ELECTRICAL SYSTEM

SECTION EL

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

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

CONTENTS

PRECAUTIONS AND PREPARATION 4
Supplemental Restraint System (SRS) "AIR BAG" 4
Special Service Tools 4
HARNESS CONNECTOR 5
Description 5
STANDARDIZED RELAY 6
Description 6
POWER SUPPLY ROUTING 10
Schematic 10
Wiring Diagram — POWER — 12
Fuse 21
Fusible Link 21
Circuit Breaker Inspection 21
GROUND DISTRIBUTION 22
BATTERY 26
How to Handle Battery 26
Service Data and Specifications (SDS) 28
STARTING SYSTEM 29
System Description 29
Wiring Diagram — START — 30
Construction 32
Removal and Installation 32
Service Data and Specifications (SDS) 33
CHARGING SYSTEM 34
System Description 34
Wiring Diagram — CHARGE — 35
Construction 36
Removal and Installation 37
Service Data and Specifications (SDS) 38
COMBINATION SWITCH 39
Combination Switch/Check 39
Combination Switch/Replacement 40
INSTRUMENT SWITCH 42
Check 42
HEADLAMP 44
System Description (For U.S.A.) 44
Schematic 46
Wiring Diagram — H/LAMP — 47
Trouble Diagnoses 50
HEADLAMP — Daytime Light System — 51
System Description (For Canada) 51
Operation (Daytime light system equipped model) 53
Schematic 53
Wiring Diagram — DTRL — 54
Trouble Diagnoses (Daytime Light) 58
Aiming Adjustment 60
Bulb Replacement 61
EXTERIOR LAMP 62
Clearance, License and Tail Lamps/Schematic 62
Clearance, License, Tail and Stop Lamps/Wiring Diagram — TAIL — 63
Stop and Tail Lamp Sensor Check 66
Back-up Lamp/Wiring Diagram — BACK/L — 67
Front Fog Lamp/System Description 68
Front Fog Lamp/Schematic 69
Front Fog Lamp/Wiring Diagram — F/FOG — 70
Turn Signal and Hazard Warning Lamps/System Description 73
Turn Signal and Hazard Warning Lamps/Schematic 75
Turn Signal and Hazard Warning Lamps/Wiring Diagram — TURN — 76
Turn Signal and Hazard Warning Lamps/Trouble Diagnoses 79
Combination Flasher Unit Check 79
Bulb Specifications 80

CONTENTS (Cont'd)

INTERIOR LAMP 81
Illumination/System Description 81
Illumination/Schematic 82
Illumination/Wiring Diagram — ILL — 83
Interior, Spot, Foot, Luggage Room and Trunk Room Lamps/System Description 86
Bulb Specifications 87
Interior, Spot, Foot, Luggage Room and Trunk Room Lamps/Wiring Diagram — INT/L — 88
METER AND GAUGES 92
System Description 92
Combination Meter 93
Speedometer, Tachometer, Temp., Oil, Fuel and Boost Gauges/Wiring Diagram — METER — 94
Inspection/Fuel Gauge and Water Temperature Gauge 96
Fuel Tank Gauge Unit Check 97
Thermal Transmitter Check 97
Oil Pressure Sending Unit Check 97
Boost Sensor Check 98
Vehicle Speed Sensor Signal Check 98
WARNING LAMPS AND CHIME 99
Warning Lamps/Schematic 99
Warning Lamps/Wiring Diagram — WARN — 100
Warning Chime/System Description 106
Warning Chime/Wiring Diagram — CHIME — 108
Fuel Warning Lamp Sensor Check 110
Diode Check 110
Warning Chime Check 110
TIME CONTROL SYSTEM 111
System Description 111
Schematic 113
Wiring Diagram — TIME — 114
Trouble Diagnoses 121
WIPER AND WASHER 131
Front Wiper and Washer/System Description 131
Front Wiper and Washer/Schematic 133
Front Wiper and Washer/Wiring Diagram — WIPER — 134
Rear Wiper and Washer/System Description 137
Rear Wiper and Washer/Wiring Diagram — WIP/R — 138
Headlamp Washer/Wiring Diagram — HLC — 139
Installation 141
Washer Nozzle Adjustment 142
Check Valve 142
Wiper Amplifier Check 142
POWER WINDOW 143
System Description 143
Schematic 145
Wiring Diagram — WINDOW — 146
Power Window Amp. Inspection 149
POWER DOOR LOCK 150
System Description 150
Schematic 151
Wiring Diagram — D/LOCK — 152
Door Lock Timer Inspection 156
Electrical Components Inspection 157
POWER DOOR MIRROR 158
Wiring Diagram — MIRROR — 158
FUEL FILLER LID OPENER 160
Wiring Diagram — F/LID — 160
TRUNK LID OPENER 161
Wiring Diagram — T/LID — 161
CONVERTIBLE ROOF 163
Storage Lid Opener/System Description 163
Storage Lid Opener/Schematic 164
Storage Lid Opener/Wiring Diagram — ST/LID — 165
Convertible Roof Opener/Wiring Diagram — C/ROOF — 169
HORN, CIGARETTE LIGHTER AND CLOCK 170
Wiring Diagram — HORN — 170
REAR WINDOW DEFOGGER AND DOOR MIRROR DEFOGGER 172
Wiring Diagram — DEF — 172
Filament Check 175
Filament Repair 176
AUDIO AND POWER ANTENNA 177
Audio/System Description 177
Audio/Wiring Diagram — AUDIO — 178
Schematic 182
Power Antenna/System Description 183
Power Antenna/Wiring Diagram — P/ANT — 184
Trouble Diagnoses 185
Location of Antenna 187
Antenna Rod Replacement 187
Radio Fuse Check 188
Window Antenna Repair 189
POWER SEAT 190
Schematic 190
Wiring Diagram — SEAT — 191
MULTI-REMOTE CONTROL SYSTEM 194
System Description 194
Schematic 197
Wiring Diagram — MULTI — 198
Trouble Diagnoses Preliminary Inspection 204
Trouble Diagnoses 205
AUTOMATIC SPEED CONTROL DEVICE (ASCD) 211
Component Parts and Harness Connector Location 211
System Description 212
Schematic 214
Wiring Diagram — ASCD — 215

CONTENTS (Cont'd)

Trouble Diagnoses....221
THEFT WARNING SYSTEM....240
Component Parts and Harness Connector Location....240
Trouble Diagnoses....241
Schematic....242
Wiring Diagram — THEFT —....244
Trouble Diagnoses....253
LOCATION OF ELECTRICAL UNITS....270
Engine Compartment....270
Passenger Compartment....271
Luggage Compartment....272
HARNESS LAYOUT....274
Outline....274
Engine Room Harness....275
Main Harness....278
Air Bag Harness....281
Engine Control Harness....282
Body Harness....284
Door Harness LH....290
Door Harness RH....290
Back Door Harness....291
Alternator Harness....291
FUSE BLOCK JUNCTION BOX (J/B)....Foldout
Terminal Arrangement....Foldout
ELECTRICAL UNIT....Foldout
Terminal Arrangement....Foldout

WIRING DIAGRAM REFERENCE CHART

ECCS (Ignition system).... EC SECTION
AUTOMATIC TRANSAXLE CONTROL SYSTEM, SHIFT LOCK SYSTEM.... AT SECTION
ADJUSTABLE SHOCK ABSORBER CONTROL SYSTEM.... FA SECTION
ANTI-LOCK BRAKE SYSTEM.... BR SECTION
TWIN ORIFICE POWER STEERING SYSTEM, SUPER HICAS SYSTEM.... ST SECTION
SRS "AIR BAG".... RS SECTION
HEATER AND AIR CONDITIONER.... HA SECTION

Supplemental Restraint System (SRS) "AIR BAG"

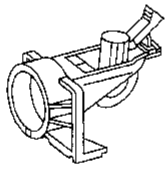
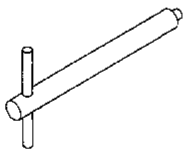
The Supplemental Restraint System "Air Bag", used along with a seat belt, helps to reduce the risk or severity of injury to the driver and front passenger in a frontal collision. The Supplemental Restraint System consists of air bags (located in the center of the steering wheel and on the instrument panel on the passenger side), sensors, a diagnosis 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:

a. **To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN dealer.**
b. **Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system.**
c. **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.**

Special Service Tools

The actual shapes of Kent-Moore tools may differ from those of special service tools illustrated here.

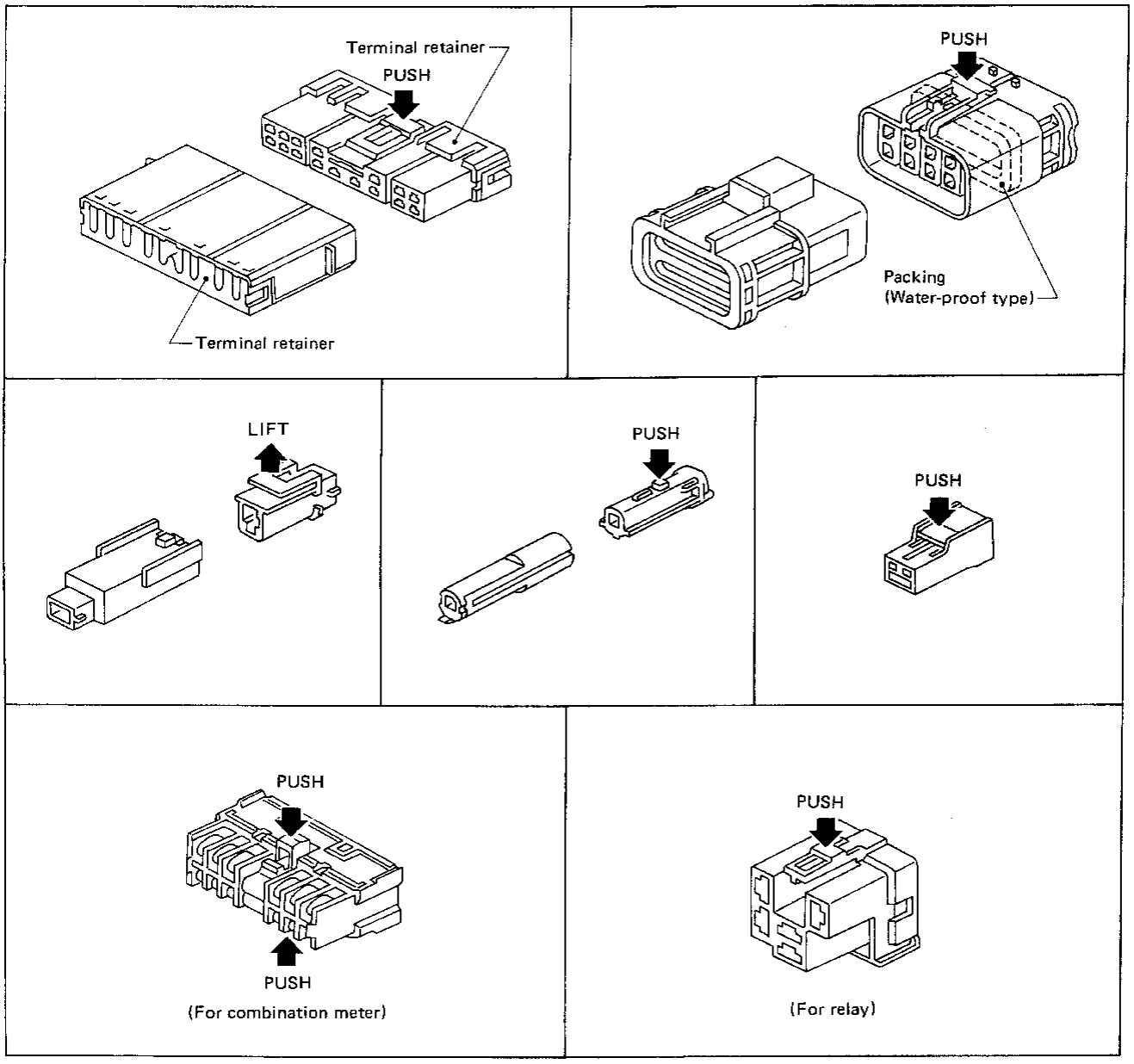
Tool number (Kent-Moore No.) Tool name	Description	
26081 30P00 (right) 26086 30P00 (left) Headlamp aimer adapter	 NT217	Attaching headlamp aimer
(J36126) Washer nozzle adjusting tool	 NT218	Adjusting washer nozzle

Description

HARNESS CONNECTOR

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

CAUTION:
Do not pull the harness when disconnecting the connector.
[Example]

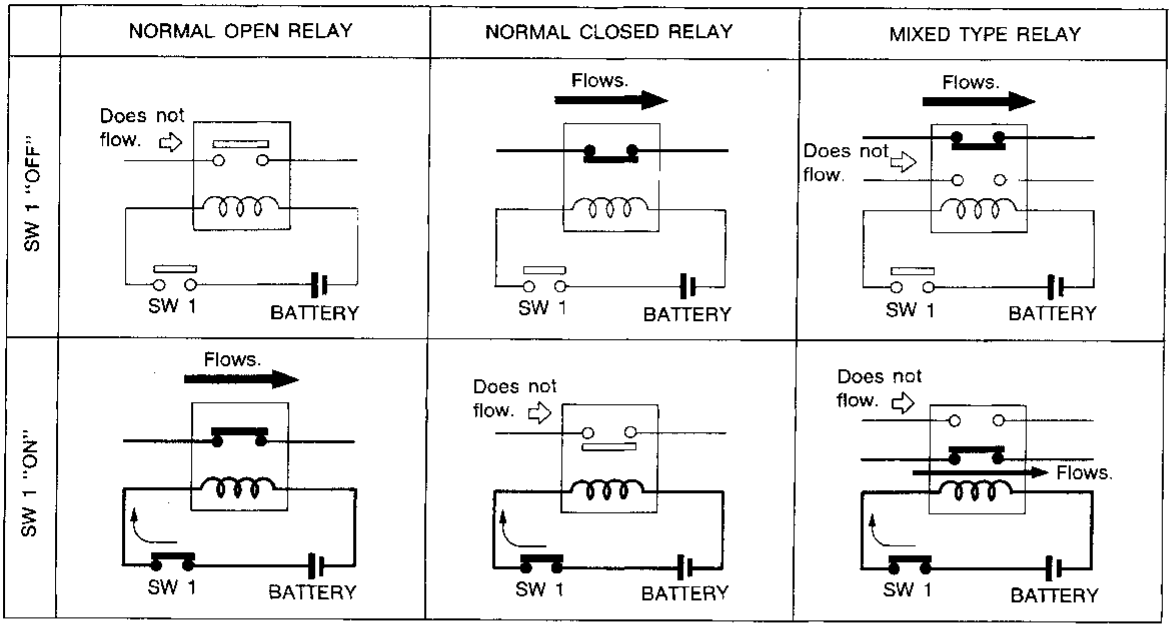


SEL769D

Description

NORMAL OPEN, NORMAL CLOSED AND MIXED TYPE RELAYS

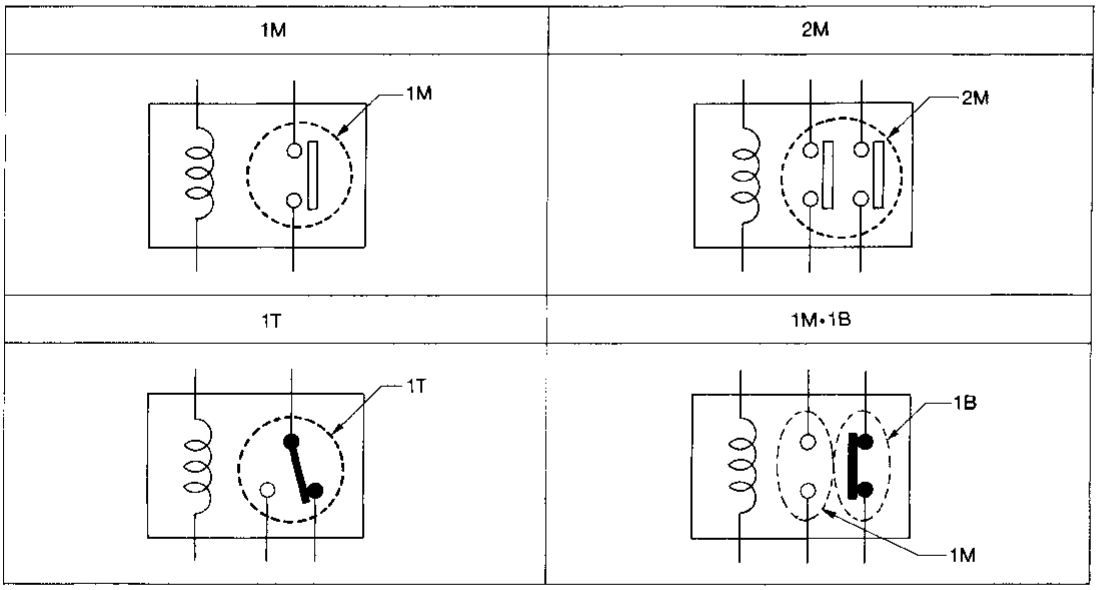
Relays can mainly be divided into three types: normal open, normal closed and mixed type relays.



SEL881H

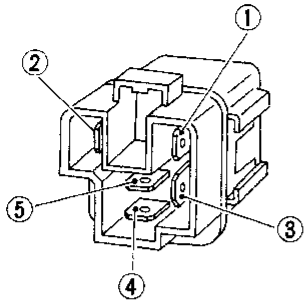
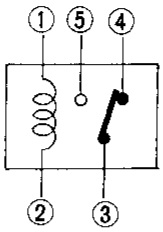
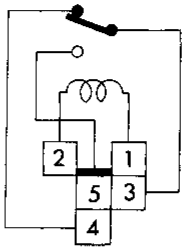
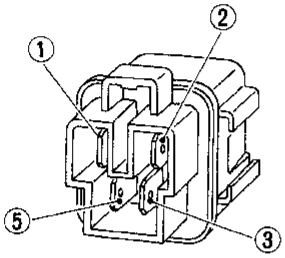
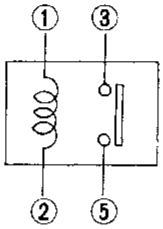
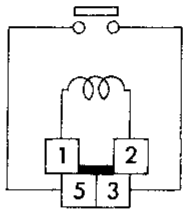
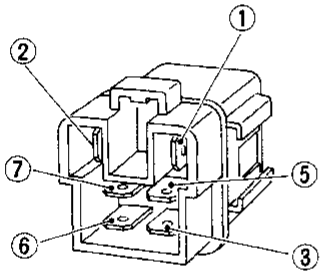
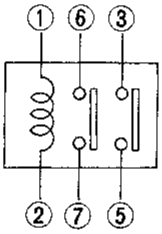
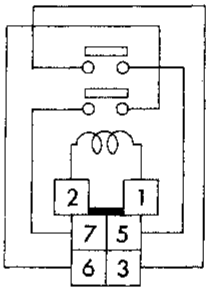
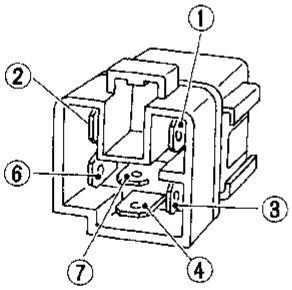
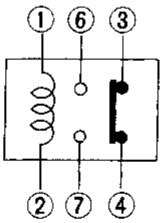
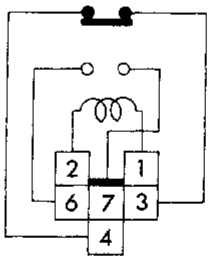
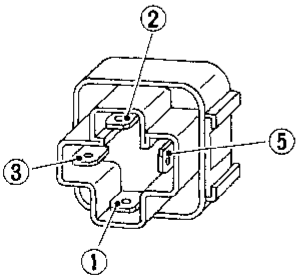
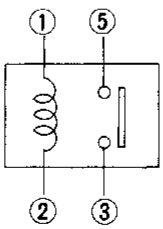
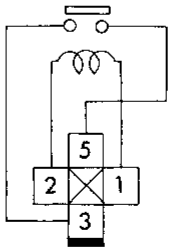
TYPE OF STANDARDIZED RELAYS

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



SEL882H

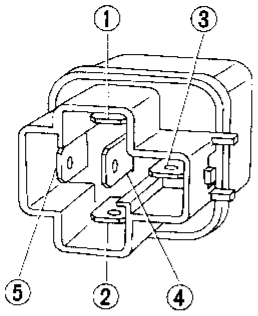
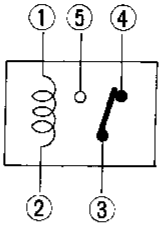
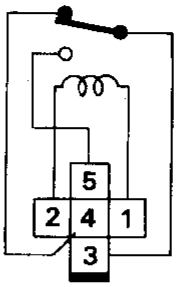
Description (Cont'd)

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

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

SEL871SA

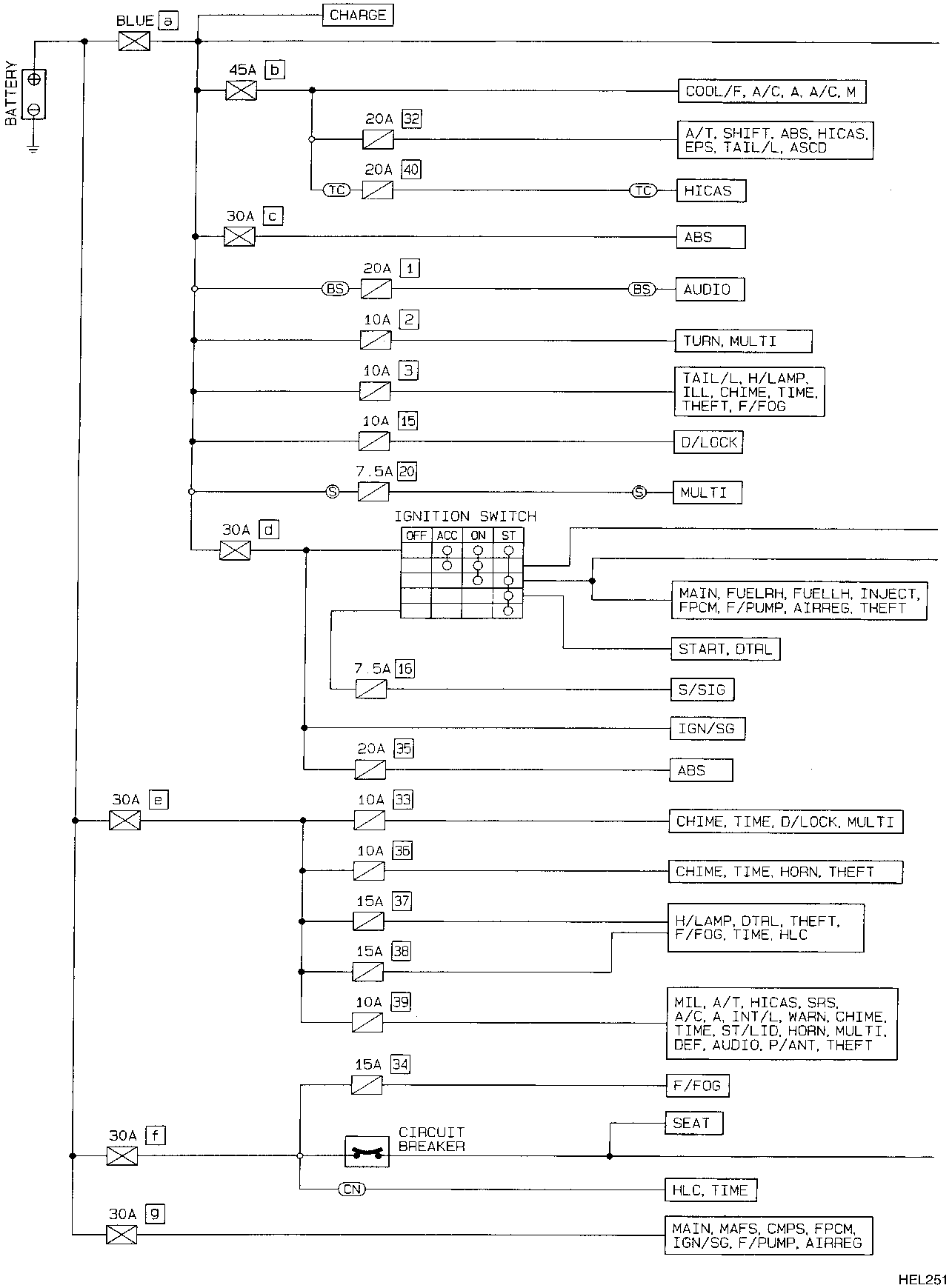
Description (Cont'd)

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

MEL202B

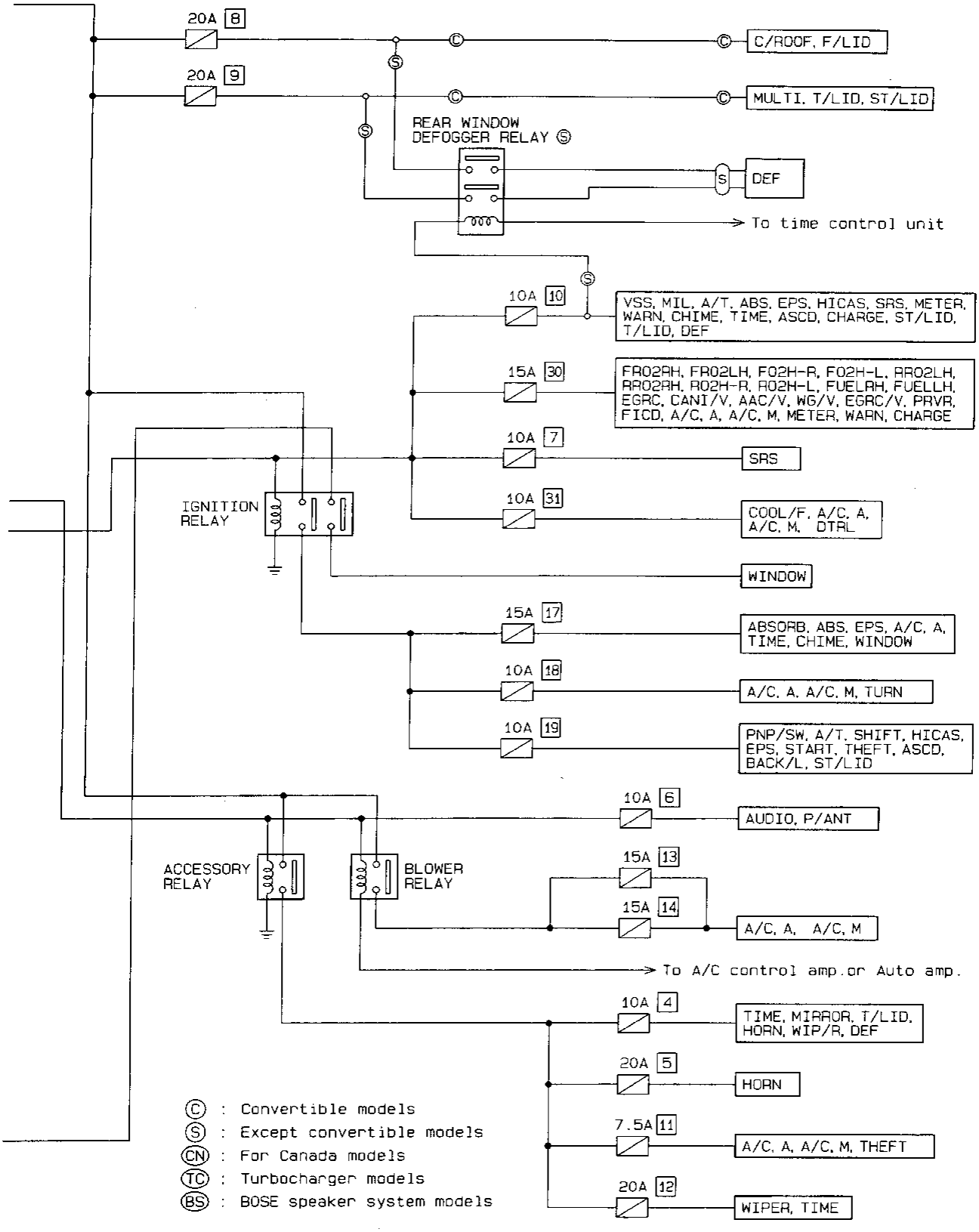
NOTE

Schematic



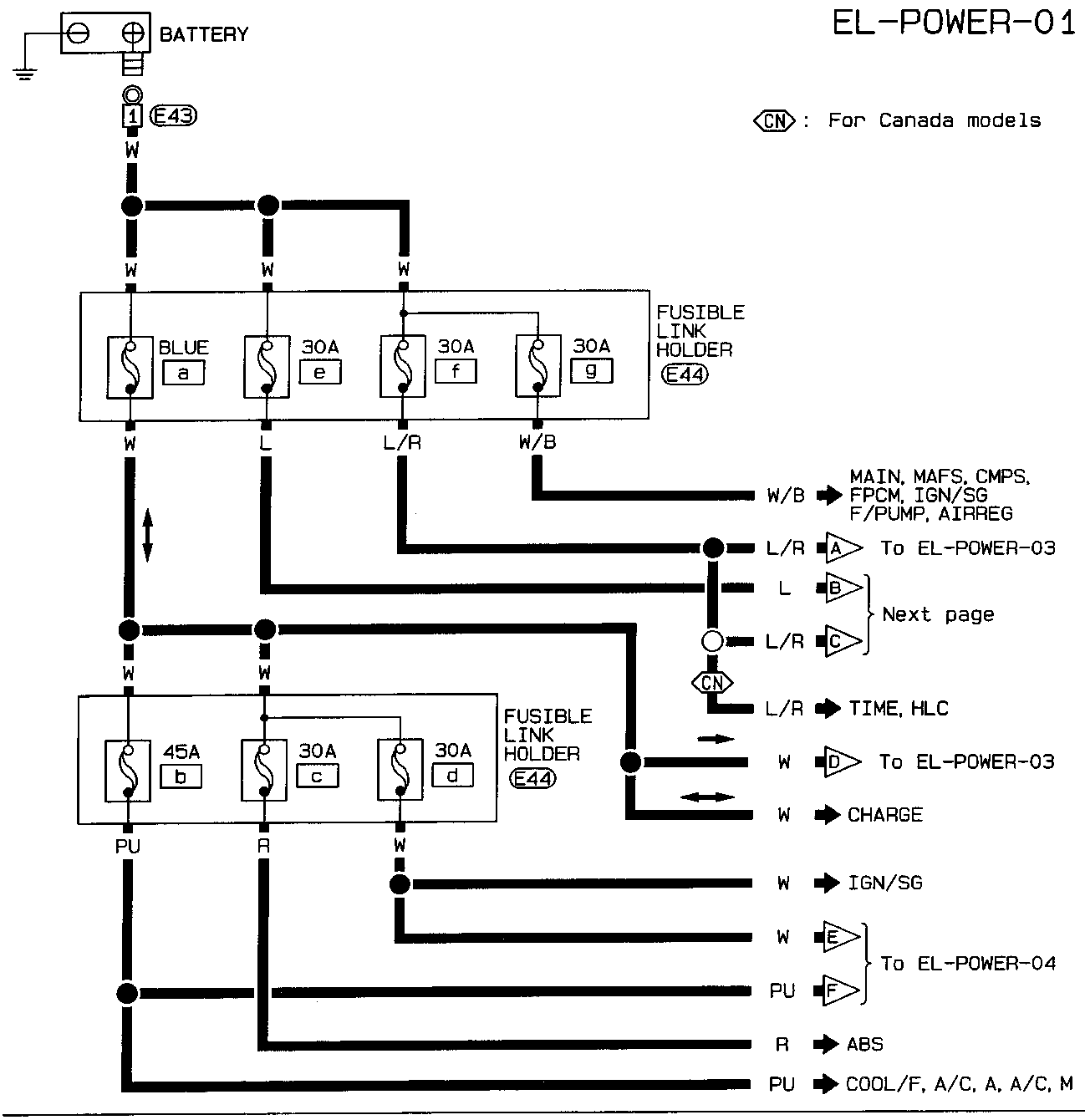
HEL251

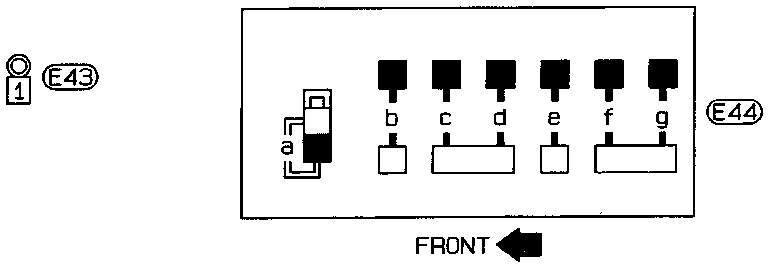
Schematic (Cont'd)



HEL252

Wiring Diagram — POWER —

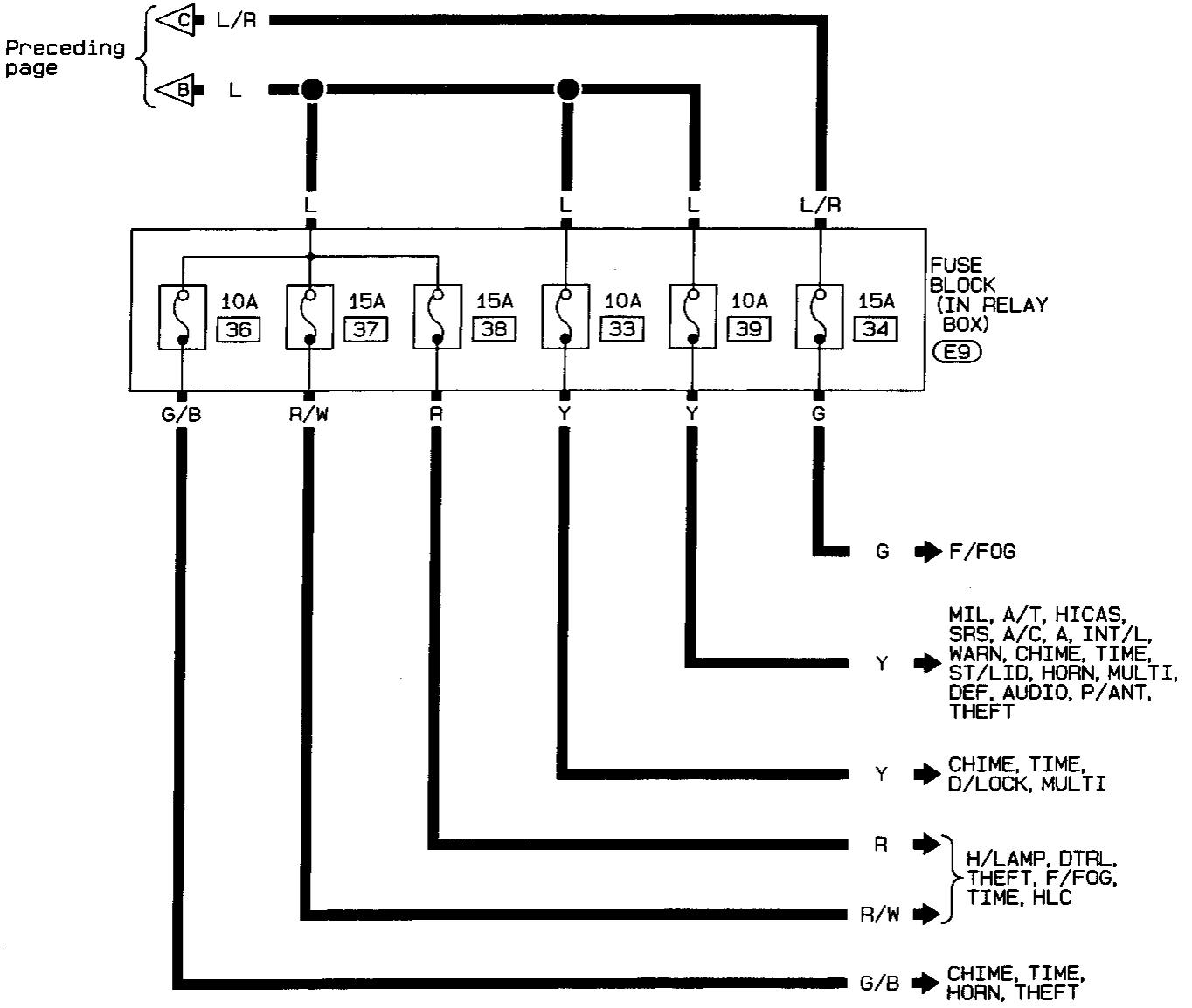


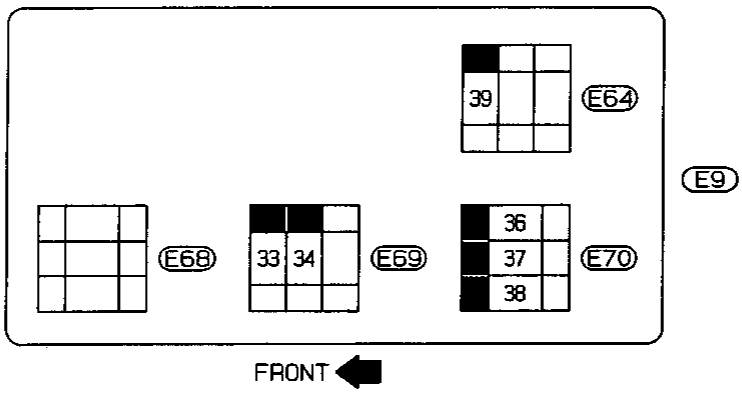


HEL253

Wiring Diagram — POWER — (Cont'd)

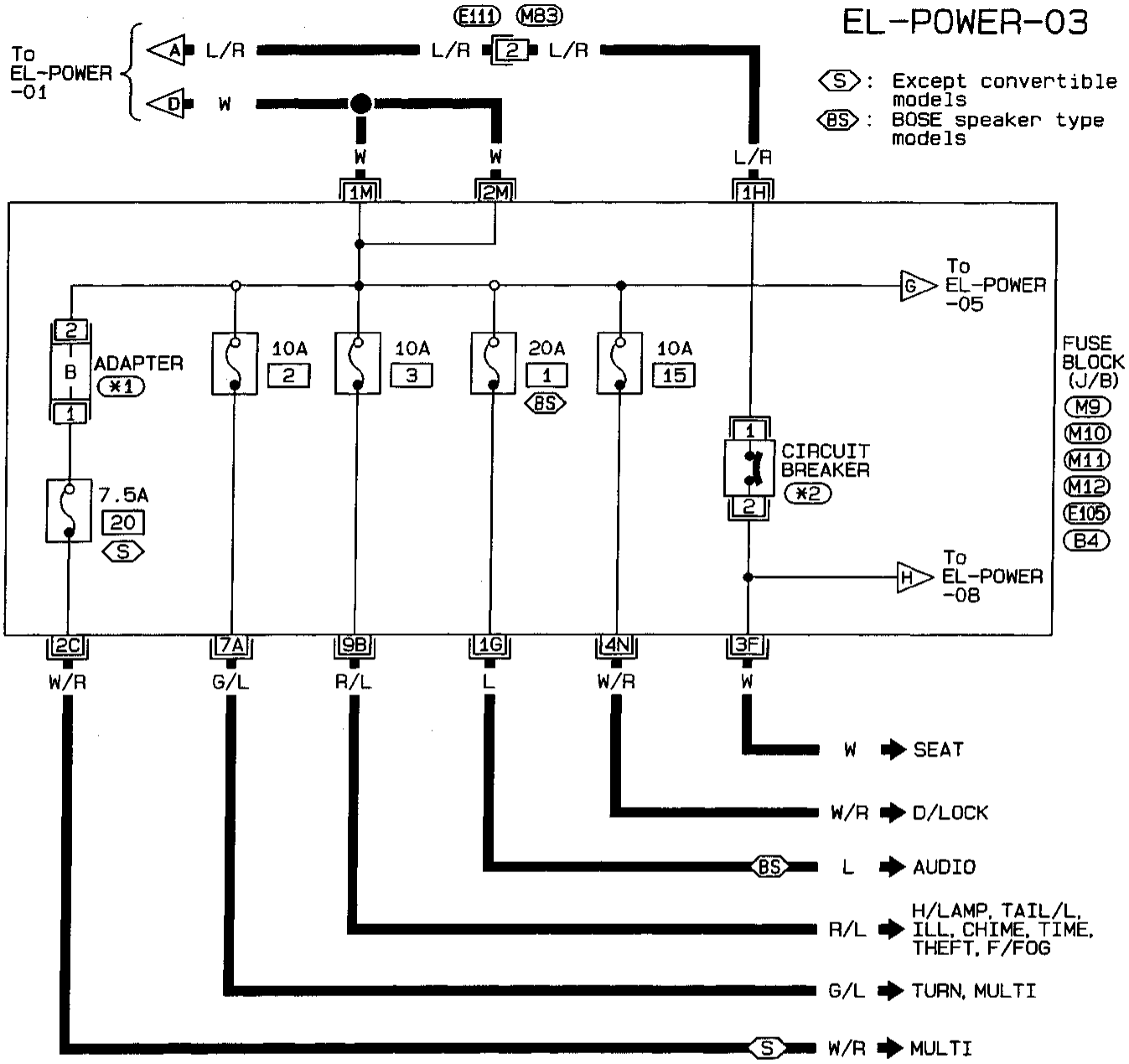
EL-POWER-02

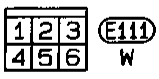


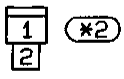


HEL254

Wiring Diagram — POWER — (Cont'd)







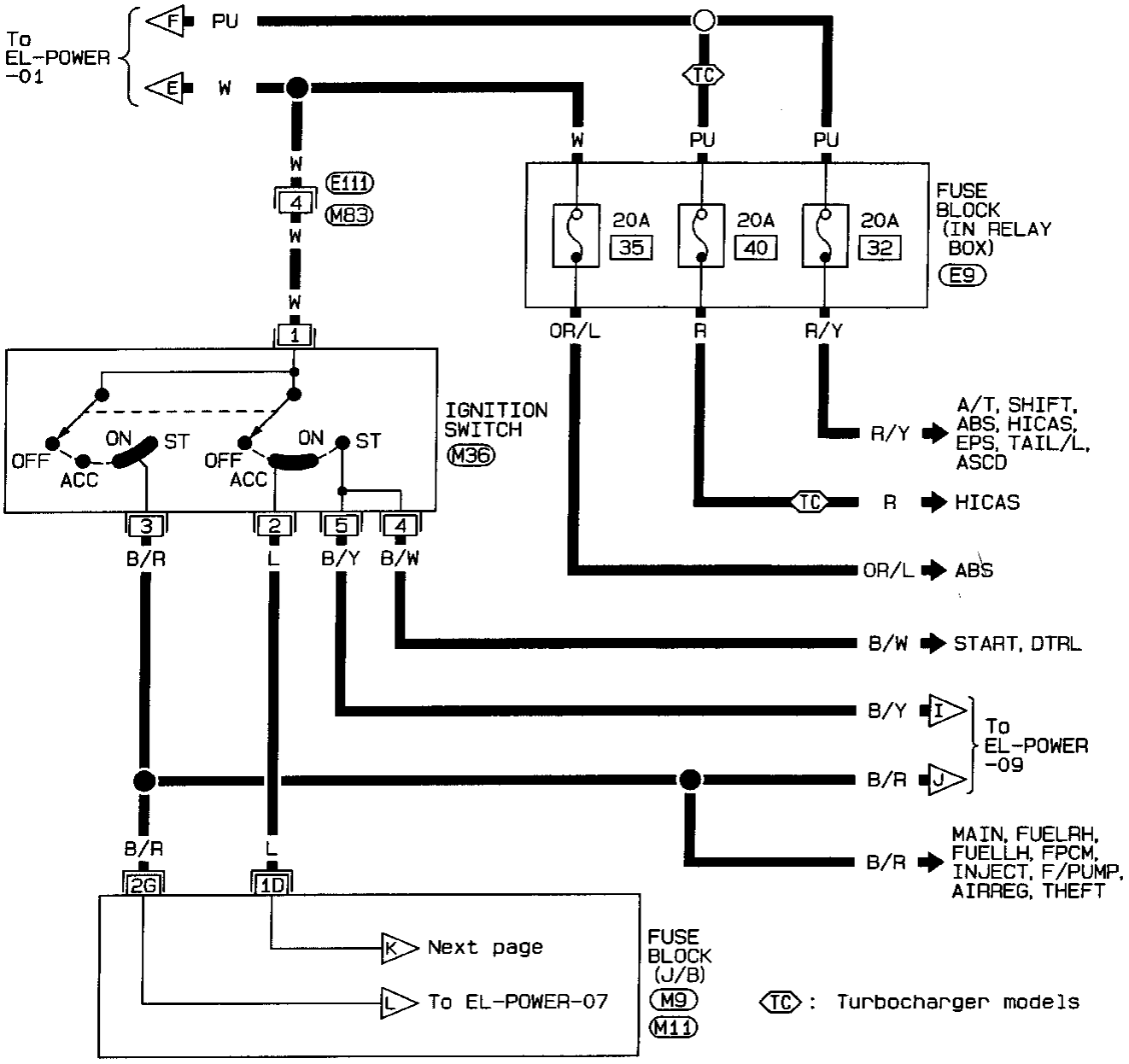
Refer to last page (Foldout page).

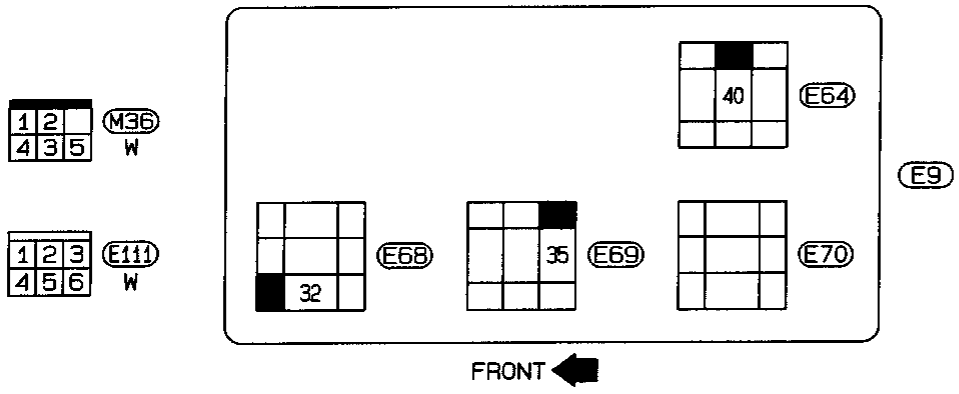
M9, M10, M11, M12, E105, B4

HEL255

Wiring Diagram — POWER — (Cont'd)

EL-POWER-04





Refer to last page (Foldout page).

M9, M11

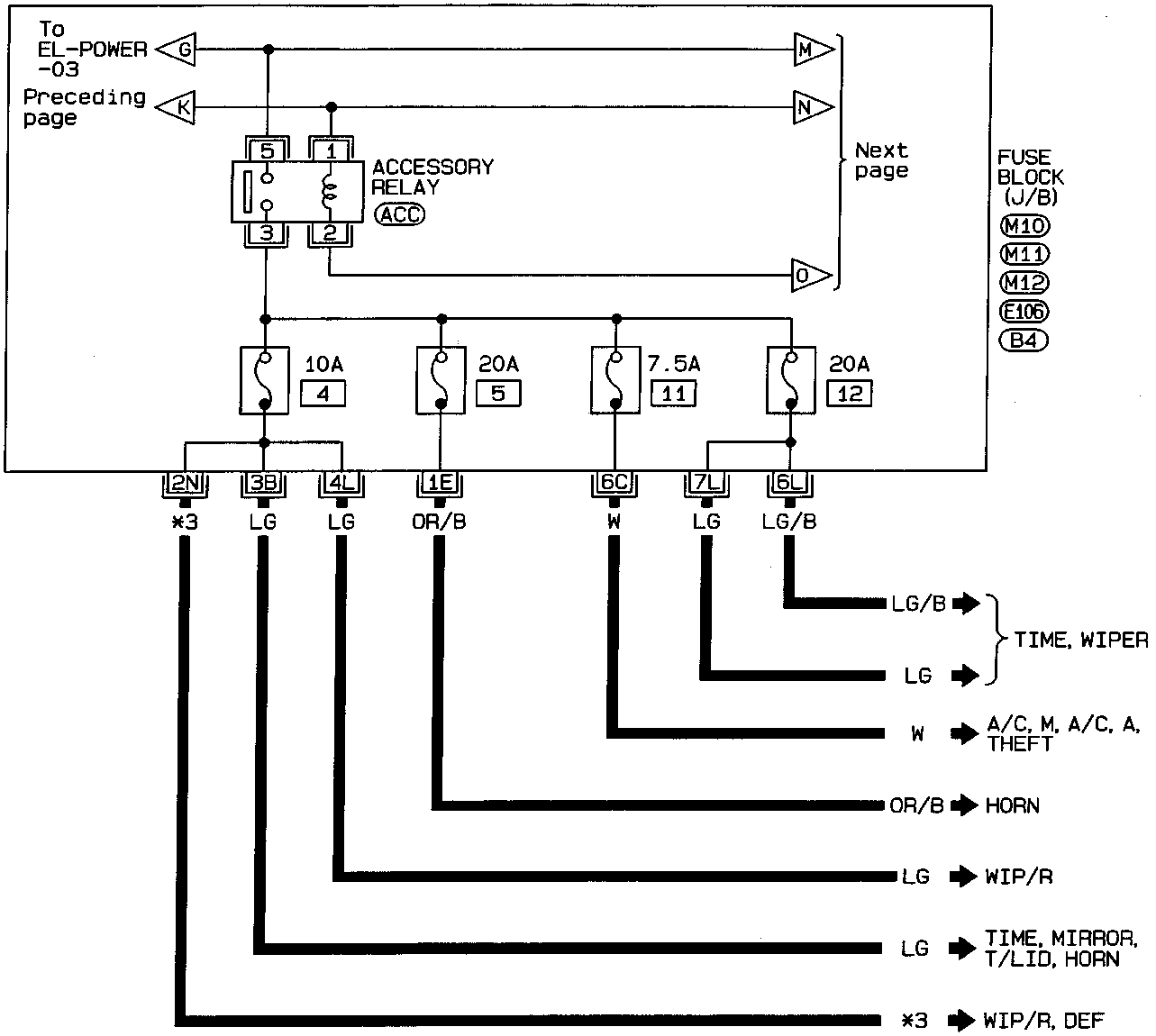
HEL256

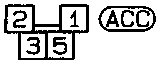
1253

Wiring Diagram — POWER — (Cont'd)

EL-POWER-05

Ⓒ : Convertible models
Ⓢ : Except convertible models
*3 ··· Ⓒ L , Ⓢ L/G





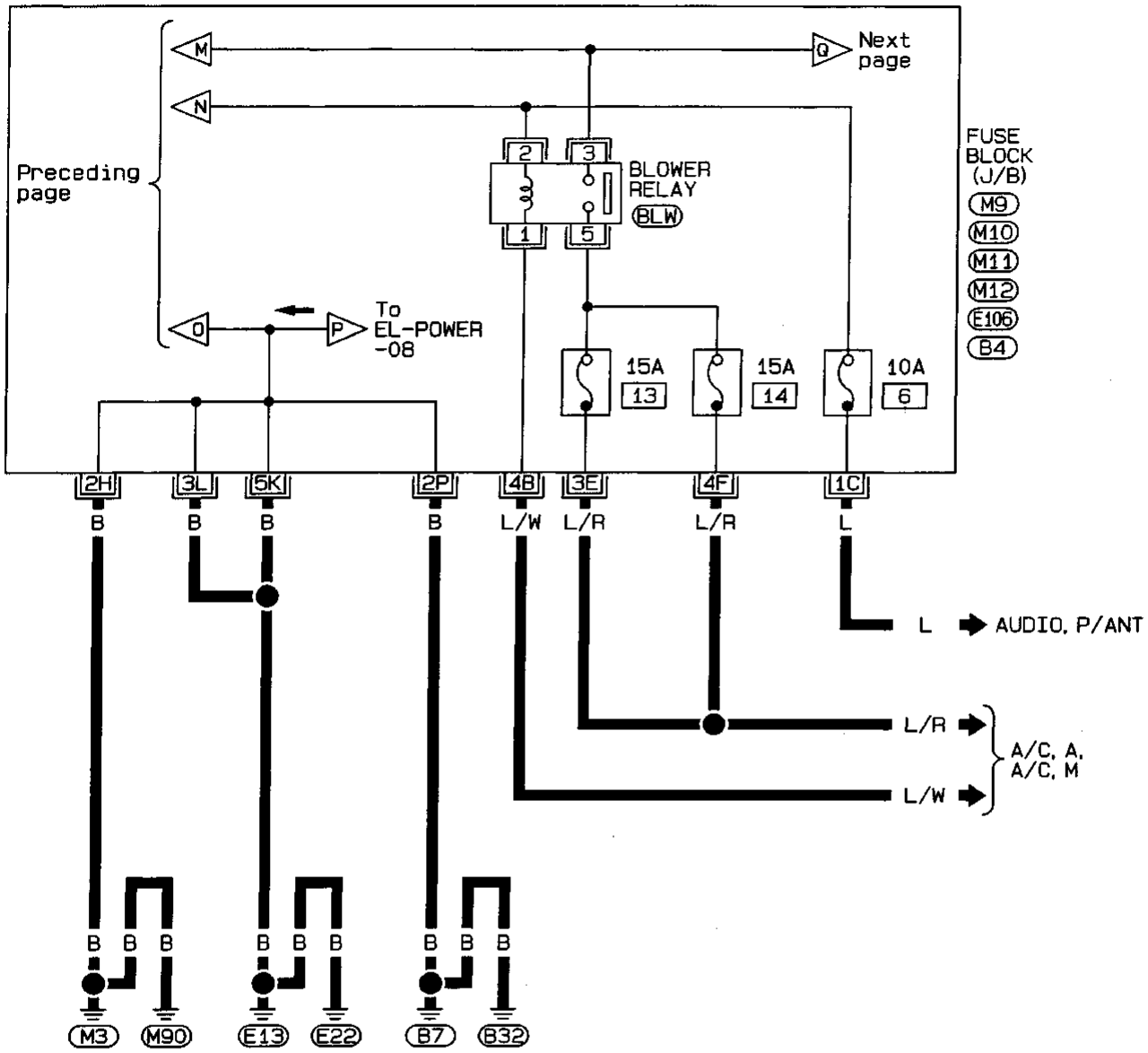
Refer to last page (Foldout page).

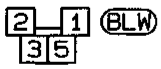
M10 , M11 , M12 , E106 , B4

HEL257

Wiring Diagram — POWER — (Cont'd)

EL-POWER-06





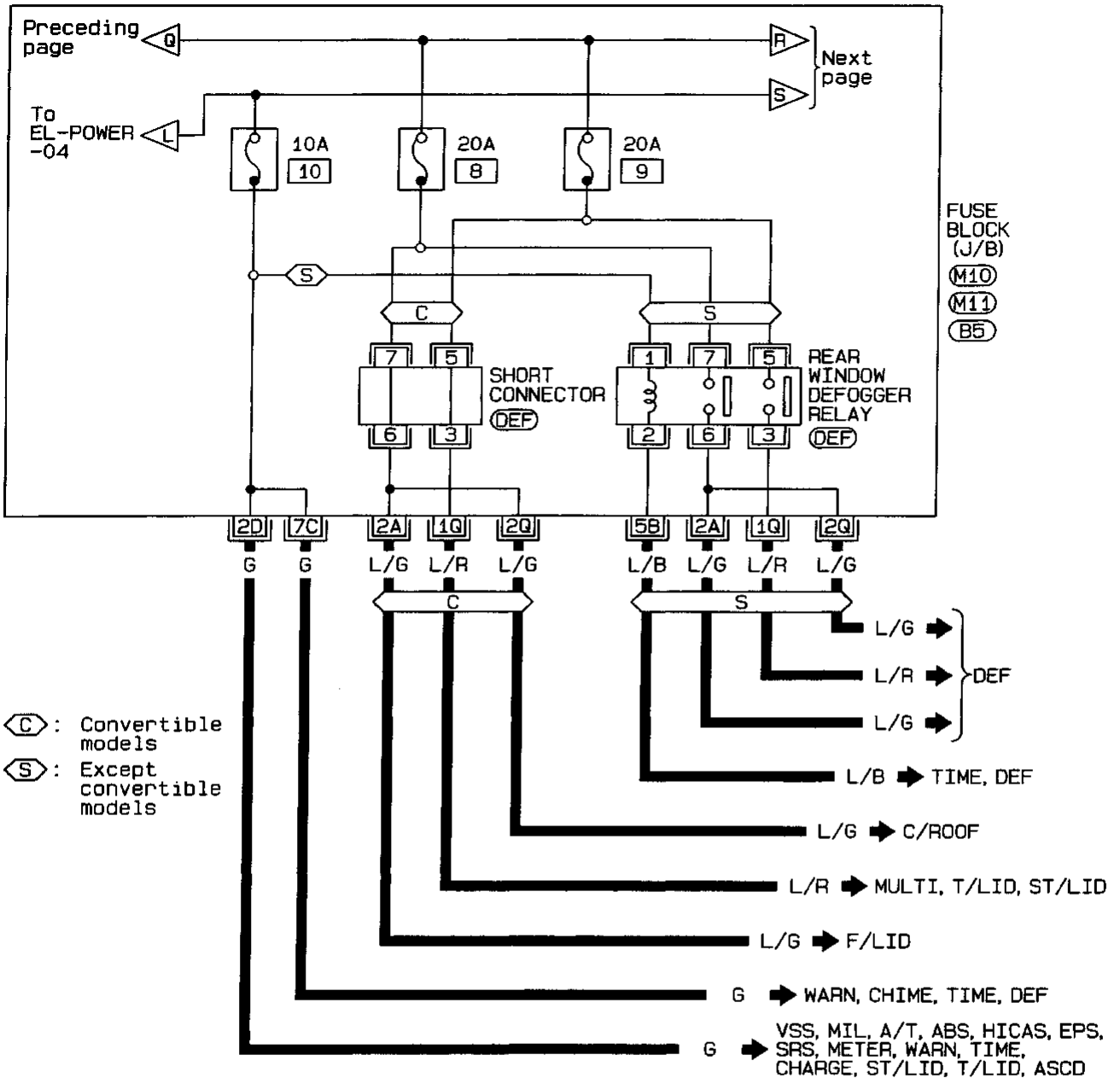
Refer to last page (Foldout page).

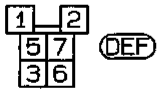
M9, M10, M11, M12, E106, B4

HEL258

Wiring Diagram — POWER — (Cont'd)

EL-POWER-07





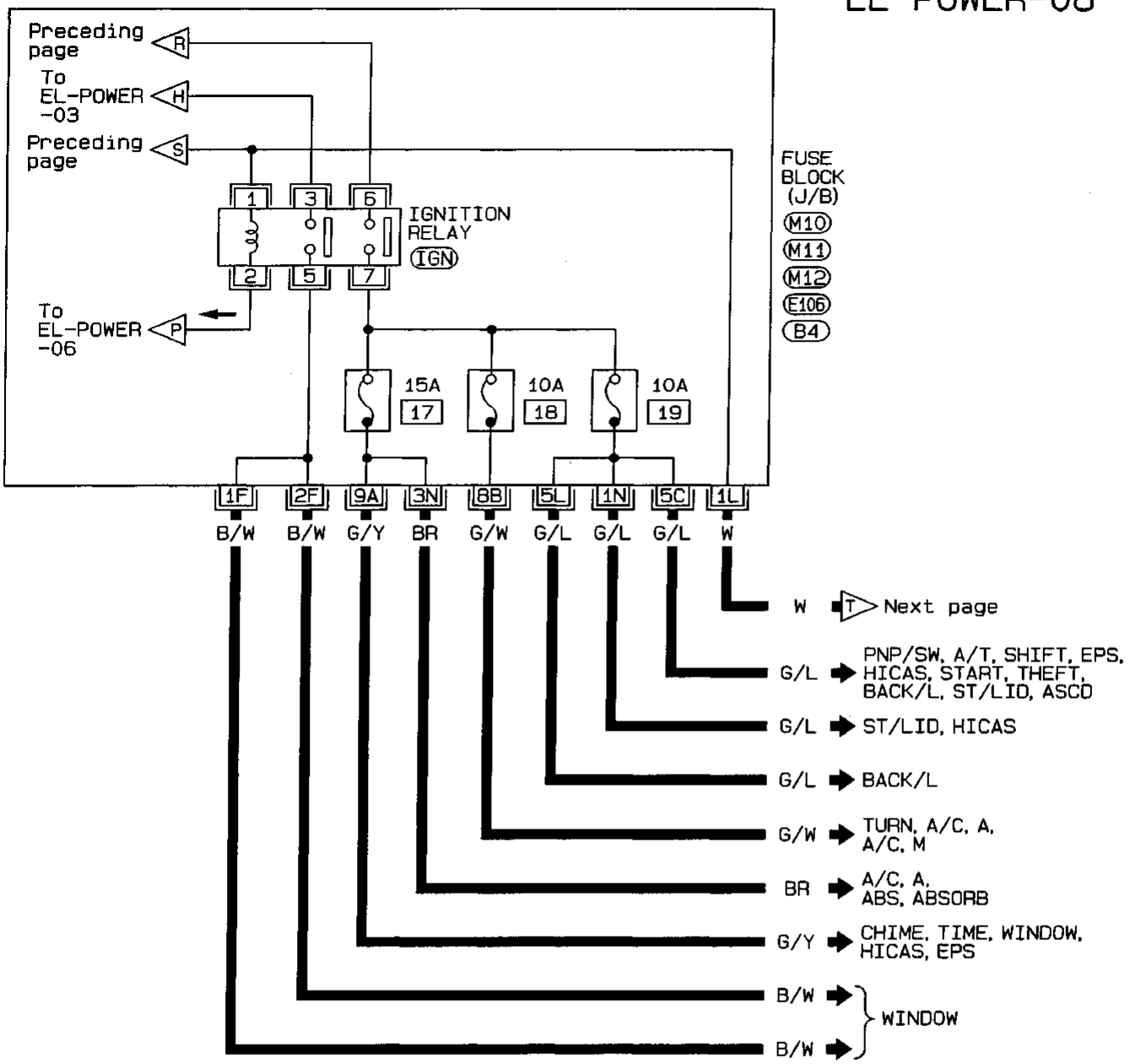
Refer to last page (Foldout page).

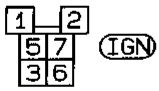
M10 , M11 , B5

HEL259

Wiring Diagram — POWER — (Cont'd)

EL-POWER-08





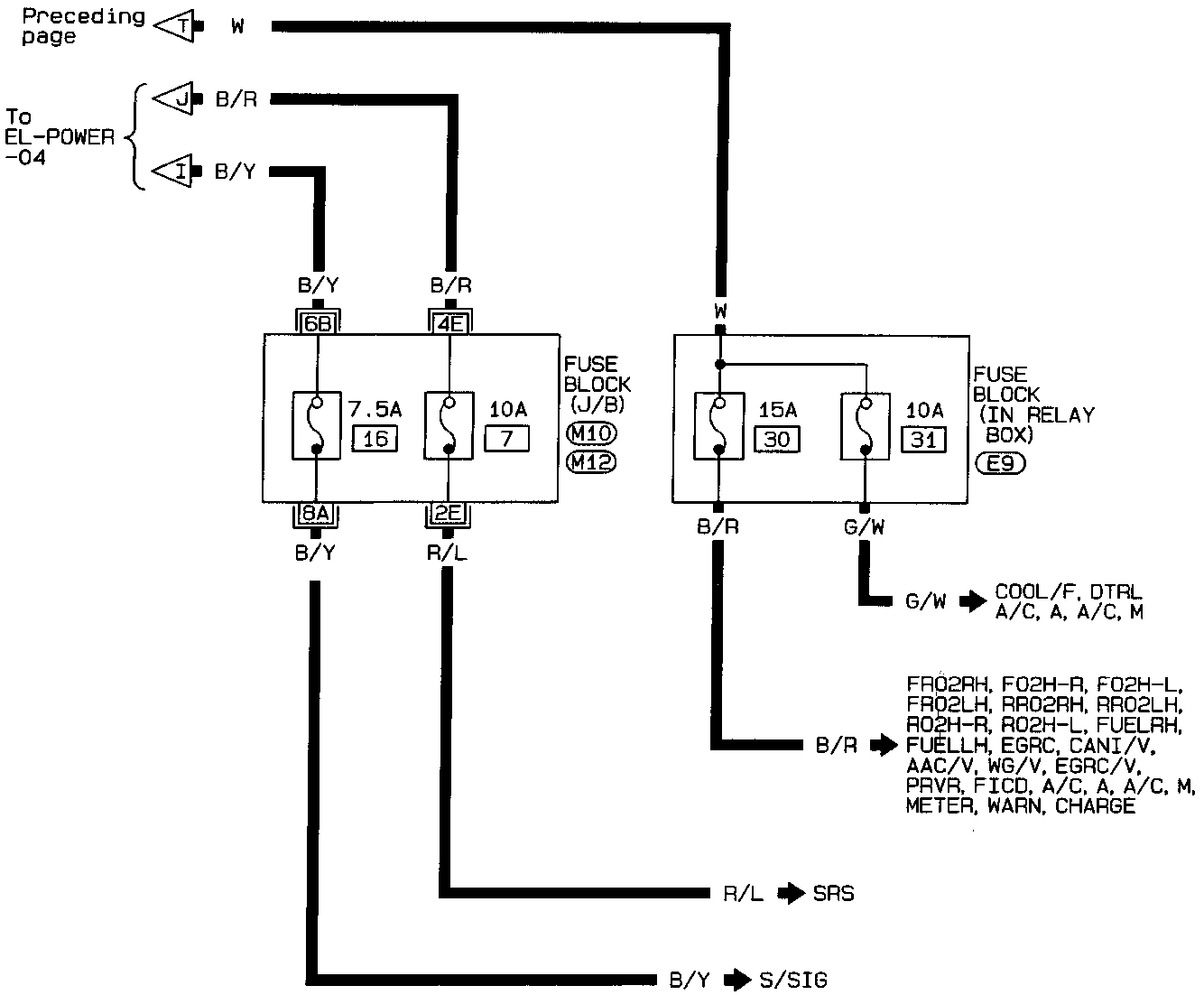
Refer to last page (Foldout page).

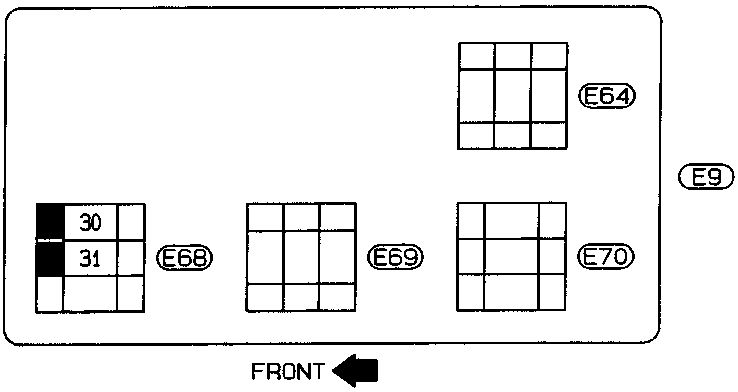
M10, M11, M12, E106, B4

HEL260

Wiring Diagram — POWER — (Cont'd)

EL-POWER-09

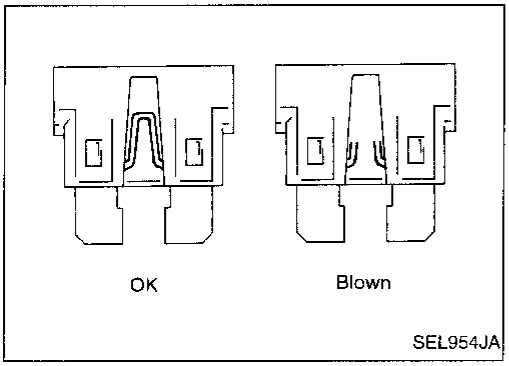




Refer to last page (Foldout page).

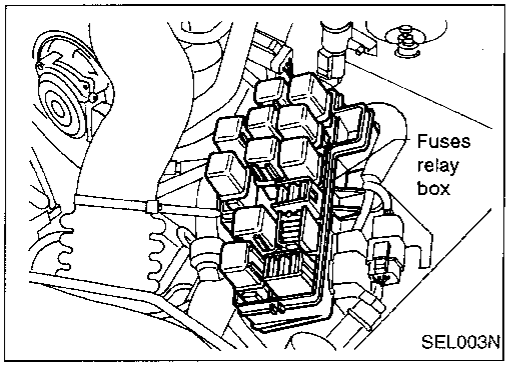
M10 , M12

HEL261



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 clock if vehicle is not used for a long period of time.**

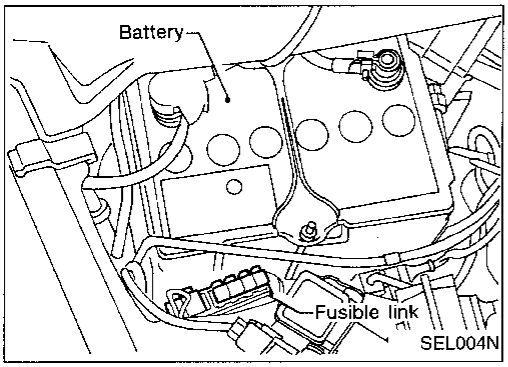


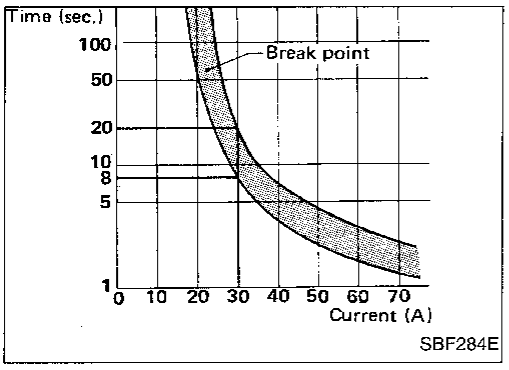
Fusible Link

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





Circuit Breaker Inspection

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

Circuit breakers are used in the following systems.

