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".
- **Check for any service bulletins before servicing the vehicle.**

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 should 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 just before the harness connectors for easy identification.**

Description

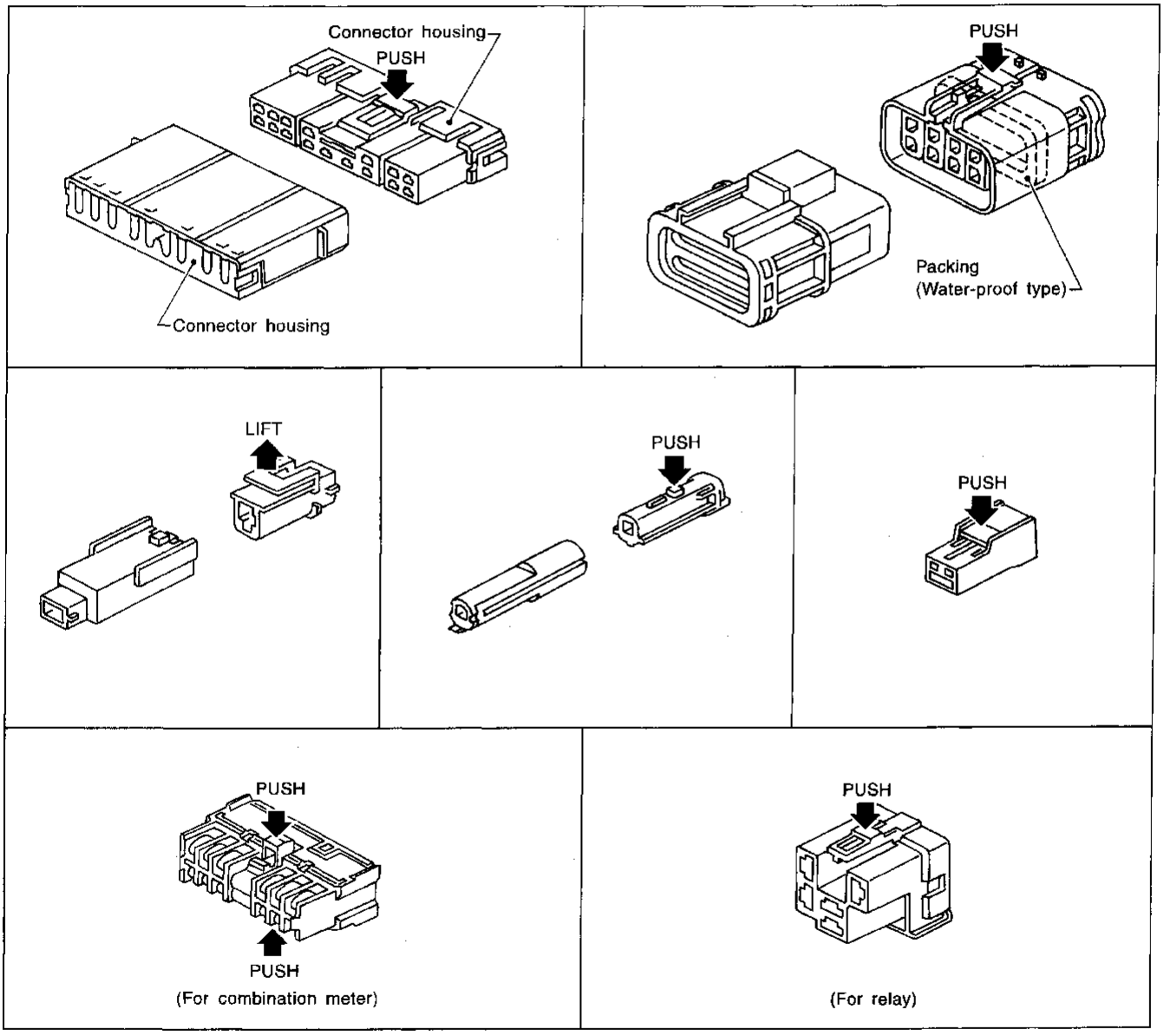
HARNESS CONNECTOR (TAB-LOCKING TYPE)

- The tab-locking type connectors help prevent accidental looseness or disconnection.
- The tab-locking type connectors are disconnected by pushing or lifting the locking tab(s). Refer to illustration below.

Refer to the next page for description of the slide-locking type connector.

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

[Example]



SEL769DA

Description (Cont'd)

HARNESS CONNECTOR (SLIDE-LOCKING TYPE)

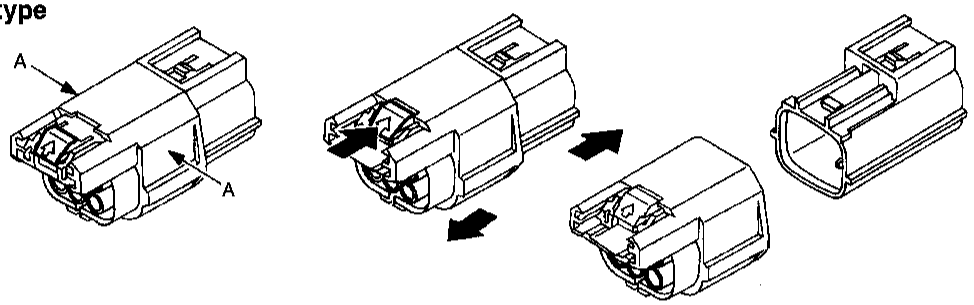
- A new style slide-locking type connector is used on certain systems and components, especially those related to OBD.
- The slide-locking type connectors help prevent incomplete locking and accidental looseness or disconnection.
- The slide-locking type connectors are disconnected by pushing or pulling the slider. Refer to illustration below.

CAUTION:

- **Do not pull the harness or wires when disconnecting the connector.**
- **Be careful not to damage the connector support bracket when disconnecting the connector.**

[Example]

Waterproof type

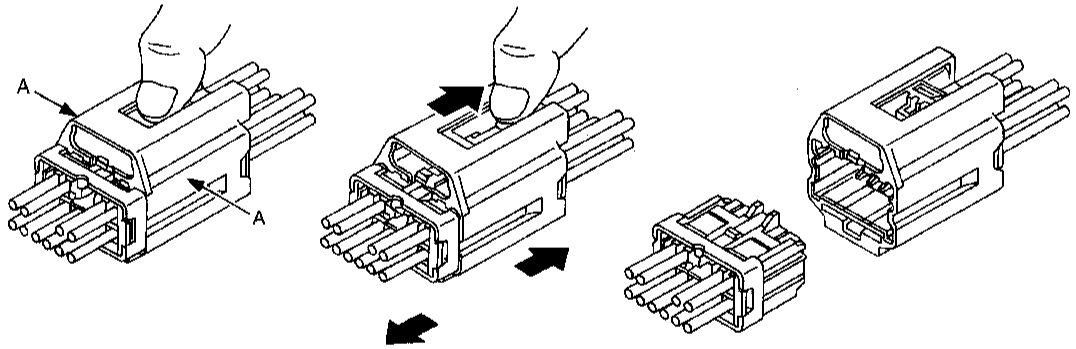


① Firmly grasp shell of connector housing at A.

② Push slider until connector pops or snaps apart.

③ Disconnect harness connector.

Non-waterproof type



① Firmly grasp shell of connector housing at A.

② Pull back on the slider while pulling apart male and famale halves of connector.

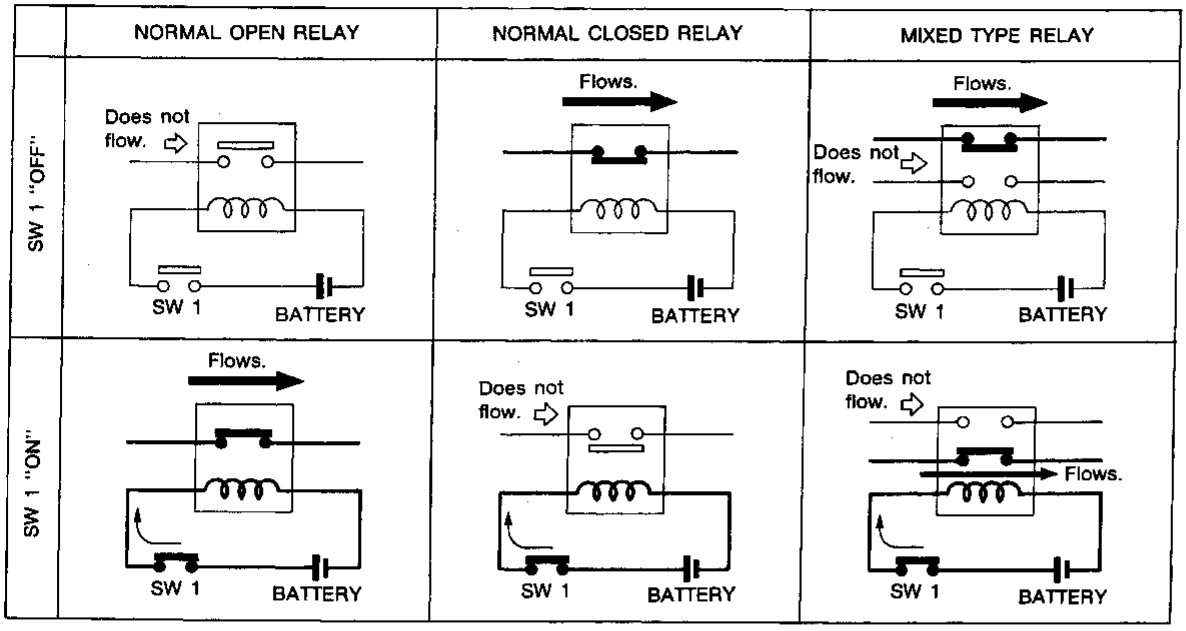
③ Disconnect harness connector.

SEL769V

Description

NORMAL OPEN, NORMAL CLOSED AND MIXED TYPE RELAYS

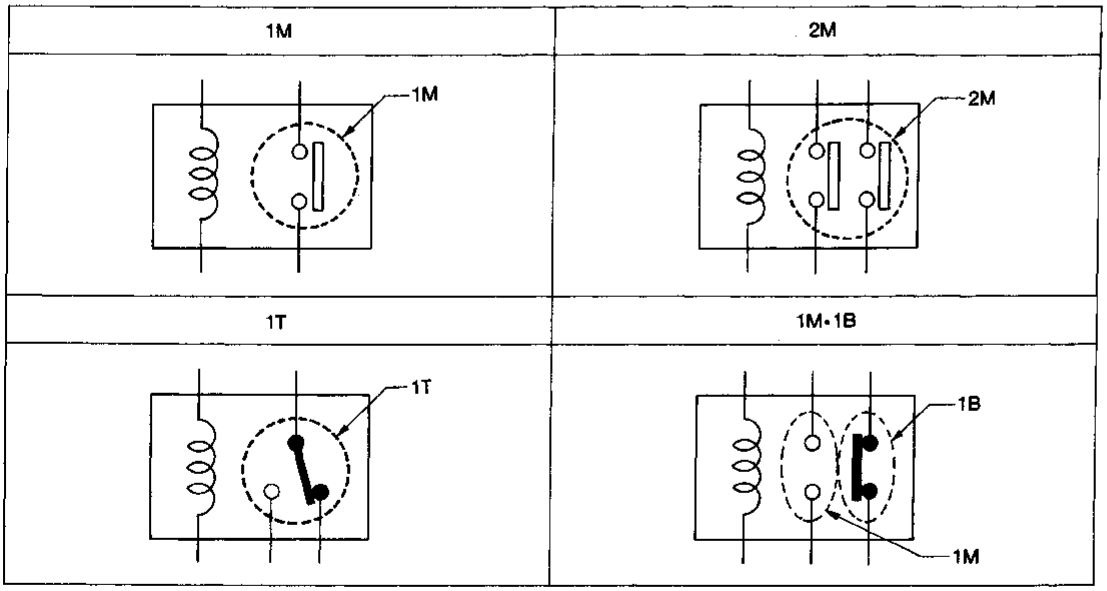
Relays can be divided into three main types: normal open, normal closed and mixed type relays.



SEL881H

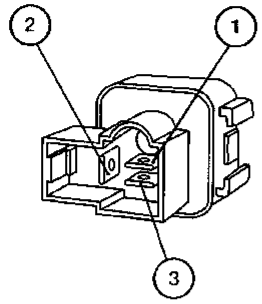
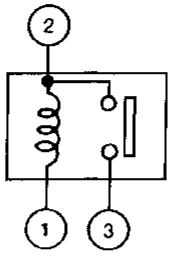
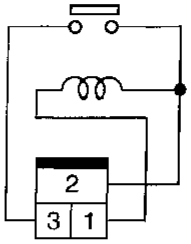
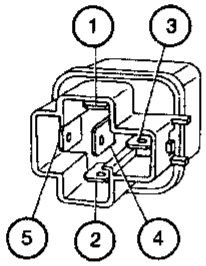
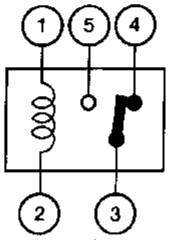
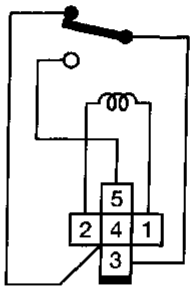
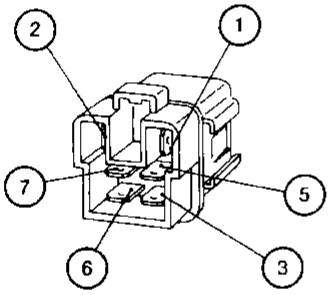
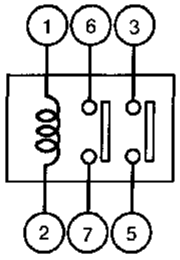
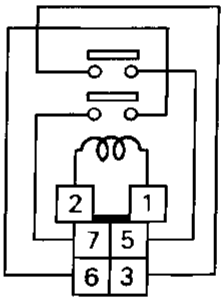
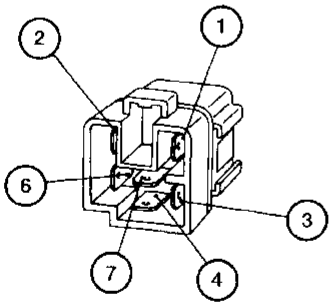
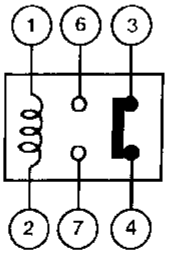
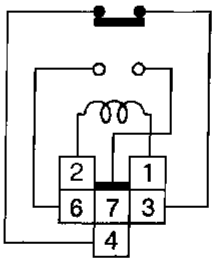
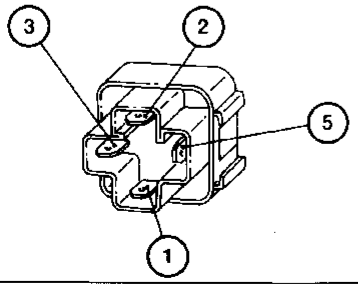
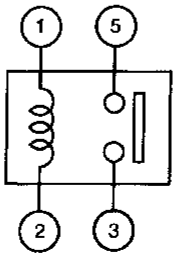
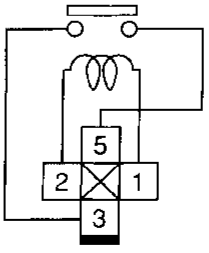
TYPES OF STANDARDIZED RELAYS

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



SEL882H

Description (Cont'd)

Type	Outer view	Circuit	Connector symbol and connection	Case color
1M				WHITE
1T				BLACK
2M				BROWN
1M·1B				GRAY
1M				BLUE

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

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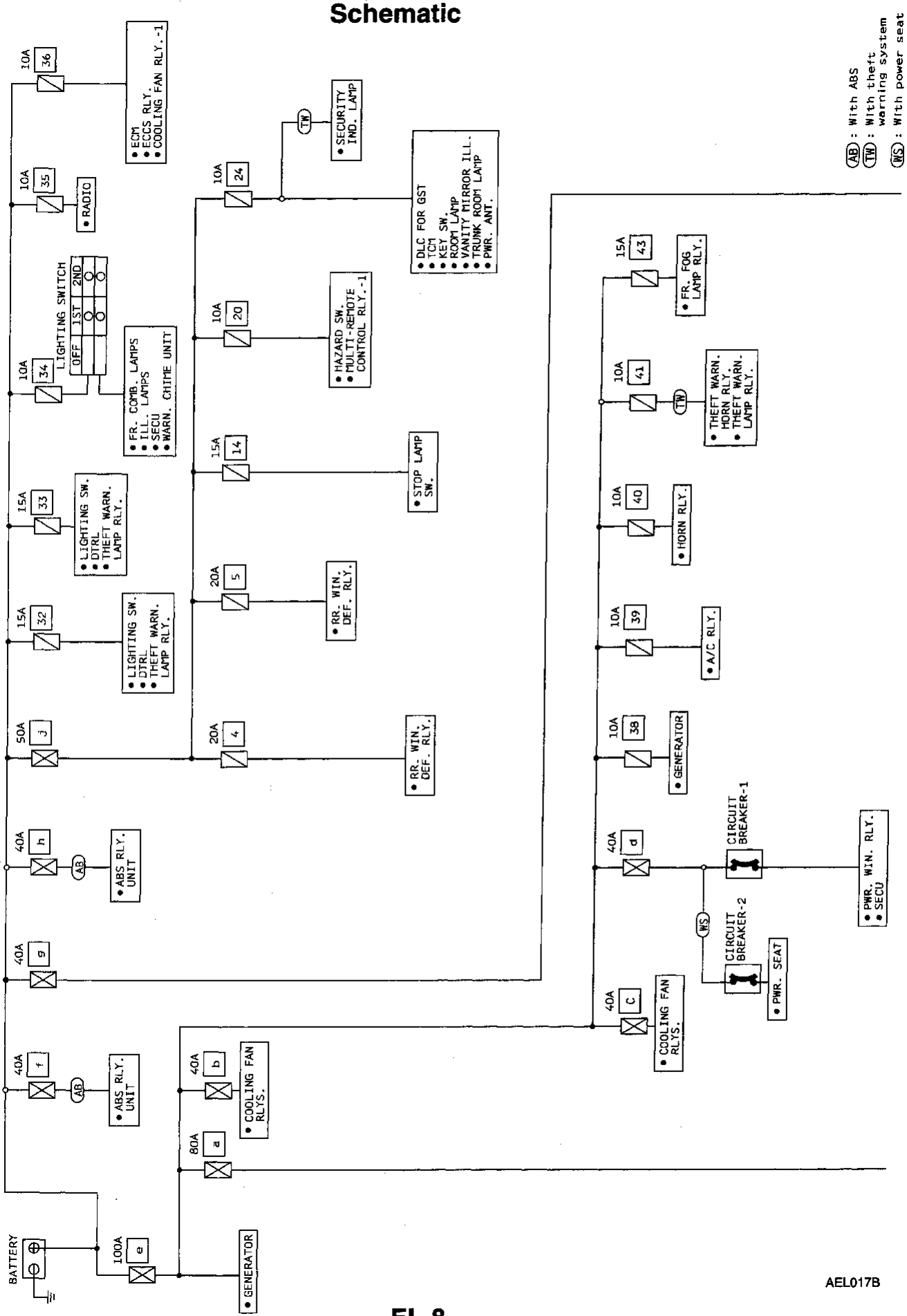
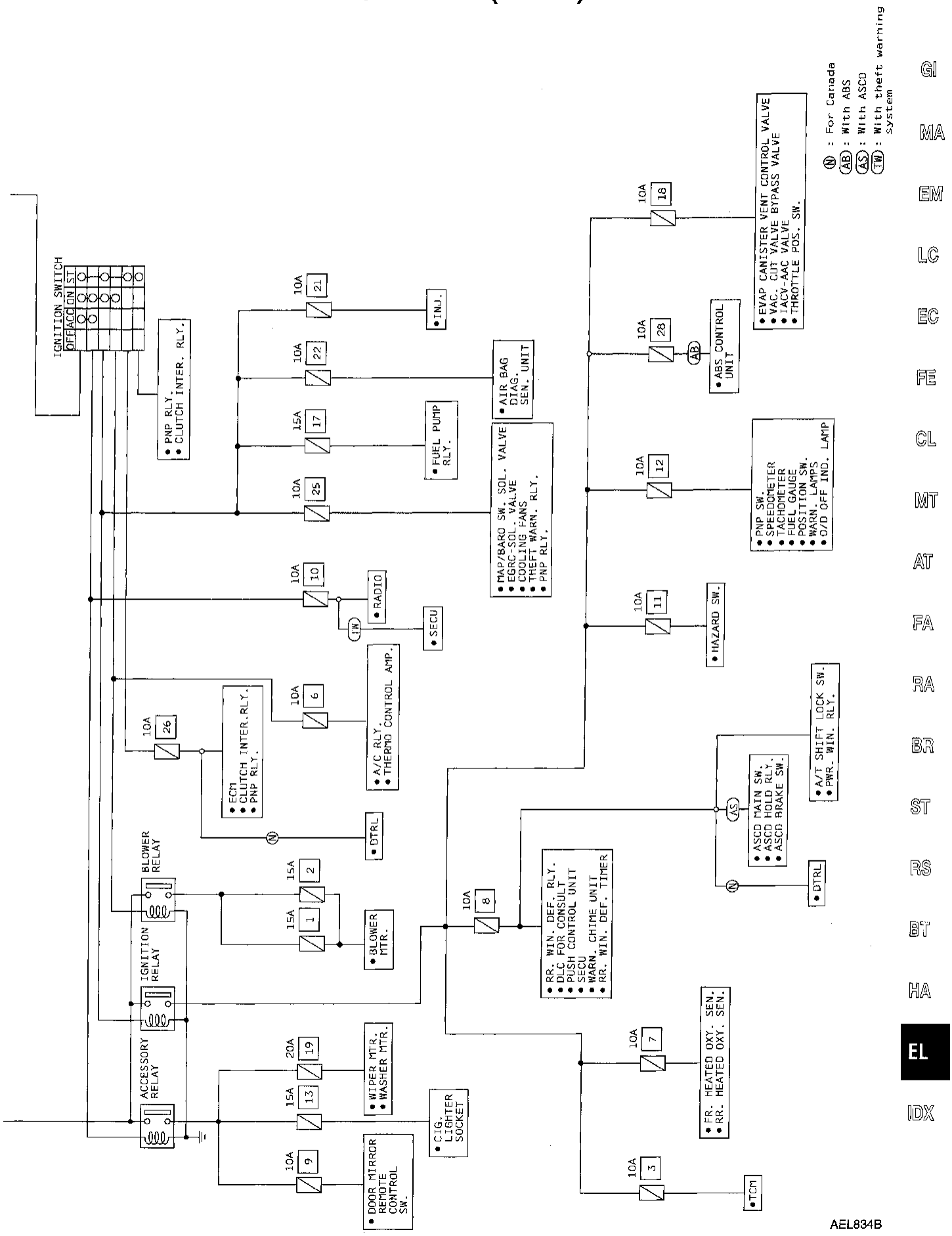
NOTES

Schematic


(AB) : With ABS
(TW) : With theft warning system
(WS) : With power seat
BATTERY
100A e
80A a
40A b
COOLING FAN RLYS.
40A f
ABS RLY. UNIT
40A g
40A h
ABS RLY. UNIT
50A j
20A 4
RR. WIN. DEF. RLY.
20A 5
RR. WIN. DEF. RLY.
15A 14
STOP LAMP SW.
10A 20
HAZARD SW.
MULTI-REMOTE CONTROL RLY.-1
10A 24
SECURITY IND. LAMP
DLC FOR GST
TCM
KEY SW.
ROOM LAMP
VANITY MIRROR ILL.
TRUNK ROOM LAMP
PWR. ANT.
10A 34
LIGHTING SWITCH
OFF 1ST 2ND
FR. COMB. LAMPS
ILL. LAMPS
SECU
WARN. CHIME UNIT
15A 33
LIGHTING SW.
DTRL
THEFT WARN. LAMP RLY.
15A 32
LIGHTING SW.
DTRL
THEFT WARN. LAMP RLY.
10A 35
RADIO
10A 36
ECM
ECCS RLY.
COOLING FAN RLY.-1
GENERATOR
40A C
COOLING FAN RLYS.
40A d
CIRCUIT BREAKER-1
CIRCUIT BREAKER-2
PWR. SEAT
PWR. WIN. RLY.
SECU
10A 38
GENERATOR
10A 39
A/C RLY.
10A 40
HORN RLY.
10A 41
THEFT WARN. HORN RLY.
THEFT WARN. LAMP RLY.
15A 43
FR. FOG LAMP RLY.
AEL017B

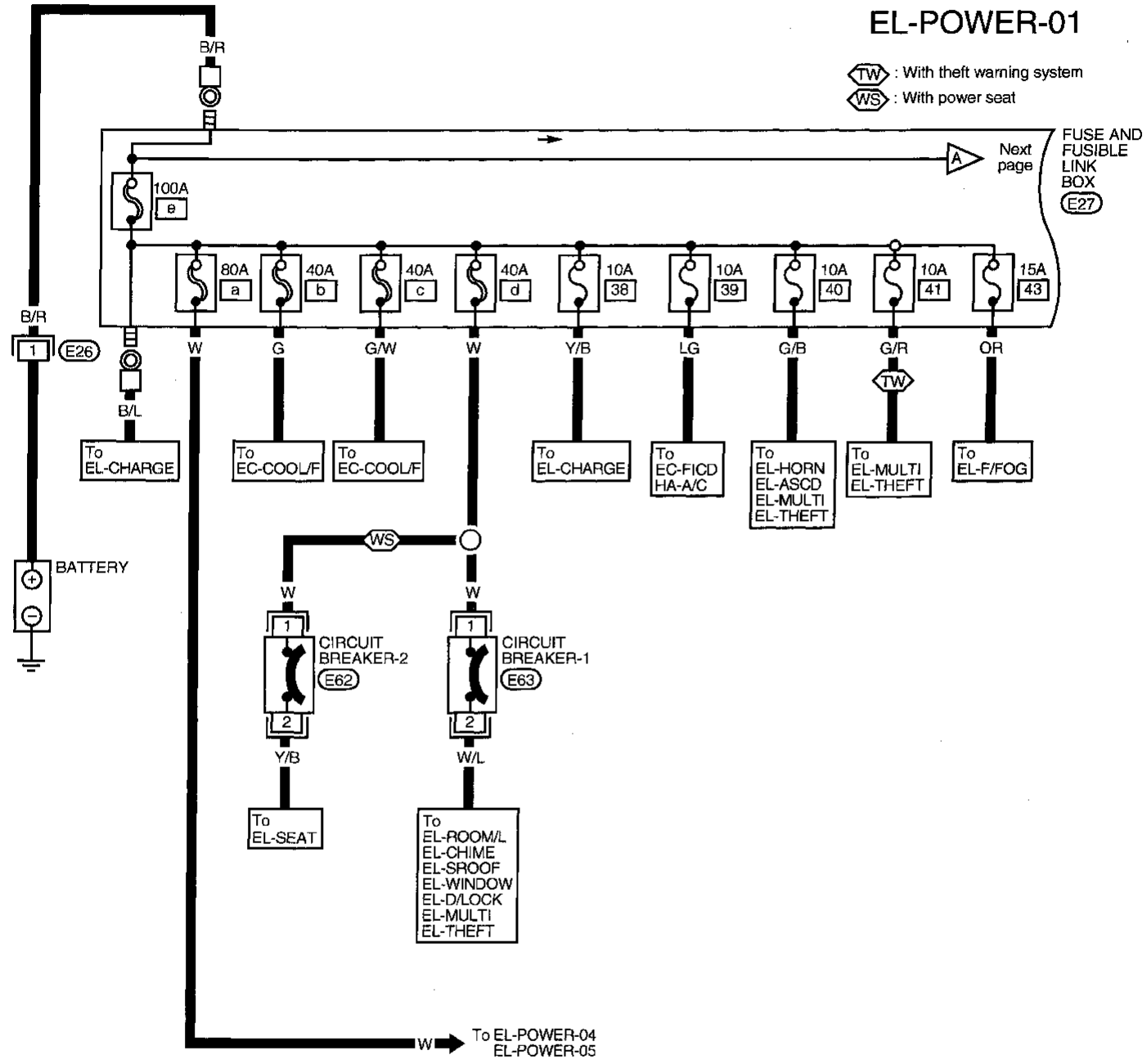
Schematic (Cont'd)

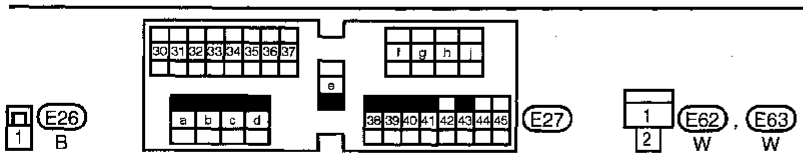


Wiring Diagram — POWER —

BATTERY POWER SUPPLY – IGNITION SW. IN ANY POSITION

NOTE: For detailed ground distribution information, refer to "GROUND DISTRIBUTION", EL-18.



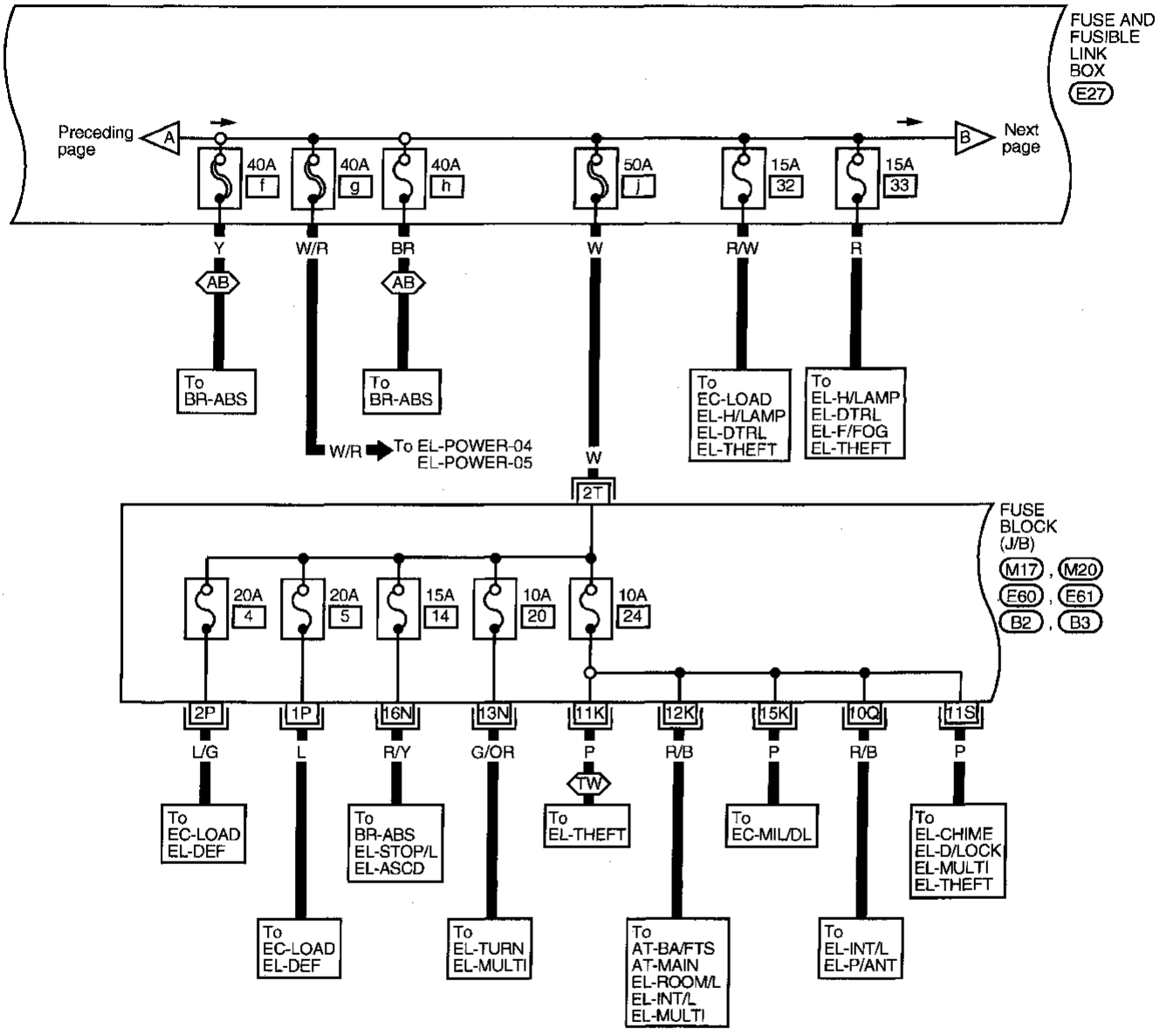


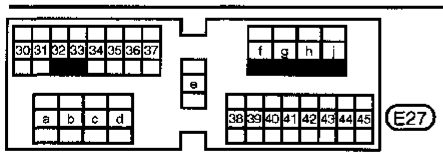
AEL019B

Wiring Diagram — POWER — (Cont'd)

EL-POWER-02

AB : With ABS
TW : With theft warning system





Refer to last page (Foldout page).

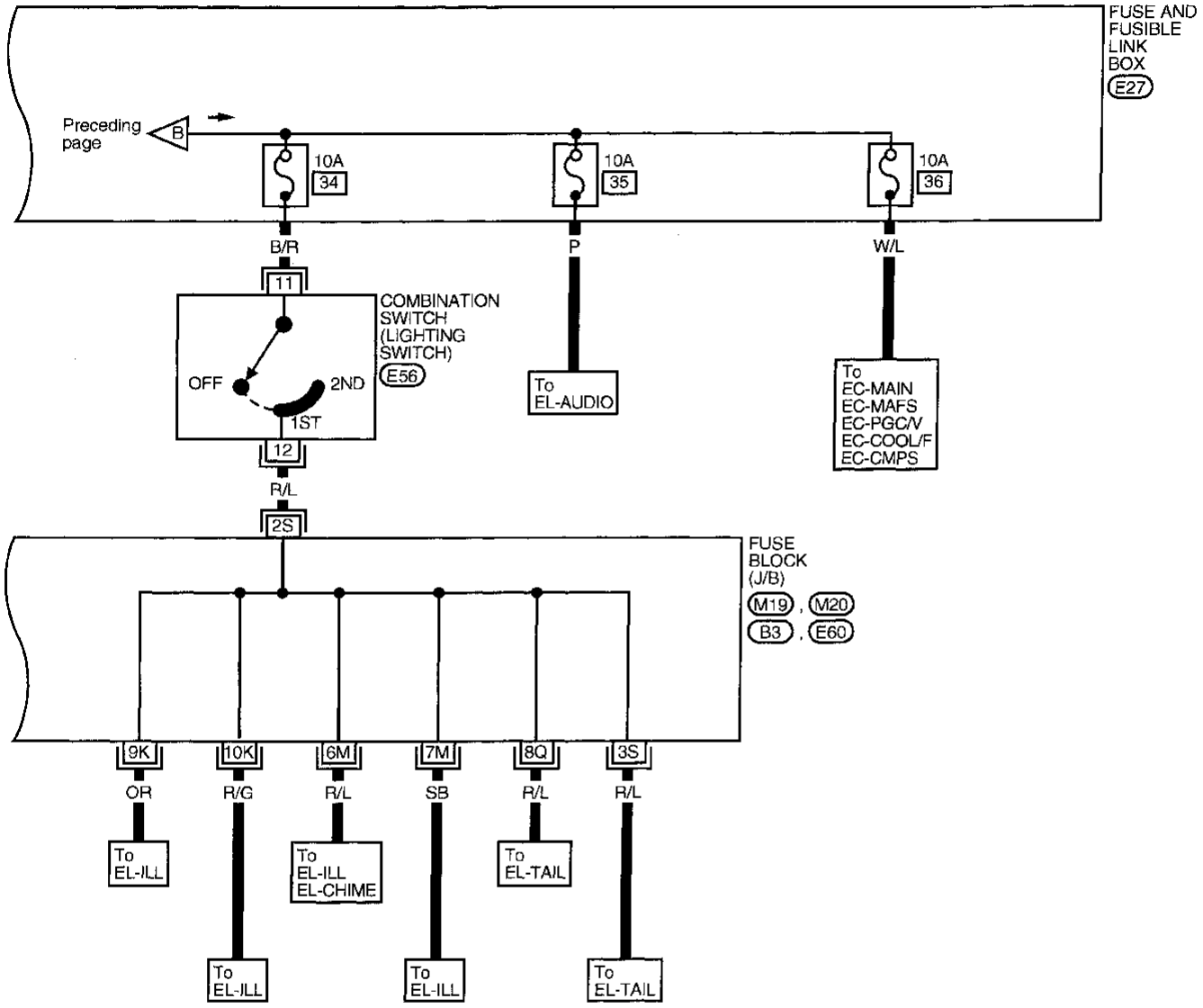
M17, M20, E60, E61, B2, B3

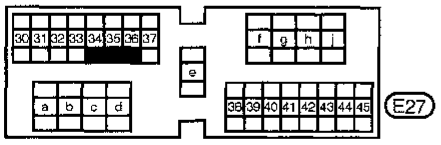
1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23		
24	25	26		
27	28	29		

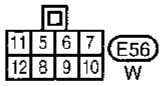
AEL021B

Wiring Diagram — POWER — (Cont'd)

EL-POWER-03







Refer to last page (Foldout page).

M19, M20, B3, E60

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23		
24	25	26		
27	28	29		

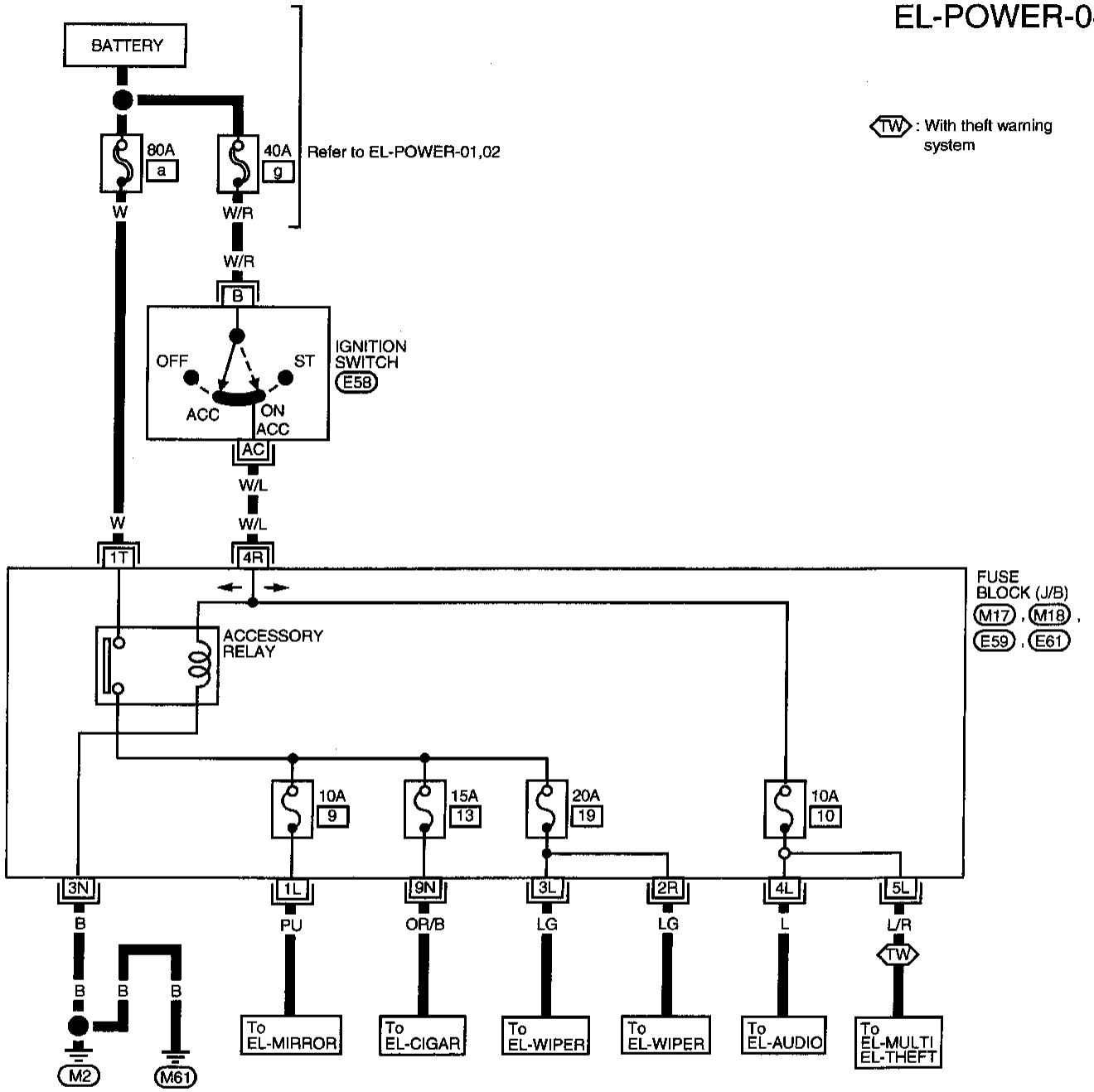
AEL022B

Wiring Diagram — POWER — (Cont'd)

ACCESSORY POWER SUPPLY – IGNITION SW. IN "ACC" OR "ON"

NOTE: For detailed ground distribution information, refer to "GROUND DISTRIBUTION", EL-18.

EL-POWER-04



TW : With theft warning system

Refer to last page (Foldout page).

M17, M18, E59, E61

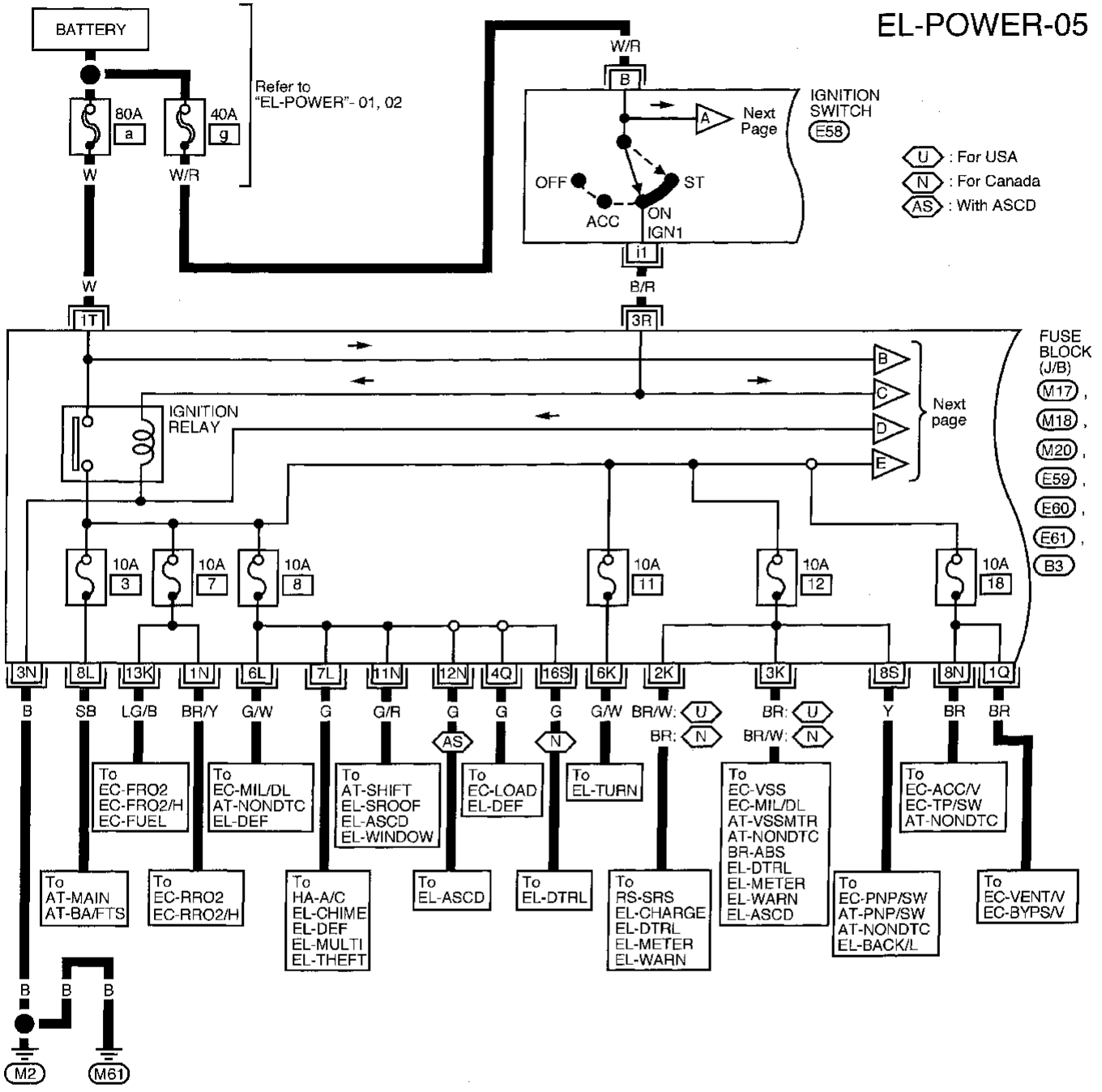
1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23		
24	25	26		
27	28	29		

AEL023B

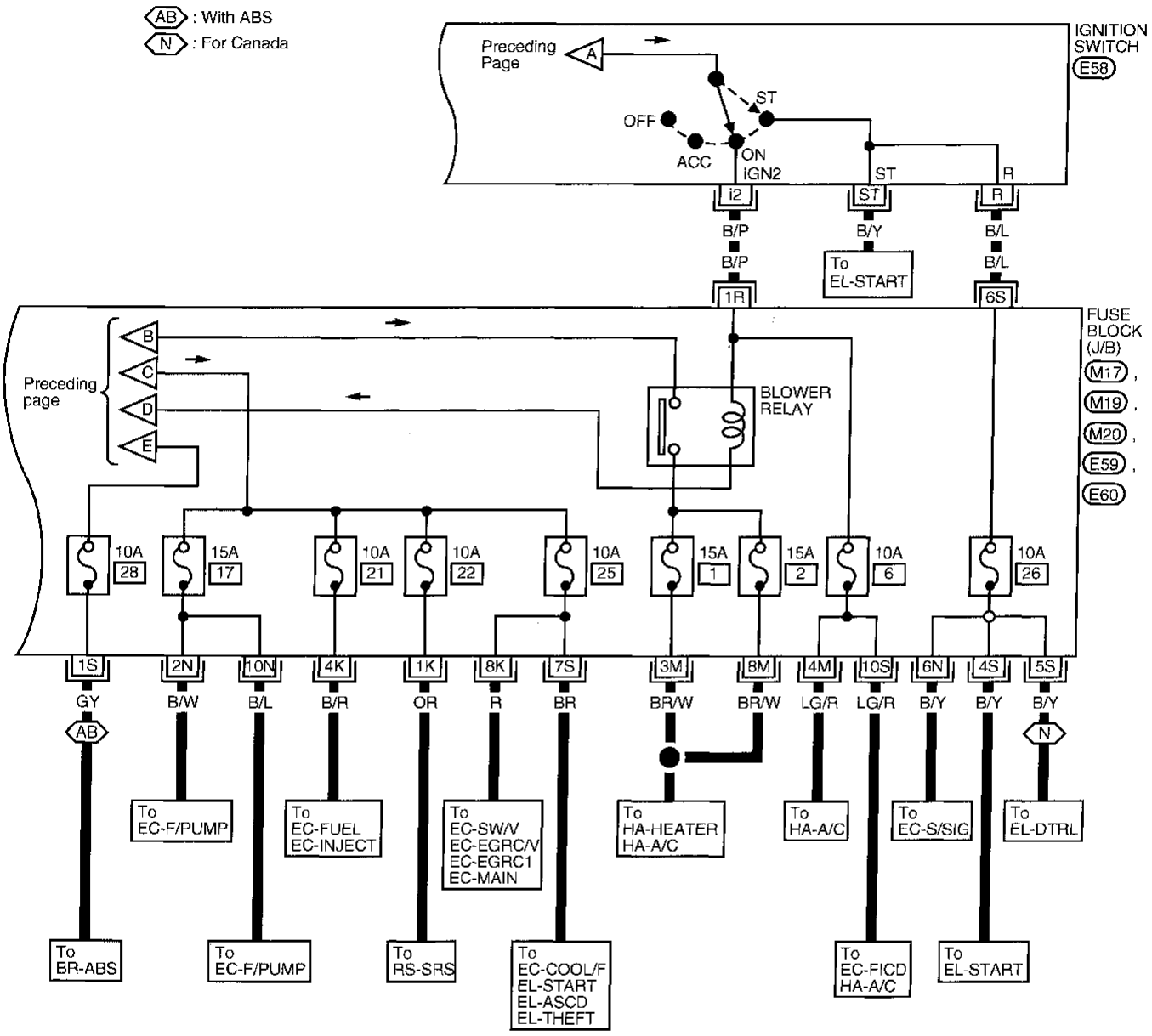
Wiring Diagram — POWER — (Cont'd)

IGNITION POWER SUPPLY – IGNITION SW. IN "ON" AND/OR "START"

NOTE: For detailed ground distribution information, refer to "GROUND DISTRIBUTION", EL-18.



EL-POWER-06



Refer to last page (Foldout page).

M17 , M19 , M20 , E59 , E60

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23		
24	25	26		
27	28	29		

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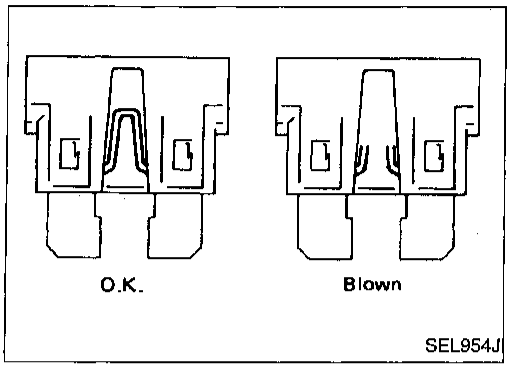
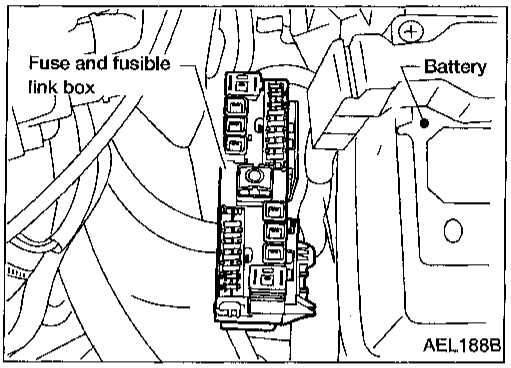
NOTES



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 "ELECTRICAL PARTS (BAT)" if vehicle is not used for a long period of time.**

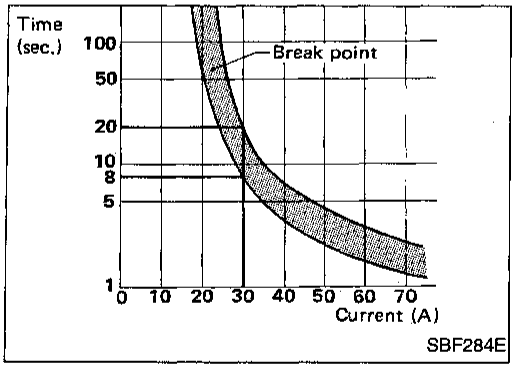


Fusible Link

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:

- **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.**
- **Never wrap outside of fusible link with vinyl tape. Important: Never let fusible link touch any other wiring harness, vinyl or rubber parts.**



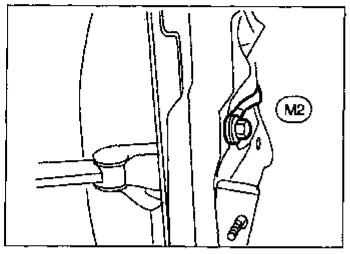
Circuit Breaker Inspection

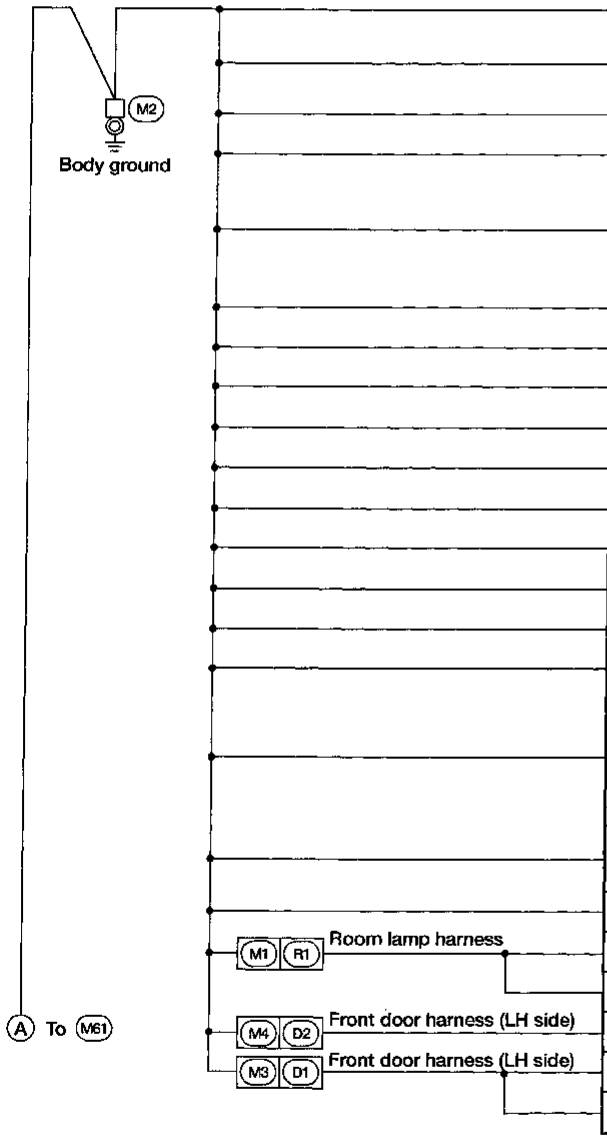
For example, when current is 30A, the circuit is broken within 8 to 20 seconds.

Circuit breakers are used in the following systems.

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

Main Harness





CONNECTOR NUMBER	CONNECT TO
M9	Power window relay
M14	Combination meter (High beam indicator) (Terminal No. 10)
M15	Data link connector for consult
M16	Data link connector for GST (Terminal No. 13)
M17	Fuse block (Terminal No. 3N) • Accessory relay • Blower relay • Ignition relay
M21	Illumination control switch
M22	ASCD main switch
M23	Door mirror remote control switch
M27	Clutch interlock switch (With M/T)
M28	ASCD hold relay (With A/T and ASCD)
M29	ASCD hold relay (With M/T and ASCD)
M30	ASCD control unit
M33	Smart entrance control unit
M34	Combination flasher unit
M35	Rear window defogger switch
M36	Combination meter (Terminal No. 38) • Fuel gauge • Speedometer • Tachometer • Water temperature gauge
M37	Combination meter (Turn signal indicators) (Terminal No. 27)
M58	Cigarette lighter socket
R2	Vanity mirror illumination LH
R4	Vanity mirror illumination RH
D7	Main power window and door lock/unlock switch
D9	Front door key cylinder switch LH
D10	Front door lock actuator LH (Door unlock sensor)

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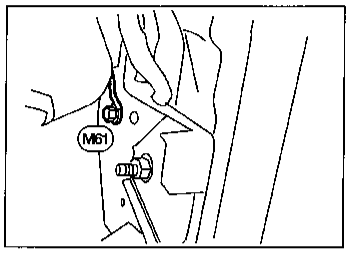
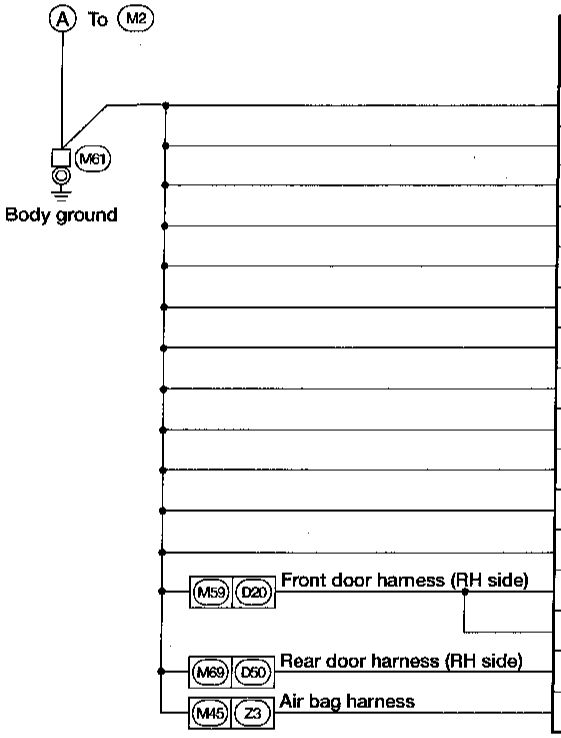
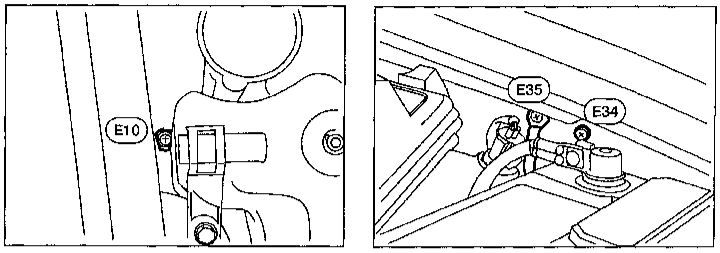


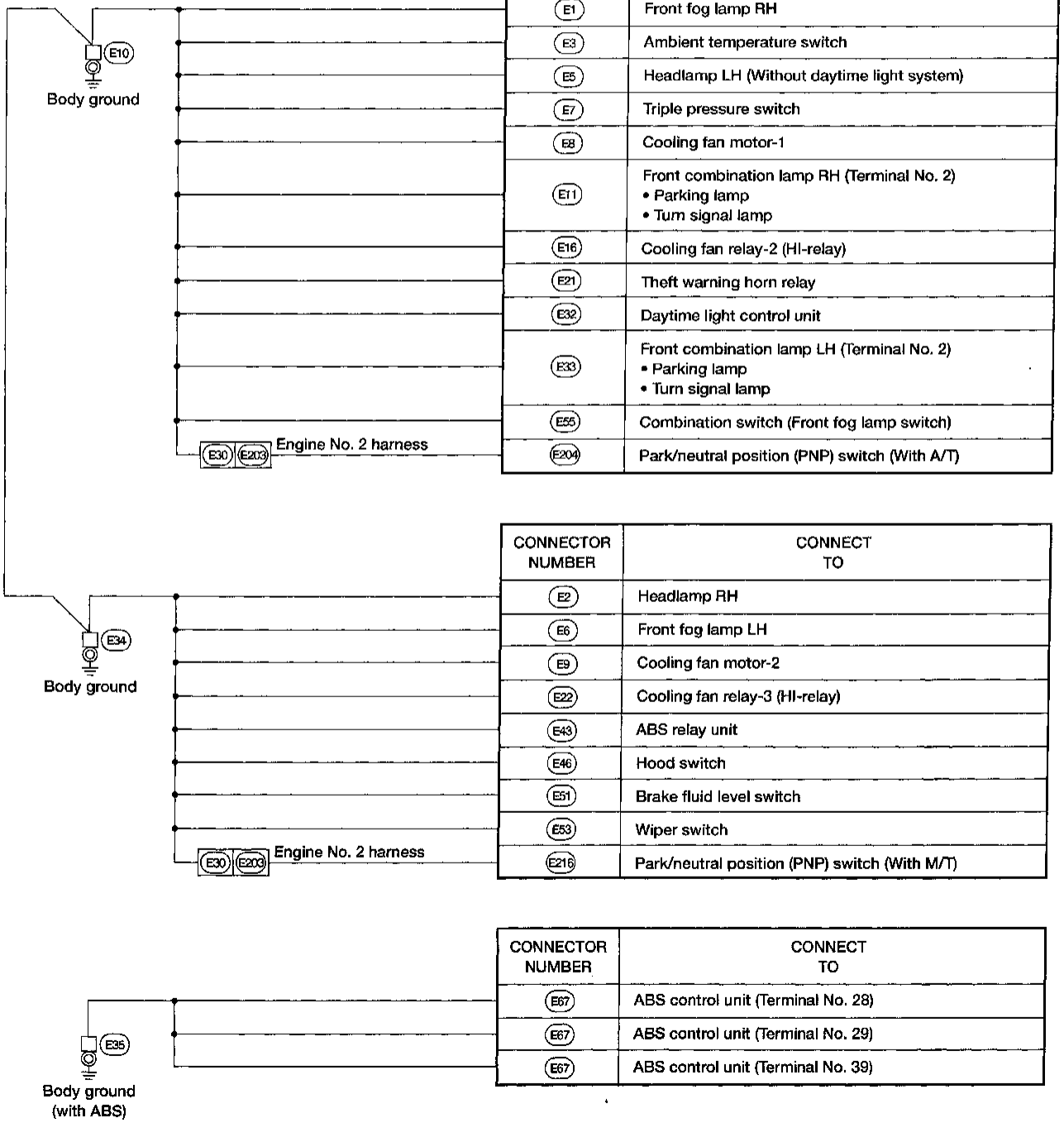


CONNECTOR NUMBER	CONNECT TO
M31	Warning chime unit (Without power door locks)
M32	Rear window defogger timer (Without power door locks)
M39	Mode door motor
M46	Fan switch
M48	Push control unit
M49	Full cool switch
M50	A/T device (Terminal No. 6)
M50	A/T device (Overdrive control switch) (Terminal No. 2)
M53	Intake door motor
M54	Glove box lamp
M64	Wiper motor
M65	Wiper amplifier
D28	Front door key cylinder switch RH
D29	Front door lock actuator RH (Door unlock sensor)
D53	Rear door lock actuator RH (Door unlock sensor)
Z2	Air bag diagnosis sensor unit

AEL838B

Engine Room Harness





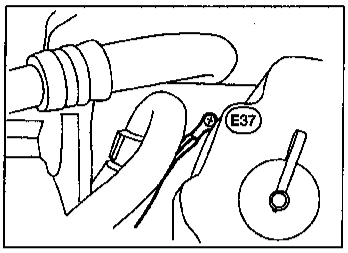
CONNECTOR NUMBER	CONNECT TO
E1	Front fog lamp RH
E3	Ambient temperature switch
E5	Headlamp LH (Without daytime light system)
E7	Triple pressure switch
E8	Cooling fan motor-1
E11	Front combination lamp RH (Terminal No. 2) • Parking lamp • Turn signal lamp
E16	Cooling fan relay-2 (HI-relay)
E21	Theft warning horn relay
E32	Daytime light control unit
E33	Front combination lamp LH (Terminal No. 2) • Parking lamp • Turn signal lamp
E55	Combination switch (Front fog lamp switch)
E204	Park/neutral position (PNP) switch (With A/T)

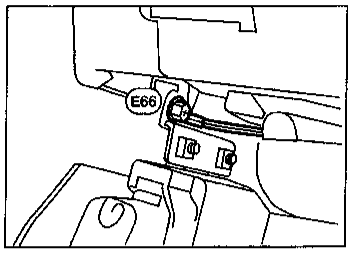
CONNECTOR NUMBER	CONNECT TO
E2	Headlamp RH
E6	Front fog lamp LH
E9	Cooling fan motor-2
E22	Cooling fan relay-3 (HI-relay)
E43	ABS relay unit
E46	Hood switch
E51	Brake fluid level switch
E53	Wiper switch
E216	Park/neutral position (PNP) switch (With M/T)

CONNECTOR NUMBER	CONNECT TO
E67	ABS control unit (Terminal No. 28)
E67	ABS control unit (Terminal No. 29)
E67	ABS control unit (Terminal No. 39)

AEL839B

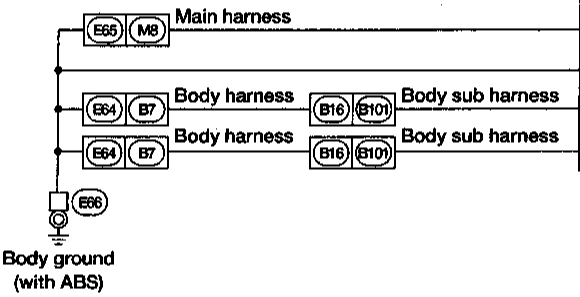
Engine Room Harness (Cont'd)





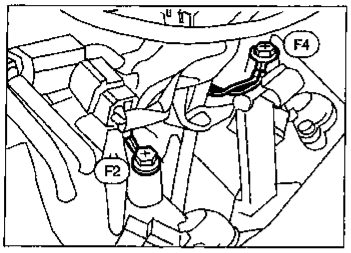
CONNECTOR NUMBER	CONNECT TO
E41	Generator

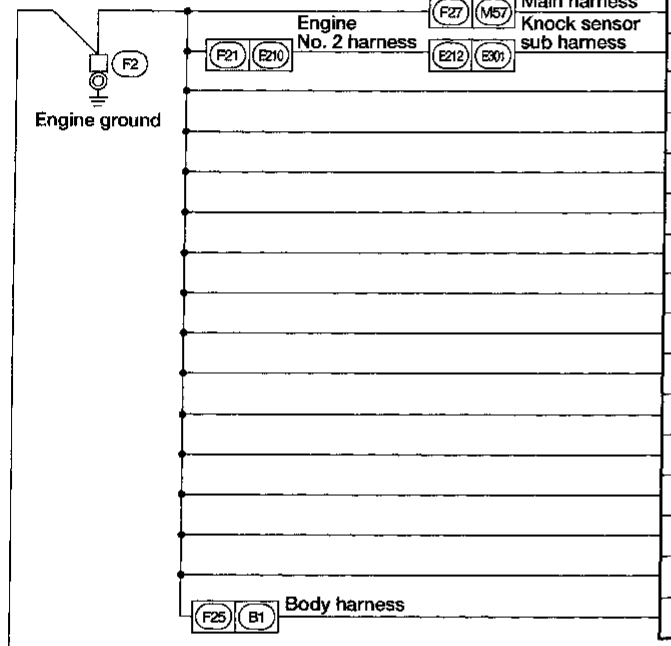
CONNECTOR NUMBER	CONNECT TO
M62	Front wheel sensor RH (Shield wire)
E48	Front wheel sensor LH (Shield wire)
B102	Rear wheel sensor RH (Shield wire)
B103	Rear wheel sensor LH (Shield wire)



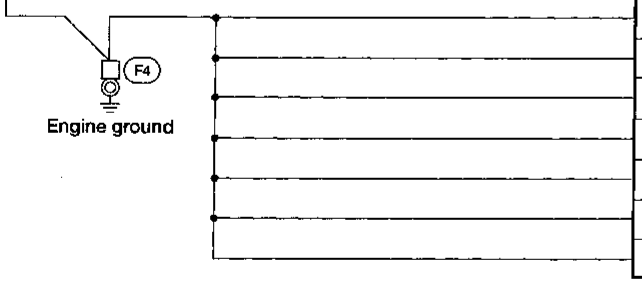
AEL840B

Engine Control Harness





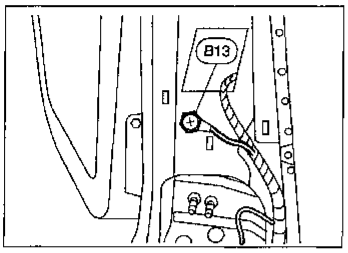
CONNECTOR NUMBER	CONNECT TO
M16	Data link connector for GST (Terminal No. 12)
E302	Knock sensor (Shield wire)
F9	Distributor (Camshaft position sensor) (Terminal No. 6)
F9	Distributor (Camshaft position sensor) (Shield wire)
F11	Front heated oxygen sensor (Shield wire)
F14	Revolution sensor (Shield wire)
F15	Mass air flow sensor (Shield wire)
F17	Absolute pressure sensor (Shield wire)
F19	Throttle position sensor (Shield wire)
F24	Rear heated oxygen sensor
F24	Rear heated oxygen sensor (Shield wire)
F29	TCM (Transmission Control Module) (Terminal No. 15)
F29	TCM (Transmission Control Module) (Terminal No. 48)
F30	ECM (Terminal No. 39)
F30	ECM (Terminal No. 43)
B28	Evap control system pressure sensor (Shield wire)

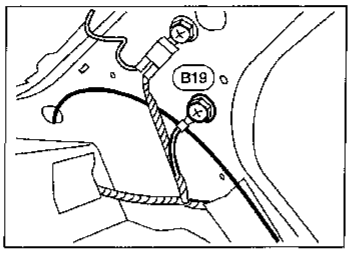


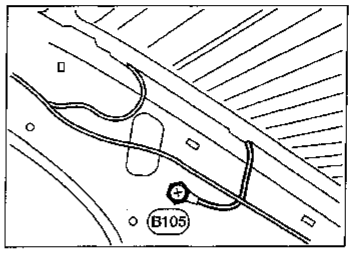
CONNECTOR NUMBER	CONNECT TO
F9	Distributor (Power transistor) (Terminal No. 2)
F12	Crankshaft position sensor (OBD) (Shield wire)
F30	ECM (Terminal No. 10)
F30	ECM (Terminal No. 19)
F30	ECM (Terminal No. 106)
F30	ECM (Terminal No. 112)
F30	ECM (Terminal No. 118)

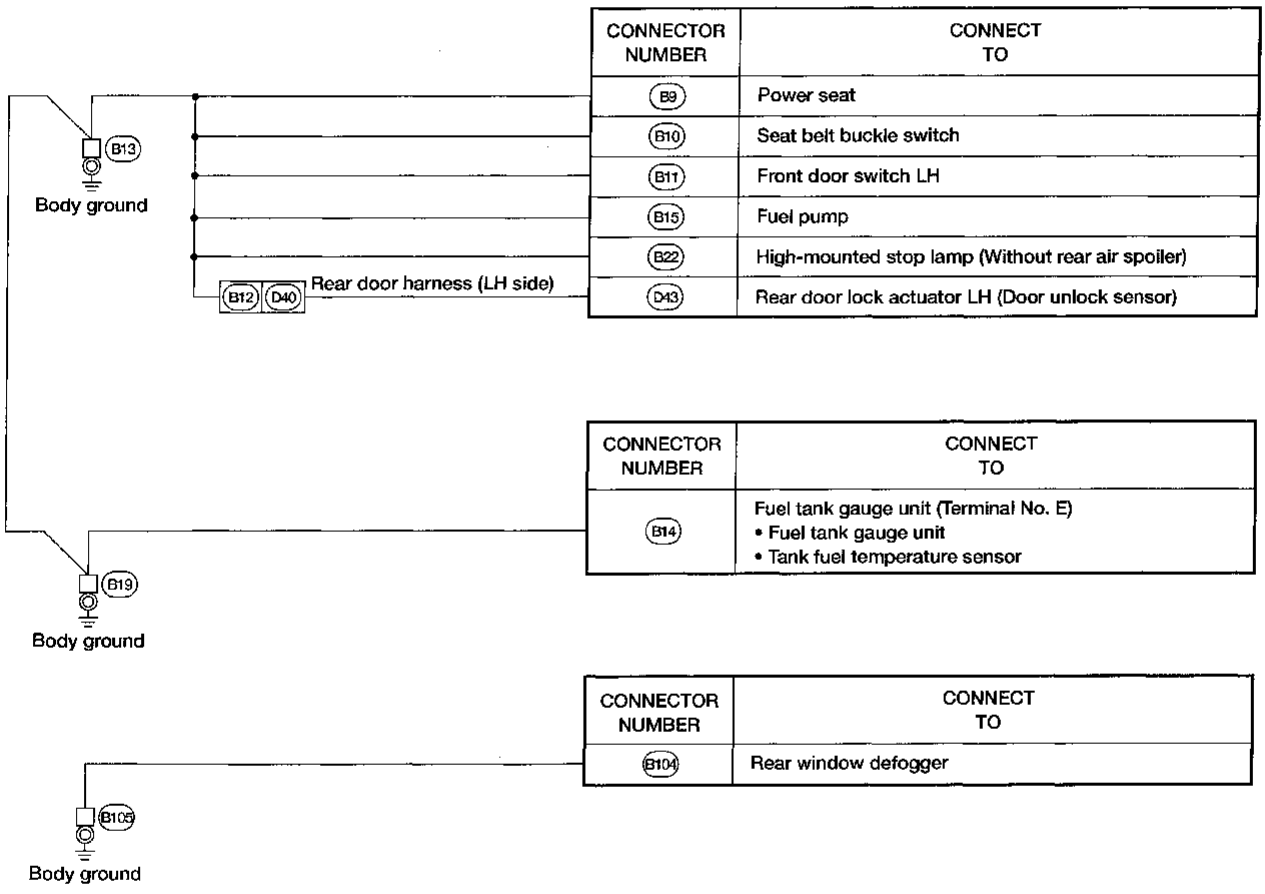
AEL841B

Body Harness









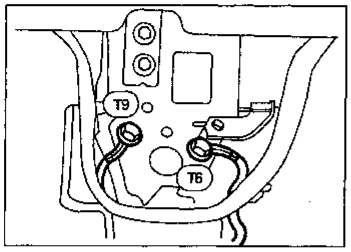
CONNECTOR NUMBER	CONNECT TO
B9	Power seat
B10	Seat belt buckle switch
B11	Front door switch LH
B15	Fuel pump
B22	High-mounted stop lamp (Without rear air spoiler)
D43	Rear door lock actuator LH (Door unlock sensor)

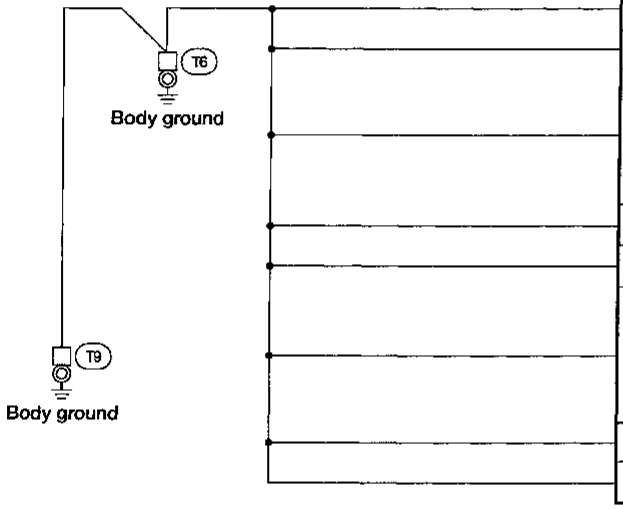
CONNECTOR NUMBER	CONNECT TO
B14	Fuel tank gauge unit (Terminal No. E) • Fuel tank gauge unit • Tank fuel temperature sensor

CONNECTOR NUMBER	CONNECT TO
B104	Rear window defogger

AEL842B

Tail Harness

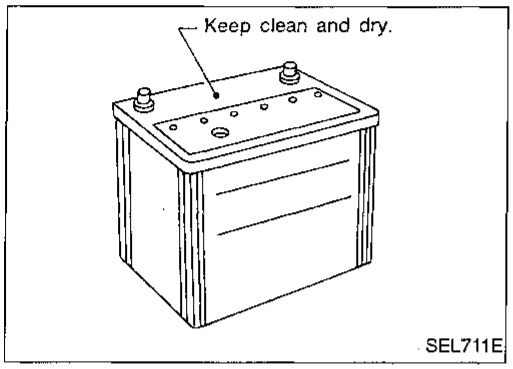




CONNECTOR NUMBER	CONNECT TO
T1	Trunk room lamp switch
T3	Trunk lid key cylinder switch (Unlock switch)
T5	Rear combination lamp LH (Terminal No. 2) • Back-up lamp • Stop lamp • Tail lamp • Turn signal lamp
T7	License plate lamp LH
T8	License plate lamp RH
T10	Rear combination lamp RH (Terminal No. 2) • Back-up lamp • Stop lamp • Tail lamp • Turn signal lamp
T11	Power antenna
T12	High-mounted stop lamp (With rear air spoiler)

AEL843B

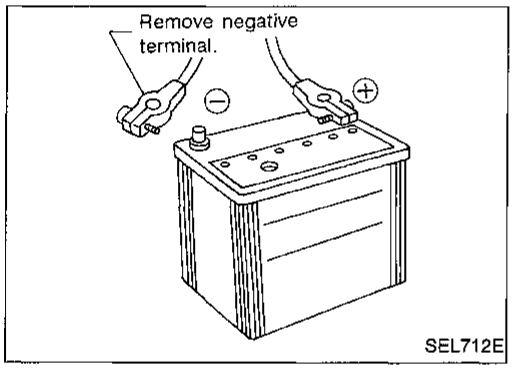
CAUTION:
If it becomes necessary to start the engine with a booster battery and jumper cables:
- **Use a 12-volt booster battery.**
- **After connecting battery cables, ensure that they are tightly clamped to battery terminals for good contact.**
- **Never add distilled water through the hole used to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



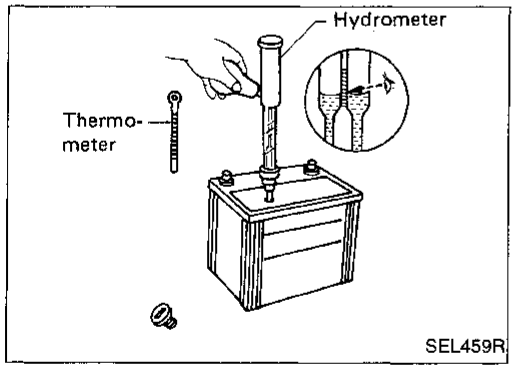
How to Handle Battery

METHODS OF PREVENTING OVER-DISCHARGE

The following precautions must be taken to prevent over-discharging a battery.
- The battery surface (particularly its top) should always be kept clean and dry.
- The terminal connections should be clean and tight.
- At every routine maintenance, check the electrolyte level.



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



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

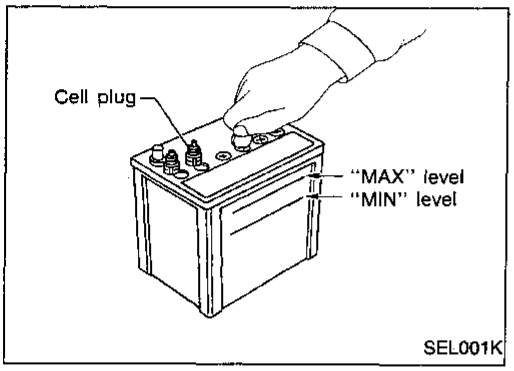
How to Handle Battery (Cont'd)

CHECKING ELECTROLYTE LEVEL

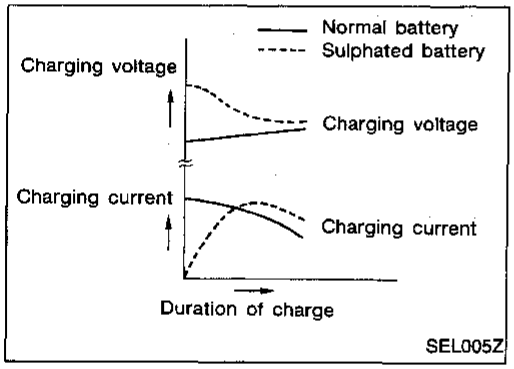
WARNING:

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

Normally the battery does not require additional water. However, when the battery is used under severe conditions, adding distilled water may be necessary during the battery life.



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

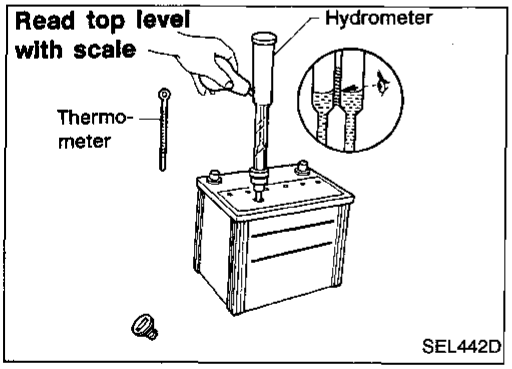


SULPHATION

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

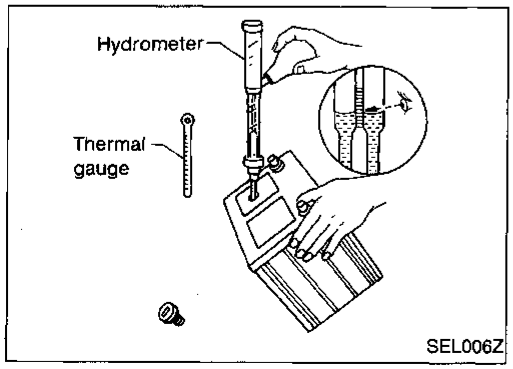
To determine if a battery has been "sulphated", note its voltage and current when charging it. As shown in the figure, less current and higher voltage are observed in the initial stage of charging sulphated batteries.

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.



- When electrolyte level is too low, tilt battery case to raise it for easy measurement.

How to Handle Battery (Cont'd)

2. 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

How to Handle Battery (Cont'd)

CHARGING THE BATTERY

CAUTION:

- **Do not "quick charge" a fully discharged battery.**
- **Keep the battery away from open flame while it is being charged.**
- **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.**
- **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

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.
- After the battery is charged, always perform a capacity test to assure that the battery is serviceable.

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

Power is supplied at all times:
- to ignition switch terminal (B)
- through 40A fusible link (letter g), located in the fuse and fusible link box).

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

For models with theft warning system

With the ignition switch in the ON or START position, power is supplied:
- through 10A fuse [No. 25, located in the fuse block (J/B)]
- to theft warning relay terminal ①.

With the ignition switch in the START position, power is supplied:
- through 10A fuse [No. 26, located in the fuse block (J/B)]
- to theft warning relay terminal ③.

If the theft warning system is triggered, terminal ② of the theft warning relay is grounded through terminal (32) of the smart entrance control unit and power to the clutch interlock relay is interrupted.

When the theft warning system is not triggered, power is supplied:
- through theft warning relay 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 10A fuse [No. 26, located in the fuse block (J/B)]
- 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 (M2) and (M61).

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.

System Description (Cont'd)

A/T MODELS

Power is supplied at all times:
- through 40A fusible link (letter g, located in the fuse and fusible link box)
- to ignition switch terminal ⓑ.

For models with theft warning system

With the ignition switch in the ON or START position, power is supplied:
- through 10A fuse [No. 25, located in the fuse block (J/B)]
- to theft warning relay terminal ①
- to theft warning relay terminal ③
- through theft warning relay terminal ④
- to park/neutral position (PNP) relay terminal ①.

If the theft warning system is triggered, terminal ② of the theft warning relay is grounded through smart entrance control unit terminal ㉜ and power to the PNP relay is interrupted.
When the theft warning system is not triggered and the ignition switch is in the START position, power is supplied:
- from ignition switch terminal ⓢⓣ
- to PNP relay terminal ⑥.

With the selector lever in the P or N position, ground is supplied:
- from PNP switch terminal ①
- to PNP relay terminal ②
- through PNP switch terminal ②
- to body grounds (E10) and (E34).

The PNP relay is energized, and power is supplied:
- from PNP relay terminal ⑦
- 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.

For models without theft warning system

With the ignition switch in the ON or START position, power is supplied:
- through 10A fuse [No. 25, located in the fuse block (J/B)]
- to PNP relay terminal ①.

With the ignition switch in the START position, power is supplied:
- from ignition switch terminal ⓢⓣ
- to PNP relay terminal ⑥.

With the selector lever in the P or N position, ground is supplied:
- from PNP switch terminal ①
- to PNP relay terminal ②
- through PNP switch terminal ②
- to body grounds (E10) and (E34).

The PNP relay is energized and power is supplied:
- from PNP relay terminal ⑦
- to terminal ② of the starter motor windings.

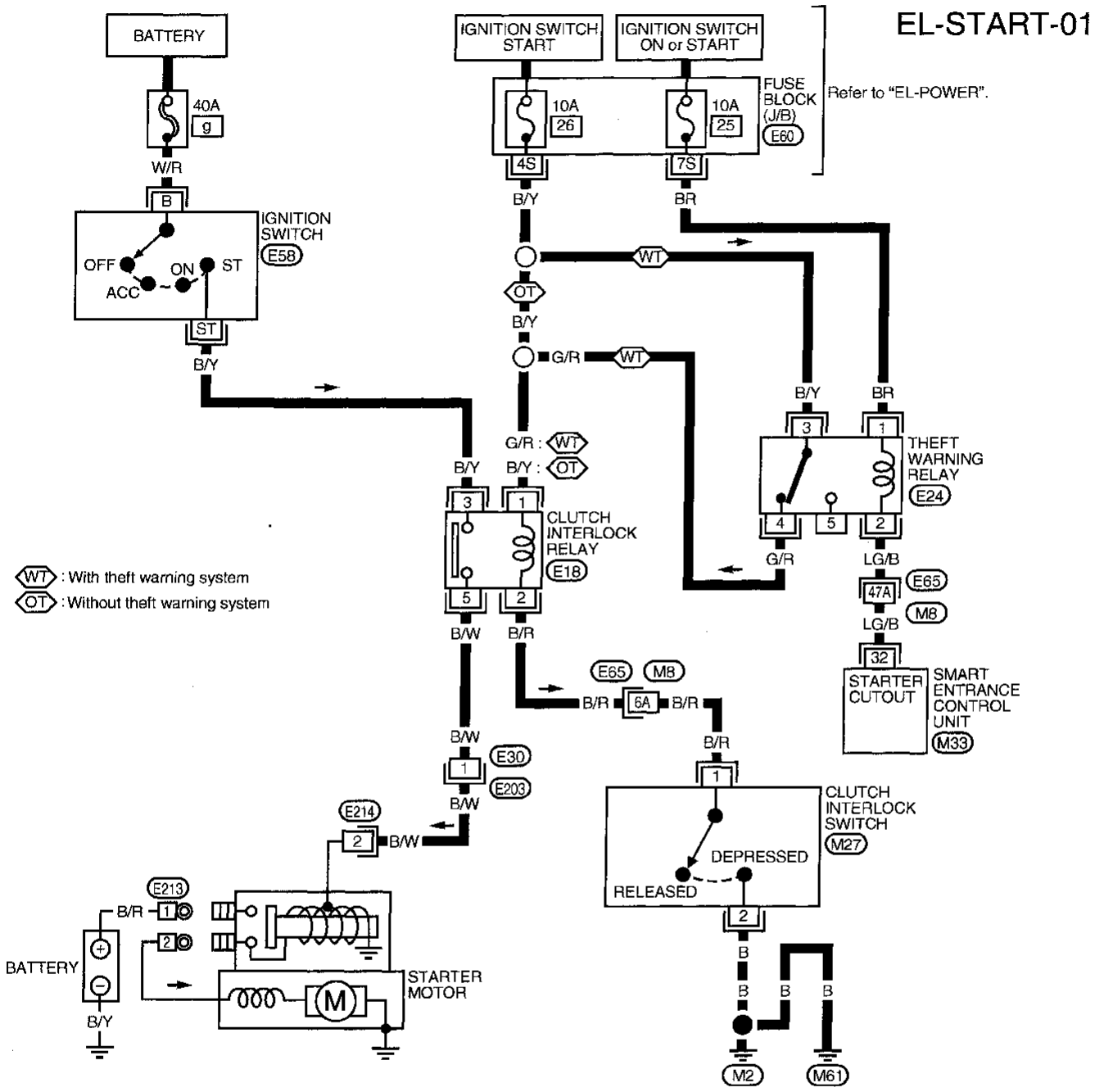
The starter motor plunger closes and provides a closed circuit between the battery and starter motor. The starter motor is grounded to the engine block. With power and ground supplied, cranking occurs and the engine starts.

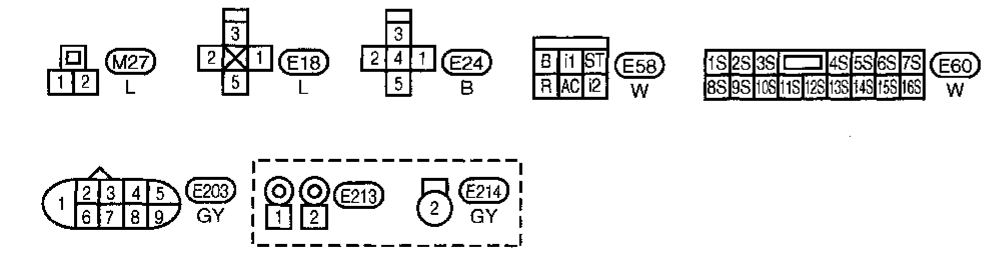
THEFT WARNING SYSTEM

The theft warning system will interrupt power supply to clutch interlock relay (M/T models) or PNP relay (A/T models) if the system is triggered. The starter motor will then not crank, and the engine will not start. Refer to "THEFT WARNING SYSTEM" (EL-201).

Wiring Diagram — START —

M/T MODELS





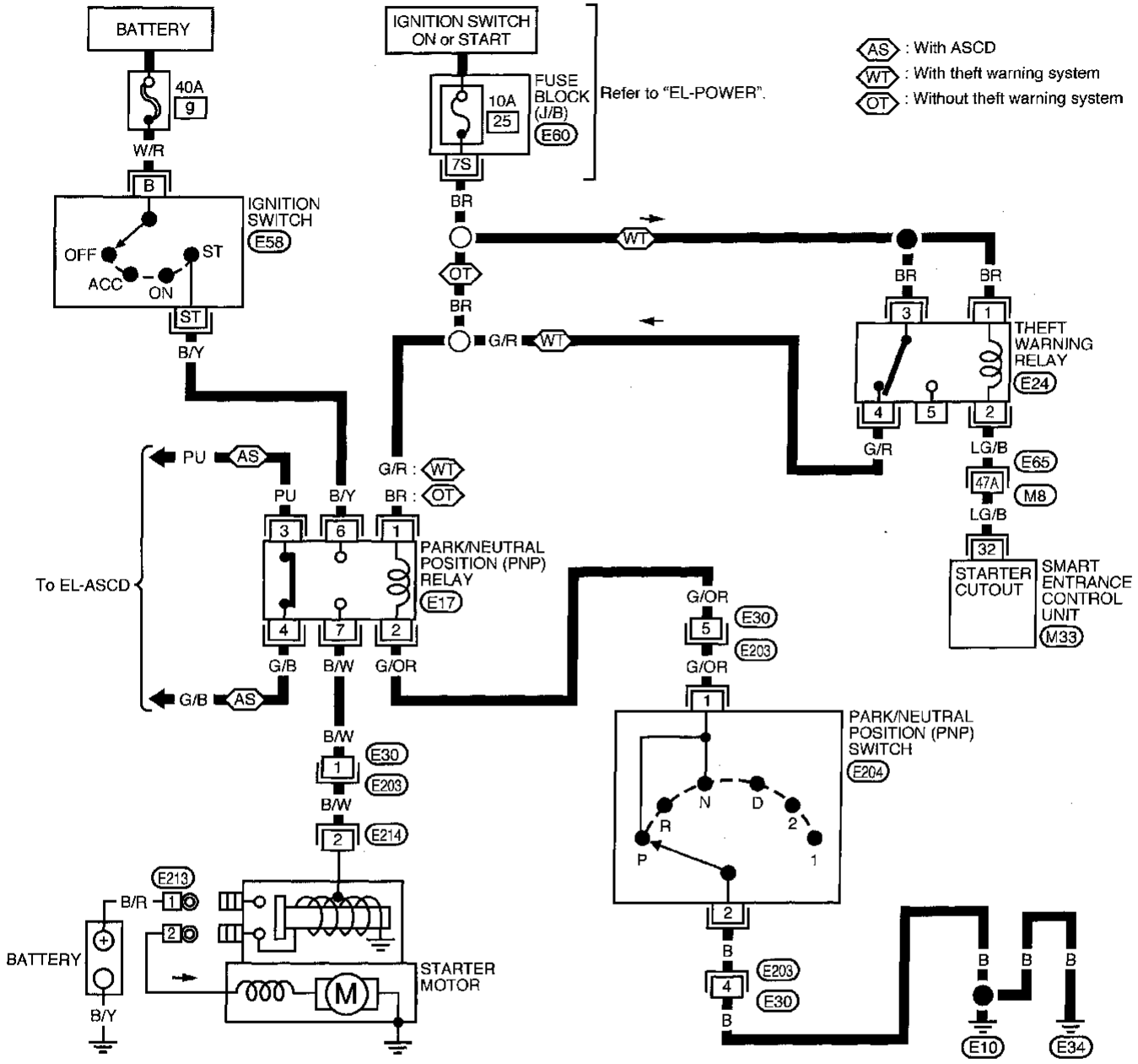
Refer to last page (Foldout page).
M8 , E65
M33

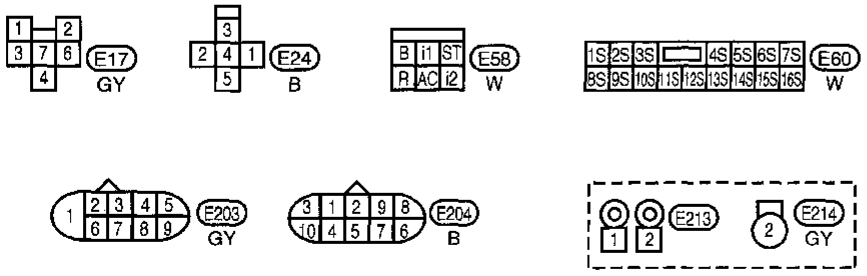
AEL998A

Wiring Diagram — START — (Cont'd)

A/T MODELS

EL-START-02

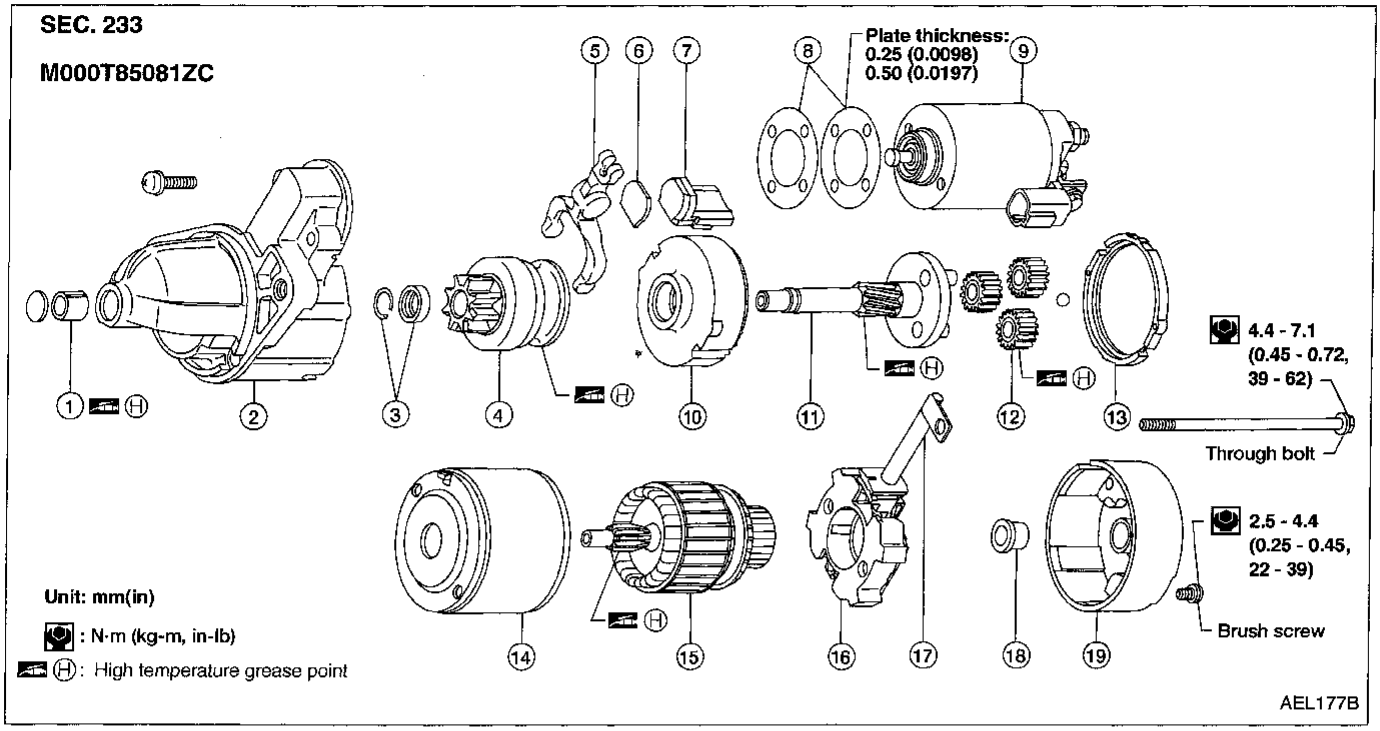




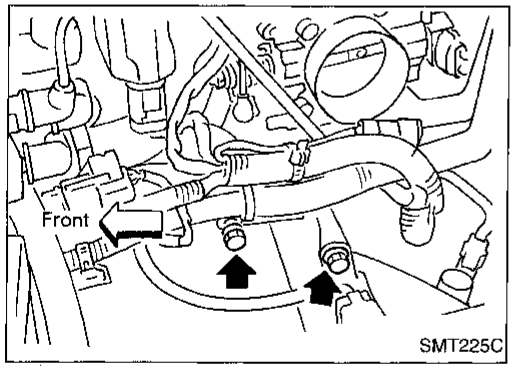
Refer to last page (Foldout page).
M8, E65
M33

AEL814B

Construction



① Sleeve bearing
② Gear case
③ Pinion stopper
④ Pinion assembly
⑤ Shift lever
⑥ Plate
⑦ Packing
⑧ Adjusting plate
⑨ Magnetic switch assembly
⑩ Internal gear
⑪ Shaft
⑫ Planetary gear
⑬ Packing
⑭ Yoke
⑮ Armature
⑯ Connector brush holder assembly
⑰ Brush (+)
⑱ Brush spring
⑲ Rear cover



Removal and Installation

REMOVAL

1. Remove air inlet tube.
2. Remove harness bracket.
3. Disconnect starter.
4. Remove two bolts and 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		M000T85081ZC MELMAC Reduction gear type
Applied model		All
System voltage	V	12
No-load		
Terminal voltage	V	11.0
Current	A	Less than 90
Revolution	rpm	More than 2,500
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 of bearing metal and armature shaft	mm (in)	—
Clearance "ℓ" between pinion front edge and pinion stopper	mm (in)	0.5 - 2.0 (0.020 - 0.079)
Installed current	A	140

System Description

The generator 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 generator terminal ④ through:

- 100A fusible link (letter [e], located in the fuse and fusible link box), and
- 10A fuse (No. [38], located in the fuse and fusible link box).

