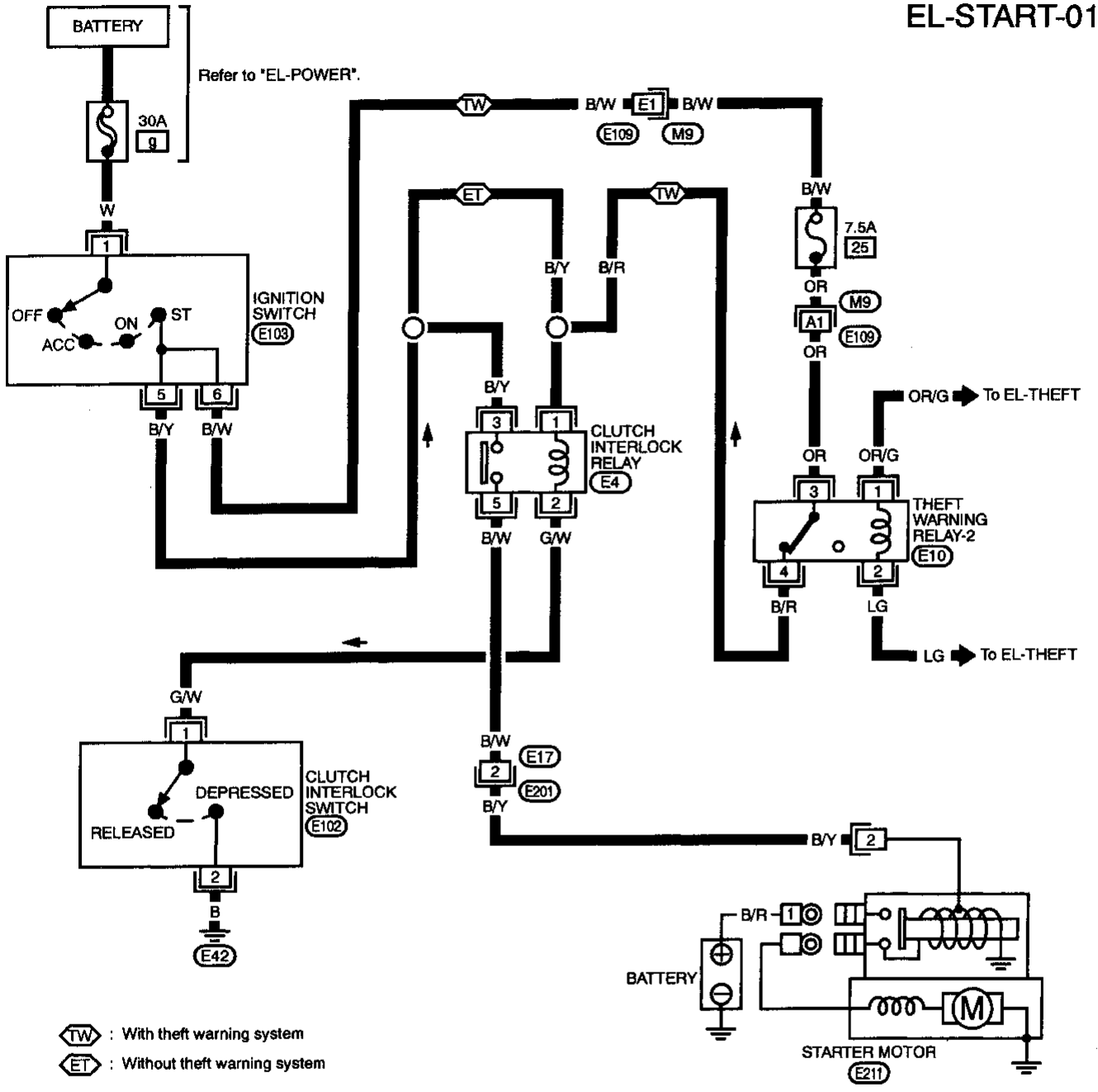
With the ignition switch in the START position, power is supplied
- from ignition switch terminal ⑤
- to inhibitor switch terminal ②
- through inhibitor switch terminal ①, with the selector lever in the P or N position
- to terminal ② of the starter motor windings.

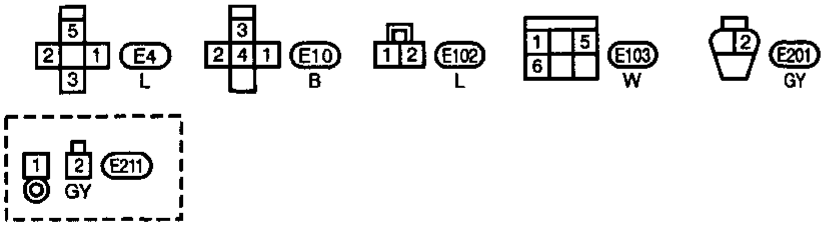
The starter motor plunger closes and provides a closed circuit between the battery and starter motor. The starter motor is grounded to the engine block. With power and ground supplied, cranking occurs and the engine starts.

Wiring Diagram — START —

M/T MODELS FOR USA

EL-START-01





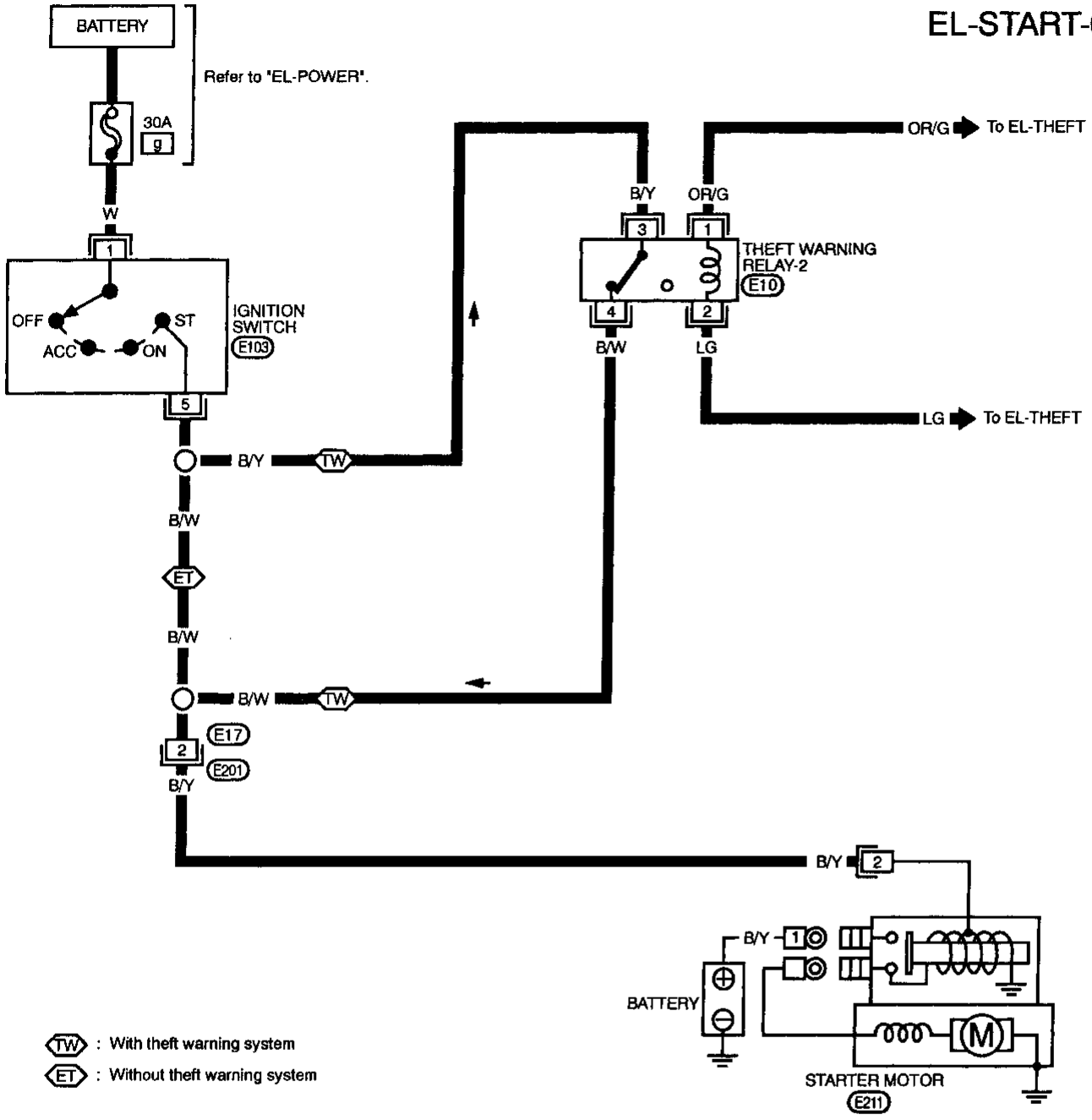
Refer to last page (Foldout page).
M9 , E109

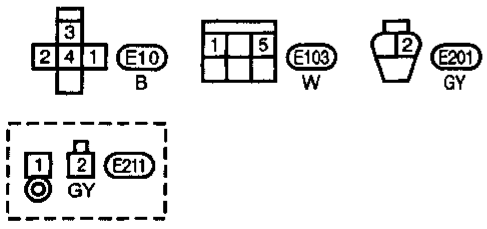
MEL214D

Wiring Diagram — START — (Cont'd)

M/T MODELS FOR CANADA

EL-START-02



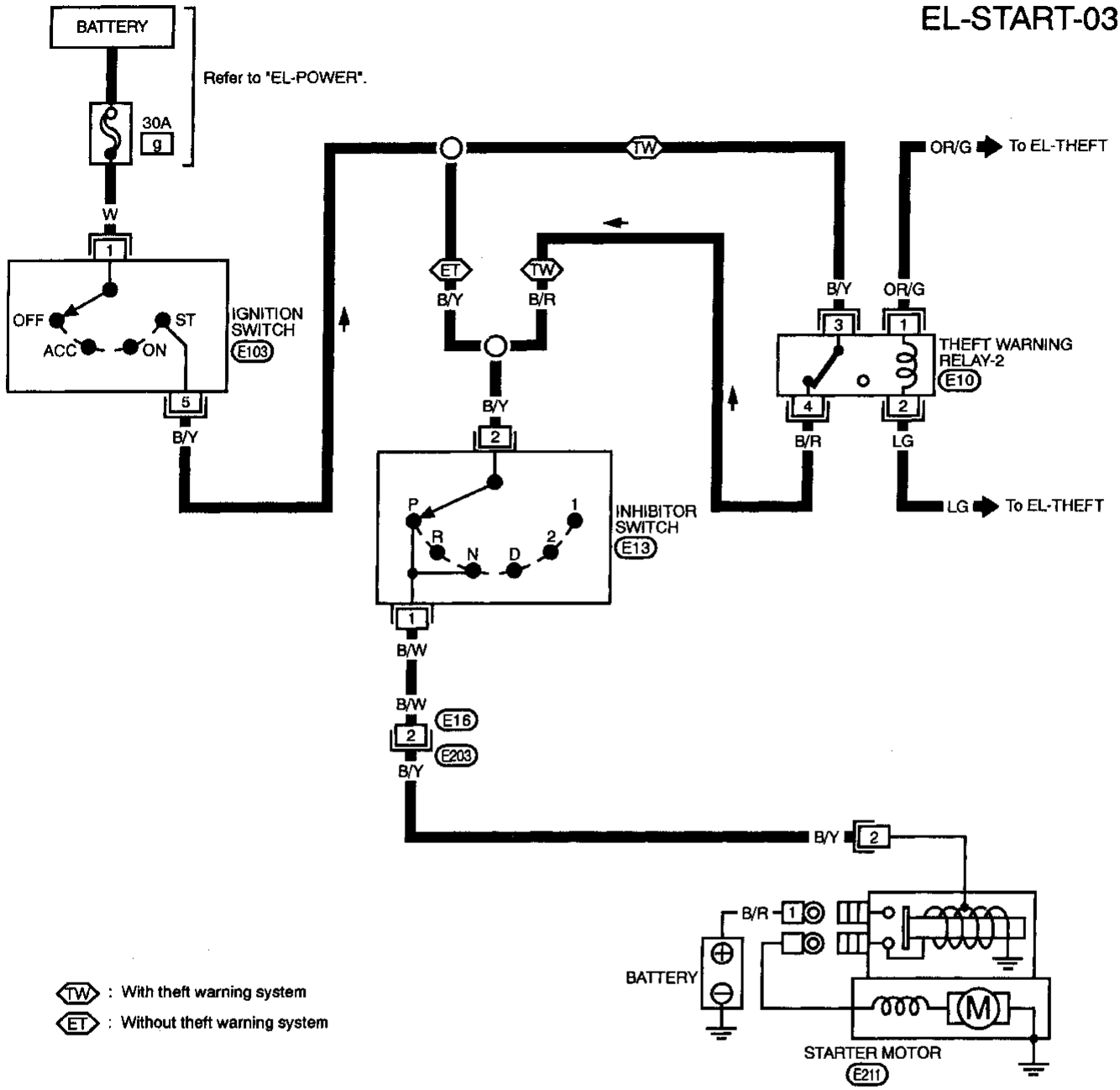


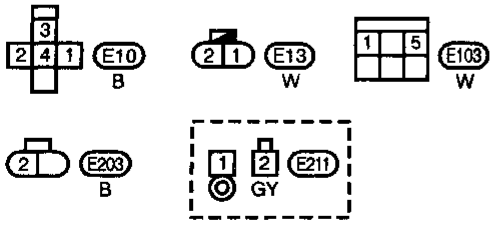
MEL215D

Wiring Diagram — START — (Cont'd)

A/T MODELS

EL-START-03

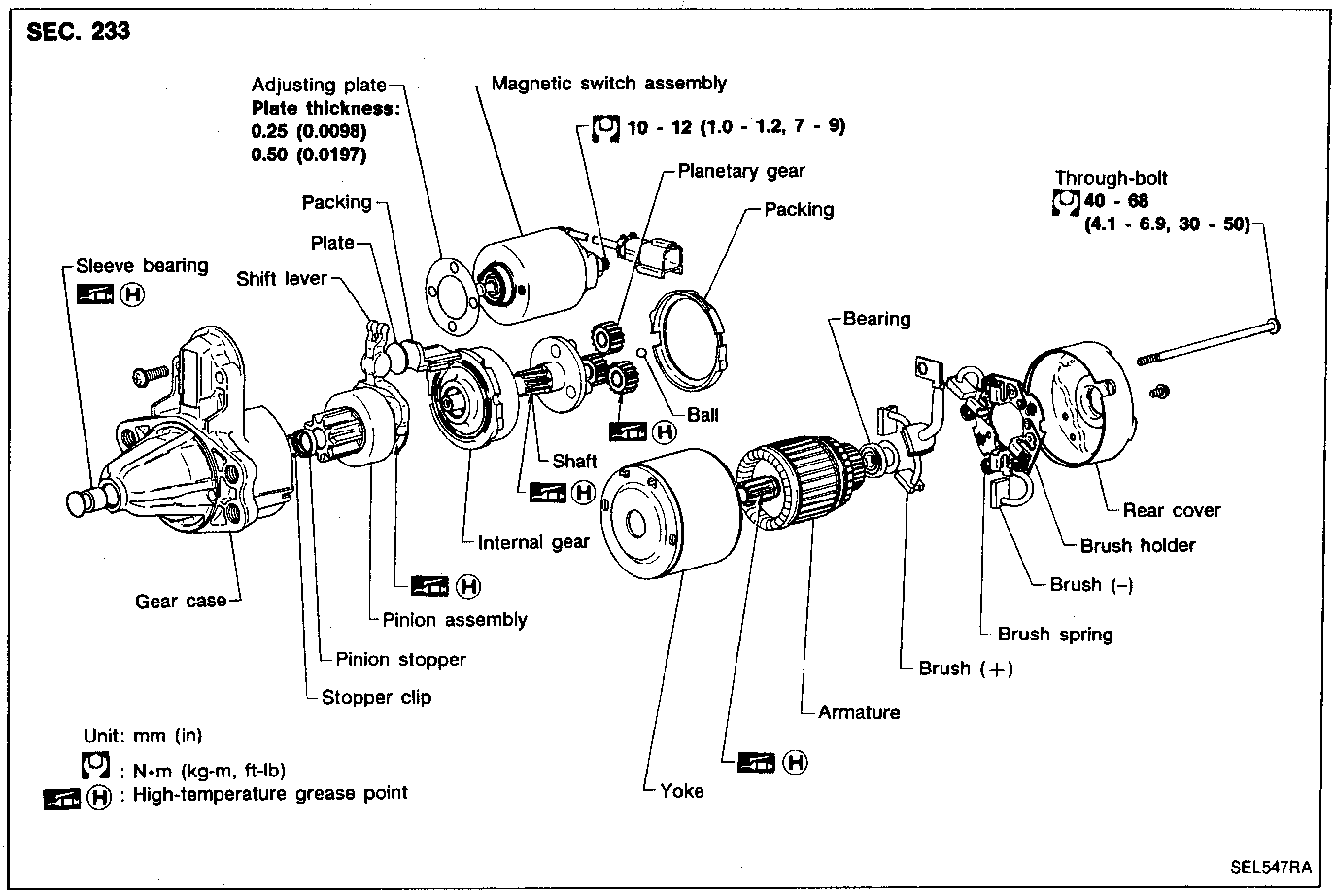


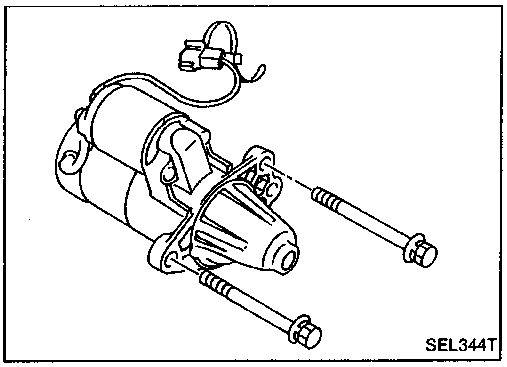


MEL216D

Construction

M1T72781A





Removal and Installation

REMOVAL

1. (A/T model only)
   - Support automatic transmission with a jack.
   - Remove rear mounting bracket bolts (4).
   - Slightly lower the transmission to make room.
   - Pull out ATF level gauge pipe.
2. Remove connector bracket from front mount bracket.
3. Remove harness connector.
4. Remove starter.

INSTALLATION

To install, reverse the removal procedure.

Pinion/Clutch Check

1. Inspect pinion teeth.
- Replace pinion if teeth are worn or damaged. (Also check condition of ring gear teeth.)
2. Inspect reduction gear teeth.
- Replace reduction gear if teeth are worn or damaged. (Also check condition of armature shaft gear teeth.)
3. Check to see if pinion locks in one direction and rotates smoothly in the opposite direction.
- If it locks or rotates in both directions, or unusual resistance is evident, replace.

Service Data and Specifications (SDS)

STARTER

Type		M1T72781A
		MITSUBISHI make
		Reduction gear type
System voltage	V	12
No-load		
Terminal voltage	V	11.0
Current	A	50 - 75
Revolution	rpm	3,000 - 4,000
Minimum diameter of commutator	mm (in)	28.8 (1.134)
Minimum length of brush	mm (in)	12.0 (0.472)
Brush spring tension	N (kg, lb)	13.7 - 25.5 (1.4 - 2.6, 3.1 - 5.7)
Clearance between pinion front edge and pinion stopper	mm (in)	0.5 - 2.0 (0.020 - 0.079)

System Description

The alternator provides DC voltage to operate the vehicle's electrical system and to keep the battery charged. The voltage output is controlled by the IC regulator.

Power is supplied at all times to alternator terminal Ⓢ through:

- 100A or 75A fusible link (letter [n] or [f], located in the fusible link and fuse box), and
- 7.5A fuse (No. [47] or [34] , located in the fusible link and fuse box).

Terminal Ⓑ supplies power to charge the battery and operate the vehicle's electrical system. Output voltage is controlled by the IC regulator at terminal Ⓢ detecting the input voltage. The charging circuit is protected by the 100A or 75A fusible link.

Terminal Ⓔ of the alternator supplies ground through body ground (E205).

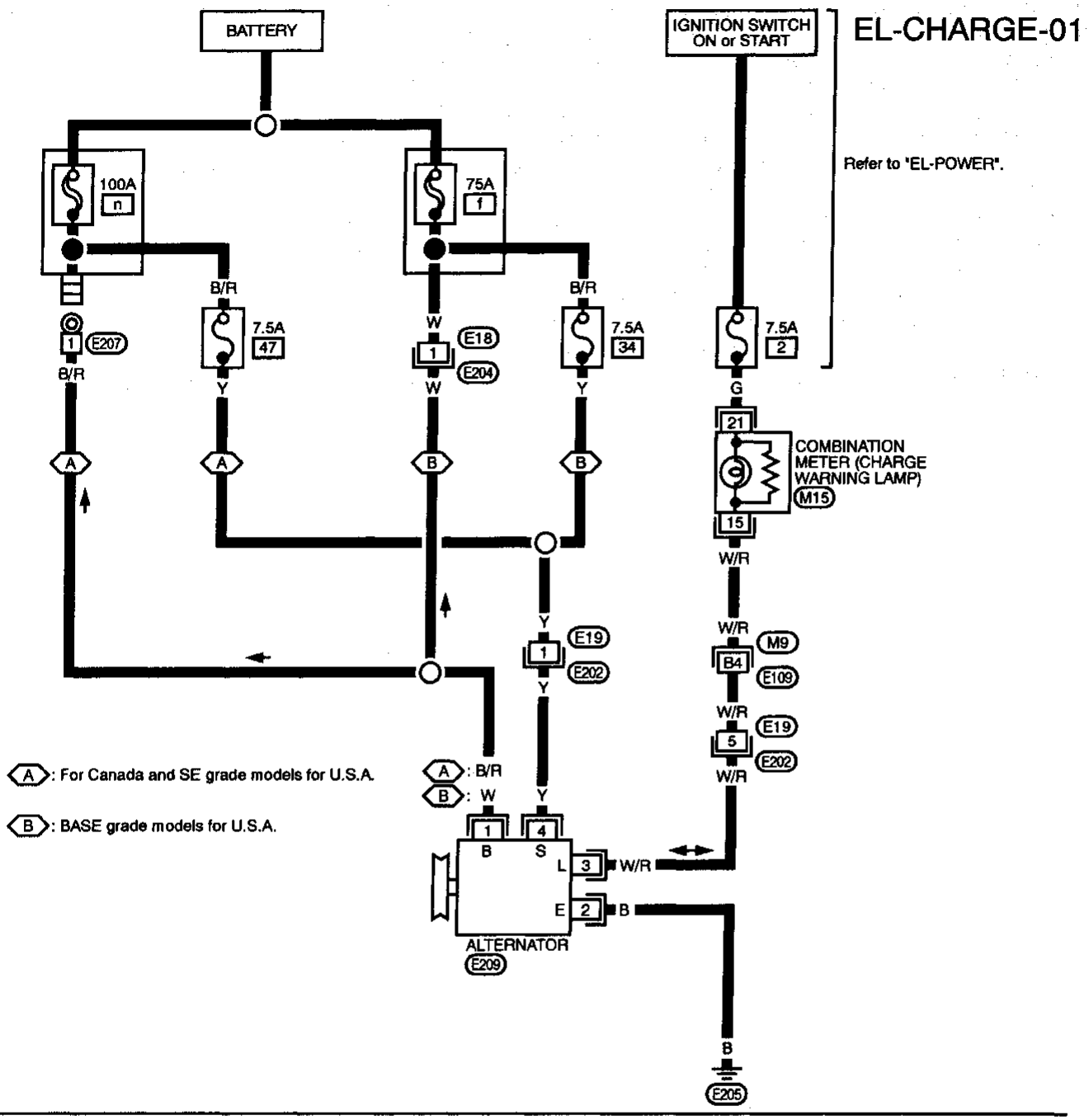
With the ignition switch in the ON or START position, power is supplied

- through 7.5A fuse (No. [2] , located in the fuse block)
- to combination meter terminal ㉑ for the charge warning lamp.

Ground is supplied to terminal ⑮ of the combination meter through terminal Ⓛ of the alternator. With power and ground supplied, the charge warning lamp will illuminate. When the alternator is providing sufficient voltage with the engine running, the ground is opened and the charge warning lamp will go off.

If the charge warning lamp illuminates with the engine running, a fault is indicated.

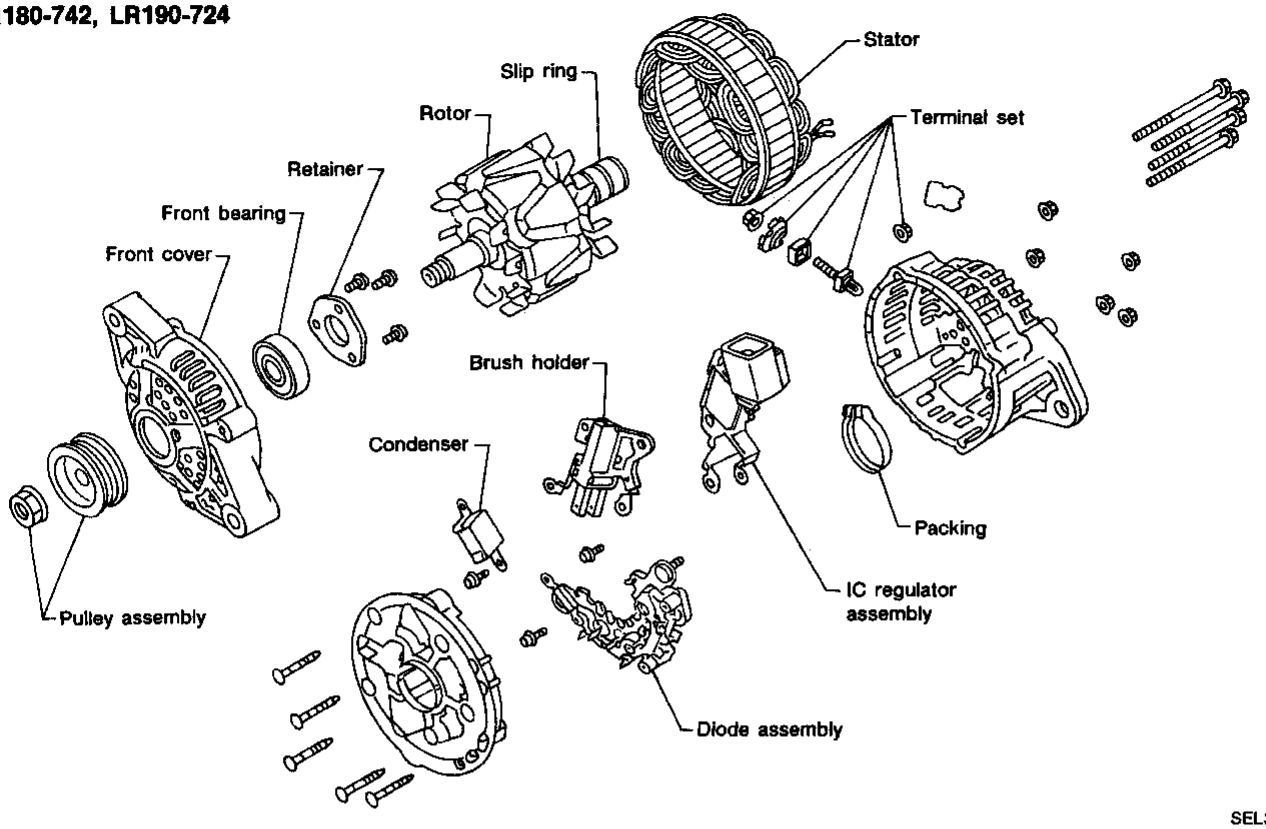
Wiring Diagram — CHARGE —

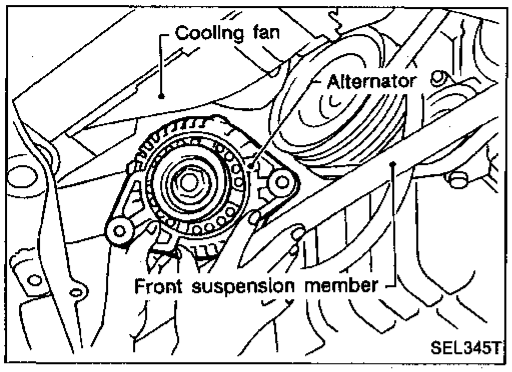


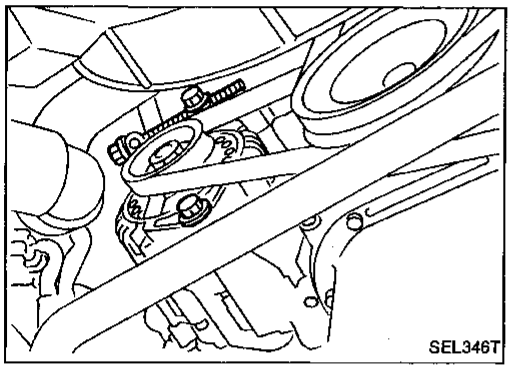
MEL217D

Construction

SEC. 231
LR180-742, LR190-724







Removal and Installation

REMOVAL

1. Remove engine undercover.
2. Remove drive belt from alternator.
3. Disconnect harness connector.
4. Remove cooling fan lower shroud.
5. Remove alternator.

INSTALLATION

To install, reverse the removal procedure.

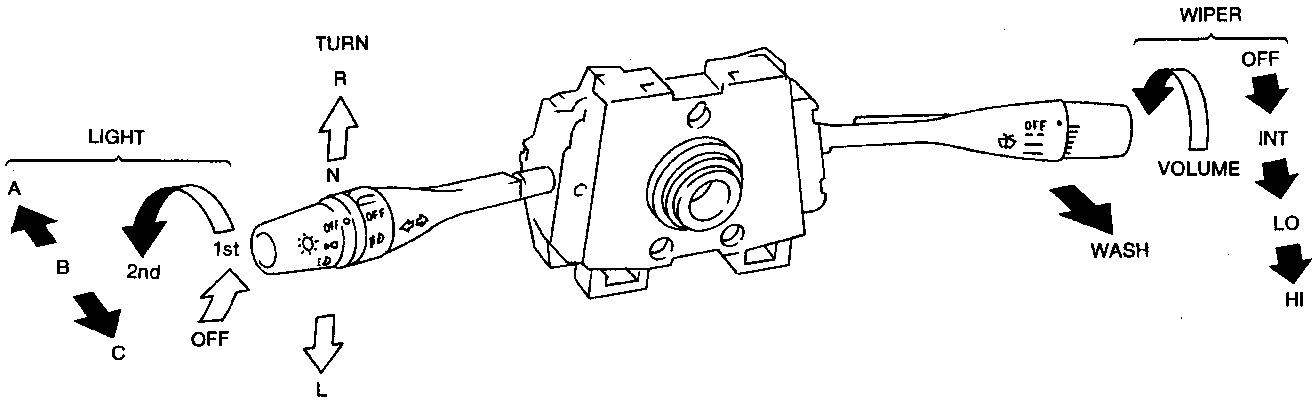
Service Data and Specifications (SDS)

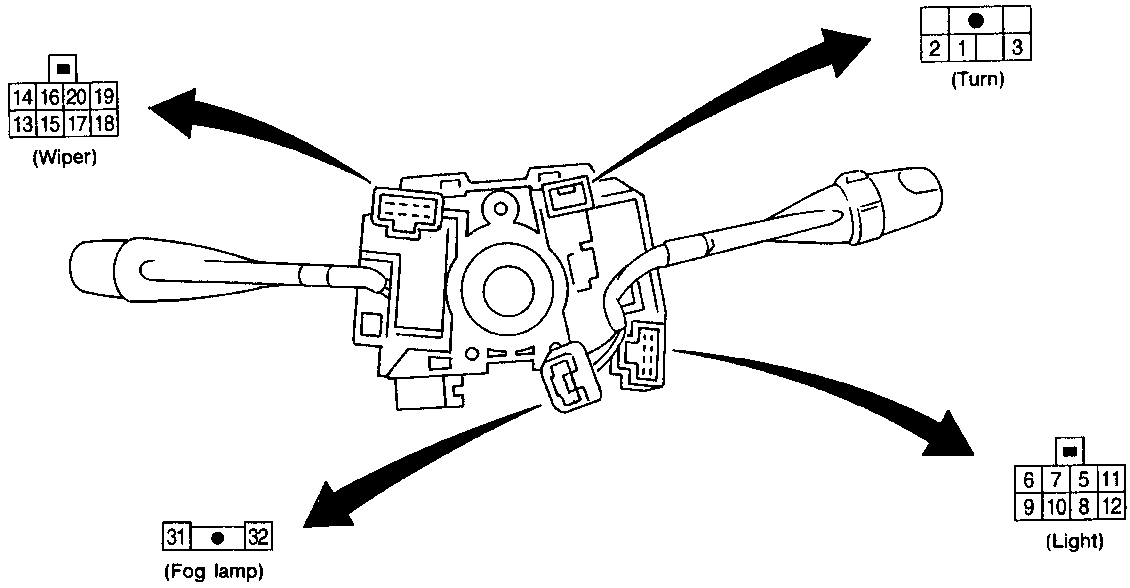
ALTERNATOR

Type		LR180-742	LR190-724*
		HITACHI make	
Nominal rating	V-A	12 - 80	12 - 90
Ground polarity		Negative	
Minimum revolution under no-load (When 13.5 volts is applied)	rpm	Less than 1,000	
Hot output current (When 13.5 volts is applied)	A/rpm	More than 22/1,300 More than 65/2,500 More than 77/5,000	More than 22/1,300 More than 65/2,500 More than 87/5,000
Regulated output voltage	V	14.1 - 14.7	
Minimum length of brush	mm (in)	6.0 (0.236)	
Brush spring pressure	N (g, oz)	1.000 - 3.432 (102 - 350, 3.60 - 12.34)	
Slip ring minimum outer diameter	mm (in)	26.0 (1.024)	

*: Option

Combination Switch/Check





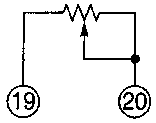
LIGHTING SWITCH

	OFF			1			2		
	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					○

VARIABLE INTERMITTENT WIPER VOLUME



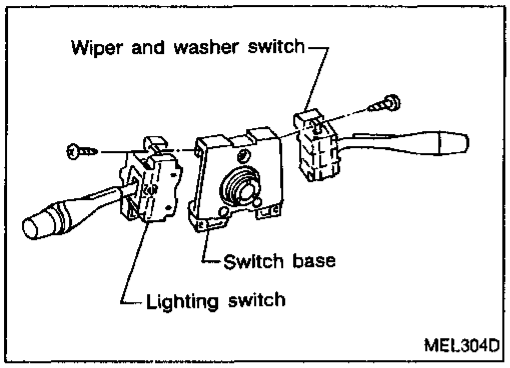
FOG LAMP SWITCH

	OFF	ON
31		○
32		○

	R	N	L
1	○		
2	○		○
3			○

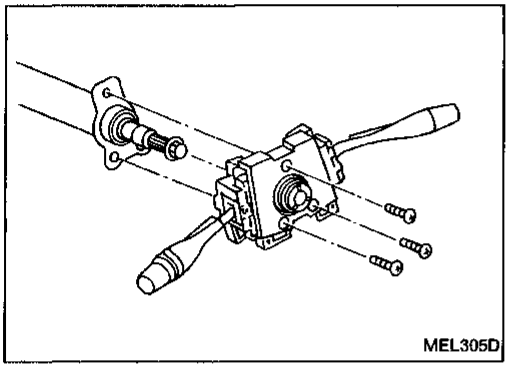
TURN SIGNAL SWITCH

MEL303D



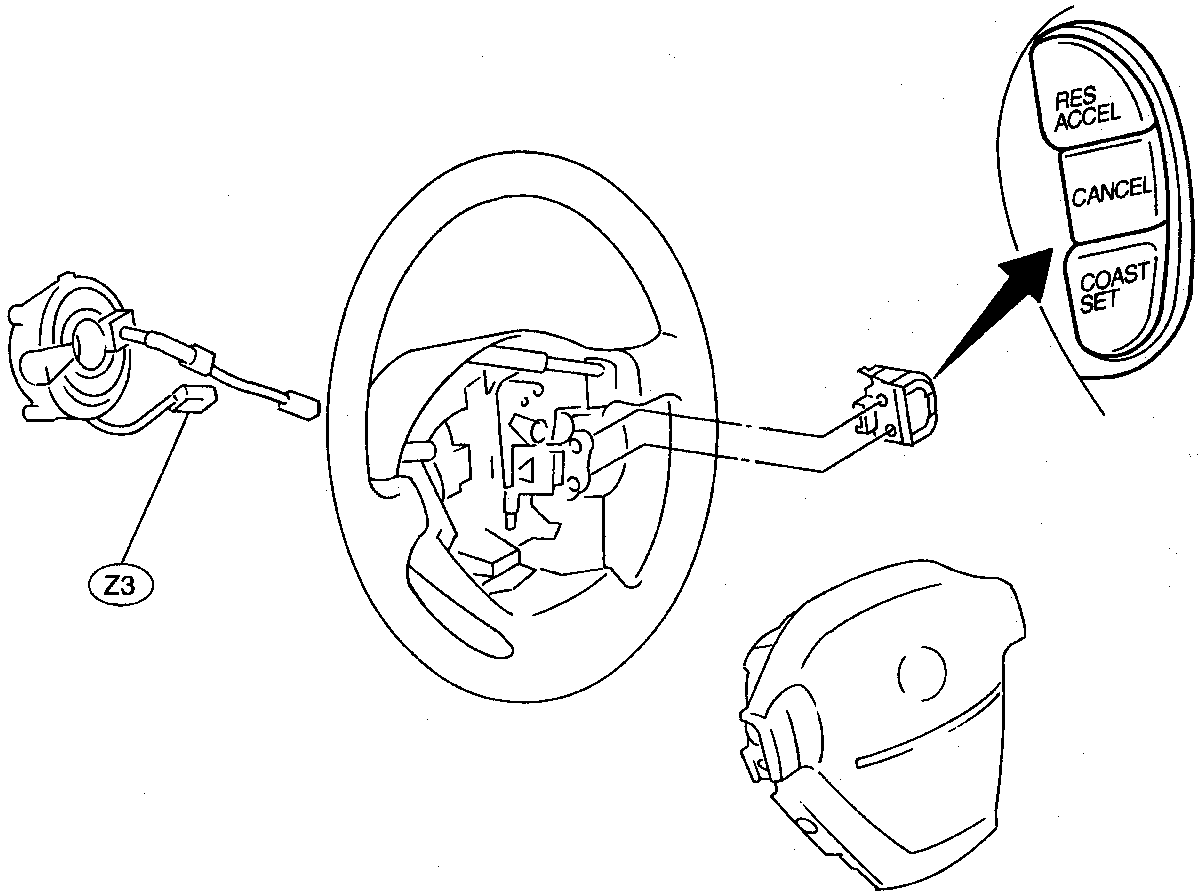
Replacement

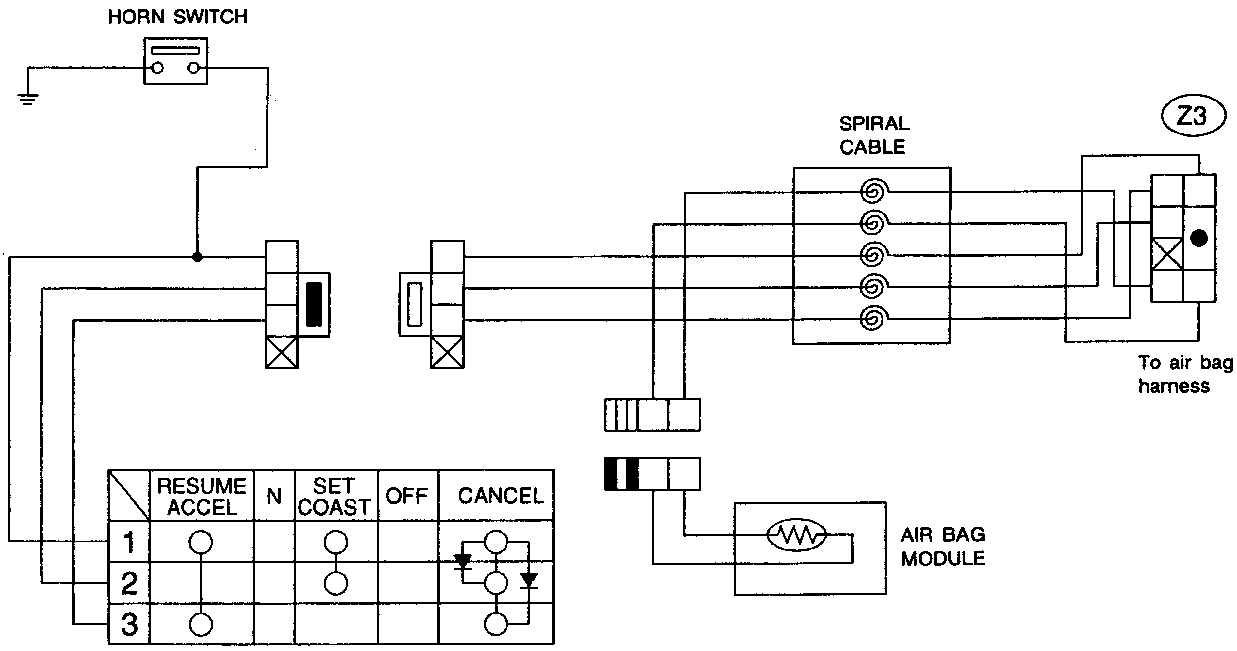
- Each switch can be replaced without removing combination switch base.



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

Steering Switch/Check





MEL306D

System Description (For USA)

The headlamps are controlled by the lighting switch which is built into the combination switch.
Power is supplied at all times

- to lighting switch terminal ⑤
- through 20A fuse (No. 40 , located in the fusible link and fuse box), and
- to lighting switch terminal ⑧
- through 20A fuse (No. 39 , located in the fusible link and fuse box).

Low beam operation

When the lighting switch is turned to the 2ND position and placed in LOW ("B") position, power is supplied

- from lighting switch terminal ⑩
- to terminal ③ of the LH headlamp, and
- from lighting switch terminal ⑦
- to terminal ③ of the RH headlamp.

Terminal ② of each headlamp supplies ground through body ground E28 or E42.
With power and ground supplied, the headlamp(s) will illuminate.

High beam operation/flash-to-pass operation

When the lighting switch is turned to the 2ND position and placed in HIGH ("A") position or PASS ("C") position, power is supplied

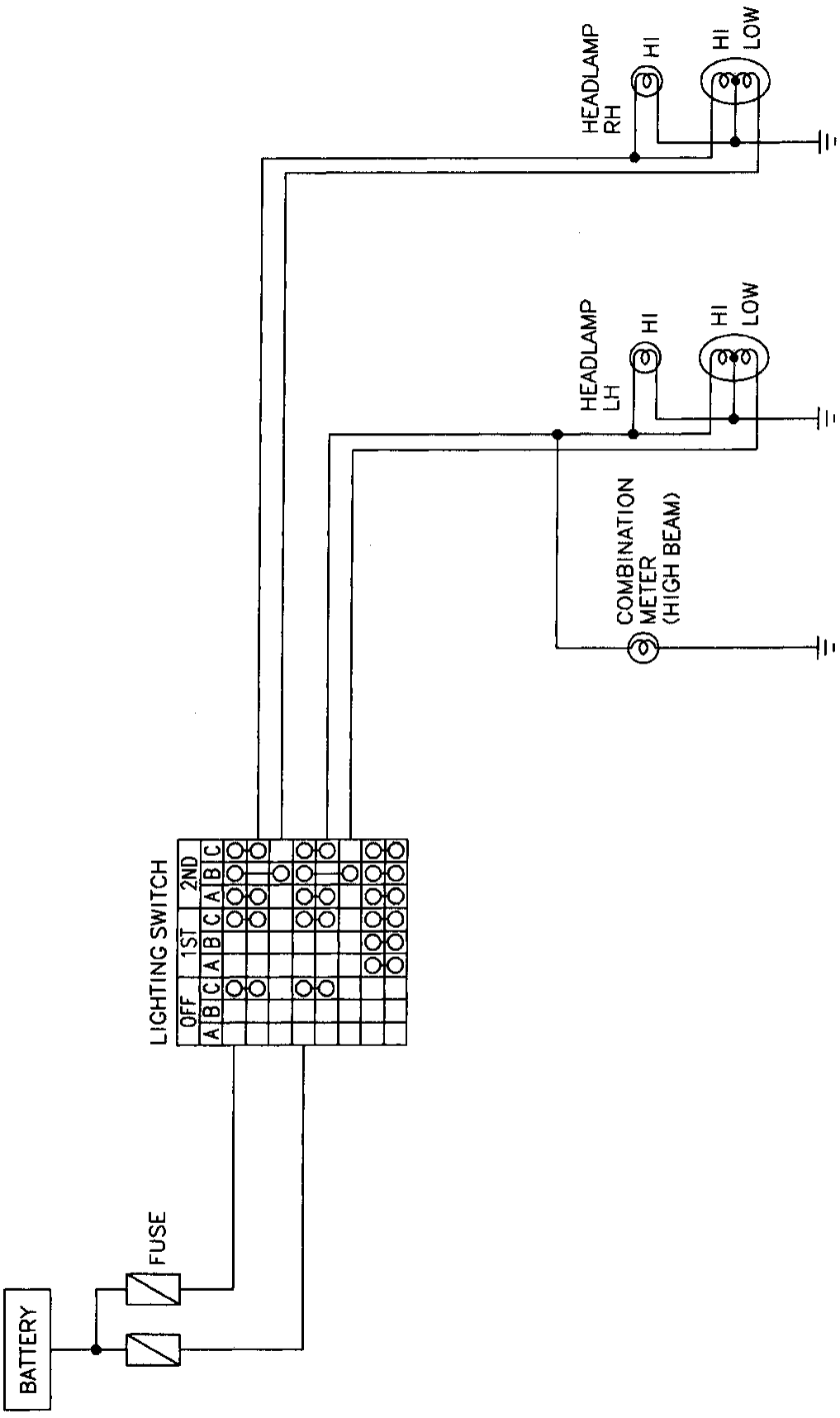
- from lighting switch terminal ⑥
- to terminal ① of each RH headlamp, and
- from lighting switch terminal ⑨
- to terminal ① of each LH headlamp, and
- to combination meter terminal ㊲ for the high beam indicator.

Ground is supplied to terminal ㊱ of the combination meter through body ground M5.
Terminal ② of each headlamp supplies ground through body ground E28 or E42.
With power and ground supplied, the high beams and the high beam indicator illuminate.

Theft warning system

The theft warning system will flash the high beams if the system is triggered. Refer to "THEFT WARNING SYSTEM" (EL-159).

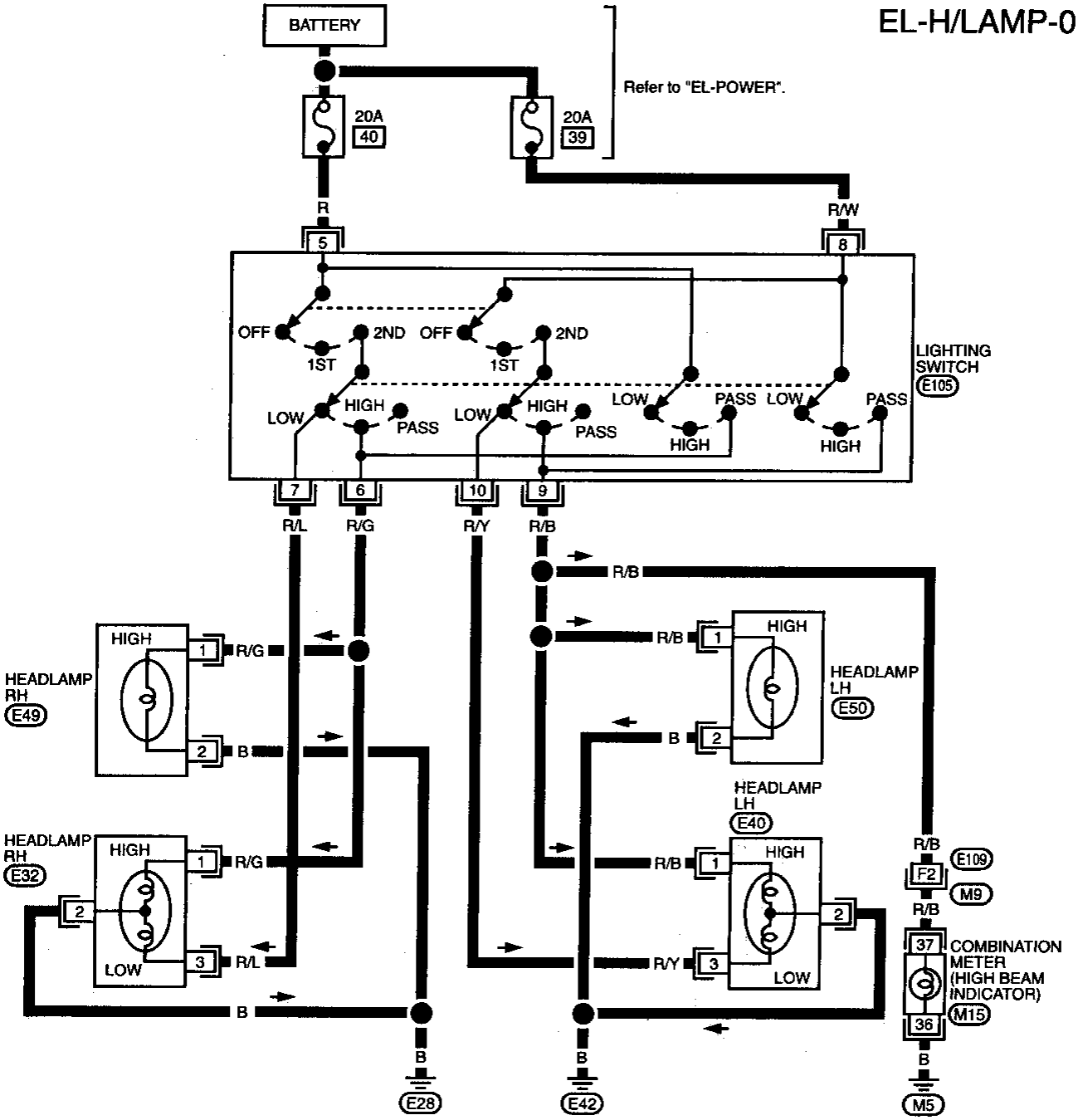
Schematic (For USA)

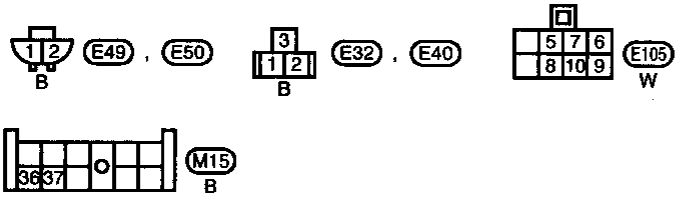


MEL218D

Wiring Diagram (For USA) — H/LAMP —

EL-H/LAMP-01





Refer to last page (Foldout page).
M9 , E109

MEL219D

Trouble Diagnoses (For USA)

Symptom	Possible cause	Repair order
LH headlamps do not operate.	1. Bulb 2. Ground (E42) 3. 20A fuse 4. Lighting switch	1. Check bulb. 2. Check ground (E42). 3. Check 20A fuse (No. 39 , located in fusible link and fuse box). Verify battery positive voltage is present at terminal ⑧ of lighting switch. 4. Check lighting switch.
RH headlamps do not operate.	1. Bulb 2. Ground (E28) 3. 20A fuse 4. Lighting switch	1. Check bulb. 2. Check ground (E28). 3. Check 20A fuse (No. 40 , located in fusible link and fuse box). Verify battery positive voltage is present at terminal ⑤ of lighting switch. 4. Check lighting switch.
LH high beams do not operate, but LH low beam operates.	1. Bulbs 2. Open in LH high beams circuit 3. Lighting switch	1. Check bulbs. 2. Check R/B wire between lighting switch and LH headlamps for an open circuit. 3. Check lighting switch.
LH low beam does not operate, but LH high beam operates.	1. Bulb 2. Open in LH low beam circuit 3. Lighting switch	1. Check bulb. 2. Check R/Y wire between lighting switch and LH headlamp for an open circuit. 3. Check lighting switch.
RH high beams do not operate, but RH low beam operates.	1. Bulbs 2. Open in RH high beams circuit 3. Lighting switch.	1. Check bulbs. 2. Check R/G wire between lighting switch and RH headlamps for an open circuit. 3. Check lighting switch.
RH low beam does not operate, but RH high beam operates.	1. Bulb 2. Open in RH low beam circuit 3. Lighting switch	1. Check bulb. 2. Check R/L wire between lighting switch and RH headlamp for an open circuit. 3. Check lighting switch.
High beam indicator does not work.	1. Bulb 2. Ground (M5) 3. Open in high beam circuit	1. Check bulb in combination meter. 2. Check ground (M5). 3. Check R/B wire between lighting switch and combination meter for an open circuit.

System Description (For Canada)

The headlamp system for Canada vehicles contains a daytime light control unit that activates the high beam headlamps at approximately half illumination whenever the engine is running. If the parking brake is applied before the engine is started the daytime lights will not be illuminated. The daytime lights will illuminate once the parking brake is released. Thereafter, the daytime lights will continue to operate when the parking brake is applied.

Power is supplied at all times
- through 20A fuse (No. 39 , located in the fusible link and fuse box)
- to daytime light control unit terminal ③ and
- to lighting switch terminal ⑧.

Power is also supplied at all times
- through 20A fuse (No. 40 , located in the fusible link and fuse box)
- to daytime light control unit terminal ② and
- to lighting switch terminal ⑤.

With the ignition switch in the ON or START position, power is supplied
- through 7.5A fuse (No. 1 , located in the fuse block)
- to daytime light control unit terminal ⑫.

With the ignition switch in the START position, power is supplied
- through 7.5A fuse (No. 25 , located in the fuse block)
- to daytime light control unit terminal ①.

Ground is supplied to daytime light control unit terminal ⑨ through body ground E28.

HEADLAMP OPERATION

Low beam operation

When the lighting switch is turned to the 2ND position and placed in LOW ("B") position, power is supplied
- from lighting switch terminal ⑦
- to RH headlamp terminal ③
- to daytime light control unit terminal ④.

Ground is supplied to RH headlamp terminal ② through body ground E28.

Also, when the lighting switch is turned to the 2ND position and placed in LOW ("B") position, power is supplied
- from lighting switch terminal ⑩
- to LH headlamp terminal ③.

Ground is supplied
- to LH headlamp terminal ②
- from daytime light control unit terminal ⑦
- through daytime light control unit terminal ⑨
- through body ground E28.

With power and ground supplied, the low beam headlamps illuminate.

High beam operation/flash-to-pass operation

When the lighting switch is turned to the 2ND position and placed in HIGH ("A") position, power is supplied
- from lighting switch terminal ⑥
- to terminal ① of each RH headlamp
- to daytime light control unit terminal ⑧.

When the lighting switch is turned to the 2ND position and placed in HIGH ("A") position, power is supplied
- from lighting switch terminal ⑨
- to daytime light control terminal ⑤
- to combination meter terminal ㊲ for the high beam indicator
- through daytime light control terminal ⑥
- to terminal ① of each LH headlamp.

Ground is supplied in the same manner as low beam operation.

Ground is supplied to terminal ㊱ of the combination meter through body ground M5.

With power and ground supplied, the high beam headlamps illuminate.

System Description (For Canada) (Cont'd)

DAYTIME LIGHT OPERATION

With the engine running and the lighting switch in the OFF position, power is supplied
- to daytime light control module terminal ③
- through daytime light control module terminal ⑥
- to terminal ① of each LH headlamp
- through terminal ② of each LH headlamp
- to daytime light control module terminal ⑦
- through daytime light control module terminal ⑧
- to terminal ① of each RH headlamp.

Ground is supplied to terminal ② of each RH headlamp through body ground (E28).
Because the high beam headlamps are now wired in series, they operate at half illumination.

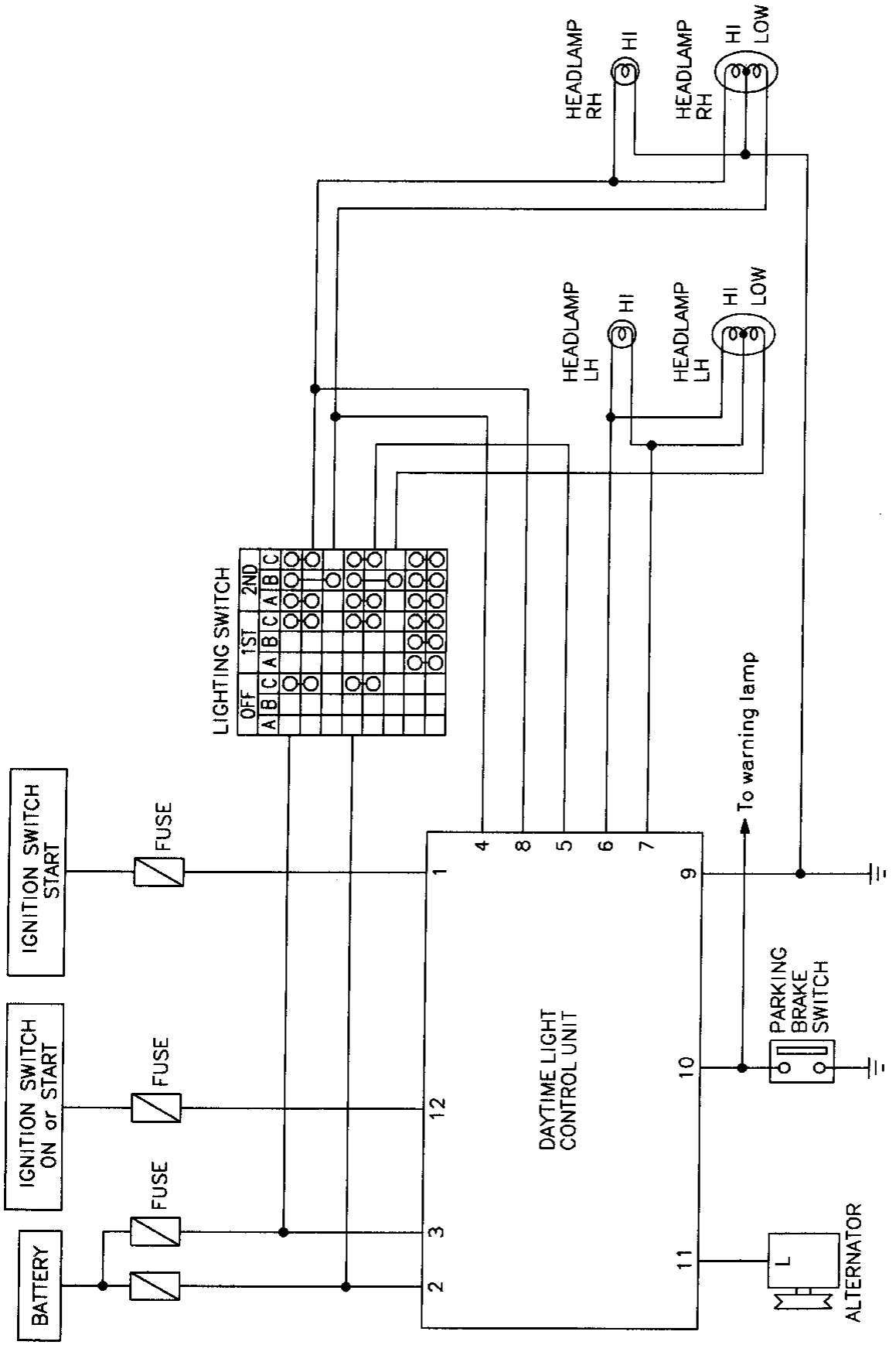
Operation (Daytime light system for Canada)

After starting the engine with the lighting switch in the "OFF" 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.

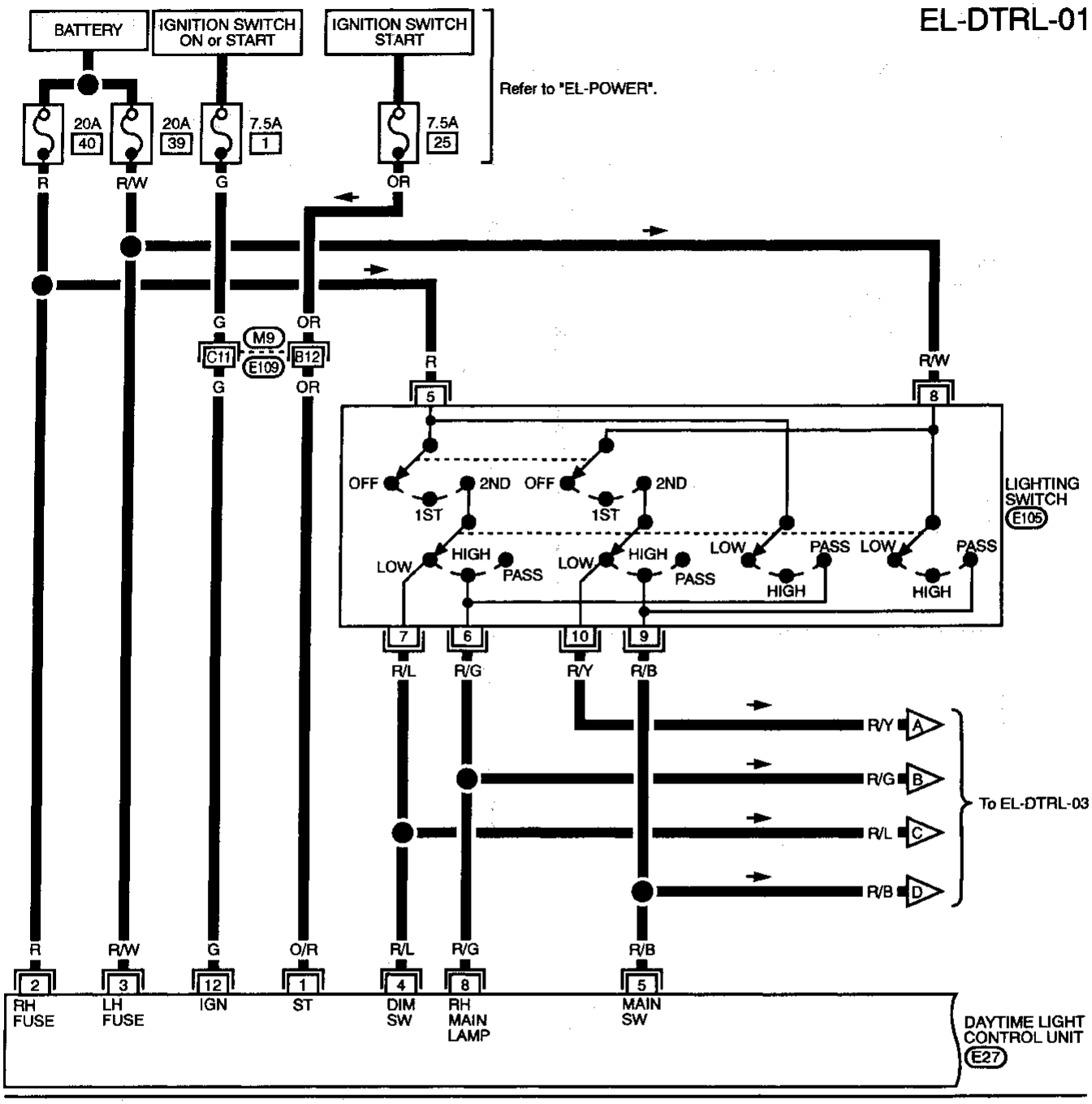
Schematic (For Canada)



MEL220D

Wiring Diagram (For Canada) — DTRL —

EL-DTRL-01

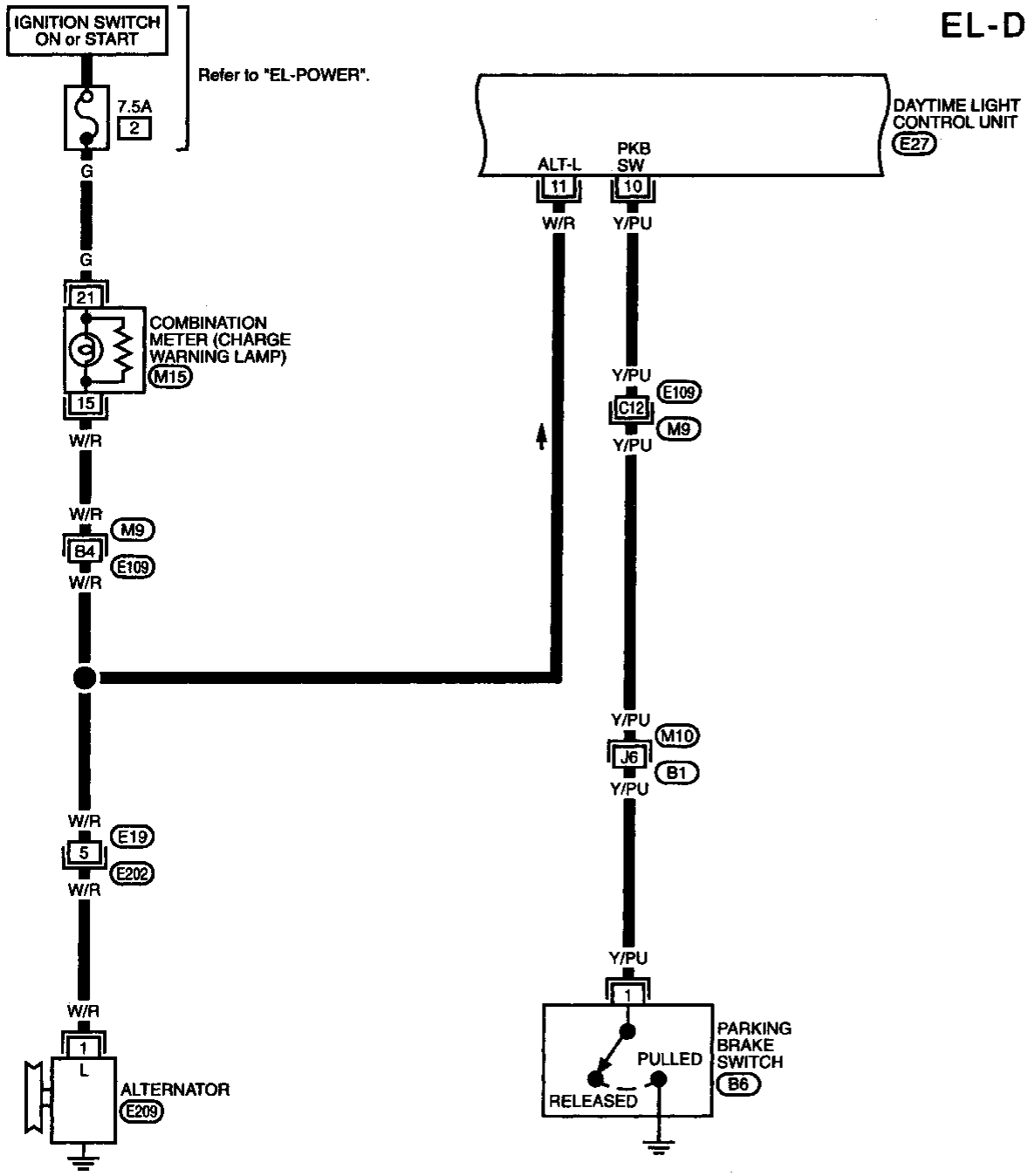


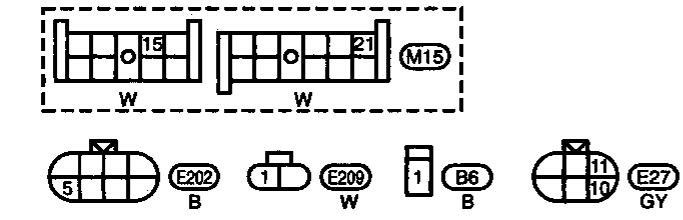
Refer to last page (Foldout page).
M9 , E109

MEL221D

Wiring Diagram (For Canada) — DTRL — (Cont'd)

EL-DTRL-02



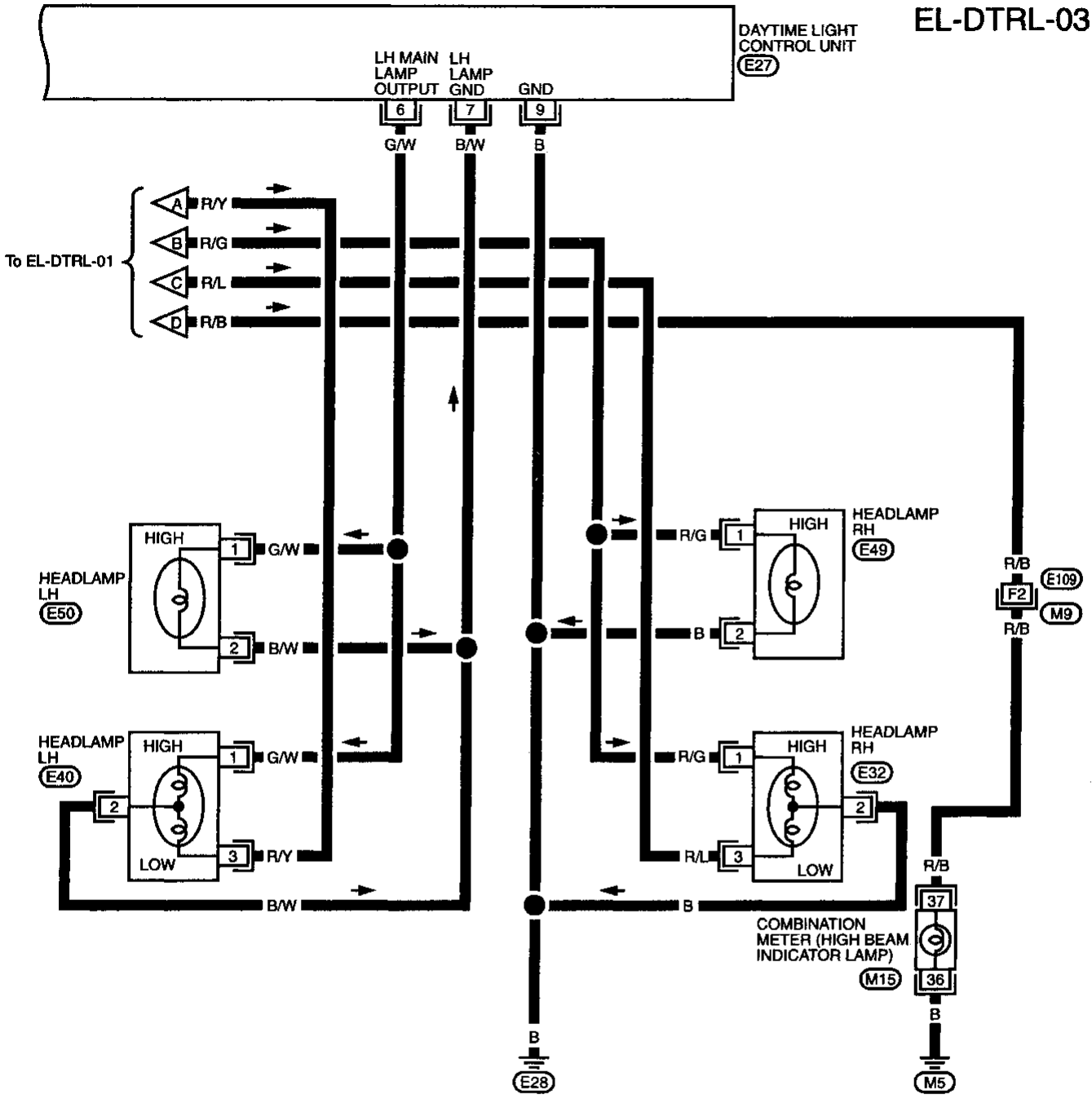


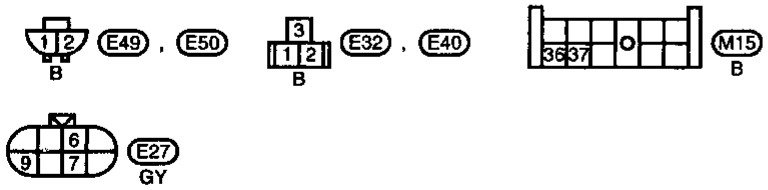
Refer to last page (Foldout page).
M9 , E109
M10 , B1

MEL222D

Wiring Diagram (For Canada) — DTRL — (Cont'd)

EL-DTRL-03





Refer to last page (Foldout page).
M9 , E109

MEL223D

Trouble Diagnoses (For Canada)

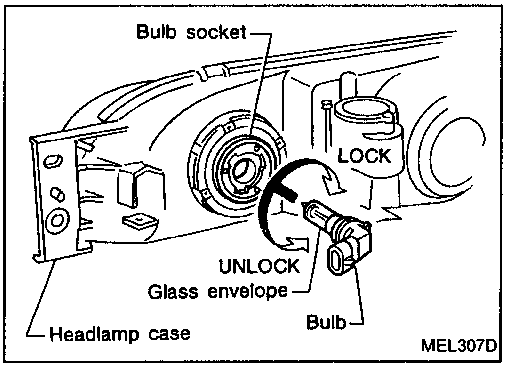
DAYTIME LIGHT CONTROL UNIT INSPECTION TABLE

(Data are reference values.)