- Power window & power door lock
- Power seat

EARTH	CONNECT TO	CONN. NO.	CELL CODE
E13/E22	A/T CONTROL UNIT	E107	AT-A/T
	BRAKE FLUID LEVEL SWITCH	E2	EL-WARN
	COOLING FAN MOTOR (Non-turbocharger models)	E19	EC-COOL/F HA-A/C, A HA-A/C, M
	COOLING FAN MOTOR (Turbocharger models)	E50	EC-COOL/F HA-A/C, A
	DAYTIME LIGHT CONTROL UNIT	E45	EL-DTRL
	DIMMER RELAY	E62	EL-H/LAMP EL-DTRL EL-F/FOG EL-THEFT
	FRONT COMBINATION LAMP LH (CLEARANCE/TURN)	E16	EL-TAIL EL-TURN
	FRONT COMBINATION LAMP LH (SIDE MARKER)	E16	EL-TAIL/L
	FRONT COMBINATION LAMP RH (CLEARANCE/TURN)	E27	EL-TAIL EL-TURN
	FRONT COMBINATION LAMP RH (SIDE MARKER)	E27	EL-TAIL/L
	FRONT FOG LAMP LH	E17	EL-F/FOG
	FRONT FOG LAMP RH	E26	EL-F/FOG
	FRONT WIPER MOTOR	E1	EL-WIPER
	HEADLAMP WASHER MOTOR	E31	EL-TIME EL-HLC
	HEADLAMP WASHER RELAY	E46	EL-TIME EL-WIPER EL-HLC
	HOOD SWITCH	E7	EL-THEFT
	POWER STEERING OIL PRESSURE SWITCH	E5	EC-PST/SW
	POWER STEERING SOLENOID VALVE	E6	ST-HICAS ST-EPS
	THEFT WARNING RELAY (A/T models)	E60	EL-START EL-THEFT
	WASHER FLUID LEVEL SWITCH	E30	EL-WARN
	WIPER AMP.	E4	EL-TIME EL-WIPER
	ALTERNATOR	A14	EL-CHARGE EL-WARN
	NEUTRAL POSITION SWITCH	A12	EC-PNP/SW ST-HICAS ST-EPS
M3/M90	TURBOCHARGER BOOST SENSOR	E48	EL-METER
	A/C CONTROL AMP. (Manual A/C models)	M48	HA-A/C, M
	AIR CONDITIONER IGNITION RELAY	M99	HA-A/C, M
	ASCD CONTROL UNIT	M93	EL-ASCD
	ASCD HOLD RELAY (Convertible)	M72	EL-ASCD
	ASCD HOLD RELAY (Except convertible)	M88	EL-ASCD
	ASCD MAIN SWITCH	M25	EL-ASCD
	ASHTRAY ILLUMINATION	M60	EL-ILL
	AUDIO RELAY	M89	EL-AUDIO
	CIGARETTE LIGHTER SOCKET	M61	EL-ILL EL-HORN
	CLUTCH INTERLOCK SWITCH	M19	EL-START EL-THEFT
	CLUTCH PEDAL POSITION SWITCH	M96	ST-HICAS ST-EPS
	COMBINATION FLASHER UNIT	M27	EL-TURN
	COMBINATION METER (CRUISE CONT. INDICATOR LAMP)	M29	EL-ASCD
	COMBINATION METER (CRUISE INDICATOR LAMP)	M29	EL-ASCD
	COMBINATION METER (SPEEDOMETER)	M103	EC-VSS AT-A/T ST-HICAS ST-EPS EL-METER EL-ASCD
	COMBINATION METER (TURN)	M104	EL-TURN
	DATA LINK CONNECTOR FOR CONSULT	M15	EC-MIL AT-A/T ST-HICAS ST-EPS RS-SRS
	DIGITAL CLOCK	M56	EL-HORN
	DIMMER SWITCH	M30	EL-H/LAMP EL-DTRL EL-F/FOG EL-TIME EL-HLC EL-THEFT
	DOOR MIRROR SWITCH (Non-turbocharger models)	M64	EL-MIRROR
	DOOR MIRROR SWITCH (Turbocharger models)	M63	EL-MIRROR
	DRIVER SEAT (POWER SEAT SWITCH)	M66	EL-SEAT
	FRONT WIPER AND WASHER SWITCH	M43	EL-TIME EL-WIPER
	HEADLAMP WASHER SWITCH	M26	EL-TIME EL-HLC
	ILLUMINATION CONTROL SWITCH	M25	EL-ILL EL-TIME
	JOINT CONNECTOR (For HICAS)	M16	ST-HICAS
	KICKDOWN SWITCH	M32	AT-A/T
	LIGHTING SWITCH	M26	EL-H/LAMP EL-DTRL EL-F/FOG EL-TIME EL-HLC EL-THEFT
	MIRROR DEFOGGER SWITCH (Convertible)	M25	EL-DEF

EARTH	CONNECT TO	CONN. NO.	CELL CODE
M3/M90	MODE DOOR MOTOR	M45	HA-A/C, M
	OVERDRIVE CONTROL SWITCH	M57	AT-A/T
	PARK POSITION SWITCH	M55	AT-SHIFT
	PARK/NEUTRAL POSITION RELAY (A/T models)	M112	ST-HICAS ST-EPS EL-ST/LID EL-ASCD
	PASSENGER SEAT (POWER SEAT SWITCH) (Convertible)	M59	EL-SEAT
	POWER STEERING CONTROL UNIT	M92	ST-EPS
	RADIO THEFT WARNING SWITCH (Convertible)	M114	EL-THEFT
	REAR WINDOW DEFOGGER SWITCH (Except convertible)	M25	EL-TIME EL-DEF
	REAR WIPER AND WASHER SWITCH	M44	EL-WIP/R
	REMOTE CONTROL UNIT	M128	EL-MULTI
	SEAT BELT SWITCH (U.S.A. models)	M66	EL-WARN EL-CHIME EL-TIME
	SHIFT LOCK CONTROL UNIT	M20	AT-SHIFT
	SHIFT LOCK SOLENOID	M55	AT-SHIFT
	SHOCK ABSORBER SELECT SWITCH	M63	FA-ABSORB
	STEERING ANGLE SENSOR	M105	ST-HICAS
	THEFT WARNING CONTROL UNIT	M91	EL-THEFT
	TIME CONTROL UNIT	M1	EL-INT/L EL-ILL EL-WARN EL-CHIME EL-TIME
	TRUNK CHECK CONNECTOR	M126	EL-T/LID
	AIR BAG DIAGNOSIS UNIT	A114	RS-SRS
	SPIRAL CABLE (HORN SWITCH)	A113	EL-HORN
	DOOR KEY CYLINDER SWITCH (DRIVER SIDE)	D15	EL-D/LOCK EL-THEFT
	DOOR KEY CYLINDER SWITCH (PASSENGER SIDE)	D112	EL-D/LOCK EL-THEFT
	DOOR LOCK ACTUATOR LH (LOCK KNOB SWITCH)	D14	EL-D/LOCK EL-MULTI
	DOOR LOCK ACTUATOR RH (LOCK KNOB SWITCH)	D111	EL-D/LOCK EL-MULTI
	DOOR MIRROR DEFOGGER LH	D4	EL-DEF
	DOOR MIRROR DEFOGGER RH	D104	EL-DEF
	DOOR SPEAKER LH (BOSE type)	D6	EL-AUDIO
	DOOR SPEAKER RH (BOSE type)	D106	EL-AUDIO
	DOOR UNLOCK SENSOR (DRIVER SIDE)	D14	EL-THEFT
	DOOR UNLOCK SENSOR (PASSENGER SIDE)	D111	EL-THEFT
	POWER WINDOW AMPLIFIER	D9	EL-WINDOW
	POWER WINDOW MAIN SWITCH	D8	EL-WINDOW
	SPOT LAMP (Convertible)	R2	EL-INT/L EL-TIME EL-MULTI
M68	AUTO AMP. (Auto A/C models)	M137	HA-A/C, A
	BLOWER CONTROL AMPLIFIER	M77	HA-A/C, A
	BLOWER RELAY-1	M73	HA-A/C, M
	BLOWER RELAY-2	M87	HA-A/C, M
	BLOWER RELAY-3	M86	HA-A/C, M
	FAN RESISTOR	M68	HA-A/C, M
F11/F11/ F28/F39	DATA LINK CONNECTOR FOR GST	M133	EC-MIL
	REAR HEATED OXYGEN SENSOR LH	M65	EC-RR02LH EC-R02H-L
	REAR HEATED OXYGEN SENSOR RH	M62	EC-RR02RH EC-R02H-R
	SHIELD WIRE (REAR HEATED) OXYGEN SENSOR LH)	M65	EC-RR02LH EC-R02H-L
	SHIELD WIRE (REAR HEATED) OXYGEN SENSOR RH)	M62	EC-RR02RH EC-R02H-R
	CAMSHAFT POSITION SENSOR	F30	EC-CMPS
	CANISTER CONTROL VACUUM CHECK SWITCH	F60	EC-C/VCSW
	ECM (ECCS CONTROL MODULE)	F1	EC-MAIN AT-A/T
	IACV-AIR REGULATOR	F7	EC-AIRREG
	IGNITION COIL No. 1	F45	EC-IGN/SG
	IGNITION COIL No. 2	F19	EC-IGN/SG
	IGNITION COIL No. 3	F43	EC-IGN/SG
	IGNITION COIL No. 4	F15	EC-IGN/SG
	IGNITION COIL No. 5	F41	EC-IGN/SG
	IGNITION COIL No. 6	F10	EC-IGN/SG

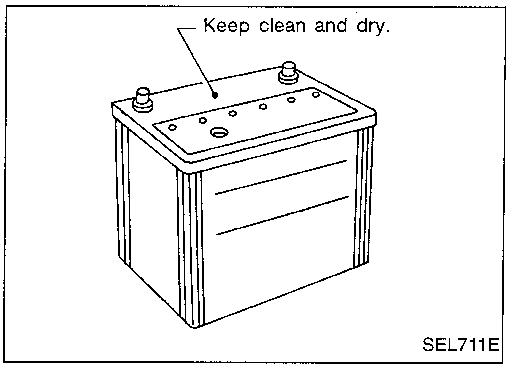
EARTH	CONNECT TO	CONN. NO.	CELL CODE
F11/F11/ F28/F39	MASS AIR FLOW SENSOR	F29	EC-MAFS
	POWER TRANSISTOR UNIT	F33	EC-IGN/SG
	SHIELD WIRE (CAMSHAFT POSITION SENSOR)	F30	EC-CMPS
	SHIELD WIRE (CRANKSHAFT POSITION SENSOR) (OBD)	F101	EC-CKPS
	SHIELD WIRE (FRONT HEATED OXYGEN SENSOR LH)	F6	EC-FR02LH EC-F02H-L EC-FUELLH
	SHIELD WIRE (FRONT HEATED OXYGEN SENSOR RH)	F37	EC-FR02RH EC-F02H-R EC-FUELRH
	SHIELD WIRE (KNOCK SENSOR)	F103	EC-KS
	SHIELD WIRE (MASS AIR FLOW SENSOR)	F29	EC-MAFS
	SHIELD WIRE (THROTTLE POSITION SENSOR)	F102	EC-TPS AT-A/T
	SHIELD WIRE (TURBOCHARGER BOOST SENSOR)	F49	EC-BOOST
B7/B32	ASPIRATOR MOTOR	B18	HA-A/C, A
	BACK DOOR ACTUATOR (Except convertible)	B62	EL-MULTI
	BACK DOOR KEY CYLINDER SWITCH (Except convertible)	B33	EL-THEFT
	BACK-UP LAMP LH	B30	EL-BACK/L
	BACK-UP LAMP RH	B35	EL-BACK/L
	DOOR SWITCH LH	B6	RS-SRS EL-INT/L EL-WARN EL-CHIME EL-TIME EL-D/LOCK EL-MULTI EL-THEFT
	DOOR SWITCH RH	B14	EL-INT/L EL-WARN EL-D/LOCK EL-MULTI EL-THEFT
	FUEL FILLER LID OPENER ACTUATOR	B57	EL-F/LID
	FUEL TANK GAUGE UNIT	B12	EL-METER EL-WARN
	HICAS CONTROL UNIT	B70	ST-HICAS
	HICAS RELAY	B63	ST-HICAS
	HIGH-MOUNTED STOP LAMP (Convertible)	B60	EL-TAIL/L
	INTERIOR LAMP (Except convertible)	B19	EL-INT/L EL-TIME EL-MULTI
	LICENSE PLATE LAMP	B31	EL-TAIL/L
	POWER ANTENNA TIMER	B38	EL-P/ANT
	REAR COMBINATION LAMP LH (STOP/TAIL)	B29	EL-TAIL/L
	REAR COMBINATION LAMP LH (TURN)	B29	EL-TURN
	REAR COMBINATION LAMP RH (STOP/TAIL)	B36	EL-TAIL/L
	REAR COMBINATION LAMP RH (TURN)	B36	EL-TURN
	REAR SIDE MARKER LAMP LH	B27	EL-TAIL/L
	REAR SIDE MARKER LAMP RH	B37	EL-TAIL/L
	REAR SPEAKER LH (BOSE type)	B23	EL-AUDIO
	REAR SPEAKER RH (BOSE type)	B16	EL-AUDIO
	ROOF OPENER SWITCH	B48	EL-C/ROOF
	ROOM LAMP RELAY	B9	EL-INT/L
	SHIELD WIRE (HICAS MOTOR)	B66	ST-HICAS
	SHIELD WIRE (REAR MAIN SENSOR)	B65	ST-HICAS
	SHIELD WIRE (REAR SUB-SENSOR)	B64	ST-HICAS
	SHOCK ABSORBER CONTROL UNIT	B42	FA-ABSORB
	SPOT LAMP (Except convertible)	B17	EL-INT/L
	STOP AND TAIL LAMP SENSOR	B28	EL-TAIL/L EL-WARN
	STORAGE LID INTERLOCK RELAY	B52	EL-ST/LID
	TRUNK KEY CYLINDER SWITCH (Convertible)	B33	EL-THEFT
	TRUNK LID OPENER ACTUATOR (Convertible)	B58	EL-T/LID EL-MULTI
	TRUNK LID OPENER RELAY (Convertible)	B49	EL-T/LID EL-MULTI
	HIGH-MOUNTED STOP LAMP (Except convertible)	D207	EL-TAIL/L
	STORAGE LID SWITCH LH	T4	EL-WARN EL-T/LID EL-ST/LID EL-MULTI
	STORAGE LID SWITCH RH	T5	EL-WARN EL-T/LID EL-ST/LID EL-MULTI
	ROOF OPENER ACTUATOR LH	L3	EL-C/ROOF
	ROOF OPENER ACTUATOR RH	L6	EL-C/ROOF
	STORAGE LID OPENER ACTUATOR	L2	EL-ST/LID
B69	HICAS MOTOR	B81	ST-HICAS

EARTH	CONNECT TO	CONN. NO.	CELL CODE
B103/B107	SHIELD WIRE (FRONT SENSOR LH) (For ABS)	E8	BR-ABS
	SHIELD WIRE (FRONT SENSOR RH) (For ABS)	E40	BR-ABS
	ABS ACTUATOR	B113	BR-ABS
	ABS CONTROL UNIT	B104	BR-ABS
	SHIELD WIRE (REAR SENSOR) (For ABS)	B108	BR-ABS
D204	CONDENSER	D206	EL-WIP/R
	REAR WIPER MOTOR	D205	EL-WIP/R
D212	REAR WINDOW DEFOGGER	D211	EL-DEF
E13/ E22/M3/ M90/ B7/B32	ACCESSORY RELAY	FUSE BLOCK (J/B)	EL-POWER
	BULB CHECK RELAY	FUSE BLOCK (J/B)	HA-A/C, A HA-A/C, M EL-WARN
	IGNITION RELAY	FUSE BLOCK (J/B)	EL-POWER EL-WINDOW
	TURBOCHARGER BOOST SENSOR	E48	EL-METER
	COMBINATION METER (AIR BAG WARNING LAMP)	M103	RS-SRS EL-WARN
	COMBINATION METER (BOOST GAUGE)	M103	EL-METER
	COMBINATION METER (FUEL GAUGE)	M103	EL-METER
	COMBINATION METER (OIL GAUGE)	M103	EL-METER
	COMBINATION METER (TACHOMETER)	M103	EL-METER
	COMBINATION METER (WATER TEMP. GAUGE)	M103	EL-METER

Circuit Breaker Inspection

CAUTION:

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

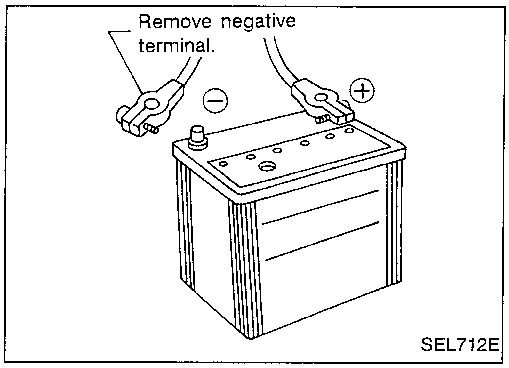


How to Handle Battery

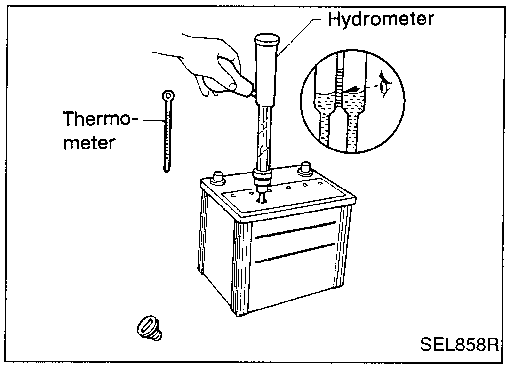
METHODS OF PREVENTING OVER-DISCHARGE

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

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



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



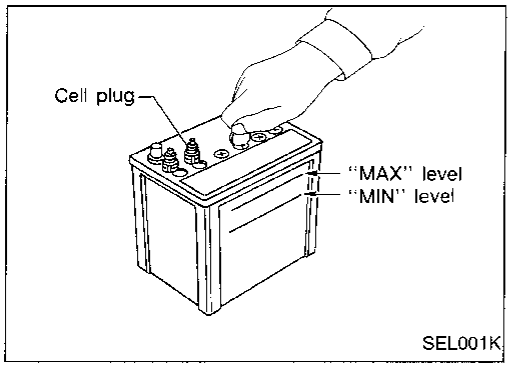
- Check the charge condition of the battery.
  Periodically check the specific gravity of the electrolyte. Keep a close check on charge condition to prevent over-discharge.

CHECKING ELECTROLYTE LEVEL

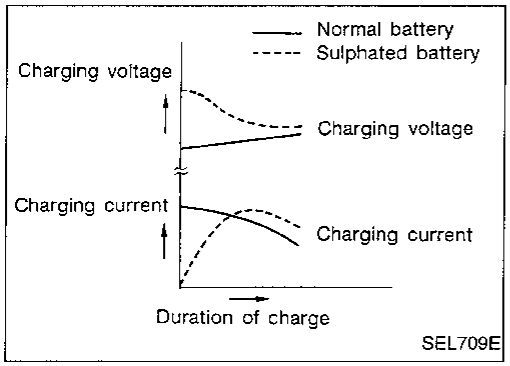
WARNING:

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

How to Handle Battery (Cont'd)

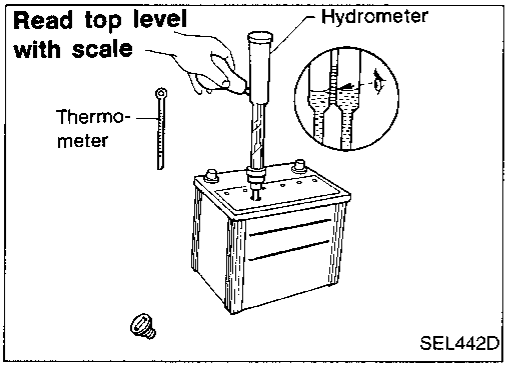


- Remove the cell plug using a suitable tool.
- Add distilled water up to the MAX level.



SULPHATION

When a battery has been left unattended for a long period of time and has a specific gravity of less than 1.100, it will be completely discharged, resulting in sulphation on the cell plates.
Compared with a battery discharged under normal conditions, the current flow in a "sulphated" battery is not as smooth although its voltage is high during the initial stage of charging, as shown in the figure at the left.



SPECIFIC GRAVITY CHECK

Read hydrometer and thermometer indications at eye level.

How to Handle Battery (Cont'd)

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

Hydrometer temperature correction

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

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

CHARGING THE BATTERY

CAUTION:

a. Do not "quick charge" a fully discharged battery.

b. Keep the battery away from open flame while it is being charged.

c. When connecting the charger, connect the leads first, then turn on the charger. Do not turn on the charger first, as this may cause a spark.

d. If battery electrolyte temperature rises above 60°C (140°F), stop charging. Always charge battery at a temperature below 60°C (140°F).

Charging rates:

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

Service Data and Specifications (SDS)

Applied model		M/T	A/T	
			Except convertible	Convertible
Type		65D26L	80D26L	55D23L
Capacity	V-AH	12-65		12-60

System Description

M/T models

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

With the ignition switch in the START position, power is supplied
- through terminal ④ of the ignition switch
- to starter relay terminals ① and ③.

With the ignition switch in the ON or START position, power is supplied
- through terminal ③ of the ignition switch
- to theft warning relay terminal ①

If the theft warning system is not triggered and the clutch pedal is depressed, ground is supplied
- to starter relay terminal ②
- from theft warning relay terminal ③
- to theft warning relay terminal ④
- through clutch interlock switch and body grounds (M3) and (M90).

The starter relay is energized and power is supplied
- from terminal ⑤ of the starter relay
- to terminal ① of the starter motor windings.

The starter motor plunger closes and provides a closed circuit between the battery and the starter motor. The starter motor is grounded to the cylinder block. With power and ground supplied, the starter motor operates.
If the theft warning system is triggered, terminal ② of the theft warning relay is grounded and power to the starter motor is interrupted.

A/T models

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

With the ignition switch in the ON or START position, power is supplied
- through terminal ③ of the ignition switch
- to theft warning relay terminal ①, and
- through 10A fuse [No. 19, located in the fuse block (J/B)]
- to inhibitor switch terminal ①, with the selector lever in the P or N position
- through inhibitor switch terminal ②
- to starter relay terminal ①.

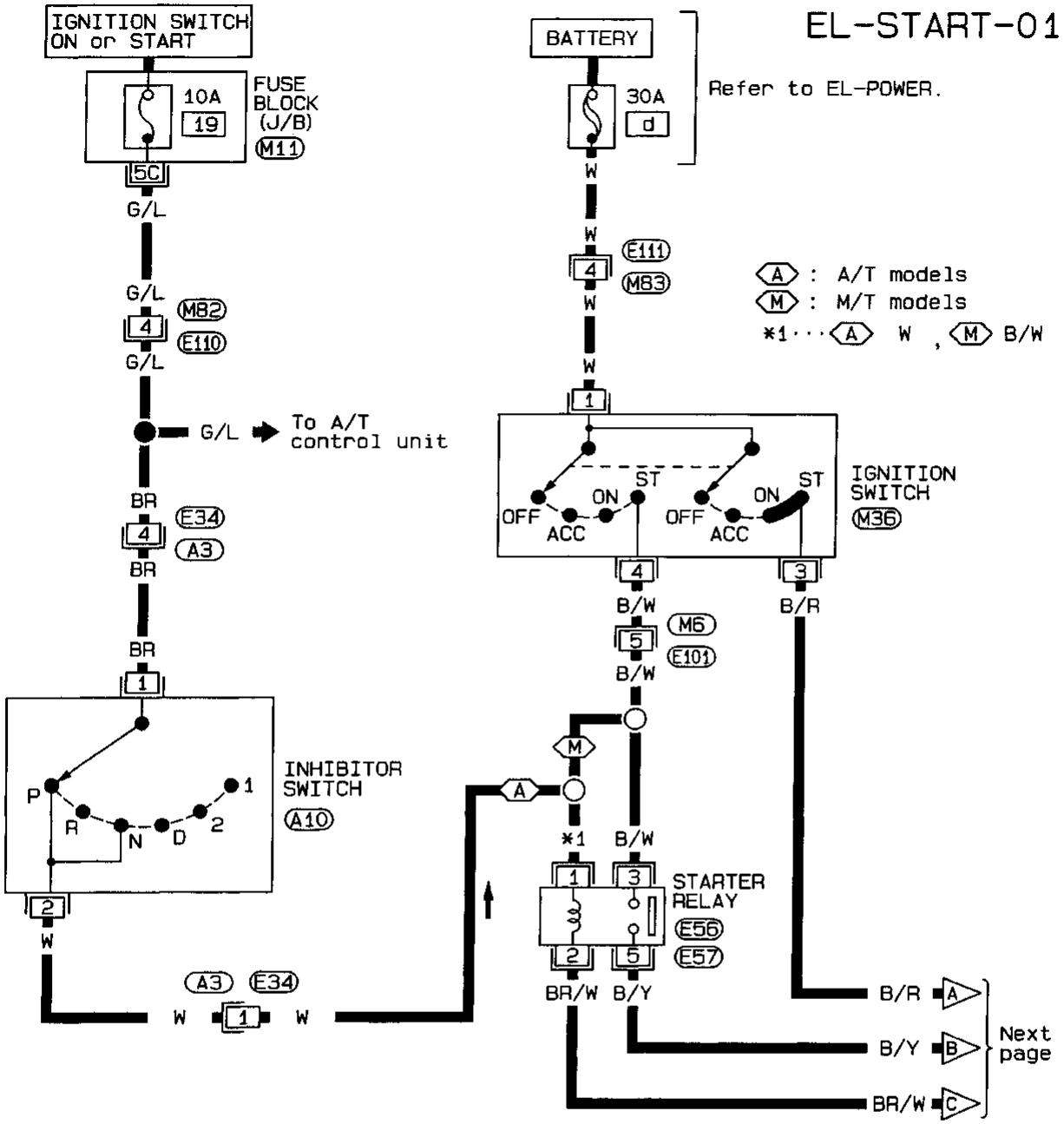
Also, with the ignition switch in the START position, power is supplied
- from ignition switch terminal ④
- to starter relay terminal ③

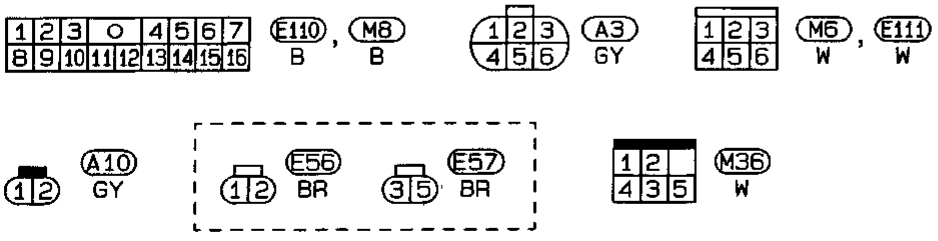
If the theft warning system is not triggered, ground is supplied
- to starter relay terminal ②
- through theft warning relay terminal ③
- to theft warning relay terminal ④
- through body grounds (E13) and (E22).

The starter relay is energized and power is supplied
- from ignition switch terminal ④
- to terminal ① of the starter motor windings
- through starter relay terminals ③ and ⑤

The starter motor plunger closes and provides a closed circuit between the battery and the starter motor. The starter motor is grounded to the cylinder block. With power and ground supplied, the starter motor operates.
If the theft warning system is triggered, terminal ② of the theft warning relay is grounded and power to the starter motor is interrupted.

Wiring Diagram — START —





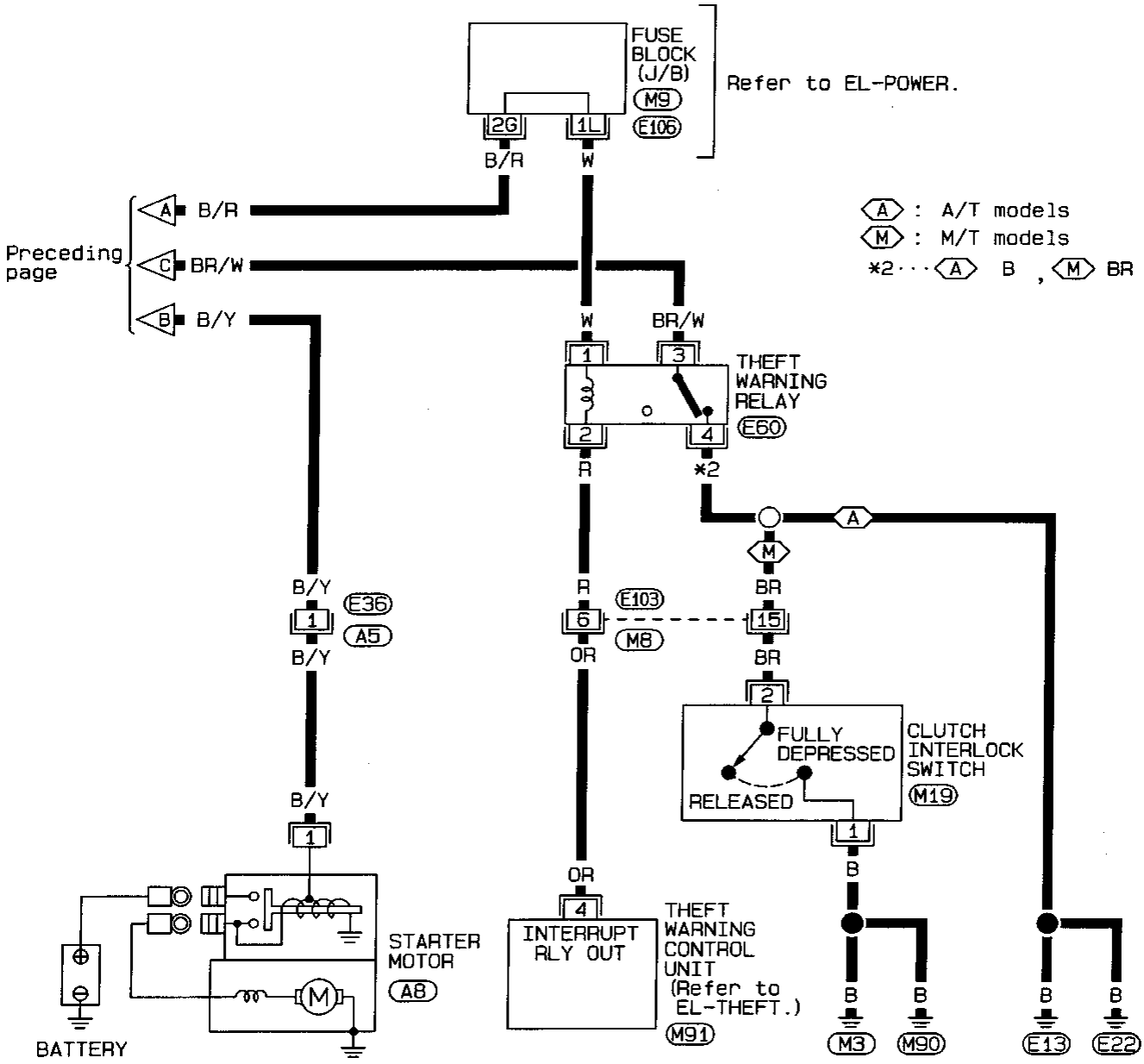
Refer to last page (Foldout page).

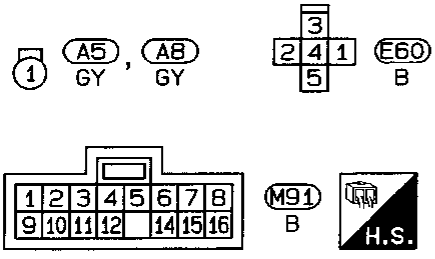
M11

HEL263

Wiring Diagram — START — (Cont'd)

EL-START-02





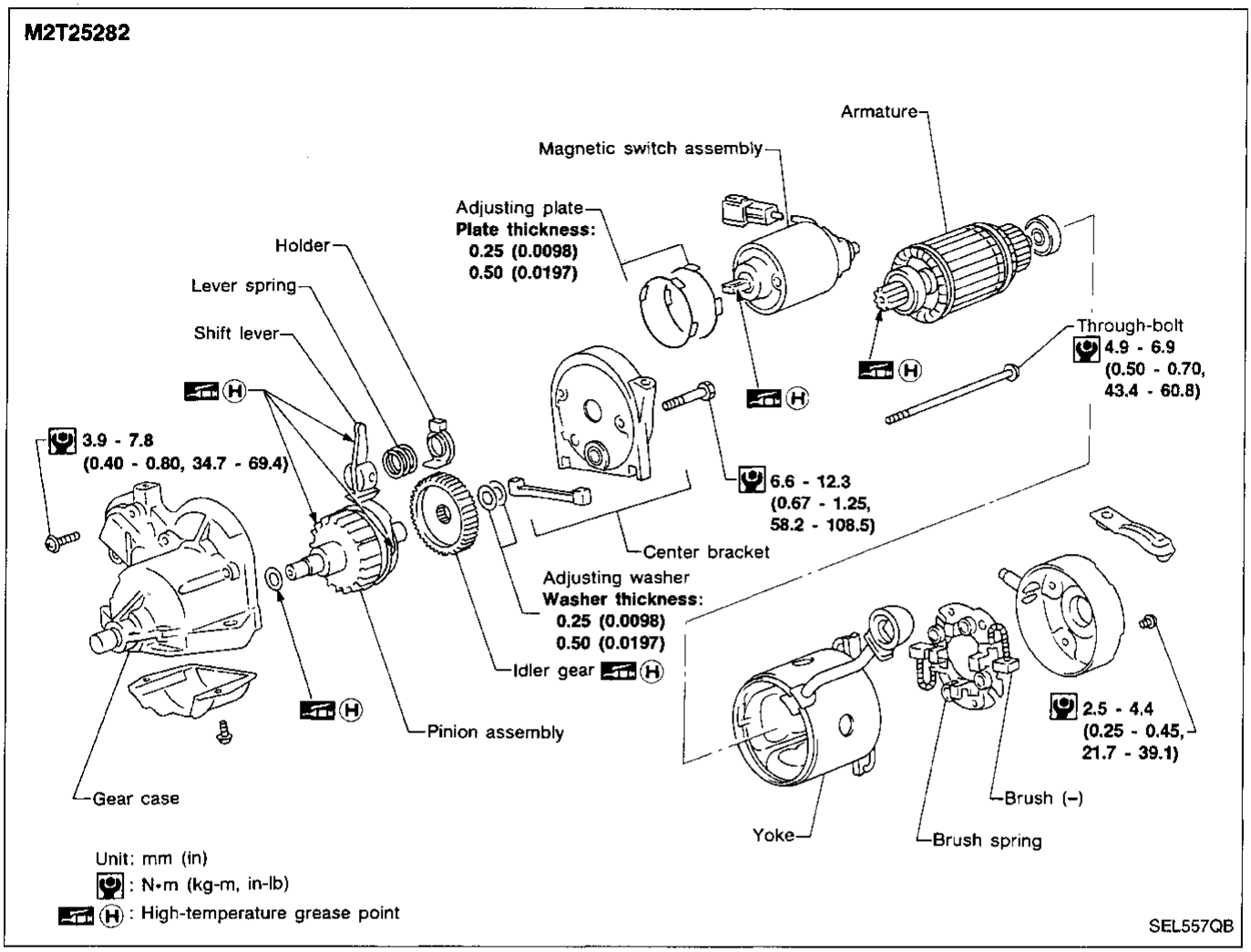
Refer to last page (Foldout page).

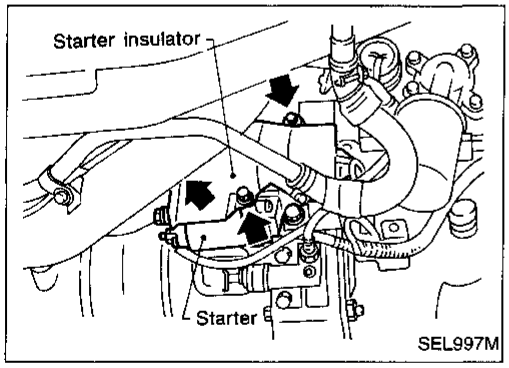
M9

E106

HEL264

Construction





Removal and Installation

REMOVAL

1. Remove starter insulator.
2. Remove starter harness connector and cable.
3. Remove starter fixing bolt and nut and remove starter.

INSTALLATION

- Installation procedure is in reverse order of removal.

Service Data and Specifications (SDS)

STARTER

Type			M2T25282
			Reduction gear
System voltage		V	12
No-load	Terminal voltage	V	11.0
	Current	A	70
	Revolution	rpm	More than 2,000
Minimum length of brush		mm (in)	11.5 (0.453)
Brush spring tension (With new brush)		N (kg, lb)	13.7 - 25.5 (1.4 - 2.6, 3.1 - 5.7)
Minimum diameter of commutator		mm (in)	31.4 (1.236)
Difference in height of pinion assembly		mm (in)	0.3 - 2.0 (0.012 - 0.079)

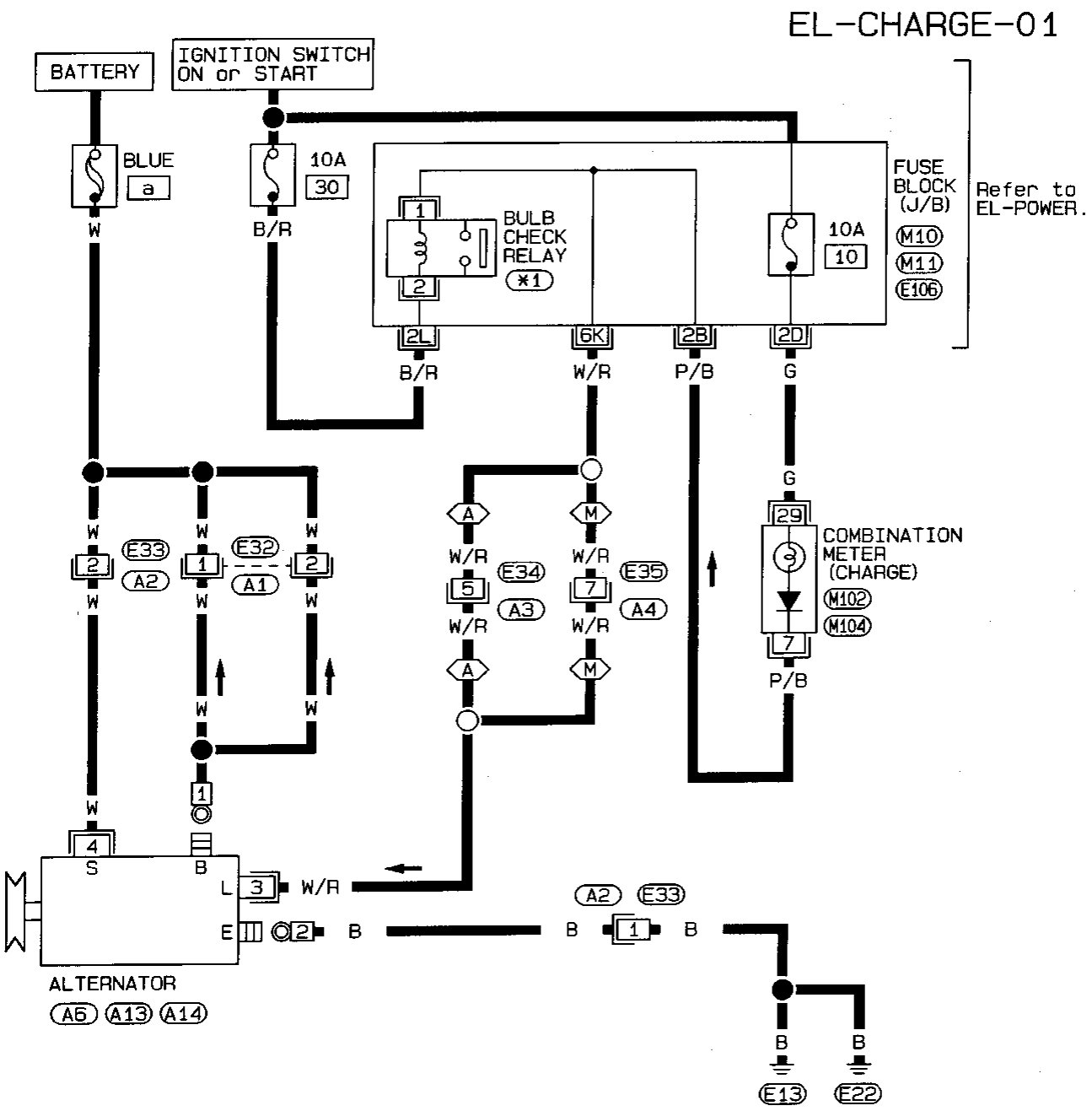
System Description

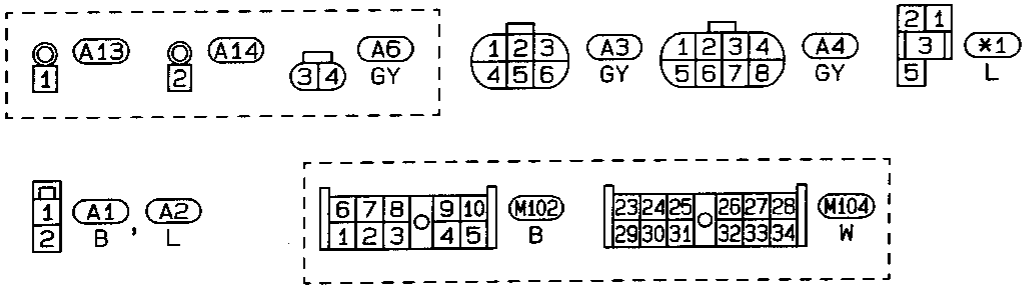
The alternator provides DC voltage to operate the vehicle's electrical system and to keep the battery charged. AC voltage is converted into DC voltage by the diode assembly in the alternator.
Power is supplied at all times to alternator terminal Ⓢ through blue fusible link (letter [a] , located in the fusible link holder).
Voltage output through alternator terminal Ⓑ, is controlled by the IC regulator at terminal Ⓢ. The charging circuit is protected by the blue fusible link.
Terminal Ⓔ of the alternator supplies ground through body grounds (E13) and (E22).
With the ignition switch in the ON or START position, power is supplied

- through 10A fuse [No. [10], located in the fuse block (J/B)]
- to combination meter terminal ㉙ for the charge warning indicator.

Ground is supplied to terminal ⑦ of the combination meter through terminal Ⓛ of the alternator. With power and ground supplied, the charge warning indicator will illuminate. When the alternator is providing sufficient voltage, the ground is opened and the charge warning indicator will go off.
If the charge warning indicator illuminates with the engine running, a malfunction is indicated.

Wiring Diagram — CHARGE —





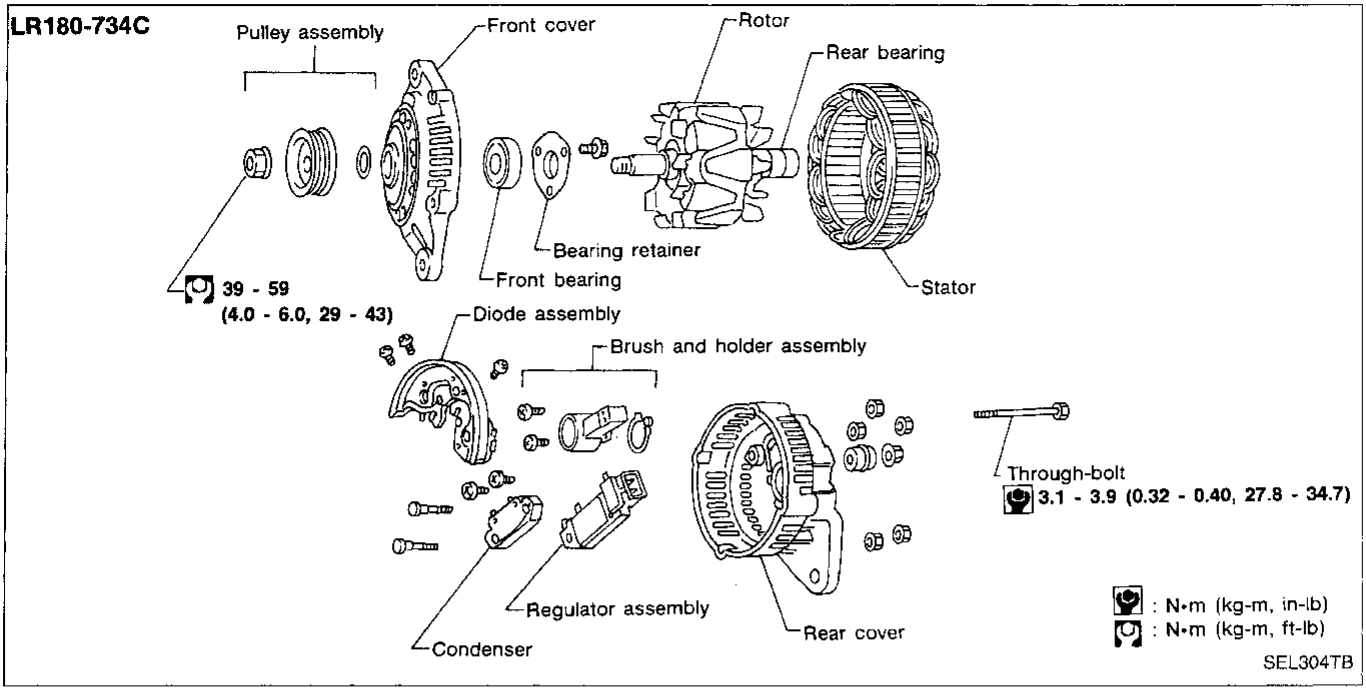
Refer to last page (Foldout page).

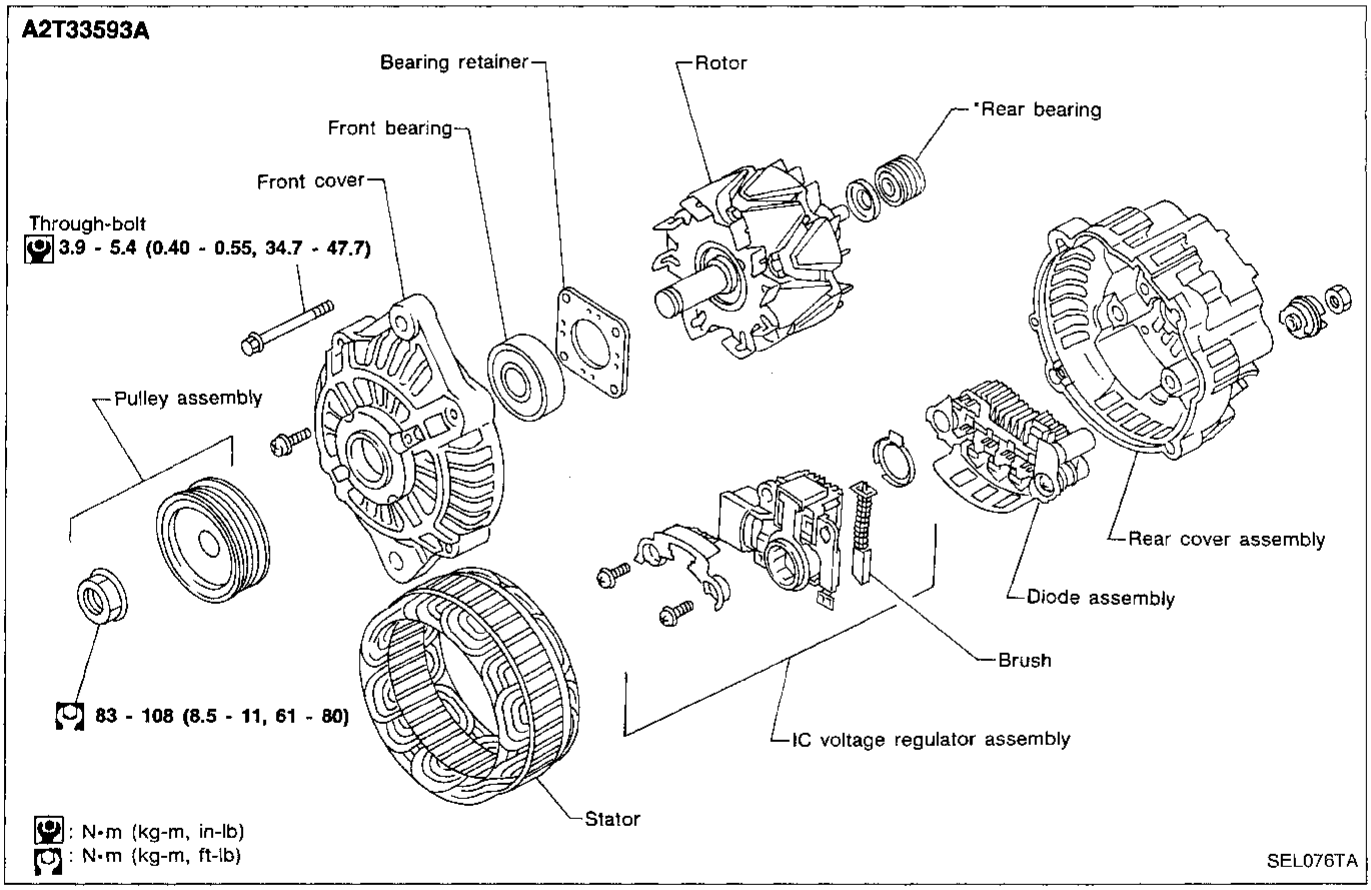
M10, M11, E106

HEL266

1273

Construction



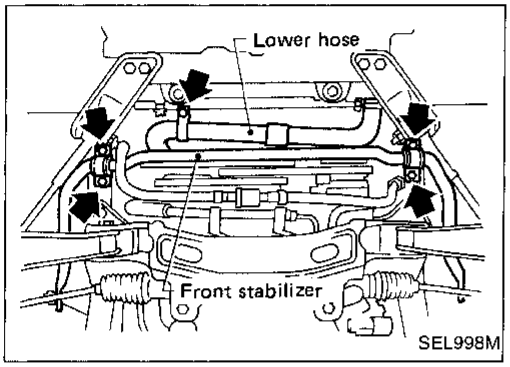


***Rear bearing**
CAUTION:
Rear cover may be hard to remove because a ring is used to lock outer race of rear bearing. Be careful not to lose this ring during removal.

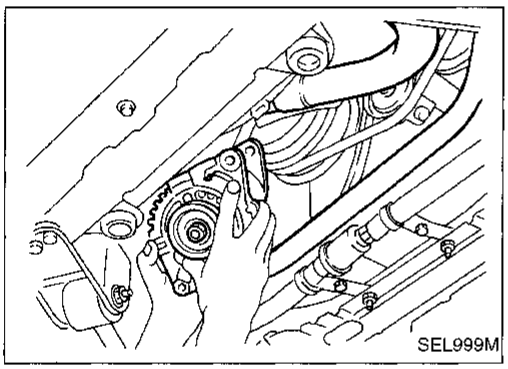
Removal and Installation

REMOVAL

1. Loosen alternator belt.
2. Remove alternator adjusting bar.
3. Remove harness connector and cable from alternator.



4. Remove stabilizer bracket fixing bolts.
5. Remove radiator lower hose bracket and push lower hose upward to make room.



6. Remove alternator fixing bolt and take out alternator as shown in the figure.

INSTALLATION

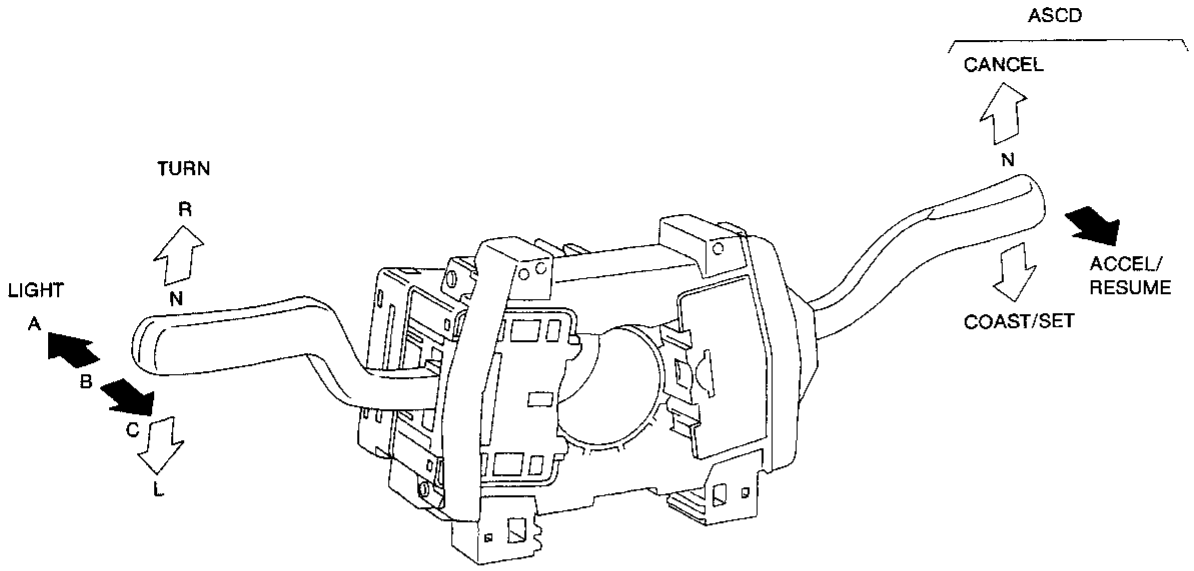
- Installation procedure is in reverse order of removal.

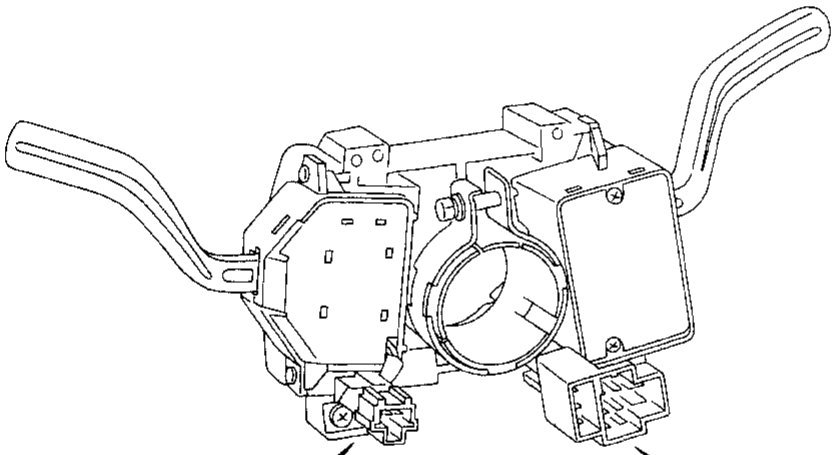
Service Data and Specifications (SDS)

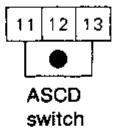
ALTERNATOR

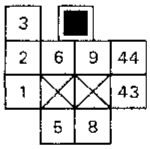
Type		LR180-734C	A2T33593A
		HITACHI make	MITSUBISHI make
Applied engine		VG30DE	VG30DETT
Nominal rating	V-A	12-80	12-90
Ground polarity		Negative	
Minimum revolution under no-load (when 13.5 volts is applied)	rpm	Less than 1,000	Less than 1,300
Hot output current	A/rpm	More than 65/2,500 More than 80/5,000	More than 20/1,300 More than 61/2,500
Regulated output voltage	V	14.1 - 14.7	
Minimum length of brush	mm (in)	More than 6.0 (0.236)	5.0 (0.197)
Brush spring pressure	N (g, oz)	1.000 - 3.432 (102 - 350, 3.60 - 12.34)	4.609 - 5.786 (470 - 590, 16.58 - 20.81)
Slip ring minimum outer diameter	mm (in)	More than 26.0 (1.024)	More than 22.1 (0.870)

Combination Switch/Check









ASCD SWITCH

	RESUME ACCEL	N	SET COAST	OFF	CANCEL
13	○		○		○
12			○		○
11	○				○

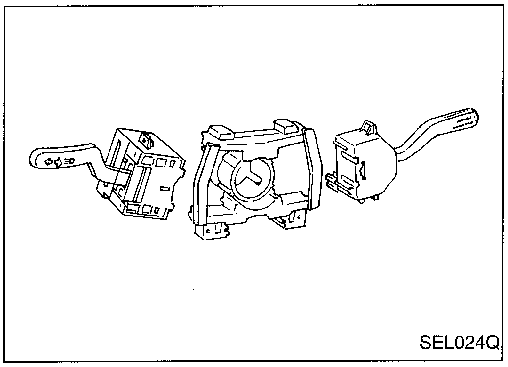
DIMMER SWITCH

	A	B	C
5			○
6			○
8			○
9			○
43		○	
44		○	

TURN SIGNAL SWITCH

	R	N	L
1	○		○
2	○		
3			○

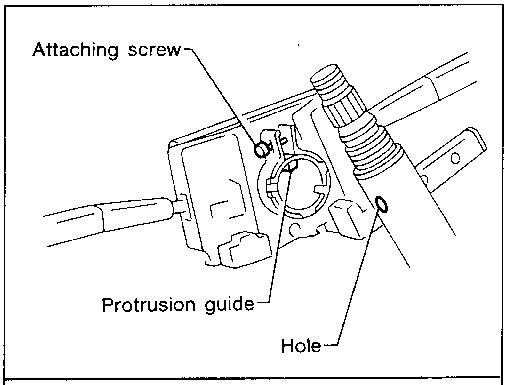
SEL077T


SEL024Q

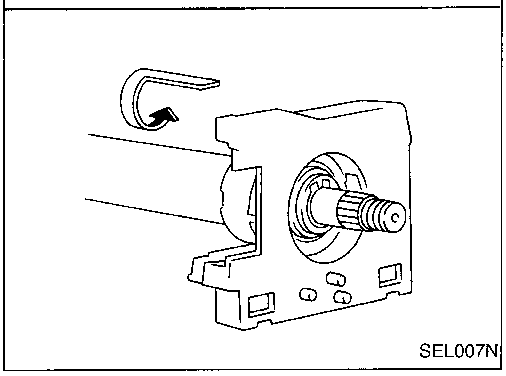
Combination Switch/Replacement

For removing/installing air bag module and spiral cable, refer to RS section.

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

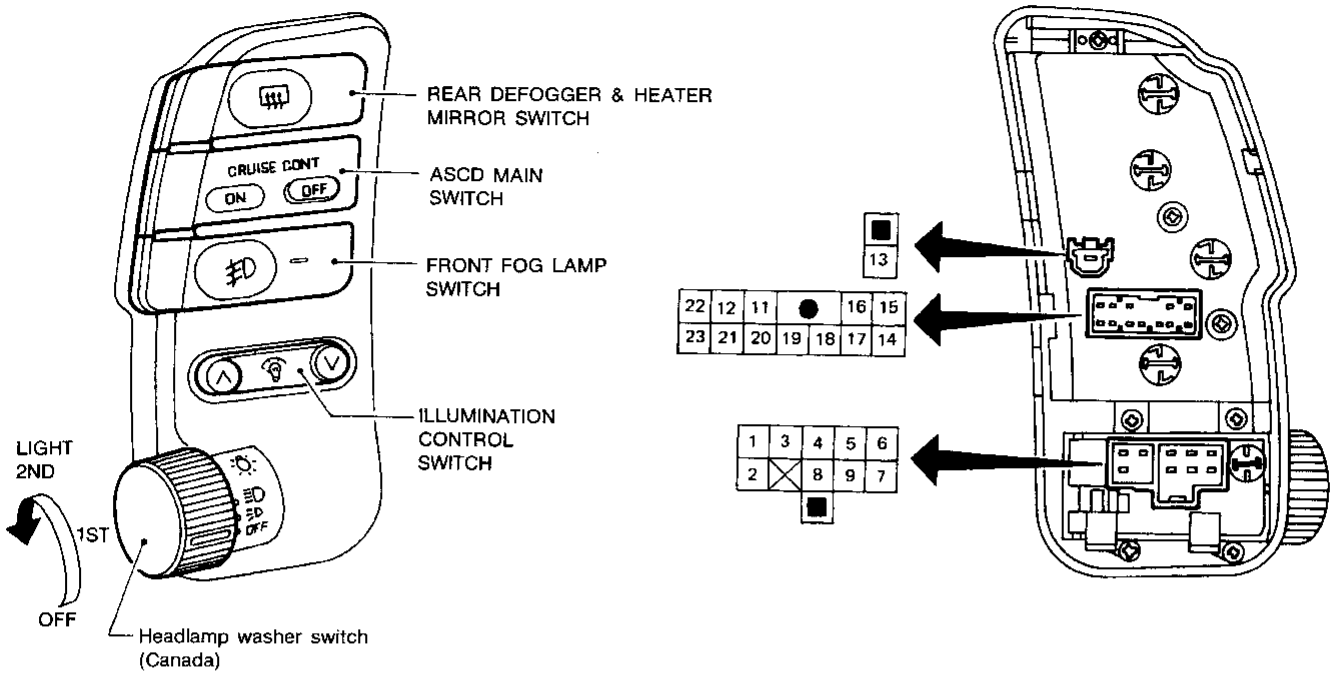


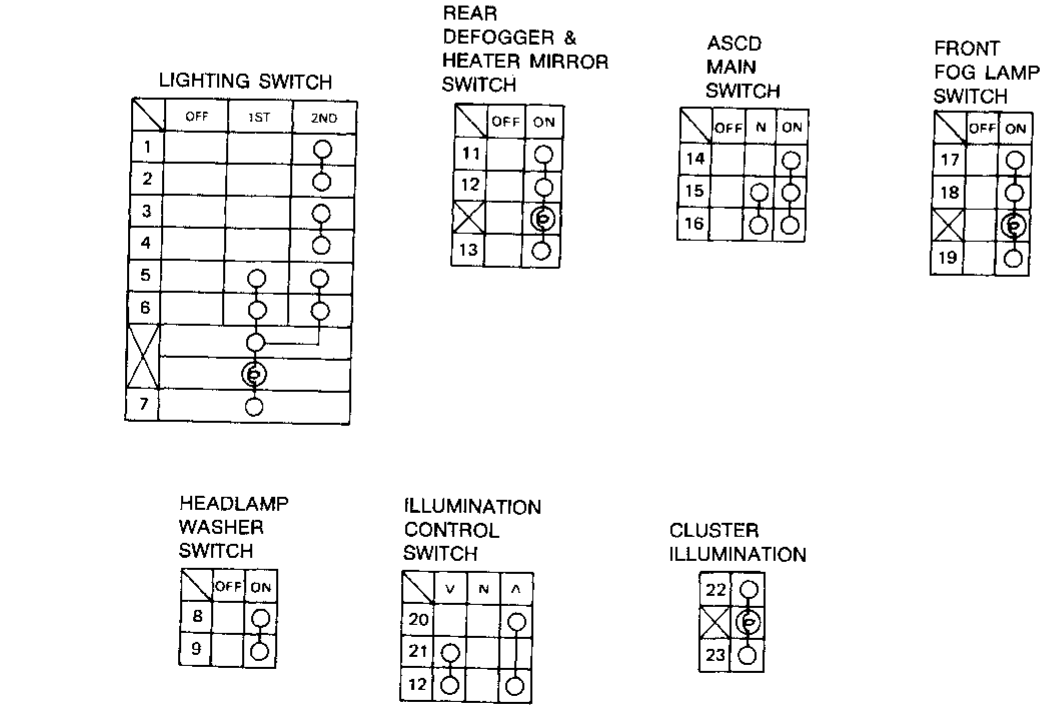
- To remove combination switch base, remove base attaching screw and turn after pushing on it.


SEL007N

NOTE

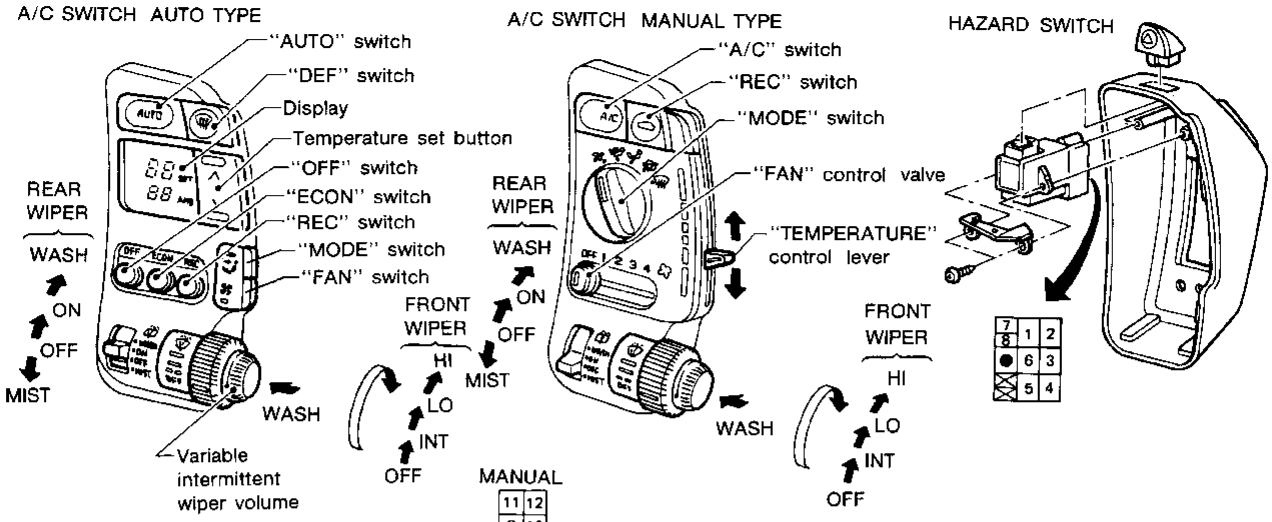
Check

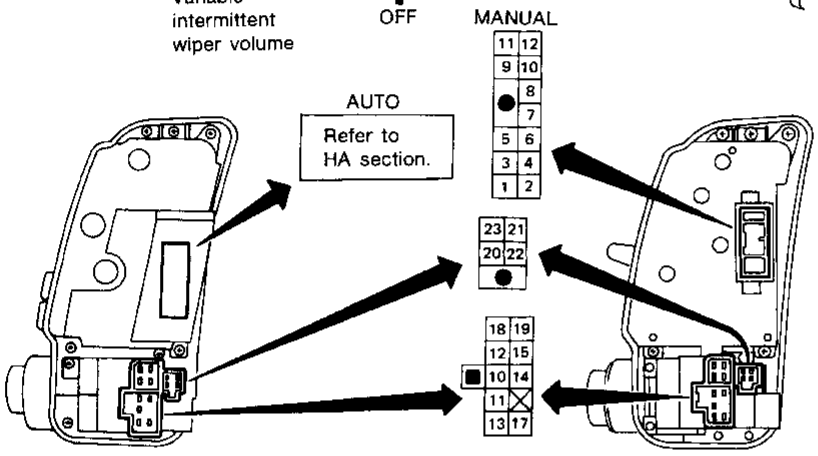


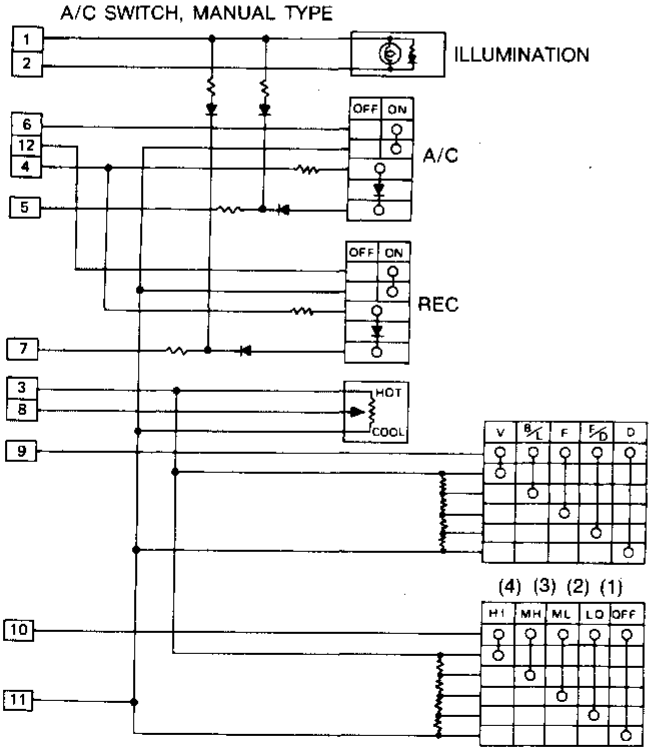


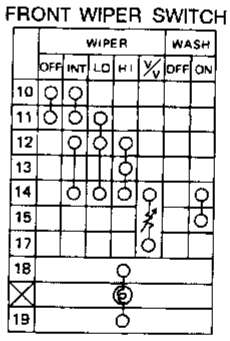
SEL785QA

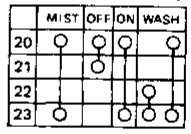
Check (Cont'd)

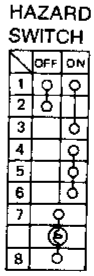












SEL529N

System Description (For U.S.A.)

Power is supplied at all times
- through 15A fuse [No. 38, located in the fuse block (in relay box)]
- to headlamp relay-L terminals ① and ③,
- through 15A fuse [No. 37, located in the fuse block (in relay box)]
- to headlamp relay-R terminals ① and ③, and
- through 10A fuse [No. 3, located in the fuse block (J/B)]
- to lighting switch terminal ⑤.

When the lighting switch is moved to the 2ND position, ground is supplied
- to headlamp relay-L terminal ②
- through lighting switch terminal ③
- to lighting switch terminal ④
- through body grounds M3 and M90, and
- to headlamp relay-R terminal ②
- through lighting switch terminal ①
- to lighting switch terminal ②
- through body grounds M3 and M90.

Then each headlamp relay is energized and power is supplied
- from headlamp relay-L terminal ⑤
- to LH headlamp terminals ① and ③, and
- to combination meter terminal ㉕ for HIGH BEAM indicator, and
- from headlamp relay-R terminal ⑤
- to RH headlamp terminals ① and ③.

Low beam operation

When the lighting switch is moved to the 1ST or 2ND position, power is supplied
- from lighting switch terminal ⑥
- to dimmer relay terminal ②.

With dimmer switch in the LOW ("B") position, ground is supplied
- to dimmer relay terminal ①
- through dimmer switch terminal ㊹
- to dimmer switch terminal ㊸
- through body grounds M3 and M90.

The dimmer relay is energized and ground is supplied
- to terminal ② of each headlamp
- through dimmer relay terminal ⑤
- to dimmer relay terminal ③
- through body grounds E13 and E22.

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

High beam operation

When the dimmer switch is placed in HIGH ("A") position, dimmer relay is not energized and ground is supplied
- to terminal ④ of each headlamp and
- to combination meter terminal ㉖
- through dimmer relay terminal ④
- to dimmer relay terminal ③
- through body grounds E13 and E22.