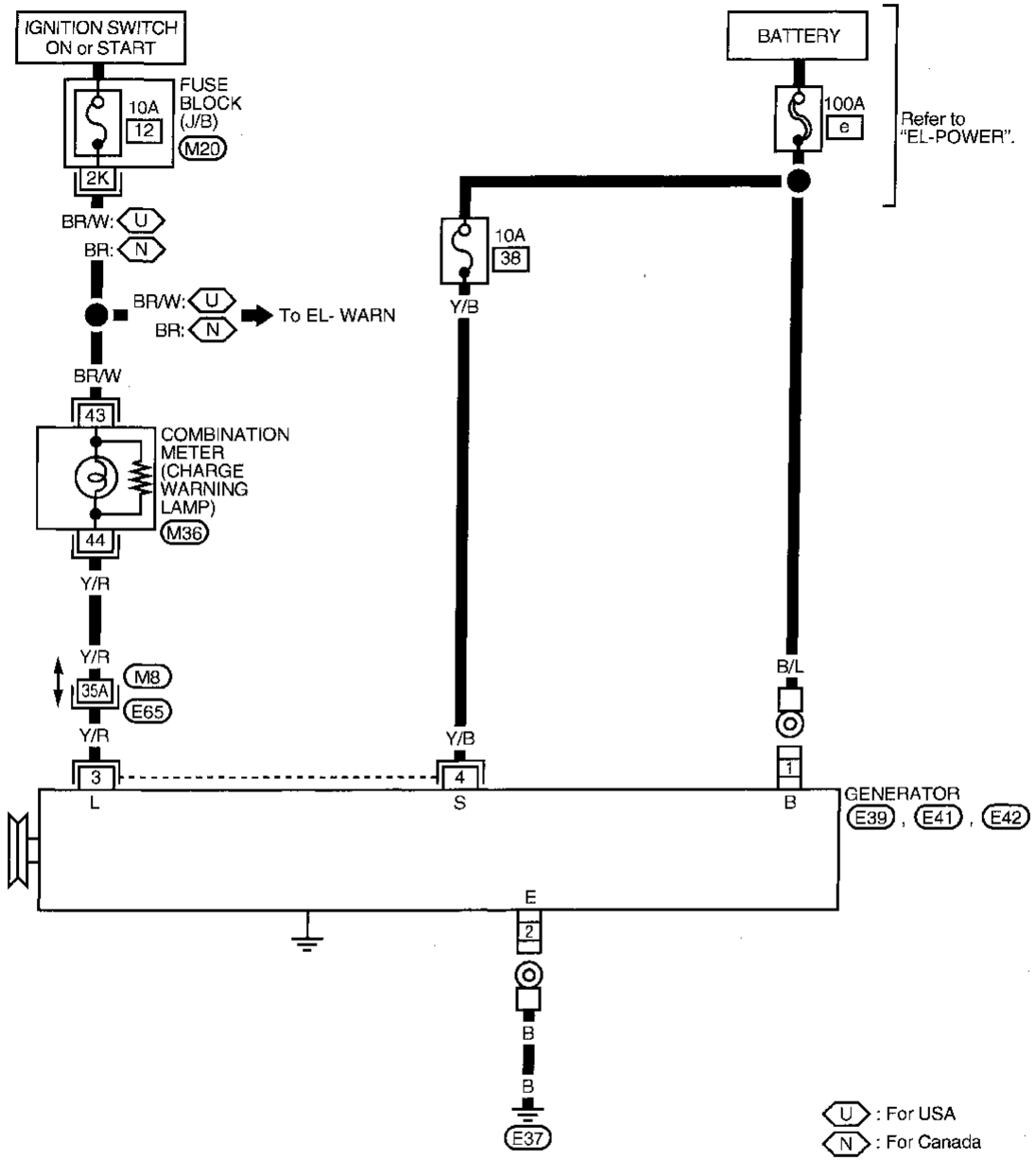
Terminal ① supplies power to charge the battery and operate the vehicle's electrical system. Output voltage is controlled by the IC regulator at terminal ④ detecting the input voltage. The charging circuit is protected by the 100A fusible link.
Terminal ② of the generator supplies ground through body ground (E37).
With the ignition switch in the ON or START position, power is supplied:

- through 10A fuse [No. [12], located in the fuse block (J/B)]
- to combination meter terminal ㊸ for the charge warning lamp.

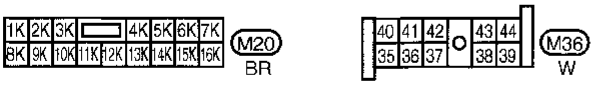
Ground is supplied to terminal ㊹ of the combination meter through terminal ③ of the generator. With power and ground supplied, the charge warning lamp will illuminate. When the generator is providing sufficient voltage with the engine running, the ground is opened and the charge warning lamp will go off. If the charge warning lamp illuminates with the engine running, a fault is indicated.

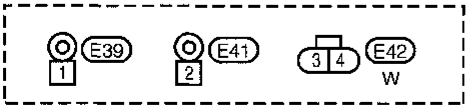
Wiring Diagram — CHARGE —

EL-CHARGE-01



Refer to last page (Foldout page).
M8, E65





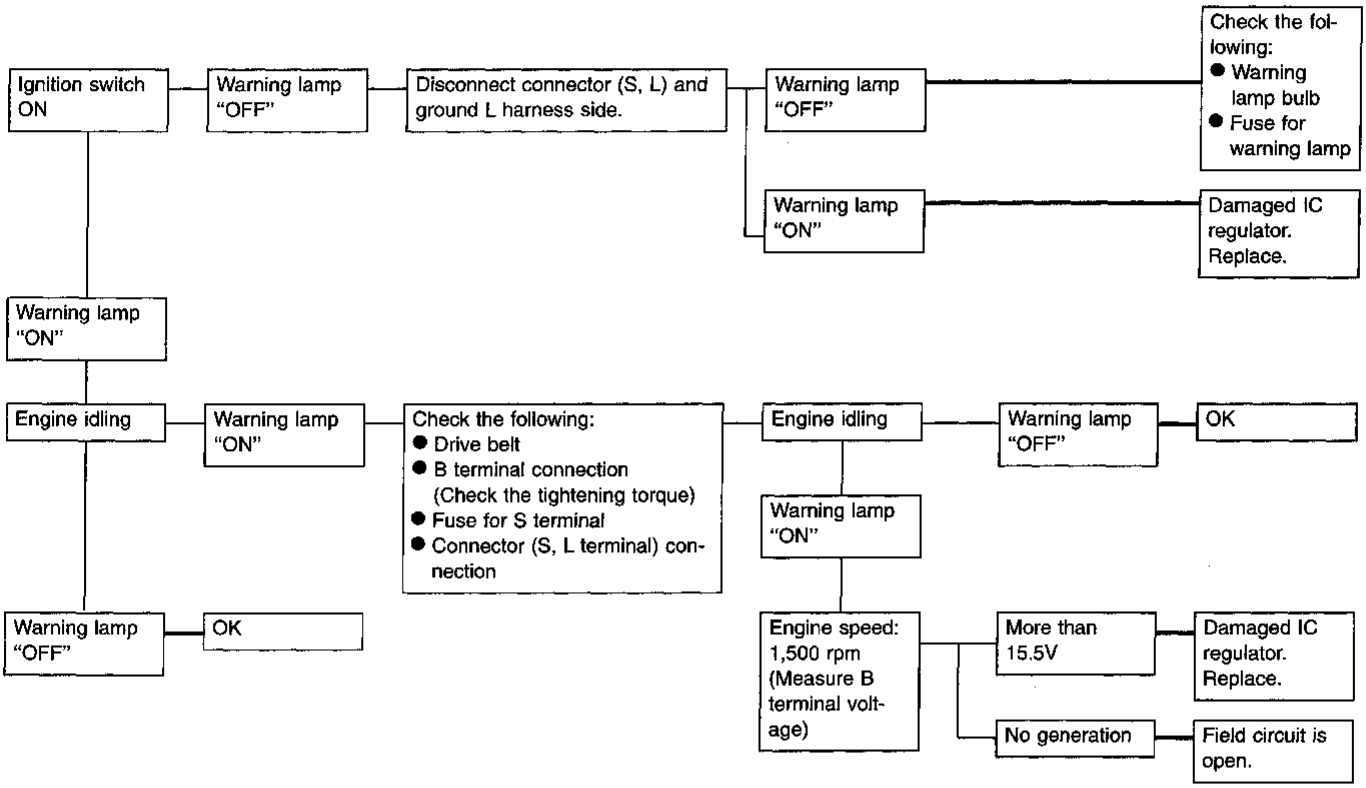
AEL002B

Trouble Diagnoses

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

- **Before starting, inspect the fusible link.**
- **Use fully charged battery.**

WITH IC REGULATOR



Warning lamp: "CHARGE" warning lamp in combination meter

Note:

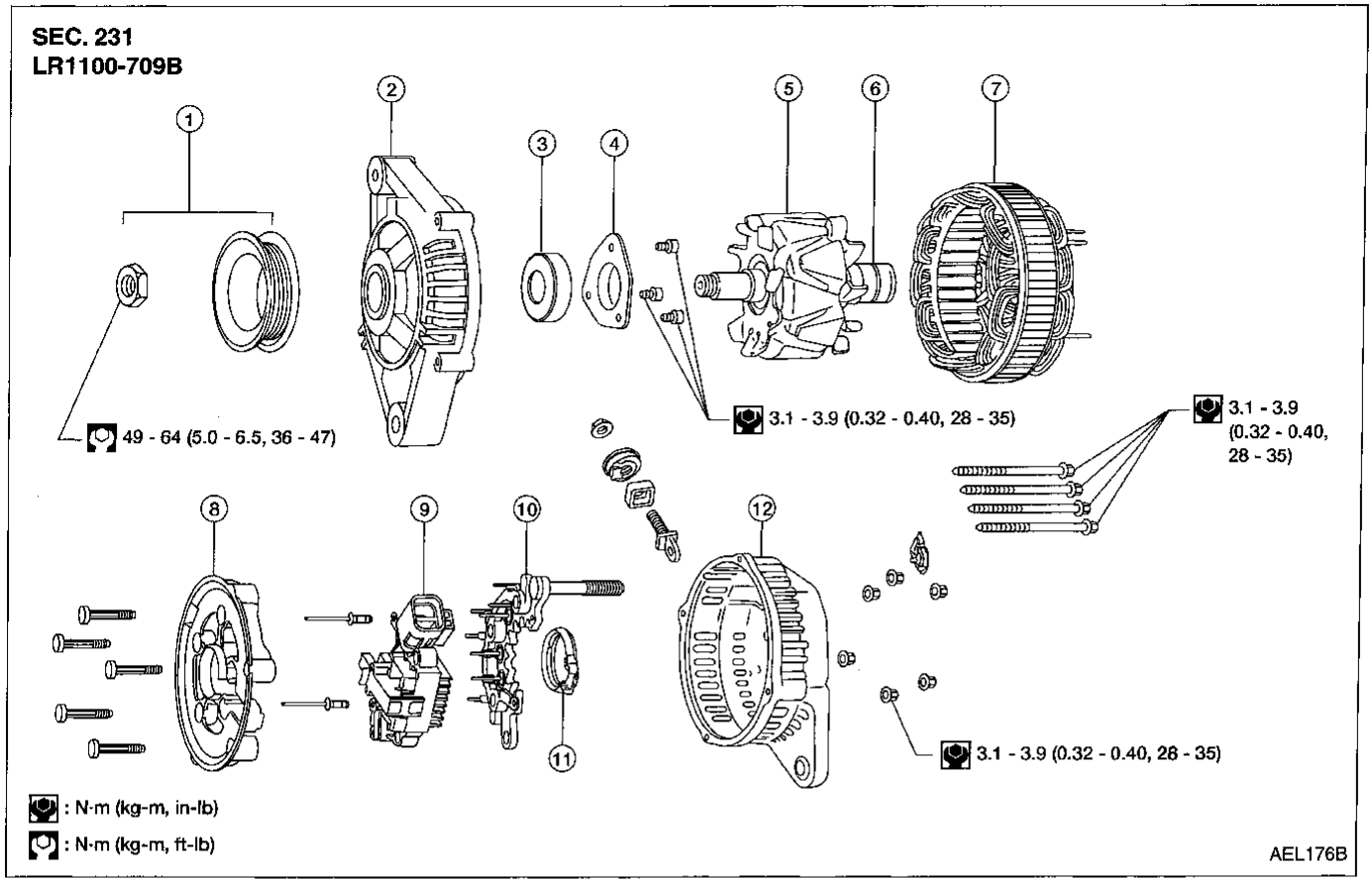
★: When field circuit is open, check condition of rotor coil, rotor slip ring and brush. If necessary, replace faulty parts with new ones.

MALFUNCTION INDICATOR

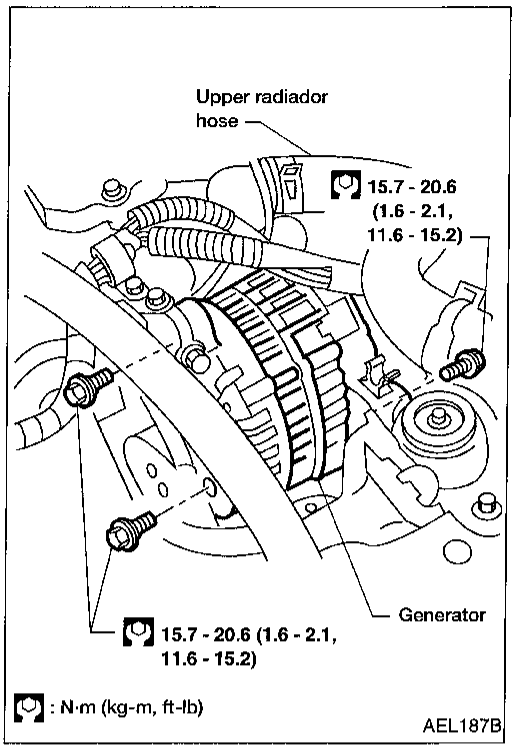
The IC regulator warning function activates to illuminate "CHARGE" warning lamp, if any of the following symptoms occur while generator is operating:

- Excessive voltage is produced.
- B Terminal is disconnected.
- S Terminal is disconnected or related circuit is open.
- Field circuit is open.

Construction



① Pulley assembly
② Front cover
③ Front bearing
④ Retainer
⑤ Rotor
⑥ Slip ring
⑦ Stator
⑧ Fan guide
⑨ IC regulator assembly
⑩ Diode assembly
⑪ Packing
⑫ Rear cover



Removal and Installation

REMOVAL

1. Remove upper radiator hose.
2. Disconnect harness connectors, harness stay and harness to A/C compressor.
3. Release accelerator wire.
4. Back off adjustment bolt, remove belt.
5. Remove three generator bolts and generator.

INSTALLATION

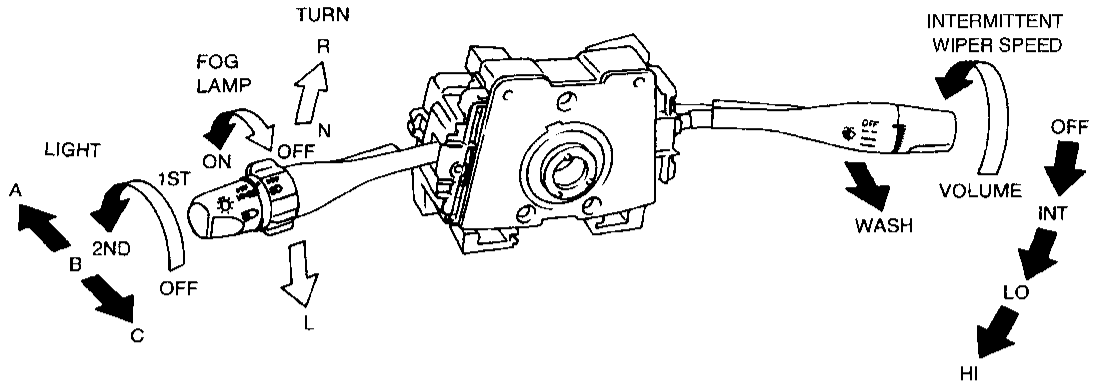
To install, reverse the removal procedure.

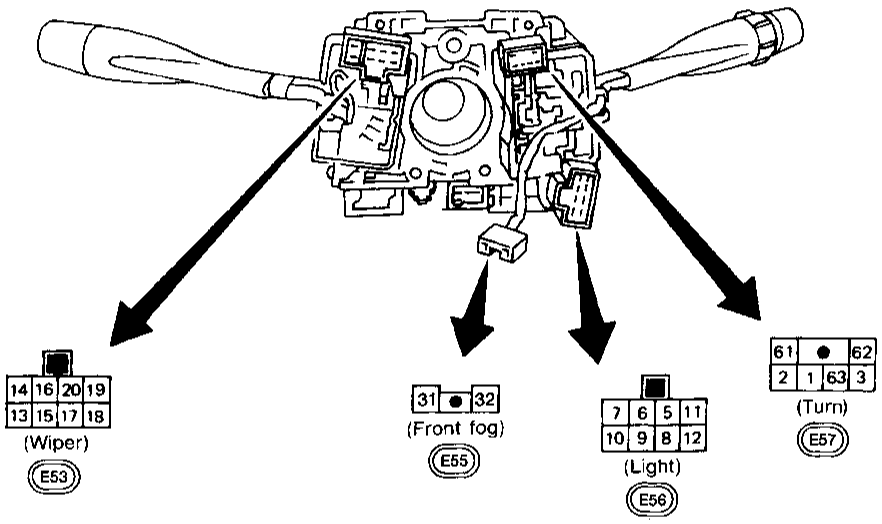
Service Data and Specifications (SDS)

GENERATOR

Type		LR1100-709B
		HAP
Nominal rating	V-A	12-100
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 24/1,300 More than 71/2,500 More than 98/5,000
Regulated output voltage	V	14.1 - 14.7
Minimum length of brush	mm (in)	6.00 (0.236)
Brush spring pressure	N (g, oz)	1.000 - 2.432 (102 - 250, 3.60 - 8.82)
Slip ring minimum diameter	mm (in)	26.0 (1.024)
Rotor (field coil) resistance	Ω	2.05

Combination Switch/Check





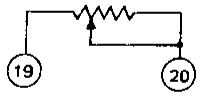
LIGHTING SWITCH

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

WIPER SWITCH

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

INTERMITTENT WIPER VOLUME



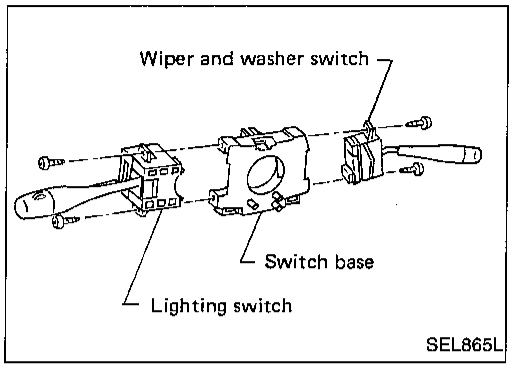
TURN SIGNAL SWITCH

	R	N	L
1	○		○
2	○		
3			○

FRONT FOG LAMP SWITCH

	OFF	ON
31		○
32		○

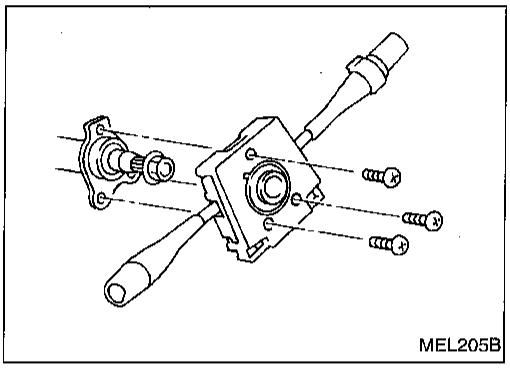
AEL195B



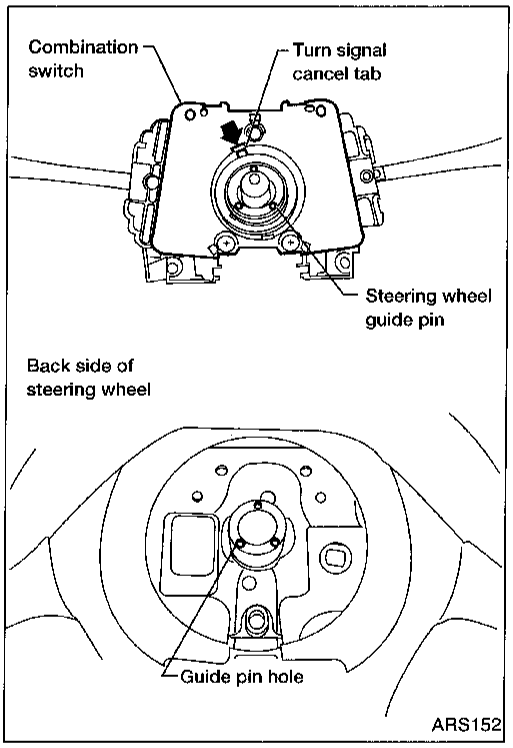
Replacement

For removal and installation of spiral cable, refer to RS section ["Driver — Air Bag Module and Spiral Cable", "SUPPLEMENTAL RESTRAINT SYSTEM (SRS)"].

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

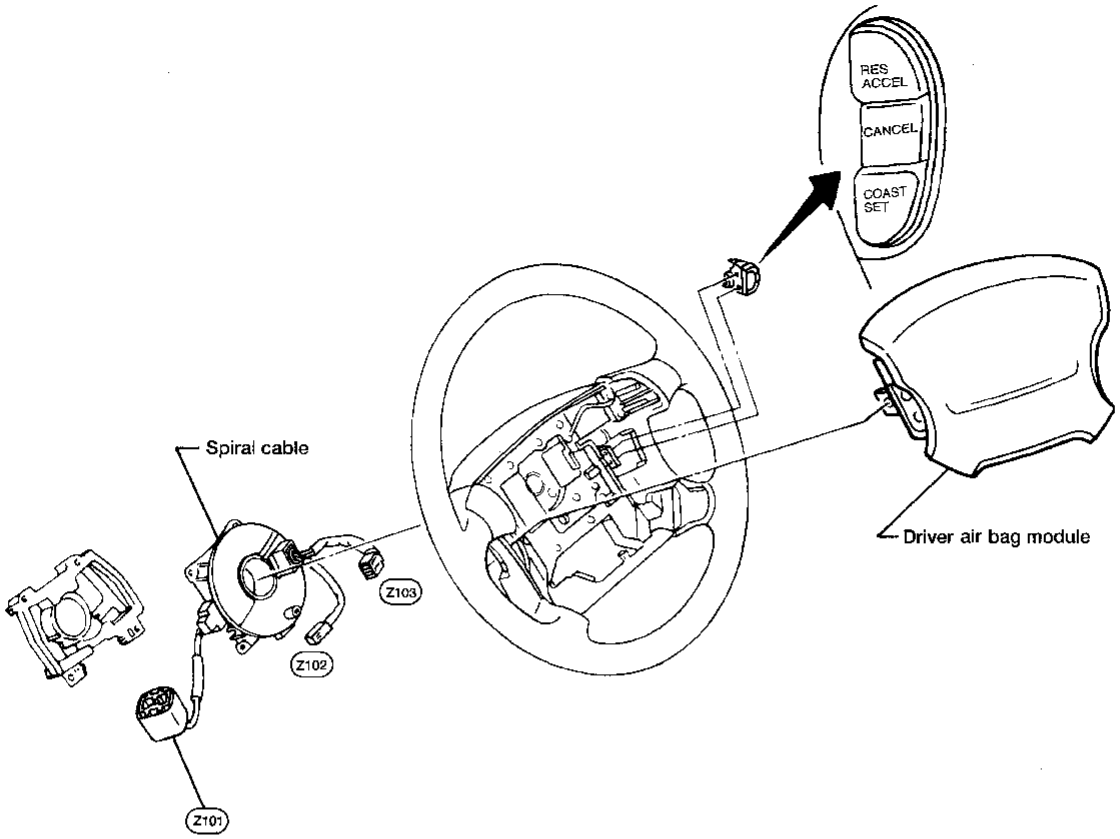


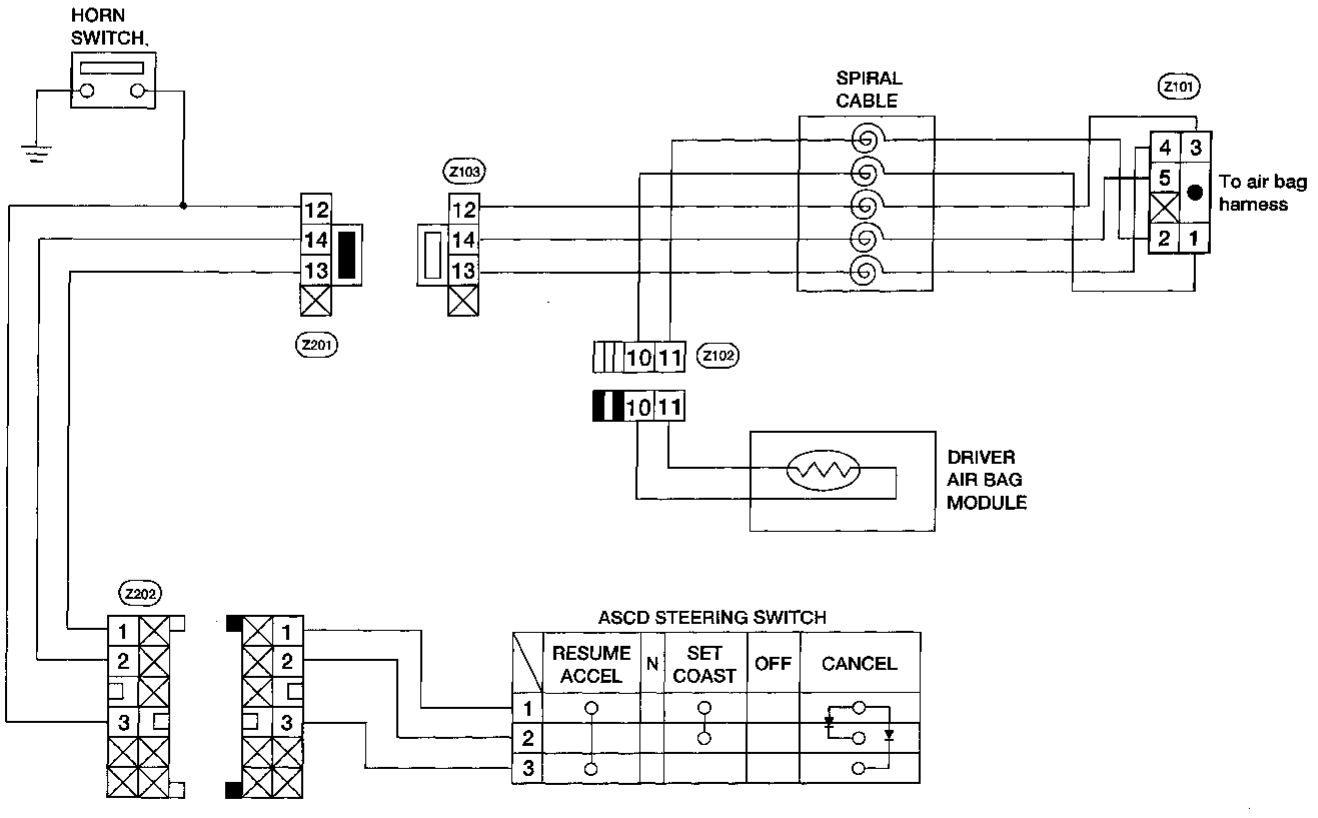
- To remove combination switch base, remove base attaching screws.



- Before installing the steering wheel, align the turn signal cancel tab with the notch of combination switch. Refer to RS section ("INSTALLATION", "Driver Air Bag Module and Spiral Cable").

Steering Switch/Check





AEL178B

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 15A fuse (No. 33, located in the fuse and fusible link box), and
- to lighting switch terminal ⑧
- through 15A fuse (No. 32, located in the fuse and fusible link box).

Low beam operation

When the lighting switch is turned to headlamp ON (2ND) position, LOW BEAM (B), power is supplied:

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

Terminal Ⓔ of each headlamp supplies ground through body grounds (E10) and (E34).
With power and ground supplied, the headlamp(s) will illuminate.

High beam operation/flash-to-pass operation

When the lighting switch is turned to headlamp ON (2ND) position, HIGH BEAM (A) or FLASH TO PASS (C) position, power is supplied:

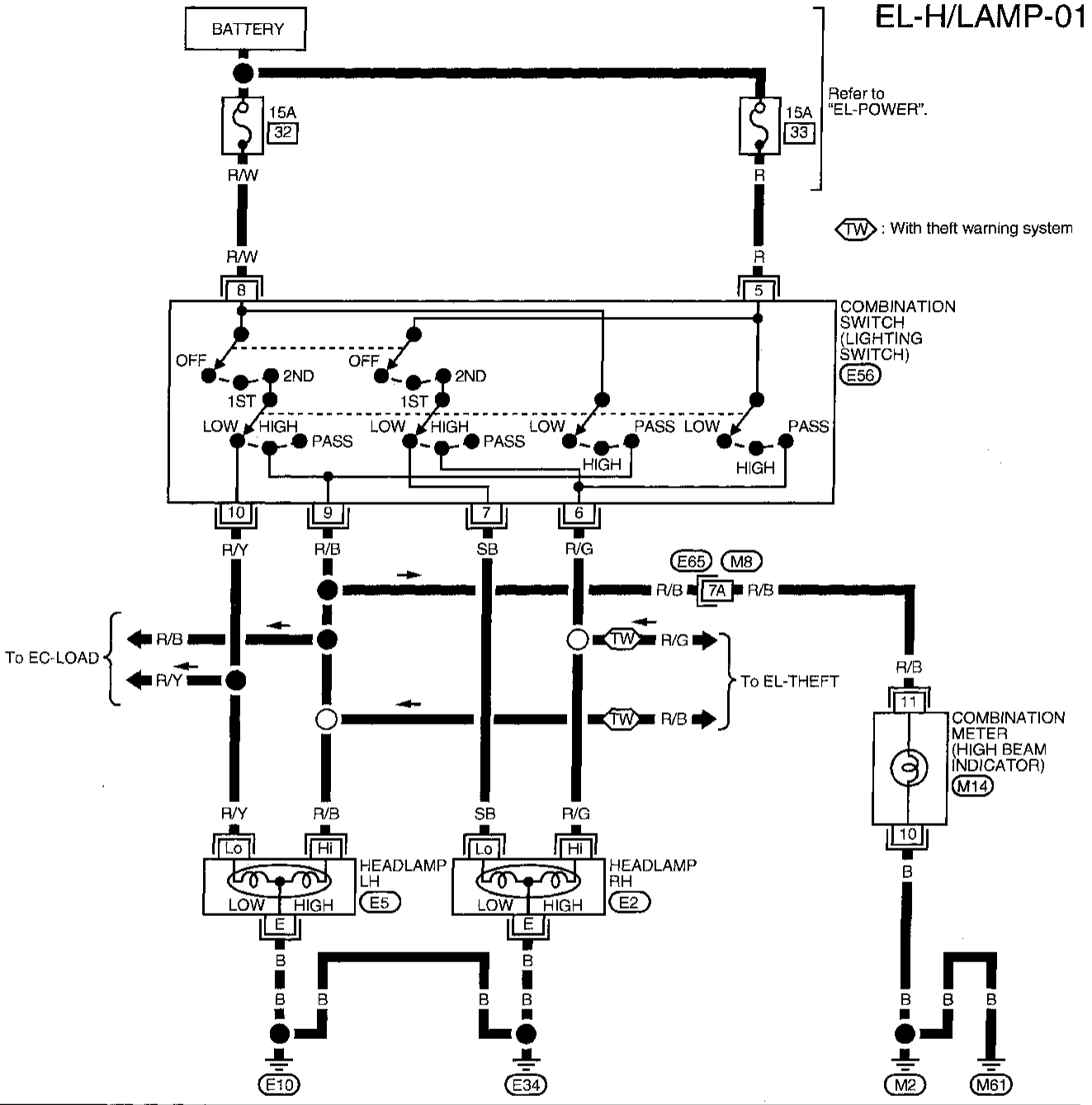
- from lighting switch terminal ⑥
- to terminal Ⓗ⏀ of RH headlamp, and
- from lighting switch terminal ⑨
- to terminal Ⓗ⏀ of LH headlamp, and
- to combination meter terminal ⑪ for the high beam indicator.

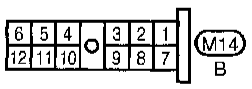
Ground is supplied to terminal ⑩ of the combination meter through body grounds (M2) and (M61).
Terminal Ⓔ of each headlamp supplies ground through body grounds (E10) and (E34).
With power and ground supplied, the high beams and the high beam indicator illuminate.

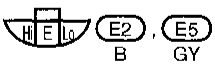
Theft warning system

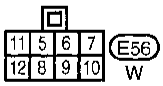
The theft warning system will flash the high beams if the system is triggered. Refer to "THEFT WARNING SYSTEM" (EL-201).

Wiring Diagram (For USA) — H/LAMP —







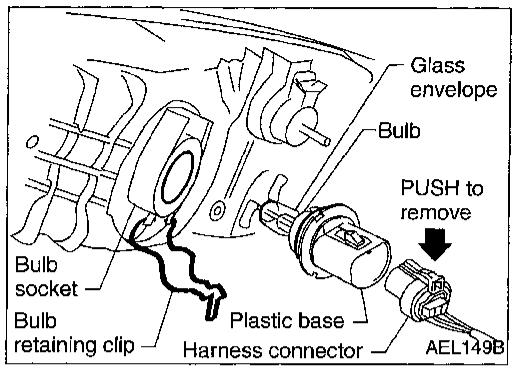


Refer to last page (Foldout page).
M8 , E65

AEL952A

Trouble Diagnoses

Symptom	Possible cause	Repair order
LH headlamps do not operate.	1. Bulb 2. Grounds (E10) and (E34) 3. 15A fuse 4. Lighting switch	1. Check bulb. 2. Check grounds (E10) and (E34). 3. Check 15A fuse (No. 32, located in fuse and fusible link 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 (E10) and (E34) 3. 15A fuse 4. Lighting switch	1. Check bulb. 2. Check grounds (E10) and (E34). 3. Check 15A fuse (No. 33, located in fuse and fusible link 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 SB 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 (M2) and (M61) 3. Open in high beam circuit	1. Check bulb in combination meter. 2. Check grounds (M2) and (M61). 3. Check R/B wire between lighting switch and combination meter for an open circuit.



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. Disconnect the harness connector from the back side of the bulb.
3. Unclip the bulb retaining clip, and then remove it.
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

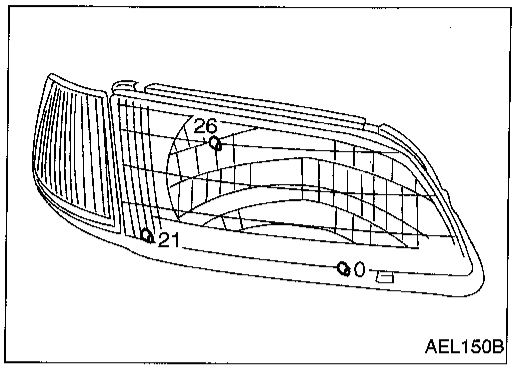
When performing headlamp aiming adjustment, use an aiming machine, aiming wall screen or headlamp tester. Aimers should be in good repair, calibrated and operated in accordance with respective operation manuals.

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

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

a. **Keep all tires inflated to correct pressures.**
b. **Place vehicle and tester on one and same flat surface.**
c. **See that there is no-load in vehicle (coolant, engine oil filled up to correct level and full fuel tank) other than the driver (or equivalent weight placed in driver's position).**

Aiming Adjustment (Cont'd)



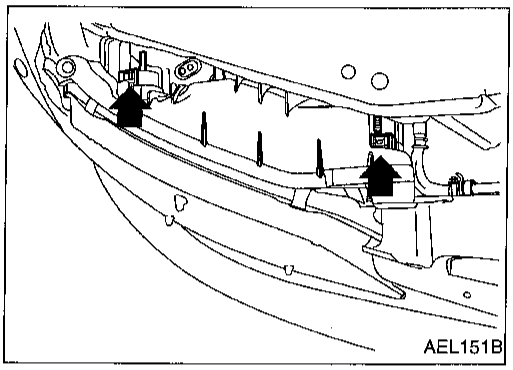
AEL150B

AIMER ADJUSTMENT MARK

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

Adjustment value for mechanical aimer

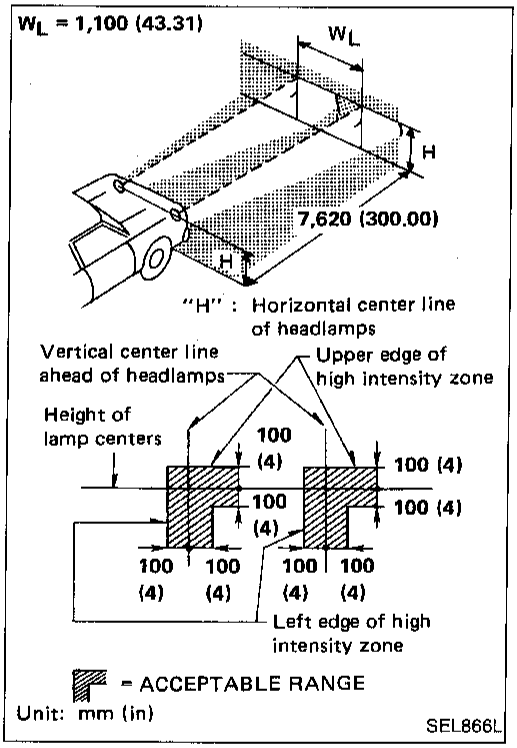
	Mechanical aimer level
Horizontal side	–4 to 4
Vertical side	–4 to 4


AEL151B

LOW BEAM

1. Turn headlamp low beam on.
2. Use a #2 cross-recessed screwdriver to adjust the aim of the lamp.

- **Cover the opposite lamp and ensure fog lamps, if equipped, are turned off.**



SEL866L

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.

- **Upper edge and left edge of high intensity zone should be within the range shown at left. Adjust headlamps accordingly.**
- **Dotted lines in illustration show center of headlamp.**

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

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. If the daytime light control unit receives a ground signal from the generator the daytime lights will not be illuminated. The daytime lights will illuminate once a battery positive voltage signal is sent to the daytime light control unit from the generator.

Power is supplied at all times:
- through 15A fuse (No. 32, located in the fuse and fusible link box)
- to daytime light control unit terminal ③ and
- to lighting switch terminal ⑧.

Power is also supplied at all times:
- through 15A fuse (No. 33, located in the fuse and fusible link 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 10A fuse [No. 8, located in the fuse block (J/B)]
- to daytime light control unit terminal ⑫.

With the ignition switch in the START position, power is supplied:
- through 10A fuse [No. 26, located in the fuse block (J/B)]
- to daytime light control unit terminal ①.

Ground is supplied to daytime light control unit terminal ⑨ through body grounds (E10) and (E34).

HEADLAMP OPERATION

Low beam operation

When the lighting switch is turned to headlamp ON (2ND) position, LOW BEAM (B), power is supplied:
- from lighting switch terminal ⑦
- to RH headlamp terminal Ⓛo
- to daytime light control unit terminal ④.

Ground is supplied to RH headlamp terminal Ⓔ through body grounds (E10) and (E34).

Also, when the lighting switch is turned to headlamp ON (2ND) position, LOW BEAM (B), power is supplied:
- from lighting switch terminal ⑩
- to LH headlamp terminal Ⓛo.

Ground is supplied:
- to LH headlamp terminal Ⓔ
- from daytime light control unit terminal ⑦
- through daytime light control unit terminal ⑨
- through body grounds (E10) and (E34).

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

High beam operation/flash-to-pass operation

When the lighting switch is turned to headlamp ON (2ND) position, HIGH BEAM (A) or FLASH TO PASS (C) position, power is supplied:
- from lighting switch terminal ⑥
- to terminal Ⓗi of RH headlamp.

When the lighting switch is turned to headlamp ON (2ND) position, HIGH BEAM (A) or FLASH TO PASS (C) position, power is supplied:
- from lighting switch terminal ⑨
- to daytime light control unit terminal ⑤
- to combination meter terminal ⑪ for the high beam indicator
- through daytime light control unit terminal ⑥
- to terminal Ⓗi of LH headlamp.

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

Ground is supplied to terminal ⑩ of the combination meter through body grounds (M2) and (M61).

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

System Description (For Canada) (Cont'd)

DAYTIME LIGHT OPERATION

With the engine running, the lighting switch in the "OFF" or parking lamp (1ST) position and parking brake released, power is supplied:

- to daytime light control unit terminal ③
- through daytime light control unit terminal ⑥
- to terminal Ⓗ of LH headlamp
- through terminal Ⓔ of LH headlamp
- to daytime light control unit terminal ⑦
- through daytime light control unit terminal ⑧
- to terminal Ⓗ of RH headlamp.

Ground is supplied to terminal Ⓔ of RH headlamp through body grounds (E10) and (E34).
Because the high beam headlamps are now wired in series, they operate at half illumination.

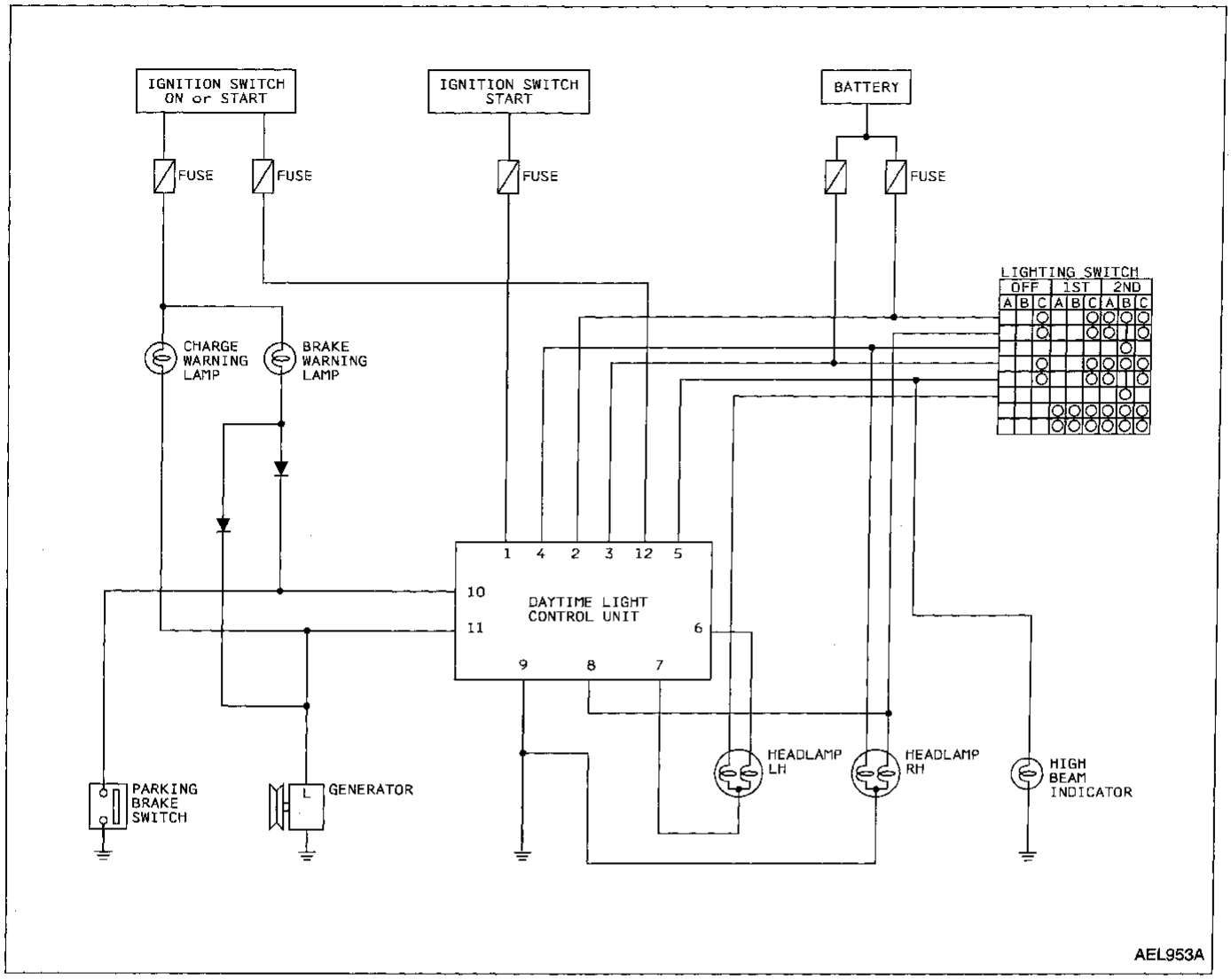
Operation (For Canada)

After starting the engine with the lighting switch in the OFF or parking lamp (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
Parking and tail lamp		X	X	X	○	○	○	○	○	○	X	X	X	○	○	○	○	○	○
License and instrument illumination lamp		X	X	X	○	○	○	○	○	○	X	X	X	○	○	○	○	○	○

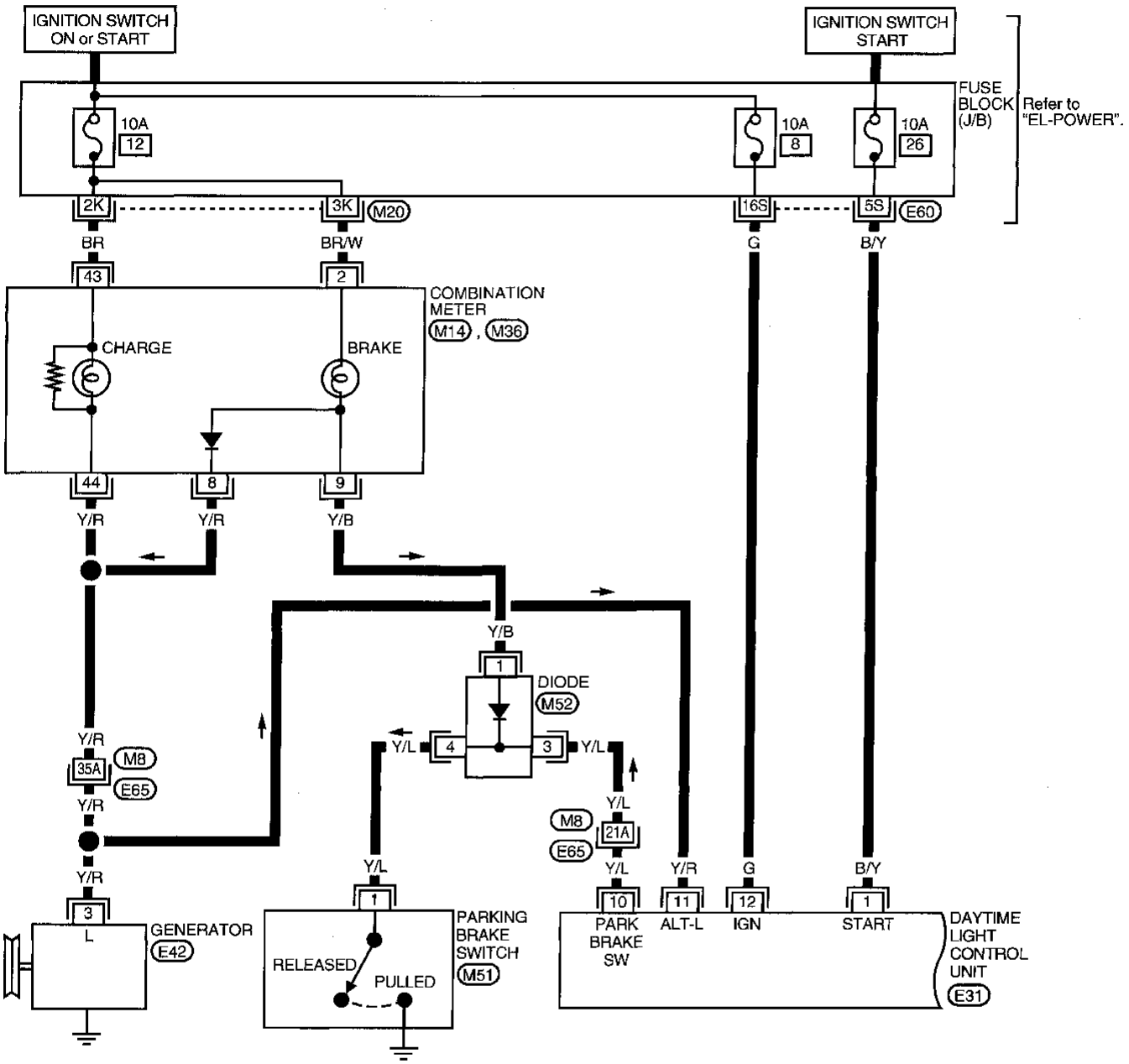
A : HIGH BEAM position
B : LOW BEAM position
C : FLASH TO PASS position
○ : Lamp ON
X : Lamp OFF
△ : Lamp on at half brightness.
□ : Added functions
*: When starting the engine with the parking brake released, the daytime light will come ON.
When starting the engine with the parking brake pulled, the daytime light won't come ON.

Schematic (For Canada)

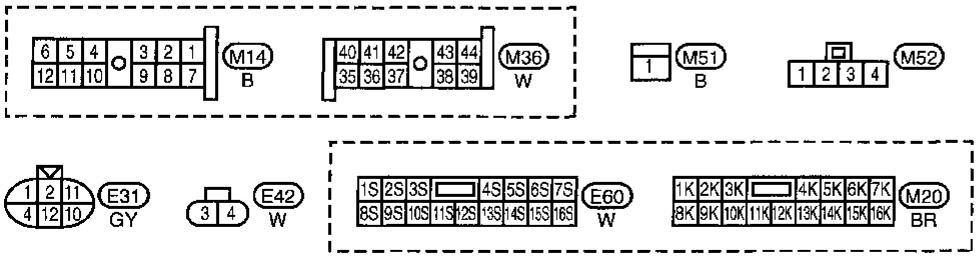


Wiring Diagram (For Canada) — DTRL —

EL-DTRL-01



Refer to last page (Foldout page).
M8, E65



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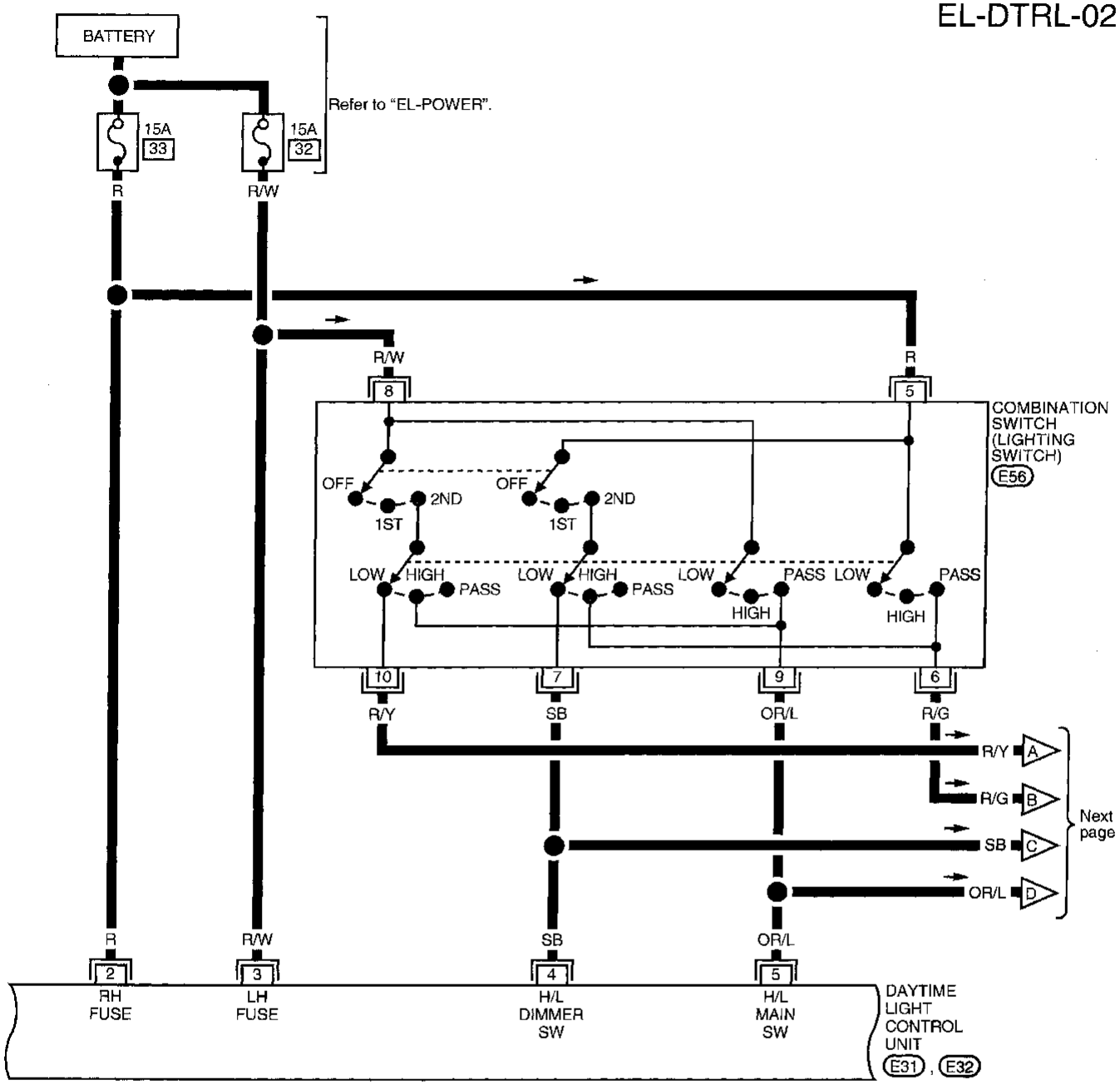
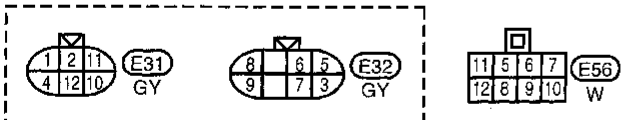
Wiring Diagram (For Canada) — DTRL — (Cont'd)

EL-DTRL-02





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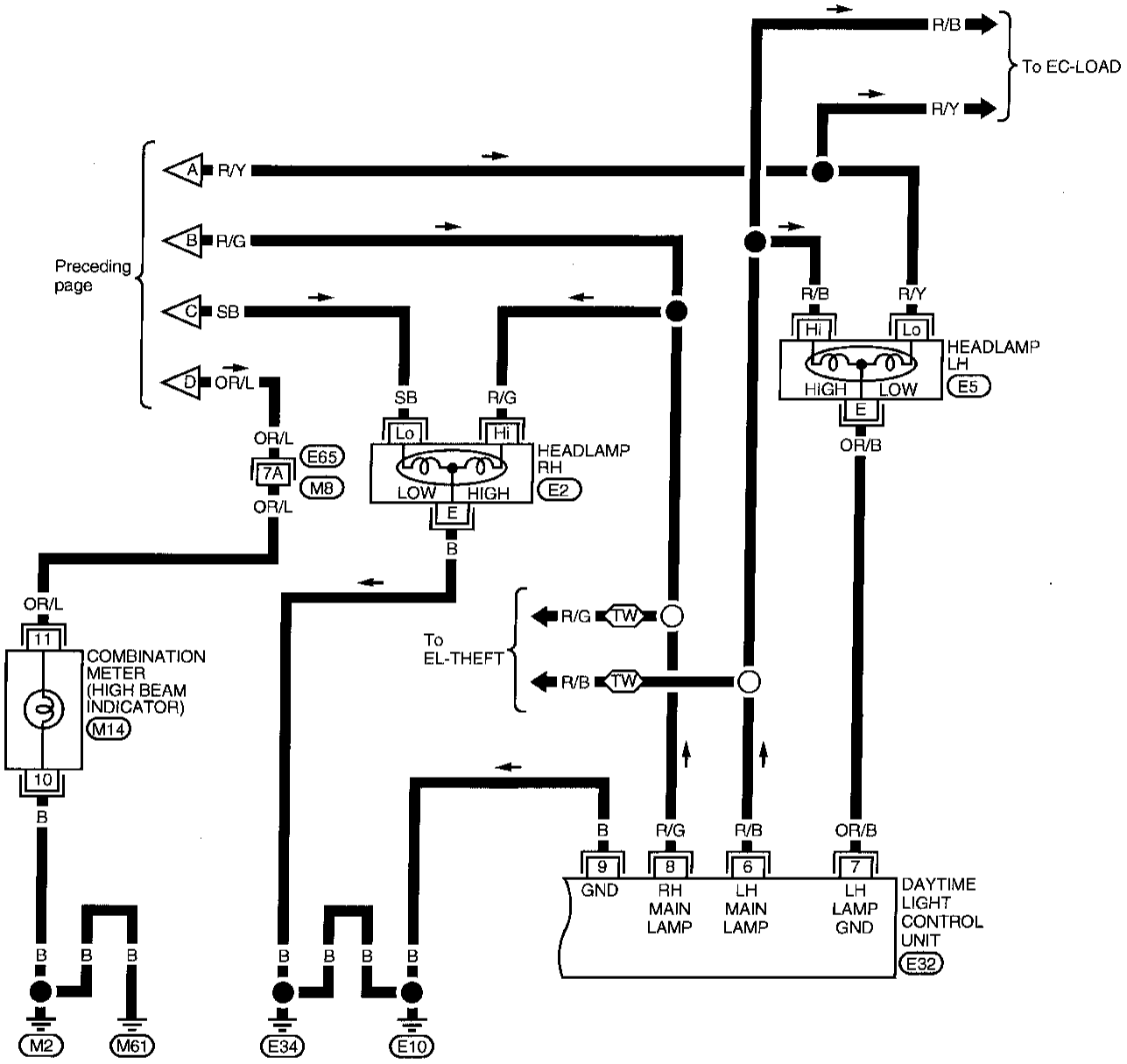
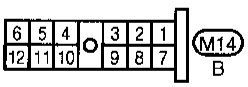
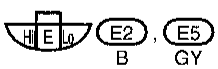
Wiring Diagram (For Canada) — DTRL — (Cont'd)

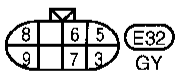
EL-DTRL-03

TW : With theft warning system







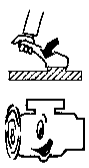
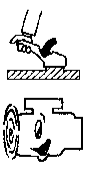


Refer to last page (Foldout page).
M8, E65

AEL956A

Trouble Diagnoses (For Canada)

DAYTIME LIGHT CONTROL UNIT INSPECTION TABLE

Terminal No.	Wire color	Item	Condition		Voltage (Approximate values)
1	B/Y	Start signal		When turning ignition switch to ST	Battery voltage
				When turning ignition switch to ON from ST	Less than 1V
				When turning ignition switch to OFF	Less than 1V
2	R	Power source		When turning ignition switch to ON	Battery voltage
				When turning ignition switch to OFF	Battery voltage
3	R/W	Power source		When turning ignition switch to ON	Battery voltage
				When turning ignition switch to OFF	Battery voltage
4	SB	Lighting switch (Lo beam)		When turning lighting switch to headlamp ON (2ND) position, LOW BEAM	Battery voltage
5	OR/L	Lighting switch (Hi beam)		When turning lighting switch to HI BEAM	Battery voltage
				When turning lighting switch to FLASH TO PASS	Battery voltage
6	R/B	LH hi beam		When turning lighting switch to HI BEAM	Battery 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 voltage
7	OR/B	LH headlamp control (ground)		When lighting switch is turned to headlamp ON (2ND) position, LOW BEAM	Less than 1V
				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	R/G	RH hi beam		When turning lighting switch to HI BEAM	Battery 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
9	B	Ground		—	—

Trouble Diagnoses (For Canada) (Cont'd)

Terminal No.	Wire color	Item	Condition		Voltage (Approximate values)
10	Y/L	Parking brake switch		When parking brake is released	Battery voltage
				When parking brake is set	Less than 1.5V
11	Y/R	Generator		When turning ignition switch to ON	Less than 4.6V
				When engine is running	Battery voltage
				When turning ignition switch to OFF	Less than 1V
12	G	Power source		When turning ignition switch to ON	Battery voltage
				When turning ignition switch to ST	Battery voltage
				When turning ignition switch to OFF	Less than 1V

Bulb Replacement

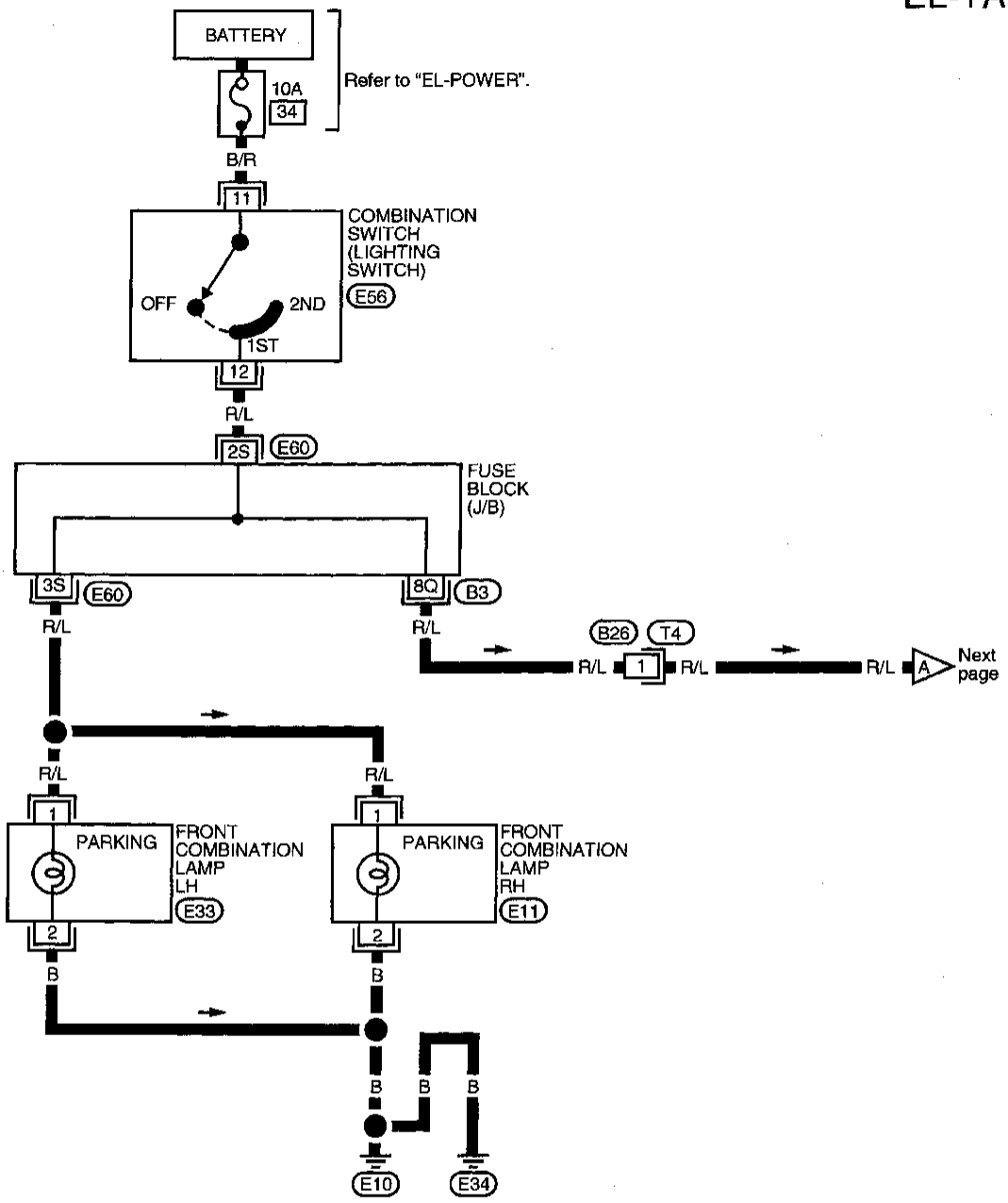
Refer to "HEADLAMP" (EL-46).

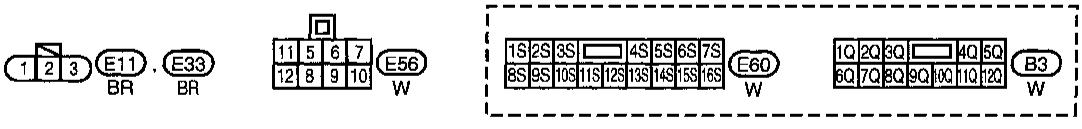
Aiming Adjustment

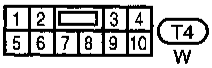
Refer to "HEADLAMP" (EL-46).

Wiring Diagram — TAIL/L —

EL-TAIL/L-01



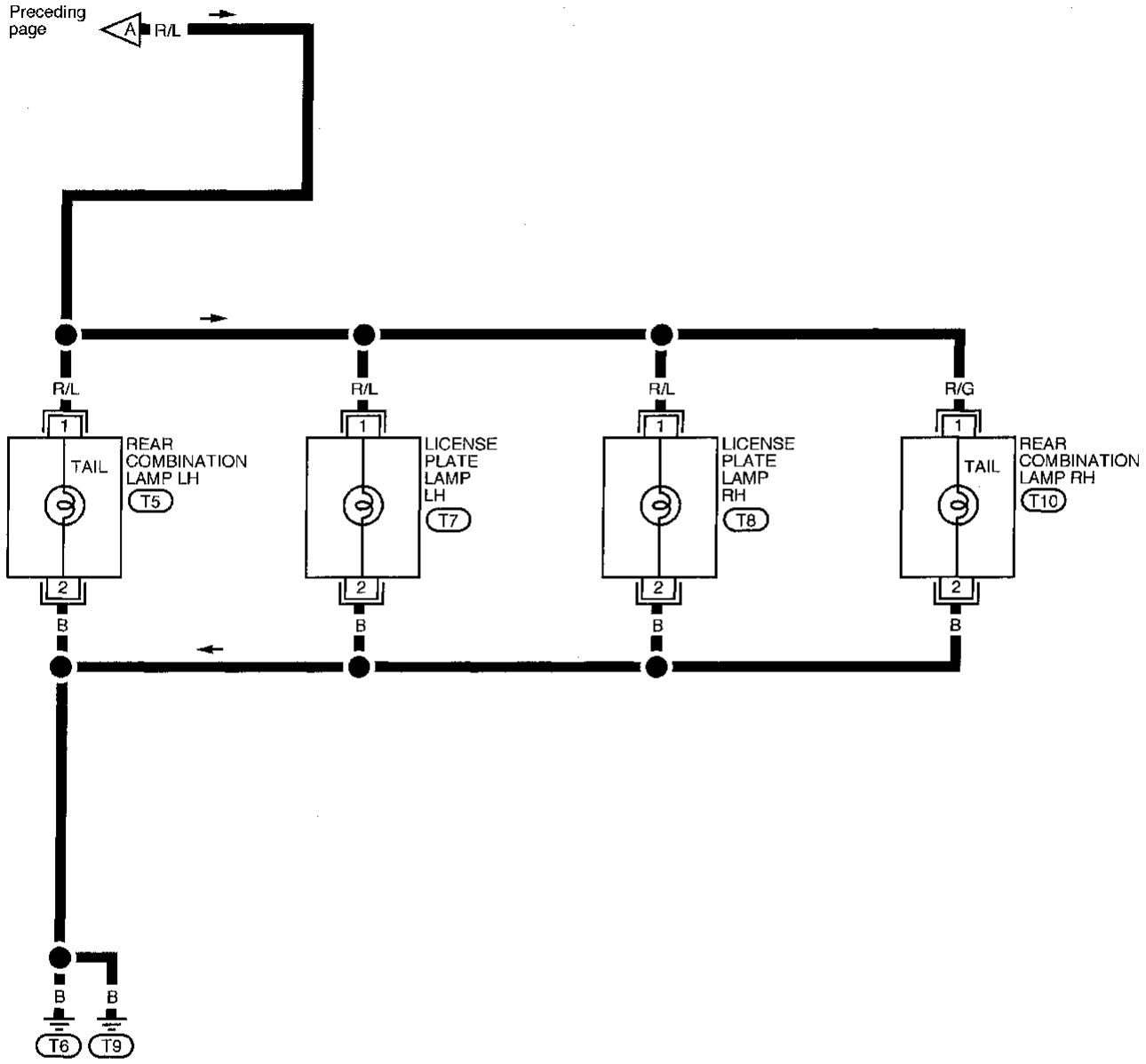


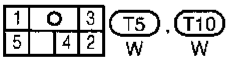


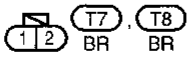
AEL957A

Wiring Diagram — TAIL/L — (Cont'd)

EL-TAIL/L-02



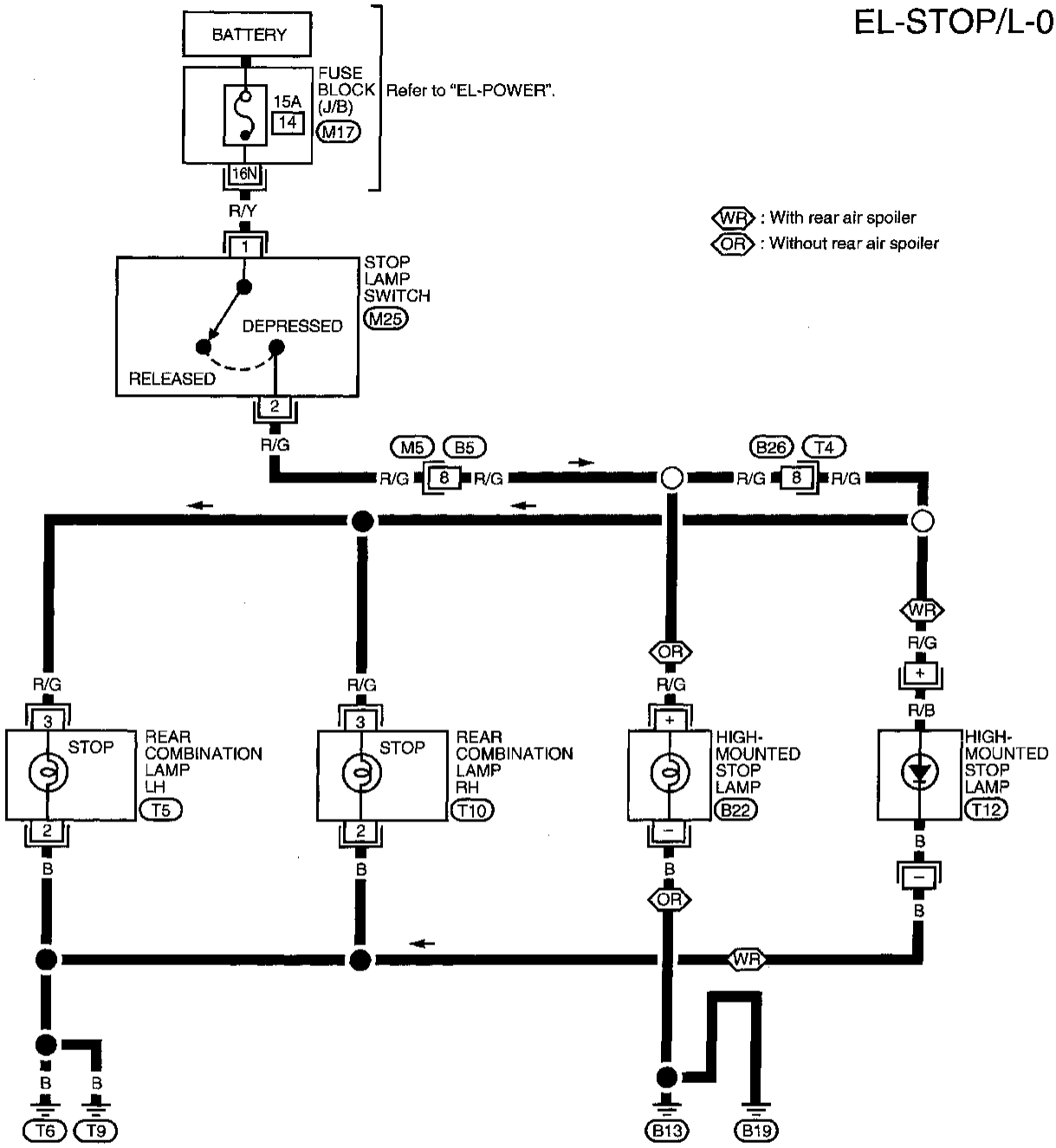


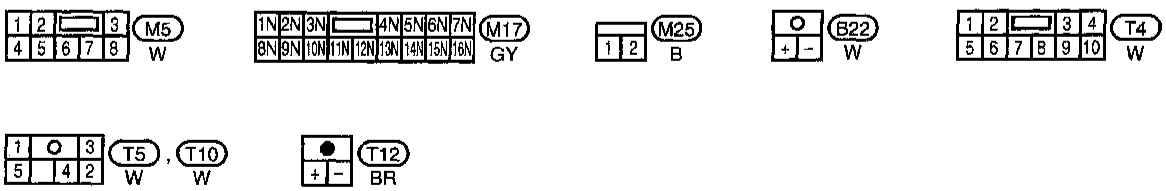


AEL815B

Wiring Diagram — STOP/L —

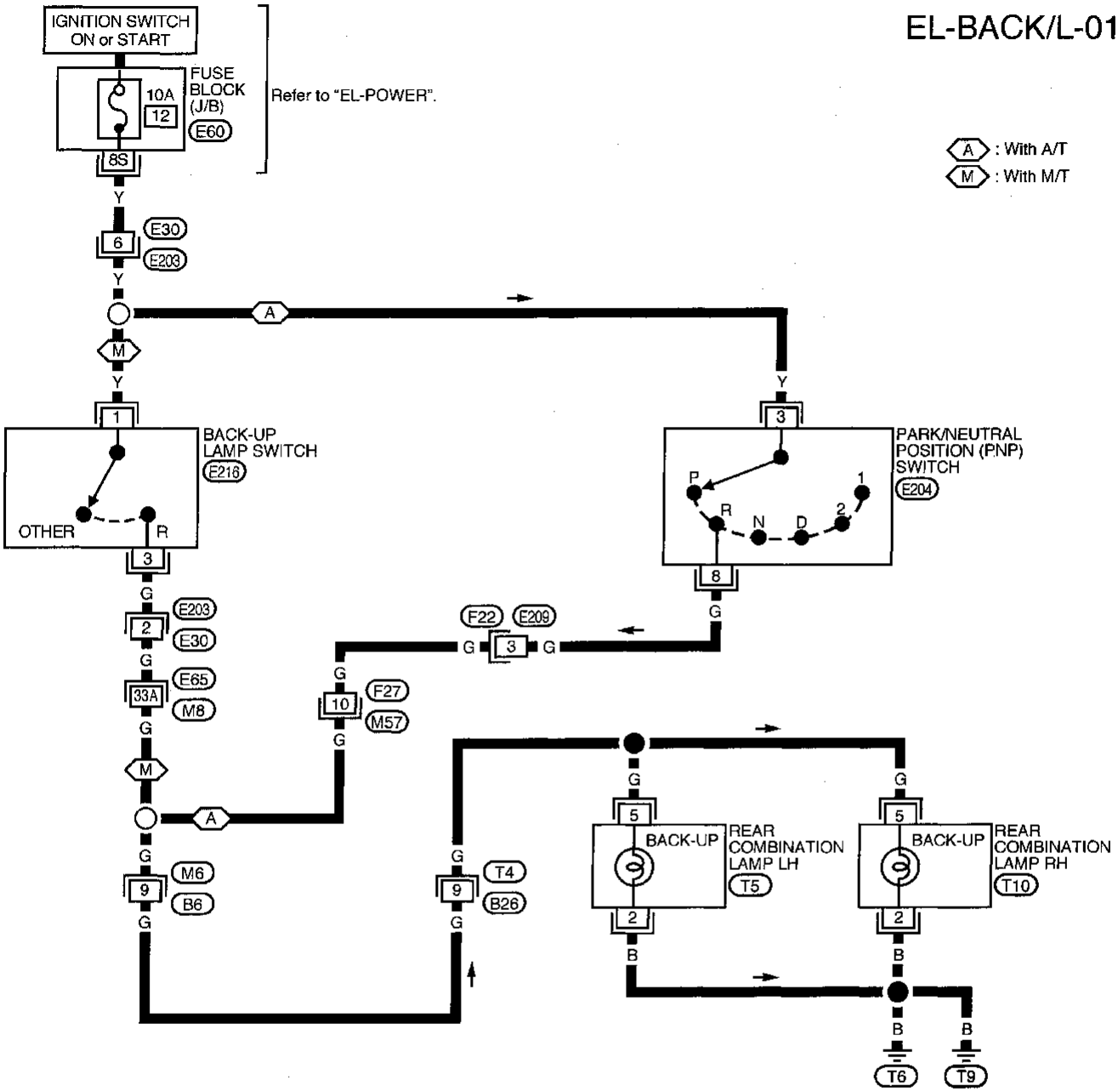
EL-STOP/L-01

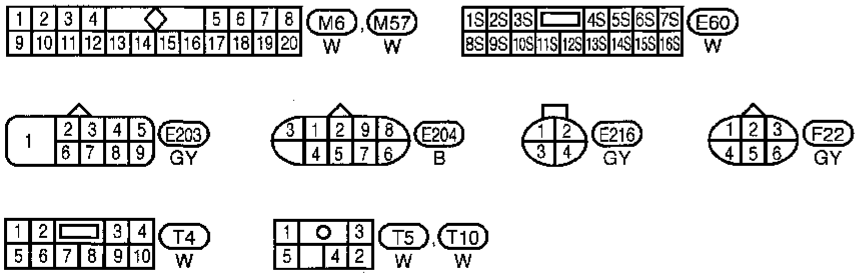




AEL169C

Wiring Diagram — BACK/L —





Refer to last page (Foldout page).
M8 , E65

AEL817B

System Description

Power is supplied at all times to front fog lamp relay terminal ③ through:

- 15A fuse (No. 43, located in the fuse and fusible link box).

With the lighting switch in headlamp ON (2ND) position, LOW BEAM (B), power is supplied:

- through 15A fuse (No. 33, located in the fuse and fusible link box)
- to lighting switch terminal ⑤
- through terminal ⑦ of the lighting switch
- to front fog lamp relay terminal ①.

Fog lamp operation

The fog lamp switch is built into the combination switch. The lighting switch must be in headlamp ON (2ND) position, LOW BEAM (B) for fog lamp operation.

With the front fog lamp switch in the ON position:

- ground is supplied to front fog lamp relay terminal ② through the front fog lamp switch and body grounds (E10) and (E34).

The fog lamp relay is energized and power is supplied:

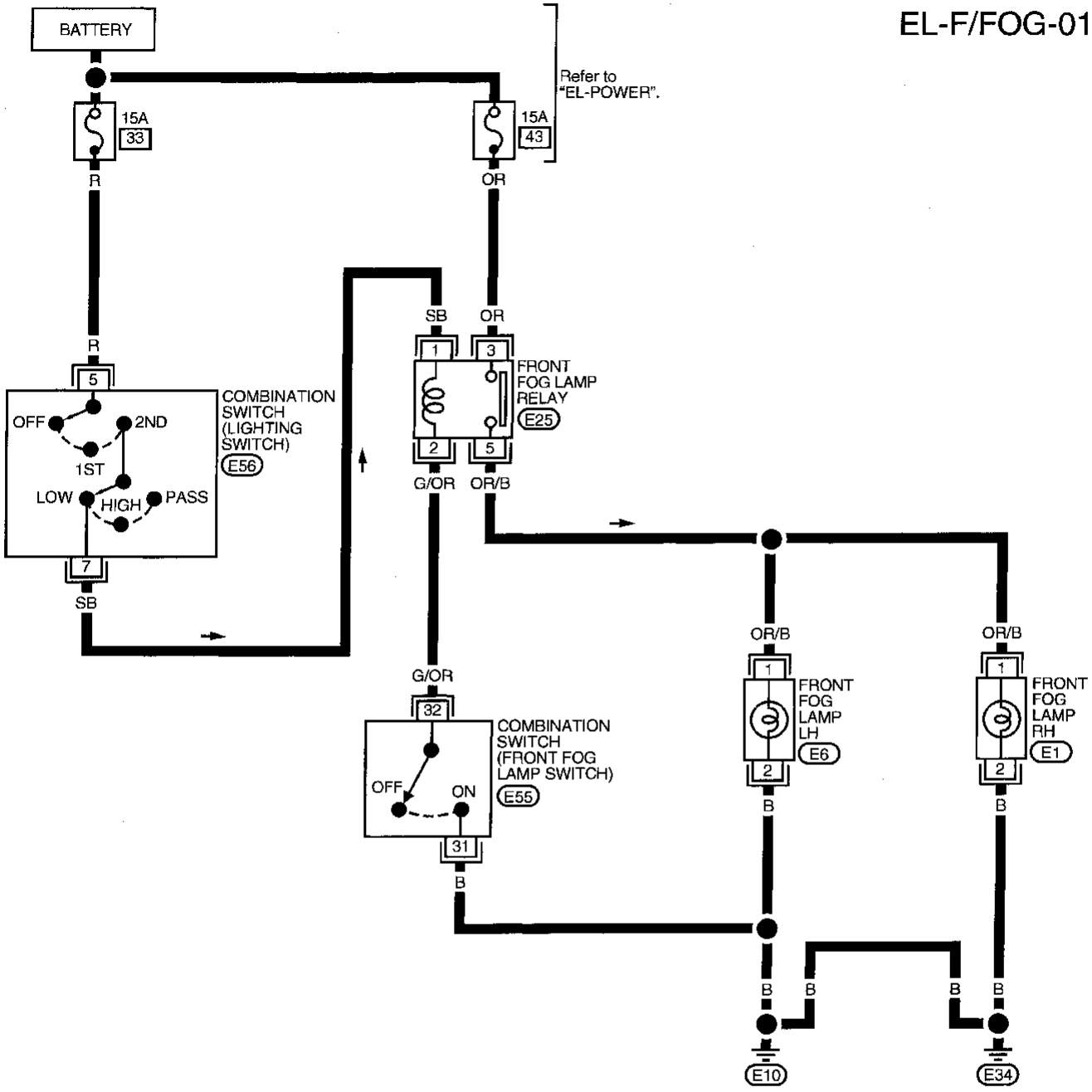
- from front fog lamp relay terminal ⑤
- to terminal ① of each front fog lamp.

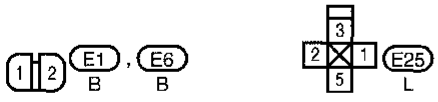
Ground is supplied to terminal ② of each front fog lamp through body grounds (E10) and (E34).

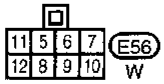
With power and ground supplied, the front fog lamps illuminate.

Wiring Diagram — F/FOG —

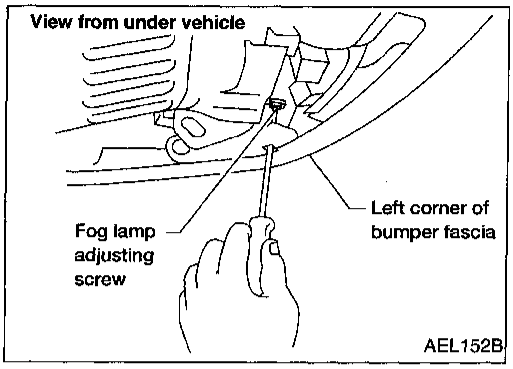
EL-F/FOG-01







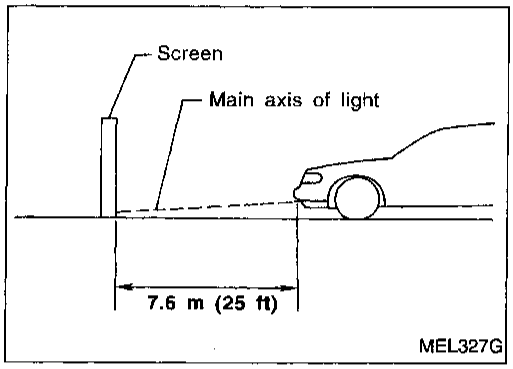
AEL961A



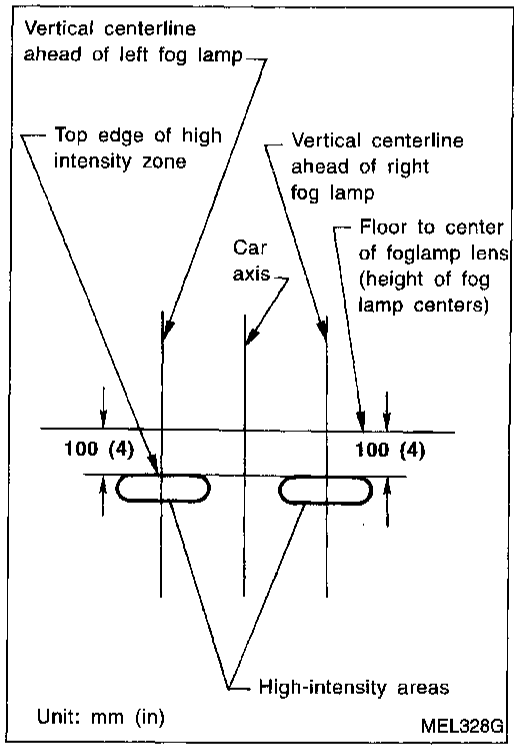
Aiming Adjustment

Before performing aiming adjustment, make sure of the following.

a. Keep all tires inflated to correct pressure.
b. Place vehicle on level ground.
c. Check 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.



1. Set the distance between the screen and the center of the fog lamp lens as shown at left.
2. Turn front fog lamps ON.



3. Adjust front fog lamps so that the top edge of the high intensity zone is 100 mm (4 in) below the height of the fog lamp centers as shown at left.

- **When performing adjustment, if necessary, cover the headlamps and opposite fog lamp.**

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. 11, located in the fuse block (J/B)]
- to hazard switch terminal ②
- through terminal ① of the hazard switch
- to combination flasher unit terminal ①
- through terminal ③ of the combination flasher unit
- to turn signal switch terminal ①.

Ground is supplied to combination flasher unit terminal ② through body grounds (M2) and (M61).

LH turn

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

- front combination lamp LH terminal ③
- combination meter terminal ㉚
- rear combination lamp LH terminal ④.

Ground is supplied to the front combination lamp LH terminal ② through body grounds (E10) and (E34).

Ground is supplied to the rear combination lamp LH terminal ② through body grounds (T6) and (T9).

Ground is supplied to combination meter terminal ㉗ through body grounds (M2) and (M61).

With power and ground supplied, the combination flasher unit controls the flashing of the LH combination 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 combination lamp RH terminal ③
- combination meter terminal ㉖
- rear combination lamp RH terminal ④.

Ground is supplied to the front combination lamp RH terminal ② through body grounds (E10) and (E34).

Ground is supplied to the rear combination lamp RH terminal ② through body grounds (T6) and (T9).

Ground is supplied to combination meter terminal ㉗ through body grounds (M2) and (M61).

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

HAZARD LAMP OPERATION

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

- 10A fuse [No. 20, located in the fuse block (J/B)].

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

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

Ground is supplied to combination flasher unit terminal ② through body grounds (M2) and (M61).

Power is supplied through terminal ⑤ of the hazard switch to:

- front combination lamp LH terminal ③
- combination meter terminal ㉚
- rear combination lamp LH terminal ④.

Power is supplied through terminal ⑥ of the hazard switch to:

- front combination lamp RH terminal ③
- rear combination lamp RH terminal ④
- combination meter terminal ㉖.

Ground is supplied to terminal ② of each front combination lamp through body grounds (E10) and (E34).

Ground is supplied to terminal ② of each rear combination lamp through body grounds (T6) and (T9).

System Description (Cont'd)

Ground is supplied to combination meter terminal ㉗ through body grounds (M2) and (M61).
With power and ground supplied, the combination flasher unit controls the flashing of the hazard warning lamps.

WITH MULTI-REMOTE CONTROL SYSTEM

Power is supplied at all times:
- through 10A fuse [No. 20, located in the fuse block (J/B)]
- to multi-remote control relay-1 terminals ①, ③ and ⑥.

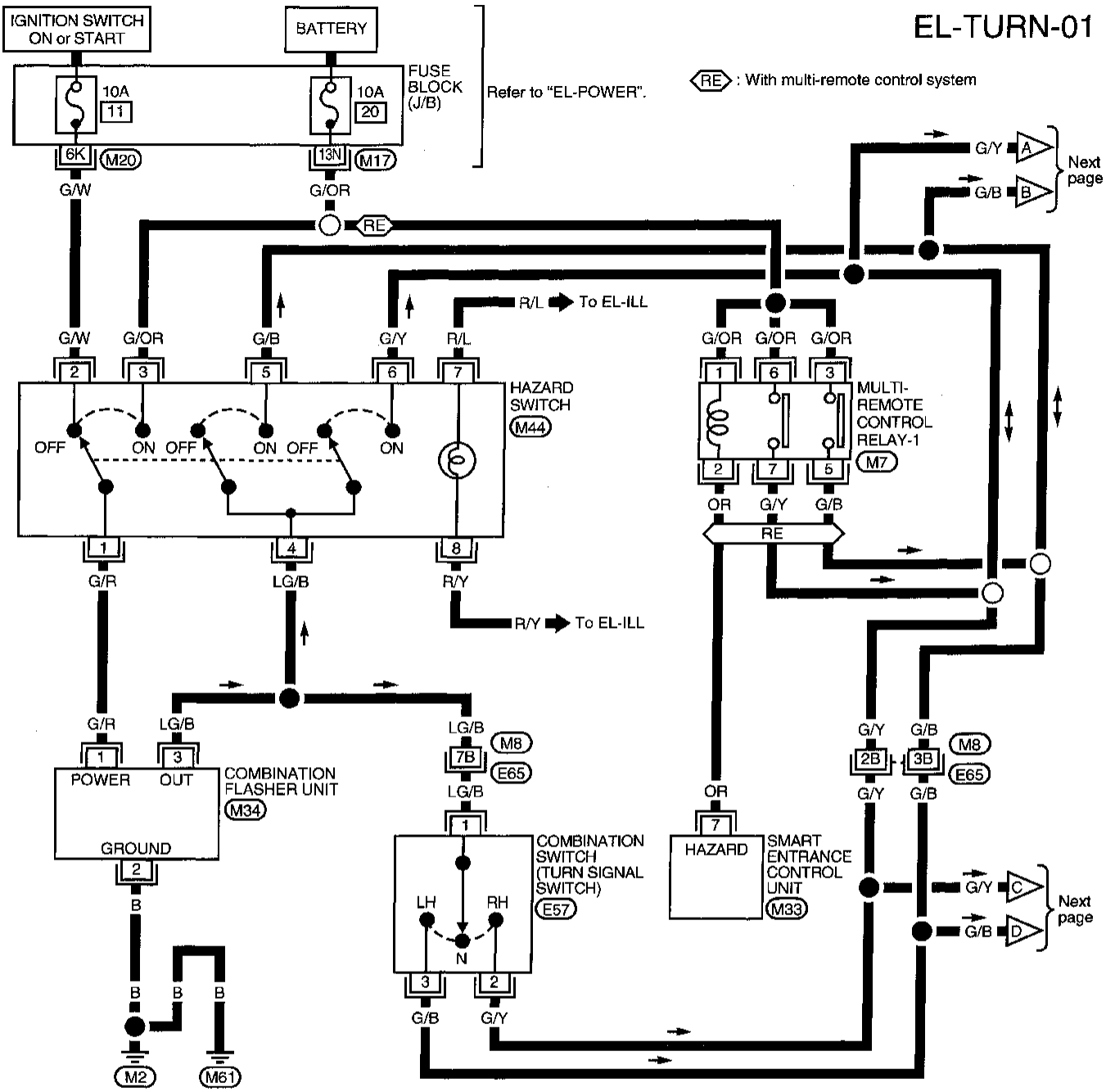
Ground is supplied to multi-remote control relay-1 terminal ②, when the multi-remote control system is triggered through the smart entrance control unit.
Refer to "MULTI-REMOTE CONTROL SYSTEM" (EL-186).
When multi-remote control relay-1 is energized.
Power is supplied through terminal ⑤ of the multi-remote control relay-1:
- to front combinaton lamp LH terminal ③
- to combination meter terminal ㉚
- to rear combination lamp LH terminal ④.

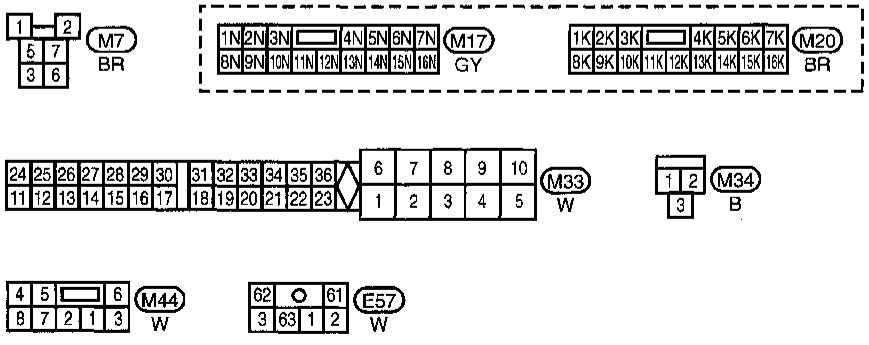
Power is supplied through terminal ⑦ of the multi-remote control relay-1:
- to front combination lamp RH terminal ③
- to combination meter terminal ㉖
- to rear combination lamp RH terminal ④.