Terminal No.	Item	Condition		Judgement standard
1	Start signal		When turning ignition switch to "ST"	Battery positive voltage
			When turning ignition switch to "ON" from "ST"	1V or less
			When turning ignition switch to "OFF"	1V or less
2	Power source		When turning ignition switch to "ON"	Battery positive voltage
			When turning ignition switch to "OFF"	Battery positive voltage
3	Power source		When turning ignition switch to "ON"	Battery positive voltage
			When turning ignition switch to "OFF"	Battery positive voltage
4	Lighting switch (Lo beam)		When turning lighting switch to "HEAD" (2nd position)	Battery positive voltage
5	Lighting switch (Hi beam)		When turning lighting switch to "HI BEAM"	Battery positive voltage
			When turning lighting switch to "FLASH TO PASS"	Battery positive voltage
6	LH hi beam		When turning lighting switch to "HI BEAM"	Battery positive voltage
			When releasing parking brake with engine running and turning lighting switch to "OFF" (daytime light operation) **CAUTION: Block wheels and ensure selector lever is in N or P position.**	Battery positive voltage
7	LH headlamp control (ground)		When lighting switch is turned to "HEAD"	1V or less
			When releasing parking brake with engine running and turning lighting switch to "OFF" (daytime light operation) **CAUTION: Block wheels and ensure selector lever is in N or P position.**	Approx. half battery voltage
8	RH hi beam		When turning lighting switch to "HI BEAM"	Battery positive voltage
			When releasing parking brake with engine running and turning lighting switch to "OFF" (daytime light operation) **CAUTION: Block wheels and ensure selector lever is in N or P position.**	Approx. half battery voltage

Trouble Diagnoses (For Canada) (Cont'd)

Terminal No.	Item	Condition		Judgement standard
9	Ground		—	—
10	Parking brake switch		When parking brake is released	Battery positive voltage
			When parking brake is set	1.5V or less
11	Alternator		When turning ignition switch to "ON"	1V or less
			When engine is running	Battery positive voltage
			When turning ignition switch to "OFF"	1V or less
12	Power source		When turning ignition switch to "ON"	Battery positive voltage
			When turning ignition switch to "ST"	Battery positive voltage
			When turning ignition switch to "OFF"	1V or less



Bulb Replacement

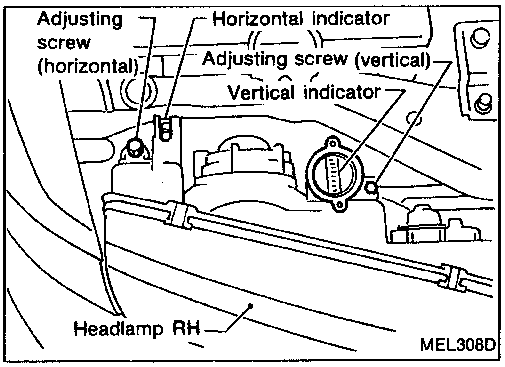
The headlamp is a semi-sealed beam type which uses a replaceable halogen bulb. The bulb can be replaced from the engine compartment side without removing the headlamp body.

- **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 headlamp reflector without bulb for a long period of time. Dust, moisture, smoke, etc. entering headlamp body may affect the performance of the headlamp. Remove headlamp bulb from the headlamp reflector just before a replacement bulb is installed.**

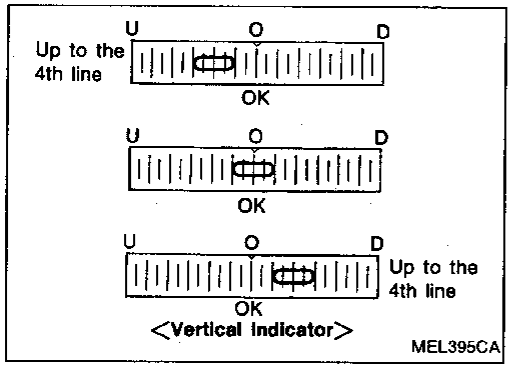


Aiming Adjustment

Before performing aiming adjustment, make sure of the following.

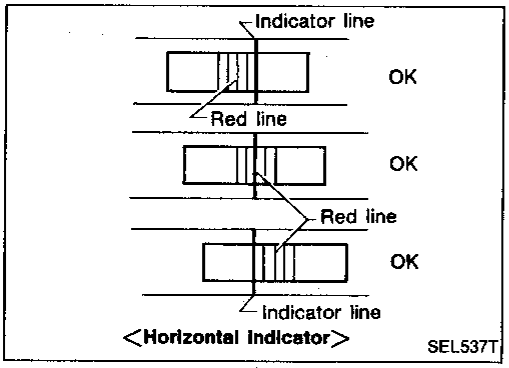
a. Keep all tires inflated to correct pressure.
b. Place vehicle on level ground.
c. See that vehicle is unloaded (except for full levels of coolant, engine oil and fuel, and spare tire, jack, and tools). Have the driver or equivalent weight placed in driver's seat.

Aiming Adjustment (Cont'd)

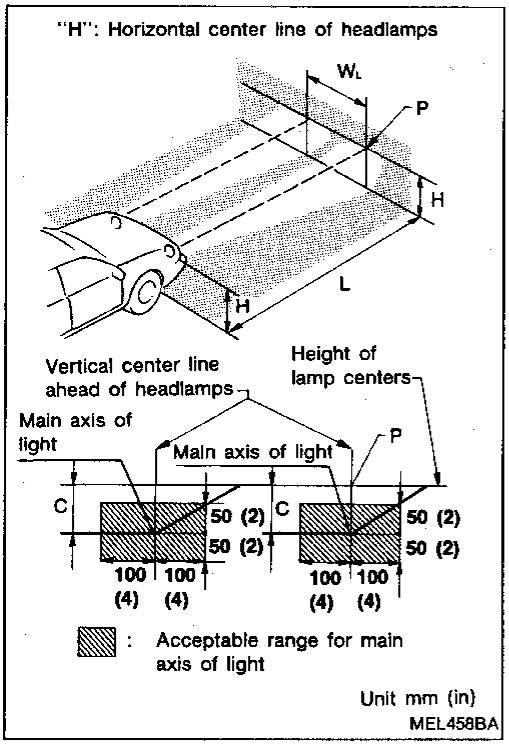


LOW BEAM

1. Open the hood.
2. Adjust the vertical indicator by turning the adjusting screw (vertical direction).
   The bubble in the gauge should be centered on the "O" mark as shown in the figure.



3. Adjust the horizontal indicator by turning the adjusting screw. (horizontal direction)
   The inner red line should align with the indicator line.



ADJUSTMENT AFTER HEADLAMP ASSEMBLY REPLACEMENT

If the vehicle front body has been repaired and/or the headlamp assembly has been replaced, check aiming. Use the aiming chart shown in the figure.

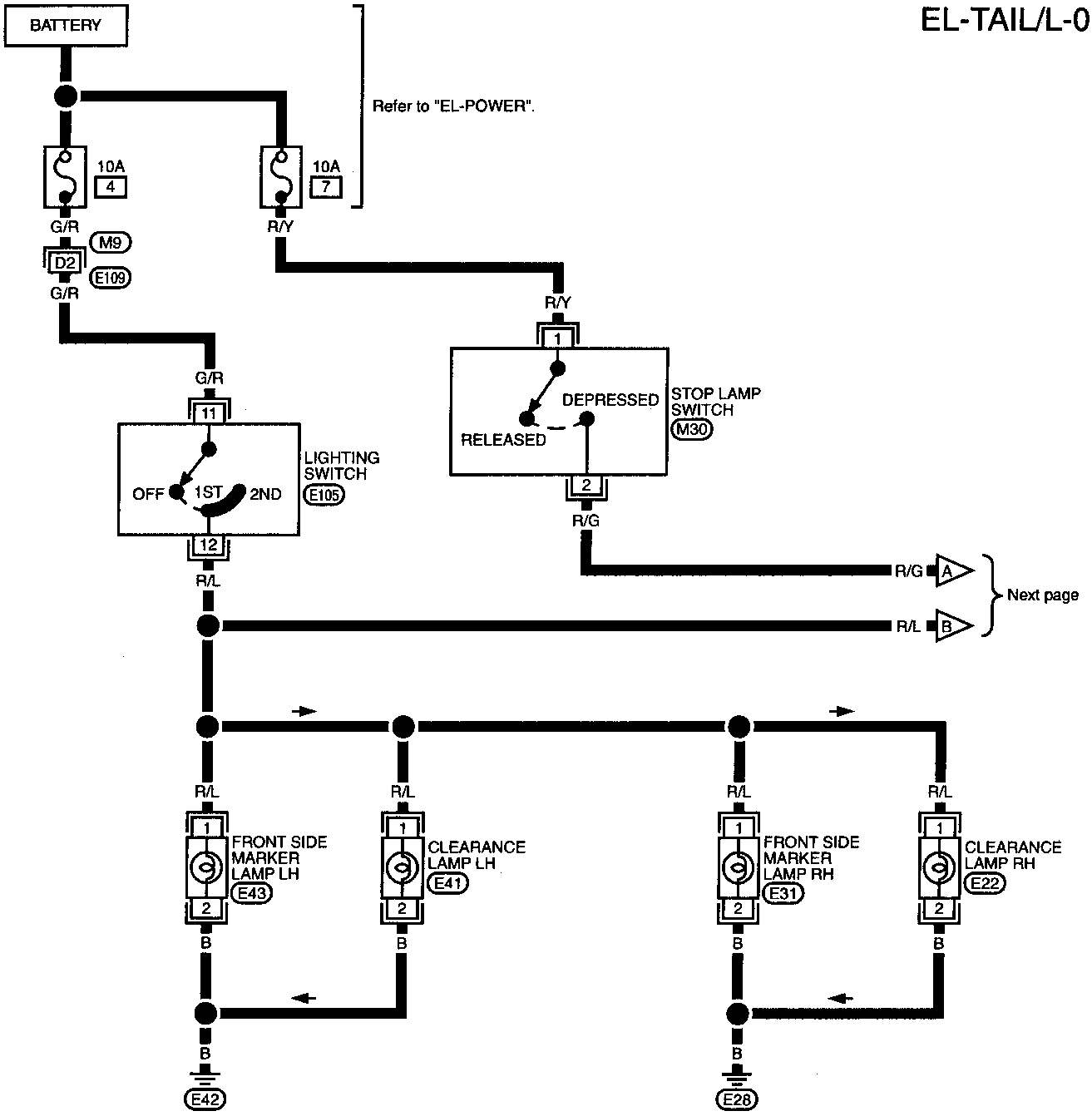
a. Adjust headlamps so that the main axis of light becomes:
- **parallel to center line of body, and**
- **aligned with point P shown in the figure.**

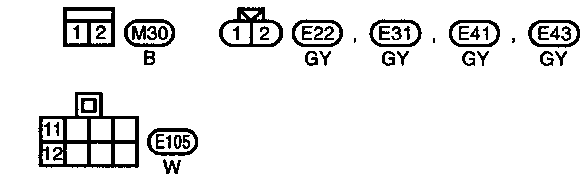
b. Dotted lines in illustration show center of headlamp.
"H": Horizontal center line of headlamps
"W_L": Distance between each headlamp center
"L": 7,620 mm (300.00 in)
"C": 75 mm (2.95 in)

After aiming adjustment using the chart, check the indications to make sure of alignment. Even if the following are observed, it is acceptable while the indications are within the OK ranges.
- Indicator does not align with the indicator line, or
- the bubble is not centered in the vertical indicator.

Clearance, License, Tail and Stop Lamps/Wiring Diagram — TAIL/L —

EL-TAIL/L-01



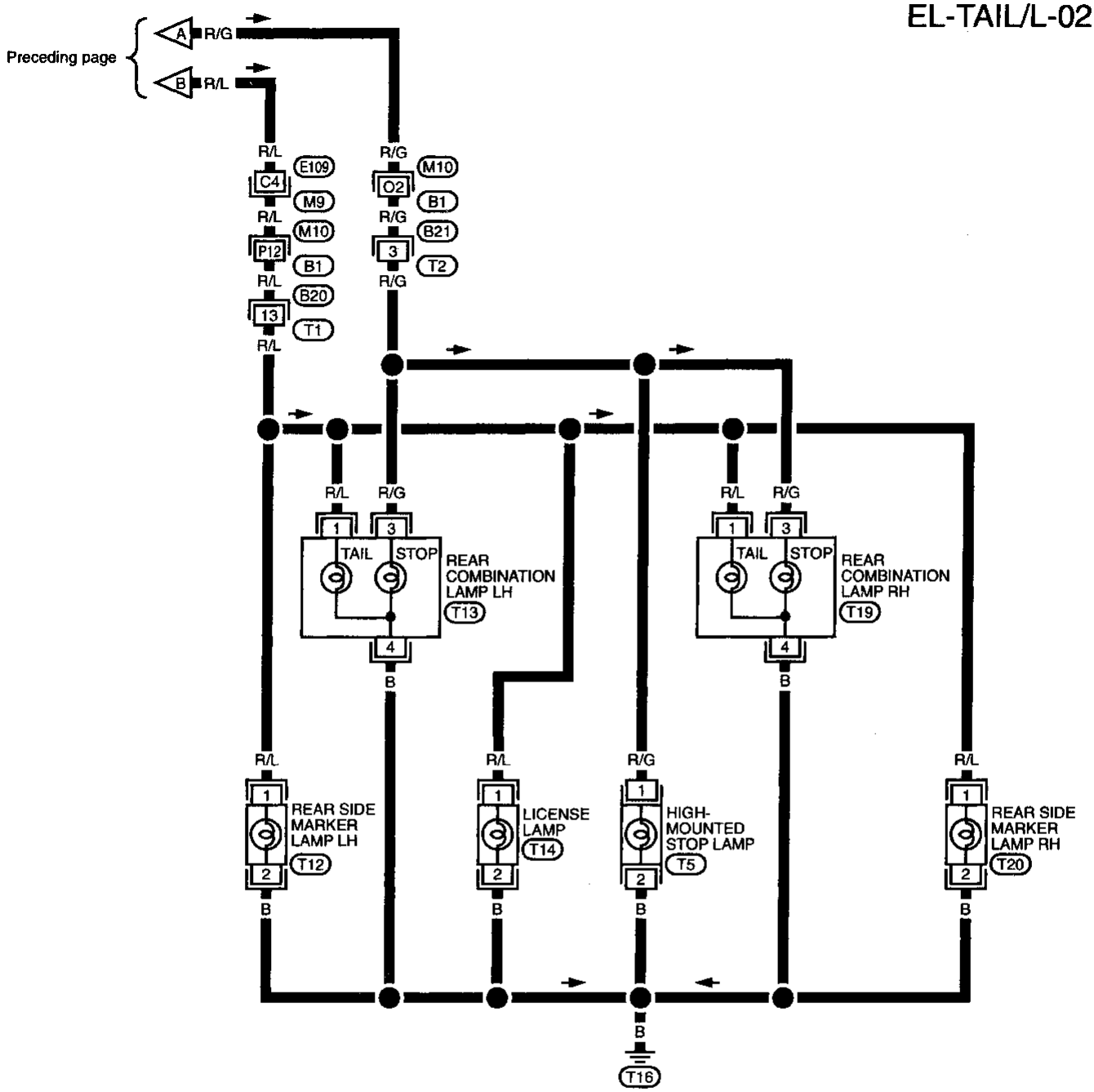


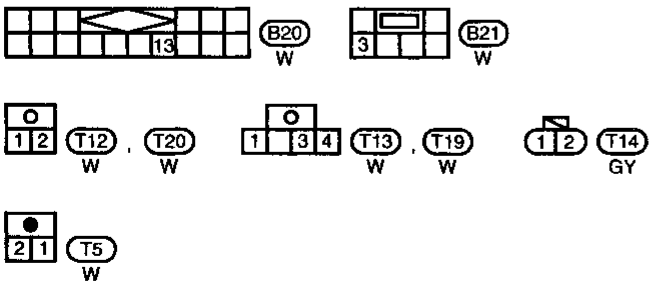
Refer to last page (Foldout page).
M9 , E109

MEL224D

Clearance, License, Tail and Stop Lamps/Wiring Diagram — TAIL/L — (Cont'd)

EL-TAIL/L-02





Refer to last page (Foldout page).

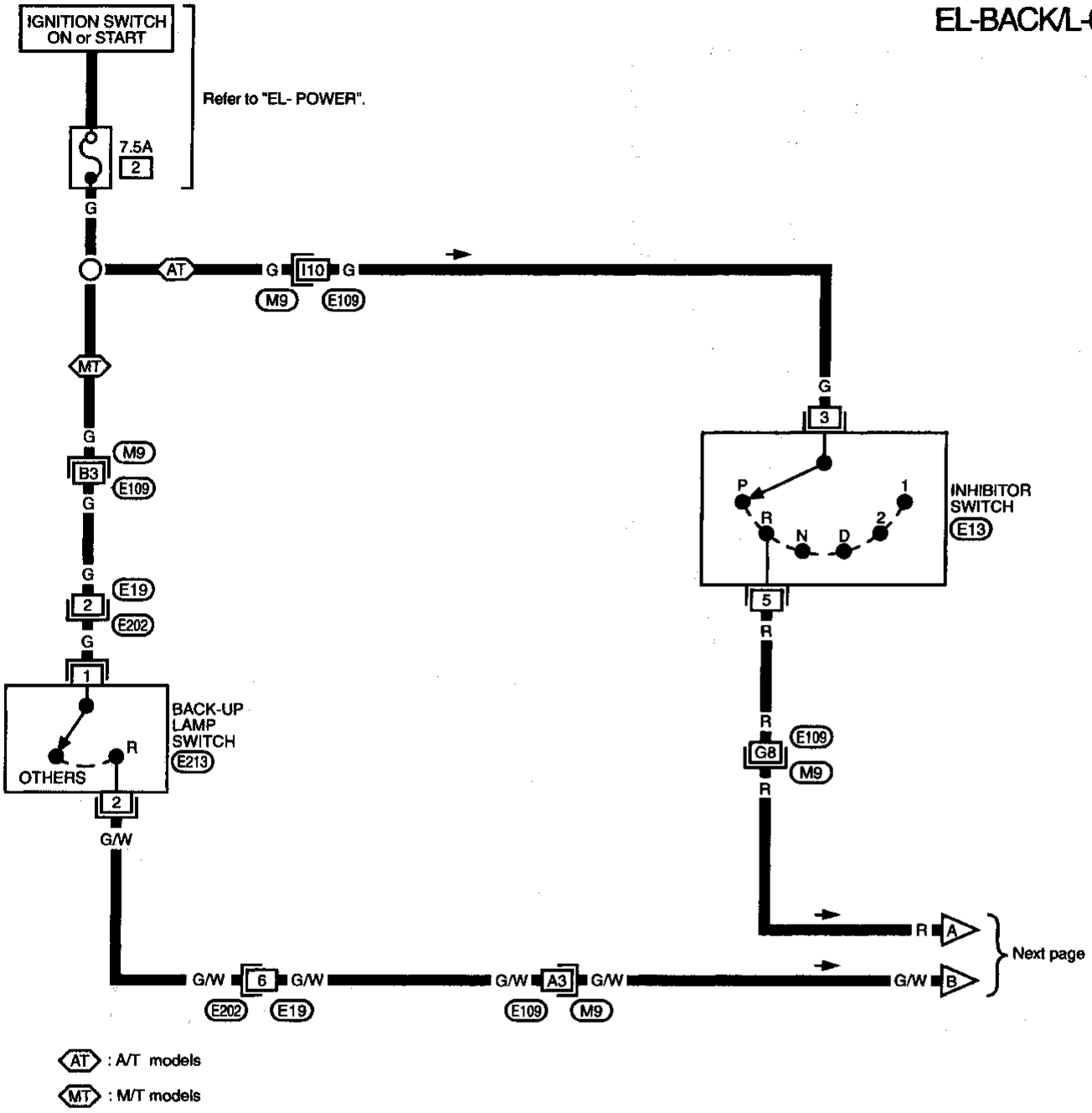
M9 , E109

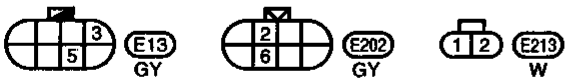
M10 , B1

MEL225D

Back-up Lamp/Wiring Diagram — BACK/L —

EL-BACK/L-01



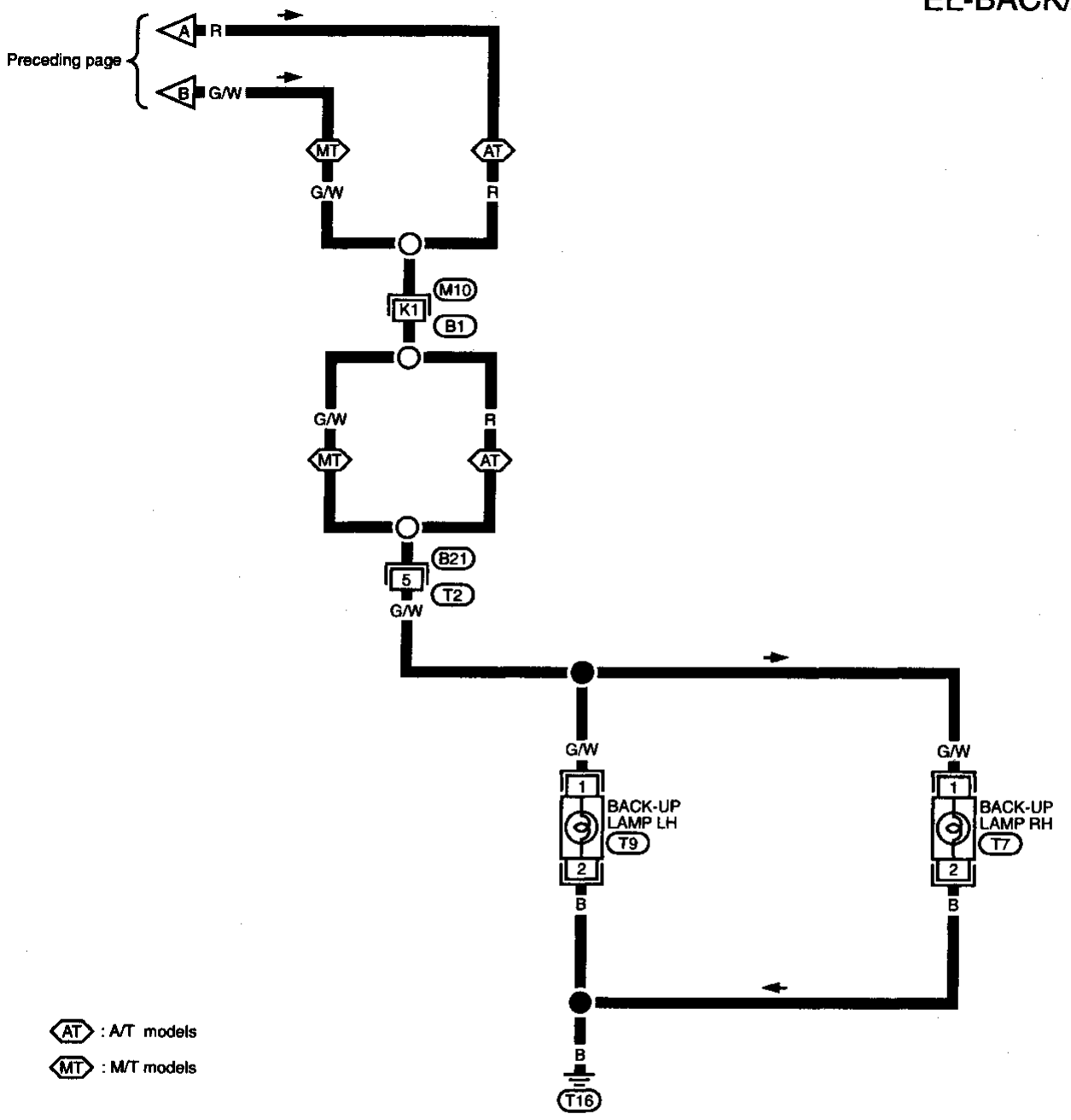


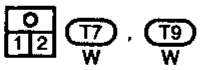
Refer to last page (Foldout page).
M9 , E109

MEL226D

Back-up Lamp/Wiring Diagram — BACK/L — (Cont'd)

EL-BACK/L-02





Refer to last page (Foldout page).
M10 , B1

MEL227D

Front Fog Lamp/System Description

Power is supplied at all times to fog lamp relay terminal ③ through:
- 15A fuse (No. 46 , located in the fusible link and fuse box)

With the lighting switch in the 2ND position and LOW ("B") position, power is supplied
- through 20A fuse (No. 40 , located in the fusible link and fuse box)
- to lighting switch terminal ⑤
- through terminal ⑦ of the lighting switch
- to fog lamp relay terminal ②.

Fog lamp operation

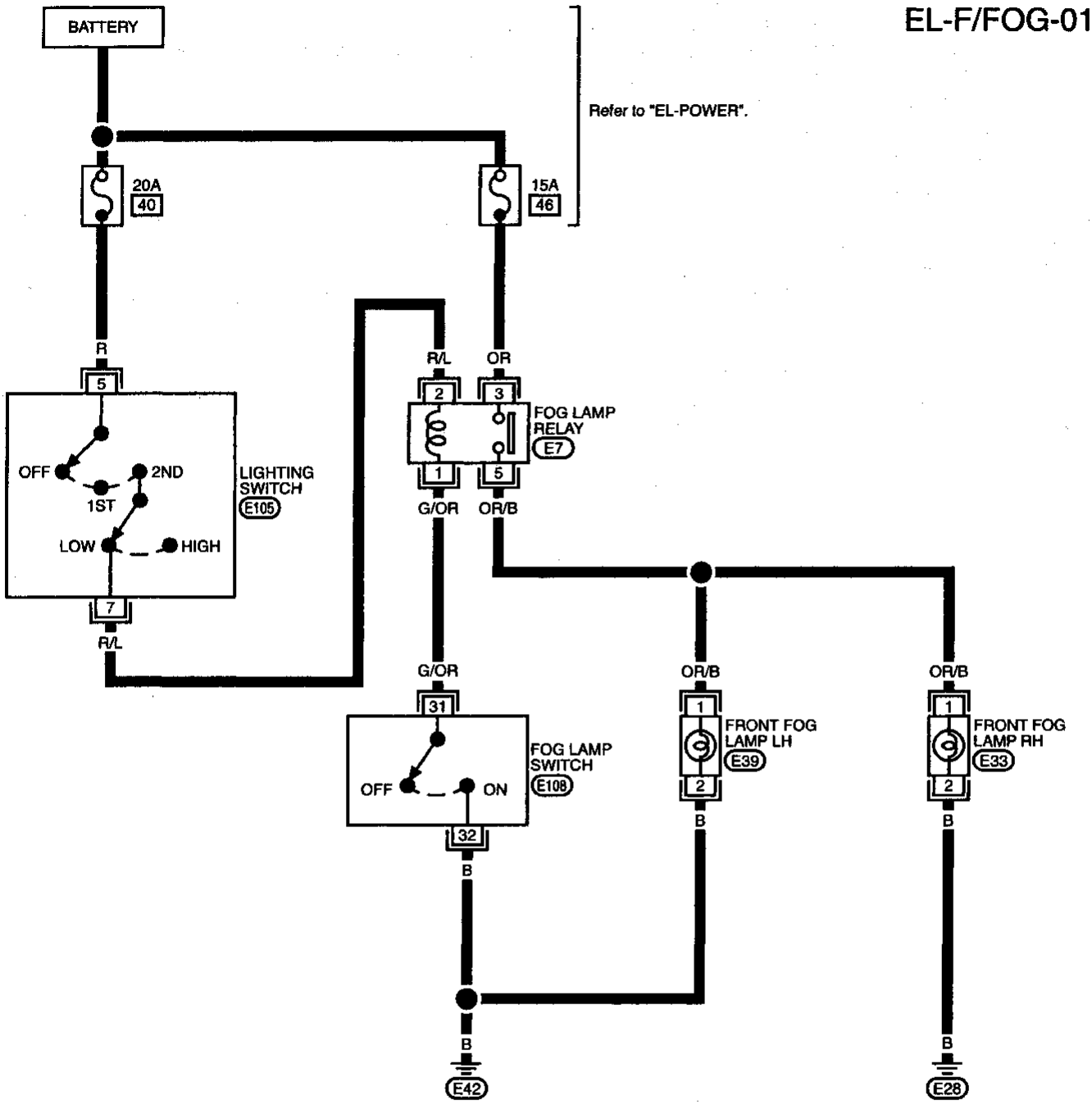
The fog lamp switch is built into the combination switch. The lighting switch must be in the 2ND position and LOW ("B") position for fog lamp operation.
With the fog lamp switch in the ON position:
- ground is supplied to fog lamp relay terminal ① through the fog lamp switch and body ground E42.

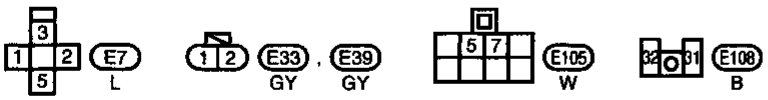
The fog lamp relay is energized and power is supplied
- from fog lamp relay terminal ⑤
- to terminal ① of each fog lamp.

Ground is supplied to terminal ② of each fog lamp through body ground E28 or E42.
With power and ground supplied, the fog lamps illuminate.

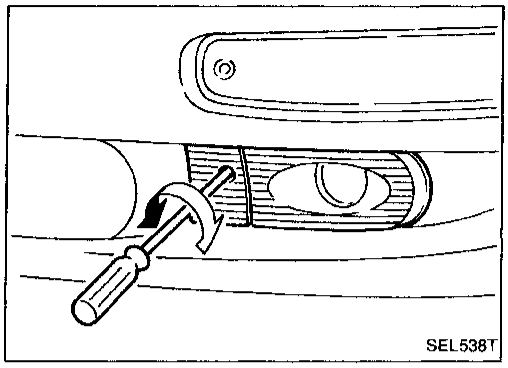
Front Fog Lamp/Wiring Diagram — F/FOG —

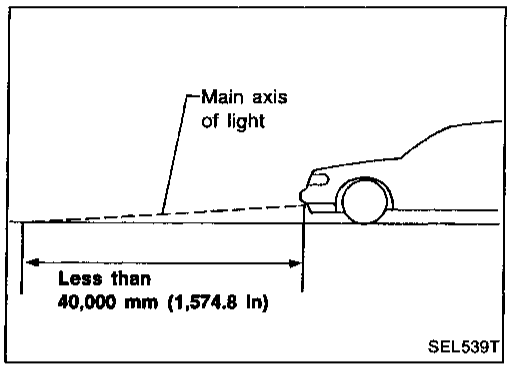
EL-F/FOG-01





MEL232D


SEL538T



SEL539T

Front Fog Lamp Aiming Adjustment

Before performing aiming adjustment, make sure of the following.

a. Keep all tires inflated to correct pressure.
b. Place vehicle on level ground.
c. See that vehicle is unloaded (except for full levels of coolant, engine oil and fuel, and spare tire, jack, and tools). Have the driver or equivalent weight placed in driver's seat.

Adjust aiming in the vertical direction by turning the adjusting screw.

Check the distance between the vehicle and the ground point where the main axis of light of fog lamp reaches. Keep the distance within 40,000 mm (1,574.8 in).

Turn Signal and Hazard Warning Lamps/System Description

TURN SIGNAL OPERATION

With the hazard switch in the OFF position and the ignition switch in the ON or START position, power is supplied

- through 10A fuse (No. 3 , located in the fuse block)
- to hazard switch terminal ②
- through terminal ① of the hazard switch
- to combination flasher unit terminal ②
- through terminal ③ of the combination flasher unit
- to turn signal switch terminal ①.

Ground is supplied to combination flasher unit terminal ① through body ground (M57).

LH turn

When the turn signal switch is moved to the LH position, power is supplied from turn signal switch terminal ③ to

- front turn signal lamp LH terminal ①
- rear combination lamp LH terminal ②
- combination meter terminal ⑰.

Ground is supplied to the front turn signal lamp LH terminal ② through body ground (E42).
Ground is supplied to the rear combination lamp LH terminal ④ through body ground (T16).
Ground is supplied to combination meter terminal ⑱ through body ground (M5).
With power and ground supplied, the combination flasher unit controls the flashing of the LH turn signal lamps.

RH turn

When the turn signal switch is moved to the RH position, power is supplied from turn signal switch terminal ② to

- front turn signal lamp RH terminal ①
- rear combination lamp RH terminal ②
- combination meter terminal ⑲.

Ground is supplied to the front turn signal lamp RH terminal ② through body ground (E28).
Ground is supplied to the rear combination lamp RH terminal ④ through body ground (T16).
Ground is supplied to combination meter terminal ⑱ through body ground (M5).
With power and ground supplied, the combination flasher unit controls the flashing of the RH turn signal lamps.

HAZARD LAMP OPERATION

Power is supplied at all times to hazard switch terminal ③ through:

- 10A fuse (No. 4 , located in the fuse block).

With the hazard switch in the ON position, power is supplied

- through terminal ① of the hazard switch
- to combination flasher unit terminal ②
- through terminal ③ of the combination flasher unit
- to hazard switch terminal ④.

Ground is supplied to combination flasher unit terminal ① through body ground (M57).
Power is supplied through terminal ⑤ of the hazard switch to

- front turn signal lamp LH terminal ①
- rear combination lamp LH terminal ②
- combination meter terminal ⑰.

Power is supplied through terminal ⑥ of the hazard switch to

- front turn signal lamp RH terminal ①
- rear combination lamp RH terminal ②
- combination meter terminal ⑲.

Ground is supplied to terminal ② of each front turn signal lamp through body ground (E42) or (E28).
Ground is supplied to terminal ④ of the rear combination lamps through body ground (T16).
Ground is supplied to combination meter terminal ⑱ through body ground (M5).

Turn Signal and Hazard Warning Lamps/System Description (Cont'd)

With power and ground supplied, the combination flasher unit controls the flashing of the hazard warning lamps.

WITH MULTI-REMOTE CONTROL SYSTEM

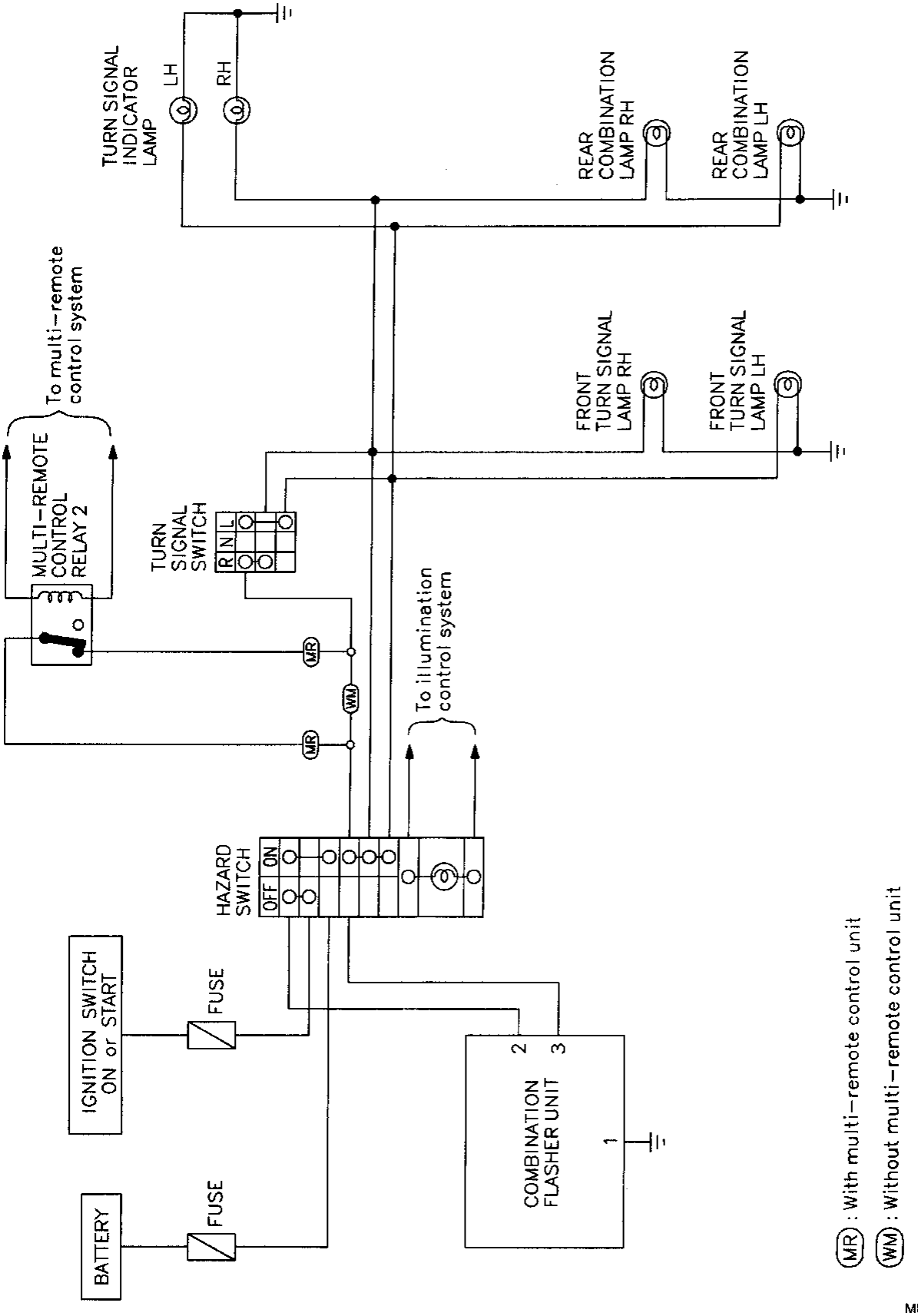
Power is supplied at all times
- through 10A fuse (No. 5 located in the fuse block)
- to multi-remote control relay-1 terminals ①, ⑥ and ③.

Ground is supplied to multi-remote control relay-1 terminal ②, when the multi-remote control system is triggered through the smart entrance control unit.
Refer to "MULTI-REMOTE CONTROL SYSTEM" in BF section.
The multi-remote control relay-1 is energized.
Power is supplied through terminal ⑦ of the multi-remote control relay-1
- to front turn signal lamp LH terminal ①
- to rear combination lamp LH terminal ②
- to combination meter terminal ⑰.

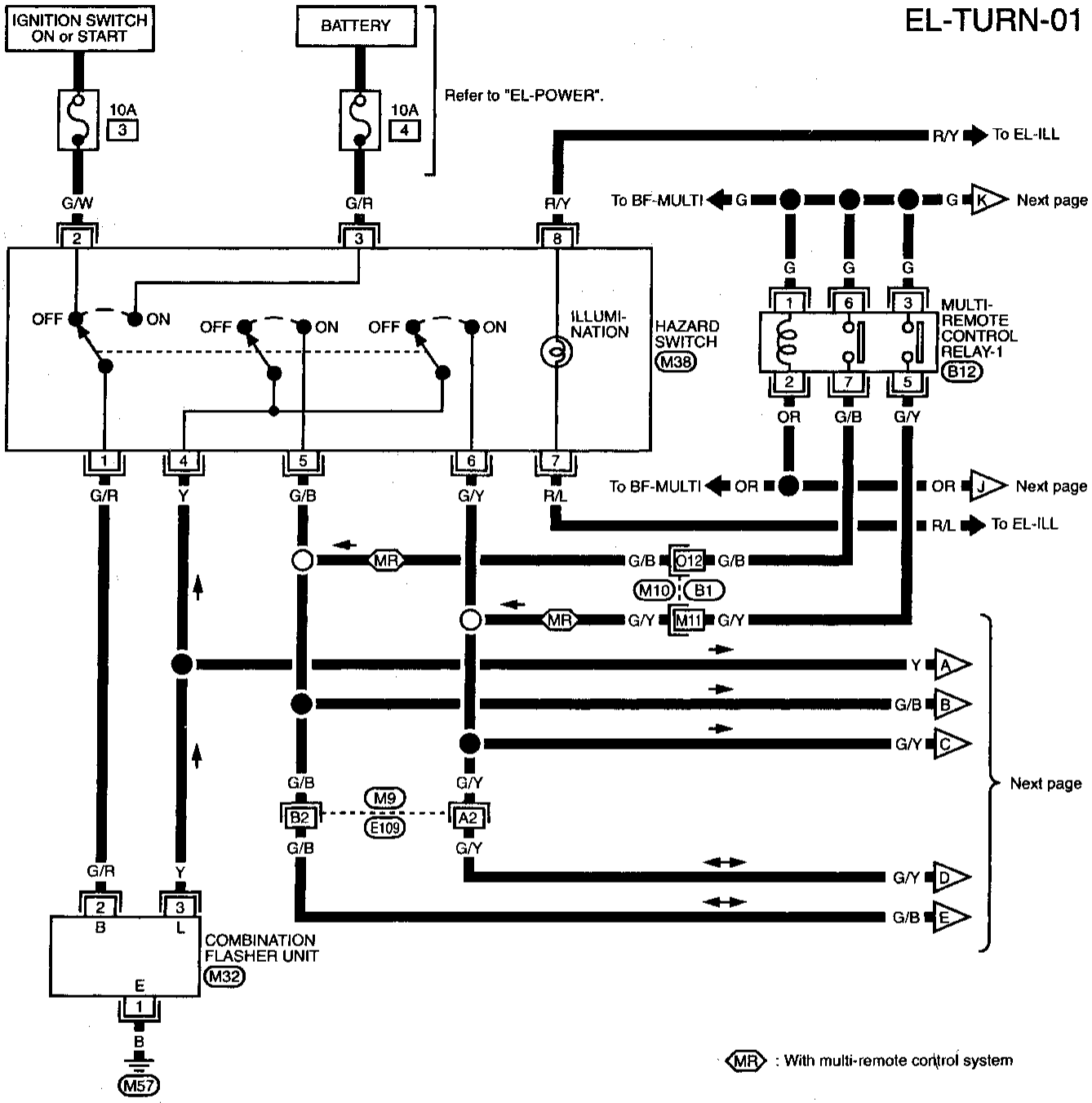
Power is supplied through terminal ⑤ of the multi-remote control relay-1
- to front turn signal lamp RH terminal ①
- to rear combination lamp RH terminal ②
- to combination meter terminal ⑲.

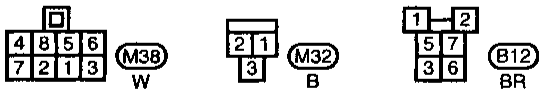
Ground is supplied to terminal ② of each front turn signal lamp through body ground (E42) or (E28).
Ground is supplied to terminal ④ of the rear combination lamps through body ground (T16).
Ground is supplied to combination meter terminal ⑱ through body ground (M5).
With power and ground supplied, the smart entrance control unit controls the flashing of the hazard warning lamps.

Turn Signal and Hazard Warning Lamps/Schematic



Turn Signal and Hazard Warning Lamps/Wiring Diagram — TURN —



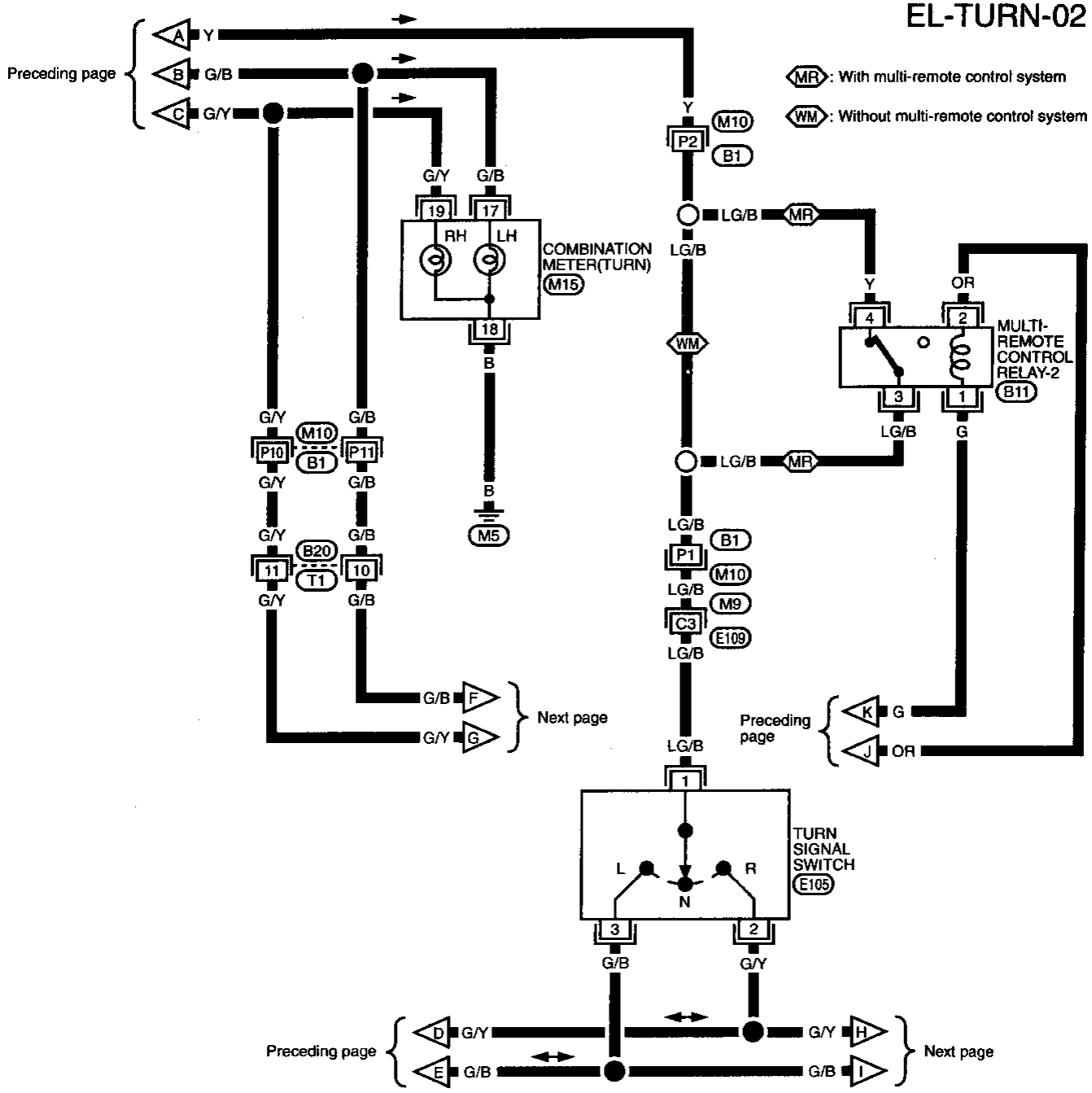


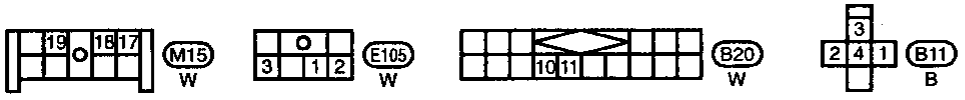
Refer to last page (Foldout page).
M9 , E109
M10 , B1

MEL229D

Turn Signal and Hazard Warning Lamps/Wiring Diagram — TURN — (Cont'd)

EL-TURN-02



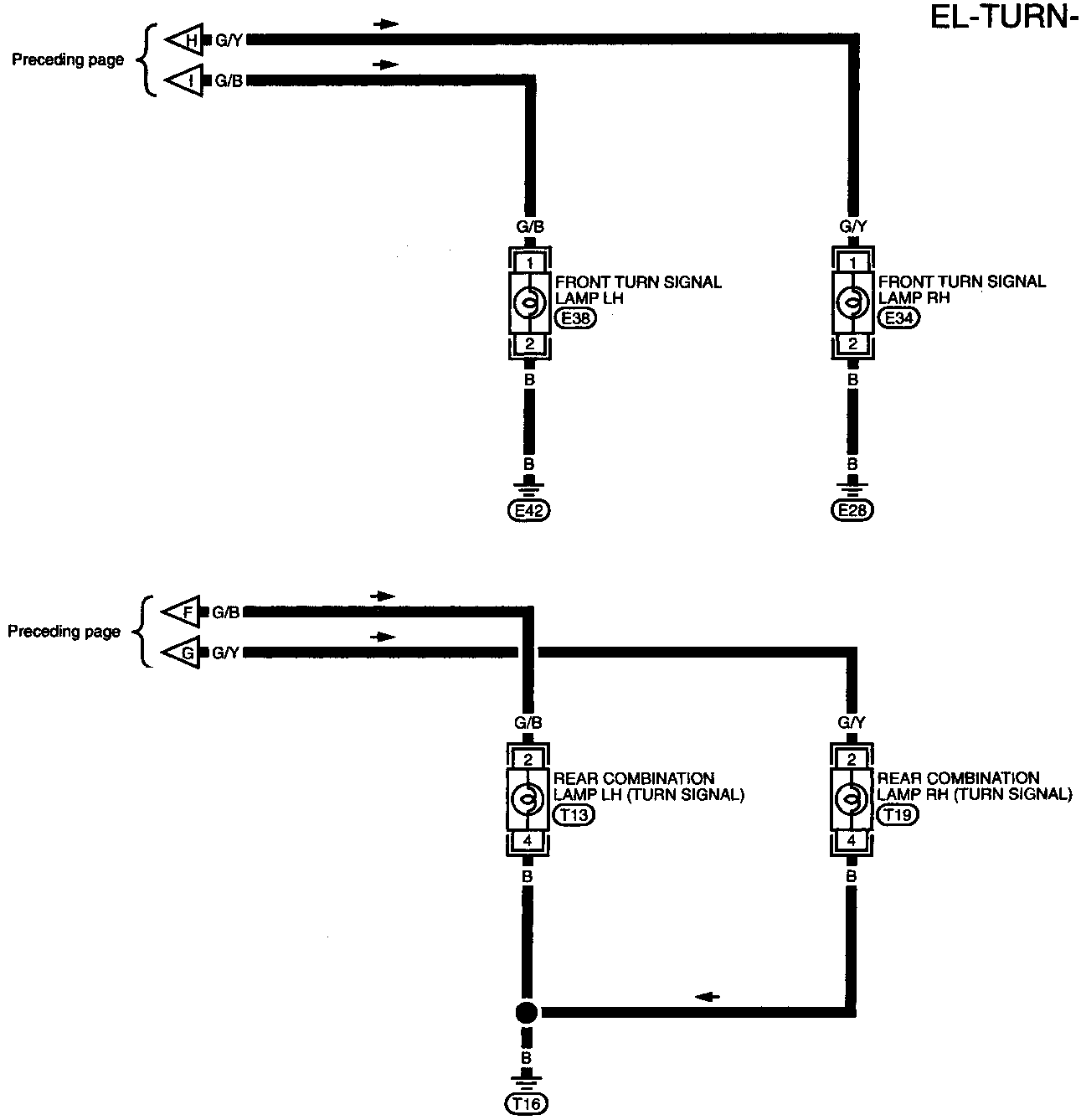


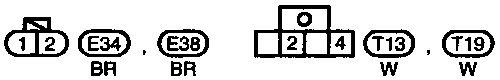
Refer to last page (Foldout page).
M9 , E109
M10 , B1

MEL230D

Turn Signal and Hazard Warning Lamps/Wiring Diagram — TURN — (Cont'd)

EL-TURN-03

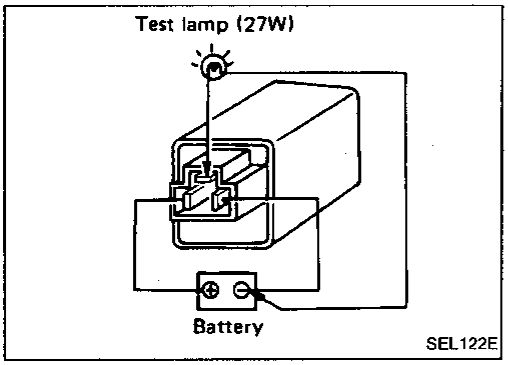




MEL231D

Turn Signal and Hazard Warning Lamps/Trouble Diagnoses

Symptom	Possible cause	Repair order
Turn signal and hazard warning lamps do not operate.	1. Hazard switch 2. Combination flasher unit 3. Open in combination flasher unit circuit	1. Check hazard switch. 2. Refer to combination flasher unit check. (EL-64) 3. Check wiring to combination flasher unit for open circuit.
Turn signal lamps do not operate but hazard warning lamps operate.	1. 10A fuse 2. Hazard switch 3. Turn signal switch 4. Open in turn signal switch circuit	1. Check 10A fuse (No. 3 , located in fuse block). Turn ignition switch ON and verify battery positive voltage is present at terminal ② of hazard switch. 2. Check hazard switch. 3. Check turn signal switch. 4. Check wire between combination flasher unit and turn signal switch for open circuit.
Hazard warning lamps do not operate but turn signal lamps operate.	1. 10A fuse 2. Hazard switch 3. Open in hazard switch circuit	1. Check 10A fuse (No. 4 , located in fuse block). Verify battery positive voltage is present at terminal ③ of hazard switch. 2. Check hazard switch. 3. Check Y wire between combination flasher unit and hazard switch for open circuit.
Front turn signal lamp LH or RH does not operate.	1. Bulb 2. Ground (E28) or (E42)	1. Check bulb. 2. Check ground (E28) or (E42).
Rear turn signal lamp LH or RH does not operate.	1. Bulb 2. Ground (T16)	1. Check bulb. 2. Check ground (T16).
LH and RH turn indicators do not operate.	1. Ground	1. Check ground (M5).
LH or RH turn indicator does not operate.	1. Bulb	1. Check bulb in combination meter.



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

Item	Wattage (W)
Headlamp	
Inside	65
Outside	60/55
Front fog lamp	55
Front turn signal lamp	27
Clearance lamp	8
Front side marker lamp	3.8
Rear side marker lamp	3.8
Rear combination lamp	
Turn signal lamp	27
Stop/Tail lamp	27/8
Back-up lamp	27
License plate lamp	5
High-mounted stop lamp	5

Illumination/System Description

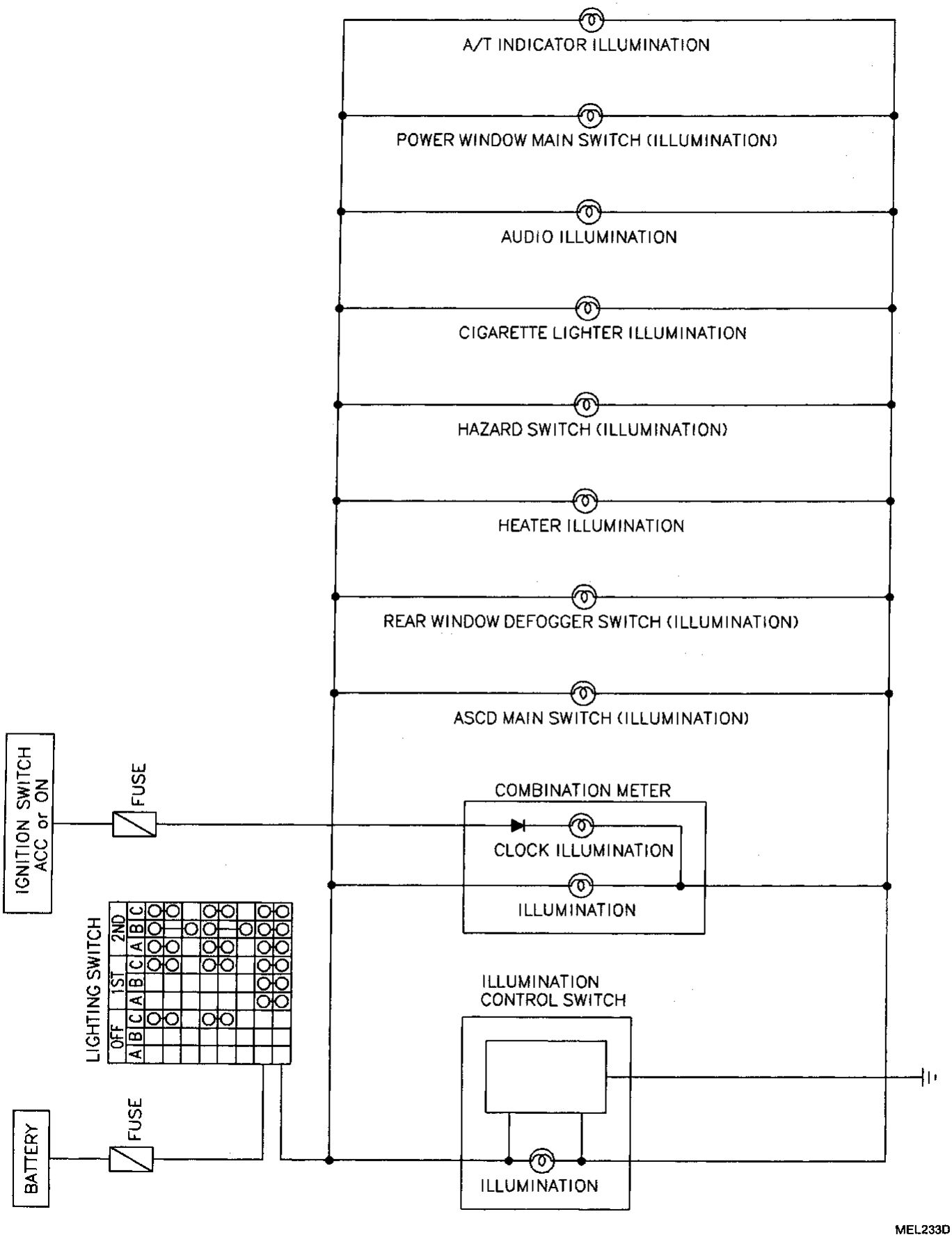
Power is supplied at all times
- through 10A fuse (No. 4 , located in the fuse block)
- to lighting switch terminal ⑪ .

The lighting switch must be in the 1ST or 2ND position for illumination.
The illumination control switch that controls the amount of current to the illumination system. As the amount of current increases, the illumination becomes brighter.
The following chart shows the power and ground connector terminals for the components included in the illumination system.

Component	Connector No.	Power terminal	Ground terminal
Audio	M43	⑧	⑦
Push control unit	M36	⑯	⑮
A/T indicator	B7	⑦	⑥
Hazard switch	M38	⑦	⑧
Power window main switch	D8	⑮	⑯
Cigarette lighter	M48	③	④
Combination meter	M15	⑥	㉝
Clock	M15	⑧	㉝
ASCD main switch	M17	⑤	⑥
Rear window defogger switch	M39	⑤	⑥
Illumination control switch	M16	①	③

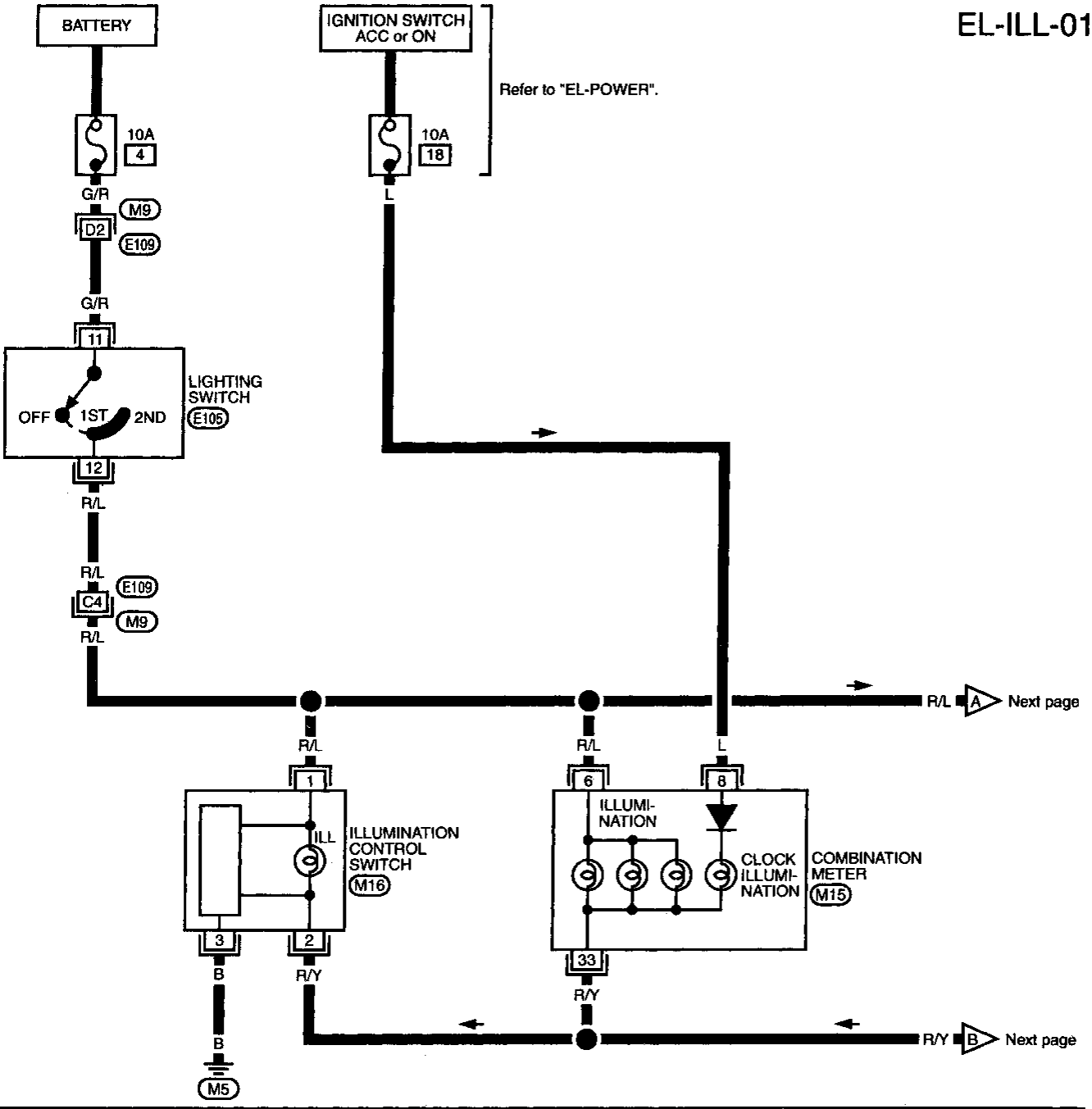
The ground for all of the components are controlled through terminals ② and ③ of the illumination control switch and body ground (M5).

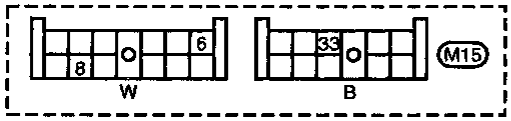
Illumination/Schematic

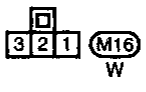


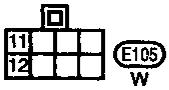
Illumination/Wiring Diagram — ILL —

EL-ILL-01







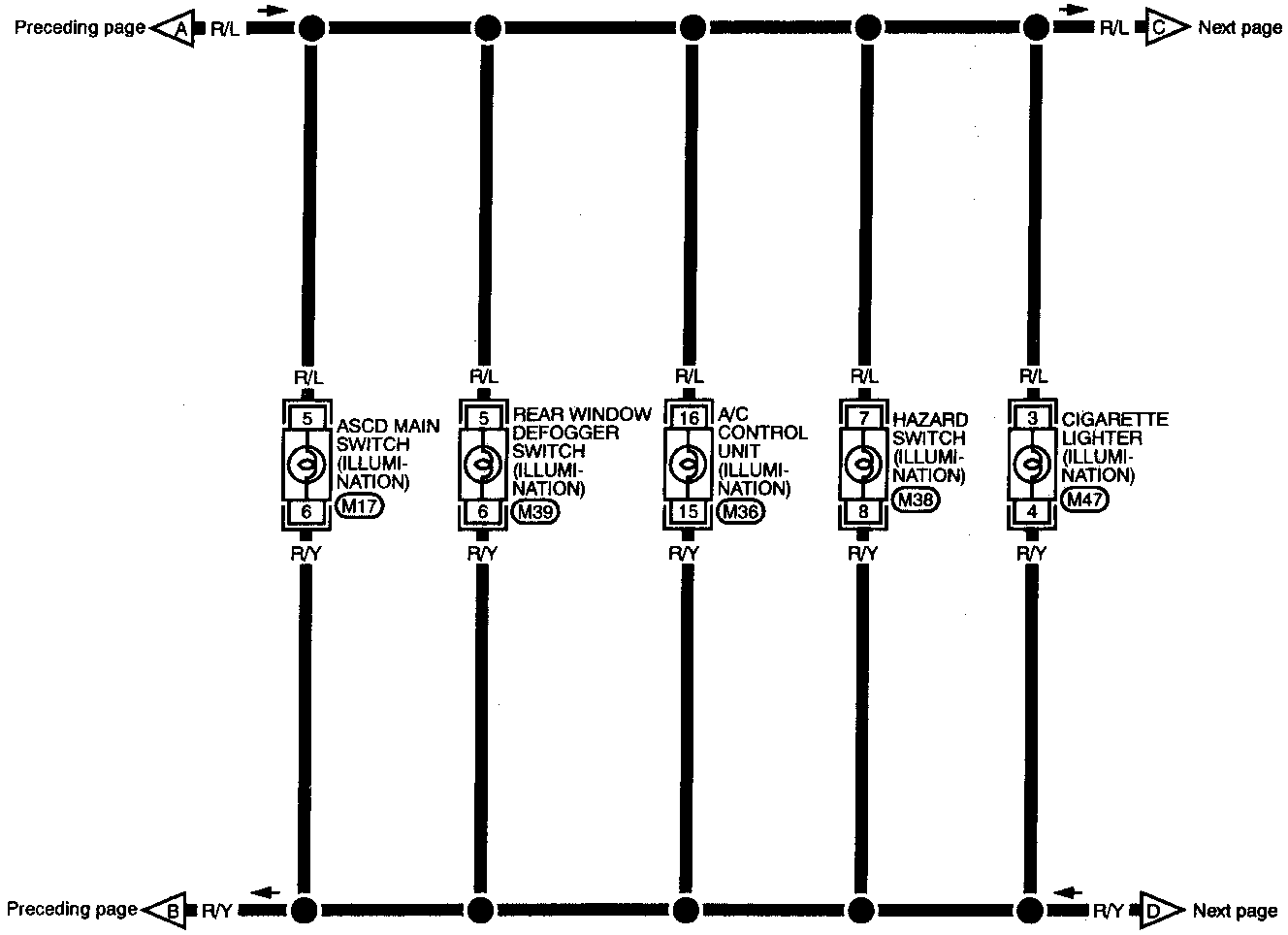


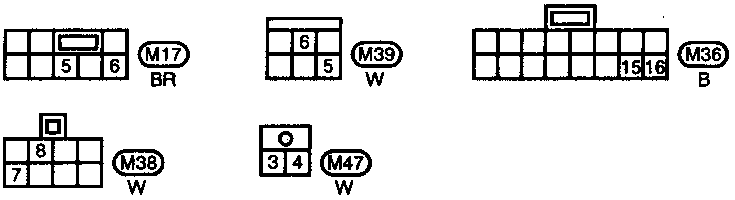
Refer to last page (Foldout page).
M9 , E109

MEL234D

Illumination/Wiring Diagram — ILL — (Cont'd)

EL-ILL-02

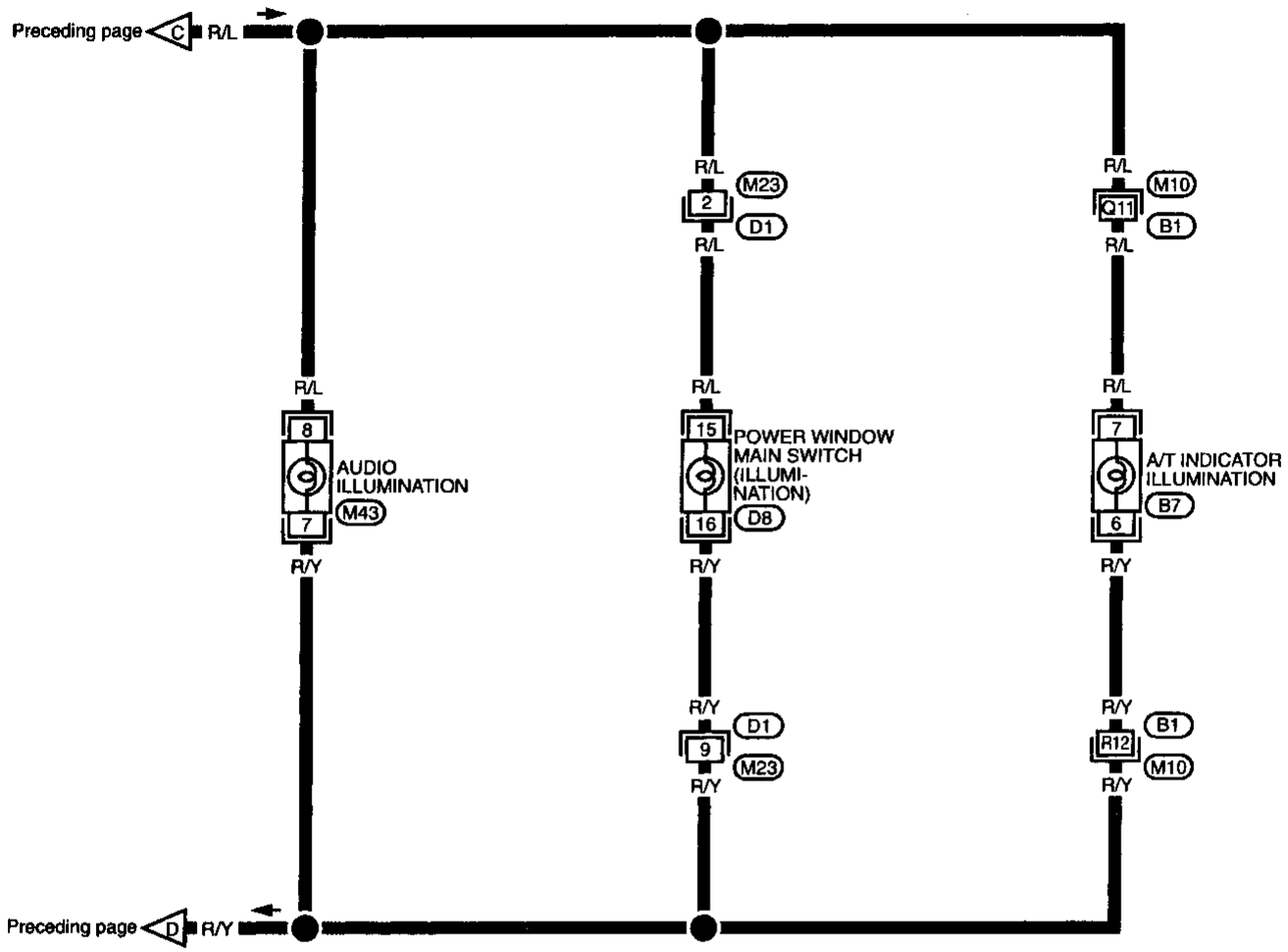


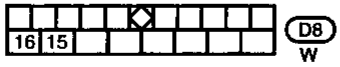


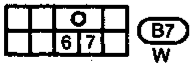
MEL235D

!llumination/Wiring Diagram — ILL — (Cont'd)

EL-ILL-03







Refer to last page (Foldout page).
M10 , B1

MEL236D

Interior, Spot and Trunk Room Lamps/System Description

Power is supplied at all times
- through 10A fuse (No. 6 located in the fuse block)
- to interior lamp terminal ①,
- to spot lamp terminal ① and
- to trunk room lamp terminal ①.
- to smart entrance control unit terminal ① for multi-remote control system.

INTERIOR LAMP

Switch operation

With interior lamp switch ON, ground is supplied to turn interior lamp ON.
When a door switch is set to OPEN with interior lamp switch in DOOR, ground is supplied
- to interior lamp terminal ②
- through diode (M26) terminal ① (SE grade models)
- to diode (M26) terminal ② (SE grade models)
- through diode (M66) terminal ① (SE grade models)
- to diode (M66) terminal ② (SE grade models)
- through door switch RH terminal ① or
- through door switch LH terminal ②,
- through door switch LH terminal ③ and
- through body ground (B4).

Interior lamp control by multi-remote control system

Smart entrance control unit receives a signal from multi-remote controller to turn interior lamp ON with interior lamp switch set to DOOR. Ground is then supplied
- to interior lamp terminal ②
- through smart entrance control unit terminal ⑨,
- through smart entrance control unit terminal ⑩ and
- through body ground (M5).

With power and ground supplied, the interior lamp turns ON.

TRUNK ROOM LAMP

When the trunk room lamp switch is set to OPEN, ground is supplied
- to trunk room lamp terminal ②
- through trunk room switch terminal ①,
- through trunk room lamp switch terminal ② and
- through body ground (T16).

With power and ground supplied, the trunk room lamp turns ON.

SPOT LAMP

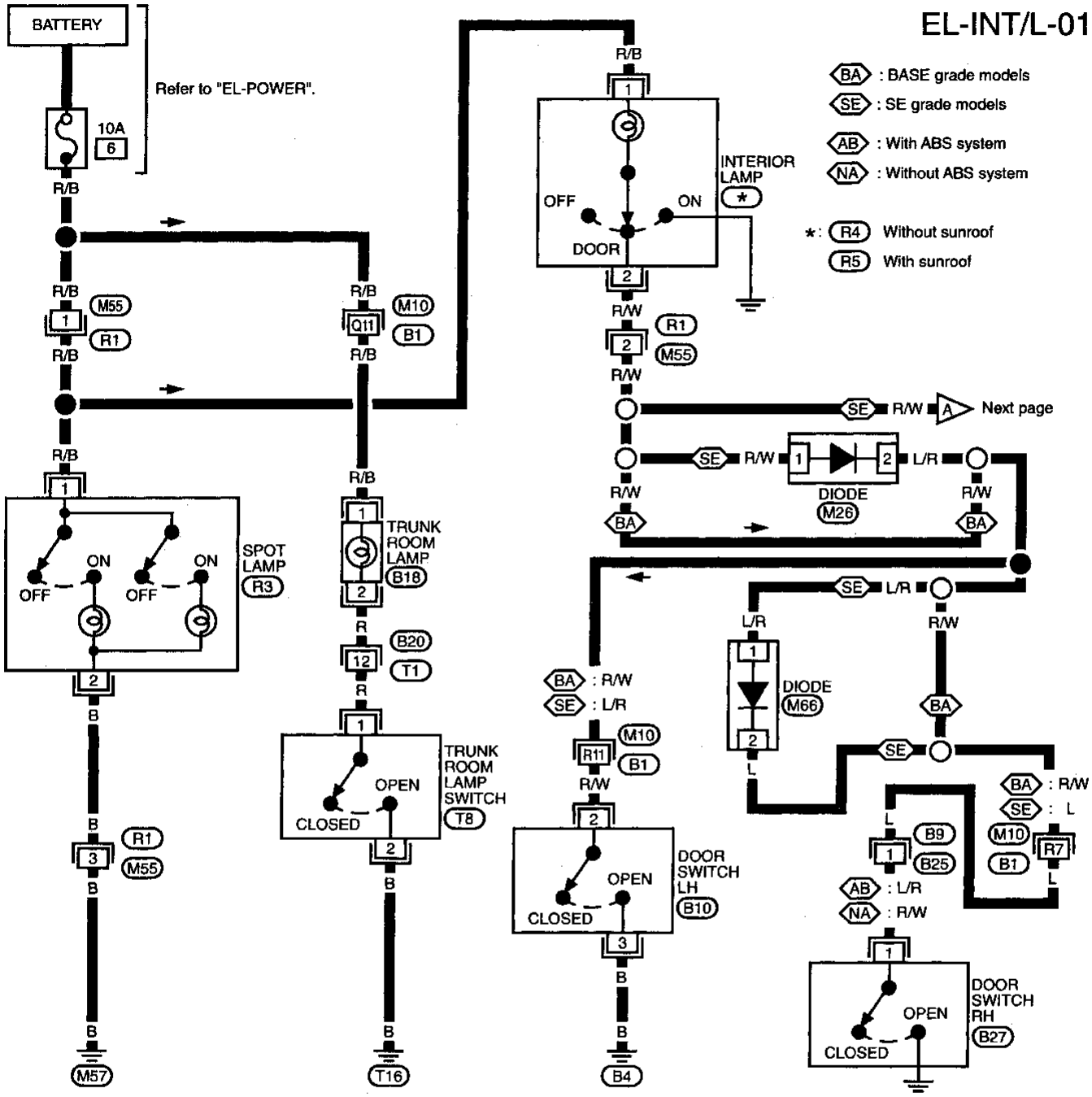
With the spot lamp switch in the ON position, ground is supplied
- to spot lamp terminal ②
- through body ground (M57).

