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)

CONTENTS (Cont'd)

WIRING DIAGRAM REFERENCE CHART

Supplemental Restraint System (SRS) "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 modules (located in the center of the steering wheel and on the instrument panel on the passenger side), a diagnosis sensor unit, warning lamp, wiring harness and spiral cable. Information necessary to service the system safely is included in the **RS section** of this Service Manual.

WARNING:

- **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.**
- **Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system.**
- **Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses are covered with yellow insulation either just before the harness connectors or the complete harness, for easy identification.**

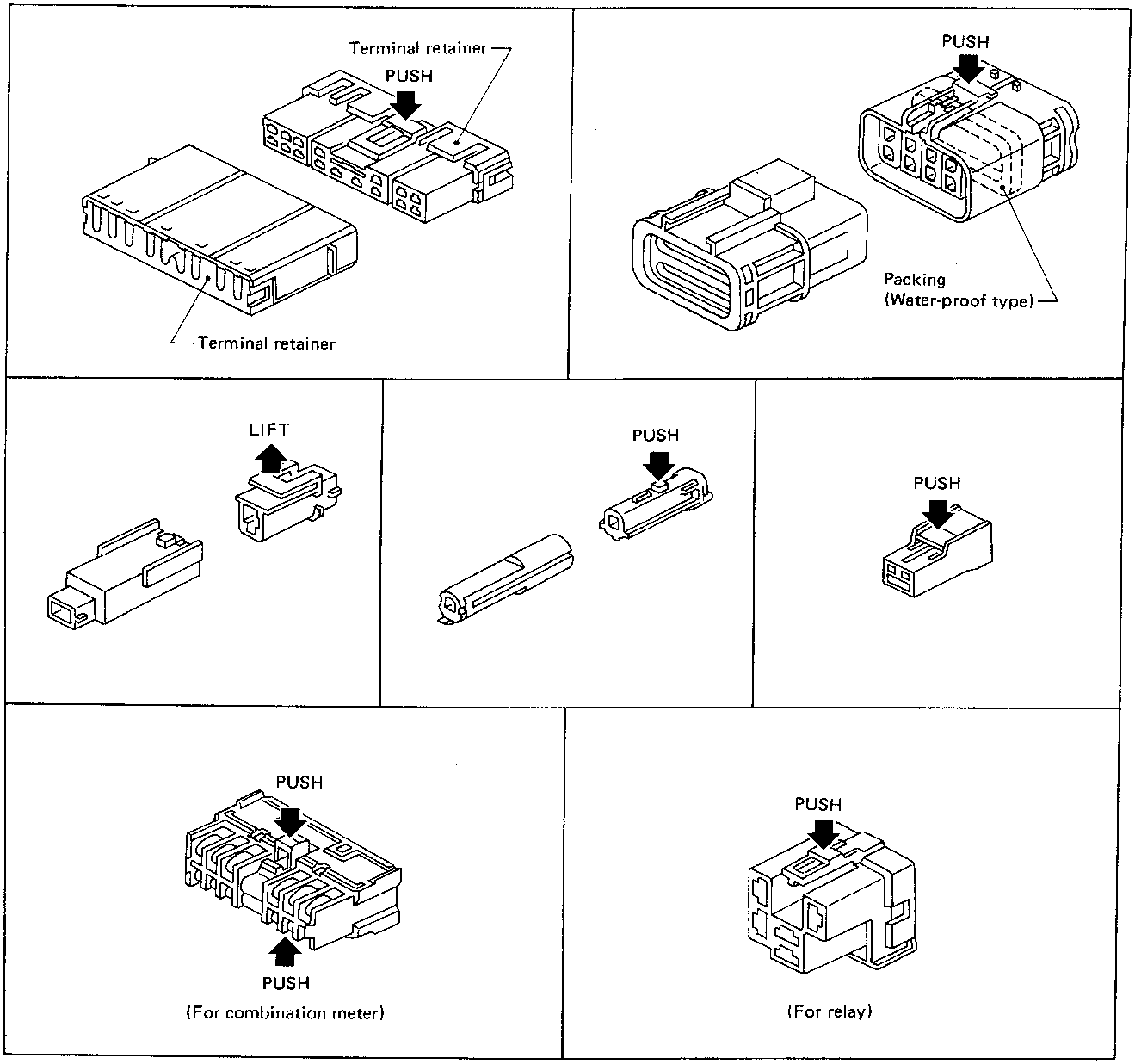
Description

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]

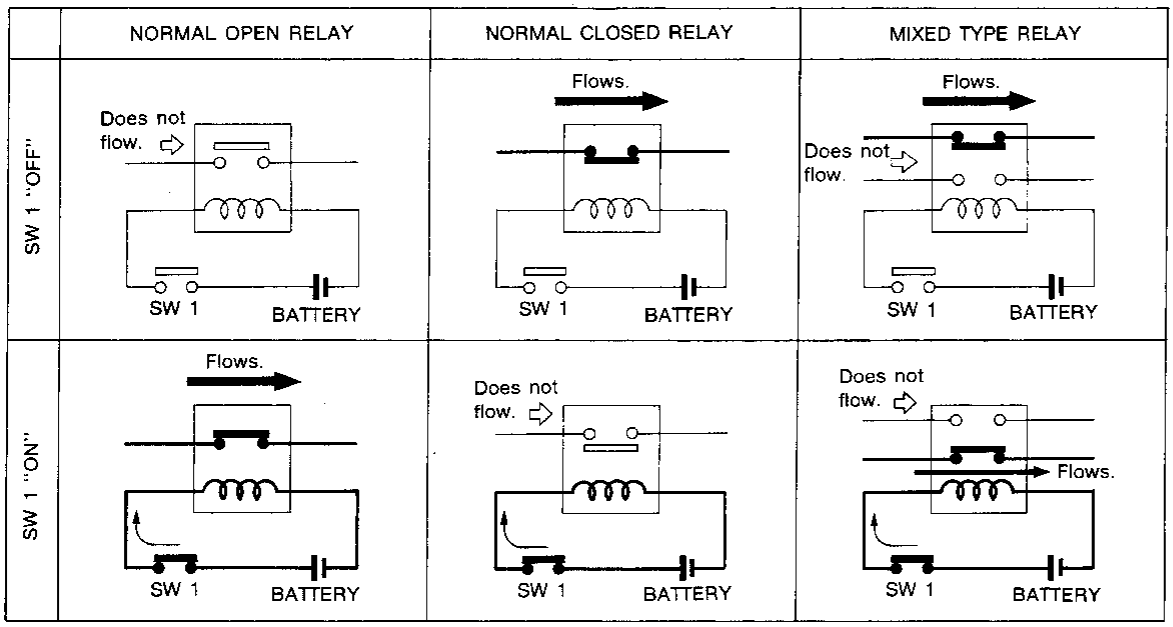


SEL769D

Description

NORMAL OPEN, NORMAL CLOSED AND MIXED TYPE RELAYS

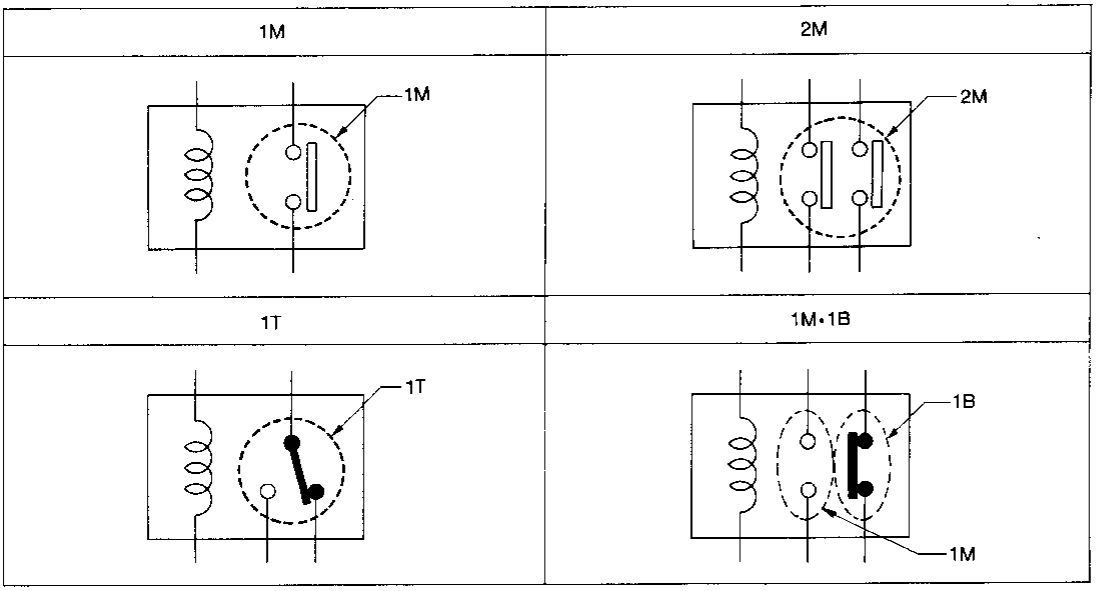
Relays can mainly be divided into three types: normal open, normal closed and mixed type relays.



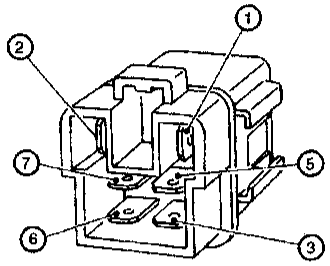
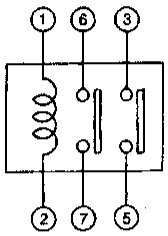
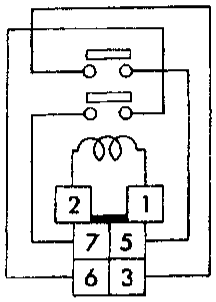
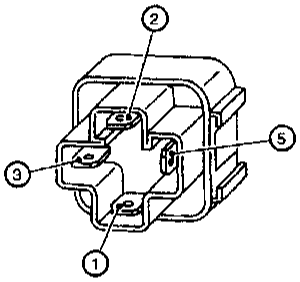
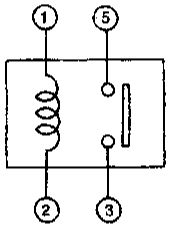
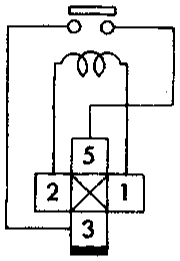
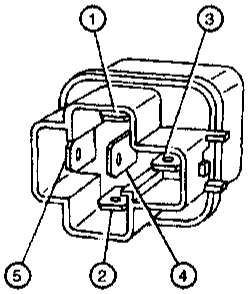
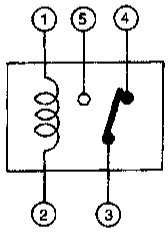
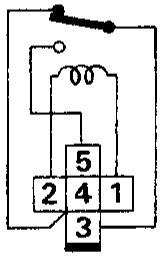
SEL881H

TYPE OF STANDARDIZED RELAYS

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

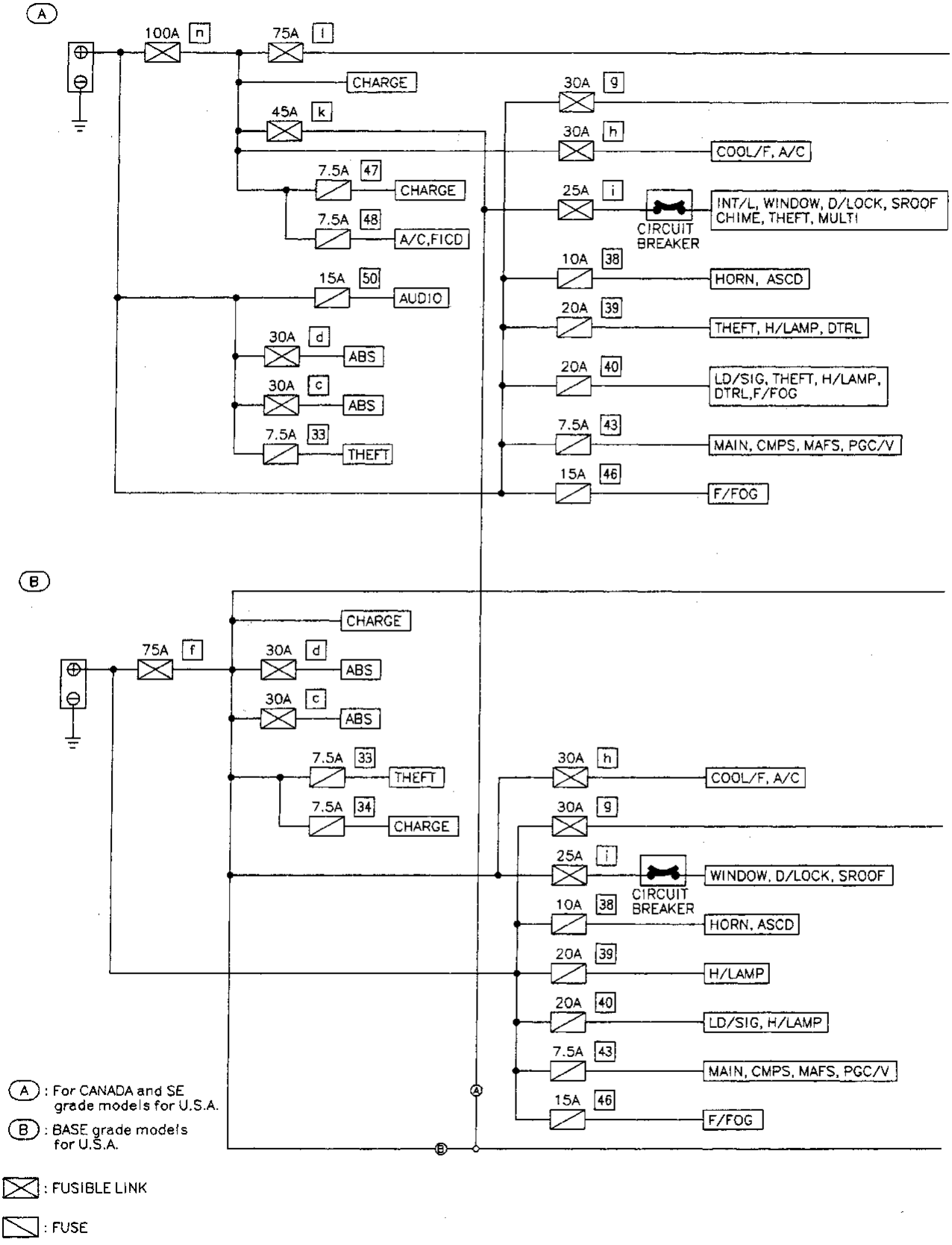


SEL882H

TYPE	Outer view	Circuit	Connector symbol and connection	Case color
2M				BROWN
1M				BLUE
1T				BLACK

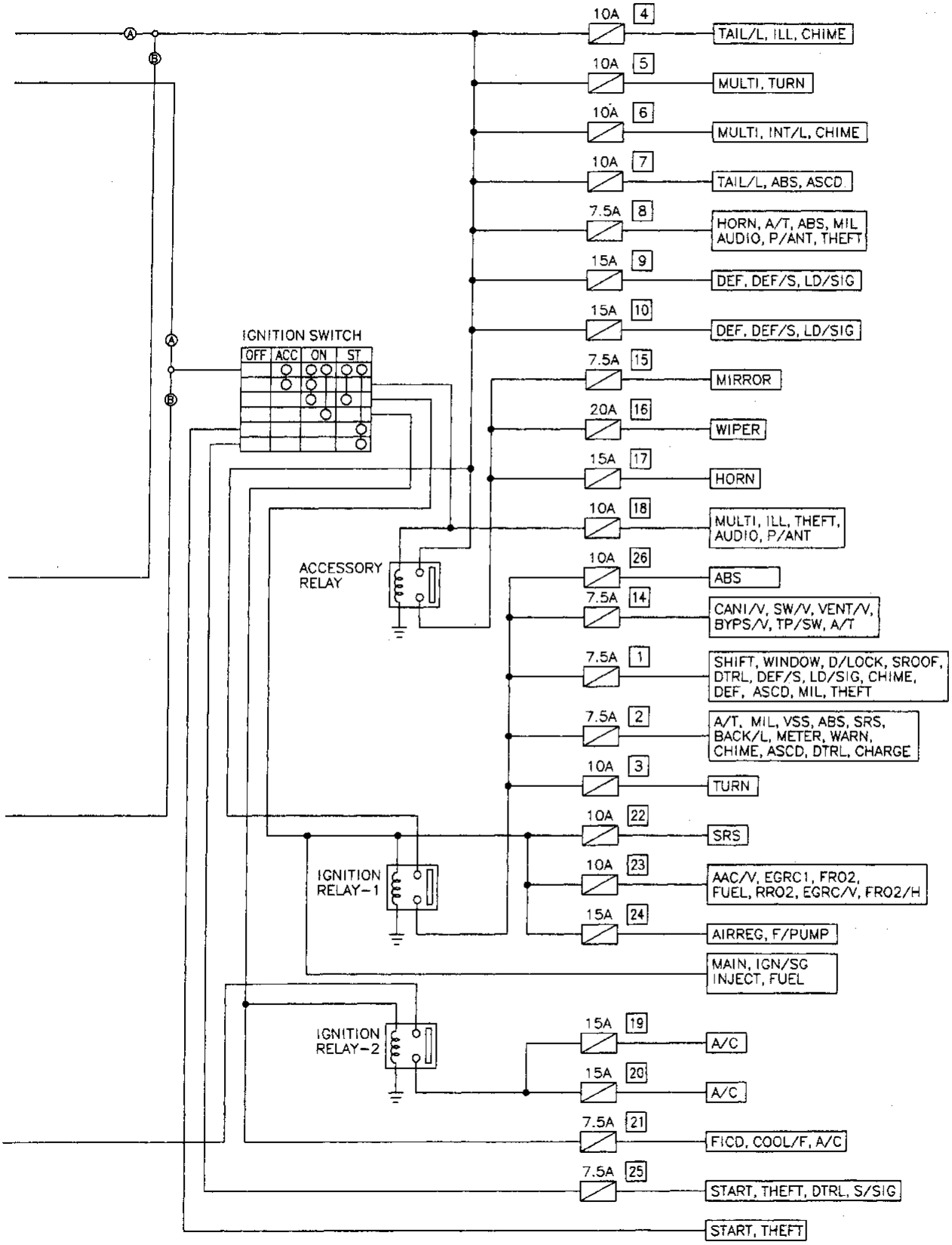
MEL386F

Schematic



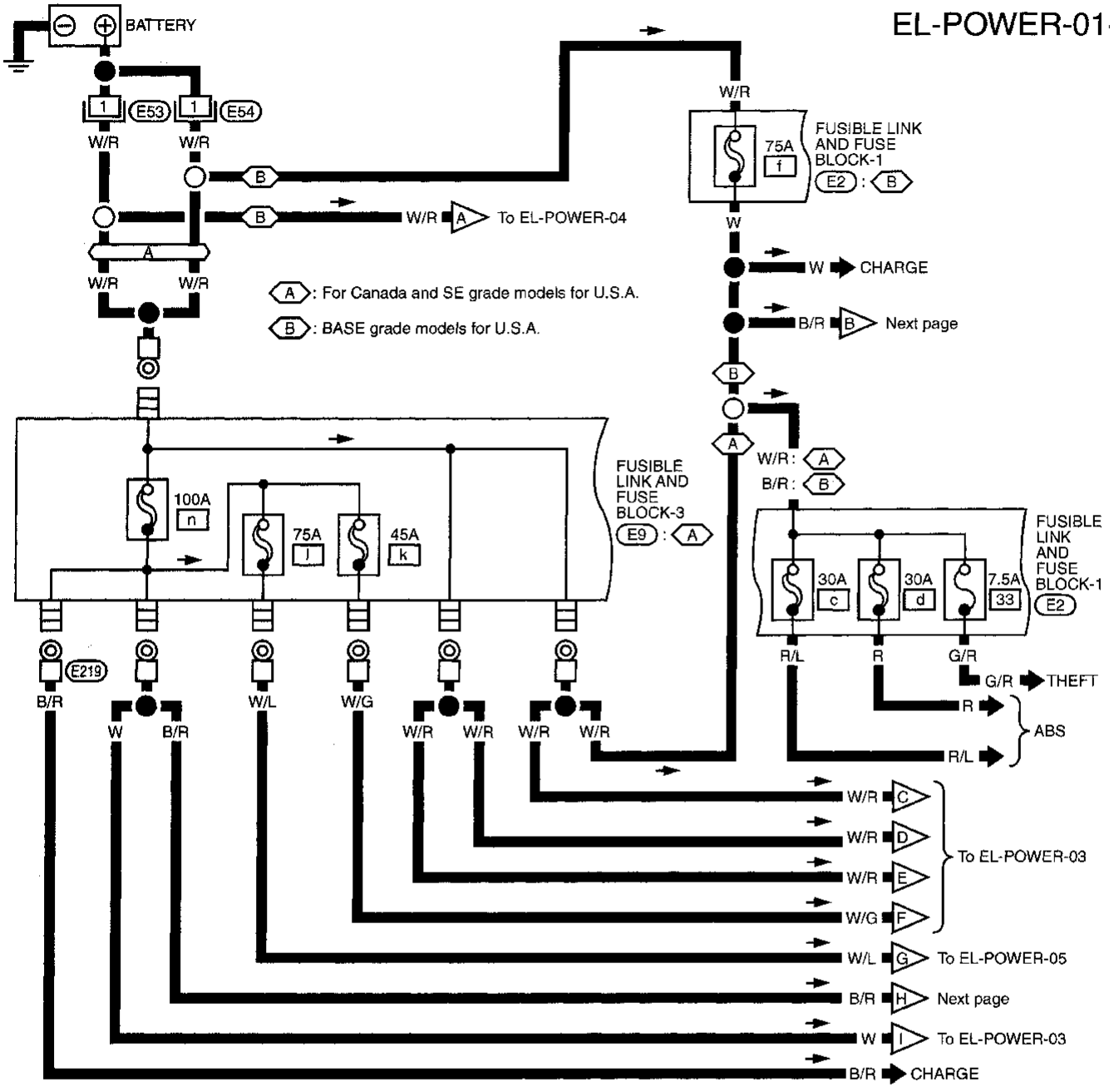
MEL280F

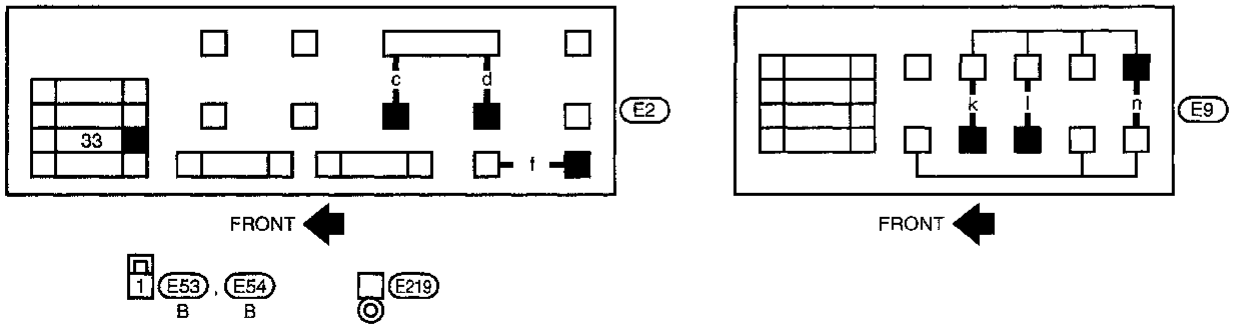
Schematic (Cont'd)



MEL281F

Wiring Diagram — POWER —

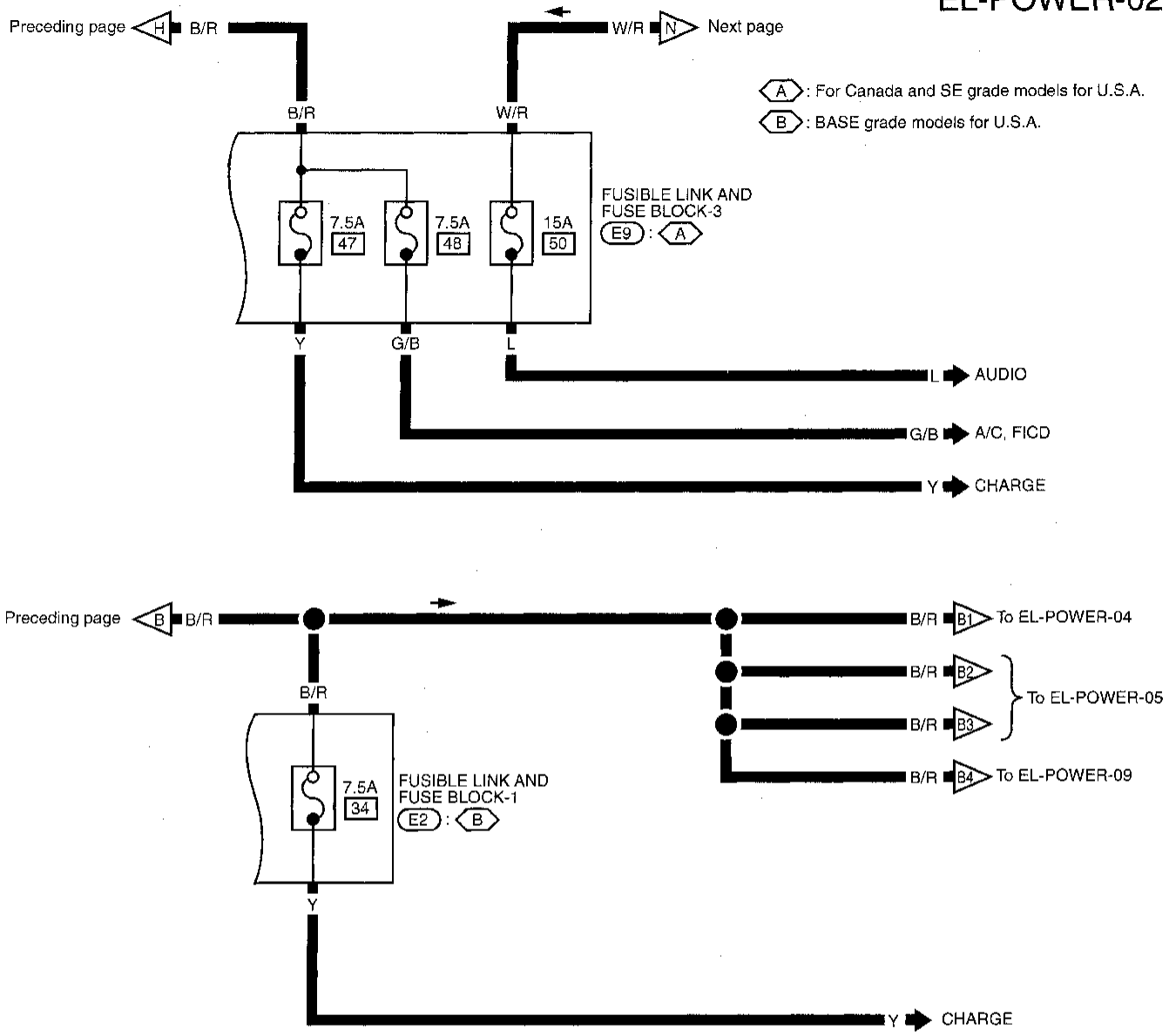


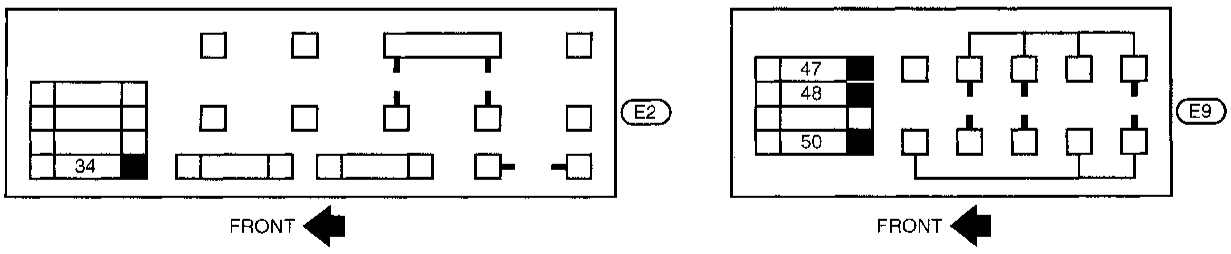


MEL271F

Wiring Diagram — POWER — (Cont'd)

EL-POWER-02

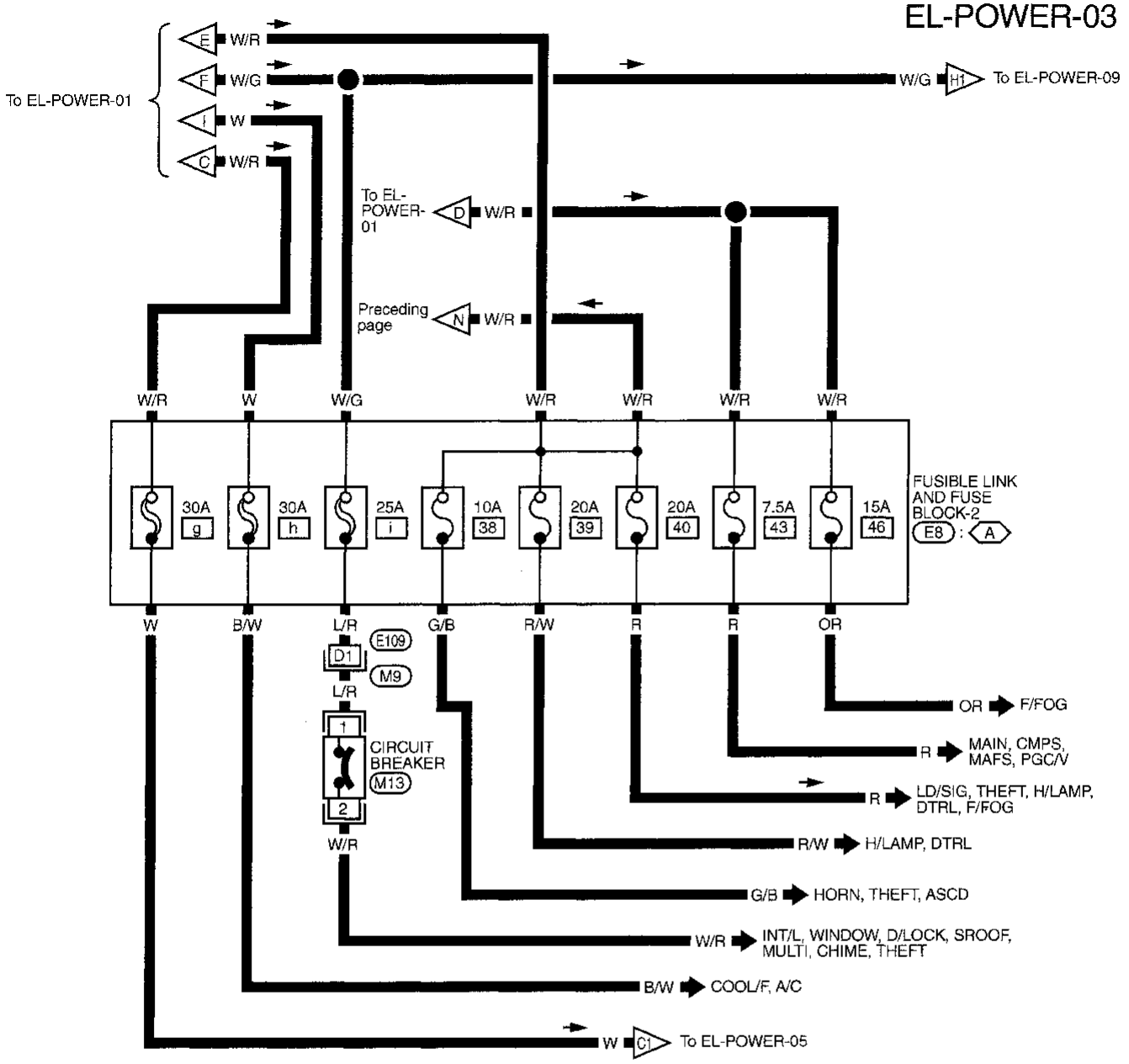




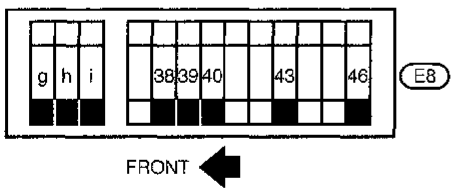
MEL272F

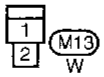
Wiring Diagram — POWER — (Cont'd)

EL-POWER-03



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



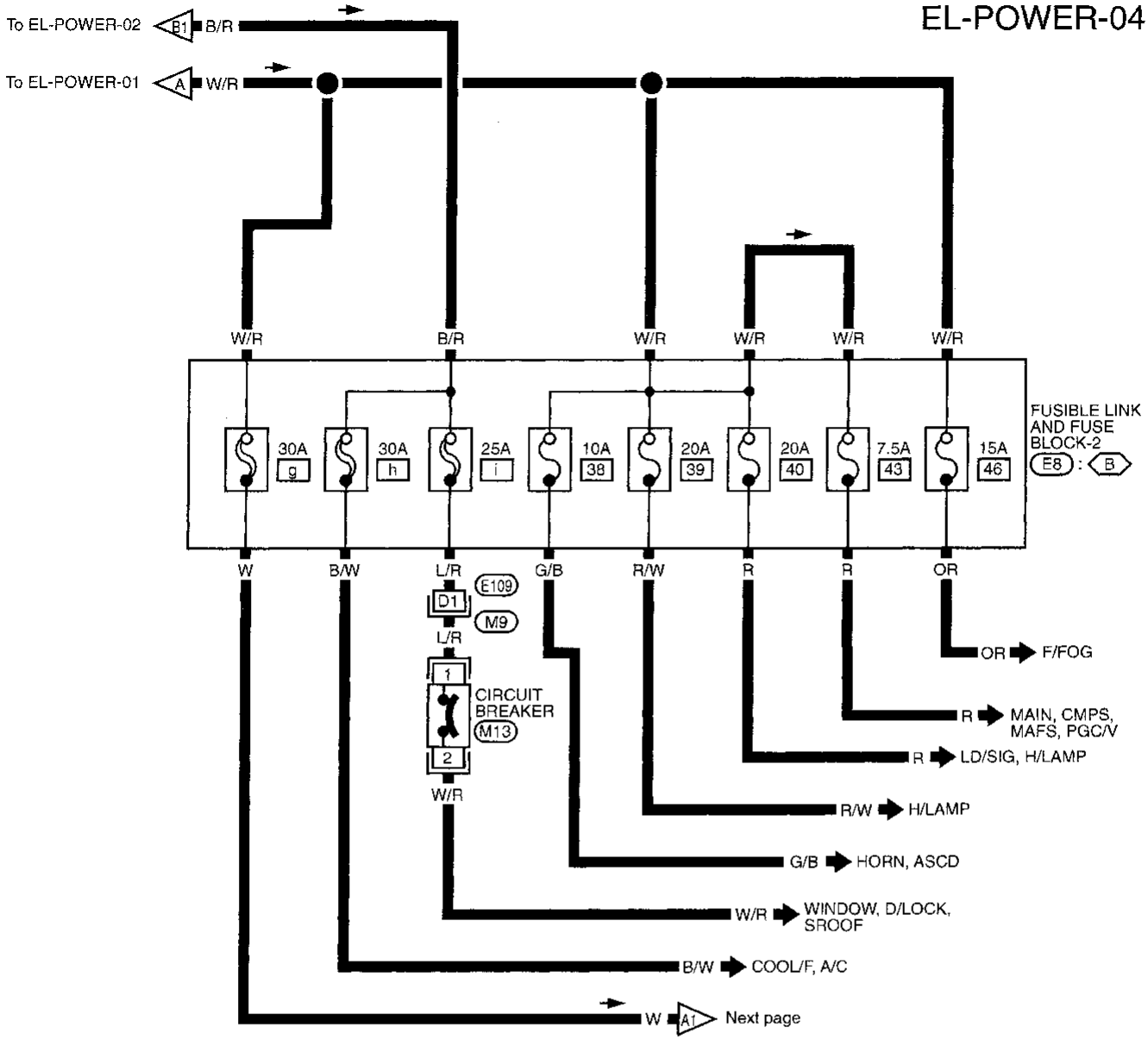


Refer to last page (Foldout page).
M9 , E109

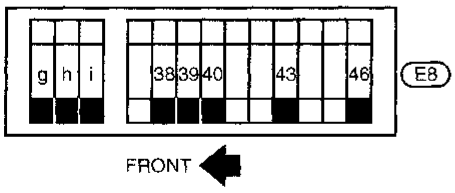
MEL273F

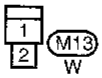
Wiring Diagram — POWER — (Cont'd)

EL-POWER-04



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



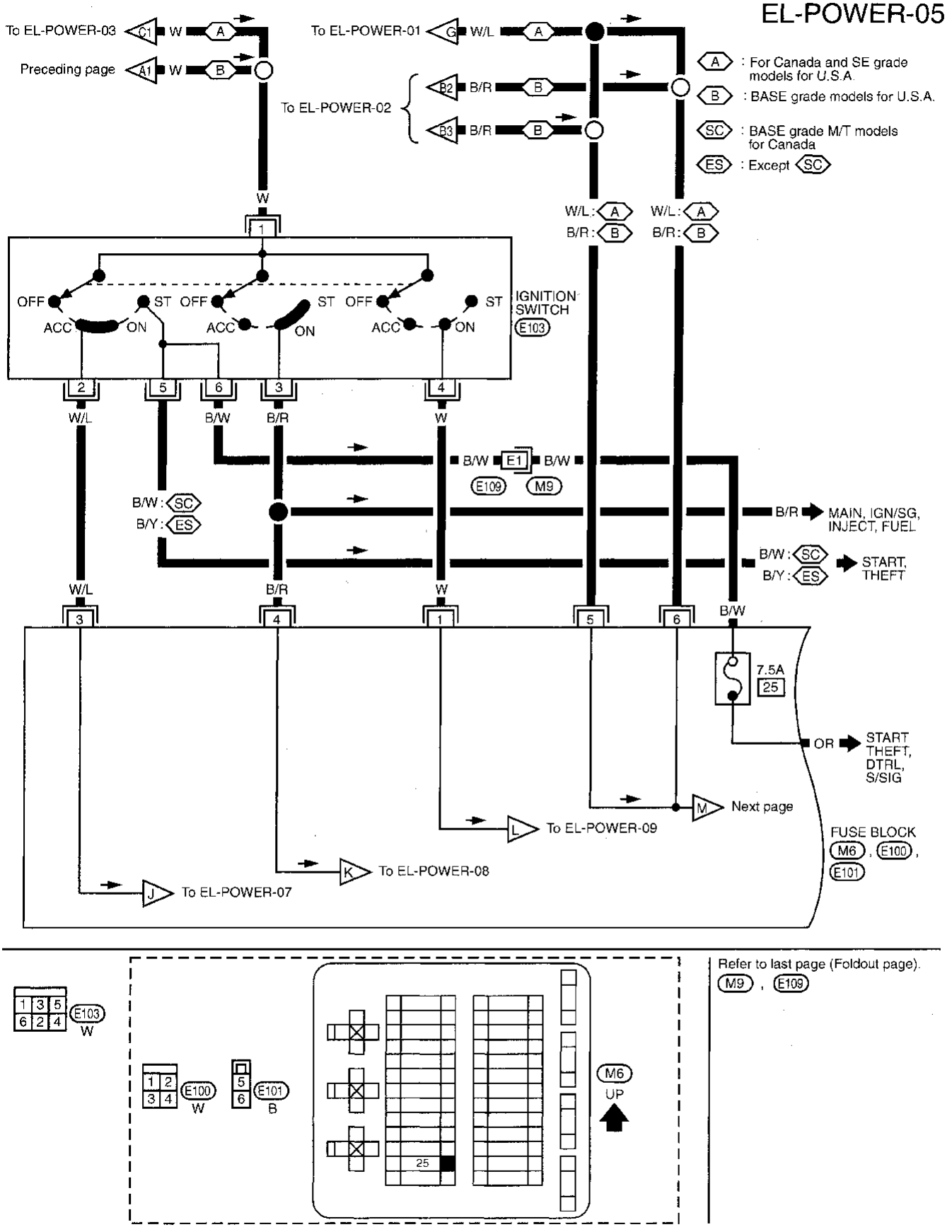


Refer to last page (Foldout page).
M9 , E109

MEL274F

Wiring Diagram — POWER — (Cont'd)

EL-POWER-05



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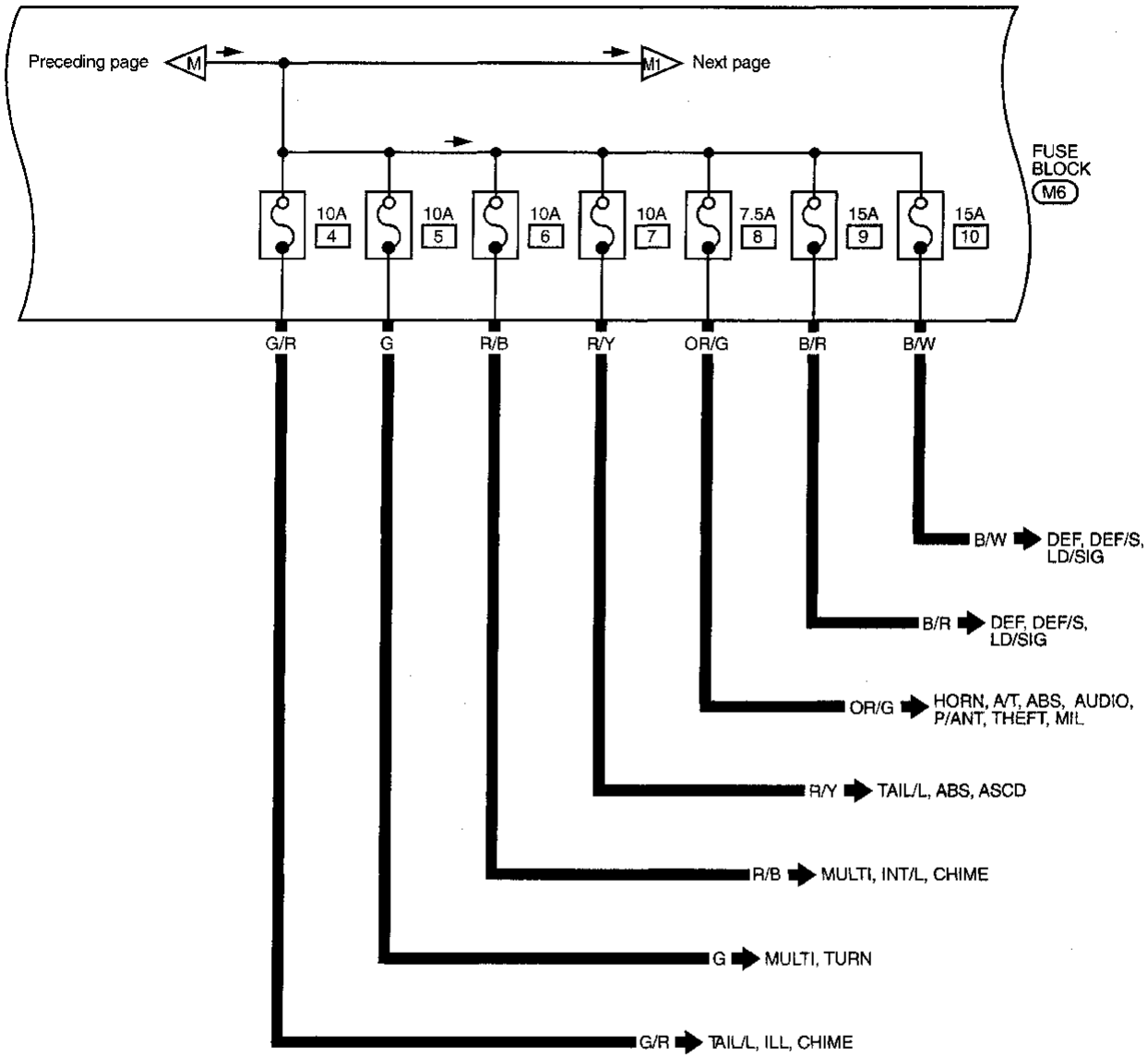
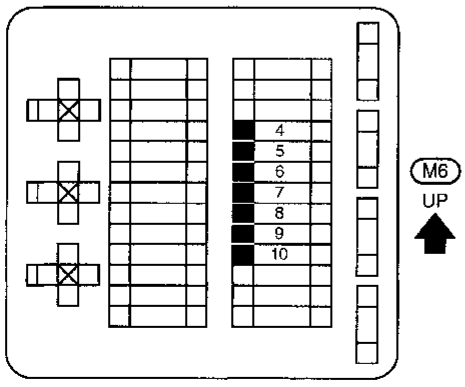
M9 , E109

MEL275F

EL-POWER-06

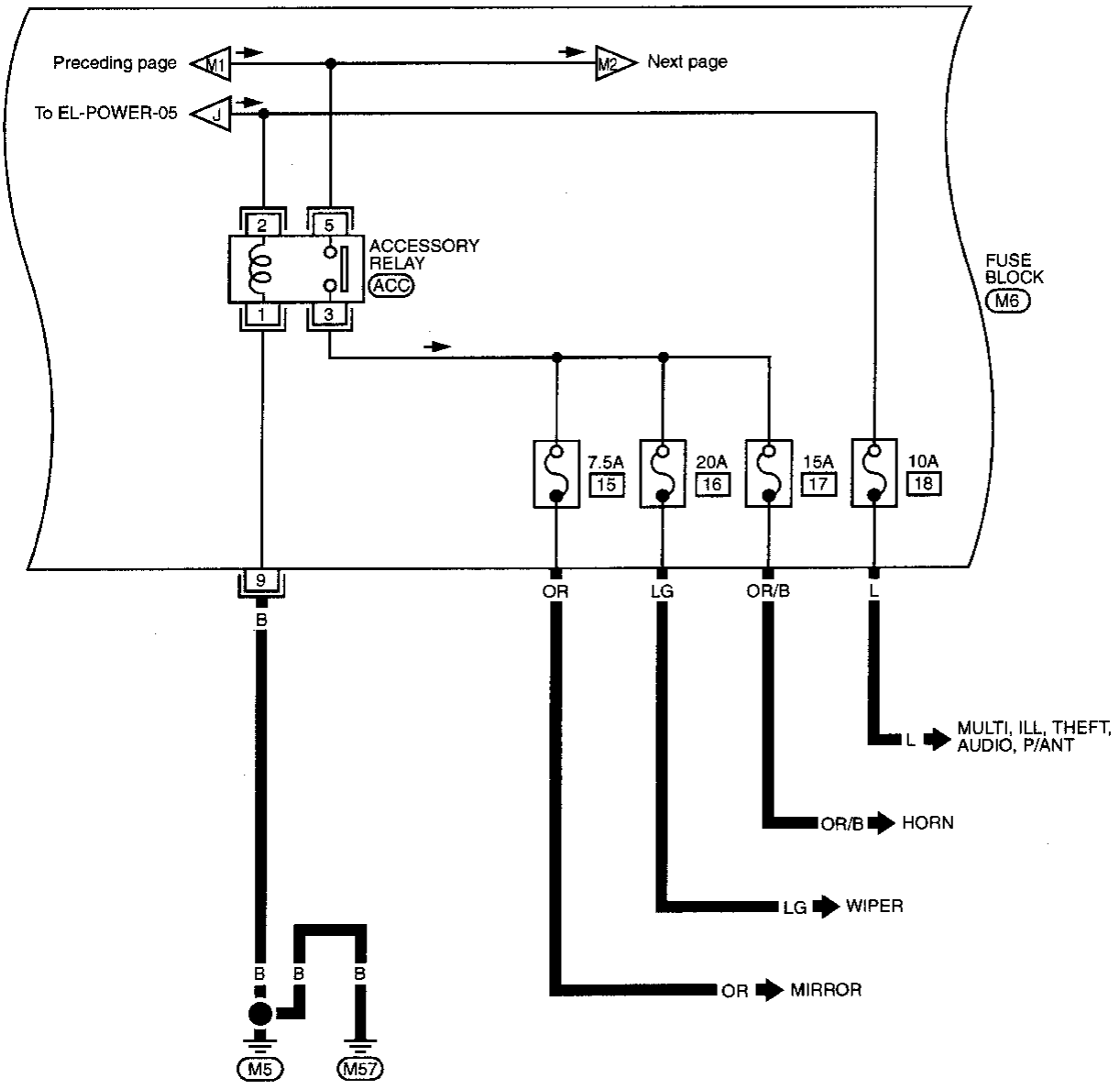


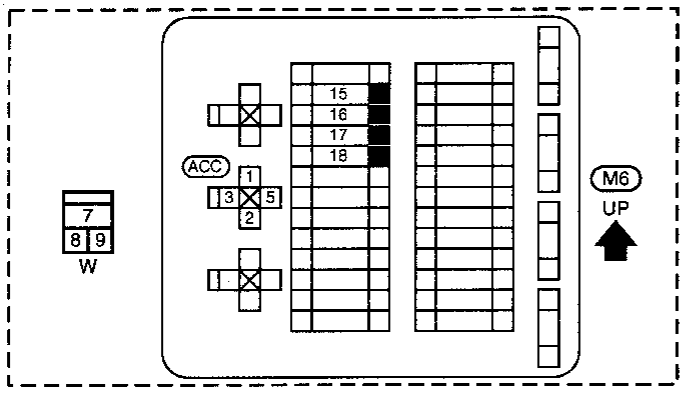


MEL276F

Wiring Diagram — POWER — (Cont'd)

EL-POWER-07

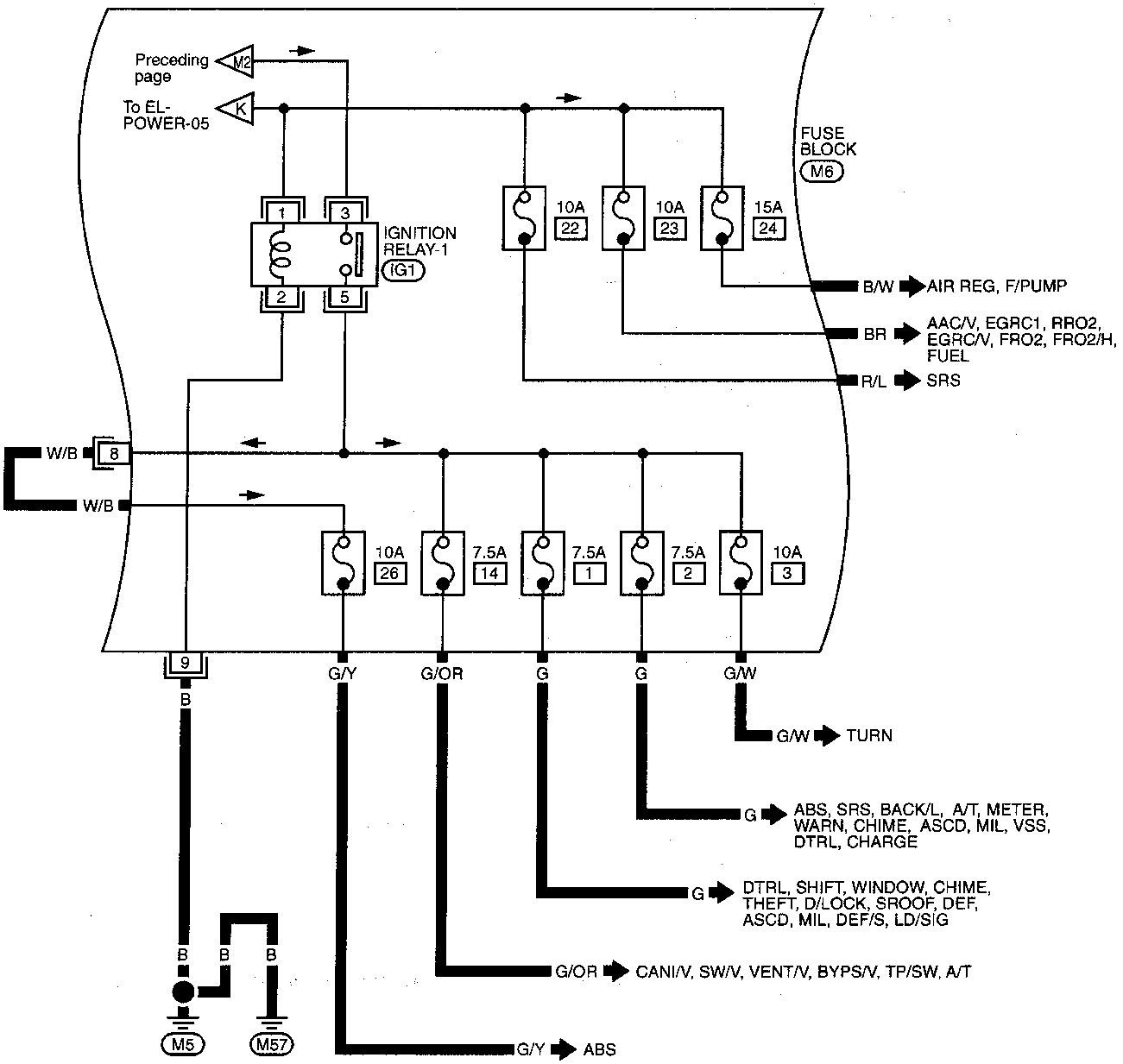


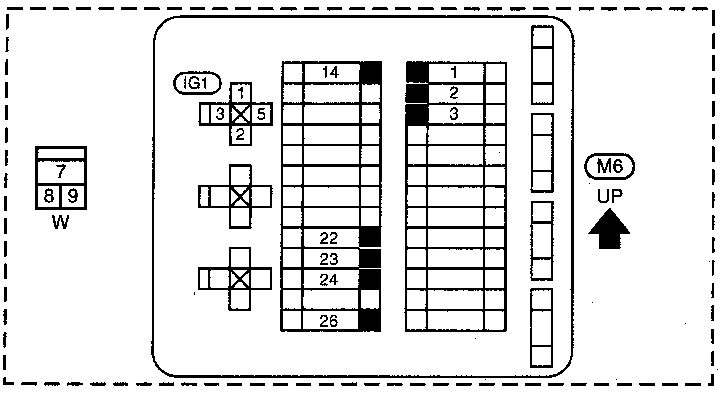


MEL277F

Wiring Diagram — POWER — (Cont'd)

EL-POWER-08

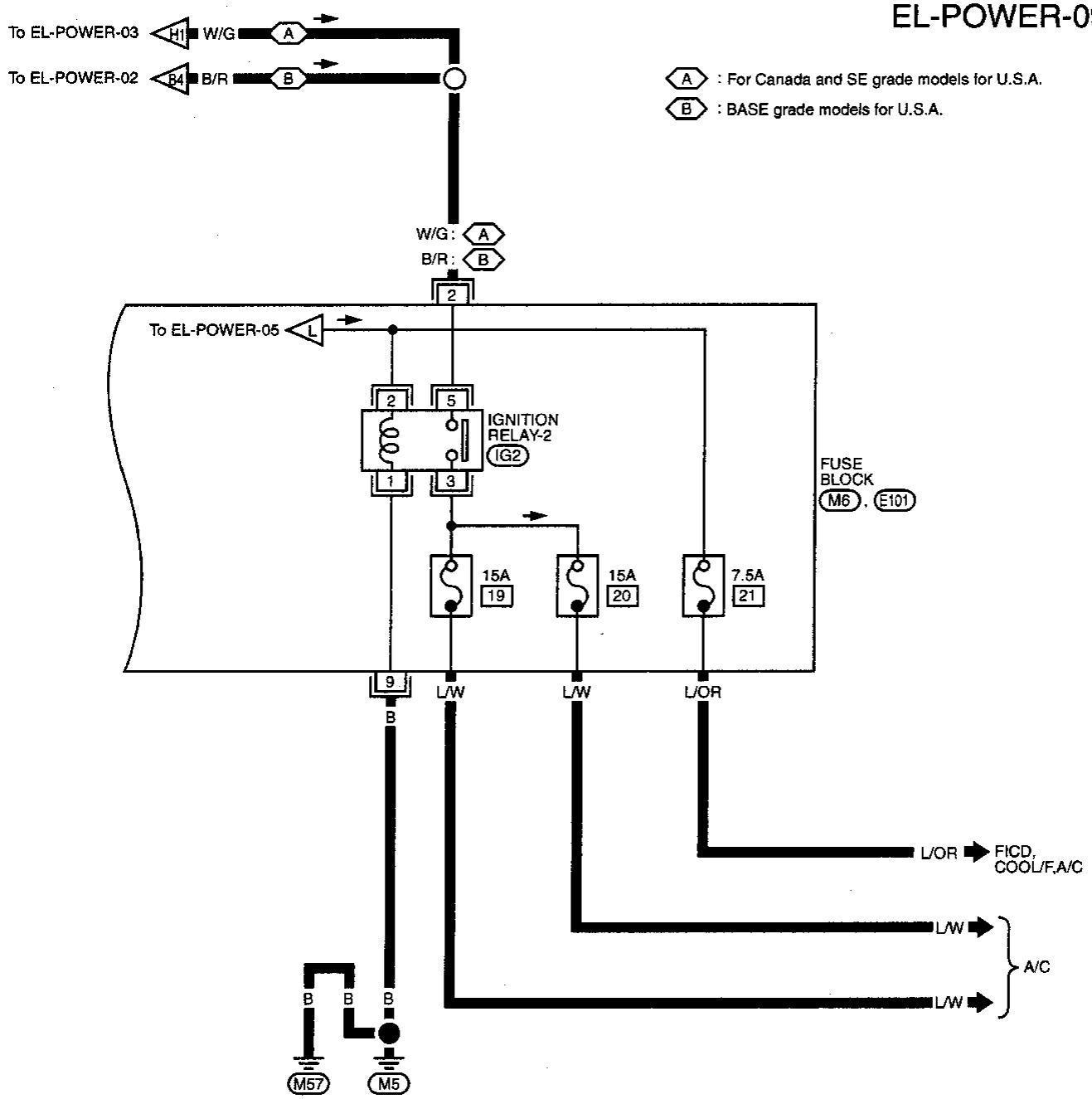


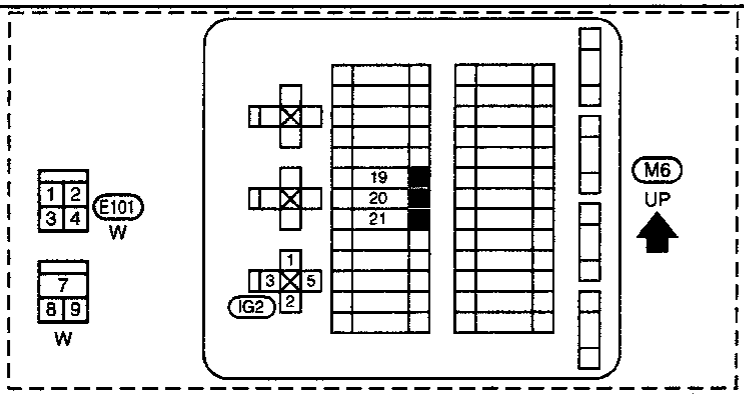


MEL278F

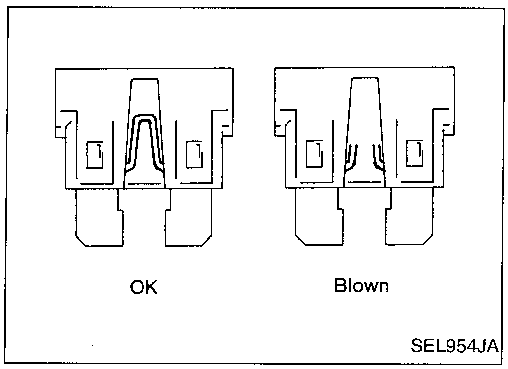
Wiring Diagram — POWER — (Cont'd)

EL-POWER-09



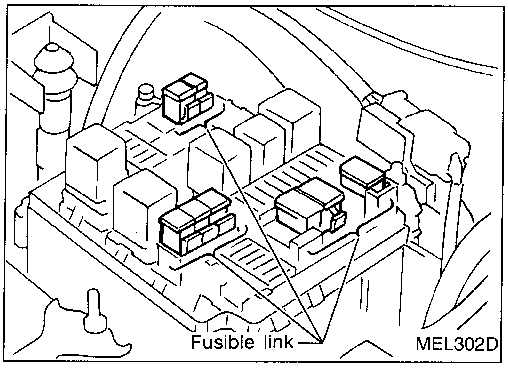


MEL279F



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.**

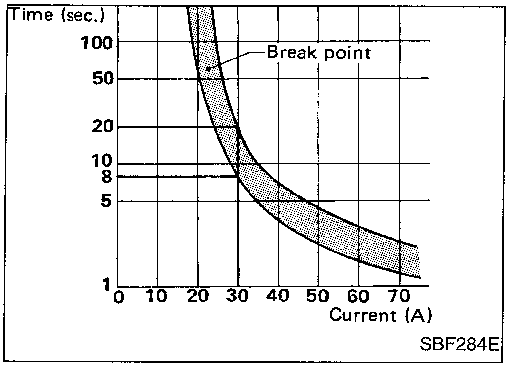


Fusible Link

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.**



Circuit Breaker Inspection

For example, when current is 30A, the circuit is broken within 8 to 20 seconds.

Circuit breakers are used in the following systems.

- Power window & power door lock
- Power sunroof
- Multi-remote control system
- Theft warning system

EARTH	CONNECT TO	CONN. NO.	CELL CODE
M5/M57	AIR MIX DOOR MOTOR	M33	HA-A/C
	ASCD CONTROL UNIT	M62	EL-ASCD
	ASCD HOLD RELAY	M58: M/T	EL-ASCD
		M79: A/T	
	ASCD MAIN SWITCH	M17	EL-ASCD
	CIGARETTE LIGHTER SOCKET	M78	EL-HORN
	COMBINATION FLASHER UNIT	M32	EL-TURN
	COMBINATION METER (AIR BAG)	M72	EL-WARN
	COMBINATION METER	M70	EL-HORN
	COMBINATION METER (CRUISE)	M71	AT-A/T EL-ASCD
	COMBINATION METER (HIGH BEAM)	M73	EL-H/LAMP EL-DTRL
	COMBINATION METER (SPEED)	M72	EL-METER EL-ASCD EC-VSS
	COMBINATION METER (TACHO)	M72	EL-METER
	COMBINATION METER (TURN)	M71	EL-TURN
	COMBINATION METER (WATER)	M72	EL-METER
	DATA LINK CONNECTOR FOR CONSULT	M7	EC-MIL
	DATA LINK CONNECTOR FOR GST	M74	EC-MIL
	FAN SWITCH	M35	HA-A/C
	FUSE BLOCK	M6	EL-POWER
	ILLUMINATION CONTROL SWITCH	M16	EL-ILL
	INTAKE DOOR MOTOR	M51	HA-A/C
	MODE DOOR MOTOR	M34	HA-A/C
	POWER WINDOW RELAY	M1	EL-SROOF EL-WINDOW
	PUSH CONTROL UNIT	M77	HA-A/C
	REAR WINDOW DEFOGGER SWITCH	M39	EL-DEF
	REAR WINDOW DEFOGGER TIMER	M18	EL-DEF
	SMART ENTRANCE CONTROL UNIT	M20	EL-INT/L EL-CHIME EL-DEF EL-D/LOCK EL-THEFT
	THEFT WARNING HORN RELAY-2	M80	EL-THEFT
	WARNING BUZZER UNIT	M19	EL-CHIME
	SHIELD WIRE (ABS CONTROL UNIT)	T32	BR-ABS
	DOOR KEY CYLINDER SWITCH LH	D10	EL-THEFT
	DOOR KEY CYLINDER SWITCH RH	D110	EL-THEFT
	DOOR LOCK ACTUATOR LH	D12	EL-D/LOCK EL-MULTI EL-THEFT
	DOOR LOCK ACTUATOR RH	D111	EL-D/LOCK EL-MULTI EL-THEFT
	DOOR LOCK/UNLOCK SWITCH	D108	EL-D/LOCK
	POWER WINDOW MAIN SWITCH	D8	EL-WINDOW EL-D/LOCK
	SPOT LAMP	R3	EL-INT/L
	AIR BAG DIAGNOSIS SENSOR UNIT	Z1	RS-SRS

EARTH	CONNECT TO	CONN. NO.	CELL CODE
E28/E42	5TH POSITION SWITCH	E215	EC-5TH/P
	AMBIENT SWITCH	E36	EC-FICD HA-A/C
	BRAKE FLUID LEVEL SWITCH	E45	EL-WARN
	CLEARANCE LAMP LH	E41	EL-TAIL/L
	CLEARANCE LAMP RH	E31	EL-TAIL/L
	CLUTCH INTERLOCK SWITCH	E102	EL-START EL-THEFT
	COOLING FAN MOTOR	E30	HA-A/C EC-COOL/F
	DAYTIME LIGHT CONTROL UNIT	E27	EL-DTRL EL-THEFT
	FOG LAMP SWITCH	E108	EL-F/FOG
	FRONT FOG LAMP LH	E39	EL-F/FOG
	FRONT FOG LAMP RH	E33	EL-F/FOG
	FRONT SIDE MARKER LAMP LH	E43	EL-TAIL/L
	FRONT SIDE MARKER LAMP RH	E22	EL-TAIL/L
	FRONT TURN SIGNAL LAMP LH	E38	EL-TURN
	FRONT TURN SIGNAL LAMP RH	E34	EL-TURN
	HEADLAMP RH (INSIDE)	E49	EL-H/LAMP EL-DTRL
	HEADLAMP LH (INSIDE)	E50	EL-H/LAMP
	HEADLAMP RH (OUTSIDE)	E32	EL-H/LAMP EL-DTRL EL-THEFT
	HEADLAMP LH (OUTSIDE)	E40	EL-H/LAMP EL-THEFT
	HOOD SWITCH	E21	EL-THEFT
	NEUTRAL POSITION SWITCH	E214	EC-PNP/SW
	PARK/NEUTRAL POSITION RELAY	E51	EL-ASCD
	POWER STEERING OIL PRESSURE SWITCH	E47	EC-PST/SW
	TRIPLE-PRESSURE SWITCH	E29	EC-FICD HA-A/C
	WASHER FLUID LEVEL SWITCH	E25	EL-WARN
	WIPER SWITCH	E104	EL-WIPER
E205	ALTERNATOR	E220	EC-CHARGE
F14/F15	REAR HEATED OXYGEN SENSOR	E217	EC-RRO2
	ABS ACTUATOR	F40	BR-ABS
	DISTRIBUTOR (CAMSHAFT POSITION SENSOR)	F31	EC-CMPS EC-IGN/SG
	ECM (ECCS CONTROL MODULE)	F1	EC-MAIN AT-A/T
	IACV-AIR REGULATOR	F52	EC-AIRREG
	ABSOLUTE PRESSURE SENSOR	F36	EC-AP/SEN
	CRANKSHAFT POSITION SENSOR (OBD)	E231	EC-CKPS
	FRONT HEATED OXYGEN SENSOR	F16	EC-FRO2 EC-FRO2/H EC-FUEL
	KNOCK SENSOR	F62	EC-KS
	MASS AIR FLOW SENSOR	F30	EC-MAFS
	THROTTLE POSITION SENSOR	F22	EC-TPS
	WIPER AMPLIFIER	F9	EL-WIPER
	WIPER MOTOR	F7	EL-WIPER
	EVAP CONTROL SYSTEM PRESSURE SENSOR	T36	EC-PRE/SE
	DATA LINK CONNECTOR FOR GST	M74	EC-MIL

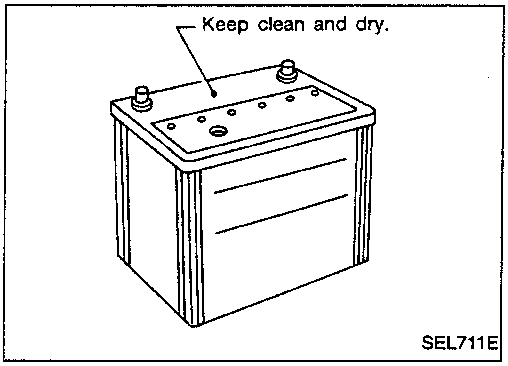
EARTH	CONNECT TO	CONN. NO.	CELL CODE
B4/B13	COMBINATION METER (FUEL)	M73	EL-WARN
	DOOR MIRROR REMOTE CONTROL SWITCH	B8	EL-MIRROR
	DOOR SWITCH LH	B10	INT/L EL-CHIME EL-MULTI EL-THEFT RS-SRS
	SEAT BELT BUCKLE SWITCH	B5	EL-WARN EL-CHIME
	DIODE	B37	AT-SHIFT
	ABS CONTROL UNIT	T33	BR-ABS
	OVERDRIVE CONTROL SWITCH	B7	AT-A/T
	BACK-UP LAMP LH	T9	EL-BACK/L
	BACK-UP LAMP RH	T7	EL-BACK/L
	FUEL PUMP	T30	EC-F/PUMP
	FUEL TANK GAUGE UNIT	T29	EL-METER EL-TFTS
	HIGH-MOUNTED STOP LAMP	T5	EL-TAIL/L
	LICENSE LAMP	T14	EL-TAIL/L
	POWER ANTENNA	T10	EL-P/ANT
	REAR COMBINATION LAMP LH	T13	EL-TAIL/L EL-TURN
	REAR COMBINATION LAMP RH	T19	EL-TAIL/L EL-TURN
	REAR SIDE MARKER LH	T12	EL-TAIL/L
	REAR SIDE MARKER RH	T20	EL-TAIL/L
	SHIELD WIRE (ABS CONTROL UNIT)	T32	BR-ABS
	TRUNK LID KEY CYLINDER SWITCH	T6	EL-THEFT
	TRUNK ROOM LAMP SWITCH	T8	EL-INT/L EL-THEFT
T16	COMBINATION METER (AIR BAG)	M72	EL-WARN
	DOOR MIRROR REMOTE CONTROL SWITCH	B8	EL-MIRROR
	DOOR SWITCH LH	B10	EL-INT/L EL-CHIME EL-MULTI EL-THEFT
	OVERDRIVE CONTROL SWITCH	B7	AT-A/T
	SEAT BELT SWITCH	B5	EL-WARN EL-CHIME
	ABS CONTROL UNIT	T33	BR-ABS
	BACK-UP LAMP LH	T9	EL-BACK/L
	BACK-UP LAMP RH	T7	EL-BACK/L
	FUEL TANK GAUGE UNIT	T29	EL-METER EC-TFTS
	FUEL PUMP	T30	EC-F/PUMP
	HIGH-MOUNTED STOP LAMP	T5	EL-TAIL/L
	LICENSE LAMP	T14	EL-TAIL/L
	POWER ANTENNA	T10	EL-P/ANT
	REAR COMBINATION LAMP LH	T13	EL-TAIL/L EL-TURN
	REAR COMBINATION LAMP RH	T19	EL-TAIL/L EL-TURN
	REAR SIDE MARKER LH	T12	EL-TAIL/L
	REAR SIDE MARKER RH	T20	EL-TAIL/L
	SHIELD WIRE (ABS CONTROL UNIT)	T32	BR-ABS
	TRUNK LID KEY CYLINDER SWITCH	T6	EL-THEFT
	TRUNK ROOM LAMP SWITCH	T8	EL-INT/L EL-THEFT

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.

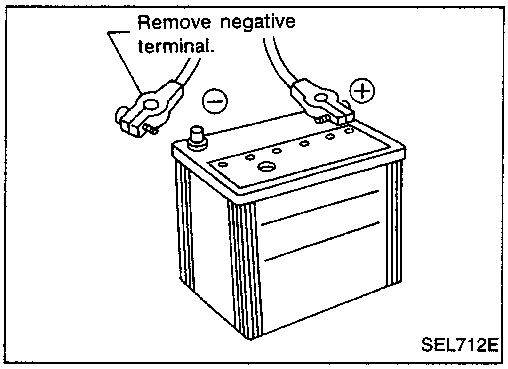


How to Handle Battery

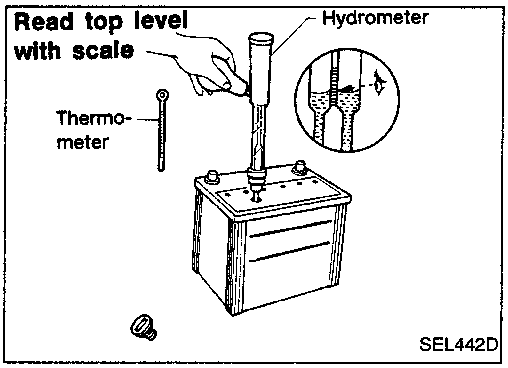
METHODS OF PREVENTING OVER-DISCHARGE

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.)



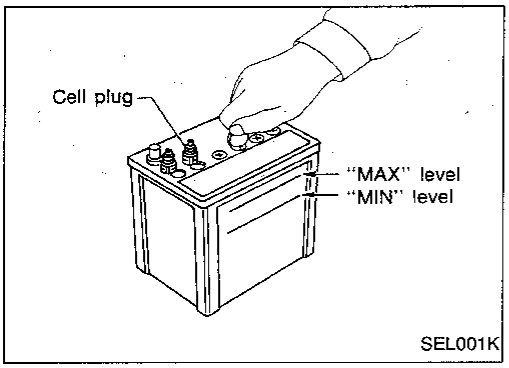
- Check the charge condition of the battery. Periodically check the specific gravity of the electrolyte. Keep a close check on charge condition to prevent over-discharge.

CHECKING ELECTROLYTE LEVEL

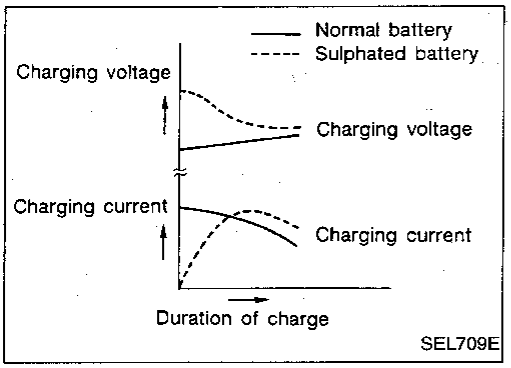
WARNING:

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.

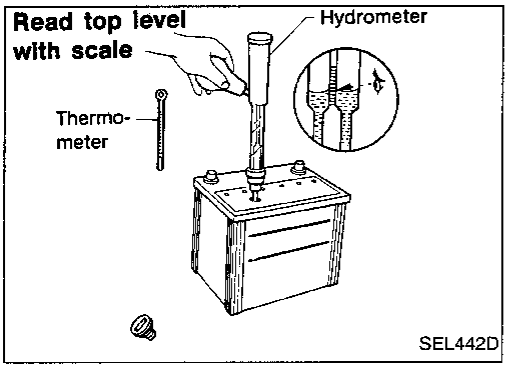


SULPHATION

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 and E28.
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).

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.

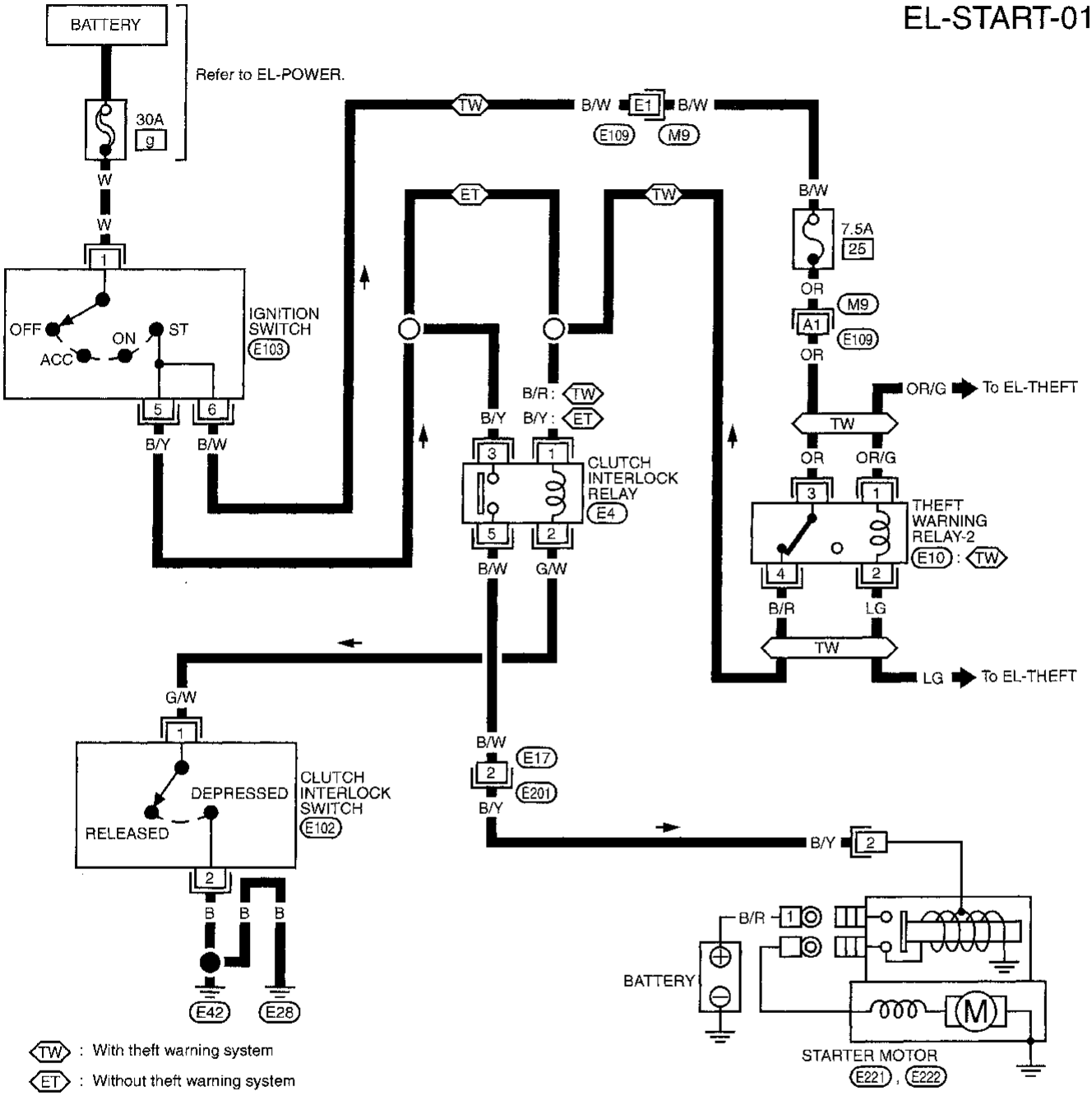
Models without theft warning system

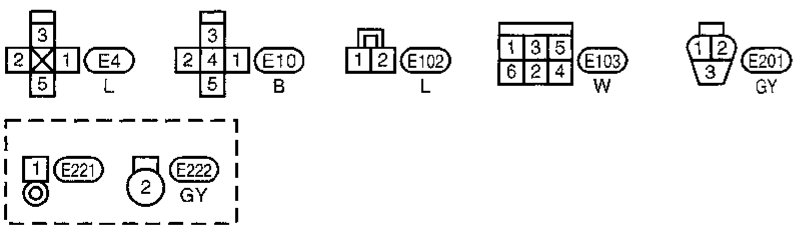
With the ignition switch in the START position, power is supplied
- from ignition switch terminal ⑤
- to inhibitor switch terminal ②
- through inhibitor switch terminal ①, with the selector lever in the P or N position
- to terminal ② of the starter motor windings.