Ground is supplied to terminal ② of each front combination lamp through body grounds (E10) and (E34).
Ground is supplied to terminal ② of each rear combination lamp through body grounds (T6) and (T9).
Ground is supplied to combination meter terminal ㉗ through body grounds (M2) and (M61).
With power and ground supplied, the smart entrance control unit controls the flashing of the hazard warning lamps.

NOTES

Wiring Diagram — TURN —



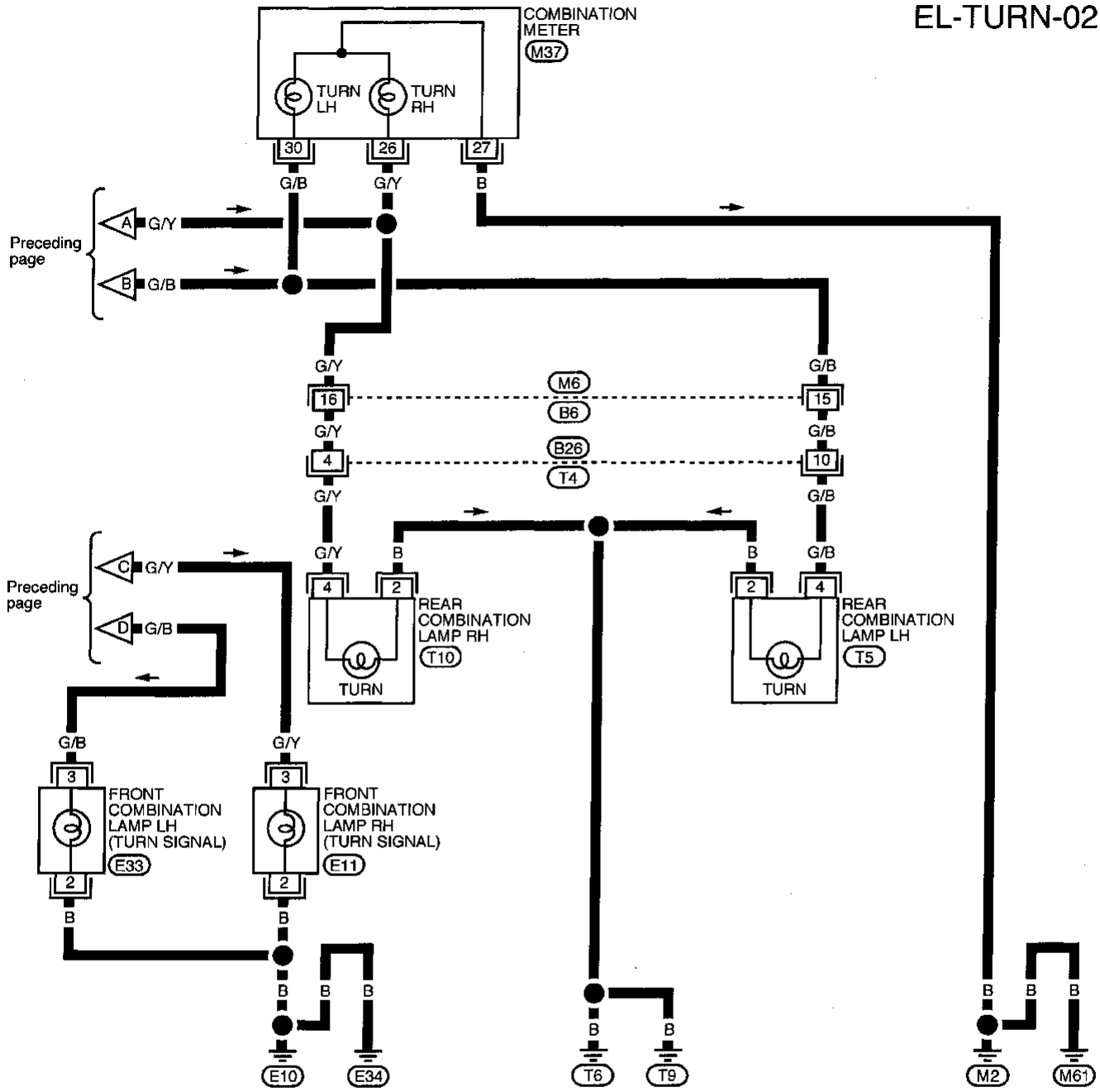


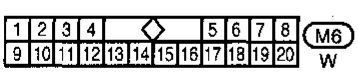
Refer to last page (Foldout page).
M8, E65

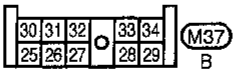
AEL962A

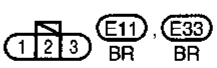
Wiring Diagram — TURN — (Cont'd)

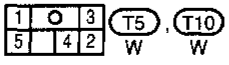
EL-TURN-02







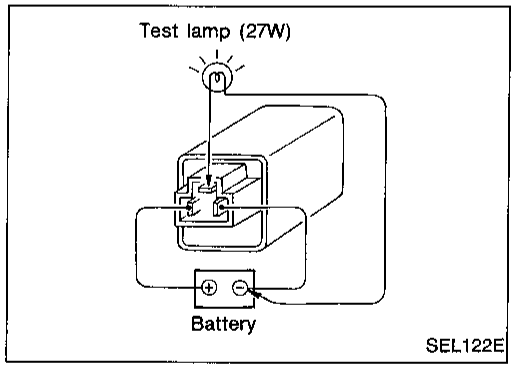




AEL818B

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. 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. 11, located in fuse block (J/B)]. 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 LG/B 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. 20, located in fuse block (J/B)]. Verify battery positive voltage is present at terminal ③ of hazard switch. 2. Check hazard switch. 3. Check LG/B 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 (E10) and (E34)	1. Check bulb. 2. Check grounds (E10) and (E34).
Rear turn signal lamp LH does not operate.	1. Bulb 2. Grounds (T6) and (T9)	1. Check bulb. 2. Check grounds (T6) and (T9).
Rear turn signal lamp RH does not operate.	1. Bulb 2. Grounds (T6) and (T9)	1. Check bulb. 2. Check grounds (T6) and (T9).
LH and RH turn indicators do not operate.	1. Ground	1. Check grounds (M2) and (M61).
LH or RH turn indicator does not operate.	1. Bulb	1. Check bulb in combination meter.



Electrical Components Inspection

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.

System Description

Power is supplied at all times:

- through 10A fuse (No. 34, located in the fuse and fusible link box)
- to lighting switch terminal ⑪.

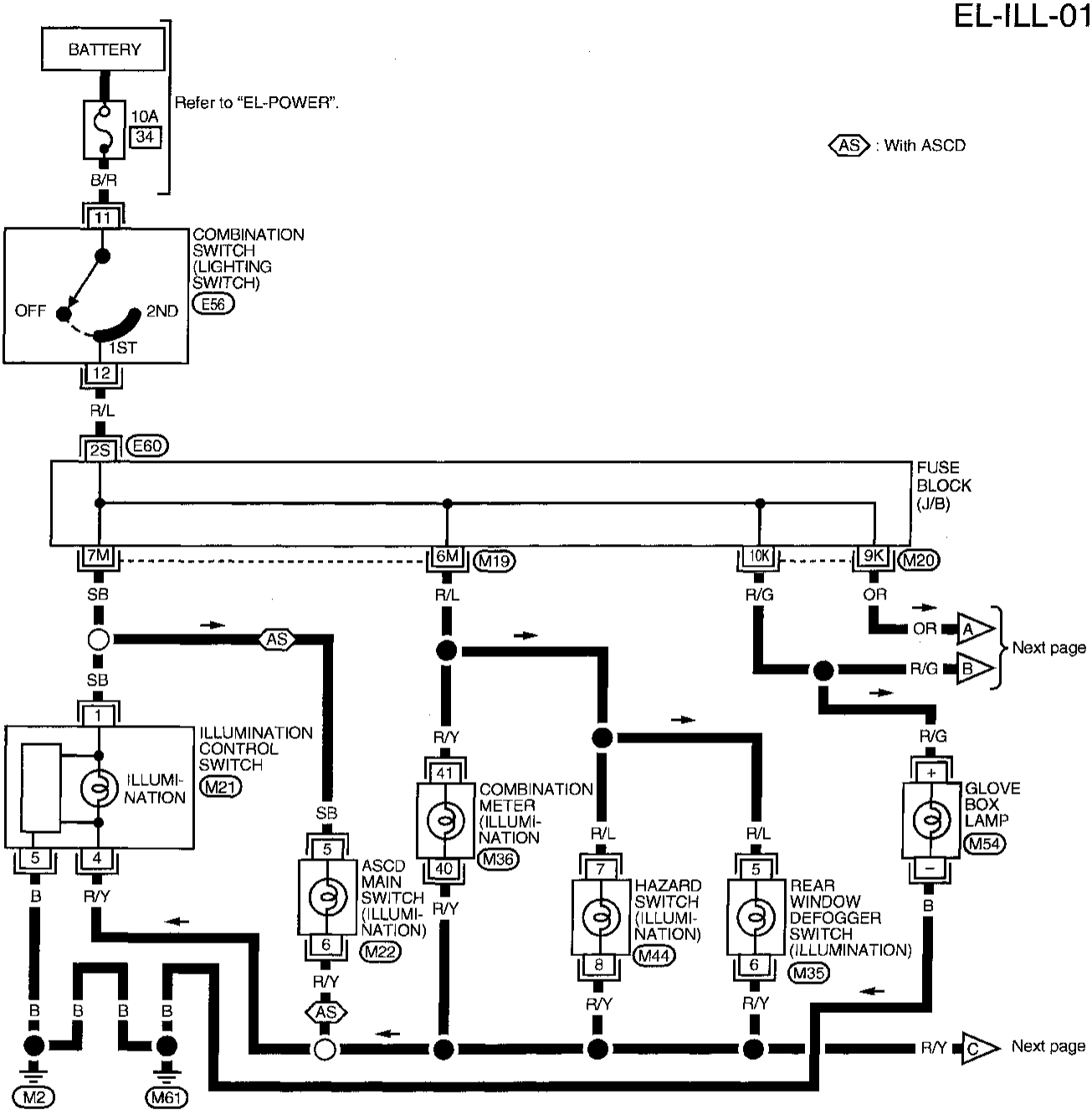
The lighting switch must be in parking lamp (1ST) or headlamp ON (2ND) position for illumination.
The illumination control switch controls the amount of current to the illumination system. As the amount of current increases, the illumination becomes brighter.
The following chart shows the power and ground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

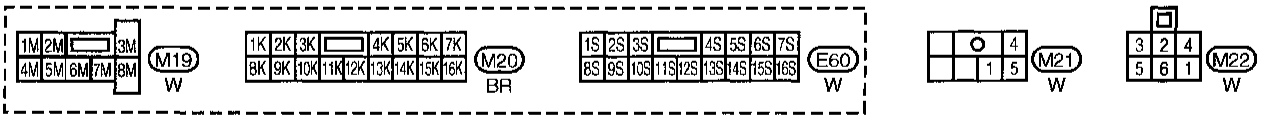
Component	Connector No.	Power terminal	Ground terminal
Illumination control switch	M21	①	⑤
ASCD main switch	M22	⑤	⑥
Combination meter	M36	㊶	㊵
Hazard switch	M44	⑦	⑧
Rear window defogger switch	M35	⑤	⑥
Glove box lamp	M54	⊕	⊖
Push control unit	M47, M48	⑮	⑯
A/T device indicator	M50	③	④
Radio	M40	⑧	⑦
Main power window and door lock/unlock switch	D7	③	⑧

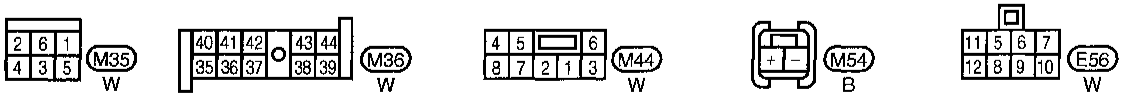
The ground for all of the components except for the glove box lamp is controlled through terminal ④ of the illumination control switch and body grounds (M2) and (M61).

Wiring Diagram — ILL —

EL-ILL-01

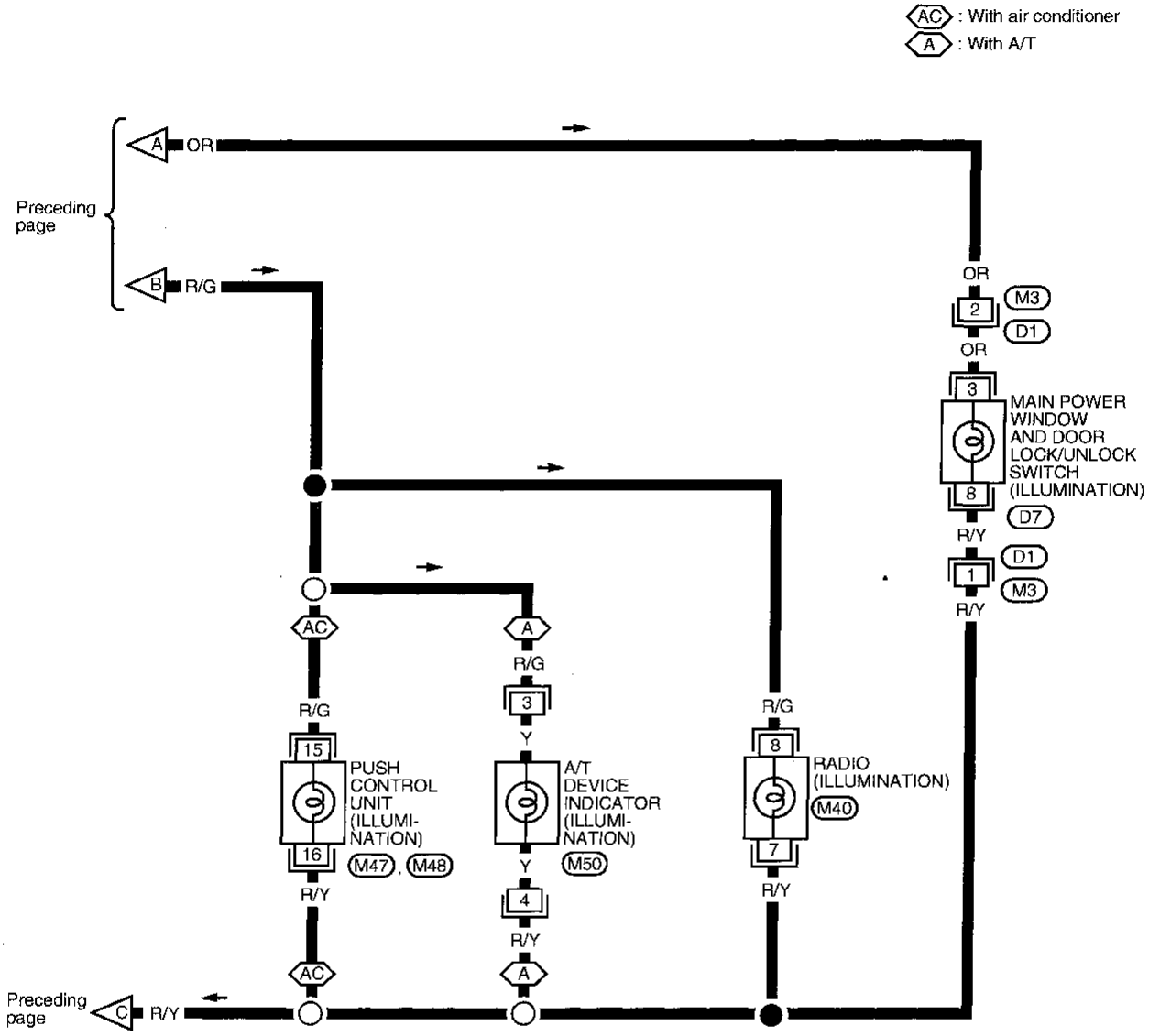


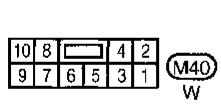


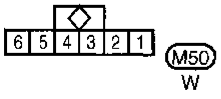


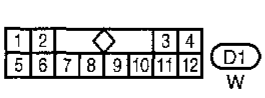
AEL945A

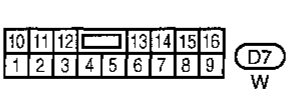
EL-ILL-02





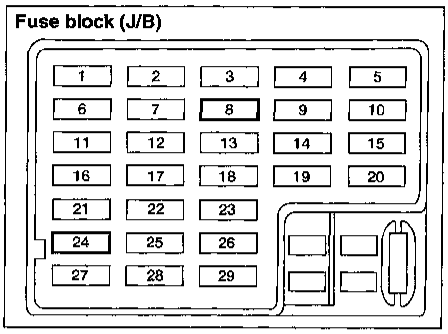


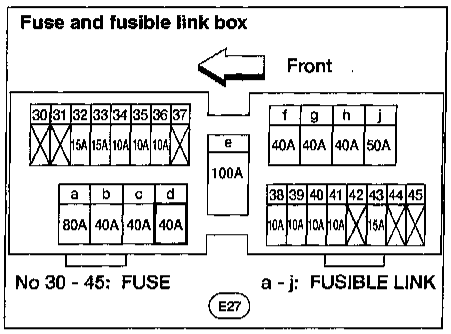


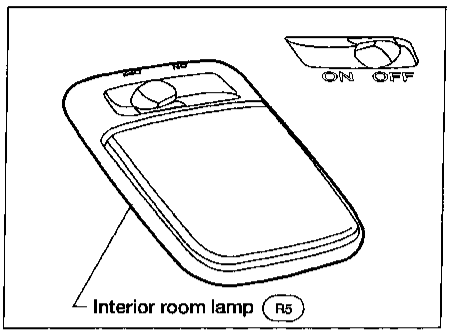


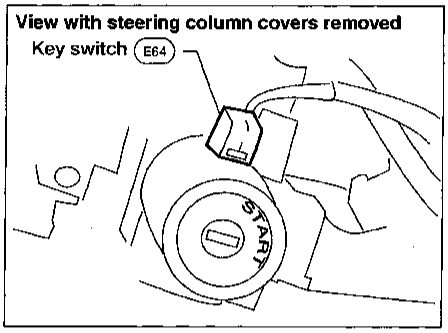
AEL946A

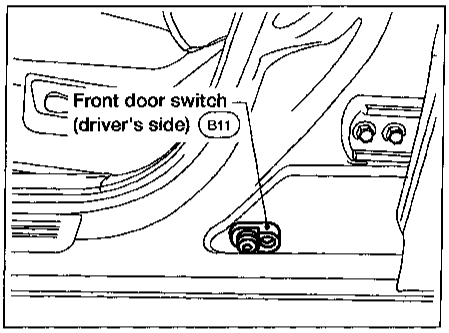
Component Parts and Harness Connector Location

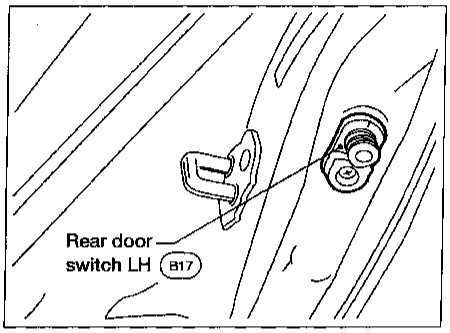


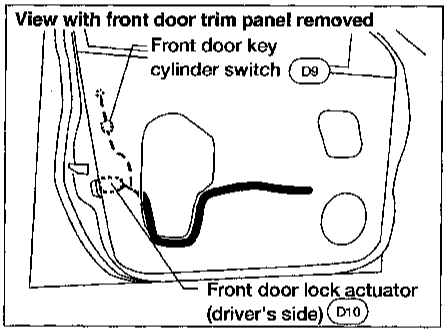


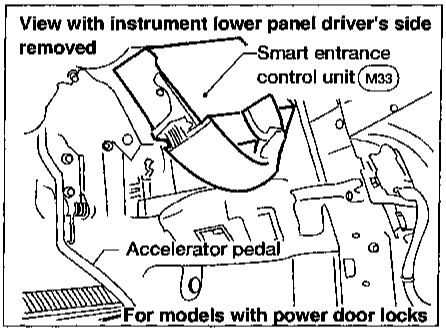












AEL134B

System Description

MODELS WITH POWER DOOR LOCKS

Power supply and ground

Power is supplied at all times:
- through 40A fusible link (Letter [d], located in the fuse and fusible link box)
- to circuit breaker-1 terminal ①
- through circuit breaker-1 terminal ②
- to smart entrance control unit terminal ①.

Power is supplied at all times:
- through 10A fuse [No. 24, located in the fuse block (J/B)]
- to key switch terminal ② and
- to room lamp terminal ⊕

When the key is removed from ignition key cylinder, power is interrupted:
- through key switch terminal ①
- to smart entrance control unit terminal ㉔.

With the ignition key switch in the ON or START position, power is supplied:
- through 10A fuse [No. 8, located in the fuse block (J/B)]
- to smart entrance control unit terminal ⑪.

Ground is supplied:
- to smart entrance control unit terminal ⑩
- through body grounds terminal (M2) and (M61).

When the front LH door is opened, ground is supplied:
- from front door switch LH terminal ①
- to smart entrance control unit terminal ⑮.

When any other door is opened ground is supplied to smart entrance control unit terminal ⑯ or ㉟ in the same manner as the front door switch LH.

When the front door LH is unlocked using remote controller, the smart entrance control unit receives a ground signal:
- through body grounds terminal (M2) and (M61)
- to front door unlock sensor terminal ②
- from front door unlock sensor terminal ④
- to smart entrance control unit terminal ⑫.

When a signal, or combination of signals is received by the smart entrance control unit, ground is supplied:
- through smart entrance control unit terminal ⑨
- to room lamp terminal Ⓓ.

With power and ground supplied, the room lamp illuminates.

Switch operation

When the room lamp switch is ON, ground is supplied:
- to room lamp
- through case ground of room lamp.

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

Room lamp timer operation

When the room lamp switch is in the DOOR position, the smart entrance control unit keeps the room lamp illuminated for about 30 seconds when:
- unlock signal is supplied from multi-remote controller (Models with multi-remote control system)
- key is removed from ignition key cylinder while driver's door is closed
- driver's door is opened and then closed while ignition switch is not in the ON position.

The timer is canceled, and room lamp turns off when:
- driver's door is locked with remote controller, or
- ignition switch is turned ON.

The smart entrance control unit will shut off the room light if left on for 30 minutes.

ON-OFF control

When the driver side door, front passenger door, rear LH or RH door is opened, the room lamp turns on while the room lamp switch is in the DOOR position.

System Description (Cont'd)

When any door is opened and then closed while the ignition switch is not in the ON position, the room lamp timer operates.

MODELS WITHOUT POWER DOOR LOCKS

Power is supplied at all times:

- through 10A fuse [No. 24, located in the fuse block (J/B)]
- to room lamp terminal ⊕.

With the room lamp switch ON, ground is supplied to turn room lamp ON.

When a door switch is opened with the room lamp switch in DOOR position, ground is supplied:

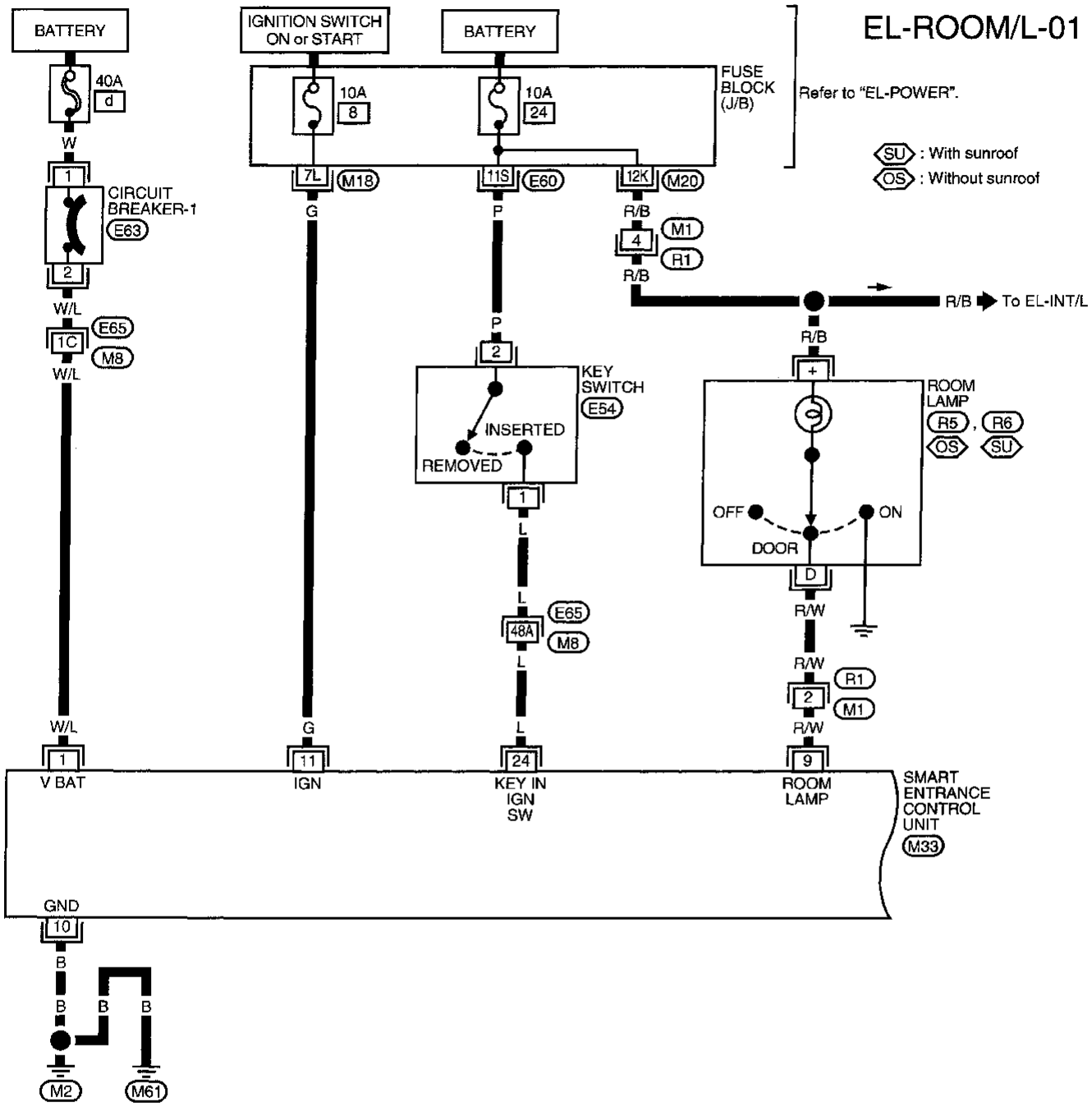
- to room lamp switch terminal Ⓓ
- through front door switch LH terminal ①, rear door switch LH or RH terminal ①.

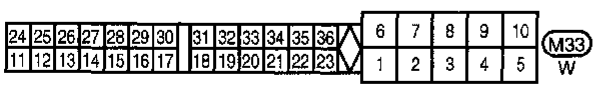
With power and ground supplied, the room lamp turns ON.

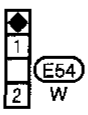
NOTES

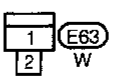
Wiring Diagram — ROOM/L —

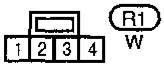
MODELS WITH POWER DOOR LOCKS

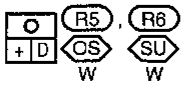










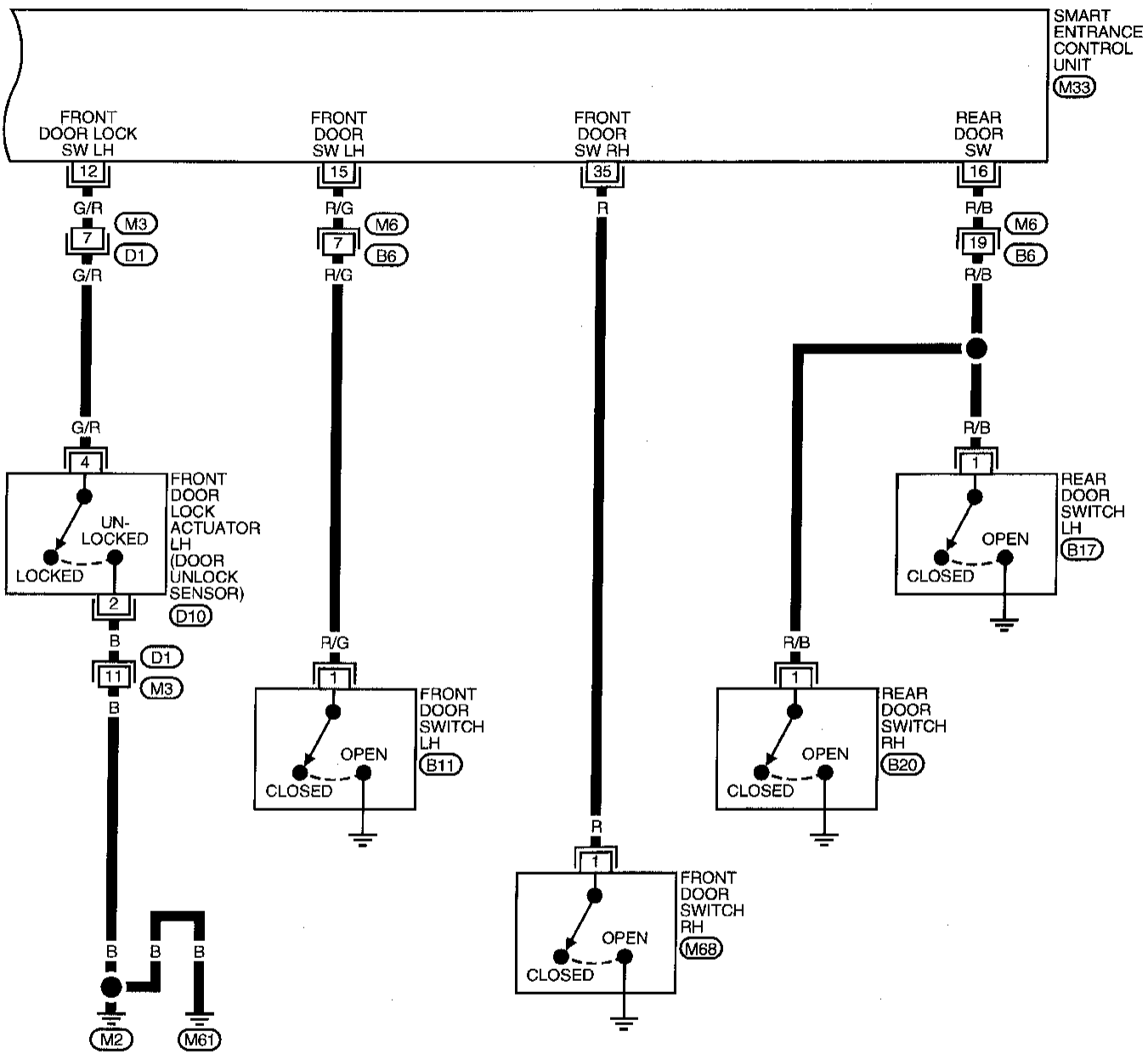


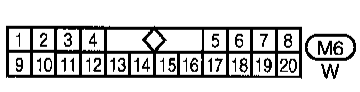
Refer to last page (Foldout page).
M8, E65

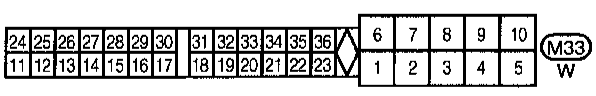
AEL948A

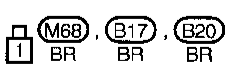
Wiring Diagram — ROOM/L — (Cont'd)

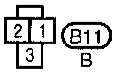
EL-ROOM/L-02

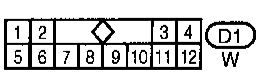


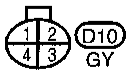










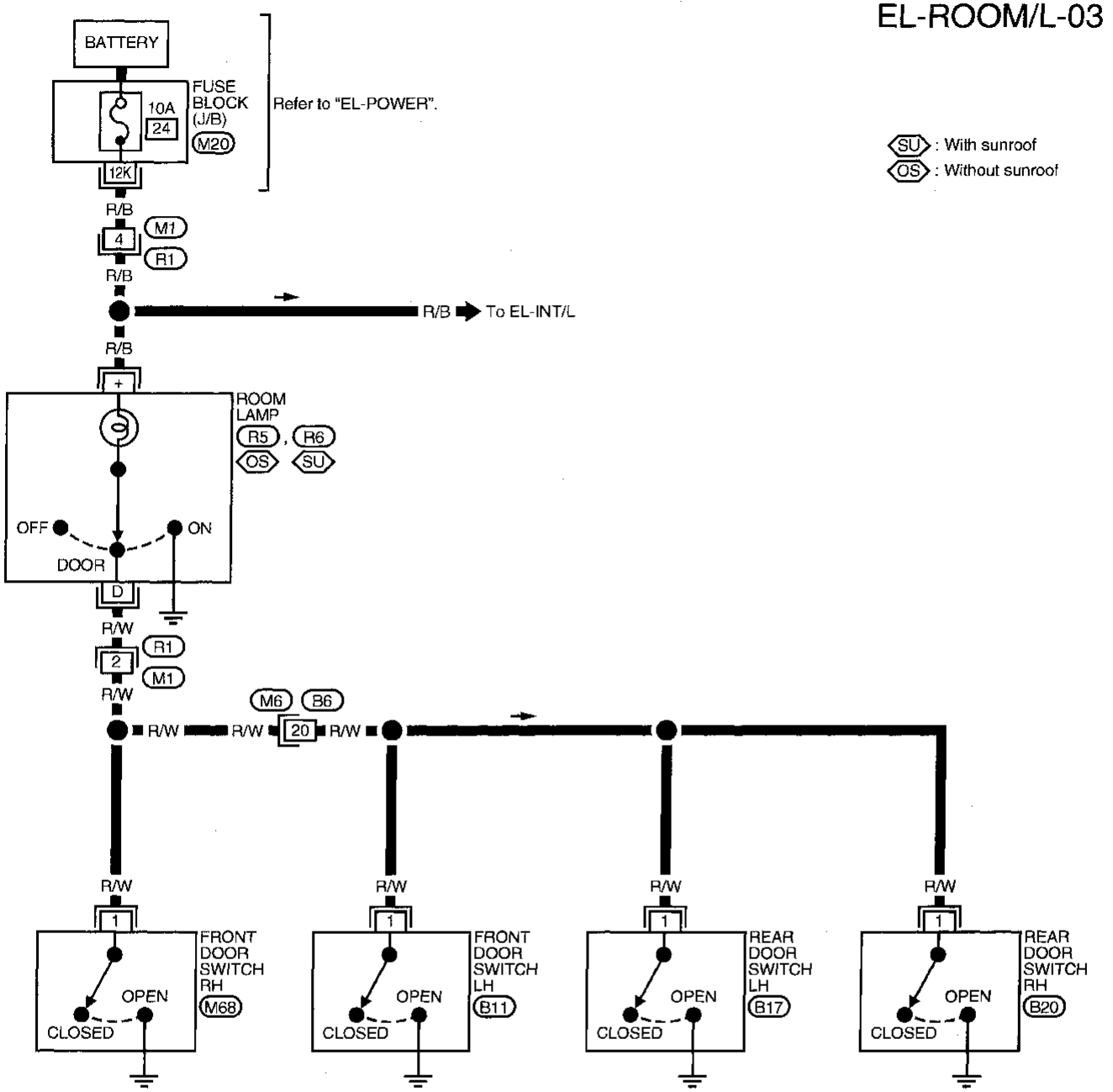


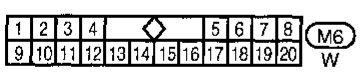
AEL949A

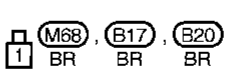
Wiring Diagram — ROOM/L — (Cont'd)

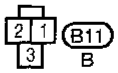
MODELS WITHOUT POWER DOOR LOCKS

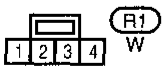
EL-ROOM/L-03

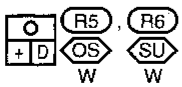






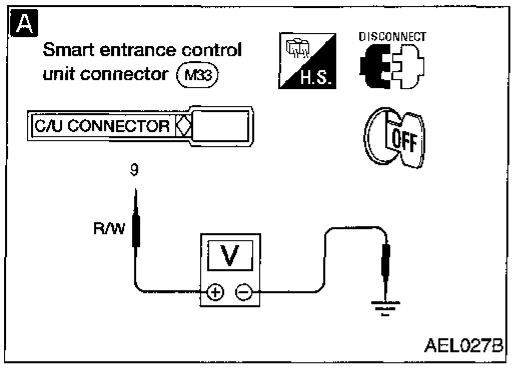




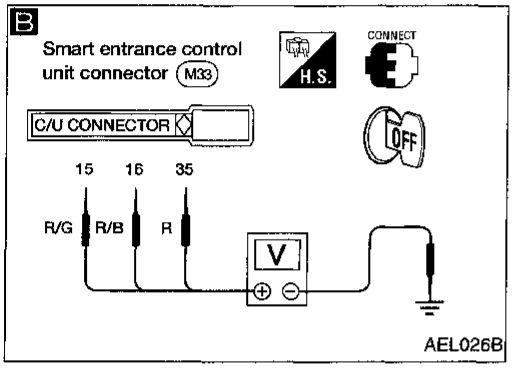


AEL016B

A



B



Trouble Diagnoses (For models with power door lock)

DIAGNOSTIC PROCEDURE

SYMPTOM: Room lamp does not turn on when any door is opened, or timer does not operate properly.

Does room lamp turn on when room lamp switch is in ON position?

No → Check the following.
- Bulb
- 10A fuse [No. 24, located in the fuse block (J/B)]
- Harness for open or short between fuse and room lamp
- Room lamp ground condition

Yes ↓

Does key warning chime operate properly?

No → Check "WARNING CHIME" system. (Refer to EL-97.)

Yes ↓

Does power door lock operate using driver side knob lock switch?

No → Check "POWER DOOR LOCK" system. (Refer to EL-171.)

Yes ↓

A

CHECK ROOM LAMP OUTPUT SIGNAL.
1. Turn room lamp switch to DOOR position.
2. Disconnect control unit connector.
3. Check voltage between control unit terminal ⑨ and ground.
   Battery voltage should exist.

NG → Check harness for open or short between room lamp and control unit.

OK ↓

B

CHECK DOOR SWITCH INPUT SIGNAL.
1. Connect control unit connector.
2. Check voltage between control unit terminal ⑮, ⑯, ㉟ and ground.

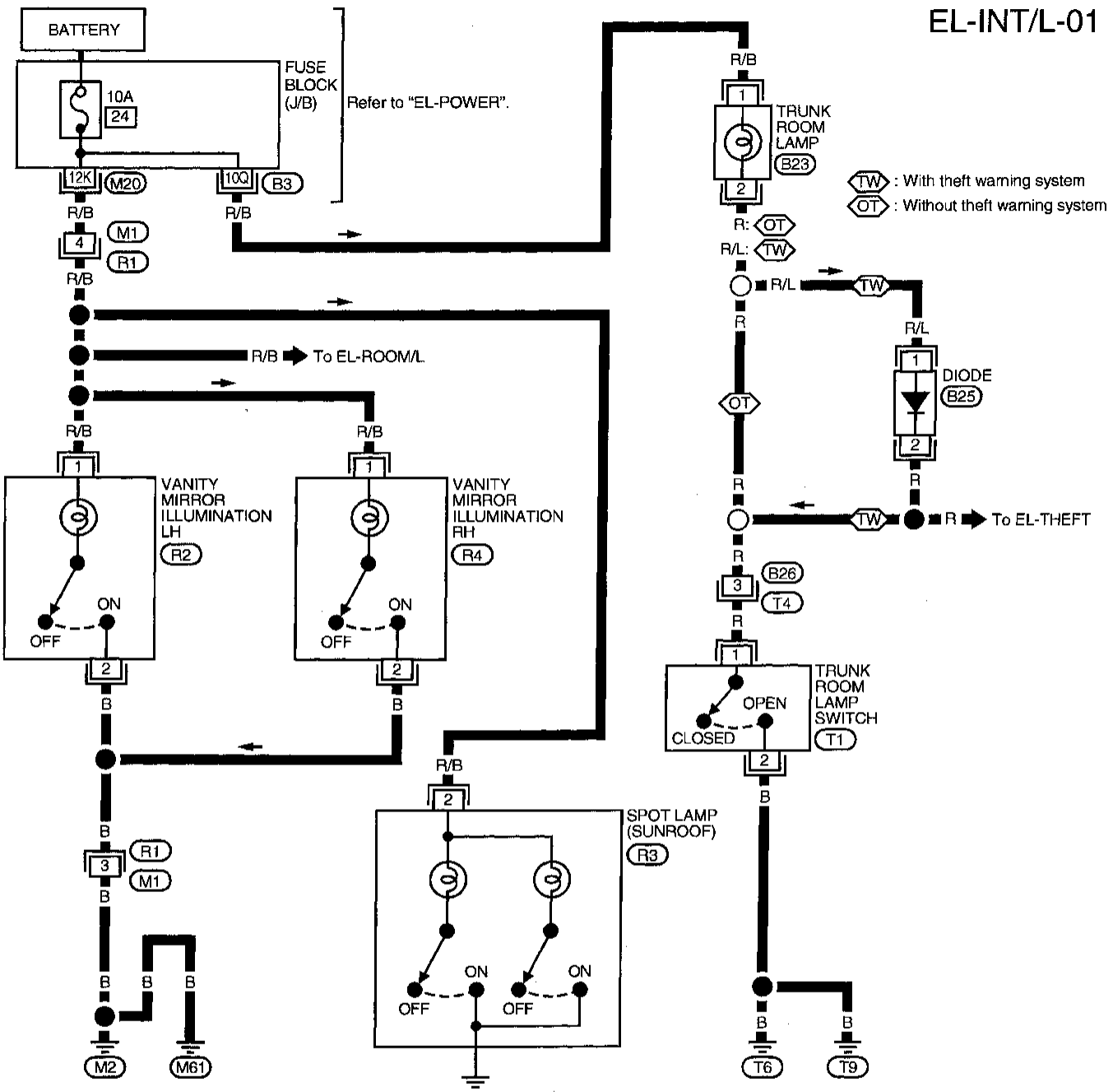
	Terminals ⊕	Terminals ⊖	Condition	Voltage [V]
Front LH door switch	⑮	Ground	Open	0
			Closed	12
Front RH door switch	⑯	Ground	Open	0
			Closed	12
Rear door switch	㉟	Ground	Open	0
			Closed	12

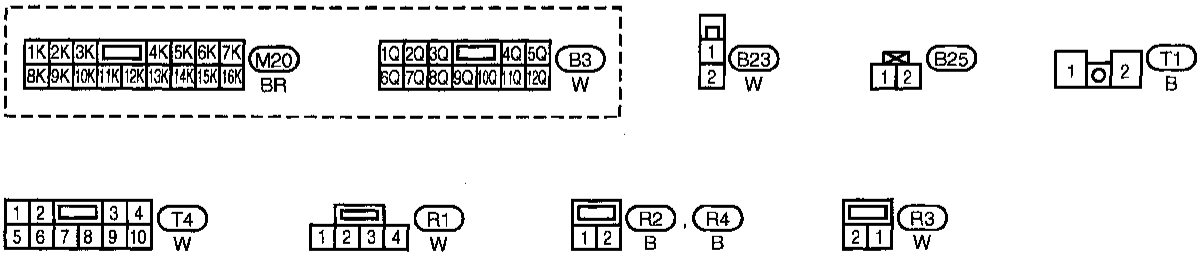
NG → Check the following.
- Door switch
- Door switch ground circuit (Front LH) or door switch ground condition
- Harness for open or short between control unit and door switch

OK ↓

Replace control unit.

Wiring Diagram — INT/L —

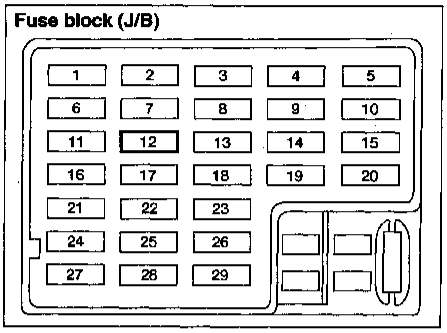


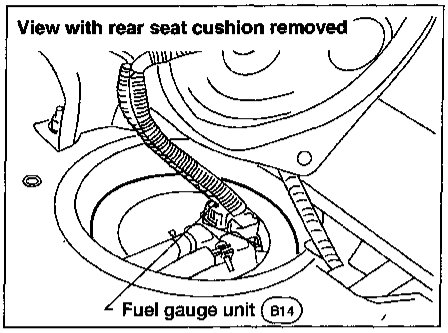


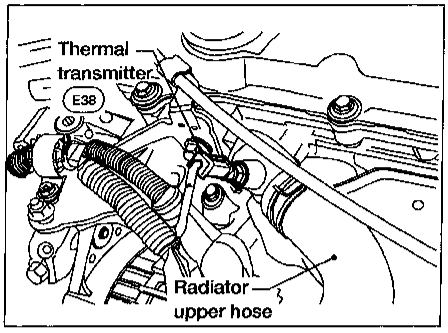
AEL947A

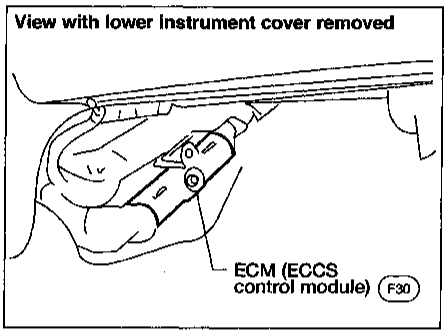
NOTES

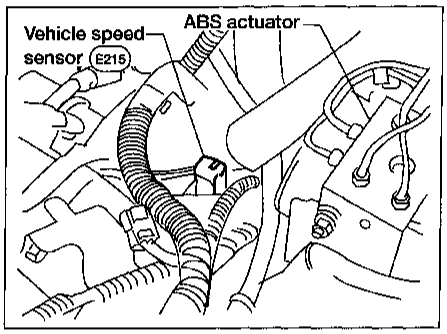
Component Parts and Harness Connector Location











AEL135B

System Description

POWER SUPPLY AND GROUND CIRCUIT

With the ignition switch in the ON or START position, power is supplied:
- through 10A fuse [No. 12, located in the fuse block (J/B)]
- to combination meter terminals ②, ㉒ and ㊸.

Ground is supplied:
- to combination meter terminal ㊳
- through body grounds (M2) and (M61).

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 ④ for the fuel gauge
- from terminal Ⓖ of the fuel tank gauge unit
- through terminal Ⓔ of the fuel tank gauge unit and
- through body grounds (B13) and (B19).

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 ㊲ of the combination meter for the water temperature gauge. The needle on the gauge moves from "C" to "H".

TACHOMETER

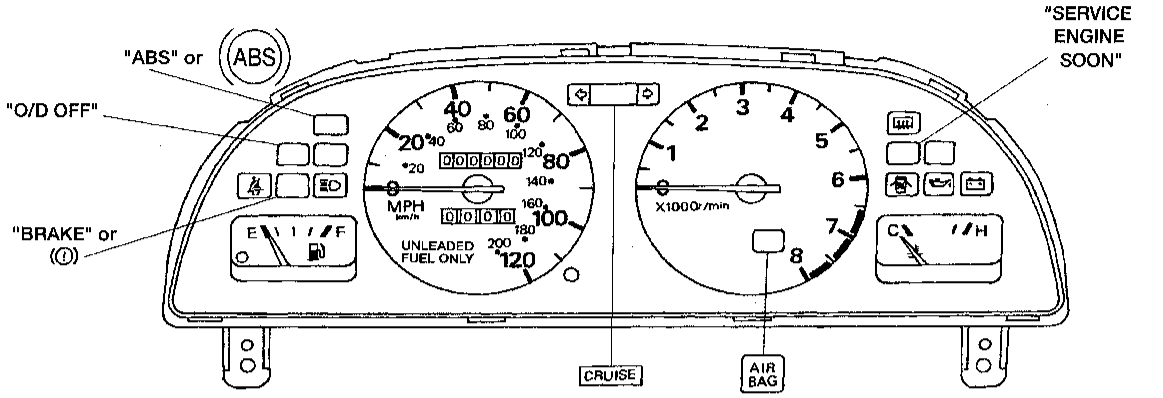
The tachometer indicates engine speed in revolutions per minute (rpm).
The tachometer is regulated by a signal:
- from terminal ③ of the ECM
- to combination meter terminal ㉟ for the tachometer.

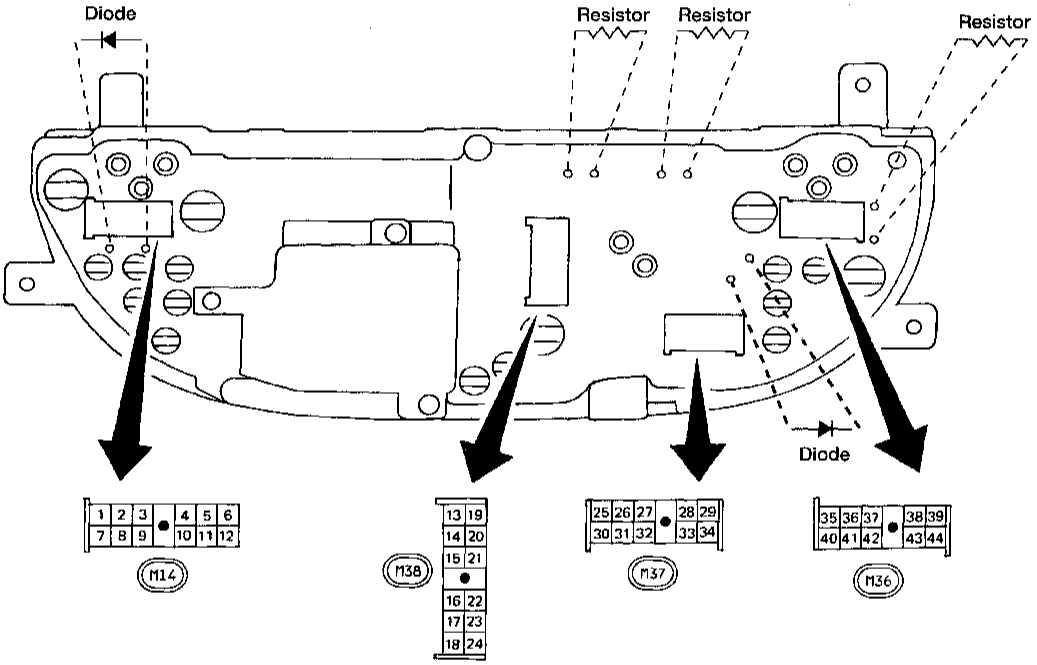
SPEEDOMETER

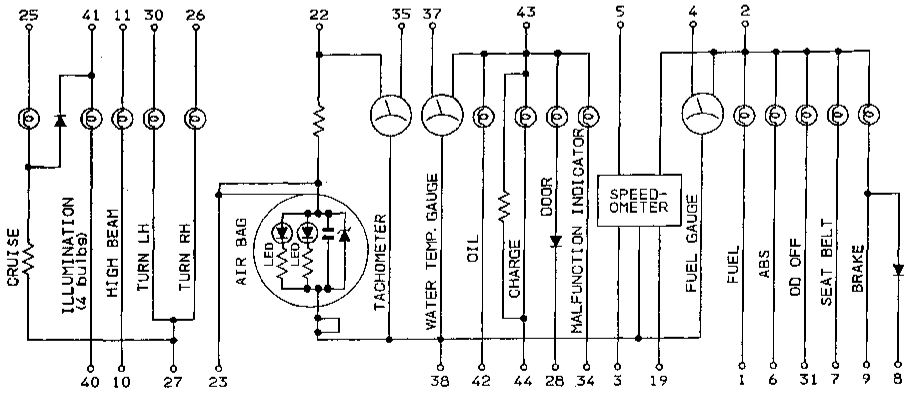
The vehicle speed sensor provides a voltage signal to the combination meter for the speedometer.
The voltage is supplied:
- to combination meter terminals ③ and ⑲ for the speedometer
- from terminals ① and ② of the vehicle speed sensor.

The speedometer converts the voltage into the vehicle speed displayed.

System Description (Cont'd)

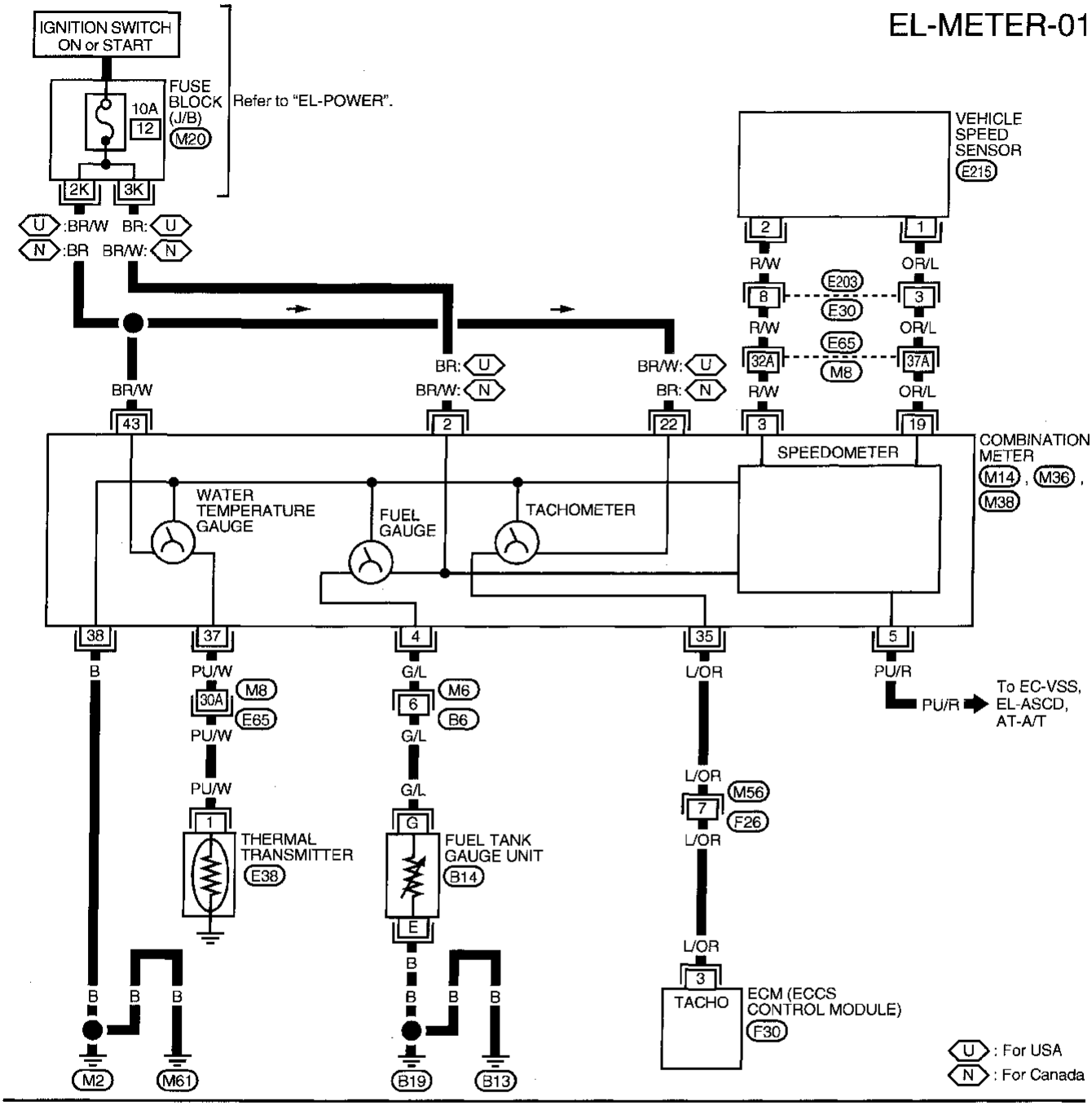




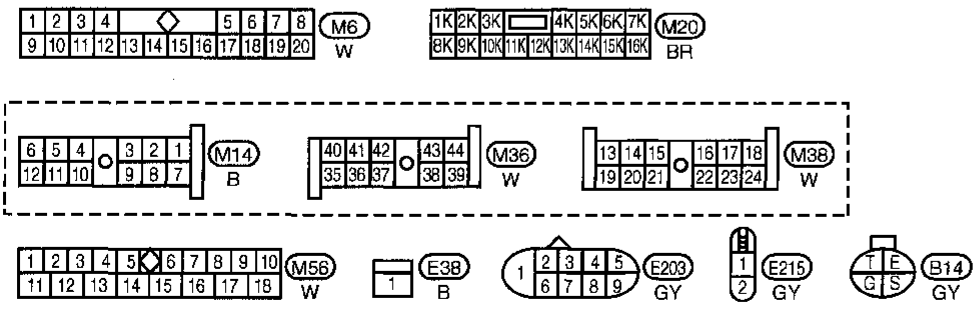


AEL179B

Wiring Diagram — METER —



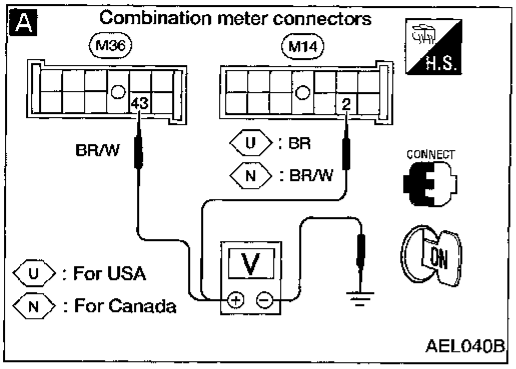
Refer to last page (Foldout page).
M8, E65
F30

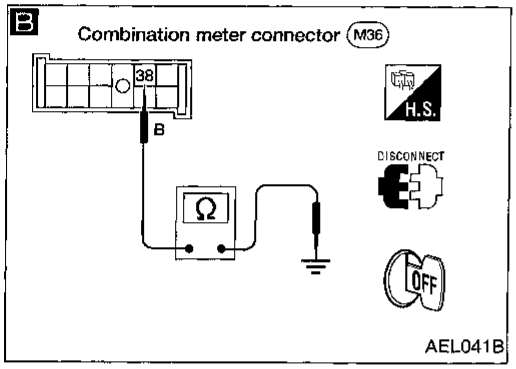


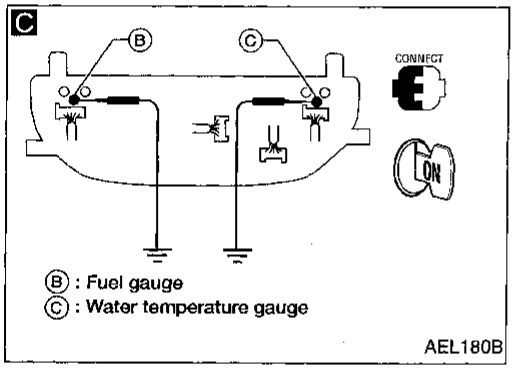
AEL951A

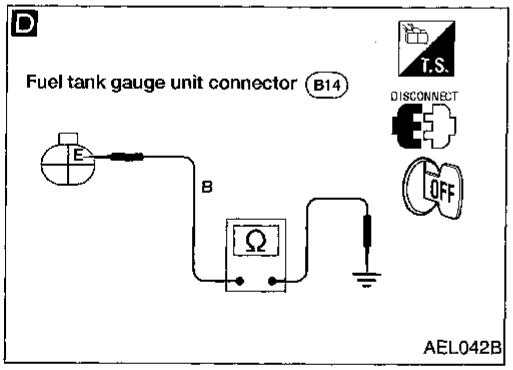
Trouble Diagnoses

INSPECTION/FUEL GAUGE AND/OR WATER TEMPERATURE GAUGE









A

CHECK POWER SUPPLY CIRCUIT.
1. Turn ignition switch ON.
2. Check voltage between combination meter terminals (2), (43) and ground.
Battery voltage should exist.

NG → Check the following.
- 10A fuse [No. 12, located in the fuse block (J/B)]
- Harness for open or short between fuse and combination meter

OK ↓

B

CHECK GROUND CIRCUIT FOR GAUGES.
Check continuity between combination meter terminal (38) and ground.
Continuity should exist.

NG → Repair harness or connector.

OK ↓

C

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 ↓

D

CHECK GROUND CIRCUIT FOR FUEL TANK GAUGE UNIT.
Check harness continuity between fuel tank gauge unit terminal (E) and ground.
Continuity should exist.

NG → Repair harness or connector.

OK ↓

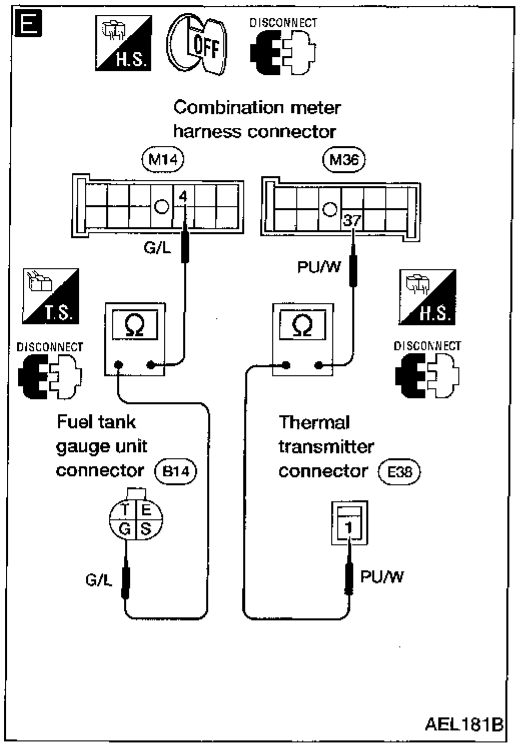
CHECK COMPONENT.
Check gauge units.
Refer to "FUEL TANK GAUGE UNIT CHECK" (EL-89) or "THERMAL TRANSMITTER CHECK" (EL-89).

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

OK ↓

(Go to (A) on next page.)

Trouble Diagnoses (Cont'd)

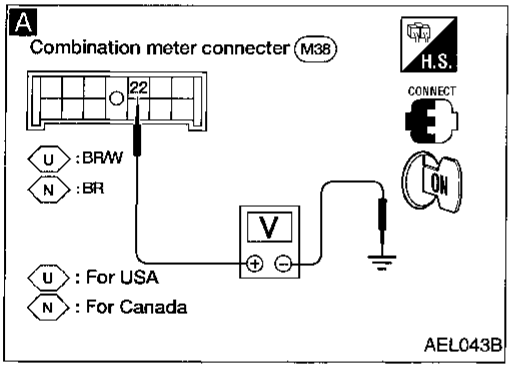


Ⓐ

E

CHECK HARNESS.
Check harness for open or short between terminals.

Terminals	
Combination meter connector	Component
④	Fuel tank gauge unit connector Ⓖ
㊲	Thermal transmitter connector ①



INSPECTION/TACHOMETER

A

CHECK POWER SUPPLY CIRCUIT.
1. Turn ignition switch ON.
2. Check voltage between combination meter terminal ㉒ and ground.
   Battery voltage should exist.

NG → Check the following.
- 10A fuse [No. 12, located in the fuse block (J/B)]
- Harness for open or short between fuse and combination meter

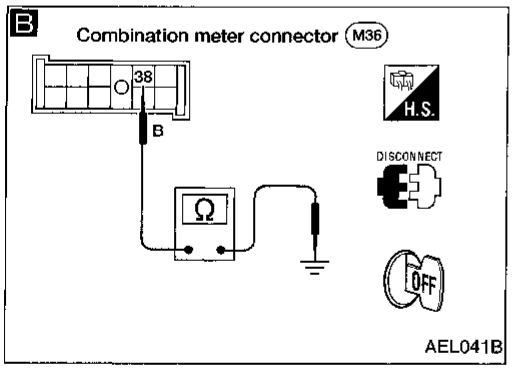
OK ↓

B

CHECK GROUND CIRCUIT FOR TACHOMETER.
Check continuity between combination meter terminal ㊳ and ground.
Continuity should exist.

NG → Repair harness or connector.

OK ↓



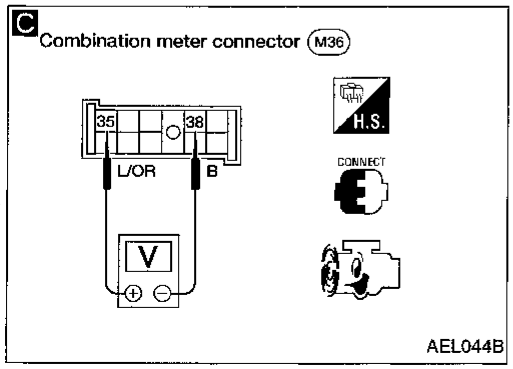
C

CHECK ECM OUTPUT.
1. Start engine.
2. Check voltage between combination meter terminals ㉟ and ㊳ at idle and 2,000 rpm.
   Higher rpm = Higher voltage
   Lower rpm = Lower voltage
   Voltage should change with rpm.

NG → Check harness for open or short between ECM and combination meter.

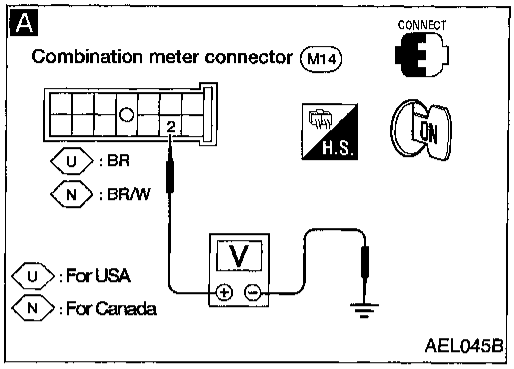
OK ↓

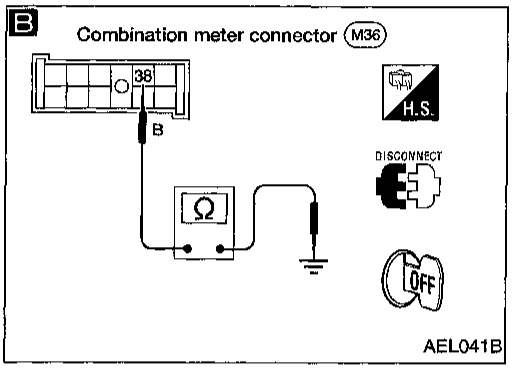
Replace tachometer.

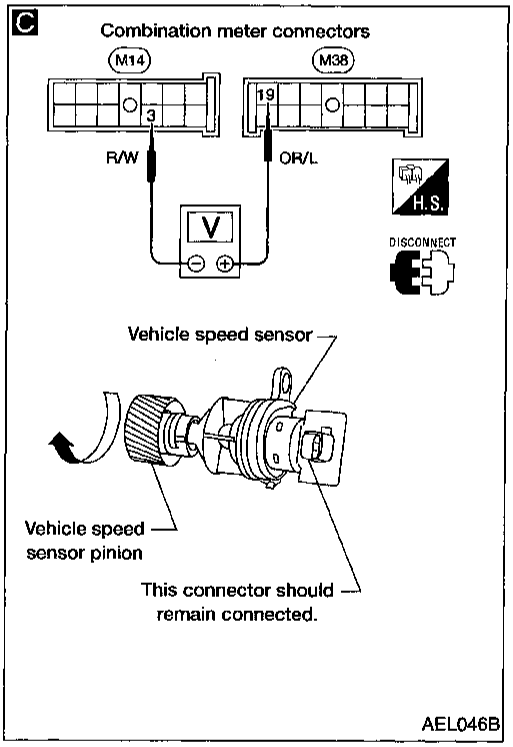


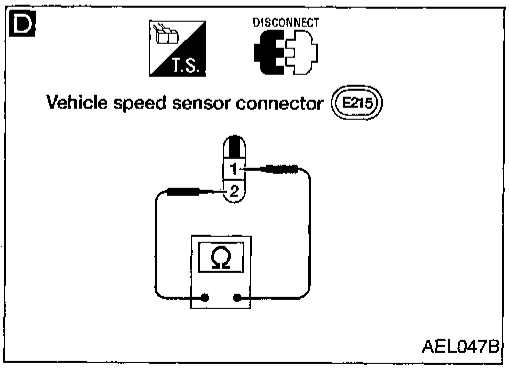
Trouble Diagnoses (Cont'd)

INSPECTION/SPEEDOMETER AND VEHICLE SPEED SENSOR









A

CHECK POWER SUPPLY CIRCUIT.
1. Turn ignition switch ON.
2. Check voltage between combination meter terminal ② and ground.
   Battery voltage should exist.

NG → Check the following:
- 10A fuse [No. 12, located in the fuse block (J/B)]
- Harness for open or short between fuse and combination meter

OK ↓

B

CHECK GROUND CIRCUIT FOR SPEEDOMETER.
Check continuity between combination meter terminal ㊳ and ground.
Continuity 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 combination meter terminals ③ and ⑲ while quickly turning speed sensor pinion.
   Voltage: Approx. 0.5V [Alternating current (AC)]

OK → Replace speedometer.

NG ↓

D

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

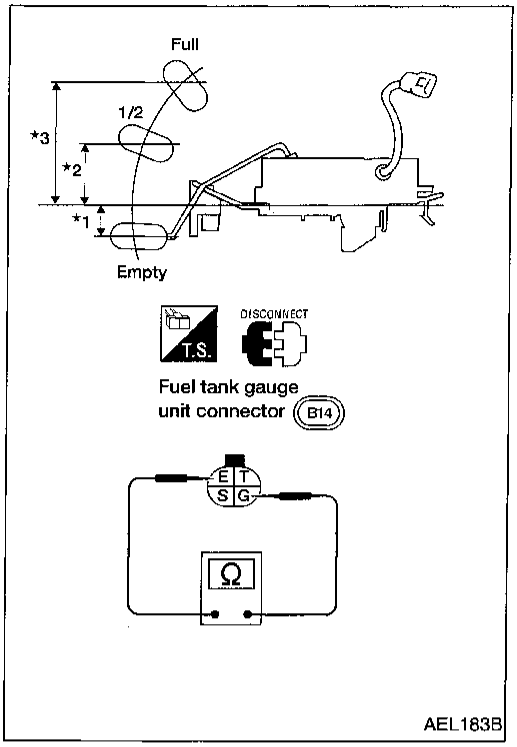
NG → Replace vehicle speed sensor.

OK ↓

Check harness for open or short between vehicle speed sensor and combination meter.

Trouble Diagnoses (Cont'd)

FUEL TANK GAUGE UNIT CHECK

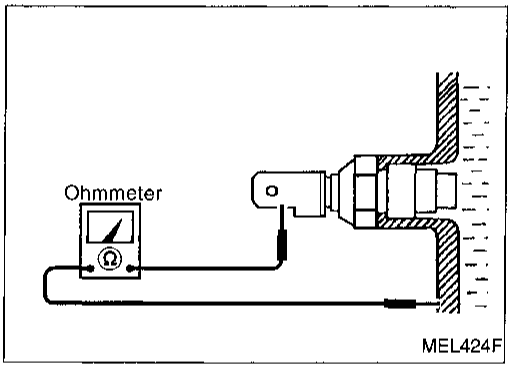


- For removal, refer to FE section.

Check the resistance between terminals Ⓖ and Ⓔ.

Ohmmeter (+)	Ohmmeter (−)	Float position	mm (in)		Resistance value (Ω)
Ⓖ	Ⓔ	*3	Full	80.5 (3.169)	Approx. 4.5 - 6
		*2	1/2	29.4 (1.157)	31.5 - 33.5
		*1	Empty	19 (0.748)	80 - 83

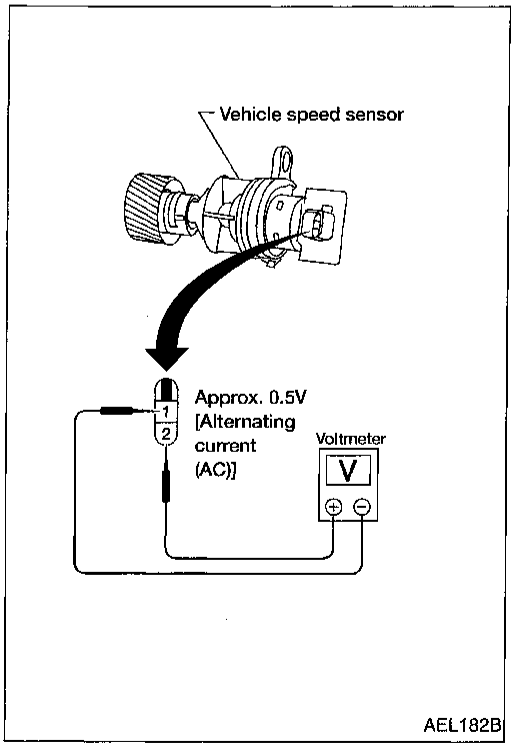
*1 and *3: When float rod is in contact with stopper.



THERMAL TRANSMITTER CHECK

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

Water temperature	Resistance (Ω)
60°C (140°F)	Approx. 170 - 210
100°C (212°F)	Approx. 47 - 53



VEHICLE SPEED SENSOR SIGNAL CHECK

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

System Description

With the ignition switch in the ON or START position, power is supplied:
- through 10A fuse (No. 12, located in the fuse block [J/B])
- to combination meter terminals ②, ㉒ and ㊸.

Ground is supplied:
- to combination meter terminal ㊳
- through body grounds (M2) and (M61).

Ground is supplied:
- to fuel tank gauge unit terminal Ⓔ and
- seat belt buckle switch terminal ②
- through body grounds (B13) and (B19).

Ground is supplied:
- to brake fluid level switch terminal ②
- through body grounds (E10) and (E34).

AIR BAG WARNING LAMP

During prove out or when an air bag malfunction occurs, the ground path is interrupted:
- from the air bag diagnosis sensor unit terminal ⑮
- to combination meter terminal ㉓.

Ground is supplied:
- through combination meter terminal ㊳.

With power and ground supplied, the air bag warning lamp (LEDs) illuminate.
For further information, refer to RS section ("TROUBLE DIAGNOSES").

DOOR AJAR WARNING LAMP

When a door is open, ground is supplied:
- to combination meter terminal ㉘
- from smart entrance control unit terminal ⑨ (With power door locks)
- from door switches terminal ① (Without power door locks).

With power and ground supplied, the door ajar warning lamp illuminates.

MALFUNCTION INDICATOR LAMP

During prove out or when an engine control malfunction occurs, ground is supplied:
- to combination meter terminal ㉞
- from ECM terminal ⑱.

With power and ground supplied, the malfunction indicator lamp illuminates.
For further information, refer to EC section ["Malfunction Indicator Lamp (MIL)", "ON BOARD DIAGNOSTIC SYSTEM DESCRIPTION"].

LOW OIL PRESSURE WARNING LAMP

Low oil pressure causes oil pressure switch terminal ① to provide ground to combination meter terminal ㊷.
With power and ground supplied, the low oil pressure warning lamp illuminates.

System Description (Cont'd)

CHARGE WARNING LAMP

During prove out or when a generator malfunction occurs, ground is supplied:
- to combination meter terminals ㊹ and ⑧
- from generator terminal ③.

With power and ground supplied, the charge warning lamp and brake lamp illuminate.

BRAKE WARNING LAMP

When the parking brake is applied, or the brake fluid level is low, ground is supplied:
- to combination meter terminal ⑨
- from parking brake switch terminal ①, or
- brake fluid level switch terminal ①.

With power and ground supplied, the brake warning lamp illuminates.

LOW FUEL LEVEL WARNING LAMP

The amount of fuel in the fuel tank is determined by the fuel level sensor in the fuel tank. A signal is sent from fuel tank gauge unit terminal Ⓢ to combination meter terminal ①. The fuel level sensor will illuminate the low fuel level warning lamp when the fuel level is low.
With power and ground supplied, the low fuel level warning lamp illuminates.

SEAT BELT WARNING LAMP

When the driver's seat belt is unfastened, ground is supplied:
- to combination meter terminal ⑦
- from seat belt buckle switch terminal ①.

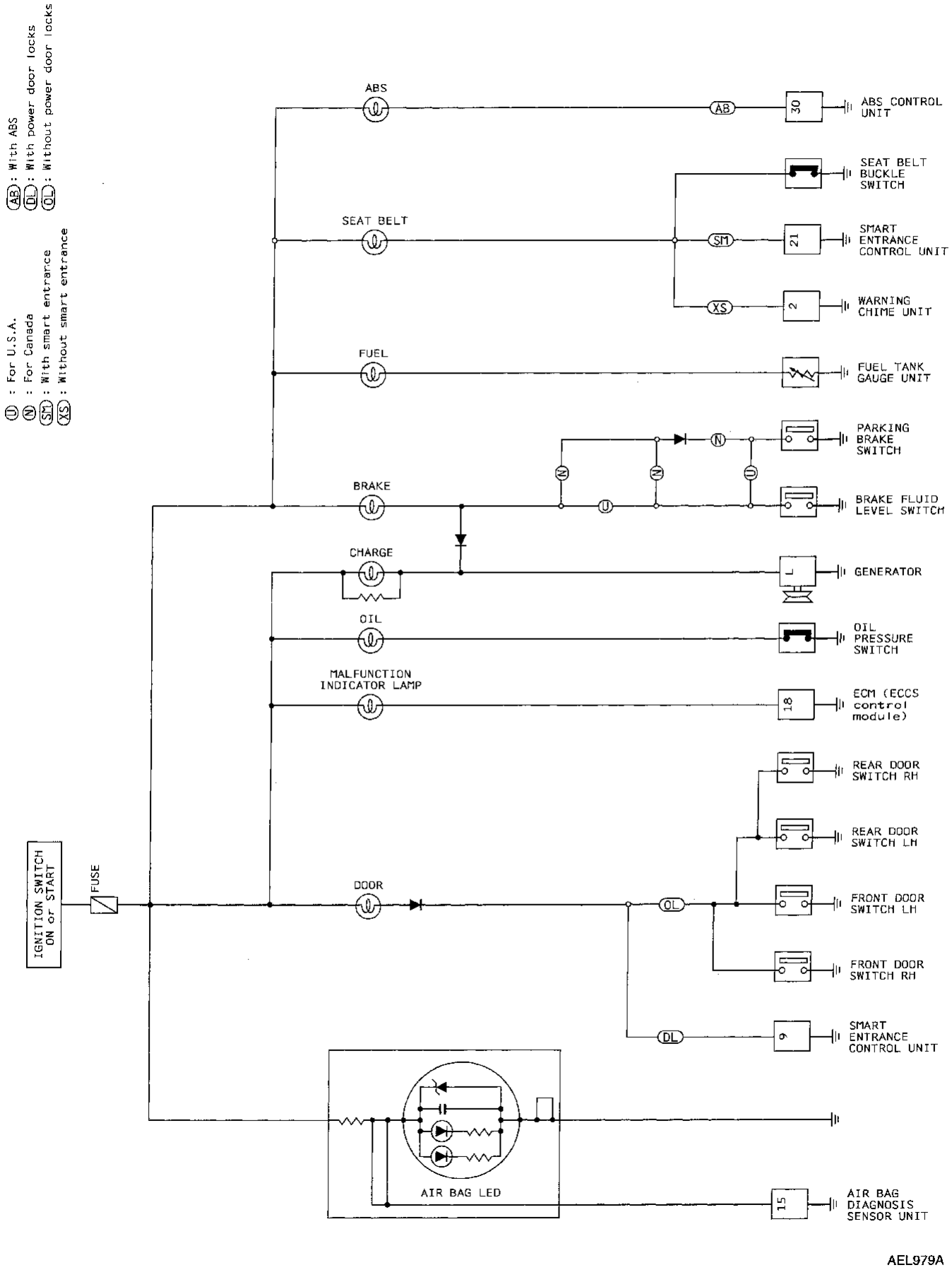
With power and ground supplied, the seat belt warning lamp illuminates.

ABS WARNING LAMP

During prove out or when an ABS malfunction occurs, ground is supplied:
- to combination meter terminal ⑥
- from ABS control unit terminal ㉚.

With power and ground supplied, the ABS warning lamp illuminates.
For further information, refer to BR section ("Self-diagnosis", "TROUBLE DIAGNOSES").

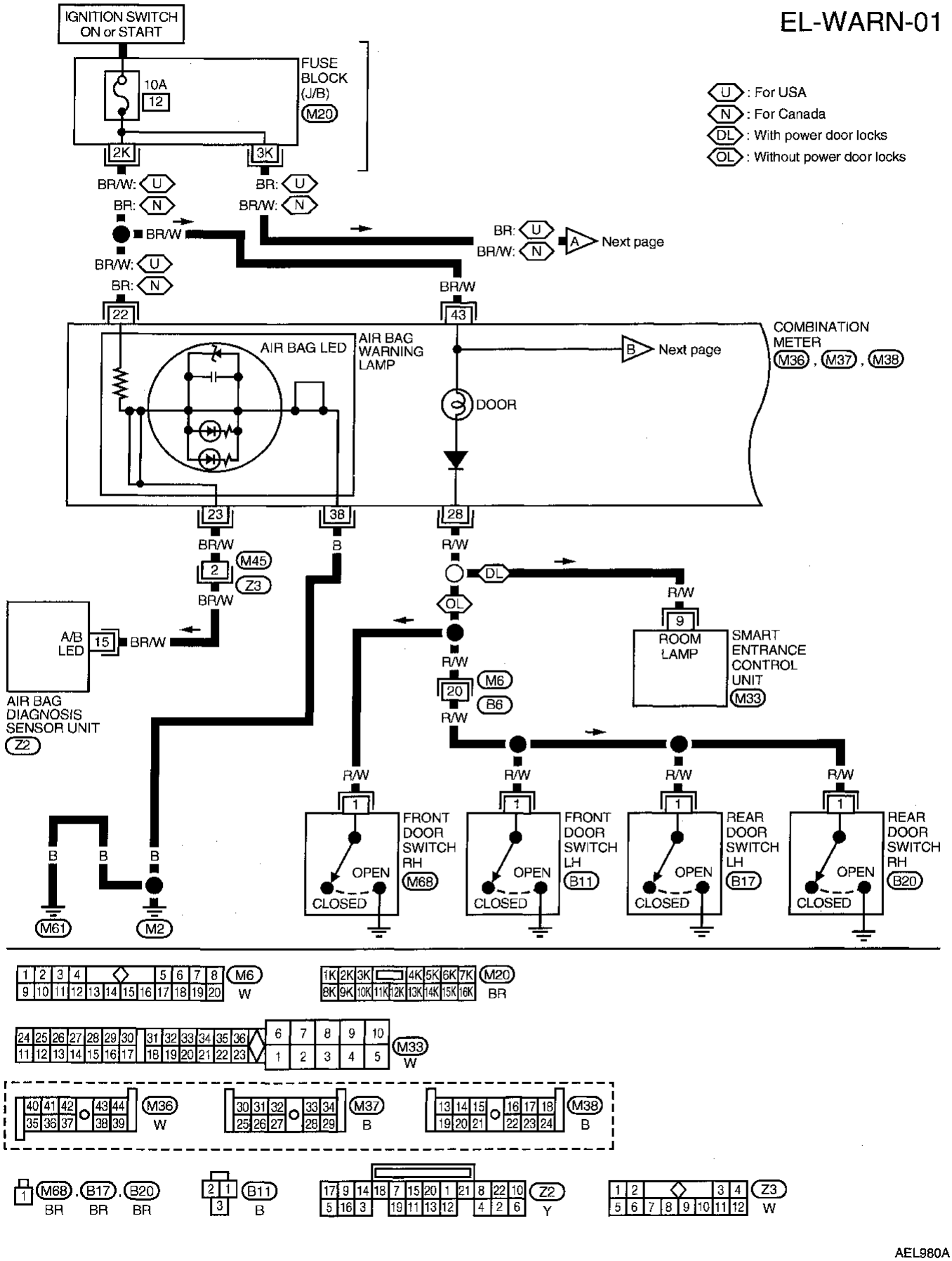
Schematic



AEL979A

Wiring Diagram — WARN —

EL-WARN-01

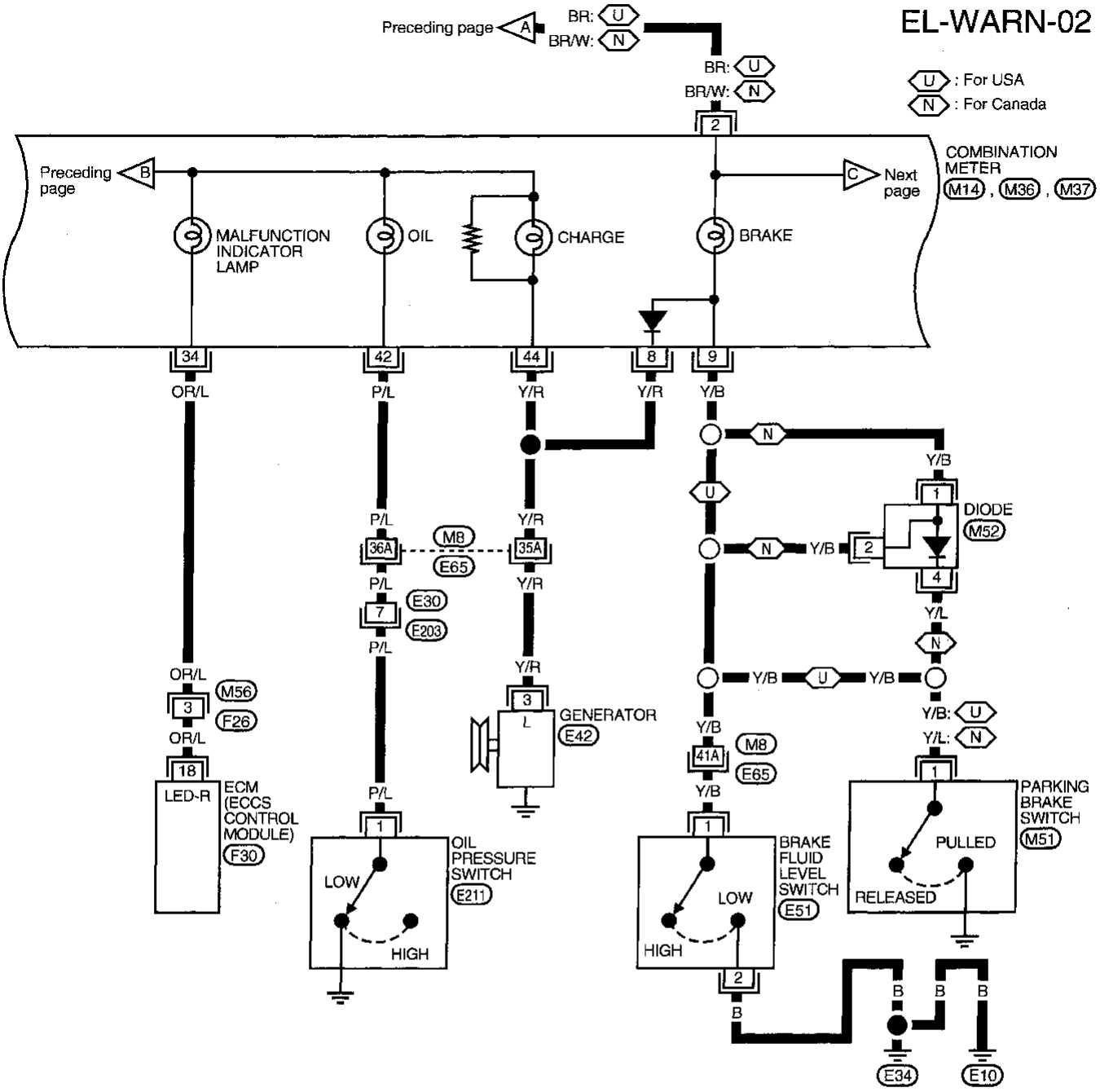


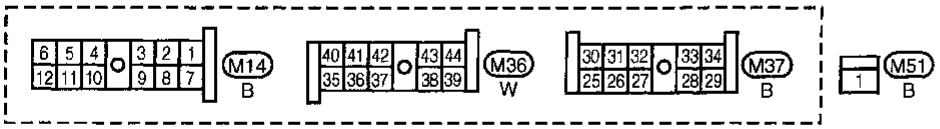
U : For USA
N : For Canada
DL : With power door locks
OL : Without power door locks

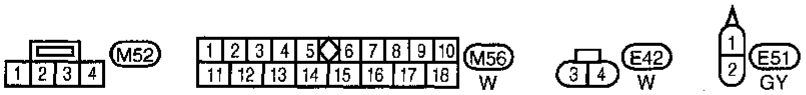
AEL980A

Wiring Diagram — WARN — (Cont'd)

EL-WARN-02







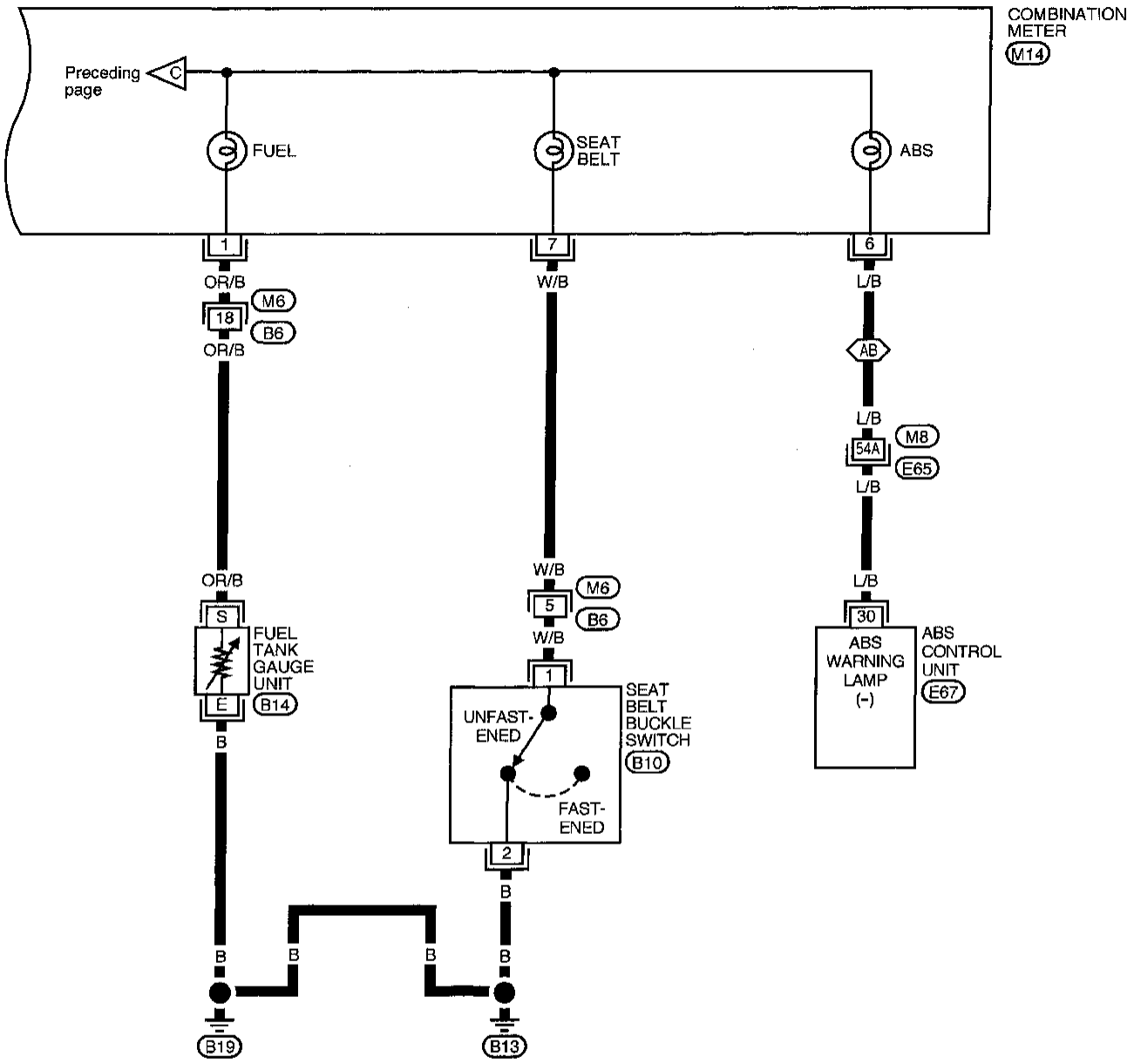
Refer to last page (Foldout page).
M8 , E65
F30

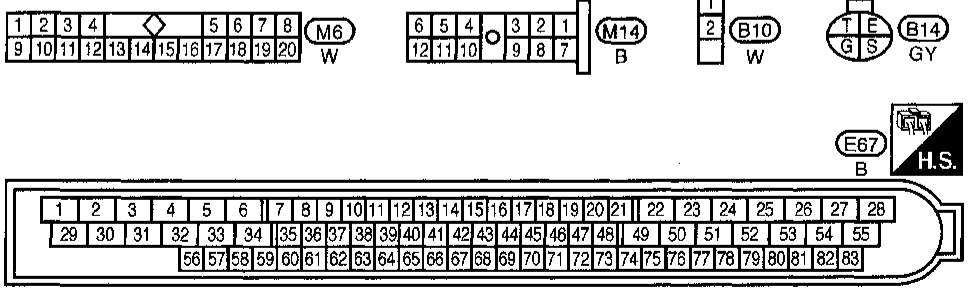
AEL981A

Wiring Diagram — WARN — (Cont'd)

EL-WARN-03

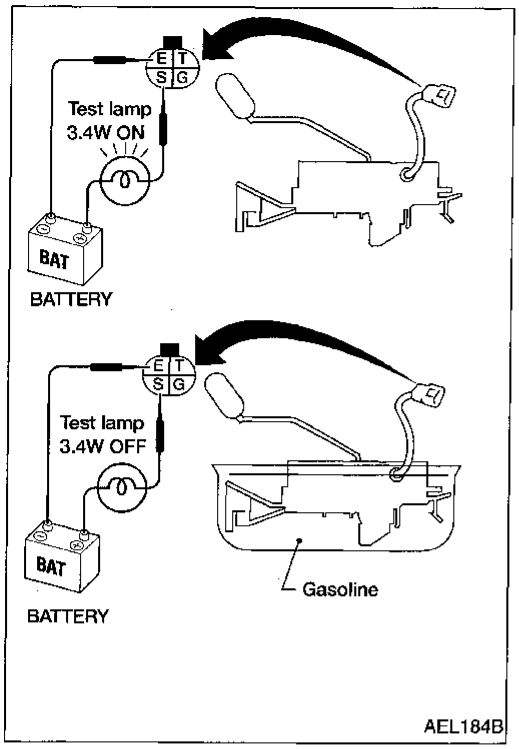
AB : With ABS





Refer to last page (Foldout page).
M8 , E65

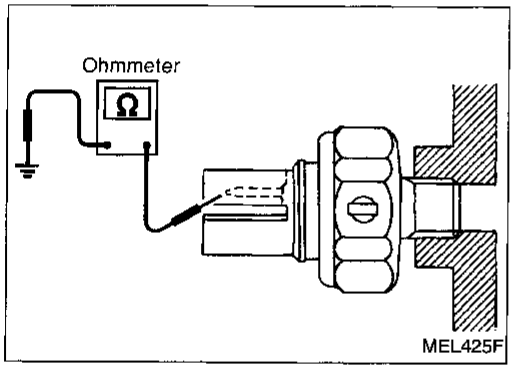
AEL819B



Electrical Components Inspection

FUEL WARNING LAMP SENSOR CHECK

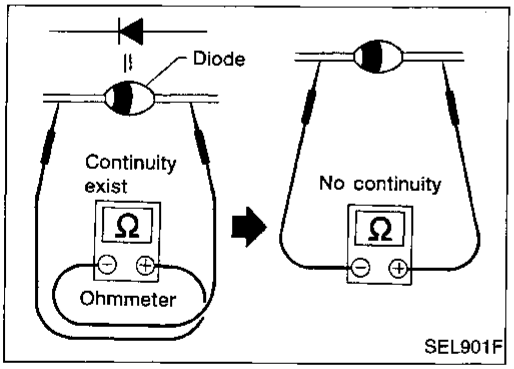
- It will take a short time for the bulb to light.