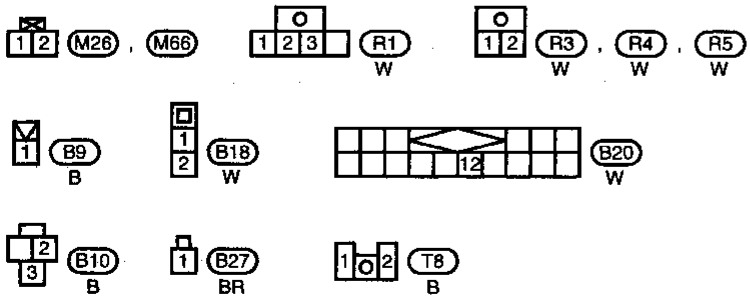
With power and ground supplied, the spot lamp turns ON.

Bulb Specifications

Item	Wattage (W)
Interior lamp	10
Spot lamp	10
Trunk room lamp	3.4

Interior, Spot and Trunk Room Lamps/Wiring Diagram — INT —



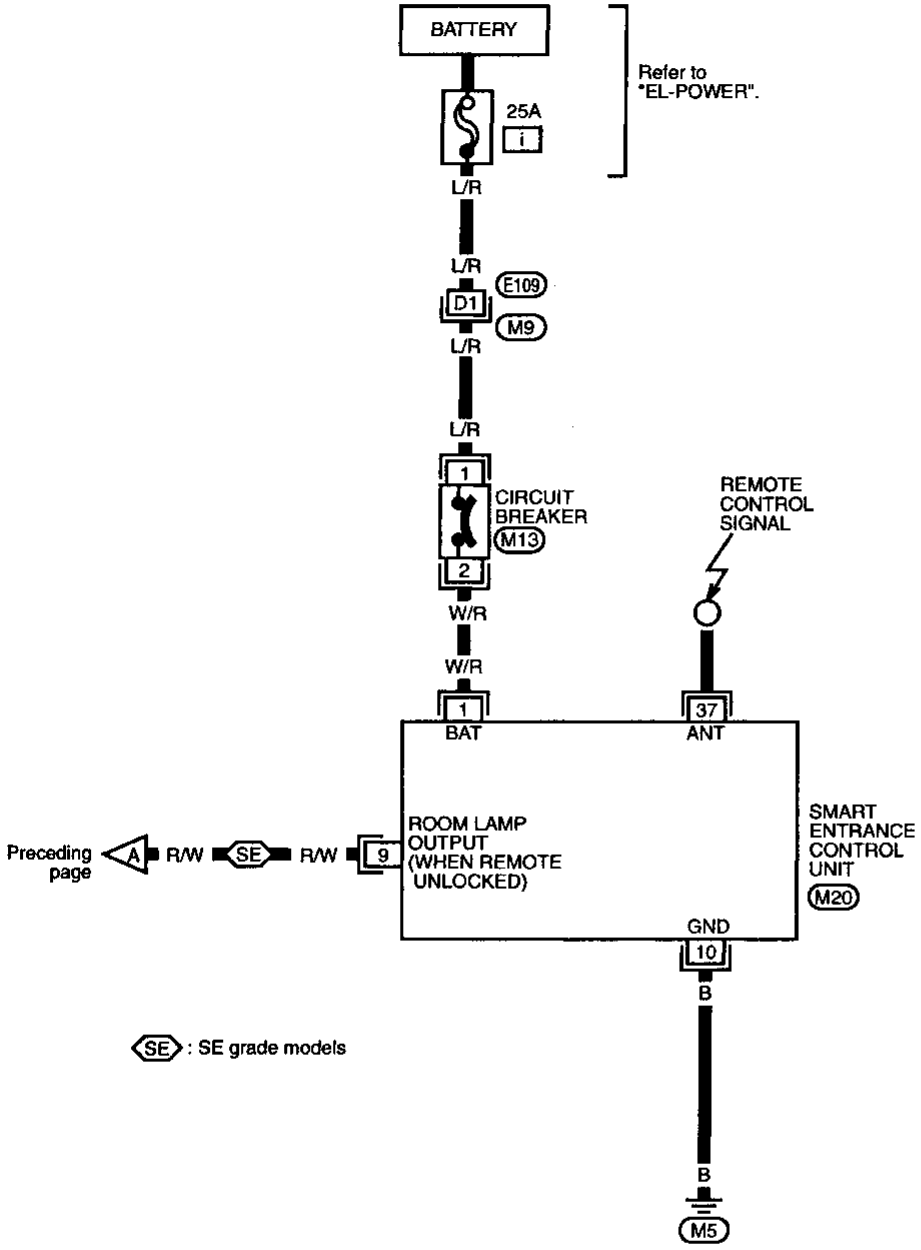


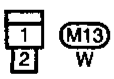
Refer to last page (Foldout page).
M10 , B1

MEL237D

Interior, Spot and Trunk Room Lamps/Wiring Diagram — INT — (Cont'd)

EI-INT/L-02





Refer to last page (Foldout page).
M9 , E109
M20

MEL512D

System Description

With the ignition switch in the ON or START position, power is supplied
- through 7.5A fuse (No. 2 , located in the fuse block)
- to combination meter terminal ㉑ for the water temperature gauge.

Ground is supplied
- to combination meter terminal ㉒
- through body ground (M5).

WATER TEMPERATURE GAUGE

The water temperature gauge indicates the engine coolant temperature. The reading on the gauge is based on the resistance of the thermal transmitter.
As the temperature of the coolant increases, the resistance of the thermal transmitter decreases. A variable ground is supplied to terminal ⑬ of the combination meter for the water temperature gauge. The needle on the gauge moves from "C" to "H".

TACHOMETER

The tachometer indicates engine speed in revolutions per minute (rpm).
The tachometer is regulated by a signal
- from terminal ③ of the ECM (ECCS control module)
- to combination meter terminal ⑫ for the tachometer.

FUEL GAUGE

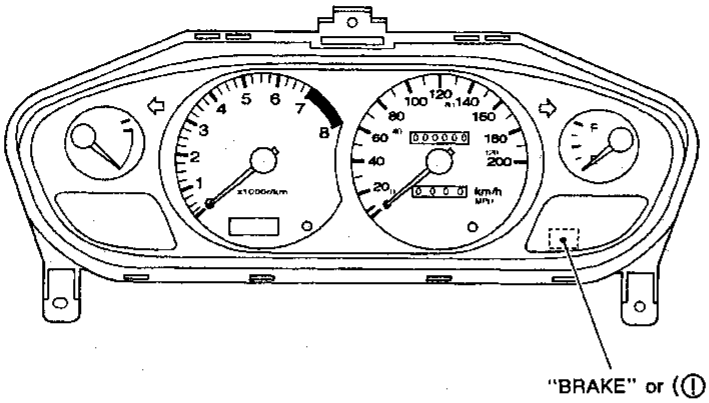
The fuel gauge indicates the approximate fuel level in the fuel tank.
The fuel gauge is regulated by a variable ground signal supplied
- to combination meter terminal ⑳ for the fuel gauge
- from terminal ① of the fuel tank gauge unit
- through terminal ③ of the fuel tank gauge unit and
- through body grounds (T16), (B4) and (B13).

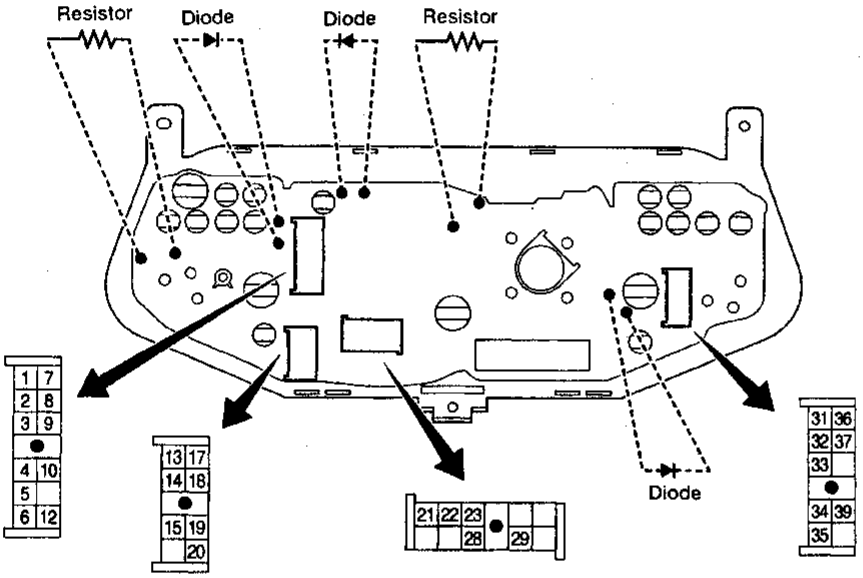
SPEEDOMETER

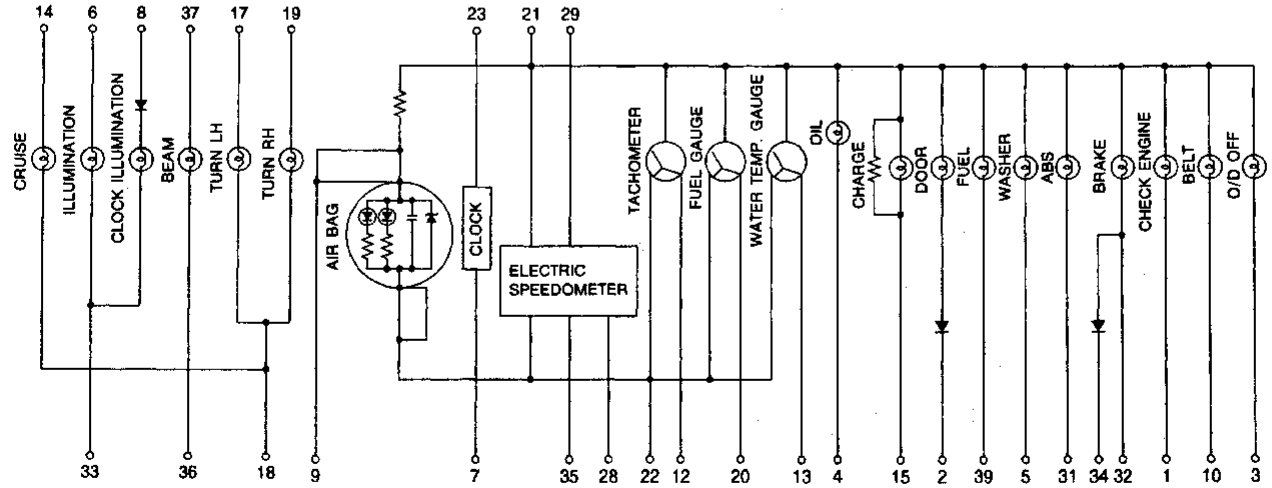
The vehicle speed sensor provides a voltage signal to the combination meter for the speedometer.
The voltage is supplied
- to combination meter terminals ㉘ and ㉟ for the speedometer
- from terminals ② and ① of the vehicle speed sensor.

The speedometer converts the voltage into the vehicle speed displayed.

Combination Meter



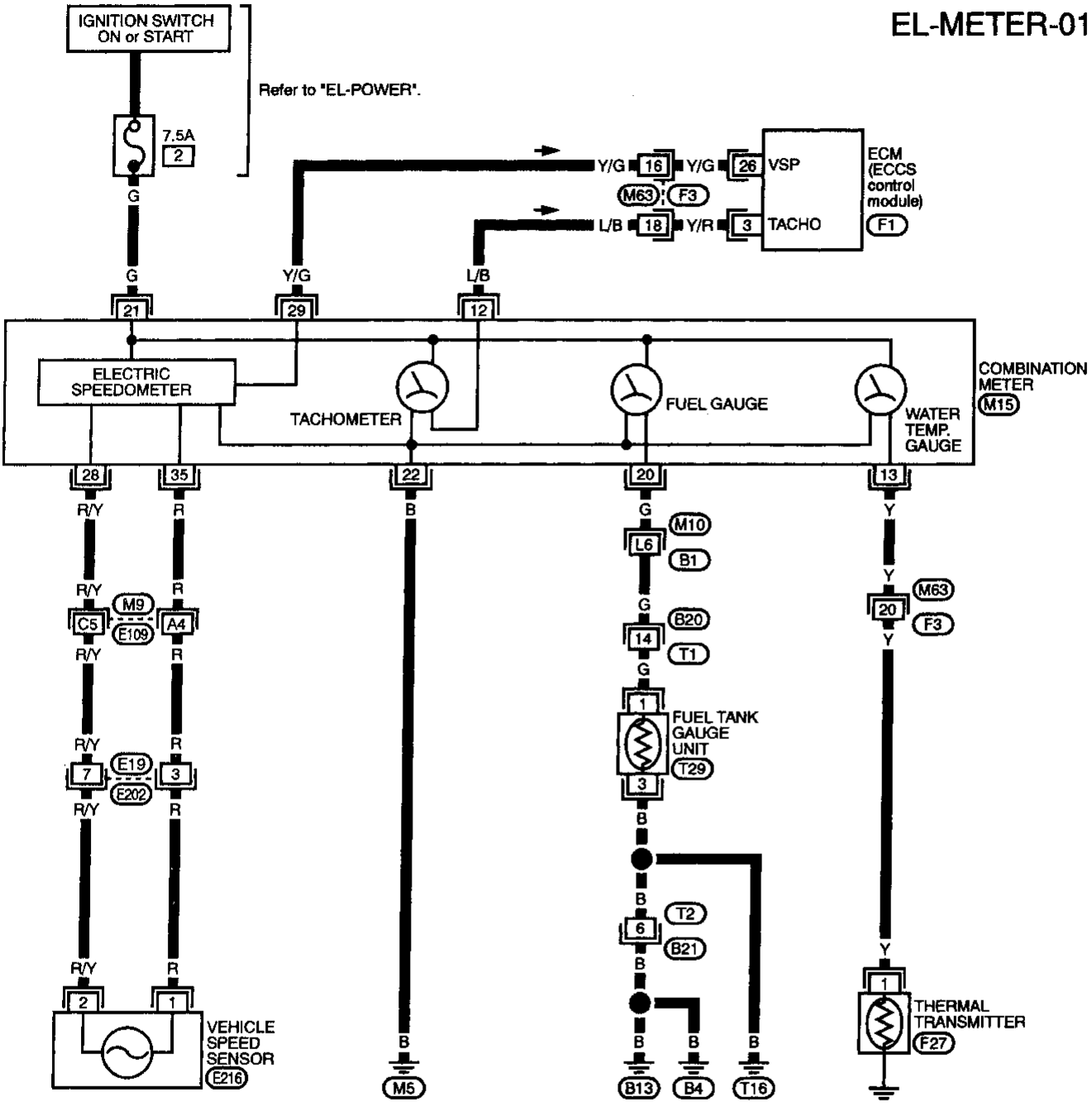


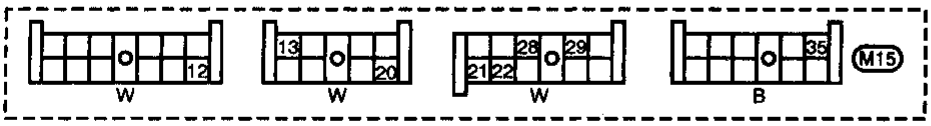


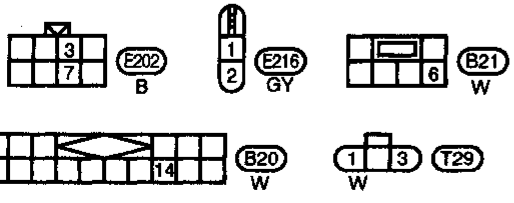
MEL309D

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

EL-METER-01





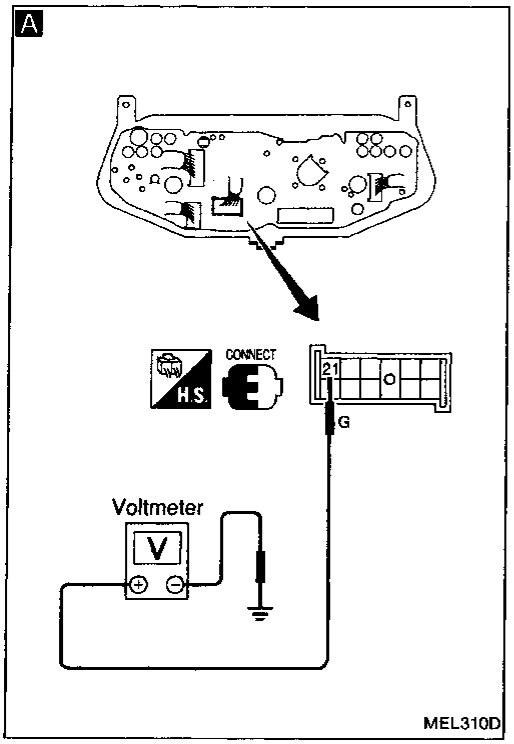


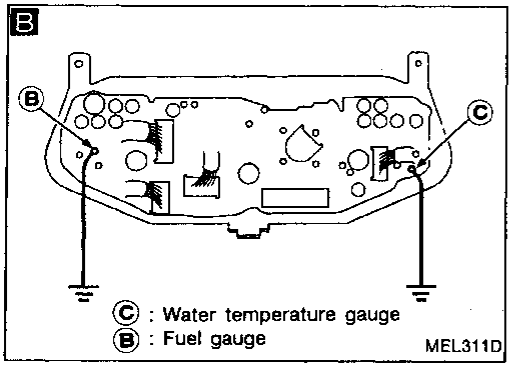
Refer to last page (Foldout page).

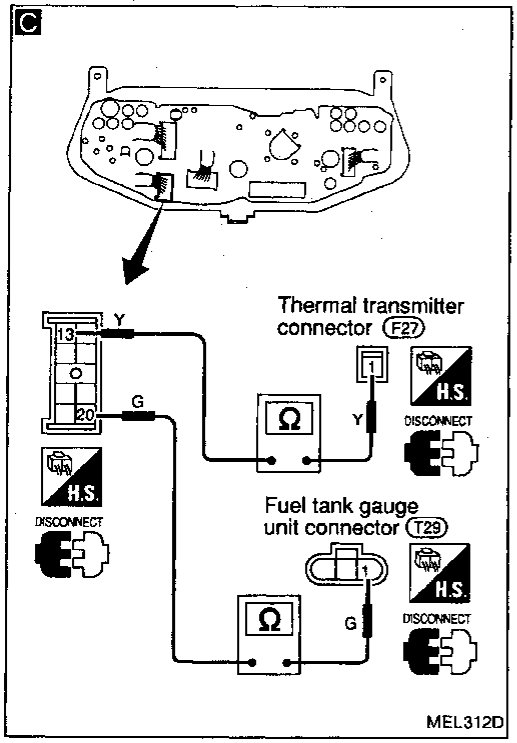
M9 , E109
M10 , B1
F3 , M63
F1

MEL238D

Inspection/Fuel Gauge and Water Temperature Gauge







INSPECTION START

A

CHECK POWER SOURCE.
1) Turn ignition switch "ON".
2) Check voltage between terminal ㉑ 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 Ⓑ (Fuel), Ⓒ (Temp.) 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 combination meter harness terminal ⑬ and fuel tank gauge unit harness terminal ①.
Check harness continuity between combination meter harness terminal ⑳ and thermal transmitter harness terminal ①.
Continuity should exist.

NG → Repair or replace.

OK ↓

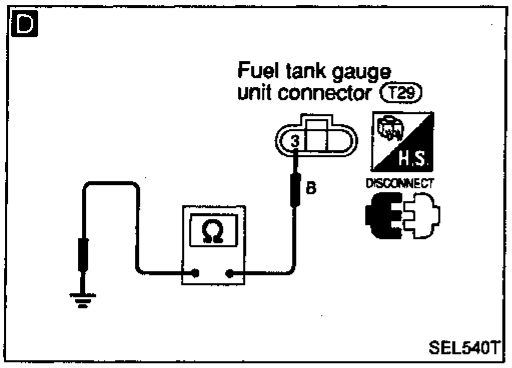
CHECK COMPONENT.
Check gauge units and harness.
Refer to "Fuel Tank Gauge Unit Check" (EL-81) or "Thermal Transmitter Check" (EL-81).

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

OK ↓

(Go to Ⓐ on next page)

Inspection/Fuel Gauge and Water Temperature Gauge (Cont'd)



Ⓐ

D

Check harness continuity between fuel tank gauge unit harness terminal ③ and body ground.
Continuity should exist.

NG → Repair harness or connector.

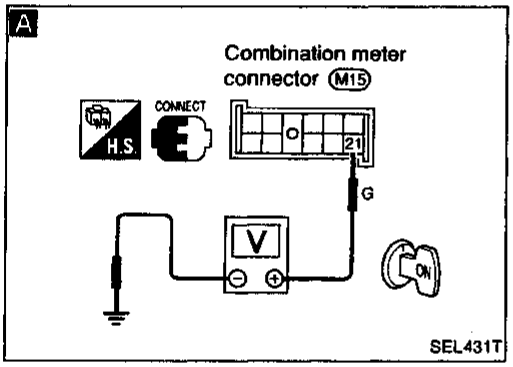
OK ↓

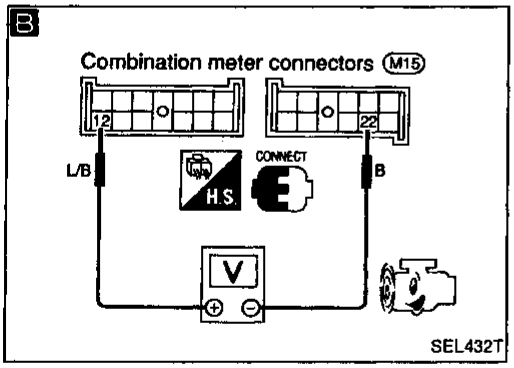
Reinstall any part removed.

↓

INSPECTION END

Inspection/Tachometer





INSPECTION START

↓

A

CHECK POWER SOURCE.
1) Turn ignition switch "ON".
2) Check voltage between terminal ㉑ 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 ECM OUTPUT.
1) Start engine.
2) Check voltage between terminals ⑫ and ㉒ at idle and 2,000 rpm.
Higher rpm = Higher voltage
Lower rpm = Lower voltage
Voltage should change with rpm.

NG → Check harness and connector between ECM and combination meter, or check ground.

OK ↓

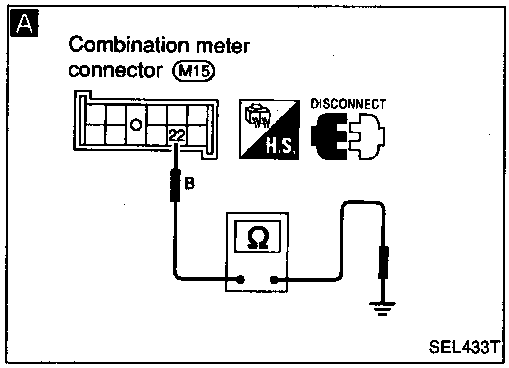
Replace tachometer.

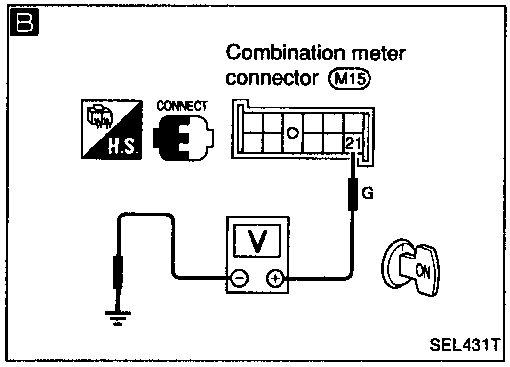
↓

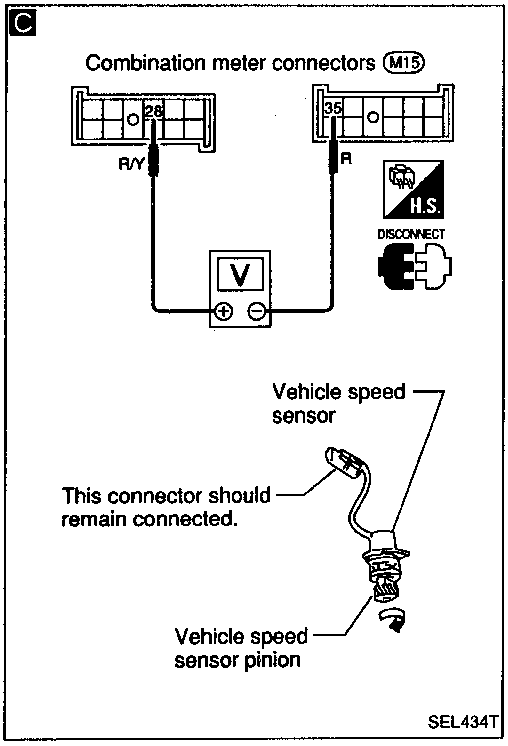
INSPECTION END

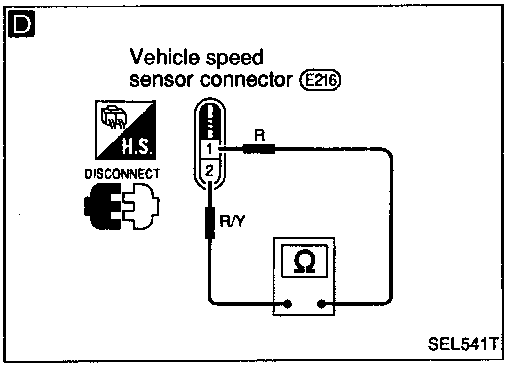
Inspection/Speedometer and Vehicle Speed Sensor

SYMPTOM: Speedometer stays at 0 km/h (0 MPH).









INSPECTION START

↓

A CHECK GROUND CIRCUIT OF SPEEDOMETER.
Check continuity between terminal ㉒ and body ground.
Continuity should exist.

NG → Repair harness or connector.

OK ↓

B CHECK SPEEDOMETER CIRCUIT.
1) Turn ignition switch "ON".
2) Check voltage between terminal ㉑ and body ground.
Battery voltage should exist.

NG → Repair harness or connector.

OK ↓

C CHECK VEHICLE SPEED SENSOR OUTPUT.
1) Remove vehicle speed sensor from transaxle.
2) Check voltage between terminal ㉘ and ㉟ while quickly turning speed sensor pinion.
Voltage: Approx. 0.5V

OK → Replace speedometer.

NG ↓

D CHECK VEHICLE SPEED SENSOR.
Check resistance between terminals ① and ②.
Resistance: Approx. 250Ω.

NG → Replace vehicle speed sensor.

OK ↓

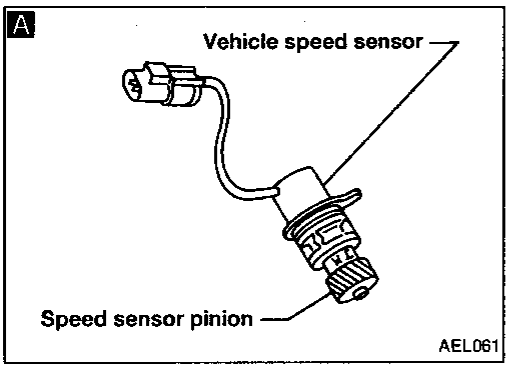
Repair harness or connector between speedometer and vehicle speed sensor.

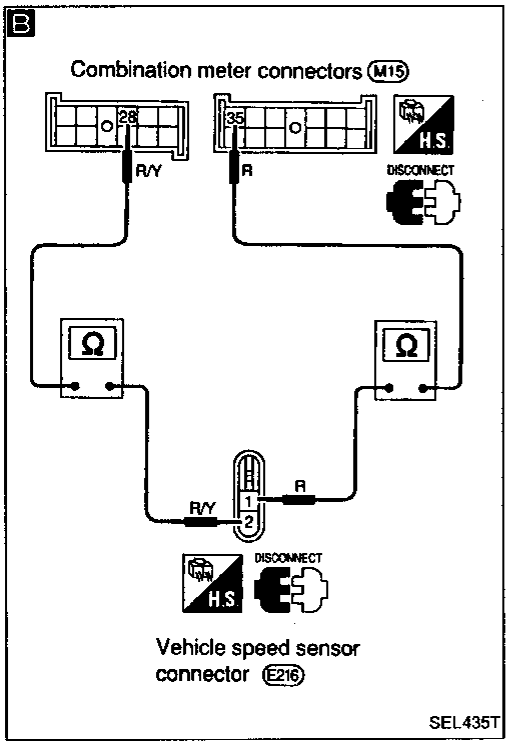
↓

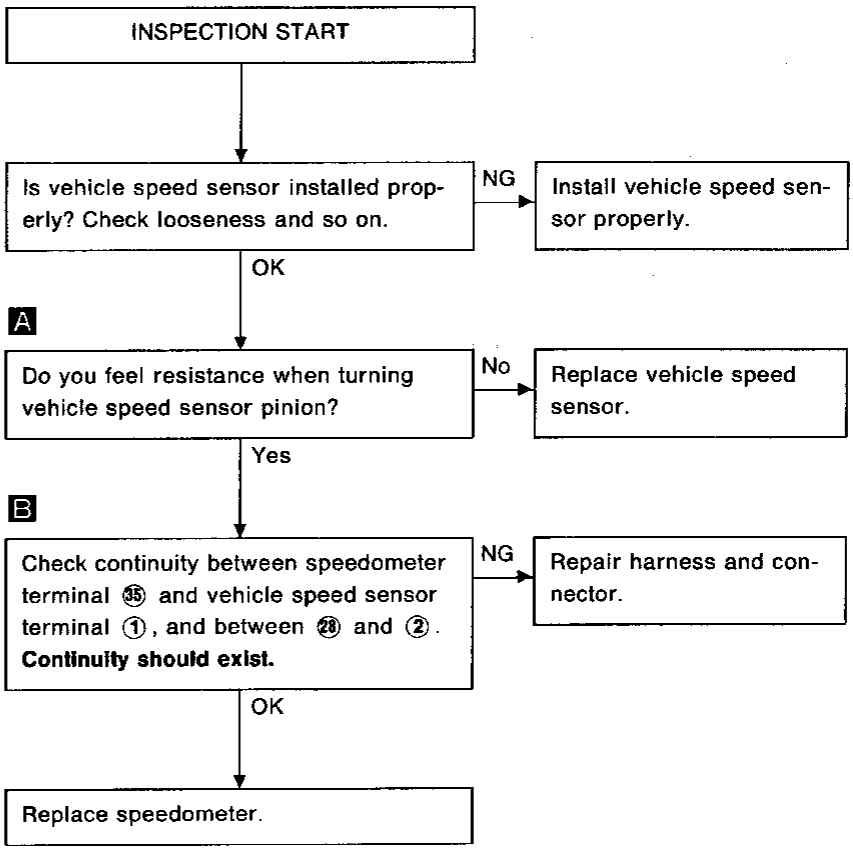
INSPECTION END

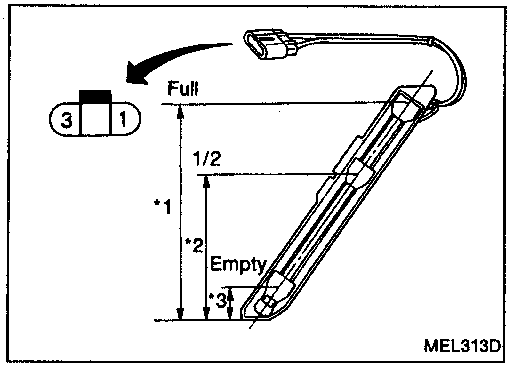
Inspection/Speedometer and Vehicle Speed Sensor (Cont'd)

SYMPTOM: Speedometer indication flutters.









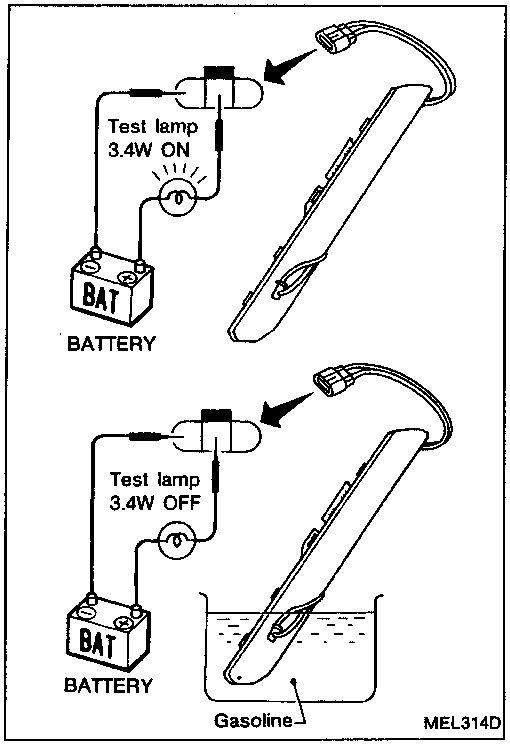
Fuel Tank Gauge Unit Check

- For removal, refer to FE section.

Check the resistance between terminals ① and ③.

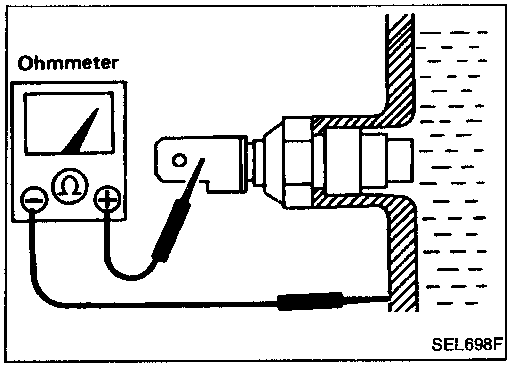
Ohmmeter (+)	Ohmmeter (–)	Float position		mm (in)	Resistance value (Ω)
①	③	*1	Full	356 (14.02)	Approx. 4 - 6
		*2	1/2	245 (9.65)	30 - 35
		*3	Empty	50 (1.97)	80 - 84

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



Fuel Warning Lamp Sensor Check

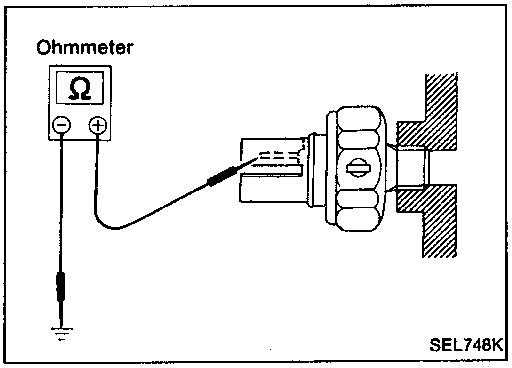
- It will take a short time for the bulb to light.



Thermal Transmitter Check

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

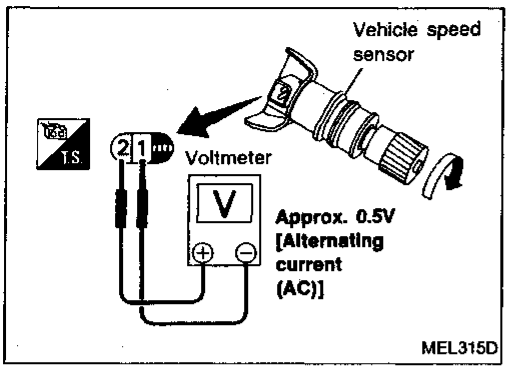
Water temperature	Resistance
60°C (140°F)	Approx. 70 - 90Ω
100°C (212°F)	Approx. 21 - 24Ω



Oil Pressure Switch Check

	Oil pressure kPa (kg/cm², psi)	Continuity
Engine start	More than 10 - 20 (0.1 - 0.2, 1 - 3)	NO
Engine stop	Less than 10 - 20 (0.1 - 0.2, 1 - 3)	YES

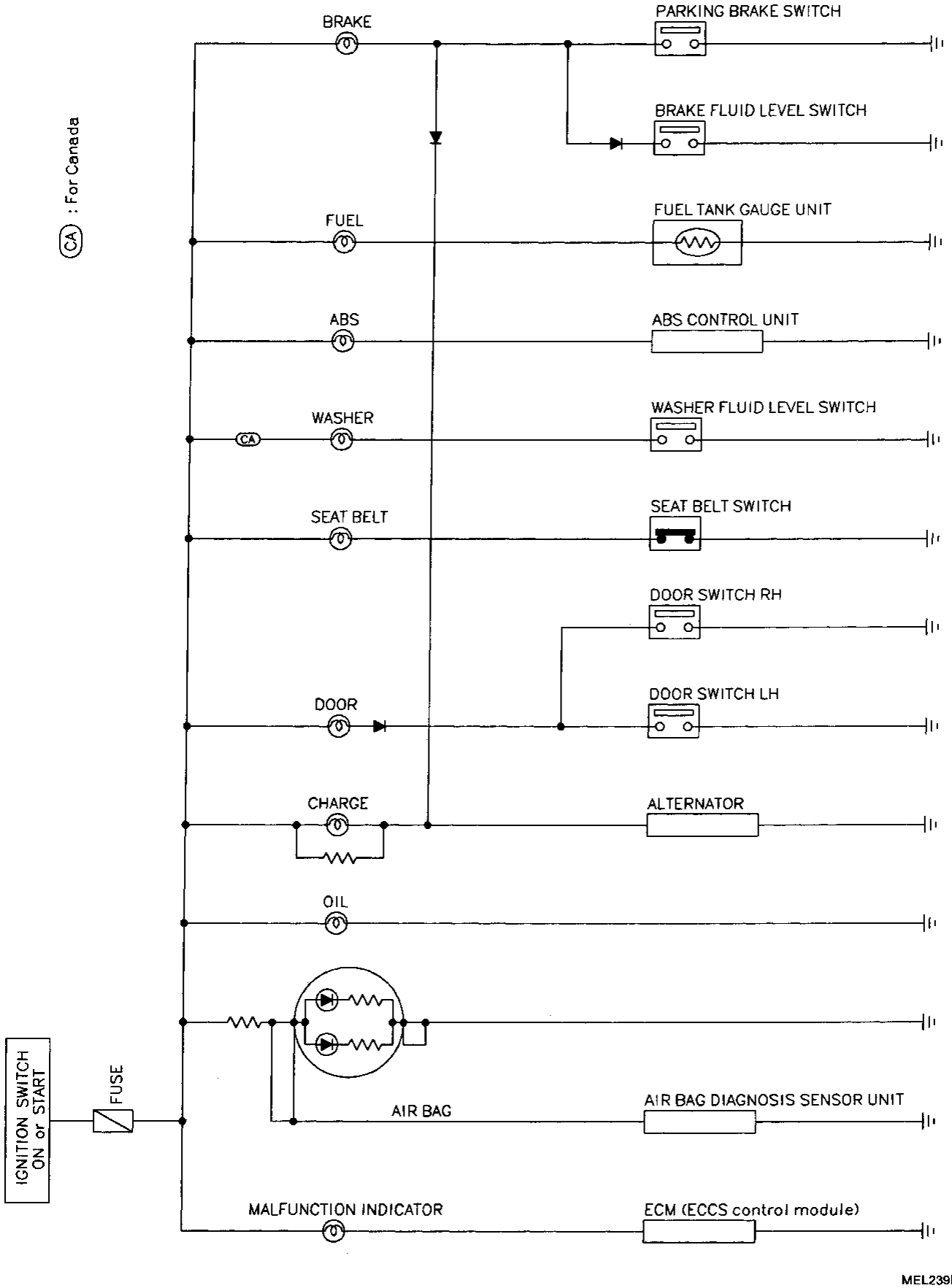
Check the continuity between the terminals of oil pressure switch and body ground.



Vehicle Speed Sensor Signal Check

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

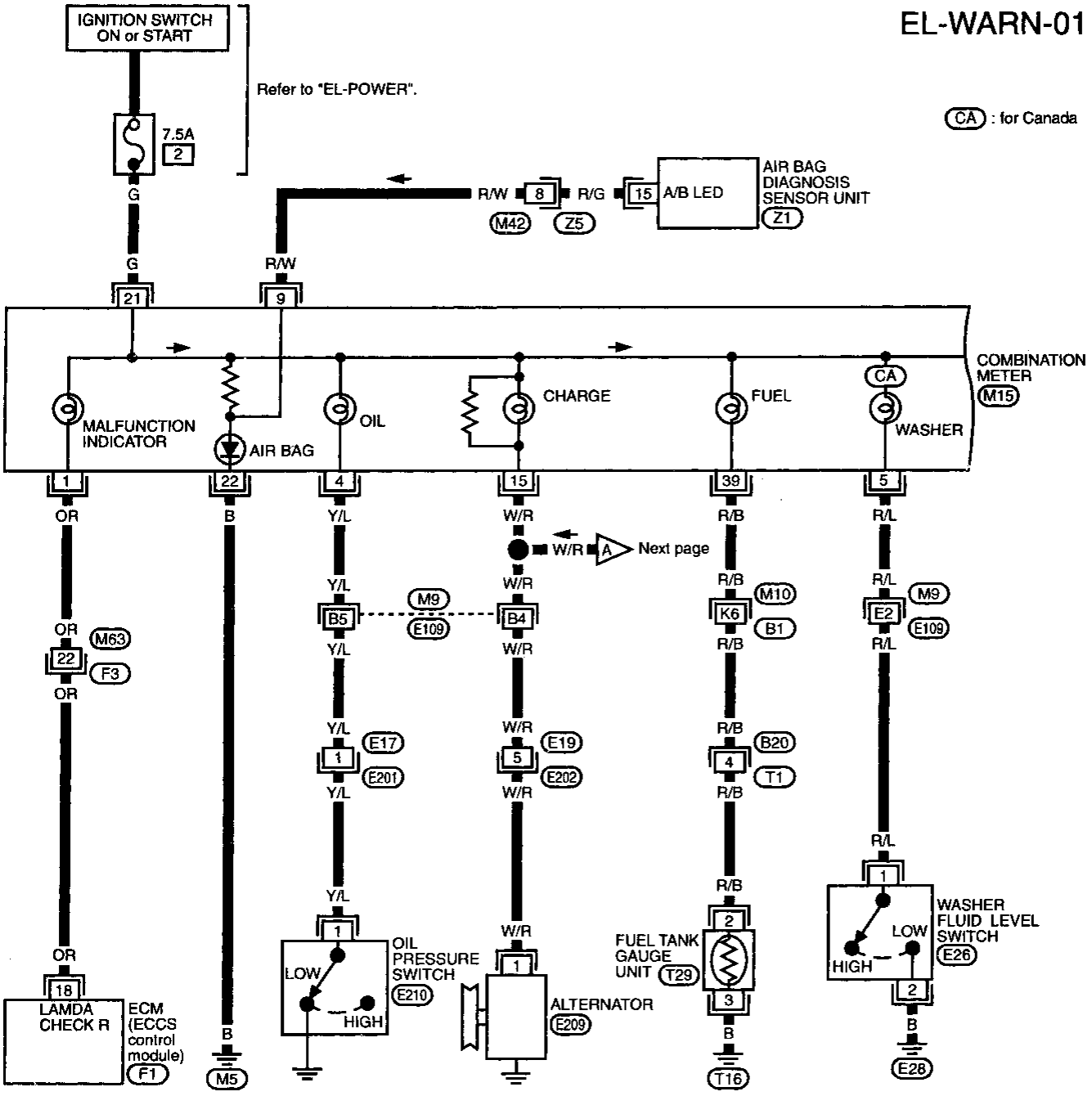
Warning Lamps/Schematic

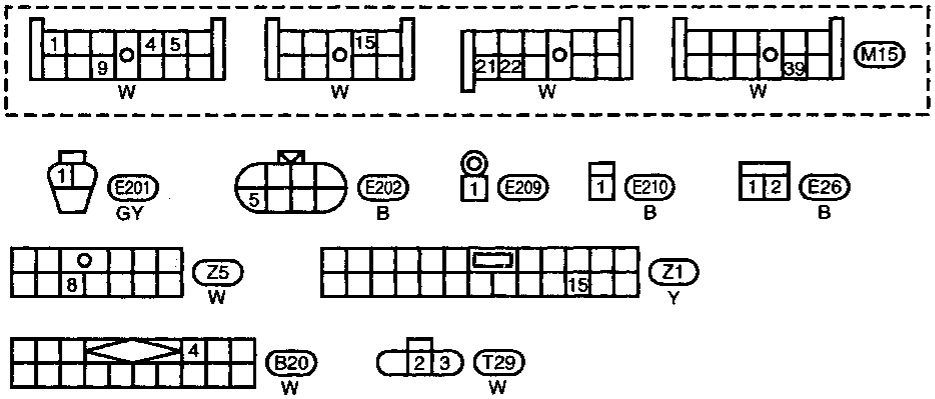


MEL239D

Warning Lamps/Wiring Diagram — WARN —

EL-WARN-01





Refer to last page (Foldout page).

M9 , E109

M10 , B1

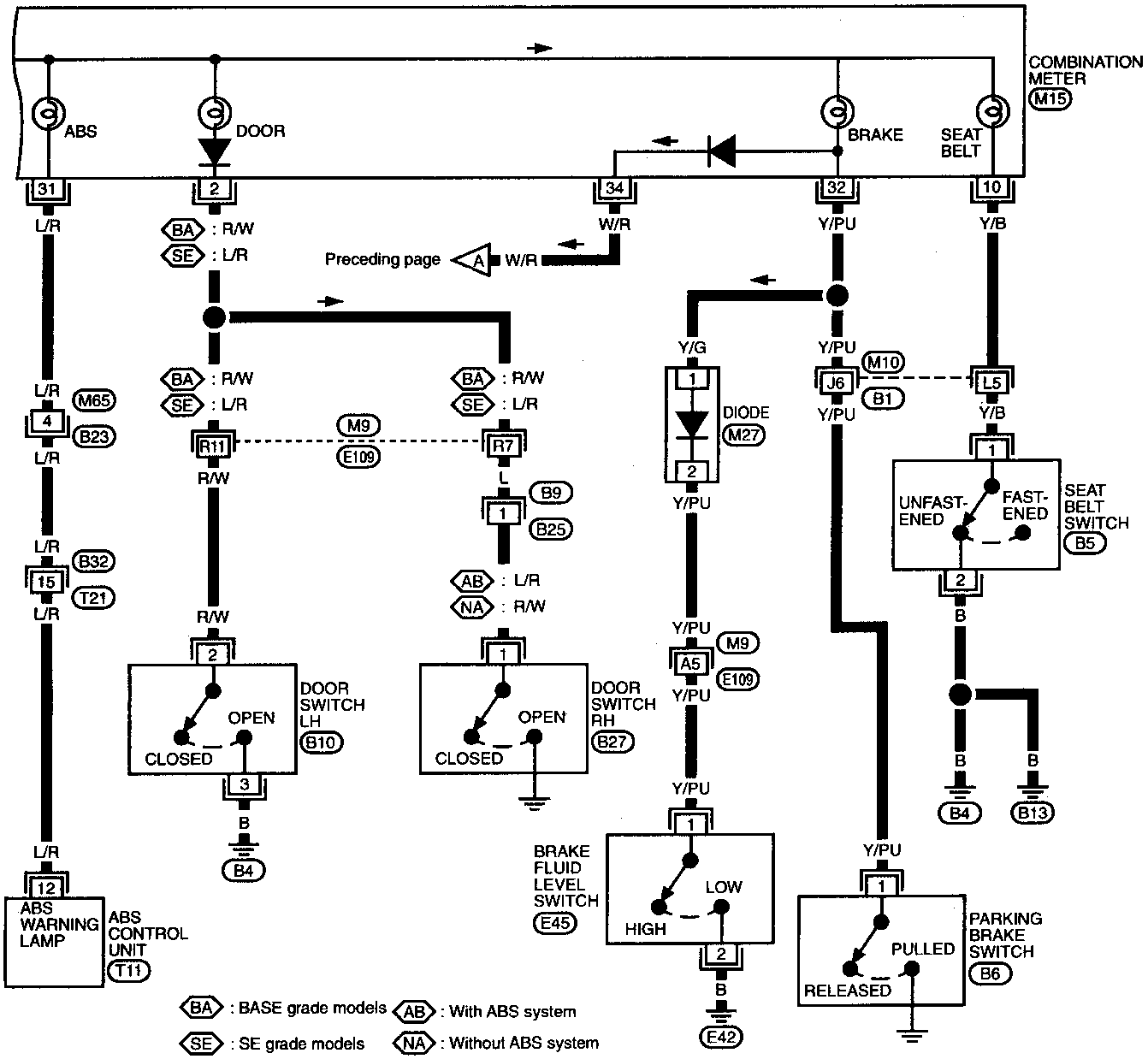
F3 , M63

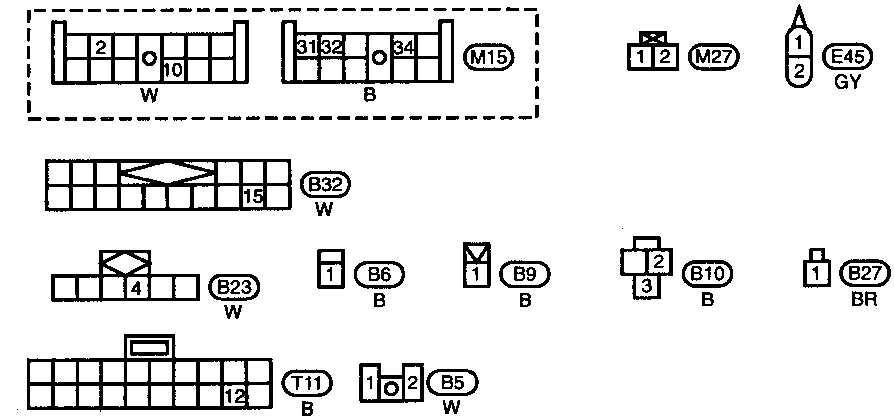
F1

MEL240D

Warning Lamps/Wiring Diagram — WARN — (Cont'd)

EL-WARN-02





Refer to last page (Foldout page).
M9 , E109
M10 , B1

MEL241D

Warning Buzzer/System Description

MODELS WITH POWER DOOR LOCKS

The warning buzzer is controlled by the smart entrance control unit.
Power is supplied at all times
- through 10A fuse (No. 6 , located in the fuse block)
- to warning buzzer terminal ③
- to key switch terminal ①.

Power is supplied at all times
- through 10A fuse (No. 4 , located in the fuse block)
- to lighting switch terminal ⑪.

Power is supplied at all times
- through 25A fusible link (letter i, located in the fusible link and fuse box).
- to smart entrance control unit terminal ①.

With the ignition switch in the ON or START position, power is supplied
- through 7.5A fuse (No. 1 located in the fuse block)
- to smart entrance control unit terminal ⑪.

Ground is supplied to smart entrance control unit terminal ⑩ through body ground (M5).
When a signal, or combination of signals, is received by the smart entrance control unit, ground is supplied
- through smart entrance control unit terminal ㉓
- to warning buzzer terminal ①.

With power and ground supplied, the warning buzzer will sound.

Ignition key warning buzzer

With the key in the ignition switch in the OFF position, and the driver's door open, the warning buzzer will sound. A battery positive voltage is supplied
- from key switch terminal ②
- to smart entrance control unit terminal ㉔.

Ground is supplied
- from door switch LH terminal ①
- to smart entrance control unit terminal ⑮.

Door switch LH terminal ③ is grounded through body grounds (B4) and (B13).

Light warning buzzer

With ignition switch OFF, driver's door open, and lighting switch in 1ST or 2ND position, warning buzzer will sound. A battery positive voltage is supplied.
- from lighting switch terminal ⑫
- to smart entrance control unit terminal ㉕

Ground is supplied
- from door switch LH terminal ①
- to smart entrance control unit terminal ⑮.

Door switch LH terminal ③ is grounded through body grounds (B4) and (B13).

Seat belt warning buzzer

With ignition switch turned ON and seat belt unfastened (seat belt switch ON), warning buzzer will sound for approximately 6 seconds.
Ground is supplied
- from seat belt switch terminal ①
- to smart entrance control unit terminal ㉑.

Seat belt switch terminal ② is grounded through body grounds (B4) and (B13).

MODELS WITHOUT POWER DOOR LOCKS

The warning buzzer is controlled by the warning buzzer unit.
Power is supplied at all times
- through 10A fuse (No. 6 , located in the fuse block)
- to key switch terminal ①.

Power is supplied at all times
- through 10A fuse (No. 4 , located in the fuse block)
- to lighting switch terminal ⑪.

Warning Buzzer/System Description (Cont'd)

With the ignition switch in the ON or START position, power is supplied
- through 7.5A fuse (No. 2 located in the fuse block)
- to warning buzzer unit terminal ①.

Ground is supplied to warning buzzer unit terminal ⑧ through body ground (M5).
When a signal, or combination of signals, is received by the warning buzzer unit.
With power and ground supplied, the warning buzzer will sound.

Ignition key warning buzzer

With the key in the ignition switch in the OFF position, and the driver's door open, the warning buzzer will sound. A battery positive voltage is supplied
- from key switch terminal ②
- to warning buzzer unit terminal ⑤.

Ground is supplied
- from door switch LH terminal ①
- to seat belt timer unit terminal ⑦.

Door switch LH terminal ③ is grounded through body grounds (B4) and (B13).

Light warning buzzer

With ignition switch OFF, driver's door open, and lighting switch in 1ST or 2ND position, warning buzzer will sound. A battery positive voltage is supplied
- from lighting switch terminal ⑫
- to warning buzzer unit terminal ④.

Ground is supplied
- from door switch LH terminal ①
- to warning buzzer unit terminal ⑦.

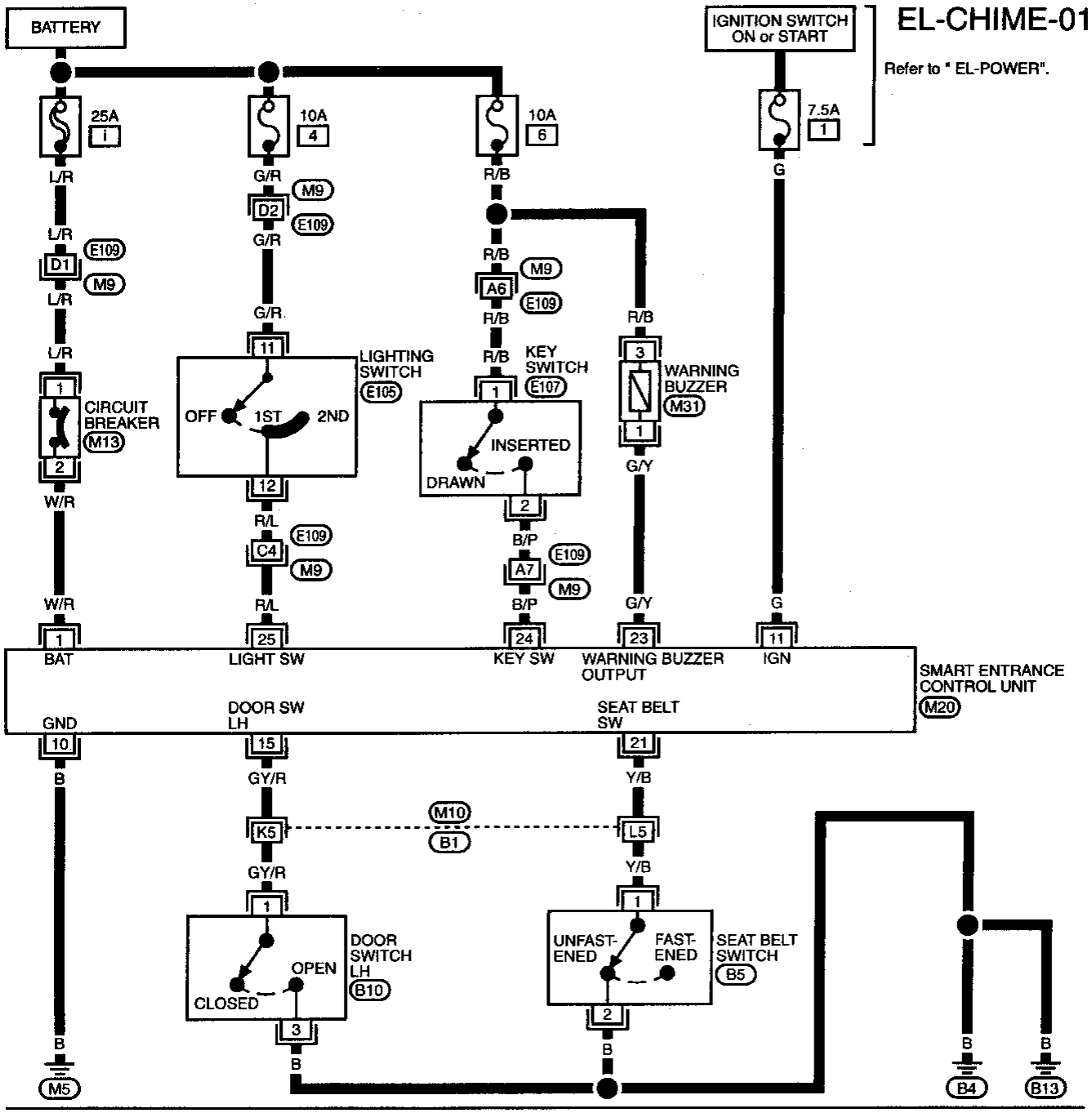
Seat belt warning buzzer

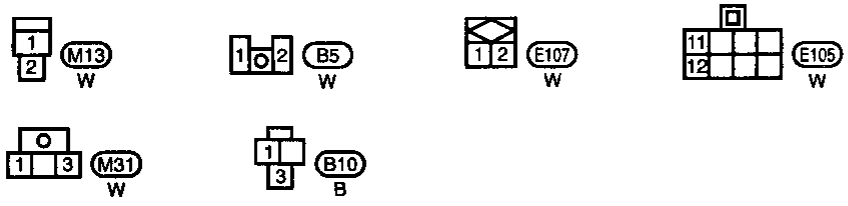
With ignition switch turned ON and seat belt unfastened (seat belt switch ON), warning buzzer will sound for approximately 6 seconds.
Ground is supplied
- from seat belt switch terminal ①
- to warning buzzer unit terminal ②.

Seat belt switch terminal ② is grounded through body grounds (B4) and (B13).

Warning Buzzer/Wiring Diagram — CHIME —

MODELS WITH POWER DOOR LOCKS





Refer to last page (Foldout page).

M9 , E109

M10 , B1

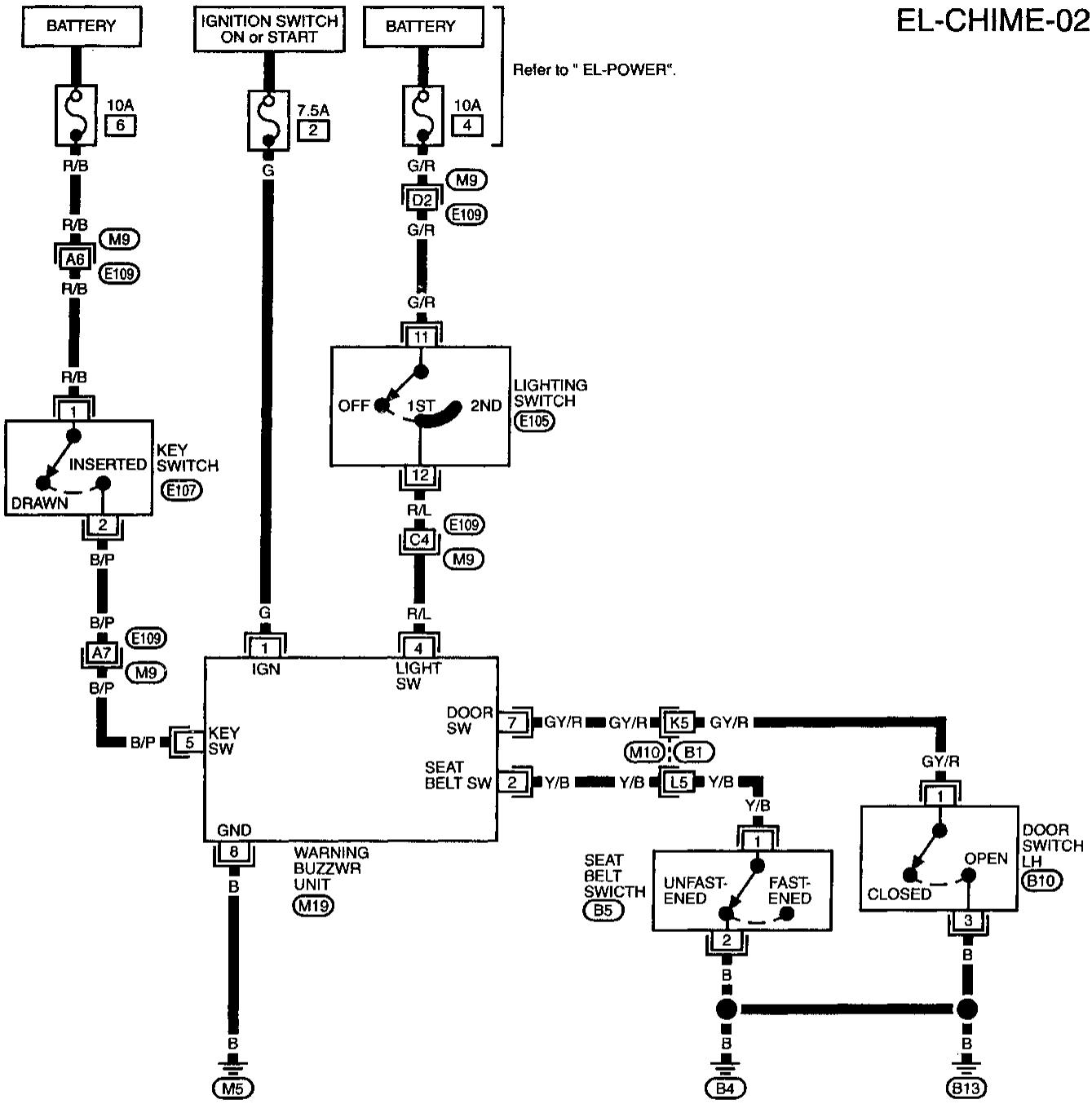
M20

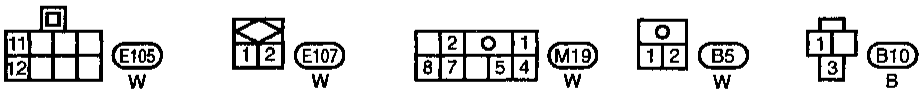
MEL242D

Warning Buzzer/Wiring Diagram — CHIME — (Cont'd)

MODELS WITHOUT POWER DOOR LOCKS

EL-CHIME-02





Refer to last page (Foldout page).

M9 , E109

M10 , B1

MEL243D

Trouble Diagnoses — Warning Buzzer

SYMPTOM CHART

Models with power door locks

PROCEDURE	Preliminary Check			Main Power Supply and Ground Circuit Check	Diagnostic Procedure		
REFERENCE PAGE	EL-91	EL-91	EL-91	EL-93	EL-94	EL-96	EL-98
SYMPTOM	Preliminary check 1	Preliminary check 2	Preliminary check 3	Main power supply and Ground circuit	Diagnostic Procedure 1	Diagnostic Procedure 2	Diagnostic Procedure 3
Light warning buzzer does not activate.	○			○	○		
Ignition key warning buzzer does not activate.		○		○		○	
Seat belt warning buzzer does not activate.			○	○			○

Models without power door locks

PROCEDURE	Preliminary Check			Main Power Supply and Ground Circuit Check	Diagnostic Procedure		
REFERENCE PAGE	EL-92	EL-92	EL-92	EL-93	EL-95	EL-97	EL-98
SYMPTOM	Preliminary check 1	Preliminary check 2	Preliminary check 3	Main power supply and Ground circuit	Diagnostic Procedure 1	Diagnostic Procedure 2	Diagnostic Procedure 3
Light warning buzzer does not activate.	○			○	○		
Ignition key warning buzzer does not activate.		○		○		○	
Seat belt warning buzzer does not activate.			○	○			○

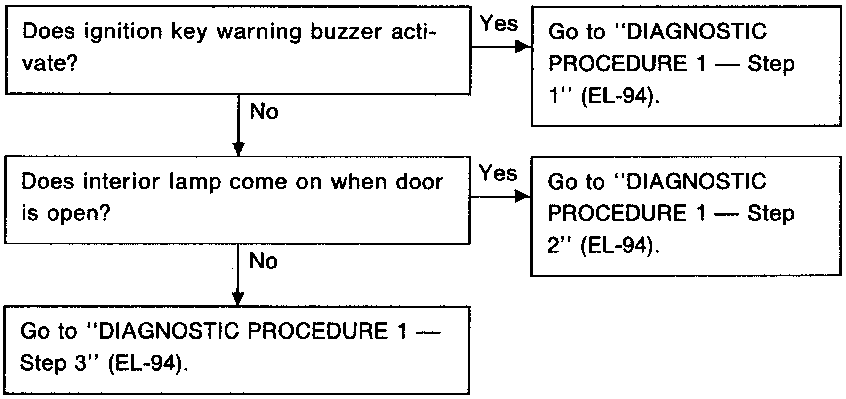
Trouble Diagnoses — Warning Buzzer (Cont'd)

PRELIMINARY CHECK

Models with power door locks

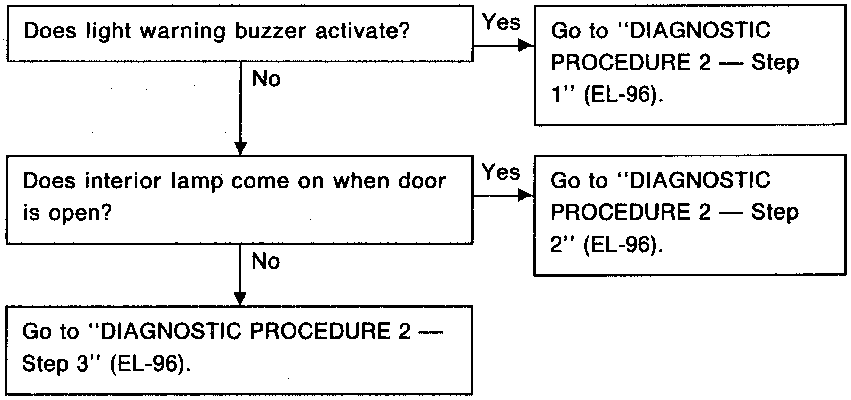
Preliminary check 1

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



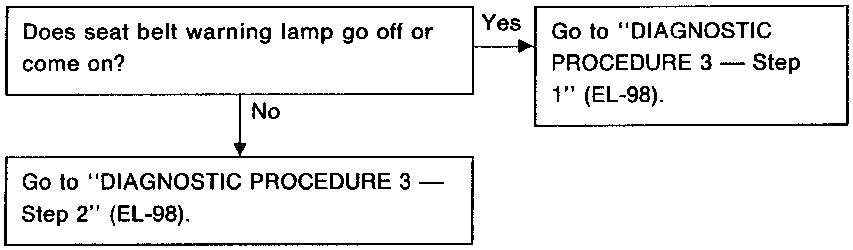
Preliminary check 2

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



Preliminary check 3

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

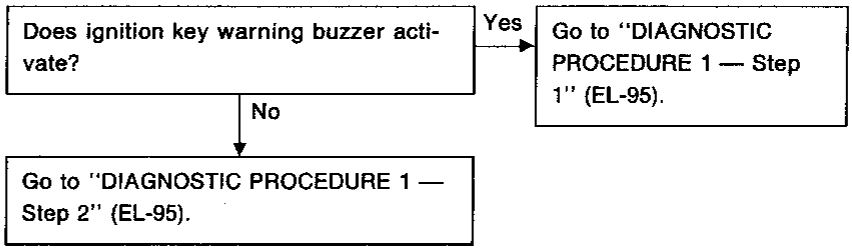


Trouble Diagnoses — Warning Buzzer (Cont'd)

Models without power door locks

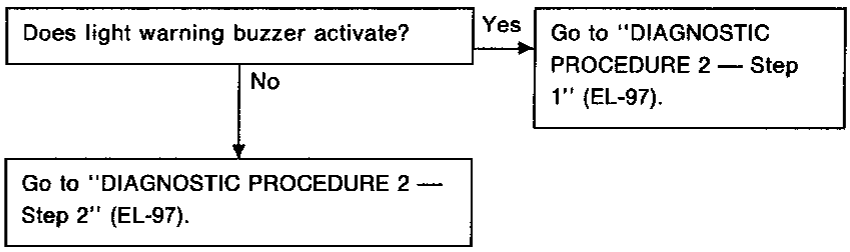
Preliminary check 1

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



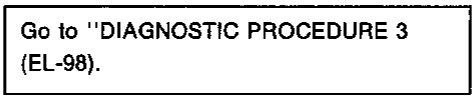
Preliminary check 2

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



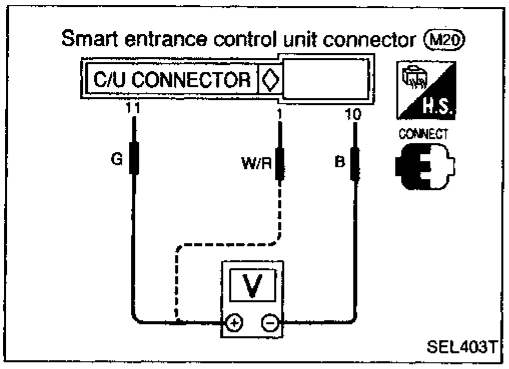
Preliminary check 3

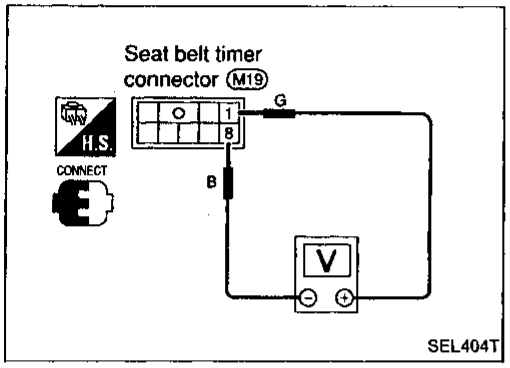
- **Seat belt warning buzzer does not activate.**

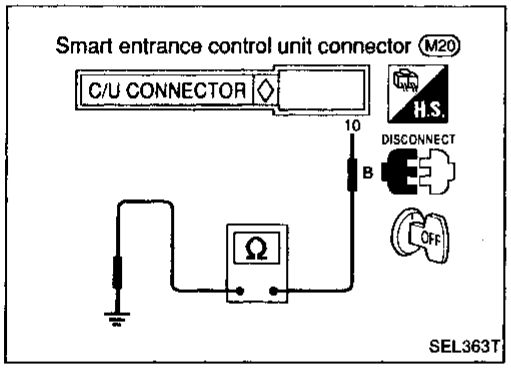


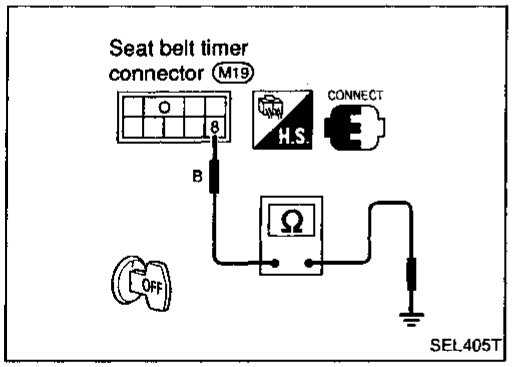
Trouble Diagnoses — Warning Buzzer (Cont'd)

MAIN POWER SUPPLY AND GROUND CIRCUIT CHECK









Main power supply

- **Models with power door locks**

Terminals	Battery voltage existence condition		
	Ignition switch position		
	OFF	ACC	ON
⑪ - ⑩	No	No	Yes
① - ⑩	Yes	Yes	Yes

- **Models without power door locks**

Terminals	Battery voltage existence condition		
	Ignition switch position		
	OFF	ACC	ON
① - ⑧	No	No	Yes

Ground circuit

- **Models with power door locks**

Terminals	Continuity
⑩ - Ground	Yes

- **Models without power door locks**

Terminals	Continuity
⑧ - Ground	Yes

Trouble Diagnoses — Warning Buzzer (Cont'd)

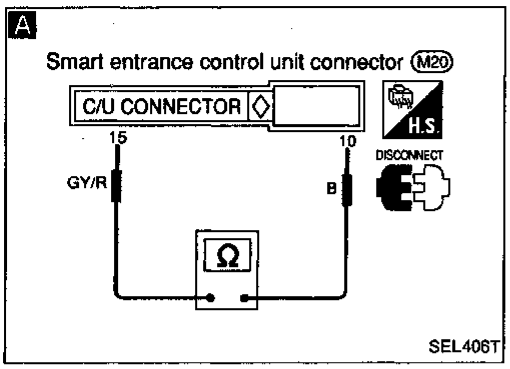
DIAGNOSTIC PROCEDURE 1

SYMPTOM: Light warning buzzer does not activate.

