SECTION EL

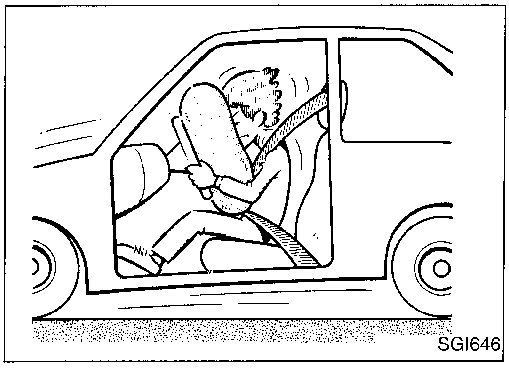
CONTENTS

CONTENTS (Cont'd.)

CONTENTS (Cont'd.)

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".

WIRING DIAGRAM REFERENCE CHART



Supplemental Restraint System (SRS) "AIR BAG"

The Supplemental Restraint System "Air Bag", used along with a seat belt, helps to reduce the risk or severity of injury to the driver and front passenger in a frontal collision. The Supplemental Restraint System consists of air bag modules (located in the center of the steering wheel and on the instrument panel on the passenger side), a diagnosis sensor unit, warning lamp, wiring harness and spiral cable. Information necessary to service the system safely is included in the **RS section** of this Service Manual.

WARNING:

- **To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN dealer.**
- **Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system.**
- **Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses are covered with yellow insulation either just before the harness connectors or for the complete harness, for easy identification.**

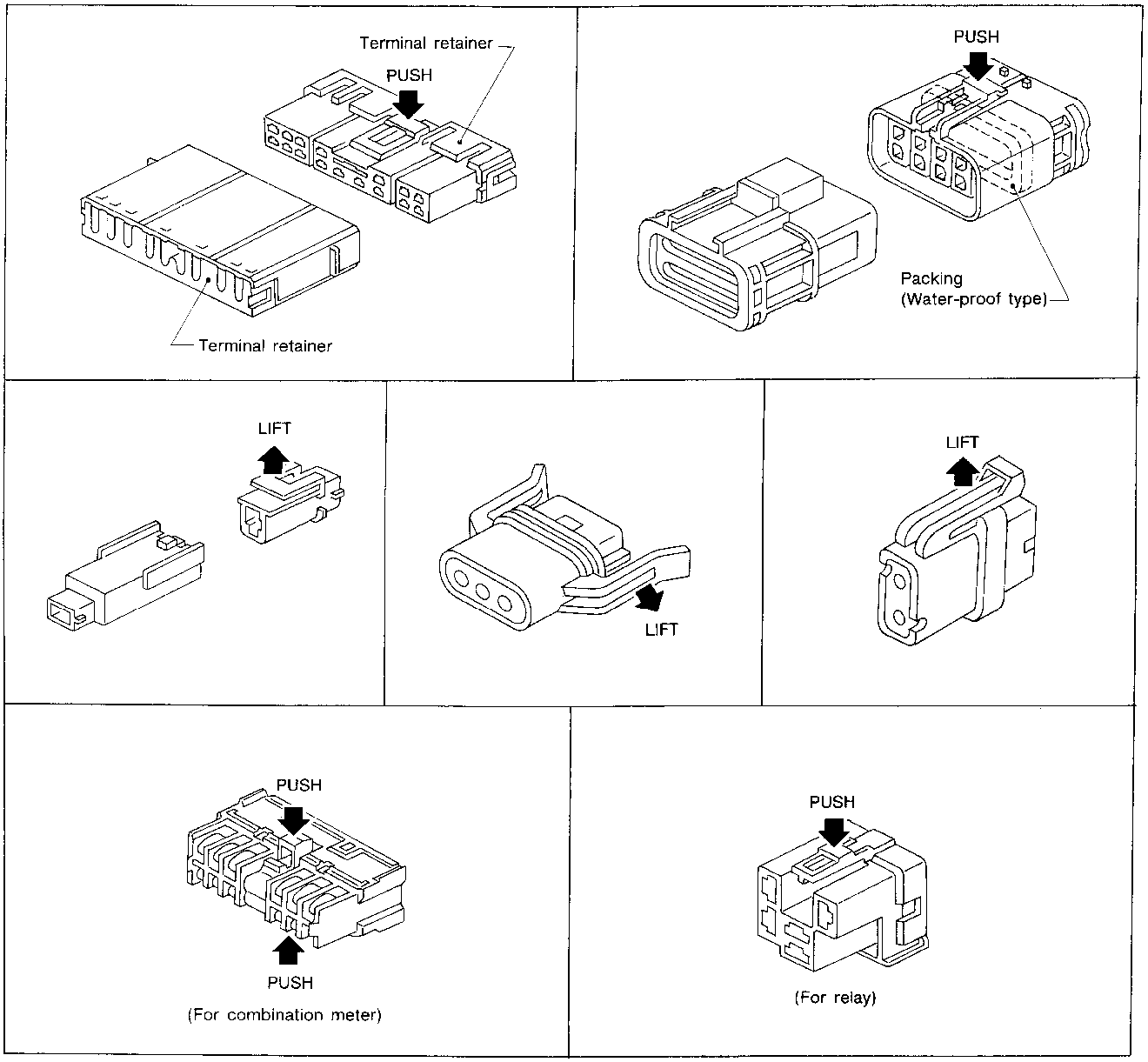
Description

HARNESS CONNECTOR

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

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

[Example]

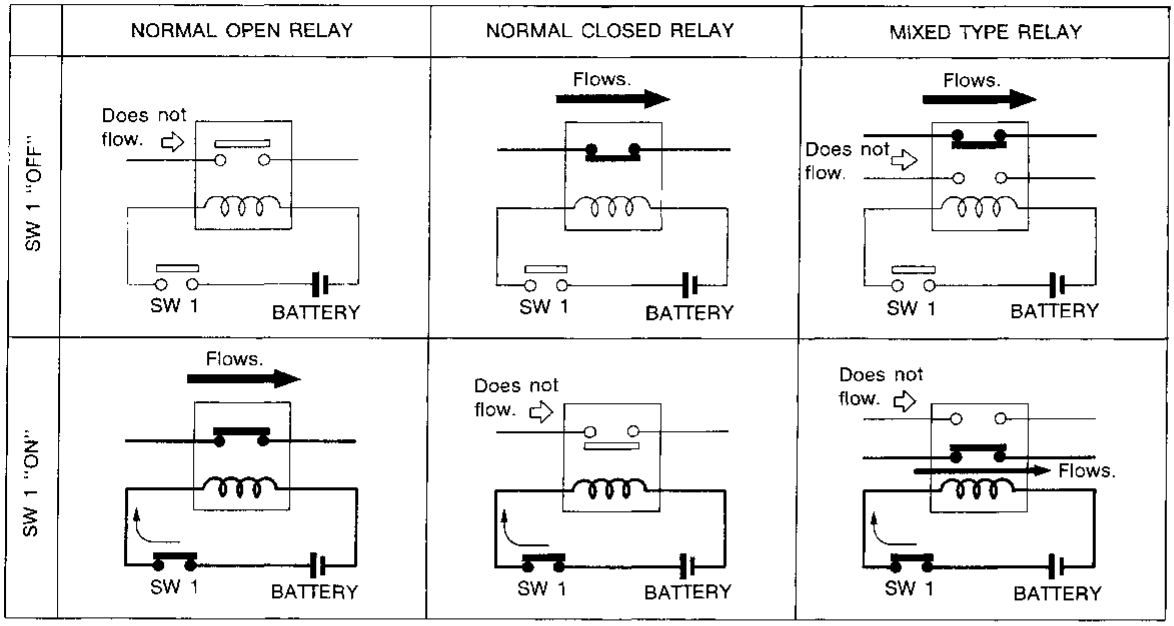


AEL050

Description

NORMAL OPEN, NORMAL CLOSED AND MIXED TYPE RELAYS

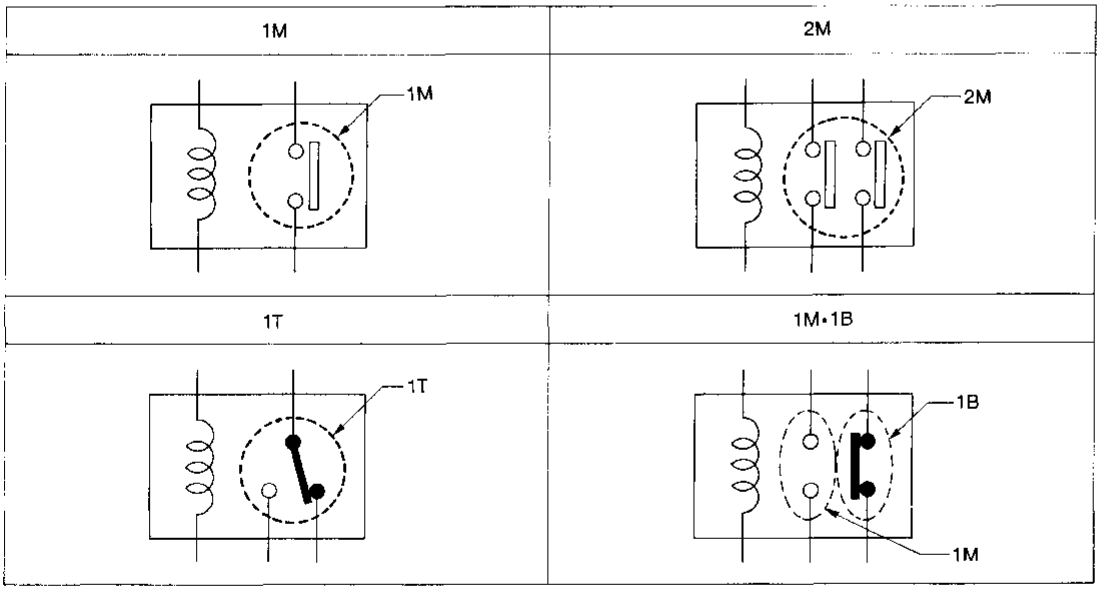
Relays can mainly be divided into three types: normal open, normal closed and mixed type relays.



SEL861H

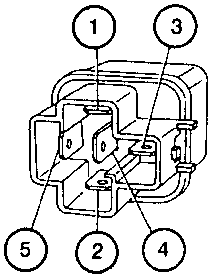
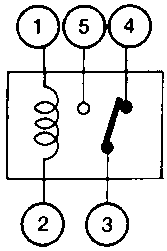
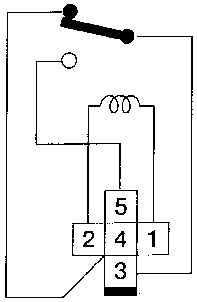
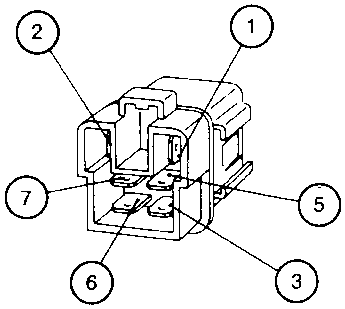
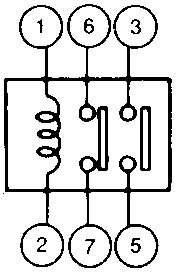
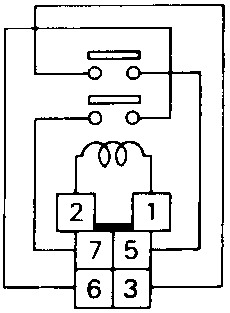
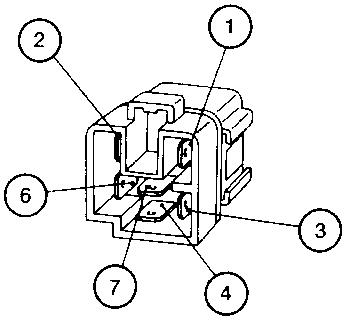
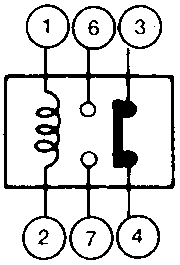
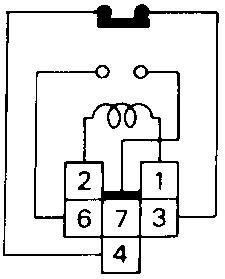
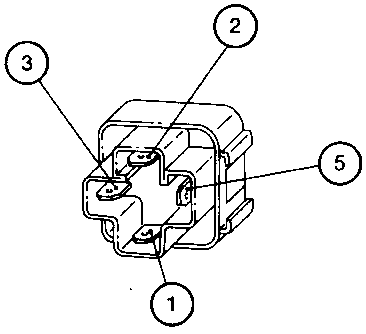
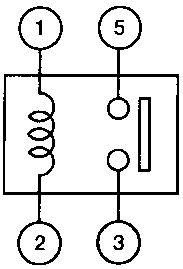
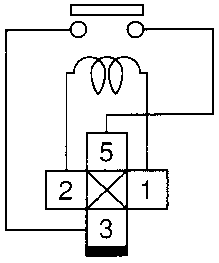
TYPE OF STANDARDIZED RELAYS

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



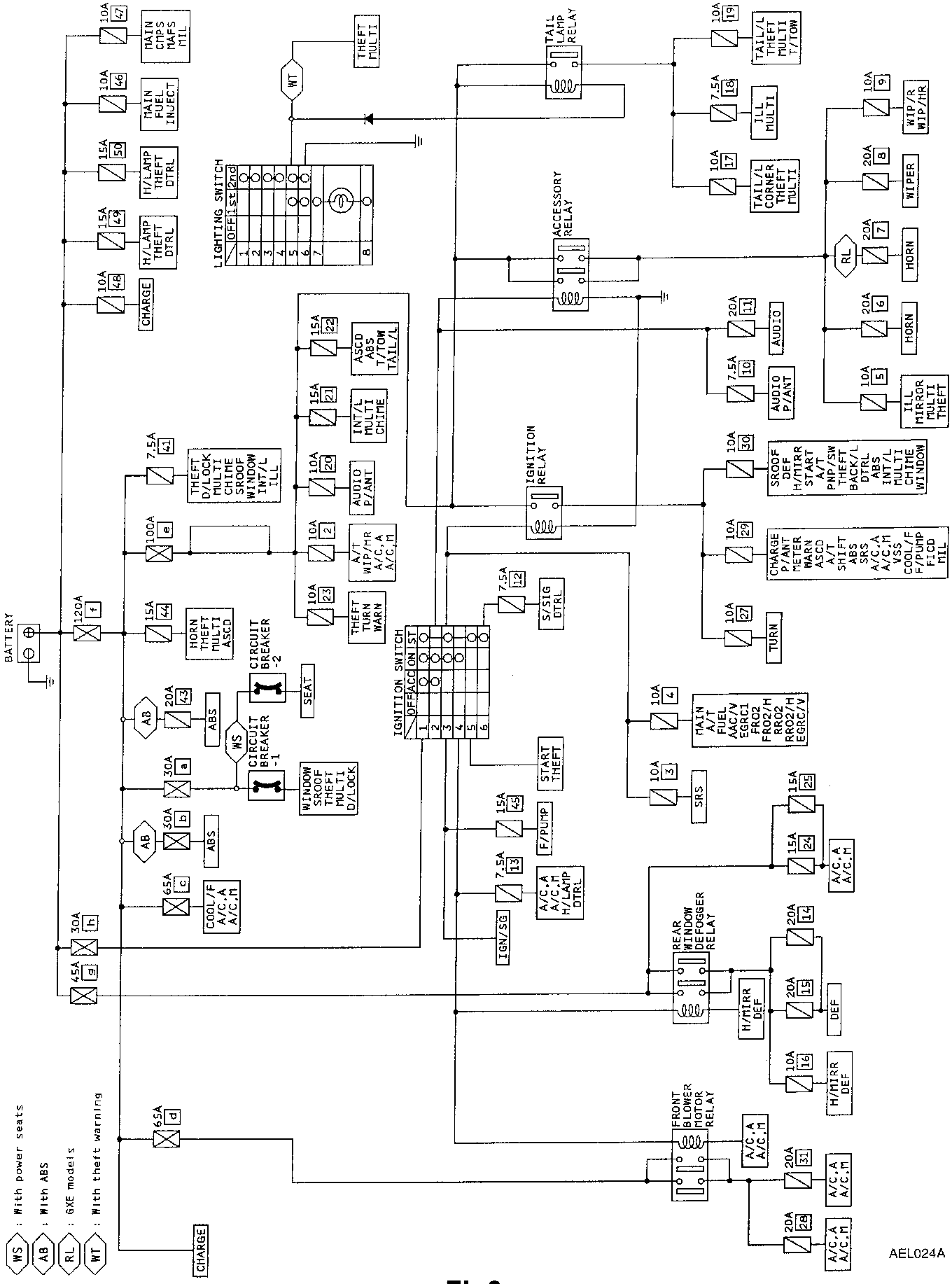
SEL862H

Description (Cont'd)

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

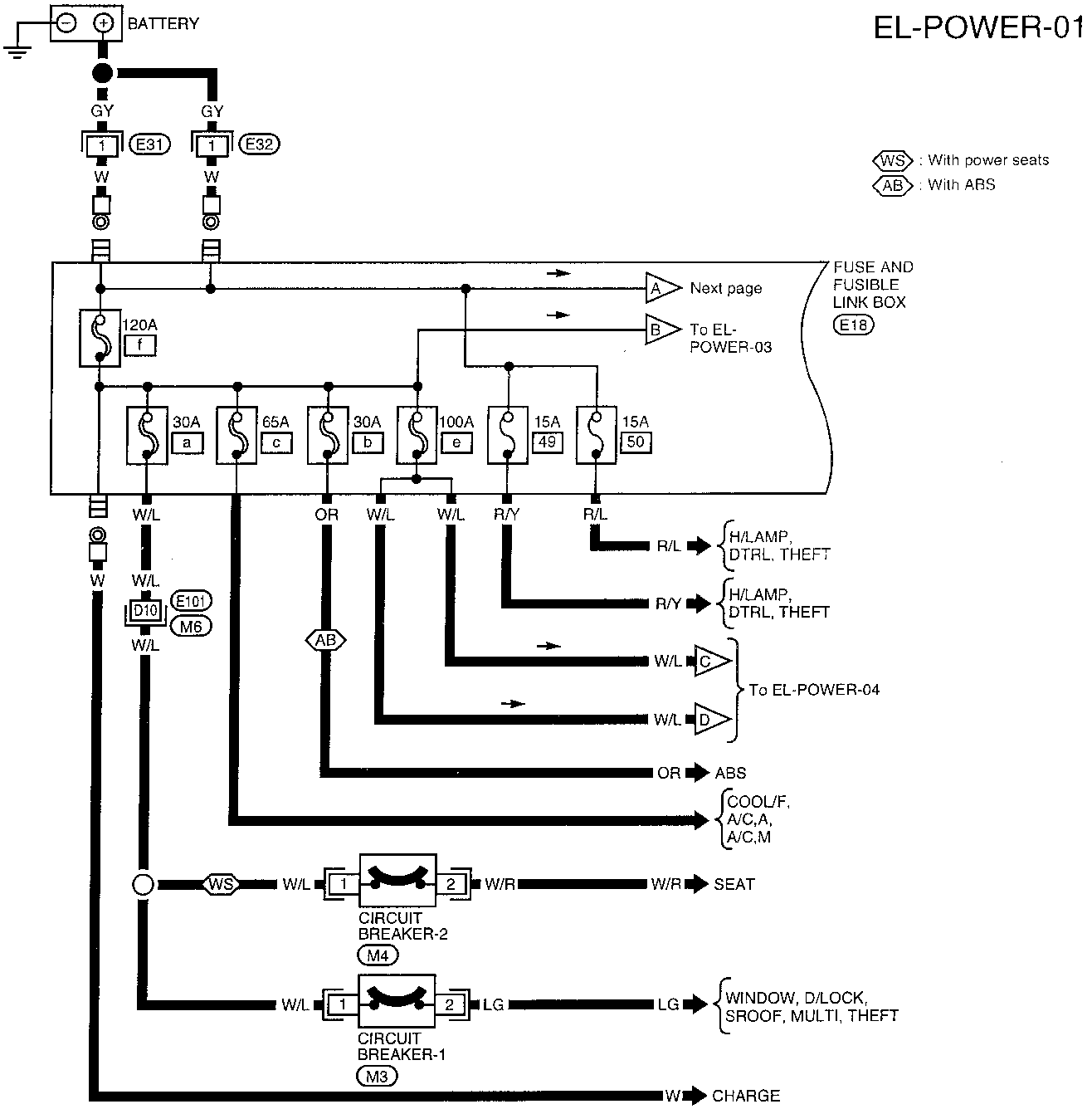
AEL625

Schematic

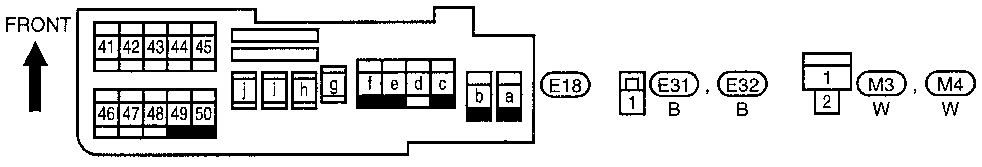

BATTERY
IGNITION SWITCH
LIGHTING SWITCH
ACCESSORY RELAY
IGNITION RELAY
TAIL LAMP RELAY
FRONT BLOWER MOTOR RELAY
REAR WINDOW DEFOGGER RELAY
CIRCUIT BREAKER -1
CIRCUIT BREAKER -2
: With power seats
: With ABS
: GXE models
: With theft warning
AEL024A

NOTES

Wiring Diagram –POWER–



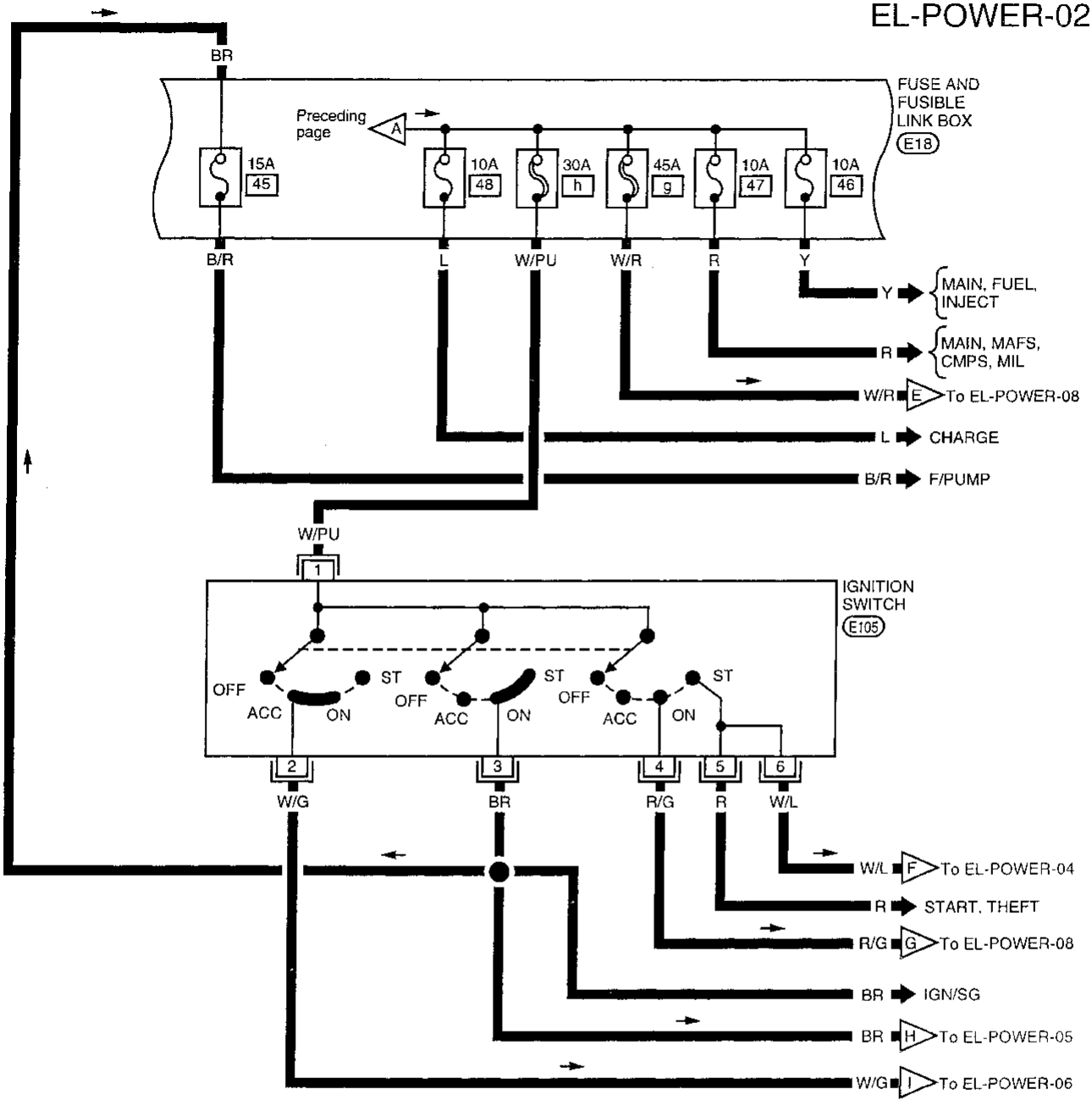
Refer to last page (Foldout page).
M6 , E101

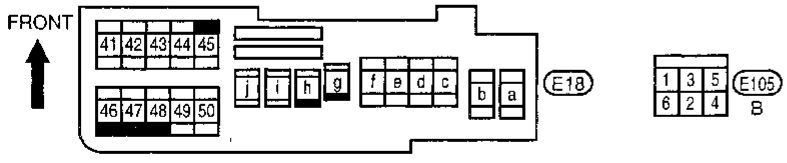


AEL943-A

Wiring Diagram –POWER– (Cont'd)

EL-POWER-02





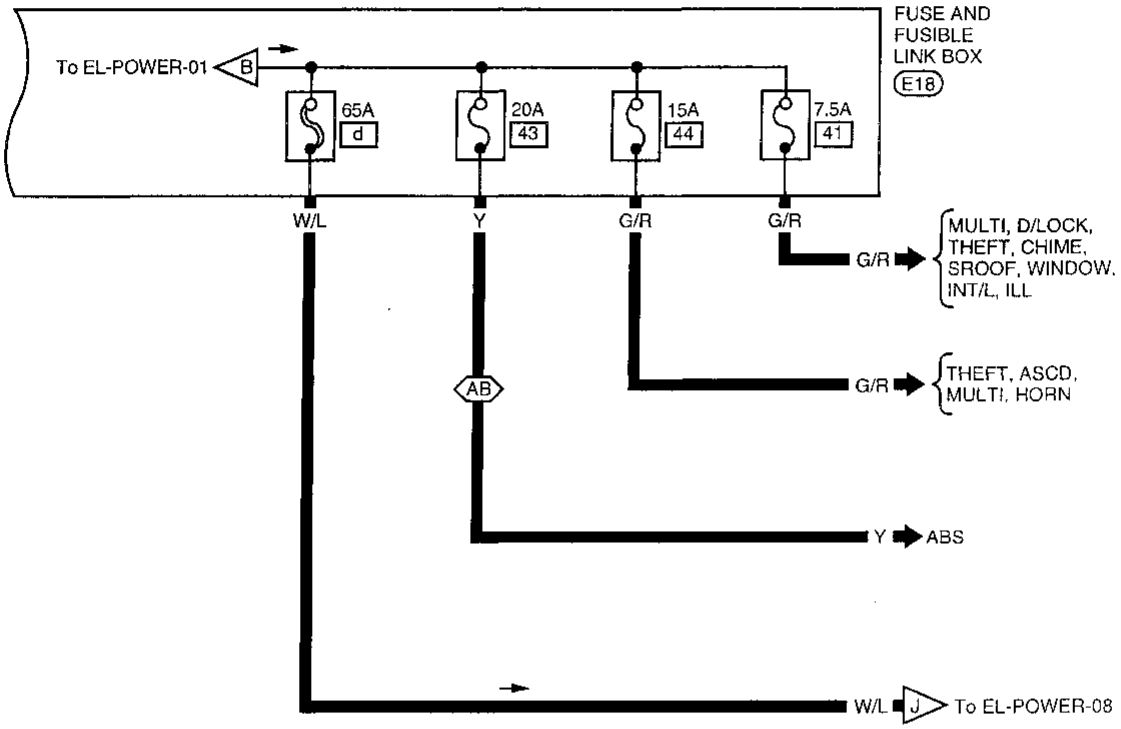
AEL943-B

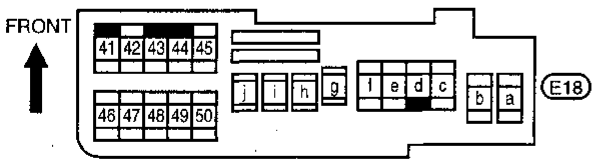
1035

Wiring Diagram –POWER– (Cont'd)

EL-POWER-03

AB : With ABS

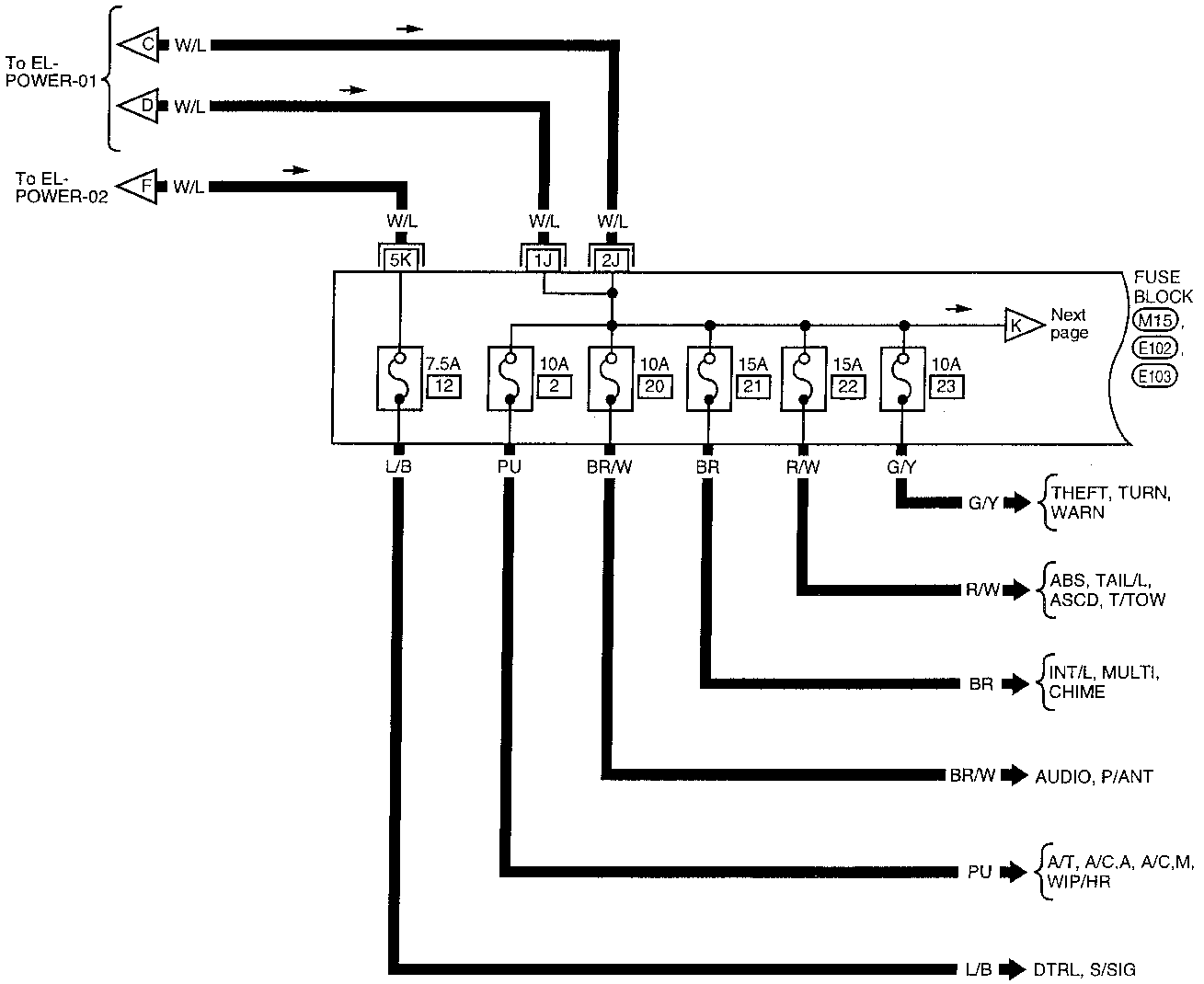


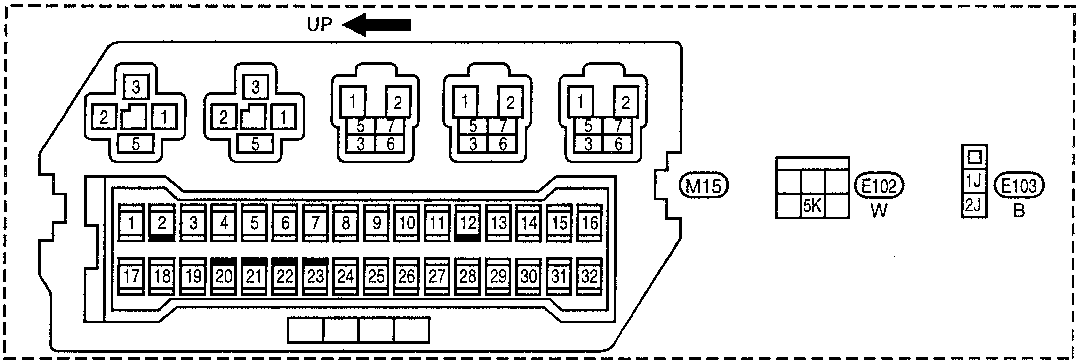


AEL943-C

Wiring Diagram –POWER– (Cont'd)

EL-POWER-04

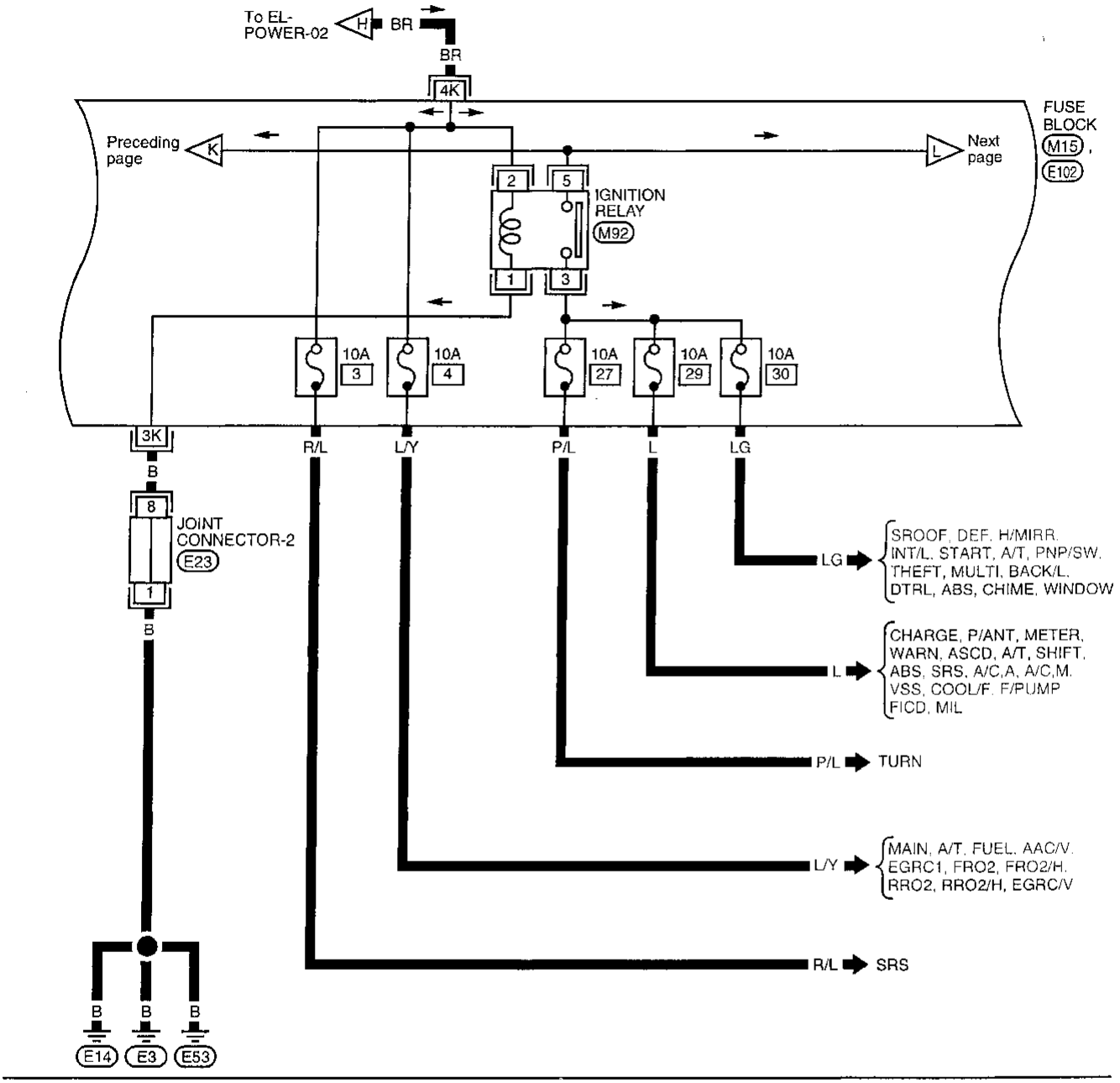


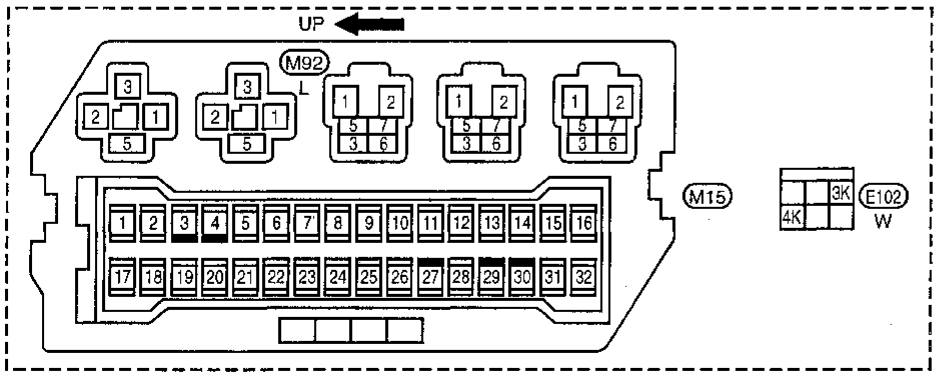


AEL943-D

Wiring Diagram –POWER– (Cont'd)

EL-POWER-05



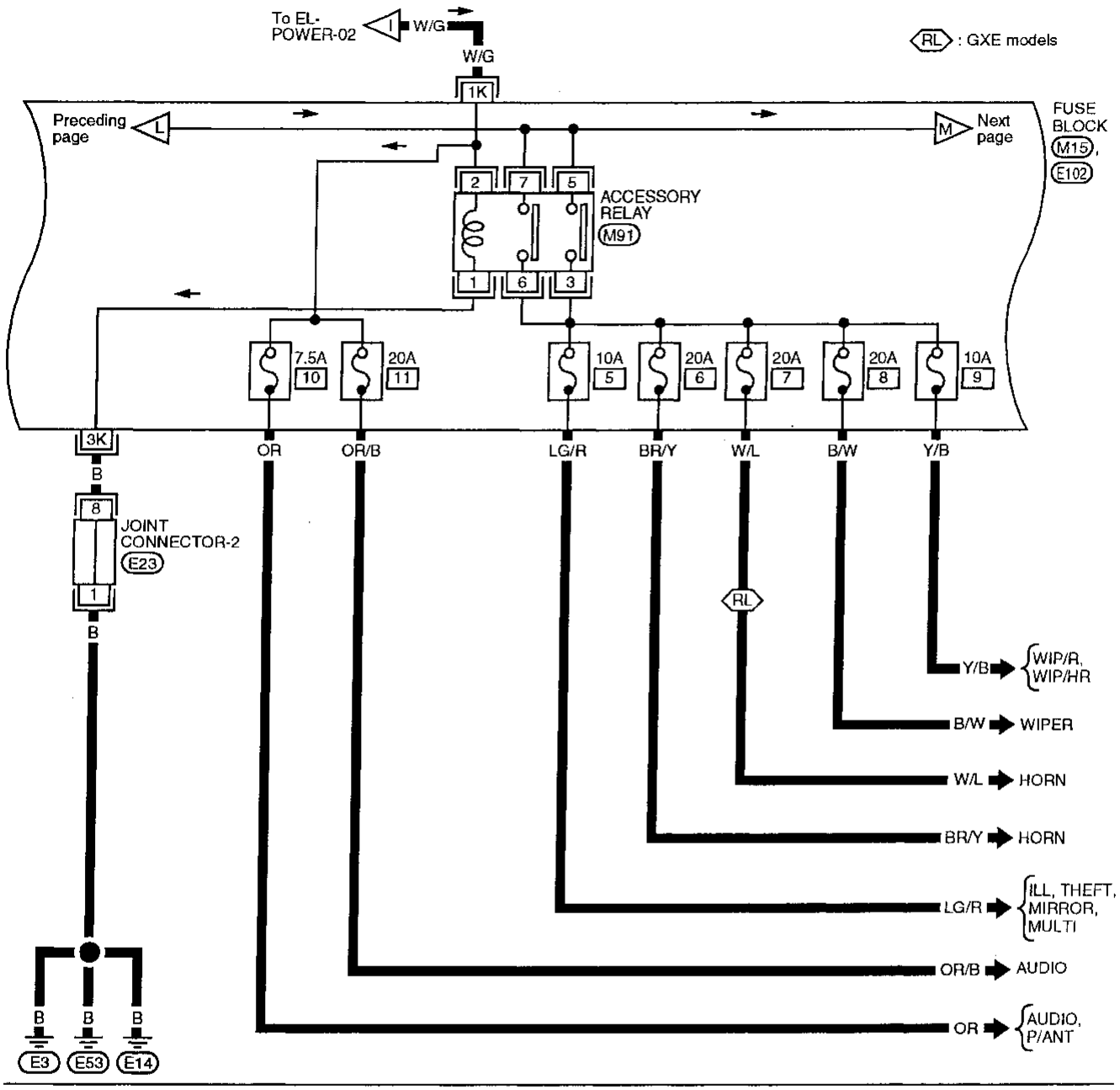


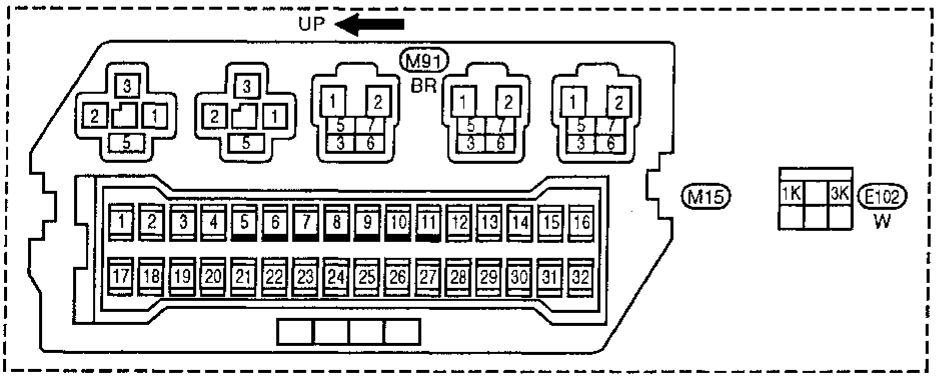
Refer to last page (Foldout page).
E23

AEL943-E

Wiring Diagram –POWER– (Cont'd)

EL-POWER-06





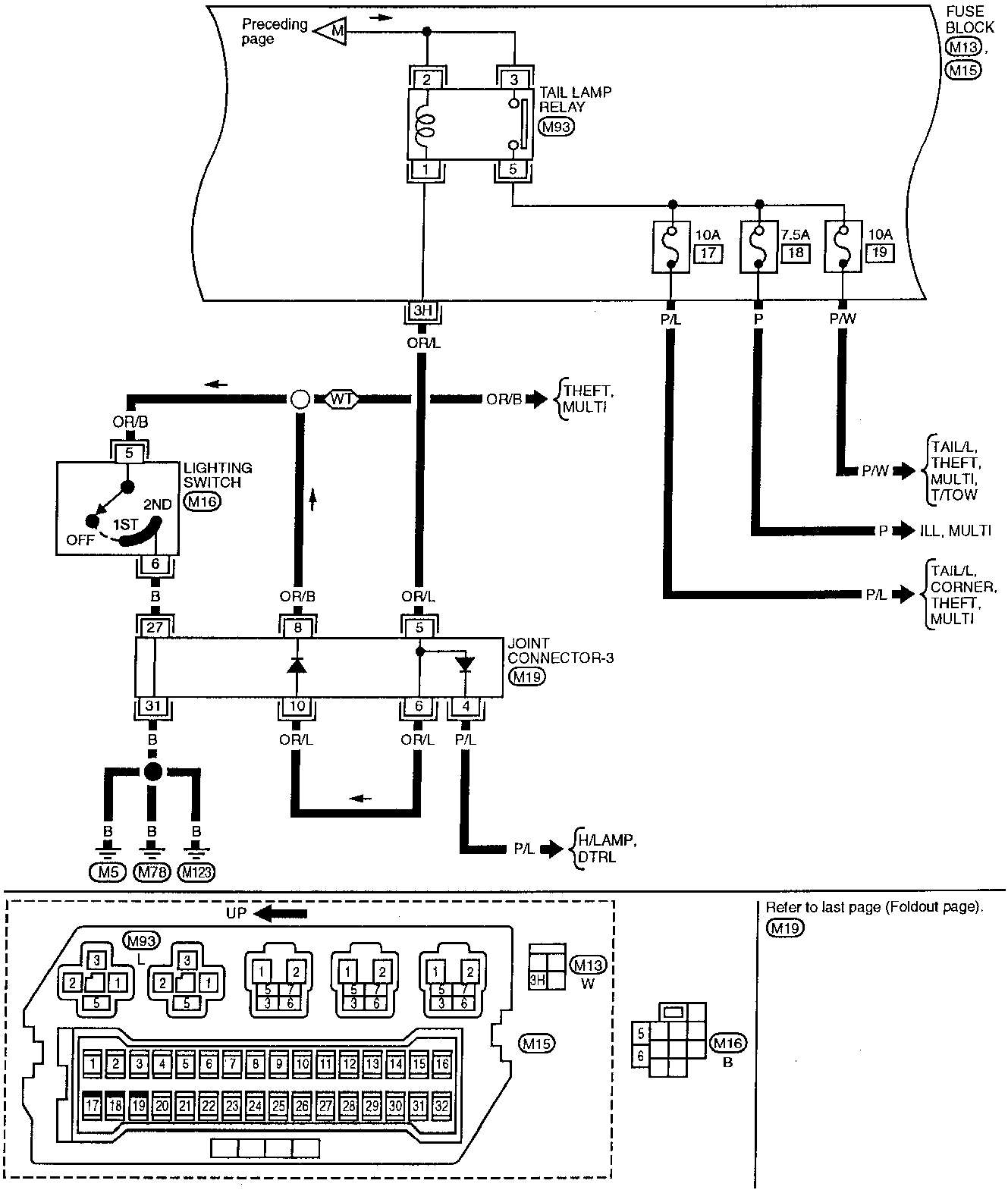
Refer to last page (Foldout page).
E23

AEL943-F

Wiring Diagram –POWER– (Cont'd)

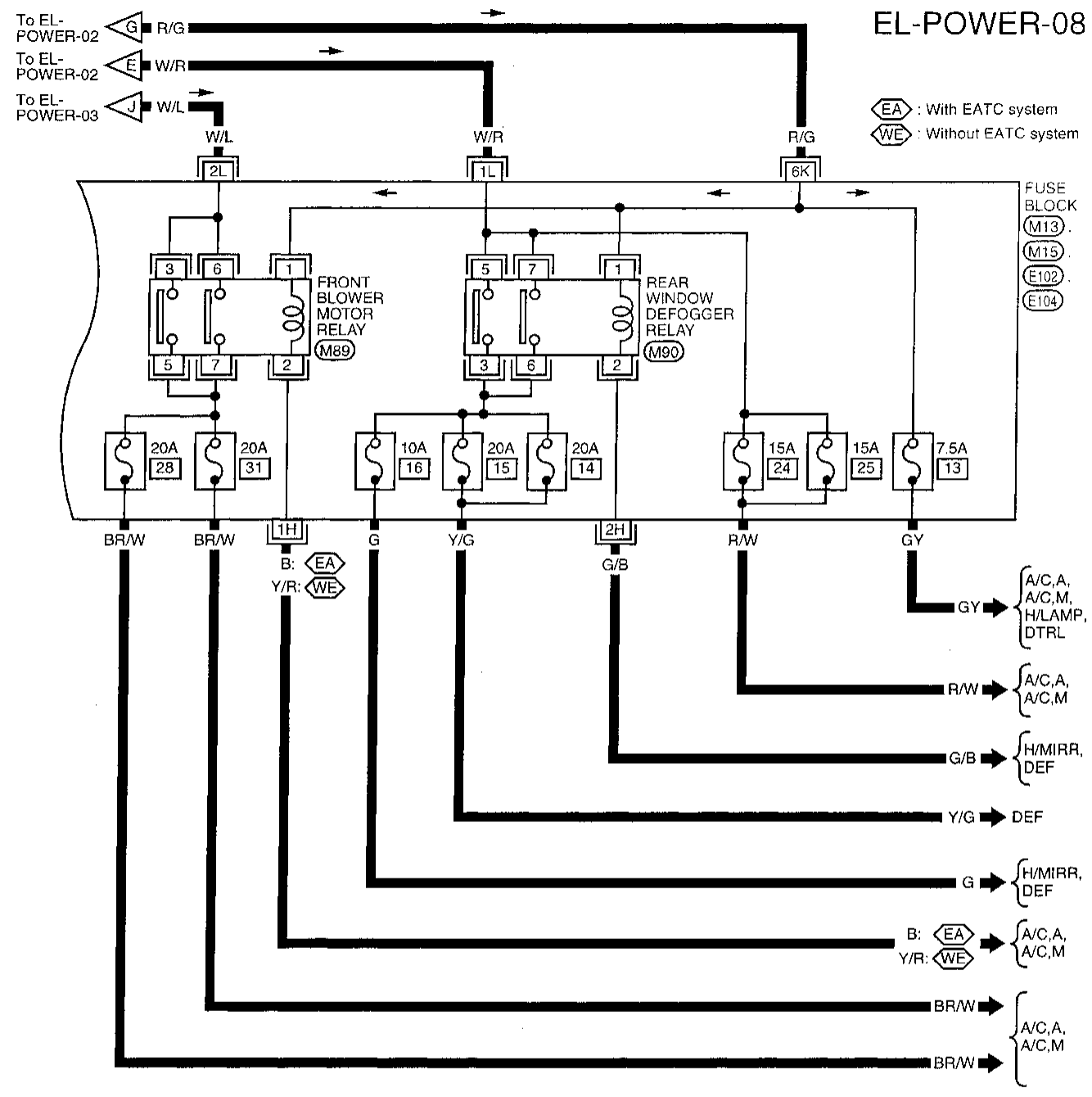
EL-POWER-07

WT : With theft warning

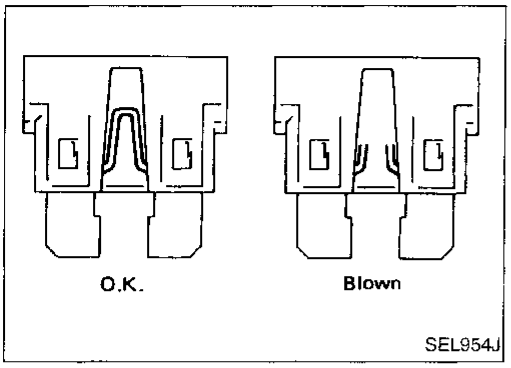


AEL943-G

Wiring Diagram –POWER– (Cont'd)

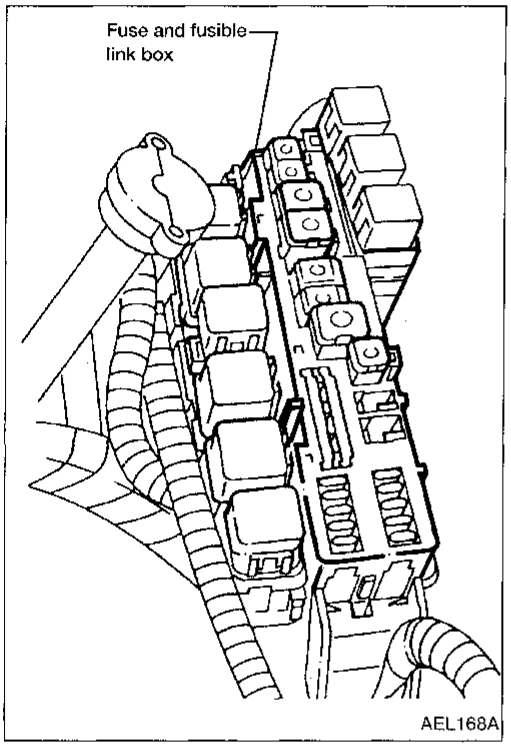


AEL943-H



Fuse

- **If fuse is blown, be sure to eliminate cause of problem before installing new fuse.**
- **Use fuse of specified rating. Never use fuse of more than specified rating.**
- **Do not partially install fuse; always insert it into fuse holder properly.**
- **Remove fuse for radio (clock) if vehicle is not used for a long period of time.**



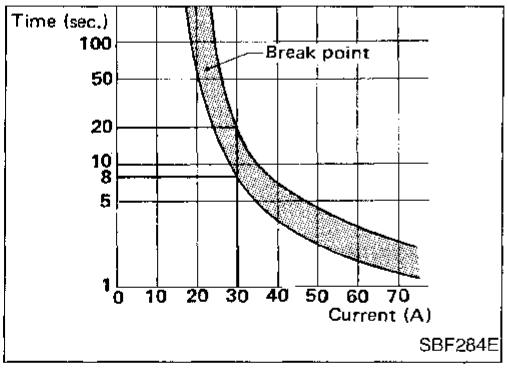
Fusible Link

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

CAUTION:

- **If fusible link should melt, it is possible that a critical circuit (power supply or large current carrying circuit) is shorted. In such a case, carefully check these circuits and eliminate cause of problem.**
- **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

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

Circuit breakers are used in the following systems:

- Power door lock
- Power window
- Electric sun roof

GROUND	CONNECT TO	CONN. NO.	CELL CODE
E3/E14/E53	ASCD HOLD RELAY	E29	EL-ASCD
	BRAKE FLUID LEVEL SWITCH	E11	EL-WARN
	BULB CHECK RELAY	E28	EL-WARN
	COOLING FAN MOTOR	E30	EC-COOL/F, HA-A/C, A, HA-A/C, M
	DAYTIME LIGHT CONTROL UNIT	E55	EL-DTRL
	FRONT COMBINATION LAMP LH	E10	EL-CORNER, EL TAIL/L, EL-THEFT
	FRONT COMBINATION LAMP RH	E40	EL-CORNER, EL-TAIL/L, EL-THEFT
	FRONT SIDE MARKER LAMP LH	E7	EL-TAIL/L, EL-THEFT
	FRONT SIDE MARKER LAMP RH	E47	EL-TAIL/L, EL-THEFT
	FRONT TURN SIGNAL LAMP LH	E33	EL-TURN
	FRONT TURN SIGNAL LAMP RH	E35	EL-TURN
	FRONT WIPER AMPLIFIER	E1	EL-WIPER
	FRONT WIPER MOTOR	E12	EL-WIPER
	HEADLAMP LH	E9	EL-H/LAMP, EL-THEFT, EL-DTRL
	HEADLAMP RH	E39	EL-H/LAMP, EL-THEFT
	HEADLAMP RELAY LH	E45	EL-DTRL, EL-H/LAMP, EL-THEFT
	HEADLAMP RELAY RH	E27	EL-DTRL, EL-H/LAMP, EL-THEFT
	HOOD SWITCH	E52	EL-THEFT
	INHIBITOR RELAY	E26	EL-THEFT, EL-START
	KEY SWITCH	E108	EL-CHIME, EL-D/LOCK, EL-MULTI, EL-THEFT
	OVERDRIVE SWITCH	E109	AT-A/T
	SHIFT LOCK SOLENOID AND PARK SWITCH	E106	AT-A/T
	WASHER FLUID LEVEL SWITCH	E48	EL-WARN
E15	SHIELD WIRE [FRONT WHEEL SENSOR LH]	E13	BR-ABS
E60	GENERATOR	E59	EL-CHARGE
M5/M78/M123	AIR BAG DIAGNOSIS SENSOR UNIT	Z3	RS-SRS, EL-WARN
	ASCD CONTROL UNIT	M164	EL-ASCD
	ASCD MAIN SWITCH	M18	EL-ASCD
	AUTOLAMP CONTROL UNIT	M77	EL-DTRL, EL-H/LAMP
	AUTOLAMP SWITCH	M17	EL-DTRL, EL-H/LAMP
	CIGARETTE LIGHTER SOCKET	M41	EL-HORN
	COMBINATION FLASHER UNIT	M2	EL-TURN
	COMBINATION METER [AIR BAG WARNING LAMP]	M26	EL-WARN
	COMBINATION METER [HIGH BEAM INDICATOR]	M26	EL-DTRL, EL-H/LAMP
	COMBINATION METER [TURN SIGNAL LAMP]	M28	EL-TURN
	DATA LINK CONNECTOR FOR GST	M23	EC-MIL
	DOOR LOCK/UNLOCK SWITCH RH	D106	EL-D/LOCK
	DOOR MIRROR LH	D5	EL-H/MIRR
	DOOR MIRROR REMOTE CONTROL SWITCH	M12	EL-MIRROR
	DOOR MIRROR RH	D105	EL-H/MIRR
	EATC UNIT	M49	HA-A/C, A
	FRONT A/C CONTROL UNIT	M50	HA-A/C, M
	FRONT A/C CONTROL UNIT	M53	HA-A/C, M
	FRONT BLOWER MOTOR RESISTOR	M72	HA-A/C, M

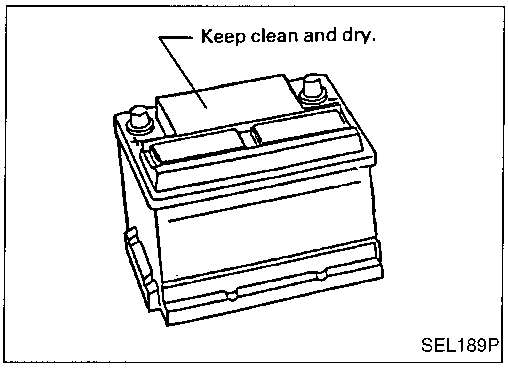
GROUND	CONNECT TO	CONN. NO.	CELL CODE
M5/M78/M123	FRONT BLOWER SPEED CONTROL UNIT	M70	HA-A/C, A
	FRONT DOOR KEY CYLINDER SWITCH LH	D8	EL-THEFT
	FRONT DOOR KEY CYLINDER SWITCH RH	D109	EL-THEFT
	FRONT DOOR LOCK ACTUATOR LH	D9	EL-D/LOCK, EL-MULTI, EL-THEFT
	FRONT DOOR LOCK ACTUATOR RH	D110	EL-D/LOCK, EL-MULTI, EL-THEFT
	FRONT DOOR SWITCH LH	M104	RS-SRS, EL-INT/L
	FRONT FAN SWITCH	M51	HA-A/C, M
	FUEL TANK GAUGE UNIT	B205	EL-METER, EL-WARN
	GLOVE BOX LAMP	M73	EL-INT/L
	IACV-FICD SOLENOID VALVE	F210	EC-FICD
	ILLUMINATION CONTROL SWITCH	M17	EL-ILL
	INERTIA FUEL SHUT OFF SWITCH	M1	EC-F/PUMP
	LIGHTING SWITCH	M16	EL-CHIME, EL-CORNER, EL-H/LAMP, EL-DTRL, EL-ILL, EL-TAIL/L, EL-THEFT
	LUMBAR SUPPORT MOTOR	P5	EL-SEAT
	MAIN POWER WINDOW AND DOOR LOCK/UNLOCK SWITCH	D6	EL-D/LOCK, EL-WINDOW
	MAP LAMP	R6	EL-INT/L
	POWER ANTENNA AMPLIFIER	M80	EL-P/ANT
	POWER SEAT SWITCH LH	P2	EL-SEAT
	POWER SEAT SWITCH RH	P101	EL-SEAT
	REAR A/C CONTROL UNIT	M109	HA-A/C, M, EL-ILL
	REAR FAN SWITCH	M47	HA-A/C, A
	REAR FAN SWITCH RELAY	M116	HA-A/C, A
	REAR POWER POINT	M110	EL-HORN
	REAR POWER VENT WINDOW SWITCH	R5	EL-WINDOW
	REAR RADIO REMOTE CONTROL UNIT	M107	EL-AUDIO, EL-ILL
	REAR WINDOW DEFOGGER SWITCH	M32	EL-DEF, EL-H/MIRR
	REAR WIPER SWITCH	M31	EL-WIP/HR, EL-WIP/R
	REAR WIPER AMPLIFIER	M117	EL-WIP/R
	ROOM LAMP FRONT	R8	EL-INT/L, EL-MULTI
	ROOM LAMP FRONT	R10	EL-INT/L
	SEAT BELT BUCKLE SWITCH	M102	EL-CHIME, EL-WARN
	SMART ENTRANCE CONTROL UNIT	M44	EL-CHIME, EL-DEF, EL-H/MIRR, EL-SROOF, EL-WINDOW
	SHIELD WIRE [REAR WHEEL SENSOR LH]	B204	BR-ABS
	SHIELD WIRE [REAR WHEEL SENSOR RH]	B206	BR-ABS
	SUNROOF MOTOR ASSEMBLY	R4	EL-SROOF
	VANITY LAMP LH	R3	EL-INT/L
	VANITY LAMP RH	R7	EL-INT/L
	WATERCOCK SOLENOID VALVE	F1	HA-A/C, A, HA-A/C, M
M66	CD CHANGER	M68	EL-AUDIO
	RADIO & CASSETTE PLAYER	M61	EL-AUDIO, EL-P/ANT

GROUND	CONNECT TO	CONN. NO.	CELL CODE
M65	COMBINATION METER (SPEEDOMETER)	M27	EC-VSS, AT-A/T, EL-ASCD, EL-METER
	VEHICLE SPEED SENSOR	F301	EC-VSS, AT-A/T, EL-ASCD, EL-METER
M124	4-CHANNEL AMPLIFIER	M122	EL-AUDIO
B8/B10	REAR COMBINATION LAMP LH	B7	EL-TAIL/L, EL-TURN, EL-THEFT
	REAR COMBINATION LAMP RH	B11	EL-TAIL/L, EL-TURN, EL-THEFT
	REAR SIDE MARKER LAMP LH	B9	EL-TAIL/L, EL-THEFT
	REAR SIDE MARKER LAMP RH	B12	EL-TAIL/L, EL-THEFT
	SUB WOOFER AMPLIFIER	B14	EL-AUDIO
	TRAILER TOW CONNECTOR	B302	EL-T/TOW
	TRAILER TOW CONTROL UNIT	B6	EL-T/TOW
B104	BACK DOOR KEY CYLINDER SWITCH	D308	EL-THEFT
	BACK DOOR LATCH SWITCH	D306	EL-INT/L, EL-MULTI, EL-THEFT, EL-WARN
	BACK DOOR LATCH SWITCH	D307	EL-INT/L, EL-MULTI, EL-THEFT, EL-WARN
	BACK DOOR LOCK ACTUATOR	D305	EL-MULTI, EL-THEFT
	BACKUP LAMP LH	D304	EL-BACK/L
	BACKUP LAMP RH	D313	EL-BACK/L
	GLASS HATCH SWITCH	D310	EL-WIP/HR
	LICENSE LAMP	D309	EL-TAIL/L, EL-THEFT
	REAR WIPER MOTOR	D311	EL-WIP/HR, EL-WIP/R
F5	SHIELD WIRE [FRONT WHEEL SENSOR RH]	F4	BR-ABS
F10	ABS CONTROL UNIT	F106	BR-ABS
	SHIELD WIRE [ABS CONTROL UNIT]	F106	BR-ABS
	SHIELD WIRE [FRONT WHEEL SENSOR RH]	F4	BR-ABS
	SHIELD WIRE [FRONT WHEEL SENSOR LH]	E13	BR-ABS
	SHIELD WIRE [REAR WHEEL SENSOR LH]	B204	BR-ABS
	SHIELD WIRE [REAR WHEEL SENSOR RH]	B206	BR-ABS
F213/F215	A/T CONTROL UNIT	F404	AT-A/T
	DATA LINK CONNECTOR FOR CONSULT	M14	AT-A/T, EC-MIL
	DATA LINK CONNECTOR FOR GST	M23	EC-MIL
	DISTRIBUTOR (CAMSHAFT POSITION SENSOR)	F15	EC-CMPS
	ECM (ECCS CONTROL MODULE)	F101	EC-MAIN, AT-A/T
	HIGH PRESSURE SWITCH	F21	EC-COOL/F, HA-A/C, A, HA-A/C, M
	POWER STEERING OIL PRESSURE SWITCH	F3	EC-PST/SW
	POWER TRANSISTOR UNIT	F17	EC-IGN/SG
	SHIELD WIRE [CRANKSHAFT POSITION SENSOR (OBD)]	F502	EC-CKPS
	SHIELD WIRE [DISTRIBUTOR (CAMSHAFT POSITION SENSOR)]	F15	EC-CMPS
	SHIELD WIRE [ECM (ECCS CONTROL MODULE)]	F101	EC-CKPS, EC-IGN/SG, EC-FRO2, EC-FRO2/H, EC-KS, EC-RRO2, EC-RRO2/H, EC-TPS
	SHIELD WIRE (KNOCK SENSOR)	F208	EC-KS

GROUND	CONNECT TO	CONN. NO.	CELL CODE
F213/F215	SHIELD WIRE (MASS AIR FLOW SENSOR)	F308	EC-MAFS
	SHIELD WIRE (THROTTLE POSITION SENSOR)	F218	EC-TPS, AT-A/T
	SHIELD WIRE (FRONT HEATED OXYGEN SENSOR)	E36	EC-FRO2, EC-FRO2/H, EC-FUEL
	SHIELD WIRE (REAR HEATED OXYGEN SENSOR)	M103	EC-RRO2, EC-RRO2/H
D403	REAR WINDOW DEFOGGER	D401	EL-DEF
	REAR WINDOW DEFOGGER	D402	EL-DEF

CAUTION:

- **If it becomes necessary to start engine with 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.**

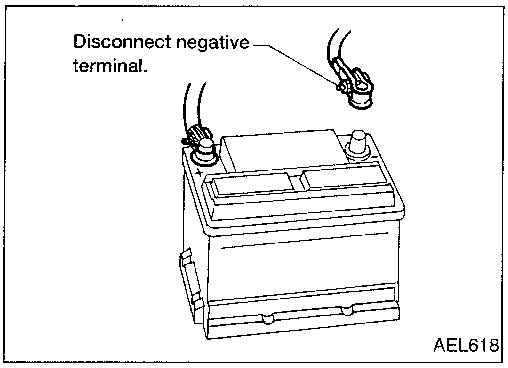


How to Handle Battery

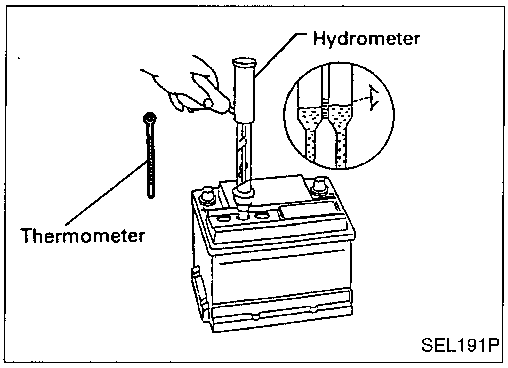
METHODS OF PREVENTING DISCHARGE

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.
- **During every routine maintenance, check the electrolyte level.** This also applies to batteries designated as "low maintenance" and "maintenance-free".



- When the vehicle is not going to be used over a long period of time, disconnect the negative battery terminal.



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

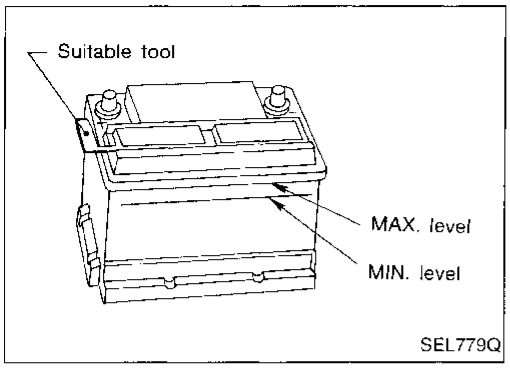
CHECKING ELECTROLYTE LEVEL

WARNING:

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

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

How to Handle Battery (Cont'd)

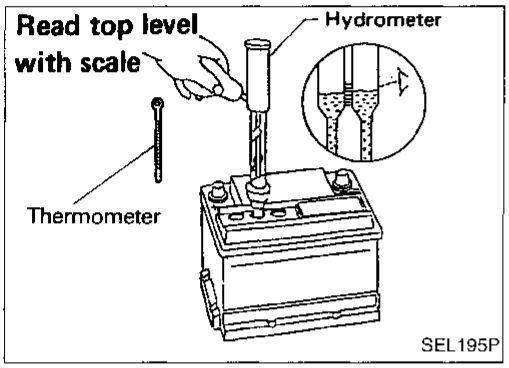


- Remove the cell plug using a suitable tool.
- Add distilled water up to the MAX level.

SULPHATION

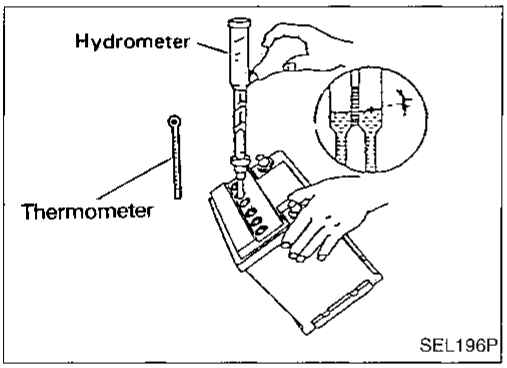
A battery (with specific gravity less than 1.100) will completely discharge when left unattended for a long period of time. This will result in sulphation on the cell plates.

A sulphated battery may sometimes be brought back into service by a slow charge of 12 hours or more. A capacity test should be run after the battery is charged to ensure the battery is not damaged.



SPECIFIC GRAVITY CHECK

- Read hydrometer and thermometer readings at eye level.



- When electrolyte level is too low, tilt battery case for easy measurement.
- 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	Battery electrolyte temperature °C (°F)	Add to specific gravity reading
71 (160)	0.032	21 (70)	–0.004
66 (150)	0.028	16 (60)	–0.008
60 (140)	0.024	10 (50)	–0.012
54 (129)	0.020	4 (39)	–0.016
49 (120)	0.016	–1 (30)	–0.020
43 (110)	0.012	–7 (20)	–0.024
38 (100)	0.008	–12 (10)	–0.028
32 (90)	0.004	–18 (0)	–0.032
27 (80)	0		

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

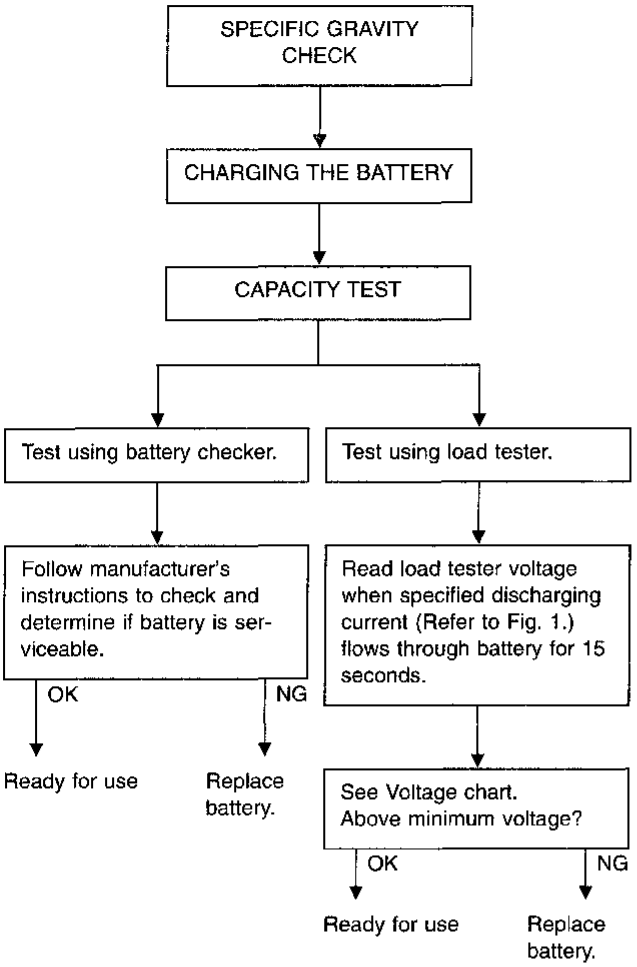
Note: The ammeter reading on your battery charger will automatically decrease as the battery charges. This indicates that the voltage of the battery is increasing normally as the state of charge improves. The charging amps indicated above are referred to as initial charge rate.

- 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" as follows, to assure that the battery is serviceable.

MEMORY RESET

If the battery is disconnected or goes dead the following items must be reset:

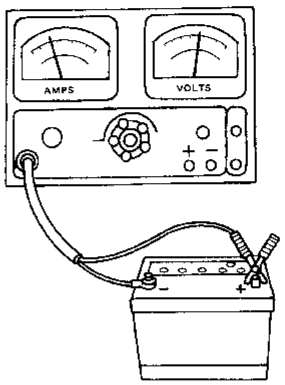
- Radio AM and FM preset
- Radio clock



- Check battery type and determine the specified current using the following table.

Fig. 1 DISCHARGING CURRENT (Load tester)

Group Size	Current (A)
35	180
24R	195



SEL008Z

Voltage chart

Estimated electrolyte temperature °C (°F)	Minimum voltage under 15 second load
21 (70) or above	9.6
16 (60)	9.5
10 (50)	9.4
4 (40)	9.3
−1 (30)	9.1
−7 (20)	8.9
−12 (10)	8.7
−18 (0)	8.5

Service Data and Specifications (SDS)

Applied area		USA	USA option and Canada
Group size		35	24R
Capacity	V-AH	12-60	12-65
Cold cranking current	A	450	525
Reserve capacity	Minutes	90	105

System Description

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

With the ignition switch in the START position, power is supplied:
- from ignition switch terminal ⑤
- to inhibitor relay terminal ⑦.

With the ignition switch in the ON or START position, power is supplied:
- through 10A fuse (No. 30 , located in the fuse block)
- to inhibitor switch terminal ②.

For models with theft warning system

With the selector lever in the park ("P") or neutral ("N") position, power is supplied:
- from inhibitor switch terminal ①
- to theft warning relay terminal ④
- through theft warning relay terminal ③
- to inhibitor relay terminal ①.

If the theft warning system is triggered, ground is supplied to theft warning relay terminal ①. This removes power from theft warning relay terminal ④, which disengages the inhibitor relay and the starter motor will not operate.

For models without theft warning system

With the selector lever in the park ("P") or neutral ("N") position, power is supplied:
- from inhibitor switch terminal ①
- to inhibitor relay terminal ①.

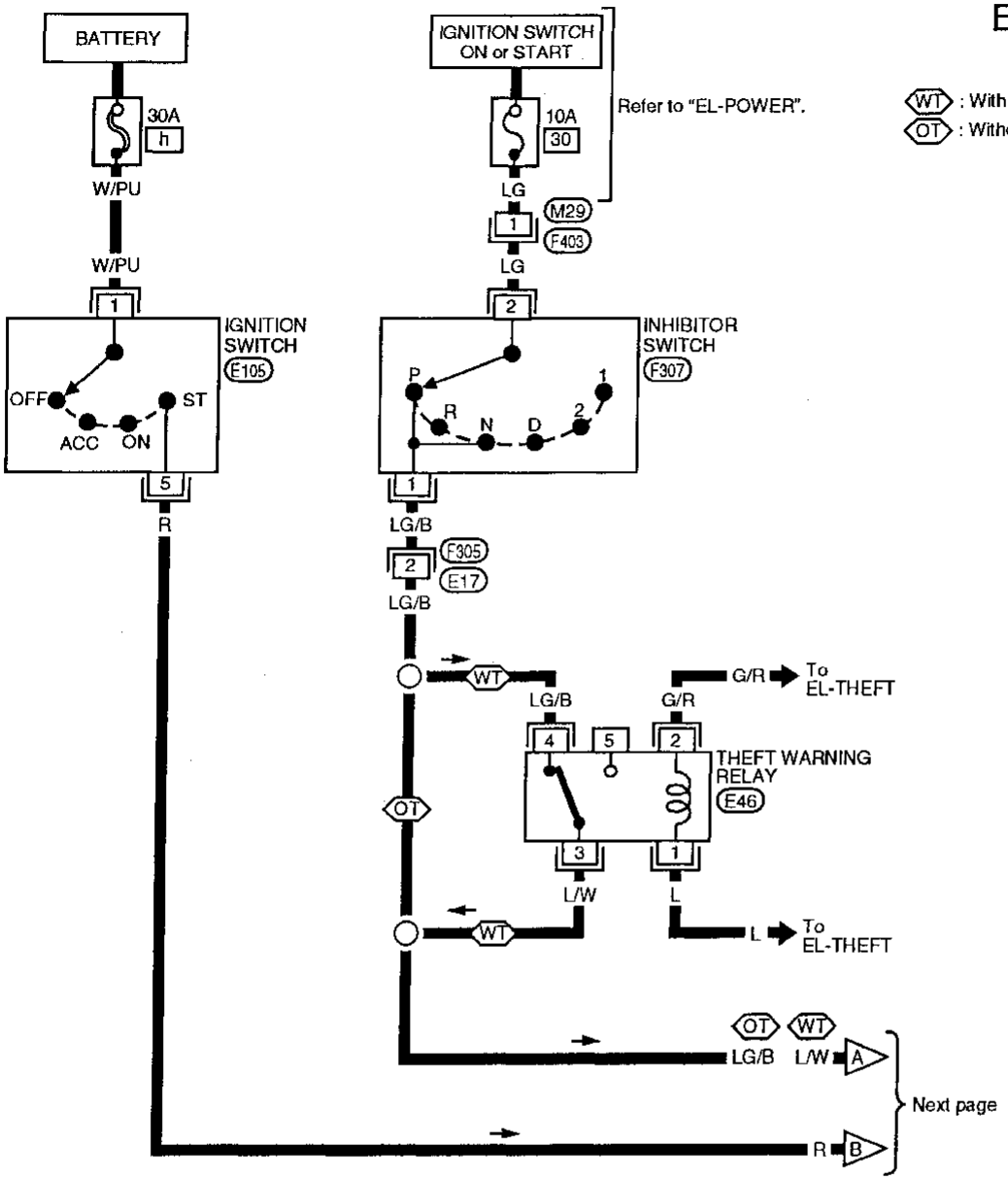
Ground is supplied to inhibitor relay terminal ②, through body grounds E3 , E14 and E53 .

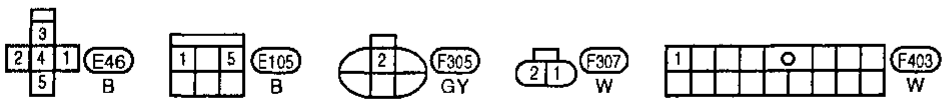
With power and ground supplied, the inhibitor relay is engergized and power is supplied:
- from inhibitor relay terminal ⑥
- to starter motor windings terminal ①.

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

Wiring Diagram –START–

EL-START-01

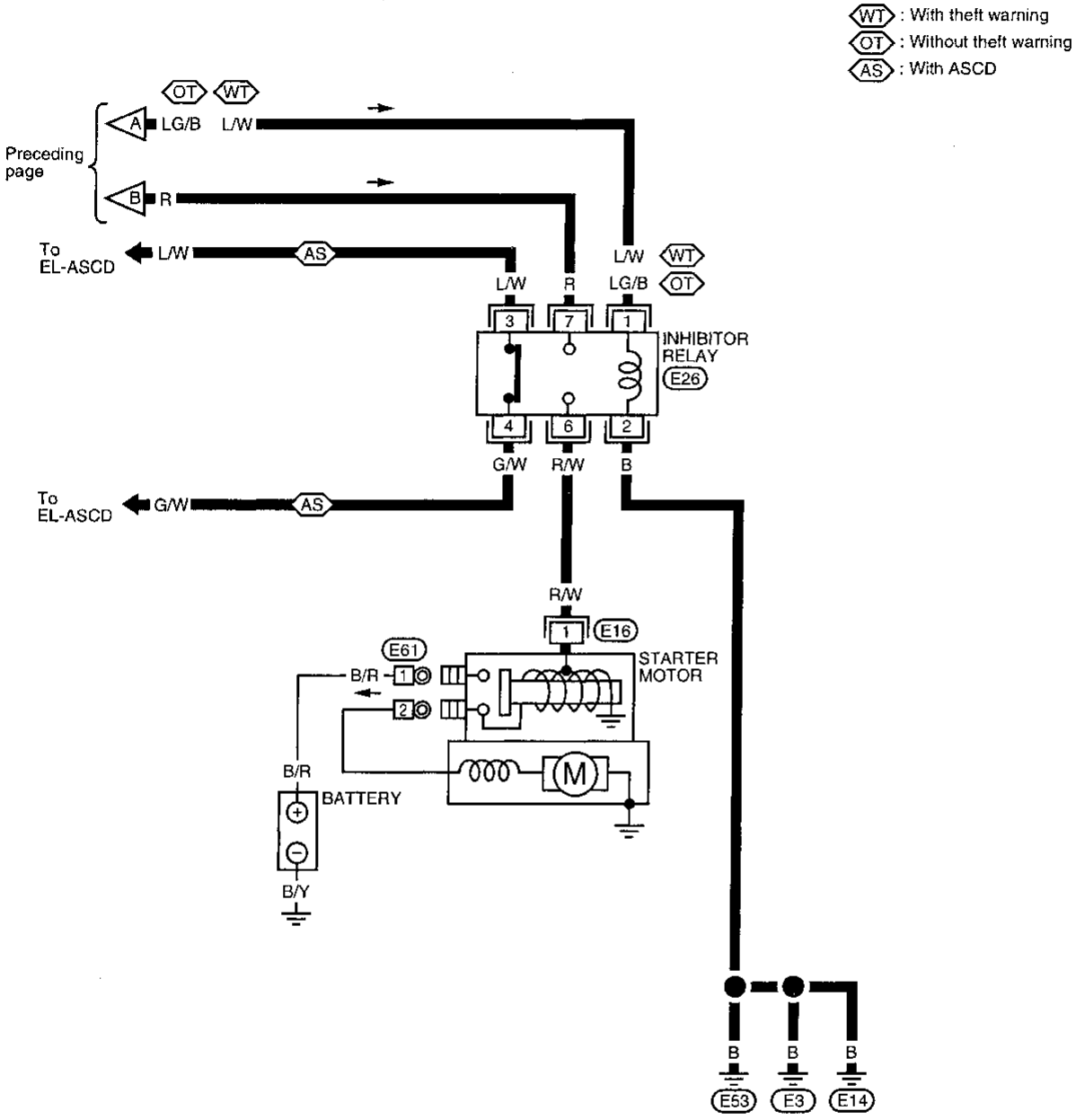


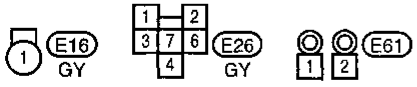


AEL944-A

Wiring Diagram –START– (Cont'd)

EL-START-02

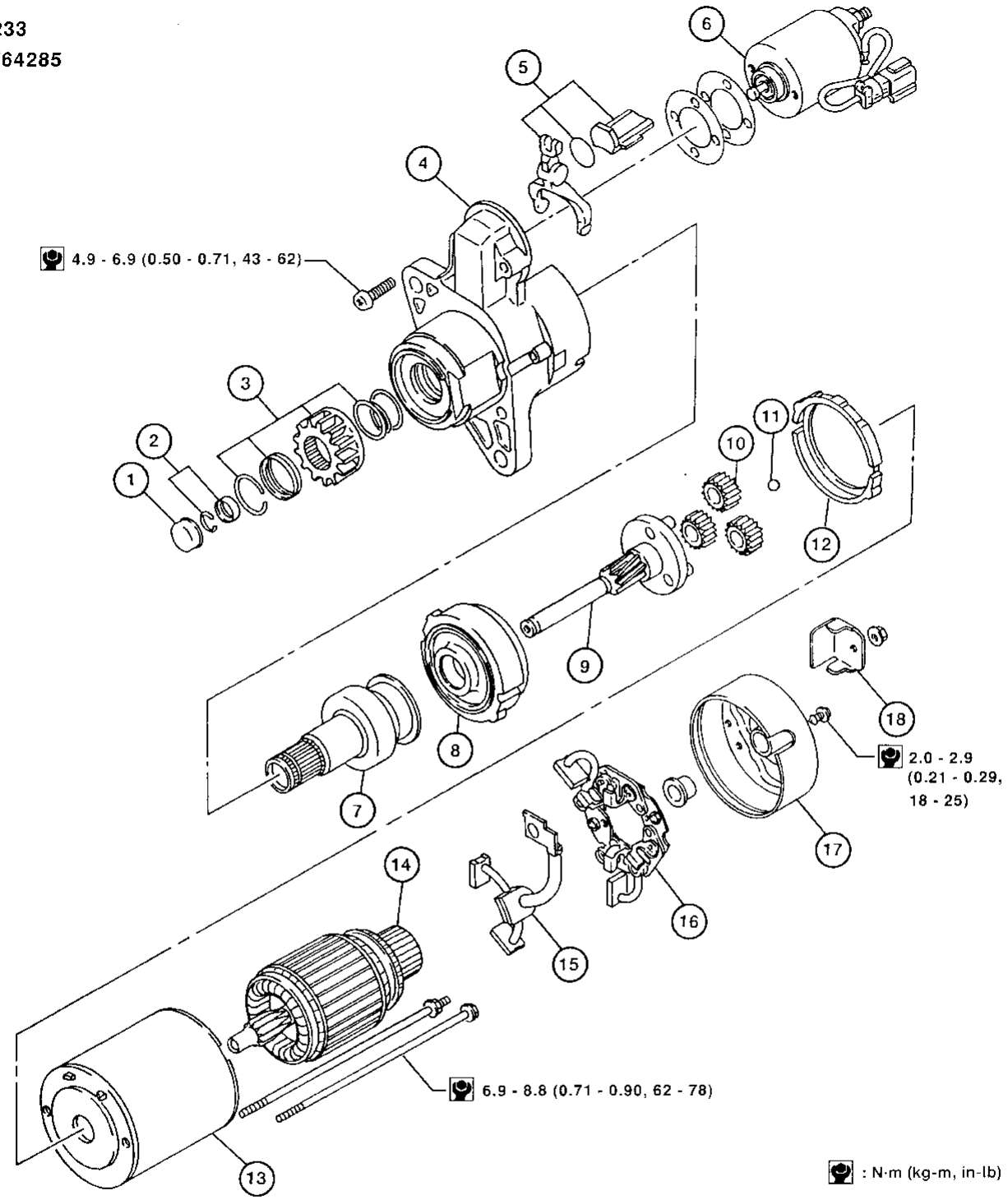




AEL944-B

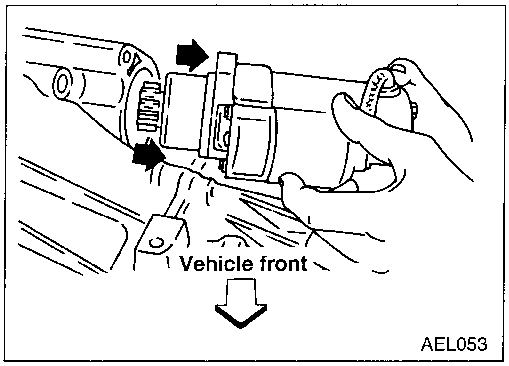
Starter

SEC. 233
M001T64285



AEL169A

① Cap
② Stopper set
③ Pinion set
④ Front bracket
⑤ Lever set
⑥ Magnetic switch assembly
⑦ Clutch gear
⑧ Internal gear
⑨ Gear shaft
⑩ Planetary gear
⑪ Ball
⑫ Center bracket
⑬ Yoke assembly
⑭ Armature
⑮ Brush assembly
⑯ Brush holder
⑰ Rear bracket
⑱ Support



Removal and Installation

1. Remove battery negative cable from battery.
2. Remove intake air duct.
3. Remove battery cable from starter motor.
4. Remove brush cable from magnetic switch assembly.
5. Disconnect starter motor harness connector.
6. Remove starter motor mounting bolts.
7. Remove starter motor.

When installing, tighten starter motor mounting bolts.

: 23 - 26 N·m (2.35 - 2.7 kg-m, 17.0 - 19.2 ft-lb)

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		M001T64285
System voltage	V	12
No-load		
Terminal voltage	V	11.0
Current	A	Less than 90
Revolution	rpm	More than 2,900
Minimum diameter of commutator	mm (in)	28.8 (1.134)
Minimum length of brush	mm (in)	11.0 (0.433)
Brush spring tension	N (kg, lb)	17.7 - 21.6 (1.8 - 2.2, 4.0 - 4.9)
Clearance of bearing metal and armature shaft	mm (in)	0.01 - 0.20 (0.0004 - 0.0079)
Clearance "ℓ" between pinion front edge and pinion stopper	mm (in)	0.05 - 1.5 (0.0020 - 0.0591)
Installed current	A	150

System Description

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

Power is supplied at all times to generator terminal Ⓢ through:
- 10A fuse (No. 48 , located in the fuse and fusible link box).

Terminal Ⓑ of the generator supplies current to charge the battery and operate the vehicle's electrical system. Voltage output at this terminal is controlled by the amount of voltage detected by the IC regulator at terminal Ⓢ. The charging circuit is protected by the 120A fusible link (letter f , located in the fuse and fusible link box).

Terminal Ⓔ of the generator supplies ground through body ground E60 .

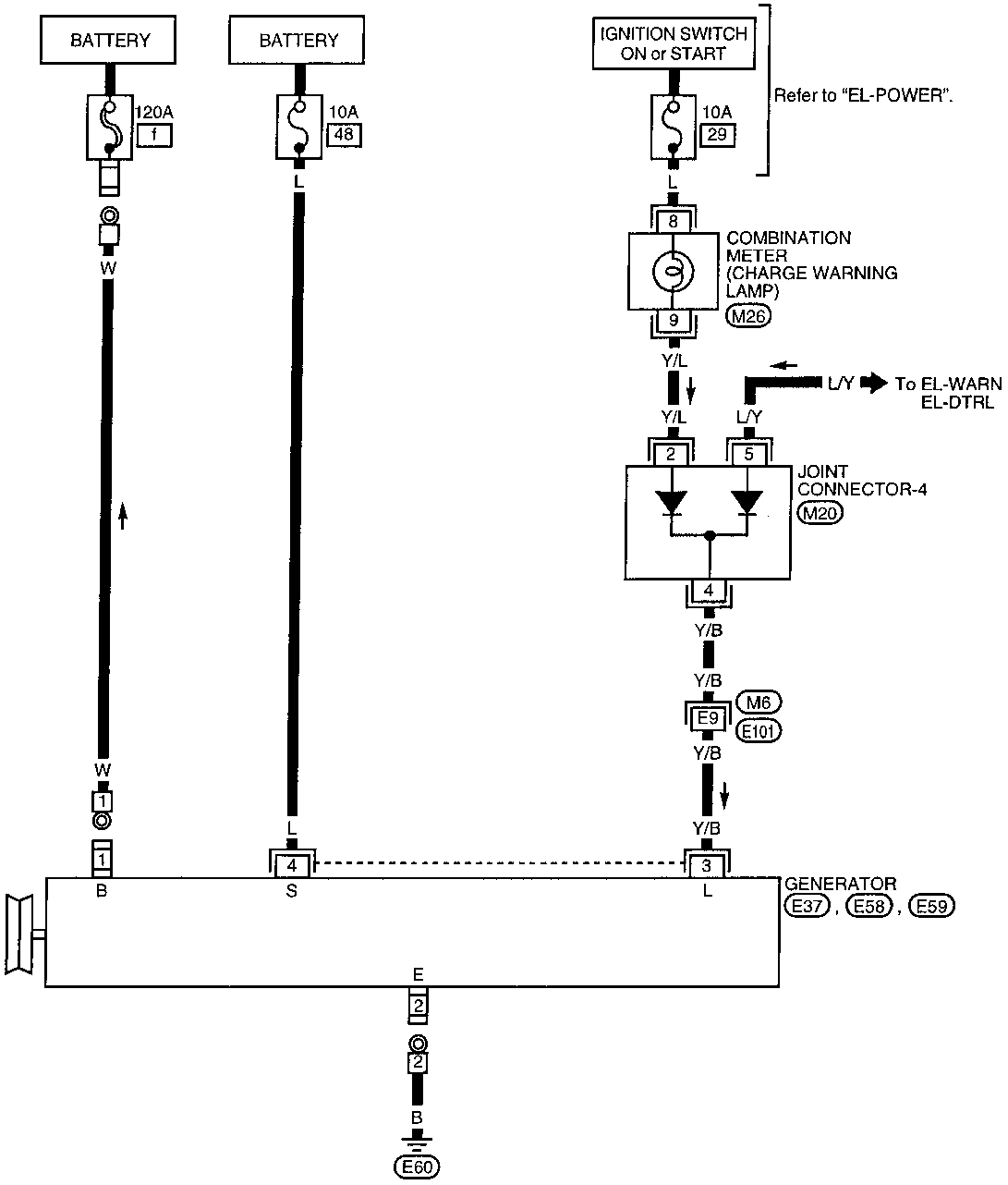
With the ignition switch in the ON or START position, power is supplied:
- through 10A fuse (No. 29 , located in the fuse block)
- to combination meter terminal ⑧ for the charge warning lamp.

Ground is supplied to terminal ⑨ of the combination meter through terminal Ⓛ of the generator. With power and ground supplied, the charge warning lamp will illuminate. When the generator is providing sufficient voltage the ground is opened and the charge warning lamp will go off.

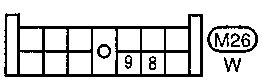
If the charge warning lamp illuminates with the engine running, a fault is indicated. Refer to "Trouble Diagnoses", "CHARGING SYSTEM", EL-33.

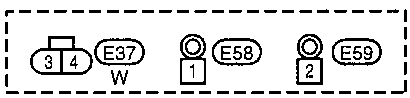
Wiring Diagram –CHARGE–

EL-CHARGE-01



Refer to last page (Foldout page).
M6, E101
M20





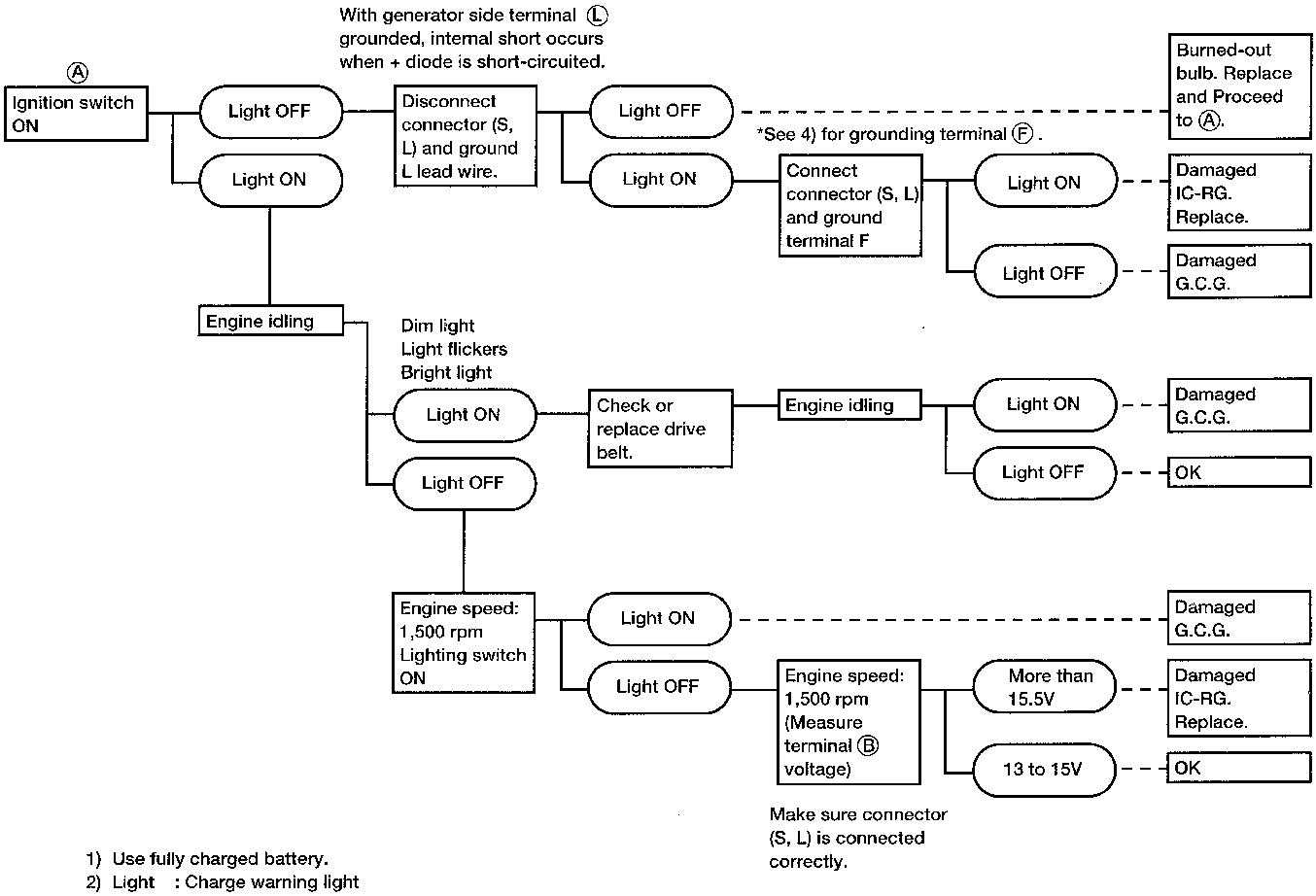
AEL945

Trouble Diagnoses

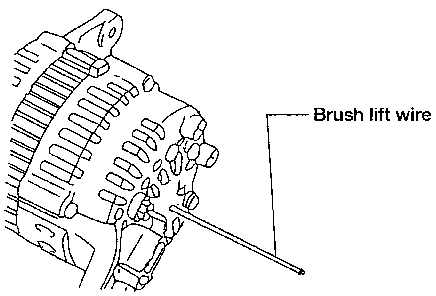
Before conducting a generator test, make sure that the battery is fully charged. A 30-volt voltmeter and suitable test probes are necessary for the test. The generator can be checked easily by referring to the Inspection Table.

Before starting diagnosis, inspect the fusible link.

WITH IC REGULATOR



1) Use fully charged battery.
2) Light : Charge warning light
   G.C.G. : Generator parts except IC regulator
   IC-RG : IC regulator
   OK : IC-generator is in good condition.
3) When reaching "Damaged G.C.G.," remove generator from vehicle and disassemble, inspect and correct or replace faulty parts.
4) *Method of grounding terminal Ⓕ (HITACHI make only)
Gasoline engine model
   contact tip of wire with brush and attach wire to generator body.

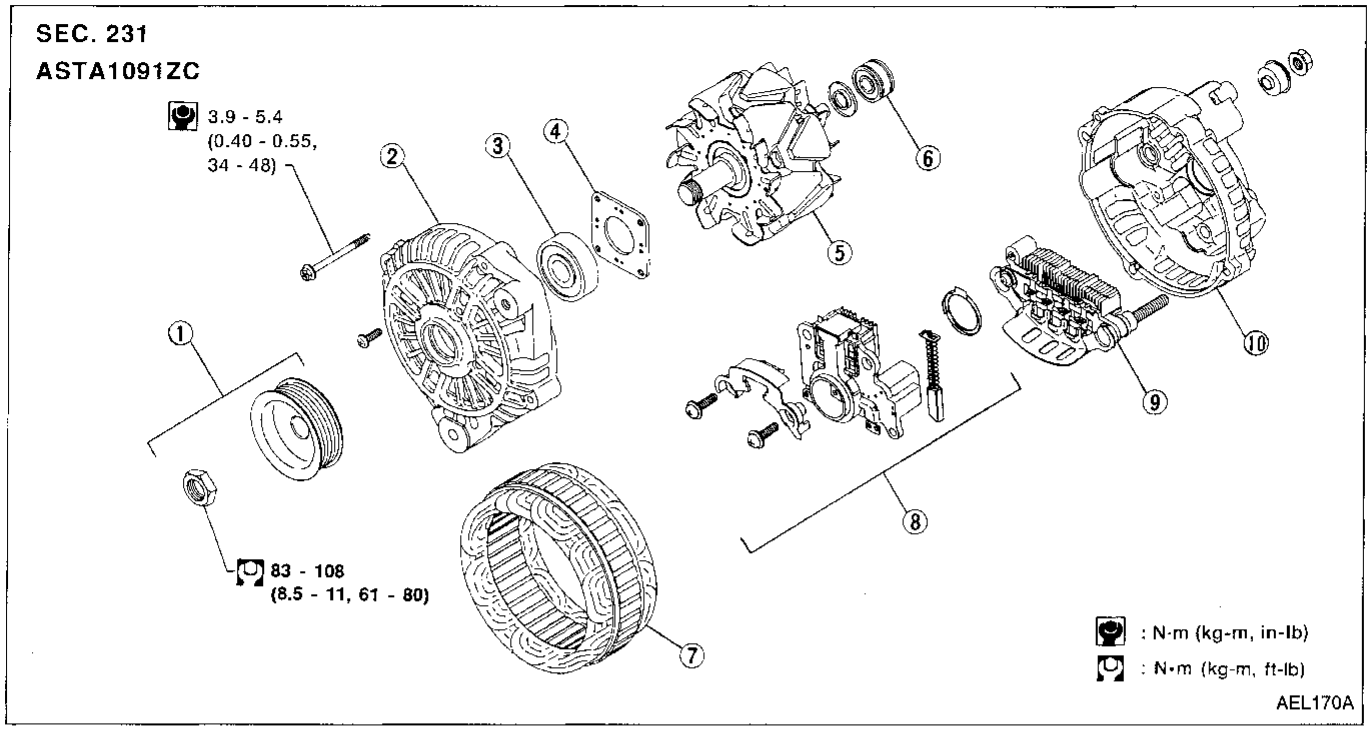


SEL030Z

AEL269A

5) Terminals Ⓢ, Ⓛ, Ⓑ and Ⓔ are marked on rear cover of generator.

Construction



① Pulley assembly
② Front cover
③ Front bearing
④ Bearing retainer
⑤ Rotor
⑥ Rear bearing
⑦ Stator
⑧ IC voltage regulator assembly
⑨ Diode assembly
⑩ Rear cover

Removal and Installation

1. Disconnect battery cable.
2. Loosen idler pulley adjusting bolt.
3. Remove A/C compressor belt.
4. Remove engine undercover.
5. Remove generator harness and bracket.
6. Loosen generator mounting bolt.
7. Remove drive belt.
8. Remove generator.

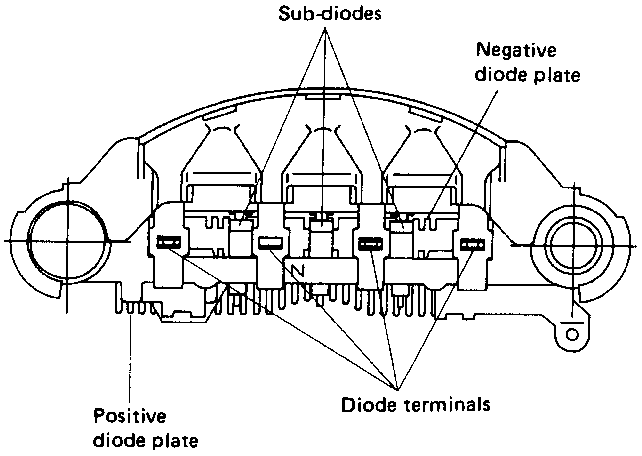
- Install in the reverse order of removal.

Diode Check

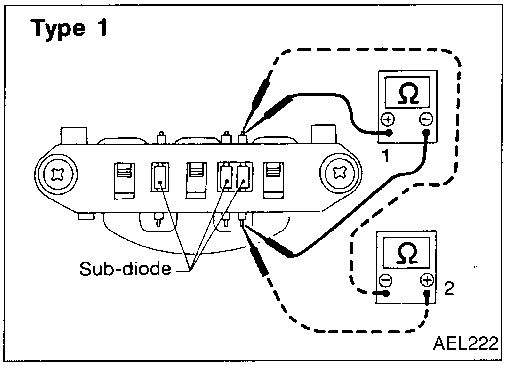
MAIN DIODES

- In order to check diodes, they must first be unsoldered from the stator.
- Use an ohmmeter to check condition of diodes as indicated in chart below.
- If any of the test results is not satisfactory, replace diode assembly.

	Ohmmeter probes		Judgement
	Positive ⊕	Negative ⊖	
Diodes check (Positive side)	Positive diode plate	Diode terminals	Diode conducts in only one direction.
	Diode terminals	Positive diode plate	
Diodes check (Negative side)	Negative diode plate	Diode terminals	Diode conducts in only one direction.
	Diode terminals	Negative diode plate	



SEL385L



SUB-DIODES

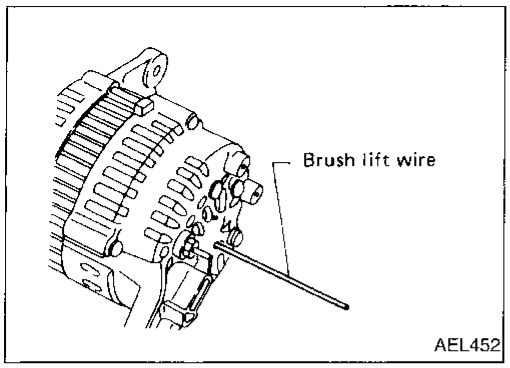
- Attach ohmmeter's probe to each end of diode to check for continuity.
  Continuity:
  Diode conducts in only one direction.
- If continuity is NG, replace diode assembly.