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





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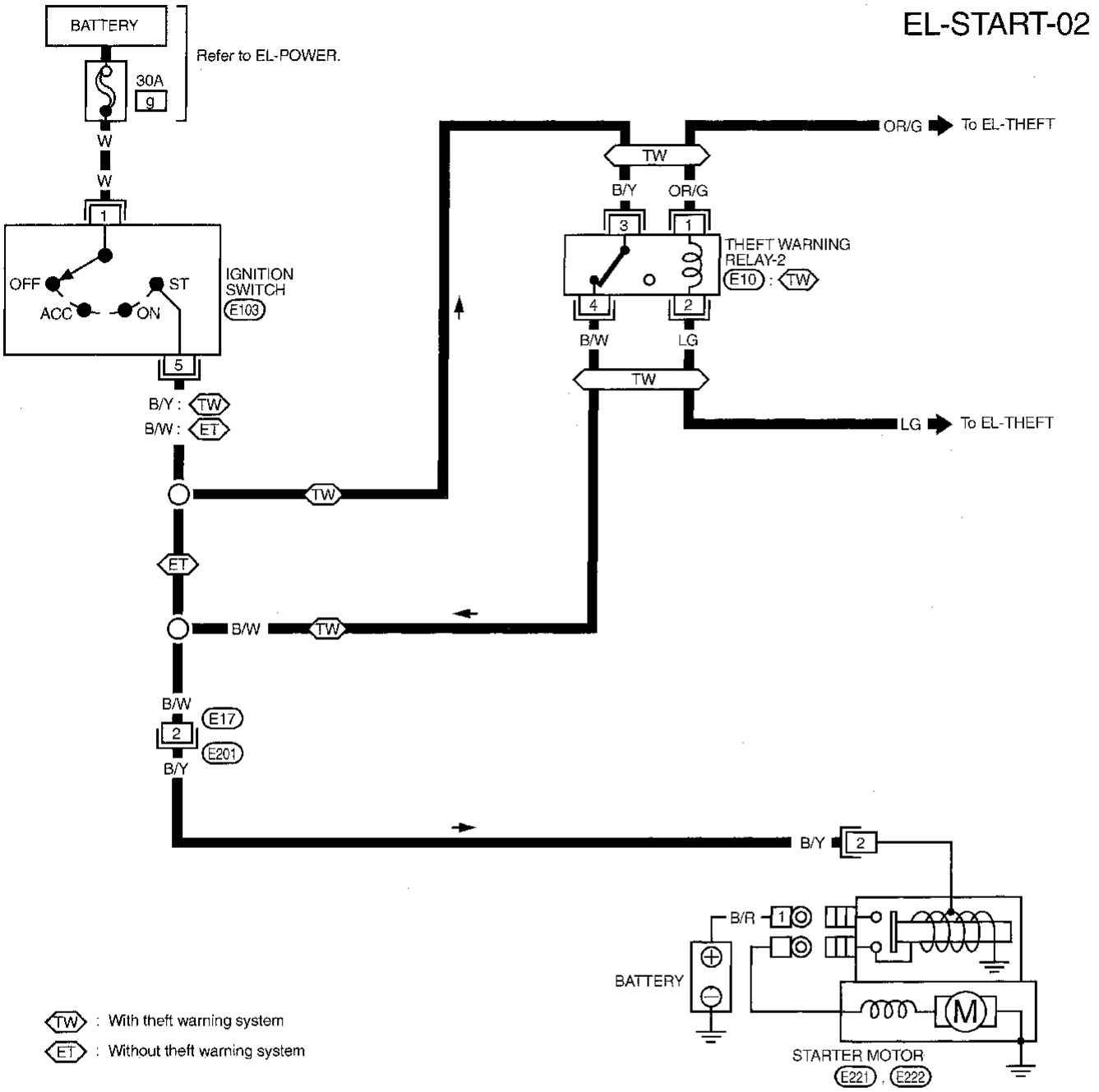
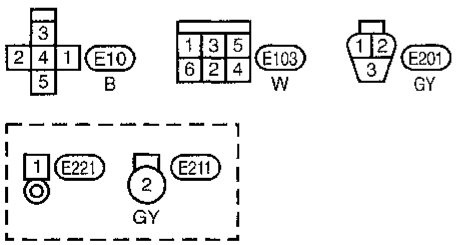
M9 , E109

MEL282F

Wiring Diagram — START — (Cont'd)

M/T MODELS FOR CANADA



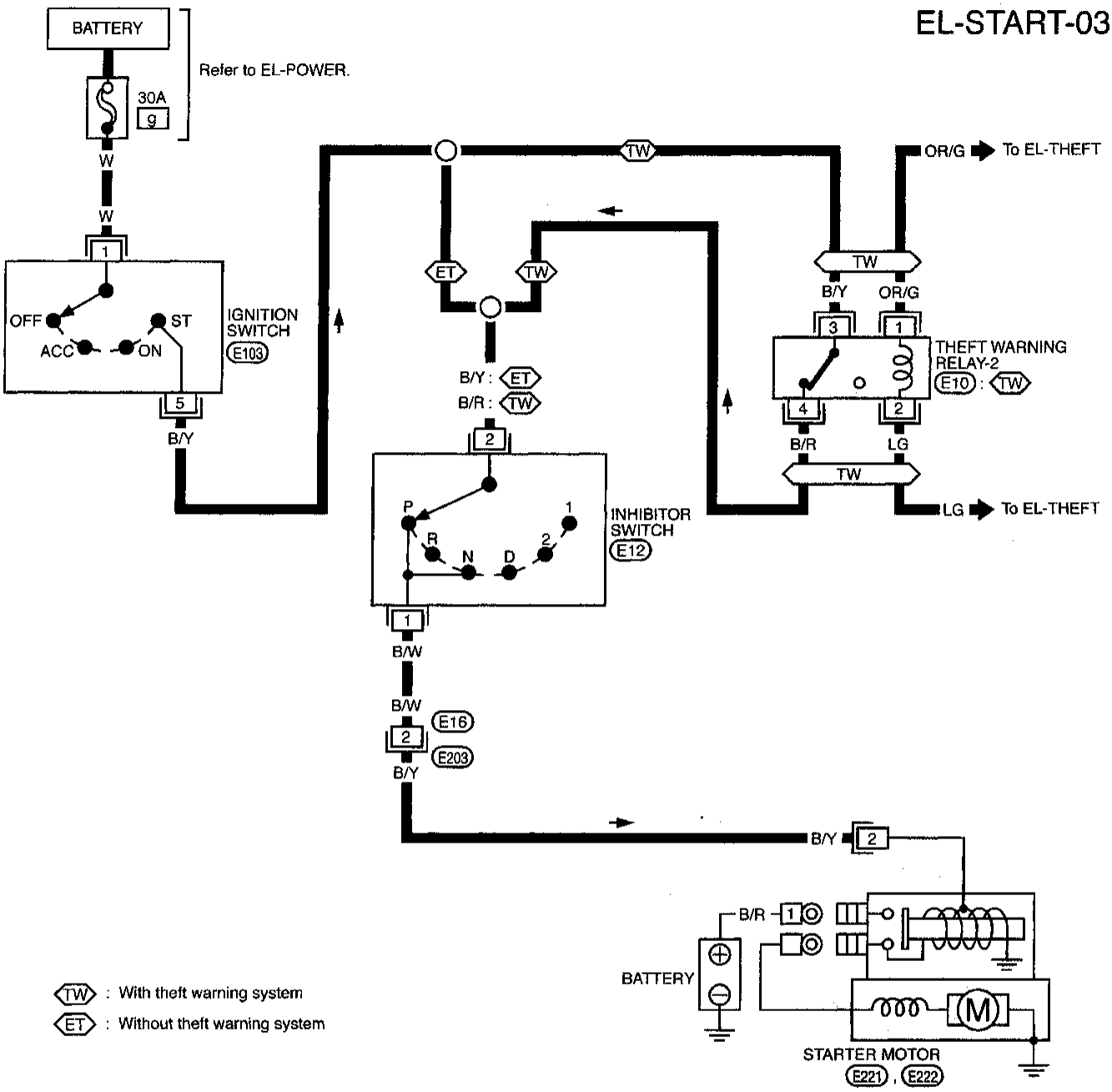


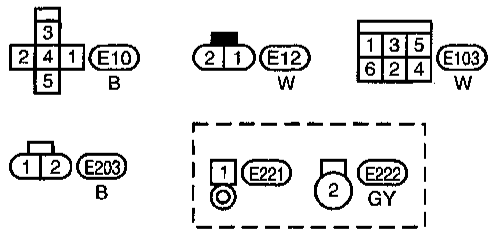
MEL283F

Wiring Diagram — START — (Cont'd)

A/T MODELS

EL-START-03

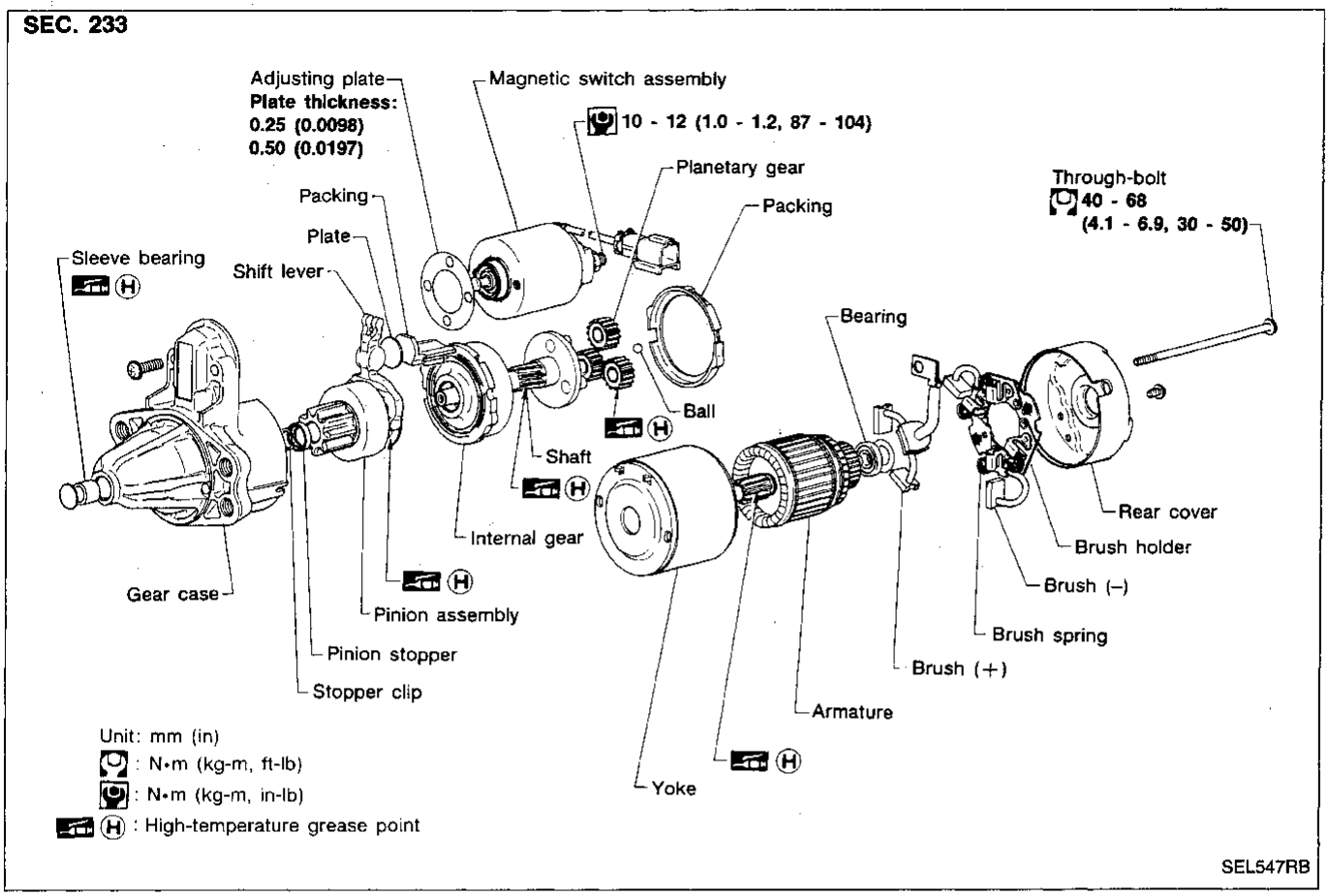


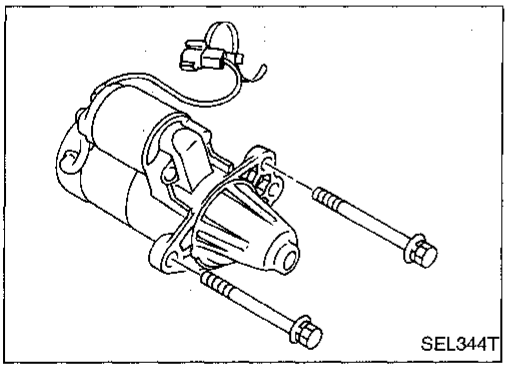


MEL284F

Construction

M1T72781B





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		M1T72781B 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:

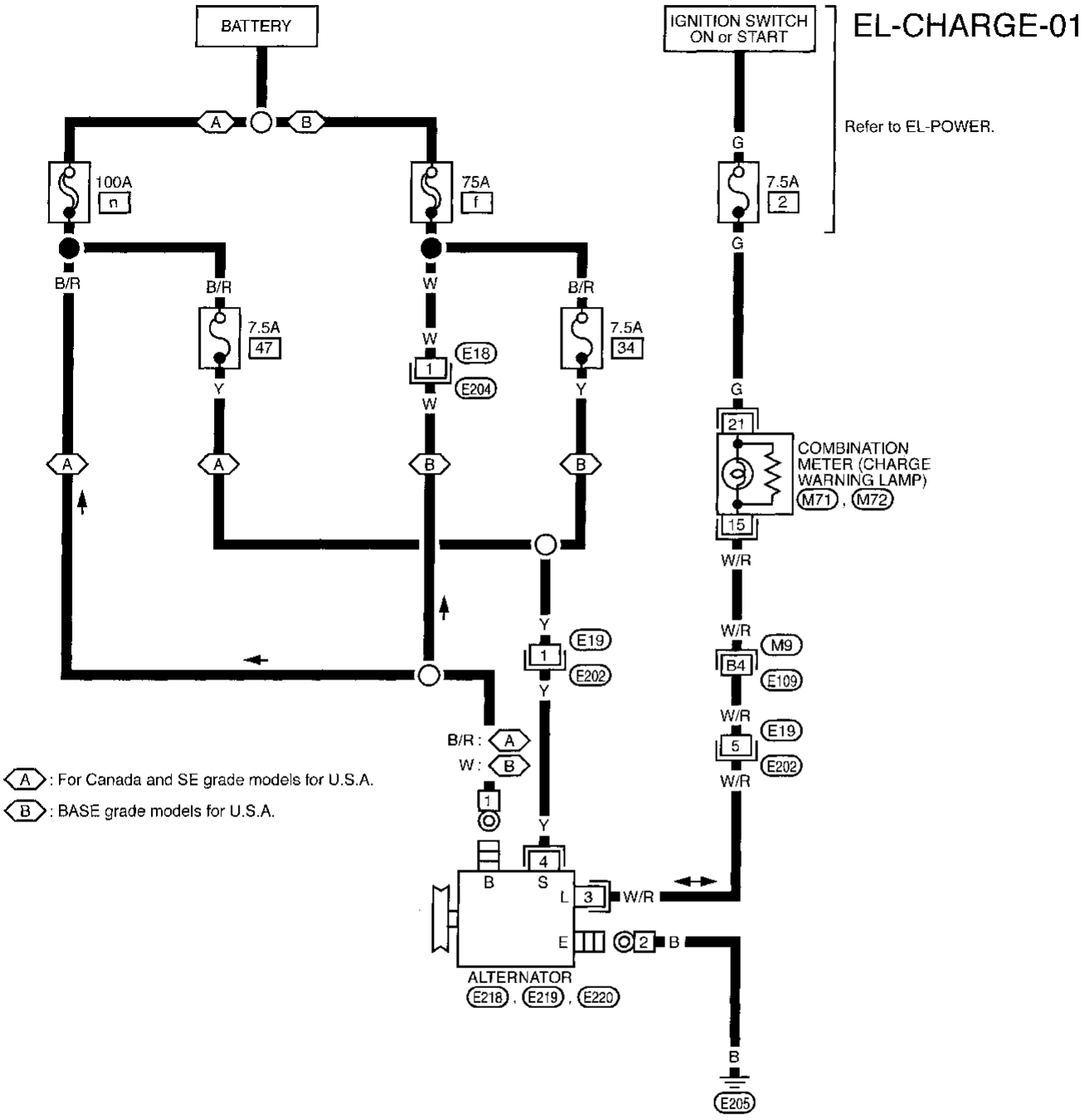
- 100A or 75A fusible link (letter [n] or [f], located in the fusible link and fuse box), and
- 7.5A fuse (No. [47] or [34] , located in the fusible link and fuse box).

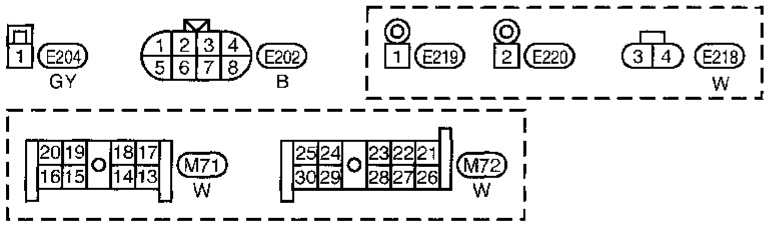
Terminal Ⓑ supplies power to charge the battery and operate the vehicle's electrical system. Output voltage is controlled by the IC regulator at terminal Ⓢ detecting the input voltage. The charging circuit is protected by the 100A or 75A fusible link.
Terminal Ⓔ of the alternator supplies ground through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





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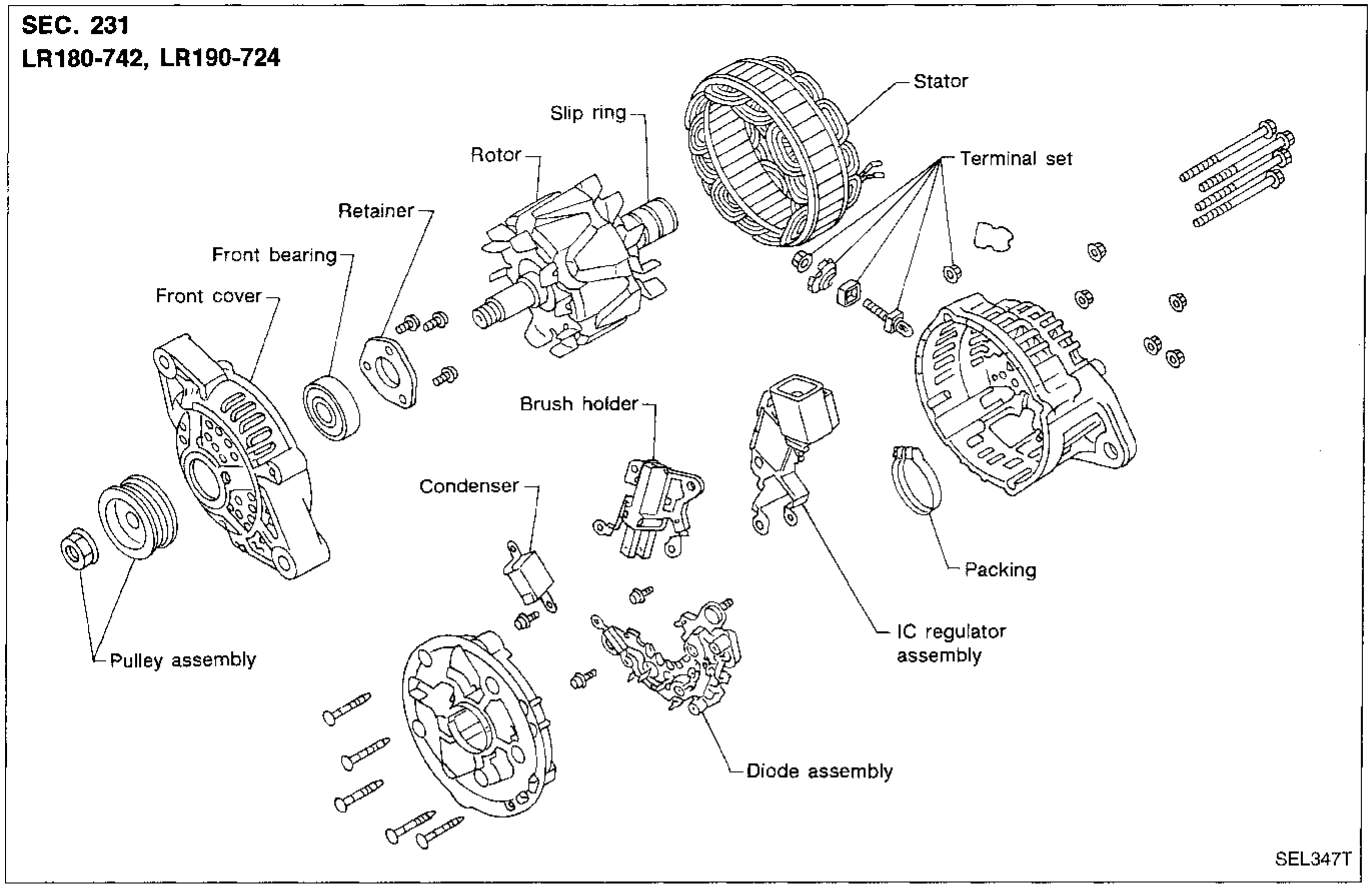
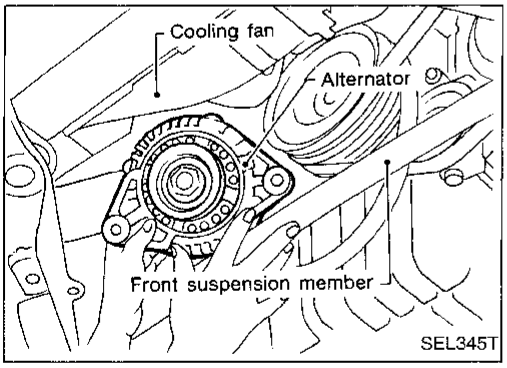
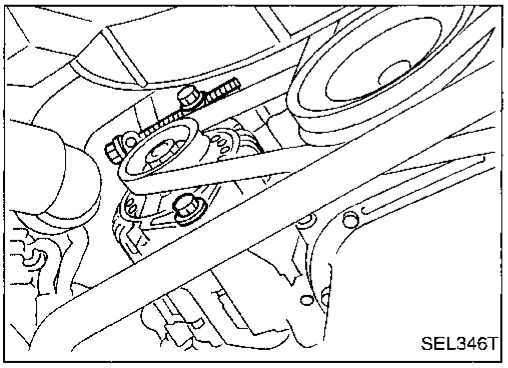
M9 , E109

MEL285F

Construction







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

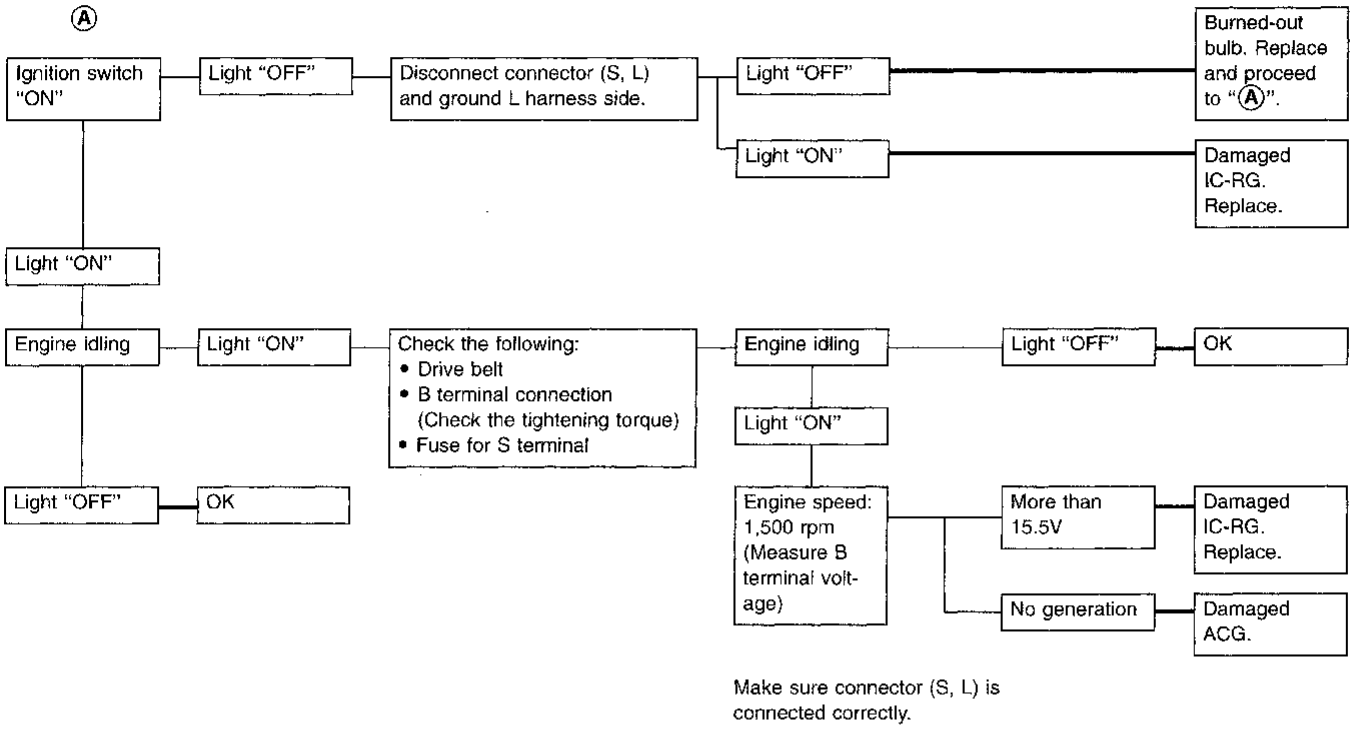
To install, reverse the removal procedure.

Trouble Diagnoses

Before conducting an alternator test, make sure that the battery is fully charged. A 30-volt voltmeter and suitable test probes are necessary for the test. The alternator can be checked easily by referring to the Inspection Table.

Before starting, inspect the fusible link.

WITH IC REGULATOR



1) **Use fully charged battery.**
2) **Light : Charge warning light**
   ACG : Alternator parts except IC regulator
   IC-RG : IC regulator
   OK : IC-alternator is in good condition.
3) **When reaching "Damaged ACG", remove alternator from vehicle and disassembly, inspect and correct or replace faulty parts.**

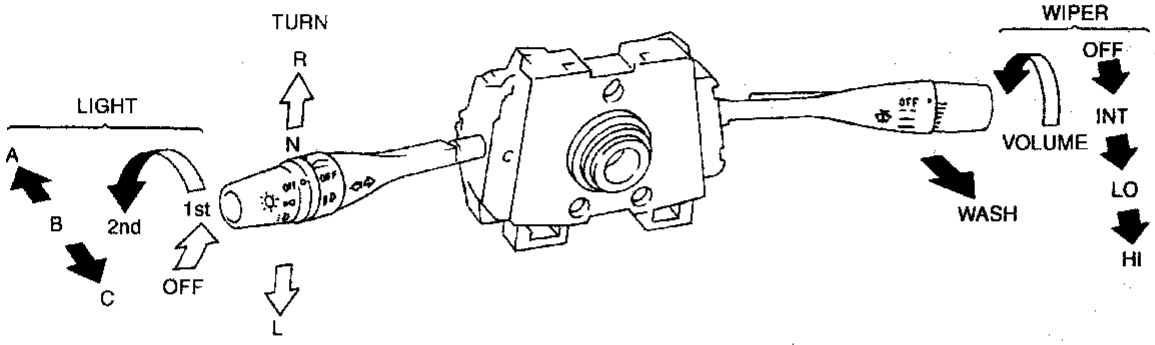
Service Data and Specifications (SDS)

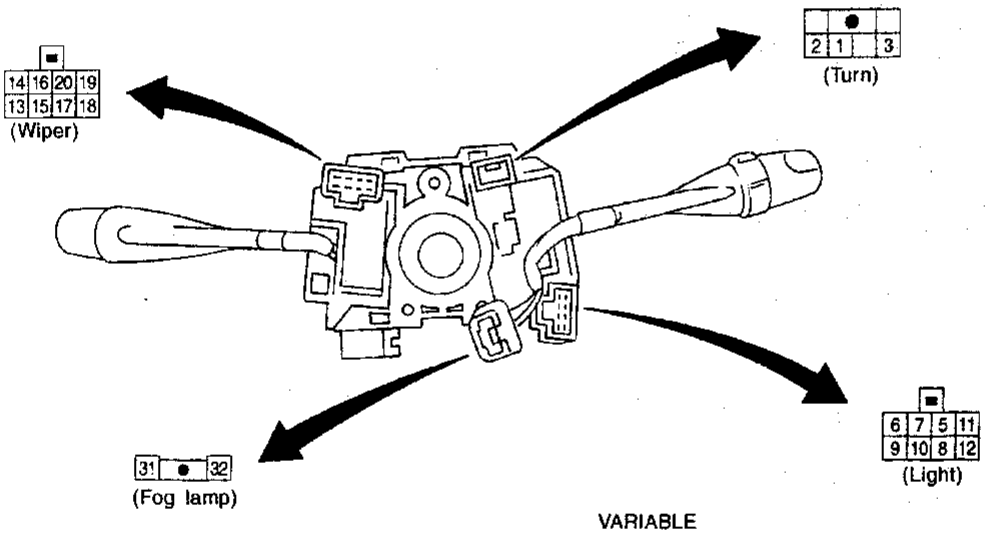
ALTERNATOR

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





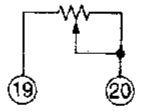
LIGHTING SWITCH

	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



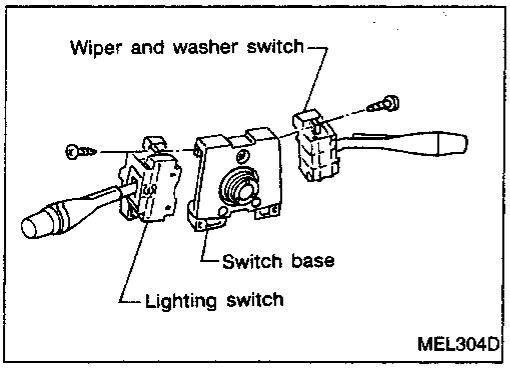
FOG LAMP SWITCH

	OFF	ON
31		○
32		○

	L	N	R
1	○		○
2			○
3	○		

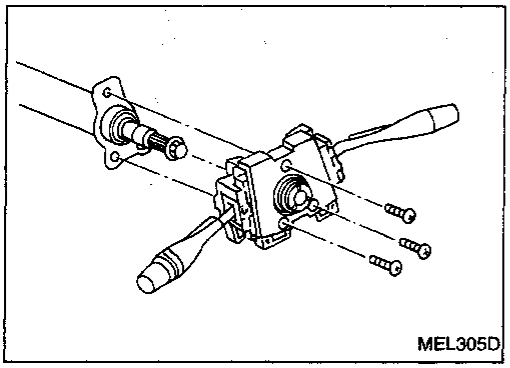
TURN SIGNAL SWITCH

MEL369F



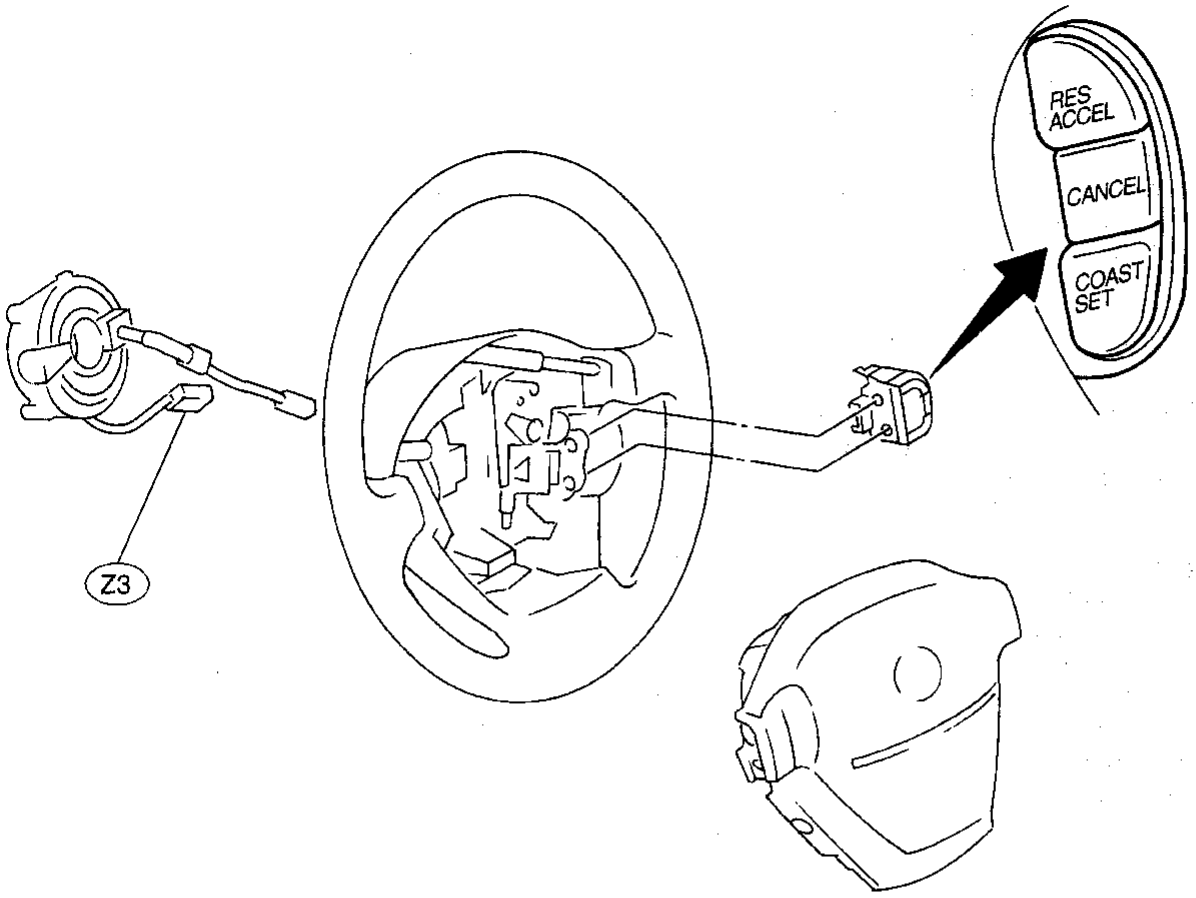
Replacement

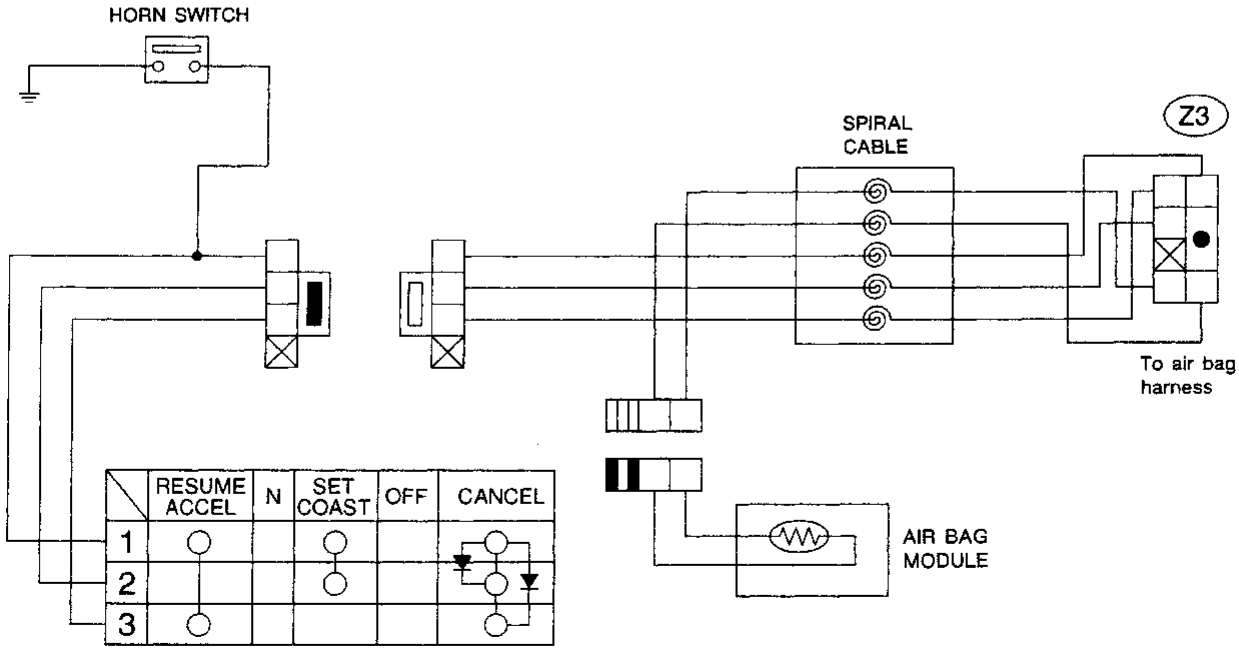
- Each switch can be replaced without removing combination switch base.



- 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 grounds E28 and 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.

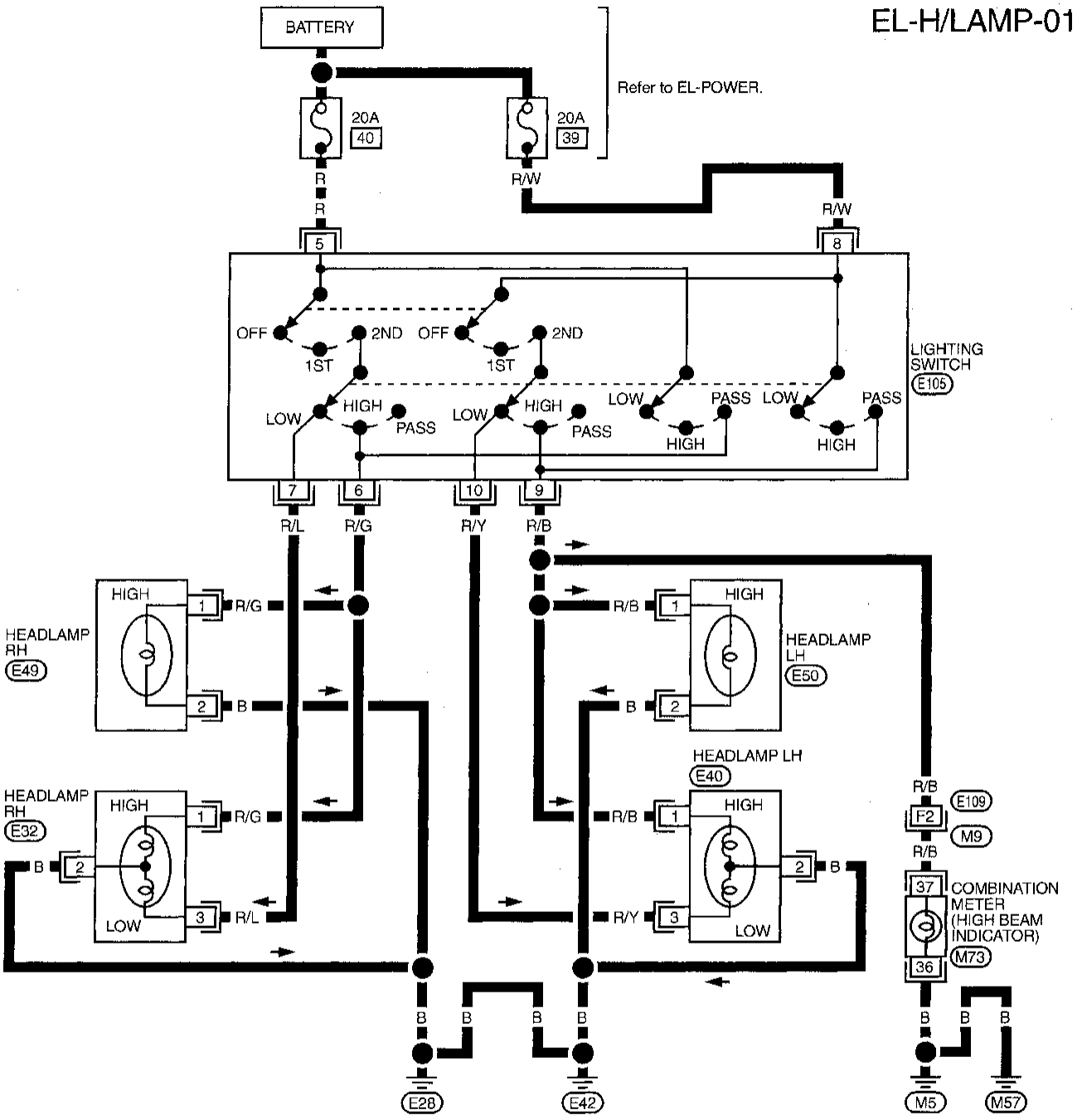
Ground is supplied to terminal ㊱ of the combination meter through body grounds M5 and M57.
Terminal ② of each headlamp supplies ground through body grounds E28 and E42.
With power and ground supplied, the high beams and the high beam indicator illuminate.

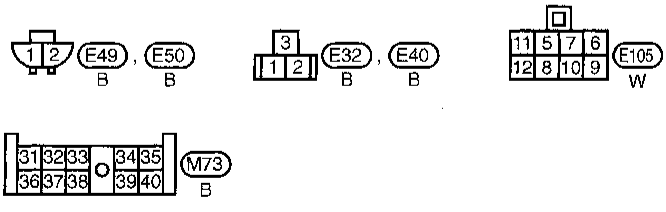
Theft warning system

The theft warning system will flash the high beams if the system is triggered. Refer to "THEFT WARNING SYSTEM" (EL-186).

Wiring Diagram (For USA) — H/LAMP —

EL-H/LAMP-01





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

MEL286F

Trouble Diagnoses (For USA)

Symptom	Possible cause	Repair order
LH headlamps do not operate.	1. Bulb 2. Grounds (E28) and (E42) 3. 20A fuse 4. Lighting switch	1. Check bulb. 2. Check grounds (E28) and (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. Grounds (E28) and (E42) 3. 20A fuse 4. Lighting switch	1. Check bulb. 2. Check grounds (E28) and (E42). 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. Grounds (M5) and (M57) 3. Open in high beam circuit	1. Check bulb in combination meter. 2. Check grounds (M5) and (M57). 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 grounds E28 and E42.

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 grounds E28 and E42.

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 grounds E28 and E42.

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 grounds M5 and M57.

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 unit terminal ③
- through daytime light control unit terminal ⑥
- to terminal ① of each LH headlamp
- through terminal ② of each LH headlamp
- to daytime light control unit terminal ⑦
- through daytime light control unit terminal ⑧
- to terminal ① of each RH headlamp.

Ground is supplied to terminal ② of each RH headlamp through body grounds E28 and E42.
Because the high beam headlamps are now wired in series, they operate at half illumination.

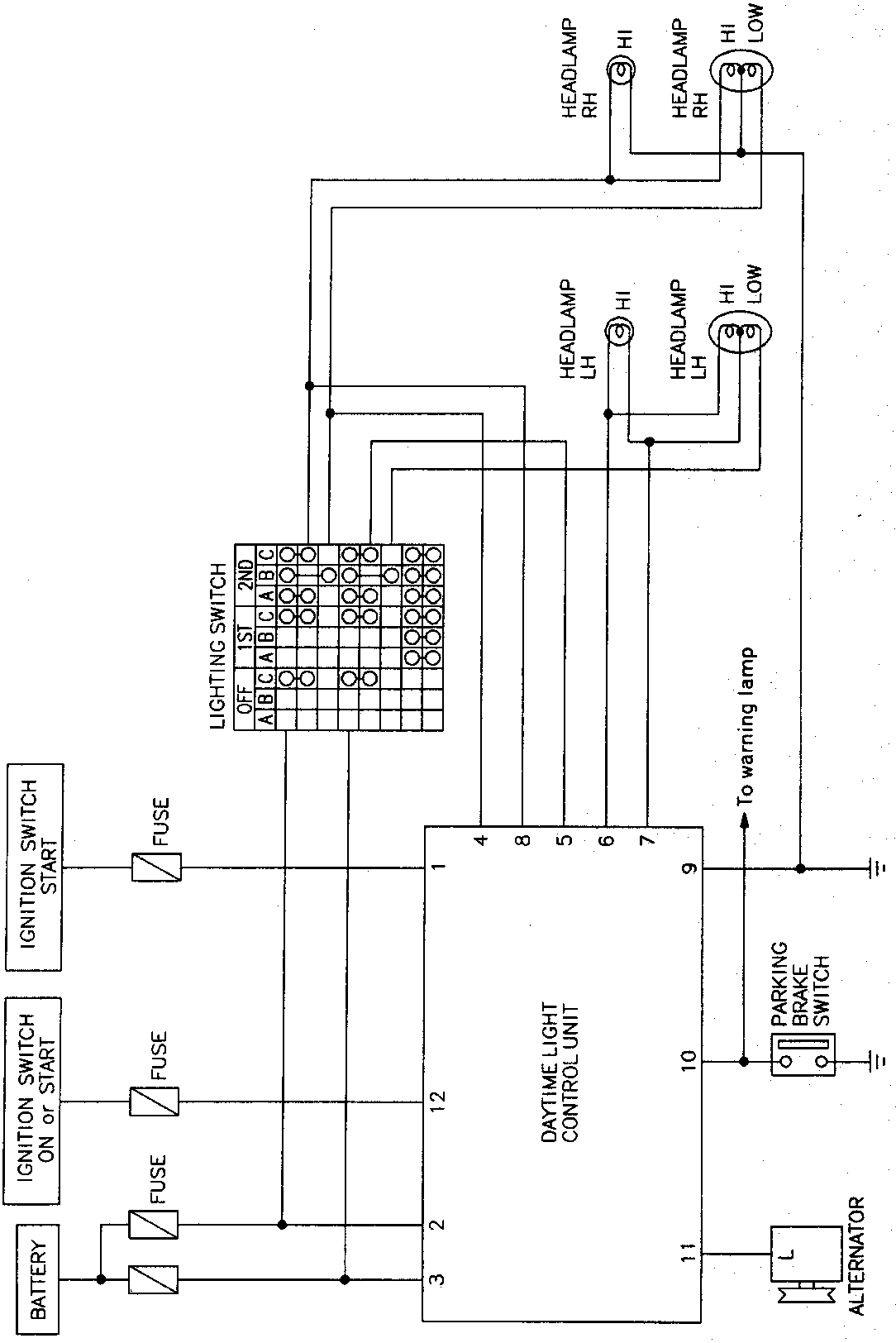
Operation (Daytime light system for Canada)

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	○	○	○	○	○	○

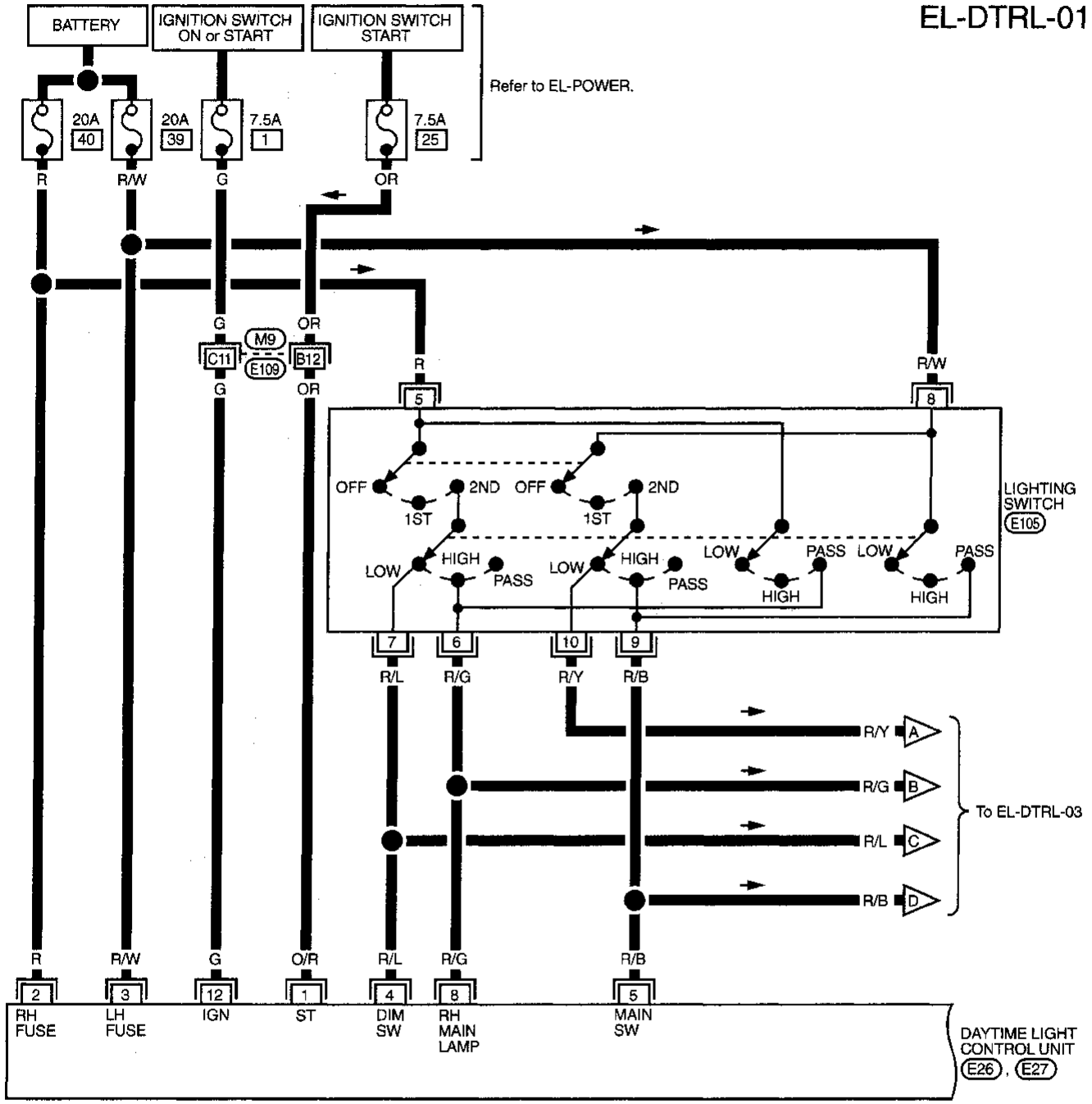
○ : Lamp "ON"
X : Lamp "OFF"
△ : Lamp dims.
□ : Added functions
*: When starting the engine with the parking brake released, the daytime light will come ON.
When starting the engine with the parking brake pulled, the daytime light won't come ON.

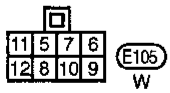
Schematic (For Canada)

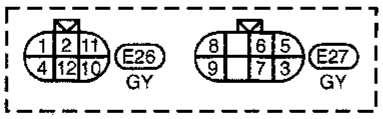


MEL437F

Wiring Diagram (For Canada) — DTRL —





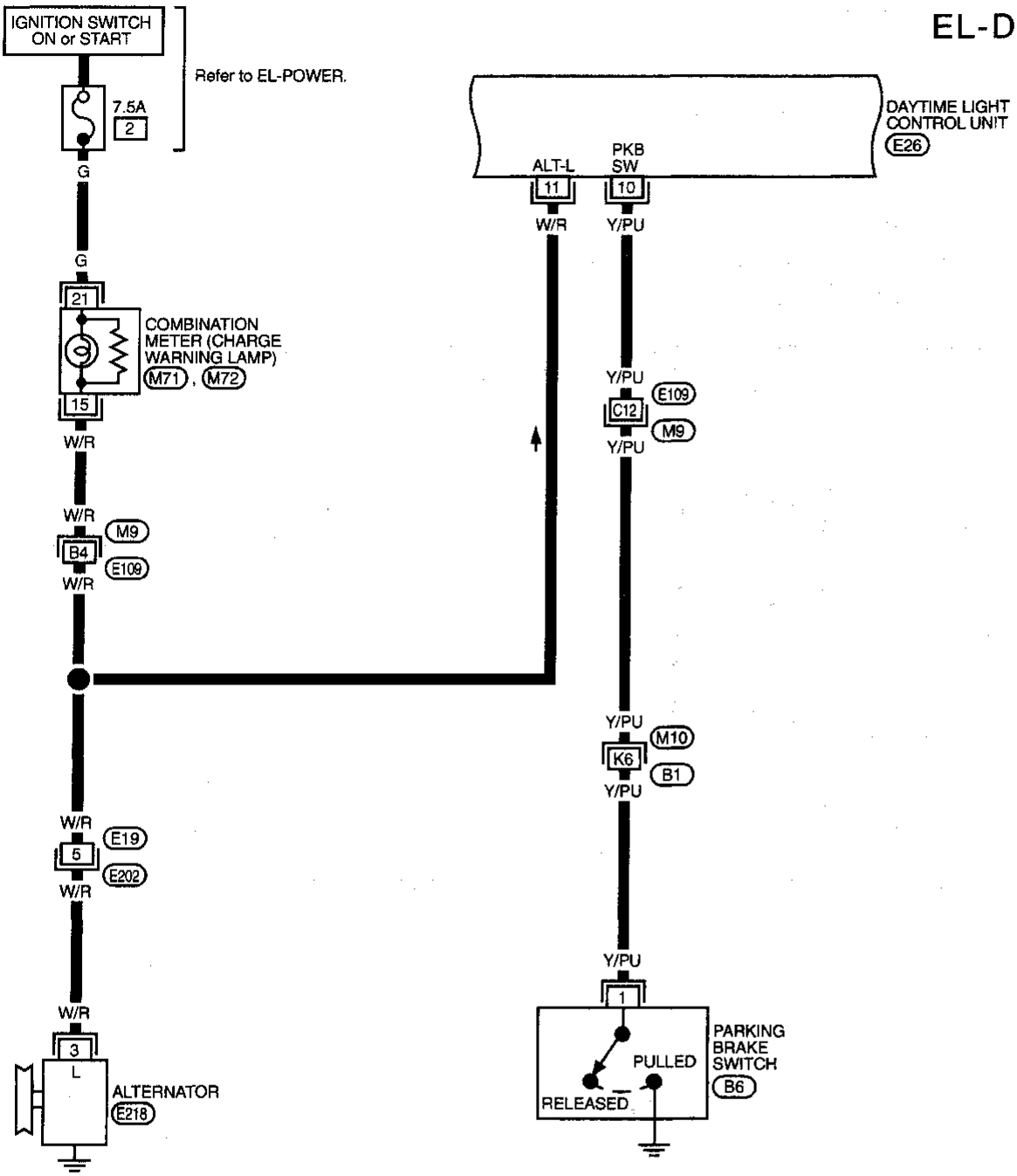


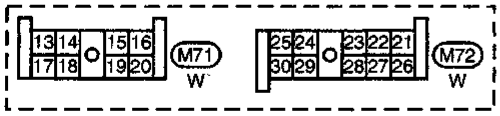
Refer to last page (Foldout page).
M9 , E109

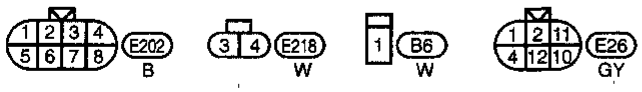
MEL287F

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

EL-DTRL-02







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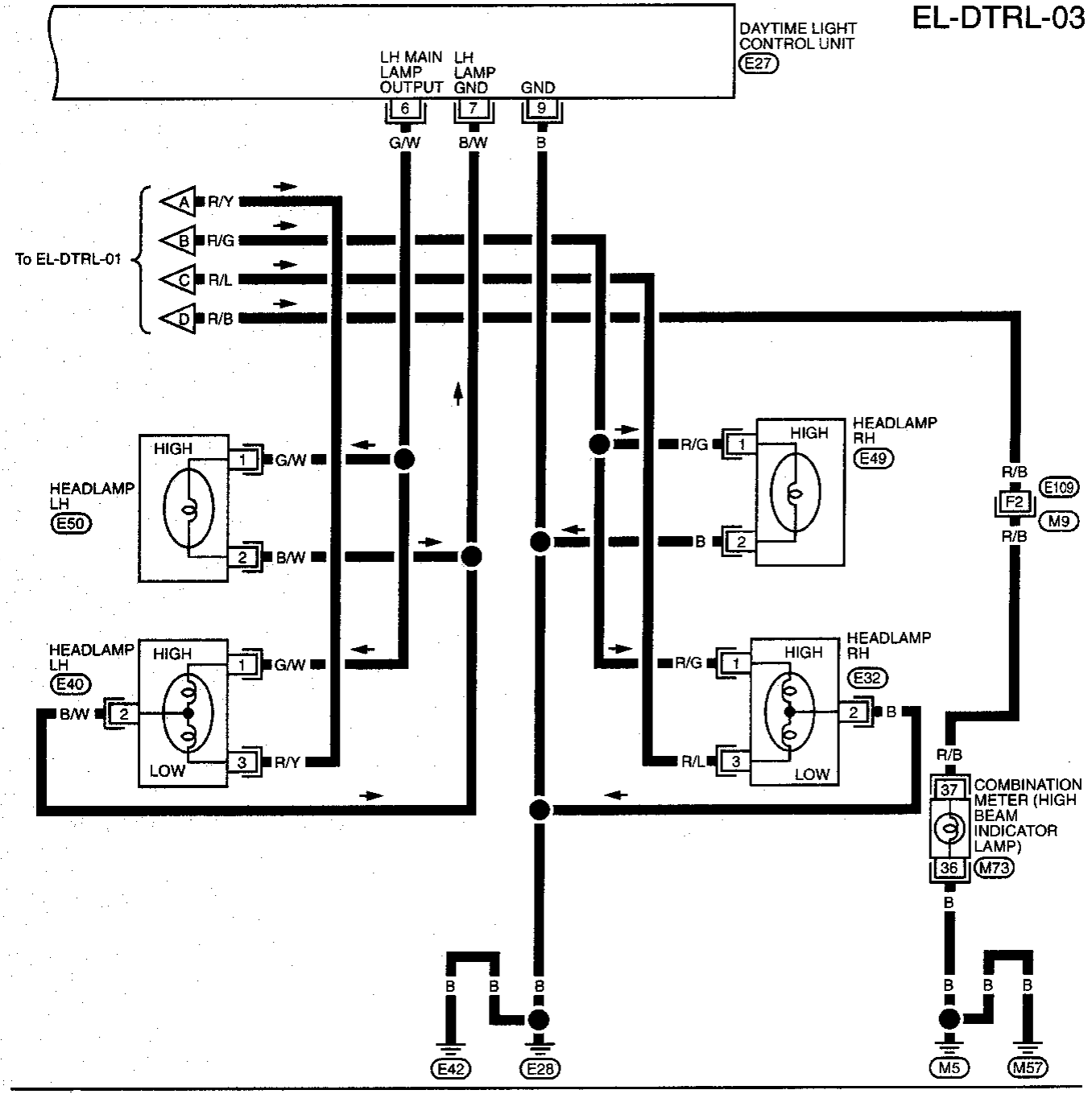
M9, E109

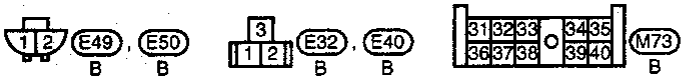
M10, B1

MEL288F

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



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

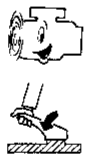
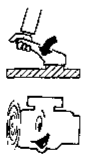
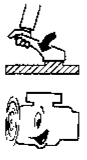


MEL289F

Trouble Diagnoses (For Canada)

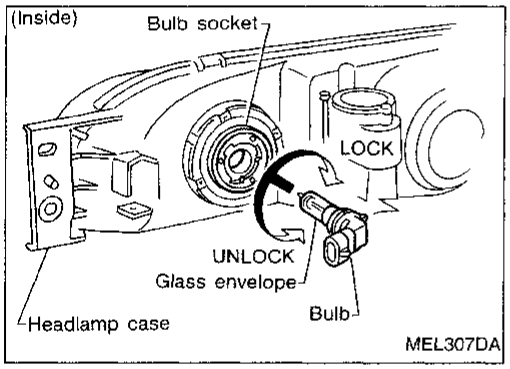
DAYTIME LIGHT CONTROL UNIT INSPECTION TABLE

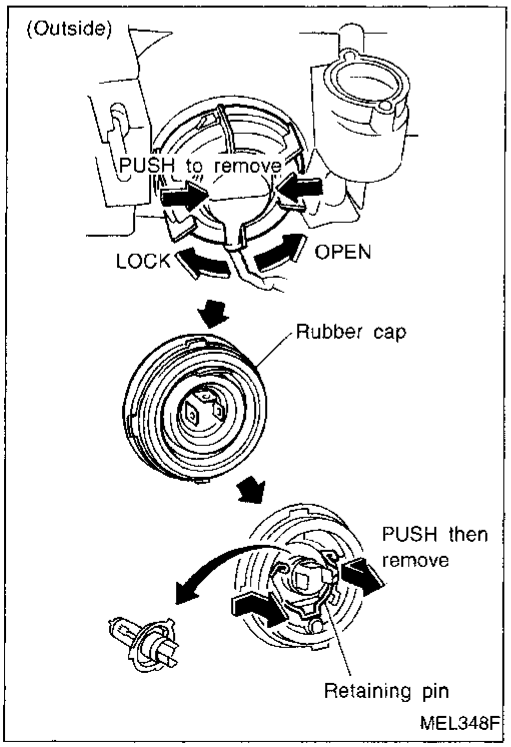
(Data are reference values.)

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

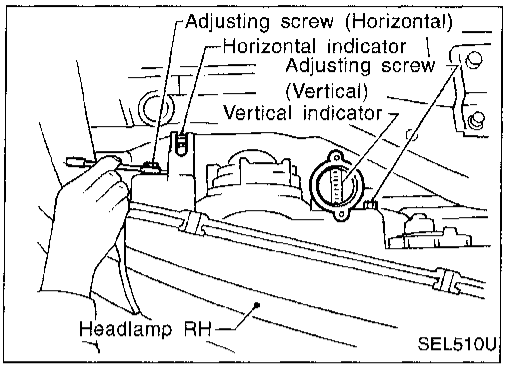
The headlamp is a semi-sealed beam type which uses a replaceable halogen bulb. The bulb can be replaced from the engine compartment side without removing the headlamp body.

- **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:

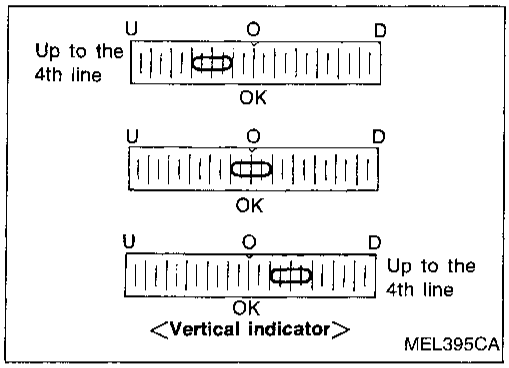
- **Do not leave headlamp reflector without bulb for a long period of time. Dust, moisture, smoke, etc. entering headlamp body may affect the performance of the headlamp. Remove headlamp bulb from the headlamp reflector just before a replacement bulb is installed.**



Aiming Adjustment

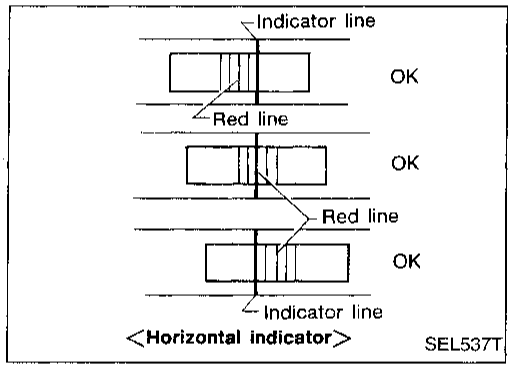
Before performing aiming adjustment, make sure of the following.

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.

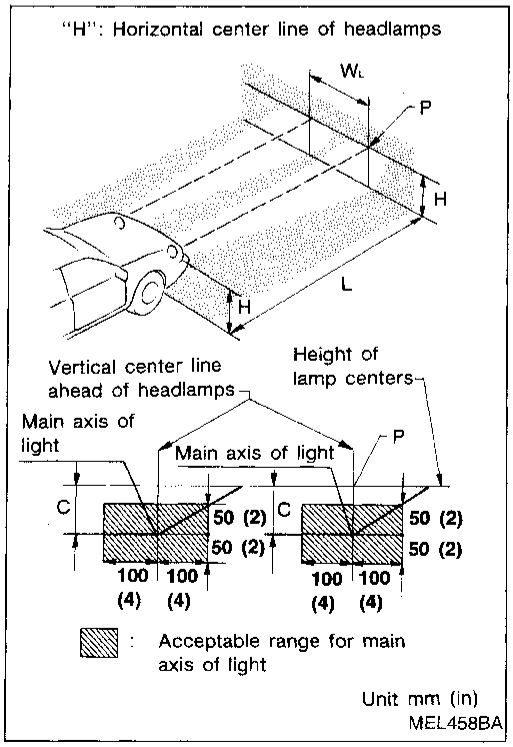


LOW BEAM

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.

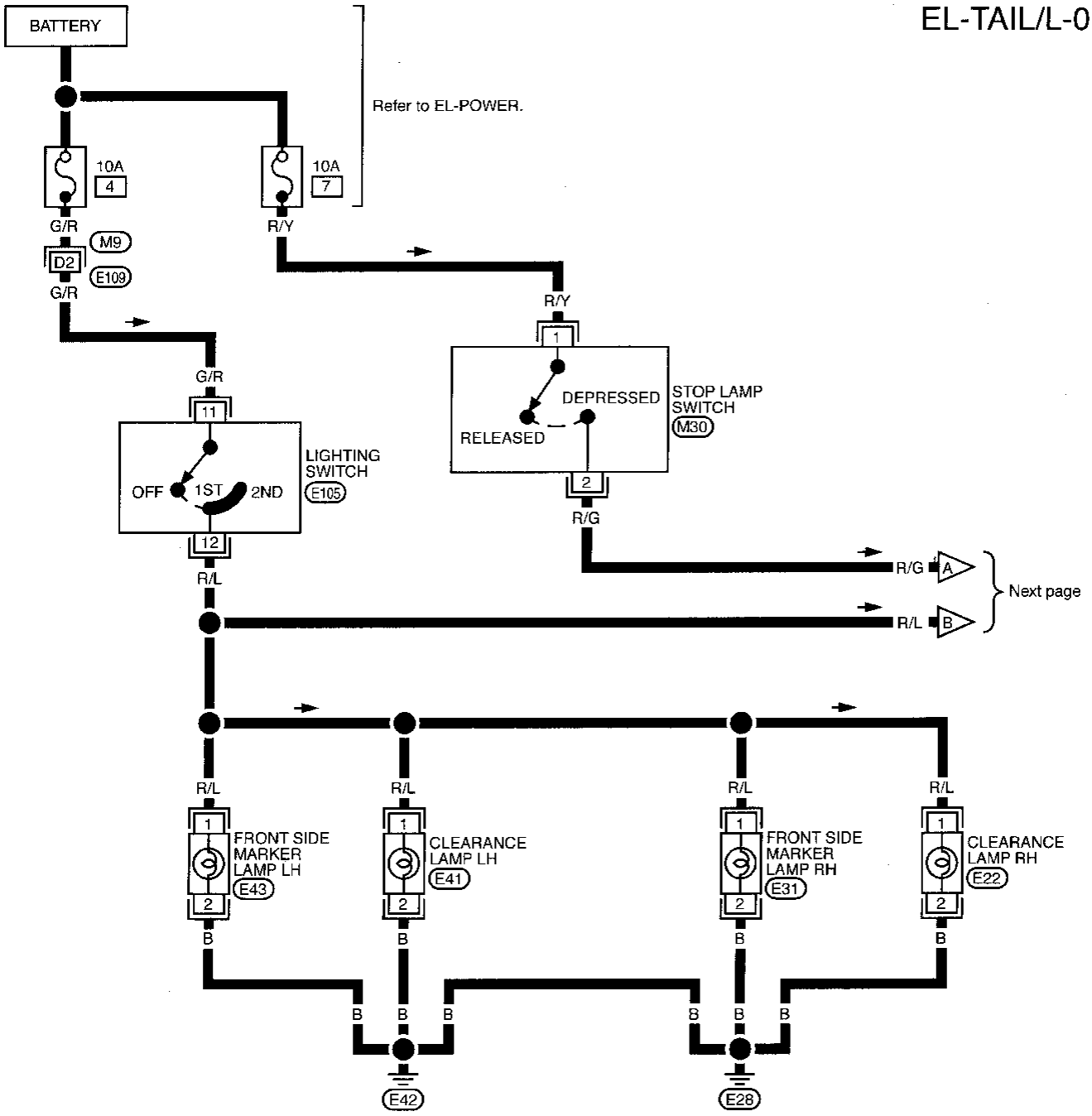
a. Adjust headlamps so that the main axis of light becomes:
- **parallel to center line of body, and**
- **aligned with point P shown in the figure.**

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)

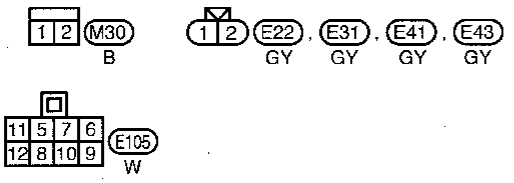
After aiming adjustment using the chart, check the indications to make sure of alignment. Even if the following are observed, it is acceptable while the indications are within the OK ranges.
- Indicator does not align with the indicator line, or
- the bubble is not centered in the vertical indicator.

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

EL-TAIL/L-01



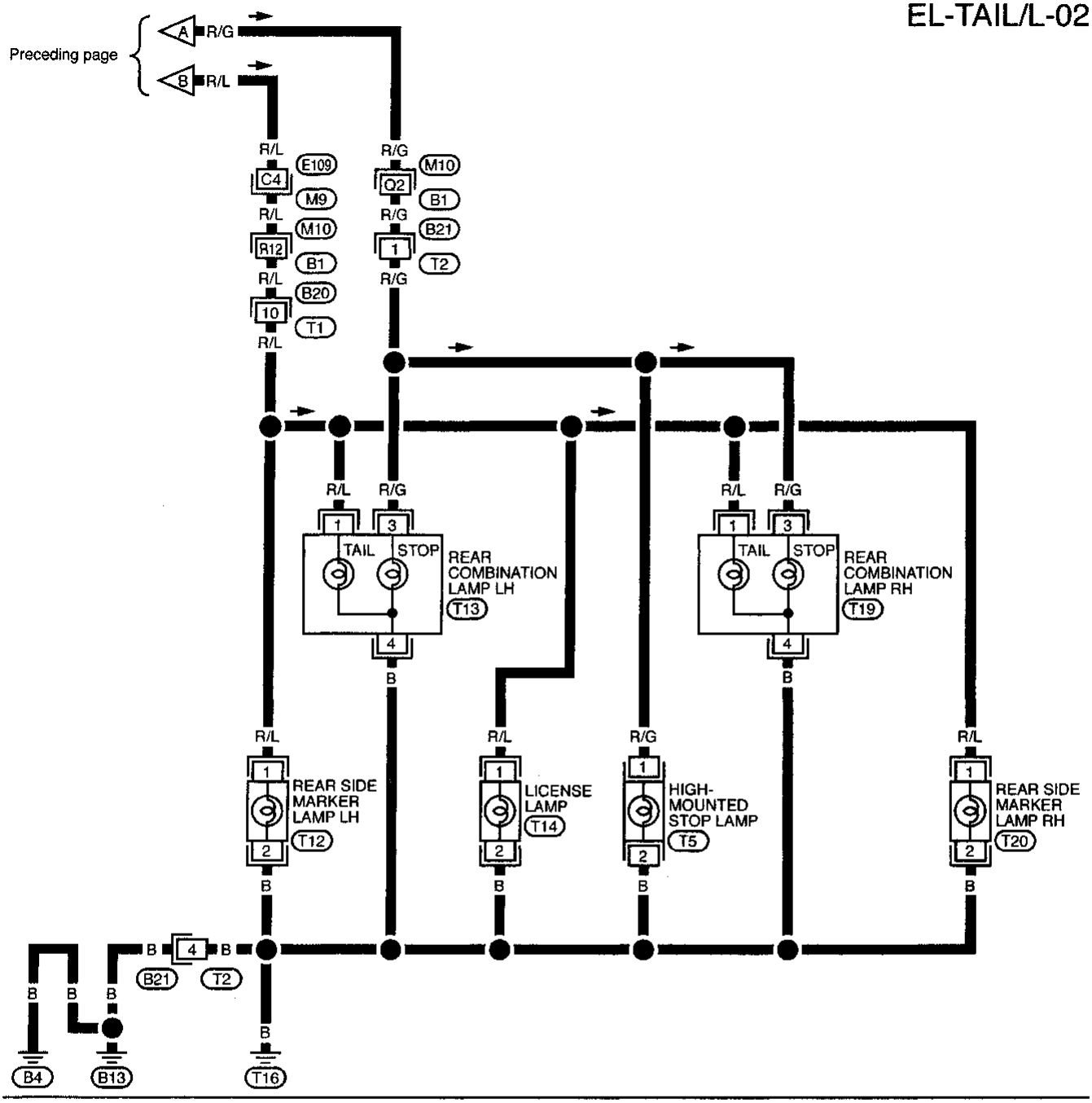
Refer to last page (Foldout page).
M9 , E109

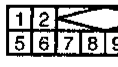


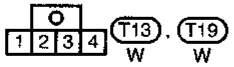
MEL290F

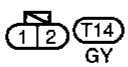
Clearance, License, Tail and Stop Lamps/ Wiring Diagram — TAIL/L — (Cont'd)

EL-TAIL/L-02









Refer to last page (Foldout page).

M9 , E109

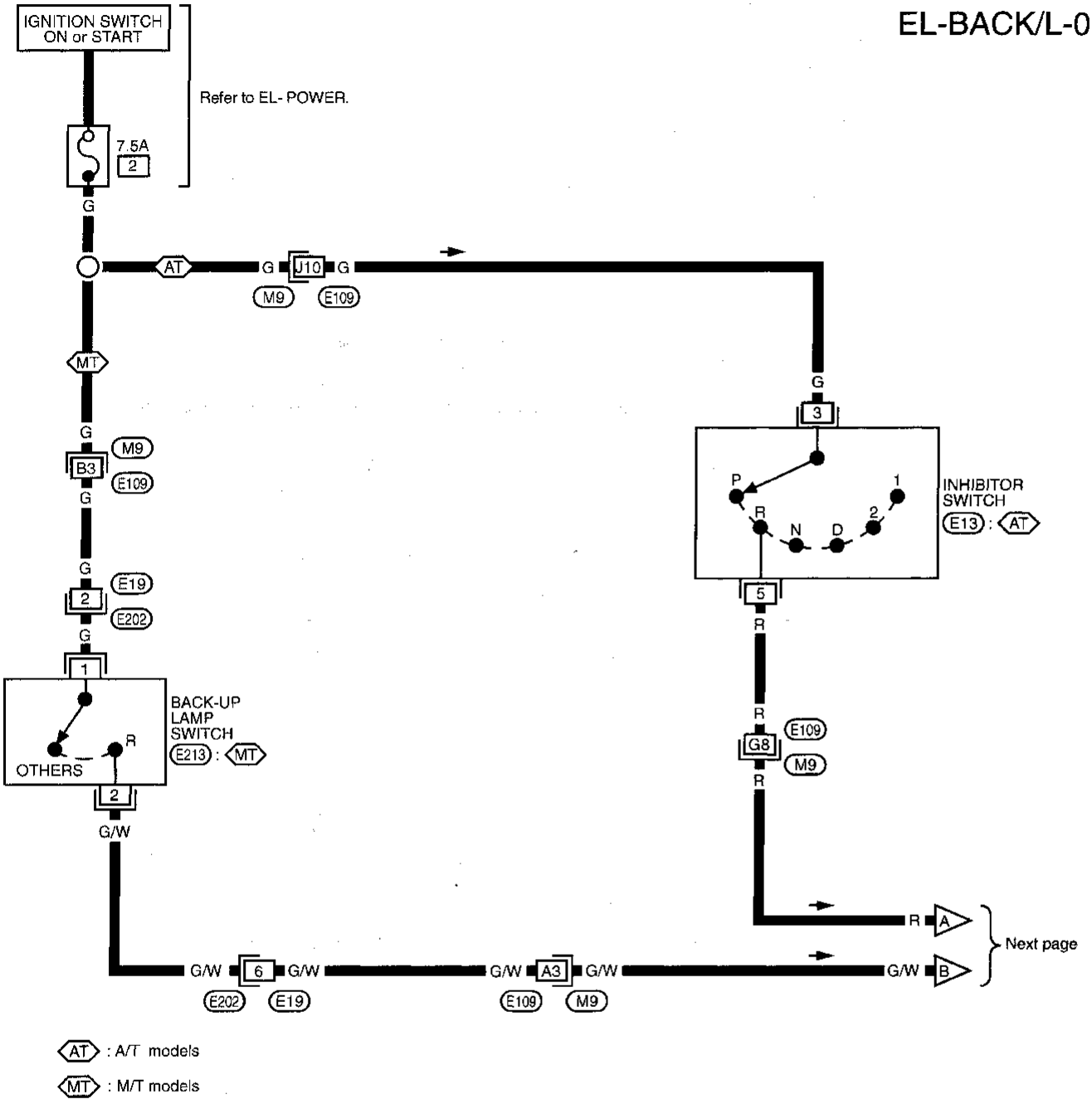
M10 , B1

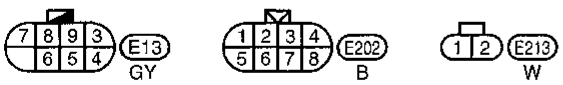
MEL291F

1109

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

EL-BACK/L-01



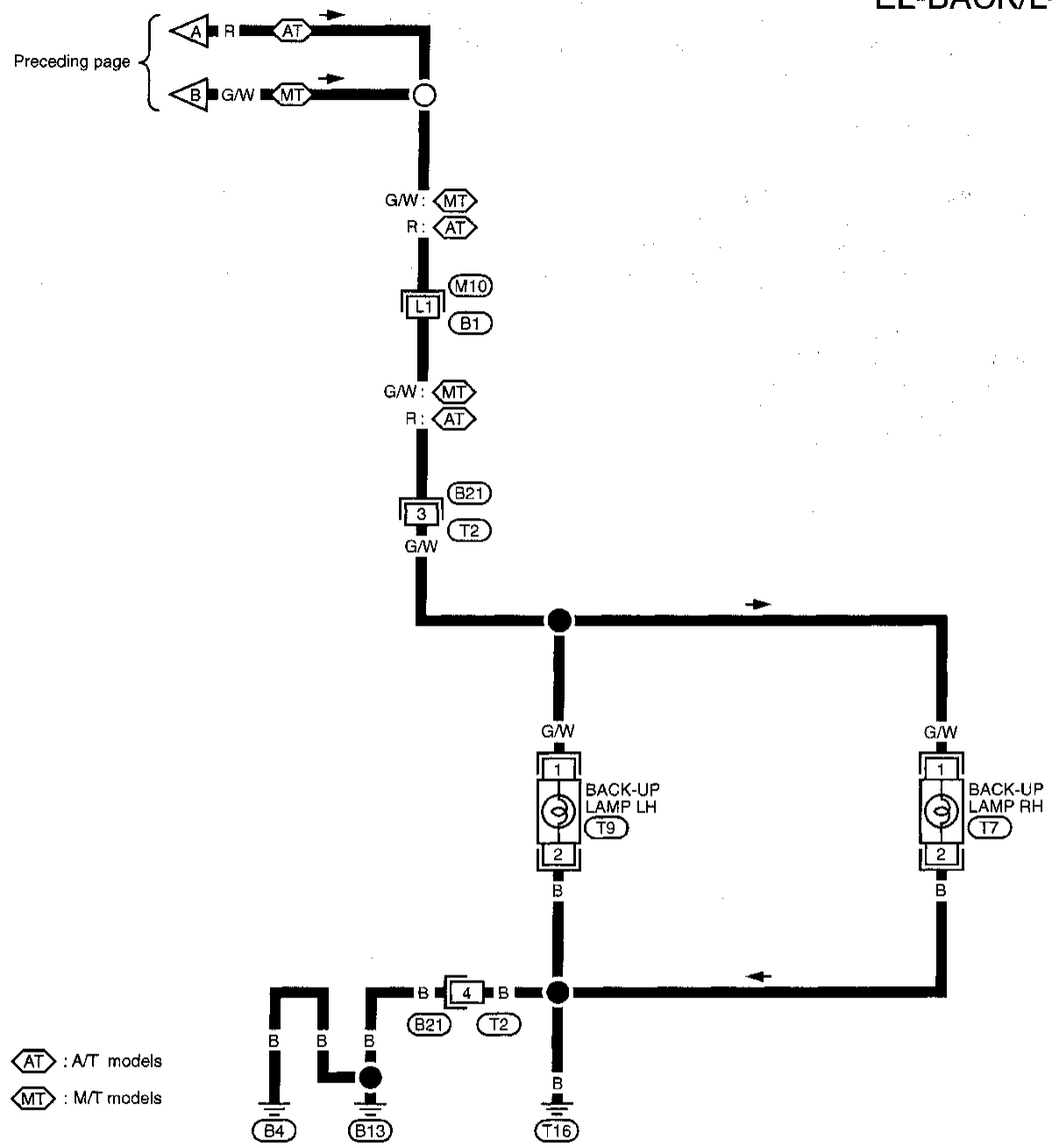


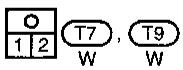
Refer to last page (Foldout page).
M9 , E109

MEL292F

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

EL-BACK/L-02





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

MEL293F

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.

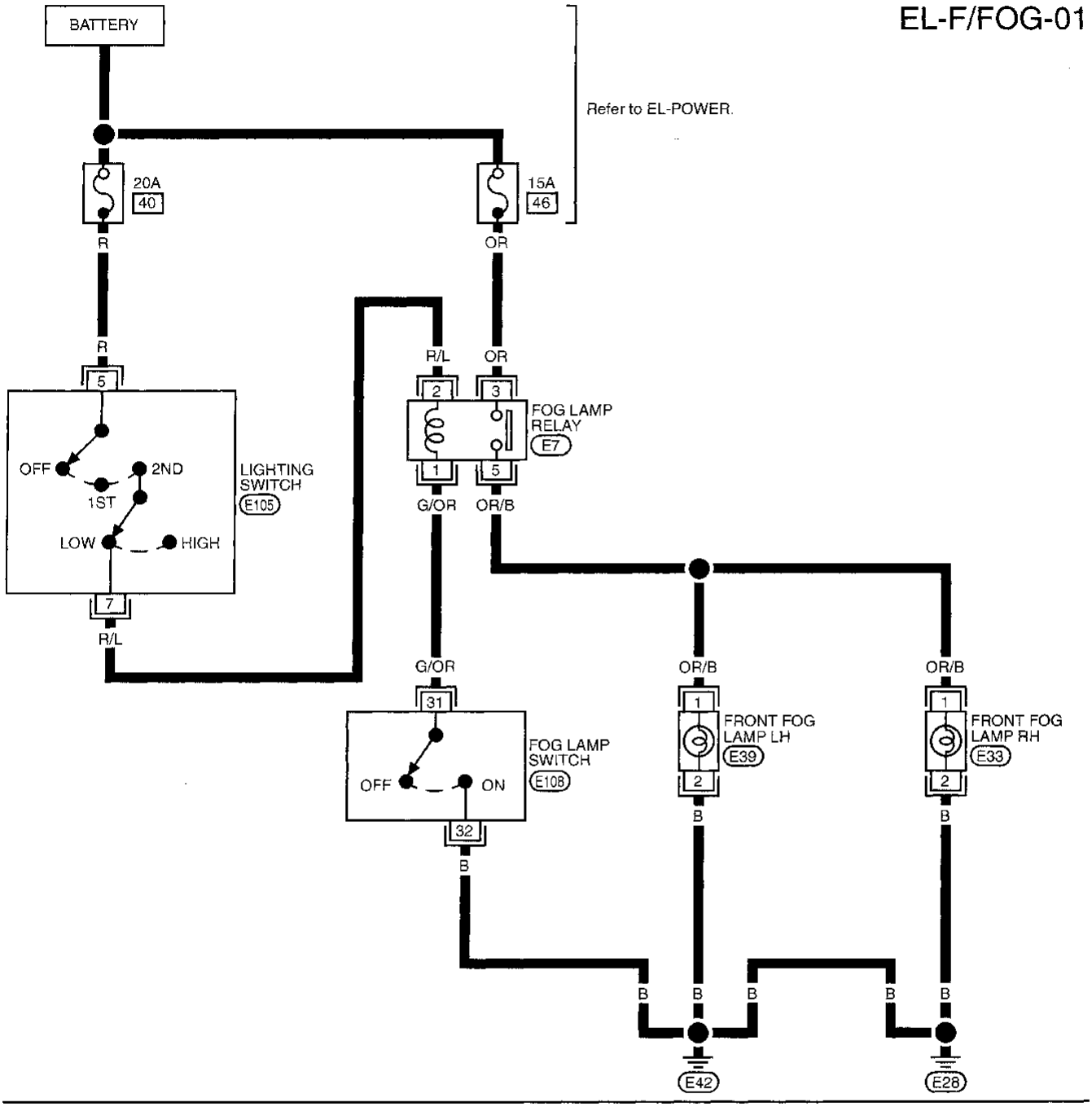
Fog lamp operation

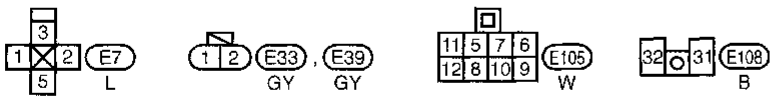
The fog lamp switch is built into the combination switch. The lighting switch must be in the 2ND position and LOW ("B") position for fog lamp operation.
With the fog lamp switch in the ON position:
- ground is supplied to fog lamp relay terminal ① through the fog lamp switch and body grounds E28 and E42.

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

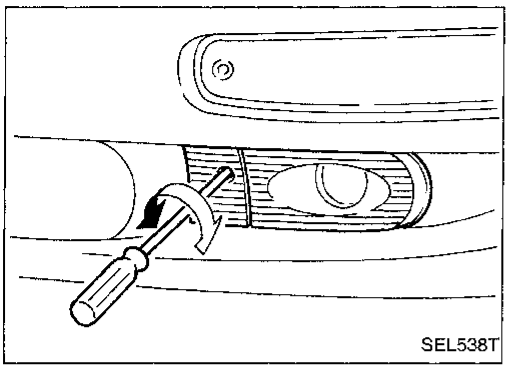
Ground is supplied to terminal ② of each fog lamp through body grounds E28 and E42.
With power and ground supplied, the fog lamps illuminate.

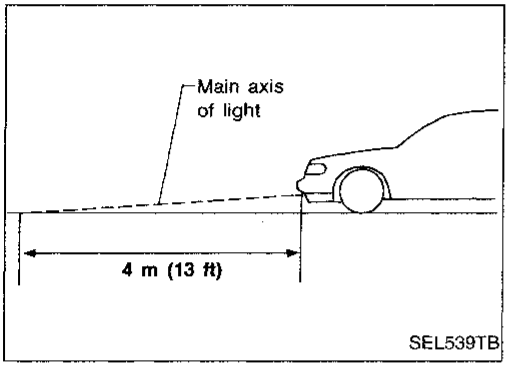
Front Fog Lamp/Wiring Diagram — F/FOG —





MEL294F


SEL538T



SEL539TB

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 4 m (13 ft).

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 grounds M5 and 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 grounds E28 and E42.
Ground is supplied to the rear combination lamp LH terminal ④ through body grounds B4, B13 and T16.
Ground is supplied to combination meter terminal ⑱ through body grounds M5 and M57.
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 grounds E28 and E42.
Ground is supplied to the rear combination lamp RH terminal ④ through body grounds B4, B13 and T16.
Ground is supplied to combination meter terminal ⑱ through body grounds M5 and M57.
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. 5 , 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 grounds M5 and 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 grounds E28 and E42.
Ground is supplied to terminal ④ of the rear combination lamps through body grounds B4, B13 and T16.
Ground is supplied to combination meter terminal ⑱ through body grounds M5 and M57.
With power and ground supplied, the combination flasher unit controls the flashing of the hazard warning lamps.

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

WITH MULTI-REMOTE CONTROL SYSTEM

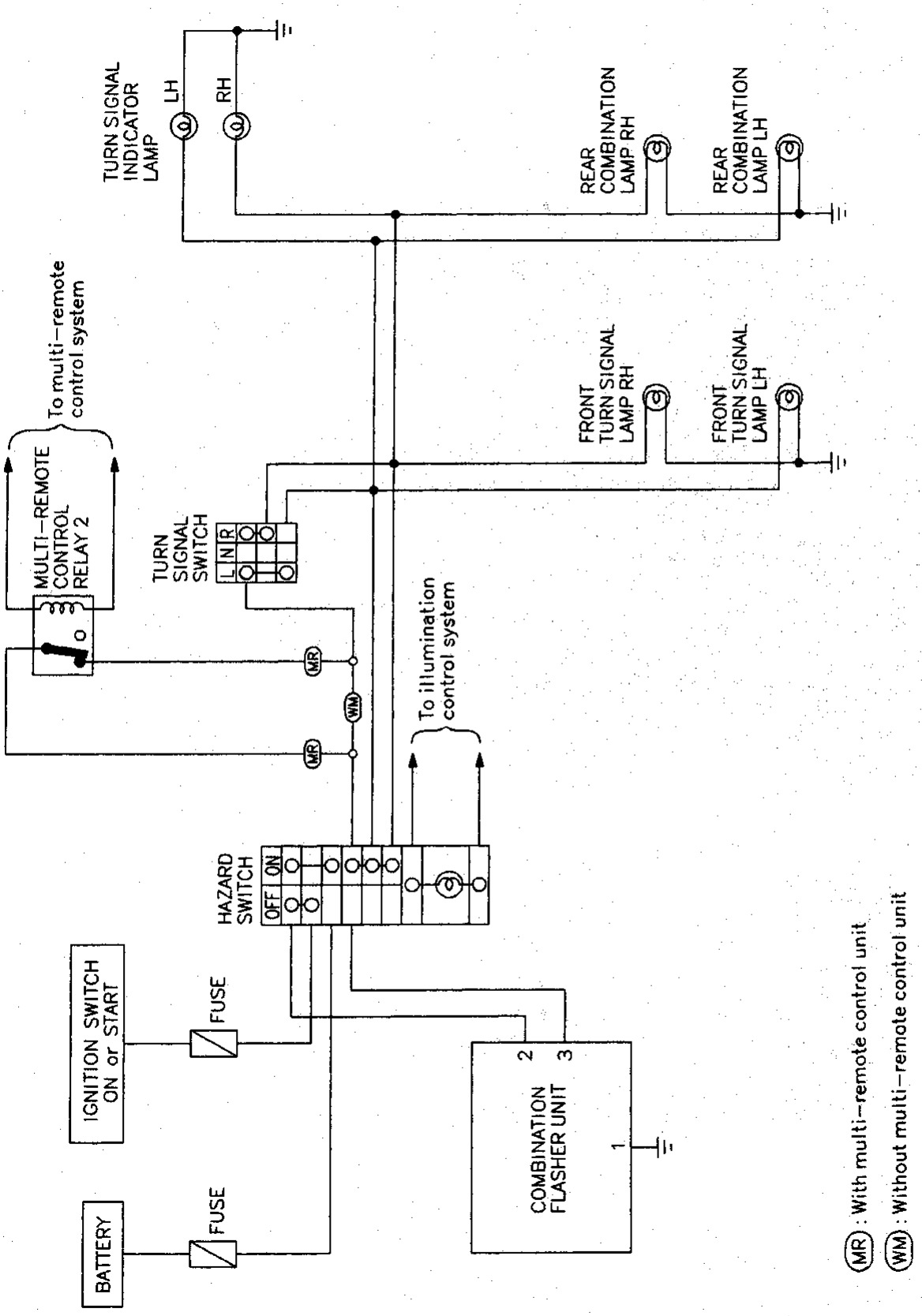
Power is supplied at all times
- through 10A fuse (No. 5 located in the fuse block)
- to multi-remote control relay-1 terminals ①, ⑥ and ③.