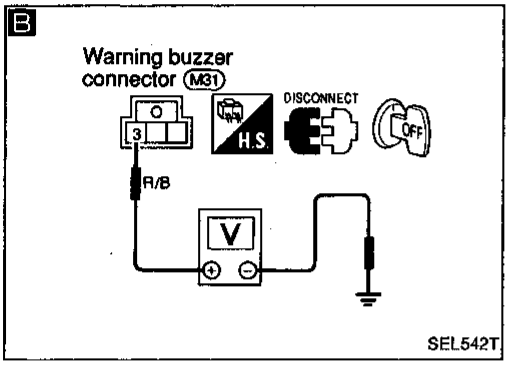
- Perform "Preliminary check 1" before referring to the following flow chart.

Models with power door locks

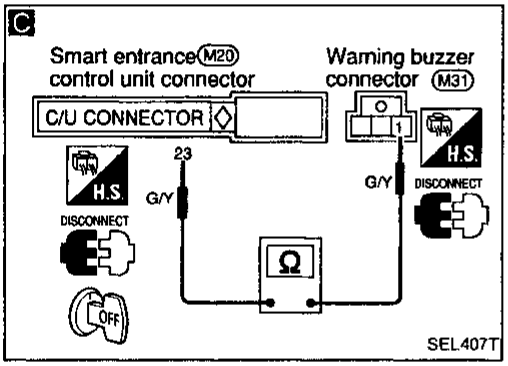
A



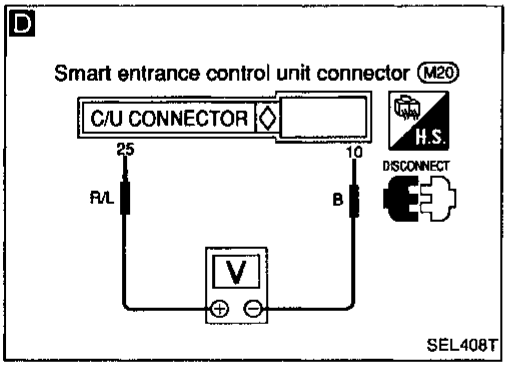
B



C



D



A — Step 3

DOOR SWITCH INPUT SIGNAL CHECK
Check continuity between control unit harness terminals ⑮ and ⑩.

Condition of driver's door	Continuity
LH door is closed.	No
LH door is open.	Yes

NG →
- Check door switch. (Refer to EL-187.)
- Check harness continuity between control unit harness terminal ⑮ and LH door switch harness terminal ①. **Continuity should exist.**
- Check harness continuity between LH door switch harness terminal ③ and body ground. **Continuity should exist.**

OK ↓

B — Step 2

BUZZER POWER SUPPLY CHECK
Measure voltage between warning buzzer harness terminal ③ and body ground.
Battery voltage should exist.

NG → Check 10A fuse [6], harness and connector.

OK ↓

C

BUZZER OUTPUT SIGNAL CHECK
Check continuity between warning buzzer harness terminal ① and control unit harness terminal ㉓.
Continuity should exist.

NG → Repair harness or connectors.

OK ↓

WARNING BUZZER CHECK
Refer to EL-99.

NG → Replace warning buzzer.

OK ↓

D — Step 1

LIGHTING SWITCH INPUT SIGNAL CHECK
Measure voltage between control unit harness terminals ㉕ and ⑩.

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

NG →
- Check lighting switch.
- Check harness continuity between control unit harness terminal ㉕ and lighting switch harness terminal ⑫. **Continuity should exist.**
- Measure voltage between lighting switch harness terminal ⑪ and body ground. **Battery voltage should exist.**

OK ↓

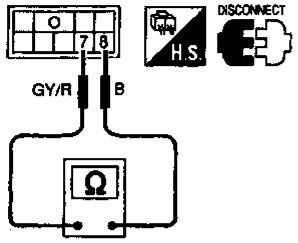
Replace control unit.

Trouble Diagnoses — Warning Buzzer (Cont'd)

Models without power door locks

A

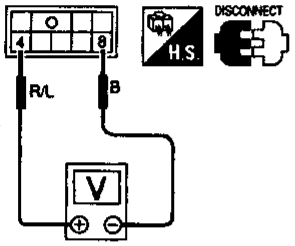
Warning buzzer unit connector (M19)



SEL409T

B

Warning buzzer unit connector (M19)



SEL410T

A

Step 2

DOOR SWITCH INPUT SIGNAL CHECK

Check continuity between warning buzzer unit harness terminals ⑦ and ⑧.

Condition of driver's door	Continuity
LH door is closed.	No
LH door is open.	Yes

NG →
- Check door switch. (Refer to EL-187.)
- Check harness continuity between warning buzzer unit harness terminal ⑦ and LH door switch harness terminal ①. **Continuity should exist.**
- Check harness continuity between LH door switch harness terminal ③ and body ground. **Continuity should exist.**

OK ↓

B

Step 1

LIGHTING SWITCH INPUT SIGNAL CHECK

Measure voltage between warning buzzer unit harness terminals ④ and ⑧.

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

NG →
- Check lighting switch.
- Check harness continuity between warning buzzer unit harness terminal ④ and lighting switch harness terminal ⑫. **Continuity should exist.**
- Measure voltage between lighting switch harness terminal ⑪ and body ground. **Battery voltage should exist.**

OK ↓

Replace warning buzzer unit.

Trouble Diagnoses — Warning Buzzer (Cont'd)

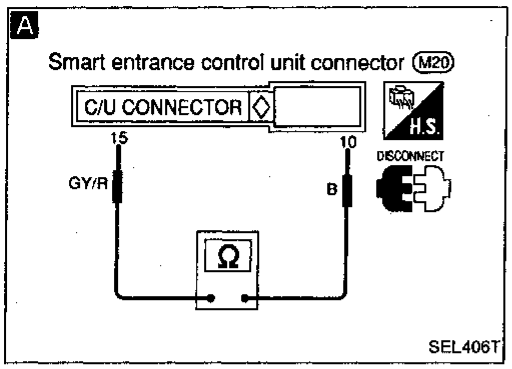
DIAGNOSTIC PROCEDURE 2

SYMPTOM: Ignition key warning buzzer does not activate.

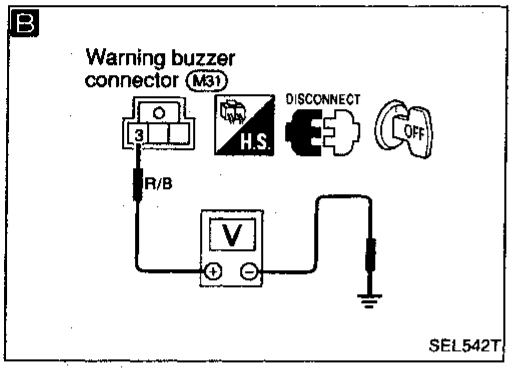
- Perform "Preliminary check 2" before referring to the following flow chart.

Models with power door locks

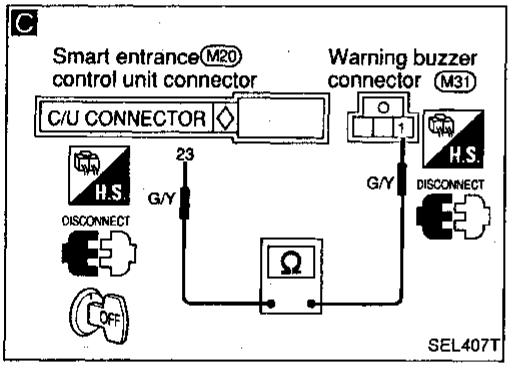
A



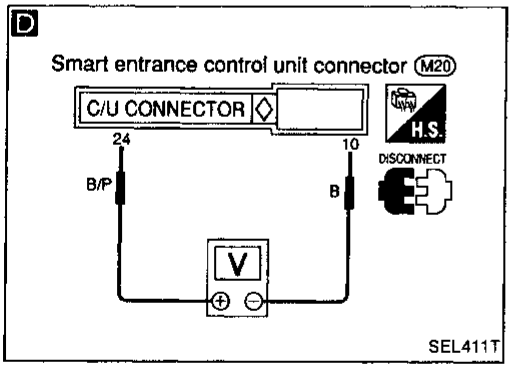
B



C



D



A — Step 3

DOOR SWITCH INPUT SIGNAL CHECK
Check continuity between control unit harness terminals ⑮ and ⑩.

Condition of driver's door	Continuity
LH door is closed.	No
LH door is open.	Yes

NG →
- Check door switch. (Refer to EL-187.)
- Check harness continuity between control unit harness terminal ⑮ and LH door switch harness terminal ①. **Continuity should exist.**
- Check harness continuity between LH door switch harness terminal ③ and body ground. **Continuity should exist.**

OK ↓

B — Step 2

BUZZER POWER SUPPLY CHECK
Measure voltage between warning buzzer harness terminal ③ and body ground.
Battery voltage should exist.

NG → Check 10A fuse [6], harness and connector.

OK ↓

C

BUZZER OUTPUT SIGNAL CHECK
Check continuity between warning buzzer harness terminal ① and control unit harness terminal ㉓.
Continuity should exist.

NG → Repair harness or connectors.

OK ↓

WARNING BUZZER CHECK
Refer to EL-99.

NG → Replace warning buzzer.

OK ↓

D — Step 1

IGNITION KEY SWITCH INPUT SIGNAL CHECK
Measure voltage between control unit harness terminals ㉔ and ⑩.

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

NG →
- Check ignition key switch.
- Check harness continuity between control unit harness terminal ㉔ and key switch harness terminal ②. **Continuity should exist.**
- Measure voltage between key switch harness terminal ① and body ground. **Battery voltage should exist.**

OK ↓

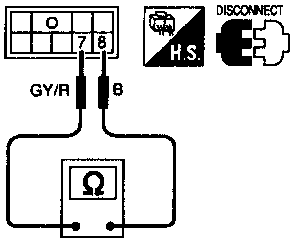
Replace control unit.

Trouble Diagnoses — Warning Buzzer (Cont'd)

Models without power door locks

A

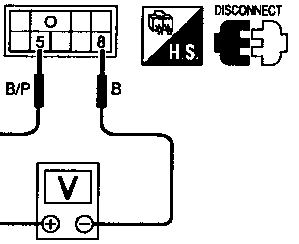
Warning buzzer unit connector (M19)



SEL409T

B

Warning buzzer unit connector (M19)



SEL412T

A

Step 2

DOOR SWITCH INPUT SIGNAL CHECK

Check continuity between warning buzzer unit harness terminals ⑦ and ⑧.

Condition of driver's door	Continuity
LH door is closed.	No
LH door is open.	Yes

NG →
- Check door switch. (Refer to EL-187.)
- Check harness continuity between warning buzzer unit harness terminal ⑦ and LH door switch harness terminal ①.
  Continuity should exist.
- Check harness continuity between LH door switch harness terminal ③ and body ground.
  Continuity should exist.

OK ↓

B

Step 1

IGNITION KEY SWITCH INPUT SIGNAL CHECK

Measure voltage between warning buzzer unit harness terminals ⑤ and ⑧.

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

NG →
- Check ignition key switch.
- Check harness continuity between warning buzzer unit harness terminal ⑤ and key switch harness terminal ②.
  Continuity should exist.
- Measure voltage between key switch harness terminal ① and body ground.
  Battery voltage should exist.

OK ↓

Replace warning buzzer unit.

Trouble Diagnoses — Warning Buzzer (Cont'd)

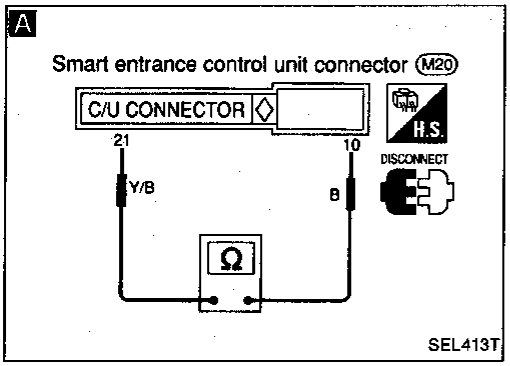
DIAGNOSTIC PROCEDURE 3

SYMPTOM: Seat belt warning buzzer does not activate.

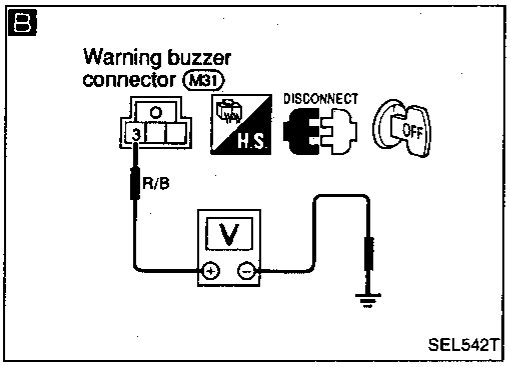
- Perform "Preliminary check 3" before referring to the following flow chart.

Models with power door locks

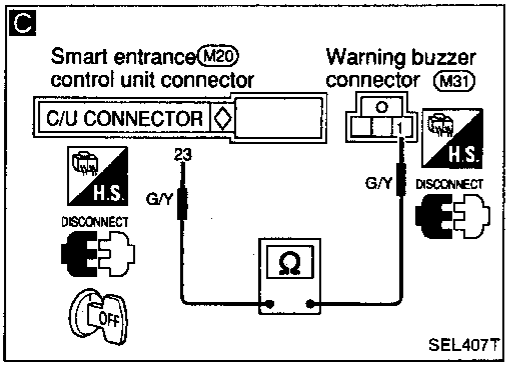
A



B



C



Step 2

A — SEAT BELT SWITCH INPUT SIGNAL CHECK
Check continuity between control unit harness terminals ㉑ and ⑩.

Condition	Continuity
Unfastened	Yes
Fastened	No

NG →
- Check seat belt switch.
- Check harness continuity between control unit harness terminal ㉑ and seat belt switch harness terminal ①.
  Continuity should exist.
- Check harness continuity between seat belt switch harness terminal ② and body ground.
  Continuity should exist.

OK ↓

Step 1

B — BUZZER POWER SUPPLY CHECK
Measure voltage between warning buzzer harness terminal ③ and body ground.
Battery voltage should exist.

NG → Check 10A fuse [6], harness and connector.

OK ↓

C — BUZZER OUTPUT SIGNAL CHECK
Check continuity between warning buzzer harness terminal ① and control unit harness terminal ㉓.
Continuity should exist.

NG → Repair harness or connectors.

OK ↓

WARNING BUZZER CHECK
Refer to EL-99.

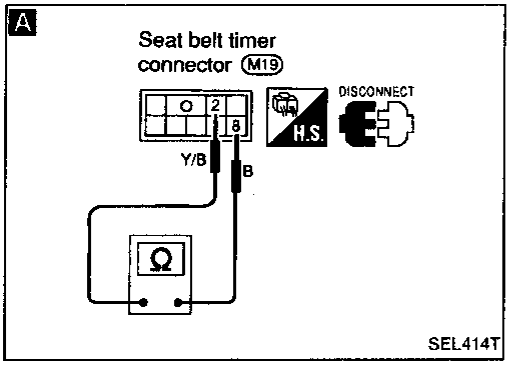
NG → Replace warning buzzer.

OK ↓

Replace control unit.

Models without power door locks

A



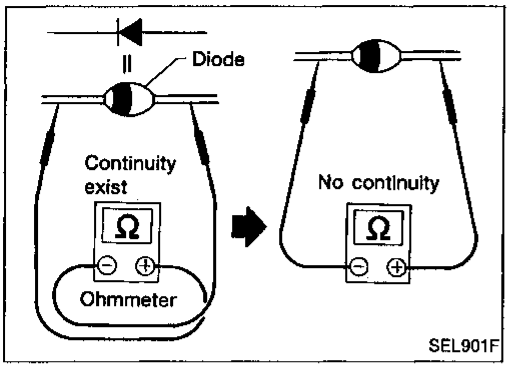
A — SEAT BELT SWITCH INPUT SIGNAL CHECK
Check continuity between warning buzzer unit harness terminals ② and ⑧.

Condition	Continuity
Unfastened	Yes
Fastened	No

NG →
- Check seat belt switch.
- Check harness continuity between warning buzzer unit harness terminal ② and seat belt switch harness terminal ①.
  Continuity should exist.
- Check harness continuity between seat belt switch harness terminal ② and body ground.
  Continuity should exist.

OK ↓

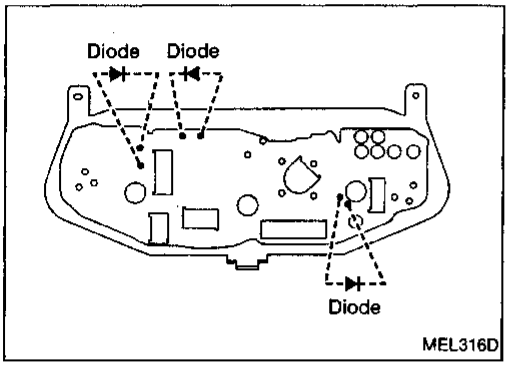
Replace warning buzzer unit.



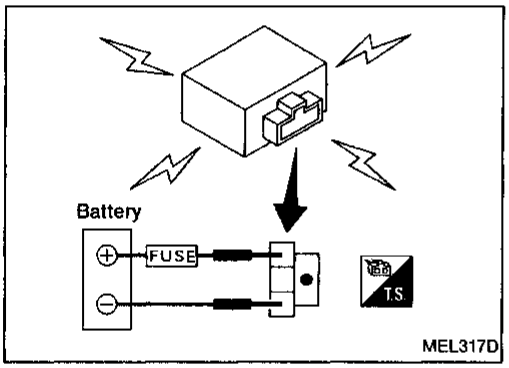
Diode Check

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

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



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



Warning Buzzer Check

Supply battery voltage to warning buzzer as shown in the illustration.

Warning buzzer should operate.

System Description

WIPER OPERATION

The wiper switch is controlled by a lever built into the combination switch.
There are three wiper switch positions:

- LO speed
- HI speed
- INT (Intermittent)

With the ignition switch in the ACC or ON position, power is supplied

- through 20A fuse (No. 16 , located in the fuse block)
- to wiper motor terminal ②.

Low and high speed wiper operation

Ground is supplied to wiper switch terminal ⑰ through body ground (E42).
When the wiper switch is placed in the LO position, ground is supplied

- through terminal ⑭ of the wiper switch
- to wiper motor terminal ④.

With power and ground supplied, the wiper motor operates at low speed.
When the wiper switch is placed in the HI position, ground is supplied

- through terminal ⑯ of the wiper switch
- to wiper motor terminal ⑤.

With power and ground supplied, the wiper motor operates at high speed.

Auto stop operation

With wiper switch turned OFF, wiper motor will continue to operate until wiper arms reach windshield base.
When wiper arms are not located at base of windshield with wiper switch OFF, ground is provided

- from terminal ⑭ of the wiper switch
- to wiper motor terminal ④, in order to continue wiper motor operation at low speed.

Ground is also supplied

- through terminal ⑬ of the wiper switch
- to wiper amplifier terminal ④
- through terminal ⑧ of the wiper amplifier
- to wiper motor terminal ①
- through terminal ⑥ of the wiper motor, and
- through body ground (F15).

When wiper arms reach base of windshield, wiper motor terminals ① and ② are connected instead of terminals ① and ⑥. Wiper motor will then stop wiper arms at the PARK position.

Intermittent operation

SE grade models

The wiper motor operates the wiper arms one time at low speed at a set interval of approximately 3 to 13 seconds. This feature is controlled by the wiper amplifier.
When the wiper switch is placed in the INT position, ground is supplied

- to wiper amplifier terminal ①
- from wiper switch terminal ⑮
- through body ground (E42).
- to wiper motor terminal ④
- through the wiper switch terminal ⑭
- to wiper switch terminal ⑬
- through wiper amplifier terminal ④
- to wiper amplifier terminal ⑦
- through body ground (F15).

The desired interval time is input

- to wiper amplifier terminal ②
- from wiper switch terminal ⑲.

The wiper motor operates at low speed at the desired time interval.

System Description (Cont'd)

BASE grade models

The wiper motor operates the wiper arms one time at low speed at an interval of approximately 7 seconds. This feature is controlled by the wiper amplifier.

When the wiper switch is placed in the INT position, ground is supplied

- to wiper amplifier terminal ①
- from wiper switch terminal ⑮
- through body ground (E42)
- to wiper motor terminal ④
- through the wiper switch terminal ⑭
- to wiper switch terminal ⑬
- through wiper amplifier terminal ④
- to wiper amplifier terminal ⑦
- through body ground (F15).

WASHER OPERATION

With the ignition switch in the ACC or ON position, power is supplied

- through 20A fuse (No. 16 , located in the fuse block)
- to washer motor terminal ①.

When the lever is pulled to the WASH position, ground is supplied

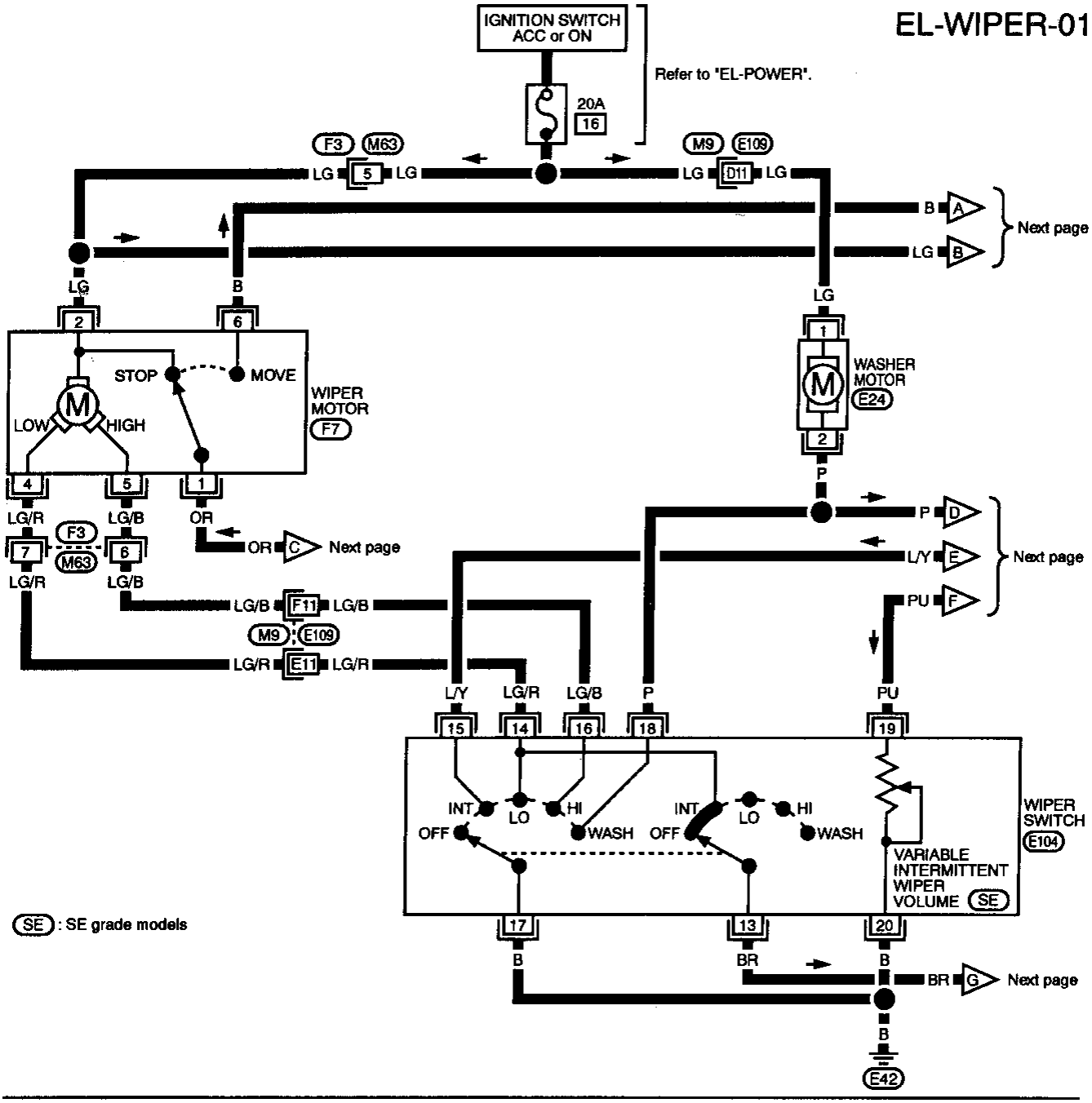
- to washer motor terminal ②, and
- to wiper amplifier terminal ⑤
- from terminal ⑱ of the wiper switch
- through terminal ⑰ of the wiper switch, and
- through body ground (E42).

With power and ground supplied, the washer motor operates.

When the lever is pulled to the WASH position for one second or more, the wiper motor operates at low speed for approximately 3 seconds to clean windshield. This feature is controlled by the wiper amplifier in the same manner as the intermittent operation.

Front Wiper and Washer/Wiring Diagram
— WIPER —

EL-WIPER-01

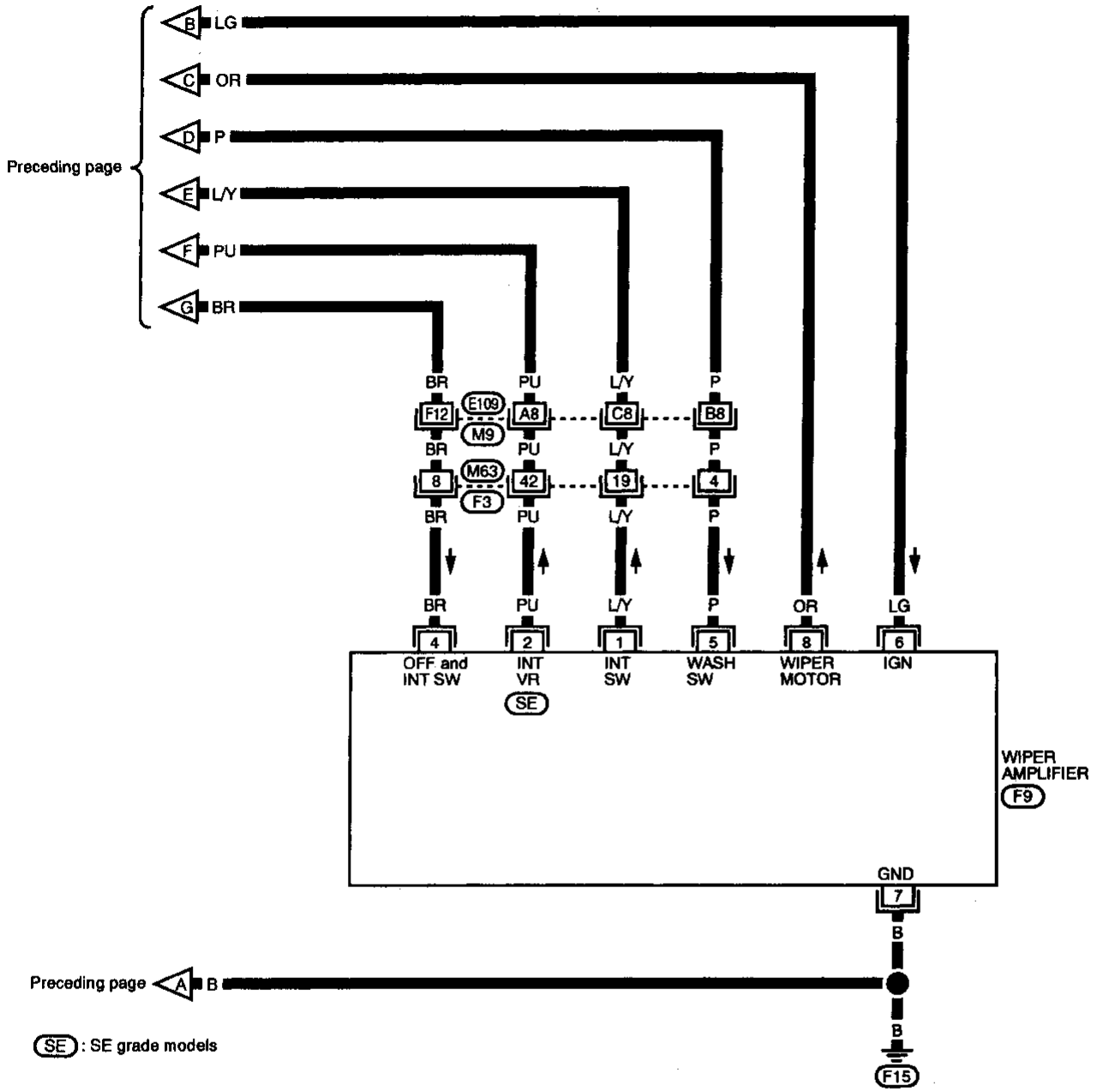


Refer to last page (Foldout page).
M9 , E109
F3 , M63

MEL247D

Front Wiper and Washer/Wiring Diagram — WIPER — (Cont'd)

EL-WIPER-02



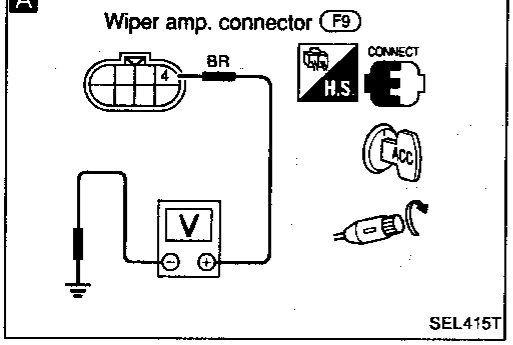
Refer to last page (Foldout page).

M9 , E109

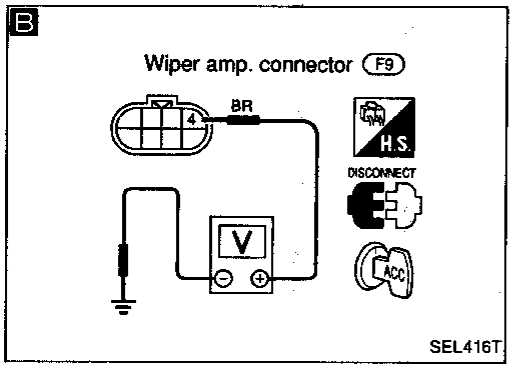
F3 , M63

MEL248D

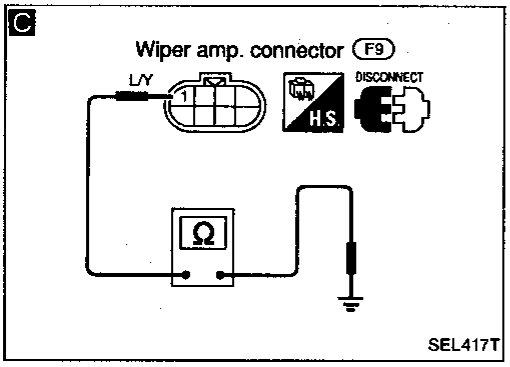
A



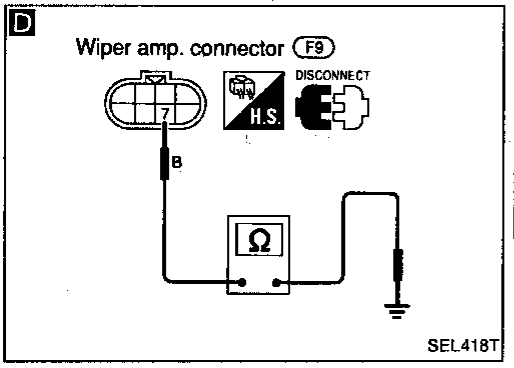
B



C



D



Trouble Diagnoses

DIAGNOSTIC PROCEDURE 1

SYMPTOM: Intermittent wiper does not operate.

A

WIPER AMP. OUTPUT SIGNAL CHECK
1) Turn ignition switch to "ACC".
2) Turn wiper switch to "INT" or "OFF".
3) Measure voltage between wiper amp. harness terminal ④ and body ground.

Condition of wiper switch	Voltage [V]
OFF	Approx. 12
INT	Pointer swings from 0 to 12 every 3 to 13 seconds

OK → Check wiper motor.

NG ↓

B

Measure voltage between wiper amp. harness terminal ④ and body ground.
Battery voltage should exist.

NG → ● Check wiper switch.
● Check wiper motor.
● Check harness continuity between wiper amp. harness terminal ④ and wiper switch harness terminal ⑬.
Continuity should exist.
● Check harness continuity between wiper switch harness terminal ⑭ and wiper motor harness terminal ④.
Continuity should exist.

OK ↓

C

INTERMITTENT SWITCH INPUT SIGNAL CHECK
Check harness continuity between wiper amp. harness terminal ① and body ground.

Condition of wiper switch	Continuity
OFF	No
INT	Yes

NG → ● Check wiper switch.
● Check harness continuity between wiper amp. harness terminal ① and wiper switch harness terminal ⑮.
Continuity should exist.
● Check harness continuity between wiper switch harness terminal ⑰ and body ground.
Continuity should exist.

OK ↓

D

WIPER AMP. GROUND CIRCUIT CHECK
Check harness continuity between wiper amp. harness terminal ⑦ and body ground.
Continuity should exist.

NG → Repair harness or connector.

OK ↓

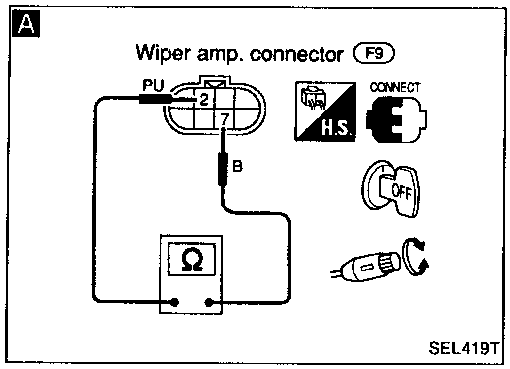
Replace wiper amp.

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 wiper amp. harness terminals ② and ⑦ while turning intermittent wiper volume.

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

OK → Replace wiper amp.

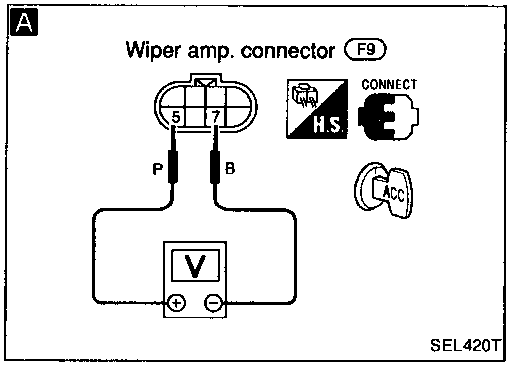
NG →

Check intermittent wiper volume.
Check harness continuity between wiper amp. harness terminal ② and wiper switch harness terminal ⑲.
Check harness continuity between wiper switch harness terminal ⑳ and body ground.

DIAGNOSTIC PROCEDURE 3

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

A



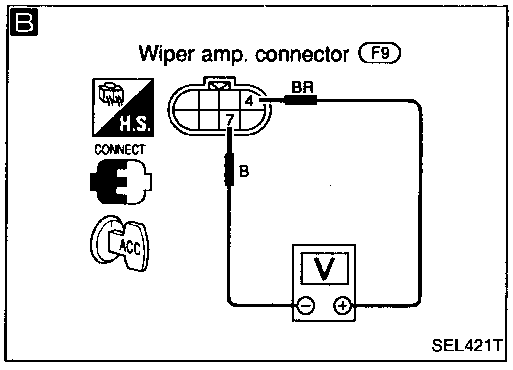
WASHER SWITCH INPUT SIGNAL CHECK
1) Turn ignition switch to "ACC".
2) Measure voltage between wiper amp. harness terminals ⑤ and ⑦.

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

NG → Check harness continuity between wiper amp. harness terminal ⑤ and wiper switch harness terminal ⑱.

OK →

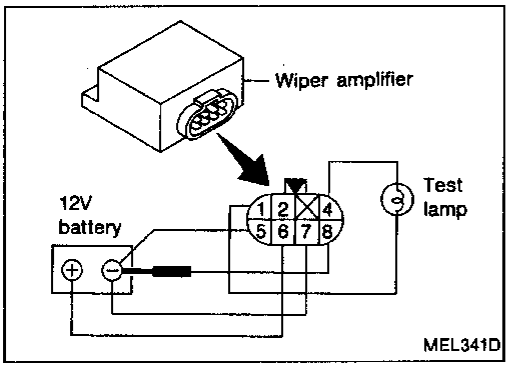
B



WIPER AMP. OUTPUT SIGNAL CHECK
Measure voltage between wiper amp. harness terminals ④ and ⑦ after operating washer switch.
0V for approx. 3 seconds after washer has operated.

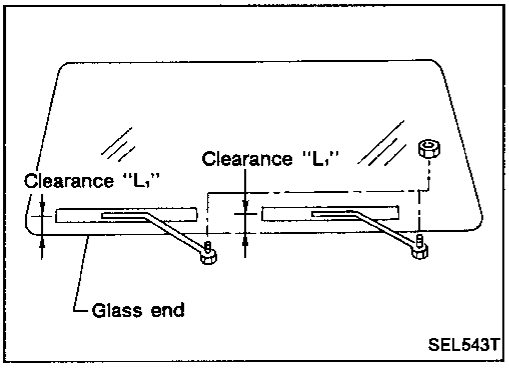
NG → Check wiper switch.

OK → Replace wiper amp.



Wiper Amplifier Check

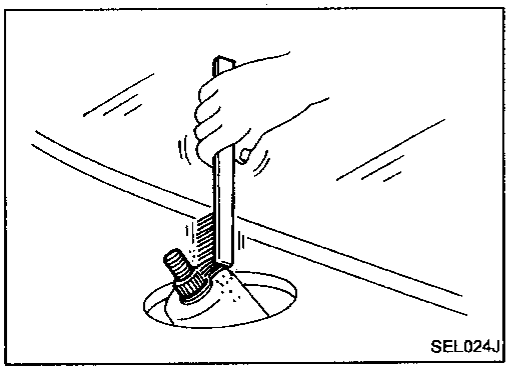
1. Connect as shown in the figure at left.
2. If test lamp comes on when connected to terminal ⑧ and battery ground, wiper amplifier is normal.



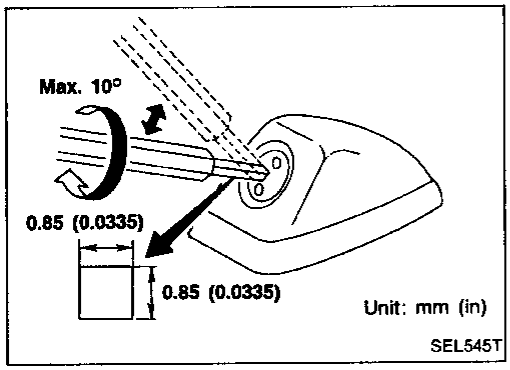
Wiper Installation and Adjustment

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" & "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": 18 - 33 mm (0.71 - 1.30 in)
   Clearance "L_2": 17 - 32 mm (0.67 - 1.26 in)

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



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

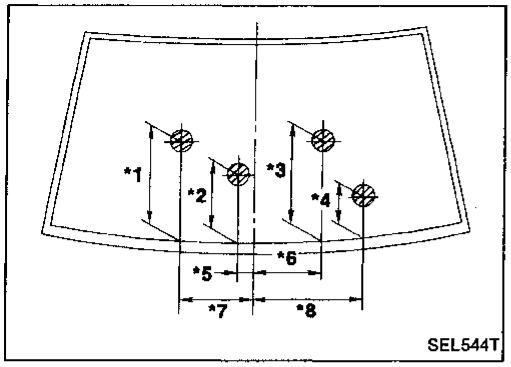


Washer Nozzle Adjustment

- Using a suitable tool, 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.

Washer Nozzle Adjustment (Cont'd)

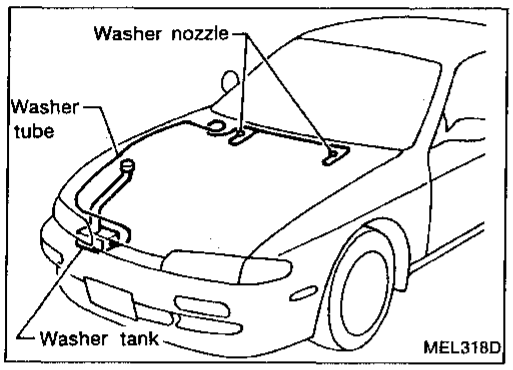


Unit: mm (in)

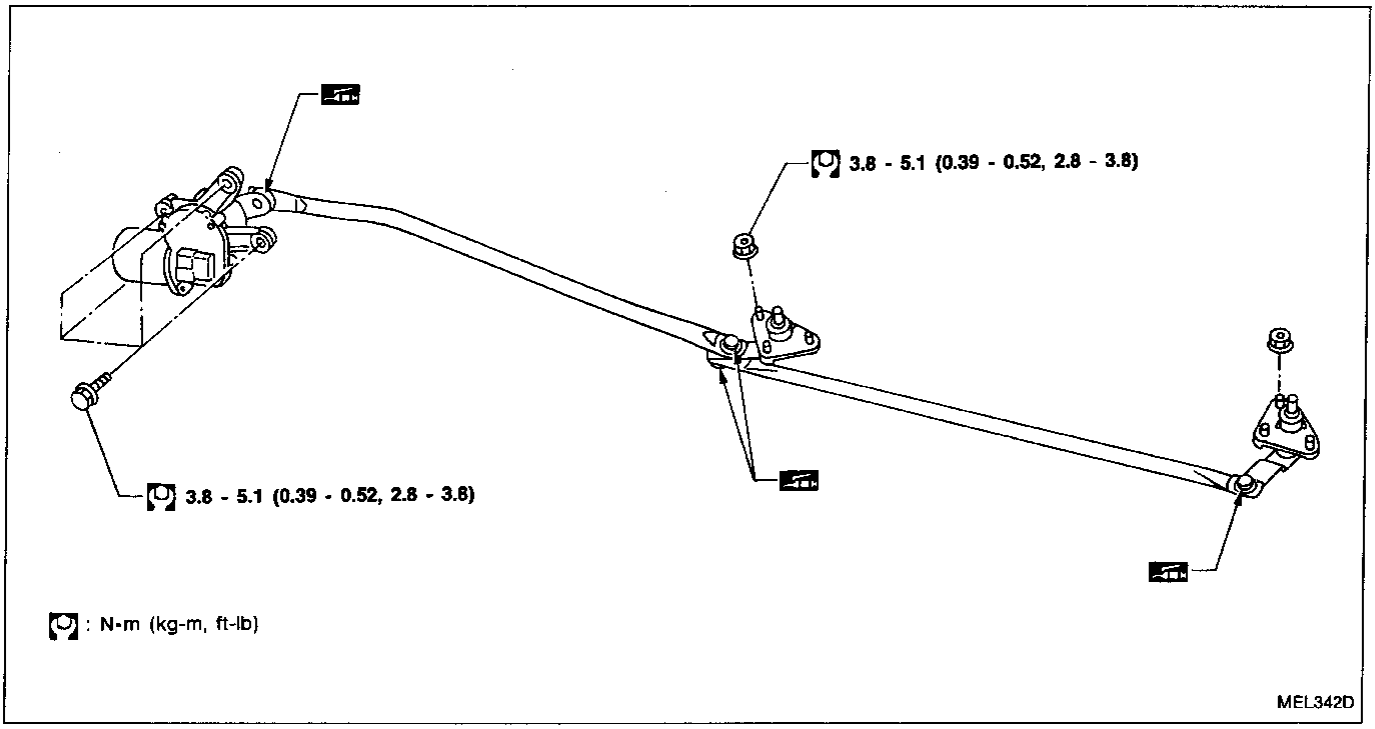
*1	358 (14.09)	*5	70 (2.76)
*2	245 (9.65)	*6	245 (9.65)
*3	300 (11.81)	*7	378 (14.88)
*4	203 (7.99)	*8	503 (19.80)

*: The diameters of these circles are less than 80 mm (3.15 in).

Washer Tube Layout



Wiper Linkage



REMOVAL

1. Remove 4 bolts that secure wiper motor.
2. Detach wiper motor from wiper linkage at ball joint.
3. Remove wiper linkage.

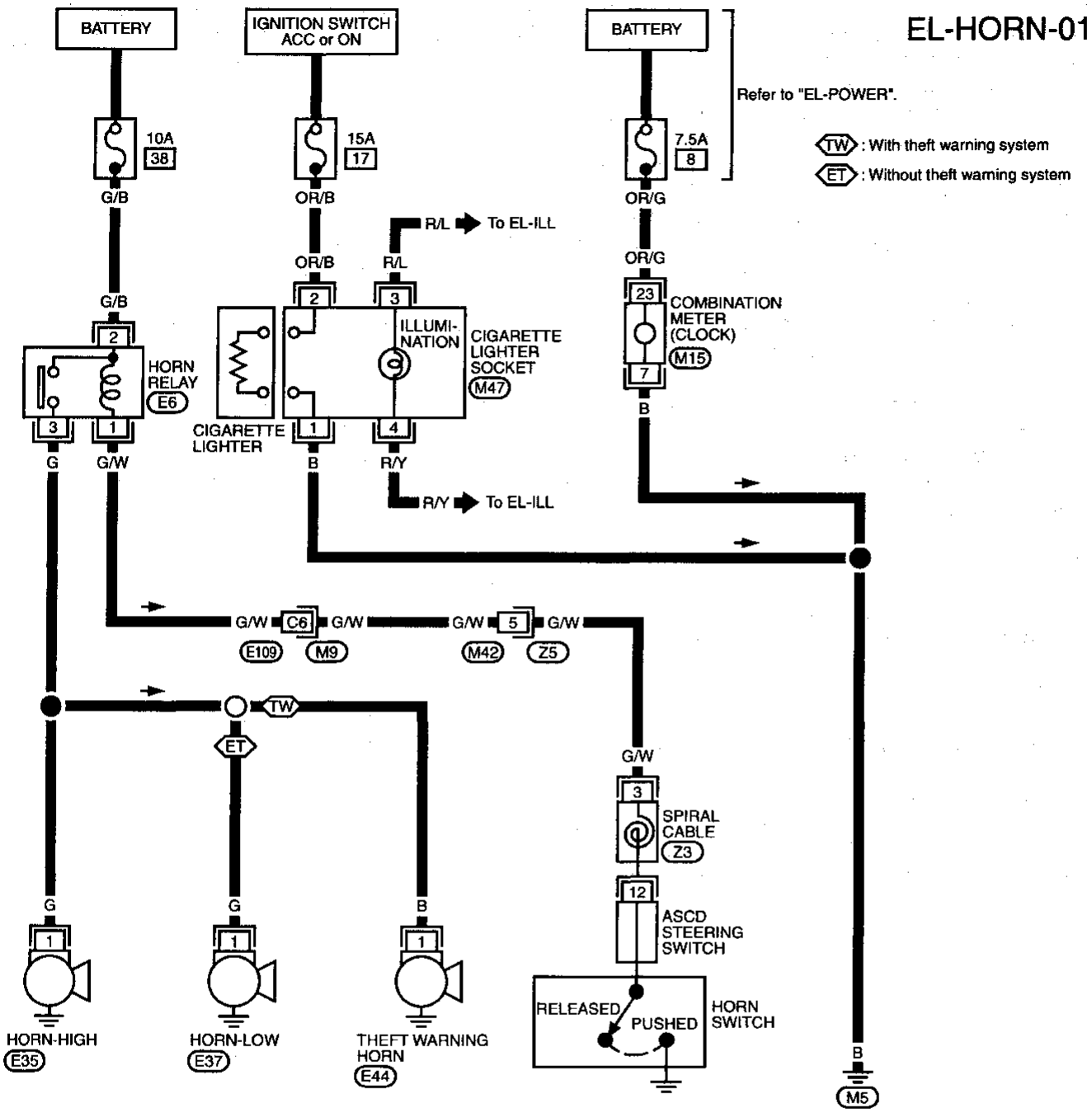
Be careful not to break ball joint rubber boot.

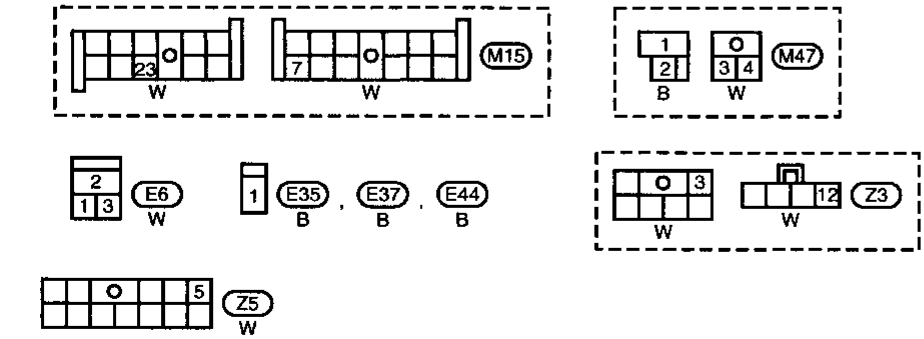
INSTALLATION

- Grease ball joint portion before installation.

1. Installation is the reverse order of removal.

Wiring Diagram — HORN —





Refer to last page (Foldout page).
M9 , E109

MEL249D

1073

System Description

The rear window defogger system is controlled by the smart entrance control unit (Models with power door lock) or rear window defogger timer (Models without power door lock). The rear window defogger operates only for approximately 15 minutes.

Power is supplied at all times

- to rear window defogger relay terminal ③
- through 15A fuse (No. 9 , located in the fuse block) and
- to rear window defogger relay terminal ⑥
- through 15A fuse (No. 10 , located in the fuse block).

With the ignition switch in the ON or START position, power is supplied

- to the rear window defogger relay terminal ① and
- to smart entrance control unit terminal ⑪ (Models with power door lock), or
- to the rear window defogger timer terminal ① (Models without power door lock).

Ground is supplied to terminal ② of the rear window defogger switch through body ground (M57).

When the rear window defogger switch is activated, ground is supplied

- through terminal ① of the rear window defogger switch
- to smart entrance control unit terminal ⑳ (Models with power door lock) or
- to rear window defogger timer terminal ③ (Models without power door lock).

Terminal ㊱ of the smart entrance control unit (Models with power door lock) or terminal ② of the rear window defogger timer (Models without power door lock) then supplies ground to the rear window defogger relay terminal ②.

With power and ground supplied, the rear window defogger relay is energized.

Power is supplied

- through terminals ⑤ and ⑦ of the rear window defogger relay
- to condenser terminal ①
- through terminal ② of the condenser
- to the rear window defogger.

The rear window defogger has an independent ground.

With power and ground supplied, the rear window defogger filaments heat and defog the rear window.

When the system is activated, the rear window defogger indicator illuminates in the rear window defogger switch.

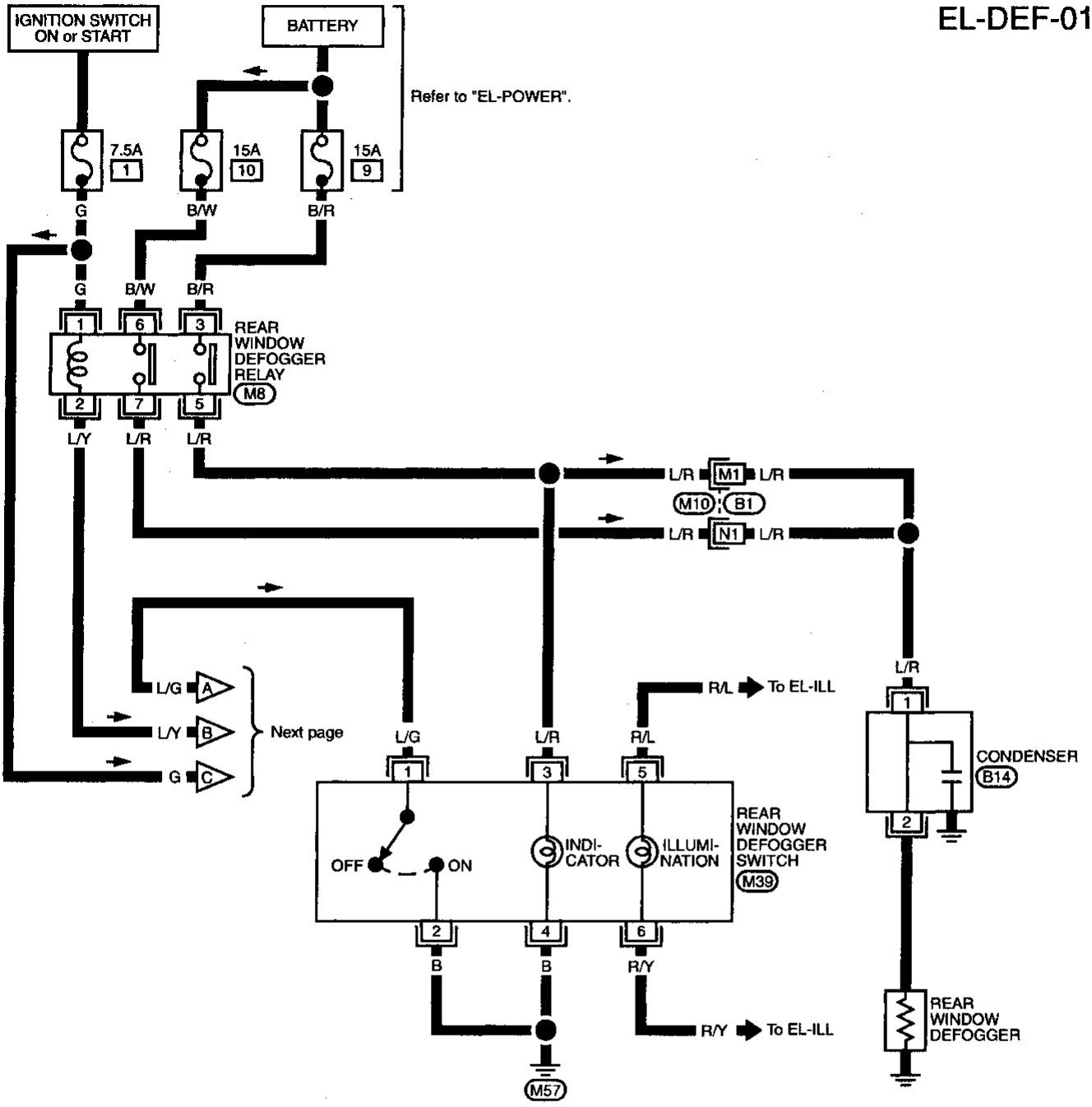
Power is supplied

- to terminal ③ of the rear window defogger switch
- from terminal ⑤ of the rear window defogger relay.

Terminal ④ of the rear window defogger switch is grounded through body ground (M57).

Wiring Diagram — DEF —

EL-DEF-01



M8 BR

M39 W

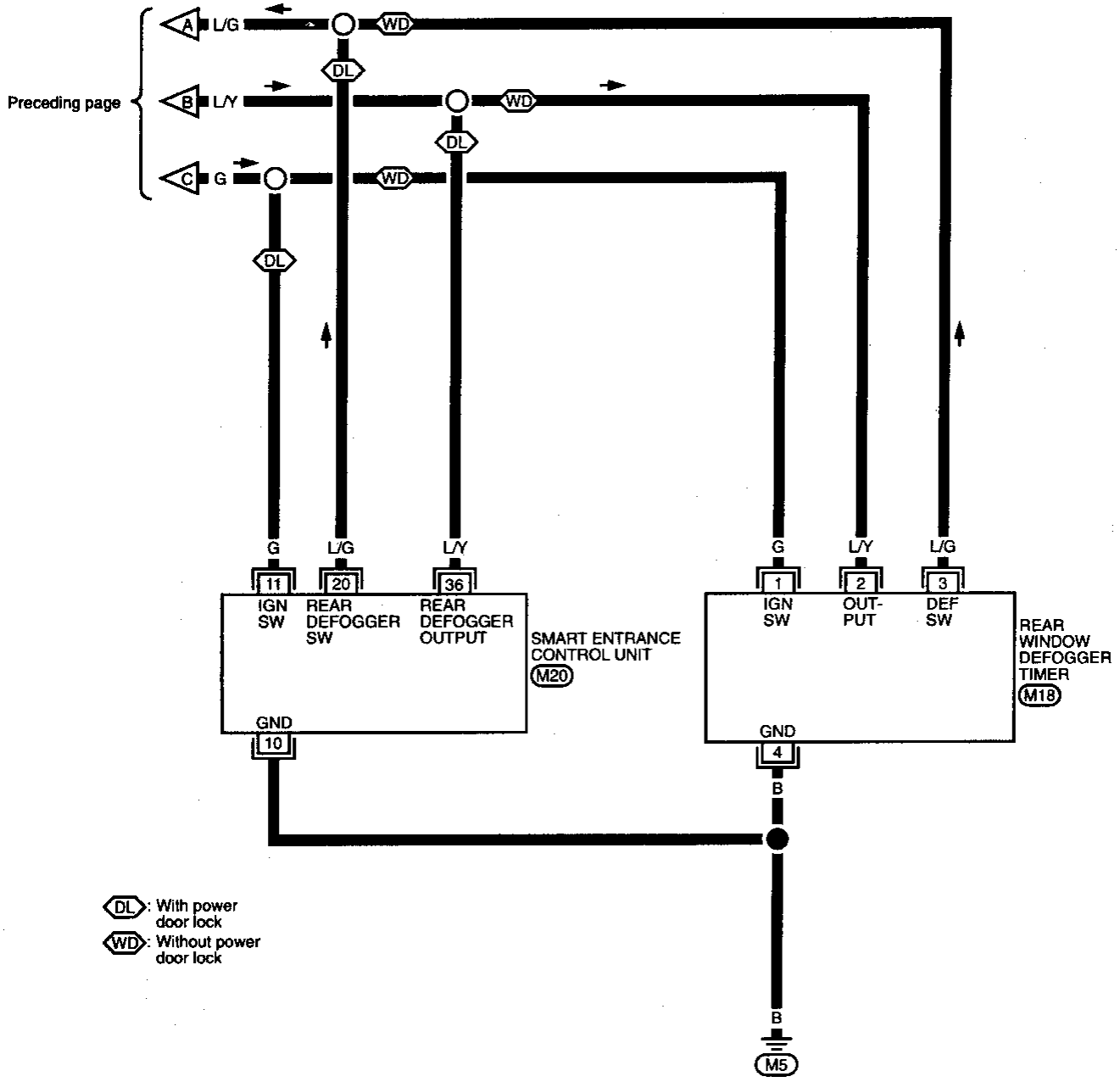
B14 B

Refer to last page (Foldout page).
M10 , B1

MEL250D

Wiring Diagram — DEF — (Cont'd)

EL-DEF-02

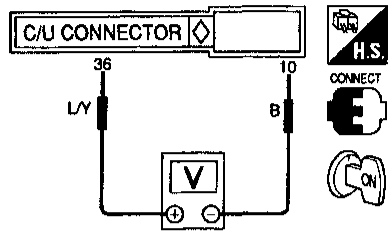


Refer to last page (Foldout page).
M20

MEL251D

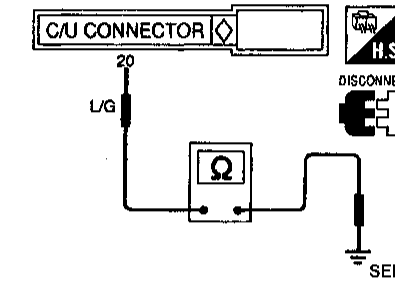
A

Smart entrance control unit connector (M20)



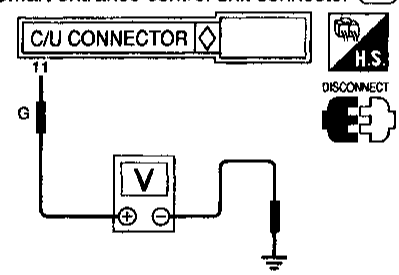
B

Smart entrance control unit connector (M20)



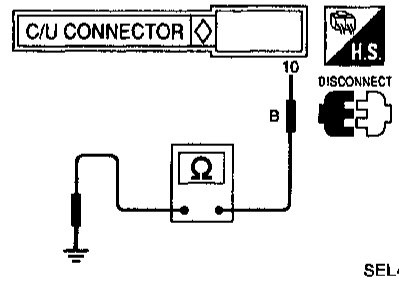
C

Smart entrance control unit connector (M20)



D

Smart entrance control unit connector (M20)



Trouble Diagnoses

DIAGNOSTIC PROCEDURE 1

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

Models with power door lock

A

REAR WINDOW DEFOGGER OUTPUT SIGNAL CHECK
Measure voltage between control unit harness terminals (36) and (10).

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

OK →
- Check rear window defogger relay. (Refer to EL-115.)
- Check rear window defogger circuit.
- Check rear window defogger filament. (Refer to EL-115.)

NG ↓

B

REAR WINDOW DEFOGGER SWITCH INPUT SIGNAL CHECK
Check continuity between control unit harness terminal (20) and body ground.

Condition of defogger switch	Continuity
Rear defogger switch is pushed.	Yes
Rear defogger switch is released.	No

NG →
- Check rear window defogger switch. (Refer to EL-115.)
- Check continuity between control unit harness terminal (20) and rear window defogger switch harness terminal (1). **Continuity should exist.**
- Check continuity between rear window defogger switch harness terminal (2) and body ground. **Continuity should exist.**

OK ↓

C

IGNITION INPUT SIGNAL CHECK
Check voltage between control unit harness terminal (11) and body ground.

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

NG → Repair harness or connectors.

OK ↓

D

CONTROL UNIT GROUND CIRCUIT CHECK
Check continuity between control unit harness terminal (10) and body ground.
Continuity should exist.

NG → Repair harness or connectors.

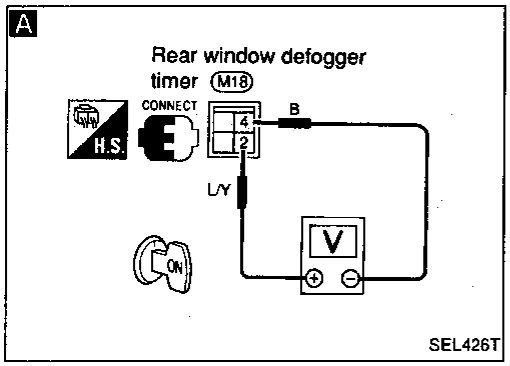
OK ↓

Replace control unit.

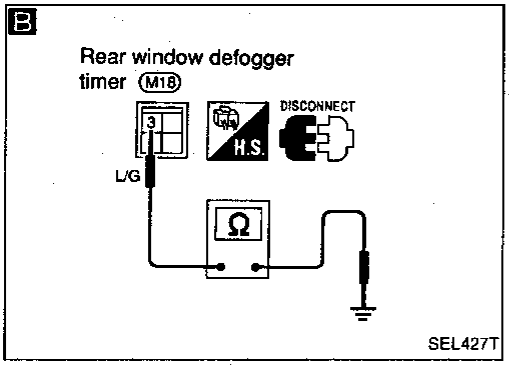
Trouble Diagnoses (Cont'd)

Models without power door lock

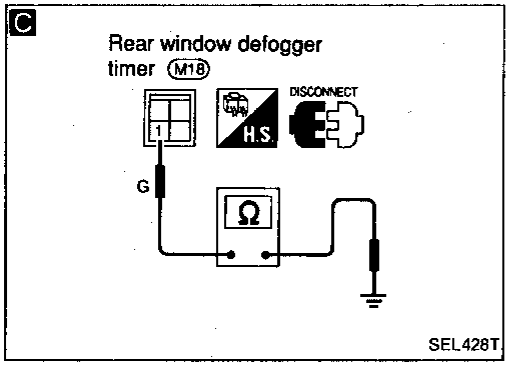
A



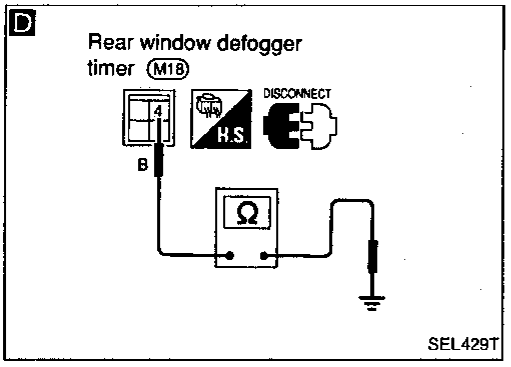
B



C



D



A

REAR WINDOW DEFOGGER OUTPUT SIGNAL CHECK
Measure voltage between rear window defogger timer harness terminals ② and ④.

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

OK →
- Check rear window defogger relay. (Refer to EL-115.)
- Check rear window defogger circuit.
- Check rear window defogger filament. (Refer to EL-115.)

NG ↓

B

REAR WINDOW DEFOGGER SWITCH INPUT SIGNAL CHECK
Check continuity between rear window defogger timer harness terminal ③ and body ground.

Condition of defogger switch	Continuity
Rear defogger switch is pushed.	Yes
Rear defogger switch is released.	No

NG →
- Check rear window defogger switch. (Refer to EL-115.)
- Check continuity between rear window defogger timer harness terminal ③ and rear window defogger switch harness terminal ①. **Continuity should exist.**
- Check continuity between rear window defogger switch harness terminal ② and body ground. **Continuity should exist.**

OK ↓

C

IGNITION INPUT SIGNAL CHECK
Check voltage between rear window defogger timer harness terminal ① and body ground.

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

NG → Repair harness or connectors.

OK ↓

D

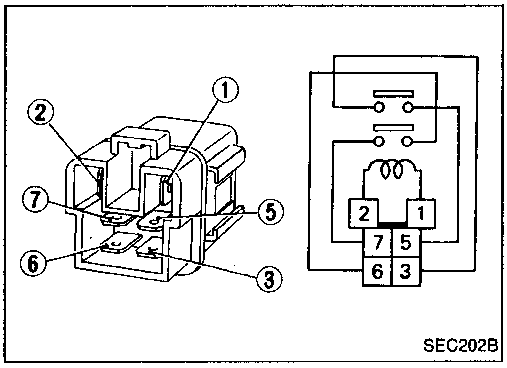
CONTROL UNIT GROUND CIRCUIT CHECK
Check continuity between rear window defogger timer harness terminal ④ and body ground.
Continuity should exist.

NG → Repair harness or connectors.

OK ↓

Replace control unit.

Trouble Diagnoses (Cont'd)



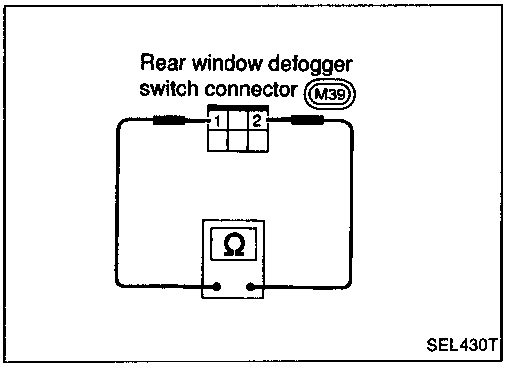
SEC202B

ELECTRICAL COMPONENTS INSPECTION

Rear window defogger relay

Check continuity between terminals ③ and ⑤, ⑥ and ⑦.

Condition	Continuity
12V direct current supply between terminals ① and ②	Yes
No current supply	No

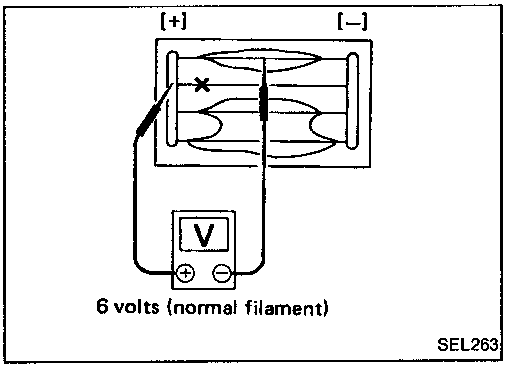


SEL430T

Rear window defogger switch

Check continuity between terminals when rear window defogger switch is pushed and released.

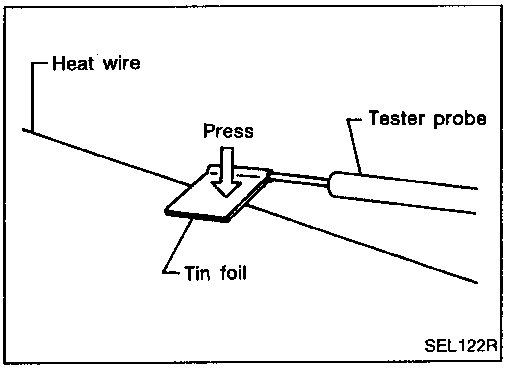
Terminals	Condition	Continuity
① - ②	Rear window defogger switch is pushed	Yes
	Rear window defogger switch is released	No



SEL263

Filament Check

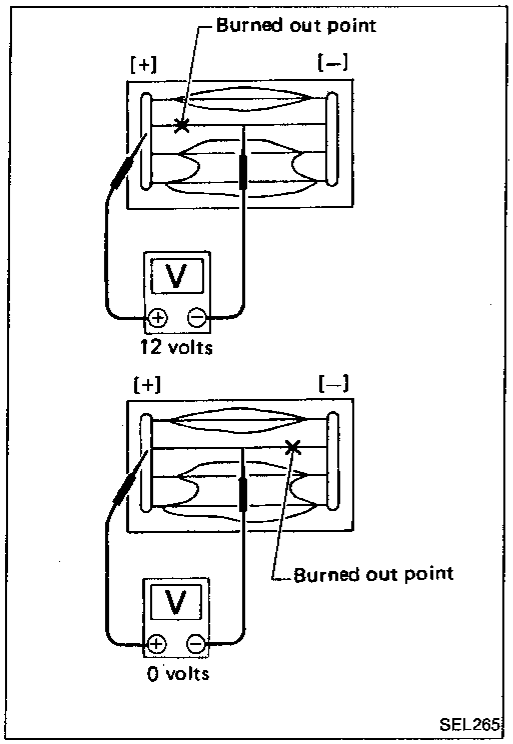
1. Attach probe circuit tester (in volt range) to middle portion of each filament.



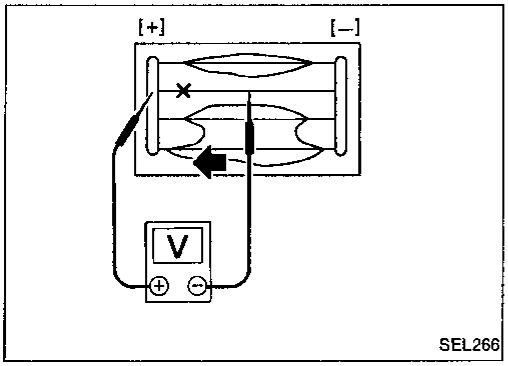
SEL122R

- **When measuring voltage, wrap tin foil around the top of the negative probe. Then press the foil against the wire with your finger.**

Filament Check (Cont'd)



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

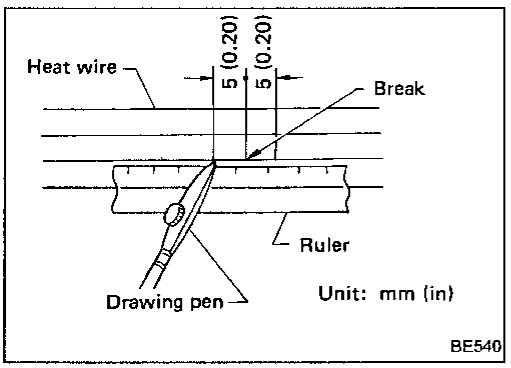


3. To locate burned out point, move probe to left and right along filament. Test needle will swing abruptly when probe passes the point.

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



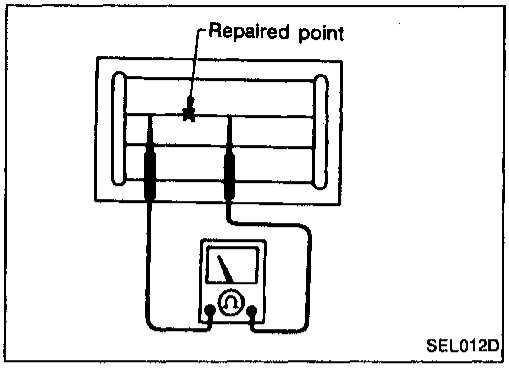
REPAIRING PROCEDURE

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.

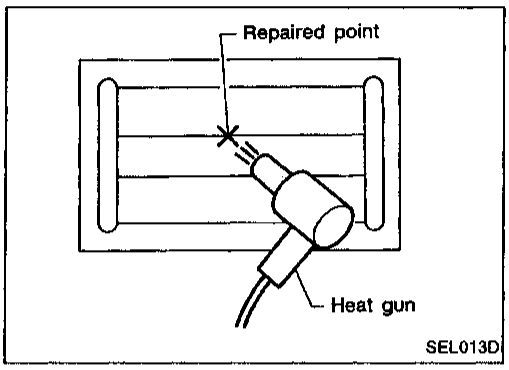
3. Place ruler on glass along broken line. Deposit conductive silver composition on break with drawing pen. Slightly overlap existing heat wire on both sides [preferably 5 mm (0.20 in)] of the break.

Filament Repair (Cont'd)



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/System Description

Refer to Owner's Manual for audio system operating instructions.

WITH CD PLAYER

Power is supplied at all times
- through 7.5A fuse (No. 8 , located in the fuse block)
- to radio terminal ⑥
- through 15A fuse (50 located in the fuse block)
- to speaker amp terminals ④ and ⑱.

With the ignition switch in the ACC or ON position, power is supplied
- through 10A fuse (No. 18 , located in the fuse block)
- to radio terminal ⑩.

Ground is supplied through the case of the radio.
When the radio power knob is pushed to the ON position, audio signals are supplied
- through radio terminals 1, 2, 3, 4, 12, 13, 14, 15 and 16
- to terminals 3, 6, 7, 15, 16, 17, 20, 21, 27 and 28 of the speaker amp.
- to tweeters and the front and rear speakers through terminals 5, 12, 13, 14, 19, 24, 25 and 26 of the speaker amp.