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

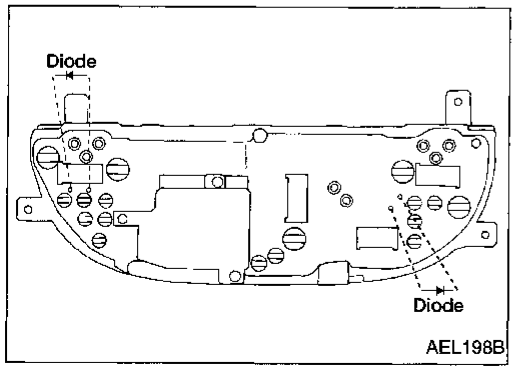
Check the continuity between the terminals of oil pressure switch and body ground.



DIODE CHECK

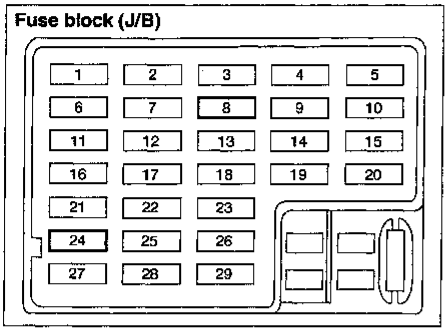
- Check continuity using an ohmmeter.
- Diode is functioning properly if test results are as shown in the figure at left.

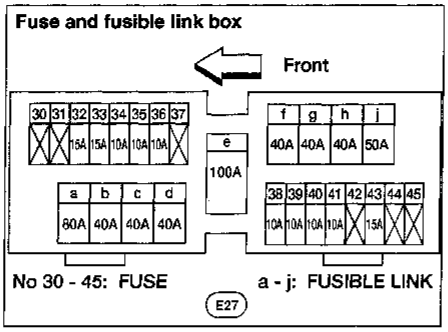
NOTE: Specification may vary depending on the type of tester. Before performing this inspection, be sure to refer to the instruction manual for the tester to be used.

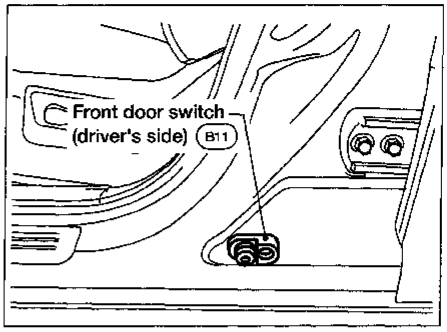


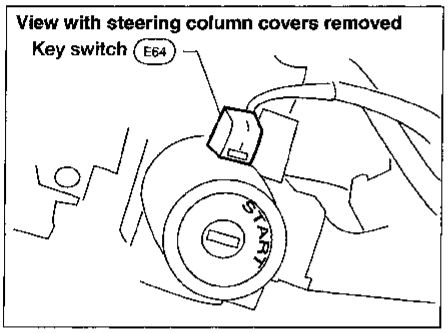
- Diodes for warning lamps are built into the combination meter printed circuit.

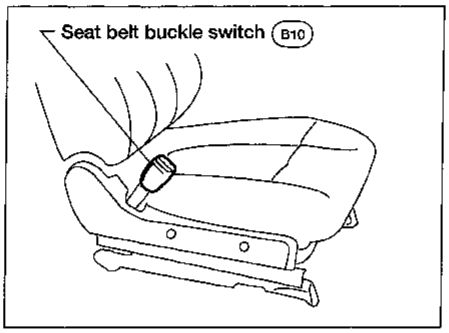
Component Parts and Harness Connector Location

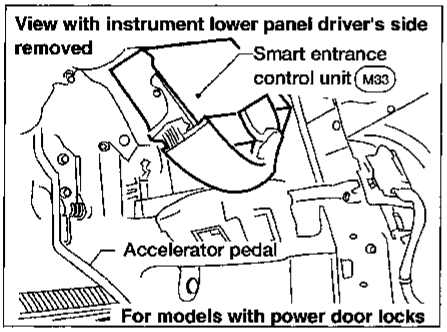


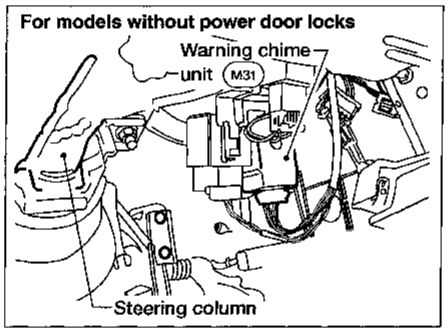












AEL136B

System Description

MODELS WITH POWER DOOR LOCKS

The warning chime is integral with the smart entrance control unit, which controls its operation.
Power is supplied at all times:
- through 10A fuse [No. 24, located in the fuse block (J/B)]
- to key switch terminal ②.

Power is supplied at all times:
- through 10A fuse (No. 34, located in the fuse and fusible link box)
- to lighting switch terminal ⑪.

Power is supplied at all times:
- through 40A fusible link (letter d, located in the fuse and fusible link box).
- to circuit breaker - 1 terminal ①
- through circuit breaker - 1 terminal ②
- to smart entrance control unit terminal ①.

With the ignition switch in the ON or START position, power is supplied:
- through 10A fuse [No. 8, located in the fuse block (J/B)]
- to smart entrance control unit terminal ⑪.

Ground is supplied to smart entrance control unit terminal ⑩ through body grounds (M2) and (M61).
When a signal, or combination of signals, is received by the smart entrance control unit, the warning chime will sound.

Ignition key warning chime

With the key in the ignition key cylinder, the ignition switch in the OFF or ACC position, and the driver's door open, the warning chime will sound. A battery positive voltage is supplied:
- from key switch terminal ①
- to smart entrance control unit terminal ㉔.

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

Light warning chime

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

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

Seat belt warning chime

The warning chime sounds for about 6 seconds when ignition switch is turned from OFF to ON and seat belt is unfastened.
Ground is supplied:
- from seat belt buckle switch terminal ①
- to smart entrance control unit terminal ㉑.

Seat belt buckle switch terminal ② is grounded through body grounds (B13) and (B19).

System Description (Cont'd)

MODELS WITHOUT POWER DOOR LOCKS

The warning chime is integral with the warning chime unit, which controls its operation.
Power is supplied at all times:
- through 10A fuse [No. 24, located in the fuse block (J/B)]
- to key switch terminal ②.

Power is supplied at all times:
- through 10A fuse (No. 34, located in the fuse and fusible link box)
- to lighting switch terminal ⑪.

With the ignition switch in the ON or START position, power is supplied:
- through 10A fuse [No. 8, located in the fuse block (J/B)]
- to warning chime unit terminal ①.

Ground is supplied to warning chime unit terminal ⑧ through body grounds (M2) and (M61).
When a signal, or combination of signals, is received by the warning chime unit, the warning chime will sound.

Ignition key warning chime

With the key in the ignition switch in the OFF or ACC position, and the driver's door open, the warning chime will sound. A battery positive voltage is supplied:
- from key switch terminal ①
- to warning chime unit terminal ⑤.

Ground is supplied:
- to warning chime unit terminal ⑦
- from front door switch LH terminal ②.

Front door switch LH terminal ③ is grounded through body grounds (B13) and (B19).

Light warning chime

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

Ground is supplied:
- to warning chime unit terminal ⑦
- from front door switch LH terminal ②.

Front door switch LH terminal ③ is grounded through body grounds (B13) and (B19).

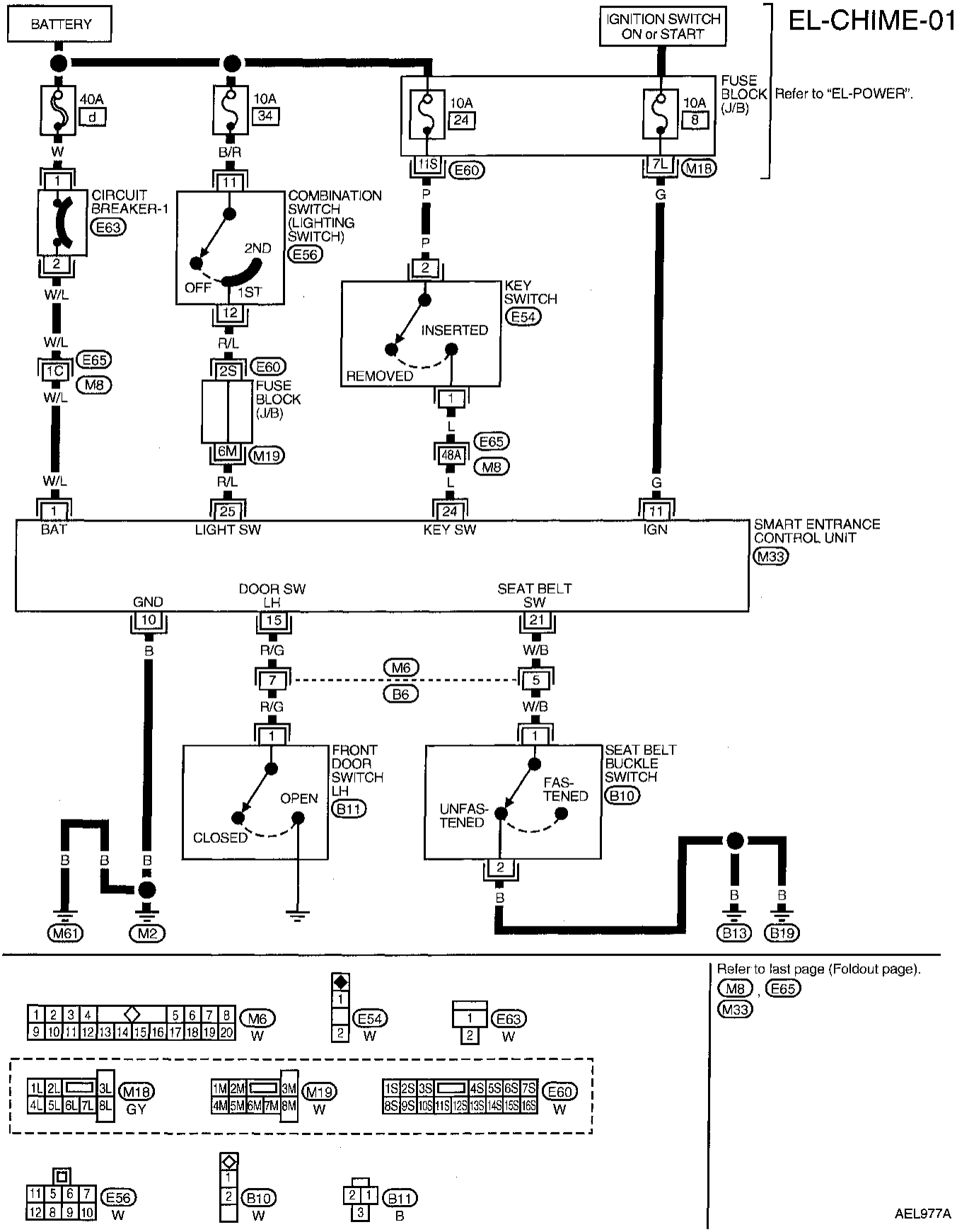
Seat belt warning chime

With ignition switch turned to ON or START and seat belt unfastened, warning chime will sound for approximately 6 seconds.
Ground is supplied:
- to warning chime unit terminal ②
- from seat belt buckle switch terminal ①.

Seat belt buckle switch terminal ② is grounded through body grounds (B13) and (B19).

Wiring Diagram — CHIME —

MODELS WITH POWER DOOR LOCKS

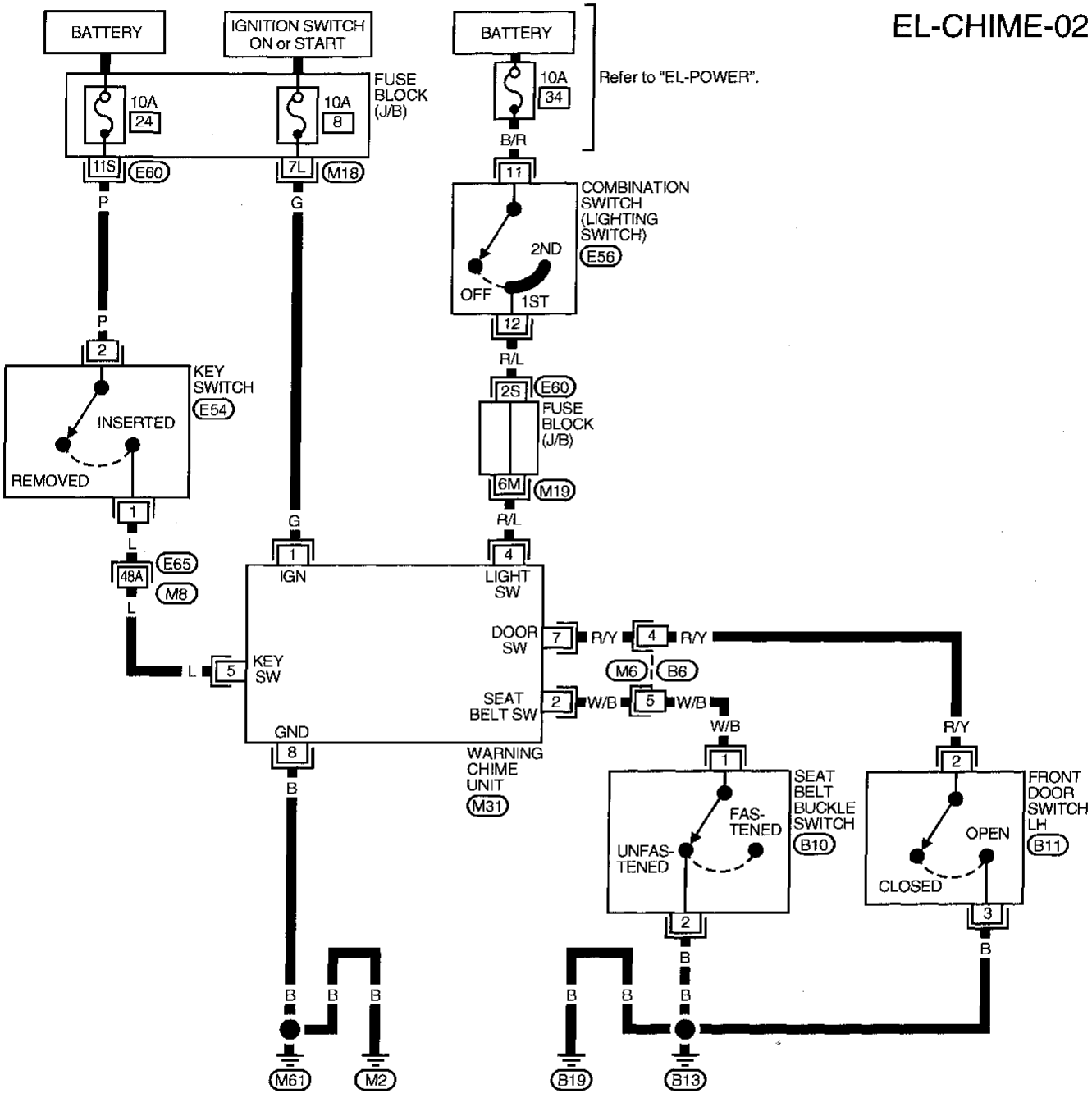


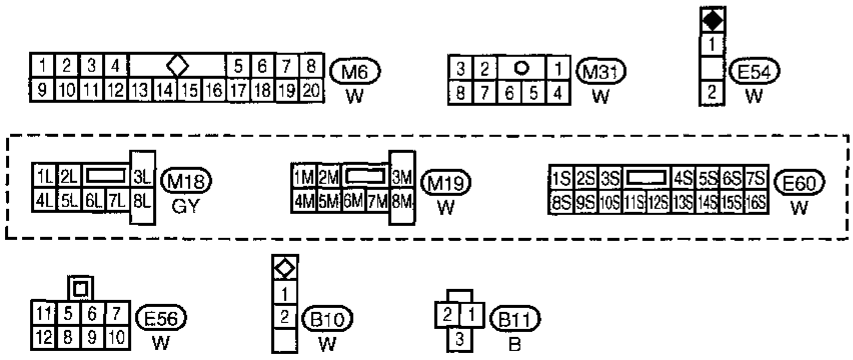
Refer to last page (Foldout page).
M8, E65
M33

AEL977A

Wiring Diagram — CHIME — (Cont'd)

MODELS WITHOUT POWER DOOR LOCKS





Refer to last page (Foldout page).
M8 , E65

AEL978A

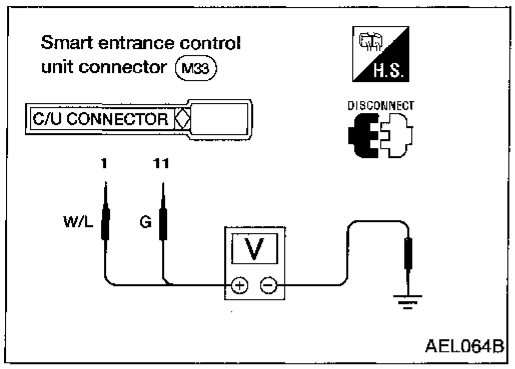
Trouble Diagnoses

SYMPTOM CHART

REFERENCE PAGE	EL-103	EL-104	EL-105	EL-106	EL-107
SYMPTOM	POWER SUPPLY AND GROUND CIRCUIT CHECK	DIAGNOSTIC PROCEDURE 1 (Lighting switch input signal check)	DIAGNOSTIC PROCEDURE 2 (Key switch input signal check)	DIAGNOSTIC PROCEDURE 3 (Seat belt buckle switch input signal check)	DIAGNOSTIC PROCEDURE 4 (Driver side door switch input signal check)
Light warning chime does not activate.	X	X			X
Ignition key warning chime does not activate.	X		X		X
Seat belt warning chime does not activate.	X			X	X
All warning chimes do not activate.	X				X

Trouble Diagnoses (Cont'd)

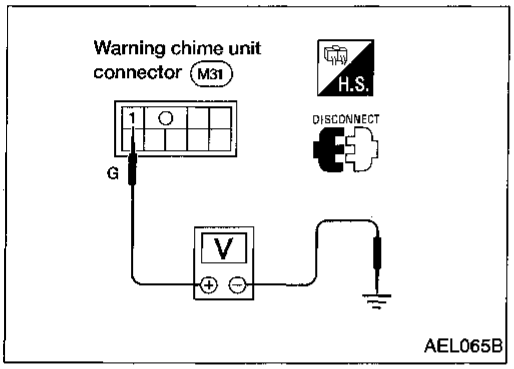
MAIN POWER SUPPLY AND GROUND CIRCUIT CHECK



Main power supply circuit check

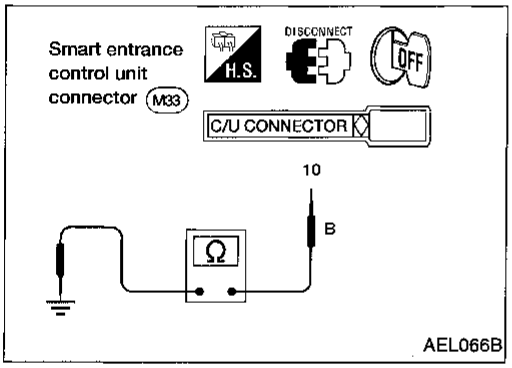
- **Models with power door locks**

Terminals		Ignition switch position		
⊕	⊖	OFF	ACC	ON
①	Ground	Battery voltage	Battery voltage	Battery voltage
⑪	Ground	0V	0V	Battery voltage



- **Models without power door locks**

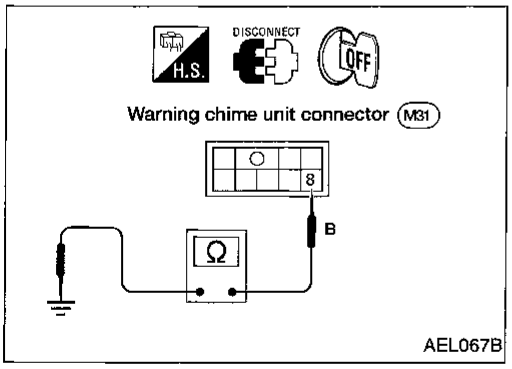
Terminals		Battery voltage existence condition		
		Ignition switch position		
⊕	⊖	OFF	ACC	ON
①	Ground	0V	0V	Battery voltage



Ground circuit check

- **Models with power door locks**

Terminals	Continuity
⑩ - Ground	Yes



- **Models without power door locks**

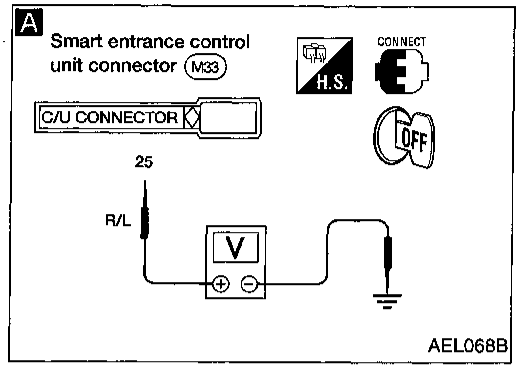
Terminals	Continuity
⑧ - Ground	Yes

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 1

(Lighting switch input signal check)

Models with power door locks



A

CHECK LIGHTING SWITCH INPUT SIGNAL.
Check voltage between control unit terminal 25 and ground.

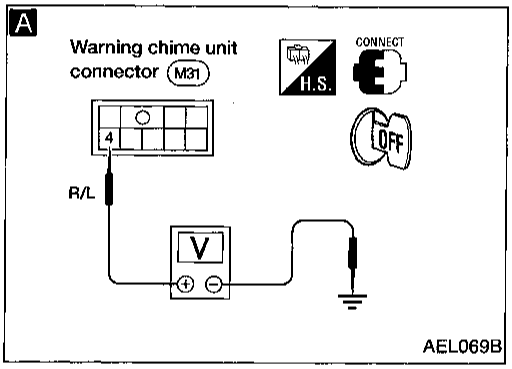
Condition of lighting switch	Voltage [V]
1ST or 2ND	Approx. 12
OFF	0

NG → Check the following.
- 10A fuse (No. 34, located in the fuse and fusible link box)
- Harness for open or short between control unit and lighting switch

OK ↓

Go to Diagnostic Procedure 4, EL-107.

Models without power door locks



A

CHECK LIGHTING SWITCH INPUT SIGNAL.
Check voltage between warning chime unit terminal 4 and ground.

Condition of lighting switch	Voltage [V]
1ST or 2ND	Approx. 12
OFF	0

NG → Check the following.
- 10A fuse (No. 34, located in the fuse and fusible link box)
- Harness for open or short between warning chime unit and lighting switch

OK ↓

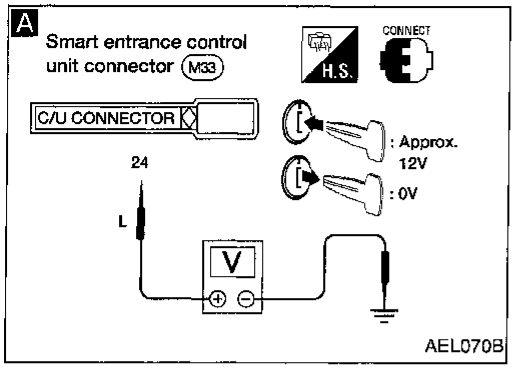
Go to Diagnostic Procedure 4, EL-107.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 2

(Key switch input signal check)

Models with power door locks



A

CHECK KEY SWITCH INPUT SIGNAL.
Check voltage between control unit terminal (24) and ground.

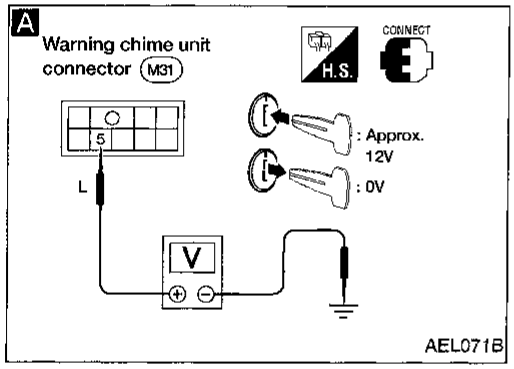
Condition of key switch	Voltage [V]
Key is inserted.	Approx. 12
Key is withdrawn.	0

NG → Check the following.
- Key switch
  Refer to "Electrical Components Inspection" (EL-108).
- 10A fuse [No. 24, located in fuse block (J/B)]
- Harness for open or short between key switch and fuse
- Harness for open or short between control unit and key switch

OK ↓

Go to Diagnostic Procedure 4, EL-107.

Models without power door locks



A

CHECK KEY SWITCH INPUT SIGNAL.
Check voltage between warning chime unit terminal (5) and ground.

Condition of key switch	Voltage [V]
Key is inserted.	Approx. 12
Key is withdrawn.	0

NG → Check the following.
- Key switch
  Refer to "Electrical Components Inspection" (EL-108).
- 10A fuse [No. 24, located in fuse block (J/B)]
- Harness for open or short between key switch and fuse
- Harness for open or short between warning chime unit and key switch

OK ↓

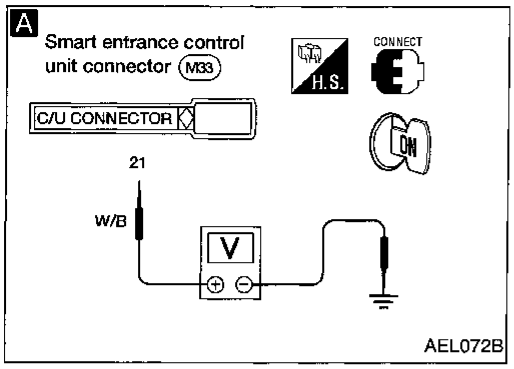
Go to Diagnostic Procedure 4, EL-107.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 3

(Seat belt buckle switch input signal check)

Models with power door locks



A

CHECK SEAT BELT BUCKLE SWITCH INPUT SIGNAL.

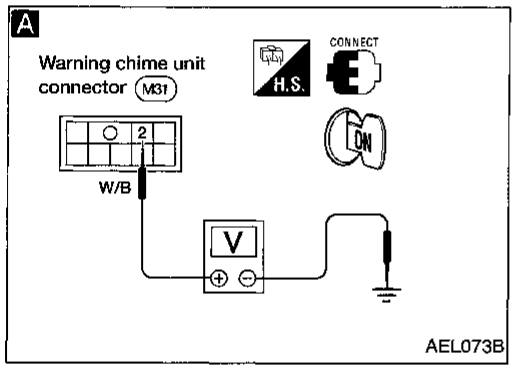
1. Turn ignition switch ON.
2. Check voltage between control unit terminal (21) and ground.

Condition of seat belt buckle switch	Voltage [V]
Fastened	Approx. 12
Unfastened	0

NG → Check the following.
- Seat belt buckle switch Refer to "Electrical Components Inspection" (EL-108).
- Seat belt buckle switch ground circuit
- Harness for open or short between control unit and seat belt buckle switch

OK → Go to Diagnostic Procedure 4, EL-107.

Models without power door locks



A

CHECK SEAT BELT BUCKLE SWITCH INPUT SIGNAL.

1. Turn ignition switch ON.
2. Check voltage between warning chime unit terminal (2) and ground.

Condition of seat belt buckle switch	Voltage [V]
Fastened	Approx. 12
Unfastened	0

NG → Check the following.
- Seat belt buckle switch Refer to "Electrical Components Inspection" (EL-108).
- Seat belt buckle switch ground circuit
- Harness for open or short between warning chime unit and seat belt buckle switch

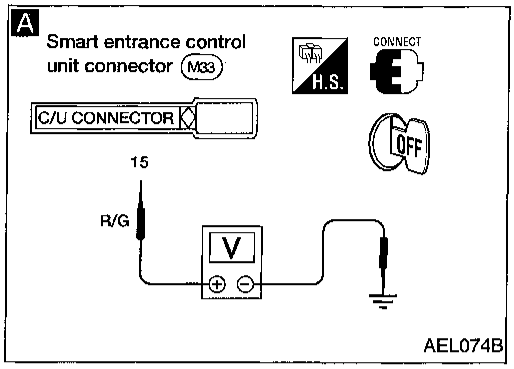
OK → Go to Diagnostic Procedure 4, EL-107.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 4

(Driver side door switch input signal check)

Models with power door locks



A

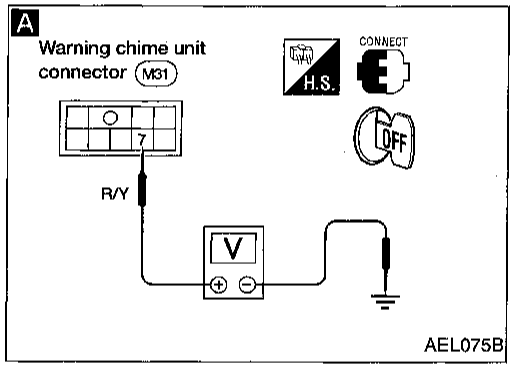
CHECK DOOR SWITCH INPUT SIGNAL.
Check voltage between control unit terminal (15) and ground.

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

NG → Check the following.
- Driver side door switch Refer to "Electrical Components Inspection" (EL-108).
- Door switch ground condition
- Harness for open or short between control unit and door switch

OK ↓

Replace smart entrance control unit.



Models without power door locks

A

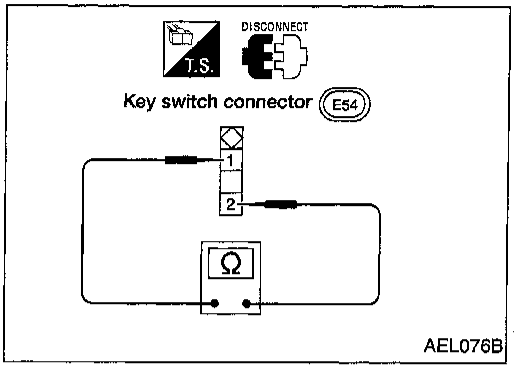
CHECK DOOR SWITCH INPUT SIGNAL.
Check voltage between control unit terminal (7) and ground.

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

NG → Check the following.
- Driver side door switch Refer to "Electrical Components Inspection" (EL-108).
- Door switch ground circuit
- Harness for open or short between control unit and door switch

OK ↓

Replace warning chime unit.

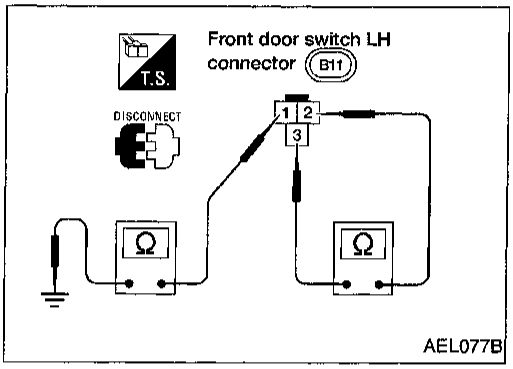


Electrical Components Inspection

KEY SWITCH (insert)

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

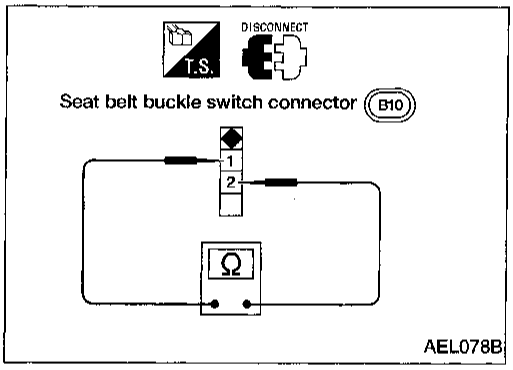
Terminal No.	Condition	Continuity
① - ②	Key is inserted.	Yes
	Key is removed.	No



DRIVER SIDE DOOR SWITCH

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

Terminal No.	Condition	Continuity
① - ground, ② - ③	Door switch is pushed.	No
	Door switch is released.	Yes



SEAT BELT BUCKLE SWITCH

Check continuity between terminals when seat belt is fastened and unfastened.

Terminal No.	Condition	Continuity
① - ②	Seat belt is fastened.	No
	Seat belt is unfastened.	Yes

NOTES

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. 19, located in the fuse block (J/B)]
- to wiper motor terminal Ⓑ and
- to wiper amplifier terminal ⑤.

Ground is supplied to wiper amplifier terminal ③ through body grounds (M2) and (M61).

Low and high speed wiper operation

Ground is supplied to wiper switch terminal ⑰ through body grounds (E10) and (E34).
When the wiper switch is placed in the LO position, ground is supplied:

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

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 Ⓗ.

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 supplied:

- from terminal ⑭ of the wiper switch
- to wiper motor terminal Ⓛ, 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 ②
- through terminal ⑦ of the wiper amplifier
- to wiper motor terminal Ⓟ
- through terminal Ⓔ of the wiper motor, and
- through body grounds (M2) and (M61).

When wiper arms reach base of windshield, wiper motor terminals Ⓟ and Ⓑ are connected instead of terminals Ⓟ and Ⓔ. Wiper motor will then stop wiper arms at the PARK position.

Intermittent operation

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 (E10) and (E34)
- to wiper motor terminal Ⓛ
- through the wiper switch terminal ⑭
- to wiper switch terminal ⑬
- through wiper amplifier terminal ②
- to wiper amplifier terminal ③
- through body grounds (M2) and (M61).

The desired interval time is input:

- to wiper amplifier terminal ⑧
- from wiper switch terminal ⑲
- to wiper switch terminal ⑳
- through body grounds (E10) and (E34).

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

System Description (Cont'd)

WASHER OPERATION

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

- through 20A fuse [No. 19, located in the fuse block (J/B)]
- to washer motor terminal ②.

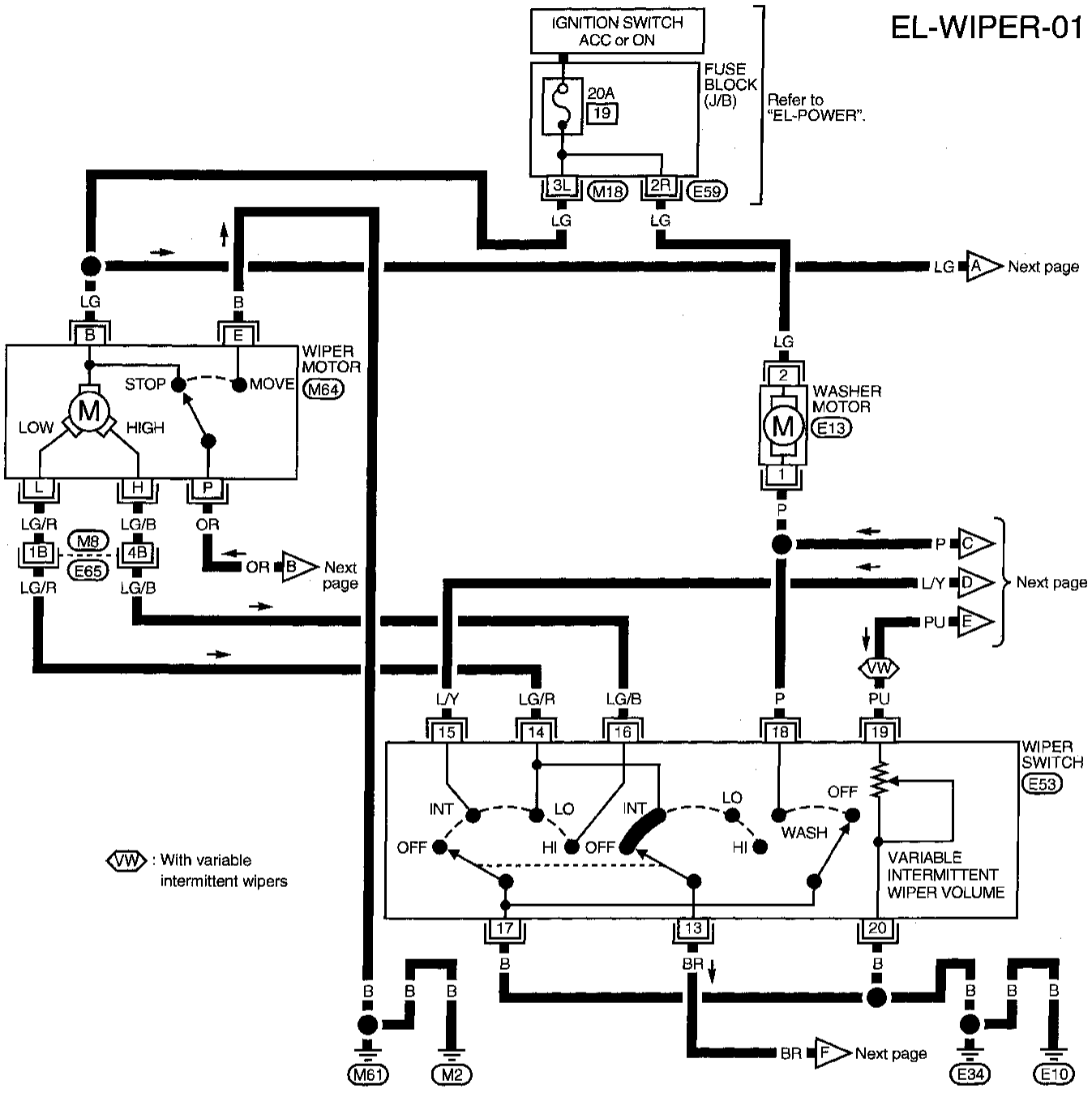
When the lever is pulled to the WASH position, ground is supplied:

- to washer motor terminal ①, and
- to wiper amplifier terminal ⑥
- from terminal ⑱ of the wiper switch
- through terminal ⑰ of the wiper switch, and
- through body grounds (E10) and (E34).

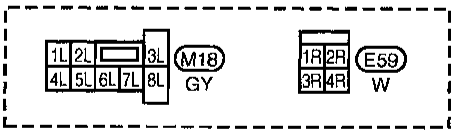
With power and ground supplied, the washer motor operates.

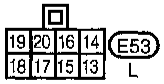
When the lever is pulled to the WASH position for one second or more, the wiper motor operates at low speed for approximately 3 seconds to clean windshield. This feature is controlled by the wiper amplifier in the same manner as the intermittent operation.

Wiring Diagram — WIPER —



Refer to last page (Foldout page).
M8 , E65





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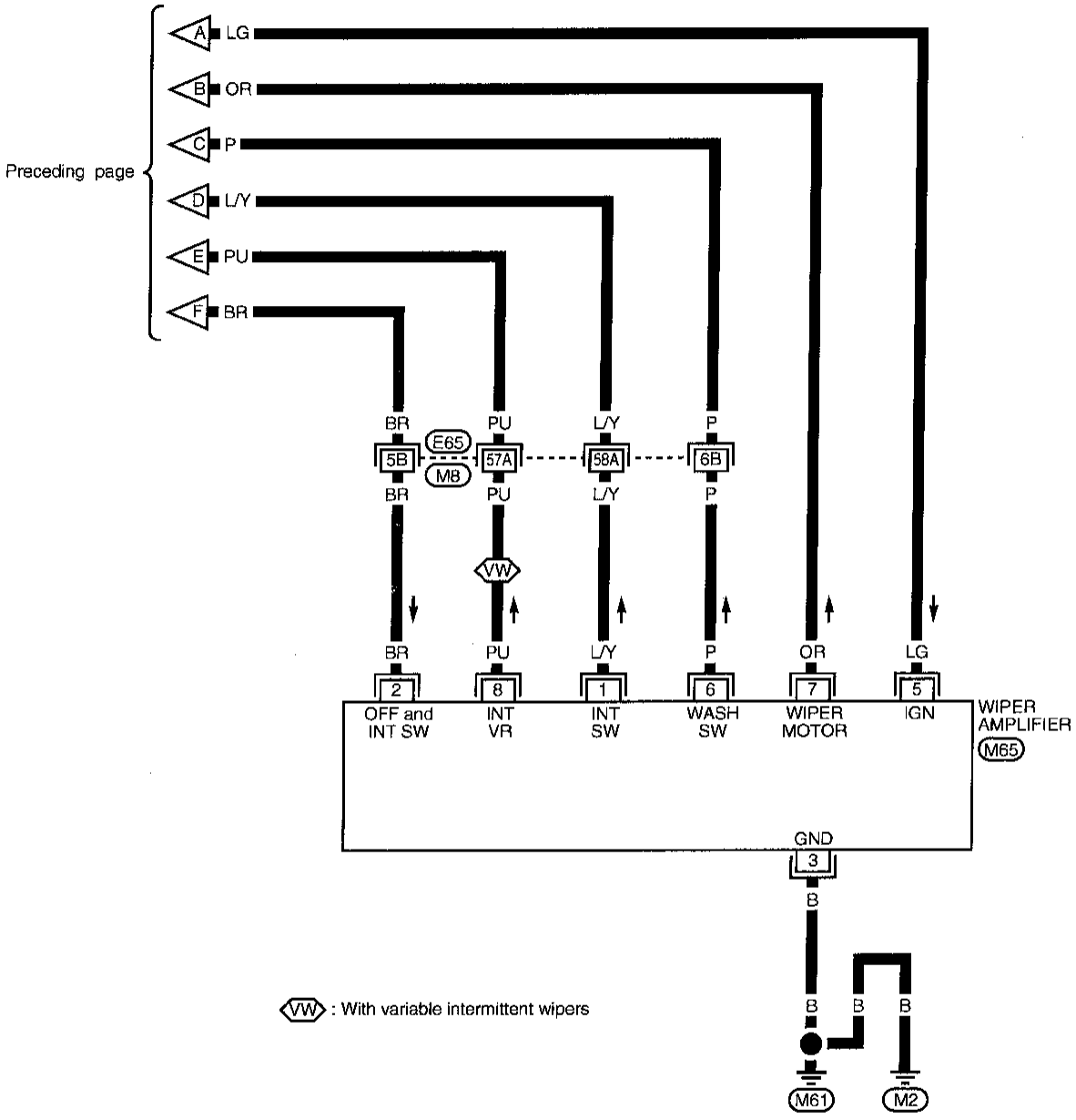
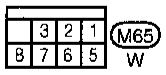
EL-WIPER-02



Refer to last page (Foldout page).
M8 , E65

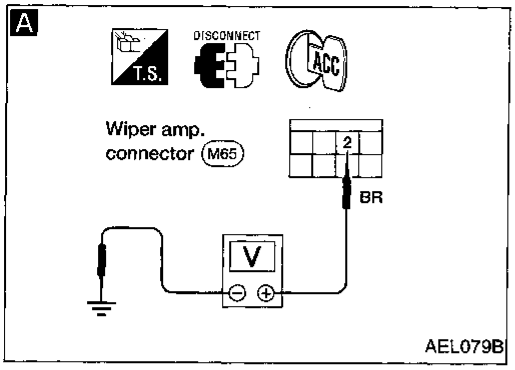


AEL976A

Trouble Diagnoses

DIAGNOSTIC PROCEDURE 1

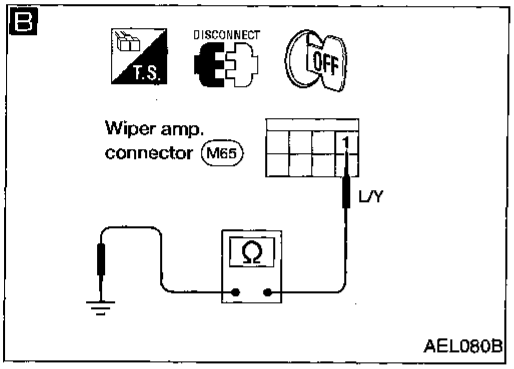
SYMPTOM: Intermittent wiper does not operate.



Check whether wiper operates with the wiper switch at LO position.

NG → Check the following.
- 20A fuse [No. 19, located in fuse block (J/B)]
- Wiper motor
- Wiper switch
- Harness for open or short

OK ↓



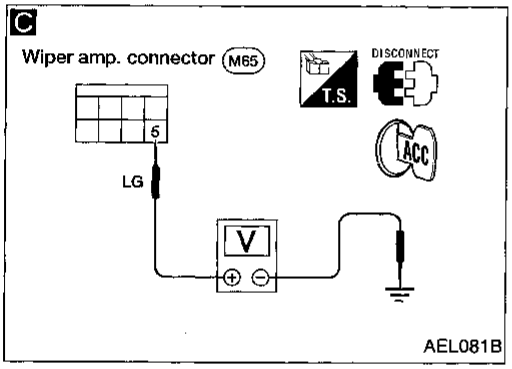
A

1. Turn front wiper switch to OFF.
2. Disconnect wiper amp. connector.
3. Check voltage between wiper amp. terminal (2) and ground.

Battery voltage should exist.

NG → Check the following.
- Wiper switch
- Harness for open or short between wiper amp. terminal (2) and wiper switch terminal (13)

OK ↓



B

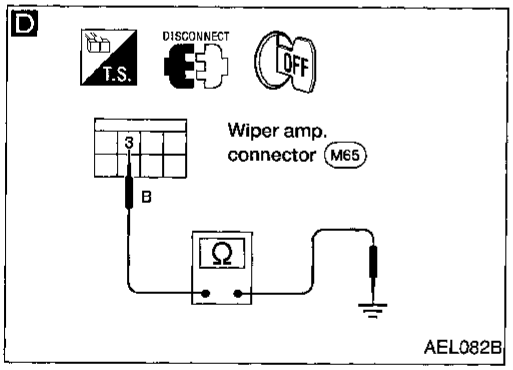
CHECK INTERMITTENT SWITCH INPUT SIGNAL.

Check harness continuity between wiper amp. terminal (1) and ground.

Condition of wiper switch	Continuity
OFF	No
INT	Yes

NG → Check the following.
- Wiper switch
- Harness for open or short between wiper amp. terminal (1) and wiper switch terminal (15)
- Ground circuit for front wiper switch terminal (17)

OK ↓



C

CHECK WIPER AMP. POWER SUPPLY CIRCUIT.

Check voltage between wiper amp. terminal (5) and ground while ignition switch is in ACC.

Battery voltage should exist.

NG → Check the following.
- Harness for open or short between wiper amp. and fuse

OK ↓

D

CHECK WIPER AMP. GROUND CIRCUIT.

Check harness continuity between wiper amp. terminal (3) and body ground.

Continuity should exist.

NG → Repair harness or connector.

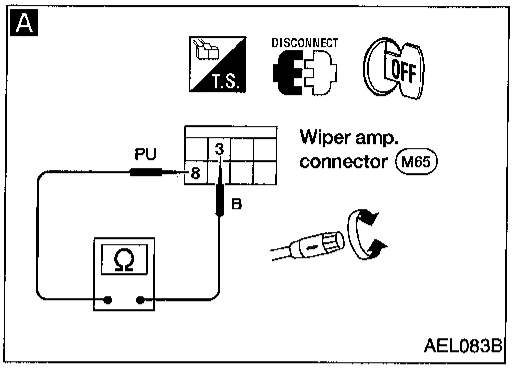
OK ↓

Replace wiper amp.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 2

SYMPTOM: Intermittent time of wiper cannot be adjusted.



A

CHECK INTERMITTENT WIPER VOLUME INPUT SIGNAL.

1. Disconnect wiper amp. connector.
2. Measure resistance between wiper amp. terminals (8) and (3) while turning intermittent wiper volume.

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

OK → Replace wiper amp.

NG ↓

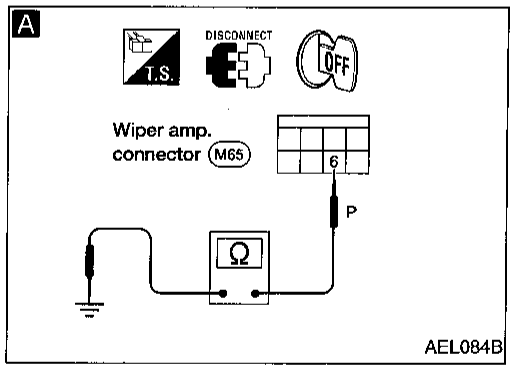
Check the following.
- Harness for open or short between wiper amp. terminal (8) and wiper switch terminal (19)
- Ground circuit for front wiper switch terminal (20)

OK ↓

Check intermittent wiper volume. NG → Replace wiper switch.

DIAGNOSTIC PROCEDURE 3

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



A

CHECK WASHER SWITCH INPUT SIGNAL.

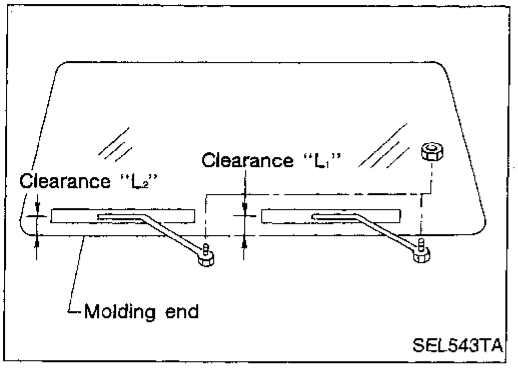
1. Turn ignition switch OFF.
2. Disconnect wiper amp. connector.
3. Check harness continuity between wiper amp. terminal (6) and ground.

Condition of washer switch	Continuity
OFF	No
ON	Yes

NG → Check harness for open or short between wiper amp. terminal (6) and wiper switch terminal (18).

OK ↓

Go to DIAGNOSTIC PROCEDURE 1. NG → Replace wiper amp.

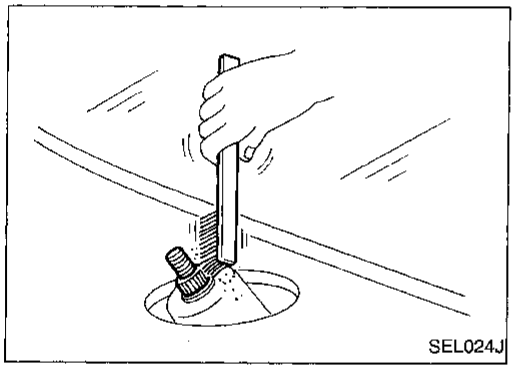


Removal and Installation

WIPER ARMS

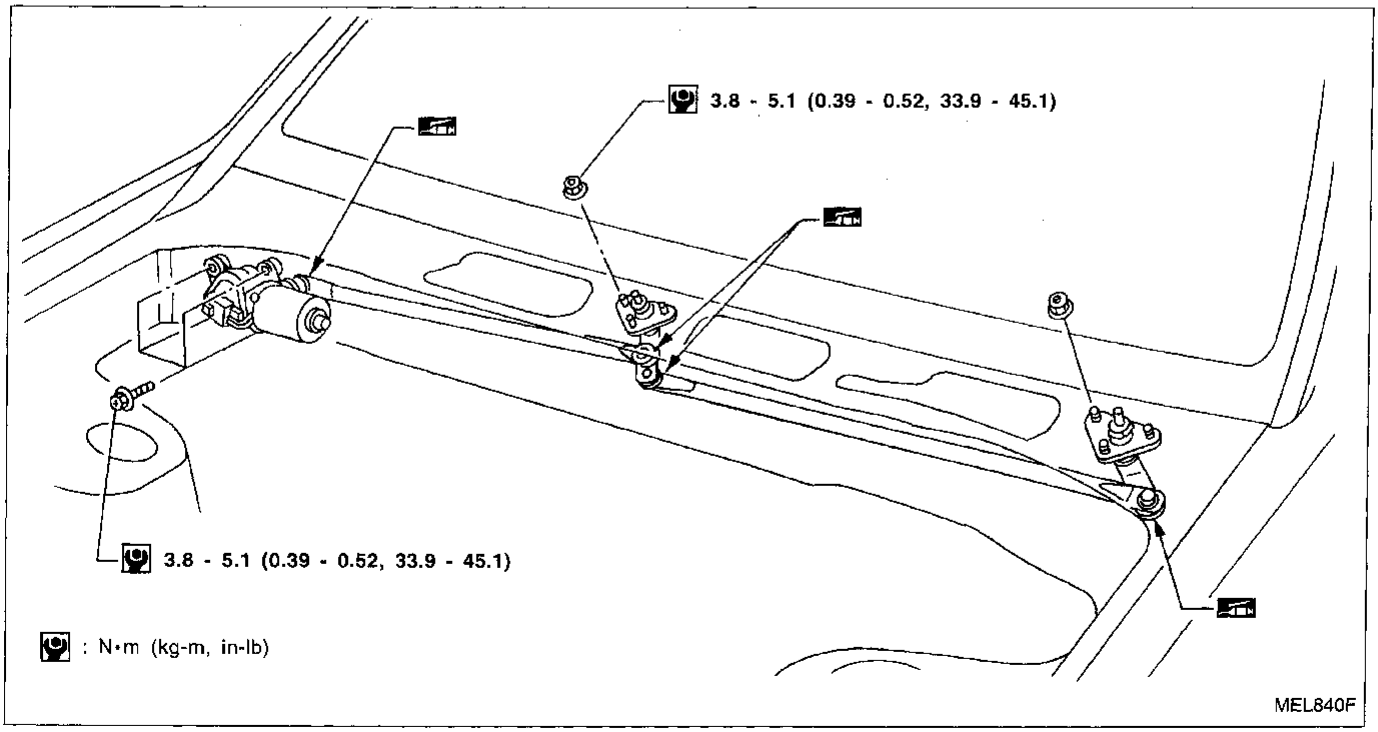
1. Prior to wiper arm installation, turn on wiper switch to operate wiper motor and then turn it OFF (Auto Stop).
2. Lift the blade up and then set it down onto glass surface to set the blade center to clearance "L_1" & "L_2" immediately before tightening nut.
3. Eject washer fluid. Turn on wiper switch to operate wiper motor and then turn it OFF.
4. Ensure that wiper blades stop within clearance "L_1" & "L_2".
   Clearance "L_1": 45 mm (1.77 in)
   Clearance "L_2": 38 mm (1.50 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.**

WIPER LINKAGE



Removal and Installation (Cont'd)

Removal

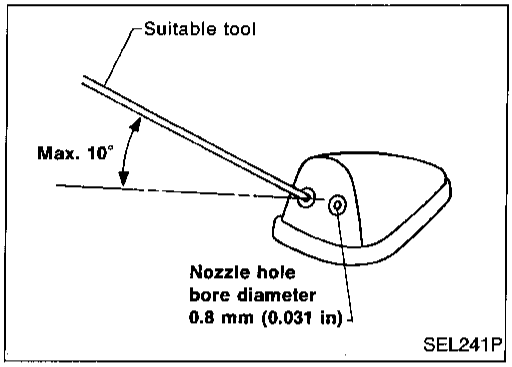
1. Remove 4 bolts that secure wiper motor.
2. Detach wiper motor from wiper linkage at ball joint.
3. Remove wiper linkage.

Be careful not to break ball joint rubber boot.

Installation

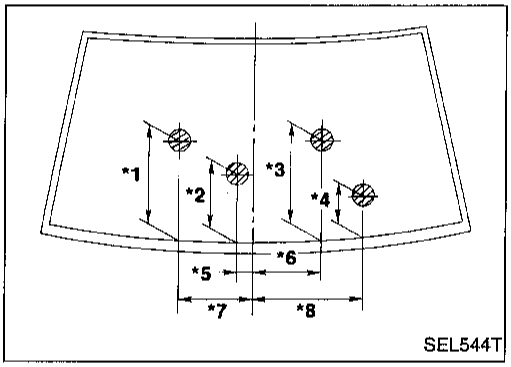
- Grease ball joint portion before installation.

1. Installation is the reverse order of removal.



Washer Nozzle Adjustment

- Adjust washer nozzle with suitable tool as shown in the figure at left.
  Adjustable range: ±10°

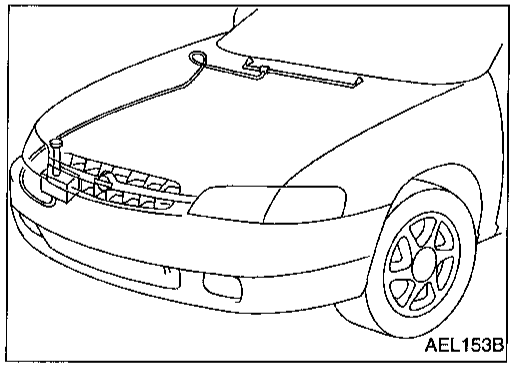


Unit: mm (in)

*1	350 (13.78)	*5	135 (5.31)
*2	190 (7.48)	*6	230 (9.06)
*3	320 (12.60)	*7	275 (10.83)
*4	135 (5.31)	*8	440 (17.32)

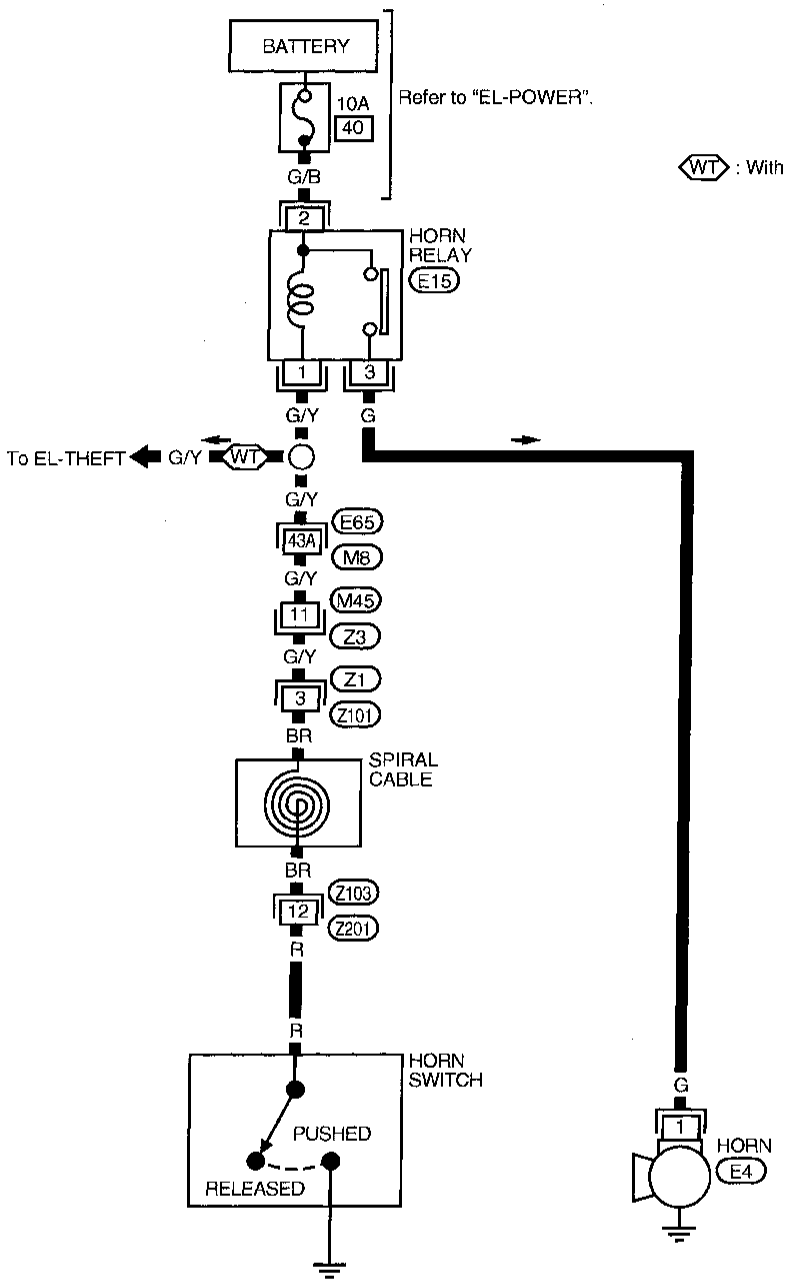
*: The diameters of these circles are less than 80 mm (3.15 in).

Washer Tube Layout

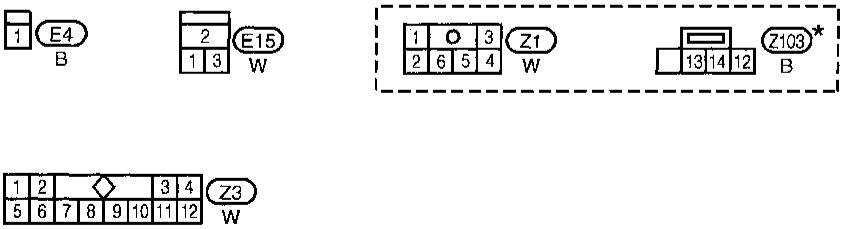


Wiring Diagram — HORN —

EL-HORN-01



Refer to last page (Foldout page).
M8, E65

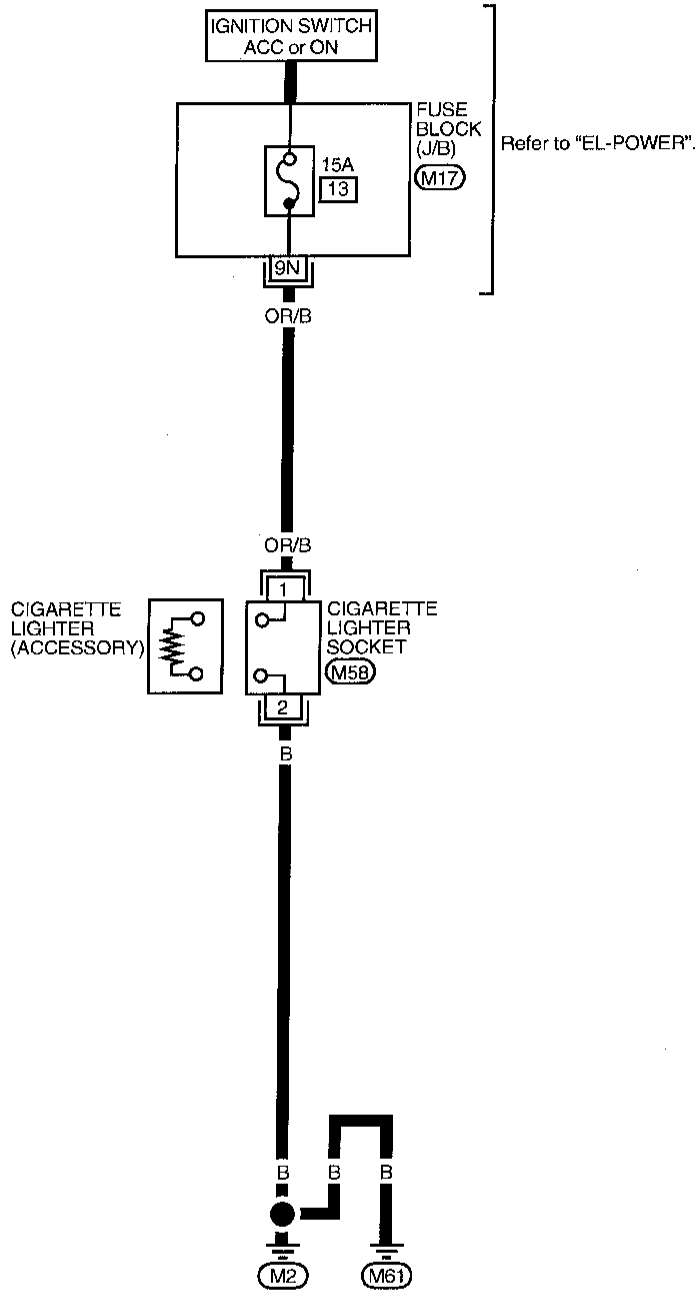


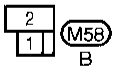
* : This connector is not shown in "HARNESS LAYOUT" of EL section.

AEL004B

Wiring Diagram — CIGAR —

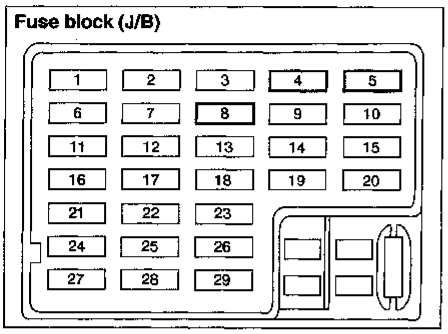
EL-CIGAR-01

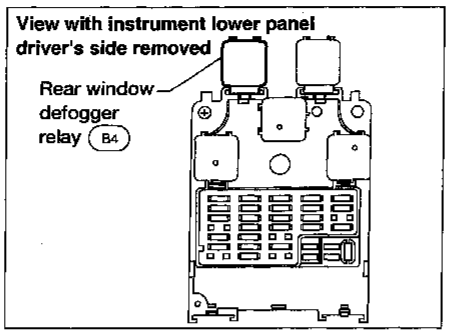


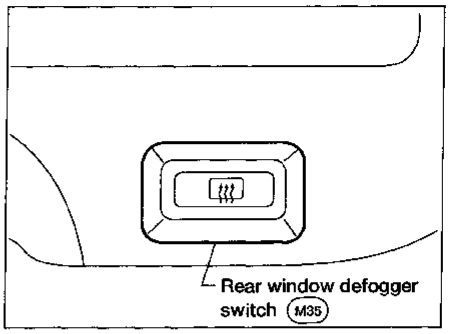


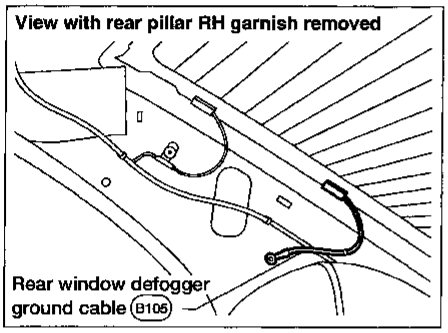
AEL003B

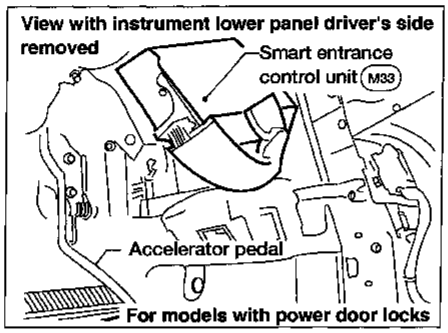
Component Parts and Harness Connector Location

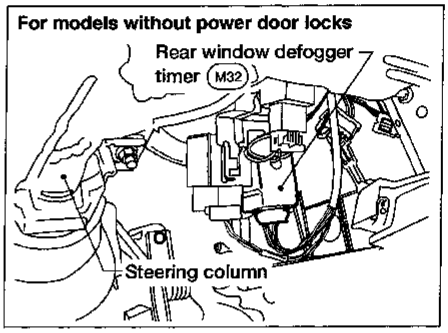


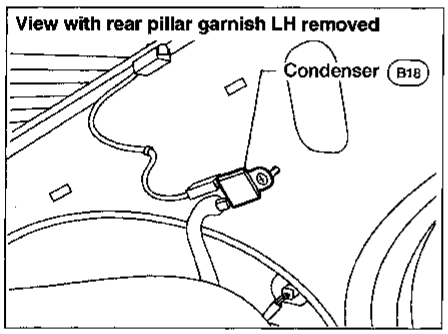












AEL137B

System Description

MODELS WITH POWER DOOR LOCKS

The rear window defogger system is controlled by the smart entrance control unit. The rear window defogger operates for approximately 15 minutes.

Power is supplied at all times:

- to rear window defogger relay terminal ③
- through 20A fuse [No. 5, located in the fuse block (J/B)] and
- to rear window defogger relay terminal ⑥
- through 20A fuse [No. 4], located in the fuse block (J/B)].

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

- to rear window defogger relay terminal ① and
- to smart entrance control unit terminal ⑪
- through 10A fuse [No. 8], located in the fuse block (J/B)].

Ground is supplied to terminal ⑩ of the smart entrance control unit through body grounds (M2) and (M61).

Ground is also supplied to terminal ② of the rear window defogger switch through body grounds (M2) and (M61).

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.

Terminal ㊱ of the smart entrance control unit 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 ⊕
- through condenser terminal ⊖
- to the rear window defogger terminal ⊕.

Ground is supplied to terminal ⊖ of the rear window defogger through body ground (B105).

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 terminals ⑤ and ⑦ of the rear window defogger relay.

Terminal ④ of the rear window defogger switch is grounded through body grounds (M2) and (M61).

System Description (Cont'd)

MODELS WITHOUT POWER DOOR LOCKS

If not equipped with power door locks, the rear defogger system is controlled by the rear window defogger timer. The rear window defogger operates for approximately 15 minutes.

Power is supplied at all times:

- through 20A fuse (No. 4, located in the fuse block [J/B])
- to rear window defogger relay terminal ⑥ and
- through 20A fuse (No. 5, located in the fuse block [J/B])
- to rear window defogger relay terminal ③.

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

- through 10A fuse (No. 8, located in the fuse block [J/B])
- to rear window defogger relay terminal ① and
- to rear window defogger timer terminal ①.

Ground is supplied to terminal ④ of the rear window defogger timer through body grounds (M2) and (M61).

Ground is also supplied to terminal ② of the rear window defogger switch through body grounds (M2) and (M61).

When the rear window defogger switch is turned ON, ground is supplied:

- through terminal ① of the rear window defogger switch
- to rear window defogger timer terminal ③.

Terminal ② of the rear window defogger timer 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 ⊕
- through condenser terminal ⊖
- to rear window defogger terminal ⊕.

Ground is supplied to terminal ⊖ of rear window defogger through body ground (B105).

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:

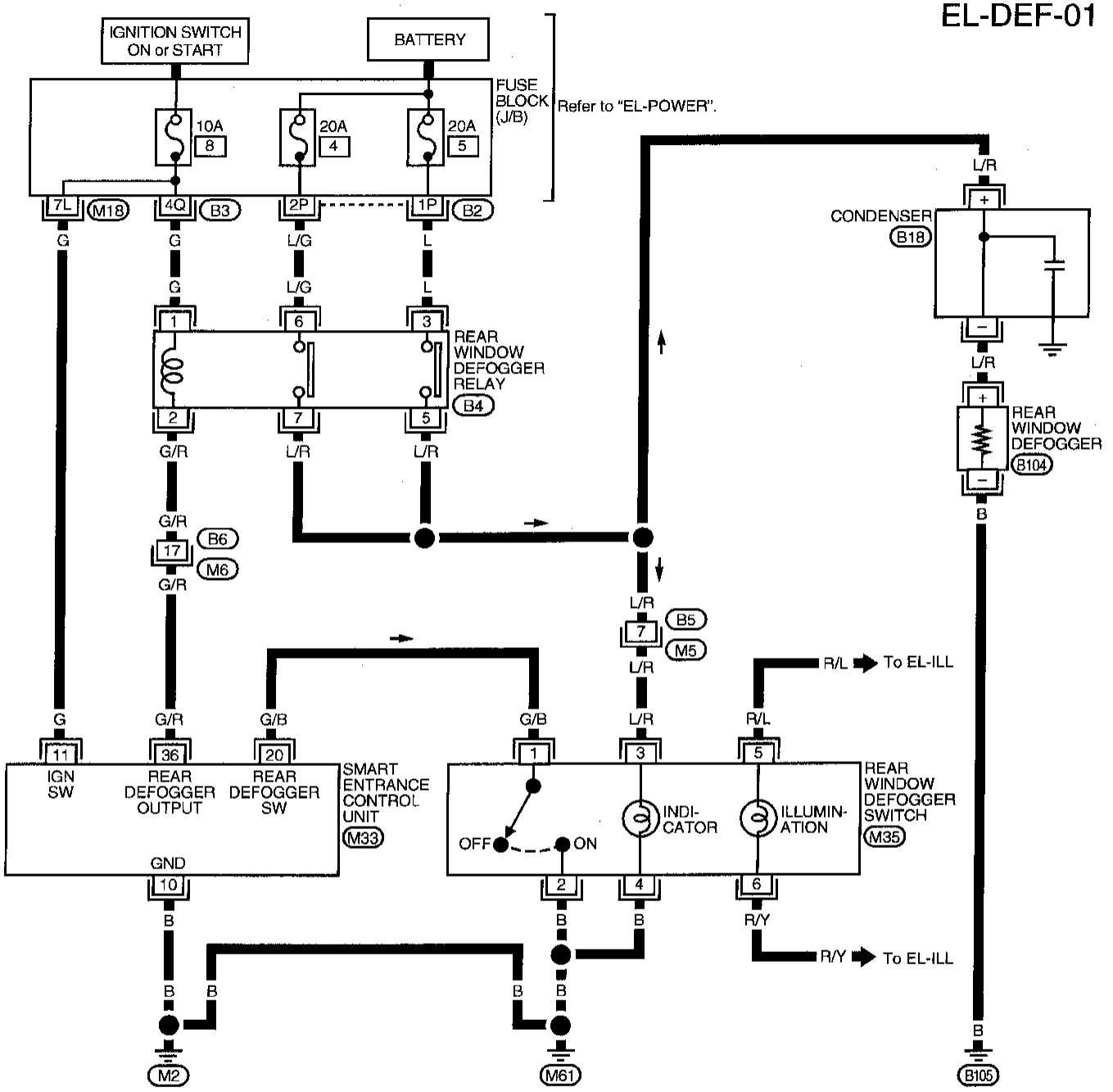
- to terminal ③ of the rear window defogger switch
- from terminals ⑤ and ⑦ of the rear window defogger relay.

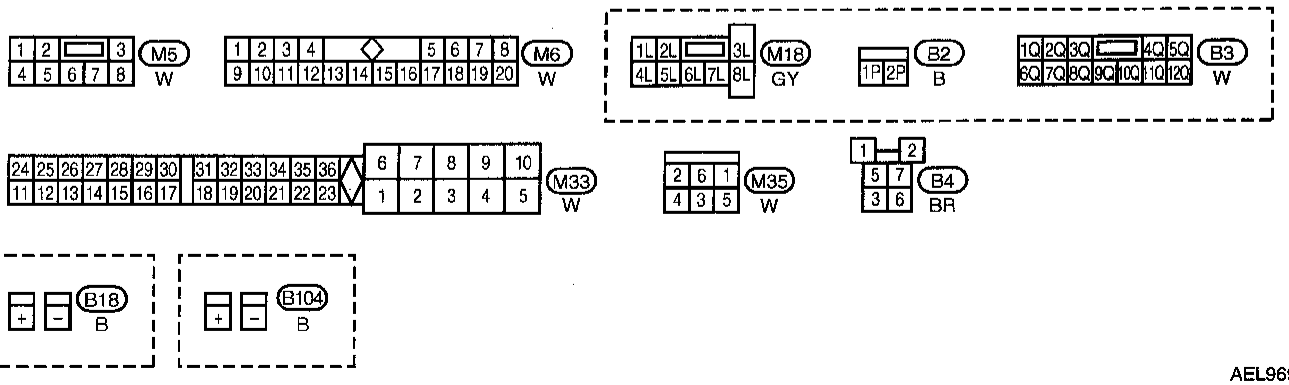
Terminal ④ of the rear window defogger switch is grounded through body grounds (M2) and (M61).

Wiring Diagram — DEF —

MODELS WITH POWER DOOR LOCKS

EL-DEF-01



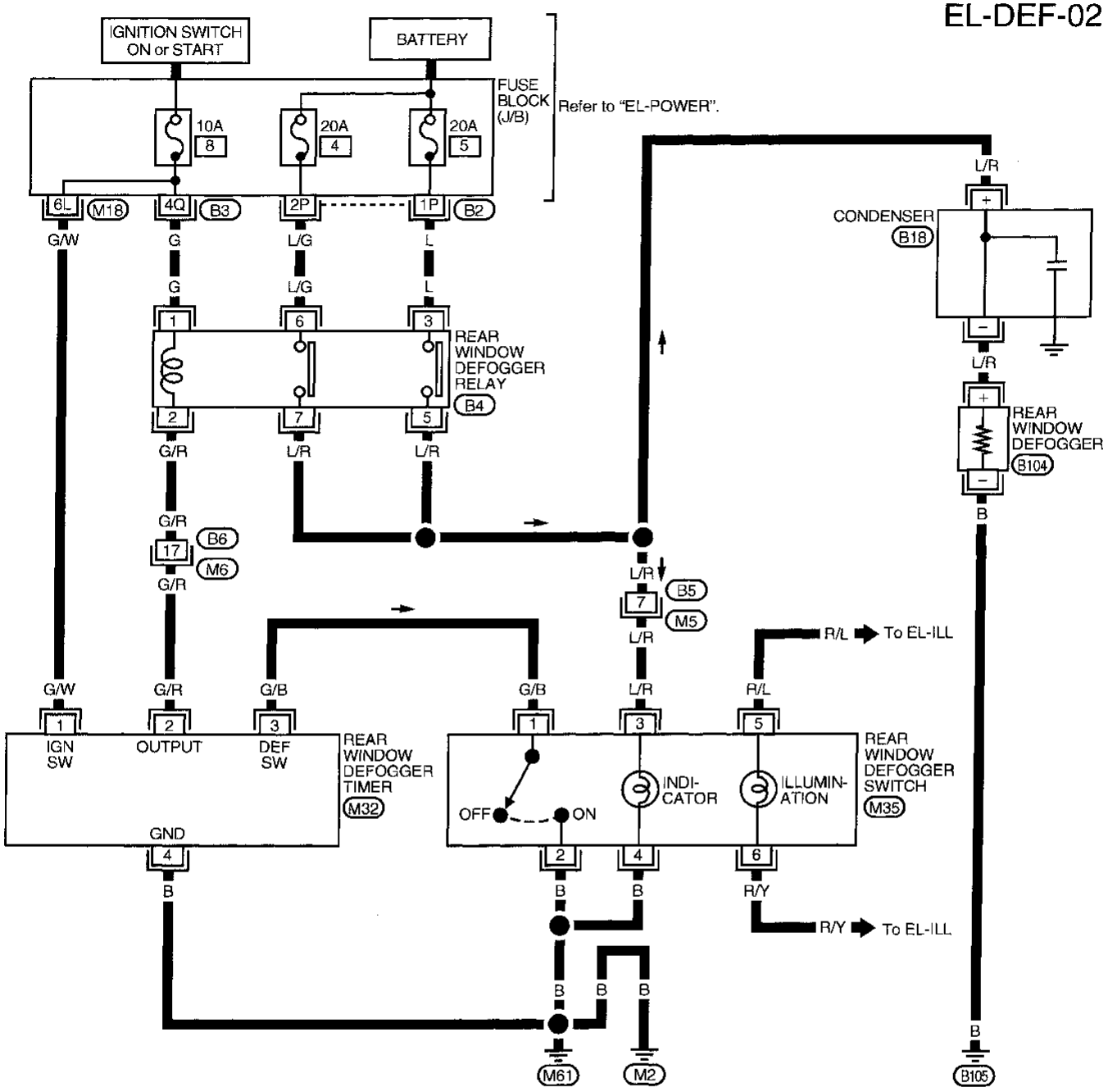


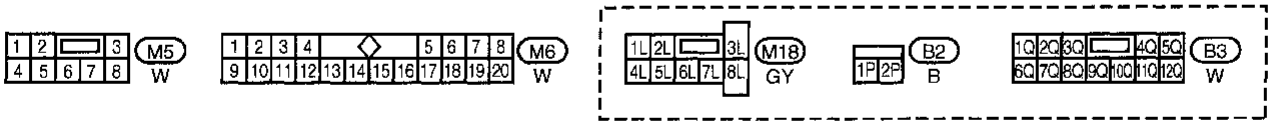
AEL969A

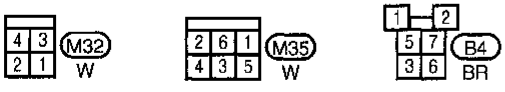
Wiring Diagram — DEF — (Cont'd)

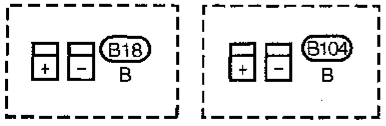
MODELS WITHOUT POWER DOOR LOCKS

EL-DEF-02







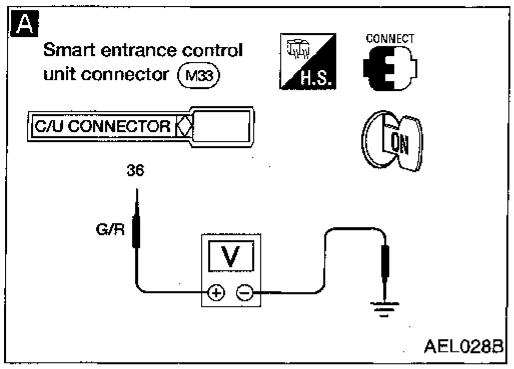


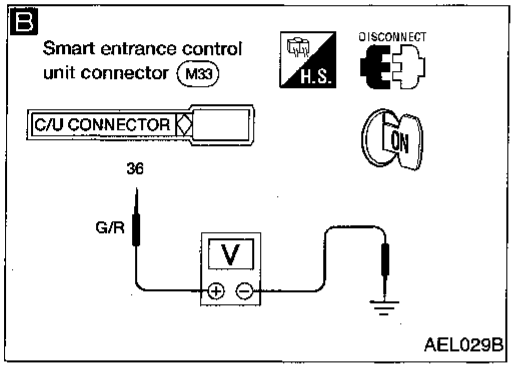
AEL970A

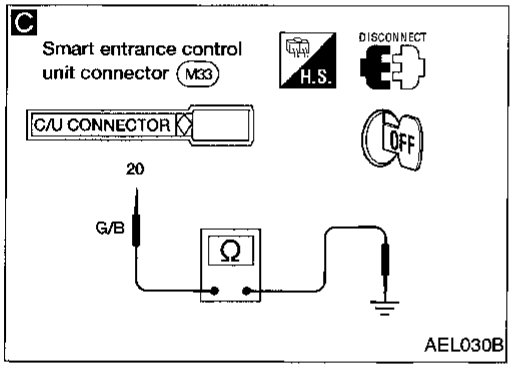
Trouble Diagnoses (For models with power door locks)

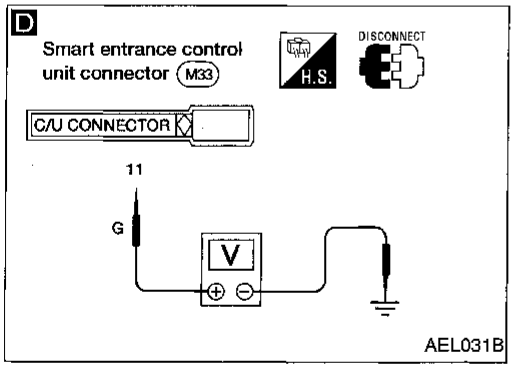
DIAGNOSTIC PROCEDURE

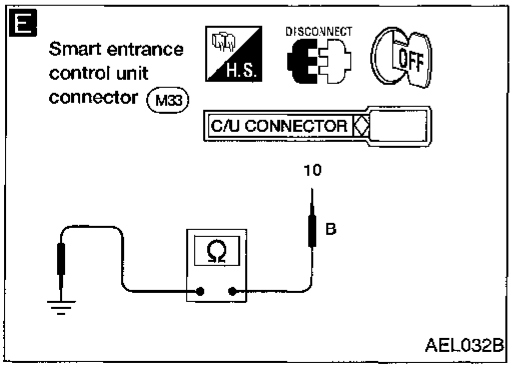
SYMPTOM: Rear window defogger does not activate, or does not go off after activating.











A

CHECK REAR WINDOW DEFOGGER OUTPUT SIGNAL.

1. Turn ignition switch to ON position.
2. Check voltage between control unit harness terminal (36) and ground.

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

OK → Check the following.
- Rear window defogger relay (Refer to EL-127.)
- Rear window defogger circuit
- Rear window defogger filament (Refer to EL-127.)

NG ↓

B

1. Disconnect control unit connector.
2. Turn ignition switch to ON position.
3. Check voltage between control unit terminal (36) and ground.

Battery voltage should exist.

NG → Check the following.
- 10A fuse [No. 8, located in the fuse block (J/B)]
- Rear window defogger relay
- Harness for open or short between fuse and rear window defogger relay
- Harness for open or short between rear window defogger relay and control unit

OK ↓

C

CHECK REAR WINDOW DEFOGGER SWITCH INPUT SIGNAL.

Check continuity between control unit terminal (20) and ground.

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

NG → Check the following.
- Rear window defogger switch (Refer to EL-127.)
- Harness for open or short between control unit and rear window defogger switch
- Rear window defogger switch ground circuit

OK ↓

D

CHECK IGNITION INPUT SIGNAL.

Check voltage between control unit terminal (11) and ground.

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

NG → Check the following.
- 10A fuse [No. 8, located in the fuse block (J/B)]
- Harness for open or short between control unit and fuse

OK ↓

E

CHECK CONTROL UNIT GROUND CIRCUIT.

Check continuity between control unit terminal (10) and ground.

Continuity should exist.

NG → Repair harness or connectors.

OK ↓

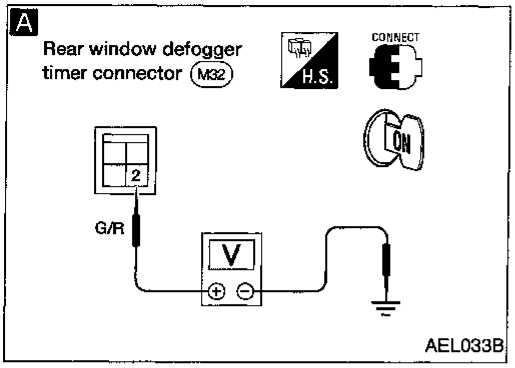
Replace control unit.

Trouble Diagnoses (For models without power door locks)

DIAGNOSTIC PROCEDURE

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

A



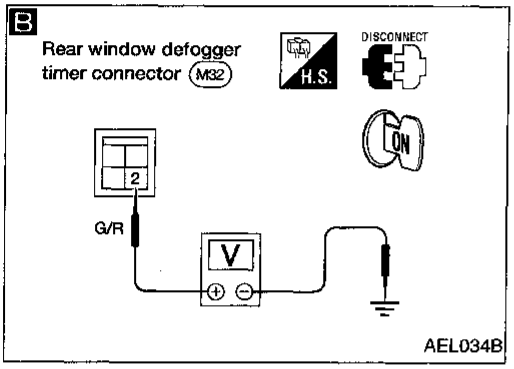
CHECK REAR WINDOW DEFOGGER OUTPUT SIGNAL.
1. Turn ignition switch to ON position.
2. Check voltage between rear window defogger timer terminal ② and ground.

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

OK → Check the following.
- Rear window defogger relay (Refer to EL-127.)
- Rear window defogger circuit
- Rear window defogger filament (Refer to EL-127.)

NG ↓

B

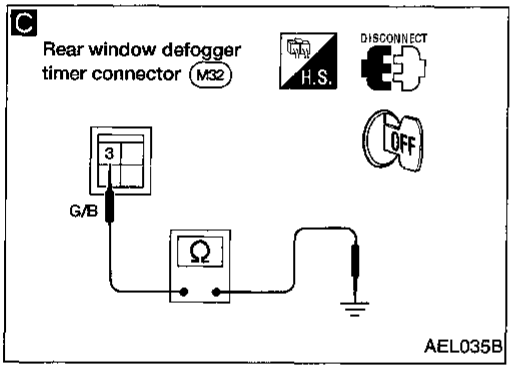


1. Disconnect rear window defogger timer connector.
2. Turn ignition switch to ON position.
3. Check voltage between rear window defogger timer terminal ② and ground. **Battery voltage should exist.**

NG → Check the following.
- 10A fuse [No. 8, located in the fuse block (J/B)]
- Rear window defogger relay
- Harness for open or short between fuse and rear window defogger relay
- Harness for open or short between rear window defogger relay and rear window defogger timer

OK ↓

C



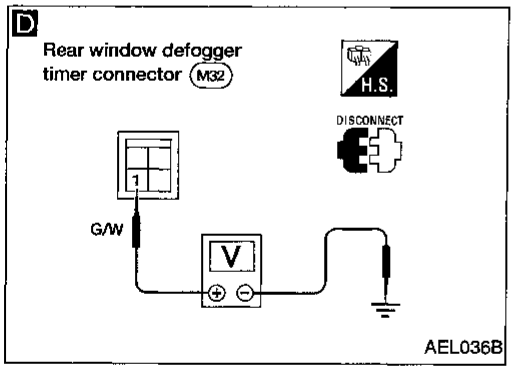
CHECK REAR WINDOW DEFOGGER SWITCH INPUT SIGNAL.
Check continuity between rear window defogger timer terminal ③ and ground.

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

NG → Check the following.
- Rear window defogger switch (Refer to EL-127.)
- Harness for open or short between rear window defogger timer and rear window defogger switch
- Rear window defogger switch ground circuit

OK ↓

D



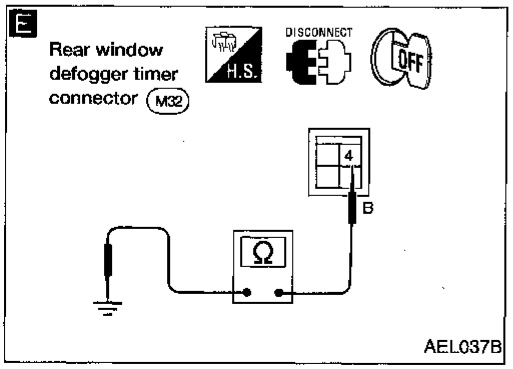
CHECK IGNITION INPUT SIGNAL.
Check voltage between rear window defogger timer terminal ① and ground.

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

NG → Check the following.
- 10A fuse [No. 8, located in the fuse block (J/B)]
- Harness for open or short between rear window defogger timer and fuse

OK ↓

E

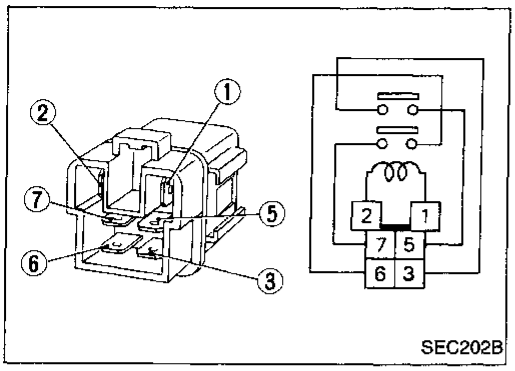


CHECK REAR WINDOW DEFOGGER TIMER GROUND CIRCUIT.
Check continuity between rear window defogger timer terminal ④ and ground. **Continuity should exist.**

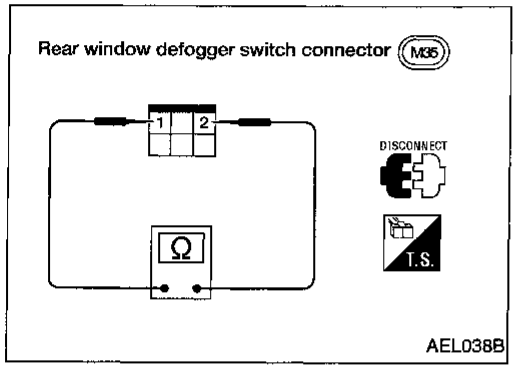
NG → Repair harness or connectors.

OK ↓

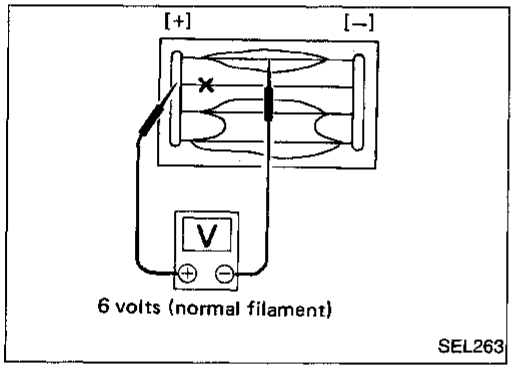
Replace rear window defogger timer.



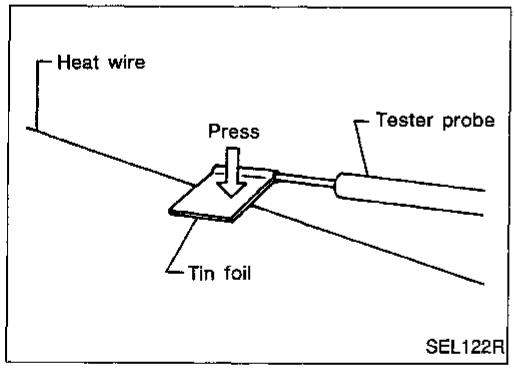
SEC202B



AEL038B



SEL263



SEL122R

Electrical Components Inspection

REAR WINDOW DEFOGGER RELAY

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

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

REAR WINDOW DEFOGGER SWITCH

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

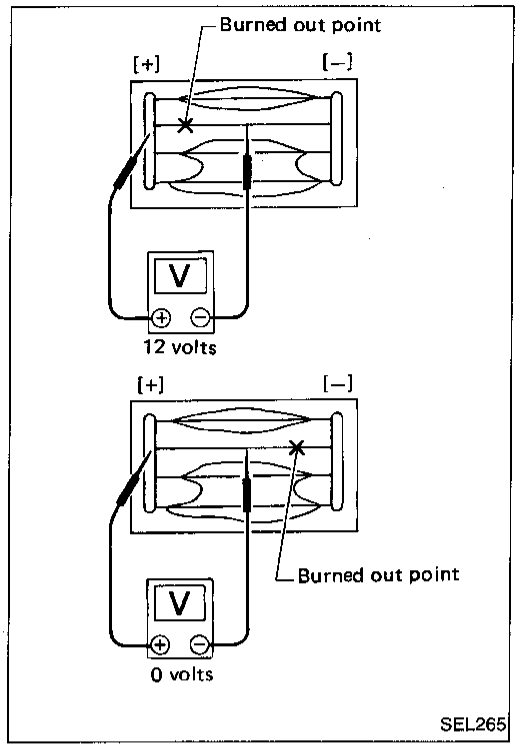
Terminals	Condition	Continuity
① - ②	Rear window defogger switch is pushed.	Yes
	Rear window defogger switch is released.	No

Filament Check

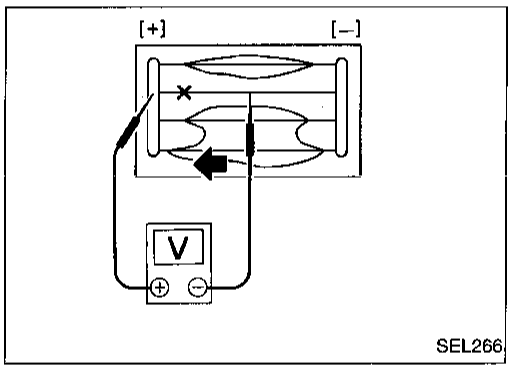
1. Attach probe circuit tester (in volt range) to middle portion of each filament.

- **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.

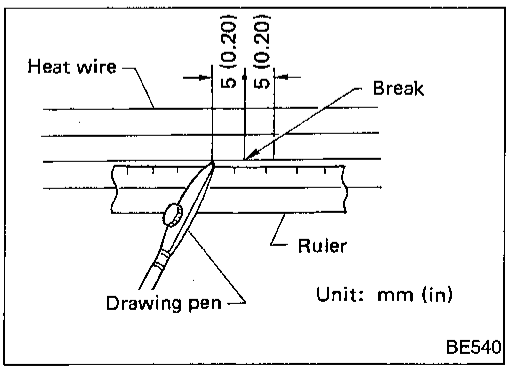


3. To locate burned out point, move probe to left and right along filament. Test needle will swing abruptly when probe passes the point.

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



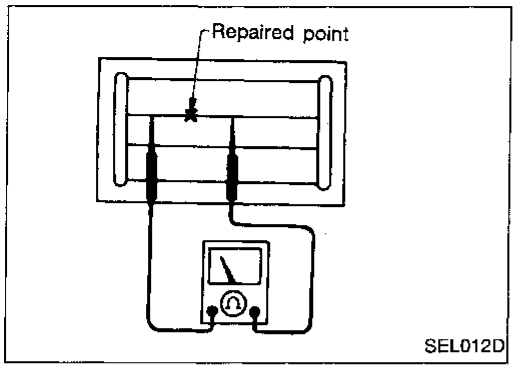
REPAIRING PROCEDURE

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.

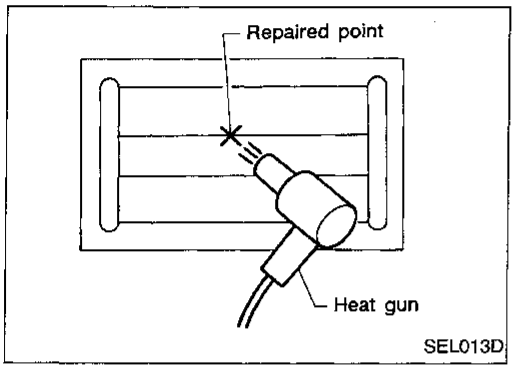
3. Place ruler on glass along broken line. Deposit conductive silver composition on break with drawing pen. Slightly overlap existing heat wire on both sides [preferably 5 mm (0.20 in)] of the break.