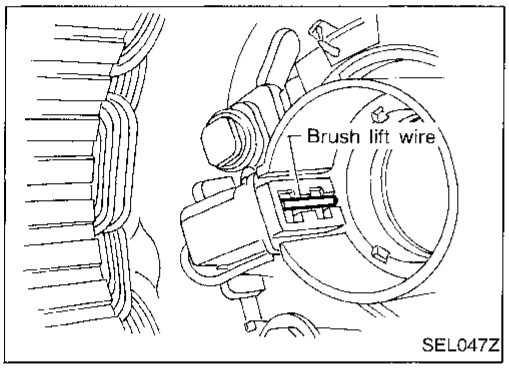
Assembly

Carefully observe the following instructions.

- When soldering each stator coil lead wire to diode assembly terminal, carry out the operation as fast as possible.

Assembly (Cont'd)





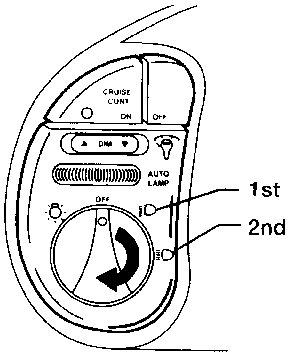
REAR COVER INSTALLATION

(1) Before installing front cover with pulley and rotor with rear cover, push brush up with fingers and retain brush by inserting brush lift wire into brush lift hole from outside.
(2) After installing front and rear sides of generator, pull out brush lift wire.

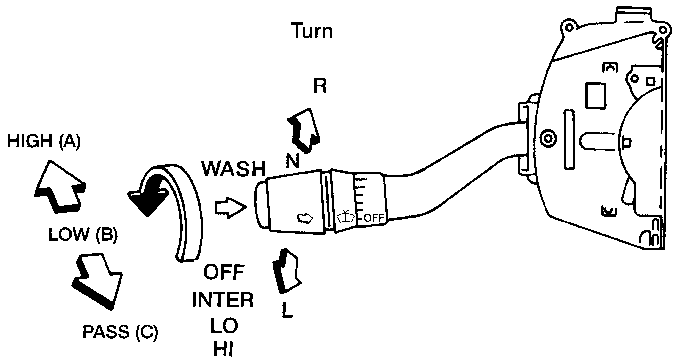
Service Data and Specifications (SDS)

Type		A3TA1091ZC
Nominal rating	V-A	12-110
Ground polarity		Negative
Minimum revolution under no-load (When 13.5 volts is applied)	rpm	1,300
Hot output current	A/rpm	More than 33/1,300 More than 85/2,500
Regulated output voltage	V	14.1 - 14.7
Minimum length of brush	mm (in)	8.0 (0.315)
Brush spring pressure	N (g, oz)	3.138 - 4.315 (320 - 440, 11.29 - 15.52)
Slip ring minimum outer diameter	mm (in)	More than 22.1 (0.870)
Rotor (Field coil) resistance	Ω	2.3 - 2.7

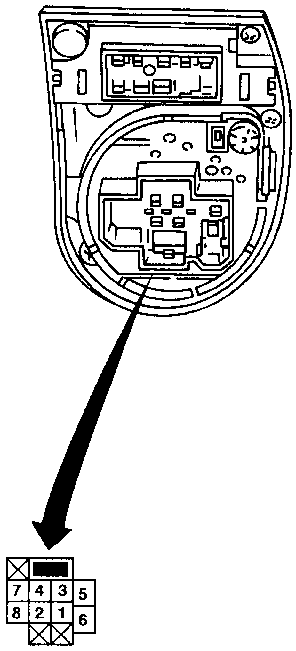
Combination Switch/Check

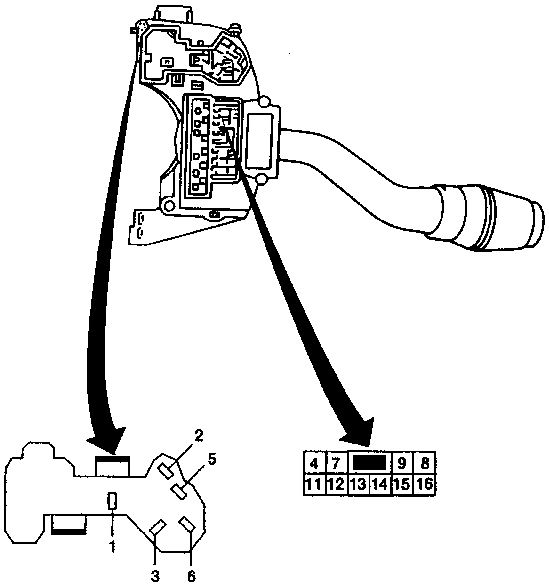


Lighting switch



Combination switch





Lighting switch

	Off	1st	2nd
1			○
2			○
3			○
4			○
5		○	○
6		○	○
7	○		
	⊖		
8	○		

Turn signal and cornering lamp switch

	L	N	R
1	○		○
2	○		
3			○
4	○		○
5	○		
6			○

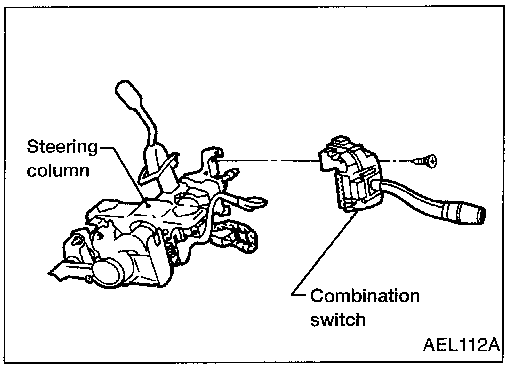
Lighting switch – 2

	A	B	C
11	○		○
12	○		○
13			○
14			○
15			○
16			○

Wiper switch

	Off	Int Max	Int Min	LO	HI	Wash
7	○	○	○	○	○	
8	○	○	○	○	○	○
	47.6 kΩ, 103.3 kΩ	11.33 kΩ, 103.3 kΩ	11.33 kΩ, 3.3 kΩ	4.08 kΩ, 3.3 kΩ	3.3 kΩ	
9	○	○	○	○	○	○

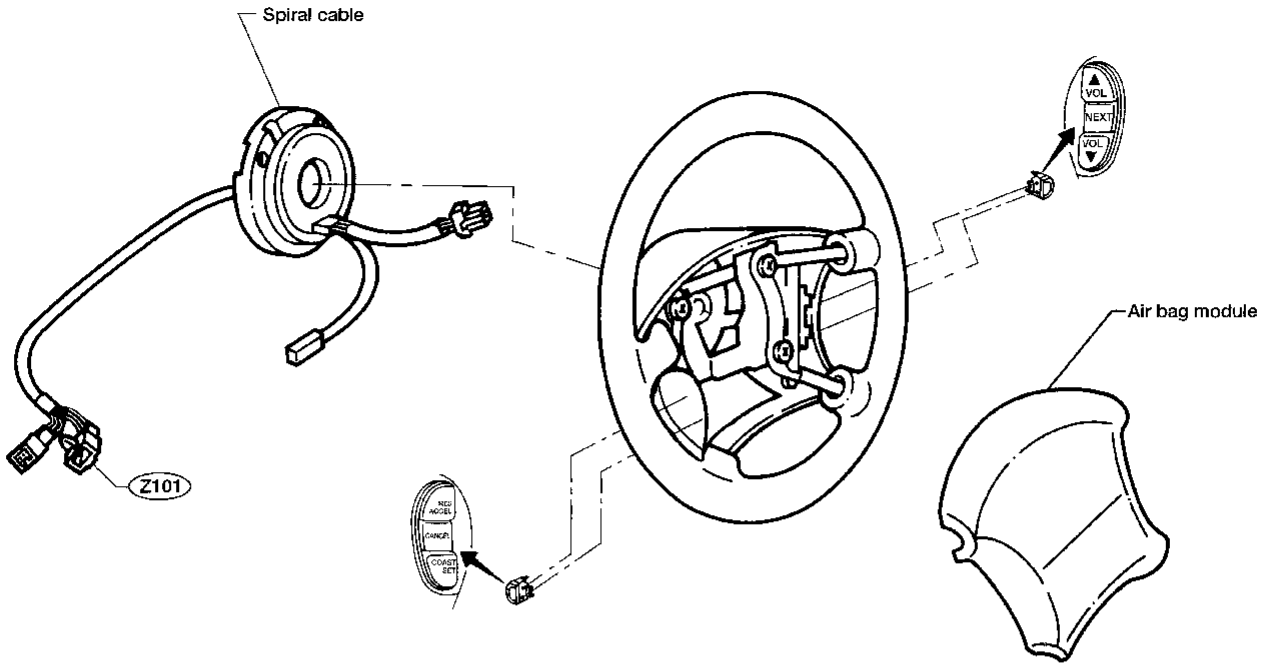
AEL075-A

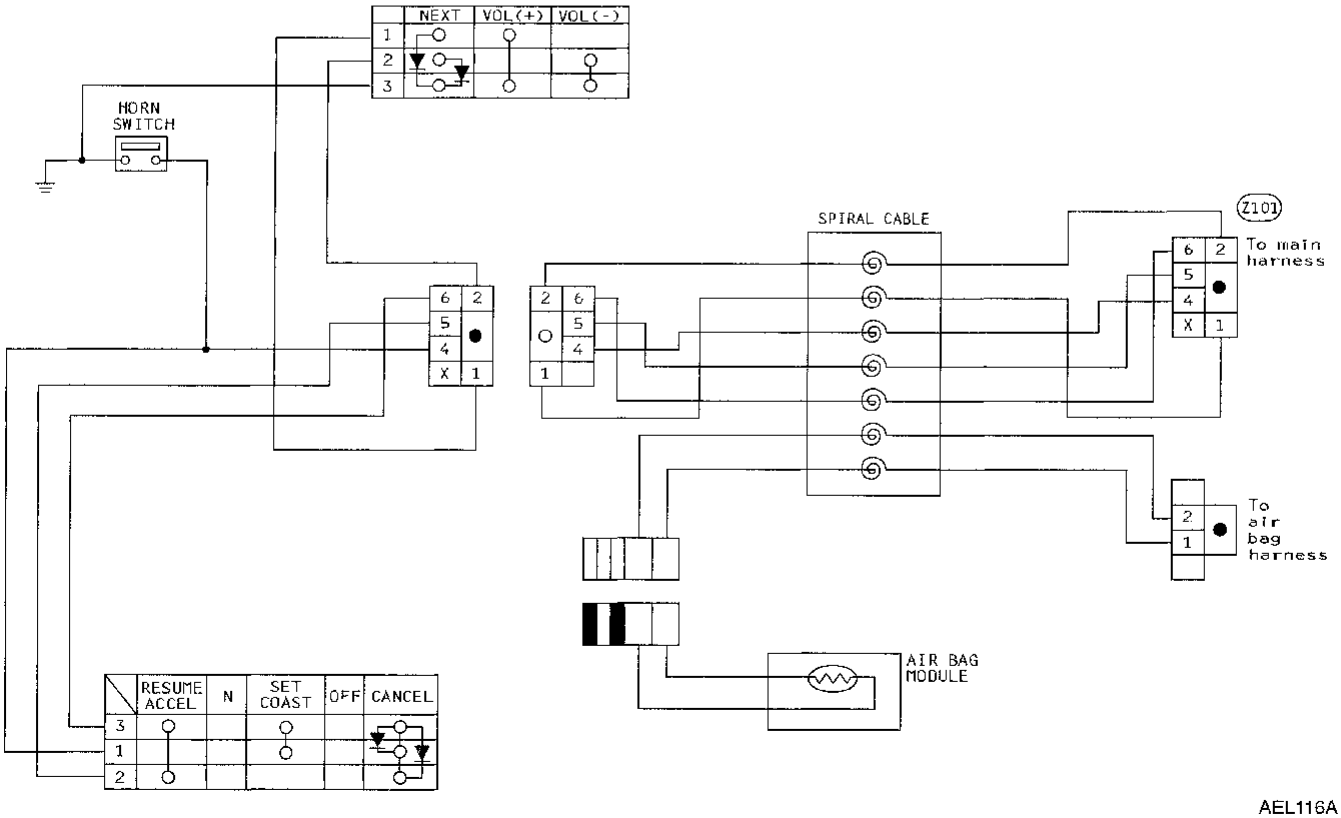


Combination Switch/Replacement

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

Steering Switch/Check





AEL116A

System Description (For USA)

The headlamps are controlled by the lighting switch.
Power is supplied at all times:

- through 15A fuse (No. 49, located in the fuse and fusible link box)
- to lighting switch terminal ①, and
- combination switch terminal ⑯, and
- through 15A fuse (No. 50, located in the fuse and fusible link box)
- to lighting switch terminal ③, and
- combination switch terminal ⑭.

Low beam operation

When the combination switch is placed in the LOW ("B") position, with the lighting switch in the 2ND position, power is supplied:

- from lighting switch terminal ②
- to LH headlamp relay terminal ③
- through LH headlamp relay terminal ④
- to LH headlamp terminal ③, and
- from lighting switch terminal ④
- to RH headlamp relay terminal ③
- through RH headlamp relay terminal ④
- to RH headlamp terminal ③.

Ground is supplied to each headlamp terminal ② through body grounds E3, E14 and E53.
With power and ground supplied, the low beam headlamps will illuminate.

High beam operation

When the combination switch is placed in the HIGH ("A") position, with the lighting switch in the 2ND position, power is supplied:

- from lighting switch terminal ②
- to combination switch terminal ⑫
- through combination switch terminal ⑪
- to LH headlamp relay terminal ② and
- RH headlamp relay terminal ②.

Ground is supplied to each headlamp relay terminal ① through body grounds E3, E14 and E53.

With power and ground supplied, the headlamp relays energize and power is supplied:

- through LH headlamp relay terminal ⑤
- to LH headlamp terminal ①, and
- through RH headlamp relay terminal ⑤
- to RH headlamp terminal ① and
- combination meter terminal ⑥ for the HIGH BEAM indicator.

Ground is supplied to combination meter terminal ⑫ through body grounds M5, M78 and M123.
Ground is supplied to each headlamp terminal ② through body grounds E3, E14 and E53. With power and ground supplied, the high beams and the HIGH BEAM indicator will illuminate.

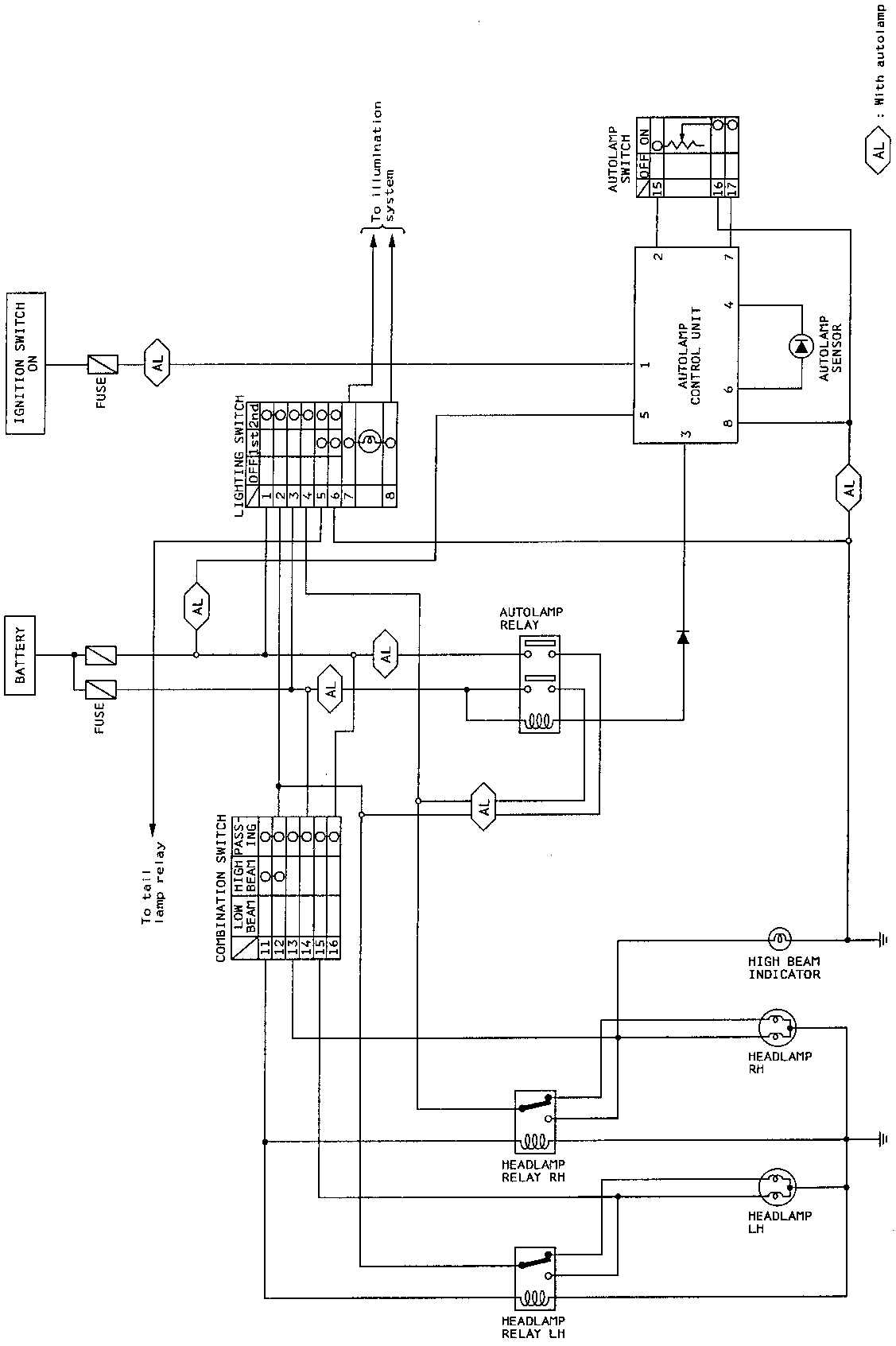
Flash-to-pass operation

When the combination switch is placed in the PASS ("C") position, both headlamp relays are energized to disable the low beams and power is supplied:

- through combination switch terminal ⑮
- to LH headlamp terminal ①, and
- through combination switch terminal ⑬
- to RH headlamp terminal ① and
- combination meter terminal ⑥ for the HIGH BEAM indicator.

Ground is supplied to combination meter terminal ⑫ through body grounds M5, M78 and M123.
Ground is supplied to each headlamp terminal ② through body grounds E3, E14 and E53. With power and ground supplied, the high beams and the HIGH BEAM indicator will illuminate until the combination switch is released from the PASS ("C") position.

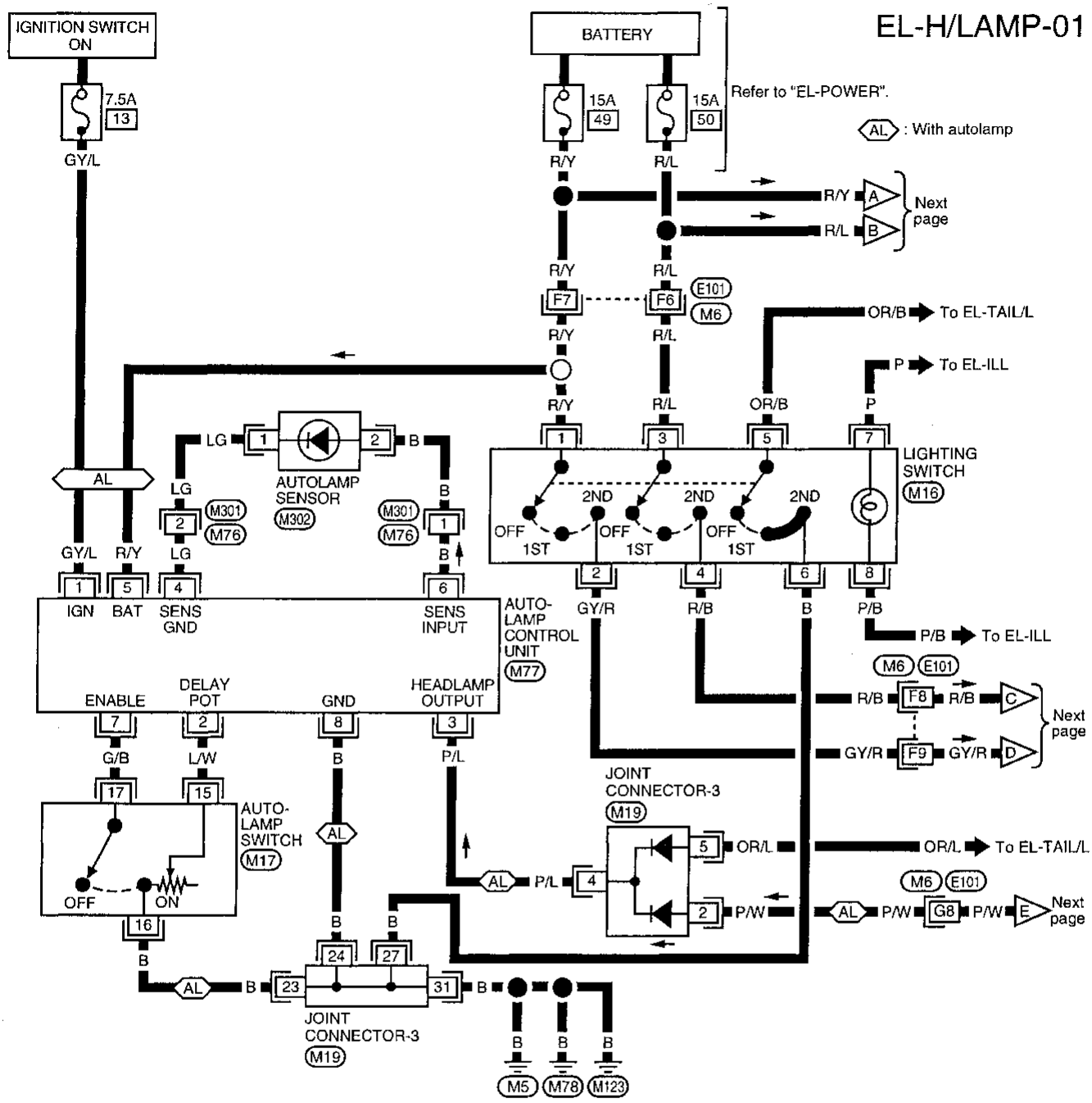
Schematic (For USA)

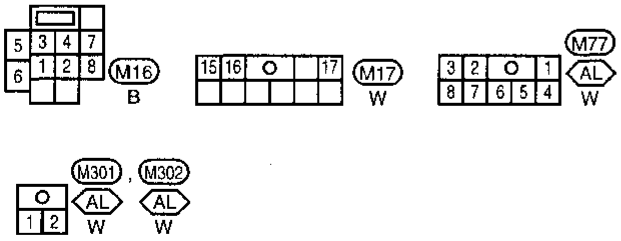


AEL026A

NOTES

Wiring Diagram (For USA) –H/LAMP–

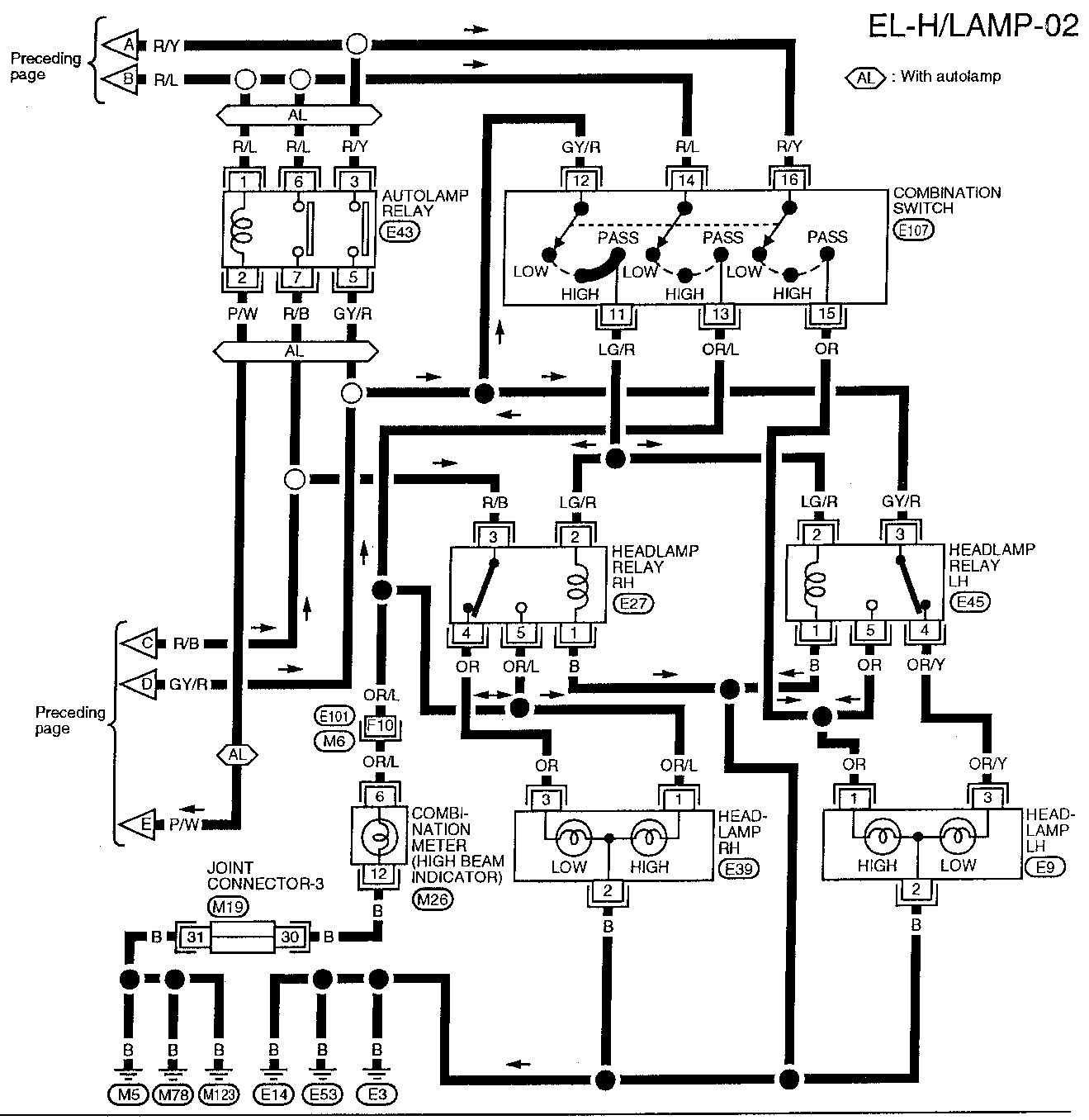




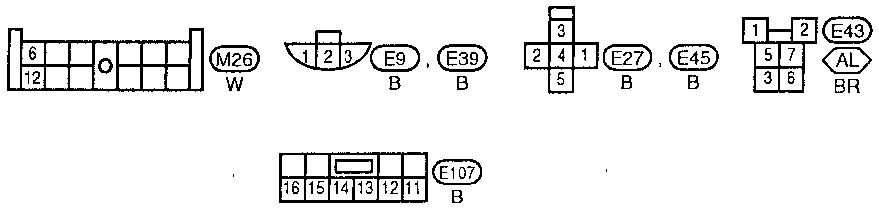
Refer to last page (Foldout page).
M6, E101
M19

AEL946-A

Wiring Diagram (For USA) –H/LAMP– (Cont'd)



Refer to last page (Foldout page).
M6, E101
M19



AEL946-B

Trouble Diagnoses (For USA)

Symptom	Possible cause	Repair order
LH headlamps do not operate.	1. Bulb 2. Grounds (E3), (E14) and (E53) 3. 15A fuse 4. LH headlamp relay 5. Lighting switch	1. Check bulb. 2. Check grounds (E3), (E14) and (E53). 3. Check 15A fuse (No. 49, located in fuse and fusible link box). Verify battery positive voltage is present at terminal ① of lighting switch. 4. Check relay (located in RH engine compartment relay box). Verify battery positive voltage is present at terminal ③ of LH headlamp relay with lighting switch in the 2ND position. 5. Check lighting switch.
RH headlamps do not operate.	1. Bulb 2. Grounds (E3), (E14) and (E53) 3. 15A fuse 4. RH headlamp relay 5. Lighting switch	1. Check bulb. 2. Check grounds (E3), (E14) and (E53). 3. Check 15A fuse (No. 50 located in fuse and fusible link box). Verify battery positive voltage is present at terminal ③ of lighting switch. 4. Check relay (located in fuse and fusible link box). Verify battery positive voltage is present at terminal ③ of RH headlamp relay with lighting switch in the 2ND position. 5. Check lighting switch.
LH low beam does not operate, but LH high beam operates.	1. Bulb 2. LH headlamp relay 3. Open in LH low beam circuit	1. Check bulb. 2. Check relay (located in RH engine compartment relay box). 3. Check OR/Y wire between LH headlamp relay and LH headlamp for an open circuit.
LH high beam does not operate, but LH low beam operates.	1. Bulb 2. LH headlamp relay 3. Combination switch 4. Open in LH high beam circuit	1. Check bulb. 2. Check relay (located in RH engine compartment relay box). Verify battery positive voltage is present at terminal ② of relay with lighting switch in 2ND position and combination switch in HIGH BEAM position. 3. Check combination switch. Verify battery positive voltage is present at terminal ⑫ of combination switch with lighting switch in the 2ND position. 4. Check OR wire between LH headlamp relay and LH headlamp for an open circuit.
RH low beam does not operate, but RH high beam operates.	1. Bulb 2. RH headlamp relay 3. Open in RH low beam circuit	1. Check bulb. 2. Check relay (located in fuse and fusible link box). 3. Check OR wire between RH headlamp relay and RH headlamp for an open circuit.

Trouble Diagnoses (For USA) (Cont'd)

Symptom	Possible cause	Repair order
RH high beam does not operate, but RH low beam operates.	1. Bulb 2. RH headlamp relay 3. Combination switch 4. Open in RH high beam circuit	1. Check bulb. 2. Check relay (located in fuse and fusible link box). Verify battery positive voltage is present at terminal ② of relay with lighting switch in the 2ND position and combination switch in the HIGH BEAM position. 3. Check combination switch. Verify battery positive voltage is present at terminal ⑫ of combination switch with lighting switch in the 2ND position. 4. Check OR/L wire between RH headlamp relay and RH headlamp for an open circuit.
Flash-to-pass position does not work.	1. Combination switch 2. Open in flash-to-pass circuit	1. Check combination switch. Verify battery positive voltage is present at terminals ⑭ and ⑯ of combination switch. 2. Check OR wire between combination switch and LH headlamp, and OR/L wire between combination switch and RH headlamp for an open circuit.
High beam indicator does not work.	1. Bulb 2. Grounds (M5), (M78) and (M123) 3. Open in high beam circuit	1. Check bulb in combination meter. 2. Check grounds (M5), (M78) and (M123). 3. Check OR/L wire for an open circuit.

System Description (For Canada)

The headlamp system for Canada vehicles contains a daytime light control unit. This unit activates the high beams at approximately half illumination whenever the engine is running. If the parking brake is applied before the engine is started, 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. For location of daytime light control unit, refer to EL-259.

Power is supplied at all times:
- through 15A fuse (No. 49, located in the fuse and fusible link box)
- to daytime light control unit terminal ④,
- combination switch terminal ⑯ and
- lighting switch terminal ①.

Power is also supplied at all times:
- through 15A fuse (No. 50, located in the fuse and fusible link box)
- to daytime light control unit terminal ③,
- combination switch terminal ⑭ and
- lighting switch terminal ③.

With the ignition switch in the ON or START position, power is supplied:
- through 10A fuse (No. 30, located in the fuse block)
- to daytime light control unit terminal ⑤.

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

Ground is supplied to the daytime light control unit terminal ⑩ through body grounds (E3), (E14) and (E53).

HEADLAMP OPERATION

Low beam operation

When the combination switch is placed in the LOW ("B") position with the lighting switch in the 2ND position, power is supplied:
- from lighting switch terminal ②
- to LH headlamp relay terminal ③
- through LH headlamp relay terminal ④
- to LH headlamp terminal ③, and
- from lighting switch terminal ④
- to RH headlamp relay terminal ③
- through RH headlamp relay terminal ④
- to RH headlamp terminal ③.

Ground is supplied to LH headlamp terminal ② through body grounds (E3), (E14) and (E53).
Ground is supplied to RH headlamp terminal ②:
- through daytime light control unit terminal ⑧
- from daytime light control unit terminal ⑩
- through body grounds (E3), (E14) and (M53).

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

High beam operation

When the combination switch is placed in the HIGH ("A") position, with the lighting switch in the 2ND position, power is supplied:
- to the combination switch terminal ⑫
- through combination switch terminal ⑪
- to LH headlamp relay terminal ② and
- RH headlamp relay terminal ②.

Ground is supplied each headlamp relay terminal ① through body grounds (E3), (E14) and (E53).

System Description (For Canada) (Cont'd)

With power and ground supplied, the headlamp relays energize and power is supplied:

- through LH headlamp relay terminal ⑤
- to LH headlamp terminal ①, and
- through RH headlamp relay terminal ⑤
- to combination meter terminal ⑥ for the HIGH BEAM indicator and
- to daytime light control unit terminal ⑥
- through daytime light control unit terminal ⑦
- to RH headlamp terminal ①.

Ground is supplied to combination meter terminal ⑫ through body grounds (M5), (M78) and (M123).
Ground is supplied to LH headlamp terminal ② through body grounds (E3), (E14) and (E53).
Ground is supplied to RH headlamp terminal ②:

- through daytime light control unit terminal ⑧
- from daytime light control unit terminal ⑩
- through body grounds (E3), (E14) and (E53).

With power and ground supplied, the high beams and HIGH BEAM indicator illuminate.

Flash-to-pass operation

When the combination switch is placed in PASS ("C") position, both headlamp relays are energized to disable the low beams and power is supplied:

- through combination switch terminal ⑮
- to LH headlamp terminal ①, and
- through combination switch terminal ⑬
- to combination meter terminal ⑥ for the HIGH BEAM indicator and
- daytime light control unit terminal ⑥
- through daytime light control unit terminal ⑦
- to RH headlamp terminal ①.

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

With power and ground supplied, the high beams and HIGH BEAM indicator will illuminate until the combination switch is released from the PASS ("C") position.

System Description (For Canada) (Cont'd)

DAYTIME LIGHT OPERATION

With the engine running and the lighting switch in the OFF position, power is supplied:

- to daytime light control unit terminal ④
- through daytime light control unit terminal ⑦
- to RH headlamp terminal ①
- through RH headlamp terminal ②
- to daytime light control unit terminal ⑧
- through daytime light control unit terminal ⑨
- to LH headlamp terminal ①.

Ground is supplied to LH headlamp terminal ② through body grounds E3, E14 and E53.
Because the high beam headlamps are now wired in series, they operate at half illumination.

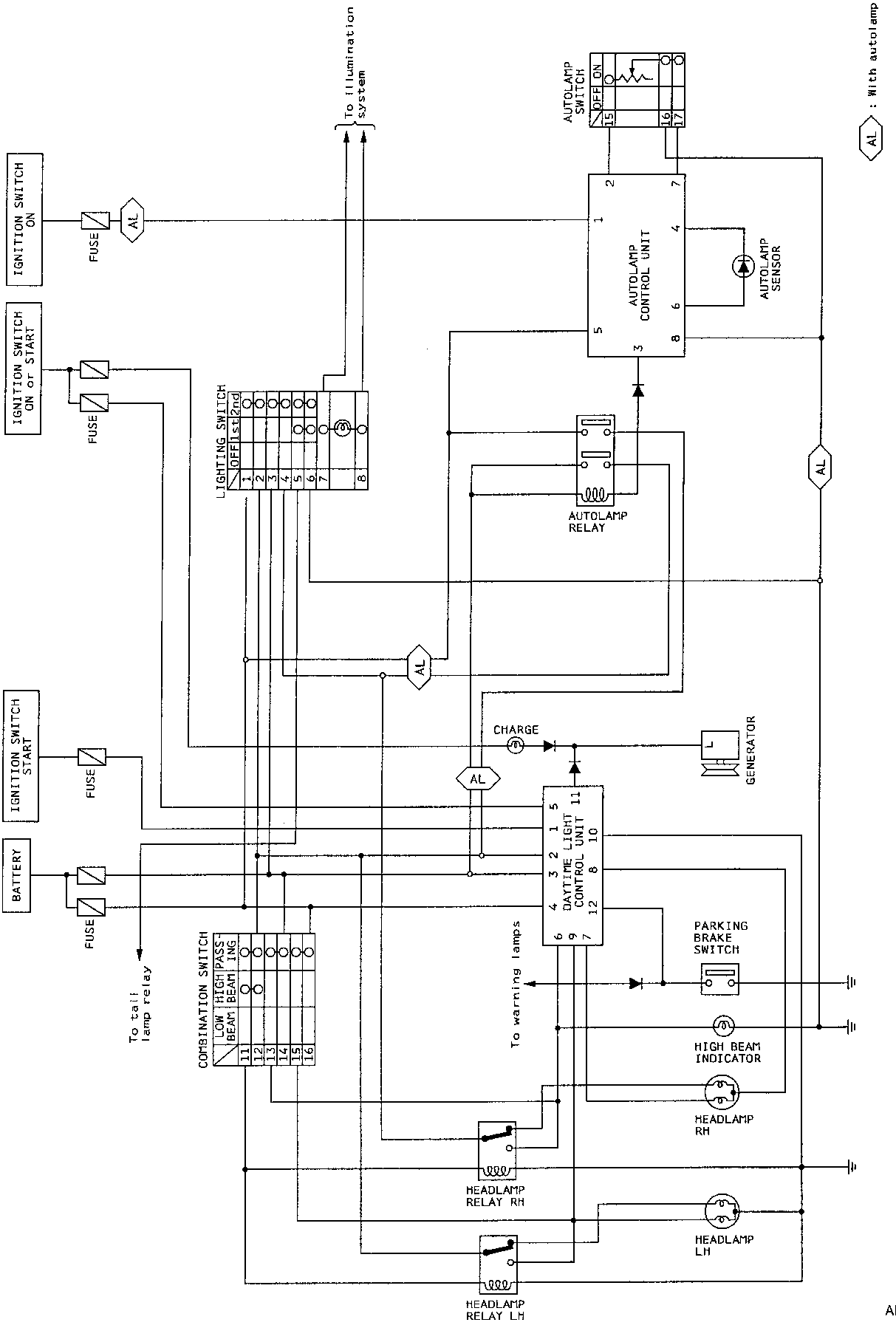
Operation (Daytime light system for Canada)

The headlamps' high beams automatically turn on after starting the engine with the lighting switch in OFF or 1ST position. Lighting switch operations other than the above are the same as conventional light systems.

Engine		With engine stopped									With engine running								
Lighting switch position		OFF			1ST			2ND			OFF			1ST			2ND		
Combination switch position		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
Front side marker and tail lamp		X	X	X	○	○	○	○	○	○	X	X	X	○	○	○	○	○	○
License and instrument illumination lamp		X	X	X	○	○	○	○	○	○	X	X	X	○	○	○	○	○	○

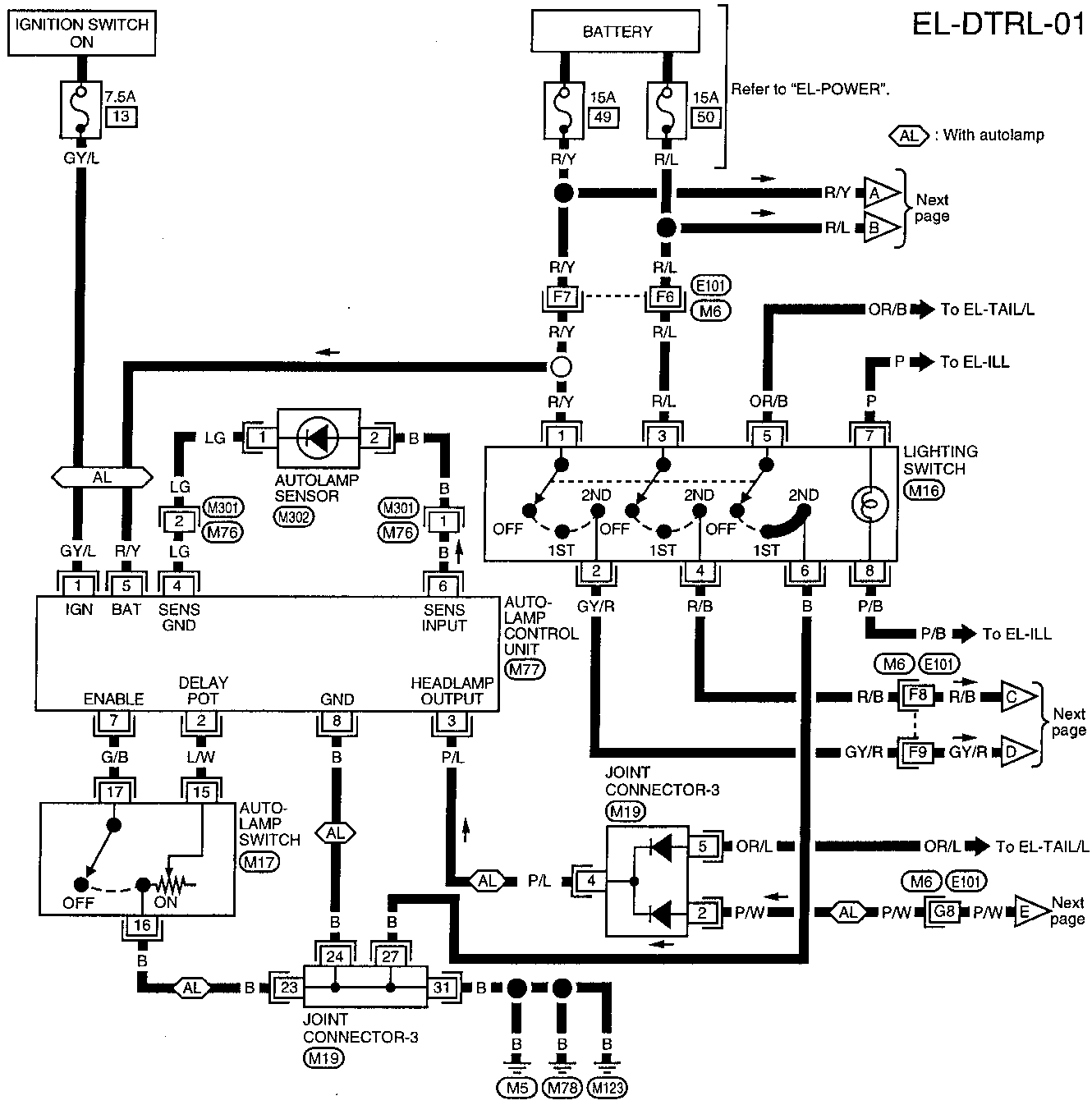
○: Lamp ON
X: Lamp OFF
△: Lamp dims.
□: Added functions
*: When starting the engine with the parking brake released, the daytime light will come ON.
When starting the engine with the parking brake applied, the daytime light won't come ON.

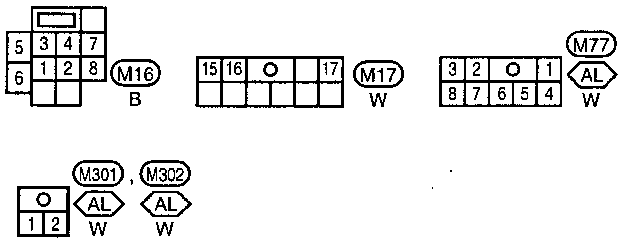
Schematic (For Canada)



AEL025A

Wiring Diagram (For Canada) –DTRL–

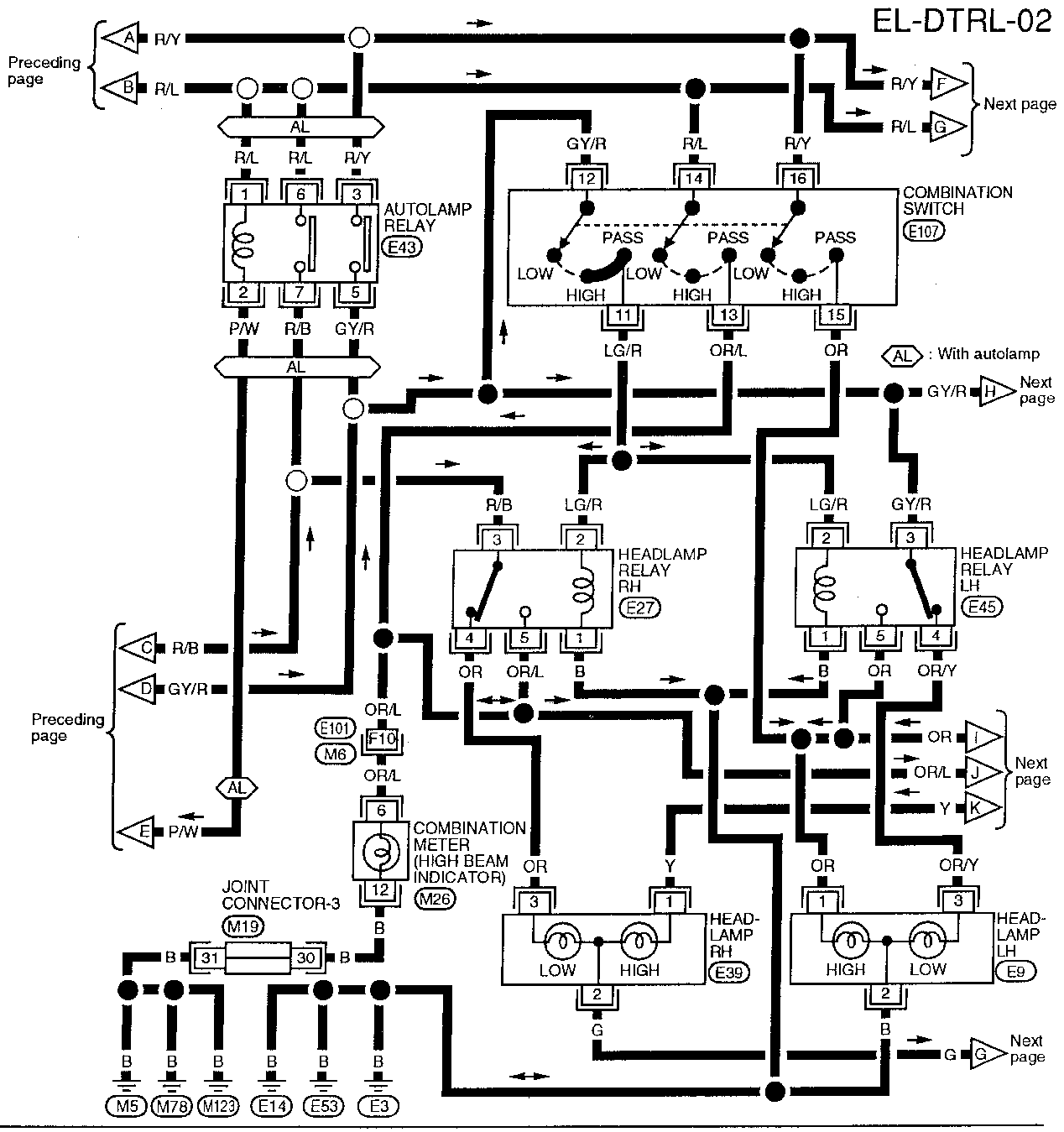


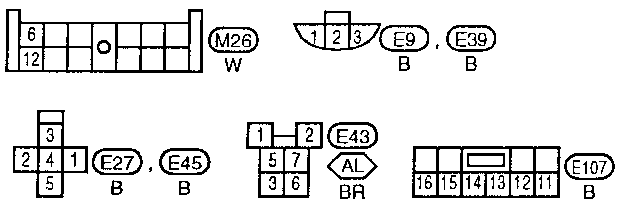


Refer to last page (Foldout page).
M6, E101
M19

AEL947-A

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



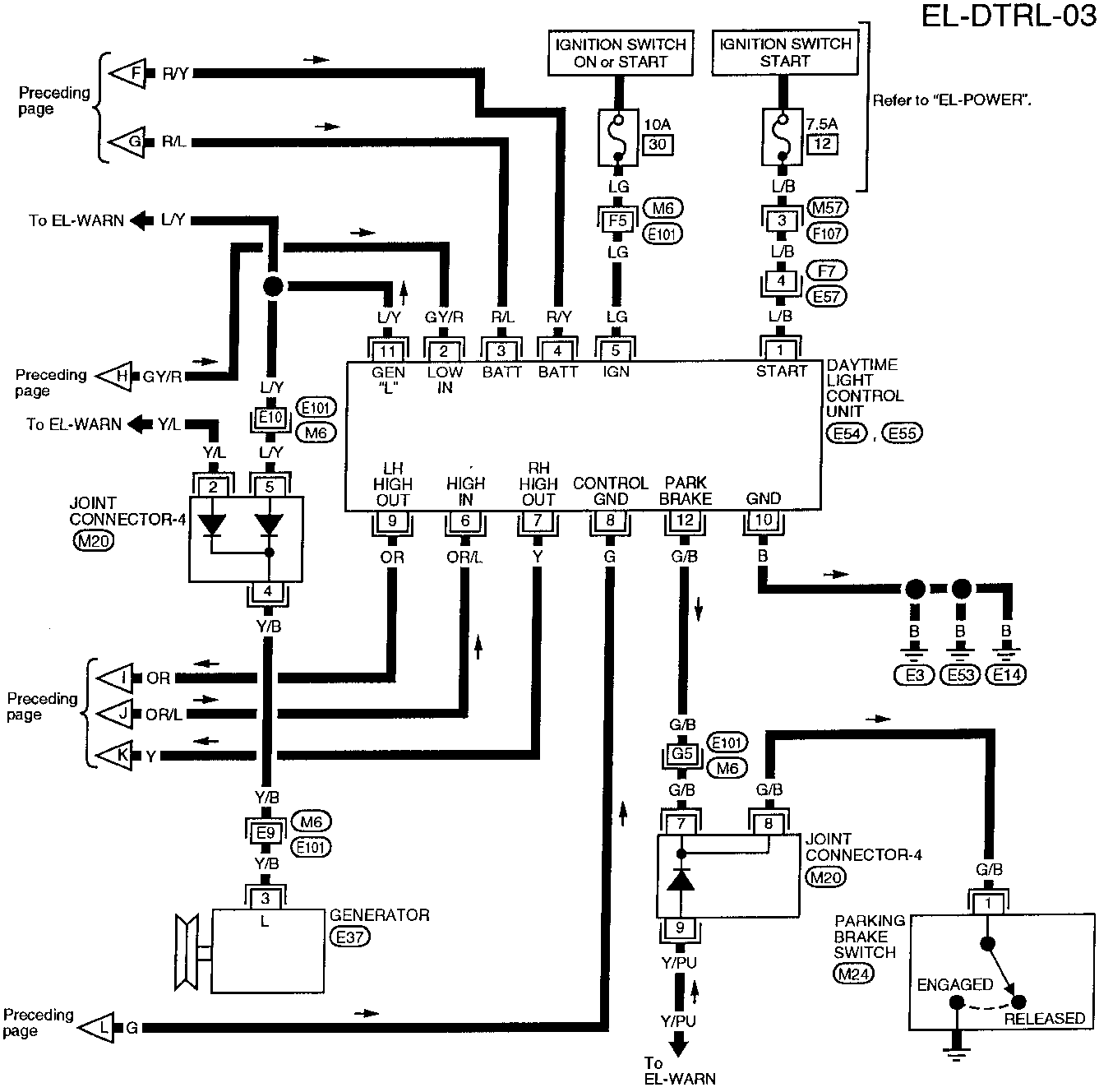


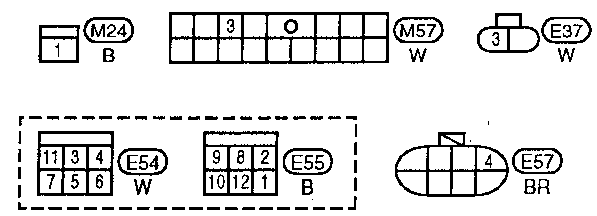
Refer to last page (Foldout page).
M6, E101
M19

AEL947-B

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

EL-DTRL-03





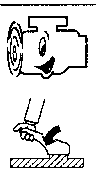
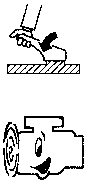
Refer to last page (Foldout page).
M6, E101
M20

AEL947-C

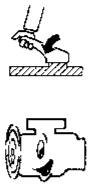
Trouble Diagnoses (For Canada)

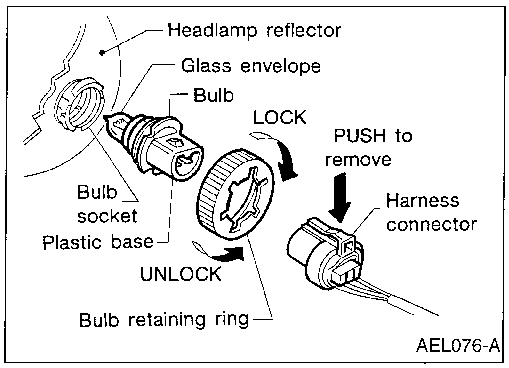
DAYTIME LIGHT CONTROL UNIT INSPECTION TABLE

(Data are reference values.)

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

Trouble Diagnoses (For Canada) (Cont'd)

Terminal No.	Item	Condition		Judgement standard
9	LH high beam		When placing combination switch to HIGH	Battery positive voltage
			When releasing parking brake with engine running and turning lighting switch to OFF (daytime lamp operation) **CAUTION: Block wheels and ensure selector lever is in ("N") or ("P") position**	Approx. half battery voltage
10	Ground		—	—
11	Generator		When turning ignition switch to ON	4.6V or less
			When engine is running	Battery positive voltage
			When turning ignition switch to OFF	1V or less
12	Parking brake switch		When parking brake is released	Battery positive voltage
			When parking brake is set	1.5V or less



Bulb Replacement

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

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

1. Disconnect the battery cable.
2. Disconnect electrical connector from the bulb.
3. Turn bulb retainer counterclockwise to unlock it from headlamp reflector, then remove it.
4. Pull out the headlamp bulb and socket as an assembly. Do not shake or rotate the bulb when removing it. Do not handle the glass envelope.

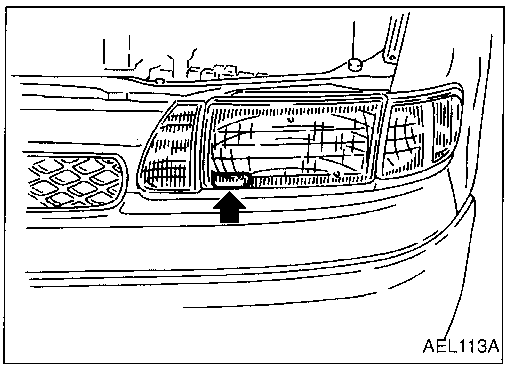
CAUTION:

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 according to their operation manuals. Before performing aiming adjustment, make sure of the following:

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



AIMER ADJUSTMENT MARK

When using a mechanical aimer, set adapter legs to the adjustment data marked on each headlamp.

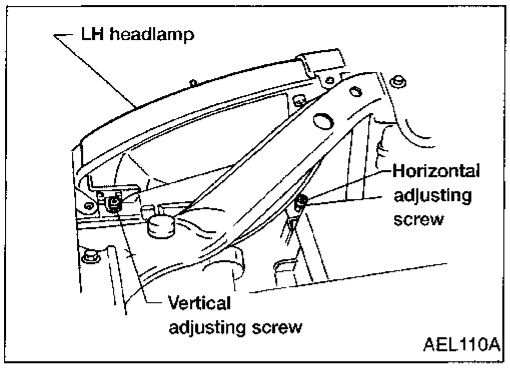
Example:

4H2V

Horizontal side: 4

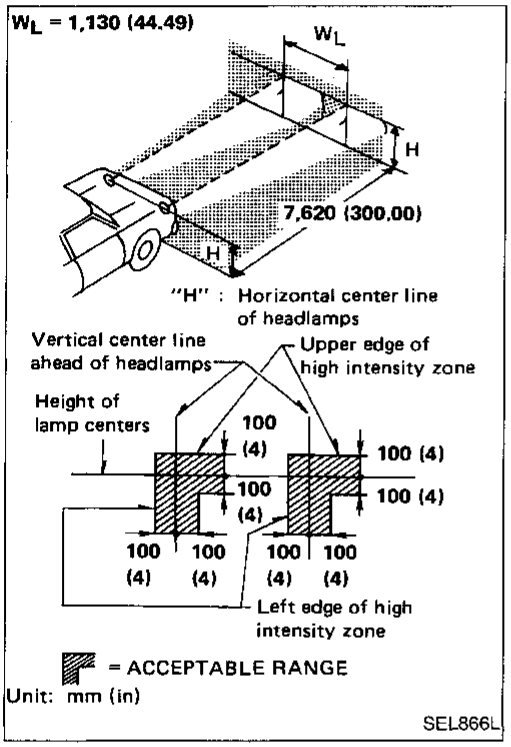
Vertical side: 2

Aiming Adjustment (Cont'd)



LOW BEAM

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



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

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

System Description

The autolamps are controlled by the autolamp switch and the autolamp control unit. Power is supplied at all times:

- through 15A fuse (No. 49, located in the fuse and fusible link box)
- to autolamp control unit terminal ⑤ and
- autolamp relay terminal ③, and
- through 15A fuse (No. 50, located in the fuse and fusible link box)
- to autolamp relay terminals ① and ⑥.

When the ignition switch is in the ON position, power is supplied:

- through 7.5A fuse (No. 13, located in the fuse block)
- to autolamp control unit terminal ①.

AUTOMATIC ILLUMINATION

When the autolamp switch is turned to the ON position, ground is supplied to the autolamp control unit terminal ⑦:

- through autolamp switch terminal ⑰
- to autolamp switch terminal ⑯
- through body grounds M5, M78 and M123.

With power at terminals ① and ⑤, and ground supplied, the autolamp control unit will measure the ambient light intensity through terminals ④ and ⑥. If the autolamp sensor does not detect sufficient light, then ground is supplied:

- to autolamp relay terminal ② and
- tail lamp relay terminal ①
- through autolamp control unit terminal ③
- to autolamp control unit terminal ⑧
- through body grounds M5, M78 and M123.

With power and ground supplied, the autolamp relays are energized and power is supplied:

- through autolamp relay terminal ⑤
- to LH headlamp relay terminal ③
- through LH headlamp relay terminal ④
- to LH headlamp terminal ③, and
- through autolamp relay terminal ⑦
- to RH headlamp relay terminal ③
- through RH headlamp relay terminal ④
- to RH headlamp terminal ③.

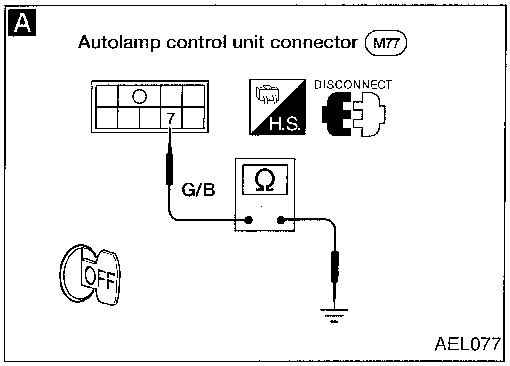
For USA models, ground is supplied to each headlamp terminal ② through body grounds E3, E14 and E53.
For Canada models, ground is supplied to LH headlamp terminal ② through body grounds E3, E14 and E53. Ground is supplied to RH headlamp terminal ② through daytime light control unit terminal ⑧.

With power and ground supplied, the headlamps will illuminate.

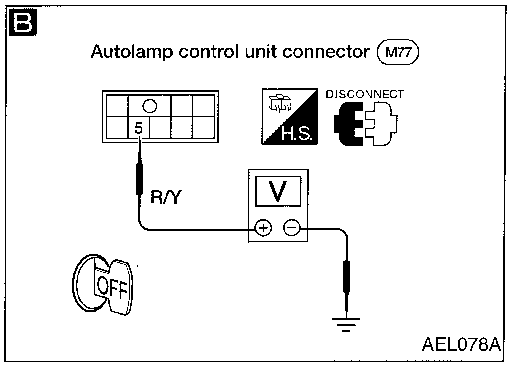
DELAYED EXIT

With the autolamp switch in the ON position and the ignition switch turned from the ON to OFF position, the autolamp control unit will no longer receive a voltage signal at terminal ①. This will start the autolamp control unit's internal timer. The timer is set based on the resistance value at autolamp control unit terminal ②. With the timer running, the headlamps and parking lamps will continue to illuminate. When the timer reaches the end of its cycle, the headlamps and parking lamps will turn off.

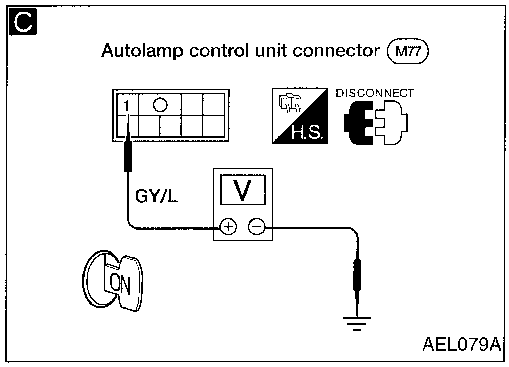
A



B



C



Trouble Diagnoses

DIAGNOSTIC PROCEDURE 1

SYMPTOM: Lamps do not turn on or off with ambient light level changes.

A

AUTOLAMP SWITCH AND GROUND CHECK.

1. Turn ignition switch to OFF.
2. Check continuity between autolamp control unit harness terminal ⑦ and body ground.

Condition of autolamp switch	Continuity
OFF	No
ON	Yes

NG → Check harness and autolamp switch.

OK ↓

B

BATTERY INPUT CHECK.

1. Keep ignition switch OFF.
2. Measure voltage between autolamp control unit harness terminal ⑤ and body ground.
   Battery positive voltage should exist.

NG → Check battery, fuses and harness.

OK ↓

C

IGNITION POWER CHECK.

1. Turn ignition switch to ON.
2. Measure voltage between autolamp control unit harness terminal ① and body ground.
   Battery positive voltage should exist.

NG → Check battery, fuses and harness.

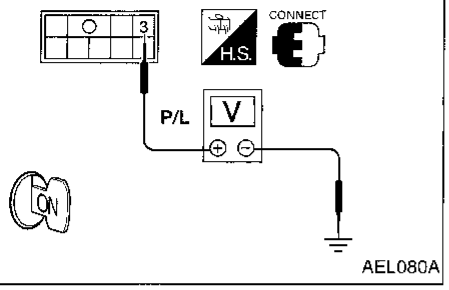
OK ↓

Ⓐ
(Go to next page.)

Trouble Diagnoses (Cont'd)

D

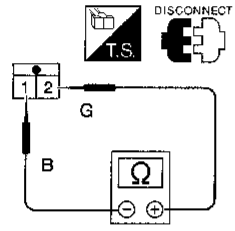
Autolamp control unit connector (M77)



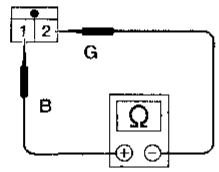
AEL080A

E

Autolamp sensor connector (M302)



Continuity should exist.



Continuity should not exist.

AEL081A

Ⓐ

D

AUTOLAMP SENSOR OUTPUT CHECK.

1. Connect autolamp control unit.
2. Keep ignition switch ON.
3. Turn autolamp switch to ON position.
4. Block autolamp sensor from ambient light. Wait **at least 4 seconds**.
5. Measure voltage between autolamp control unit harness terminal ③ and body ground with autolamp switch ON.
   Voltage should be less than 2V.

OK → Check the following items:
- Harness continuity
- Autolamp relay
- Tail lamp relay
- Headlamp relays

NG ↓

E

AUTOLAMP SENSOR CONTINUITY CHECK.

1. Remove autolamp sensor.
2. Check continuity between autolamp sensor connector terminals ② and ① with positive lead on pin ② and negative lead on pin ①.
   Continuity should exist.
3. Reverse leads.
   Continuity should not exist.
   NOTE: Specifications may vary depending on tester type. Before performing this inspection, be sure to refer to the instruction manual for your tester.

NG → Replace autolamp sensor.

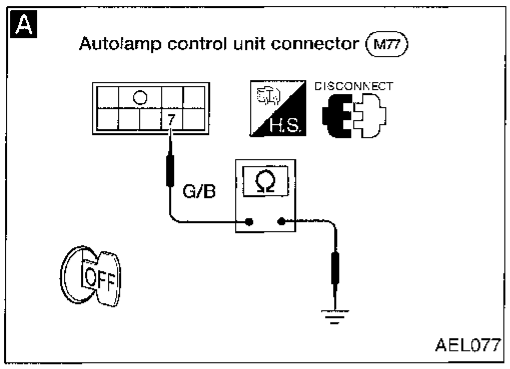
OK ↓

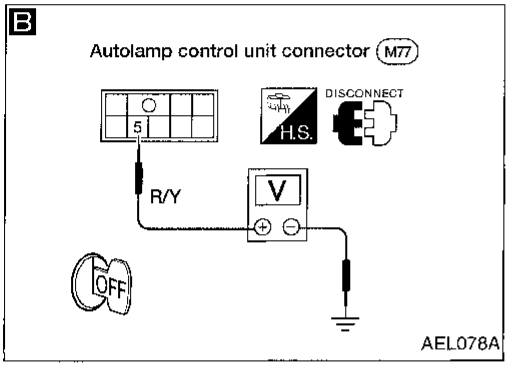
Replace autolamp control unit.

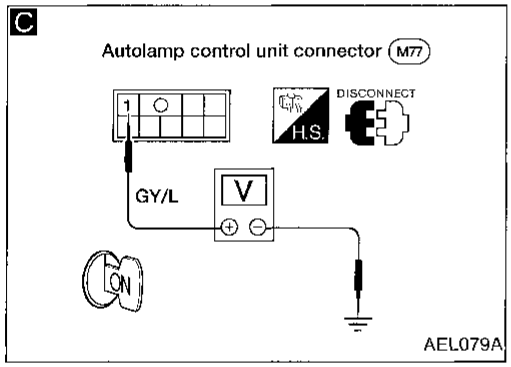
Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 2

SYMPTOM: Headlamp delayed exit does not work properly.







A

AUTOLAMP SWITCH AND GROUND CHECK.

1. Turn ignition switch to OFF.
2. Check continuity between autolamp control unit harness terminal (7) and body ground.

Condition of autolamp switch	Continuity
OFF	No
ON	Yes

NG → Check harness and autolamp switch.

OK ↓

B

BATTERY INPUT CHECK.

1. Keep ignition switch OFF.
2. Measure voltage between autolamp control unit harness terminal (5) and body ground.
   Battery positive voltage should exist.

NG → Check battery, fuses and harness.

OK ↓

C

IGNITION POWER CHECK.

1. Turn ignition switch to ON.
2. Measure voltage between autolamp control unit harness terminal (1) and body ground.
   Battery positive voltage should exist.

NG → Check battery, fuses and harness.

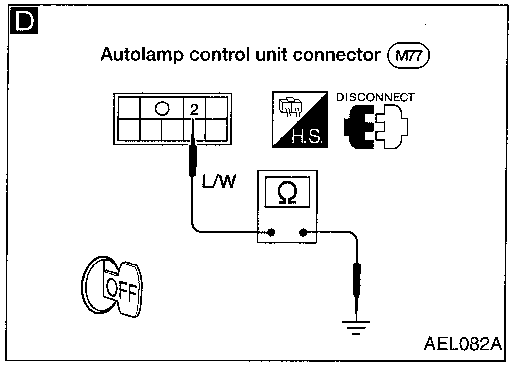
OK ↓

Ⓐ

(Go to next page.)

Trouble Diagnoses (Cont'd)

D



Ⓐ

D

DELAY RESISTANCE CHECK.

1. Turn ignition switch to OFF.
2. Measure resistance between autolamp control unit harness terminal ② and body ground.
3. Verify that resistance steadily increases as autolamp switch is turned from minimum to maximum.

Condition of autolamp switch	Resistance [kΩ]
Minimum	3.5
Maximum	196

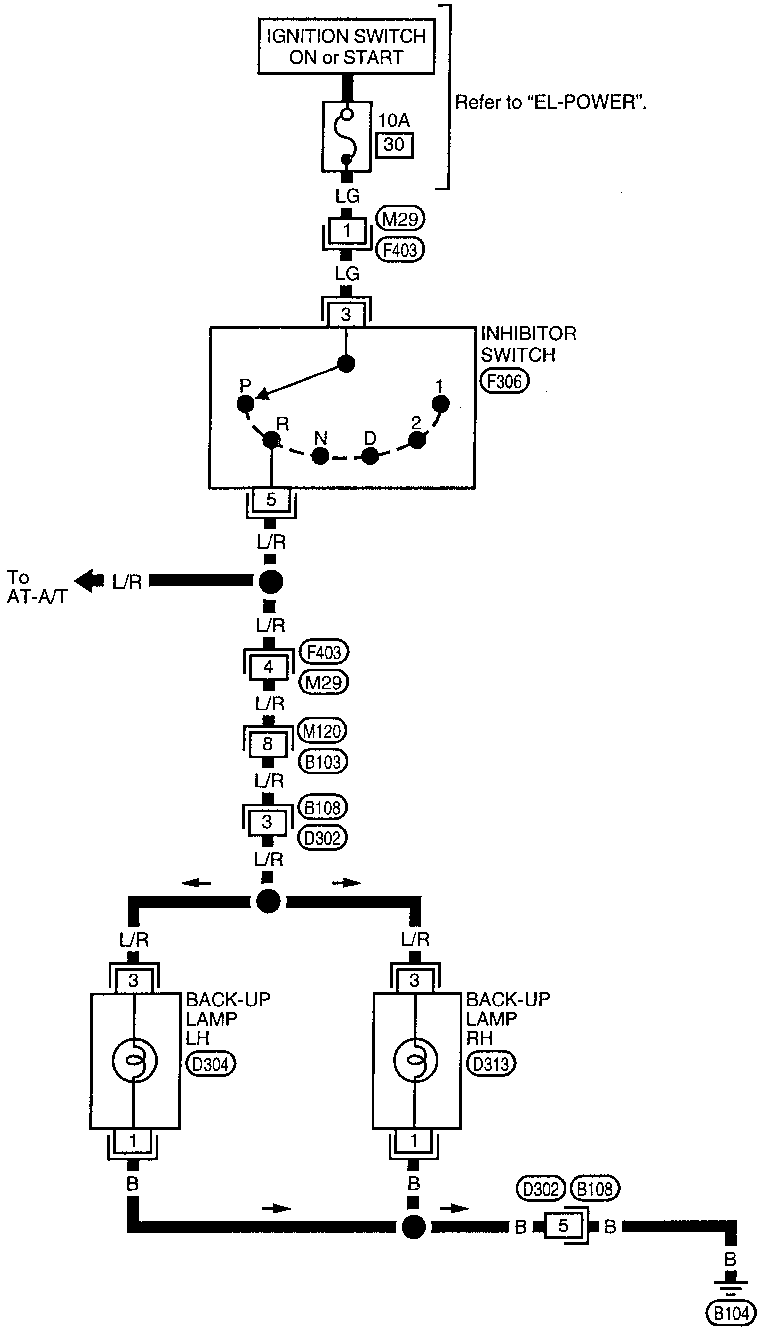
NG → Replace autolamp switch.

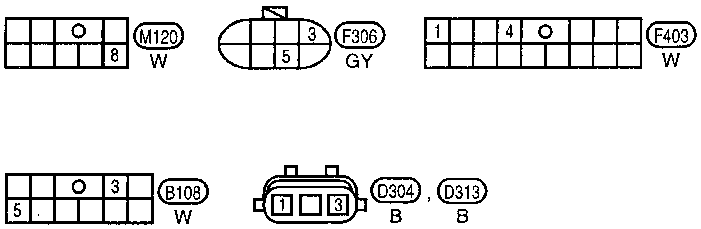
OK

Replace autolamp control unit.

Back-up Lamp/Wiring Diagram –BACK/L–

EL-BACK/L-01

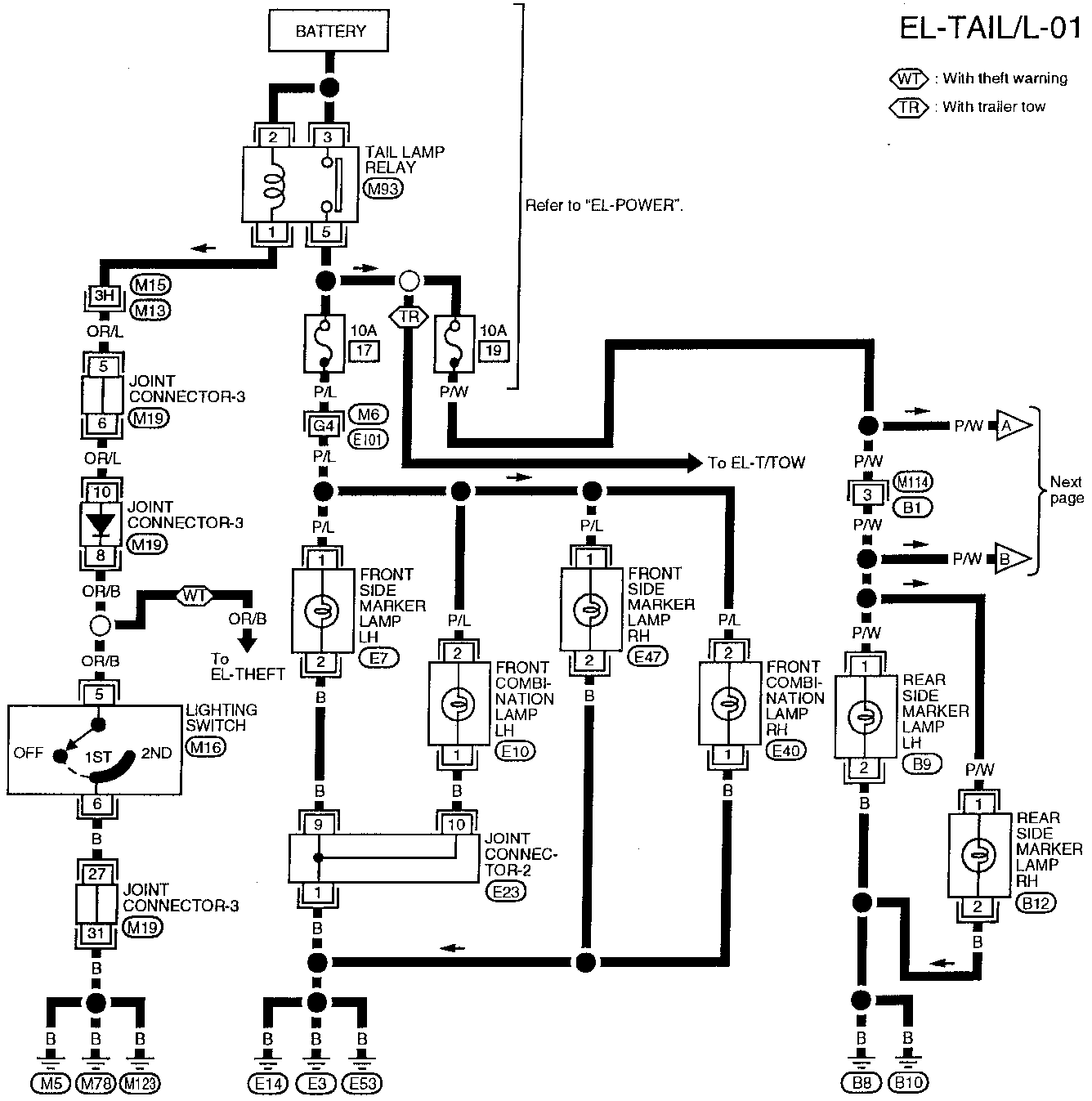




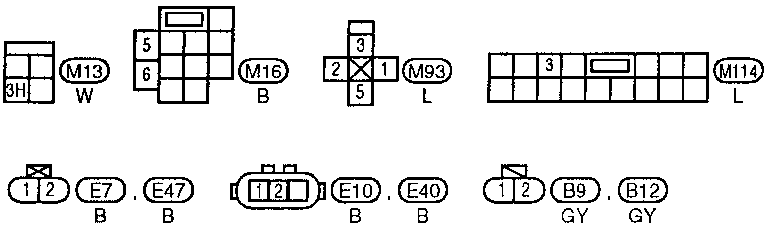
AEL949

NOTES

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



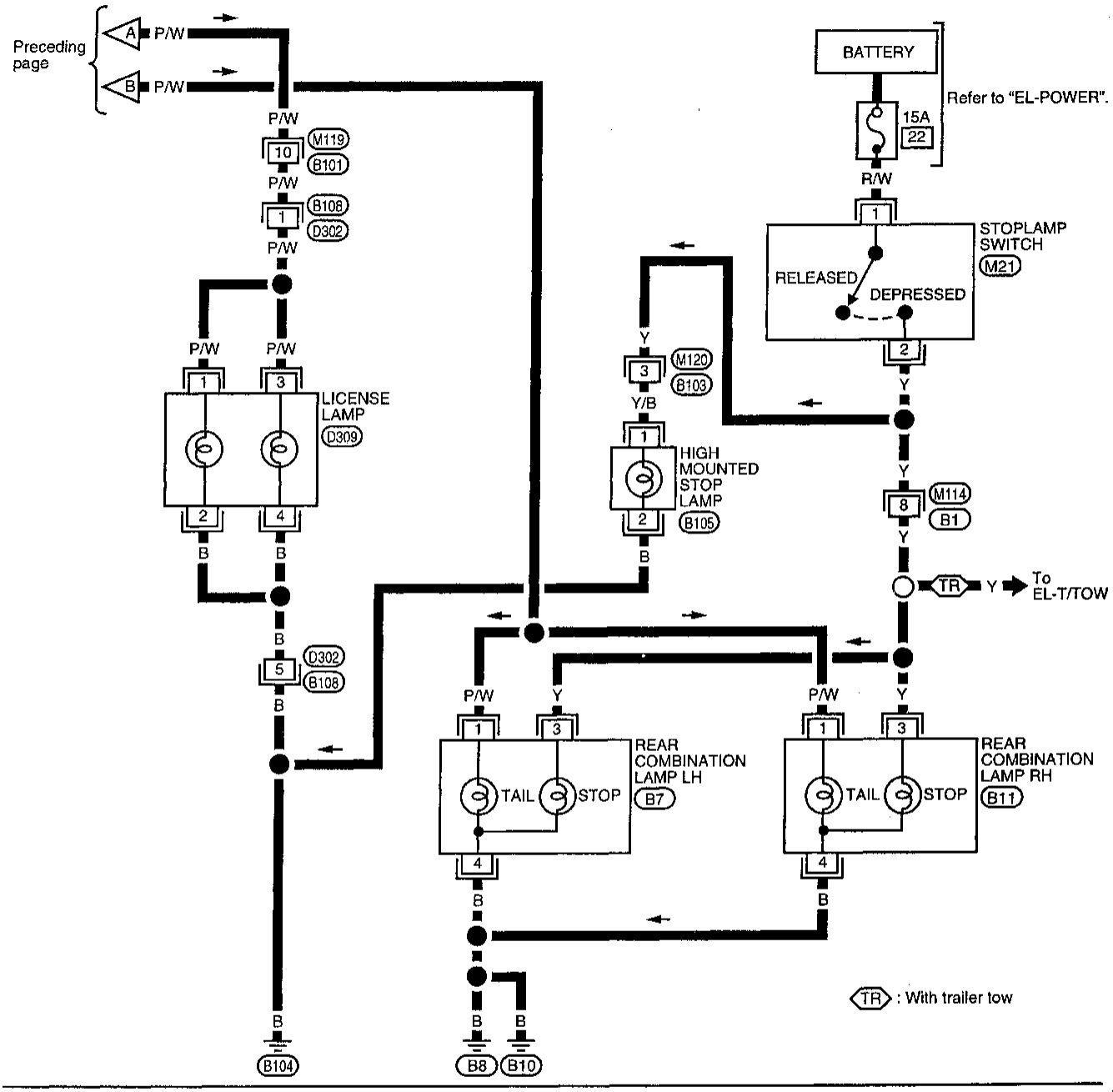
Refer to last page (Foldout page).
M6 , E101
M19
E23

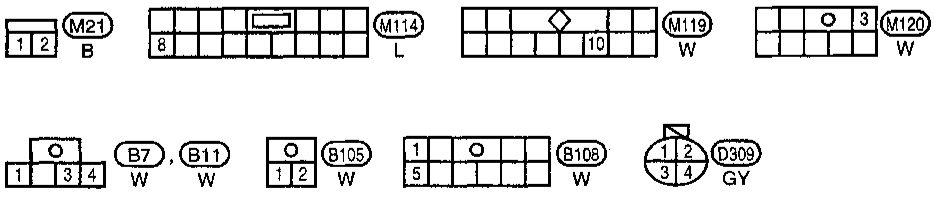


AEL948-A

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

EL-TAIL/L-02





AEL948-B

Turn Signal and Hazard Warning Lamps/System Description

TURN SIGNAL OPERATION

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

- through 10A fuse (No. 27, located in the fuse block)
- to hazard switch terminal ②
- through hazard switch terminal ①
- to combination flasher unit terminal ①
- through combination flasher unit terminal ③
- to turn signal switch terminal ①.

Ground is supplied to combination flasher unit terminal ② through body grounds (M5), (M78) and (M123).

LH turn

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

- front turn signal lamp LH terminal ③,
- rear combination lamp LH terminal ② and
- combination meter terminal ⑮.

Ground is supplied to the front turn signal lamp LH terminal ① through body grounds (E3), (E14) and (E53).
Ground is supplied to the rear combination lamp LH terminal ④ through body grounds (B8) and (B10).
Ground is supplied to combination meter terminal ㉒ through body grounds (M5), (M78) and (M123).
With power and grounds supplied, the combination flasher unit controls the flashing of the LH turn signal lamps.

RH turn

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

- front turn signal lamp RH terminal ③,
- rear combination lamp RH terminal ② and
- combination meter terminal ㉑.

Ground is supplied to the front turn signal lamp RH terminal ① through body grounds (E3), (E14) and (E53).
Ground is supplied to the rear combination lamp RH terminal ④ through body grounds (B8) and (B10).
Ground is supplied to combination meter terminal ㉒ through body grounds (M5), (M78) and (M123).
With power and grounds supplied, the combination flasher unit controls the flashing of the RH turn signal lamps.

HAZARD LAMP OPERATION

Power is supplied at all times:

- to hazard switch terminal ③
- through 10A fuse (No. 23, located in the fuse block).

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

- through hazard switch terminal ①
- to combination flasher unit terminal ①
- through combination flasher unit terminal ③
- to hazard switch terminal ⑤.

Ground is supplied to combination flasher unit terminal ② through body grounds (M5), (M78) and (M123).

Power is supplied through hazard switch terminal ④ to:

- front turn signal lamp LH terminal ③,
- rear combination lamp LH terminal ② and
- combination meter terminal ⑮.

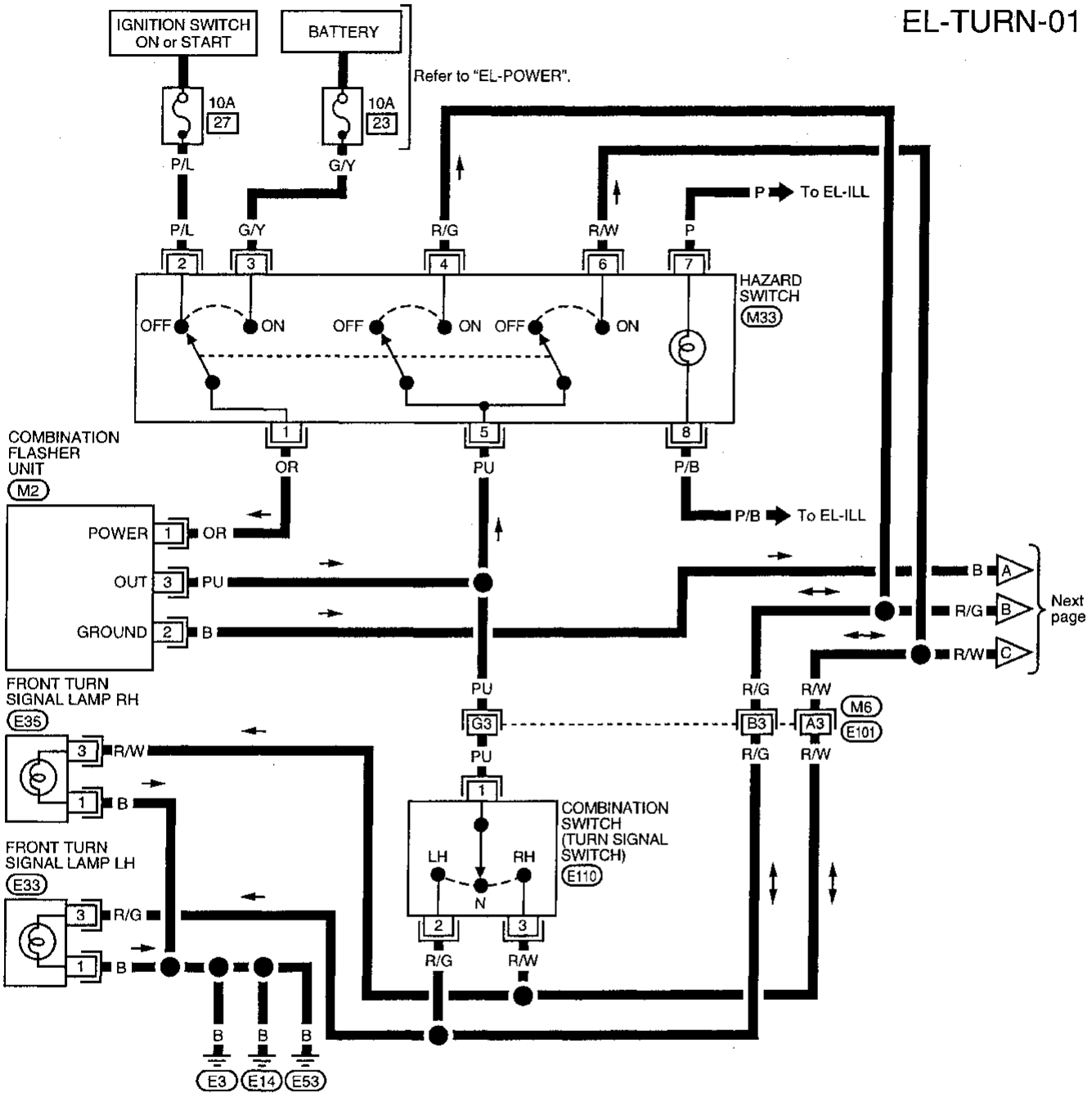
Turn Signal and Hazard Warning Lamps/System Description (Cont'd)

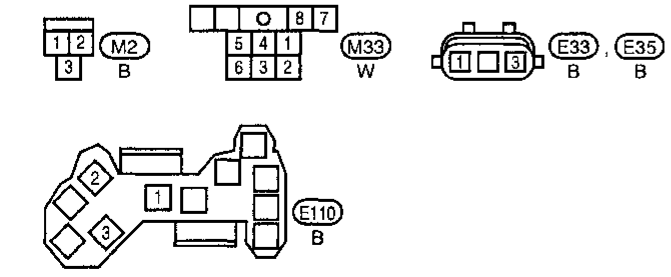
Power is supplied through hazard switch terminal ⑥ to:

- front turn signal lamp RH terminal ③,
- rear combination lamp RH terminal ② and
- combination meter terminal ㉑.

Ground is supplied to each front turn signal lamp terminal ① through body grounds E3, E14 and E53.
Ground is supplied to each rear combination lamp terminal ④ through body grounds B8 and B10.
Ground is supplied to combination meter terminal ㉒ through body grounds M5, M78 and M123.
With power and ground supplied, the combination flasher unit controls the flashing of the hazard warning lamps.

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





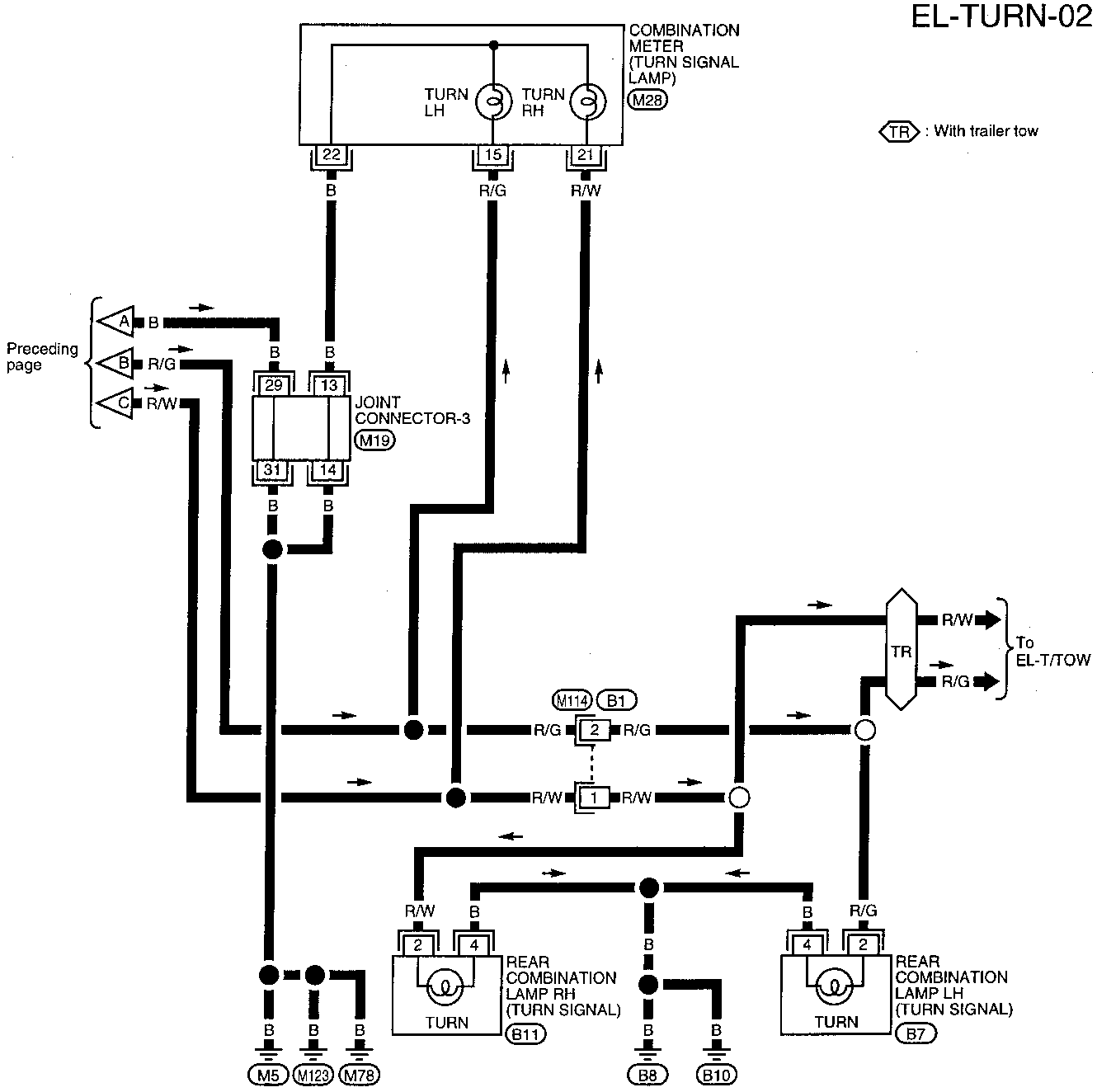
Refer to last page (Foldout page).
M6, E101

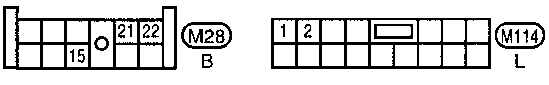
AEL950-A

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

EL-TURN-02

TR : With trailer tow





Refer to last page (Foldout page).
M19

AEL950-B

Turn Signal and Hazard Warning Lamps/Trouble Diagnoses

Symptom	Possible cause	Repair order
Turn signal and hazard warning lamps do not operate.	1. Hazard switch 2. Combination flasher unit 3. Open in combination flasher unit circuit	1. Check hazard switch. 2. Refer to combination flasher unit check. 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. 27, located in fuse block). Turn ignition switch ON and verify battery positive voltage is present at terminal ② of hazard switch. 2. Check hazard switch. 3. Check turn signal switch. 4. Check PU 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. 23, located in fuse block). Verify battery positive voltage is present at terminal ③ of hazard switch. 2. Check hazard switch. 3. Check PU 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 (E3), (E14) and (E53)	1. Check bulb. 2. Check grounds (E3), (E14) and (E53).
Rear turn signal lamp LH or RH does not operate.	1. Bulb 2. Grounds (B8) and (B10)	1. Check bulb. 2. Check grounds (B8) and (B10).
LH and RH turn indicators do not operate.	1. Grounds (M5), (M78) and (M123)	1. Check grounds (M5), (M78) and (M123).
LH or RH turn indicator does not operate.	1. Bulb	1. Check bulb in combination meter.

Cornering Lamp/System Description

The lighting switch must be in the 1ST or 2ND position for the cornering lamps to operate. The cornering lamp switch is part of the combination switch and is controlled by the turn signal lever. The cornering lamps provide additional lighting in the direction of the turn.

With the lighting switch in the 1ST or 2ND position, the tail lamp relay is energized and power is supplied:

- from tail lamp relay terminal ⑤
- through 10A fuse (No. 17, located in the fuse block)
- to cornering lamp switch terminal ④.

RH turn

When the turn signal lever is moved to the RH position, power is supplied:

- from cornering lamp switch terminal ④
- through cornering lamp switch terminal ⑥
- to cornering lamp RH terminal ③.

Ground is supplied to cornering lamp RH terminal ① through body grounds E3, E14 and E53. The RH cornering lamp illuminates until the turn is completed.

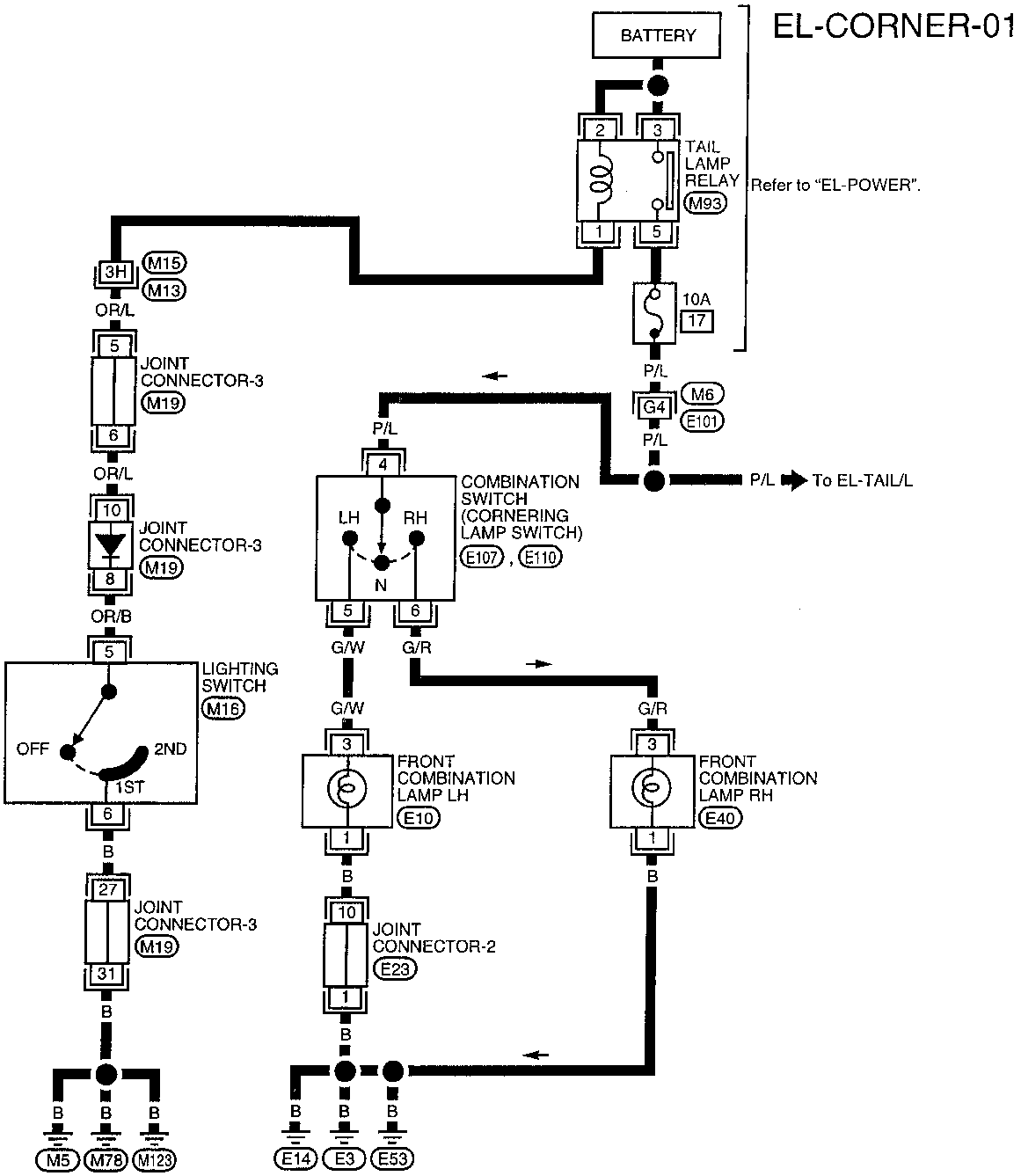
LH turn

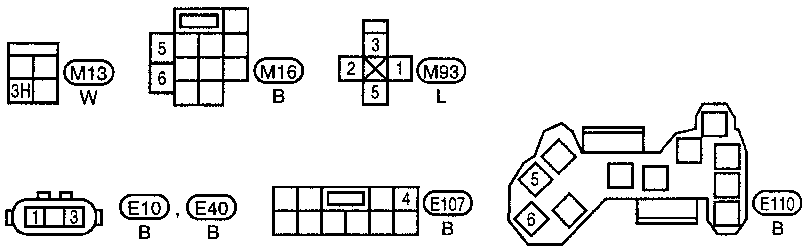
When the turn signal lever is moved to the LH position, power is supplied:

- from cornering lamp switch terminal ④
- through cornering lamp switch terminal ⑤
- to cornering lamp LH terminal ③.

Ground is supplied to cornering lamp LH terminal ① through body grounds E3, E14 and E53. The LH cornering lamp illuminates until the turn is completed.

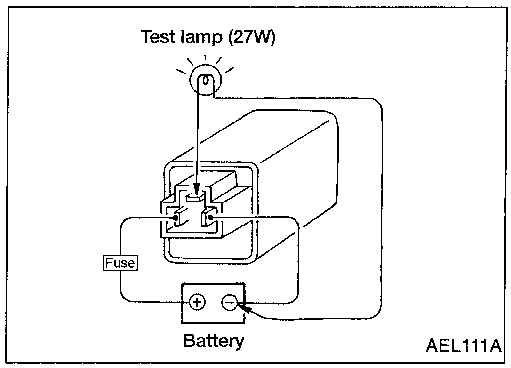
Cornering Lamp/Wiring Diagram –CORNER–





Refer to last page (Foldout page).
M6, E101
M19
E23

AEL951



Combination Flasher Unit Check

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

Bulb Specifications

Item	Wattage (W)	Bulb No.
Headlamp (Semi-sealed beam)		
High/Low	65/45	9004
Front combination lamp		
Front side marker	3.8	194
Clearance/Cornering	8.25/27	3157
Front turn signal lamp	27	3156
Rear combination lamp		
Turn signal	27	2057
Stop/Tail	27	2057
Back-up	27	3156
Rear side marker lamp	3.8	194
License plate lamp	3.8	194
High-mounted stop lamp	12.8	912

System Description

TRAILER TAIL LAMP OPERATION

With the lighting switch in the 1ST or 2ND position, the tail lamp relay is energized and power is supplied:

- from tail lamp relay terminal ⑤
- through 10A fuse (No. 19, located in the fuse block)
- to trailer harness connector terminal ②.

Ground is supplied to trailer harness connector terminal ① through body grounds (B8) and (B10). With power and ground supplied, the trailer tail lamps will illuminate.

TRAILER STOP, TURN SIGNAL AND HAZARD LAMP OPERATION

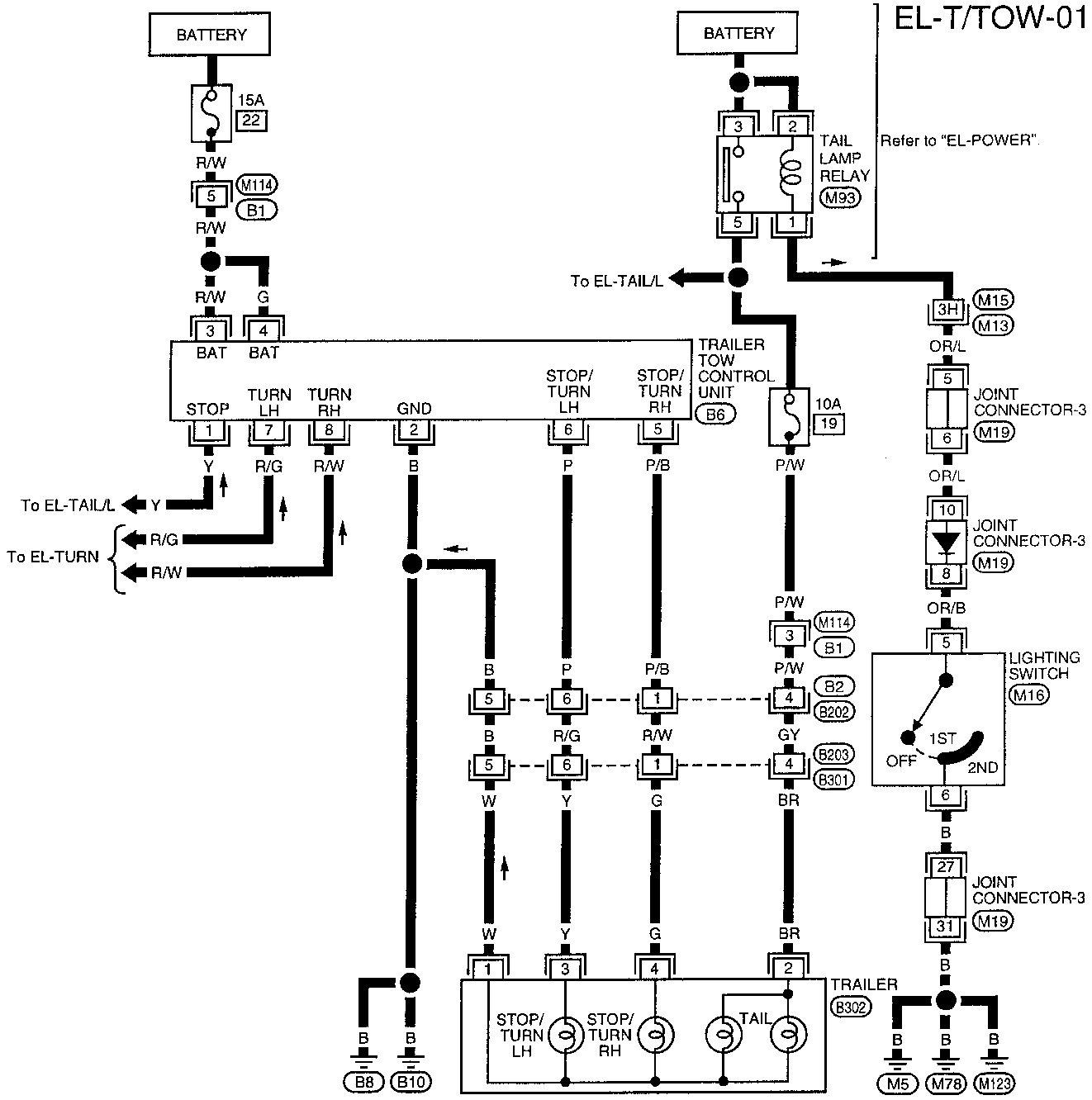
The trailer stop, turn signal and hazard lamps are all controlled by the trailer tow control unit. The trailer tow control unit regulates the amount of voltage supplied to the trailer lamps. If either turn signal or the hazard lamps are turned on and the control unit gets a brake lamp input, the control unit supplies more voltage to the trailer lamps to make them illuminate brighter.

Power is supplied to trailer tow control unit terminals ③ and ④ through 15A fuse (No. 22, located in the fuse block) at all times.
Stop lamp input is supplied to trailer tow control unit terminal ①.
Left turn signal and hazard lamp input is supplied to trailer tow control unit terminal ⑦.
Right turn signal and hazard lamp input is supplied to trailer tow control unit terminal ⑧.
The trailer left stop, turn signal and hazard lamps are controlled by trailer tow control unit terminal ⑥, which supplies power to trailer harness connector terminal ③.

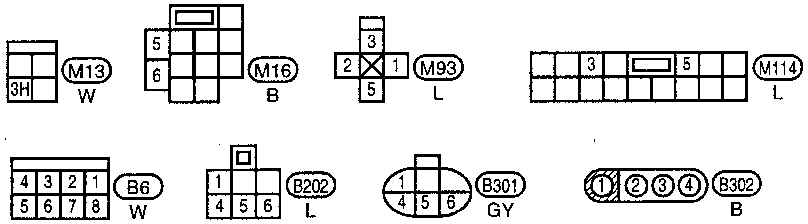
The trailer right stop, turn signal and hazard lamps are controlled by trailer tow control unit terminal ⑤, which supplies power to trailer harness connector terminal ④.

Ground is supplied to trailer tow control unit terminal ②, and trailer harness connector terminal ① through body grounds (B8) and (B10).

Wiring Diagram –T/TOW–



Refer to last page (Foldout page).
M19



AEL107A

Trouble Diagnoses

Symptom	Possible cause	Repair order
Tail lamps do not operate on trailer.	1. Bulb(s) 2. Fuse 3. Open circuit 4. Grounds (B8) and (B10)	1. Check bulb(s). 2. Check 10A fuse (No. 19, located in the fuse block). 3. Check for open circuit between fuse No. 19 and trailer tow connector terminal ②. 4. Check grounds (B8) and (B10).
Stop lamps do not operate on trailer.	1. Bulb(s) 2. Fuse 3. Trailer tow control unit 4. Open circuit 5. Grounds (B8) and (B10) 6. Stop lamp circuit	1. Check bulb(s). 2. Check 15A fuse (No. 22, located in the fuse block). Verify battery voltage at terminals ③ and ④ of trailer tow control unit. 3. Verify battery positive voltage at terminal ① (stop lamp input) of trailer tow control unit when brake pedal is depressed. 4. Check for open circuit between 15A fuse No. 22 and terminals ③ and ④ of trailer tow control unit. Check for open circuit between trailer tow control unit terminals ⑥ and ⑤, and terminals ③ and ④ of trailer tow connector. 5. Check grounds (B8) and (B10). 6. Check stop lamp circuit.
Turn signals or hazard lamps do not operate on trailer.	1. Bulb(s) 2. Fuse 3. Trailer tow control unit 4. Open circuit 5. Grounds (B8) and (B10) 6. Turn signal circuit	1. Check bulb(s). 2. Check 15A fuse (No. 22, located in the fuse block). Verify battery voltage at terminals ③ and ④ of trailer tow control unit. 3. Check for fluctuating voltage (battery to zero volts) at terminals ⑦ and ⑧ (turn/hazard inputs) and terminals ⑥ and ⑤ (turn/hazard ouputs) of the trailer tow control unit. 4. Check for open circuit between terminals ⑥ and ⑤ of the trailer tow control unit, and terminals ③ and ④ of the trailer tow connector. 5. Check grounds (B8) and (B10). 6. Check turn signal circuit.