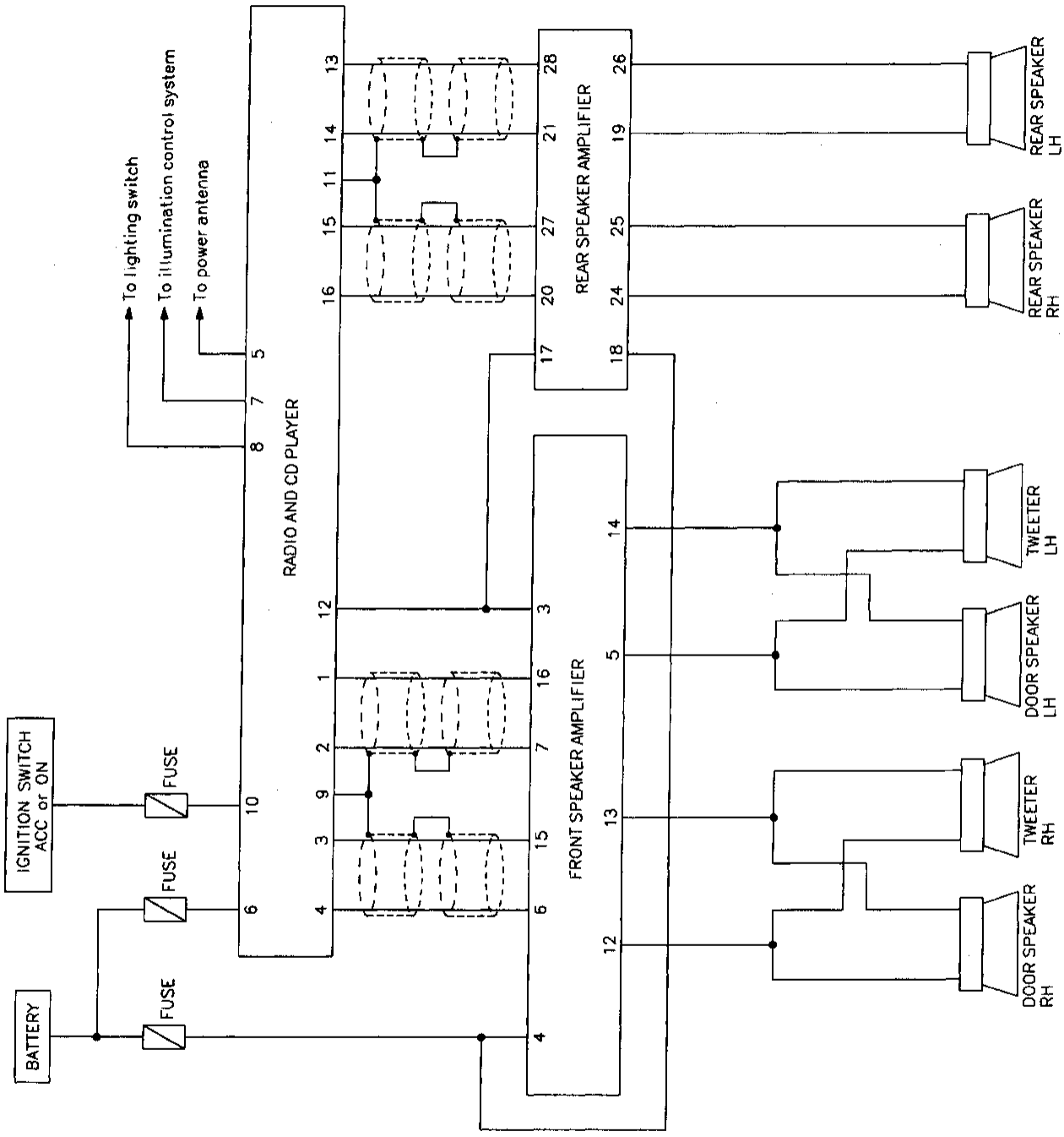
WITH CASSETTE PLAYER

Power is supplied at all times
- through 7.5A fuse (No. 8 , located in the fuse block)
- to radio terminal ⑥.

With the ignition switch in the ACC or ON position, power is supplied
- through 10A fuse (No. 18 , located in the fuse block)
- to radio terminal ⑩.

Ground is supplied through the case of the radio.
When the radio power knob is pushed to the ON position, audio signals are supplied
- through radio terminals 1, 2, 3, 4, 13, 14, 15 and 16
- to the front and rear speakers.

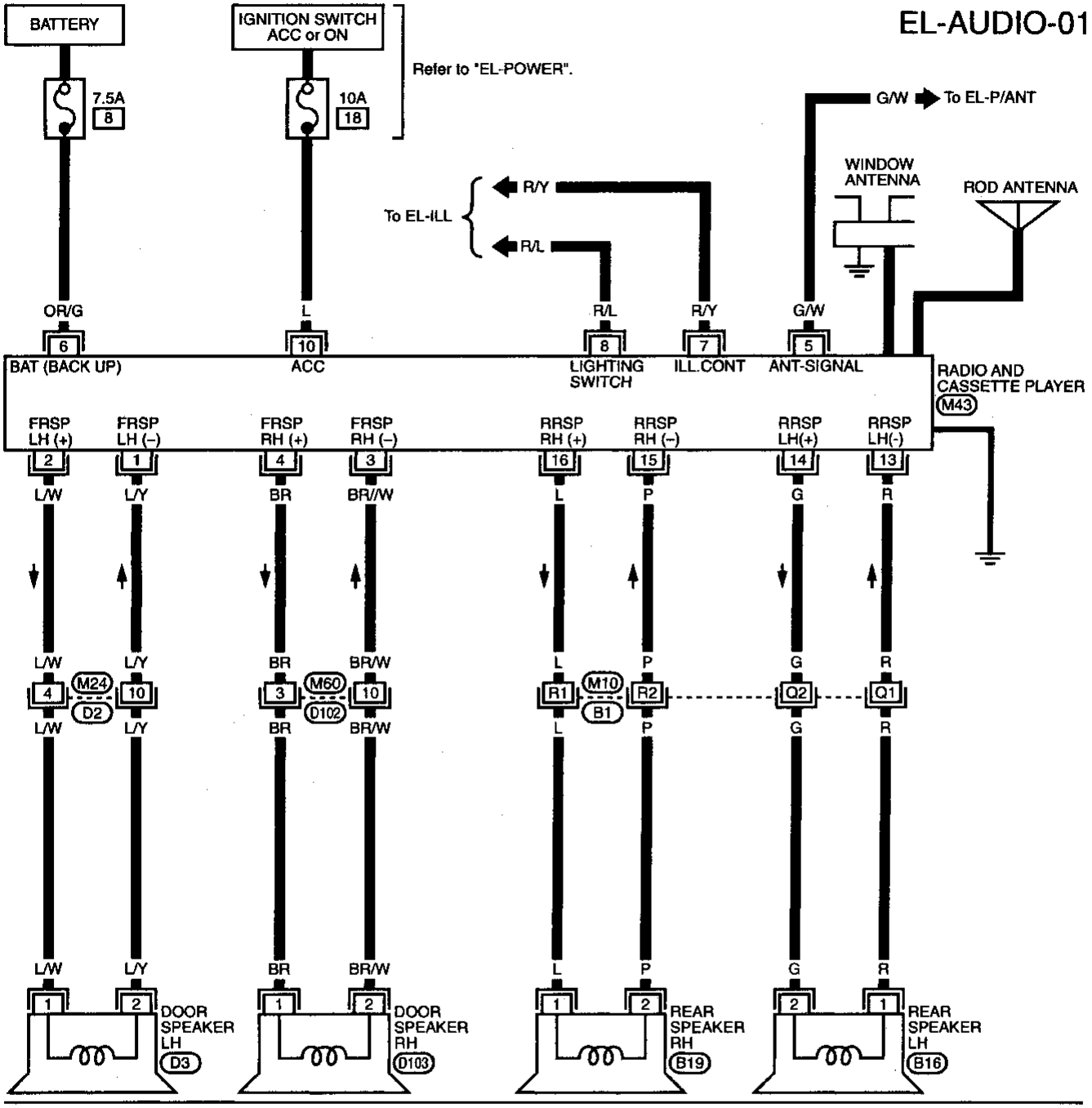
Audio/Schematic

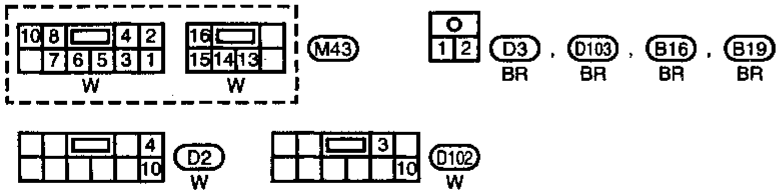


MEL252D

Audio/Wiring Diagram — AUDIO —

WITH CASSETTE PLAYER





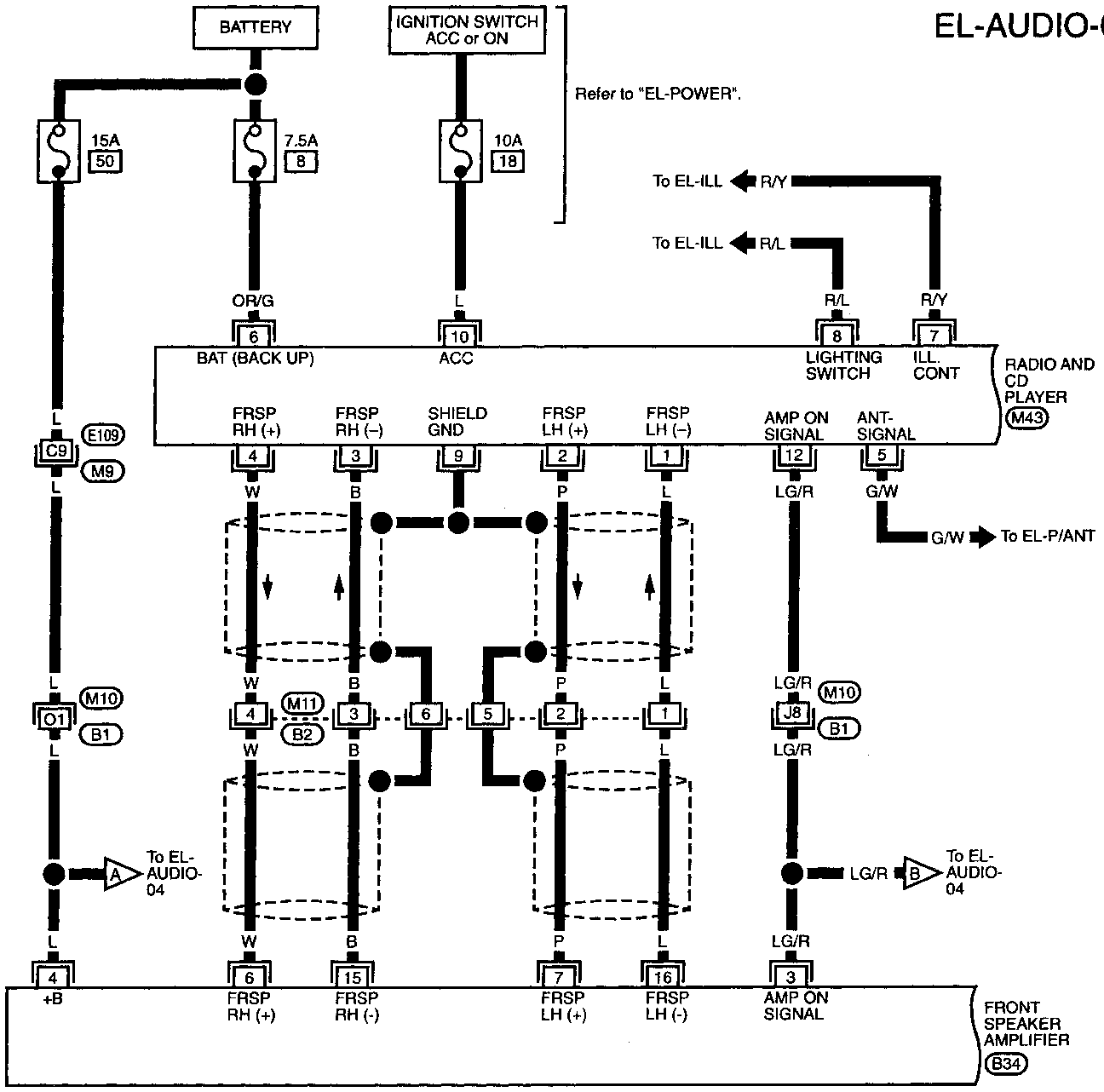
Refer to last page (Foldout page).
M10 , B1

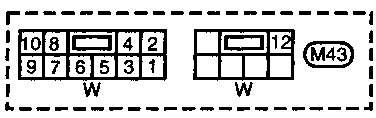
MEL253D

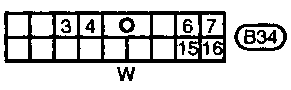
Audio/Wiring Diagram — AUDIO — (Cont'd)

WITH CD PLAYER

EL-AUDIO-02





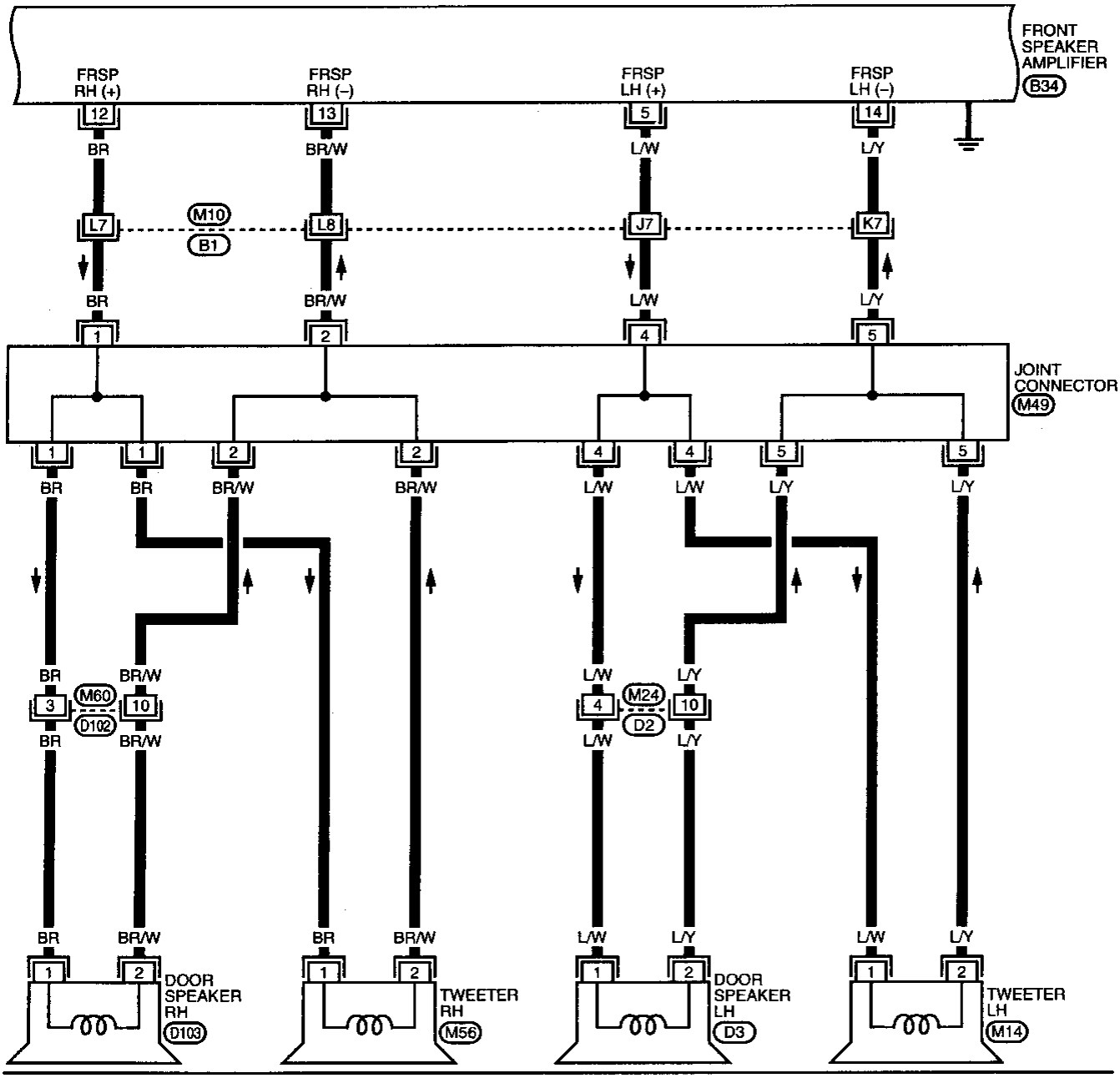


Refer to last page (Foldout page).
M9 , E109
M10 , B1

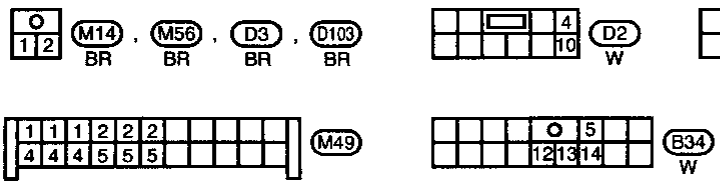
MEL254D

Audio/Wiring Diagram — AUDIO — (Cont'd)

EL-AUDIO-03



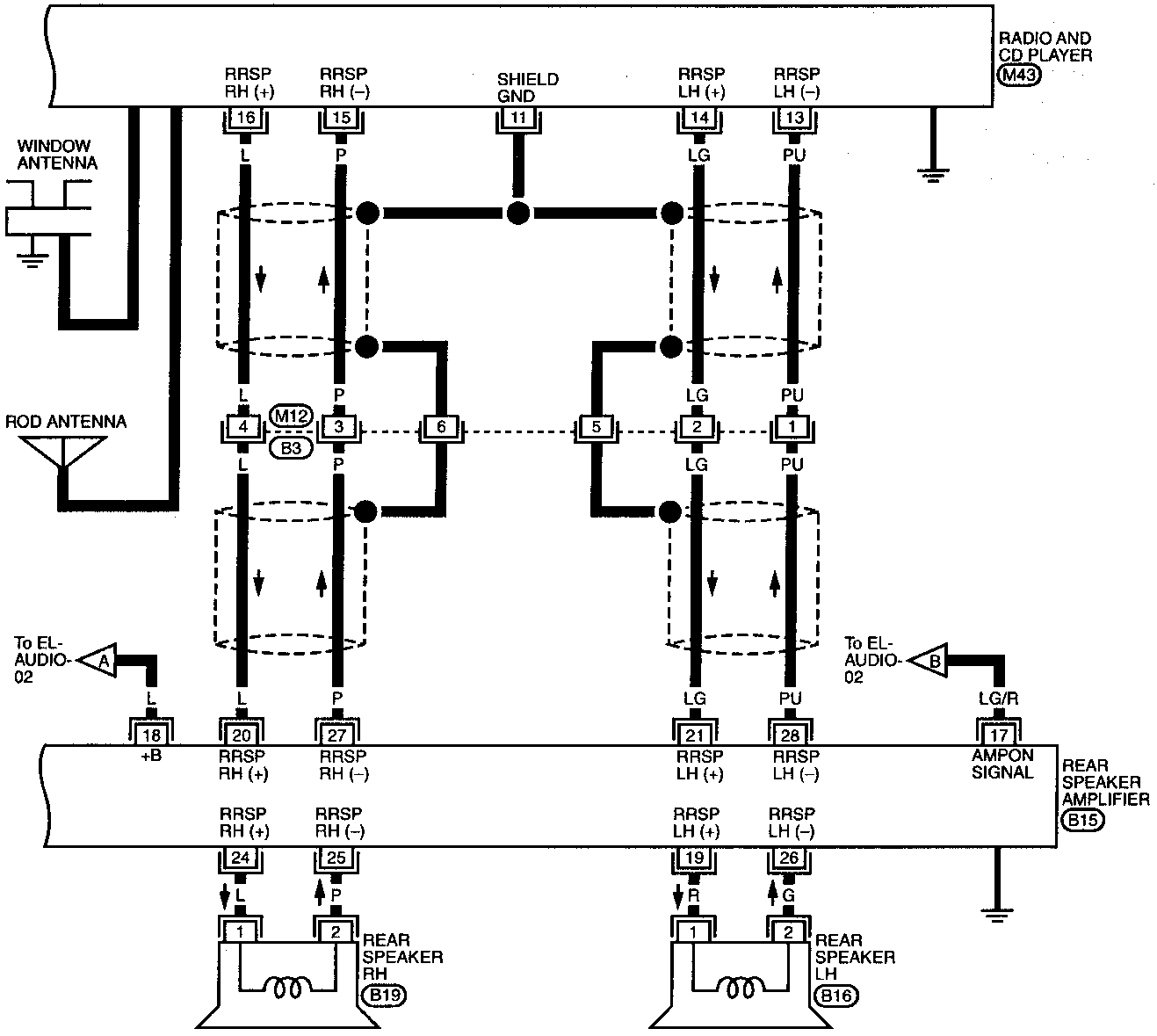
Refer to last page (Foldout page).
M10 , B1

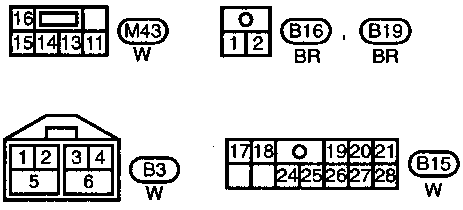


MEL255D

Audio/Wiring Diagram — AUDIO — (Cont'd)

EL-AUDIO-04





MEL256D

1087

Power Antenna/System Description

Power is supplied at all times
- through 7.5A fuse (No. 8 , located in the fuse block)
- to power antenna terminal ③.

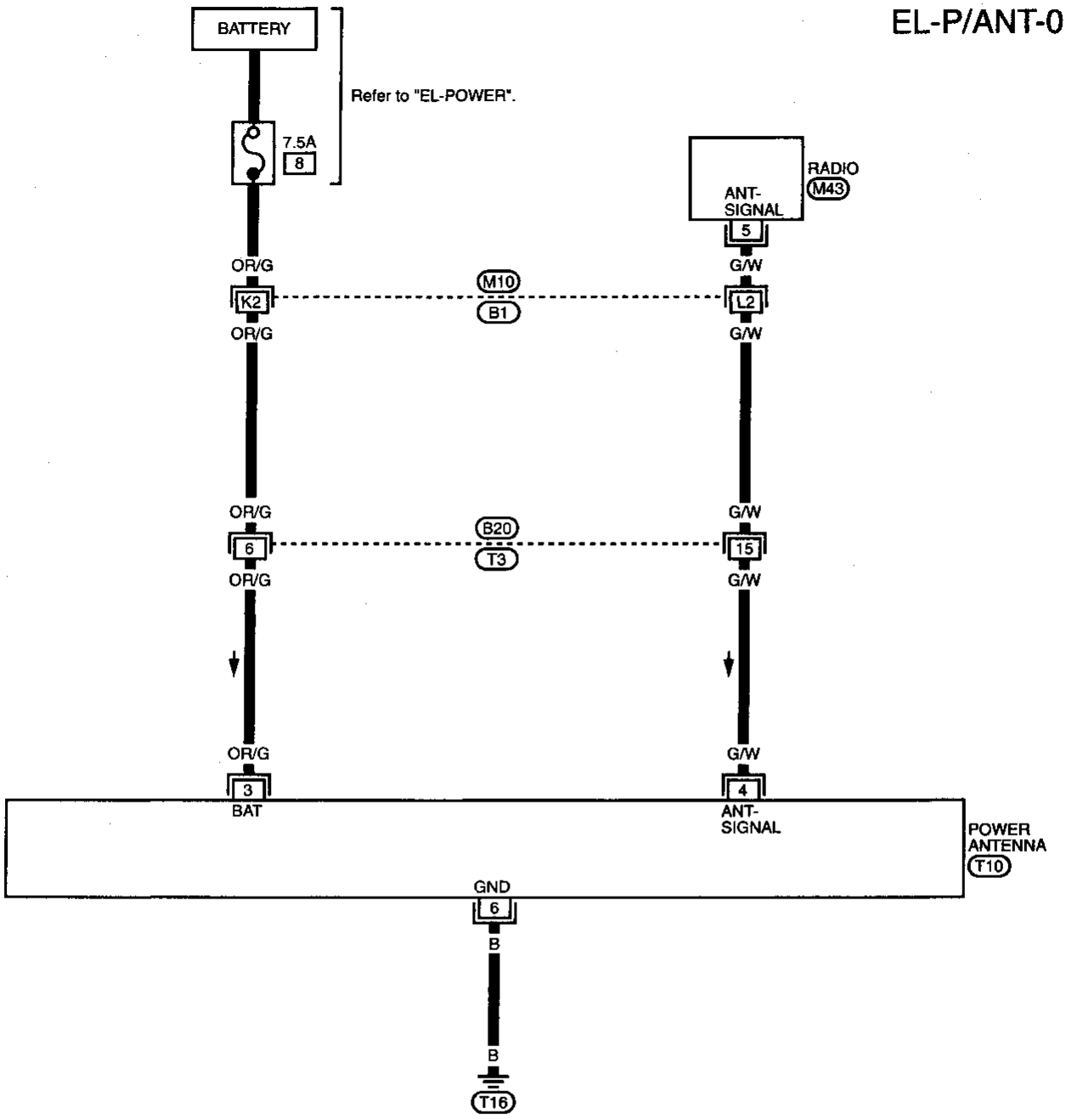
Ground is supplied to the power antenna through body ground (T16).
When the radio is turned to the ON position, battery positive voltage is supplied
- through radio terminal ⑤
- to power antenna terminal ④.

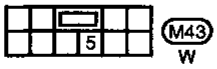
The antenna raises and is held in the extended position.
When the radio is turned to the OFF position, battery positive voltage is interrupted
- from radio terminal ⑤
- to power antenna terminal ④.

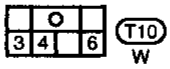
The antenna retracts.

Power Antenna/Wiring Diagram — P/ANT —

EL-P/ANT-01







Refer to last page (Foldout page).
M10 , B1

MEL257D

Trouble Diagnoses

Symptom	Possible causes	Repair order
Radio inoperative (no digital display and no sound from speakers).	1. 10A fuse	1. Check 10A fuse (No. 18 , located in fuse block). Turn ignition switch ON and verify that battery positive voltage is present at terminal ⑩ of radio.
	2. Poor radio case ground	2. Check radio case ground.
	3. Radio	3. Remove radio for repair.
Radio controls are operational, but no sound is heard from any speaker.	1. 15A fuse (with CD player)	1. Check 15A fuse (No. 50 , located in fusible link and fuse block-3). Verify that battery positive voltage is present at terminal ④ of front speaker amp. and terminal ⑱ of rear speaker amp.
	2. Poor speaker amp. case ground (with CD player)	2. Check speaker amp. case ground.
	3. Speaker circuit	3. Check wires for open or short between radio, speaker amp. and speakers.
	4. Radio	4. Remove radio for repair.
Radio presets are lost when ignition switch is turned OFF.	1. 7.5A fuse	1. Check 7.5A fuse (No. 8 , located in fuse block) and verify that battery positive voltage is present at terminal ⑥ of radio.
	2. Radio	2. Remove radio for repair.
Rear speakers are inoperative. (with CD player)	1. 15A fuse	1. Check 15A fuse (No. 50 , located in fusible link and fuse block-3). Verify that battery positive voltage is present at terminal ⑱ of rear speaker amp.
	2. Poor rear speaker amp. case ground	2. Check rear speaker amp. case ground.
	3. Rear speaker amp.	3. Check rear speaker amp. voltages.
	4. Rear speaker amp. circuit	4. Check wires for open or short between radio, rear speaker amp. and rear speakers.
	5. Radio	5. Remove radio for repair.
Front speakers are inoperative. (with CD player)	1. 15A fuse	1. Check 15A fuse (No. 50 , located in fusible link and fuse block-3). Verify that battery positive voltage is present at terminal ④ of front speaker amp.
	2. Poor front amp. case ground	2. Check front amp. case ground.
	3. Front speaker amp.	3. Check front speaker amp. voltages.
	4. Front speaker amp. circuit	4. Check wires for open or short between radio, front speaker amp. and front speakers.
	5. Radio	5. Remove radio for repair.
Individual speaker is noisy or inoperative.	1. Speaker	1. Check speaker.
	2. Radio/amp. output	2. Check radio/amp. output voltages.
	3. Speaker circuit	3. Check wires for open or short between radio/amp. and speaker.
	4. Radio	4. Remove radio for repair.
AM stations are weak or noisy (FM stations OK).	1. Antenna	1. Check antenna.
	2. Poor radio ground	2. Check radio ground.
	3. Radio	3. Remove radio for repair.
FM stations are weak or noisy (AM stations OK).	1. Window antenna	1. Check window antenna.
	2. Radio	2. Remove radio for repair.
Radio generates noise in AM and FM modes with engine running.	1. Poor radio ground	1. Check radio ground.
	2. Loose or missing ground bonding straps	2. Check ground bonding straps.
	3. Ignition condenser or rear window defogger noise suppressor condenser	3. Replace ignition condenser or rear window defogger noise suppressor condenser.
	4. Alternator	4. Check alternator.
	5. Ignition coil or secondary wiring	5. Check ignition coil and secondary wiring.
	6. Radio	6. Remove radio for repair.
Radio generates noise in AM and FM modes with accessories on (switch pops and motor noise).	1. Poor radio ground	1. Check radio ground.
	2. Antenna	2. Check antenna.
	3. Accessory ground	3. Check accessory ground.
	4. Faulty accessory	4. Replace accessory.
Power antenna does not operate.	1. 7.5A fuse	1. Check 7.5A fuse (No. 8 , located in fuse block). Verify that battery positive voltage is present at terminal ③ of power antenna.
	2. Radio signal	2. Turn ignition switch and radio ON. Verify that battery positive voltage is present at terminal ④ of power antenna.
	3. Ground (T16)	3. Check ground (T16).

Trouble Diagnoses (Cont'd)

SPEAKER INSPECTION

1. Disconnect speaker harness connector.
2. Measure the resistance between speaker terminals ① and ②.
- The resistance should be 2-4 Ω.
3. Using jumper wires, momentarily connect a 9V battery between speaker terminals ① and ②.
- A momentary hum or pop should be heard.

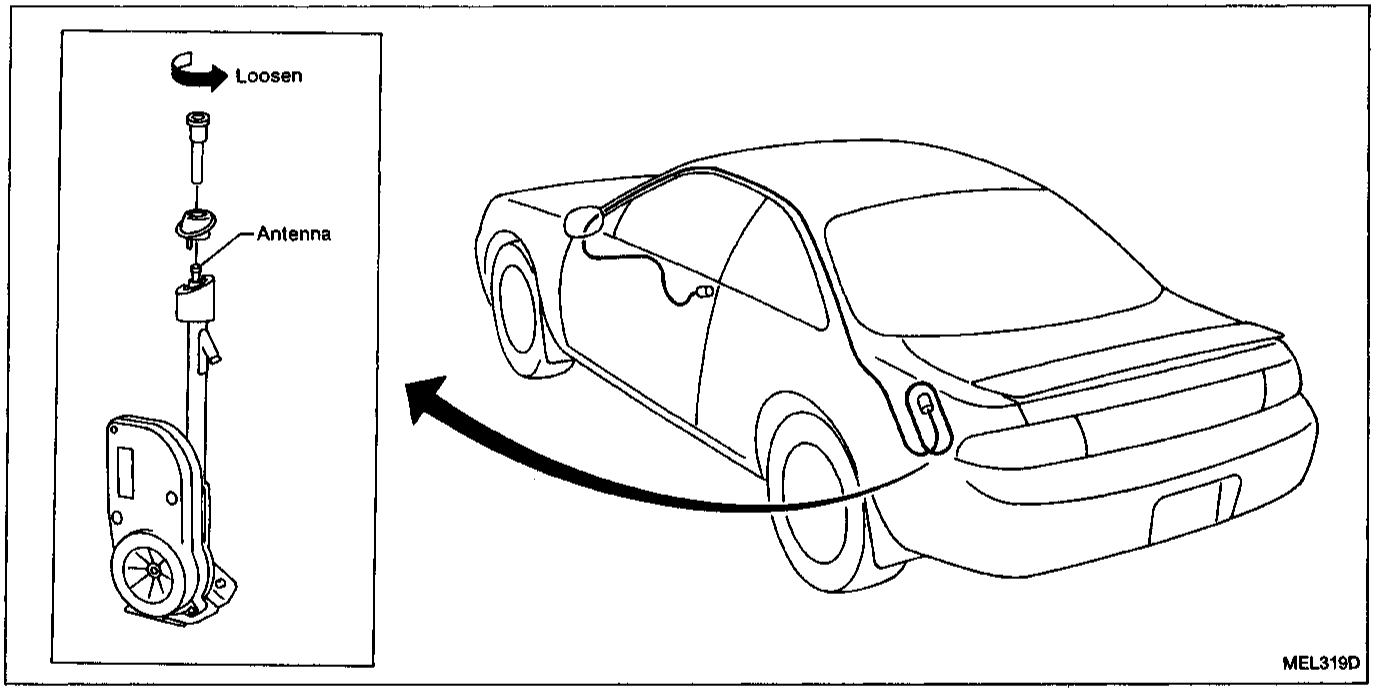
ANTENNA INSPECTION

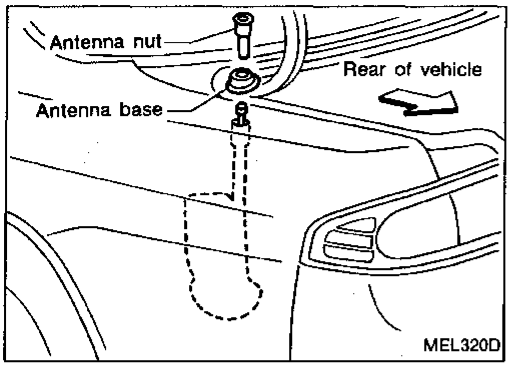
1. Using a jumper wire, clip an auxiliary ground between antenna and body.
- If reception improves, check antenna ground (at body surface).
- If reception does not improve, check main feeder cable for short circuit or open circuit.

RADIO AND AMP INSPECTION

All voltage inspections are made with:
- Ignition switch ON or ACC
- Radio ON
- Radio and amps. connected (If radio or amp. is removed for inspection, supply a ground to the case using a jumper wire.)

Location of Antenna

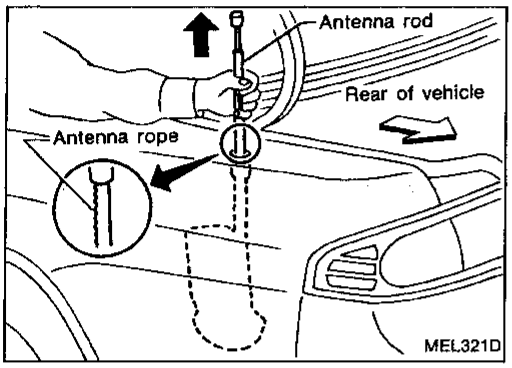




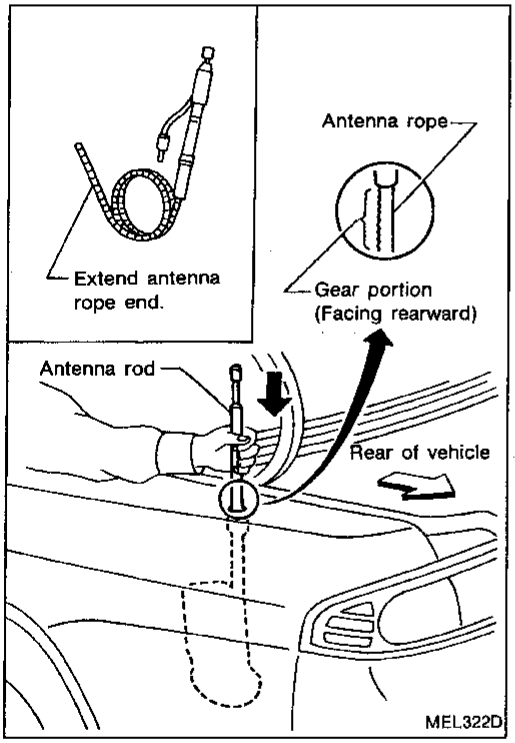
Antenna Rod Replacement

REMOVAL

1. Remove antenna nut and antenna base.

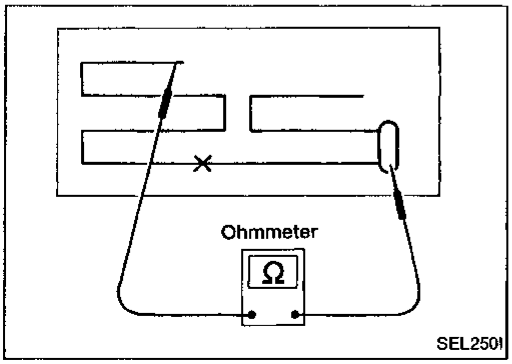


2. Withdraw antenna rod while raising it by operating antenna motor.



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.

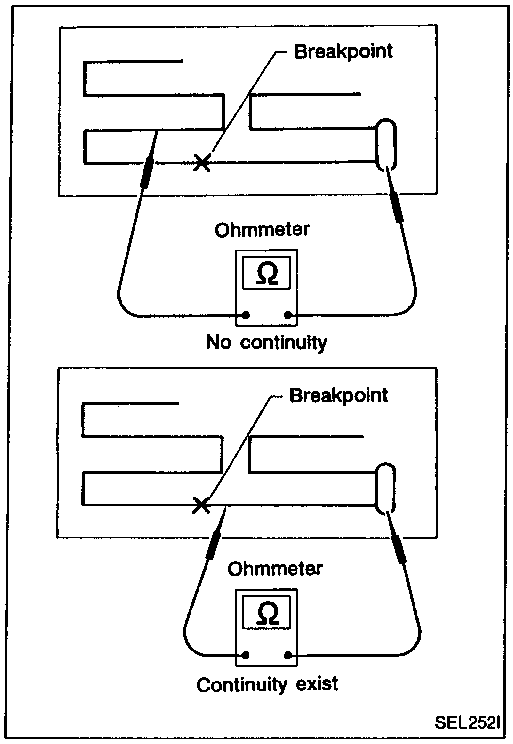


Window Antenna Repair

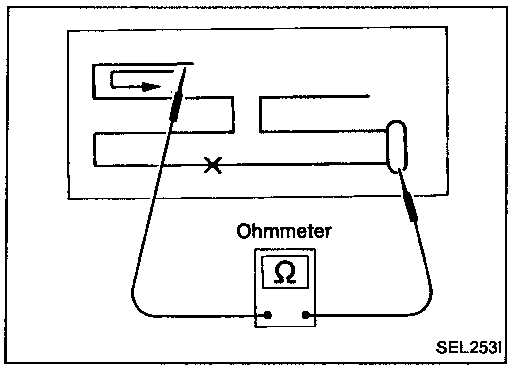
ELEMENT CHECK

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

Window Antenna Repair (Cont'd)



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



3. To locate broken point, move probe to left and right along element. Tester needle will swing abruptly when probe passes the point.

- **Refer to REAR WINDOW DEFOGGER "Filament Repair" for Element Repair.**

System Description

Refer to Owner's Manual for ASCD operating instructions.
When the ignition switch is in the ON or START position, power is supplied
- through 7.5A fuse (No. 1 , located in the fuse block)
- to ASCD main switch terminal ① and
- to ASCD hold relay terminal ⑤.

When ASCD main switch is in the ON position, power is supplied
- from terminal ② of the ASCD main switch
- to ASCD control unit terminal ④ and
- from terminal ③ of the ASCD main switch
- to ASCD hold relay terminal ①.

Ground is supplied
- to ASCD hold relay terminal ②
- through body ground (M57).

With power and ground supplied, the ASCD hold relay is activated, and power is supplied
- from terminal ③ of the ASCD hold relay
- to ASCD control terminal ④ and
- to ASCD clutch switch terminal ① (M/T models) or
- to park/neutral position relay terminal ③ (A/T models).

Power remains supplied to ASCD control module terminal ④ when the ASCD switch is released to the N (neutral) position.
Ground is supplied
- to ASCD control unit terminal ③
- through body ground (M57).

Inputs

At this point, the system is ready to activate or deactivate, based on inputs from the following:
- speedometer in the combination meter
- stop lamp switch
- ASCD steering switch
- park/neutral position relay (A/T models)
- ASCD clutch switch (M/T models)
- ASCD cancel switch.

A vehicle speed input is supplied
- to ASCD control unit terminal ⑦
- from terminal ㉙ of the combination meter.

Power is supplied at all times
- to stop lamp switch terminal ①
- through 10A fuse (No. 7 , located in the fuse block).

When the brake pedal is depressed, power is supplied
- from terminal ② of the stop lamp switch
- to ASCD control unit terminal ⑪.

Power is supplied at all times
- through 10A fuse (No. 38 , located in the fusible link and fuse box)
- to horn relay terminal ①
- through terminal ② of the horn relay
- to ASCD steering switch terminal ⑫.

When the SET/COAST switch is depressed, power is supplied
- from terminal ⑭ of the ASCD steering switch
- to ASCD control unit terminal ②.

When the RESUME/ACCEL switch is depressed, power is supplied
- from terminal ⑬ of the ASCD steering switch
- to ASCD control unit terminal ①.

When the CANCEL switch is depressed, power is supplied
- to ASCD control unit terminals ① and ②.

When the system is activated, power is supplied
- to ASCD control unit terminal ⑤.

Power is interrupted when
- the shift lever is placed in P or N (A/T models)

System Description (Cont'd)

- the clutch pedal is depressed (M/T models) or
- the brake pedal is depressed.

Outputs

The ASCD actuator controls the throttle drum via the ASCD wire based on inputs from the ASCD control unit. The ASCD pump consists of a vacuum motor, an air valve, and a release valve.

Power is supplied
- from terminal ⑧ of the ASCD control unit
- to ASCD pump terminal ①.

Ground is supplied to the vacuum motor
- from terminal ⑨ of the ASCD control unit
- to ASCD pump terminal ④.

Ground is supplied to the air valve
- from terminal ⑩ of the ASCD control unit
- to ASCD pump terminal ②.

Ground is supplied to the release valve
- from terminal ⑭ of the ASCD control unit
- to ASCD pump terminal ③.

When the system is activated, power is supplied
- from terminal ⑬ of the ASCD control unit
- to combination meter terminal ⑭ and
- to A/T control unit terminal ㊲ (A/T models).

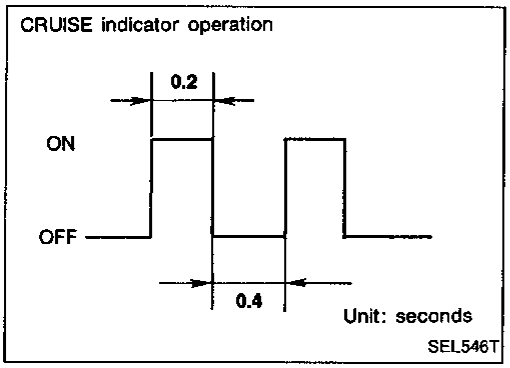
Ground is supplied
- to combination meter terminal ⑱
- through body ground (M5).

With power and ground supplied, the CRUISE indicator illuminates.

When vehicle speed is approximately 8 km/h (5 MPH) below set speed on A/T models, a signal is sent
- from terminal ⑫ of the ASCD control unit
- to A/T control unit terminal ㊵.

When this occurs, the A/T control unit cancels overdrive.

After vehicle speed is approximately 3 km/h (2 MPH) above set speed, overdrive is reactivated.



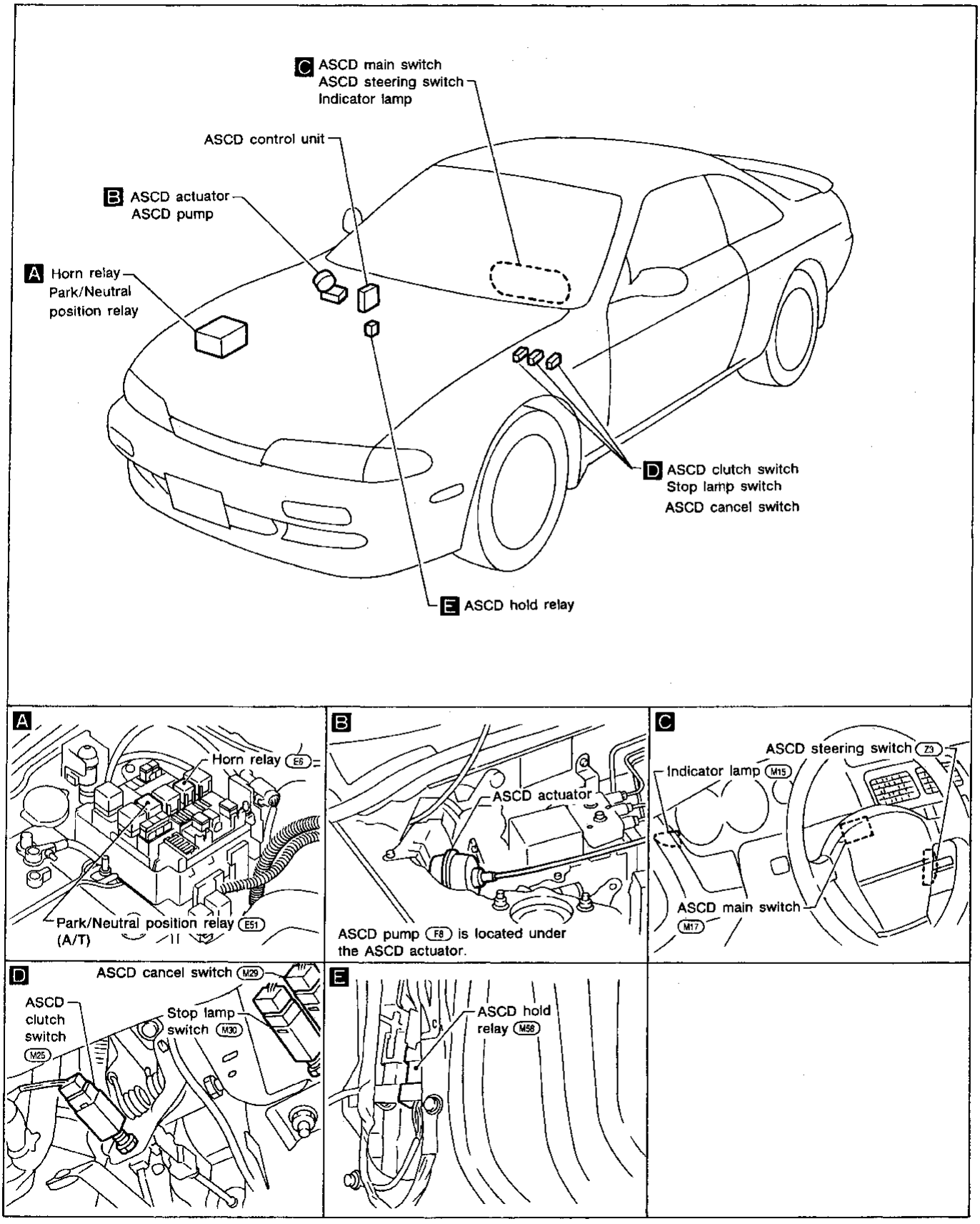
Fail-safe System

When the fail-safe system senses a malfunction, it deactivates ASCD operation. The CRUISE indicator in the combination meter will then flash.

MALFUNCTION DETECTION CONDITIONS

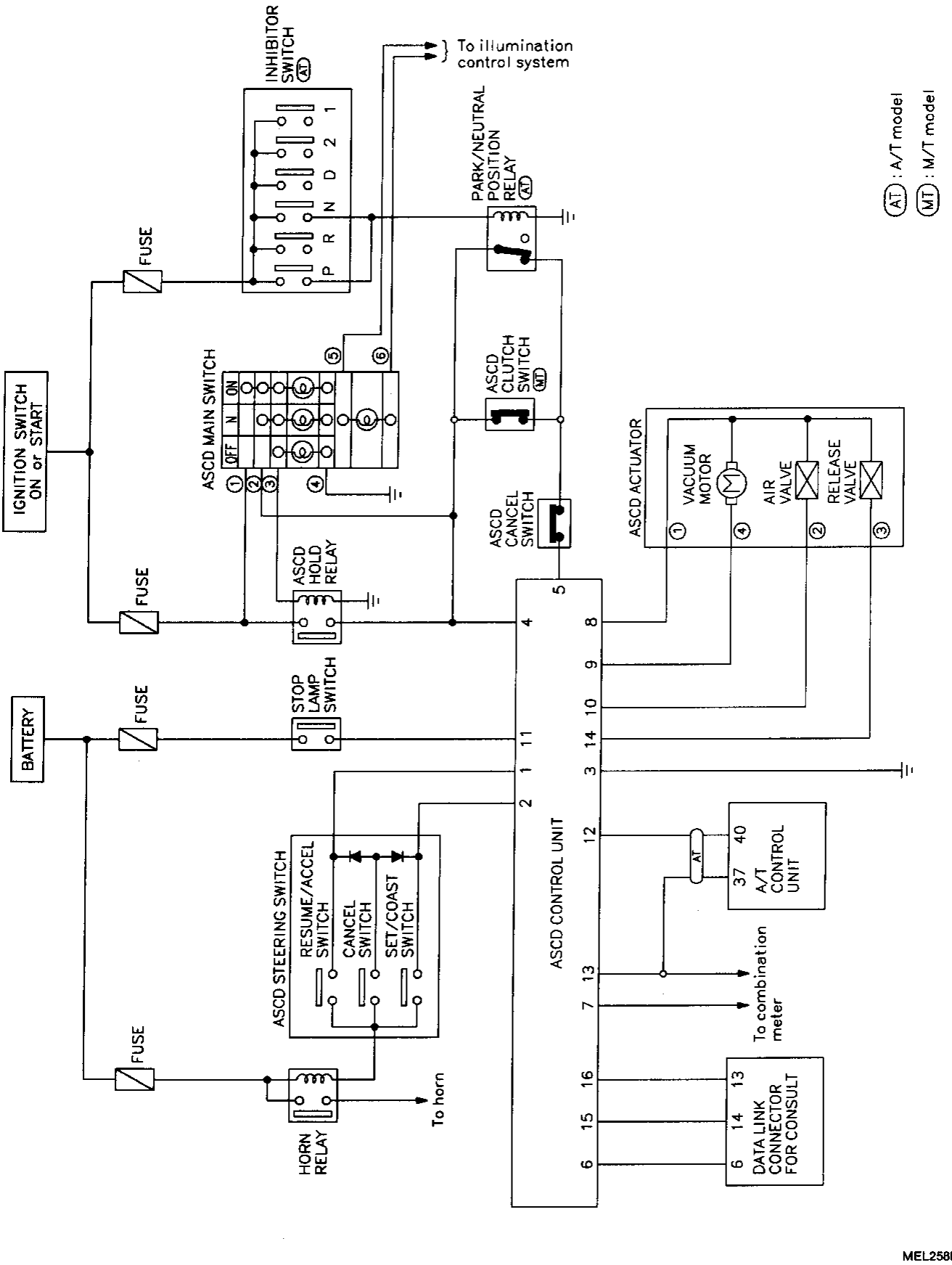
Detection conditions	ASCD operation during malfunction detection
• ASCD main switch is turned to "ON" with any of the switches (SET/COAST, CANCEL and RESUME ACCEL) "ON". • Vacuum motor ground circuit or power circuit is open or shorted. • Air valve ground circuit or power circuit is open or shorted. • Release valve ground circuit or power circuit is open or shorted. • Signal variations are greater than ±10 km/h (±6 MPH) for a period of approximately 0.35 seconds. • ASCD control unit internal circuit is malfunctioning.	• ASCD is deactivated. • Vehicle speed memory is canceled.
• At the same time, both ASCD CANCEL switch and stop lamp switch have been turned "ON" for at least 5 seconds. • At the same time, both ASCD CANCEL switch and stop lamp switch are turned "OFF".	• ASCD is deactivated. • Vehicle speed memory is not canceled.

Component Parts and Harness Connector Location



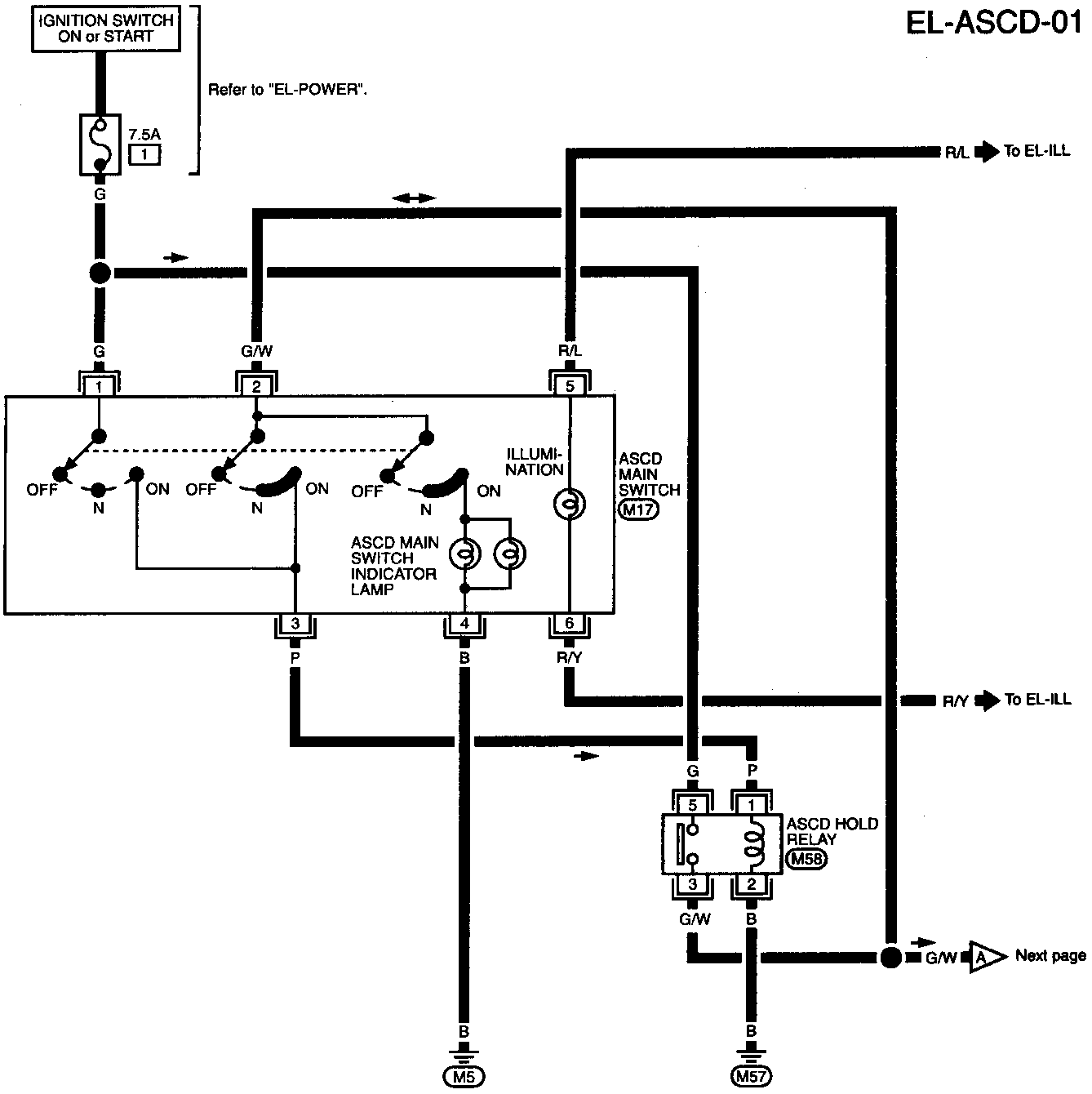
MEL323D

Schematic


INHIBITOR SWITCH (AT)
P R N D 2 1
To illumination control system
PARK/NEUTRAL POSITION RELAY (AT)
(AT) : A/T model
(MT) : M/T model
FUSE
IGNITION SWITCH ON or START
ASCD MAIN SWITCH
OFF
ON
ASCD CLUTCH SWITCH (MT)
ASCD CANCEL SWITCH
ASCD ACTUATOR
VACUUM MOTOR
AIR VALVE
RELEASE VALVE
ASCD HOLD RELAY
BATTERY
STOP LAMP SWITCH
ASCD STEERING SWITCH
RESUME/ACCEL SWITCH
CANCEL SWITCH
SET/COAST SWITCH
ASCD CONTROL UNIT
A/T CONTROL UNIT
To combination meter
DATA LINK CONNECTOR FOR CONSULT
HORN RELAY
To horn
MEL258D

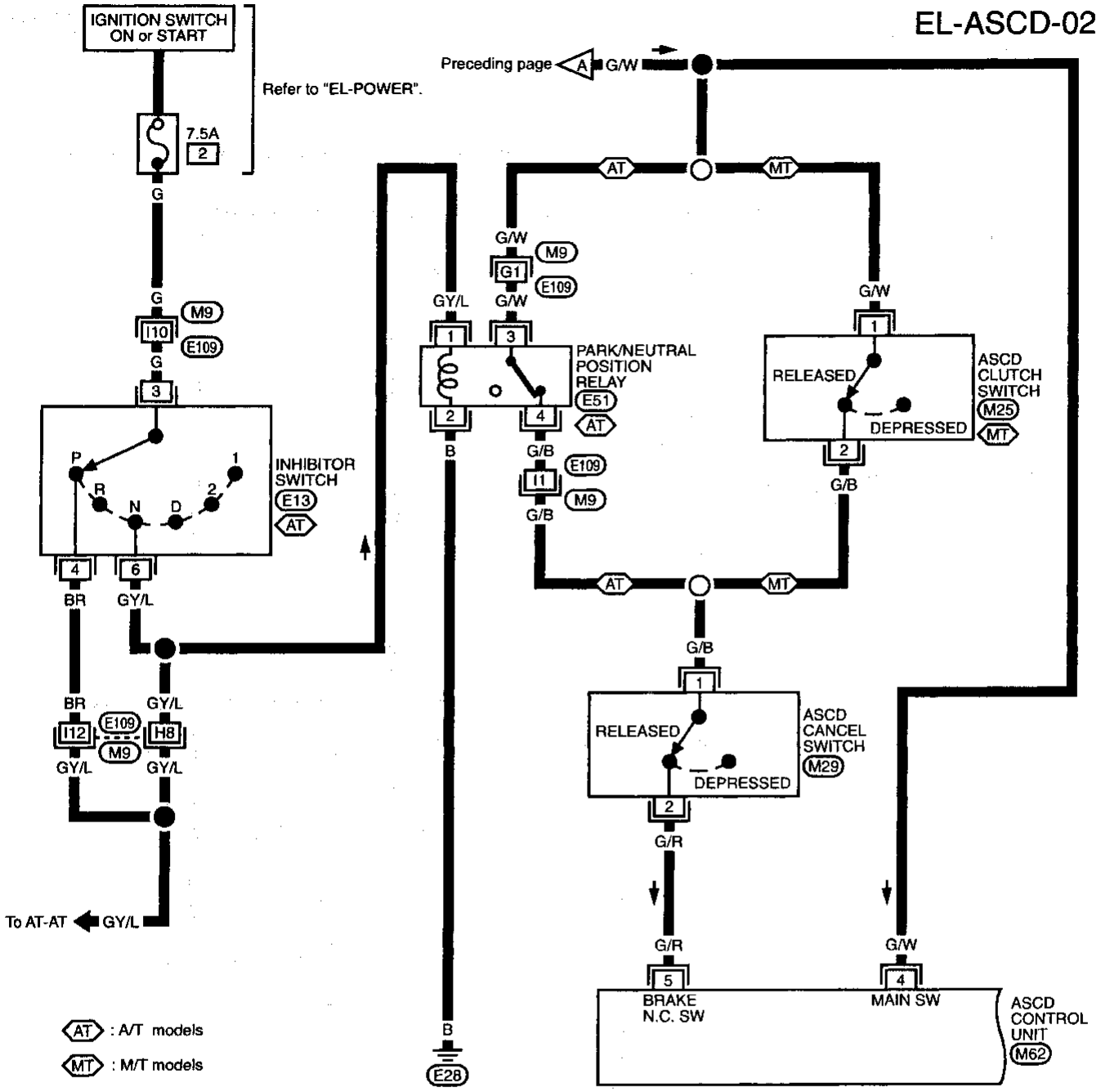
Wiring Diagram — ASCD —

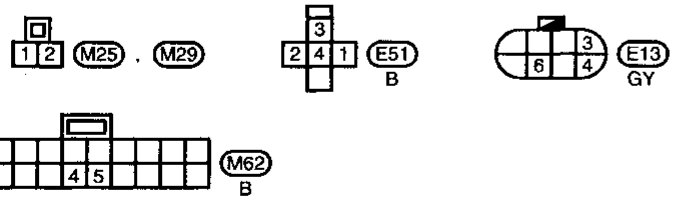
EL-ASCD-01



MEL259D

Wiring Diagram — ASCD — (Cont'd)

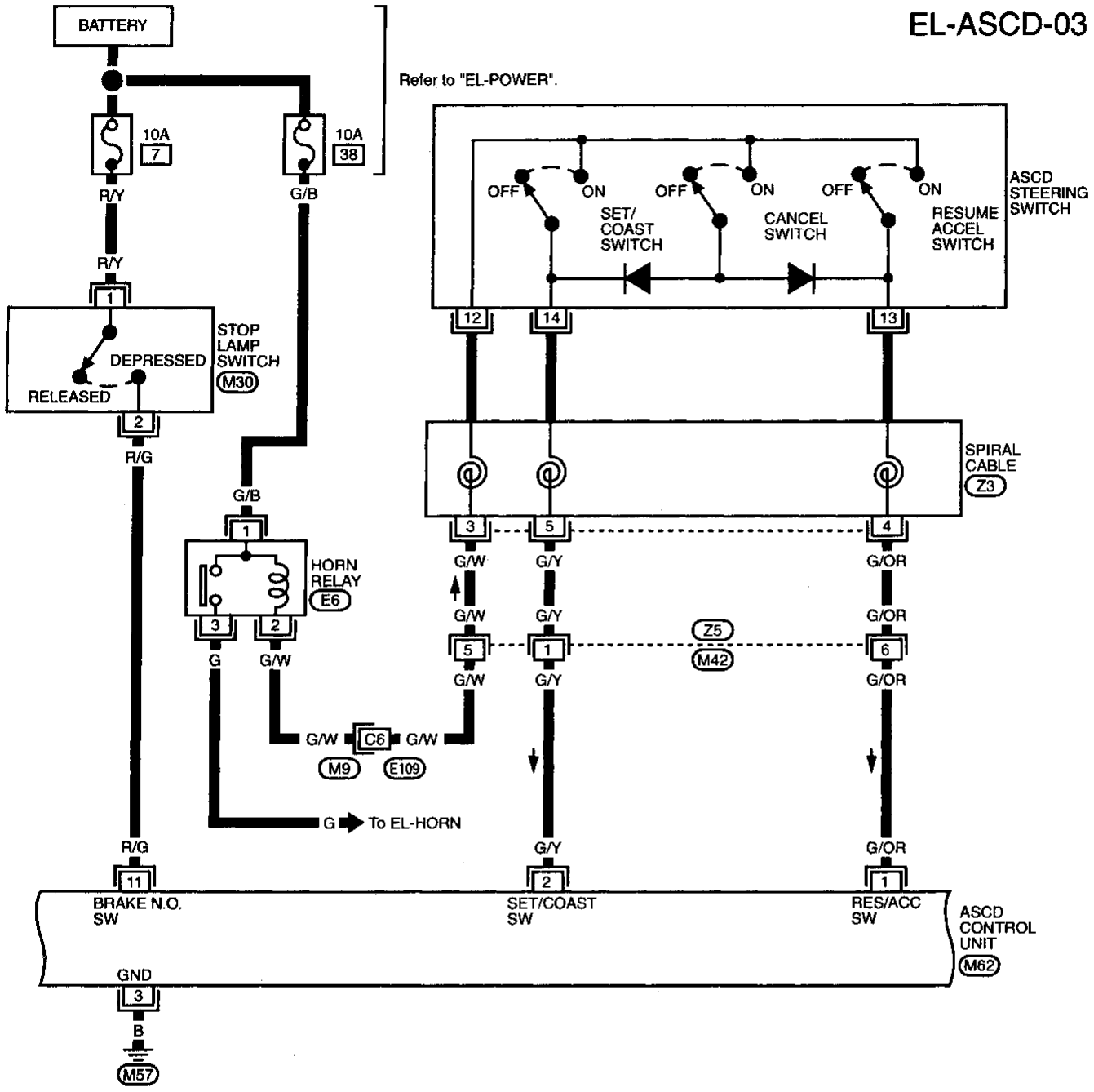


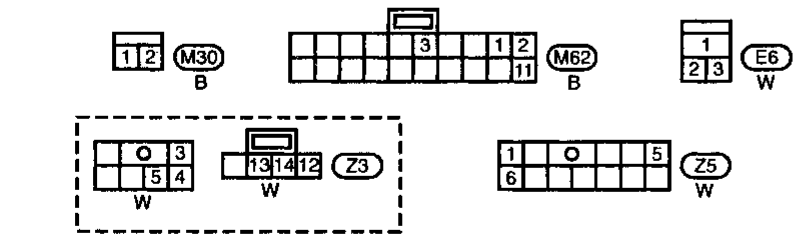


Refer to last page (Foldout page).
M9 E109

MEL260D

Wiring Diagram — ASCD — (Cont'd)





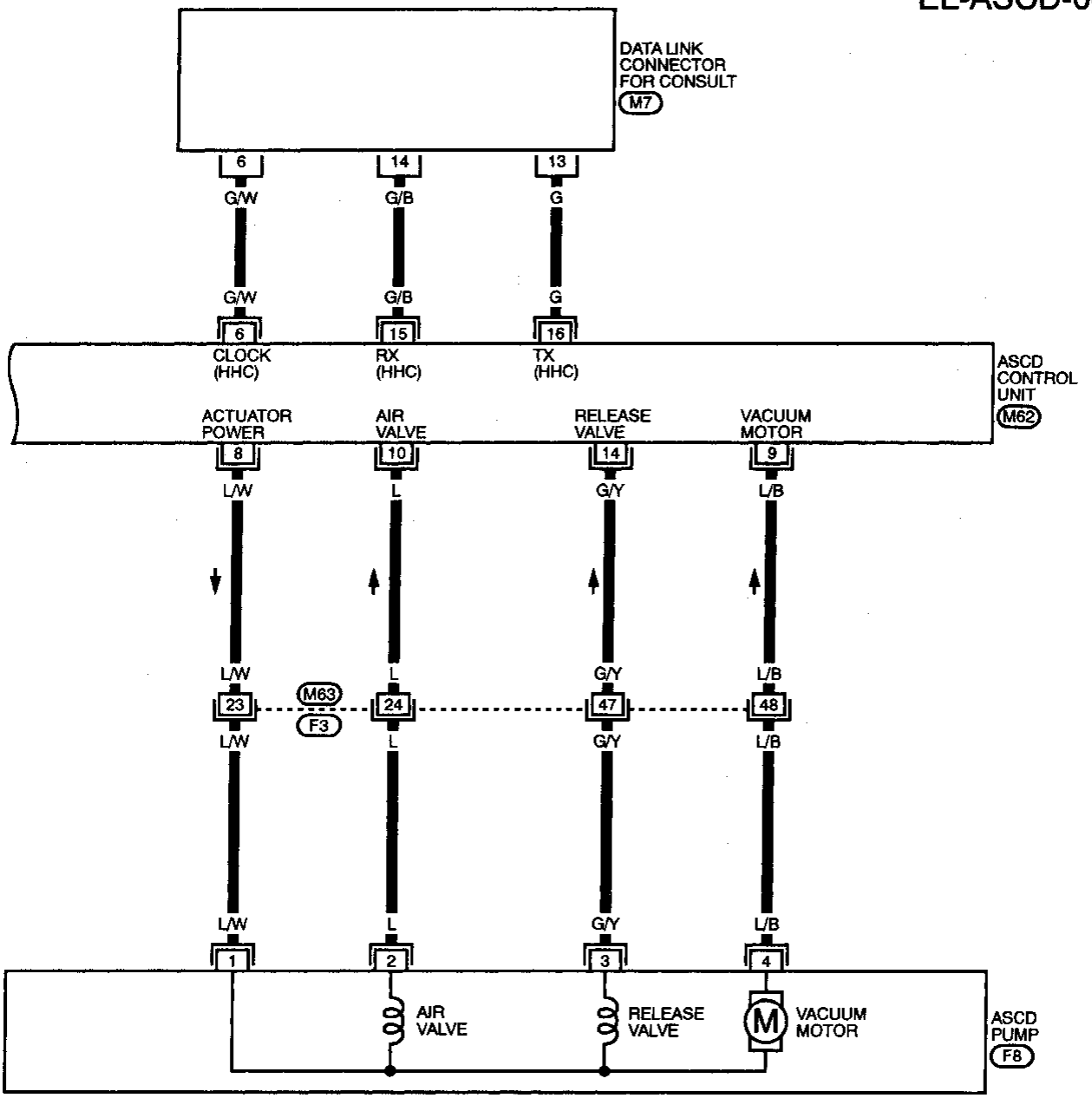
Refer to last page (Foldout page).
M9 , E109

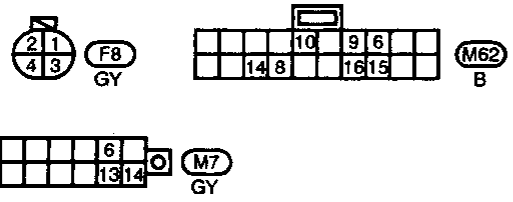
MEL261D

1101

Wiring Diagram — ASCD — (Cont'd)

EL-ASCD-04



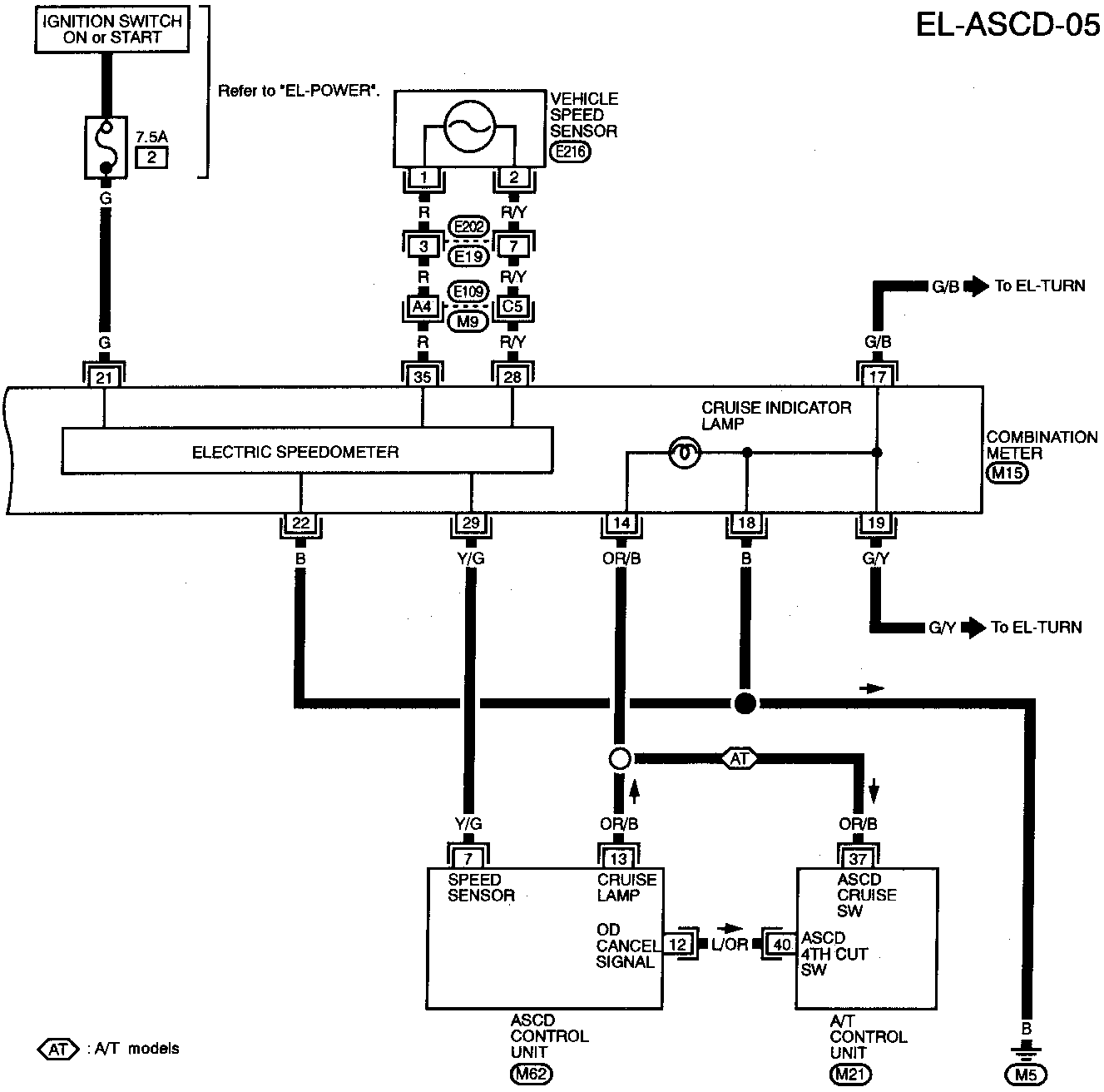


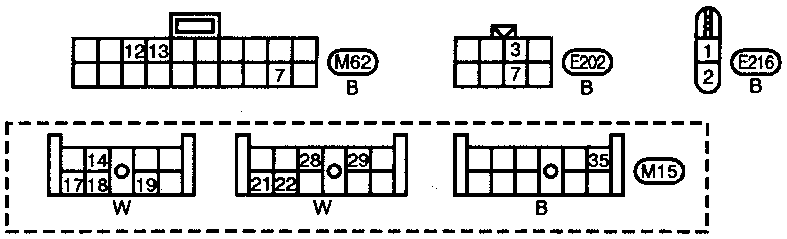
Refer to last page (Foldout page).
F3 , M63

MEL262D

Wiring Diagram — ASCD — (Cont'd)

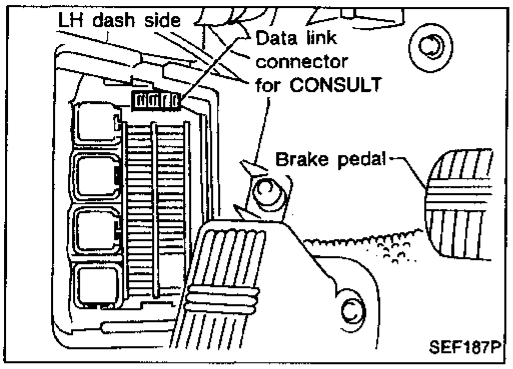
EL-ASCD-05





Refer to last page (Foldout page).
M9 , E109
M21

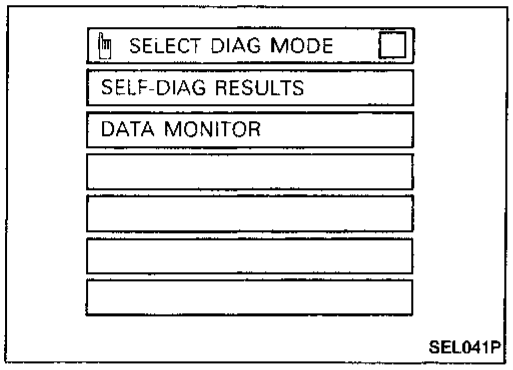
MEL263D



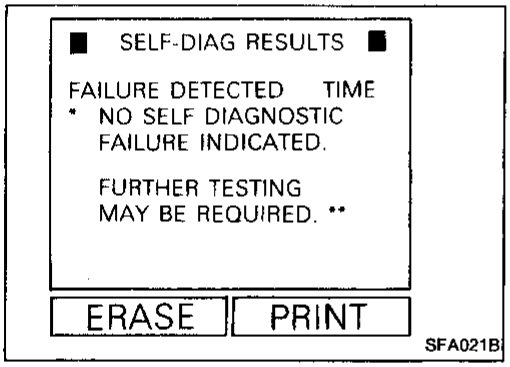
Trouble Diagnoses

CONSULT

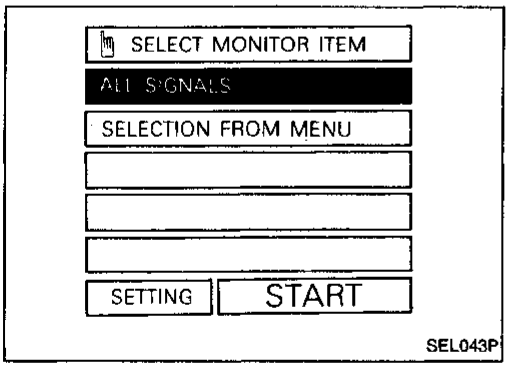
1. Turn off ignition switch.
2. Connect "CONSULT" to data link connector for CONSULT.