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

Flash-to-pass operation

When the dimmer switch is placed in PASS ("C") position, flash-to-pass operation is triggered regardless of the lighting switch position.
Ground is supplied
- to headlamp relay-L terminal ②
- through dimmer switch terminal ⑧
- to dimmer switch terminal ⑨
- through body grounds M3 and M90, and
- to headlamp relay-R terminal ②
- through dimmer switch terminal ⑤
- to dimmer switch terminal ⑥
- through body grounds M3 and M90

System Description (For U.S.A.) (Cont'd)

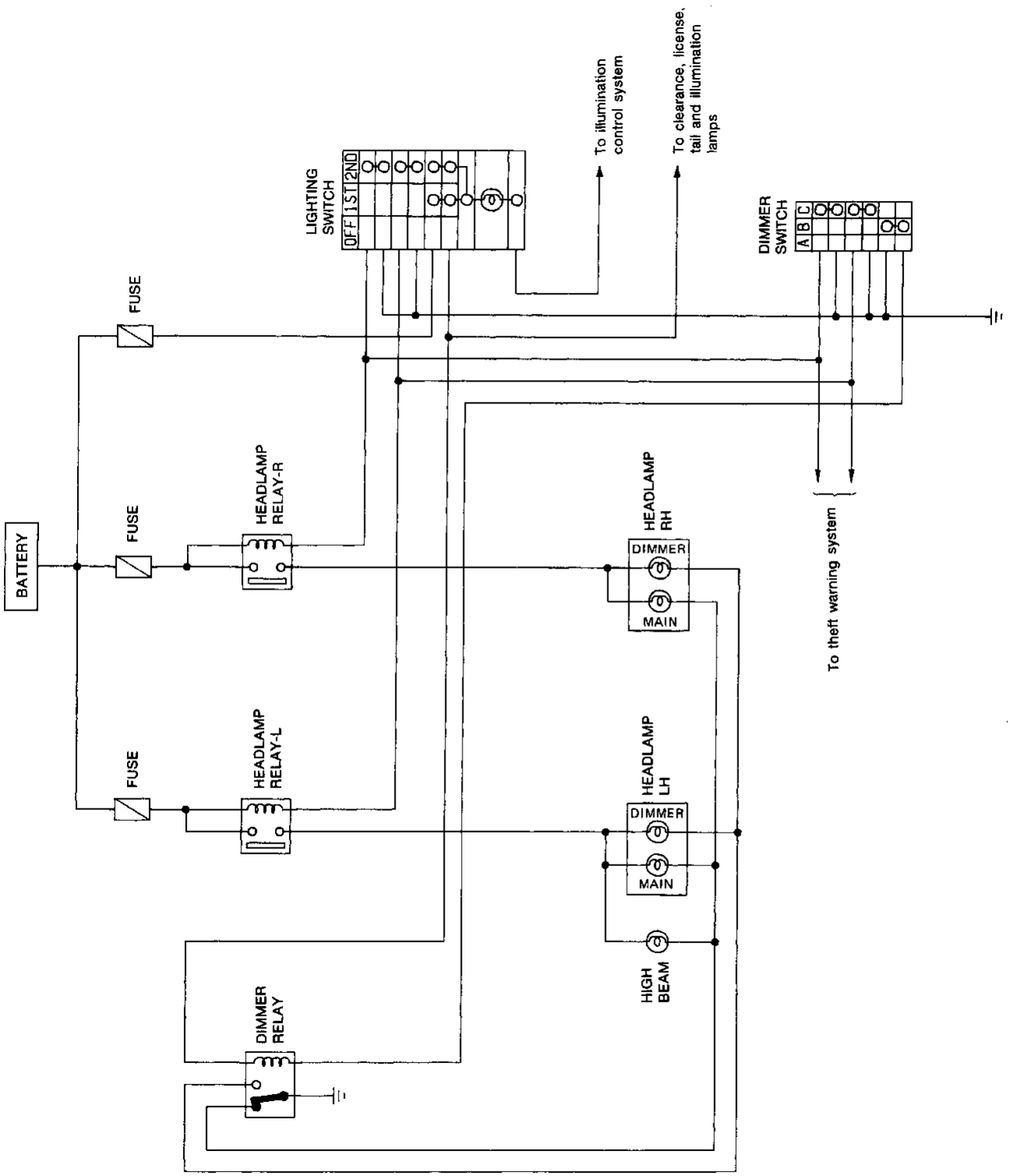
Then each headlamp relay is energized and power is supplied to terminal ③ of each headlamp and terminal ㉕ of combination meter.
Ground is supplied to terminal ④ of each headlamp and terminal ㉖ of combination meter through dimmer relay and body grounds (E13) and (E22).
With power and ground supplied, the high beam headlamps and HIGH BEAM indicator will illuminate.

With theft warning system

The theft warning system will flash the high beams if the system is triggered. Refer to "THEFT WARNING SYSTEM" (EL-240).

Schematic

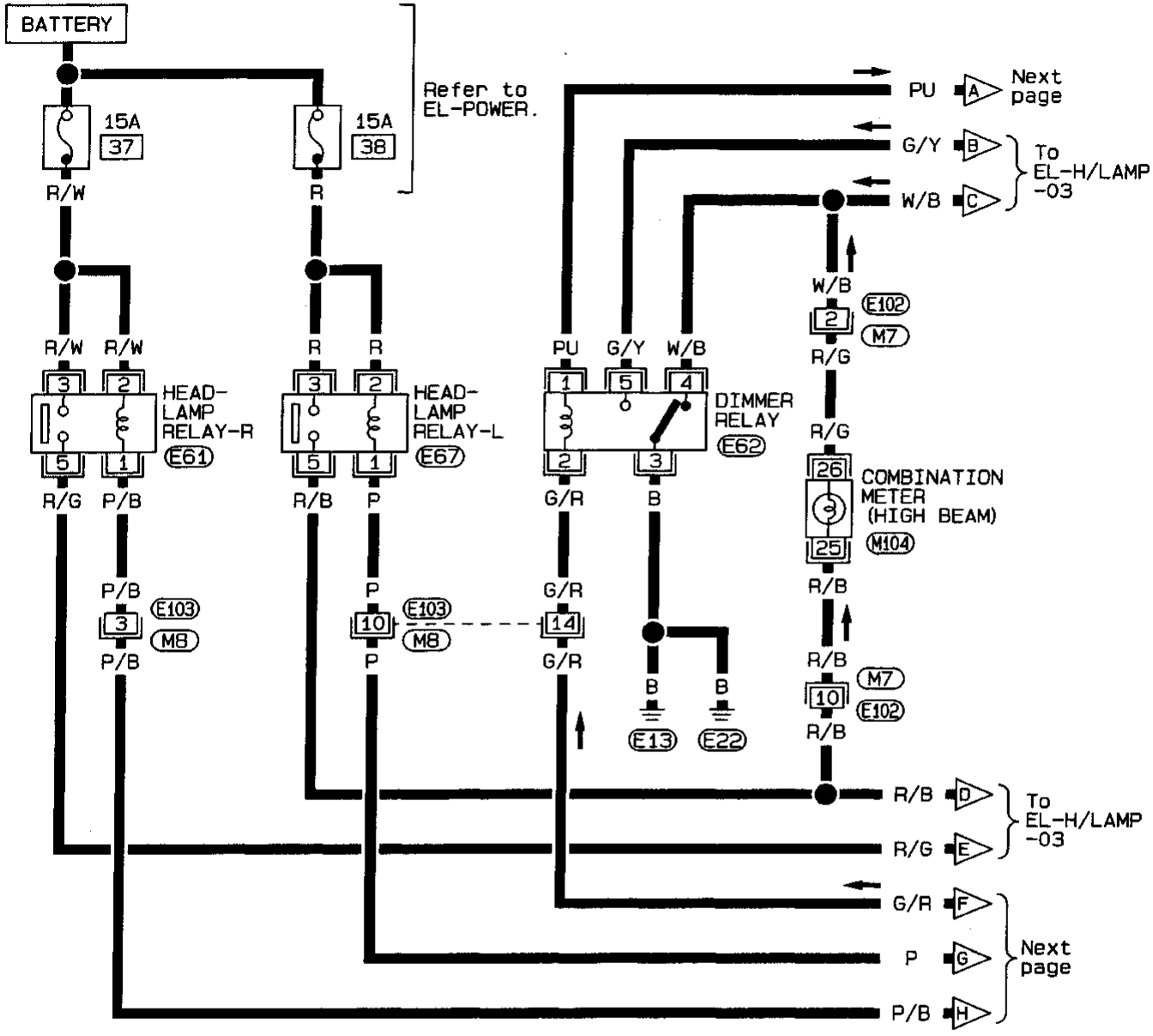
FOR U.S.A.

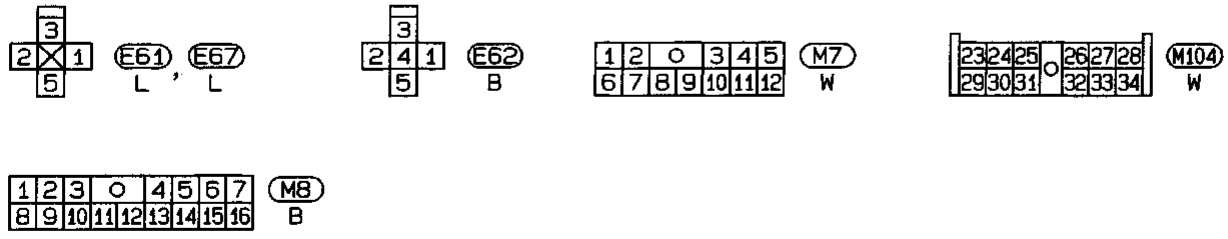


MEL812C

Wiring Diagram — H/LAMP —

EL-H/LAMP-01

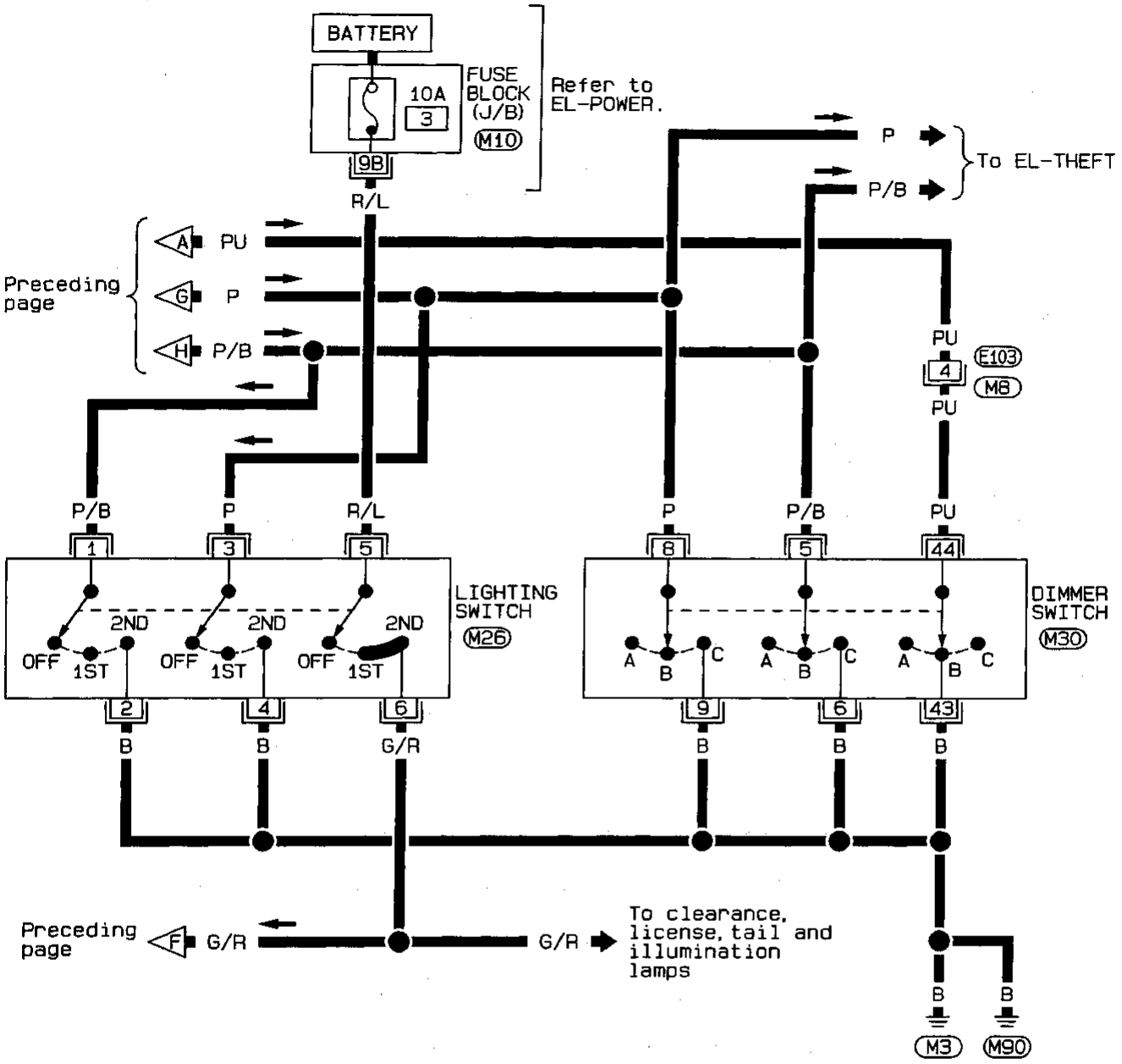


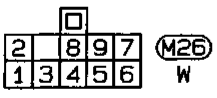


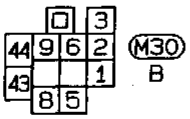
HEL267

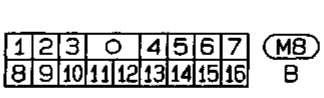
Wiring Diagram — H/LAMP — (Cont'd)

EL-H/LAMP-02









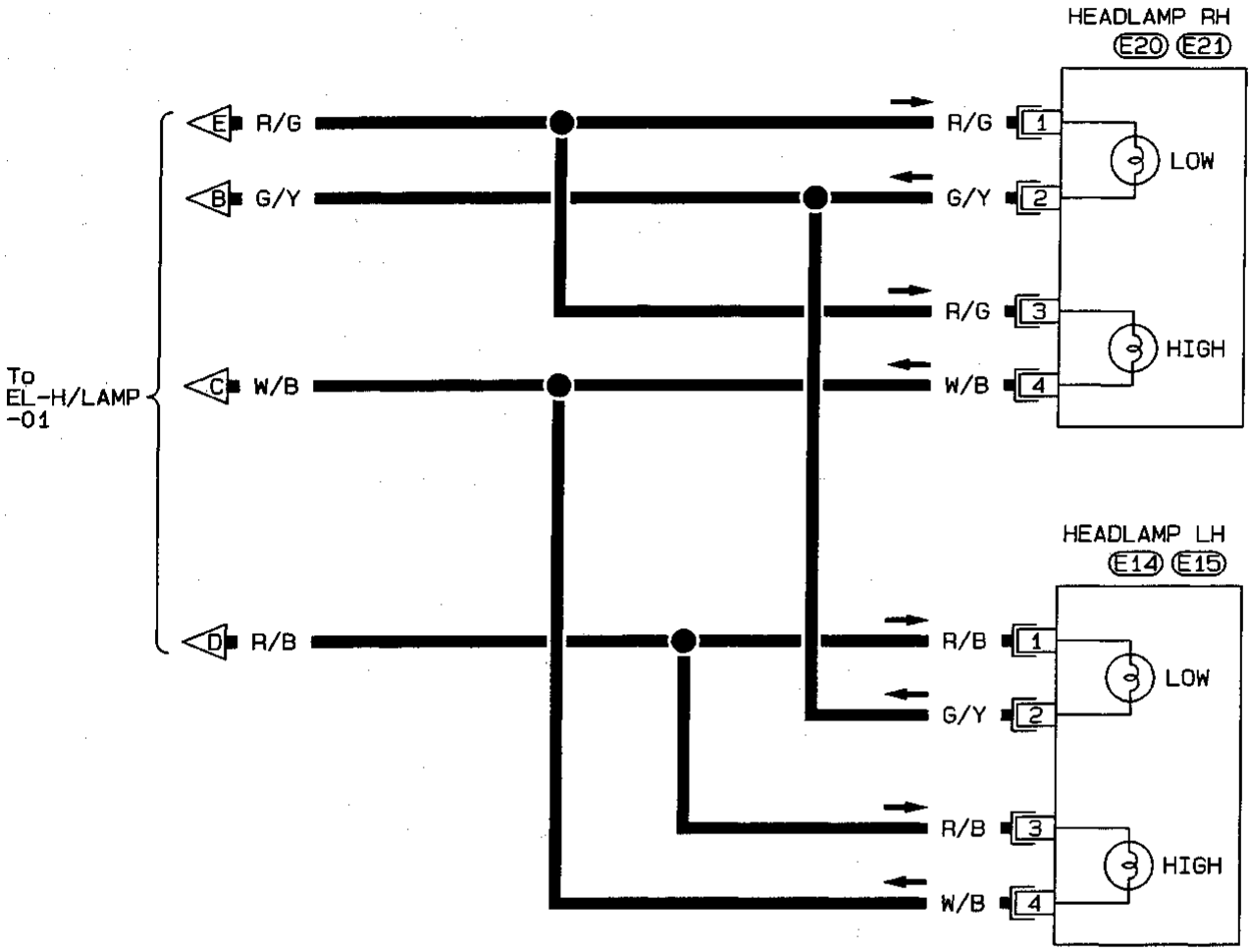
Refer to last page (Foldout page).

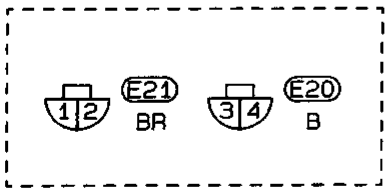
M10

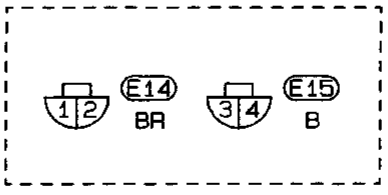
HEL268

Wiring Diagram — H/LAMP — (Cont'd)

EL-H/LAMP-03







HEL269

Trouble Diagnoses

Symptom	Possible cause	Repair order
LH headlamps do not operate.	1. Bulb 2. LH headlamp ground 3. 15A fuse 4. Lighting switch 5. Headlamp relay-L	1. Check bulb. 2. Check LH headlamp ground. (Terminals ② and ④) 3. Check 15A fuse (No. 38, located in relay box). 4. Check lighting switch. 5. Check headlamp relay-L.
RH headlamps do not operate.	1. Bulb 2. RH headlamp ground 3. 15A fuse 4. Lighting switch 5. Headlamp relay-R	1. Check bulb. 2. Check RH headlamp ground. (Terminals ② and ④) 3. Check 15A fuse (No. 37, located in relay box). 4. Check lighting switch. 5. Check headlamp relay-R.
LH high beam does not operate, but LH low beam operates.	1. Bulb 2. Open in LH high beam circuit 3. Lighting switch 4. Dimmer relay	1. Check bulb. 2. Check W/B wire between dimmer relay and LH headlamp for an open circuit. 3. Check lighting switch. 4. Check dimmer relay.
LH low beam does not operate, but LH high beam operates.	1. Bulb 2. Open in LH low beam circuit 3. Lighting switch 4. Dimmer relay 5. Dimmer switch	1. Check bulb. 2. Check G/Y wire between dimmer relay and LH headlamp for an open circuit. 3. Check lighting switch. 4. Check dimmer relay. 5. Check dimmer switch.
RH high beam does not operate, but RH low beam operates.	1. Bulb 2. Open in RH high beam circuit 3. Lighting switch 4. Dimmer relay	1. Check bulb. 2. Check W/B wire between dimmer relay and RH headlamp for an open circuit. 3. Check lighting switch. 4. Check dimmer relay.
RH low beam does not operate, but RH high beam operates.	1. Bulb 2. Open in RH low beam circuit 3. Lighting switch 4. Dimmer relay 5. Dimmer switch	1. Check bulb. 2. Check G/Y wire between dimmer relay and RH headlamp for an open circuit. 3. Check lighting switch. 4. Check dimmer relay. 5. Check dimmer switch.
High beam indicator does not work.	1. Bulb 2. High beam indicator ground 3. Open in high beam circuit	1. Check bulb in combination meter. 2. Check combination meter ground. (Terminal ㉛) 3. Check R/B wire between headlamp relay-L and combination meter for an open circuit.

System Description (For Canada)

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

Power is supplied at all times
- through 15A fuse [No. 38, located in the fuse block (in relay box)]
- to headlamp relay-L terminals ①, ③ and ⑥, and
- to daytime light control unit terminal ④.

Power is also supplied at all times
- through 15A fuse [No. 37, located in the fuse block (in relay box)]
- to headlamp relay-R terminals ①, ③ and ⑥, and
- to daytime light control unit terminal ③.

With the ignition switch in the ON or START position, power is supplied
- through 10A fuse [No. 31, located in the fuse block (in relay box)]
- to daytime light control unit terminal ⑤.

Ground is supplied to daytime light control unit terminal ⑩ through body grounds (E13) and (E22).

HEADLAMP OPERATION

When the lighting switch is moved to the 2ND position, ground is supplied
- to headlamp relay-L terminal ②
- through lighting switch terminal ③
- to lighting switch terminal ④
- through body grounds (M3) and (M90), and
- to headlamp relay-R terminal ②
- through lighting switch terminal ①
- to lighting switch terminal ②
- through body grounds (M3) and (M90).

Then each headlamp relay is energized and power is supplied
- from headlamp relay-L terminal ⑤
- to LH headlamp terminal ①,
- to dimmer relay terminal ②, and
- from headlamp relay-L terminal ⑦
- to daytime light control unit terminal ⑥
- to combination meter terminal ㉕ for HIGH BEAM indicator, and
- from headlamp relay-R terminal ⑤
- to RH headlamp terminal ①,
- from headlamp relay-R terminal ⑦
- to RH headlamp terminal ③, and
- from daytime light control unit terminal ⑦
- to LH headlamp terminal ③.

Low beam operation

With dimmer switch in the LOW ("B") position, ground is supplied
- to dimmer relay terminal ①
- through dimmer switch terminal ㊹
- to dimmer switch terminal ㊸
- through body grounds (M3) and (M90).

The dimmer relay is energized and ground is supplied
- to terminal ② of each headlamp
- through dimmer relay terminal ⑤
- to dimmer relay terminal ③
- through body grounds (E13) and (E22).

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

High beam operation

When the dimmer switch is placed in HIGH ("A") position, dimmer relay is not energized and ground is supplied
- to terminal ④ of RH headlamp and
- to combination meter terminal ㉖

- through dimmer relay terminal ④
- to dimmer relay terminal ③
- through body grounds E13 and E22.

Ground is also supplied
- to terminal ④ of LH headlamp
- through daytime light control unit terminal ⑧
- to daytime light control unit terminal ②
- through dimmer relay and body grounds E13 and E22.

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

Flash-to-pass operation

When the dimmer switch is placed in PASS ("C") position, flash-to-pass operation is triggered regardless of the lighting switch position.
Ground is supplied
- to headlamp relay-L terminal ②
- through dimmer switch terminal ⑧
- to dimmer switch terminal ⑨
- through body grounds M3 and M90, and
- to headlamp relay-R terminal ②
- through dimmer switch terminal ⑤
- to dimmer switch terminal ⑥
- through body grounds M3 and M90.

Then each headlamp relay is energized and power is supplied to terminal ③ of each headlamp and terminal ㉕ of combination meter.
Ground is supplied to terminal ④ of each headlamp and terminal ㉖ of combination meter through dimmer relay and body grounds E13 and E22.
With power and ground supplied, the high beam headlamps and HIGH BEAM indicator will illuminate.

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 headlamp LH terminal ③
- through headlamp RH terminal ④
- to daytime light control unit terminal ⑧
- through daytime light control unit terminal ⑨
- to headlamp RH terminal ③.

Ground is supplied to headlamp RH terminal ④ through dimmer relay and body grounds E13 and E22.
Because the high beam headlamps are now connected in series, they operate at half illumination.

With theft warning system

The theft warning system will flash the high beams if the system is triggered. Refer to "THEFT WARNING SYSTEM" (EL-240).

Operation (Daytime light system equipped model)

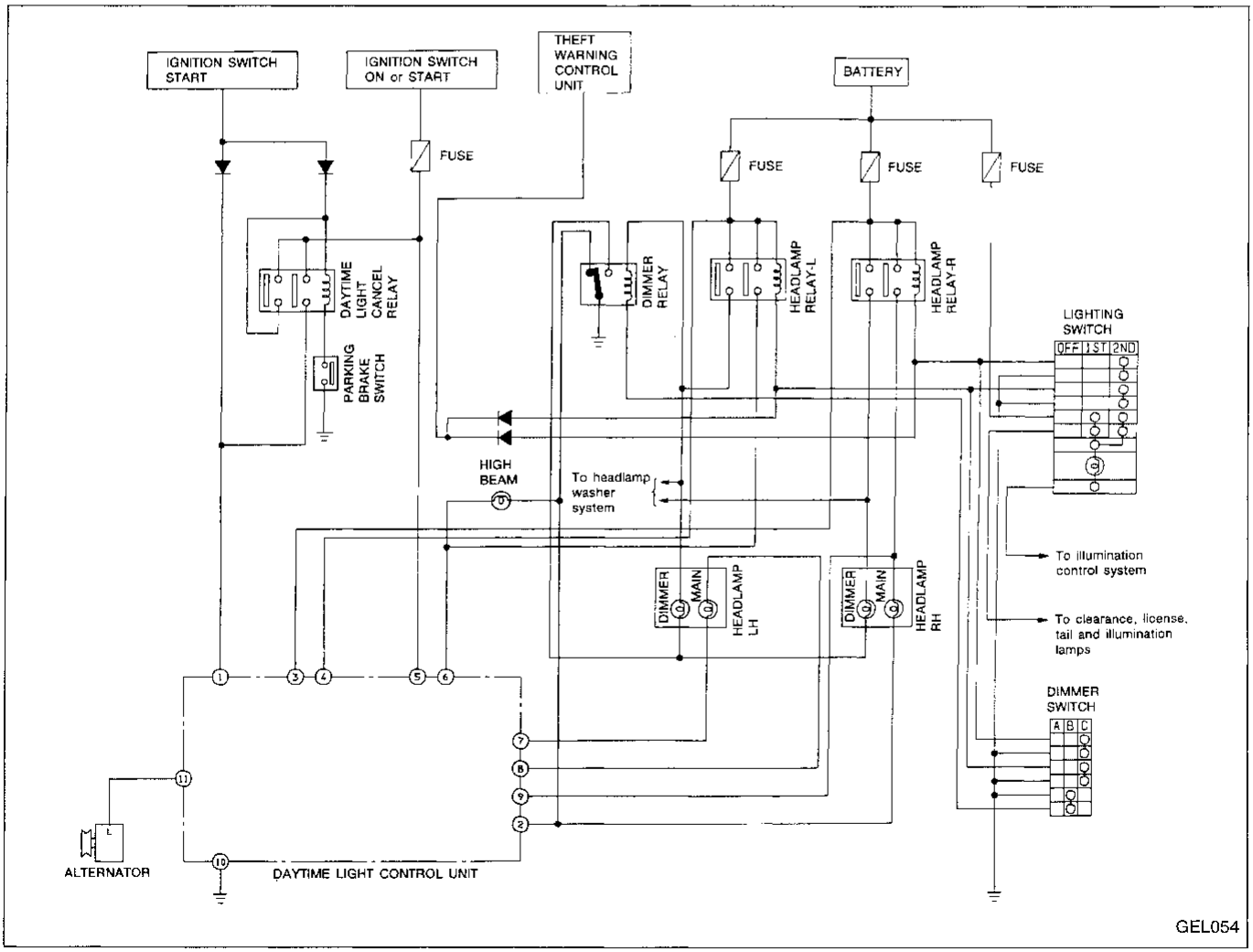
After starting the engine with the lighting switch in the "OFF" position, the headlamp high beam automatically turns on. Lighting switch operations other than the above are the same as conventional light systems.

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

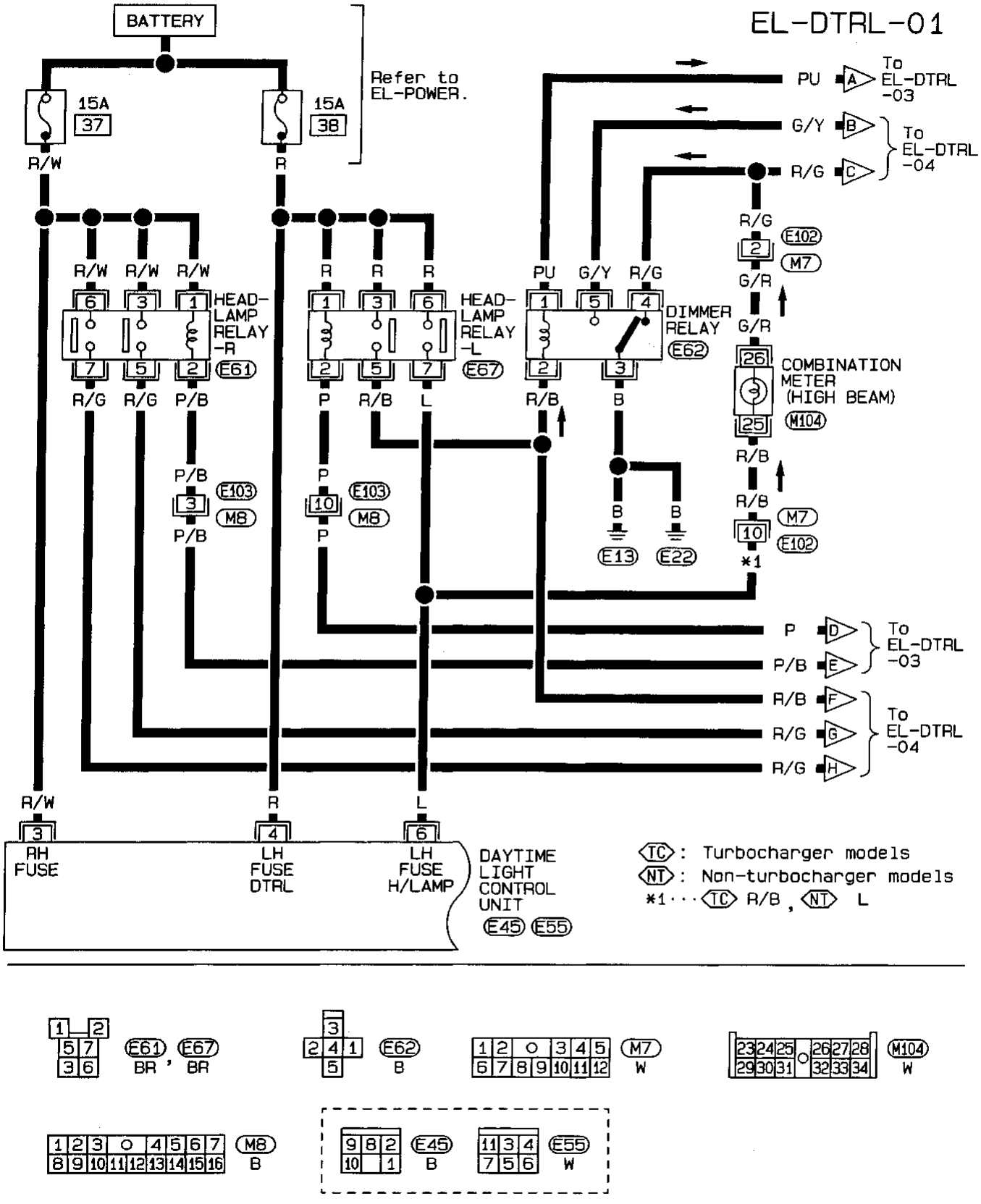
○ : Lamp "ON"
× : Lamp "OFF"
△ : Lamp dims.
□ : Added functions
* : When starting the engine with the parking brake released, the daytime light system will come ON.
When starting the engine with the parking brake pulled, the daytime light system will not come ON.

Schematic

FOR CANADA



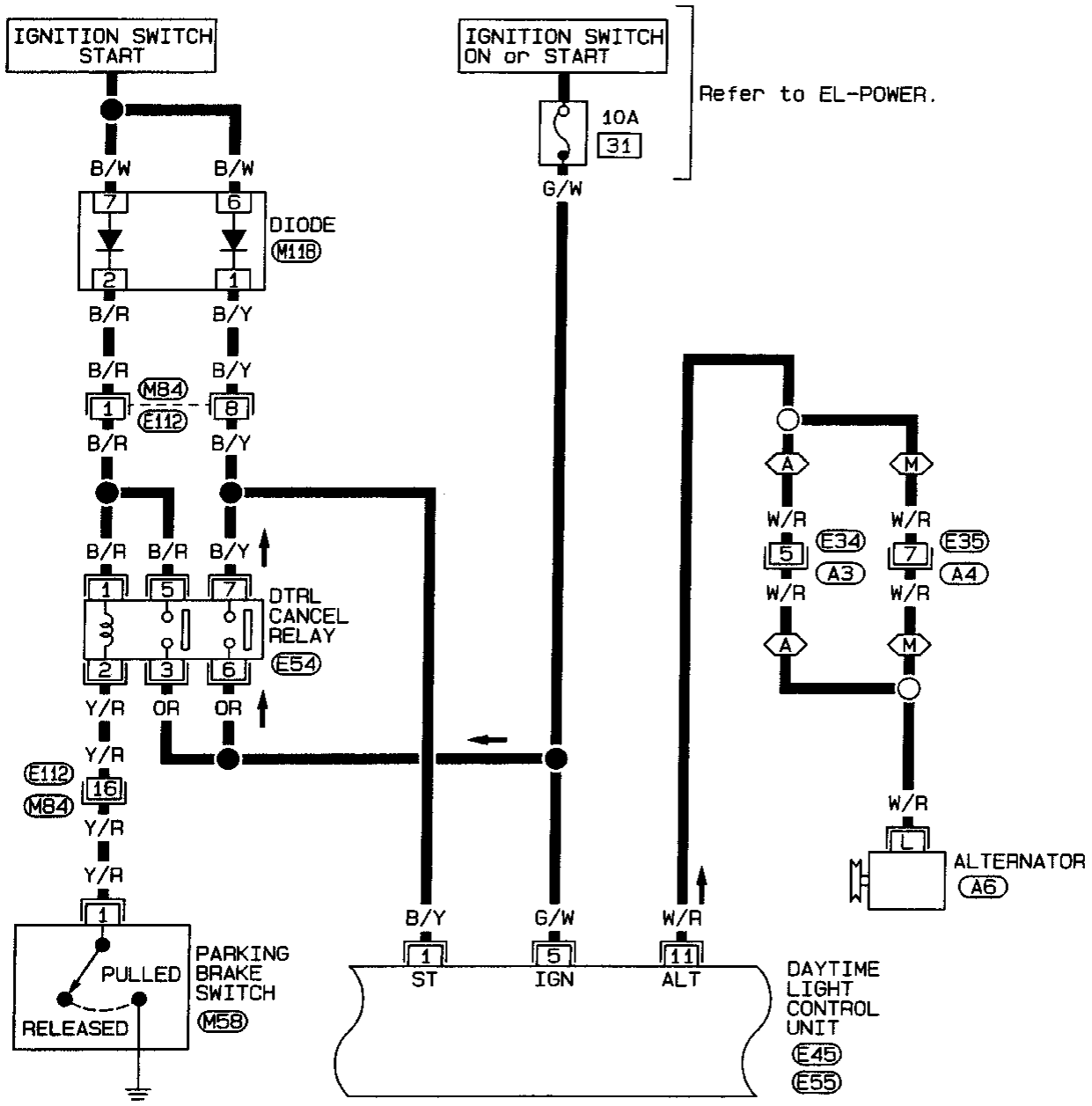
Wiring Diagram — DTRL —

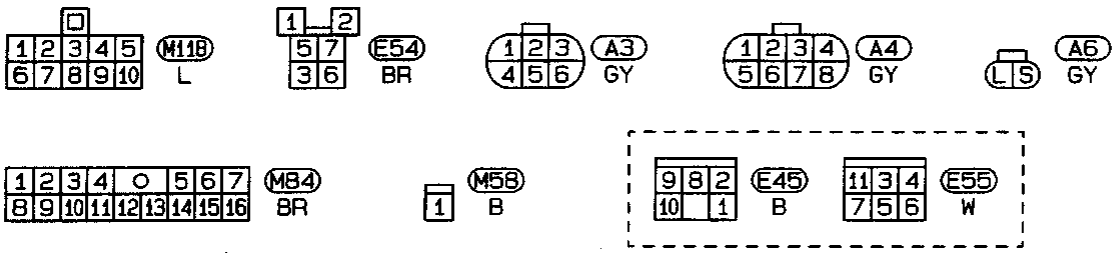


HEL270

Wiring Diagram — DTRL — (Cont'd)

EL-DTRL-02

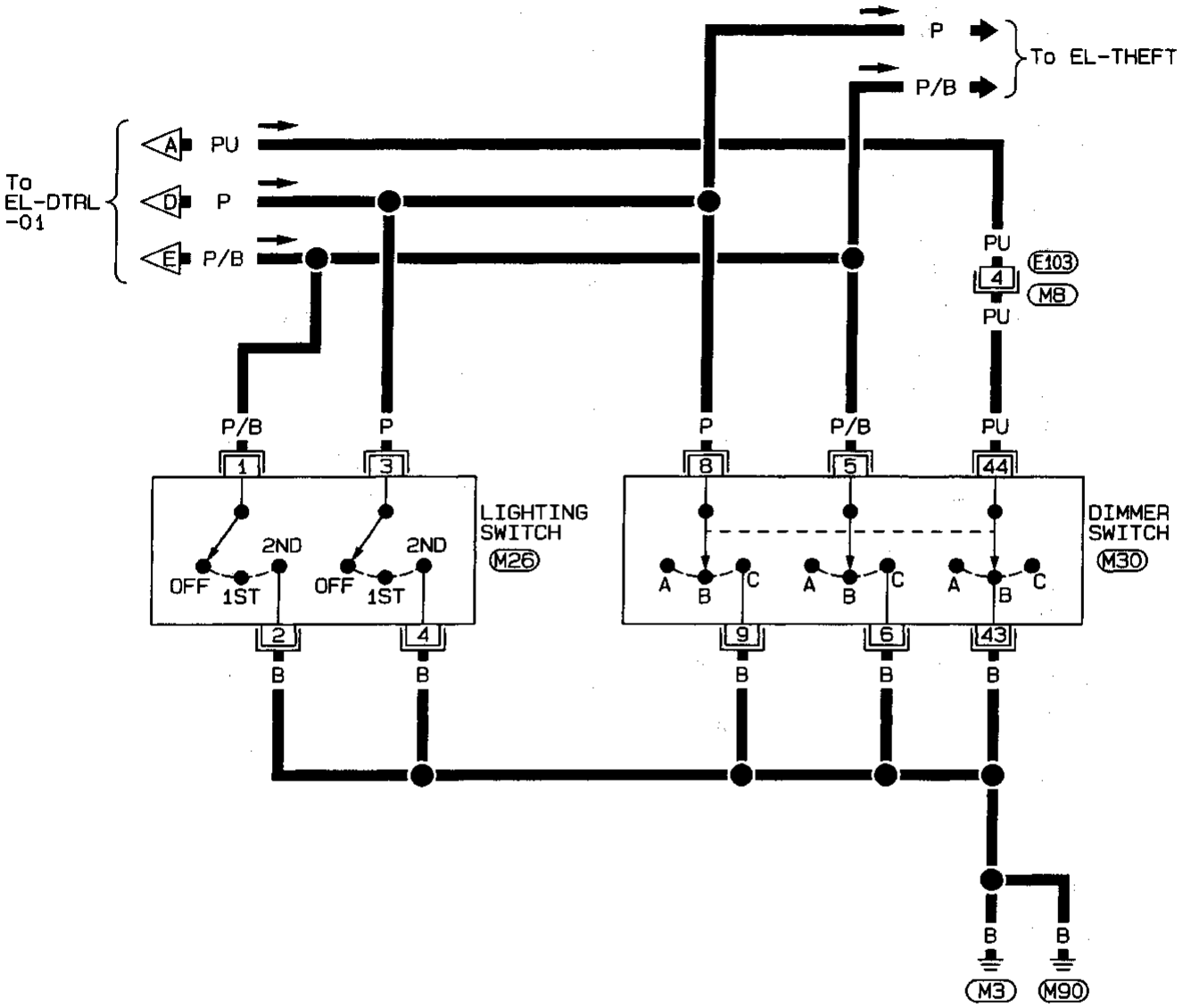


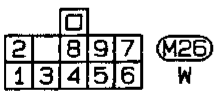


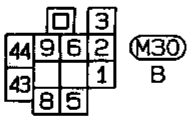
HEL271

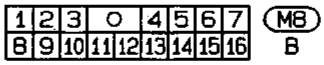
Wiring Diagram — DTRL — (Cont'd)

EL-DTRL-03





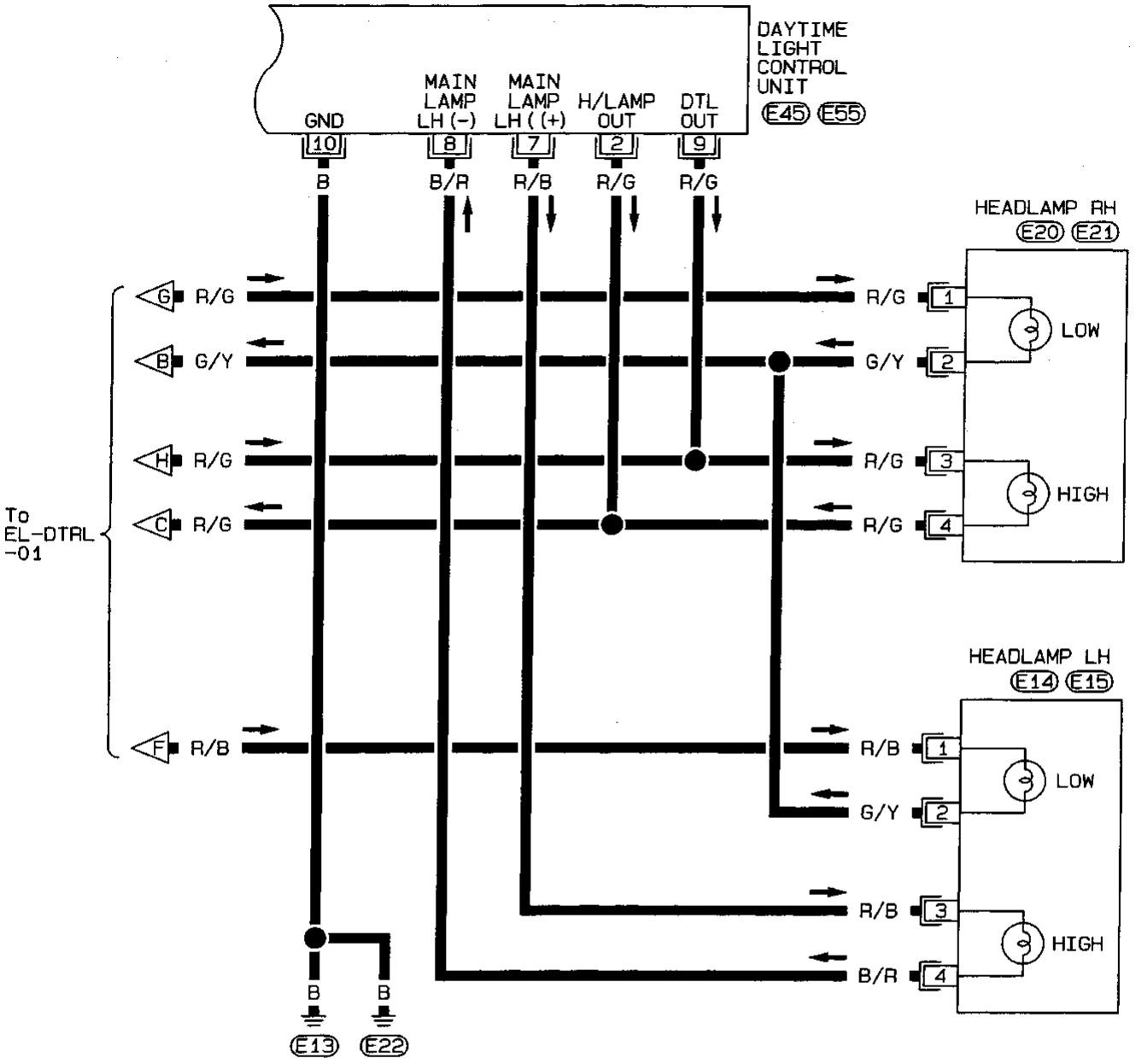


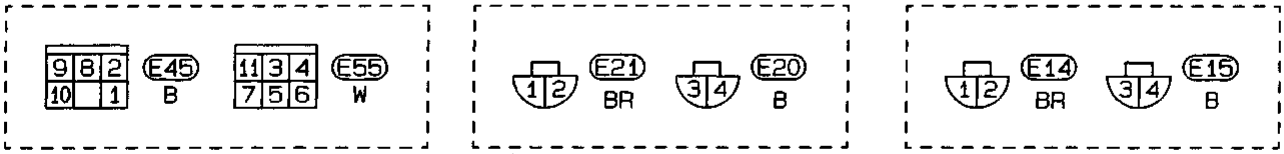


HEL272

Wiring Diagram — DTRL — (Cont'd)

EL-DTRL-04





HEL273

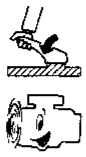
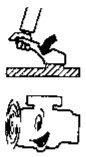
Trouble Diagnoses (Daytime Light)

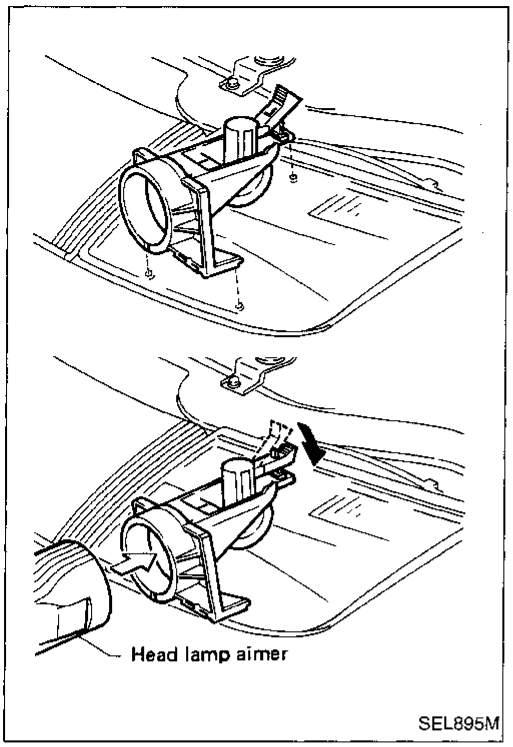
DAYTIME LIGHT CONTROL UNIT INSPECTION TABLE

(Data are reference values.)

Terminal No.	Item	Condition		Judgement standard
1	Start signal and parking brake signal		When turning ignition switch to "ST"	Battery positive voltage
			When turning ignition switch to "ON" from "ST" — Parking brake is released	1V or less
			When turning ignition switch to "ON" from "ST" — Parking brake is engaged	Battery positive voltage
			When turning ignition switch to "OFF"	1V or less
2	RH hi beam control (ground)		When turning lighting switch to "2ND" and turning dimmer switch to "HIGH" ("A")	1V or less
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	Lighting switch (LH hi beam)		When turning lighting switch to "2ND"	Battery positive voltage
			When turning dimmer switch to "PASS" ("C")	Battery positive voltage
7	LH hi beam		When turning lighting switch to "2ND"	Battery positive voltage
			When turning dimmer switch to "PASS" ("C")	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

Trouble Diagnoses (Daytime Light) (Cont'd)

Terminal No.	Item	Condition		Judgement standard
8	LH hi beam control		When lighting switch is turned to "2ND" and dimmer switch is turned to "HIGH" ("A")	Battery positive voltage
			When releasing parking brake with engine running and turning lighting switch to "OFF" (daytime light operation) **CAUTION: Block wheels and ensure selector lever is in N or P position.**	Approx. half battery voltage
9	RH hi beam		When turning lighting switch to "2ND"	Battery positive voltage
			When releasing parking brake with engine running and turning lighting switch to "OFF" (daytime light operation) **CAUTION: Block wheels and ensure selector lever is in N or P position.**	Approx. half battery voltage
10	Ground		—	—
11	Alternator		When turning ignition switch to "ON"	1V or less
			When engine is running	Battery positive voltage
			When turning ignition switch to "OFF"	1V or less



Aiming Adjustment

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

HEADLAMP AIMER ADAPTER

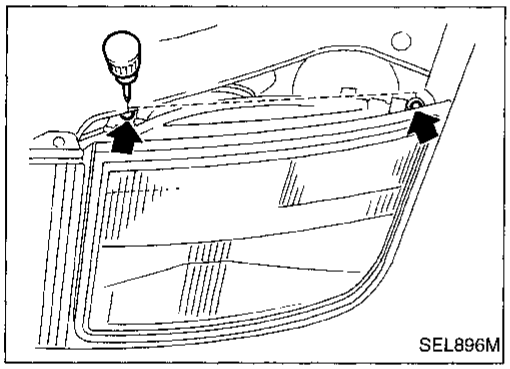
Attach the headlamp aimer using Tool (aimer adapter). Place the aimer adapter on the 3 points of the headlamp, then push the lever down to secure it.

If no aimer is available, aiming adjustment can be done as follows:

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

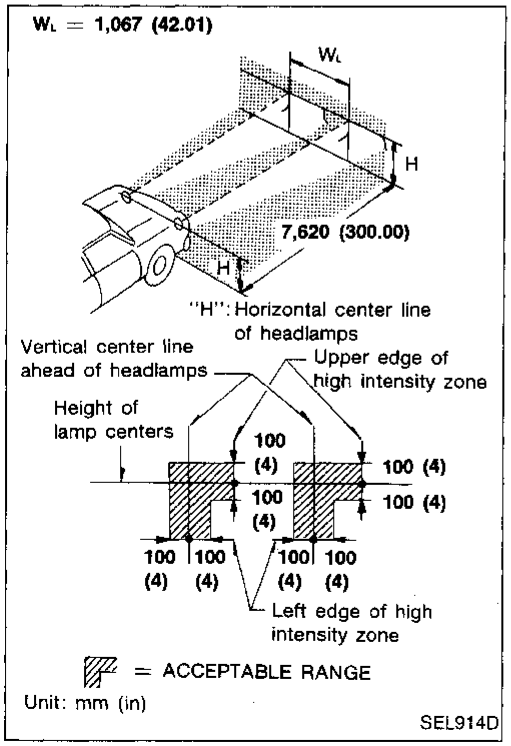
CAUTION:

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



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

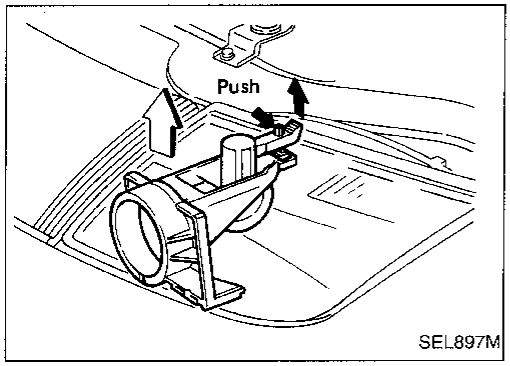
- **First tighten the adjusting screw all the way and then make adjustment by loosening the screw.**



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

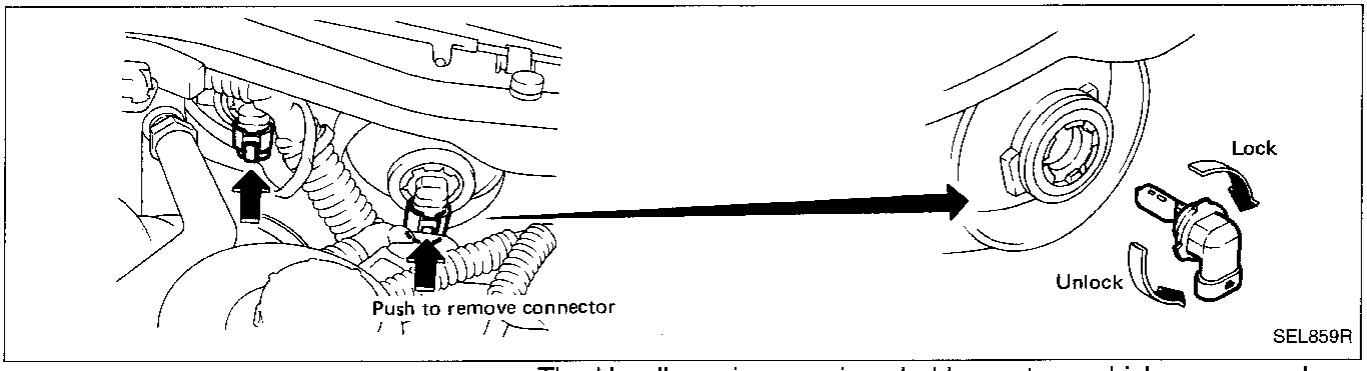
"H": Horizontal center line of headlamps
"W_L": Distance between each headlamp center

Aiming Adjustment (Cont'd)



Push the tongue and pull the lever up to remove the adapter.

Bulb Replacement



The Headlamp is a semi-sealed beam type which uses a replaceable Headlamp (halogen) bulb. A bulb can be replaced from inside the engine compartment without removing the Headlamp assembly.

CAUTION:

High pressure halogen gas is sealed inside the halogen bulb. The bulb may break if the glass envelope is scratched or the bulb is dropped.

Hold the plastic base when handling the bulb. Never touch the glass envelope.

REMOVING HEADLAMP BULB

1. Disconnect battery negative cable.
2. Disconnect electrical connector from rear end of bulb.
3. Turn plastic base counterclockwise until it is free from headlamp reflector, then remove it.
4. Remove headlamp bulb. Do not shake or rotate bulb when removing it.

REPLACING HEADLAMP BULB

1. Insert bulb into headlamp reflector with plastic base facing downward and turn it clockwise until it stops.
2. Push electrical connector into bulb plastic base until it snaps and stops.

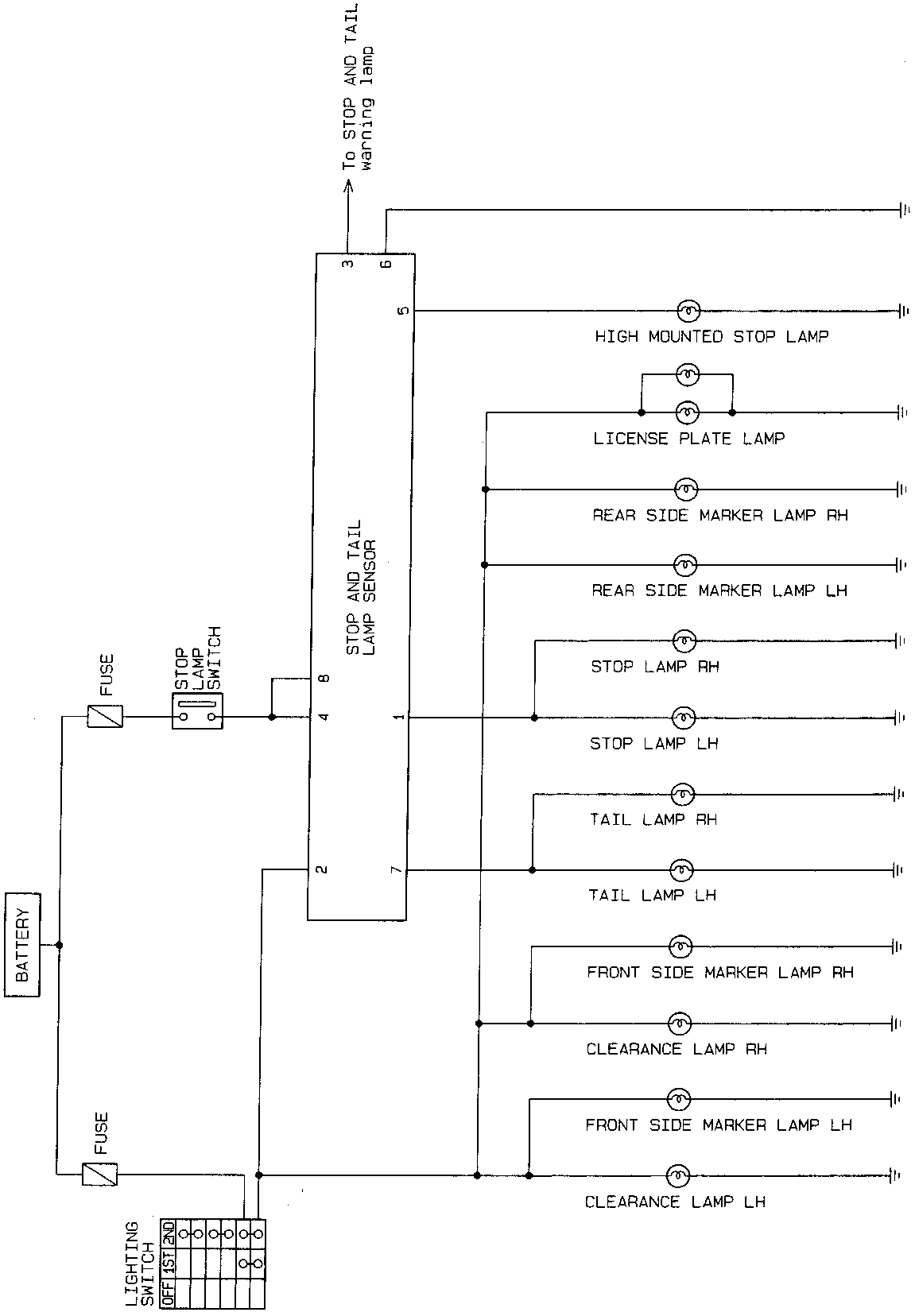
CAUTION:

Do not touch the bulb.

- **Use the same number and wattage as originally installed:**

	Inside (High beam)	Outside (Low beam)
Wattage (W)	65	55
Bulb no.	9005	9006

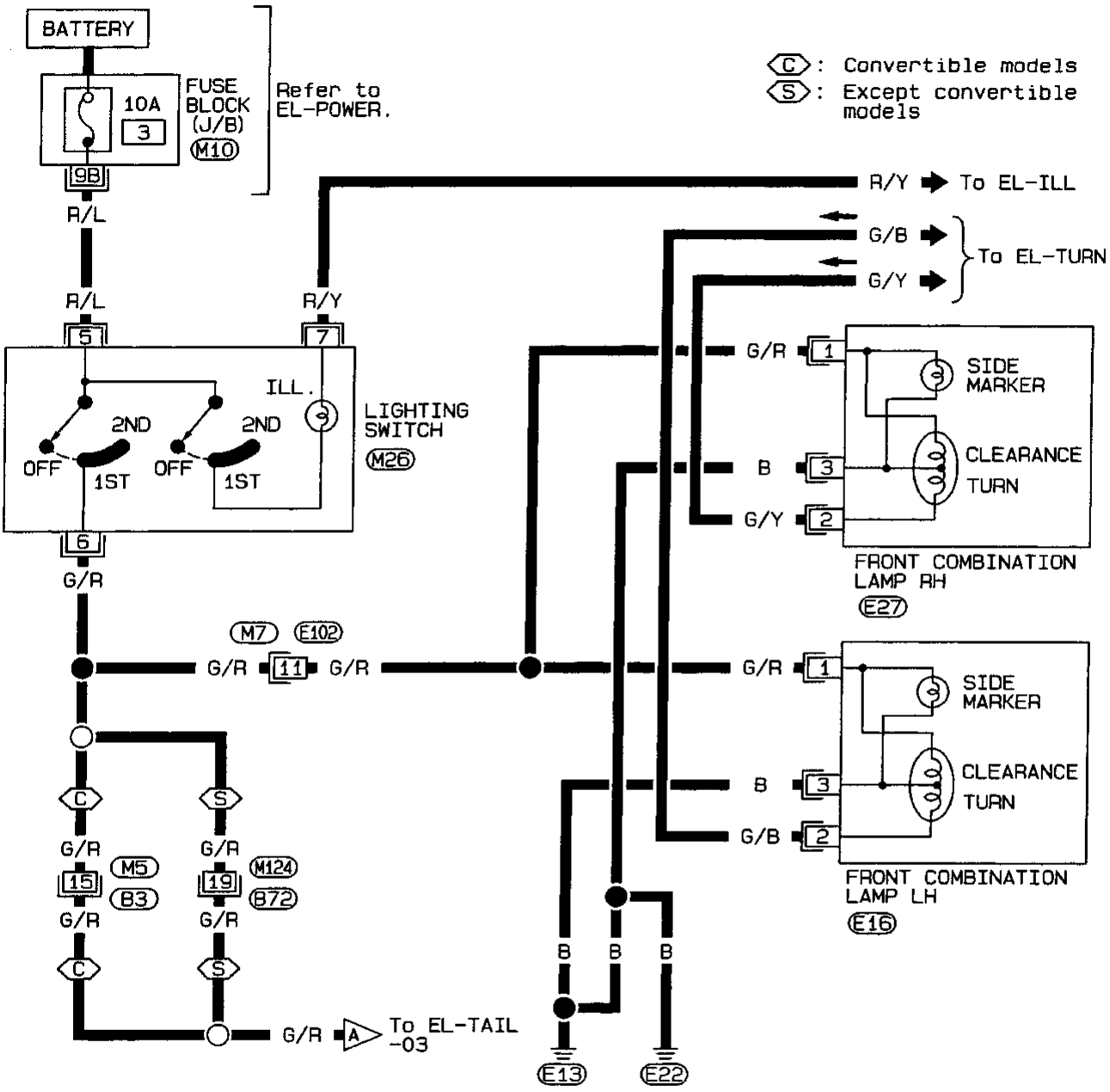
Clearance, License and Tail Lamps/Schematic



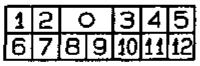
HEL274

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

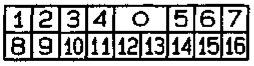
EL-TAIL/L-01

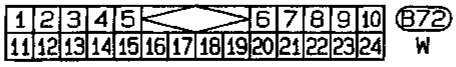


M26 W


M7 W

E16 GY , E27 GY


B3 W


B72 W

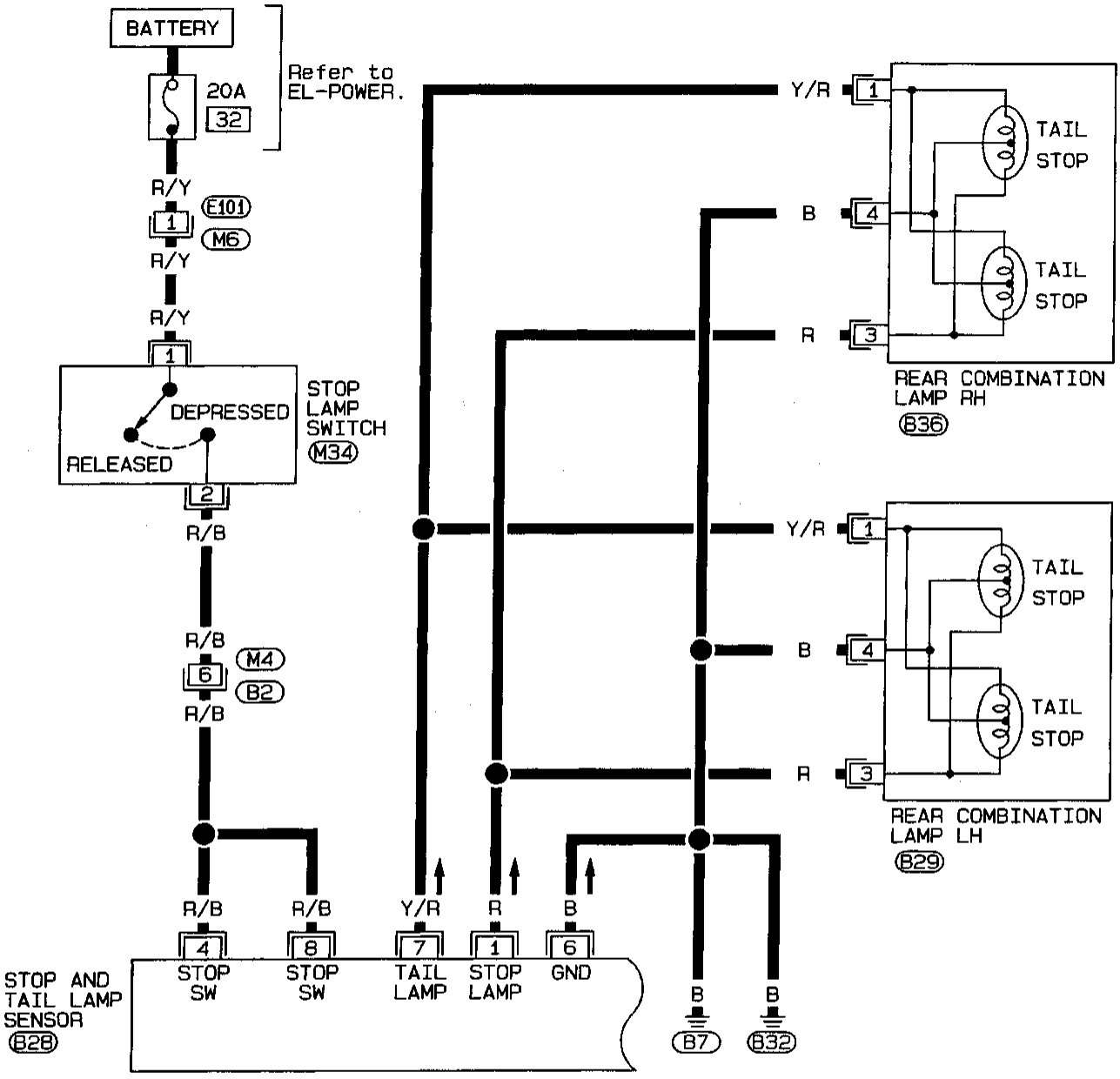
Refer to last page (Foldout page).

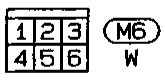
M10

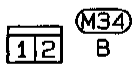
HEL275

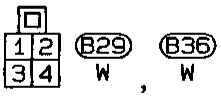
Clearance, License, Tail and Stop Lamps/ Wiring Diagram — TAIL — (Cont'd)

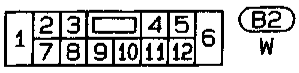
EL-TAIL/L-02

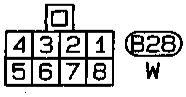








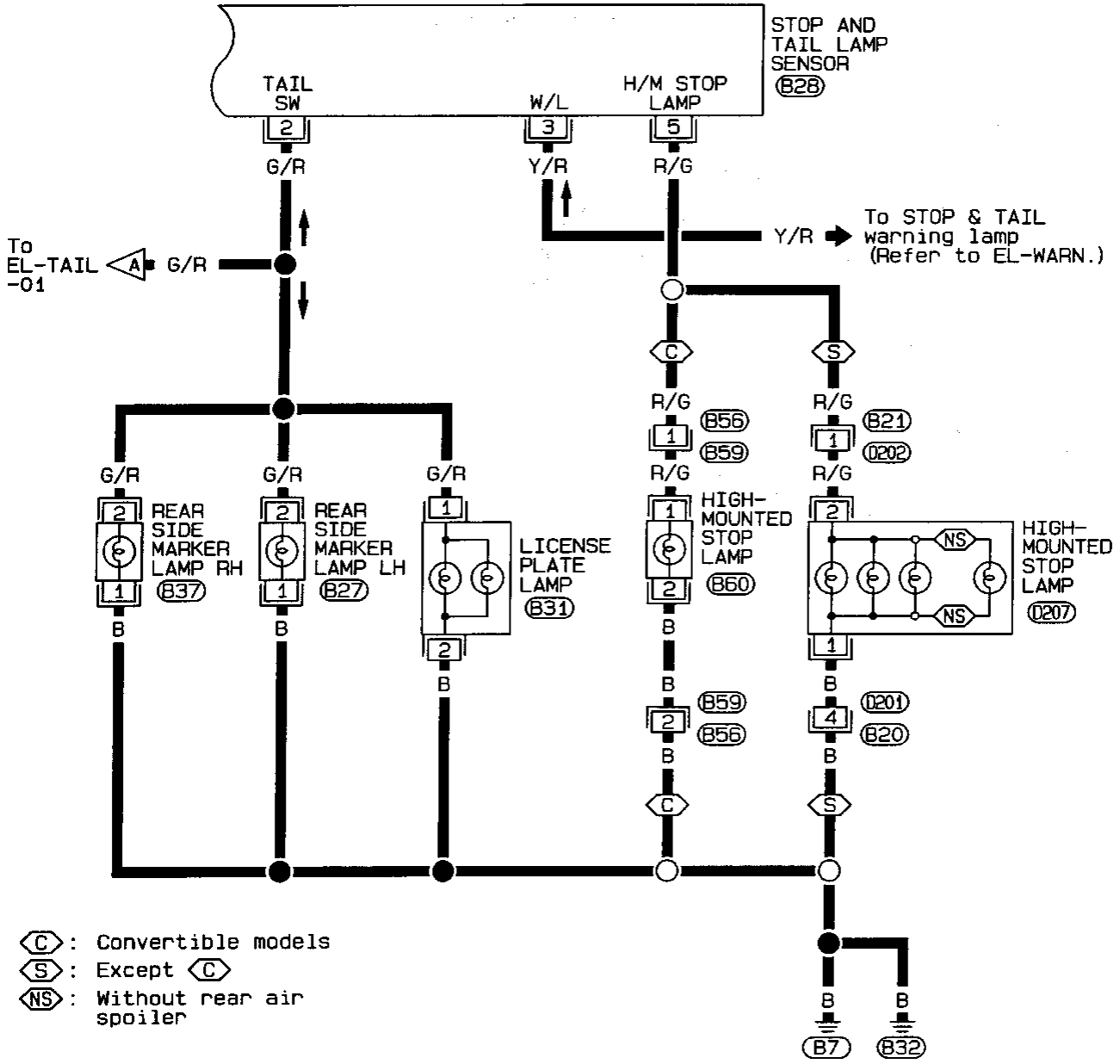


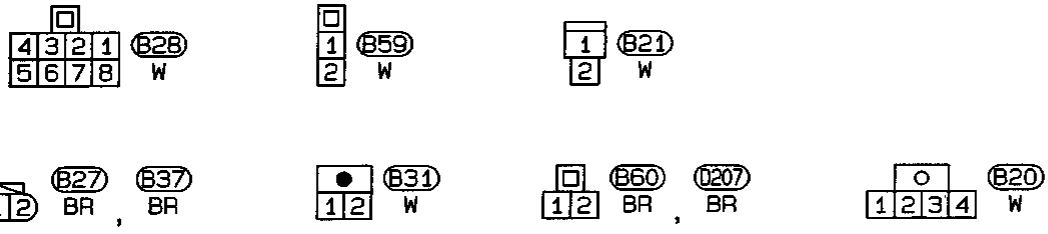


HEL276

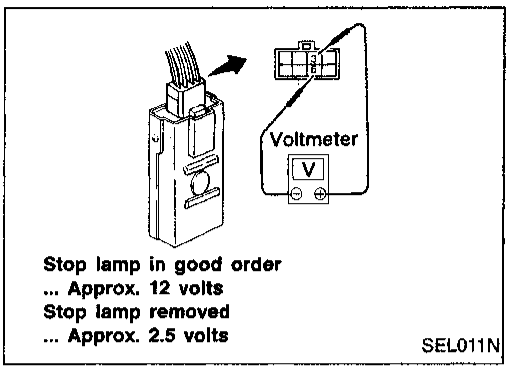
Clearance, License, Tail and Stop Lamps/ Wiring Diagram — TAIL — (Cont'd)

EL-TAIL/L-03



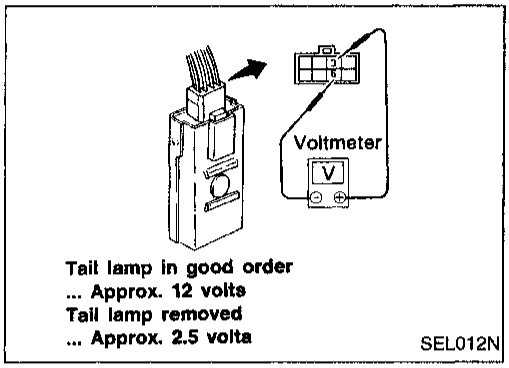


HEL277



Stop lamp in good order
... Approx. 12 volts
Stop lamp removed
... Approx. 2.5 volts

SEL011N



Tail lamp in good order
... Approx. 12 volts
Tail lamp removed
... Approx. 2.5 volts

SEL012N

Stop and Tail Lamp Sensor Check

- Before checking, ensure that bulbs meet specifications.