Illumination/System Description

Power is supplied at all times:
- through 7.5A fuse (No. 41, located in the fuse and fusible link box)
- to smart entrance control unit terminal ⑨.

Power is supplied at all times:
- to tail lamp relay terminals ② and ③.

With the ignition switch in the ACC or ON position, power is supplied:
- through 10A fuse (No. 5, located in the fuse block)
- to door mirror remote control switch terminal ②.

Ground is supplied to smart entrance control unit terminal ⑳ through body grounds (M5), (M78) and (M123).

With the lighting switch in the 1ST or 2ND position, the tail lamp relay is energized and power is supplied:
- from tail lamp relay terminal ⑤
- through 7.5A fuse (No. 18, located in the fuse block)
- to power terminal on all illuminated components except door mirror remote control switch.

The illumination control switch in combination with the smart entrance control unit control the amount of current flow through the illumination system. This is accomplished by varying the amount of ground supplied to the illumination system.

When the illumination control switch is pushed in the LIGHTER direction, ground is supplied:
- to smart entrance control unit terminal ㊱
- through illumination control switch terminal ⑬
- from illumination control switch terminal ⑭
- through body grounds (M5), (M78) and (M123).

When the illumination control switch is pushed in the DARKER direction, ground is supplied:
- to smart entrance control unit terminal ㉟
- through illumination control switch terminal ⑫
- from illumination control switch terminal ⑭
- through body grounds (M5), (M78) and (M123).

Ground is supplied to the illumination system from smart entrance control unit terminal ⑮.

The rear A/C control unit and rear radio remote control unit illumination are not controlled by the illumination control switch. The intensity of these lamps does not change. Rear A/C control unit terminal ④ and rear radio remote control unit terminal ⑦ are both grounded directly through body grounds (M5), (M78) and (M123).

The following chart indicates power and ground terminals for the illumination system components.

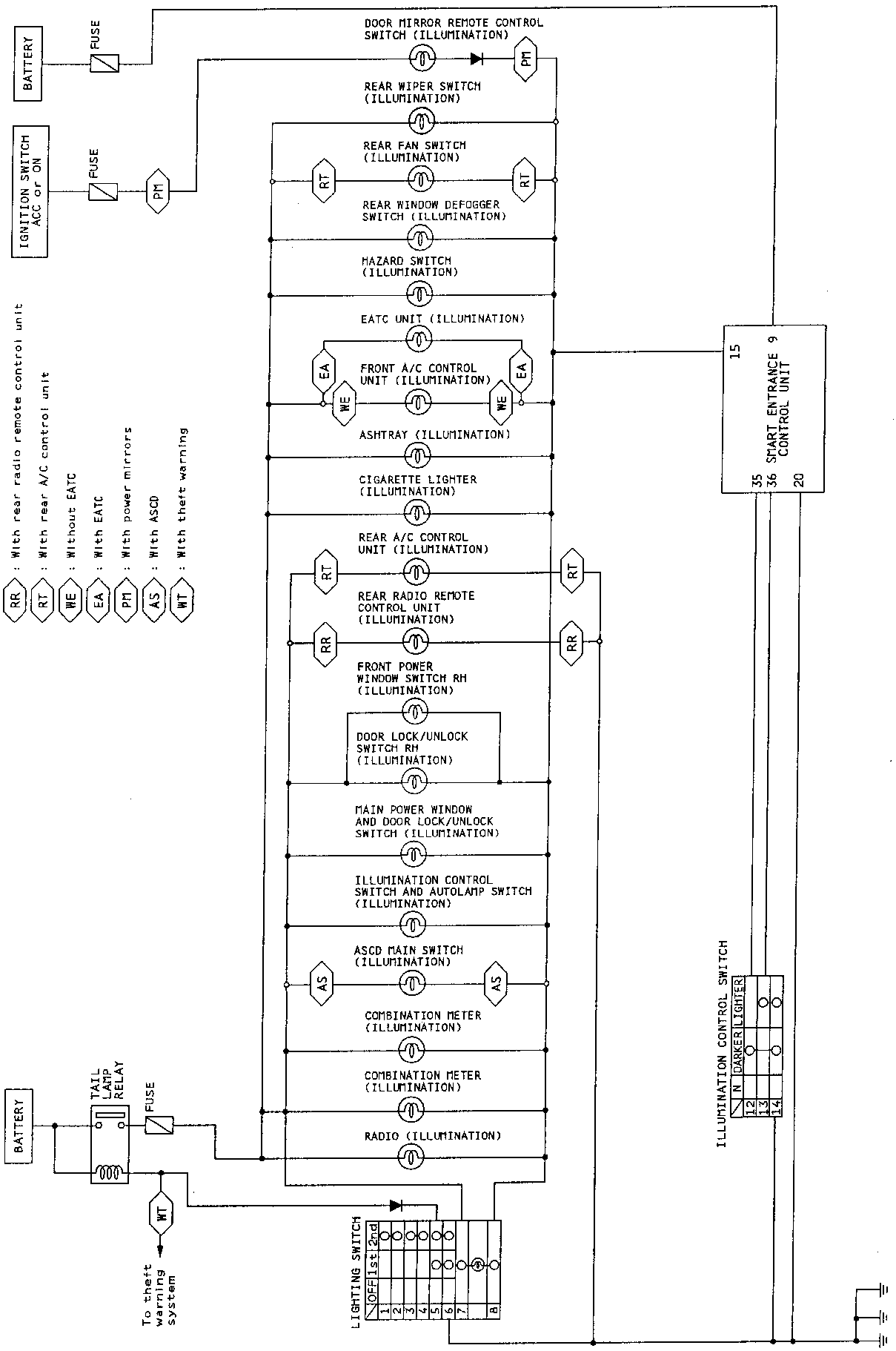
Component	Power terminal	Ground terminal
Radio	⑳	⑱
Rear wiper switch	④	⑤
Front A/C control unit	㉕	㉖
Rear fan switch (front)*	②	③
Hazard switch	⑦	⑧
Rear A/C control unit*	⑪	④
Cigarette lighter	①	②
Rear radio remote control unit*	⑧	⑦
Combination meter	㉓ and ⑩	㉔ and ⑪
ASCD main switch*	⑤	⑥
Rear window defogger switch	⑤	⑥
Lighting switch	⑦	⑧

Illumination/System Description (Cont'd)

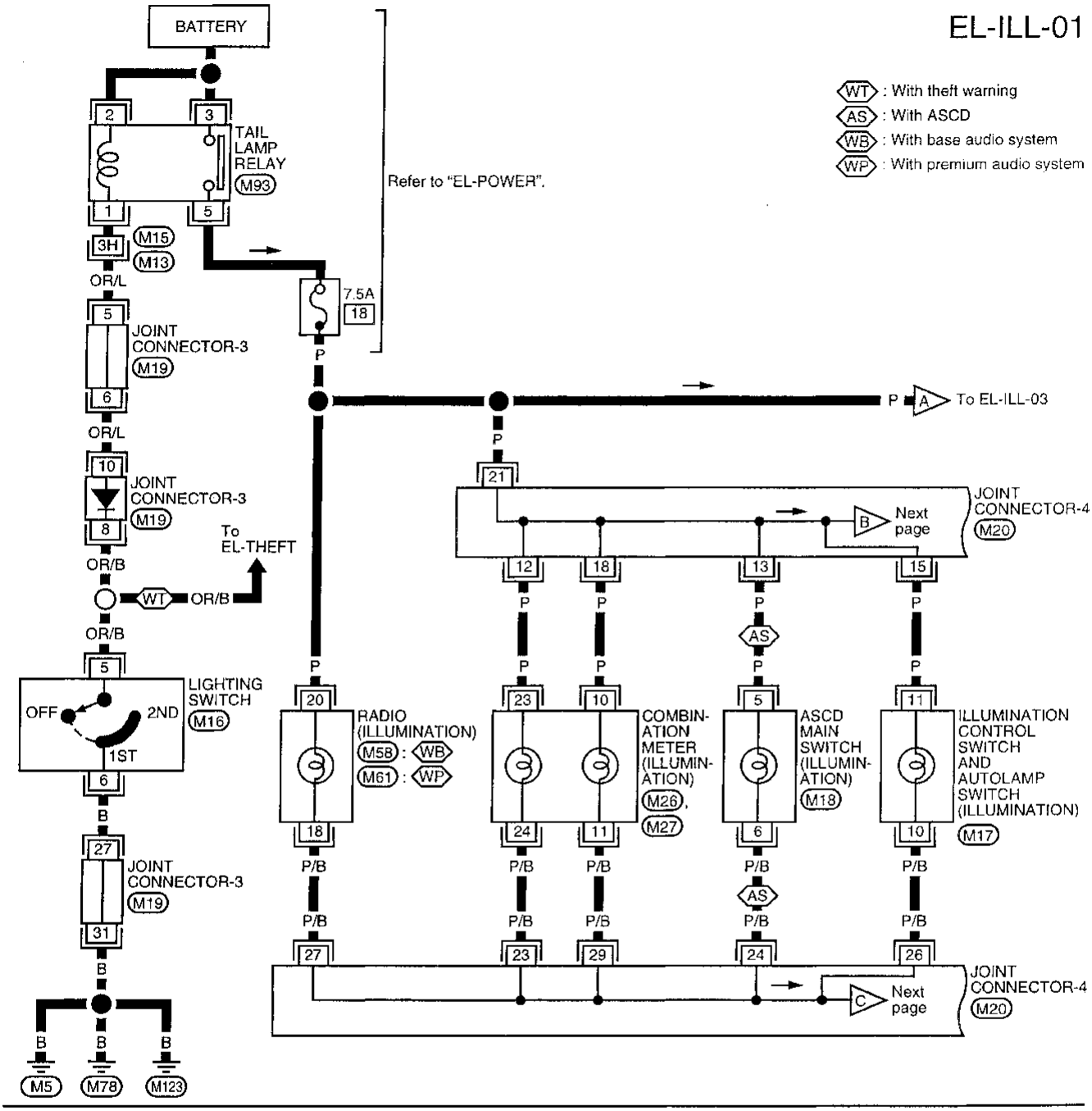
Component	Power terminal	Ground terminal
Illumination control switch and autolamp switch	⑪	⑩
Main power window and door lock/unlock switch	③	④
Door lock/unlock switch RH	⑥	⑤
Front power window switch RH	⑦	⑧
Ashtray	①	②
EATC unit*	⑥	①
Door mirror remote control switch*	②	⑧

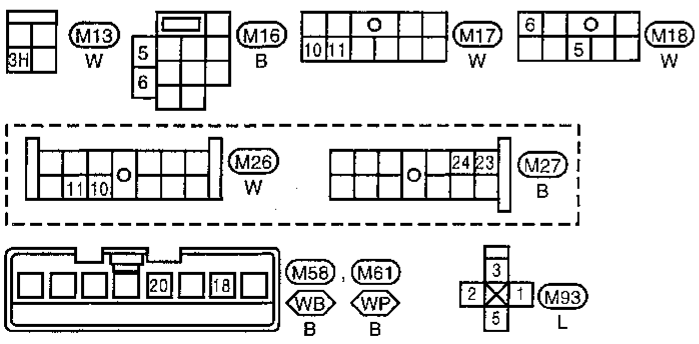
* If equipped.

Illumination/Schematic



Illumination/Wiring Diagram –ILL–



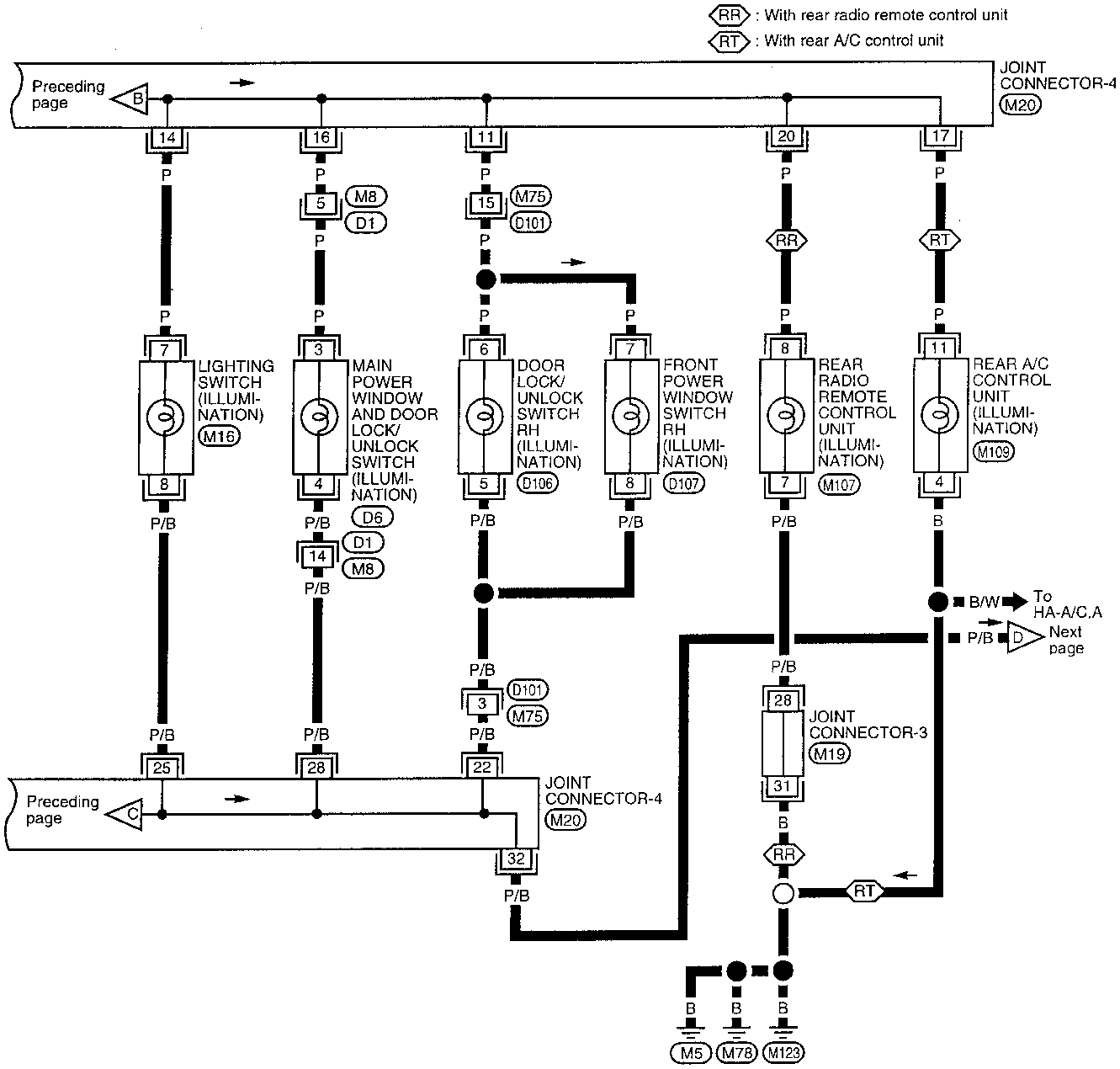


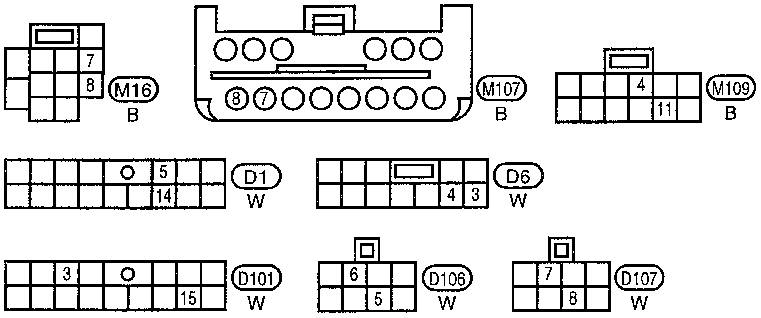
Refer to last page (Foldout page).
M19
M20

AEL952-A

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

EL-ILL-02





Refer to last page (Foldout page).

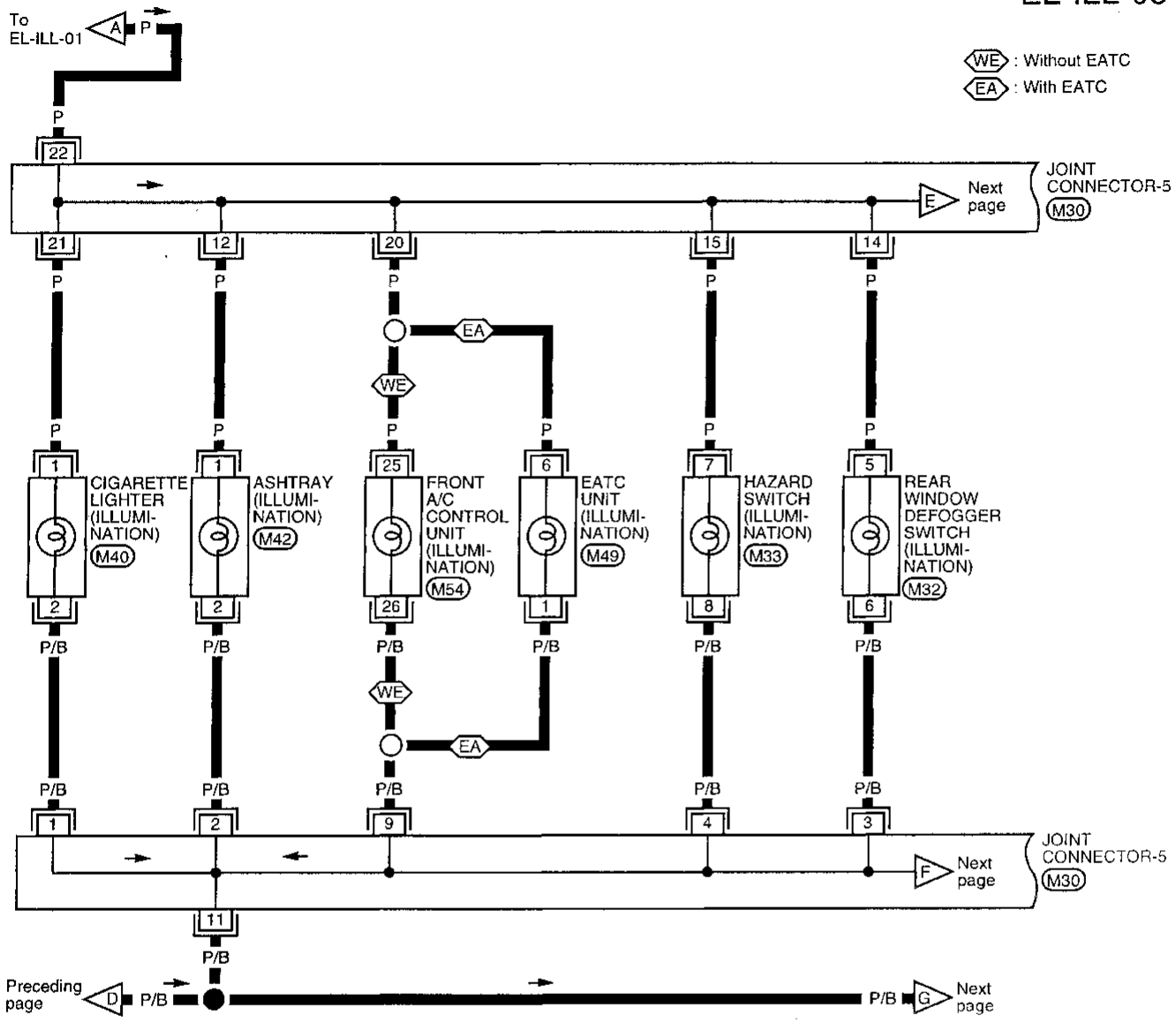
M19

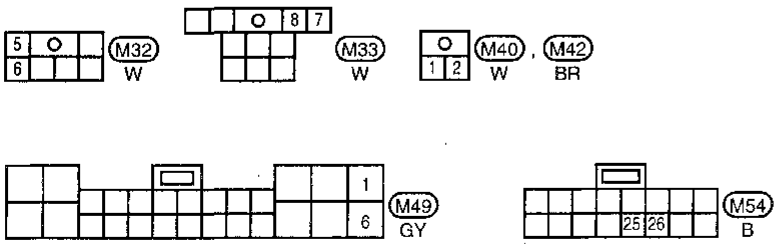
M20

AEL952-B

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

EL-ILL-03

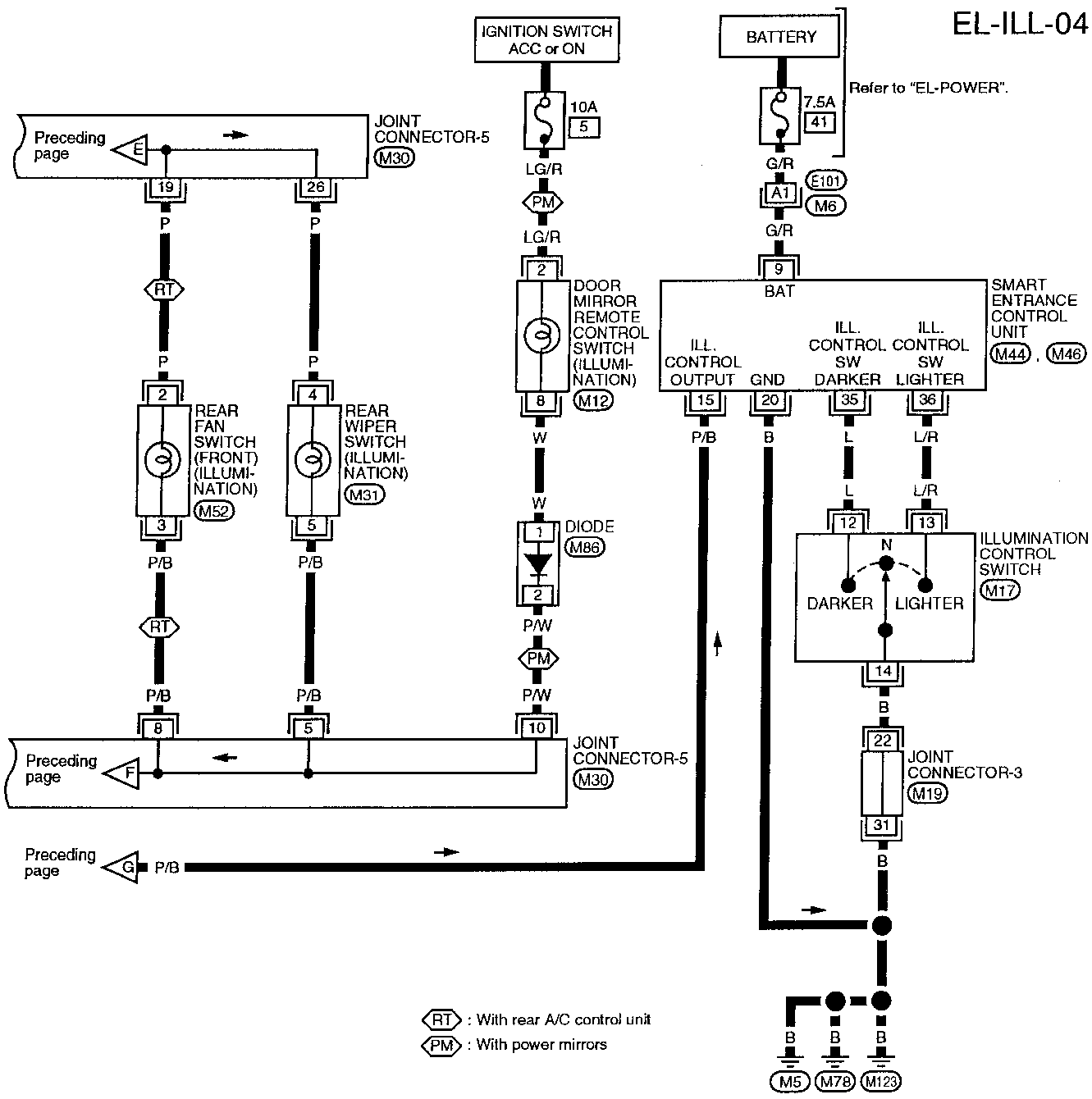


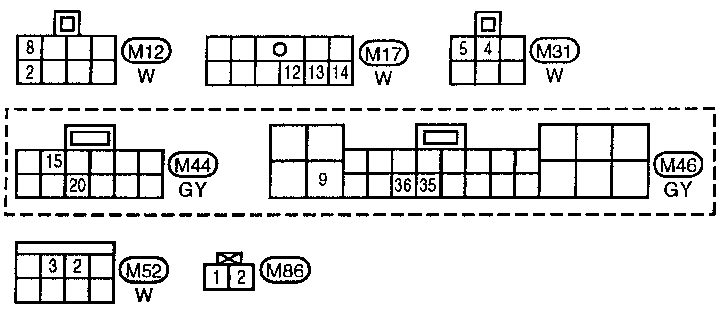


Refer to last page (Foldout page).
M30

AEL952-C

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





Refer to last page (Foldout page).
M6, E101
M19
M30

AEL952-D

Interior, Map, Personal, Step and Tailgate Lamps/System Description

Power is supplied at all times:
- through 15A fuse (No. 21, located in the fuse block)
- to joint connector-5 terminal ㉝, and
- through 7.5A fuse (No. 41, located in the fuse and fusible link box)
- to smart entrance control unit terminal ⑨.

With the ignition switch in the ON or START position, power is supplied:
- through 10A fuse (No. 30, located in the fuse block)
- to smart entrance control unit terminal ㉕.

Ground is supplied to smart entrance control unit terminals ⑳ and ㊹ through body grounds (M5), (M78) and (M123).

FRONT ROOM LAMP

Power is supplied at all times:
- from joint connector-5 terminal ㉓
- to front room lamp terminal ①.

When the front room lamp switch is placed in the ON position, ground is supplied to front room lamp terminal ③ through body grounds (M5), (M78) and (M123).
With power and ground supplied the front room lamp will illuminate.

If the front room lamp switch is placed in the DOOR position and either front door or sliding door is opened, ground is supplied to front room lamp terminal ② through smart entrance control unit terminal ㉑.
With power and ground supplied, the front room lamp will illuminate.

If the front room lamp switch is placed in the OFF position, the front room lamp will not illuminate.

REAR ROOM LAMP

Power is supplied at all times:
- from joint connector-5 terminal ㉓
- to rear room lamp terminal ①.

When the rear room lamp switch is placed in the ON position, ground is supplied to rear room lamp switch terminal ③ through smart entrance control unit terminal ⑯.
With power and ground supplied, the rear room lamp will illuminate.

If the rear room lamp switch is placed in the DOOR position and either front door, sliding door or tailgate is opened, ground is supplied to rear room lamp terminal ② through smart entrance control unit terminal ㉒.
With power and ground supplied, the rear room lamp will illuminate.

If the rear room lamp switch is placed in the OFF position, the rear room lamp will not illuminate.

STEP LAMPS

Power is supplied at all times:
- from joint connector-5 terminal ㉔
- to front step lamp RH terminal ①, and
- from joint connector-5 terminal ㉜
- to front step lamp LH terminal ①, and
- from joint connector-5 terminal ㉛
- to sliding door step lamp terminal ①.

When either front door or sliding door is opened, ground is supplied:
- from smart entrance control unit terminal ㉑
- to front step lamp RH terminal ②
- front step lamp LH terminal ② and
- sliding door step lamp terminal ②.

With power and ground supplied, the step lamps will illuminate.

Interior, Map, Personal, Step and Tailgate Lamps/System Description (Cont'd)

FOOT LAMPS

Power is supplied at all times:
- from joint connector-5 terminal ㉗
- to foot lamp RH terminal ①, and
- from joint connector-5 terminal ㉘
- to foot lamp LH terminal ①.

When either front door or sliding door is opened, ground is supplied:
- from smart entrance control unit terminal ㉑
- to foot step lamp RH terminal ② and
- foot lamp LH terminal ②.

With power and ground supplied, the foot lamps will illuminate.

TAILGATE LAMP

Power is supplied at all times:
- from joint connector-5 terminal ㉙
- to tailgate lamp terminal ①.

When either front door, sliding door, or tailgate is opened, ground is supplied to tailgate lamp terminal ② through smart entrance control unit terminal ㉒.
With power and ground supplied, the tailgate lamp will illuminate.

FADE AWAY OPERATION

When exiting the vehicle, the smart entrance control unit will gradually fade out the foot lamps, room lamps, step lamps, and tailgate lamp over a period of approximately 15 seconds. This process happens in several stages. First, the rear room lamp and tailgate lamp will turn off approximately 1 second after the last door has been closed. Second, the foot lamps, front room lamp, and step lamps remain lit at half illumination for appproximately 9 seconds. Finally, the front room lamp and step lamps will gradually fade away over the final approximately 5 seconds.

MULTI-REMOTE OPERATION

If the vehicle is equipped with multi-remote control system, the smart entrance control unit will illuminate the foot lamps, front and rear room lamps, step lamps, and tailgate lamp when the doors are unlocked using the remote controller. The room lamps will not illuminate during this function unless the room lamp switches are in the DOOR position.

MAP LAMP

Power is supplied at all times:
- from joint connector-5 terminal ㉓
- to map lamp terminal ①.

When the map lamp switch is placed in the ON position, ground is supplied to map lamp terminal ② through body grounds (M5), (M78) and (M123).
With power and ground supplied, the map lamp will illuminate.

PERSONAL LAMP

Power is supplied at all times:
- from joint connector-5 terminal ㉓
- to personal lamp terminal ①.

When the personal lamp switch is placed in the ON position, ground is supplied to personal lamp terminal ② through smart entrance control unit terminal ⑯.
With power and ground supplied, the personal lamp will illuminate.

VANITY LAMPS

Power is supplied at all times:
- from joint connector-5 terminal ㉓
- to vanity lamp RH terminal ① and
- vanity lamp LH terminal ①.

Interior, Map, Personal, Step and Tailgate Lamps/System Description (Cont'd)

When a vanity mirror cover is pulled down, the vanity lamp switch closes and ground is supplied to each vanity mirror terminal ② through body grounds (M5), (M78) and (M123).
With power and ground supplied, the vanity lamp will illuminate.

GLOVE BOX LAMP

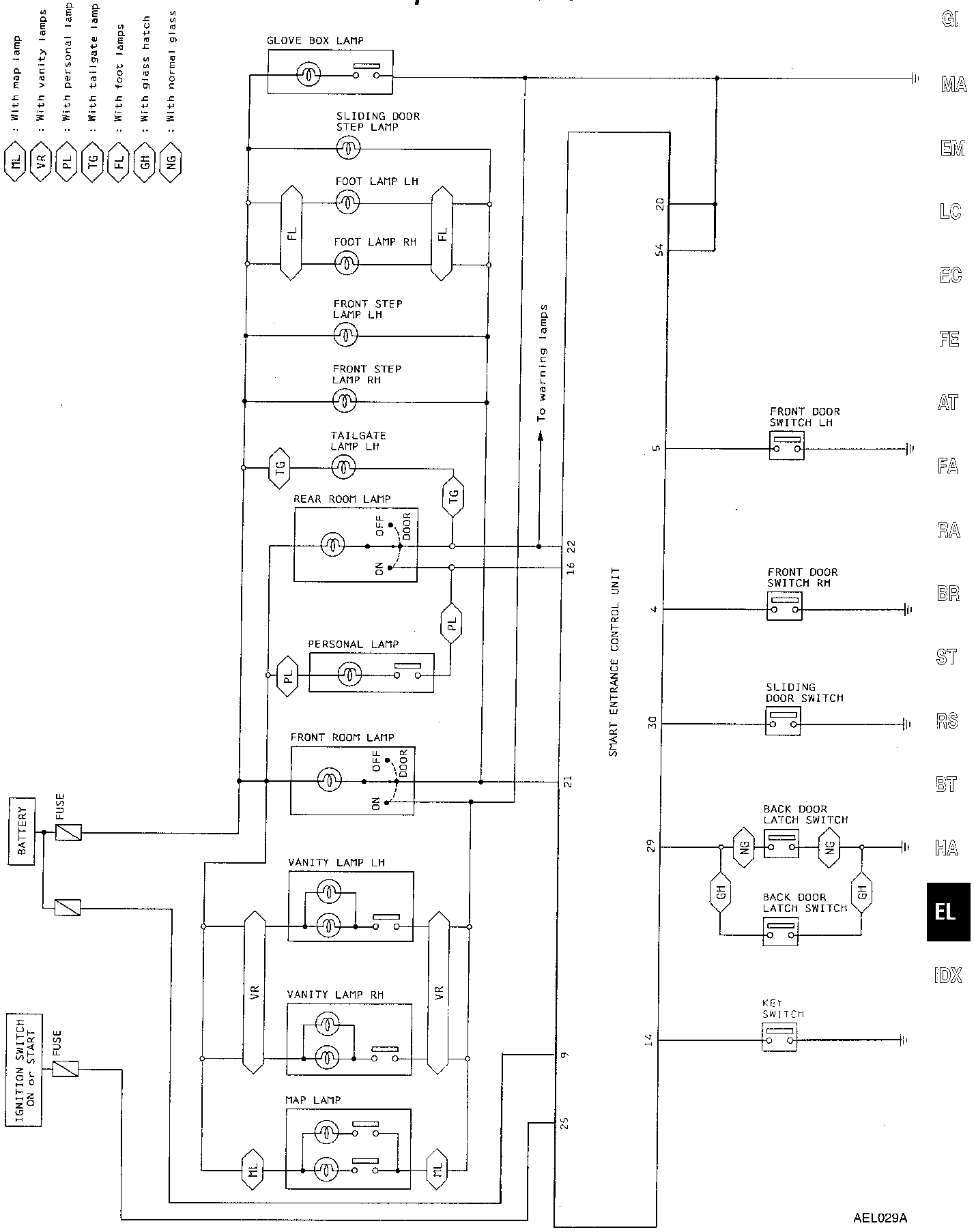
Power is supplied at all times:
- from joint connector-5 terminal ㉖
- to glove box lamp terminal ②.

When the glove box door is opened, the glove box lamp switch closes and ground is supplied to glove box lamp terminal ① through body grounds (M5), (M78) and (M123).
With power and ground supplied, the glove box lamp will illuminate.

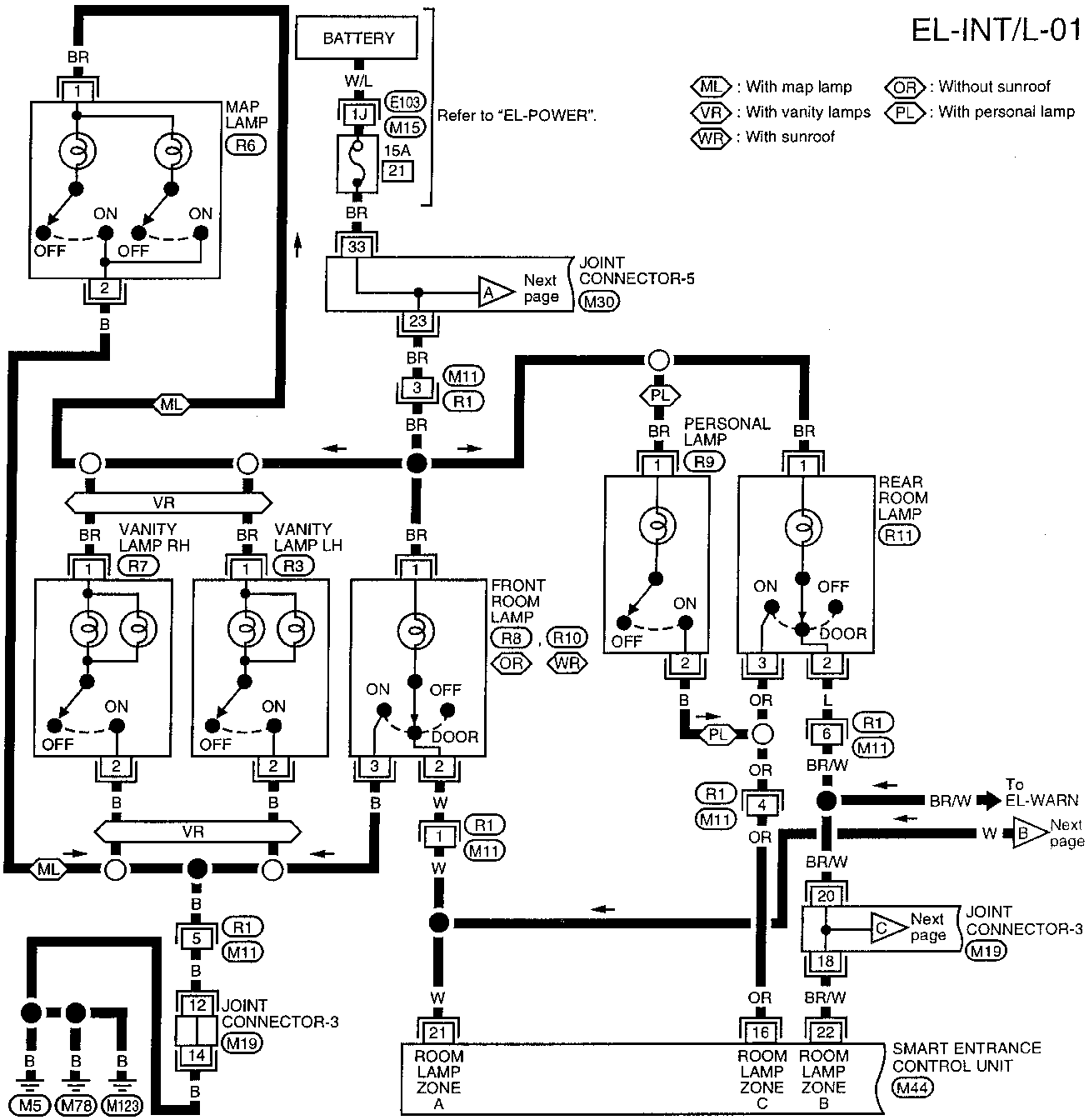
BATTERY SAVER

If any of the lamps controlled by the smart entrance control unit remain on for an extended period of time, the control unit will turn off the lamps to save the battery by disrupting the ground circuit.

Interior, Map, Personal, Step and Tailgate Lamps/Schematic



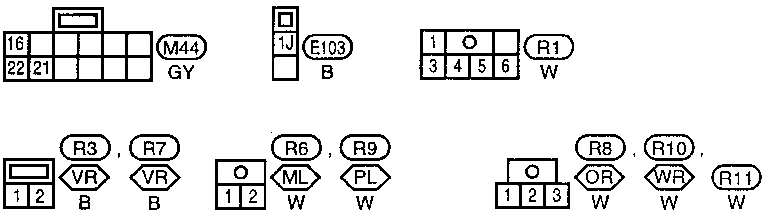
Interior, Map, Personal, Step and Tailgate Lamps/Wiring Diagram –INT/L–



Refer to last page (Foldout page)

M19

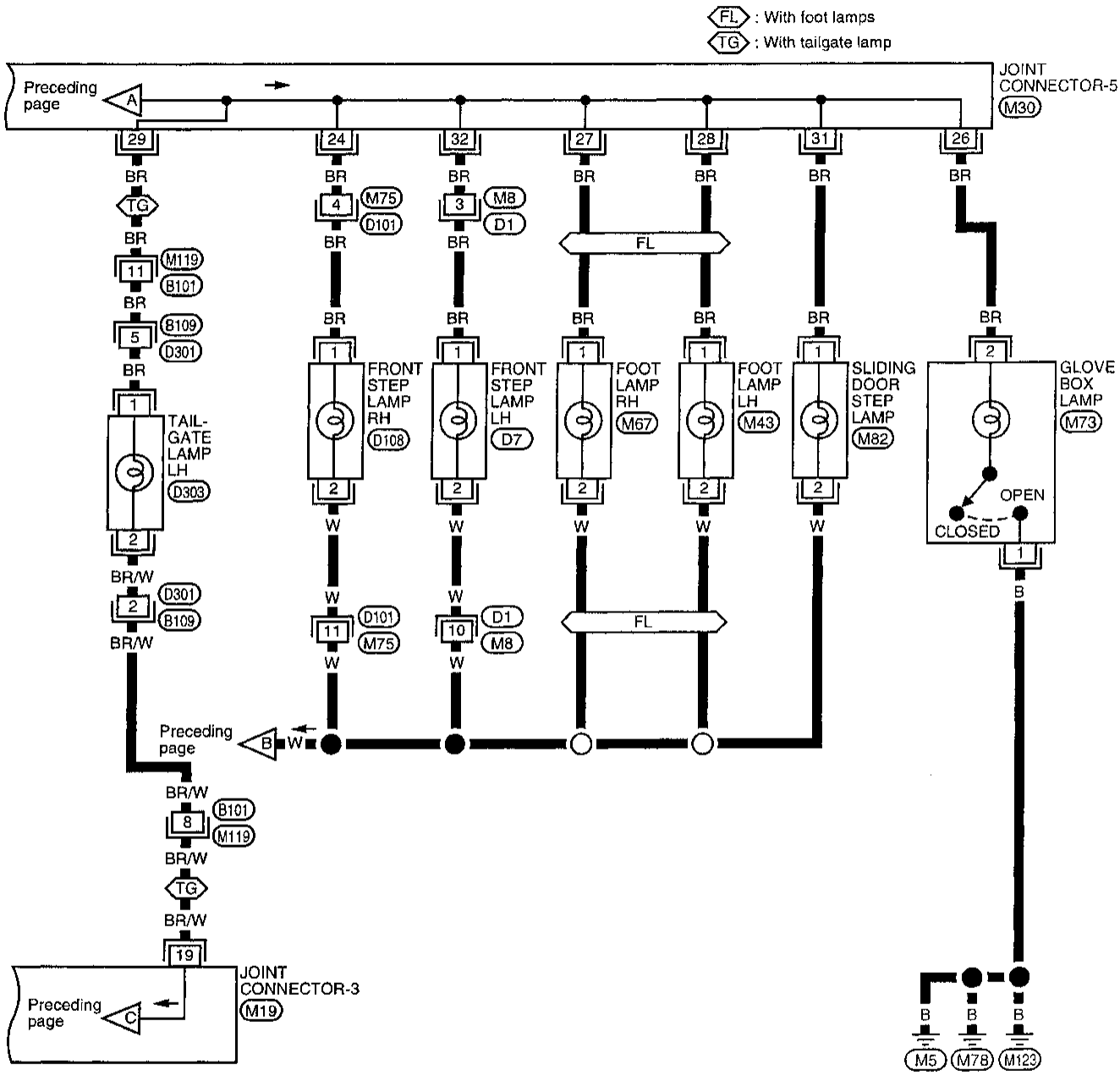
M30



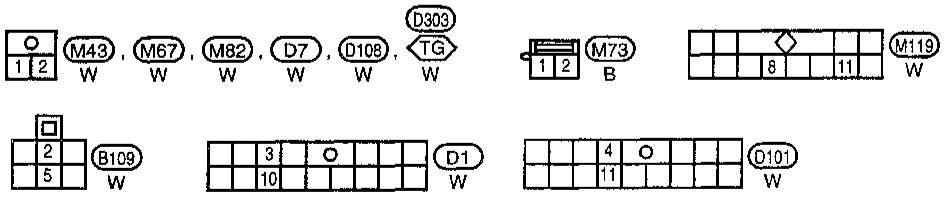
AEL953-A

Interior, Map, Personal, Step and Tailgate Lamps/Wiring Diagram –INT/L– (Cont'd)

EL-INT/L-02

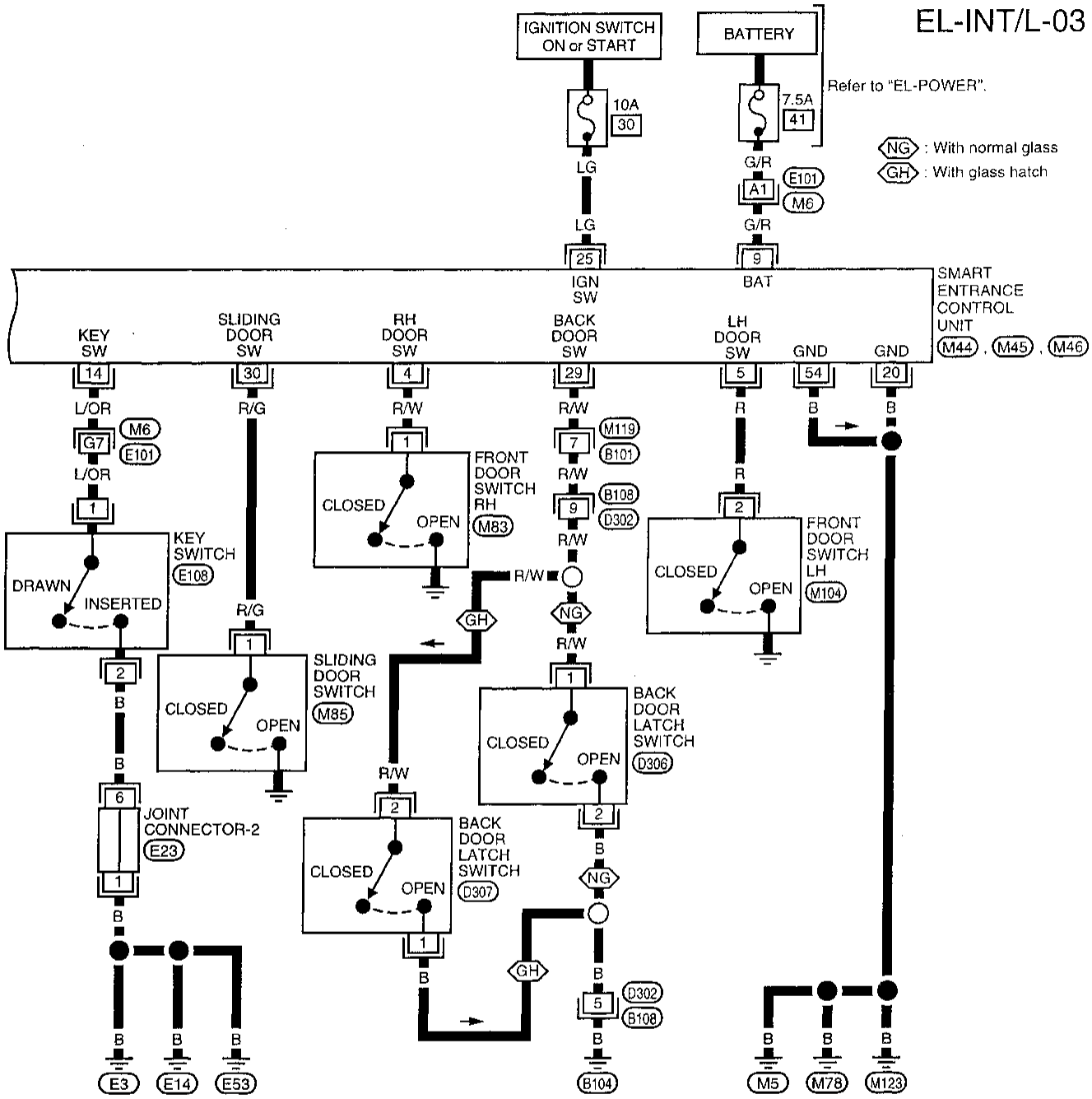


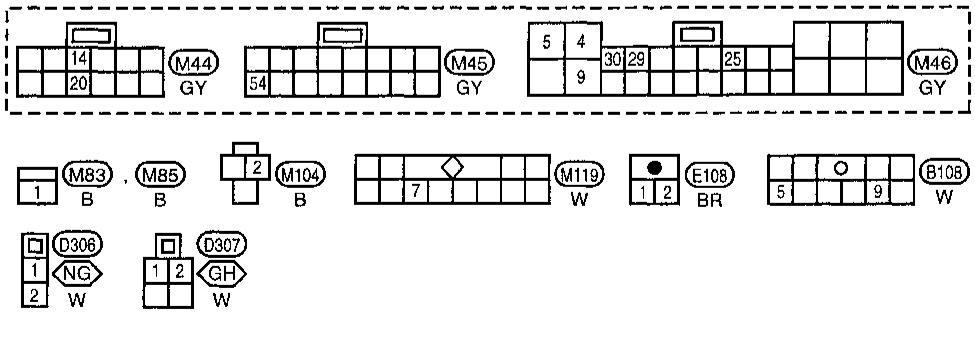
Refer to last page (Foldout page).
M19
M30



AEL953-B

Interior, Map, Personal, Step and Tailgate Lamps/Wiring Diagram –INT/L– (Cont'd)





Refer to last page (Foldout page).
M6, E101
E23

AEL953-C

Bulb Specifications

Item	Wattage (W)	Bulb No.
Personal lamp	9.8	208
Interior lamp	12	211-2
Tailgate lamp	12	211-2
Step lamp	3.8	194
Map lamp	10	—

System Description

With the ignition switch in the ON or START position, power is supplied:
- through 10A fuse (No. 29, located in the fuse block)
- to combination meter terminal ⑭ for the water temperature gauge, fuel gauge and low fuel/anti-slosh unit, and
- to combination meter terminal ㉝ for the tachometer and speedometer.

Ground is supplied:
- to combination meter terminals ⑰ and ㉚
- through body ground (M66) .

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

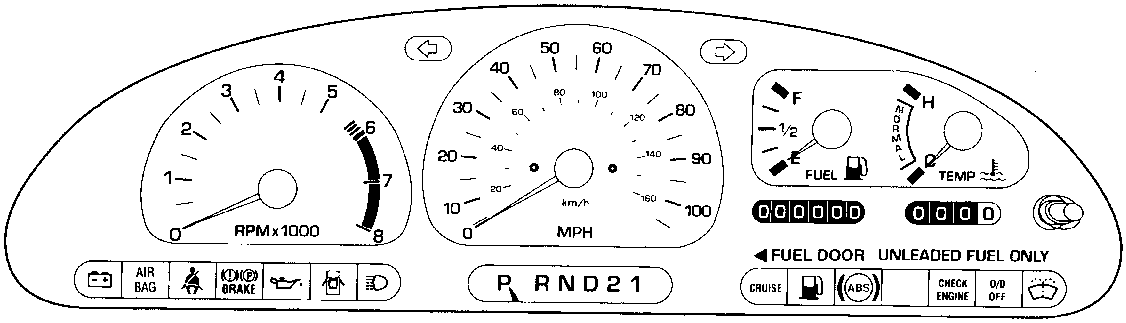
The tachometer indicates engine speed in revolutions per minute (rpm).
The tachometer is regulated by a signal:
- from terminal ③ of the ECM (ECCS control module)
- to combination meter terminal ㉙ for the tachometer.

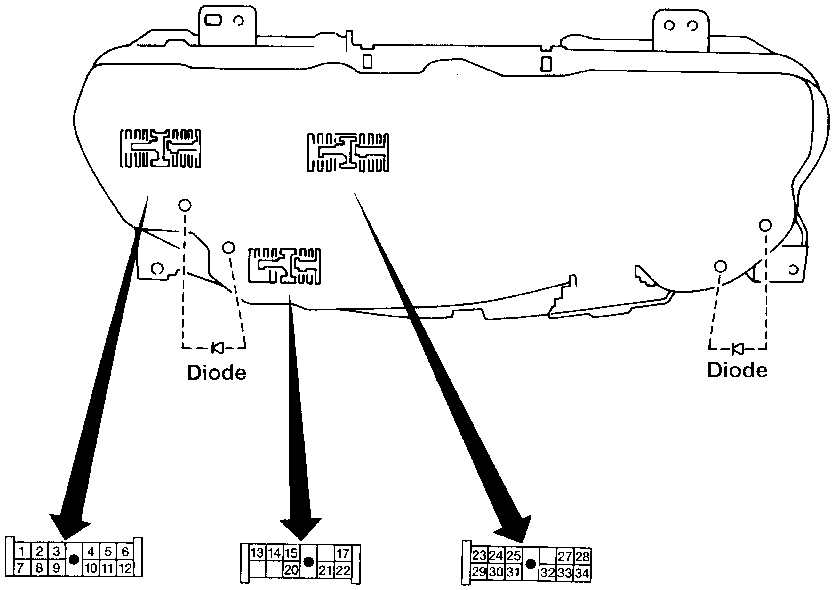
The fuel gauge is regulated by a variable ground signal supplied by the low fuel/anti-slosh unit. The low fuel/anti-slosh unit dampens the ground signal from the fuel tank gauge unit. This reduces the amount of needle fluctuation on the fuel gauge. The low fuel/anti-slosh unit also sends a signal to the warning lamp system. Refer to "LOW FUEL LEVEL WARNING LAMP", "Warning Lamps/System Description", EL-101.
A fuel level signal is supplied to the low fuel/anti-slosh unit:
- from combination meter terminal ⑳
- through fuel tank gauge unit terminal ③
- from fuel tank gauge unit terminal ④
- through body grounds (M5) , (M78) and (M123) .

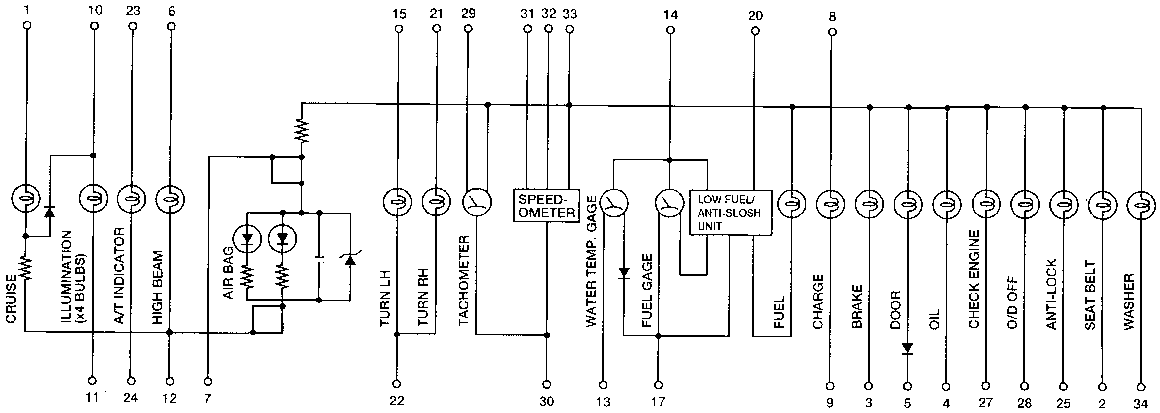
The vehicle speed sensor provides a pulsed ground signal to the combination meter for the speedometer.
Pulsed ground is supplied:
- to combination meter terminal ㉜ for the speedometer
- from vehicle speed sensor terminal ①.

The speedometer converts the pulsed ground into the vehicle speed displayed.

Combination Meter



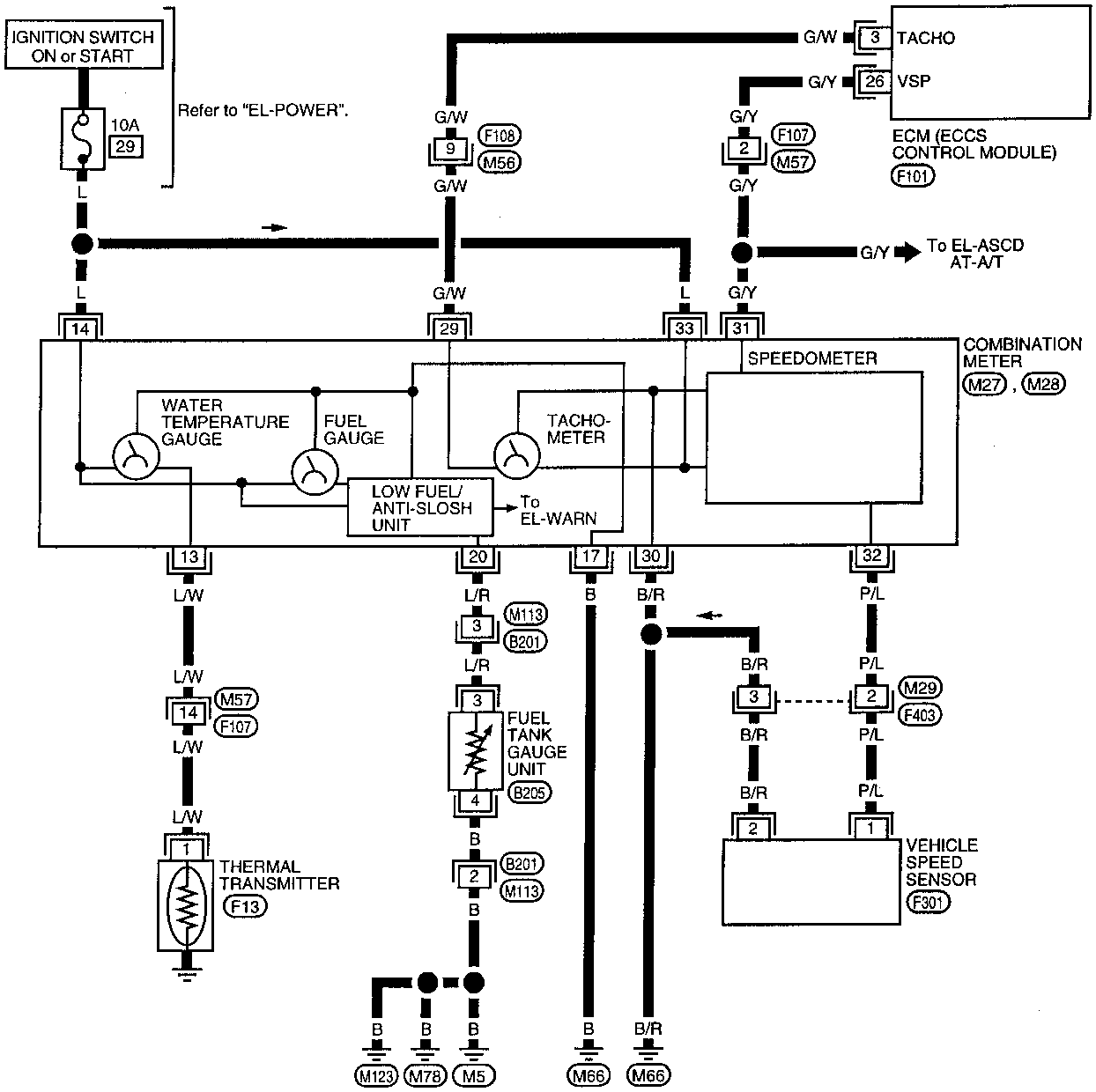


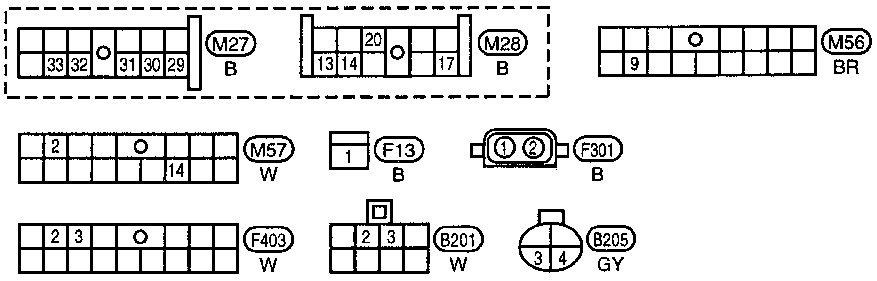


AEL083A

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

EL-METER-01

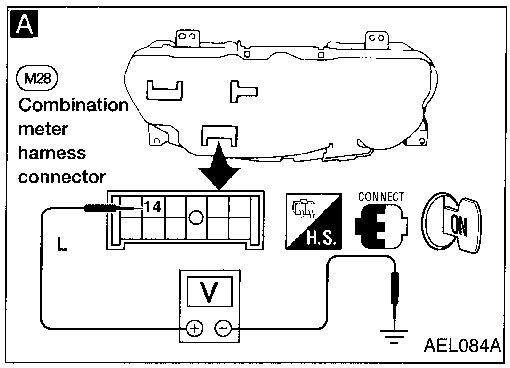


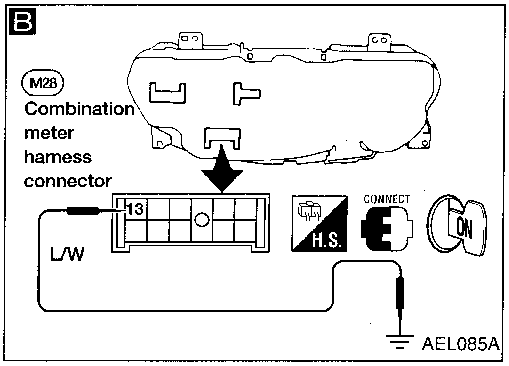


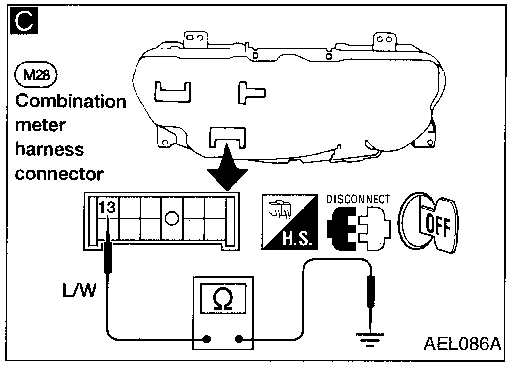
Refer to last page (Foldout page).
F101

AEL954

Inspection/Water Temperature Gauge







INSPECTION START

A

CHECK POWER SOURCE.
1. Turn ignition switch ON.
2. Check voltage between terminal ⑭ and ground.
   Battery positive voltage should exist.

NG → Check the following items:
- Harness continuity between battery terminal and combination meter
- Ignition relay
- Fusible link and fuse
- Ignition switch.

OK ↓

B

CHECK GAUGE OPERATION.
1. Turn ignition switch ON.
2. Connect terminal ⑬ to ground with wire for **less than 1 second.**
3. Check operation of gauge.
   Gauge should move smoothly to full scale.

NG → Repair or replace gauge.

OK ↓

C

CHECK HARNESS CONTINUITY.
Check harness continuity between terminal ⑬ and ground.

NG → Repair or replace.

OK ↓

Check component.
Check thermal transmitter and harness.
Perform "Thermal Transmitter Check".
Refer to EL-100.

NG → Repair or replace.

OK ↓

Reinstall any part removed.

↓

INSPECTION END

	INCIDENT	Flow chart No.
1	Fuel gauge always reads empty	1
2	Fuel gauge reads inaccurately	2
3	Fuel gauge always reads full	3

Inspection/Fuel Gauge

INSPECTION START

A → 1

CHECK POWER SOURCE.
1. Turn ignition switch ON.
2. Check voltage between terminal (14) and ground.
   Battery positive voltage should exist.

NG → Check the following items:
- Harness continuity between battery terminal and combination meter
- Ignition relay
- Fusible link and fuse
- Ignition switch.

OK

B → 2 3

CHECK GAUGE OPERATION.
1. Disconnect fuel tank gauge unit connector (M113).
2. Turn ignition switch ON.
3. Check operation of gauge.
   Gauge should move smoothly to full scale.

NG → Check the following items:
- Fuel gauge
- Low fuel/anti-slosh unit
- Combination meter.

OR

1. Disconnect fuel tank gauge unit connector (M113).
2. Connect terminals (2) and (3) with wire for **less than 10 seconds.**
3. Turn ignition switch ON.
4. Check operation of gauge.
   Gauge should move smoothly to empty scale.

OK

CHECK COMPONENT.
Check gauge unit and harness.
Perform "Fuel Tank Gauge Unit Check", refer to EL-100.

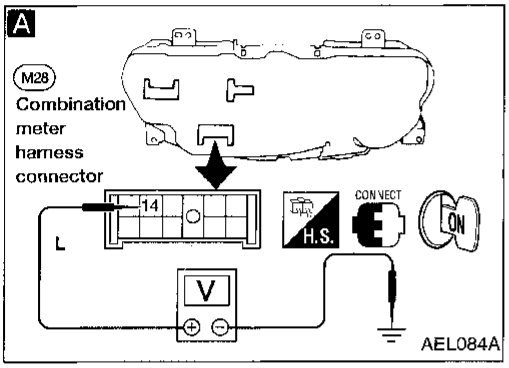
NG → Repair or replace.
Refer to FE section ("Fuel Pump and Gauge", "FUEL SYSTEM").

OK

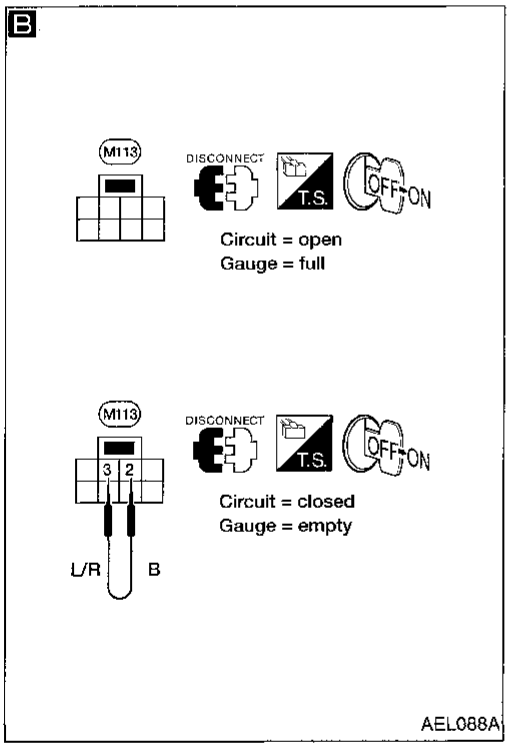
Reinstall any part removed.

INSPECTION END

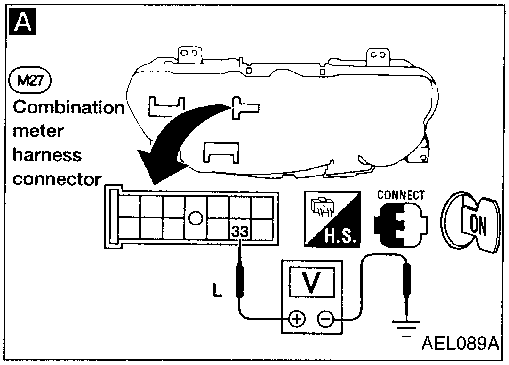
A

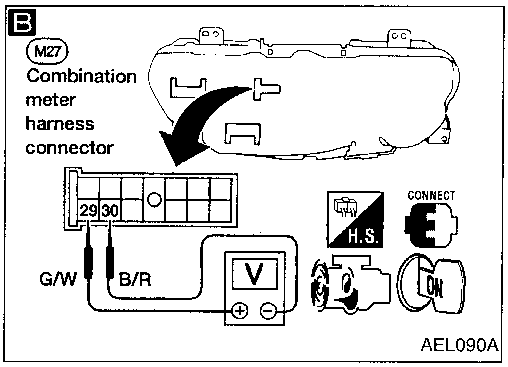


B



Inspection/Tachometer





INSPECTION START

A

CHECK POWER SOURCE.
1. Turn ignition switch ON.
2. Check voltage between terminal (33) and ground.
   Battery positive voltage should exist.

NG → Check the following items:
- Harness continuity between battery terminal and combination meter
- Ignition relay
- Fusible link and fuse
- Ignition switch.

OK ↓

B

CHECK ECM OUTPUT.
1. Start engine.
2. Check voltage between terminals (29) and (30) at idle and 2,000 rpm.
   Higher rpm = Higher voltage
   Lower rpm = Lower voltage
   Voltage should change with rpm.

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

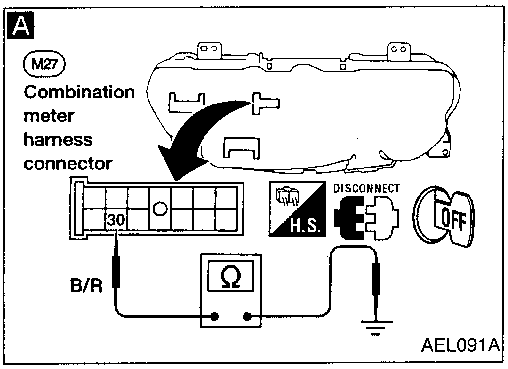
OK ↓

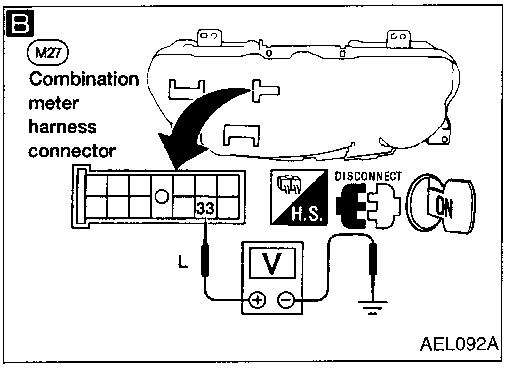
Replace tachometer.

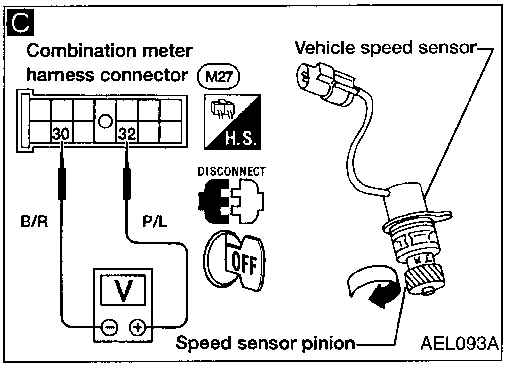
INSPECTION END

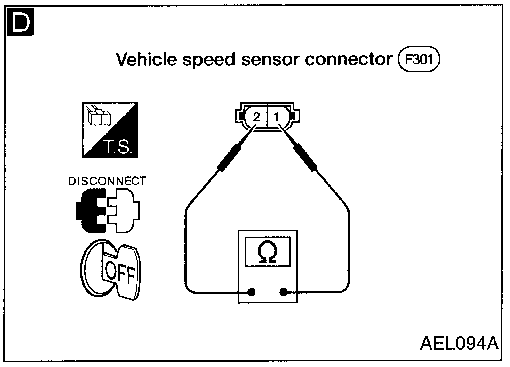
Inspection/Speedometer and Vehicle Speed Sensor

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









INSPECTION START

A

CHECK GROUND CIRCUIT OF SPEEDOMETER.
Check continuity between terminal (30) and body ground.
Continuity should exist.

NG → Repair harness or connector.

OK

B

CHECK POWER SOURCE.
1. Turn ignition switch ON.
2. Check voltage between terminal (33) and body ground.
   Battery positive voltage should exist.

NG → Check the following items:
- Harness continuity between battery terminal and combination meter
- Ignition relay
- Fusible link and fuse
- Ignition switch.

OK

C

CHECK VEHICLE SPEED SENSOR OUTPUT.
1. Remove vehicle speed sensor from transaxle. Leave vehicle speed sensor harness connector connected.
2. Check voltage between terminals (30) and (32) while quickly turning vehicle speed sensor pinion.
   Voltage: Approx. 0.5V

OK → Replace speedometer.

NG

D

CHECK VEHICLE SPEED SENSOR.
Check resistance between terminals (1) and (2).
Resistance: Approx. 200Ω.

NG → Replace vehicle speed sensor.

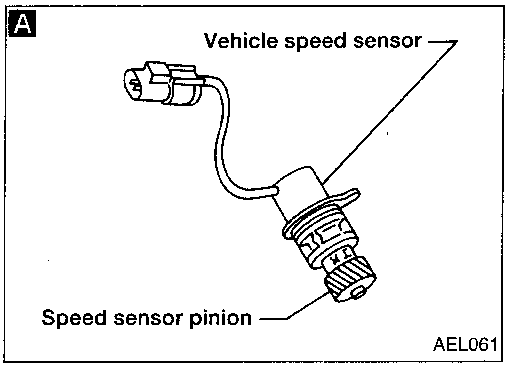
OK

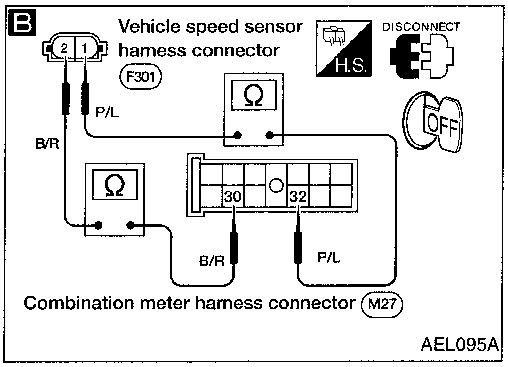
Repair harness or connector between speedometer and vehicle speed sensor.

INSPECTION END

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

SYMPTOM: Speedometer indication flutters.





INSPECTION START

↓

Is vehicle speed sensor installed properly? Check looseness and so on.

NG → Install vehicle speed sensor properly.

OK ↓

A

Do you feel resistance when turning vehicle speed sensor pinion?

No → Replace vehicle speed sensor.

Yes ↓

B

Check continuity between combination meter terminal (30) and vehicle speed sensor terminal (2), and between (32) and (1).
Continuity should exist.

NG → Repair harness and connector.

OK ↓

Replace speedometer.

Inspection/Speedometer and Fuse

SYMPTOM: Speedometer does not go back to 0 km/h (0 MPH).

INSPECTION START

↓

Check 10A fuse No. 29, located in the fuse and fusible link box.

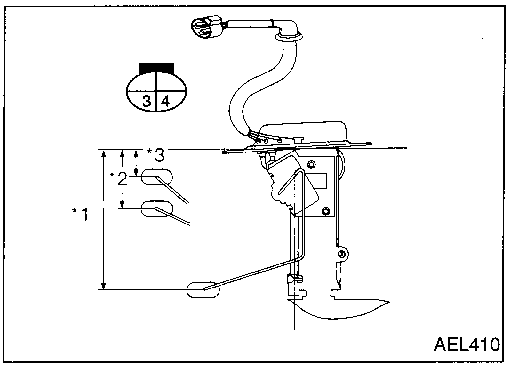
NG → Replace fuse.

OK ↓

Drive at over 80 km/h (50 MPH).

NG ↓

Replace speedometer.

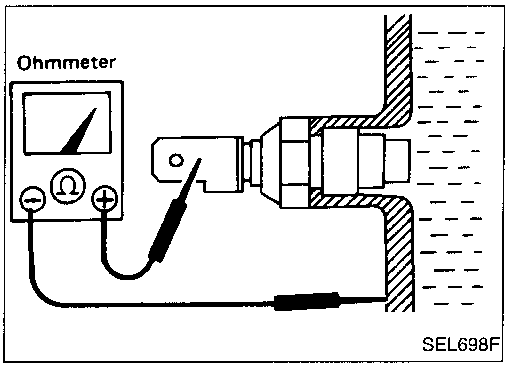


Fuel Tank Gauge Unit Check

- For removal, refer to FE section ("Fuel Pump and Gauge", "FUEL SYSTEM").

Check the resistance between terminals ③ and ④.

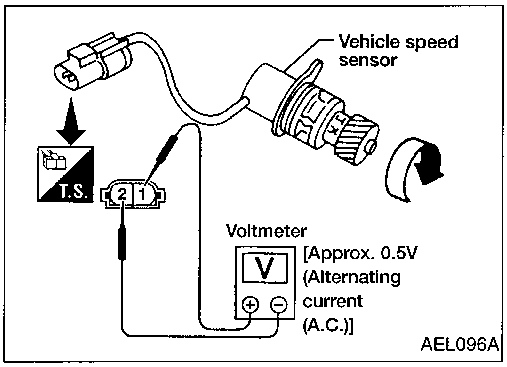
Ohmmeter (+)	Ohmmeter (–)	Float position		mm (in)	Resistance value (Ω)
③	④	⑤*3	Full	23 (0.91)	Approx. 160
		⑤*2	1/2	93 (3.66)	78
		⑤*1	Empty	151 (5.94)	15



Thermal Transmitter Check

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

Water temperature	Resistance
75°C (167°F)	Approx. 179 - 219Ω
100°C (212°F)	Approx. 60 - 72Ω



Vehicle Speed Sensor Signal Check

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

Warning Lamps/System Description

With the ignition switch in the ON or START position, power is supplied:
- through 10A fuse (No. 29, located in the fuse block)
- to combination meter terminals ⑭ and ㉝, and
- bulb check relay terminal ②.

Ground is supplied:
- to combination meter terminal ⑫,
- fuel tank gauge unit terminal ④,
- air bag diagnosis sensor unit terminal ② and
- seat belt buckle switch terminal ②
- through body grounds (M5) , (M78) and (M123) .

Ground is supplied to combination meter terminal ⑰ through body ground (M66) .

Ground is supplied:
- to bulb check relay terminal ⑤,
- brake fluid level switch terminal ② and
- washer fluid level switch terminal ①
- through body grounds (E3) , (E14) and (E53) .

Ground is supplied to back door latch switch terminal ② (without theft warning) or terminal ① (with theft warning) through body ground (B104) .

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 ⑦.

Ground is then supplied:
- through combination meter terminal ⑫.

With power and ground supplied, the air bag warning lamp (LEDs) illuminate.

LOW FUEL LEVEL WARNING LAMP

The amount of fuel in the fuel tank is determined by a float in the tank. A signal is sent from fuel tank gauge unit terminal ③ to combination meter terminal ⑳. The low fuel/anti-slosh unit will illuminate the low fuel level warning lamp when the fuel level is low.

LOW OIL PRESSURE WARNING LAMP

Low oil pressure causes oil pressure switch terminal ① to provide ground to combination meter terminal ④.
With power and ground supplied, the low oil pressure warning lamp illuminates.

DOOR AJAR WARNING LAMP

When a door is open, a ground signal is received by the smart entrance control unit at terminal ④, ⑤, ㉙, or ㉚. Ground is then supplied:
- to combination meter terminal ⑤
- from smart entrance control unit terminal ㉒.

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

SECURITY INDICATOR LAMP

Power is supplied at all times:
- through 10A fuse (No. 23, located in the fuse block)
- to security indicator lamp terminal ②.

Under certain conditions, ground is supplied:
- to security indicator lamp terminal ①
- from smart entrance control unit terminal ㊶.

With power and ground supplied, the security indicator lamp will illuminate. For further information, refer to "System Description", "THEFT WARNING SYSTEM", EL-223

LOW WASHER FLUID LEVEL WARNING LAMP

When the washer fluid level is low, ground is supplied:
- to combination meter terminal ㉞
- from washer fluid level switch terminal ②.

With power and ground supplied, the low washer fluid level warning lamp illuminates.

SEAT BELT WARNING LAMP

When the driver's seat belt is unfastened, ground is supplied:
- to combination meter terminal ②
- from seat belt buckle switch terminal ①.

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

MALFUNCTION INDICATOR LAMP

During prove out or when an engine control malfunction occurs, ground is supplied:
- to combination meter terminal ㉗
- 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"].

ABS WARNING LAMP

During prove out or when an ABS malfunction occurs, ground is supplied:
- to combination meter terminal ㉕
- from ABS control unit terminal ㉙.

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

BRAKE WARNING LAMP

When the parking brake is set, or the brake fluid level is low, ground is supplied:
- to combination meter terminal ③
- from parking brake switch terminal ①, or
- brake fluid level switch terminal ①.

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

BULB CHECK RELAY (brake warning lamp prove out)

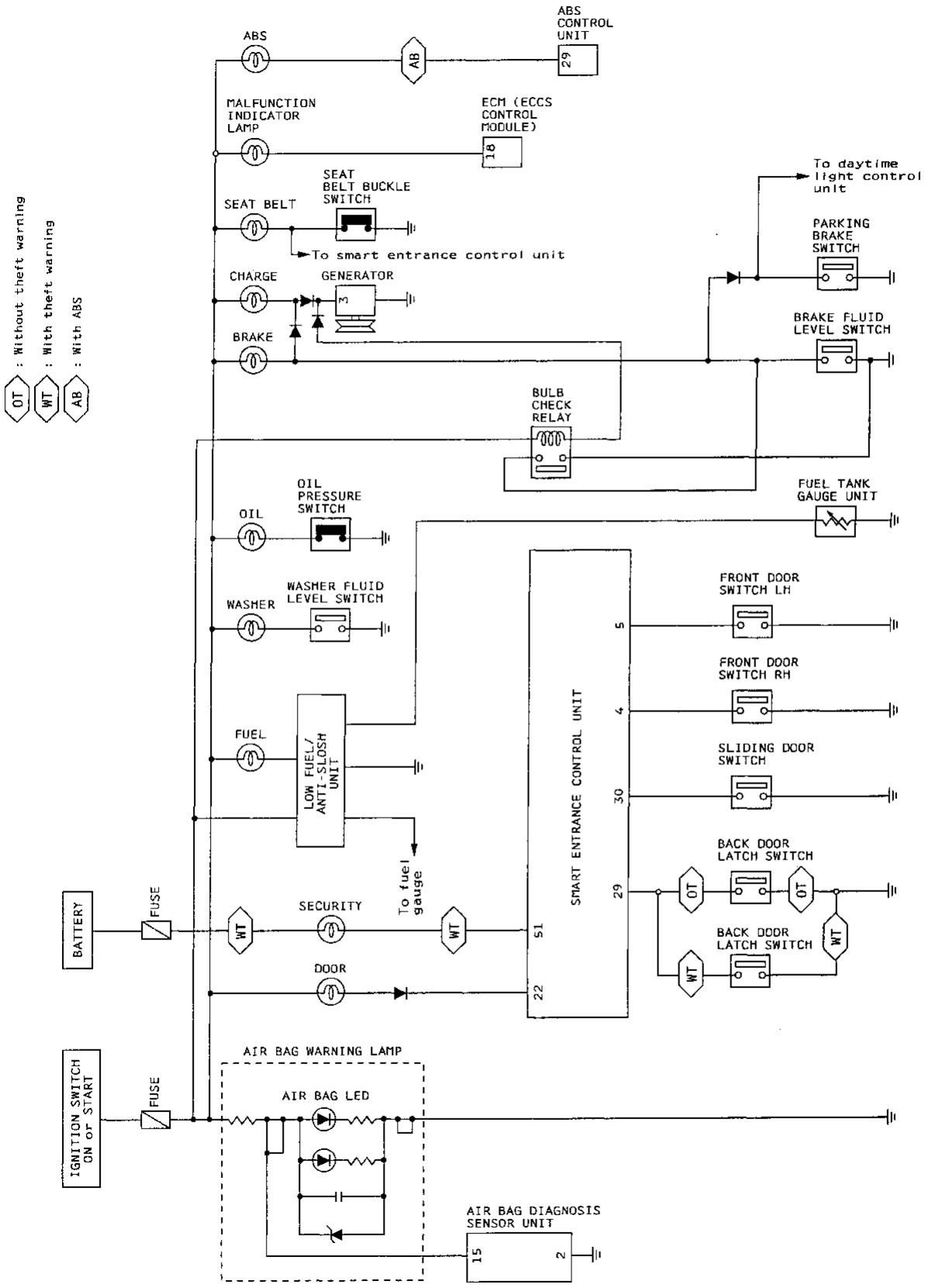
When the ignition switch is in the ON or START position, and the generator grounds terminal ③, ground is supplied to the bulb check relay terminal ①. With power and ground supplied, the bulb check relay is energized, providing a ground path for the brake warning lamp.
With power and ground supplied, the brake warning lamp illuminates.

CHARGE WARNING LAMP

During prove out or when a generator malfunction occurs, ground is supplied:
- to combination meter terminal ⑨
- from generator terminal ③.

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

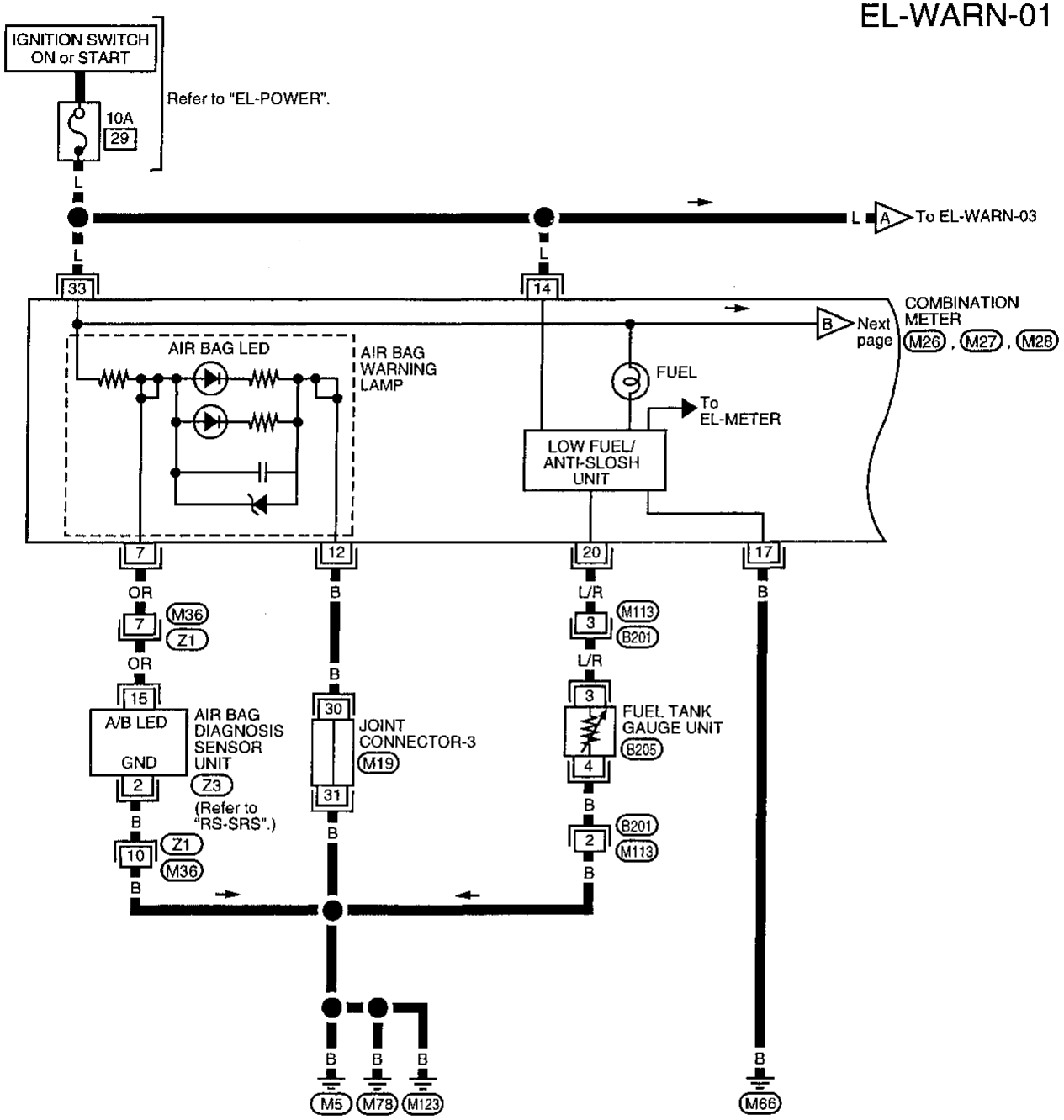
Warning Lamps/Schematic

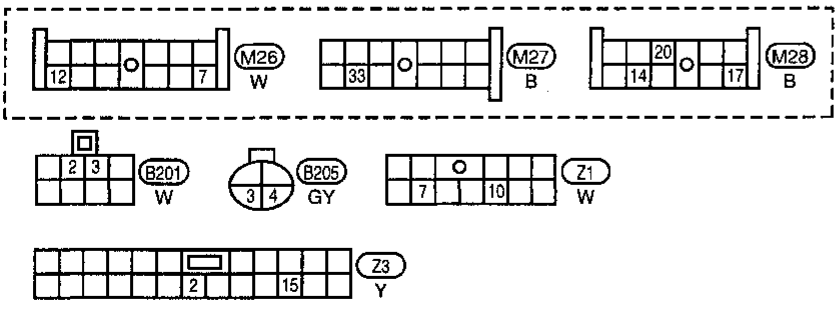


AEL030A

Warning Lamps/Wiring Diagram –WARN–

EL-WARN-01

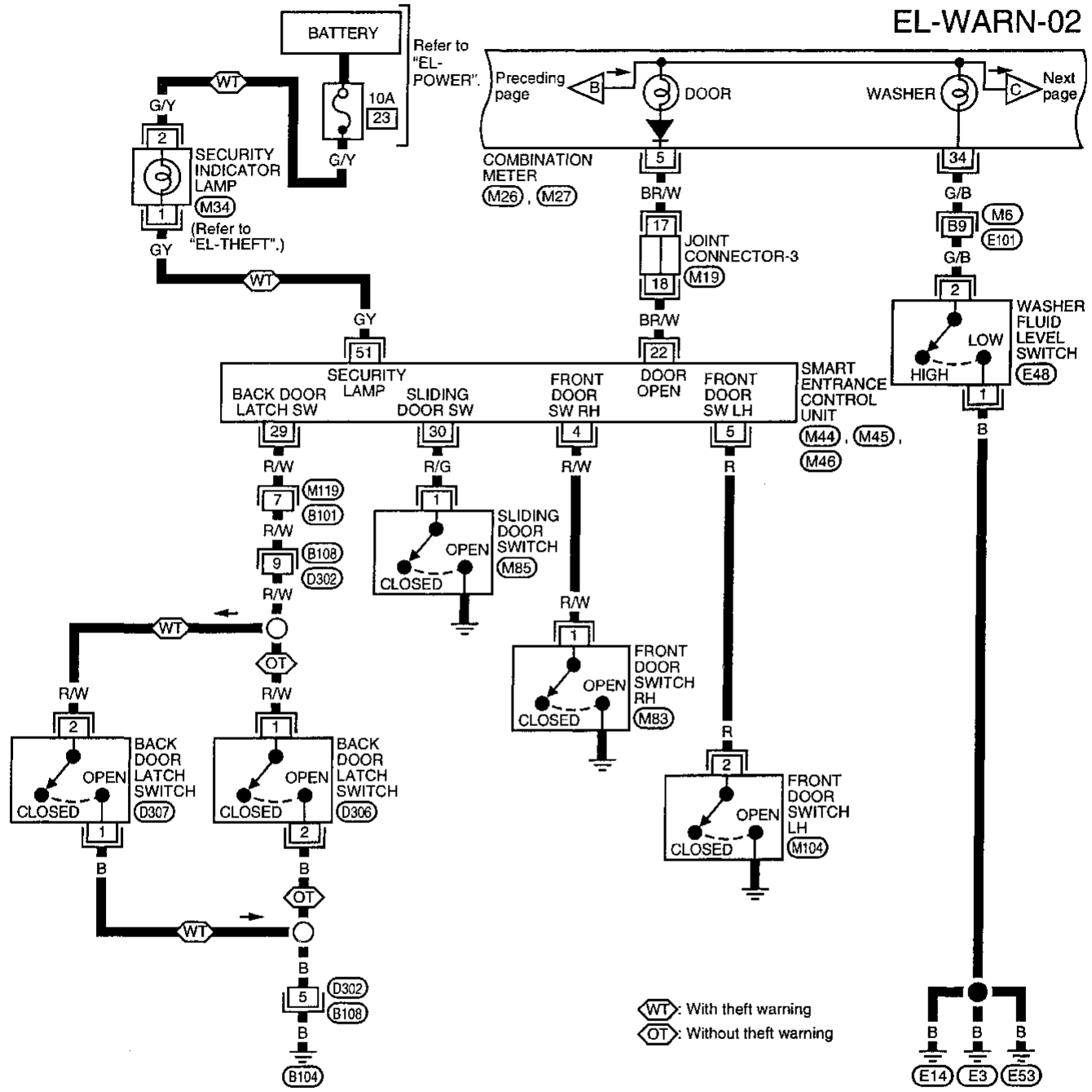




Refer to last page (Foldout page).
M19

AEL955-A

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

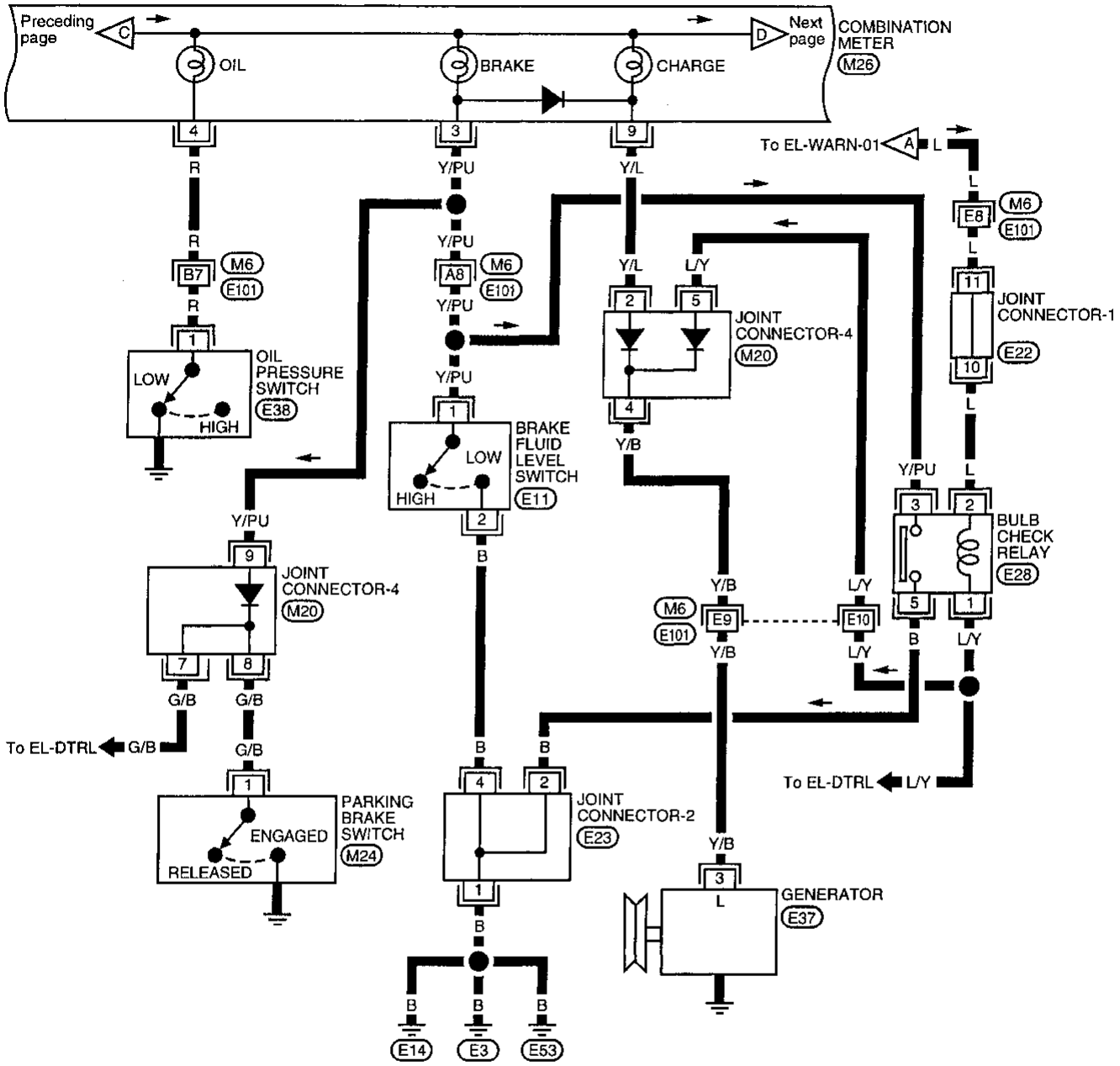


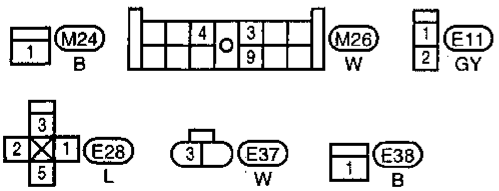
Refer to last page (Foldout page).
M6, E101
M19

AEL955-B

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

EL-WARN-03





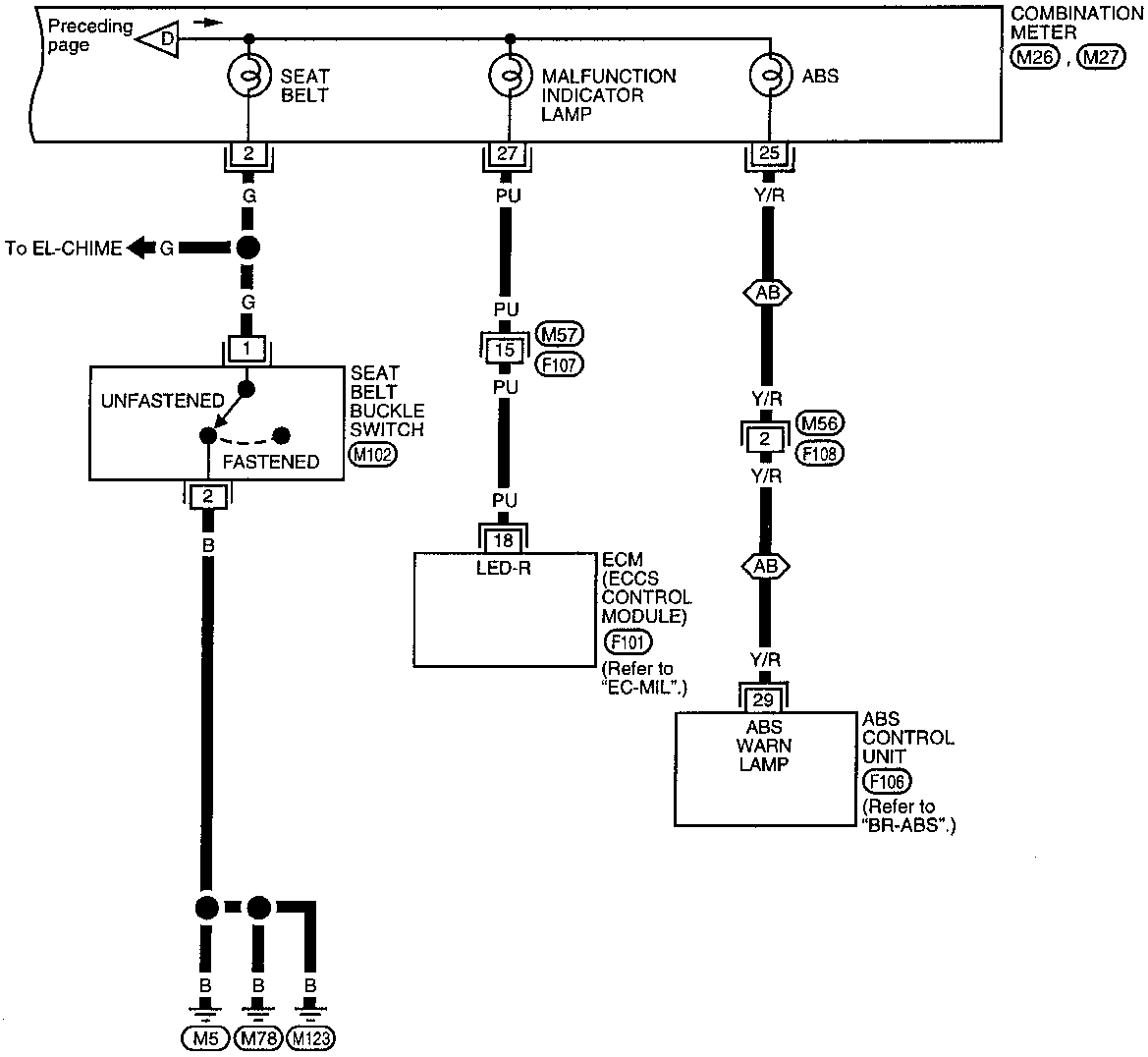
Refer to last page (Foldout page).
M6, E101
M20
E22
E23

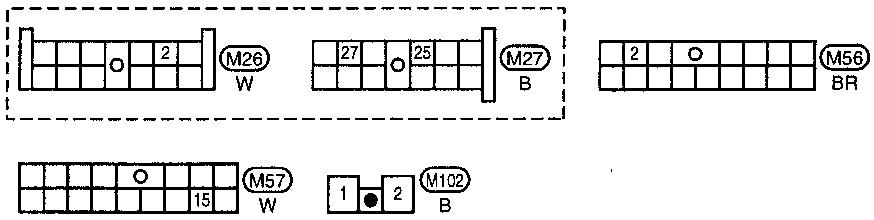
AEL955-C

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

EL-WARN-04

AB : With ABS



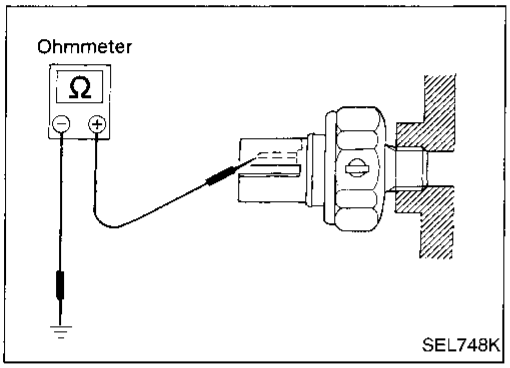


Refer to last page (Foldout page).
F101
F106

AEL955-D

Low Fuel Level Warning Lamp

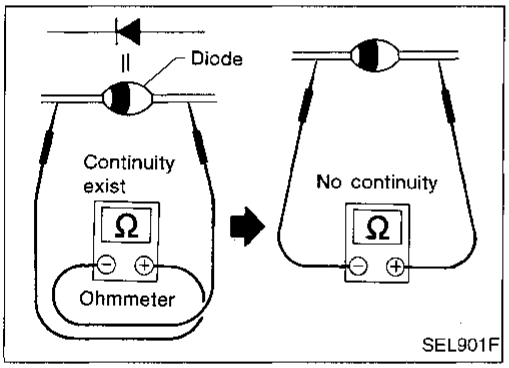
- The low fuel level warning lamp is controlled by the low fuel/anti-slosh unit, which is built into the combination meter. If the low fuel level warning lamp fails to illuminate, first check the fuel tank gauge unit, refer to EL-101. If the fuel tank gauge unit is operating properly, inspect the low fuel level warning lamp bulb and anti-slosh unit for proper function.



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

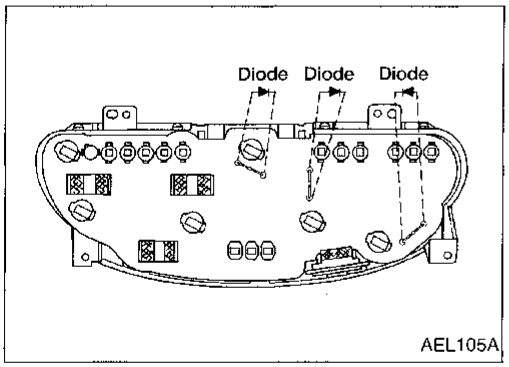
Check the continuity between the terminals of oil pressure switch and body ground.



Diode Check

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

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



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

Refer to "Combination Meter", EL-93.

Warning Chime/System Description

The warning chime is controlled by the smart entrance control unit.
Power is supplied at all times:
- through 7.5A fuse (No. 41, located in the fuse and fusible link box)
- to smart entrance control unit terminal ⑨.

Power is also supplied at all times:
- through 15A fuse (No. 21, located in the fuse block)
- to warning chime terminal ①.

With the ignition switch in the ON or START position, power is supplied:
- through 10A fuse (No. 30, located in the fuse block)
- to smart entrance control unit terminal ㉕.

Ground is supplied to smart entrance control unit terminal ⑳ through body grounds (M5), (M78) and (M123).

When a signal, or combination of signals, is received by the smart entrance control unit, ground is supplied:
- through smart entrance control unit terminal ⑫
- to warning chime terminal ②.

With power and ground supplied, 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. Ground is supplied:
- from key switch terminal ①
- to smart entrance control unit terminal ⑭, and
- from front door switch LH terminal ②
- to smart entrance control unit terminal ⑤.

Front door switch LH is grounded through body ground.
Key switch terminal ② is grounded through body grounds (E3), (E14) and (E53).

Light warning chime

With ignition switch in OFF or ACC position, driver's door open and lighting switch in 1ST or 2ND position, the warning chime will sound. Ground is supplied:
- to smart entrance control unit terminal ⑤
- from front door switch LH terminal ②, and
- to smart entrance control unit terminal ㊲
- from lighting switch terminal ⑤.

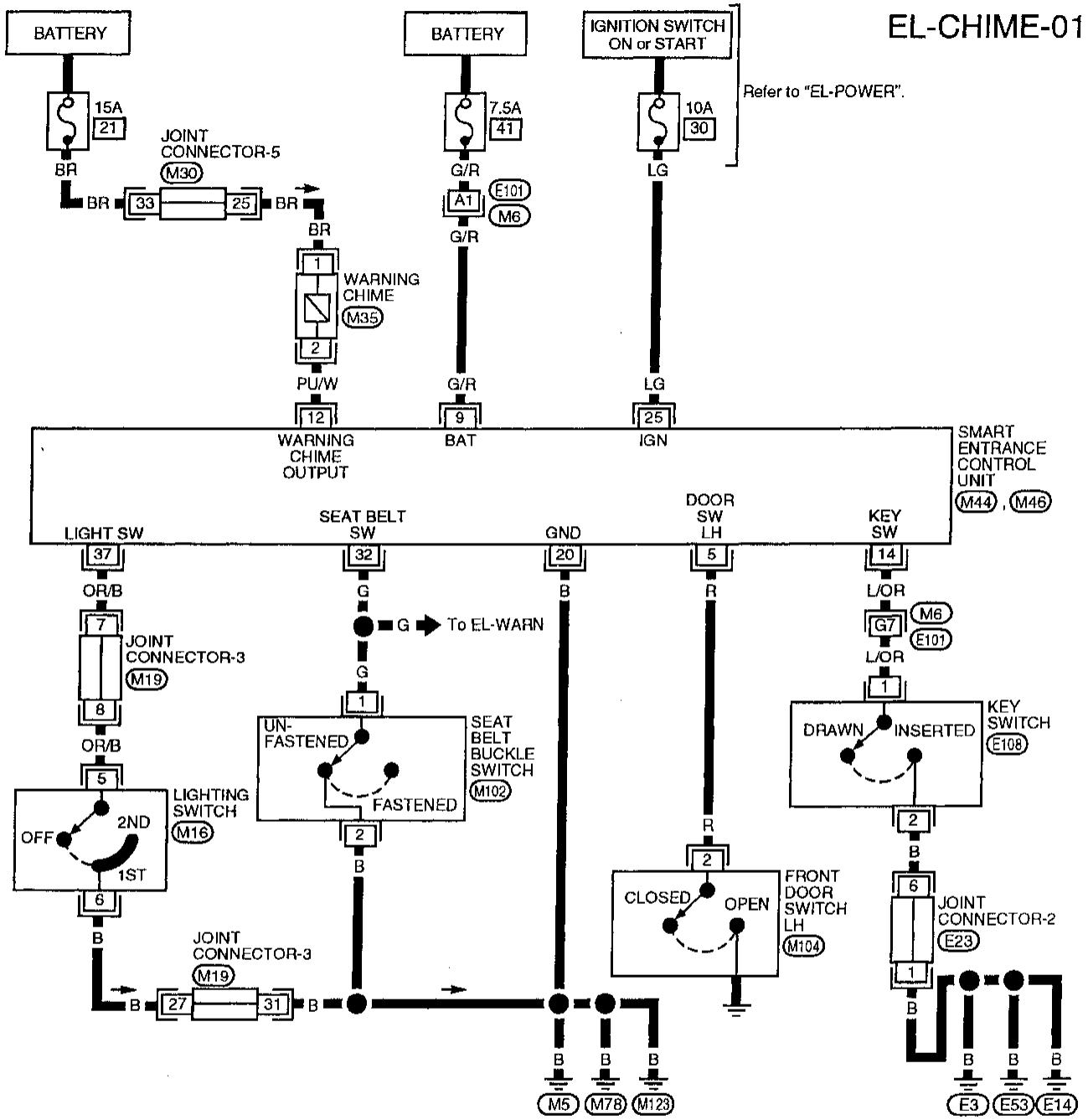
Front door switch LH is grounded through body ground.
Lighting switch terminal ⑥ is grounded through body grounds (M5), (M78) and (M123).