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.

System Description

Refer to Owner's Manual for audio system operating instructions.
Power is supplied at all times:

- through 10A fuse (No. 35, located in the fuse and fusible link box)
- to radio terminal ⑥.

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

- through 10A fuse [No. 10, located in the fuse block (J/B)]
- to audio terminal ⑩.

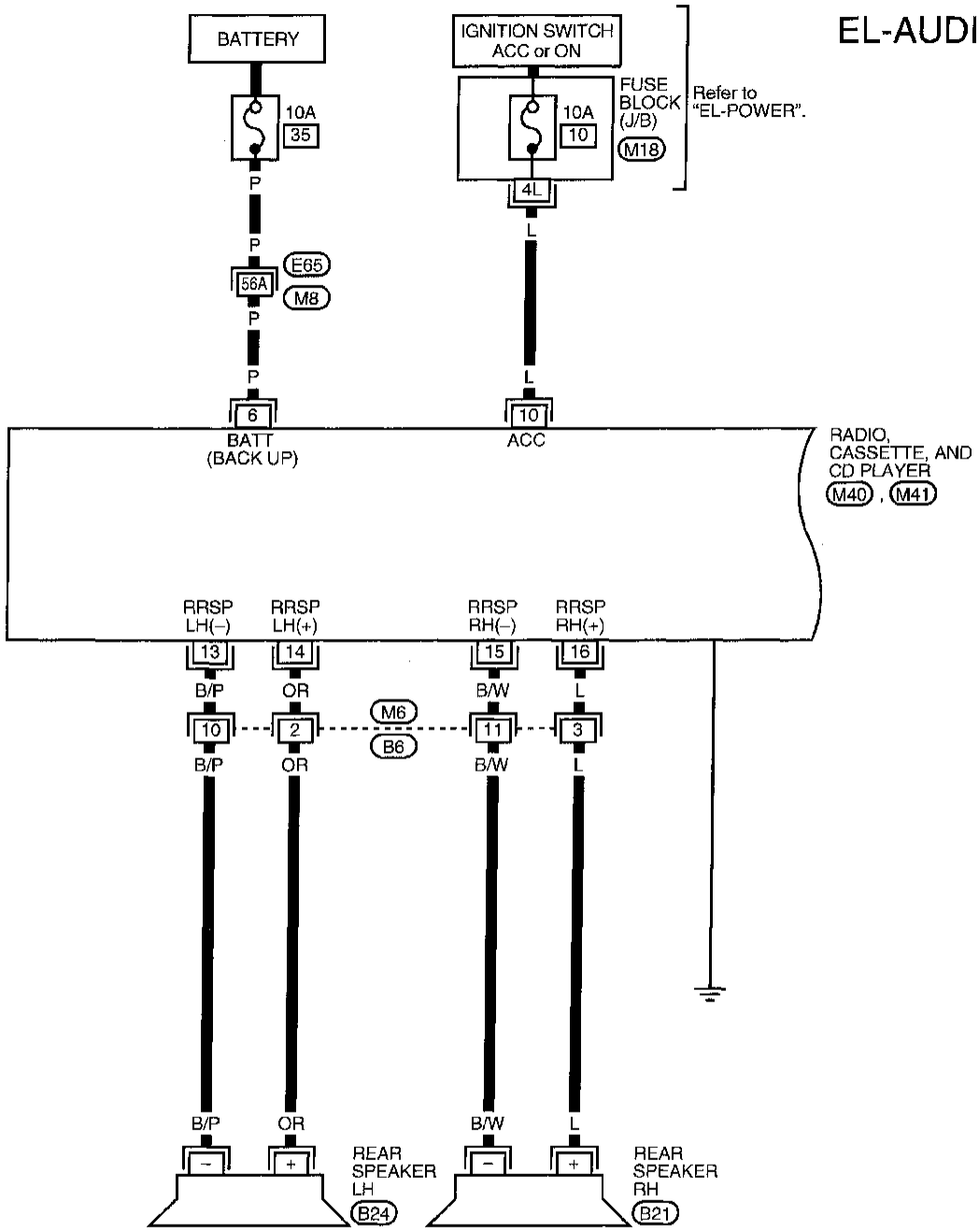
Ground is supplied through the case of the audio.
When the audio power knob is pushed to the ON position, audio signals are supplied:

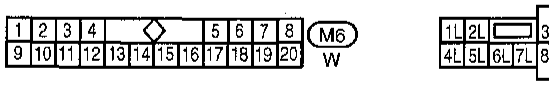
- through audio terminals ①, ②, ③, ④, ⑬, ⑭, ⑮, and ⑯
- to the front and rear speakers or tweeters.

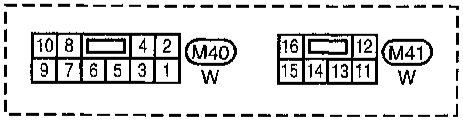
NOTES

Wiring Diagram — AUDIO —

MODELS WITH PREMIUM AUDIO SYSTEM





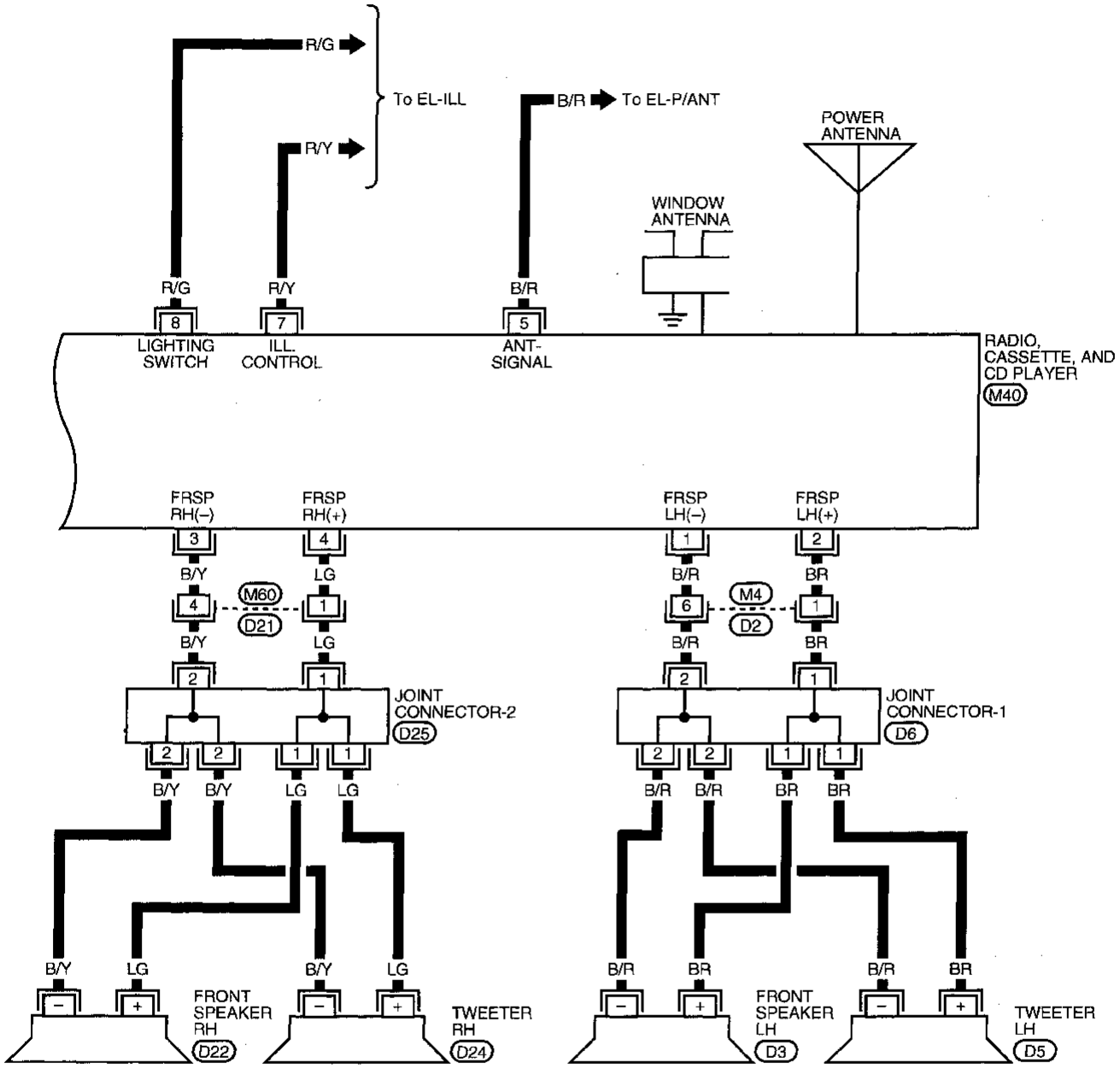


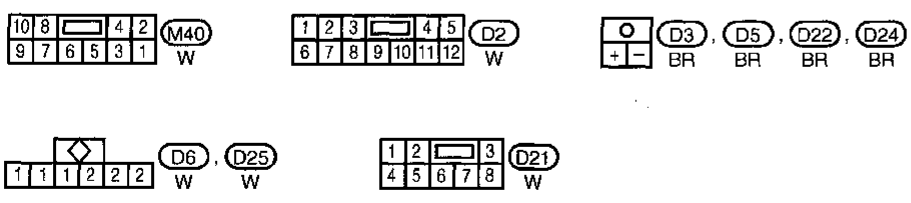
Refer to last page (Foldout page).
M8, E65

AEL820B

Wiring Diagram — AUDIO — (Cont'd)

EL-AUDIO-02



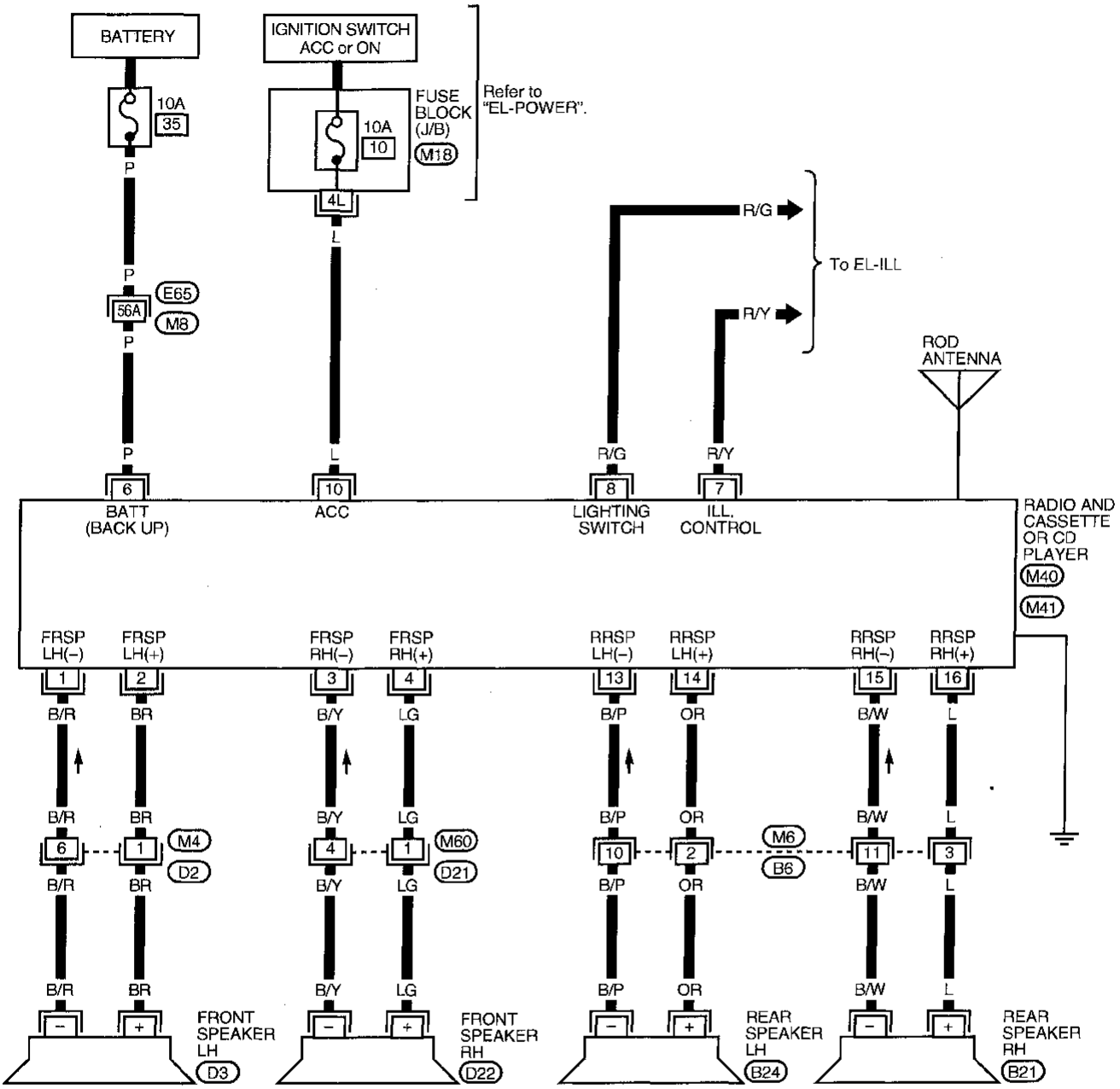


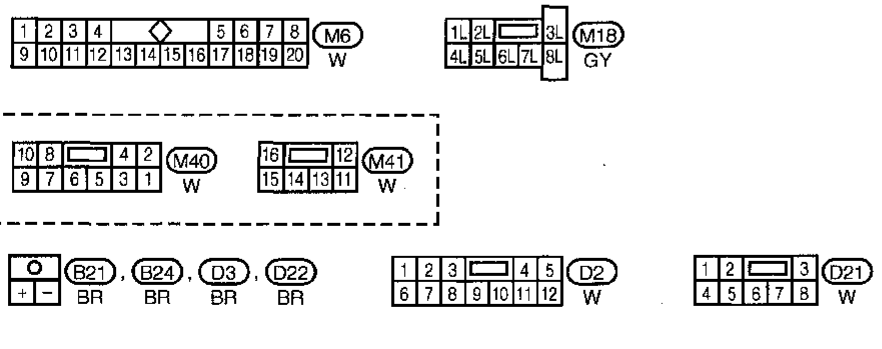
AEL972A

Wiring Diagram — AUDIO — (Cont'd)

MODELS WITH BASE AUDIO SYSTEM

EL-AUDIO-03





Refer to last page (Foldout page).
M8, E65

AEL973A

Trouble Diagnoses

RADIO

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. 10, located in fuse block (J/B)]. 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. Radio output 2. Radio	1. Check radio/amp. output voltage. 2. Remove radio/amp. for repair.
Radio presets are lost when ignition switch is turned OFF.	1. 10A fuse 2. Radio	1. Check 10A fuse (No. 35, located in fuse and fusible link box) and verify that battery positive voltage is present at terminal ⑥ of radio. 2. Remove radio for repair.
Individual speaker is noisy or inoperative.	1. Speaker 2. Radio output 3. Speaker circuit 4. Radio	1. Check speaker. 2. Check radio output voltages. 3. Check wires for open or short between radio and speaker. 4. Remove radio for repair.
Radio stations are weak or noisy	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). (For premium audio system)	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. Generator 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 generator. 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.

Inspection

SPEAKER

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

ANTENNA

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

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

System Description

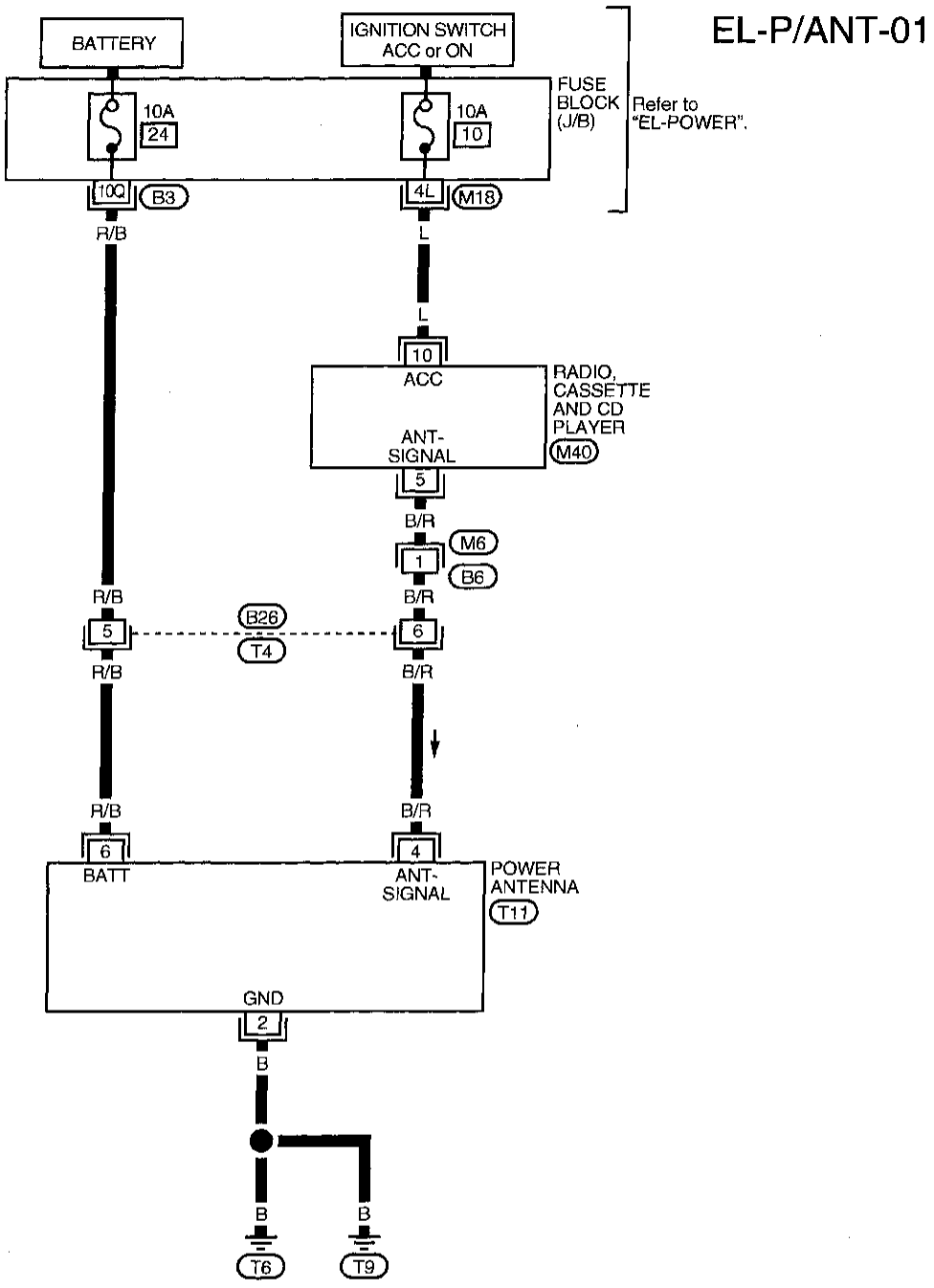
Power is supplied at all times:
- through 10A fuse [No. 24, located in the fuse block (J/B)]
- to power antenna terminal ⑥.

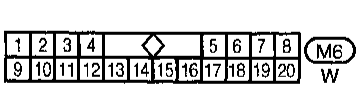
Ground is supplied to the power antenna terminal ② through body grounds T6 and T9.
When the audio is turned to the ON position, battery positive voltage is supplied:
- through audio terminal ⑤
- to power antenna terminal ④.

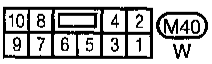
The antenna rises and is held in the extended position.
When the audio is turned to the OFF position, battery positive voltage is interrupted:
- from audio terminal ⑤
- to power antenna terminal ④.

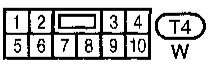
The antenna retracts.

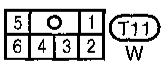
Wiring Diagram — P/ANT —











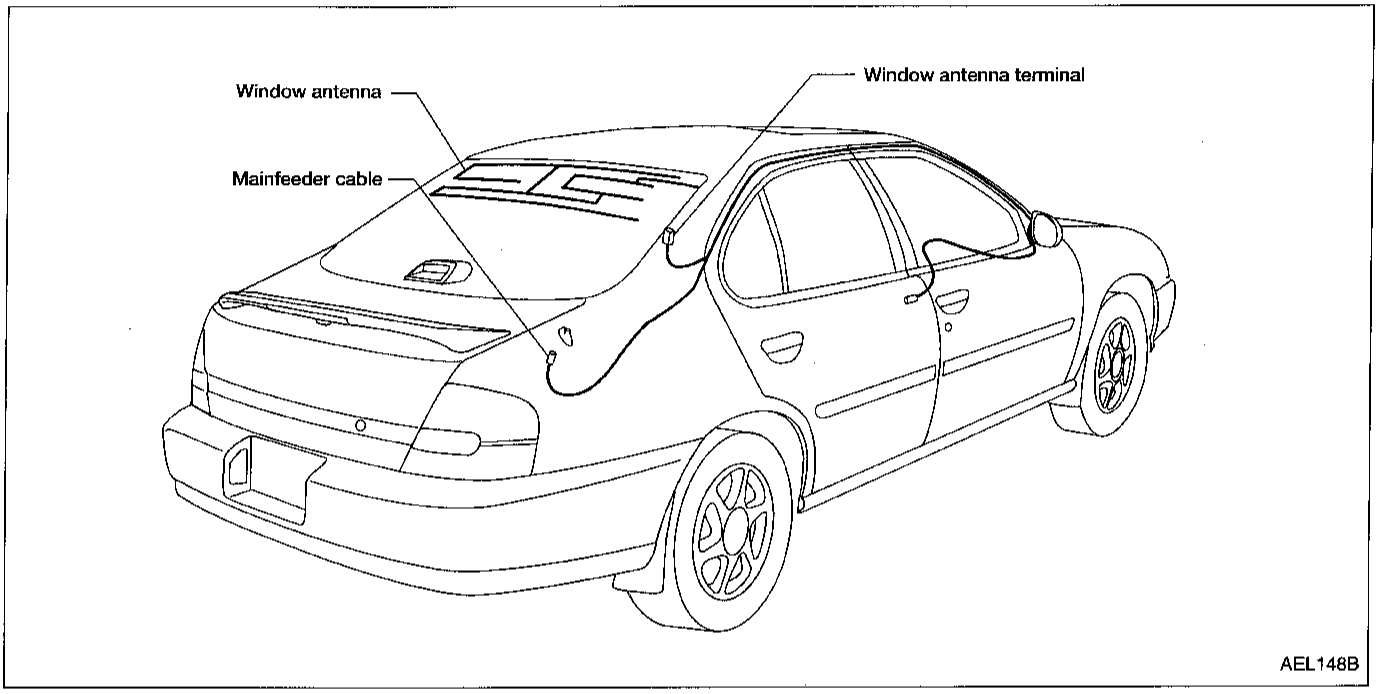
AEL974A

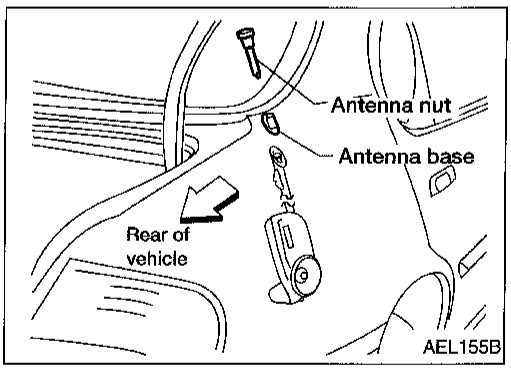
Trouble Diagnoses

POWER ANTENNA

Symptom	Possible causes	Repair order
Power antenna does not operate.	1. 10A fuse	1. Check 10A fuse [No. 24, located in fuse block (J/B)]. Verify that battery positive voltage is present at terminal ⑥ of power antenna.
	2. Radio signal	2. Turn ignition switch and radio ON. Verify that battery positive voltage is present at terminal ④ of power antenna.
	3. Grounds T6 and T9	3. Check grounds T6 and T9.

Location of Antenna

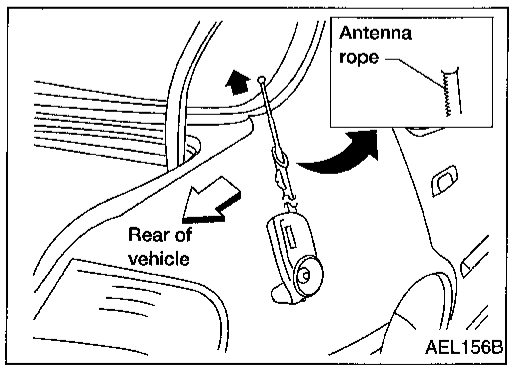




Antenna Rod Replacement

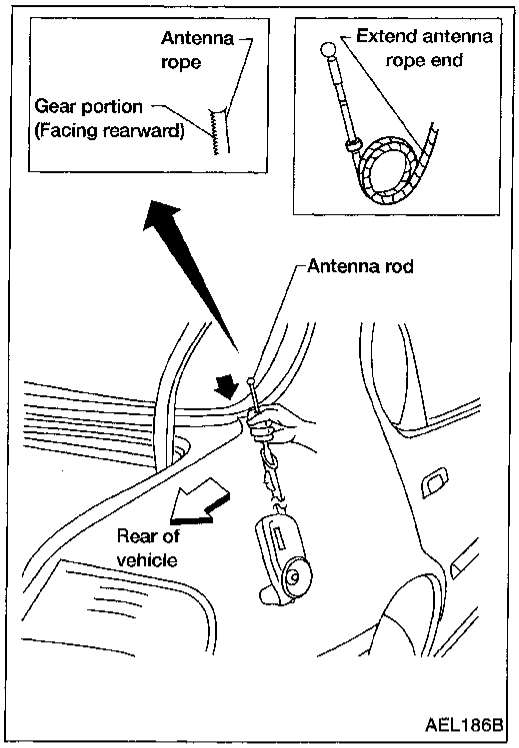
REMOVAL

1. Remove antenna nut and antenna base.



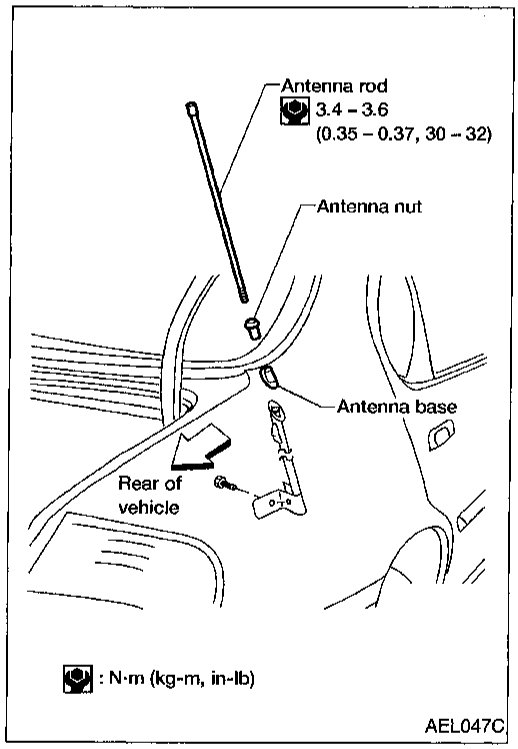
2. Withdraw antenna rod while raising it by operating antenna motor.

Antenna Rod Replacement (Cont'd)



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.



Fixed Antenna Rod Replacement

REMOVAL

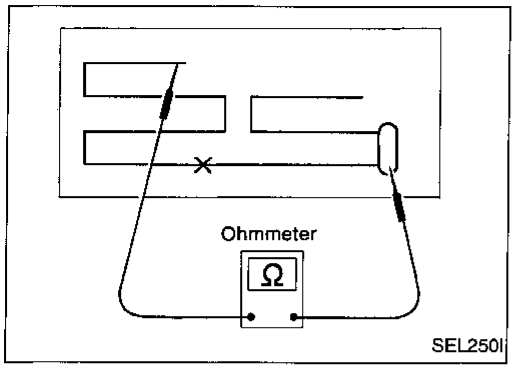
1. Remove antenna rod.
2. Remove antenna nut and antenna base.
3. Disconnect antenna cable.
4. Remove bolt and antenna.

INSTALLATION

Install in reverse order of removal.

CAUTION:

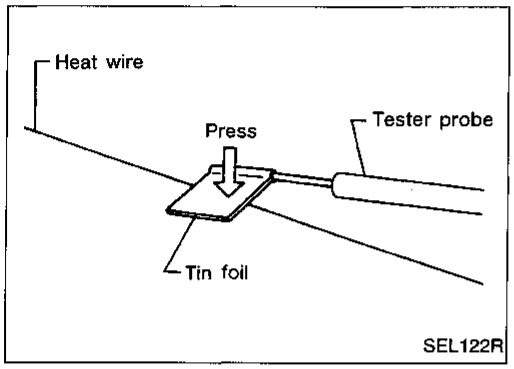
Always properly tighten the antenna rod during installation or the antenna rod may bend or break during vehicle operation.



Window Antenna Repair

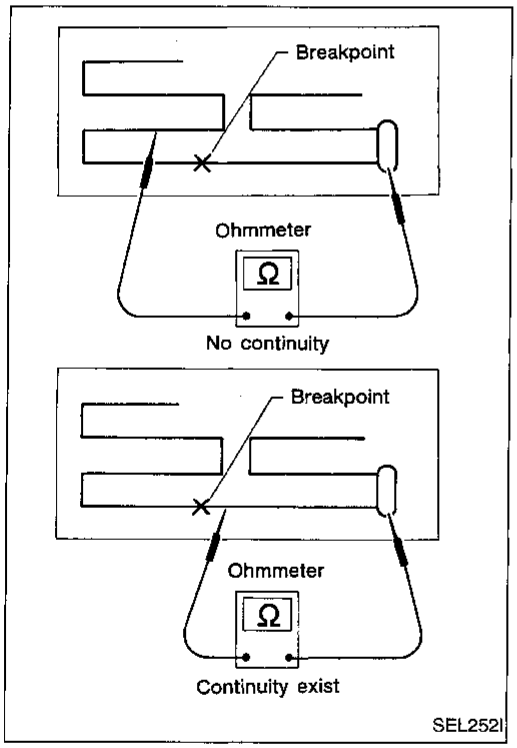
ELEMENT CHECK

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

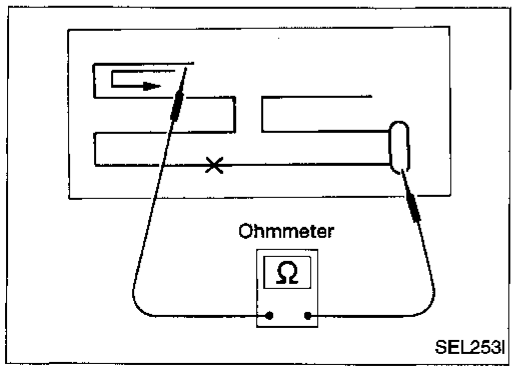


- **When measuring continuity, wrap tin foil around the top of probe. Then press the foil against the wire with your finger.**

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



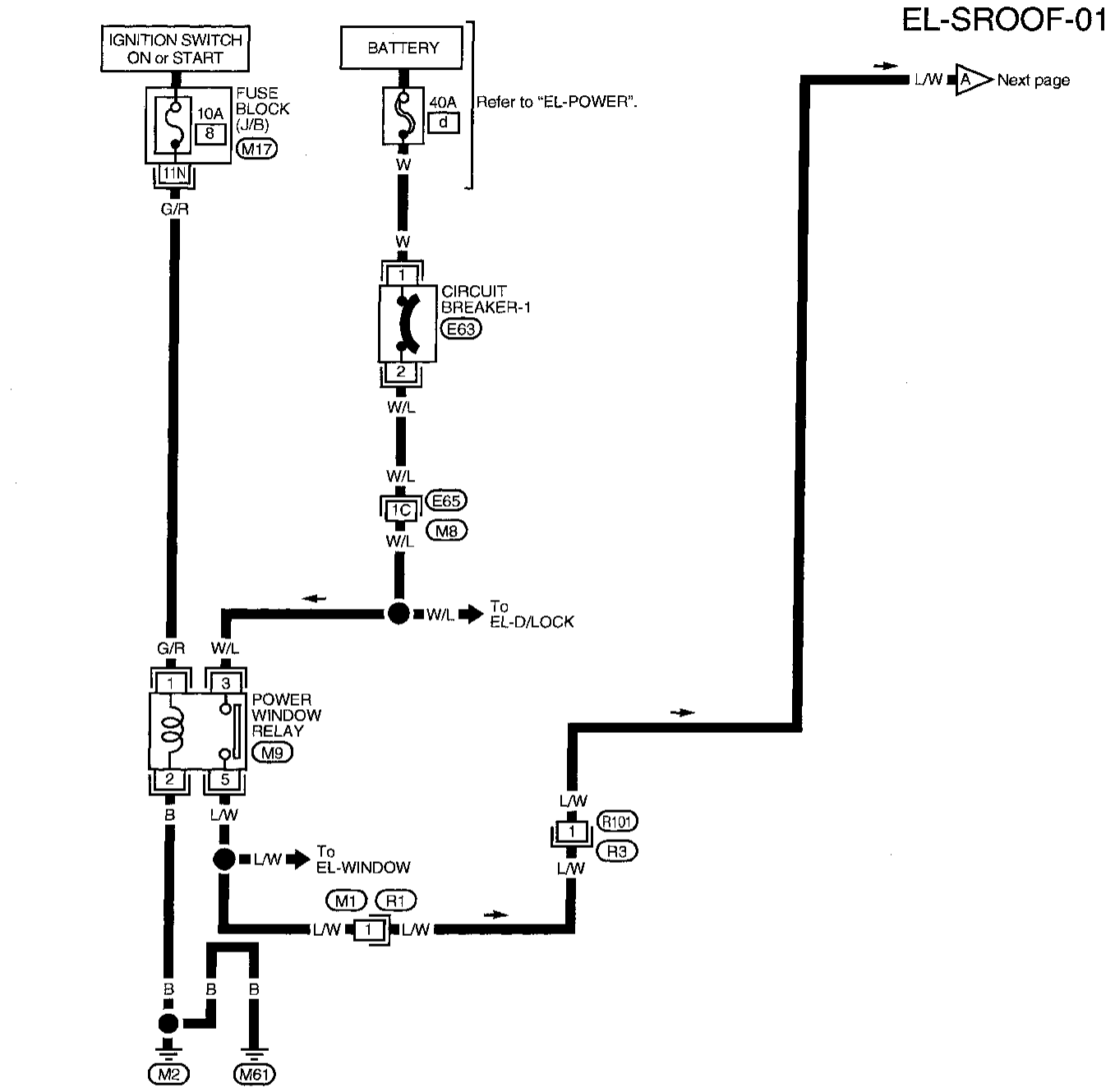
3. To locate broken point, move probe along element. Tester needle will swing abruptly when probe passes the point.

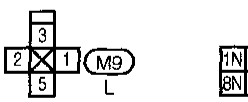


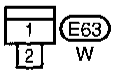
ELEMENT REPAIR

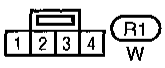
Refer to "Filament Repair", "REAR WINDOW DEFOGGER" (EL-128).

Wiring Diagram — SROOF —







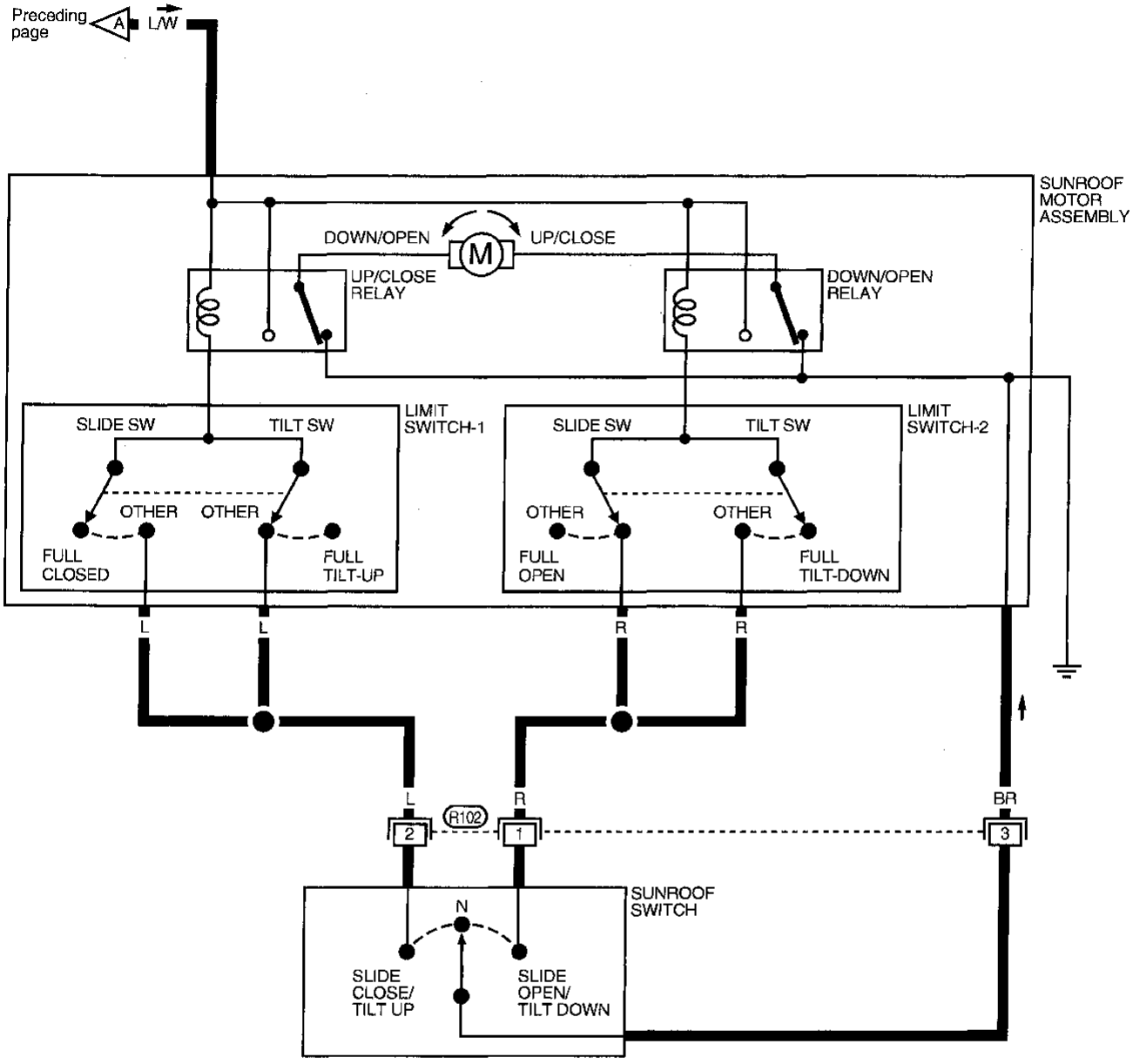


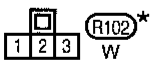
Refer to last page (Foldout page).
M8, E65

AEL005B

Wiring Diagram — SROOF — (Cont'd)

EL-SROOF-02



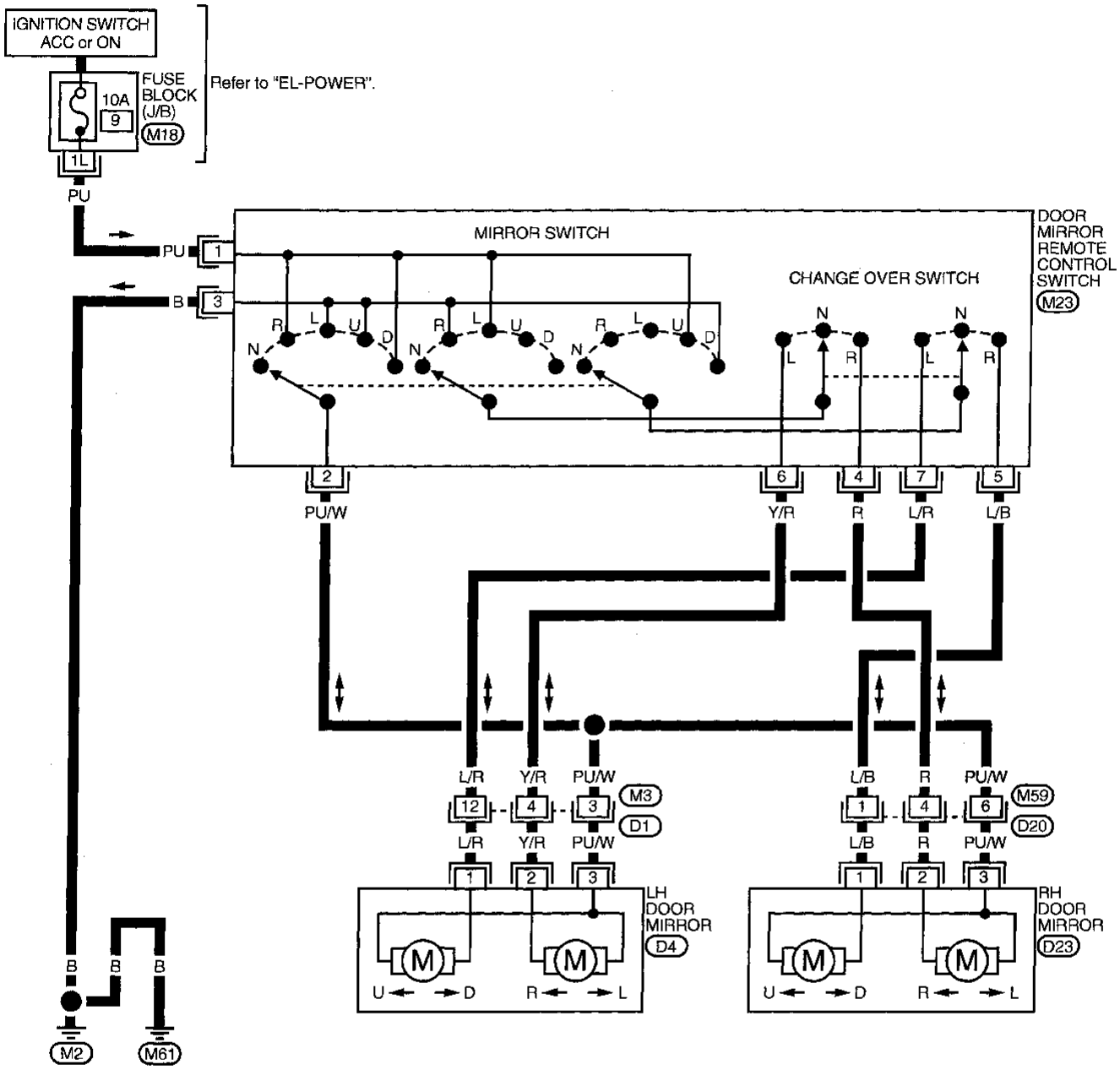


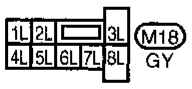
* : This connector is not shown in "HARNESS LAYOUT" of EL section.

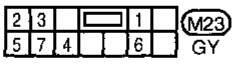
AEL006B

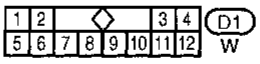
Wiring Diagram — MIRROR —

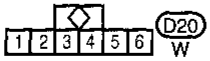
EL-MIRROR-01







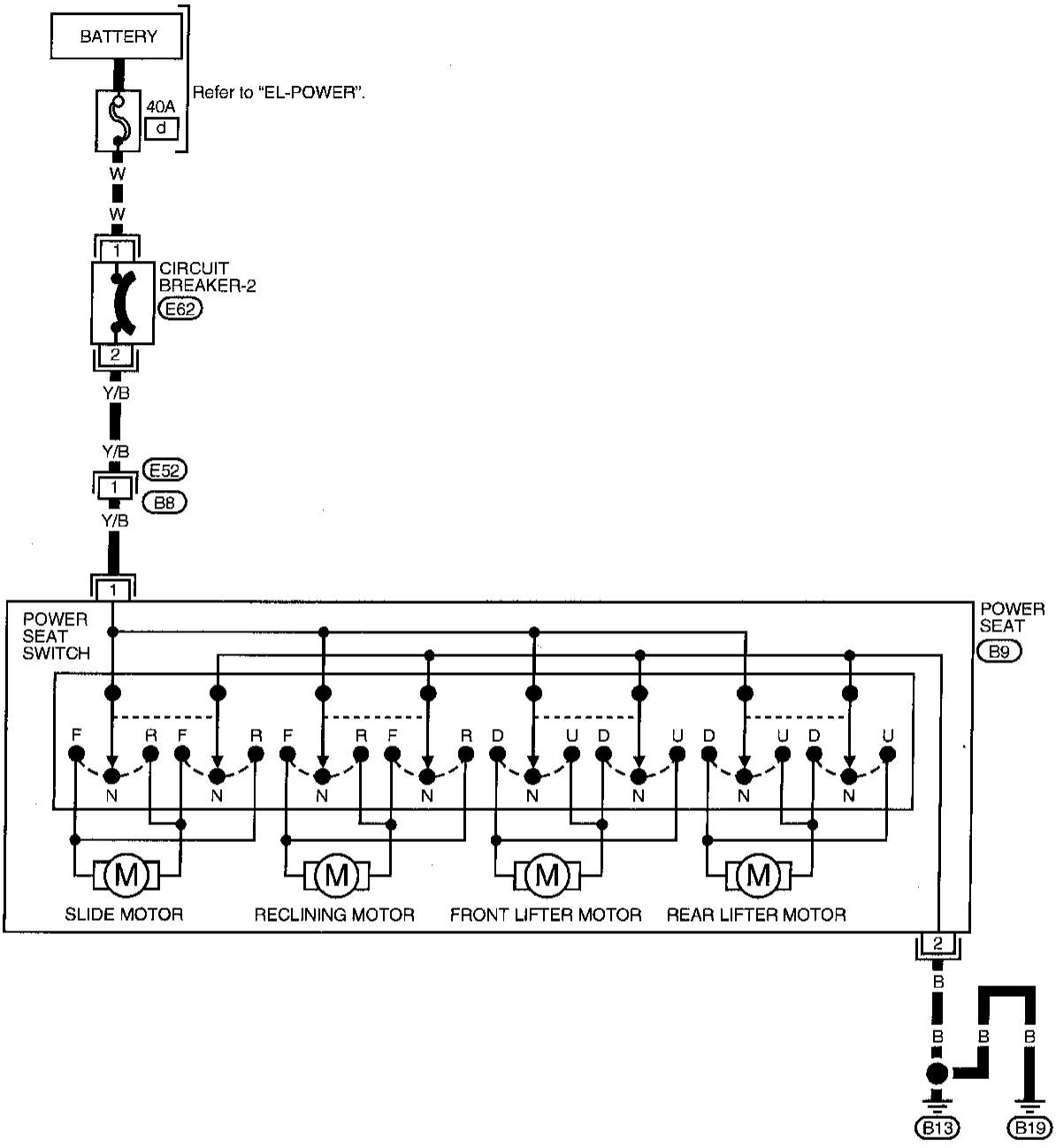


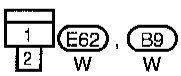


AEL007B

Wiring Diagram — SEAT —

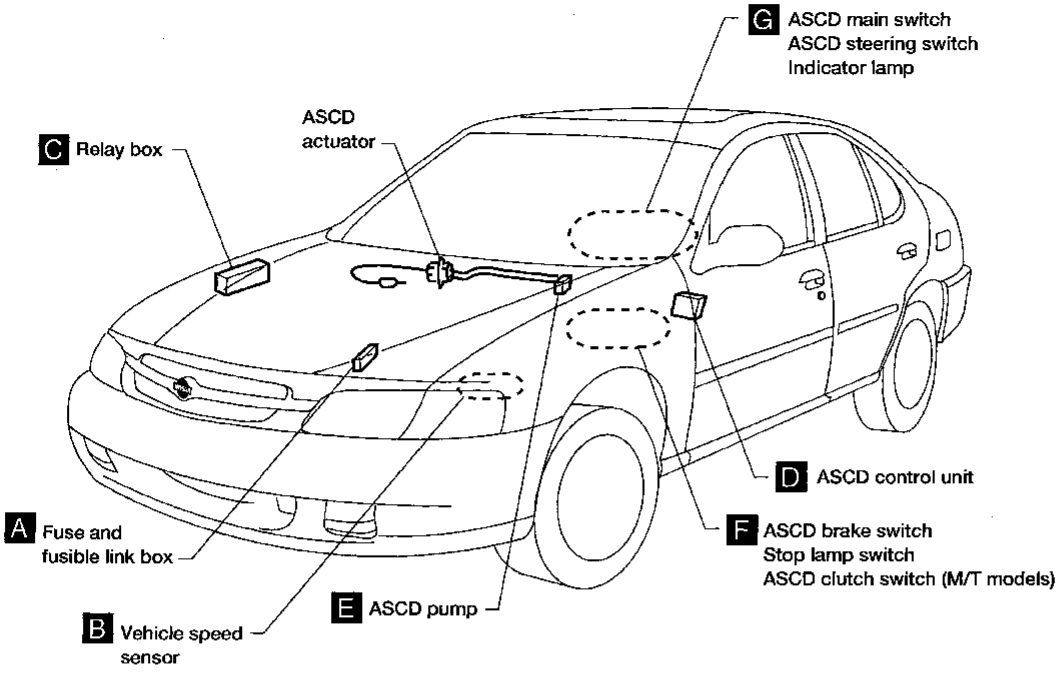
EL-SEAT-01

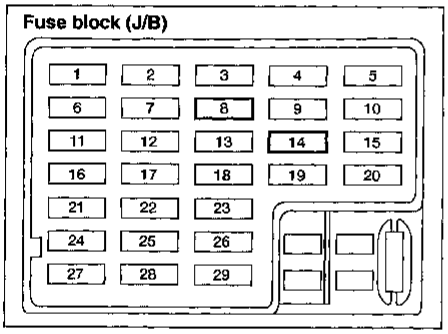


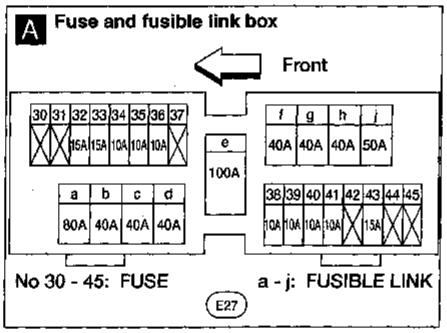


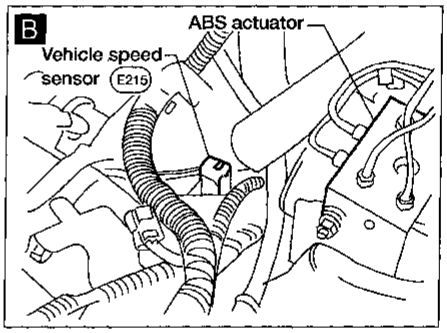
AEL008B

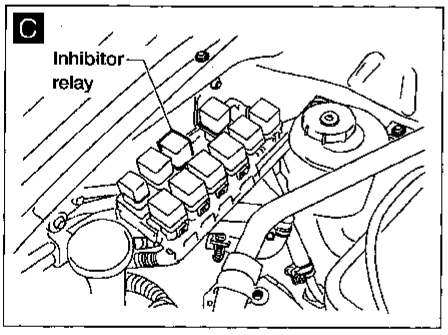
Component Parts and Harness Connector Location

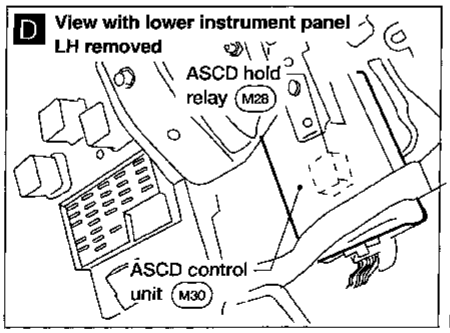


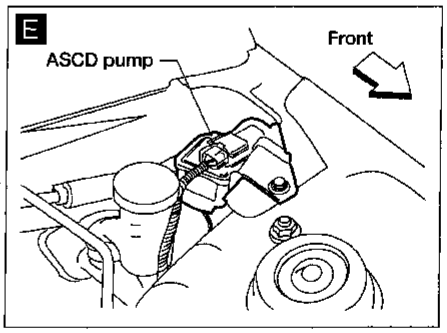


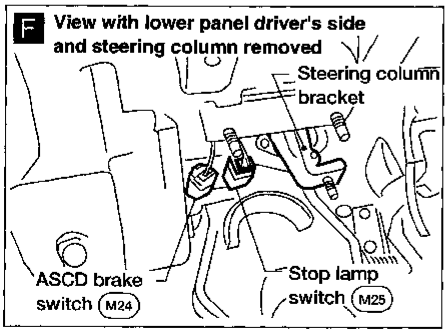


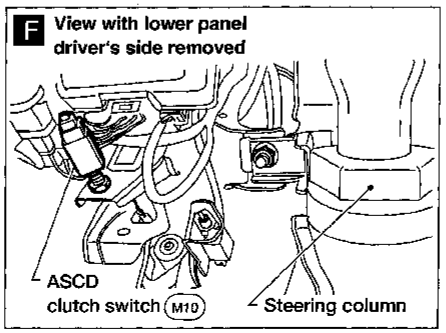


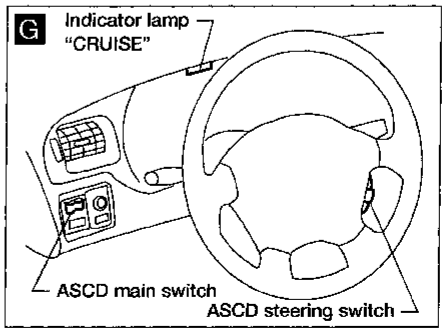












AEL141B

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 10A fuse [No. 8, located in the fuse block (J/B)]
- to ASCD main switch terminal ① and
- to ASCD hold relay terminal ⑤
- to ASCD brake switch terminal ② (with A/T)
- through ASCD brake switch terminal ①
- to ASCD hold relay terminal ⑥ (with A/T).

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 (with M/T) terminal ② (with A/T).

Ground is supplied:
- to ASCD main switch terminal ④
- to ASCD hold relay terminal ② (with M/T) terminal ① (with A/T)
- through body grounds (M2) and (M61).

With power and ground supplied, the ASCD hold relay is activated, and power is supplied:
- from terminal ③ of the ASCD hold relay
- through ASCD main switch terminals ② and ③
- to ASCD hold relay terminal ① (with M/T) terminal ② (with A/T).

Power remains supplied when the ASCD switch is released to the N (neutral) position:
- from terminal ③ of ASCD hold relay
- to ASCD control unit terminal ④ and
- to ASCD clutch switch terminal ① (with M/T)
- from terminal ⑦ of ASCD hold relay (with A/T)
- to Park/neutral position (PNP) relay terminal ③ (with A/T).

Ground is supplied:
- to ASCD control unit terminal ③
- through body grounds (M2) and (M61).

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
- ASCD clutch switch (M/T models) or
- PNP relay (A/T models)
- ASCD brake switch.

A vehicle speed input is supplied:
- to ASCD control unit terminal ⑦
- from terminal ⑤ of the combination meter.

Power is supplied at all times:
- to stop lamp switch terminal ①
- through 15A fuse [No. 14, located in the fuse block (J/B)].

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. 40, located in the fuse and fusible link box]
- to horn relay terminal ②
- through terminal ① of the horn relay
- to ASCD steering switch terminal ③.

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

When the RESUME/ACCEL switch is depressed, power is supplied:

- from terminal ① of the ASCD steering switch
- to ASCD control unit terminal ①.

When the system is activated, power is supplied:

- from ASCD brake switch terminal ② (with M/T) or
- from PNP relay terminal ④ (with A/T)
- to ASCD control unit terminal ⑤.

Power is interrupted when:

- the ASCD main switch is turned to OFF
- the clutch switch is depressed (M/T models),
- the A/T selector lever is placed in P or N (A/T models) or
- the ASCD brake switch is depressed.

OUTPUTS

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

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

Ground is supplied to the vacuum motor:

- from terminal ⑨ of the ASCD control unit
- to ASCD pump terminal ④.

Ground is supplied to the air valve:

- from terminal ⑩ of the ASCD control unit
- to ASCD pump terminal ②.

Ground is supplied to the release valve:

- from terminal ⑭ of the ASCD control unit
- to ASCD pump terminal ③.

When the system is activated, power is supplied:

- from terminal ⑬ of the ASCD control unit
- to combination meter terminal ㉕ and
- to transmission control module terminal ㊲ (A/T models).

Ground is supplied:

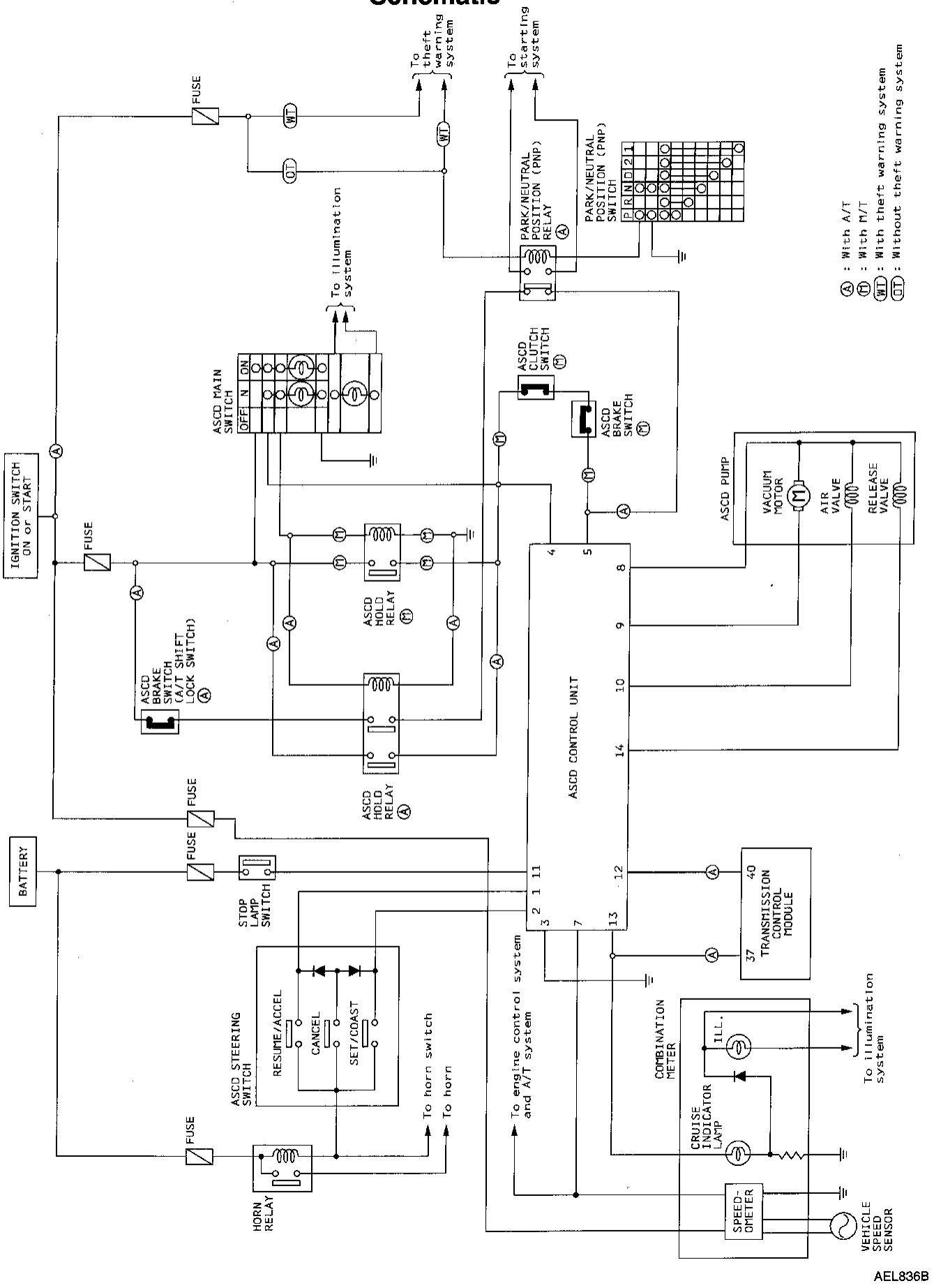
- to combination meter terminals ㉗ and ㊳
- through body grounds (M2) and (M61).

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

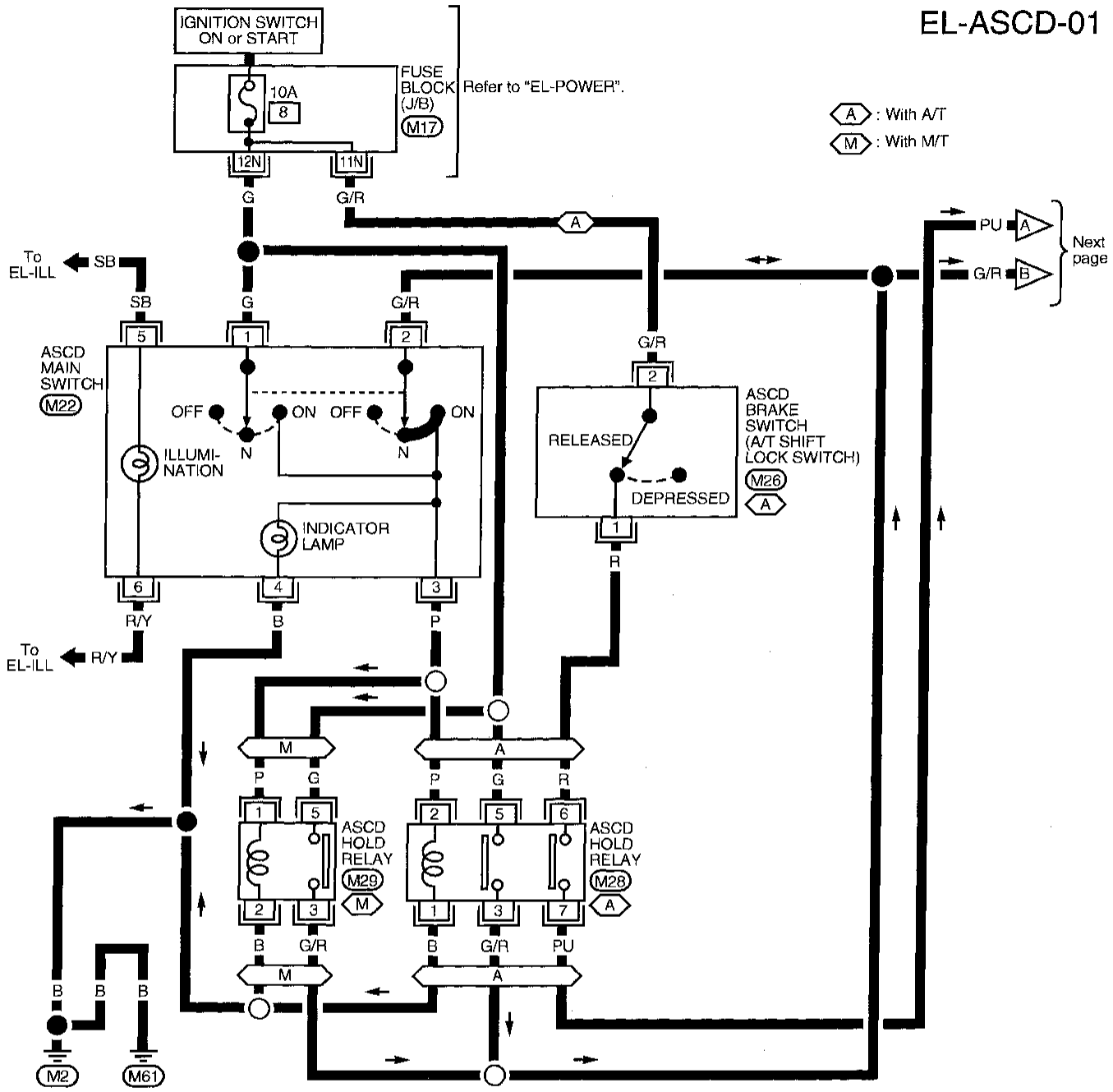
- from terminal ⑫ of the ASCD control unit
- to transmission control module unit terminal ㊵.

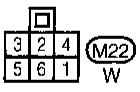
When this occurs, the transmission control module cancels overdrive.
After vehicle speed is approximately 3 km/h (2 MPH) above set speed, overdrive is reactivated.

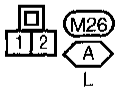
Schematic

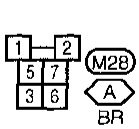

To theft warning system
To starting system
FUSE
To illumination system
PARK/NEUTRAL POSITION (PNP) RELAY
PARK/NEUTRAL POSITION (PNP) SWITCH
P R N D 2 1
Ⓐ : With A/T
Ⓜ : With M/T
WT : With theft warning system
OT : Without theft warning system
ASCD MAIN SWITCH
OFF N ON
ASCD CLUTCH SWITCH
ASCD BRAKE SWITCH
IGNITION SWITCH ON or START
ASCD PUMP
VACUUM MOTOR
ATR VALVE
RELEASE VALVE
ASCD BRAKE SWITCH (A/T SHIFT LOCK SWITCH)
ASCD HOLD RELAY
ASCD CONTROL UNIT
BATTERY
STOP LAMP SWITCH
TRANSMISSION CONTROL MODULE
ASCD STEERING SWITCH
RESUME/ACCEL
CANCEL
SET/COAST
To horn switch
To horn
HORN RELAY
To engine control system and A/T system
COMBINATION METER
ILL.
CRUISE INDICATOR LAMP
To illumination system
SPEED-OMETER
VEHICLE SPEED SENSOR
AEL836B

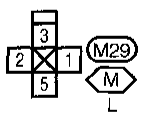
Wiring Diagram — ASCD —







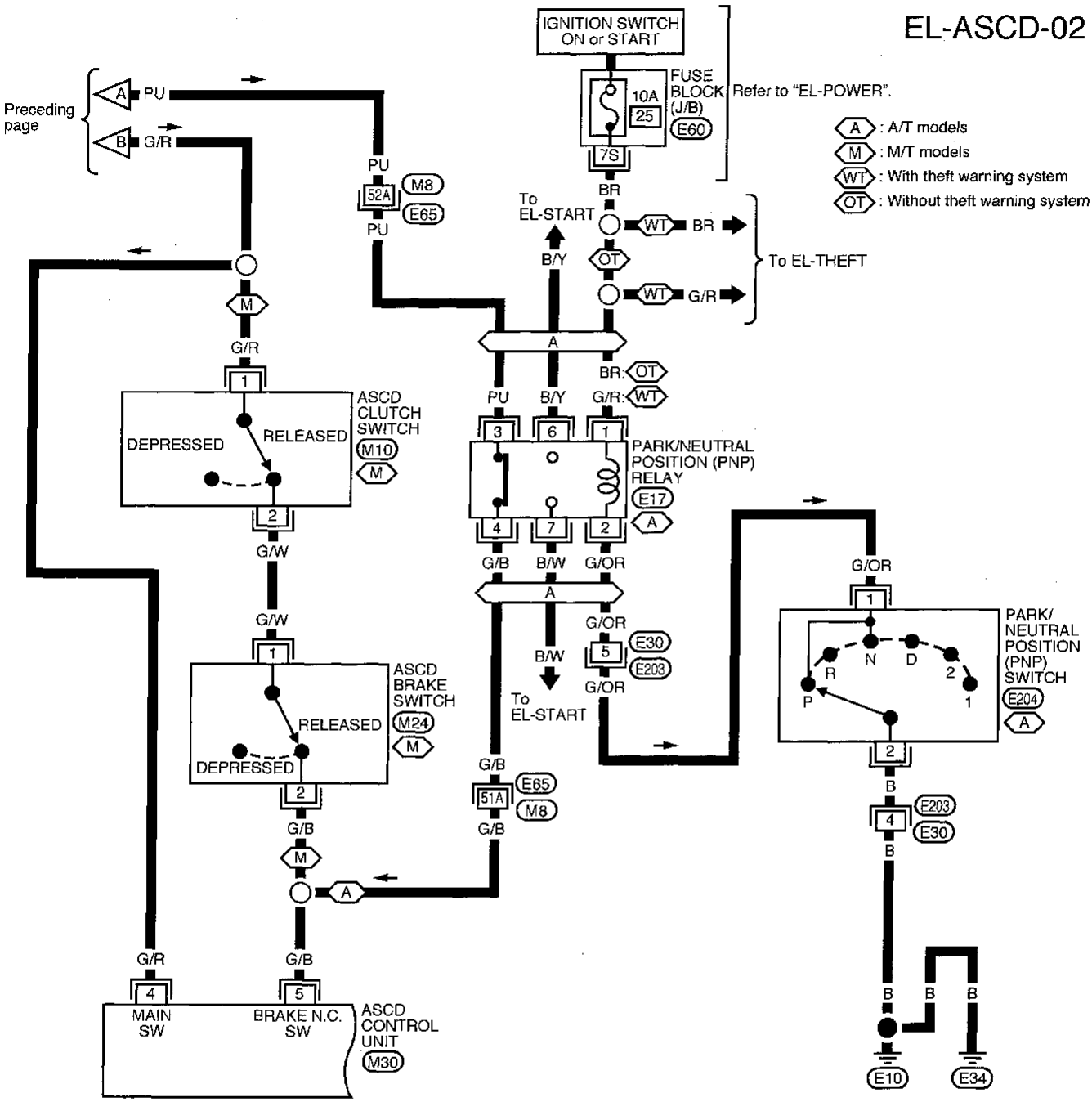




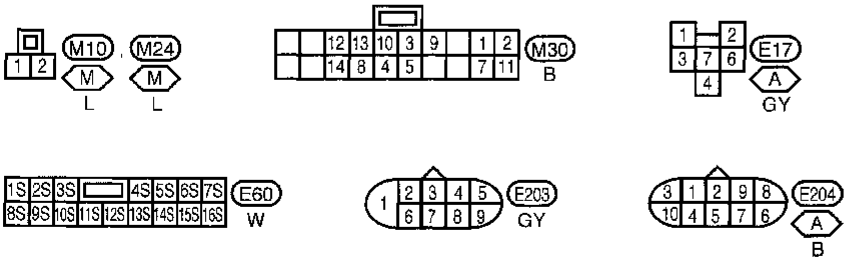
AEL012B

Wiring Diagram — ASCD — (Cont'd)

EL-ASCD-02

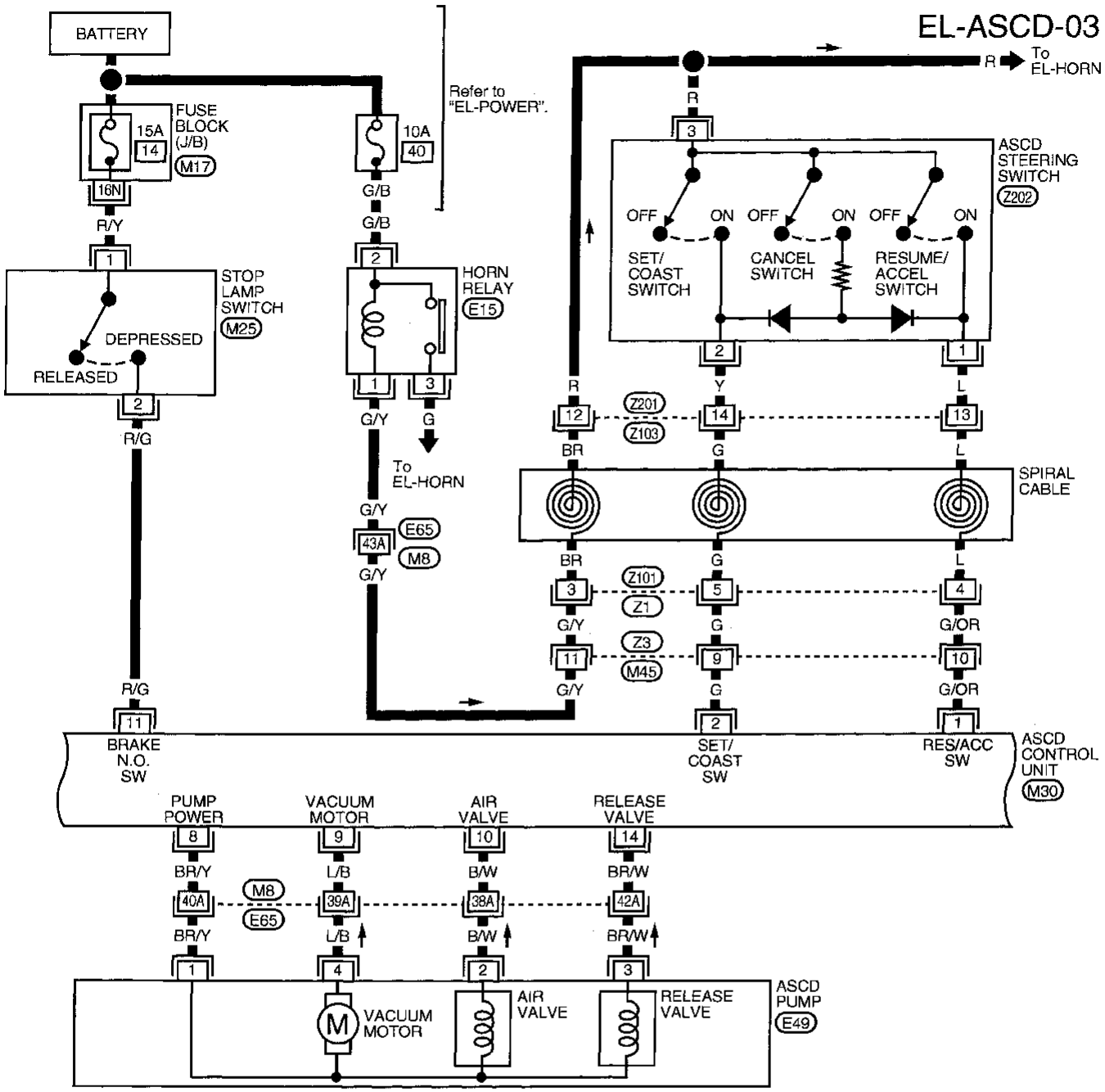


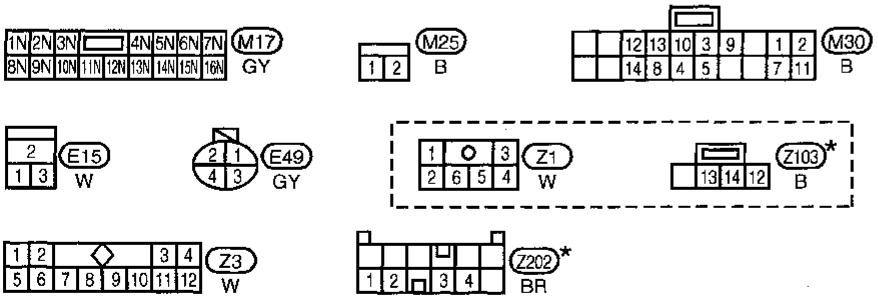
Refer to last page (Foldout page).
M8 , E65



AEL821B

Wiring Diagram — ASCD — (Cont'd)





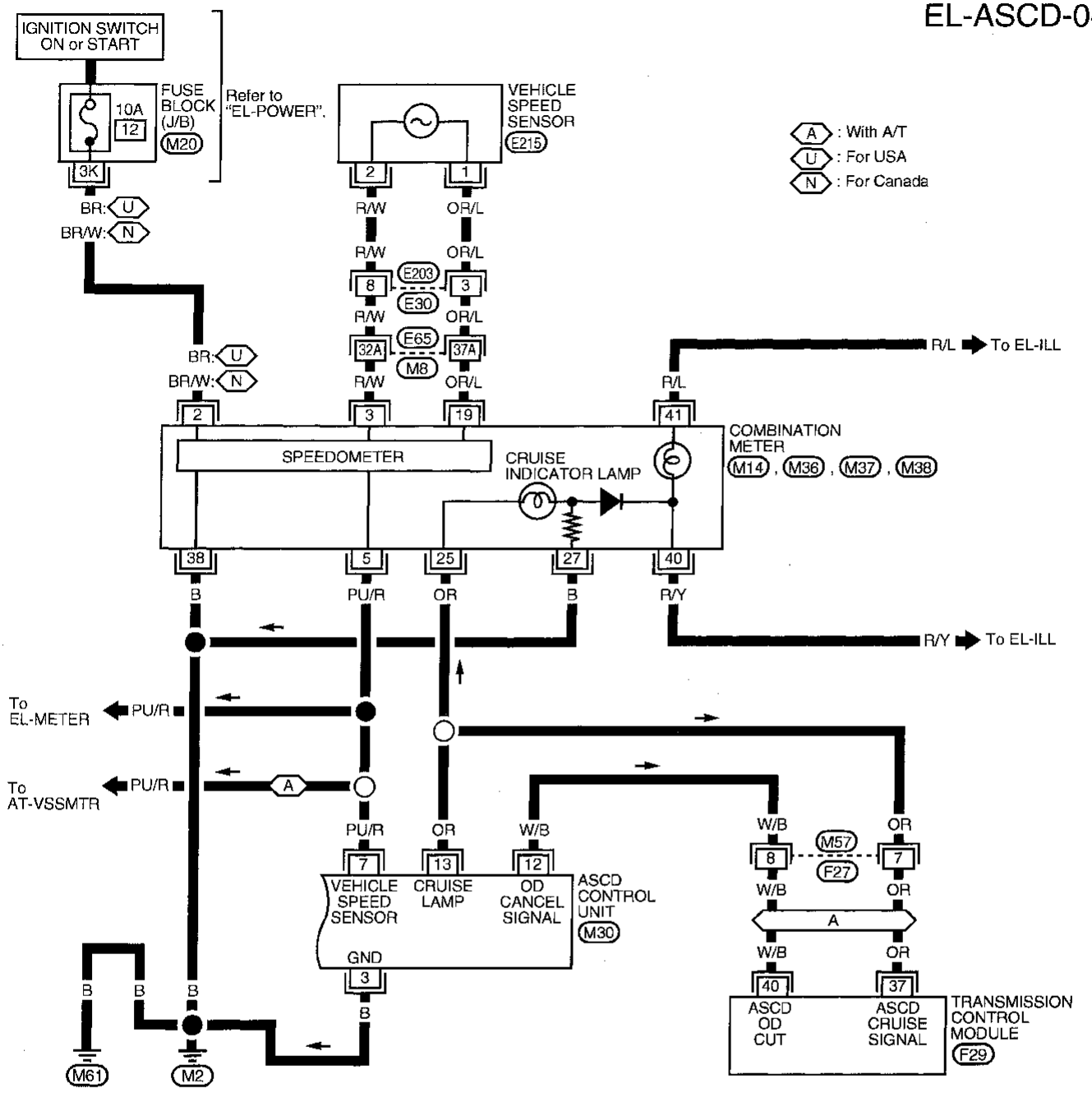
* : This connector is not shown in "HARNESS LAYOUT" of EL section.

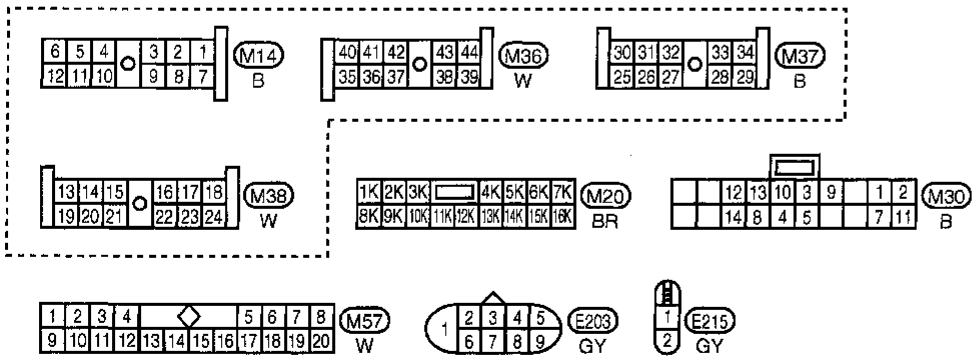
Refer to last page (Foldout page).
M8, E65

AEL014B

Wiring Diagram — ASCD — (Cont'd)

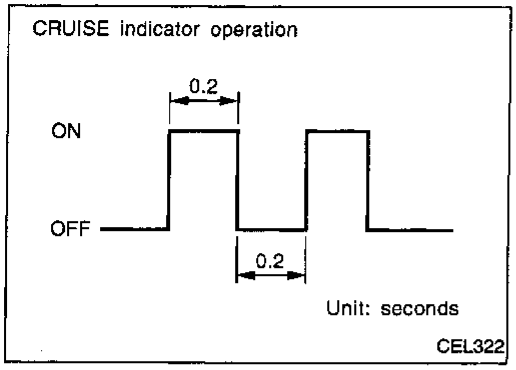
EL-ASCD-04





Refer to last page (Foldout page).
M8, E65
F29

AEL015B

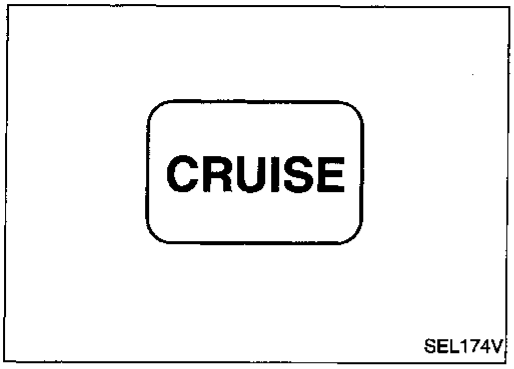


Fail-safe System Description

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 brake switch or stop lamp switch is faulty.	● ASCD is deactivated. ● Vehicle speed memory is not canceled.



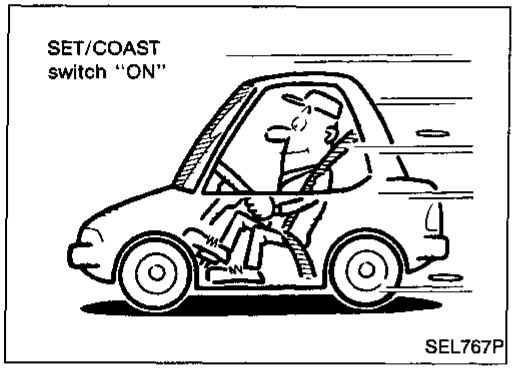
SEL174V

Fail-Safe System Check

1. Turn ignition switch ON.
2. Turn ASCD main switch to ON position and check if the "cruise indicator" blinks.

   If the indicator lamp blinks, check the following.

- ASCD steering switch. Refer to "DIAGNOSTIC PROCEDURE 5" (EL-160).

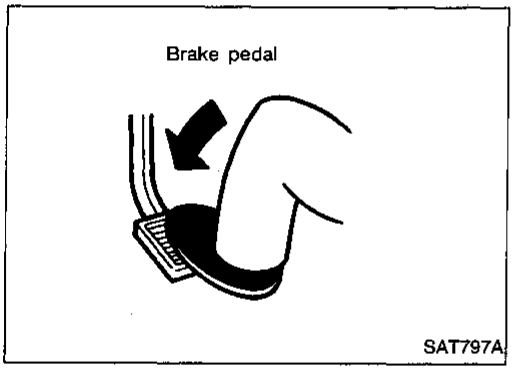


SEL767P

3. Drive the vehicle at more than 48 km/h (30 MPH) and push SET/COAST switch.

   If the indicator lamp blinks, check the following:

- Vehicle speed sensor. Refer to "DIAGNOSTIC PROCEDURE 6" (EL-161).
- ASCD pump circuit. Refer to "DIAGNOSTIC PROCEDURE 7" (EL-162).
- Replace control unit.



SAT797A

4. Depress brake pedal slowly (brake pedal should be depressed more than 5 seconds).

   If the indicator lamp blinks, check the following:

- ASCD brake/stop lamp switch. Refer to "DIAGNOSTIC PROCEDURE 4" (EL-159).

5. END. (System is OK.)

Trouble Diagnoses

SYMPTOM CHART

PROCEDURE	—	Diagnostic procedure							
REFERENCE PAGE	EL-155	EL-157	EL-157	EL-158	EL-159	EL-160	EL-161	EL-162	EL-163
SYMPTOM	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 BRAKE/STOP LAMP SWITCH CHECK)	DIAGNOSTIC PROCEDURE 5 (ASCD STEERING SWITCH CHECK)	DIAGNOSTIC PROCEDURE 6 (VEHICLE SPEED SENSOR CHECK)	DIAGNOSTIC PROCEDURE 7 (ASCD PUMP CIRCUIT CHECK)	DIAGNOSTIC PROCEDURE 8 (ASCD ACTUATOR/PUMP CHECK)
ASCD cannot be set. ("CRUISE" indicator lamp does not blink.)		X	X	X		X	X		
ASCD cannot be set. ("CRUISE" indicator lamp blinks.★1)	X				X	X	X	X	
Vehicle speed does not decrease after SET/COAST switch has been pressed.						X			X
Vehicle speed does not return to the set speed after RESUME/ACCEL switch has been pressed.★2						X			X
Vehicle speed does not increase after RESUME/ACCEL switch has been pressed.						X			X
System is not released after CANCEL switch (steering) has been pressed.						X			X
Large difference between set speed and actual vehicle speed.									X
Deceleration is greatest immediately after ASCD has been set.									X

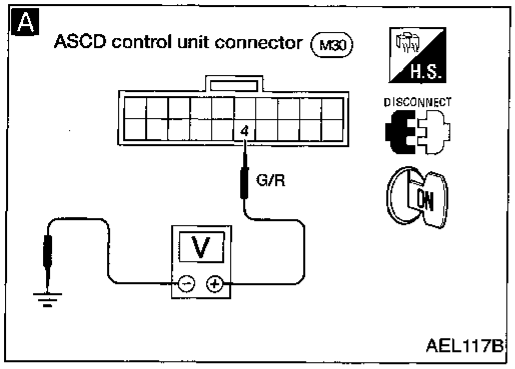
★1: It indicates that system is in fail-safe. After completing diagnostic procedures, perform "Fail-Safe System Check" (EL-155) to verify repairs.

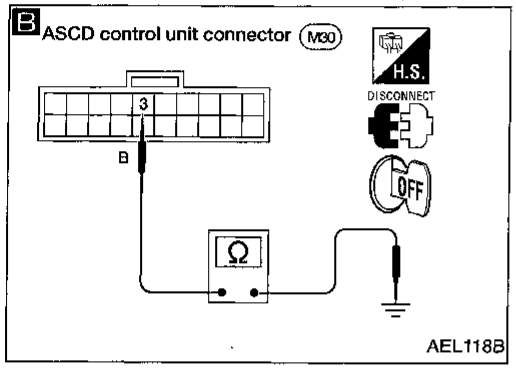
★2: If vehicle speed is greater than 48 km/h (30 MPH) after system has been released, pressing RESUME/ACCEL switch returns vehicle speed to the set speed previously achieved. However, doing so when the ASCD main switch is turned to "OFF", vehicle speed will not return to the set speed since the memory is canceled.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 1

(POWER SUPPLY AND GROUND CIRCUIT CHECK)





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 terminal ④ and ground.
   Battery voltage should exist.

   Refer to wiring diagram in EL-151.

NG → Go to DIAGNOSTIC PROCEDURE 3 (ASCD HOLD RELAY CIRCUIT CHECK). Refer to EL-158.

OK ↓

B

CHECK GROUND CIRCUIT FOR ASCD CONTROL UNIT.

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

Refer to wiring diagram in EL-153.

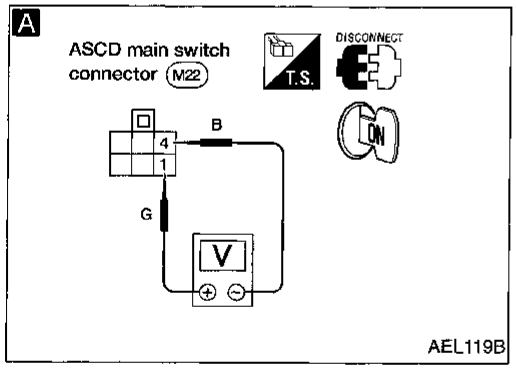
NG → Repair harness.

OK ↓

Go to next procedure.

DIAGNOSTIC PROCEDURE 2

(ASCD MAIN SWITCH CHECK)



A

CHECK POWER SUPPLY FOR ASCD MAIN SWITCH.

1. Disconnect ASCD main switch connector.
2. Measure voltage between main switch terminals ① and ④.
   Battery voltage should exist.

   Refer to wiring diagram in EL-150.

NG → Check the following.
- 10A fuse [No. 8], located in the fuse block (J/B)]
- Harness for open or short between fuse and ASCD main switch
- Ground circuit for ASCD main switch

OK ↓

CHECK ASCD MAIN SWITCH.
Refer to "Electrical Components Inspection", EL-165.

NG → Replace ASCD main switch.

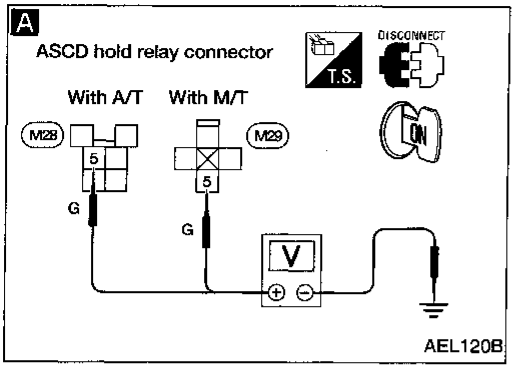
OK ↓

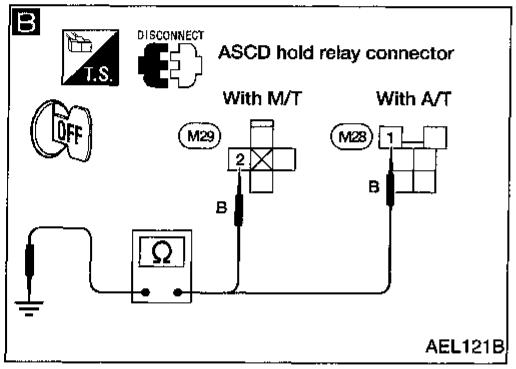
Go to next procedure.

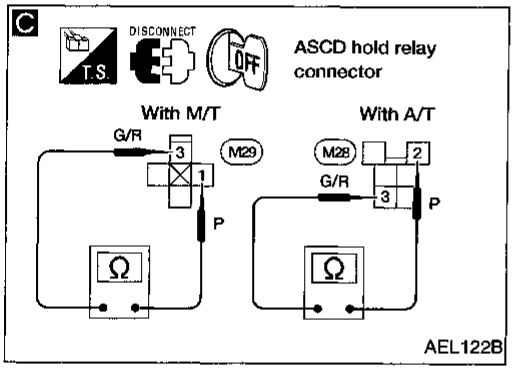
Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 3

(ASCD HOLD RELAY 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 terminal ⑤ and ground?

Refer to wiring diagram in EL-150.

No → Check the following.
- 10A fuse [No. 8, located in the fuse block (J/B)]
- 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 connector terminal ② (with M/T), terminal ① (with A/T) and ground?

No → Repair harness.

Yes ↓

C

CHECK ASCD HOLD RELAY CIRCUIT.

Does continuity exist between ASCD hold relay harness connector terminals ③ and ① (with M/T), ② (with A/T)?

Yes → Check ASCD hold relay.

No ↓

CHECK ASCD MAIN SWITCH.
Refer to "Electrical Components Inspection", EL-165.

NG → Replace ASCD main switch.

OK ↓

Check harness for open or short between ASCD hold relay and ASCD main switch.

NG → Repair harness.

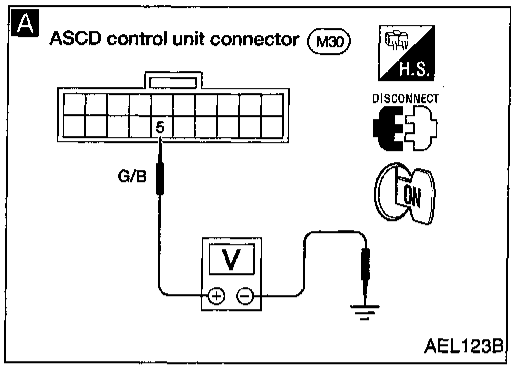
OK ↓

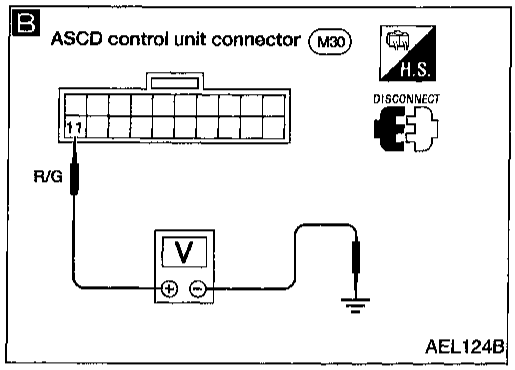
ASCD hold relay circuit is OK.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 4

(ASCD BRAKE/STOP LAMP SWITCH CHECK)





A

CHECK ASCD BRAKE SWITCH CIRCUIT.

1. Disconnect control unit connector.
2. Turn ignition switch ON.
3. Turn ASCD main switch ON.
4. Check voltage between control unit connector terminal (5) and ground.
   When brake pedal or clutch pedal (M/T) is depressed or A/T selector lever (A/T) is in N or P range:
   Approx. 0V
   When brake pedal and clutch pedal (M/T) are released or A/T selector lever (A/T) is not in N or P range:
   Battery voltage should exist.

   Refer to wiring diagram in EL-151.

NG →

Check the following.
- ASCD brake switch
  Refer to "Electrical Components Inspection", EL-165.
- ASCD clutch switch (M/T model)
  Refer to "Electrical Components Inspection", EL-165.
- Park/neutral position (PNP) switch (A/T model)
  Refer to "Electrical Components Inspection", EL-165.
- ASCD hold relay
- Harness for open or short

OK ↓

B

CHECK STOP LAMP SWITCH CIRCUIT.

1. Disconnect control unit connector.
2. Check voltage between control unit terminal (11) and ground.

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

Refer to wiring diagram in EL-152.

NG →

Check the following.
- 15A fuse [No. 14, located in the fuse block (J/B)]
- Harness for open or short between ASCD control unit and stop lamp switch
- Stop lamp switch
  Refer to "Electrical Components Inspection", EL-165.

OK ↓

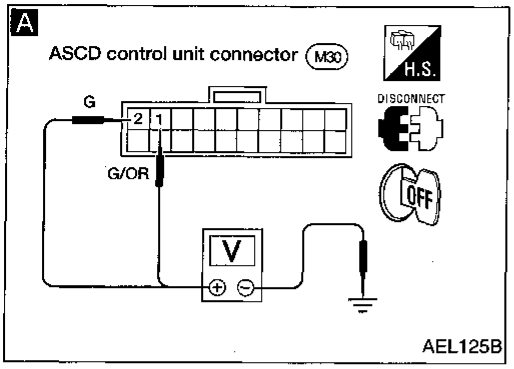
ASCD brake/stop lamp switch circuit is OK.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 5

(ASCD STEERING SWITCH CHECK)

A



CHECK ASCD STEERING SWITCH CIRCUIT FOR ASCD CONTROL UNIT.

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

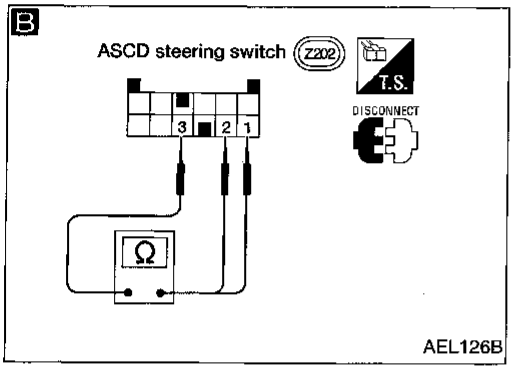
	Terminal No.		Switch condition	
	⊕	⊖	Pressed	Released
SET/ COAST SW	②	Ground	12V	0V
RESUME/ ACC SW	①	Ground	12V	0V
CANCEL SW	②	Ground	12V	0V
	①	Ground	12V	0V

Refer to wiring diagram in EL-152.