STOP LAMP

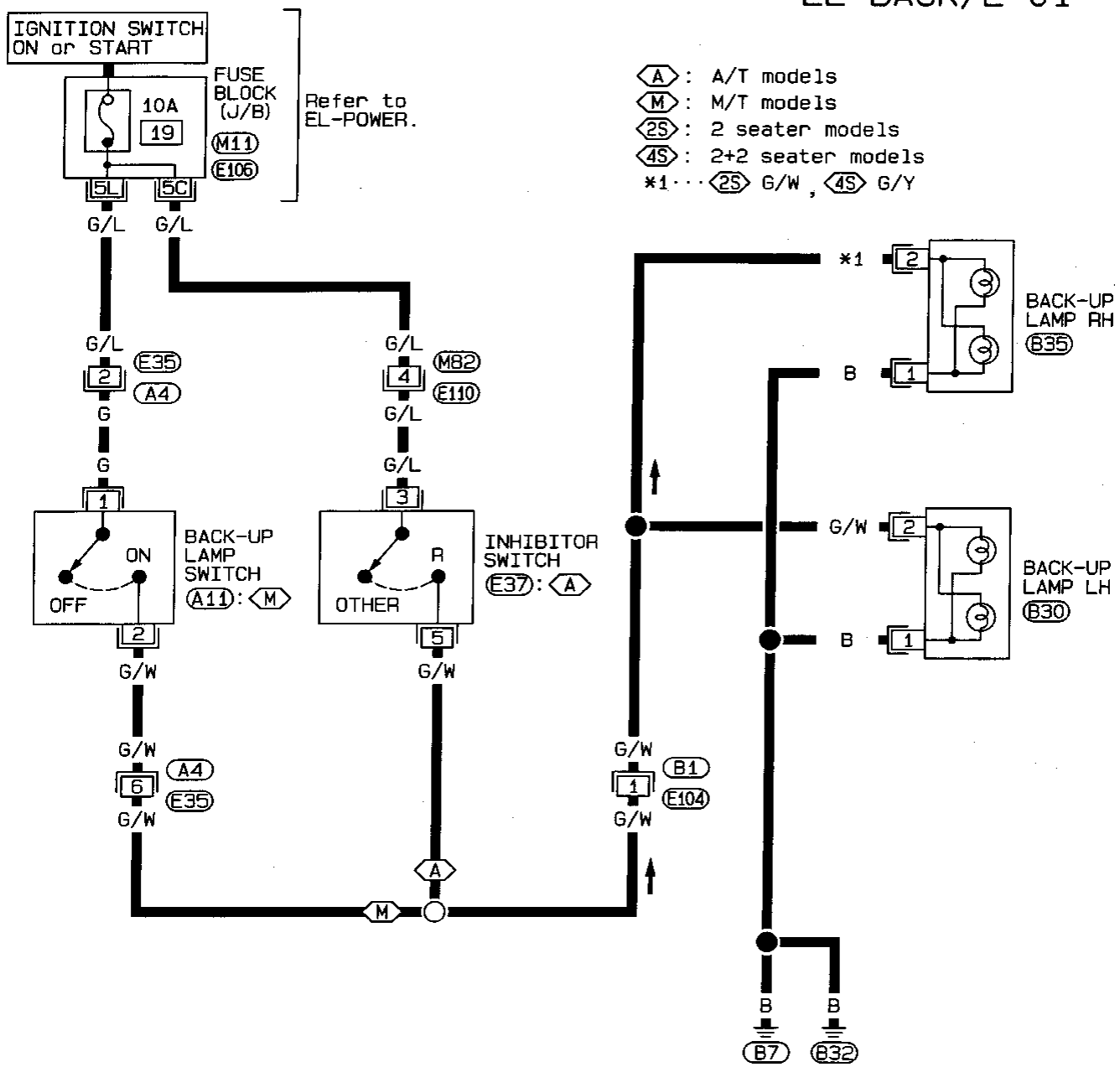
1. Start engine.
2. Stop lamp switch on.

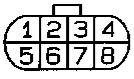
TAIL LAMP

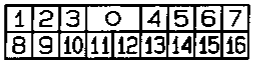
1. Start engine.
2. Lighting switch on.

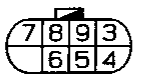
Back-up Lamp/Wiring Diagram — BACK/L —

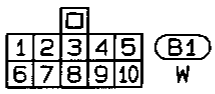
EL-BACK/L-01











Refer to last page (Foldout page).

M11 , E106

HEL278

Front Fog Lamp/System Description

Power is supplied at all times to front fog lamp relay terminal ⑤ through
- 15A fuse [No. 34, located in the fuse block (in relay box)].

Power is also supplied at all times
- through 15A fuse [No. 38, located in the fuse block (in relay box)]
- to headlamp relay-L terminals ① and ③,
- through 15A fuse [No. 37, located in the fuse block (in relay box)]
- to headlamp relay-R terminals ① and ③, and
- through 10A fuse [No. 3, located in the fuse block (J/B)]
- to lighting switch terminal ⑤.

When the lighting switch is moved to the 2ND position, ground is supplied to each headlamp relay through lighting switch and body grounds M3 and M90.
Then each headlamp relay is energized and power is supplied
- from headlamp relay-R terminal ⑤
- to front fog lamp relay terminal ①, and

(Canada models)
- from headlamp relay-L terminal ⑤
- to dimmer relay terminal ②.

(U.S.A. models)
- from lighting switch terminal ⑥
- to dimmer relay terminal ②.

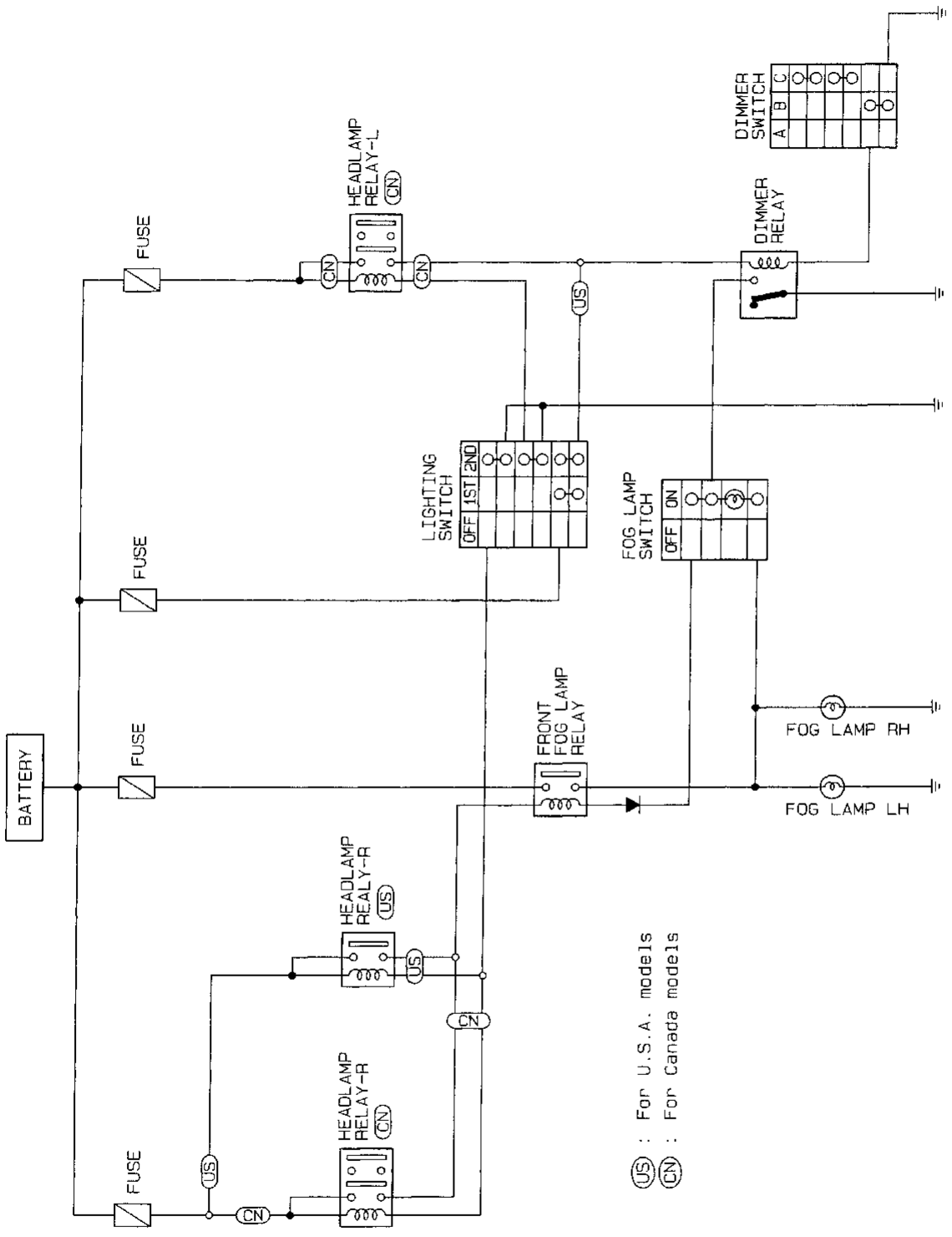
Front fog lamp operation

The lighting switch must be in the 2ND and LOW ("B") position for front fog lamp operation.
With the front fog lamp switch in the ON position, ground is supplied.
- to front fog lamp relay terminal ②
- through front fog lamp switch terminal ⑰
- to front fog lamp switch terminal ⑱
- through dimmer relay terminal ⑤
- to dimmer switch terminal ㊹
- through dimmer switch terminal ㊸
- from body grounds M3 and M90.

The front fog lamp relay is energized and power is supplied
- from front fog lamp relay terminal ③
- to terminal ① of each front fog lamp.

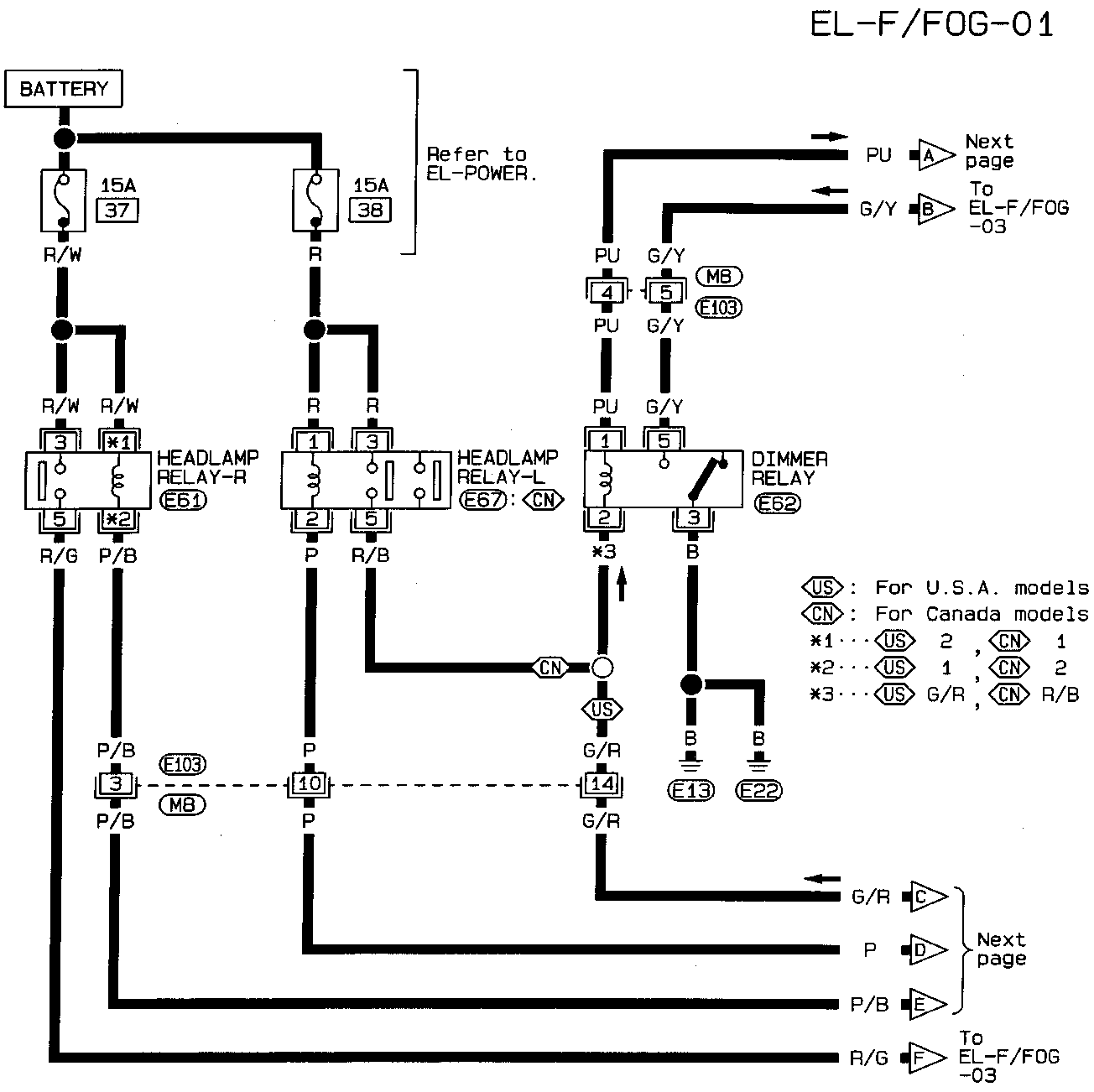
Ground is supplied to terminal ② of each front fog lamp through body grounds E13 and E22.
With power and ground supplied, the front fog lamps illuminate.

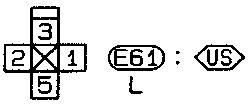
Front Fog Lamp/Schematic

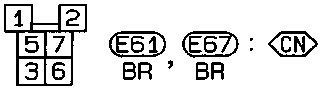


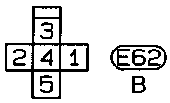
HEL279

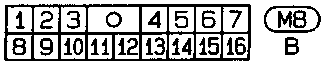
Front Fog Lamp/Wiring Diagram — F/FOG —







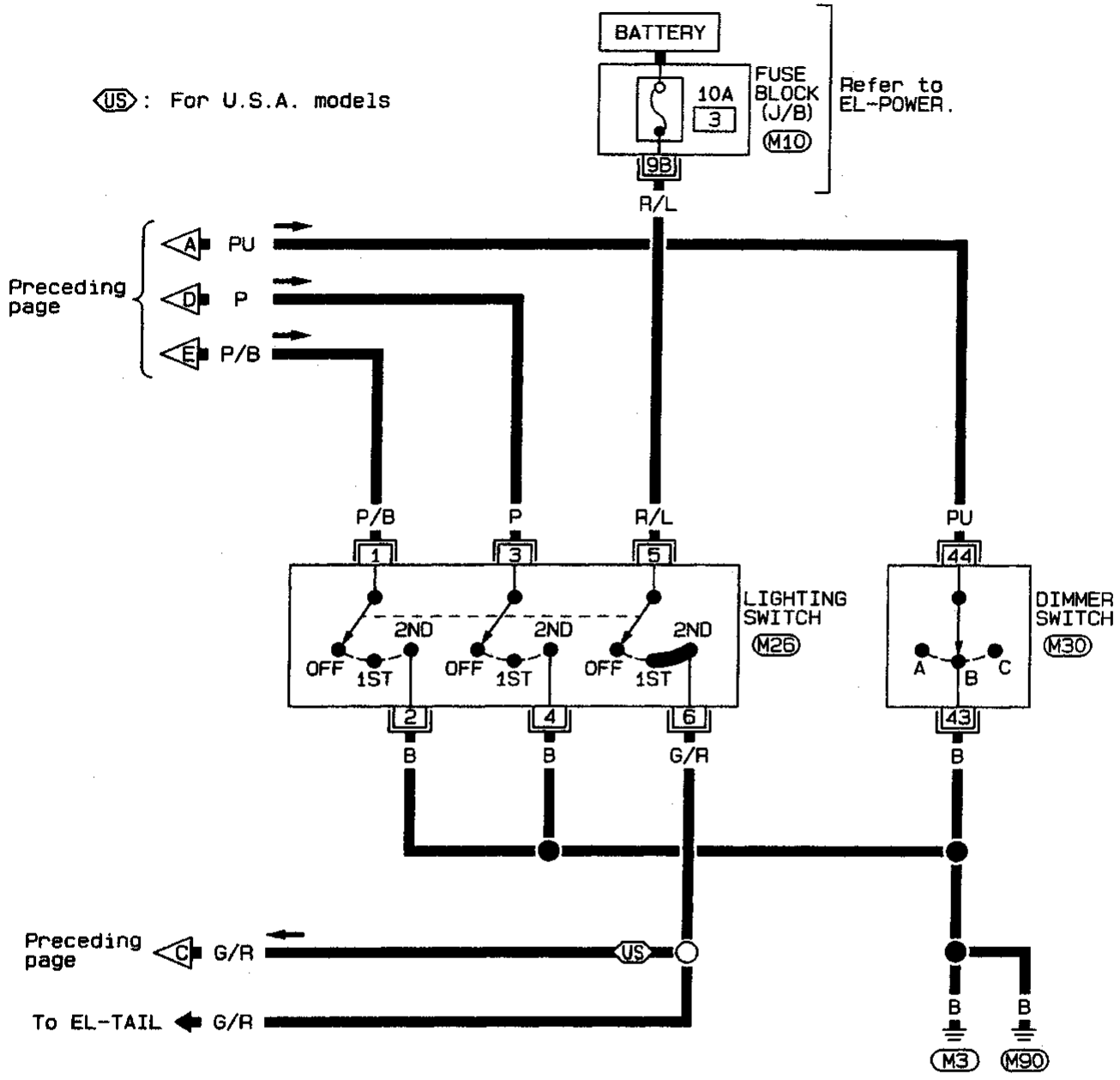


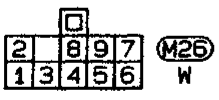


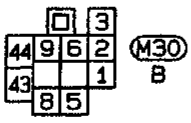
HEL280

Front Fog Lamp/Wiring Diagram — F/FOG — (Cont'd)

EL-F/FOG-02







Refer to last page (Foldout page).

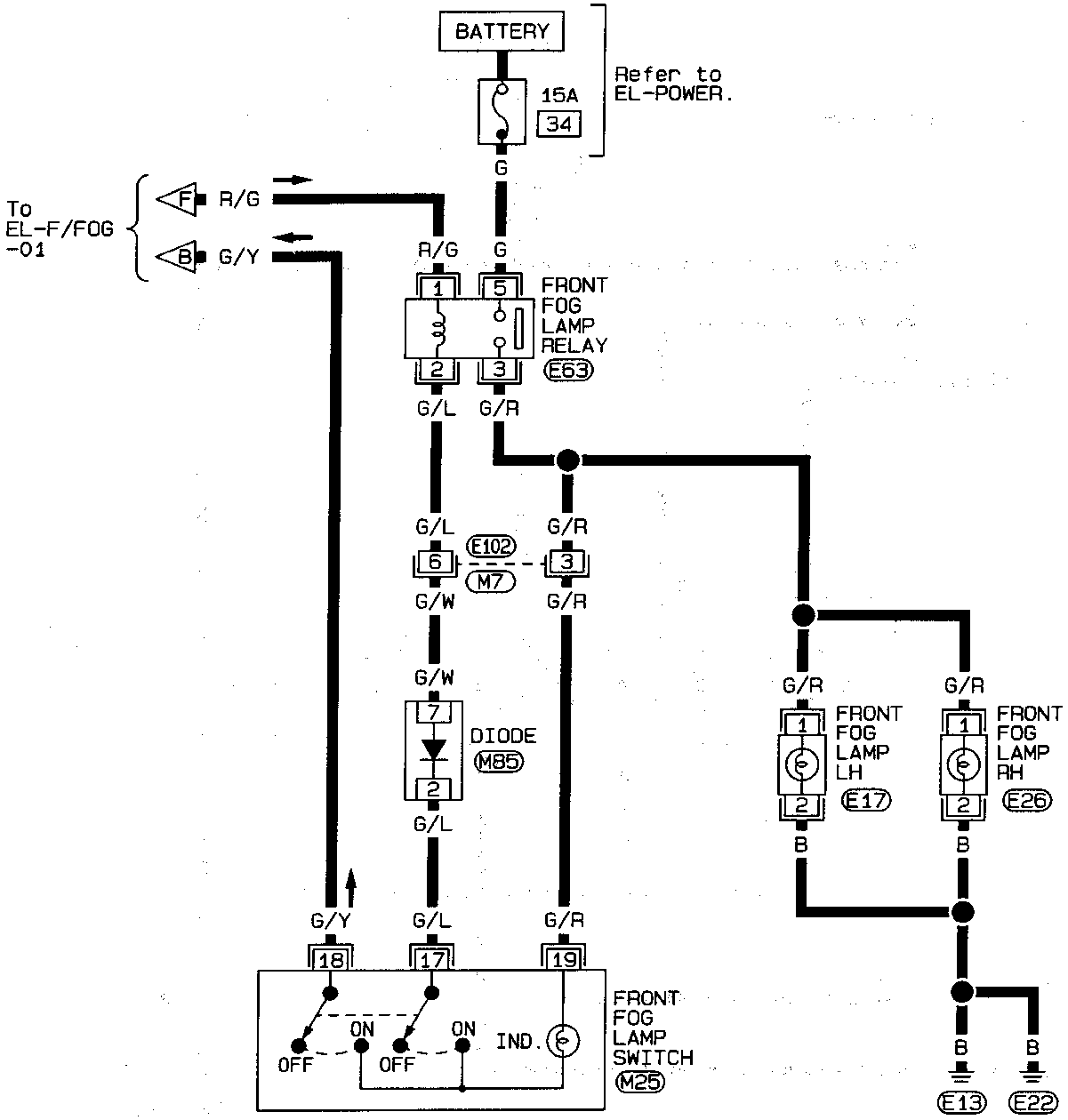
M10

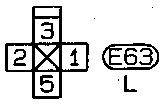
HEL281

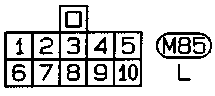
1309

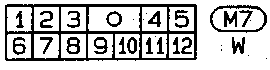
Front Fog Lamp/Wiring Diagram — F/FOG — (Cont'd)

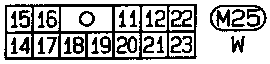
EL-F/FOG-03











HEL282

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. 18, located in the fuse block (J/B)]
- to hazard switch terminal ②
- through terminal ① of the hazard switch
- to combination flasher unit terminal Ⓑ
- through terminal Ⓛ of the combination flasher unit and terminal ④ of the remote control relay-2
- to turn signal switch terminal ①.

Ground is supplied to combination flasher unit terminal Ⓔ through body grounds (M3) and (M90).

LH turn

When the turn signal switch is moved to the LH position, power is supplied from turn signal switch terminal ③ to
- front turn signal lamp LH terminal ② [through fuse block (J/B) terminals (7B) and (2K)]
- rear combination lamp LH terminal ② [through fuse block (J/B) terminals (7B) and (3P)] and
- combination meter terminal ㉗.

Ground is supplied to the front turn signal lamp LH terminal ③ through body grounds (E13) and (E22).
Ground is supplied to the rear combination lamp LH terminal ④ through body grounds (B7) and (B32).
Ground is supplied to combination meter terminal ㉞ through body grounds (M3) and (M90).
With power and grounds supplied, the combination flasher unit controls the flashing interval of the LH turn signal lamps.

RH turn

When the turn signal switch is moved to the RH position, power is supplied from turn signal switch terminal ② to
- front turn signal lamp RH terminal ② [through fuse block (J/B) terminals (1A) and (1K)]
- rear combination lamp RH terminal ② [through fuse block (J/B) terminals (1A) and (4P)] and
- combination meter terminal ㉘.

Ground is supplied to the front turn signal lamp RH terminal ③ through body grounds (E13) and (E22).
Ground is supplied to the rear combination lamp RH terminal ④ through body grounds (B7) and (B32).
Ground is supplied to combination meter terminal ㉞ through body grounds (M3) and (M90).
With power and ground supplied, the combination flasher unit controls the flashing interval of the RH turn signal lamps.

HAZARD LAMP OPERATION

Power is supplied at all times to hazard switch terminal ③ through
- 10A fuse [No. 2 , located in the fuse block (J/B)].

With the hazard switch in the ON position, power is supplied
- through terminal ① of the hazard switch
- to combination flasher unit terminal Ⓑ
- through terminal Ⓛ of the combination flasher unit
- to hazard switch terminal ④.

Ground is supplied to the combination flasher unit terminal Ⓔ through body grounds (M3) and (M90).
Power is supplied through terminal ⑥ of the hazard switch to
- front turn signal lamp LH terminal ② [through fuse block (J/B) terminals (7B) and (2K)]
- rear combination lamp LH terminal ② [through fuse block (J/B) terminals (7B) and (3P)] and
- combination meter terminal ㉗.

Power is also supplied through terminal ⑤ of the hazard switch to
- front turn signal lamp RH terminal ② [through fuse block (J/B) terminals (1A) and (1K)]
- rear combination lamp RH terminal ② [through fuse block (J/B) terminals (1A) and (4P)] and
- combination meter terminal ㉘.

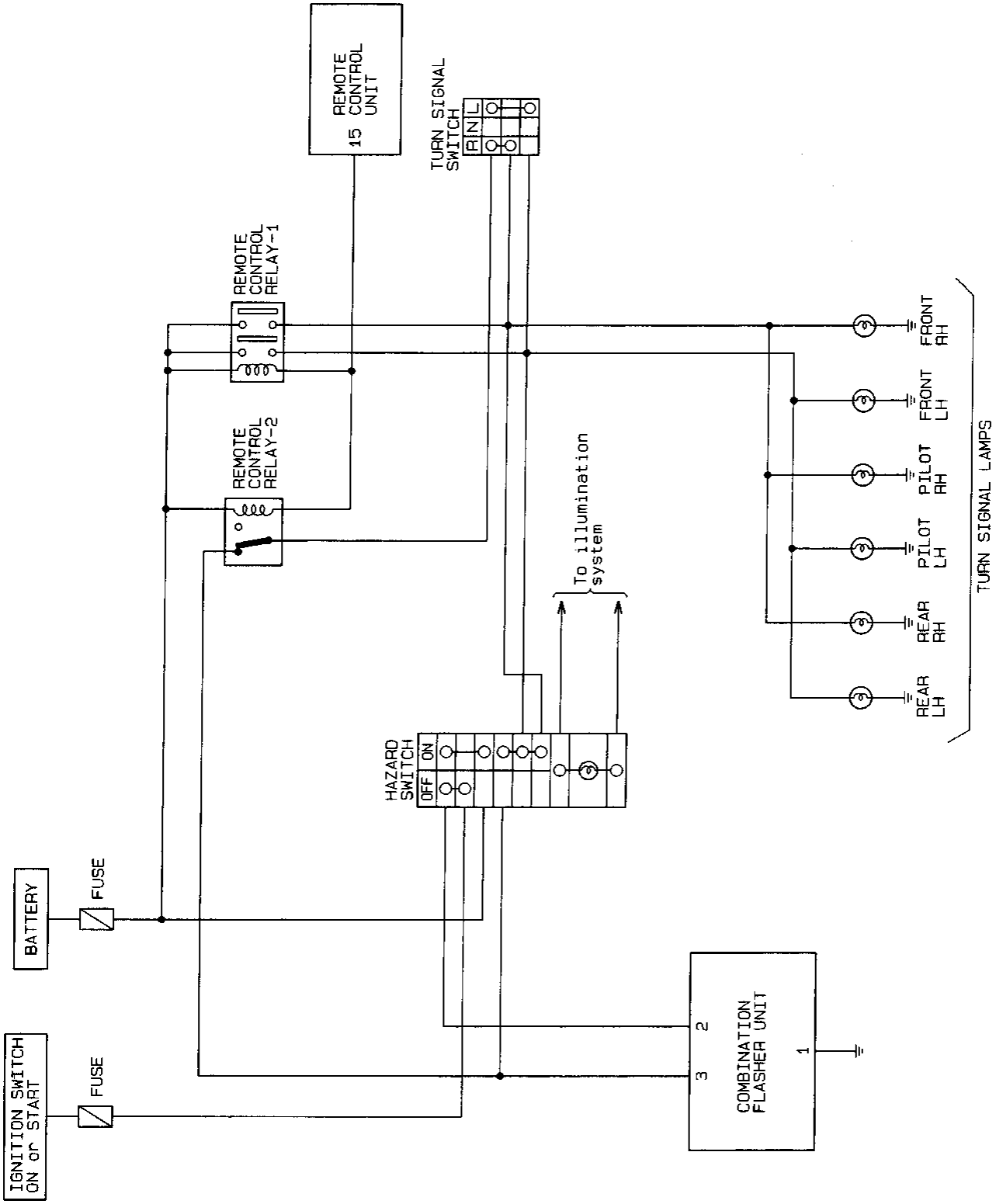
Ground is supplied to terminal ③ of the front turn signal lamps through body grounds (E13) and (E22).
Ground is supplied to terminal ④ of the rear combination lamps through body grounds (B7) and (B32).
Ground is supplied to combination meter terminal ㉞ through body grounds (M3) and (M90).
With power and ground supplied, the combination flasher unit controls the flashing interval of the hazard warning lamps.

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

MULTI-REMOTE CONTROL RELAY

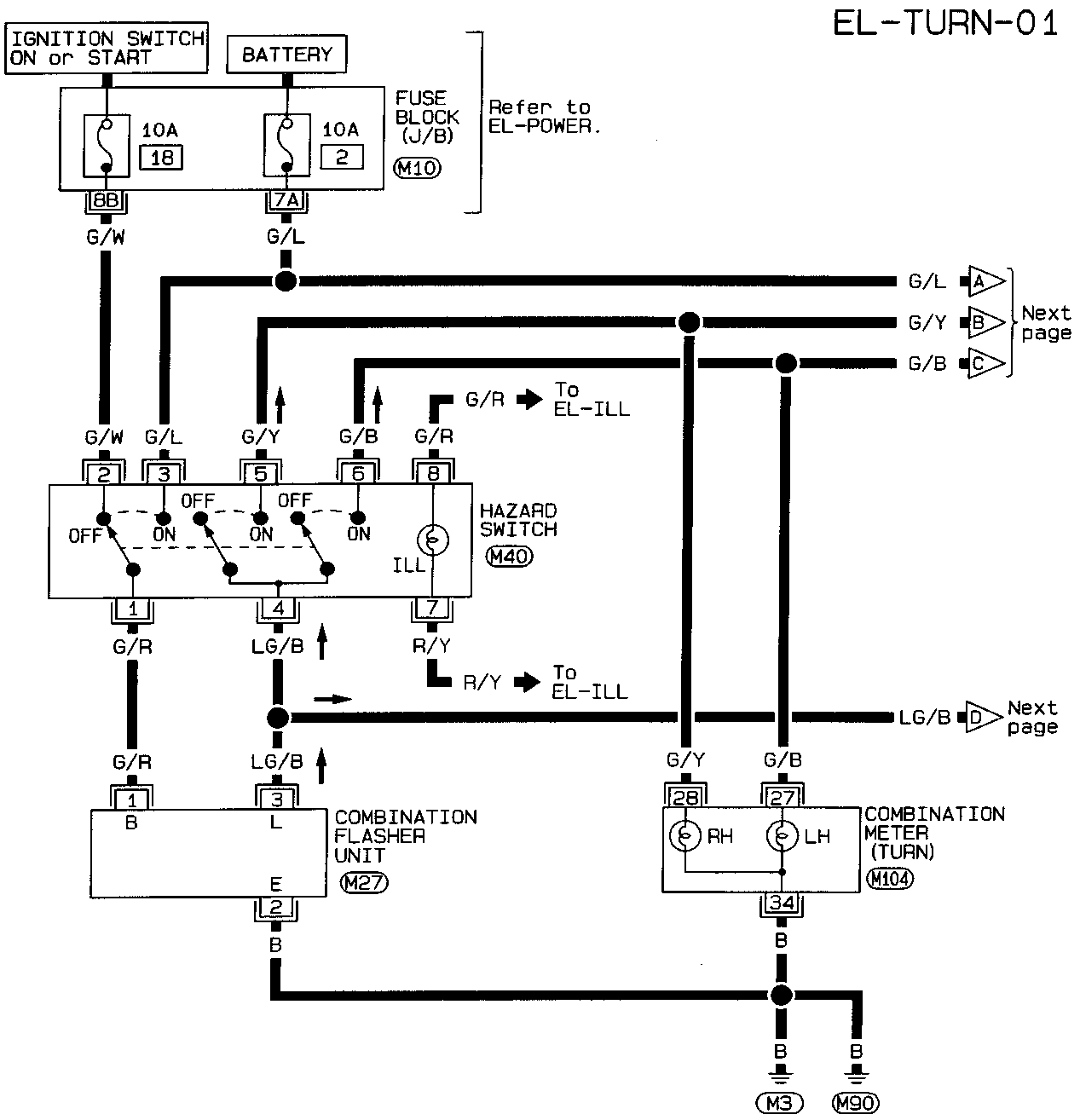
The multi-remote control system controls the flashing of the hazard warning lamps.
The remote control unit energizes remote control relay-1 to supply power to all turn signal lamps, thus triggering multi-remote control system hazard warning lamp operation.
For detailed information, refer to "MULTI-REMOTE CONTROL SYSTEM".

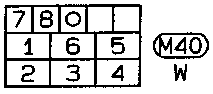
Turn Signal and Hazard Warning Lamps/ Schematic

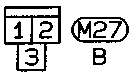


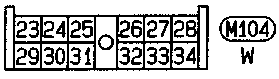
HEL390

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









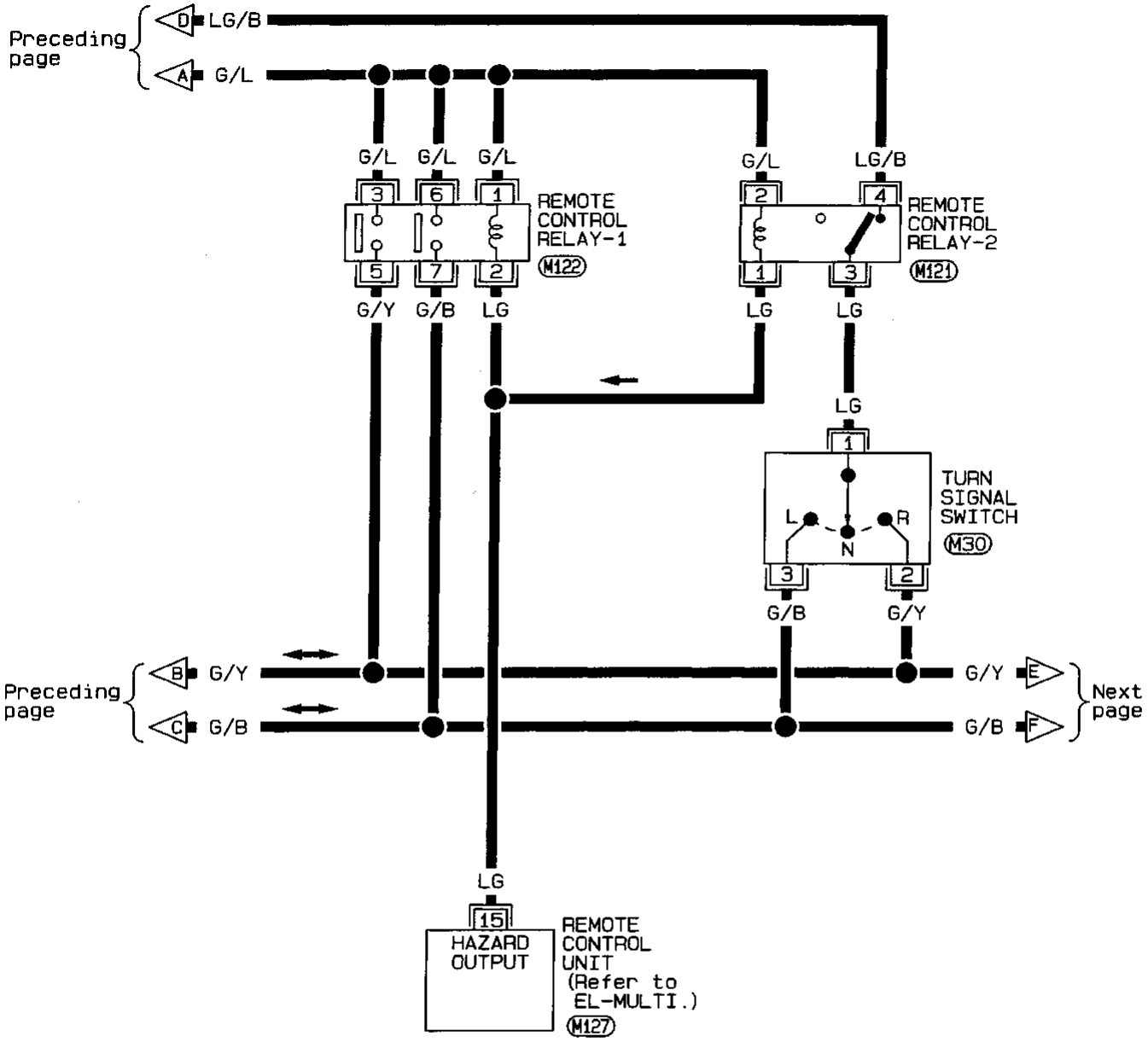
Refer to last page (Foldout page).

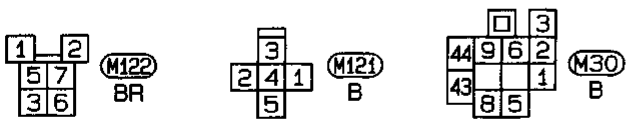
M10

HEL283

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

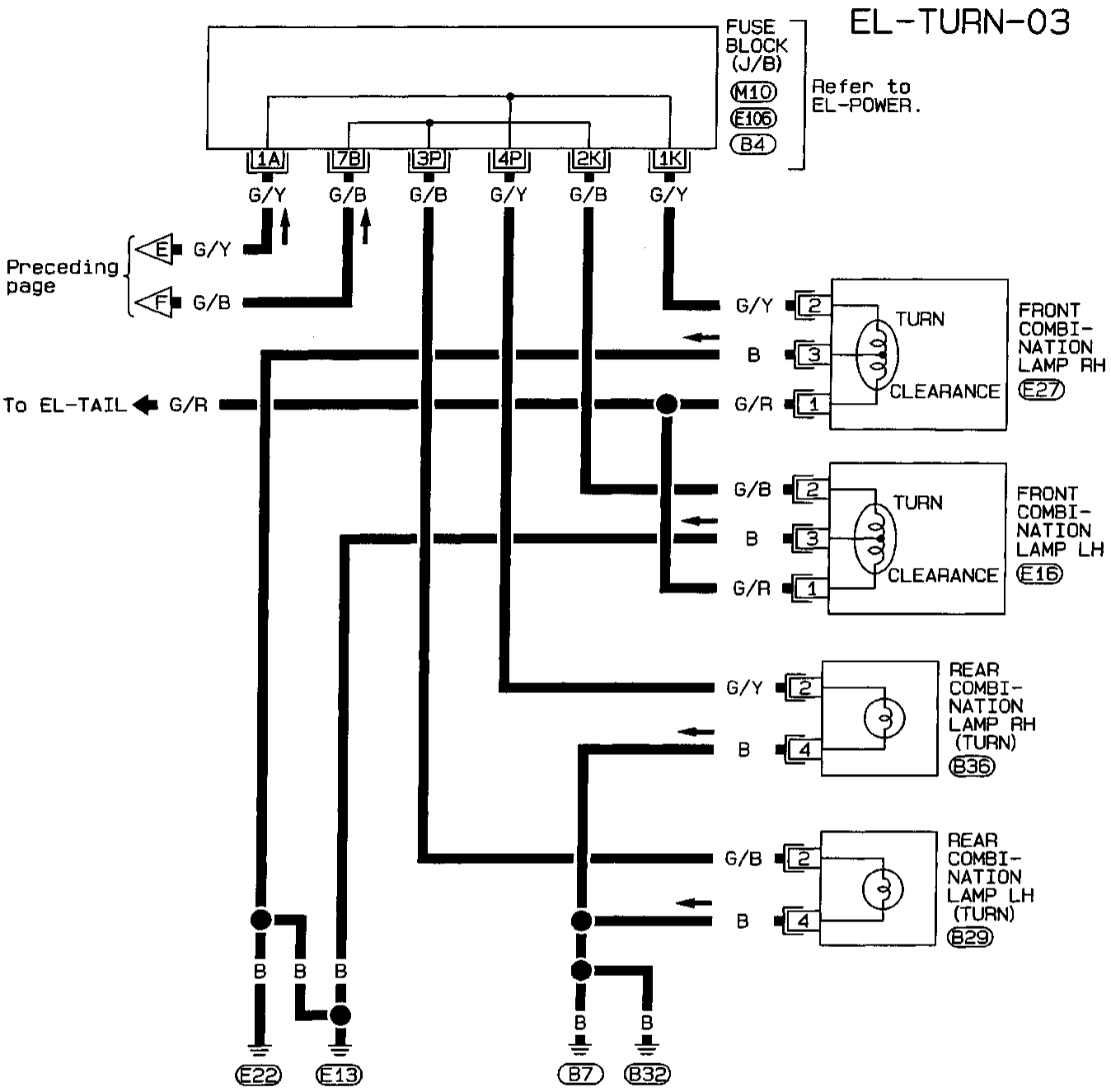
EL-TURN-02

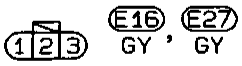


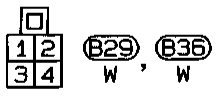


HEL284

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







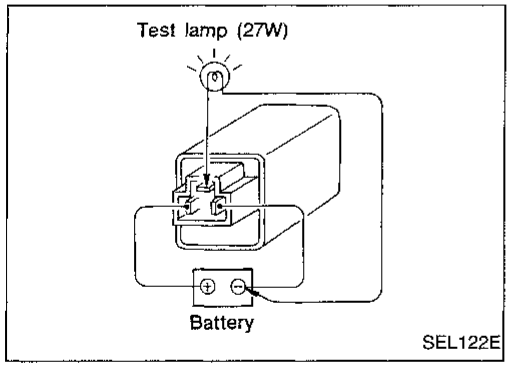
Refer to last page (Foldout page).

M10, E106, B4

HEL391

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. 18, 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 harness between combination flasher unit terminal ③ and turn signal switch terminal ① 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. 2 , located in fuse block). Verify battery positive voltage is present at terminal ③ of hazard switch. 2. Check hazard switch. 3. Check harness between combination flasher unit terminal ③ and hazard switch terminal ④ for open circuit.
Individual turn signal lamp or turn indicators do not operate.	1. Bulb 2. Grounds	1. Check bulb. 2. Check ground circuit for the bulb.



Combination Flasher Unit Check

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

Bulb Specifications

	Wattage (W)	Bulb No.
Front combination lamp		
Turn signal/Clearance	27/8	1157
Front side marker	3.8	194
Rear combination lamp		
Turn signal	27	1156
Stop/Tail	27/8	1157
Back-up lamp	27	1156
Rear side marker lamp	3.8	194
License plate lamp	3.8	194
Front fog lamp	35	
High-mounted stop lamp	13	

Illumination/System Description

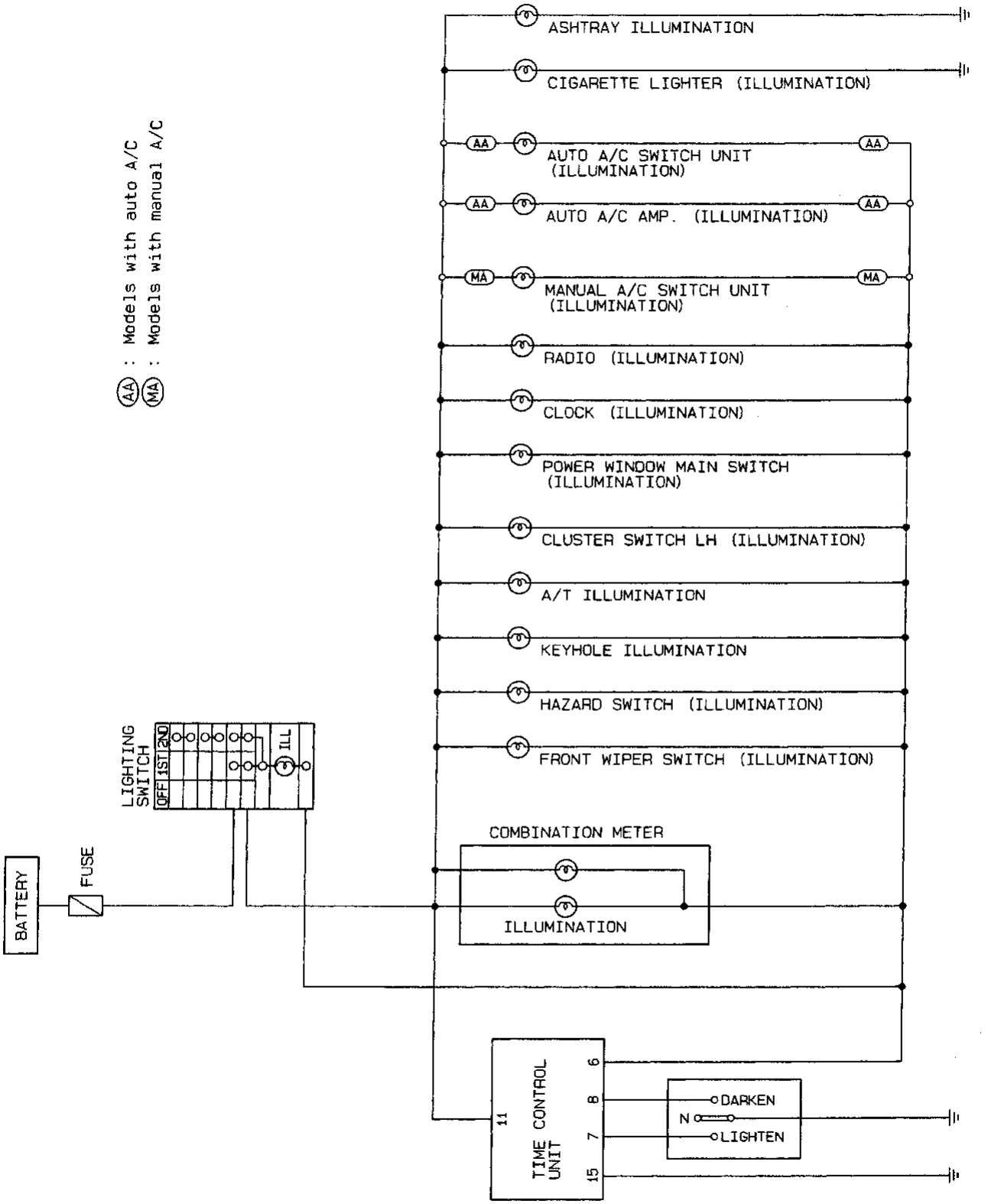
Power is supplied at all times
- through 10A fuse [No. 3], located in the fuse block (J/B)]
- to lighting switch terminal ⑤.

The lighting switch must be in the 1ST or 2ND position for illumination.
Brightness of the illumination is controlled by the time control unit. For detailed information about illumination control, refer to "TIME CONTROL SYSTEM" (EL-111).
The ashtray illumination and the cigarette lighter illumination are not controlled by the illumination control switch. The brightness of these lamps does not change.
The following chart shows the power and ground connector terminals for the components included in the illumination system.

Component	Power terminal	Ground terminal
Cluster	㉒	㉓
Combination meter	⑰ and ㉝	⑩
Hazard switch	⑧	⑦
Front wiper switch	㉑	㉒
Key hole	①	②
A/T device	④	③
Power window main switch	⑧	⑨
Clock	②	⑤
Radio	⑧	⑦
Auto A/C control unit	⑬	⑫
Auto A/C switch unit	⑬	⑫
Manual A/C switch unit	①	②
Cigarette lighter	③	①
Ashtray	①	②

With the exception of the cigarette lighter illumination and the ashtray illumination, the ground for all of the components are controlled through terminals ⑪ and ⑮ of the time control unit and body grounds (M3) and (M90).
The ashtray illumination terminal ② and cigarette lighter illumination terminal ① are grounded directly through body grounds (M3) and (M90).

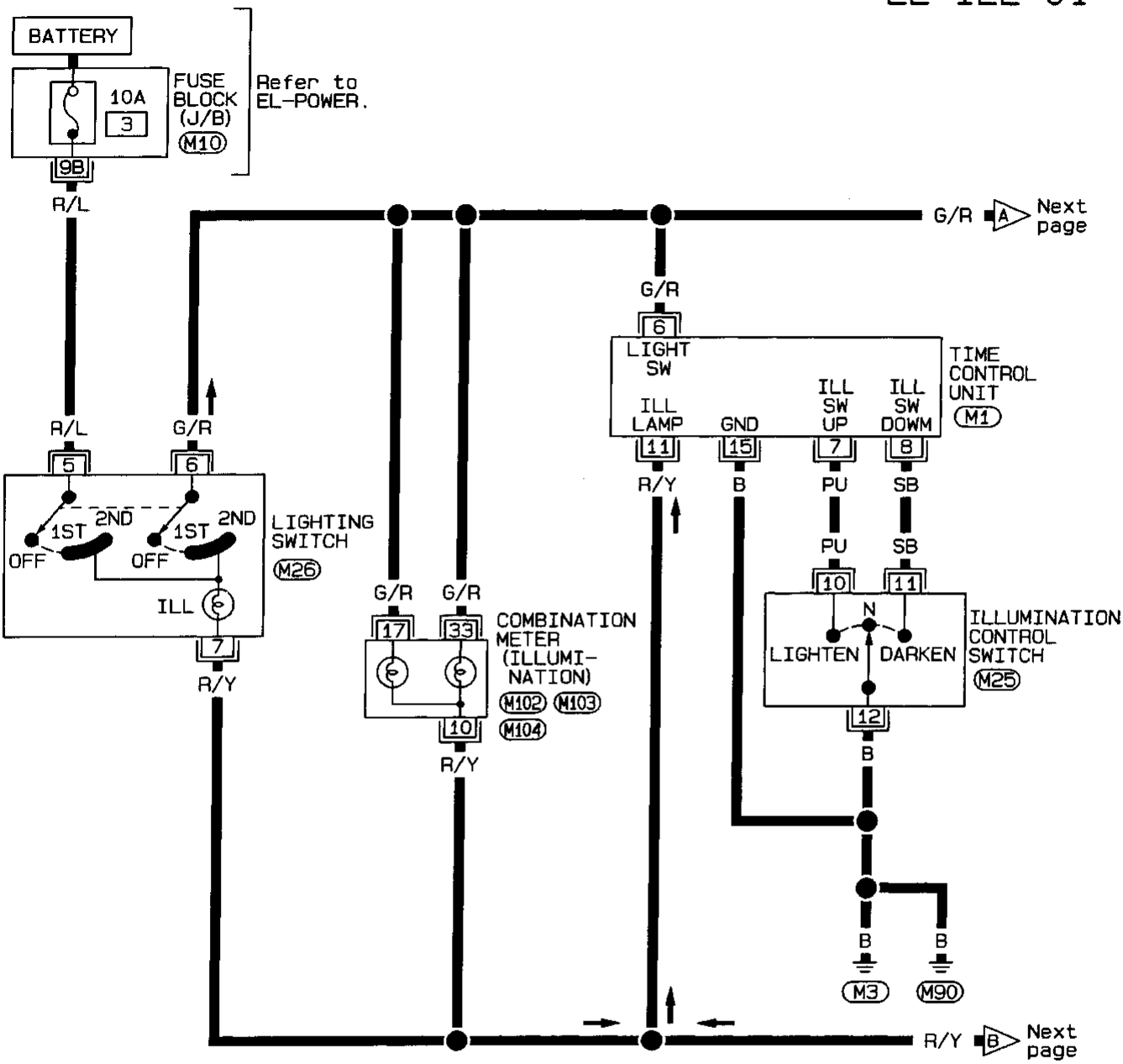
Illumination/Schematic

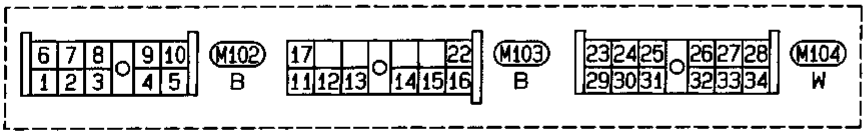


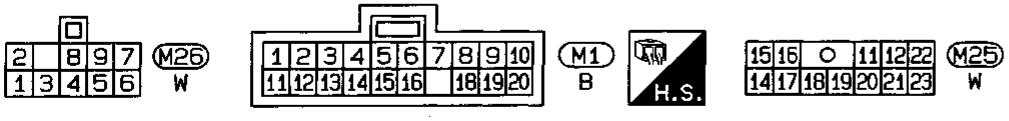
HEL285

Illumination/Wiring Diagram — ILL —

EL-ILL-01







Refer to last page (Foldout page).

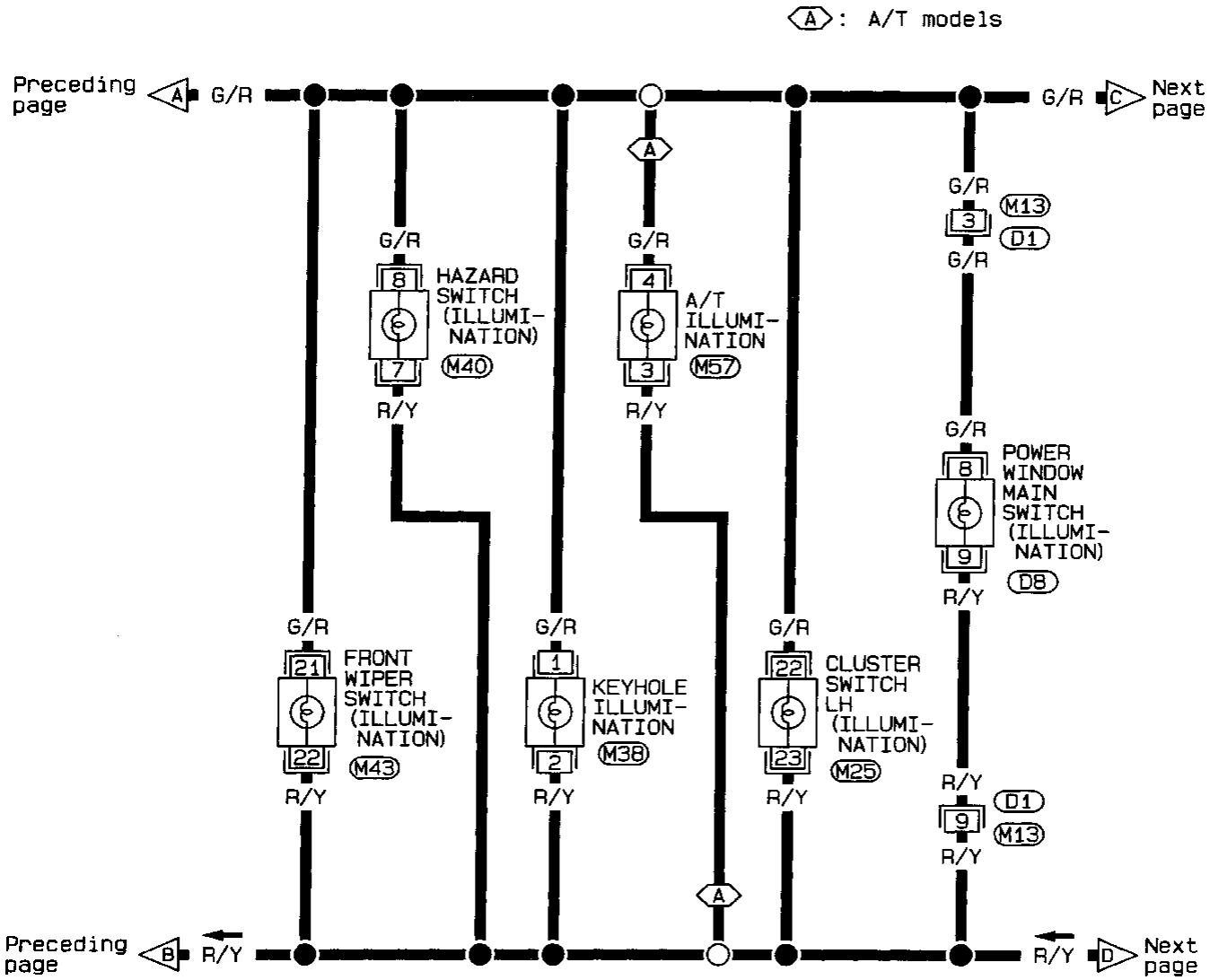
M10

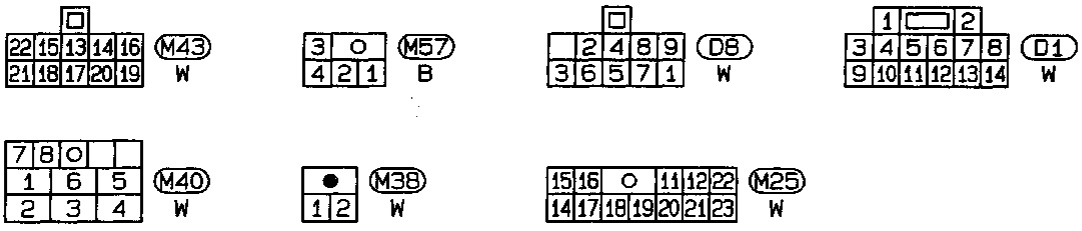
HEL286

1321

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

EL-ILL-02



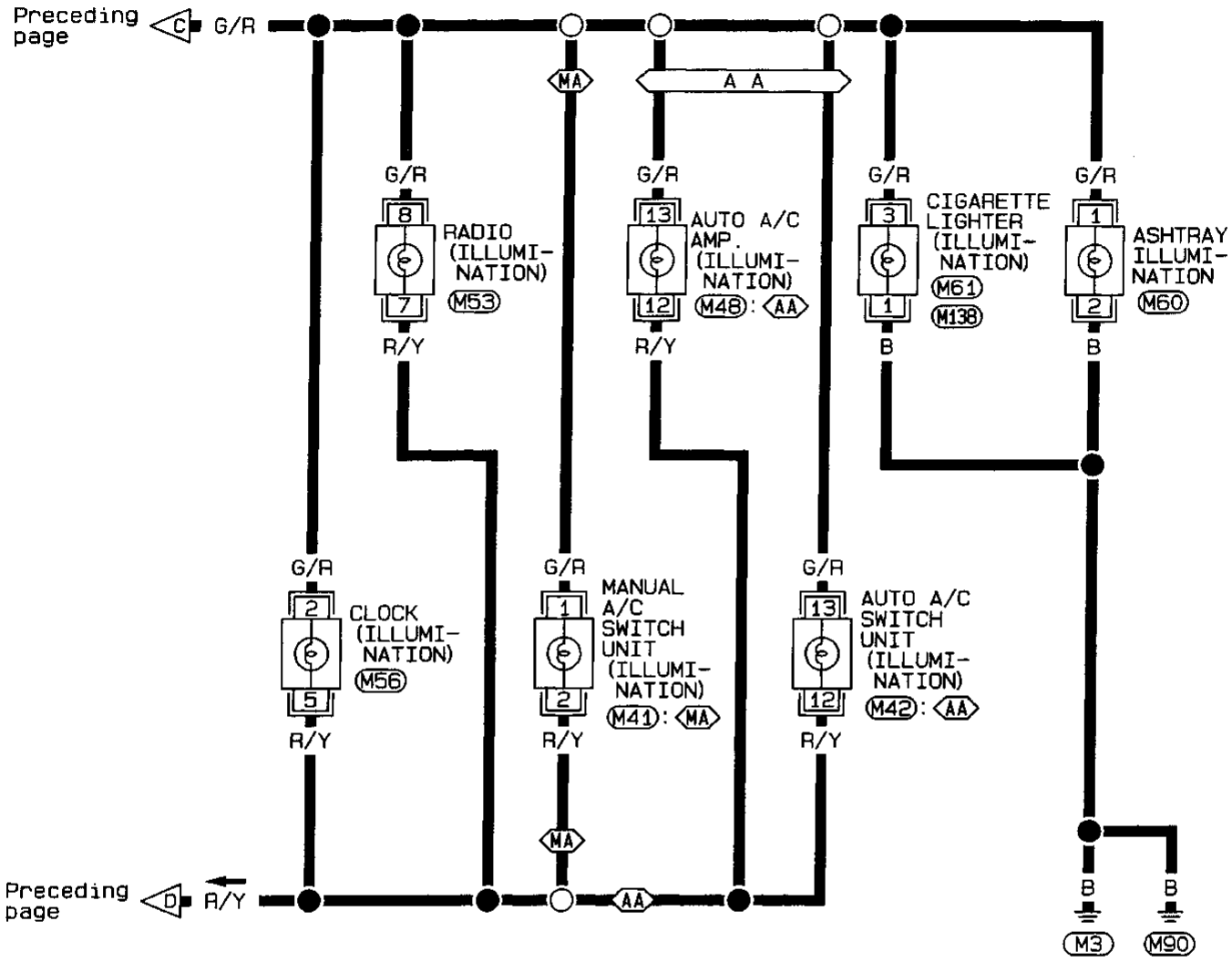


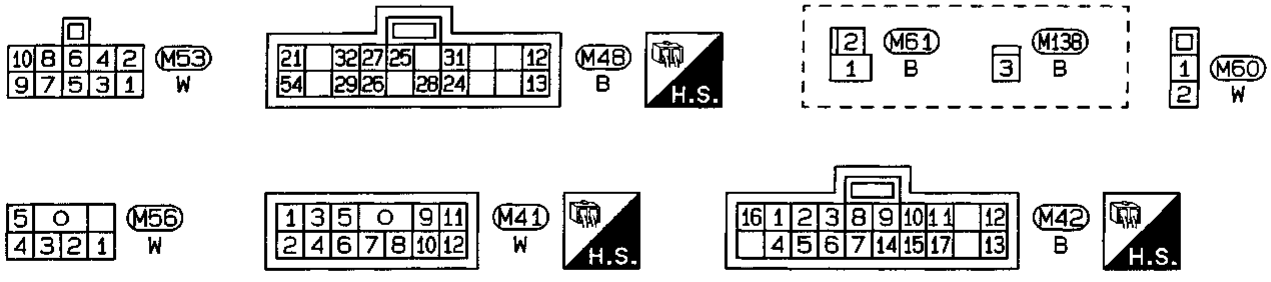
HEL287

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

EL-ILL-03

AA : Models with auto A/C
MA : Models with manual A/C





HEL288

Interior, Spot, Foot, Luggage Room and Trunk Room Lamps/System Description

Power is supplied at all times
- to room lamp relay terminal ①
- through 10A fuse [No. 39 located in the fuse block (in relay box)]
- to interior lamp terminal ③,
- to spot lamp terminal ② (Except convertible models) or ③ (Convertible models),
- to luggage room lamp terminal ①,
- to trunk room lamp terminal ①, and
- to each foot lamp terminal ①.

INTERIOR LAMP (Except convertible models)

Switch operation

With interior lamp switch ON, ground is supplied to turn interior lamp ON.
When a door switch is set to OPEN with interior lamp switch in DOOR, ground is supplied
- to room lamp relay terminal ②
- through diode B40 terminal ④ (2+2 seater models) or terminal ① (2 seater models)
- to diode B40 terminal ②
- through diode B10 terminal ⑥/⑦/⑧
- to diode B10 terminal ①/②/③
- through door switch LH/door switch RH/back door switch and body grounds B7 and B32.

Interior lamp control by time control unit

Time control unit receives a signal to turn interior lamp ON and fade out when door switch LH is opened then closed with interior lamp switch set to DOOR. Ground is then supplied
- to interior lamp terminal ①
- through time control unit terminal ⑳
- to time control unit terminal ⑮
- through body grounds M3 and M90.

With power and ground supplied, the interior lamp turns ON. After door switch is closed, interior lamp illuminates at about half brightness, then fades out.

SPOT LAMP

Switch operation

With the spot lamp switch in the ON position, ground is supplied
- to spot lamp terminal ② (Convertible models) or ① (Except convertible models)
- through body grounds M3 and M90 (Convertible models) or B7 and B32 (Except convertible models).

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

Spot lamp control by time control unit (Only for convertible models)

Time control unit receives a signal when door switch LH is opened and closed to turn spot lamp ON, then fades it out. Ground is supplied
- to spot lamp terminal ①
- through time control unit terminal ⑳
- to time control unit terminal ⑮
- through body grounds M3 and M90.

With power and ground supplied, the spot lamp turns ON. After door switch is closed, spot lamp illuminates at about half brightness, then fades out.

LUGGAGE ROOM LAMP

When the back door is opened, ground is supplied
- to luggage room lamp terminal ②
- through diode B40 terminal ③
- to diode B40 terminal ①
- through back door switch.

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

Interior, Spot, Foot, Luggage Room and Trunk Room Lamps/System Description (Cont'd)

TRUNK ROOM LAMP

When the trunk room lamp switch is set to OPEN, ground is supplied
- to trunk room lamp terminal ②
- through trunk room switch.

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

FOOT LAMP

Except convertible models

When the door switch is opened, ground is supplied
- to each foot lamp terminal ②
- through diode (M131) terminal ④ (For U.S.A. models) or diode (M129) terminal ① (For Canada models)
- to diode (M131) terminal ② (For U.S.A. models) or diode (M129) terminal ② (For Canada models)
- through diode (B10) terminal ⑨/⑩
- to diode (B10) terminal ④/⑤
- to door switch LH/door switch RH and body grounds (B7) and (B32).

With power and ground supplied, the foot lamps turn ON.

Convertible models

When the door switch is opened, ground is supplied
- to each foot lamp terminal ②
- through diode (B10) terminal ⑨
- to diode (B10) terminal ④
- through diode (B40) terminal ⑨/diode (B10) terminal ⑩
- to diode (B40) terminal ④/diode (B10) terminal ⑤
- through door switch LH/door switch RH and body grounds (B7) and (B32).

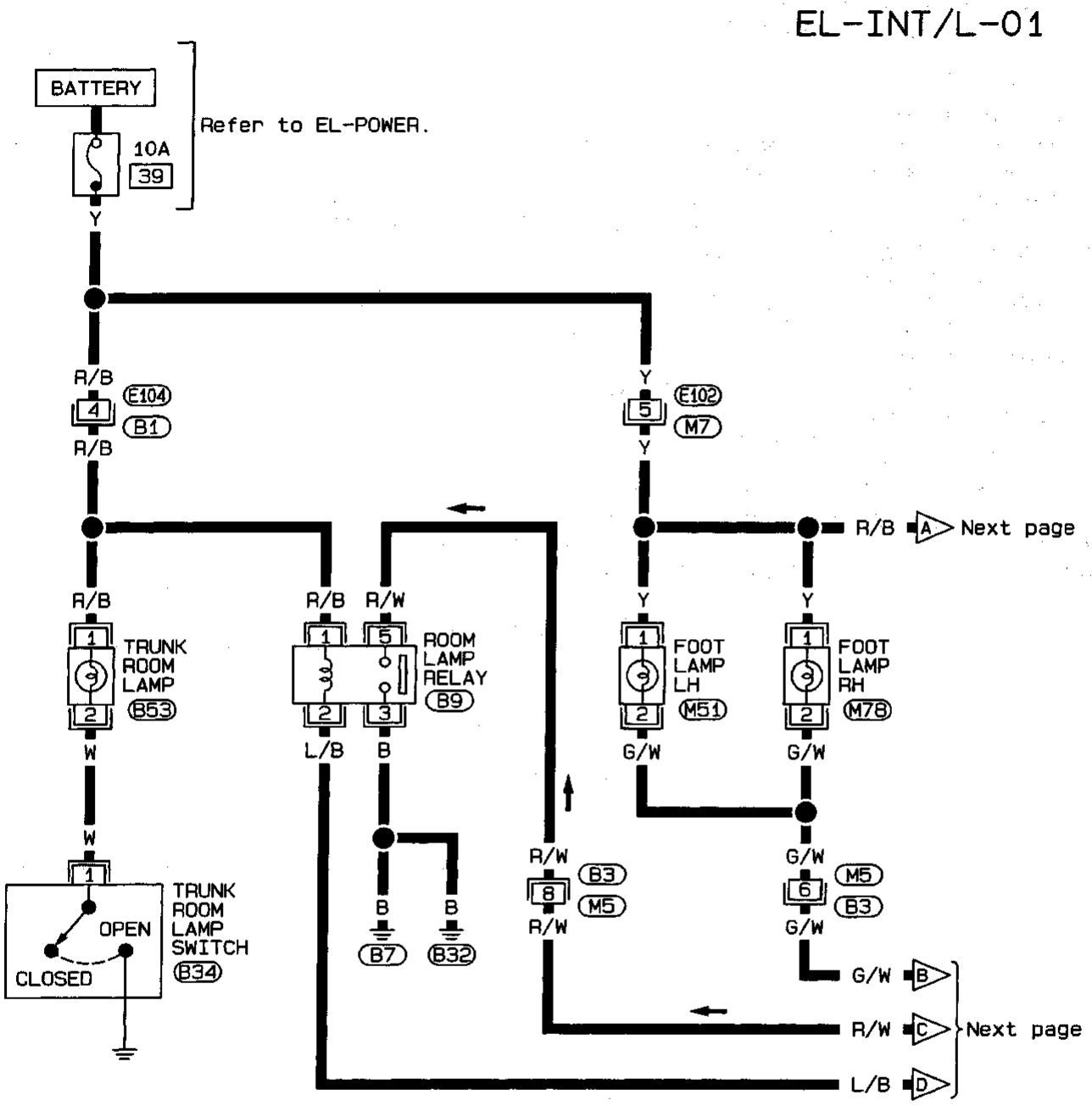
With power and ground supplied, the foot lamps turn ON.