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", EL-173.
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.

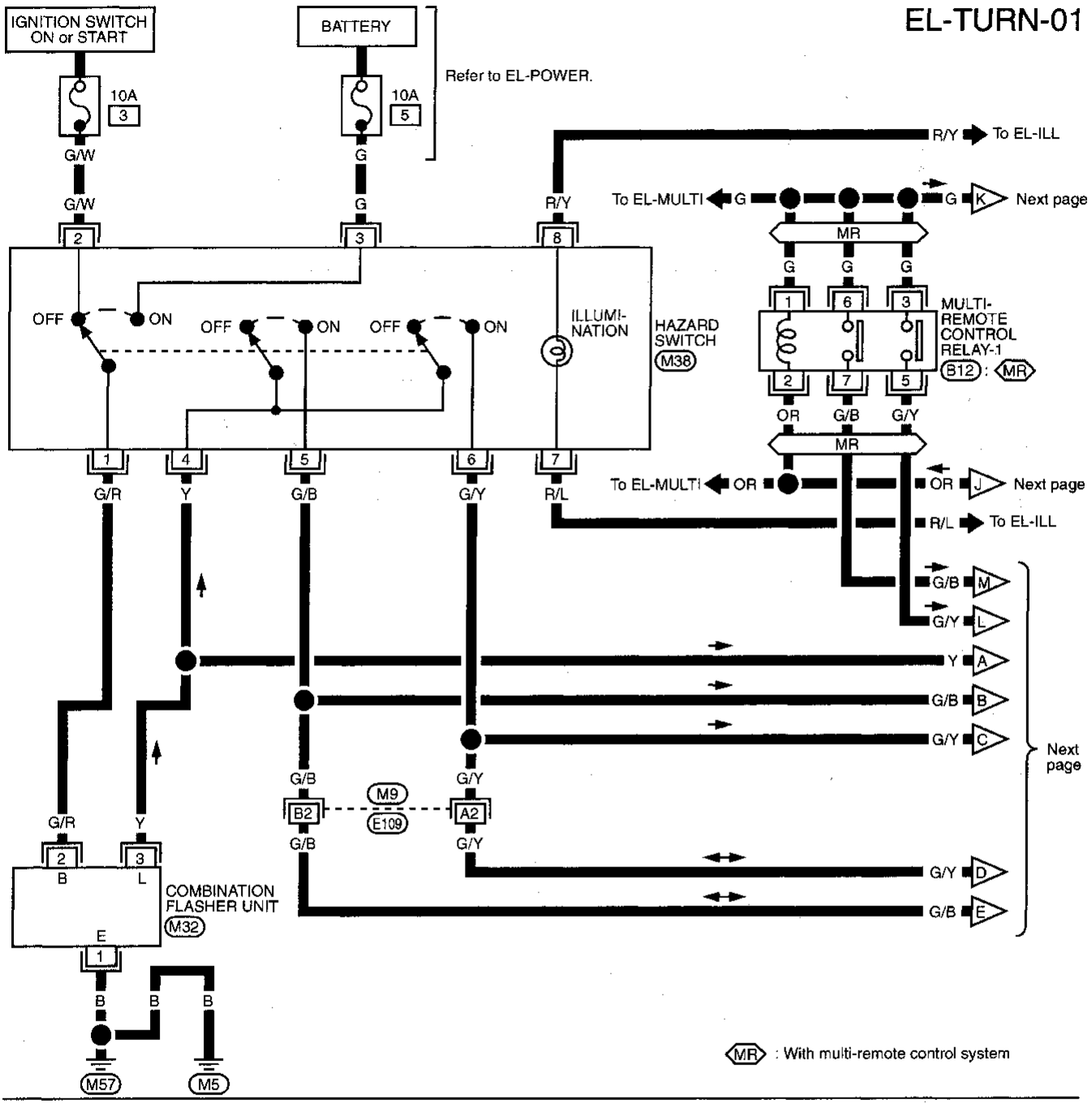
Ground is supplied to terminal ② of each front turn signal lamp through body grounds E28 and E42.
Ground is supplied to terminal ④ of the rear combination lamps through body grounds B4, B13 and T16.
Ground is supplied to combination meter terminal ⑱ through body grounds M5 and M57.
With power and ground supplied, the smart entrance control unit controls the flashing of the hazard warning lamps.

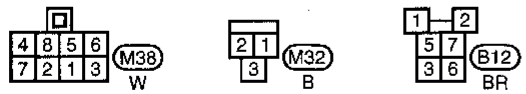
Turn Signal and Hazard Warning Lamps/ Schematic



MEL295F

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



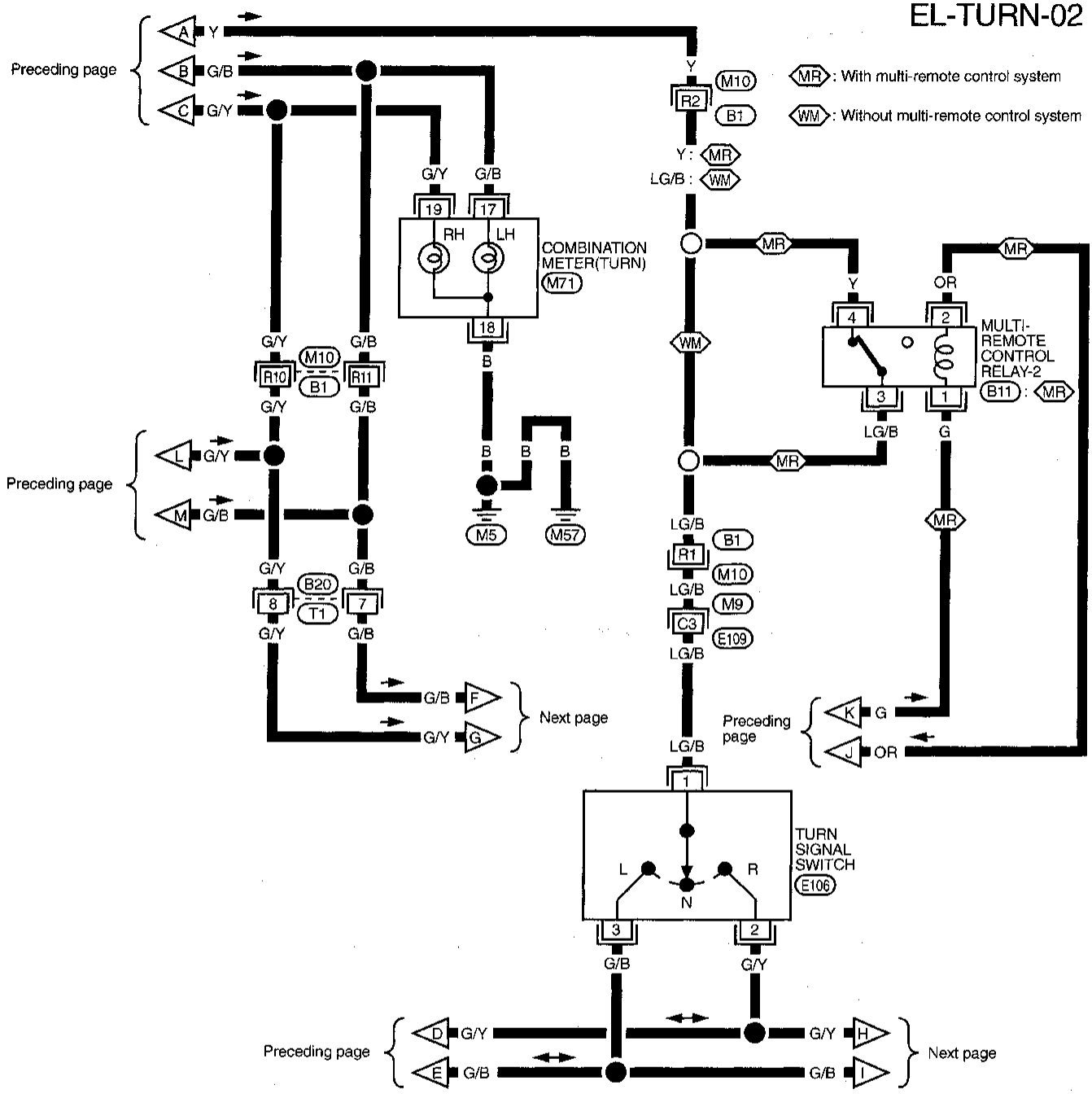


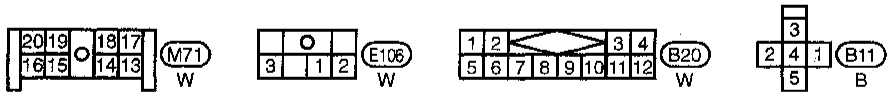
Refer to last page (Foldout page).
(M9) , (E109)

MEL296F

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

EL-TURN-02





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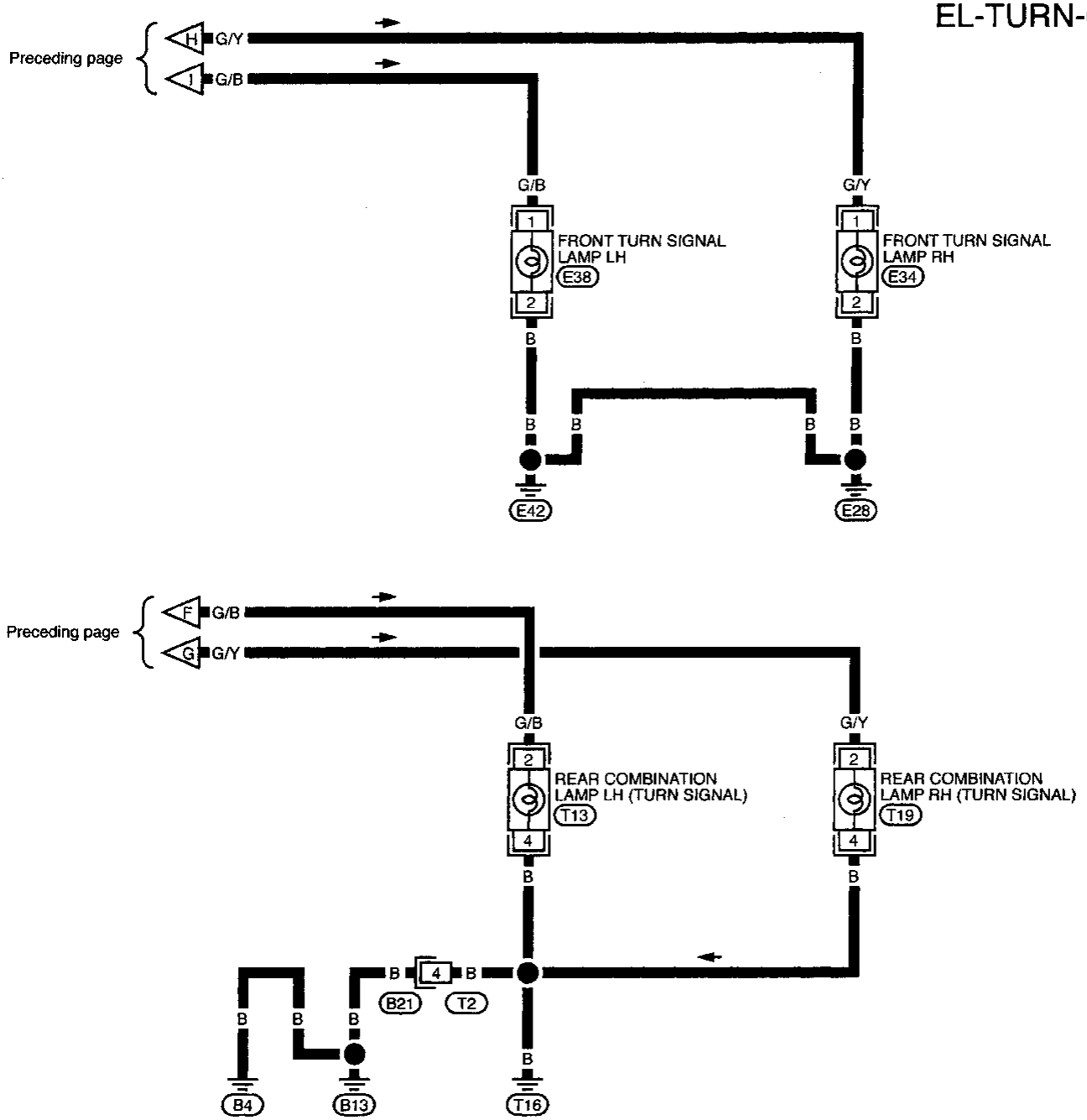
M9 , E109

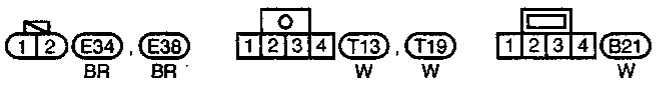
M10 , B1

MEL297F

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

EL-TURN-03

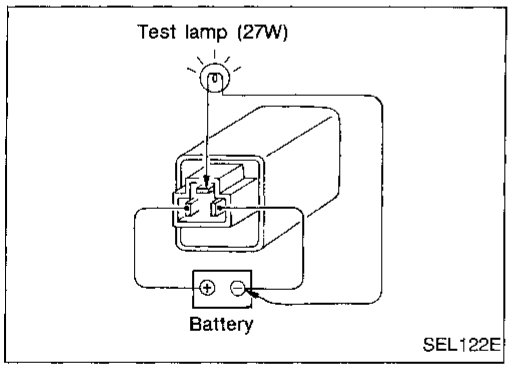




MEL298F

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-67) 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. 5 , 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. Grounds (E28) and (E42)	1. Check bulb. 2. Check grounds (E28) and (E42).
Rear turn signal lamp LH or RH does not operate.	1. Bulb 2. Grounds (B4), (B13) and (T16)	1. Check bulb. 2. Check grounds (B4), (B13) and (T16).
LH and RH turn indicators do not operate.	1. Ground	1. Check grounds (M5) and (M57).
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

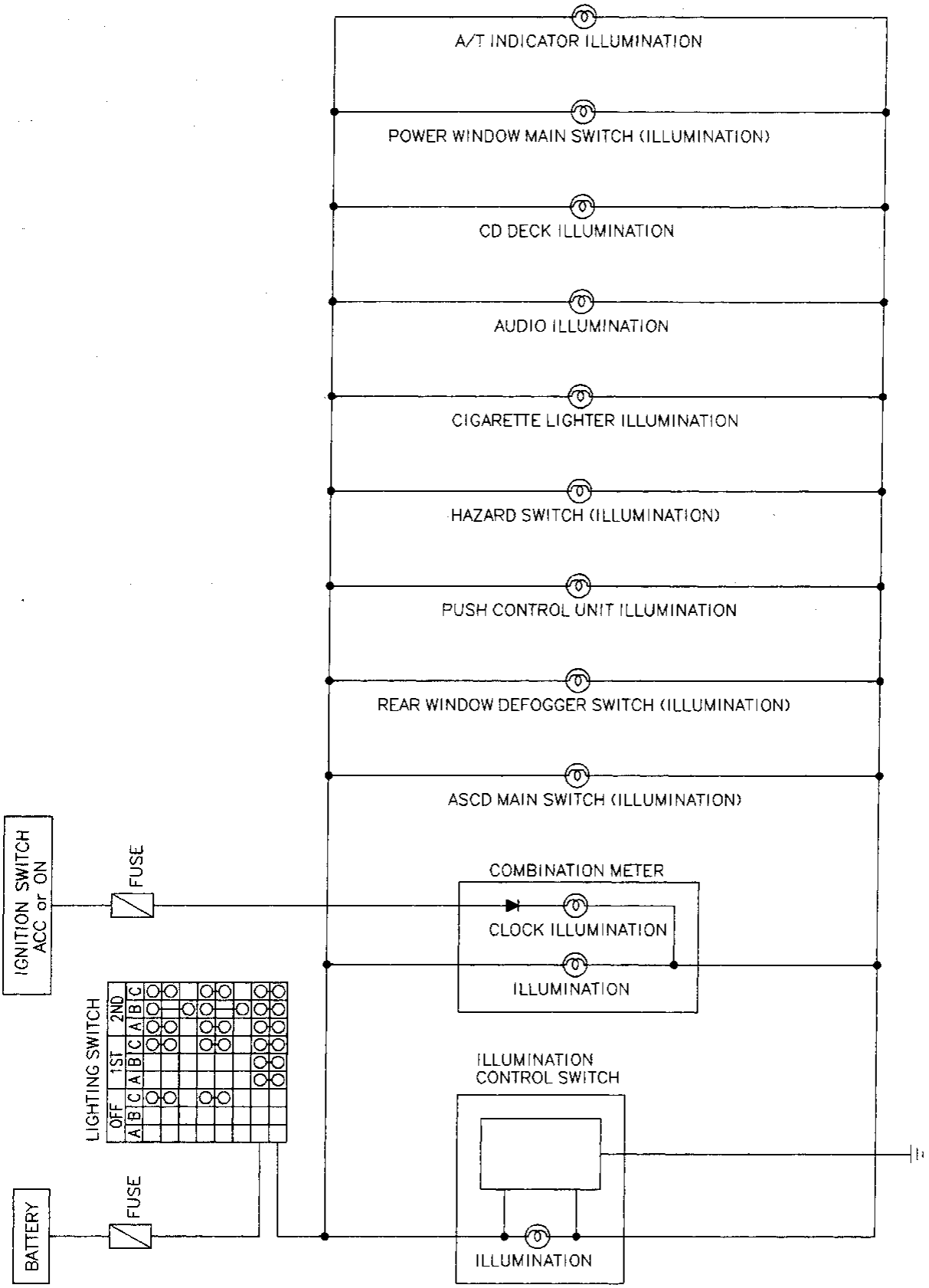
Power is supplied at all times
- through 10A fuse (No. 4 , located in the fuse block)
- to lighting switch terminal ⑪.

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
Illumination control switch	M16	①	③
Combination meter	M70, M73	⑥	㉝
Clock	M70	⑧	㉝
ASCD main switch	M17	⑤	⑥
Rear window defogger switch	M39	⑤	⑥
Push control unit	M77	⑮	⑯
Hazard switch	M38	⑦	⑧
Cigarette lighter	M78	③	④
Audio	M43	⑧	⑦
CD deck	M45, M46	③	⑤
Power window main switch	D8	⑩	⑨
A/T indicator	B7	④	③

The ground for all of the components are controlled through terminals ② and ③ of the illumination control switch and body grounds (M5) and (M57).

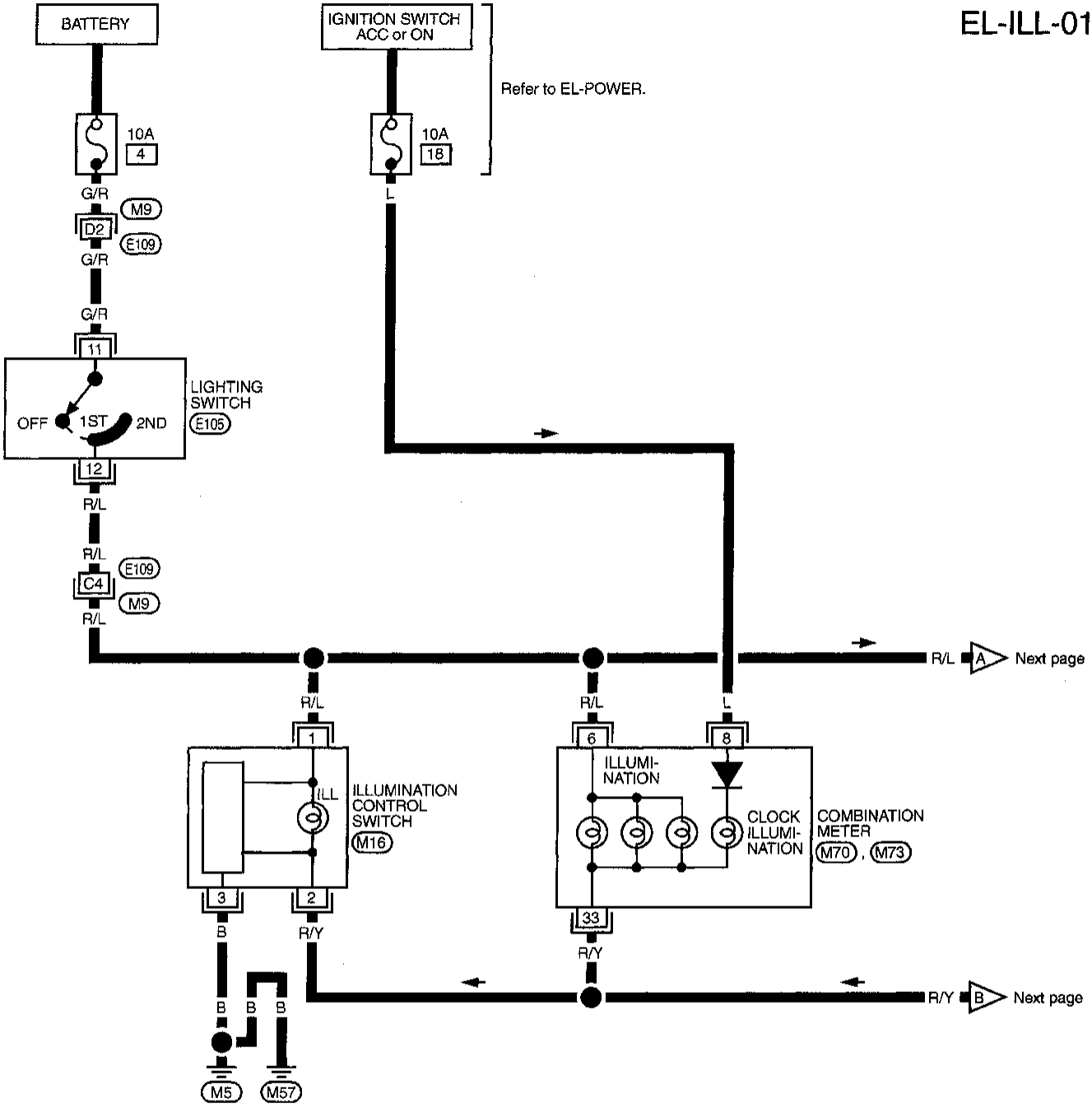
Illumination/Schematic

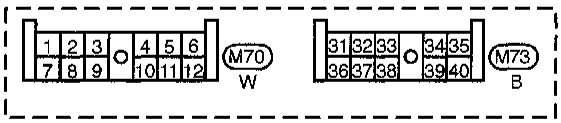


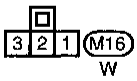
MEL299F

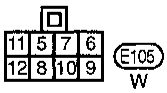
Illumination/Wiring Diagram — ILL —

EL-ILL-01







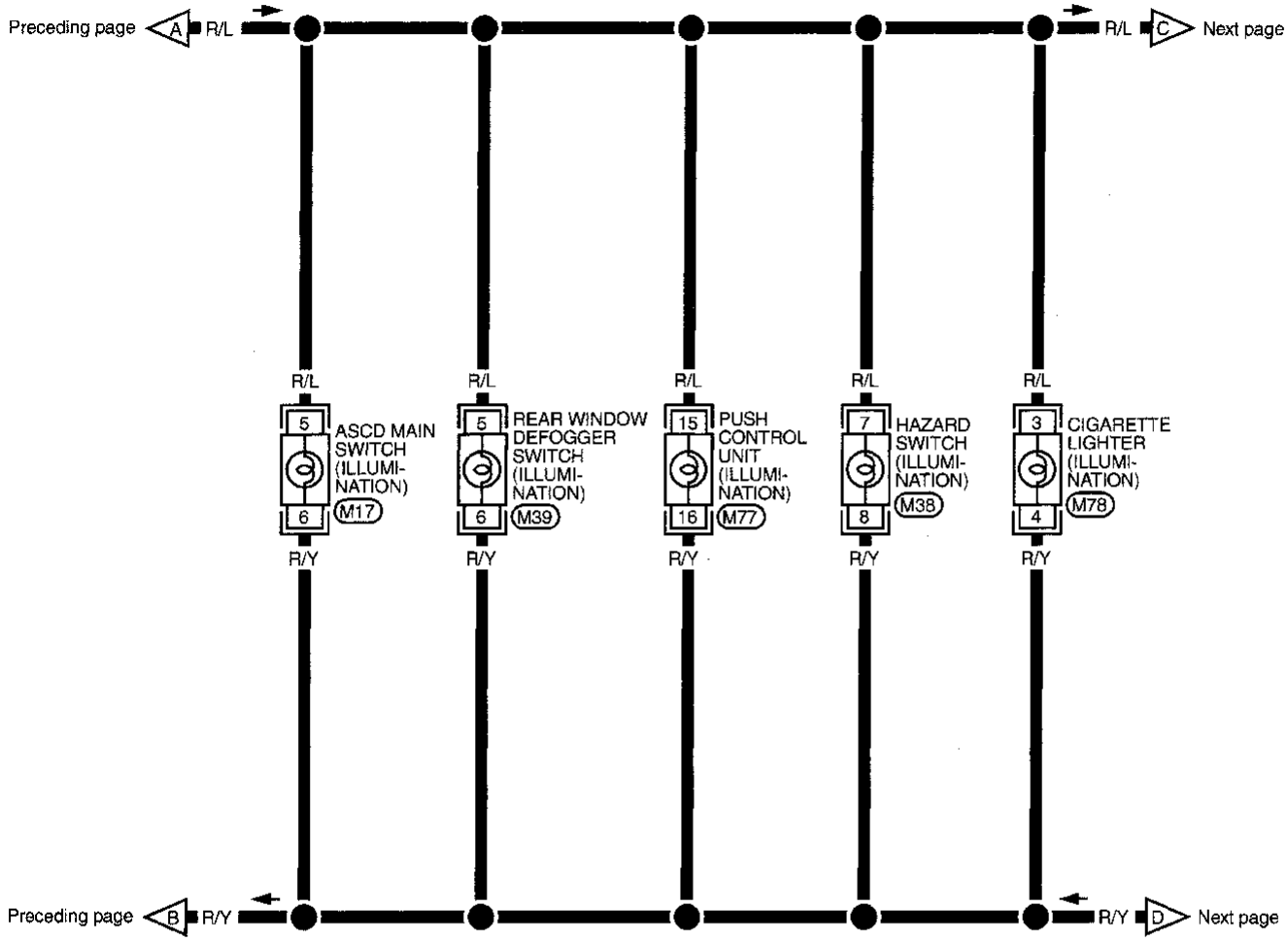


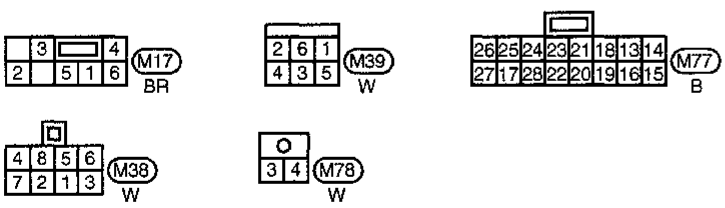
Refer to last page (Foldout page).
M9 , E109

MEL300F

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

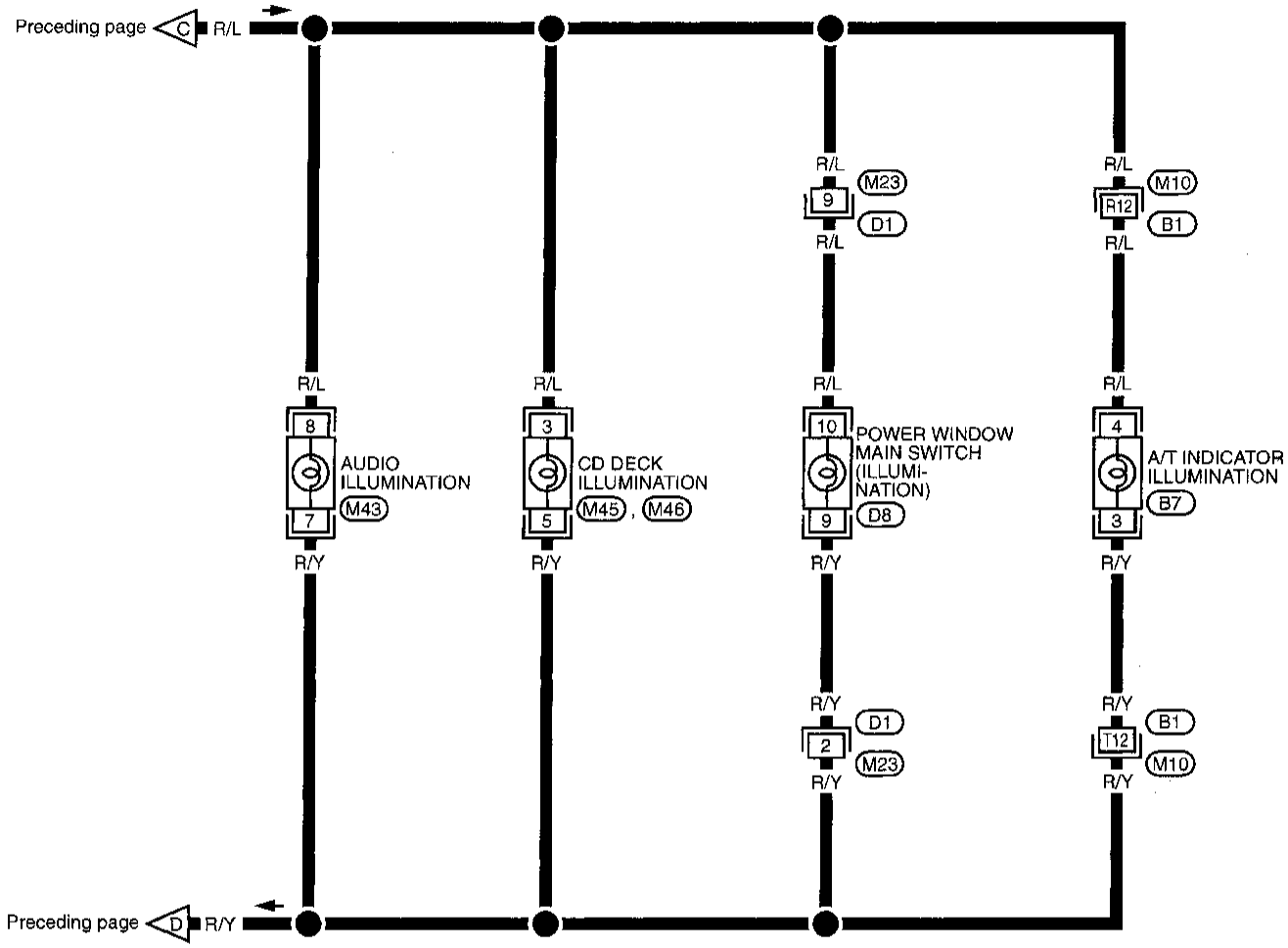
EL-ILL-02

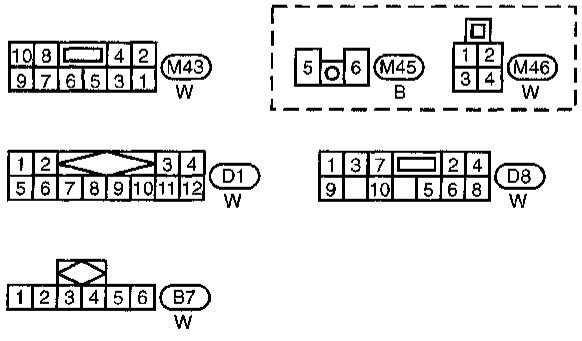




MEL301F

EL-ILL-03





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M10 , B1

MEL302F

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.
- through circuit breaker
- 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 opened 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 body ground.

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 grounds M5 and M57.

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 grounds B4, B13 and T16.

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

SPOT LAMP

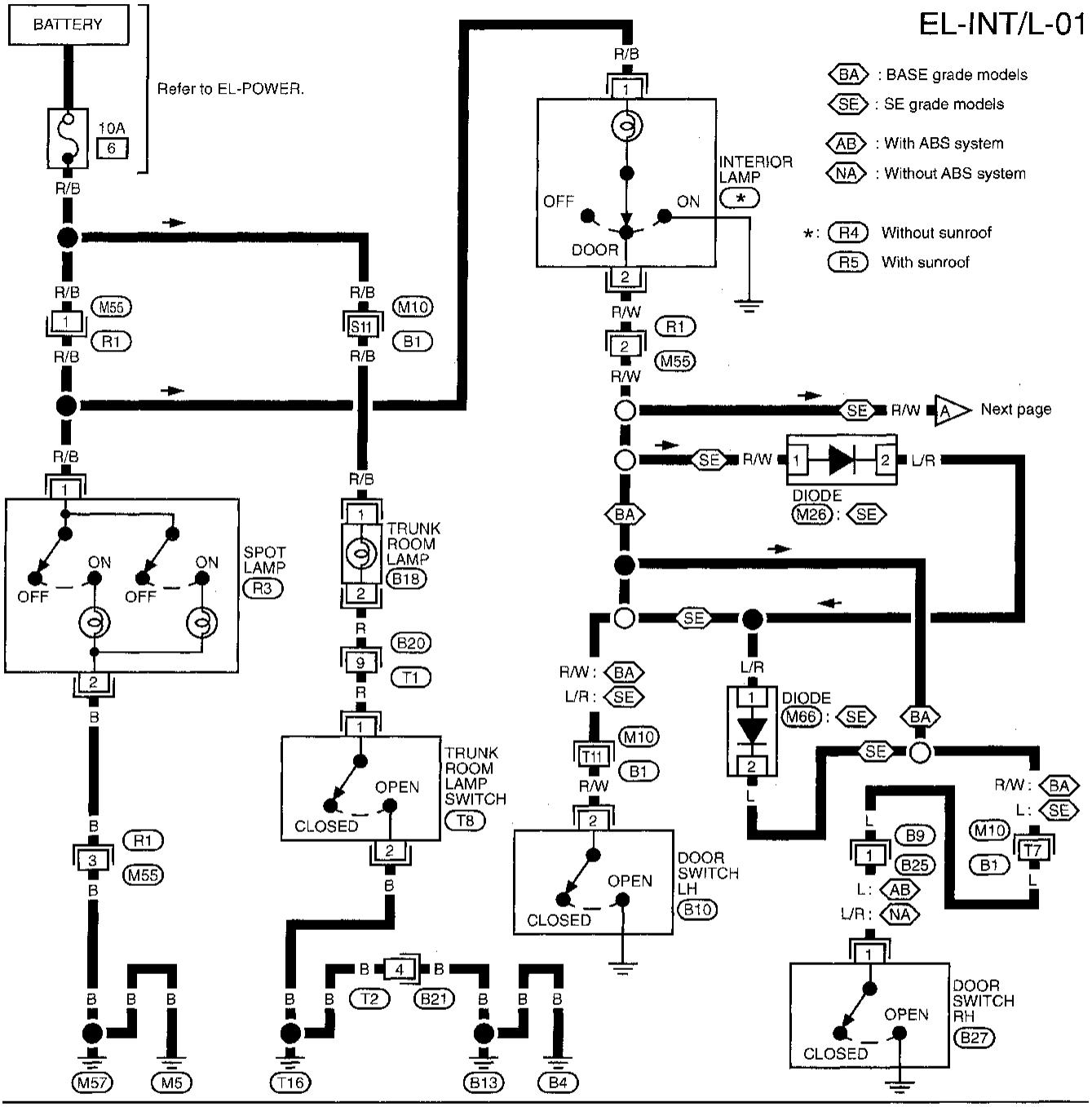
With the spot lamp switch in the ON position, ground is supplied
- to spot lamp terminal ②
- through body grounds M5 and M57.

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 —



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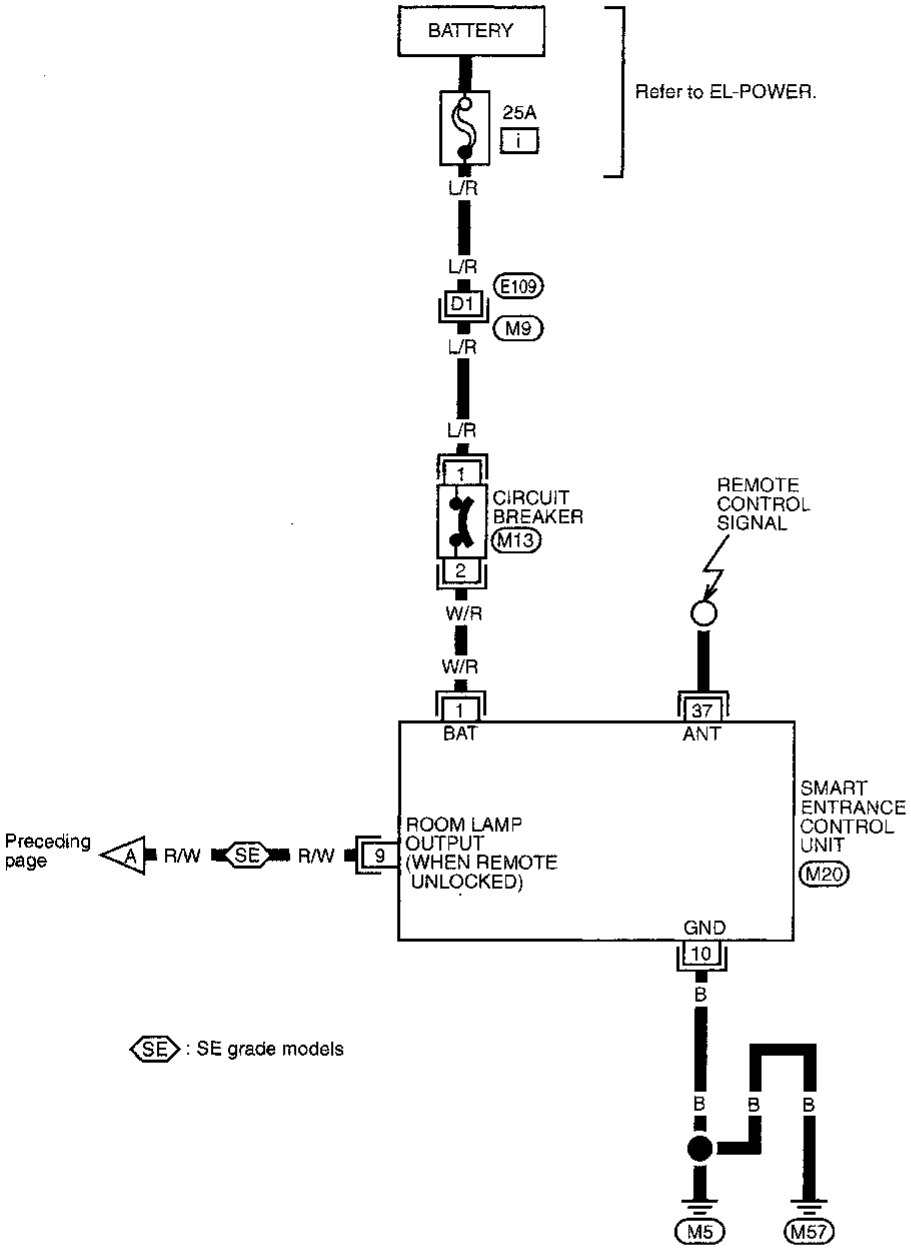
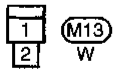
M10 , B1

MEL303F

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

EL-INT/L-02





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M9 , E109
M20

MEL304F

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.

Ground is supplied
- to combination meter terminal ㉒
- through body grounds (M5) and (M57).

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

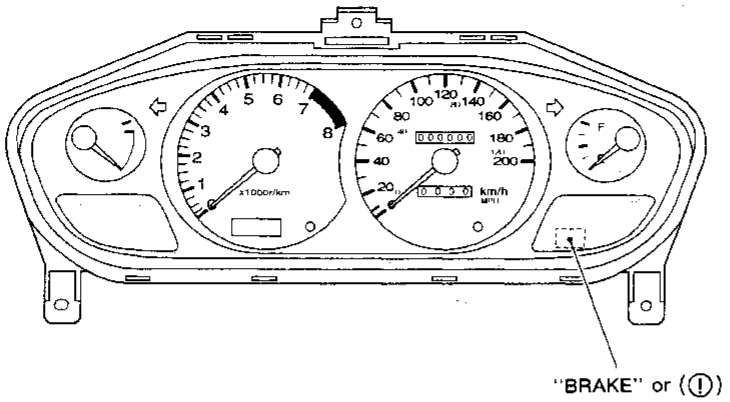
The fuel gauge indicates the approximate fuel level in the fuel tank.
The fuel gauge is regulated by a variable ground signal supplied
- to combination meter terminal ⑳ for the fuel gauge
- from terminal ① of the fuel tank gauge unit
- through terminal ④ of the fuel tank gauge unit and
- through body grounds (B4), (B13) and (T16).

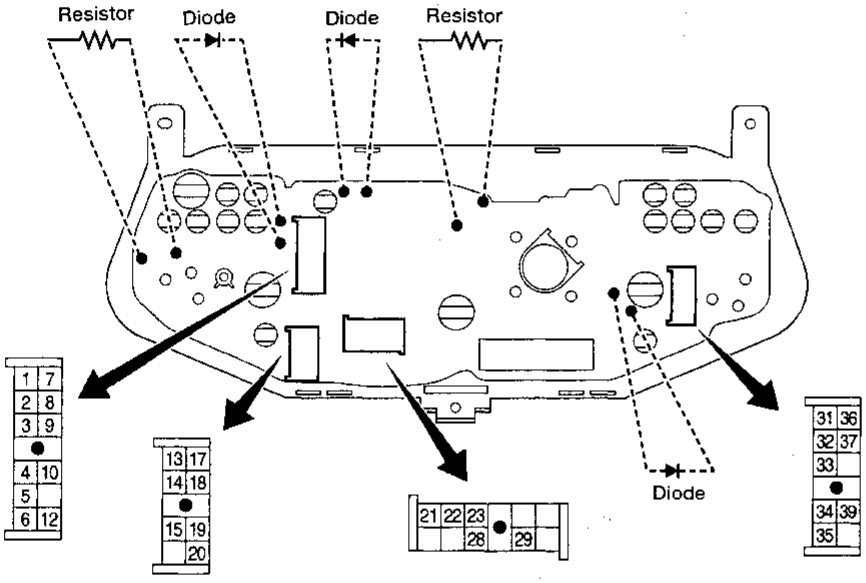
SPEEDOMETER

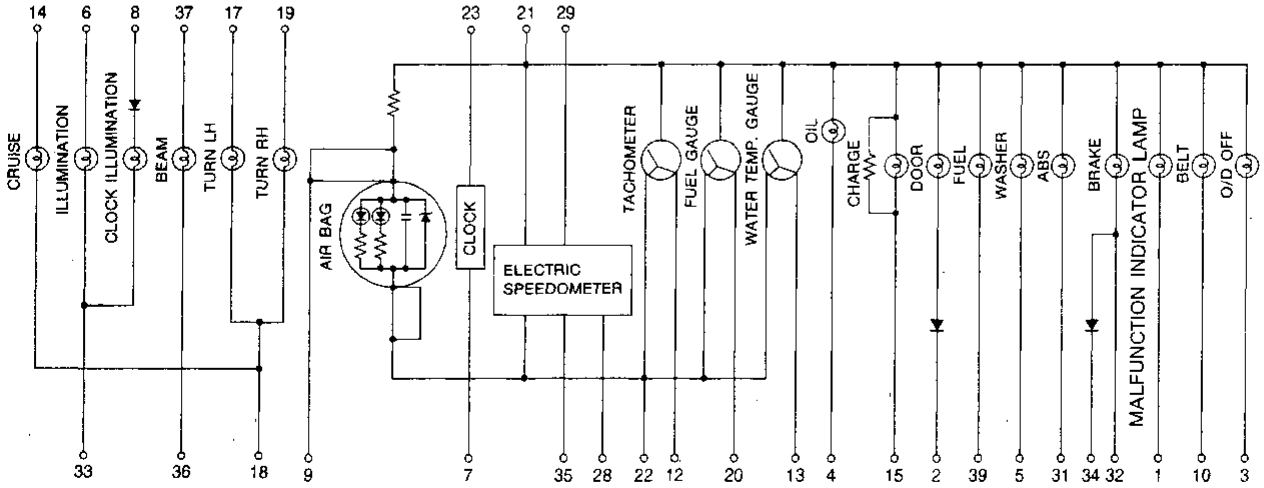
The vehicle speed sensor provides a voltage signal to the combination meter for the speedometer.
The voltage is supplied
- to combination meter terminals ㉘ and ㉟ for the speedometer
- from terminals ① and ② of the vehicle speed sensor.

The speedometer converts the voltage into the vehicle speed displayed.

Combination Meter



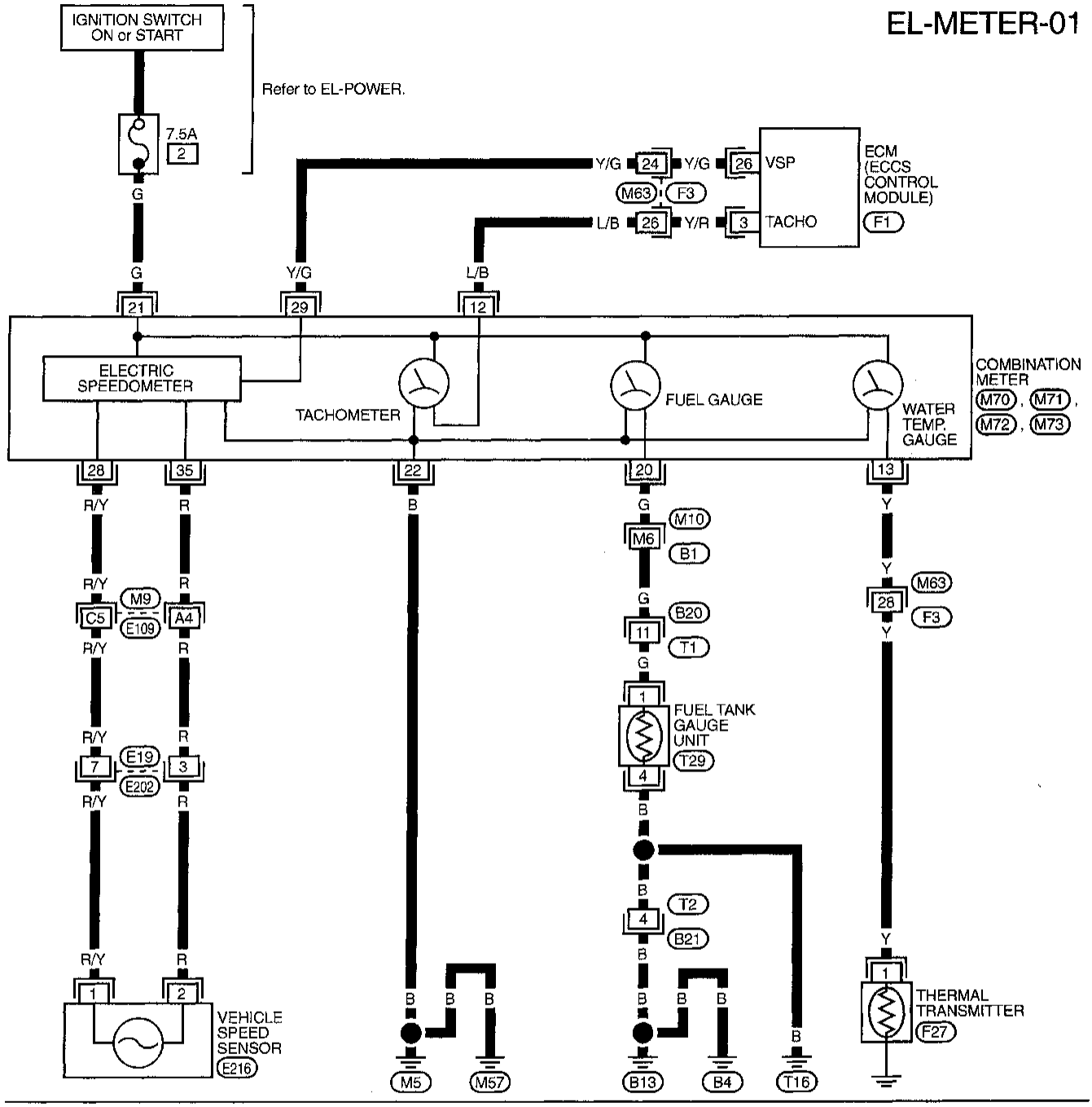


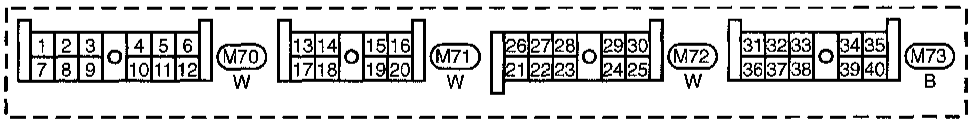


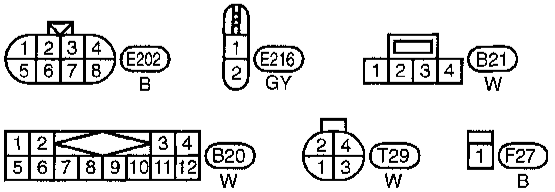
MEL309DA

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

EL-METER-01







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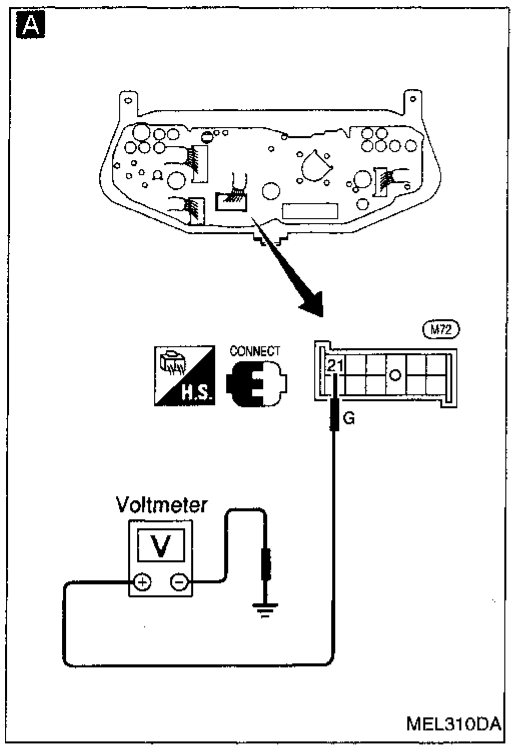
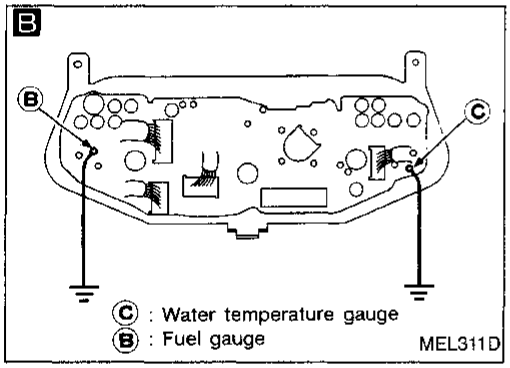
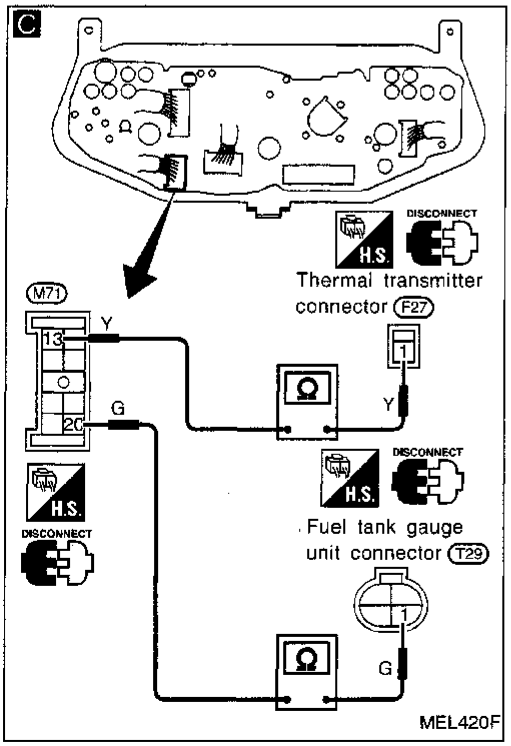
(M9), (E109)
(M10), (B1)
(F3), (M63)
(F1)

MEL305F

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) 7.5A fuse (No. 2, located in the fuse block)
2) Harness for open or short between fuse and combination meter

OK

B

CHECK GAUGE OPERATION.
1) Turn ignition switch "ON".
2) Connect terminals (B) (Fuel), (C) (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 (20) and fuel tank gauge unit harness terminal (1).
Check harness continuity between combination meter harness terminal (13) and thermal transmitter harness terminal (1).
Continuity should exist.

NG → Repair or replace.

OK

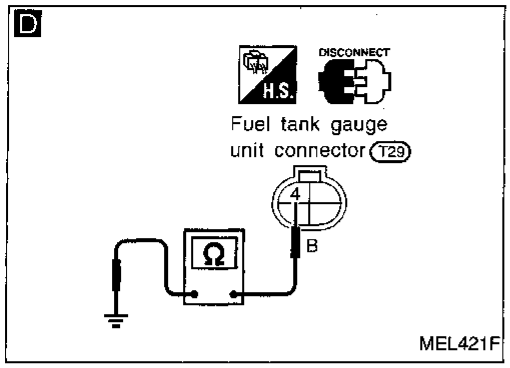
CHECK COMPONENT.
Check gauge units and harness.
Refer to "Fuel Tank Gauge Unit Check" (EL-83) or "Thermal Transmitter Check" (EL-83).

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

OK

(Go to (A) on next page)

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



Ⓐ

D

Check harness continuity between fuel tank gauge unit harness terminal ④ and body ground.
Continuity should exist.

NG → Repair harness or connector.

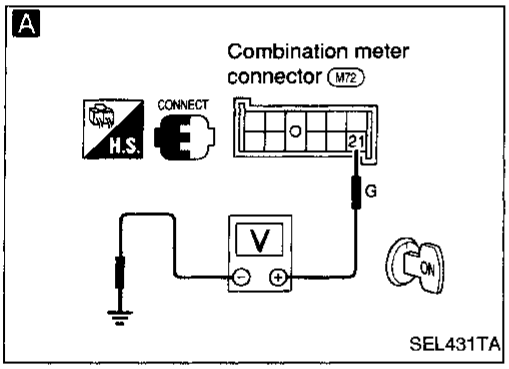
OK ↓

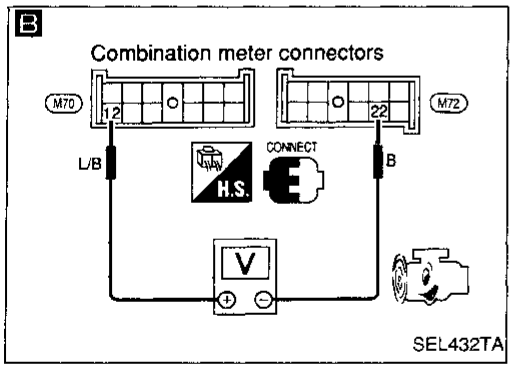
Reinstall any part removed.

↓

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) 7.5A fuse (No. 2, located in the fuse block)
2) Harness for open or short between fuse and combination meter

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 ↓

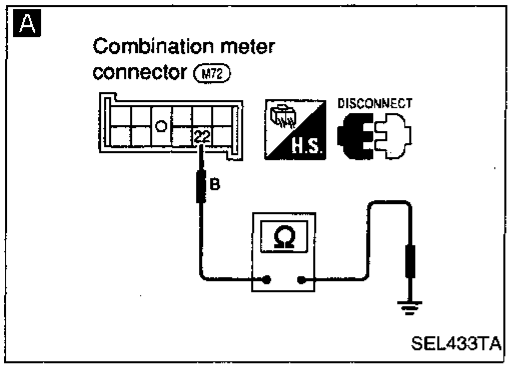
Replace tachometer.

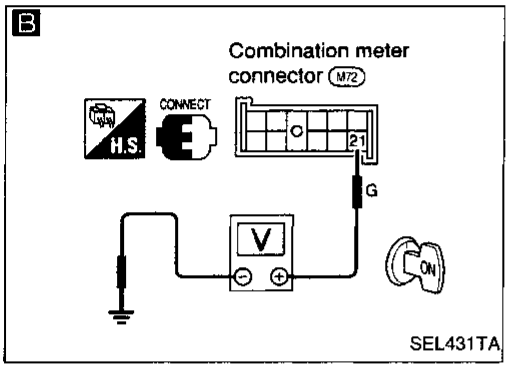
↓

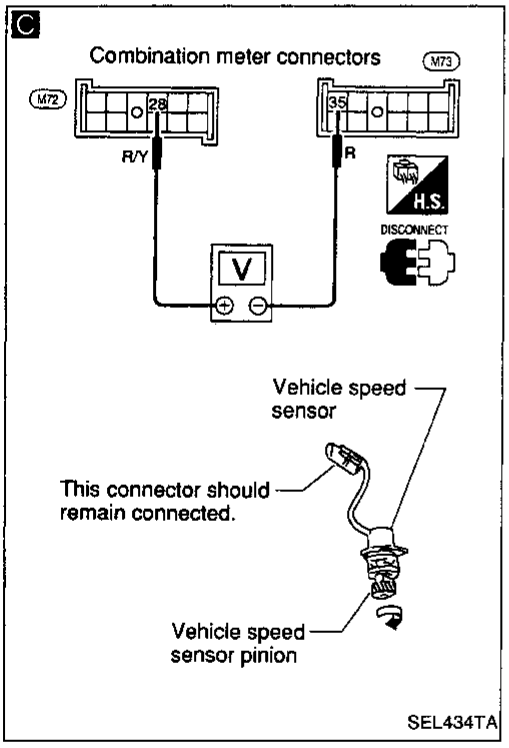
INSPECTION END

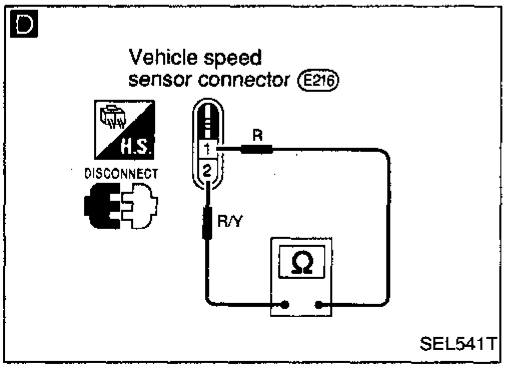
Inspection/Speedometer and Vehicle Speed Sensor

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

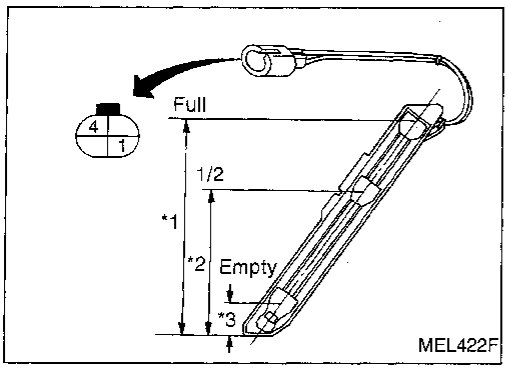
CHECK VEHICLE SPEED SENSOR.
Check resistance between terminals (1) and (2).
Resistance: Approx. 250Ω.

NG → Replace vehicle speed sensor.

OK

Repair harness or connector between speedometer and vehicle speed sensor.

INSPECTION END



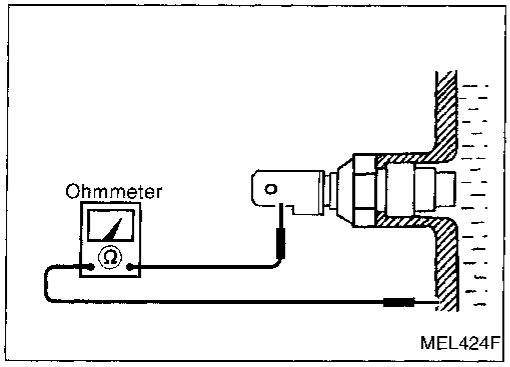
Fuel Tank Gauge Unit Check

- For removal, refer to FE section.

Check the resistance between terminals ① and ④.

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

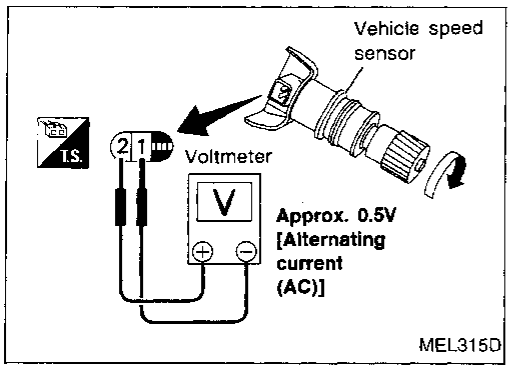
*1 and *3: When float rod is in contact with stopper.



Thermal Transmitter Check

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

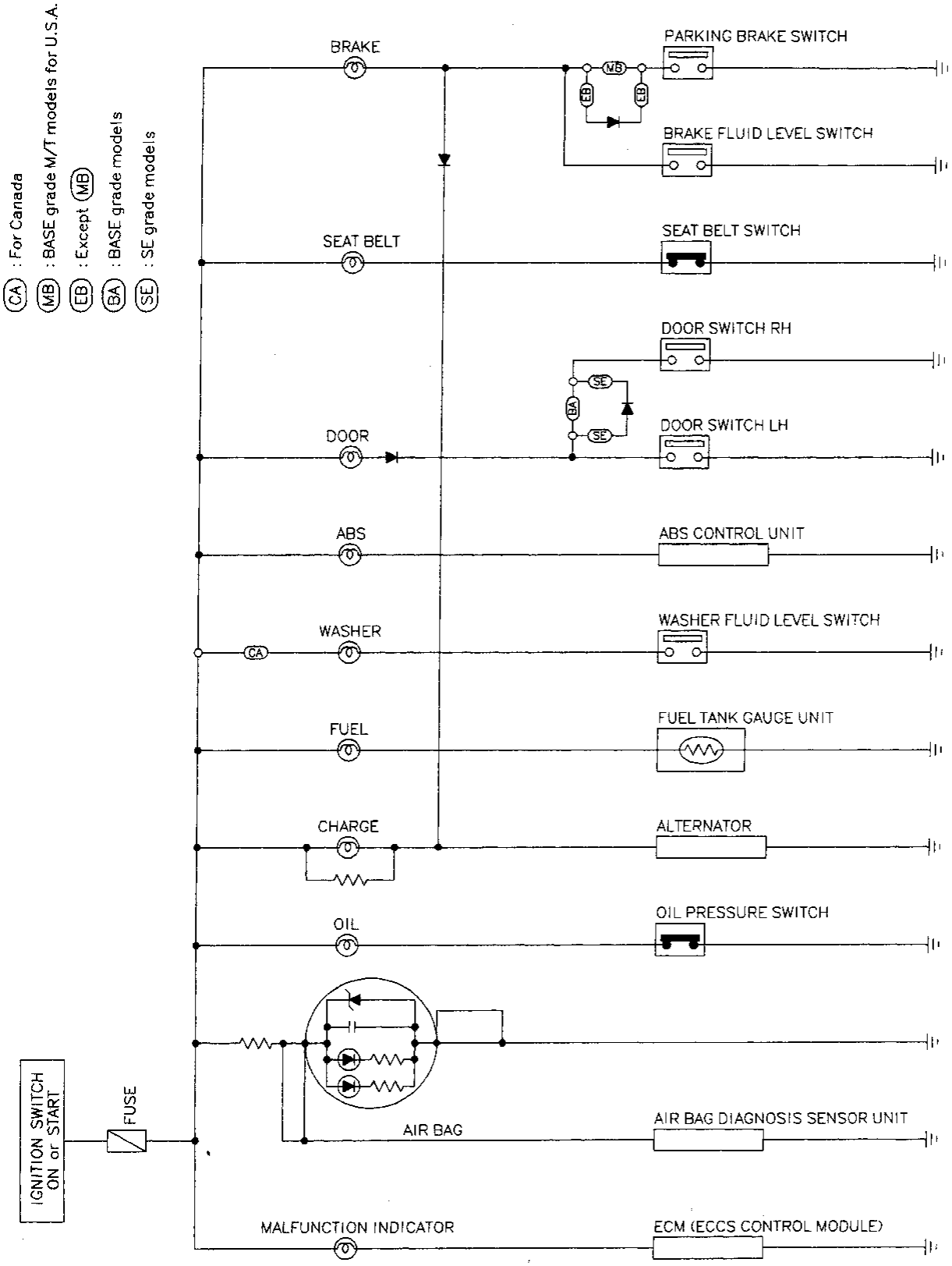
Water temperature	Resistance
60°C (140°F)	Approx. 70 - 90Ω
100°C (212°F)	Approx. 21 - 24Ω



Vehicle Speed Sensor Signal Check

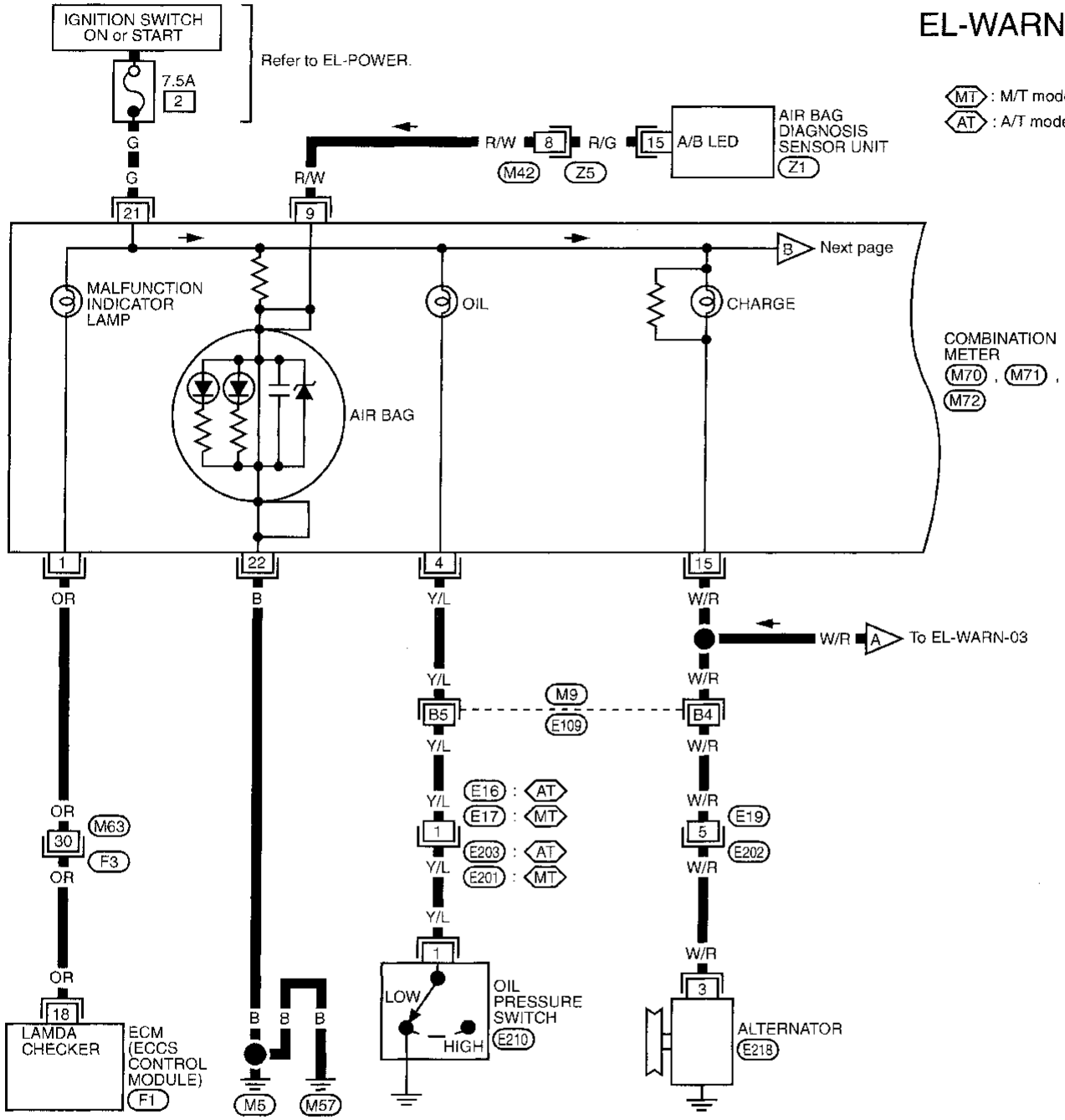
1. Remove vehicle speed sensor from transmission.
2. Turn vehicle speed sensor pinion quickly and measure voltage across ① and ②.

Warning Lamps/Schematic



MEL306F

Warning Lamps/Wiring Diagram — WARN —



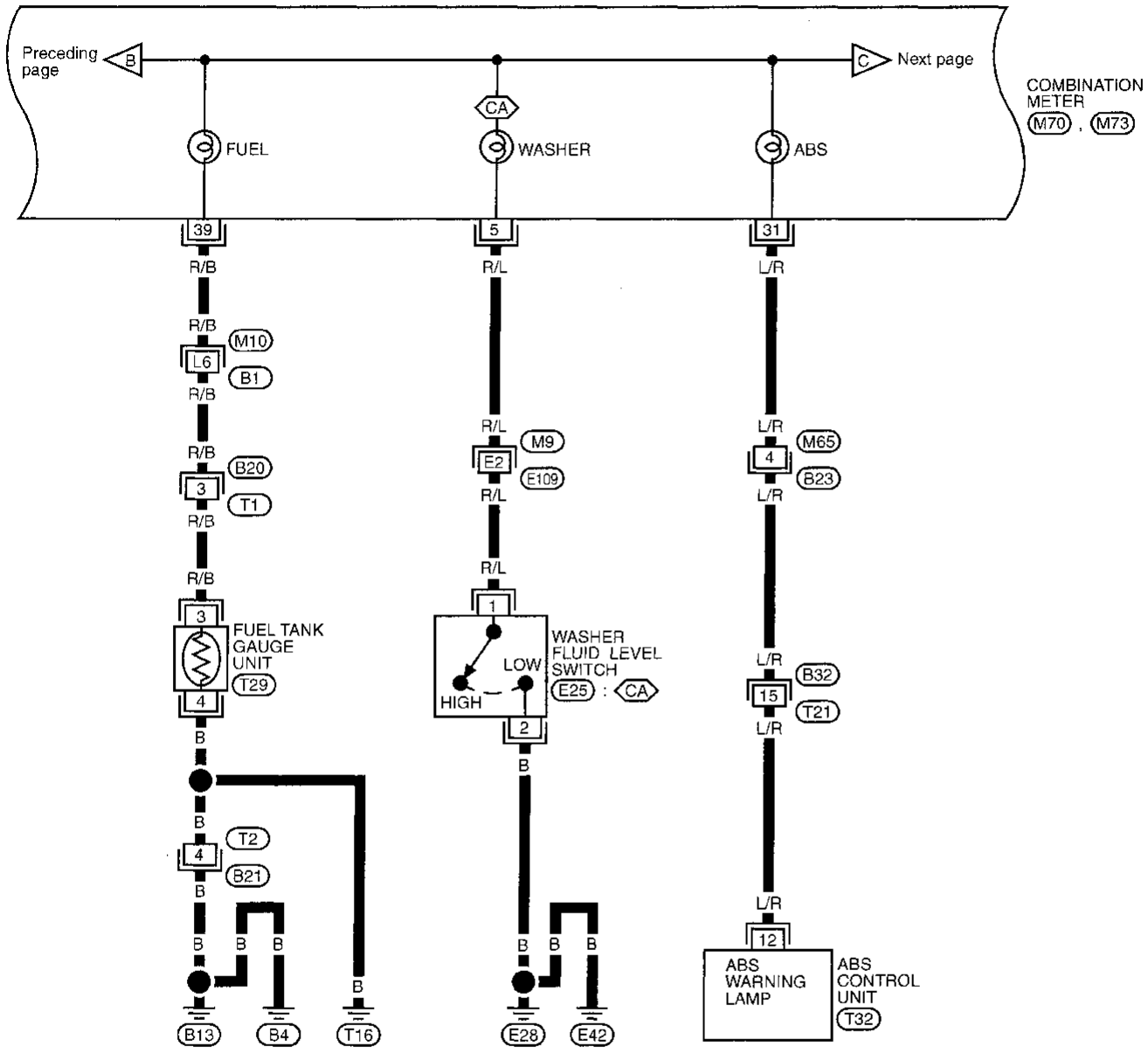
Refer to last page (Foldout page).
M9 , E109
F3 , M63
F1

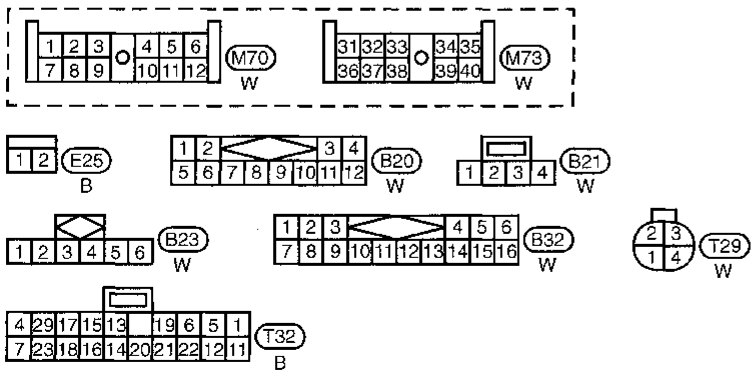
MEL307F

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

EL-WARN-02

CA : For Canada





Refer to last page (Foldout page).

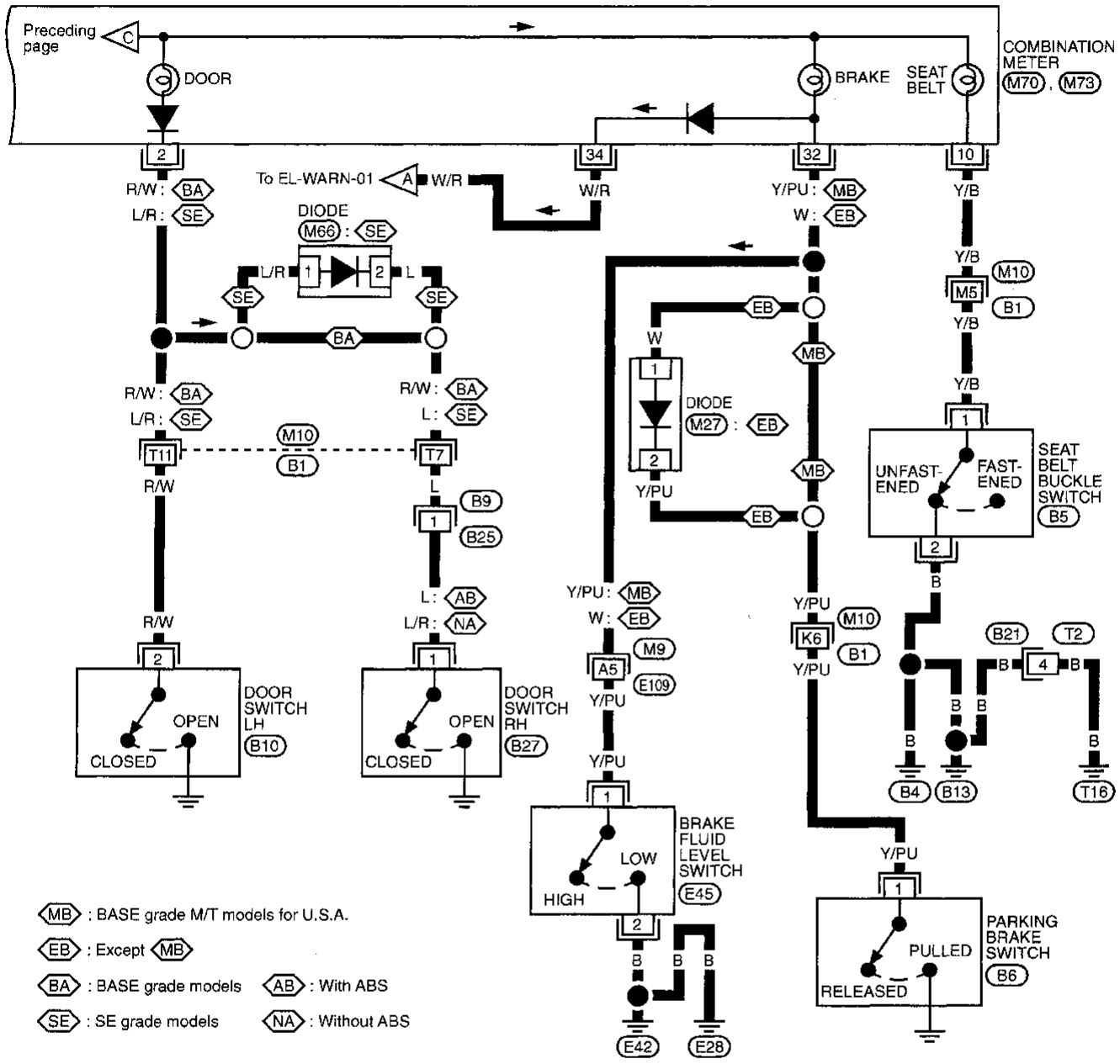
M9 , E109

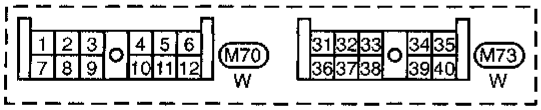
M10 , B1

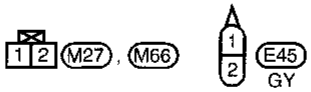
MEL308F

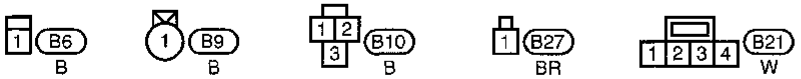
Warning Lamps/Wiring Diagram — WARN — (Cont'd)

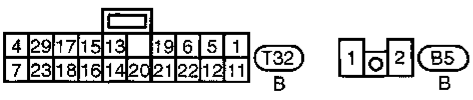
EL-WARN-03









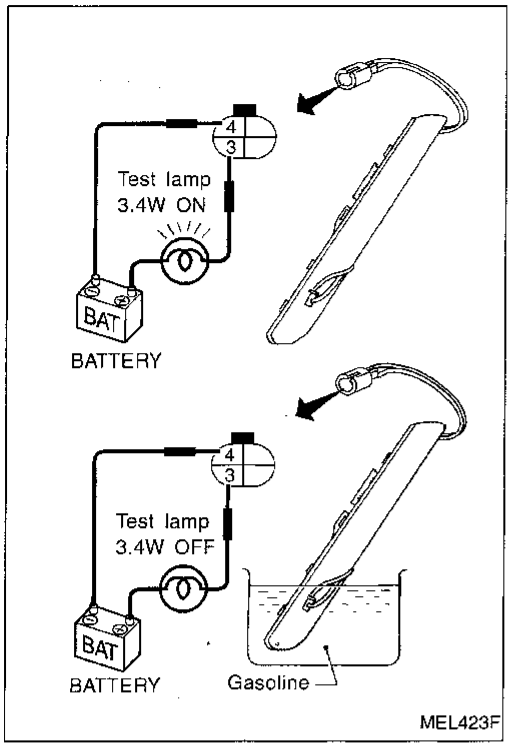


Refer to last page (Foldout page).

M9 , E109

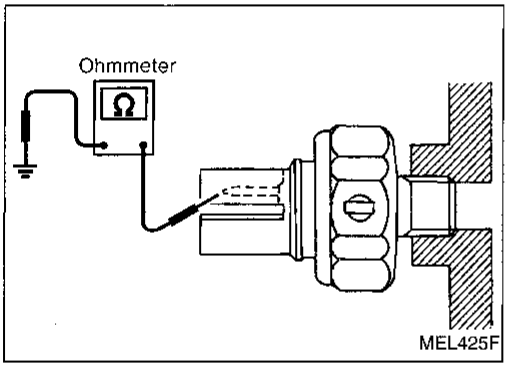
M10 , B1

MEL396F



Fuel Warning Lamp Sensor Check

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



Oil Pressure Switch Check

	Oil pressure kPa (kg/cm^2, 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.

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 grounds (M5) and (M57).
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), (B13) and (T16).

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), (B13) and (T16).

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), (B13) and (T16).

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.

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.

Warning Buzzer/System Description (Cont'd)

Ground is supplied to warning buzzer unit terminal ⑧ through body grounds (M5) and (M57).
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 warning buzzer unit terminal ⑦.

Door switch LH terminal ③ is grounded through body grounds (B4), (B13) and (T16).

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

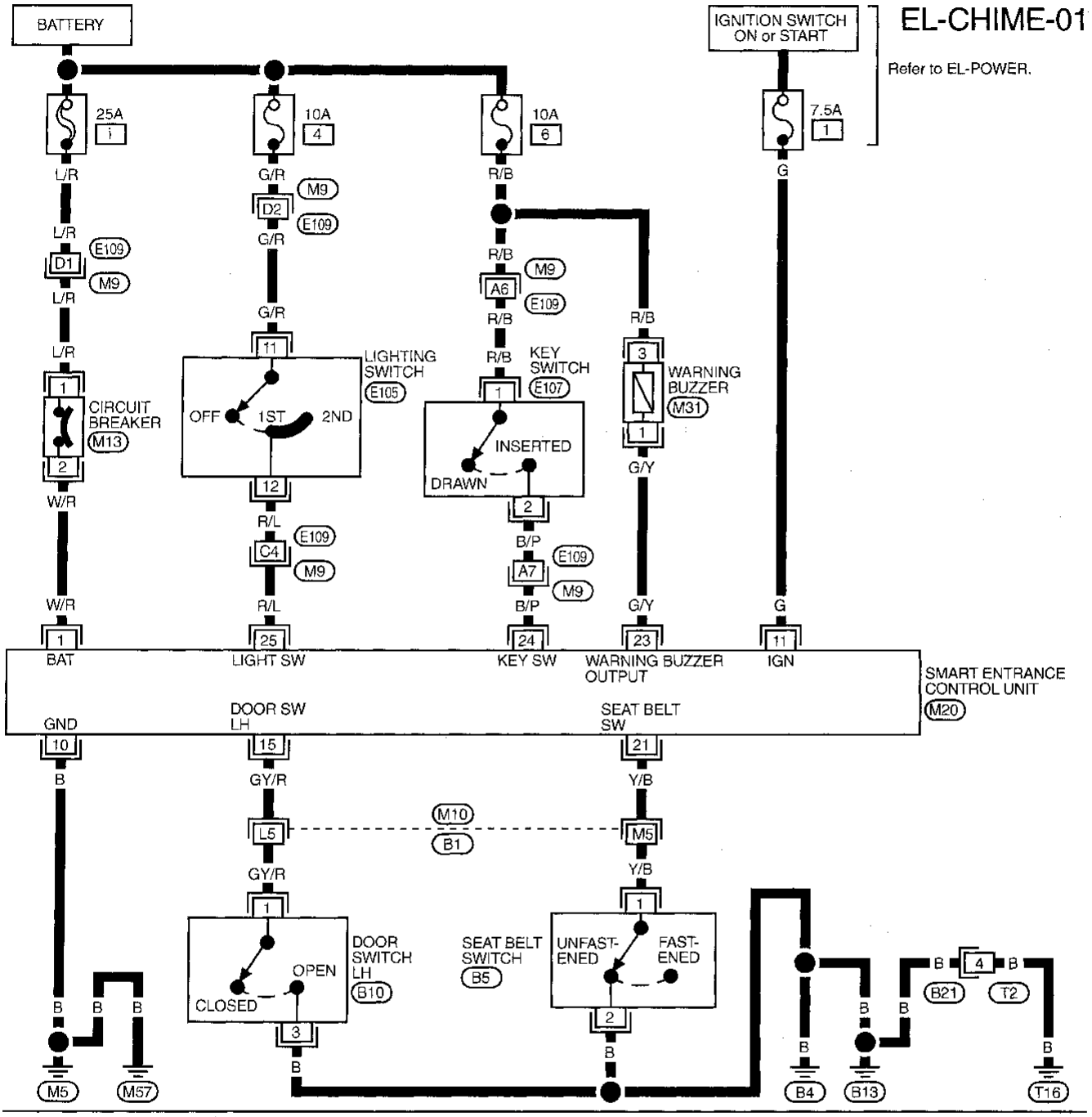
With ignition switch turned ON and seat belt unfastened (seat belt switch ON), warning buzzer will sound for approximately 6 seconds.
Ground is supplied

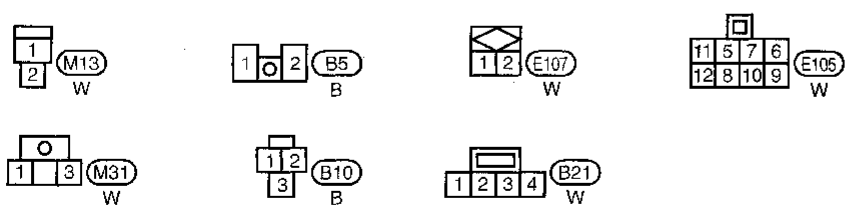
- from seat belt switch terminal ①
- to warning buzzer unit terminal ②.

Seat belt switch terminal ② is grounded through body grounds (B4), (B13) and (T16).