OK → ASCD steering switch is OK.

NG ↓

B



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

NG → Check the following.
- 10A fuse (No. 40, located in the fuse and fusible link box)
- Horn relay
- Harness for open or short between horn and fuse

OK ↓

B

CHECK ASCD STEERING SWITCH.

1. Disconnect ASCD steering switch.
2. Check continuity between terminals by pushing each switch.

Switch	Terminal ③	②	①
RESUME/ ACCEL	○		○
SET/ COAST	○	○	
CANCEL	○	▶|○	
	○	▶	○

NG → Replace ASCD steering switch.

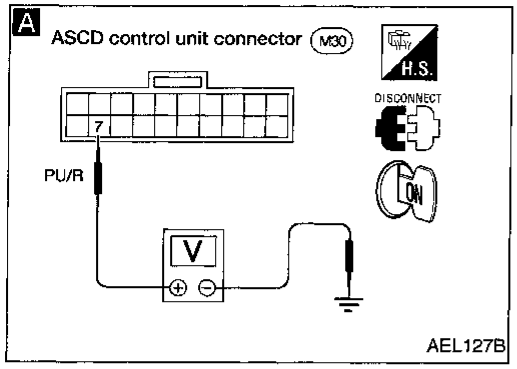
OK ↓

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

CHECK VEHICLE SPEED SENSOR CIRCUIT.

1. Apply wheel chocks and jack up drive wheel.
2. Disconnect control unit connector.
3. Connect voltmeter between control unit terminal ⑦ and ground.
4. Slowly turn drive wheel.
5. Check deflection of voltmeter pointer.

Refer to wiring diagram in EL-153.

OK → Vehicle speed sensor is OK.

NG ↓

Does speedometer operate normally?

No → Check speedometer and vehicle speed sensor circuit. Refer to EL-88.

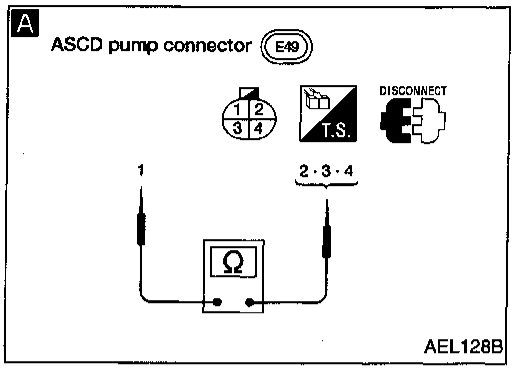
Yes ↓

Check harness for open or short between ASCD control unit terminal ⑦ and combination meter terminal ⑤.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 7

(ASCD PUMP CIRCUIT CHECK)



A

CHECK ASCD PUMP.

1. Disconnect ASCD pump connector.
2. Measure resistance between ASCD pump terminals ①and ②, ③, ④.

Terminals		Resistance [Ω]
①	④	Approx. 11.8
	②	Approx. 67
	③	Approx. 67.3

Refer to wiring diagram in EL-152.

NG → Replace ASCD pump.

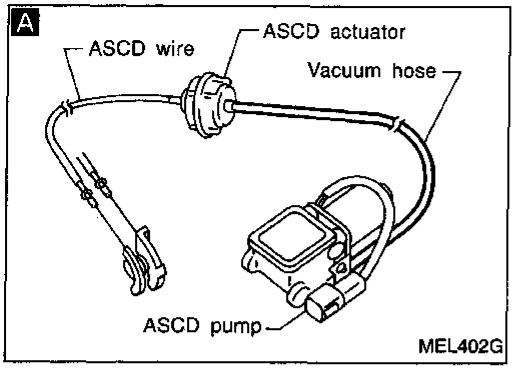
OK ↓

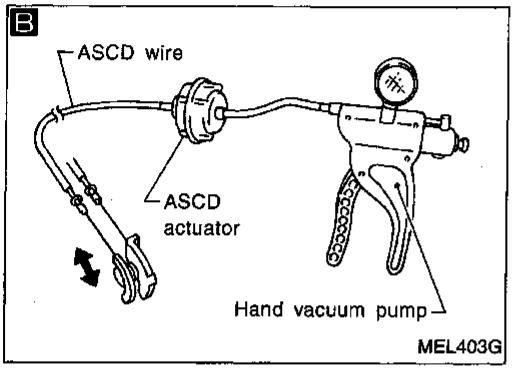
Check harness for open or short between ASCD pump and ASCD control unit.

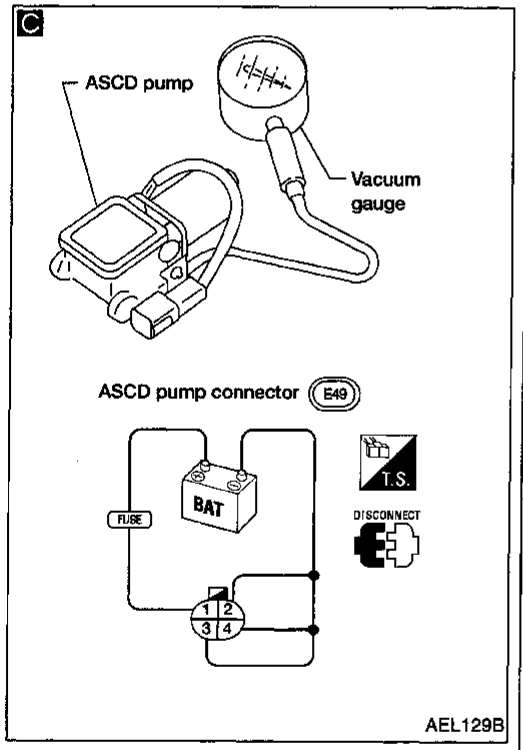
Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 8

(ASCD ACTUATOR/PUMP CHECK)







A

CHECK VACUUM HOSE.
Check vacuum hose (between ASCD actuator and ASCD pump) for breakage, cracks or fracture.

NG → Repair or replace hose.

OK ↓

CHECK ASCD WIRE.
Check wire for improper installation, rust formation or breaks.

NG → Repair or replace wire. Refer to "ASCD Wire Adjustment", EL-164.

OK ↓

B

CHECK ASCD ACTUATOR.
1. Disconnect vacuum hose from ASCD actuator.
2. Apply –40 kPa (–0.400 bar, –0.41 kg/cm^2, –5.8 psi) vacuum to ASCD actuator with hand vacuum pump.

ASCD wire should move to pull throttle drum.

3. Wait 10 seconds and check for decrease in vacuum pressure.

Vacuum pressure decrease:
Less than 2.7 kPa (0.0270 bar, 0.028 kg/cm^2, 0.39 psi)

NG → Replace ASCD actuator.

OK ↓

C

CHECK ASCD PUMP.
1. Disconnect vacuum hose from ASCD pump and ASCD pump connector.
2. If necessary remove ASCD pump.
3. Connect vacuum gauge to ASCD pump.
4. Apply 12V direct current to ASCD pump and check operation.

	12V direct current supply terminals		Operation
	⊕	⊖	
Air valve	①	②	Close
Release valve		③	Close
Vacuum motor		④	Operate

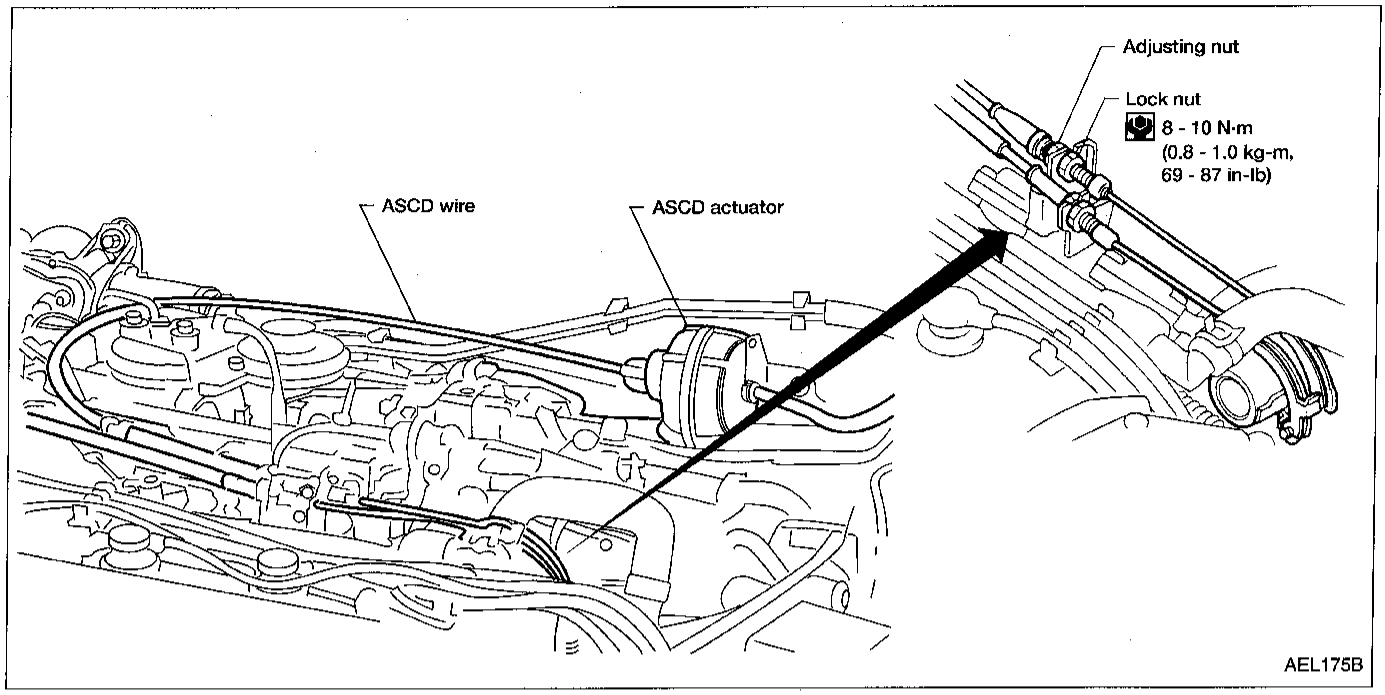
A vacuum pressure of at least –35 kPa (–0.350 bar, –0.36 kg/cm^2, –5.1 psi) should be generated.

NG → Replace ASCD pump.

OK ↓

INSPECTION END

ASCD Wire Adjustment

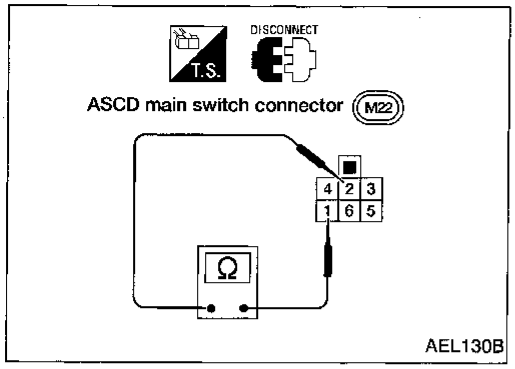


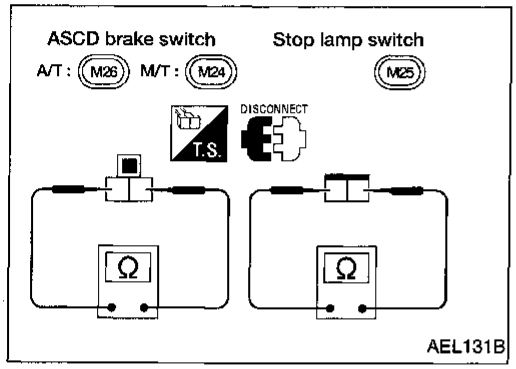
CAUTION:

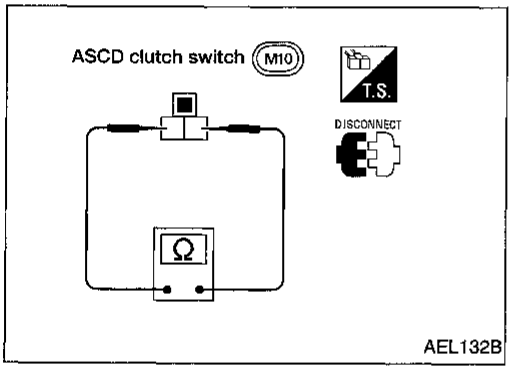
- **Be careful not to twist ASCD wire when removing it.**
- **Do not tense ASCD wire excessively during adjustment.**

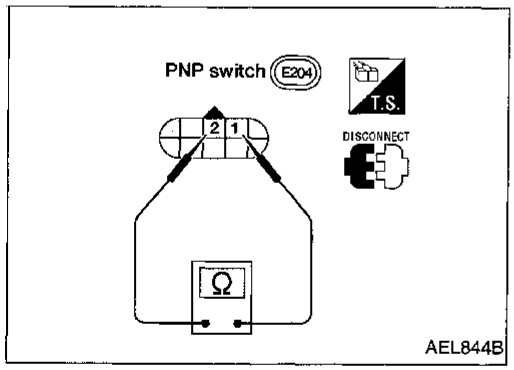
Adjust the tension of ASCD wire in the following manner.

(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.









Electrical Components Inspection

ASCD MAIN SWITCH

Check continuity between terminals by pushing switch to each position.

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

ASCD BRAKE SWITCH AND STOP LAMP SWITCH

Condition	Continuity	
	ASCD brake 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.

ASCD CLUTCH SWITCH (For M/T models)

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

PARK/NEUTRAL POSITION (PNP) SWITCH (For A/T models)

A/T selector lever position	Continuity
	Between terminals ① and ②
"P"	Yes
"N"	Yes
Except "P" and "N"	No

System Description

Power is supplied at all times:
- from 40A fusible link (Letter [d], located in the fuse and fusible link box)
- to circuit breaker-1 terminal ①
- through circuit breaker-1 terminal ②
- to power window relay terminal ③.

With ignition switch in ON or START position, power is supplied:
- through 10A fuse [No. [8] located in the fuse block (J/B)]
- to power window relay terminal ①.

Ground is supplied to power window relay terminal ②:
- through body grounds (M2) and (M61).

The power window relay is energized and power is supplied:
- through power window relay terminal ⑤
- to main power window and door lock/unlock switch terminal ②,
- to power window switches terminal ③.

MANUAL OPERATION

Front door LH

Ground is supplied:
- to main power window and door lock/unlock switch terminal ⑩
- through body grounds (M2) and (M61).

WINDOW UP
When the front LH switch in the main power window and door lock/unlock switch is pressed in the up position, power is supplied:
- to front power window motor LH terminal ②
- through power window main switch terminal ⑫.

Ground is supplied:
- to front power window motor LH terminal ①
- through power window main switch terminal ⑯.

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

WINDOW DOWN
When the LH switch in the main power window and door lock/unlock switch is pressed in the down position, power is supplied:
- to front power window motor LH terminal ①
- through power window main switch terminal ⑯.

Ground is supplied:
- to front power window motor LH terminal ②
- through power window main switch terminal ⑫.

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

Front door RH

Ground is supplied:
- to main power window and door lock/unlock switch terminal ⑩
- through body grounds (M2) and (M61).

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 main power window and door lock/unlock switch (⑭, ⑬)
- to front power window switch RH (②, ④).

The subsequent operation is the same as the power window switch operation.

System Description (Cont'd)

POWER WINDOW SWITCH OPERATION

Power is supplied:

- to front power window switch (②, ④)
- through front power window switch (⑤, ⑥)
- to front power window motor RH (①, ②).

Ground is supplied:

- to front power window motor RH (①, ②)
- to front power window switch (⑤, ⑥)
- through front power window switch (②, ④)
- through power window main switch (⑬, ⑭).

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

Rear door

Rear door windows will rise and lower in the same manner as front door RH window.

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.

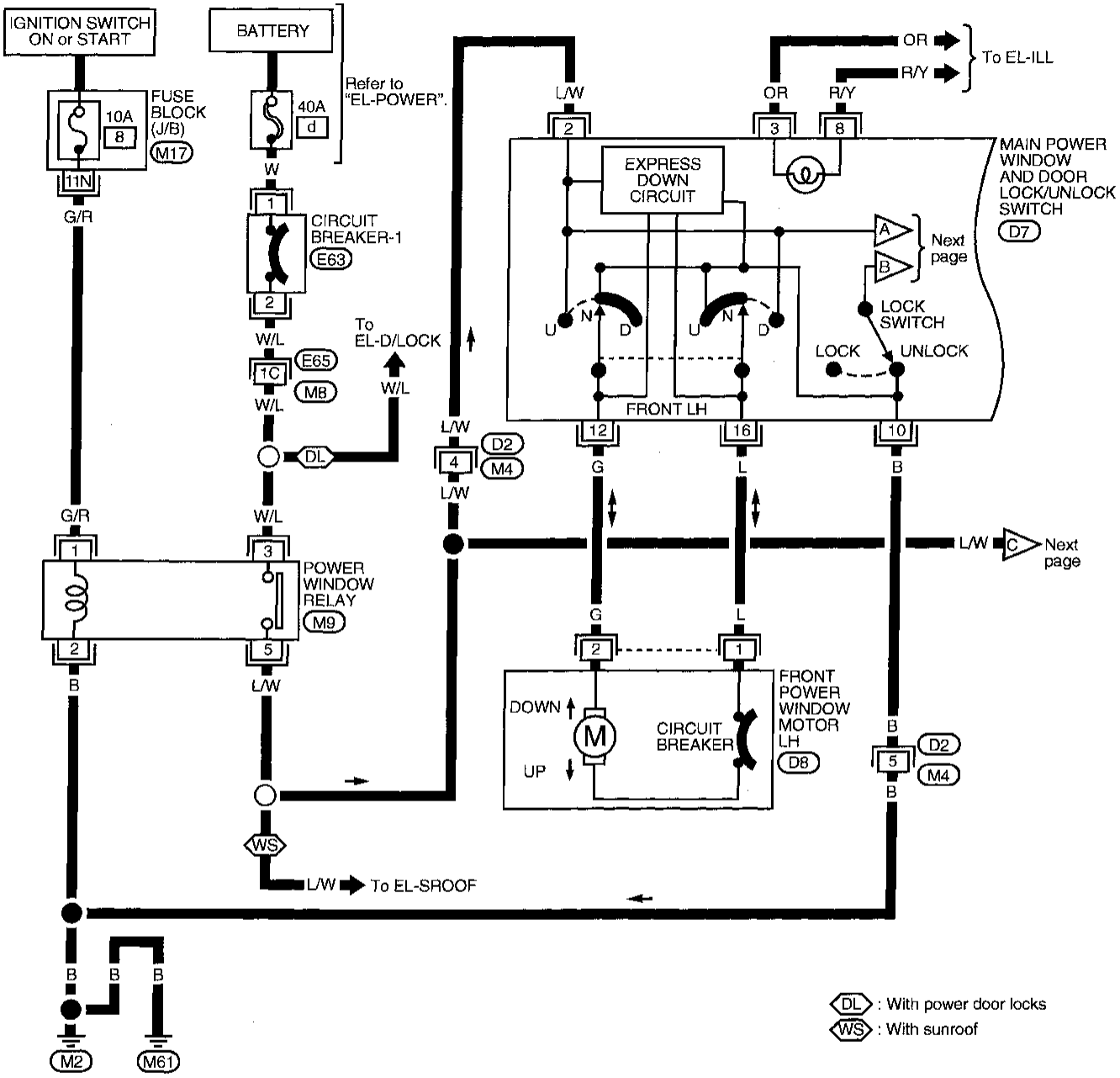
The AUTO feature only operates on the driver's window downward movement.

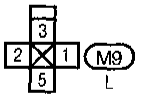
POWER WINDOW LOCK

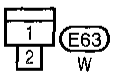
The power window lock is designed to lock operation of all windows except for driver's door window. When the lock switch is pressed to lock position, ground of the power window switches in the main power window and door lock/unlock switch is disconnected. This prevents the power window motors from operating.

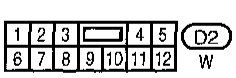
Wiring Diagram — WINDOW —

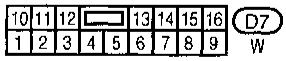
EL-WINDOW-01

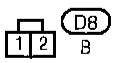










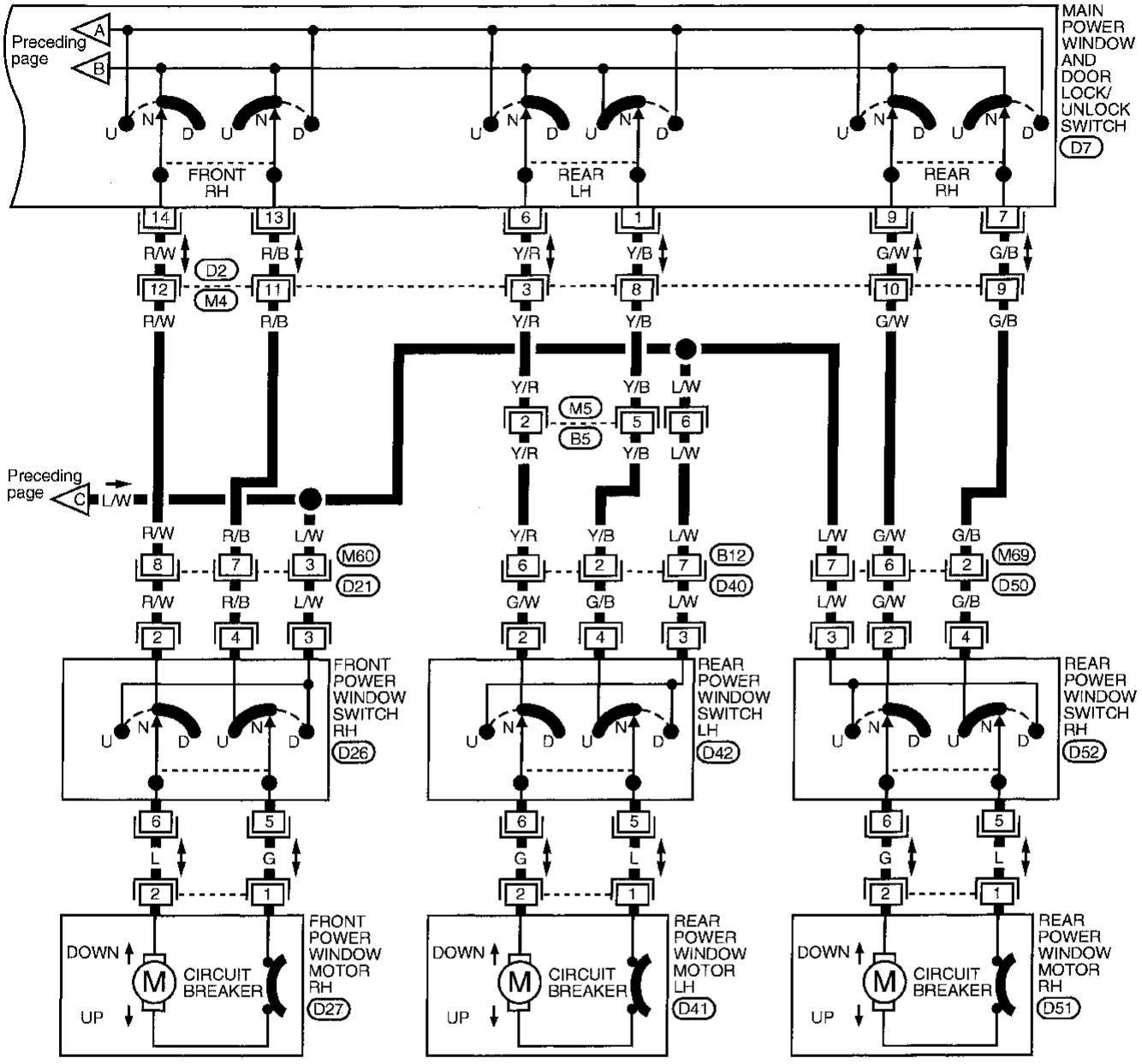


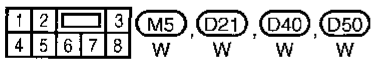
Refer to last page (Foldout page).
M8 , E65

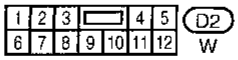
AEL009B

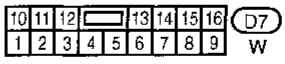
Wiring Diagram — WINDOW — (Cont'd)

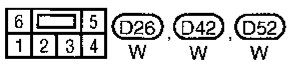
EL-WINDOW-02

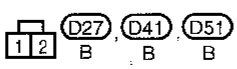












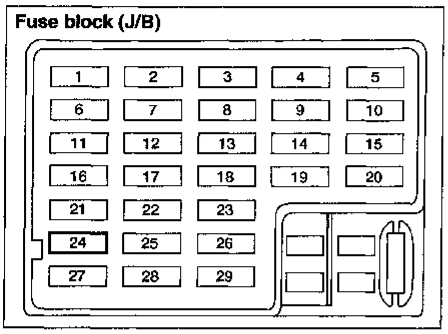
AEL710B

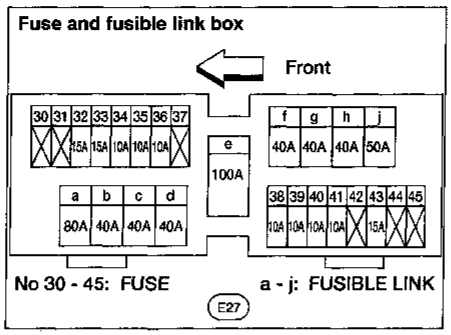
Trouble Diagnoses

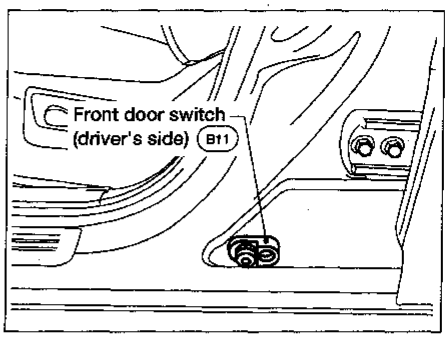
Symptom	Possible cause	Repair order
None of the power windows can be operated using any switch.	1. 10A fuse, 40A fusible link and (E63) circuit breaker	1. Check 10A fuse (No. 8, located in fuse block [J/B]), 40A fusible link (letter d, located in fuse and fusible link box) and (E63) circuit breaker. Turn ignition switch ON and verify battery positive voltage is present at terminal (2) of main power window switch and terminal (3) of passenger switches.
	2. Grounds (M2) and (M61)	2. Check grounds (M2) and (M61).
	3. Power window relay	3. Check power window relay.
	4. Open/short in main power window switch circuit	4. Check L/W wire between power window relay and main power window switch for open/short circuit.
Driver side power window cannot be operated but other windows can be operated.	1. Driver side power window motor circuit	1. Check harness between main power window switch and front power window motor LH for open or short circuit.
	2. Driver side power window motor	2. Check front power window motor LH.
Passenger power window cannot be operated.	1. Passenger power window switch	1. Check passenger power window switch.
	2. Passenger power window motor	2. Check passenger power window motor.
	3. Main power window switch	3. Check main power window switch.
	4. Power window circuit	4-1. Check harnesses between main power window switch and passenger power window switch for open/short circuit.
		4-2. Check harnesses between passenger power window switch and passenger power window motor for open/short circuit.
Passenger power window cannot be operated using main power window switch but can be operated by passenger power window switch.	1. Main power window switch	1. Check main power window switch.
Driver side power window auto function cannot be operated using main power window switch.	1. Main power window switch	1. Check main power window switch.

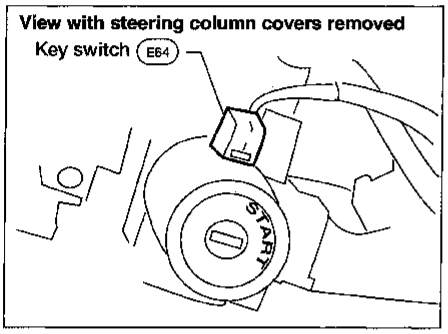
Passenger refers to front RH, or rear LH or RH.

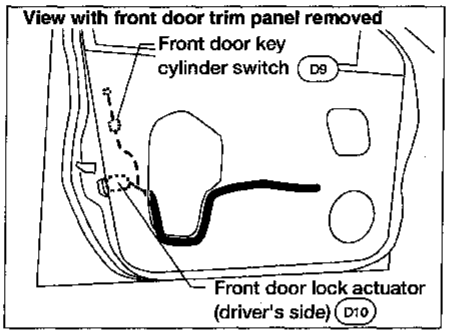
Component Parts and Harness Connector Location

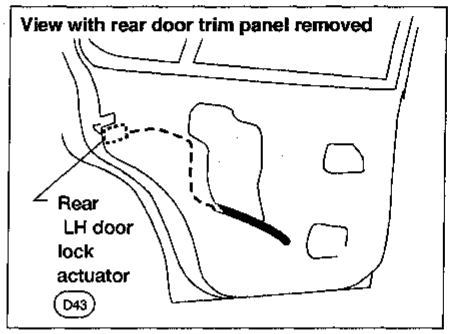


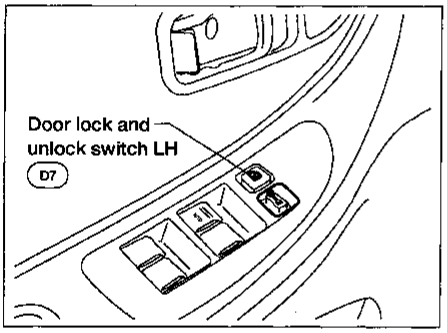


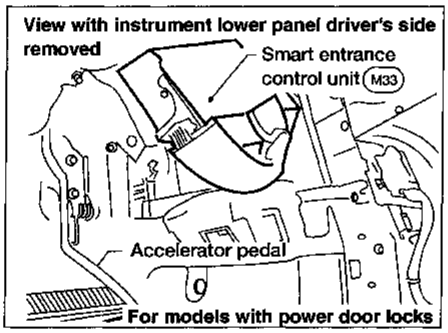












AEL138B

System Description

Power is supplied at all times:
- through 40A fusible link (Letter [d], located in the fuse and fusible link box)
- to circuit breaker-1 terminal ①
- through circuit breaker-1 terminal ②
- to smart entrance control unit terminal ①.

Power is supplied at all times:
- through 10A fuse [No. [24], located in the fuse block (J/B)]
- to key switch terminal ②.

Ground is supplied:
- to smart entrance control unit terminal ⑩
- through body grounds (M2) and (M61).

INPUT

Power is supplied through key switch terminal ① to smart entrance control unit terminal ㉔ when the ignition key is inserted in the key switch.

Ground is supplied:
- to smart entrance control unit terminal ⑮ or ㉟
- through front LH or RH door switch terminal ① when front LH or RH door is open.

Ground is supplied:
- to smart entrance control unit terminal ㉛
- from front LH door key cylinder switch terminal ③ or RH door key cylinder switch terminal ①
- through front LH or RH door key cylinder switch terminal ② when door key cylinder is BETWEEN FULL STROKE AND N (to unlock position)
- through body grounds (M2) and (M61).

Ground is supplied:
- to smart entrance control unit terminal ㉚
- from front LH door key cylinder switch terminal ① or RH door key cylinder switch terminal ③.
- through front LH or RH door key cylinder switch terminal ② when door key cylinder is BETWEEN FULL STROKE AND N (to lock position)
- through body grounds (M2) and (M61).

Ground is supplied:
- to smart entrance control unit terminal ⑫ or ⑬
- from door unlock sensor (in the front LH or RH door lock actuator) terminal ④ when door lock is in UNLOCKED position
- through door unlock sensor (in the front LH or RH door lock actuator) terminal ②
- through body grounds (M2) and (M61).

Ground is supplied:
- to smart entrance control unit terminal ⑲ or ⑱
- from main power window and door lock/unlock switch terminal ⑪ or ⑮
- through main power window and door lock/unlock switch terminal ⑩ (when switch is pressed in lock or unlock position)
- through body grounds (M2) and (M61).

OUTPUT

Unlock

Power is supplied:
- from smart entrance control unit terminal ③ (with multi-remote control system) or terminal ② (without multi-remote control system)
- to front LH door lock actuator terminal ①.

Power is supplied:
- from smart entrance control unit terminal ②
- to front RH door lock actuator or rear door lock actuator terminals ①.

Ground is supplied:
- from smart entrance control unit terminal ④
- to all door actuator terminals ③.

With power and ground supplied, the door actuators move to the unlocked position.

System Description (Cont'd)

Lock

Power is supplied:
- from smart entrance control unit terminal ④
- to all door actuator terminals ③.

Ground is supplied:
- from smart entrance control unit terminal ③ (with multi-remote control system) or terminal ② (without multi-remote control system)
- to front LH door lock actuator terminal ①.

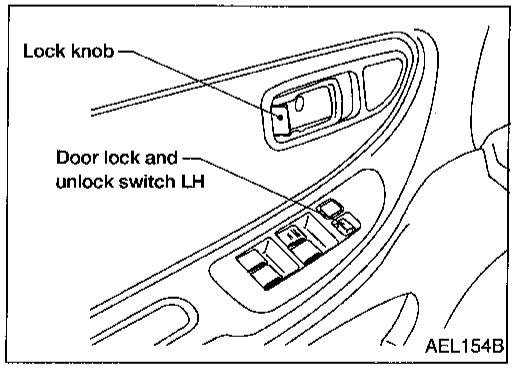
Ground is supplied:
- from smart entrance control unit terminal ②
- to RH door lock actuator or rear door lock actuator terminals ①.

With power and ground supplied, the door actuators move to the locked position.

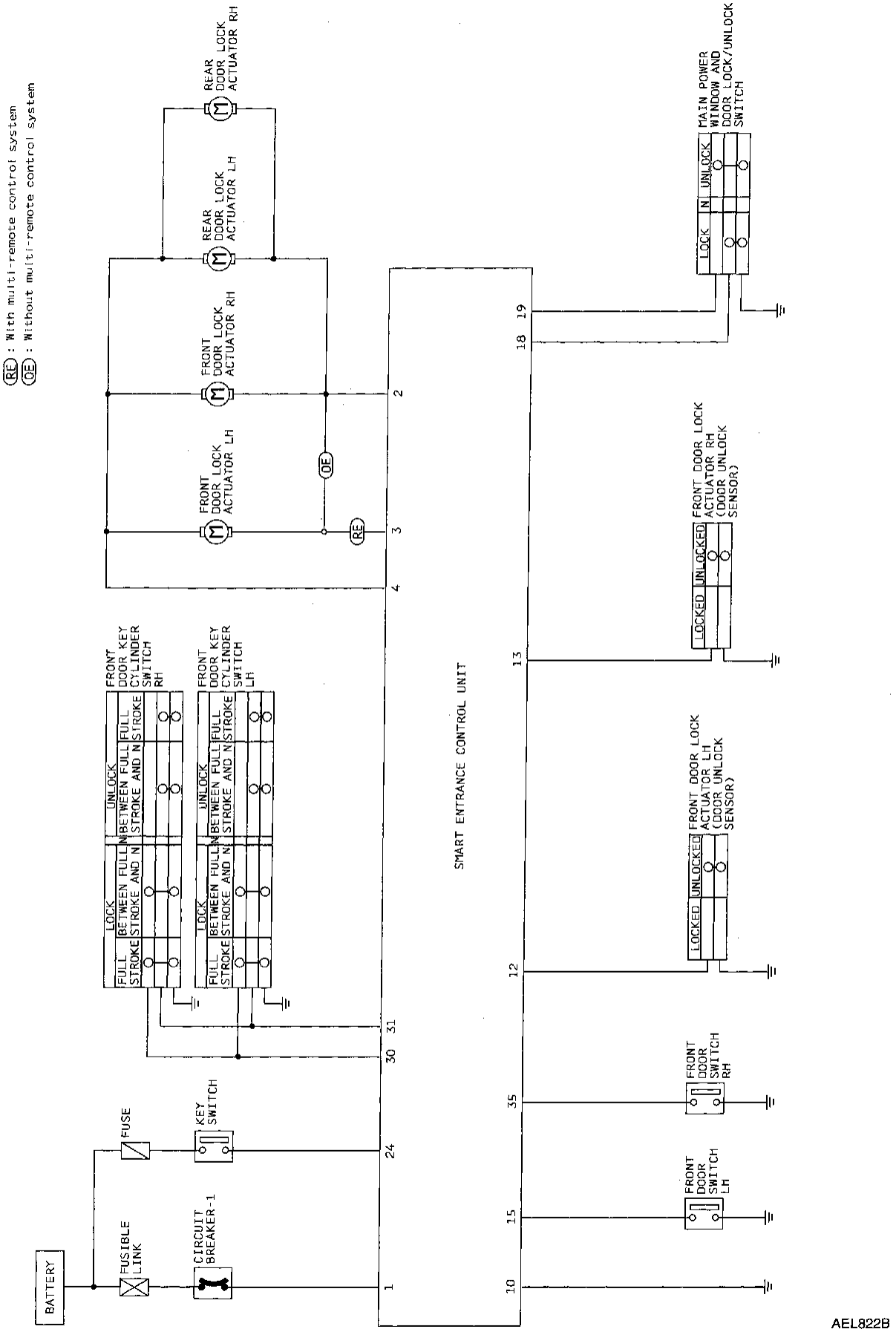
OPERATION

- The lock and unlock switch on driver's door trim can lock and unlock all doors.
- With the lock knob on front LH or RH door set to LOCKED, all doors are locked (signal from door unlock sensor).
- With the door key inserted in the key cylinder on front LH or RH door, turning it to LOCK will lock all doors; turning it to UNLOCK once unlocks the corresponding door; turning it to UNLOCK again within 5 seconds after the first unlock operation unlocks all of the other doors (signal from front door key cylinder switch).

However, if the ignition key is in the ignition key cylinder and one or more of the front doors are open, setting the lock and unlock switch, lock knob, or the door key to LOCK locks the doors once but then immediately unlocks them (combination signals from key switch, front LH or RH door switch and front LH or RH door unlock sensor). — (KEY REMINDER DOOR SYSTEM)

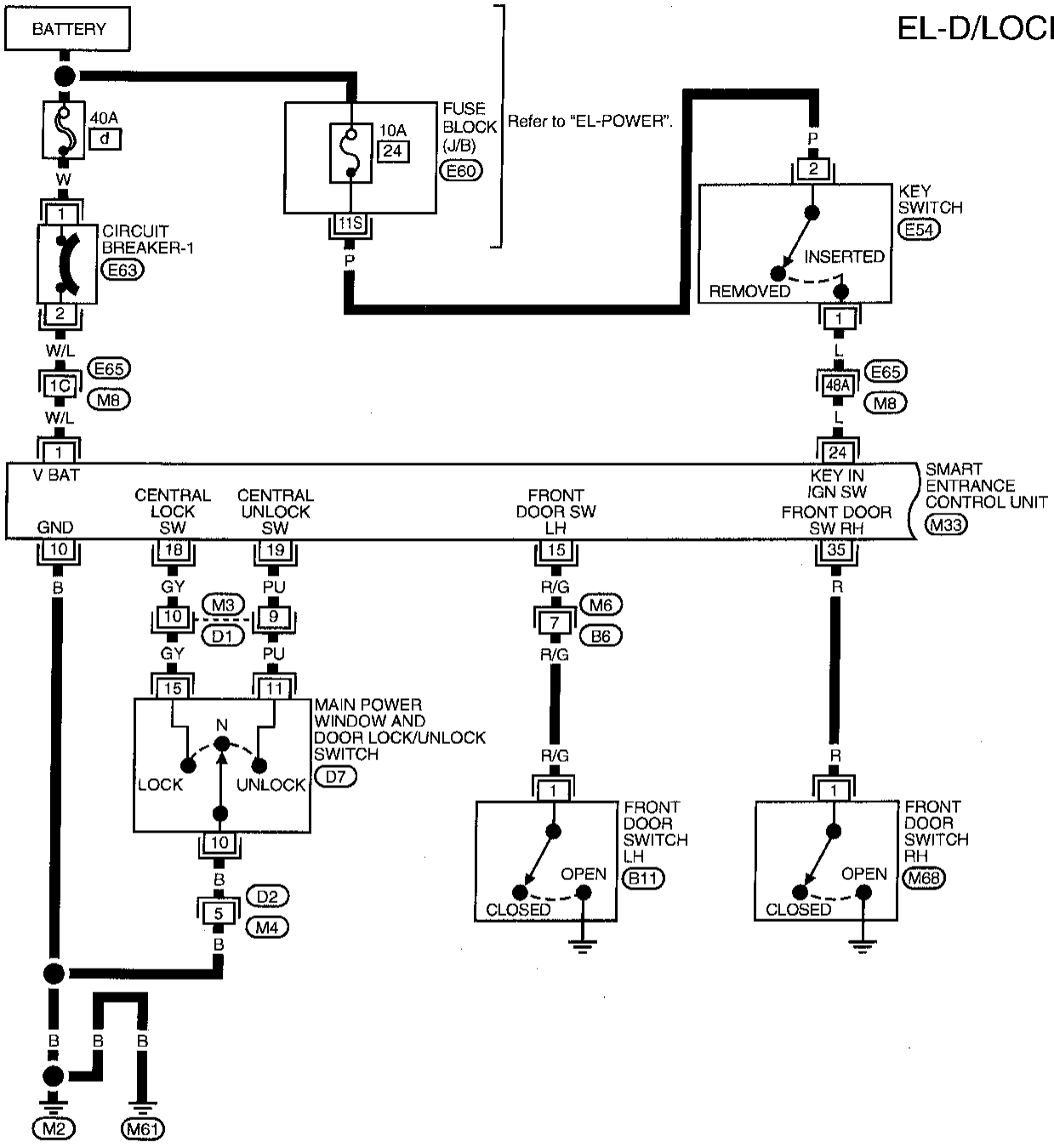


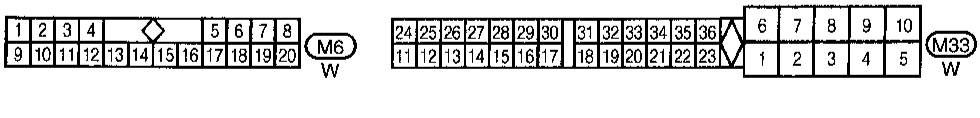
Schematic

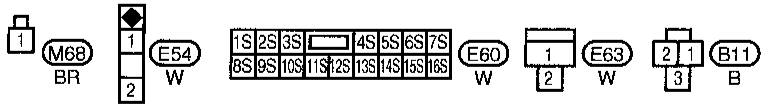


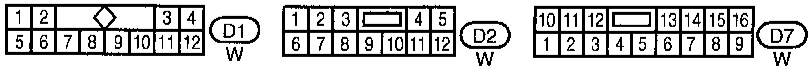
AEL822B

Wiring Diagram — D/LOCK —







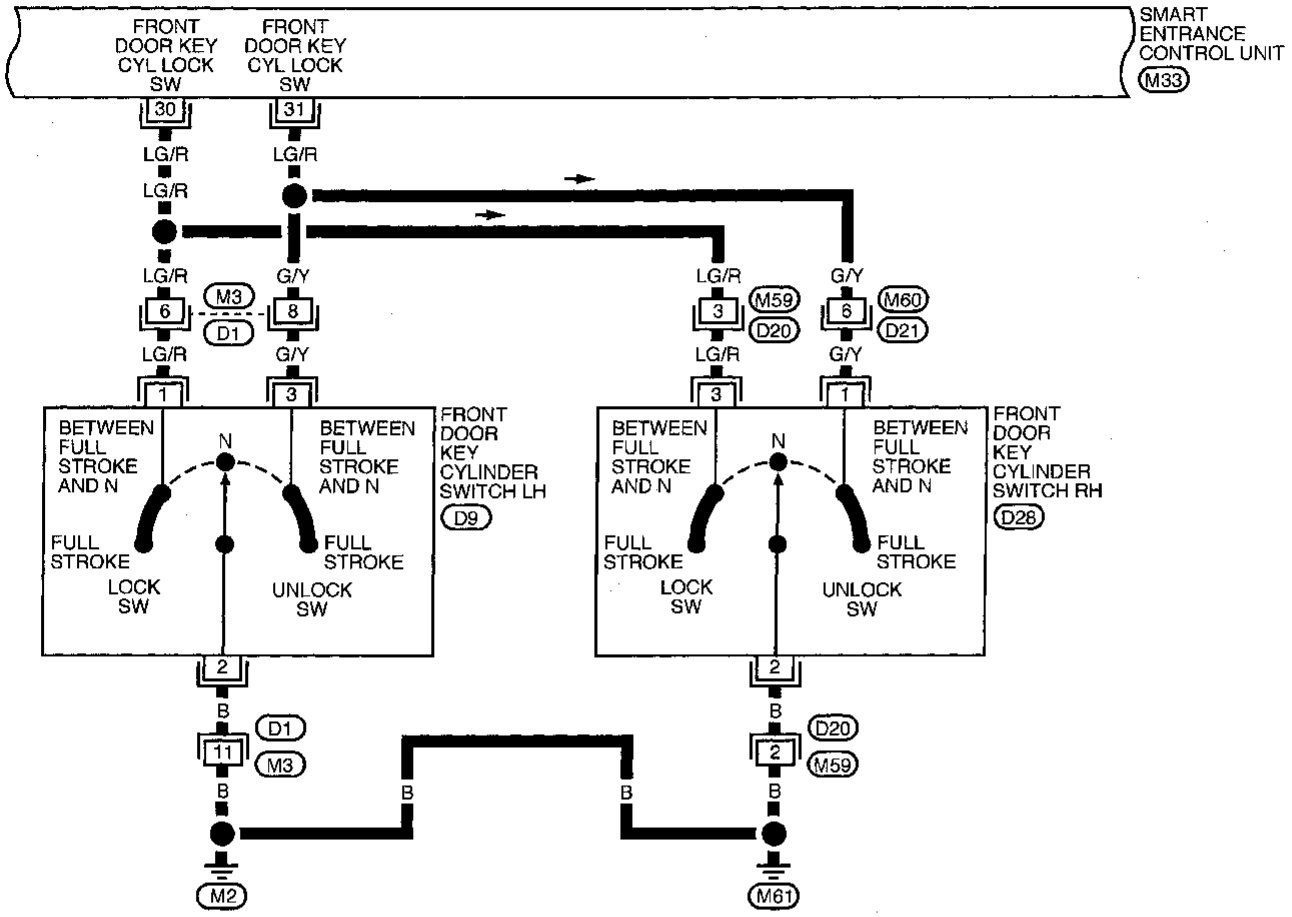


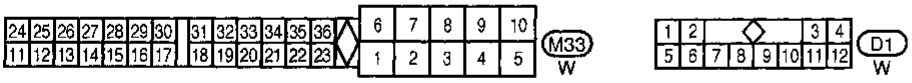
Refer to last page (Foldout page).
M8 , E65

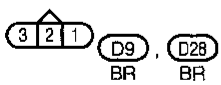
AEL984A

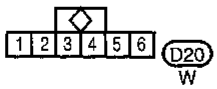
Wiring Diagram — D/LOCK — (Cont'd)

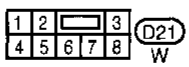
EL-D/LOCK-02









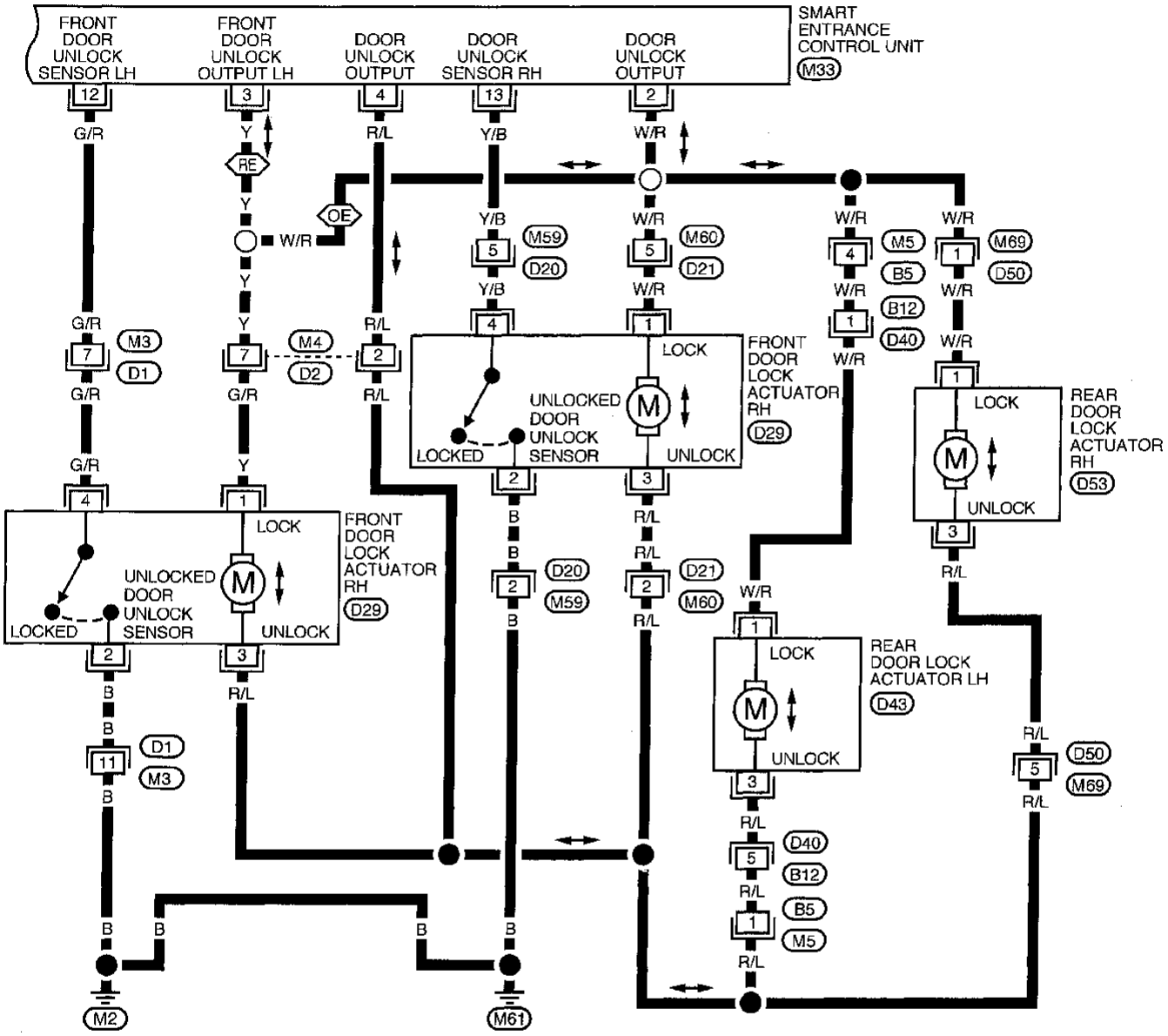


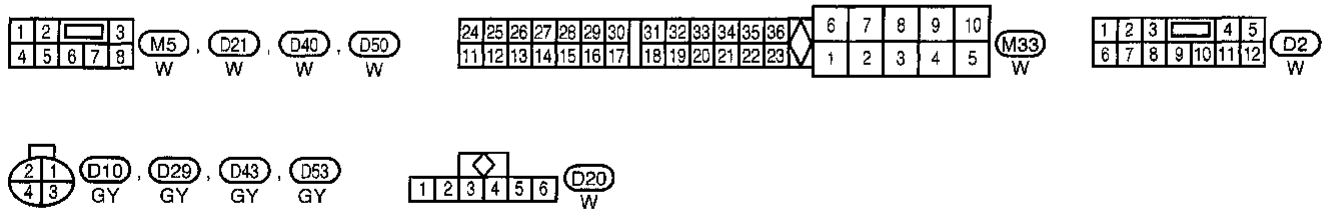
AEL823B

Wiring Diagram — D/LOCK — (Cont'd)

EL-D/LOCK-03

RE : With multi-remote control system
OE : Without multi-remote control system





AEL824B

Trouble Diagnoses

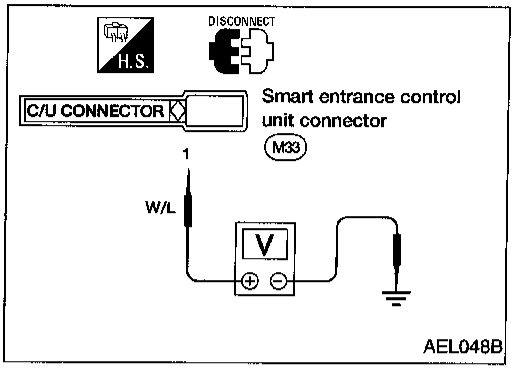
SYMPTOM CHART

PROCEDURE	Main power supply and ground circuit check		Diagnostic procedure					
REFERENCE PAGE	EL-179	EL-179	EL-180	EL-181	EL-182	EL-183	EL-184	EL-185
SYMPTOM	Main power supply for smart entrance control unit	Ground circuit for smart entrance control unit	Procedure 1 (Front door switch check)	Procedure 2 [Key switch (insert) check]	Procedure 3 (Door lock/unlock switch check)	Procedure 4 (Front door key cylinder switch check)	Procedure 5 (Front door unlock sensor check)	Procedure 6 (Door lock actuator check)
Key reminder door system does not operate properly.	X	X	X	X			X	X
One or more doors are not locked and/or unlocked.	X	X					X	X
Lock & unlock switch does not operate.	X	X			X			
None of the doors lock/unlock when operating front door key cylinder switch.	X	X				X		
None of the doors lock when operating front door knob lock switch.	X	X					X	

Perform "Main Power Supply and Ground Circuit Check" before starting with power door lock diagnostic procedure.

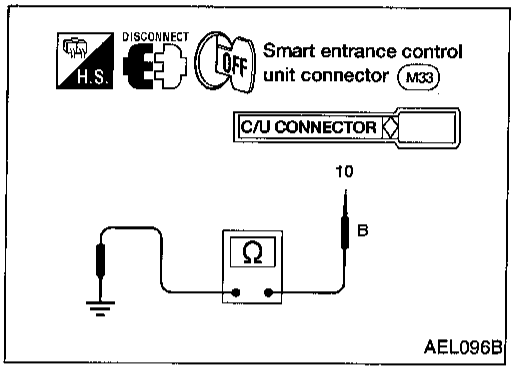
Trouble Diagnoses (Cont'd)

MAIN POWER SUPPLY AND GROUND CIRCUIT CHECK



Main power supply circuit check

Terminal		Ignition switch		
⊕	⊖	OFF	ACC	ON
①	Ground	Battery voltage	Battery voltage	Battery voltage

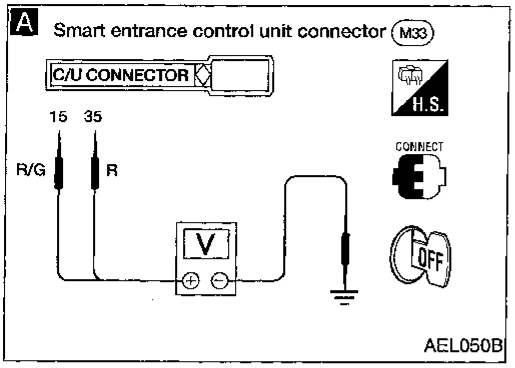


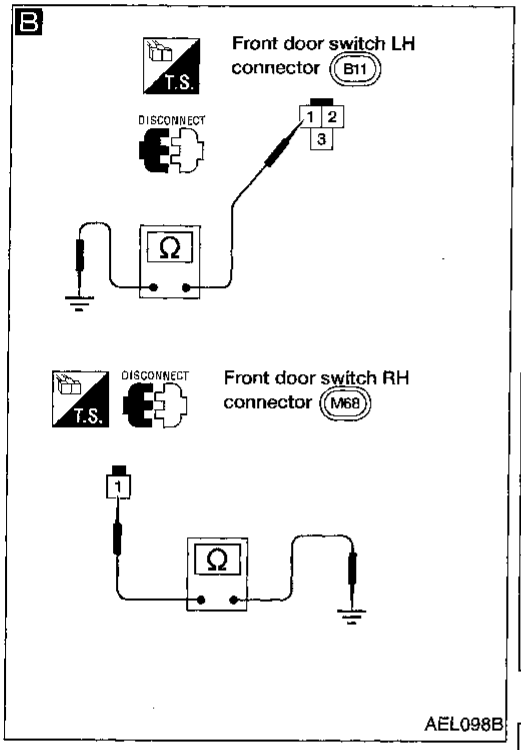
Ground circuit check

Terminals	Continuity
⑩ - Ground	Yes

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 1
(Front door switch check)





A

CHECK DOOR SWITCH INPUT SIGNAL.

Check voltage between control unit terminals ⑮ or ㉟ and ground.

	Terminals ⊕	Terminals ⊖	Condition	Voltage [V]
Front LH door switch	⑮	Ground	Open	0
			Closed	Approx. 12
Front RH door switch	㉟	Ground	Open	0
			Closed	Approx. 12

Refer to wiring diagram in EL-175.

OK → Door switch is OK.

NG ↓

B

CHECK DOOR SWITCH.

1. Disconnect door switch connector.
2. Check continuity between door switch terminals.

	Terminals	Condition	Continuity
Front LH door switch	① - Ground	Closed	No
		Open	Yes
Front RH door switch	① - Ground	Closed	No
		Open	Yes

NG → Replace door switch.

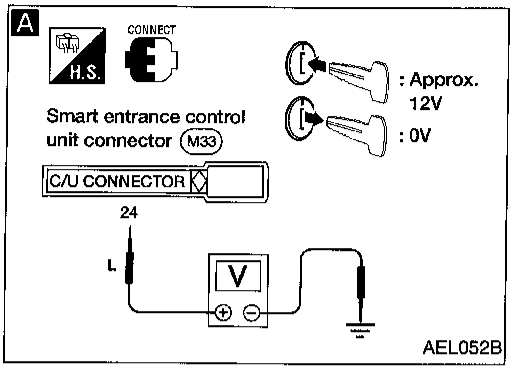
OK ↓

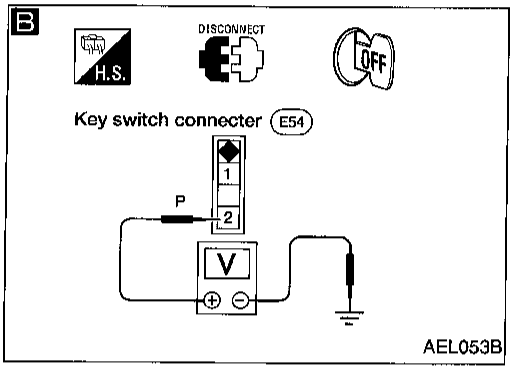
Check the following.

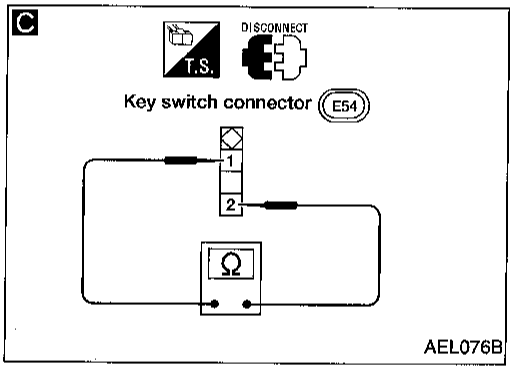
- Door switch ground circuit (Front LH) or door switch ground condition
- Harness for open or short between control unit and door switch

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 2
[Key switch (insert) check]







A

CHECK KEY SWITCH INPUT SIGNAL.
Check voltage between control unit terminal (24) and ground.

Condition of key switch	Voltage [V]
Key is inserted.	Approx. 12
Key is withdrawn.	0

Refer to wiring diagram in EL-175.

OK → Key switch (insert) is ok.

NG ↓

B

CHECK KEY SWITCH POWER SUPPLY.
1. Disconnect key switch connector.
2. Check voltage between key switch harness terminal (2) and ground.
Battery voltage should exist.

NG → Check the following.
- 10A fuse [No. 24, located in fuse block (J/B)]
- Harness for open or short between key switch and fuse

OK ↓

C

CHECK KEY SWITCH.
Check continuity between key switch terminals.

Terminals	Condition	Continuity
① - ②	Key is inserted.	Yes
	Key is withdrawn.	No

NG → Replace key switch.

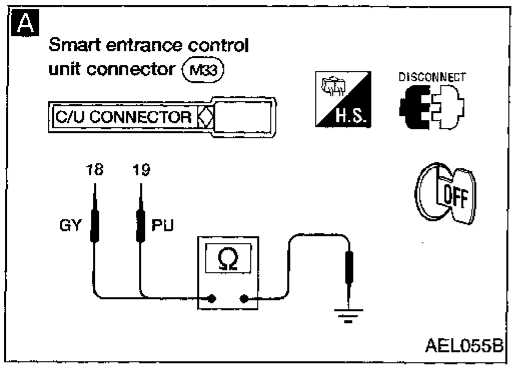
OK ↓

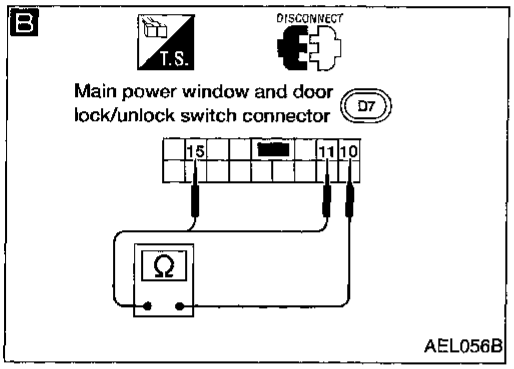
Check harness for open or short between control unit and key switch.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 3

(Door lock/unlock switch check)





A

CHECK DOOR LOCK/UNLOCK SWITCH INPUT SIGNAL.

1. Disconnect control unit connector.
2. Check continuity between control unit terminal ⑱ or ⑲ and ground.

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

Refer to wiring diagram in EL-175.

OK → Door lock/unlock switch is OK.

NG ↓

B

CHECK DOOR LOCK/UNLOCK SWITCH.

1. Disconnect main power window and door lock/unlock switch connector.
2. Check continuity between main power window and door lock/unlock switch terminals.

Condition	Terminals		
	10	11	15
Lock	○		○
N	No continuity		
Unlock	○	○	

NG → Replace main power window and door lock/unlock switch.

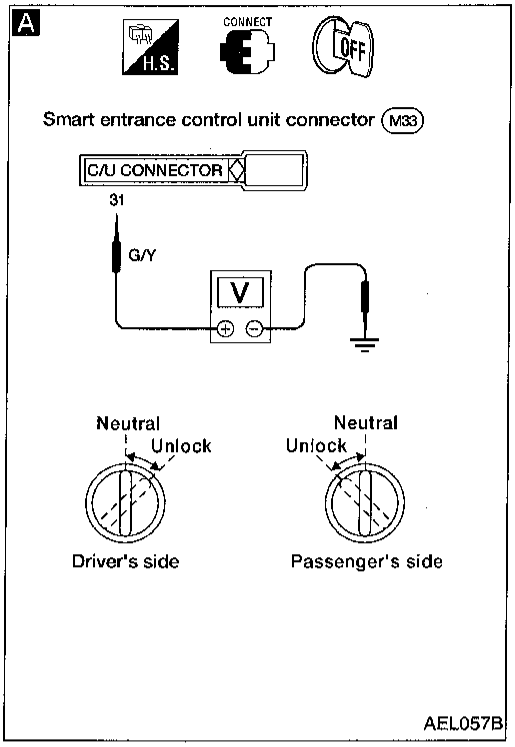
OK ↓

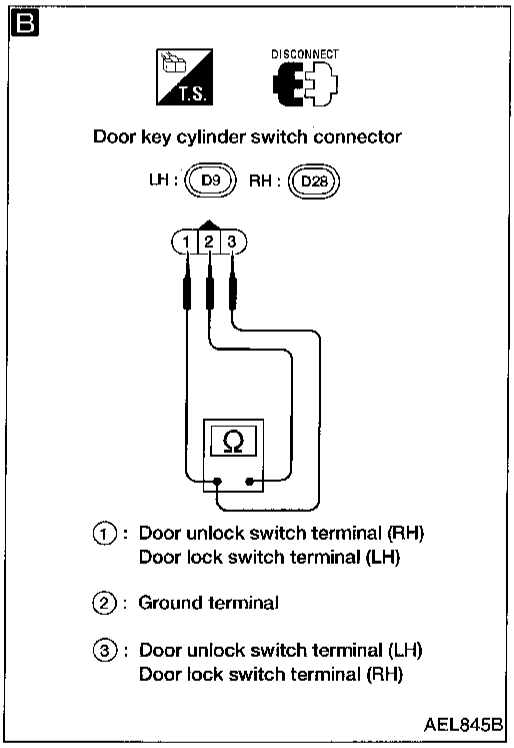
Check the following.

- Ground circuit for door lock/unlock switch
- Harness for open or short between door lock/unlock switch and control unit connector

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 4
(Front door key cylinder switch check)





A

CHECK DOOR KEY CYLINDER SWITCH INPUT SIGNAL (LOCK/UNLOCK SIGNAL).

Check voltage between control unit terminals ㉚, ㉛ and ground.

Terminals ⊕	Terminals ⊖	Key position	Voltage [V]
㉛	Ground	Neutral	Approx. 12
		Unlock	0
㉚	Ground	Neutral	Approx. 12
		Lock	0

Refer to wiring diagram in EL-176.

OK → Door key cylinder switch is OK.

NG ↓

B

CHECK DOOR KEY CYLINDER SWITCH.

1. Disconnect door key cylinder switch connector.
2. Check continuity between door key cylinder switch terminals.

Terminals	Key position	Continuity
LH: ① - ②	Neutral	No
RH: ③ - ②	Lock	Yes
LH: ③ - ②	Neutral	No
RH: ① - ②	Unlock	Yes

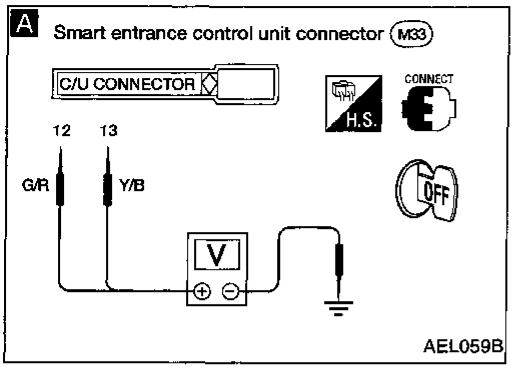
NG → Replace door key cylinder switch.

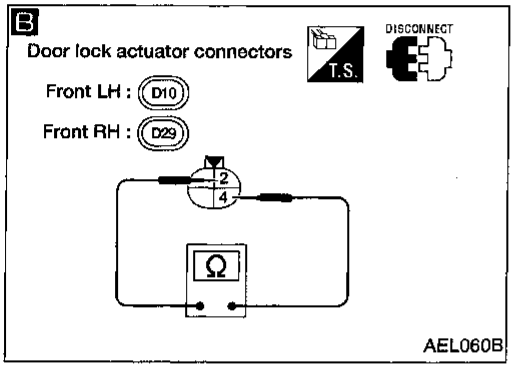
OK ↓

Check the following.
- Door key cylinder switch ground circuit
- Harness for open or short between control unit and door key cylinder switch

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 5
(Front door unlock sensor check)





A

CHECK DOOR UNLOCK SENSOR INPUT SIGNAL.

Check voltage between control unit terminals ⑫, ⑬ and ground.

	Terminals ⊕	Terminals ⊖	Condition	Voltage [V]
Front LH door	⑫	Ground	Locked	Approx. 12
			Unlocked	0
Front RH door	⑬	Ground	Locked	Approx. 12
			Unlocked	0

Refer to wiring diagram in EL-177.

OK → Door unlock sensor is OK.

NG ↓

B

CHECK DOOR UNLOCK SENSOR.

1. Disconnect door unlock sensor connector.
2. Check continuity between door unlock sensor terminals.

Terminals	Condition	Continuity
④ - ②	Locked	No
	Unlocked	Yes

NG → Replace door unlock sensor.

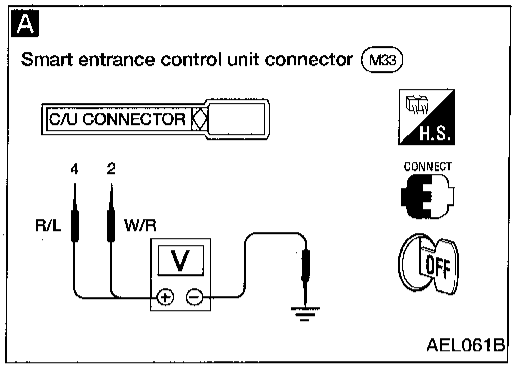
OK ↓

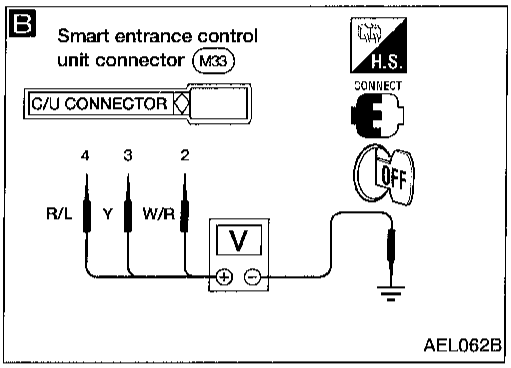
Check the following.
- Door unlock sensor ground circuit
- Harness for open or short between control unit and door unlock sensor

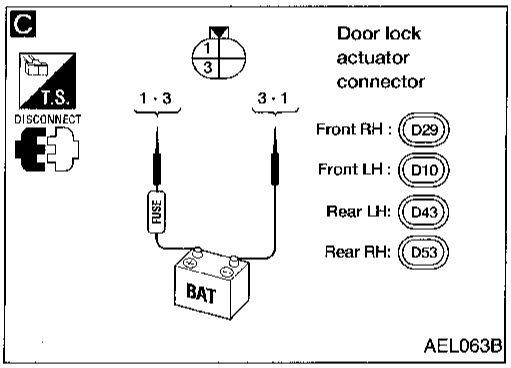
Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 6

(Door lock actuator check)







A B

CHECK DOOR LOCK ACTUATOR OUTPUT.

Check voltage for door lock actuator.

A Models without multi-remote control system

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

B Models with multi-remote control system

Door lock/unlock switch condition	Terminals ⊕	Terminals ⊖	Voltage (V)
Lock	④	Ground	Battery voltage
Unlock	③ ②	Ground	Battery voltage

Refer to wiring diagram in EL-177.

NG → Replace smart entrance control unit. (Before replacing control unit, perform other procedures following SYMPTOM CHART.)

OK ↓

C

CHECK DOOR LOCK ACTUATOR.

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

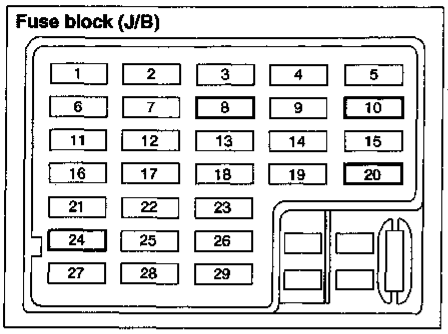
Door lock actuator operation	Terminals ⊕	Terminals ⊖
Unlocked → Locked	③	①
Locked → Unlocked	①	③

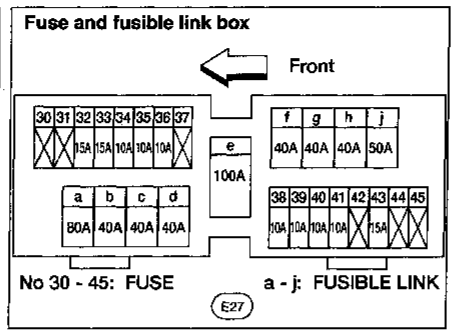
NG → Replace door lock actuator.

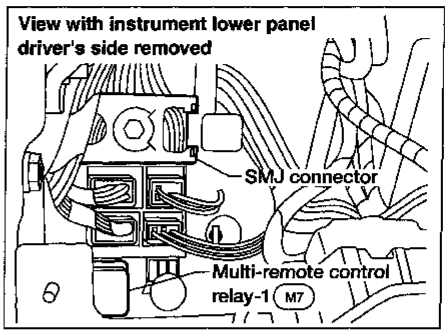
OK ↓

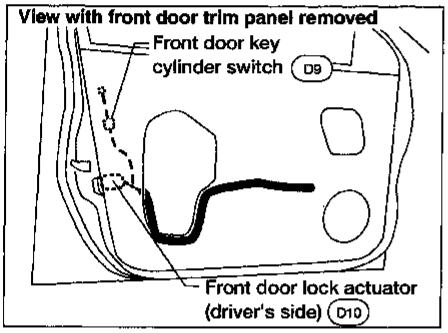
Check harness for open or short between control unit connector and door lock actuator.

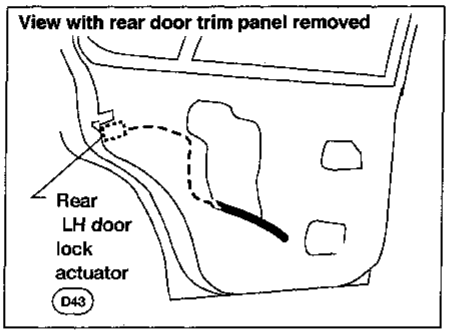
Component Parts and Harness Connector Location

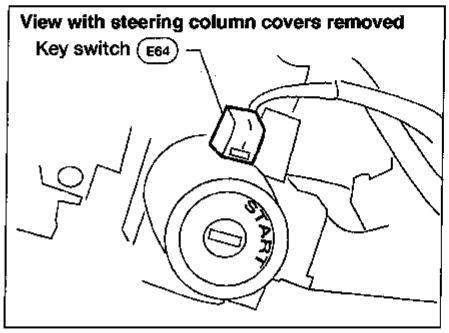


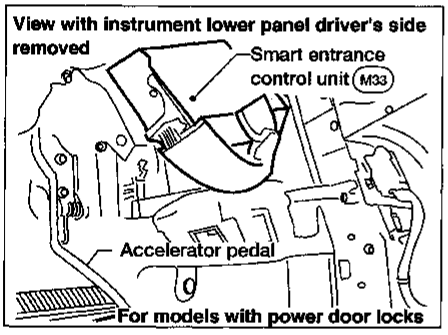












AEL139B

System Description

For detailed description, refer to "THEFT WARNING SYSTEM", EL-203.

Power is supplied at all times:
- through 40A fusible link (letter d, located in the fuse and fusible link box)
- to circuit breaker-1 terminal ①
- through circuit breaker-1 terminal ②
- to smart entrance control unit terminal ①.

Power is supplied at all times:
- through 10A fuse [No. 24, located in the fuse block (J/B)]
- to interior lamp terminal ⊕
- to key switch terminal ②.

Power is supplied at all times:
- through 10A fuse [No. 20 , located in the fuse block (J/B)]
- to multi-remote control relay-1 terminal ①, ③ and ⑥.

With the ignition switch in the ON or START position, power is supplied:
- through 10A fuse [No. 8, located in the fuse block (J/B)]
- to smart entrance control unit terminal ⑪.

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

Ground is supplied:
- to smart entrance control unit terminal ⑩
- through body grounds (M2) and (M61) .

INPUTS

When the key switch is ON (ignition key is inserted in key cylinder), power is supplied:
- through key switch terminal ①
- to smart entrance control unit terminal ㉔.

When the front door switch LH is OPEN, ground is supplied:
- to smart entrance control unit terminal ⑮
- through front door switch LH terminal ①
- through each door switch body ground.

When the front door switch RH is OPEN, ground is supplied:
- to smart entrance control unit terminal ㉟
- through front door switch RH terminal ①
- through each door switch body ground.

When the rear door switch is OPEN, ground is supplied:
- to smart entrance control unit terminal ⑯
- through each rear door switch terminal ①
- through each door switch body ground.

When the front 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 (M2) and (M61) .

When the front door lock actuator RH (door unlock sensor) is UNLOCKED, ground is supplied to smart entrance control unit terminal ⑬ in the same manner as front door lock actuator LH.

When the rear door lock actuator (door unlock sensor) is UNLOCKED, ground is supplied:
- to smart entrance control unit terminal ⑭
- through rear door lock actuator RH or LH (door unlock sensor) terminal ④
- to rear door lock actuator RH or LH (door unlock sensor) terminal ②
- through body grounds (M2) and (M61) for the rear door lock actuator RH and
- through body grounds (B13) and (B19) for the rear door lock actuator LH.

Remote controller signal input:
- through internal antenna.

System Description (Cont'd)

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

OPERATION PROCEDURE

Power door lock operation

When one or both of 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).

The above two signals are already input into the smart entrance control unit. At this point, smart entrance control unit receives a LOCK signal from the remote controller. The smart entrance control unit locks all doors with input of the LOCK signal from the remote controller.
And then ground is supplied:
- to multi-remote control relay-1 terminal ②
- through smart entrance control unit terminal ⑦.

Multi-remote control relay-1 is now energized, and the hazard warning lamp flashes twice as a reminder—**HAZARD REMINDER**. For detailed description, refer to "Turn Signal and Hazard Warning Lamps", EL-63.
When an UNLOCK signal is sent from the remote controller once, the driver's door will be unlocked. Then, if an UNLOCK signal is sent from the remote controller again within 5 seconds, all other doors will be unlocked.
To deactivate the horn chirp when using the remote controller, press both unlock and lock buttons for two seconds. With the horn deactivated, the exterior lights do not flash when the unlock button is pressed. To activate the horn chirp, press both unlock and lock buttons for two seconds.

Interior lamp operation

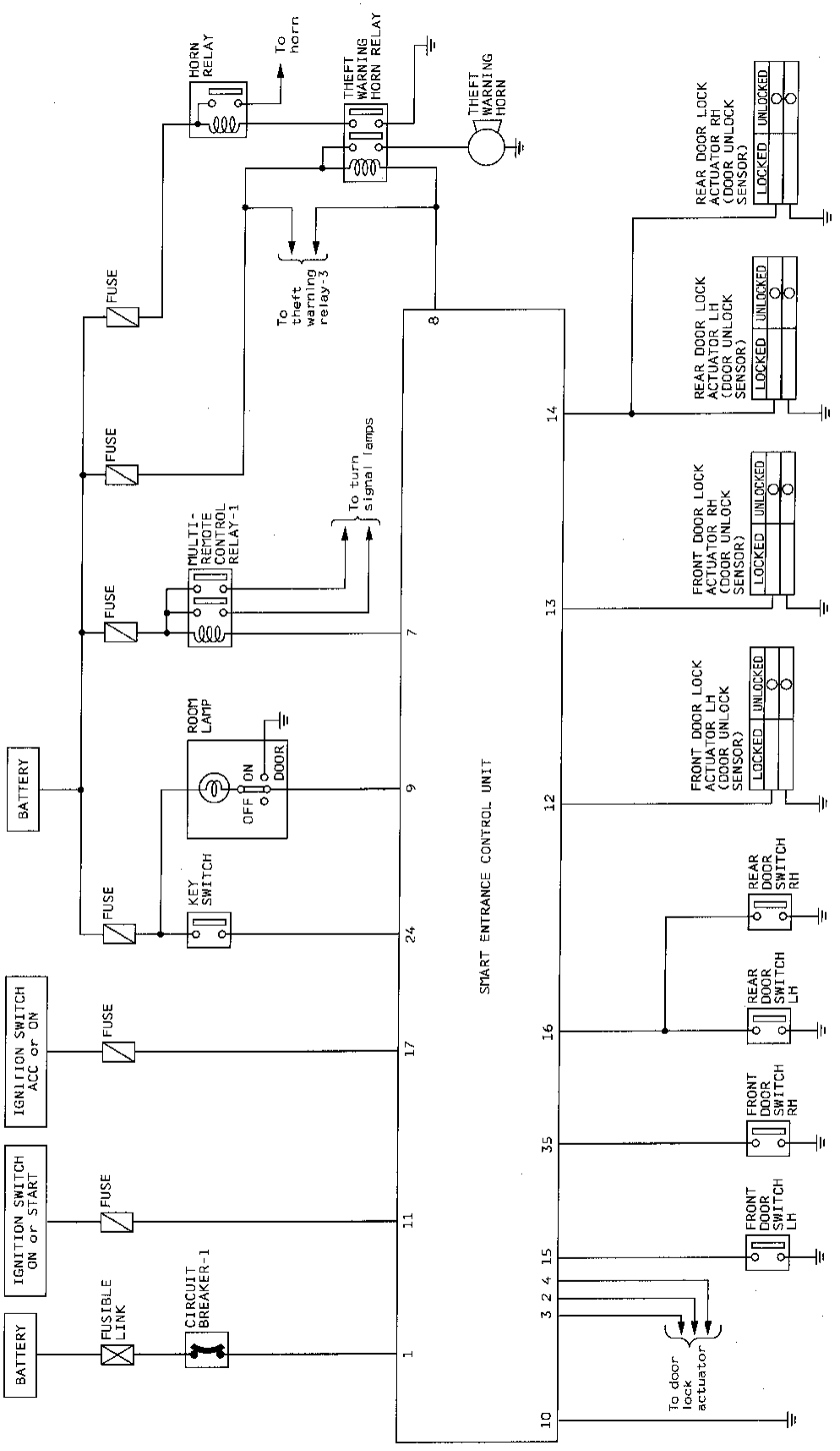
When the following input signals are both supplied:
- key switch OFF (when ignition key is not inserted in key cylinder);
- door switch CLOSED (when all the doors are closed);

multi-remote control system turns on the interior lamp (for 30 seconds) with input of UNLOCK signal from remote controller.
For detailed description, refer to "INTERIOR ROOM LAMP", EL-73.

Panic alarm operation

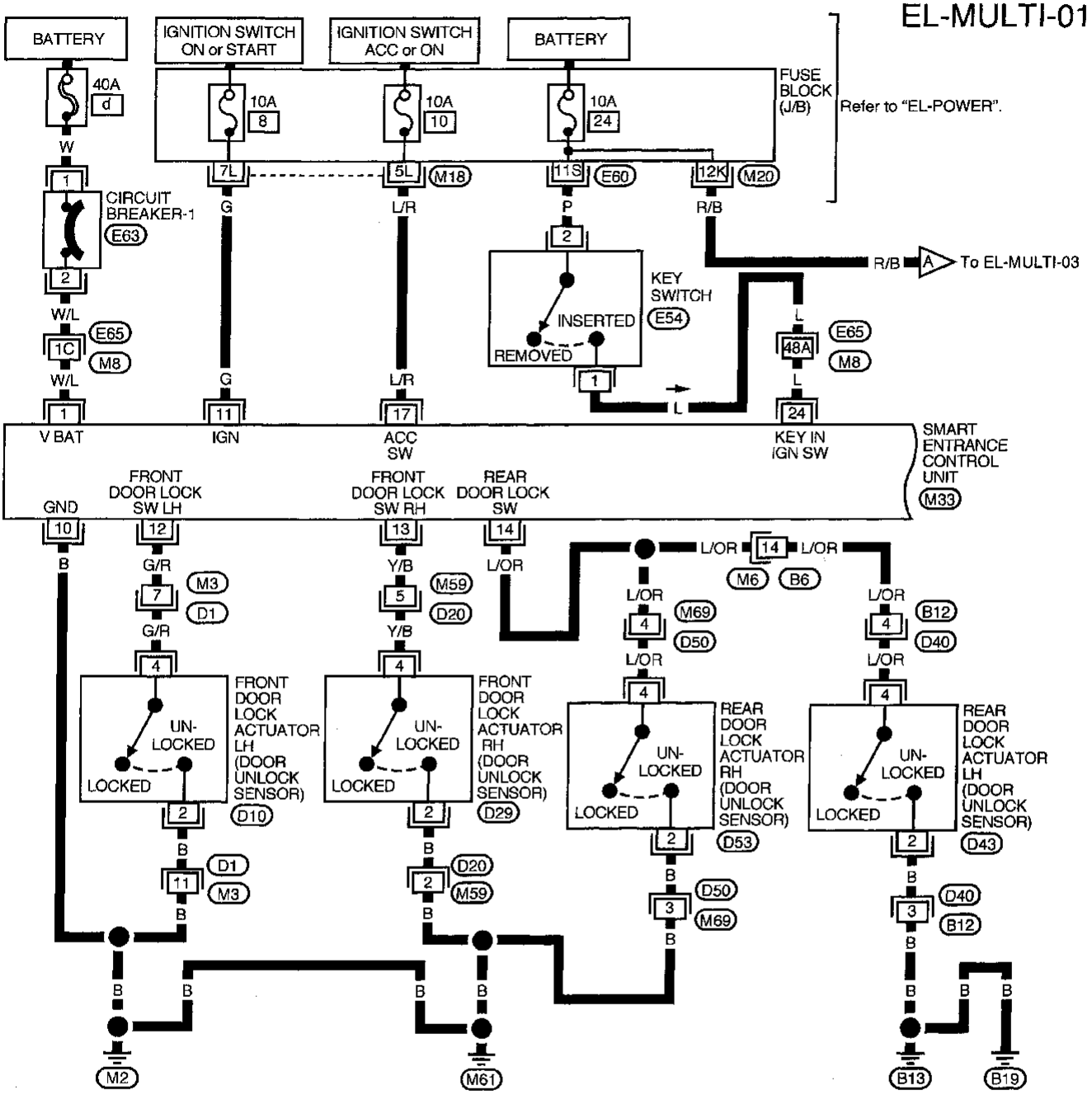
When key switch is OFF (when ignition key is not inserted in key cylinder), multi-remote control system turns on and off the horn and headlamp intermittently with input of PANIC ALARM signal from remote controller.
For detailed description, refer to "THEFT WARNING SYSTEM", EL-201.

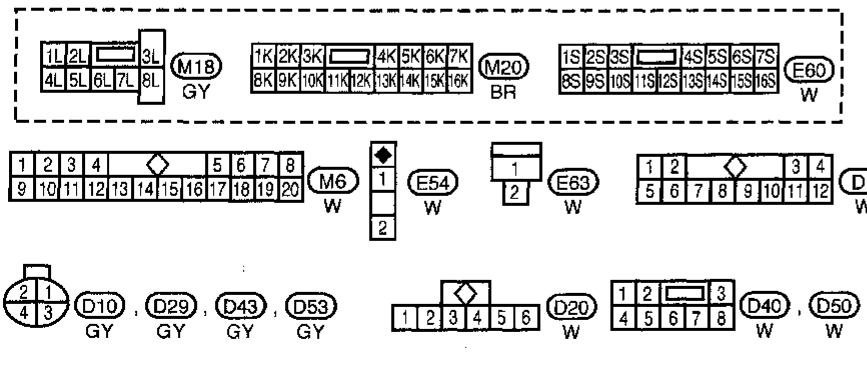
Schematic



AEL825B

Wiring Diagram — MULTI —

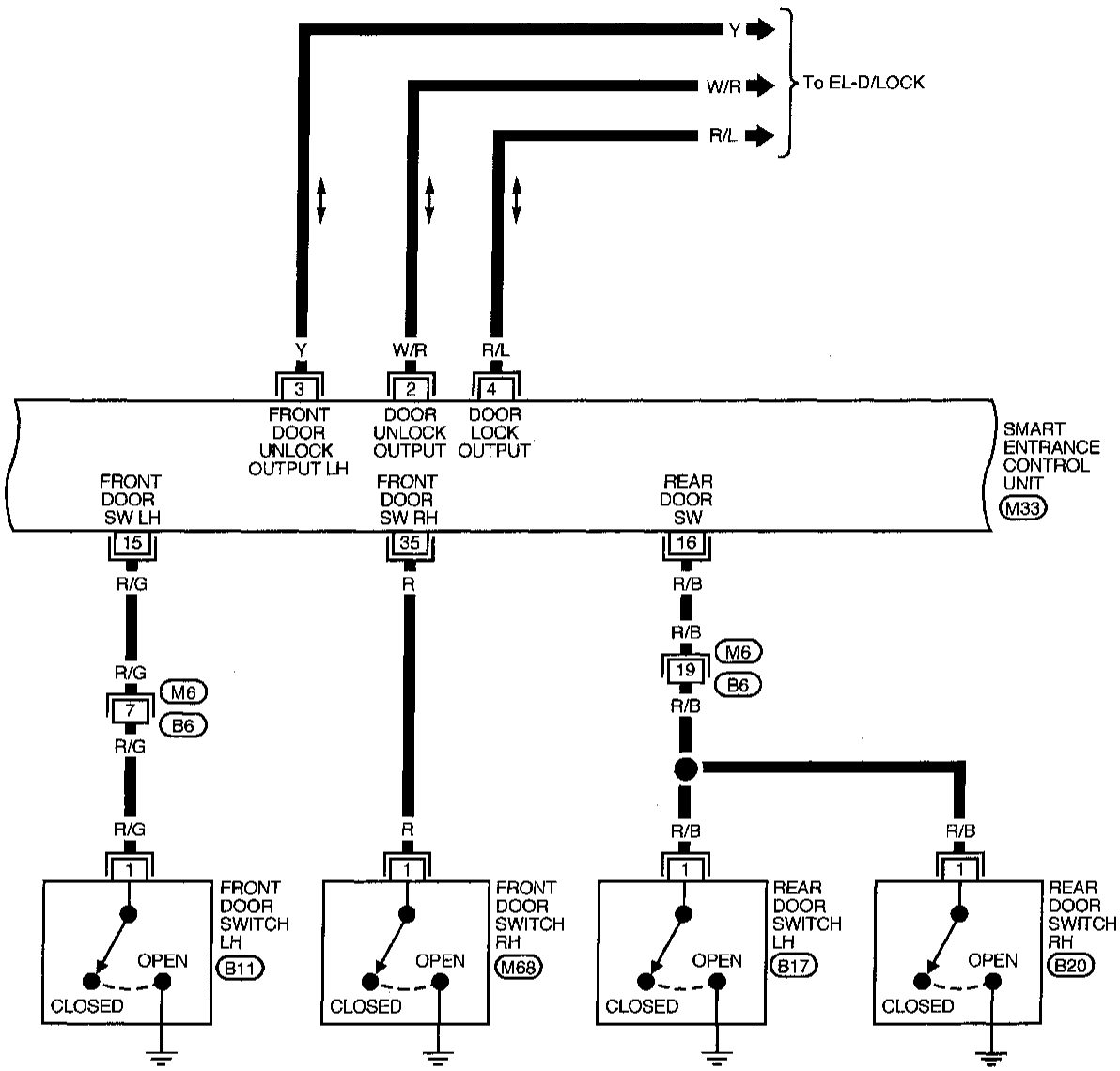


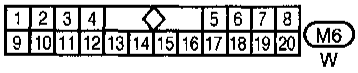


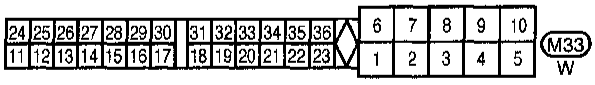
Refer to last page (Foldout page).
M8, E65
M33

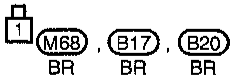
AEL826B

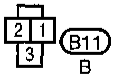
EL-MULTI-02







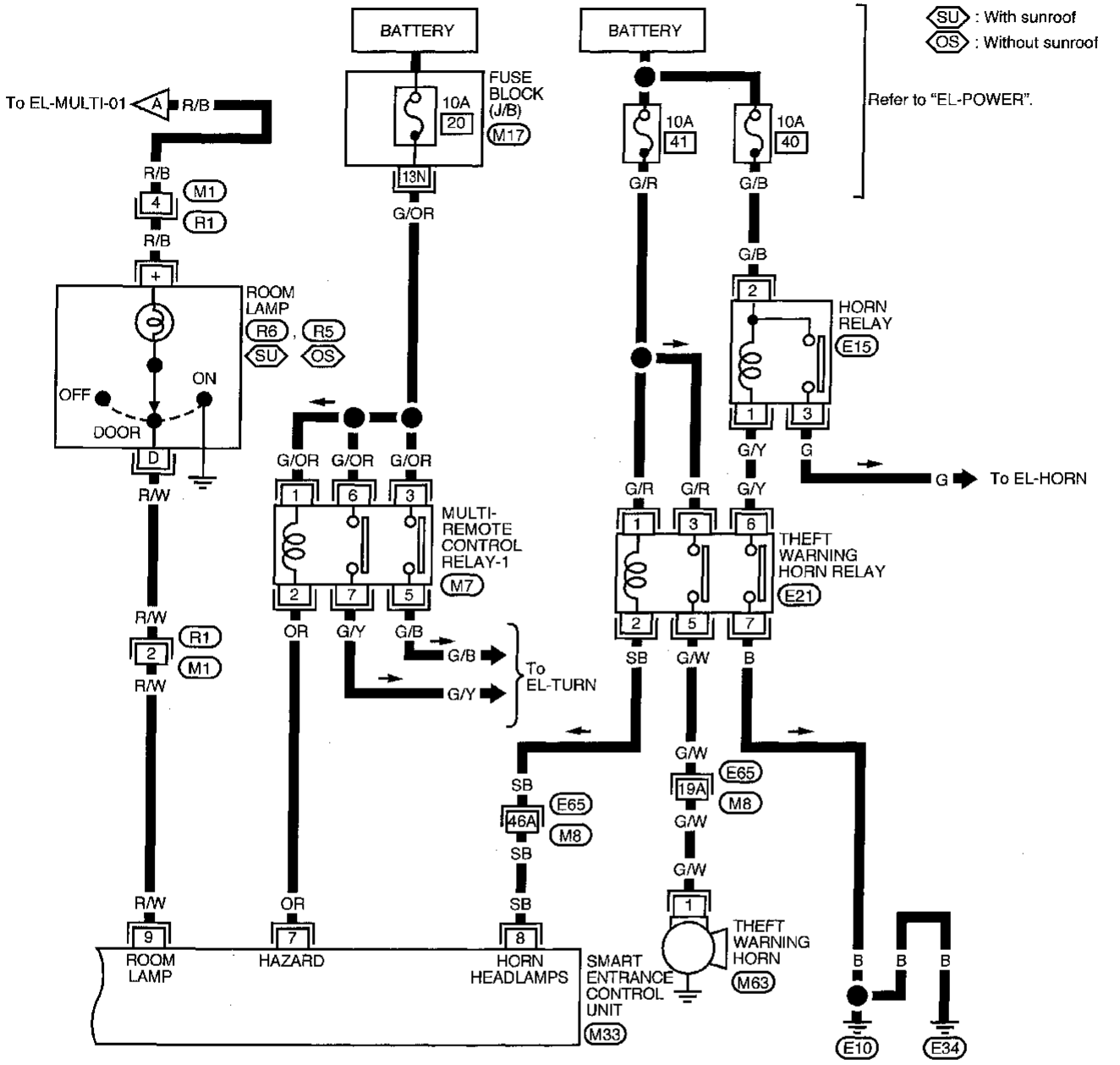


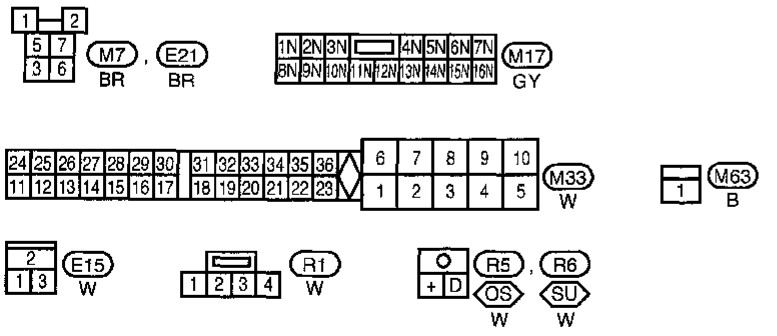


AEL827B

Wiring Diagram — MULTI — (Cont'd)

EL-MULTI-03





Refer to last page (Foldout page).
M8, E65

AEL828B

Trouble Diagnoses

TROUBLE SYMPTOM

- All functions of remote control system do not operate.

CHECK REMOTE CONTROLLER BATTERY.
Refer to DIAGNOSTIC PROCEDURE 1, EL-194.
NG → Replace battery.
OK ↓
Enter the Identity (ID) code of different or new remote controller. Refer to EL-200.
OK ↓
Can the new ID code be entered?
No → Go to DIAGNOSTIC PROCEDURE 2, EL-195
Yes ↓
Replace with the originally used 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 and door switch input signal. (Refer to DIAGNOSTIC PROCEDURE 2, EL-195.)