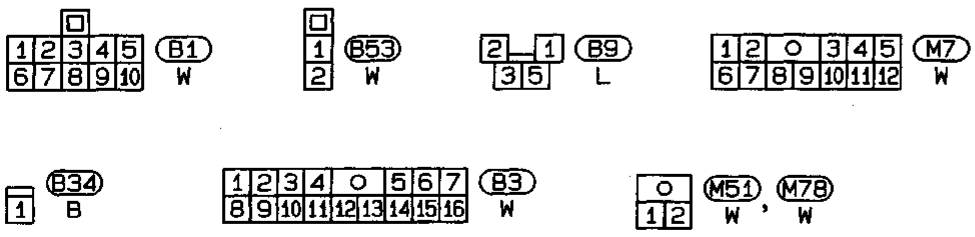
Bulb Specifications

Item	Wattage (W)
Interior lamp	10
Spot lamp	3.6
Luggage room lamp	3.4
Trunk room lamp	3.4
Foot lamp	2

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

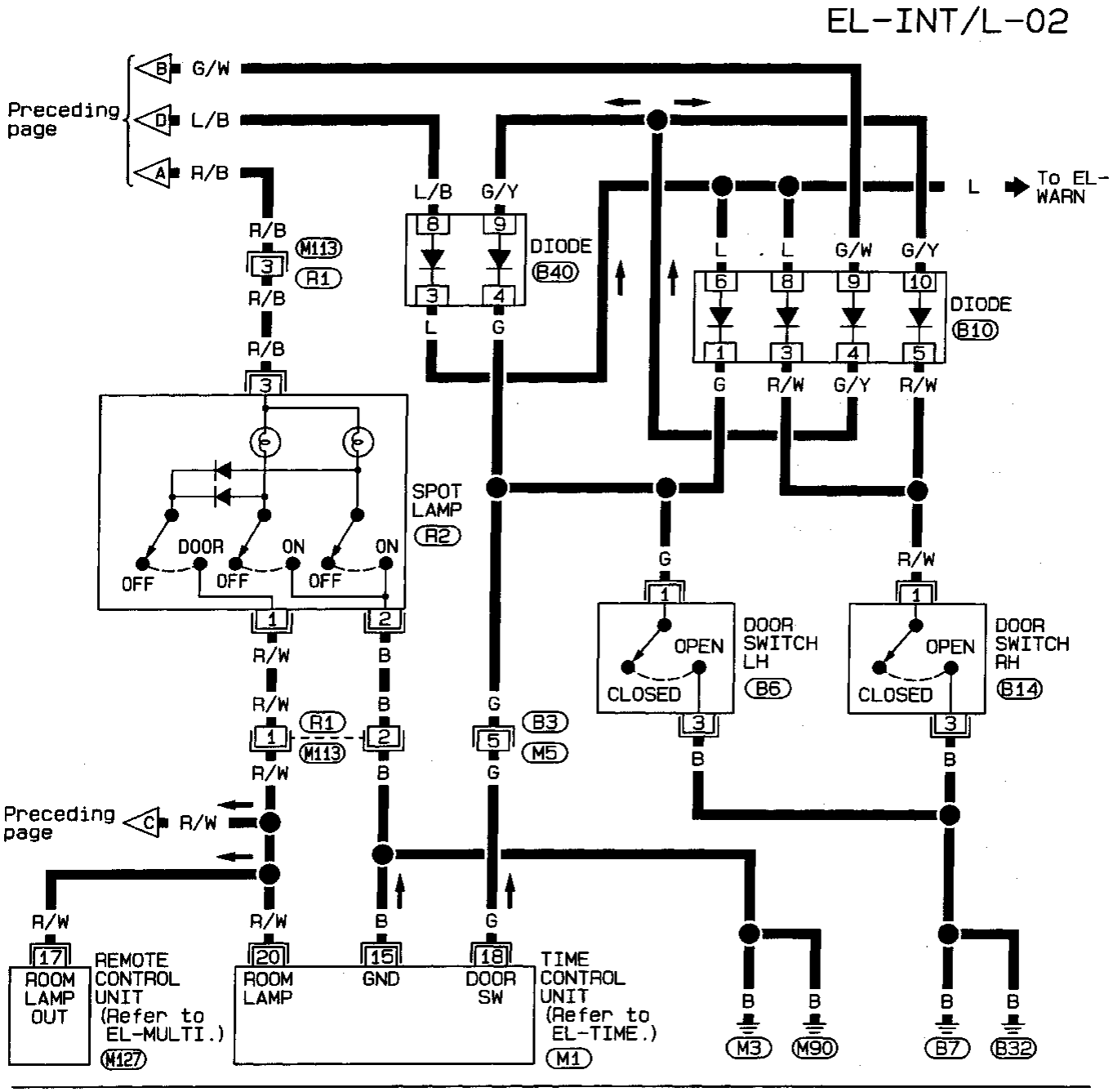
CONVERTIBLE





HEL290

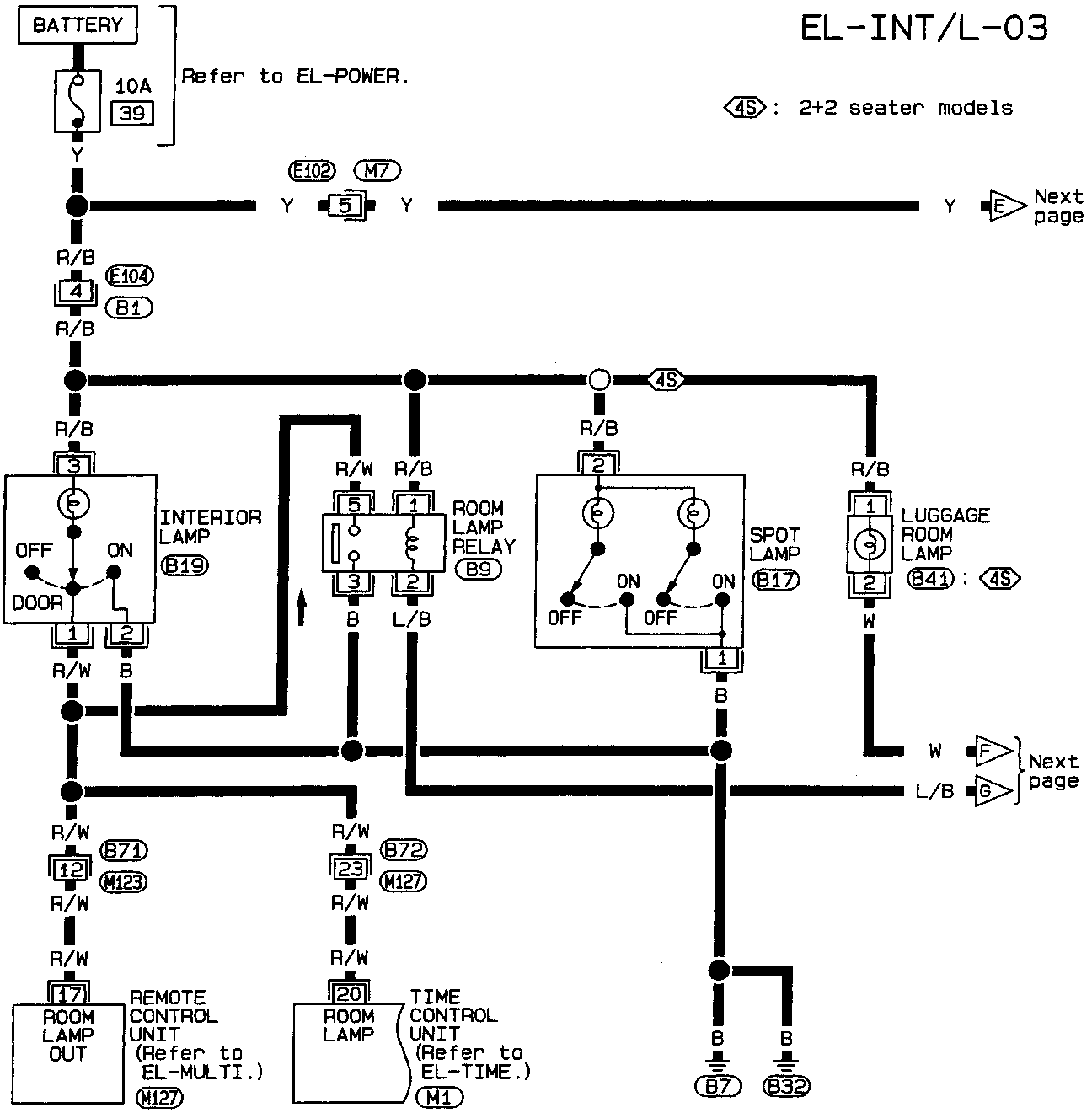
Interior, Spot, Foot, Luggage Room and Trunk Room Lamps/Wiring Diagram — INT/L — (Cont'd)

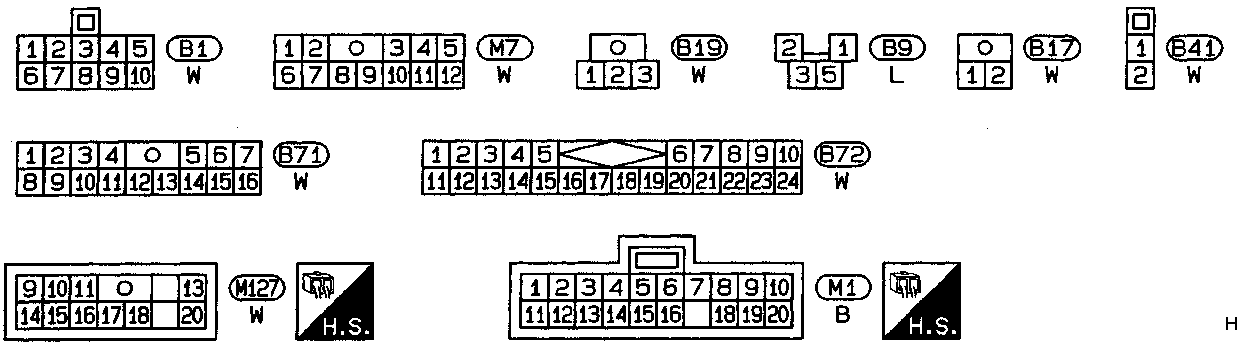


HEL291

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

EXCEPT CONVERTIBLE

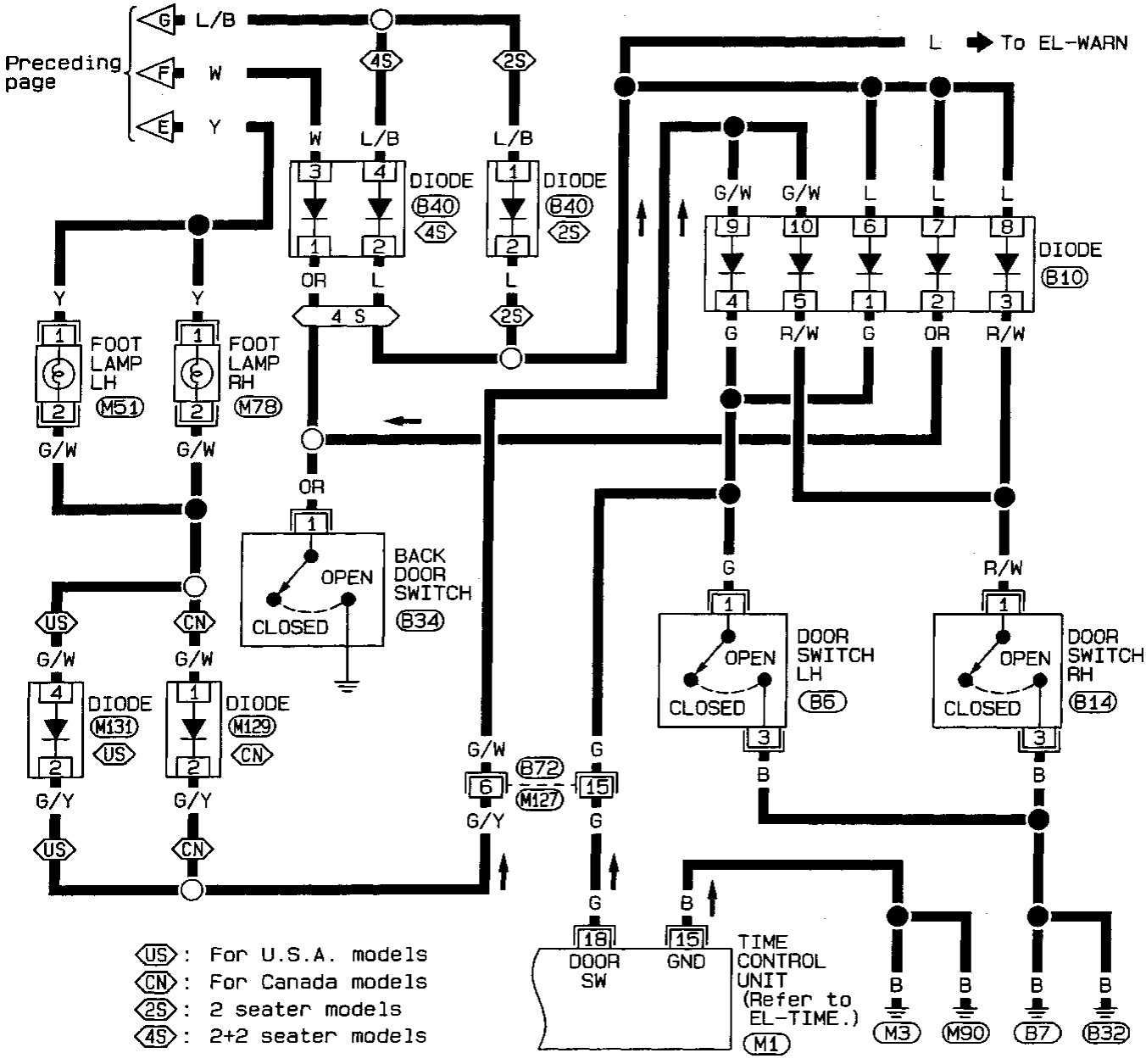


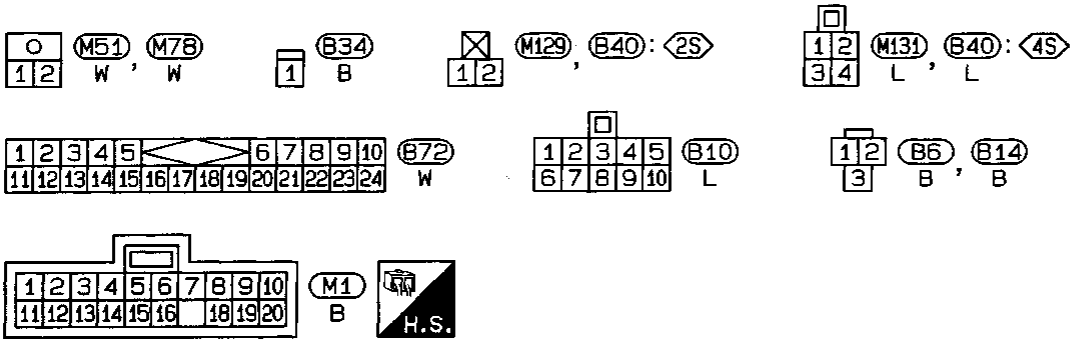


HEL292

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

EL-INT/L-04





HEL293

System Description

With the ignition switch in the ON or START position, power is supplied
- through 10A fuse [No. 10, located in the fuse block (J/B)]
- to combination meter terminal ㉙ for meter and gauges.

Ground is supplied
- to combination meter terminal ⑬ for gauges and tachometer, and
- to combination meter terminal ㉒ for speedometer
- through body grounds (M3) and (M90).

SPEEDOMETER

The vehicle speed sensor provides a voltage signal to the combination meter for the speedometer.
The voltage is supplied
- to combination meter terminals ⑭ and ⑯ for the speedometer
- from terminals ② and ① of the vehicle speed sensor.

The speedometer converts the voltage into the vehicle speed displayed.

TACHOMETER

The tachometer indicates engine speed in revolutions per minute (rpm).
The tachometer is regulated by a signal
- from terminal ⑤ of the ECM (ECCS control module)
- to combination meter terminal ㉓ for the tachometer.

FUEL GAUGE

The fuel gauge indicates the approximate fuel level in the fuel tank.
The fuel gauge is regulated by a variable ground signal supplied
- to combination meter terminal ㉛ for the fuel gauge
- from terminal ① (2+2 seater models) or terminal ② (2 seater models) of the fuel tank gauge unit
- through terminal ② (2+2 seater models) or terminal ① (2 seater models) of the fuel tank gauge unit and
- through body grounds (B7) and (B32).

WATER TEMPERATURE GAUGE

The water temperature gauge indicates the engine coolant temperature. The reading on the gauge is based on the resistance of the thermal transmitter.
As the temperature of the coolant increases, the resistance of the thermal transmitter decreases. A variable ground is supplied to terminal ⑫ of the combination meter for the water temperature gauge. The needle on the gauge moves from "C" to "H".

OIL PRESSURE GAUGE

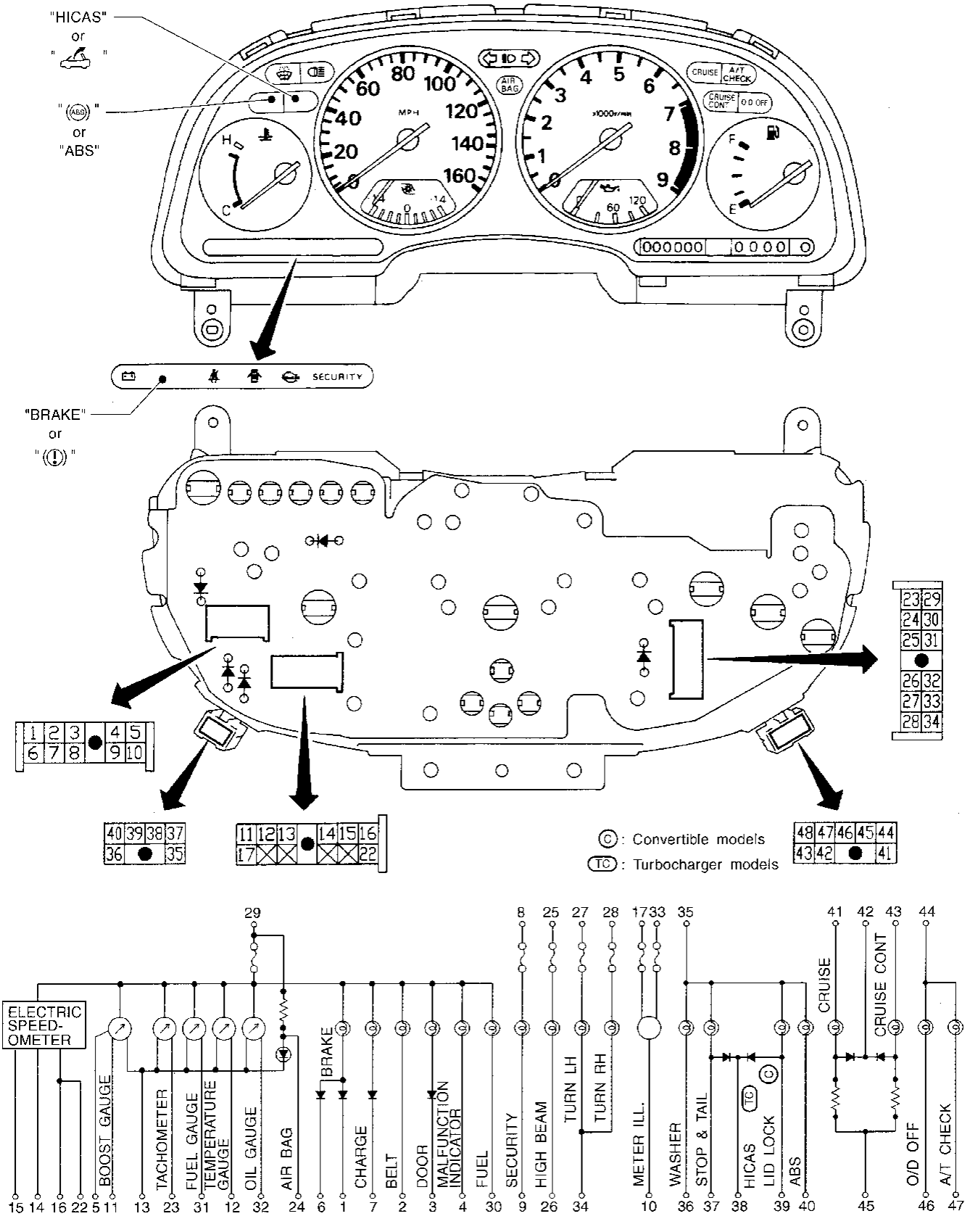
The oil pressure gauge indicates the engine oil pressure. The reading on the gauge is based on the resistance of the oil pressure sending unit.
As the pressure of the engine oil in the oil gallery increases, the resistance of the oil pressure sending unit increases. A variable ground is supplied to terminal ㉜ of the combination meter for the oil pressure gauge.

BOOST GAUGE

The boost gauge indicates the turbocharger negative pressure. The reading on the gauge is based on the voltage of the turbocharger boost sensor.
As the pressure of the turbocharger decreases, the voltage of the turbocharger boost sensor decreases. The boost gauge is regulated by a signal
- from terminals ② and ③ of the turbocharger boost sensor
- to combination meter terminals ⑤ and ⑪ for the boost gauge.

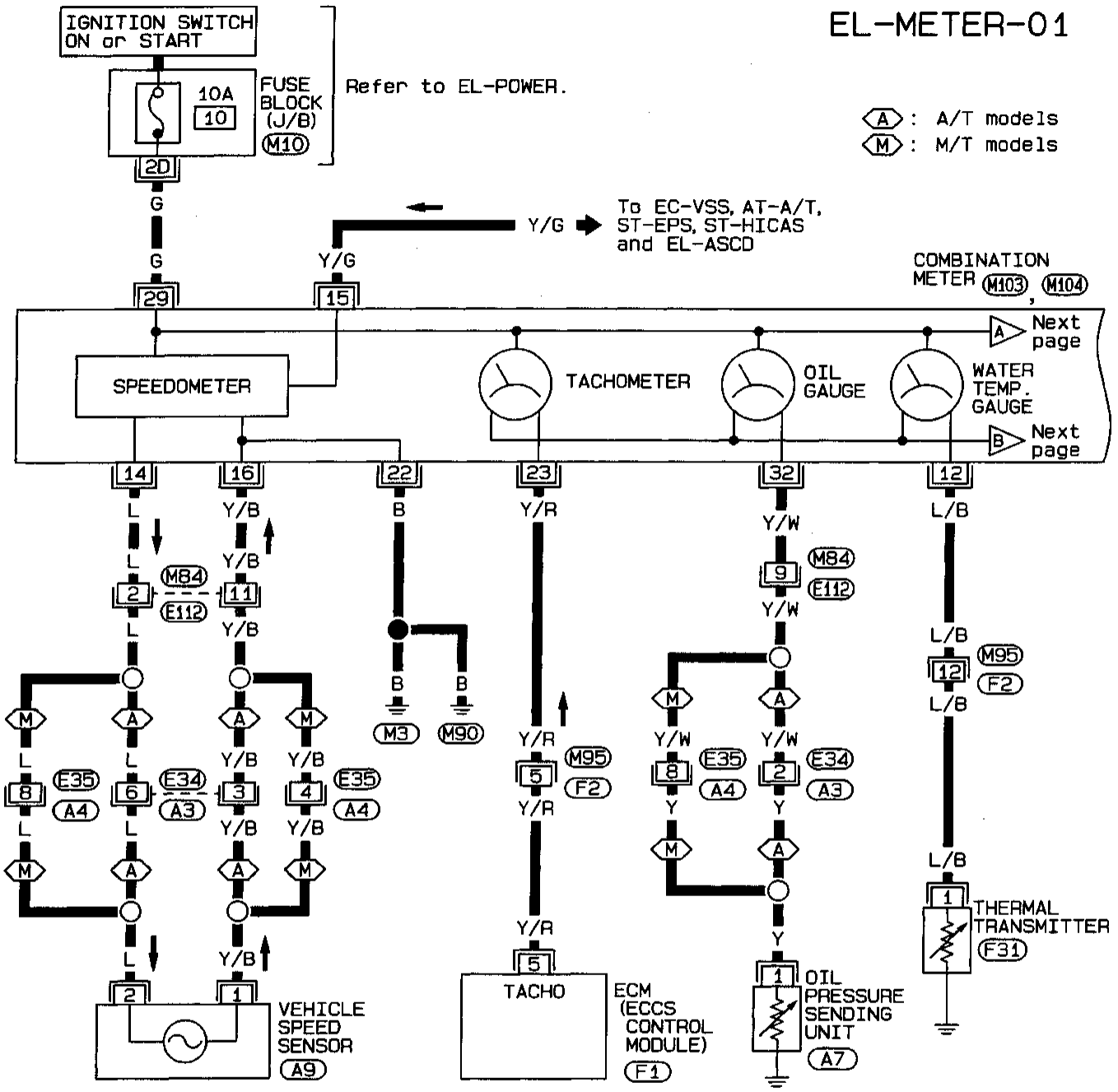
The boost gauge converts the voltage into the boost pressure displayed.

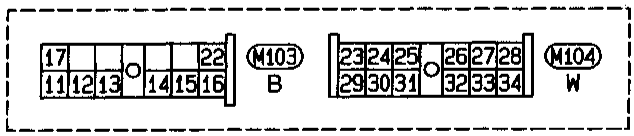
Combination Meter

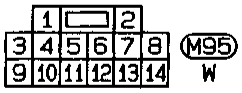


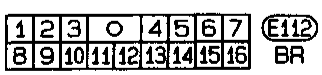
GEL055

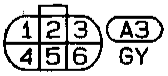
Speedometer, Tachometer, Temp., Oil, Fuel and Boost Gauges/Wiring Diagram — METER —

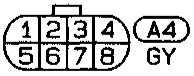


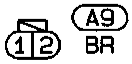


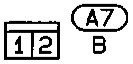












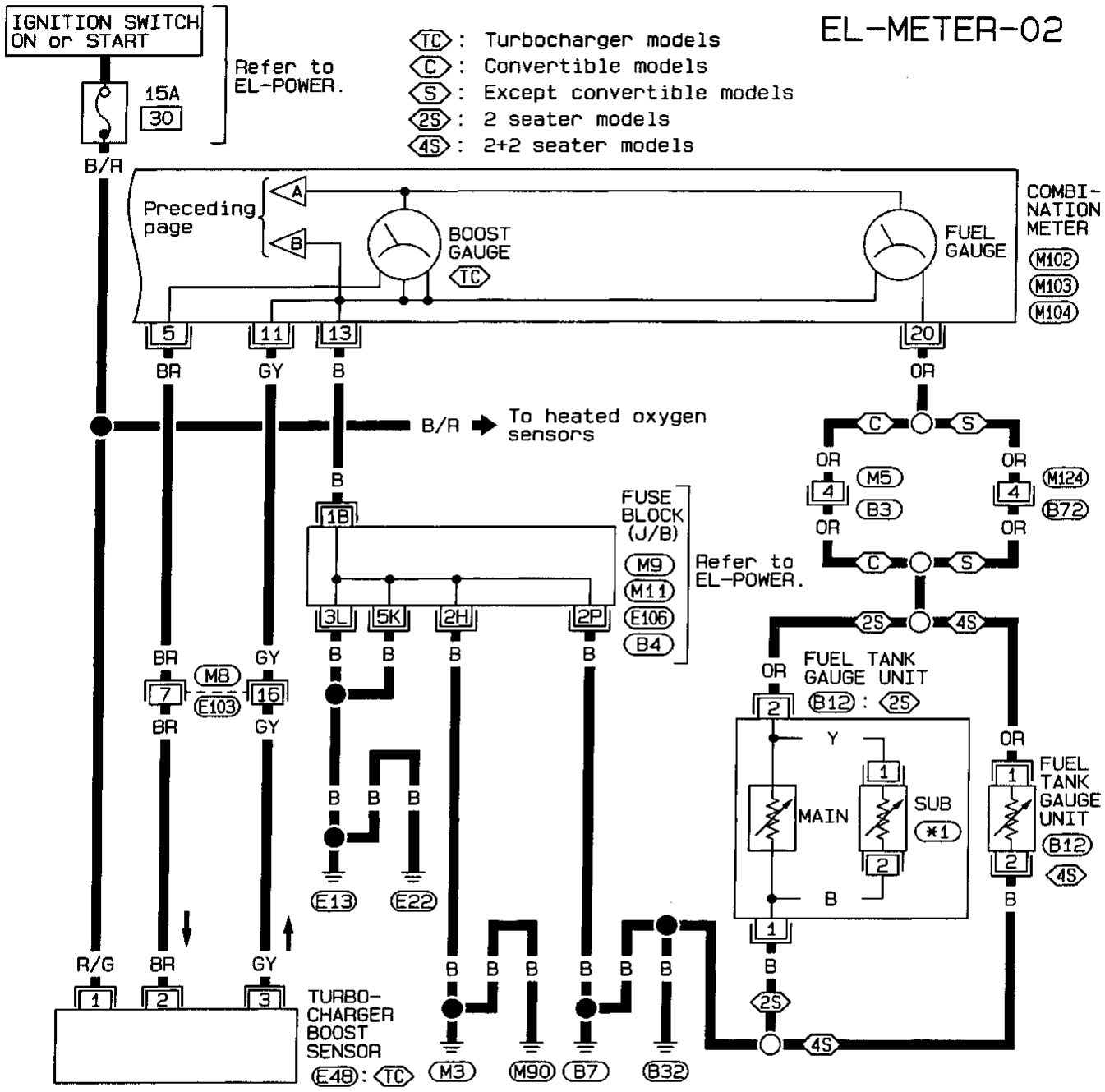
Refer to last page (Foldout page).

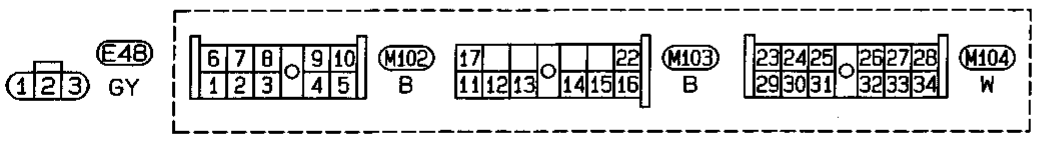
M10

F1

HEL295

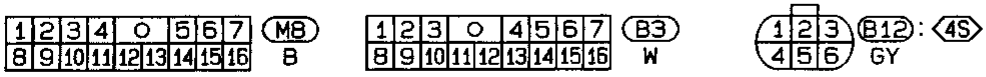
Speedometer, Tachometer, Temp., Oil, Fuel and Boost Gauges/Wiring Diagram — METER — (Cont'd)





Refer to last page (Foldout page).

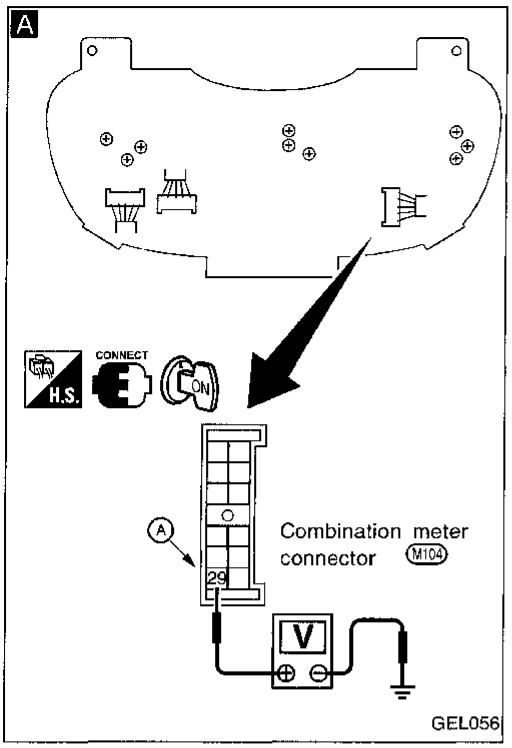
M9, M11, E106, B4

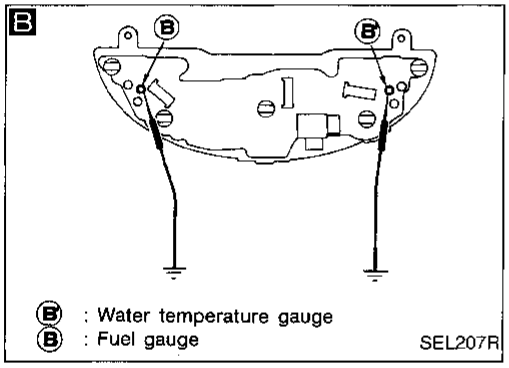


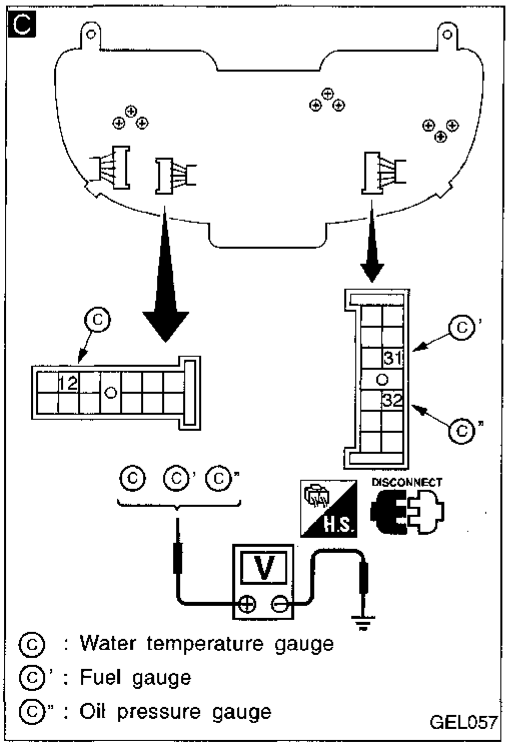
HEL296

1333

Inspection/Fuel Gauge and Water Temperature Gauge







INSPECTION START

A

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

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

OK ↓

B

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

NG → Repair or replace gauge.

OK ↓

C

Check harness continuity between component and combination meter Ⓒ, Ⓒ' and Ⓒ".

NG → Repair or replace.

OK ↓

CHECK COMPONENT
Check gauge units and harness.
Refer to "Fuel Tank Gauge Unit Check" (EL-97), "Thermal Transmitter Check" (EL-97) and "Oil Pressure Sending Unit Check" (EL-97).

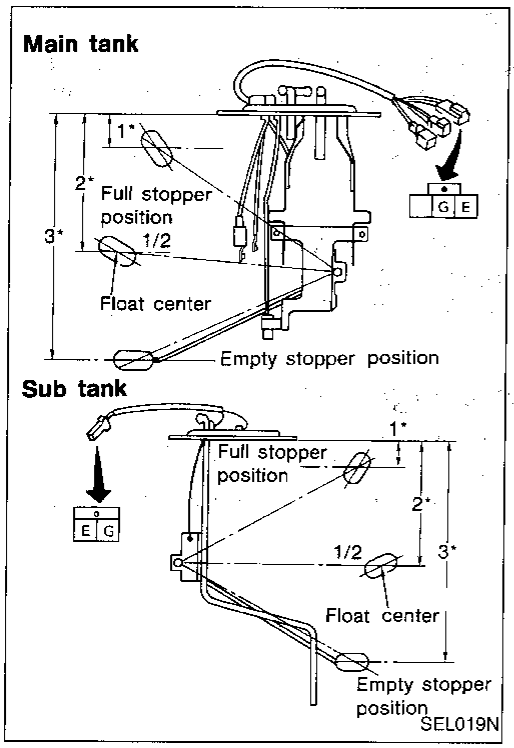
NG → Repair or replace.
Refer to FE section. (Fuel tank gauge unit)

OK ↓

Reinstall any part removed.

↓

INSPECTION END



Fuel Tank Gauge Unit Check

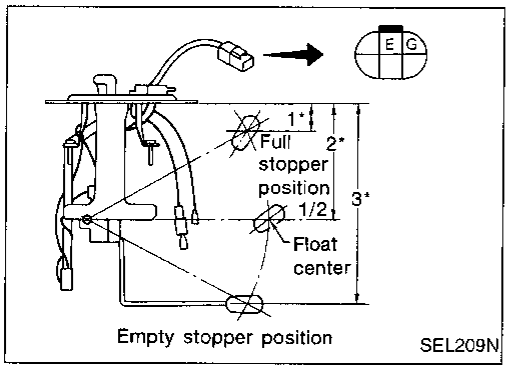
- For removal, refer to FE section.

Check the resistance between terminals Ⓖ and Ⓔ.

2 seater models:

Ohmmeter (+)	Ohmmeter (−)	Float position mm (in)				Resistance value (Ω)
G	E	1*	Full	Main	41.0 (1.614)	8.6 - 11.6
				Sub	40.0 (1.575)	
		2*	1/2	Main	137.0 (5.39)	55.4 - 68.6
				Sub	139.5 (5.49)	
		3*	Empty	Main	232.0 (9.13)	157.6 - 170.6
				Sub	261.0 (10.28)	

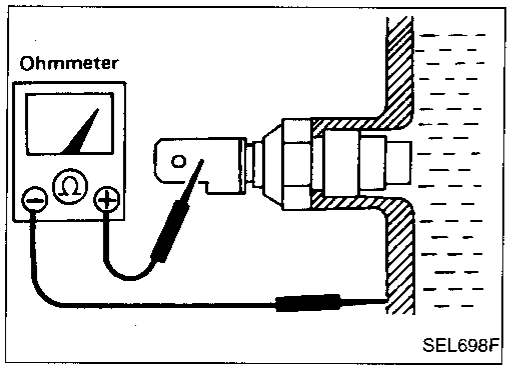
1* and 3*: When float rod is in contact with stopper.



2+2 seater models:

Ohmmeter (+)	Ohmmeter (−)	Float position mm (in)			Resistance value (Ω)
G	E	1*	Full	21.0 (0.827)	4.3 - 5.8
		2*	1/2	115.0 (4.53)	27.7 - 34.3
		3*	Empty	207.0 (8.15)	78.3 - 84.8

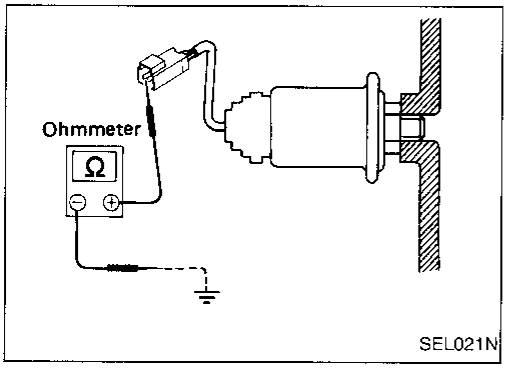
1* and 3*: When float rod is in contact with stopper.



Thermal Transmitter Check

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

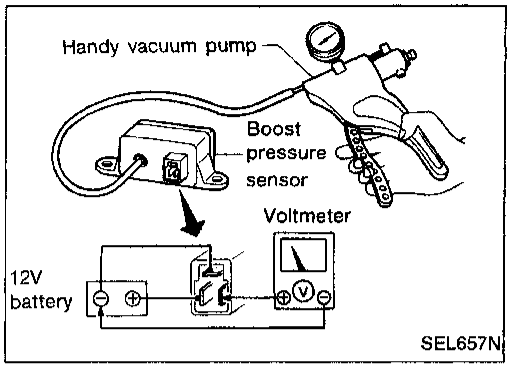
Water temperature	Resistance
60°C (140°F)	Approx. 70 - 90Ω
100°C (212°F)	Approx. 21 - 24Ω



Oil Pressure Sending Unit Check

Check the resistance between the terminals of oil pressure sending unit and body ground.

Oil pressure kPa (kg/cm² psi)	Resistance (Ω)
0 (0, 0) (Engine is stopped)	More than 83
392 (4, 57)	Approx. 26 - 37
588 (6, 85)	Approx. 18 - 26

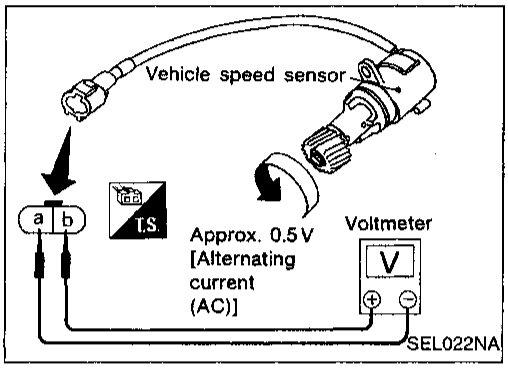


Boost Sensor Check

1. Connect vacuum pump gauge to boost sensor vacuum hose.
2. Disconnect harness connector from boost sensor and connect battery and voltmeter as shown.
3. Apply vacuum pressure to boost sensor by vacuum pump gauge and measure voltages.

   Voltage:

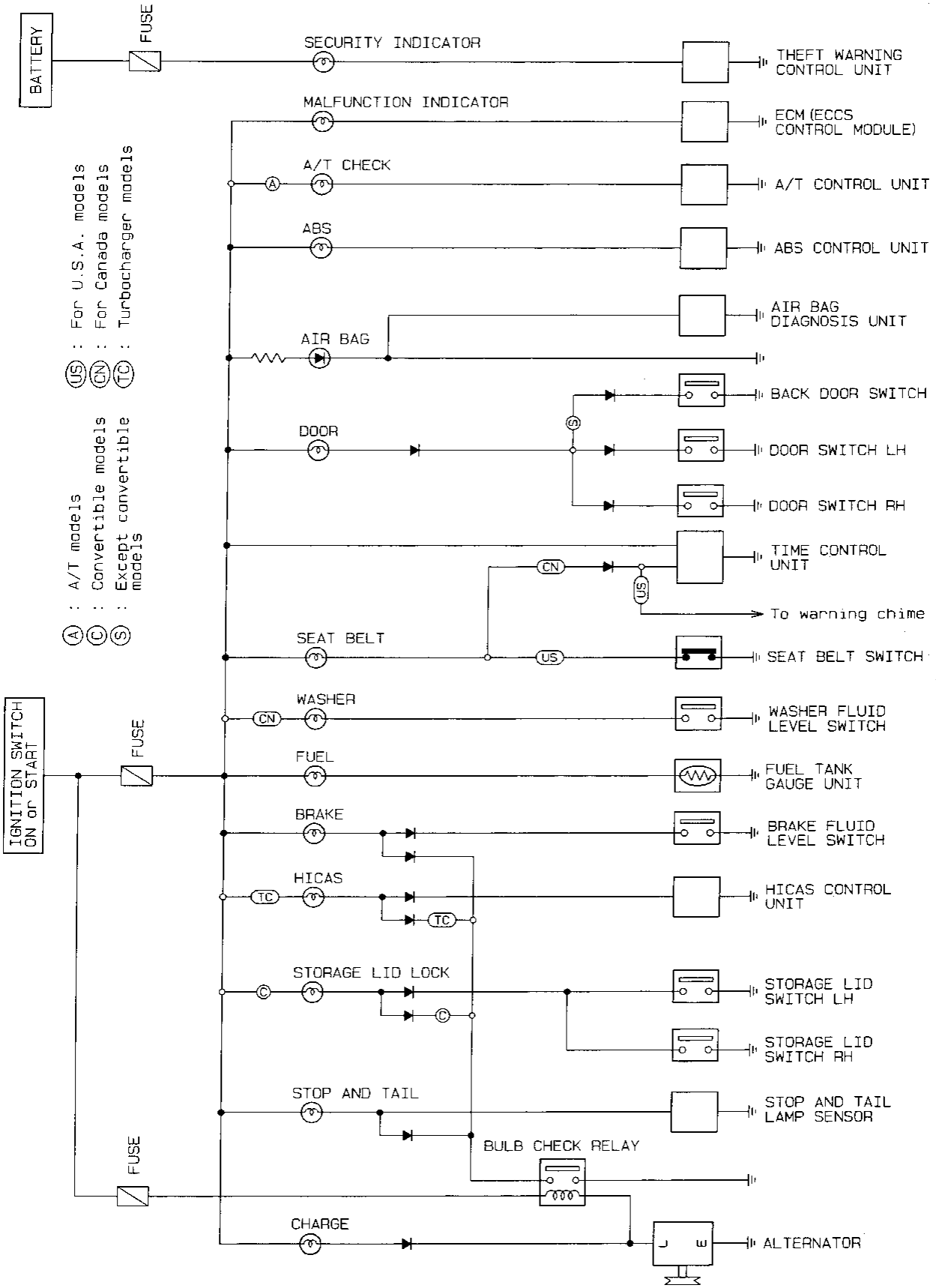
   Approx. 2.2V at 0 kPa (0 kg/cm^2, 0 psi)
   (Atmospheric pressure)
   Approx. 1.3V at −55 kPa (−0.56 kg/cm^2, −8 psi)



Vehicle Speed Sensor Signal Check

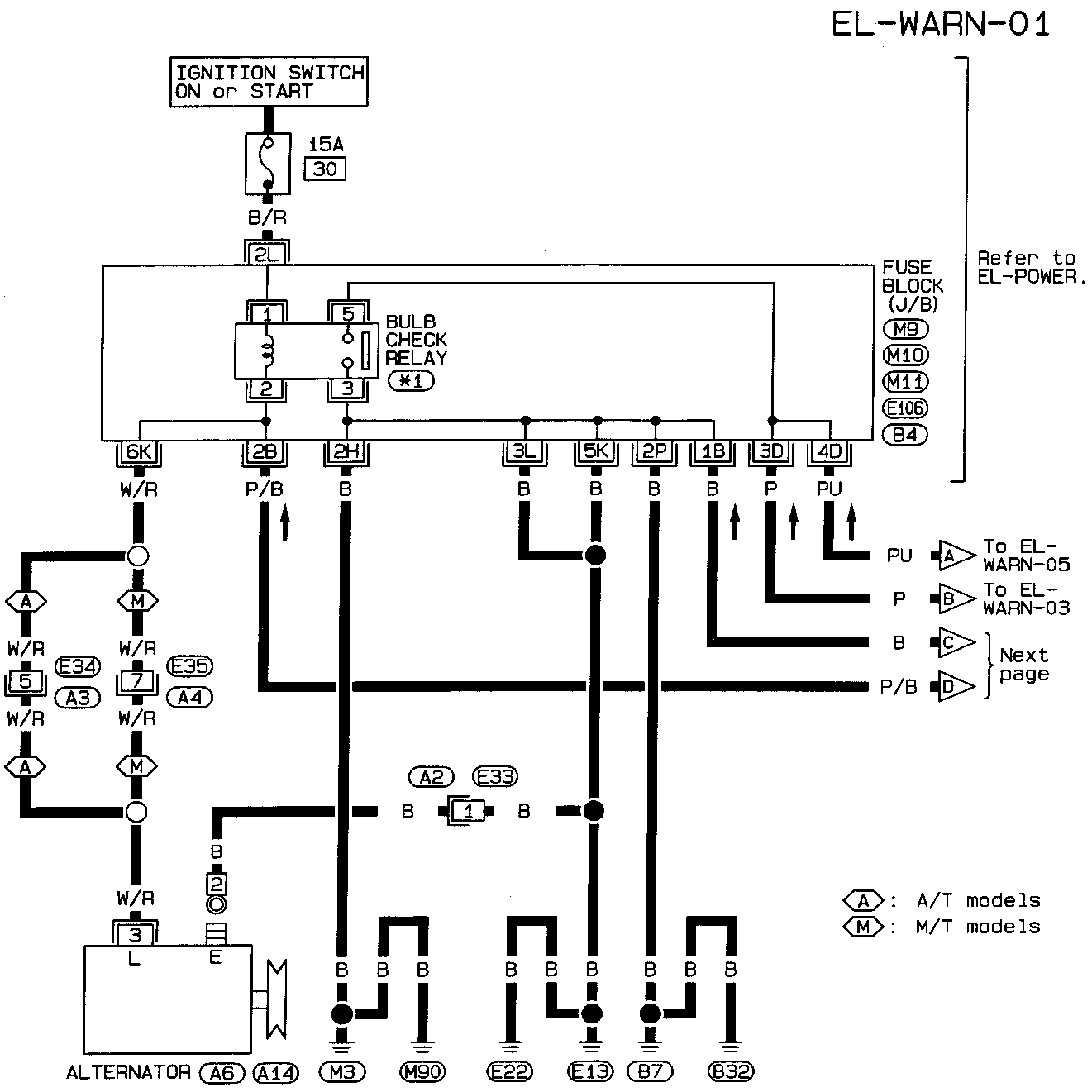
1. Remove vehicle speed sensor from transmission.
   Location: Refer to "LOCATION OF ELECTRICAL UNITS".
2. Turn vehicle speed sensor pinion quickly and measure voltage across ⓐ and ⓑ.

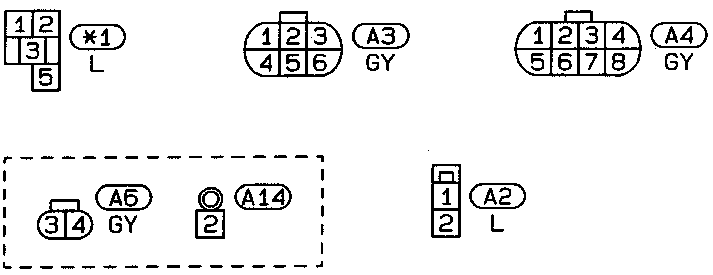
Warning Lamps/Schematic



HEL297

Warning Lamps/Wiring Diagram — WARN —



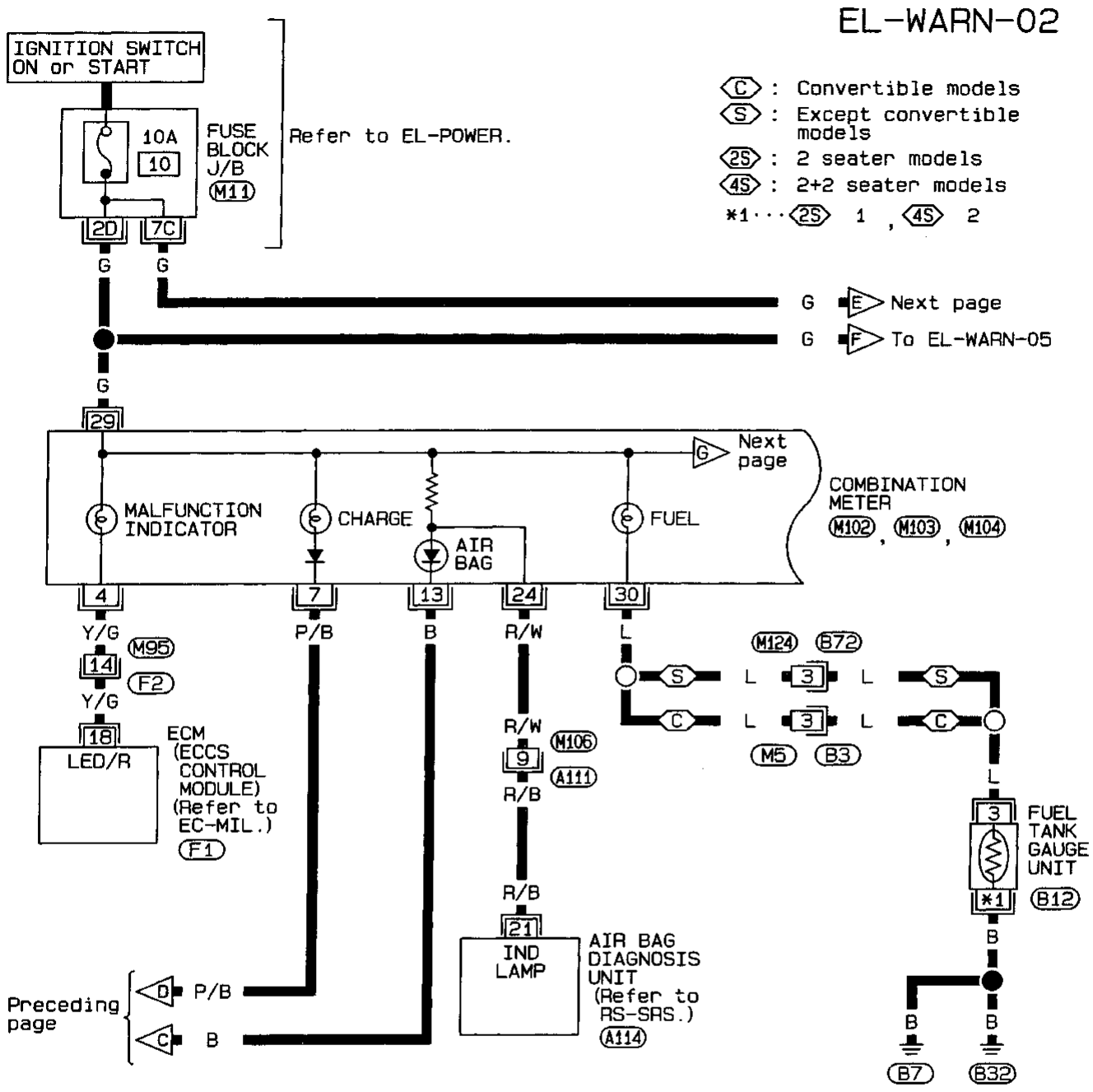


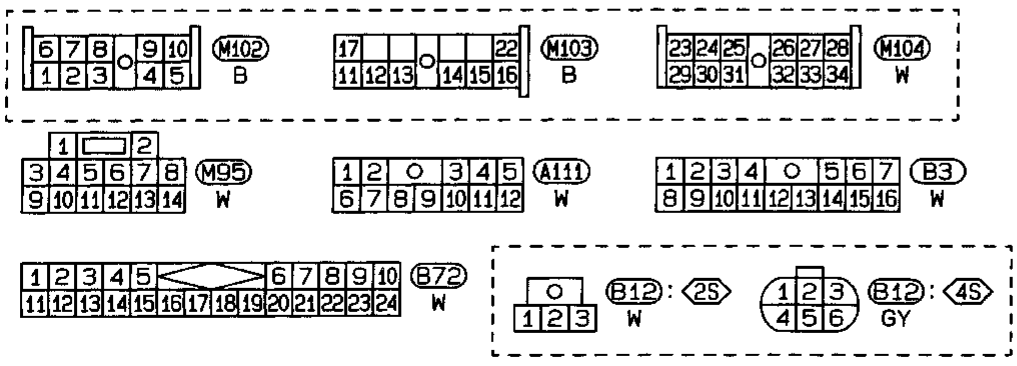
Refer to last page (Foldout page).

M9, M10, M11, E106, B4

HEL298

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





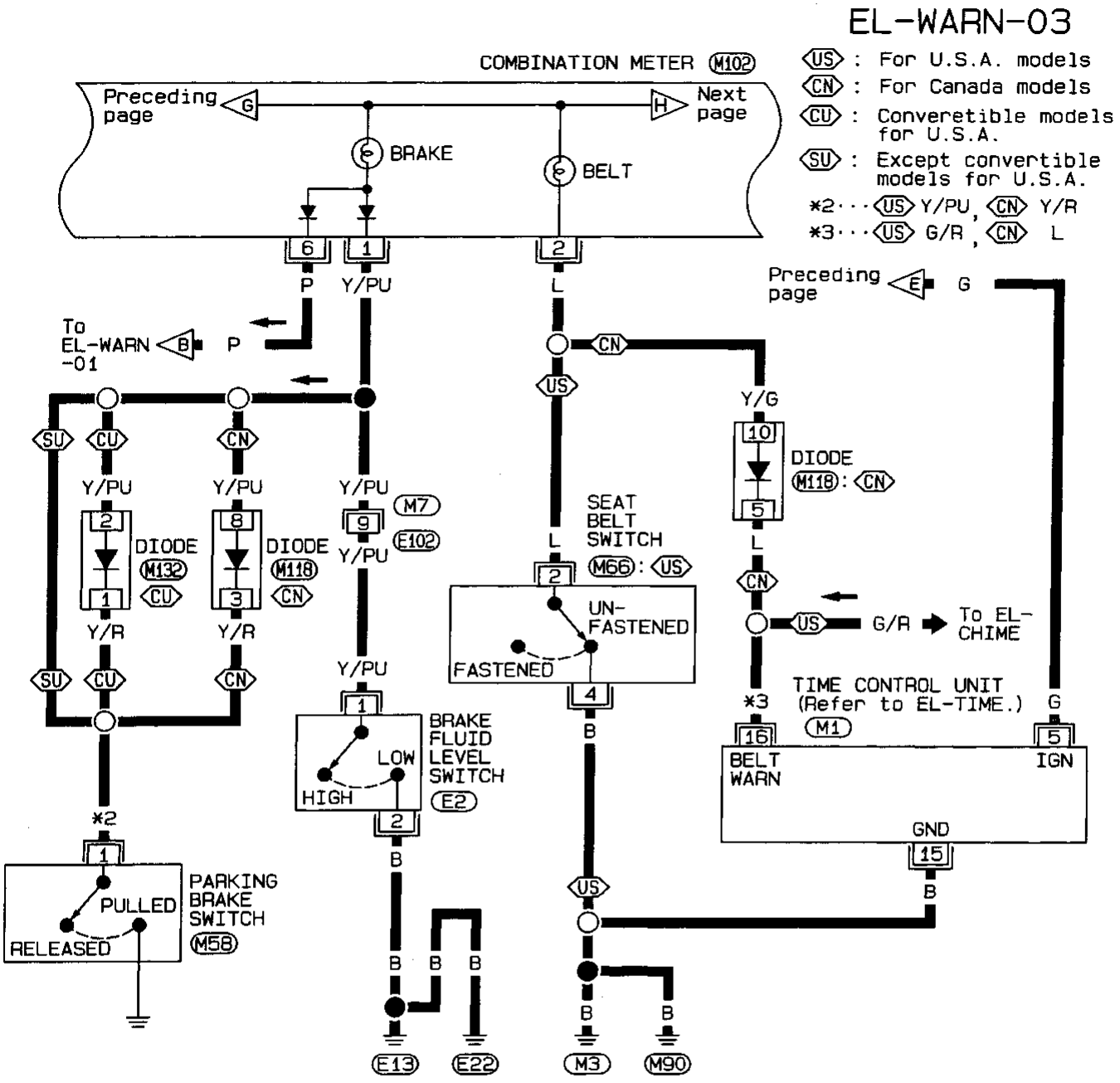
Refer to last page (Foldout page).

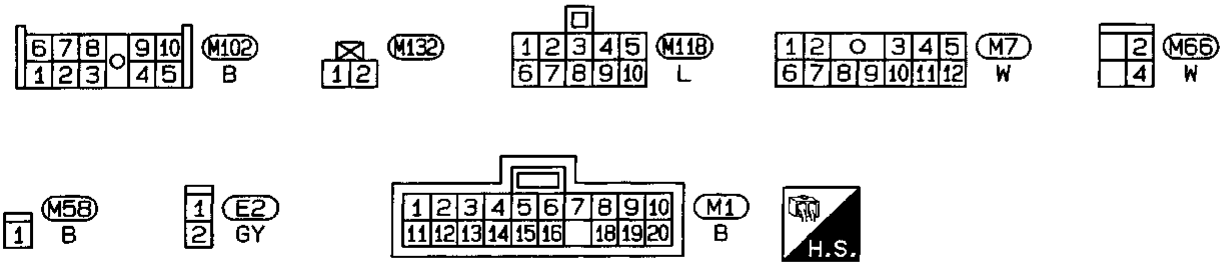
M11
F1
A114

HEL299

1339

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

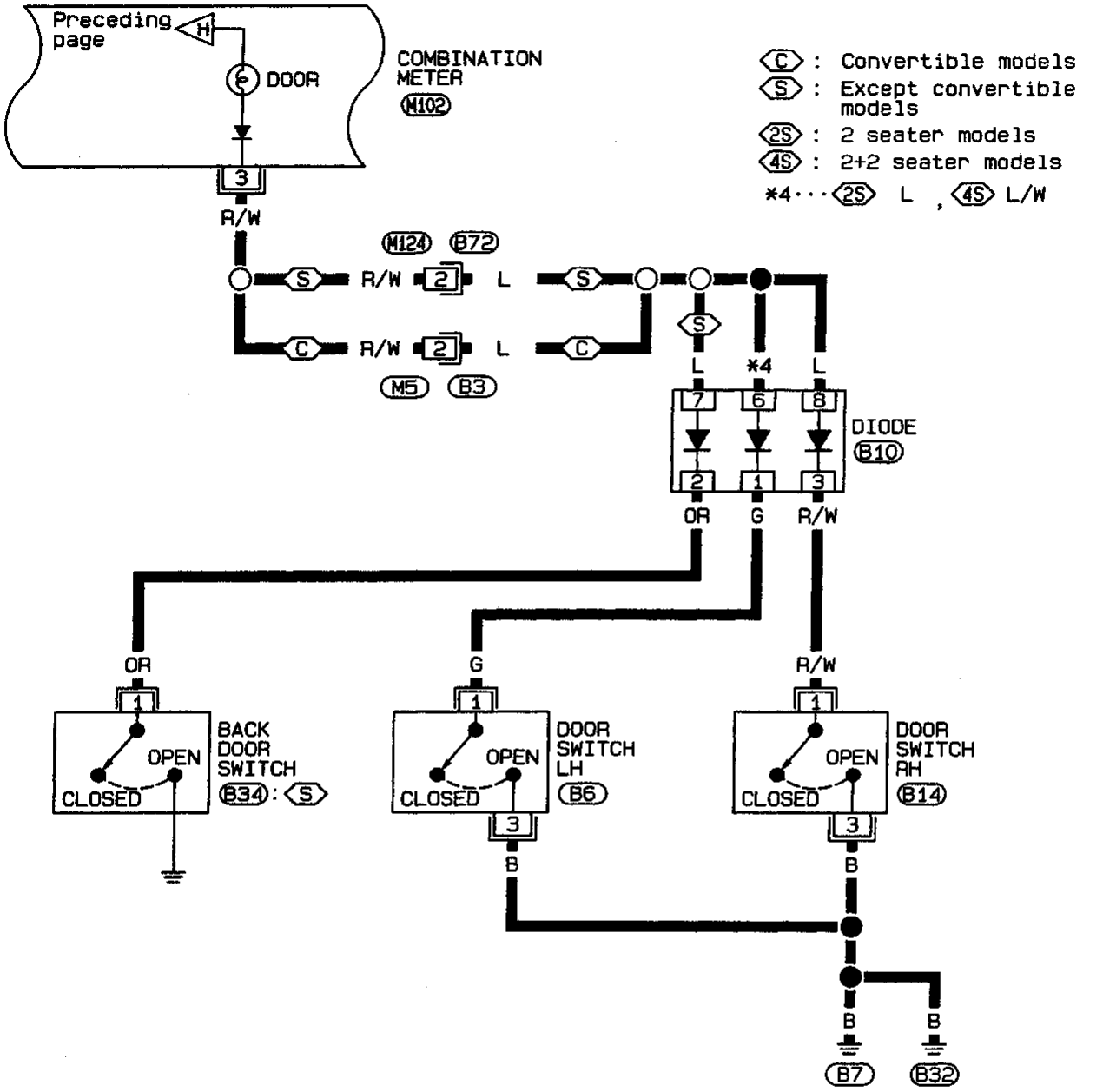


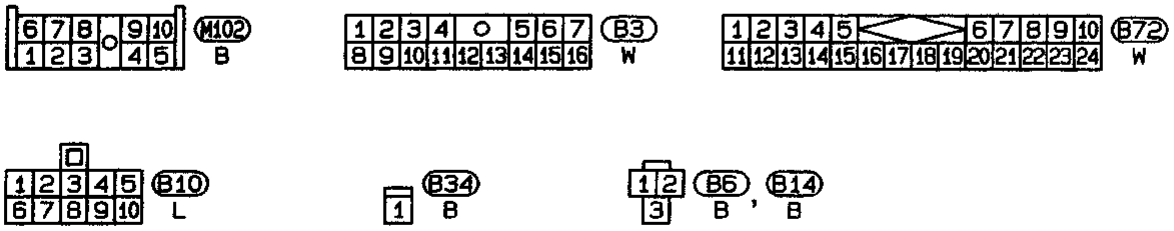


HEL300

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

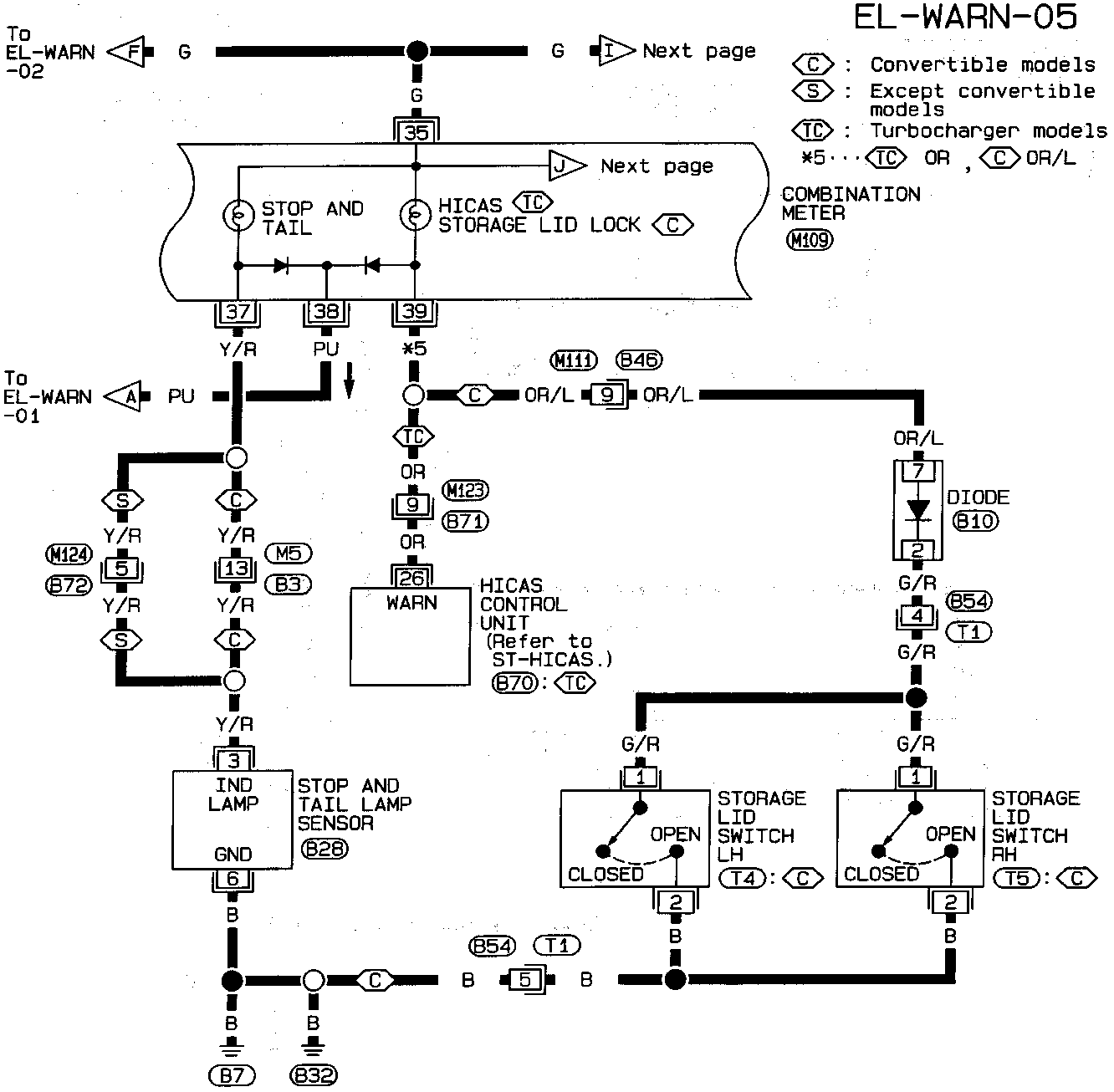
EL-WARN-04

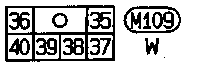


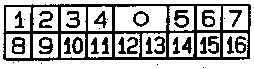


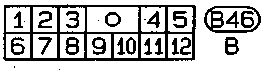
HEL301

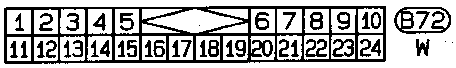
Warning Lamps/Wiring Diagram — WARN — (Cont'd)

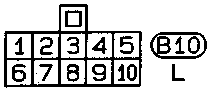


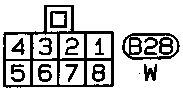


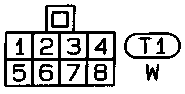












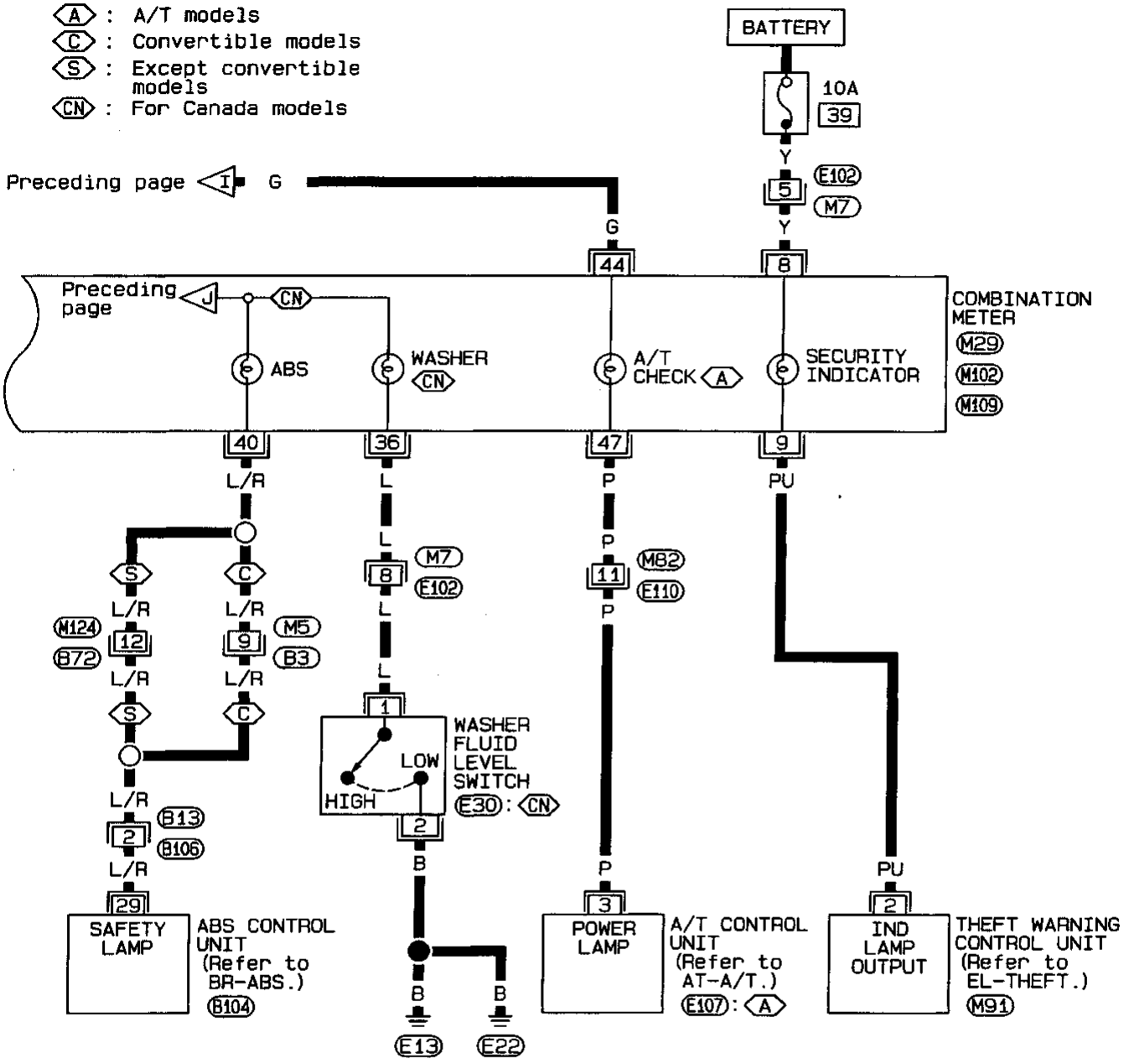
Refer to last page (Foldout page).