Warning Buzzer/Wiring Diagram — CHIME —

MODELS WITH POWER DOOR LOCKS





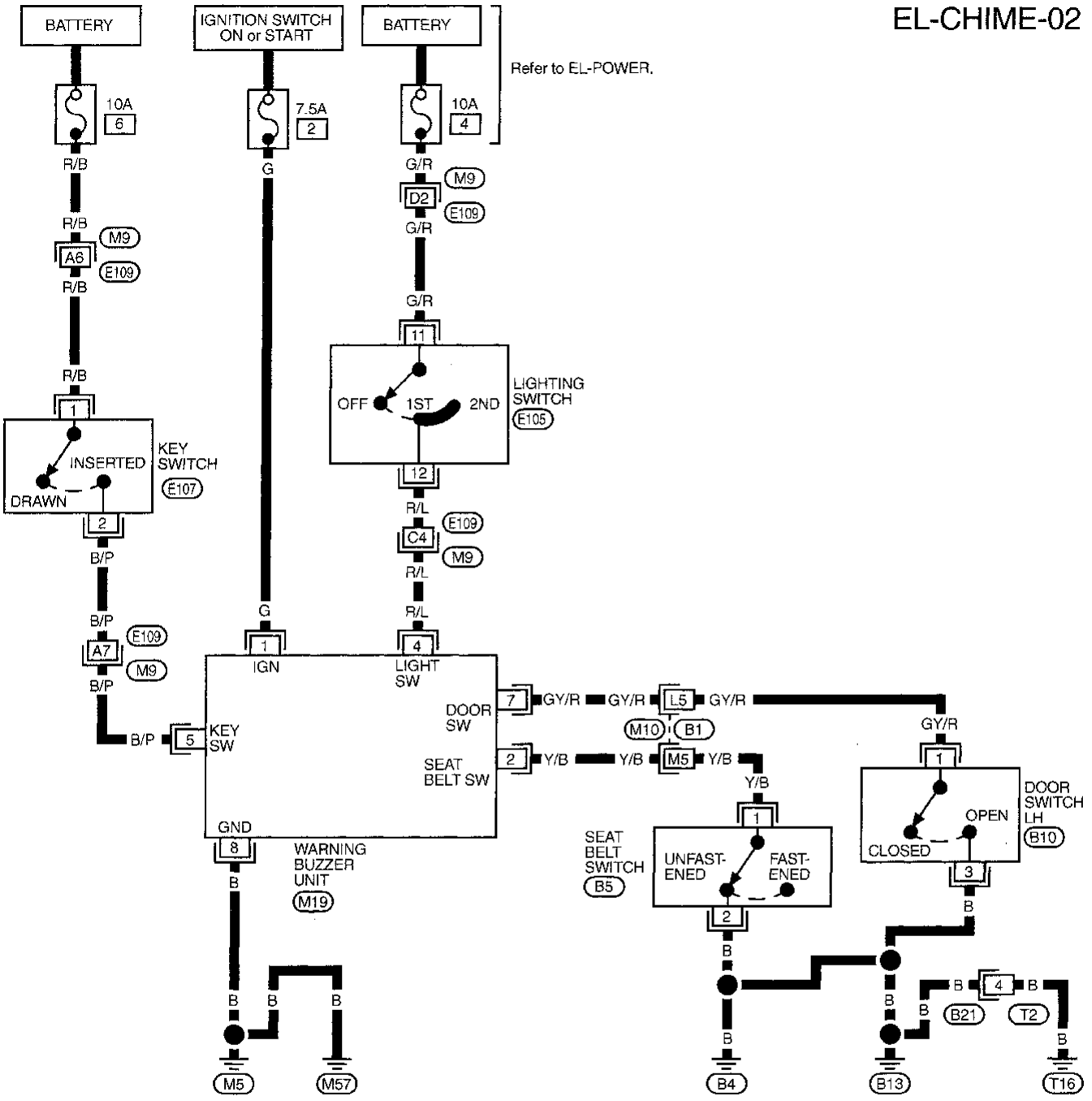
Refer to last page (Foldout page).
M9, E109
M10, B1
M20

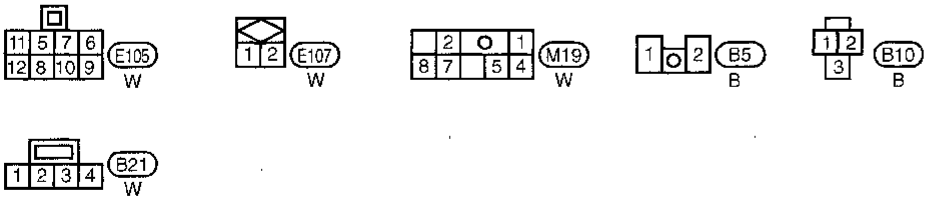
MEL309F

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

MEL310F

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-94	EL-94	EL-94	EL-96	EL-97	EL-99	EL-101
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-95	EL-95	EL-95	EL-96	EL-98	EL-100	EL-101
SYMPTOM	Preliminary check 1	Preliminary check 2	Preliminary check 3	Main power supply and Ground circuit	Diagnostic Procedure 1-(1)	Diagnostic Procedure 2-(1)	Diagnostic Procedure 3-(1)
Light warning buzzer does not activate.	○			○	○		
Ignition key warning buzzer does not activate.		○		○		○	
Seat belt warning buzzer does not activate.			○	○			○

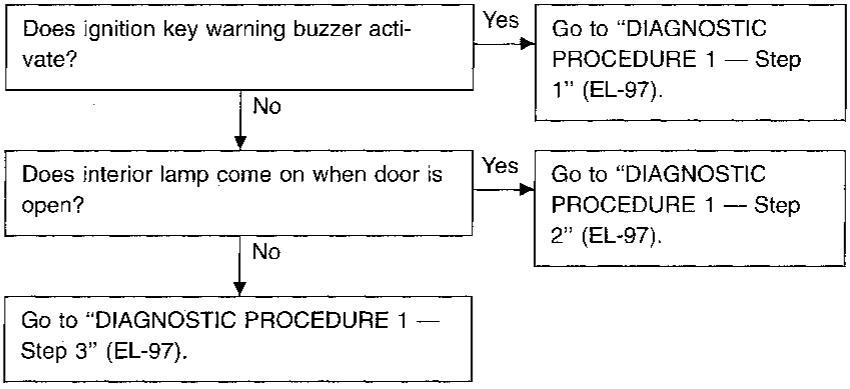
Trouble Diagnoses — Warning Buzzer (Cont'd)

PRELIMINARY CHECK

Models with power door locks

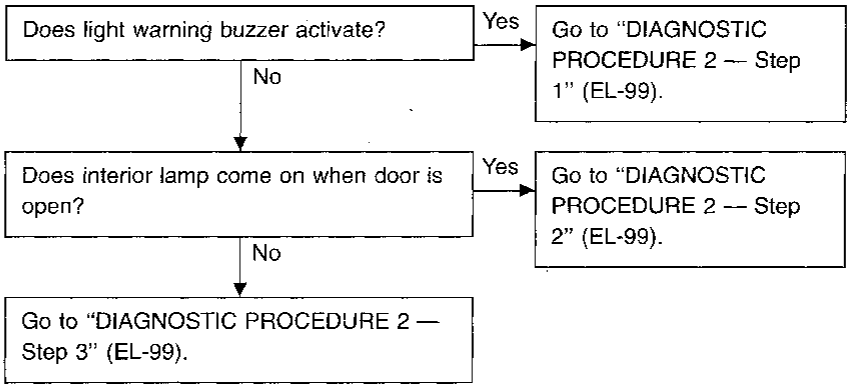
Preliminary check 1

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



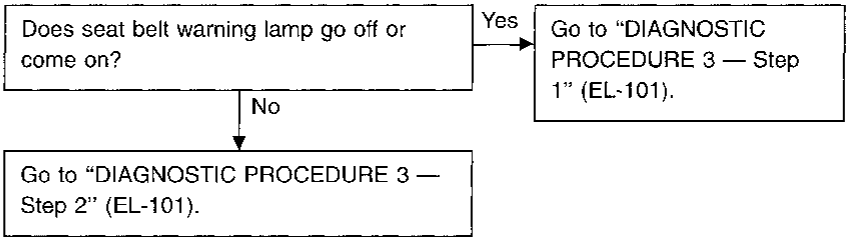
Preliminary check 2

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



Preliminary check 3

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

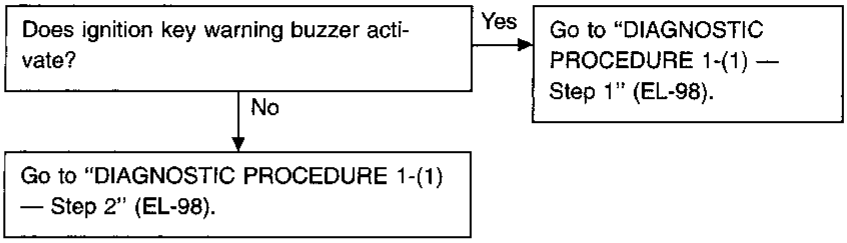


Trouble Diagnoses — Warning Buzzer (Cont'd)

Models without power door locks

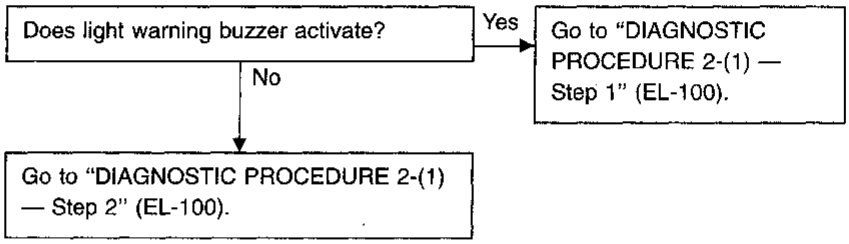
Preliminary check 1

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



Preliminary check 2

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

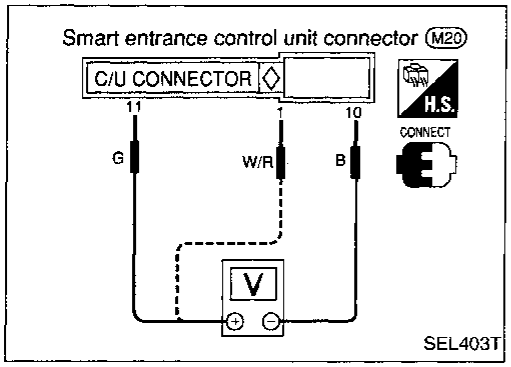


Preliminary check 3

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

Trouble Diagnoses — Warning Buzzer (Cont'd)

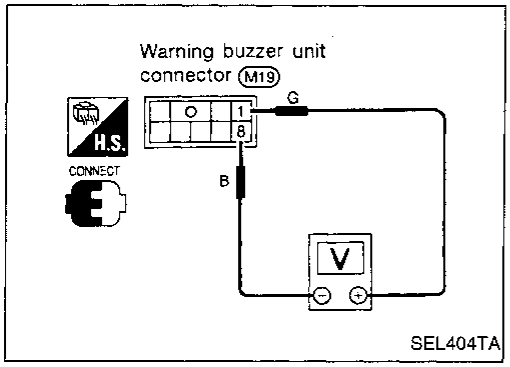
MAIN POWER SUPPLY AND GROUND CIRCUIT CHECK



Main power supply

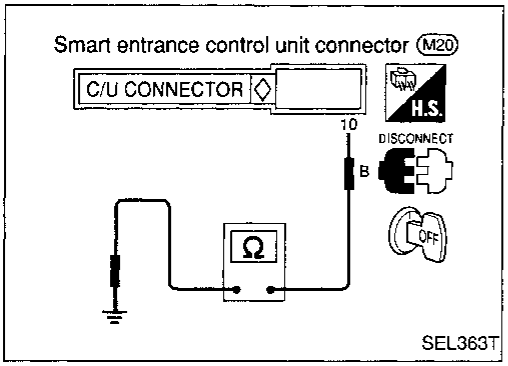
- **Models with power door locks**

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**

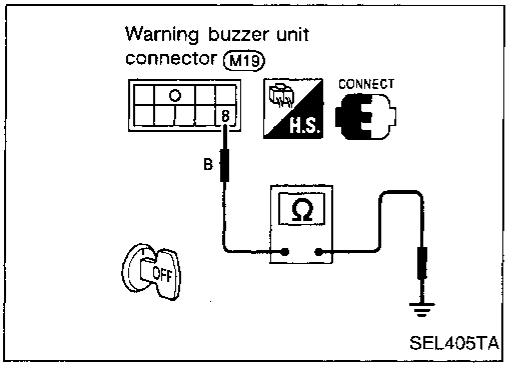
Terminals	Battery voltage existence condition		
	Ignition switch position		
	OFF	ACC	ON
(1) - (8)	No	No	Yes



Ground circuit

- **Models with power door locks**

Terminals	Continuity
(10) - Ground	Yes



- **Models without power door locks**

Terminals	Continuity
(8) - Ground	Yes

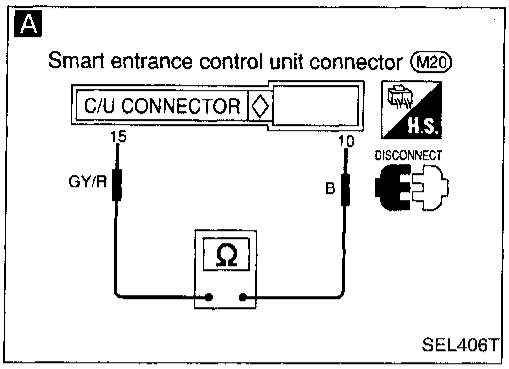
Trouble Diagnoses — Warning Buzzer (Cont'd)

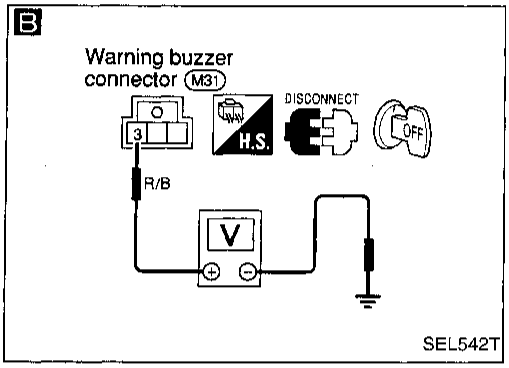
DIAGNOSTIC PROCEDURE 1

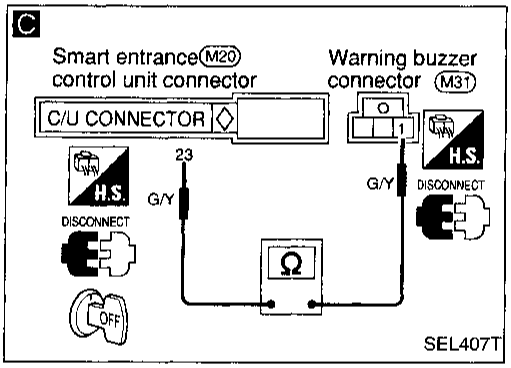
SYMPTOM: Light warning buzzer does not activate.

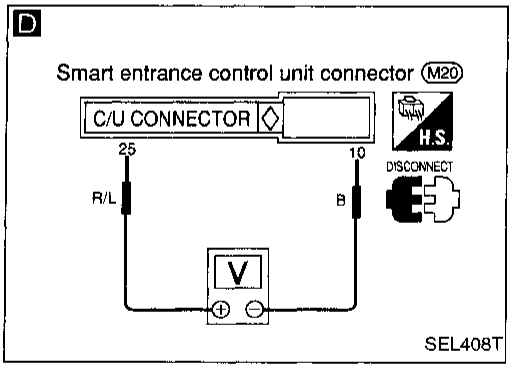
- Perform "Preliminary check 1" before referring to the following flow chart.

Models with power door locks









A — 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-212.)
- 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-102.

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.

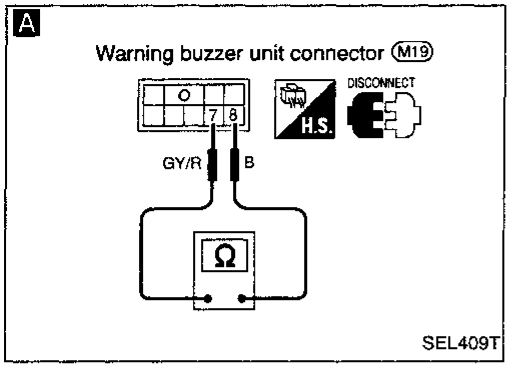
Trouble Diagnoses — Warning Buzzer (Cont'd)

DIAGNOSTIC PROCEDURE 1-(1)

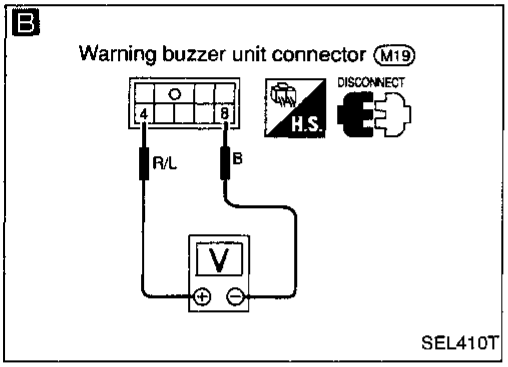
SYMPTOM: Light warning buzzer does not activate.

Models without power door locks

A



B



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-212.)
- 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)

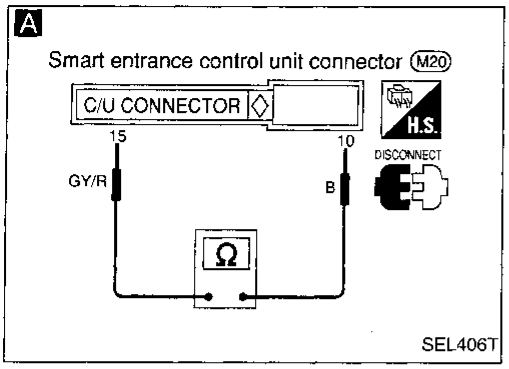
DIAGNOSTIC PROCEDURE 2

SYMPTOM: Ignition key warning buzzer does not activate.

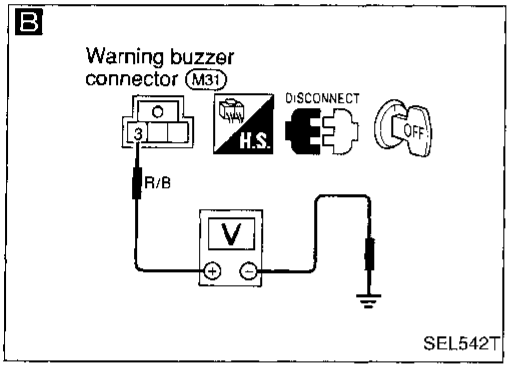
- Perform "Preliminary check 2" before referring to the following flow chart.

Models with power door locks

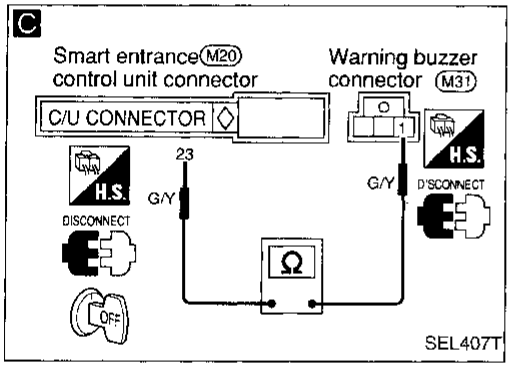
A



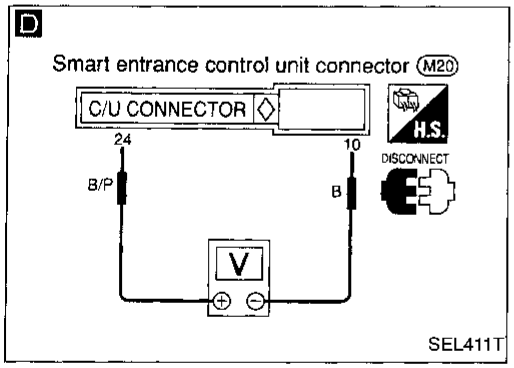
B



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-212.)
- 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-102.

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.

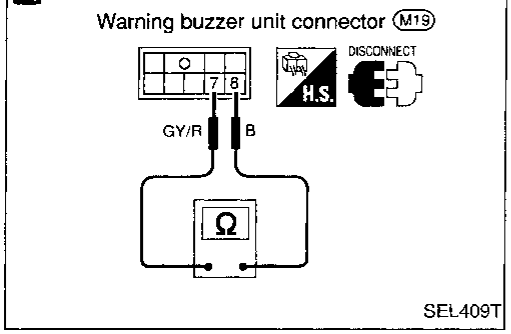
Trouble Diagnoses — Warning Buzzer (Cont'd)

DIAGNOSTIC PROCEDURE 2-(1)

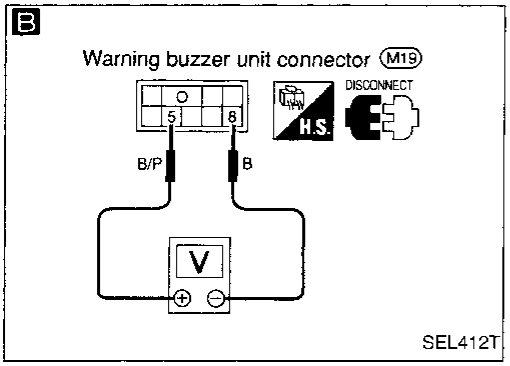
SYMPTOM: Ignition key warning buzzer does not activate.

Models without power door locks

A



B



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-212.)
- 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)

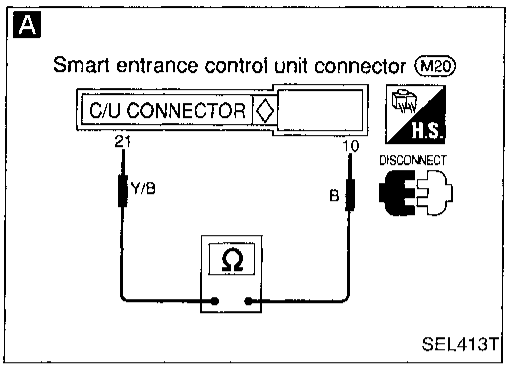
DIAGNOSTIC PROCEDURE 3

SYMPTOM: Seat belt warning buzzer does not activate.

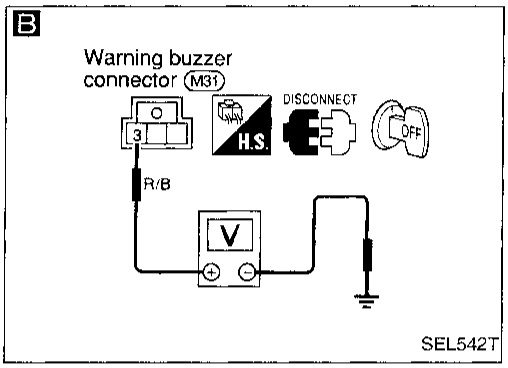
- Perform "Preliminary check 3" before referring to the following flow chart.

Models with power door locks

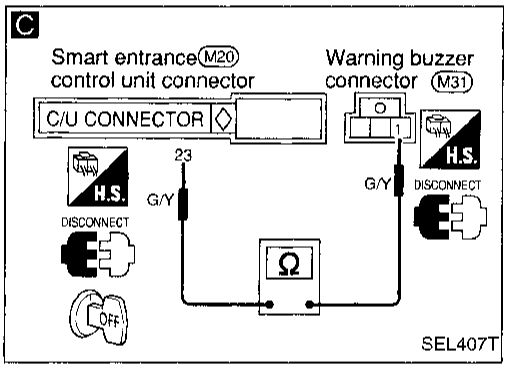
A



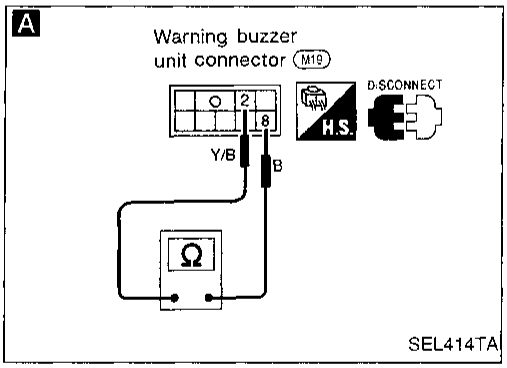
B



C



A



A — Step 2

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 ↓

B — Step 1

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-102.

NG → Replace warning buzzer.

OK ↓

Replace control unit.

DIAGNOSTIC PROCEDURE 3-(1)

SYMPTOM: Seat belt warning buzzer does not activate.

Models without power door locks

A

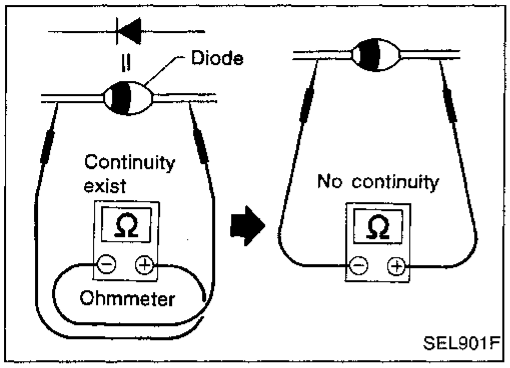
SEAT BELT SWITCH INPUT SIGNAL CHECK
Check continuity between warning buzzer unit harness terminals (2) and (8).

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 ↓

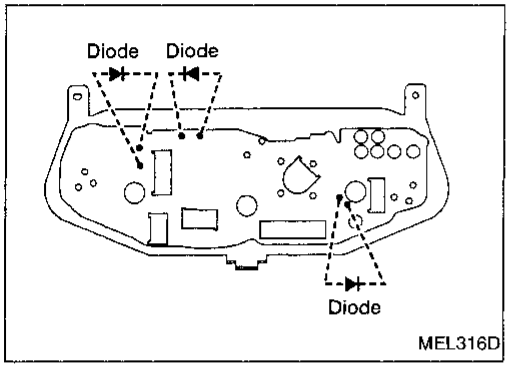
Replace warning buzzer unit.



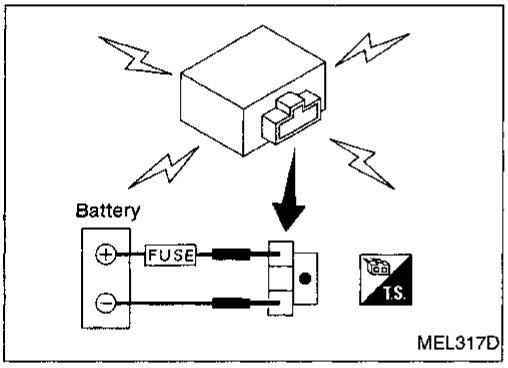
Diode Check

- 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 grounds E28 and 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 grounds F14 and 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 grounds E28 and 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 grounds F14 and 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 grounds E28 and 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 grounds F14 and 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

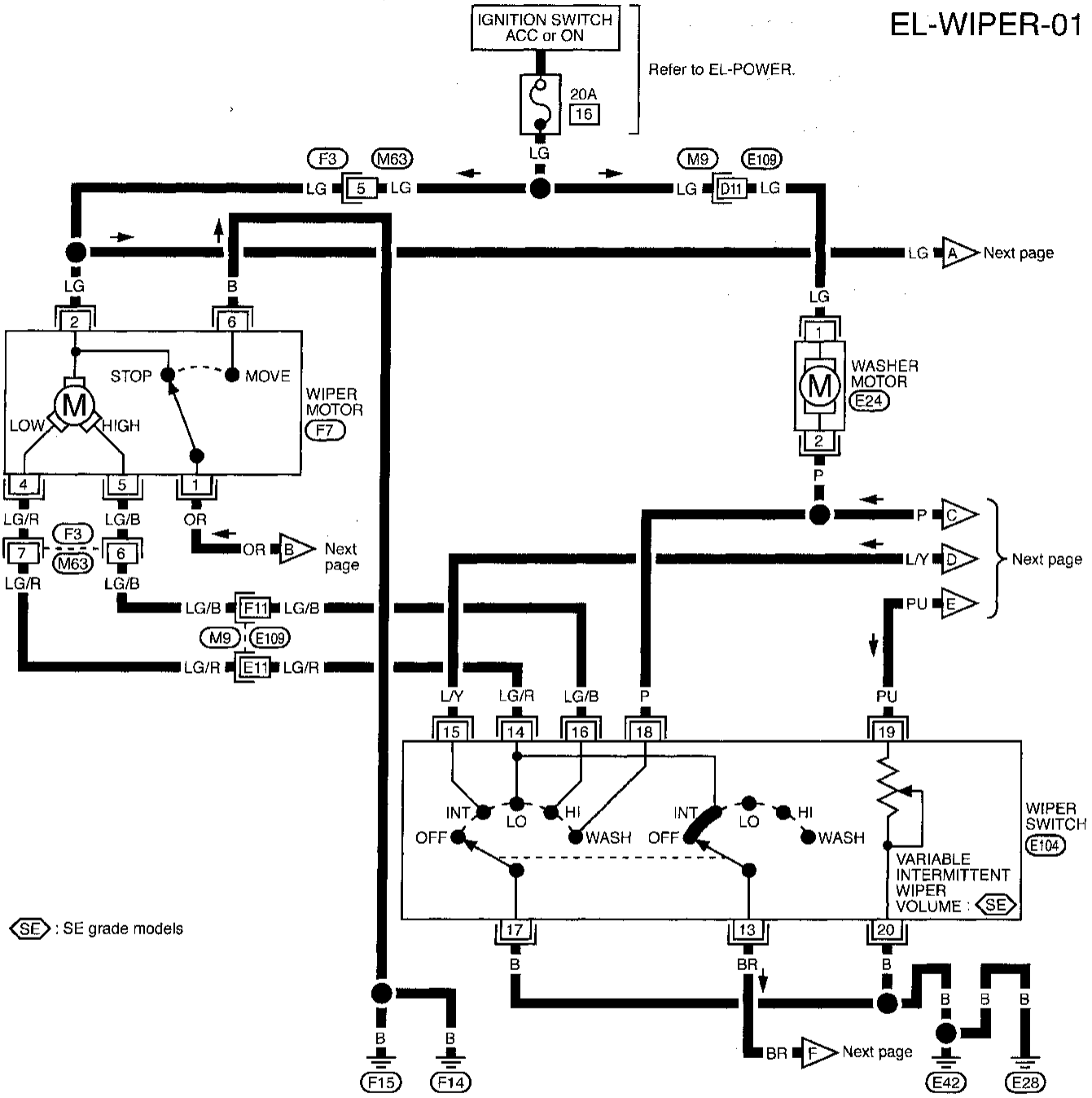
- to washer motor terminal ②, and
- to wiper amplifier terminal ⑤
- from terminal ⑱ of the wiper switch
- through terminal ⑰ of the wiper switch, and
- through body grounds E28 and E42.

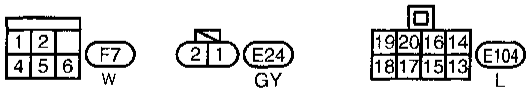
With power and ground supplied, the washer motor operates.

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



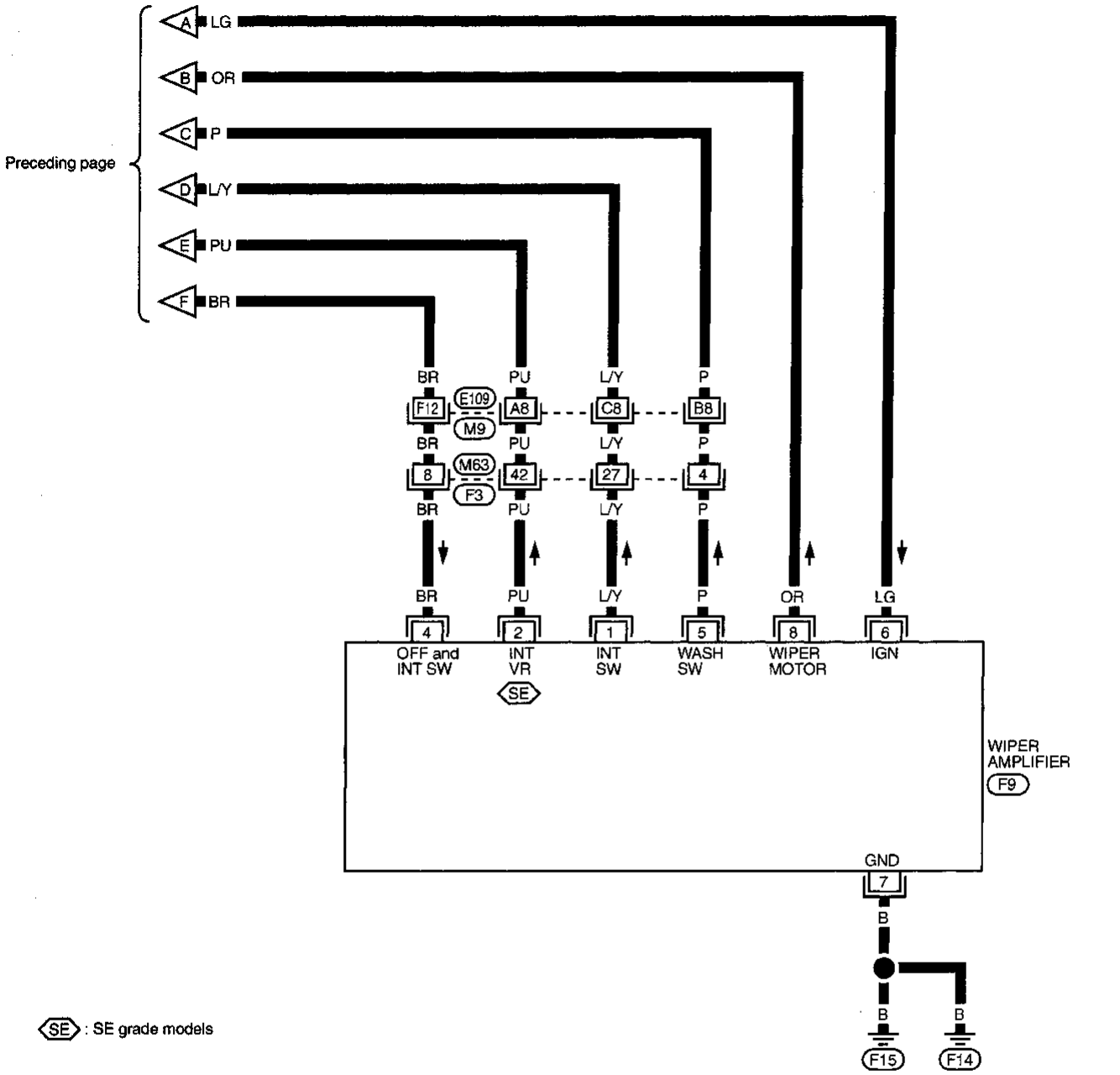


Refer to last page (Foldout page).
M9 , E109
F3 , M63

MEL311F

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

EL-WIPER-02



Refer to last page (Foldout page).

M9 , E109

F3 , M63

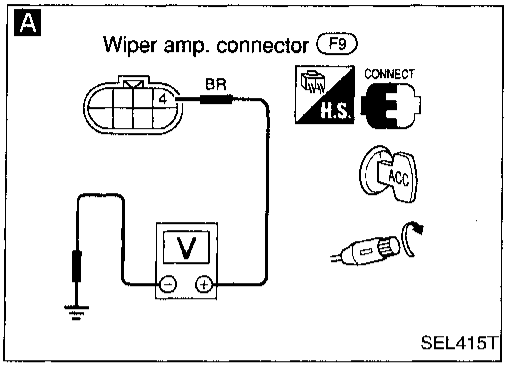
MEL312F

Trouble Diagnoses

DIAGNOSTIC PROCEDURE 1

SYMPTOM: Intermittent wiper does not operate.

A



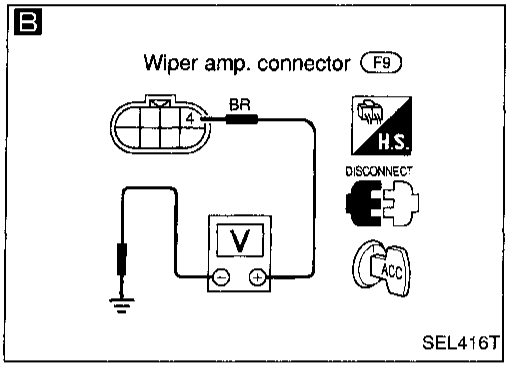
WIPER AMP. OUTPUT SIGNAL CHECK
1) Turn ignition switch to "ACC".
2) Turn wiper switch to "INT" or "OFF".
3) Measure voltage between wiper amp. harness terminal ④ and body ground.

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

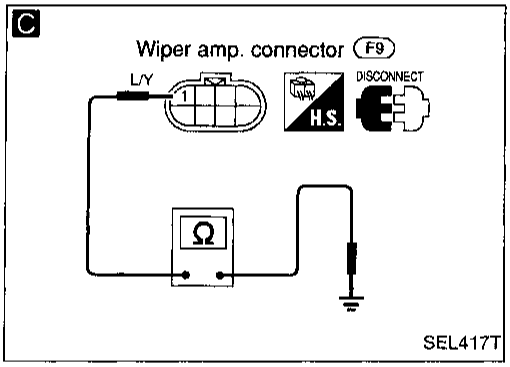


Measure voltage between wiper amp. harness terminal ④ and body ground.
Battery voltage should exist.

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



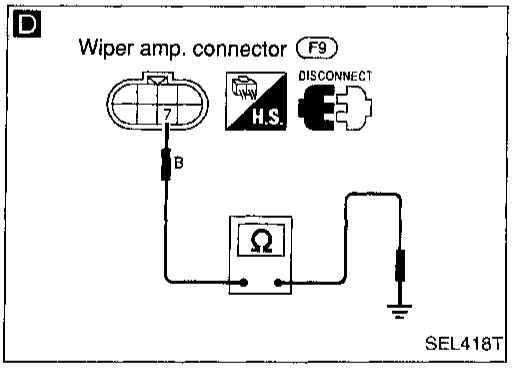
INTERMITTENT SWITCH INPUT SIGNAL CHECK
Check harness continuity between wiper amp. harness terminal ① and body ground.

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.

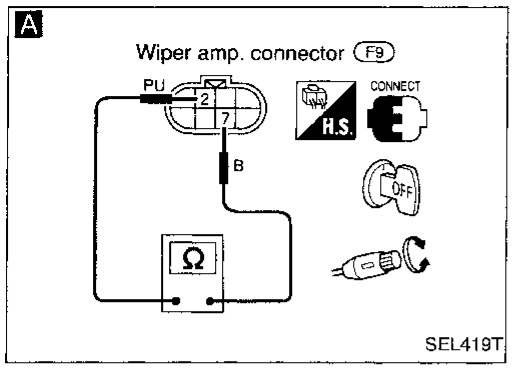
OK ↓

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.

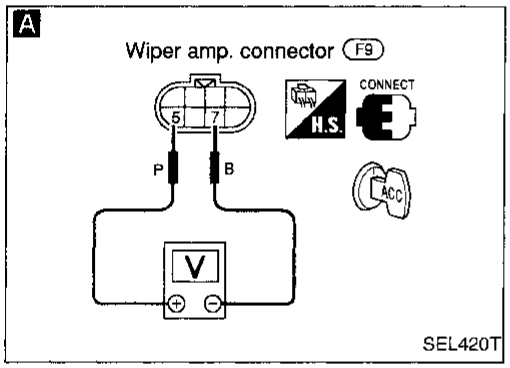
NG

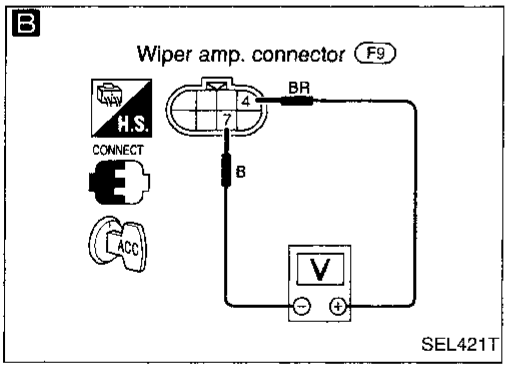
- Check intermittent wiper volume.
- Check harness continuity between wiper amp. harness terminal (2) and wiper switch harness terminal (19).

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).

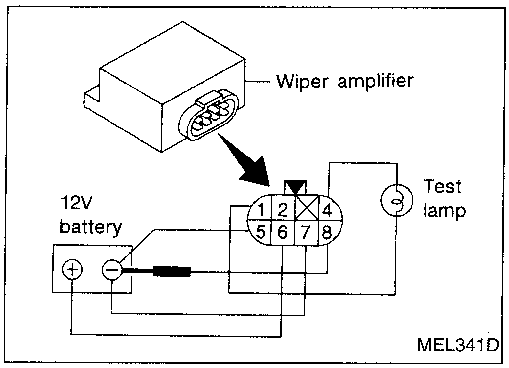
OK

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.

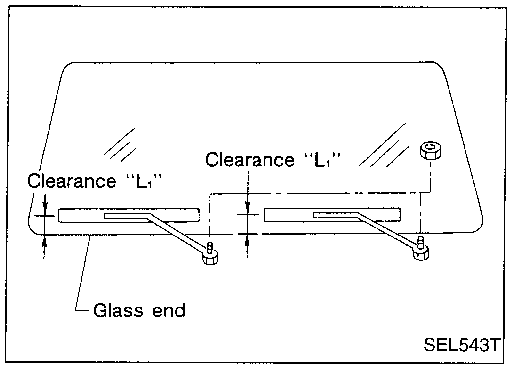
NG → Check wiper switch.

OK → Replace wiper amp.



Wiper Amplifier Check

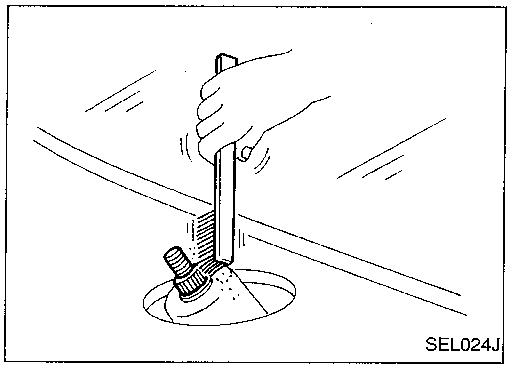
1. Connect as shown in the figure at left.
2. If test lamp comes on when connected to terminal ⑧ and battery ground, wiper amplifier is normal.



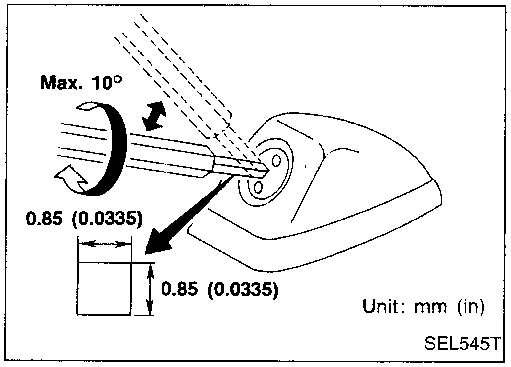
Wiper Installation and Adjustment

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.**

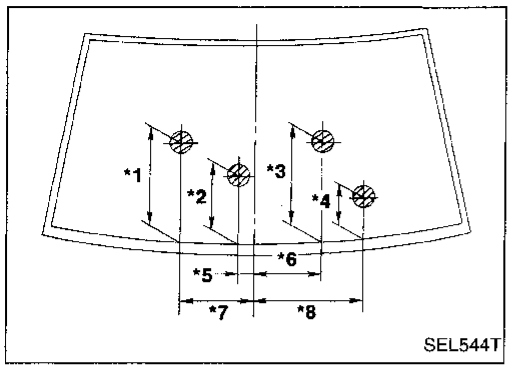


Washer Nozzle Adjustment

- 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)

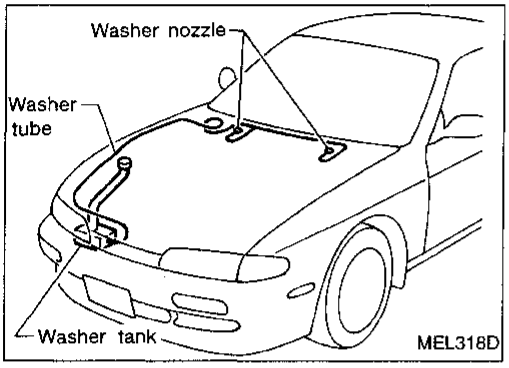


Unit: mm (in)

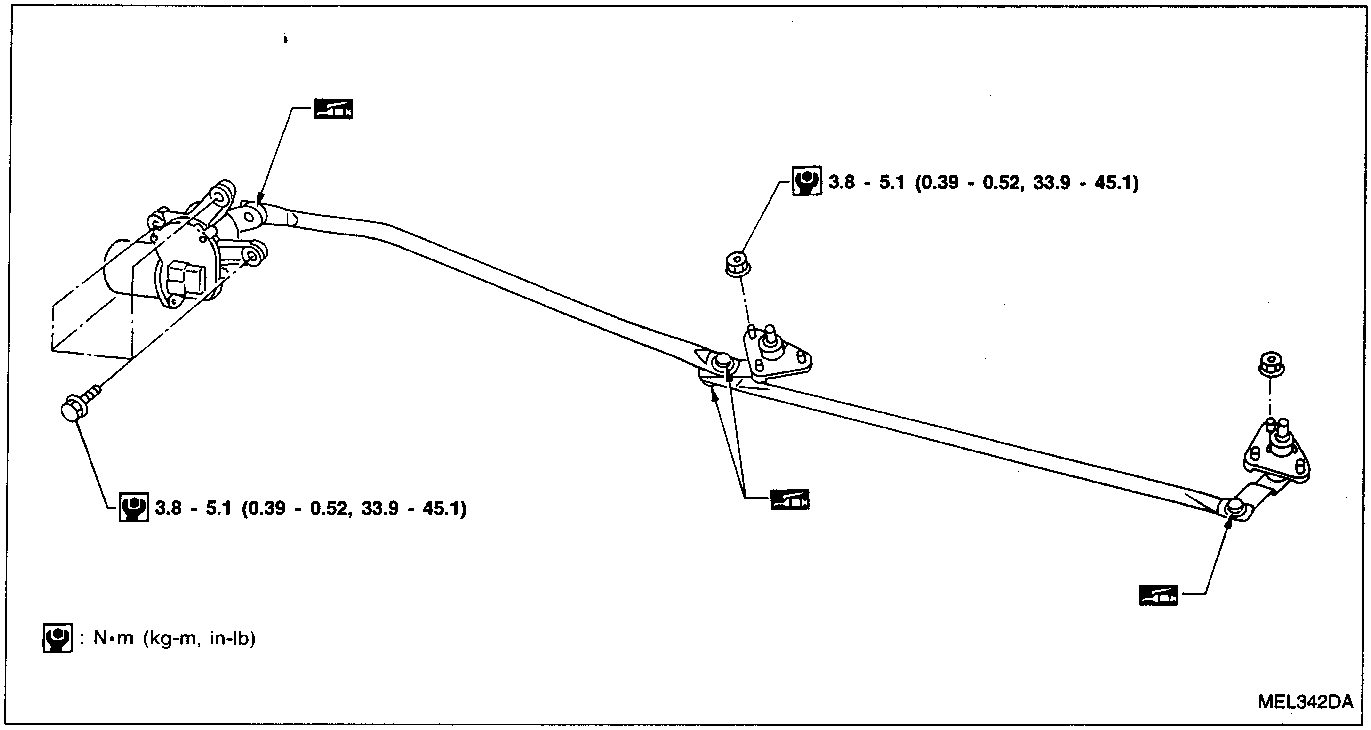
*1	358 (14.09)	*5	70 (2.76)
*2	245 (9.65)	*6	245 (9.65)
*3	300 (11.81)	*7	378 (14.88)
*4	203 (7.99)	*8	503 (19.80)

*: 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.

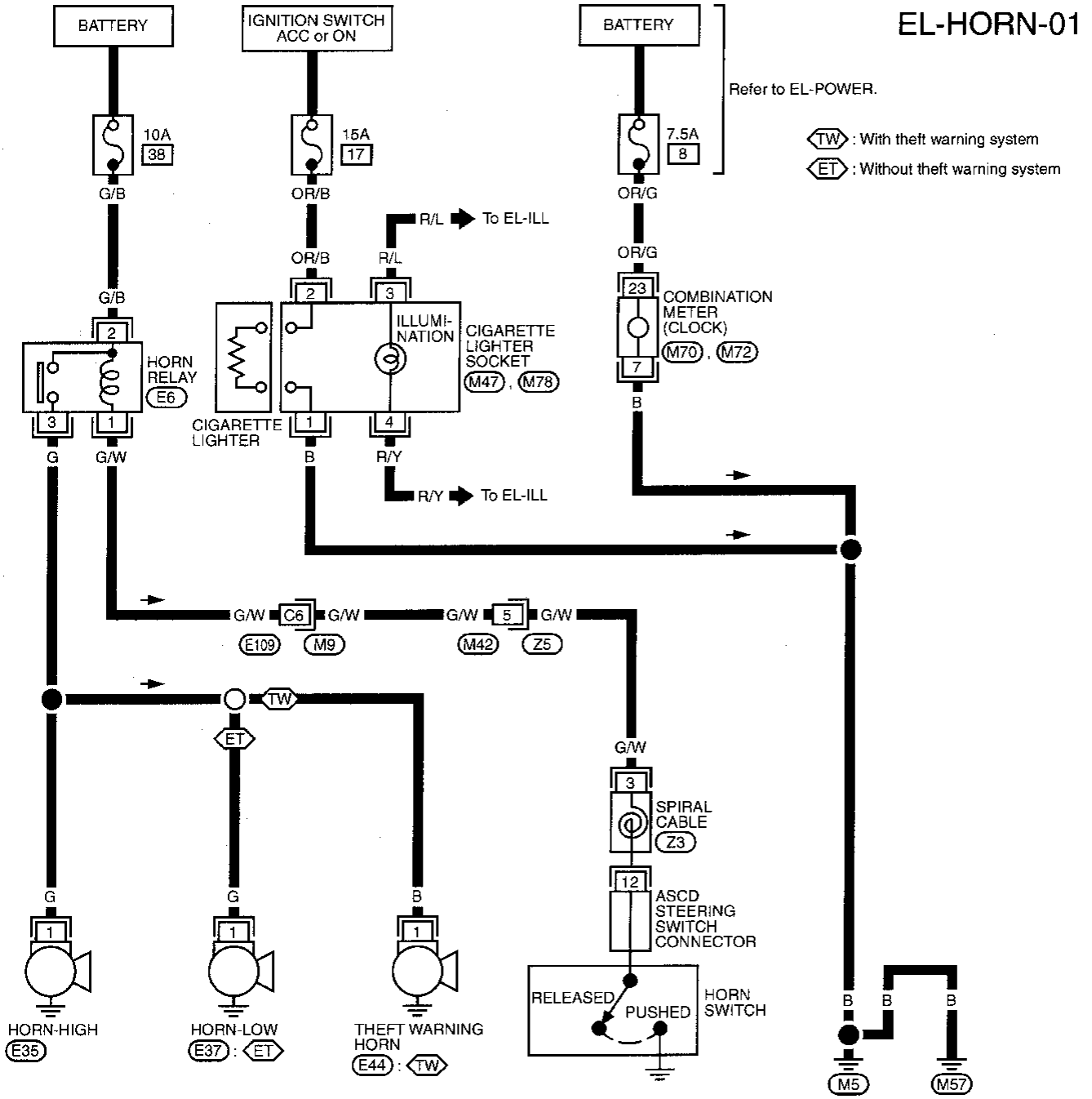
Be careful not to break ball joint rubber boot.

INSTALLATION

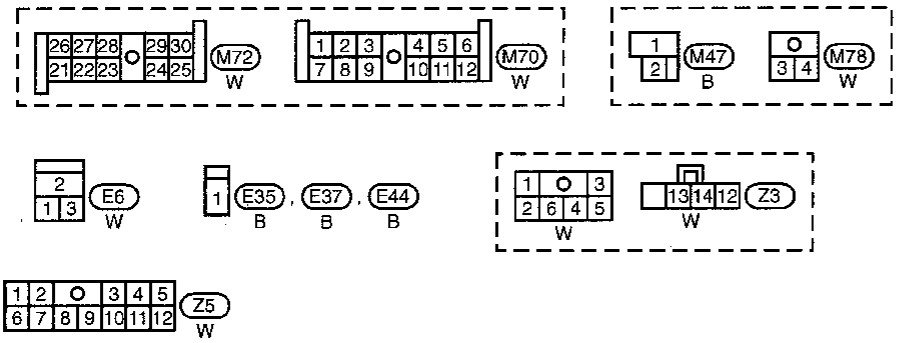
- Grease ball joint portion before installation.

1. Installation is the reverse order of removal.

Wiring Diagram — HORN —



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



MEL313F

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).
- through 7.5A fuse (No. 1 , located in the fuse block).

Ground is supplied to terminal ② of the rear window defogger switch through body grounds M5 and M57.

When the rear window defogger switch is turned ON, 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.

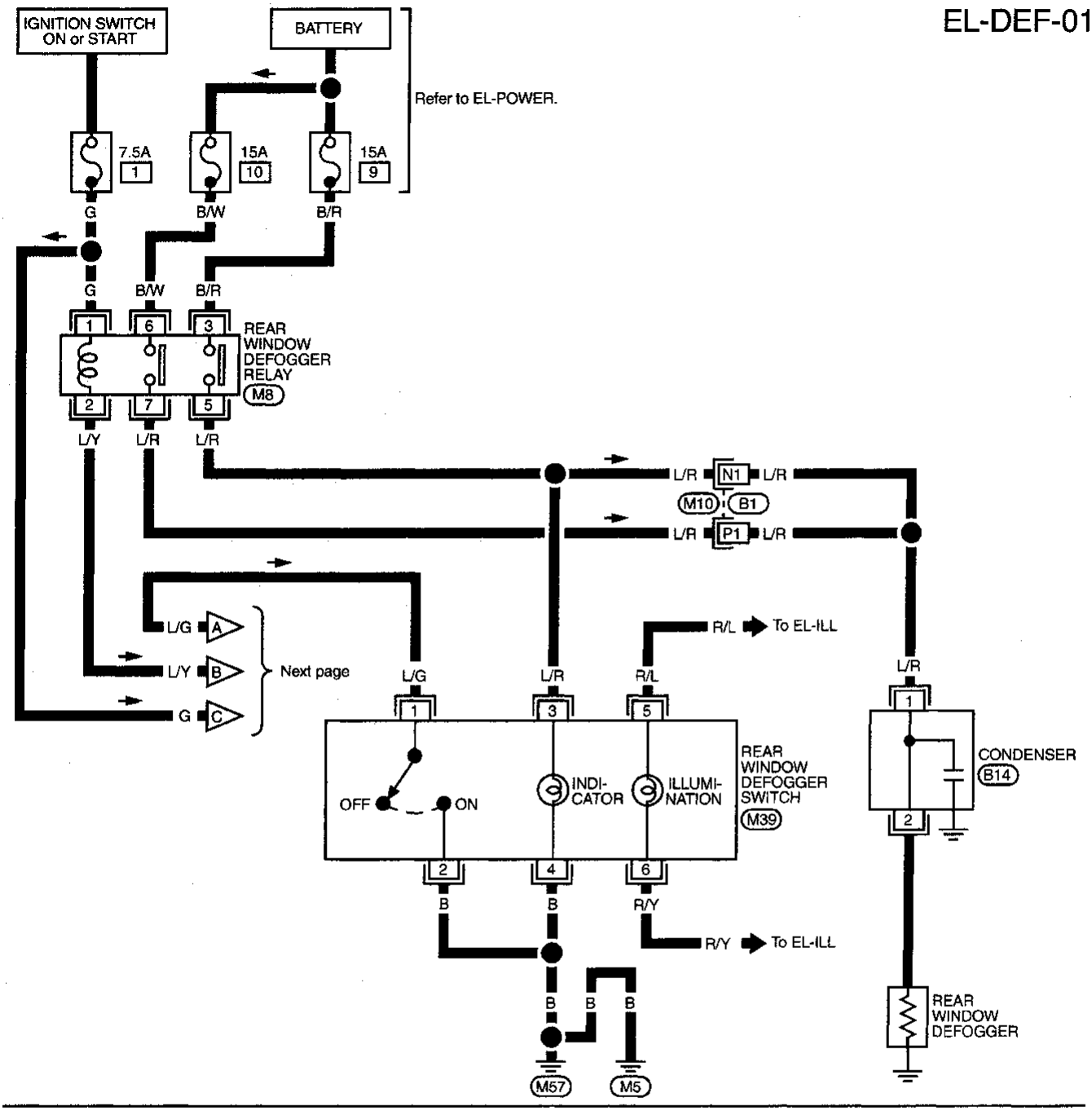
When the system is activated, the rear window defogger indicator illuminates in the rear window defogger switch.

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 grounds M5 and M57.

Wiring Diagram — DEF —

EL-DEF-01

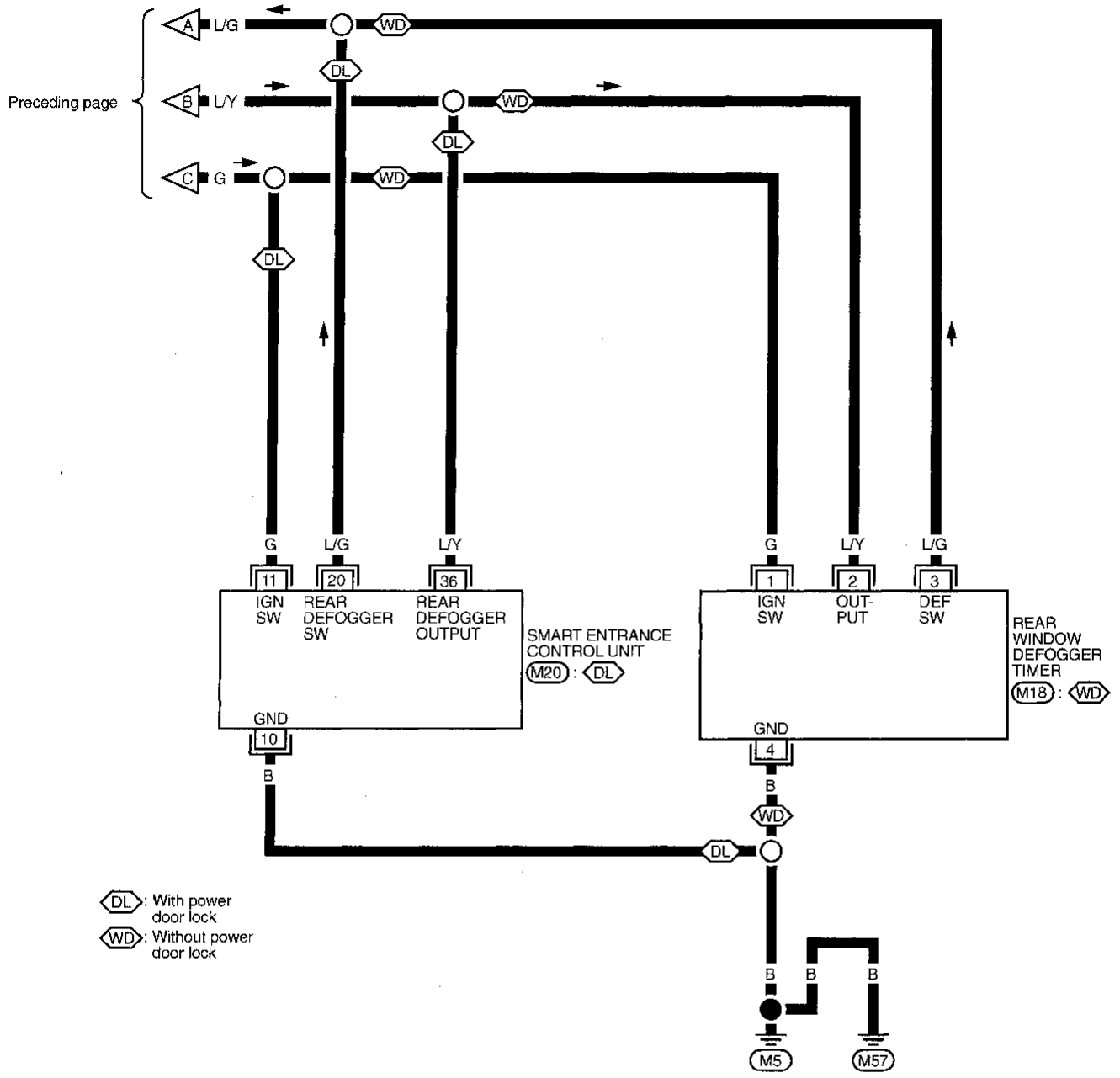


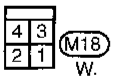
Refer to last page (Foldout page).
M10 , B1

MEL314F

Wiring Diagram — DEF — (Cont'd)

EL-DEF-02



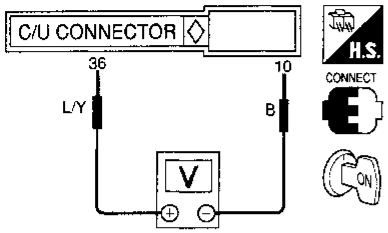


Refer to last page (Foldout page).
M20

MEL315F

A

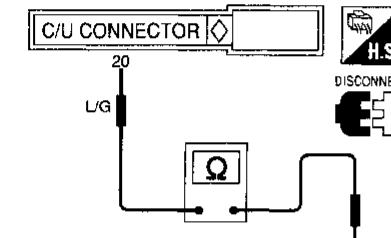
Smart entrance control unit connector (M20)



SEL422T

B

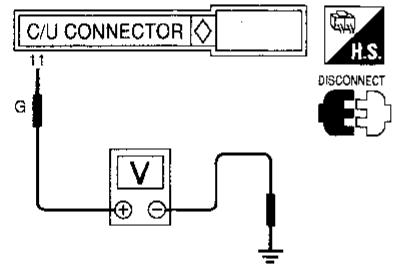
Smart entrance control unit connector (M20)



SEL423T

C

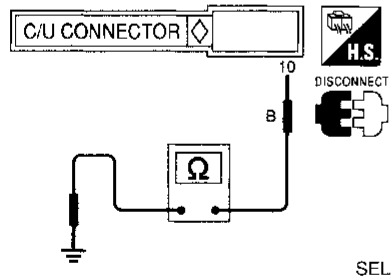
Smart entrance control unit connector (M20)



SEL424T

D

Smart entrance control unit connector (M20)



SEL425T

Trouble Diagnoses

DIAGNOSTIC PROCEDURE

SYMPTOM: Rear window 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 window defogger switch is "OFF".	Approx. 12
Rear window defogger switch is "ON".	0

OK →
- Check rear window defogger relay. (Refer to EL-118.)
- Check rear window defogger circuit.
- Check rear window defogger filament. (Refer to EL-118.)

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 window defogger switch is pushed.	Yes
Rear window defogger switch is released.	No

NG →
- Check rear window defogger switch. (Refer to EL-118.)
- 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.

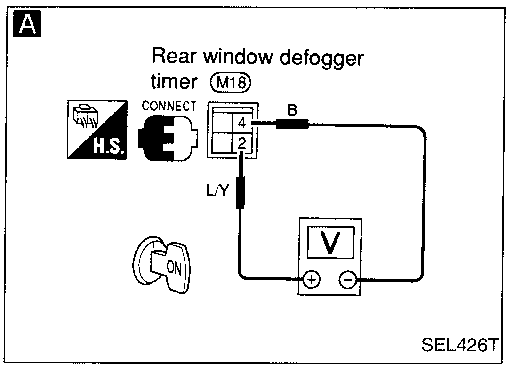
OK ↓

Replace control unit.

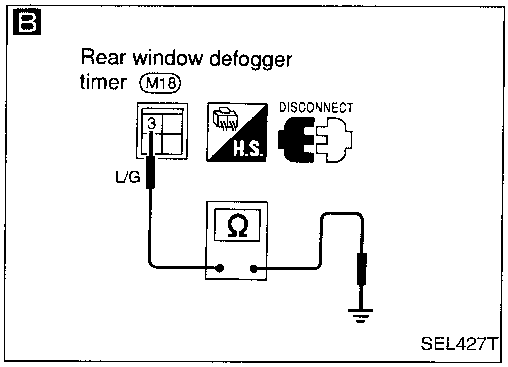
Trouble Diagnoses (Cont'd)

Models without power door lock

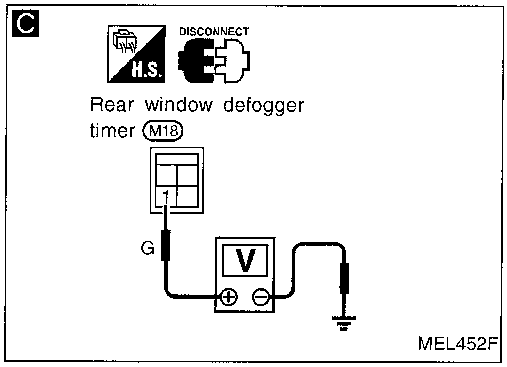
A



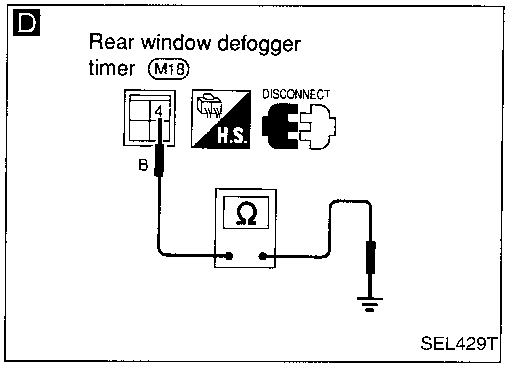
B



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 window defogger switch is "OFF".	Approx. 12
Rear window defogger switch is "ON".	0

OK →
- Check rear window defogger relay. (Refer to EL-118.)
- Check rear window defogger circuit.
- Check rear window defogger filament. (Refer to EL-118.)

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 window defogger switch is pushed.	Yes
Rear window defogger switch is released.	No

NG →
- Check rear window defogger switch. (Refer to EL-118.)
- 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.

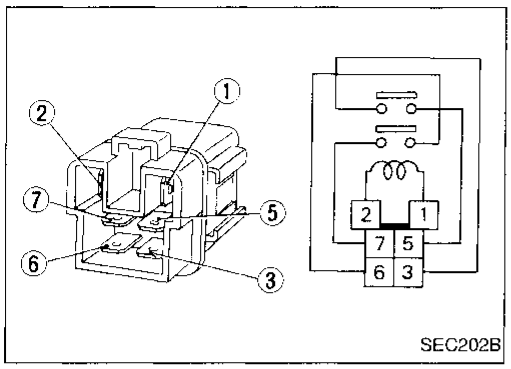
NG → Repair harness or connectors.

OK ↓

Replace control unit.

Trouble Diagnoses (Cont'd)

ELECTRICAL COMPONENTS INSPECTION

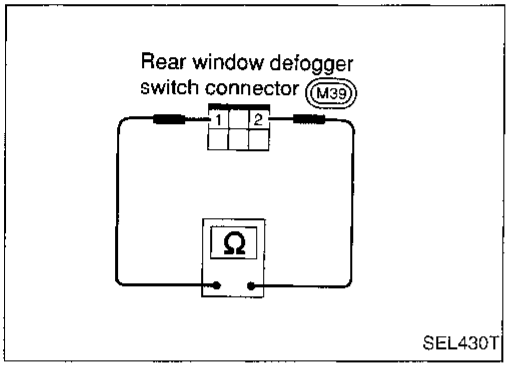


SEC202B

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

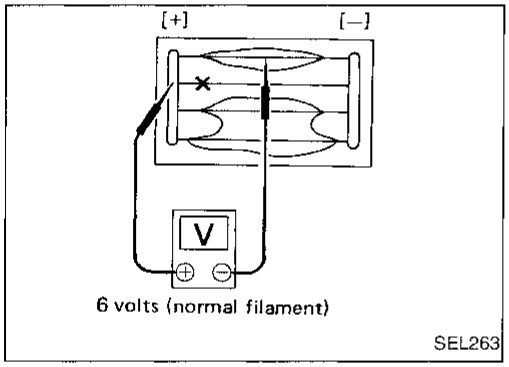


SEL430T

Rear window defogger switch

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

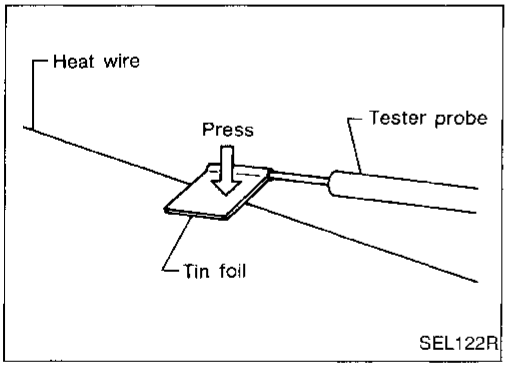
Terminals	Condition	Continuity
① - ②	Rear window defogger switch is pushed	Yes
	Rear window defogger switch is released	No



SEL263

Filament Check

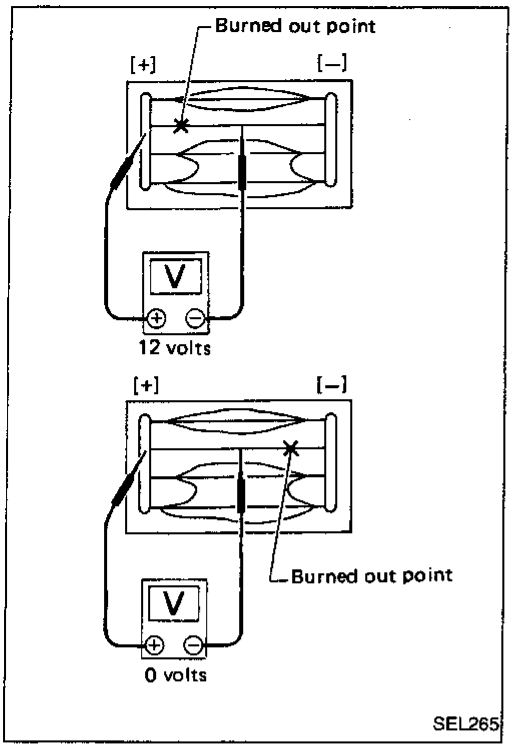
1. Attach probe circuit tester (in volt range) to middle portion of each filament.



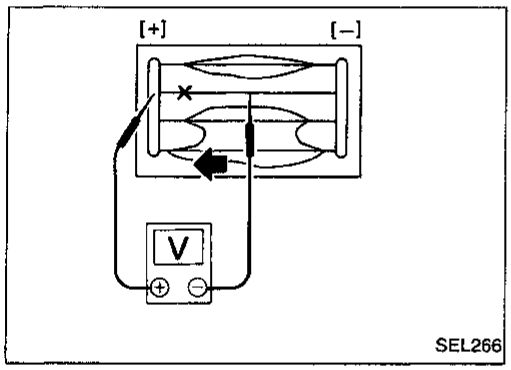
SEL122R

- **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.

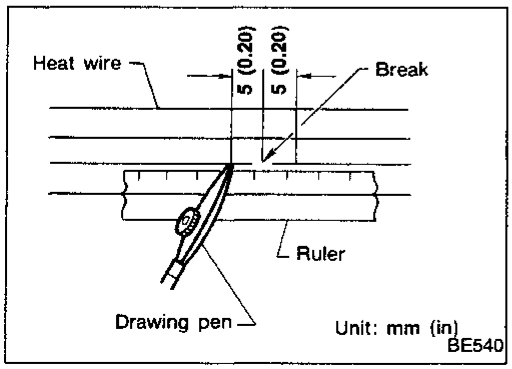


3. To locate burned out point, move probe to left and right along filament. Test needle will swing abruptly when probe passes the point.

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



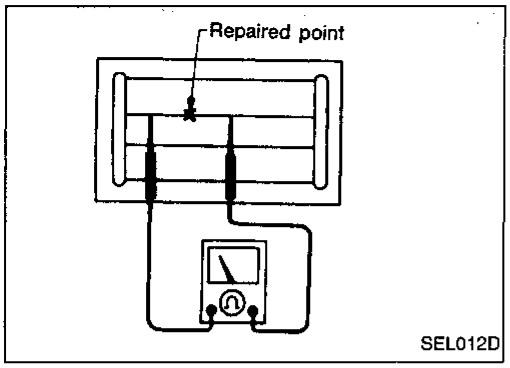
REPAIRING PROCEDURE

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.

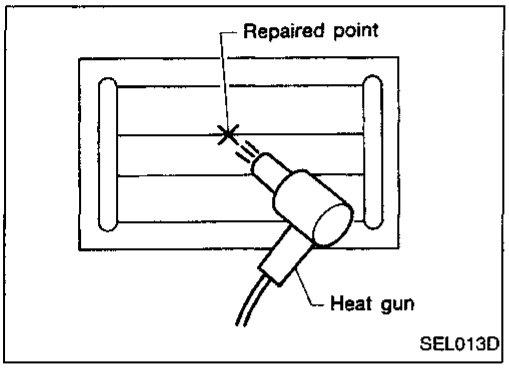
3. Place ruler on glass along broken line. Deposit conductive silver composition on break with drawing pen. Slightly overlap existing heat wire on both sides [preferably 5 mm (0.20 in)] of the break.

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.

4-SPEAKER MODELS

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.

6-SPEAKER MODELS

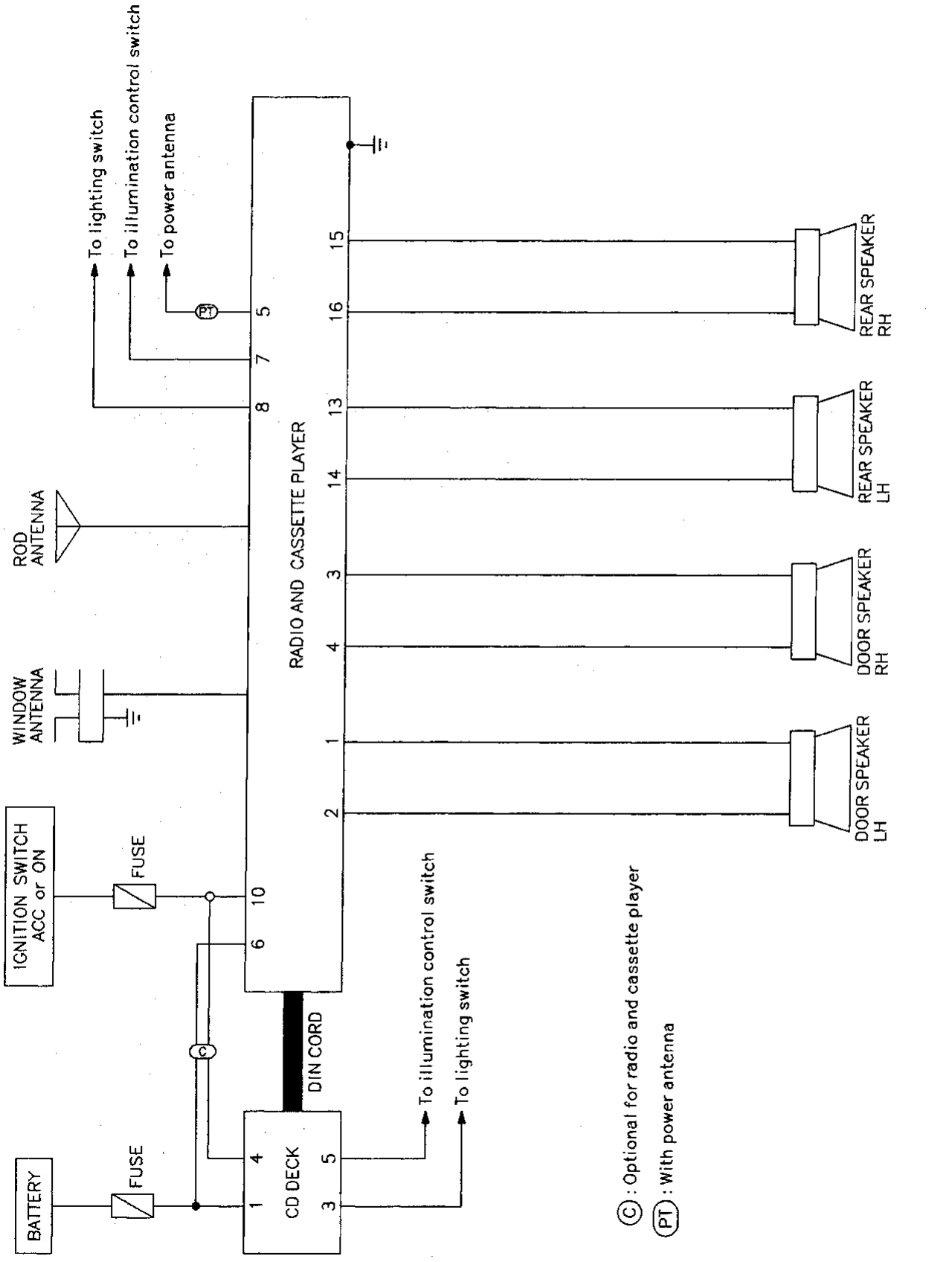
Power is supplied at all times
- through 7.5A fuse (No. 8 , located in the fuse block)
- to radio terminal ⑥
- through 15A fuse (50 located in the fuse block)
- to front and rear speaker amp terminals ④ and ⑱.

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.