OR

② ROOM LAMP DOES NOT TURN ON FOR 30 SECONDS WHEN PRESSING UNLOCK BUTTON OF REMOTE CONTROLLER.
● Check if the room lamp switch is in the "door" position, the lamp illuminates when a door is open.
If check is OK, Go to DIAGNOSTIC PROCEDURE 3, EL-197.
No → Check "Room lamp" circuit.

OR

③ 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 4, EL-198.
No → Check "Hazard indicator lamp" circuit.

OR

④ PANIC ALARM (HORN AND HEADLAMP) DOES NOT ACTIVATE WHEN PANIC ALARM BUTTON IS CONTINUOUSLY PRESSED FOR MORE THAN 1.0 SECONDS.
● Check if horn and headlamps activate when test is conducted as follows:
1. Open the driver's window.
2. Close all doors, hood and trunk lid.
3. Lock doors with the key.
4. Wait for about 30 seconds to make sure that the lighted "SECURITY" warning lamp begins to blink.
5. Open the hood with hood lock opener, then panic alarm should activate. (The alarm will stop when door is unlocked with the key.)

No → Check "THEFT WARNING" system.

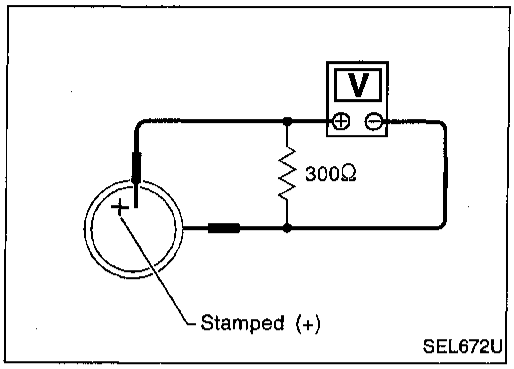
Yes ↓
Enter the identity (ID) code of different or new remote controller and recheck operation to see if the same trouble as indicated above occurs.
Yes → Check multi-remote controller operation again.
If necessary, replace Smart Entrance Control Unit.
No ↓
Replace the multi-remote controller.

Note: • The unlock and panic alarm operation of the multi-remote control system does not activate with the ignition key inserted in the ignition key cylinder.
• The lock operation of the multi-remote control system does not activate with the key inserted in the ignition key cylinder and one or more of the front doors are open.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 1

Check remote controller battery.



CHECK REMOTE CONTROLLER BATTERY.

Remove battery and measure voltage across battery positive and negative terminals, ⊕ and ⊖.

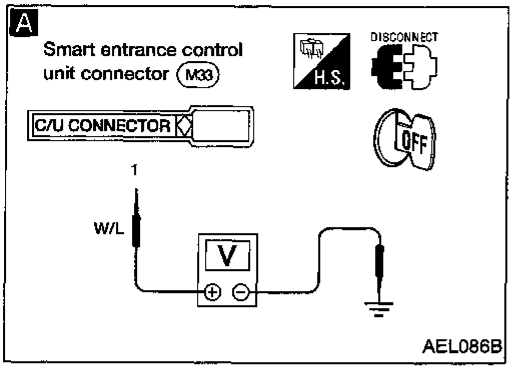
Measuring terminal		Standard value
⊕	⊖	
Battery positive terminal ⊕	Battery negative terminal ⊖	2.5 - 3.0V

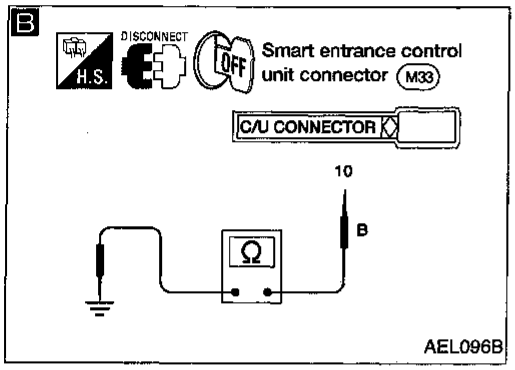
Note:
Remote controller does not function if battery is not set correctly.

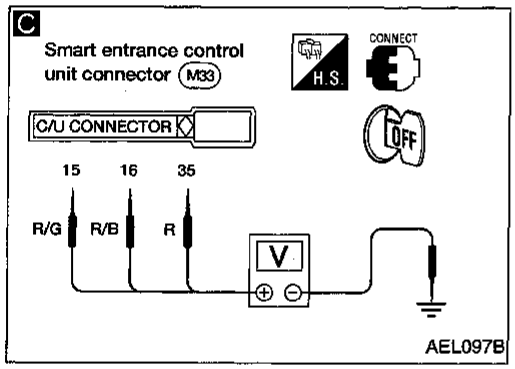
Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 2

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







A

CHECK MAIN POWER SUPPLY CIRCUIT FOR CONTROL UNIT.

1. Disconnect connector from control unit.
2. Check voltage between control unit terminal (1) and ground.
   Battery voltage should exist.

Refer to wiring diagram in EL-190.

NG → Check the following:
- 40A fusible link (Letter d, located in fuse and fusible link box)
- (E63) circuit breaker-1
- Harness for open or short between control unit and fuse

OK ↓

B

CHECK GROUND CIRCUIT FOR CONTROL UNIT.

Check continuity between terminal (10) and ground.
Continuity should exist.

Refer to wiring diagram in EL-190.

NG → Check ground harness.

OK ↓

C

CHECK DOOR SWITCH CIRCUIT.

1. Connect control unit connector
2. Check voltage between control unit terminal (15) and GND, (16) and GND, and (35) and GND.

	Terminals ⊕	Terminals ⊖	Condition	Voltage [V]
Driver side door switch	(15)	Ground	Open	0
			Close	Approx. 12
Passenger door switch	(35)	Ground	Open	0
			Close	Approx. 12
Rear door switches	(16)	Ground	Open	0
			Close	Approx. 12

Refer to wiring diagram in EL-191.

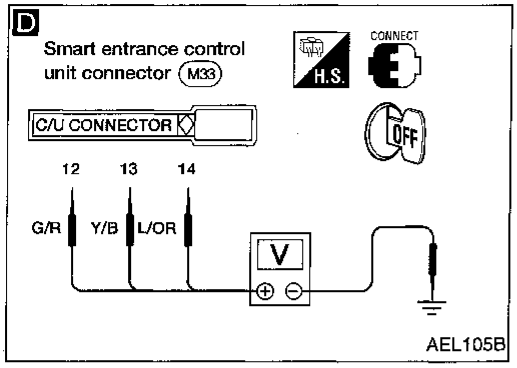
NG → Check the following.
- Door switch
  Refer to "Electrical Components Inspection" (EL-199).
- Door switch ground condition
- Harness for open or short between control unit and door switch

OK ↓

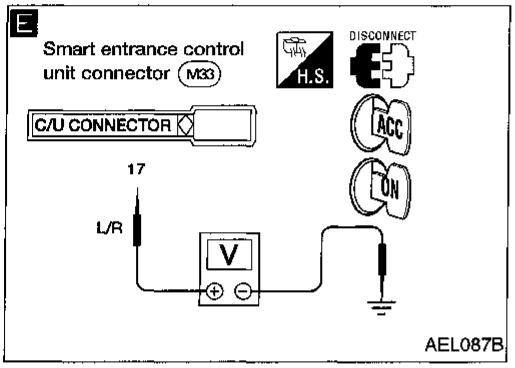
(A)
(Go to next page.)

Trouble Diagnoses (Cont'd)

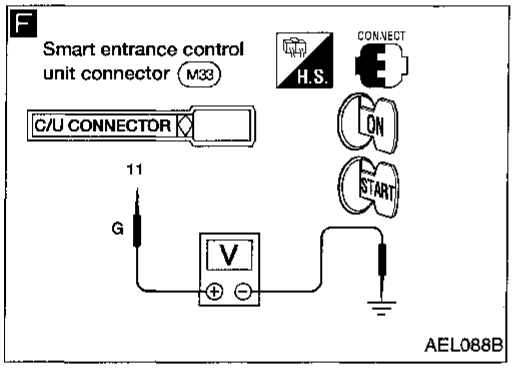
D



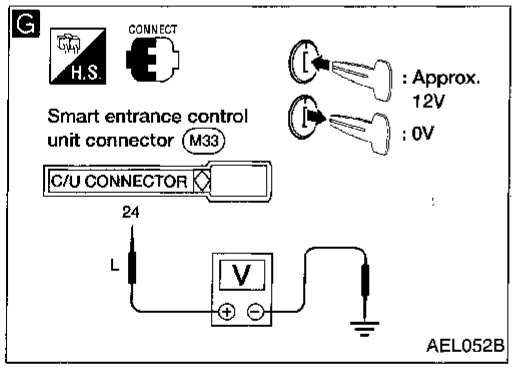
E



F



G



Ⓐ

D

CHECK UNLOCK SENSOR CIRCUIT.
Check voltage between control unit terminal ⑫ and ground, ⑬ and ground, and ⑭ and ground.

	Terminals ⊕	Terminals ⊖	Condition	Voltage [V]
Front LH door	⑫	Ground	Unlock	0
			Lock	Approx. 12
Front RH door	⑬	Ground	Unlock	0
			Lock	Approx. 12
Rear doors	⑭	Ground	Unlock	0
			Lock	Approx. 12

Refer to wiring diagram in EL-190.

NG → Check the following:
- Door unlock sensor
  Refer to "Electrical Components Inspection", EL-199.
- Door unlock sensor ground circuit
- Harness for open or short between control unit and unlock sensor

OK ↓

E

CHECK IGNITION SWITCH ACC OR ON CIRCUIT.
1. Disconnect control unit connector.
2. Check voltage between control unit terminal ⑰ and ground while ignition switch is in ACC or ON position.
   Battery voltage should exist.

Refer to wiring diagram in EL-190.

NG → Check the following:
- 10A fuse [No. 10, located in fuse block (J/B)]
- Harness for open or short between control unit and fuse

OK ↓

F

CHECK IGNITION SWITCH ON OR START CIRCUIT.
Check voltage between control unit terminal ⑪ and ground while ignition switch is in ON or START position.
Battery voltage should exist.

Refer to wiring diagram in EL-190

NG → Check the following:
- 10A fuse [No. 8, located in fuse block (J/B)]
- Harness for open or short between control unit and fuse

OK ↓

G

CHECK KEY SWITCH INPUT SIGNAL.
1. Connect control unit connector.
2. Check voltage between control unit terminals ㉔ and ground.

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

Refer to wiring diagram in EL-190.

NG → Check the following:
- 10A fuse [No. 24, located in fuse block (J/B)]
- Key switch
  Refer to "Electrical Components Inspection", EL-199.
- Harness for open or short between key switch and fuse
- Harness for open or short between control unit and key switch

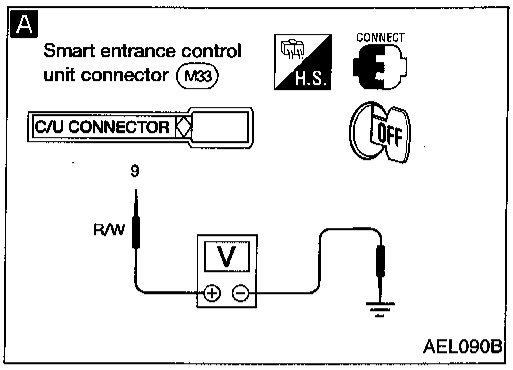
OK ↓

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

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 3

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



A

CHECK ROOM LAMP CIRCUIT.
When room lamp switch is in DOOR position, check voltage across control unit terminal ⑨ and ground.
Does battery voltage exist?

Refer to wiring diagram in EL-192.

No → Repair harness between control unit and room lamp.

Yes

A

Push unlock button of remote controller and check voltage across control unit terminal ⑨ and ground.

Multi-remote controller button condition	Voltage (V)
Unlock button is pushed.	0
Unlock button is not pushed.	Battery voltage

No → Check harness for open or short between room lamp and control unit.

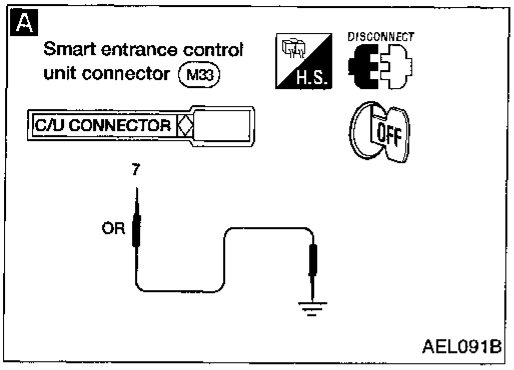
Yes

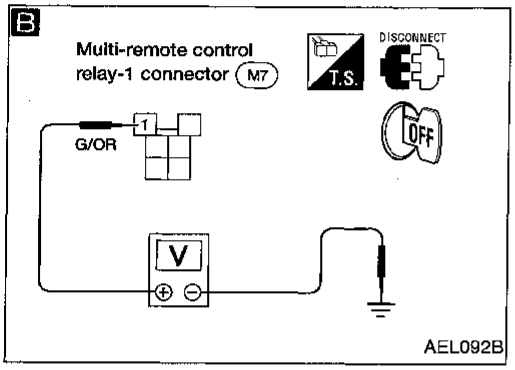
Check system again.

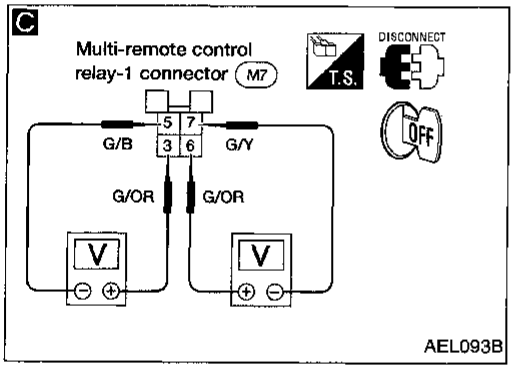
Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 4

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?

Refer to wiring diagram in EL-192.

Yes → Replace smart entrance control unit.

No ↓

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

OK ↓

B

CHECK POWER SUPPLY FOR MULTI-REMOTE CONTROL RELAY-1.

1. Disconnect multi-remote control relay-1 connector.
2. Check voltage between terminal ① and ground.

Battery voltage should exist.

NG → Check the following.

- 10A fuse [No. 20, located in fuse block (J/B)]
- Harness for open or short between multi-remote control relay-1 and fuse

OK ↓

C

CHECK MULTI-REMOTE CONTROL RELAY-1 CIRCUIT.

1. Check voltage between terminals ③ and ⑤.

Battery voltage should exist.

2. Check voltage between terminals ⑥ and ⑦.

Battery voltage should exist.

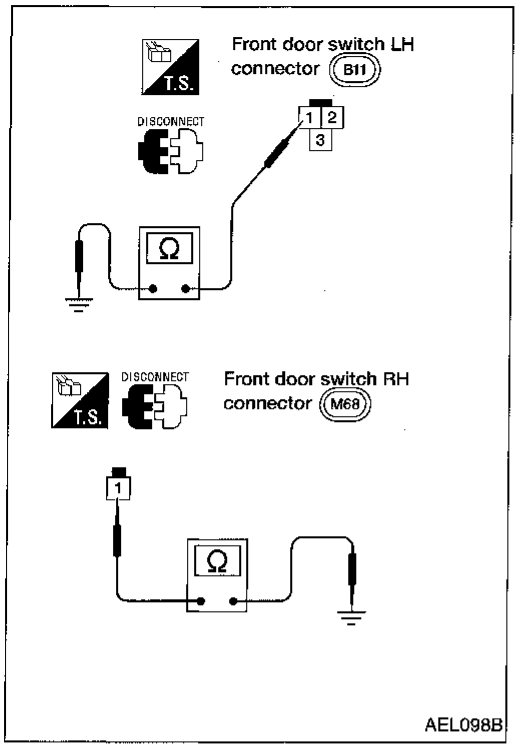
NG → Check harness for open or short.

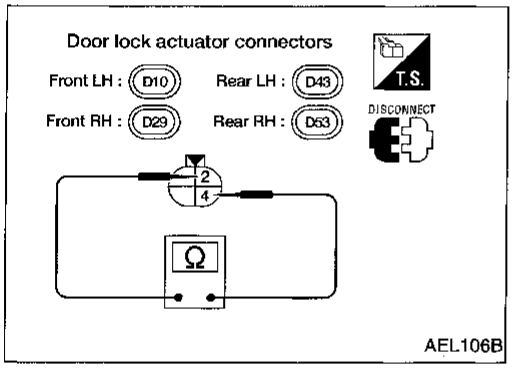
OK ↓

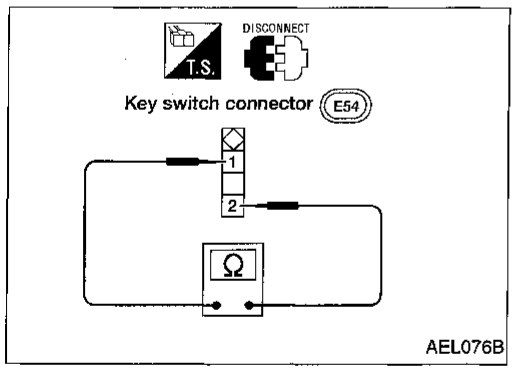
Check harness for open or short.

OK ↓

Check system again.







Electrical Components Inspection

DOOR SWITCHES

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

	Terminal No.	Condition	Continuity
Front LH door switch	① - ground	Door switch is pushed.	No
		Door switch is released.	Yes
Other door switches	① - ground	Door switch is pushed.	No
		Door switch is released.	Yes

DOOR LOCK ACTUATOR (Door unlock sensor)

Check continuity between terminals when door is locked and unlocked.

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

KEY SWITCH (insert)

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

Terminal No.	Condition	Continuity
① - ②	Key is inserted.	Yes
	Key is removed.	No

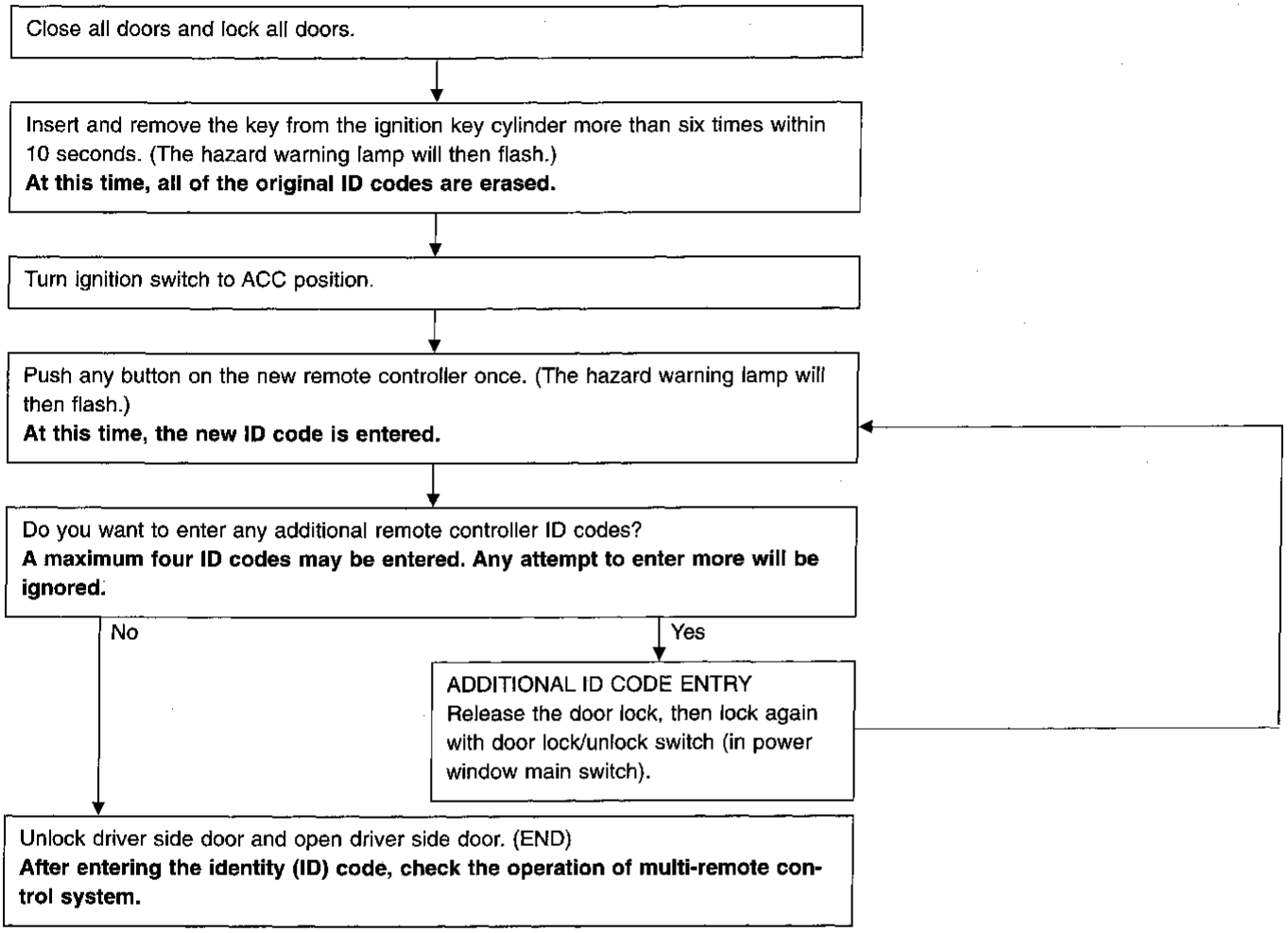
ID Code Entry Procedure

Enter the identity (ID) code manually when:

- **remote controller or control unit is replaced.**
- **an additional remote controller is activated.**

To enter the ID code, follow the procedures below.

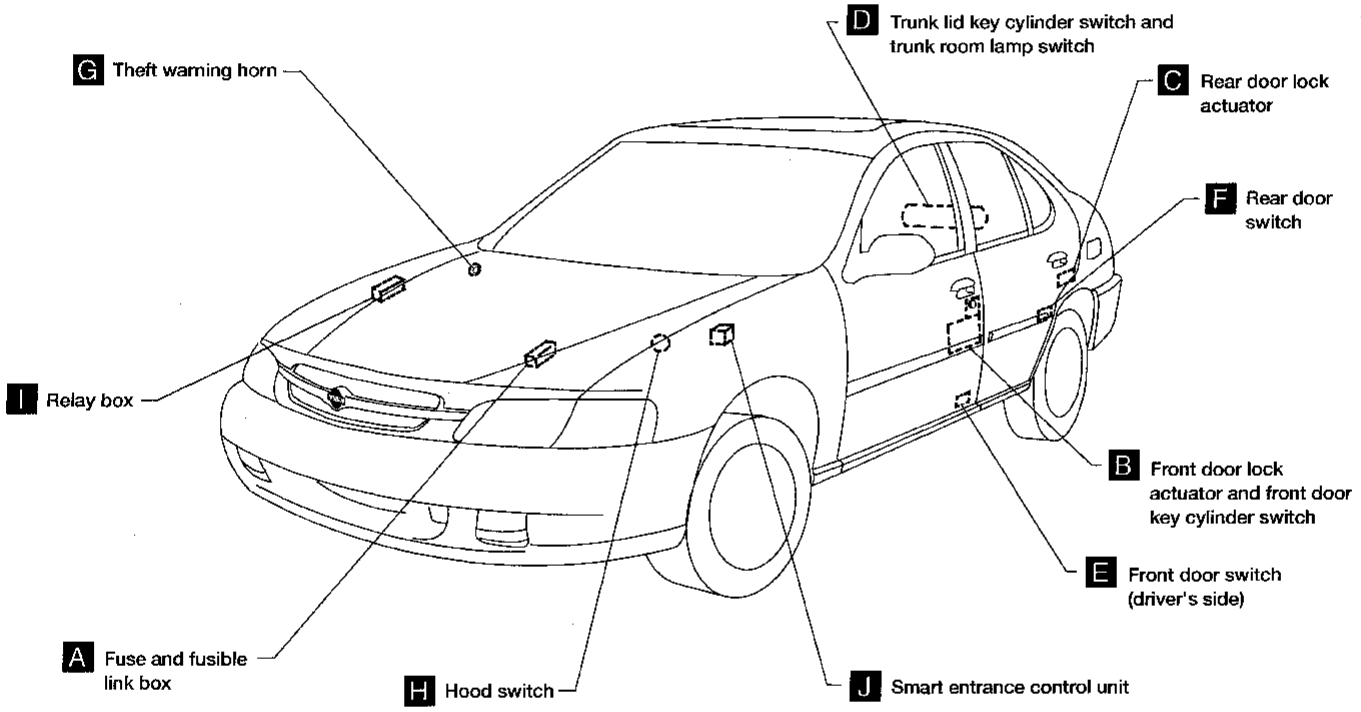
PROCEDURE



NOTE:

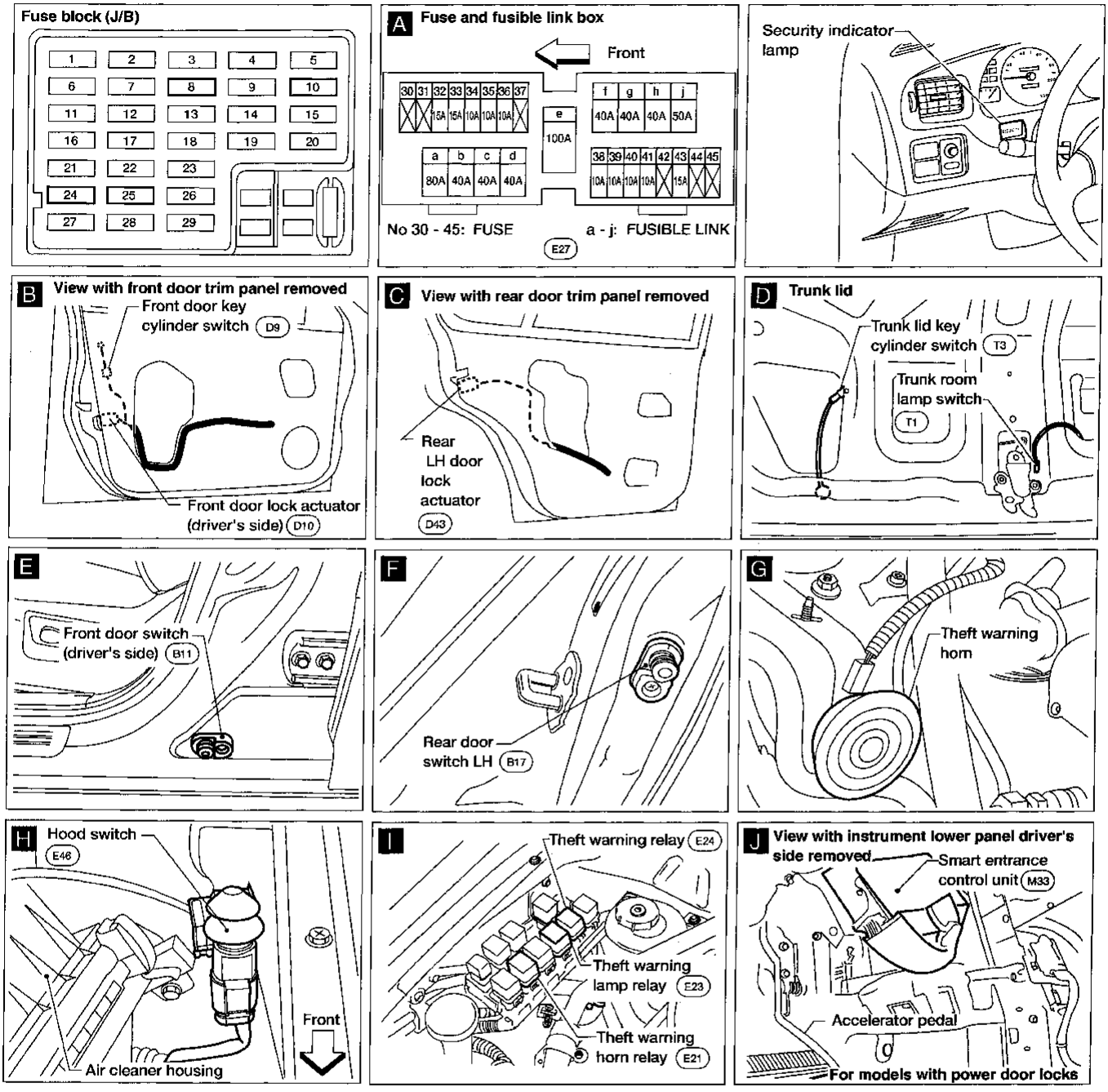
- **If you need to activate more than two additional new remote controllers, repeat the procedure "Additional ID code entry" for each new remote controller.**
- **If the same ID code that exists in the memory is input, the entry will be ignored.**
- **Entry of four ID codes maximum is allowed and any attempt to enter more will be ignored.**
- **Any ID codes entered after termination of the "setting mode" will not be accepted. Additional remote control signals will be inhibited if not entered during the "setting" mode.**

Component Parts and Harness Connector Location



AEL192B

Component Parts and Harness Connector Location (Cont'd)



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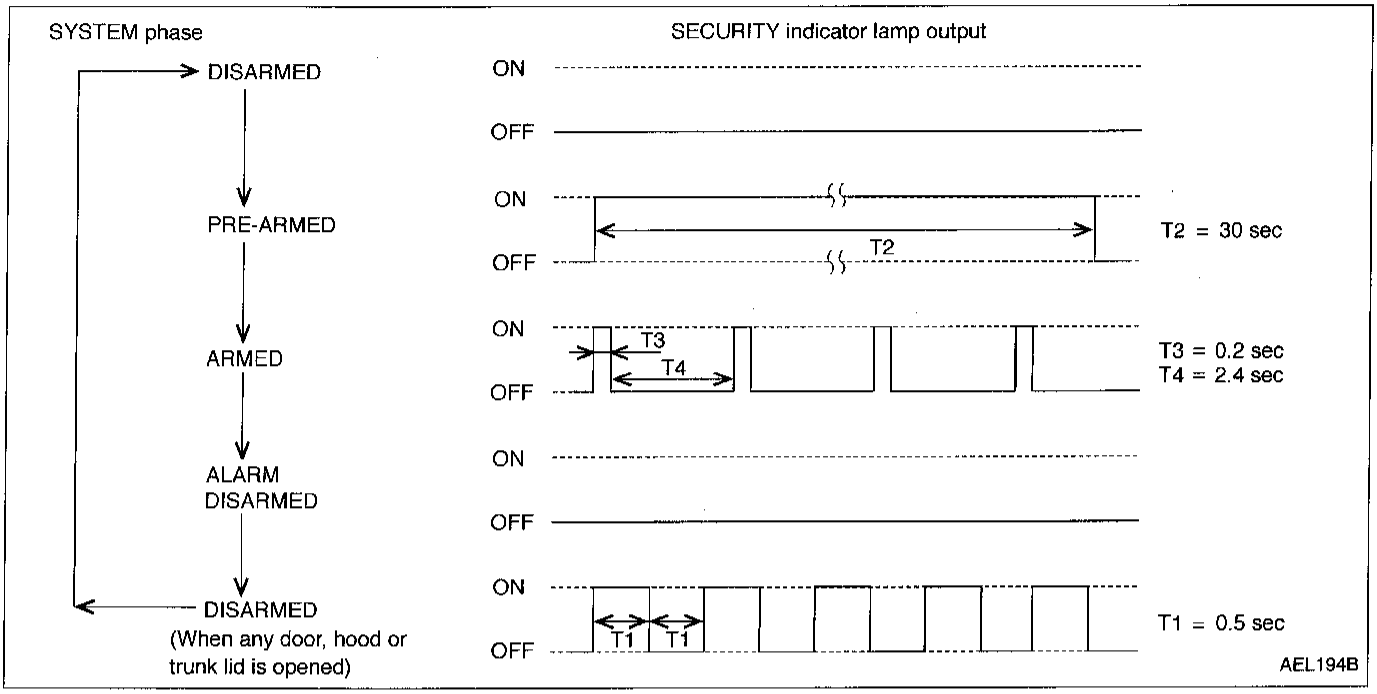
System Description

OPERATION FLOW



SETTING THE THEFT WARNING SYSTEM

Initial condition

(1) Close all doors.
(2) Close hood and trunk lid.

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 controller. (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 2.6 seconds.)

CANCELING THE SET THEFT WARNING SYSTEM

When the following (a) or (b) operation is performed, the armed phase is canceled.
(a) Unlock the doors with the key or multi-remote controller.
(b) Open the trunk lid with the key. When the trunk lid is closed after opening the trunk lid with the key, the system returns to the armed phase.

ACTIVATING THE ALARM OPERATION OF THE THEFT WARNING SYSTEM

Make sure the system is in the armed phase. (The security indicator lamp blinks every 2.6 seconds.)
When the following operation (a) or (b) 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.)
(a) Engine hood, trunk lid or any door is opened before unlocking door with key or multi remote controller.
(b) Door is unlocked without using key or multi-remote controller.

System Description (Cont'd)

POWER SUPPLY AND GROUND CIRCUIT

Power is supplied at all times:
- through 10A fuse [No. 24, located in the fuse block (J/B)]
- to security indicator lamp terminal ①
- to key switch terminal ②.

When the key switch is ON (ignition key is inserted in key cylinder), power is supplied:
- through key switch terminal ①
- to smart entrance control unit terminal ㉔.

Power is supplied at all times:
- through 40A fusible link (letter d, located in the fuse and fusible link box)
- to circuit breaker-1 terminal ①
- through circuit breaker-1 terminal ②
- to smart entrance control unit terminal ①.

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

With the ignition switch in the ON or START position, power is supplied:
- through 10A fuse [No. 8, located in the fuse block (J/B)]
- to smart entrance control unit terminal ⑪.

Ground is supplied:
- to smart entrance control unit terminal ⑩
- through body grounds (M2) and (M61).

INITIAL CONDITION TO ACTIVATE THE SYSTEM

The operation of the theft warning system is controlled by the doors, hood and trunk lid.
To activate the theft warning system, the smart entrance control unit must receive signals indicating the doors, hood and trunk lid are closed and the doors are locked.
When a door is open, smart entrance control unit terminals ⑮, ⑯ or ㉟ receives a ground signal from each door switch.
When a door is unlocked, smart entrance control unit terminals ⑫, ⑬ or ⑭ receives a ground signal:
- from terminal ④ of each door unlock sensor
- through terminal ② of each door unlock sensor
- through body grounds (M2) and (M61) for the front door unlock sensors LH or RH and rear door unlock sensor RH
- through body grounds (B13) and (B19) for the rear door unlock sensor LH.

When the hood is open, smart entrance control unit terminal ㉙ receives a ground signal:
- from terminal ① of the hood switch
- through terminal ② of the hood switch
- through body grounds (E34) and (E10).

When the trunk lid is open, smart entrance control unit terminal ㉖ receives a ground signal:
- from terminal ① of the trunk room lamp switch
- through terminal ② of the trunk room lamp switch
- through body grounds (T6) and (T9),

when the theft warning system is in disarmed phase,
if one of the described conditions exist, the theft warning indicator will blink every second.

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

If the key is used to lock doors, smart entrance control unit terminal ㉚ receives a ground signal:
- from terminal ① of the front door key cylinder switch LH
- from terminal ③ of the front door key cylinder switch RH
- through terminal ② of the front door key cylinder switch LH or RH
- through body grounds (M2) and (M61).

If this signal or lock signal from remote controller is received by the smart entrance control unit, the theft warning system will activate automatically.
Once the theft warning system has been activated, smart entrance control unit terminal ㉝ supplies ground to terminal ② of the security indicator lamp.

System Description (Cont'd)

The security lamp will illuminate for approximately 30 seconds and then blink every 2.6 seconds.
Now the theft warning system is in armed phase.

THEFT WARNING SYSTEM ALARM OPERATION

The theft warning system is triggered by:

- opening a door
- opening the trunk lid
- opening the hood
- unlocking door without using the key or multi-remote controller.

Once the theft warning system is in armed phase, if the smart entrance control unit receives a ground signal at terminal ⑫, ⑬, ⑭ (door unlock sensor), ⑮, ⑯, ㉟ (door switch), ㉖ (trunk room lamp switch) or ㉙ (hood switch), the theft warning system will be triggered. The headlamps flash and the horns sound intermittently, and the starting system is interrupted.

With the IGN SW in ON or START position, power is supplied:

- through 10A fuse [No. 25, located in the fuse block (J/B)].
- to theft warning relay terminal ①.

If the theft warning system is triggered, ground is supplied:

- from terminal ㉜ of the smart entrance control unit
- to theft warning relay terminal ②.

With power and ground supplied, power to the clutch interlock relay (M/T models) or Park/neutral position (PNP) relay (A/T models) is interrupted. The starter motor will not crank and the engine will not start.

Power is supplied at all times:

- through 10A fuse (No. 41, located in fuse and fusible link box)
- to theft warning lamp relay terminal ① and
- to theft warning horn relay terminal ①

When the theft warning system is triggered, ground is supplied intermittently:

- from terminal ⑧ of the smart entrance control unit
- to theft warning lamp relay terminal ② and
- to theft warning horn relay terminal ②.

The headlamps flash and the horns sound intermittently.

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

THEFT WARNING SYSTEM DEACTIVATION

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

When the key is used to unlock a door, smart entrance control unit terminal ㉛ receives a ground signal:

- from terminal ③ of the front door key cylinder switch LH
- from terminal ① of the front door key cylinder switch RH
- through terminal ② of the front door key cylinder switch LH or RH
- through body grounds (M2) and (M61).

When the key is used to unlock the trunk lid, smart entrance control unit terminal ㉗ receives a ground signal:

- from terminal ① of the trunk lid key cylinder switch
- through terminal ② of the trunk lid key cylinder switch
- through body grounds (T6) and (T9).

When the smart entrance control unit receives either one of these signals or unlock signal from remote controller, the theft warning system is deactivated. (Disarmed phase)

PANIC ALARM OPERATION

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

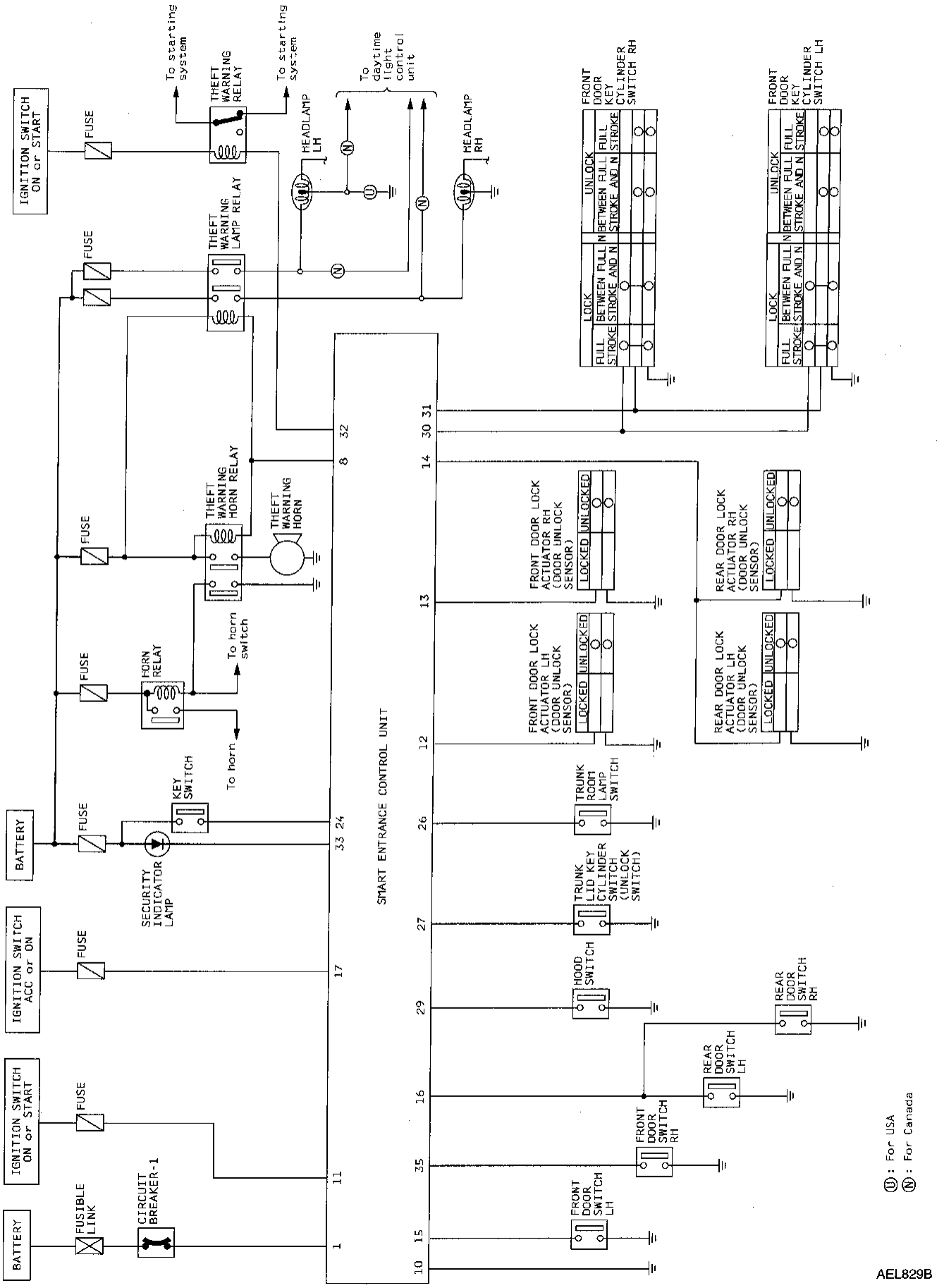
When the multi-remote control system is triggered, ground is supplied intermittently:

- from smart entrance control unit terminal ⑧
- to theft warning lamp relay terminal ② and
- to theft warning horn relay terminal ②.

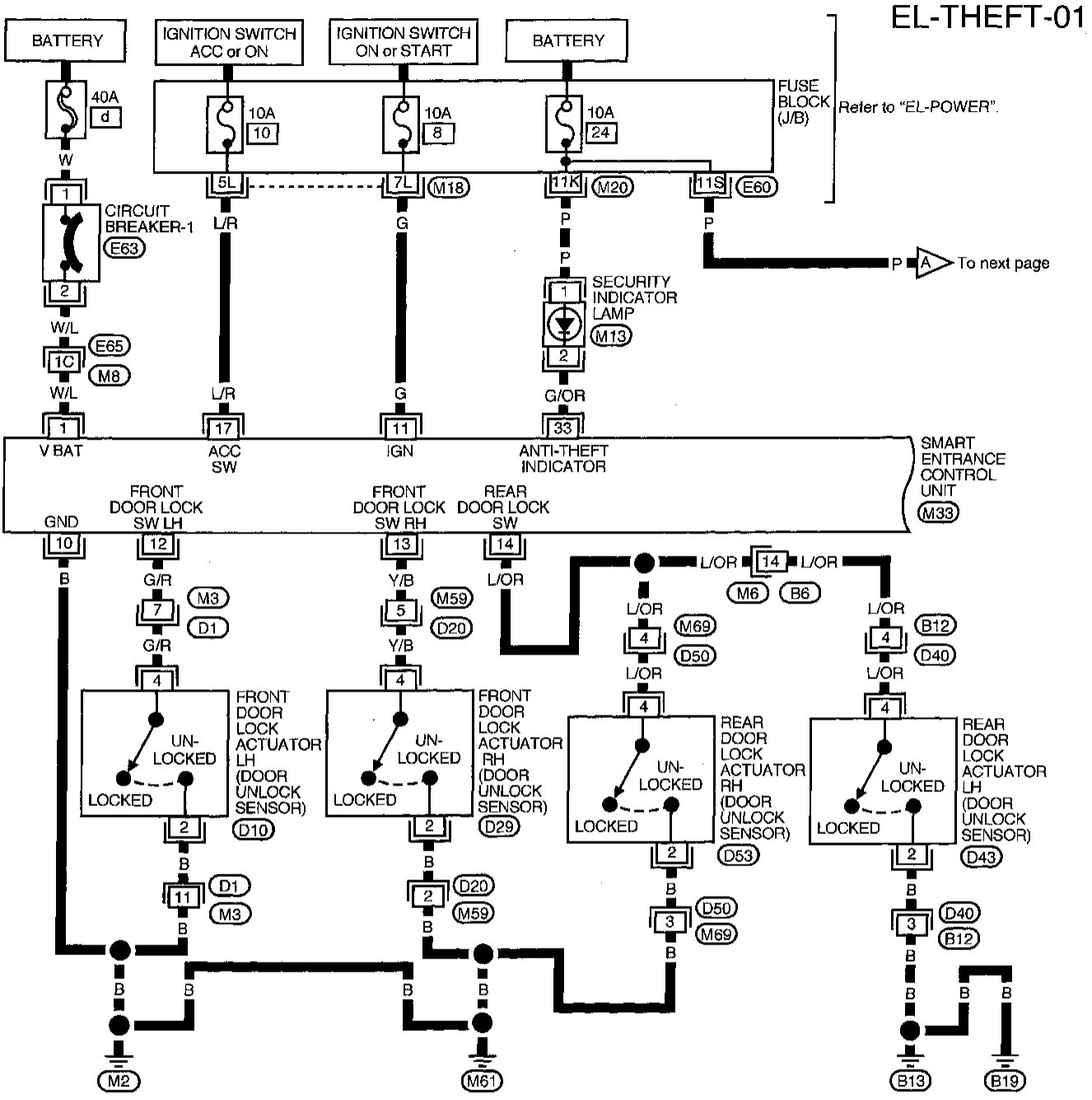
The headlamp flashes and the horn sounds intermittently.

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

Schematic


IGNITION SWITCH ON or START
IGNITION SWITCH ACC or ON
IGNITION SWITCH ON or START
BATTERY
BATTERY
FUSE
FUSIBLE LINK
CIRCUIT BREAKER-1
SECURITY INDICATOR LAMP
KEY SWITCH
THEFT WARNING RELAY
THEFT WARNING LAMP RELAY
THEFT WARNING HORN RELAY
HORN RELAY
THEFT WARNING HORN
To starting system
To horn switch
To daytime light control unit
HEADLAMP LH
HEADLAMP RH
SMART ENTRANCE CONTROL UNIT
FRONT DOOR KEY CYLINDER SWITCH RH
FRONT DOOR KEY CYLINDER SWITCH LH
FRONT DOOR LOCK ACTUATOR RH (DOOR UNLOCK SENSOR)
FRONT DOOR LOCK ACTUATOR LH (DOOR UNLOCK SENSOR)
REAR DOOR LOCK ACTUATOR RH (DOOR UNLOCK SENSOR)
REAR DOOR LOCK ACTUATOR LH (DOOR UNLOCK SENSOR)
TRUNK ROOM LAMP SWITCH
TRUNK LID KEY CYLINDER SWITCH (UNLOCK SWITCH)
HOOD SWITCH
REAR DOOR SWITCH RH
REAR DOOR SWITCH LH
FRONT DOOR SWITCH RH
FRONT DOOR SWITCH LH
LOCK
UNLOCK
FULL STROKE
BETWEEN FULL STROKE AND N
LOCKED
UNLOCKED
Ⓓ: For USA
Ⓝ: For Canada
AEL829B

Wiring Diagram — THEFT —

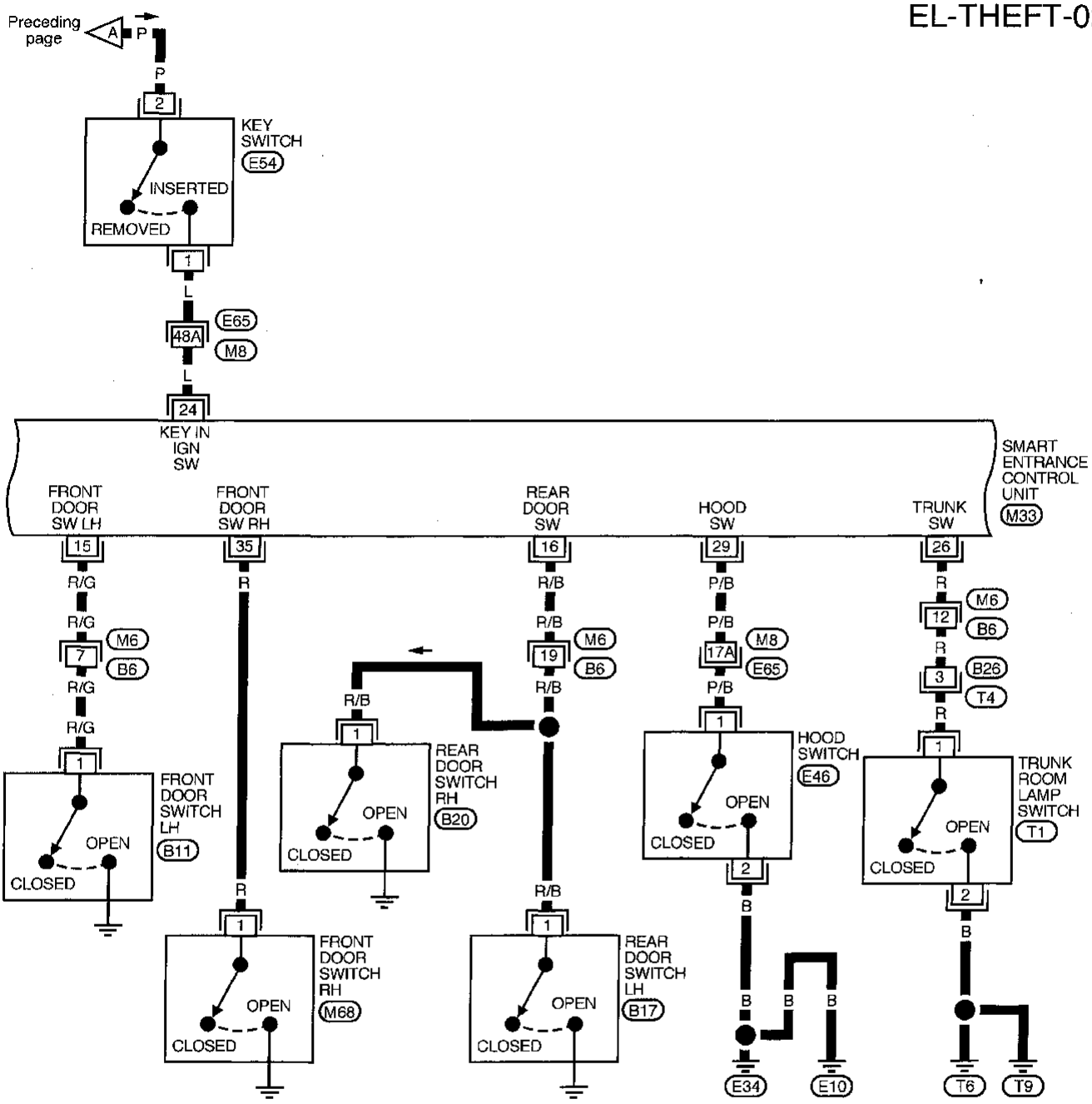


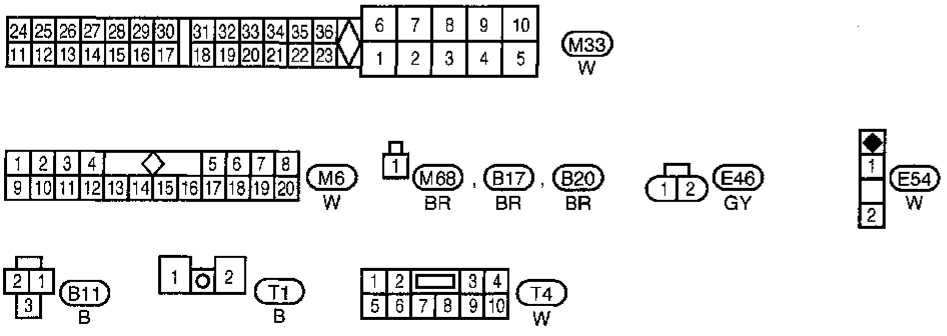
Refer to last page (Foldout page).
M8, E65
M33

AEL830B

Wiring Diagram — THEFT — (Cont'd)

EL-THEFT-02

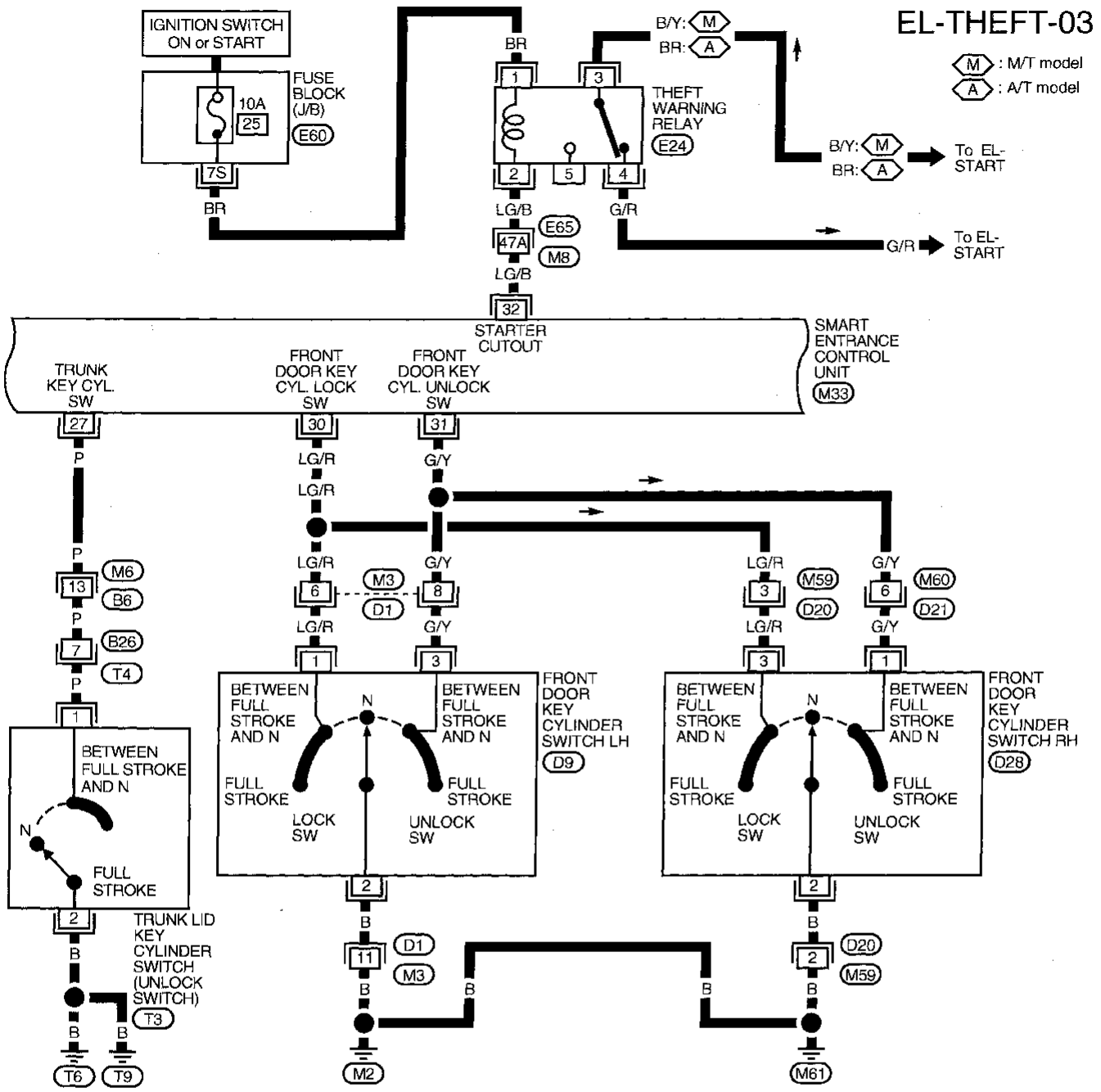




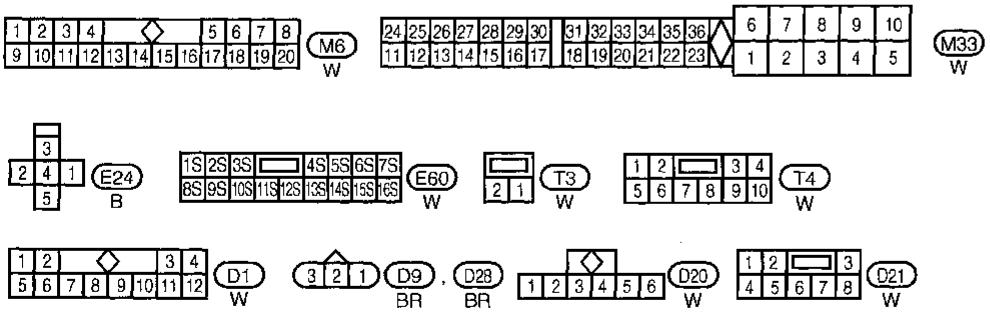
Refer to last page (Foldout page).
M8, E65

AEL831B

Wiring Diagram — THEFT — (Cont'd)

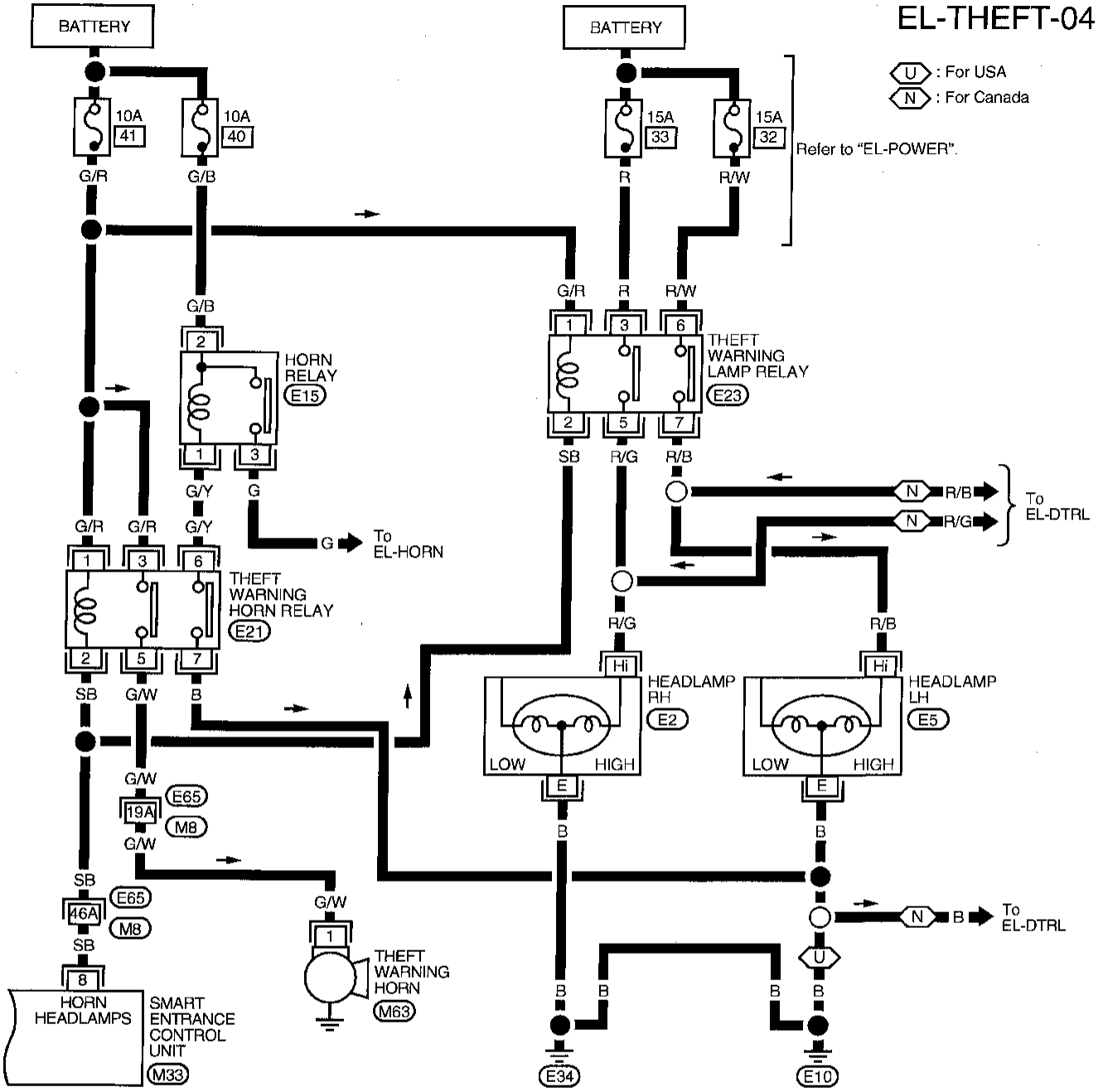


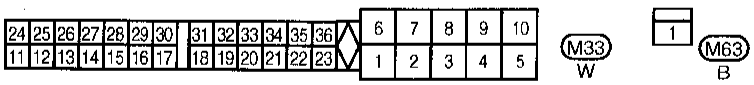
Refer to last page (Foldout page).
M8 , E65

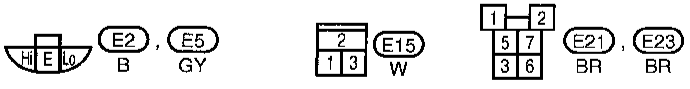


AEL994A

Wiring Diagram — THEFT — (Cont'd)







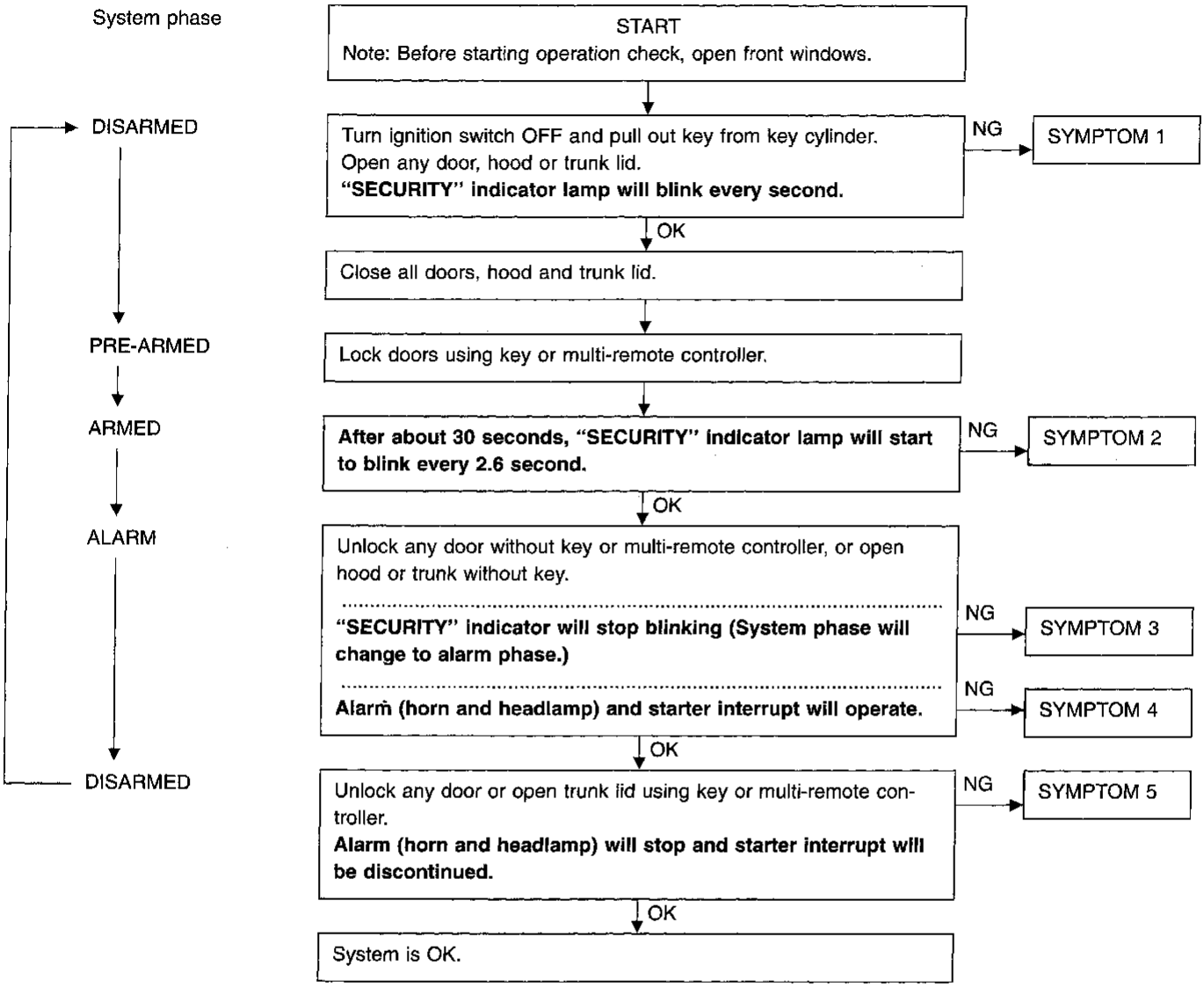
Refer to last page (Foldout page).
M8 , E65

AEL995A

Trouble Diagnoses

PRELIMINARY CHECK

The system operation is canceled by turning ignition switch to ACC at any step between START and ARMED in the following flow chart.



After performing preliminary check, go to symptom chart on next page.

Trouble Diagnoses (Cont'd)

Before starting trouble diagnoses below, perform preliminary check, EL-212.

Symptom numbers in the symptom chart correspond with those of preliminary check.

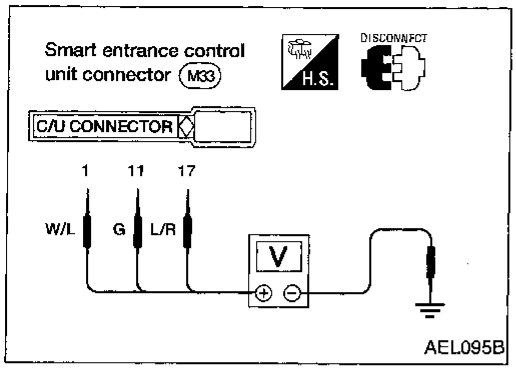
SYMPTOM CHART

PROCEDURE			—	Power supply and ground circuit check		Diagnostic procedure								—
REFERENCE PAGE			EL-212	EL-214	EL-214	EL-215	EL-218	EL-219	EL-220	EL-221	EL-222	EL-223	EL-224	EL-186
SYMPTOM			Preliminary check	Power supply circuit check	Ground circuit check	Diagnostic Procedure 1 (Door, hood and trunk room lamp switch check)	Diagnostic Procedure 2 (Security indicator lamp check)	Diagnostic Procedure 3 (Door unlock sensor check)	Diagnostic Procedure 4 (Door key cylinder switch check)	Diagnostic Procedure 5 (Trunk lid key cylinder switch check)	Diagnostic Procedure 6 (Theft warning horn alarm check)	Diagnostic Procedure 7 (Headlamp alarm check)	Diagnostic Procedure 8 (Starter interrupt system check)	Check "MULTI-REMOTE CONTROL" system.
1	Theft warning indicator does not turn "ON" or blinking.		X	X	X		X							
2	Theft warning system cannot be set by	All items	X	X	X	X		X						
		Door out side key	X	X	X				X					
		Multi-remote control	X	X	X									X
3	*1 Theft warning system does not alarm when ...	Any door is opened.	X	X	X	X								
		Any door is unlocked without using key or multi-remote controller	X	X	X			X						
4	Theft warning system does not activate.	All function	X	X	X	X		X						
		Horn alarm	X	X	X						X			
		Headlamp alarm	X	X	X							X		
		Starter interrupt	X	X	X								X	
5	Theft warning system cannot be canceled by	Door out side key	X	X	X				X					
		Trunk lid key	X	X	X					X				
		Multi-remote control	X	X	X									X

X : Applicable
*1: Make sure the system is in the armed phase.

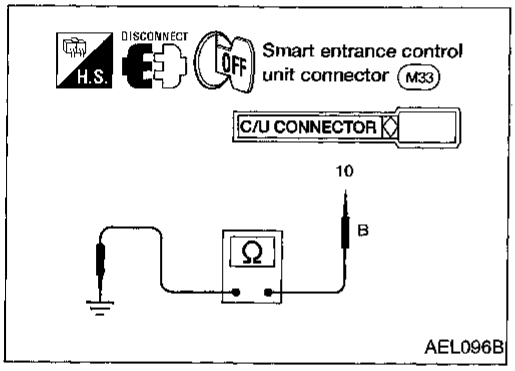
Trouble Diagnoses (Cont'd)

POWER SUPPLY AND GROUND CIRCUIT CHECK



Power supply circuit check

Terminals		Ignition switch position		
⊕	⊖	OFF	ACC	ON
①	Ground	Battery voltage	Battery voltage	Battery voltage
⑪	Ground	0V	0V	Battery voltage
⑰	Ground	0V	Battery voltage	Battery voltage

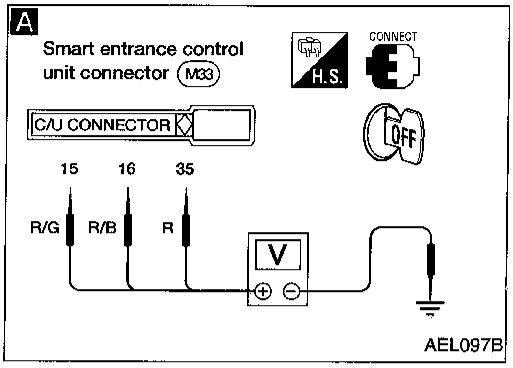


Ground circuit check

Terminals	Continuity
⑩ - Ground	Yes

Trouble Diagnoses (Cont'd)

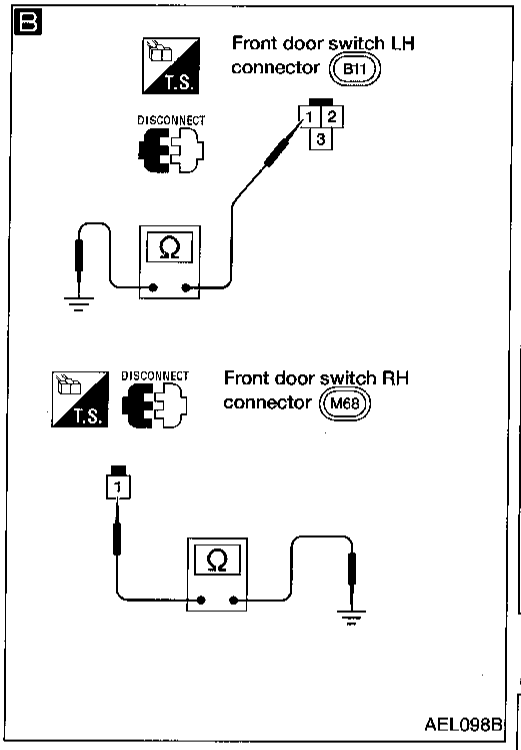
DIAGNOSTIC PROCEDURE 1-(1) (Door switch check)



1. Turn ignition switch OFF and remove key from key cylinder.
2. Close all doors, hood and trunk lid. **"SECURITY" indicator lamp should turn off.**
3. Open any passenger door. **"SECURITY" indicator lamp should blink every second.**

OK → Door switch is OK.

NG ↓



A

CHECK DOOR SWITCH INPUT SIGNAL.
Check voltage between control unit terminals (15), (16) or (35) and ground.

	Terminals ⊕	Terminals ⊖	Condition	Voltage [V]
Front LH door switch	(15)	Ground	Open	0
			Closed	Approx. 12
Front RH door switch	(35)	Ground	Open	0
			Closed	Approx. 12
Rear door switches	(16)	Ground	Open	0
			Closed	Approx. 12

Refer to wiring diagram in EL-209.

OK → Door switch is OK.

NG ↓

B

CHECK DOOR SWITCH.
1. Disconnect door switch connector.
2. Check continuity between door switch terminals.

	Terminals	Condition	Continuity
Front LH door switch	(1) - Ground	Closed	No
		Open	Yes
Other door switches	(1) - Ground	Closed	No
		Open	Yes

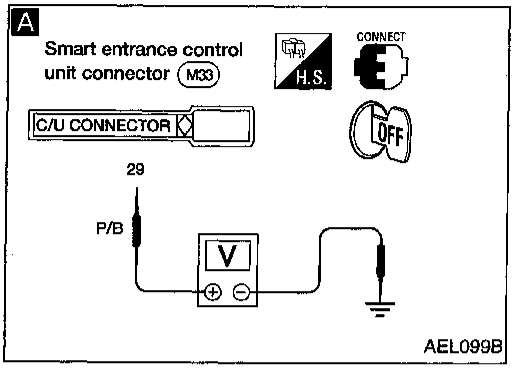
NG → Replace door switch.

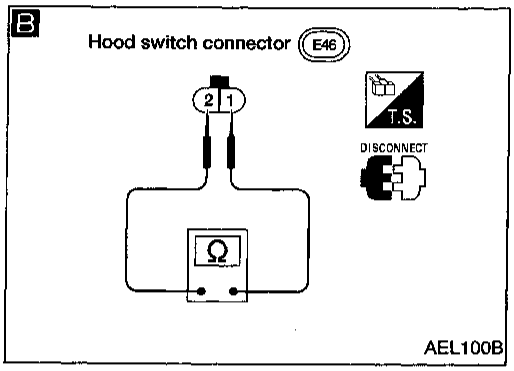
OK ↓

Check the following.
- Door switch ground circuit (Front LH) or door switch ground condition
- Harness for open or short between control unit and door switch

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 1-(2)
(Hood switch check)





1. Turn ignition switch OFF and remove key from key cylinder.
2. Close all doors, hood and trunk lid.
   "SECURITY" indicator lamp should turn off.
3. Open hood.
   "SECURITY" indicator lamp should blink every second.

OK → Hood switch is OK.

NG ↓

Check hood switch and hood fitting condition.

NG → Adjust installation of hood switch or hood.

OK ↓

A

CHECK HOOD SWITCH INPUT SIGNAL.
Check voltage between control unit terminal (29) and ground.

Condition	Voltage [V]
Hood is open.	0
Hood is closed.	Approx. 12

Refer to wiring diagram in EL-209.

OK → Hood switch is OK.

NG ↓

B

CHECK HOOD SWITCH.
1. Disconnect hood switch connector.
2. Check continuity between hood switch terminals.

Terminals	Condition	Continuity
① - ②	Pushed	No
	Released	Yes

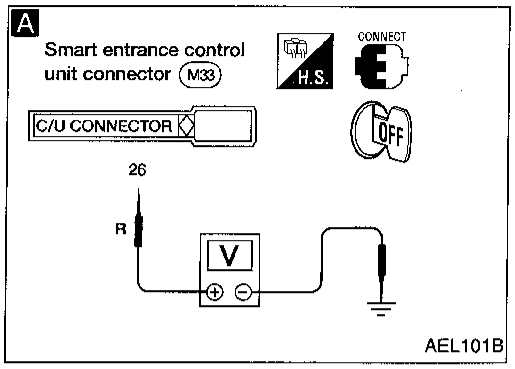
NG → Replace hood switch.

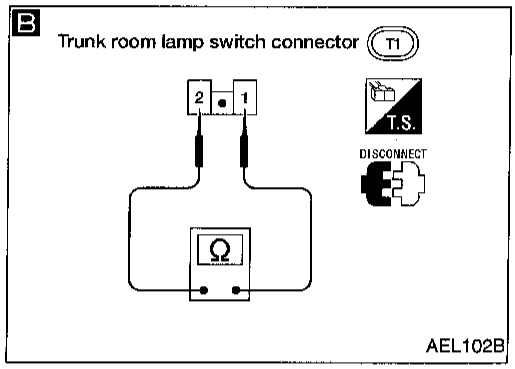
OK ↓

Check the following.
- Hood switch ground circuit
- Harness for open or short between control unit and hood switch

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 1-(3)
(Trunk room lamp switch check)





1. Turn ignition switch OFF and remove key from key cylinder.
2. Close all doors, hood and trunk lid.
   "SECURITY" indicator lamp should turn off.
3. Open trunk lid.
   "SECURITY" indicator lamp should blink every second.

OK → Trunk room lamp switch is OK.

NG ↓

A

CHECK TRUNK ROOM LAMP SWITCH INPUT SIGNAL.

Check voltage between control unit terminal (26) and ground.

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

Refer to wiring diagram in EL-209.

OK → Trunk room lamp switch is OK.

NG ↓

B

CHECK TRUNK ROOM LAMP SWITCH.

1. Disconnect trunk room lamp switch connector.
2. Check continuity between trunk room lamp switch terminals.

Terminals	Condition	Continuity
① - ②	Closed	No
	Open	Yes

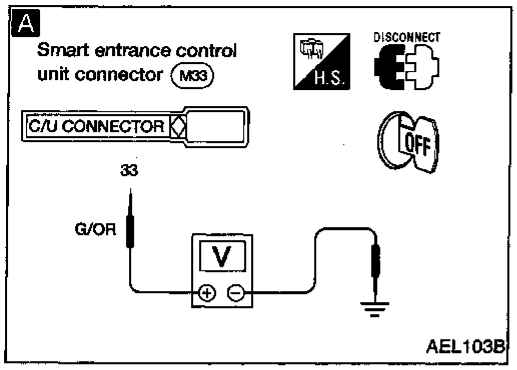
NG → Replace trunk room lamp switch.

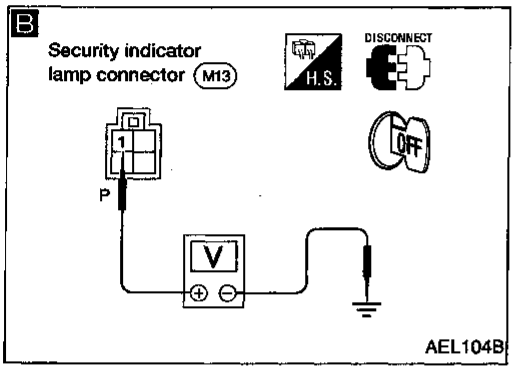
OK ↓

Check the following.
- Trunk room lamp switch ground circuit
- Harness for open or short between control unit and trunk room lamp switch

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 2
(Security indicator lamp check)





A

CHECK INDICATOR LAMP OUTPUT SIGNAL.
1. Disconnect control unit connector.
2. Check voltage between control unit terminal (33) and ground.
   Battery voltage should exist.

   Refer to wiring diagram in EL-208.

OK → Security indicator lamp is OK.

NG ↓

CHECK INDICATOR LAMP. → NG → Replace indicator lamp.

OK ↓

B

CHECK POWER SUPPLY CIRCUIT FOR INDICATOR LAMP.
1. Disconnect security lamp connector.
2. Check voltage between indicator lamp terminal (1) and ground.
   Battery voltage should exist.

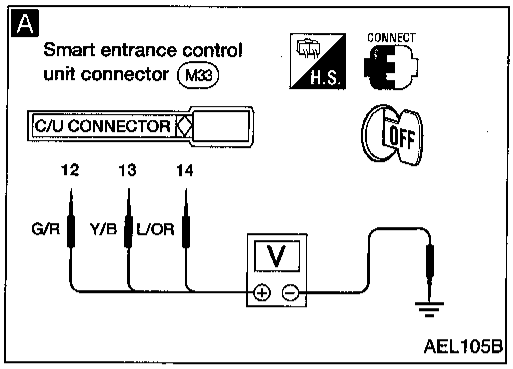
NG → Check the following:
- 10A fuse [No. 24, located in fuse block (J/B)]
- Harness for open or short between security indicator lamp and fuse

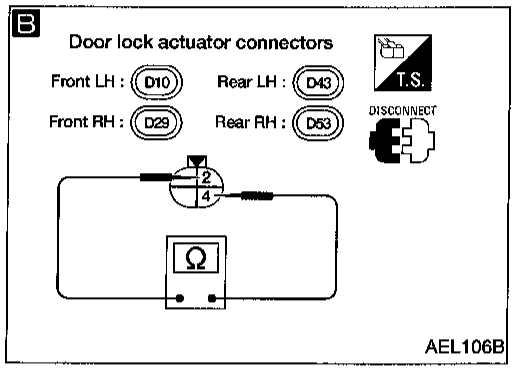
OK ↓

Check harness for open or short between security indicator lamp and control unit.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 3
(Door unlock sensor check)





A

CHECK DOOR UNLOCK SENSOR INPUT SIGNAL.

Check voltage between control unit terminals ⑫, ⑬ or ⑭ and ground.

	Terminals ⊕	Terminals ⊖	Condition	Voltage [V]
Front LH door	⑫	Ground	Locked	Approx. 12
			Unlocked	0
Front RH door	⑬	Ground	Locked	Approx. 12
			Unlocked	0
Rear door	⑭	Ground	Locked	Approx. 12
			Unlocked	0

Refer to wiring diagram in EL-208.

OK → Door unlock sensor is OK.

NG ↓

B

CHECK DOOR UNLOCK SENSOR.

1. Disconnect door unlock sensor connector.
2. Check continuity between door unlock sensor terminals.

Terminals	Condition	Continuity
④ - ②	Locked	No
	Unlocked	Yes

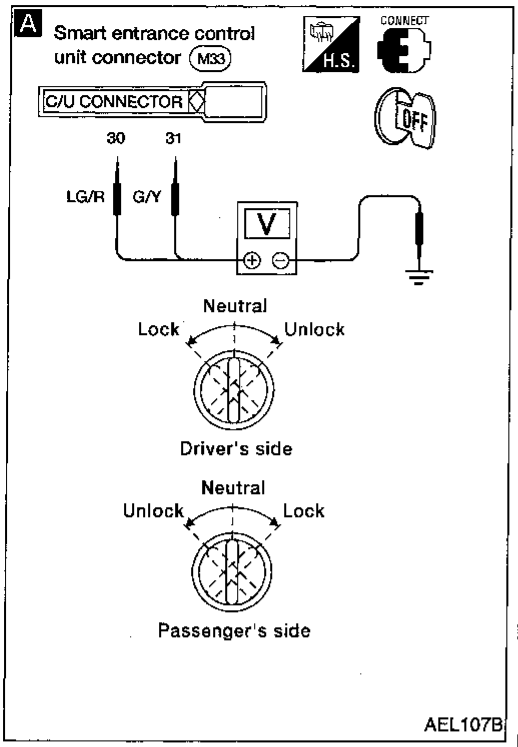
NG → Replace door unlock sensor.

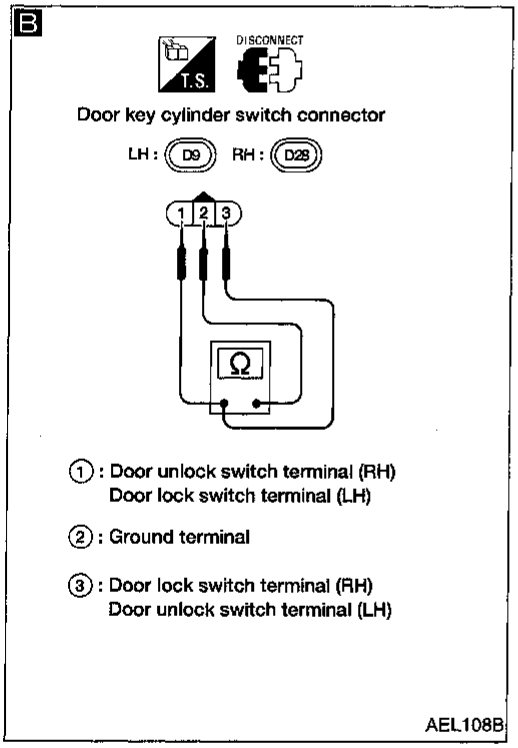
OK ↓

Check the following.
- Door unlock sensor ground circuit
- Harness for open or short between control unit and door unlock sensor

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 4 (Door key cylinder switch check)





① : Door unlock switch terminal (RH)
Door lock switch terminal (LH)

② : Ground terminal

③ : Door lock switch terminal (RH)
Door unlock switch terminal (LH)

A

CHECK DOOR KEY CYLINDER SWITCH INPUT SIGNAL (LOCK/UNLOCK SIGNAL).

Check voltage between control unit terminals ㉚ or ㉛ and ground.

Terminals ⊕	Terminals ⊖	Key position	Voltage [V]
㉚	Ground	Neutral	Approx. 12
		Lock	0
㉛	Ground	Neutral	Approx. 12
		Unlock	0

Refer to wiring diagram in EL-210.

OK → Door key cylinder switch is OK.

NG ↓

B

CHECK DOOR KEY CYLINDER SWITCH.

1. Disconnect door key cylinder switch connector.
2. Check continuity between door key cylinder switch terminals.

Terminals	Key position	Continuity
LH: ① - ②	Neutral	No
RH: ③ - ②	Lock	Yes
LH: ③ - ②	Neutral	No
RH: ① - ②	Unlock	Yes

NG → Replace door key cylinder switch.

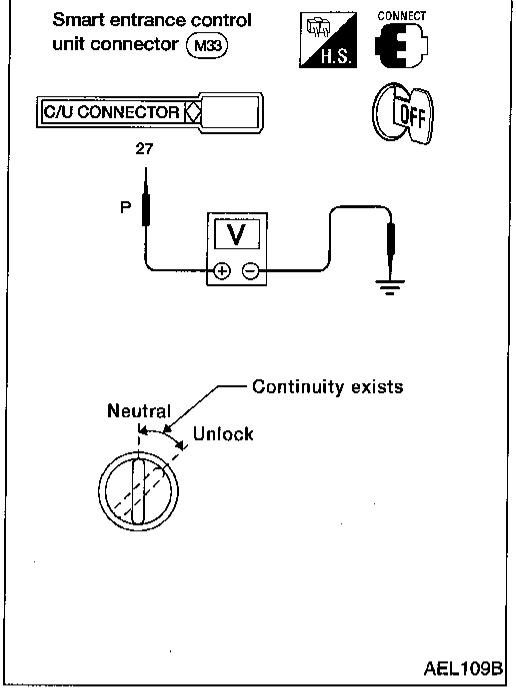
OK ↓

Check the following:
- Door key cylinder switch ground circuit
- Harness for open or short between control unit and door key cylinder switch

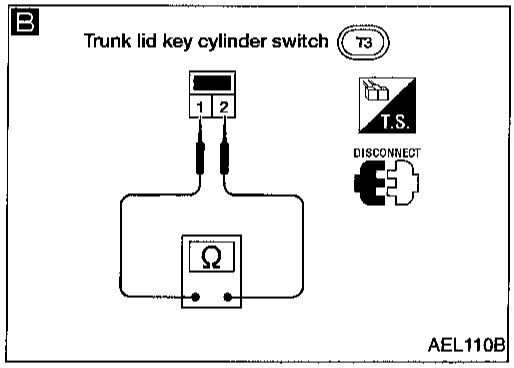
Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 5
(Trunk lid key cylinder switch check)

A



B



A

CHECK TRUNK LID KEY CYLINDER SWITCH INPUT SIGNAL (UNLOCK SIGNAL).

Check voltage between control unit terminal 27 and ground.

Key position	Voltage [V]
Neutral	Approx. 12
Between neutral and unlock	0

Refer to wiring diagram in EL-210.

OK → Trunk lid key cylinder switch is OK.

NG ↓

B

CHECK TRUNK LID KEY CYLINDER SWITCH.

1. Disconnect trunk lid key cylinder switch connector.
2. Check continuity between trunk lid key cylinder switch terminals.

Key position	Continuity
Neutral and lock	No
Between neutral and unlock	Yes

NG → Replace trunk lid key cylinder switch.

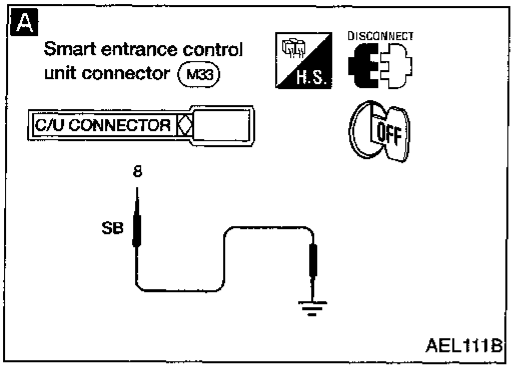
OK ↓

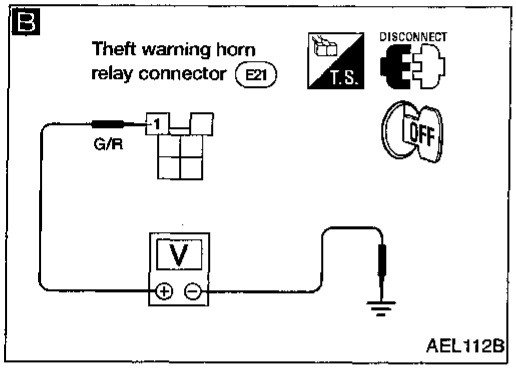
Check the following:

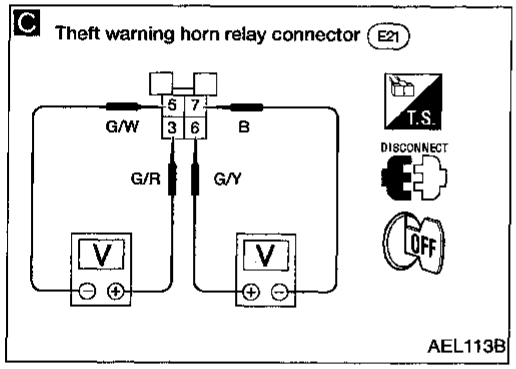
- Trunk lid key cylinder switch ground circuit
- Harness for open or short between control unit and trunk lid key cylinder switch

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 6
(Theft warning horn alarm check)







A

CHECK THEFT WARNING HORN ALARM OPERATION.

1. Disconnect control unit connector.
2. Apply ground to control unit terminal ⑧.

Does horn alarm activate?

Refer to wiring diagram in EL-211.

Yes → Horn alarm is OK.

No ↓

Check theft warning horn relay. → NG → Replace.

OK ↓

B

CHECK POWER SUPPLY FOR THEFT WARNING HORN RELAY.

1. Disconnect theft warning horn relay connector.
2. Check voltage between terminal ① and ground.

Battery voltage should exist.

NG → Check the following:
- 10A fuse (No. 41, located in the fuse and fusible link box)
- Harness for open or short between theft warning horn relay and fuse

OK ↓

C

CHECK THEFT WARNING HORN RELAY CIRCUIT.

1. Disconnect theft warning horn relay connector.
2. Check voltage between terminals ③ and ⑤.

Battery voltage should exist.

3. Check voltage between terminals ⑥ and ⑦.

Battery voltage should exist.

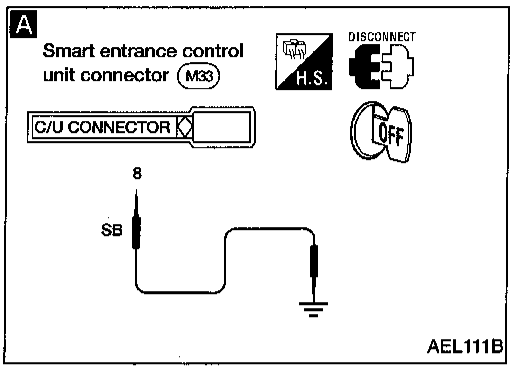
NG → Check harness for open or short.

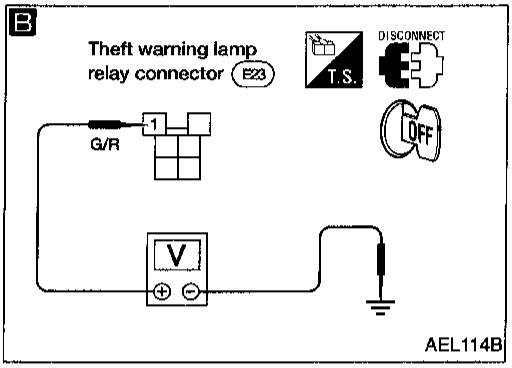
OK ↓

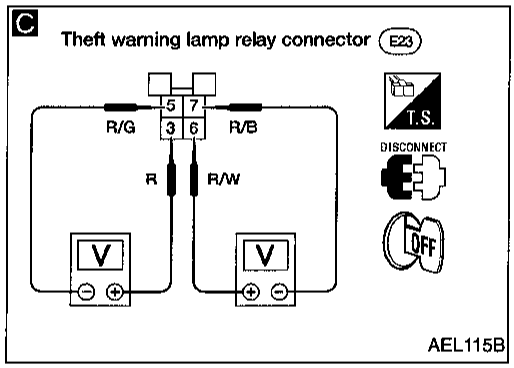
Check harness for open or short between theft warning horn relay and control unit.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 7
(Theft warning headlamp alarm check)







A

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

Does headlamp alarm activate?

Refer to wiring diagram in EL-211.

Yes → Headlamp alarm is OK.

No ↓

Does headlamp come on when turning lighting switch ON?

No → Check headlamp system. Refer to "HEADLAMP" (EL-43).

Yes ↓

Check theft warning lamp relay.

NG → Replace.

OK ↓

B

CHECK POWER SUPPLY FOR THEFT WARNING LAMP RELAY.
1. Disconnect theft warning lamp relay connector.
2. Check voltage between terminal (1) and ground.

Battery voltage should exist.

Refer to wiring diagram in EL-208.

NG → Check the following:
- 10A fuse (No. 41, located in the fuse and fusible link box)
- Harness for open or short between theft warning lamp relay and fuse

OK ↓

C

CHECK THEFT WARNING LAMP RELAY CIRCUIT.
1. Disconnect theft warning lamp relay connector.
2. Check voltage between terminals (3) and (5).

Battery voltage should exist.
3. Check voltage between terminals (6) and (7).

Battery voltage should exist.

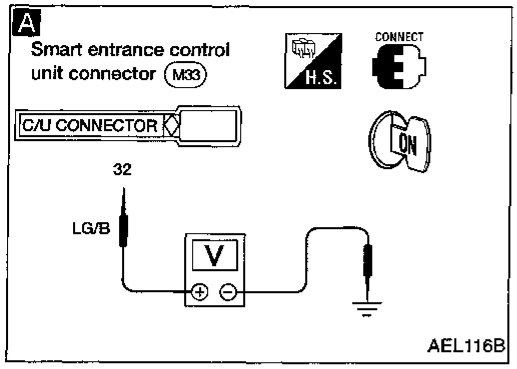
NG → Check harness for open or short.

OK ↓

Check harness for open or short between theft warning lamp relay and ground.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 8
(Starter interrupt system check)



A

CHECK STARTER MOTOR INTERRUPT SIGNAL.

1. Turn ignition switch ON.
2. Check voltage between control unit terminal (32) and ground.

Condition	Voltage [V]
Except starter interrupted phase	Approx. 12
Starter interrupted phase	0

Refer to wiring diagram in EL-210.

NG → Check the following:
- 10A fuse [No. 25, located in fuse block (J/B)]
- Harness for open or short between theft warning relay terminal and fuse
- Harness for open or short between control unit terminal and theft warning relay terminal

OK ↓

Check theft warning relay. → NG → Replace relay.

OK ↓

Check starting system. Refer to "STARTING SYSTEM" (EL-29).

Description

The following systems are controlled by the smart entrance control unit.

- Warning chime
- Rear window defogger timer
- Power door lock
- Multi-remote control system
- Theft warning system.

For detailed description and wiring diagrams, refer to the relevant pages for the each system.
The control unit receives data from the switches and sensors to control their corresponding system relays and actuators.