Seat belt warning chime

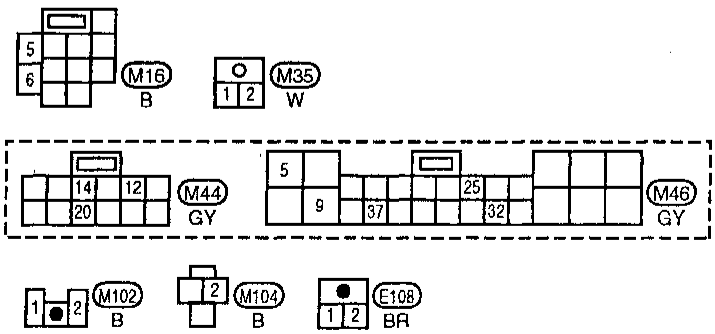
With ignition switch turned ON and seat belt unfastened (seat belt switch ON), warning chime will sound for approximately 6 seconds.
Ground is supplied:
- to smart entrance control unit terminal ㉜
- from seat belt switch terminal ①.

Seat belt switch terminal ② is grounded through body grounds (M5), (M78) and (M123).

Warning Chime/Wiring Diagram –CHIME–



Refer to last page (Foldout page).
M6, E101
M19
M30
E23



AEL956

Warning Chime/Trouble Diagnoses

SYMPTOM CHART

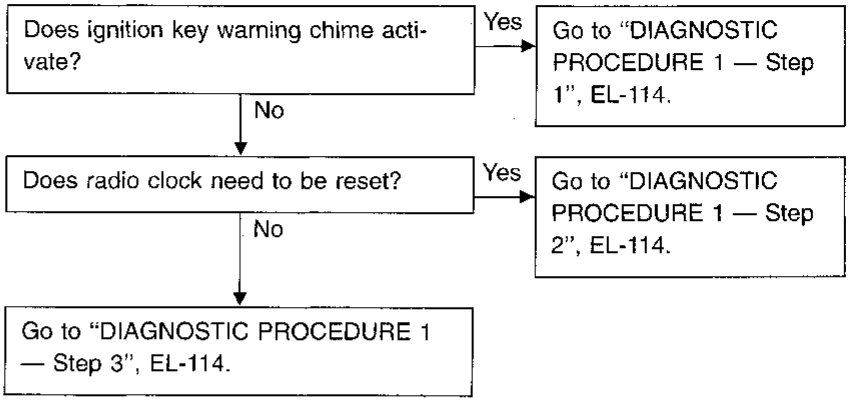
PROCEDURE	Preliminary Check			Main Power Supply and Ground Circuit Check	Diagnostic Procedure		
REFERENCE PAGE	EL-112	EL-112	EL-112	EL-113	EL-114	EL-115	EL-116
SYMPTOM	Preliminary check 1	Preliminary check 2	Preliminary check 3	Main power supply and Ground circuit	Diagnostic Procedure 1	Diagnostic Procedure 2	Diagnostic Procedure 3
Light warning chime does not activate.	○			○	○		
Ignition key warning chime does not activate.		○		○		○	
Seat belt warning chime does not activate.			○	○			○

Warning Chime/Trouble Diagnoses (Cont'd)

PRELIMINARY CHECK

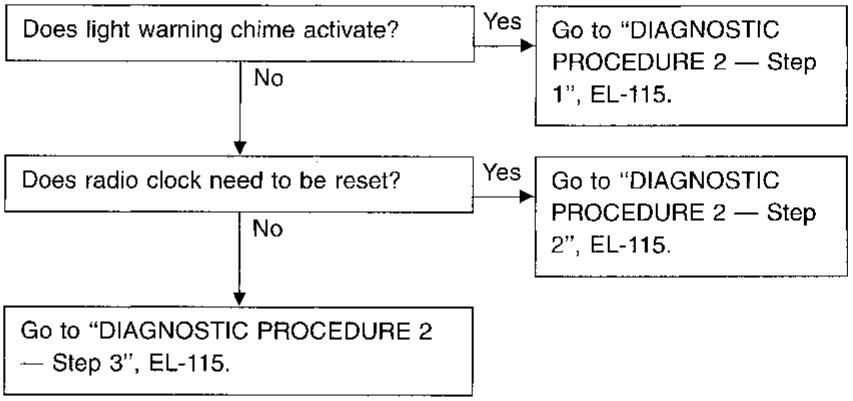
Preliminary check 1

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



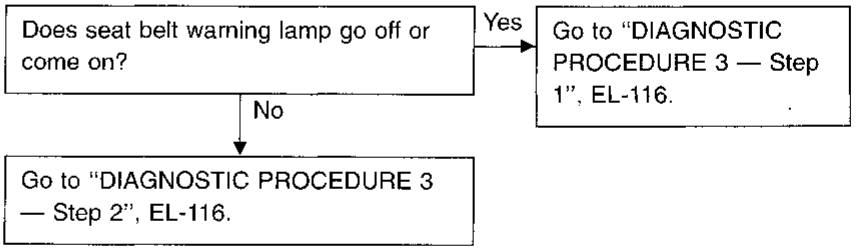
Preliminary check 2

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



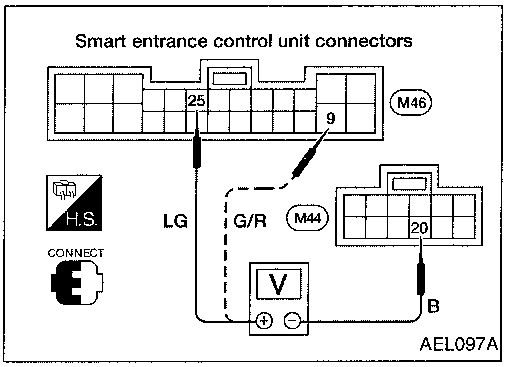
Preliminary check 3

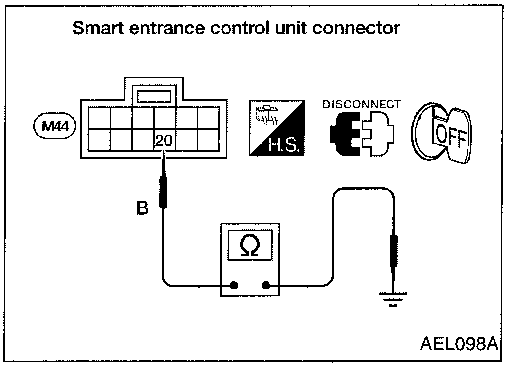
- **Seat belt warning chime does not activate.**



Warning Chime/Trouble Diagnoses (Cont'd)

MAIN POWER SUPPLY AND GROUND CIRCUIT CHECK





Main power supply

Terminals	Battery voltage existence condition		
	Ignition switch position		
	OFF	ACC	ON
㉕ - ⑳	No	No	Yes
⑨ - ⑳	Yes	Yes	Yes

Ground circuit

Terminals	Continuity
⑳ - Ground	Yes

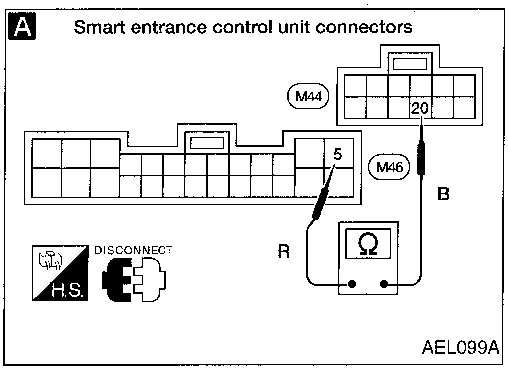
Warning Chime/Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 1

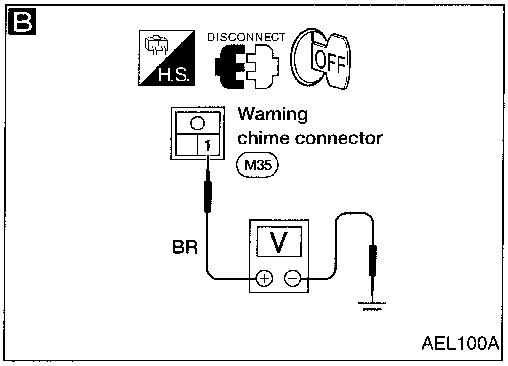
SYMPTOM: Light warning chime does not activate.

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

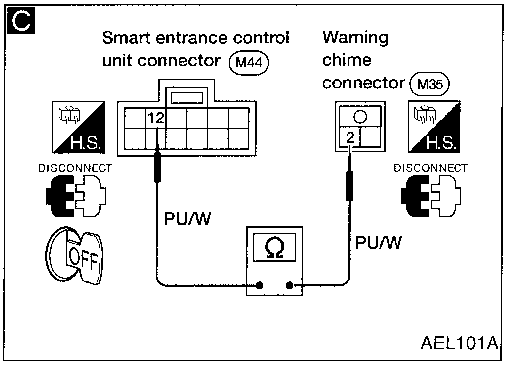
A



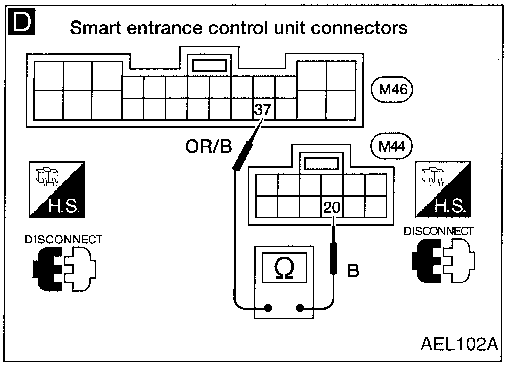
B



C



D



A — Step 3

DOOR SWITCH INPUT SIGNAL CHECK.
Check continuity between smart entrance control unit harness terminals ⑤ and ⑳.

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

NG →
- Check door switch, (Refer to EL-255.)
- Check harness continuity between smart entrance control unit harness terminal ⑤ and front door LH switch harness terminal ②. **Continuity should exist.**
- Check harness continuity between front door LH switch body and body ground. **Continuity should exist.**

OK ↓

B — Step 2

WARNING CHIME POWER SUPPLY CHECK.
Measure voltage between warning chime harness terminal ① and body ground. **Battery positive voltage should exist.**

NG → Check 15A fuse 21, harness and connector.

OK ↓

C

WARNING CHIME OUTPUT SIGNAL CHECK.
Check continuity between warning chime harness terminal ② and control unit harness terminal ⑫. **Continuity should exist.**

NG → Repair harness or connectors.

OK ↓

WARNING CHIME CHECK.
Refer to EL-117.

NG → Replace warning chime.

OK ↓

D — Step 1

LIGHTING SWITCH INPUT SIGNAL CHECK.
Check continuity between smart entrance control unit harness terminals ㊲ and ⑳.

Condition	Continuity
Lighting switch is ON.	Yes
Lighting switch is OFF.	No

NG →
- Check lighting switch.
- Check harness continuity between smart entrance control unit harness terminal ㊲ and lighting switch harness terminal ⑤. **Continuity should exist.**
- Check harness continuity between lighting switch harness terminal ⑥ and body ground. **Continuity should exist.**

OK ↓

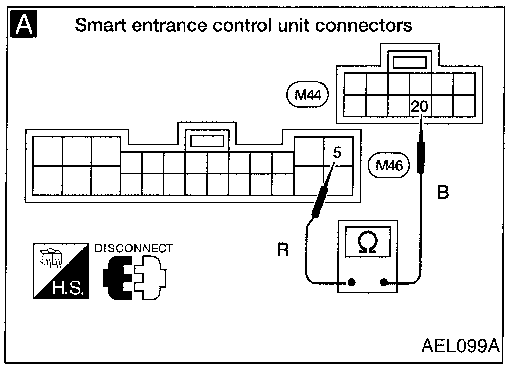
Replace smart entrance control unit.

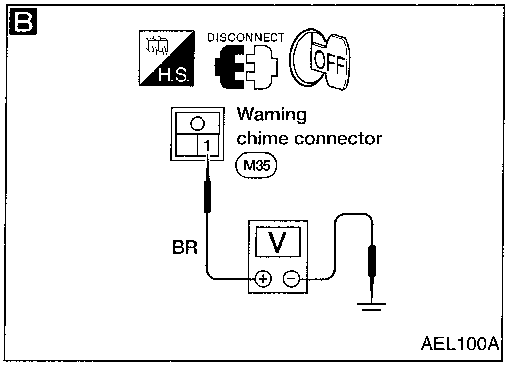
Warning Chime/Trouble Diagnoses (Cont'd)

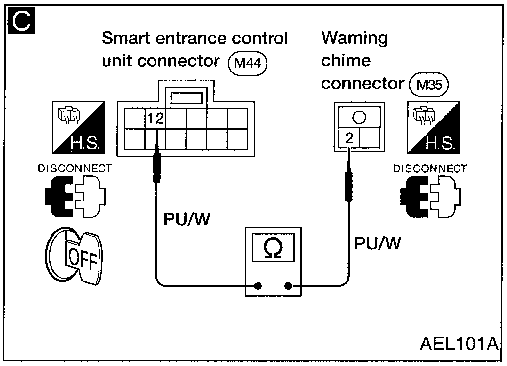
DIAGNOSTIC PROCEDURE 2

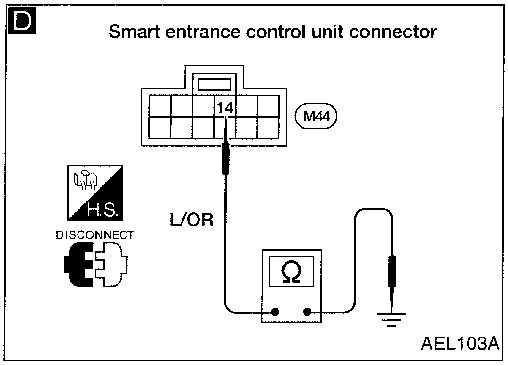
SYMPTOM: Ignition key warning chime does not activate.

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









A — Step 3

DOOR SWITCH INPUT SIGNAL CHECK.
Check continuity between smart entrance control unit harness terminals ⑤ and ⑳.

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

NG →
- Check door switch. (Refer to EL-255.)
- Check harness continuity between smart entrance control unit harness terminal ⑤ and LH door switch harness terminal ②. **Continuity should exist.**
- Check harness continuity between LH door switch body and body ground. **Continuity should exist.**

OK ↓

B — Step 2

WARNING CHIME POWER SUPPLY CHECK.
Measure voltage between warning chime harness terminal ① and body ground.
Battery positive voltage should exist.

NG → Check 15A fuse 21, harness and connector.

OK ↓

C

WARNING CHIME OUTPUT SIGNAL CHECK.
Check continuity between warning chime harness terminal ② and smart entrance control unit harness terminal ⑫.
Continuity should exist.

NG → Repair harness or connectors.

OK ↓

WARNING CHIME CHECK.
Refer to EL-117.

NG → Replace warning chime.

OK ↓

D — Step 1

IGNITION KEY SWITCH INPUT SIGNAL CHECK.
Check continuity between smart entrance control unit harness terminal ⑭ and body ground.

Condition	Continuity
Key is inserted.	Yes
Key is pulled.	No

NG →
- Check ignition key switch.
- Check harness continuity between smart entrance control unit harness terminal ⑭ and key switch harness terminal ①. **Continuity should exist.**
- Check harness continuity between key switch harness terminal ② and body ground. **Continuity should exist.**

OK ↓

Replace smart entrance control unit.

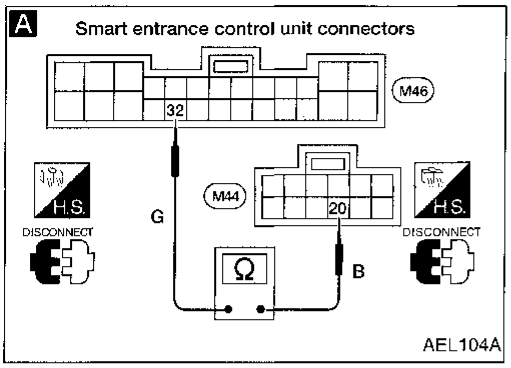
Warning Chime/Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 3

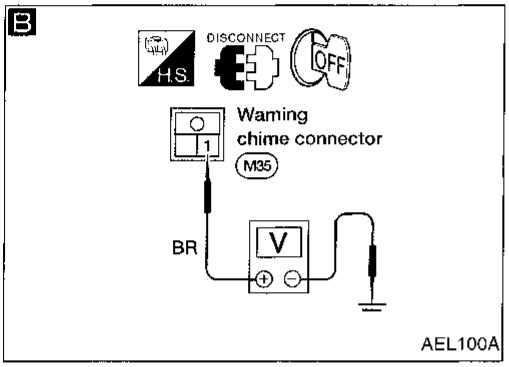
SYMPTOM: Seat belt warning chime does not activate.

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

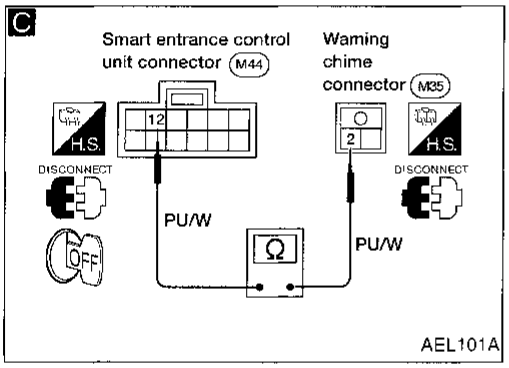
A



B



C



Step 2

A

SEAT BELT BUCKLE SWITCH INPUT SIGNAL CHECK.
Check continuity between smart entrance control unit harness terminals (32) and (20).

Condition	Continuity
Unfastened	Yes
Fastened	No

NG →
- Check seat belt buckle switch.
- Check harness continuity between smart entrance control unit harness terminal (32) and seat belt buckle switch harness terminal (1).
  Continuity should exist.
- Check harness continuity between seat belt buckle switch harness terminal (2) and body ground.
  Continuity should exist.

OK ↓

Step 1

B

WARNING CHIME POWER SUPPLY CHECK.
Measure voltage between warning chime harness terminal (1) and body ground.
Battery positive voltage should exist.

NG → Check 7.5A fuse [24], harness and connector.

OK ↓

C

WARNING CHIME OUTPUT SIGNAL CHECK.
Check continuity between warning chime harness terminal (2) and smart entrance control unit harness terminal (12).
Continuity should exist.

NG → Repair harness or connectors.

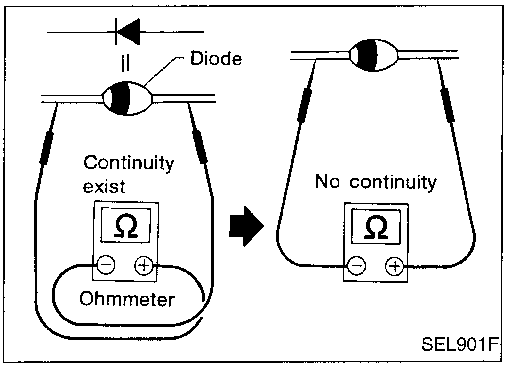
OK ↓

WARNING CHIME CHECK.
Refer to EL-117.

NG → Replace warning chime.

OK ↓

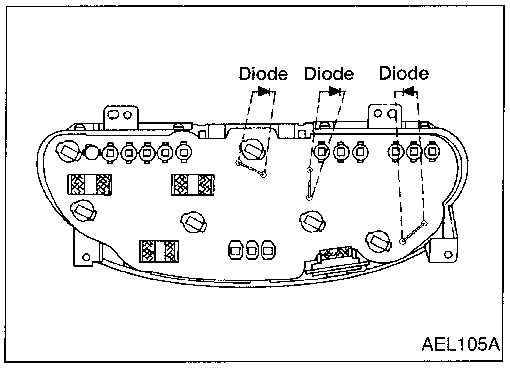
Replace smart entrance control unit.



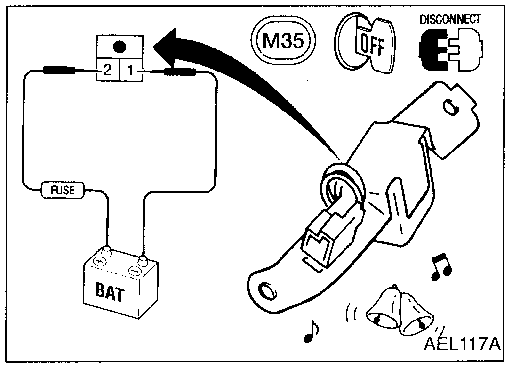
Diode Check

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

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



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



Warning Chime Check

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

Warning chime should operate.

Front Wiper and Washer/System Description

WIPER OPERATION

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

- LOW speed
- HIGH speed
- INT ("S" through "F")

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

- through 20A fuse (No. 8, located in the fuse block)
- to front wiper motor terminal ⑥ and
- front wiper amplifier terminal ⑥.

Ground is supplied to front wiper amplifier terminals ④ and ⑤ through body grounds E3, E14 and E53.

Low and high speed wiper operation

When the wiper switch is placed in the LOW position, ground is supplied:

- through terminal ⑧ of the front wiper amplifier
- to front wiper motor terminal ②.

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

When the wiper switch is placed in the HIGH position, ground is supplied:

- through terminal ⑩ of the front wiper amplifier
- to front wiper motor terminal ①.

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

Auto stop operation

With wiper switch turned OFF, the front wiper motor will continue to operate until wiper arms reach windshield base.
When the wiper switch is placed in OFF position, ground is no longer supplied by the front wiper amplifier. Ground is now supplied through front wiper motor terminal ④. When wiper arms reach base of windshield, front wiper motor ground is interrupted and the front wiper motor stops.

Intermittent operation

The front wiper motor operates the wiper arms one time at low speed at an interval of approximately 1 to 14 seconds. This feature is controlled by the front wiper amplifier.
With the wiper switch in the INT position, and the front wiper amplifier cycles the front wiper motor. Ground is supplied in the same manner as low speed wiper operation.

WASHER OPERATION

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

- through 20A fuse (No. 8, located in the fuse block)
- to front washer motor terminal ①.

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

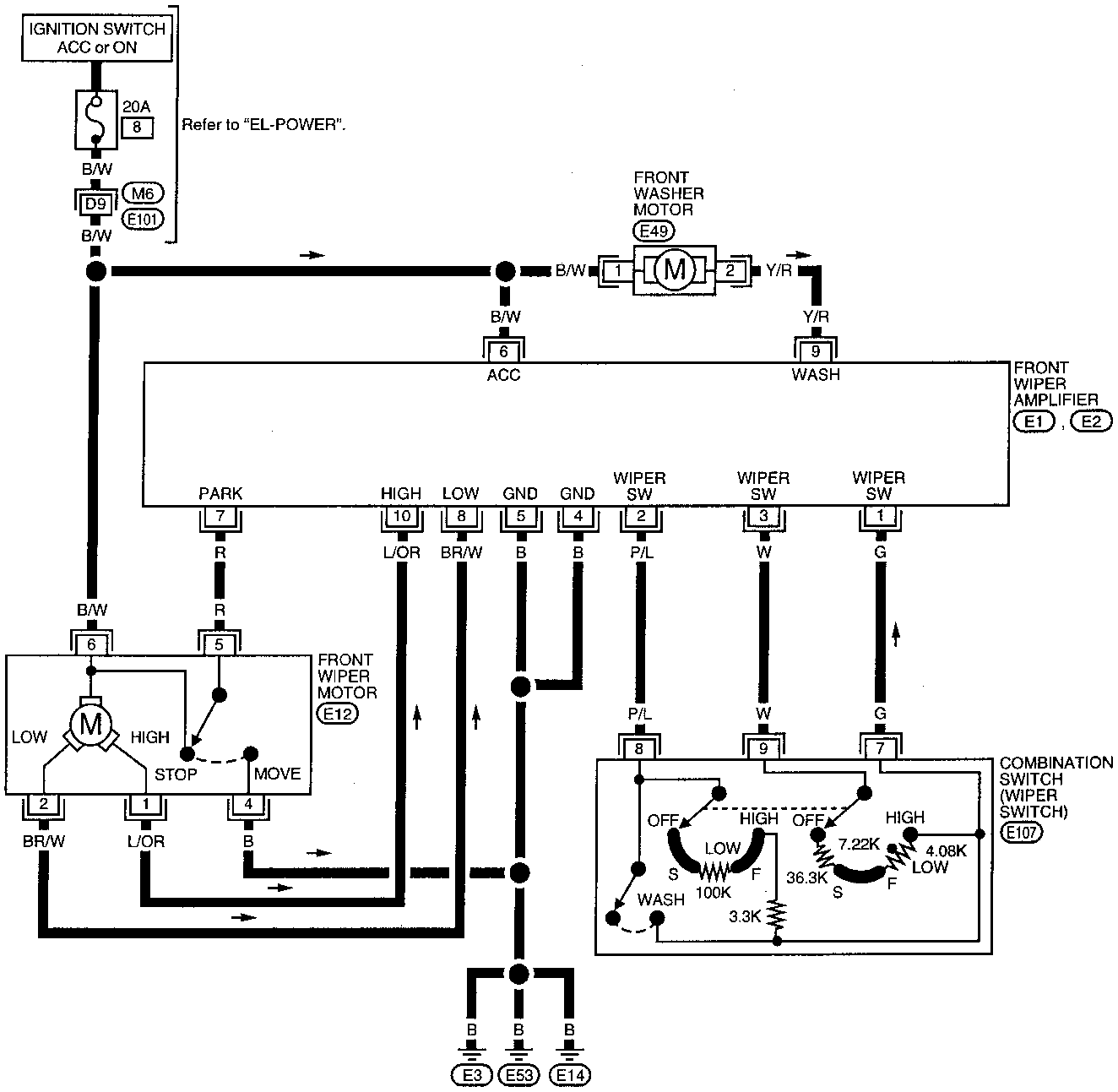
- to washer motor terminal ②
- from front wiper amplifier terminal ⑨, and
- to amplifier terminals ④ and ⑤
- through body grounds E3, E14 and E53.

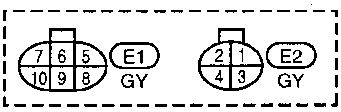
With power and ground supplied, the washer motor operates.

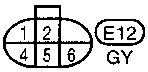
The front wiper motor is activated when the lever is pushed to WASH for 1 second or more. The motor operates at low for approximately 3 seconds. This feature is controlled by the front wiper amplifier in the same manner as intermittent operation.

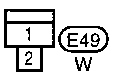
Front Wiper and Washer/Wiring Diagram –WIPER–

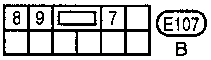
EL-WIPER-01











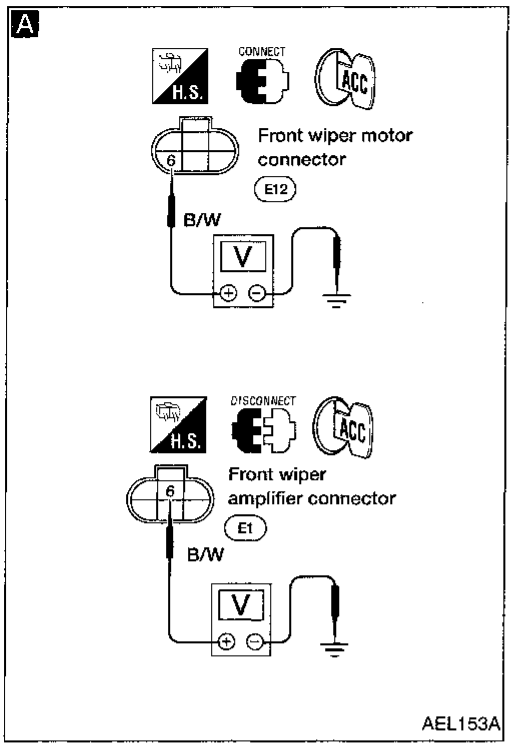
Refer to last page (Foldout page).
M6 , E101

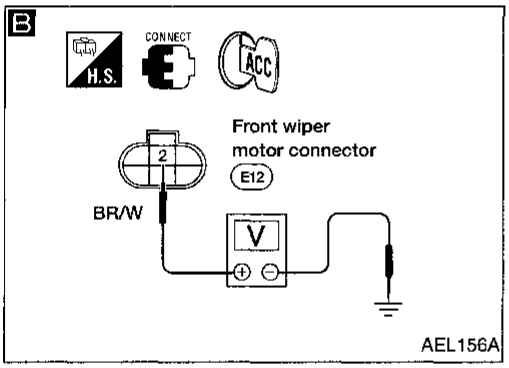
AEL957

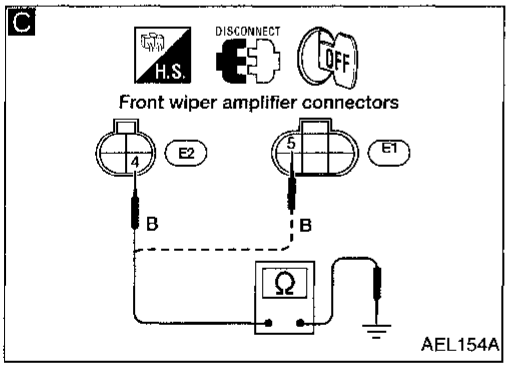
Front Wiper and Washer/Trouble Diagnoses

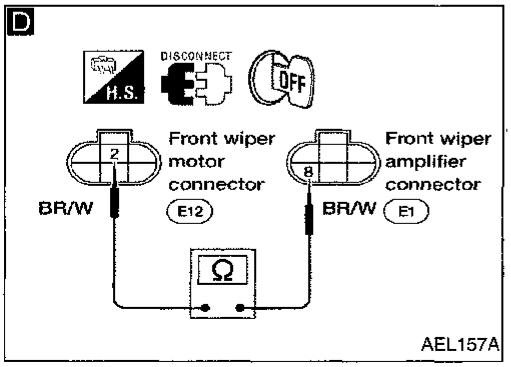
DIAGNOSTIC PROCEDURE 1

SYMPTOM: Intermittent wiper does not operate.









A

VOLTAGE CHECK.
1. Turn ignition switch to ACC.
2. Measure voltage between front wiper motor harness connector terminal ⑥ and body ground.
3. Measure voltage between front wiper amplifier terminal ⑥ and body ground.

Battery positive voltage should exist at both terminals.

NG → Check 20A fuse, (No. 8, located in the fuse block), harness and connectors.

OK ↓

B

FRONT WIPER AMPLIFIER CHECK.
1. Place wiper switch in INT position.
2. Measure voltage between front wiper motor harness terminal ② and body ground.

Condition of wiper switch	Voltage [V]
INT	Pointer swings from 0 to 12 every 1 to 14 seconds.

OK → Replace front wiper motor.

NG ↓

C

CHECK GROUND CIRCUIT.
1. Turn ignition switch to OFF.
2. Disconnect front wiper amplifier connectors.
3. Check harness continuity between front wiper amplifier harness terminals ④ and ⑤, and body ground.

Continuity should exist.

NG → Repair harness or connector.

OK ↓

D

FRONT WIPER MOTOR CONTROL CIRCUIT CHECK.
1. Disconnect front wiper motor harness connector.
2. Check harness continuity between front wiper motor harness terminal ② and front wiper amplifier terminal ⑧.

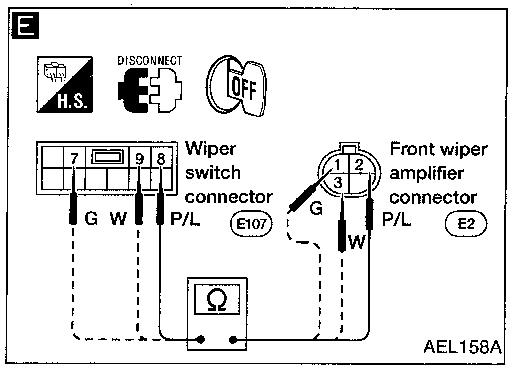
Continuity should exist.

NG → Repair harness or connector.

OK ↓

Ⓐ
(Go to next page.)

Front Wiper and Washer/Trouble Diagnoses (Cont'd)



Ⓐ

WIPER SWITCH CHECK.
1. Disconnect combination switch.
2. Test wiper switch function, refer to EL-36.

NG → Replace combination switch.

OK ↓

E

WIPER SWITCH CIRCUIT CHECK.
- Check harness continuity between wiper switch harness terminal ⑧ and front wiper amplifier harness terminal ②.
- Check harness continuity between wiper switch harness terminal ⑨ and front wiper amplifier harness terminal ③.
- Check harness continuity between wiper switch harness terminal ⑦ and front wiper amplifier harness terminal ①.

Continuity should exist.

NG → Repair harness or connectors.

OK ↓

Replace front wiper amplifier.

Front Wiper

REMOVAL

1. Tilt wiper arm to upright position.
2. Pull out and hold locking lever at base of wiper arm.
3. Pull wiper arm off pivot shaft.

INSTALLATION

1. Push wiper arm onto pivot shaft, paying attention to blind spline.
2. Tilt and hold wiper arm in upright position.
3. Push locking lever at base of wiper arm inward.
4. Gently tilt the wiper arm downward until contacting windshield.

WIPER ARM ADJUSTMENT

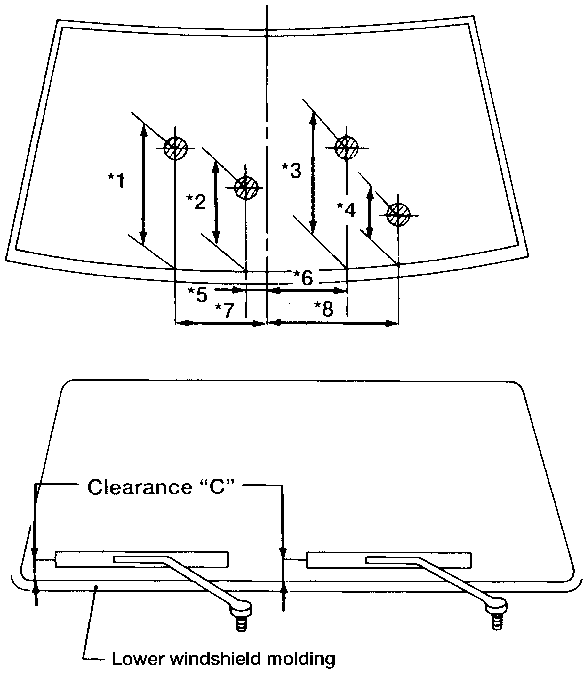
The wiper arms on this vehicle have a blind spline. The blind spline acts as a index and only allows the windshield wiper arm to be installed in one position. Therefore the wiper arms are not adjustable. If the measurement of clearance "C" is out of specification, inspect the windshield wiper motor, linkage, and pivot for damage.

Clearance "C": 47 - 87 mm (1.85 - 3.43 in)

WASHER NOZZLE ADJUSTMENT

1. Operate washers and ensure that spray patterns fall within target areas illustrated.
2. Adjust washer nozzle spray pattern by inserting a suitable tool (needle) into nozzle and pivoting the nozzle until spray is within target area.

Front wiper and washer

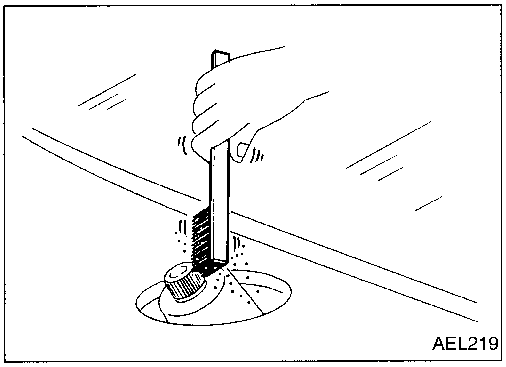


Unit: mm (in)

*1:	342 (13.5)
*2:	340 (13.4)
*3:	197 (7.8)
*4:	475 (18.7)
*5:	102 (4.0)
*6:	193 (7.6)
*7:	390 (15.4)
*8:	345 (13.6)

*Diameters of these circles are less than 60 (2.36).

AEL125A



AEL219

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

Rear Wiper and Washer (With Normal Glass)/ System Description

With the ignition switch in the ACC or ON position, power is supplied:
- through 10A fuse (No. 9, located in the fuse block)
- to rear wiper amplifier terminal ,
- to rear wiper motor terminal and
- to rear washer motor terminal ①.

Ground is supplied:
- to rear wiper amplifier terminal ⑥and
- to rear wiper switch terminal ③
- through body grounds (M5) , (M78) and (M123) .

Ground is also supplied:
- to rear wiper motor terminal ②
- through body ground (B104) .

WIPER OPERATION

When the rear wiper switch is in the WIPER position, ground is supplied:
- to rear wiper amplifier terminal ①
- through rear wiper switch terminal ①.

An intermittent ground is then supplied:
- to rear wiper motor terminal ③
- through rear wiper amplifier terminal ④
- to rear wiper amplifier terminal ⑥
- through body grounds (M5) , (M78) and (M123) .

With power and ground supplied, the rear wiper motor operates intermittently, with approximately a 15 second interval between cycles.

WASHER OPERATION

When the rear wiper switch is in the WASH position, ground is supplied:
- to rear washer motor terminal ② and
- to rear wiper amplifier terminal ⑤
- through rear wiper switch terminal ②.

With power and ground supplied, the rear washer motor operates. The rear wiper amplifier then operates the rear wiper motor to clean the glass.

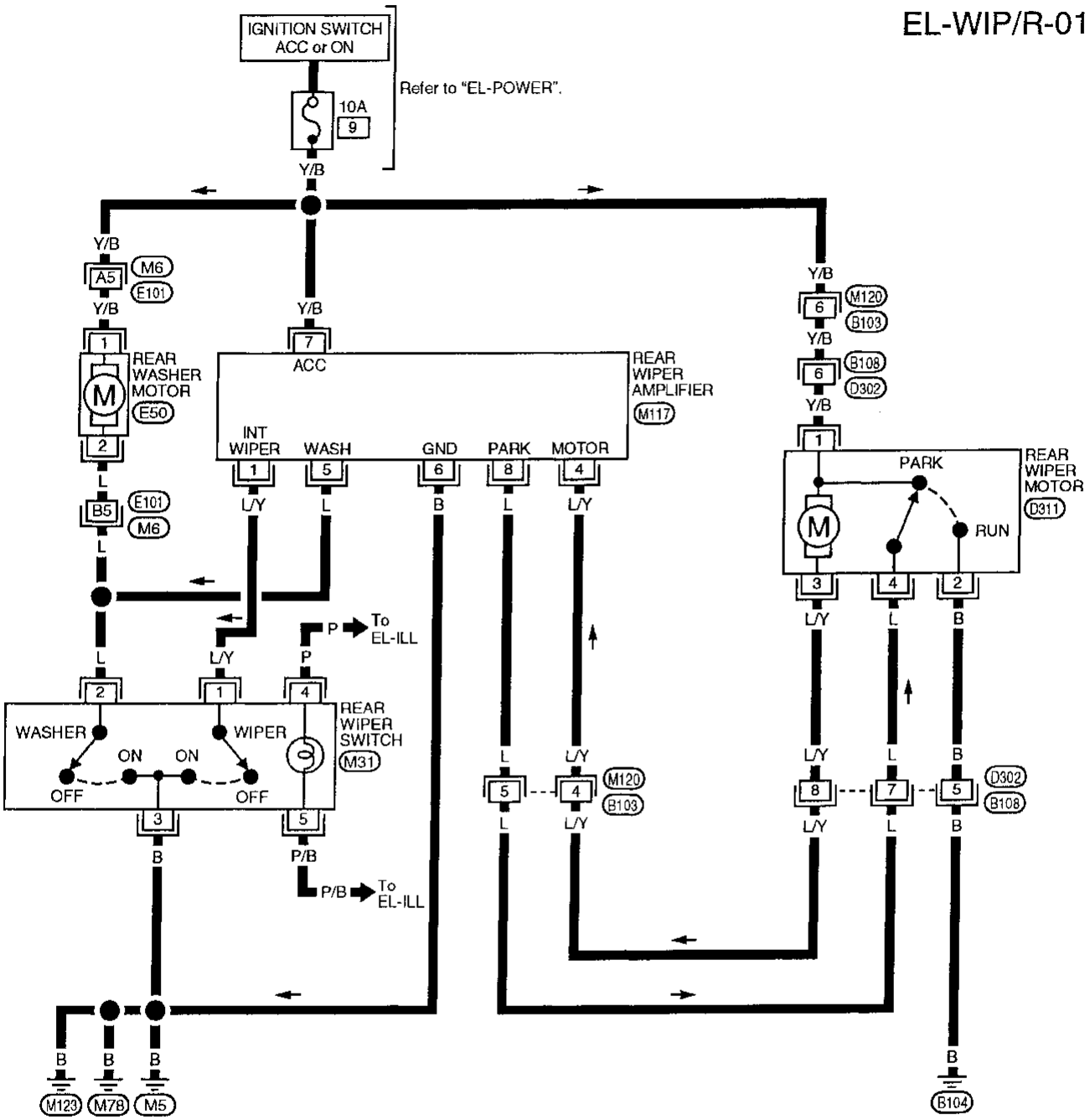
AUTO STOP OPERATION

When the rear wiper switch is placed in the OFF position, the rear wiper motor will continue to operate until the rear wiper arm reaches the base of the glass.

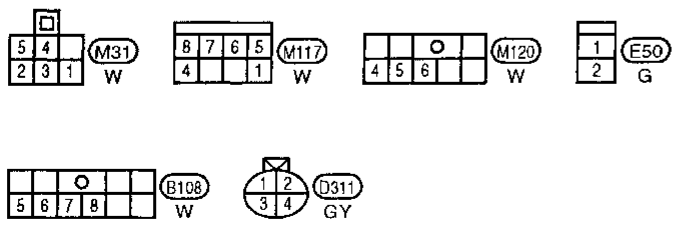
When the rear wiper switch is placed in the OFF position, the rear wiper amplifier no longer supplies a ground circuit to the rear wiper motor. The ground circuit is now routed through the rear wiper motor terminal ②. This allows the wiper motor to operate until the rear wiper arm reaches the base of the glass. The rear wiper motor ground is interrupted when the rear wiper arm reaches the base of the glass, and the rear wiper motor stops.

Rear Wiper and Washer (Except for Glass Hatch Model)/Wiring Diagram –WIP/R–

EL-WIP/R-01



Refer to last page (Foldout page).
M6 , E101



AEL958

Rear Wiper and Washer (With Glass Hatch Model)/System Description

Power is supplied at all times:
- through 10A fuse (No. 2, located in the fuse block)
- to rear wiper motor terminal ②.

With the ignition switch in the ACC or ON position, power is supplied:
- through 10A fuse (No. 9, located in the fuse block)
- to rear washer motor terminal ① and
- rear wiper motor terminal ⑤.

Ground is supplied:
- to glass hatch latch switch terminal ② and
- rear wiper motor terminal ④
- through body ground (B104).

Ground is also supplied:
- to rear window wiper switch terminal ③
- through body grounds (M5), (M78) and (M123).

With the glass hatch open, the glass hatch switch closes and ground is supplied:
- to rear wiper motor terminal ①
- through glass hatch switch terminal ①.

The rear wiper motor operates momentarily to move the wiper arm off the glass hatch so that it may be opened.

WIPER OPERATION

When the rear wiper switch is in the WIPER position, ground is supplied:
- to rear wiper motor terminal ⑥
- through rear window wiper switch terminal ①.

With power and ground supplied, the rear wiper motor operates intermittently, with approximately a 15 second interval between cycles.

WASHER OPERATION

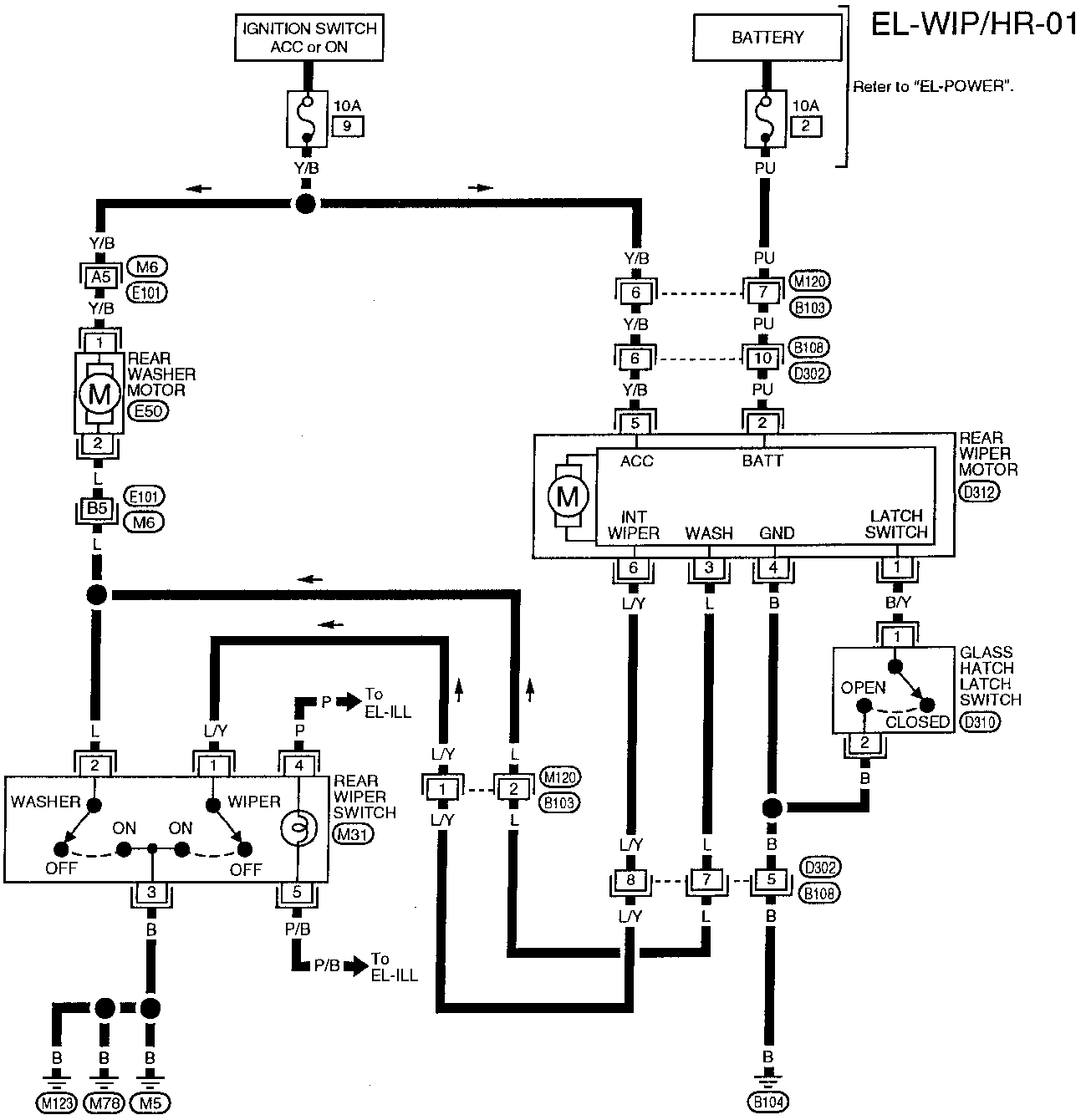
When the rear window wiper switch is in the WASH position, ground is supplied:
- to rear wiper motor terminal ③ and
- rear washer motor terminal ②
- through rear window wiper switch terminal ②.

With power and ground supplied, the rear wiper and rear washer motors operate until the rear window wiper switch is released from the WASH position. If the switch is pressed momentarily, the rear wiper motor will cycle three times.

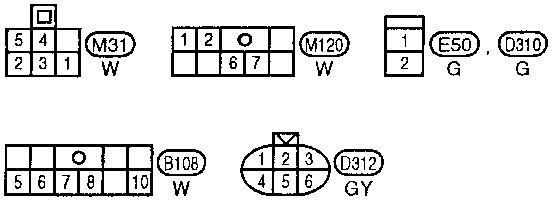
AUTO STOP OPERATION

When the rear window wiper switch is placed in the OFF position, the rear wiper motor will continue to operate until the rear wiper arm reaches the stop position.

Rear Wiper and Washer (For Glass Hatch Model)/Wiring Diagram –WIP/HR–



Refer to last page (Foldout page).
M6 , E101



AEL959

Rear Wiper

REMOVAL

1. Tilt rear wiper arm to upright position.
2. Grasp base of rear wiper arm and pull it from the pivot shaft.
3. Disconnect washer solvent hose.

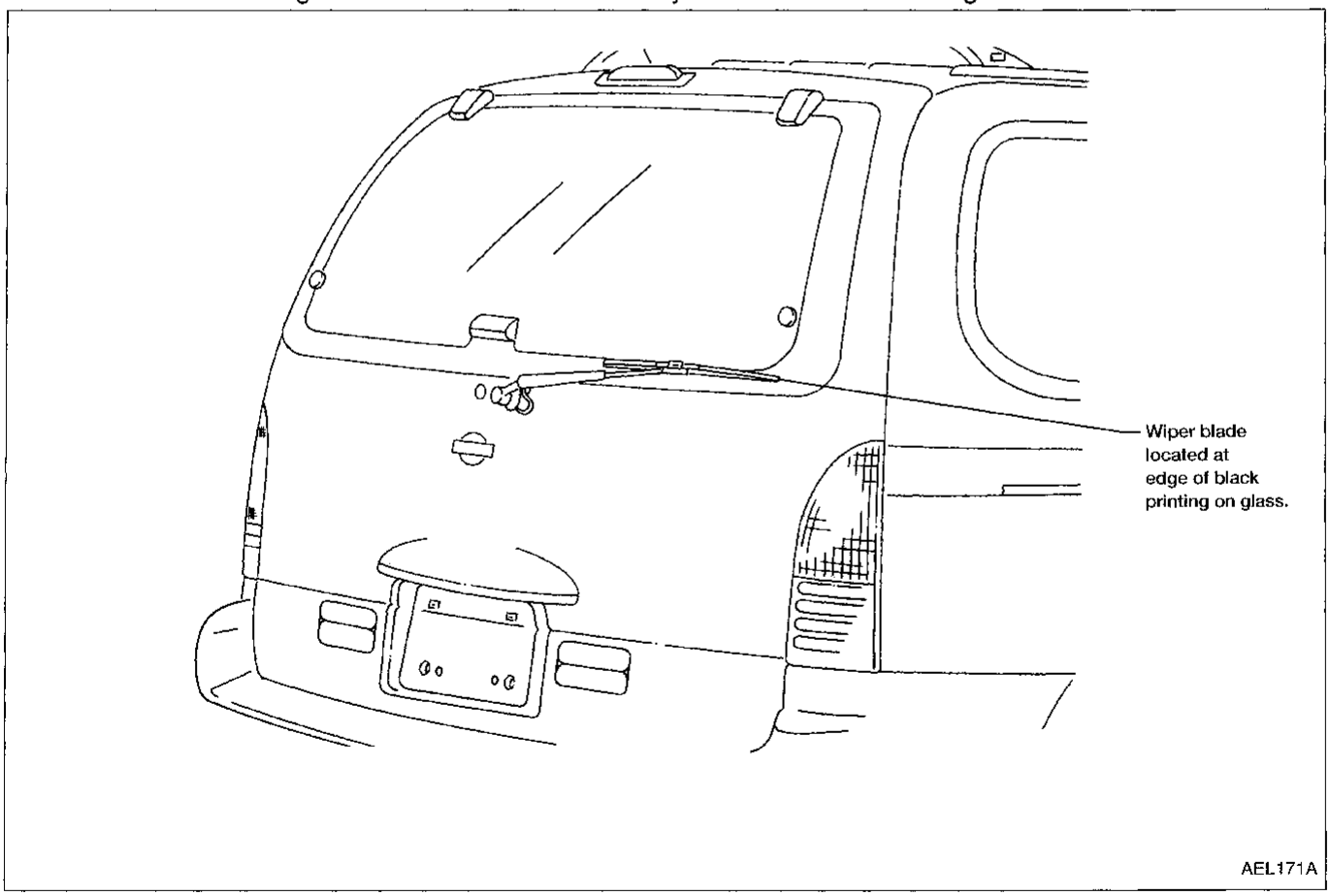
INSTALLATION

1. Connect washer solvent hose.
2. Place wiper arm base over pivot shaft and firmly push wiper arm onto pivot shaft.
3. Gently tilt wiper arm downward until contacting rear glass.

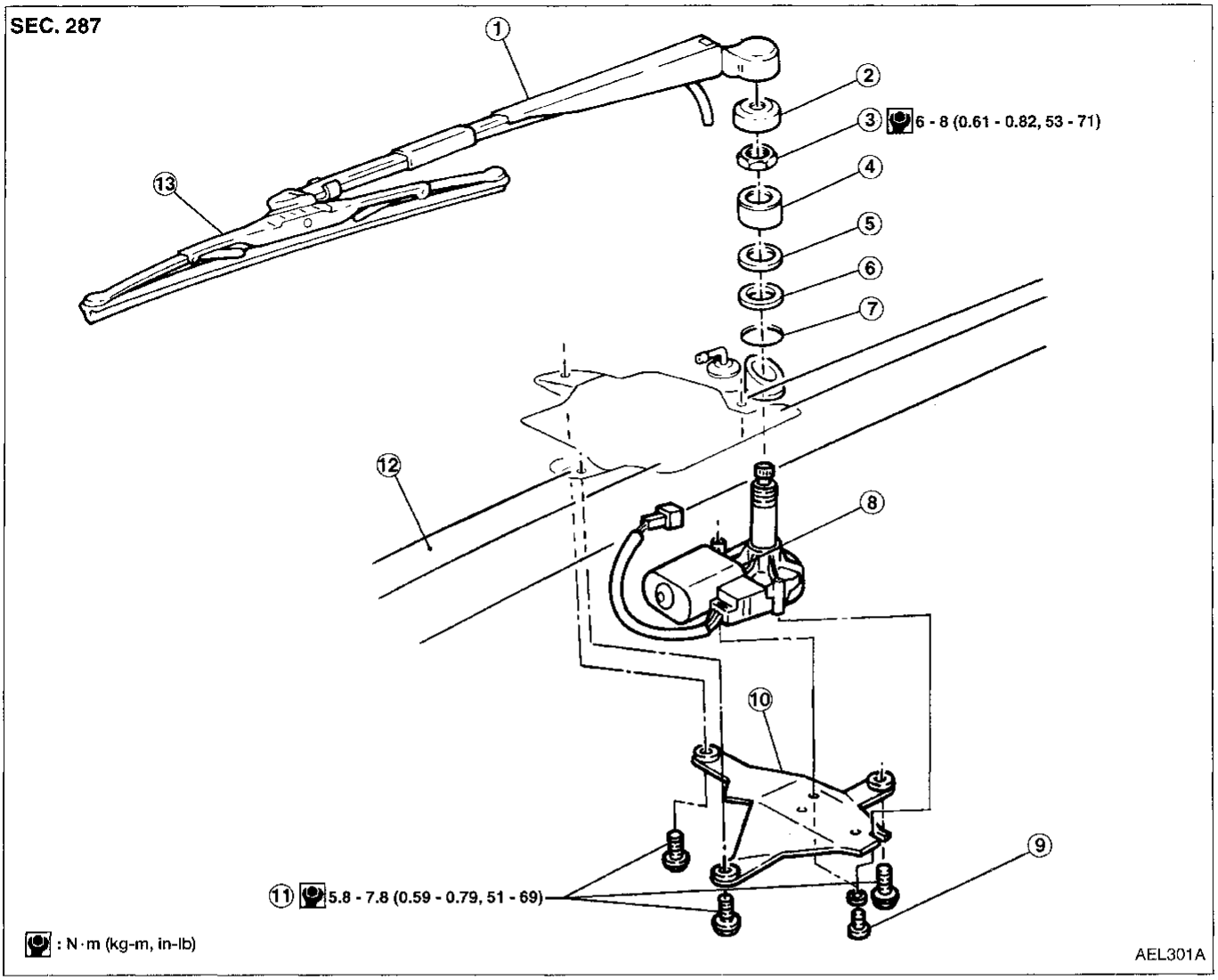
WIPER ARM ADJUSTMENT

1. With wiper arm removed, turn on wiper and allow it to cycle two or three times, then turn the wiper switch to OFF and allow wiper motor to return to "park" position.
2. Install wiper arm and align splines so that the wiper blade is located on the edge of the black printing on the rear glass.
3. With wiper arm installed, operate the wiper and allow it to cycle two or three times.
4. Turn the wiper switch to OFF and allow the wiper motor to return to the "park" position, then ensure that the wiper arm is still located at the edge of the black printing.
5. If necessary, readjust wiper arm.

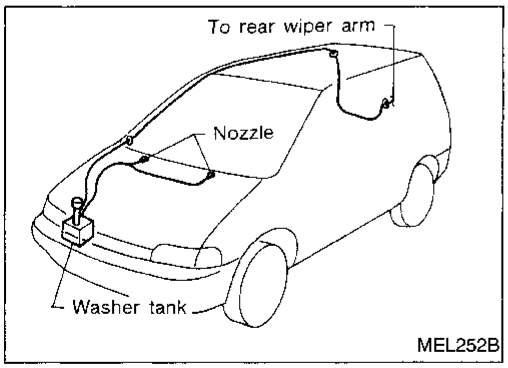
NOTE:
Model with rear hatch glass shown in illustration. Adjustment for fixed rear glass models is the same.



Rear Wiper (Cont'd)



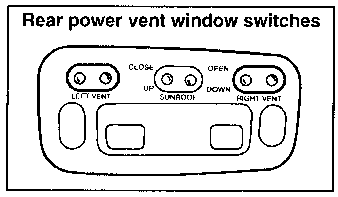
① Rear wiper arm
② Pivot shaft cover
③ Pivot shaft nut
④ Outer collar
⑤ Seal
⑥ Plastic seal
⑦ Inner collar
⑧ Rear wiper motor
⑨ Bracket bolts
⑩ Bracket
⑪ Mounting bolts
⑫ Back door
⑬ Rear wiper blade

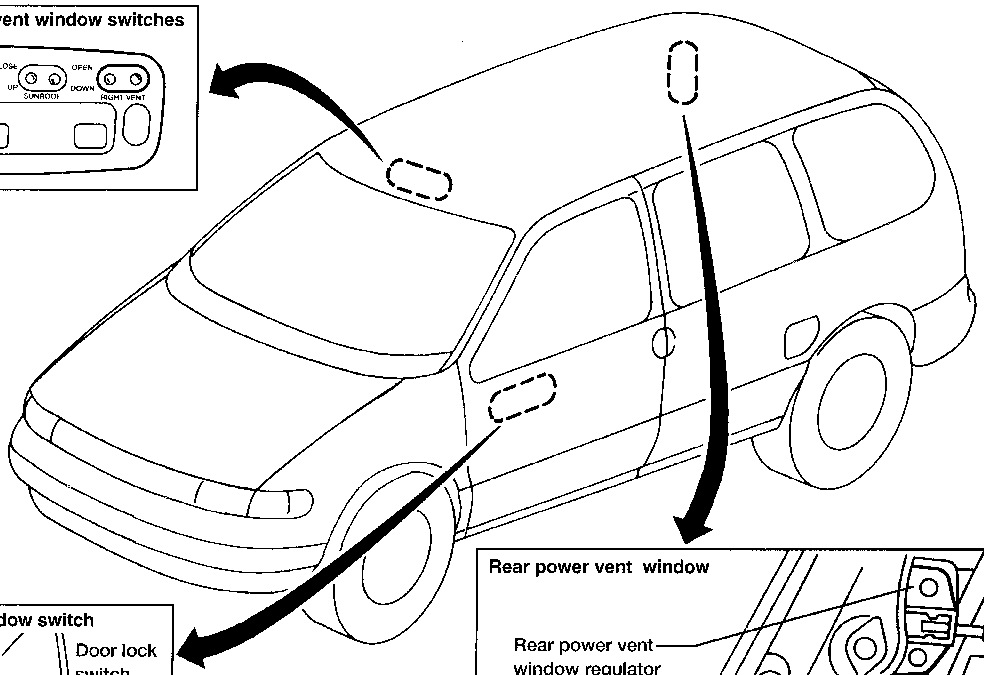


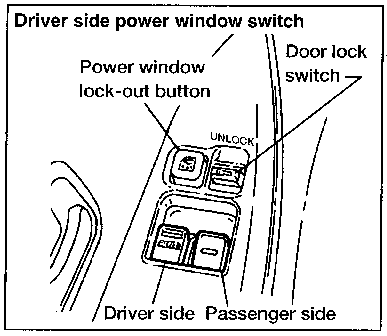
Washer Fluid and Check Valve

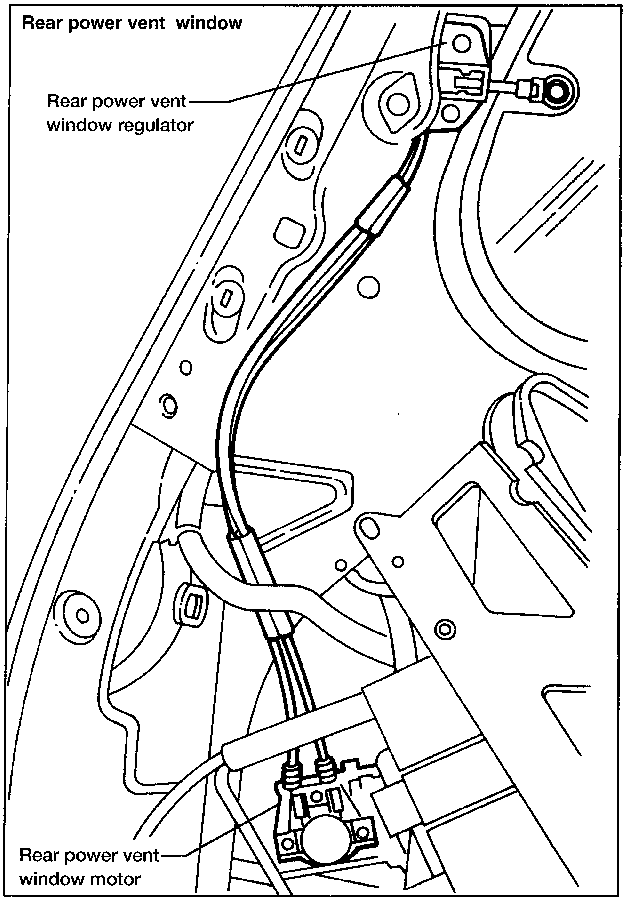
- A check valve is provided in the washer fluid line. Be careful not to connect check valve to washer tube in the wrong direction.

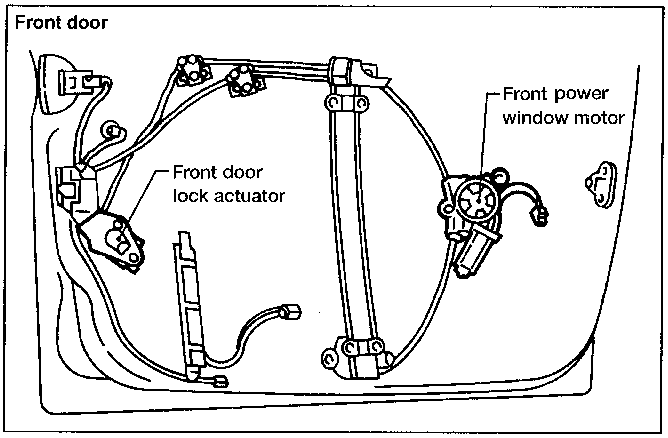
Component Layout











AEL136A

System Description

Power is supplied at all times:
- from 7.5A fuse (No. 41, located in the fuse and fusible link box)
- to smart entrance control unit terminal ⑨, and
- from 30A fusible link (Letter a, 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 ⑤ and
- power window relay terminal ①.

Ground is supplied:
- to main power window and door lock/unlock switch terminals ⑤ and ⑥
- to smart entrance control unit terminal ⑳, and
- to rear power vent window switch terminal ④
- through body grounds (M5), (M78) and (M123).

With the ignition switch in the ON or START position, power is supplied:
- from 10A fuse (No. 30, located in the fuse and fusible link box)
- to smart entrance control unit terminal ㉕.

Ground is then supplied to power window relay terminal ② from smart entrance control unit terminal ⑰.

With power and ground supplied, the power window relay is energized and power is supplied:
- from power window relay terminal ③
- to main power window and door lock/unlock switch terminals ① and ②
- to front power window switch RH terminal ⑥, and
- to rear power vent window switch terminal ③.

When the ignition switch is turned to the OFF position, the power windows will still operate for up to approximately 15 minutes unless the driver's door is opened.

FRONT DOOR LH

Window Up

When the main power window and door lock/unlock switch is pressed in the UP position, power is supplied:
- from main power window and door lock/unlock switch terminal ⑮
- to front power window motor LH terminal ②.

Ground is supplied:
- to front power window motor LH terminal
- from main power window and door lock/unlock switch terminal ⑯.

With power and ground supplied, the front power window motor LH will raise the window until the switch is released.

Window Down

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

Ground is supplied:
- to front power window motor LH terminal ②
- from main power window and door lock/unlock switch terminal ⑮.

With power and ground supplied, the power window motor LH will lower the window until the switch is released.

Auto Down

If the main power window and door lock/unlock switch is pressed in the down position for more than three seconds, the auto down circuit will bypass the switch and continue to lower the window until it is completely lowered.

System Description (Cont'd)

Power and ground are supplied to the front power window motor LH in the same manner as outlined in "Window down".

FRONT DOOR RH

NOTE:

Figures in parentheses ( ) refer to terminal No's. arranged in order when the UP or DOWN section of power window switch is pressed.

Operation by main switch

Power is supplied:
- from main power window and door lock/unlock switch terminal (⑬, ⑭)
- to front power window switch RH terminal (④, ③).

Subsequent operations are the same as those outlined under "Operation by front power window switch RH".

Operation by front power window switch RH Power is supplied:

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

Ground is supplied:
- to front power window motor RH terminal (①, ②)
- through front power window switch RH terminal (①, ②)
- to front power window switch RH terminal (④, ③)
- through main power window and door lock/unlock switch terminal (⑬, ⑭)
- to main power window and door lock/unlock switch terminals ⑤ and ⑥
- through body grounds (M5), (M78) and (M123).

Lock Feature

If the main power window and door lock/unlock switch window lockout switch is in the LOCK position, the front power window switch RH ground circuit is interrupted. When this happens, the front power window motor RH cannot be operated by the front power window switch RH or the main power window and door lock/unlock switch.

REAR POWER VENT WINDOW LH

When the rear power vent window switch LEFT VENT is pressed in the OPEN position, power is supplied:
- through rear power vent window switch terminal ⑥
- to rear power vent window motor LH terminal ①.

Ground is supplied:
- through rear power vent window switch terminal ⑤
- to rear power vent window motor LH terminal ②.

With power and ground supplied, the rear power vent window motor LH will open the vent window until the switch is released.

When the rear power vent window switch LEFT VENT is pressed in the CLOSE position, power is supplied:
- through rear power vent window switch terminal ⑤
- to rear power vent window motor LH terminal ②.

Ground is supplied:
- through rear power vent window switch terminal ⑥
- to rear power vent window motor LH terminal ①.

With power and ground supplied, the rear power vent window motor will close the vent window until the switch is released.

REAR POWER VENT WINDOW RH

When the rear power vent window switch RIGHT VENT is pressed in the OPEN position, power is supplied:
- through rear power vent window switch terminal ②
- to rear power vent window motor RH terminal ①.

System Description (Cont'd)

Ground is supplied:
- through rear power vent window switch terminal ①
- to rear power vent window motor RH terminal ②.

With power and ground supplied, the rear power vent window motor RH will open the vent window until the switch is released.

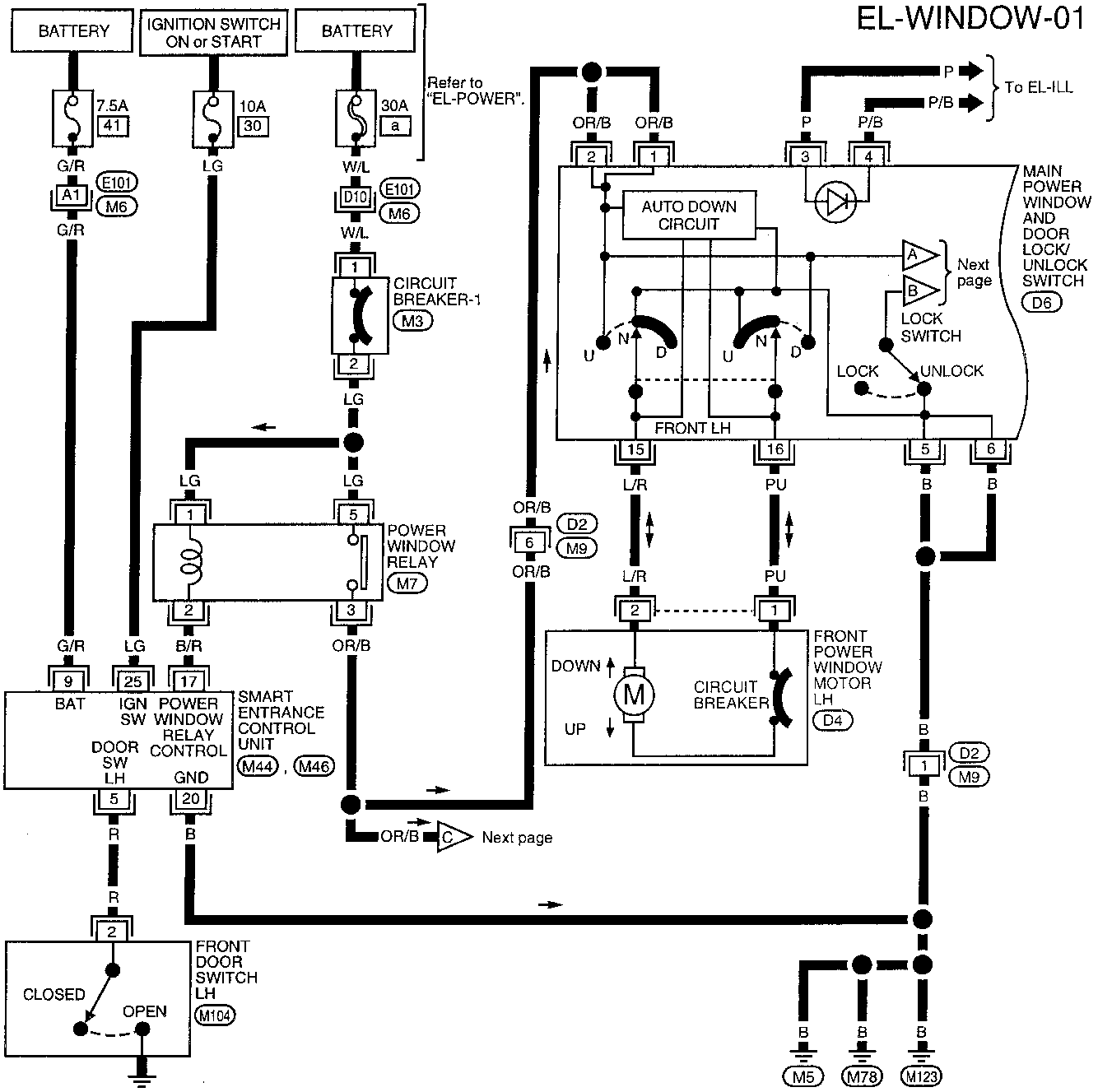
When the rear power vent window switch RIGHT VENT is pressed in the CLOSE position, power is supplied:
- through rear power vent window switch terminal ①
- to rear power vent window motor RH terminal ②.

Ground is supplied:
- through rear power vent window switch terminal ②
- to rear power vent window motor RH terminal ①.

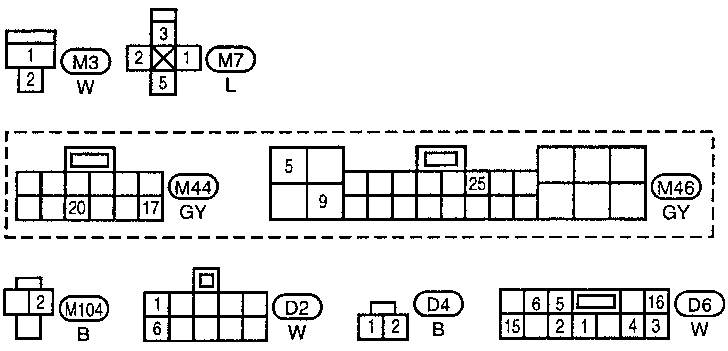
With power and ground supplied, the rear power vent window motor RH will close the vent window until the switch is released.

NOTES

Wiring Diagram –WINDOW–



Refer to last page (Foldout page).
M6, E101

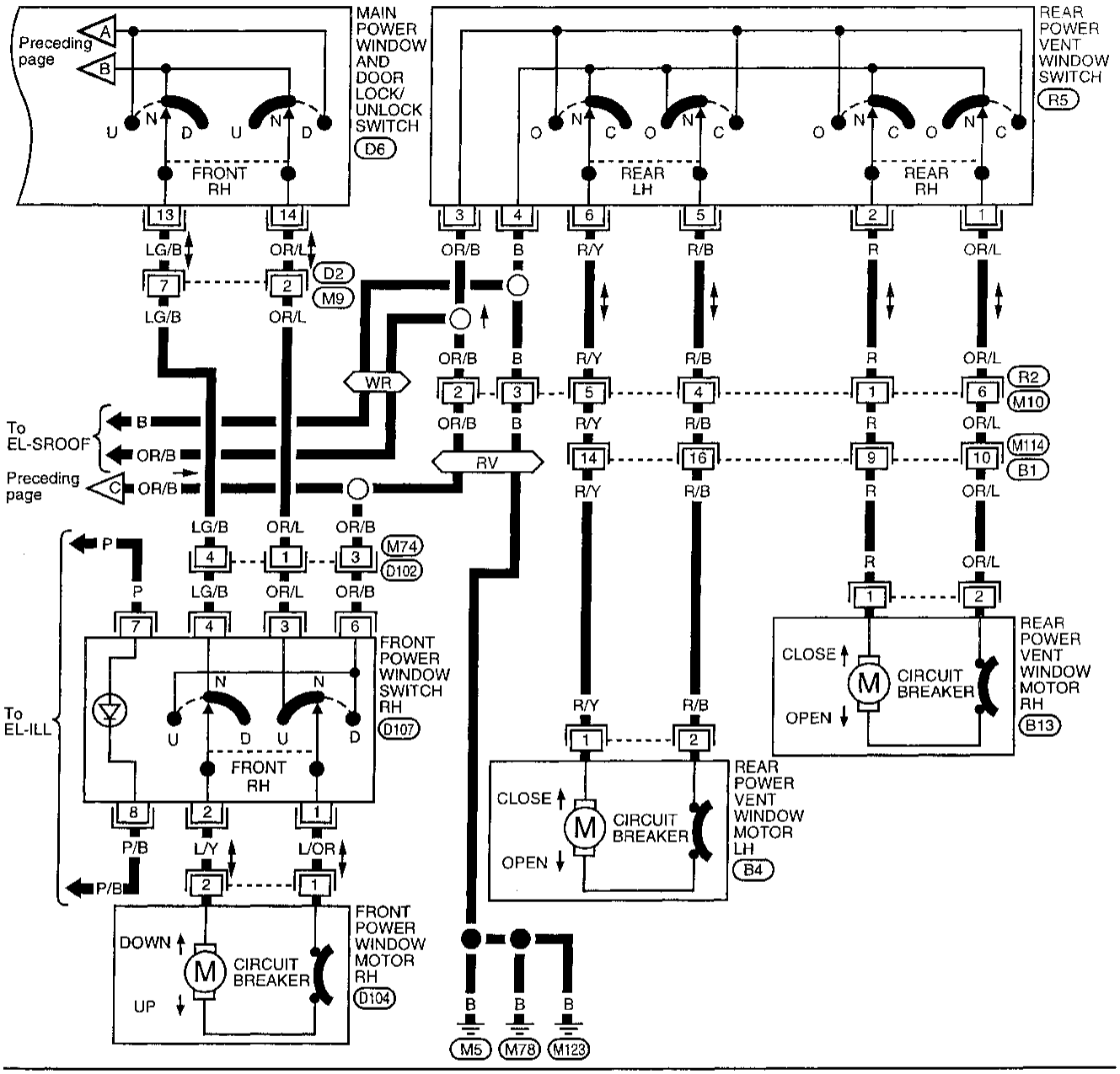


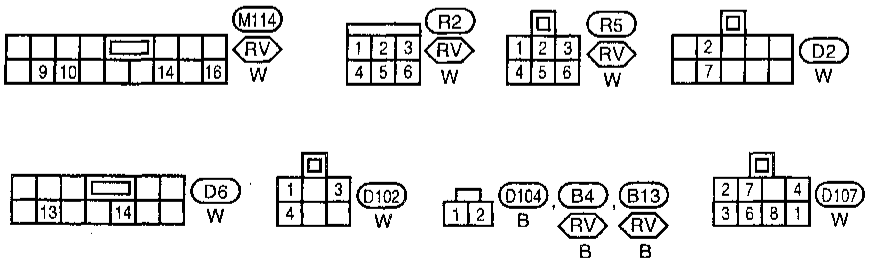
AEL960-A

Wiring Diagram –WINDOW– (Cont'd)

RV : With rear power vent windows
WR : With sunroof

EL-WINDOW-02





AEL960-B

Trouble Diagnoses

Symptom	Possible causes	Repair order
None of the power windows can be operated from any switch.	1. 7.5A fuse, 10A fuse, 30A fusible link and circuit breaker-1	1. Check 7.5A fuse (No. 41, located in fuse and fusible link box), 10A fuse (No. 30, located in the fuse block), 30A fusible link (letter a, located in the fuse and fusible link box) and the circuit breaker-1. Turn ignition switch ON and verify battery positive voltage is present at terminals ① and ② of main power window switch, terminal ⑥ of front power window switch RH and terminal ③ of rear power vent window switch.
	2. Grounds M5, M78 and M123	2. Check grounds M5, M78 and M123.
	3. Power window relay	3. Check power window relay.
	4. Open/short in main power window and door lock/unlock switch circuit	4. Check OR/B wire between power window relay and main power window and door lock/unlock switch for open/short circuit.
Driver side power window cannot be operated but other windows can be operated.	1. Driver side (front LH) power window motor circuit	1. Check driver side (front LH) power window motor circuit.
	2. Driver side (front LH) power window motor	2. Check driver side (front LH) power window motor.
Passenger side power window cannot be operated.	1. Power window switch (front RH)	1. Check power window switch (front RH).
	2. Power window motor (front RH)	2. Check power window motor (front RH).
	3. Main power window and door lock/unlock switch	3. Check main power window and door lock/unlock switch.
	4. Power window circuits	4. Check wires between main power window and door lock/unlock switch, power window switch RH and motor for open/short circuits.
Passenger side power window cannot be operated by main switch but can be operated by passenger's switch.	1. Main power window and door lock switch	1. Check main power window and door lock switch.
One or both rear power vent windows cannot be operated.	1. Rear power vent window switch	1. Check rear power vent window switch.
	2. Rear power vent window motors	2. Check rear power vent window motors (LH and RH).
	3. Rear power vent window circuits	3. Check wires between power window relay, rear power vent window switch and rear power vent window motors for open/short circuits.

System Description

Power is supplied at all times:
- through 7.5A fuse (No. 41, located in the fuse and fusible link box)
- to smart entrance control unit terminal ⑨, and
- through 30A fusible link (Letter a, 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 ③.

Ground is supplied to smart entrance control unit terminals ①, ⑳ and ㊹ through body grounds M5, M78 and M123.

INPUT

When the main power window and door lock/unlock switch is in the LOCK position, ground signal is supplied:
- through body grounds M5, M78 and M123
- to main power window and door lock/unlock switch terminal ⑤,
- through main power window and door lock/unlock switch terminal ⑦
- to smart entrance control unit terminal ㉝.

When the door lock/unlock switch RH is in the LOCK position, ground signal is supplied :
- through body grounds M5, M78 and M123
- to door lock/unlock switch RH terminal ④,
- through door lock/unlock switch RH terminal ①
- to smart entrance control unit terminal ㉝.

When the main power window and door lock/unlock switch is in the UNLOCK position, ground signal is supplied:
- through body grounds M5, M78 and M123
- to main power window and door lock/unlock switch terminal ⑤,
- through main power window and door lock/unlock switch terminal ⑧
- to smart entrance control unit terminal ㉞.

When the door lock/unlock switch RH is in the UNLOCK position, ground signal is supplied :
- through body grounds M5, M78 and M123
- to door lock/unlock switch RH terminal ④,
- through door lock/unlock switch RH terminal ③
- to smart entrance control unit terminal ㉞.

OUTPUT

Unlock

Power is supplied:
- from smart entrance control unit terminal ②
- to front door lock actuator LH terminal ②
- from smart entrance control unit terminal ⑦
- to front door lock actuator RH terminal ②
- to sliding door lock actuator terminal ②, and
- from smart entrance control unit terminal ⑧
- to back door lock actuator terminal ②.

Ground is supplied:
- from smart entrance control unit terminal ⑥
- to all door lock actuators terminal ①.

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

Lock

Power is supplied:
- from smart entrance control unit terminal ⑥
- to all door lock actuators terminal ①.

System Description (Cont'd)

Ground is supplied:
- from smart entrance control unit terminal ②
- to front door lock actuator LH terminal ②
- from smart entrance control unit terminal ⑦
- to front door lock actuator RH terminal ②
- to sliding door lock actuator terminal ②, and
- from smart entrance control unit terminal ⑧
- to back door lock actuator terminal ②.

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

KEY REMINDER DOOR SYSTEM

When the key is inserted into the ignition key cylinder, the key switch closes and a ground signal is supplied:
- through body grounds (M5) , (M78) and (M123)
- to key switch terminal ②
- through key switch terminal ①
- to smart entrance control unit terminal ⑭.

With the ground signal supplied, the smart entrance control unit provides a key reminder feature. For more information, refer to "OPERATIVE CONDITION", "Trouble Diagnoses", EL-139.

System Description (Cont'd)

OPERATIVE CONDITION

- The lock/unlock switches on driver's and passenger's door trim can lock and unlock all doors.
- With the lock knob on front LH or RH door set to LOCK, all doors are locked.

Models with multi-remote control system

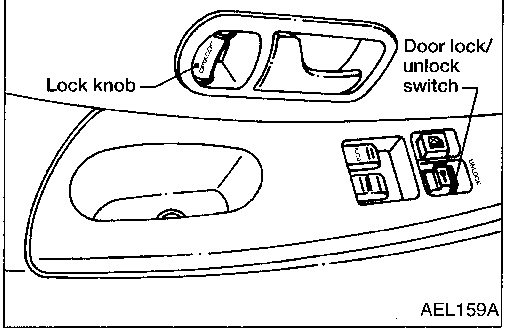
- With the door key inserted in the key cylinder on front LH or RH door, or sliding door, turning it to LOCK, will lock all doors; turning it to UNLOCK once unlocks the corresponding door; turning it to UNLOCK again within 5 seconds after the first unlock operation unlocks all of the other doors.

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

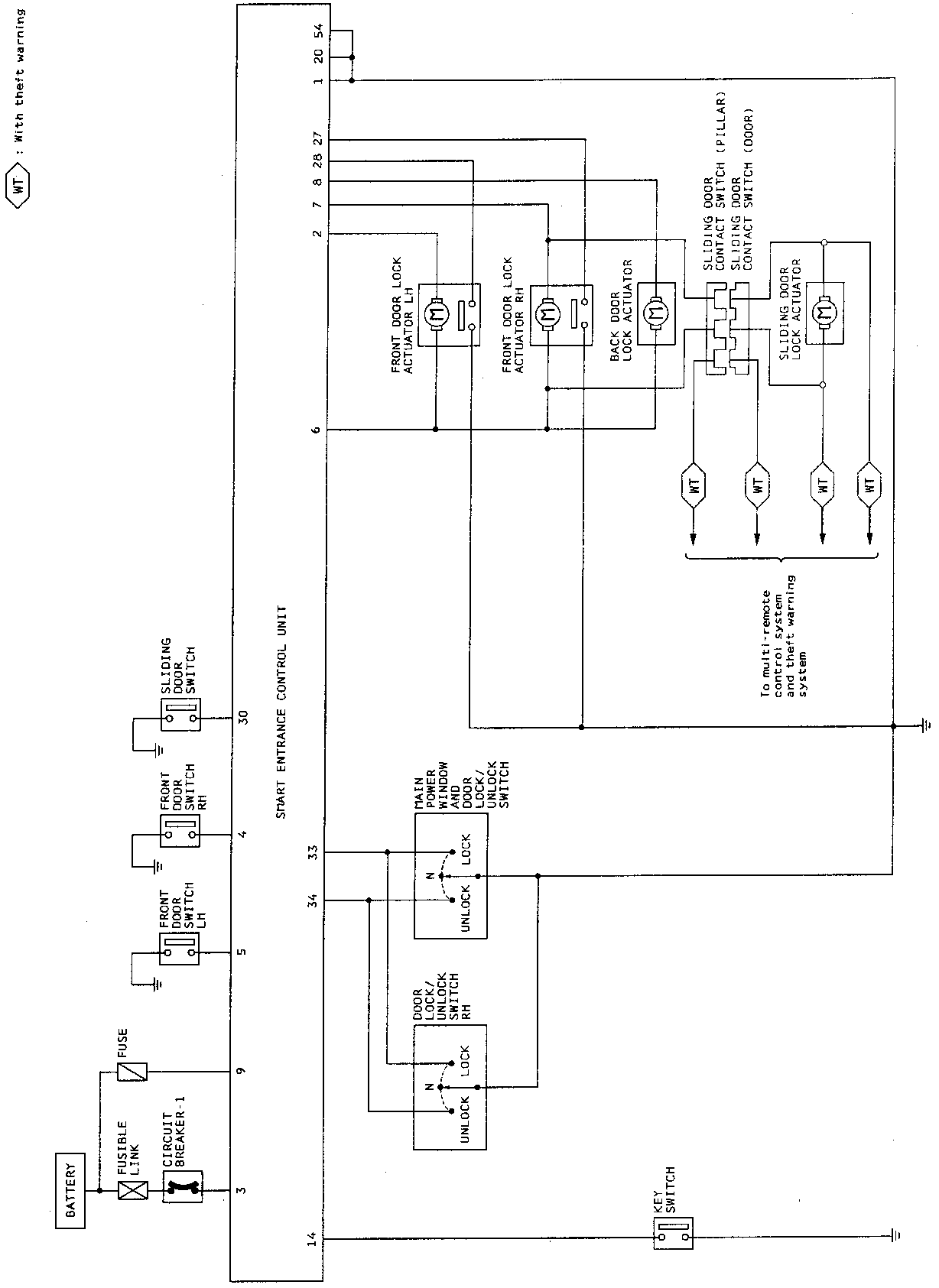
If any of the following symptoms occur, key reminder door system is malfunctioning.

- With ignition key removed from the ignition key cylinder and all doors closed, operating the lock/unlock switch or lock knob on the front LH or RH door trim unlocks all doors the instant they are locked.
- With ignition key inserted into the ignition key cylinder and front LH or RH door opened, operating the lock/unlock switch or lock knob on the front LH or RH door trim to LOCK does not unlock all doors.

Main power window and door lock/unlock switch



Schematic

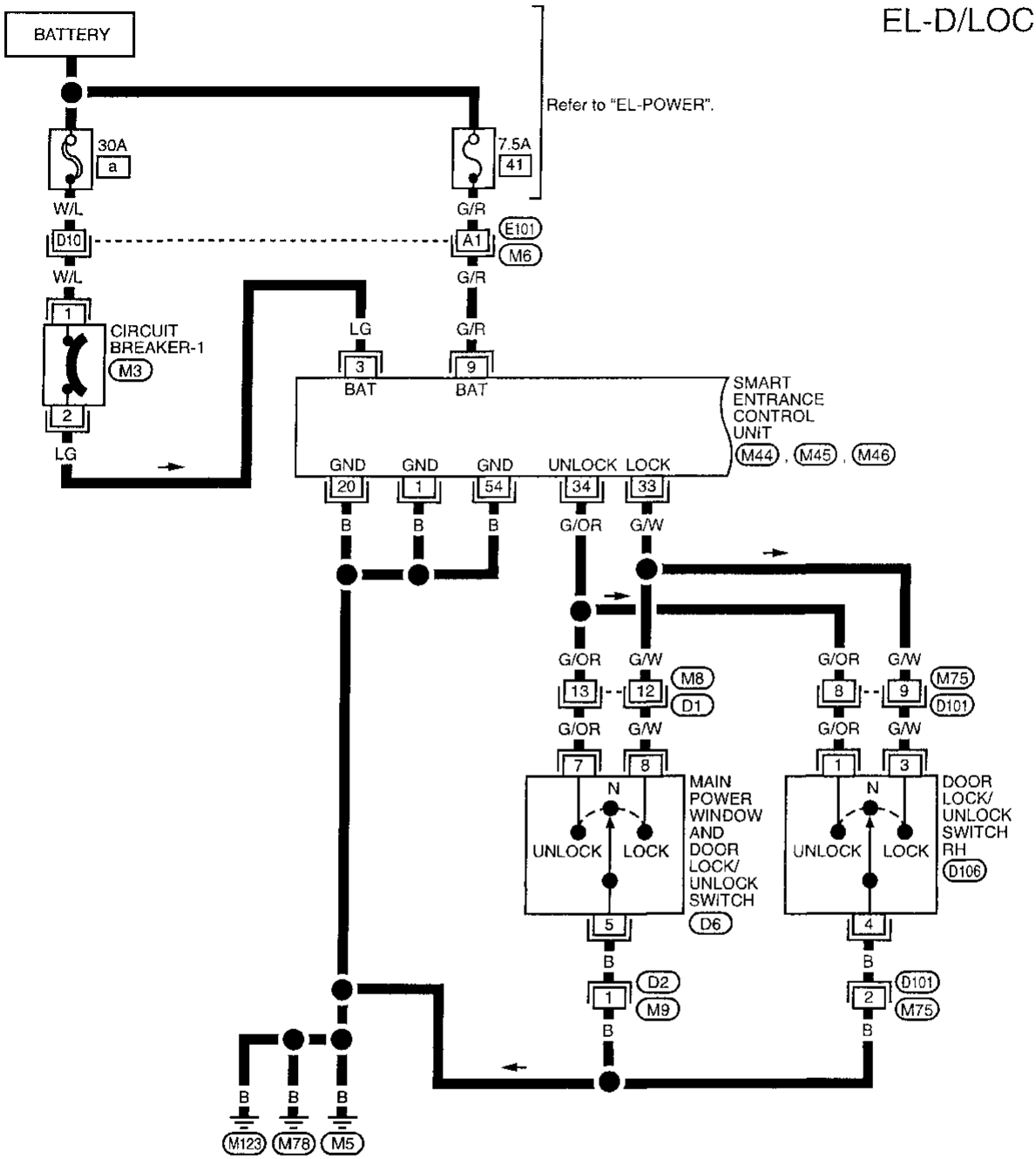


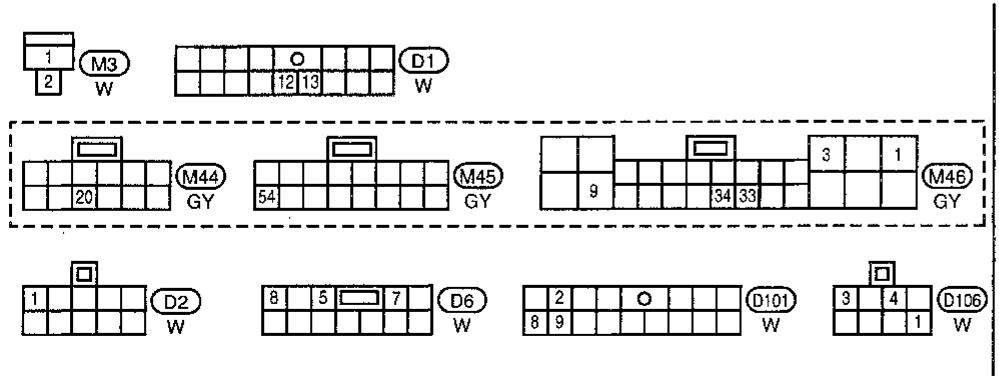
AEL032A

NOTES

Wiring Diagram –D/LOCK–

EL-D/LOCK-01



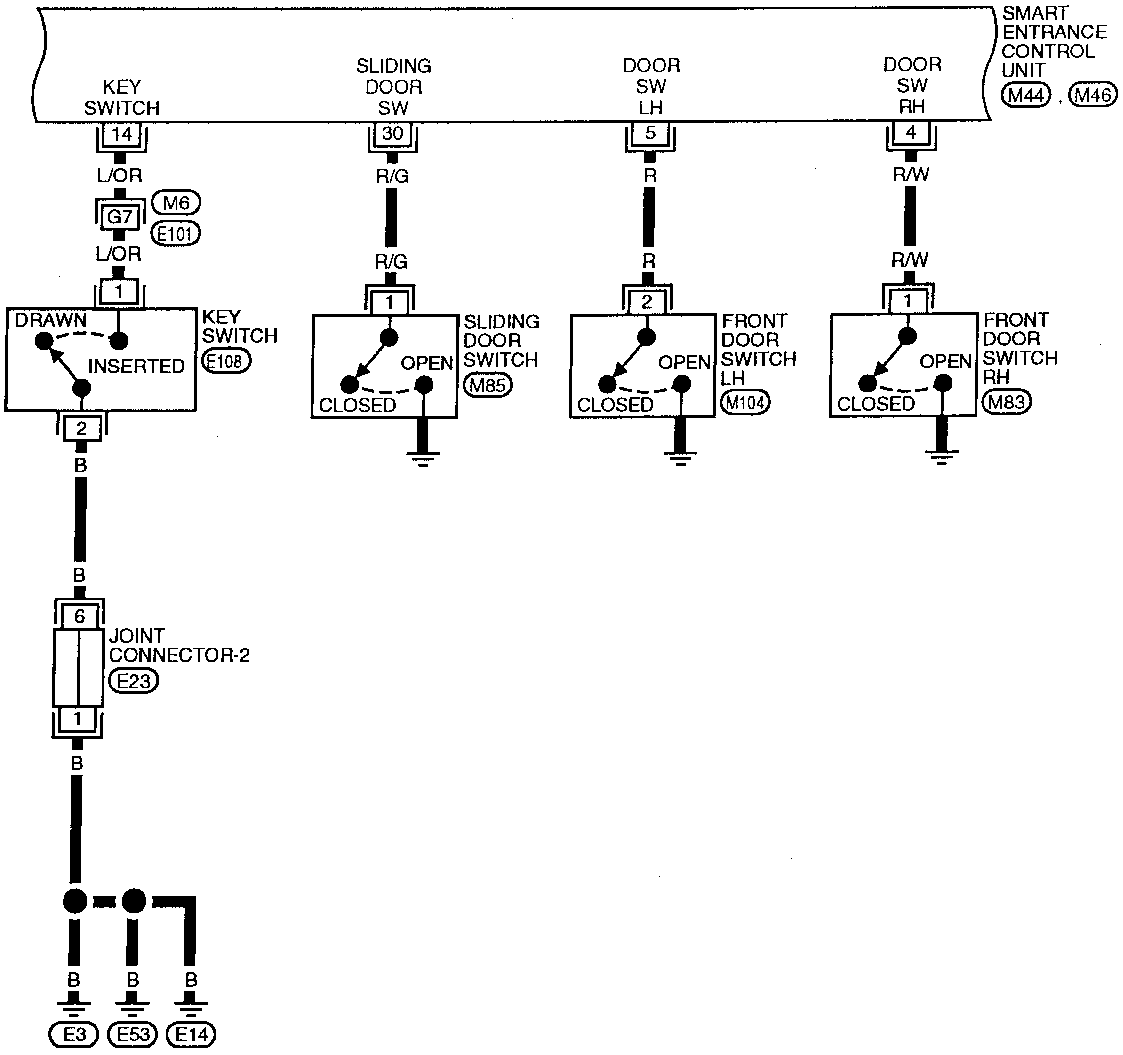


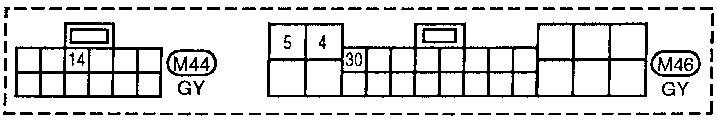
Refer to last page (Foldout page).
M6, E101

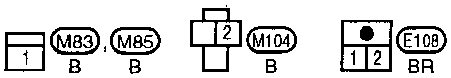
AEL961-A

Wiring Diagram –D/LOCK– (Cont'd)

EL-D/LOCK-02





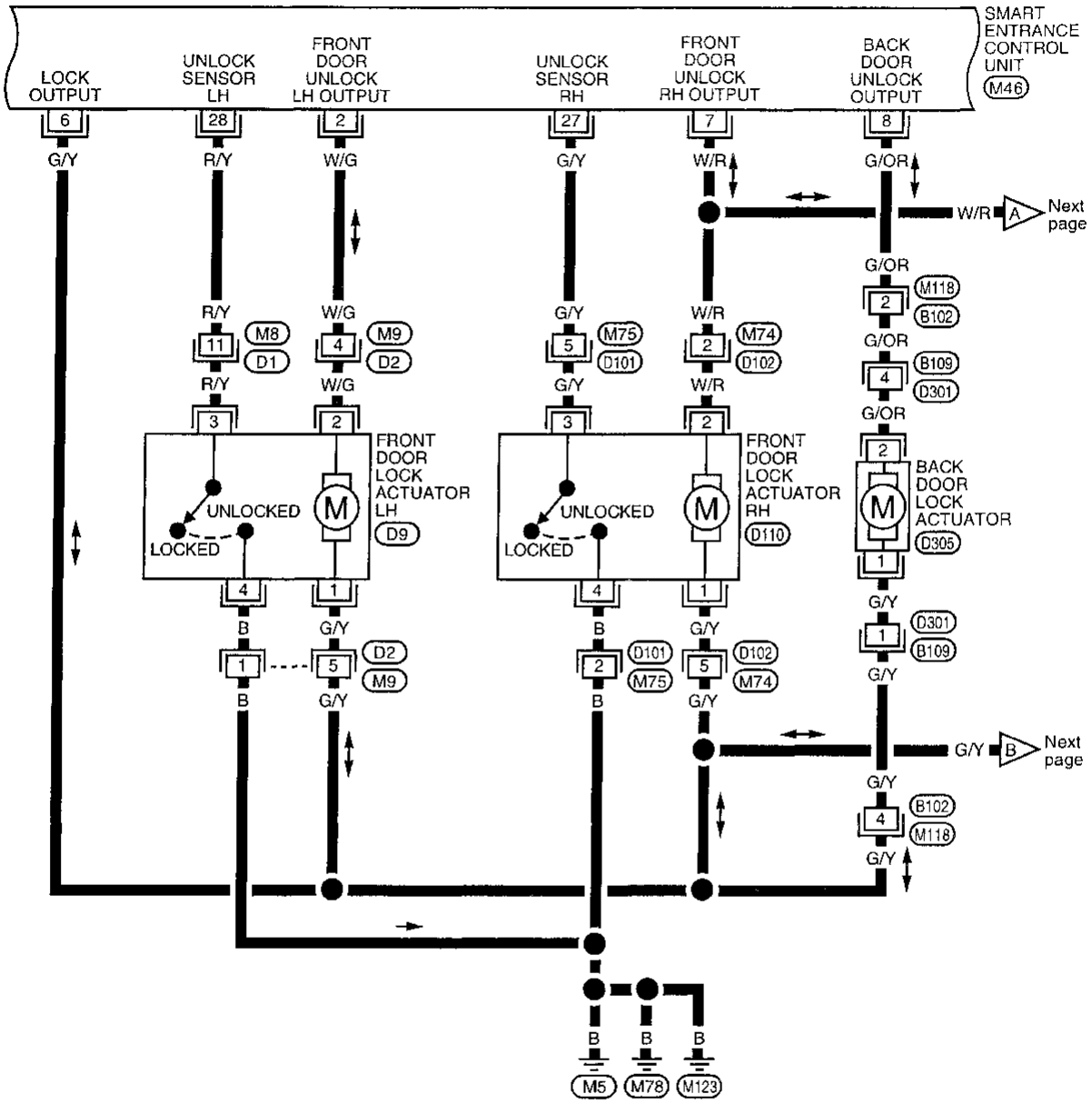


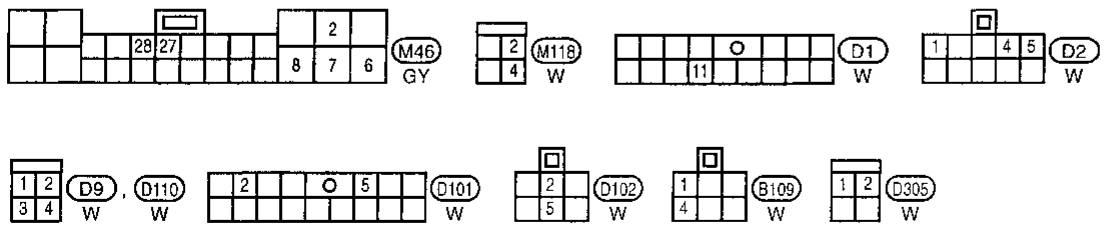
Refer to last page (Foldout page).
M6, E101
E23

AEL961-B

Wiring Diagram –D/LOCK– (Cont'd)

EL-D/LOCK-03



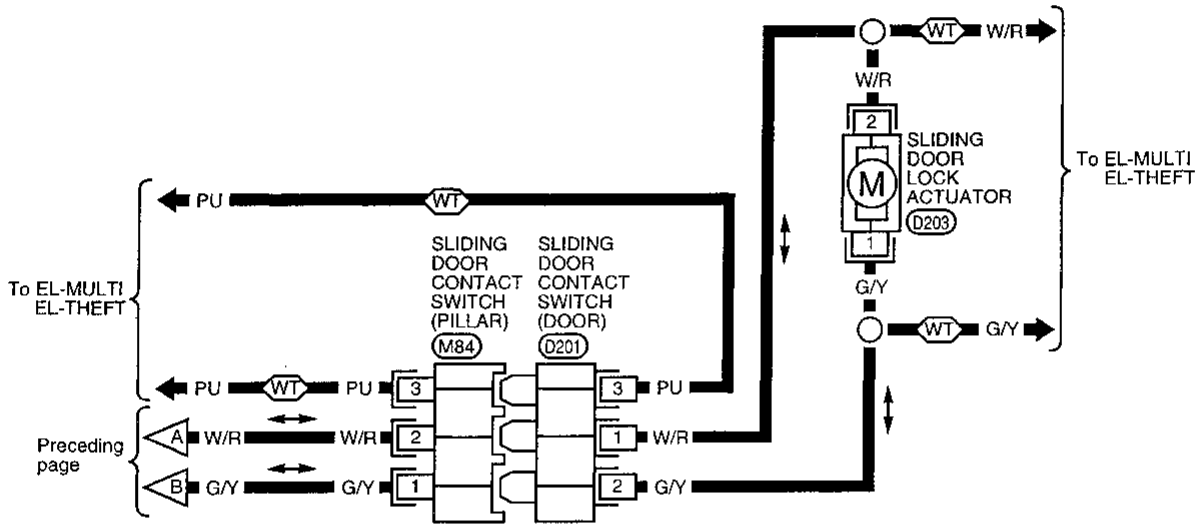


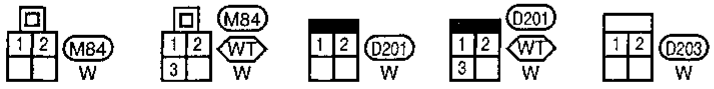
AEL961-C

Wiring Diagram –D/LOCK– (Cont'd)

EL-D/LOCK-04

WT : With theft warning





AEL961-D

Trouble Diagnoses

SYMPTOM CHART

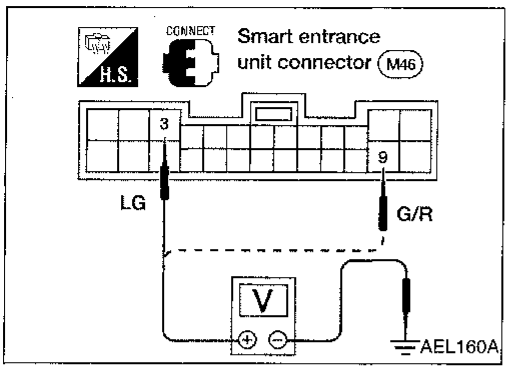
PROCEDURE	Main power supply and ground circuit check		Diagnostic procedure				
REFERENCE PAGE	EL-147	EL-147	EL-148	EL-149	EL-150	EL-151	EL-152
SYMPTOM	Main power supply for smart entrance control unit	Ground circuit for smart entrance control unit	Procedure 1 (Door switch)	Procedure 2 (Ignition key switch)	Procedure 3 (Lock/unlock switches)	Procedure 4 (Door unlock sensor)	Procedure 5 (Door lock actuator)
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 door key cylinder switch.	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.