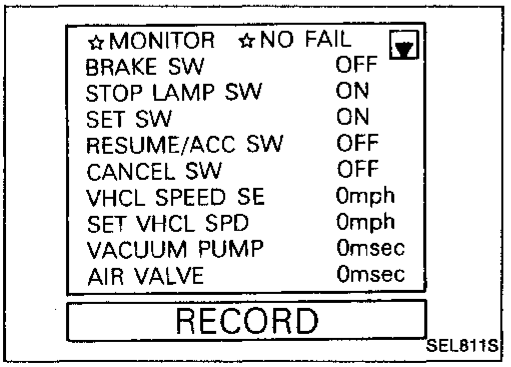
3. Turn on ignition switch.
4. Turn on ASCD main switch.
5. Touch START (on CONSULT display).
6. Touch ASCD.
7. Touch SELF-DIAG RESULTS.



- Self-diagnostic results are shown on display. Refer to table on page EL-141.



8. Touch DATA MONITOR.



- Touch START.
- Data monitor results are shown on display. Refer to table on page EL-141.

For further information, read the CONSULT Operation Manual.

Trouble Diagnoses (Cont'd)

Self-diagnostic results

Diagnostic item	Description
* NO SELF DIAGNOSTIC FAILURE INDICATED. FURTHER TESTING MAY BE REQUIRED.**	• Even if no self-diagnostic failure is indicated, further testing may be required as far as the customer complains.
POWER SUPPLY-VALVE	• The power supply circuit for the valves is open. (An abnormally high voltage is entered.)
VACUUM PUMP	• The vacuum pump circuit is open or shorted. (An abnormally high or low voltage is entered.)
AIR VALVE	• The air valve circuit is open or shorted. (An abnormally high or low voltage is entered.)
VHCL SP·S/FAILSAFE	• The vehicle speed sensor or the fail-safe circuit is malfunctioning.
CONTROL UNIT	• The ASCD control unit is malfunctioning.
RELEASE VALVE	• The release valve circuit is open or shorted. (An abnormally high or low voltage is entered.)
BRAKE SW/STOP/L SW	• The brake (cancel) switch or stop lamp switch is malfunctioning.

Data monitor

Monitored item	Description
BRAKE SW	• Indicates [ON/OFF] condition of the brake (cancel) switch circuit.
STOP LAMP SW	• Indicates [ON/OFF] condition of the stop lamp switch circuit.
SET SW	• Indicates [ON/OFF] condition of the set switch circuit.
RESUME/ACC SW	• Indicates [ON/OFF] condition of the resume/accelerate switch circuit.
CANCEL SW	• Indicates [ON/OFF] condition of the cancel circuit.
VHCL SPEED SE	• The present vehicle speed computed from the vehicle speed sensor signal is displayed.
SET VHCL SPD	• The preset vehicle speed is displayed.
VACUUM PUMP	• The operation time of the vacuum pump is displayed.
AIR VALVE	• The operation time of the air valve is displayed.
PW SUP-VALVE	• Indicates [ON/OFF] condition of the circuit for the air valve and the release valve.
CRUISE LAMP	• Indicates [ON/OFF] condition of the cruise lamp circuit.
A/T·OD CANCEL	• Indicates [ON/OFF] condition of the OD cancel circuit.
FAIL SAFE·LOW	• The fail-safe (LOW) circuit function is displayed.
FAIL SAFE·SPD	• The fail-safe (SPEED) circuit function is displayed.

Trouble Diagnoses (Cont'd)

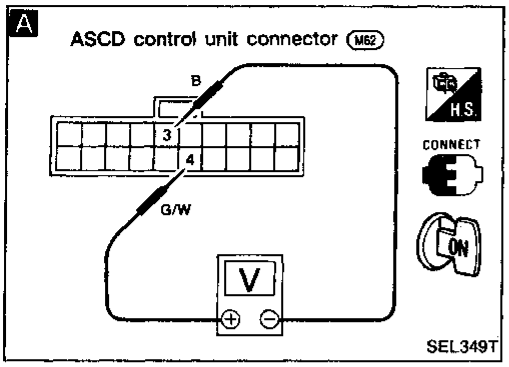
SYMPTOM CHART

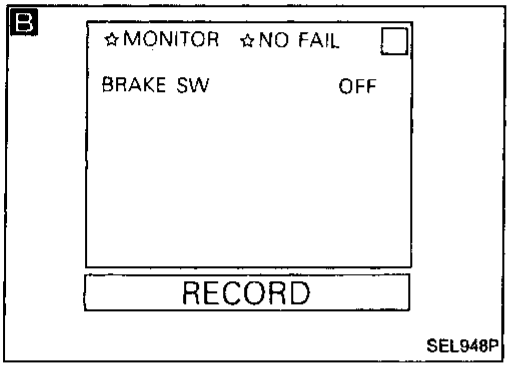
PROCEDURE	Diagnostic Procedure								Electrical Components Inspection								
REFERENCE PAGE	EL-143	EL-147	EL-147	EL-148	EL-149	EL-150	EL-152	EL-154	EL-155	EL-156	EL-156	EL-156	EL-156	EL-157	EL-157	EL-82	EL-158
SYMPTOM	Diagnostic Procedure 1	Diagnostic Procedure 2	Diagnostic Procedure 3	Diagnostic Procedure 4	Diagnostic Procedure 5	Diagnostic Procedure 6	Diagnostic Procedure 7	Diagnostic Procedure 8	ASCD actuator/ASCD pump	ASCD main switch	ASCD hold relay	ASCD steering switch	ASCD cancel switch and stop lamp switch	ASCD clutch switch	Inhibitor switch and park/neutral position relay	Vehicle speed sensor	ASCD wire adjustment
ASCD control cannot be set properly.	○								○	○	○	○	○	○	○	○	
Engine hunts		○							○								○
Large difference between set speed and actual vehicle speed.			○						○								○
Deceleration is greatest immediately after ASCD has been set.				○					○								○
ACCEL switch will not operate.	○				○							○					
RESUME switch will not operate.	○					○			○			○	○	○	○		
Set speed cannot be canceled.							○		○				○	○	○		○
"CRUISE" indicator lamp blinks.								○	○			○	○				

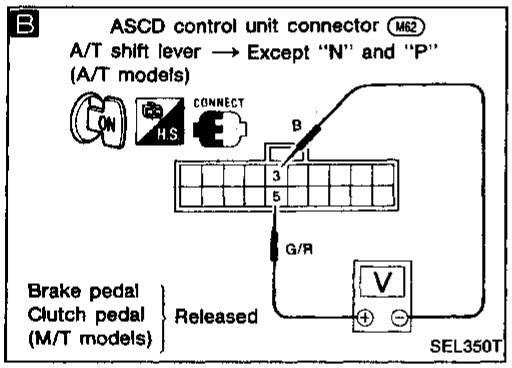
Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 1

SYMPTOM: ASCD control cannot be set.







Turn ASCD main switch "OFF" and "ON" to make sure indicator illuminates.

NG → Ⓒ (Go to EL-146.)

OK

A

CHECK POWER SUPPLY CIRCUIT FOR ASCD CONTROL UNIT.

1. Turn ASCD main switch "ON".
2. Do approx. 12 volts exist between ASCD control unit harness terminal ④ and ③.

No →
- Check continuity between ASCD control unit harness terminal ④ and ASCD hold relay harness terminal ③.
  Continuity should exist.
- Check continuity between ASCD control unit harness terminal ③ and body ground.
  Continuity should exist.

Yes

B

CHECK CUT-OFF CIRCUIT FOR ASCD CONTROL UNIT.

1. Set shift lever in any position other than "N" and "P". (A/T model)
2. See "BRAKE SW" in "Data monitor" mode.
   BRAKE SWITCH
   When brake pedal is depressed: OFF
   When brake pedal is released: ON

OR

2. Check voltage between control unit harness terminals ⑤ and ③.
   When brake pedal is depressed: 0V
   When brake pedal is released: Approx. 12V

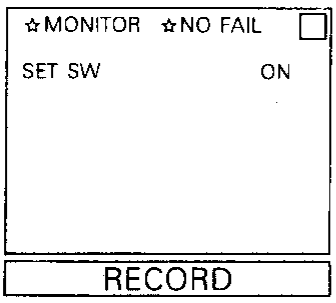
NG →
Check the following.
- Harness continuity between ASCD hold relay harness terminal ③ and ASCD control unit harness terminal ⑤
  M/T model:
  When brake pedal is released and clutch pedal is released.
  A/T model:
  When brake pedal is released and shift lever is set in gear other than "N" and "P".
  Continuity should exist.
- ASCD cancel switch
  Refer to "Electrical Components Inspection" (EL-156).
- ASCD clutch switch (M/T model)
  Refer to "Electrical Components Inspection" (EL-157).
- Inhibitor switch and park/neutral position relay (A/T model)
  Refer to "Electrical Components Inspection" (EL-157).

OK

Ⓐ
(Next page)

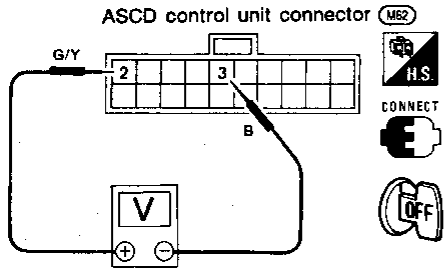
Trouble Diagnoses (Cont'd)

C



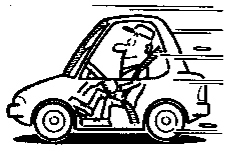
SEL950P

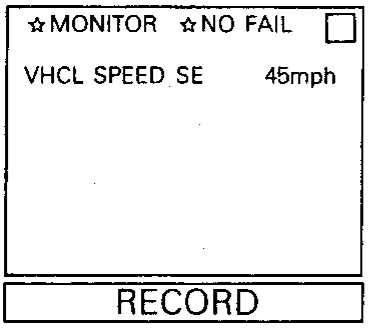
C



SEL475QB

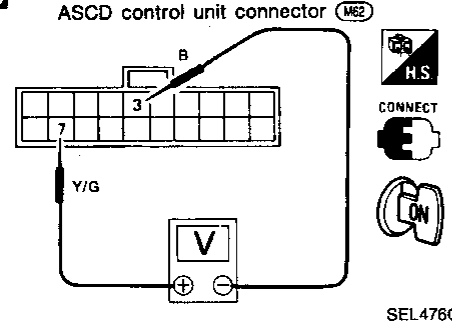
D





SEL812S

D



SEL476QB

Ⓐ

C

CHECK SET/COAST SWITCH CIRCUIT FOR ASCD CONTROL UNIT.

See "SET SW" in "Data monitor" mode.
SET SW
When SET/COAST switch is pressed: ON
When SET/COAST switch is released: OFF

OR

Check voltage between control unit harness terminals ② and ③.
When SET/COAST switch is pressed: Approx. 12V
When SET/COAST switch is released: 0V

NG → Does horn work?

No → Check the following.
- Harness continuity between fuse and ASCD steering switch harness terminal ⑫.
  Continuity should exist.
- Fuse and horn relay
- ASCD steering switch

Yes → Check the following.
- Harness continuity between ASCD steering switch harness terminal ⑭ and ASCD control unit harness terminal ②.
  Continuity should exist.
- ASCD steering switch
  Refer to "Electrical Components Inspection" (EL-156).

OK

D

CHECK VEHICLE SPEED SENSOR CIRCUIT.

See "VHCL SPEED SE" in "Data monitor" mode while driving.

OR

1. Apply wheel chocks and jack up rear of vehicle.
2. Connect voltmeter between control unit harness terminals ⑦ and ③.
3. Slowly turn front wheel.
4. Check deflection of voltmeter pointer.

NG → Check the following.
- Harness continuity between ASCD control unit harness terminal ⑦ and combination meter harness terminal ㉙.
  Continuity should exist.
- Speedometer and vehicle speed sensor circuit.
  Refer to "Inspection/ Speedometer and Vehicle Speed Sensor" (EL-79).

OK

CHECK ASCD ACTUATOR/ASCD PUMP.
Refer to "Electrical Components Inspection" (EL-155).

NG → Replace ASCD actuator/ ASCD pump.

OK

Ⓑ
(Next page)

Trouble Diagnoses (Cont'd)

E

☆ MONITOR ☆ NO FAIL

PW SUP-VALVE ON

RECORD

SEL954P

Ⓑ

E

CHECK OUTPUT FOR ASCD PUMP.

1. Read out "PW SUP-VALVE" in "Data monitor" mode while driving.

PW SUP-VALVE:
When ASCD is operating: ON
When ASCD is not operating: OFF

NG → Replace ASCD control unit.

OR

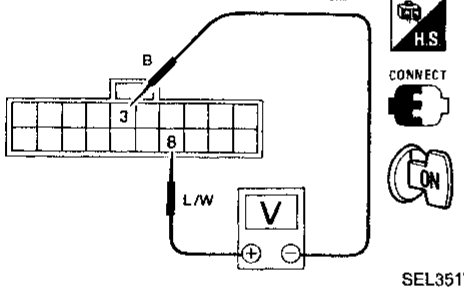
1. Check voltage between control unit harness terminals ⑧ and ③.

When ASCD is operating: Approx. 12V
When ASCD is not operating: 0V

OK

E

ASCD control unit connector (M62)



SEL351T

F

CHECK ASCD PUMP CIRCUIT.

1. Disconnect ASCD control unit connector.
2. Measure resistance between control unit harness terminals ⑧ and ⑨, ⑩, ⑭.

Terminals		Resistance [Ω]
⑧	⑨	Approx. 8 - 45
	⑩	Approx. 65
	⑭	Approx. 65

NG → Check the following.
- Harness continuity between each terminal on ASCD pump and on ASCD control unit.

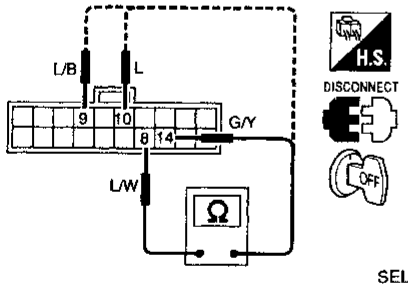
Terminal No.		Continuity
ASCD pump	ASCD control unit	
①	⑧	Yes
②	⑩	
③	⑭	
④	⑨	

OK

Replace ASCD control unit.

F

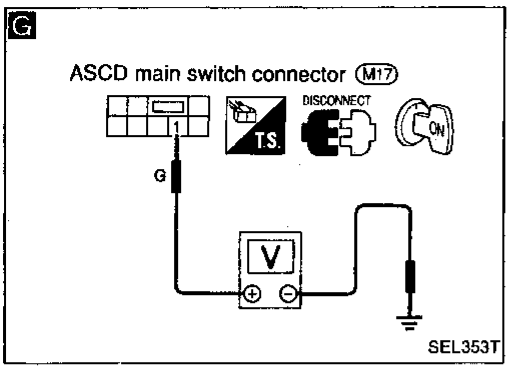
ASCD control unit connector (M62)



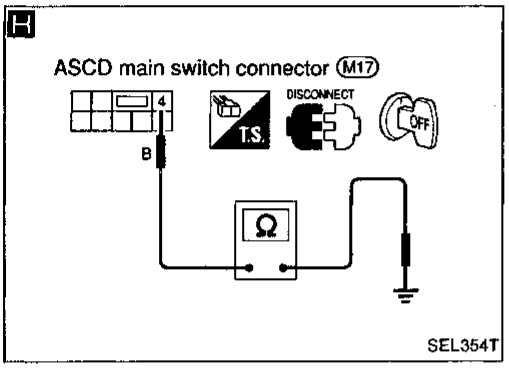
SEL352T

Trouble Diagnoses (Cont'd)

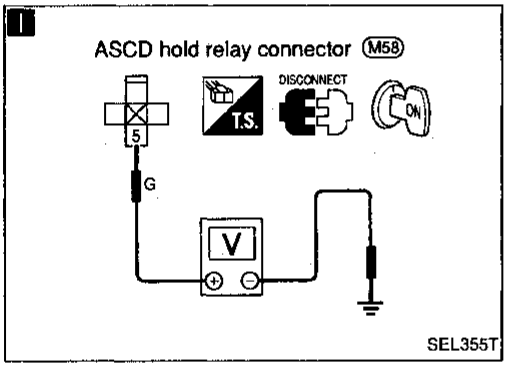
G



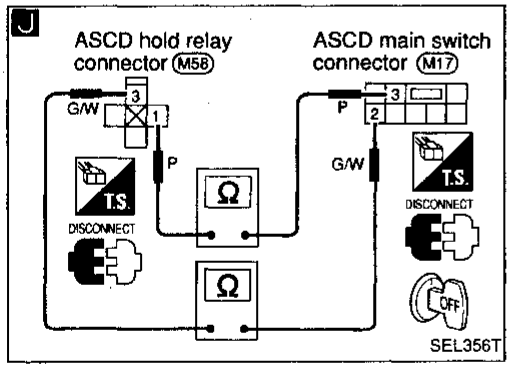
H



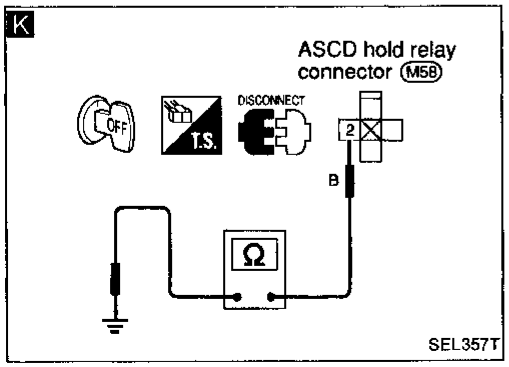
I



J



K



Ⓒ

G

CHECK POWER SUPPLY CIRCUIT FOR ASCD MAIN SWITCH.
1. Disconnect ASCD main switch harness connector.
2. Do approx. 12 volts exist between ASCD main switch harness terminal ① and body ground?

No → Check the following.
- Harness continuity between ASCD main switch harness terminal ① and fuse. **Continuity should exist.**
- Fuse

Yes ↓

H

CHECK GROUND CIRCUIT FOR ASCD MAIN SWITCH.
Does continuity exist between ASCD main switch harness terminal ④ and body ground?

No → Repair harness or connector.

Yes ↓

I

CHECK POWER SUPPLY CIRCUIT FOR ASCD HOLD RELAY.
1. Disconnect ASCD hold relay
2. Do approx. 12 volts exist between ASCD hold relay harness terminal ⑤ and body ground?

No → Repair harness or connector.

Yes ↓

J

CHECK CIRCUIT BETWEEN ASCD HOLD RELAY AND ASCD main switch.
- Does continuity exist between ASCD hold relay harness terminal ① and ASCD main switch harness terminal ③?
- Does continuity exist between ASCD hold relay harness terminal ③ and ASCD main switch harness terminal ②?

No → Repair harness or connector.

Yes ↓

K

CHECK GROUND CIRCUIT FOR ASCD HOLD RELAY.
Does continuity exist between ASCD hold relay harness terminal ② and body ground?

No → Repair harness or connector.

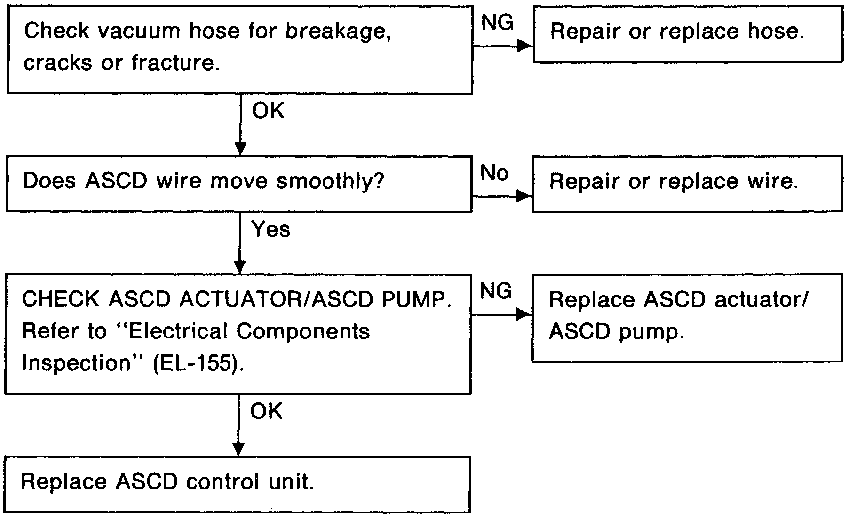
Yes ↓

CHECK ASCD MAIN SWITCH AND ASCD HOLD RELAY.
Refer to "Electrical Components Inspection" (EL-156).

Trouble Diagnoses (Cont'd)

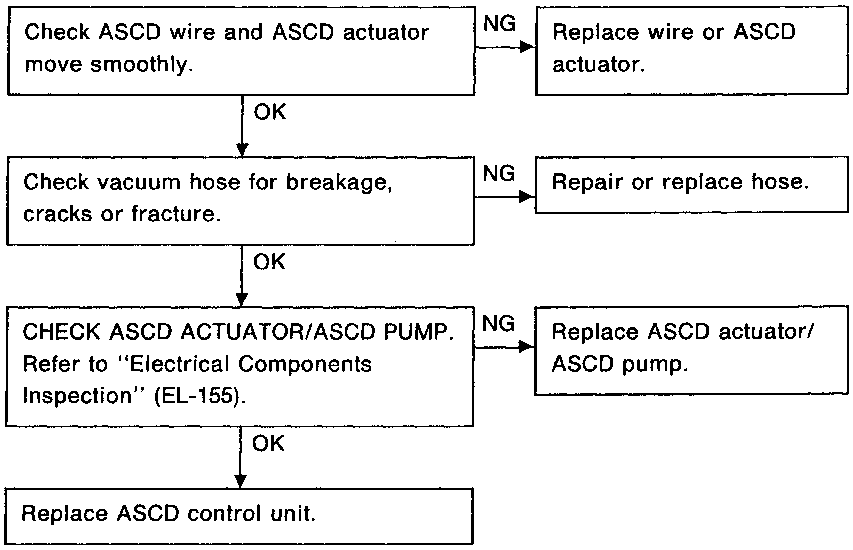
DIAGNOSTIC PROCEDURE 2

SYMPTOM: Engine hunts.



DIAGNOSTIC PROCEDURE 3

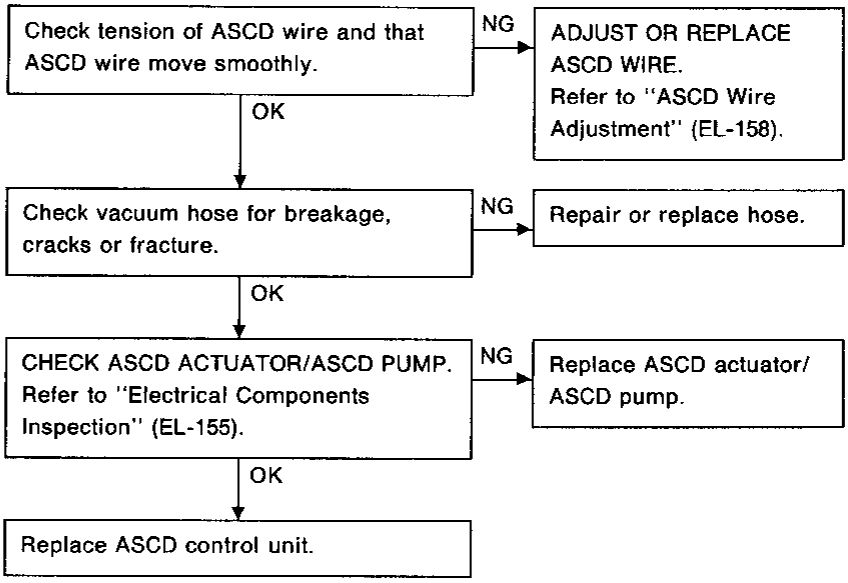
SYMPTOM: Large difference between set vehicle speed and actual speed.



Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 4

SYMPTOM: Deceleration is greatest immediately after ASCD has been set.

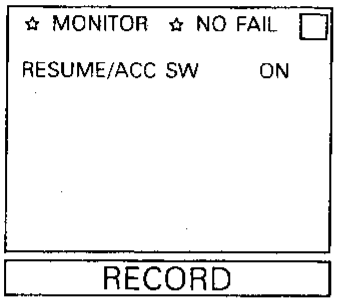


Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 5

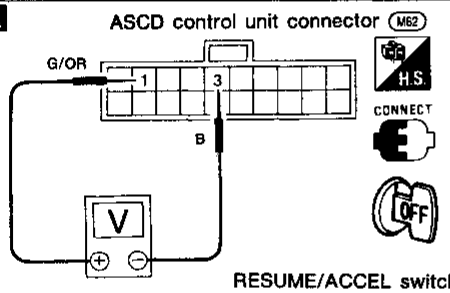
SYMPTOM: ACCEL switch will not operate.

A



SEL957P

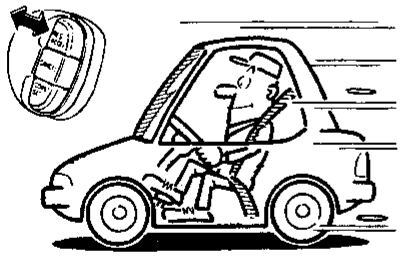
A



RESUME/ACCEL switch is pressed and released.

SEL358T

B



SEL959P

Check constant-speed function for operating using SET/COAST switch.

NG → Go to "DIAGNOSTIC PROCEDURE 1" (EL-143).

OK

A

CHECK RESUME/ACCEL SWITCH CIRCUIT.

See "RESUME/ACC SW" in "Data monitor" mode.

RESUME/ACC SW

When switch is pressed: ON

When switch is released: OFF

OR

Check voltage between control unit harness terminals ① and ③.

- After pressing and holding RESUME/ACC switch.
  Battery voltage should exist.
- After releasing RESUME/ACC switch.
  Voltage is 0V.

NG → CHECK THE FOLLOWING.

- Harness continuity between ASCD steering switch harness terminal ⑬ and ASCD control unit harness terminal ①.
- Check ASCD steering switch.
  Refer to "Electrical Components Inspection" (EL-156).

OK

B

Does vehicle accelerate when RESUME/ACCEL switch is pressed?

No → Replace control unit.

Yes

B

Does vehicle maintain the new (faster) speed when RESUME/ACCEL switch is released?

No → Replace control unit.

Yes

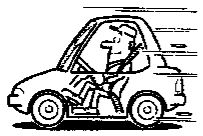
System is OK.

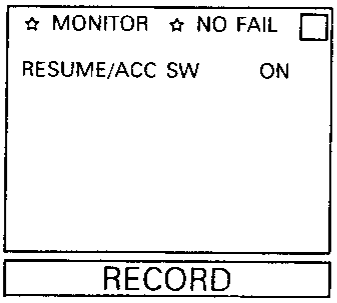
Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 6

SYMPTOM: RESUME switch will not operate.

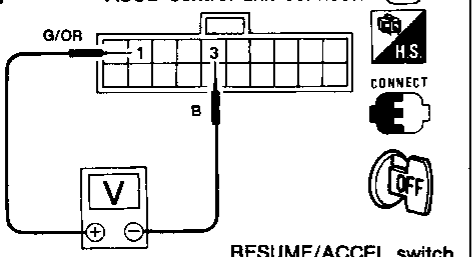
A





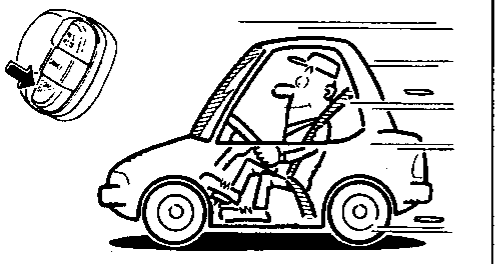
SEL957P

A



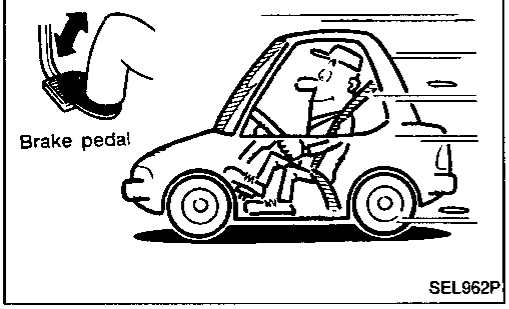
SEL358T

B



SEL961P

C



SEL962P

Check constant-speed function for operation using SET/COAST switch.

NG → Go to "DIAGNOSTIC PROCEDURE 1" (EL-143).

OK

A

CHECK RESUME/ACCEL SWITCH CIRCUIT.

See "RESUME/ACC SW" in "Data monitor" mode.

RESUME/ACC SW
When switch is pressed: ON
When switch is released: OFF

OR

Check voltage between control unit harness terminals ① and ③.

- After pressing and holding RESUME/ACC switch.
  Battery voltage should exist.
- After releasing RESUME/ACC switch.
  Voltage is 0V.

NG → CHECK THE FOLLOWING.

- Harness continuity between ASCD steering switch harness terminal ⑬ and ASCD control unit harness terminal ①.
- Check ASCD steering switch.
  Refer to "Electrical Components Inspection" (EL-156).

OK

B

Set vehicle speed at 80 km/h (50 MPH) by pressing SET/COAST switch.

C

While cruising at set speed, depress and release brake pedal.

Does speed control disengage and "CRUISE" lamp turn off?

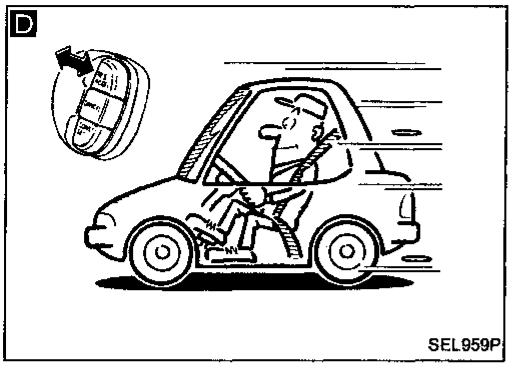
No → Go to "DIAGNOSTIC PROCEDURE 7" (EL-152).

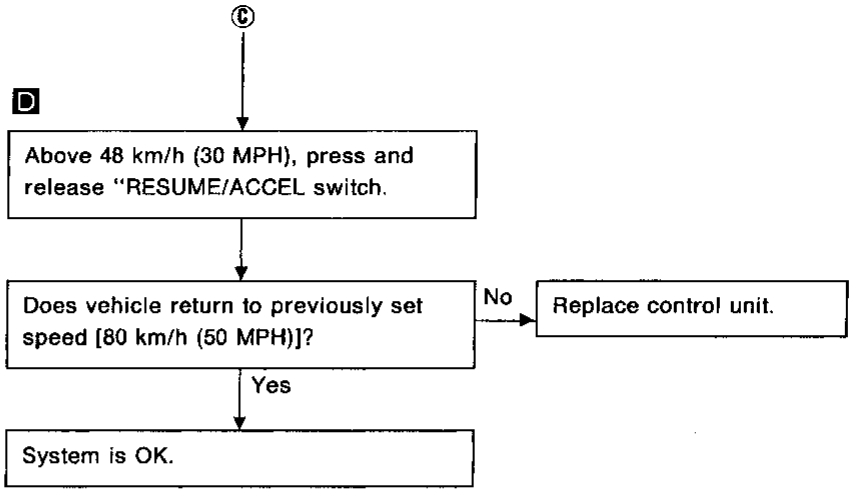
Yes

Ⓒ

(Next page)

Trouble Diagnoses (Cont'd)

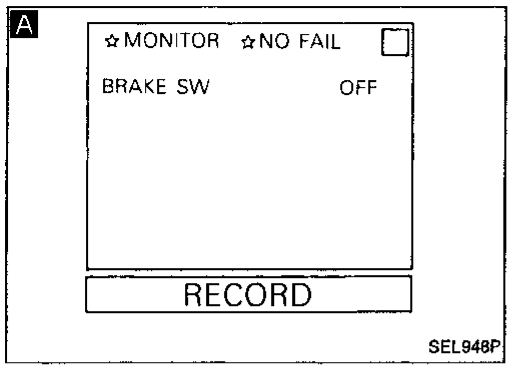


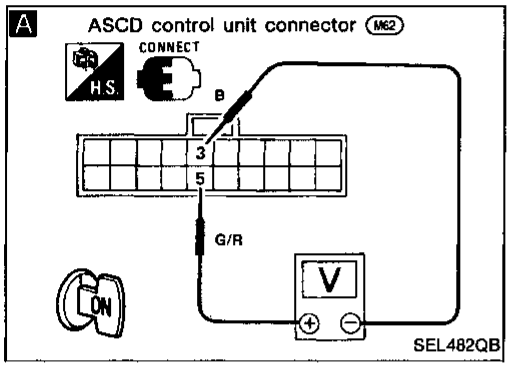


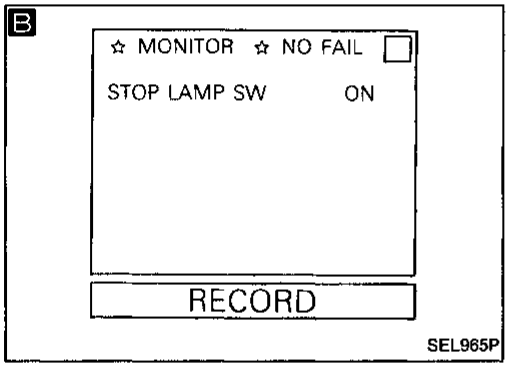
Trouble Diagnoses (Cont'd)

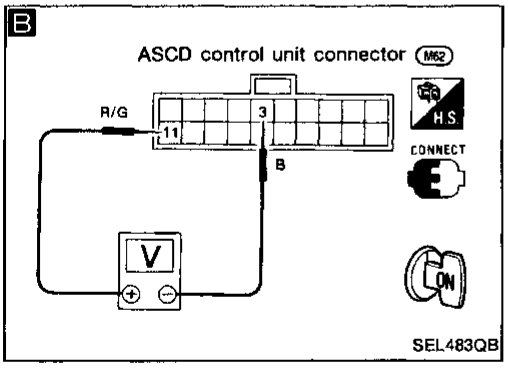
DIAGNOSTIC PROCEDURE 7

SYMPTOM: Set speed cannot be cancelled.









A

CHECK ASCD CANCEL SWITCH, ASCD CLUTCH SWITCH AND PARK/NEUTRAL POSITION RELAY CIRCUIT

1. Turn ASCD main switch "ON".
2. See "BRAKE SW" in "Data monitor" mode.
   BRAKE SW
   When brake pedal is released: ON
   When brake pedal is depressed: OFF

OR

2. Check voltage between control unit harness terminals ⑤ and ③.
   M/T model:
   When brake pedal or clutch pedal is depressed: 0V
   When brake pedal and clutch pedal are released: Approx. 12V
   A/T model:
   When brake pedal is depressed or shift lever is set in "N" or "P": 0V
   When brake pedal is released and shift lever is set in any position other than "N" and "P": Approx. 12V

NG →

CHECK THE FOLLOWING.

- Harness continuity between ASCD hold relay harness terminal ③ and ASCD control unit harness terminal ⑤.
  M/T model:
  Brake pedal is depressed or clutch pedal is depressed.
  A/T model:
  Brake pedal is depressed or shift lever is set "N" or "P".
  Continuity should not exist.
- ASCD cancel switch
  Refer to "Electrical Components Inspection" (EL-156).
- ASCD clutch switch (M/T model)
  Refer to "Electrical Components Inspection" (EL-157).
- Inhibitor switch and park/neutral position relay (A/T model)
  Refer to "Electrical Components Inspection" (EL-157).

OK ↓

B

CHECK STOP LAMP SWITCH CIRCUIT.

See "STOP LAMP SW" in "Data monitor" mode.
STOP LAMP SW
When brake pedal is released: OFF
When brake pedal is depressed: ON

OR

Check voltage between control unit harness terminals ⑪ and ③.
When brake pedal is released: 0V
When brake pedal is depressed: Approx. 12V

NG →

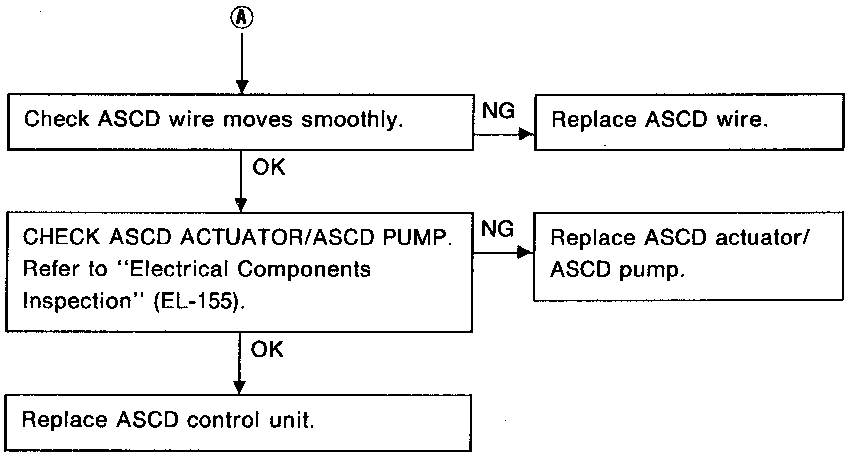
CHECK THE FOLLOWING.

- Harness continuity between ASCD control unit harness terminal ⑪ and fuse.
  When brake pedal is depressed.
  Continuity should exist.
- Fuse
- Stop lamp switch
  Refer to "Electrical Components Inspection" (EL-156).

OK ↓

Ⓐ
(Next page)

Trouble Diagnoses (Cont'd)



Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 8

SYMPTOM: "CRUISE" indicator lamp blinks.

Does indicator lamp blink when ASCD main switch is turned to "ON" again?

Yes → CHECK ASCD STEERING SWITCH.
Refer to "Electrical Components Inspection" (EL-156).

OK

No

Does indicator lamp blink when brake pedal is depressed slowly?
(Brake pedal should be depressed for at least 5 seconds.)

Yes → CHECK STOP LAMP SWITCH AND ASCD CANCEL SWITCH.
Refer to "Electrical Components Inspection" (EL-156).

OK

Check installation of stop lamp switch and ASCD cancel switch. Refer to BR section.

OK

Replace control unit.

No

CHECK ASCD ACTUATOR/ASCD PUMP.
Refer to "Electrical Components Inspection" (EL-155).

NG → Replace ASCD actuator/ASCD pump.

OK

A

CHECK ASCD ACTUATOR/ASCD PUMP CIRCUIT.

1. Check voltage between control unit harness terminals ⑧ and ③.
   When ASCD is operating:
   Approx. 12V
   When ASCD is not operating:
   0V
2. Disconnect ASCD control unit connector.
3. Measure resistance between control unit harness terminals ⑧ and ⑨, ⑩, ⑭.

NG → Repair short or open circuit in ASCD actuator/ASCD pump harness.

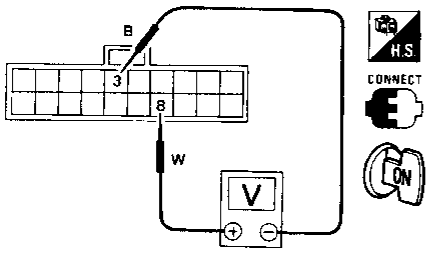
Terminals		Resistance [Ω]
⑧	⑨	Approx. 8 - 45
	⑩	Approx. 65
	⑭	Approx. 65

OK

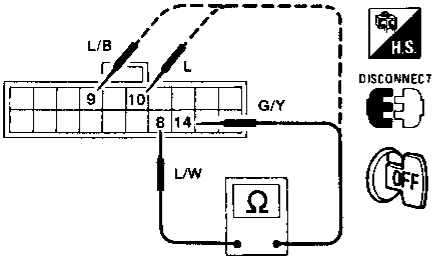
Replace ASCD control unit.

A

ASCD control unit connector (M62)



ASCD control unit connector (M62)



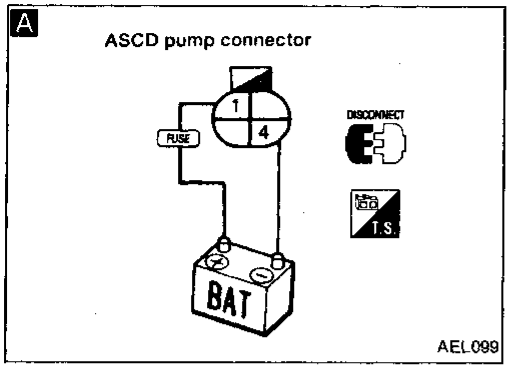
SEL484QB

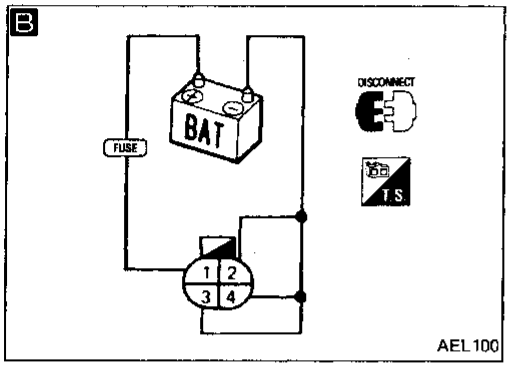
Trouble Diagnoses (Cont'd)

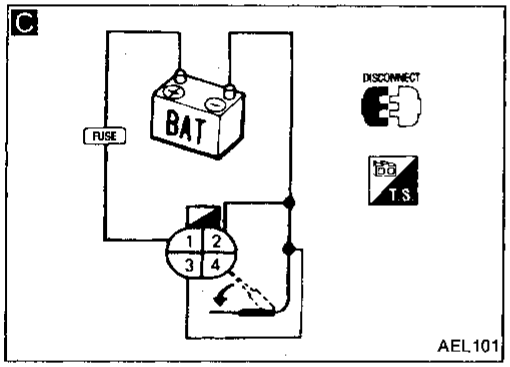
ELECTRICAL COMPONENTS INSPECTION

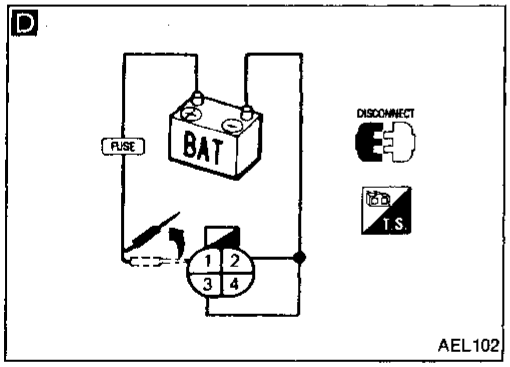
ASCD actuator/ASCD pump

1. Disconnect 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 pump.

OK ↓

B

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

NG → Disconnect vacuum hose from ASCD actuator and check for presence of vacuum pressure at ASCD pump.

NG → Replace ASCD pump.

OK → Replace ASCD actuator.

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 pump.

OK (Wire does not return.) ↓

D

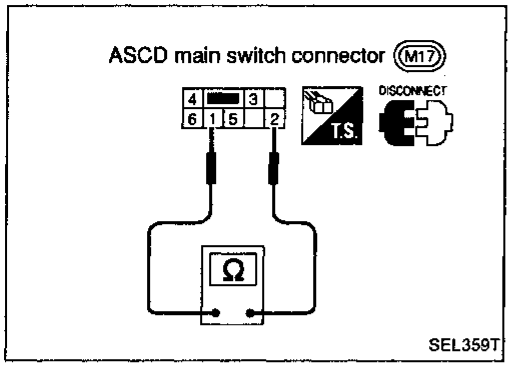
Disconnect lead from ① to see if ASCD wire returns immediately.

NG → Replace ASCD pump.

OK (Wire returns.) ↓

ASCD actuator/ASCD pump are OK.

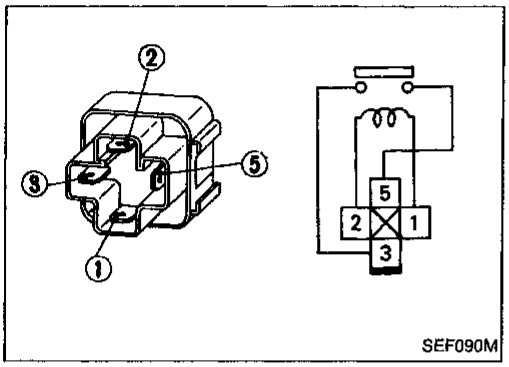
Trouble Diagnoses (Cont'd)



ASCD main switch

Check continuity between terminals by pushing switch to each position.

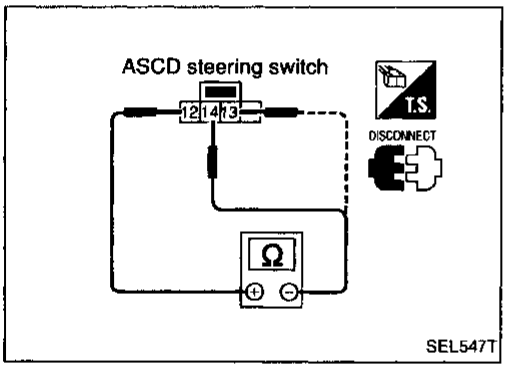
Switch position \ Terminals	1	2	3	4	5	6
ON	○	○	○	○	ILL.	
N		○	○	○		
OFF			○	○		



ASCD hold relay

Check continuity between terminals ③ and ⑤.

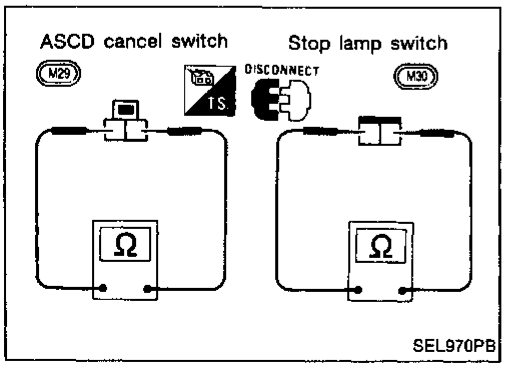
Conditions	Continuity
12V direct current supply between terminals ① and ②	Yes
No current supply	No



ASCD steering switch

Check continuity between terminals by pushing each button.
Before checking continuity between terminals ⑫ and ⑭ or ⑫ and ⑬, refer to "Diode check" (EL-99).

Button \ Terminal	12	14	13
SET/COAST	○	○	
RESUME/ACCEL	○		○
CANCEL	○	▶	○
	○	▶	○

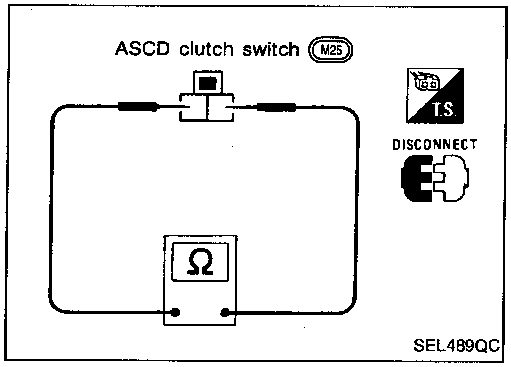


ASCD cancel switch and stop lamp switch

Condition	Continuity	
	ASCD cancel switch	Stop lamp switch
When brake pedal is depressed	No	Yes
When brake pedal is released	Yes	No

Check each switch after adjusting brake pedal — refer to BR section.

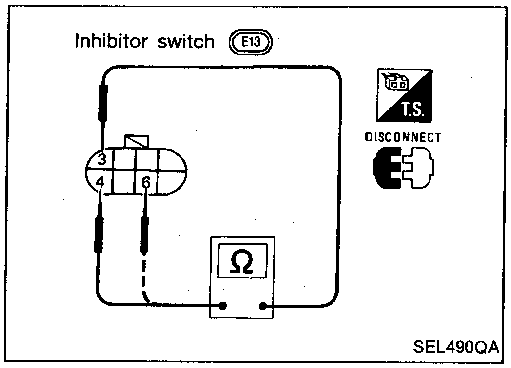
Trouble Diagnoses (Cont'd)



ASCD clutch switch (For M/T models)

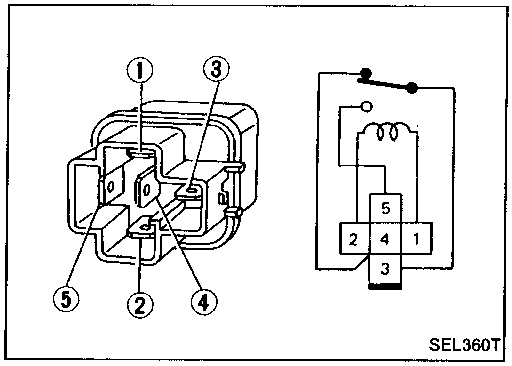
Condition	Continuity
When clutch pedal is depressed	No
When clutch pedal is released	Yes

Check switch after adjusting clutch pedal — refer to CL section.



Inhibitor switch (For A/T models)

Shift lever position	Continuity	
	Between terminals ③ and ④	Between terminals ③ and ⑥
"P"	Yes	No
"N"	No	Yes
Except "P" and "N"	No	

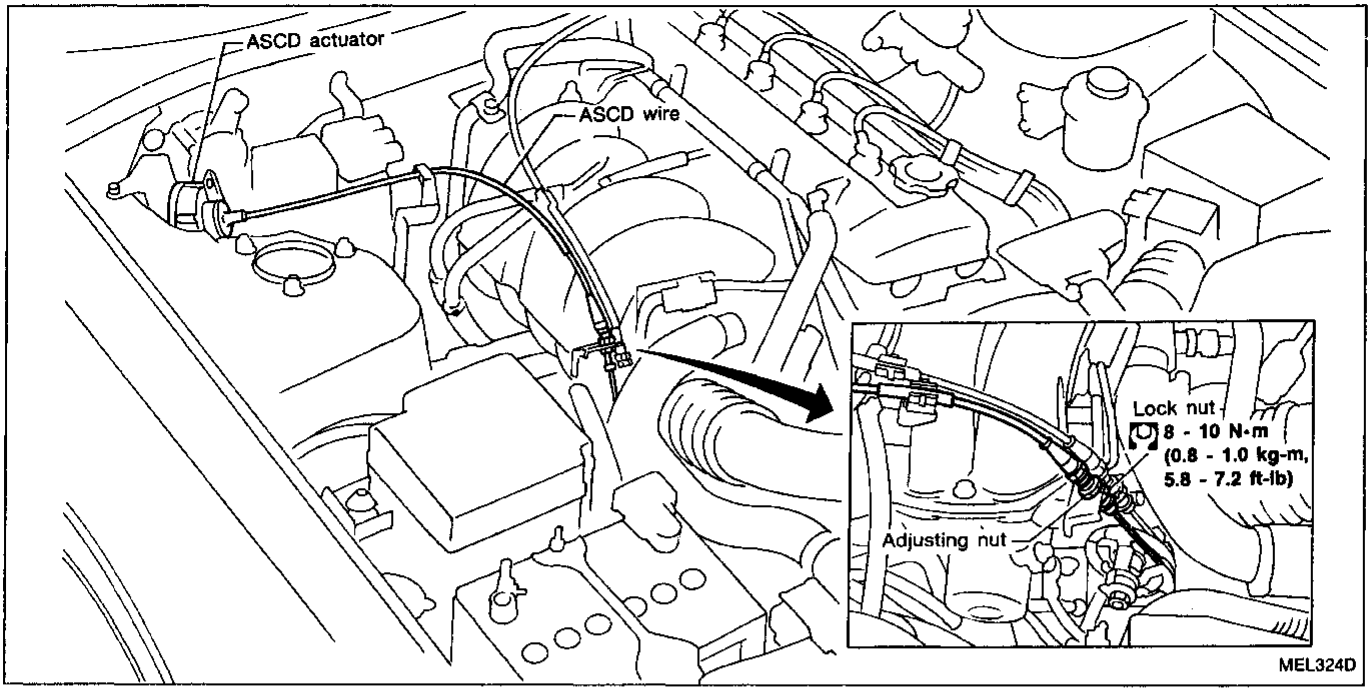


Park/neutral position relay (For A/T models)

Check continuity between terminals ③ and ④.

Conditions	Continuity
12V direct current supply between terminals ① and ②	Yes
No current supply	No

ASCD Wire Adjustment



CAUTION:

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

Adjust the tension of ASCD wire in the following manner.

(1) Loosen lock nut and adjusting nut.
(2) Make sure that accelerator wire is properly adjusted. (Refer to FE section, "ACCELERATOR CONTROL SYSTEM".)
(3) Tighten adjusting nut just until throttle drum starts to move.
(4) Loosen adjusting nut again 1/2 to 1 turn.
(5) Tighten lock nut.

System Description

Refer to Owner's Manual for theft warning system operating instructions.
Power is supplied at all times
- through 30A fusible link (letter [g] , located in the fusible link and fuse box)
- to ignition switch terminal ①.

With the ignition switch in the START position, power is supplied
- from terminal ⑤ of the ignition switch
- to clutch interlock relay terminal ③ (M/T models for U.S.A.) or
- to theft warning relay-2 terminal ③ (A/T models and Canada MT models).

With the ignition switch in the START position, power is supplied
- through 7.5A fuse (No. [25] , located in the fuse block)
- to theft warning relay-2 terminal ③ (M/T models for U.S.A.).

Power is supplied at all times
- through 7.5A fuse (No. [8] , located in the fuse block)
- to theft warning relay-2 terminal ①
- to security indicator lamp terminal ②.

Power is supplied at all times
- through 25A fusible link (letter [i] , located in the fusible link and fuse box)
- to smart entrance control unit terminal ①.

With the ignition switch in the ACC or ON position, power is supplied
- through 10A fuse (No. [18] , located in the fuse block)
- to smart entrance control unit terminal ⑰.

Ground is supplied
- to smart entrance control unit terminal ⑩
- through body ground (M5).

THEFT WARNING SYSTEM ACTIVATION (Without key or remote controller used to lock doors)

The operation of the theft warning system is controlled by the doors, hood and trunk lid.
To activate the theft warning system, the key must be removed from the ignition switch and the smart entrance control unit must receive signals indicating the doors, hood and trunk are closed and the doors are locked.
When a door is open, smart entrance control unit terminal ⑮ or ⑯ receives a ground signal from LH or RH door switch.
When a door is unlocked, smart entrance control unit terminal ⑫ or ⑬ receives a ground signal
- from terminal ④ of the door unlock sensor LH
- from terminal ④ of the door unlock sensor RH
- through body ground (M5) or (M57) for the doors.

When the hood is open, smart entrance control unit terminal ㉙ receives a ground signal
- from terminal ② of the hood switch
- through body ground (E28).

When the trunk lid is open, smart entrance control unit terminal ㉖ receives a ground signal
- from terminal ① of the trunk room lamp switch
- through body ground (T16).

If none of the described conditions exist, the theft warning system will activate automatically.

THEFT WARNING SYSTEM ACTIVATION (With key or remote controller used to lock doors)

If the key or remote controller is used to lock doors, terminal ㉚ receives a ground signal
- from terminal ① of the key cylinder switch LH
- from terminal ② of the door key cylinder switch RH
- through body grounds (M5) and (M57).

If this signal is received by the smart entrance control unit, the theft warning system will activate automatically.
Once the theft warning system has been activated, smart entrance control unit terminal ㉝ supplies ground to terminal ① of the security indicator lamp.
The security lamp will illuminate for approximately 30 seconds and then go out.

System Description (Cont'd)

THEFT WARNING SYSTEM OPERATION

The theft warning system is triggered by
- opening a door or the trunk lid without using the key
- opening the hood
- tampering with the key cylinder in the door.

Once the theft warning system has been activated, if the smart entrance control unit receives a ground signal at terminal ⑮, ⑯, ㉖ or ㉙ (as described under THEFT WARNING SYSTEM ACTIVATION), the theft warning system will be triggered. Also, when a door key tamper signal is received at the smart entrance control unit, the system will be triggered. The headlamps flash and the horn sounds intermittently, and the starting system is interrupted.

When a door key cylinder switch has been tampered with, smart entrance control unit terminal ㉘ receives a ground signal
- from terminal ③ of the front LH or RH key cylinder switch
- through body ground (M5) or (M57).

If the theft warning system is triggered, ground is supplied
- from terminal ㉜ of the smart entrance control unit
- to theft warning relay-2 terminal ②.

With power and ground supplied, power to the clutch interlock relay (M/T models for U.S.A.), inhibitor switch (A/T models) or starter motor (M/T models for Canada) is interrupted. The starter motor will not crank and the engine will not start.

Power is supplied at all times
- through 7.5A fuse (No. 49, located in fusible link and fuse box)
- to theft warning relay-1 terminal ①.

Power is supplied at all times
- through 20A fuse (No. 40, located in fusible link and fuse box)
- to theft warning relay-1 terminal ⑥.

Power is supplied at all times
- through 20A fuse (No. 39, located in the fusible link and fuse box)
- to theft warning relay-1 terminal ③.

Power is supplied at all times
- through 10A fuse (No. 38, located in the fusible link and fuse box)
- to horn relay terminal ②.

When the theft warning system is triggered, ground is supplied intermittently
- from terminal ⑧ of the smart entrance control unit
- to theft warning relay-1 terminal ② and
- to horn relay-1 terminal ①.

The headlamps flash and the horn sounds intermittently.

The alarm automatically turns off after 2 or 3 minutes but will reactivate if the vehicle is tampered with again.

THEFT WARNING SYSTEM DEACTIVATION

To deactivate the theft warning system, a door or the trunk lid must be unlocked with the key or remote controller.

When the key is used to unlock a door, smart entrance control unit terminal ㉛ receives a ground signal
- from terminal ② of the LH key cylinder switch
- from terminal ① of the RH key cylinder switch.

When the key is used to unlock the trunk lid, smart entrance control unit terminal ㉗ receives a ground signal from terminal ① of the trunk key cylinder switch.

When the smart entrance control unit receives either one of these signals, the theft warning system is deactivated.

PANIC ALARM OPERATION

Multi-remote control system may or may not operate theft warning system (horn and headlamps) as required.

When the multi-remote control system is triggered, ground is supplied intermittently.
- from smart entrance control unit terminal ⑧

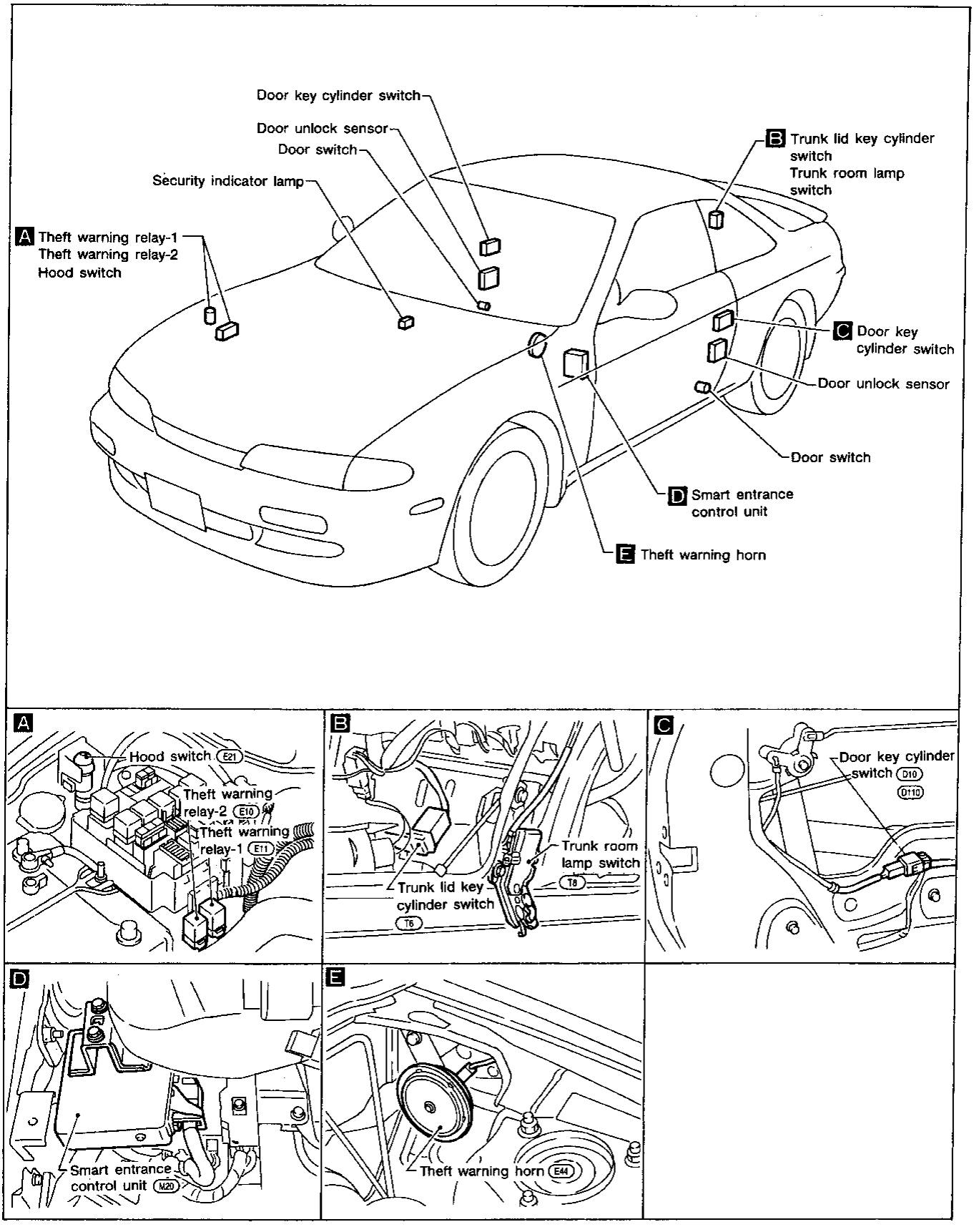
System Description (Cont'd)

- to theft warning relay-1 terminal ② and
- to horn relay terminal ①.

The headlamp flashes and the horn sounds intermittently.

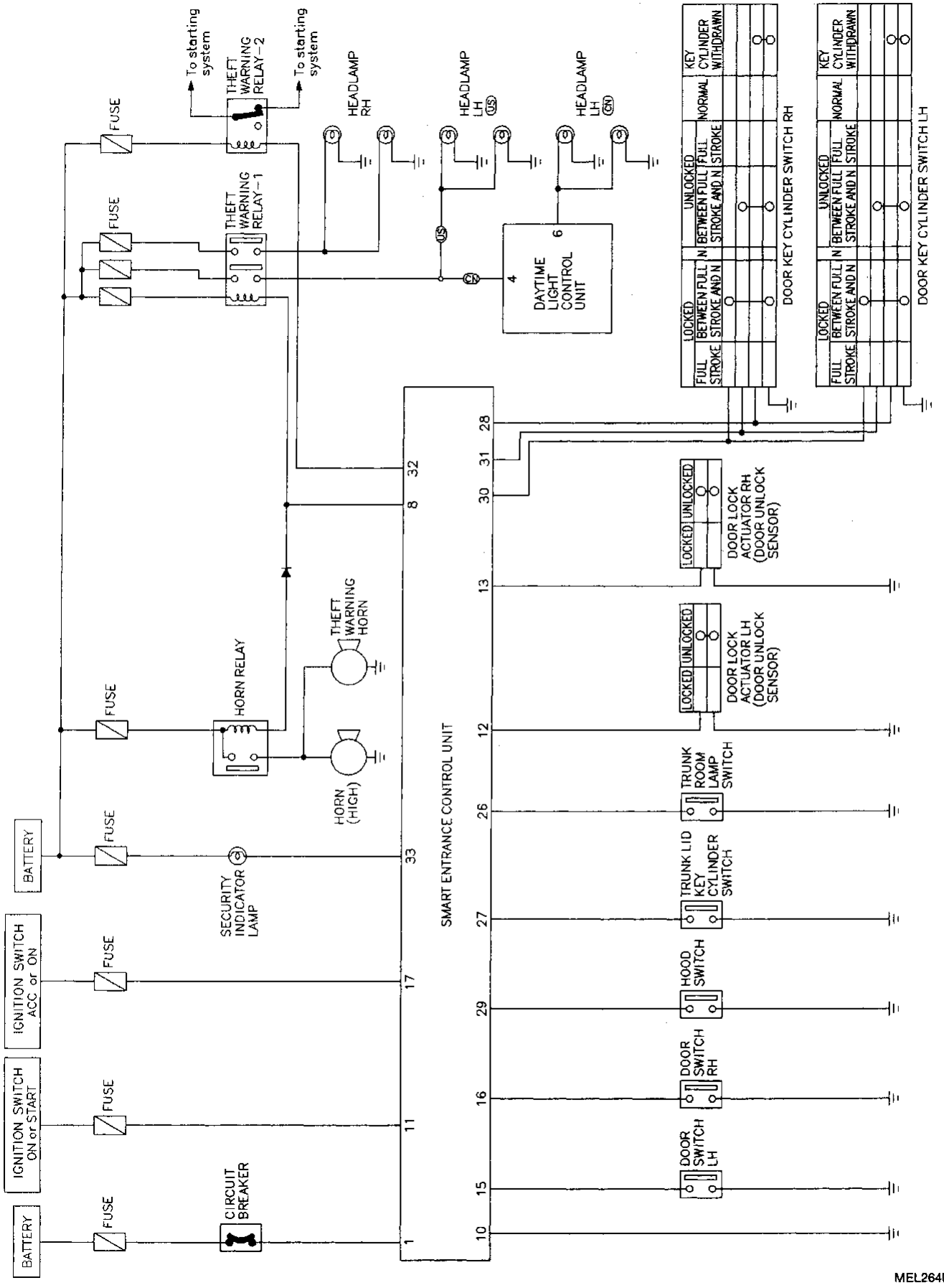
The alarm automatically turns off after 30 seconds or when smart entrance control unit receives any signal from multi-remote controller.

Component Parts and Harness Connector Location

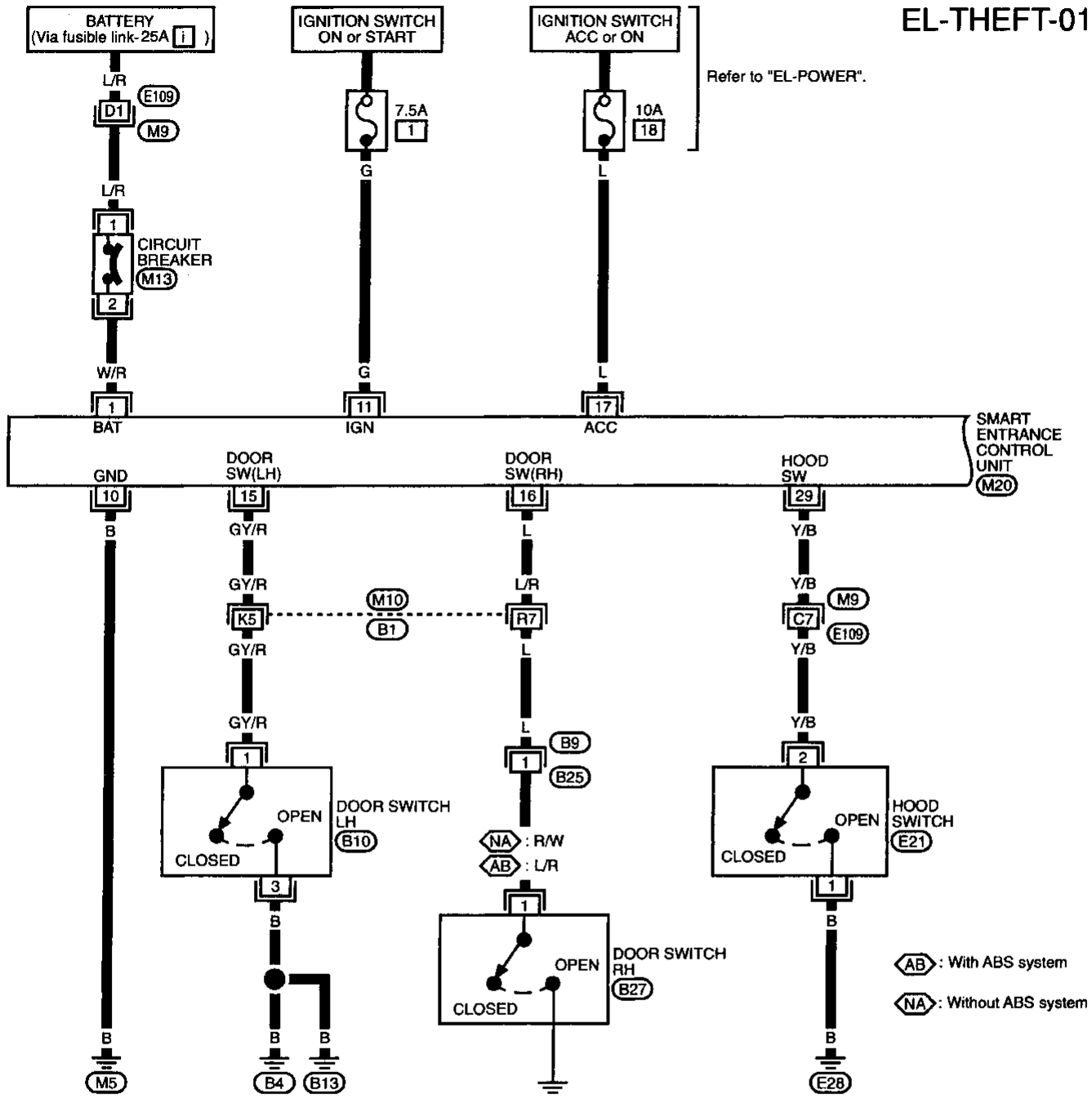


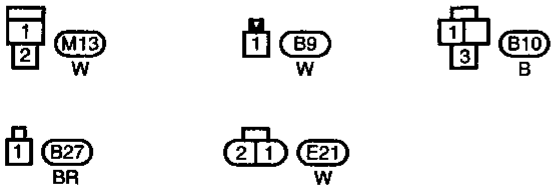
MEL325D

Schematic


BATTERY
IGNITION SWITCH ACC or ON
IGNITION SWITCH ON or START
BATTERY
FUSE
CIRCUIT BREAKER
SECURITY INDICATOR LAMP
HORN (HIGH)
HORN RELAY
THEFT WARNING HORN
THEFT WARNING RELAY-1
THEFT WARNING RELAY-2
To starting system
To starting system
HEADLAMP RH
HEADLAMP LH (US)
HEADLAMP LH (CN)
DAYTIME LIGHT CONTROL UNIT
SMART ENTRANCE CONTROL UNIT
DOOR KEY CYLINDER SWITCH RH
DOOR KEY CYLINDER SWITCH LH
KEY CYLINDER WITHDRAWN
NORMAL
UNLOCKED
BETWEEN FULL STROKE AND N
FULL STROKE
LOCKED
DOOR LOCK ACTUATOR RH (DOOR UNLOCK SENSOR)
DOOR LOCK ACTUATOR LH (DOOR UNLOCK SENSOR)
TRUNK ROOM LAMP SWITCH
TRUNK LID KEY CYLINDER SWITCH
HOOD SWITCH
DOOR SWITCH RH
DOOR SWITCH LH
MEL264D

Wiring Diagram — THEFT —





Refer to last page (Foldout page).