B70

HEL302

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

EL-WARN-06



HEL303

Warning Chime/System Description

The warning chime is controlled by the time control unit.
Power is supplied at all times
- through 10A fuse [No. 39, located in the fuse block (in relay box)]
- to warning chime terminal ①.

Power is supplied at all times
- through 10A fuse [No. 33, located in the fuse block (in relay box)]
- to key switch terminal ①.

Power is supplied at all times
- through 10A fuse [No. 3, located in the fuse block (J/B)]
- to lighting switch terminal ⑤

Power is supplied at all times
- through 10A fuse [No. 36, located in the fuse block (in relay box)]
- to time control unit terminal ⑨.

With the ignition switch in the ON or START position, power is supplied
- through 10A fuse [No. 10, located in the fuse block (J/B)]
- to time control unit terminal ⑤ and
- through 15A fuse [No. 17, located in the fuse block (J/B)]
- to seat belt warning relay terminal ②.

Ground is supplied to time control unit terminal ⑮ through body grounds M3 and M90.
When a signal, or combination of signals, is received by the time control unit, ground is supplied
- through time control unit terminal ⑲
- 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 position, and the driver's door open, the warning chime will sound.
A battery positive voltage is supplied
- from key switch terminal ②
- to time control unit terminal ⑩.

Ground is supplied
- from driver side door switch terminal ①
- to time control unit terminal ⑱.

Driver side door switch terminal ③ is grounded through body grounds B7 and B32.

Light warning chime

With ignition switch OFF, driver's door open, and lighting switch in 1ST or 2ND position, warning chime will sound. A battery positive voltage is supplied
- from lighting switch terminal ⑥
- to time control unit terminal ⑥.

Ground is supplied
- from driver side door switch terminal ①
- to time control unit terminal ⑱.

Driver side door switch terminal ③ is grounded through body grounds B7 and B32.

Seat belt warning chime

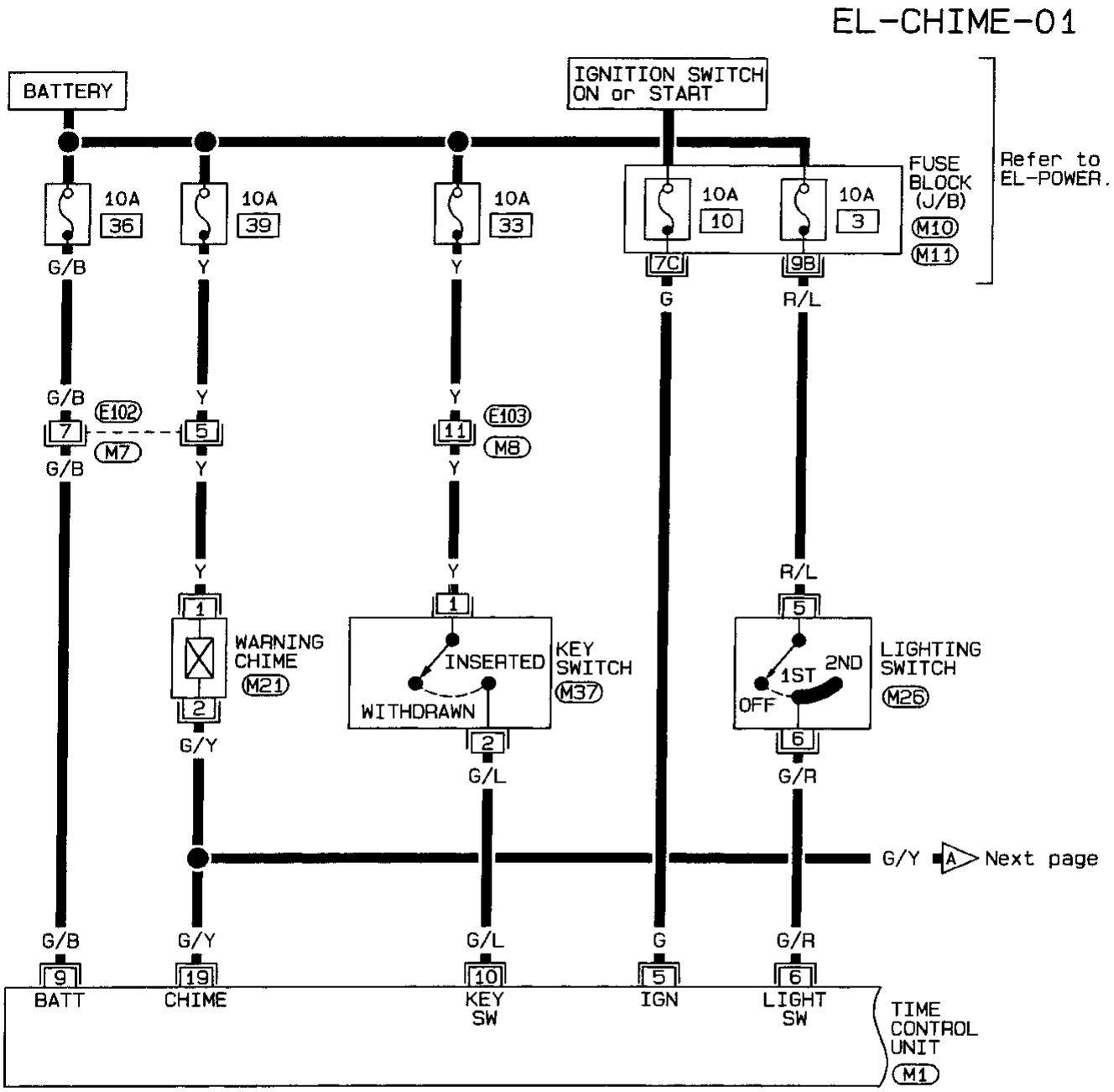
With the ignition switch turned from OFF to ON and driver's seat belt unfastened, the warning chime will sound for approximately 7 seconds.
(For U.S.A.)
With the driver's seat belt unfastened, ground is supplied
- to seat belt warning relay terminal ①
- through seat belt switch and body grounds M3 and M90.

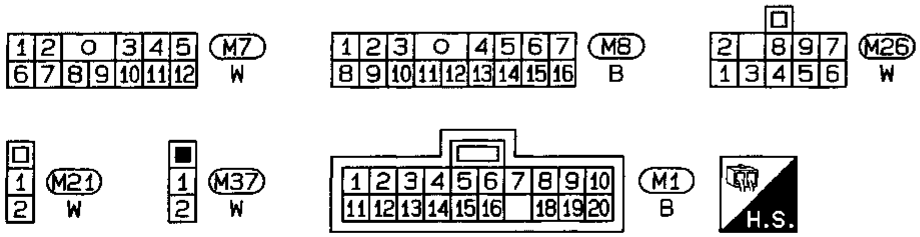
Seat belt warning relay is energized and ground is supplied for approximately 7 seconds
- to warning chime terminal ②
- through seat belt warning relay terminal ③
- to seat belt warning relay terminal ⑤
- through time control unit terminal ⑯
- to time control unit terminal ⑮
- through body grounds M3 and M90.

(For Canada)
With the driver's seat belt unfastened, ground is supplied for approximately 7 seconds.
- to warning chime terminal ②

- through seat belt switch terminal ④
- to seat belt switch terminal ②
- through time control unit terminal ⑯
- to time control unit terminal ⑮
- through body grounds M3 and M90.

Warning Chime/Wiring Diagram — CHIME —





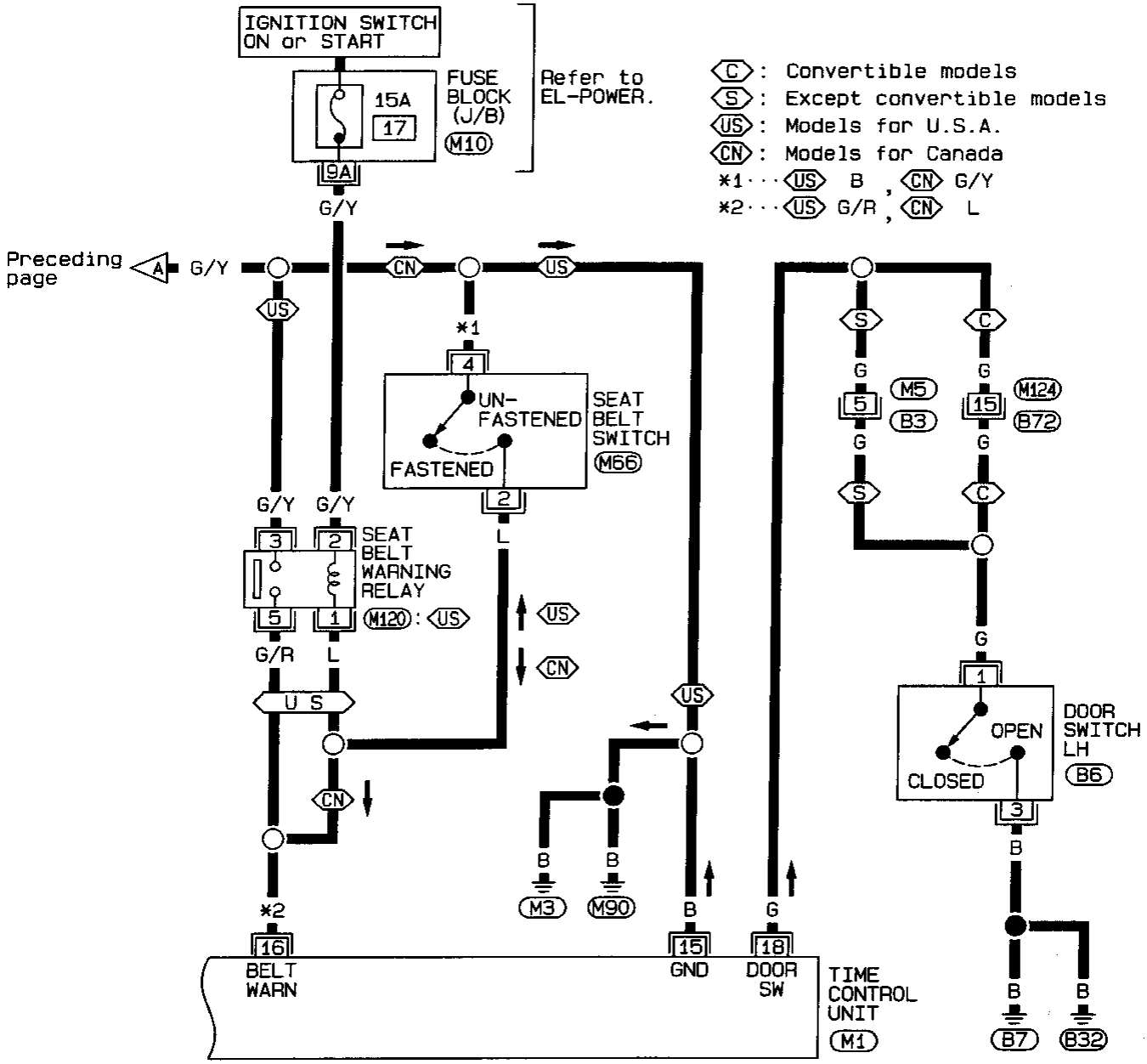
Refer to last page (Foldout page).

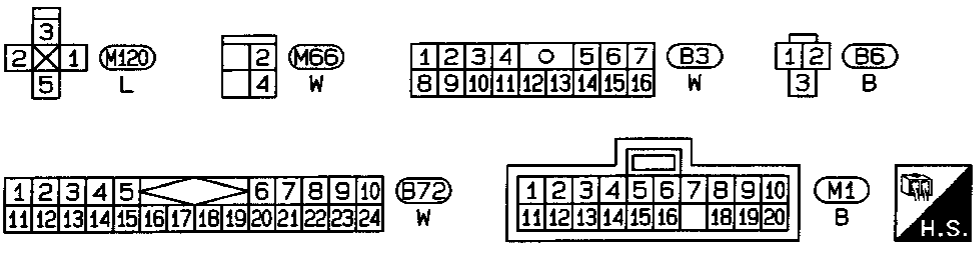
M10, M11

HEL304

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

EL-CHIME-02



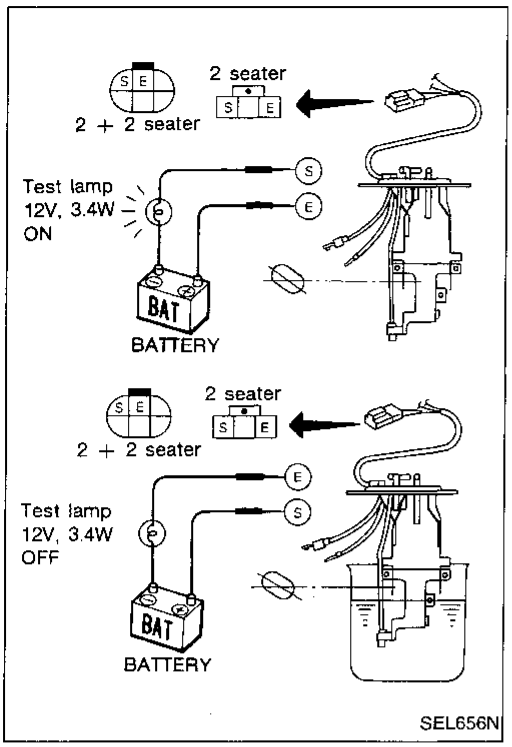


Refer to last page (Foldout page).

M10

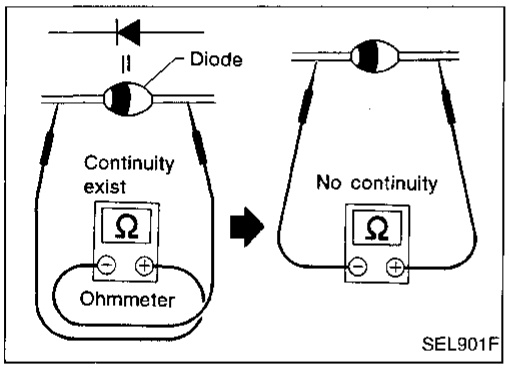
HEL305

1347



Fuel Warning Lamp Sensor Check

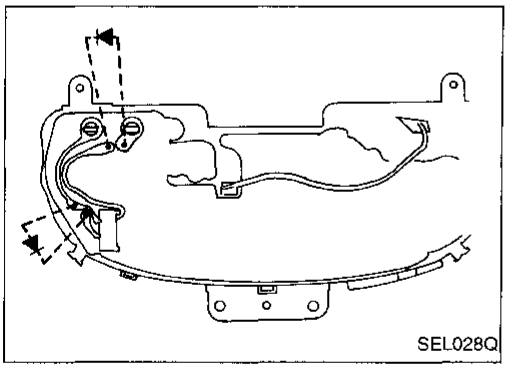
- It will take a short time for the bulb to light.



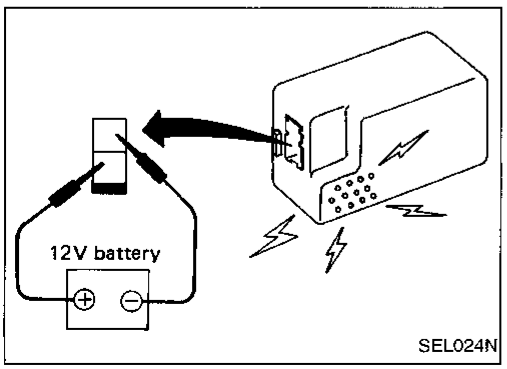
Diode Check

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

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



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



Warning Chime Check

System Description

FUNCTION

- Time control unit has the following functions.

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

INTERMITTENT WIPER CONTROL

Intermittent operation

Intermittent operation can be set variable by turning the intermittent wiper volume knob. The wiper motor then operates the wiper at low speed at a set interval of about 1 to 20 seconds. This function is controlled by the time control unit.
Ground is supplied from body grounds (M3) and (M90) to front wiper switch terminal ⑭.
When the wiper switch is placed in the INT position, ground is supplied

- to time control unit terminal ⑫
- from wiper switch terminal ⑫

The desired interval time is input

- to time control unit terminal ⑭
- from wiper switch terminal ⑰.

For further information, refer to "WIPER AND WASHER" (EL-131).

Washer and wiper combination operation

Operates wiper when headlamp washer switch (only for Canada models) or front washer switch is turned "ON" for at least 0.3 seconds.
Power is supplied at ignition switch ACC or ON

- through 20A fuse [No. 12, located in the fuse block (J/B)]
- to wiper amp. terminal ⑤.

Ground is supplied

- to front wiper switch terminal ⑭
- through body grounds (M3) and (M90), and
- to headlamp washer relay terminal ⑤
- through body grounds (E13) and (E22).

When front wiper switch or headlamp washer switch is placed in the WASH position, ground is supplied

- to time control unit terminal ⑬
- from wiper switch terminal ⑮.

Then ground is supplied from time control unit terminal ① to wiper amp. terminal ⑥ to operate wiper.

WARNING CHIME TIMER

Time control unit controls warning chime operation for ignition key warning, light warning and seat belt warning system.
For details, refer to "WARNING CHIME" (EL-106).

System Description (Cont'd)

SEAT BELT WARNING LAMP TIMER (For Canada models)

Seat belt warning lamp is controlled by the time control unit.
With the ignition switch in the ON or START position, power is supplied
- through 10A fuse [No. 10, located in the fuse block (J/B)]
- to seat belt warning lamp (in combination meter) terminal ㉙ and
- to time control unit terminal ⑤.

When ignition switch is turned from OFF to ON, the time control unit is energized and ground is supplied for approximately 7 seconds regardless of seat belt switch position
- to seat belt warning lamp (in combination meter) terminal ②
- through time control unit terminal ⑯
- to time control unit terminal ⑮
- through body grounds M3 and M90.

REAR WINDOW DEFOGGER TIMER (Except for convertible models)

The rear window defogger and door mirror defogger system are controlled by the time control unit.
With the ignition switch in the ON or START position, power is supplied
- to the rear window defogger relay terminal ① and
- to time control unit terminal ⑤
- through 10A fuse [No. 10, located in the fuse block (J/B)].

Ground is supplied to terminal ⑫ of the rear window defogger switch through body grounds M3 and M90.

When the rear window defogger switch is ON, ground is supplied
- through terminal ⑪ of the rear window defogger switch
- to time control unit terminal ③.

Terminal ⑮ of the time control unit then supplies ground to the rear window defogger relay terminal ②.
With power and ground supplied, the rear window defogger relay is energized to operate rear window defogger and door mirror defogger for about 15 minutes.
For further information, refer to "REAR WINDOW DEFOGGER AND DOOR MIRROR DEFOGGER" (EL-172).

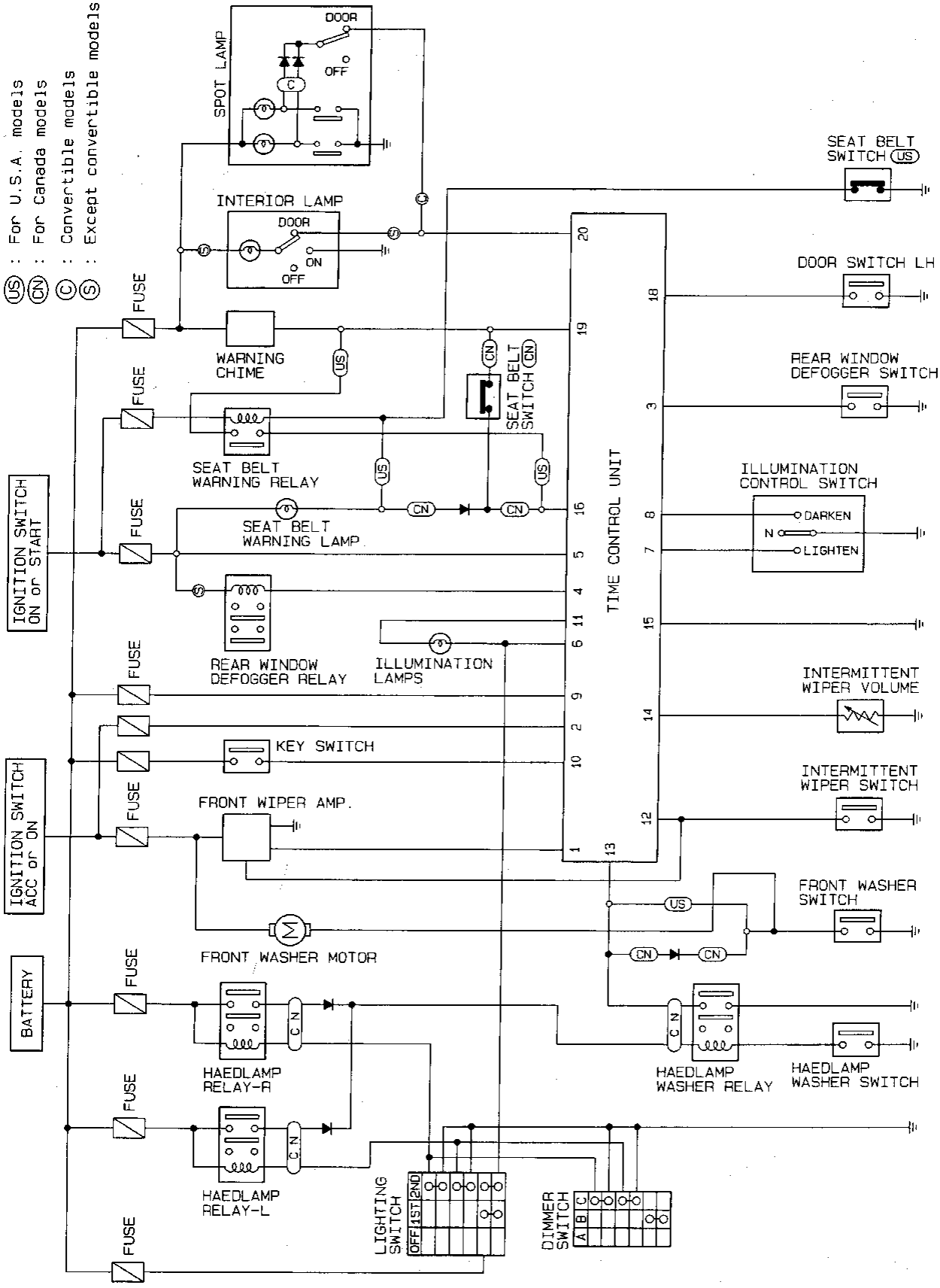
INTERIOR LAMP TIMER

When the door switch LH is turned from ON to OFF (LH door opened, then closed), interior lamp (except for convertible models) or spot lamp (for convertible models) turns on and fades out (with interior lamp or spot lamp switch set to DOOR). This function is controlled by the time control unit.
For further information, refer to "INTERIOR LAMP" (EL-86).

ILLUMINATION CONTROL

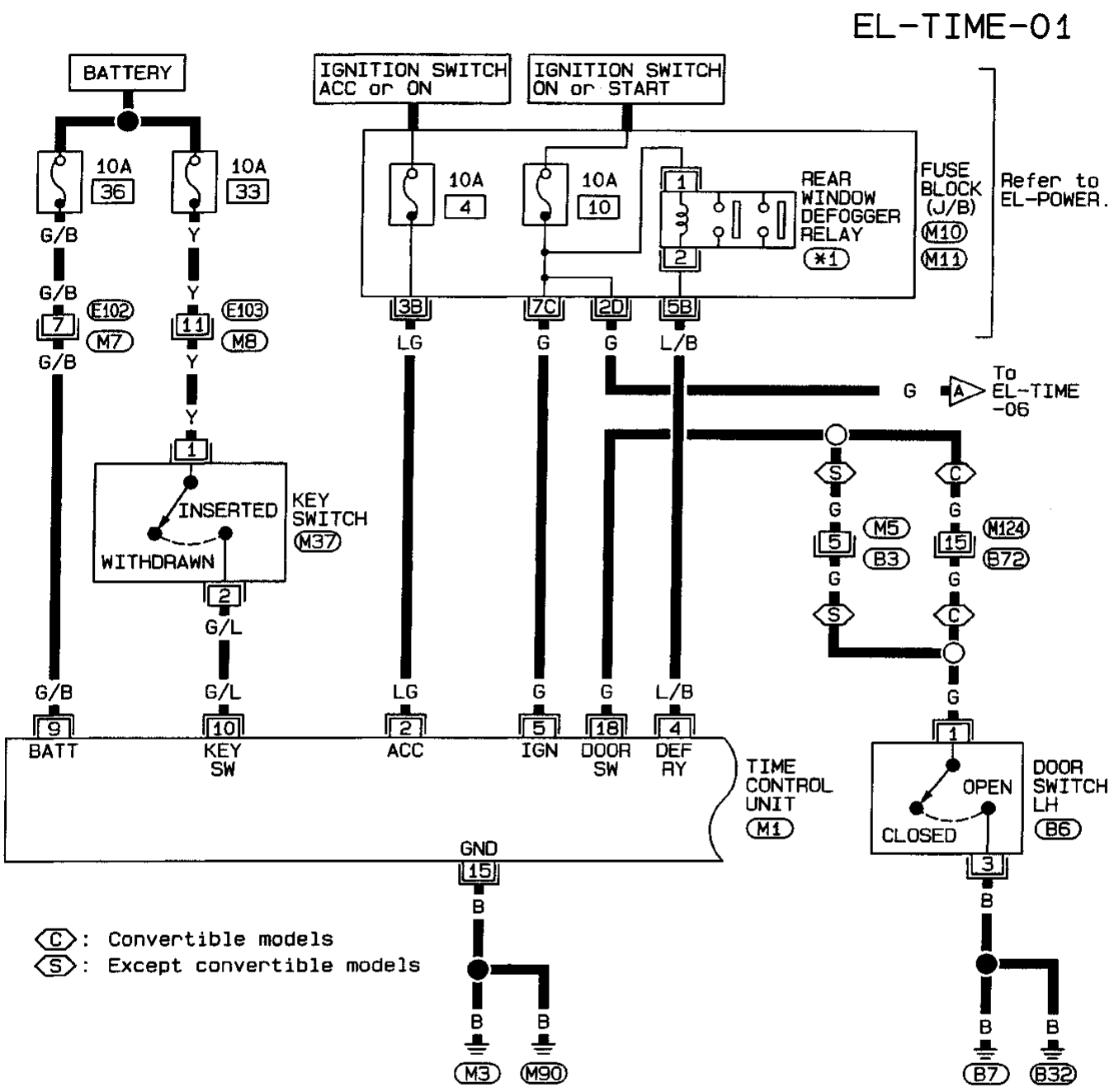
Brightness of illuminations can be controlled by the time control unit. When lighting switch is in the 1ST or 2ND position, power is supplied to time control unit terminal ⑥.
Ground is supplied to the controlled illuminations through terminals ⑪ and ⑮ of time control unit and body grounds M3 and M90.
Ground is supplied to illumination control switch terminal ⑫ from body grounds M3 and M90.
Ground is supplied to time control unit terminal ⑦ through terminal ⑳ of illumination control switch, when pushing illumination control switch "BRIGHT". The internal resistance of time control unit will subsequently decrease to illuminate brighter.
Ground is supplied to time control unit terminal ⑧ through terminal ㉑ of illumination control switch, when pushing illumination control switch "DARK". The internal resistance of time control unit will subsequently increase to illuminate darker.

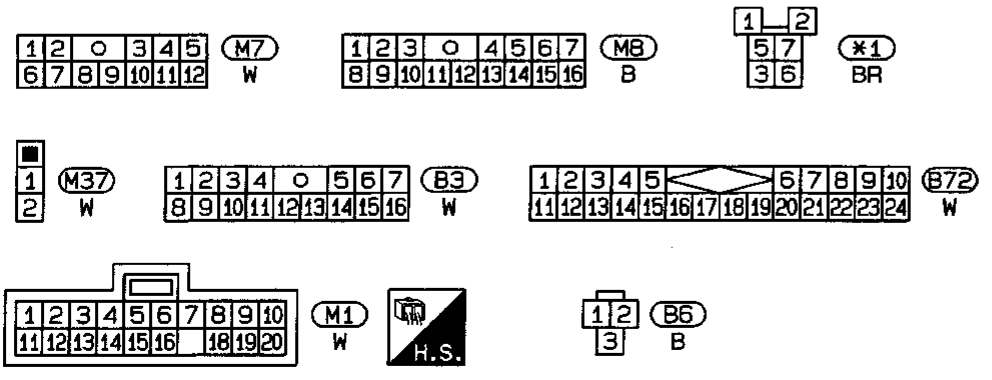
Schematic



HEL306

Wiring Diagram — TIME —





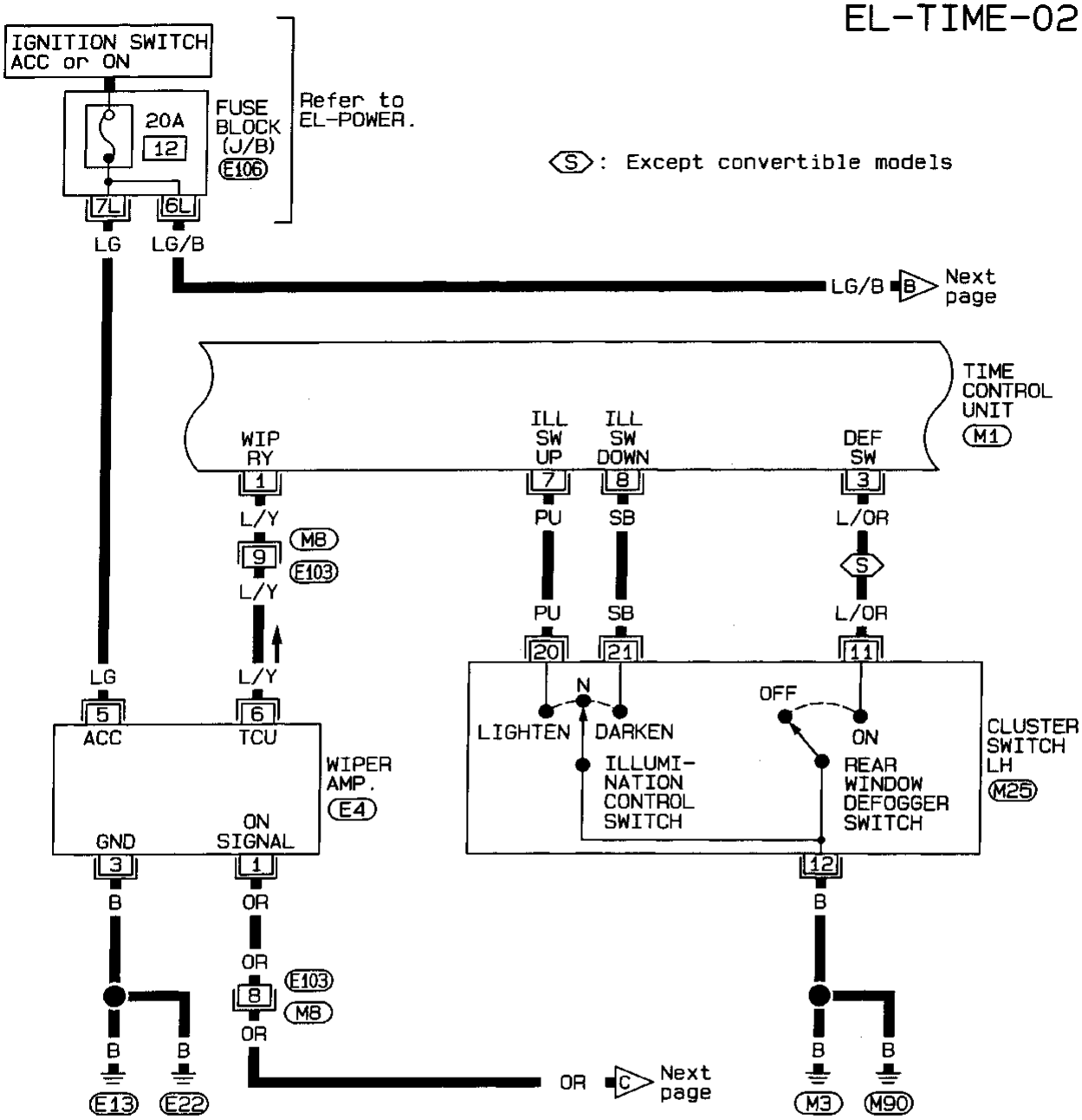
Refer to last page (Foldout page).

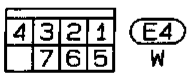
M10, M11

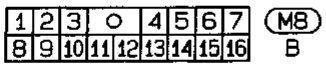
HEL307

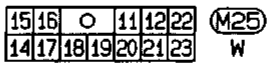
Wiring Diagram — TIME — (Cont'd)

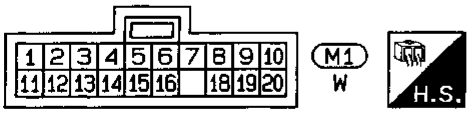
EL-TIME-02











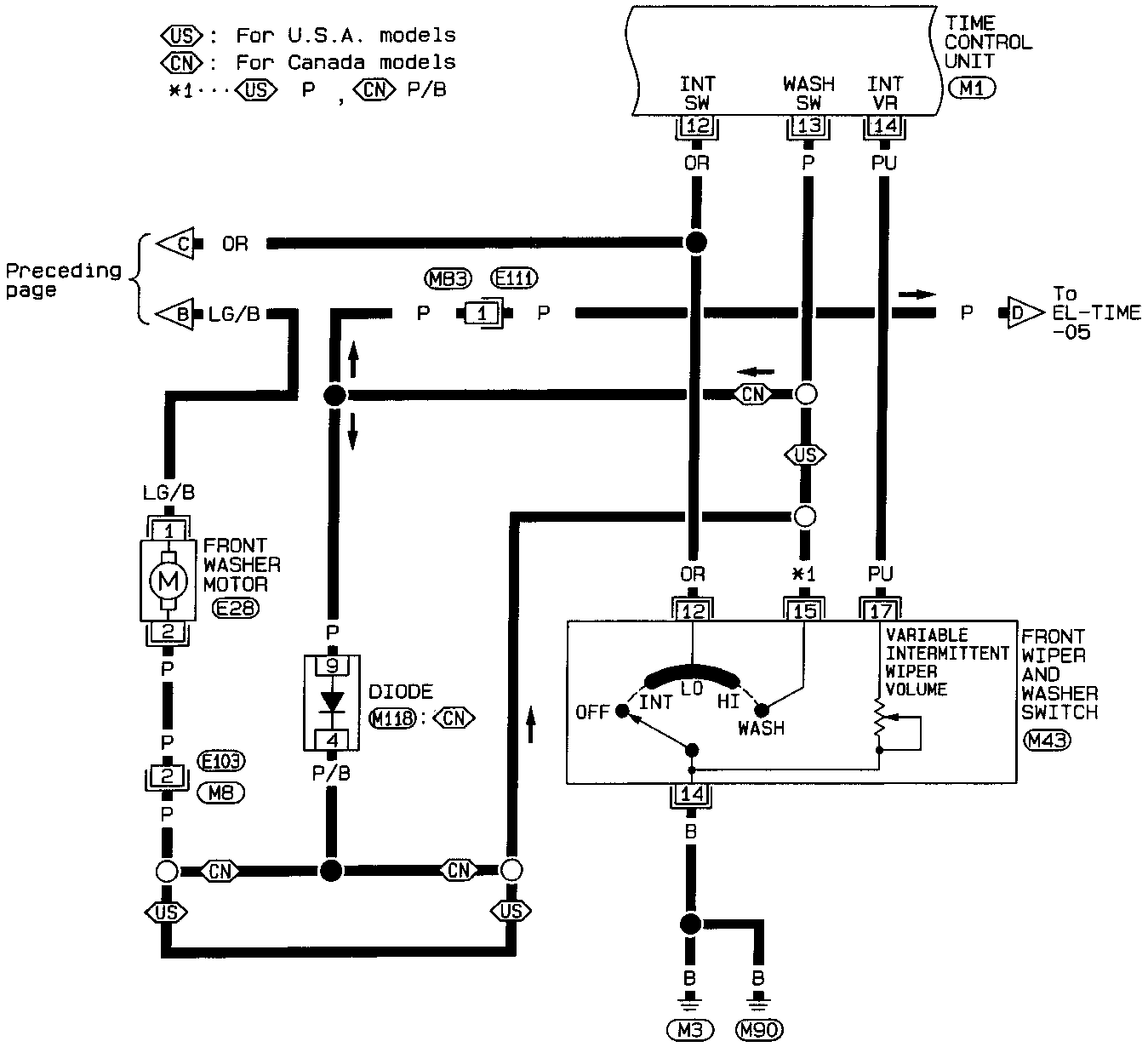
Refer to last page (Foldout page).

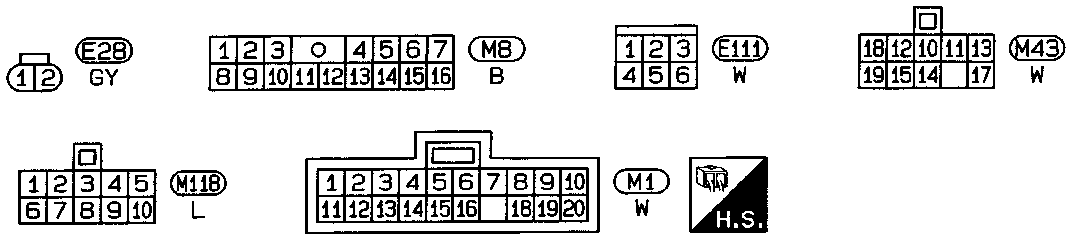
E106

HEL308

Wiring Diagram — TIME — (Cont'd)

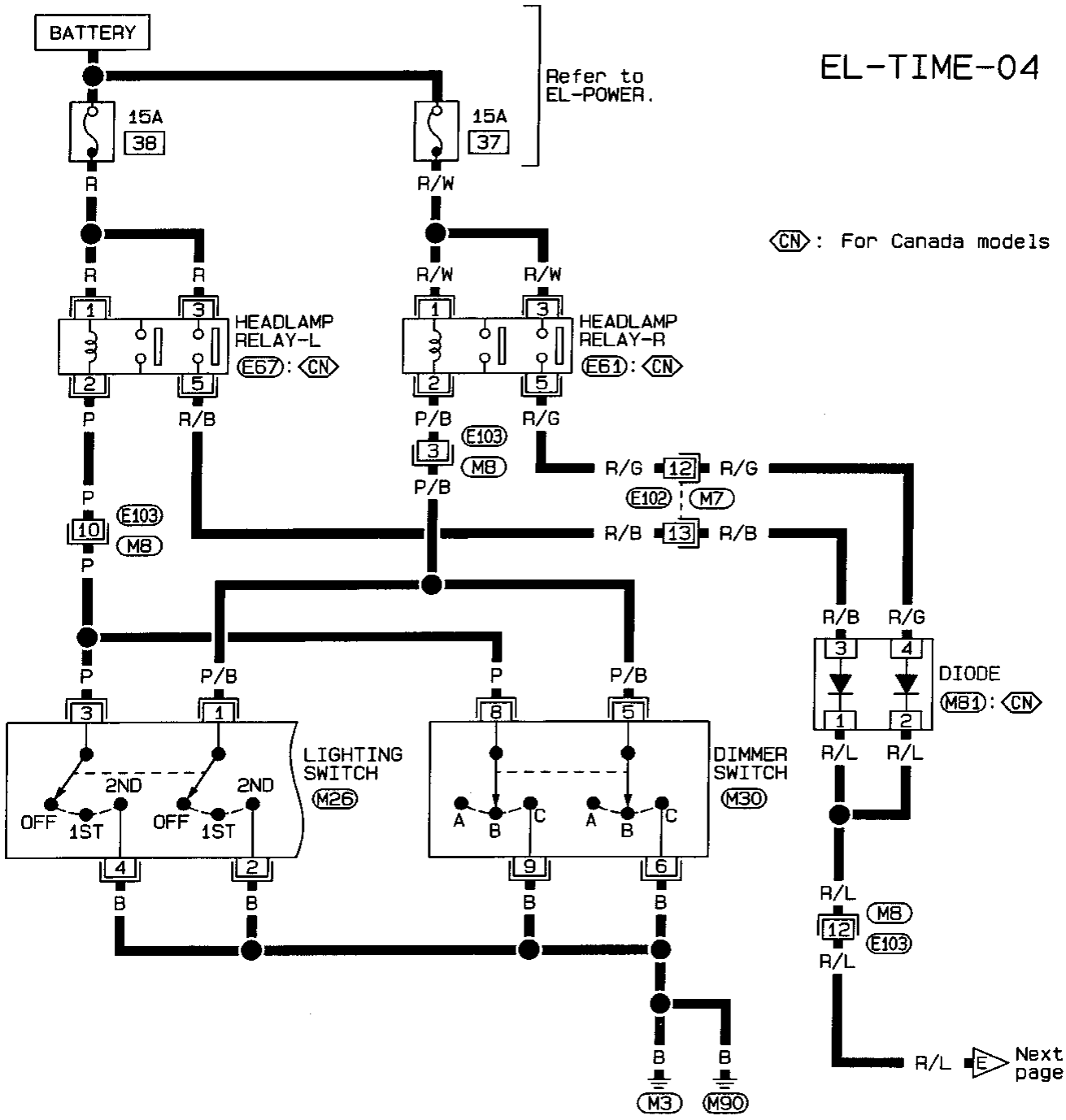
EL-TIME-03

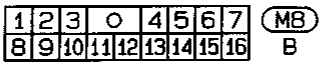


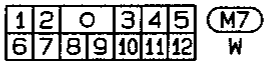


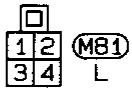
HEL309

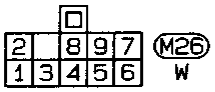
Wiring Diagram — TIME — (Cont'd)

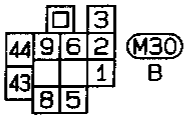








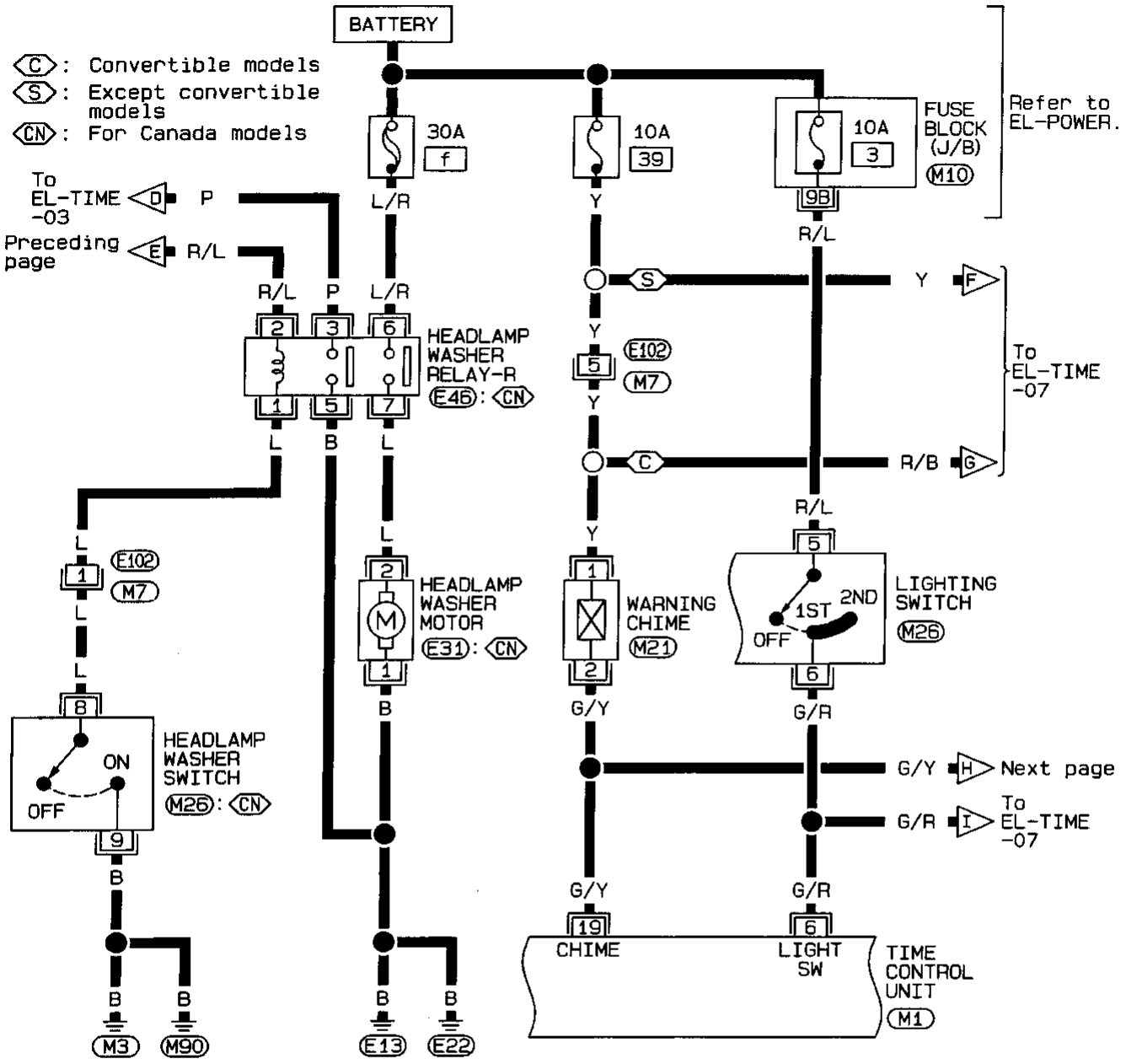


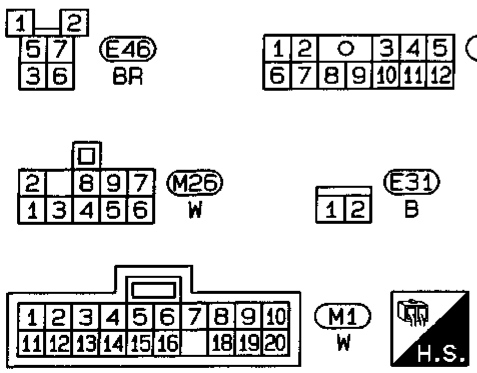


HEL310

Wiring Diagram — TIME — (Cont'd)

EL-TIME-05





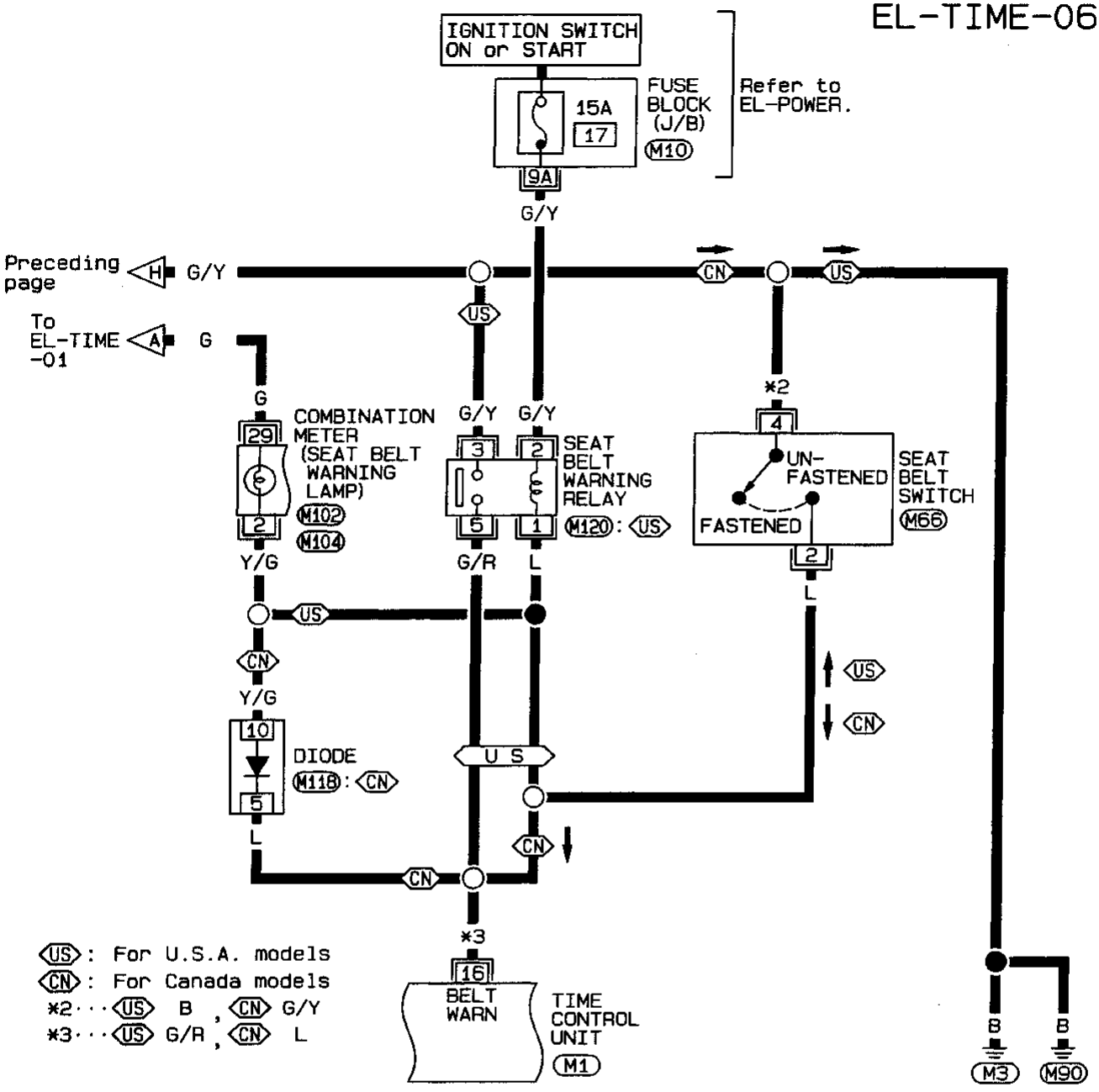
Refer to last page (Foldout page).

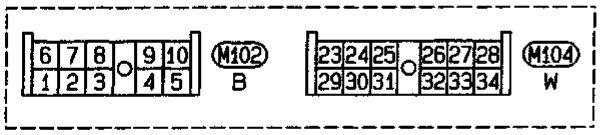
M10

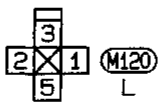
HEL311

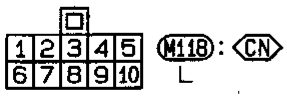
Wiring Diagram — TIME — (Cont'd)

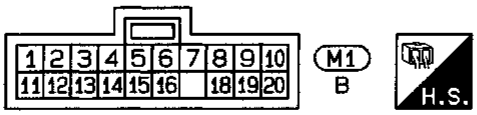
EL-TIME-06











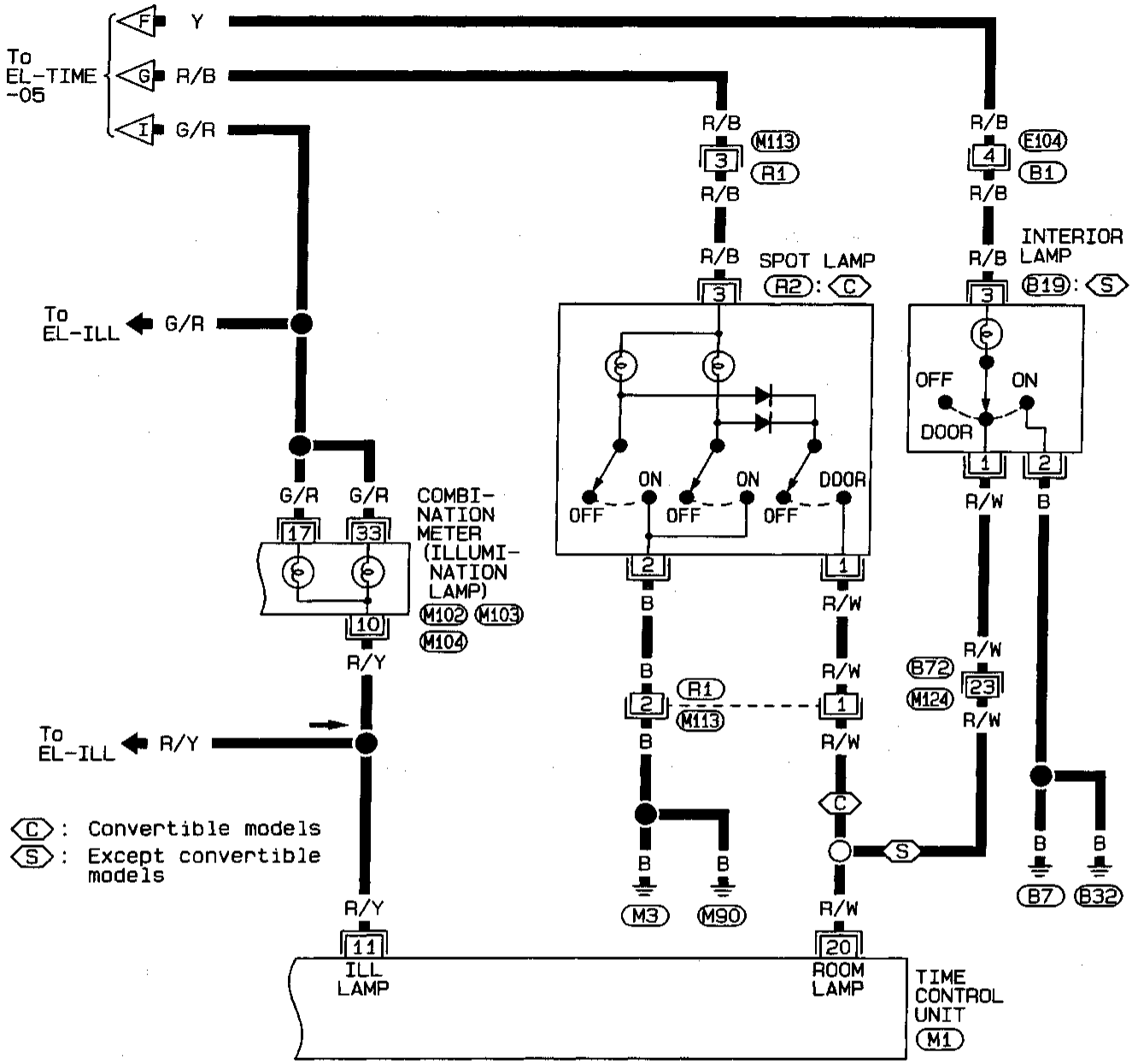
Refer to last page (Foldout page).

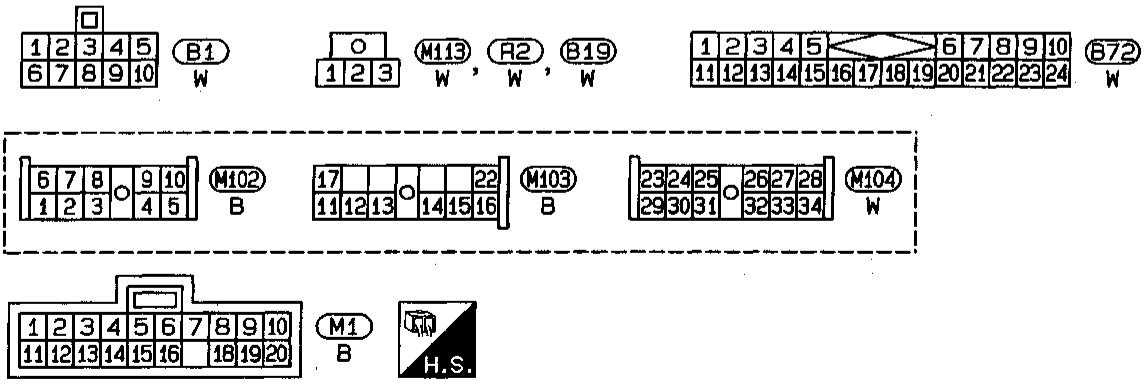
M10

HEL312

Wiring Diagram — TIME — (Cont'd)

EL-TIME-07





HEL313

Trouble Diagnoses

SYMPTOM CHART

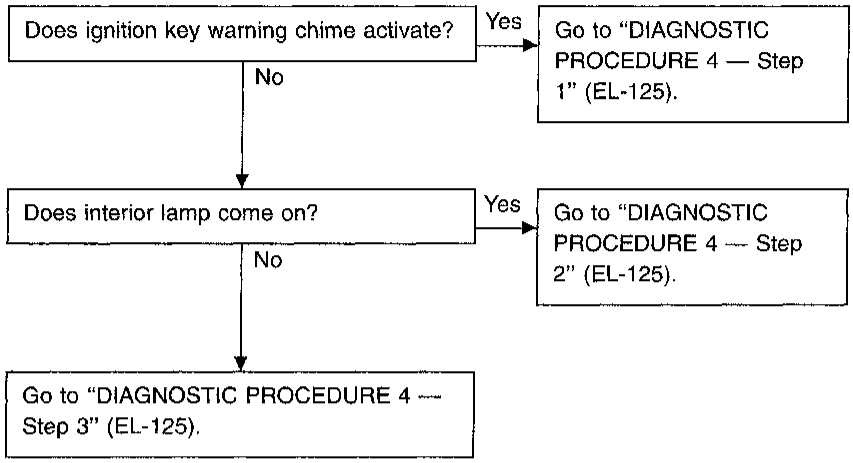
PROCEDURE		Preliminary Check			Main Power Supply and Ground Circuit Check	Diagnostic Procedure										
REFERENCE PAGE		EL-122	EL-122	EL-122	EL-123	EL-123	EL-124	EL-124	EL-125	EL-126	EL-127	EL-128	EL-128	EL-129	EL-129	EL-130
SYMPTOM		Preliminary check 1	Preliminary check 2	Preliminary check 3	Main power supply and Ground circuit	Diagnostic Procedure 1	Diagnostic Procedure 2	Diagnostic Procedure 3	Diagnostic Procedure 4	Diagnostic Procedure 5	Diagnostic Procedure 6	Diagnostic Procedure 7	Diagnostic Procedure 8	Diagnostic Procedure 9	Diagnostic Procedure 10	Diagnostic Procedure 11
Wiper & washer	Intermittent wiper does not operate.				○	○										
	Intermittent time of wiper cannot be adjusted.						○									
	Wiper and washer activate individually but not in combination.							○								
Warning	Light warning chime does not activate.	○			○				○							
	Ignition key warning chime does not activate.		○		○					○						
	Seat belt warning chime does not activate.			○	○						○					
	Seat belt warning lamp does not come on, or does not go off after coming on.				○							○				
Rear defogger	Rear defogger does not activate, or go off after activating.				○								○			
Illumination	Interior lamp does not fade out after driver's door is closed.				○									○		
	Door key hole illumination does not come on even if door handle is pulled.				○										○	
	Illumination control does not actuate.															○

Trouble Diagnoses (Cont'd)

PRELIMINARY CHECK

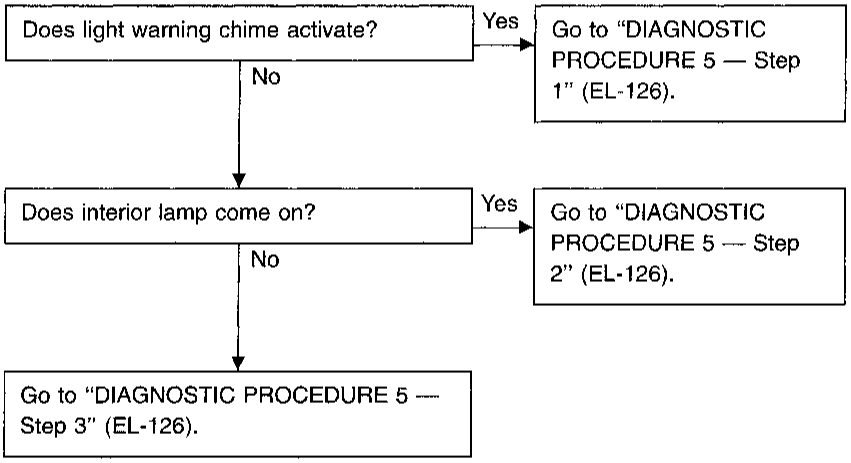
Preliminary check 1

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



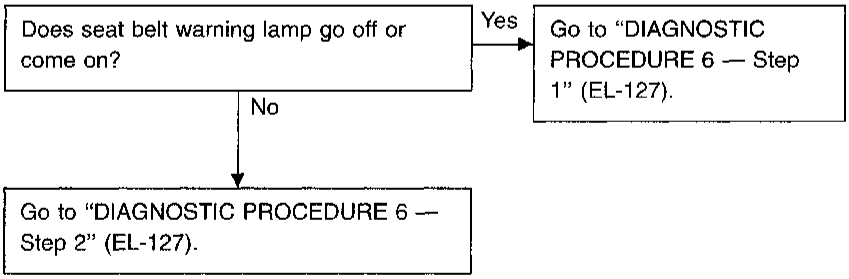
Preliminary check 2

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



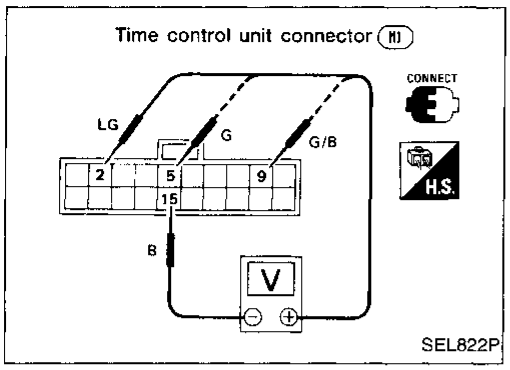
Preliminary check 3

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



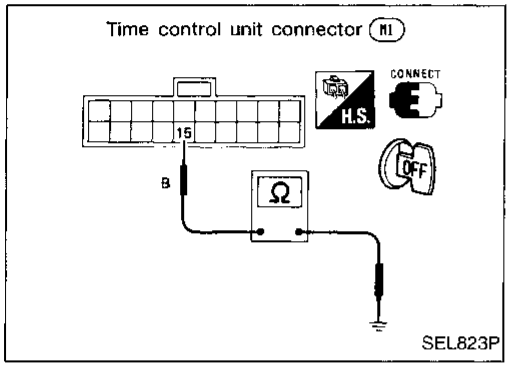
Trouble Diagnoses (Cont'd)

MAIN POWER SUPPLY AND GROUND CIRCUIT CHECK



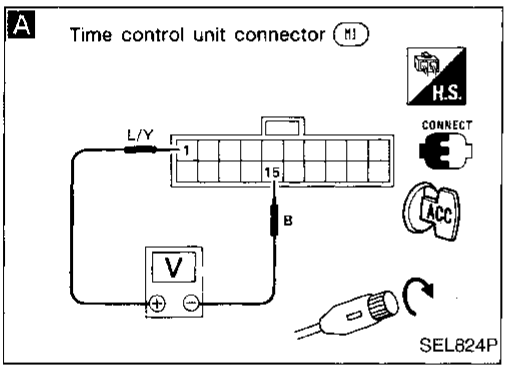
Main power supply

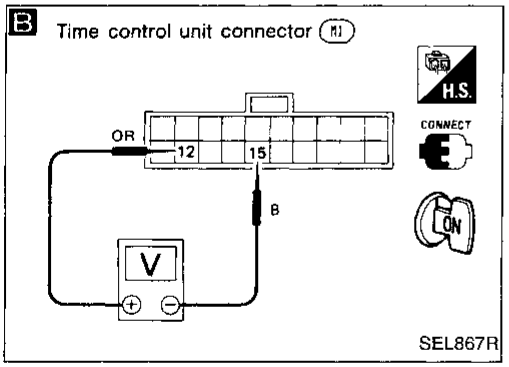
Terminals	Battery voltage existence condition		
	Ignition switch position		
	OFF	ACC	ON
(9) - (15)	Yes	Yes	Yes
(5) - (15)	No	No	Yes
(2) - (15)	No	Yes	Yes



Ground circuit

Terminals	Continuity
(15) - Ground	Yes





DIAGNOSTIC PROCEDURE 1

SYMPTOM: Intermittent wiper does not operate.

A

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

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

OK → Check wiper amp. Refer to "WIPER AND WASHER".
- OK → Check wiper amp. circuit.
- NG → Replace wiper amp.

NG →

B

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

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

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

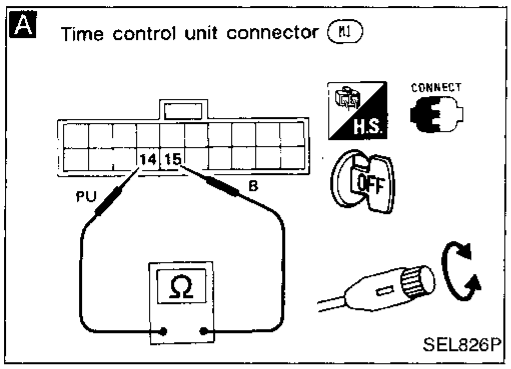
OK →

Replace control unit.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 2

SYMPTOM: Intermittent time of wiper cannot be adjusted.



A

INTERMITTENT WIPER VOLUME INPUT SIGNAL CHECK

Measure resistance between control unit harness terminals (14) and (15) while turning intermittent wiper volume.

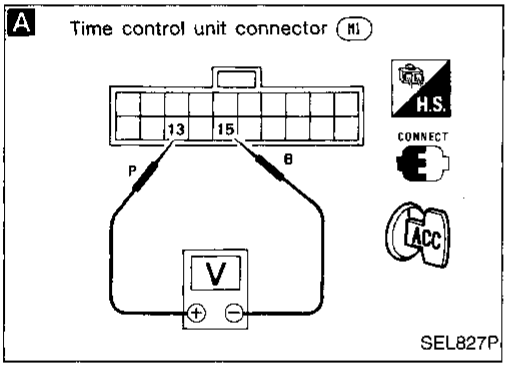
Position of wiper knob	Resistance [Ω]
S	0
L	Approx. 1 k

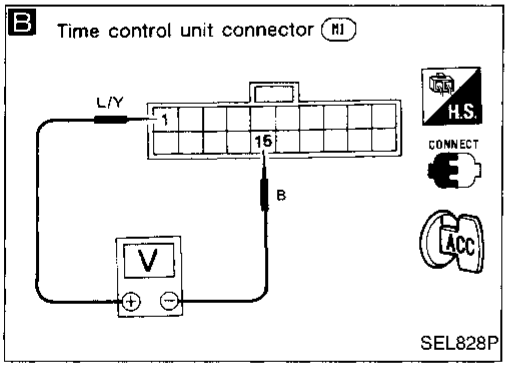
OK → Replace control unit.

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

DIAGNOSTIC PROCEDURE 3

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





A

WASHER SWITCH INPUT SIGNAL CHECK

1) Turn ignition switch to "ACC".
2) Measure voltage between control unit harness terminals (13) and (15).

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

NG → Check harness continuity between TCU and washer switch.

OK →

B

WIPER AMP. OUTPUT SIGNAL CHECK

Measure voltage between control unit harness terminals (1) and (15) after operating washer switch.

0V for approx. 3 seconds after washer has operated.

NG → Replace control unit.

OK → Replace wiper amp.

Trouble Diagnoses (Cont'd)

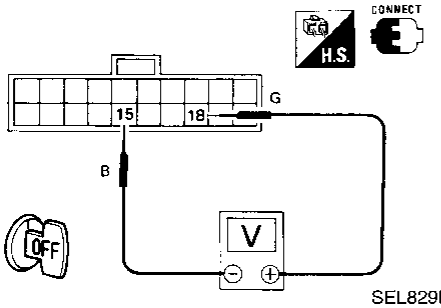
DIAGNOSTIC PROCEDURE 4

SYMPTOM: Light warning chime does not activate.

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

A

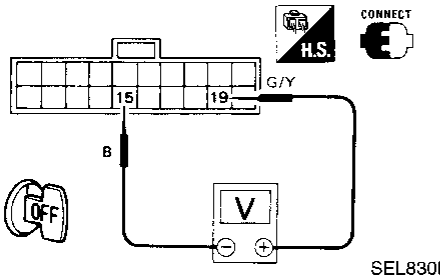
Time control unit connector (M1)



SEL829P

B

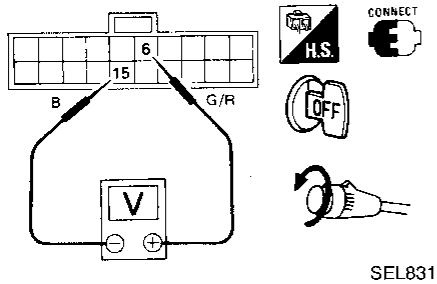
Time control unit connector (M1)



SEL830P

C

Time control unit connector (M1)



SEL831P

A — Step 3

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

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

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

OK ↓

B — Step 2

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

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

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

NG ↓

C — Step 1

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

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

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

OK ↓

Replace control unit.

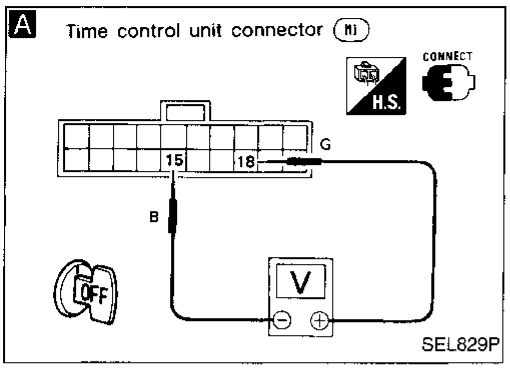
Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 5

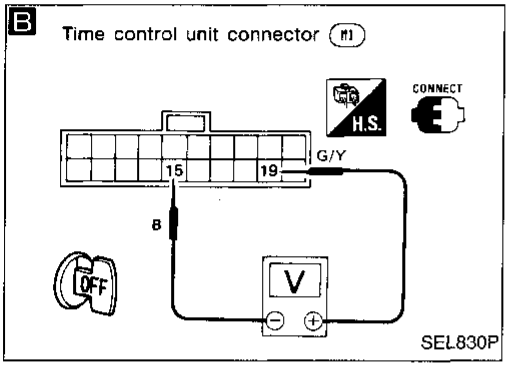
SYMPTOM: Ignition key warning chime does not activate.

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

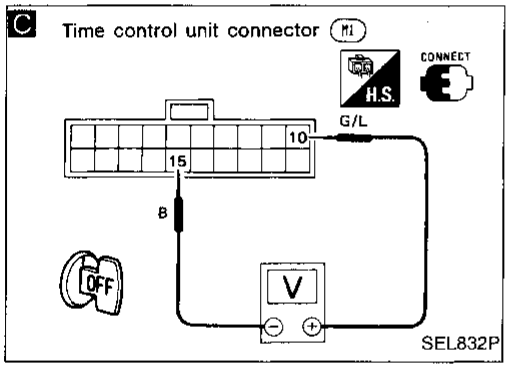
A



B



C



A — Step 3

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

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

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

OK ↓

B — Step 2

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

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

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

NG ↓

C — Step 1

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

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

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

OK ↓

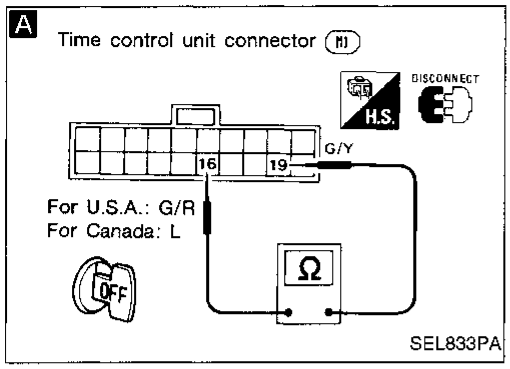
Replace control unit.