Audio/Schematic

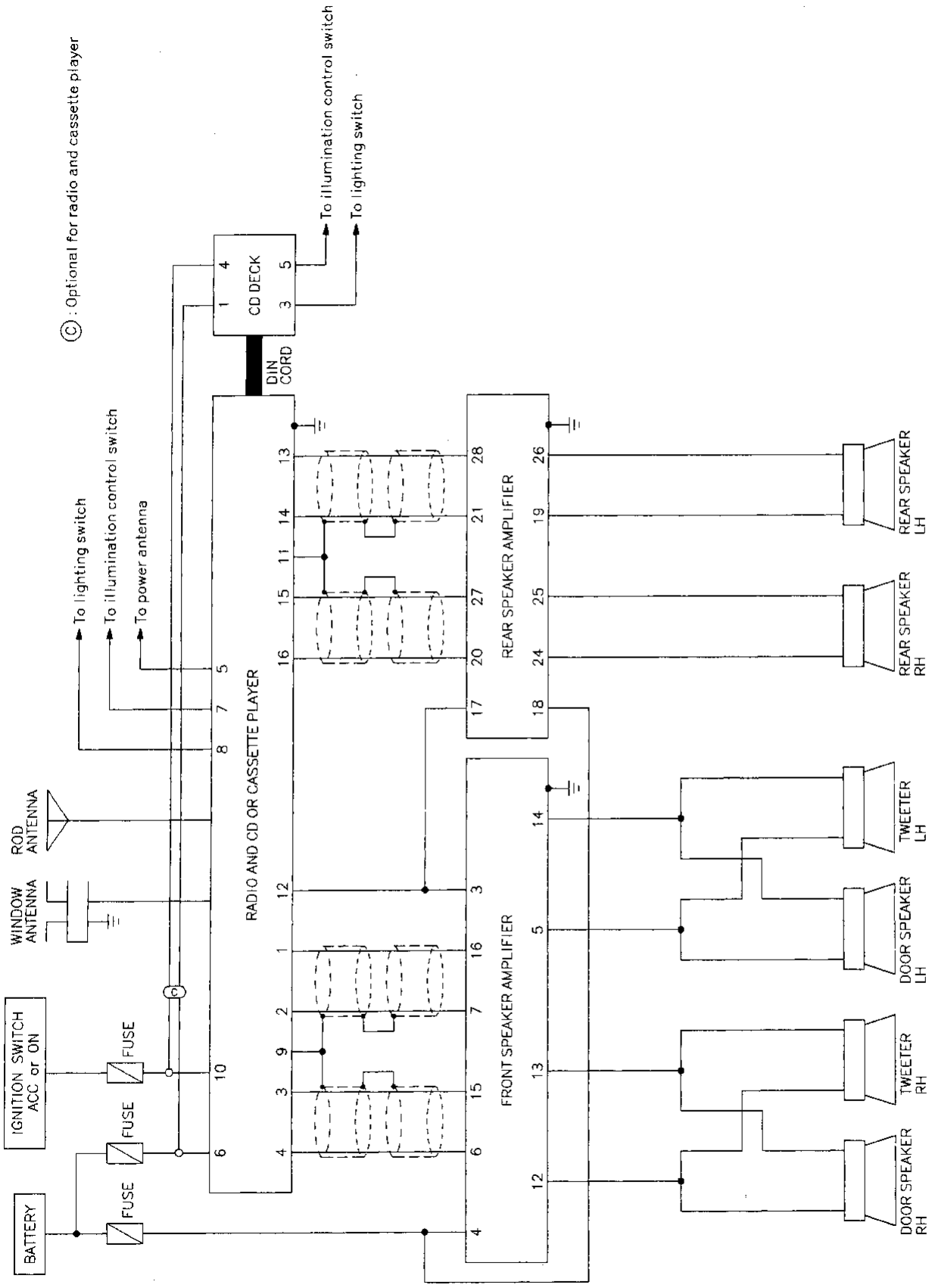
4-SPEAKER MODELS



MEL316F

Audio/Schematic (Cont'd)

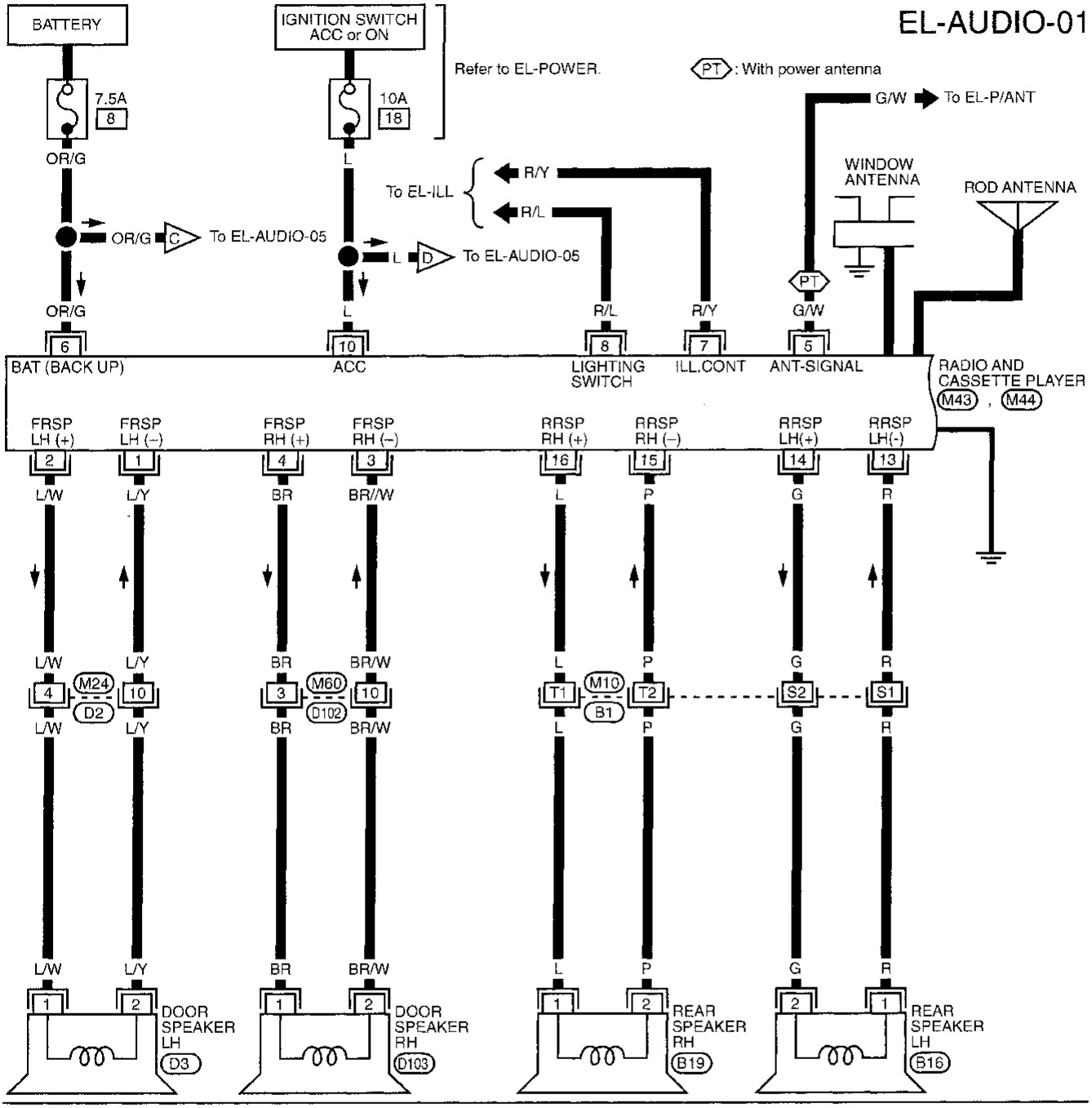
6-SPEAKER MODELS

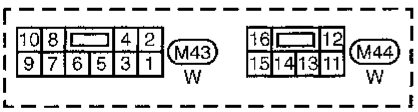


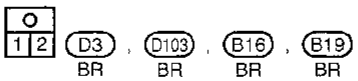
MEL317F

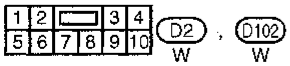
Audio/Wiring Diagram — AUDIO —

4-SPEAKER MODELS







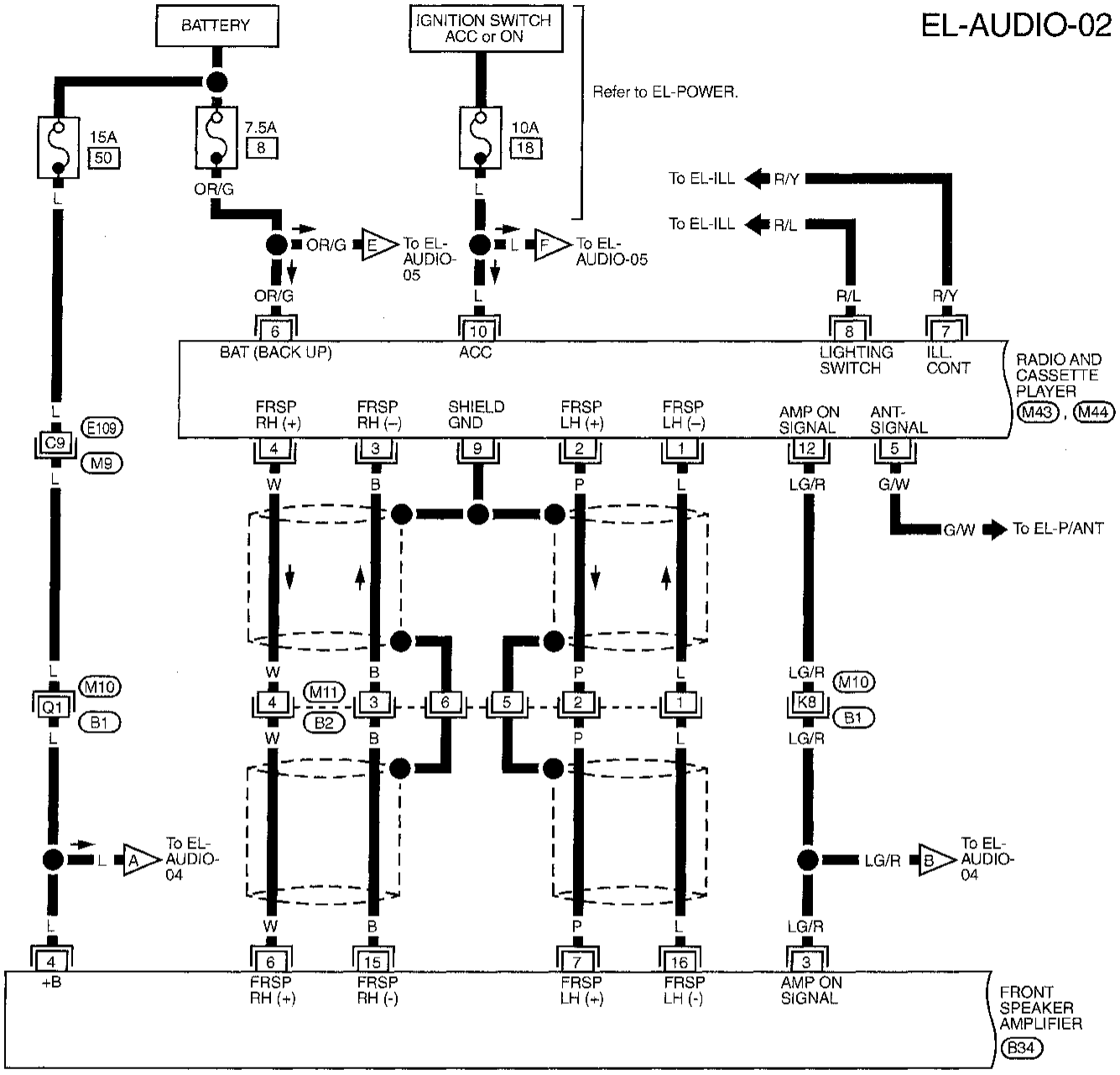


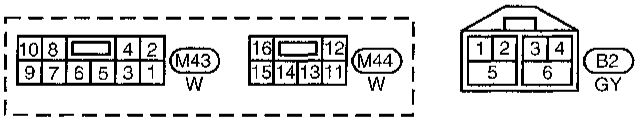
Refer to last page (Foldout page).
M10 , B1

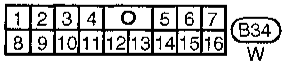
MEL318F

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

6-SPEAKER MODELS





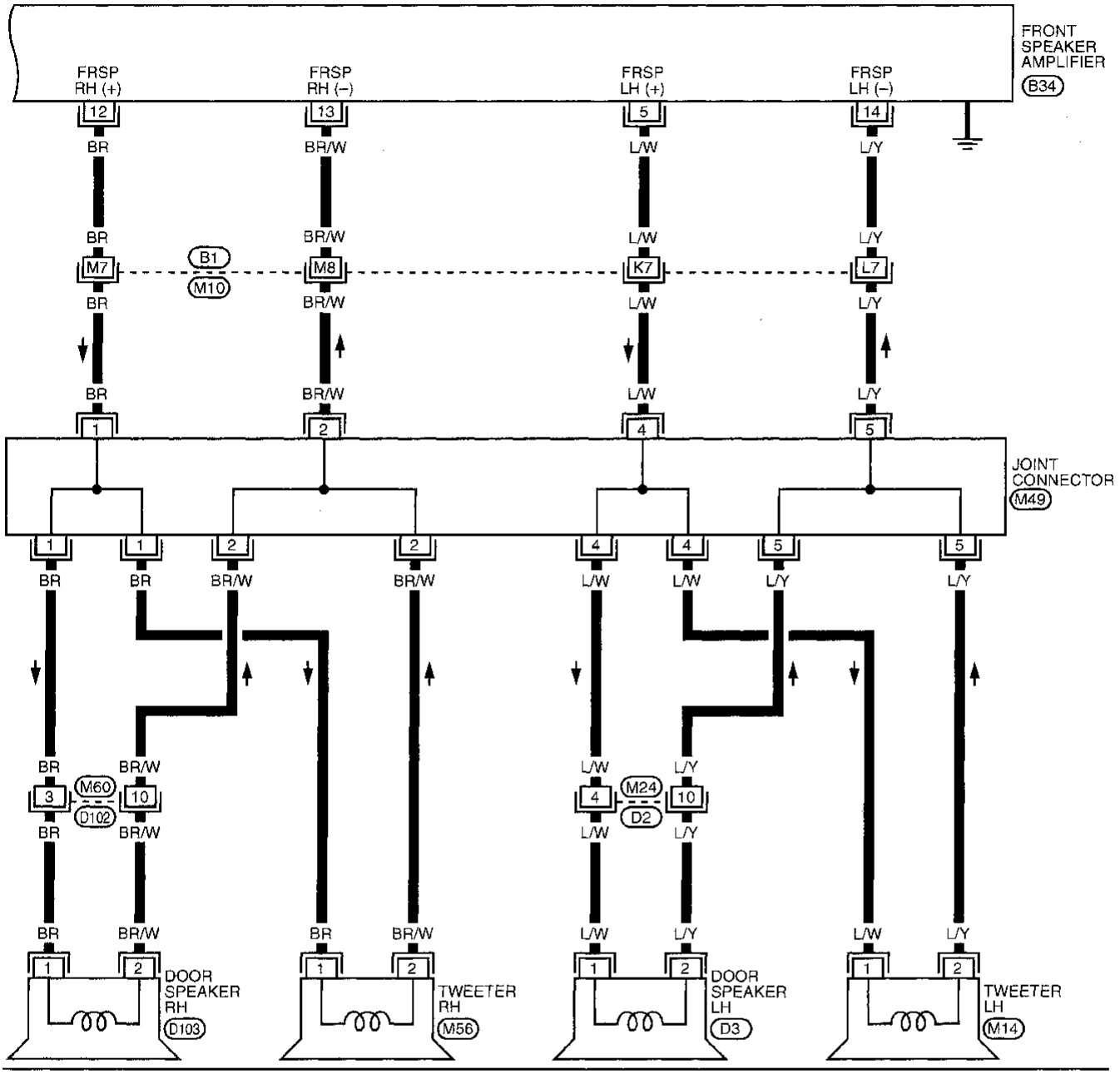


Refer to last page (Foldout page).
M9, E109
M10, B1

MEL319F

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

EL-AUDIO-03



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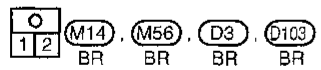
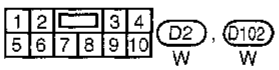
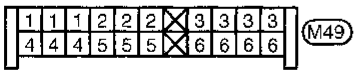
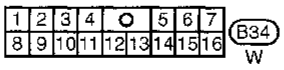
M10 , B1





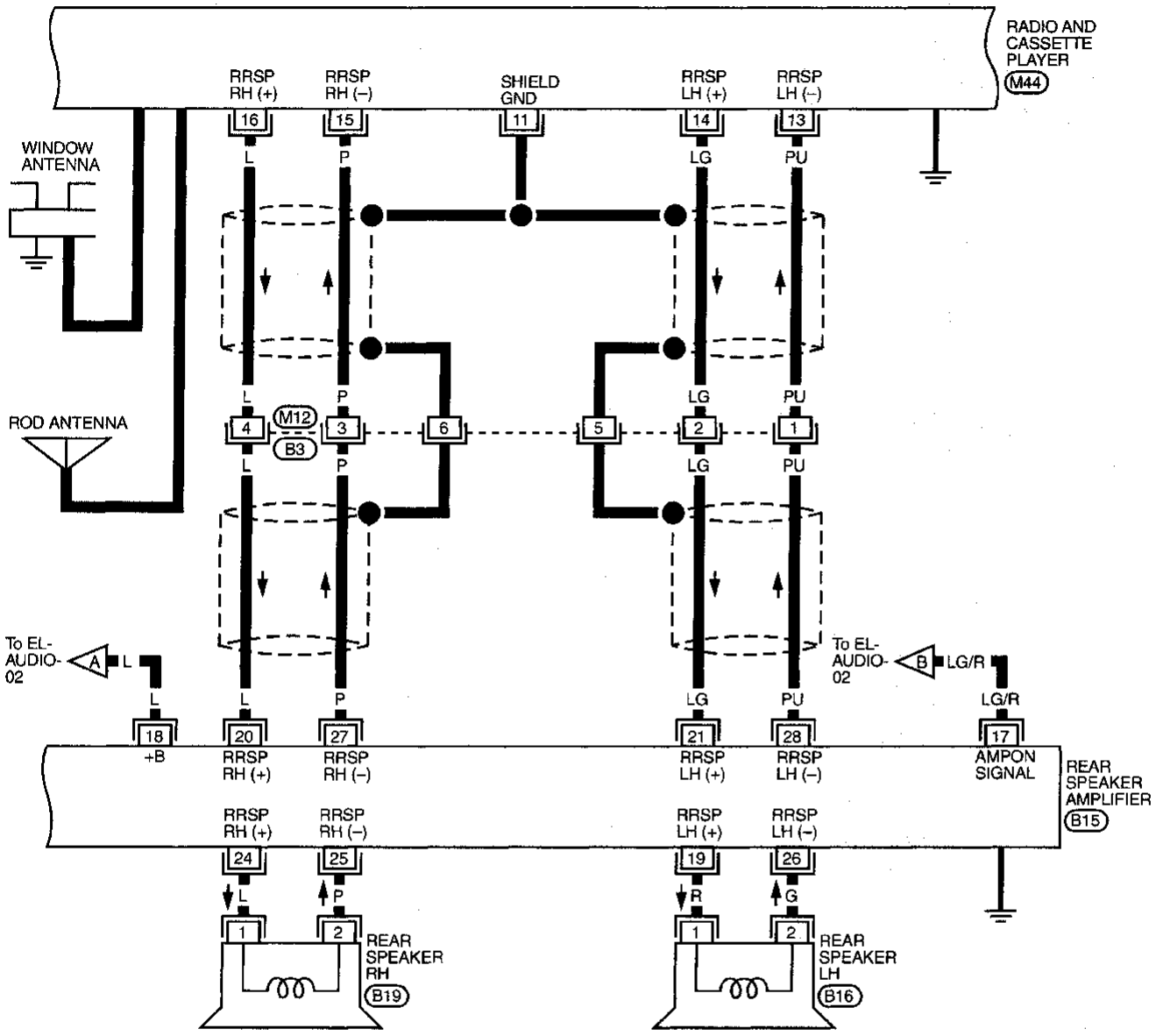


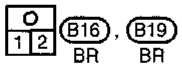


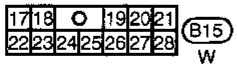
MEL320F

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

EL-AUDIO-04



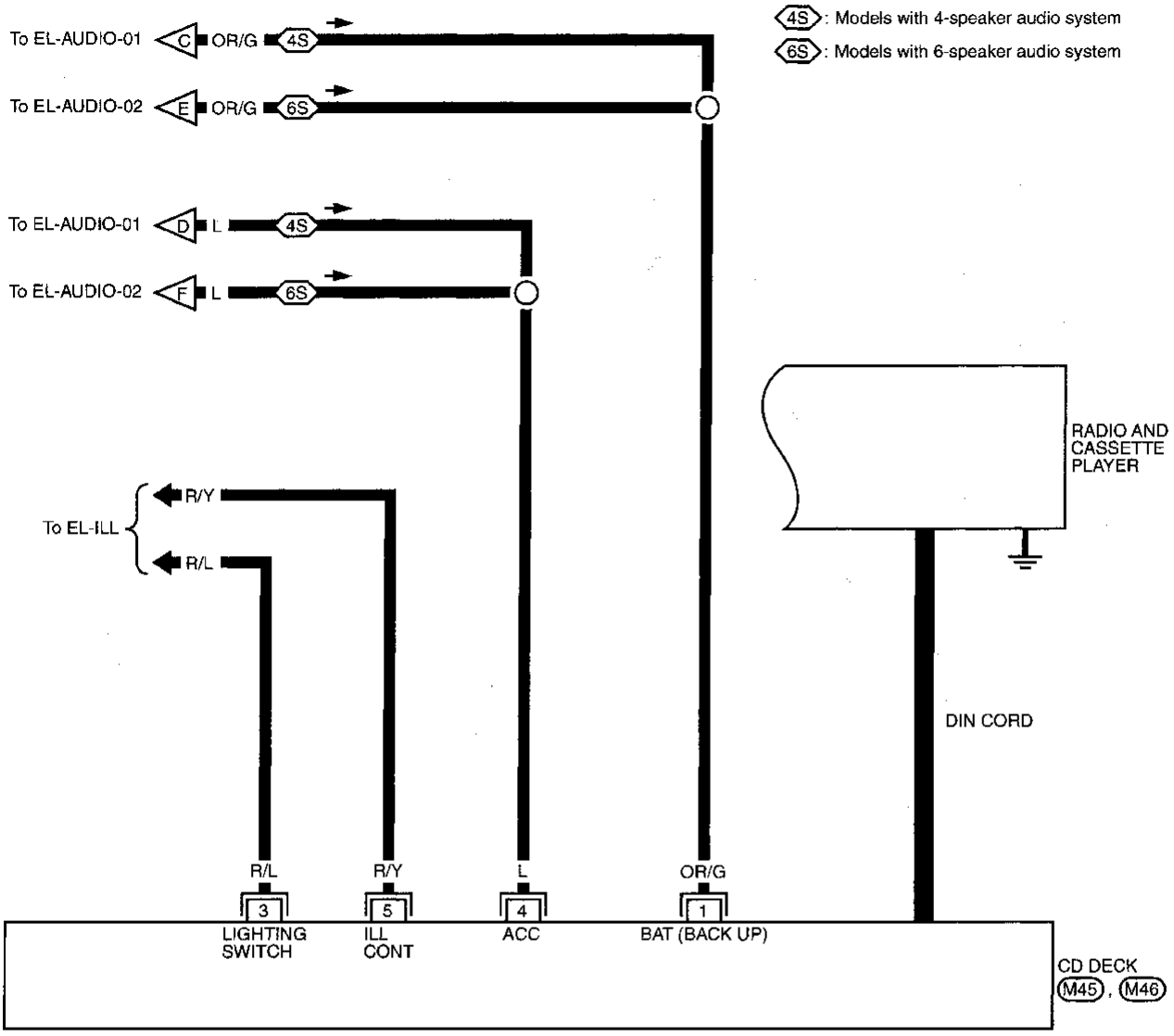


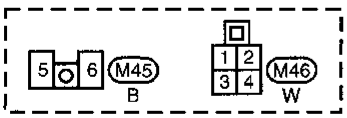


MEL321F

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

EL-AUDIO-05





MEL322F

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.

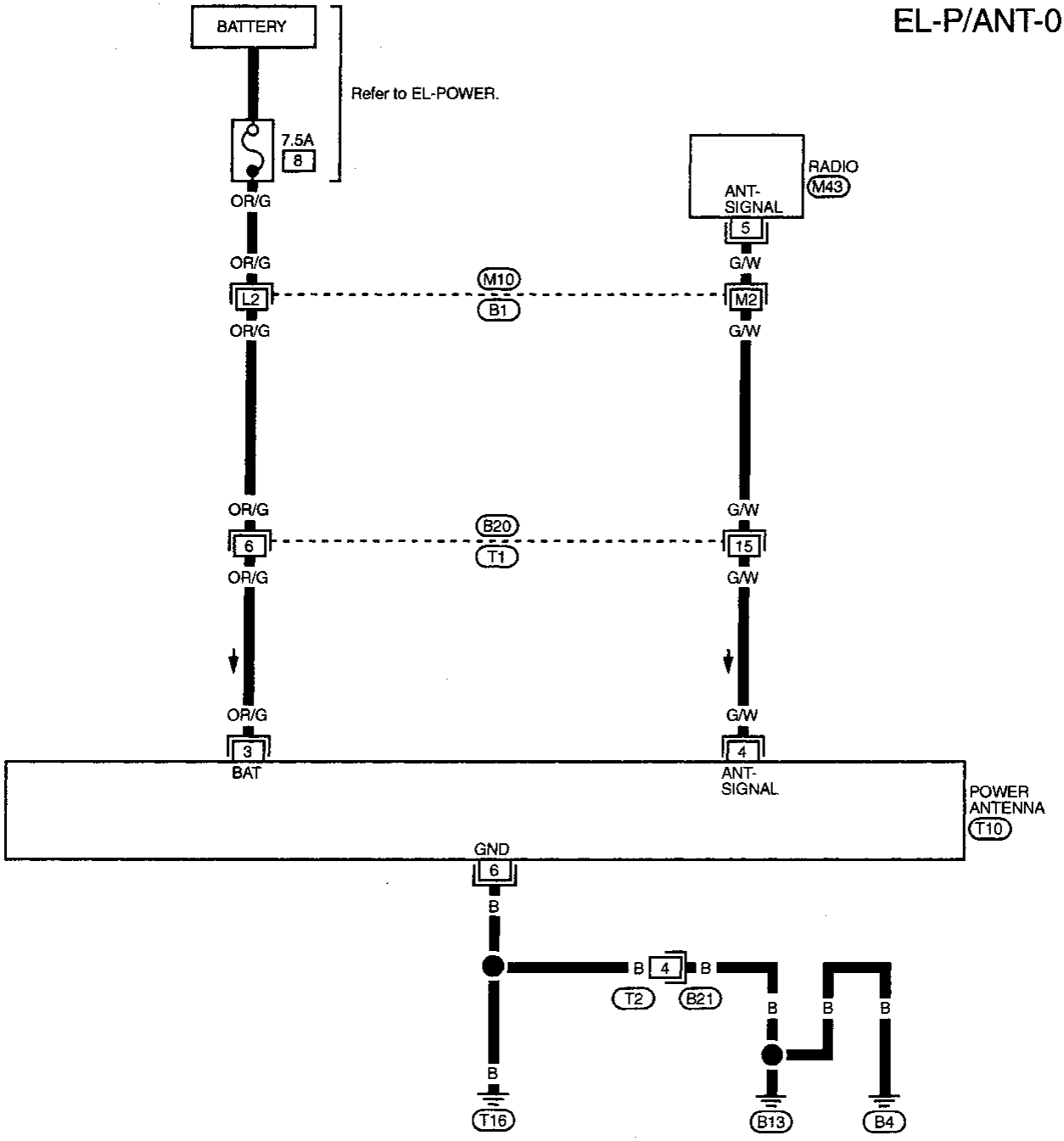
Ground is supplied to the power antenna terminal ⑥ through body grounds B4, B13 and T16.
When the radio is turned to the ON position, battery positive voltage is supplied
- through radio terminal ⑤
- to power antenna terminal ④.

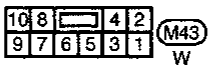
The antenna raises and is held in the extended position.
When the radio is turned to the OFF position, battery positive voltage is interrupted
- from radio terminal ⑤
- to power antenna terminal ④.

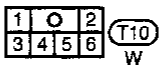
The antenna retracts.

Power Antenna/Wiring Diagram — P/ANT —

EL-P/ANT-01







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

MEL323F

Trouble Diagnoses

Symptom	Possible causes	Repair order
Radio inoperative (no digital display and no sound from speakers).	1. 10A fuse 2. Poor radio case ground 3. Radio	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. Check radio case ground. 3. Remove radio for repair.
Radio controls are operational, but no sound is heard from any speaker.	1. 15A fuse (6-speaker models) 2. Poor speaker amp. case ground (6-speaker models) 3. Speaker circuit 4. Radio	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. Check speaker amp. case ground. 3. Check wires for open or short between radio, speaker amp. and speakers. 4. Remove radio for repair.
Radio presets are lost when ignition switch is turned OFF.	1. 7.5A fuse 2. Radio	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. Remove radio for repair.
Rear speakers are inoperative. (6-speaker models)	1. 15A fuse 2. Poor rear speaker amp. case ground 3. Rear speaker amp. 4. Rear speaker amp. circuit 5. Radio	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. Check rear speaker amp. case ground. 3. Check rear speaker amp. voltages. 4. Check wires for open or short between radio, rear speaker amp. and rear speakers. 5. Remove radio for repair.
Front speakers are inoperative. (6-speaker models)	1. 15A fuse 2. Poor front amp. case ground 3. Front speaker amp. 4. Front speaker amp. circuit 5. Radio	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. Check front amp. case ground. 3. Check front speaker amp. voltages. 4. Check wires for open or short between radio, front speaker amp. and front speakers. 5. Remove radio for repair.
Individual speaker is noisy or inoperative.	1. Speaker 2. Radio/amp. output 3. Speaker circuit 4. Radio	1. Check speaker. 2. Check radio/amp. output voltages. 3. Check wires for open or short between radio/amp. and speaker. 4. Remove radio for repair.
AM stations are weak or noisy (FM stations OK).	1. Antenna 2. Poor radio ground 3. Radio	1. Check antenna. 2. Check radio ground. 3. Remove radio for repair.
FM stations are weak or noisy (AM stations OK).	1. Window antenna 2. Radio	1. Check window antenna. 2. Remove radio for repair.
Radio generates noise in AM and FM modes with engine running.	1. Poor radio ground 2. Loose or missing ground bonding straps 3. Ignition condenser or rear window defogger noise suppressor condenser 4. Alternator 5. Ignition coil or secondary wiring 6. Radio	1. Check radio ground. 2. Check ground bonding straps. 3. Replace ignition condenser or rear window defogger noise suppressor condenser. 4. Check alternator. 5. Check ignition coil and secondary wiring. 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 2. Antenna 3. Accessory ground 4. Faulty accessory	1. Check radio ground. 2. Check antenna. 3. Check accessory ground. 4. Replace accessory.
Power antenna does not operate.	1. 7.5A fuse 2. Radio signal 3. Grounds (B4), (B13) and (T16).	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. Turn ignition switch and radio ON. Verify that battery positive voltage is present at terminal ④ of power antenna. 3. Check grounds (B4), (B13) and (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.

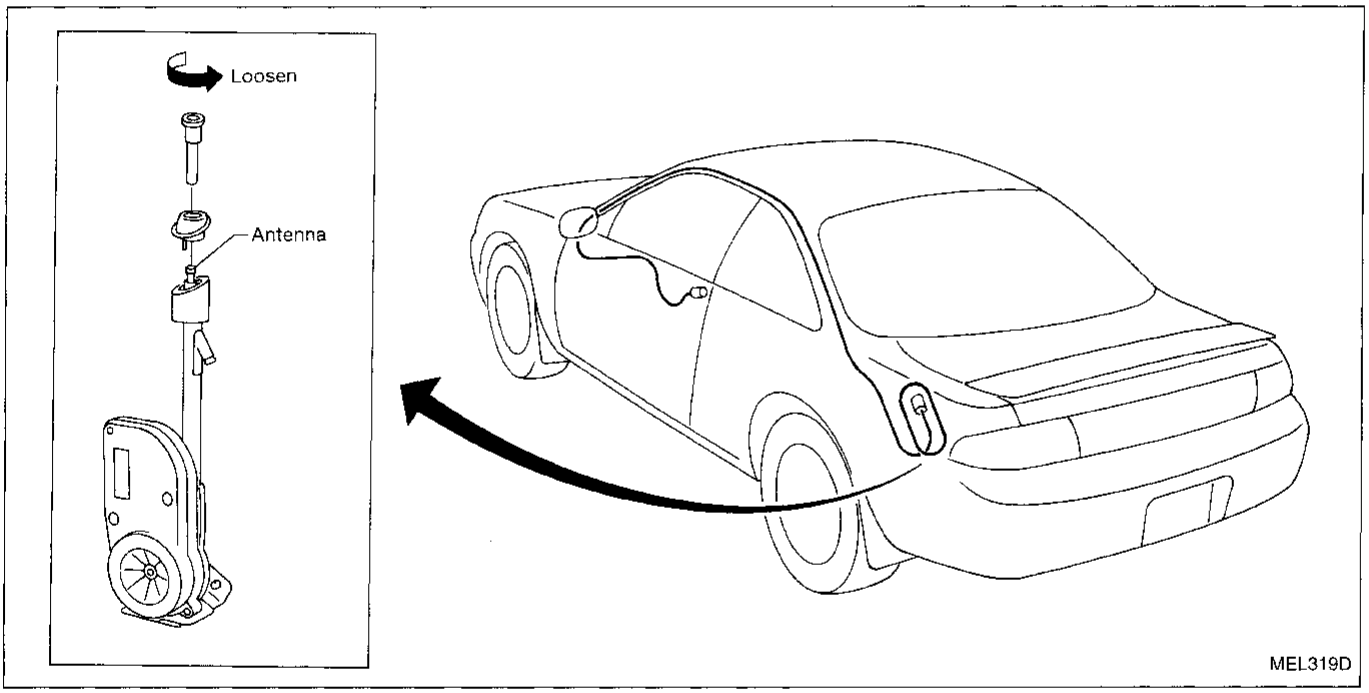
ANTENNA INSPECTION

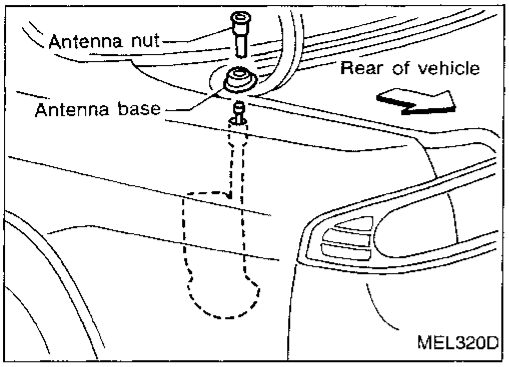
1. Using a jumper wire, clip an auxiliary ground between antenna and body.
- If reception improves, check antenna ground (at body surface).
- If reception does not improve, check main feeder cable for short circuit or open circuit.

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

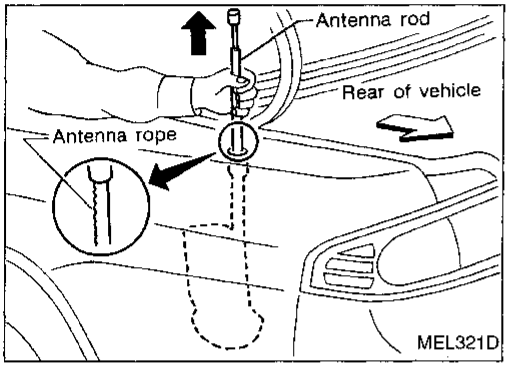




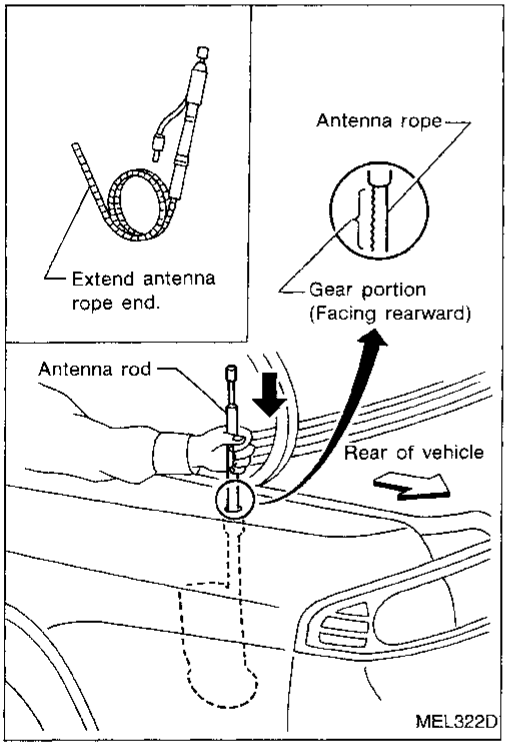
Antenna Rod Replacement

REMOVAL

1. Remove antenna nut and antenna base.

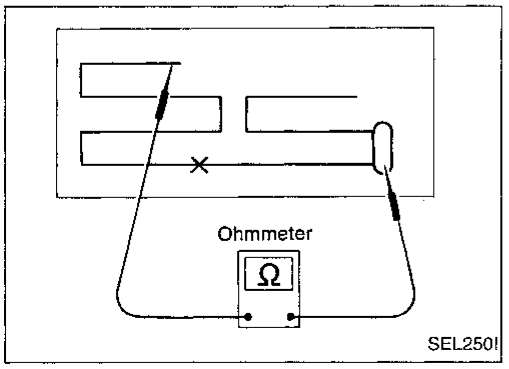


2. Withdraw antenna rod while raising it by operating antenna motor.



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.

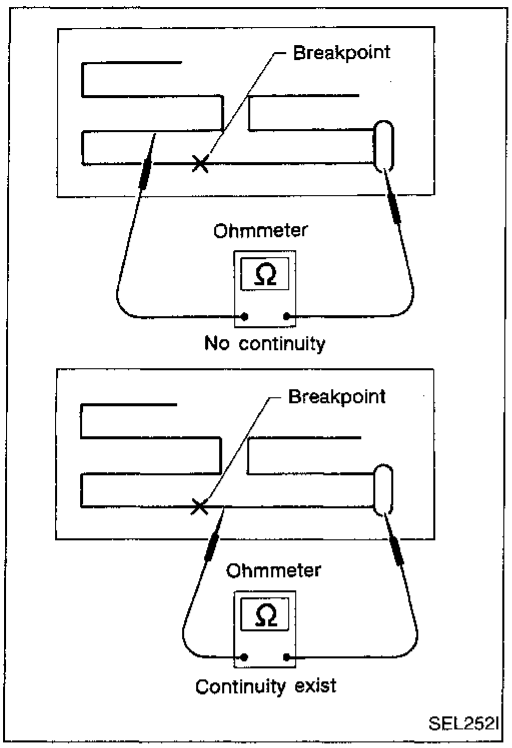


Window Antenna Repair

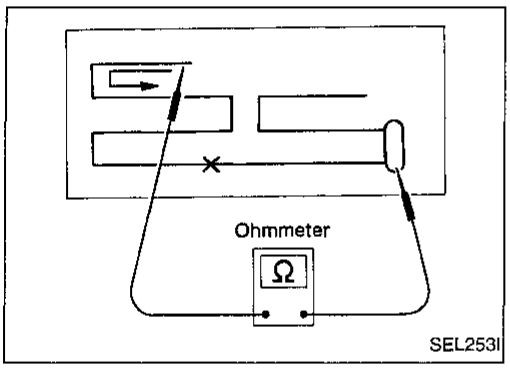
ELEMENT CHECK

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

Window Antenna Repair (Cont'd)



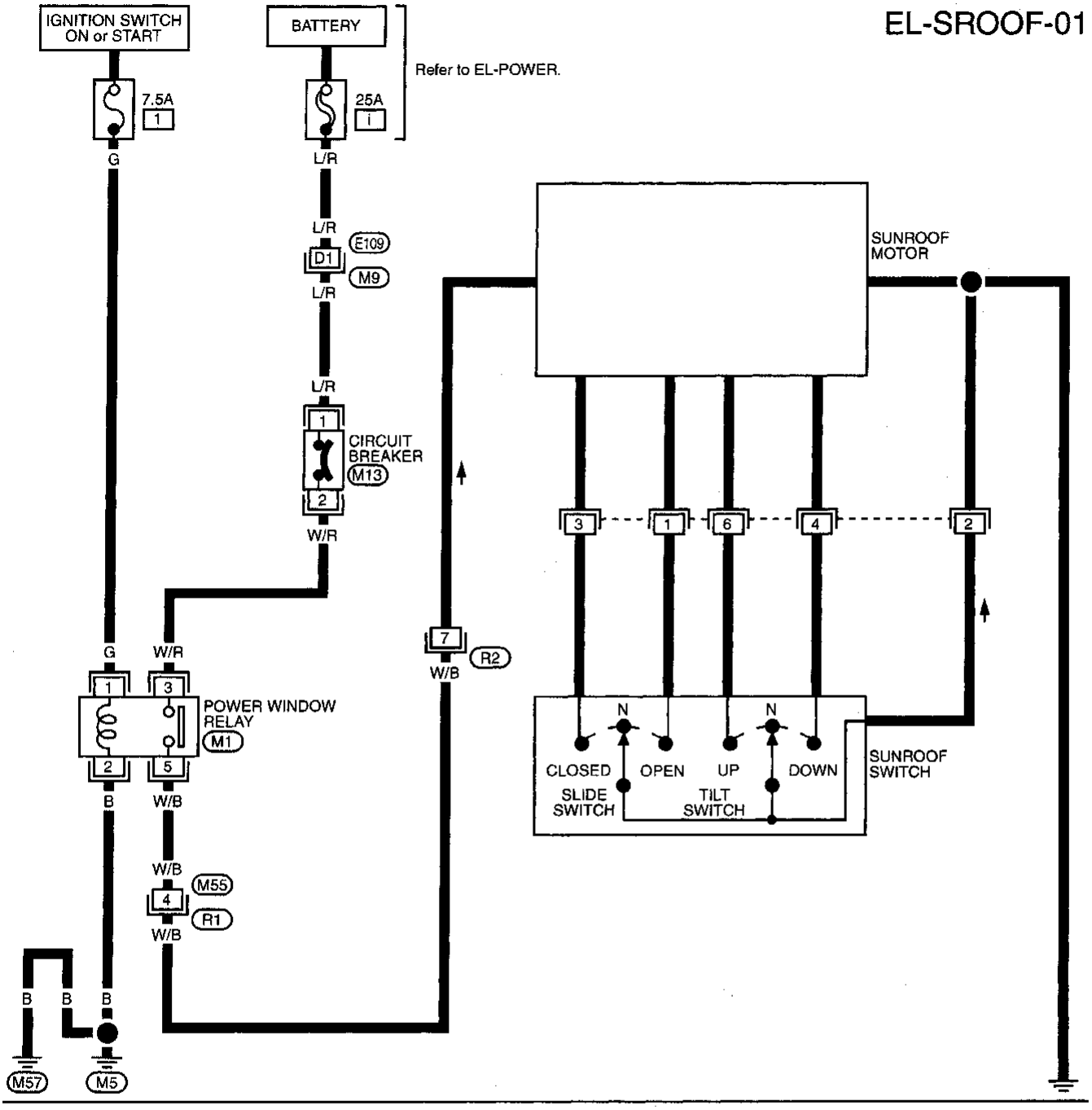
2. If an element is broken, no continuity will exist.

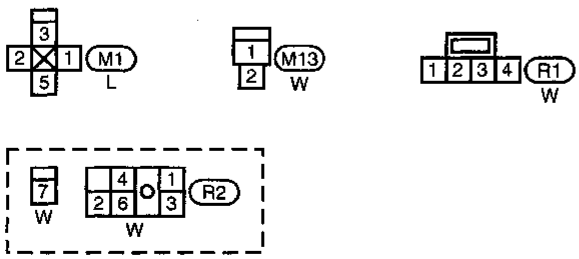


3. To locate broken point, move probe to left and right along element. Tester needle will swing abruptly when probe passes the point.

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

Wiring Diagram — SROOF —





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M9 , E109

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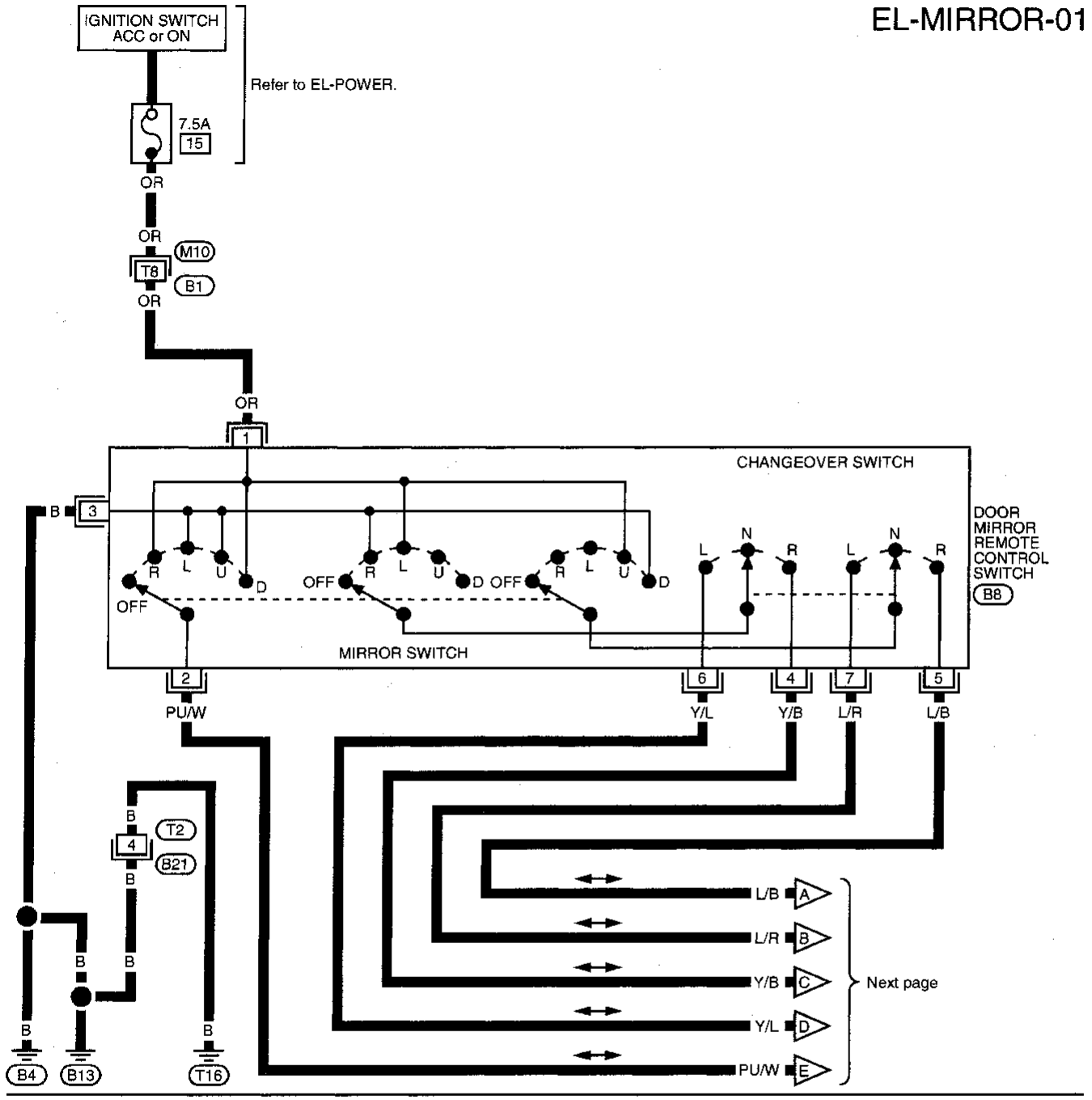
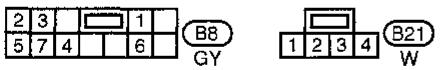
Wiring Diagram — MIRROR —

EL-MIRROR-01





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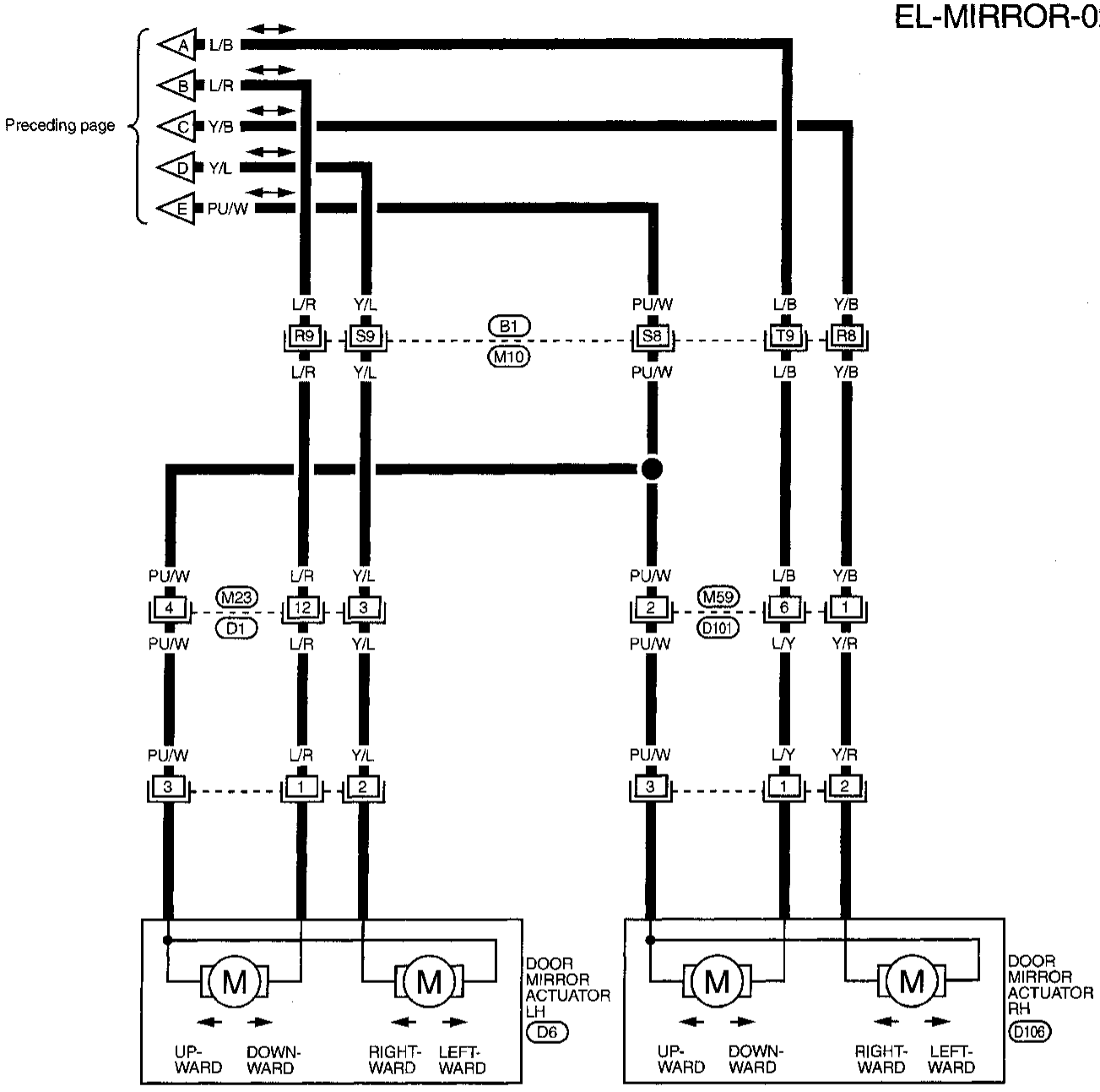
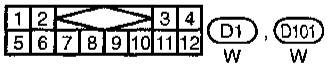
M10 , B1

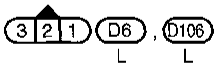
MEL325F

Wiring Diagram — MIRROR — (Cont'd)

EL-MIRROR-02







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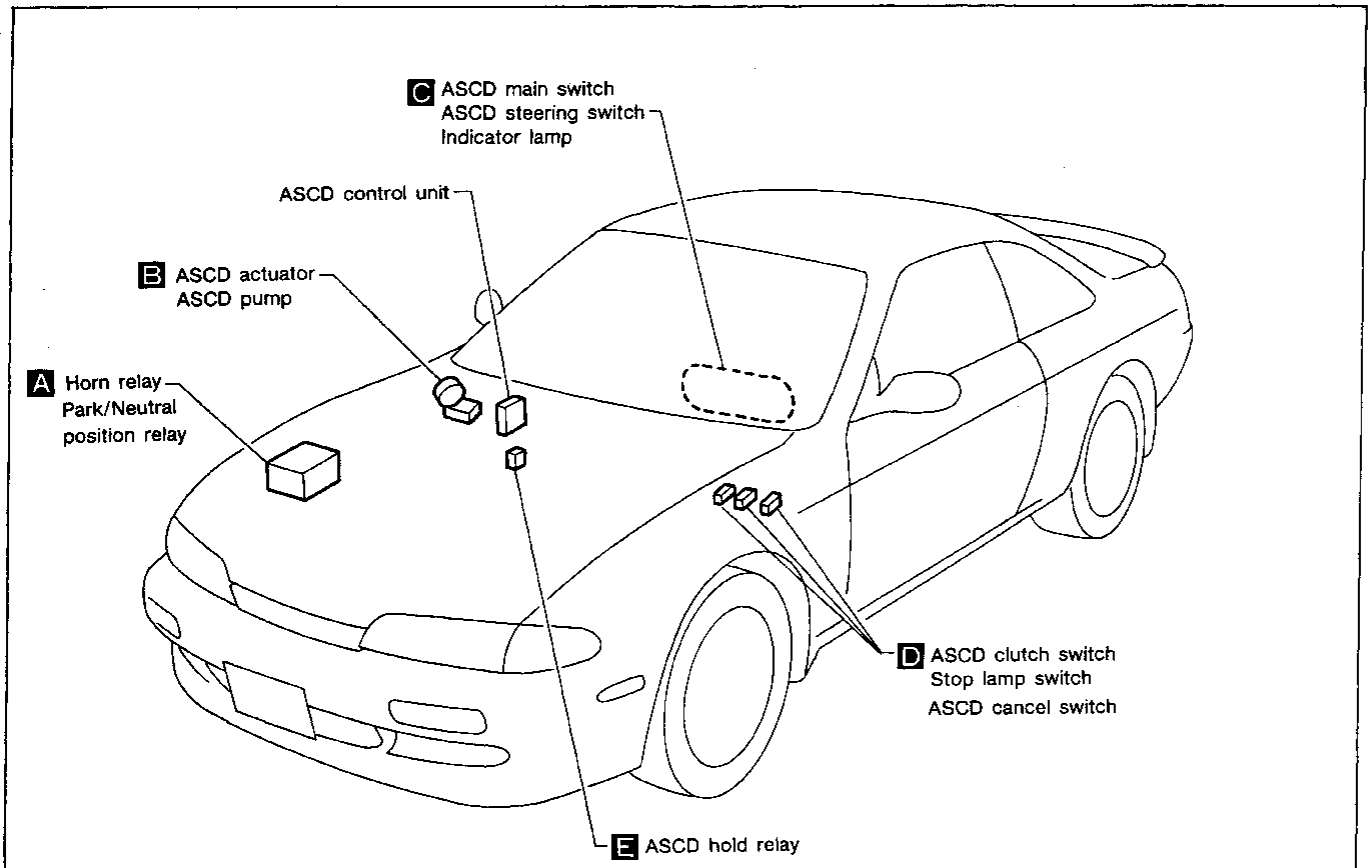
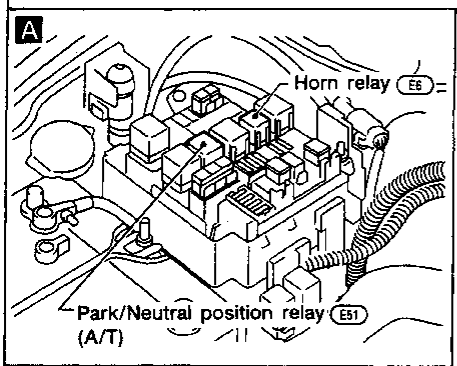
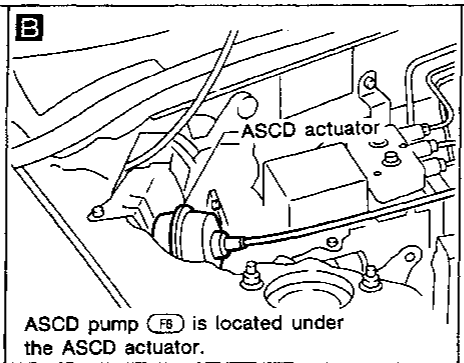
M10 , B1

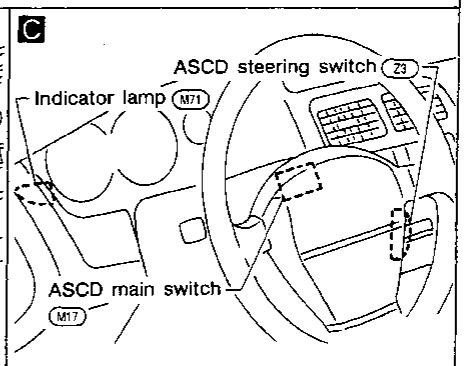
MEL326F

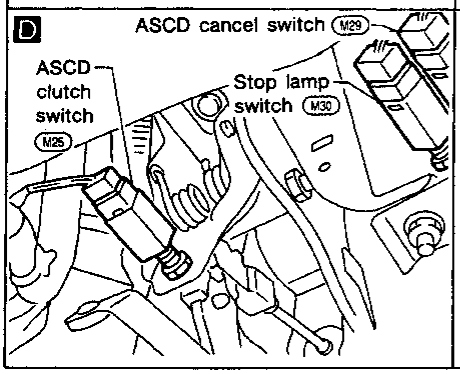
Component Parts and Harness Connector Location

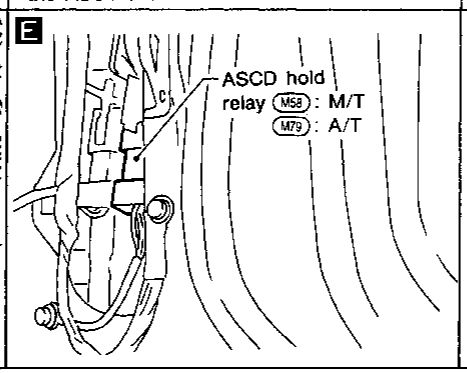












MEL323DA

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 grounds M5 and 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 unit terminal ④ when the ASCD switch is released to the N (neutral) position.
Ground is supplied
- to ASCD control unit terminal ③
- through body grounds M5 and 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 ②
- through terminal ① 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)
- the clutch pedal is depressed (M/T models) or
- the brake pedal is depressed.

System Description (Cont'd)

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.

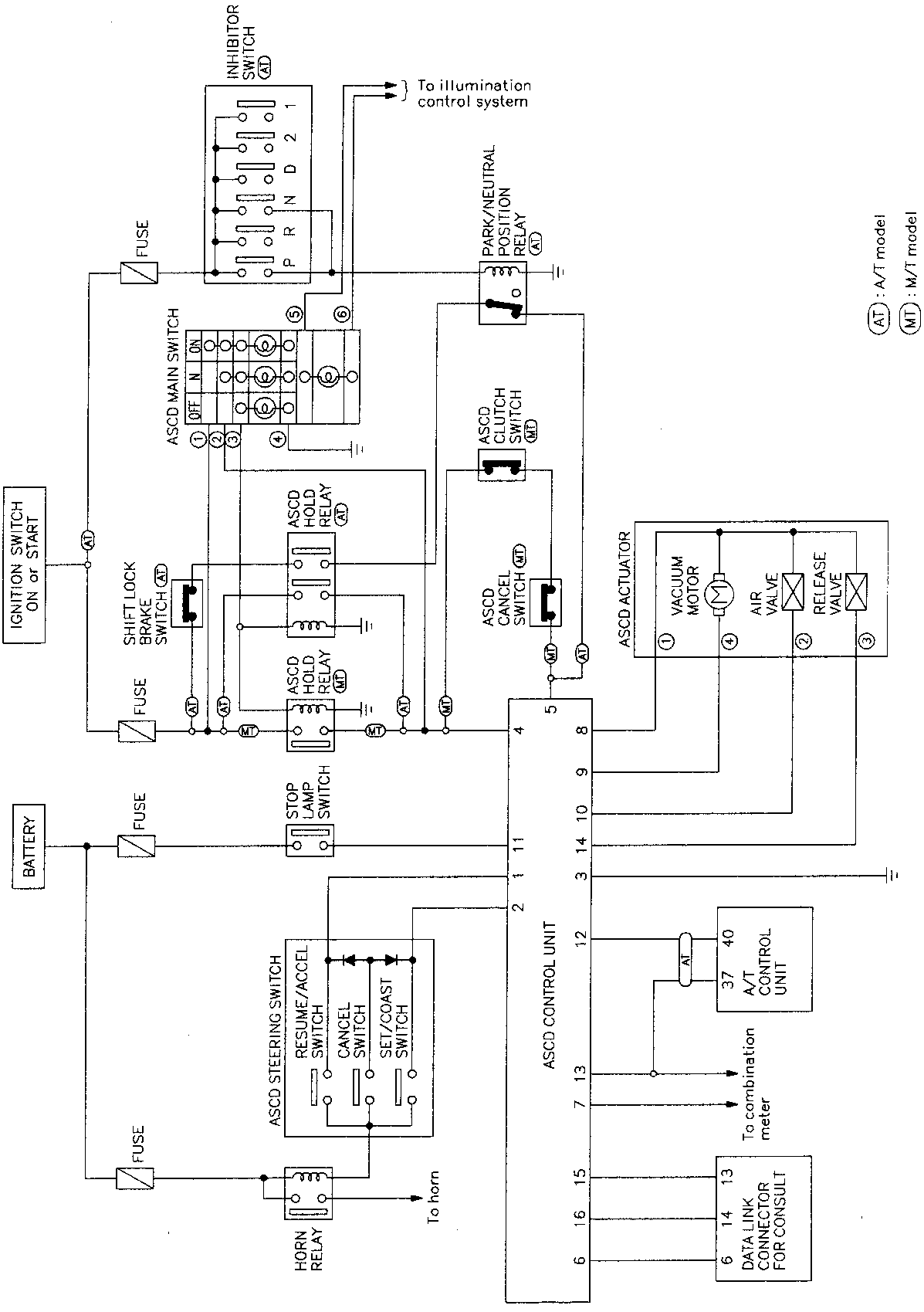
When the system is activated, power is supplied
- from terminal ⑬ of the ASCD control unit
- to combination meter terminal ⑭ and
- to A/T control unit terminal ㊲ (A/T models).

Ground is supplied
- to combination meter terminal ⑱
- through body grounds (M5) and (M57).

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.

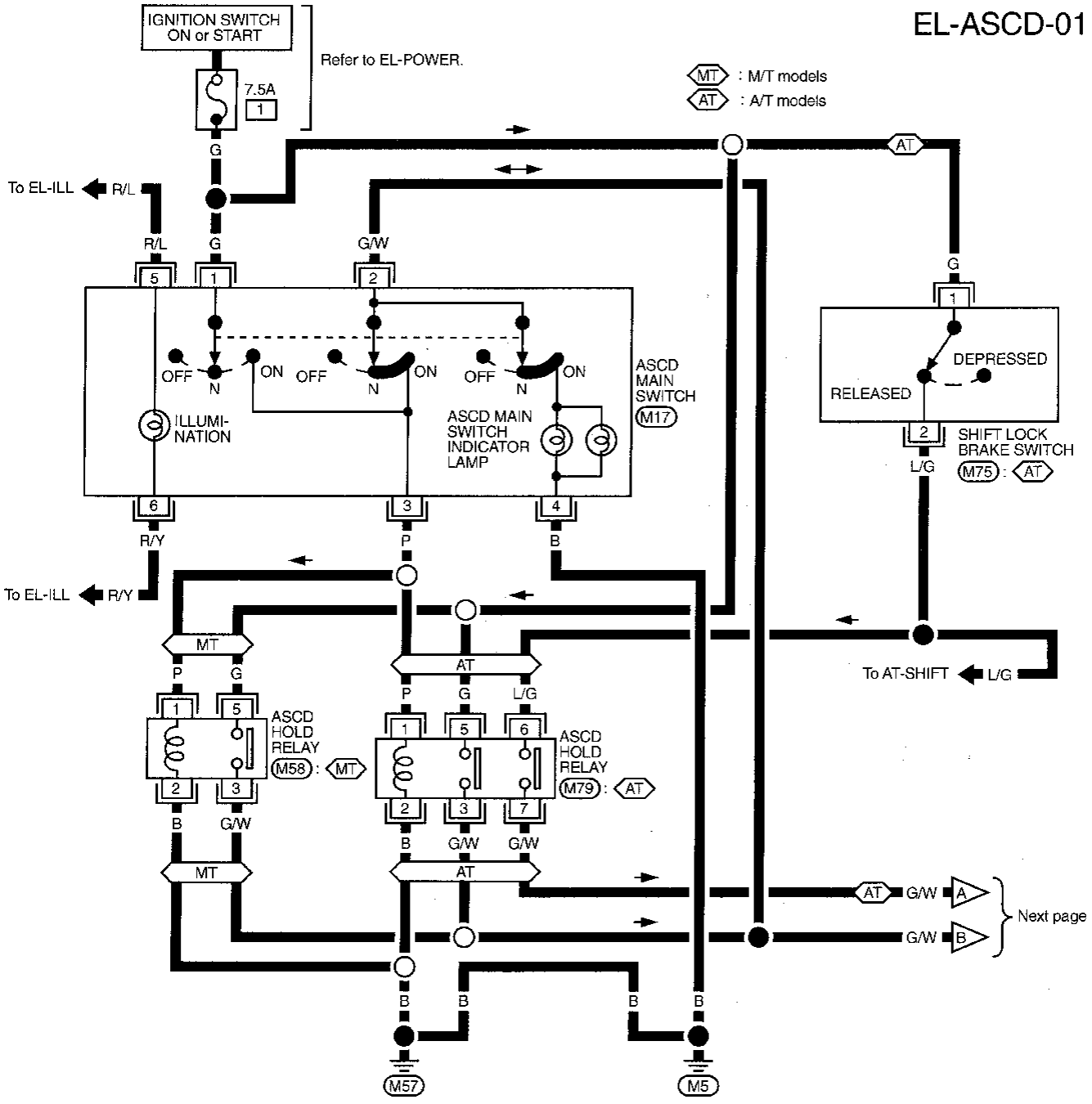
When this occurs, the A/T control unit cancels overdrive.
After vehicle speed is approximately 3 km/h (2 MPH) above set speed, overdrive is reactivated.

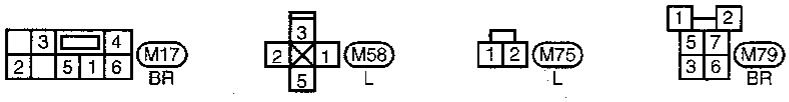
Schematic



MEL327F

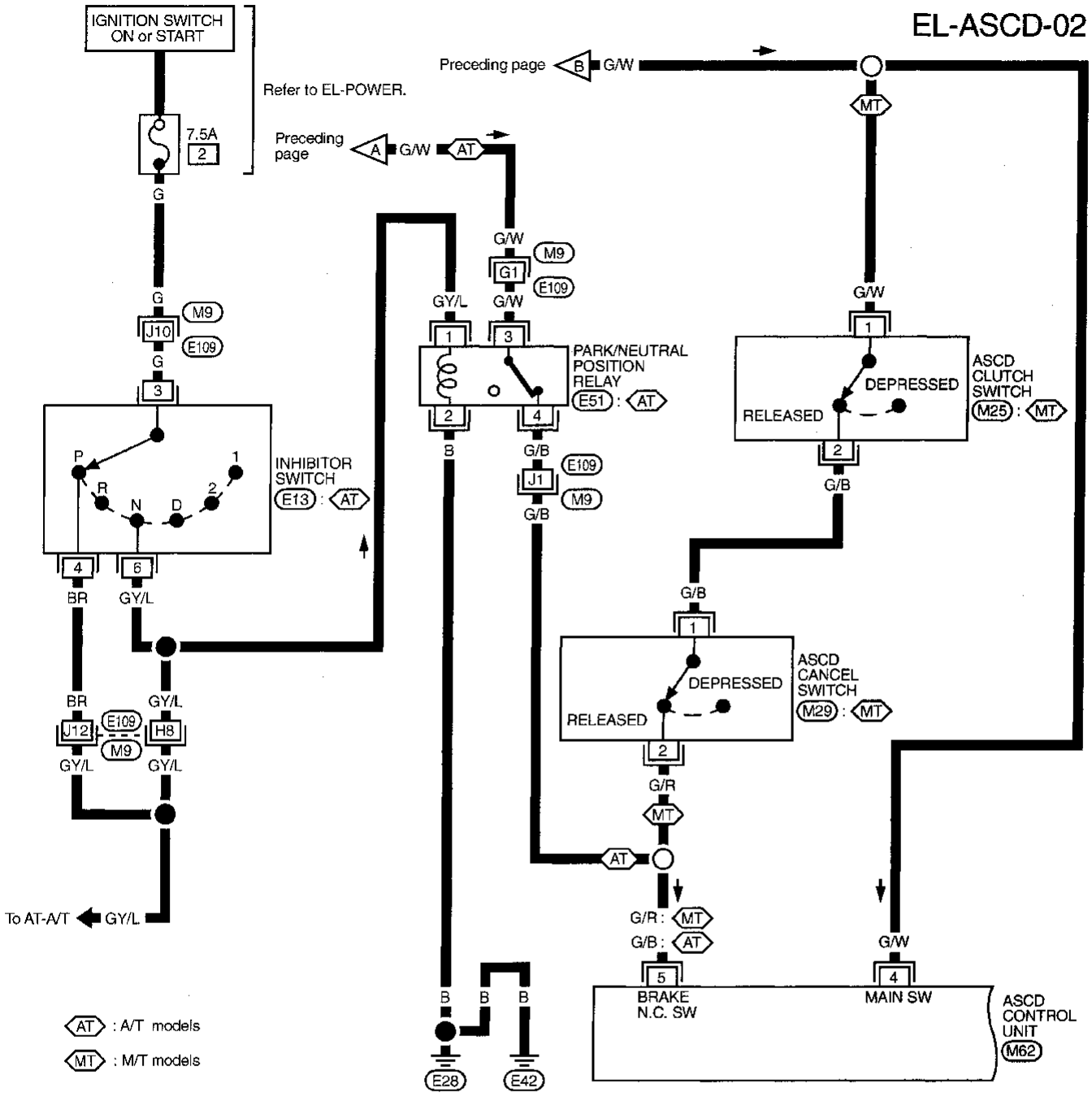
Wiring Diagram — ASCD —

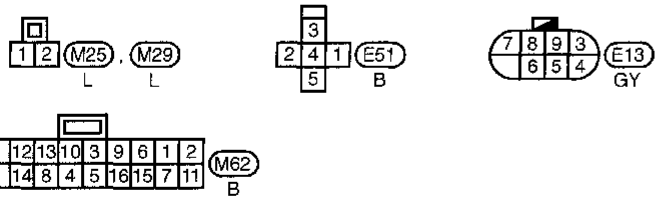




MEL328F

Wiring Diagram — ASCD — (Cont'd)



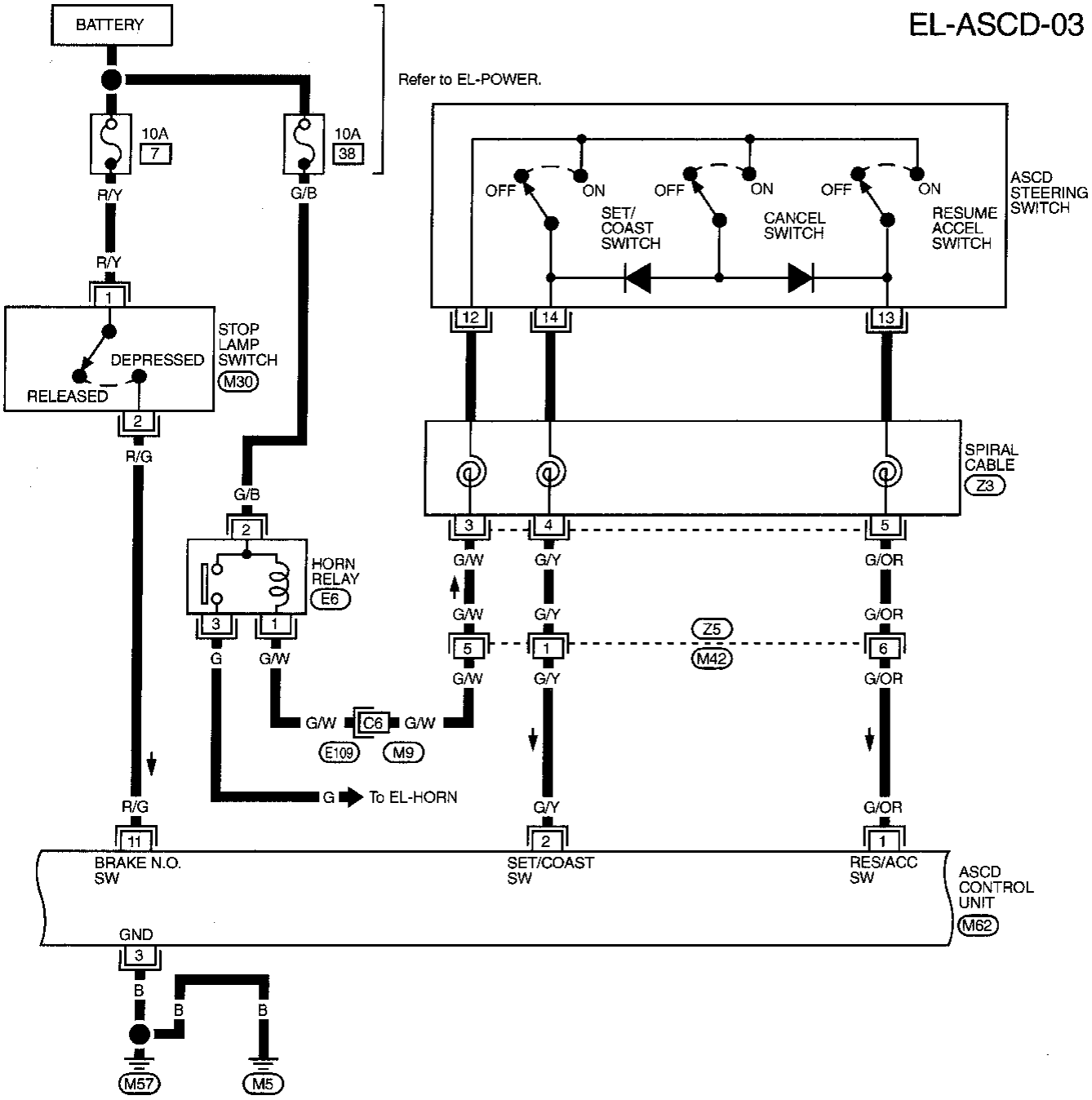


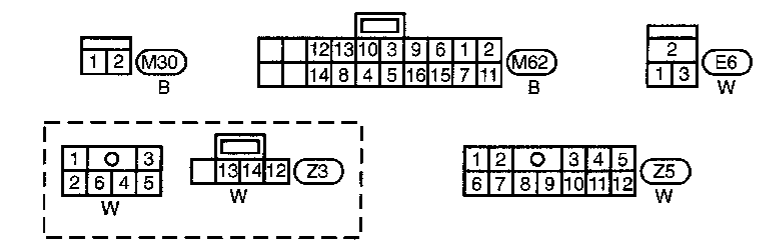
Refer to last page (Foldout page).
M9 , E109

MEL329F

Wiring Diagram — ASCD — (Cont'd)

EL-ASCD-03



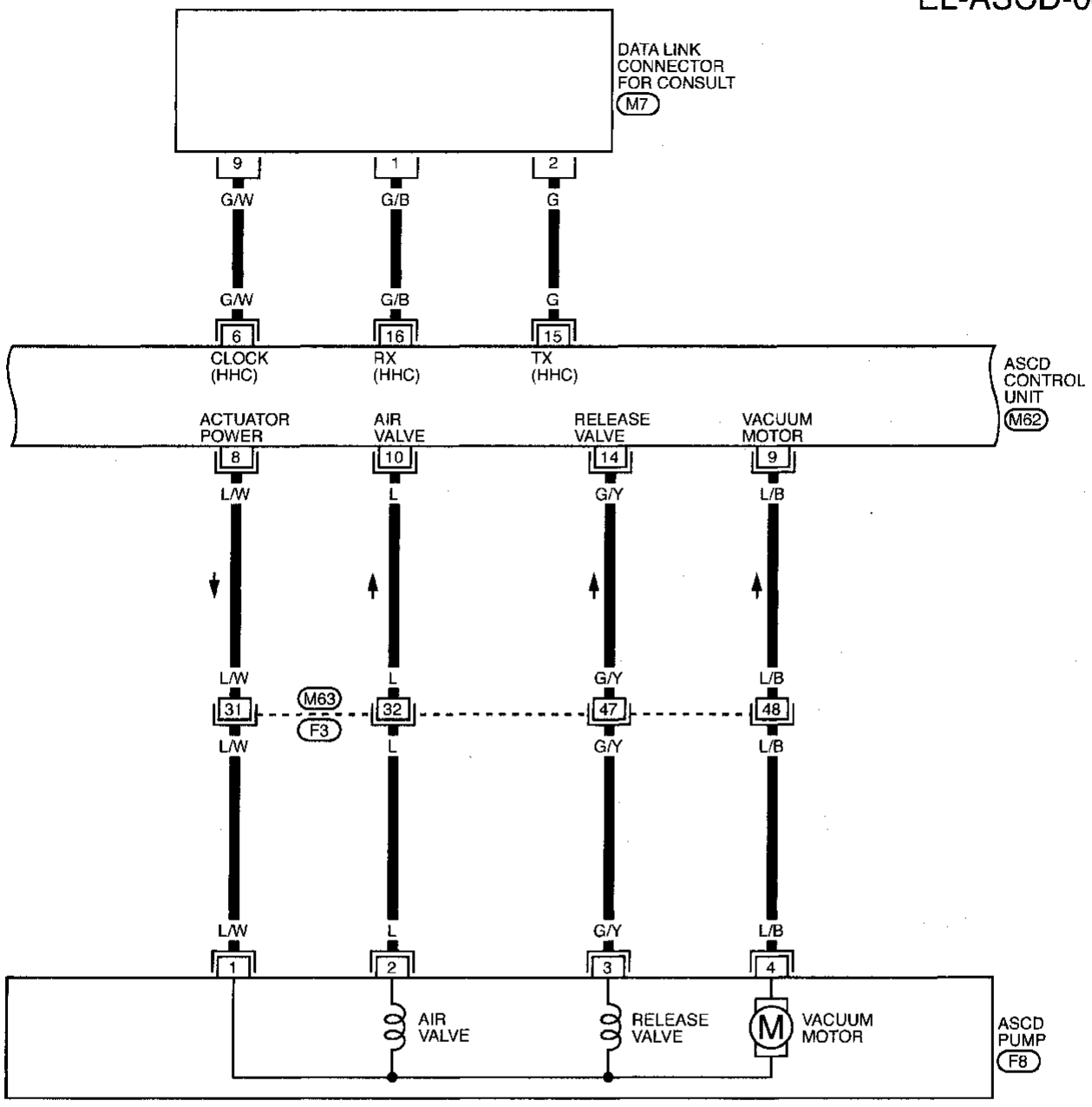


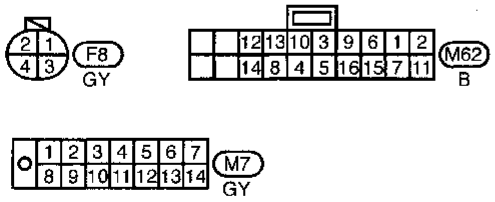
Refer to last page (Foldout page).
M9 , E109

MEL330F

Wiring Diagram — ASCD — (Cont'd)

EL-ASCD-04



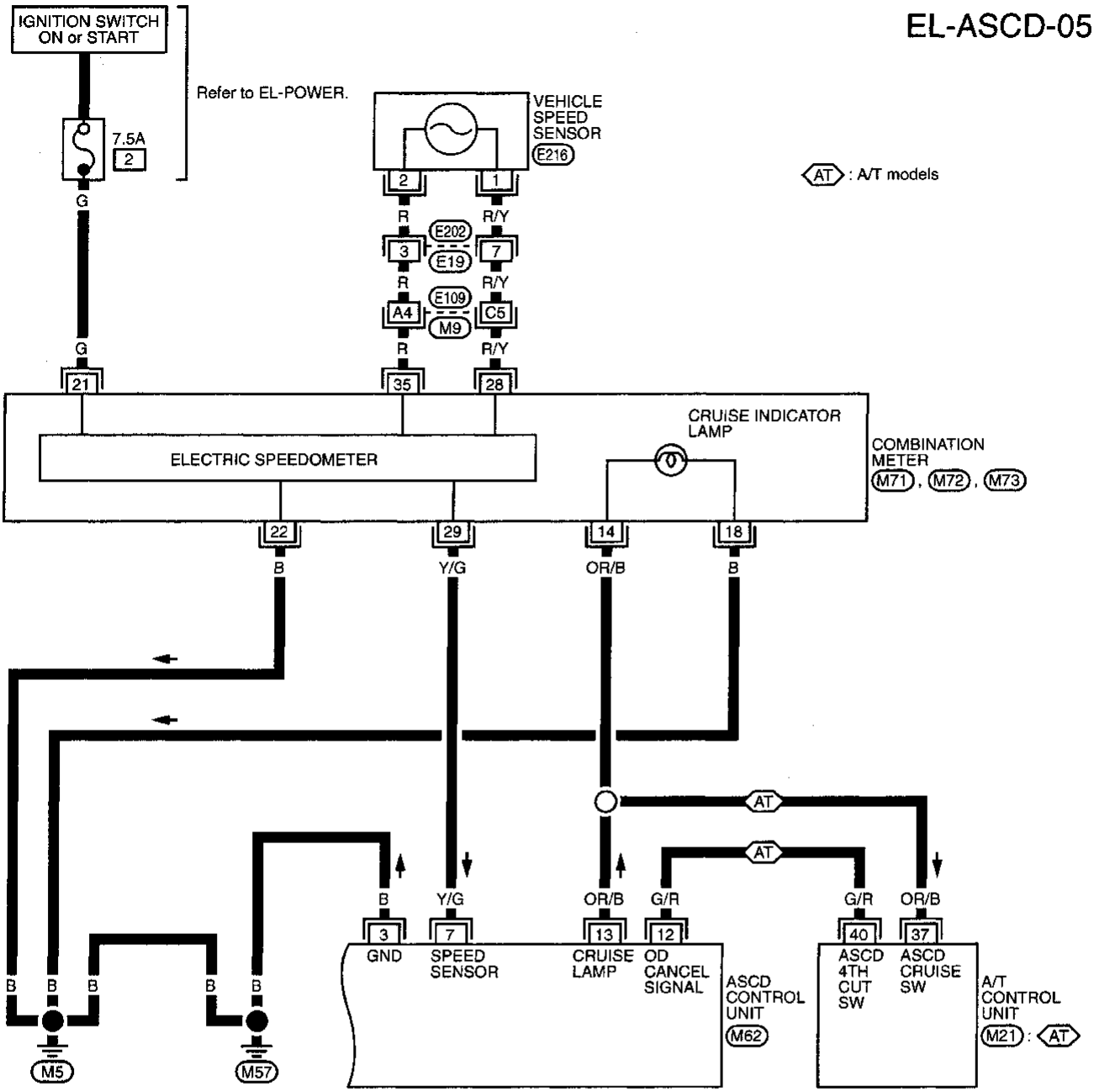


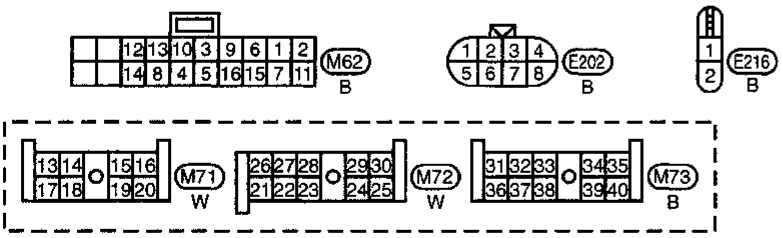
Refer to last page (Foldout page).
F3 , M63

MEL331F

Wiring Diagram — ASCD — (Cont'd)

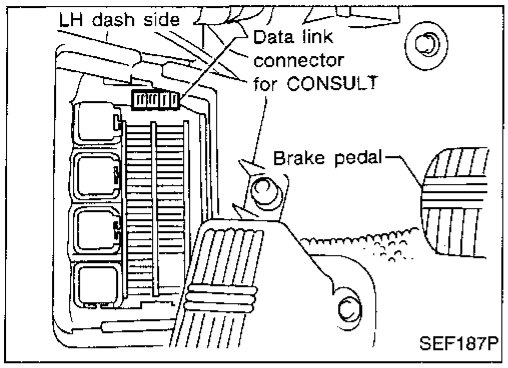
EL-ASCD-05





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

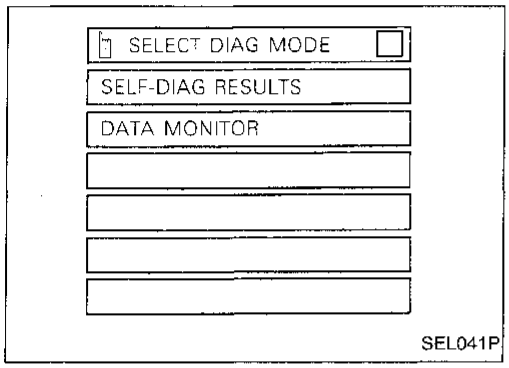
MEL332F



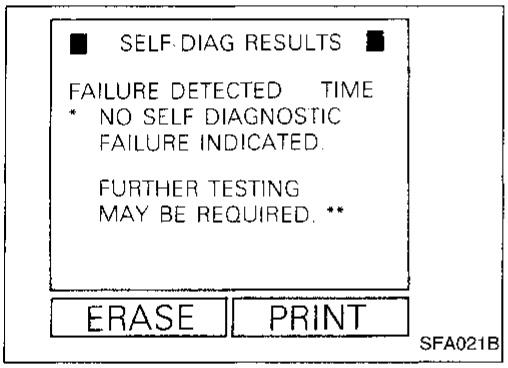
Trouble Diagnoses

CONSULT

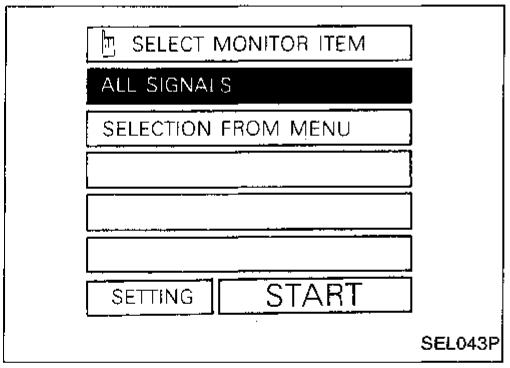
1. Turn off ignition switch.
2. Connect "CONSULT" to data link connector for CONSULT.



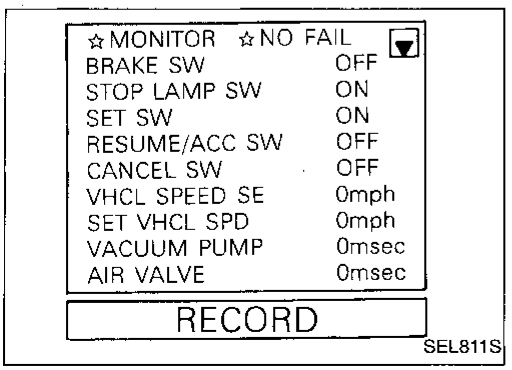
3. Turn on ignition switch.
4. Turn on ASCD main switch.
5. Touch START (on CONSULT display).
6. Touch ASCD.
7. Touch SELF-DIAG RESULTS.



- Self-diagnostic results are shown on display. Refer to table on the next page.



8. Touch DATA MONITOR.



- Touch START.
- Data monitor results are shown on display. Refer to table on the next page.

For further information, read the CONSULT Operation Manual.

Trouble Diagnoses (Cont'd)

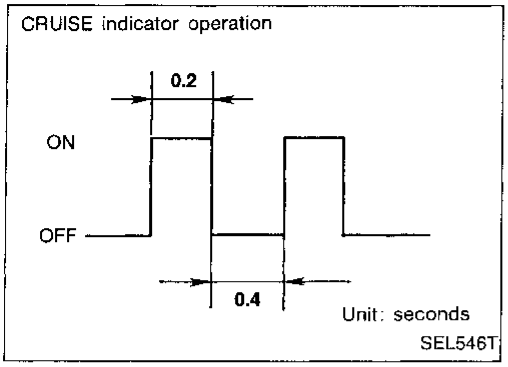
Self-diagnostic results

Diagnostic item	Description	Repair/Check order
* 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.)	Diagnostic procedure 7 (EL-157)
VACUUM PUMP	• The vacuum pump circuit is open or shorted. (An abnormally high or low voltage is entered.	Diagnostic procedure 7 (EL-157)
AIR VALVE	• The air valve circuit is open or shorted. (An abnormally high or low voltage is entered.)	Diagnostic procedure 7 (EL-157)
VHCL SP·S/FAILSAFE	• The vehicle speed sensor or the fail-safe circuit is malfunctioning.	Diagnostic procedure 6 (EL-156)
CONTROL UNIT	• The ASCD control unit is malfunctioning.	Replace ASCD control unit.
RELEASE VALVE	• The release valve circuit is open or shorted. (An abnormally high or low voltage is entered.)	Diagnostic procedure 7 (EL-157)
BRAKE SW/STOP/L SW	• The brake switch or stop lamp switch is malfunctioning.	Diagnostic procedure 4 (EL-154)

Data monitor

Monitored item	Description
BRAKE SW	• Indicates [ON/OFF] condition of the brake 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)



FAIL-SAFE SYSTEM

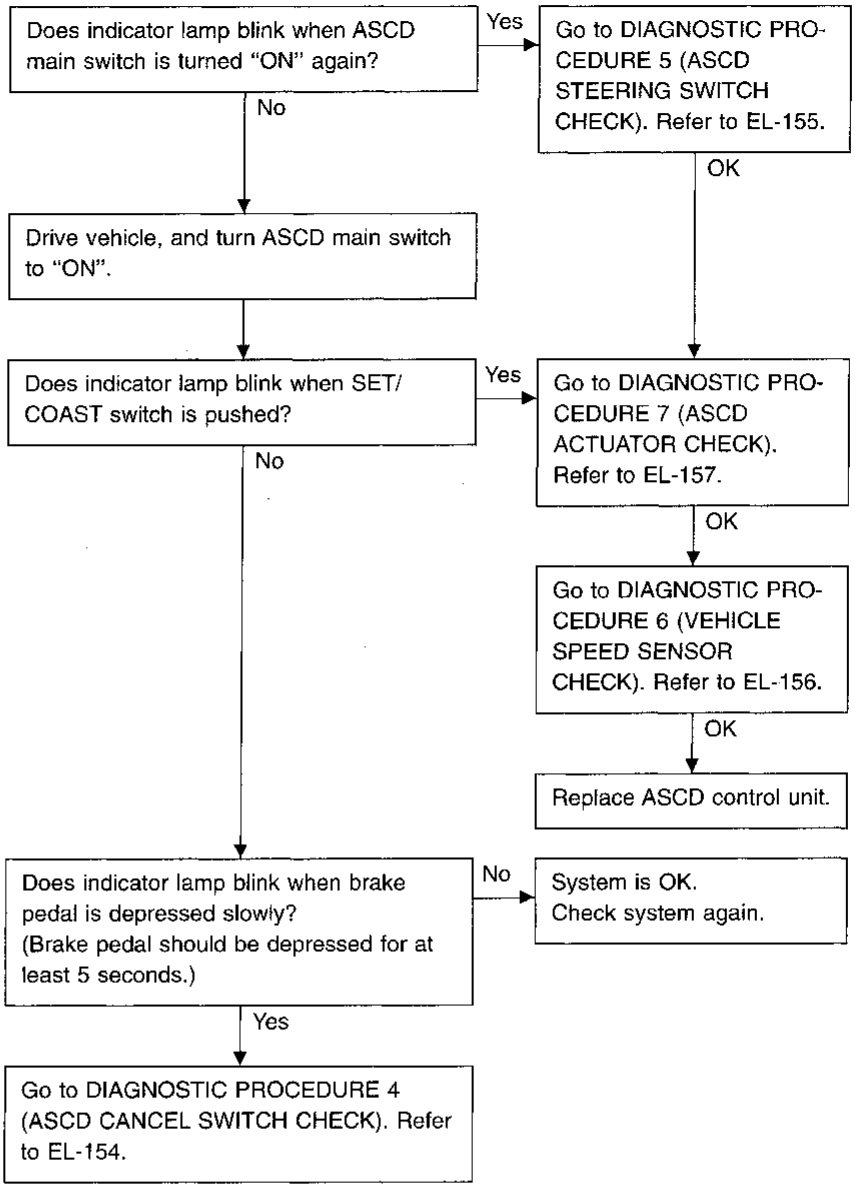
When the fail-safe system senses a malfunction, it deactivates ASCD operation. The CRUISE indicator in the combination meter will then flash.

Malfunction detection conditions

Detection conditions	ASCD operation during malfunction detection
• ASCD steering (RESUME/ACCEL, CANCEL, SET/COAST) switch is stuck. • 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. • Vehicle speed sensor is faulty. • ASCD control unit internal circuit is malfunctioning.	• ASCD is deactivated. • Vehicle speed memory is canceled.
• ASCD cancel switch or stop lamp switch is faulty.	• ASCD is deactivated. • Vehicle speed memory is not canceled.