M9 , E109

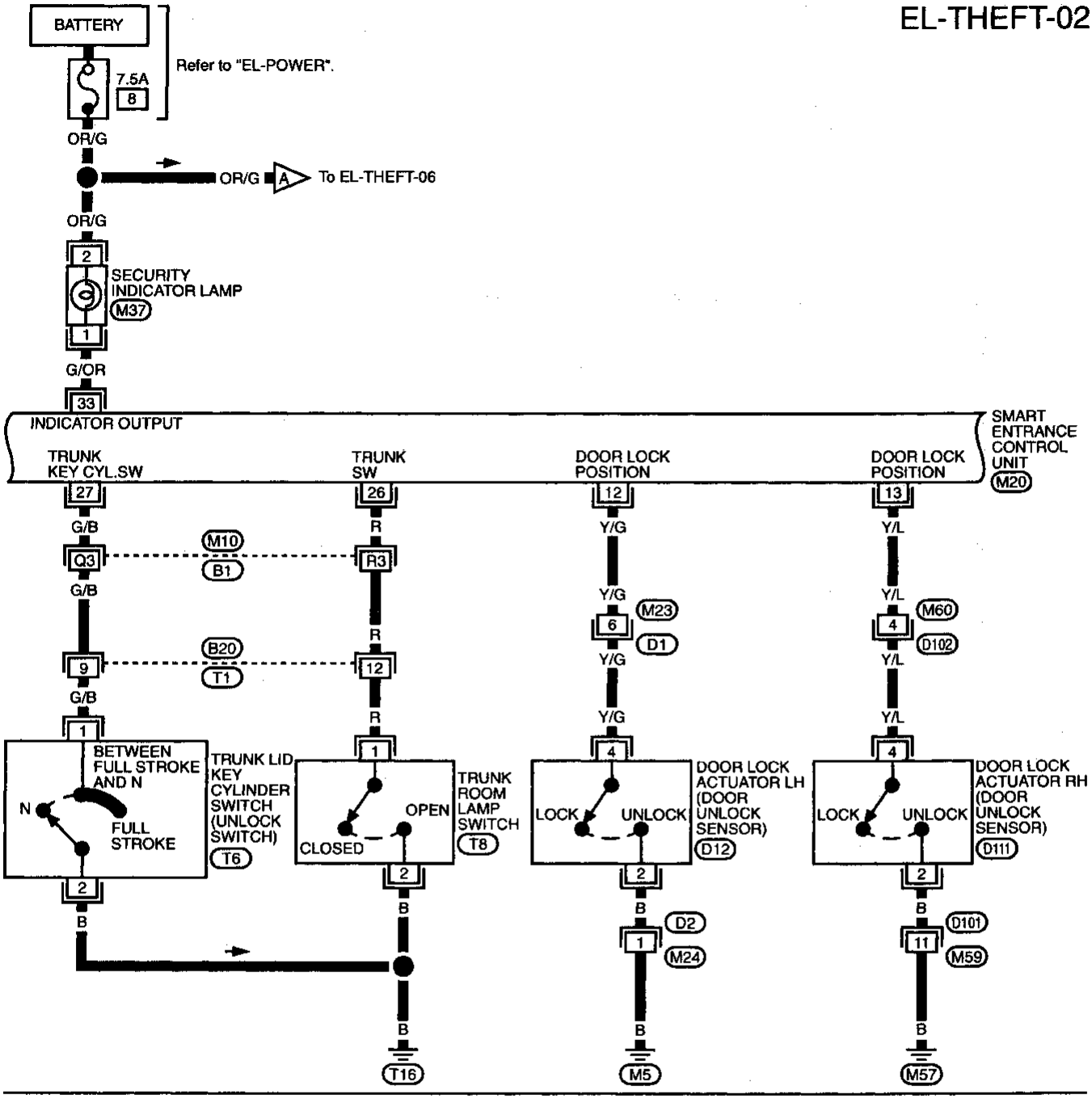
M10 , B1

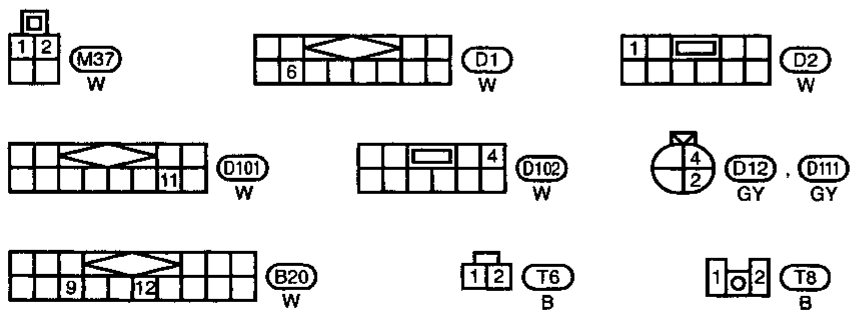
M20

MEL265D

Wiring Diagram — THEFT — (Cont'd)

EL-THEFT-02



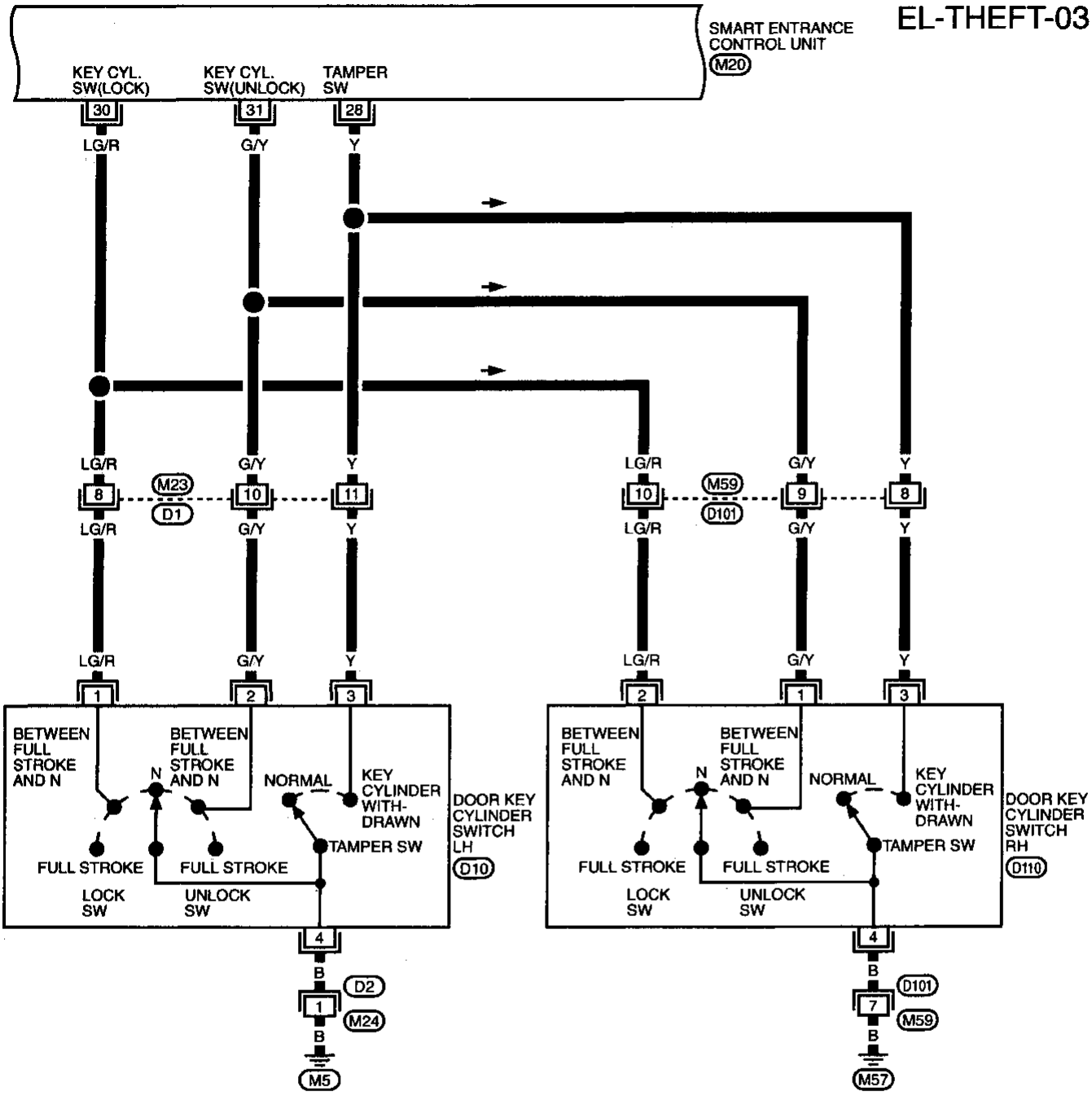


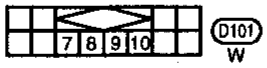
Refer to last page (Foldout page).
M10 , B1
M20

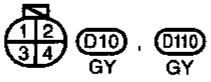
MEL266D

Wiring Diagram — THEFT — (Cont'd)

EL-THEFT-03







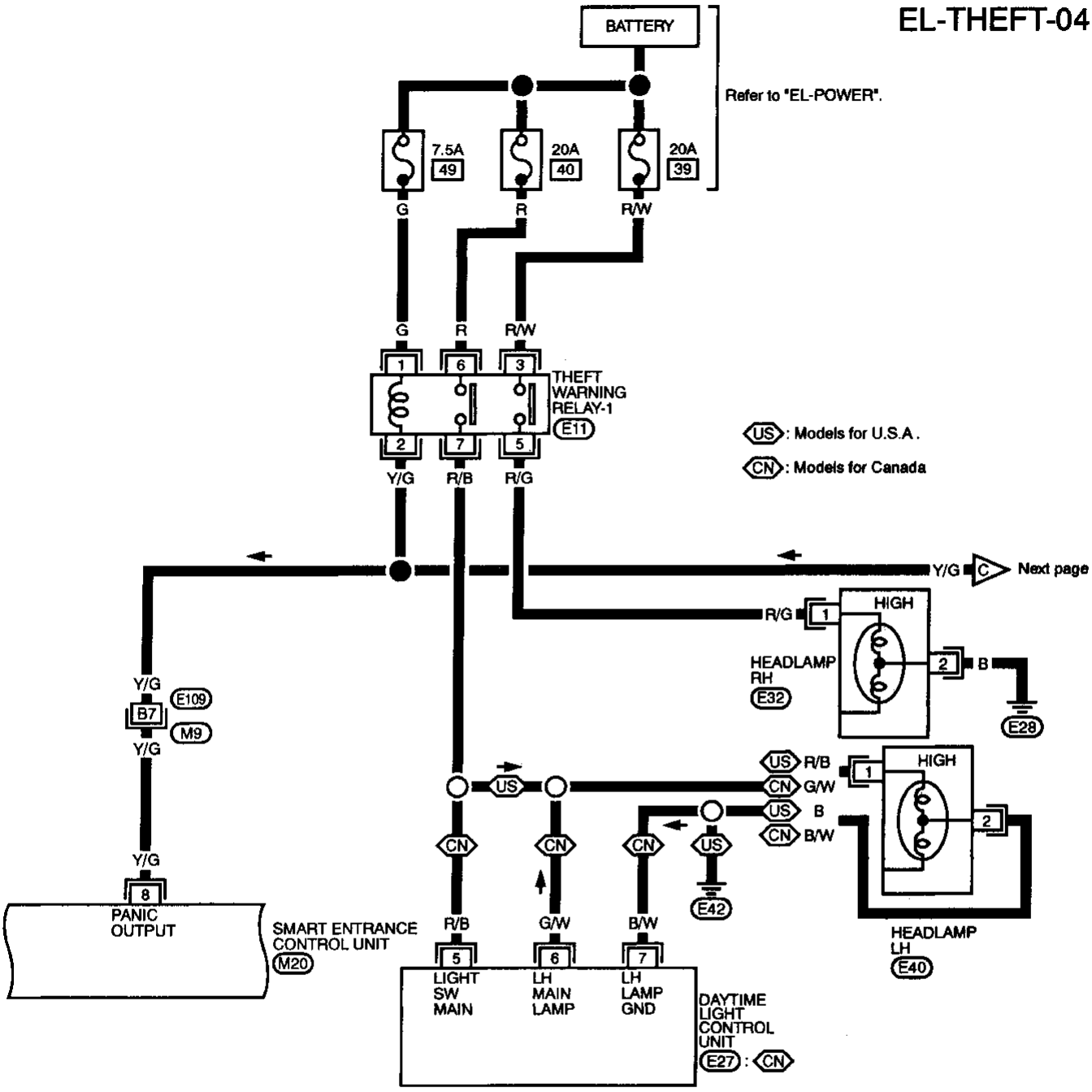
Refer to last page (Foldout page).

M20

MEL267D

Wiring Diagram — THEFT — (Cont'd)

EL-THEFT-04



E11 BR

E32 B , E40 B

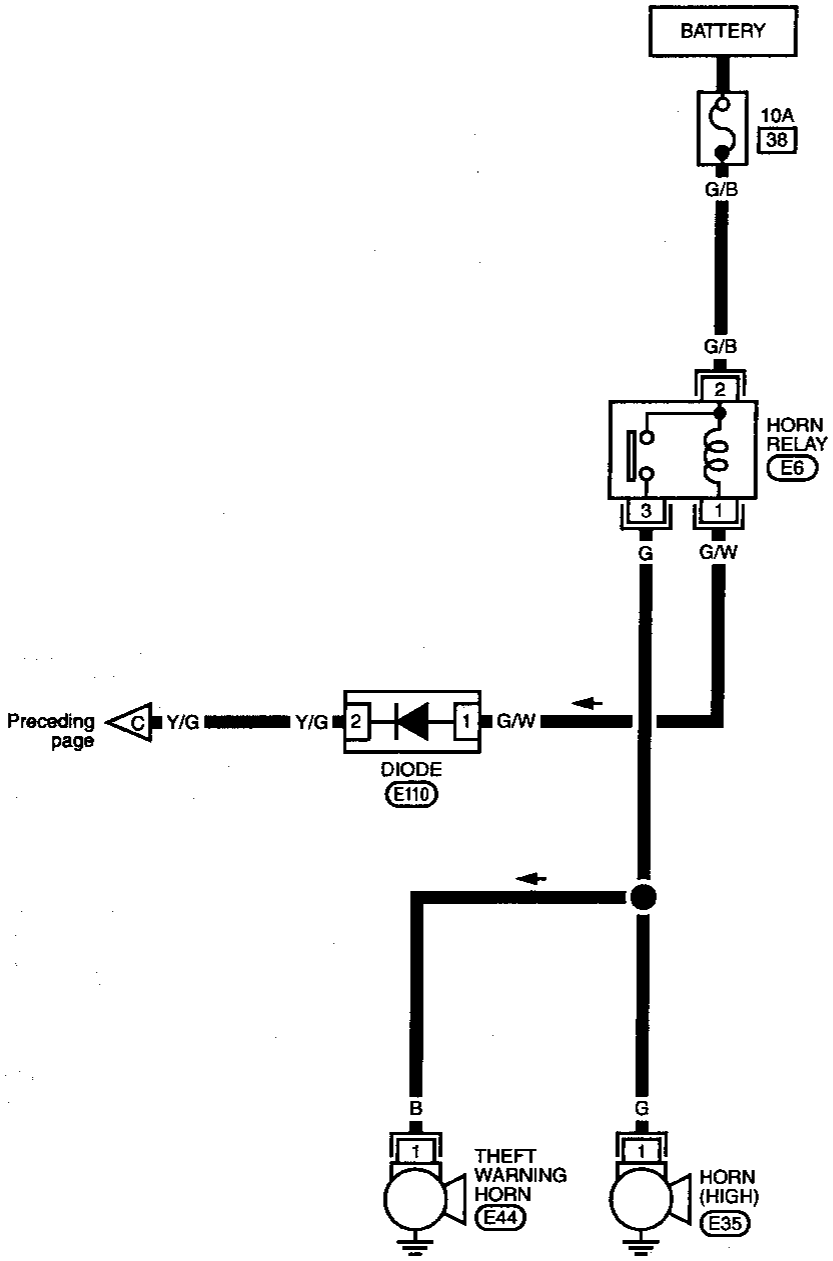
E27 GY

Refer to last page (Foldout page).
M9 , E109
M20

MEL268D

Wiring Diagram — THEFT — (Cont'd)

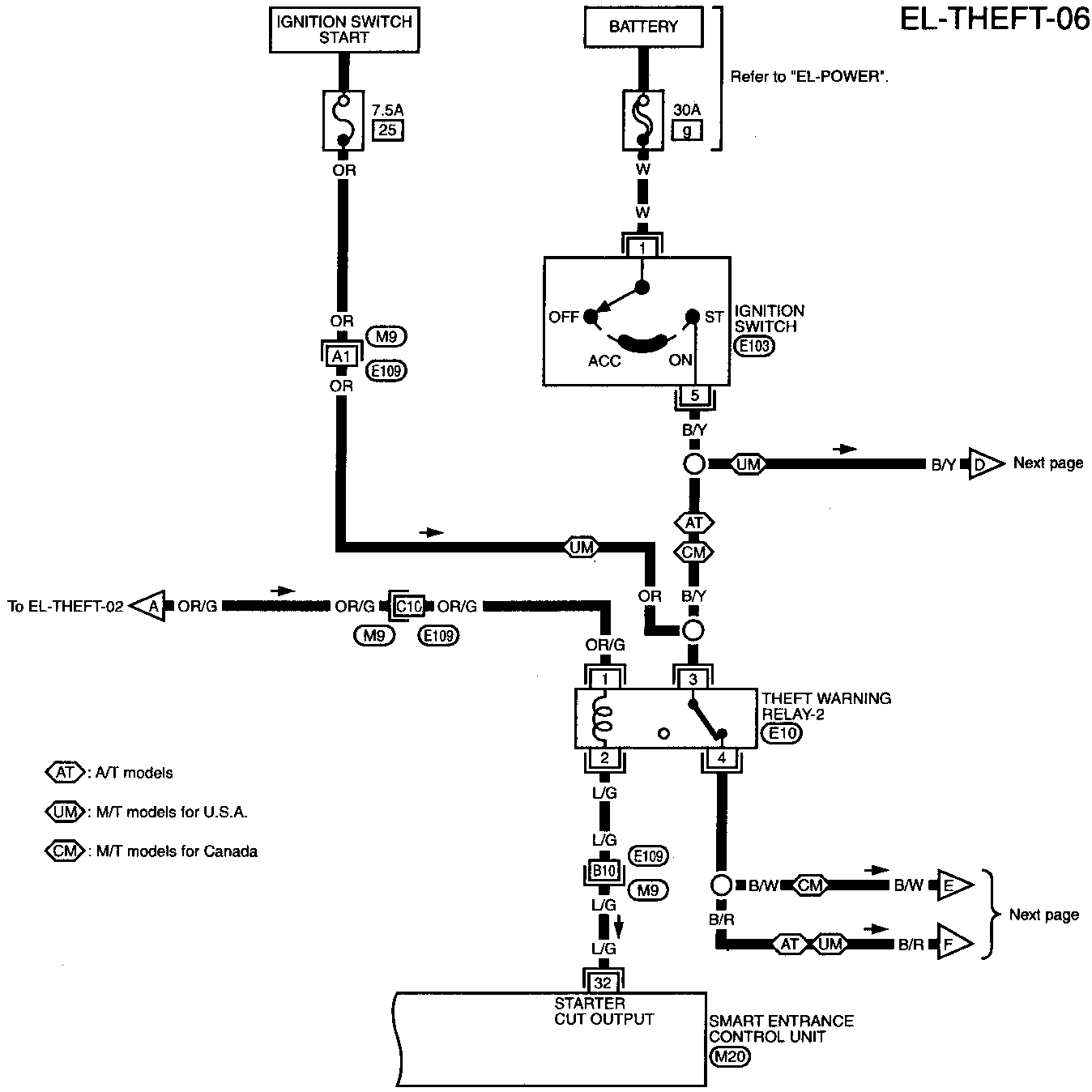
EL-THEFT-05

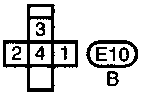


MEL269D

Wiring Diagram — THEFT — (Cont'd)

EL-THEFT-06



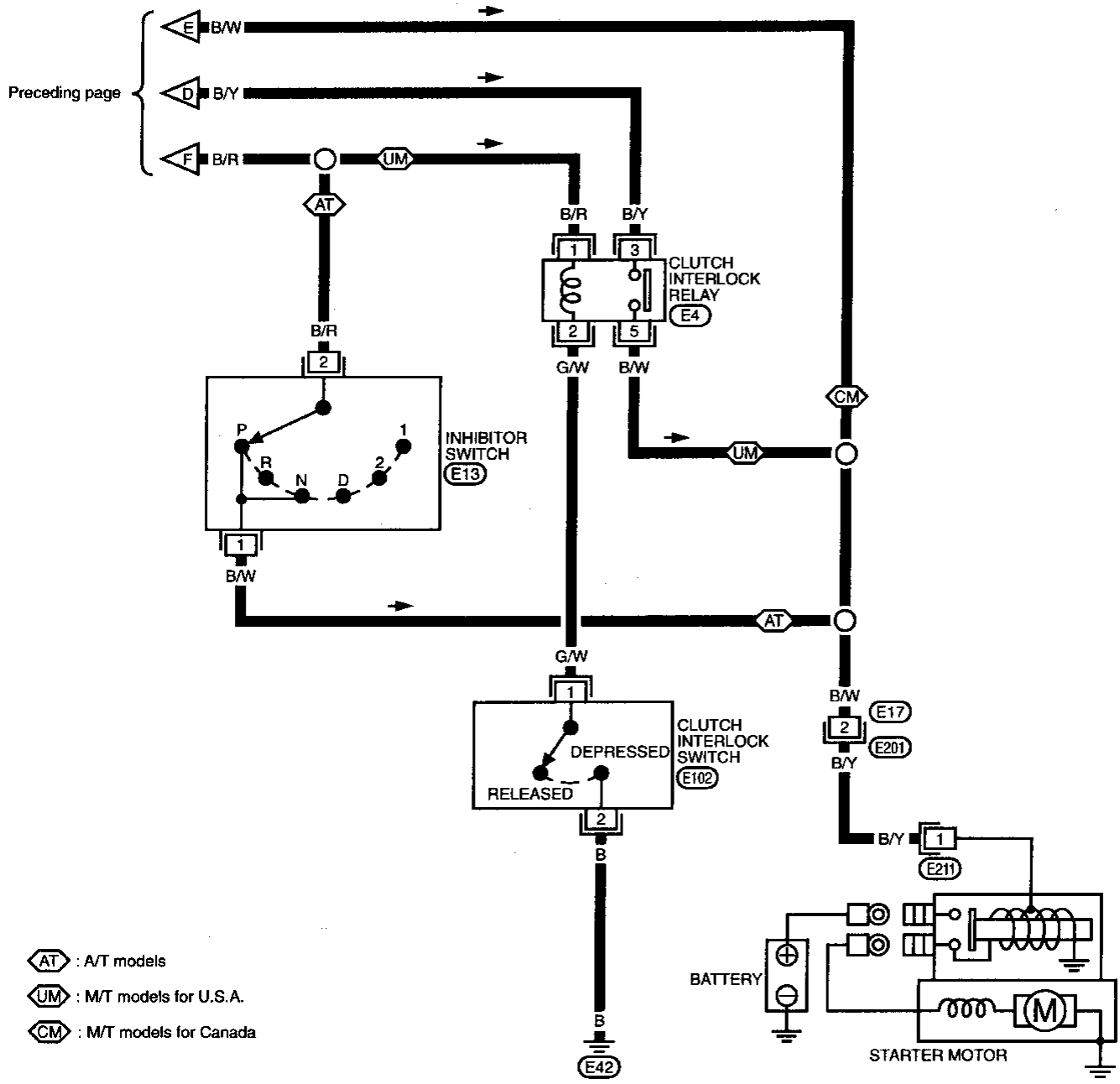


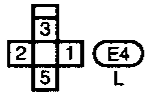
Refer to last page (Foldout page).
M9 , E109
M20

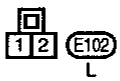
MEL270D

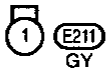
Wiring Diagram — THEFT — (Cont'd)

EL-THEFT-07









MEL271D

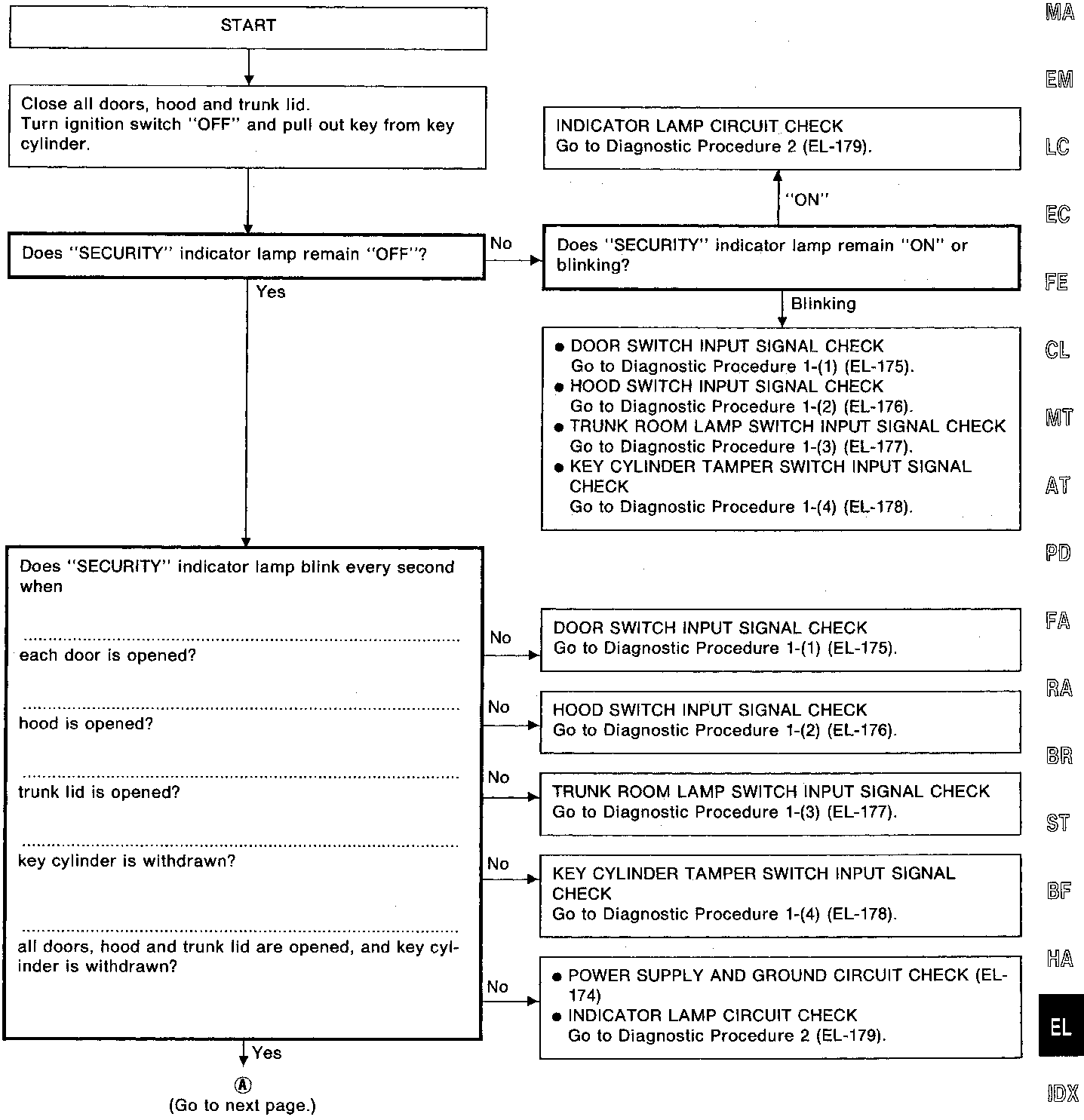
Trouble Diagnoses

SYSTEM OPERATION CHECK

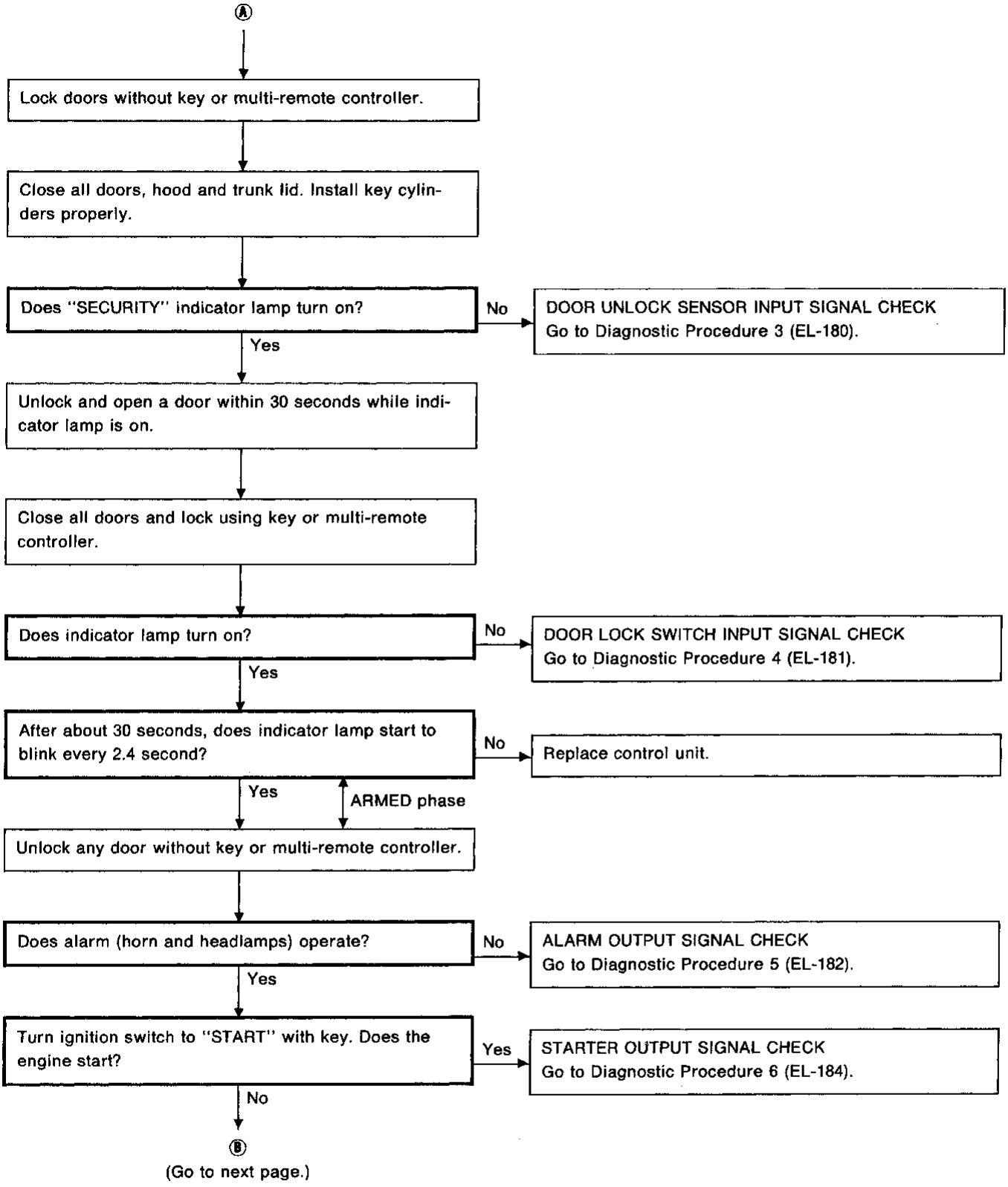
The system operation is canceled by turning ignition switch to "ACC" at any step in the following:

- A step between START and ARMED, or
- In the ARMED phase

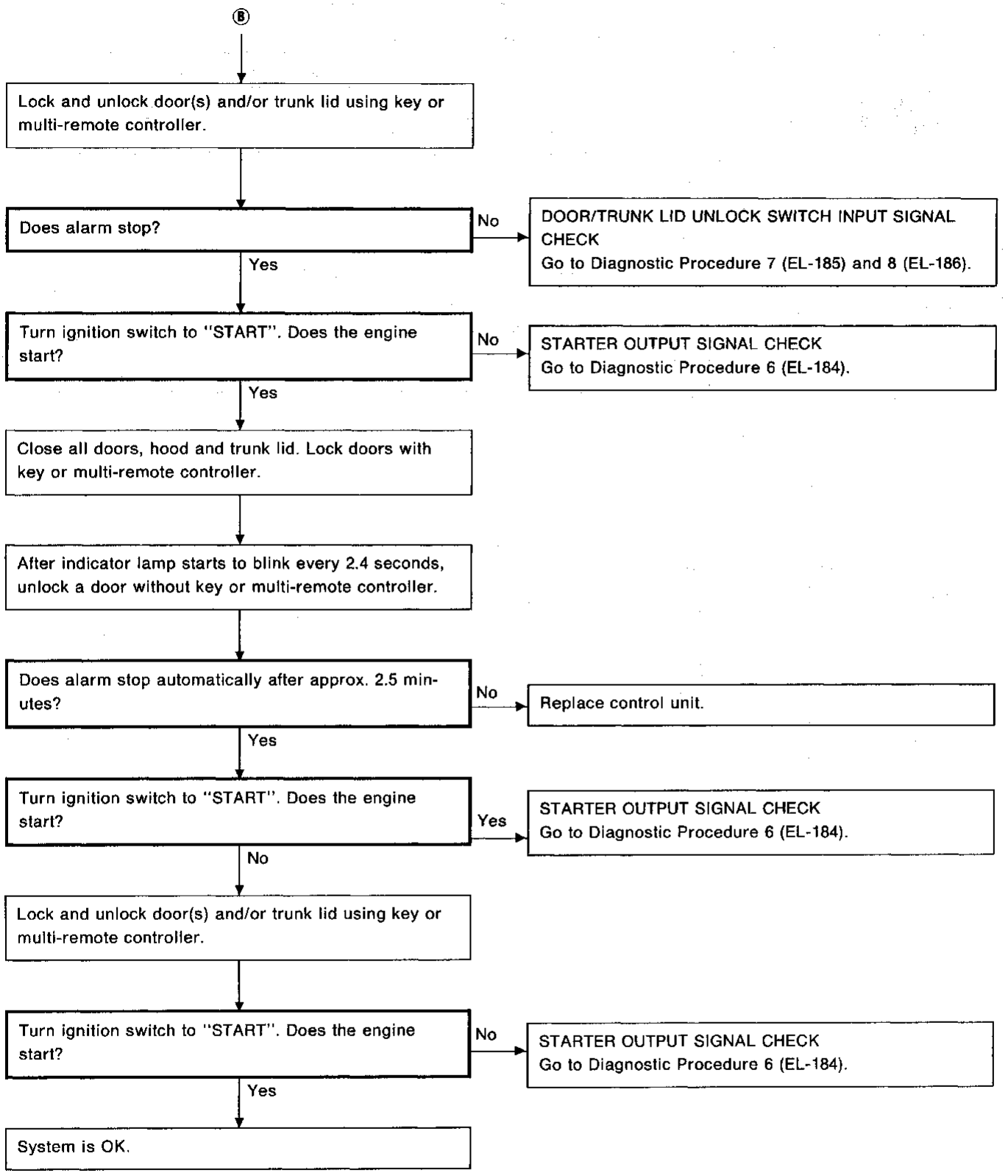
in the following flow chart.



Trouble Diagnoses (Cont'd)

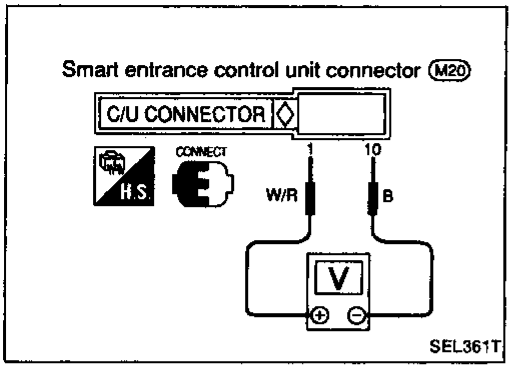


Trouble Diagnoses (Cont'd)



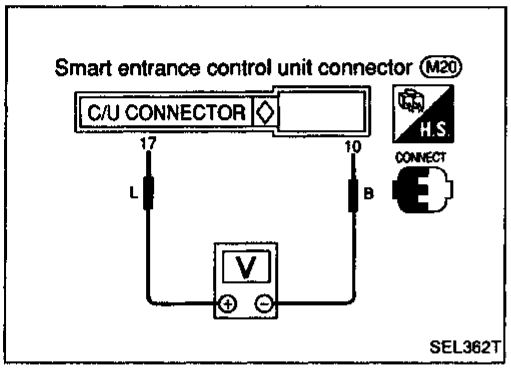
Trouble Diagnoses (Cont'd)

POWER SUPPLY AND GROUND CIRCUIT CHECK



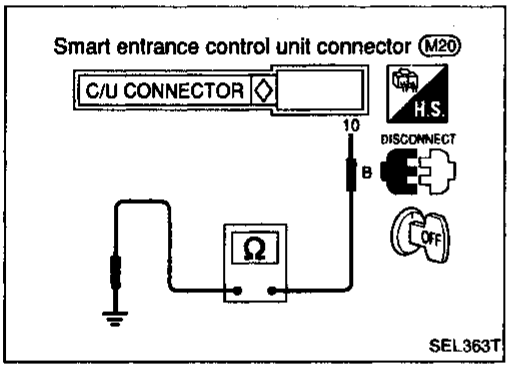
Main power supply circuit check

Terminals	Ignition switch position		
	OFF	ACC	ON
① - ⑩	Battery voltage	Battery voltage	Battery voltage



Power supply circuit check for system cancel

Terminals	Ignition switch position		
	OFF	ACC	ON
⑰ - ⑩	0V	Battery voltage	Battery voltage



Ground circuit check

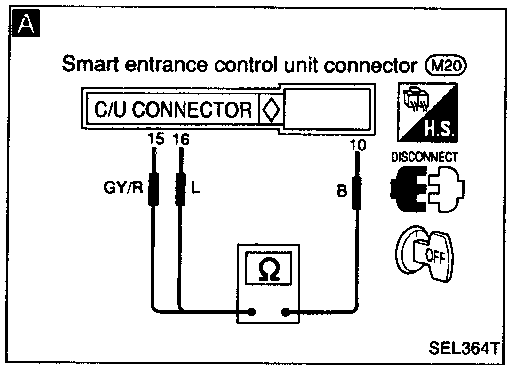
Terminals	Continuity
⑩ - Ground	Yes

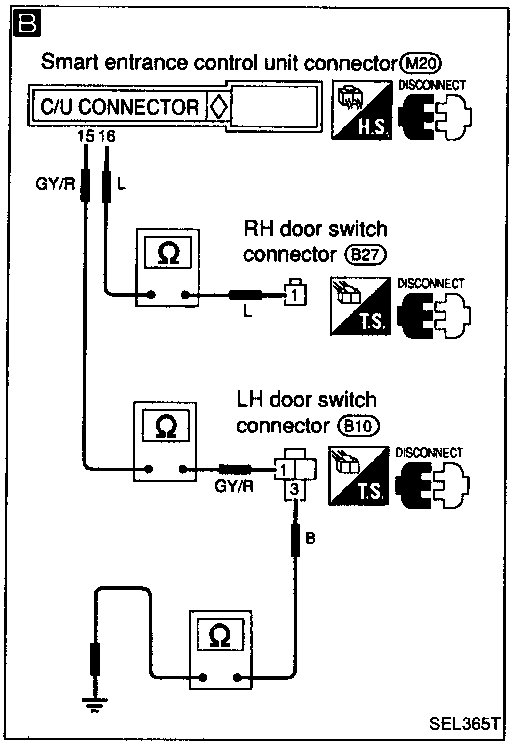
Trouble Diagnoses (Cont'd)

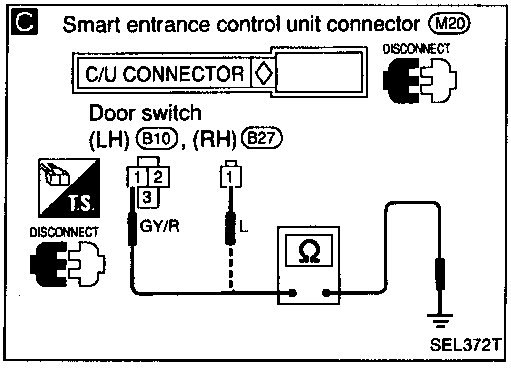
DIAGNOSTIC PROCEDURE 1

SYMPTOM: ● **Indicator lamp does not blink or**
● **Indicator lamp remains blinking every second.**

Diagnostic procedure 1-(1)







A

DOOR SWITCH INPUT SIGNAL CHECK
Check continuity between control unit harness terminals ⑮ or ⑯ and ⑱.

OK → Go to Diagnostic Procedure 2 (EL-179).

Condition	Continuity between ⑯ and ⑱
LH door is closed.	No
LH door is opened.	Yes

Condition	Continuity between ⑯ and ⑱
RH door is closed.	No
RH door is opened.	Yes

NG ↓

DOOR SWITCH CHECK
Refer to "Electrical Components Inspection" (EL-187).

NG → Replace door switch.

OK ↓

B

DOOR SWITCH CIRCUIT CHECK
- Check harness continuity between control unit harness terminal ⑮ or ⑯ and door switch harness terminal.
- Check harness continuity door switch LH harness terminal ③ and body ground.

Continuity should exist.

NG → Repair harness or connectors.

OK ↓

C

Check harness continuity between door switch harness terminal and body ground.
(Before checking harness continuity, control unit harness connector should be disconnected.)

Continuity should not exist.

NG → Repair harness.
(Short circuit exists between control unit harness terminal ⑮ or ⑯ and door switch harness terminals.)

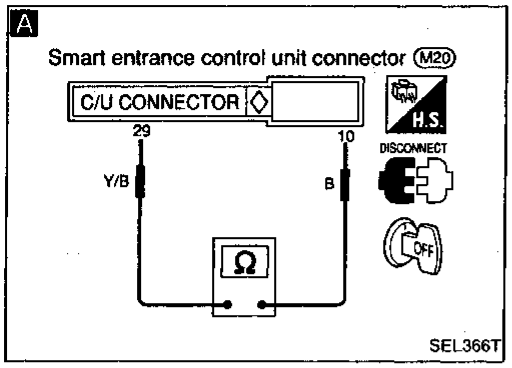
OK ↓

CHECK THE CONNECTIONS AT EACH CONNECTOR.

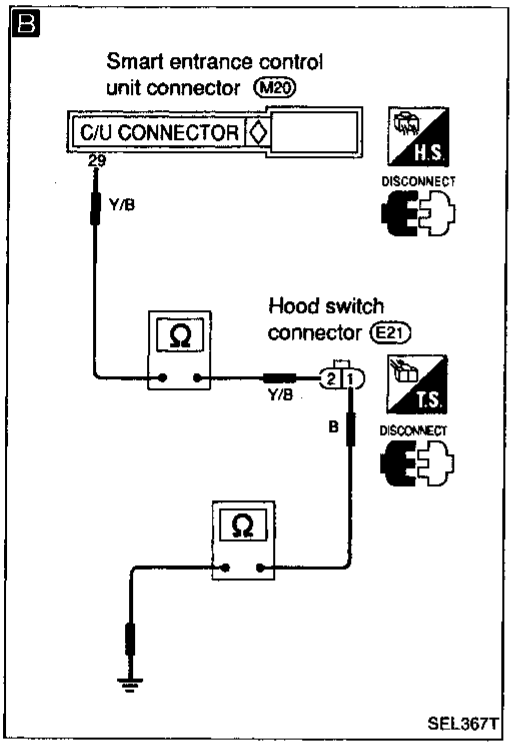
Trouble Diagnoses (Cont'd)

Diagnostic procedure 1-(2)

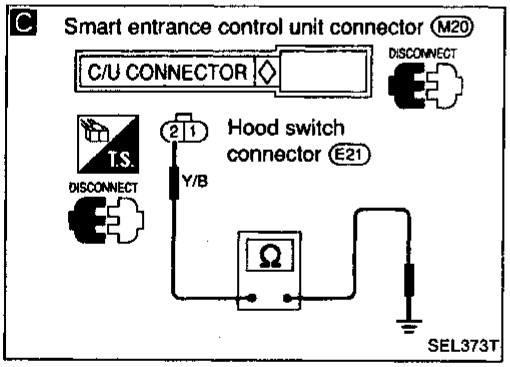
A



B



C



A

HOOD SWITCH INPUT SIGNAL CHECK
Check continuity between control unit harness terminals ㉙ and ⑩.

Condition	Continuity
Hood is open.	Yes
Hood is closed.	No

OK → Go to Diagnostic Procedure 2 (EL-179).

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-187).

NG → Replace hood switch.

OK ↓

B

HOOD SWITCH CIRCUIT CHECK
- Check harness continuity between control unit harness terminal ㉙ and hood switch harness terminal ②.
- Check harness continuity between hood switch terminal ① and body ground.

Continuity should exist.

NG → Repair harness or connectors.

OK ↓

C

Check harness continuity between hood switch harness terminal ② and body ground.
(Before checking harness continuity, control unit harness connector should be disconnected.)
Continuity should not exist.

NG → Repair harness.
(Short circuit exists between control unit harness terminal ㉙ and hood switch harness terminal ②.)

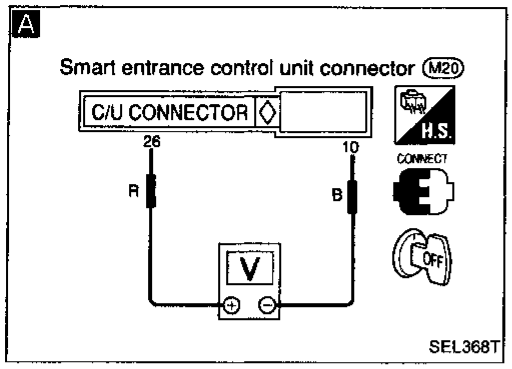
OK ↓

CHECK THE CONNECTIONS AT EACH CONNECTOR.

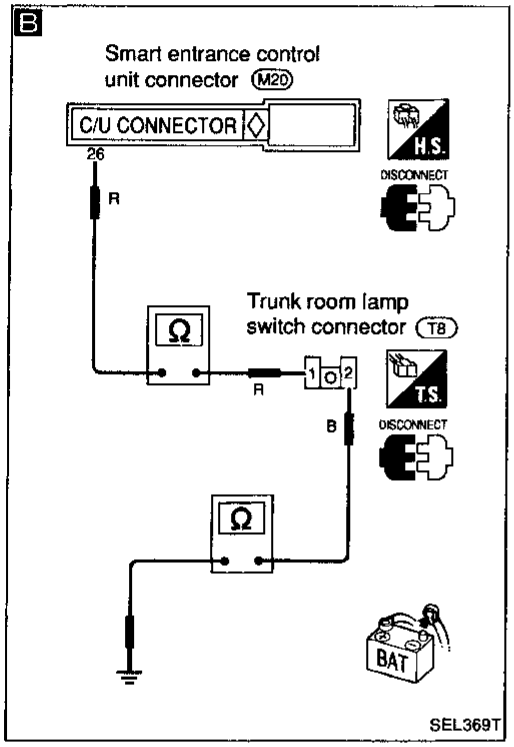
Trouble Diagnoses (Cont'd)

Diagnostic procedure 1-(3)

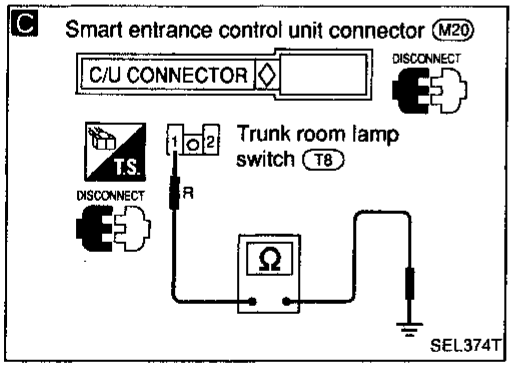
A



B



C



A

TRUNK ROOM LAMP SWITCH INPUT SIGNAL CHECK
Check voltage between control unit harness terminals ㉖ and ⑩.

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

OK → Go to Diagnostic Procedure 2 (EL-179).

NG

TRUNK ROOM LAMP SWITCH CHECK
Refer to "Electrical Components Inspection" (EL-187).

NG → Replace trunk room lamp switch.

OK

B

TRUNK ROOM LAMP SWITCH CIRCUIT CHECK
- Check harness continuity between control unit harness terminal ㉖ and trunk room lamp switch harness terminal ①.
- Check harness continuity between trunk room lamp switch harness terminal ② and body ground.

Continuity should exist.

NG → Repair harness or connectors.

OK

C

Check harness continuity between trunk room lamp switch harness terminal ① and body ground.
(Before checking harness continuity, control unit harness connector should be disconnected.)
Continuity should not exist.

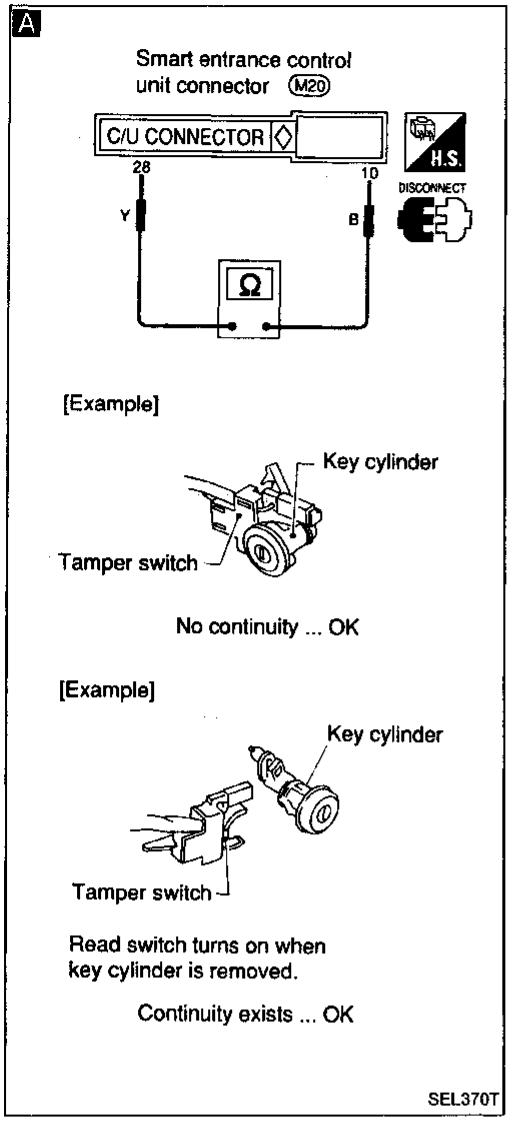
NG → Repair harness.
(Short circuit exists between control unit harness terminal ㉖ and trunk room lamp switch harness terminal ①.)

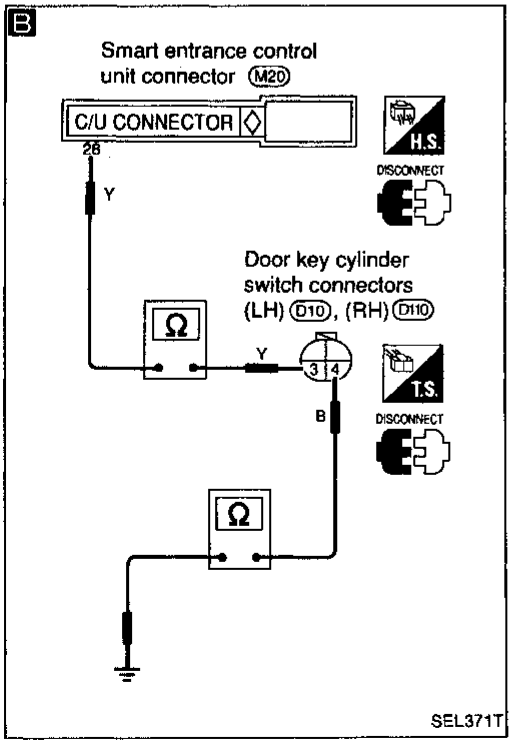
OK

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 ㉘ and ⑩.

Condition	Continuity
Tamper switch is	
Normal	No
Removed	Yes

OK → Go to Diagnostic Procedure 2 (EL-179).

NG

KEY CYLINDER TAMPER SWITCH CHECK
Refer to "Electrical Components Inspection" (EL-188).

NG → Replace door key cylinder switch.

OK

B

KEY CYLINDER TAMPER SWITCH CIRCUIT CHECK
- Check harness continuity between control unit harness terminal ㉘ and door key cylinder switch harness terminal ③.
- Check harness continuity between door key cylinder switch terminal ④ and body ground.

Continuity should exist.

NG → Repair harness and connectors.

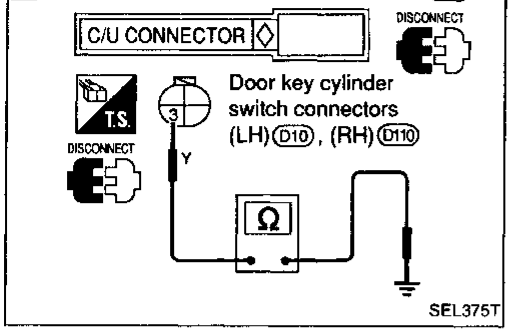
OK

Ⓐ
(Next page)

Trouble Diagnoses (Cont'd)

C

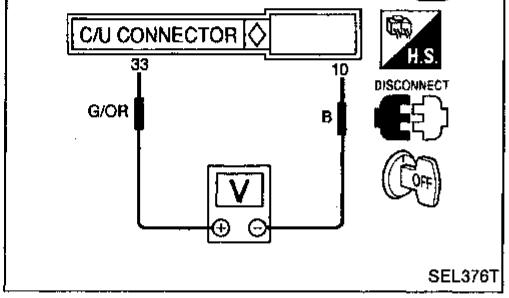
Smart entrance control unit connector (M20)



SEL375T

A

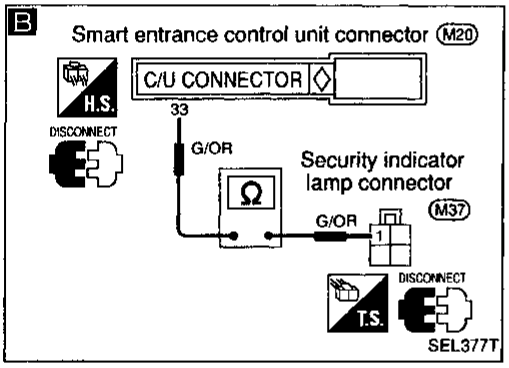
Smart entrance control unit connector (M20)



SEL376T

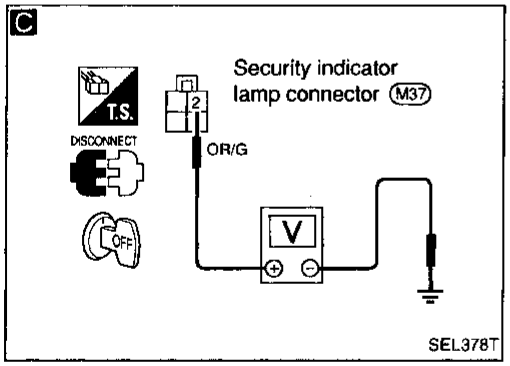
B

Smart entrance control unit connector (M20)



SEL377T

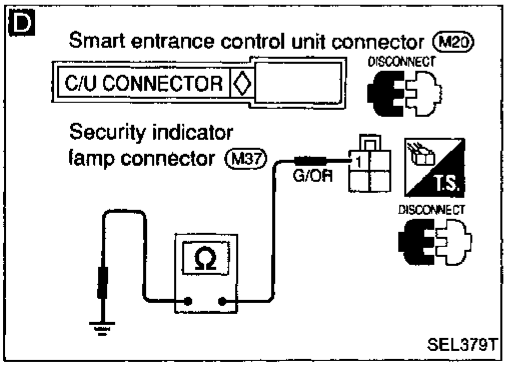
C



SEL378T

D

Smart entrance control unit connector (M20)



SEL379T

Ⓐ

C

Check harness continuity between door key cylinder switch harness terminal ③ and body ground.
(Before checking harness continuity, control unit harness connector should be disconnected.)
Continuity should not exist.

NG → Repair harness.
(Short circuit exists between control unit harness terminal ㉘ and door key cylinder switch terminal ③.)

OK ↓

CHECK THE CONNECTIONS AT EACH CONNECTOR.

DIAGNOSTIC PROCEDURE 2

SYMPTOM: • Indicator lamp does not blink or
• Indicator lamp remains "ON".

A

INDICATOR LAMP OUTPUT SIGNAL CHECK
Check voltage between control unit harness terminals ㉝ and ⑩.
Battery voltage should exist.

OK → Replace control unit.

NG ↓

CHECK INDICATOR LAMP.

NG → Replace indicator lamp.

OK ↓

B

INDICATOR LAMP CIRCUIT CHECK
Check harness continuity between control unit harness terminal ㉝ and indicator lamp harness terminal ①.
Continuity should exist.

NG → Repair harness or connectors.

OK ↓

C

Check voltage between indicator lamp harness terminal ② and body ground.
Battery voltage should exist.

NG → Repair harness or connectors.

OK ↓

D

Check harness continuity between indicator lamp harness terminal ① and body ground.
(Before checking harness continuity, control unit harness connector should be disconnected.)
Continuity should not exist.

NG → Repair harness.
(Short circuit exists between control unit harness terminal ㉝ and indicator lamp harness terminal ①.)

OK ↓

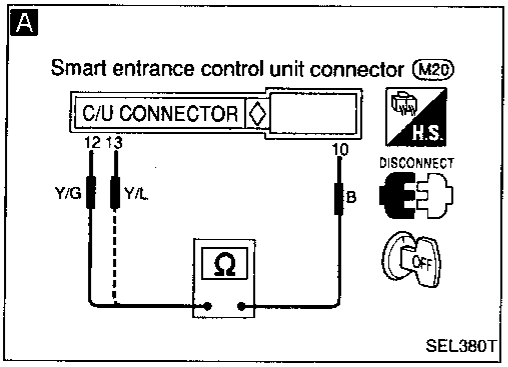
CHECK THE CONNECTIONS AT EACH CONNECTOR.

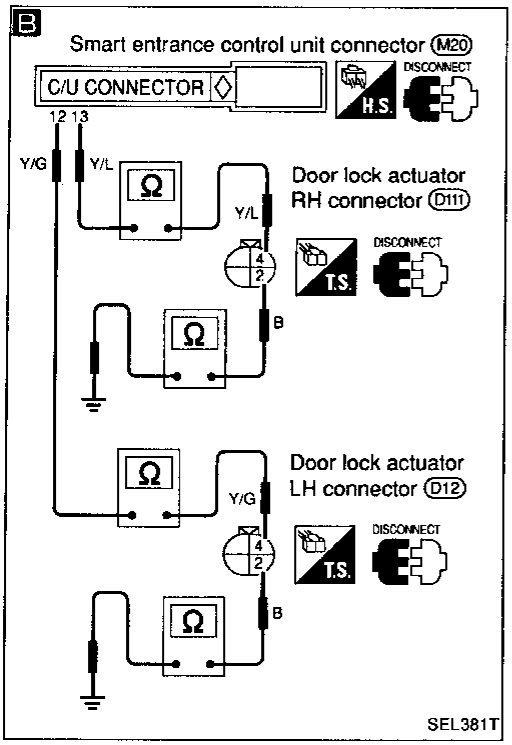
Replace control unit.

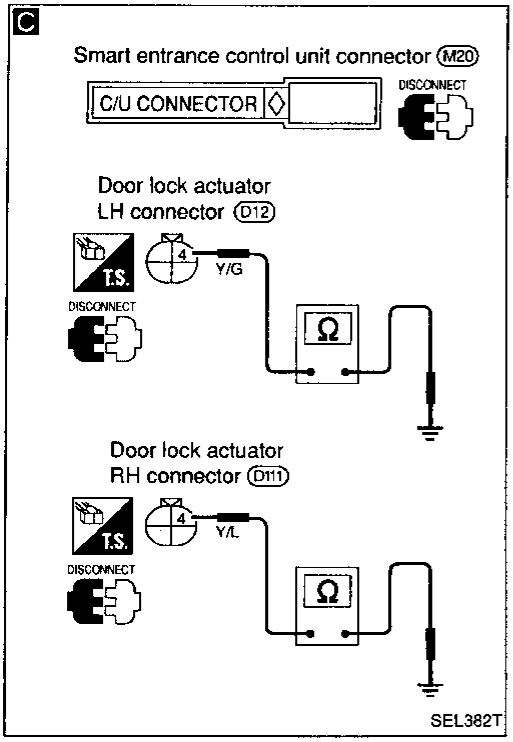
Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 3

SYMPTOM: Indicator lamp does not come on.







A

DOOR UNLOCK SENSOR INPUT SIGNAL CHECK

Check continuity between control unit harness terminals ⑫ or ⑬ and ⑩.

Condition	Continuity between ⑫ and ⑩
LH door is locked.	No
LH door is unlocked.	Yes

Condition	Continuity between ⑬ and ⑩
RH door is locked.	No
RH door is unlocked.	Yes

OK → Go to Diagnostic Procedure 2 (EL-179).

OK → Replace control unit.

NG

DOOR UNLOCK SENSOR CHECK

Refer to "Electrical Components Inspection" (EL-188).

NG → Replace door lock actuator.

OK

B

DOOR UNLOCK SENSOR CIRCUIT CHECK

- Check harness continuity between control unit harness terminal ⑫ or ⑬ and door actuator terminal ④.
- Check harness continuity between door lock actuator harness terminal ② and body ground.

Continuity should exist.

NG → Repair harness or connectors.

OK

C

Check harness continuity between door lock actuator harness terminal ④ and body ground.

(Before checking harness continuity, control unit harness connector should be disconnected.)

Continuity should not exist.

NG → Repair harness.
(Short circuit exists between control unit harness terminal ⑫ or ⑬ and door lock actuator harness terminal ④.)

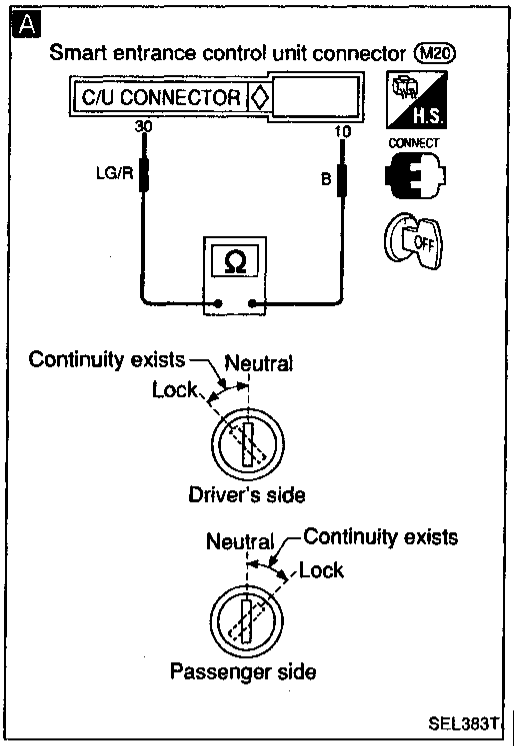
OK

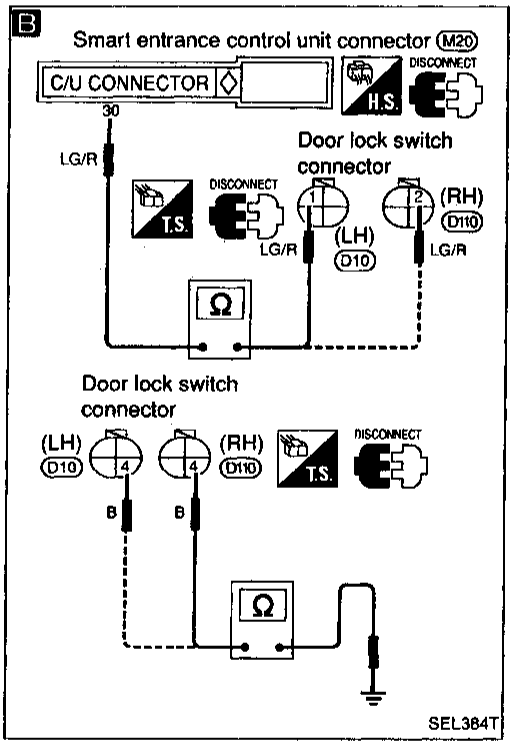
CHECK THE CONNECTIONS AT EACH CONNECTOR.

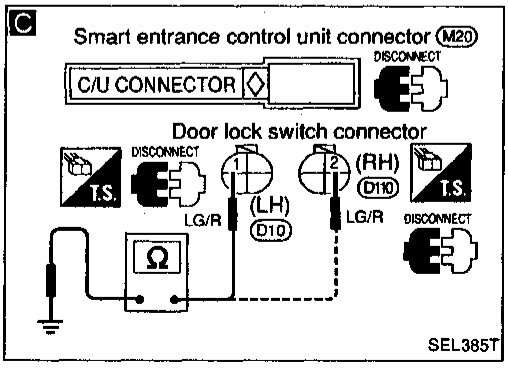
Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 4

SYMPTOM: Indicator lamp does not come on.







A

DOOR LOCK SWITCH INPUT SIGNAL CHECK (LOCK SIGNAL)
Check continuity between control unit harness terminals ㉚ and ⑩.

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

OK → Go to Diagnostic Procedure 2 (EL-179).
OK → Replace control unit.

NG

DOOR LOCK SWITCH CHECK
Refer to "Electrical Components Inspection" (EL-188).

NG → Replace key cylinder switch.

OK

B

DOOR LOCK SWITCH CIRCUIT CHECK
- Check harness continuity between control unit harness terminal ㉚ 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

C

Check harness continuity between door lock switch terminal and body ground. (Before checking harness continuity, control unit harness connector should be disconnected.)
Continuity should not exist.

NG → Repair harness. (Short circuit exists between control unit harness terminal ㉚ and door lock switch terminal.)

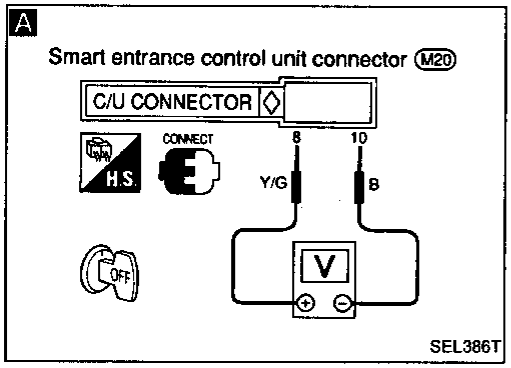
OK

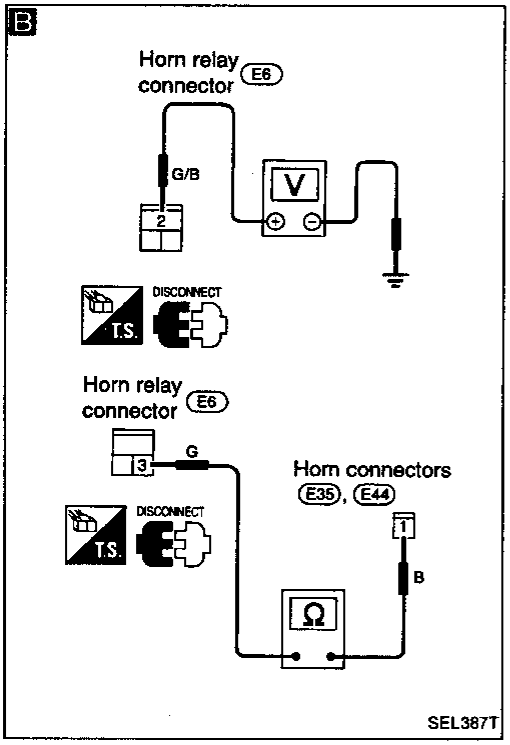
CHECK THE CONNECTIONS AT EACH CONNECTOR.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 5

SYMPTOM: Alarm does not operate.





A

ALARM SIGNAL OUTPUT CHECK
Check voltage between control unit harness terminals ⑧ and ⑩.

Condition	Voltage
Except alarm phase	Approx. 12V
Alarm phase	Voltage fluctuates between 12V and 0V.

NG → CHECK THE FOLLOWING.
- Harness continuity between control unit harness terminal ⑧ and theft warning relay-1 harness terminal ②.
- Harness continuity between fuse and theft warning relay-1 harness terminal ①.
- Harness continuity between control unit harness terminal ⑧ and horn relay harness terminal ①.
- Harness continuity between fuse and horn relay harness terminal ②.
- Theft warning relay-1. Refer to "Electrical Components Inspection" (EL-189).
- Horn relay. Refer to "Electrical Components Inspection" (EL-189).

OK

HORN RELAY CHECK
Refer to "Electrical Components Inspection" (EL-189).

OK → B
NG → Replace relay.

B

HORN CIRCUIT CHECK
- Check voltage between horn relay harness terminal ② and body ground.
  Battery voltage should exist.
- Check harness continuity horn relay harness terminal ③ and horn harness terminals.
  Continuity should exist.

OK → HORN CHECK
Refer to "Electrical Components Inspection" (EL-188).

NG → Repair harness or connectors.

OK → THEFT WARNING RELAY-1 CHECK
Refer to "Electrical Components Inspection" (EL-189).

NG → Replace horn.

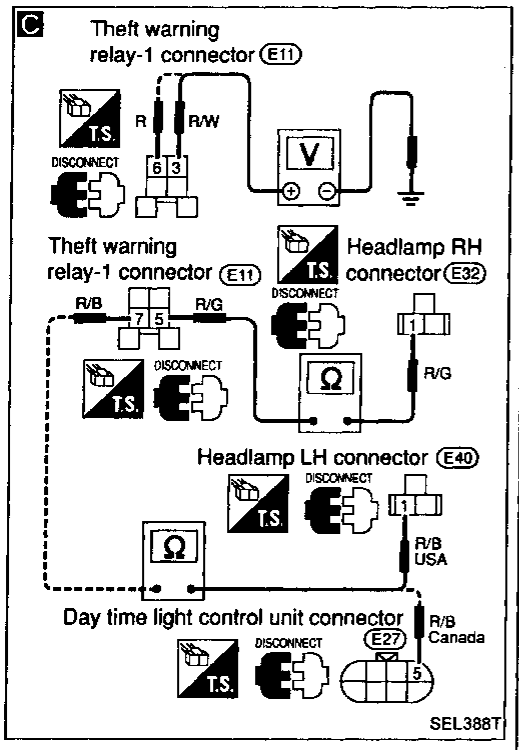
OK → Ⓐ (Next page)

NG → Replace relay.

OK → ALARM SIGNAL INPUT CHECK
- Door switch circuit
  Refer to Diagnostic Procedure 1-(1) (EL-175).
- Hood switch circuit
  Refer to Diagnostic Procedure 1-(2) (EL-176).
- Trunk room lamp switch circuit
  Refer to Diagnostic Procedure 1-(3) (EL-177).
- Key cylinder tamper switch circuit
  Refer to Diagnostic Procedure 1-(4) (EL-178).
- Door unlock sensor circuit
  Refer to Diagnostic Procedure 3 (EL-180).

OK → Replace control unit.

Trouble Diagnoses (Cont'd)



Ⓐ

C

THEFT WARNING HEAD LAMP CIRCUIT CHECK

- Check voltage between theft warning relay-1 harness terminal ⑥, ③ and body ground.
  Battery voltage should exist.
- Check harness continuity between theft warning relay-1 harness terminal ⑤ and head lamp RH harness terminal ①.
  Continuity should exist.
- For USA: check harness continuity between theft warning relay-1 harness terminal ⑦ and head lamp LH harness terminal ①.
  For Canada: check harness continuity between theft warning relay-1 harness terminal ⑦ and daytime light control unit harness terminal ⑤.
  Continuity should exist.

NG → Repair harness or connectors.

OK ↓

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

No → Check headlamp system. Refer to "HEADLAMP" (EL-38).

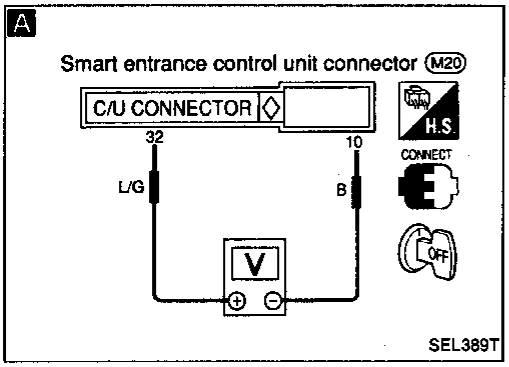
Yes ↓

CHECK THE CONNECTIONS AT EACH CONNECTOR.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 6

SYMPTOM:
- **STARTER MOTOR can be operated. (Starter killed phase) or**
- **STARTER MOTOR cannot be operated after the theft warning system is deactivated.**



A

STARTER MOTOR KILL OUTPUT SIGNAL CHECK

Check voltage between control unit harness terminals ㉜ and ⑩

Condition	Voltage
Except starter killed phase	Approx. 12V
Starter killed phase	0V

NG → CHECK THE FOLLOWING.
- Harness continuity between control unit harness terminal ㉜ and theft warning relay-2 harness terminal ②.
- Harness continuity between theft warning relay-2 harness terminal ① and fuse.
- Theft warning relay-2. Refer to "Electrical Components Inspection" (EL-189).

OK → Replace control unit.

OK

THEFT WARNING RELAY-2 CHECK
Refer to "Electrical Components Inspection" (EL-189).

OK

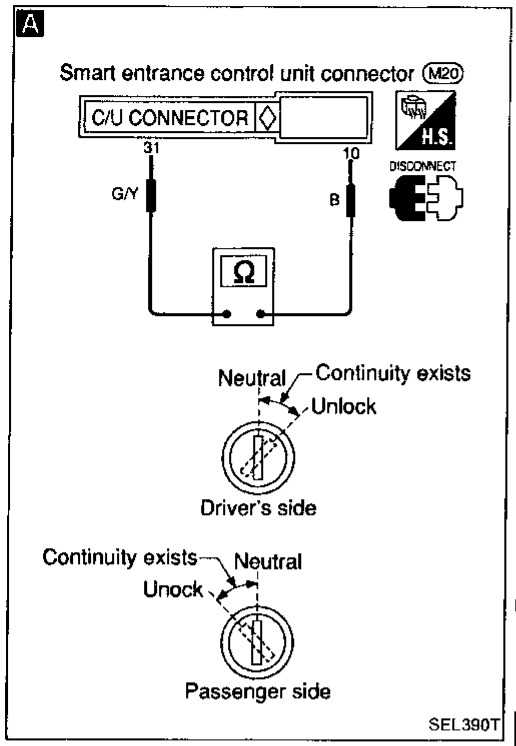
NG → Replace relay.