The following ABBREVIATIONS are used in this Trouble Diagnoses.
(FL): Front LH
(FR): Front RH
(SL): Sliding door
(RD): Rear Door

Trouble Diagnoses (Cont'd)

MAIN POWER SUPPLY AND GROUND CIRCUIT CHECK

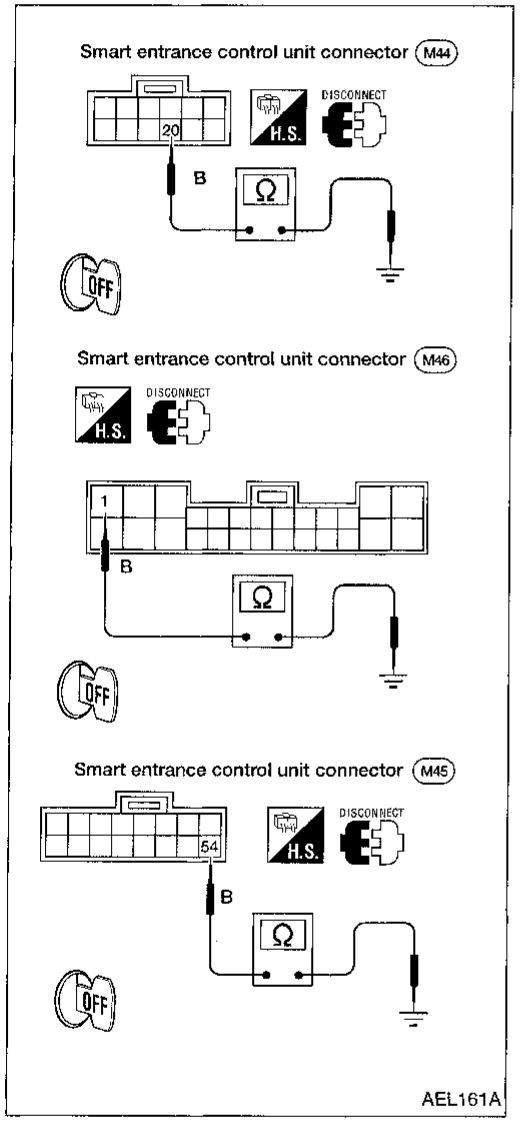


Main power supply for smart entrance control unit

Terminals	Battery voltage existence
③ - Ground (GND)	Yes
⑨ - Ground (GND)	Yes

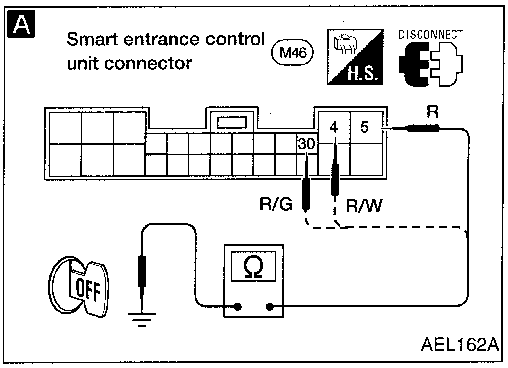
Ground circuit for smart entrance control unit

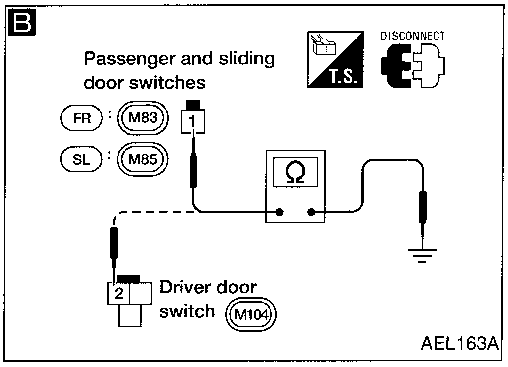
Connecters	Terminals	Continuity
M44	⑳ - Ground	Yes
M46	① - Ground	Yes
M45	㊹ - Ground	Yes



Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 1 — Door switch





A

DOOR SWITCH INPUT SIGNAL CHECK.

Check continuity between smart entrance control unit harness terminals ④, ⑤, ㉚ and ground.

Condition		Terminals	Continuity
Driver door	Closed	⑤ - Ground	No
	Open		Yes
Passenger door	Closed	④ - Ground	No
	Open		Yes
Sliding door	Closed	㉚ - Ground	No
	Open		Yes

OK → Door switch is OK.

NG ↓

B

CHECK DOOR SWITCH.

Check continuity between terminal and switch body.

	Terminals	Condition	Continuity
Driver door switch	②	Pressed	No
		Released	Yes
Passenger and sliding door switches	①	Pressed	No
		Released	Yes

NG → Replace door switch.

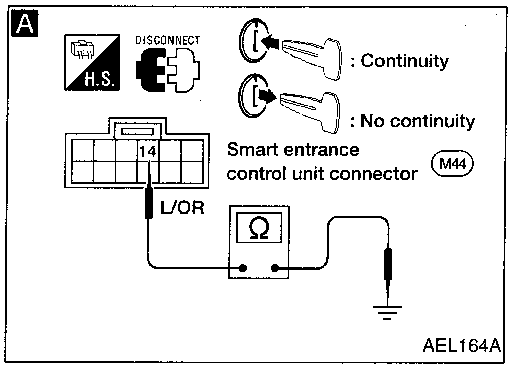
OK ↓

Check harness for open or short between door switch and smart entrance control unit.

OK → Check the connections at each connector.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 2 — Ignition key switch

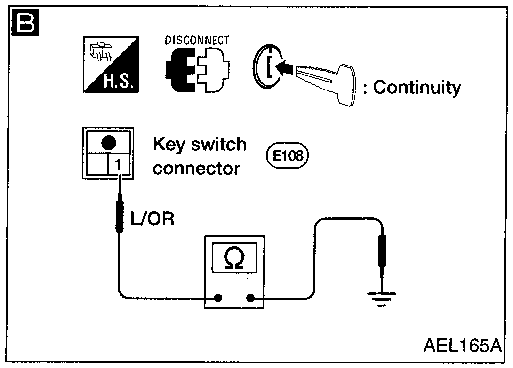


A

IGNITION KEY SWITCH INPUT SIGNAL CHECK.
Check continuity between smart entrance control unit harness terminal ⑭ and body ground when key is inserted in ignition switch.
Continuity should exist.

OK → Ignition key switch is OK.

NG ↓



B

CHECK IGNITION KEY SWITCH.
Check continuity between ignition key switch harness connector terminal ① and body ground when key is inserted in ignition switch.
Continuity should exist.

OK → Repair harness between ignition key switch and smart entrance control unit connector.

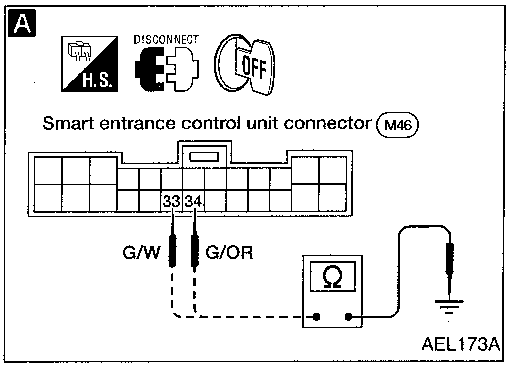
NG ↓

Check ignition key switch unit and ground circuit.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 3 — Lock/unlock switches

A



DOOR LOCK/UNLOCK SWITCHES INPUT SIGNAL CHECK

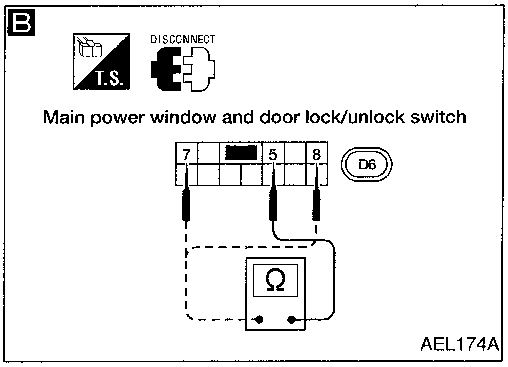
Check continuity between smart entrance control unit harness terminals ㉝, ㉞ and body ground.

Door lock/unlock switches operation	Terminals	Continuity
Lock	㉝ - Ground	Yes
Unlock	㉞ - Ground	

OK → Door lock/unlock switches are OK.

NG ↓

B



CHECK MAIN POWER WINDOW AND DOOR LOCK/UNLOCK SWITCH.

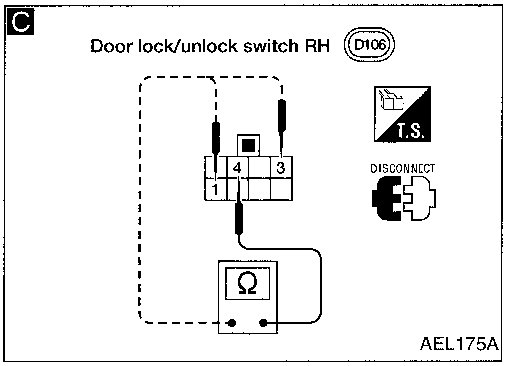
Check continuity between main power window and door lock/unlock switch terminals.

Operation	Terminals	Continuity
Lock	⑦ - ⑤	Yes
Unlock	⑧ - ⑤	

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

OK ↓

C



CHECK DOOR LOCK/UNLOCK SWITCH RH.

Check continuity between door lock/unlock switch RH terminals.

Operation	Terminals	Continuity
Lock	① - ④	Yes
Unlock	③ - ④	

NG → Replace door lock/unlock switch RH.

OK ↓

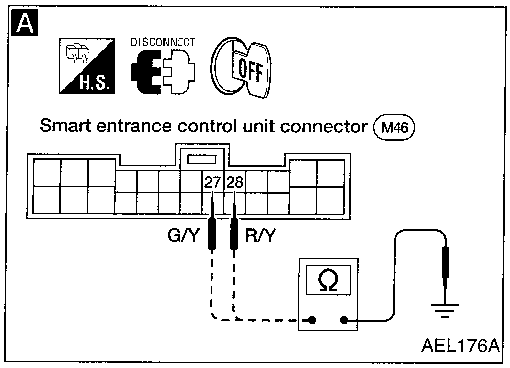
Check harness for open or short between door lock/unlock switch and smart entrance control unit.

OK → Check ground harness of door lock/unlock switch and the connections at each connector.

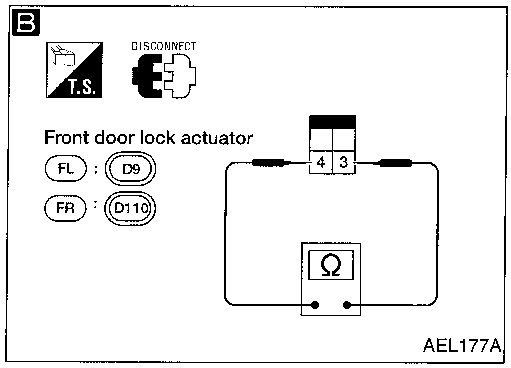
Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 4 — Door unlock sensor

A



B



A

FRONT DOOR UNLOCK SENSOR INPUT SIGNAL CHECK.

Check continuity between smart entrance control unit harness terminals (28), (27) and body ground.

Condition	Terminals	Continuity
Driver's door		
Locked	(28) - Ground	No
Unlocked		Yes
Passenger's door		
Locked	(27) - Ground	No
Unlocked		Yes

OK → Front door unlock sensor is OK.

NG ↓

B

CHECK FRONT DOOR UNLOCK SENSOR.

Check continuity between front door lock actuator terminals.

Operation	Terminals	Continuity
Lock	(3) - (4)	No
Unlock	(3) - (4)	Yes

NG → Replace front door lock actuator.

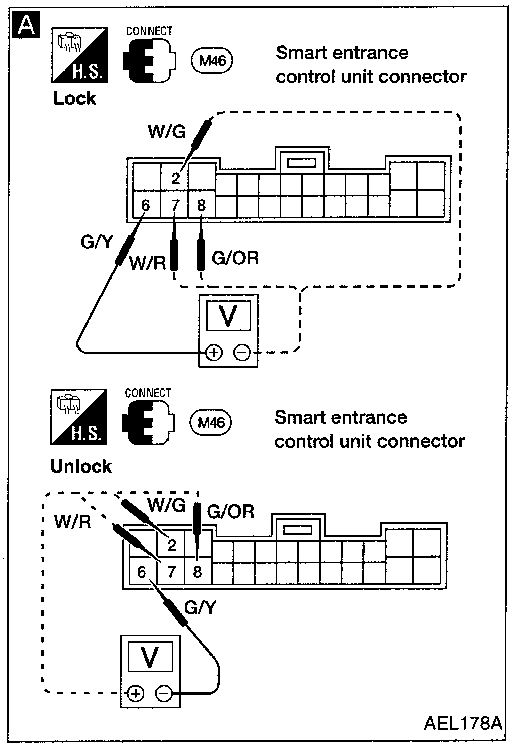
OK ↓

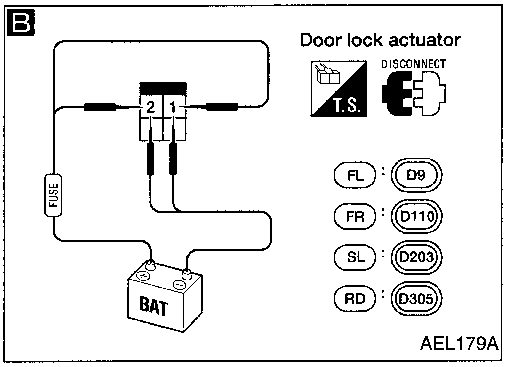
Check harness for open or short between front door lock actuator and smart entrance control unit.

OK → Check ground harness of front door lock actuator and the connections at each connector.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 5 — Door lock actuator





A

CHECK DOOR LOCK ACTUATOR CIRCUIT.

Check voltage between smart entrance control unit connector terminals ②, ⑦, ⑧, and ⑥.

Door lock operation		Terminals ⊕	Terminals ⊖	Voltage (V)
Front door LH door	Lock	⑥	②	Battery voltage
	Unlock	②	⑥	
Front door RH and sliding door	Lock	⑥	⑦	
	Unlock	⑦	⑥	
Back door	Lock	⑥	⑧	
	Unlock	⑧	⑥	

NG → Replace smart entrance control unit.

OK ↓

B

CHECK DOOR LOCK ACTUATOR.

Door lock operation	Terminals ⊕	Terminals ⊖
Lock	①	②
Unlock	②	①

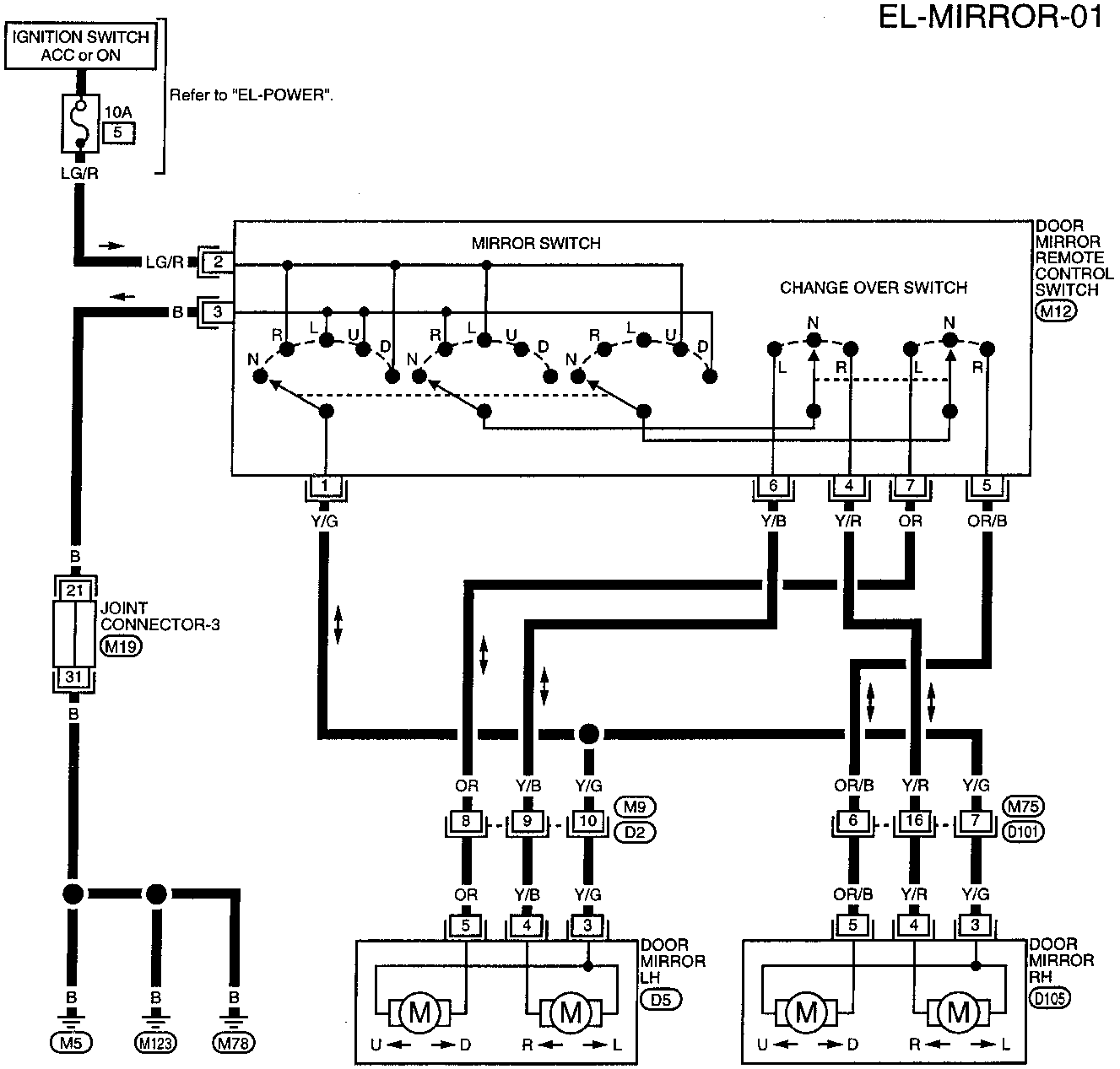
NG → Replace door lock actuator.

OK ↓

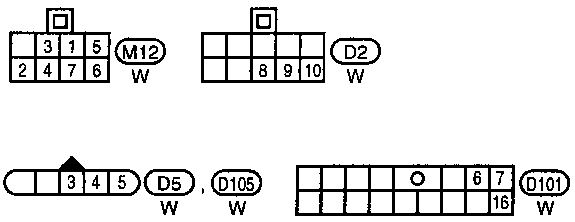
Check harness for open or short between door lock actuator and smart entrance control unit.

Wiring Diagram –MIRROR–

EL-MIRROR-01

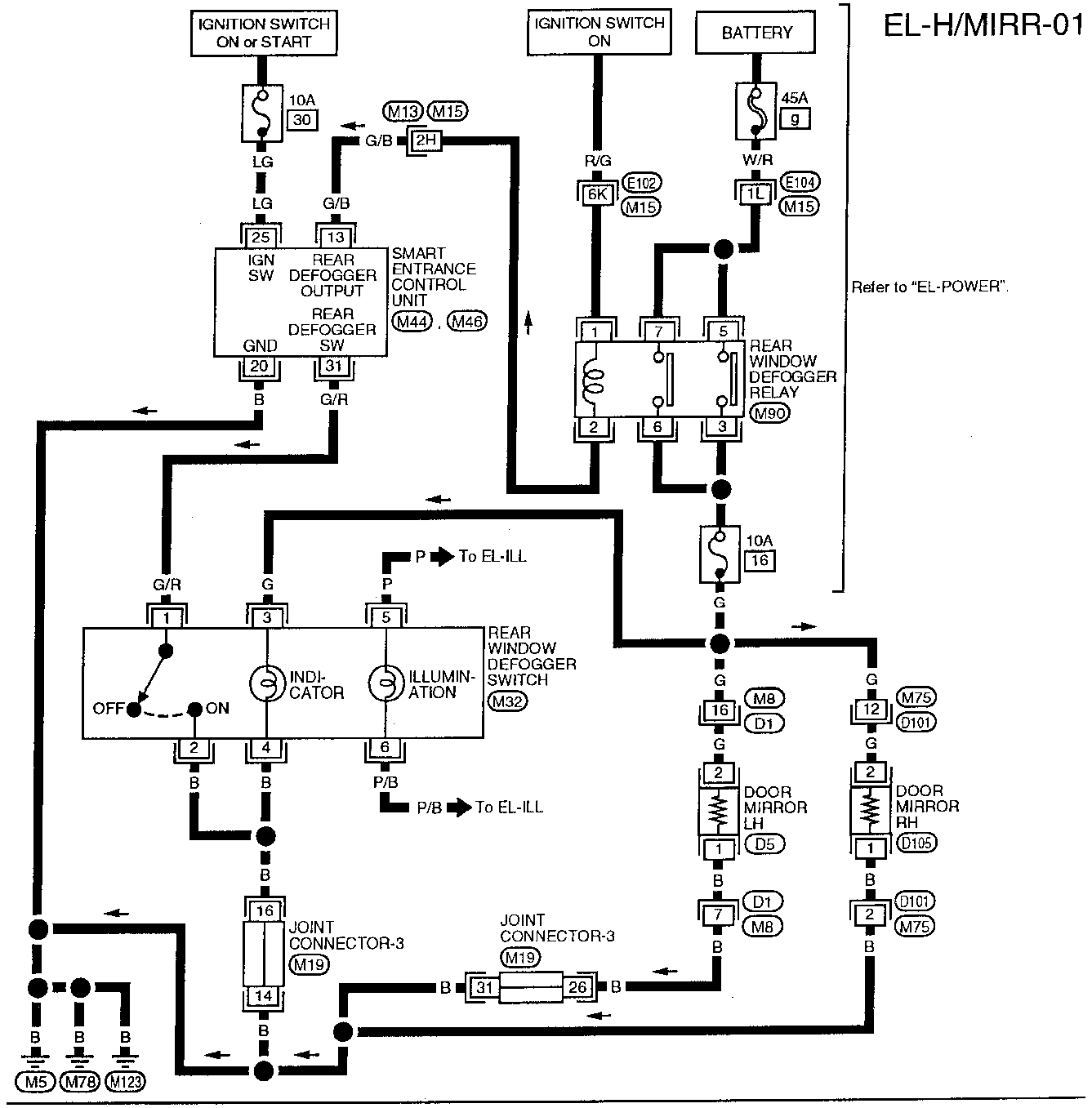


Refer to last page (Foldout page).
M19



AEL962

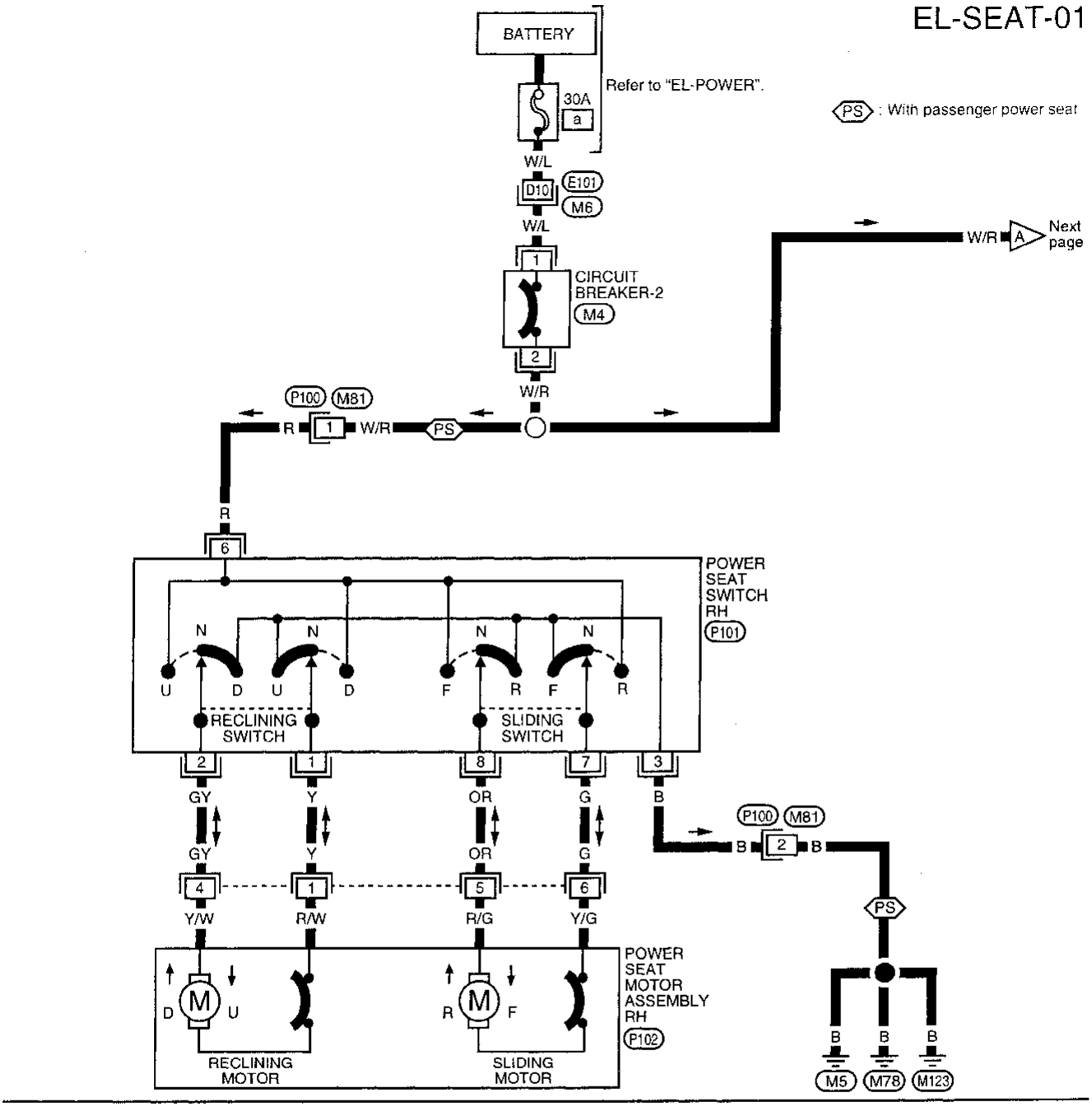
Wiring Diagram –H/MIRR–



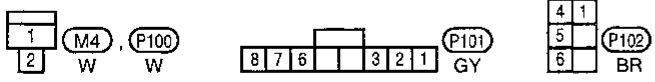
AEL963

NOTES

Power Seat/Wiring Diagram –SEAT–



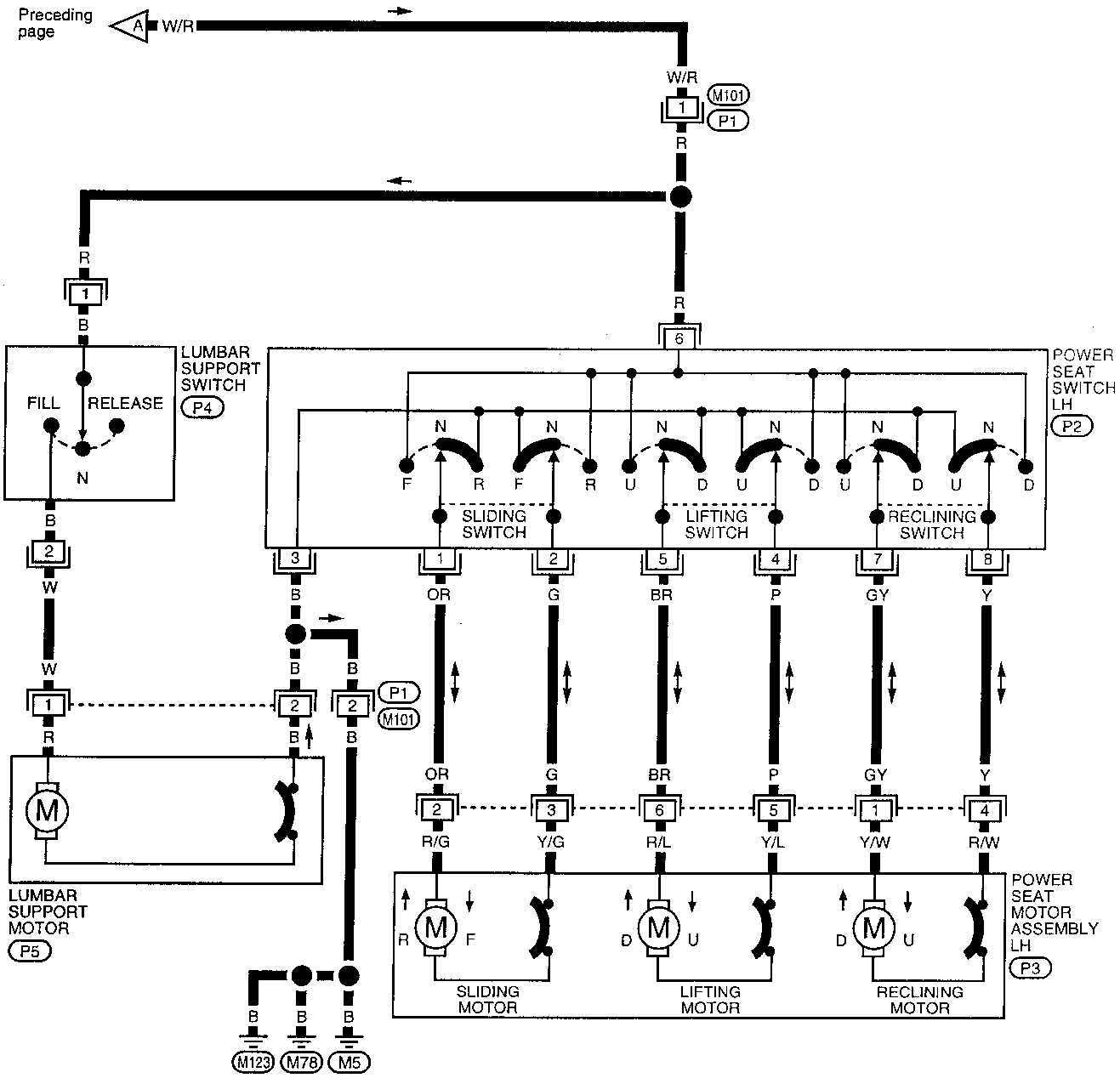
Refer to last page (Foldout page).
M6 , E101

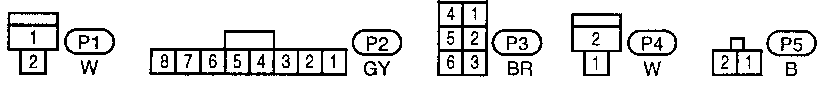


AEL964-A

Power Seat/Wiring Diagram –SEAT– (Cont'd)

EL-SEAT-02





AEL964-B

System Description

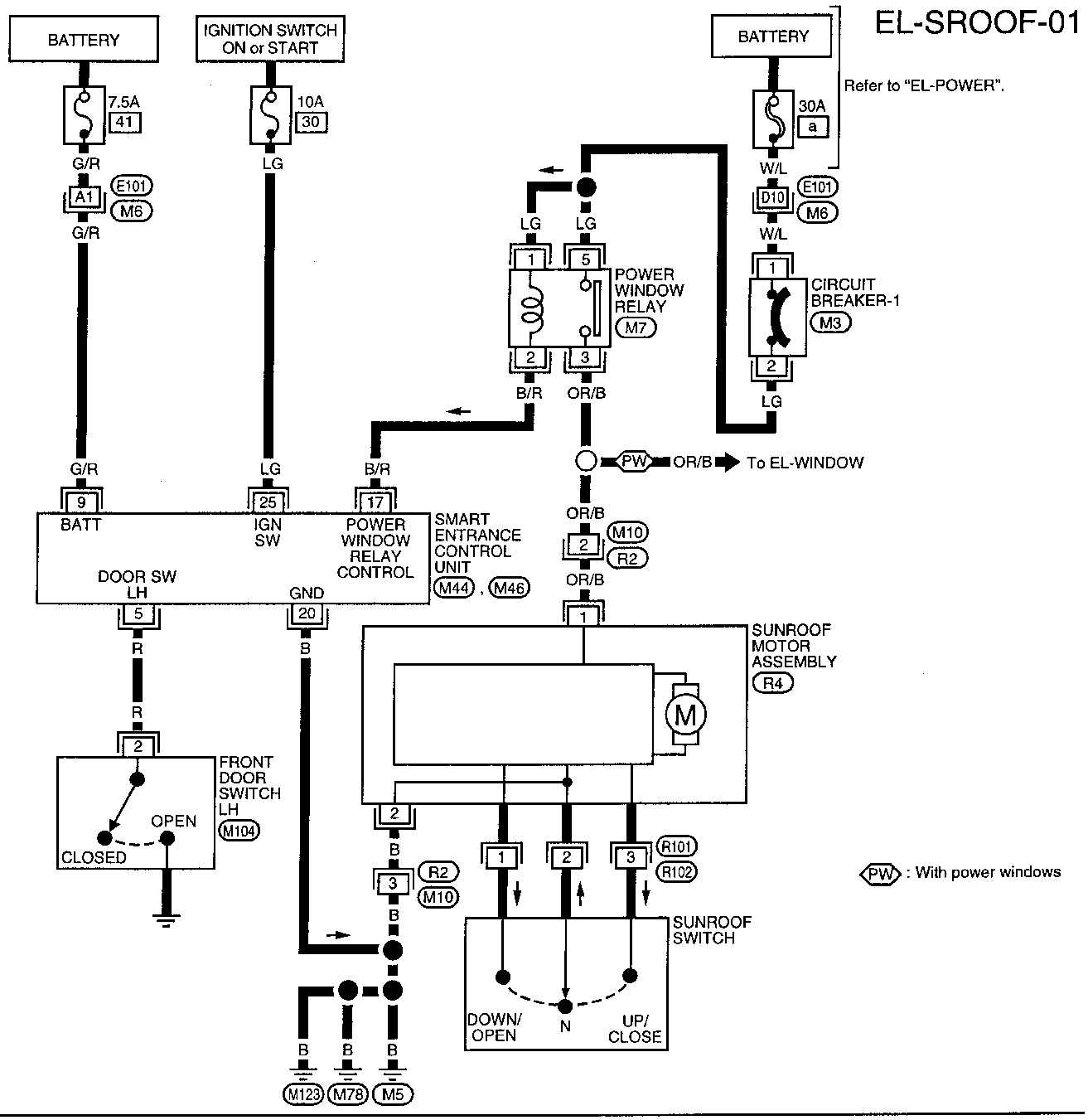
POWER

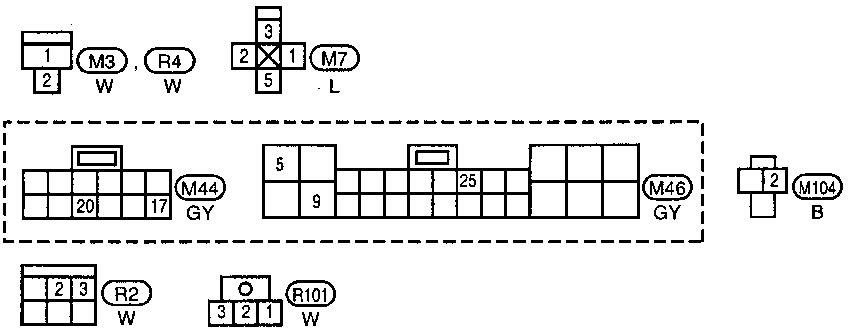
Power is supplied to the sunroof motor assembly by the power window relay. When the ignition switch is turned ON the relay is energized by the smart entrance control unit. The power circuit is protected by the circuit breaker-1. The sunroof motor assembly is grounded through body grounds (M5), (M78) and (M123).
When the ignition switch is turned to the OFF position, the sunroof will still operate for up to approximately 15 minutes unless the driver's door is opened.

TILT AND SLIDE OPERATION

The sunroof is controlled by the sunroof switch. With sunroof in closed position, depressing UP/CLOSE switch will tilt rear of sunroof up. The sunroof will stop when the switch is released, or when the sunroof reaches its maximum tilt position.
The sunroof will tilt down when in tilt up position and DOWN/OPEN switch is depressed. The sunroof will stop when switch is released, or when sunroof is fully closed.
With sunroof in closed position, pressing DOWN/OPEN switch will cause sunroof to slide open. The sunroof will slide open until switch is released or until it is all the way open. The sunroof will close when in open position, and UP/CLOSE switch is depressed. The sunroof will slide until switch is released, or when sunroof is fully closed.
All automatic operations in sunroof are controlled by internal limit switches located in sunroof motor assembly.

Wiring Diagram –SROOF–

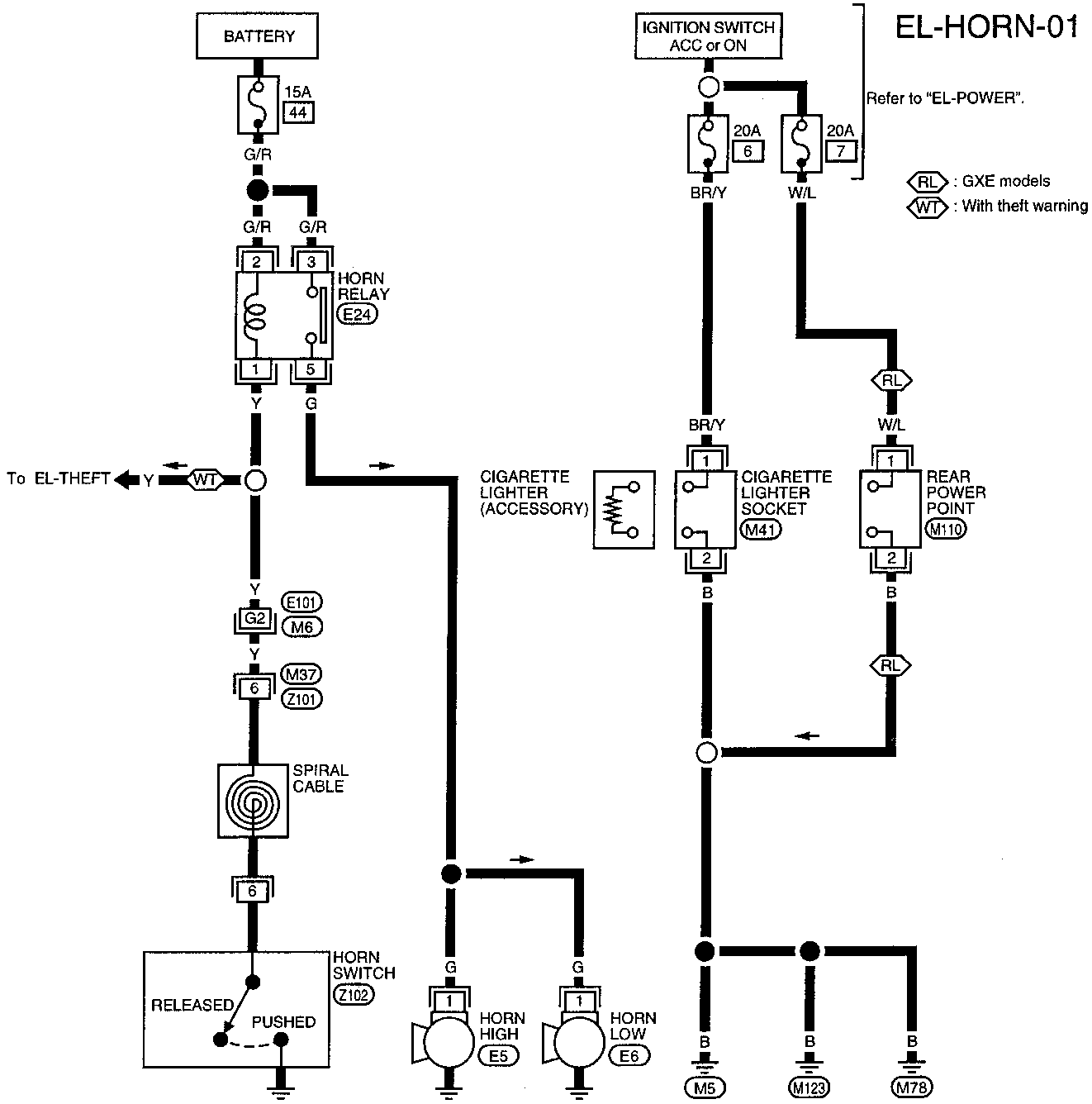




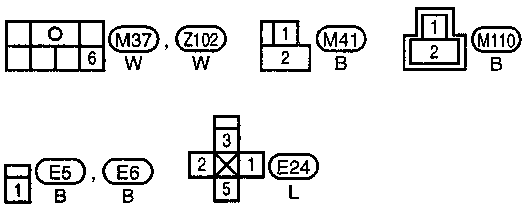
Refer to last page (Foldout page).
M6, E101

AEL965

Wiring Diagram –HORN–



Refer to last page (Foldout page).
M6 , E101



AEL966

System Description

System Description The rear window defogger system is controlled by the smart entrance control unit. Once turned on, the rear window defogger operates for approximately 15 minutes.

Power is supplied at all times:
- through 45A fusible link (letter [g], located in the fuse and fusible link box)
- to rear window defogger relay terminals ⑤ and ⑦.

With the ignition switch in the ON or START position, power is supplied:
- through 10A fuse (No. [30], located in the fuse block)
- to smart entrance control unit terminal ㉕.

With the ignition switch in the ON position, power is supplied:
- to rear window defogger relay terminal ①.

Ground is supplied:
- to rear window defogger switch terminal ②
- to smart entrance control unit terminal ⑳
- through body grounds (M5) , (M78) and (M123) .

When the rear window defogger switch is activated, ground is supplied:
- through rear window defogger switch terminal ①
- to smart entrance control unit terminal ㉛. Smart entrance control unit terminal ⑬ then supplies ground to rear window defogger relay terminal ②.

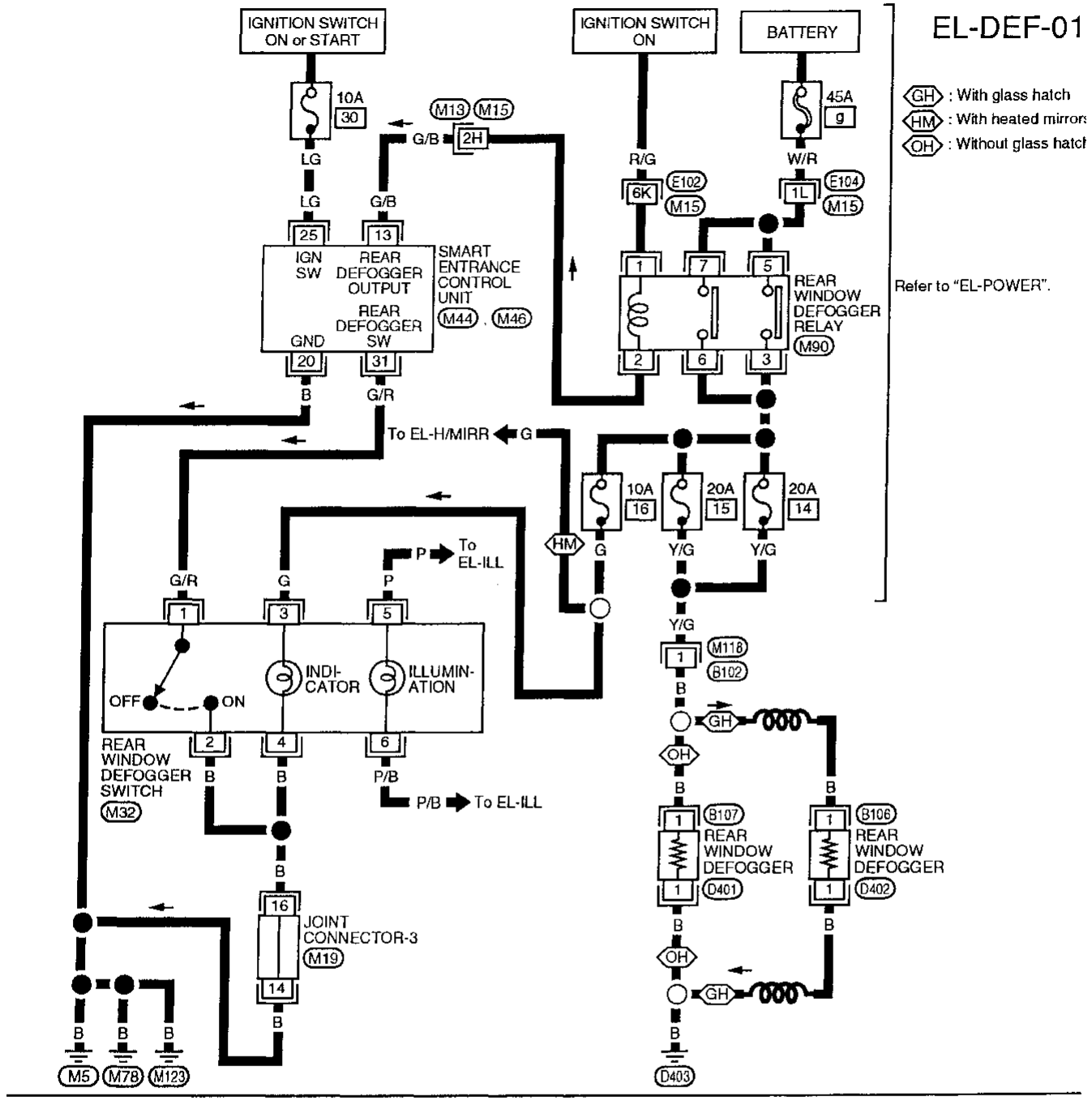
With power and ground supplied, the rear window defogger relay is energized and power is supplied:
- from rear window defogger relay terminals ③ and ⑥
- through 20A fuses (No. [14] and [15], located in the fuse block)
- to rear window defogger terminal ①. The rear window defogger is grounded through body ground (D403) .

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.

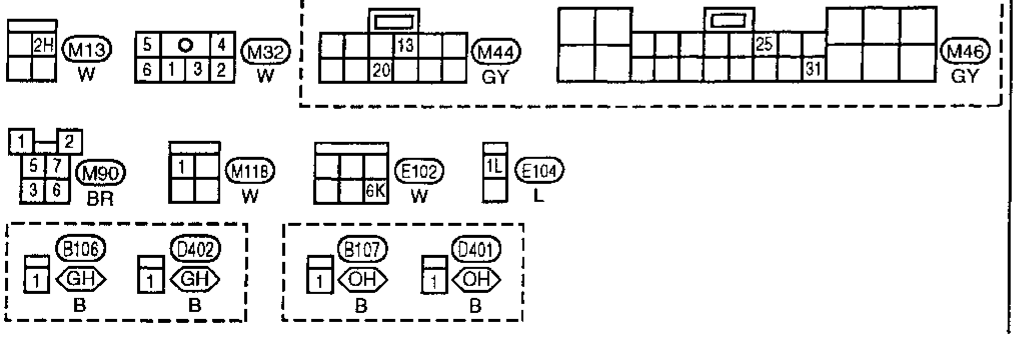
Power is supplied:
- to rear window defogger switch terminal ③
- through 10A fuse (No. [16], located in the fuse block)
- from rear window defogger relay terminals ③ and ⑥.

Ground is supplied:
- to rear window defogger switch terminal ④
- through body grounds (M5) , (M78) and (M123) .

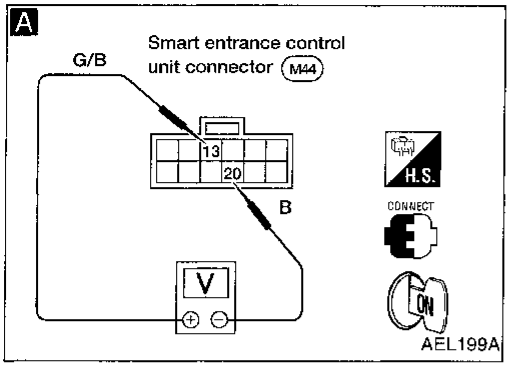
Wiring Diagram –DEF–

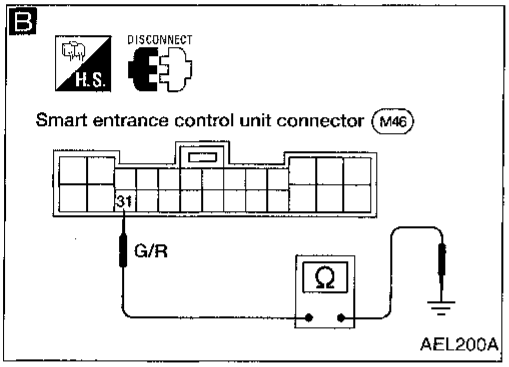


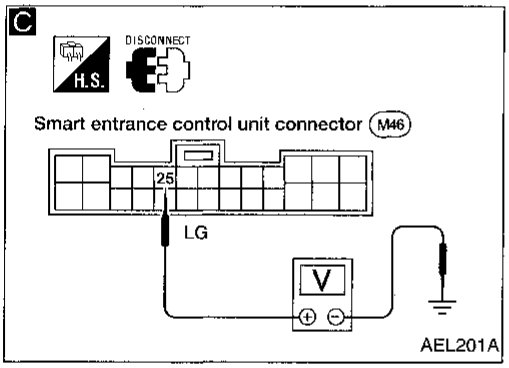
Refer to last page (Foldout page). M19

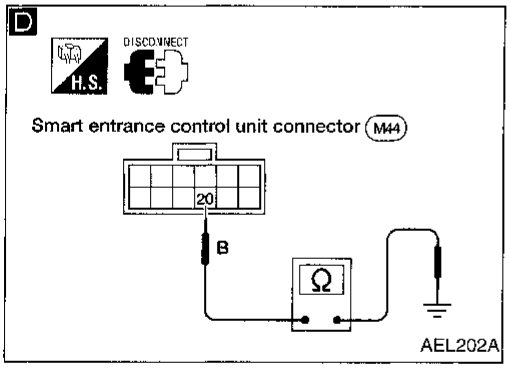


AEL967









Trouble Diagnoses

DIAGNOSTIC PROCEDURE

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

A

REAR WINDOW DEFOGGER OUTPUT SIGNAL CHECK.
Measure voltage between smart entrance control unit harness terminals (20) and (13).

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

OK →
- Check rear window defogger relay. (Refer to EL-164.)
- Check 20A fuses No's. 14 and 15 located in the fuse block.
- Check 10A fuse No. 16 located in the fuse block.
- Check rear window defogger circuit.
- Check rear window defogger filament. (Refer to EL-164.)

NG ↓

B

REAR WINDOW DEFOGGER SWITCH INPUT SIGNAL CHECK.
Check continuity between smart entrance control unit harness terminal (31) and body ground.

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

NG →
- Check rear window defogger switch. (Refer to EL-164.)
- Check continuity between smart entrance control unit harness terminal (31) and rear window defogger switch harness terminal (1). **Continuity should exist.**
- Check continuity between rear window defogger switch harness terminal (2) and body ground. **Continuity should exist.**

OK ↓

C

IGNITION INPUT SIGNAL CHECK.
Check voltage between smart entrance control unit harness terminal (25) and body ground.

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

NG →
- Check 10A fuse No. 30 located in the fuse block.
- Repair harness or connectors.

OK ↓

D

CONTROL UNIT GROUND CIRCUIT CHECK.
Check continuity between smart entrance control unit harness terminal (20) and body ground.
Continuity should exist.

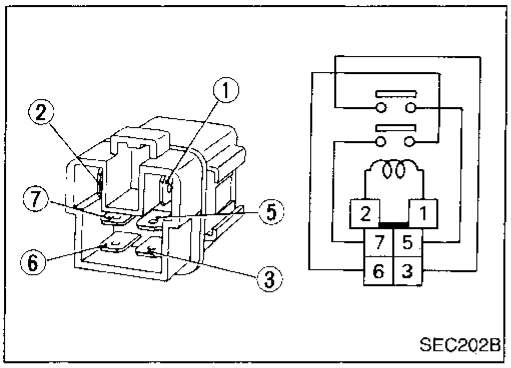
NG → Repair harness or connectors.

OK ↓

Replace smart entrance control unit.

Trouble Diagnoses (Cont'd)

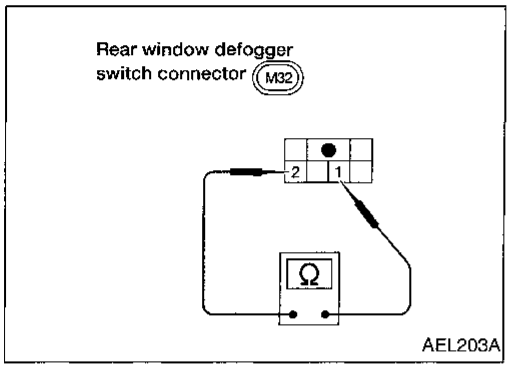
ELECTRICAL COMPONENTS INSPECTION



Rear window defogger relay

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

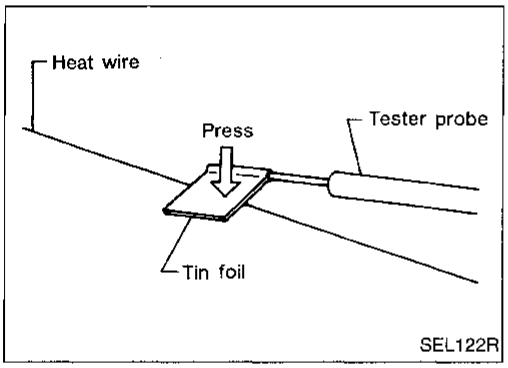
Condition	Continuity
12V direct current supply between terminals ① and ②	Yes
No current supply	No



Rear window defogger switch

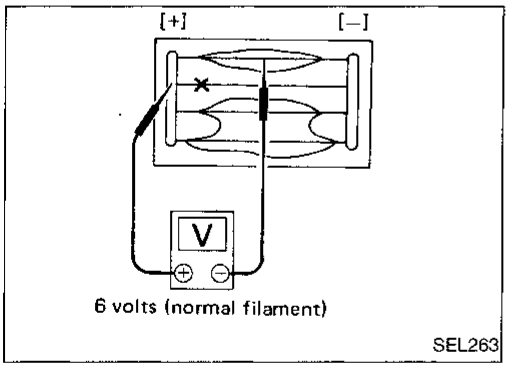
Check continuity between terminals when rear window defogger switch is pushed and released.

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



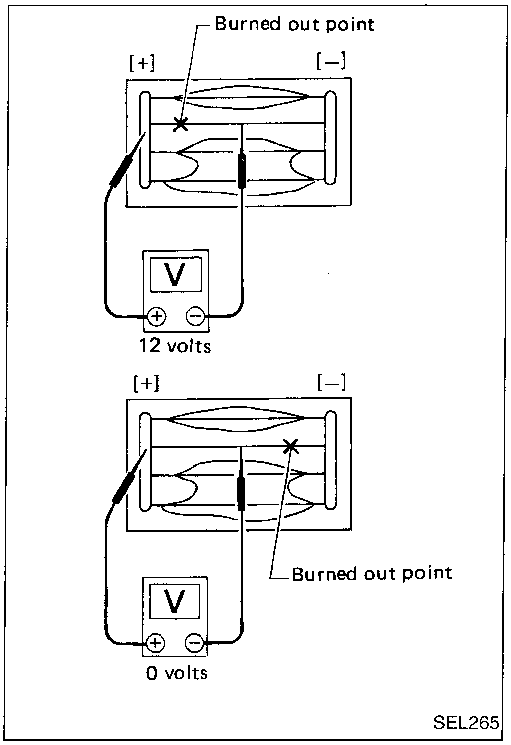
Filament Check

- **When measuring voltage, wrap tin foil around the top of the negative probe. Press the foil against the wire with your finger. Otherwise, the element may be damaged.**

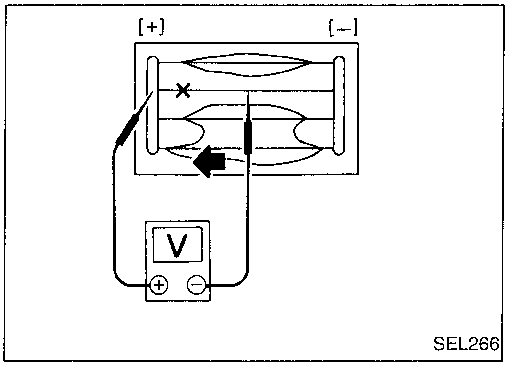


1. Attach probe circuit tester (in volt range) to middle portion of each filament.

Filament Check (Cont'd)



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

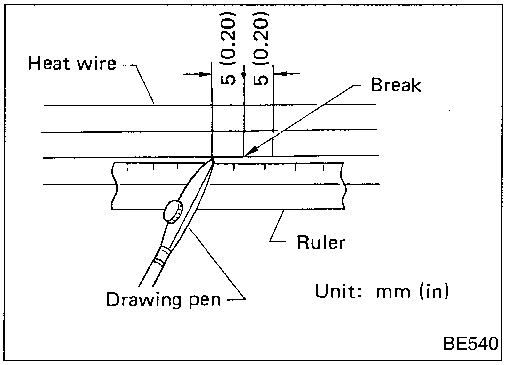


3. To locate burned out point, move probe to left and right along filament. Tester needle swings abruptly at the burned point.

Filament Repair

REPAIR EQUIPMENT

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



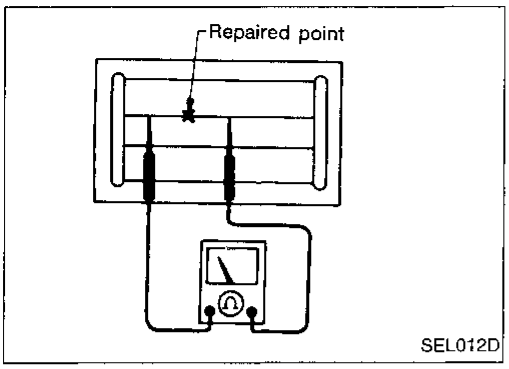
REPAIRING PROCEDURE

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

Shake silver composition container before use.

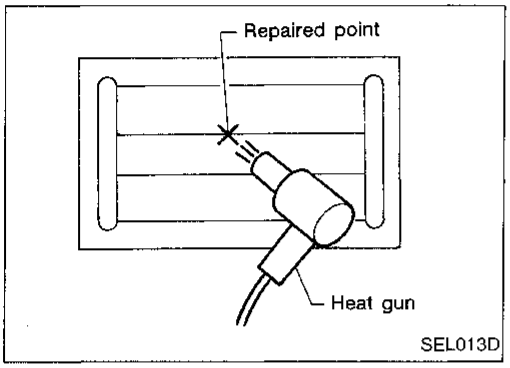
3. Place ruler on glass along broken line. Deposit conductive silver composition on break with drawing pen. Slightly overlap existing heat wire on both sides [preferably 5 mm (0.20 in)] of the break.

Filament Repair (Cont'd)



4. After repair has been completed, check repaired wire for continuity. This check should be conducted 10 minutes after silver composition is deposited.

Do not touch repaired area while test is being conducted.



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

Audio/System Description

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

BASE AUDIO SYSTEM

Power is supplied at all times:
- through 10A fuse (No. 20, located in the fuse block)
- to radio and cassette player terminal ⑰.

With the ignition switch in the ACC or ON position, power is supplied:
- through 7.5A fuse (No. 10, located in the fuse block)
- to radio and cassette player terminal ⑲.

Ground is supplied through the case of the radio and cassette player.

When the system is ON, audio signals are supplied:
- through radio and cassette player terminals ①, ②, ③, ④, ⑤, ⑥, ⑦ and ⑧
- to the front and rear speakers.

PREMIUM AUDIO SYSTEM

Power is supplied at all times:
- through 10A fuse (No. 20, located in the fuse block)
- to radio and cassette player terminal ⑰ and
- to CD changer terminal ⑨.

With the ignition switch in the ACC or ON position, power is supplied:
- through 7.5A fuse (No. 10, located in the fuse block)
- to radio and cassette player terminal ⑲ and
- to rear radio remote control unit terminal ⑤, and
- through 20A fuse (No. 11, located in the fuse block)
- to 4-channel amplifier terminal ⑥ and
- to subwoofer amplifier terminal ②.

Ground is supplied to radio and cassette player terminal ㉒ and CD changer terminal ③ through body ground (M65).
Ground is supplied to 4-channel amplifier terminal ⑤ through body ground (M124).
Ground is supplied to rear radio remote control unit terminal ⑫ through body grounds (M5), (M78) and (M123).
Ground is supplied to subwoofer amplifier terminal ⑥ through body grounds (B8) and (B10).

When the system is ON, audio signals are supplied:
- through radio and cassette player terminals ④, ⑤, ⑥, ⑦, ⑫, ⑬, ⑭ and ⑮
- to 4-channel amplifier terminals ⑱, ㉔, ㉓, ㉒, ㉑, ⑳, ⑲ and ⑮, and
- to rear radio remote control unit terminals ⑩, ⑨, ① and ② for the headphone jacks.

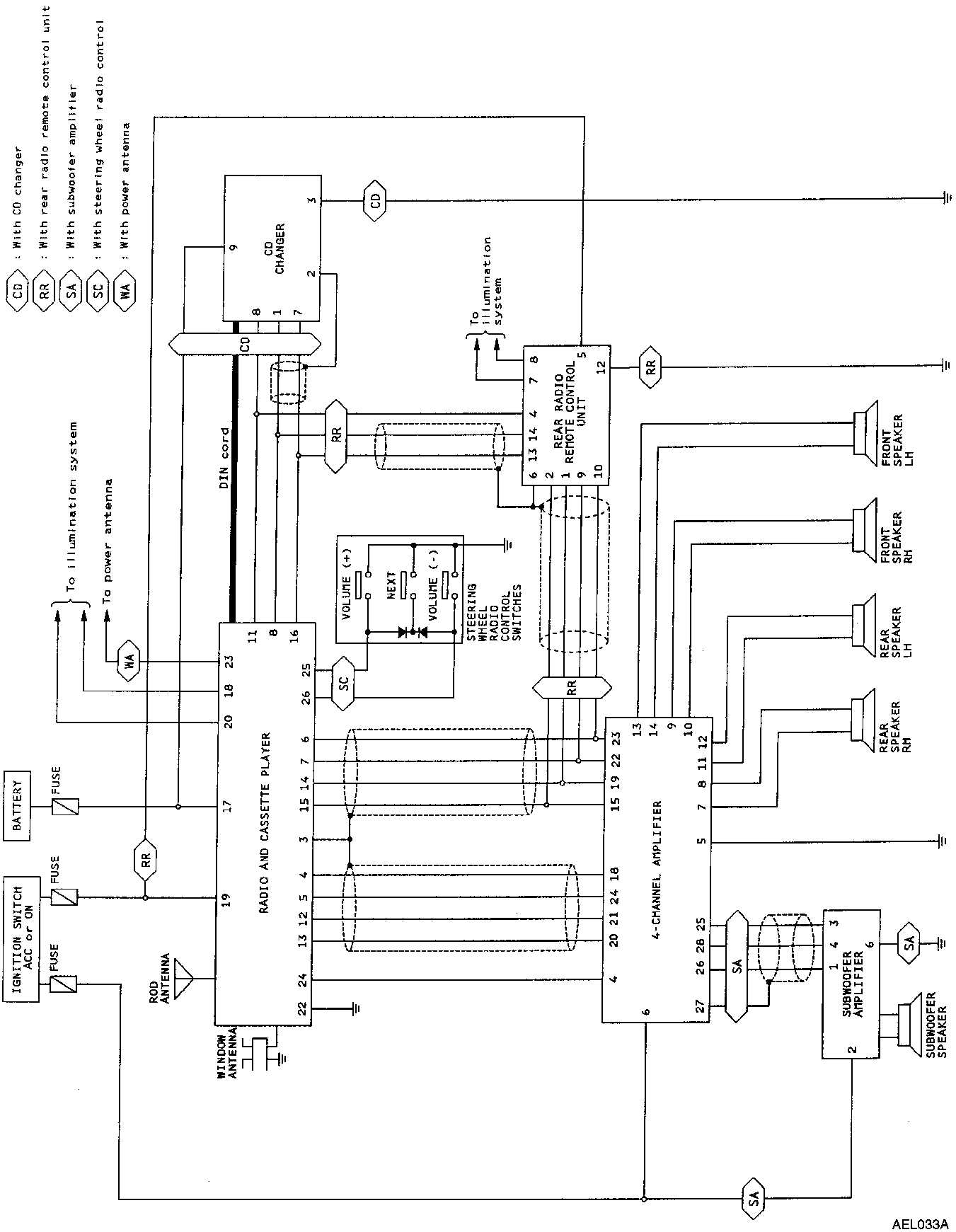
The 4-channel amplifier then supplies audio signals:
- through terminals ⑬, ⑭, ⑨, ⑩, ⑫, ⑪, ⑧, ⑦, ㉖ and ㉘
- to the front door speakers, rear speakers and subwoofer amplifier.

The volume may be increased or decreased, or the next preset station may be selected using the steering wheel radio control switches.

The radio and cassette player receives a ground signal at terminal ㉕ (volume increase) or ㉖ (volume decrease), or at terminals ㉕ and ㉖ (next preset) when the switches are depressed.

Audio/Schematic

PREMIUM AUDIO SYSTEM

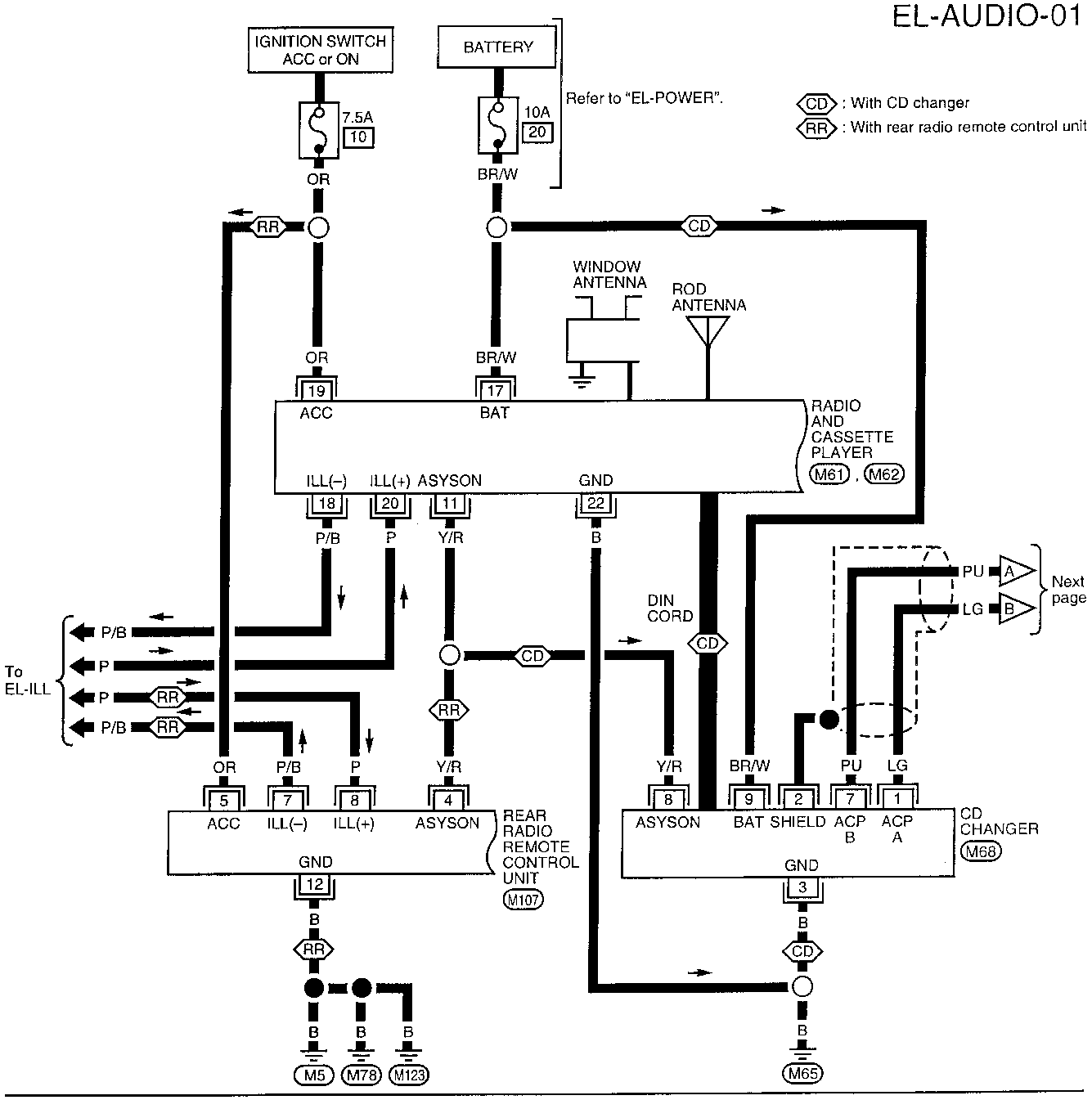


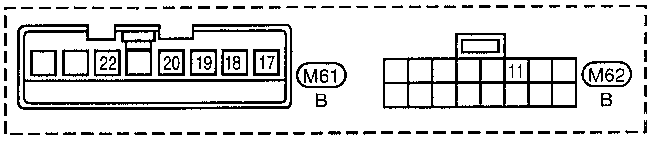
NOTES

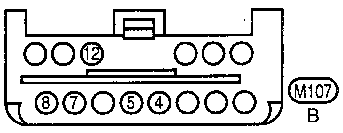
Audio/Wiring Diagram –AUDIO–

PREMIUM AUDIO SYSTEM

EL-AUDIO-01



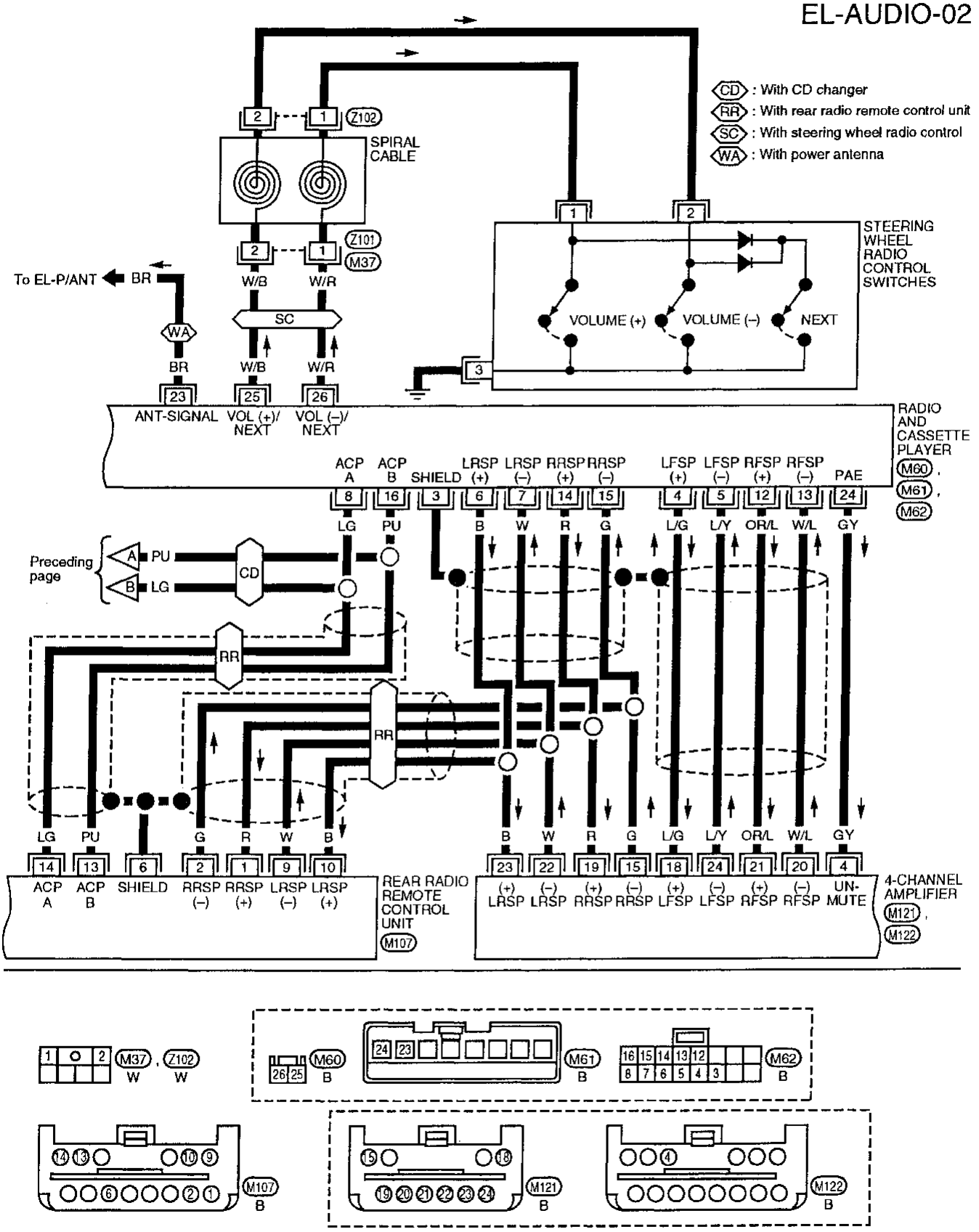




AEL968-A

Audio/Wiring Diagram –AUDIO– (Cont'd)

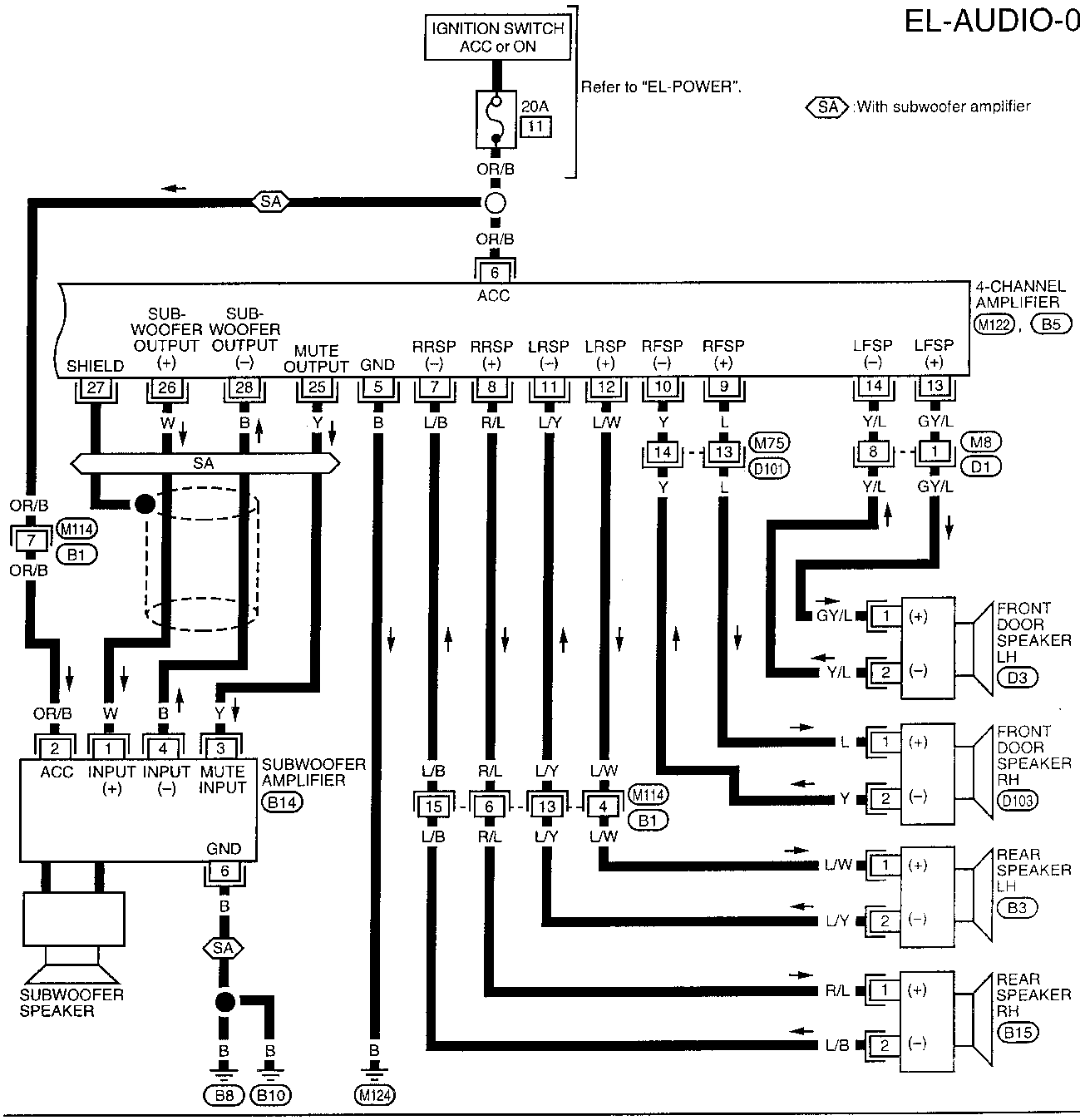
EL-AUDIO-02

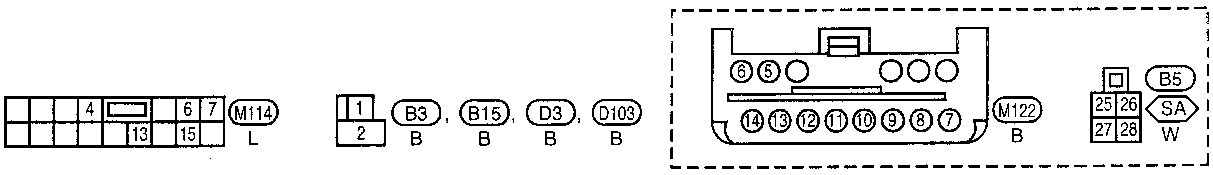


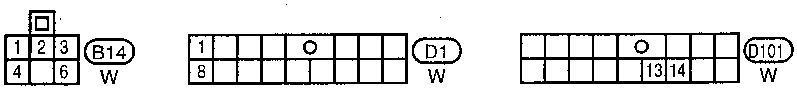
AEL968-B

Audio/Wiring Diagram –AUDIO– (Cont'd)

EL-AUDIO-03





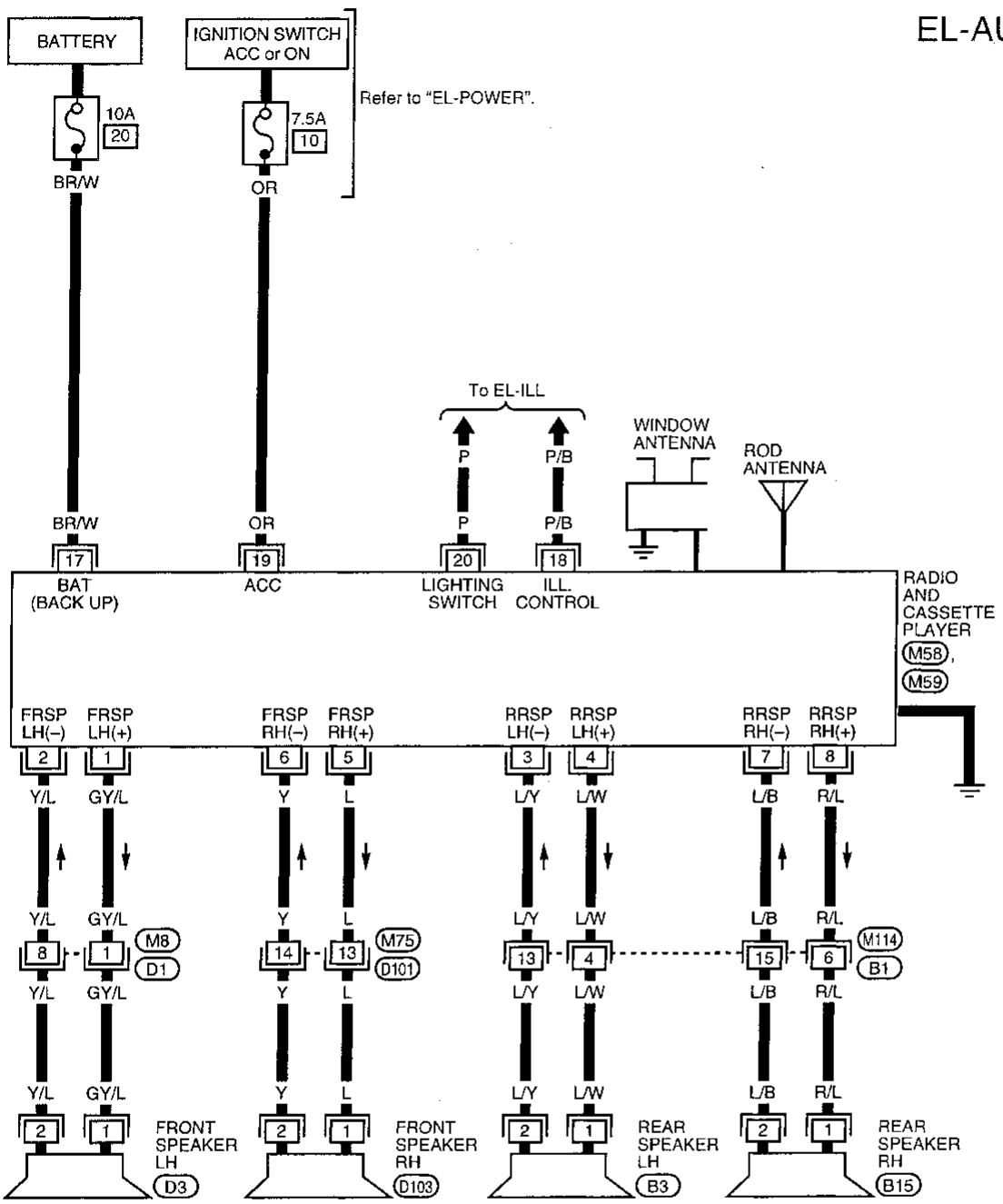


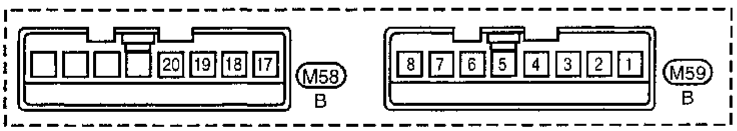
AEL968-C

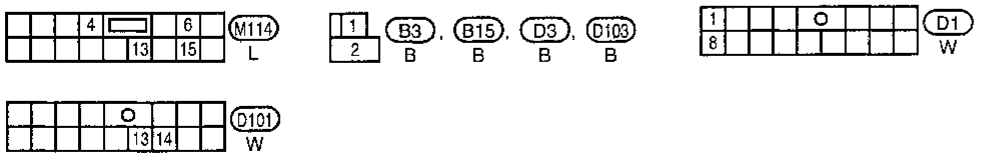
Audio/Wiring Diagram –AUDIO– (Cont'd)

BASE AUDIO SYSTEM

EL-AUDIO-04







AEL968-D

1199

Power Antenna/System Description

Power is supplied at all times:
- through 10A fuse (No. 20, located in the fuse block)
- to power antenna amplifier terminal ③, and
- to radio terminal ⑰.

With the ignition switch in the ACC or ON position, power is supplied:
- through 7.5A fuse (No. 10, located in the fuse block)
- to power antenna amplifier terminal ⑥, and
- to radio terminal ⑲.

With the ignition switch in the ON or START position, power is supplied:
- through 10A fuse (No. 29, located in the fuse block)
- to power antenna amplifier terminal ⑤.

Ground is supplied to the power antenna amplifier terminal ⑦ through body grounds (M5), (M78) and (M123).
Ground is supplied to radio terminal ㉒ through body ground (M65).

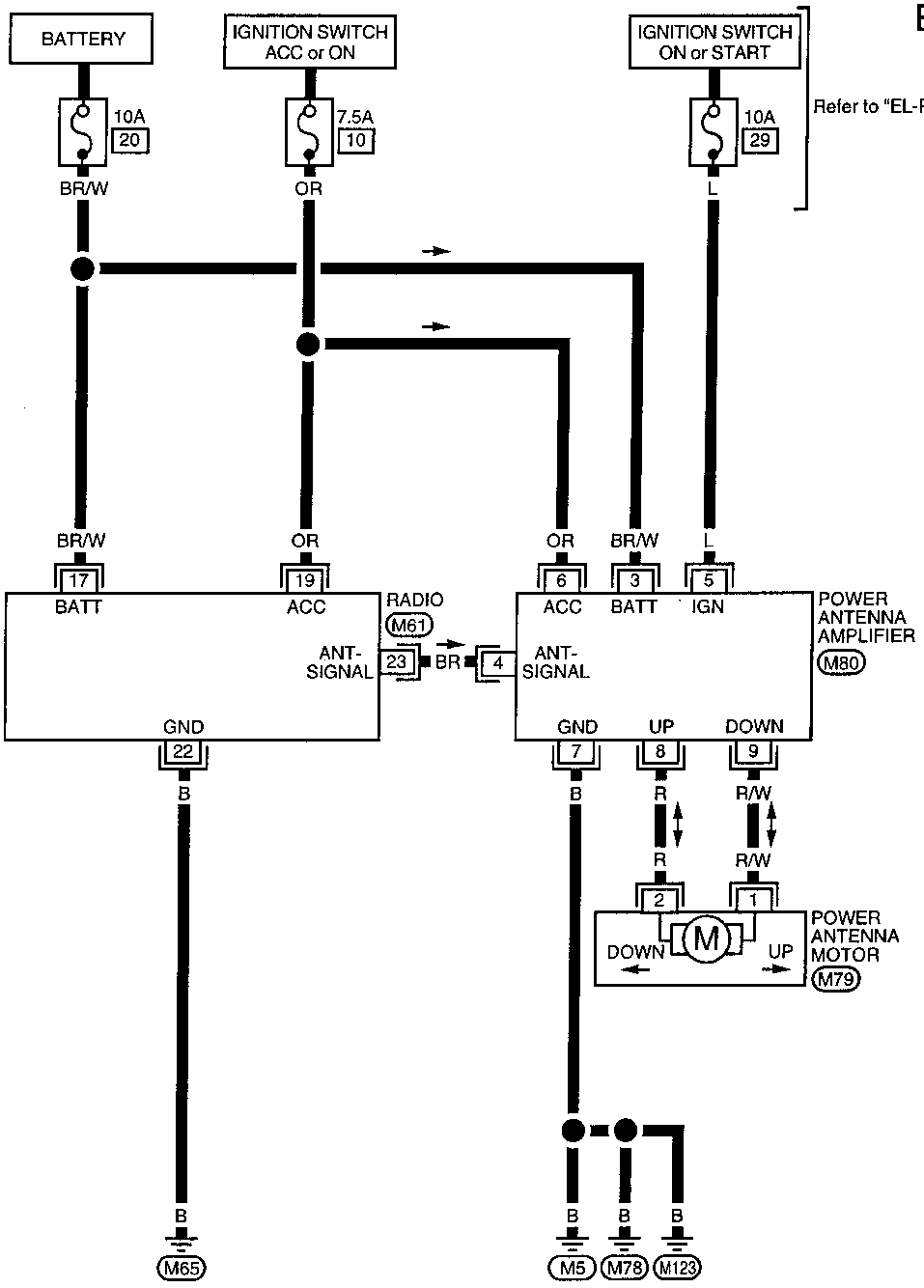
When the radio is turned ON, battery positive voltage is supplied:
- through radio terminal ㉓
- to power antenna amplifier terminal ④.

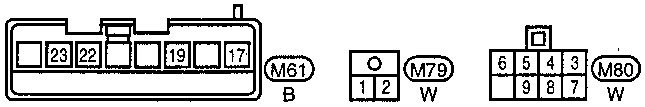
The power antenna amplifier controls the operation of the power antenna motor through terminals ⑧ and ⑨.
The antenna raises and is held in the extended position.

When the radio is turned OFF, or a cassette tape or compact disc is played, battery positive voltage is interrupted:
- from radio terminal ㉓
- to power antenna amplifier terminal ④.

The antenna retracts.

Power Antenna/Wiring Diagram –P/ANT–





AEL969

Trouble Diagnoses

Symptom	Possible causes	Repair order
Radio, C/D changer and/or rear radio remote control unit inoperative (no digital display and no sound from speakers.)	1. 10A fuse and 7.5A fuse	1. Check 10A fuse and 7.5A fuse (No's. 20 and 10, located in the fuse block). Verify battery positive voltage is present at terminal ⑰ of radio and terminal ⑨ of C/D changer. Turn ignition switch ON and verify battery positive voltage is present at terminal ⑲ of radio and terminal ⑤ of rear radio remote control unit.
	2. Poor radio case ground (base system), or poor radio, CD changer or rear radio remote control unit body ground (premium system)	2. Check radio case ground, or radio, CD changer or rear radio remote control unit body ground.
	3. Radio, C/D changer or rear radio remote control unit	3. Remove radio, C/D changer, or rear radio remote control unit for repair.
Radio controls are operational, but no sound is heard from any speaker.	1. 20A fuse (premium system)	1. Check 20A fuse (No. 11, located in the fuse block). Turn ignition switch ON and verify battery positive voltage is present at terminal ⑥ of 4-channel amplifier and terminal ② of subwoofer amplifier.
	2. Poor 4-channel amplifier and subwoofer amplifier body grounds (premium system)	2. Check 4-channel amplifier and subwoofer body grounds.
	3. 4-channel amplifier and subwoofer amplifier (premium system)	3. Check 4-channel amplifier and subwoofer amplifier voltages.
	4. 4-channel amplifier circuits (premium system)	4. Check wires for open or short between radio, 4-channel amplifier, subwoofer amplifier and speakers.
	5. Radio output	5. Check radio output voltages.
	6. Radio	6. Remove radio for repair.
Radio presets and/or CD changer memory is lost when ignition switch is turned OFF.	1. 10A fuse	1. Check 10A fuse (No. 20, located in the fuse block) and verify battery positive voltage is present at terminal ⑰ of radio and terminal ⑨ of CD changer.
	2. Radio	2. Remove radio for repair.
Individual speaker is noisy or inoperative.	1. Speaker	1. Check speaker.
	2. 4-channel amplifier output (premium system)	2. Check 4-channel amplifier output voltages.
	3. Speaker circuit	3. Check wires for open or short between radio and speaker (base system), or between 4-channel amplifier and speaker (premium system).
	4. Radio output	4. Check radio output voltages.
	5. Radio	5. Remove radio for repair.
AM stations are weak or noisy (FM stations OK).	1. Antenna	1. Check antenna.
	2. Poor radio ground	2. Check radio case ground (base system), or radio body ground (premium system).
	3. Radio	3. Remove radio for repair.
FM stations are weak or noisy (AM stations OK).	1. Diversity antenna	1. Check diversity antenna.
	2. Radio	2. Remove radio for repair.
Radio generates noise in AM and FM modes with engine running.	1. Poor radio ground	1. Check radio case ground (base system), or radio body ground (premium system).
	2. Loose or missing ground bonding straps	2. Check ground bonding straps.
	3. Ignition condenser	3. Replace ignition condenser.
	4. Generator	4. Check generator.
	5. Ignition coil or secondary wiring	5. Check ignition coil and secondary wiring.
	6. Radio	6. Remove radio for repair.
Radio generates noise in AM and FM modes with accessories on (switch pops and motor noise).	1. Poor radio ground	1. Check radio case ground (base system), or radio body ground (premium system).
	2. Antenna	2. Check antenna.
	3. Accessories ground	3. Check accessory ground.
	4. Faulty accessory	4. Replace accessory.

Trouble Diagnoses (Cont'd)

Symptom	Possible causes	Repair order
Power antenna does not operate.	1. 10A fuse	1. Check 10A fuse (No. 20, located in the fuse block). Verify battery positive voltage is present at terminal ③ of power antenna amplifier.
	2. 10A fuse	2. Check 10A fuse (No. 29, located in the fuse block). Turn ignition switch ON and verify battery positive voltage is present at terminal ⑤ of power antenna amplifier.
	3. 7.5A fuse	3. Check 7.5A fuse (No. 10, located in the fuse block). Turn ignition switch ON and verify battery positive voltage is present at terminal ⑥ of power antenna amplifier.
	4. Radio signal	4. Turn radio ON and verify battery positive voltage is present at terminal ④ of power antenna amplifier.
	5. Poor power antenna amplifier body ground	5. Check power antenna amplifier body ground.
	6. Power antenna circuit	6. Check wires for open or short between power antenna amplifier and power antenna motor.

Trouble Diagnoses (Cont'd)

SPEAKER INSPECTION

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

ANTENNA INSPECTION

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

RADIO, C/D CHANGER, REAR RADIO REMOTE CONTROL UNIT, 4-CHANNEL AMPLIFIER AND SUBWOOFER AMPLIFIER INSPECTION

All voltage inspections are made with:
- Ignition switch ON or ACC
- Radio ON
- Radio, C/D changer, rear radio remote control unit, 4-channel amplifier and subwoofer amplifier connected (If the base radio is removed from the audio mounting bracket to make the inspection, supply a ground to the case using a jumper wire.)

PREMIUM RADIO VOLTAGES

Terminal	Voltage (V)
1	—
2	—
3	Shield ground
4	0 - 5V
5	0 - 5V
6	0 - 5V
7	0 - 5V
8	Data line
9	—
10	—
11	10.8 - 15.6V (Radio on)
12	0 - 5V
13	0 - 5V
14	0 - 5V
15	0 - 5V
16	Data line
17	10.8 - 15.6V (Battery)
18	Greater than 3.0V (Illumination on)
19	10.8 - 15.6V (Ignition ACC or ON)
20	10.8 - 15.6V (Illumination on)
21	—
22	Body ground
23	10.8 -15.6V (Radio on)
24	Greater than 3.5V (Radio on)
25	Check continuity between radio harness connector (M60) and steering wheel radio control switches harness connector (Z102).
26	

BASE RADIO VOLTAGES

Terminal	Voltage (V)
1	0 - 2.3V
2	0 - 2.3V
3	0 - 2.3V
4	0 - 2.3V
5	0 - 2.3V
6	0 - 2.3V
7	0 - 2.3V
8	0 - 2.3V
17	10.8 - 15.6V (Battery)
18	Greater than 3.0V (Illumination on)
19	10.8 - 15.6V (Ignition ACC or ON)
20	10.8 - 15.6V (Illumination on)
21	—
22	—
23	—
24	—

The radio is case grounded through the audio mounting bracket.

REAR RADIO REMOTE CONTROL UNIT VOLTAGES

Terminal	Voltage (V)
1	0 - 5V input
2	0 - 5V input
3	—
4	10.8 - 15.6V (Radio on)
5	10.8 - 15.6V (Ignition ACC or ON)
6	Shield ground
7	Body ground (Illumination)
8	10.8 - 15.6V (Illumination on)
9	0 - 5V input
10	0 - 5V input
11	—
12	Body ground
13	Data line
14	Data line

C/D CHANGER VOLTAGES

Terminal	Voltage (V)
1	Data line
2	Shield ground
3	Body ground
4	—
5	—
6	—
7	Data line
8	10.8 - 15.6V (Radio on)
9	10.8 - 15.6V (Battery)
10	—
11	—
12	—

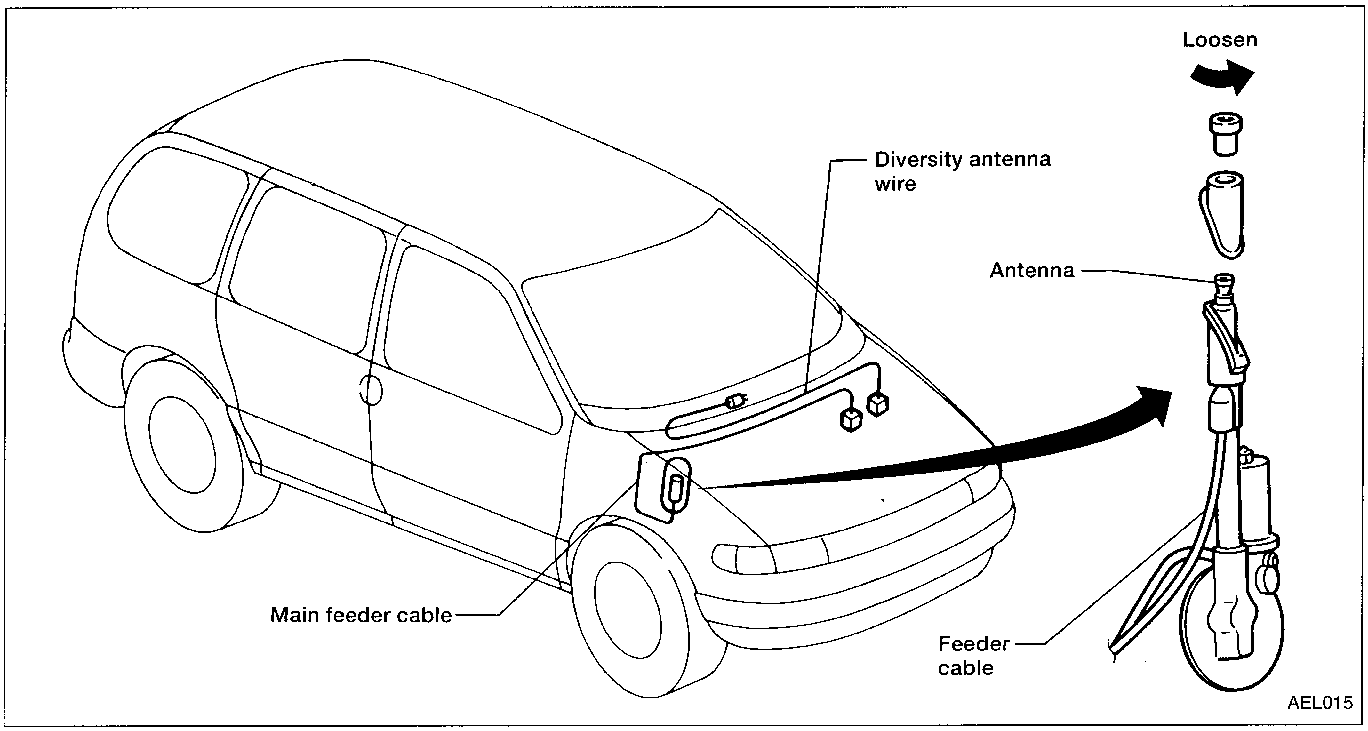
SUBWOOFER AMPLIFIER VOLTAGES

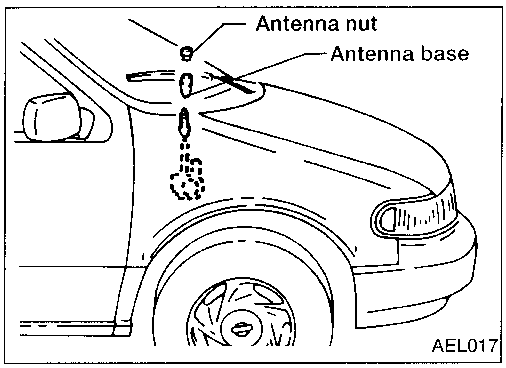
Terminal	Voltage (V)
1	0 - 1.5V input
2	10.8 - 15.6V (Ignition ACC or ON)
3	Greater than 11V (Radio on)
4	0 - 1.5V input
5	—
6	Body ground

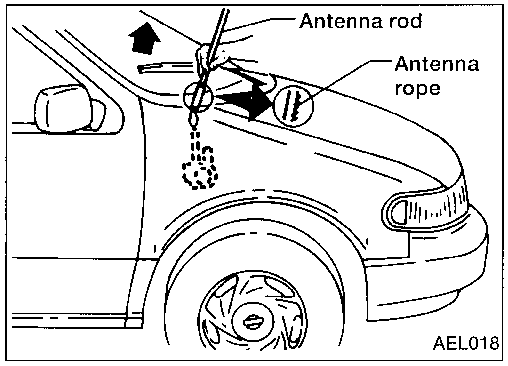
4-CHANNEL AMPLIFIER VOLTAGES

Terminal	Voltage (V)
1	—
2	—
3	—
4	Greater than 3.5V (Radio on)
5	Body ground
6	10.8 - 15.6V (Ignition ACC or ON)
7	0 - 7.5V
8	0 - 7.5V
9	0 - 7.5V
10	0 - 7.5V
11	0 - 7.5V
12	0 - 7.5V
13	0 - 7.5V
14	0 - 7.5V
15	0 - 5V
16	—
17	—
18	0 - 5V
19	0 - 5V
20	0 - 5V
21	0 - 5V
22	0 - 5V
23	0 - 5V
24	0 - 5V
25	Greater than 11V (Radio on)
26	0 - 1.5V
27	Shield ground
28	0 - 1.5V

Location of Antenna







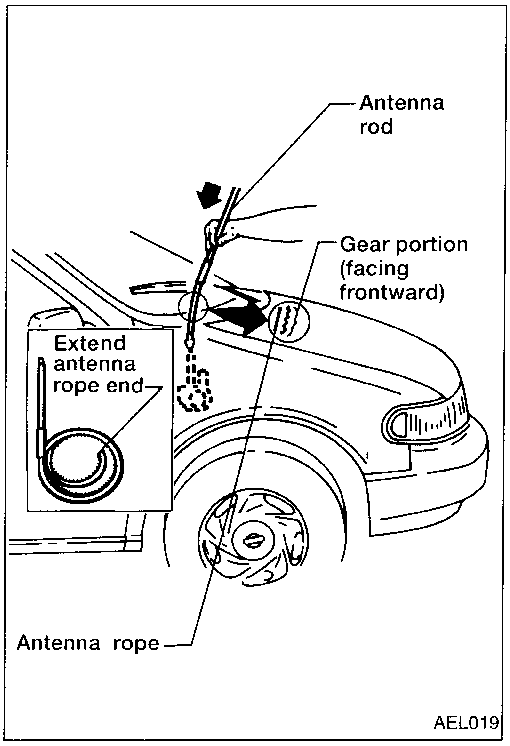
Antenna Rod Replacement

REMOVAL

1. Remove antenna nut and antenna base.

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

Antenna Rod Replacement (Cont'd)



INSTALLATION

1. Insert gear section of antenna rope into place with it facing toward antenna motor.
2. Lower antenna rod by operating antenna motor.
3. As soon as antenna rope is wound onto 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.

System Description

Power is supplied at all times:
- from 30A fusible link (letter [a], 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 ③.

Power is supplied at all times:
- from 7.5A fuse (No. [41], located in the fuse and fusible link box)
- to smart entrance control unit terminal ⑨.

Power is supplied at all times:
- from 15A fuse (No. [44], located in the fuse and fusible link box)
- to horn relay terminals ② and ③.

Power is supplied at all times:
- to tail lamp relay terminals ② and ③.

Power is supplied at all times:
- from 15A fuse (No. [21], located in the fuse block)
- to the interior lamps. Ground is supplied to smart entrance control unit terminals ①, ⑳ and ㊿ through body grounds (M5), (M78) and (M123).

INPUTS

When the ignition key is inserted in ignition key cylinder, ground is supplied:
- through key switch terminal ①
- to smart entrance control unit terminal ⑭.

When the front door LH is open, ground is supplied:
- to smart entrance control unit terminal ⑤
- through front door switch LH terminal ②.

When the front door RH is open, ground is supplied:
- to smart entrance control unit terminal ④
- through front door switch RH terminal ①.

When the sliding door is open, ground is supplied:
- to smart entrance control unit terminal ㉚
- through sliding door switch terminal ①.

When the tailgate is open, ground is supplied:
- to smart entrance control unit terminal ㉙
- through back door latch switch terminal ① (with normal glass), or terminal ② (with glass hatch)
- to back door latch switch terminal ② (with normal glass), or terminal ① (with glass hatch)
- through body ground (B104).

When the front door lock actuator LH (door unlock sensor) is UNLOCKED, ground is supplied:
- to smart entrance control unit terminal ㉘
- through front door lock actuator LH (door unlock sensor) terminal ③
- to front door lock actuator LH (door unlock sensor) terminal ④
- through body grounds (M5), (M78) and (M123).

When the front door lock actuator RH (door unlock sensor) is UNLOCKED, ground is supplied:
- to smart entrance control unit terminal ㉗
- through front door lock actuator RH (door unlock sensor) terminal ③
- to front door lock actuator RH (door unlock sensor) terminal ④
- through body grounds (M5), (M78) and (M123).

When the sliding door lock actuator (door unlock sensor) is UNLOCKED, a ground signal is supplied:
- to sliding door control unit terminal ①
- through sliding door lock actuator (door unlock sensor) terminal④
- to sliding door lock actuator (door unlock sensor) terminal ③
- through sliding door control unit terminal ⑧.

System Description (Cont'd)

A sliding door status signal is supplied:
- to smart entrance control unit terminal ⑩
- from sliding door control unit terminal ⑦.

When the back door lock actuator (door unlock sensor) is UNLOCKED, ground is supplied:
- to smart entrance control unit terminal ㊹
- through back door lock actuator (door unlock sensor) terminal ③ (with normal glass), or terminal ④ (with glass hatch)
- to back door lock actuator (door unlock sensor) terminal ④(with normal glass), or terminal ③ (with glass hatch)
- through body ground (B104) .

When the front door key cylinder switch (unlock switch) LH or RH is BETWEEN FULL STROKE AND N, ground is supplied:
- to smart entrance control unit terminal ㊽
- through front door key cylinder switch (unlock switch) LH or RH terminal ①
- to front door key cylinder switch (unlock switch) LH or RH terminal ④
- through body grounds (M5) , (M78) and (M123) . Remote controller signal is input:
- through window antenna
- to smart entrance control unit terminal ㊺.

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

OPERATING PROCEDURE

Power door lock operation

When the following signals are both supplied:
- key switch OFF (when ignition key is not inserted in ignition key cylinder);
- door switches CLOSED (when all the doors are closed); smart entrance control unit locks all the doors with input of LOCK signal from remote controller. When key switch is OFF (when ignition key is not inserted in the ignition key cylinder), smart entrance control unit unlocks all the doors with input of UNLOCK signal from remote controller. Pressing UNLOCK once will unlock the driver's door, pressing UNLOCK again within 5 seconds will unlock the other doors. The doors may also be locked and unlocked in a similar manner using the door key. Refer to "POWER DOOR LOCK", EL-137 and "THEFT WARNING SYSTEM", EL-221.

Interior lamps operation

When the following input signals are both supplied:
- key switch OFF (when ignition key is not inserted in ignition key cylinder);
- door switches CLOSED (when all the doors are closed); smart entrance control unit turns on interior lamps (for 30 seconds) with input of UNLOCK signal from remote controller. For detailed description, refer to "Interior, Map, Personal, Step and Tailgate Lamps/System Description", EL-84.

Panic alarm operation

The smart entrance control unit turns on and off horn, headlamps, side marker lamps, tail lamps, and license lamps intermittently with the input of a PANIC ALARM signal from the remote controller. For detailed description, refer to "System Description", "THEFT WARNING SYSTEM", EL-224.