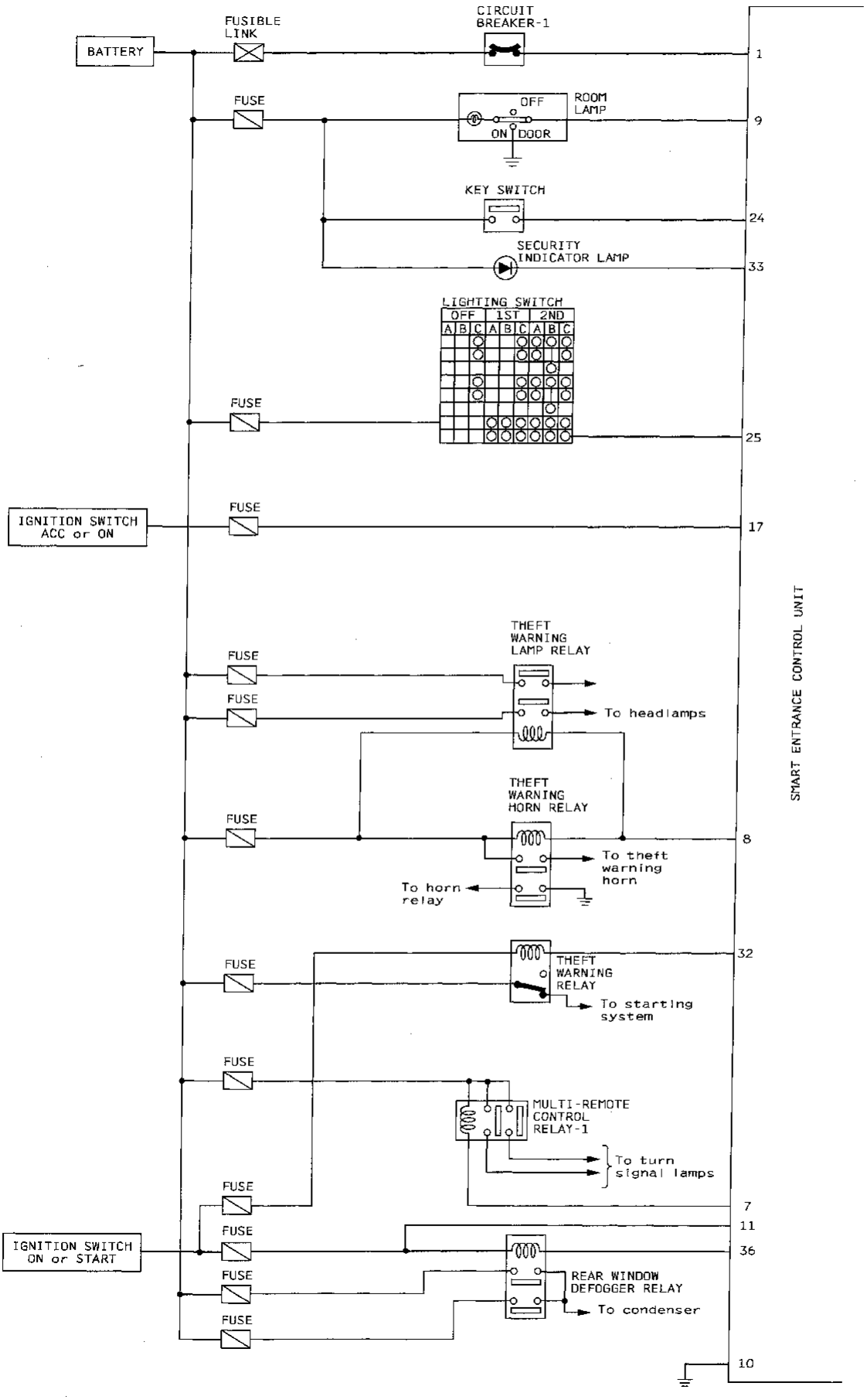
System	Input	Output
Power door lock	Door lock and unlock switches	Door lock actuators
Multi-remote control	Key switch (Insert) Ignition switch (ACC) Door switch Door unlock sensors Antenna (remote controller signal)	Theft warning horn relay Theft warning lamp relay Interior lamp Multi-remote control relay-1 Door lock actuators
Warning chime	Key switch (Insert) Ignition switch (ON) Lighting switch (1st) Seat belt buckle switch Front door switch LH	Warning chime
Rear window defogger timer	Ignition switch (ON) Rear window defogger switch	Rear window defogger relay
Theft warning	Ignition switch (ACC, ON) Door switches Hood switch Trunk room lamp switch Door key cylinder switches (lock/unlock) Trunk lid key cylinder switch (unlock) Door unlock sensors	Theft warning horn relay Theft warning lamp relay Theft warning relay (Starter interrupt) Security indicator

Input/Output Operation Signal

Terminal No.	Wire color	Connections	Operated condition		Voltage (V) (Approximate values)
1	W/L	Power source (C/B)	—		12V
2	W/R	Passenger and rear door lock actuators	Door lock & unlock switch	Unlocked	12V
3	Y	Driver door lock actuator		Free	0V
4	R/L	Driver, passenger and rear door lock actuators	Door lock & unlock switch	Locked	12V
				Free	0V
7	OR	Multi-remote control relay-1	When doors are locked using remote controller		12V → 0V
8	SB	Theft warning horn and lamp relays	When panic alarm is operated using remote controller		12V → 0V
9	R/W	Room lamp	When room lamp is operated using remote controller. (Lamp switch in DOOR position)		12V → 0V
10	B	Ground	—		—
11	G	Ignition switch (ON)	Ignition key is in ON position		12V
12	G/R	Driver door unlock sensor	Driver door: Locked → Unlocked		12V → 0V
13	Y/B	Passenger door unlock sensor	Passenger door: Locked → Unlocked		12V → 0V
14	L/OR	Rear door unlock sensor	Rear door LH & RH: Locked → Unlocked		12V → 0V
15	R/G	Driver door switch	OFF (Closed) → ON (Open)		12V → 0V
16	R/B	Rear door switches	OFF (Closed) → ON (Open)		12V → 0V
17	L/R	Ignition switch (ACC)	ACC position		12V
18	GY	Door lock/unlock switch (lock)	Neutral → Locks		12V → 0V
19	PU	Door lock/unlock switch (unlock)	Neutral → Unlocks		12V → 0V
20	G/B	Rear window defogger switch	OFF → ON		12V → 0V
21	W/B	Seat belt buckle switch	Unfasten → Fasten (Ignition key is in ON position)		0V → 12V
24	L	Ignition key switch (Insert)	IGN key inserted → IGN key removed from IGN key cylinder		12V → 0V
25	R/L	Lighting switch (1ST)	1ST, 2ND positions: ON → OFF		12V → 0V
26	R	Trunk room lamp switch	ON (Open) → OFF (Closed)		0V → 12V
27	P	Trunk lid key cylinder switch (unlock)	OFF (Neutral) → ON (Unlocked)		12V → 0V
29	P/B	Hood open switch	ON (Open) → OFF (Closed)		0V → 12V
30	LG/R	Door key cylinder lock switch	OFF (Neutral) → ON (Locked)		12V → 0V
31	G/Y	Door key cylinder unlock switch	OFF (Neutral) → ON (Unlocked)		12V → 0V
32	LG/B	Theft warning relay (Starter cut)	OFF → ON (Ignition key is in ON position)		12V → 0V
33	G/OR	Theft warning indicator	Goes off → Illuminates		12V → 0V
35	R	Passenger door switch	OFF (Closed) → ON (Open)		12V → 0V
36	G/R	Rear window defogger relay	OFF → ON (Ignition key is in ON position)		12V → 0V

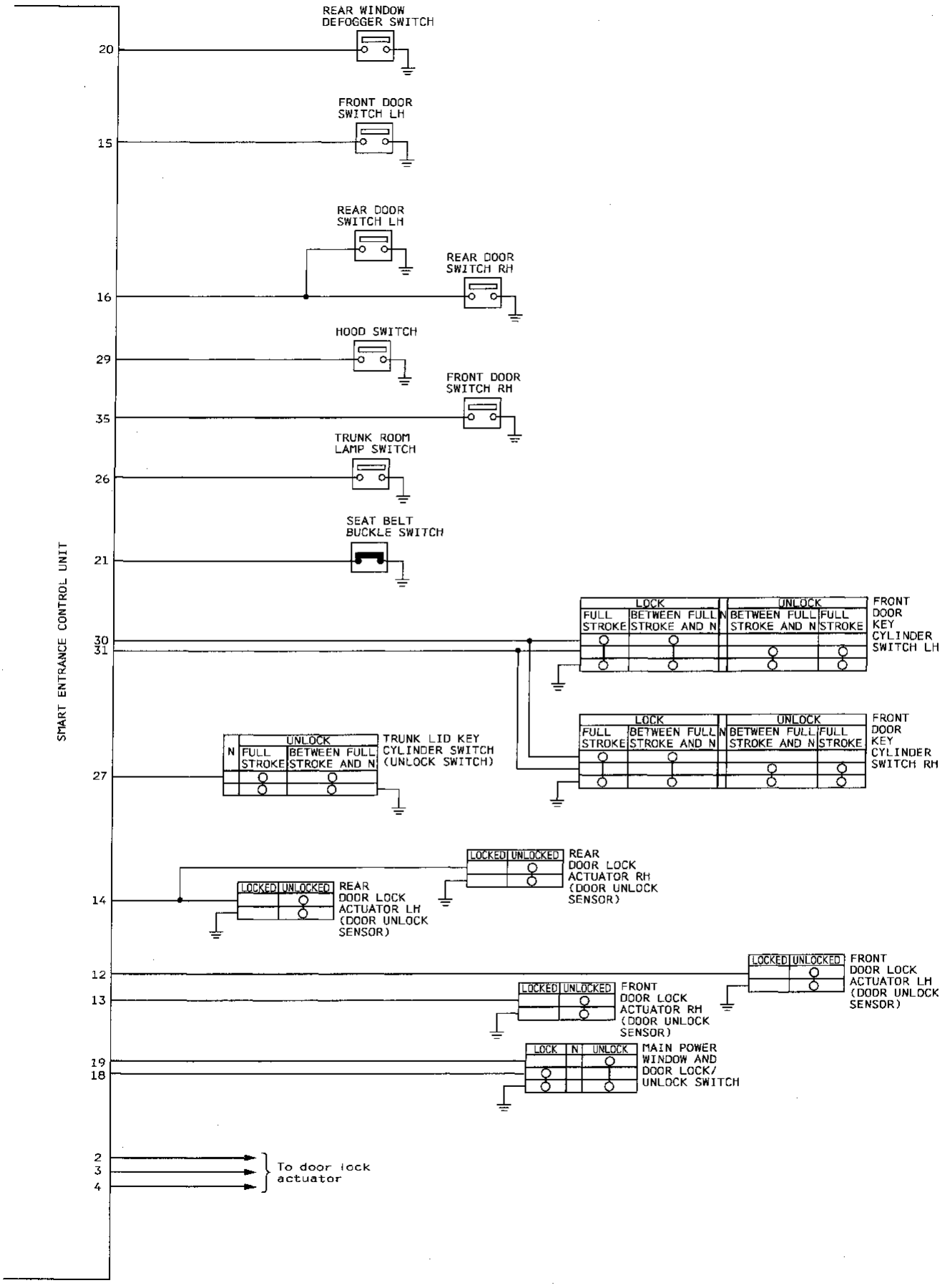
NOTES

Schematic



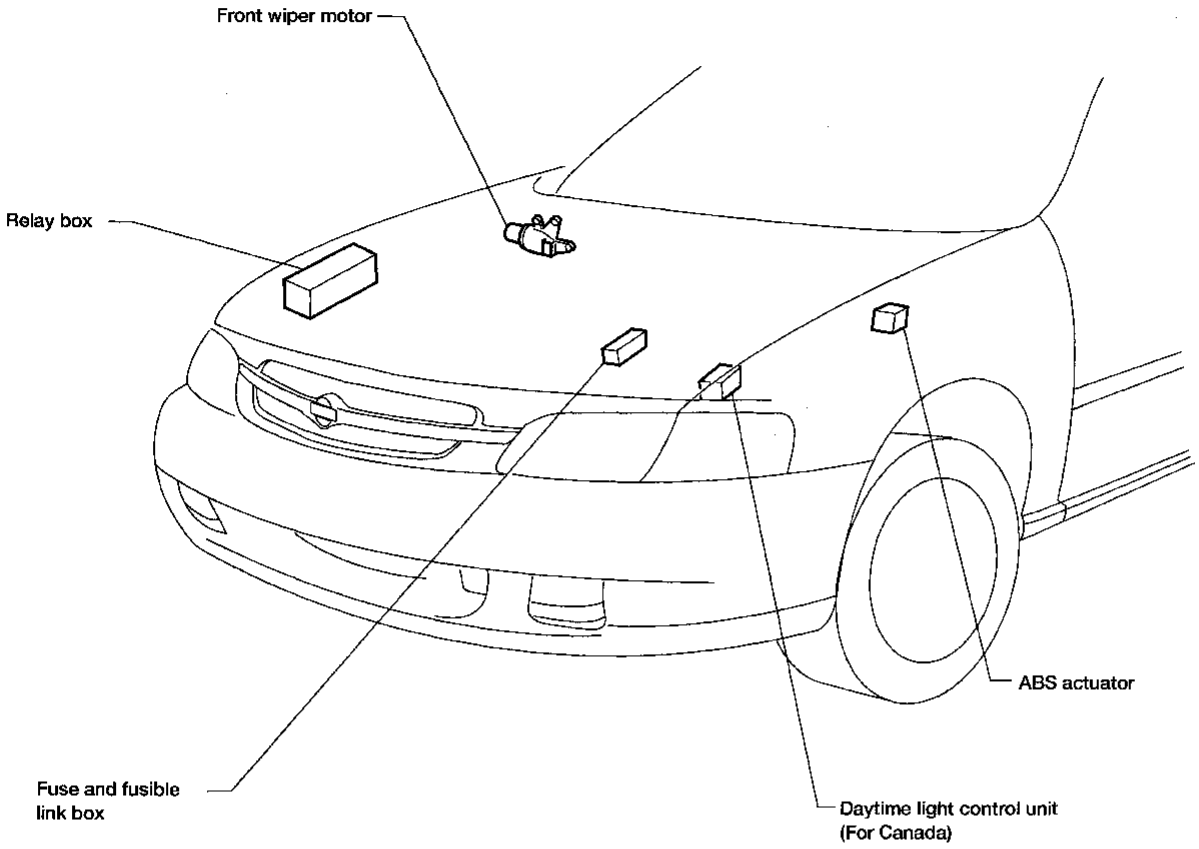
AEL832B

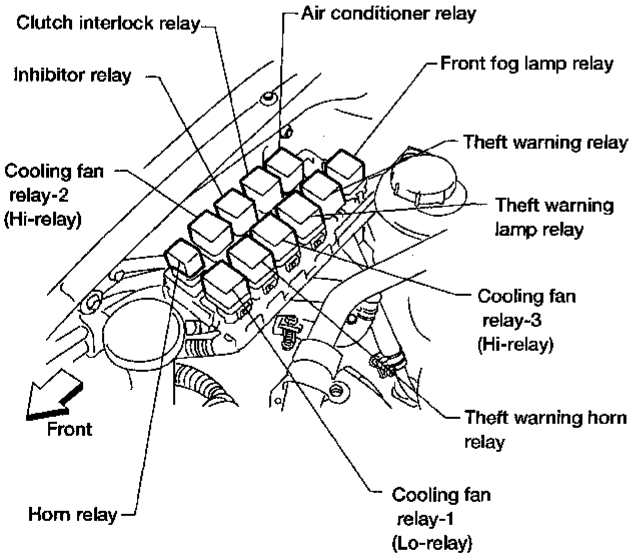
Schematic (Cont'd)

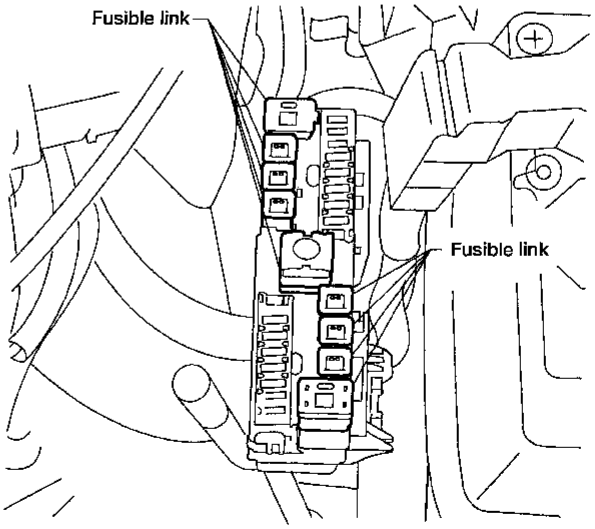


AEL833B

Engine Compartment







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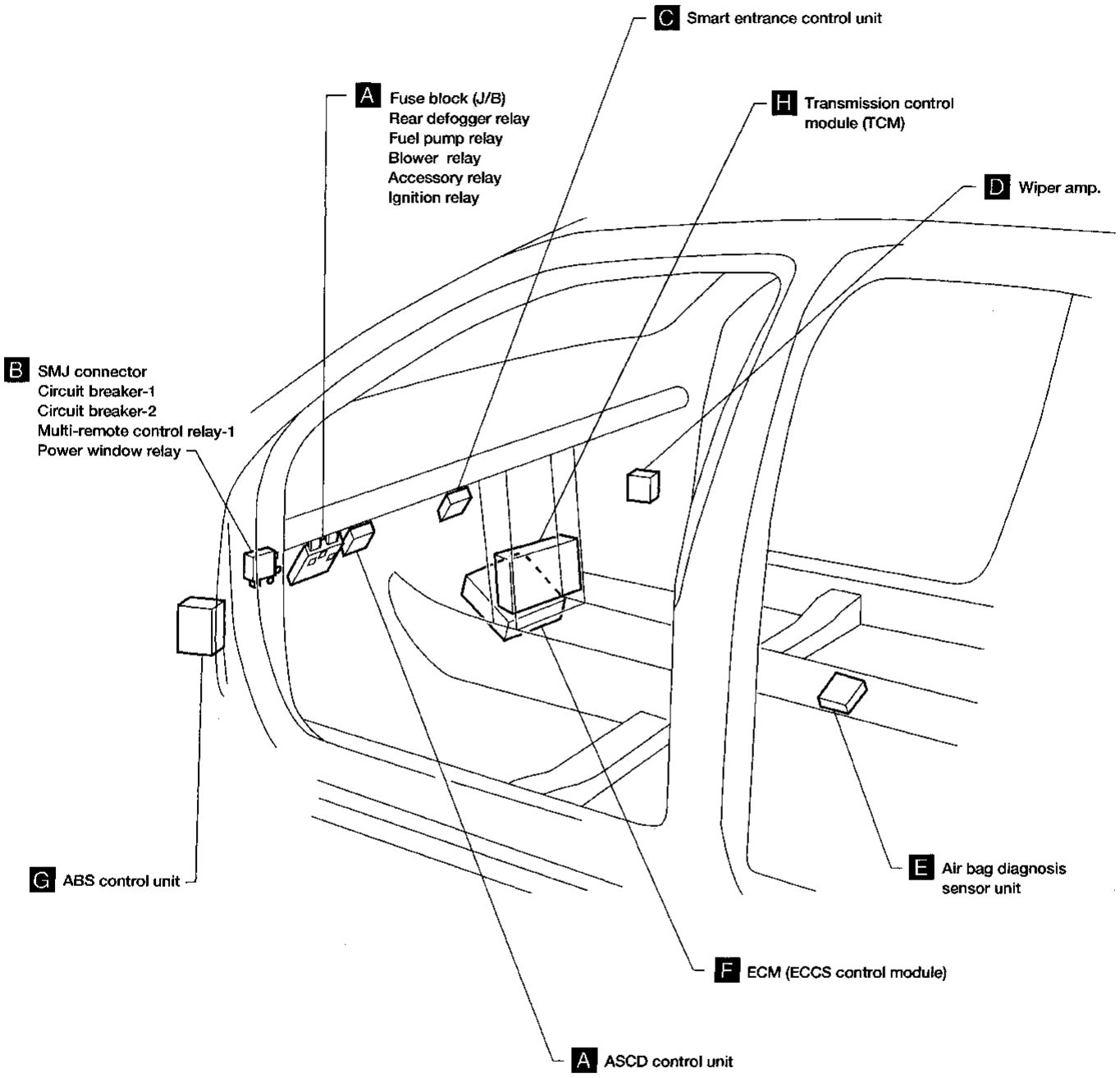
NOTES

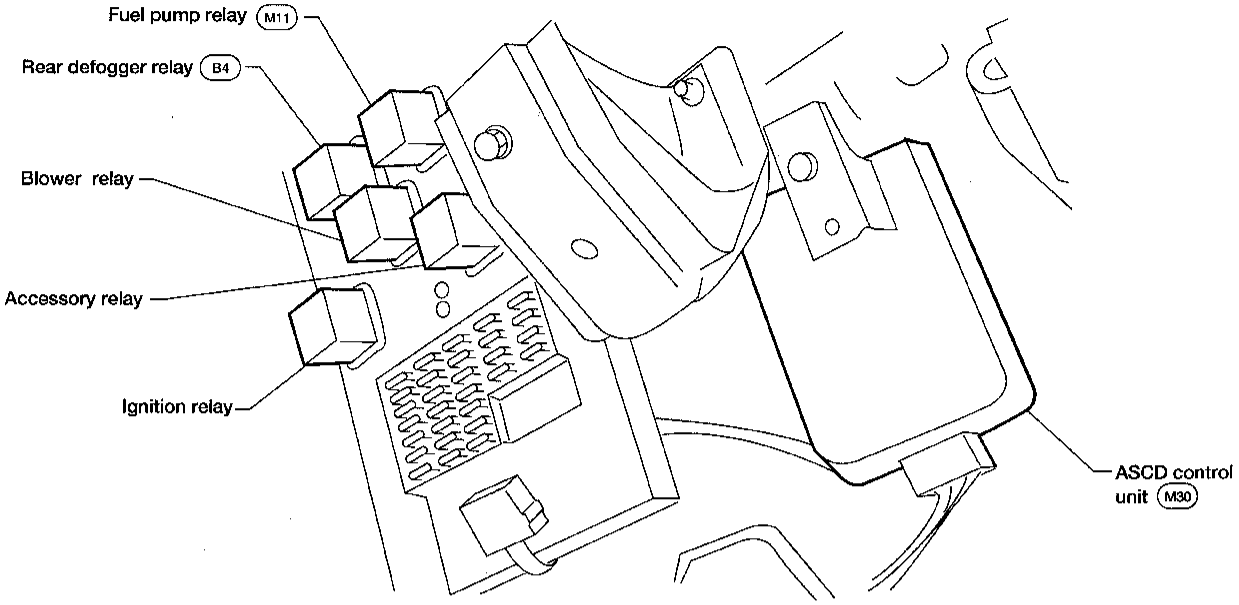
Passenger Compartment



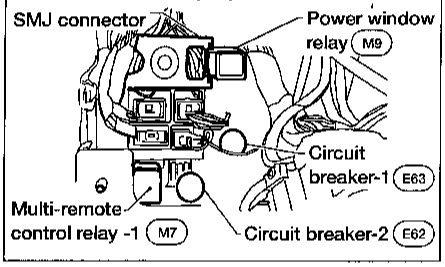
AEL191B

Passenger Compartment (Cont'd)

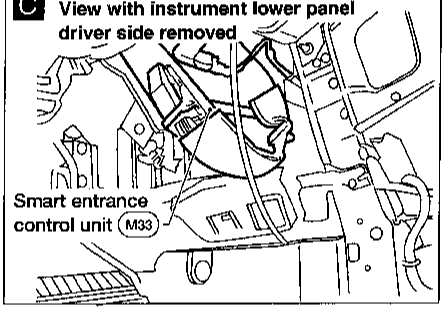
A



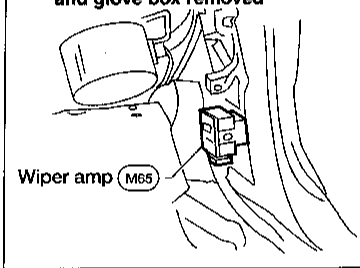
B View with instrument panel and fuse block (J/B) removed



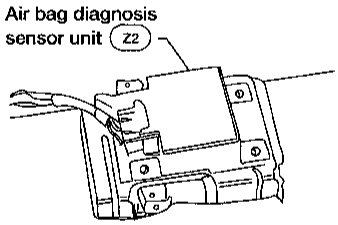
C View with instrument lower panel driver side removed



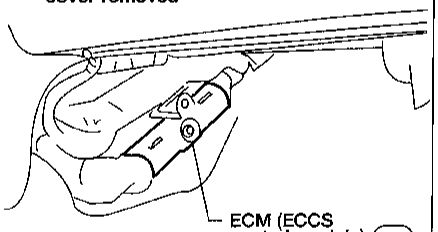
D View with dash side finisher RH and glove box removed



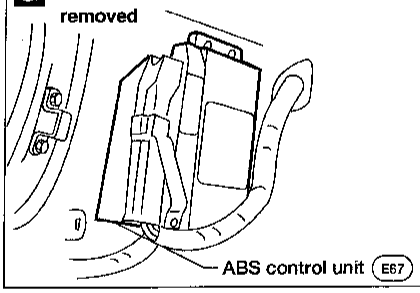
E View with console box removed



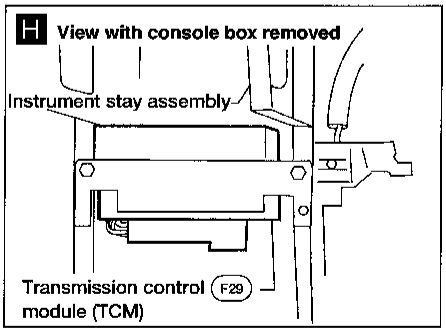
F View with lower instrument cover removed



G View with dash side finisher LH removed



H View with console box removed



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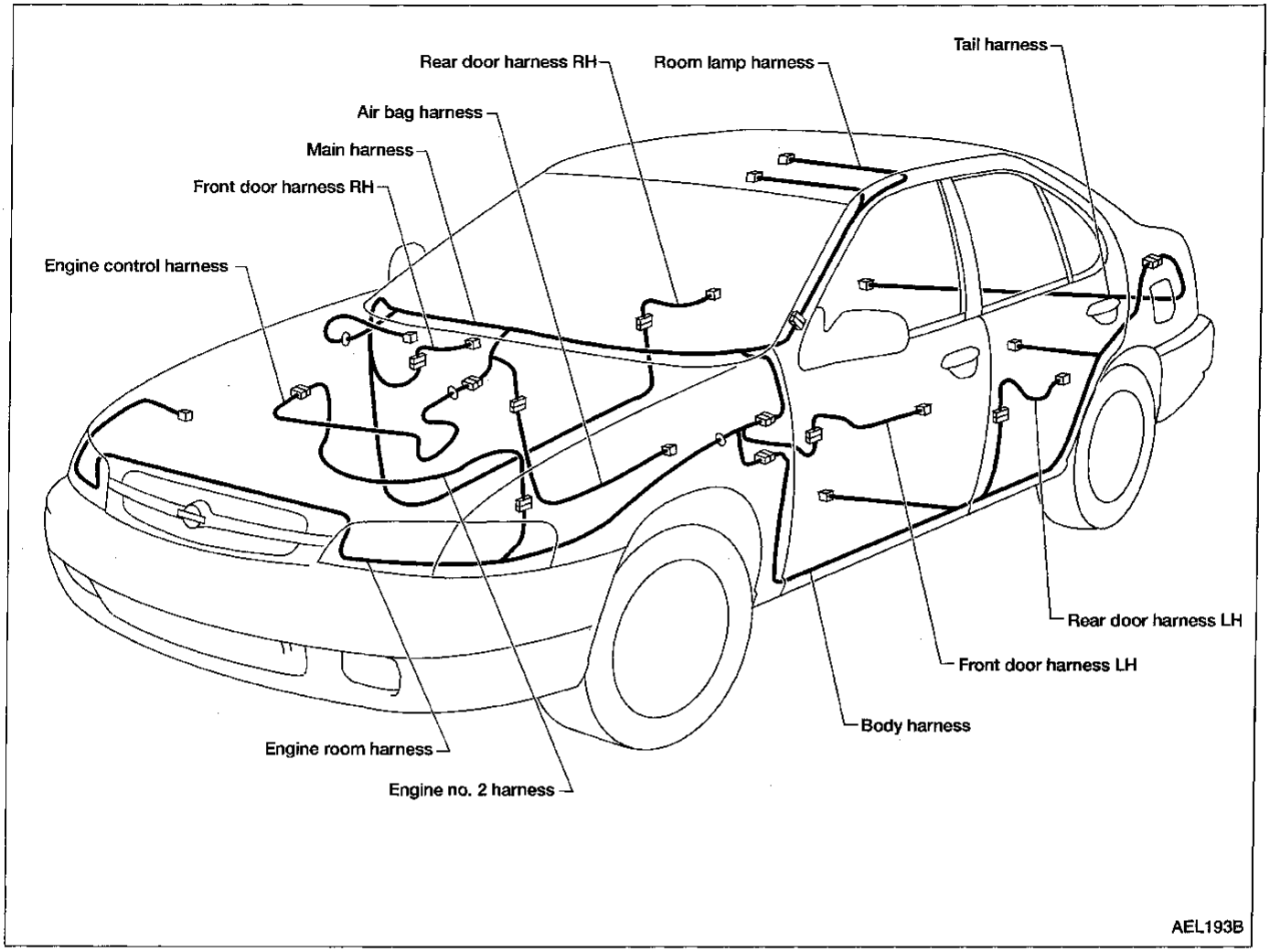
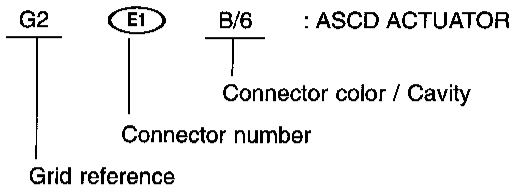
Outline



NOTE: For detailed ground distribution information, refer to "GROUND DISTRIBUTION", EL-18.

How to Read Harness Layout

Example:



The following Harness Layouts use a map style grid to help locate connectors on the drawings:
- Main Harness
- Engine Room Harness (Engine Compartment)
- Engine Control Harness
- Body Harness

To use the grid reference

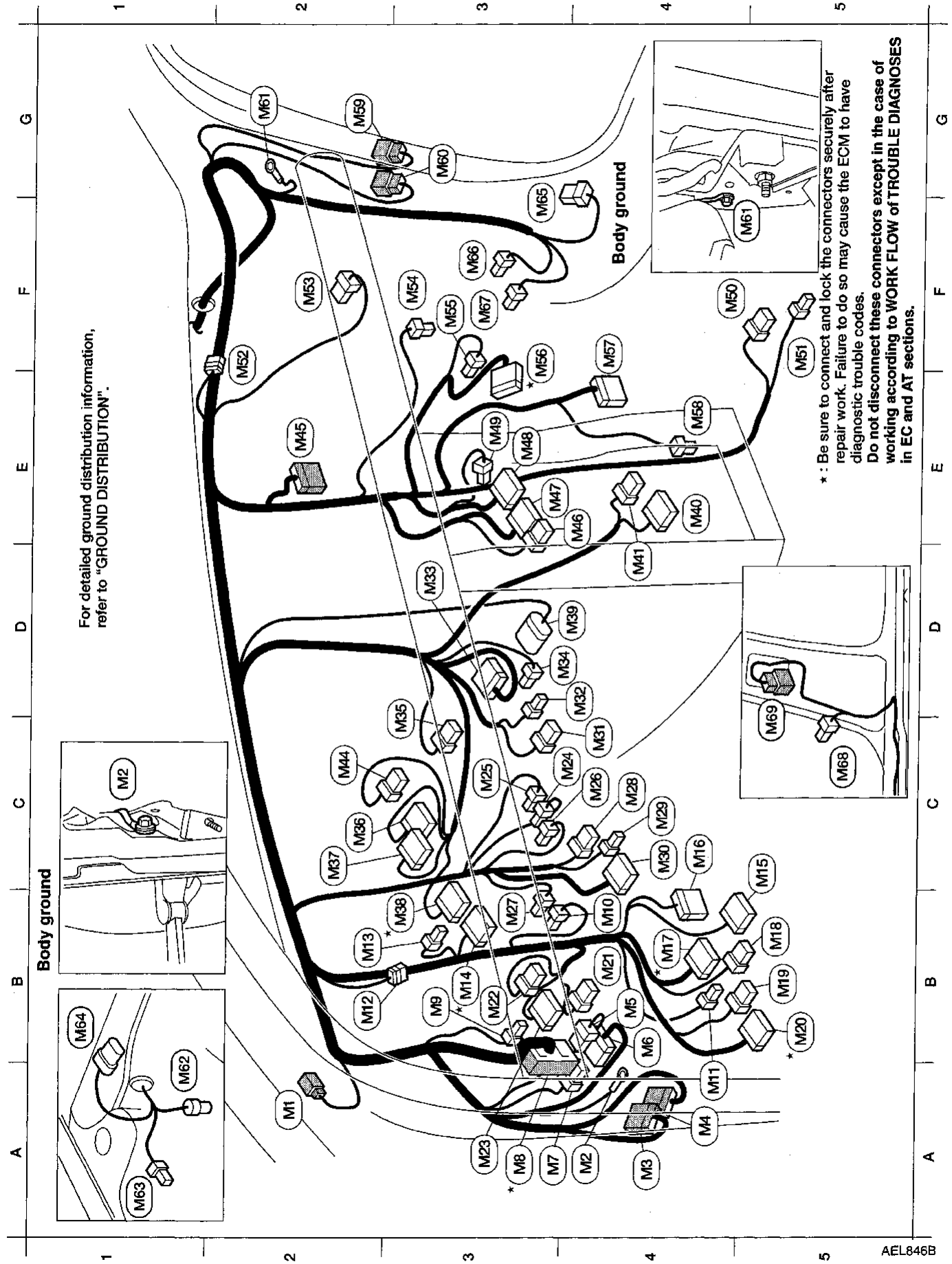
1) Find the desired connector number on the connector list.
2) Find the grid reference.
3) On the drawing, find the crossing of the grid reference letter column and number row.
4) Find the connector number in the crossing zone.
5) Follow the line (if used) to the connector.

CONNECTOR SYMBOL

Main symbols of connector (in Harness Layout) are indicated in the below.

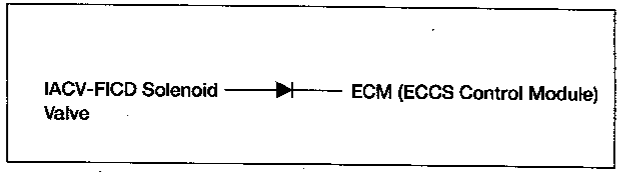
Connector type	Water proof type		Standard type	
	Male	Female	Male	Female
● Cavity: Less than 4 ● Relay connector				
● Cavity: From 5 to 8				
● Cavity: More than 9				
● Ground terminal etc.	—			

Main Harness

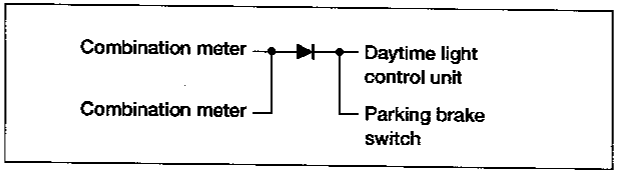


A2	(M1)	W/4	: To (R1)
A4	(M2)	—	: Body ground
A4	(M3)	W/12	: To (D1)
A4	(M4)	W/12	: To (D2)
B4	(M5)	W/8	: To (B5)
B4	(M6)	W/20	: To (B6)
A3	(M7)	BR/6	: Multi-remote control relay-1
A3 *	(M8)	SMJ	: To (E65)
B3	(M9)	L/4	: Power window relay
B4	(M10)	L/2	: ASCD clutch switch
A4	(M11)	L/4	: Fuel pump relay
B2	(M12)	W/2	: Diode
B2	(M13)	W/4	: Security indicator lamp
B3 *	(M14)	B/12	: Combination meter
C5	(M15)	GY/14	: Data link connector for CONSULT
C4	(M16)	W/16	: Data link connector for GST
B4 *	(M17)	GY/16	: Fuse block (J/B)
B5	(M18)	GY/8	: Fuse block (J/B)
B5	(M19)	W/8	: Fuse block (J/B)
B5 *	(M20)	BR/16	: Fuse block (J/B)
B4	(M21)	W/6	: Illumination control switch
B3	(M22)	W/6	: ASCD main switch
A3	(M23)	GY/12	: Door mirror remote control switch
C3	(M24)	L/2	: ASCD brake switch
C3	(M25)	B/2	: Stop lamp switch
C4	(M26)	L/2	: A/T shift lock switch (ASCD brake switch)
B3	(M27)	L/2	: Clutch interlock switch
C4	(M28)	BR/6	: ASCD hold relay (A/T)
C4	(M29)	L/4	: ASCD hold relay (M/T)
C4	(M30)	B/20	: ASCD control unit
C4	(M31)	W/8	: Warning chime unit
D4	(M32)	W/4	: Rear window defogger timer
D3	(M33)	W/36	: Smart entrance control unit
D3	(M34)	B/3	: Combination flasher unit
D3	(M35)	W/6	: Rear window defogger switch
C2	(M36)	W/10	: Combination meter
C2	(M37)	B/10	: Combination meter
B3 *	(M38)	W/12	: Combination meter
D4	(M39)	BR/10	: Mode door motor
E4	(M40)	W/10	: Radio and cassette player
D4	(M41)	W/6	: Radio and cassette player
C2	(M44)	W/8	: Hazard switch
E2	(M45)	W/12	: To (Z3)
E4	(M46)	W/6	: Fan switch
E3	(M47)	B/20	: Push control unit
E3	(M48)	B/16	: Push control unit
E3	(M49)	B/2	: Full cool switch
F4	(M50)	W/6	: A/T device
F5	(M51)	B/1	: Parking brake switch
F2	(M52)	SB/4	: Diode
F2	(M53)	W/8	: Intake door motor
F3	(M54)	B/2	: Glove box lamp
F3	(M55)	W/3	: Thermo control amplifier
F3 *	(M56)	W/18	: To (F26)
F4	(M57)	W/20	: To (F27)
E4	(M58)	B/2	: Cigarette lighter socket
G2	(M59)	W/6	: To (D20)
G3	(M60)	W/8	: To (D21)
G2	(M61)	—	: Body ground
A1	(M62)	GY/2	: Front wheel sensor RH
A1	(M63)	B/1	: Theft warning horn
B1	(M64)	GY/6	: Wiper motor
F3	(M65)	W/8	: Wiper amplifier
F3	(M66)	W/2	: Blower motor
F3	(M67)	BR/4	: Fan resistor
C5	(M68)	BR/1	: Front door switch RH
D5	(M69)	W/8	: To (D50)

Diode (M12)



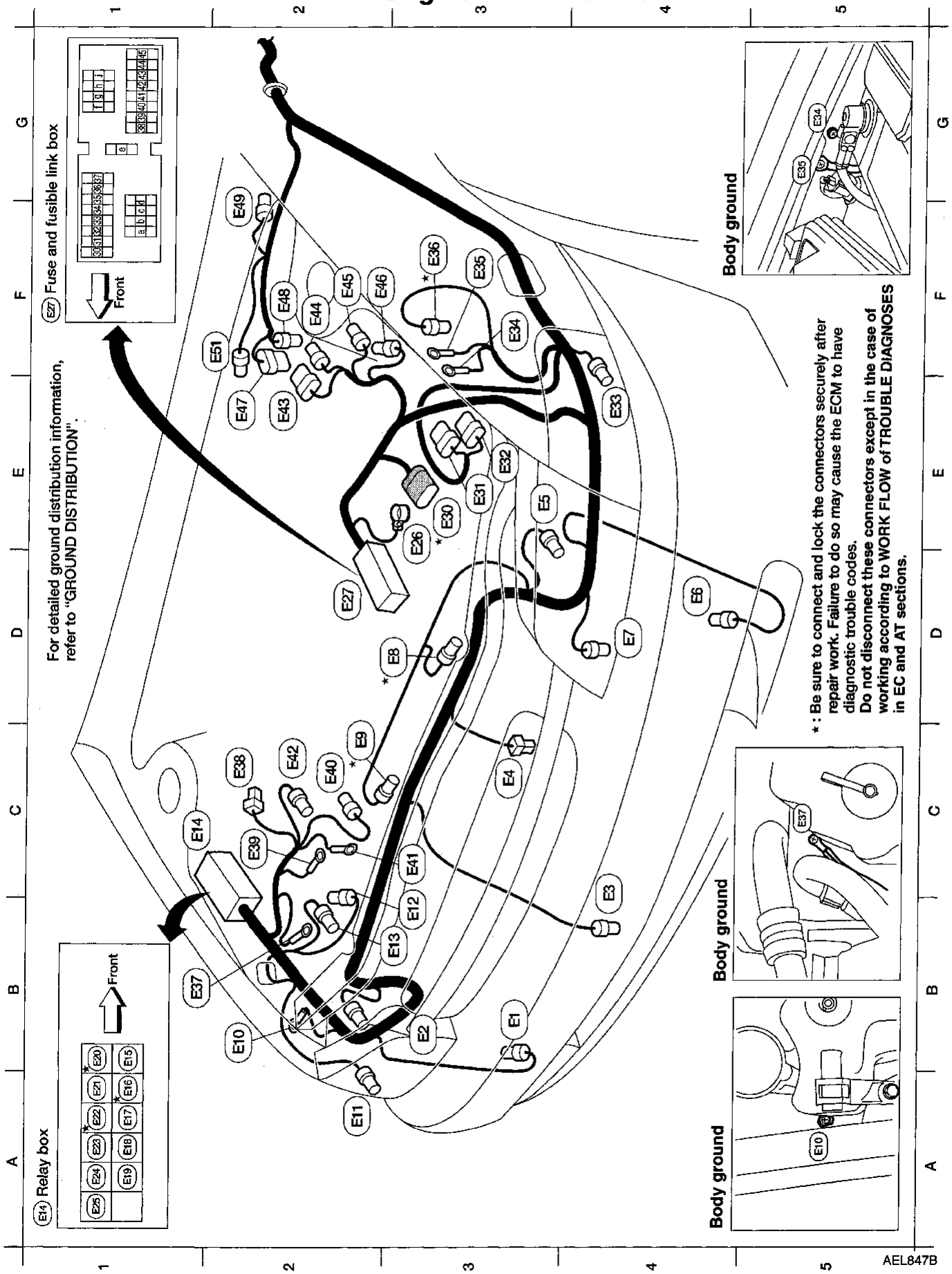
Diode (M52)



* : Be sure to connect and lock the connectors securely after repair work. Failure to do so may cause the ECM to have diagnostic trouble codes.
Do not disconnect these connectors except in the case of working according to WORK FLOW of TROUBLE DIAGNOSES in EC and AT sections.

AEL164B

Engine Room Harness



B3 (E1) B/2 : Front fog lamp RH
B3 (E2) B/3 : Headlamp RH
C4 (E3) GY/2 : Ambient temperature switch
C3 (E4) B/1 : Horn
E3 (E5) B/3 : Headlamp LH
D4 (E6) B/2 : Front fog lamp LH
D4 (E7) B/4 : Triple pressure switch
D3 * (E8) GY/4 : Cooling fan motor-1
C2 * (E9) GY/4: Cooling fan motor-2
B2 (E10) — : Body ground
A2 (E11) BR/3 : Front combination lamp RH
B3 (E12) BR/2 : Washer fluid level switch
B3 (E13) GY/2 : Washer motor
C1 (E14) — : Relay box
B1 (E15) W/3 : Horn relay
A1 * (E16) BR/6 : Cooling fan relay-2 (Hi-relay)
A1 (E17) GY/6 : Park/neutral position (PNP) relay
A1 (E18) L/4 : Clutch interlock relay
A1 (E19) L/4 : Air conditioner relay
B1 * (E20) BR/6 : Cooling fan relay-1 (Lo-relay)
A1 (E21) BR/6 : Theft warning horn relay
A1 * (E22) BR/6 : Cooling fan relay-3 (Hi-relay)
A1 (E23) BR/6 : Theft warning lamp relay
A1 (E24) B/5 : Theft warning relay
A1 (E25) L/4 : Front fog lamp relay

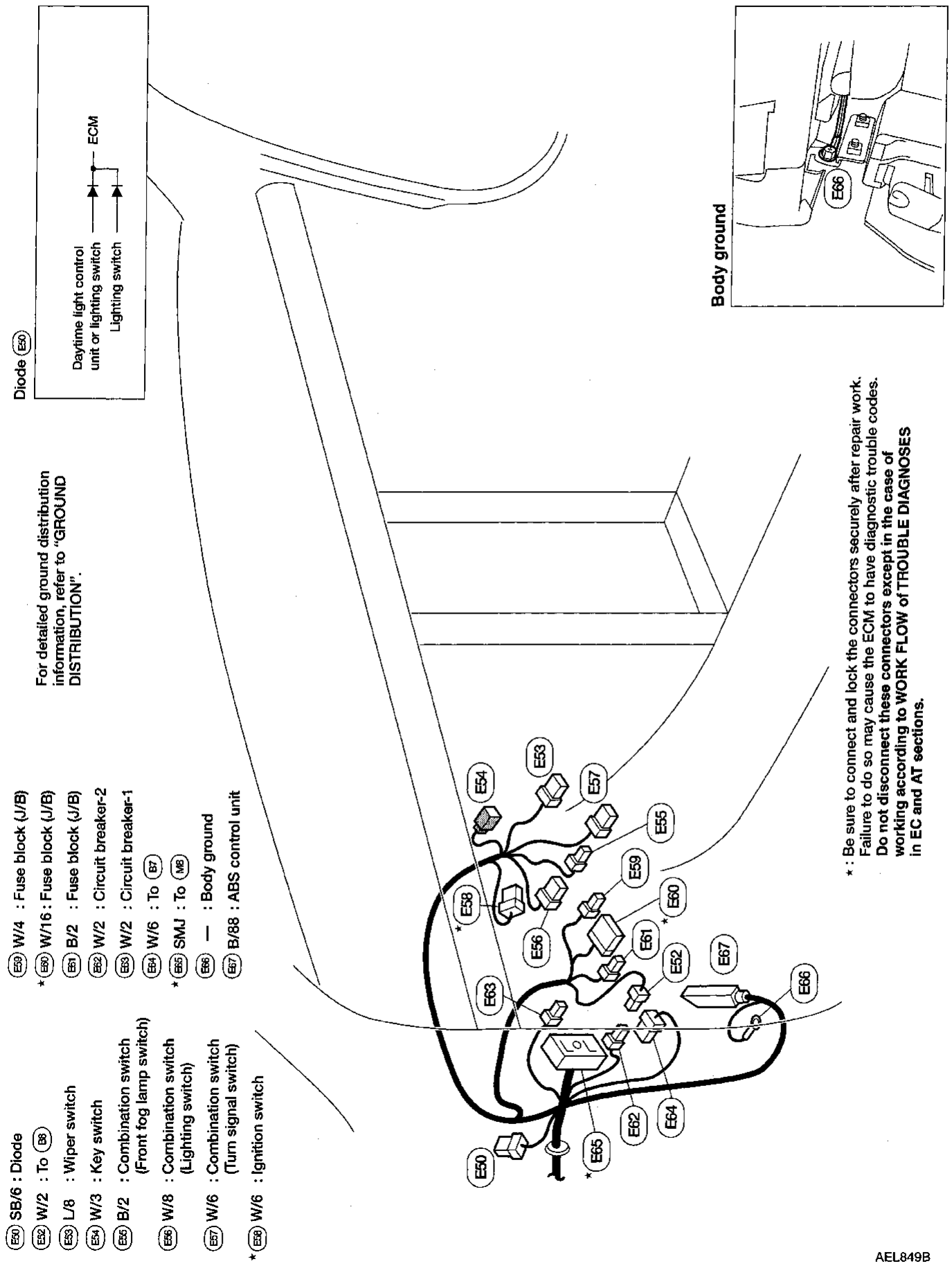
} Relay box

E3 (E26) — : Battery
D2 (E27) — : Fuse and fusible link box
E3 * (E30) GY/9 : To (E203)
E3 (E31) GY/6 : Daytime light control unit (For Canada)
E3 (E32) GY/8 : Daytime light control unit (For Canada)
E4 (E33) BR/3 : Front combination lamp LH
F3 (E34) — : Body ground
F3 (E35) — : Body ground
F3 * (E36) GY/2 : Intake air temperature sensor
B1 (E37) — : Body ground
C2 (E38) B/1 : Thermal transmitter
C2 (E39) — : Generator
C2 (E40) B/1 : A/C compressor
C3 (E41) — : Generator
C2 (E42) W/2 : Generator
E2 (E43) B/8 : ABS relay unit
F2 (E44) B/2 : ABS relay unit
F2 (E45) GY/2 : Dropping resistor
F2 (E46) GY/2 : Hood switch
E2 (E47) GY/8 : ABS actuator
F2 (E48) BR/2 : Front wheel sensor LH
F2 (E49) GY/4 : ASCD pump
F2 (E51) GY/2 : Brake fluid level switch

* : Be sure to connect and lock the connectors securely after repair work. Failure to do so may cause the ECM to have diagnostic trouble codes.
Do not disconnect these connectors except in the case of working according to WORK FLOW of TROUBLE DIAGNOSES in EC and AT sections.

AEL848B

Engine Room Harness (Cont'd)



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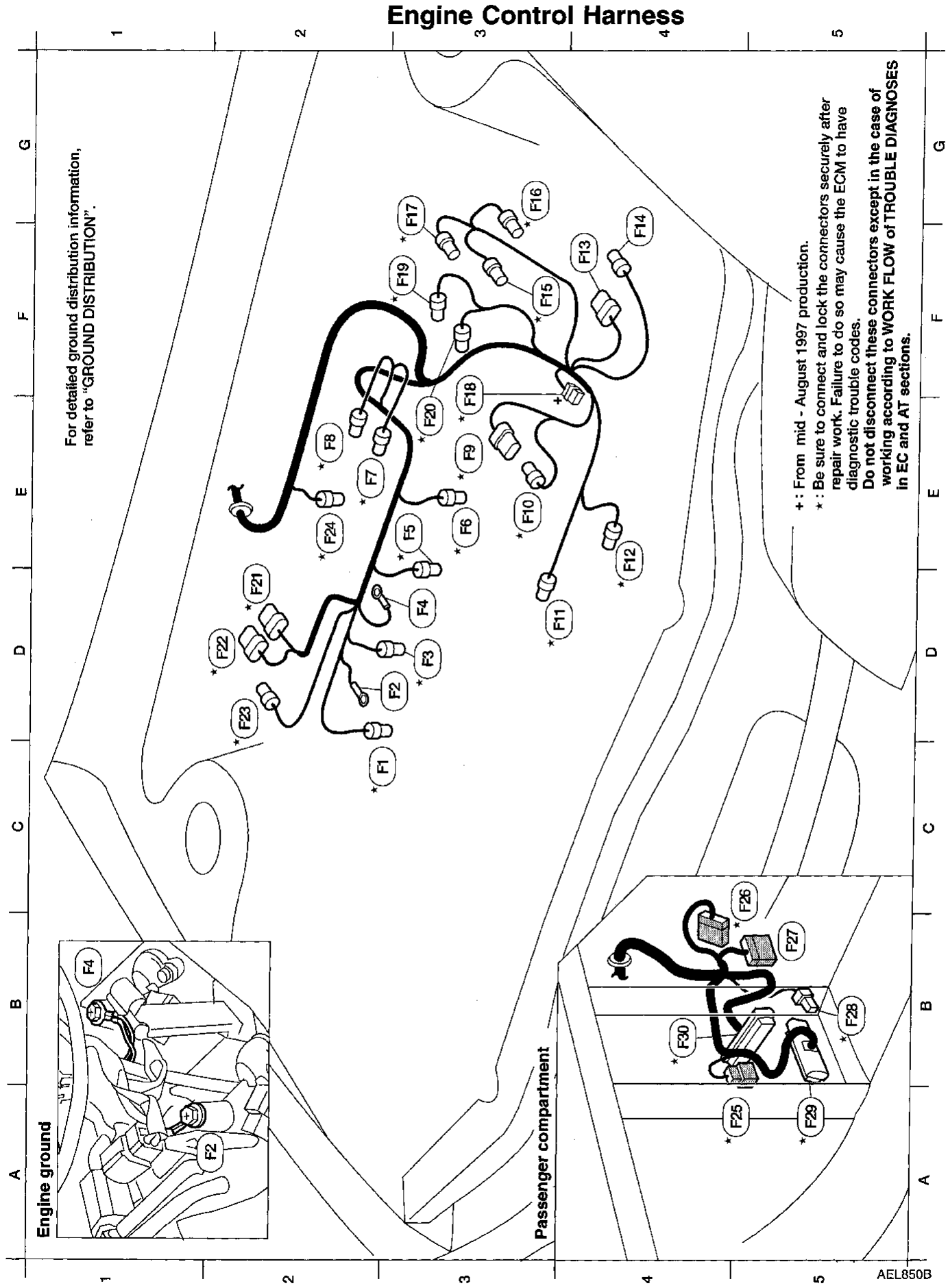
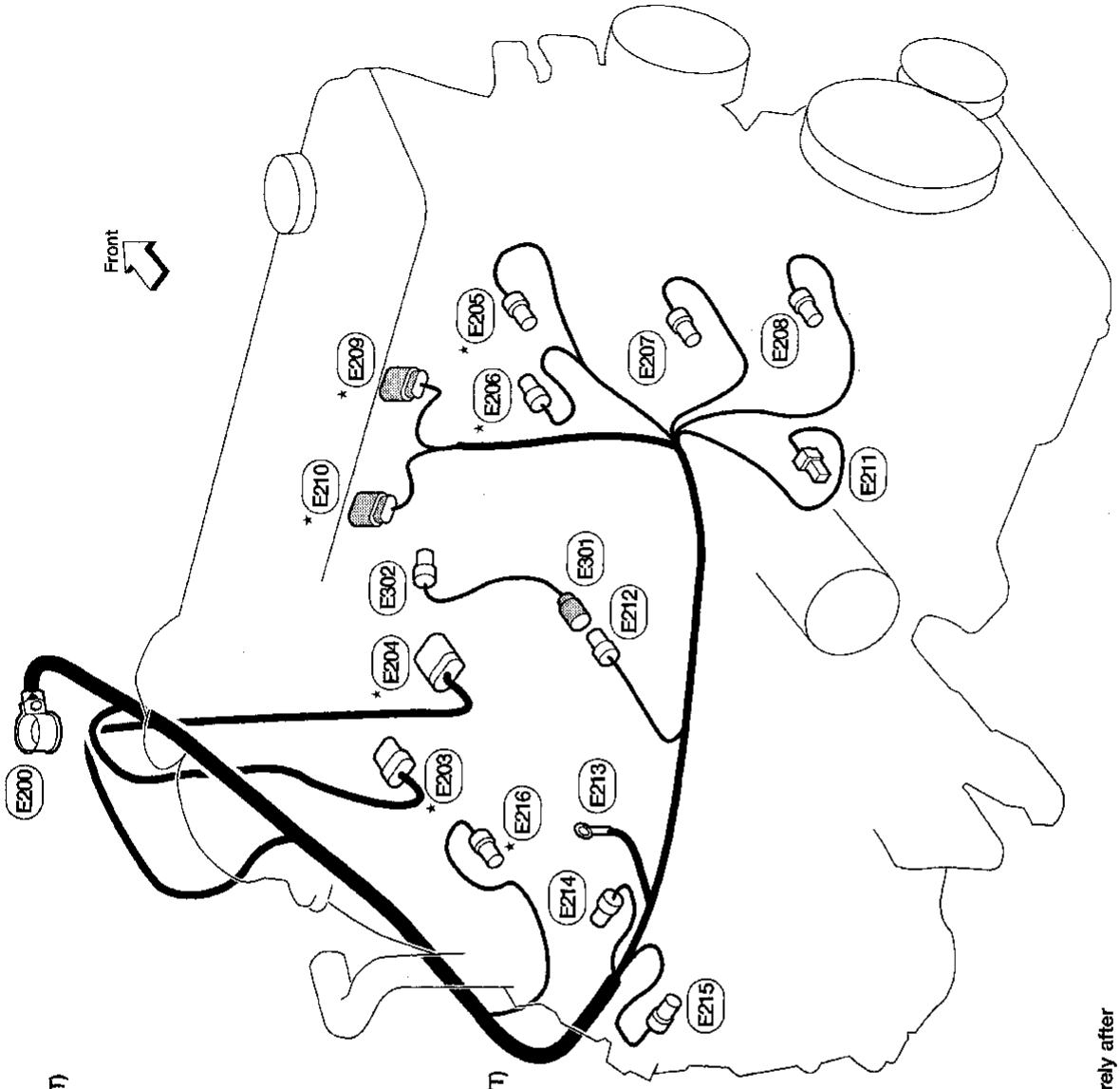

Engine Control Harness
For detailed ground distribution information, refer to "GROUND DISTRIBUTION".
+ : From mid - August 1997 production.
★ : Be sure to connect and lock the connectors securely after repair work. Failure to do so may cause the ECM to have diagnostic trouble codes.
Do not disconnect these connectors except in the case of working according to WORK FLOW of TROUBLE DIAGNOSES in EC and AT sections.
Engine ground
Passenger compartment
F1
F2
F3
F4
F5
F6
F7
F8
F9
F10
F11
F12
F13
F14
F15
F16
F17
F18
F19
F20
F21
F22
F23
F24
F25
F26
F27
F28
F29
F30
AEL850B

C2 * (F1) B/2 : Injector No. 1
D3 (F2) — : Engine ground
D3 * (F3) B/2 : Injector No. 2
D3 (F4) — : Engine ground
E3 * (F5) B/2 : Injector No. 3
E3 * (F6) B/2 : Injector No. 4
E2 * (F7) L/2 : EVAP canister purge volume control solenoid valve
E2 * (F8) GY/2 : EGR temperature sensor
E3 * (F9) GY/6 : Distributor (camshaft position sensor)
E3 * (F10) GY/2 : Distributor
D3 * (F11) GY/3 : Front heated oxygen sensor
E4 * (F12) GY/2 : Crankshaft position sensor (OBD)
F4 (F13) BR/8 : A/T solenoid valve
F4 (F14) GY/3 : Revolution sensor
F3 * (F15) BR/4 : Mass air flow sensor
G3 * (F16) G/2 : MAP/BARO switch solenoid valve
G3 * (F17) GY/3 : Absolute pressure sensor
F3 * (F18) GY/2 : Resistor
F3 * (F19) BR/3 : Throttle position sensor
E3 * (F20) GY/3 : Throttle position switch
D2 * (F21) B/8 : To (E10)
D2 * (F22) GY/6 : To (E29)
D2 * (F23) G/2 : EGRC-solenoid valve
E2 * (F24) GY/4 : Rear heated oxygen sensor
A5 * (F25) W/8 : To (B1)
C5 * (F26) W/18 : To (M56)
B5 (F27) W/20 : To (M57)
B5 * (F28) L/4 : ECCS relay
A5 * (F29) W/48 : Transmission control module
B4 * (F30) W/88 : ECM (ECCS control module)

*: Be sure to connect and lock the connectors securely after repair work. Failure to do so may cause the ECM to have diagnostic trouble codes.
Do not disconnect these connectors except in the case of working according to WORK FLOW of TROUBLE DIAGNOSES in EC and AT sections.

AEL166B

Engine No. 2 Harness



(E200) — : Battery
★(E203) GY/8 : To (E30)
★(E204) B/10 : Park/neutral position (PNP) switch (With A/T)
★(E205) GY/2 : Engine coolant temperature sensor
★(E206) BR/2 : IACV-AAC valve
(E207) PU/2 : IACV-FICD solenoid valve
(E208) GY/1 : Power steering oil pressure switch
★(E209) GY/6 : To (F22)
★(E210) B/8 : To (F21)
(E211) B/1 : Oil pressure switch
(E212) GY/2 : To (E301)
(E213) — : Starter motor
(E214) GY/1 : Starter motor
(E215) GY/2 : Vehicle speed sensor
★(E216) GY/4 : Park/neutral position (PNP) switch (With M/T)

Sub-harness

(E301) GY/2 : To (E212)
(E302) B/2 : Knock sensor

★ : Be sure to connect and lock the connectors securely after repair work. Failure to do so may cause the ECM to have diagnostic trouble codes.
Do not disconnect these connectors except in the case of working according to WORK FLOW of TROUBLE DIAGNOSES in EC and AT sections.

AEL851B

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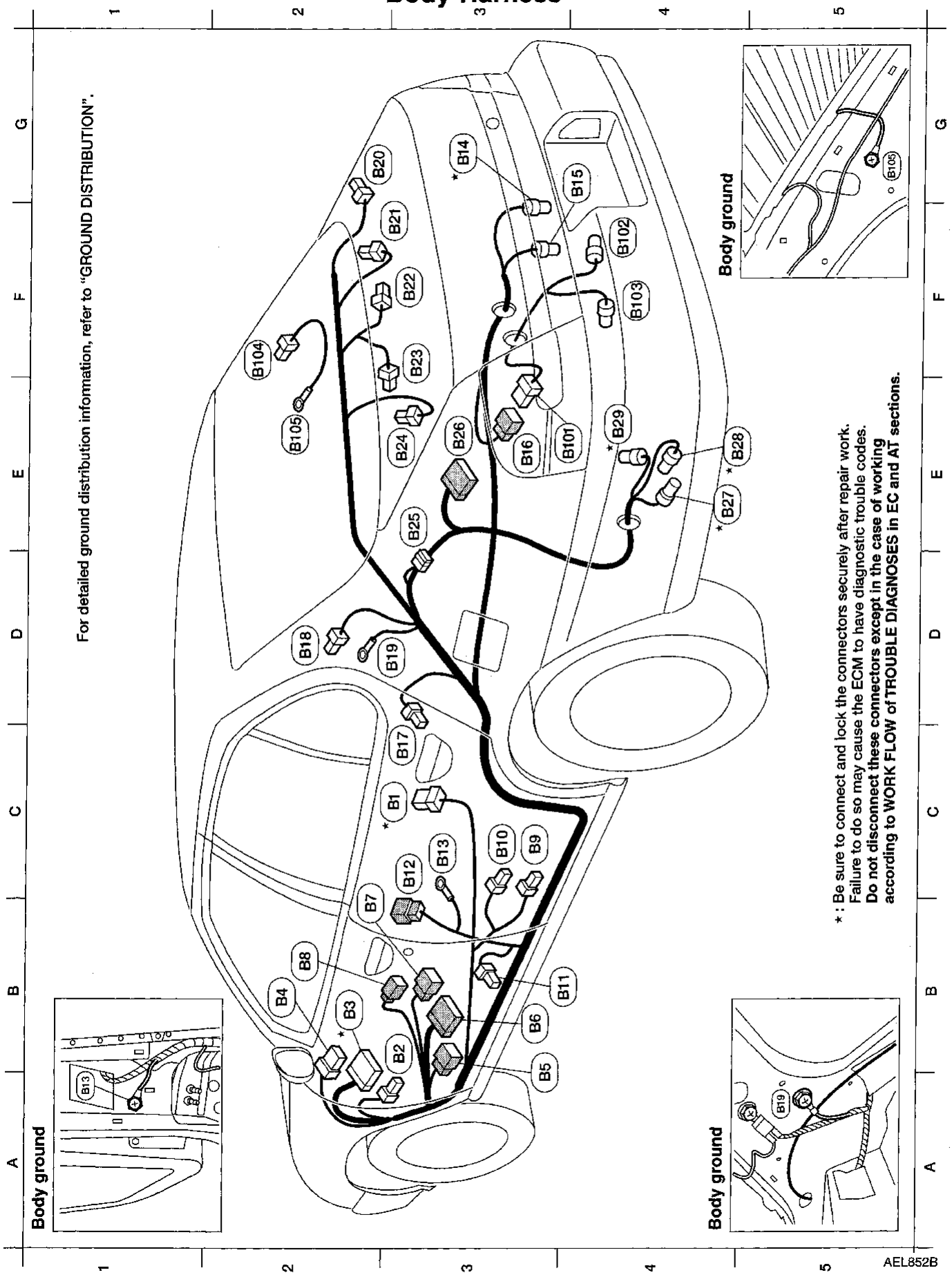
Body Harness



C3 * (B1) W/8 : To (F25)
B3 (B2) B/2 : Fuse block (J/B)
B2 * (B3) W/12 : Fuse block (J/B)
B2 (B4) BR/6 : Rear window defogger relay
A3 (B5) W/8 : To (M5)
B3 (B6) W/20 : To (M6)
B2 (B7) W/6 : To (E64)
B2 (B8) W/2 : To (E52)
C3 (B9) W/2 : Power seat (Driver's side)
C3 (B10) W/3 : Seat belt buckle switch
B4 (B11) B/3 : Front door switch LH
C3 (B12) W/8 : To (D40)
C3 (B13) — : Body ground
G3 * (B14) GY/4 : Fuel tank gauge unit
G4 (B15) GY/2 : Fuel pump

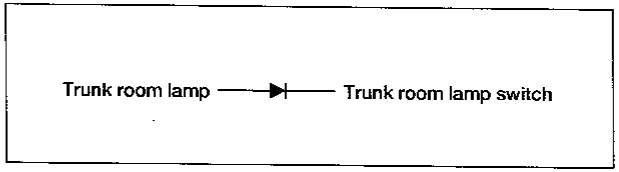
E3 (B16) W/6 : To (B101)
C3 (B17) BR/1 : Rear door switch LH
D2 (B18) B/1 : Condenser
D3 (B19) — : Body ground
G2 (B20) BR/1 : Rear door switch RH
F3 (B21) BR/2 : Rear speaker RH
F3 (B22) W/2 : High-mounted stop lamp
F3 (B23) W/2 : Trunk room lamp
E3 (B24) BR/2 : Rear speaker LH
E3 (B25) W/2 : Diode
E3 (B26) W/10 : To (T4)
E4 * (B27) B/2 : EVAP canister vent control valve
E5 * (B28) GY/3 : EVAP control system pressure sensor
E4 * (B29) G/2 : Vacuum cut valve bypass valve

Sub-harness

E3 (B101) W/6 : To (B16)
F4 (B102) GY/2 : Rear wheel sensor RH
F4 (B103) BR/2 : Rear wheel sensor LH
F2 (B104) B/1 : Rear window defogger (Ground)
E2 (B105) — : Body ground

* : Be sure to connect and lock the connectors securely after repair work. Failure to do so may cause the ECM to have diagnostic trouble codes.
Do not disconnect these connectors except in the case of working according to WORK FLOW of TROUBLE DIAGNOSES in EC and AT sections.

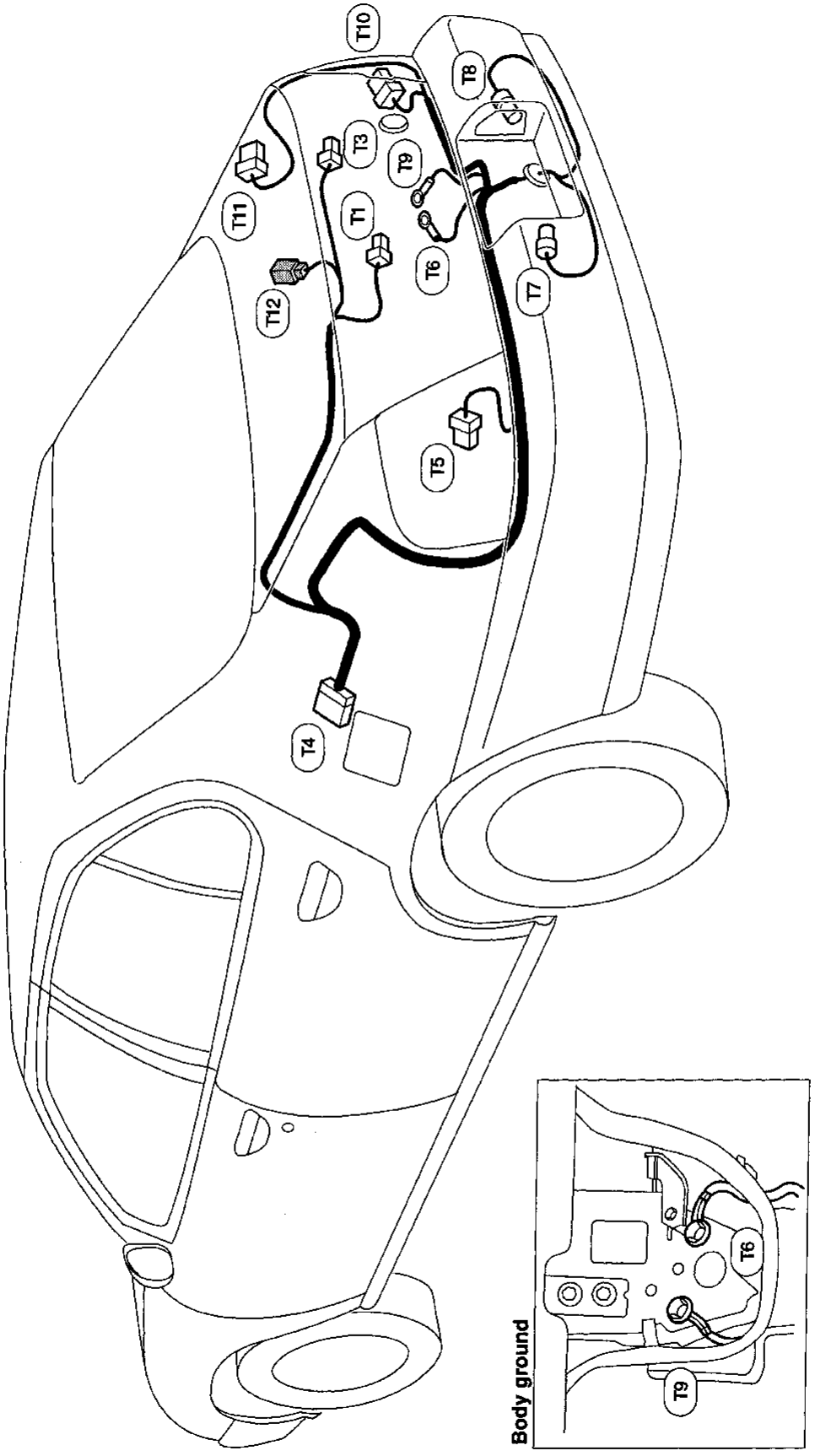
Diode (B25)



Tail Harness

For detailed ground distribution information, refer to "GROUND DISTRIBUTION".

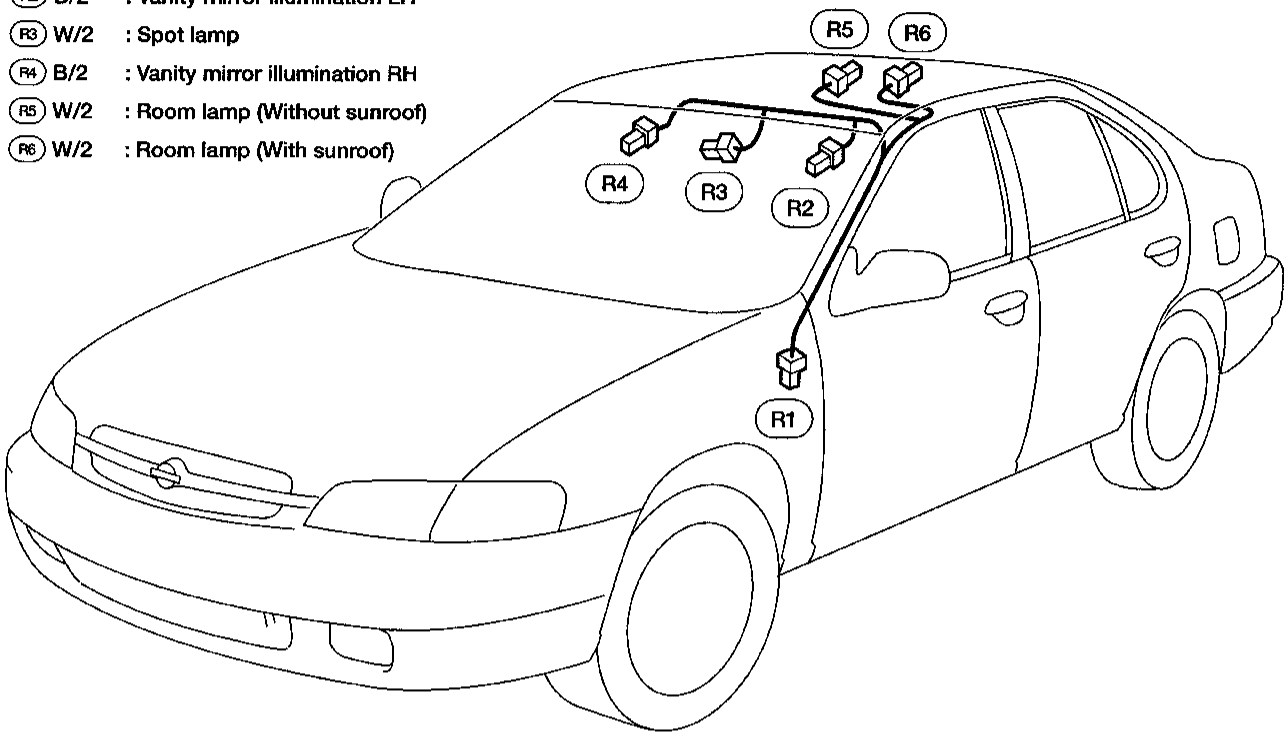
(T1) B/2 : Trunk room lamp switch
(T2) W/2 : Trunk lid key cylinder switch (unlock switch)
(T3) W/10 : To (B26)
(T4) W/6 : Rear combination lamp LH
(T5) — : Body ground
(T6) BR/2 : License plate lamp LH
(T7) BR/2 : License plate lamp RH
(T8) — : Body ground
(T9) W/6 : Rear combination lamp RH
(T10) W/6 : Power antenna
(T11) BR/2 : High-mounted stop lamp (with rear spoiler)



AEL853B

Room Lamp

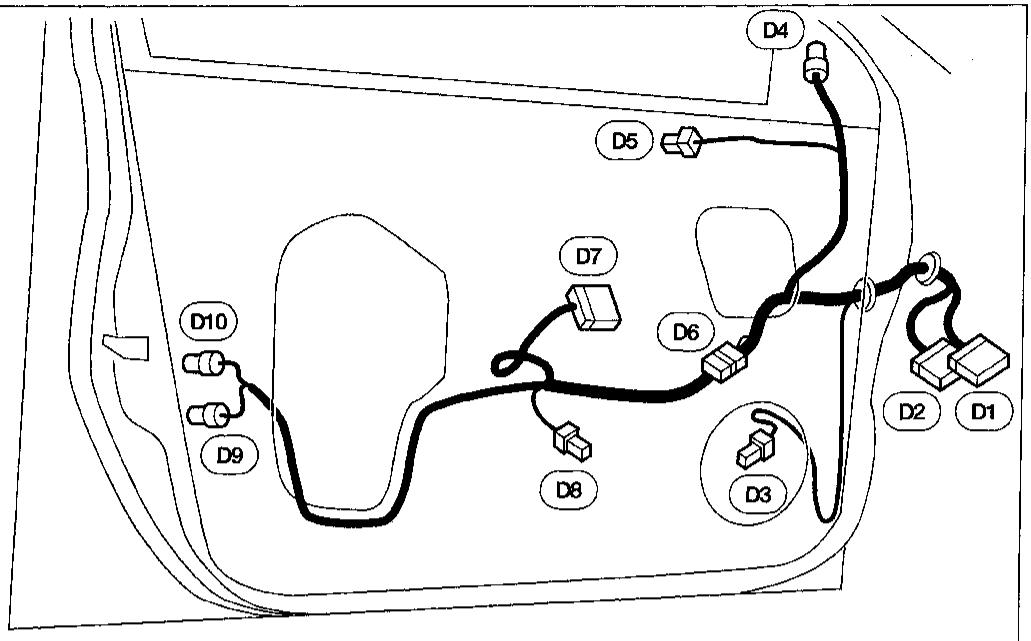
(R1) W/4 : To (M1)
(R2) B/2 : Vanity mirror illumination LH
(R3) W/2 : Spot lamp
(R4) B/2 : Vanity mirror illumination RH
(R5) W/2 : Room lamp (Without sunroof)
(R6) W/2 : Room lamp (With sunroof)



AEL142B

Door Harness (LH side)

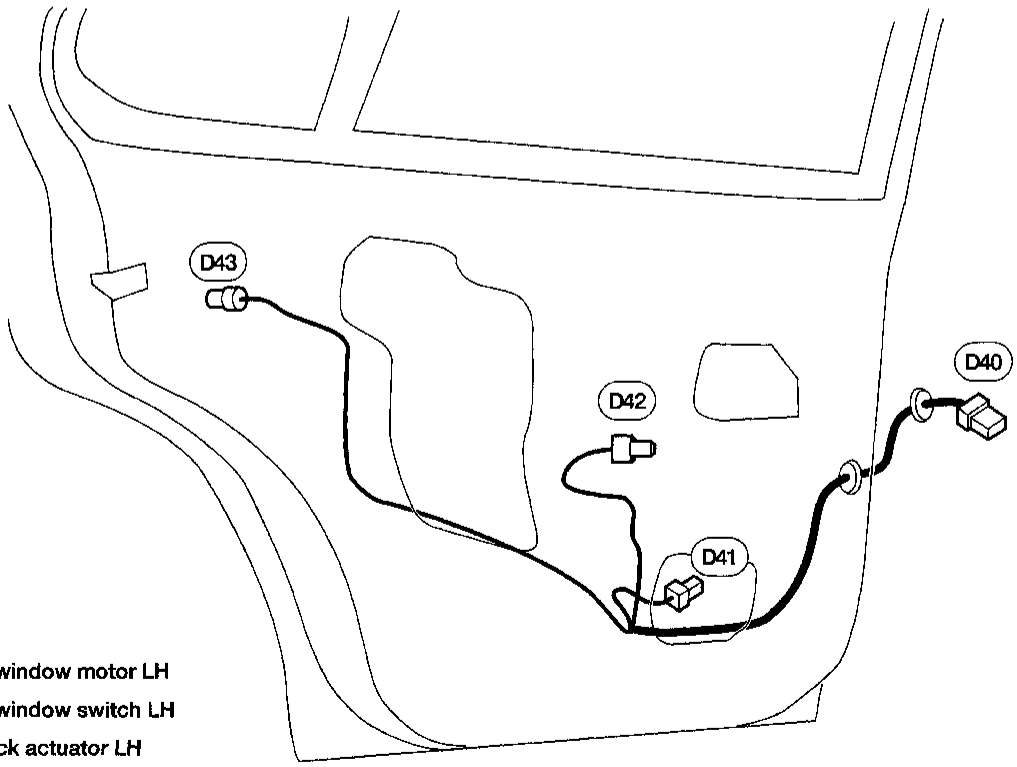
FRONT



(D1) W/12 : To (M3)
(D2) W/12 : To (M4)
(D3) BR/2 : Front speaker LH
(D4) BR/3 : LH door mirror
(D5) BR/2 : Tweeter LH
(D6) W/6 : Joint connector – 1
(D7) W/16 : Main power window and door lock/unlock switch
(D8) B/2 : Front power window motor LH
(D9) BR/3 : Front door key cylinder switch LH
(D10) GY/4 : Front door lock actuator LH

AEL160B

REAR

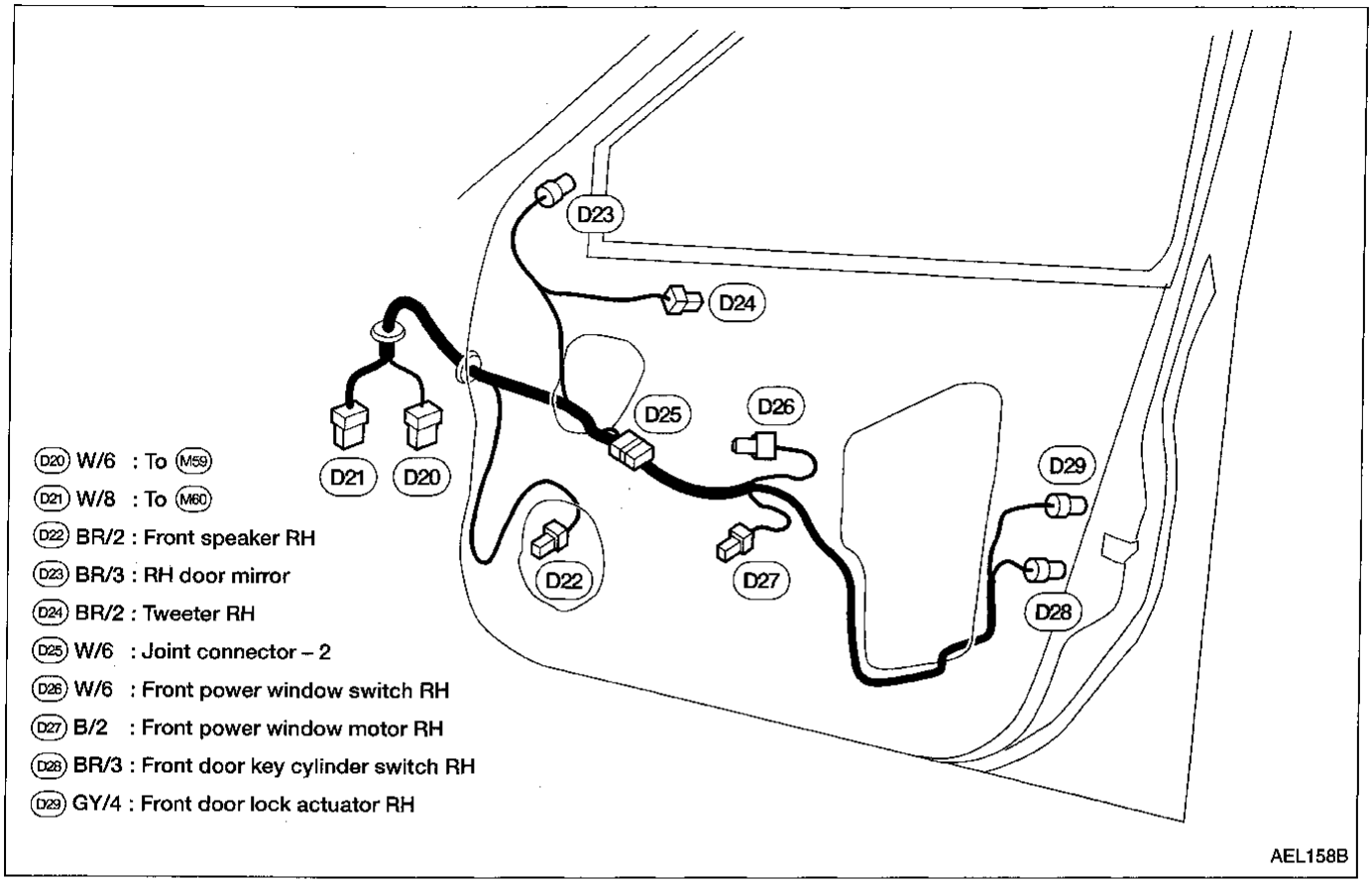


(D40) W/8 : To (B12)
(D41) B/2 : Rear power window motor LH
(D42) W/6 : Rear power window switch LH
(D43) GY/4 : Rear door lock actuator LH

AEL157B

Door Harness (RH side)

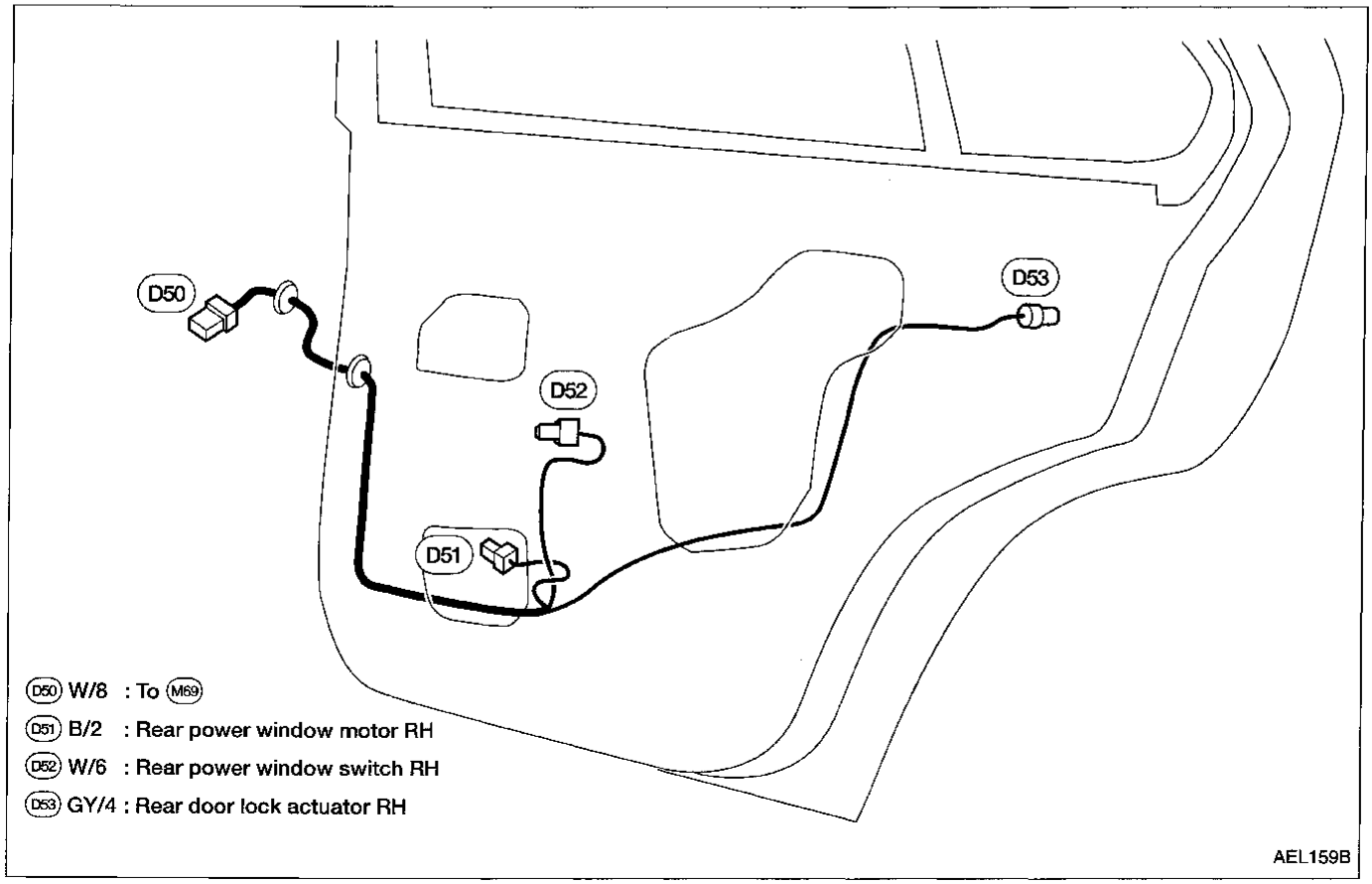
FRONT



(D20) W/6 : To (M59)
(D21) W/8 : To (M60)
(D22) BR/2 : Front speaker RH
(D23) BR/3 : RH door mirror
(D24) BR/2 : Tweeter RH
(D25) W/6 : Joint connector – 2
(D26) W/6 : Front power window switch RH
(D27) B/2 : Front power window motor RH
(D28) BR/3 : Front door key cylinder switch RH
(D29) GY/4 : Front door lock actuator RH

AEL158B

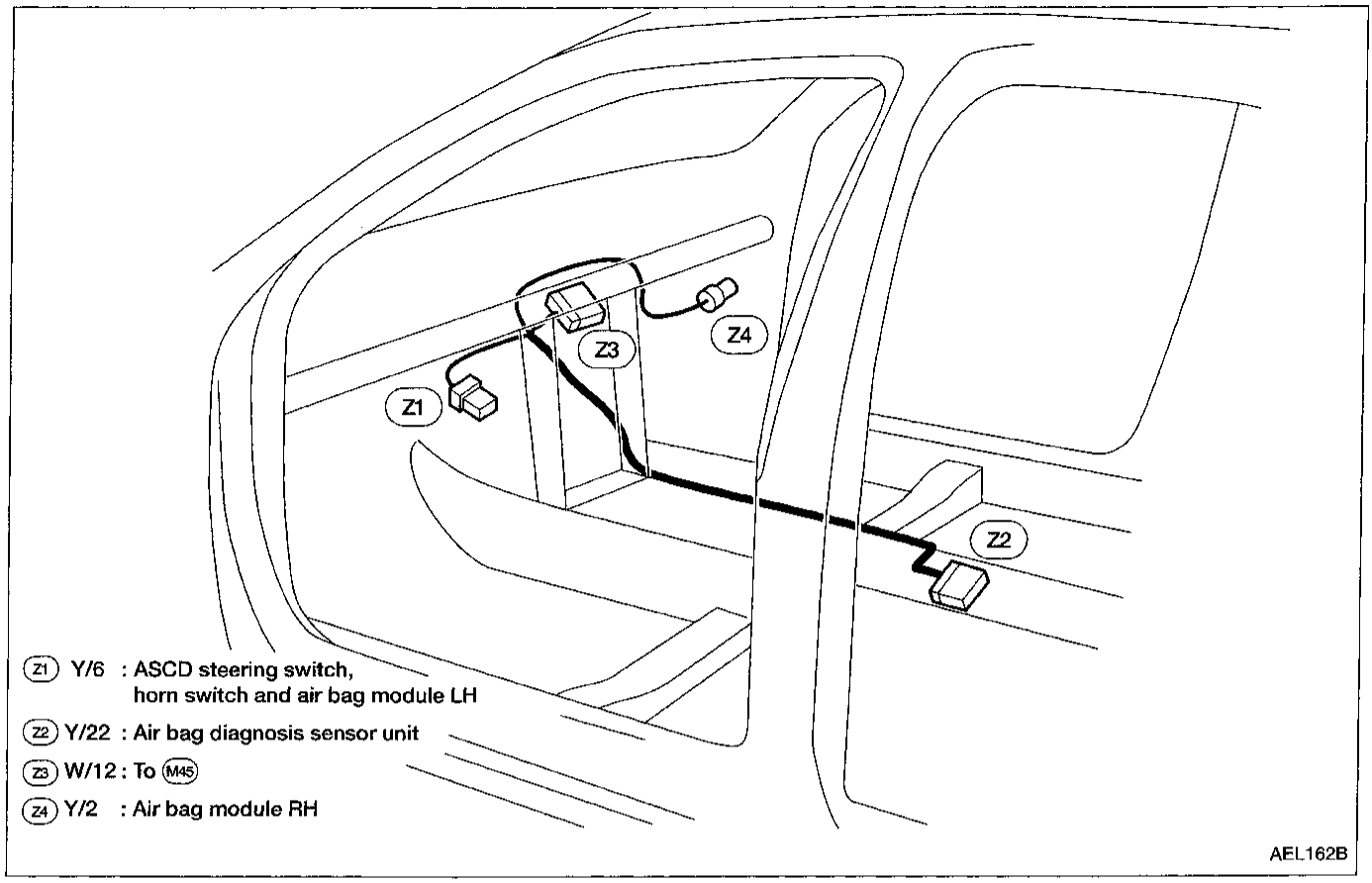
REAR



(D50) W/8 : To (M69)
(D51) B/2 : Rear power window motor RH
(D52) W/6 : Rear power window switch RH
(D53) GY/4 : Rear door lock actuator RH

AEL159B

Air Bag Harness



Headlamp

	Wattage (12 volt)
High/low	65/55 (HB5)

Exterior Lamp

		Wattage (12 volt)
Front combination lamp	Turn/Park	27/8
Front fog lamp		37.5
Rear combination lamp	Turn signal	27
	Stop/Tail	8/27
	Back-up	18
License plate lamp		5
High mounted stop lamp		18

Room Lamp

	Wattage (12 volt)
Room lamp	8
Map lamp	10
Trunk room lamp	3.4
Glove box lamp	1.1

WIRING DIAGRAM CODES (CELL CODES)

Use the chart below to find out what each wiring diagram code stands for.

Code	Section	Wiring Diagram Name
1ST	AT	A/T 1st Gear Function
2ND	AT	A/T 2nd Gear Function
3RD	AT	A/T 3rd Gear Function
4TH	AT	A/T 4th Gear Function
A/C	HA	Air Conditioner
AAC/V	EC	IACV-AAC Valve
ABS	BR	Anti-Lock Brake System
AP/SEN	EC	Absolute Pressure Sensor
ASCD	EL	Automatic Speed Control Device (ASCD)
AT/C	EC	A/T Control
ATDIAG	EC	A/T Diagnosis Communication Line
AUDIO	EL	Audio
BA/FTS	AT	A/T Fluid Temperature Sensor and A/T Control Unit Power Supply
BACK/L	EL	Back-up Lamp
BYPS/V	EC	Vacuum Cut Valve Bypass Valve
CHARGE	EL	Charging System
CHIME	EL	Warning Chime
CIGAR	EL	Cigarette Lighter
CKPS	EC	Crankshaft Position Sensor (OBD)
CMPS	EC	Camshaft Position Sensor
COOL/F	EC	Cooling Fan Control
CORNER	EL	Cornering Lamp
D/LOCK	EL	Power Door Lock
DEF	EL	Rear Window Defogger
DTRL	EL	Headlamp-With Daytime Light System
ECTS	EC	Engine Coolant Temperature Sensor
EGR/TS	EC	EGR Temperature Sensor
EGRC/V	EC	EGRC-Solenoid Valve
EGRC1	EC	EGR Function
ENGSS	AT	Engine Speed Signal
F/FOG	EL	Front Fog Lamp
F/PUMP	EC	Fuel Pump
FICD	EC	IACV-FICD Solenoid Valve
FRO2	EC	Front Heated Oxygen Sensor
FRO2/H	EC	Front Heated Oxygen Sensor Heater
FTS	AT	A/T Fluid Temperature Sensor
FUEL	EC	Fuel Injection System Function
H/LAMP	EL	Headlamp
HEATER	HA	Heater System

Code	Section	Wiring Diagram Name
HORN	EL	Horn
IATS	EC	Intake Air Temperature Sensor
IGN/SG	EC	Ignition Signal
ILL	EL	Illumination
INJECT	EC	Injector
INT/L	EL	Spot, Trunk Room and Vanity Mirror Lamp
KS	EC	Knock Sensor
LOAD	EC	Load Signal
LPSV	AT	Line Pressure Solenoid Valve
MAFS	EC	Mass Air Flow Sensor
MAIN	AT	Main Power Supply and Ground Circuit
MAIN	EC	Main Power Supply and Ground Circuit
METER	EL	Meter and Gauges
MIL/DL	EC	MIL and Data Link Connectors
MIRROR	EL	Door Mirror
MULTI	EL	Multi-remote Control System
NONDTC	AT	Non-detective Items
OVRCSV	AT	Over Run Clutch Solenoid Valve
P/ANT	EL	Power Antenna
PGC/V	EC	EVAP Canister Purge Volume Control Solenoid Valve
PNP/SW	AT	Park/Neutral Position (PNP) Switch
PNP/SW	EC	Park/Neutral Position (PNP) Switch
POWER	EL	Power Supply Routing
PRE/SE	EC	EVAP Control System Pressure Sensor
PST/SW	EC	Power Steering Oil Pressure Switch
ROOM/L	EL	Interior Room Lamp
RRO2	EC	Rear Heated Oxygen Sensor
RRO2/H	EC	Rear Heated Oxygen Sensor Heater
S/SIG	EC	Start Signal
SEAT	EL	Power Seat
SHIFT	AT	A/T Shift Lock System
SROOF	EL	Sunroof
SRS	RS	Supplemental Restraint System
SSV/A	AT	Shift Solenoid Valve A
SSV/B	AT	Shift Solenoid Valve B
START	EL	Starting System
STOP/L	EL	Stop Lamp

Code	Section	Wiring Diagram Name
SW/V	EC	MAP/BARO Switch Solenoid Valve
TAIL/L	EL	Parking, License, and Tail Lamps
TCCSIG	AT	A/T TCC Signal (Lock Up)
TCV	AT	Torque Convertor Clutch Solenoid Valve
TFTS	EC	Tank Fuel Temperature Sensor
THEFT	EL	Theft Warning System
TP/SW	EC	Throttle Position Switch
TPS	AT	Throttle Position Sensor
TPS	EC	Throttle Position Sensor
TURN	EL	Turn Signal and Hazard Warning Lamps
VENT/V	EC	EVAP Canister Vent Control Valve
VSS	EC	Vehicle Speed Sensor
VSSA/T	AT	Vehicle Speed Sensor A/T (Revolution Sensor)
VSSMTR	AT	Vehicle Speed Sensor MTR
WARN	EL	Warning Lamps
WINDOW	EL	Power Window
WIPER	EL	Front Wiper and Washer