Trouble Diagnoses (Cont'd)

Fail-safe system check



Trouble Diagnoses (Cont'd)

SYMPTOM CHART

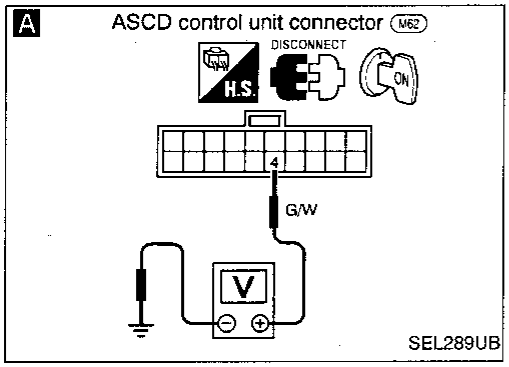
PROCEDURE	—		Diagnostic procedure							
REFERENCE PAGE	EL-147	EL-150	EL-152	EL-152	EL-153	EL-154	EL-155	EL-156	EL-157	EL-158
SYMPTOM	Self-diagnosis in CONSULT	Fail-safe system check	DIAGNOSTIC PROCEDURE 1 (POWER SUPPLY AND GROUND CIRCUIT CHECK)	DIAGNOSTIC PROCEDURE 2 (ASCD MAIN SWITCH CHECK)	DIAGNOSTIC PROCEDURE 3 (ASCD HOLD RELAY CHECK)	DIAGNOSTIC PROCEDURE 4 (ASCD CANCEL SWITCH CHECK)	DIAGNOSTIC PROCEDURE 5 (ASCD STEERING SWITCH CHECK)	DIAGNOSTIC PROCEDURE 6 (VEHICLE SPEED SENSOR CHECK)	DIAGNOSTIC PROCEDURE 7 (ASCD ACTUATOR CHECK)	DIAGNOSTIC PROCEDURE 8 (VACUUM HOSE AND ACCEL WIRE CHECK)
ASCD cannot be set.	X	X	X	X	X	X	X	X	X	X
Steering CANCEL switch will not operate.	X						X			
Steering ACCEL switch will not operate.	X						X			
Steering RESUME switch will not operate.	X						X			
Large difference between set speed and actual vehicle speed.	X	X	X			X	X	X	X	X
Deceleration is greatest immediately after ASCD has been set.	X	X	X			X	X	X	X	X
"CRUISE" indicator lamp blinks. (It indicates that system is in fail-safe.)	X	X	X			X	X	X	X	
Engine hunts.	X	X	X			X	X	X	X	X

Trouble Diagnoses (Cont'd)

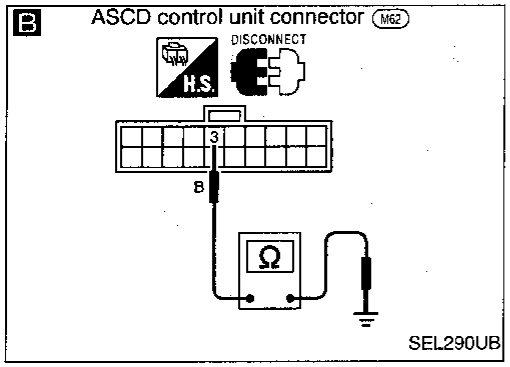
DIAGNOSTIC PROCEDURE 1

(POWER SUPPLY AND GROUND CIRCUIT CHECK)

A



B



1. Turn ignition switch ON.
2. Turn ASCD main switch "ON" to make sure indicators illuminate.

NG → Go to DIAGNOSTIC PROCEDURE 2 (ASCD MAIN SWITCH CHECK).

OK ↓

A

CHECK POWER SUPPLY CIRCUIT FOR ASCD CONTROL UNIT.

1. Disconnect ASCD control unit connector.
2. Turn ignition switch ON.
3. Turn ASCD main switch "ON".
4. Check voltage between control unit connector terminals ④ and body ground.

Battery voltage should exist.

NG → Go to DIAGNOSTIC PROCEDURE 3 (ASCD HOLD RELAY CIRCUIT CHECK). Refer to EL-153.

OK ↓

B

CHECK GROUND CIRCUIT FOR ASCD CONTROL UNIT.

Check continuity between ASCD control unit harness terminal ③ and body ground.

NG → Repair harness.

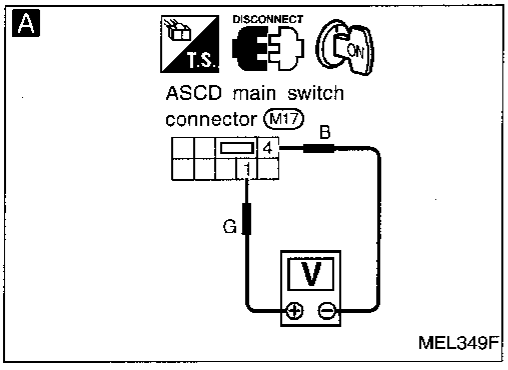
OK ↓

Go to next procedure.

DIAGNOSTIC PROCEDURE 2

(ASCD MAIN SWITCH CHECK)

A



CHECK POWER SUPPLY FOR ASCD MAIN SWITCH.

1. Disconnect main switch connector.
2. Measure voltage between main switch terminals ① and ④.

Battery voltage should exist.

NG → Check the following.
- 7.5A fuse (No. 1, located in the fuse block)
- Harness for open or short between fuse and ASCD main switch.

OK ↓

Check ASCD main switch. Refer to "ELECTRICAL COMPONENTS INSPECTION" (EL-159).

NG → Replace ASCD main switch.

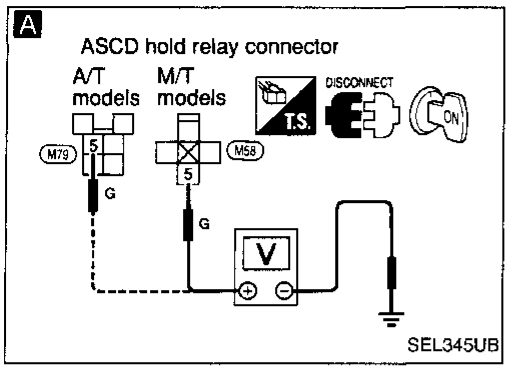
OK ↓

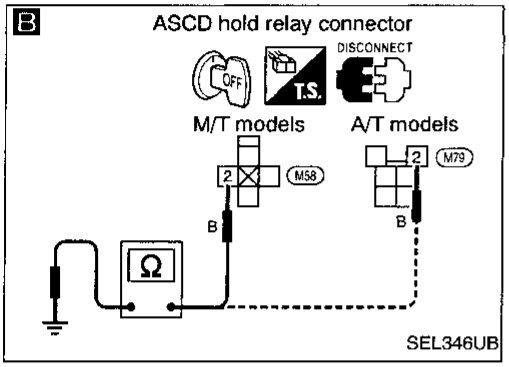
Go to next procedure.

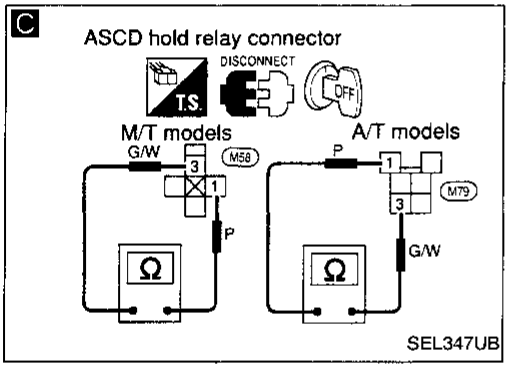
Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 3

(ASCD HOLD RELAY CIRCUIT CHECK)







A

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 → Check harness for open or short between fuse and ASCD hold relay.

Yes ↓

B

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

No → Repair harness.

Yes ↓

C

CHECK ASCD HOLD RELAY CIRCUIT.
Does continuity exist between ASCD hold relay harness terminals ③ and ①?

Yes → Check ASCD hold relay.

No ↓

CHECK ASCD MAIN SWITCH.
Refer to "ELECTRICAL COMPONENTS INSPECTION" (EL-159).

NG → Replace ASCD main switch.

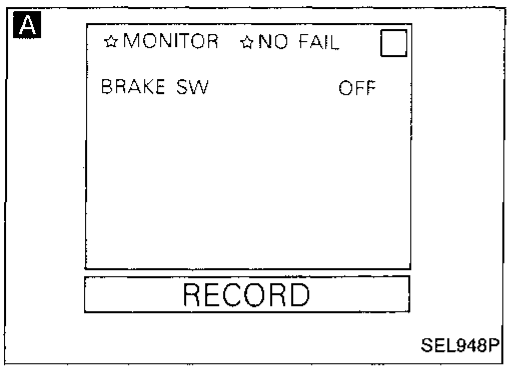
OK ↓

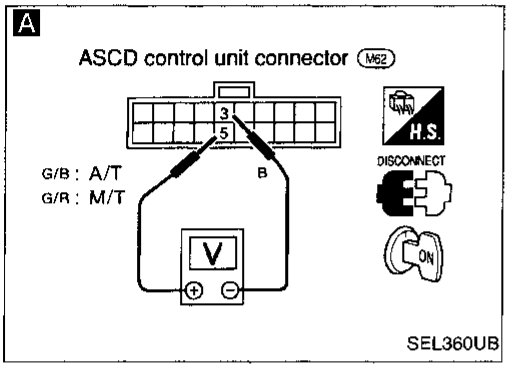
Go to next procedure.

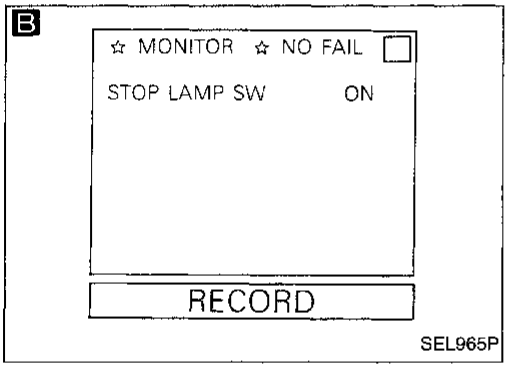
Trouble Diagnoses (Cont'd)

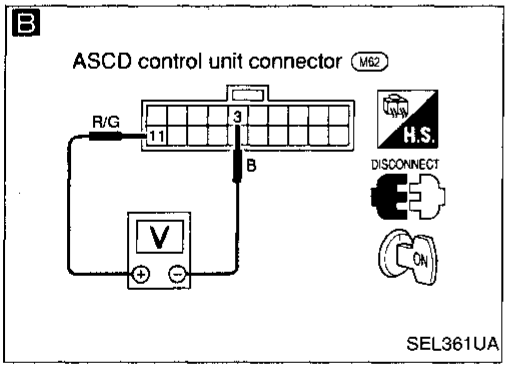
DIAGNOSTIC PROCEDURE 4

(ASCD CANCEL SWITCH CHECK)









A

CHECK CUT-OFF CIRCUIT FOR ASCD CONTROL UNIT.

See "BRAKE SW" in "Data monitor" mode.

When brake pedal or clutch pedal (M/T) is depressed or A/T shift lever (A/T) is in "N" or "P" range:

BRAKE SW OFF

When both brake pedal and clutch pedal (M/T) are released and A/T shift lever (A/T) is not in "N" or "P" range:

BRAKE SW ON

OR

1. Disconnect control unit connector.
2. Turn ignition switch ON.
3. Turn ASCD main switch "ON".
4. Measure voltage between control unit connector terminals ⑤ and ③. When brake pedal or clutch pedal (M/T) is depressed or A/T shift lever (A/T) is in "N" or "P" range:

   Approx. 0V

   When both brake pedal and clutch pedal (M/T) are released and A/T shift lever (A/T) is not in "N" or "P" range:

   Battery voltage should exist.

NG → CHECK THE FOLLOWING.
- ASCD cancel switch
  Refer to "ELECTRICAL COMPONENTS INSPECTION" (EL-160).
- ASCD clutch switch (M/T model)
  Refer to "ELECTRICAL COMPONENTS INSPECTION" (EL-160).
- Inhibitor switch (A/T model)
  Refer to "ELECTRICAL COMPONENTS INSPECTION" (EL-160).
- ASCD hold relay (A/T model)
- Harness for open or short

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

1. Disconnect control unit connector.
2. Check voltage between control unit harness terminals ⑪ and ③.

Condition		Voltage [V]
Stop lamp switch	Depressed	Approx. 12
	Released	0

NG → CHECK THE FOLLOWING.
- Harness for open or short between ASCD control unit and stop lamp switch.
- Fuse
- Stop lamp switch
  Refer to "ELECTRICAL COMPONENTS INSPECTION" (EL-160).

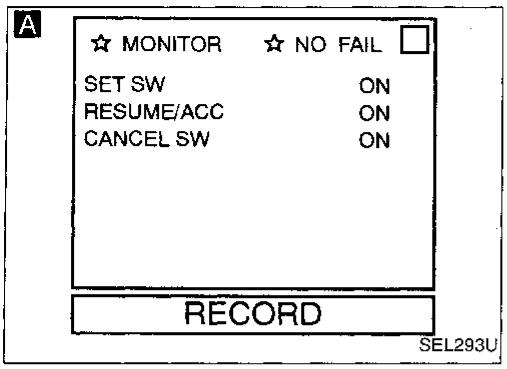
OK ↓

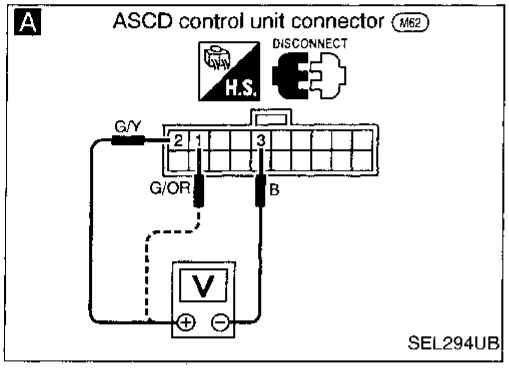
ASCD cancel switch is OK.

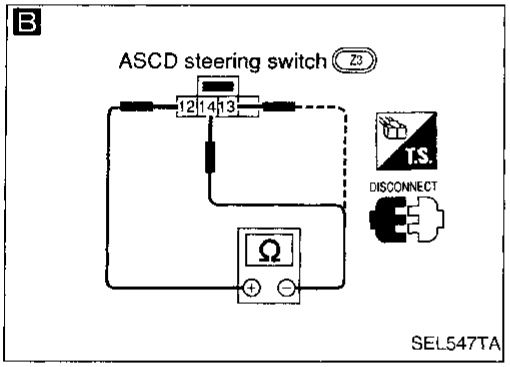
Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 5

(ASCD STEERING SWITCH CHECK)







A

CHECK ASCD STEERING SWITCH CIRCUIT FOR ASCD CONTROL UNIT.

See "SET SW", "RESUME/ACC SW" and "CANCEL SW" in "Data monitor" mode.

SET SW, RESUME/ACC SW and CANCEL SW
When switch is pressed: ON
When switch is released: OFF

OK → ASCD steering switch is OK.

OR

1. Disconnect control unit connector.
2. Check voltage between control unit harness terminals.

	Terminal No. ⊕	Terminal No. ⊖	Switch condition: Pressed	Switch condition: Released
SET/ COAST SW	②	③	12V	0V
RESUME/ ACC SW	①	③	12V	0V
CANCEL SW	②	③	6V	0V
	①	③	6V	0V

NG ↓

CHECK POWER SUPPLY FOR ASCD STEERING SWITCH.
Does horn work?

NG → Check the following.
- 10A fuse (No. 38, located in the relay box)
- Horn relay
- Harness for open or short

OK ↓

B

CHECK ASCD STEERING SWITCH.
Check continuity between terminals by pushing each button.

NG → Replace ASCD steering switch.

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

OK ↓

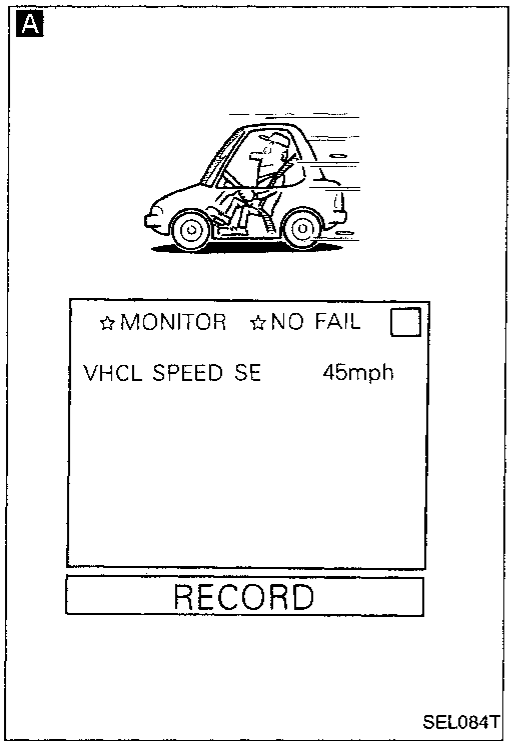
Check harness for open or short between ASCD steering switch and ASCD control unit.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 6

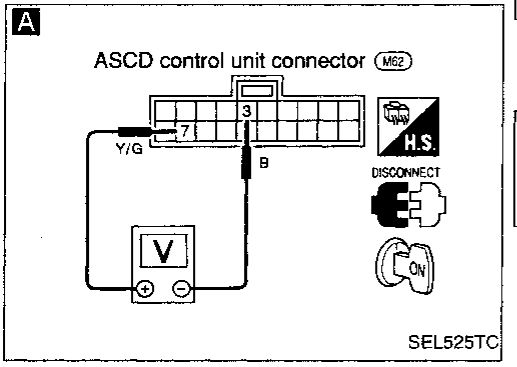
(VEHICLE SPEED SENSOR CHECK)

A



SEL084T

A



SEL525TC

A

CHECK VEHICLE SPEED SENSOR CIRCUIT.

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

OR

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

OK → Vehicle speed sensor is OK.

NG

Does speedometer operate normally?

No → Check speedometer and vehicle speed sensor circuit. Refer to EL-83.

Yes

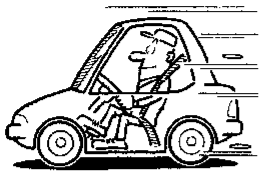
Check harness for open or short between ASCD control unit terminal ⑦ and combination meter terminal ⑭.

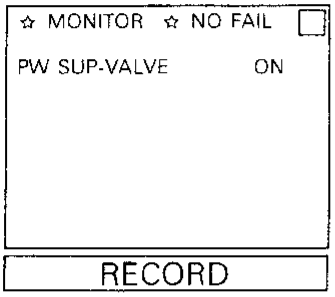
Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 7

(ASCD ACTUATOR CHECK)

A

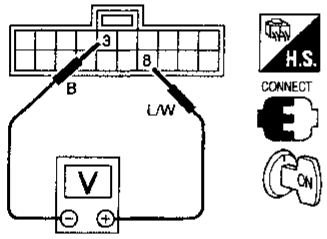




SEL860R

A

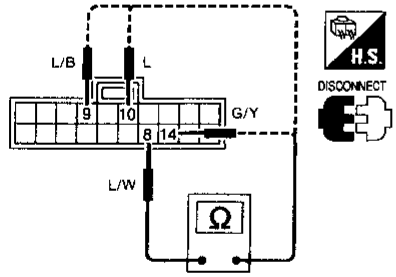
ASCD control unit connector M62



SEL526TB

B

ASCD control unit connector M62



SEL527TB

A

CHECK OUTPUT FOR ASCD ACTUATOR/ASCD PUMP.

1. Read out "PW SUP-VALVE" in "Data monitor" mode while driving.
   PW SUP-VALVE:
   ON (When ASCD is operating.)
   OFF (When ASCD is not operating.)

NG → Replace ASCD control unit.

OR

1. Turn ignition switch ON.
2. Check voltage between control unit harness terminals ⑧ and ③.
   Voltage is 0V.

OK ↓

B

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

OK → ASCD actuator is OK.

NG ↓

CHECK ASCD ACTUATOR.
Refer to "Electrical Components Inspection" (EL-159).

OK → Check harness for open or short between ASCD actuator and ASCD control unit.

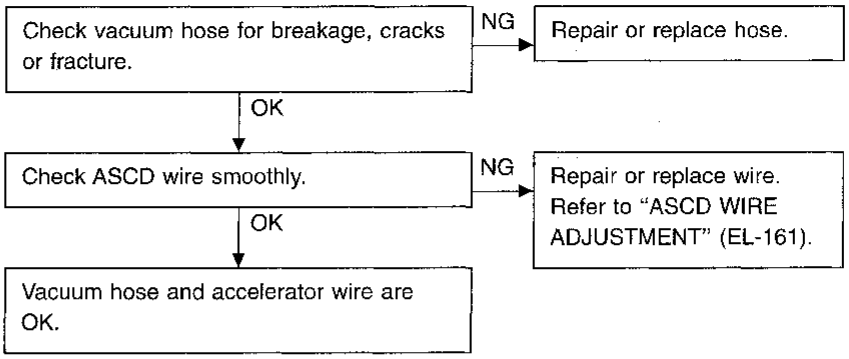
NG ↓

Replace ASCD actuator.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 8

(VACUUM HOSE AND ACCEL WIRE CHECK)



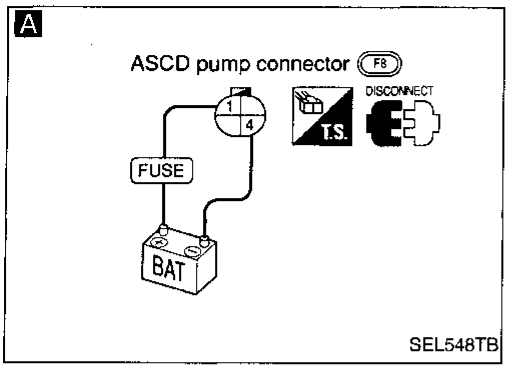
Trouble Diagnoses (Cont'd)

ELECTRICAL COMPONENTS INSPECTION

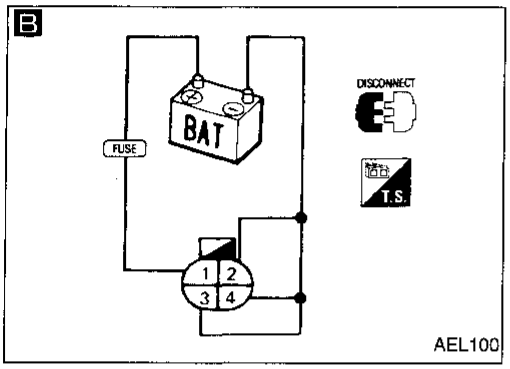
ASCD actuator/ASCD pump

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

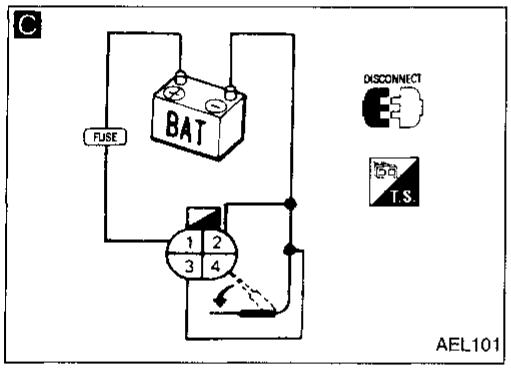
A



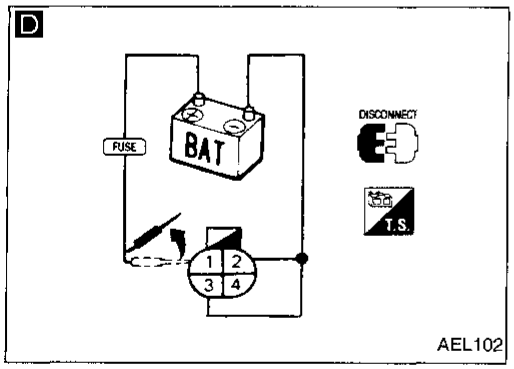
B



C



D



A

Does motor start when 12V DC is applied across ① and ④?
- No → Replace ASCD pump.
- Yes → B

B

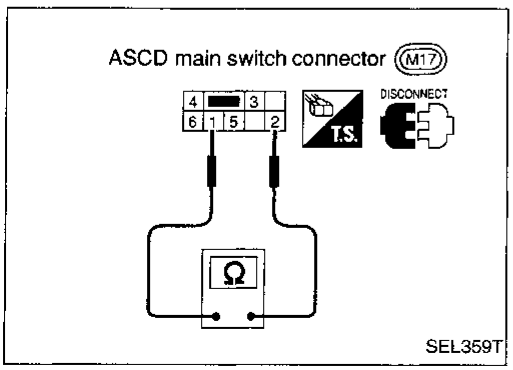
Is ASCD wire pulled when 12V DC is applied across ①, ②, ③ and ④?
- No → Disconnect vacuum hose from ASCD actuator and check for presence of vacuum pressure at ASCD pump.
  - NG → Replace ASCD pump.
  - OK → Replace ASCD actuator.
- Yes → C

C

Does ASCD wire return to original position 50 to 60 seconds after disconnecting lead from ④?
- Yes → Replace ASCD pump.
- No → D

D

Disconnect lead from ①. Does ASCD wire return immediately?
- No → Replace ASCD pump.
- Yes → ASCD actuator/ASCD pump are OK.

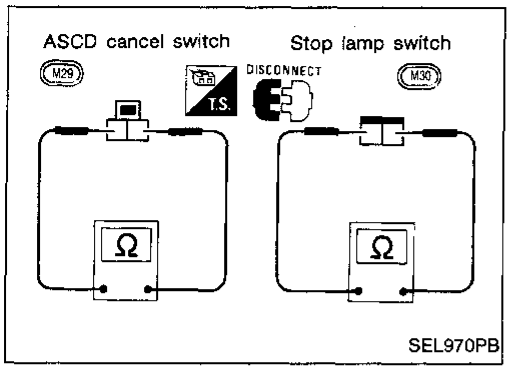


ASCD main switch

Check continuity between terminals by pushing switch to each position.

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

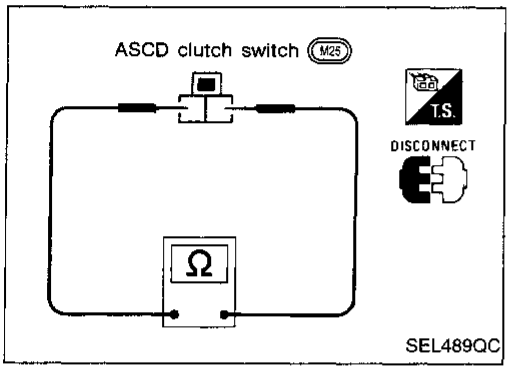
Trouble Diagnoses (Cont'd)



ASCD cancel switch and stop lamp switch

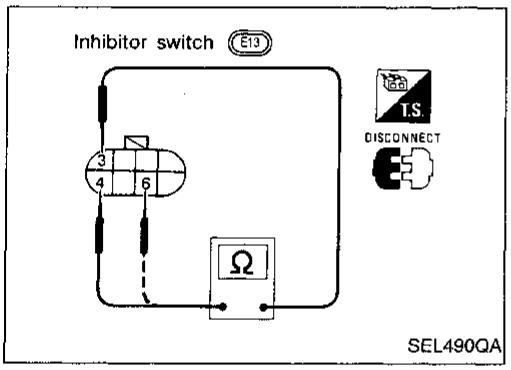
Condition	Continuity	
	ASCD cancel switch	Stop lamp switch
When brake pedal is depressed	No	Yes
When brake pedal is released	Yes	No

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



Clutch switch (For M/T models)

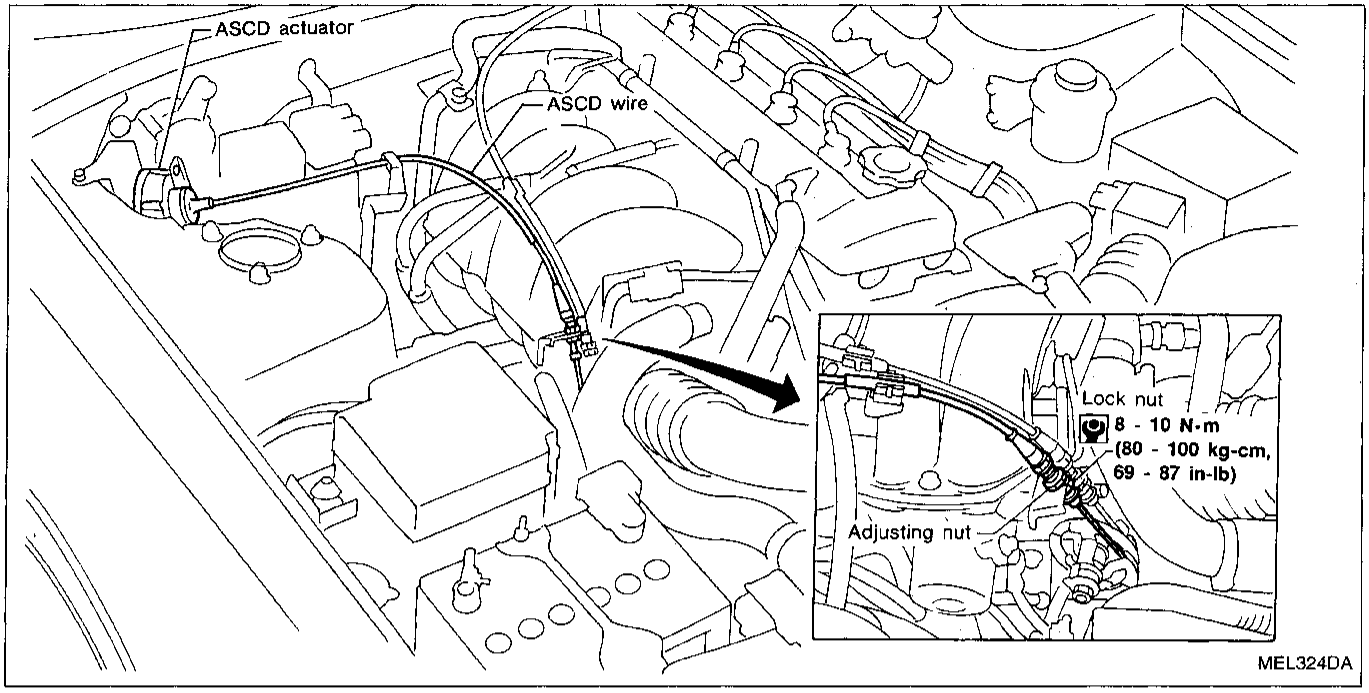
Condition	Continuity
When clutch pedal is depressed	No
When clutch pedal is released	Yes



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	

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

Power is supplied at all times
- from 25A fusible link (Letter [i] located in the fuse and fusible link box)
- to circuit breaker terminal ①
- through circuit breaker terminal ②
- to power window relay terminal ③.

With ignition switch in ON or START position, power is supplied
- through 7.5A fuse (No. [1] located in the fuse block)
- to power window relay terminal ①.

Ground is supplied to power window relay terminal ②
- through body grounds (M5) and (M57).

The power window relay is energized and power is supplied
- through power window relay terminal ⑤
- to power window main switch terminal ①,
- to power window sub switch terminal ④.

MANUAL OPERATION

Door LH

Ground is supplied
- to power window main switch terminal ②
- through body grounds (M5) and (M57).

WINDOW UP
When the LH switch in the power window main switch is pressed in the up position, power is supplied
- to power window regulator LH terminal ①
- through power window main switch terminal ③.

Ground is supplied
- to power window regulator LH terminal ②
- through power window main switch terminal ④.

Then, the motor raises the window until the switch is released.

WINDOW DOWN
When the LH switch in the power window main switch is pressed in the down position, power is supplied
- to power window regulator LH terminal ②
- through power window main switch terminal ④.

Ground is supplied
- to power window regulator LH terminal ①
- through power window main switch terminal ③.

Then, the motor lowers the window until the switch is released.

Door RH

Ground is supplied
- to power window main switch terminal ②
- through body grounds (M5) and (M57).

System Description (Cont'd)

NOTE:
Numbers in parentheses are terminal numbers, when power window switch is pressed in the UP and DOWN positions respectively.
Main switch operation
Power is supplied
- through power window main switch (⑥, ⑤)
- to power window sub-switch (⑤, ①).

The subsequent operation is the same as the sub-switch operation.
Sub-switch operation
Power is supplied
- through power window sub-switch (②, ③)
- to power window regulator RH (①, ②).

Ground is supplied
- to power window regulator RH (②, ①)
- through power window sub-switch (③, ②)
- to power window sub-switch (⑤, ①)
- through power window main switch (⑥, ⑤).

Then, the motor raises or lowers the window until the switch is released.

AUTO OPERATION

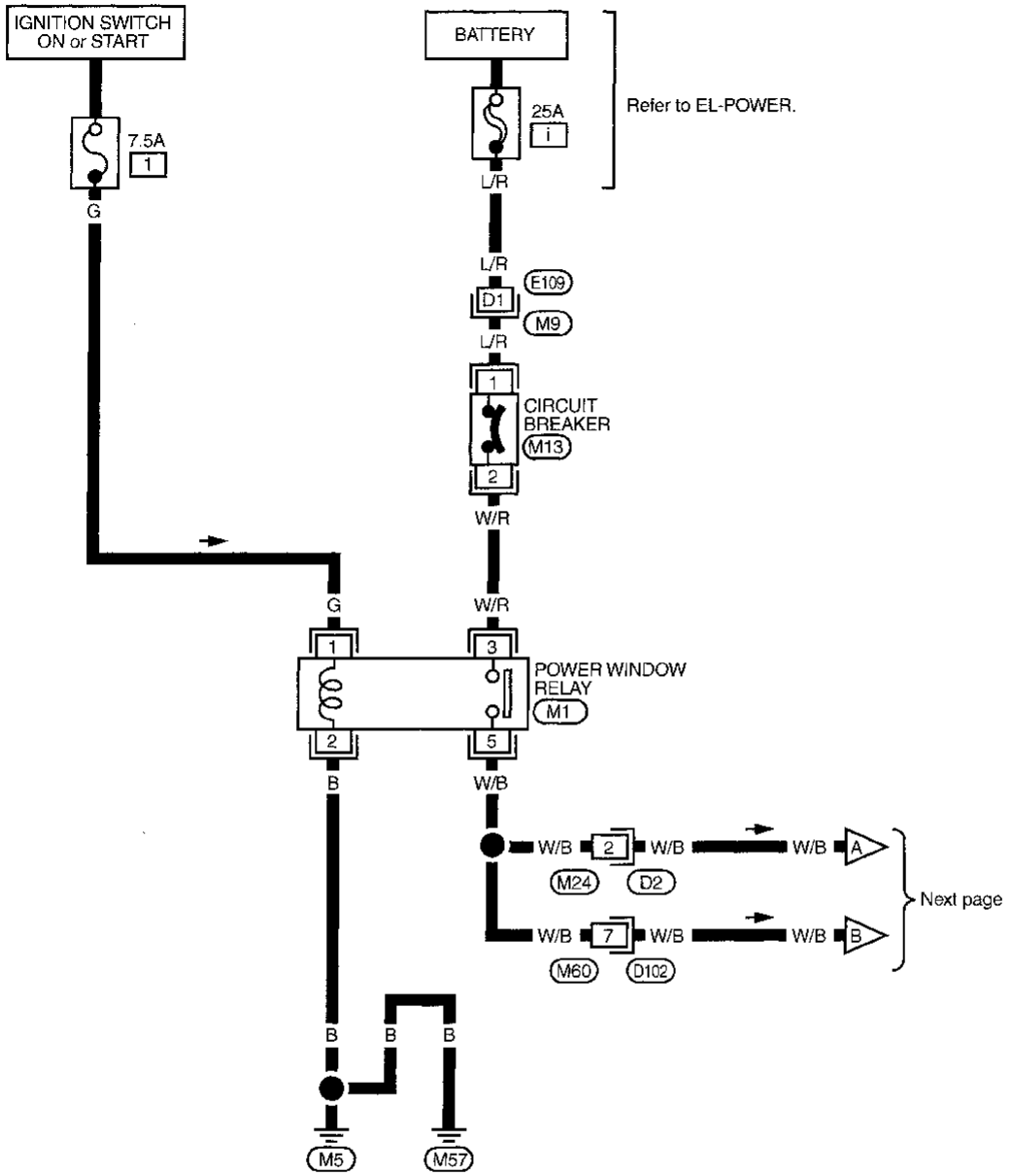
The power window AUTO feature enables the driver to lower the driver's window without holding the window switch in the down position.
The AUTO feature only operates on the driver's window downward movement.

POWER WINDOW LOCK

The power window lock is designed to lock window operation to door RH window.
When the lock switch is pressed to lock position, ground of the RH switch in the power window main switch is disconnected. This prevents the power window motors from operating.

Wiring Diagram — WINDOW —

EL-WINDOW-01

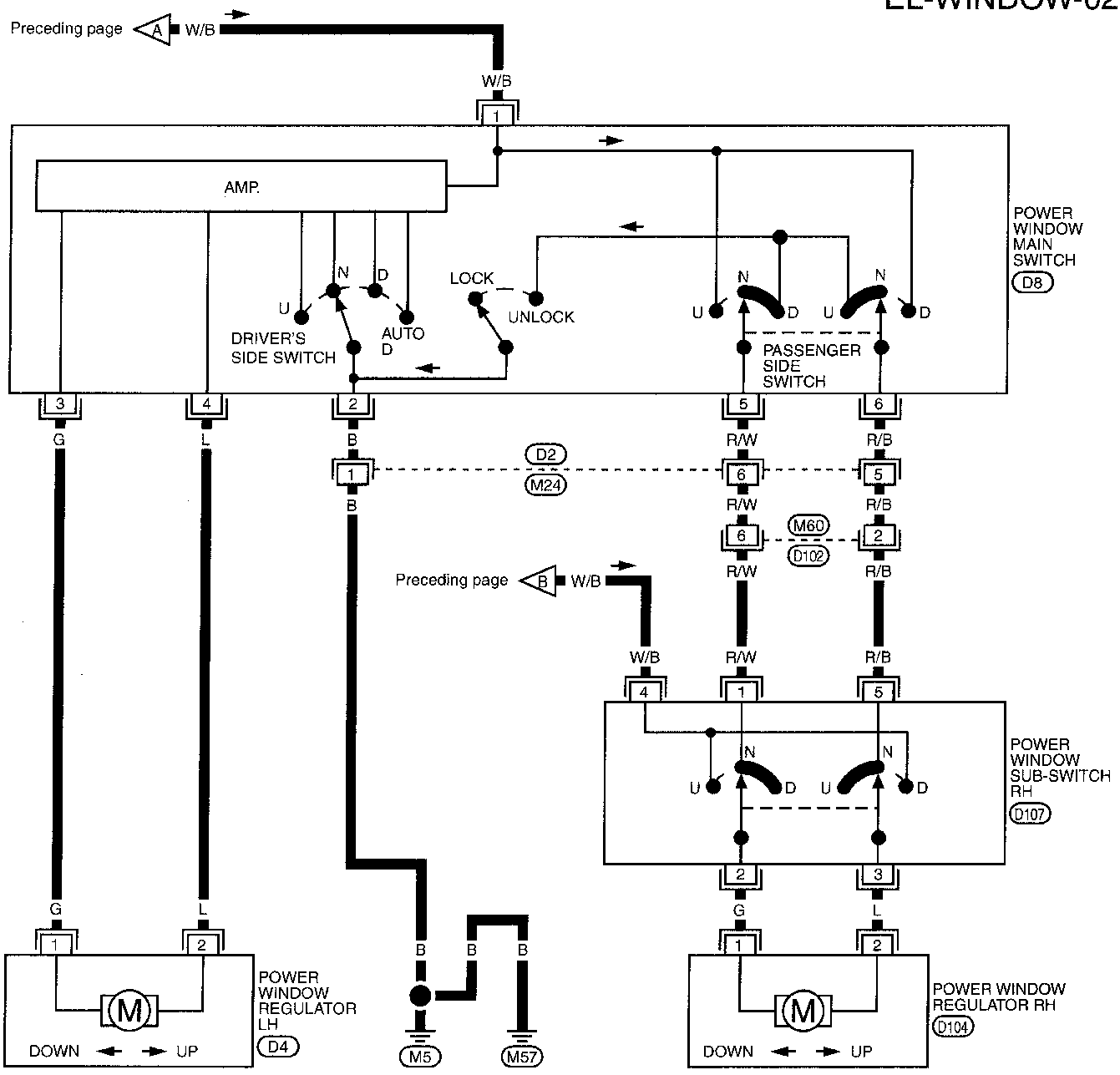


Refer to last page (Foldout page).
M9 , E109

MEL333F

Wiring Diagram — WINDOW — (Cont'd)

EL-WINDOW-02



MEL334F

Trouble Diagnoses

Symptom	Possible cause	Repair order
None of the power windows can be operated using any switch.	1. 7.5A fuse, 25A fusible link and (M13) circuit breaker	1. Check 7.5A fuse (No. 1 , located in fuse block [J/B]), 25A fusible link (letter i , located in fuse and fusible link box) and (M13) circuit breaker. Turn ignition switch "ON" and verify battery positive voltage is present at terminal (1) of power window main switch and terminal (4) of sub-switch.
	2. Grounds (M5) and (M57)	2. Check grounds (M5) and (M57).
	3. Power window relay	3. Check power window relay.
	4. Open/short in power window main switch circuit	4. Check W/B wire between power window relay and power window main switch for open/short circuit.
Driver's side power window cannot be operated but other windows can be operated.	1. Driver's side power window regulator circuit	1. Check driver's side power window regulator circuit
	2. Driver's side power window regulator	2. Check driver's side power window regulator
Passenger power window cannot be operated.	1. Power window sub-switches	1. Check power window sub-switch
	2. Passenger side power window regulators	2. Check passenger's side power window regulator
	3. Power window main switch	3. Check power window main switch
	4. Power window circuit	4-1. Check harnesses between power window main switch and power window sub-switch for open/short circuit.
		4-2. Check harnesses between power window sub-switch and power window regulator for open/short circuit.
Passenger power window cannot be operated using power window main switch but can be operated by power window sub-switch.	1. Power window main switch	1. Check power window main switch.
Driver's side power window auto function cannot be operated using power window main switch.	1. Power window main switch	1. Check power window main switch.

System Description

Power is supplied at all times
- through 25A fusible link (No. [i] located in the fuse and fusible link box)
- to circuit breaker terminal ①
- through circuit breaker terminal ②
- to smart entrance control unit terminal ①.

Ground is supplied to smart entrance control unit terminal ⑩ through body grounds (M5) and (M57).

INPUT

When the door lock & unlock switch LH is in LOCKED position, ground signal is supplied
- to smart entrance control unit terminal ⑱
- through door lock & unlock switch LH terminal ⑦
- to door lock & unlock switch LH terminal ②
- through body grounds (M5) and (M57).

When the door lock & unlock switch RH is in LOCKED position, ground signal is supplied
- to smart entrance control unit terminal ⑱
- through door lock & unlock switch RH terminal ③
- to door lock & unlock switch RH terminal ②
- through body grounds (M5) and (M57).

When the door lock & unlock switch LH is in UNLOCKED position, ground signal is supplied
- to smart entrance control unit terminal ⑲
- through door lock & unlock switch LH terminal ⑧
- to door lock & unlock switch LH terminal ②
- through body grounds (M5) and (M57).

When the door lock & unlock switch RH is in UNLOCKED position, ground signal is supplied
- to smart entrance control unit terminal ⑲
- through door lock & unlock switch RH terminal ①
- to door lock & unlock switch RH terminal ②
- through body grounds (M5) and (M57).

OUTPUT

Unlock

Ground is supplied
- to door lock actuator LH terminal ③
- to door lock actuator RH terminal ③
- through smart entrance control unit terminal ④.

DOOR LH

Power is supplied
- to door lock actuator LH terminal ①
- through smart entrance control unit terminal ③.

DOOR RH

Power is supplied
- to door lock actuator RH terminal ①,
- through smart entrance control unit terminal ②.

Then, the door is unlocked.

Lock

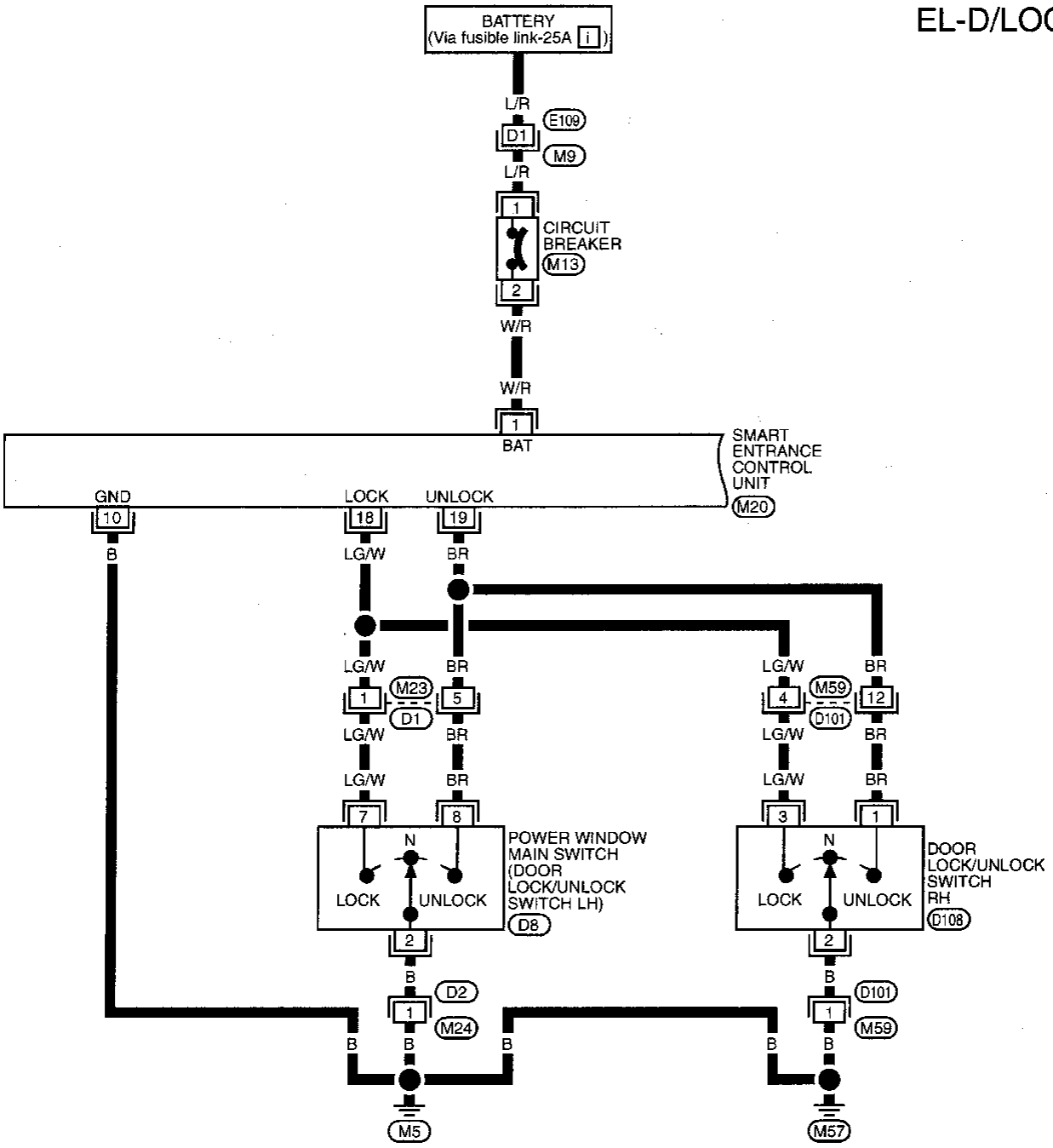
Ground is supplied
- to door lock actuator LH terminal ①
- through smart entrance control unit terminal ③, and
- to door lock actuator RH terminal ①
- through smart entrance control unit terminal ②.

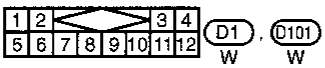
Power is supplied
- to door lock actuator LH terminal ③,
- to door lock actuator RH terminal ③,
- through terminal ④.

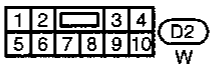
Then, the door is locked.

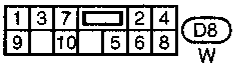
Wiring Diagram — D/LOCK —

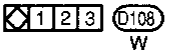
EL-D/LOCK-01











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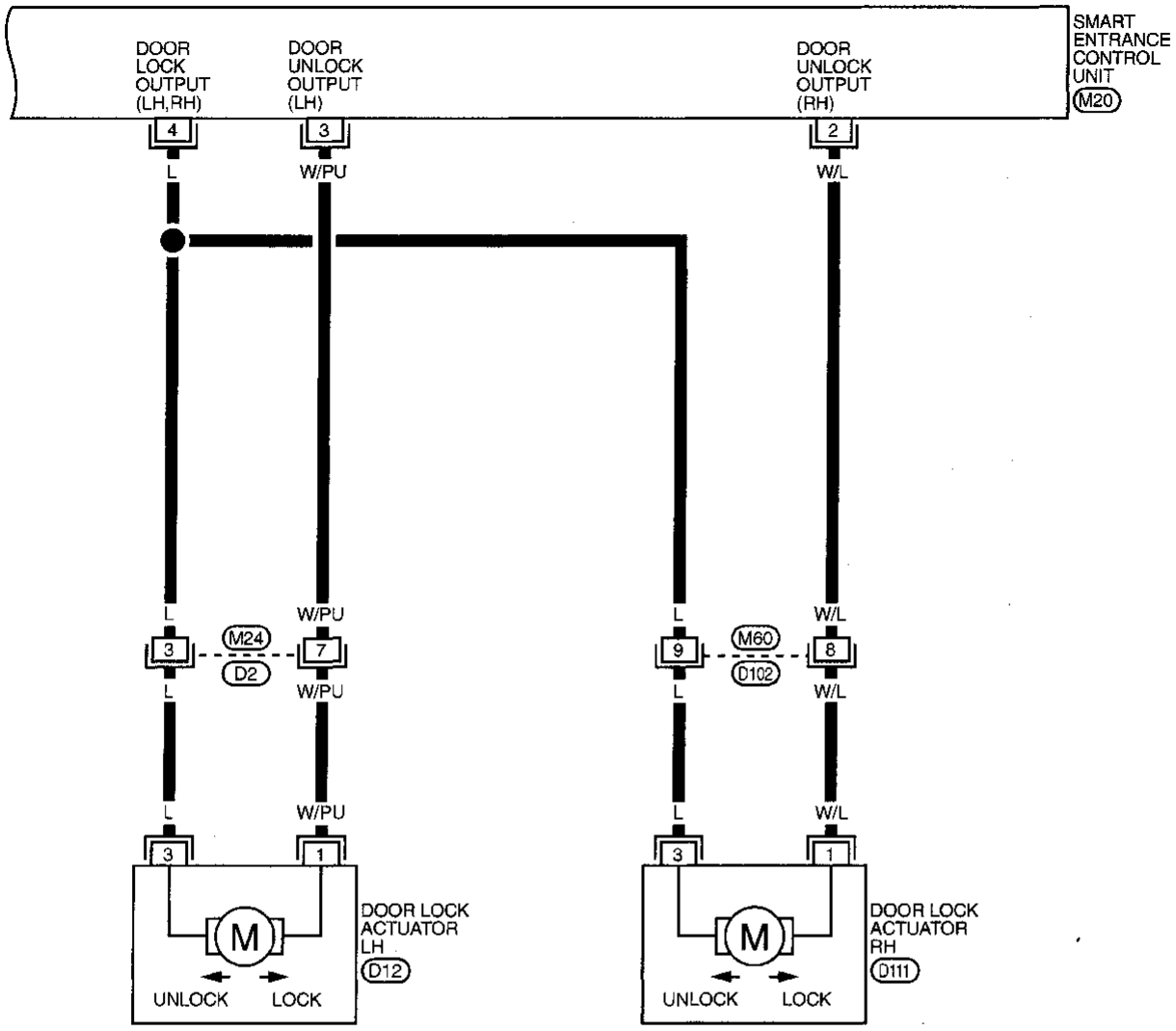
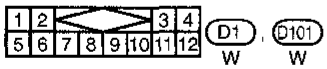
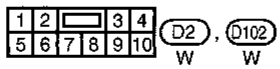
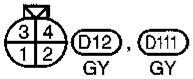
Wiring Diagram — D/LOCK — (Cont'd)

EL-D/LOCK-02









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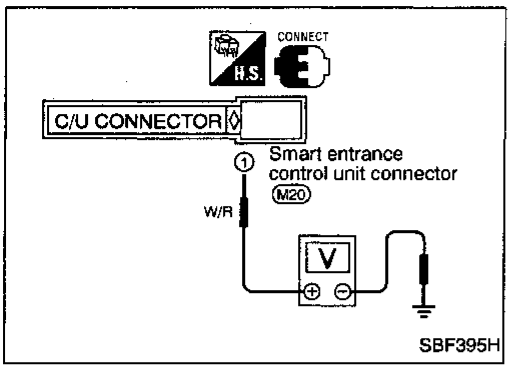
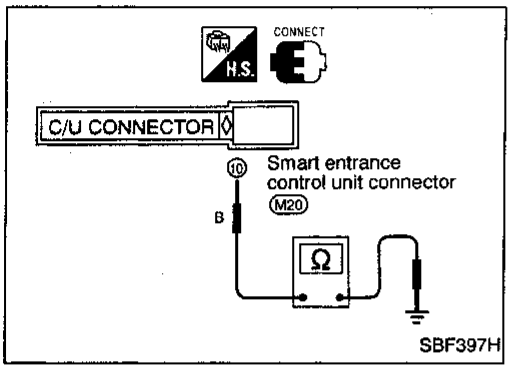
M20

MEL336F





Trouble Diagnosis

MAIN POWER SUPPLY AND GROUND CIRCUIT CHECK

Main power supply for smart entrance control unit (SECU)

Terminals	Battery voltage existence
① - Ground (GND)	Yes

Ground circuit for smart entrance control unit

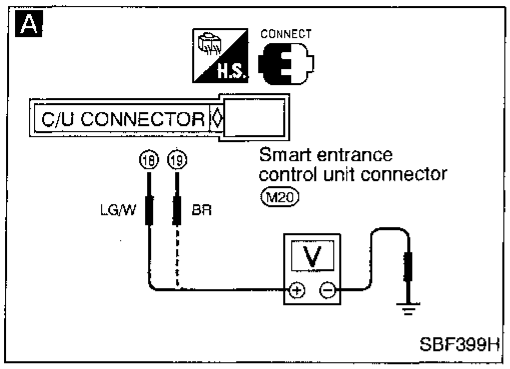
Terminals	Continuity
⑩ - Ground	Yes

Trouble Diagnosis (Cont'd)

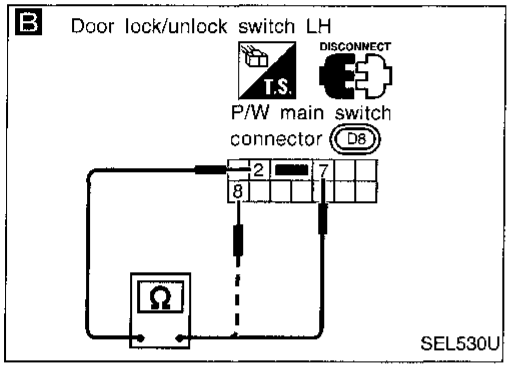
DIAGNOSTIC PROCEDURE 1

(Door lock/unlock switch check)

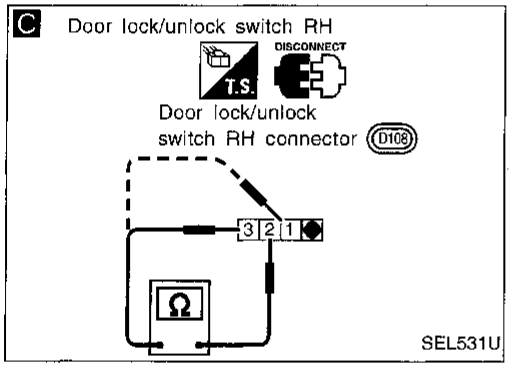
A



B Door lock/unlock switch LH



C Door lock/unlock switch RH



A

CHECK SIGNAL OF DOOR LOCK/ UNLOCK SWITCH.
1. Disconnect control unit connector.
2. Check continuity between control unit terminal 18 or 19 and GND.

Terminals	Door lock/ unlock switch (LH or RH) operation	Continuity
18 - GND	Lock	Yes
	N and Unlock	No
19 - GND	Unlock	Yes
	N and Lock	No

OK → Door lock/unlock switch is OK.

NG

B C

CHECK DOOR LOCK/UNLOCK SWITCH.
1. Disconnect door lock/unlock switch connector.
2. Check continuity between each door lock/unlock switch terminal.

OK → Repair harness between door lock/unlock switch and control unit connector.

B Power window main switch (Door lock/unlock switch)

Condition	Terminals		
	2	7	8
Lock	○	○	
N	No continuity		
Unlock	○		○

C Door lock/unlock switch RH

Condition	Terminals		
	1	2	3
Lock		○	○
N	No continuity		
Unlock	○	○	

NG

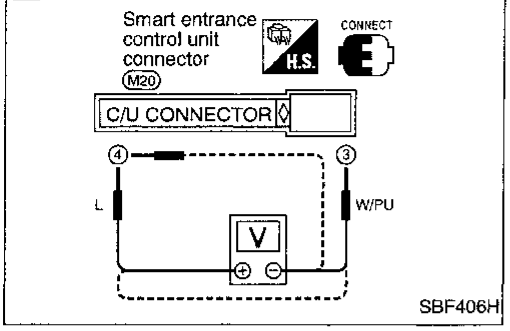
Replace door lock/unlock switch.

Trouble Diagnosis (Cont'd)

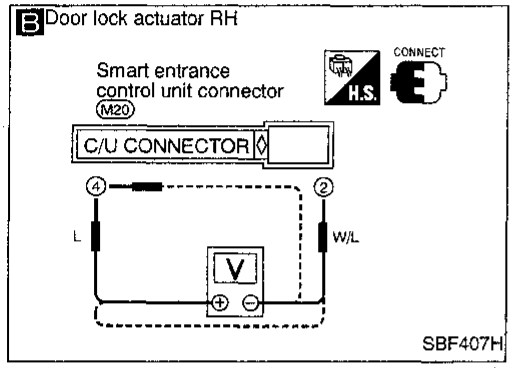
DIAGNOSTIC PROCEDURE 2

(Door lock actuator check)

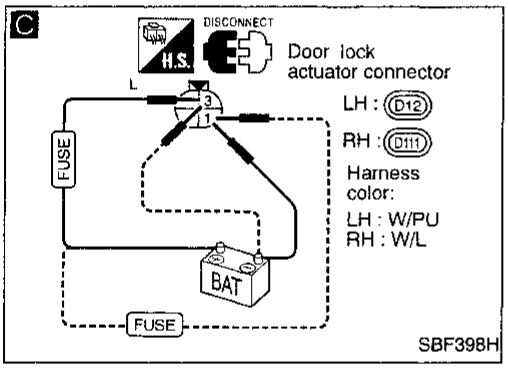
A Door lock actuator LH



B Door lock actuator RH



C



A B

CHECK DOOR LOCK ACTUATOR CIRCUIT.

Check voltage for door lock actuator.

A Door lock actuator LH

Door lock/unlock switch operation	Terminals ⊕	Terminals ⊖	Voltage (V)
Lock	4	3	Battery voltage
Unlock	3	4	

B Door lock actuator RH

Door lock/unlock switch operation	Terminals ⊕	Terminals ⊖	Voltage (V)
Lock	4	2	Battery voltage
Unlock	2	4	

NG → Replace smart entrance control unit. (Before replacing control unit, perform Diagnostic procedure 1.)

OK ↓

C

CHECK DOOR LOCK ACTUATOR.

1. Disconnect door lock actuator connector.
2. Apply 12V direct current to door lock actuator and check operation.

Door lock actuator operation	Terminals ⊕	Terminals ⊖
Unlocked → Locked	3	1
Locked → Unlocked	1	3

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

NG ↓

Replace door lock actuator.

System Description

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

Power is supplied at all times
- to interior lamp terminal ① and
- to key switch terminal ①
- through 10A fuse (No. [6] located in the fuse block).

Power is supplied at all times
- to multi-remote control relays-1 and 2 terminal ①
- through 10A fuse (No. [5] located in the fuse block).

Terminal ⑲ of the smart entrance control unit is grounded through body grounds (M5) and (M57).

INPUTS

When the key switch is ON (ignition key is inserted in key cylinder), power is supplied
- through key switch terminal ②
- to smart entrance control unit terminal ㉔.

When the door switch LH is OPEN, ground is supplied
- to smart entrance control unit terminal ⑮
- through door switch LH terminal ①
- to door switch LH terminal ③
- through body grounds (B4), (B13) and (T16).

When the door switch RH is OPEN, ground is supplied
- to smart entrance control unit terminal ⑯
- through door switch RH body ground.

When the door lock actuator LH (door unlock sensor) is UNLOCKED, ground is supplied
- to smart entrance control unit terminal ⑫
- through door lock actuator LH (door unlock sensor) terminal ④
- to door lock actuator LH (door unlock sensor) terminal ②
- through body grounds (M5) and (M57).

When the door lock actuator RH (door unlock sensor) is UNLOCKED, ground is supplied
- to smart entrance control unit terminal ⑬
- through door lock actuator RH (door unlock sensor) terminal ④
- to door lock actuator RH (door unlock sensor) terminal ②
- through body grounds (M5) and (M57).

Remote controller signal input
- through window antenna
- to smart entrance control unit terminal ㊲.

The multi-remote control system controls operation of the
- power door lock
- interior lamp
- panic alarm
- hazard lamp
- ID code entry.

OPERATED PROCEDURE

Power door lock operation

When the following input signals are both supplied:
- key switch OFF (when ignition key is not inserted in key cylinder);
- door switch CLOSED (when all the doors are closed);

smart entrance control unit locks all the doors with input of LOCK signal from remote controller.
Smart entrance control unit unlocks the doors with input of UNLOCK signal from remote controller.
Refer to "Power Door Lock" (EL-167).

System Description (Cont'd)

Interior lamp operation

When the following input signals are both supplied:
- key switch OFF (when ignition key is not inserted in key cylinder);
- door switch CLOSED (when all the doors are closed);

multi-remote control system turns on interior lamp (for 30 seconds) with input of UNLOCK signal from remote controller.
For detailed description, refer to "Interior, Spot and Trunk Room Lamps" (EL-74).

Panic alarm operation

When key switch is OFF (when ignition key is not inserted in key cylinder), multi-remote control system turns on and off horn and headlamp intermittently with input of PANIC ALARM signal from remote controller.
For detailed description, refer to "THEFT WARNING SYSTEM" (EL-186).

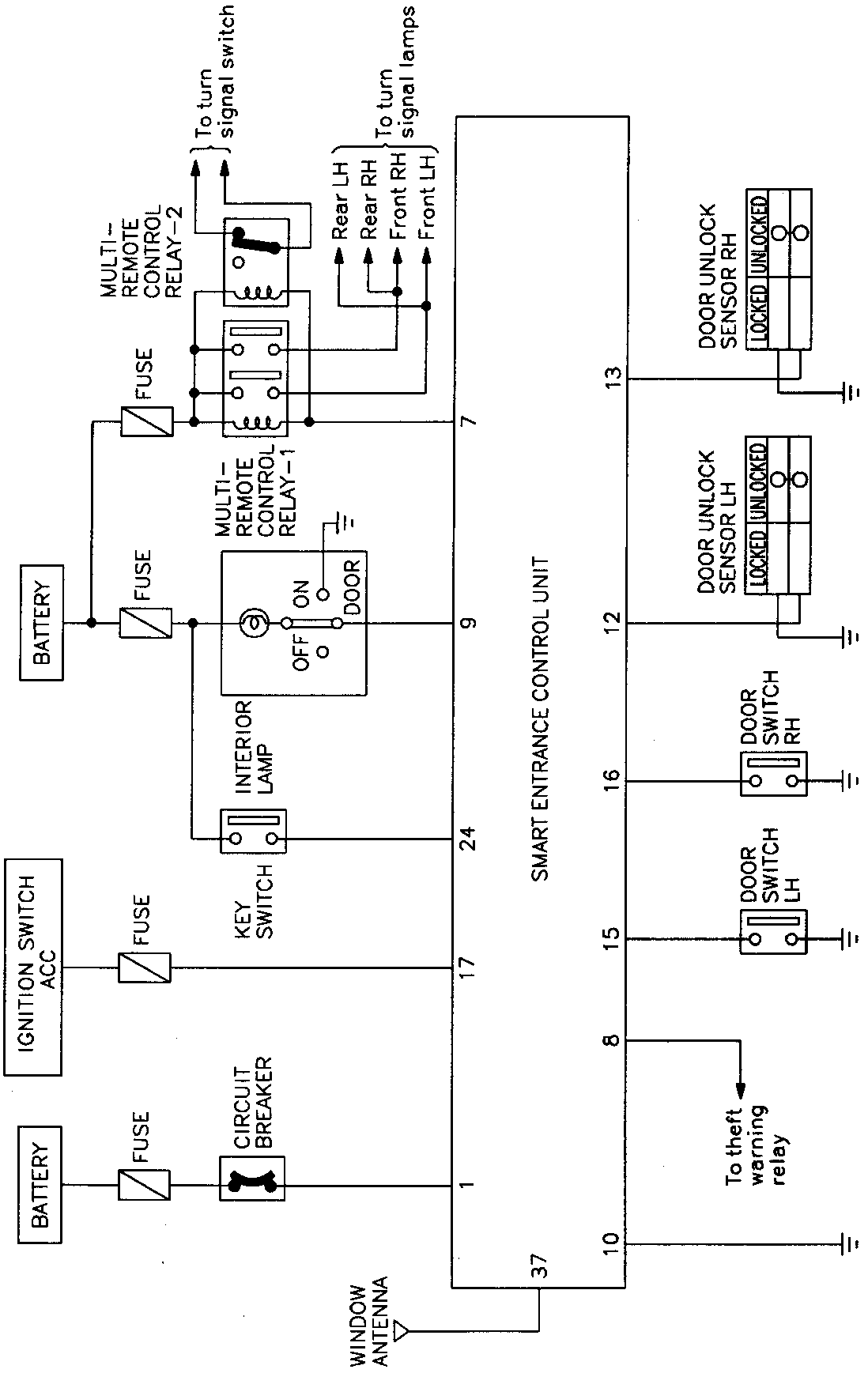
Hazard lamp operation

When the following input signals are all supplied:
- key switch OFF (when ignition key is not inserted in key cylinder);
- door switch CLOSED (when all the doors are closed);
- door lock actuator (door unlock sensor) LOCKED (when all the doors are locked);

multi-remote control system outputs the following ground signals with input of LOCK signal from remote controller:
- to multi-remote control relays-1 and 2 terminal ②;
- through smart entrance control unit terminal ⑦.

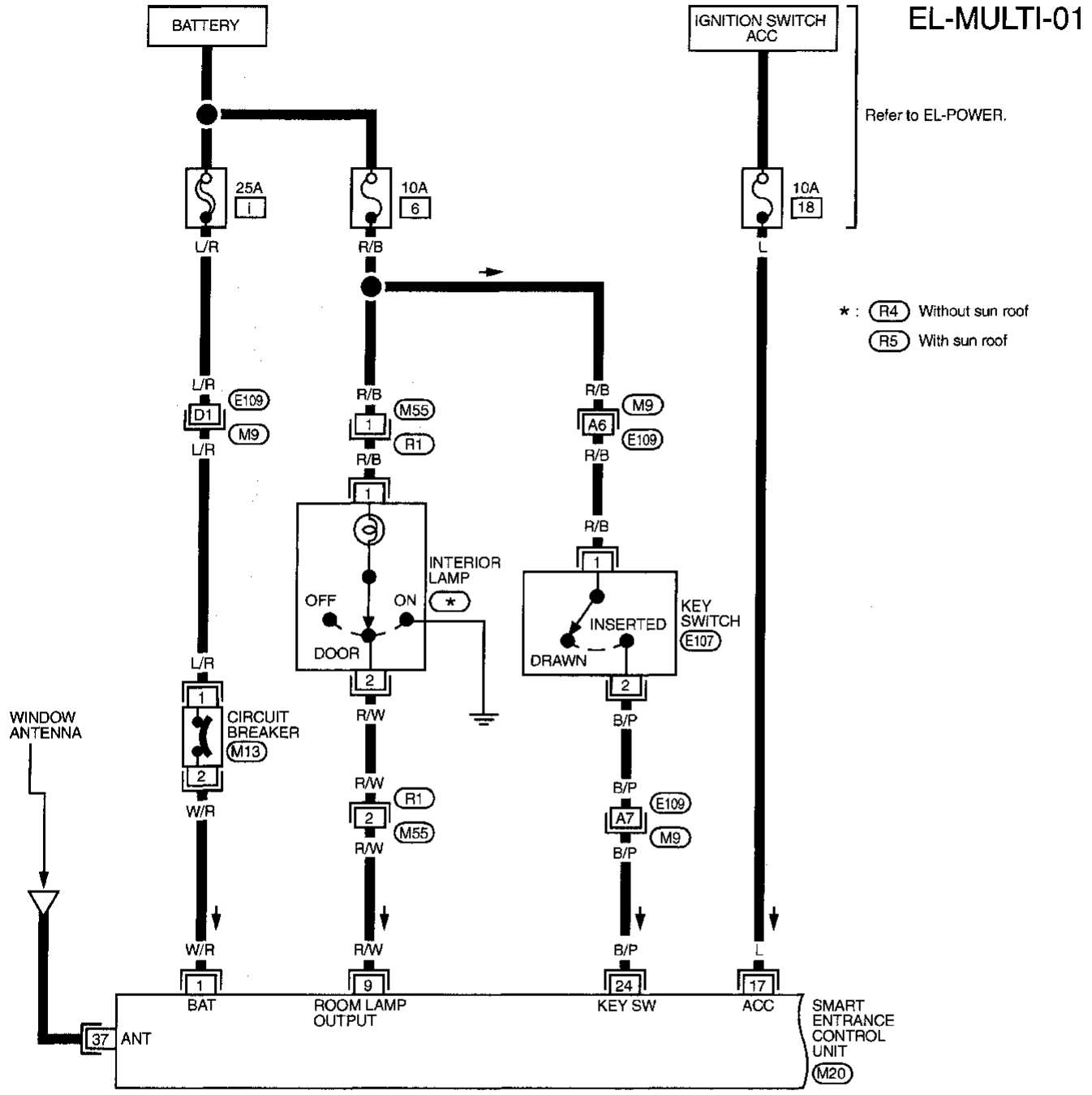
As a result, multi-remote control relay-1 is energized, and hazard warning lamps flash on and off.
For detailed description, refer to "Turn Signal and Hazard Warning Lamps" (EL-61).

Schematic

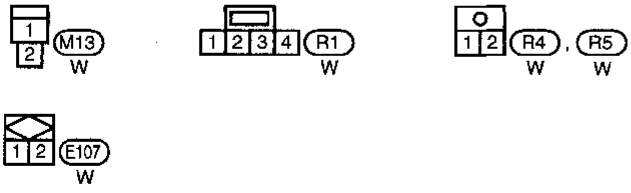


MBF425B

Wiring Diagram — MULTI —



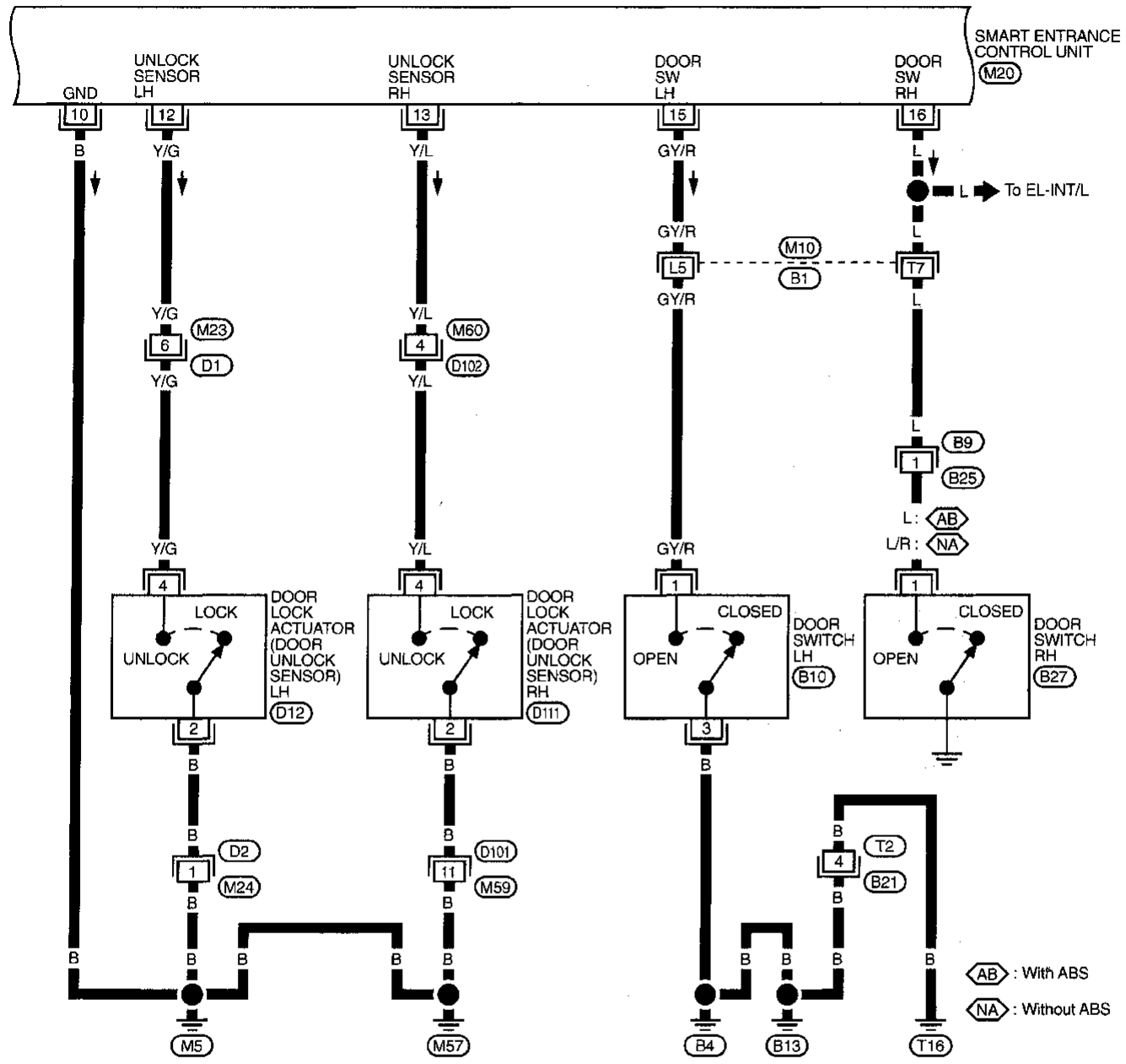
Refer to last page (Foldout page).
M9 , E109
M20



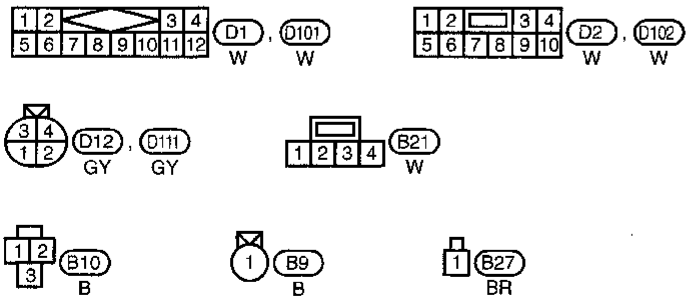
MEL337F

Wiring Diagram — MULTI — (Cont'd)

EL-MULTI-02



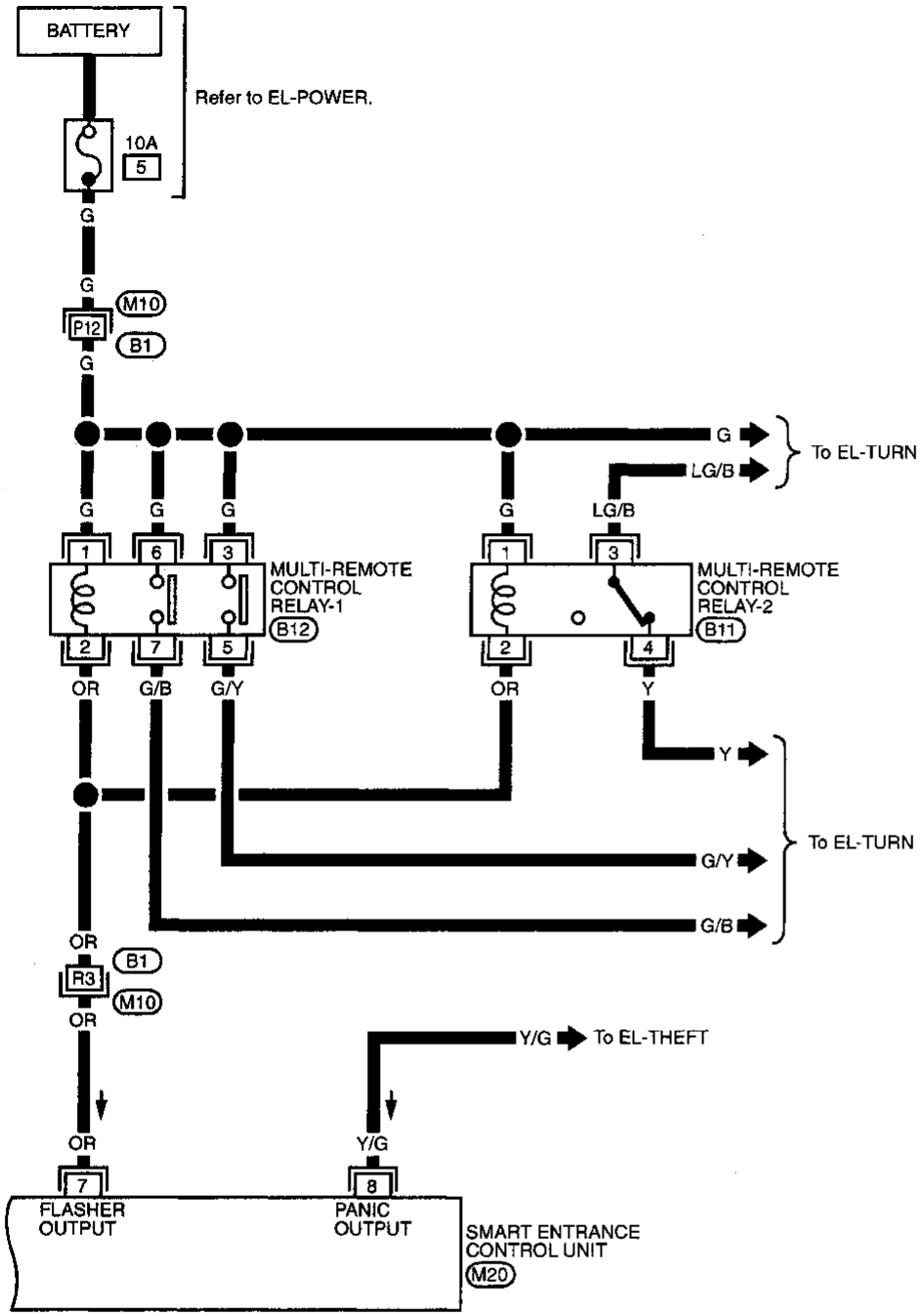
Refer to last page (Foldout page).
M10 , B1
M20

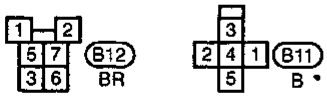


MEL338F

Wiring Diagram — MULTI — (Cont'd)

EL-MULTI-03





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

MEL339F

Input/Output Operation Signal

SMART ENTRANCE CONTROL UNIT

Terminal No.	Connections	Operated condition		Voltage (V) (Approximate values)
1	Power source (C/B)	—		12V
2	Passenger door lock motor	Door lock & unlock switch	Unlocked	12V
3	Driver door lock motor		Free	0V
4	Driver and passenger door lock motors	Door lock & unlock switch	Locked	12V
			Free	0V
7	Multi-remote control relays -1 and 2	When doors are locked using remote controller		12V → 0V
8	Theft warning relay	When panic alarm is operated using remote controller		12V → 0V
9	Interior lamp	When interior lamp is operated using remote controller. (Lamp switch in "DOOR" position)		12V → 0V
10	Ground	—		—
11	Ignition switch (ON)	"ON" position		12V
12	Driver door unlock sensor	Driver door: Locked → Unlocked		12V → 0V
13	Passenger door unlock sensor	Passenger door: Locked → Unlocked		12V → 0V
15	Driver door switch	OFF (Closed) → ON (Open)		12V → 0V
16	Passenger door switch	OFF (Closed) → ON (Open)		12V → 0V
17	Ignition switch (ACC)	"ACC" position		12V
18	Door lock & unlock switches	Neutral → Locks		12V → 0V
19	Door lock & unlock switches	Neutral → Unlocks		12V → 0V
20	Rear window defogger switch	OFF → ON		12V → 0V
21	Seat belt switch	Unfasten → Fasten		0V → 12V
23	Warning buzzer	OFF → ON		12V → 0V
24	Ignition key switch (Insert)	IGN key inserted → IGN key removed from IGN key cylinder		12V → 0V
25	Headlamp switch (1ST)	1ST, 2ND positions: ON → OFF		12V → 0V
26	Trunk switch	ON (Open) → OFF (Closed)		0V → 12V
27	Trunk key unlock switch	OFF (Neutral) → ON (Unlocked)		5V → 0V
28	Door key cylinders tamper switch	OFF → ON		5V → 0V
29	Hood open signal	ON (Open) → OFF (Closed)		0V → 5V
30	Door key cylinder lock switch	OFF (Neutral) → ON (Locked)		5V → 0V
31	Door key cylinder lock switch	OFF (Neutral) → ON (Unlocked)		5V → 0V
32	Theft warning relay (Starter cut)	OFF → ON		12V → 0V
33	Theft warning indicator	Goes off → Illuminates		12V → 0V
36	Rear defogger relay	OFF → ON		12V → 0V
37	Multi-remote antenna	—		—

Trouble Diagnoses

TROUBLE SYMPTOM

- All functions of remote control system do not operate.

CHECK REMOTE CONTROLLER BATTERY.
Refer to DIAGNOSTIC PROCEDURE 1.
→ NG → Replace battery.
↓ OK

Enter the Identity (ID) code of new remote controller and recheck operation to see if the trouble is indicated.
→ NG → Go to DIAGNOSTIC PROCEDURE 2.
↓ OK

Replace the multi-remote controller.

- Some functions of multi-remote controller do not operate.

① DOOR LOCK OR UNLOCK DOES NOT FUNCTION.
(Pressing lock or unlock button of remote controller normally locks or unlocks all doors.)
• Check if power door lock system functions with door lock & unlock switch.
→ No → Check "POWER DOOR LOCK" system.

OR

② HAZARD INDICATOR DOES NOT FLASH TWICE WHEN PRESSING LOCK BUTTON OF REMOTE CONTROLLER.
• Check if hazard indicator flashes with hazard switch.
If check is OK, Go to DIAGNOSTIC PROCEDURE 3.
→ No → Check "Hazard indicator lamp" circuit.

OR

③ INTERIOR LAMP DOES NOT TURN ON FOR 30 SECONDS WHEN PRESSING UNLOCK BUTTON OF REMOTE CONTROLLER.
• Check if the interior lamp switch is in the "door" position, the lamp illuminates when a door is open.
If check is OK, Go to DIAGNOSTIC PROCEDURE 4.
→ No → Check "Interior lamp" circuit.

OR

④ PANIC ALARM (HORN AND HEADLAMP) DOES NOT ACTIVATE WHEN PANIC ALARM BUTTON IS CONTINUOUSLY PRESSED FOR MORE THAN 1.5 SECONDS.
• Check if horn and headlamps activate when test is conducted as follows:
1. Open the driver's window.
2. Close all doors.
3. Lock doors with door key inserted into key cylinder.
4. Wait for about 30 seconds to make sure that the lighted "SECURITY" warning lamp begins to blink.
5. Manually unlock with driver's door lock knob, then panic alarm should activate. (The alarm will stop when door is locked and unlocked with the key.)
→ No → Check "THEFT WARNING" system.

↓ Yes

Enter the identity (ID) code of new remote controller and recheck operation to see if the same trouble as indicated above occurs.
→ Yes → Check multi-remote controller operation again.
If necessary, replace Smart Entrance Control Unit.
↓ No

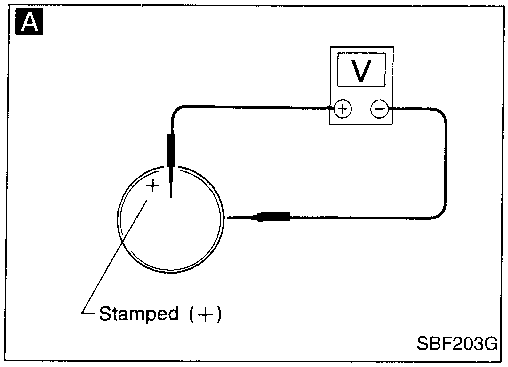
Replace the multi-remote controller.

Note: The multi-remote control system does not activate with the ignition key inserted in the ignition key cylinder.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 1

Check remote controller battery.



A

CHECK REMOTE CONTROLLER BATTERY.

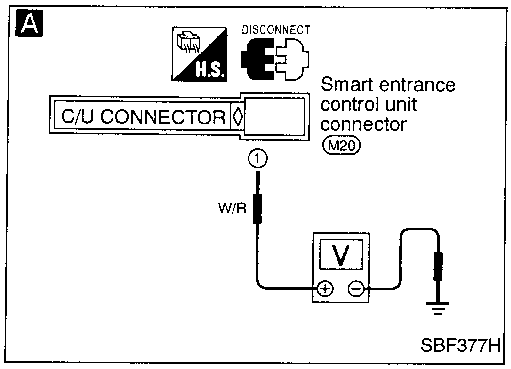
Remove battery and measure voltage between battery positive and negative terminals ⊕ and ⊖.