Door lock verification

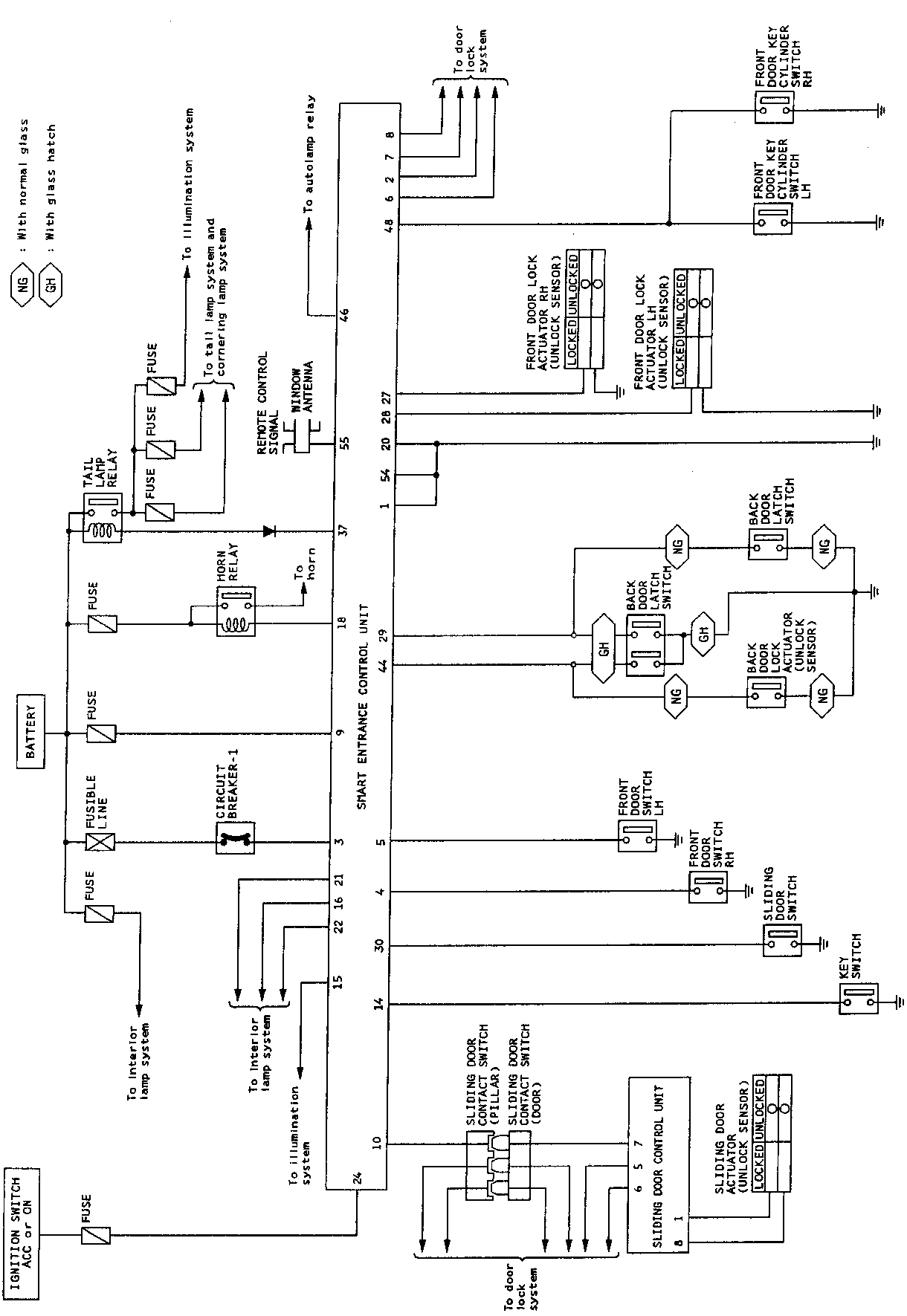
When the following input signals are all supplied:
- key switch OFF (when ignition key is not inserted in ignition key cylinder);
- door switches CLOSED (when all the doors are closed);
- door lock actuator (door unlock sensor) LOCKED (when all the doors are locked); smart entrance control unit outputs the following ground signals with input of LOCK signal from remote controller:
- to horn relay terminal ①
- through smart entrance control unit terminal ⑱
- to tail lamp relay terminal ①

System Description (Cont'd)

- through smart entrance control unit terminal ㊲
- to all interior illumination lamps
- through smart entrance control unit terminal ⑮.

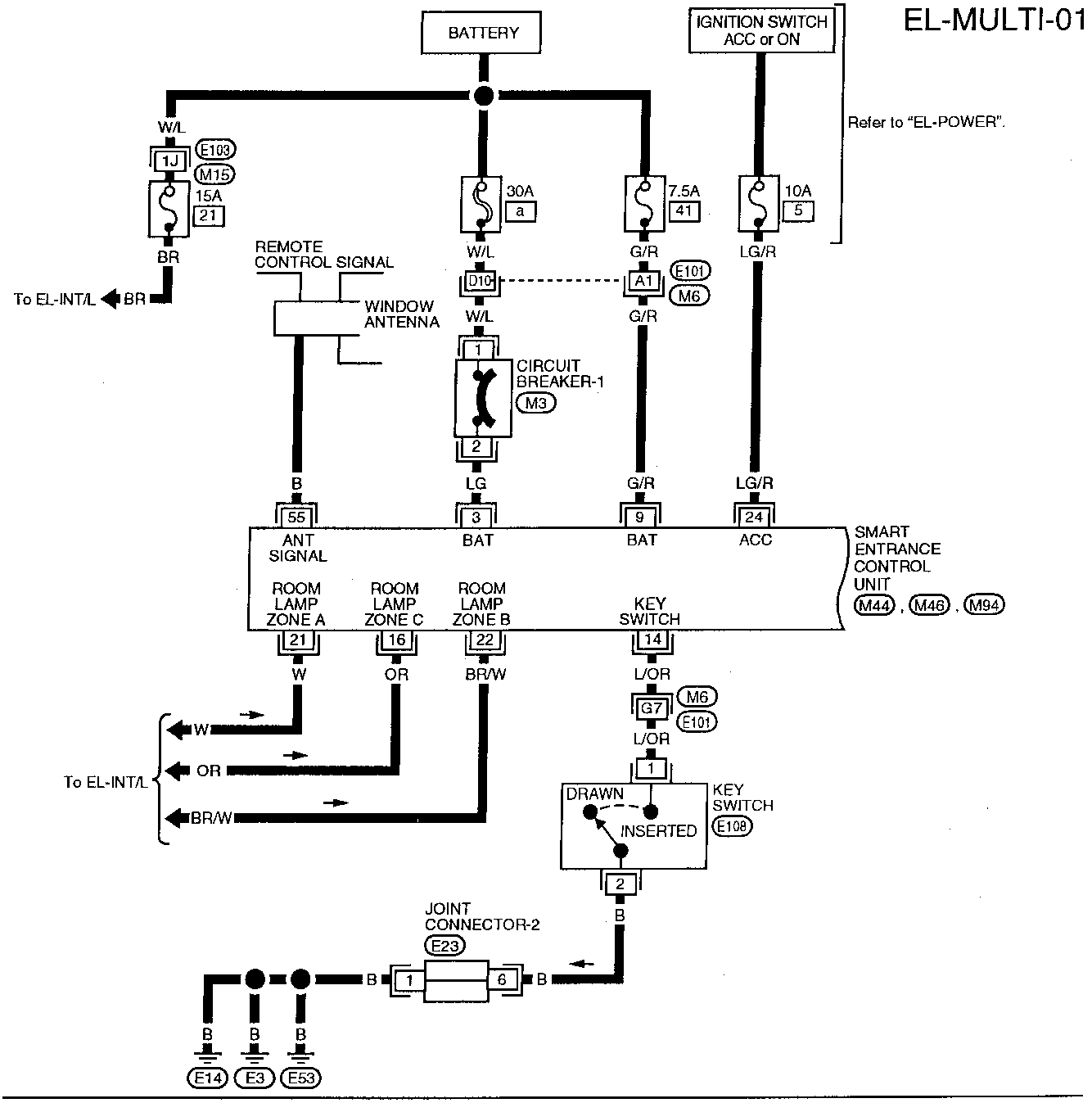
As a result, horn relay and tail lamp relay are energized and the horn, side marker lamps, tail lamps, license lamps, and interior illumination lamps turn on and off.

Schematic

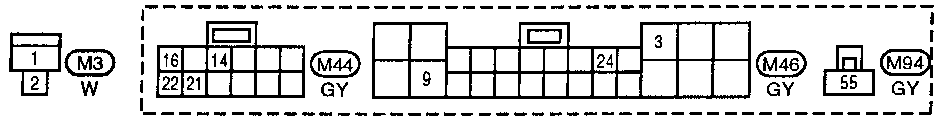


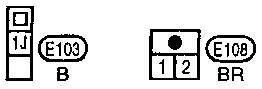
AEL035A

Wiring Diagram –MULTI–



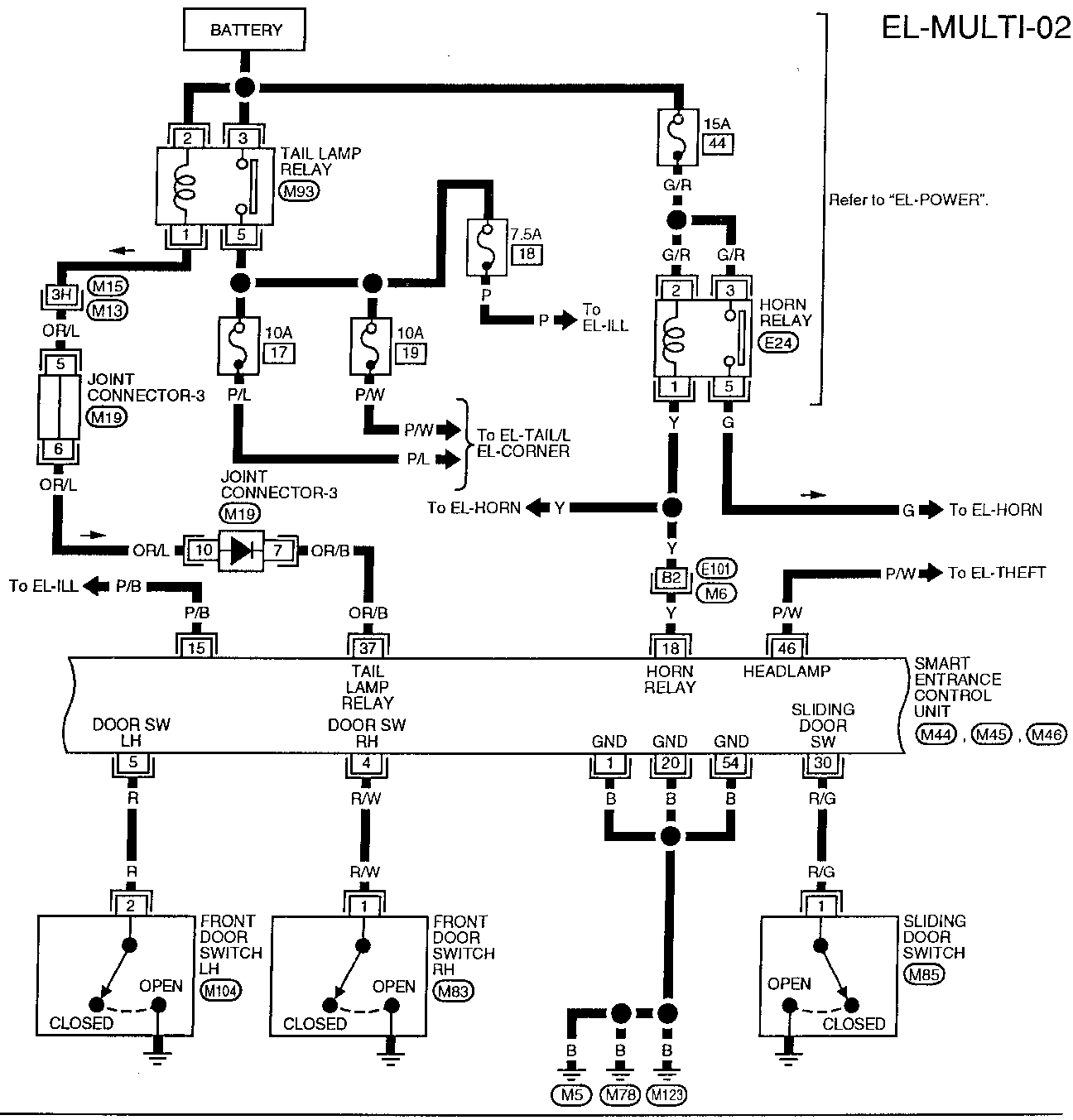
Refer to last page (Foldout page).
M6 , E101
E23

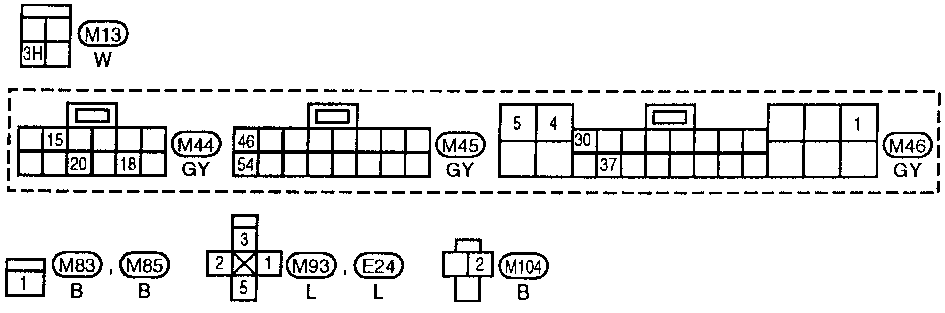




AEL971-A

Wiring Diagram –MULTI– (Cont'd)





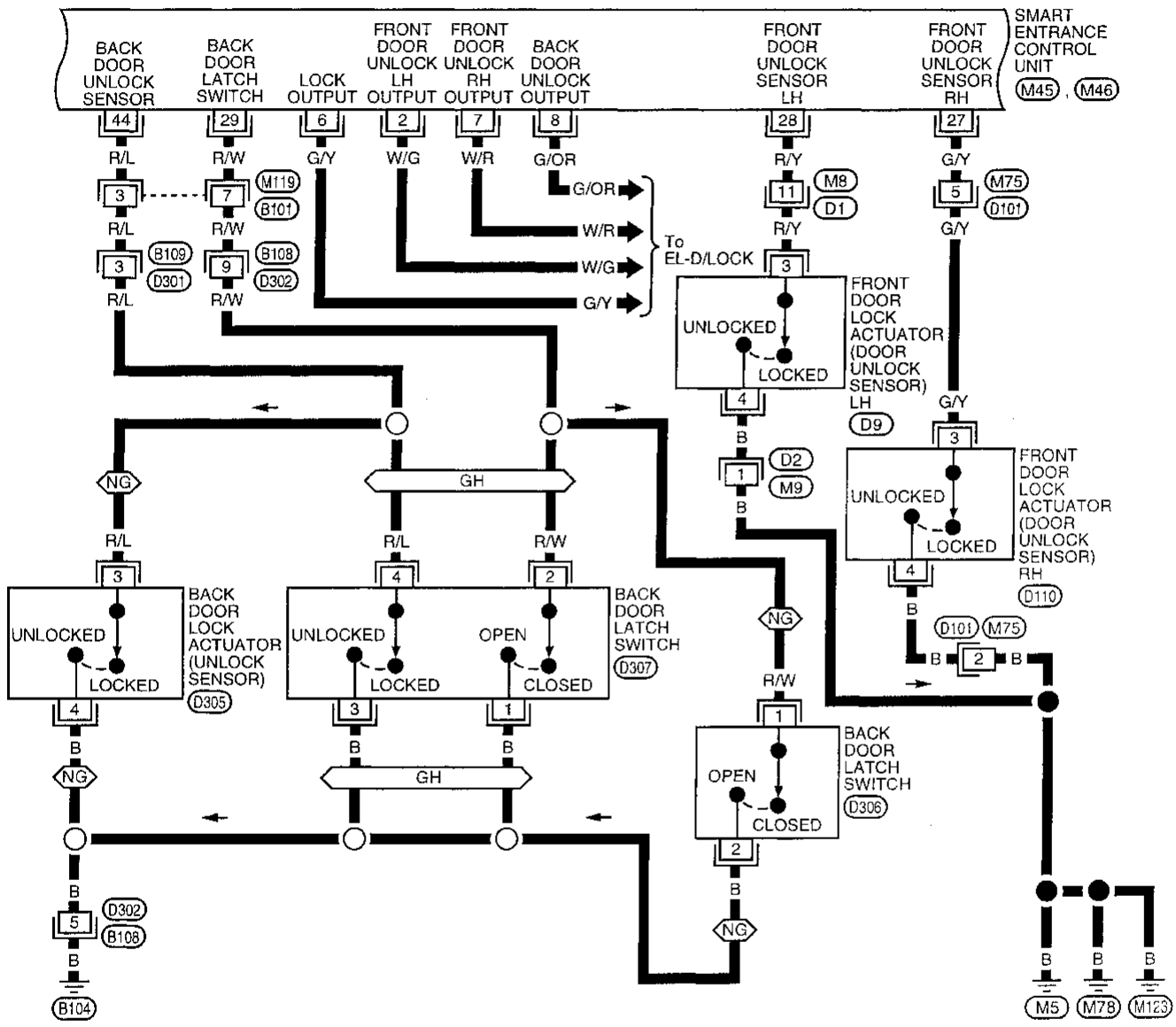
Refer to last page (Foldout page).
M6, E101
M19

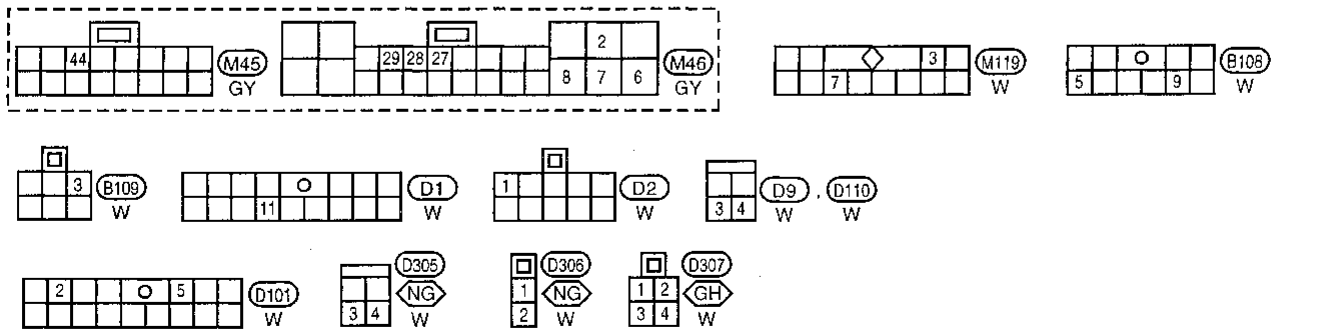
AEL971-B

Wiring Diagram –MULTI– (Cont'd)

EL-MULTI-03

NG : With normal glass
GH : With glass hatch

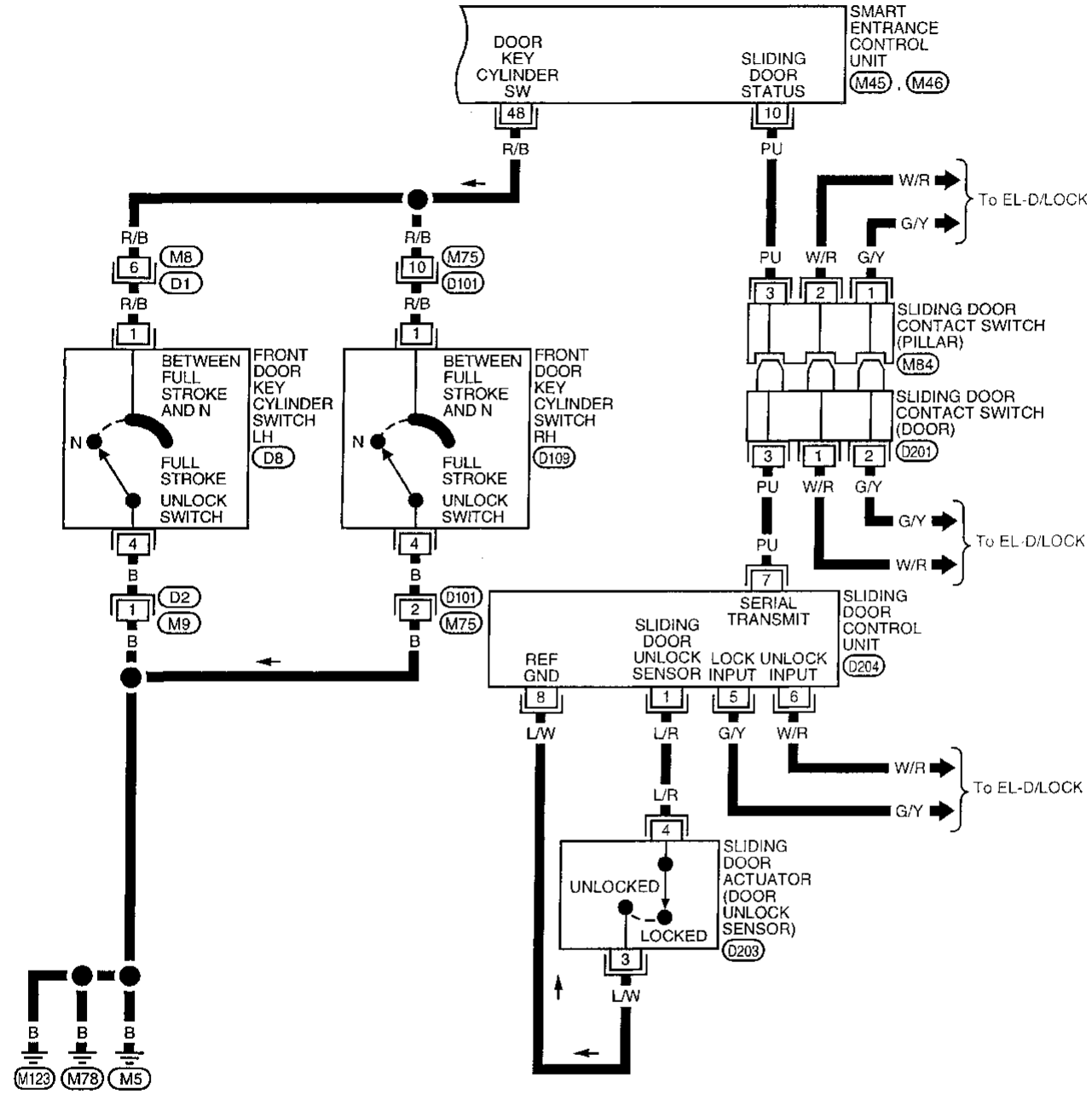




AEL971-C

Wiring Diagram –MULTI– (Cont'd)

EL-MULTI-04



AEL971-D

1215

Input/Output Operation Signal

SMART ENTRANCE CONTROL UNIT

Terminal No.	Connections	Operated condition	Voltage (V) (Approximate values)
1	Ground	—	—
2	Front door LH actuator	Door lock/unlock switch NEUTRAL → LOCK	0V → 12V
3	Power source (C/B)	—	12V
4	Front door switch RH	OFF (Closed) → ON (Open)	12V → 0V
5	Front door switch LH	OFF (Closed) → ON (Open)	12V → 0V
6	All door lock actuators	Door lock/unlock switch NEUTRAL → LOCK	0V → 12V
7	Front door RH/sliding door actuator	Door lock/unlock switch NEUTRAL → UNLOCK	0V → 12V
8	Back door lock actuator	Door lock/unlock switch NEUTRAL → UNLOCK	0V → 12V
9	Power source (logic)	—	12V
10	Sliding door status	—	—
11	—	—	—
12	Warning chime	OFF → ON	12V → 0V
13	Rear defogger relay	OFF → ON	12V → 0V
14	Ignition key switch (Insert)	IGN key inserted → IGN key removed from IGN key cylinder	0V → 12V
15	Illumination	OFF → ON	0V → 3V or greater
16	Interior lamp (zone C)	Rear room lamp or personal lamp OFF → ON	12V → 0V
17	Power window/electric sunroof delayed power relay	OFF → ON	12V → 0V
18	Horn relay	When doors are locked using remote controller	12V → 0V
19	—	—	—
20	Ground	—	—
21	Interior lamp (zone A)	When interior lamp is operated using remote controller. (Lamp switch in DOOR position)	12V → 0V
22	Interior lamp (zone B)	When interior lamp is operated using remote controller. (Lamp switch in DOOR position)	12V → 0V
23	—	—	—
24	Ignition switch (ACC)	ACC position	12V
25	Ignition switch (ON)	ON position	12V
26	—	—	—
27	Front door RH unlock sensor	LOCKED → UNLOCKED	12V → 0V
28	Front door LH unlock sensor	LOCKED → UNLOCKED	12V → 0V
29	Back door latch switch	OFF (Closed) → ON (Open)	12V → 0V
30	Sliding door switch	OFF (Closed) → ON (Open)	12V → 0V
31	Rear window defogger switch	OFF → ON	12V → 0V
32	Seat belt switch	Unfasten → Fasten	0V → 12V
33	Door lock/unlock switches	NEUTRAL → LOCK	12V → 0V
34	Door lock/unlock switches	NEUTRAL → UNLOCK	12V → 0V
35	Illumination control (Darker)	NEUTRAL → DARKER	12V → 0V
36	Illumination control (Lighter)	NEUTRAL → LIGHTER	12V → 0V
37	Tail lamp relay	When panic alarm is operated using remote controller	12V → 0V

Input/Output Operation Signal (Cont'd)

Terminal No.	Connections	Operated condition	Voltage (V) (Approximate values)
38	—	—	—
39	—	—	—
40	—	—	—
41	—	—	—
42	—	—	—
43	—	—	—
44	Back door unlock sensor	LOCKED → UNLOCKED	12V → 0V
45	Theft warning relay	When theft warning system is activated	12V → 0V
46	Autolamp relay	When panic alarm is operated using remote controller	12V → 0V
47	—	—	—
48	Door key cylinder unlock switch	OFF (Neutral) → ON (Unlocked)	12V → 0V
49	Door key cylinder lock switch	OFF (Neutral) → ON (Locked)	12V → 0V
50	—	—	—
51	Security indicator lamp	Turns off → Illuminates	12V → 0V
52	—	—	—
53	Hood switch	ON (Open) → OFF (Closed)	0V → 12V
54	Ground	—	—
55	Multi-remote antenna	—	—

Trouble Diagnoses

TROUBLE SYMPTOM

- All functions of remote control system do not operate.

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

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

Replace the multi-remote controller.

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

① DOOR LOCK OR UNLOCK DOES NOT FUNCTION.
(Pressing lock or unlock button of remote controller normally locks or unlocks all doors.)
- Check if power door lock system functions with door lock & unlock switch.

→ No → Check "POWER DOOR LOCK" system.

OR

② SIDE MARKER LAMPS, TAIL LAMPS, LICENSE LAMPS AND INTERIOR ILLUMINATION LAMPS DO NOT FLASH TWICE WHEN PRESSING LOCK BUTTON OF REMOTE CONTROLLER.
- Check if lamps work with lighting switch.

If check is OK, Go to DIAGNOSTIC PROCEDURE 3.
→ No → Check "Side marker lamps, tail lamps, license lamps and interior illumination lamps" circuit.

OR

③ INTERIOR LAMPS DO NOT TURN ON FOR 30 SECONDS WHEN PRESSING UNLOCK BUTTON OF REMOTE CONTROLLER.
- Check if interior lamp switches are in the DOOR position, the lamps illuminate when a door is open.

If check is OK, Go to DIAGNOSTIC PROCEDURE 4.
→ No → Check "Interior lamp" circuit.

OR

④ PANIC ALARM (HORN, HEADLAMPS, SIDE MARKER LAMPS, TAIL LAMPS, LICENSE LAMPS AND INTERIOR ILLUMINATION LAMPS) DO NOT ACTIVATE WHEN PANIC ALARM BUTTON IS CONTINUOUSLY PRESSED FOR MORE THAN 1.5 SECONDS.
- Check if horn, headlamps, side marker lamps, tail lamps, license lamps and interior illumination lamps activate when test is conducted as follows:
  1. Open the driver's window.
  2. Close all doors and hood. Wait for about 30 seconds to make sure that the lighted SECURITY warning lamp begins to blink.
  3. Lock doors with door key inserted into key cylinder.
  4. Manually unlock with driver's door lock knob, then panic alarm should activate. (The alarm will stop when door is locked and unlocked with the key.)

→ No → Check "THEFT WARNING" system.

↓ Yes

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

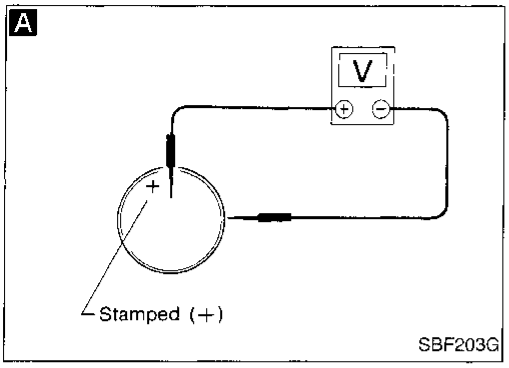
Replace the multi-remote controller.

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

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 1

Check remote controller battery.



A

CHECK REMOTE CONTROLLER BATTERY.

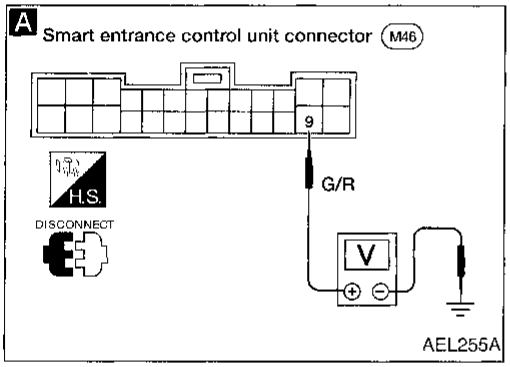
Remove battery and measure voltage across battery positive and negative terminals ⊕ and ⊖.

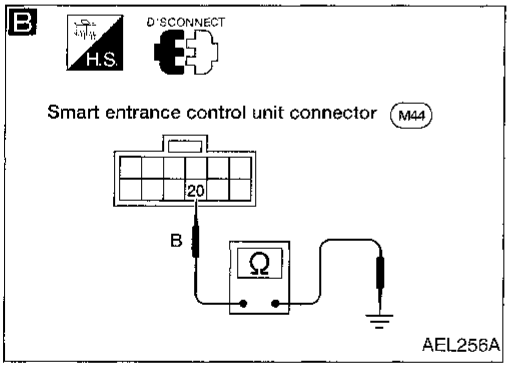
Measuring terminal		Standard value
⊕	⊖	
Battery positive terminal ⊕	Battery negative terminal ⊖	3V or more

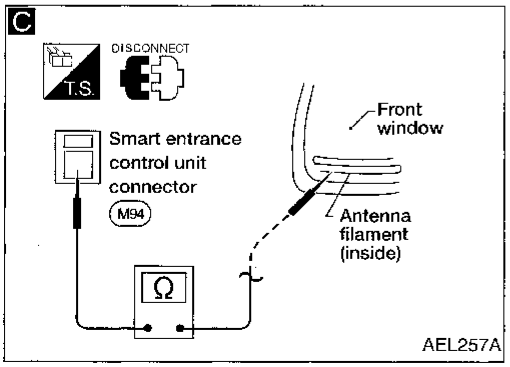
Note:
Remote controller does not function if battery is not set correctly.

DIAGNOSTIC PROCEDURE 2

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







A

CHECK MAIN POWER SUPPLY CIRCUIT.

1. Remove key from ignition.
2. Disconnect connector from smart entrance control unit. Check voltage across smart entrance control unit harness terminal ⑨ and GND.

Battery voltage should exist.

NG → Check power supply harness.

OK ↓

B

CHECK GROUND CONTINUITY.

Check continuity between harness terminal ⑳ and GND.

Continuity should exist.

NG → Check GND harness.

OK ↓

C

CHECK ANTENNA CIRCUIT.

Disconnect 1-pin connector from smart entrance control unit.

Check continuity between terminal on 1-pin harness connector and filament on the front window.

Continuity should exist.

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

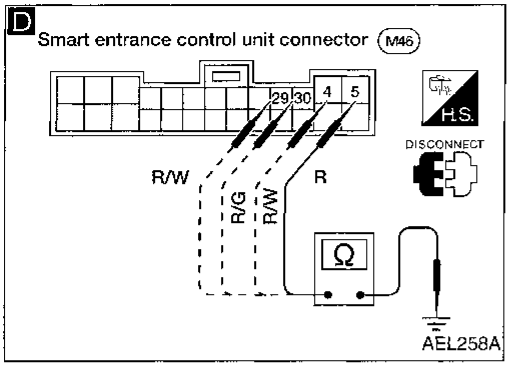
OK ↓

Ⓐ

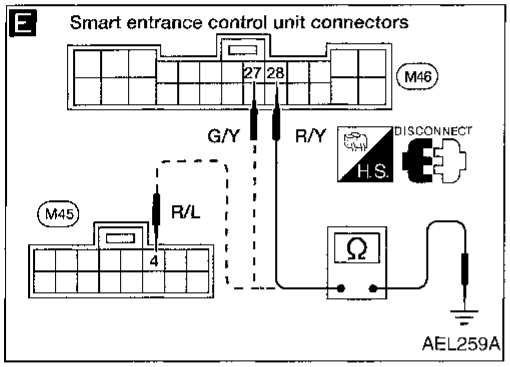
(Go to next page.)

Trouble Diagnoses (Cont'd)

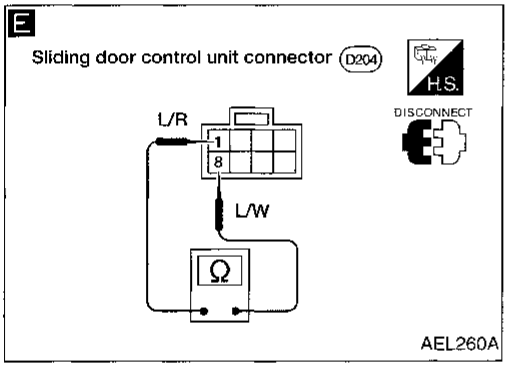
D



E



E



Ⓐ

D

CHECK DOOR SWITCH CIRCUIT.

Check continuity between smart entrance control unit harness terminals and GND.

	Terminals	Condition	Continuity
Front door switch LH	⑤ - GND	Open	Yes
		Close	No
Front door switch RH	④ - GND	Open	Yes
		Close	No
Sliding door switch	㉚ - GND	Open	Yes
		Close	No
Back door latch switch	㉙ - GND	Open	Yes
		Close	No

NG → Check the following:
- Door switch
- Door switch case ground condition
- Door switch body ground (for back door latch switch)
- Harness for open or short.

OK ↓

E

CHECK UNLOCK SENSOR CIRCUIT.

- Check continuity between smart entrance control unit harness terminal ㉘ and GND, ㉗ and GND, and ㊹ and GND.

	Terminals	Condition	Continuity
Front door unlock sensor LH	㉘ - GND	Unlock	Yes
		Lock	No
Front door unlock sensor RH	㉗ - GND	Unlock	Yes
		Lock	No
Back door unlock sensor	㊹ - GND	Unlock	Yes
		Lock	No

- Check continuity between sliding door control unit harness terminals ① and ⑧.

	Terminals	Condition	Continuity
Sliding door unlock sensor	① - ⑧	Unlock	Yes
		Lock	No

NG → Check the following:
- Door unlock sensor
- Door unlock sensor ground circuit
- Harness for open or short.

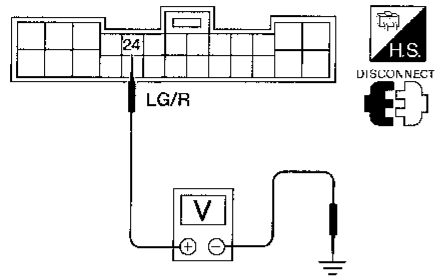
OK ↓

Ⓐ

(Go to next page.)

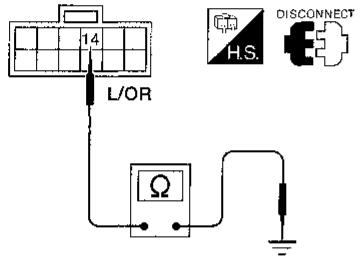
Trouble Diagnoses (Cont'd)

F Smart entrance control unit connector M46



AEL261A

G Smart entrance control unit connector M44



AEL262A

Ⓐ

F

CHECK IGNITION SWITCH "ACC" CIRCUIT.

Check voltage between smart entrance control unit harness terminal ㉔ and GND while ignition switch is turned to ACC.

Does battery voltage exist?

No → Check ignition switch "ACC" circuit.

Yes

G

KEY SWITCH INPUT SIGNAL CHECK.

Check continuity between smart entrance control unit harness terminal ⑭ and GND.

Condition	Continuity
Key is inserted	Yes
Key is pulled	No

NG → Check the following:
- Key switch
- Harness for open or short
- Ground circuit.

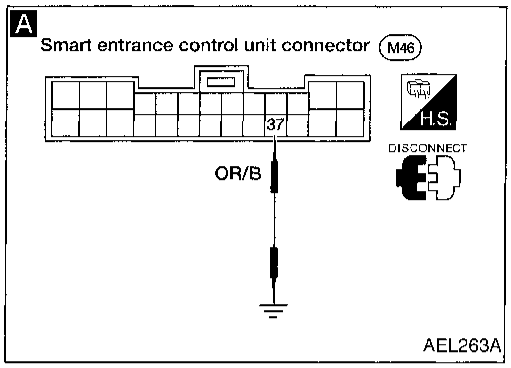
OK

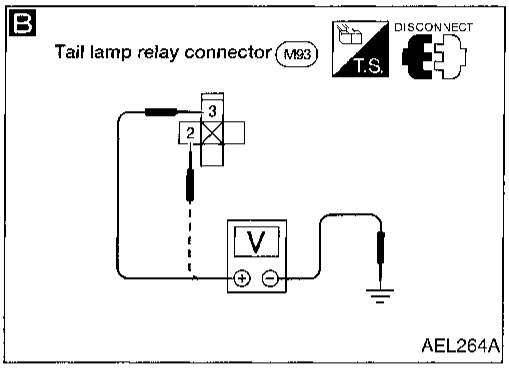
Check operation parts in multi-remote control system for function.

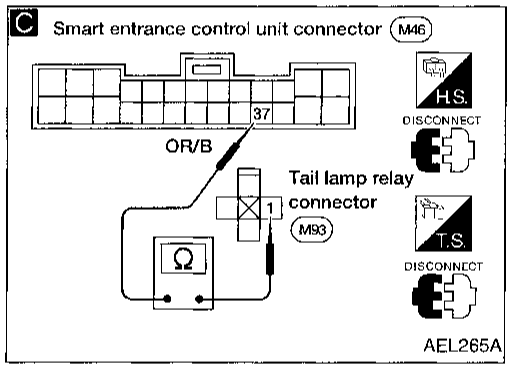
Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 3

Side marker lamps, tail lamps, license lamps and interior illumination lamps do not flash twice when pressing lock button of remote controller. Everything else functions.







A

CHECK LAMP OPERATION.
1. Disconnect smart entrance control unit connector.
2. Apply ground to smart entrance control unit harness terminal (37).
   Do side marker lamps, tail lamps, license lamps and interior illumination lamps illuminate?

Yes → Check multi-remote controller operation again.

No ↓

Check tail lamp relay. → NG → Replace.

OK ↓

B

CHECK POWER SUPPLY FOR TAIL LAMP RELAY.
1. Disconnect tail lamp relay connector.
2. Measure voltage between harness terminals (2), (3) and body ground.
   Battery voltage should exist.

NG → Check harness to fuse and fusible link box.

OK ↓

C

CHECK TAIL LAMP RELAY CIRCUIT.
1. Disconnect tail lamp relay connector.
2. Check continuity between tail lamp relay harness terminal (1) (⊕ lead) and smart entrance control unit harness terminal (37) (⊖ lead).
   Continuity should exist.

NG → Check the following:
- Joint connector-3
- Harness for open or short

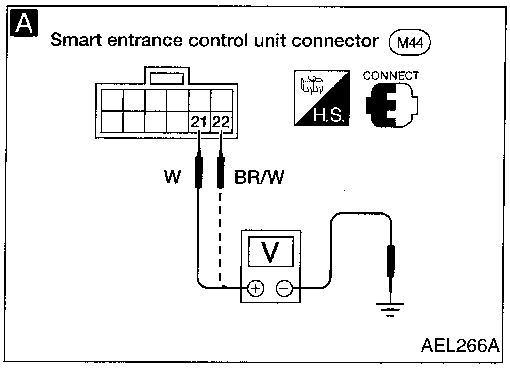
OK ↓

Check system again.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 4

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



A

CHECK INTERIOR LAMP CIRCUIT.
When interior lamp switches are in DOOR position, check voltage across smart entrance control unit harness terminals (21), (22) and GND.
Does battery voltage exist?

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

Yes ↓

CHECK VOLTAGE.
Push unlock button of remote controller and check voltage across smart entrance control unit harness terminals (21), (22) and GND.
Is voltage approx. 0V?

No → Replace smart entrance control unit.

Yes ↓

Check system again.

Replacing Remote Controller or Multi-Remote Control Unit

Enter the identity (ID) code manually when:

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

ID Code Entry Procedure

To enter the ID code, follow this procedure.

"Setting mode":

(1) Close and lock all doors.
(2) Insert and remove the key from the ignition more than six times within 10 seconds. (The side marker lamps, tail lamps, license lamps and interior illumination lamps will then flash twice.)

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

ID code entry:

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

- **At this time, the new ID code is entered. (The side marker lamps, tail lamps, license lamps and interior illumination lamps will then flash twice.)**

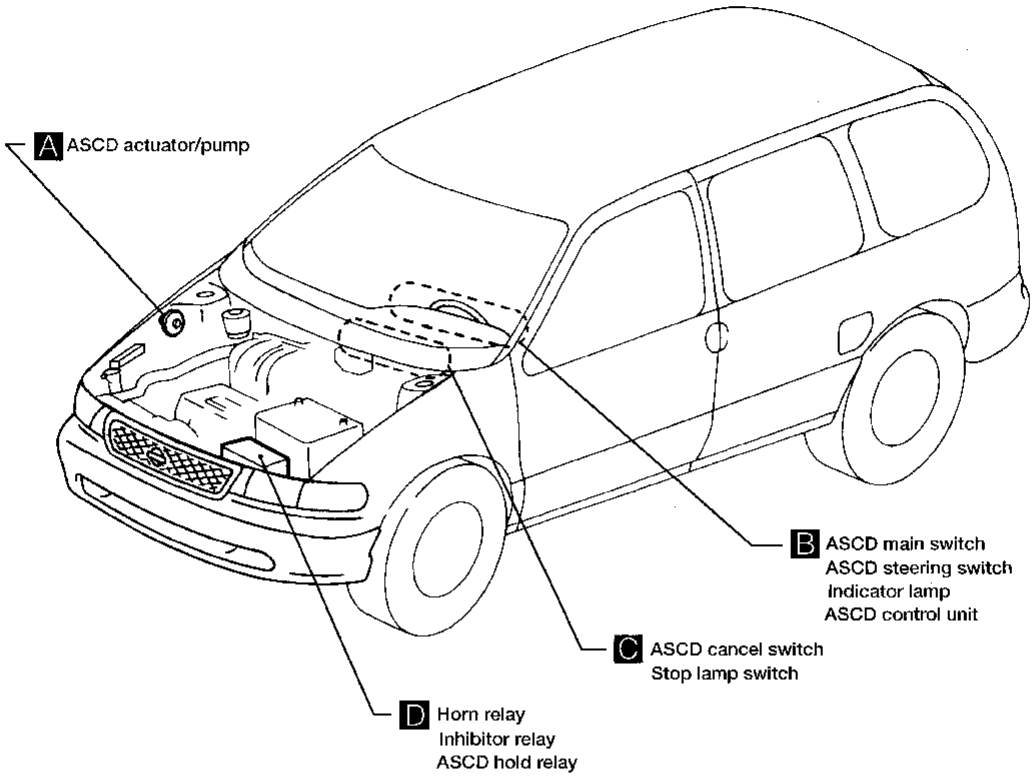
Additional ID code entry

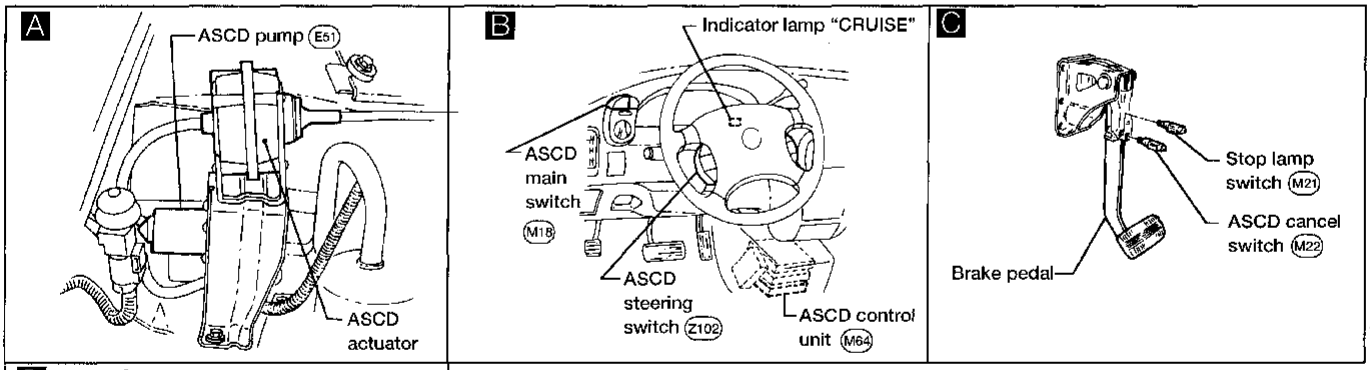
(5) If you need to activate additional remote controllers, unlock the driver's door, then lock again with door lock knob.
(6) Push lock button on the additional new remote controller once.
(7) This ID code entry enable state and setting mode remain until the driver's door is opened.

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 side marker lamps, tail lamps, license lamps and interior illumination lamps will flash twice but the entry will be ignored.**
- **Entry of maximum four ID codes is allowed and any attempt to enter more will be ignored.**
- **Any ID codes entered after termination of the "setting mode" will not be accepted. Additionally remote control signals will be inhibited when an ID code has not been entered during the "setting" mode.**
- **The lighting switch should be off while in "Setting mode" to ensure correct operation (lamp flashing).**

Component Parts and Harness Connector Location





AEL197A

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. 29, located in the fuse block)
- to ASCD main switch terminal ①
- to ASCD hold relay terminal ⑤ and
- to ASCD cancel switch terminal ①.

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 ②.

Ground is supplied:
- to ASCD hold relay terminal ①
- through body grounds (E3), (E14) and (E53).

With power and ground supplied, the ASCD hold relay is activated, and power is supplied:
- from terminal ③ of the ASCD hold relay
- to ASCD control unit terminal ④.

Power remains supplied to ASCD control unit terminal ④ when the ASCD main switch is released to the N (neutral) position.

Ground is supplied:
- to ASCD control unit terminal ③
- through body grounds (M5), (M78) and (M123).

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
- inhibitor relay and
- ASCD cancel switch.

A vehicle speed input is supplied:
- to ASCD control unit terminal ⑦
- from terminal ㉛ of the combination meter.

Power is supplied at all times:
- through 15A fuse (No. 22, located in the fuse block)
- to stop lamp switch terminal ①.

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 15A fuse (No. 44, 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 ⑥.

When the SET/COAST button is depressed, power is supplied:
- from terminal ④ of the ASCD steering switch
- to ASCD control unit terminal ②.

When the RESUME/ACCEL button is depressed, power is supplied:
- from terminal ⑤ of the ASCD steering switch
- to ASCD control unit terminal ①.

System Description (Cont'd)

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

When the system is activated, power is supplied:
- from ASCD cancel switch terminal ②
- to ASCD hold relay terminal ⑦
- through ASCD hold relay terminal ⑥
- to inhibitor relay terminal ④
- through inhibitor relay terminal ③
- to ASCD control unit terminal ⑤.

Power is interrupted when:
- the selector lever is placed in ("P") or ("N") or
- the brake pedal is depressed.

OUTPUTS

The ASCD actuator controls the throttle drum via the ASCD wire based on inputs from the ASCD control unit. The ASCD actuator 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 actuator terminal ①.

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

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

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

When the system is activated, power is supplied:
- from terminal ⑬ of the ASCD control unit
- to combination meter terminal ① and
- to A/T control unit terminal ㊲.

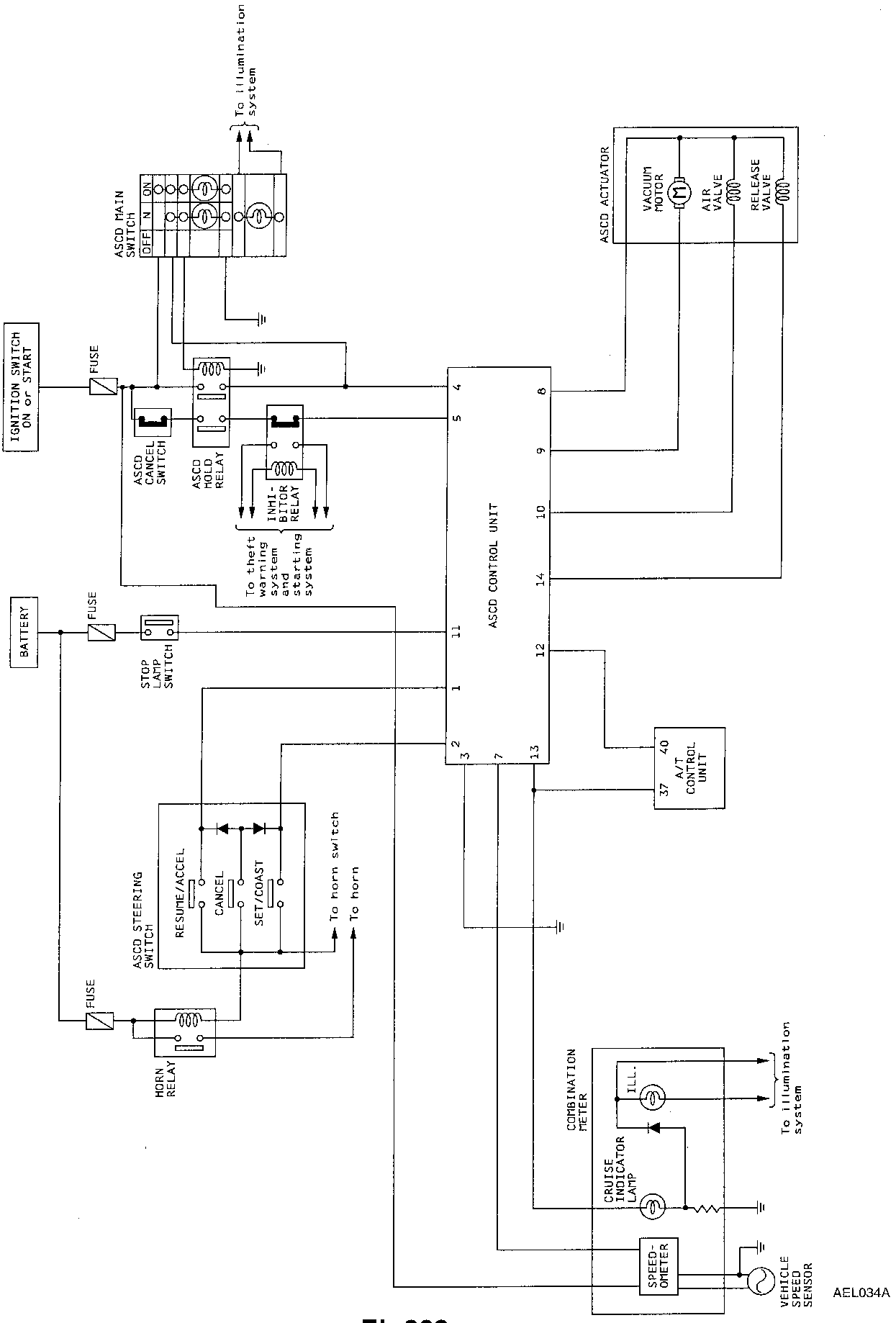
Ground is supplied:
- to combination meter terminal ⑫
- through body grounds (M5), (M78) and (M123).

With power and ground supplied, the CRUISE indicator illuminates.

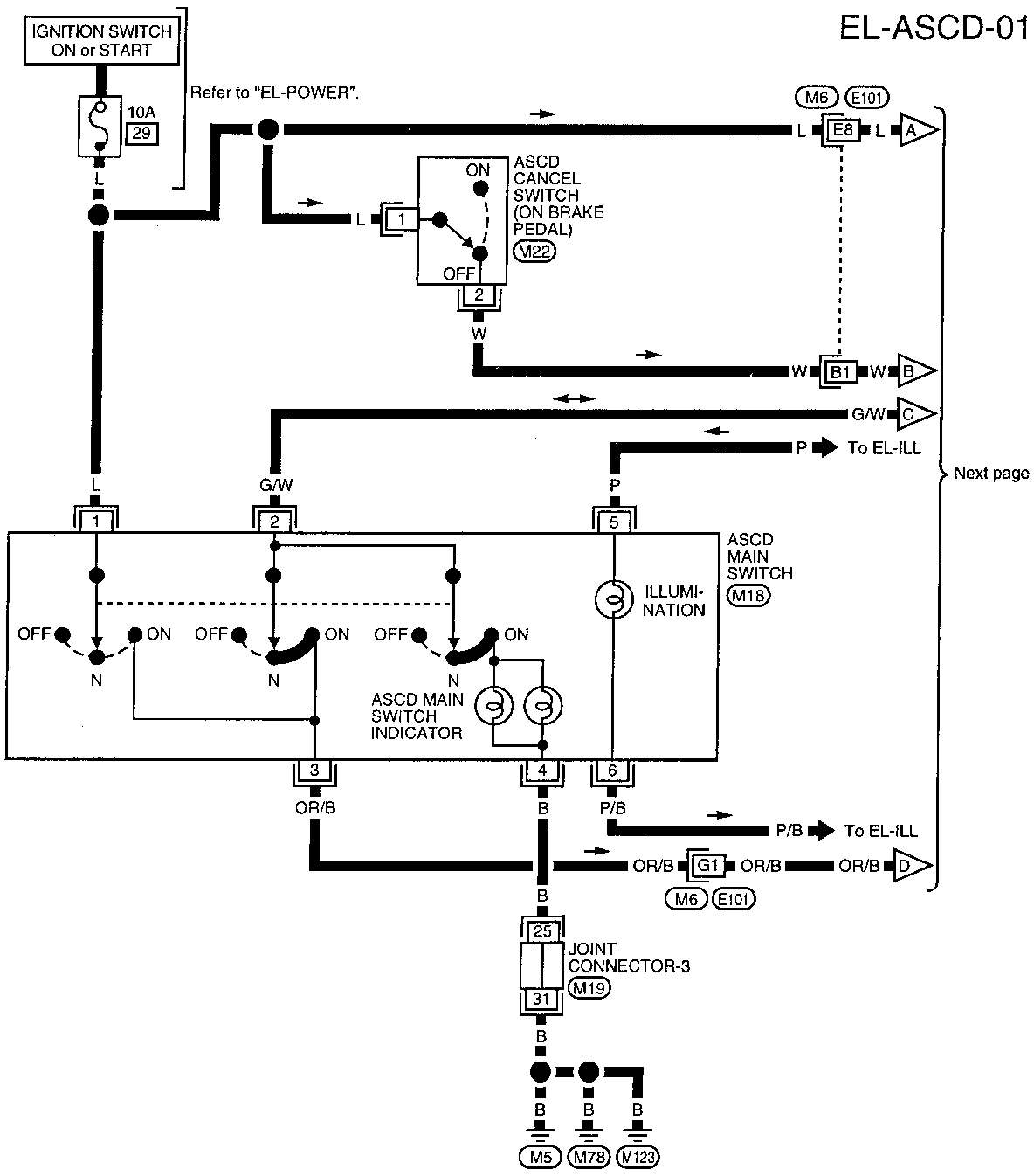
When the RESUME/ACCEL button is depressed, a signal is sent:
- from terminal ⑫ of the ASCD control unit
- to A/T control unit terminal ㊵.

When this occurs, overdrive is cancelled.

Schematic


To illumination system
ASCD MAIN SWITCH
OFF
ON
ASCD ACTUATOR
VACUUM MOTOR
AIR VALVE
RELEASE VALVE
IGNITION SWITCH ON or START
FUSE
ASCD CANCEL SWITCH
ASCD HOLD RELAY
INHI-BITOR RELAY
To theft warning system and starting system
ASCD CONTROL UNIT
BATTERY
STOP LAMP SWITCH
A/T CONTROL UNIT
ASCD STEERING SWITCH
RESUME/ACCEL
CANCEL
SET/COAST
To horn switch
To horn
HORN RELAY
COMBINATION METER
ILL.
CRUISE INDICATOR LAMP
SPEED-OMETER
VEHICLE SPEED SENSOR
AEL034A

Wiring Diagram –ASCD–

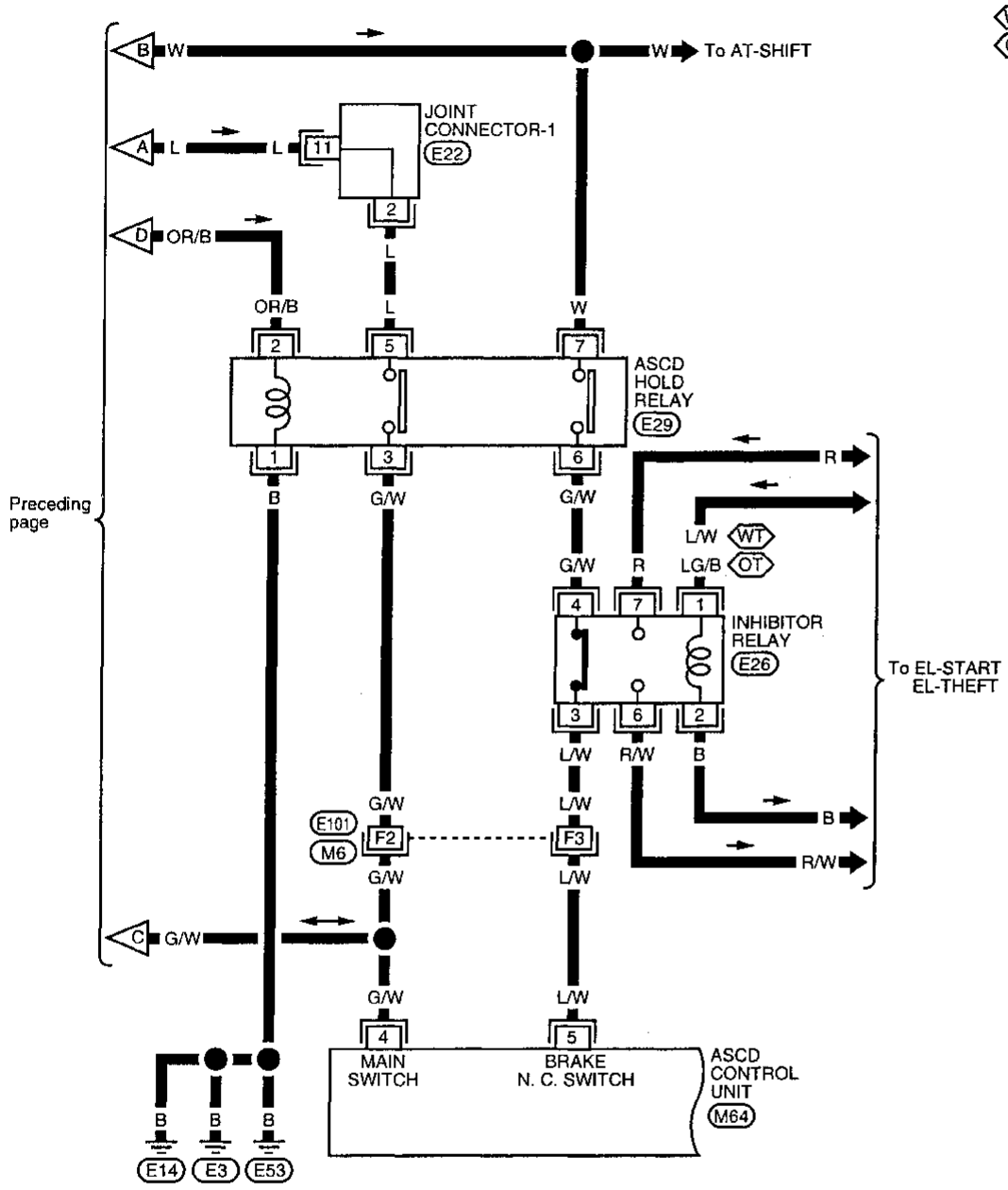


Refer to last page (Foldout page).
M6 E101
M19

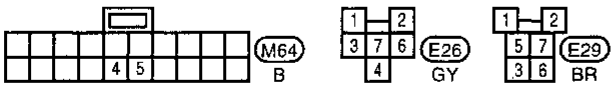
AEL970-A

Wiring Diagram –ASCD– (Cont'd)

EL-ASCD-02



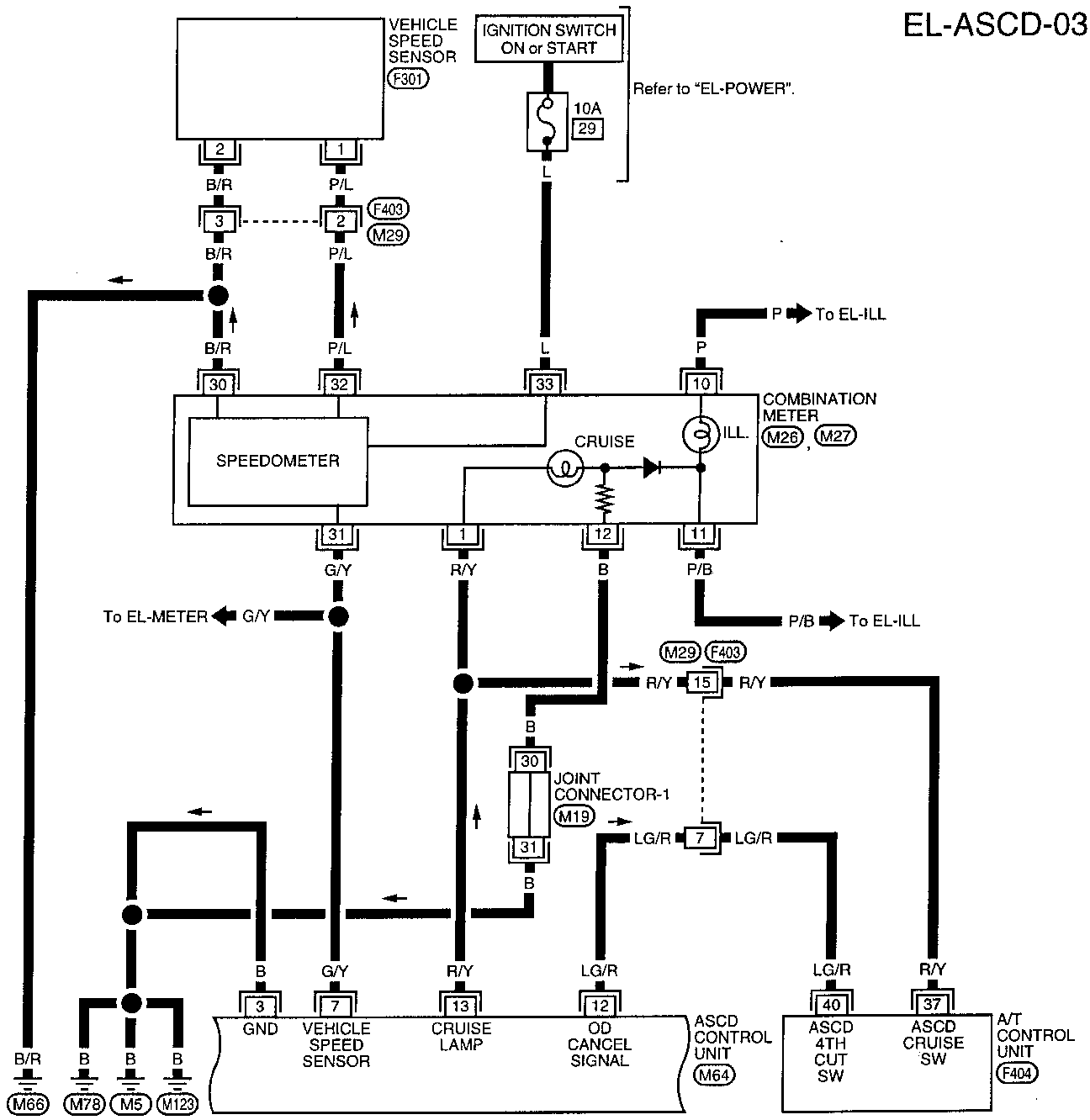
Refer to last page (Foldout page).
M6 , E101
E22



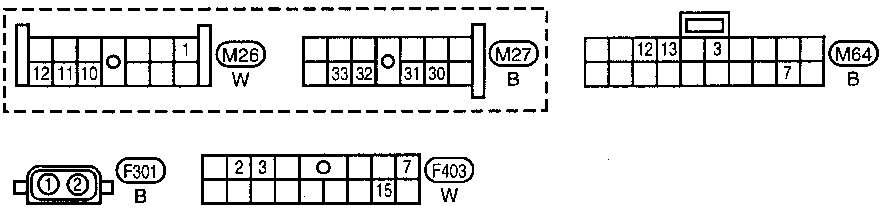
AEL970-B

Wiring Diagram –ASCD– (Cont'd)

EL-ASCD-03



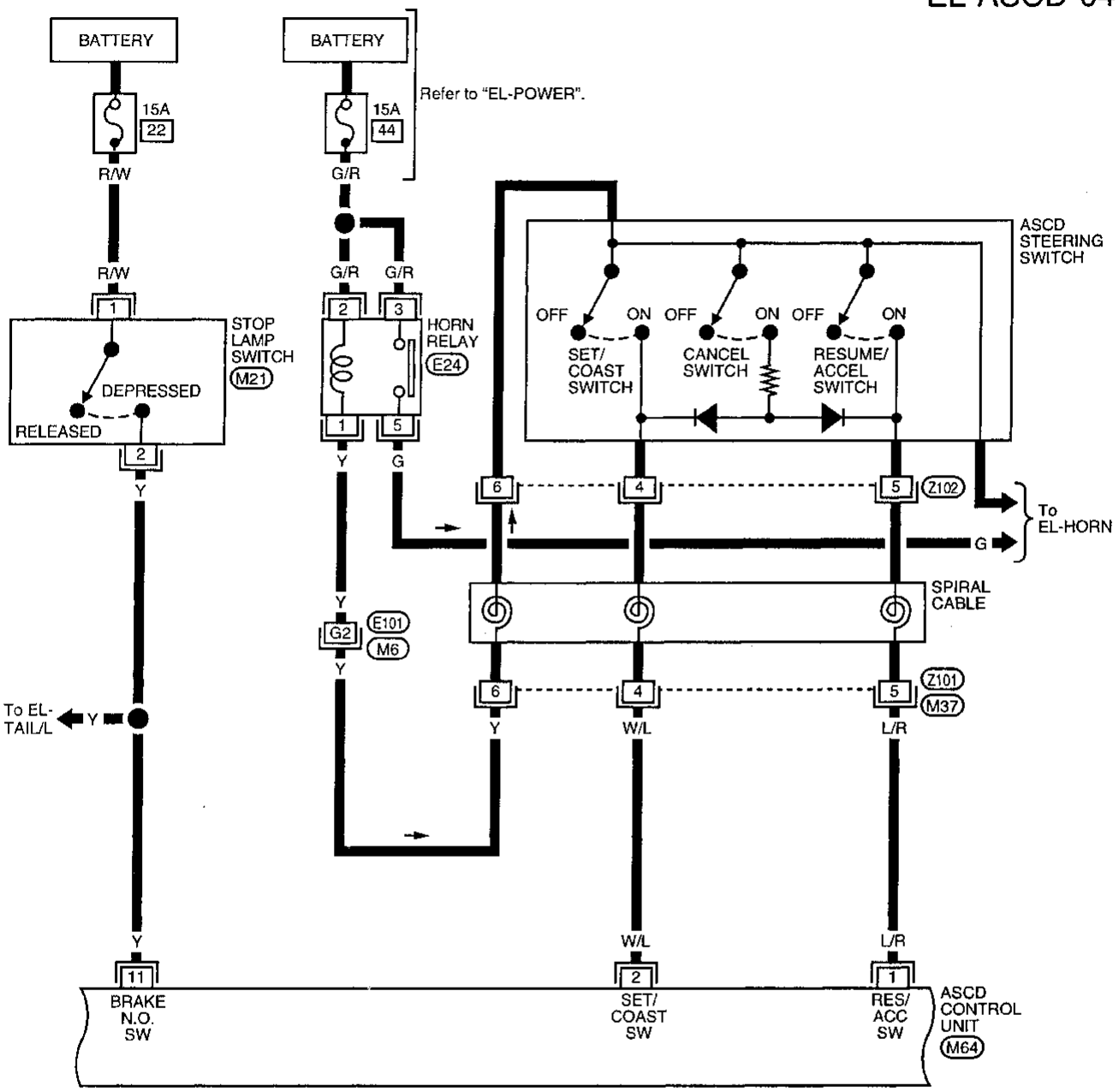
Refer to last page (Foldout page).
M19
F404



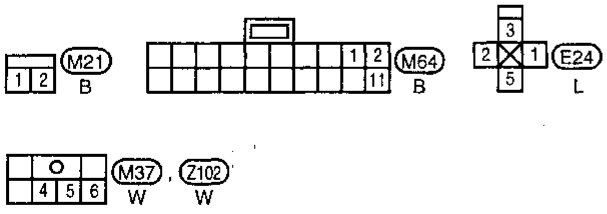
AEL970-C

Wiring Diagram –ASCD– (Cont'd)

EL-ASCD-04



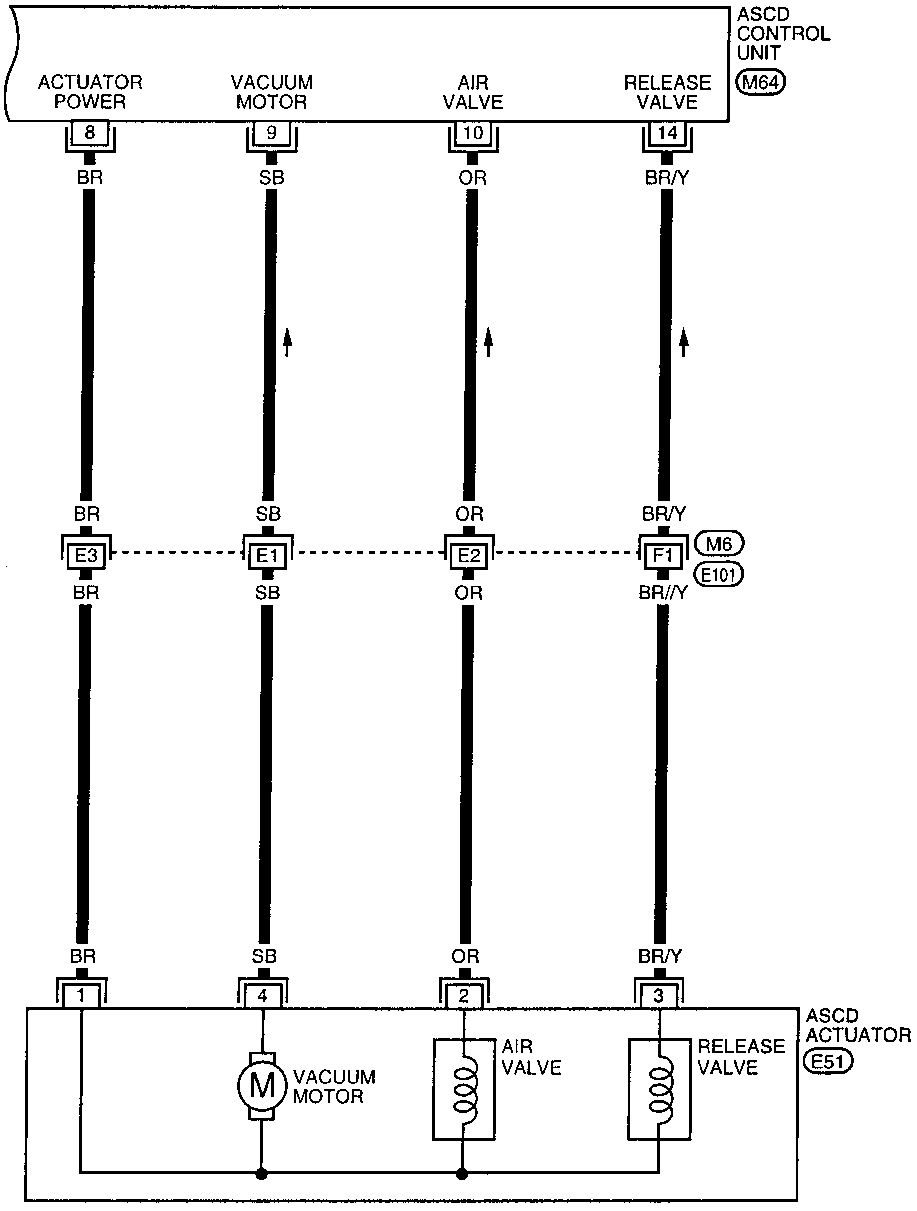
Refer to last page (Foldout page).
M6, E101



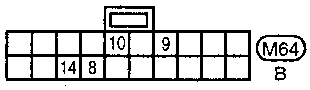
AEL970-D

Wiring Diagram –ASCD– (Cont'd)

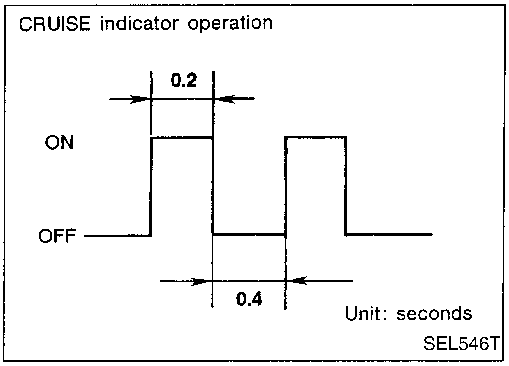
EL-ASCD-05



Refer to last page (Foldout page).
M6 , E101



AEL970-E



Trouble Diagnoses

FAIL-SAFE SYSTEM

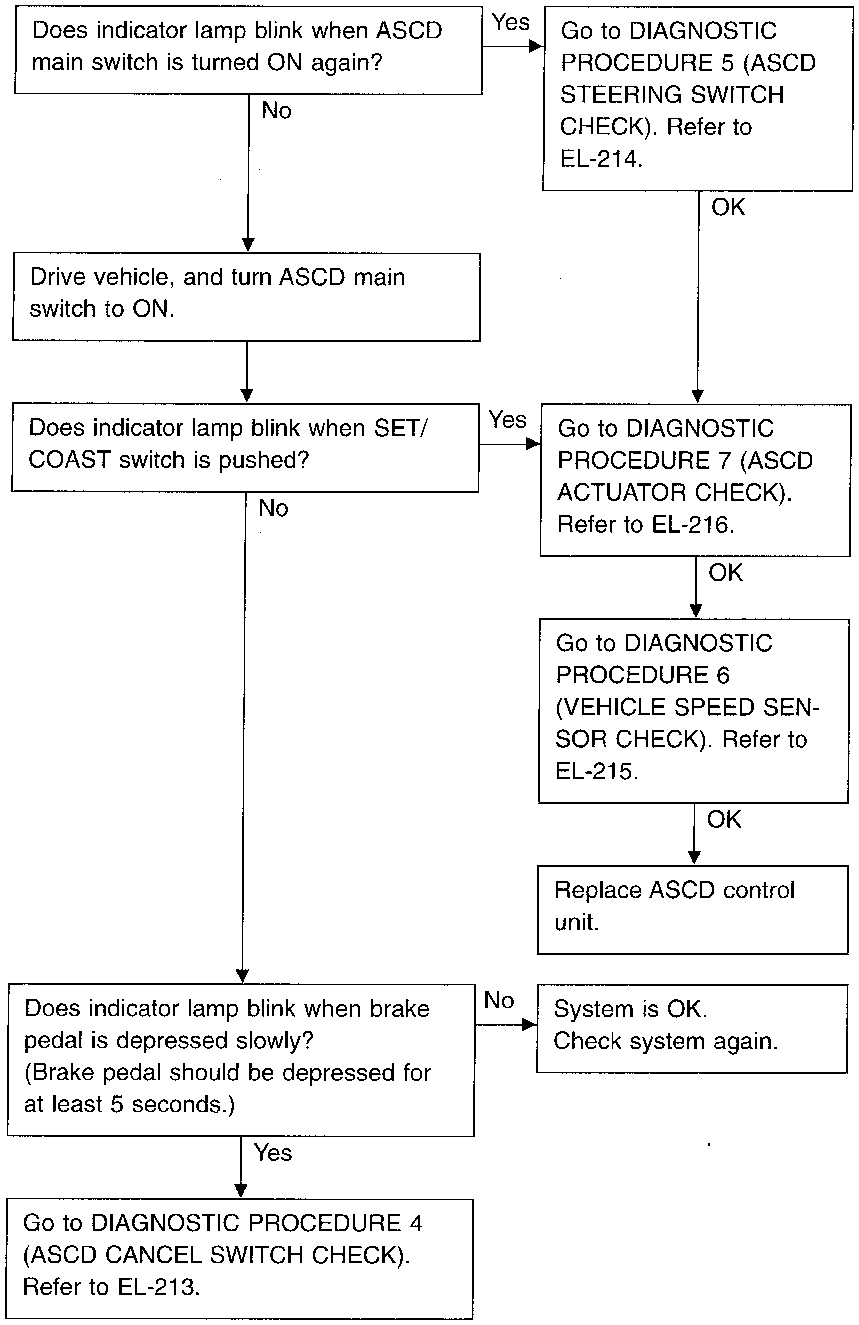
When the fail-safe system senses a malfunction, it deactivates ASCD operation. The CRUISE indicator in the combination meter will then flash.

Malfunction detection conditions

Detection conditions	ASCD operation during malfunction detection
● ASCD steering (RESUME/ACCEL, CANCEL, SET/COAST) switch is stuck. ● Vacuum motor ground circuit or power circuit is open or shorted. ● Air valve ground circuit or power circuit is open or shorted. ● Release valve ground circuit or power circuit is open or shorted. ● Vehicle speed sensor is faulty. ● ASCD control unit internal circuit is malfunctioning.	● ASCD is deactivated. ● Vehicle speed memory is canceled.
● ASCD cancel switch or stop lamp switch is faulty.	● ASCD is deactivated. ● Vehicle speed memory is not canceled.

Trouble Diagnoses (Cont'd)

Fail-safe system check



Trouble Diagnoses (Cont'd)

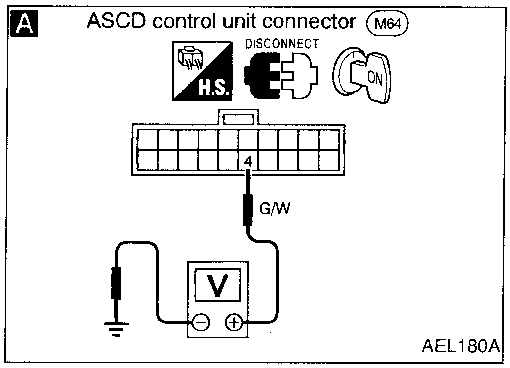
SYMPTOM CHART

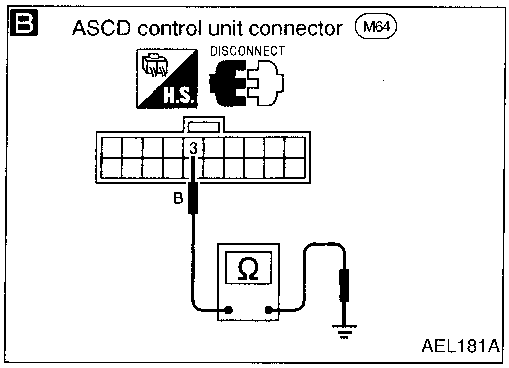
PROCEDURE	—		Diagnostic procedure						
REFERENCE PAGE	EL-209	EL-211	EL-211	EL-212	EL-213	EL-214	EL-215	EL-216	EL-217
SYMPTOM	Fail-safe system check	DIAGNOSTIC PROCEDURE 1 (POWER SUPPLY AND GROUND CIRCUIT CHECK)	DIAGNOSTIC PROCEDURE 2 (ASCD MAIN SWITCH CHECK)	DIAGNOSTIC PROCEDURE 3 (ASCD HOLD RELAY CIRCUIT CHECK)	DIAGNOSTIC PROCEDURE 4 (ASCD CANCEL SWITCH CHECK)	DIAGNOSTIC PROCEDURE 5 (ASCD STEERING SWITCH CHECK)	DIAGNOSTIC PROCEDURE 6 (VEHICLE SPEED SENSOR CHECK)	DIAGNOSTIC PROCEDURE 7 (ASCD ACTUATOR CHECK)	DIAGNOSTIC PROCEDURE 8 (VACUUM HOSE AND ACCEL WIRE CHECK)
ASCD cannot be set.	X	X	X	X	X	X	X	X	X
Steering CANCEL switch will not operate.						X			
Steering ACCEL switch will not operate.						X			
Steering RESUME switch will not operate.						X			
Large difference between set speed and actual vehicle speed.	X	X			X	X	X	X	X
Deceleration is greatest immediately after ASCD has been set.	X	X			X	X	X	X	X
CRUISE indicator lamp blinks. (It indicates that system is in fail-safe.)	X	X			X	X	X	X	
Engine hunts.	X	X			X	X	X	X	X

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 ASCD control unit connector terminal ④ and body ground.

Battery voltage should exist.

NG → Go to DIAGNOSTIC PROCEDURE 3 (ASCD HOLD RELAY CIRCUIT CHECK). Refer to EL-212.

OK ↓

B

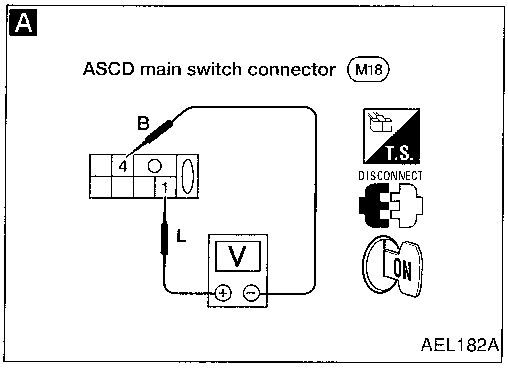
CHECK GROUND CIRCUIT FOR ASCD CONTROL UNIT.

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

NG → Repair harness.

OK ↓

Go to next procedure.



DIAGNOSTIC PROCEDURE 2

(ASCD MAIN SWITCH CHECK)

A

CHECK POWER SUPPLY FOR ASCD MAIN SWITCH.

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

Battery voltage should exist.

NG → Check the following.
- 10A fuse (No. 29, located in the fuse block)
- Harness for open or short between fuse and ASCD main switch.

OK ↓

Check ASCD main switch. Refer to EL-219.

NG → Replace ASCD main switch.

OK ↓

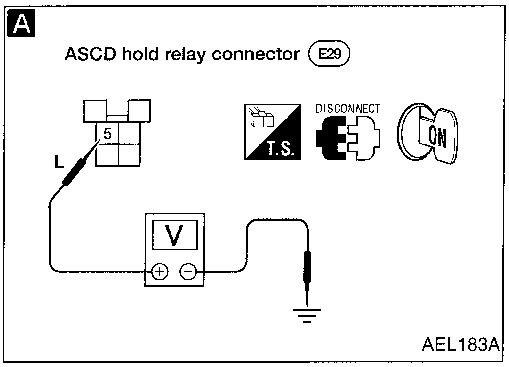
Go to next procedure.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 3

(ASCD HOLD RELAY CIRCUIT CHECK)

A



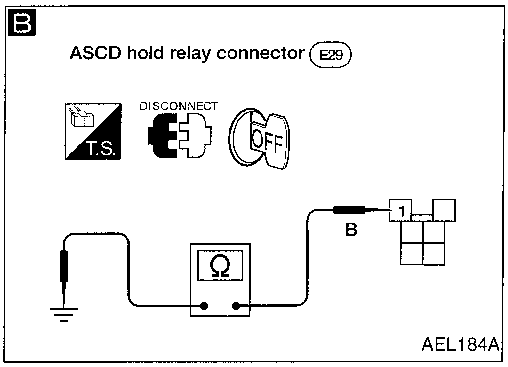
CHECK POWER SUPPLY CIRCUIT FOR ASCD HOLD RELAY.

1. Disconnect ASCD hold relay.
2. Do approx. 12 volts exist between ASCD hold relay harness terminal ⑤ and body ground?

No → Check harness for open or short between fuse and ASCD hold relay.

Yes ↓

B



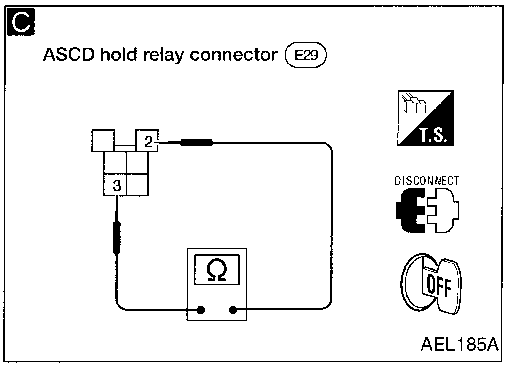
CHECK GROUND CIRCUIT FOR ASCD HOLD RELAY.

Does continuity exist between ASCD hold relay harness terminal ① and body ground?

No → Repair harness.

Yes ↓

C



CHECK ASCD HOLD RELAY CIRCUIT.

Does continuity exist between ASCD hold relay harness terminals ③ and ②?

Yes → Check ASCD hold relay.

No ↓

CHECK ASCD MAIN SWITCH.
Refer to EL-219.

NG → Replace ASCD main switch.

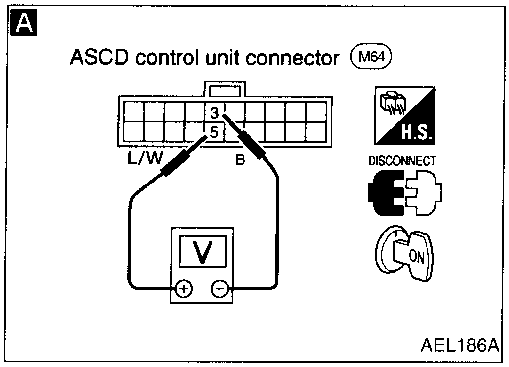
OK ↓

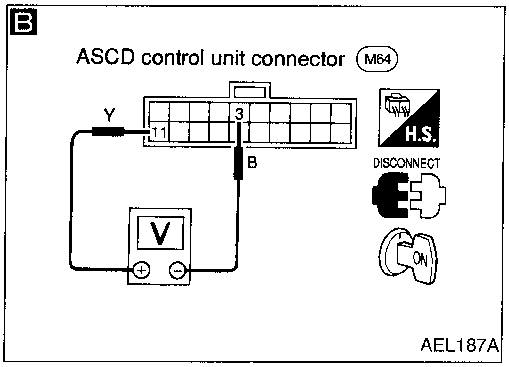
Go to next procedure.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 4

(ASCD CANCEL SWITCH CHECK)





A

CHECK CUT-OFF CIRCUIT FOR ASCD CONTROL UNIT.

1. Disconnect ASCD control unit connector.
2. Turn ignition switch ON.
3. Turn ASCD main switch ON.
4. Measure voltage between ASCD control unit connector terminals ⑤ and ③. **When brake pedal is depressed or A/T shift lever is in ("N") or ("P") position:**
   Approx. 0V
   When brake pedal is released or A/T shift lever is in any positions other than ("N") or ("P"):
   Battery voltage should exist.

NG → CHECK THE FOLLOWING.
- ASCD cancel switch Refer to EL-220.
- Inhibitor switch Refer to EL-220.
- ASCD hold relay Refer to EL-5.
- Inhibitor relay Refer to EL-5.
- Harness for open or short

OK ↓

B

CHECK STOP LAMP SWITCH CIRCUIT.

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

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

NG → CHECK THE FOLLOWING.
- Harness for open or short between ASCD control unit and stop lamp switch.
- 15A fuse (No. 22, located in the fuse block)
- Stop lamp switch Refer to EL-220.

OK ↓

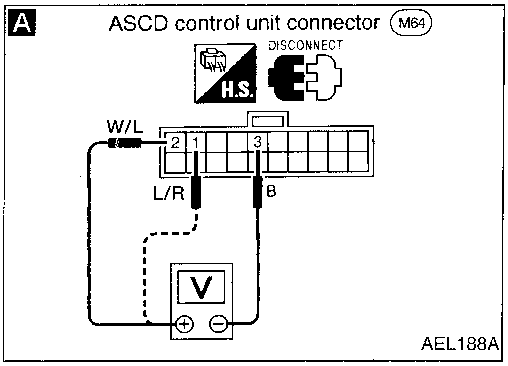
ASCD cancel switch is OK.

Trouble Diagnoses (Cont'd)

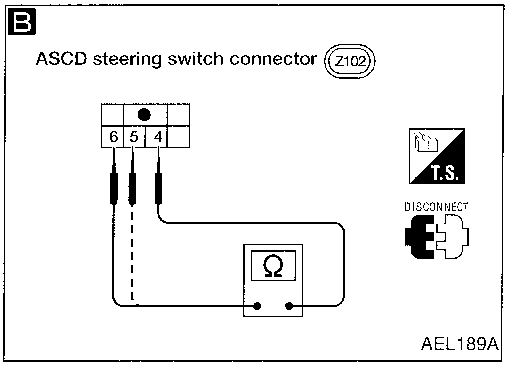
DIAGNOSTIC PROCEDURE 5

(ASCD STEERING SWITCH CHECK)

A



B



A

CHECK ASCD STEERING SWITCH CIRCUIT FOR ASCD CONTROL UNIT.

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

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

OK → ASCD steering switch is OK.

NG ↓

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

NG → Check the following.
- 15A fuse (No. 44, located in the fuse and fusible link box)
- Horn relay
- Harness for open or short

OK ↓

B

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

Button	Terminal ⑥	Terminal ⑤	Terminal ④
SET/ COAST	○		○
RESUME/ ACCEL	○	○	
CANCEL	○	▶ ○	
	○	▶	○

NG → Replace ASCD steering switch.

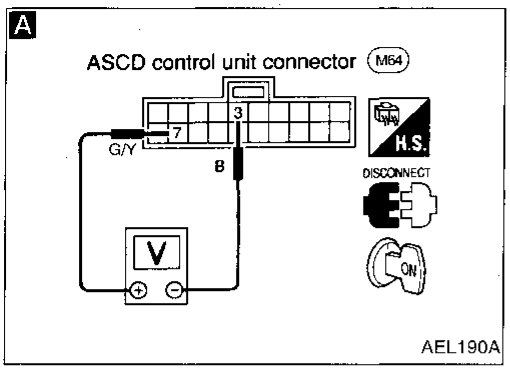
OK ↓

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

OK → Vehicle speed sensor is OK.

NG ↓

Does speedometer operate normally?

No → Check speedometer and vehicle speed sensor circuit. Refer to EL-98.

Yes ↓

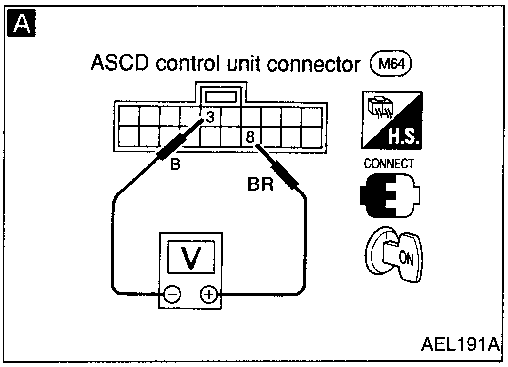
Check harness for open or short between ASCD control unit terminal ⑦ and combination meter terminal ㉛.

Trouble Diagnoses (Cont'd)

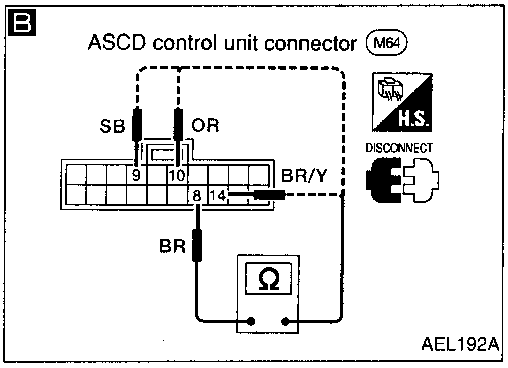
DIAGNOSTIC PROCEDURE 7

(ASCD ACTUATOR CHECK)

A



B



A

CHECK OUTPUT FOR ASCD ACTUATOR/ASCD PUMP.

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

NG → Replace ASCD control unit.

OK ↓

B

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

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

OK → ASCD actuator is OK.

NG ↓

Check ASCD actuator.
Refer to EL-219.

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

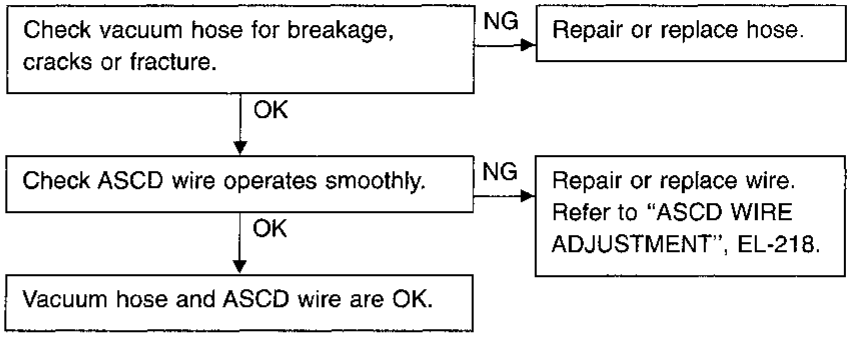
NG ↓

Replace ASCD actuator.

Trouble Diagnoses (Cont'd)

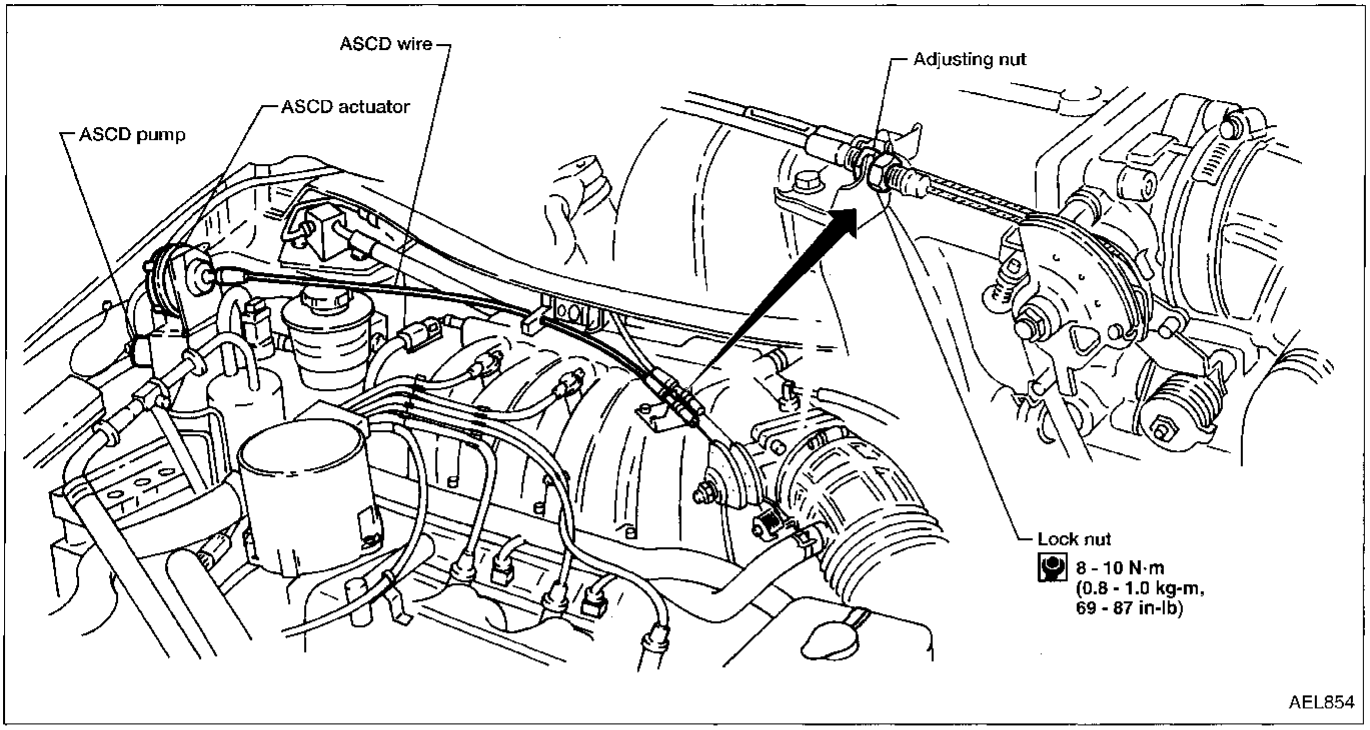
DIAGNOSTIC PROCEDURE 8

(VACUUM HOSE AND ACCEL WIRE CHECK)



Trouble Diagnoses (Cont'd)

ASCD WIRE ADJUSTMENT



CAUTION:

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

Confirm that accelerator wire is properly adjusted.

- **For accelerator cable adjustment, refer to FE section ("Adjusting Accelerator Wire", "ACCELERATOR CONTROL SYSTEM").**

Adjust the ASCD wire as follows:

1. Loosen lock nut and tighten adjusting nut until throttle drum starts to move.
2. From that position turn back adjusting nut 0.5 to 1 turn, and secure lock nut.
   (This prevents a delay in the operation of the ASCD.)

- For ASCD cancel switch adjustment, refer to BR section ("Adjustment", "BRAKE PEDAL AND BRACKET").

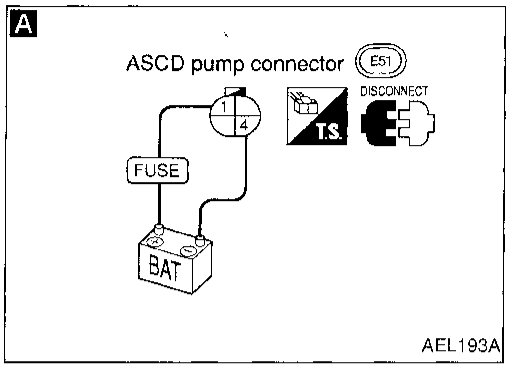
Trouble Diagnoses (Cont'd)

ELECTRICAL COMPONENTS INSPECTION

ASCD actuator/ASCD pump

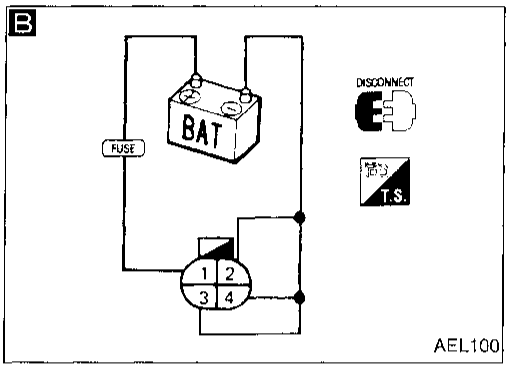
1. Disconnect ASCD pump connector.
2. Check ASCD actuator/ASCD pump operations as shown.

A



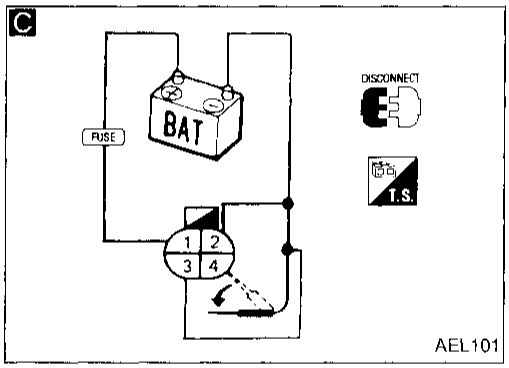
AEL193A

B



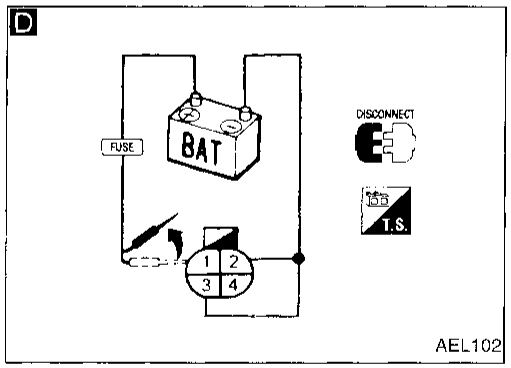
AEL100

C



AEL101

D



AEL102

A

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

B

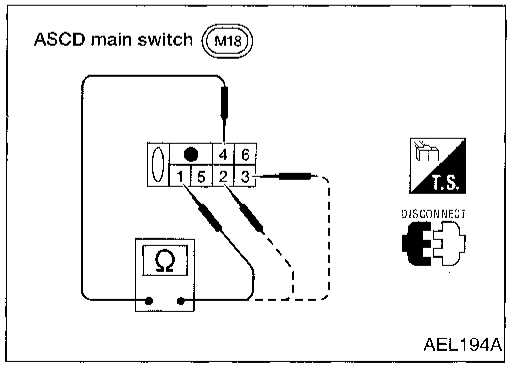
Is ASCD wire pulled when 12V DC is applied across ①, ②, ③ and ④?
- No → Disconnect vacuum hose from ASCD actuator and check for presence of vacuum pressure at ASCD pump.
  - OK → C
  - NG → Replace ASCD pump.
- Yes (Wire is pulled) → C

C

Does ASCD wire return to original position 50 to 60 seconds after disconnecting lead from ④?
- Yes → Replace ASCD actuator.
- No (Wire does not return) → D

D

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



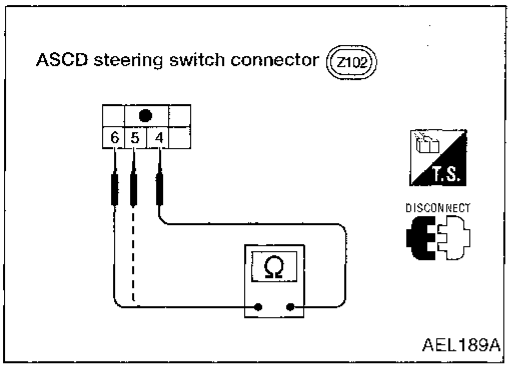
AEL194A

ASCD main switch

Check continuity between terminals by pushing switch to each position.

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

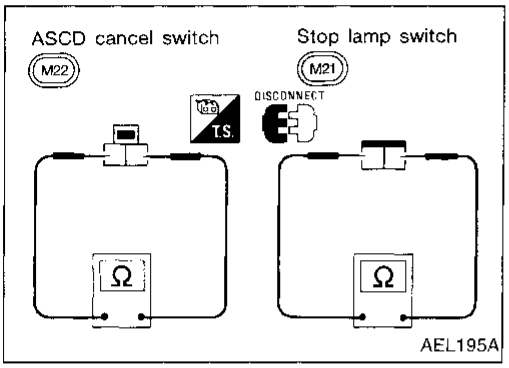
Trouble Diagnoses (Cont'd)



ASCD steering switch

Check continuity between terminals by pushing each button.

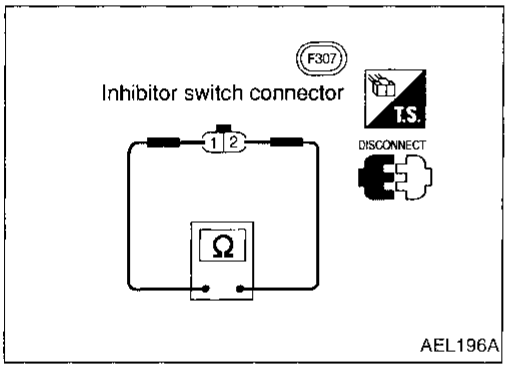
Button	Terminal		
	6	5	4
SET/COAST	○		○
RESUME/ACCEL	○	○	
CANCEL	○	▶|○	
	○	▶	○



ASCD cancel switch and stop lamp switch

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

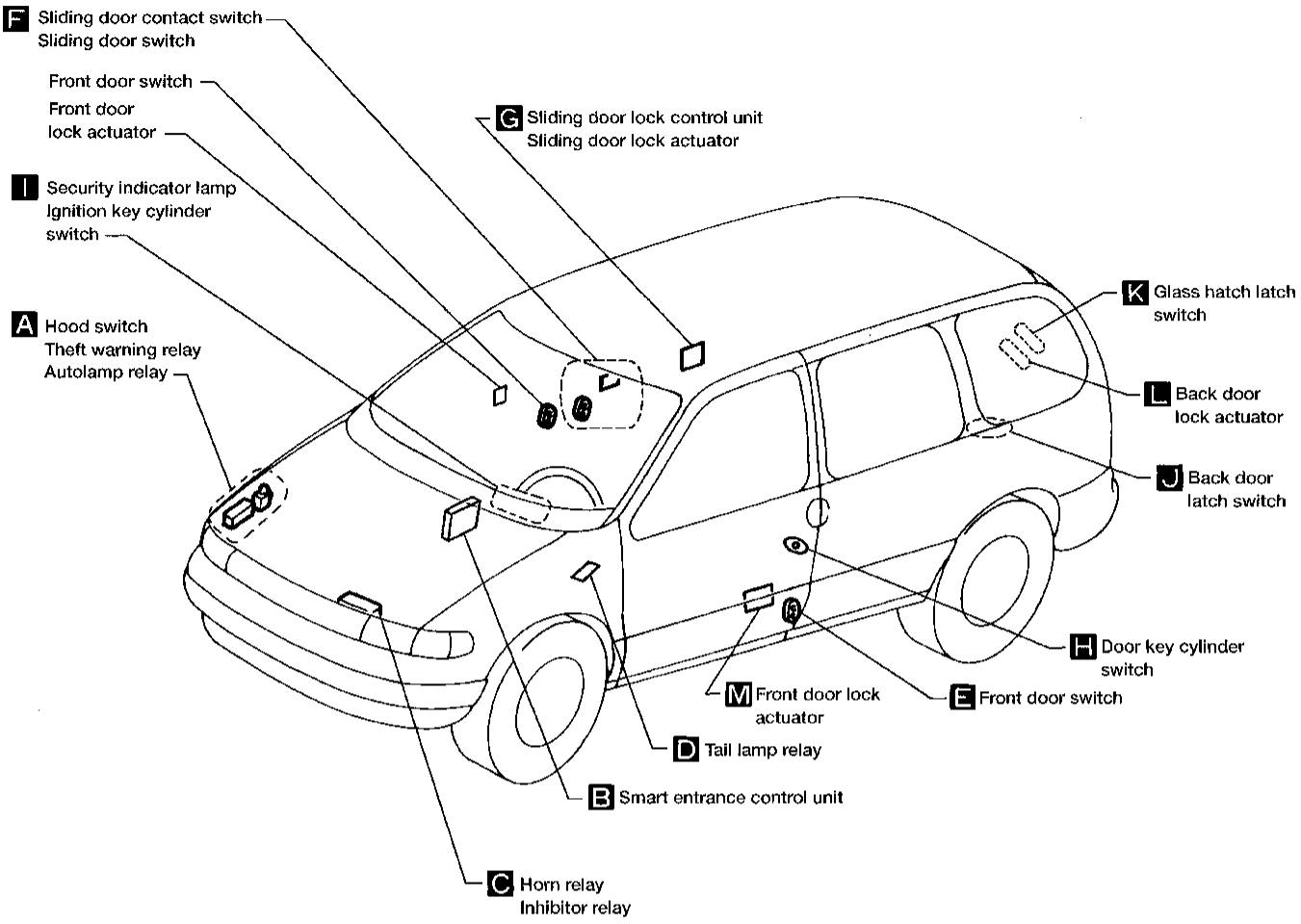
Check each switch after adjusting brake pedal — refer to BR section.