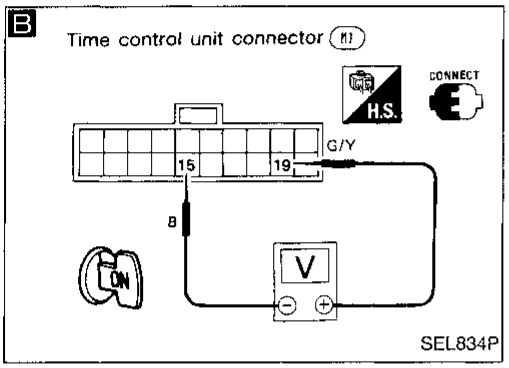
Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 6

SYMPTOM: Seat belt warning chime does not activate.

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





A Step 2

SEAT BELT SWITCH INPUT SIGNAL CHECK

Check continuity between control unit harness terminals (16) and (19).

Condition	Continuity
Unfastened	Yes
Fastened	No

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

OK ↓

B Step 1

CHIME OUTPUT SIGNAL CHECK

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

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

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

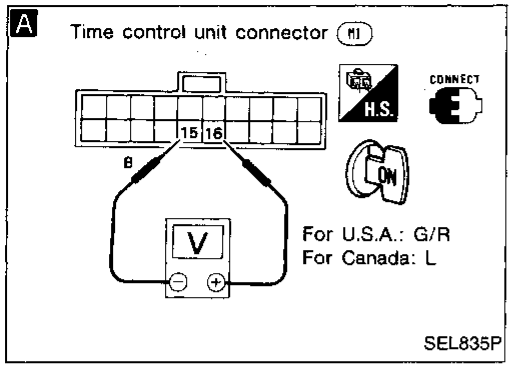
NG ↓

Replace control unit.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 7

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



A

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

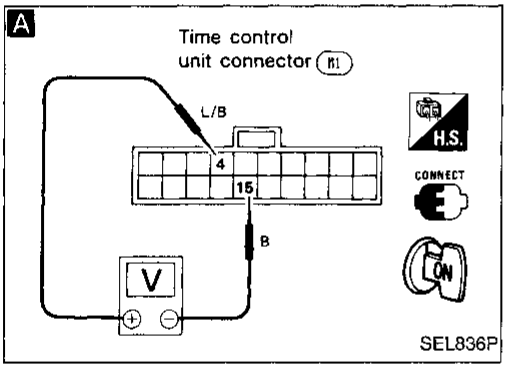
Yes → Check warning lamp.
Check harness continuity between TCU and warning lamp.

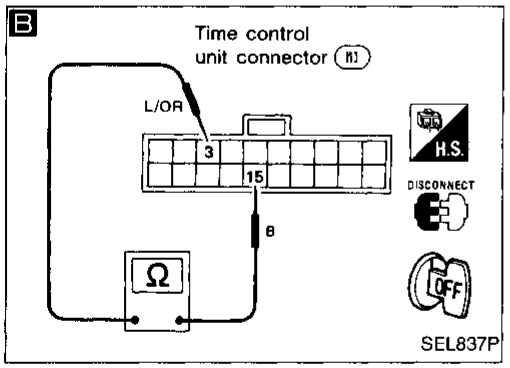
No ↓

Replace control unit.

DIAGNOSTIC PROCEDURE 8

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





A

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

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

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

NG ↓

B

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

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

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

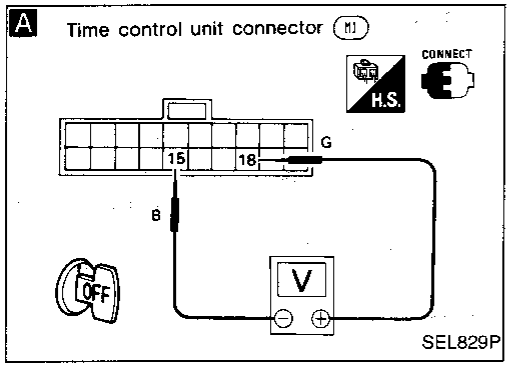
OK ↓

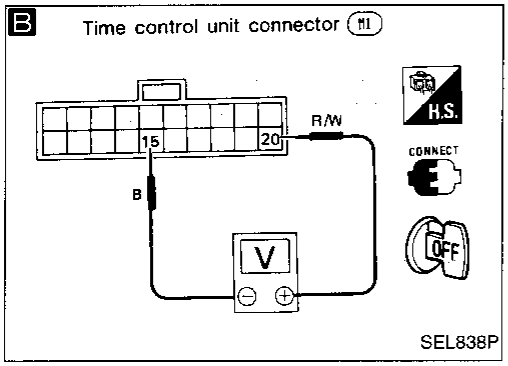
Replace control unit.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 9

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





A

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

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

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

OK ↓

B

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

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

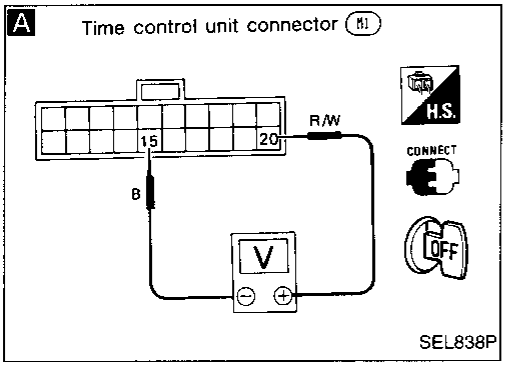
OK → Check interior lamp and harness between TCU and interior lamp.

NG ↓

Replace TCU.

DIAGNOSTIC PROCEDURE 10

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



A

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

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

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

NG ↓

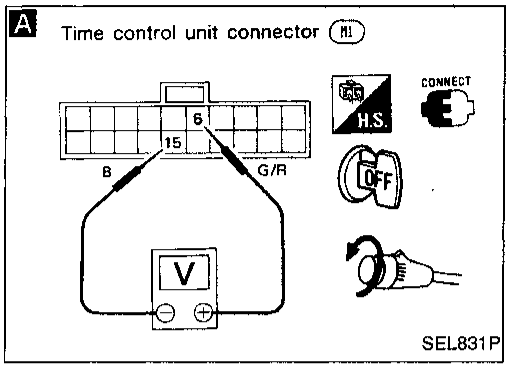
Replace TCU.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 11

SYMPTOM: Illumination control does not actuate.

A



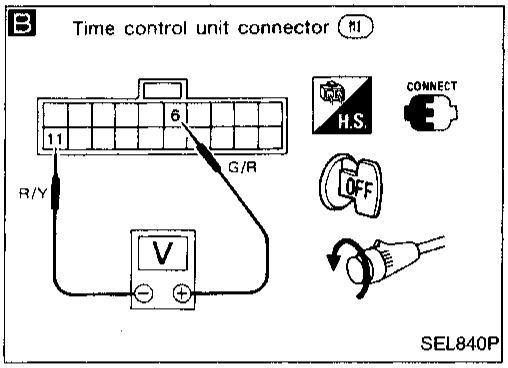
LIGHT SWITCH INPUT SIGNAL CHECK
Measure voltage between control unit harness terminals ⑥ and ⑮.

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

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

OK ↓

B



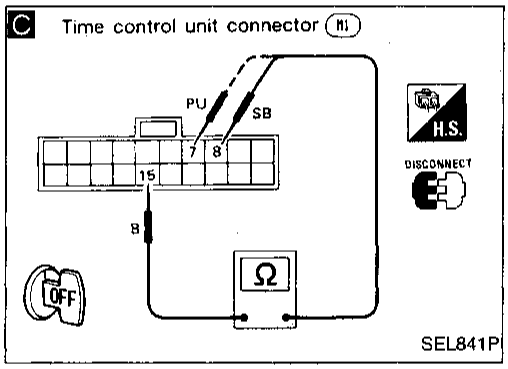
ILLUMINATION CIRCUIT CHECK
Measure voltage between control unit harness terminals ⑥ and ⑪.

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

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

OK ↓

C



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

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

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

OK ↓

Replace TCU.

Front Wiper and Washer/System Description

WIPER OPERATION

With the ignition switch in the ACC or ON position, power is supplied
- through 20A fuse [No. 12, located in the fuse block (J/B)]
- to wiper amp. terminal ⑤
- through terminal ⑫ of the front wiper switch
- to wiper amp. terminal ①.

Then wiper amp. is energized and power is supplied
- through wiper amp. terminal ④
- to front wiper motor terminal ③.

Low and high speed wiper operation

Ground is supplied to front wiper switch terminal ⑭ through body grounds (E13) and (E22).
When the front wiper switch is placed in the LO position, ground is supplied
- through terminal ⑪ of the front wiper switch
- to front wiper motor terminal ②.

With power and ground supplied, the front wiper motor operates at low speed.
When the front wiper switch is placed in the HI position, ground is supplied
- through terminal ⑬ of the front wiper switch
- to front wiper motor terminal ①.

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

Auto stop operation

When the front wiper switch is placed in the OFF position, the front wiper motor will continue to operate until the wiper arms reach the base of the windshield (Auto stop).
When the front wiper switch is placed in the OFF position, ground is supplied
- from terminal ⑪ of the front wiper switch
- to front wiper motor terminal ②, in order to continue front wiper motor operation at low speed.

Ground is also supplied until the wiper arms reaches the base of the windshield
- through terminal ⑩ of the front wiper switch
- to wiper amp. terminal ②
- through terminal ⑦ of the wiper amp.
- to front wiper motor terminal ⑤
- through terminal ④ of the front wiper motor, and
- through body grounds (E13) and (E22).

When the wiper arms reach the base of the windshield, the switch in the front wiper motor moves to the "STOP" position. The ground path is interrupted, the wipers return to the resting position and the front wiper motor stops.

Intermittent operation

Intermittent operation is controlled by the time control unit.
When the front wiper switch is placed in the INT position, ground is supplied
- to time control unit terminal ⑫
- from front wiper switch terminal ⑫
- through body grounds (M3) and (M90).

The desired interval time is input
- to time control unit terminal ⑭
- from front wiper switch terminal ⑰.

Based on these two inputs, an intermittent ground is supplied
- to wiper amp. terminal ⑥
- from time control unit terminal ①.

With power and ground supplied, the wiper amp. is activated.
When activated, an intermittent ground is supplied
- to front wiper motor terminal ②
- through the front wiper switch terminal ⑪
- to front wiper switch terminal ⑩
- through wiper amp. terminal ②
- to wiper amp. terminal ③
- through body grounds (E13) and (E22).

Front wiper motor operates at desired low speeds with time control unit terminal ⑫ grounded.

Front Wiper and Washer/System Description (Cont'd)

Rising up operation

When the front wiper switch is placed in the INT, LO or HI position, ground is supplied
- through terminal ⑫ of the front wiper switch
- to wiper amp. terminal ①.

Then wiper amp. is energized and power is supplied
- through wiper amp. terminal ④
- to front wiper motor terminal ③.

Ground is supplied to front wiper motor through front wiper switch and body grounds (M3) and (M90). With power and ground supplied, front wiper motor operates and wiper arms move up.
Wipers do not stop and return to resting position if speed is changed between intermittent, low speed and high speed. Operation continues, but at newly selected speed.

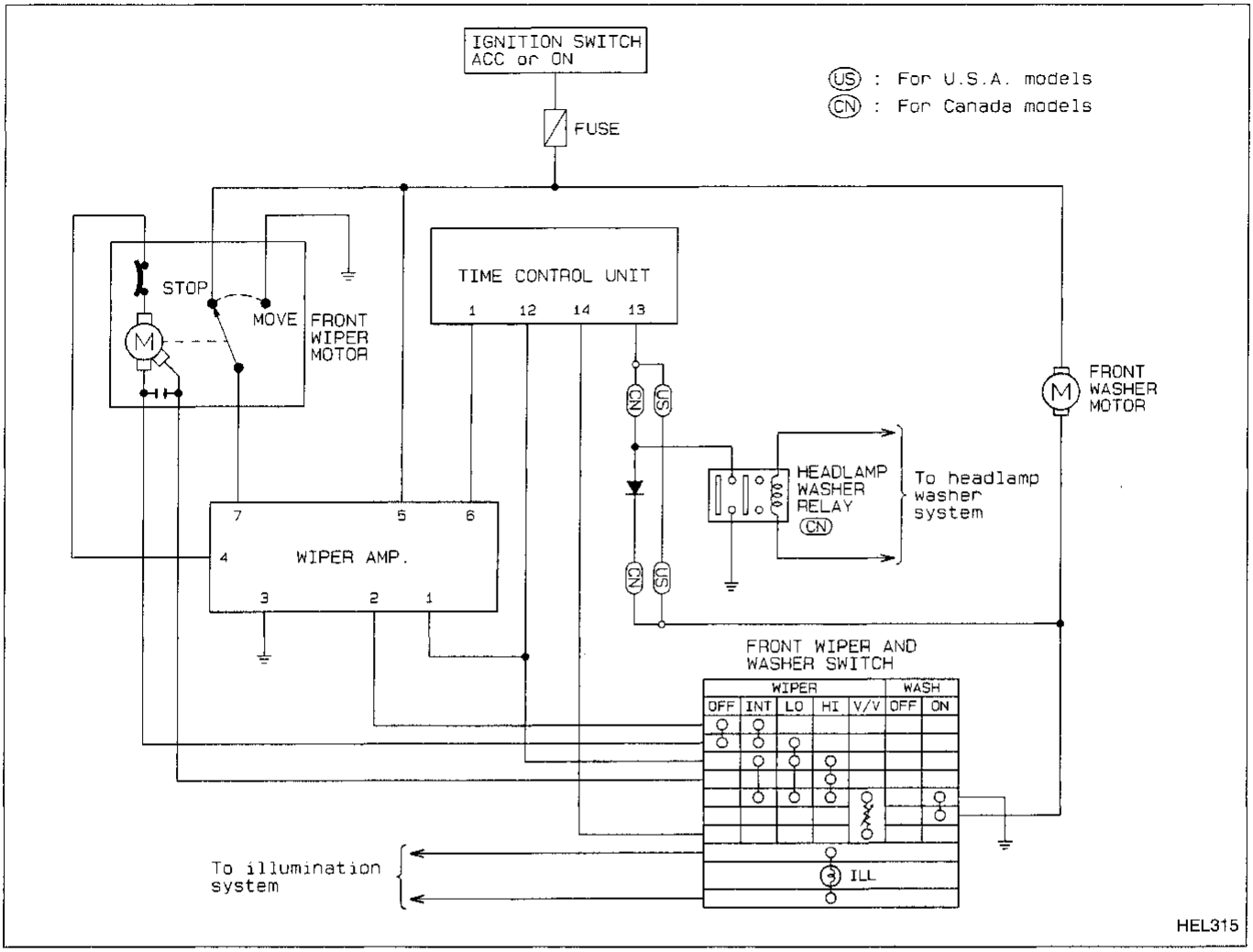
WASHER OPERATION

With the ignition switch in the ACC or ON position, power is supplied
- through 20A fuse [No. 12, located in the fuse block (J/B)]
- to front washer motor terminal ①.

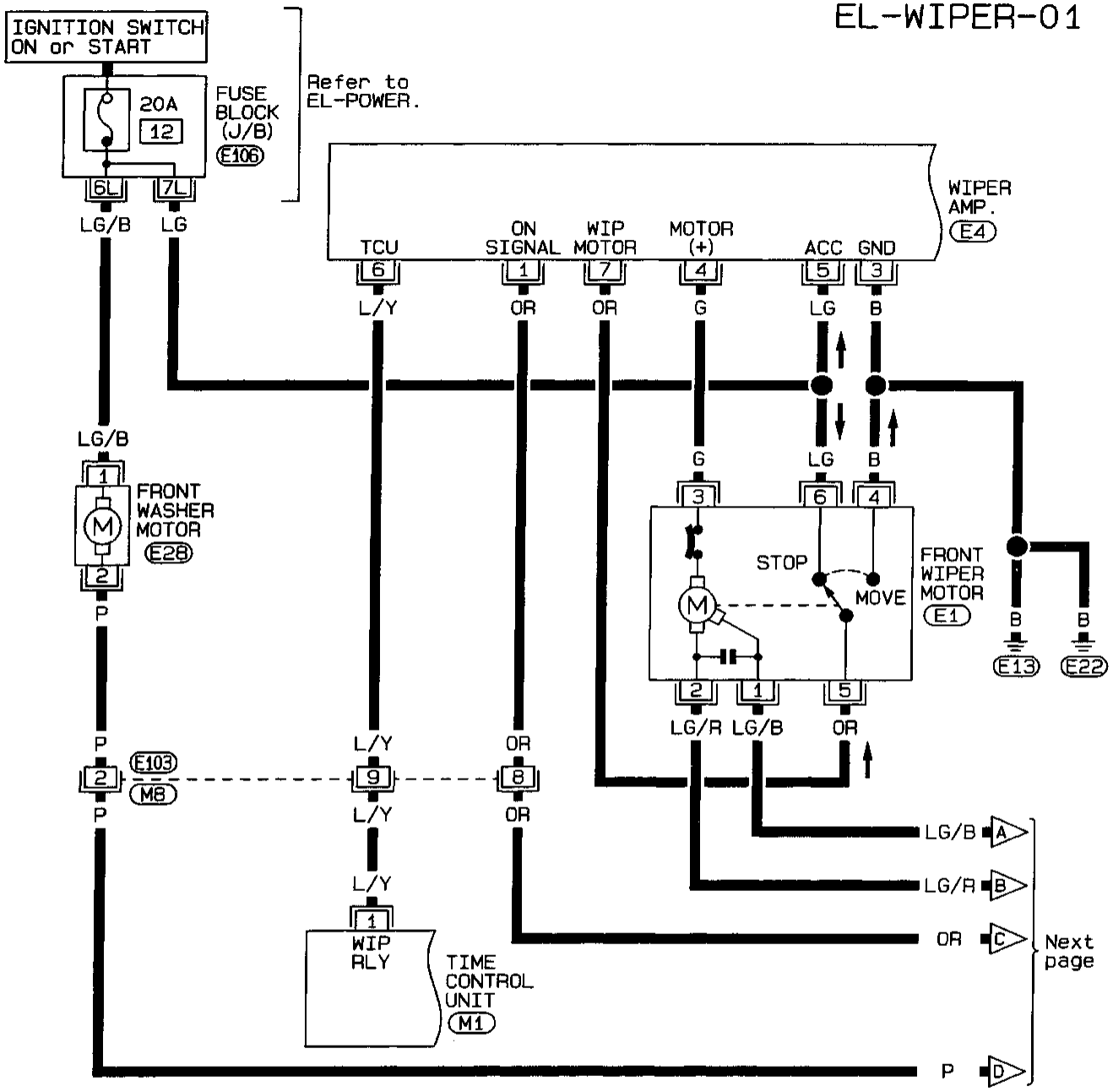
When the switch is pushed to the WASH position, ground is supplied
- to washer motor terminal ②, and
- to time control unit terminal ⑬
- from terminal ⑮ of the front wiper switch
- through terminal ⑭ of the front wiper switch, and
- through body grounds (M3) and (M90).

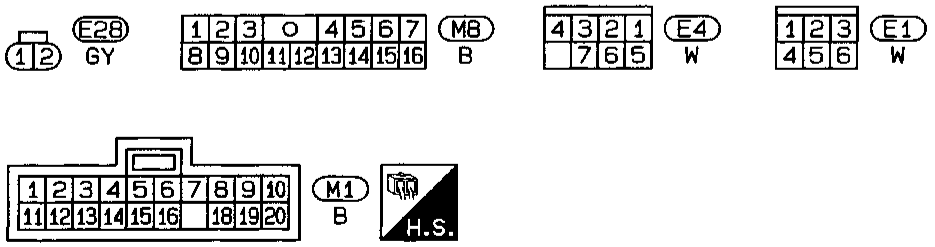
With power and ground supplied, the washer motor operates.
At the same time the front wiper motor operates at low speed for about 3 seconds. This feature is controlled by the time control unit in the same manner as the intermittent operation.
For further information, refer to "TIME CONTROL SYSTEM" (EL-111).

Front Wiper and Washer/Schematic



Front Wiper and Washer/Wiring Diagram
— WIPER —





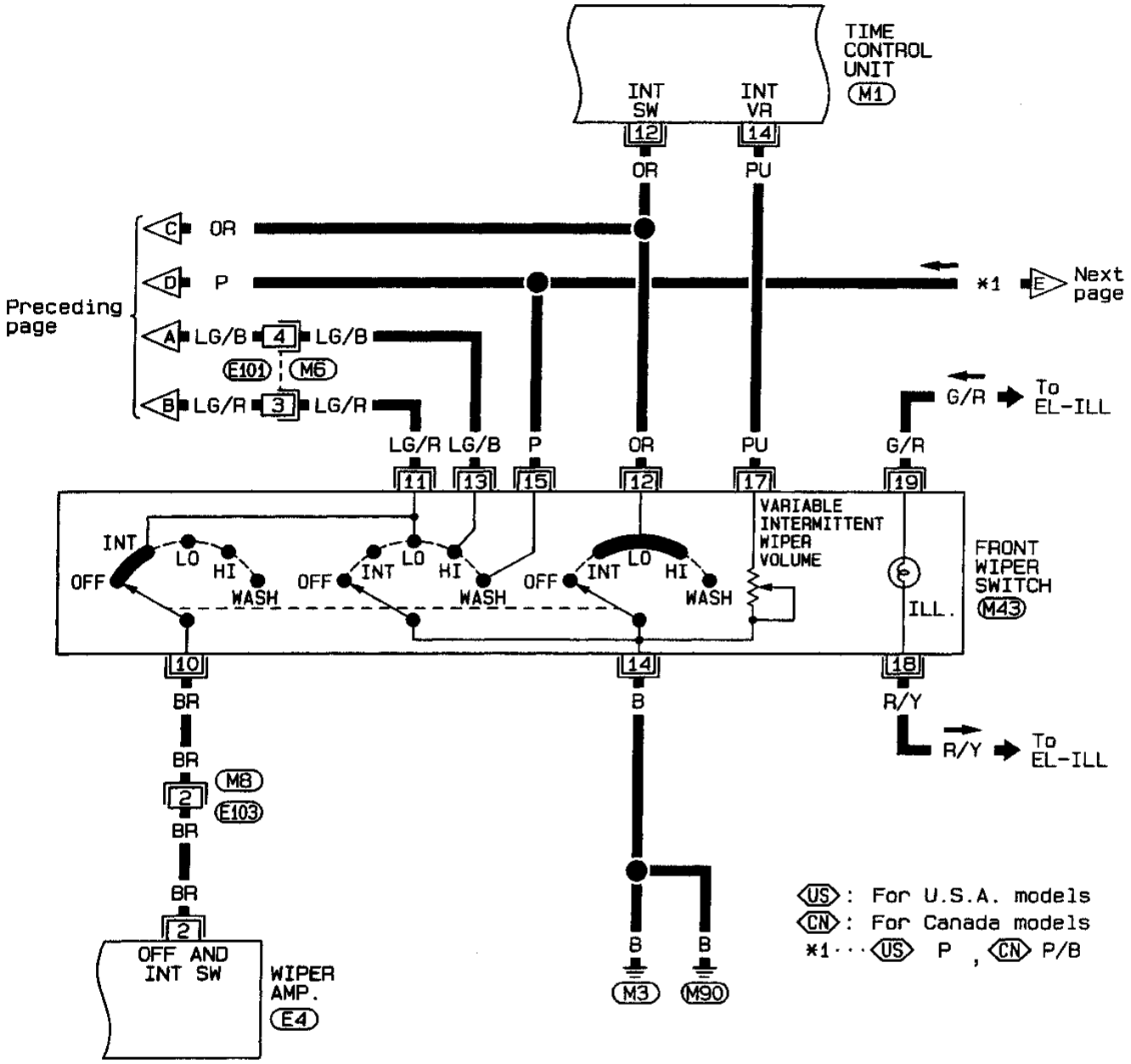
Refer to last page (Foldout page).

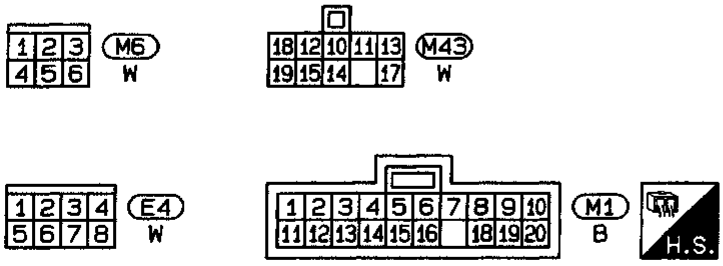
E106

HEL316

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

EL-WIPER-02

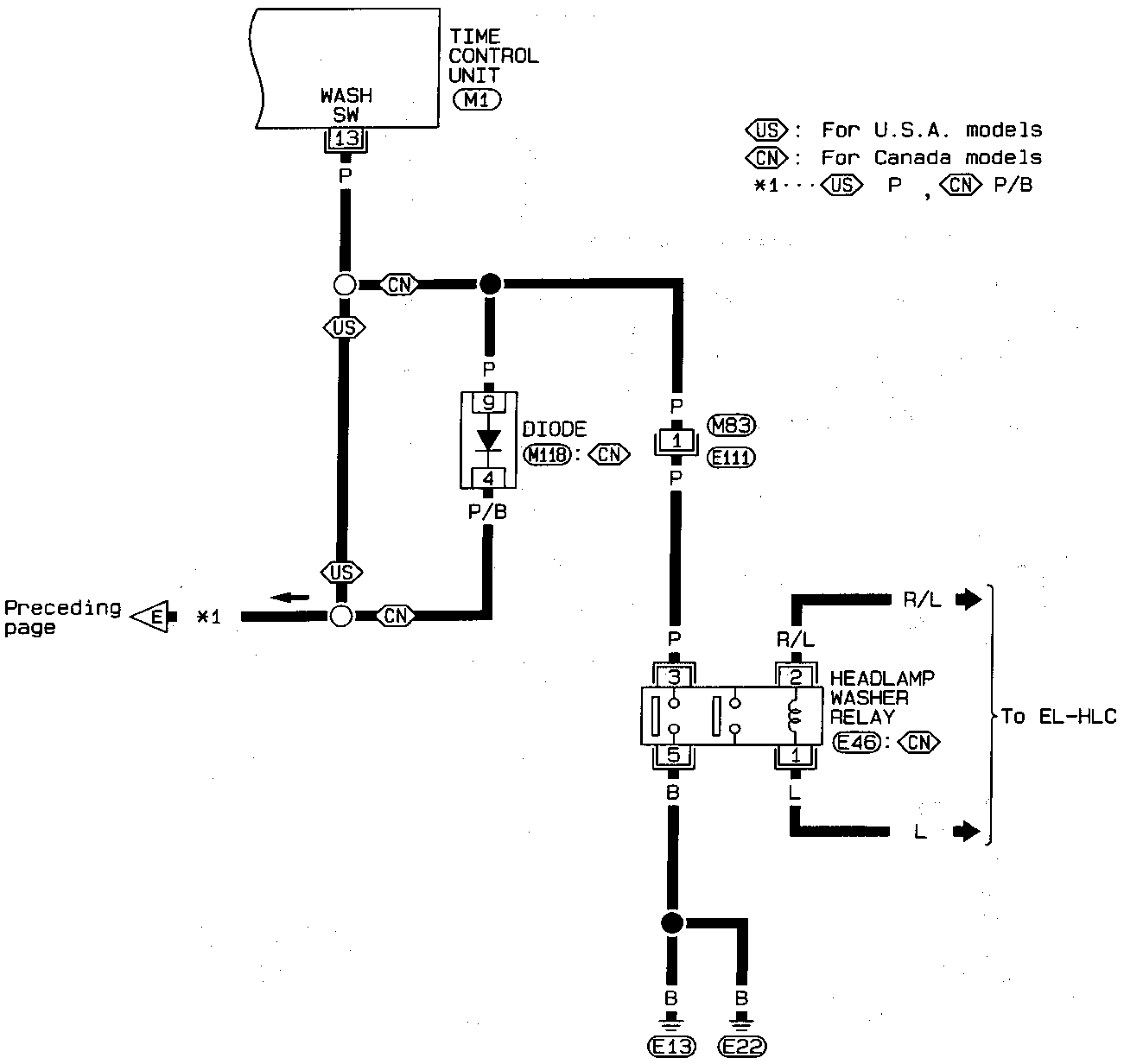


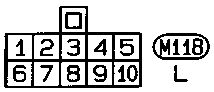


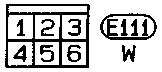
HEL317

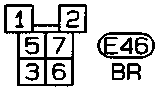
Front Wiper and Washer/Wiring Diagram — WIPER — (Cont'd)

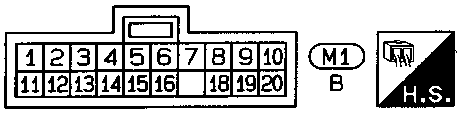
EL-WIPER-03











HEL318

Rear Wiper and Washer/System Description

WIPER OPERATION

The rear wiper switch is controlled by a lever built into the cluster switch RH.
There are two wiper switch positions:

- ON (LO speed)
- MIST (One touch)

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

- through 10A fuse [No. 4, located in the fuse block (J/B)]
- to rear wiper motor terminal ②, and

Low speed wiper operation

Ground is supplied to rear wiper switch terminal ㉓ through body grounds M3 and M90.
When the rear wiper switch is placed in the ON position, ground is supplied

- through rear wiper switch terminal ⑳
- to rear wiper motor terminal ③

With power and ground supplied, rear wiper motor will operate.

Auto stop operation

With the rear wiper switch turned OFF, rear wiper motor will continue to operate until wiper arm reaches rear window base.
When wiper arm is not located at base of rear window with rear wiper switch OFF, ground is supplied

- to rear wiper motor terminal ③
- through rear wiper switch terminal ⑳
- to rear wiper switch terminal ㉑
- through rear wiper motor terminal ①, in order to continue rear wiper motor operation at low speed.

Ground is also supplied

- to rear wiper motor terminal ④
- through body ground D204.

When wiper arm reaches base of rear window, rear wiper motor terminals ② and ③ are connected instead of terminals ③ and ④. Rear wiper motor will then stop wiper arm at the PARK position.

One touch operation

With the rear wiper switch turned to MIST, the rear wiper motor operates the wiper arm at low speed until the switch lever is released. This function works in the same manner as the low speed operation.

WASHER OPERATION

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

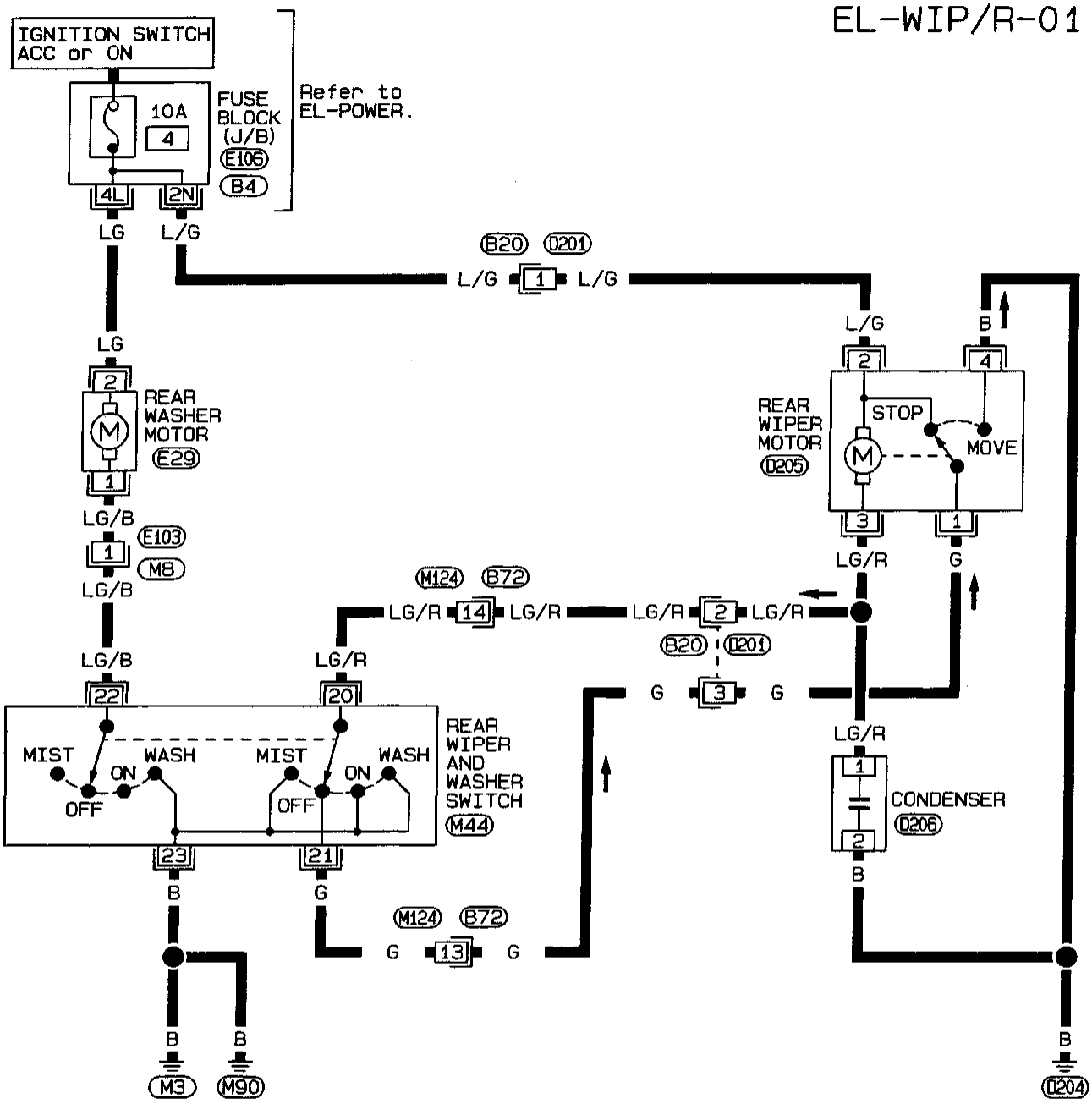
- through 10A fuse [No. 4, located in the fuse block (J/B)]
- to rear washer motor terminal ②.

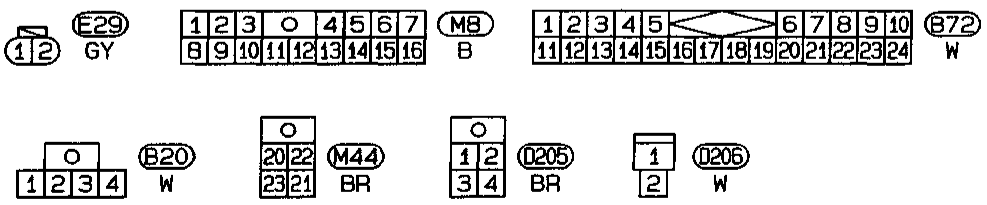
When the lever is turned to the WASH position, ground is supplied

- to rear washer motor terminal ①
- from terminal ㉒ of rear wiper switch
- through terminal ㉓ of rear wiper switch, and
- through body grounds M3 and M90.

With power and ground is supplied, the rear washer motor operates.
The rear wiper motor operates when the lever is turned to WASH position.

Rear Wiper and Washer/Wiring Diagram — WIP/R —



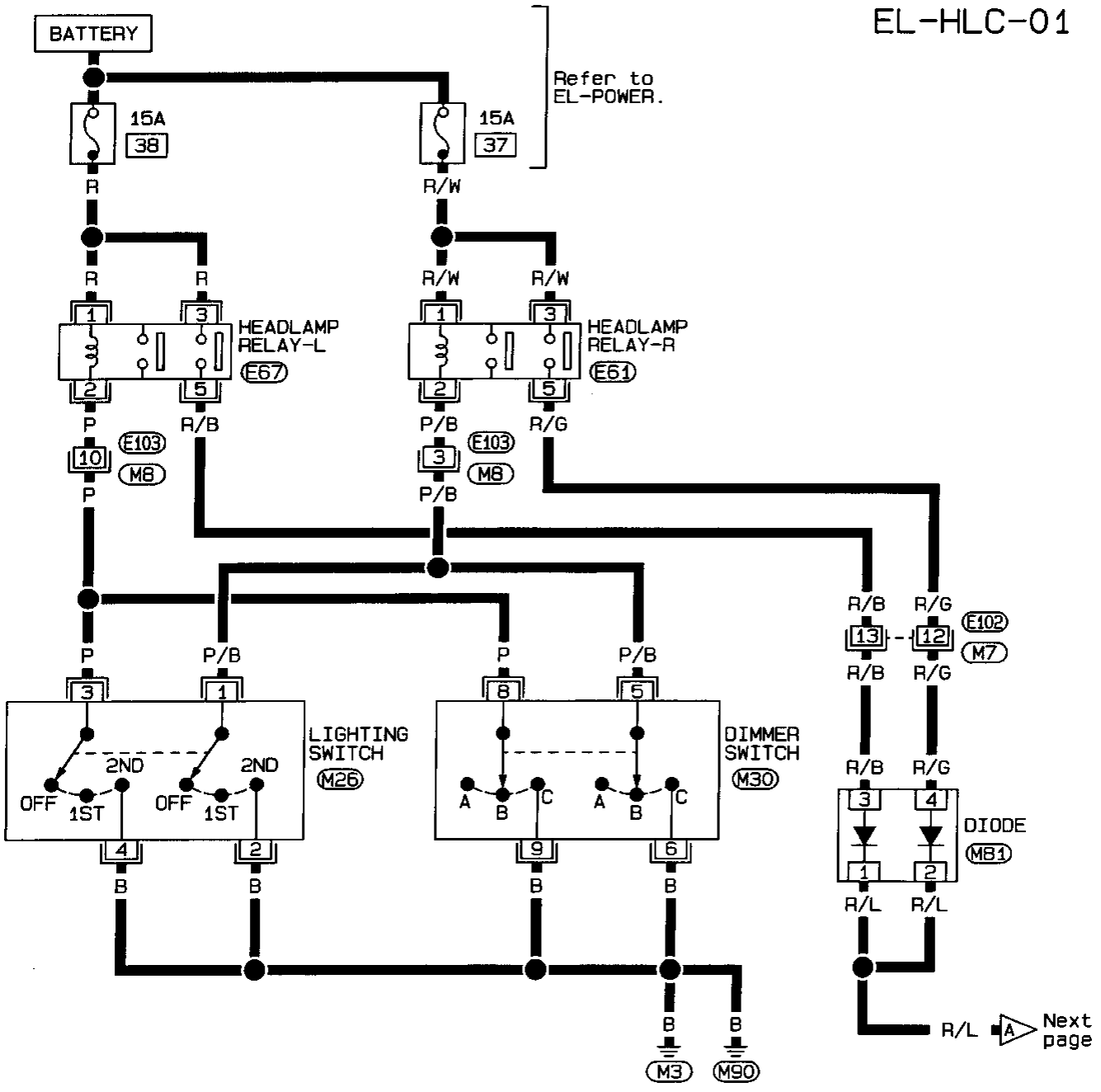


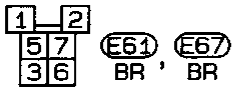
Refer to last page (Foldout page).

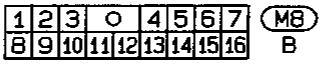
E106, B4

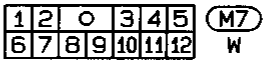
HEL319

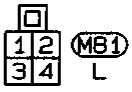
Headlamp Washer/Wiring Diagram — HLC —

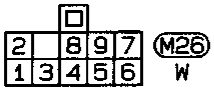


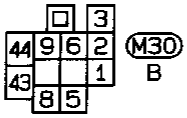






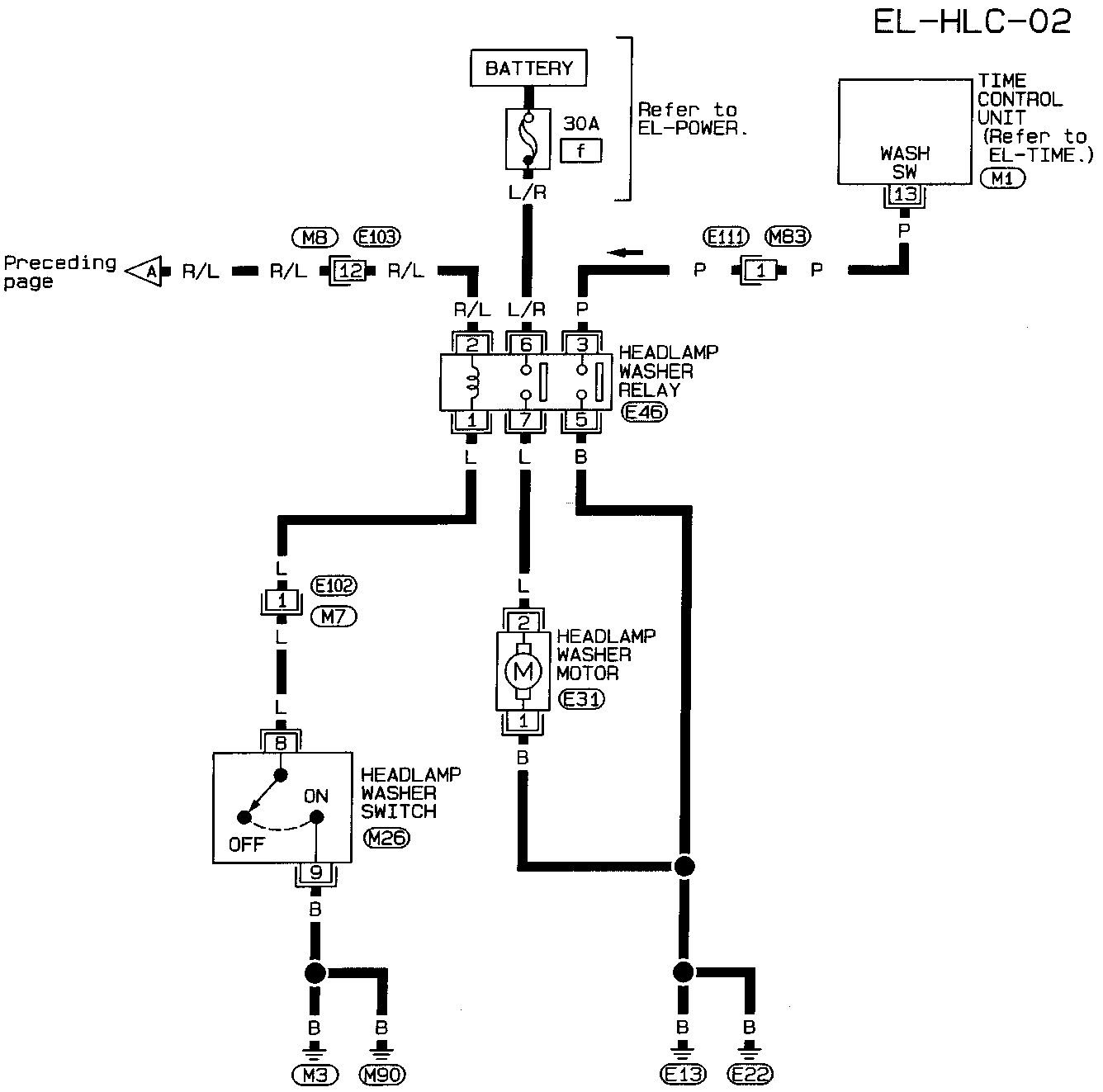


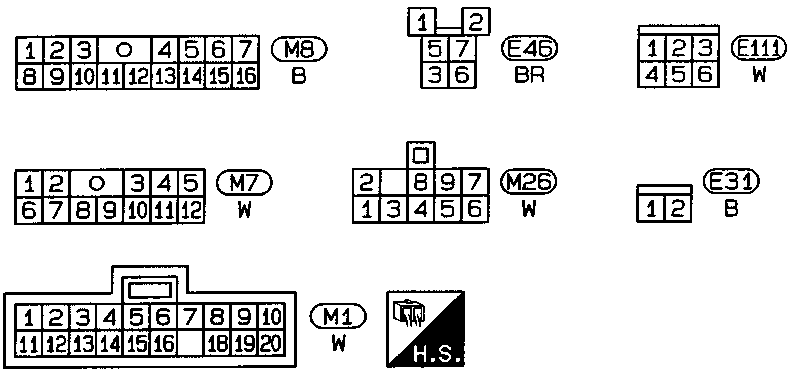




HEL320

Headlamp Washer/Wiring Diagram — HLC — (Cont'd)





HEL321

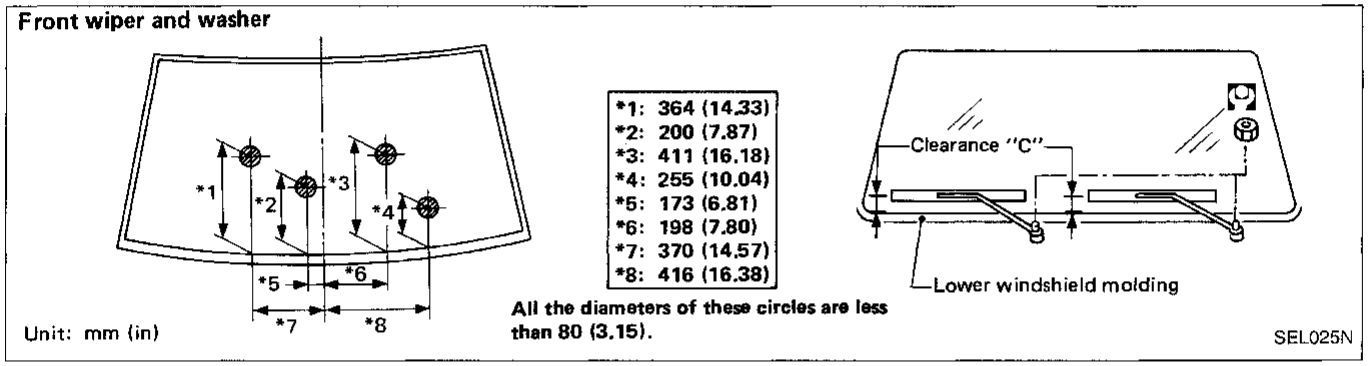
Installation

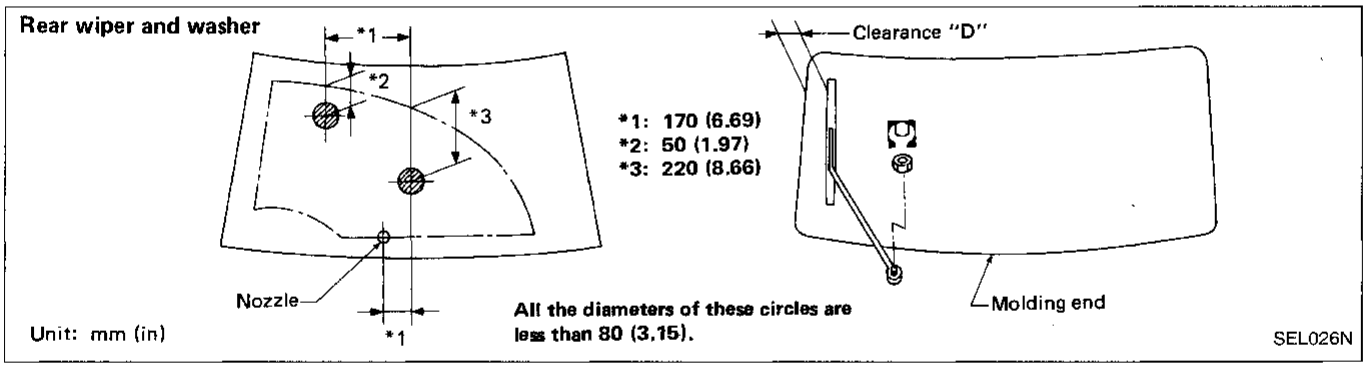
1. Prior to wiper arm installation, turn on wiper switch to operate wiper motor and then turn it "OFF" (Auto Stop).
2. Lift the blade up and then set it down onto glass surface to set the blade center to clearance "C" or "D" immediately before tightening nut.
3. Eject washer fluid. Turn on wiper switch to operate wiper motor and then turn it "OFF".
4. Ensure that wiper blades stop within clearance "C" or "D".

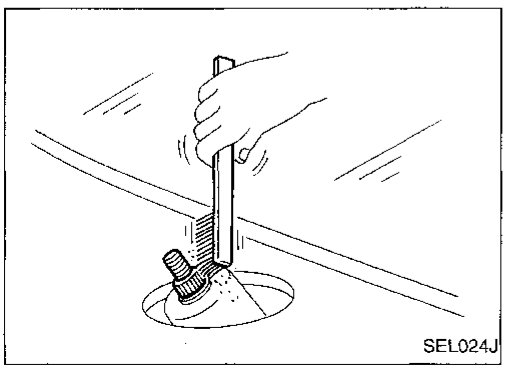
Clearance "C": 0 - 10 mm (0 - 0.39 in)
Clearance "D": 73 - 88 mm (2.87 - 3.46 in)

- Tighten windshield wiper arm nuts to specified torque.

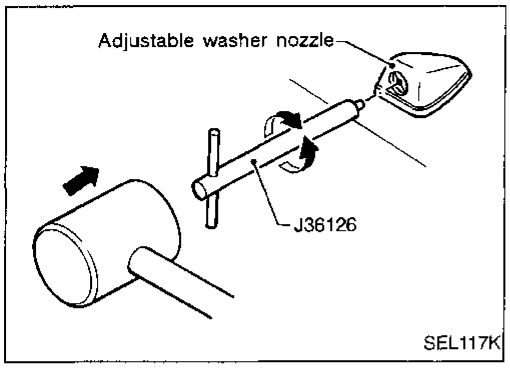
Front wiper:
: 26 - 32 N·m (2.7 - 3.3 kg-m, 20 - 24 ft-lb)
Rear wiper:
: 13 - 18 N·m (1.3 - 1.8 kg-m, 9 - 13 ft-lb)







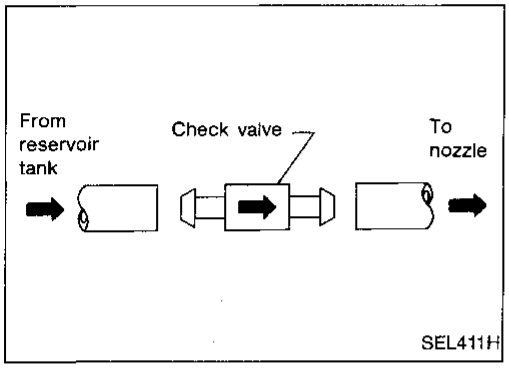
- **Before reinstalling wiper arm, clean up the pivot area as illustrated. This will reduce possibility of wiper arm looseness.**



Washer Nozzle Adjustment

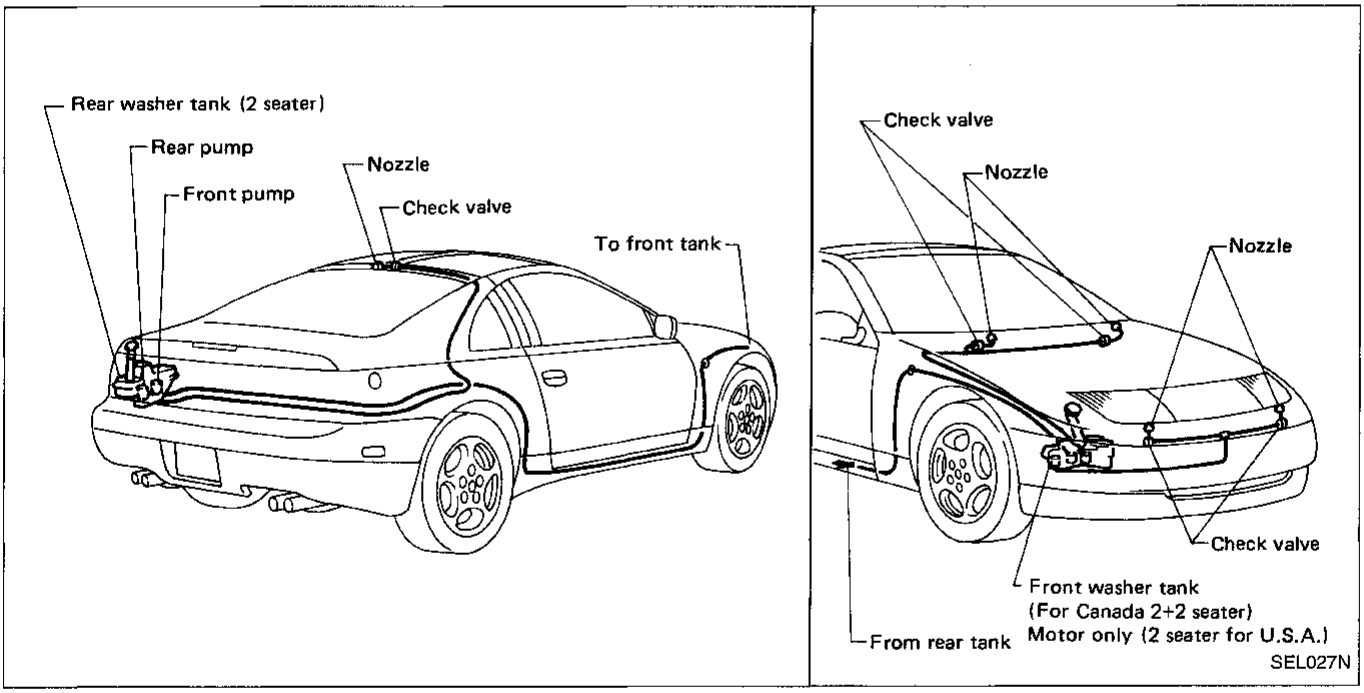
- Adjust washer nozzle with J36126 as shown in the figure at left.

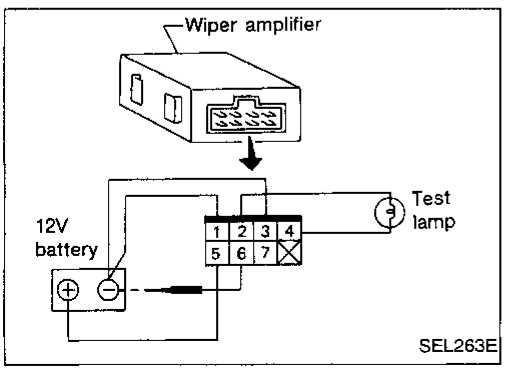
Before attempting to turn the nozzle, gently tap the end of the tool to free the nozzle. This will prevent "rounding out" the small female square in the center of the nozzle.



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.





Wiper Amplifier Check

1. Connect as shown in the figure at left.
2. If test lamp comes on when connected to terminal ⑥ and battery ground, wiper amplifier is normal.

System Description

Power is supplied at all times
- from 30A fusible link (Letter [f], located in the fusible link holder)
- to circuit breaker terminal ①
- through circuit breaker terminal ②
- to ignition relay terminal ③.

Power is also supplied at all times
- from BLUE fusible link (Letter [a], located in the fusible link holder)
- to ignition relay terminal ⑥.

Power is also supplied at all times
- from 30A fusible link (Letter [d], located in the fusible link holder)
- to ignition switch terminal ①.

With ignition switch in ON or START position, power is supplied
- through ignition switch terminal ③
- to ignition relay terminal ①.

Ground is supplied to ignition relay terminal ②
- through body grounds (M3) and (M90).

The ignition relay is energized and power is supplied
- through ignition relay terminal ⑤
- to power window main switch terminal ⑤,
- to power window sub switch terminal ⑭,
- to power window amplifier terminal ㉔, and
- from ignition relay terminal ⑦
- through 15A fuse [No. 17, located in the fuse block (J/B)]
- to power window amplifier terminal ㉓.

MANUAL OPERATION

Door LH

Ground is supplied
- to power window main switch terminal ④ and
- to power window amplifier terminal ㉗
- through body grounds (M3) and (M90).

WINDOW UP

When the LH switch in the power window main switch is pressed in the up position, ground signal is supplied
- to power window amplifier terminal ㉑
- from power window main switch terminal ③.

Power is supplied
- to power window regulator LH terminal ①
- through power window amplifier terminal ㉕.

Ground is supplied
- to power window regulator LH terminal ②
- through power window amplifier terminal ㉖.

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

WINDOW DOWN

When the LH switch in the power window main switch is pressed in the down position, ground signal is supplied
- to power window amplifier terminal ㉒
- from power window main switch terminal ②.

Power is supplied
- to power window regulator LH terminal ②
- through power window amplifier terminal ㉖.

Ground is supplied
- to power window regulator LH terminal ①
- through power window amplifier terminal ㉕.

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

Door RH

Ground is supplied
- to power window main switch terminal ㉔
- through body grounds (M3).

NOTE:
Numbers in parentheses are terminal numbers, when power window switch is pressed in the UP and DOWN positions respectively.

MAIN SWITCH OPERATION
Power is supplied
- through power window main switch (⑥, ⑦)
- to power window sub-switch (⑪, ⑮).

The subsequent operation is the same as the sub-switch operation.

SUB-SWITCH OPERATION
Power is supplied
- through power window sub-switch (⑫, ⑬)
- to power window regulator RH (①, ②).

Ground is supplied
- to power window regulator RH (②, ①)
- through power window sub-switch (⑬, ⑫)
- to power window sub-switch (⑮, ⑪)
- through power window main switch (⑦, ⑥).

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

AUTO OPERATION

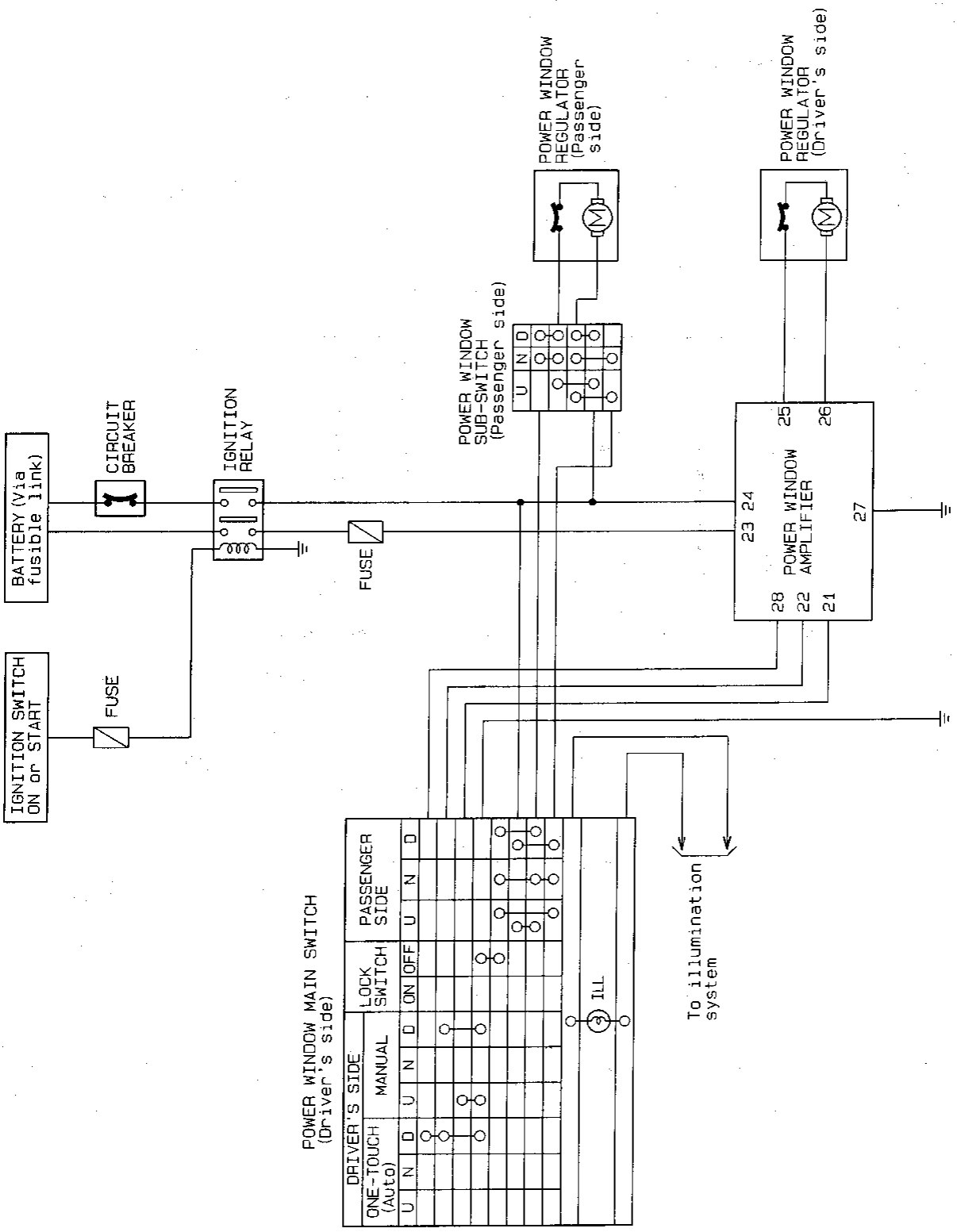
The power window AUTO feature enables the driver to lower the driver's window without holding the window switch in the down position.
The AUTO feature only operates on the driver's window downward movement.
When a power window main switch is pressed and released the AUTO position, ground signal is supplied
- to power window amplifier terminal ㉘
- from power window main switch terminal ①.

The subsequent operation is the same as the manual operation of door LH.
Then, the door LH window will fully open.

POWER WINDOW LOCK

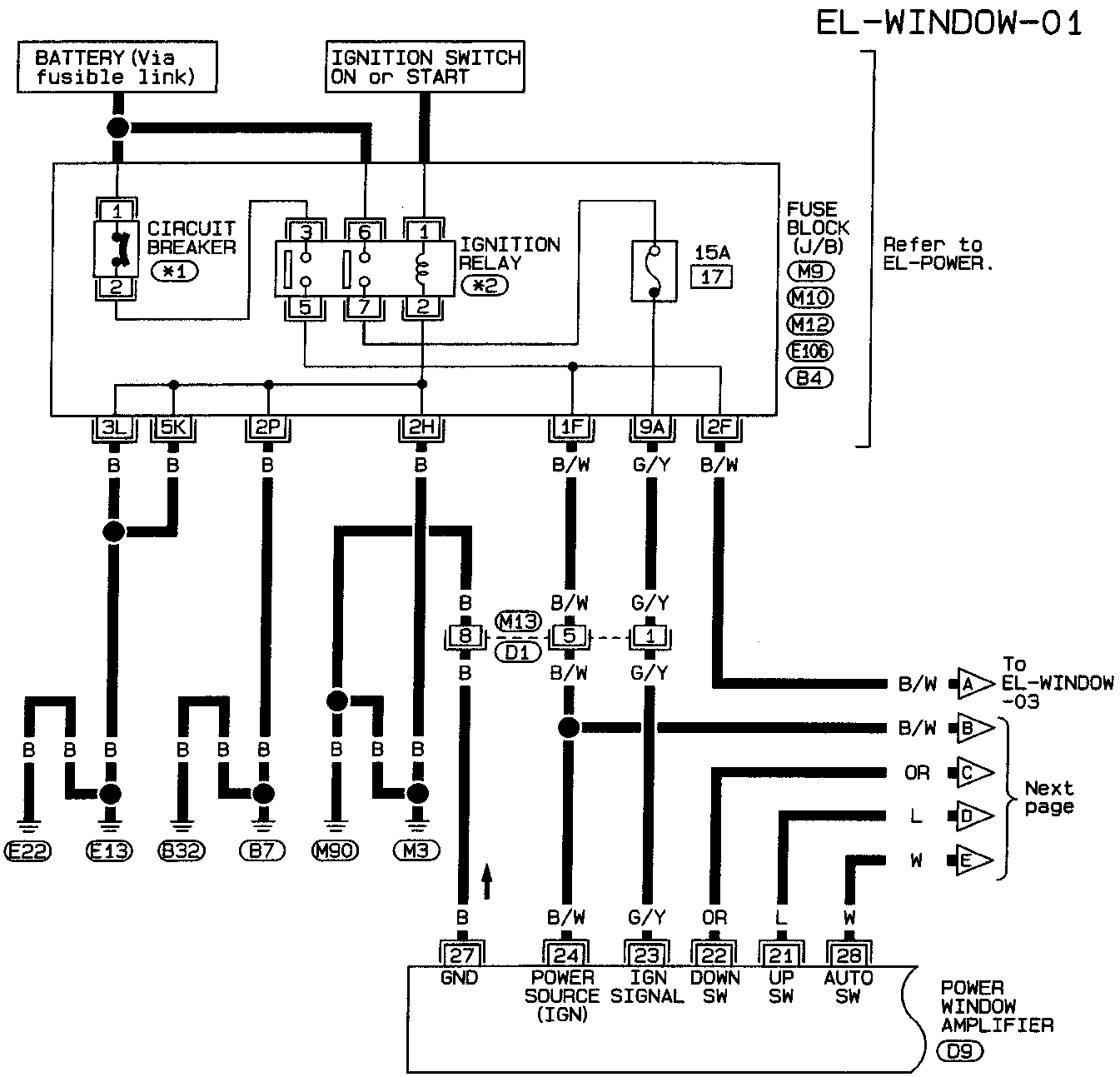
The power window lock is designed to lock-out window operation to door RH window.
When the lock switch is pressed to lock position, ground of the RH switch in the power window main switch is disconnected. This prevents the power window motors from operating.

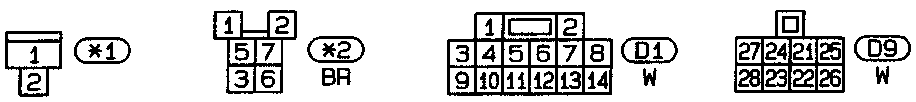
Schematic



HEL322

Wiring Diagram — WINDOW —





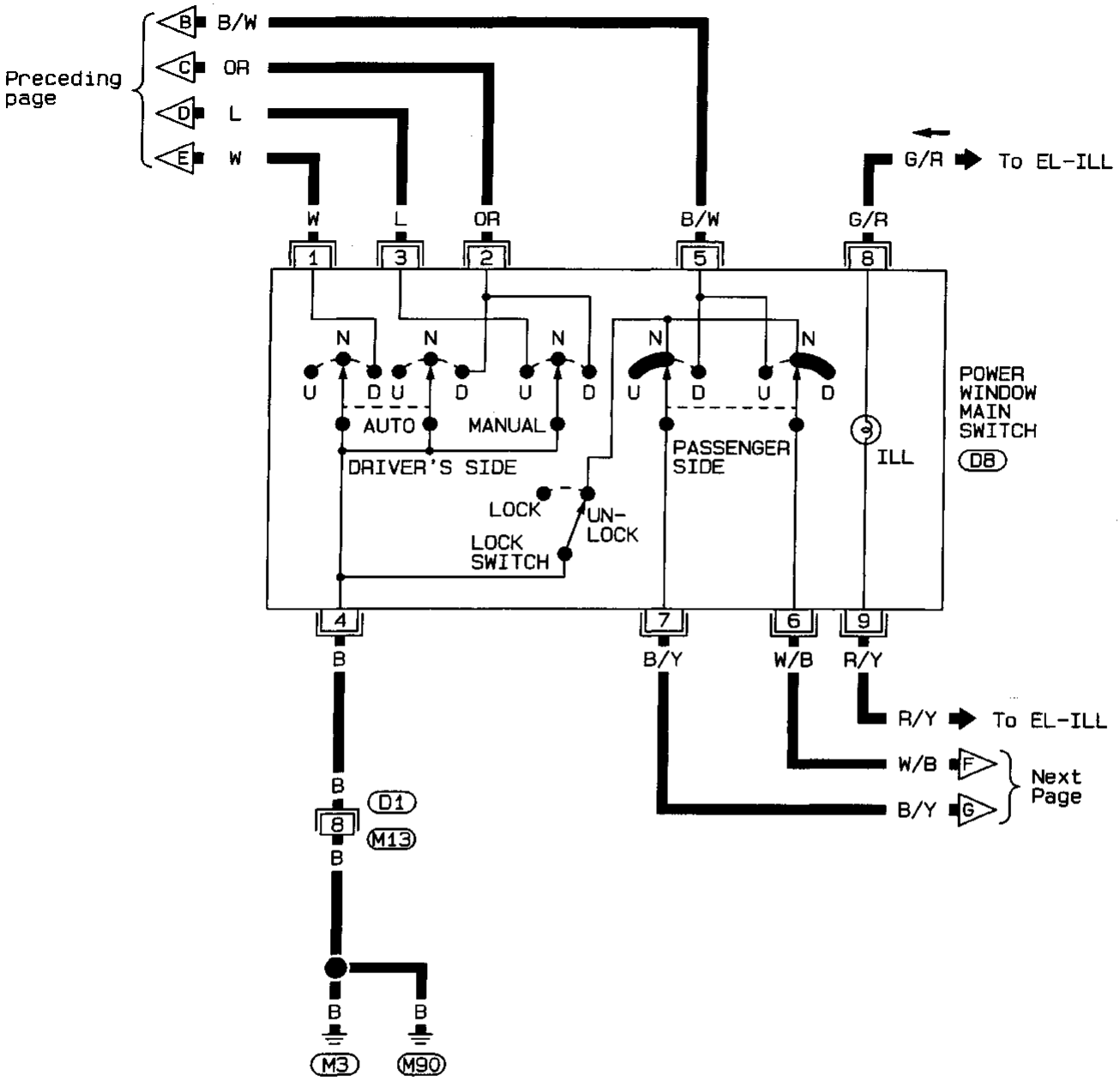
Refer to last page (Foldout page).