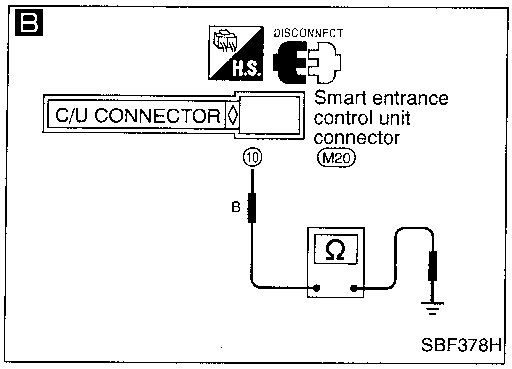
Measuring terminal		Standard value
⊕	⊖	
Battery positive terminal ⊕	Battery negative terminal ⊖	3V or more

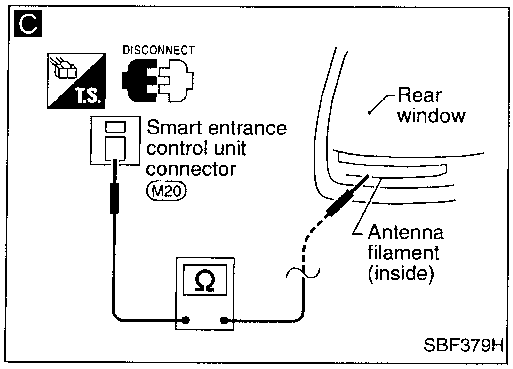
Note:
Remote controller does not function if battery is not set correctly.

DIAGNOSTIC PROCEDURE 2

All remote controls do not function even if remote controller is operated properly.







A

CHECK MAIN POWER SUPPLY AND GROUND CIRCUIT.

1) Remove key from ignition.
2) Disconnect connector from control unit. Check voltage between control unit terminal (1) and GND.

Battery voltage should exist.

NG → Check power supply harness.

OK ↓

B

Check continuity between terminal (10) and GND.

Continuity should exist.

NG → Check GND harness.

OK ↓

C

CHECK ANTENNA CIRCUIT.

Disconnect 1-pin connector from control unit.
Check continuity between a terminal and filament on the rear window.

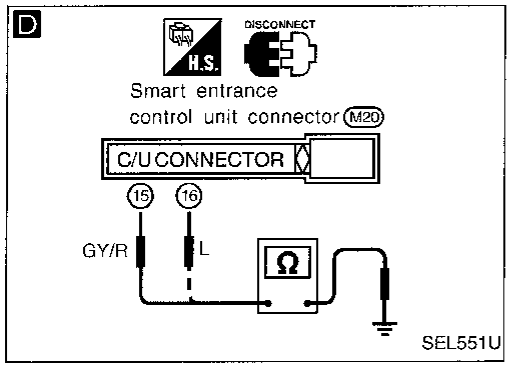
Continuity should exist.

NG → Check antenna circuit. (Refer to REAR WINDOW DEFOGGER "Filament Repair".)

OK ↓

Ⓐ
(Go to next page.)

Trouble Diagnoses (Cont'd)



Ⓐ

D

CHECK DOOR SWITCH CIRCUIT.

Check continuity between control unit terminal ⑮ and GND, ⑯ and GND.

	Terminals	Condition	Continuity
Driver side door switch	⑮ - GND	Open	Yes
		Close	No
Passenger side door switch	⑯ - GND	Open	Yes
		Close	No

NG → Check the following.
- Door switch
- Door switch ground circuit (Driver side) or door switch case ground condition (Passenger side)
- Harness for open or short

OK ↓

E

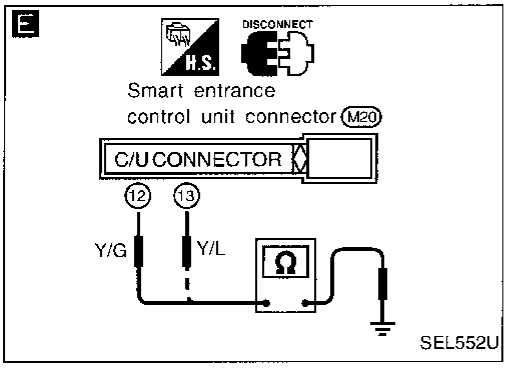
CHECK UNLOCK SENSOR CIRCUIT.

Check continuity between control unit terminal ⑫ and GND, ⑬ and GND.

	Terminals	Condition	Continuity
Driver side door unlock sensor	⑫ - GND	Unlock	Yes
		Lock	No
Passenger side door unlock sensor	⑬ - GND	Unlock	Yes
		Lock	No

No → Check the following.
- Door unlock sensor
- Door unlock sensor ground circuit
- Harness for open or short

Yes ↓



F

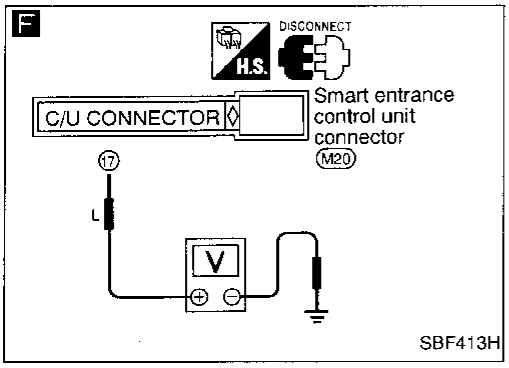
CHECK IGNITION SWITCH "ACC" CIRCUIT.

Check voltage between control unit terminal ⑰ and GND while ignition switch is "ACC".

Does battery voltage exist?

No → Check ignition switch "ACC" circuit.

Yes ↓



G

KEY SWITCH INPUT SIGNAL CHECK.

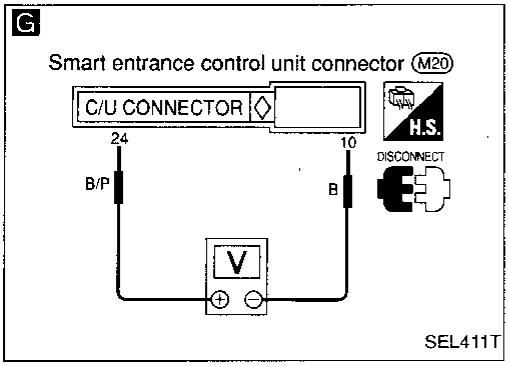
Check voltage between control unit terminals ㉔ and ⑩.

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

NG → Check the following.
- 10A fuse (No. 6, located in fuse block)
- Key switch
- Harness for open or short

OK ↓

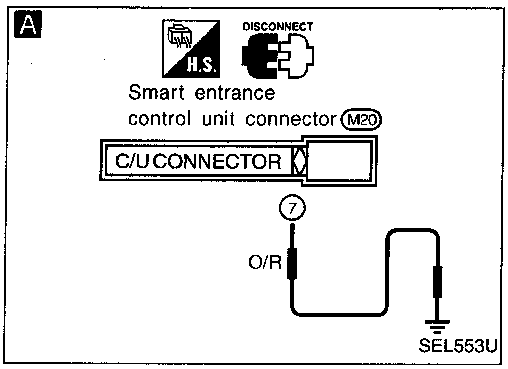
Check operation parts in multi-remote control system for function.

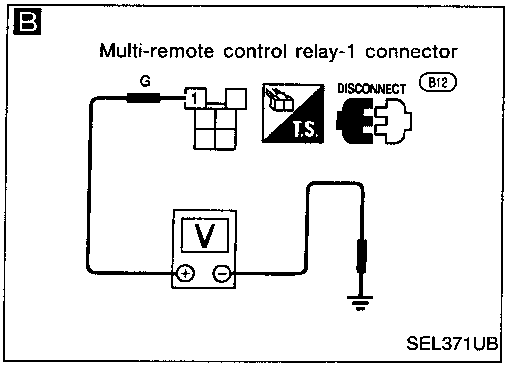


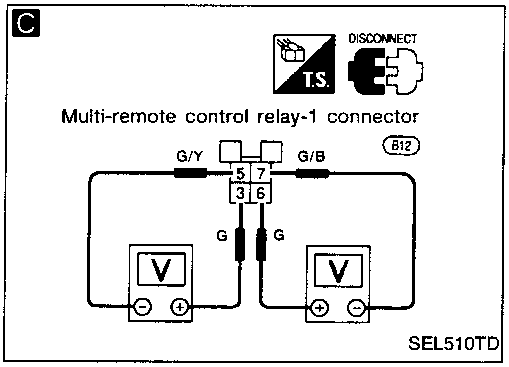
Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 3

Hazard indicator does not flash twice when pressing lock button of remote controller. Everything else functions.







A

CHECK HAZARD INDICATOR OPERATION.
1. Disconnect control unit connector.
2. Apply ground to control unit terminal ⑦.

Does hazard indicator illuminate?

Yes → Check multi-remote controller operation again.

No ↓

Check multi-remote control relay-1. — NG → Replace.

OK ↓

B

CHECK POWER SUPPLY FOR MULTI-REMOTE CONTROL RELAY-1.
1. Disconnect theft warning lamp relay connector.
2. Measure voltage between terminal ① and body ground.

Positive battery voltage should exist.

NG → Check 10A fuse (No. 5, located in fusible link box).

OK ↓

C

CHECK MULTI-REMOTE CONTROL RELAY-1 CIRCUIT.
1. Disconnect theft warning lamp relay connector.
2. Measure voltage between terminals ③ and ⑤.

Positive battery voltage should exist.

3. Measure voltage between terminals ⑥ and ⑦.

Positive battery voltage should exist.

NG → Check harness for open or short.

OK ↓

Check multi-remote control relay-2. — NG → Replace.

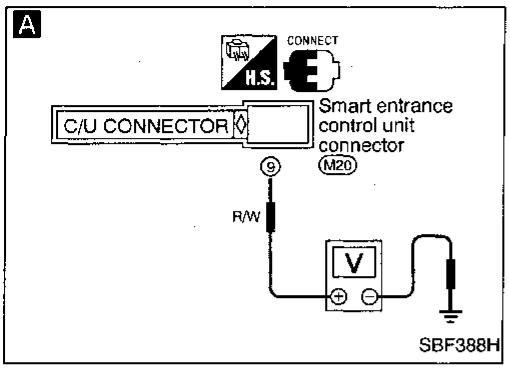
OK ↓

Check harness for open or short.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 4

Interior lamp does not turn on for 30 seconds when pressing unlock button of remote controller. Everything else functions.



A

CHECK INTERIOR LAMP CIRCUIT.
When interior lamp switch is "DOOR" position, check voltage across control unit terminal (9) and GND.
Does battery voltage exist?

No → Repair harness between control unit connector and interior lamp connector.

Yes ↓

A

Push unlock button of remote controller and check voltage across control unit terminal (9) and GND.
Is voltage approx. 0V?

No → Replace smart entrance control unit.

Yes ↓

Check system again.

Replacing Remote Controller or Control Unit

If the remote controller or the control unit needs to be replaced or if an additional remote controller needs to be set, enter the identity (ID) code manually.

ID Code Entry Procedure

To enter the ID code, follow this procedure.

"Setting mode":

Three steps must be followed to establish the "setting mode".

(1) Close and lock all doors.
(2) Insert and remove the key from the ignition more than six times within 10 seconds. (The hazard warning lamp will then flash twice.)

- **At this time, the original ID codes are eliminated.**

ID code entry:

(3) Turn ignition key to "ACC" position.
(4) Push lock button on the new remote controller once (for example, if door is locked using the remote controller during this ID code entry enable state, a new ID code can be entered).

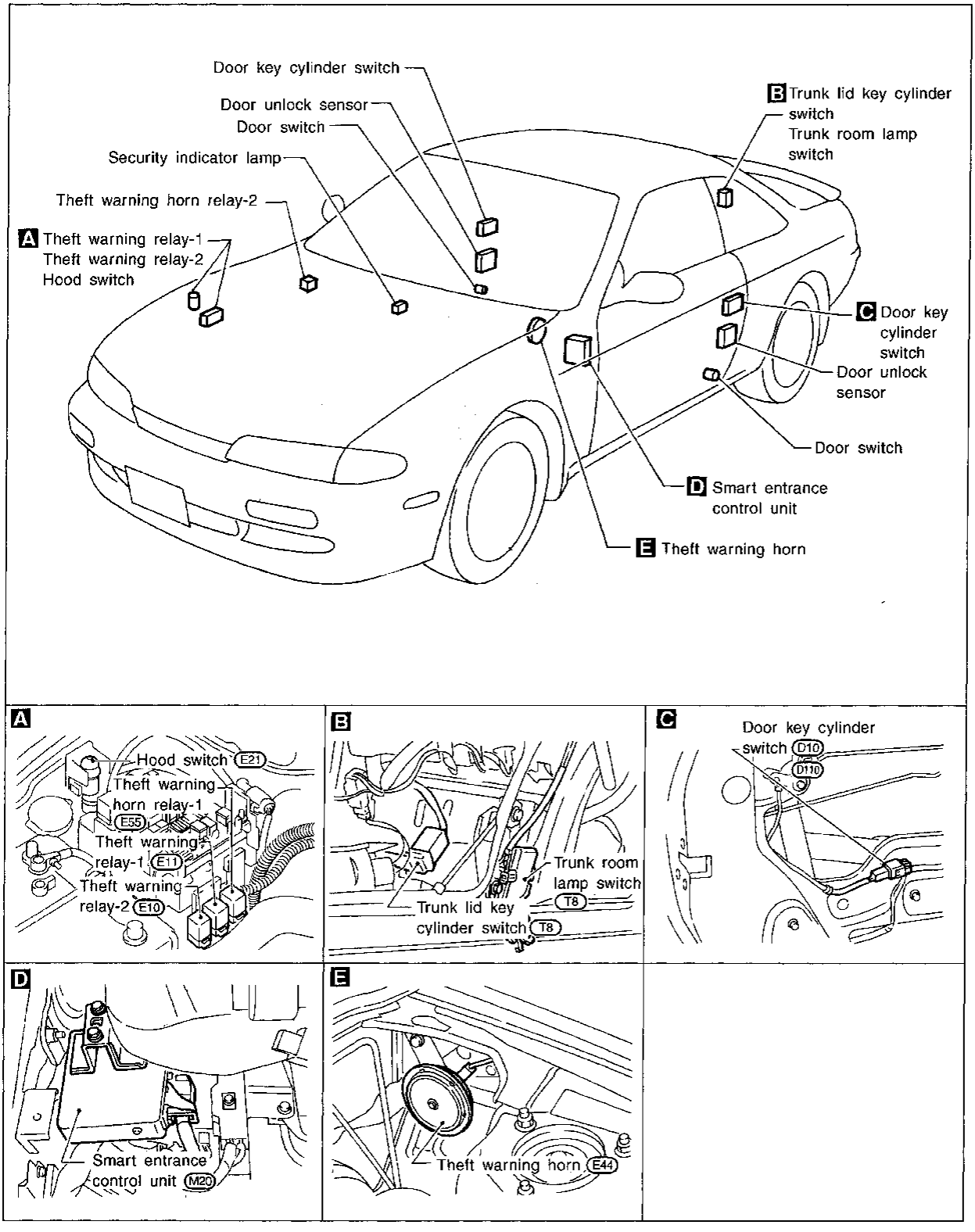
- **At this time, the new ID code is entered. (The hazard warning lamp will then flash twice.)**

(5) If you need to enter additional remote controllers (including the original), release the driver's door lock, then lock again with door lock knob.
(6) Push lock button on the new additional remote controller once.
(7) This ID code entry enable state and setting mode remain until the driver's door is opened.

NOTE

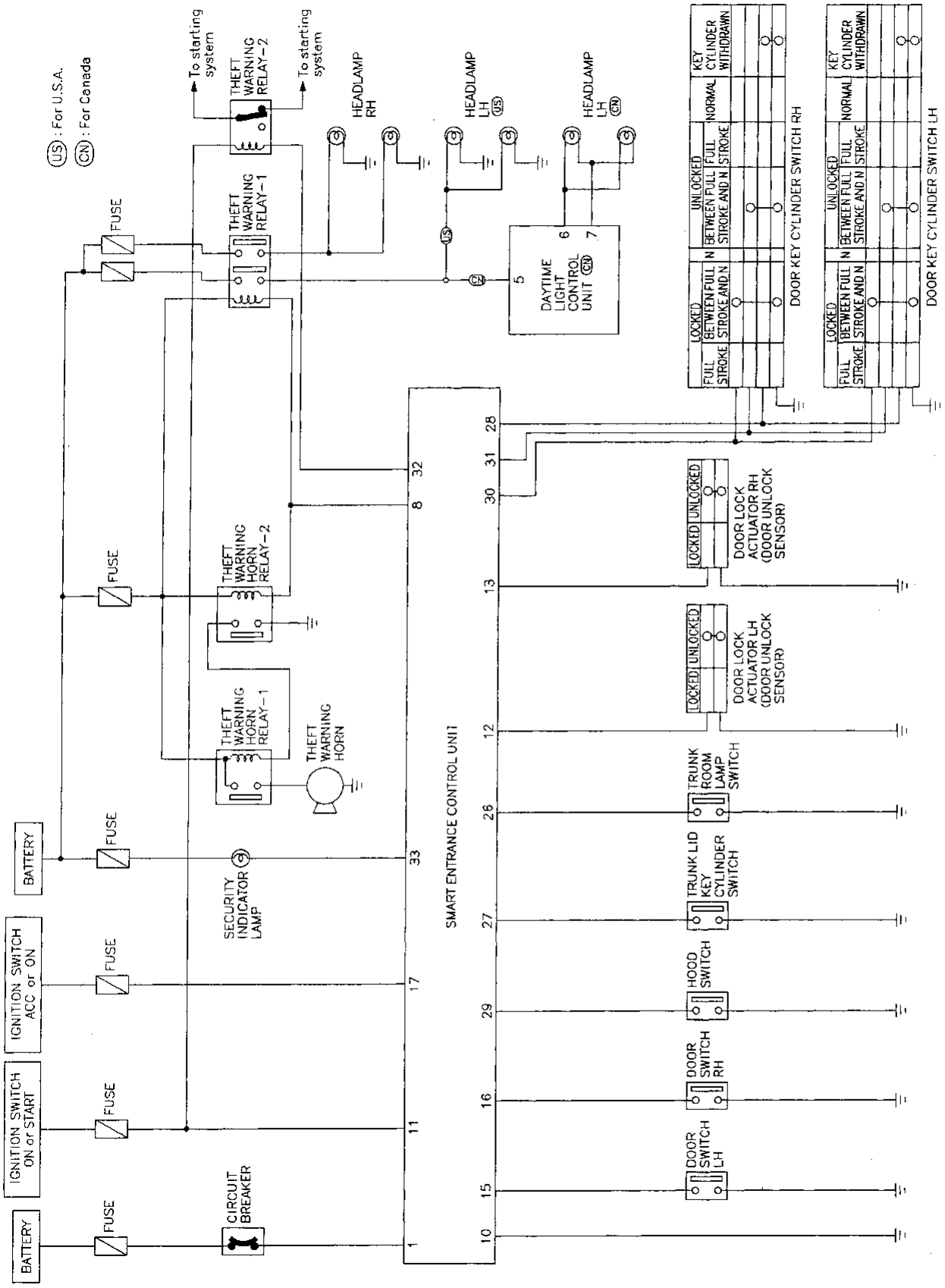
- **If the same ID code that existing in the memory is input, the entry is canceled, and no ID code will be entered.**
- **Entry of maximum four ID codes is allowed and any attempt to enter more will be ignored.**
- **Any ID codes entered after termination of the "setting" mode will not be accepted. Additionally remote control signals will be inhibited when an ID code has not been entered during the "setting" mode.**

Component Parts and Harness Connector Location



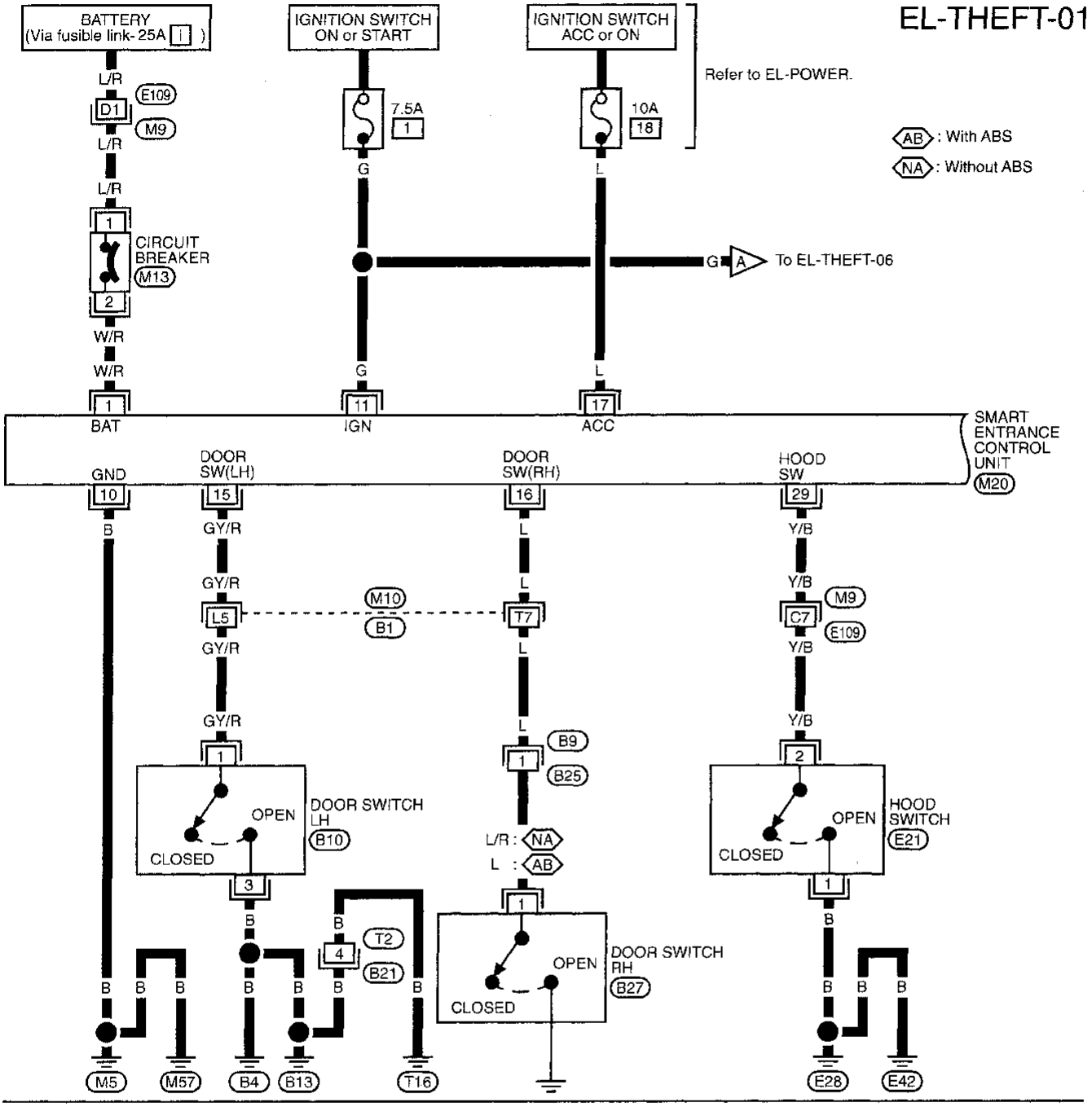
MEL435F

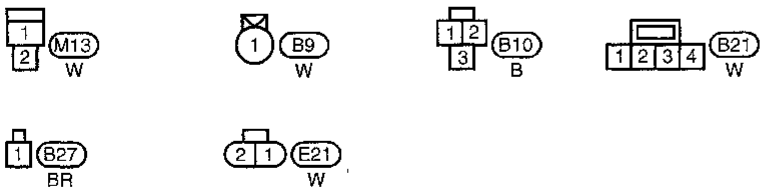
Schematic



MEL340F

Wiring Diagram — THEFT —





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M9 , E109

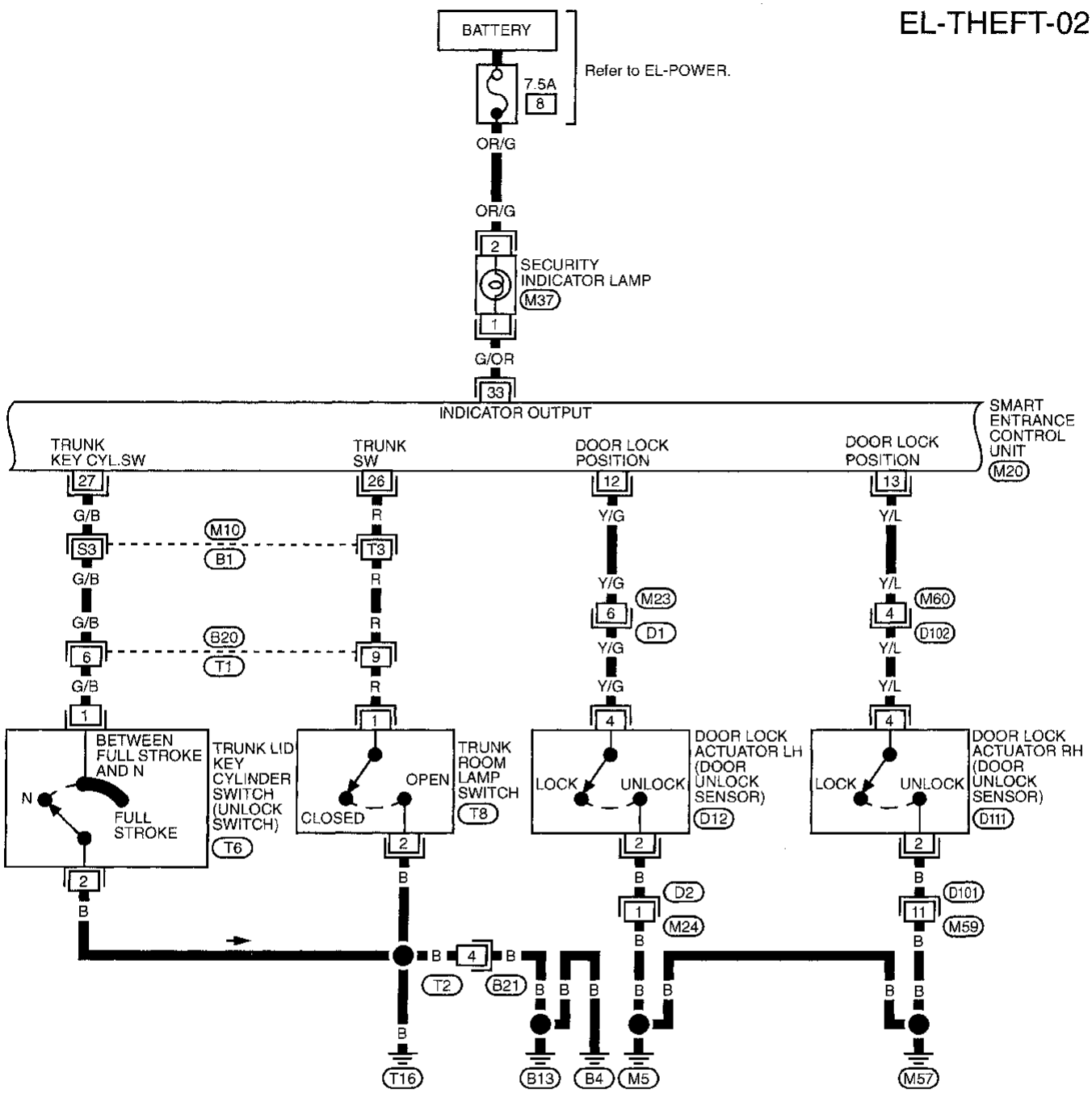
M10 , B1

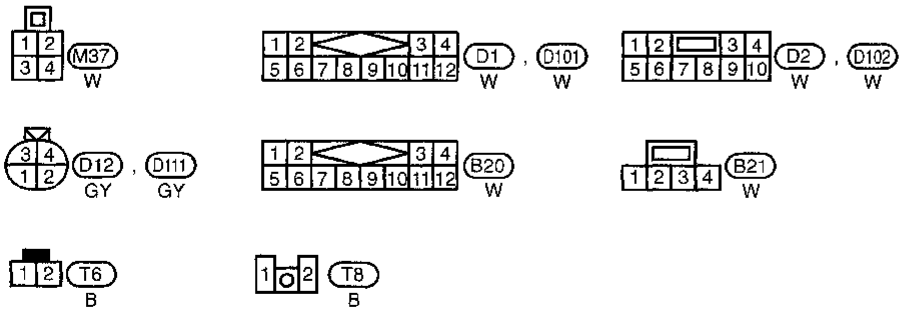
M20

MEL341F

Wiring Diagram — THEFT — (Cont'd)

EL-THEFT-02





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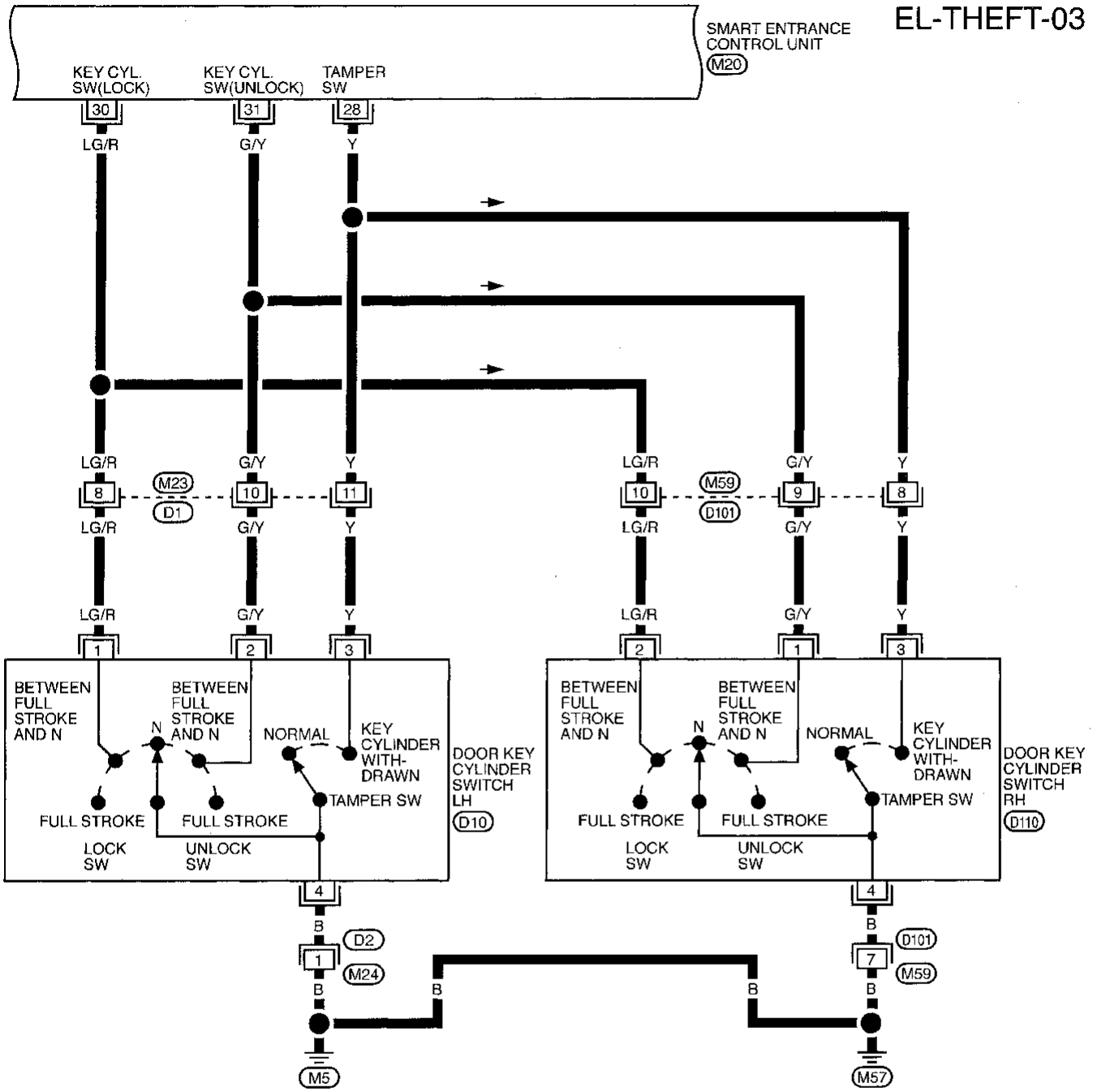
M10 , B1
M20

MEL342F

Wiring Diagram — THEFT — (Cont'd)

EL-THEFT-03



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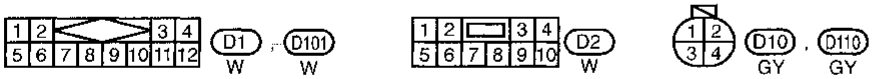
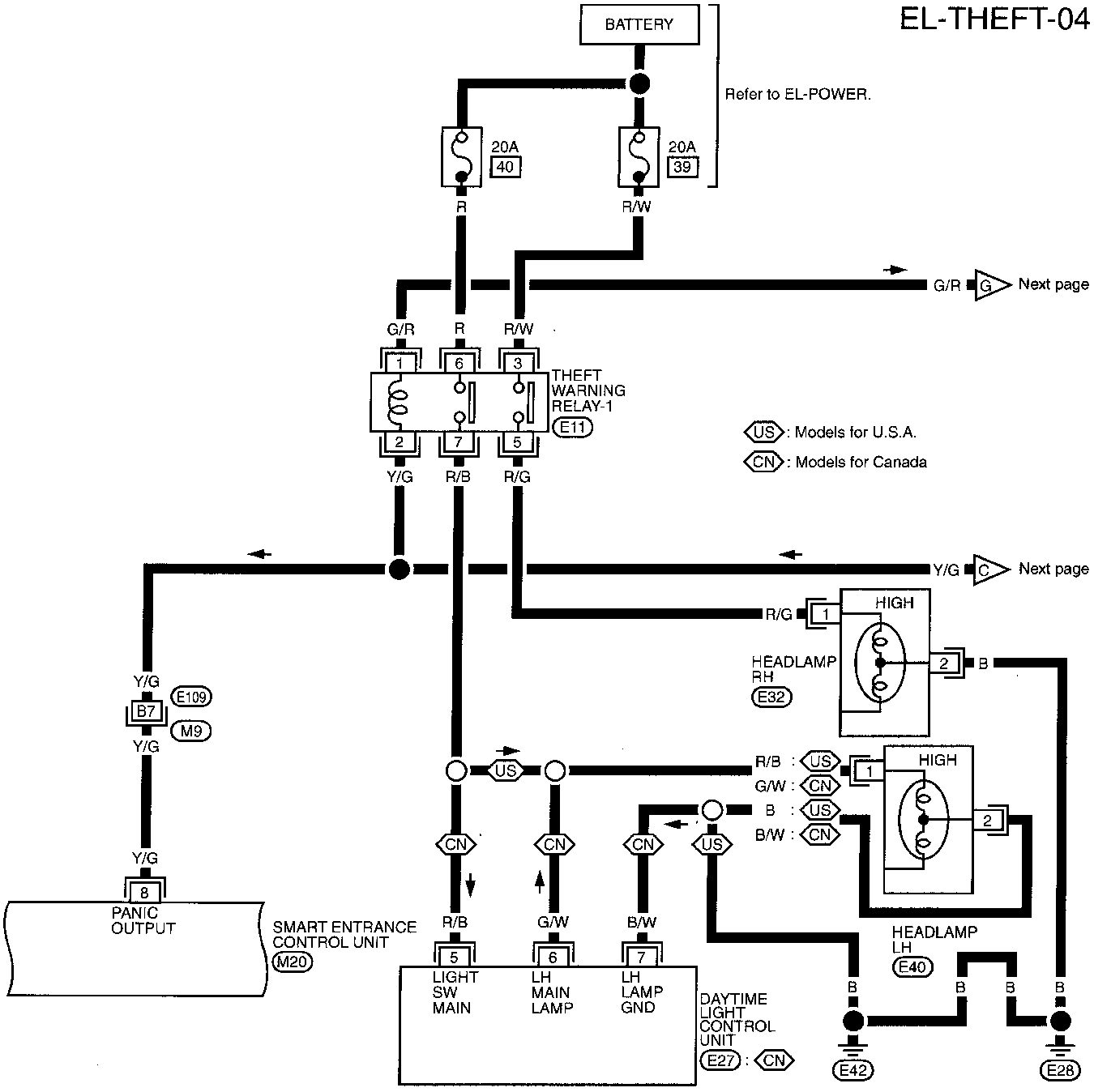
M20

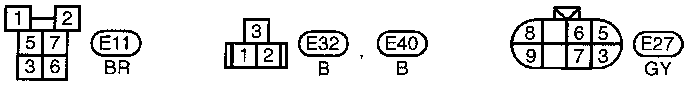


MEL343F

Wiring Diagram — THEFT — (Cont'd)

EL-THEFT-04





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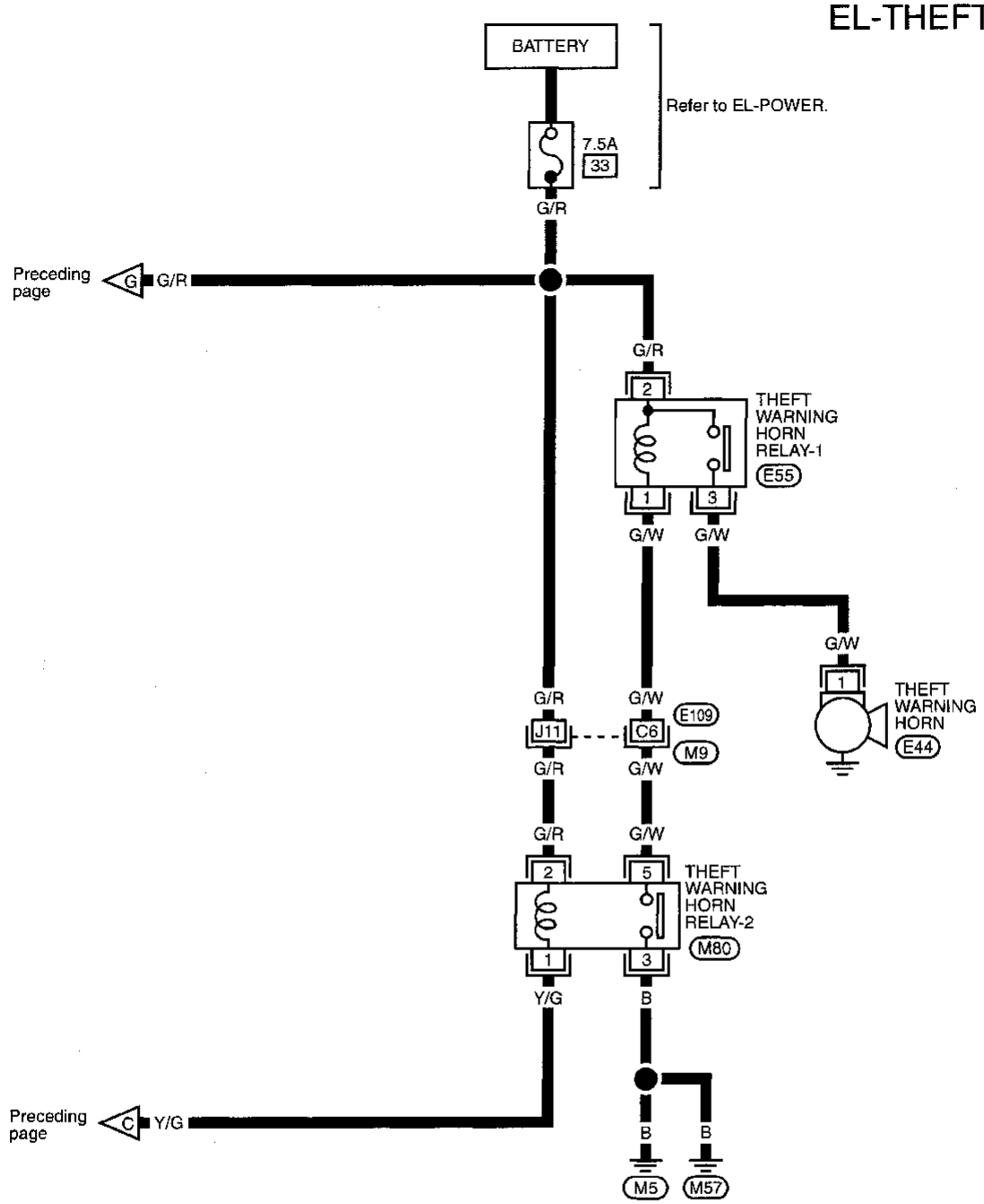
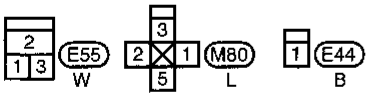
M9 , E109
M20

MEL344F

Wiring Diagram — THEFT — (Cont'd)

EL-THEFT-05



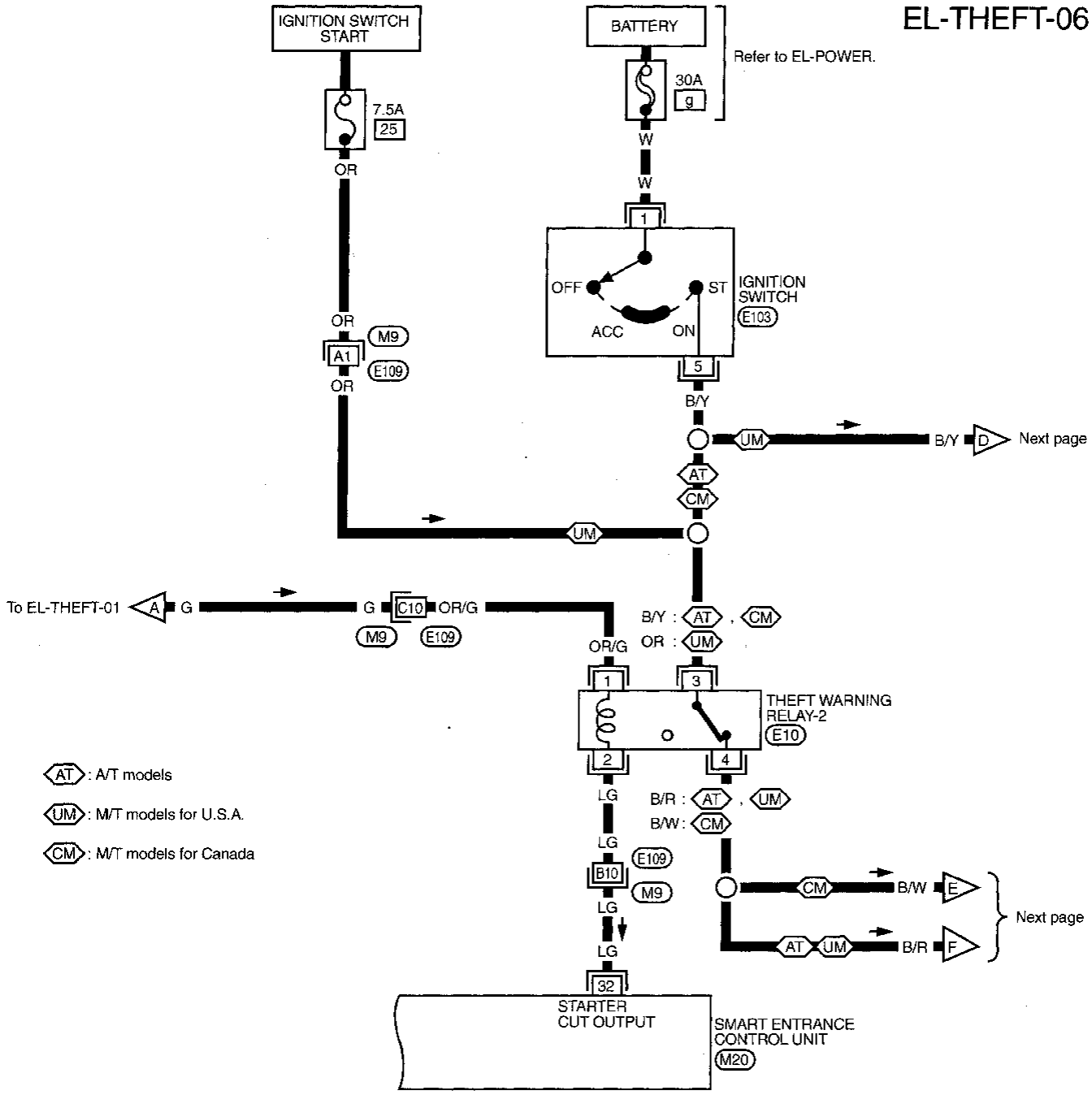


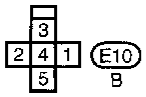
Refer to last page (Foldout page).
M9 , E109

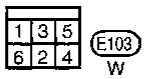
MEL345F

Wiring Diagram — THEFT — (Cont'd)

EL-THEFT-06





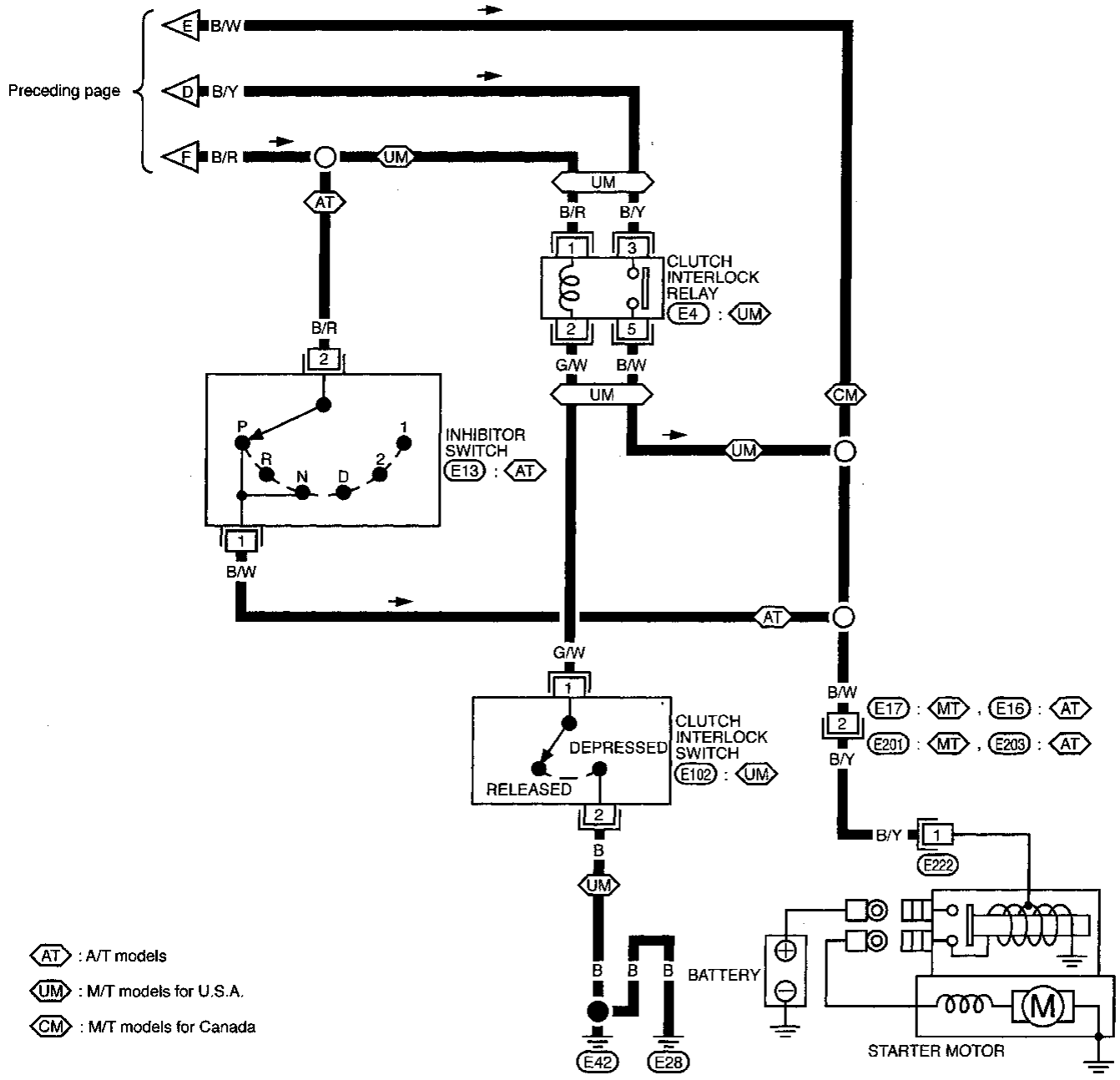


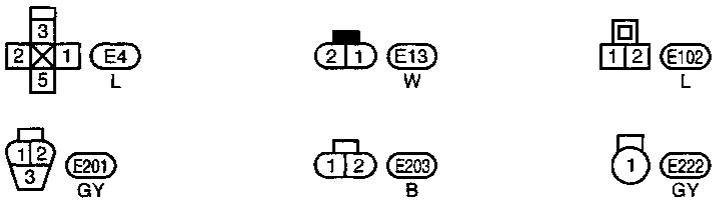
Refer to last page (Foldout page).
M9 , E109
M20

MEL346F

Wiring Diagram — THEFT — (Cont'd)

EL-THEFT-07



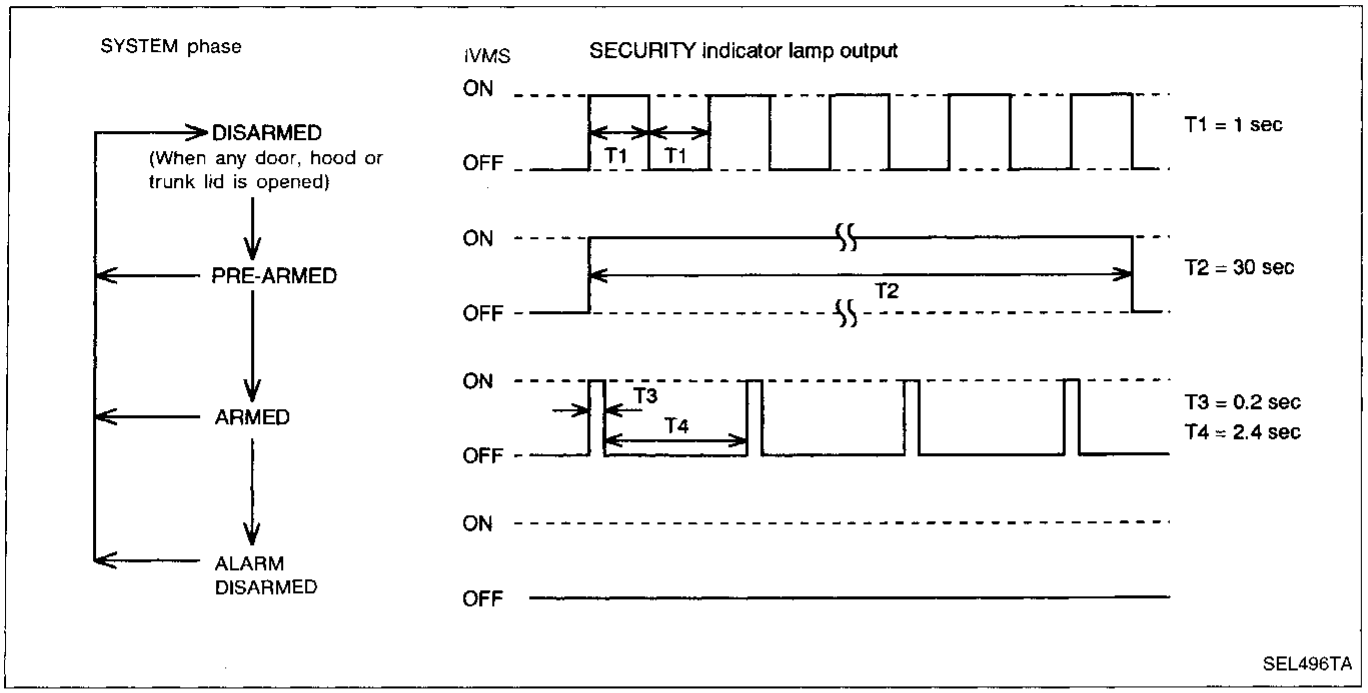


MEL347F

Trouble Diagnoses

DESCRIPTION

1. Operation flow



2. Setting the theft warning system

Initial condition

(1) Close all doors.
(2) Close hood and trunk lid.
(3) Pull key out of ignition.

Disarmed phase

The theft warning system is in the disarmed phase when any door(s), hood or trunk lid is opened. The security indicator lamp blinks every second.

Pre-armed phase and armed phase

The theft warning system turns into the "pre-armed" phase when hood, trunk lid and all doors are closed and locked by key or multi-remote control. (The security indicator lamp illuminates.)
After about 30 seconds, the system automatically shifts into the "armed" phase (the system is set). (The security indicator lamp blinks every 2.4 seconds.)

3. Canceling the set theft warning system

When the following (a) or (b) operation is performed, the armed phase is canceled.
(a) Unlock the doors or the trunk lid with the key.
(b) Unlock the doors or the trunk lid with the multi-remote controller.

4. Activating the alarm operation of the theft warning system

Make sure the system is in the armed phase. (The security indicator lamp blinks every 2.4 seconds.)
When any of the following operations (a), (b) and (c) is performed, the system sounds the horns and flashes the headlamps for about 2.5 minutes. (At the same time, the system disconnects the starting system circuit.)
The starting system is kept dead even after the alarm turns off.
(a) Engine hood is opened without using the hood opener.
(b) Door is unlocked or trunk lid is opened without using key or multi remote controller.
(c) Key cylinder is pulled out from either front door or the trunk lid.

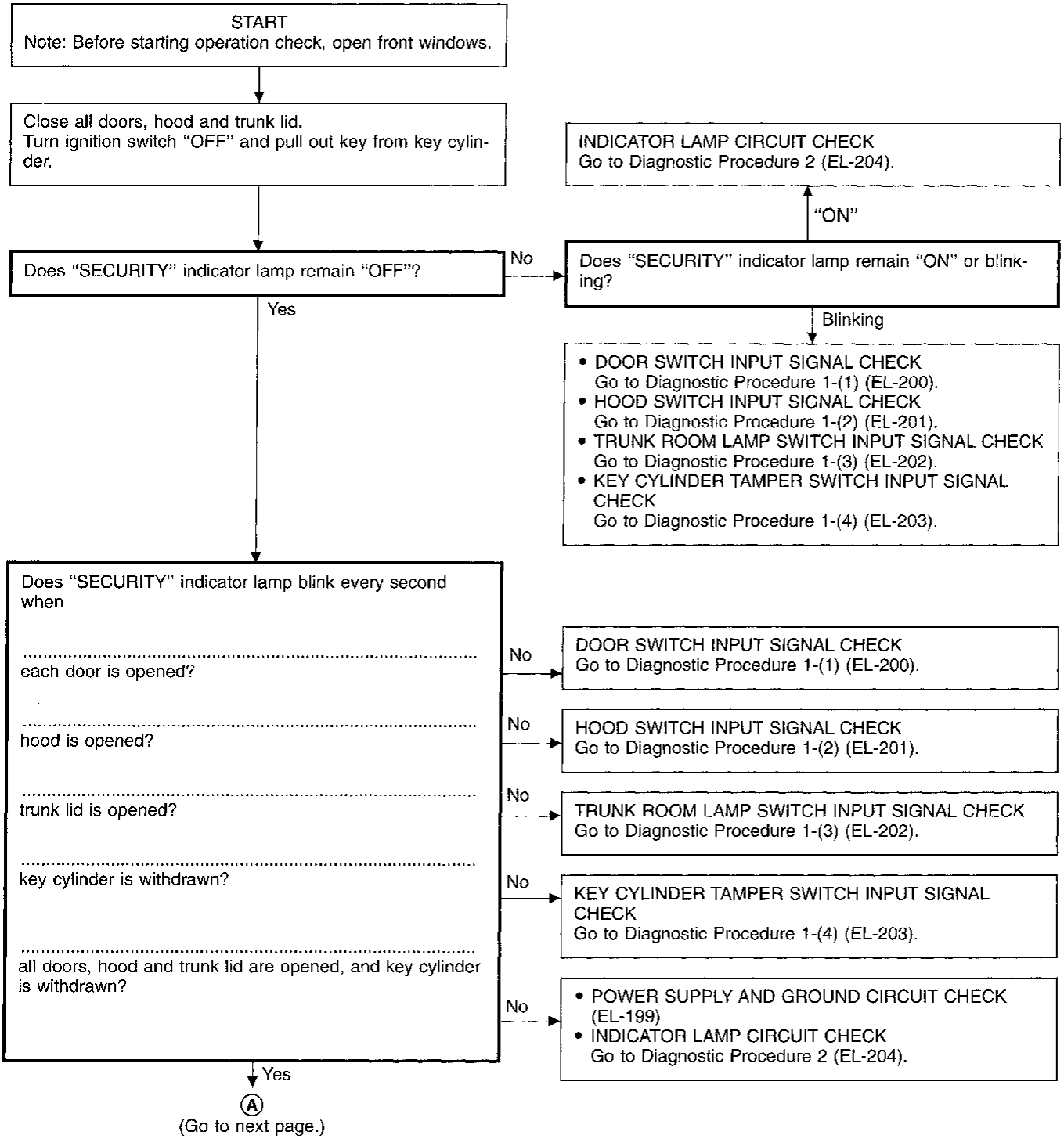
Trouble Diagnoses (Cont'd)

SYSTEM OPERATION CHECK

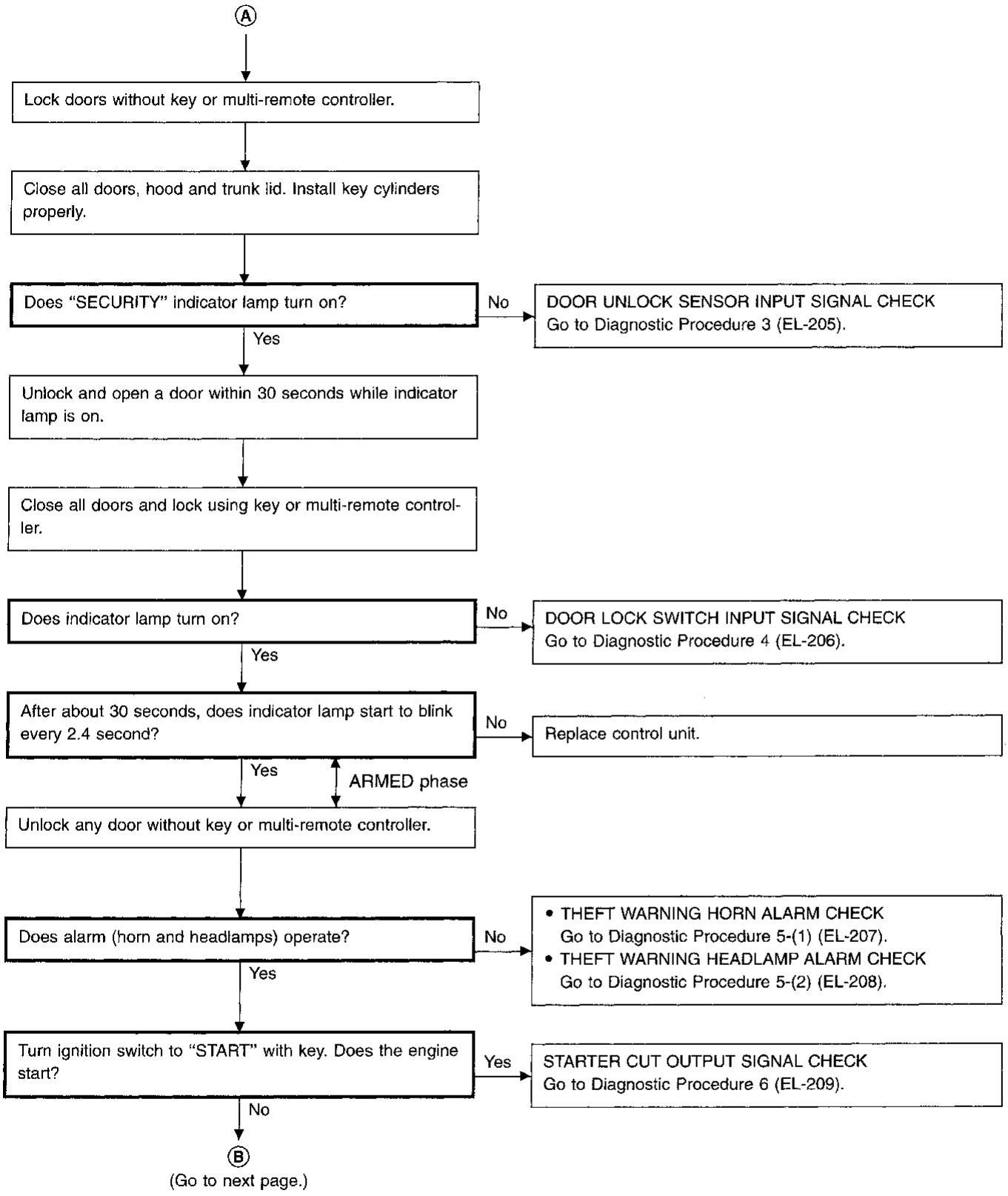
The system operation is canceled by turning ignition switch to "ACC" at any step in the following:

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

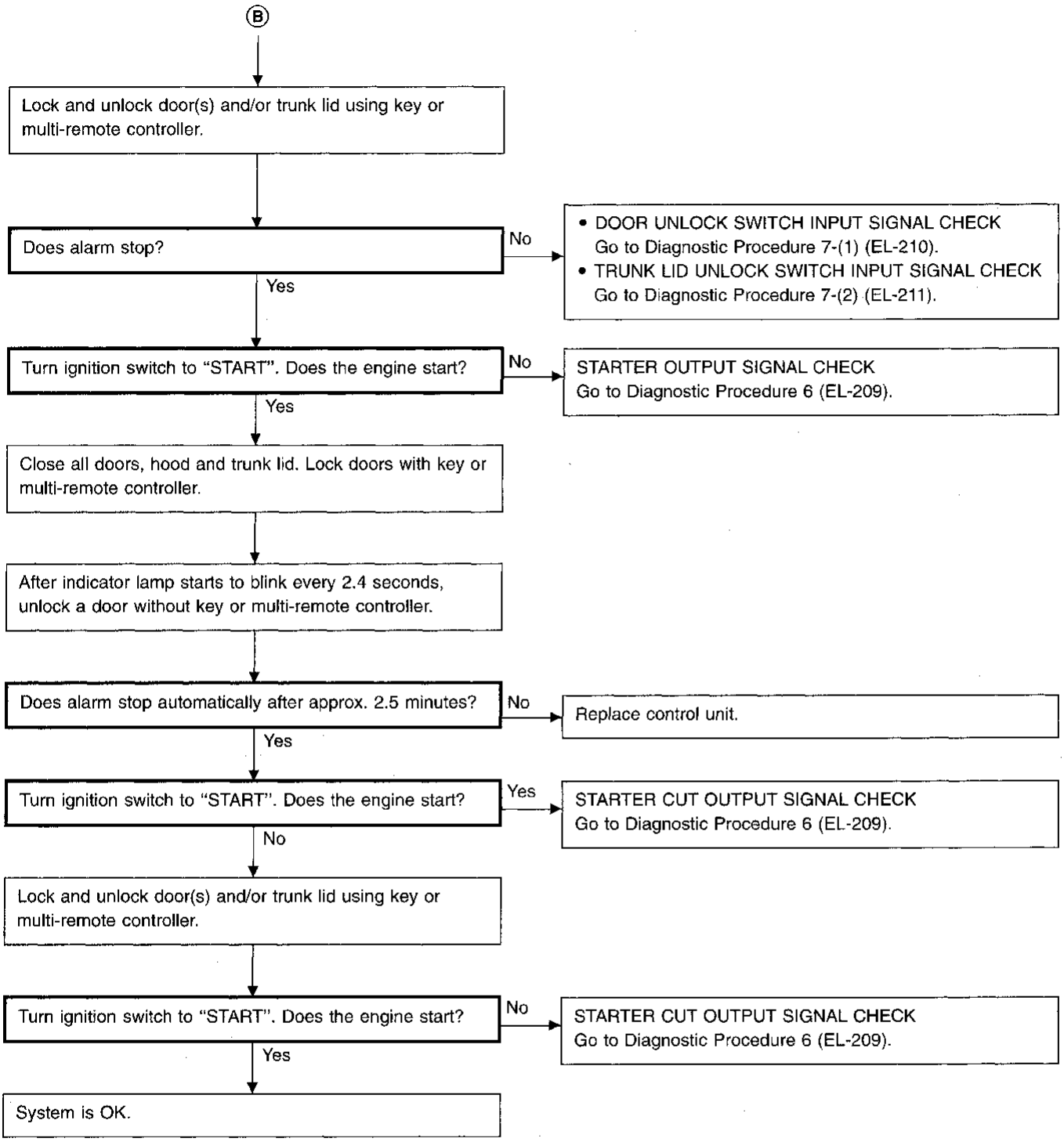
in the following flow chart.



Trouble Diagnoses (Cont'd)

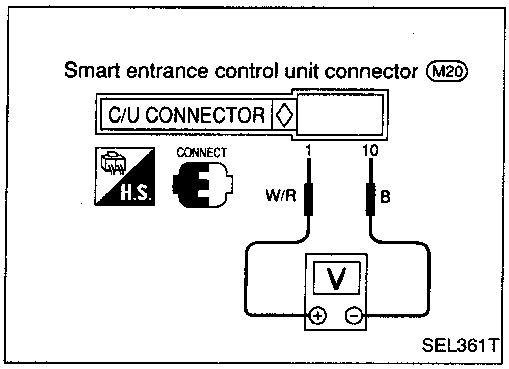


Trouble Diagnoses (Cont'd)



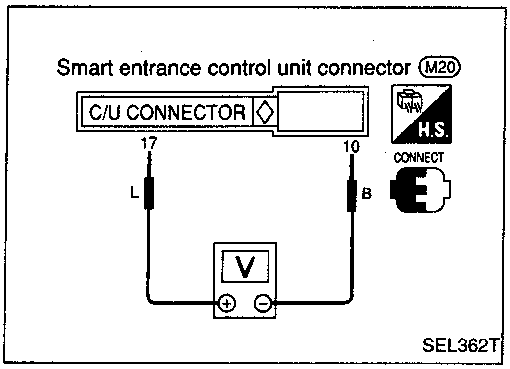
Trouble Diagnoses (Cont'd)

POWER SUPPLY AND GROUND CIRCUIT CHECK



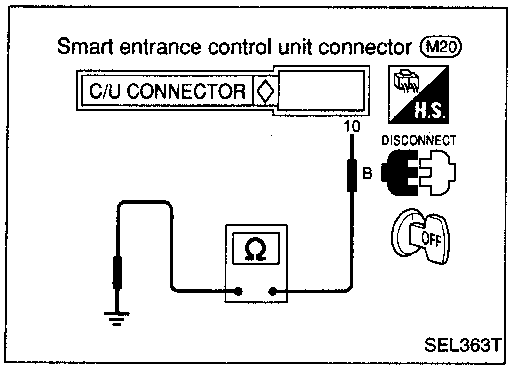
Main power supply circuit check

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

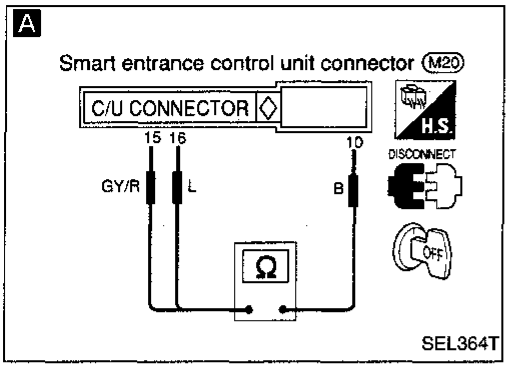
Terminals	Continuity
⑩ - Ground	Yes

Trouble Diagnoses (Cont'd)

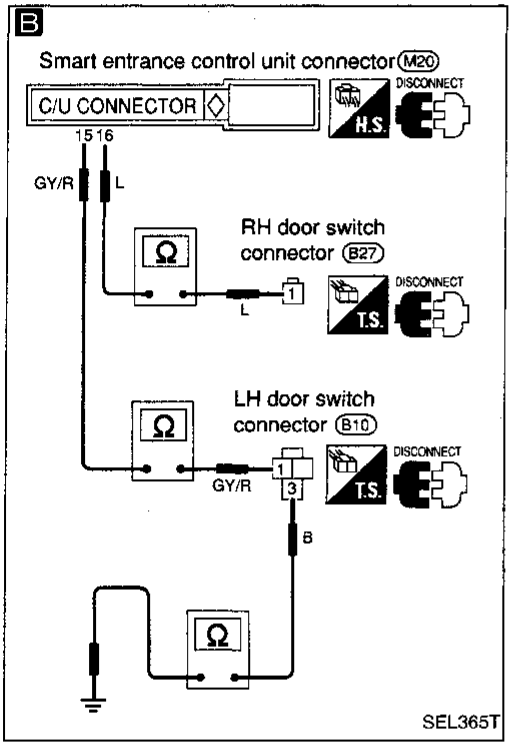
DOOR SWITCH INPUT SIGNAL CHECK

Diagnostic procedure 1-(1)

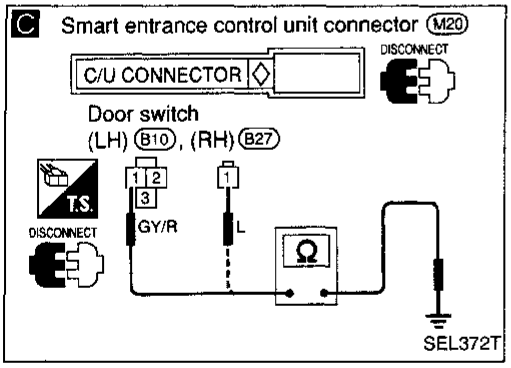
A



B



C



A

CHECK DOOR SWITCH INPUT SIGNAL.
Check continuity between control unit terminals ⑮ or ⑯ and ⑩.

Condition	Continuity between ⑮ and ⑩
LH door is closed.	No
LH door is opened.	Yes

Condition	Continuity between ⑯ and ⑩
RH door is closed.	No
RH door is opened.	Yes

OK → Go to the next procedure.

NG

CHECK DOOR SWITCH.
Refer to "Electrical Components Inspection" (EL-212).

NG → Replace door switch.

OK

B

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

Continuity should exist.

NG → Repair harness or connectors.

OK

C

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

Continuity should not exist.

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

OK

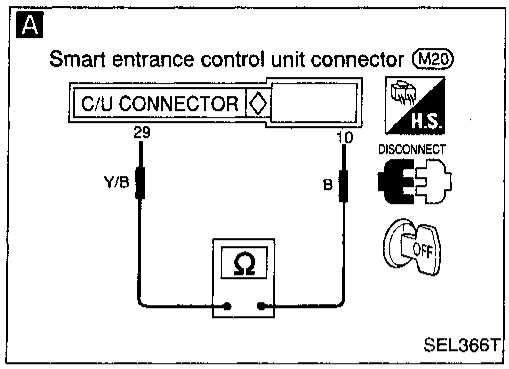
CHECK THE CONNECTIONS AT EACH CONNECTOR.

Trouble Diagnoses (Cont'd)

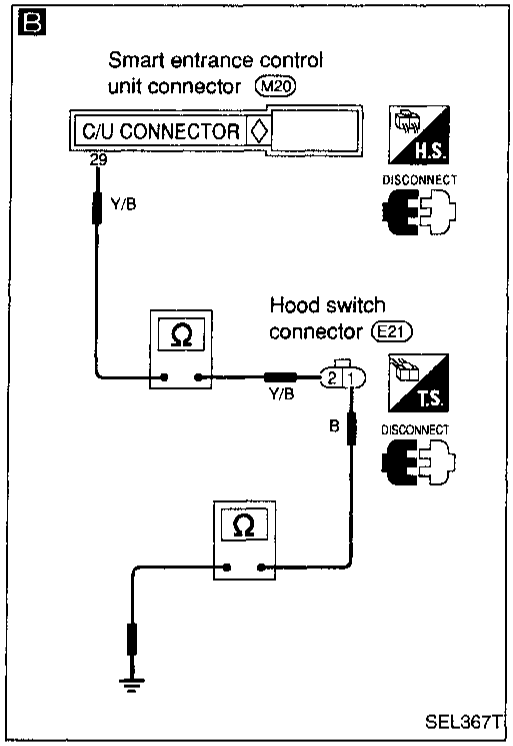
HOOD SWITCH INPUT SIGNAL CHECK

Diagnostic procedure 1-(2)

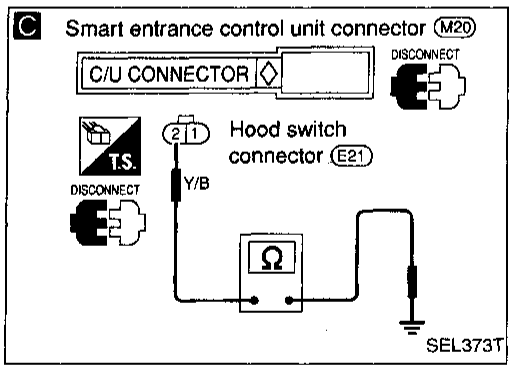
A



B



C



A

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

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

OK → Go to the next procedure.

NG ↓

Check hood switch and hood fitting condition.

NG → Adjust installation of hood switch or hood.

OK ↓

CHECK HOOD SWITCH.
Refer to "Electrical Components Inspection" (EL-212).

NG → Replace hood switch.

OK ↓

B

CHECK HOOD SWITCH CIRCUIT.
- Check harness continuity between control unit terminal (29) and hood switch 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 terminal (2) and body ground.
(Before checking harness continuity, control unit connector should be disconnected.)

Continuity should not exist.

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

OK ↓

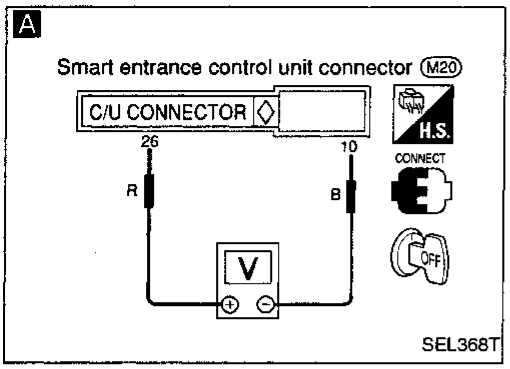
CHECK THE CONNECTIONS AT EACH CONNECTOR.

Trouble Diagnoses (Cont'd)

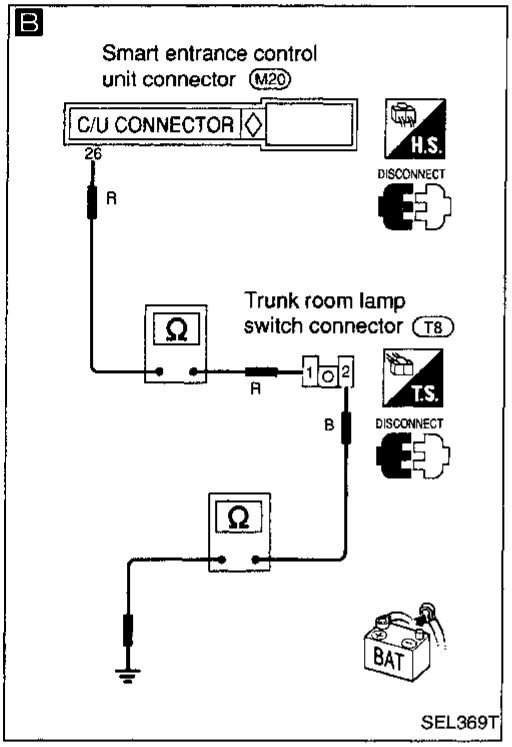
TRUNK ROOM LAMP SWITCH INPUT SIGNAL CHECK

Diagnostic procedure 1-(3)

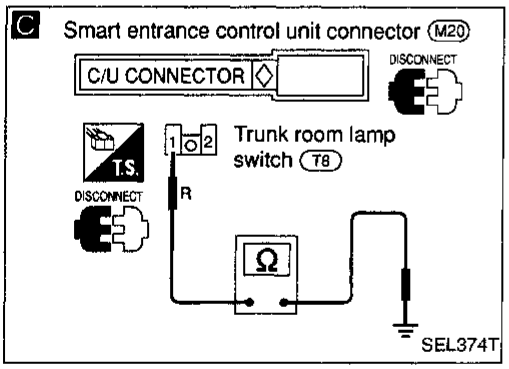
A



B



C



A

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

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

OK → Go to the next procedure.

NG

CHECK TRUNK ROOM LAMP SWITCH.
Refer to "Electrical Components Inspection" (EL-212).

NG → Replace trunk room lamp switch.

OK

B

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

Continuity should exist.

NG → Repair harness or connectors.

OK

C

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

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

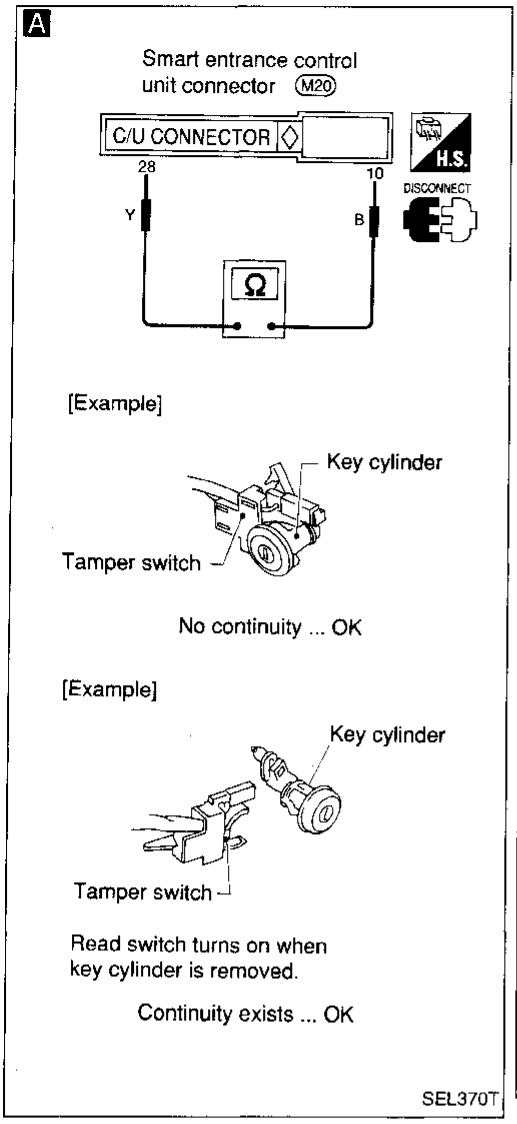
OK

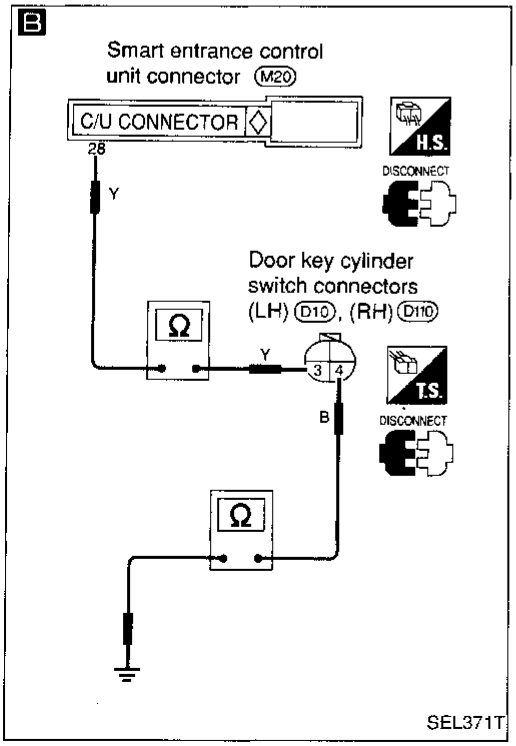
CHECK THE CONNECTIONS AT EACH CONNECTOR.

Trouble Diagnoses (Cont'd)

KEY CYLINDER TAMPER SWITCH INPUT SIGNAL CHECK

Diagnostic procedure 1-(4)





A

CHECK KEY CYLINDER TAMPER SWITCH INPUT SIGNAL.
Check continuity between control unit terminals (28) and (10).

Condition	Continuity
Tamper switch is	
Normal	No
Removed	Yes

OK → Go to the next procedure.

NG

CHECK KEY CYLINDER TAMPER SWITCH.
Refer to "Electrical Components Inspection" (EL-213).

NG → Replace door key cylinder switch.

OK

B

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

Continuity should exist.

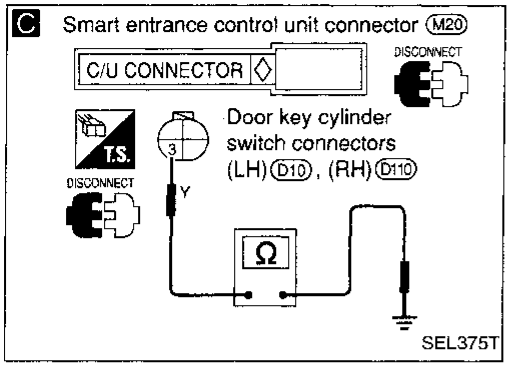
NG → Repair harness and connectors.

OK

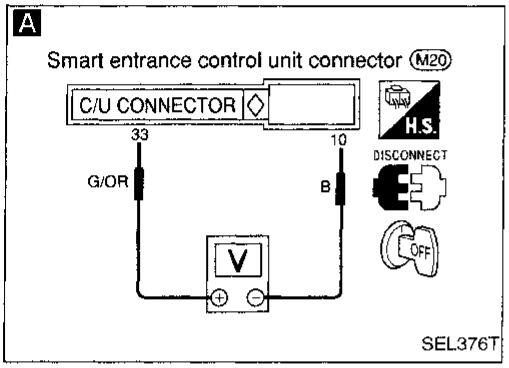
Ⓐ (Next page)

Trouble Diagnoses (Cont'd)

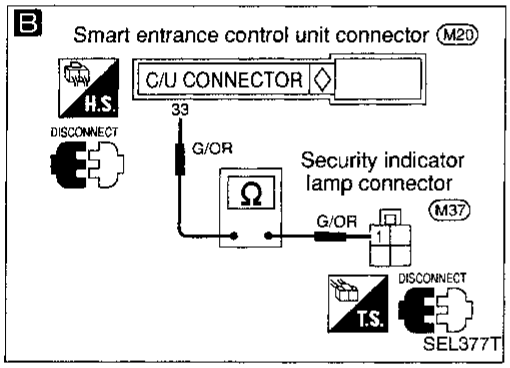
C



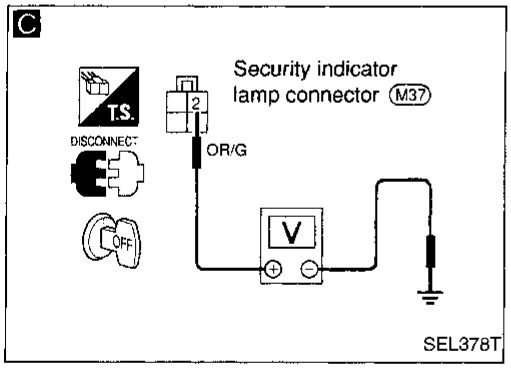
A



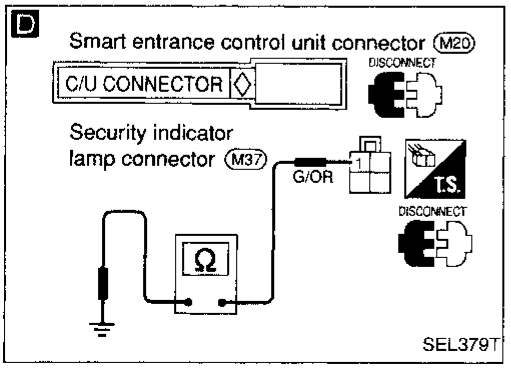
B



C



D



Ⓐ

C

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

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

OK ↓

CHECK THE CONNECTIONS AT EACH CONNECTOR.

INDICATOR LAMP CIRCUIT CHECK

Diagnostic procedure 2

A

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

OK → Go to the next procedure.

NG ↓

CHECK INDICATOR LAMP.

NG → Replace indicator lamp.

OK ↓

B

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

NG → Repair harness or connectors.

OK ↓

C

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

NG → CHECK THE FOLLOWING:
- 7.5A fuse (No. 8, located in fuse block)
- Harness for open or short

OK ↓

D

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

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

OK ↓

CHECK THE CONNECTIONS AT EACH CONNECTOR.

↓

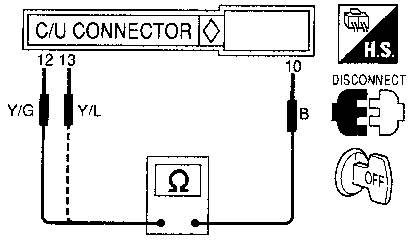
Replace control unit.