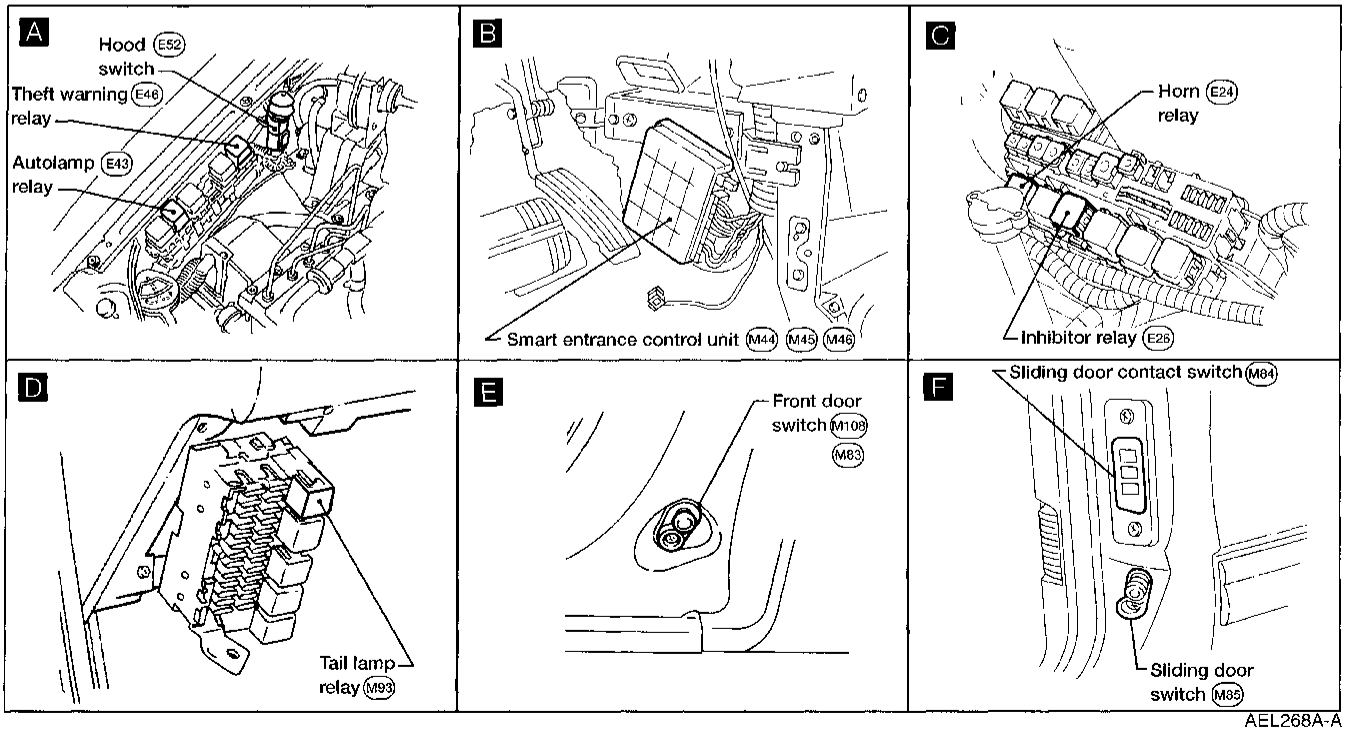


Inhibitor switch

Condition	Continuity
When shift lever position is "N" or "P"	Yes
When shift lever position is not "N" or "P"	No

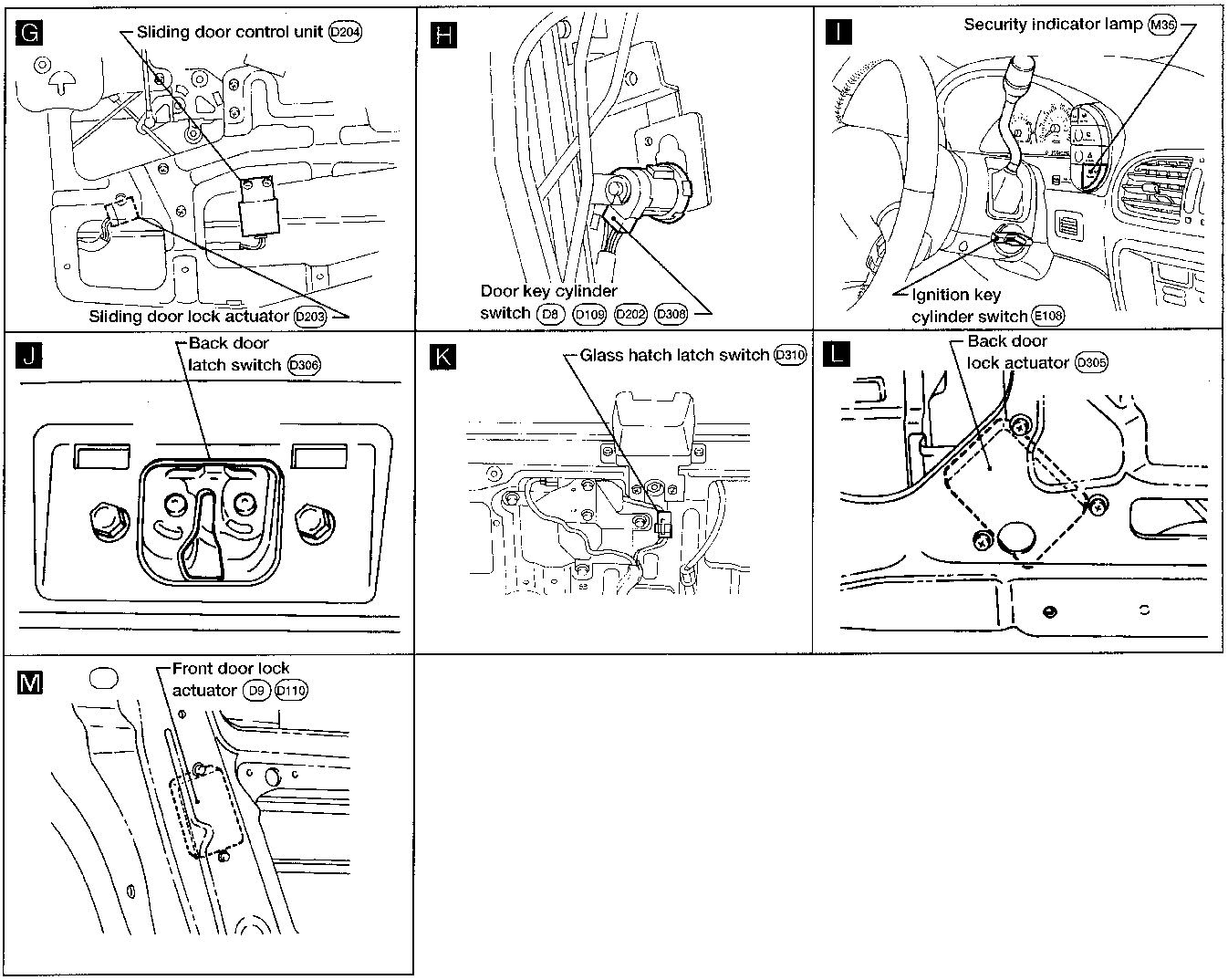
Component Parts and Harness Connector Location





AEL268A-A

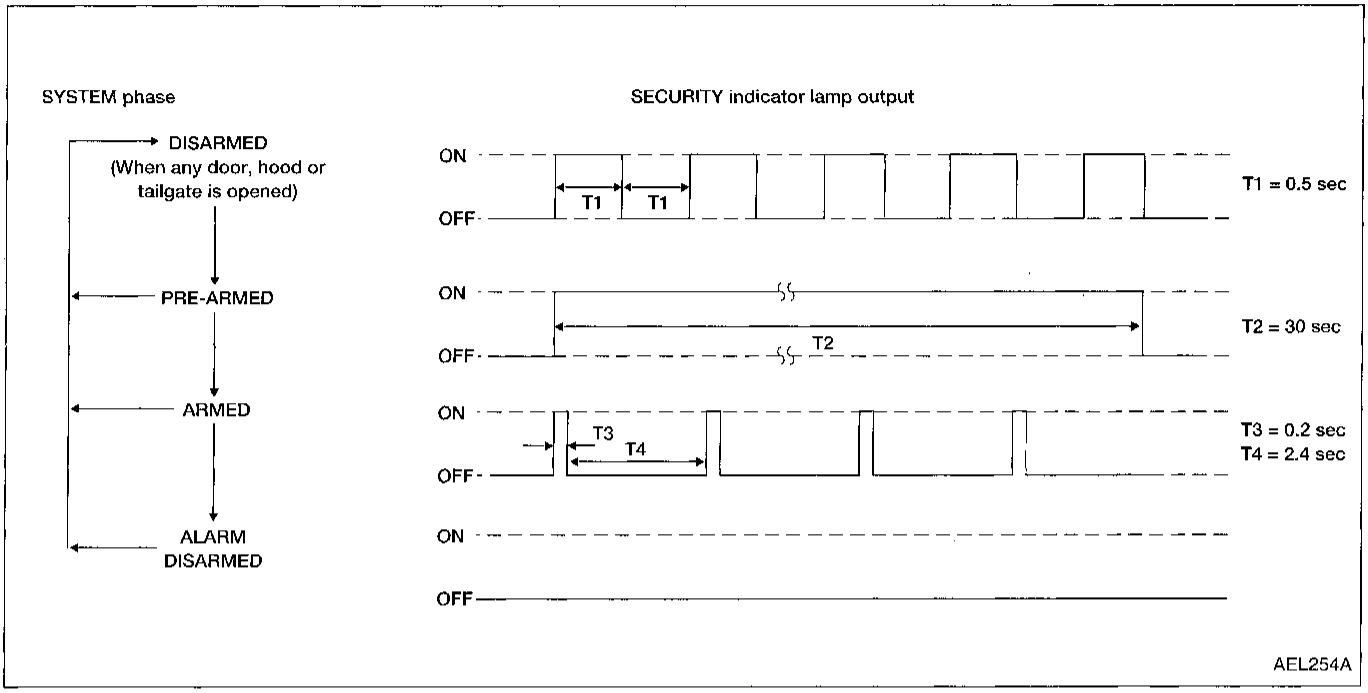
Component Parts and Harness Connector Location (Cont'd)



AEL268A-B

System Description

1. Operation flow



2. Setting the theft warning system

Initial condition

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

Disarmed phase

The theft warning system is in the disarmed phase when any door(s), hood or tailgate is opened. The security indicator lamp blinks every 0.5 seconds.

Pre-armed phase and armed phase

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

3. Canceling the set theft warning system

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

4. Activating the alarm operation of the theft warning system

Make sure the system is in the armed phase. (The security indicator lamp blinks every 2.4 seconds.)
When any of the following operations (a), (b), (c) and (d) is performed, the system sounds the horns and flashes the headlamps for about 2.5 minutes. (At the same time, the system disconnects the starting system circuit.) The starting system is kept dead even after the alarm turns off.
(a) Engine hood is opened without using the hood opener.
(b) Door is unlocked or tailgate is opened without using key or multi-remote controller.
(c) Accessory, ignition or start power is activated without the key in the ignition.
(d) Battery is reconnected after being disconnected in armed or alarm phase.

System Description (Cont'd)

Refer to Owner's Manual for theft warning system operating instructions.

Power is supplied at all times:
- through 30A fusible link (letter [h], located in the fuse and fusible link box)
- to ignition switch terminal ①. With the ignition switch in the ON or START position, power is supplied:
- through 10A fuse (No. [30], located in the fuse block)
- to smart entrance control unit terminal ㉕
- to inhibitor switch terminal ②.

With the ignition switch in the START position, power is supplied:
- from ignition switch terminal ⑤
- to inhibitor relay terminal ⑦.

Power is supplied at all times:
- through 7.5A fuse (No. [41], located in the fuse and fusible link box)
- to smart entrance control unit terminal ⑨
- to theft warning relay terminal ②.

Power is supplied at all times:
- through 30A fusible link (letter [a], 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 ③.

Power is supplied at all times:
- through 15A fuses (No. [49] and [50], located in the fuse and fusible link box)
- to autolamp relay terminals ①, ③ and ⑥.

Power is supplied at all times:
- to tail lamp relay terminals ② and ③.

Power is supplied at all times:
- through 15A fuse (No. [44], located in the fuse and fusible link box)
- to horn relay terminals ② and ③.

Power is supplied at all times:
- through 10A fuse (No. [23], located in the fuse block)
- to security indicator lamp terminal ②.

With the ignition in the ACC or ON position, power is supplied:
- through 10A fuse (No. [5], located in the fuse block)
- to smart entrance control unit terminal ㉔.

Ground is supplied:
- to smart entrance control unit terminals ①, ⑳ and ㊹
- through body grounds (M5), (M78) and (M123).

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

The operation of the theft warning system is controlled by the doors, hood and tailgate. To activate the theft warning system, the ignition key must be removed, doors, hood and tailgate closed, and the doors locked. When a door or the tailgate is open, smart entrance control unit terminal ④, ⑤, ㉙ or ㉚receives a ground signal from door switches.

When a front door or the tailgate is unlocked, smart entrance control unit terminal ㉗, ㉘ or ㊹ receives a ground signal from all door unlock sensors.

When the sliding door is unlocked, smart entrance control unit terminal ⑩ receives a status signal from sliding door control unit terminal ⑦.

When the hood is open, smart entrance control unit terminal ㊸ receives a ground signal:
- from hood switch terminal ①
- through body grounds (E3), (E14) and (E53).

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

System Description (Cont'd)

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 ㊾ receives a ground signal from the front LH or RH door key cylinder switches.

If this signal is received by the smart entrance control unit, the theft warning system will activate automatically.

With the theft warning system activated, smart entrance control unit terminal ㊶ supplies ground to the security indicator lamp. The security indicator lamp will illuminate for approximately 30 seconds and then go out.

THEFT WARNING SYSTEM OPERATION

The theft warning system is triggered by:

- unlocking or opening a door or the tailgate without using the key
- opening the hood without using the hood opener
- activating accessory, ignition or start power without the key in the ignition
- reconnecting the battery after it is disconnected in the armed or alarm phase. Once the theft warning system has been activated, it will be triggered if the smart entrance control unit receives a ground signal at terminal ④, ⑤, ㉙ or ㉚. The headlamps, side marker lamps, tail lamps and license lamps flash and the horn sounds intermittently, and the starting system is interrupted.

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

- from smart entrance control unit terminal ㊺
- to theft warning relay terminal ①.

With power and ground supplied, power to the inhibitor relay is interrupted. The starter motor will not crank and the engine will not start.

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

- from smart entrance control unit terminal ㊻
- to autolamp relay terminal ② and
- from smart entrance control unit terminal ㊲
- to tail lamp relay terminal ①, and
- from smart entrance control unit terminal ⑱
- to horn relay terminal ①. The headlamps, side marker lamps, tail lamps, and license lamps flash and the horn sounds intermittently. The alarm automatically turns off after 2 or 3 minutes, but will reactivate if the vehicle is tampered with again.

THEFT WARNING SYSTEM DEACTIVATION

To deactivate the theft warning system, a door or the tailgate must be unlocked using the key or remote controller.

If the key is used to unlock a door, smart entrance control unit terminal ㊽ receives a ground signal from the front door LH or RH, or the tailgate key cylinder switches.

If the key is used to unlock the sliding door, smart entrance control unit terminal ⑩ receives a status signal from sliding door control unit terminal ⑦.

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

PANIC ALARM OPERATION

Multi-remote control system may or may not operate theft warning system (horn and headlamps, side marker lamps, tail lamps, and license lamps) as required.

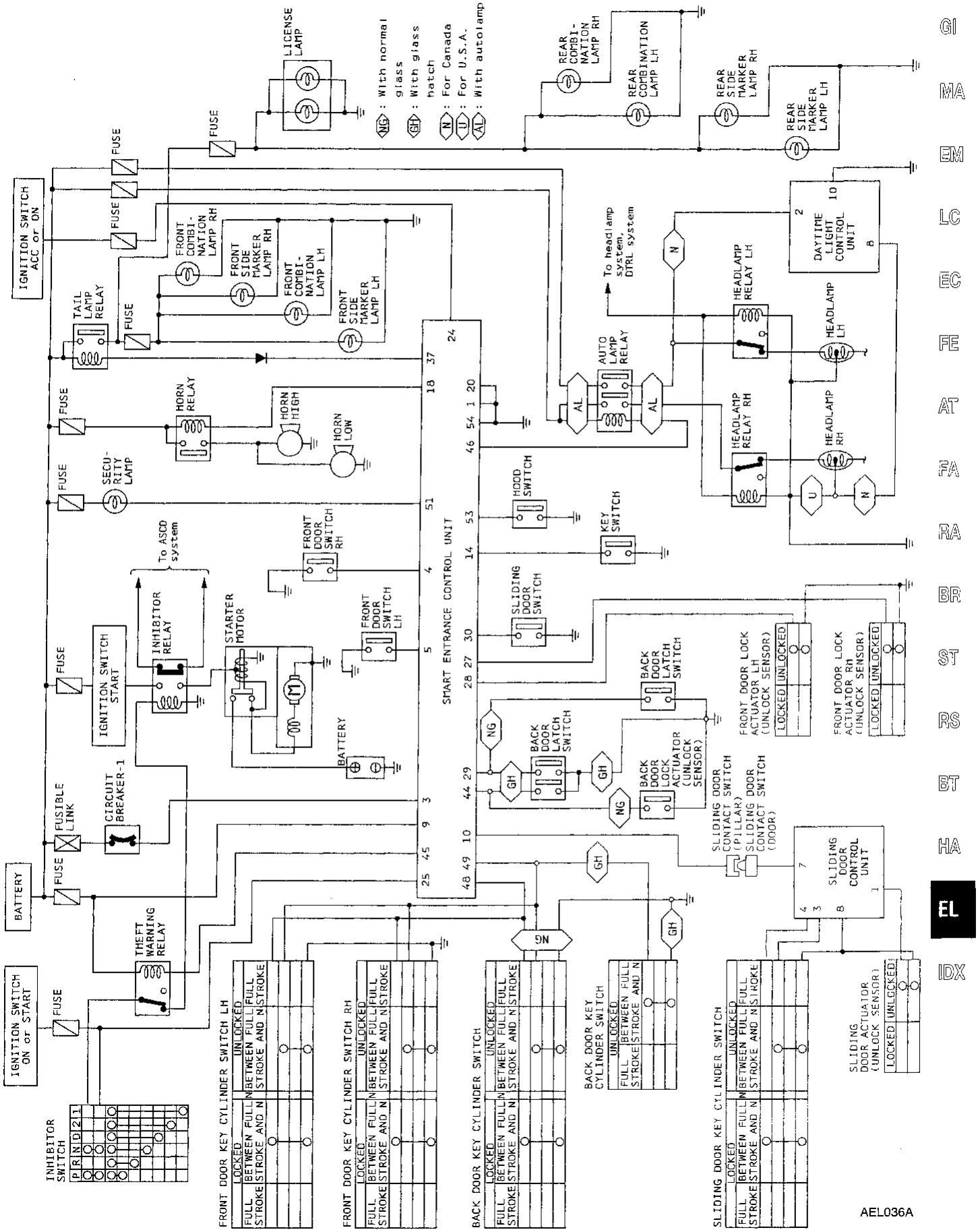
When the multi-remote control system is triggered, ground is supplied intermittently:

- from smart entrance control unit terminal ㊻
- to autolamp relay terminal ② and
- from smart entrance control unit terminal ㊲
- to tail lamp relay terminal ① and
- from smart entrance control unit terminal ⑱
- to horn relay terminal ①.

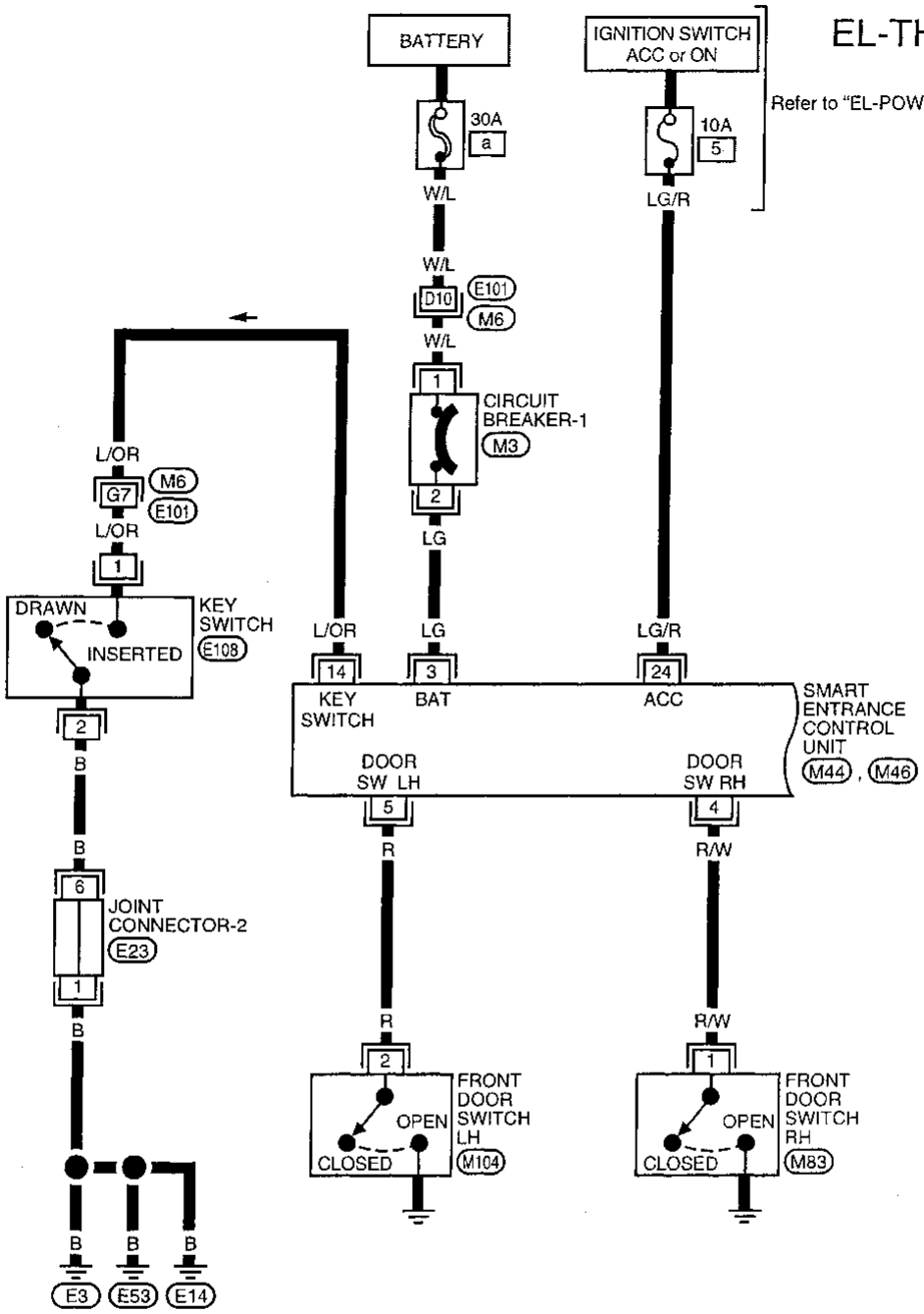
System Description (Cont'd)

The headlamps, side marker lamps, tail lamps, and license lamps flash, and the horn sounds intermittently. The alarm automatically turns off after 30 seconds or when the smart entrance control unit receives any signal from multi-remote controller.

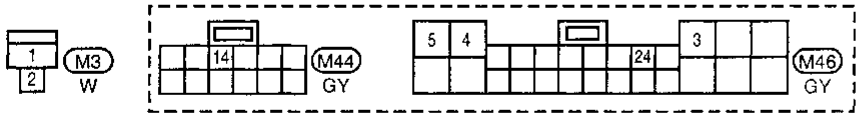
Schematic

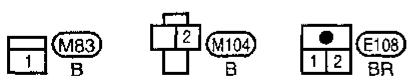

NG : With normal glass
GH : With glass hatch
N : For Canada
U : For U.S.A.
AL : With autolamp
LICENSE LAMP
REAR COMBI-NATION LAMP RH
REAR COMBINATION LAMP LH
REAR SIDE MARKER LAMP RH
REAR SIDE MARKER LAMP LH
IGNITION SWITCH ACC or ON
FUSE
TAIL LAMP RELAY
FRONT COMBI-NATION LAMP RH
FRONT SIDE MARKER LAMP RH
FRONT COMBI-NATION LAMP LH
FRONT SIDE MARKER LAMP LH
HORN RELAY
HORN HIGH
HORN LOW
SECU-RITY LAMP
To headlamp system, DTRL system
AUTO LAMP RELAY
HEADLAMP RELAY LH
HEADLAMP RELAY RH
HEADLAMP LH
HEADLAMP RH
DAYTIME LIGHT CONTROL UNIT
HOOD SWITCH
KEY SWITCH
To ASCD system
FRONT DOOR SWITCH RH
FRONT DOOR SWITCH LH
SLIDING DOOR SWITCH
INHIBITOR RELAY
STARTER MOTOR
IGNITION SWITCH START
BATTERY
SMART ENTRANCE CONTROL UNIT
BACK DOOR LATCH SWITCH
BACK DOOR LOCK ACTUATOR (UNLOCK SENSOR)
FRONT DOOR LOCK ACTUATOR LH (UNLOCK SENSOR)
FRONT DOOR LOCK ACTUATOR RH (UNLOCK SENSOR)
SLIDING DOOR CONTACT SWITCH (PILLAR)
SLIDING DOOR CONTACT SWITCH (DOOR)
SLIDING DOOR CONTROL UNIT
FUSIBLE LINK
CIRCUIT BREAKER-1
THEFT WARNING RELAY
IGNITION SWITCH ON or START
INHIBITOR SWITCH
P R N D 2 1
FRONT DOOR KEY CYLINDER SWITCH LH
FRONT DOOR KEY CYLINDER SWITCH RH
BACK DOOR KEY CYLINDER SWITCH
BACK DOOR KEY CYLINDER SWITCH
SLIDING DOOR KEY CYLINDER SWITCH
SLIDING DOOR ACTUATOR (UNLOCK SENSOR)
LOCKED
UNLOCKED
FULL STROKE
BETWEEN FULL AND N STROKE
AEL036A

Wiring Diagram –THEFT–



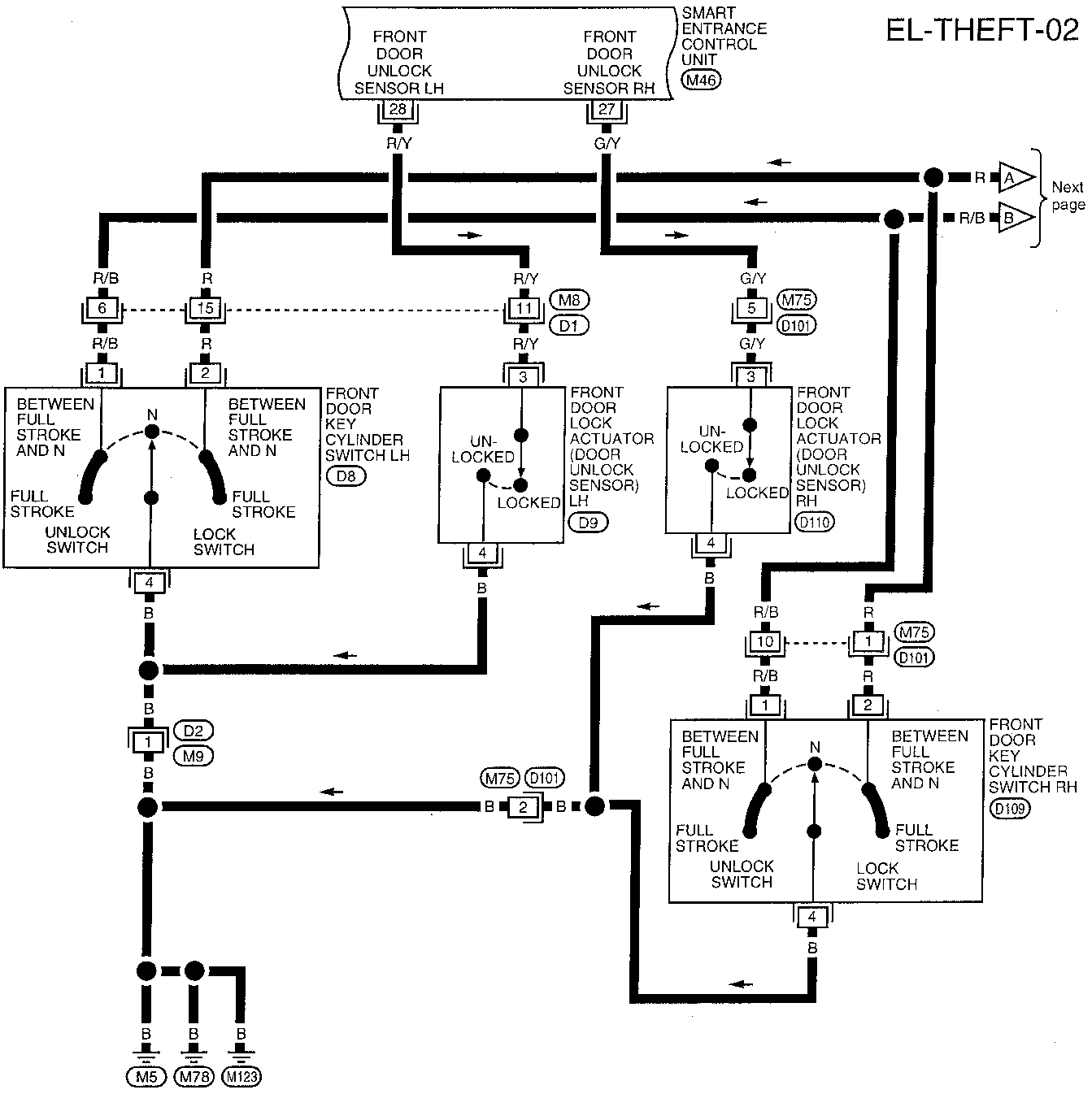
Refer to last page (Foldout page).
M6 , E101
E23

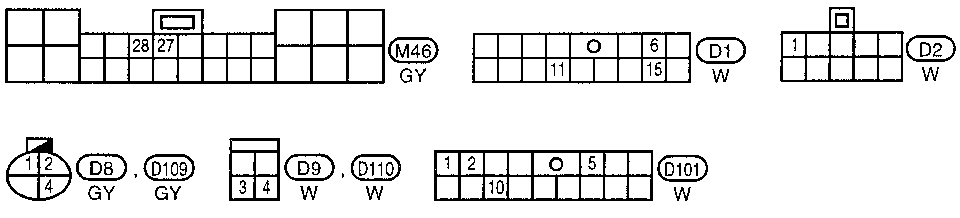




AEL972-A

Wiring Diagram –THEFT– (Cont'd)

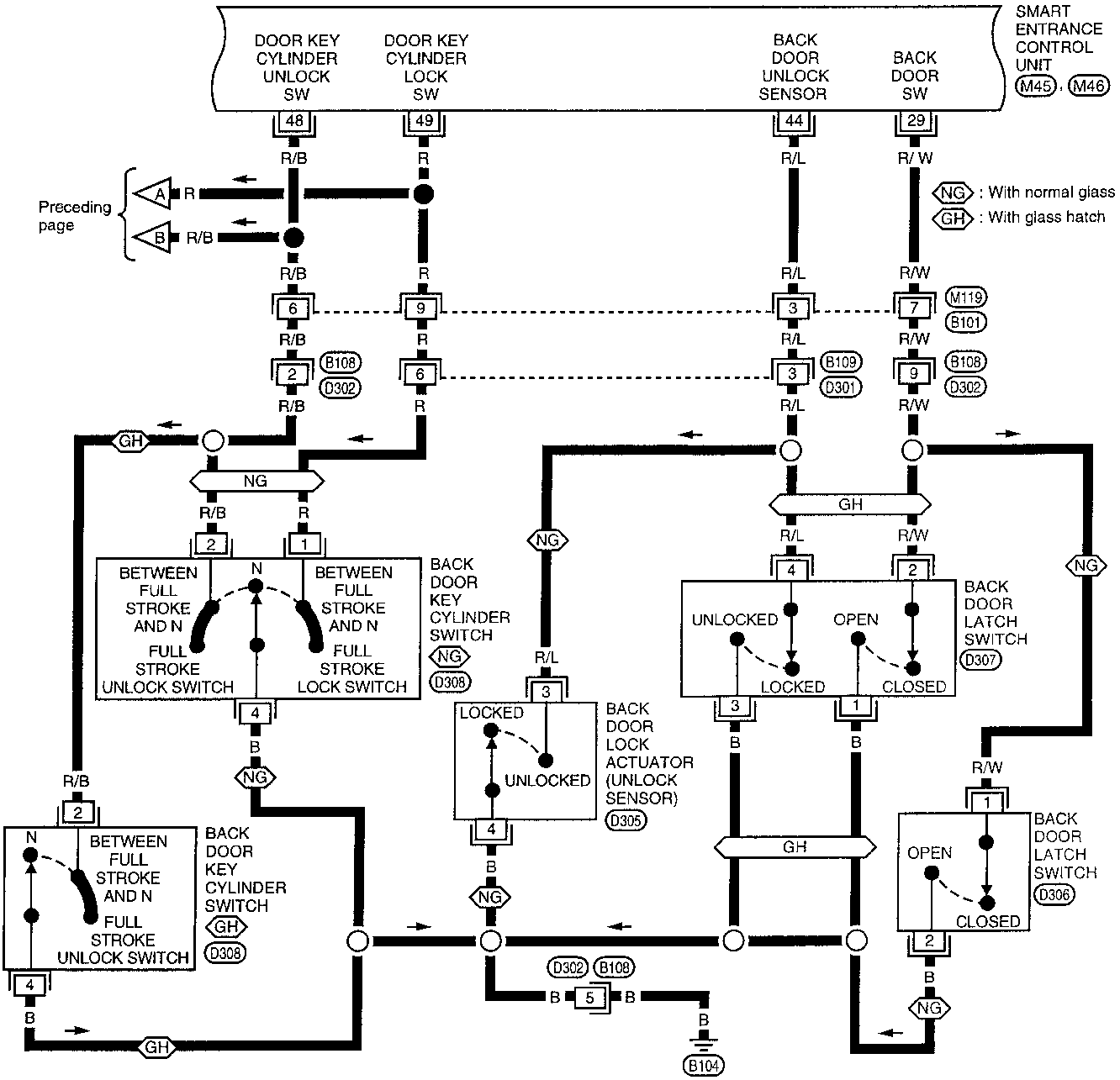


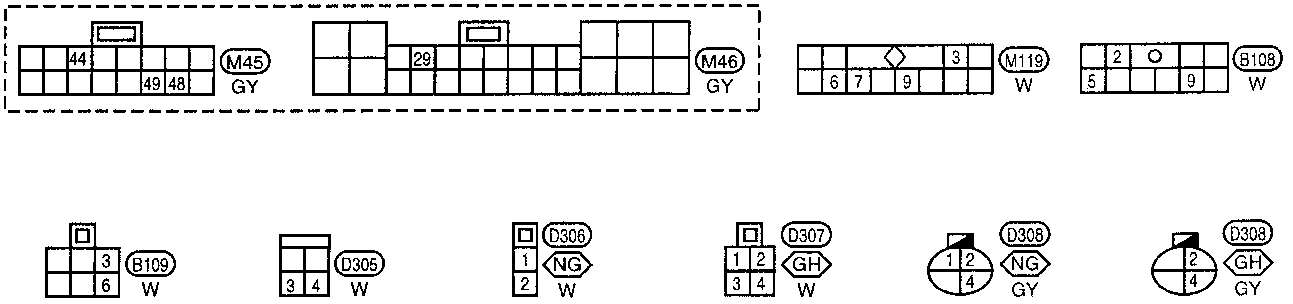


AEL972-B

Wiring Diagram –THEFT– (Cont'd)

EL-THEFT-03

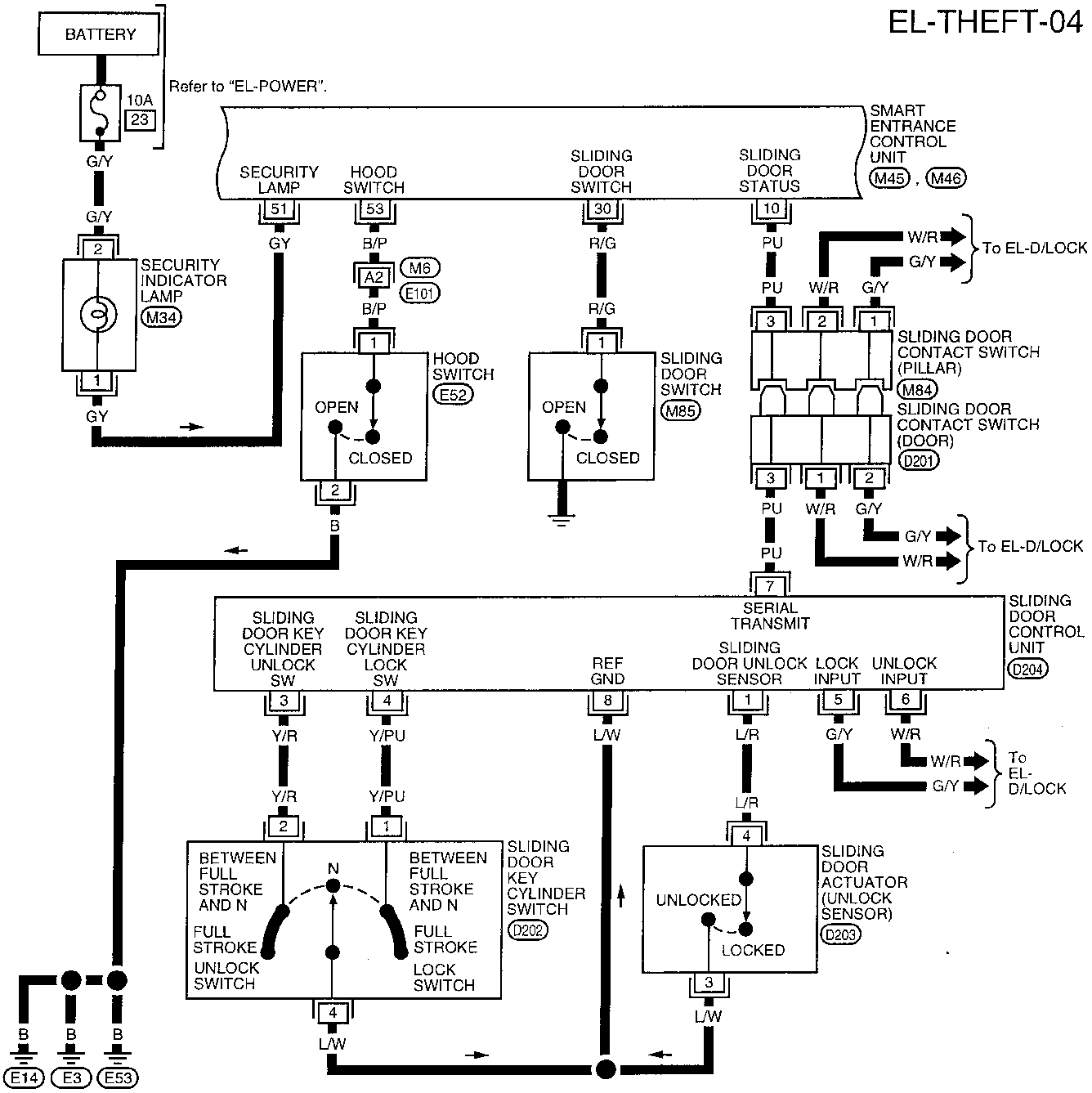


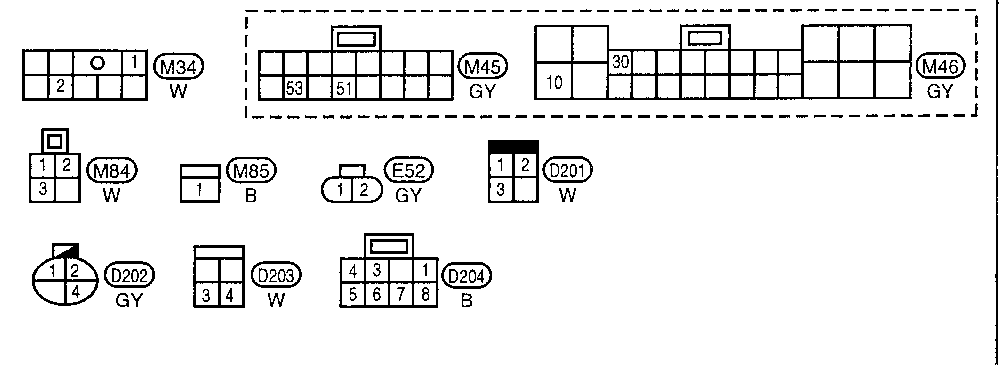


AEL972-C

Wiring Diagram –THEFT– (Cont'd)

EL-THEFT-04

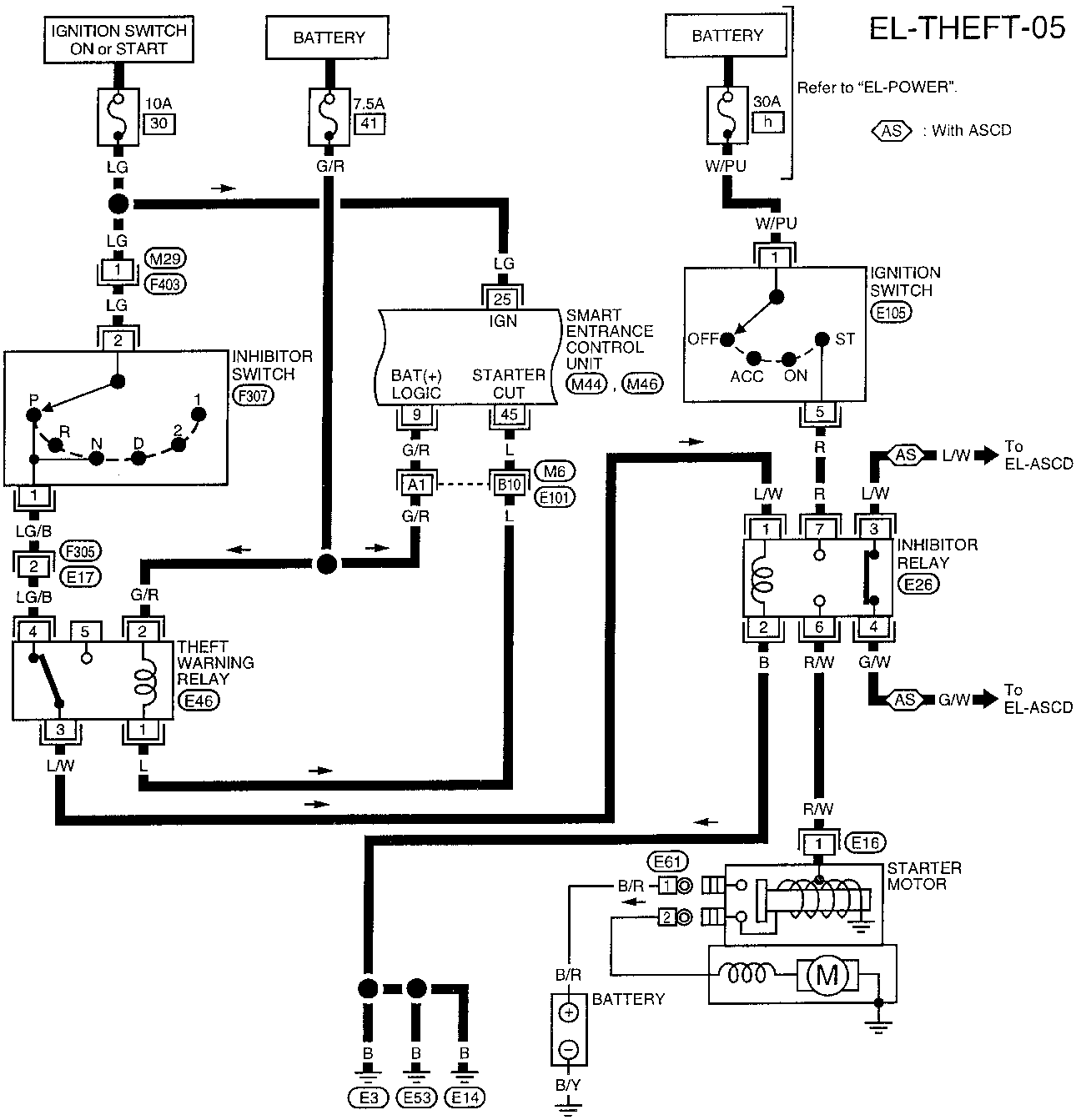


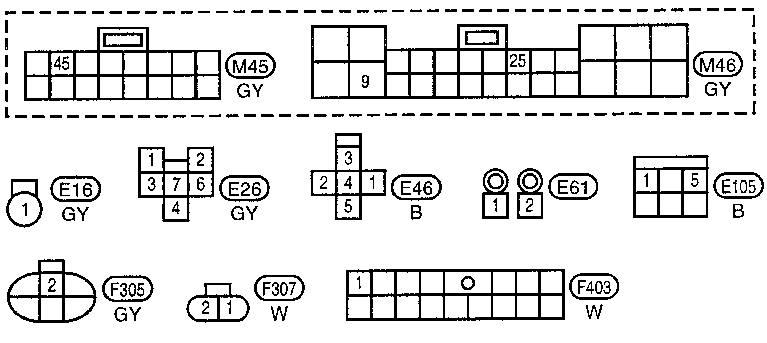


Refer to last page (Foldout page).
M6, E101

AEL972-D

Wiring Diagram –THEFT– (Cont'd)



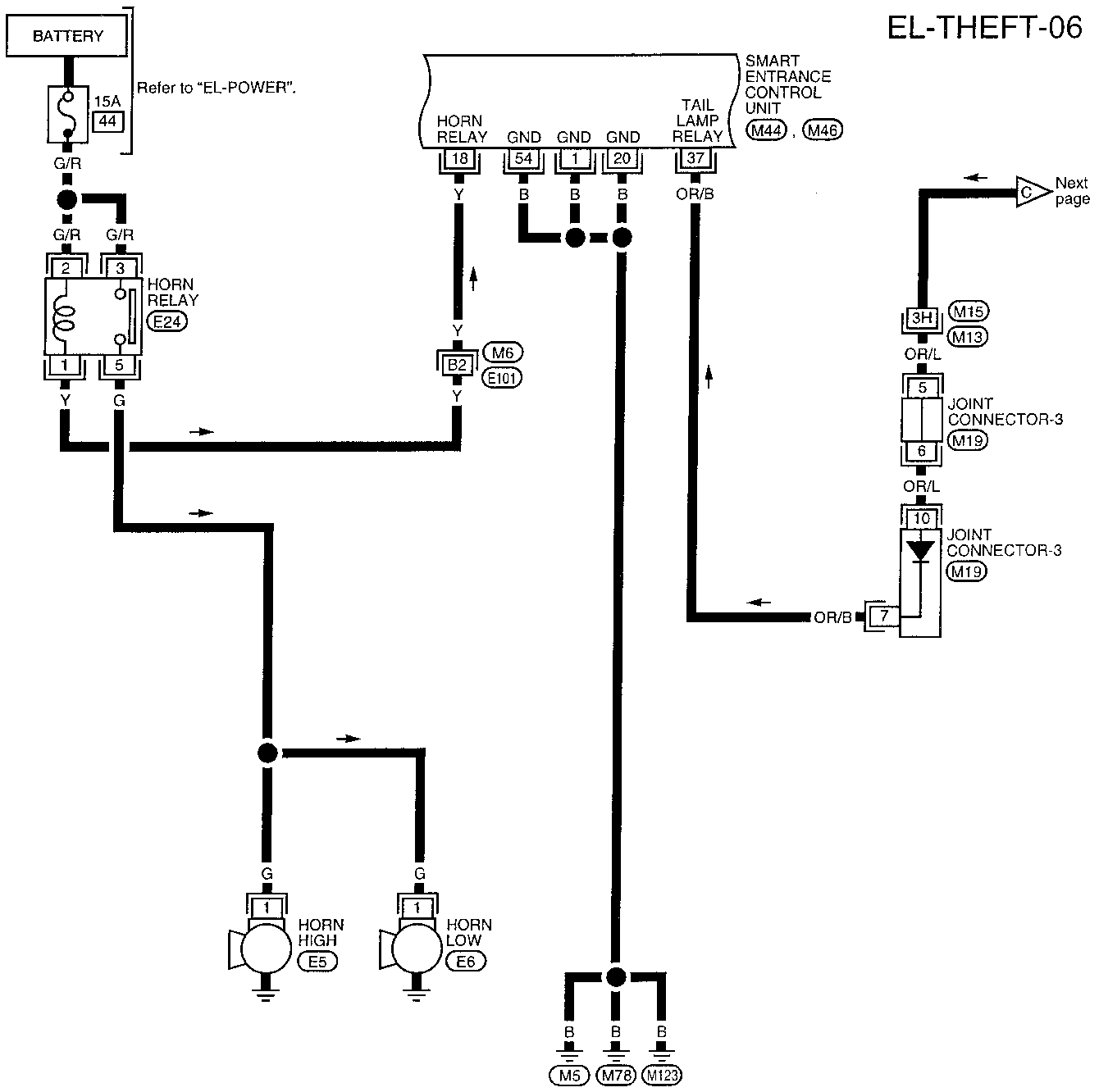


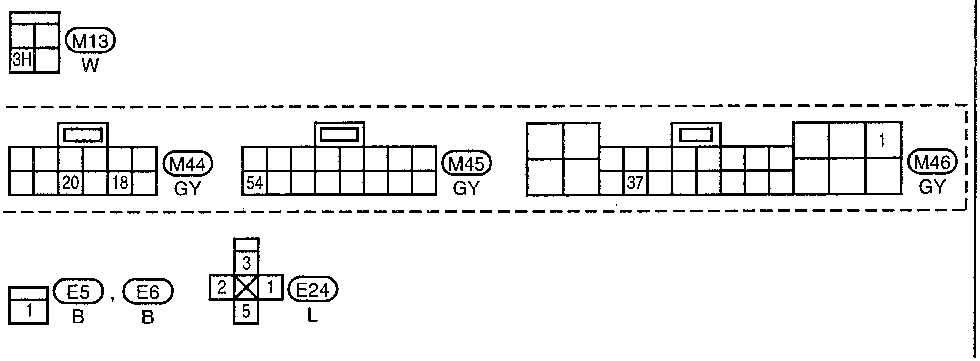
Refer to last page (Foldout page).
M6, E101

AEL972-E

Wiring Diagram –THEFT– (Cont'd)

EL-THEFT-06

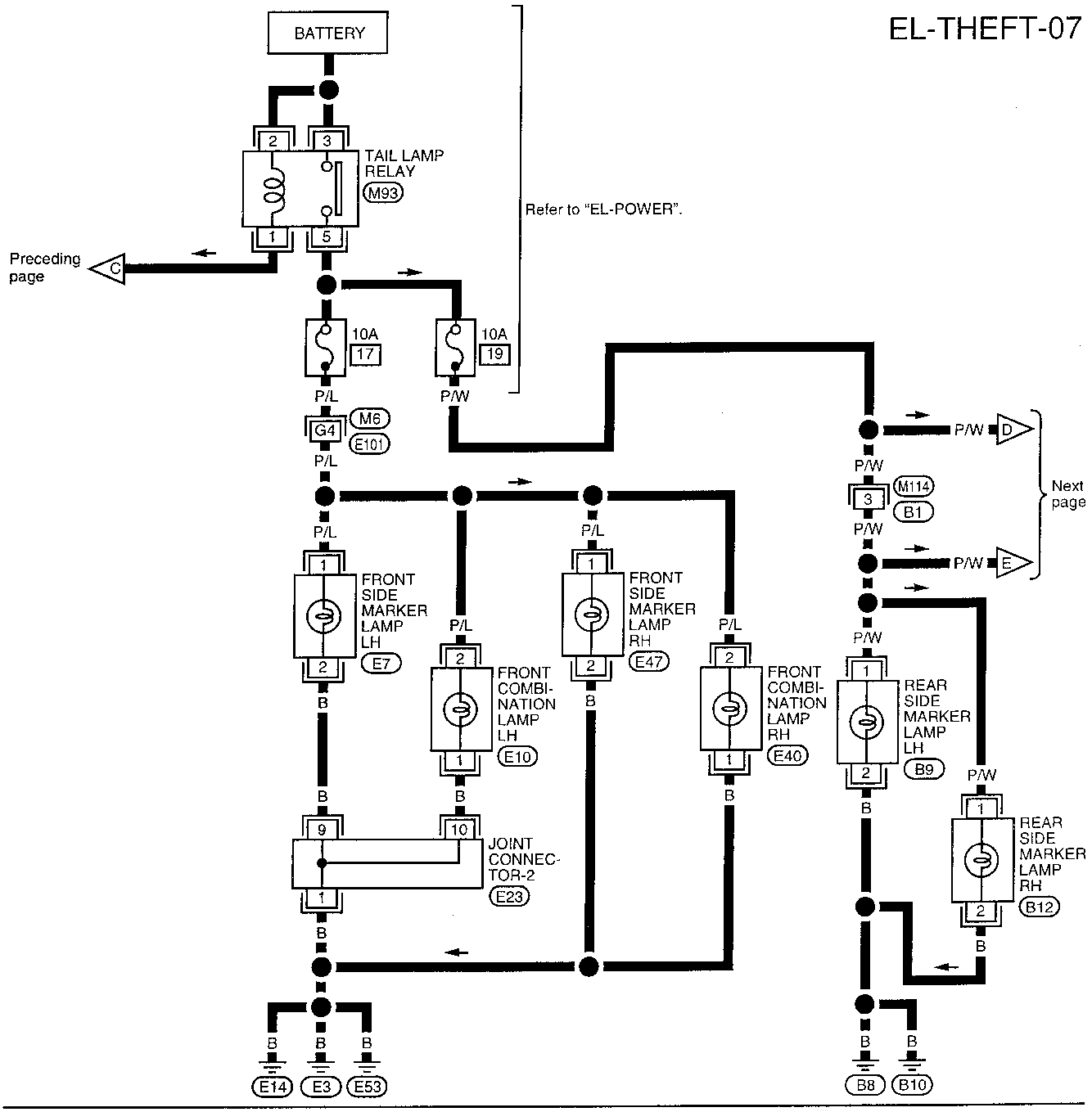




Refer to last page (Foldout page).
M6, E101
M19

AEL972-F

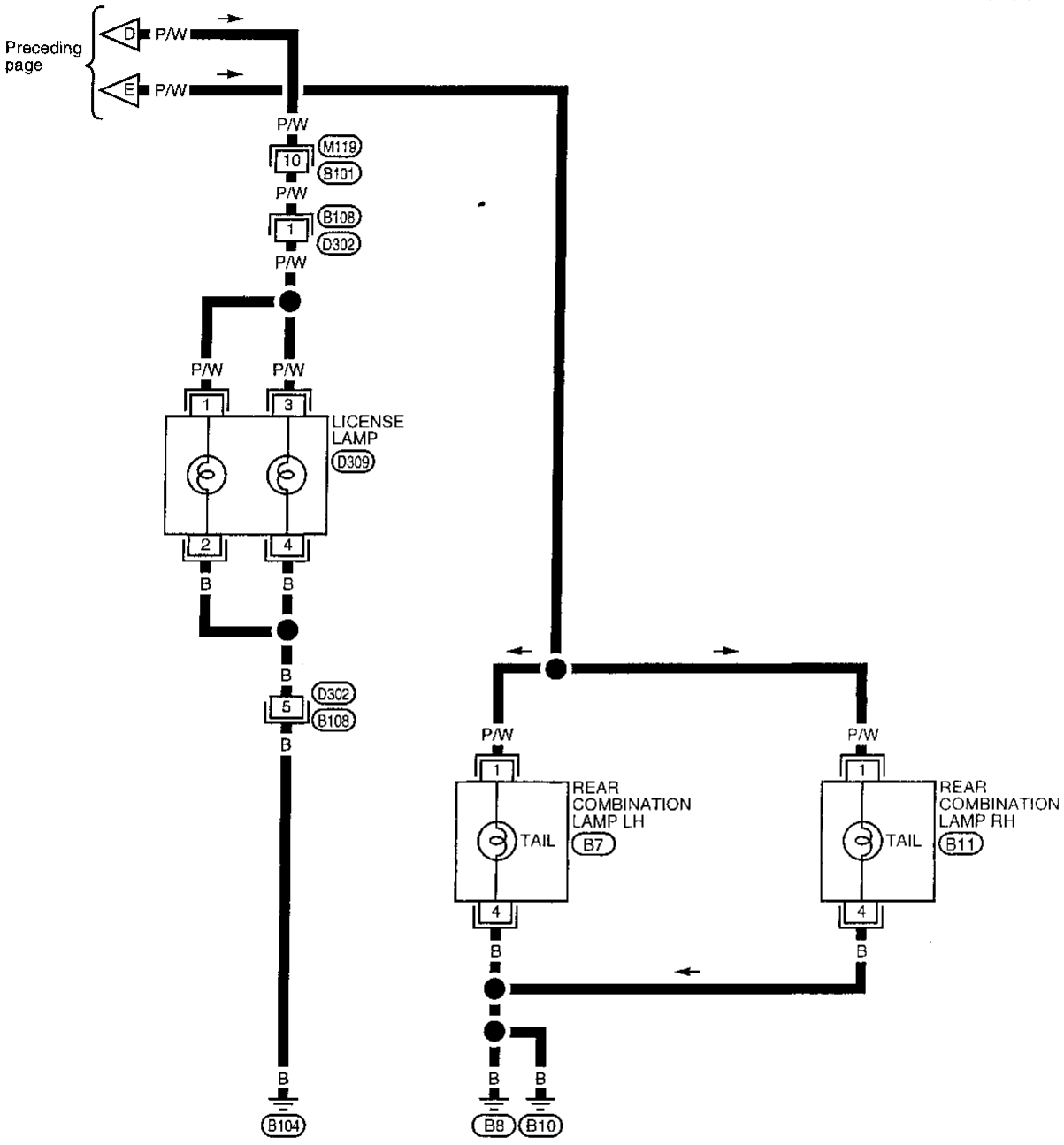
Wiring Diagram –THEFT– (Cont'd)

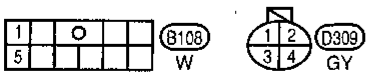


AEL972-G

Wiring Diagram –THEFT– (Cont'd)

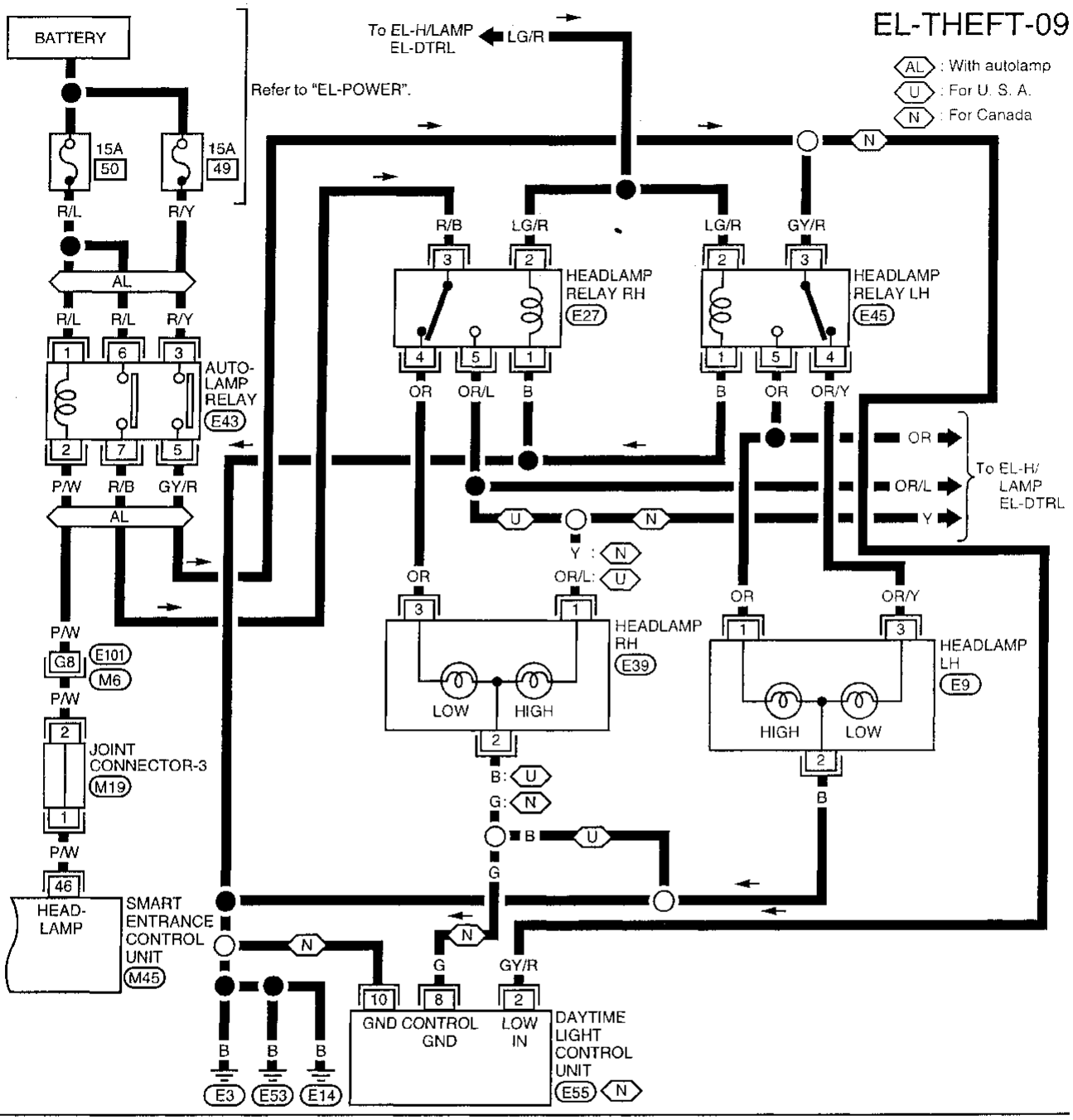
EL-THEFT-08





AEL972-H

Wiring Diagram –THEFT– (Cont'd)



Refer to last page (Foldout page).
M6, E101
M19

AEL972-I

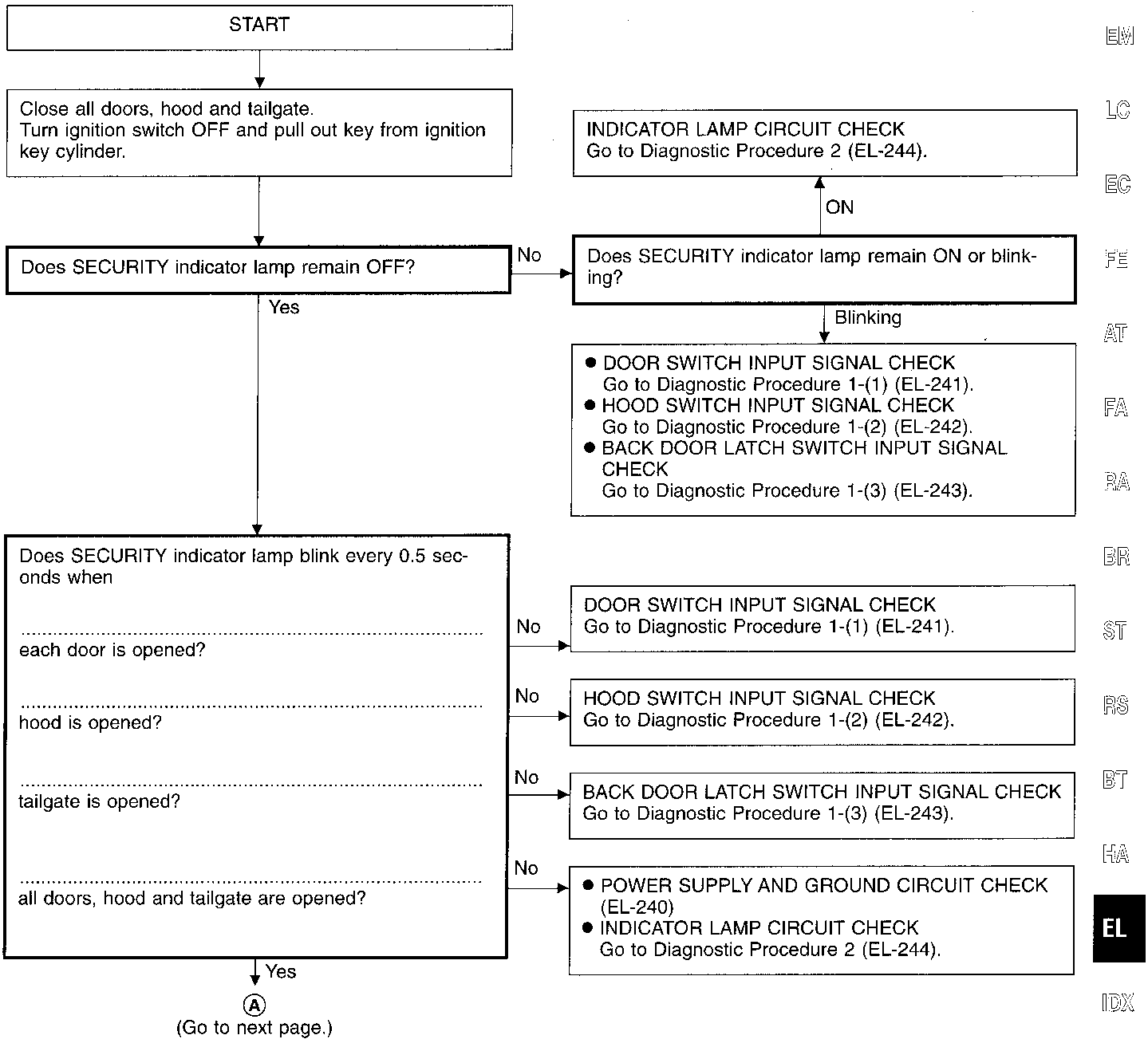
Trouble Diagnoses

SYSTEM OPERATION CHECK

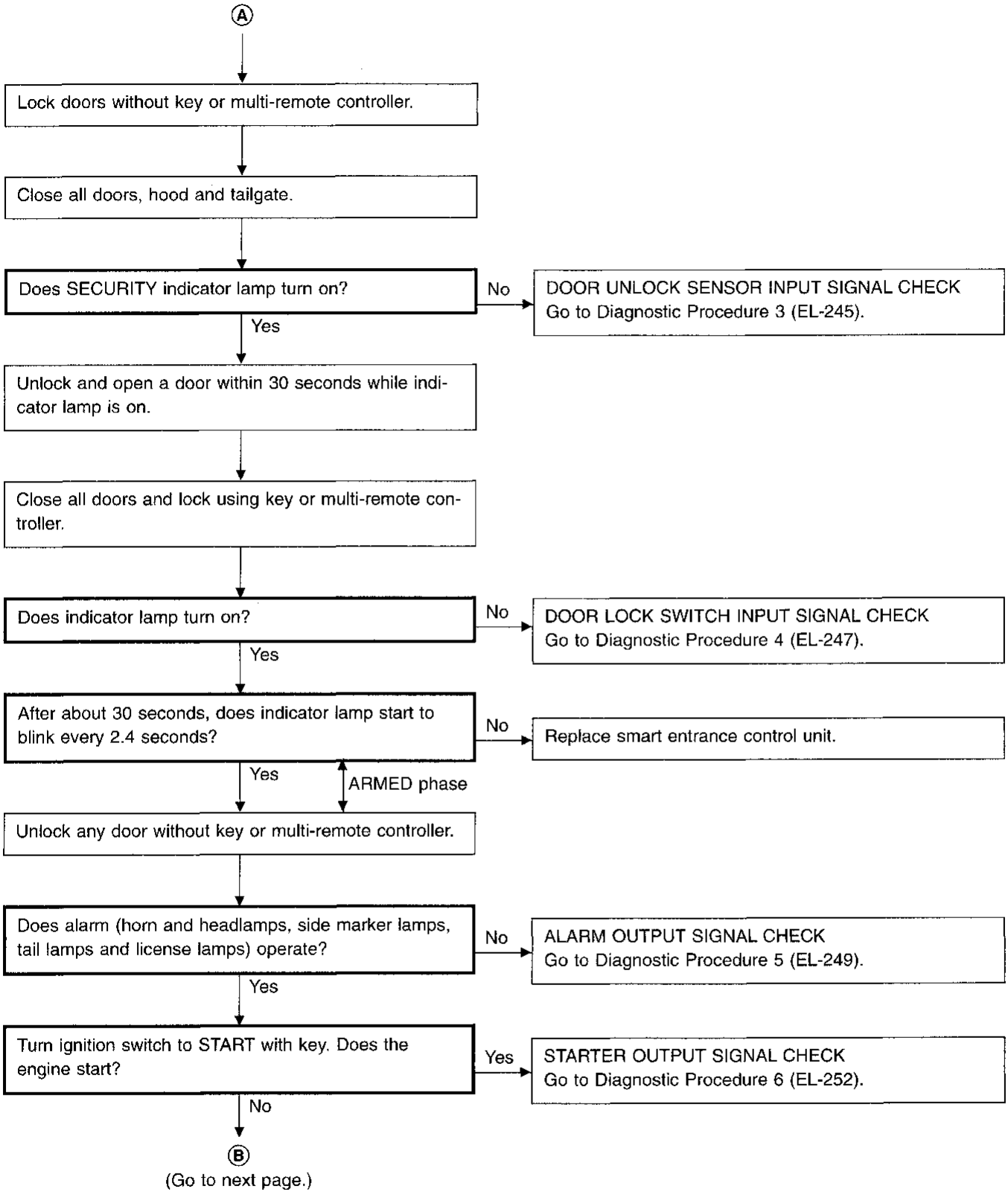
The system operation is canceled by turning ignition switch to ACC at any step in the following:

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

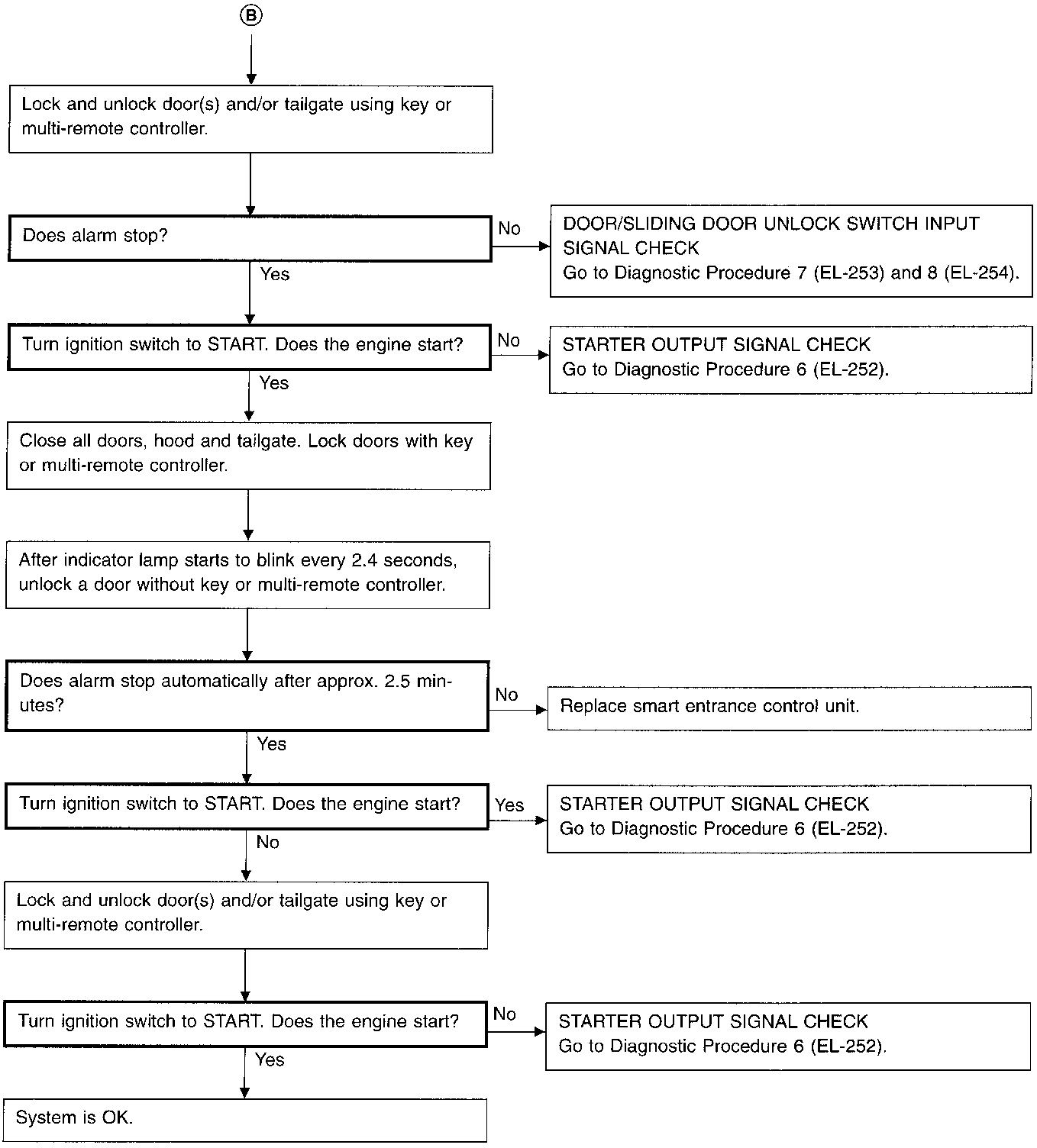
in the following flow chart.



Trouble Diagnoses (Cont'd)

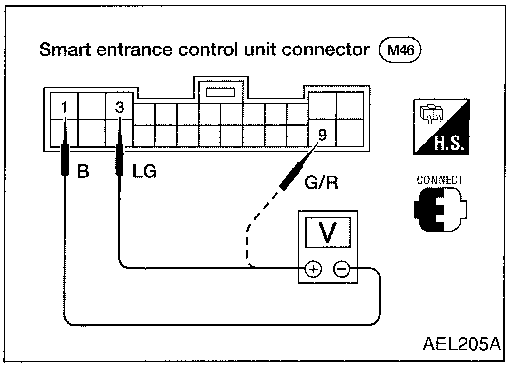


Trouble Diagnoses (Cont'd)



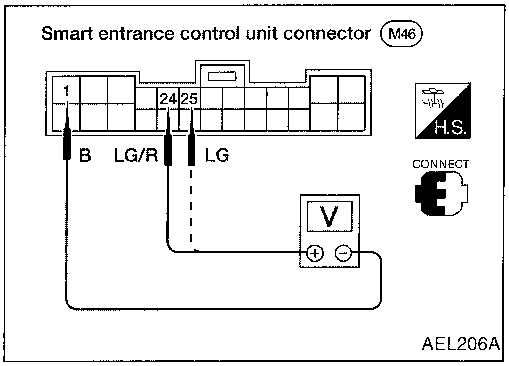
Trouble Diagnoses (Cont'd)

POWER SUPPLY AND GROUND CIRCUIT CHECK



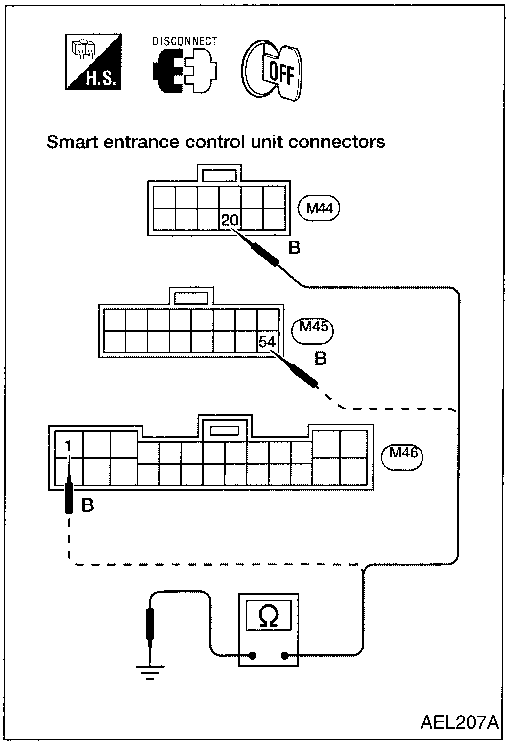
Main power supply circuit check

Terminals	Ignition switch position		
	OFF	ACC	ON
③ - ① ⑨ - ①	Battery voltage	Battery voltage	Battery voltage



Power supply circuit check for system cancel

Terminals	Ignition switch position		
	OFF	ACC	ON
㉔ - ①	0V	Battery voltage	Battery voltage
㉕ - ①	0V	0V	Battery voltage



Ground circuit check

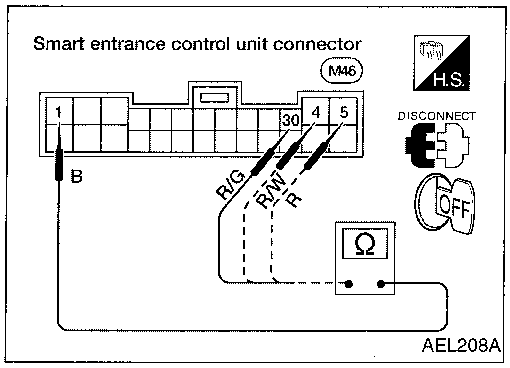
Terminals	Continuity
①, ⑳, ㊿ - Ground	Yes

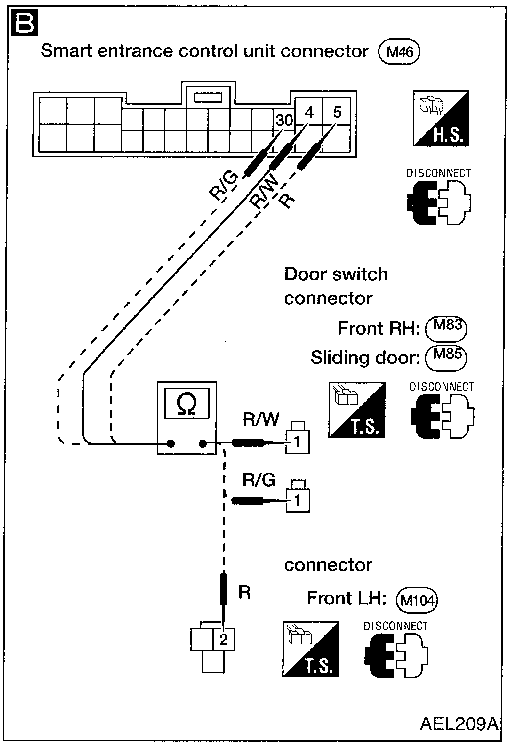
Trouble Diagnoses (Cont'd)

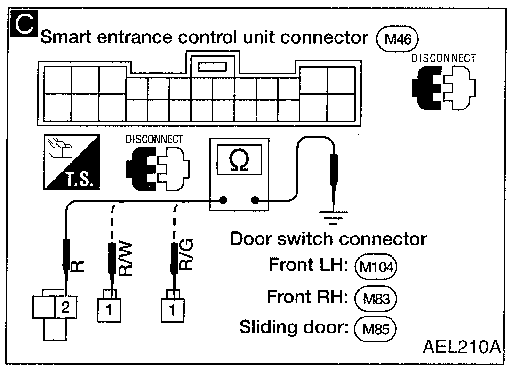
DIAGNOSTIC PROCEDURE 1

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

Diagnostic procedure 1-(1)







A

DOOR SWITCH INPUT SIGNAL CHECK.
Check continuity between smart entrance control unit harness terminals ④, ⑤, ㉚ and ①.

OK → Go to Diagnostic Procedure 2, EL-244.

Condition	Continuity between ⑤ and ①
Front door LH is closed.	No
Front door LH is opened.	Yes

Condition	Continuity between ④ and ①
Front door RH is closed.	No
Front door RH is opened.	Yes

Condition	Continuity between ㉚ and ①
Sliding door is closed.	No
Sliding door is opened.	Yes

NG ↓

Door switch check.
Refer to "ELECTRICAL COMPONENTS INSPECTION", EL-255.

NG → Replace door switch.

OK ↓

B

DOOR SWITCH CIRCUIT CHECK.
● Check harness continuity between smart entrance control unit harness terminal and door switch harness terminal.

Door switch	Control unit harness terminals	Door switch harness terminal
Front door RH	④	①
Front door LH	⑤	②
Sliding door	㉚	①

Continuity should exist.

NG → Repair harness or connectors.

OK ↓

C

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

NG → Repair harness.
(Short circuit exists between control unit harness terminal ④, ⑤, ㉚ and door switch harness terminals.)

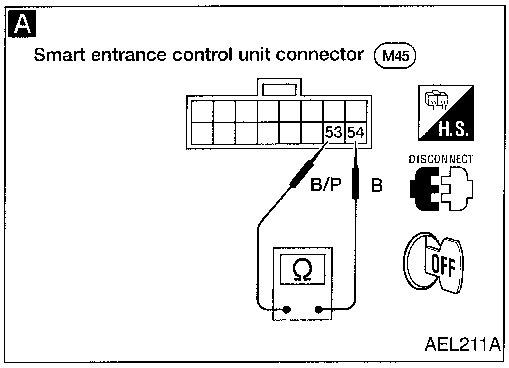
OK ↓

Check the connections at each connector.

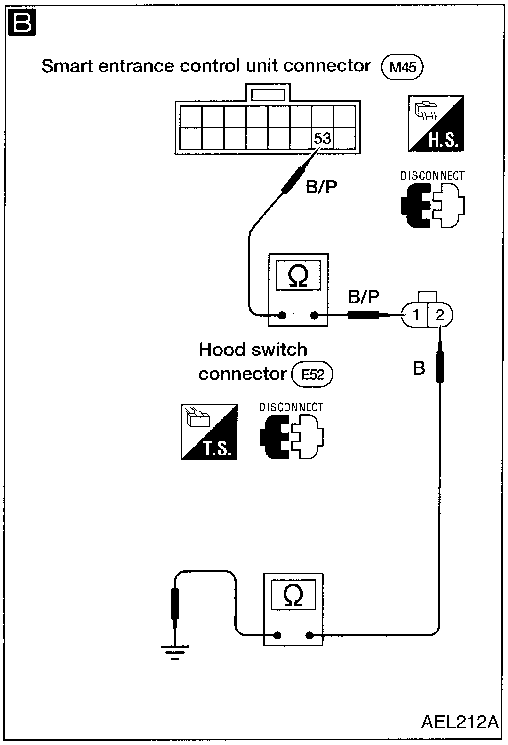
Trouble Diagnoses (Cont'd)

Diagnostic procedure 1-(2)

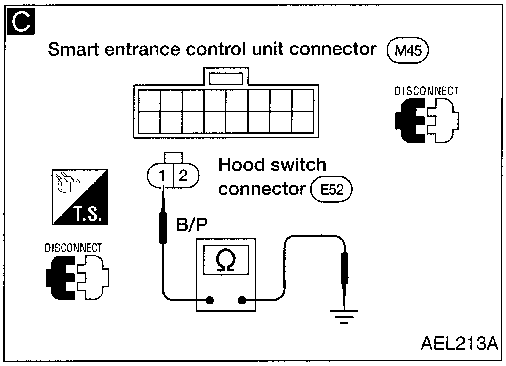
A



B



C



A

HOOD SWITCH INPUT SIGNAL CHECK.
Check continuity between smart entrance control unit harness terminals (53) and (54).

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

OK → Go to Diagnostic Procedure 2, EL-244.

NG ↓

Check hood switch and hood fitting condition.

NG → Adjust installation of hood switch or hood.

OK ↓

Hood switch check.
Refer to "ELECTRICAL COMPONENTS INSPECTION", EL-255.

NG → Replace hood switch.

OK ↓

B

HOOD SWITCH CIRCUIT CHECK.
- Check harness continuity between smart entrance control unit harness terminal (53) and hood switch harness terminal (1).
- Check harness continuity between hood switch terminal (2) and body ground.

Continuity should exist.

NG → Repair harness or connectors.

OK ↓

C

CHECK CONTINUITY.
Check harness continuity between hood switch harness terminal (1) and body ground.
(Before checking harness continuity, smart entrance control unit harness connector should be disconnected.)
Continuity should not exist.

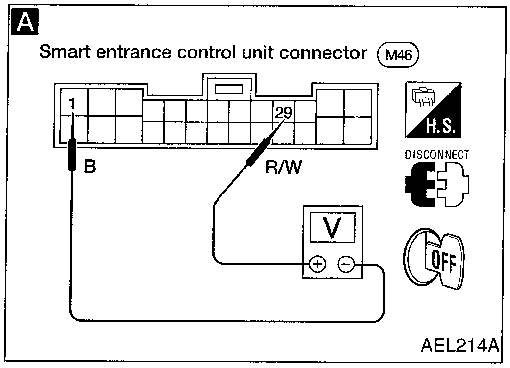
NG → Repair harness.
(Short circuit exists between control unit harness terminal (53) and hood switch harness terminal (1).)

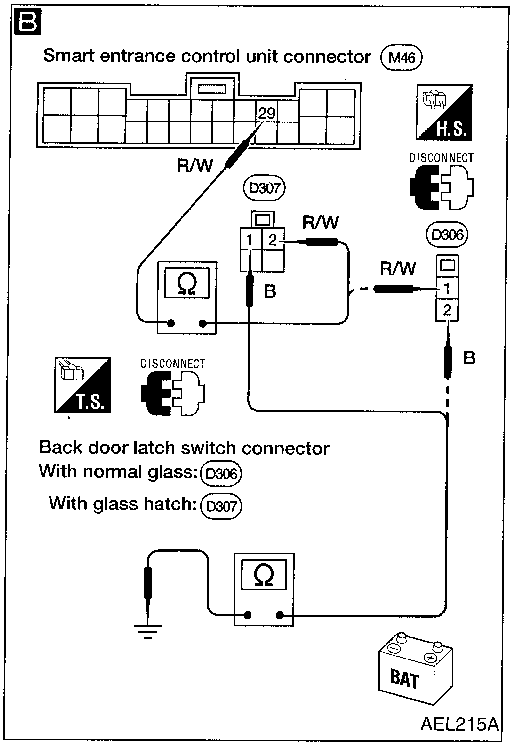
OK ↓

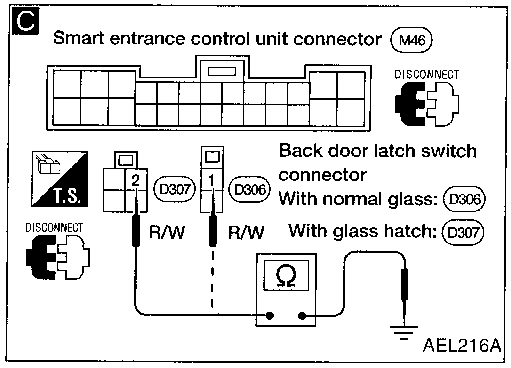
Check the connections at each connector.

Trouble Diagnoses (Cont'd)

Diagnostic procedure 1-(3)







A

BACK DOOR LATCH SWITCH INPUT SIGNAL CHECK.
Check continuity between smart entrance control unit harness terminals ㉙ and ①.

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

OK → Go to Diagnostic Procedure 2, EL-244.

NG ↓

Back door latch switch check.
Refer to "ELECTRICAL COMPONENTS INSPECTION", EL-255.

NG → Replace back door latch switch.

OK ↓

B

BACK DOOR LATCH SWITCH CIRCUIT CHECK.
- Check harness continuity between smart entrance control unit harness terminal ㉙ and back door latch switch harness terminal ① (with normal glass) or harness terminal ② (with glass hatch). (Before checking harness continuity, the battery negative terminal should be disconnected.)
- Check harness continuity between back door latch switch harness terminal ② (with normal glass) or harness terminal ① (with glass hatch) and body ground.

Continuity should exist.

NG → Repair harness or connectors.

OK ↓

C

CHECK CONTINUITY.
Check harness continuity between back door latch switch harness terminal ① (with normal glass) or harness terminal ② (with glass hatch) and body ground. (Before checking harness continuity, smart entrance control unit harness connector should be disconnected.)

Continuity should not exist.

NG → Repair harness.
[Short circuit exists between smart entrance control unit harness terminal ㉙ and back door latch switch harness terminal ① (with normal glass) or harness terminal ② (with glass hatch).]

OK ↓

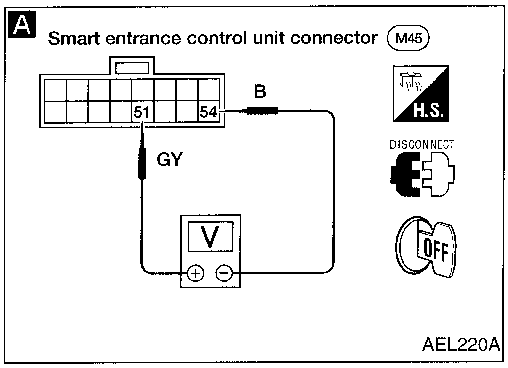
Check the connections at each connector.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 2

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

A

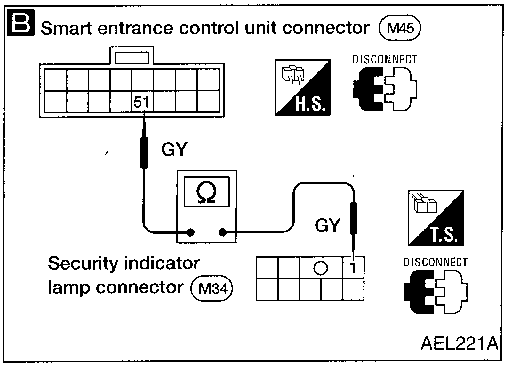


INDICATOR LAMP OUTPUT SIGNAL CHECK.
Check voltage between smart entrance control unit harness terminals (51) and (54).
Battery voltage should exist.

OK → Replace smart entrance control unit.

NG ↓

B



Check indicator lamp.

NG → Replace indicator lamp.

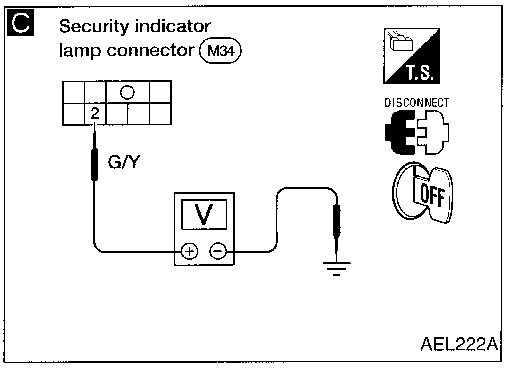
OK ↓

INDICATOR LAMP CIRCUIT CHECK.
Check harness continuity between smart entrance control unit harness terminal (51) and indicator lamp harness terminal (1).
Continuity should exist.

NG → Repair harness or connectors.

OK ↓

C

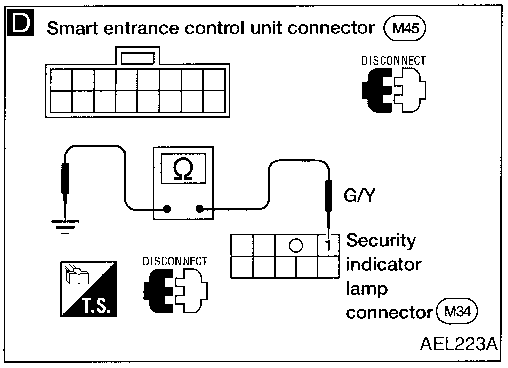


CHECK VOLTAGE.
Check voltage between indicator lamp harness terminal (2) and body ground.
Battery voltage should exist.

NG → Repair harness or connectors.

OK ↓

D



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

NG → Repair harness.
(Short circuit exists between smart entrance control unit harness terminal (51) and indicator lamp harness terminal (1).)

OK ↓

Check the connections at each connector.

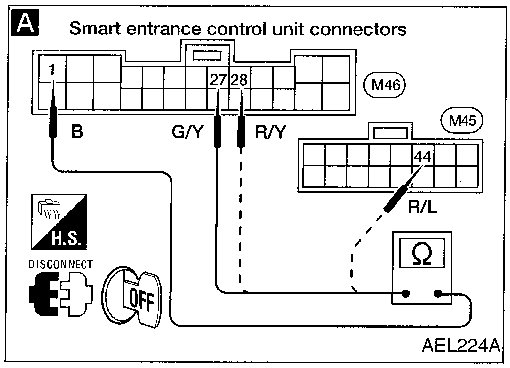
↓

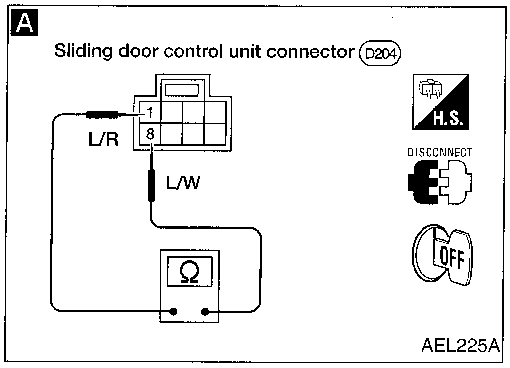
Replace smart entrance control unit.

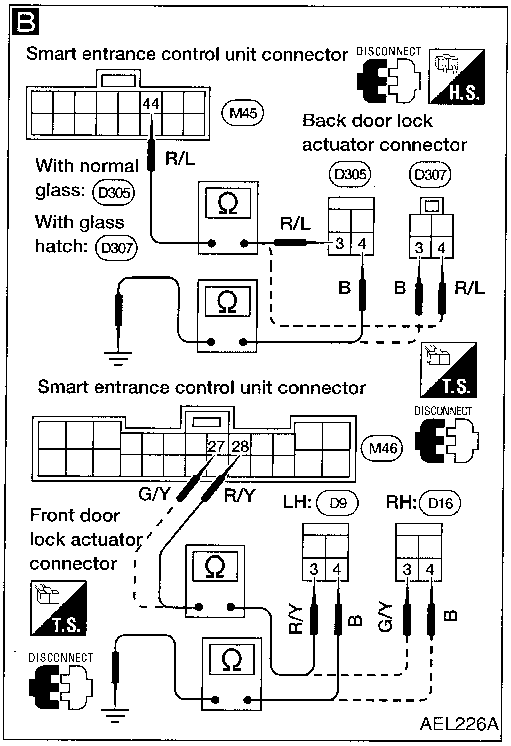
Trouble Diagnoses (Cont'd)

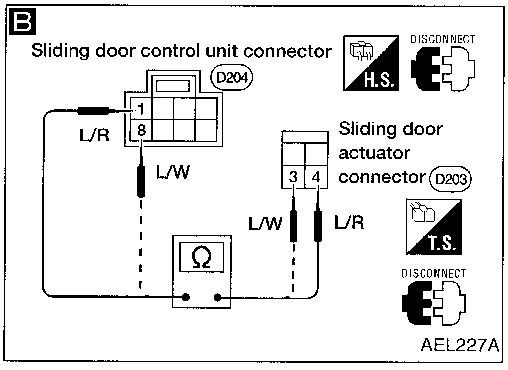
DIAGNOSTIC PROCEDURE 3

SYMPTOM: Indicator lamp does not come on.









A

DOOR UNLOCK SENSOR INPUT SIGNAL CHECK.

Check continuity between smart entrance control unit harness terminals (27), (28), (44) and (1).

Condition	Continuity between (28) and (1)
Front door LH is locked.	No
Front door LH is unlocked.	Yes

Condition	Continuity between (27) and (1)
Front door RH is locked.	No
Front door RH is unlocked.	Yes

Condition	Continuity between (14) and (1)
Tailgate is locked.	No
Tailgate is unlocked.	Yes

Check continuity between sliding door control unit terminals (1) and (8).

Condition	Continuity between (1) and (8)
Sliding door is locked.	No
Sliding door is unlocked.	Yes

OK → Go to Diagnostic Procedure 2, EL-244.

OK → Replace smart entrance or sliding door control unit.

NG ↓

Door unlock sensor check.
Refer to "ELECTRICAL COMPONENTS INSPECTION", EL-256.

NG → Replace door lock actuator.

OK ↓

B

DOOR UNLOCK SENSOR CIRCUIT CHECK.

- Check harness continuity between smart entrance control unit harness terminal (27), (28) or (44) and door actuator terminal (3) (terminal (4) for back door lock actuator with glass hatch).
- Check harness continuity between door lock actuator harness terminal (4) (terminal (3) for back door lock actuator with glass hatch) and body ground.
- Check harness continuity between sliding door control unit terminal (1) and sliding door actuator terminal (4).
- Check harness continuity between sliding door control unit terminal (8) and sliding door actuator terminal (3).

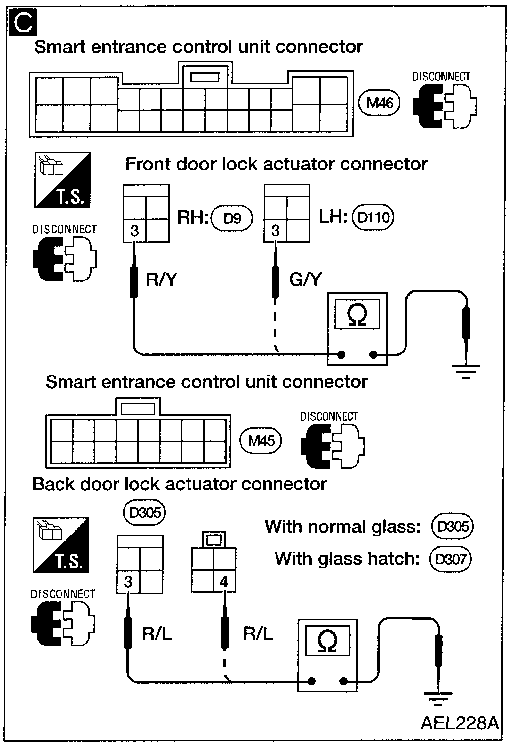
Continuity should exist.

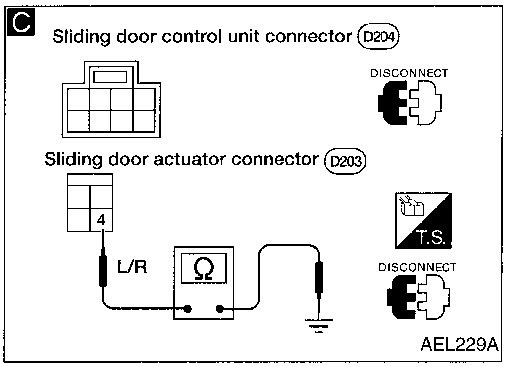
NG → Repair harness or connectors.

OK ↓

(A)
(Go to next page.)

Trouble Diagnoses (Cont'd)





Ⓐ

C

CHECK CONTINUITY.

- Check harness continuity between door lock actuator harness terminal ③ (terminal ④ for back door lock actuator with glass hatch) and body ground.
- Check harness continuity between sliding door actuator harness terminal ④ and body ground.

(Before checking harness continuity, smart entrance or sliding door control unit harness connector should be disconnected.)

Continuity should not exist.

NG → Repair harness. (Short circuit exists between smart entrance control unit harness terminal ㉗, ㉘ or ㊹ and door lock actuator harness terminal ③.) (Short circuit exists between sliding door control unit harness terminal ① and sliding door actuator terminal ④.)

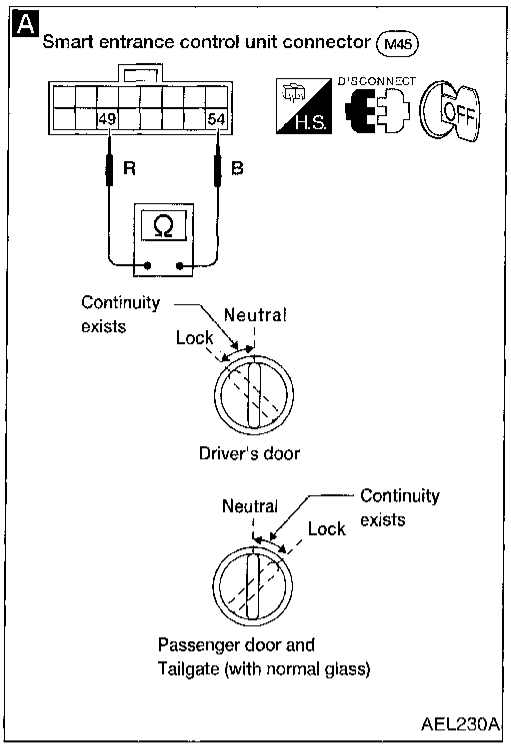
OK ↓

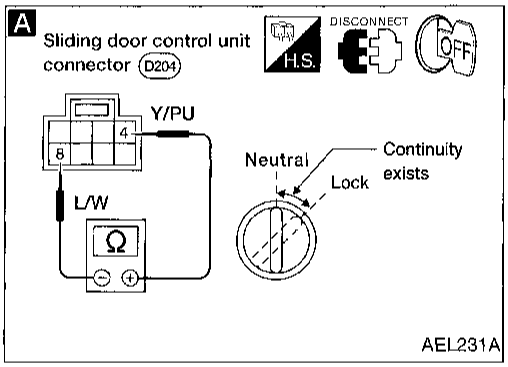
Check the connections at each connector.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 4

SYMPTOM: Indicator lamp does not come on.





A

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

- Check continuity between smart entrance control unit harness terminals (49) and (54).
- Check continuity between sliding door control unit harness terminals (4) and (8).

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

OK → Go to Diagnostic Procedure 2 (EL-244).

OK → Replace smart entrance or sliding door control unit.

NG

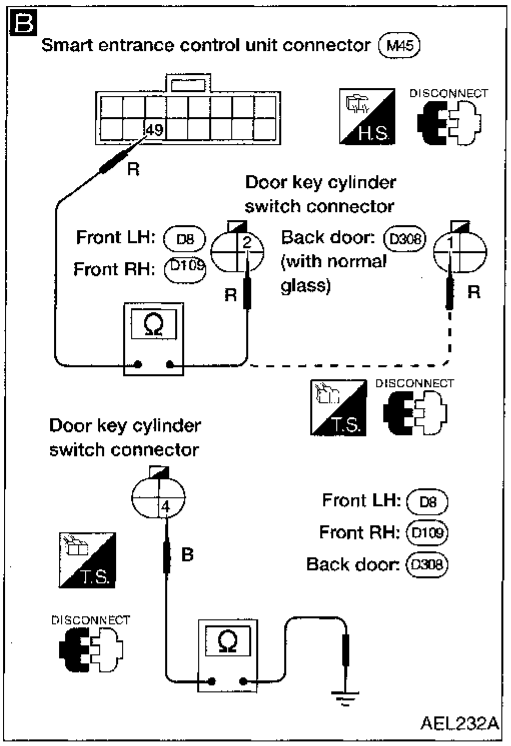
Door key cylinder switch check.
Refer to "ELECTRICAL COMPONENTS INSPECTION", EL-256.

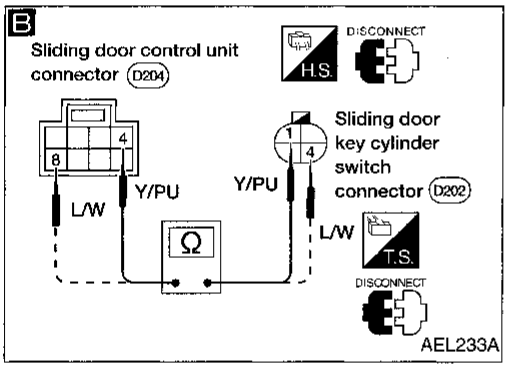
NG → Replace door key cylinder switch.

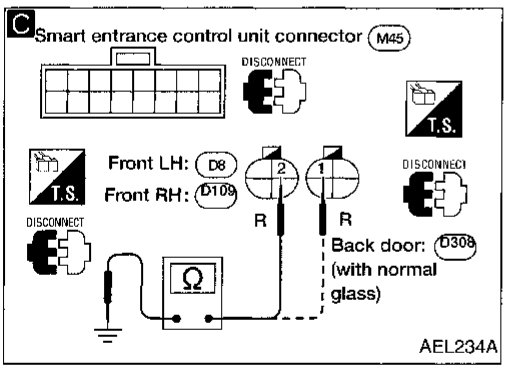
OK

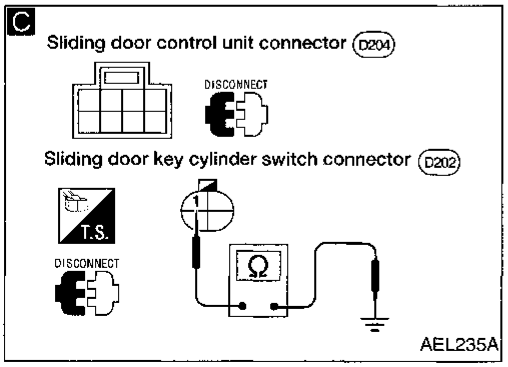
Ⓐ
(Go to next page.)

Trouble Diagnoses (Cont'd)









Ⓐ

B

DOOR KEY CYLINDER SWITCH CIRCUIT CHECK.

- Check harness continuity between smart entrance control unit harness terminal ㊾ and door key cylinder switch terminal ① or ②.
- Check harness continuity between door key cylinder switch terminal ④ and body ground.
- Check harness continuity between sliding door control unit harness terminal ④ and sliding door key cylinder switch terminal ①.
- Check harness continuity between sliding door control unit harness terminal ⑧ and sliding door key cylinder switch terminal ④.

Continuity should exist.

NG → Repair harness or connectors.

OK ↓

C

CHECK CONTINUITY.

- Check harness continuity between front door key cylinder switch terminal ① or ② and body ground.
- Check harness continuity between sliding door key cylinder switch harness terminal ① and body ground.

(Before checking harness continuity, smart entrance or sliding door control unit harness connector should be disconnected.)

Continuity should not exist.

NG → Repair harness. (Short circuit exists between smart entrance control unit harness terminal ㊾ and door key cylinder switch terminal ① or ②.) (Short circuit exists between sliding door control unit harness terminal ④ and sliding door key cylinder switch terminal ①.)