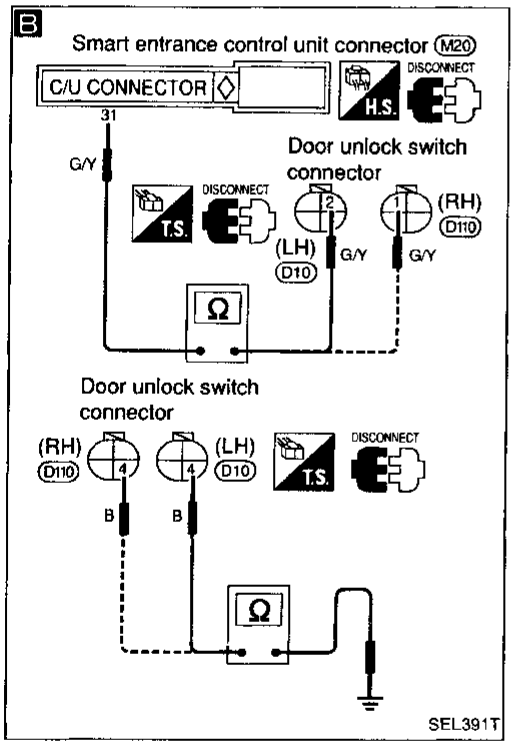
CHECK THE CONNECTIONS AT EACH CONNECTOR.

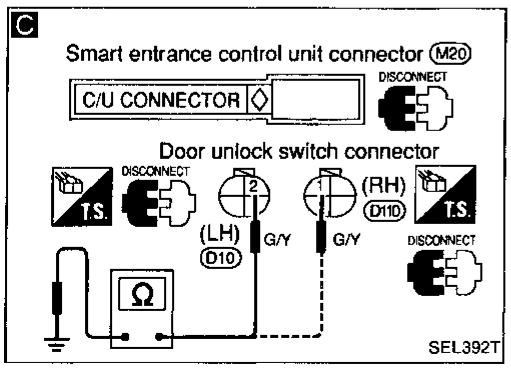
Trouble Diagnoses (Cont'd)

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 (31) and (10).

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

OK → ALARM OUTPUT SIGNAL CHECK
Go to Diagnostic Procedure 5. (EL-182).

NG ↓

DOOR UNLOCK SWITCH CHECK
Refer to "Electrical Components Inspection" (EL-188).

NG → Replace key cylinder switch.

OK ↓

B

DOOR UNLOCK SWITCH CIRCUIT CHECK
- Check harness continuity between control unit harness terminal (31) 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 ↓

C

Check harness continuity between door unlock switch terminal and body ground.
(Before checking harness continuity, control unit harness connector should be disconnected.)
Continuity should not exist.

NG → Repair harness.
(Short circuit exists between control unit harness terminal (31) and door unlock switch terminal.)

OK ↓

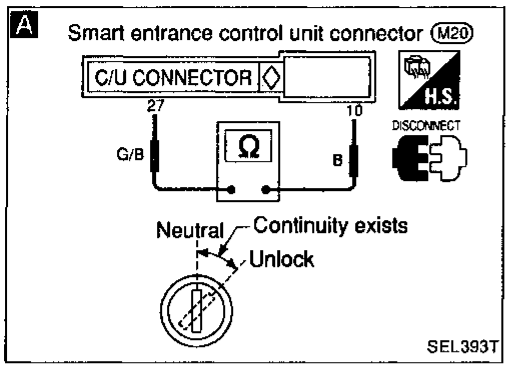
CHECK THE CONNECTIONS AT EACH CONNECTOR.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 8

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

A



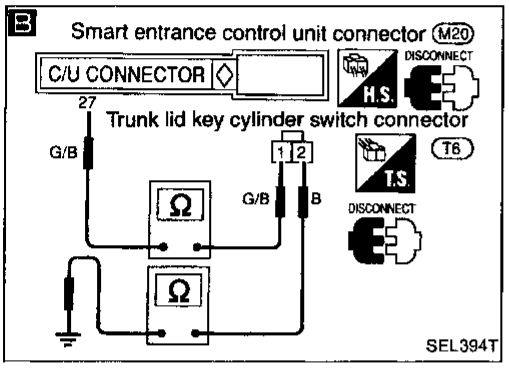
TRUNK LID KEY CYLINDER SWITCH INPUT SIGNAL CHECK (UNLOCK SIGNAL)
Check continuity between control unit harness terminals ㉗ and ⑩.

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

OK → ALARM OUTPUT SIGNAL CHECK
Go to Diagnostic Procedure 5. (EL-182).

NG

B

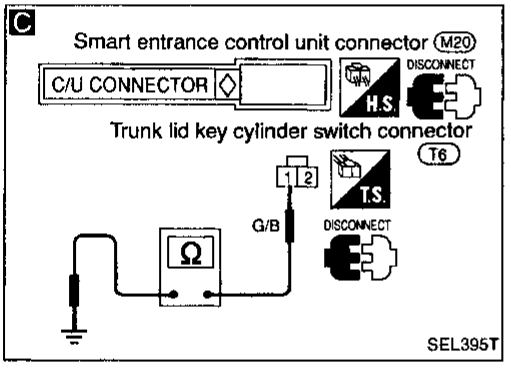


TRUNK LID KEY CYLINDER SWITCH CHECK
Refer to "Electrical Components Inspection" (EL-188).

NG → Replace trunk lid key cylinder switch.

OK

C



TRUNK LID KEY CYLINDER SWITCH CIRCUIT CHECK
- Check harness continuity between control unit harness terminal ㉗ and trunk lid key cylinder switch terminal ①.
- Check harness continuity between trunk lid key cylinder switch terminal ② and body ground.

NG → Repair harness or connectors.

OK

Check harness continuity between trunk lid key cylinder switch harness terminal ① and body ground.
(Before checking harness continuity, control unit harness connector should be disconnected.)
Continuity should not exist.

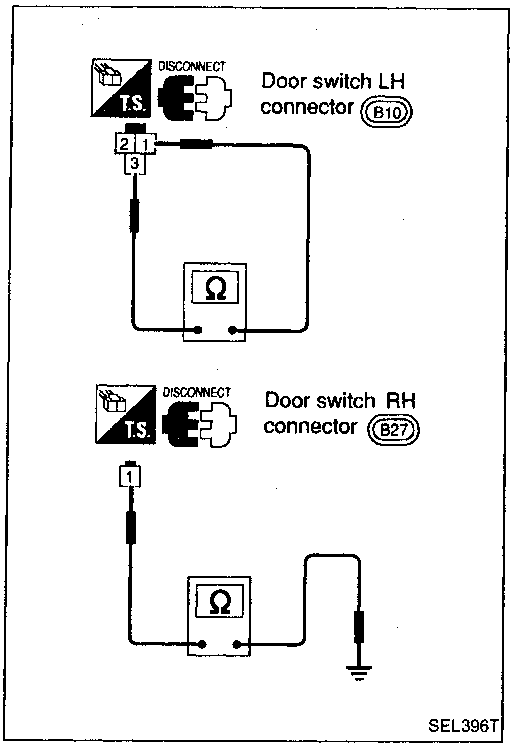
NG → Repair harness.
(Short circuit exists between control unit harness terminal ㉗ and trunk lid key cylinder switch harness terminal ①.)

OK

CHECK THE CONNECTIONS AT EACH CONNECTOR.

Trouble Diagnoses (Cont'd)

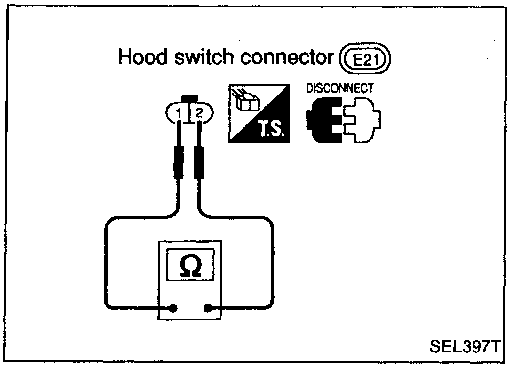
ELECTRICAL COMPONENTS INSPECTION



Door switches

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

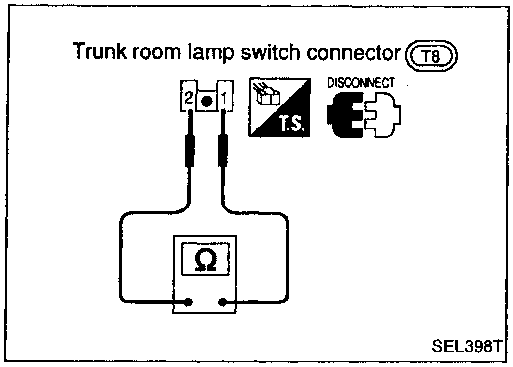
Terminal No.	Condition	Continuity
RH: ① - body ground LH: ① - ③	Door switch is pushed.	No
	Door switch is released.	Yes



Hood switch

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

Terminal No.	Condition	Continuity
① - ②	Hood switch is pushed.	No
	Hood switch is released.	Yes

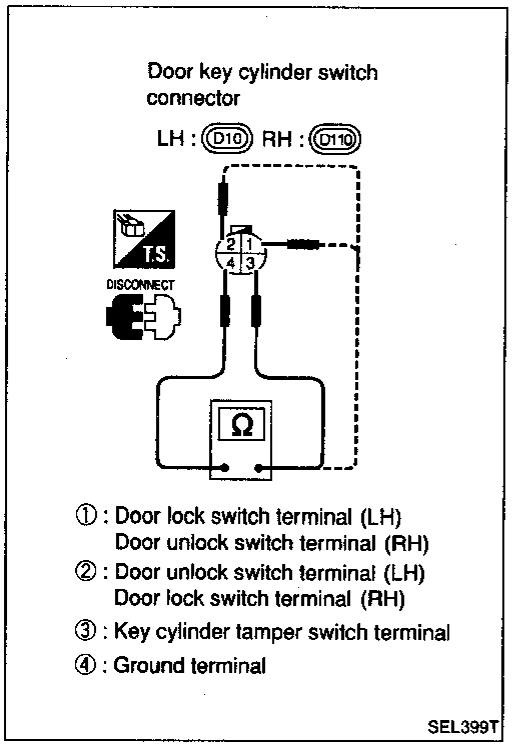


Trunk room lamp switch

Check continuity between terminals when trunk lid is closed and opened.

Terminal No.	Condition	Continuity
① - ②	Trunk lid is closed.	No
	Trunk lid is opened.	Yes

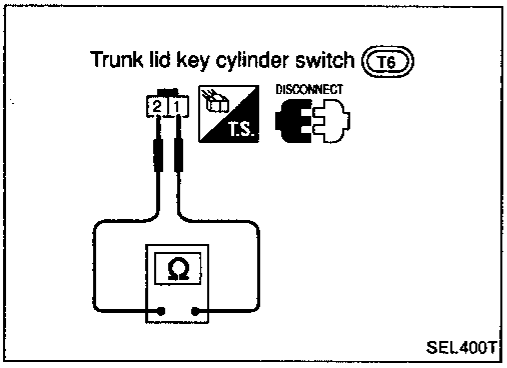
Trouble Diagnoses (Cont'd)



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

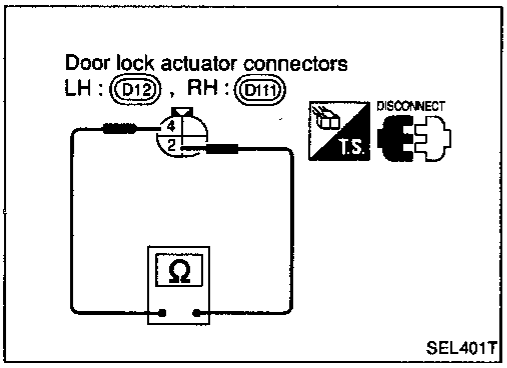
- **Door key cylinder switch**

	Terminal No.	Condition	Continuity
Tamper switch	③ - ④	Key cylinder is installed.	No
		Key cylinder is removed.	Yes
Door lock switch	RH: ② - ④ LH: ① - ④	Key position is neutral or lock.	No
		Key position is between neutral and lock.	Yes
Door unlock switch	RH: ① - ④ LH: ② - ④	Key position is neutral or unlock.	No
		Key position is between neutral and unlock.	Yes



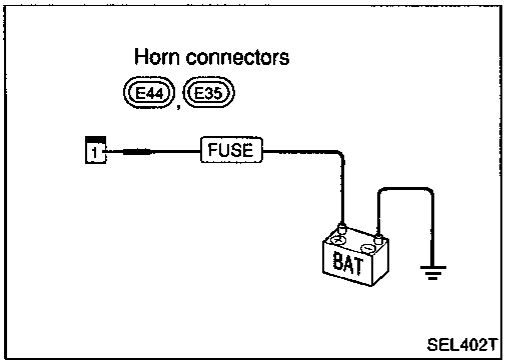
- **Trunk lid key cylinder switch (unlock switch)**

Terminal No.	Condition	Continuity
① - ②	Key position is neutral.	No
	Key position is unlock.	Yes



- **Door lock actuator (Door unlock sensor)**

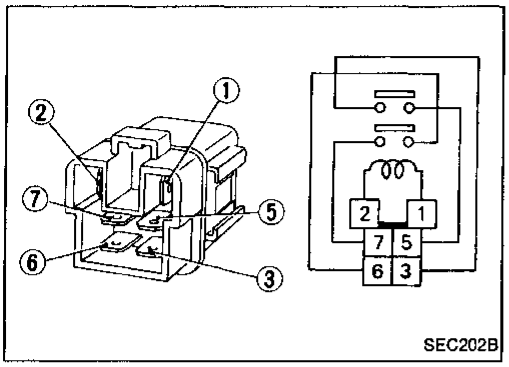
Terminal No.	Condition	Continuity
④ - ②	Door is locked.	No
	Door is unlocked.	Yes



Horns

Supply horn terminal with battery voltage and check horn operation.

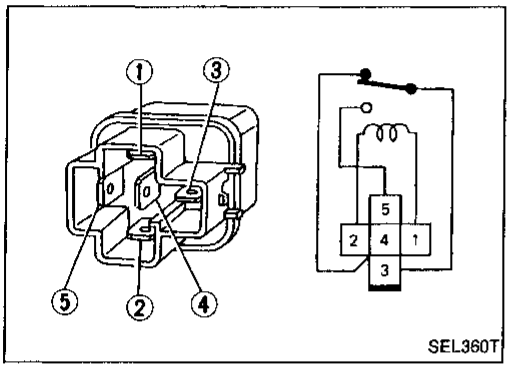
Trouble Diagnoses (Cont'd)



Theft warning relay-1

Check continuity between terminals ③ and ⑤, ⑥ and ⑦.

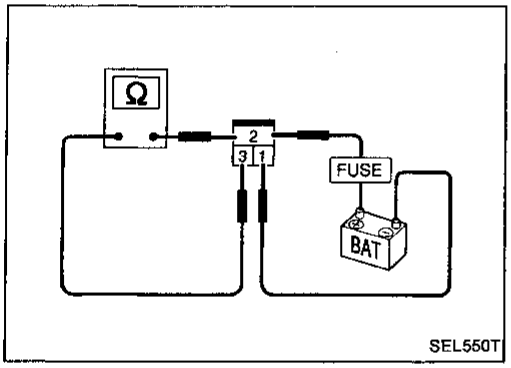
Condition	Continuity
12V direct current supply between terminals ① and ②	Yes
No current supply	No



Theft warning relay-2

Check continuity between terminals ③ and ④.

Condition	Continuity
12V direct current supply between terminals ① and ②	No
No current supply	Yes

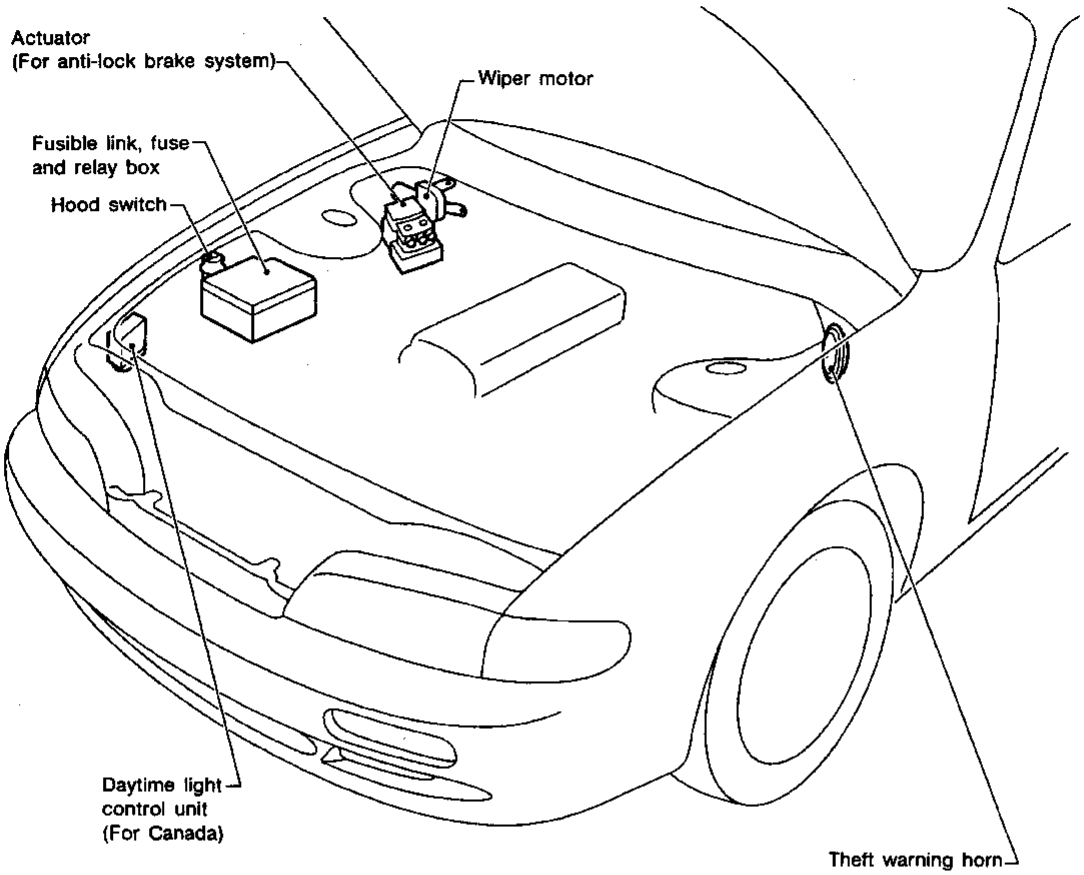


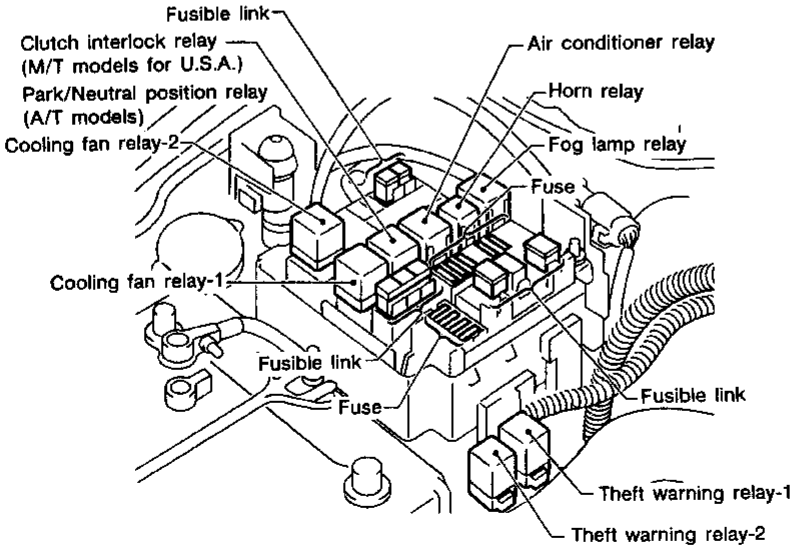
Horn relay

Check continuity between terminals ② and ③.

Condition	Continuity
12V direct current supply between terminals ① and ②	Yes
No current supply	No

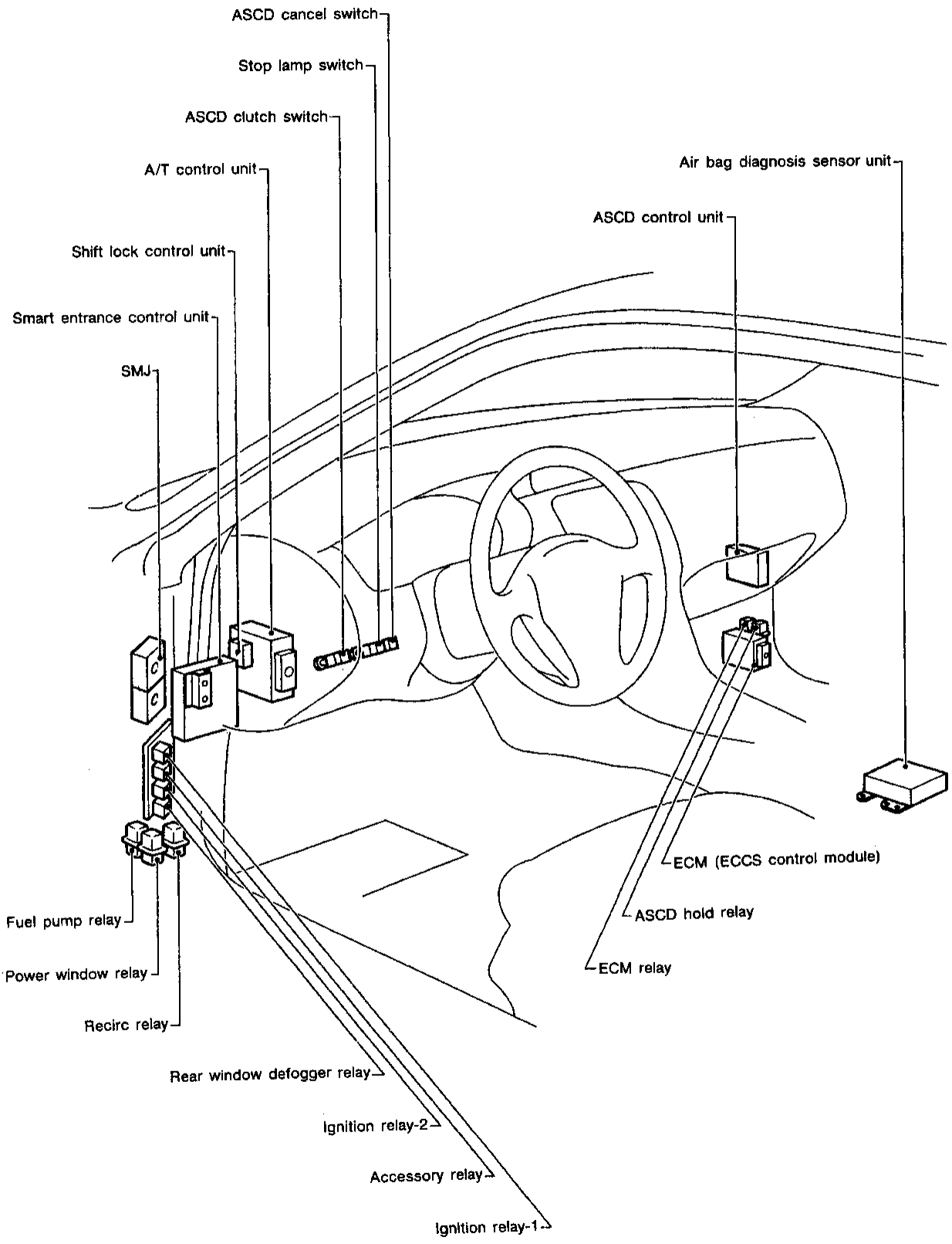
Engine Compartment





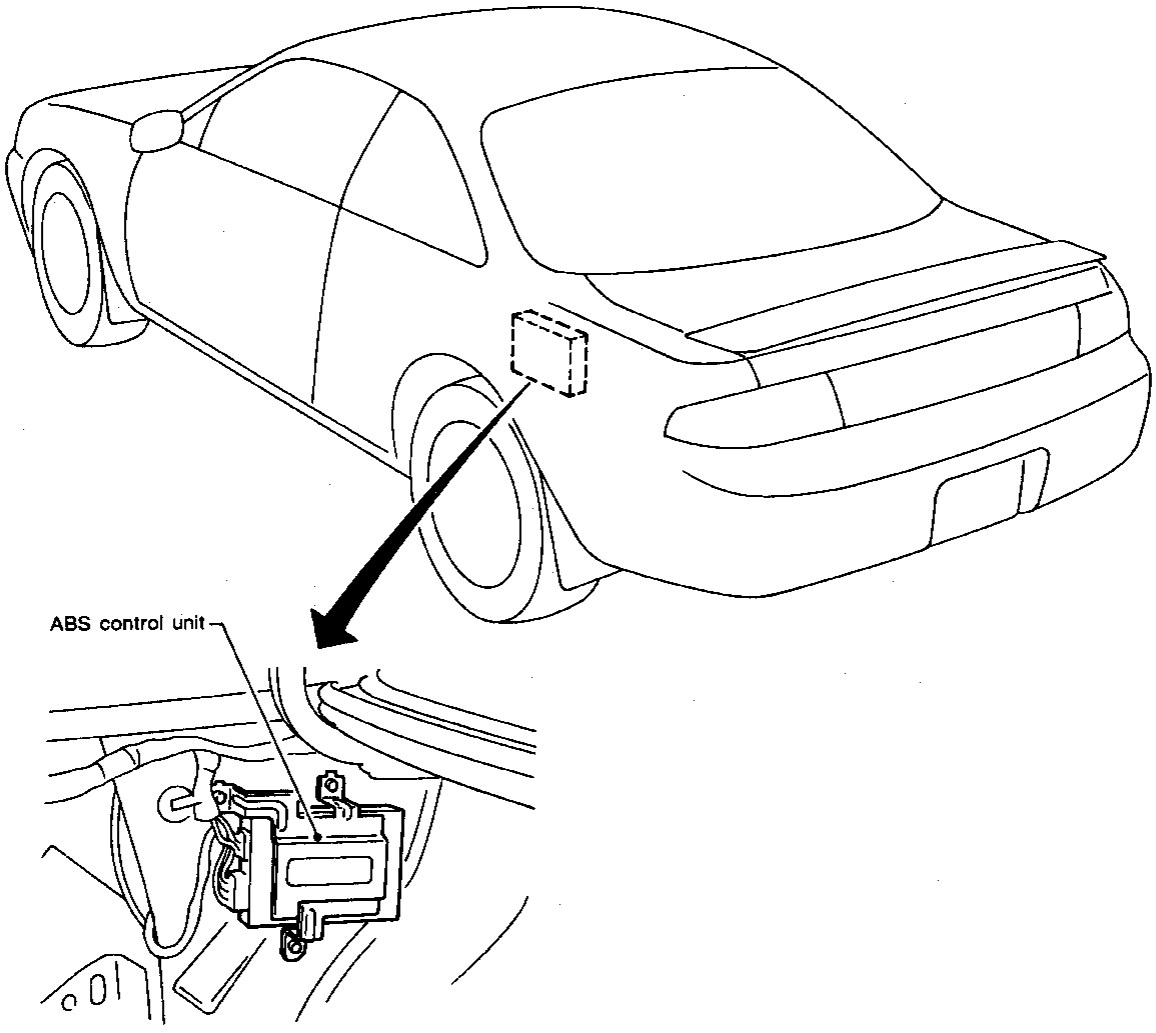
MEL326D

Passenger Compartment



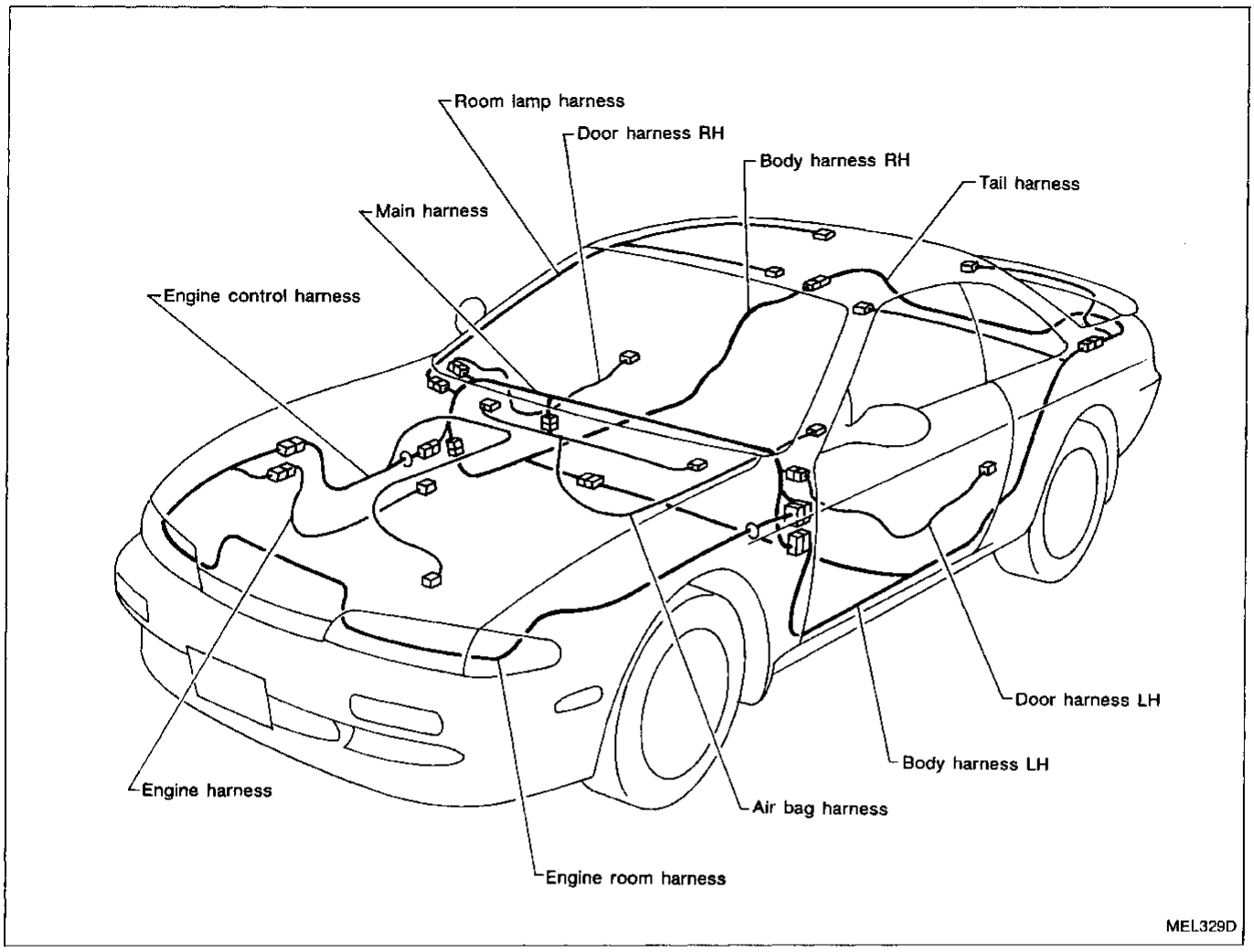
MEL327D

Passenger Compartment (Cont'd)

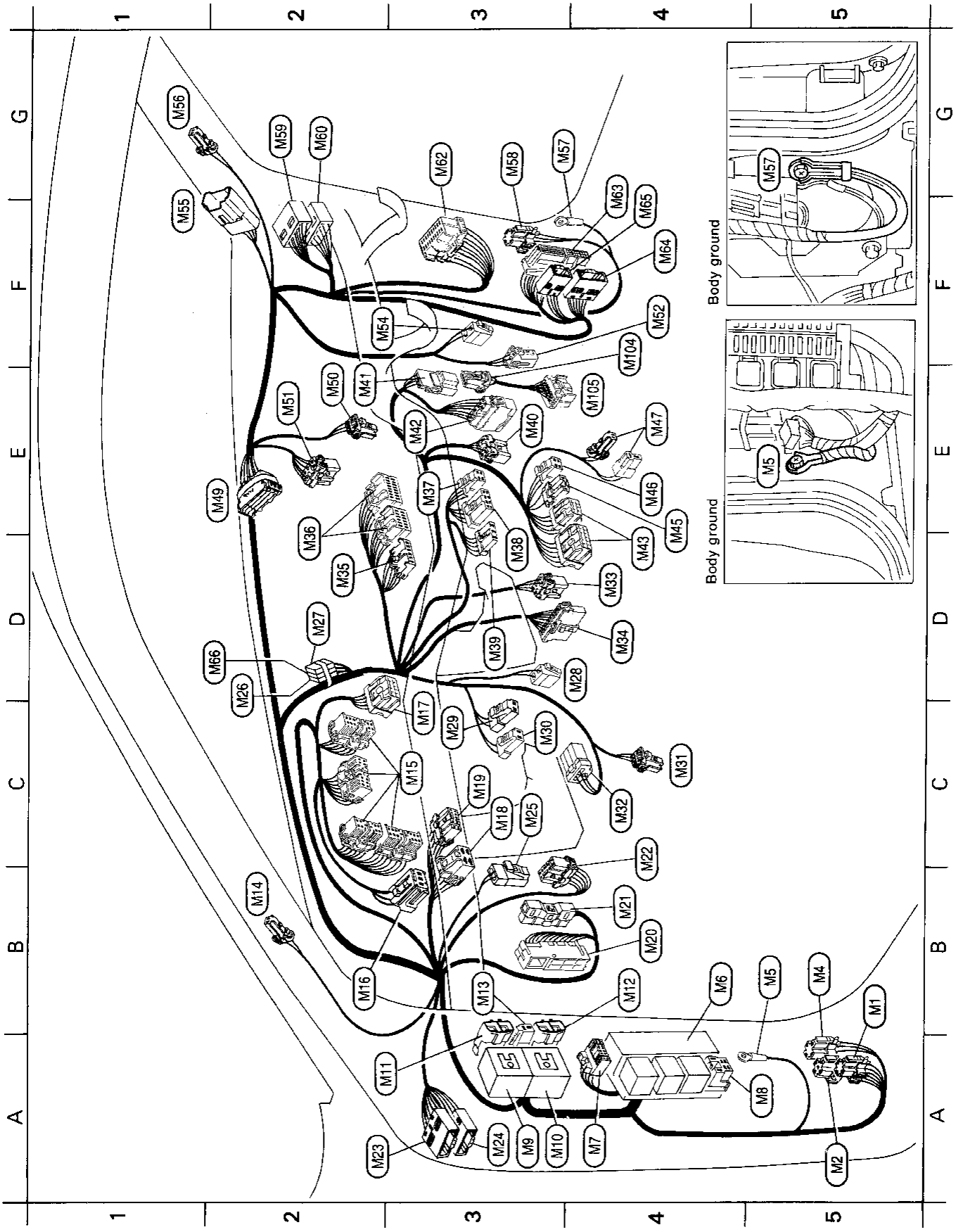


MEL328D

Outline

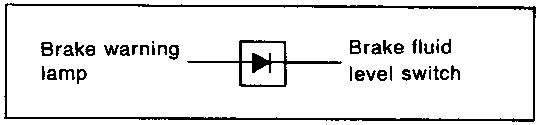

Room lamp harness
Door harness RH
Body harness RH
Tail harness
Main harness
Engine control harness
Door harness LH
Body harness LH
Engine harness
Air bag harness
Engine room harness
MEL329D

Main Harness

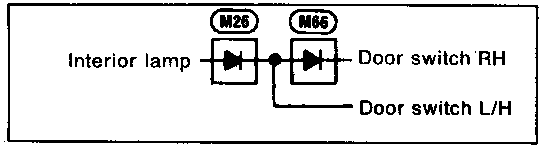


B5 (M1) : Power window relay
A5 (M2) : Recirc relay
B5 (M4) : Fuel pump relay
B5 (M5) : Body ground
B4 (M6) : Fuse block
A4 (M7) : Data link connector for CONSULT
A5 (M8) : Rear window defogger relay
A3 * (M9) : To (E109) (SMJ)
A3 (M10) : To (B1) (SMJ)
A2 (M11) : To (B2)
B4 (M12) : To (B3)
B3 (M13) : Circuit breaker
B2 (M14) : Tweeter LH
C3 (M15) : Combination meter
B2 (M16) : Illumination control switch
C3 (M17) : ASCD main switch
C3 (M18) : Rear window defogger timer (Models with power door locks)
C3 (M19) : Warning buzzer unit (Models without power door locks)
B4 (M20) : Smart entrance control unit (Models with power door locks)
B4 (M21) : A/T control unit (A/T models)
C4 (M22) : Shift lock control unit (A/T models)
A2 (M23) : To (D1)
A3 (M24) : To (D2)
C3 (M25) : ASCD clutch switch
D2 (M26) : Diode
D2 (M27) : Diode
D4 (M28) : Kickdown switch
C3 (M29) : ASCD cancel switch
C3 (M30) : Stop lamp switch
C4 (M31) : Warning buzzer
C4 (M32) : Combination flasher unit
D4 (M33) : Air mix door motor
D4 (M34) : Mode door motor
D2 (M35) : Fan switch
D2 (M36) : Push control unit
E3 (M37) : Security indicator lamp
D3 (M38) : Hazard switch
D3 (M39) : Rear window defogger switch
E3 (M40) : Bi-level door motor
E2 (M41) : To (M104)
E3 (M42) : To (Z5)
D4 (M43) : Audio
E4 (M45) : Not used
E4 (M46) : Not used
E4 (M47) : Cigarette lighter
E2 (M49) : Joint connector
E2 (M50) : Thermo control amplifier
E2 (M51) : Intake door motor
F4 (M52) : Fan resistor
F2 (M54) : Blower motor
F1 (M55) : To (R1)
G1 (M56) : Tweeter RH
G3 (M57) : Body ground
G3 (M58) : ASCD hold relay
G2 (M59) : To (D101)
G2 (M60) : To (D102)
G3 (M62) : ASCD control unit
F4 * (M63) : To (F3)
F4 * (M64) : To (F4)
F4 (M65) : To (B23)
D2 (M66) : Diode
F4 (M104) : To (M41)
E4 (M105) : Data link connector for GST

Diode (M27)

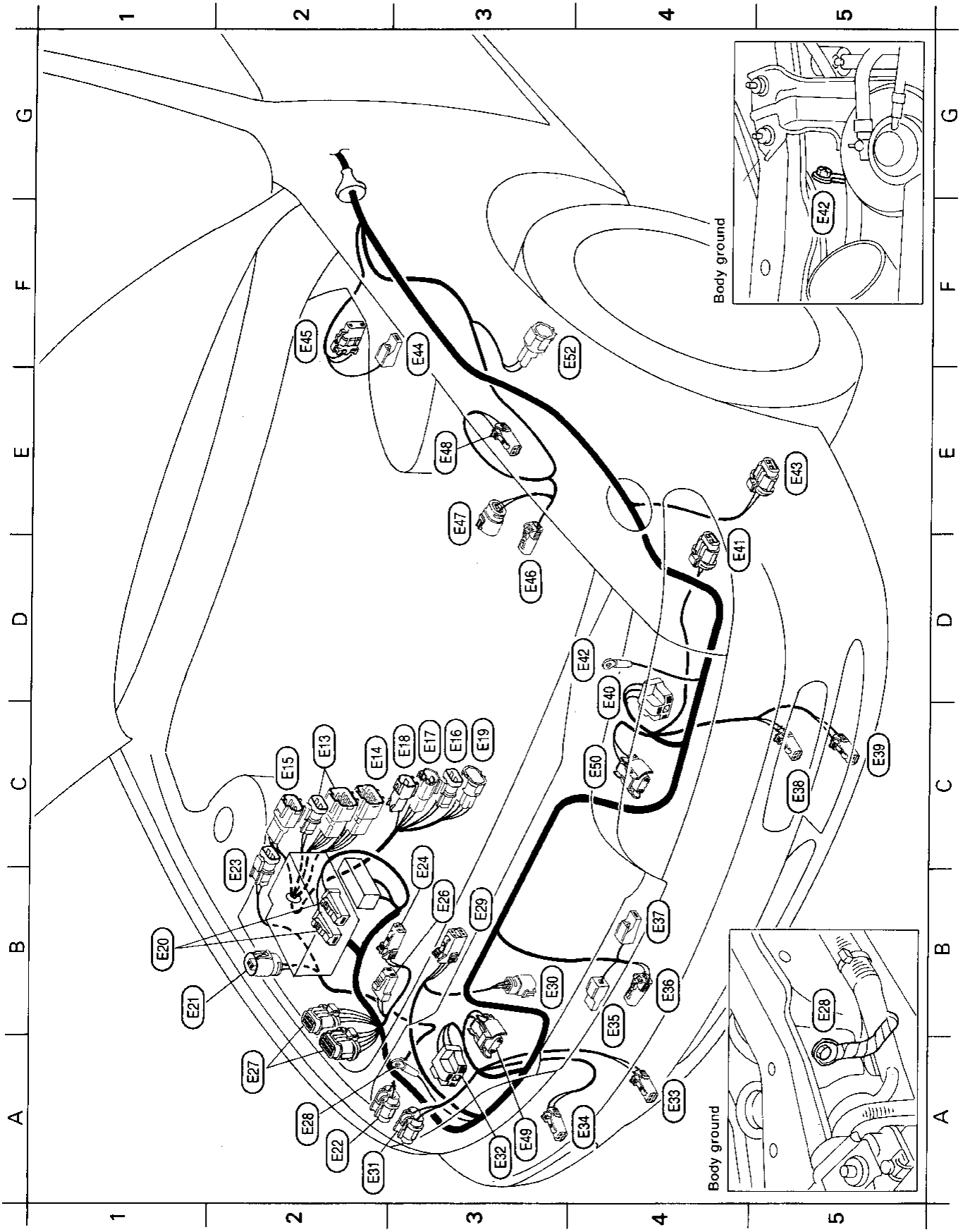


Diode (M26), (M66)

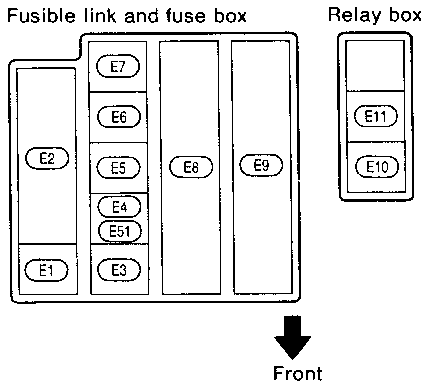


*: Be sure to connect and lock the connectors securely after repair work.
Failure to do so may cause the on-board diagnostic system to light up the MIL as an open circuit delection.

Engine Room Harness

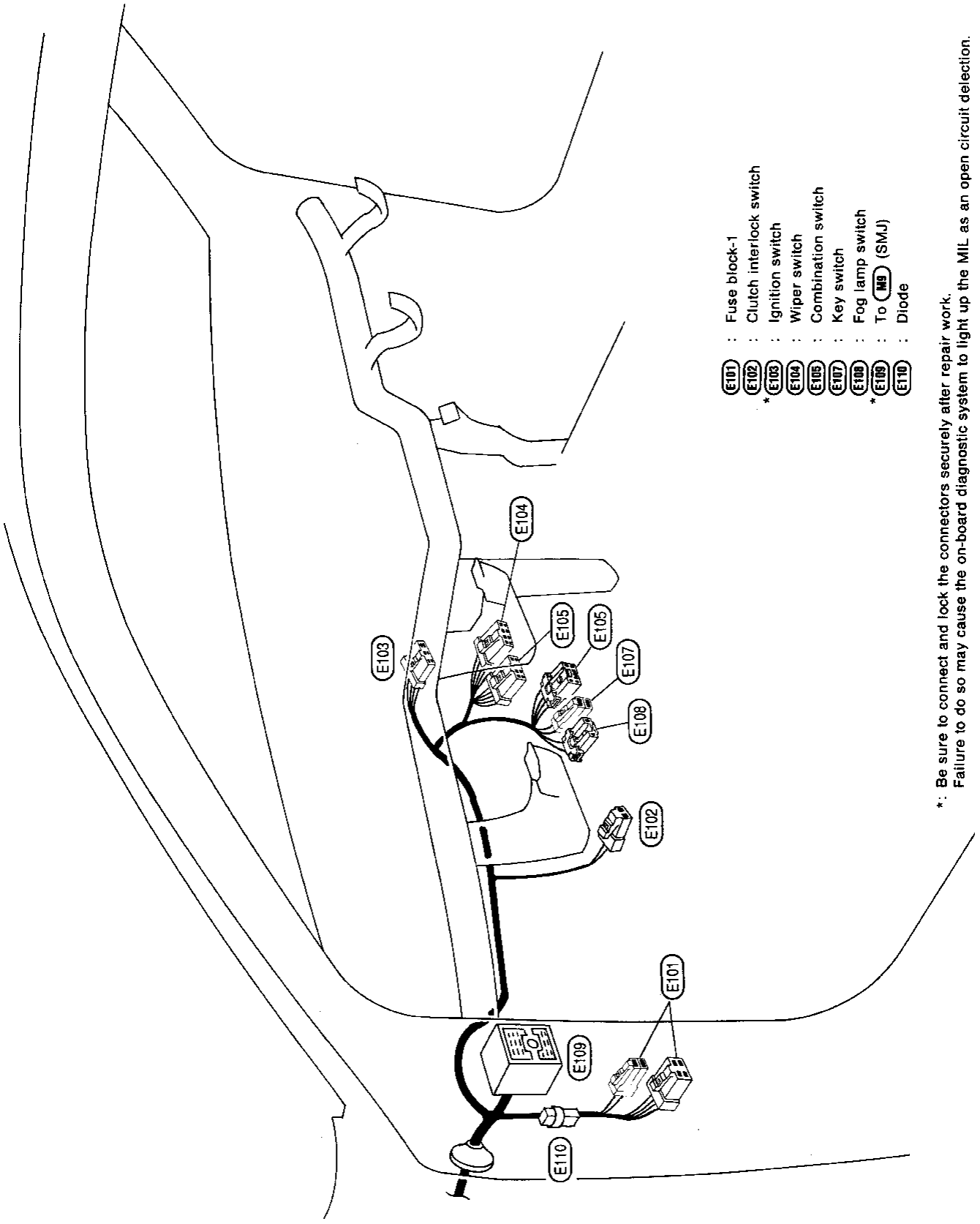


	E1	:	Cooling fan relay-2	Fusible link and fuse box
	E2	:	Fusible link and fuse block-1	
	E3	:	Cooling fan relay-1	
	E4	:	Clutch interlock relay (M/T models for USA)	
	E5	:	Air conditioner relay	
	E6	:	Horn relay	
	E7	:	Fog lamp relay	
	E8	:	Fusible link and fuse block-2	
	E9	:	Fusible link and fuse block-3	
	E10	:	Theft warning relay-2 (SE grade models)	Relay box
	E11	:	Theft warning relay-1 (SE grade models)	
C2	*E13	:	Inhibitor switch (A/T models)	
C2	*E14	:	A/T solenoid valve (A/T models)	
C2	*E15	:	Revolution sensor (A/T models)	
C3	E16	:	To E203 (A/T models)	
C3	E17	:	To E201 (M/T models)	
C3	E18	:	To E204	
C3	*E19	:	To E202	
B1	E20	:	Battery	
B1	E21	:	Hood switch (SE grade models)	
A2	E22	:	Front side marker lamp RH	
B2	E23	:	To F13	
B3	E24	:	Washer motor	
B3	E26	:	Washer fluid level switch	
A2	E27	:	Daytime light control unit (For Canada)	
A2	E28	:	Body ground	
B3	E29	:	Triple-pressure switch	
B3	E30	:	Cooling fan motor	
A2	E31	:	Clearance lamp RH	
A3	E32	:	Headlamp RH	
A4	E33	:	Fog lamp RH	
A4	E34	:	Front turn signal lamp RH	
B4	E35	:	Horn-high	
B4	E36	:	Ambient temperature switch	
B4	E37	:	Horn-low (BASE grade models)	
C5	E38	:	Front turn signal lamp LH	
C5	E39	:	Frog lamp LH	
D4	E40	:	Headlamp LH	
D4	E41	:	Clearance lamp LH	
D4	E42	:	Body ground	
E5	E43	:	Front side marker lamp LH	
F3	E44	:	Theft warning horn (SE grade models)	
F2	E45	:	Brake fluid level switch	
D3	E46	:	Compressor	
E3	E47	:	Power steering oil pressure switch	
E3	E48	:	Dropping resistor (A/T models)	
A3	E49	:	Headlamp RH	
C4	E50	:	Headlamp LH	
	E51	:	Park/Neutral position relay (A/T models) Fusible link and fuse box	
F3	E52	:	Front wheel sensor LH	



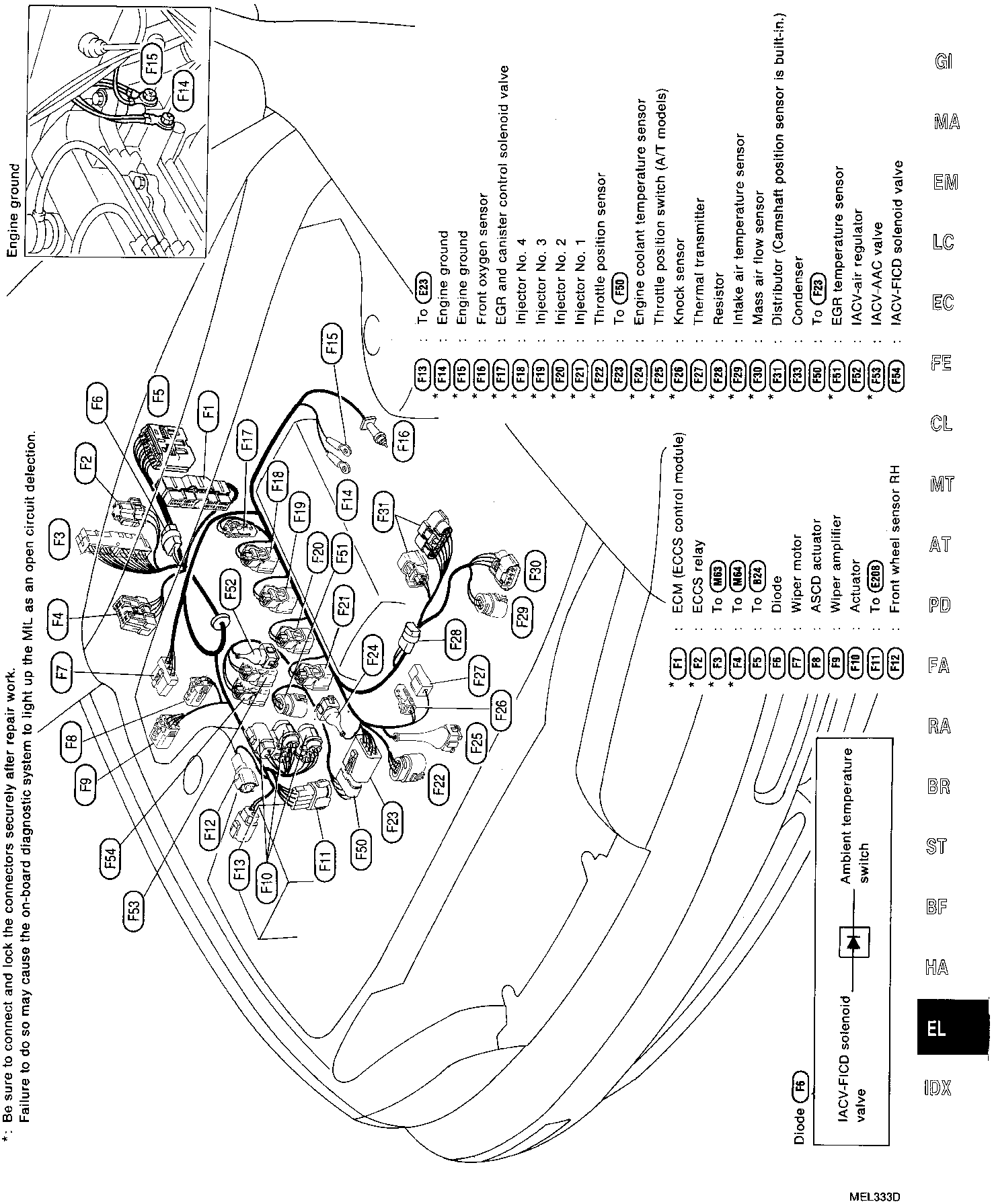
*: Be sure to connect and lock the connectors securely after repair work.
Failure to do so may cause the on-board diagnostic system to light up the MIL as an open circuit delection.

Engine Room Harness (Cont'd)



MEL488D

Engine Control Harness

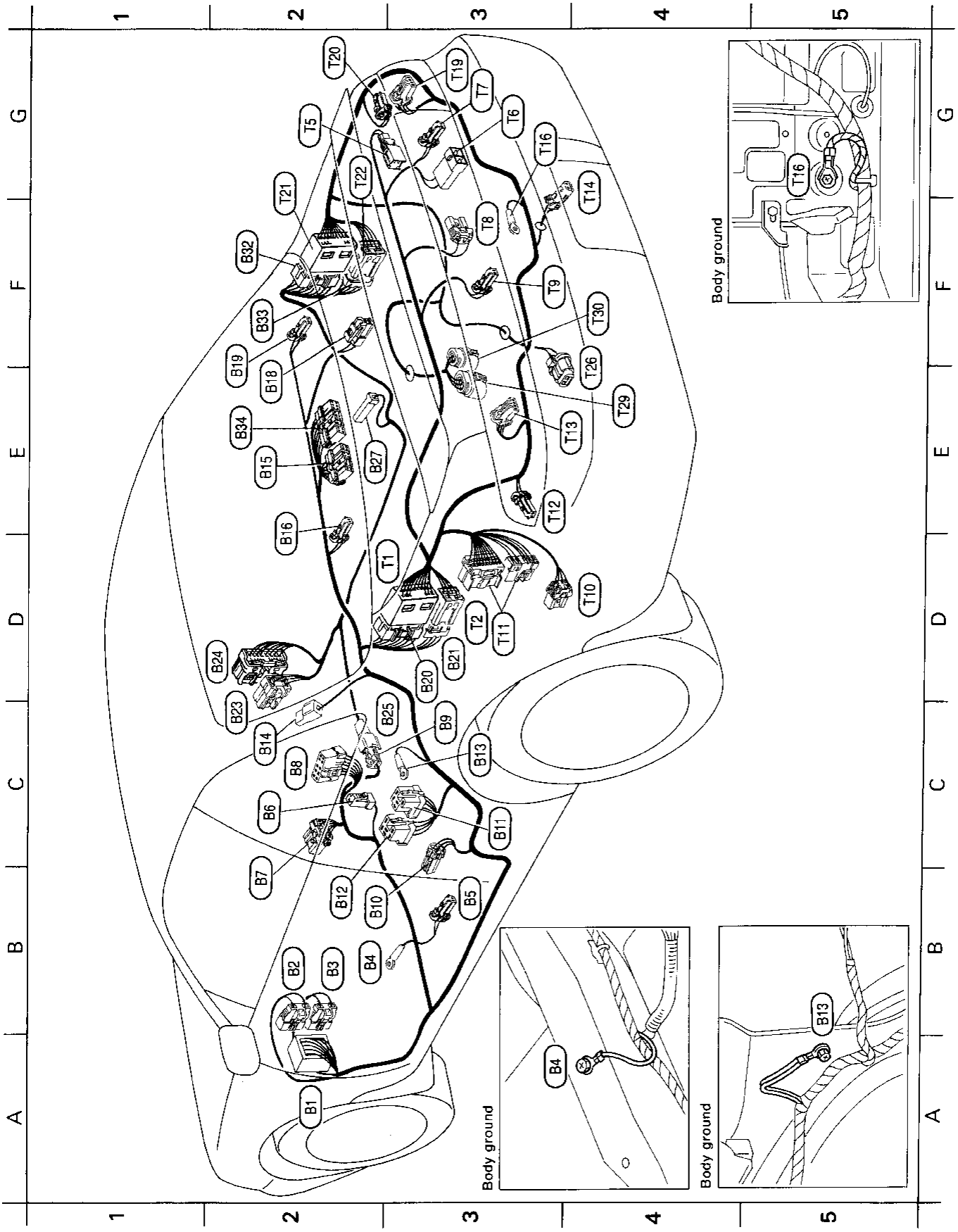


*: Be sure to connect and lock the connectors securely after repair work.
Failure to do so may cause the on-board diagnostic system to light up the MIL as an open circuit detection.

MEL333D

GI MA EM LC EC FE CL MT AT PD FA RA BR ST BF HA EL IDX

Body Harness and Tail Harness



Body Harness and Tail Harness (Cont'd)

Body harness

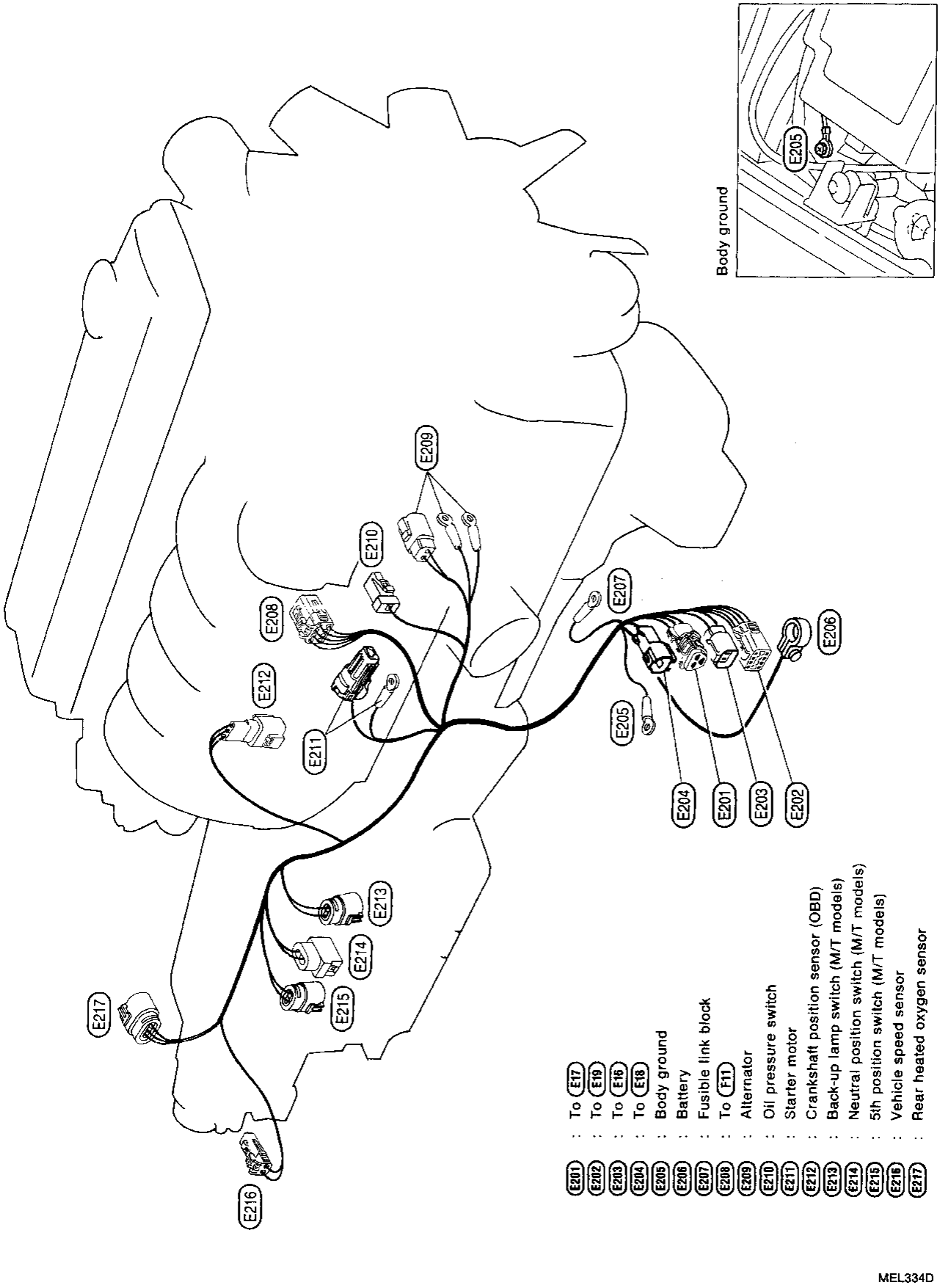
- A2 (B1) : To (M10) (SMJ)
- B2 (B2) : To (M11)
- B2 (B3) : To (M12)
- B2 (B4) : Body ground
- B3 (B5) : Seat belt switch
- C2 (B6) : Parking brake switch
- B2 (B7) : Overdrive control switch
- C2 (B8) : Door mirror remote control switch
- C3 (B9) : To (B25)
- B2 (B10) : Door switch LH
- C3 (B11) : Multi-remote control relay-2
- B2 (B12) : Multi-remote control relay-1
- C3 (B13) : Body ground
- C2 (B14) : Rear window defogger
- E2 (B15) : Rear speaker amplifier
- D2 (B16) : Rear speaker LH
- E2 (B18) : Trunk room lamp
- E2 (B19) : Rear speaker RH
- D3 (B20) : To (T1)
- D3 (B21) : To (T2)
- C2 (B23) : To (M65)
- D2 (B24) : To (F5)
- C3 (B25) : To (B9)
- E2 (B27) : Door switch RH
- F2 (B32) : To (T21)
- F2 (B33) : To (T22)
- E2 (B34) : Front speaker amplifier

Tail harness

- D3 (T1) : To (B20)
- D3 (T2) : To (B21)
- G2 (T5) : High-mounted stop lamp
- G3 (T6) : Trunk lid key cylinder switch
- G3 (T7) : Back-up lamp RH
- F3 (T8) : Trunk room lamp switch
- F3 (T9) : Back-up lamp LH
- D4 (T10) : Power antenna
- D3 (T11) : ABS control unit
- E3 (T12) : Rear side marker lamp LH
- E4 (T13) : Rear combination lamp LH
- G4 (T14) : License plate lamp
- G3 (T16) : Body ground
- G3 (T19) : Rear combination lamp RH
- G2 (T20) : Rear side marker lamp RH
- G2 (T21) : To (B32)
- G2 (T22) : To (B33)
- E4 (T26) : Rear skid sensor
- E4 (T29) : Fuel tank gauge unit
- F4 (T30) : Fuel pump

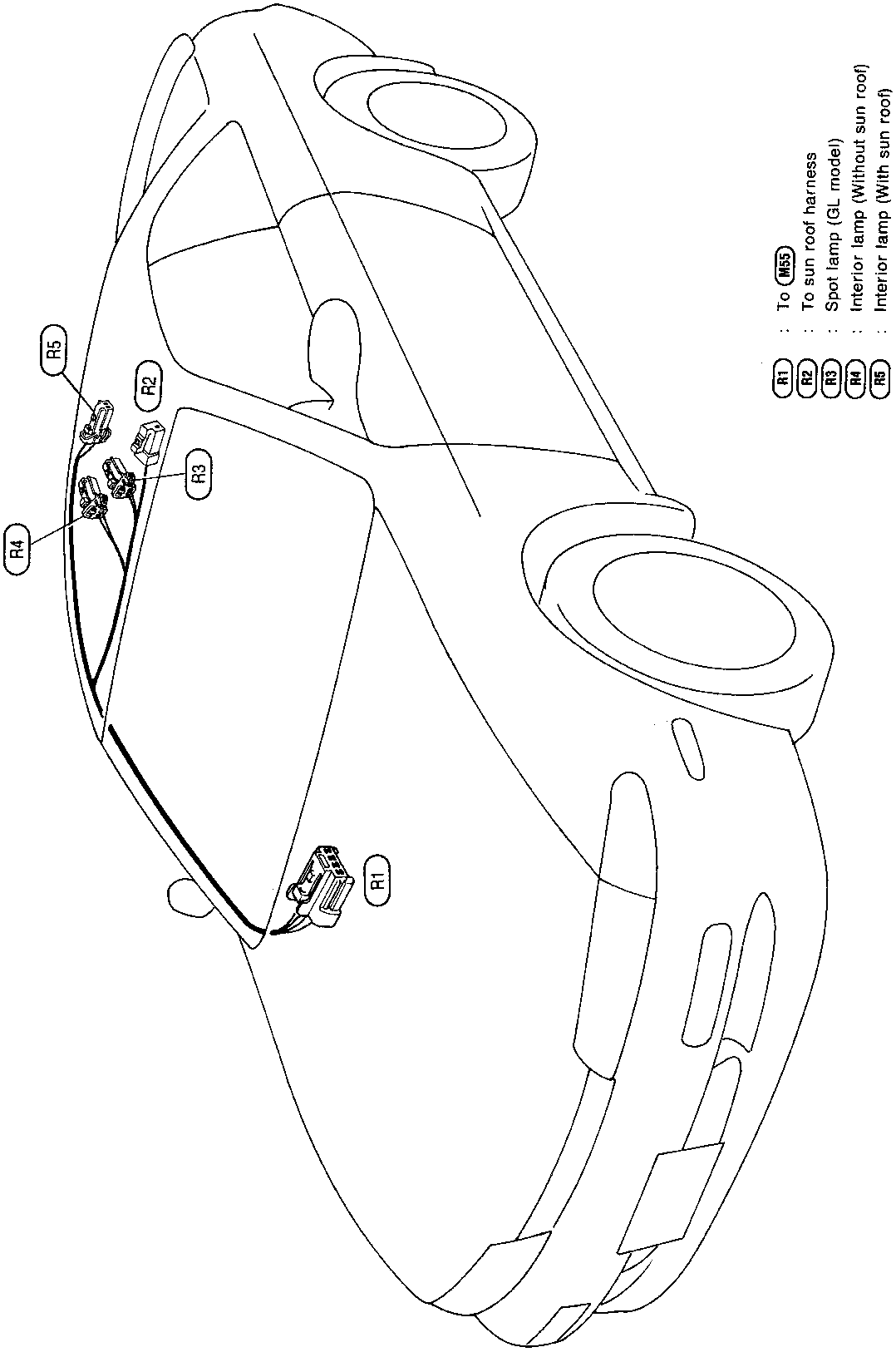
MEL332D

Engine Harness



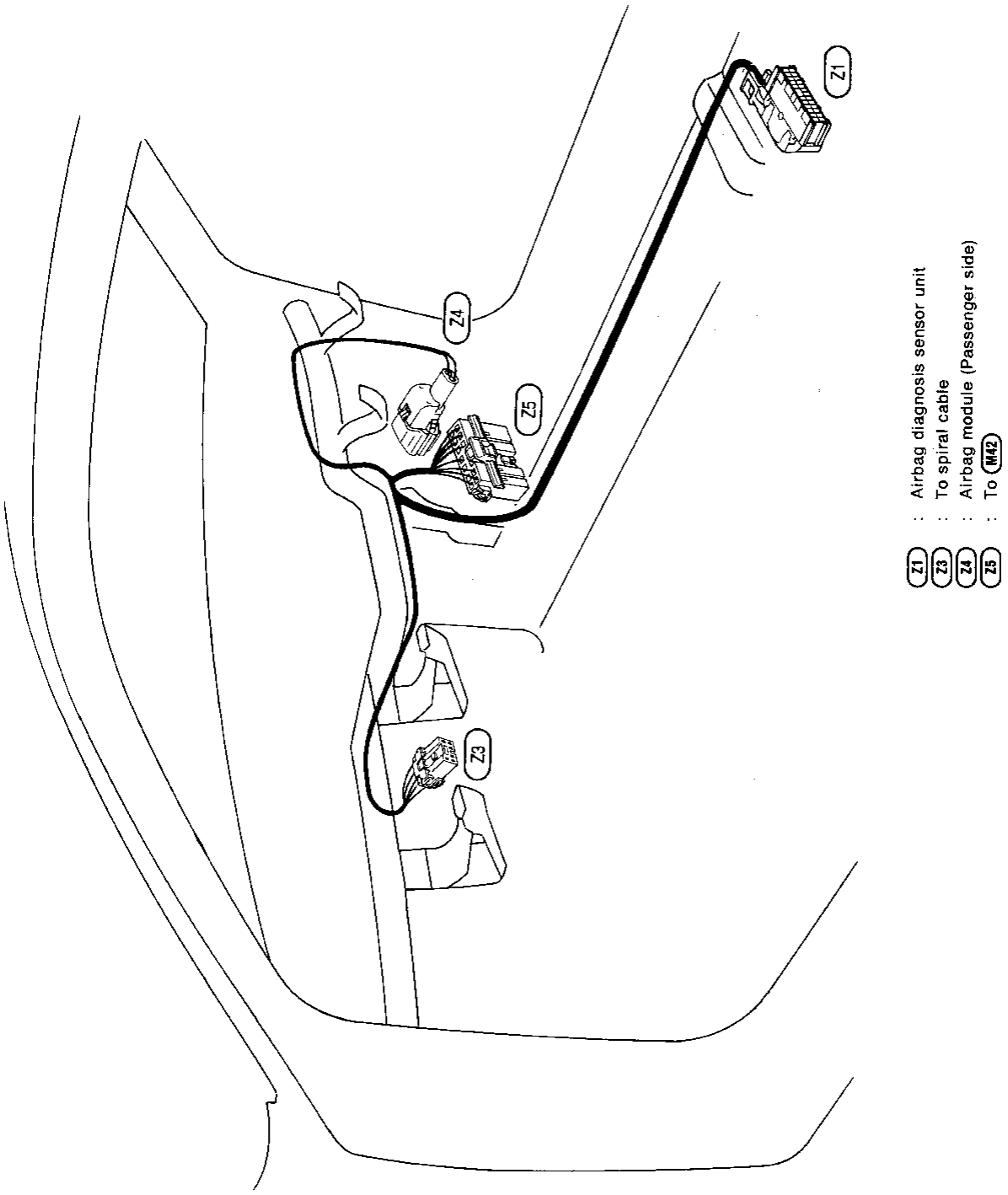
MEL334D

Room Lamp



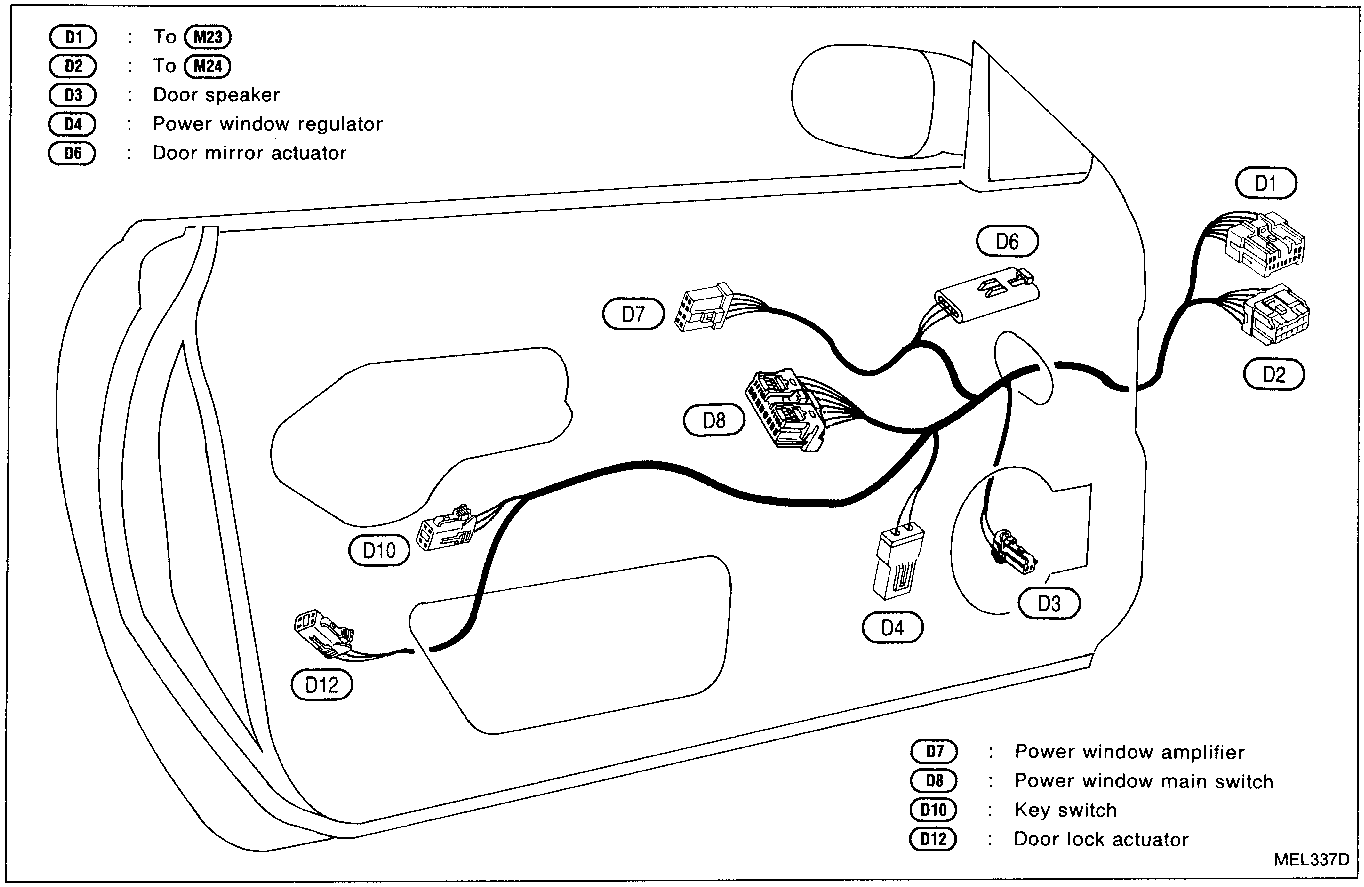
MEL335D

Air Bag Harness



MEL336D

Door Harness LH



Door Harness RH