Trouble Diagnoses (Cont'd)

DOOR UNLOCK SENSOR INPUT SIGNAL CHECK

A

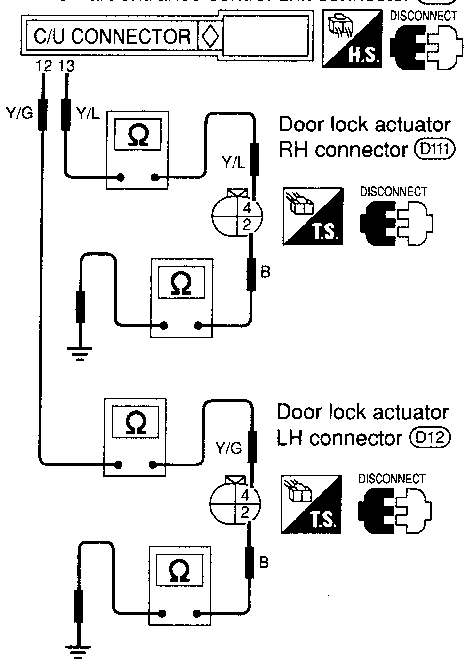
Smart entrance control unit connector (M20)



SEL380T

B

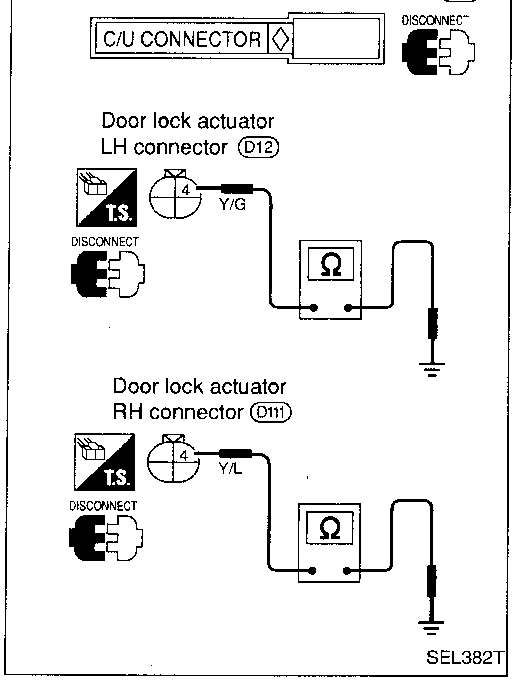
Smart entrance control unit connector (M20)



SEL381T

C

Smart entrance control unit connector (M20)



SEL382T

Diagnostic procedure 3

A

CHECK DOOR UNLOCK SENSOR INPUT SIGNAL.
Check continuity between control unit 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 the next procedure.

NG ↓

CHECK DOOR UNLOCK SENSOR.
Refer to "Electrical Components Inspection" (EL-213).

NG → Replace door lock actuator.

OK ↓

B

CHECK DOOR UNLOCK SENSOR CIRCUIT.
- Check harness continuity between control unit terminal (12) or (13) and door actuator terminal (4).
- Check harness continuity between door lock actuator terminal (2) and body ground.

Continuity should exist.

NG → Repair harness or connectors.

OK ↓

C

Check harness continuity between door lock actuator terminal (4) and body ground.
(Before checking harness continuity, control unit connector should be disconnected.)
Continuity should not exist.

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

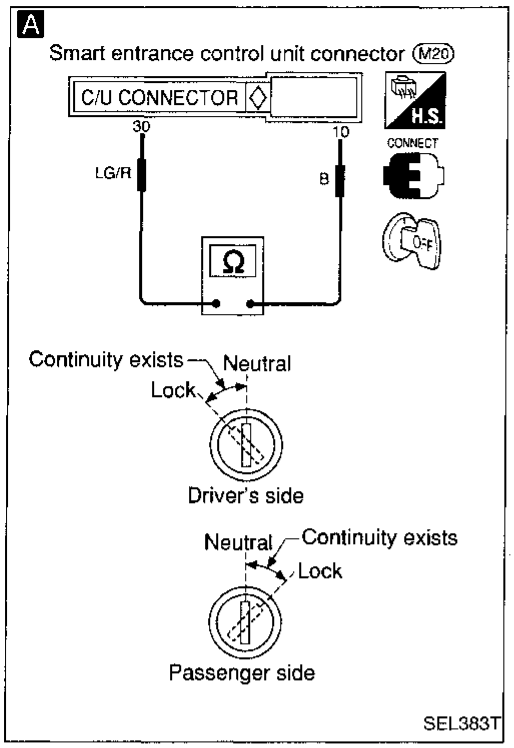
OK ↓

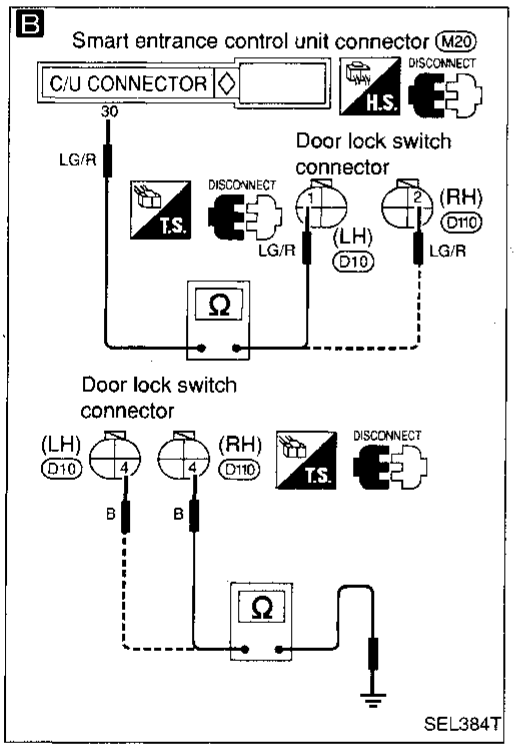
CHECK THE CONNECTIONS AT EACH CONNECTOR.

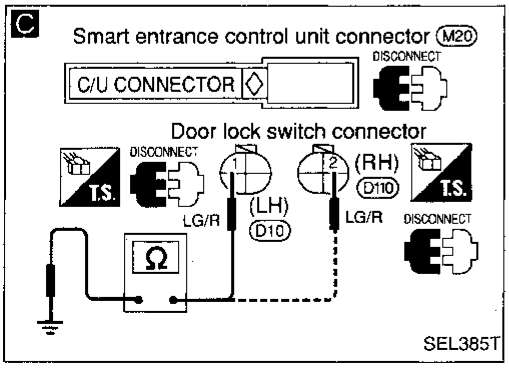
Trouble Diagnoses (Cont'd)

DOOR LOCK SWITCH INPUT SIGNAL CHECK

Diagnostic procedure 4







A

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

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

OK → Go to the next procedure.

NG ↓

CHECK DOOR LOCK SWITCH.
Refer to "Electrical Components Inspection" (EL-213).

NG → Replace key cylinder switch.

OK ↓

B

CHECK DOOR LOCK SWITCH CIRCUIT.
- Check harness continuity between control unit 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 connector should be disconnected.)

Continuity should not exist.

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

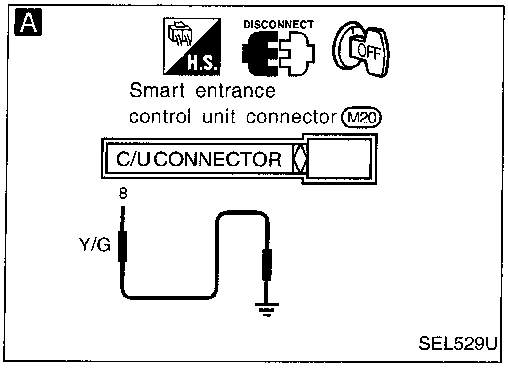
OK ↓

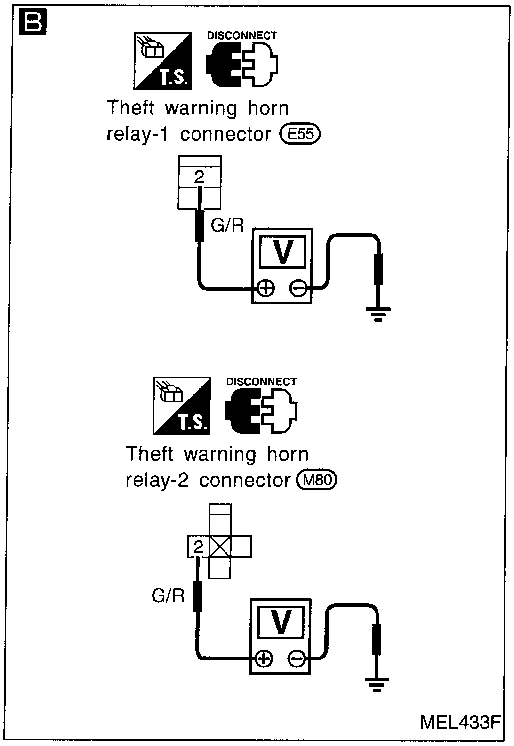
CHECK THE CONNECTIONS AT EACH CONNECTOR.

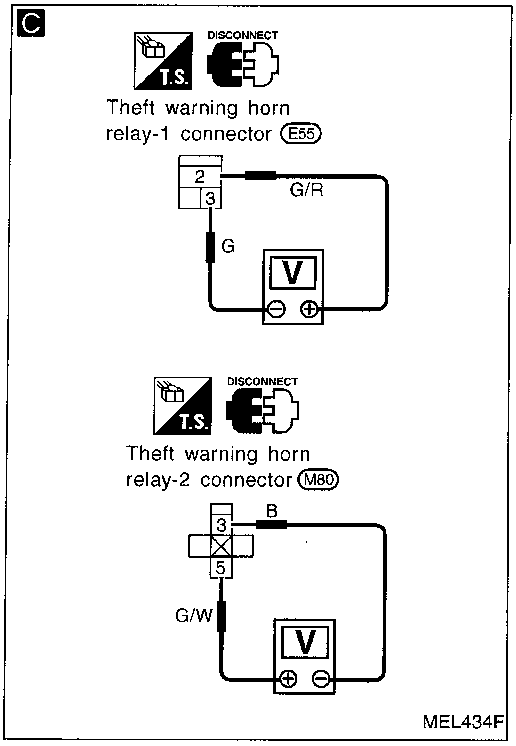
Trouble Diagnoses (Cont'd)

THEFT WARNING HORN ALARM CHECK

Diagnostic procedure 5-(1)







A

CHECK THEFT WARNING HORN ALARM OPERATION.
1. Disconnect control unit connector.
2. Apply ground to control unit terminal (8).

Does horn alarm activate?

Yes → Horn alarm is OK.

No ↓

Check theft warning horn relay-1, 2.

NG → Replace.

OK ↓

B

CHECK POWER SUPPLY FOR THEFT WARNING HORN RELAY-1, 2.
1. Disconnect theft warning horn relay connectors.
2. Measure voltage between terminal (2) and body ground.

Positive battery voltage should exist.

NG → CHECK THE FOLLOWING.
- 7.5A fuse (No. 33, located in the fusible link and fuse block-1)
- Harness for open or short

OK ↓

C

CHECK THEFT WARNING HORN CIRCUIT.
1. Disconnect theft warning horn relay connectors.
2. Measure voltage between theft warning horn relay-1 terminal (3) and theft warning horn terminals.
3. Measure voltage between theft warning relay-2 terminals (3) and (5).

Positive battery voltage should exist.

NG → Check the following.
- Harness for open or short
- Theft warning horn and theft warning horn relay ground

OK ↓

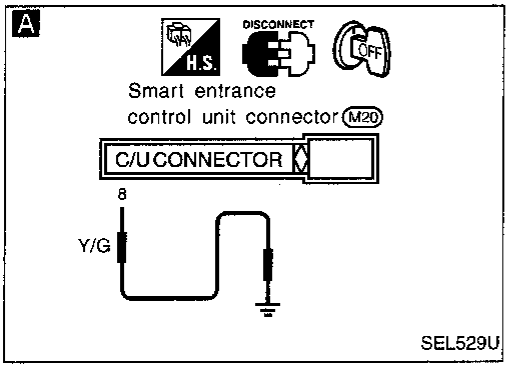
CHECK THE CONNECTIONS AT EACH CONNECTOR.

Trouble Diagnoses (Cont'd)

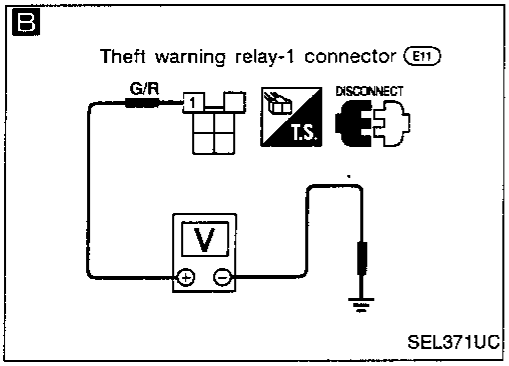
THEFT WARNING HEADLAMP ALARM CHECK

Diagnostic procedure 5-(2)

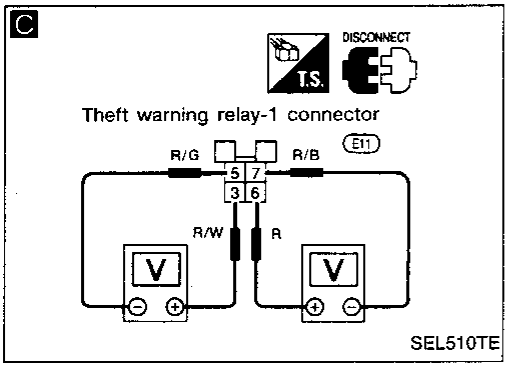
A



B



C



A

CHECK THEFT WARNING HEADLAMP ALARM OPERATION.
1. Disconnect control unit connector.
2. Apply ground to control unit terminal ⑧.
Does headlamp alarm activate?

Yes → Headlamp alarm is OK.

No ↓

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

No → Check headlamp system. Refer to "HEADLAMP" (EL-42).

Yes ↓

Check theft warning relay-1.

NG → Replace.

OK ↓

B

CHECK POWER SUPPLY FOR THEFT WARNING LAMP RELAY.
1. Disconnect theft warning lamp relay connector.
2. Measure voltage between terminal ① and body ground.
Positive battery voltage should exist.

NG → CHECK THE FOLLOWING.
- 7.5A fuse (No. 33, located in fusible link and fuse block-1)

OK ↓

C

CHECK THEFT WARNING LAMP RELAY CIRCUIT.
1. Disconnect theft warning lamp relay connector.
2. Measure voltage between terminals ③ and ⑤.
Positive battery voltage should exist.
3. Measure voltage between terminals ⑥ and ⑦.
Positive battery voltage should exist.

NG → Check harness for open or short.

OK ↓

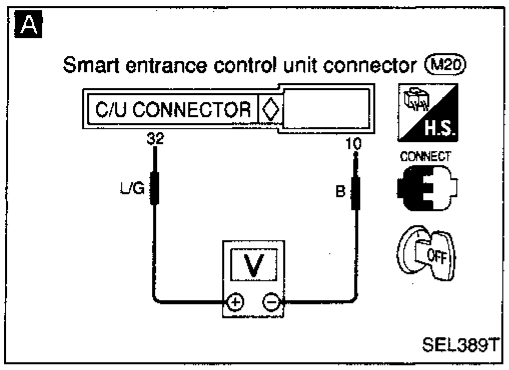
CHECK THE CONNECTIONS AT EACH CONNECTOR.

Trouble Diagnoses (Cont'd)

STARTER CUT OUTPUT SIGNAL CHECK

Diagnostic procedure 6

A



A

CHECK STARTER MOTOR CUT OUTPUT SIGNAL.
Check voltage between control unit terminals (32) and (10)

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

NG → CHECK THE FOLLOWING.
- 7.5A fuse (No. 1, located in fuse block)
- Harness continuity between theft warning relay-2 terminal (1) and fuse
- Harness continuity between control unit terminal (32) and theft warning relay-2 terminal (2)

OK ↓

CHECK THEFT WARNING RELAY-2. → NG → Replace relay.

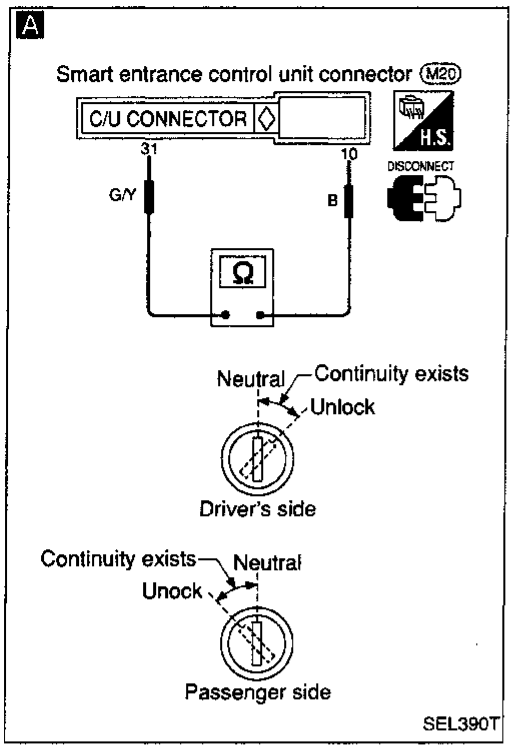
OK ↓

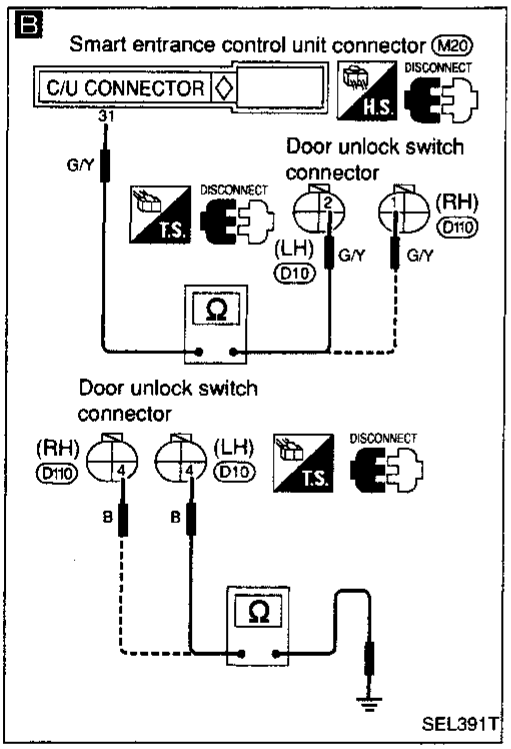
CHECK THE CONNECTIONS AT EACH CONNECTOR.

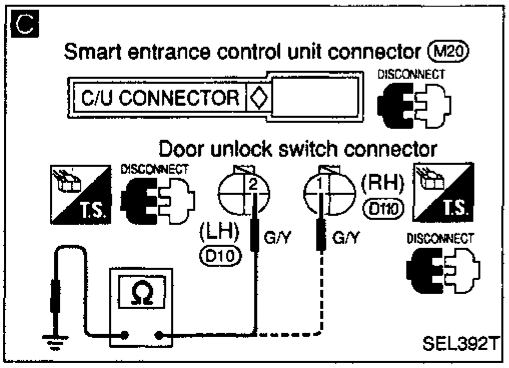
Trouble Diagnoses (Cont'd)

DOOR UNLOCK SWITCH INPUT SIGNAL CHECK

Diagnostic procedure 7-(1)







A

CHECK DOOR UNLOCK SWITCH INPUT SIGNAL (UNLOCK SIGNAL).
Check continuity between control unit terminals (31) and (10).

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

OK → THEFT WARNING HORN ALARM CHECK
Go to Diagnostic Procedure 5. (EL-207).

NG

CHECK DOOR UNLOCK SWITCH.
Refer to "Electrical Components Inspection" (EL-213).

NG → Replace key cylinder switch.

OK

B

CHECK DOOR UNLOCK SWITCH CIRCUIT.
- Check harness continuity between control unit 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 connector should be disconnected.)
Continuity should not exist.

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

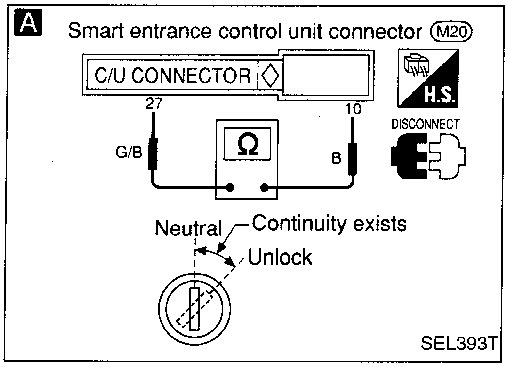
OK

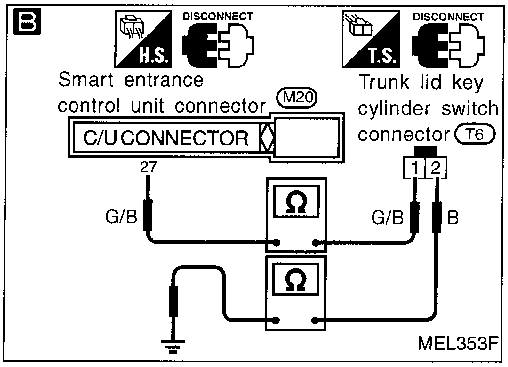
CHECK THE CONNECTIONS AT EACH CONNECTOR.

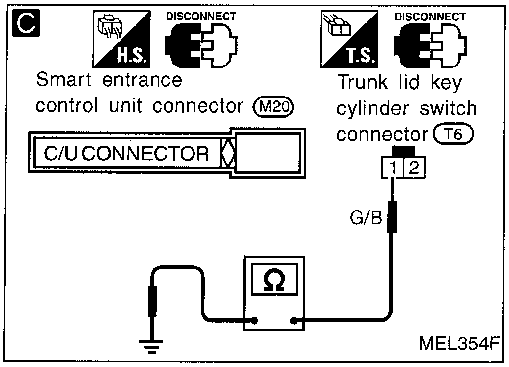
Trouble Diagnoses (Cont'd)

TRUNK LID UNLOCK SWITCH INPUT SIGNAL CHECK

Diagnostic procedure 7-(2)







A

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

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

OK → THEFT WARNING HORN ALARM CHECK
Go to Diagnostic Procedure 5. (EL-207).

NG

CHECK TRUNK LID KEY CYLINDER SWITCH.
Refer to "Electrical Components Inspection" (EL-213).

NG → Replace trunk lid key cylinder switch.

OK

B

CHECK TRUNK LID KEY CYLINDER SWITCH CIRCUIT.
- Check harness continuity between control unit 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

C

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

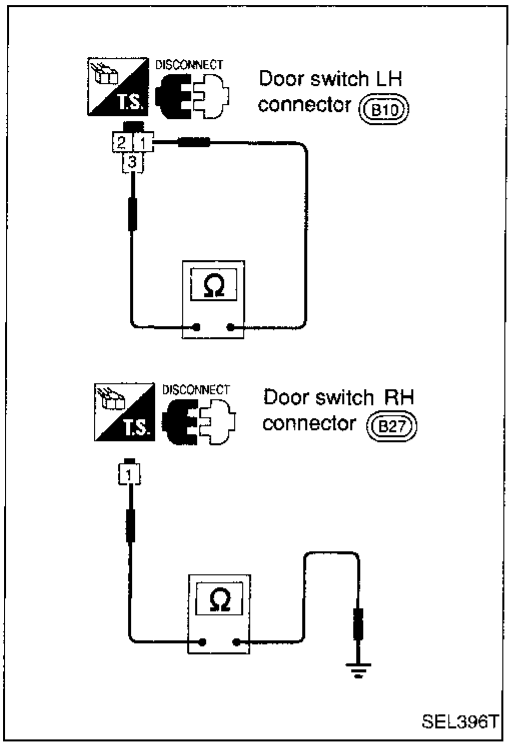
NG → Repair harness.
(Short circuit exists between control unit terminal (27) and trunk lid key cylinder switch terminal (1).)

OK

CHECK THE CONNECTIONS AT EACH CONNECTOR.

Trouble Diagnoses (Cont'd)

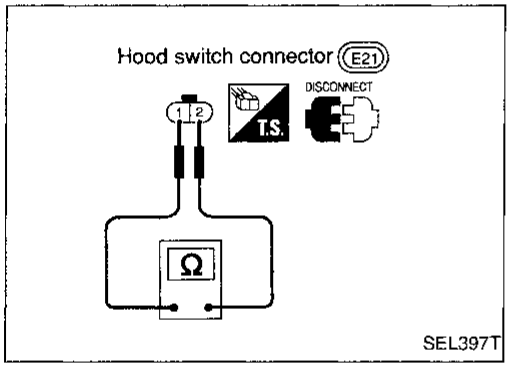
ELECTRICAL COMPONENTS INSPECTION



Door switches

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

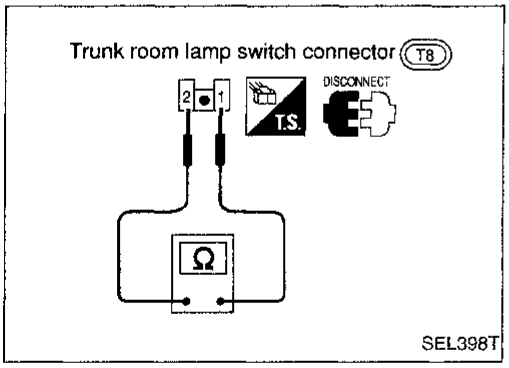
Terminal No.	Condition	Continuity
RH: ① - body ground LH: ① - ③	Door switch is pushed.	No
	Door switch is released.	Yes



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



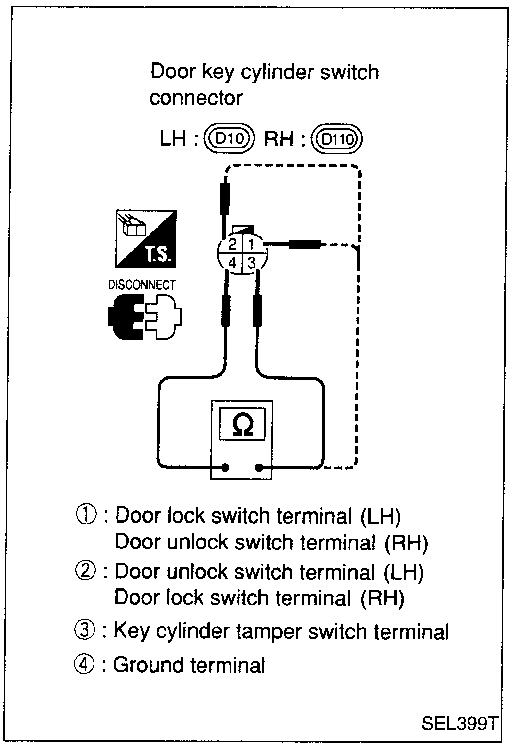
Trunk room lamp switch

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

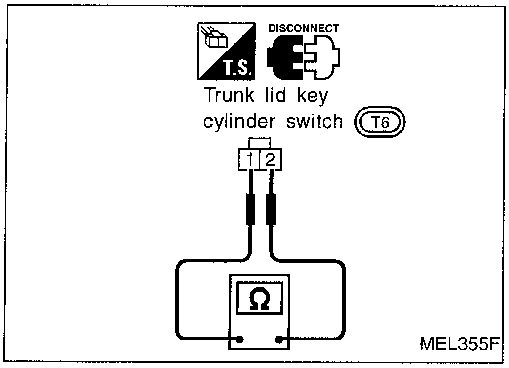


① : Door lock switch terminal (LH)
Door unlock switch terminal (RH)
② : Door unlock switch terminal (LH)
Door lock switch terminal (RH)
③ : Key cylinder tamper switch terminal
④ : Ground terminal

SEL399T

- **Door key cylinder switch**

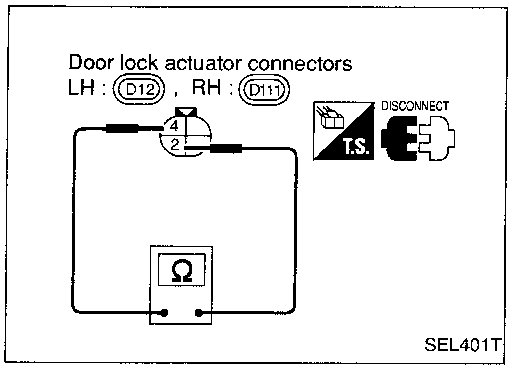
	Terminal No.	Condition	Continuity
Tamper switch	③ - ④	Key cylinder is installed.	No
		Key cylinder is removed.	Yes
Door lock switch	RH: ② - ④ LH: ① - ④	Key position is neutral or lock.	No
		Key position is between neutral and lock.	Yes
Door unlock switch	RH: ① - ④ LH: ② - ④	Key position is neutral or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



MEL355F

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

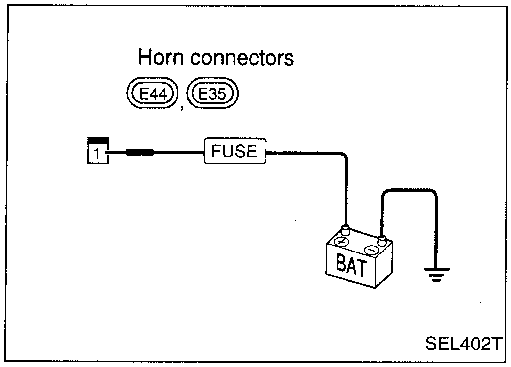
Terminal No.	Condition	Continuity
① - ②	Key position is neutral.	No
	Key position is unlock.	Yes



SEL401T

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

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

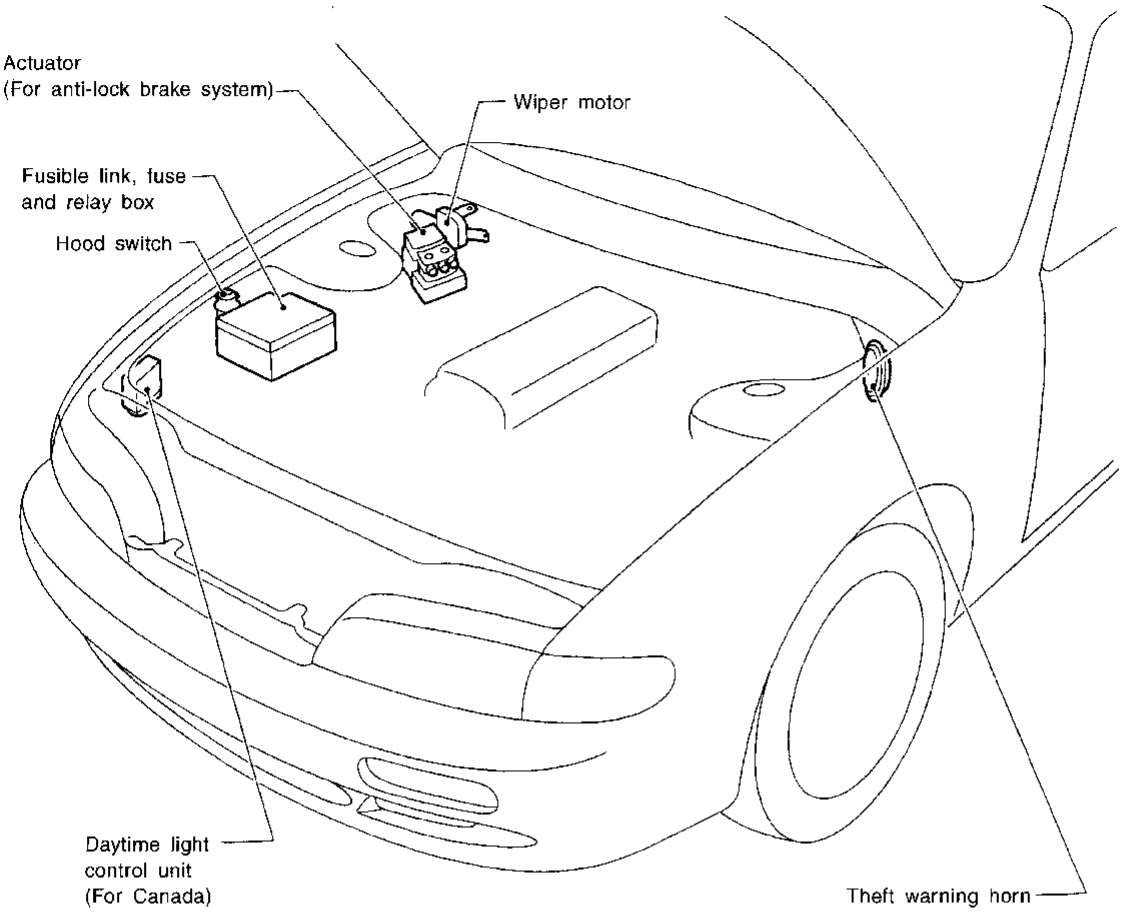


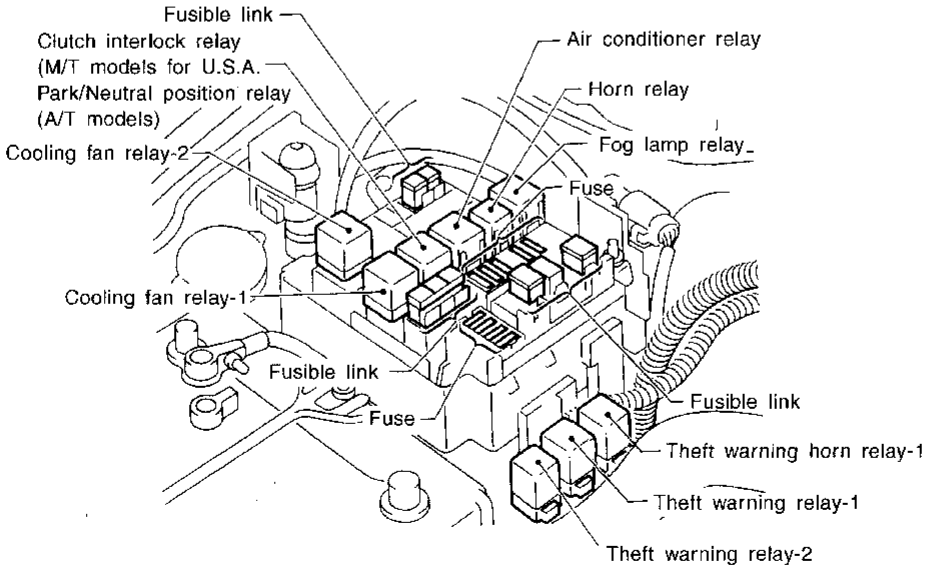
SEL402T

Horns

Supply horn terminal with battery voltage and check horn operation.

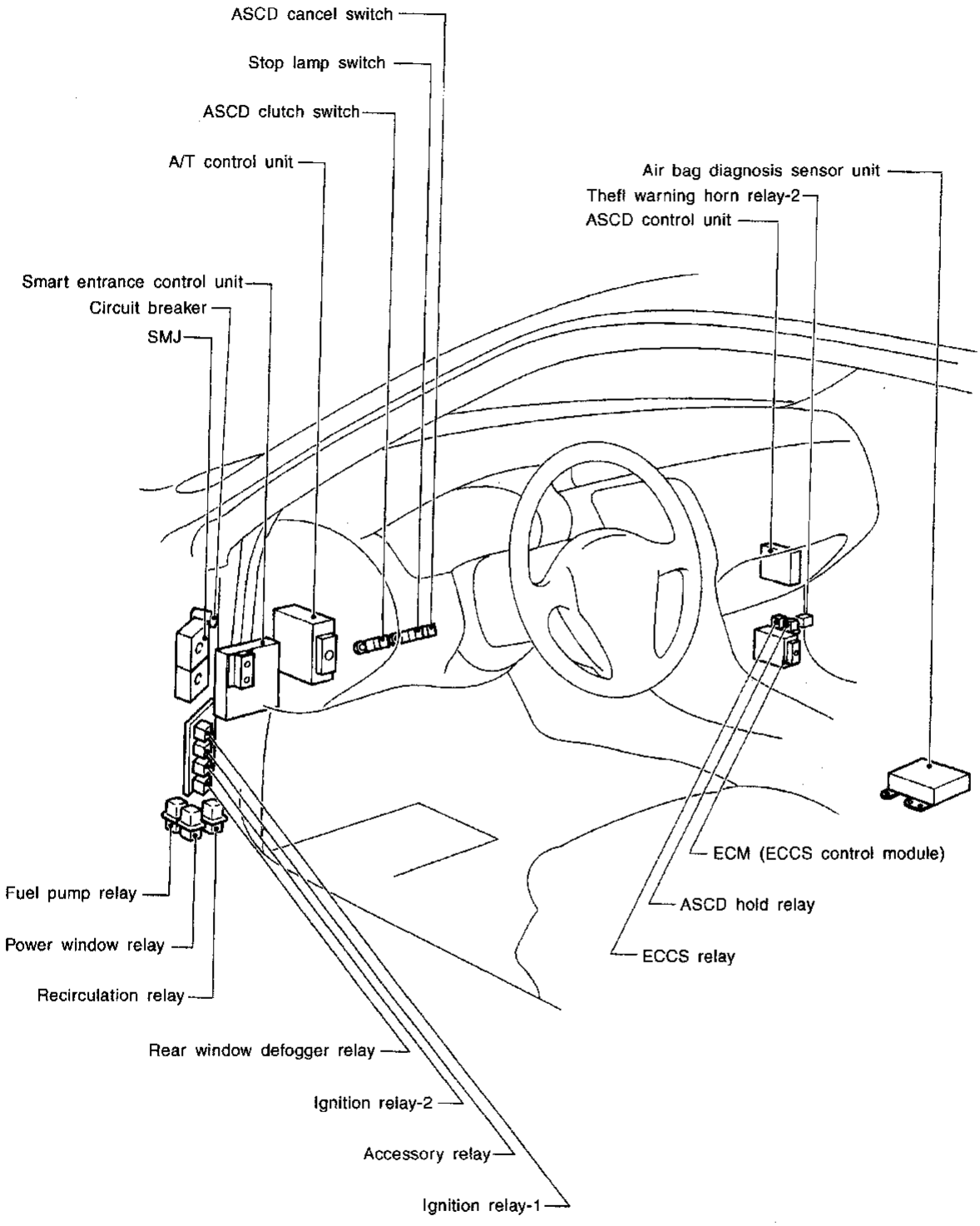
Engine Compartment





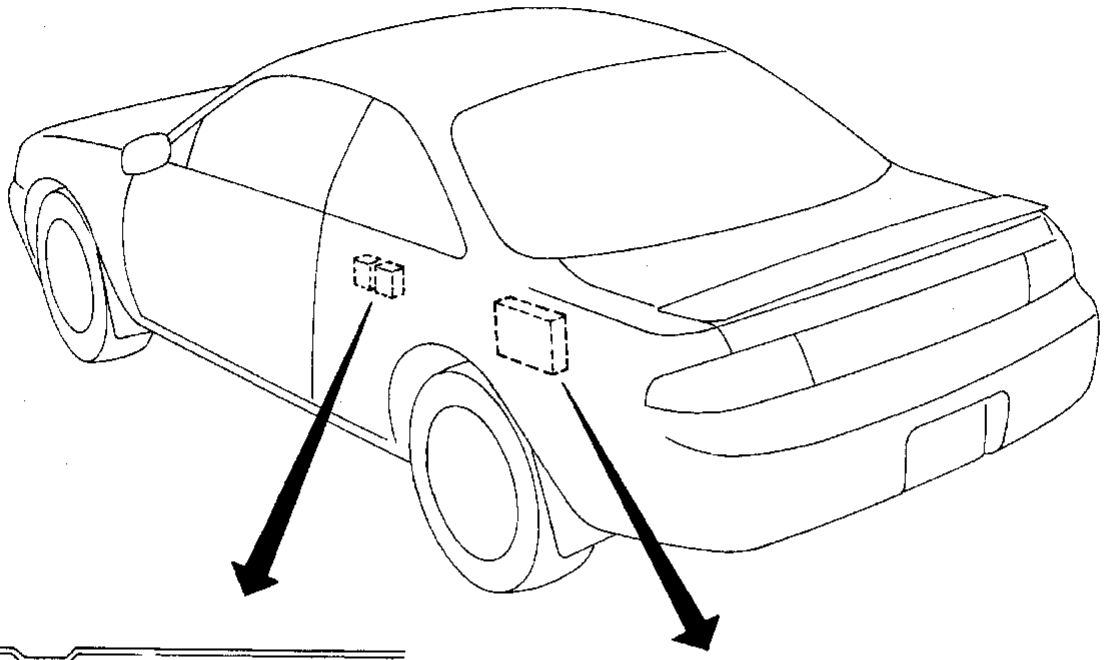
MEL436F

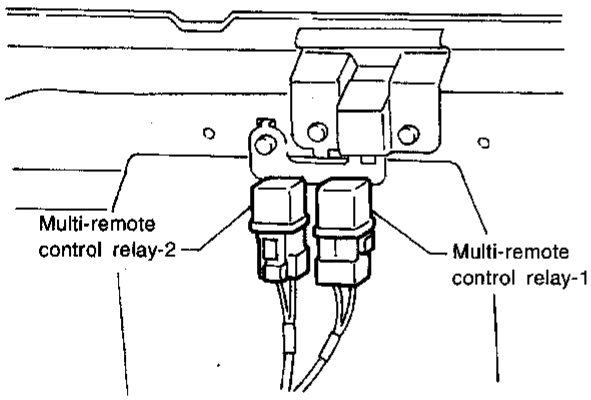
Passenger Compartment

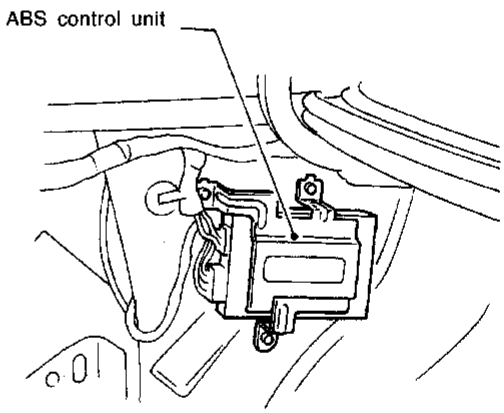


MEL356F

Passenger Compartment (Cont'd)

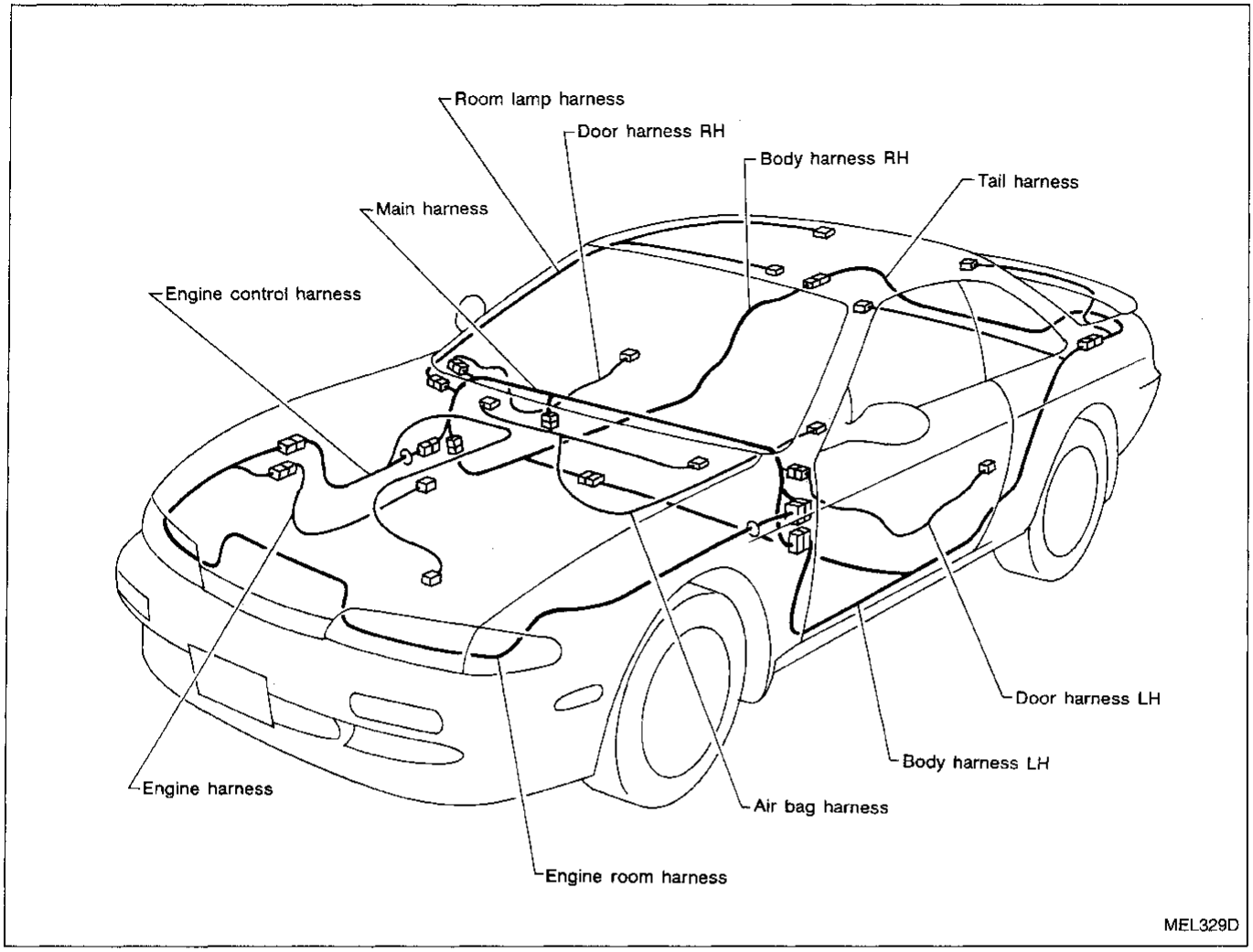




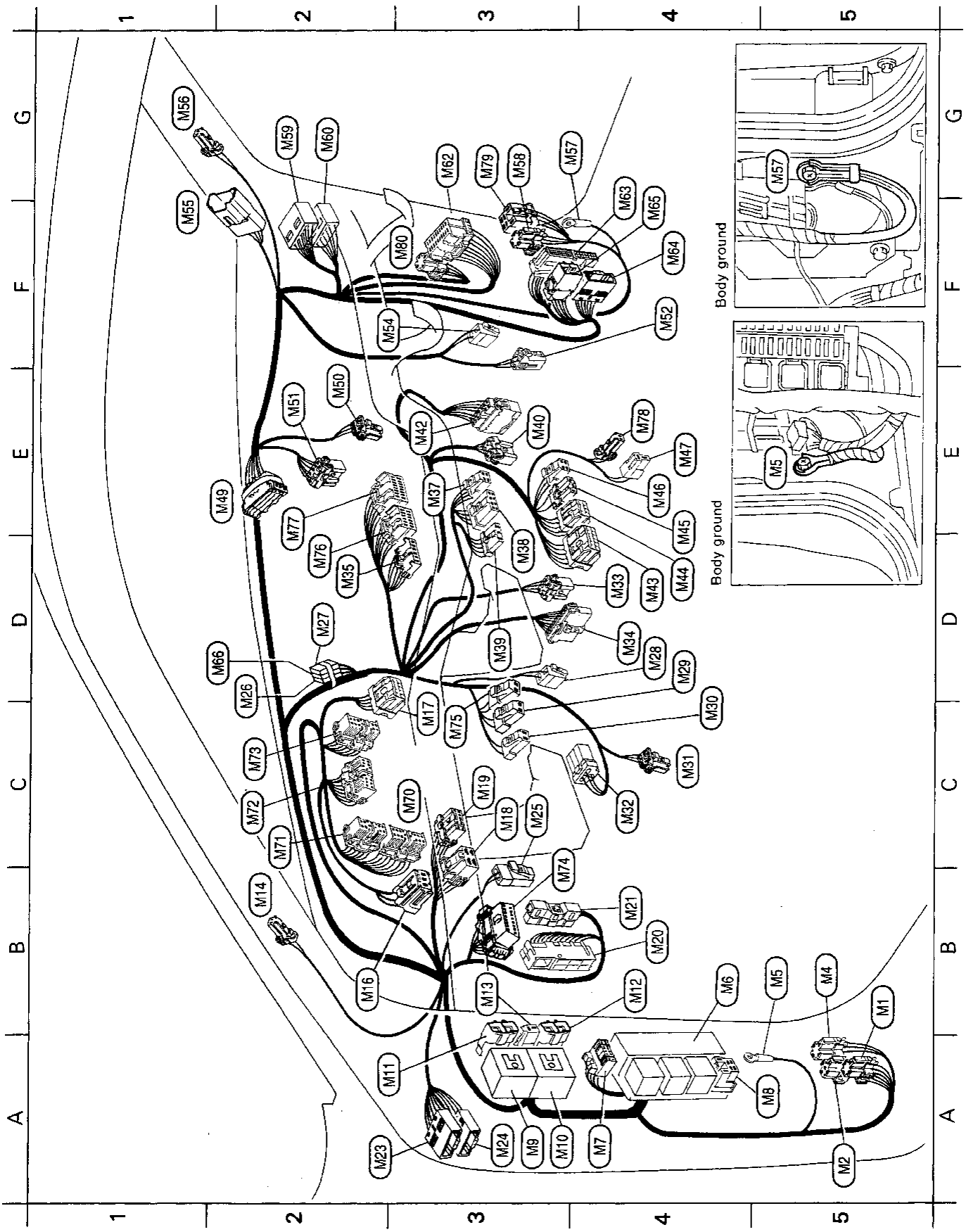


MEL357F

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

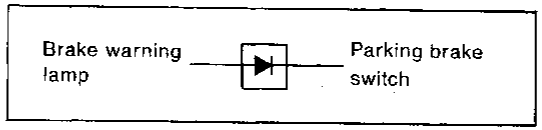
Main Harness



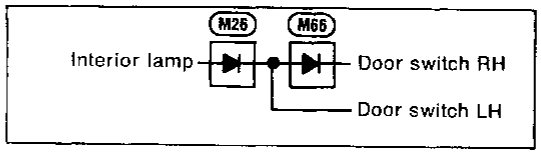
MEL358F

B5 (M1) : Power window relay
A5 (M2) : Recirculation 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
(Models with 6-speaker audio system)
B2 (M16) : Illumination control switch
C3 (M17) : ASCD main switch
C3 (M18) : Rear window defogger timer
(Models without 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)
A2 (M23) : To (D1)
A3 (M24) : To (D2)
C3 (M25) : ASCD clutch switch (M/T models)
D2 (M26) : Diode (Models with theft warning system)
D2 (M27) : Diode (Except BASE grade M/T models for USA)
D4 (M28) : Kickdown switch (A/T models)
D4 (M29) : ASCD cancel switch (M/T models)
C4 (M30) : Stop lamp switch
C4 (M31) : Warning buzzer
(Models with power door locks)
C4 (M32) : Combination flasher unit
D4 (M33) : Air mix door motor
D4 (M34) : Mode door motor
D2 (M35) : Fan switch
E3 (M37) : Security indicator lamp
(Models with theft warning system)
D3 (M38) : Hazard switch
D3 (M39) : Rear window defogger switch
E3 (M40) : Bi-level door motor
E3 (M42) : To (Z5)
D4 (M43) : Audio
D4 (M44) : Audio
E4 (M45) : CD deck illumination
E4 (M46) : CD deck
E4 (M47) : Cigarette lighter
E2 (M49) : Joint connector
(Models with 6-speaker audio system)
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
(Models with 6-speaker audio system)
G3 (M57) : Body ground
G3 (M58) : ASCD hold relay (M/T models)
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) (Models with ABS)
D2 (M66) : Diode
(Models with theft warning system)
C3 (M70) : Combination meter
C2 (M71) : Combination meter
C2 (M72) : Combination meter
C2 (M73) : Combination meter
B3 (M74) : Data link connector for GST
C3 (M75) : Shift lock brake switch (A/T models)
D2 (M76) : Push control unit
D2 (M77) : Push control unit
E4 (M78) : Cigarette lighter illumination
G3 (M79) : ASCD hold relay (A/T models)
F3 (M80) : Theft warning horn relay-2

Diode (M27)

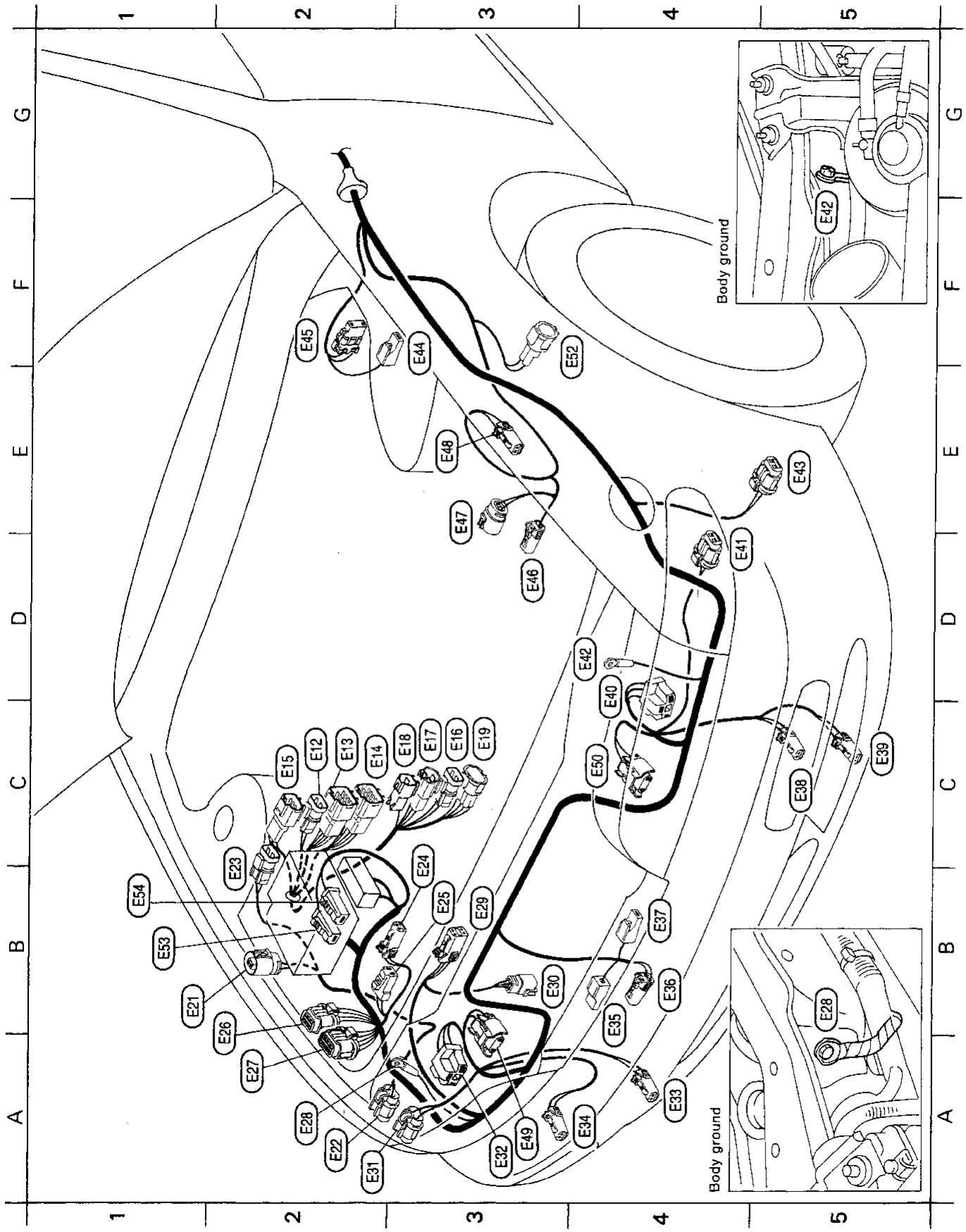


Diode (M26), (M66)



*: 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 detection.

Engine Room Harness



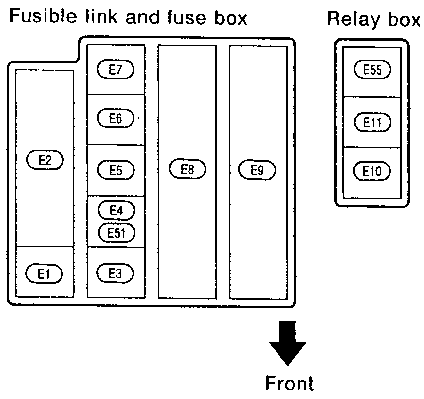
MEL360F

	E1	:	Cooling fan relay-2
	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)
	E11	:	Theft warning relay-1 (SE grade models)
C2	*E12	:	Inhibitor switch (A/T 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	E21	:	Hood switch (SE grade models)
A2	E22	:	Front side marker lamp RH
B2	E23	:	To F13
B3	E24	:	Washer motor
B3	E25	:	Washer fluid level switch
A2	E26	:	Daytime light control unit (For Canada)
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

Fusible link and fuse box

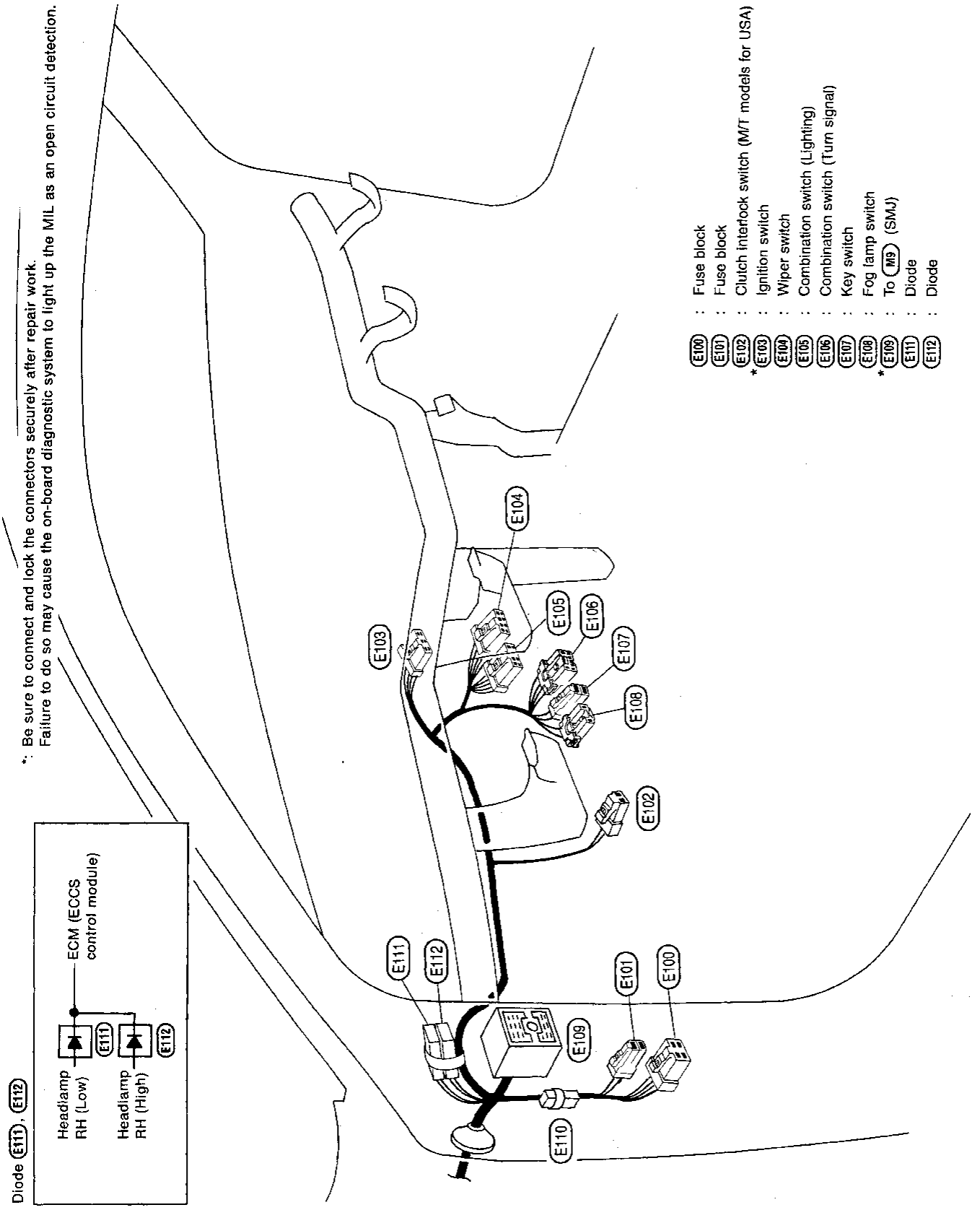
Relay box

B4	E36	:	Ambient temperature switch
B4	E37	:	Horn — low (Models without theft warning system)
C5	E38	:	Front turn signal lamp LH
C5	E39	:	Fog 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
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 with ASCD) Fusible link and fuse box
F3	E52	:	Front wheel sensor LH (Models with ABS)
B1	E53	:	Battery
B1	E54	:	Battery
	E55	:	Theft warning horn relay-1 } Relay box



*: 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.

Engine Room Harness (Cont'd)



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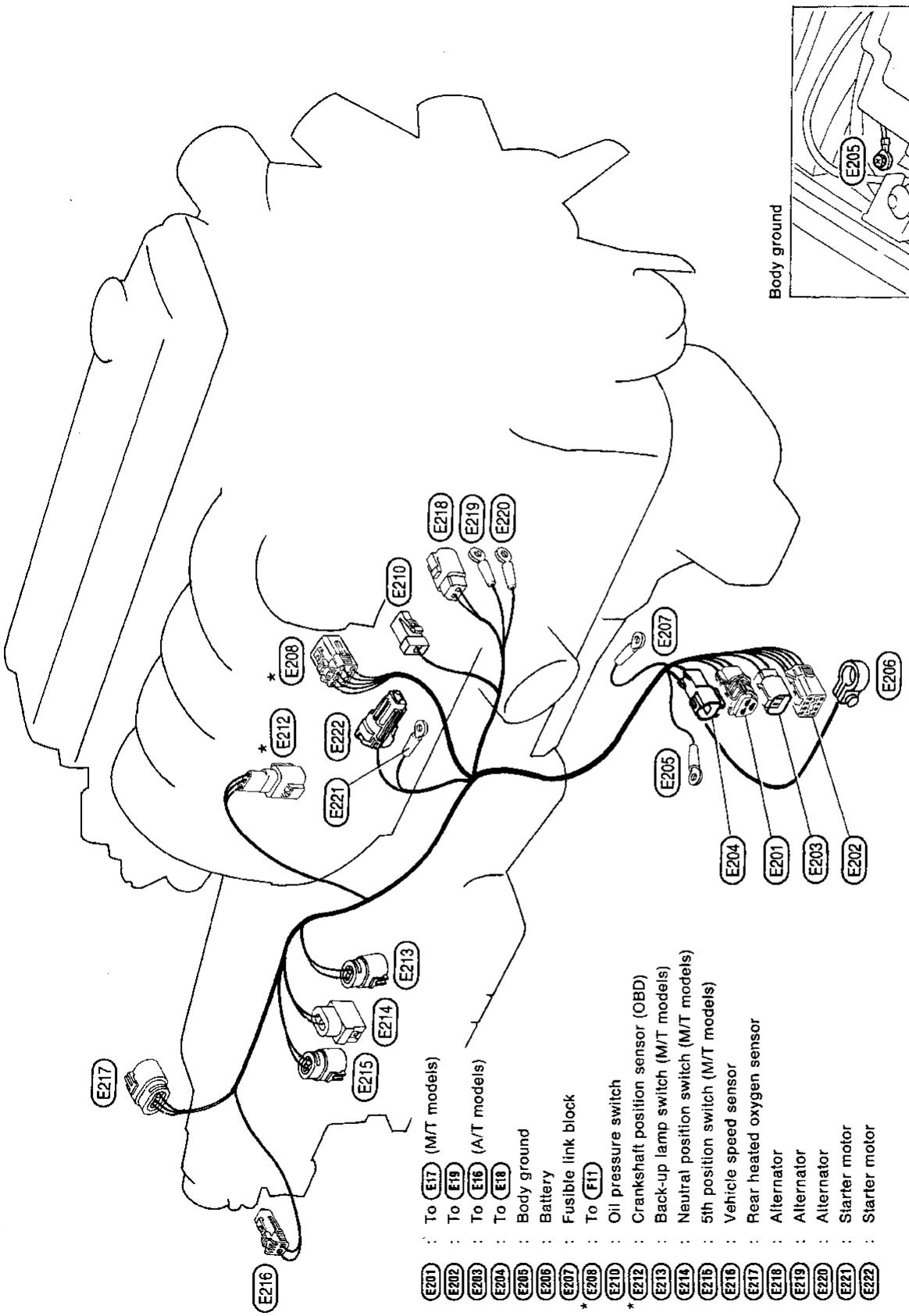
Engine Harness



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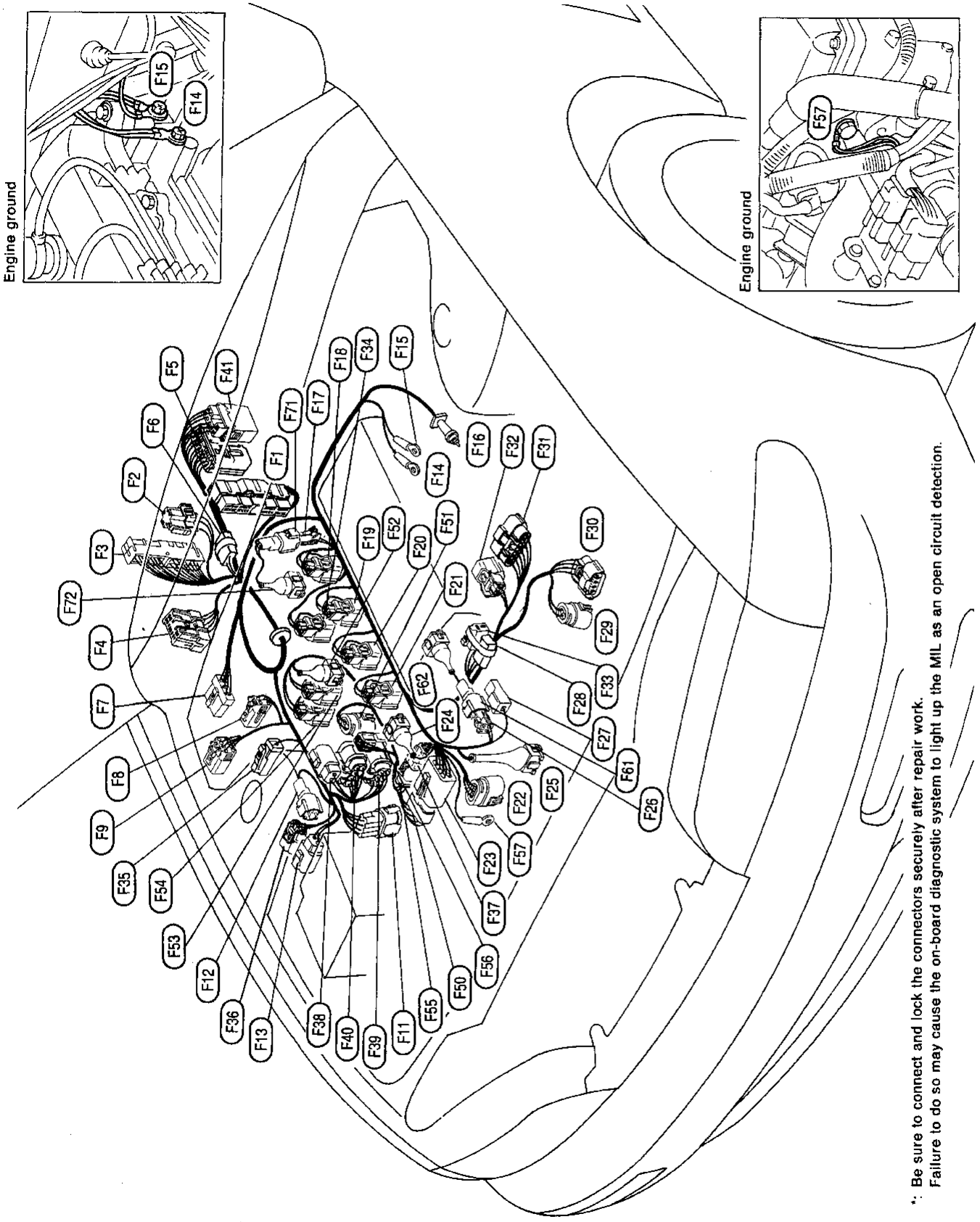
Engine Control Harness



*: 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.

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Engine Control Harness (Cont'd)

* F1 : ECM (ECCS control module)
* F2 : ECCS relay
* F3 : To M63
* F4 : To M64
* F5 : To B24
F6 : Diode
F7 : Wiper motor
F8 : ASCD actuator
F9 : Wiper amplifier
* F11 : To E206
F12 : Front wheel sensor RH
F13 : To E23
* F14 : Engine ground
* F15 : Engine ground
* F16 : Front heated oxygen sensor
* F17 : To F71
* F18 : Injector No. 4
* F19 : Injector No. 3
* F20 : Injector No. 2
* F21 : Injector No. 1
* F22 : Throttle position sensor
F23 : To F50
* F24 : Engine coolant temperature sensor
* F25 : Throttle position switch
* F26 : To F61
* F27 : Thermal transmitter
* F28 : Resistor
* F29 : Intake air temperature sensor
* F30 : Mass air flow sensor
* F31 : Distributor (Camshaft position sensor is built-in.)
* F32 : Ignition coil
F33 : Condenser
F34 : EVAP canister purge control solenoid valve
F36 : MAP/BARO switch solenoid valve
F36 : Absolute pressure sensor
F37 : To F65
F38 : } ABS actuator
F39 : }
F40 : }
F41 : To B35
F50 : To F23
* F51 : EGR temperature sensor
F52 : IACV-air regulator
* F53 : IACV-AAC valve
F54 : IACV-FICD solenoid valve
F55 : To F37
F56 : EVAP canister purge volume control valve
F57 : Engine ground
* F61 : To F26
* F62 : Knock sensor
* F71 : To F17
* F72 : EGRC-solenoid valve

Diode F6

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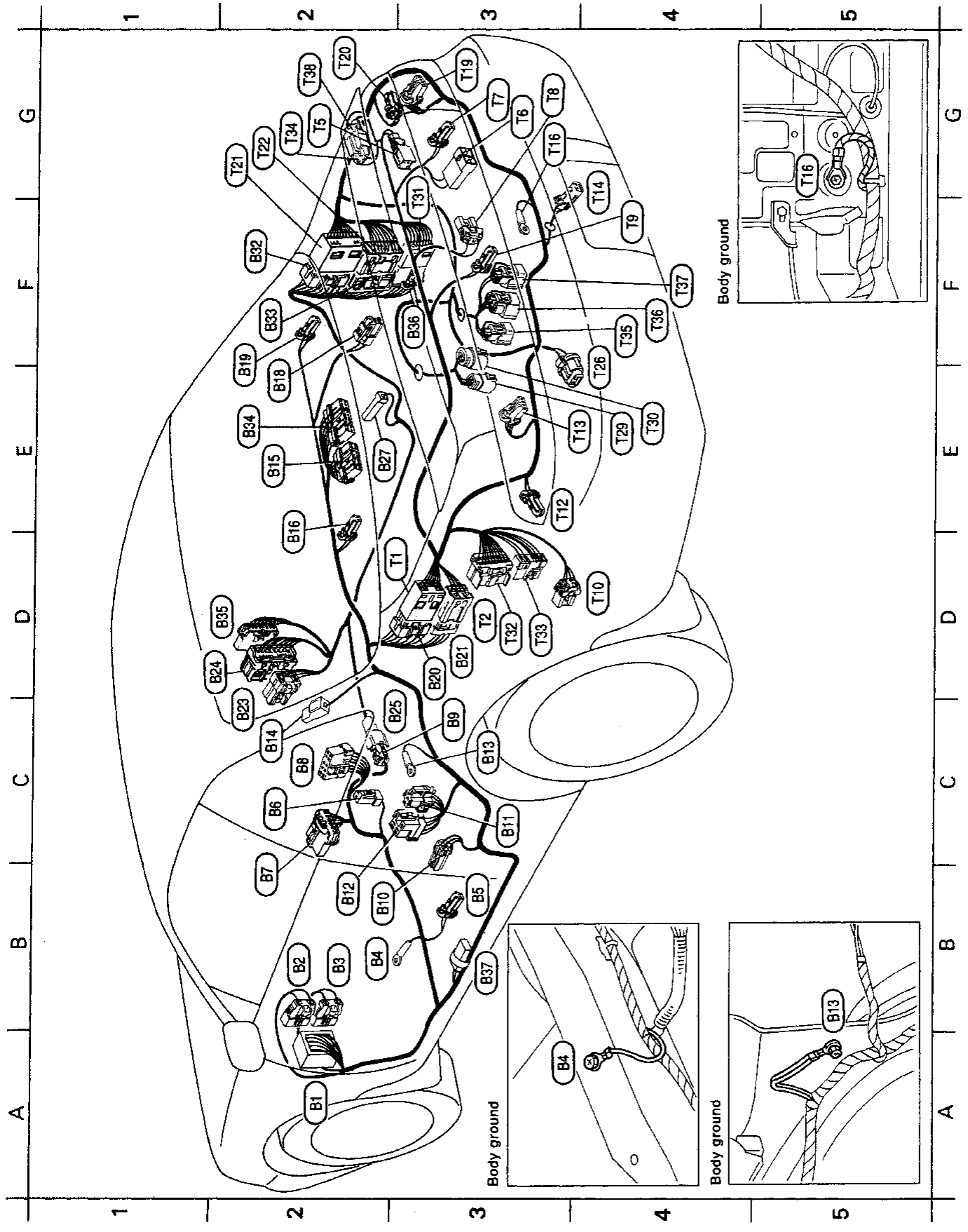
Body Harness and Tail Harness



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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 : A/T device
C2 B8 : Door mirror remote control switch
C3 B9 : To B25
B2 B10 : Door switch LH
C3 B11 : Multi-remote control relay-2 (SE grade models)
B2 B12 : Multi-remote control relay-1 (SE grade models)
C3 B13 : Body ground
C2 B14 : Rear window defogger
E2 B15 : Rear speaker amplifier (Models with 6-speaker audio system)
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 (Models with ABS)
D2 B24 : To F5 (Models with ABS)
C3 B25 : To B9
E2 B27 : Door switch RH
F2 B32 : To T21 (Models with ABS)
F2 B33 : To T22 (Models with ABS)
E2 B34 : Front speaker amplifier (Models with 6-speaker audio system)
D2 B35 : To F41
F3 B36 : To T31 (Models without ABS)
B3 B37 : Diode (A/T models)

Tail harness

D3 T1 : To B20
D3 T2 : To B21
G2 T5 : High-mounted stop lamp
G3 T6 : Trunk lid key cylinder switch (Models with theft warning system)
G3 T7 : Back-up lamp RH
G3 T8 : Trunk room lamp switch
F4 T9 : Back-up lamp LH
D4 T10 : Power antenna
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 (Models with ABS)
G2 T22 : To B33 (Models with ABS)
E4 T26 : Rear skid sensor (Models with ABS)
E4 T29 : Fuel tank gauge unit
E4 T30 : Fuel pump
G3 T31 : To B36 (Models without ABS)
D3 T32 : ABS control unit
D3 T33 : ABS control unit
G2 T34 : Check connector
F4 T35 : EVAP canister vent control valve
F4 T36 : EVAP control system pressure sensor
F4 T37 : Vacuum cut valve bypass valve
G2 T38 : Check connector

Diode B37

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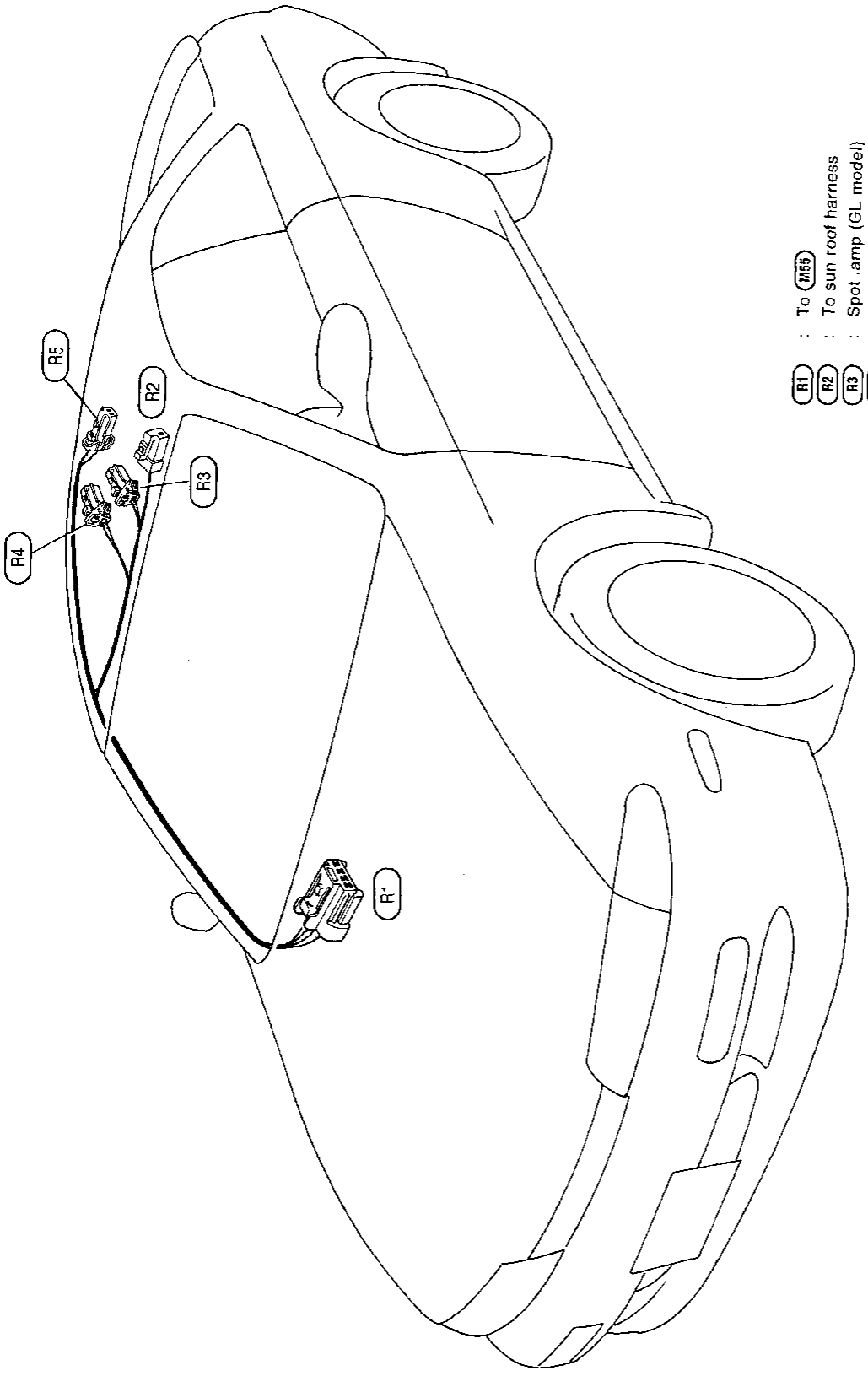
Room Lamp



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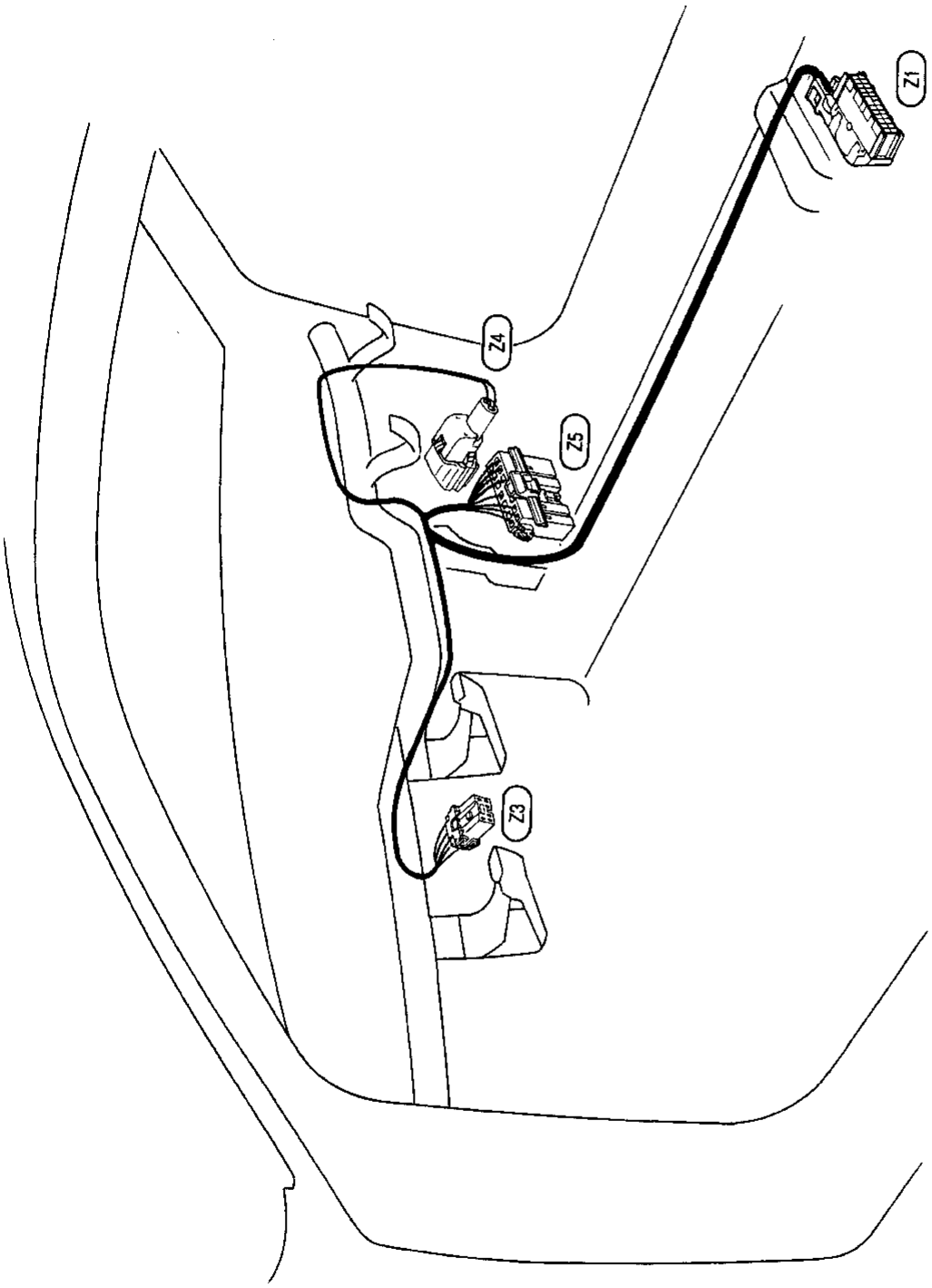
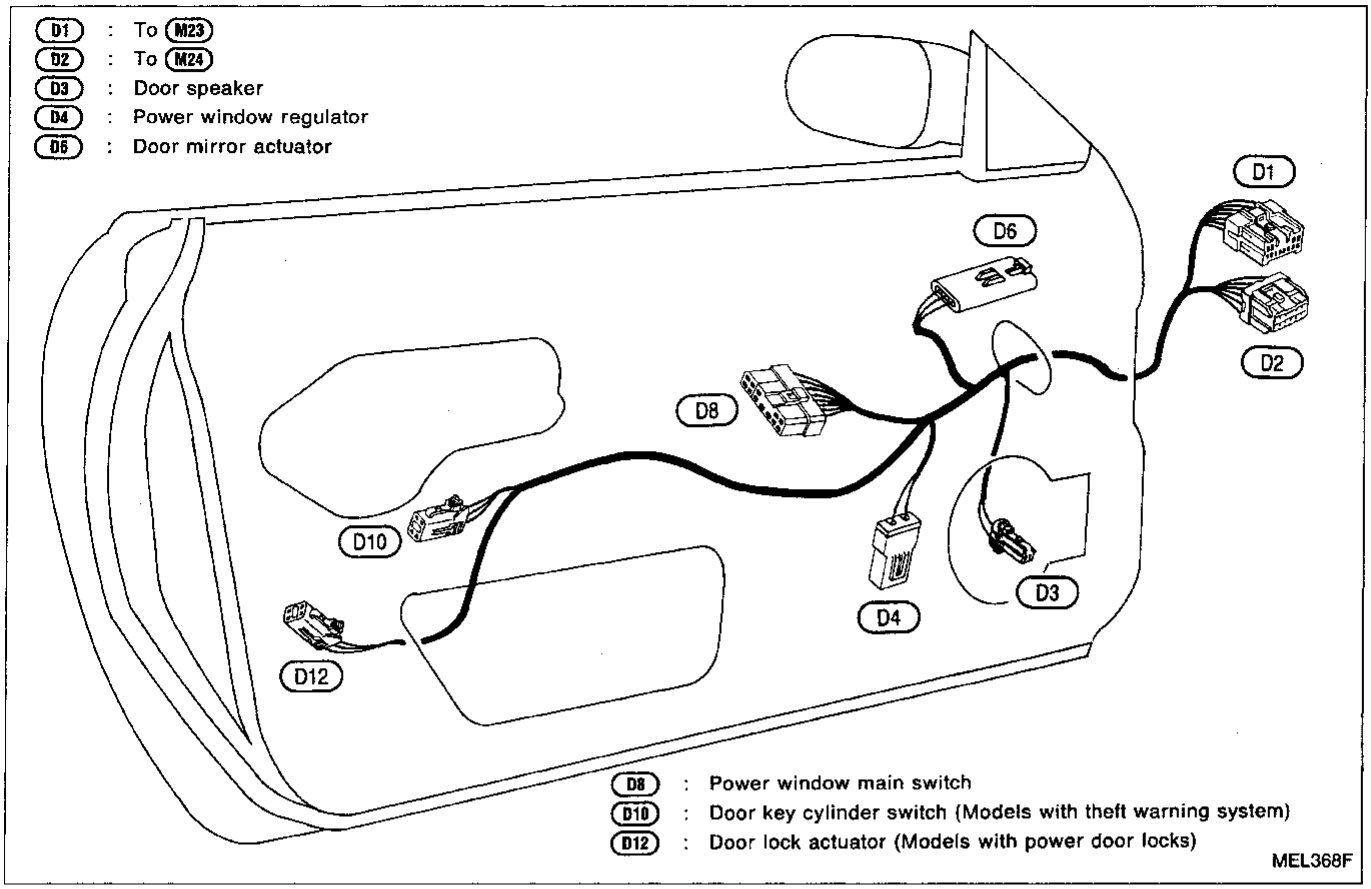
Air Bag Harness



Z1 : Airbag diagnosis sensor unit
Z3 : To airbag module (Driver side), ASCD steering switch and horn switch via spiral cable
Z4 : Airbag module (Passenger side)
Z5 : To M42

MEL336DA

Door Harness LH



Door Harness RH