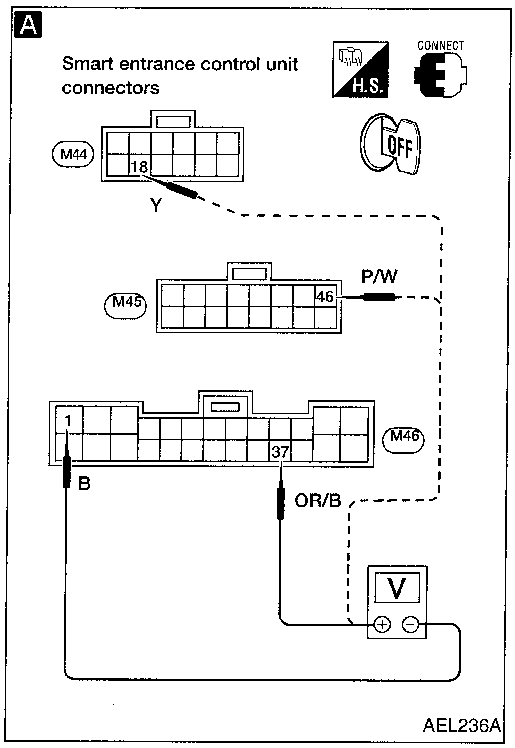
OK ↓

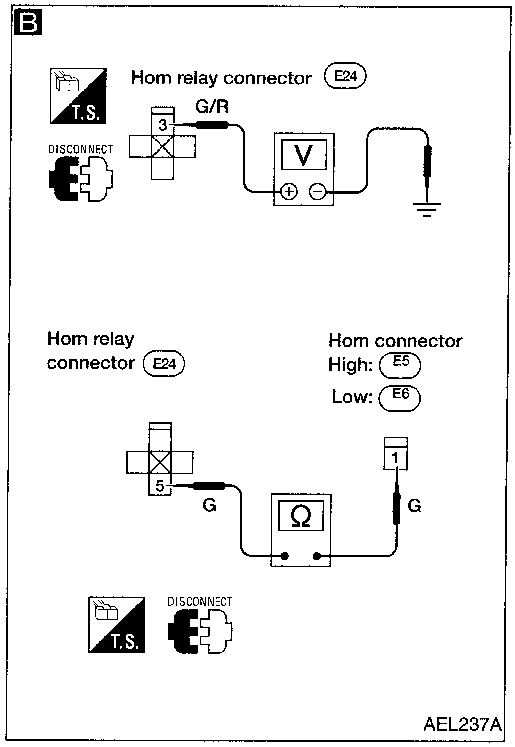
Check the connections at each connector.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 5

SYMPTOM: Alarm does not operate.





A

ALARM SIGNAL OUTPUT CHECK.
Check voltage between smart entrance control unit harness terminals (18), (37), (46) and (1).

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

NG → Check the following:
- Harness continuity between smart entrance control unit harness terminal (46) and autolamp relay harness terminal (2)
- Harness continuity between fuse and autolamp relay harness terminal (1)
- Harness continuity between smart entrance control unit harness terminal (18) and horn relay harness terminal (1)
- Harness continuity between fuse and horn relay harness terminal (2)
- Harness continuity between smart entrance control unit harness terminal (37) (-) and tail lamp relay terminal (1) (+)
- Harness continuity between fuse and tail lamp relay harness terminal (2)
- Autolamp relay
  Refer to "ELECTRICAL COMPONENTS INSPECTION", EL-256.
- Tail lamp relay and horn relay
  Refer to "ELECTRICAL COMPONENTS INSPECTION", EL-257.

OK → Alarm signal input check:
- Door switch circuit
  Refer to Diagnostic Procedure 1-(1), EL-241.
- Hood switch circuit
  Refer to Diagnostic Procedure 1-(2), EL-242.
- Back door latch switch circuit
  Refer to Diagnostic Procedure 1-(3), EL-243.
- Door unlock sensor circuit
  Refer to Diagnostic Procedure 3, EL-245.

OK → Replace smart entrance control unit.

OK ↓

Horn relay check.
Refer to "ELECTRICAL COMPONENTS INSPECTION", EL-257.

OK → B

NG → Replace relay.

B

HORN CIRCUIT CHECK.
- Check voltage between horn relay harness terminal (3) and body ground.
  Battery voltage should exist.
- Check harness continuity between horn relay harness terminal (5) and high and low horn harness terminal (1).
  Continuity should exist.

OK ↓

Horns check.
Refer to "ELECTRICAL COMPONENTS INSPECTION", EL-256.

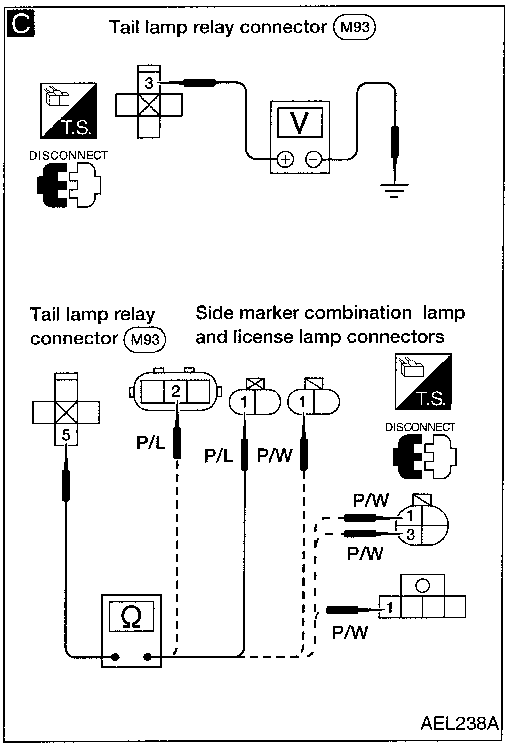
OK → Ⓐ (Go to next page.)

NG → Replace horns.

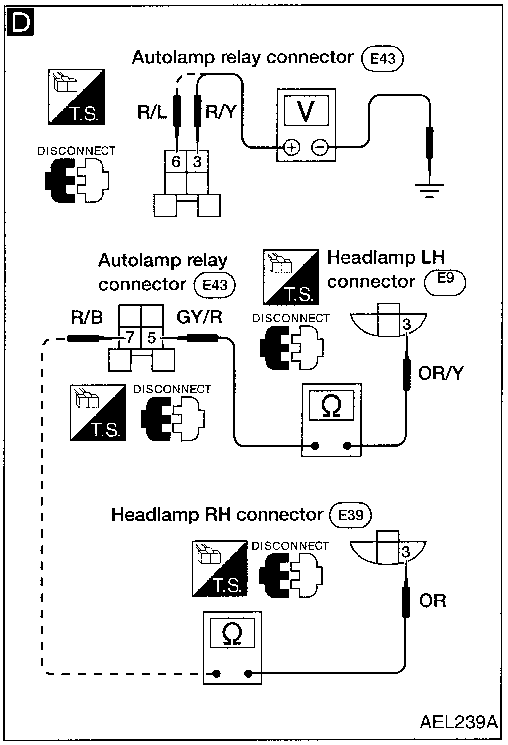
NG → Repair harness or connectors.

Trouble Diagnoses (Cont'd)

C



D



Ⓐ

Check tail lamp relay.
Refer to "ELECTRICAL COMPONENTS INSPECTION", (EL-257).

NG → Replace relay.

OK

C

TAIL LAMP CIRCUIT CHECK.

- Check voltage between tail lamp relay harness terminal ③ and body ground.
  Battery voltage should exist.
- Check harness continuity between tail lamp relay harness terminal ⑤ and side marker lamps terminal ①, front combination lamps terminal ②, rear combination lamps terminal ①, and license lamps terminals ① and ③.
  Continuity should exist.

NG →
- Repair harness or connectors.
- Check fuses.

OK

Do tail lamps come on when turning lighting switch ON?

No → Check tail lamp system. Refer to "Clearance, License, Tail and Stop Lamps/Wiring Diagram –TAIL/L–" EL-64.

Yes

Autolamp relay check.
Refer to "ELECTRICAL COMPONENTS INSPECTION" (EL-256).

NG → Replace relay.

OK

D

THEFT WARNING HEADLAMP CIRCUIT CHECK.

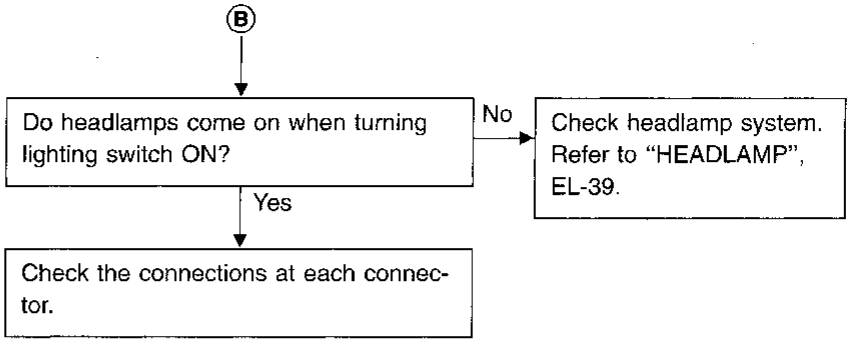
- Check voltage between autolamp relay harness terminals ⑥, ③ and body ground.
  Battery voltage should exist.
- Check harness continuity between autolamp relay harness terminal ⑤ and headlamp LH harness terminal ③.
  Continuity should exist.
- Check harness continuity between autolamp relay harness terminal ⑦ and headlamp RH harness terminal ③.
  Continuity should exist.

NG →
Check the following:
- Fuses
- Headlamp relay LH
- Headlamp relay RH
- Harness continuity between fuses and autolamp relay harness terminals ③ and ⑥
- Harness continuity between autolamp relay harness terminal ⑤ and headlamp relay LH harness terminal ③
- Harness continuity between autolamp relay harness terminal ⑦ and headlamp relay RH harness terminal ③

OK

Ⓑ

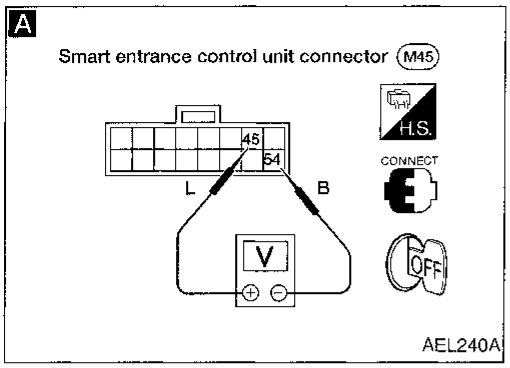
(Go to next page.)


Ⓑ
Do headlamps come on when turning lighting switch ON?
No
Check headlamp system. Refer to "HEADLAMP", EL-39.
Yes
Check the connections at each connector.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 6

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



A

STARTER MOTOR KILL OUTPUT SIGNAL CHECK.
Check voltage between smart entrance control unit harness terminals (45) and (54).

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

NG → Check the following.
- Harness continuity between smart entrance control unit harness terminal (45) and theft warning relay harness terminal (1)
- Harness continuity between theft warning relay harness terminal (2) and fuse
- Theft warning relay
  Refer to "ELECTRICAL COMPONENTS INSPECTION", EL-257.

OK → Replace smart entrance control unit.

OK → Theft warning relay check.
Refer to "ELECTRICAL COMPONENTS INSPECTION", EL-257.

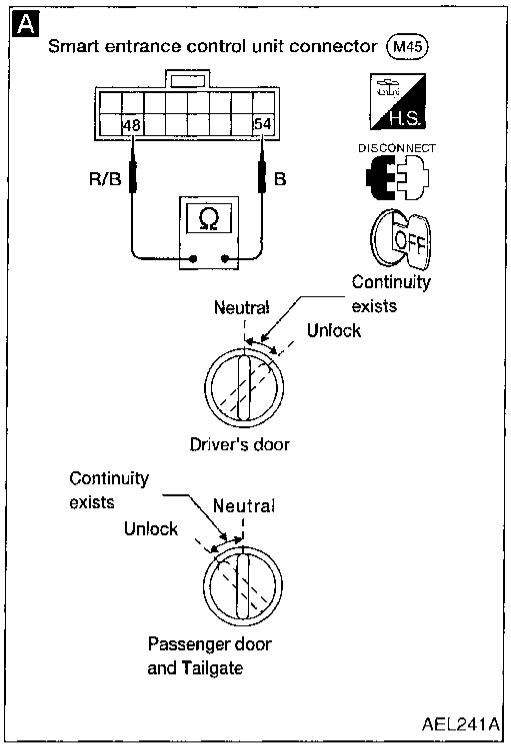
OK → Check the connections at each connector.

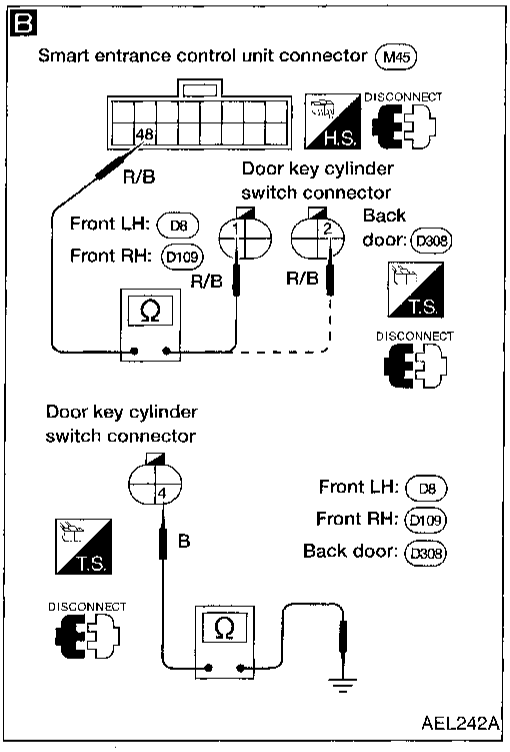
NG → Replace relay.

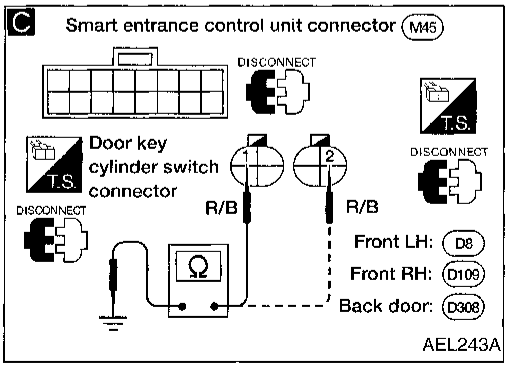
Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 7

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







A

DOOR KEY CYLINDER SWITCH INPUT SIGNAL CHECK (UNLOCK SIGNAL).
Check continuity between smart entrance control unit harness terminals (48) and (54).

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

OK → Alarm output signal check
Go to Diagnostic Procedure 5, EL-249.

NG

Door key cylinder switch check.
Refer to "ELECTRICAL COMPONENTS INSPECTION", EL-256.

NG → Replace door key cylinder switch.

OK

B

DOOR KEY CYLINDER SWITCH CIRCUIT CHECK.
- Check harness continuity between smart entrance control unit harness terminal (48) and door key cylinder switch terminal (1) or (2).
- Check harness continuity between door key cylinder switch terminal (4) and body ground.

Continuity should exist.

NG → Repair harness or connectors.

OK

C

CHECK CONTINUITY.
Check harness continuity between door key cylinder switch terminal (1) or (2) and body ground.
(Before checking harness continuity, smart entrance control unit harness connector should be disconnected.)
Continuity should not exist.

NG → Repair harness.
(Short circuit exists between smart entrance control unit harness terminal (48) and door key cylinder switch terminal (1) or (2).)

OK

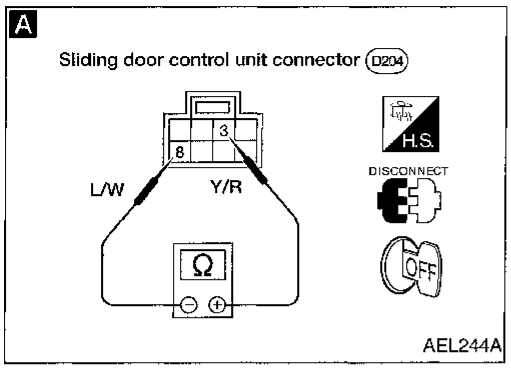
Check the connections at each connector.

Trouble Diagnoses (Cont'd)

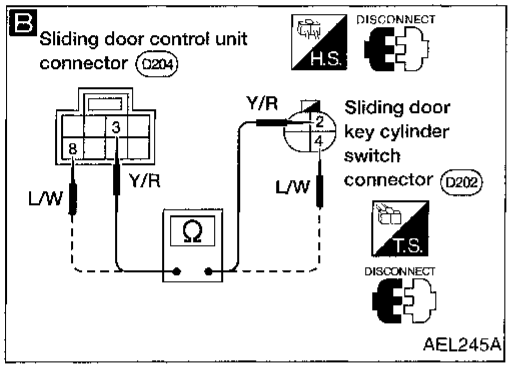
DIAGNOSTIC PROCEDURE 8

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

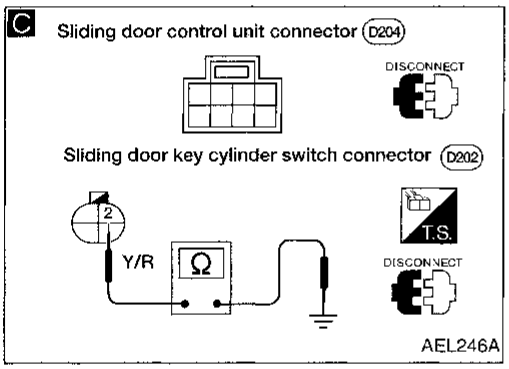
A



B



C



A

SLIDING DOOR KEY CYLINDER SWITCH INPUT SIGNAL CHECK (UNLOCK SIGNAL).
Check continuity between sliding door control unit harness terminals ③ and ⑧.

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

OK → Alarm output signal check
Go to Diagnostic Procedure 5, EL-249.

NG ↓

Door key cylinder switch check.
Refer to "ELECTRICAL COMPONENTS INSPECTION", EL-256.

NG → Replace sliding door key cylinder switch.

OK ↓

B

SLIDING DOOR KEY CYLINDER SWITCH CIRCUIT CHECK.
- Check harness continuity between sliding door control unit harness terminal ③ and sliding door key cylinder switch terminal ②.
- Check harness continuity between sliding door control unit harness terminal ⑧ and sliding door key cylinder switch terminal ④.

Continuity should exist.

NG → Repair harness or connectors.

OK ↓

C

CHECK CONTINUITY.
Check harness continuity between sliding door key cylinder switch harness terminal ② and body ground.
(Before checking harness continuity, control unit harness connector should be disconnected.)
Continuity should not exist.

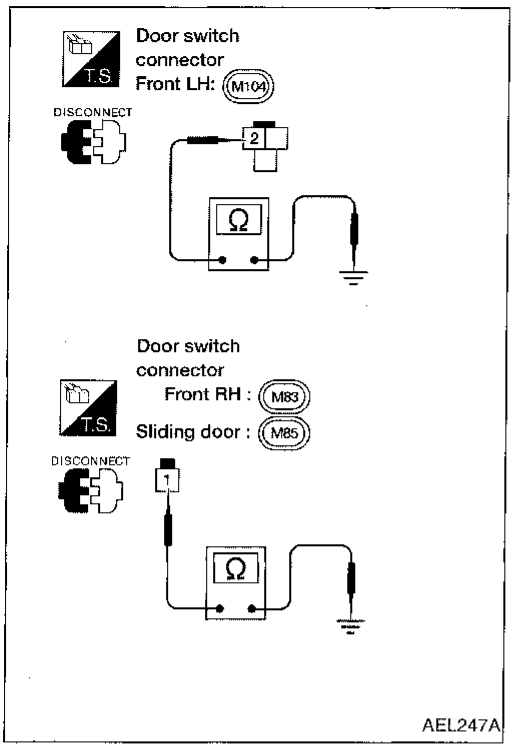
NG → Repair harness.
(Short circuit exists between sliding door control unit harness terminal ③ and sliding door key cylinder switch harness terminal ②.)

OK ↓

Check the connections at each connector.

Trouble Diagnoses (Cont'd)

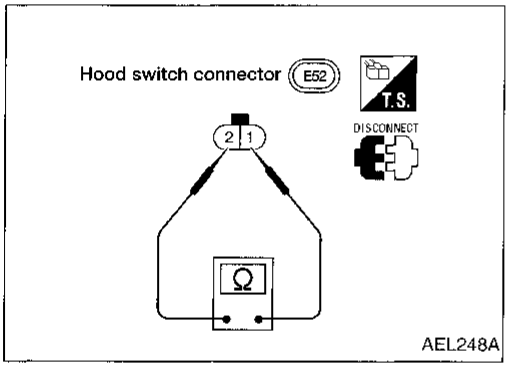
ELECTRICAL COMPONENTS INSPECTION



Door switches

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

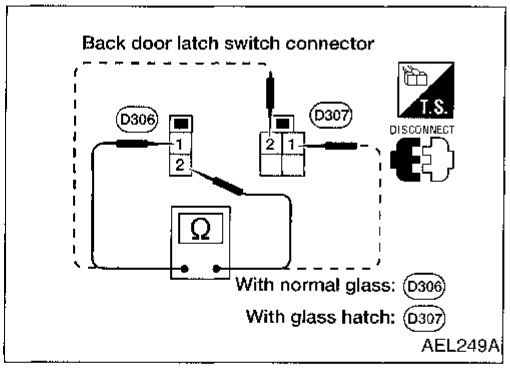
Terminal No.	Condition	Continuity
RH: ① - body ground LH: ② - body ground	Door switch is pushed.	No
Sliding door: ① - body ground	Door switch is released.	Yes



Hood switch

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

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

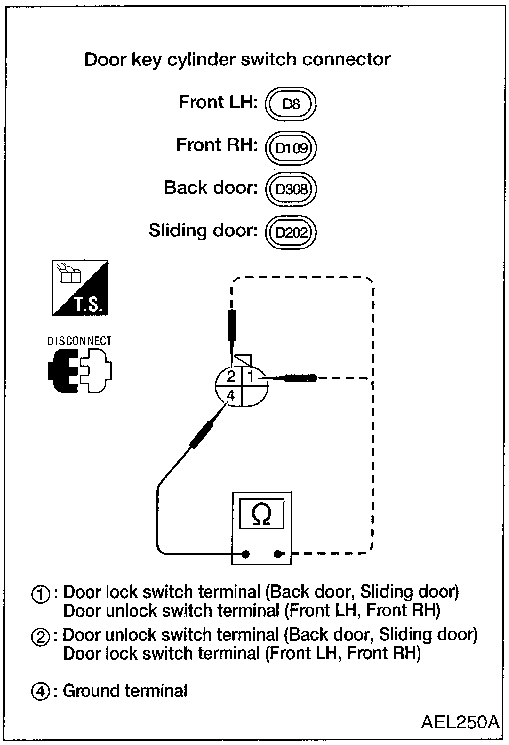


Back door latch switch

Check continuity between terminals when tailgate is closed and opened.

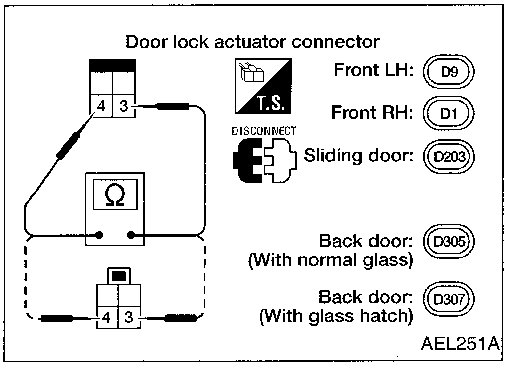
Terminal No.	Condition	Continuity
① - ②	Tailgate is closed.	No
	Tailgate is opened.	Yes

Trouble Diagnoses (Cont'd)



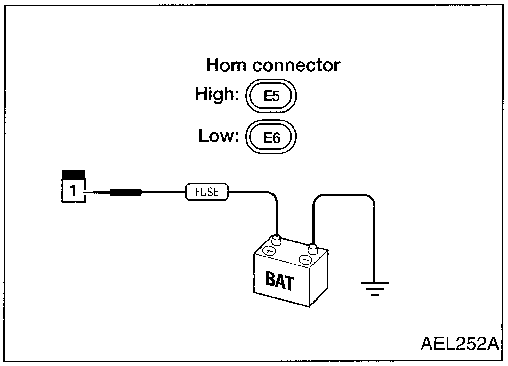
Door key cylinder switch

	Terminal No.	Condition	Continuity
Door lock switch	Front LH: ② - ④ Front RH: ② - ④ Back door: ① - ④ Sliding door: ① - ④	Key position is neutral or lock.	No
		Key position is between neutral and lock.	Yes
Door unlock switch	Front LH: ① - ④ Front RH: ① - ④ Back door: ② - ④ Sliding door: ② - ④	Key position is neutral or unlock.	No
		Key position is between neutral and unlock.	Yes



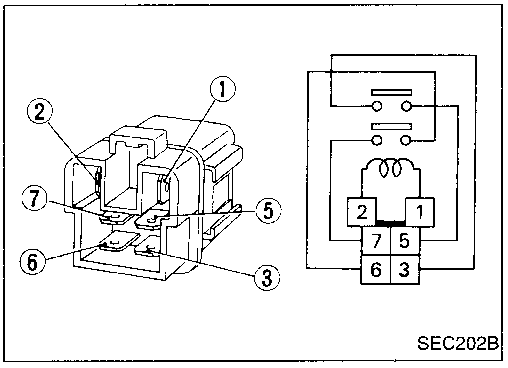
Door lock actuator (Door unlock sensor)

Terminal No.	Condition	Continuity
④ - ③	Door is locked.	No
	Door is unlocked.	Yes



Horns

Supply horn terminal with battery voltage and check horn operation.

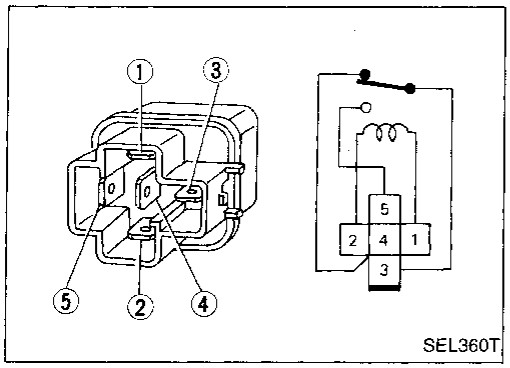


Autolamp relay

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

Trouble Diagnoses (Cont'd)

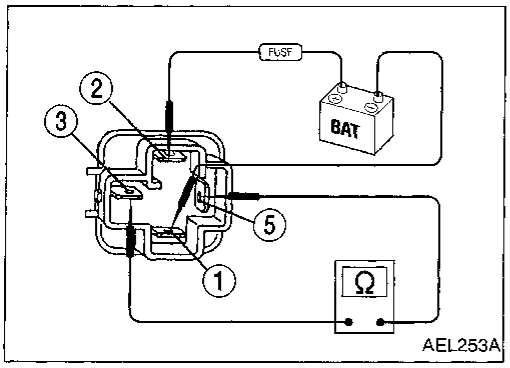


SEL360T

Theft warning relay

Check continuity between terminals ③ and ④.

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



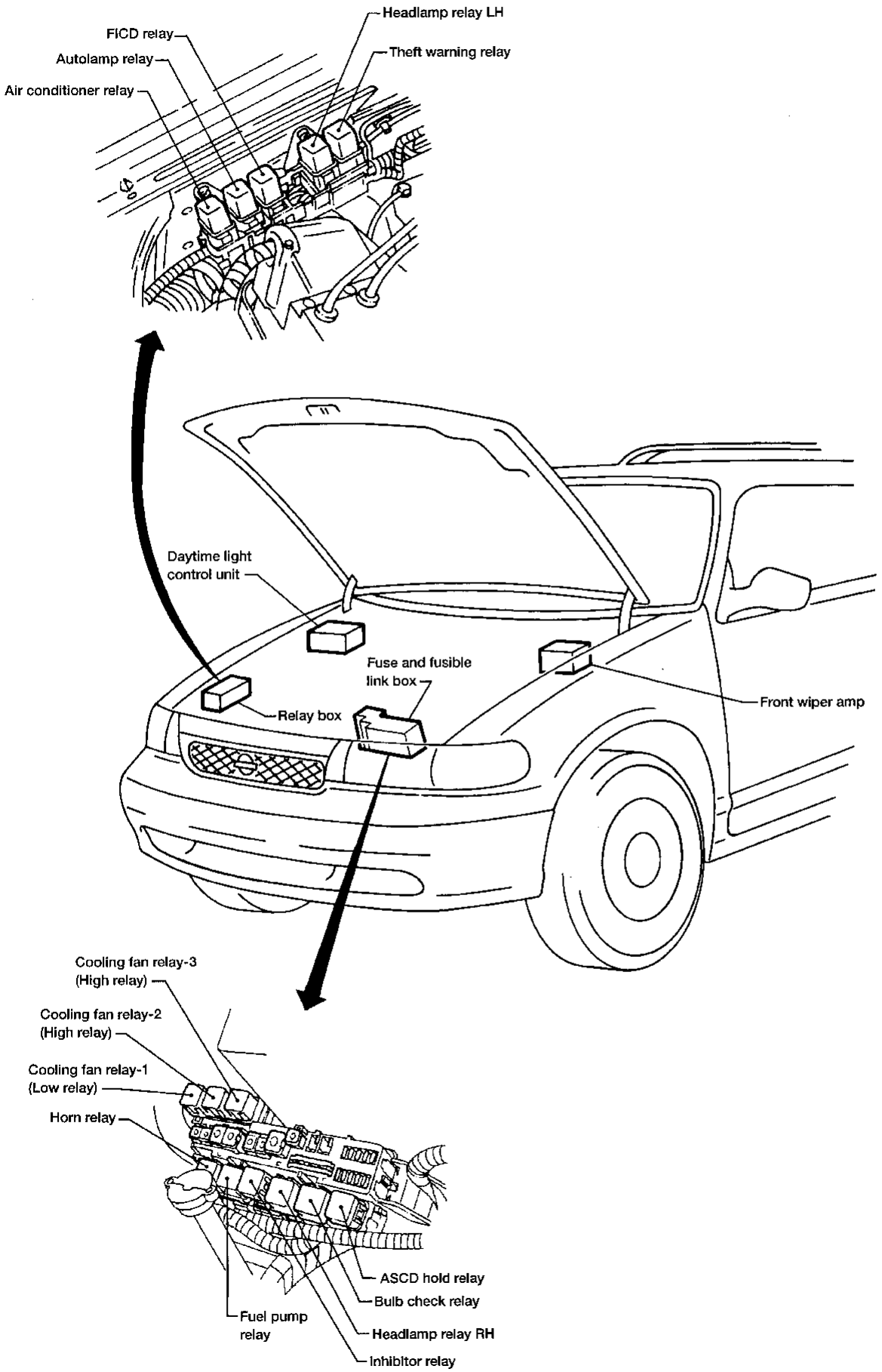
AEL253A

Horn relay and tail lamp relay

Check continuity between terminals ③ and ⑤.

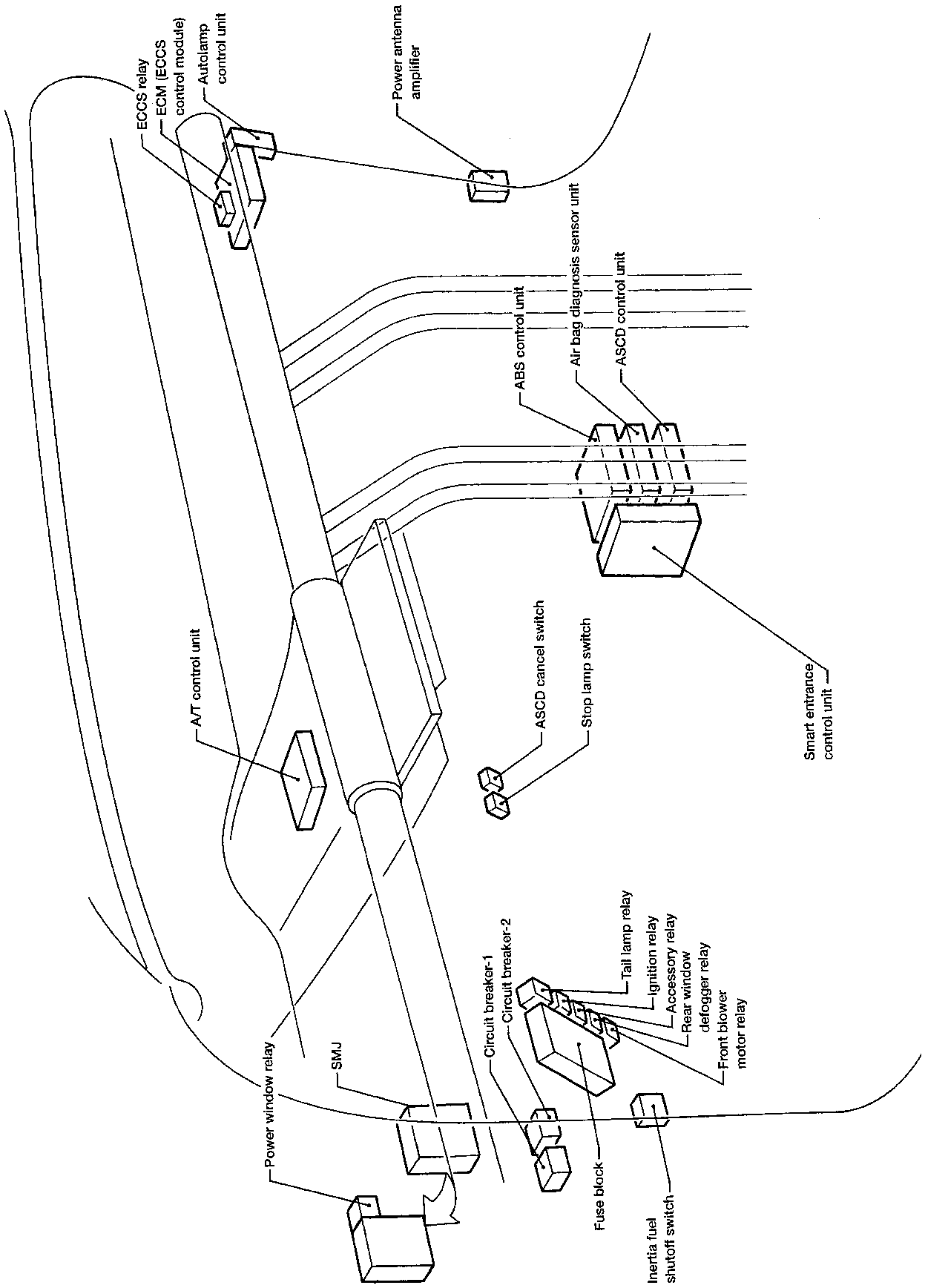
Condition	Continuity
12V direct current supply between terminals ① and ②	Yes
No current supply	No

Engine Compartment



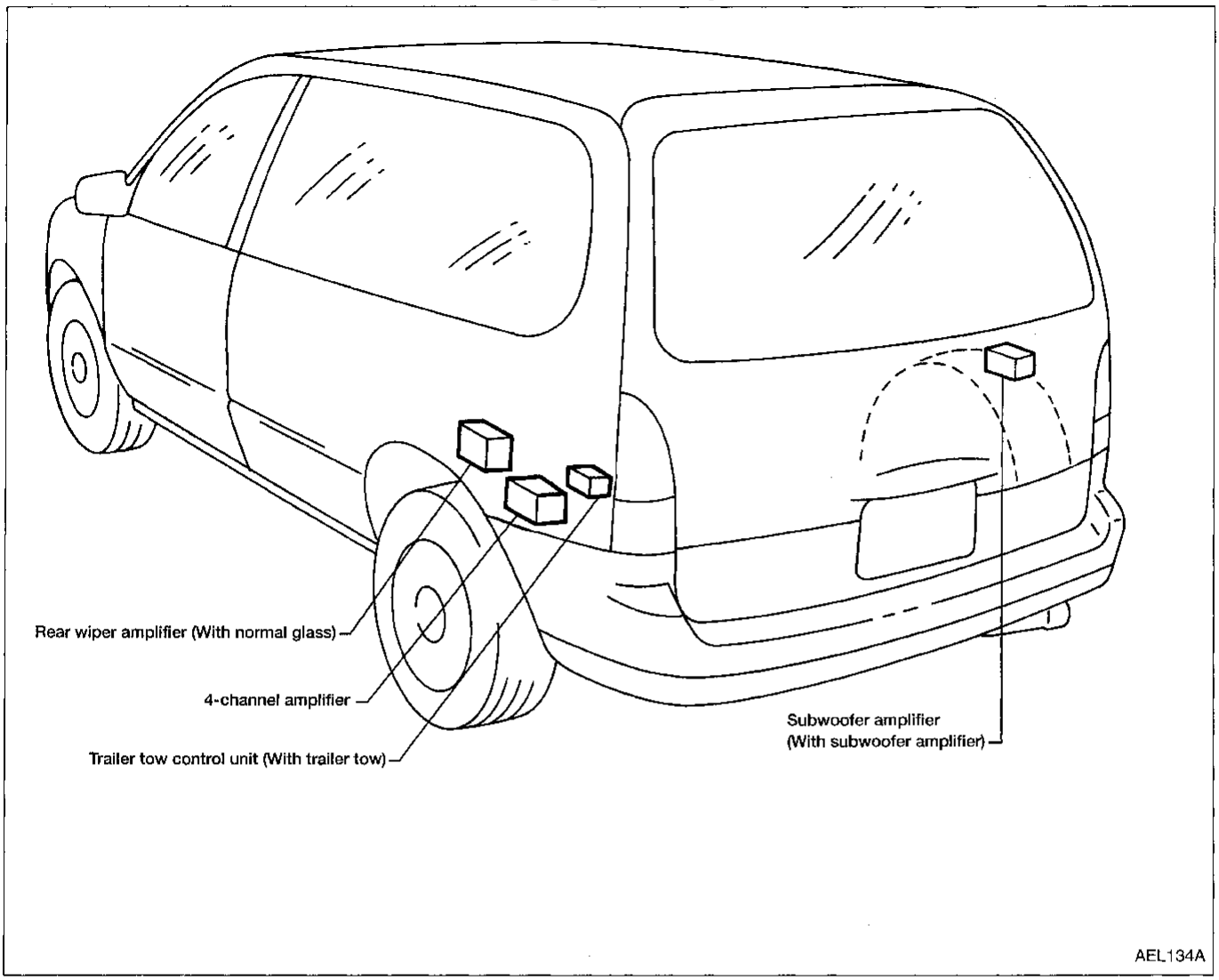
AEL132A

Passenger Compartment



AEL133A

Luggage Compartment



How To Read Harness Layout

Example:

E2 (E1) GY/2: Brake fluid level switch

- GY/2: Connector color/Cavity
- (E1): Connector number
- E2: Grid reference

The following Harness Layouts use a map style grid to help locate connectors on the drawings:

- Engine Room Harness (Engine Compartment)
- Main Harness
- Body Harness

To use the grid reference

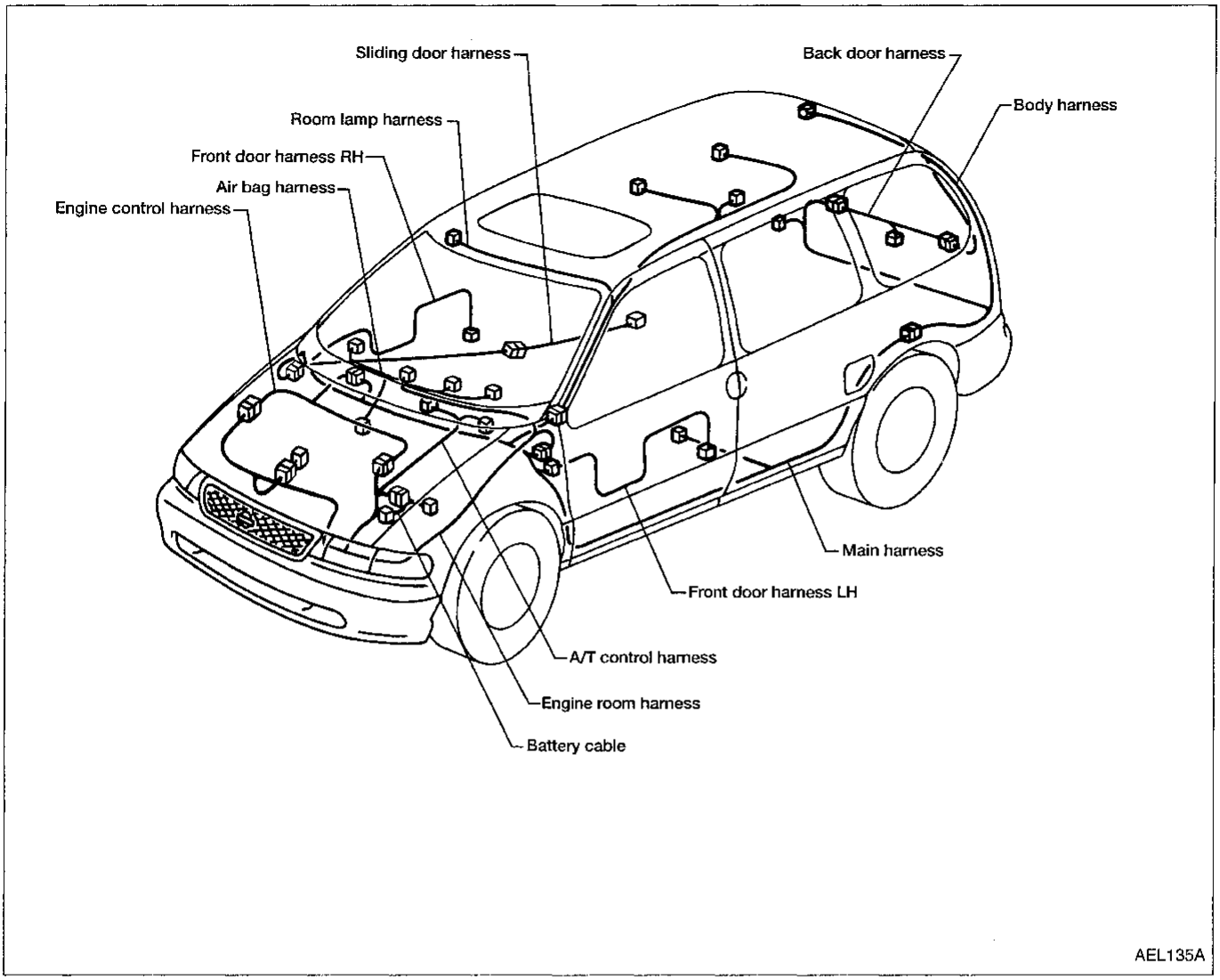
1) Find the desired connector number on the connector list.
2) Find the grid reference.
3) On the drawing, find the crossing of the grid reference letter column and number row.
4) Find the connector number in the crossing zone.
5) Follow the line (if used) to the connector.

CONNECTOR SYMBOL

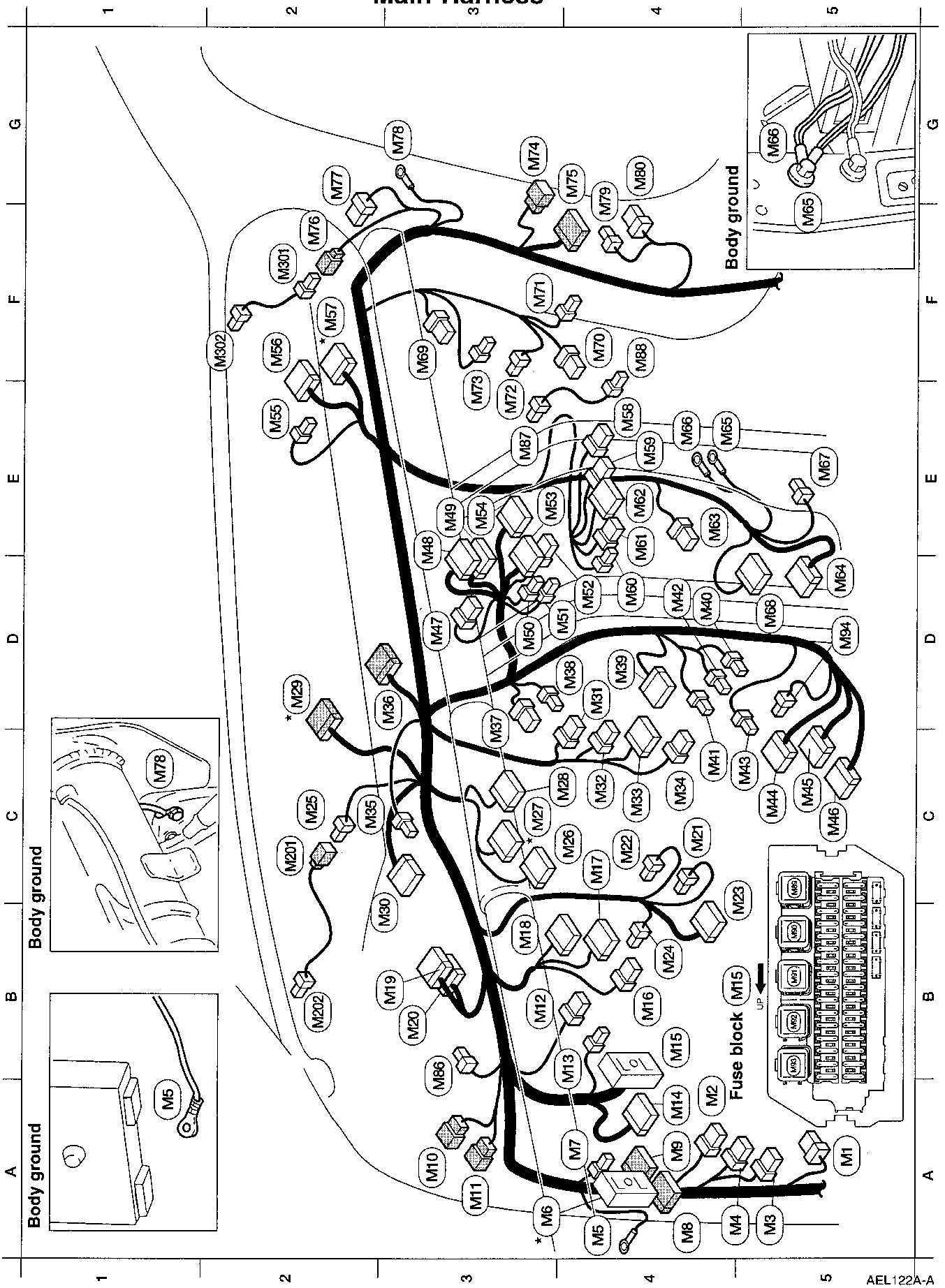
Main symbol of connector (In Harness Layout) are indicated in the below.

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.	—			

Outline


Sliding door harness
Back door harness
Body harness
Room lamp harness
Front door harness RH
Air bag harness
Engine control harness
Main harness
Front door harness LH
A/T control harness
Engine room harness
Battery cable
AEL135A

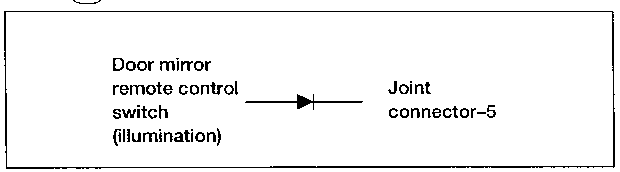
Main Harness



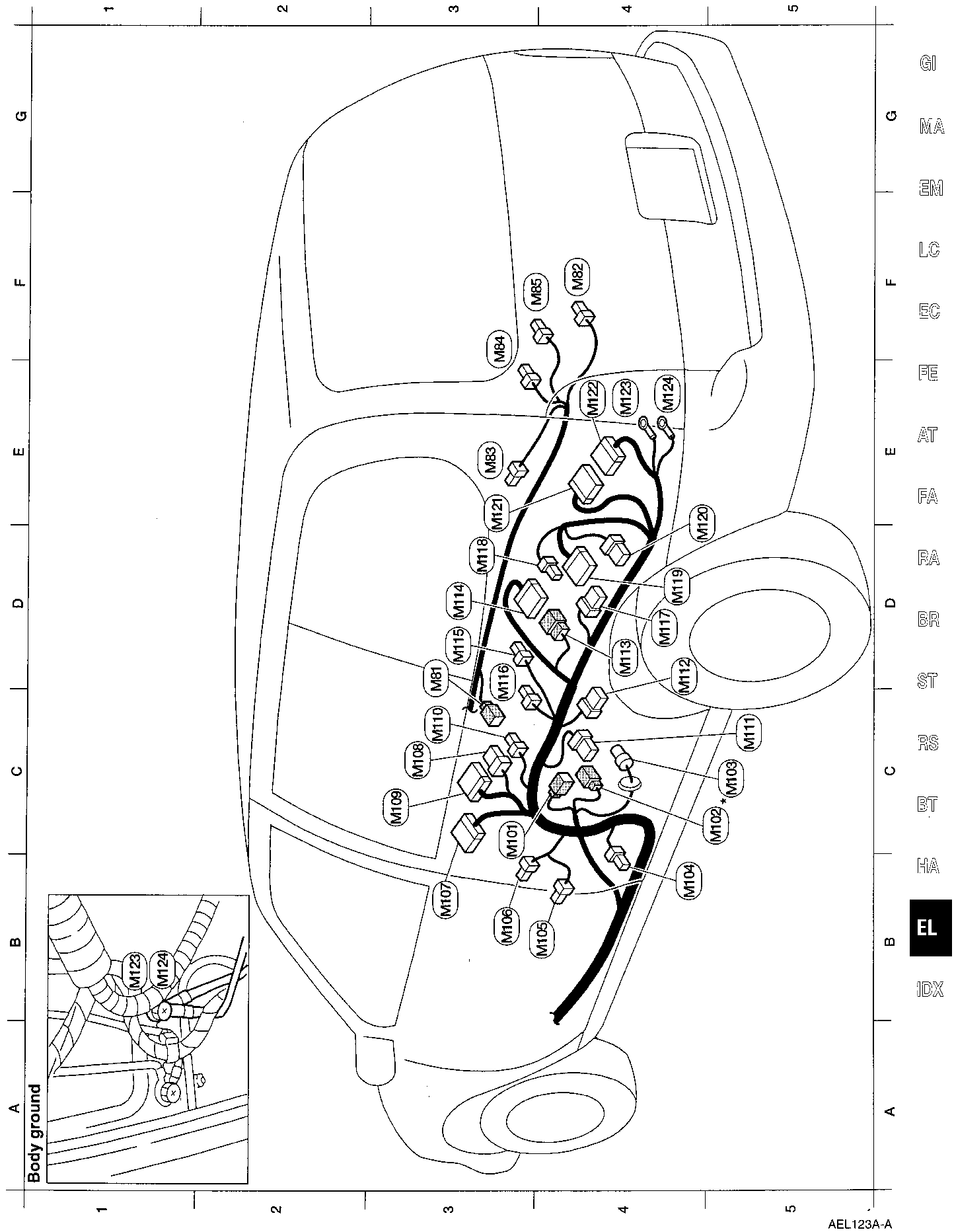
A5 (M1) B/3 : Inertia fuel shutoff switch
A4 (M2) B/3 : Combination flasher unit
A5 (M3) W/2 : Circuit breaker-1
A4 (M4) W/2 : Circuit breaker-2
A4 (M5) — : Body ground
A3 * (M6) SMJ : To (E101)
A4 (M7) L/4 : Power window relay
A4 (M8) W/16 : To (D1)
A4 (M9) W/10 : To (D2)
A3 (M10) W/6 : To (R2)
A3 (M11) W/6 : To (R1)
B3 (M12) W/8 : Door mirror remote control switch
B4 (M13) W/4 : To (M15)
A4 (M14) GY/4 : Data link connector for CONSULT
B4 (M15) SMJ : Fuse block
} Fuse block
B4 (M16) B/9 : Lighting switch
C4 (M17) W/10 : Illumination control switch and autolamp switch
B3 (M18) W/8 : ASCD main switch
B3 (M19) GY/33 : Joint connector-3
B3 (M20) GY/33 : Joint connector-4
C4 (M21) B/2 : Stop lamp switch
C4 (M22) L/2 : ASCD cancel switch
C4 (M23) GY/16 : Data link connector for GST
B4 (M24) B/1 : Parking brake switch
C2 (M25) W/3 : To (M201)
C4 (M26) W/12 : Combination meter
C3 * (M27) B/12 : Combination meter
C4 (M28) B/10 : Combination meter
D2 * (M29) W/16 : To (F403)
B3 (M30) GY/33 : Joint connector-5
D4 (M31) W/6 : Rear wiper switch
C4 (M32) W/6 : Rear window defogger switch
C4 (M33) W/10 : Hazard switch
C4 (M34) W/8 : Security indicator lamp
C2 (M35) W/2 : Warning chime
D3 (M36) W/12 : To (Z1)
D3 (M37) W/6 : To (Z101) (Spiral cable)
D3 (M38) B/2 : In-vehicle temperature sensor (with EATC)
D4 (M39) BR/10 : Mode door motor
D4 (M40) W/2 : Cigarette lighter illumination
C4 (M41) B/2 : Cigarette lighter socket (Accessory)
D4 (M42) BR/2 : Ashtray illumination
C5 (M43) W/2 : Foot lamp LH
C5 (M44) GY/12 : Smart entrance control unit (SEC)
C5 (M45) GY/16 : Smart entrance control unit (SEC)
C5 (M46) GY/26 : Smart entrance control unit (SEC)
D3 (M47) W/8 : Rear fan switch (front) (with EATC)
E3 (M48) GY/22 : EATC unit
E3 (M49) GY/26 : EATC unit
D3 (M50) W/2 : Front A/C control unit (with rear A/C)
D3 (M51) W/4 : Front fan switch
D4 (M52) W/8 : Rear fan switch (front) (with manual A/C)
E3 (M53) B/12 : Front A/C control unit
E3 (M54) B/16 : Front A/C control unit
E2 (M55) W/4 : To (F109)
F2 (M56) BR/16 : To (F108)
F2 * (M57) W/16 : To (F107)
E4 (M58) B/8 : Radio and cassette player (Base)
E4 (M59) B/8 : Radio and cassette player (Base)
D4 (M60) B/2 : Radio and cassette player (Premium)
E4 (M61) B/8 : Radio and cassette player (Premium)
E4 (M62) B/16 : Radio and cassette player (Premium)
E4 (M63) B/6 : Front air mix door motor
D5 (M64) B/20 : ASCD control unit
E4 (M65) – : Body ground
E4 (M66) – : Body ground
E5 (M67) W/2 : Foot lamp RH
D5 (M68) B/12 : CD changer
F3 (M69) B/8 : Front intake door motor
F4 (M70) B/5 : Front blower speed control unit (with EATC)
F3 (M71) B/2 : Front blower motor (with manual A/C)
E3 (M72) W/4 : Front blower motor resistor (with manual A/C)
E3 (M73) B/2 : Glove box lamp
G3 (M74) W/6 : To (D102)
G4 (M75) W/16 : To (D101)
F2 (M76) W/2 : To (M301)
G2 (M77) W/8 : Autolamp control unit (with autolamp)
G3 (M78) – : Body ground
G4 (M79) W/2 : Power antenna motor (with power antenna)
G4 (M80) W/8 : Power antenna amplifier (with power antenna)
B3 (M86) W/2 : Diode
E3 (M87) W/2 : Front blower speed control unit (with EATC)
F4 (M88) B/2 : Front blower motor (with EATC)
C5 (M89) BR/6 : Front blower motor relay
B5 (M90) BR/6 : Rear window defogger relay
B5 (M91) BR/6 : Accessory relay
B5 (M92) L/4 : Ignition relay
B5 (M93) L/4 : Tail lamp relay
} Fuse block
D5 (M94) GY/1 : To window antenna (for multi-remote control)
C2 (M201) W/3 : To (M25)
B2 (M202) B/3 : Sunload sensor (with EATC)
F2 (M301) W/2 : To (M76)
F2 (M302) W/2 : Autolamp sensor (with autolamp)

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

Diode (M86)



Main Harness (Cont'd)



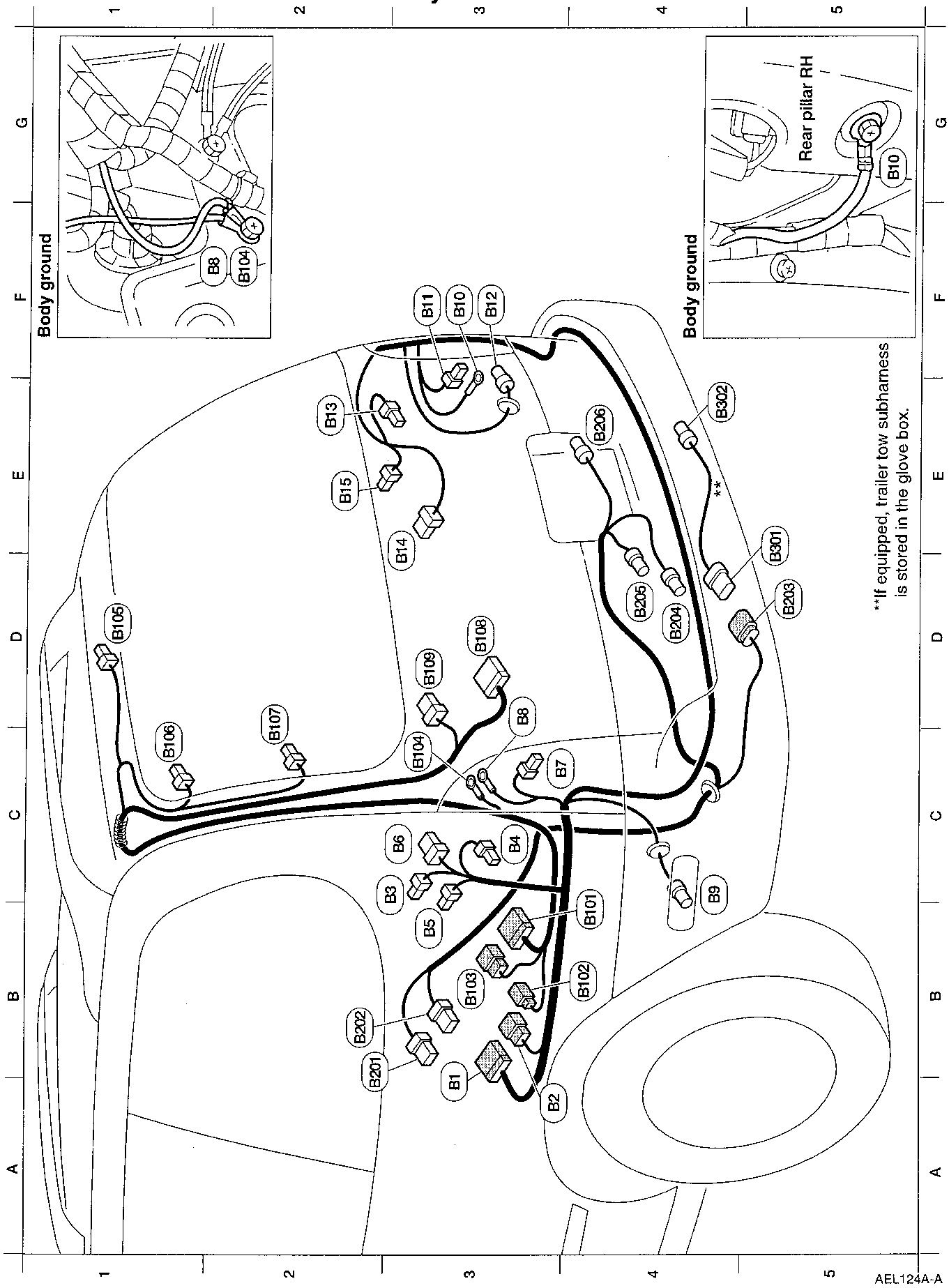
Main Harness (Cont'd)

D3 (M81) W/2 : To (P100)
F4 (M82) W/2 : Sliding door step lamp
E3 (M83) B/1 : Front door switch RH
F3 (M84) W/4 : Sliding door contact switch
F3 (M85) B/1 : Sliding door switch
C3 (M101) W/2 : To (P1)
C5 (M102) B/2 : Seat belt buckle switch
C5 * (M103) GY/4 : Rear heated oxygen sensor
B4 (M104) B/3 : Front door switch LH
B4 (M105) B/2 : Rear blower motor (with rear A/C)
B3 (M106) W/4 : Rear blower motor resistor (with rear A/C)
B3 (M107) B/14 : Rear radio remote control unit (with rear radio remote control)
C3 (M108) W/6 : Rear fan switch (with rear A/C)
C3 (M109) B/12 : Rear A/C control unit (with rear A/C)
C3 (M110) B/2 : Rear power point
C5 (M111) B/8 : Rear air mix door motor (with rear A/C)
D4 (M112) B/8 : Rear vent door motor (with rear A/C)
D4 (M113) W/8 : To (B201)
D3 (M114) L/16 : To (B1)
D3 (M115) L/4 : Rear blower motor relay (with EATC)
D3 (M116) L/4 : Rear fan switch relay (with EATC)
D4 (M117) W/8 : Rear wiper amplifier (with normal glass)
D3 (M118) W/4 : To (B102)
D4 (M119) W/12 : To (B101)
D4 (M120) W/8 : To (B103)
E3 (M121) B/10 : 4-channel amplifier
E4 (M122) B/14 : 4-channel amplifier
E4 (M123) – : Body ground
E4 (M124) – : Body ground

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

AEL123A-B

Body Harness

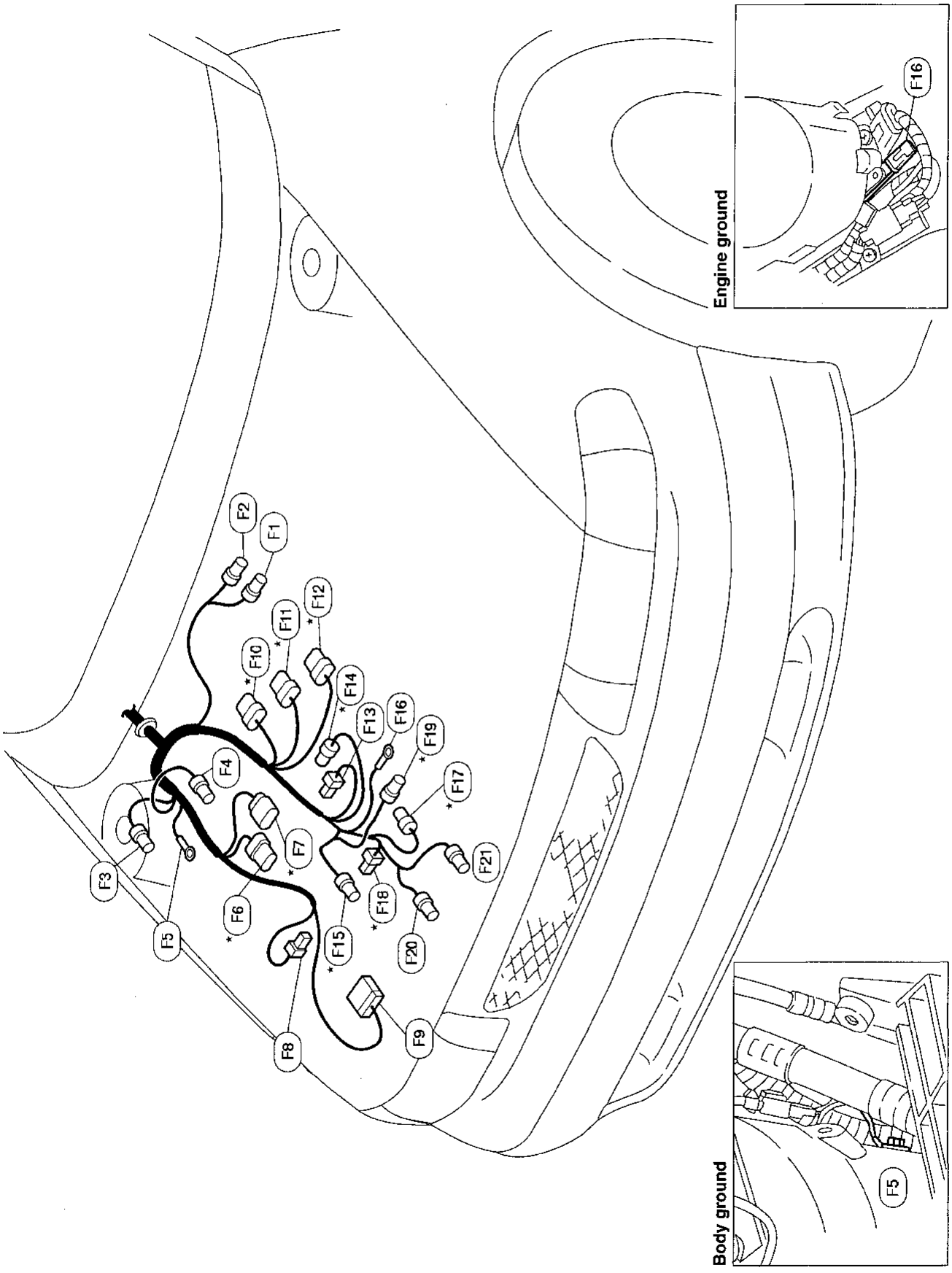


Body Harness (Cont'd)

B3 (B1) L/16 : To (M14)
A3 (B2) L/6 : To (B202)
C3 (B3) B/2 : Rear speaker LH
C3 (B4) B/2 : Rear power vent window motor LH (with power vent windows)
B3 (B5) W/4 : 4-channel amplifier
C3 (B6) W/8 : Trailer tow control unit (with trailer tow)
C3 (B7) W/4 : Rear combination lamp LH
D3 (B8) – : Body ground
C4 (B9) GY/2 : Rear side marker lamp LH
F3 (B10) – : Body ground
F3 (B11) W/4 : Rear combination lamp RH
F3 (B12) GY/2 : Rear side marker lamp RH
E2 (B13) B/2 : Rear power vent window motor RH (with power vent windows)
E3 (B14) W/6 : Subwoofer amplifier (with subwoofer amplifier)
E2 (B15) B/2 : Rear speaker RH
B4 (B101) W/12 : To (M19)
B4 (B102) W/4 : To (M18)
B3 (B103) W/8 : To (M28)
C3 (B104) – : Body ground
D1 (B105) W/2 : High-mounted stop lamp
C1 (B106) B/1 : Rear window defogger (+) (with glass hatch)
D2 (B107) B/1 : Rear window defogger (+)
D3 (B108) W/10 : To (D302)
D3 (B109) W/6 : To (D301)
B2 (B201) W/8 : To (M13)
B2 (B202) L/6 : To (B2)
D5 (B203) GY/6 : To (B301)
D4 (B204) BR/2 : Rear wheel sensor LH (with ABS)
D4 (B205) GY/4 : Fuel pump
E4 (B206) GY/2 : Rear wheel sensor RH (with ABS)
E5 (B301) GY/6 : To (B203)
E4 (B302) B/4 : SAE J1239 trailer tow connector (with trailer tow)

AEL124A-B

Engine Control Harness



AEL118A-A

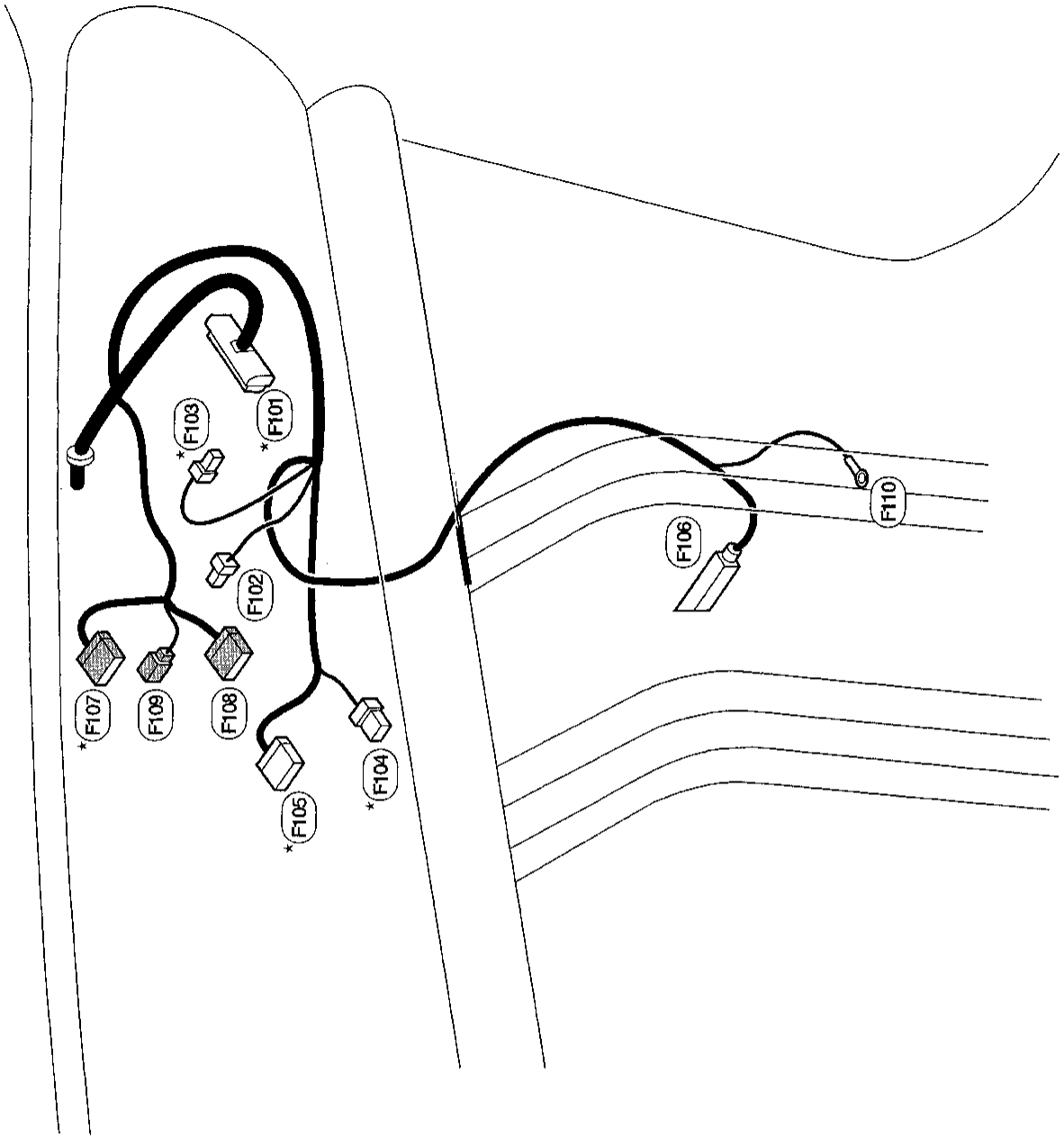
Engine Control Harness (Cont'd)

(F1) BR/2 : Water cock solenoid valve (with rear A/C)
(F2) B/2 : Engine coolant ambient temperature sensor (with EATC)
(F3) GY/2 : Power steering oil pressure switch
(F4) GY/2 : Front wheel sensor RH
(F5) – : Body ground
*(F6) GY/6 : To (E56)
*(F7) GY/8 : To (E57)
(F8) B/2 : Low pressure switch
(F9) B/12 : ABS control actuator
*(F10) GY/8 : To (F201)
*(F11) GY/8 : To (F202)
*(F12) BR/8 : To (F203)
(F13) B/1 : Thermal transmitter
*(F14) GY/2 : Engine coolant temperature sensor
*(F15) GY/4 : Distributor (camshaft position sensor)
(F16) – : Engine ground
*(F17) GY/3 : Power transistor unit
*(F18) GY/3 : Resistor
*(F19) GY/2 : Ignition coil
(F20) B/2 : A/C compressor
(F21) B/4 : High pressure switch

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

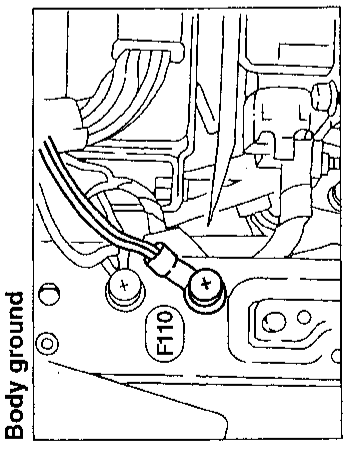
AEL118A-B

Engine Control Harness (Cont'd)



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

*(F101) SMJ : ECM (ECCS control module)
(F102) W/2 : Condensor
*(F103) L/4 : ECCS relay
*(F104) W/8 : To (F402)
*(F105) W/16 : To (F401)
(F106) SMJ : ABS control unit
*(F107) W/16 : To (M57)
(F108) BR/16 : To (M56)
(F109) W/4 : To (M55)
(F110) – : Body ground



AEL119A

Engine Control Sub-Harness

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

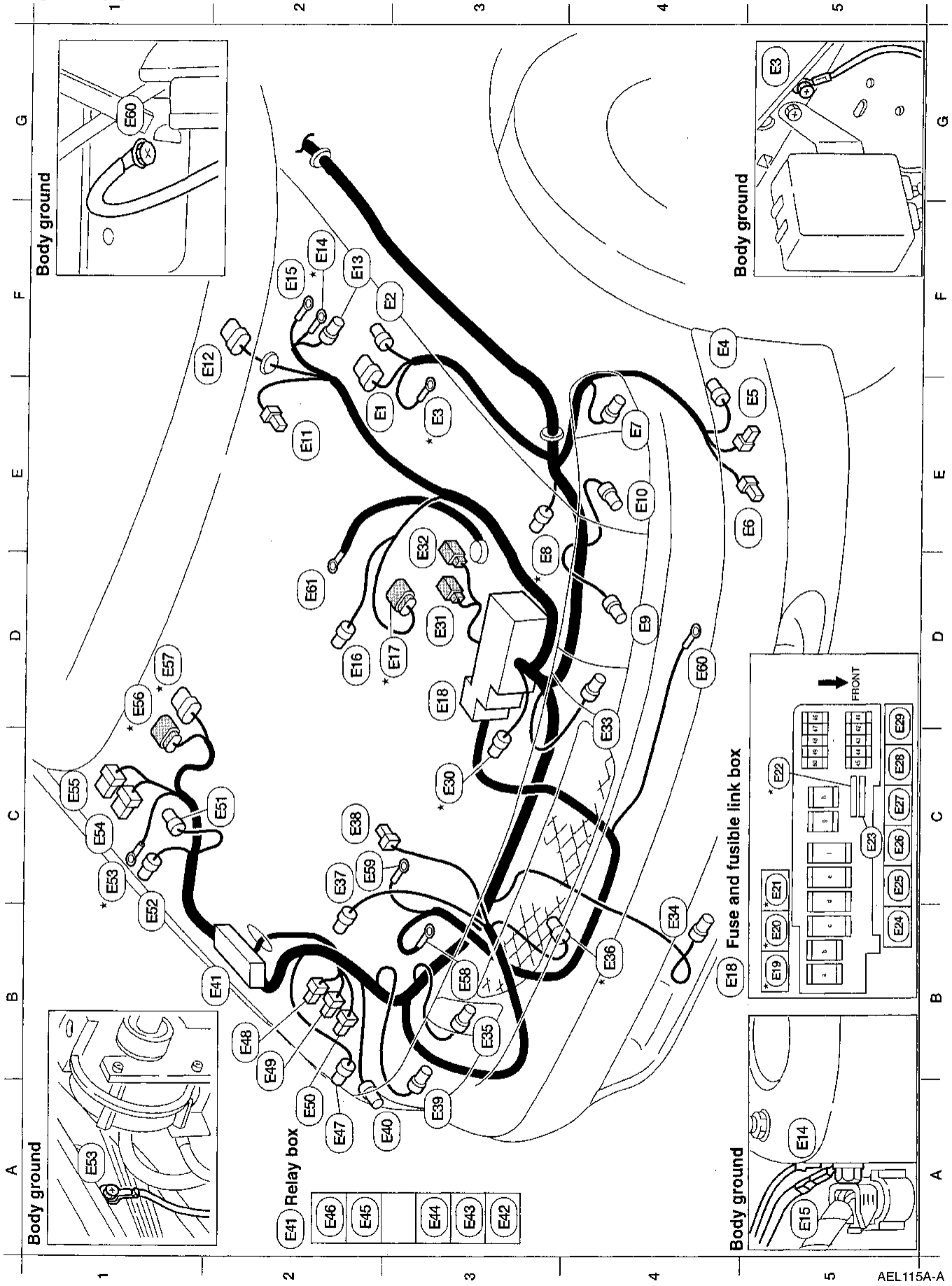
* F201 GY/8 : To F10
* F202 GY/8 : To F11
* F203 BR/8 : To F12
* F204 B/2 : Injector No. 1
* F205 B/2 : Injector No. 3
* F206 Y/2 : IACV-AAC valve
* F207 B/2 : Injector No. 5
* F208 B/2 : Knock sensor
* F209 GY/2 : EGR temperature sensor
F210 B/2 : IACV-FICD solenoid valve
* F211 B/2 : Injector No. 2
* F212 B/2 : Injector No. 4
* F213 – : Engine ground
* F214 B/2 : Injector No. 6
* F215 – : Engine ground
* F216 BR/2 : EGR valve and EVAP canister purge control solenoid valve
F217 GY/3 : Throttle position switch
* F218 BR/3 : Throttle position sensor

Engine ground

AEL120A

ENGINE COMPARTMENT

Engine Room Harness



Engine Room Harness (Cont'd)

E3 (E1) GY/6 : Front wiper amplifier
F3 (E2) GY/4 : Front wiper amplifier
E3* (E3) – : Body ground
F4 (E4) GY/2 : Dropping resistor
E5 (E5) B/1 : Horn high
E5 (E6) B/1 : Horn low
E4 (E7) GY/2 : Front side marker lamp LH
D3* (E8) GY/2 : Intake air temperature sensor
D4 (E9) B/3 : Headlamp LH
E4 (E10) B/3 : Front combination lamp LH
E2 (E11) GY/2 : Brake fluid level switch
F1 (E12) GY/6 : Front wiper motor
F2 (E13) BR/2 : Front wheel sensor LH
F2* (E14) – : Body ground
F2 (E15) – : Body ground
D2 (E16) GY/1 : Starter motor
D3* (E17) GY/6 : To (F305)
D3 (E18) FB : Fuse and fusible link box
B5* (E19) L/4 : Cooling fan relay-1 (low relay)
B5* (E20) L/4 : Cooling fan relay-2 (high relay)
C5* (E21) L/4 : Cooling fan relay-3 (high relay)
C5* (E22) GY/11 : Joint connector-1
C5 (E23) GY/11 : Joint connector-1
B5 (E24) L/4 : Horn relay
C5 (E25) L/4 : Fuel pump relay
C5 (E26) GY/6 : Inhibitor relay
C5 (E27) B/5 : Headlamp relay RH
C5 (E28) L/4 : Bulb check relay
D5 (E29) BR/6 : ASCD hold relay
C3* (E30) GY/3 : Cooling fan motor
D3 (E31) B/1 : To battery
E3 (E32) B/1 : To battery
D4 (E33) B/3 : Front turn signal lamp LH

Fuse and fusible link box

B4 (E34) B/2 : Ambient temperature sensor
B3 (E35) B/3 : Front turn signal lamp RH
B4* (E36) GY/3 : Front heated oxygen sensor
C2 (E37) W/2 : Generator
C2 (E38) B/1 : Oil pressure switch
A3 (E39) B/3 : Headlamp RH
A3 (E40) B/3 : Front combination lamp RH
A2 (E41) FB : Relay box
A3 (E42) L/4 : Air conditioner relay
A3 (E43) BR/6 : Autolamp relay
A3 (E44) L/4 : FICD relay
A2 (E45) B/5 : Headlamp relay LH
A2 (E46) B/5 : Theft warning relay

Relay box

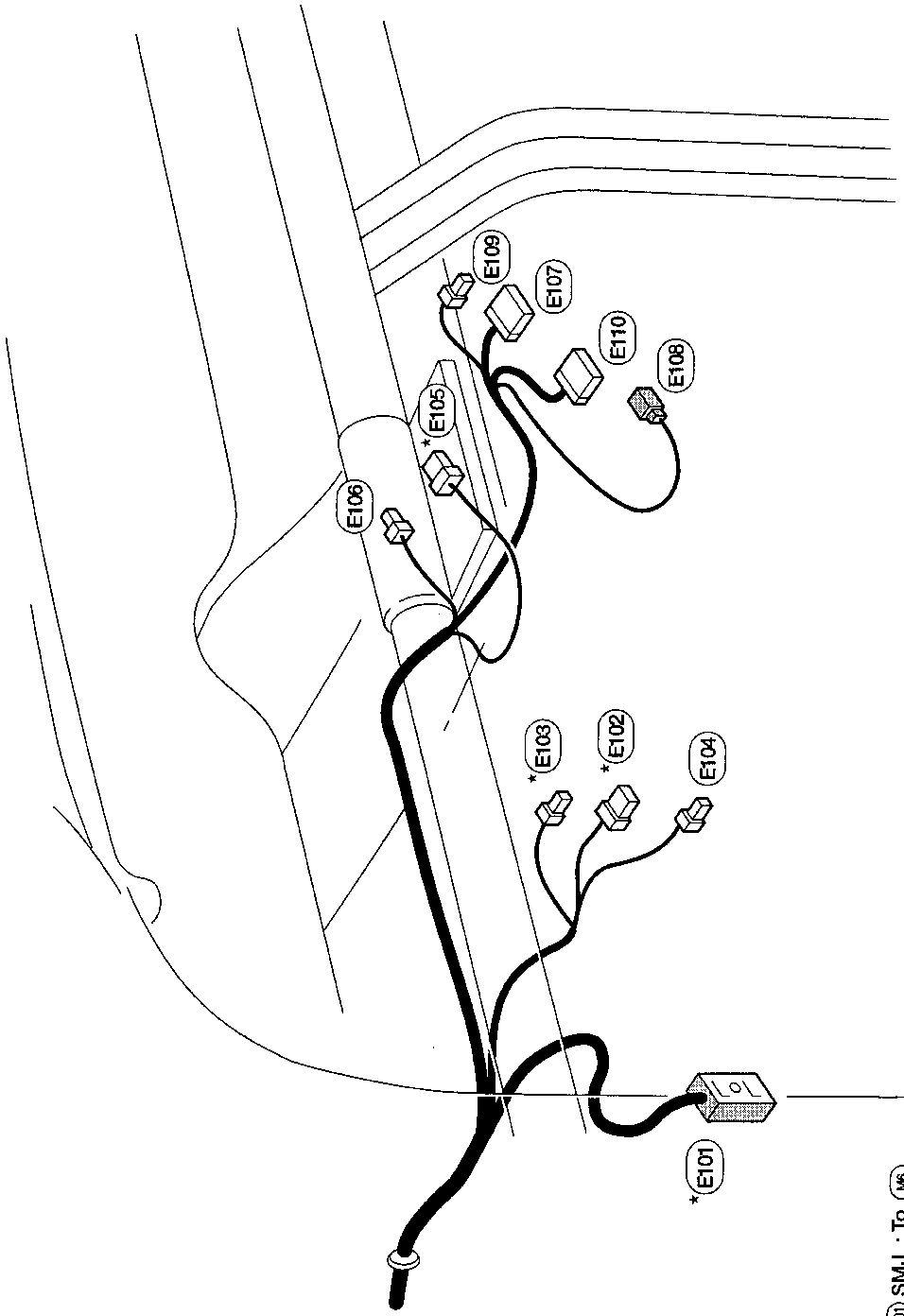
A2 (E47) GY/2 : Front side marker lamp RH
B2 (E48) B/2 : Washer fluid level switch
B2 (E49) W/2 : Front washer motor
A2 (E50) G/2 : Rear washer motor
C2 (E51) GY/4 : ASCD actuator
B1 (E52) GY/2 : Hood switch (with theft warning)
C1* (E53) – : Body ground
C1 (E54) W/6 : Daytime light control unit (with DTRL)
C1 (E55) B/6 : Daytime light control unit (with DTRL)
D1* (E56) GY/6 : To (F6)
D1* (E57) BR/8 : To (F7)
B3 (E58) B/1 : Generator
C2 (E59) B/1 : Generator
D4 (E60) – : Body ground
D2 (E61) – : Starter motor

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

AEL115A-B

Engine Room Harness (Cont'd)

PASSENGER COMPARTMENT

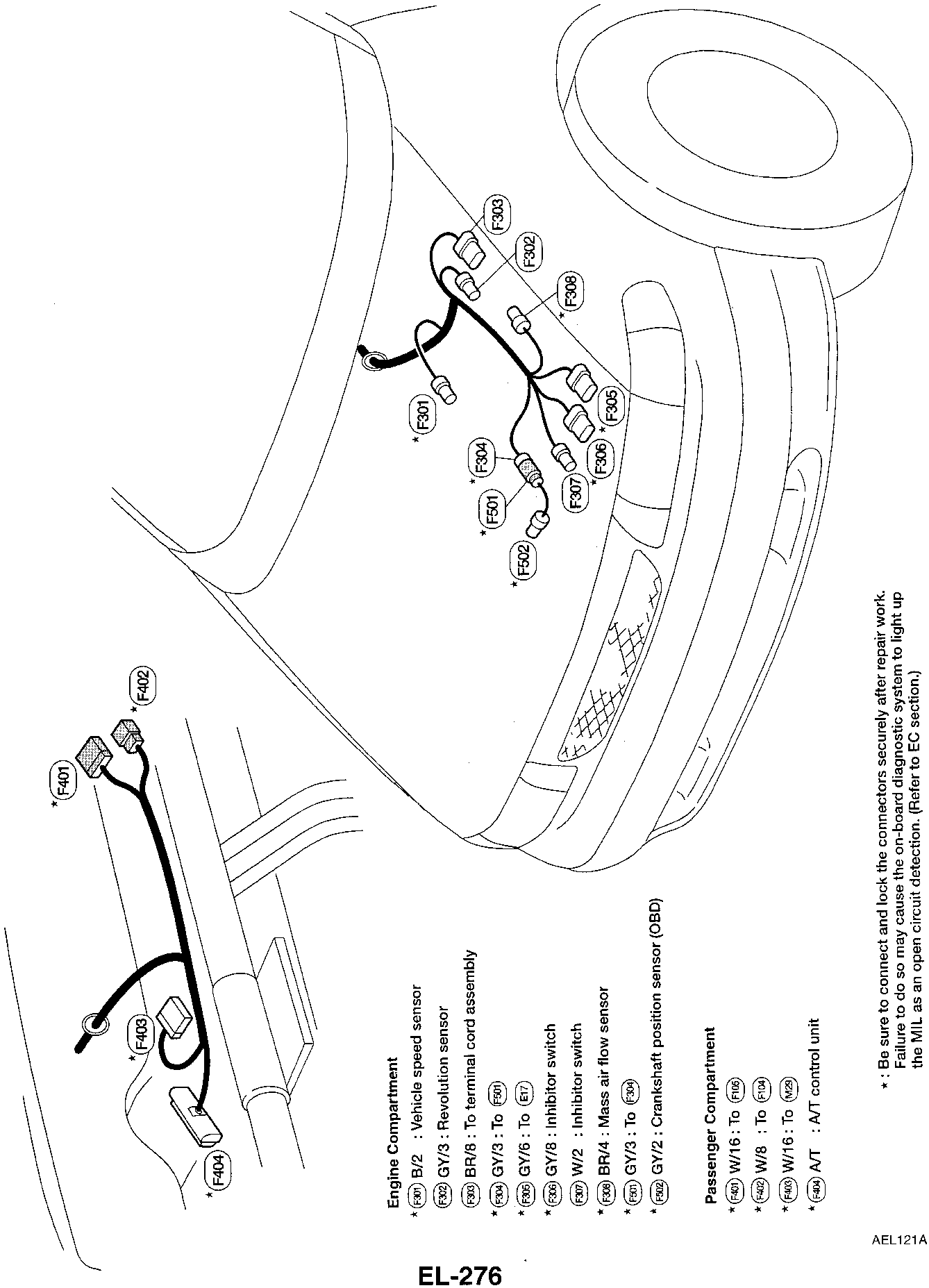


★: Be sure to connect and lock the connectors securely after repair work. Failure to do so may cause the on-board diagnostic system to light up the MIL as an open circuit detection. (Refer to EC section.)

★E101 SMJ : To M6
★E102 W/6 : To M15
★E103 B/2 : To M5
E104 L/2 : To M5
★E105 B/6 : Ignition switch
E106 W/2 : Shift lock solenoid and park position switch
E107 B/10 : Combination switch-1
E108 BR/2 : Key switch
E109 W/2 : Overdrive switch
E110 B/11 : Combination switch-2

AEL114A

A/T Control Harness



Engine Compartment

- ★(F301) B/2 : Vehicle speed sensor
- (F302) GY/3 : Revolution sensor
- (F303) BR/8 : To terminal cord assembly
- ★(F304) GY/3 : To (F501)
- ★(F305) GY/6 : To (E17)
- ★(F306) GY/8 : Inhibitor switch
- (F307) W/2 : Inhibitor switch
- ★(F308) BR/4 : Mass air flow sensor
- ★(F501) GY/3 : To (F304)
- ★(F502) GY/2 : Crankshaft position sensor (OBD)

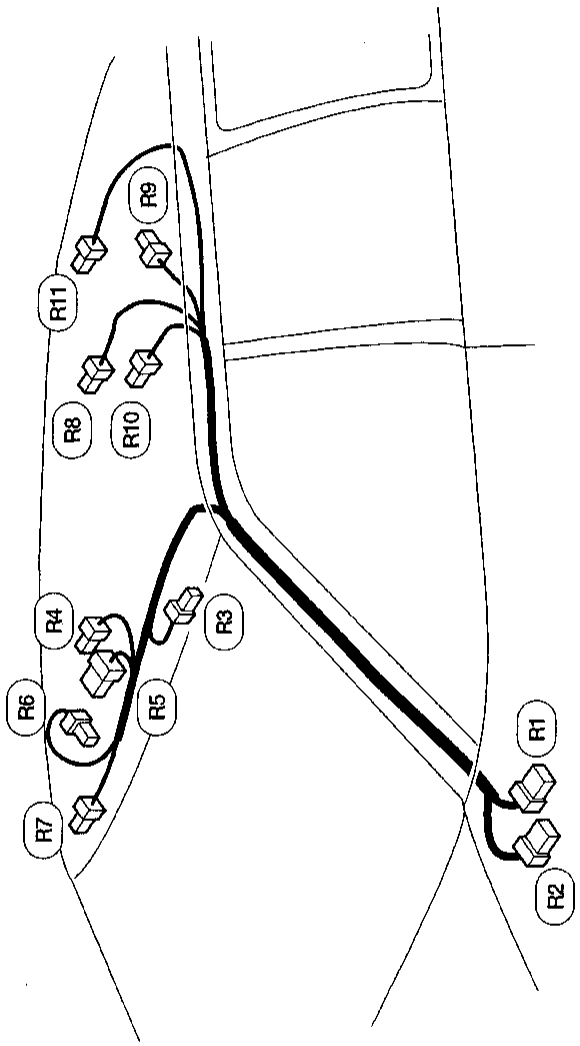
Passenger Compartment

- ★(F401) W/16 : To (F105)
- ★(F402) W/8 : To (F104)
- ★(F403) W/16 : To (M28)
- ★(F404) A/T : A/T control unit

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

AEL121A

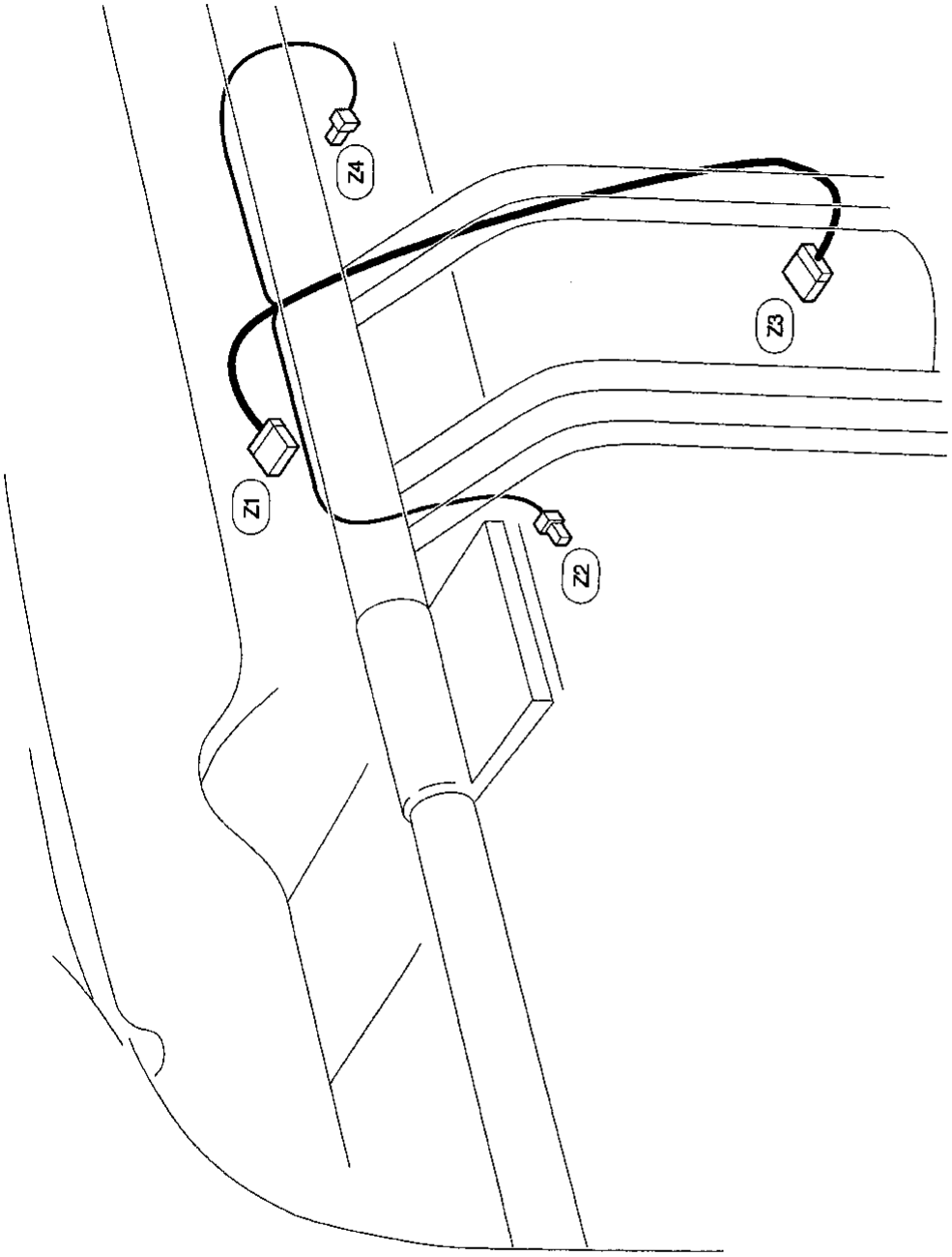
Room Lamp Harness



(R1) W/6 : To (M11)
(R2) W/6 : To (M10)
(R3) B/2 : Vanity lamp LH
(R4) W/2 : Sunroof assembly (with sunroof)
(R5) W/6 : Rear power vent window switch (with power windows)
(R6) W/2 : Map lamp (with map lamp)
(R7) B/2 : Vanity lamp RH
(R8) W/3 : Front room lamp
(R9) W/2 : Personal lamp (with personal lamp)
(R10) W/3 : Front room lamp (with sunroof)
(R11) W/3 : Rear room lamp

AEL131A

Air Bag Harness



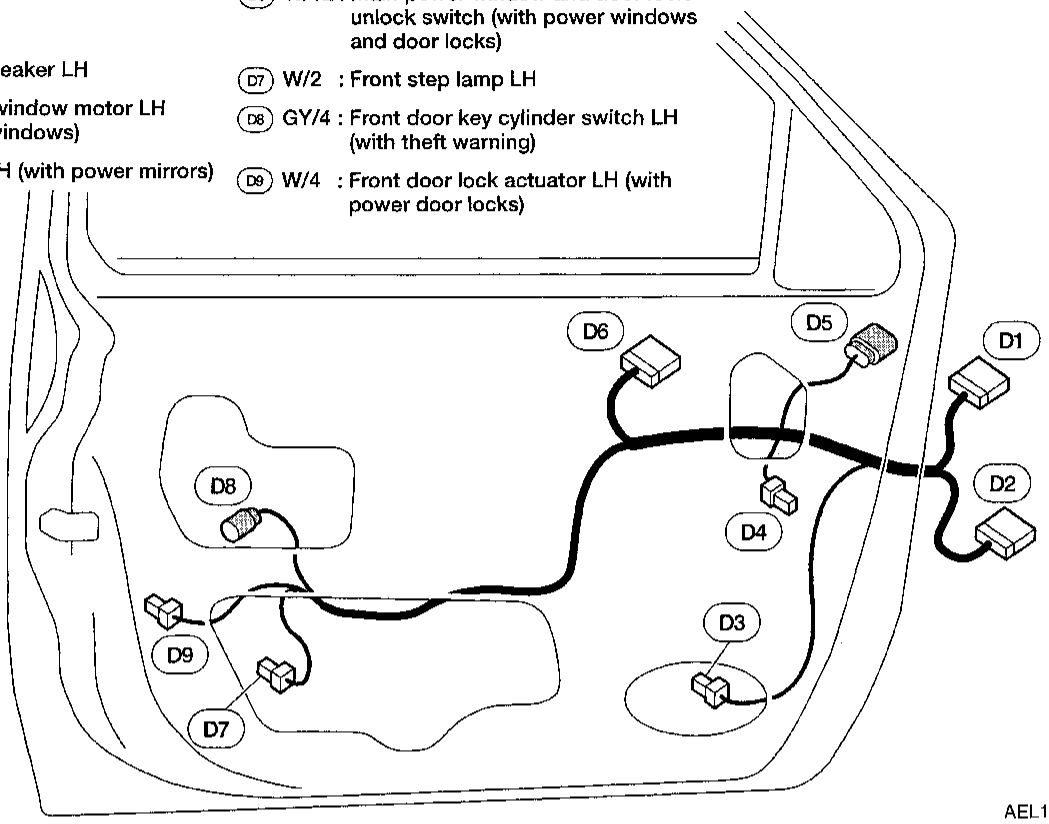
(Z1) W/12 : To (M36)
(Z2) W/4 : To spiral cable
(Z3) Y/24 : Air bag diagnosis sensor unit
(Z4) B/2 : Front passenger air bag module

AEL126A

Front Door Harness

LEFT

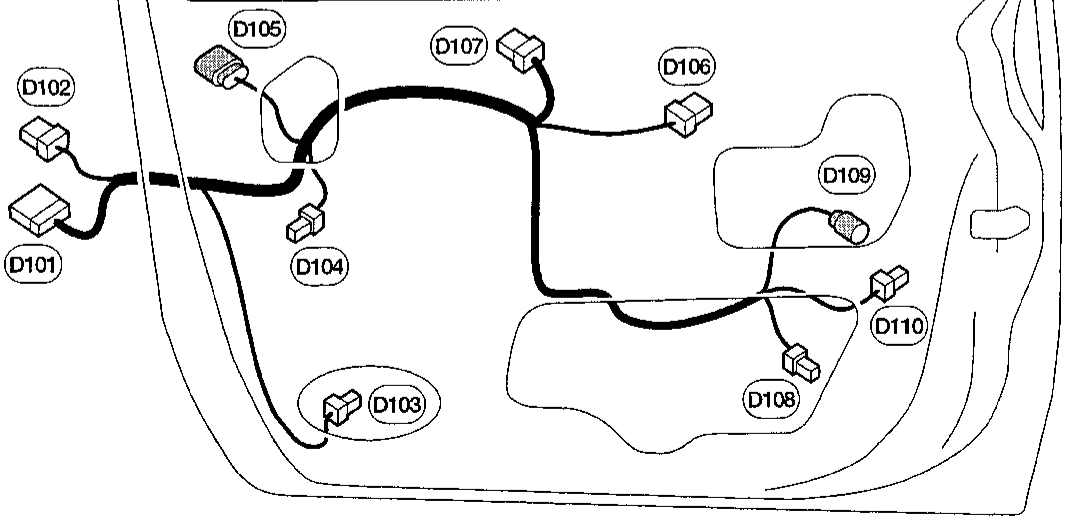
(D1) W/16 : To (M8)
(D2) W/10 : To (M9)
(D3) B/2 : Front door speaker LH
(D4) B/2 : Front power window motor LH (with power windows)
(D5) W/5 : Door mirror LH (with power mirrors)
(D6) W/12 : Main power window and door lock/unlock switch (with power windows and door locks)
(D7) W/2 : Front step lamp LH
(D8) GY/4 : Front door key cylinder switch LH (with theft warning)
(D9) W/4 : Front door lock actuator LH (with power door locks)



AEL129A

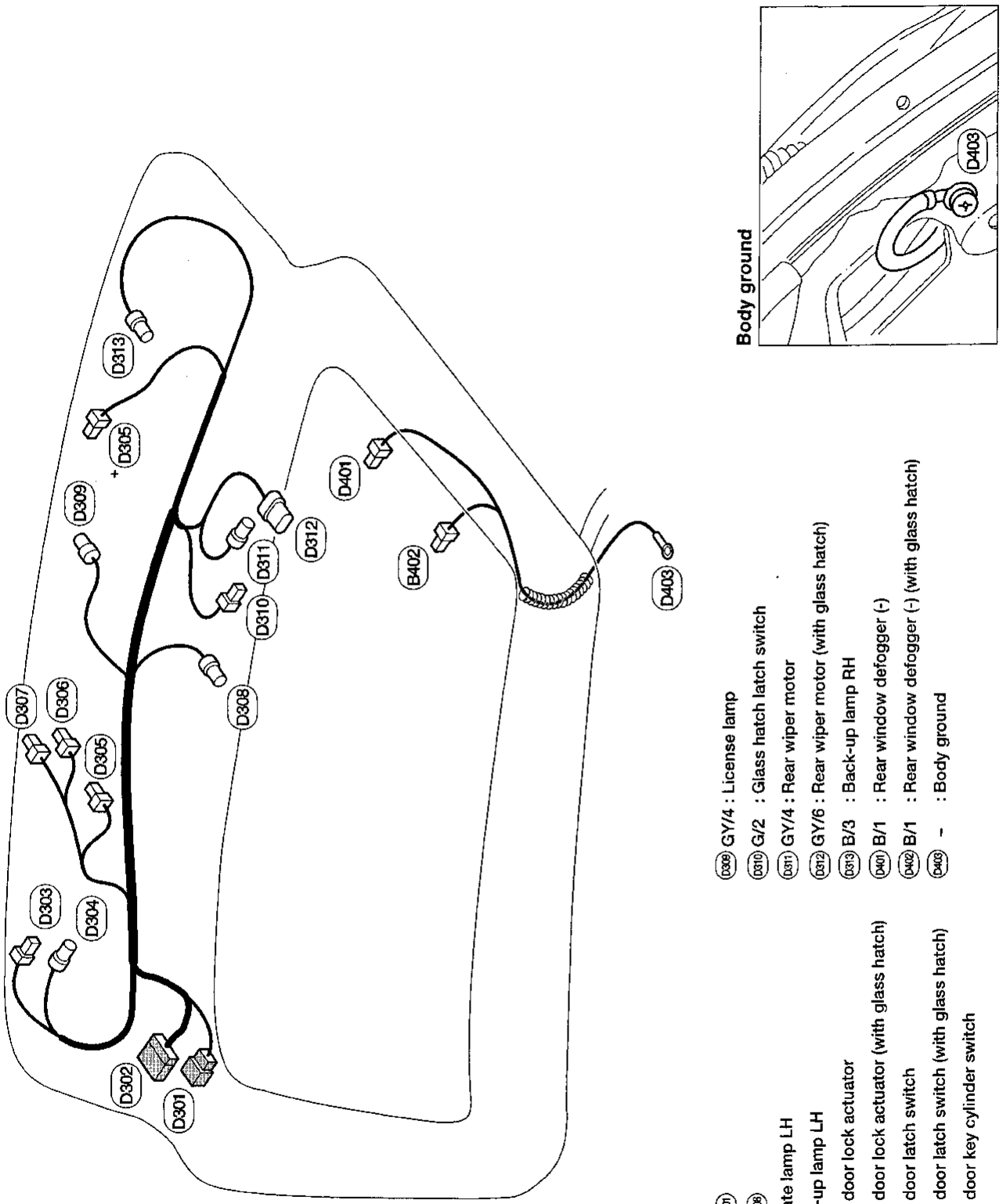
RIGHT

(D101) W/16 : To (M75)
(D102) W/6 : To (M74)
(D103) B/2 : Front door speaker RH
(D104) B/2 : Front power window motor RH (with power windows)
(D105) W/5 : Door mirror RH (with power mirrors)
(D106) W/8 : Door lock/unlock switch RH (with power door locks)
(D107) W/8 : Front power window switch RH (with power windows)
(D108) W/2 : Front step lamp RH
(D109) GY/4 : Front door key cylinder switch RH (with theft warning)
(D110) W/4 : Front door lock actuator RH (with power door locks)



AEL130A

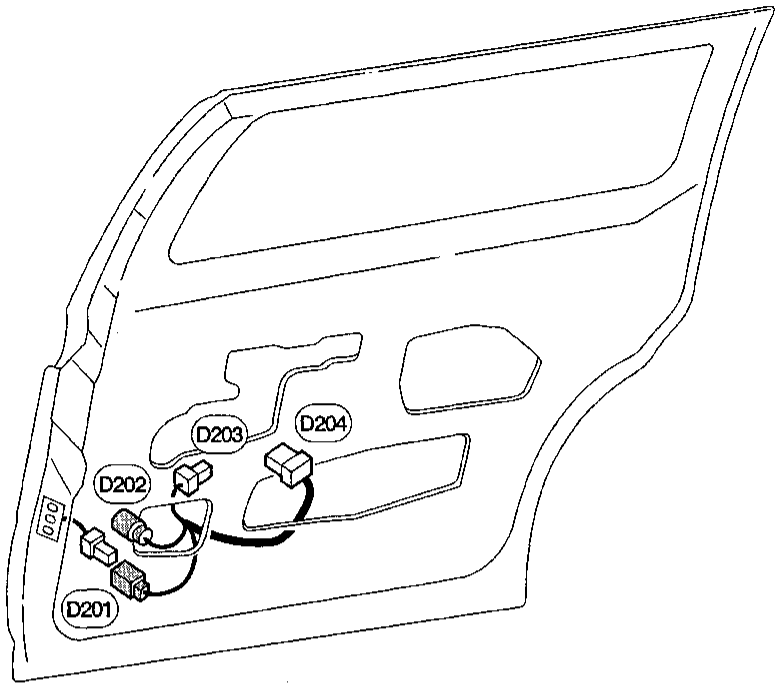
Back Door Harness



(D301) W/6 : To (B301)
(D302) W/10 : To (S106)
(D303) W/2 : Tailgate lamp LH
(D304) B/3 : Back-up lamp LH
(D305) W/4 : Back door lock actuator
+(D305) W/2 : Back door lock actuator (with glass hatch)
(D306) W/2 : Back door latch switch
(D307) W/4 : Back door latch switch (with glass hatch)
(D308) GY/4 : Back door key cylinder switch
(D308) GY/4 : License lamp
(D310) G/2 : Glass hatch latch switch
(D311) GY/4 : Rear wiper motor
(D312) GY/6 : Rear wiper motor (with glass hatch)
(D313) B/3 : Back-up lamp RH
(D401) B/1 : Rear window defogger (-)
(D402) B/1 : Rear window defogger (-) (with glass hatch)
(D403) - : Body ground

AEL127A

Sliding Door Harness



(D201) W/4 : To contact switch
(D202) GY/4 : Sliding door key cylinder switch (with theft warning)
(D203) W/4 : Sliding door lock actuator (with power door locks)
(D204) B/8 : Sliding door control unit (with theft warning)

AEL128A