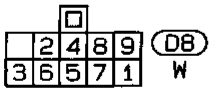
M9, M10, M12, E106, B4

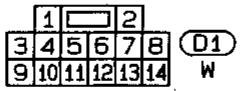
HEL323

Wiring Diagram — WINDOW — (Cont'd)

EL-WINDOW-02





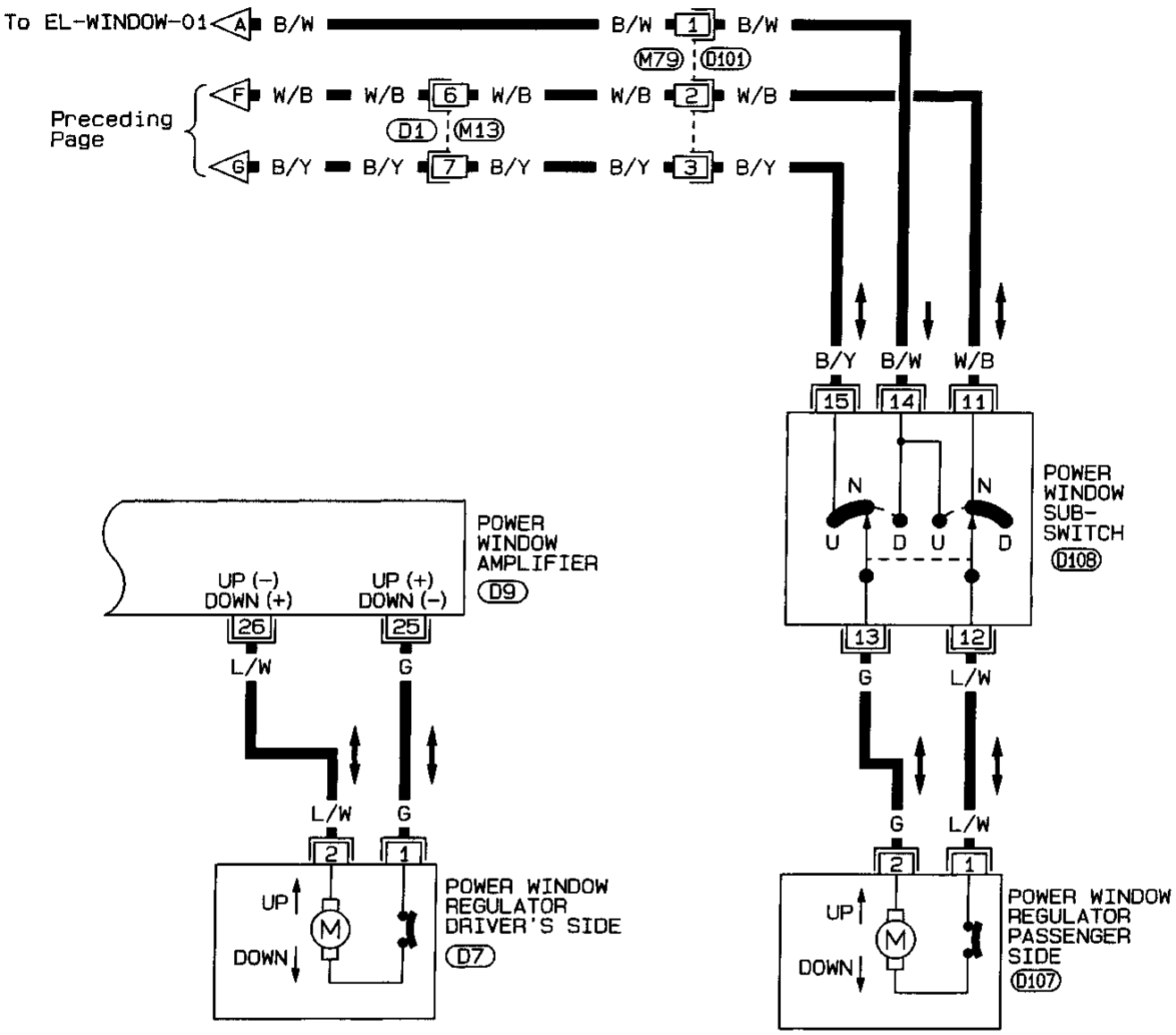


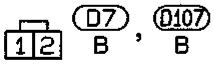
GI MA EM LC EC FE CL MT AT PD FA RA BR ST RS BT HA EL IDX

HEL324

Wiring Diagram — WINDOW — (Cont'd)

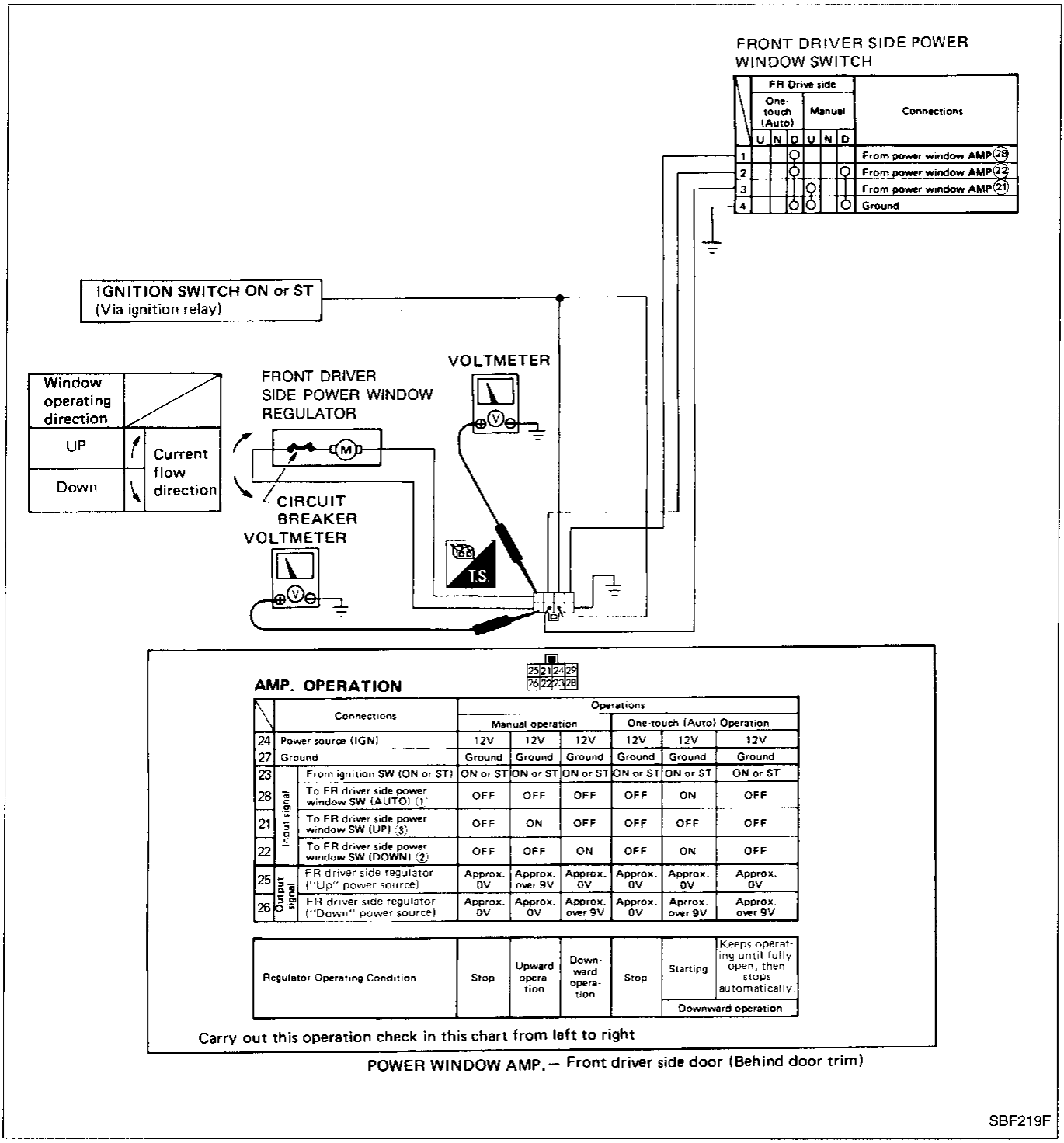
EL-WINDOW-03





HEL325

Power Window Amp. Inspection



System Description

OPERATIVE CONDITION

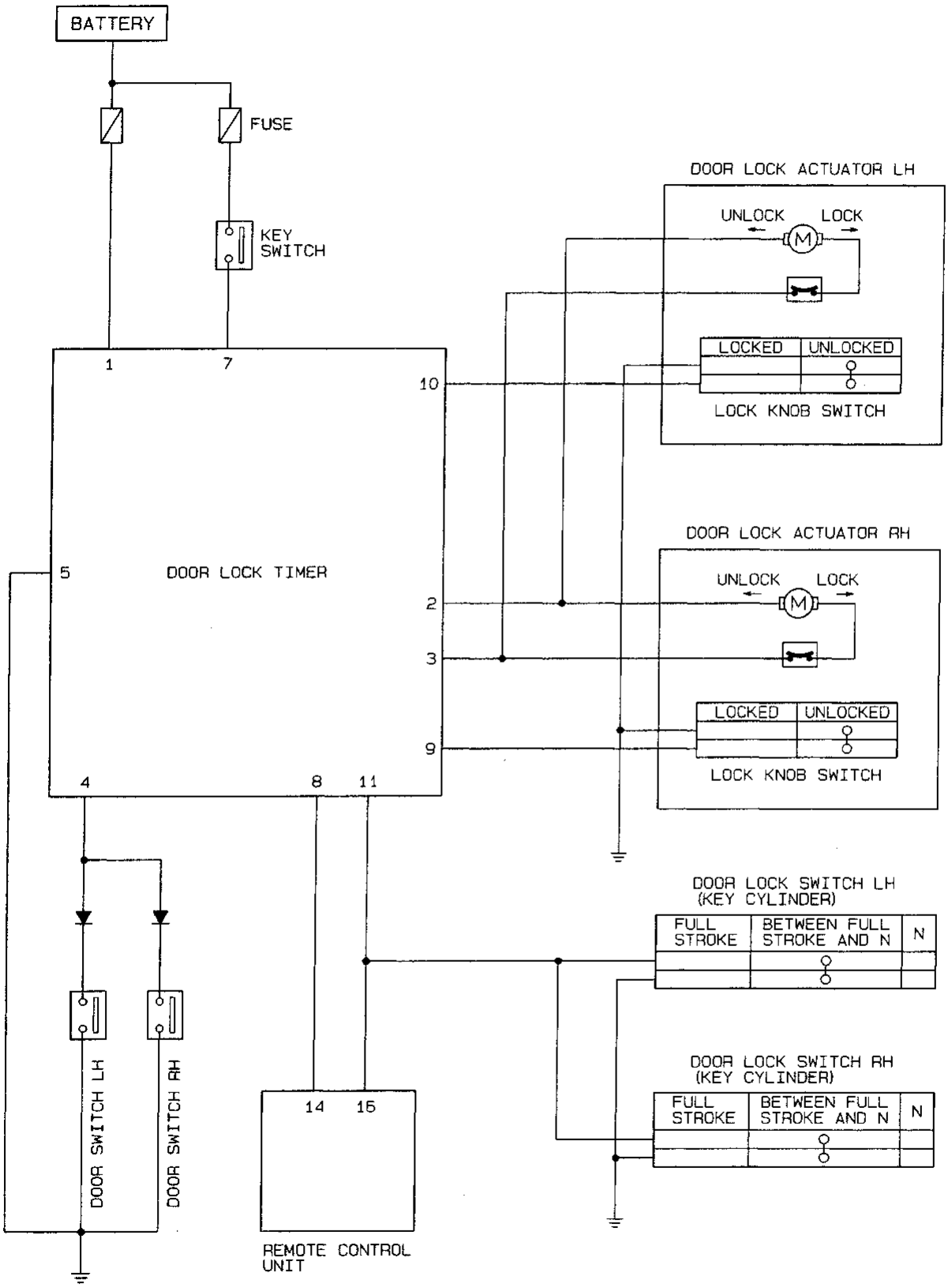
- With the lock knob on front LH or RH door set to "LOCK"/"UNLOCK", front doors are locked/unlocked.
- With the door key inserted in the key cylinder on front LH or RH door, turning it to "LOCK", will lock front doors; turning it to "UNLOCK", will unlock front doors.

However, if the ignition key is in the steering key cylinder and one or more of the front doors are open, setting the 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 steering key cylinder and all doors closed, operating the lock knob on the front LH or RH door unlocks all doors the instant they are locked.
- With ignition key inserted into the steering key cylinder and front LH or RH door opened, moving the lock knob on the front LH or RH door to "Lock" does not unlock all doors.

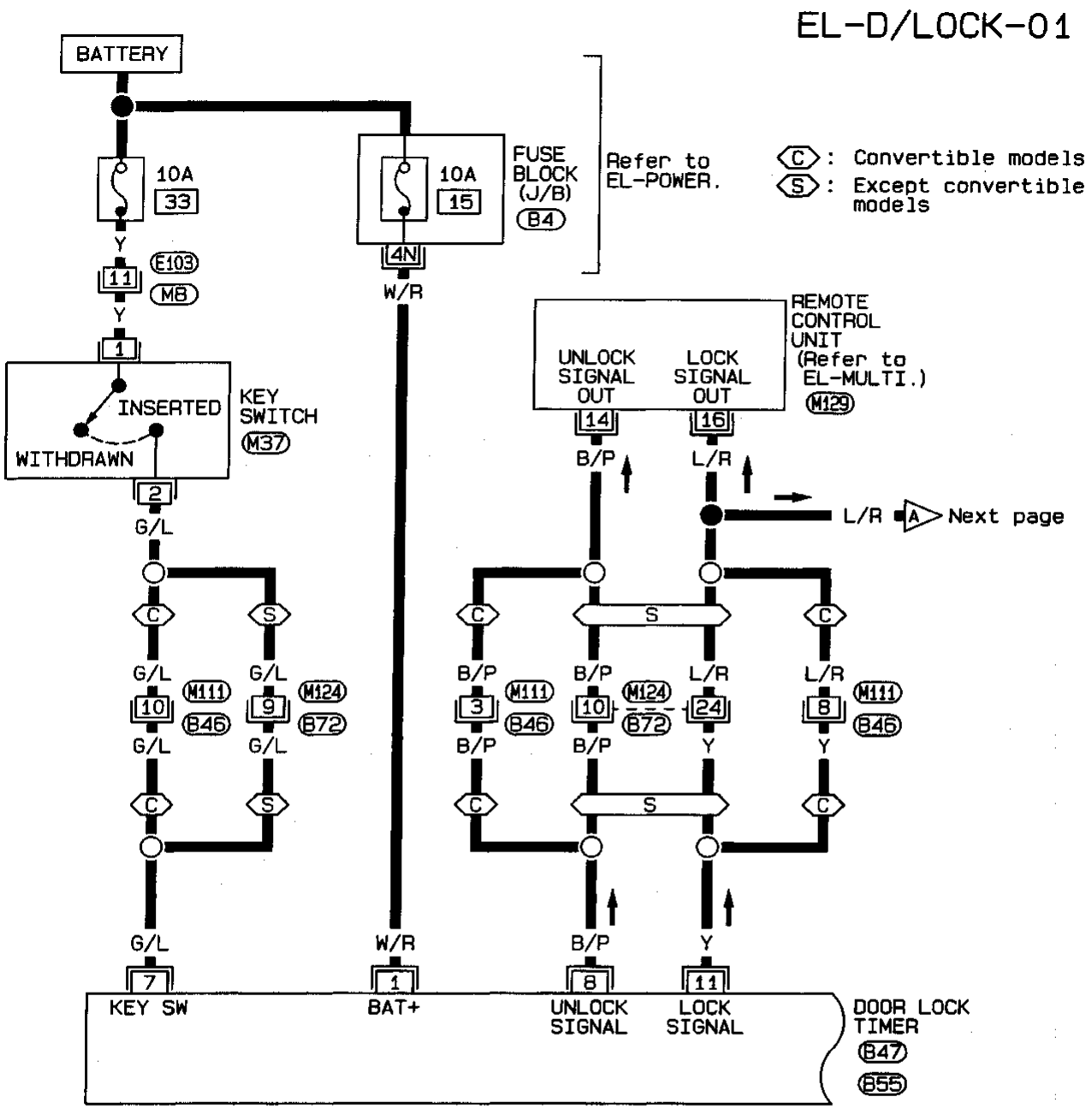
Remote control unit locking/unlocking signal from the front doors to door lock timer, and unlocks the back door (Except convertible models) or the trunk lid (Convertible models).
For operation of the remote controller, refer to "MULTI-REMOTE CONTROL SYSTEM" (EL-194).

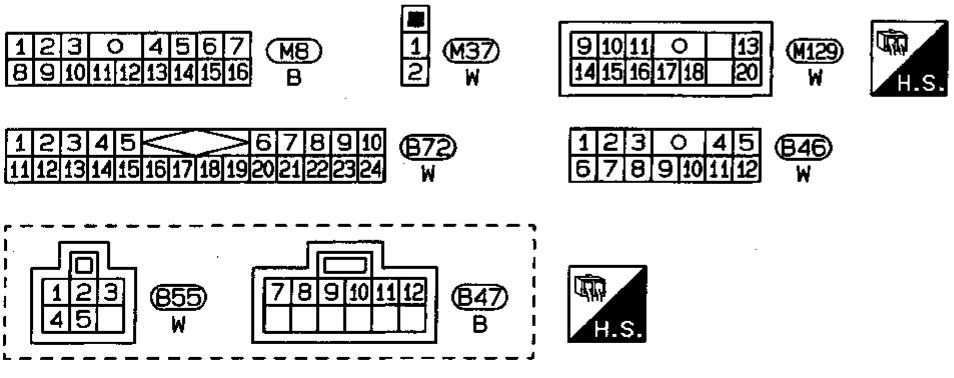
Schematic



HEL326

Wiring Diagram — D/LOCK —



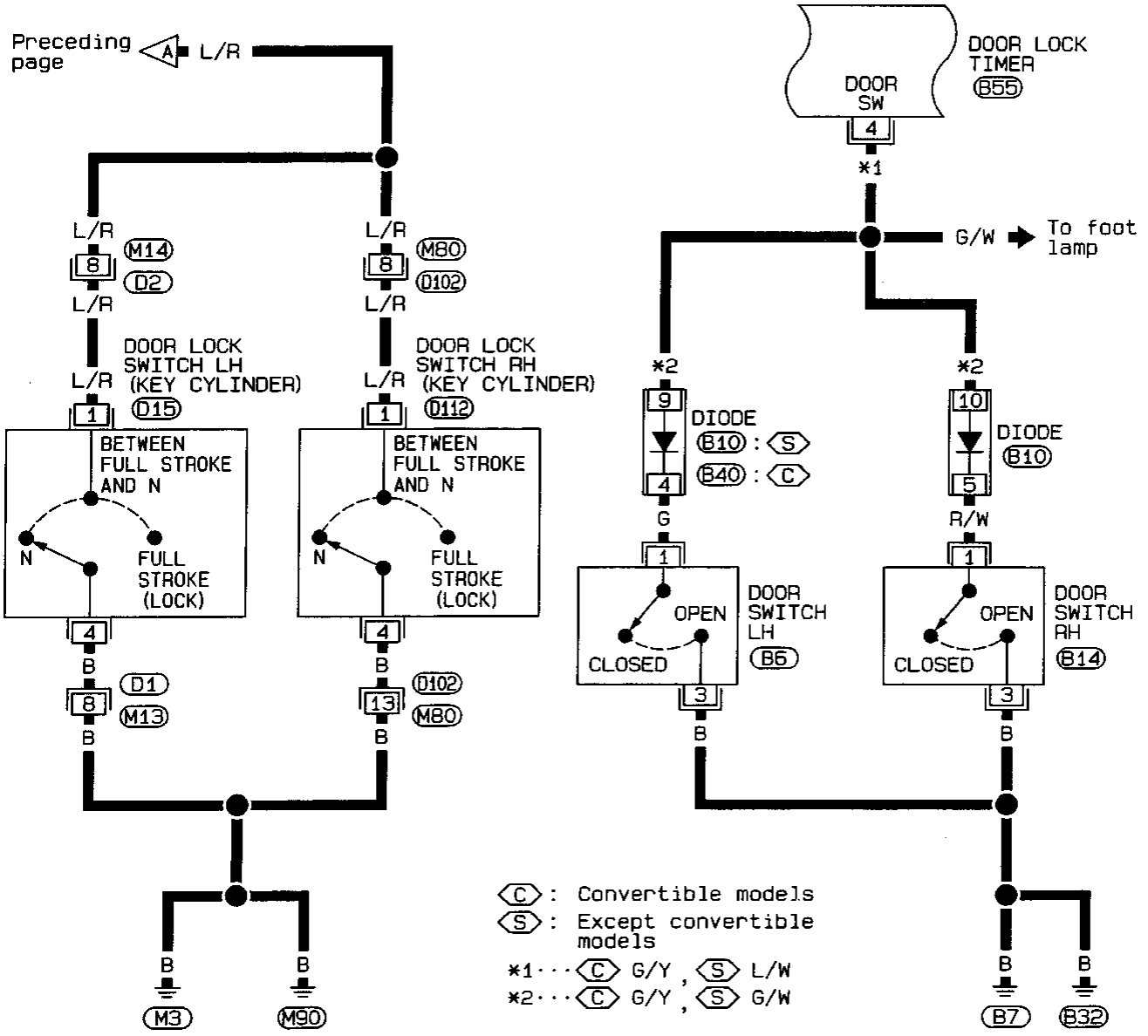


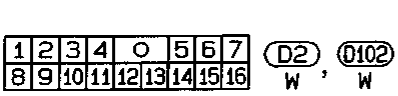
Refer to last page (Foldout page).
B4

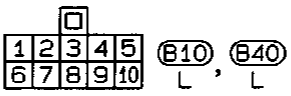
HEL327

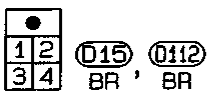
Wiring Diagram — D/LOCK — (Cont'd)

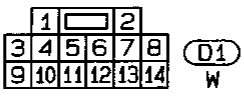
EL-D/LOCK-02

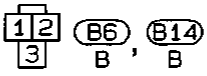


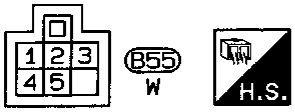








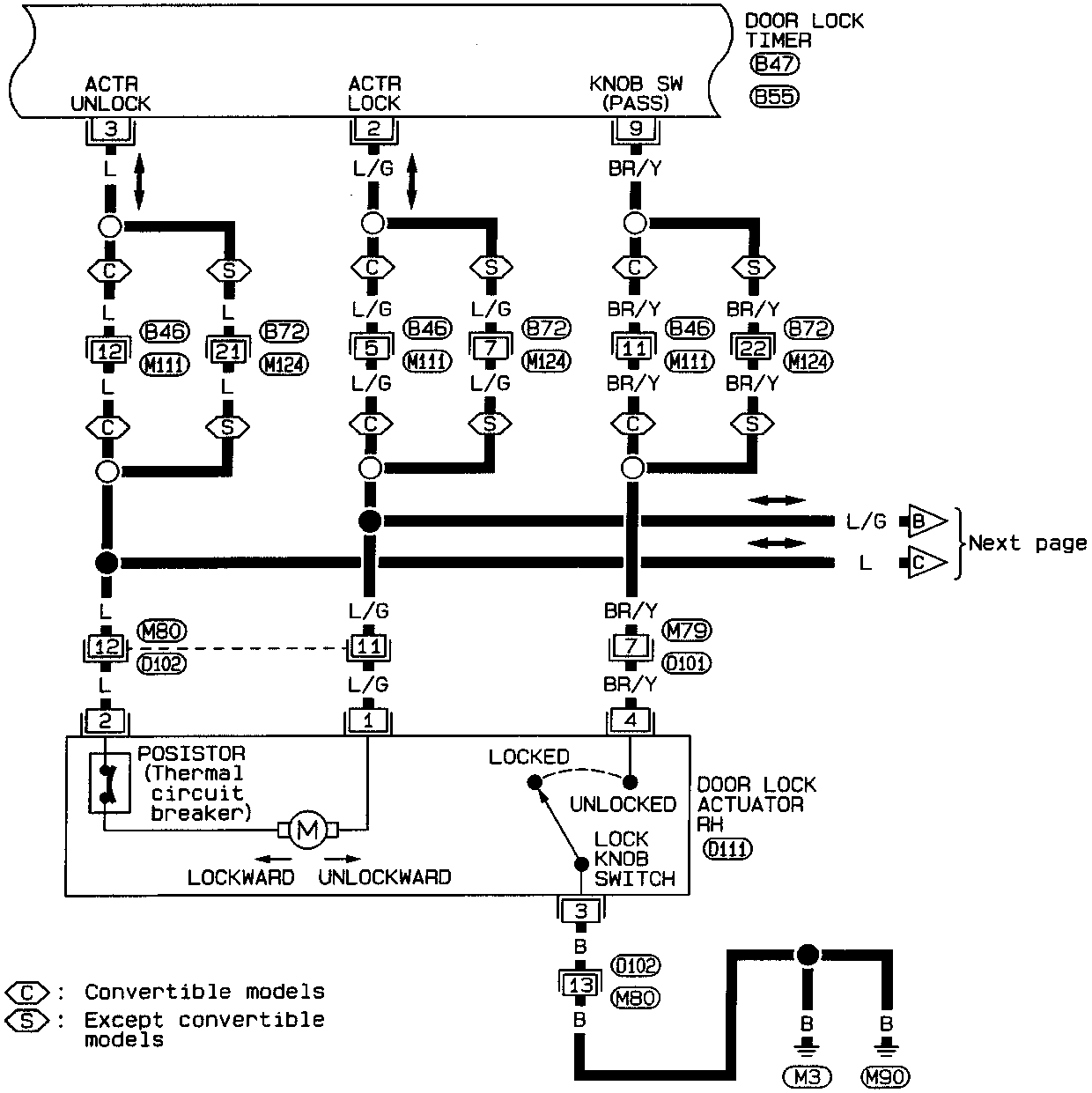


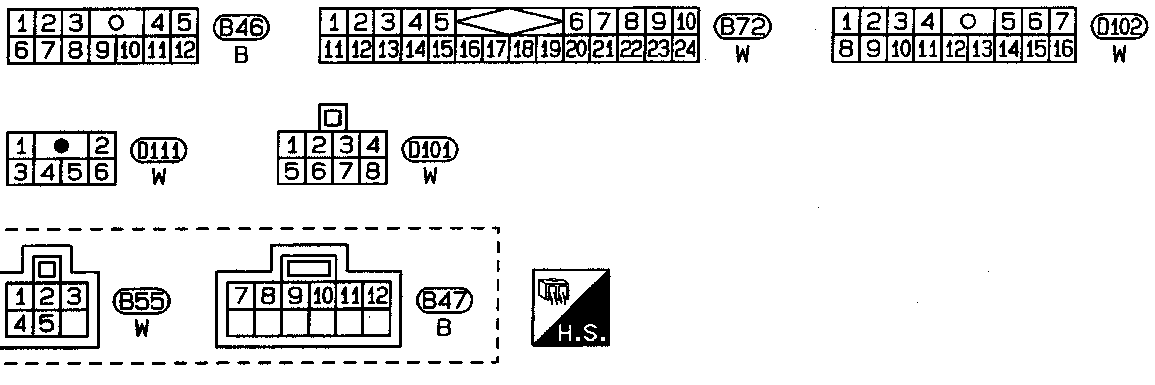


HEL328

Wiring Diagram — D/LOCK — (Cont'd)

EL-D/LOCK-03

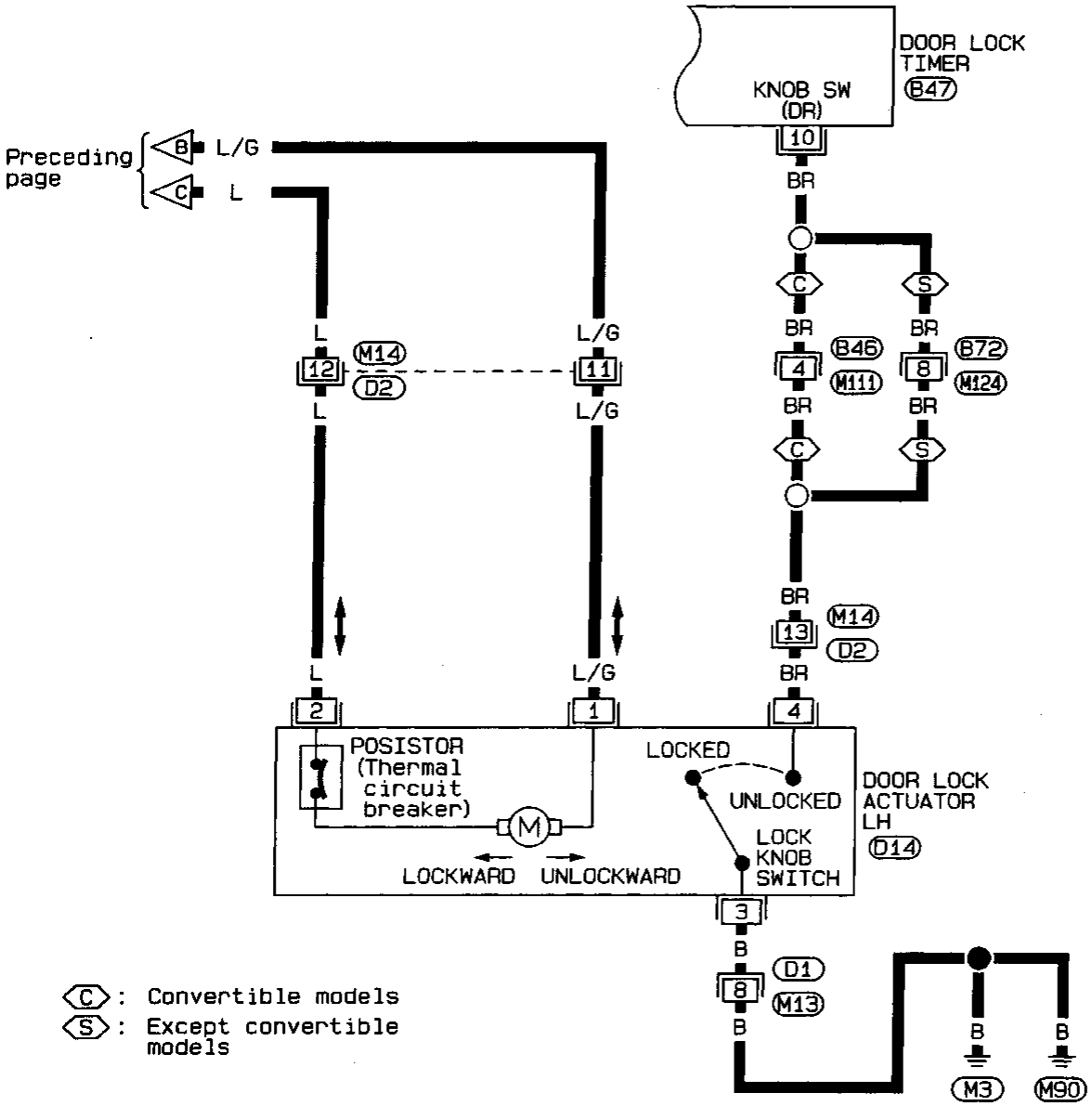


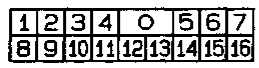


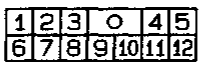
HEL329

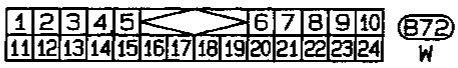
Wiring Diagram — D/LOCK — (Cont'd)

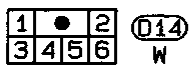
EL-D/LOCK-04

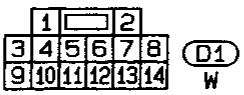


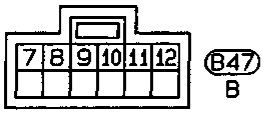












HEL330

Door Lock Timer Inspection

- Carry out the following inspections:

(1) Check power source and ground.
(2) Check input signals.
If the input signal is NG, go to ELECTRICAL COMPONENTS INSPECTION.
(3) Check output signals.
If the input signal is OK and the output signal is NG, replace the door lock timer.
If the input signal and output signal are OK, check door lock actuator in ELECTRICAL COMPONENTS INSPECTION.

Lock & unlock operation by lock knob or main switch

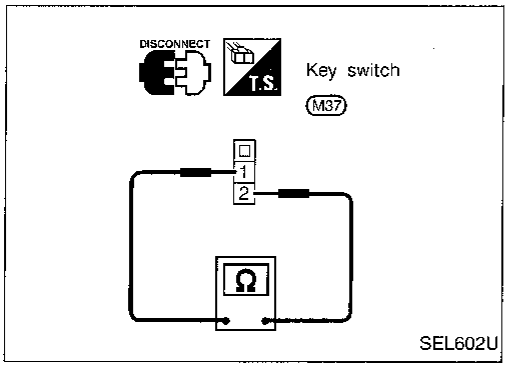
(The voltages are approximate values.)

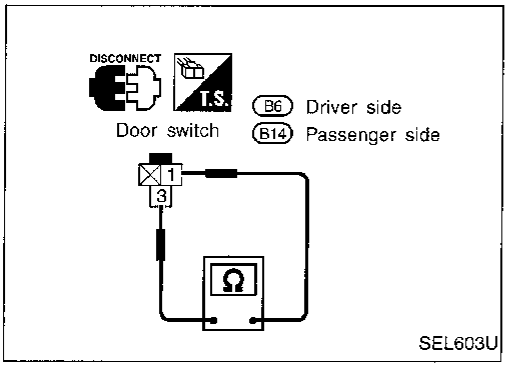
	Connections		Operations			
			Lock knob switch LH		Lock knob switch RH	
			Unlock → Lock	Lock → Unlock	Unlock → Lock	Lock → Unlock
1	Power source		12V	12V	12V	12V
5	Ground		Ground	Ground	Ground	Ground
7	Input signals	Key switch	Either key switch or door switches are off. (Key is not in the ignition or all doors are closed.)			
4	Input signals	Door switch				
10	Input signals	Lock knob switch LH	ON (Ground) → OFF (Open)	OFF (Open) → ON (Ground)	—	—
9	Input signals	Lock knob switch RH	—	—	ON (Ground) → OFF (Open)	OFF (Open) → ON (Ground)
2	Output signals	Door lock actuator (Lock power source)	0V → 12V → 0V (Approx. 1.0 sec.)	0V	0V → 12V → 0V (Approx. 1.0 sec.)	0V
3	Output signals	Door lock actuator (Unlock power source)	0V	0V → 12V → 0V (Approx. 1.0 sec.)	0V	0V → 12V → 0V (Approx. 1.0 sec.)

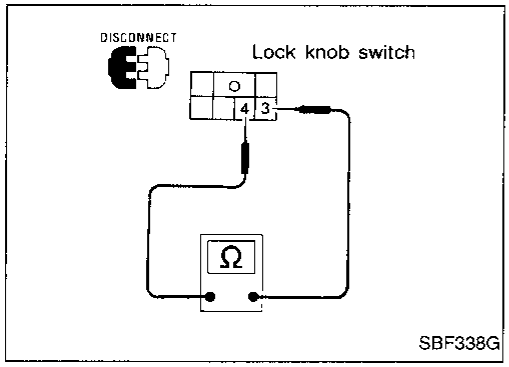
Key reminder operation

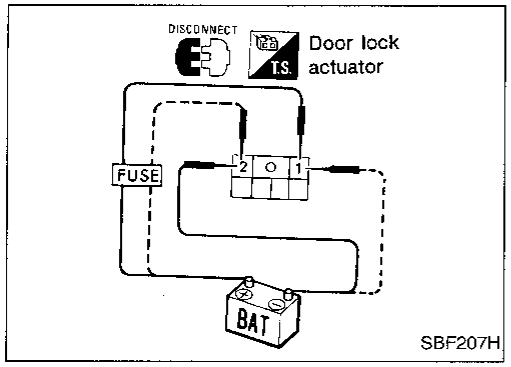
(The voltages are approximate values.)

	Connections		Operations	
			Lock knob switch LH	Lock knob switch RH
			Unlock → Lock → Automatically unlocked	Unlock → Lock → Automatically unlocked
1	Power source		12V	12V
5	Ground		0V	0V
7	Input signals	Key switch	ON (12V) — Key is in the ignition.	
4	Input signals	Door switch	ON (Ground) — Either door is open.	
10	Input signals	Lock knob switch LH	ON (Ground) → OFF (Open) → ON (Ground)	—
9	Input signals	Lock knob switch RH	—	ON (Ground) → OFF (Open) → ON (Ground)
2	Output signals	Door lock actuator (Lock power source)	0V → 12V → 0V (Approx. 0.3 sec.)	0V → 12V → 0V (Approx. 0.3 sec.)
3	Output signals	Door lock actuator (Unlock power source)	0V → 12V → 0V (Approx. 1.4 sec.)	0V → 12V → 0V (Approx. 1.4 sec.)









Electrical Components Inspection

Key switch

Terminals	Condition	Continuity
① - ②	Key is in the ignition.	Yes
	Key is not in the ignition.	No

Door switch

Terminals	Condition	Continuity
① - ③	Door is closed.	No
	Door is open.	Yes

Lock knob switch (Built-in front door lock actuator)

Terminals	Condition	Continuity
③ - ④	Lock	No
	Unlock	Yes

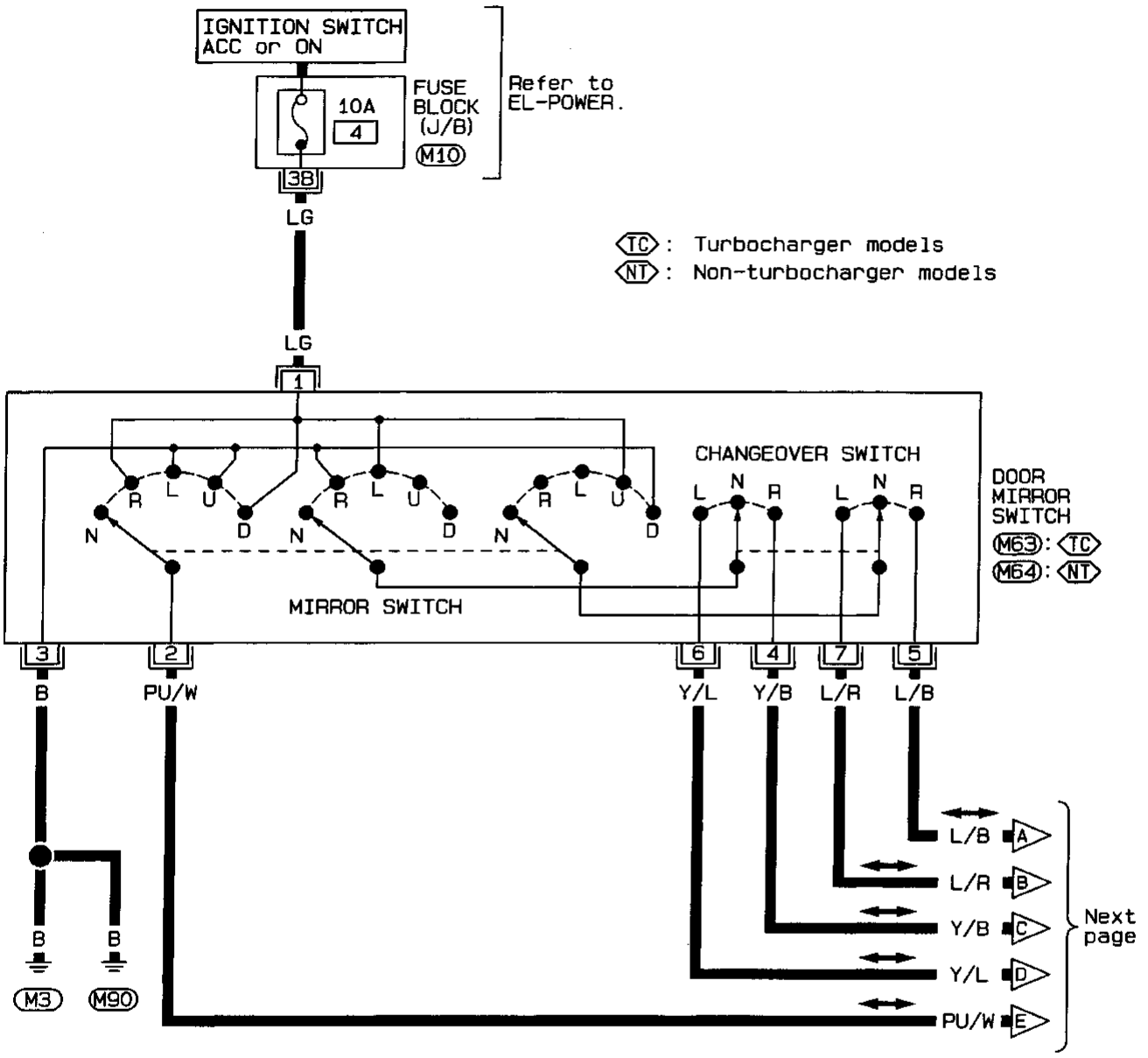
Door lock actuator

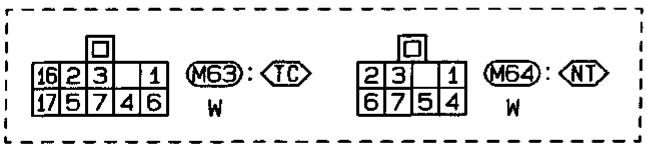
Terminals		Operation
⊕	⊖	
①	②	Lock
②	①	Unlock

★ For removal of door mirror, refer to "DOOR MIRROR" in BT section.

Wiring Diagram — MIRROR —

EL-MIRROR-01





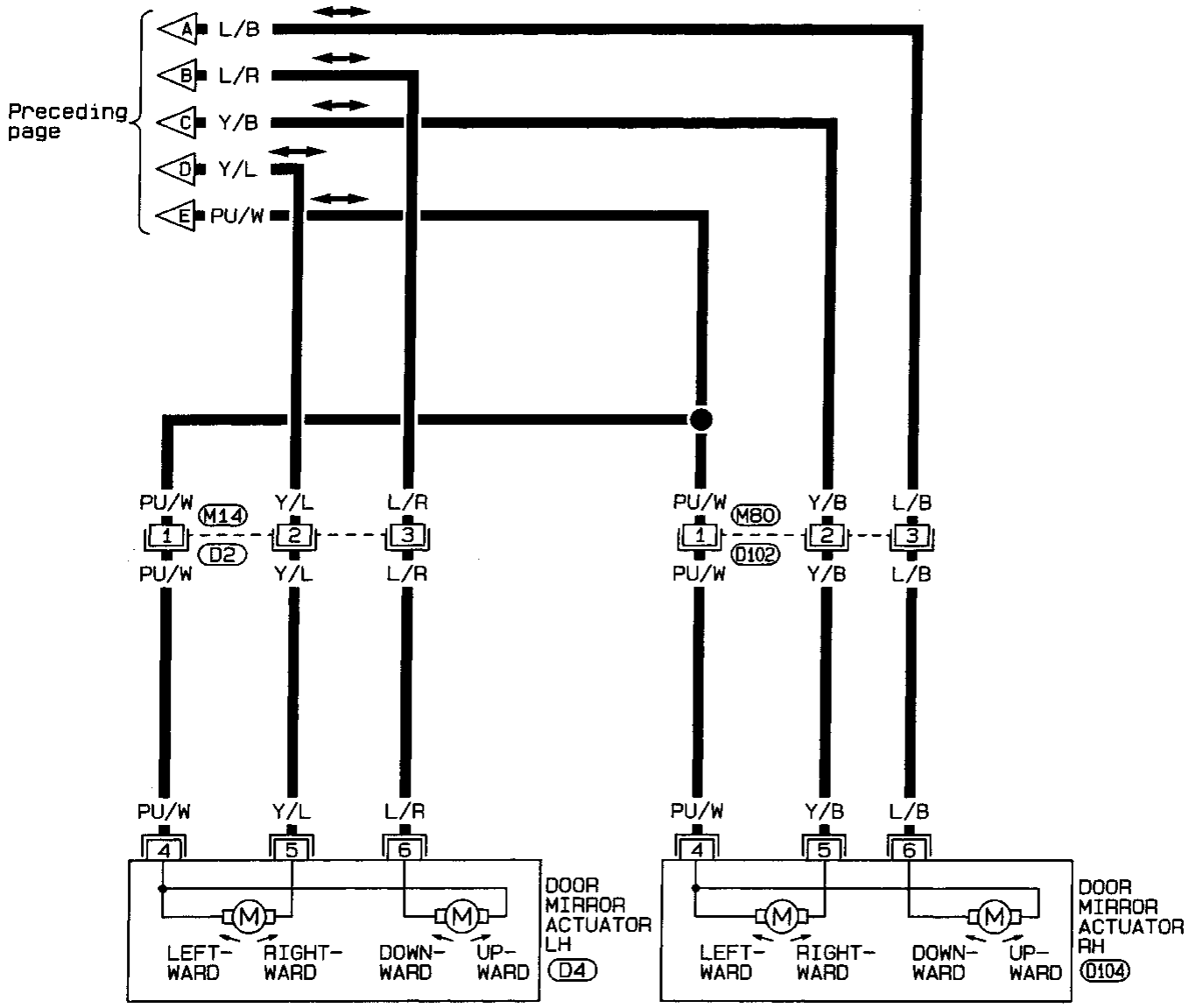
Refer to last page (Foldout page).

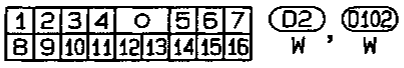
M10

HEL333

Wiring Diagram — MIRROR — (Cont'd)

EL-MIRROR-02

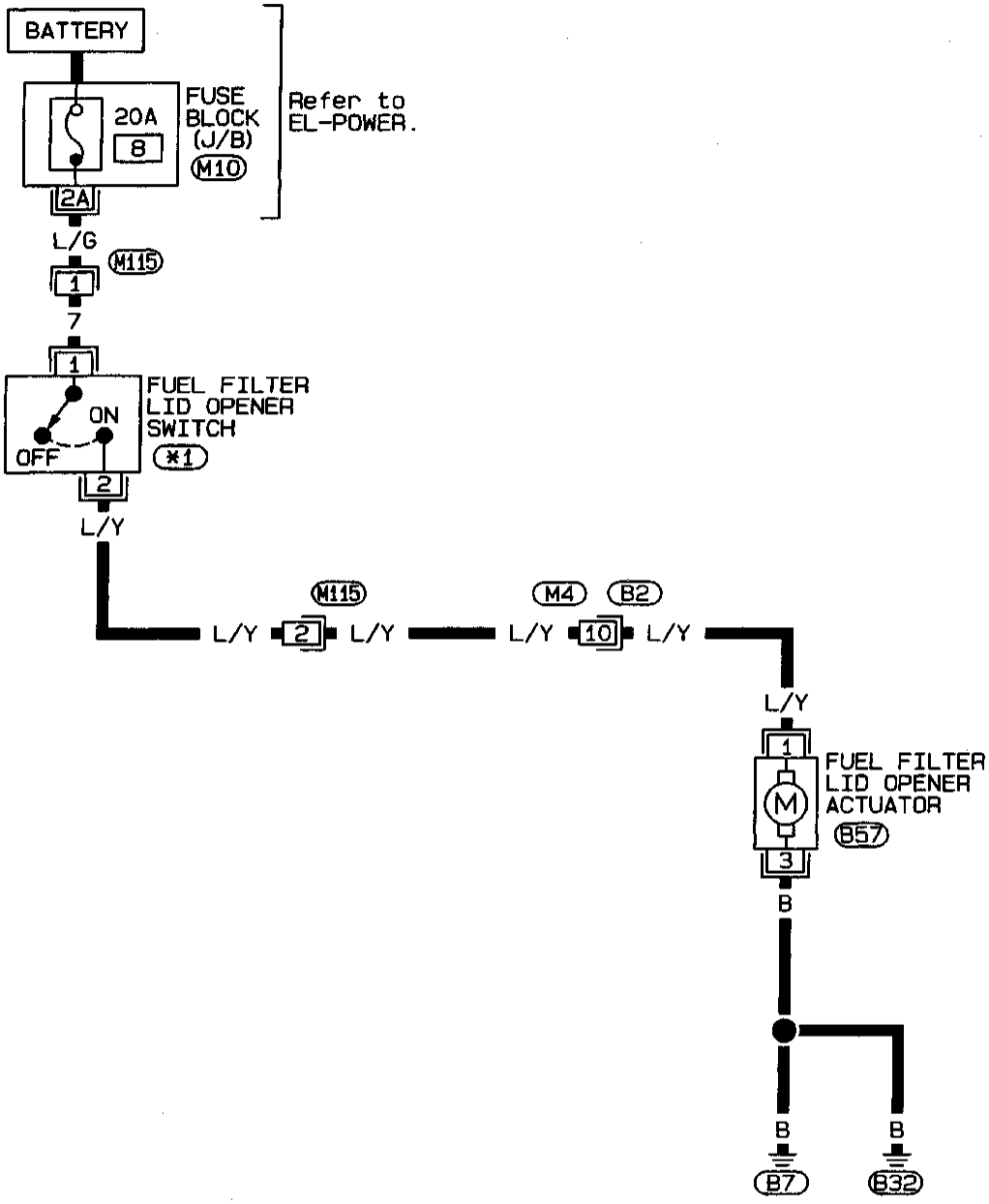


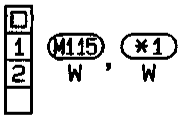


HEL334

Wiring Diagram — F/LID —

EL-F/LID-01

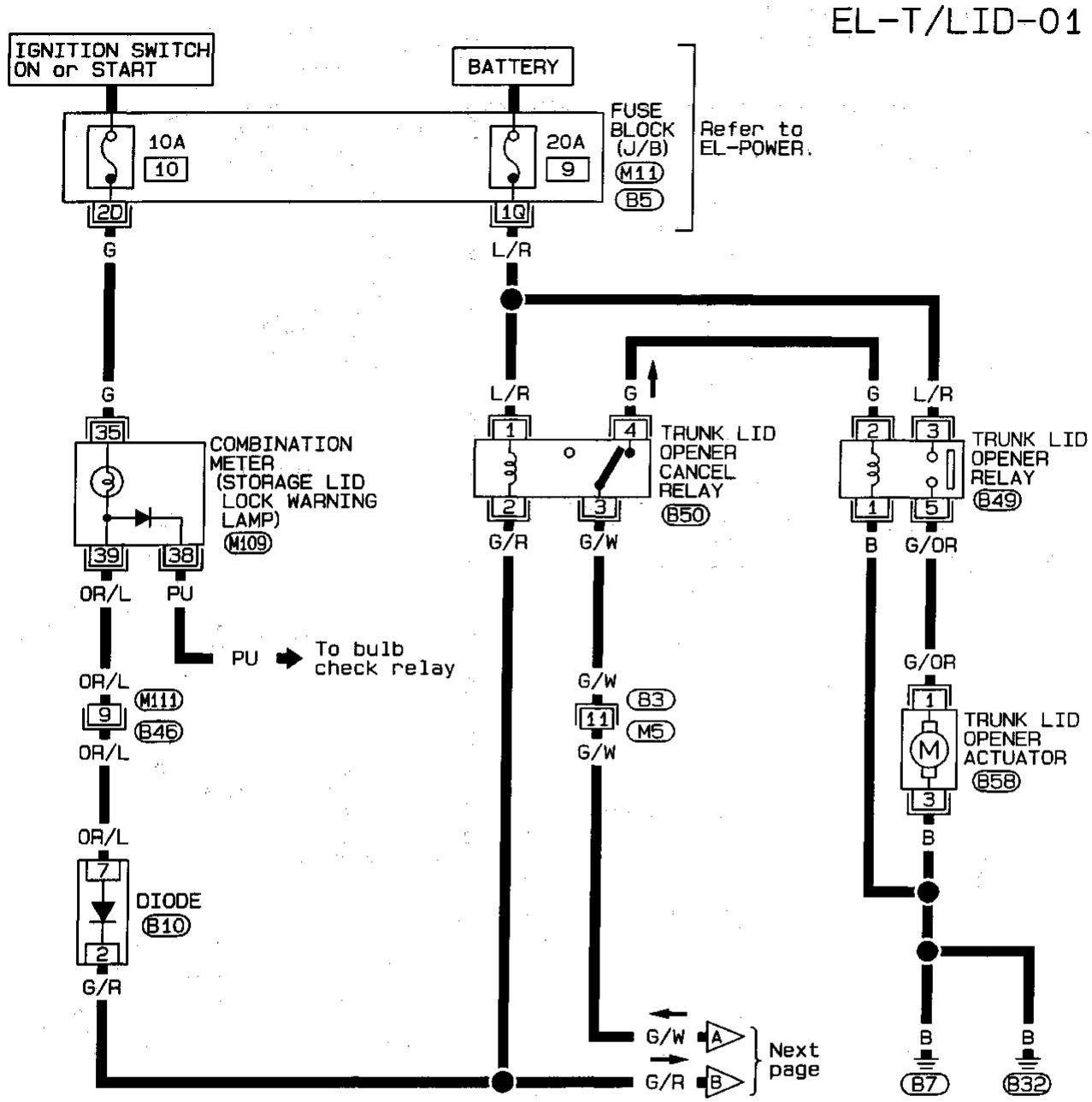




Refer to last page (Foldout page).
M10

HEL335

Wiring Diagram — T/LID —



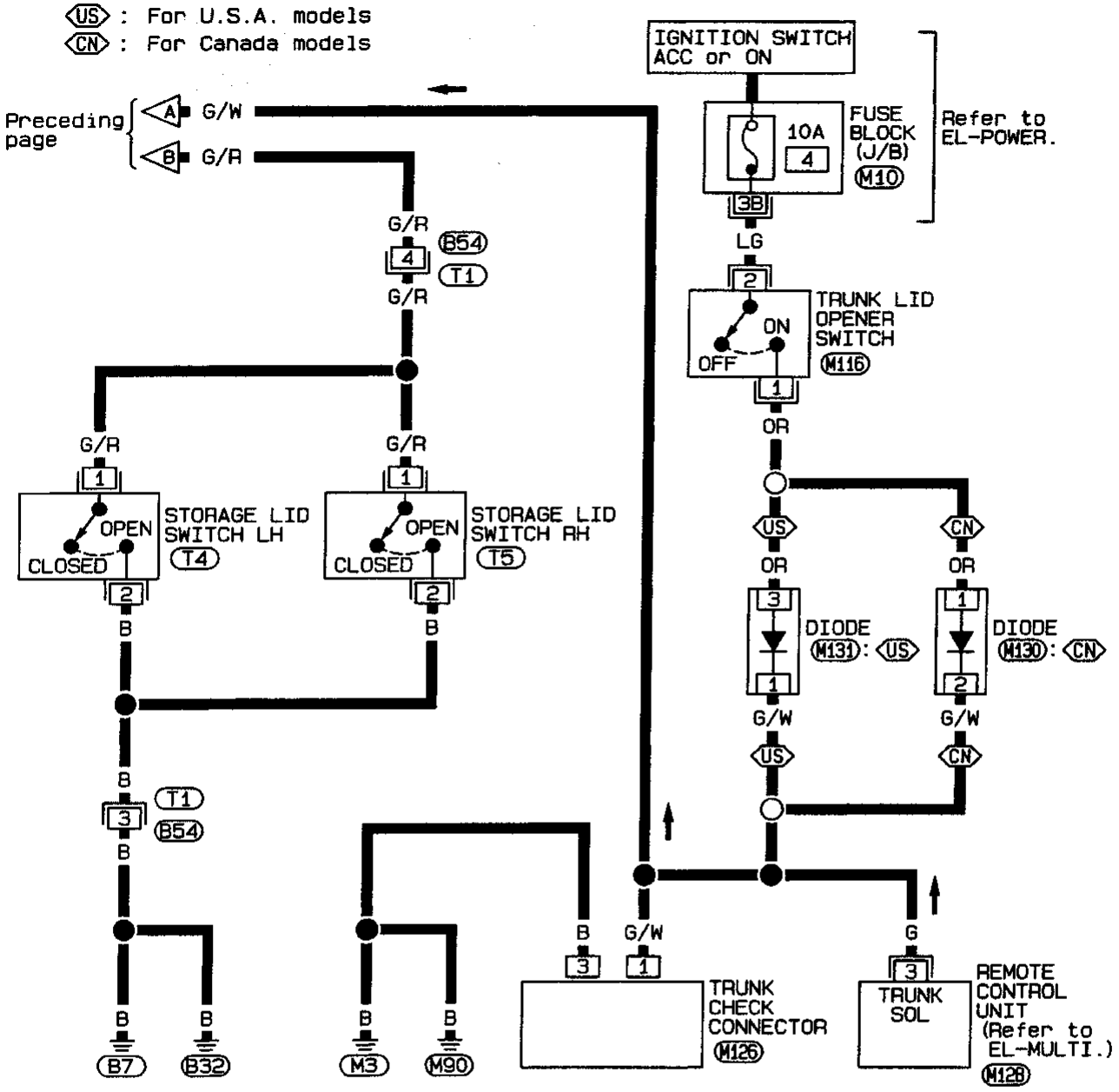
Refer to last page (Foldout page).

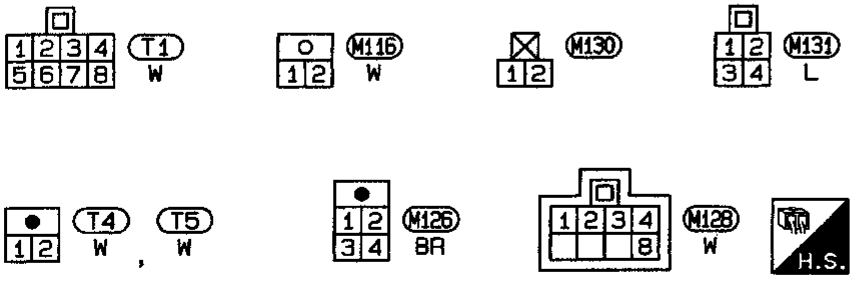
M11, B5

HEL336

Wiring Diagram — T/LID — (Cont'd)

EL-T/LID-02





Refer to last page (Foldout page).

M10

HEL337

Storage Lid Opener/System Description

Power is supplied at all times
- through 20A fuse [No. 9, located in the fuse block (J/B)]
- to storage lid opener relay terminals ③ and ②
- through 10A fuse [No. 39, located in the fuse block (in relay box)]
- to storage lid opener cancel relay terminal ①.

When the ignition switch is in the ON or START position, power is supplied
- through 10A fuse [No. 19, located in the fuse block (J/B)]
- to storage lid interlock relay terminal ① and
- through 10A fuse [No. 10, located in the fuse block (J/B)]
- to combination meter (storage lid lock warning lamp) terminal ㉟.

Ground is supplied
- to the storage lid opener actuator terminal ③,
- to the storage lid switch LH and RH terminal ②,
- to the storage lid interlock relay terminals ② and ④
- through the body grounds B7 and B32.

When storage lid opener switch is turned to ON with the ignition switch in the OFF or ACC position, ground is supplied
- to storage lid opener relay terminal ①
- through storage lid opener cancel relay terminals ③ and ④
- through storage lid opener switch terminals ② and ④
- through storage lid interlock relay terminals ③ and ④
- from body grounds B7 and B32.

Storage lid opener relay is then energized, and power is supplied
- from storage lid opener relay terminal ⑤
- to terminal ① of the storage lid opener actuator.

With power and ground supplied, the storage lid opener actuator activates to open the storage lid.
With storage lid switch LH and RH now in the OPEN position, ground is supplied to combination meter (storage lid lock warning lamp) terminal ㊴ to illuminate the warning lamp.
If trunk room lamp switch is in OPEN position, ground is supplied to storage lid opener cancel relay terminal ② through trunk room lamp switch terminal ①. With power and ground supplied, storage lid opener cancel relay is energized to interrupt storage lid opener operation.
When ignition switch is in the ON or START position, power is supplied to storage lid interlock relay. With power and ground supplied, storage lid opener relay is energized to interrupt storage lid opener operation.

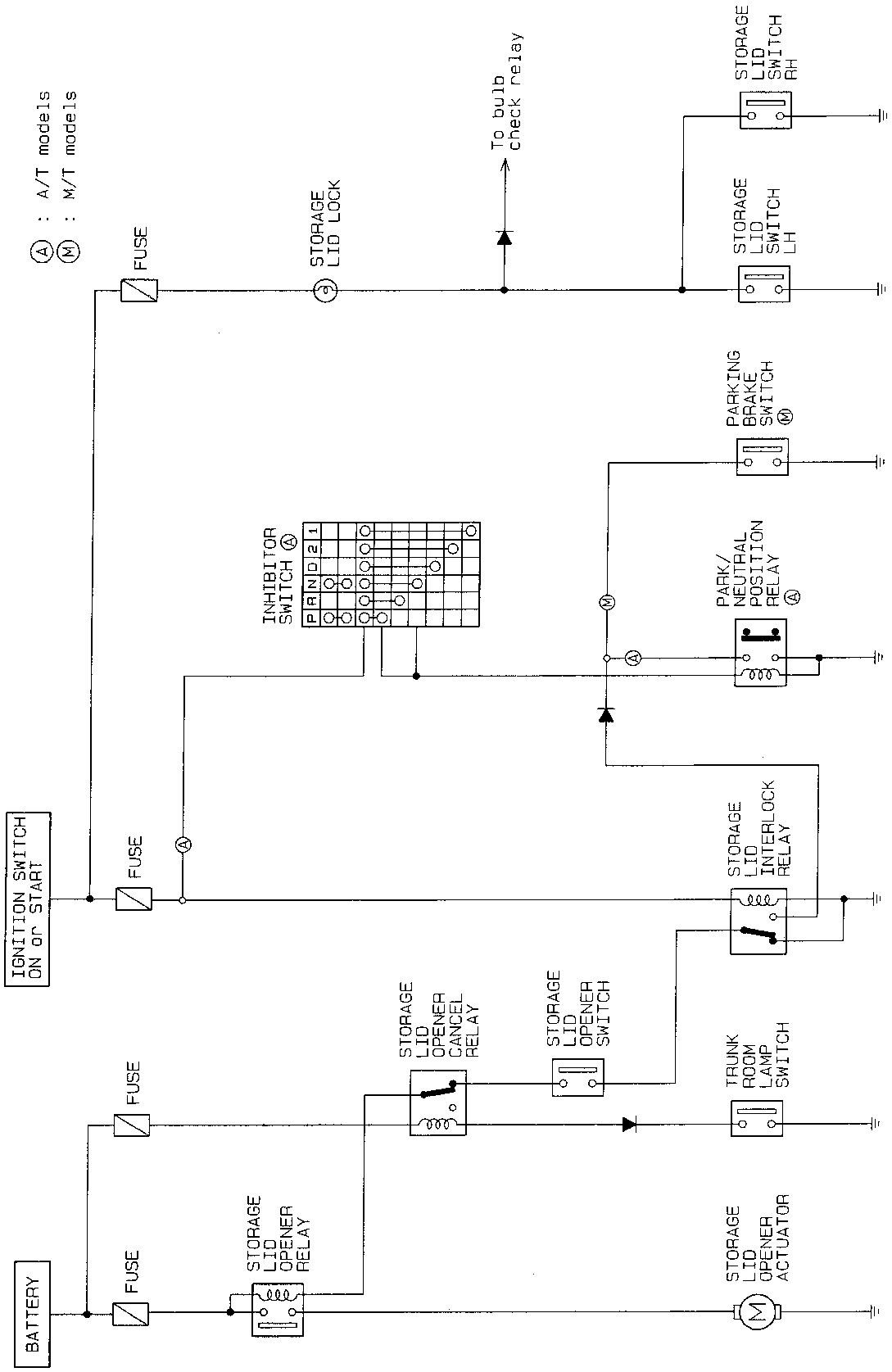
M/T MODELS

When parking brake switch is in PULLED position, ground is supplied to storage lid interlock relay terminal ⑤ through parking brake switch terminal ①. Storage lid opener will then be operative.

A/T MODELS

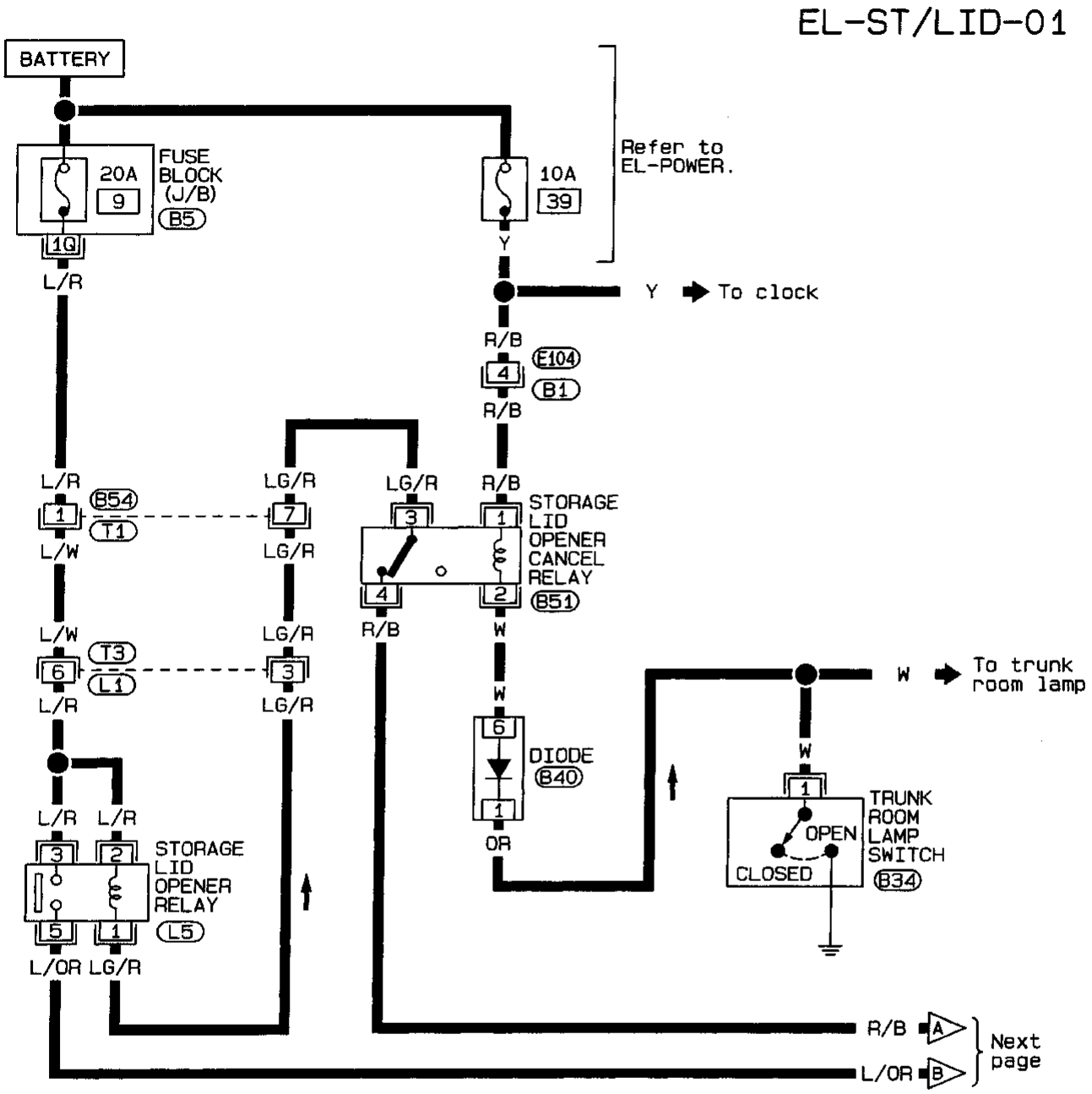
When inhibitor switch is in P or N position, ground is supplied to storage lid interlock relay terminal ⑤ through park/neutral position relay terminals ⑦ and ⑥. Storage lid opener will then be operative.

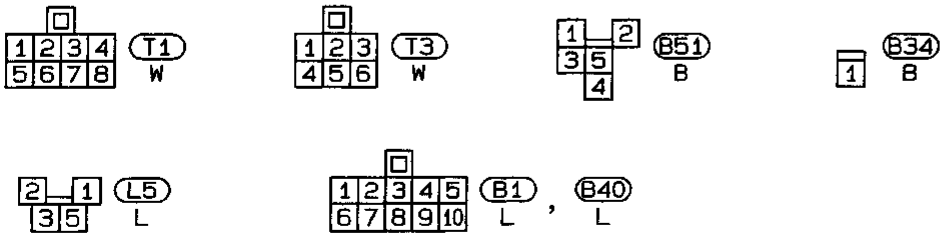
Storage Lid Opener/Schematic



HEL338

Storage Lid Opener/Wiring Diagram — ST/LID —





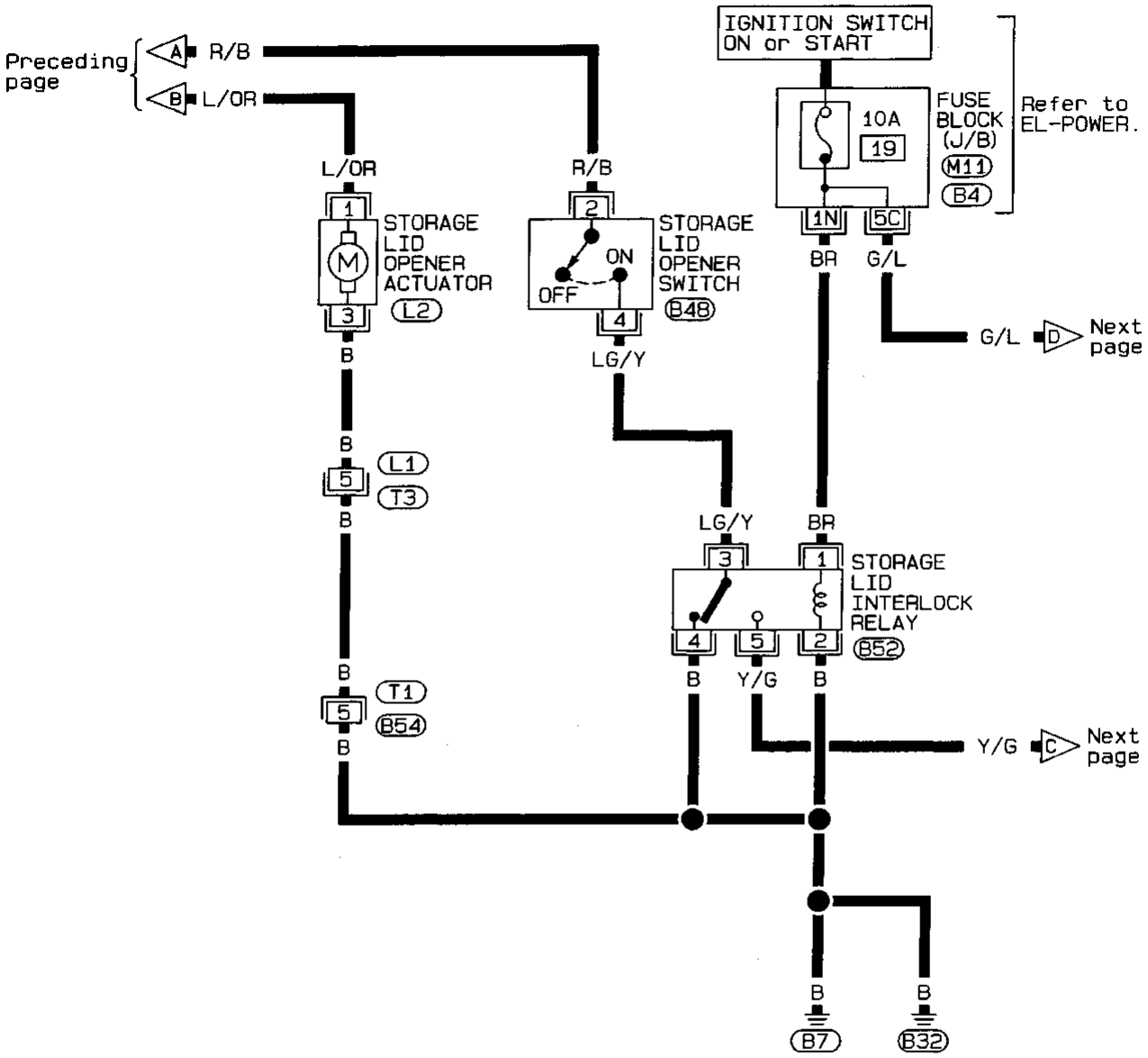
Refer to last page (Foldout page).

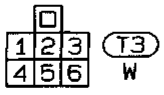
B5

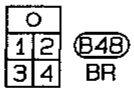
HEL339

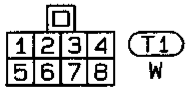
Storage Lid Opener/Wiring Diagram — ST/LID — (Cont'd)

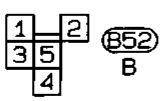
EL-ST/LID-02











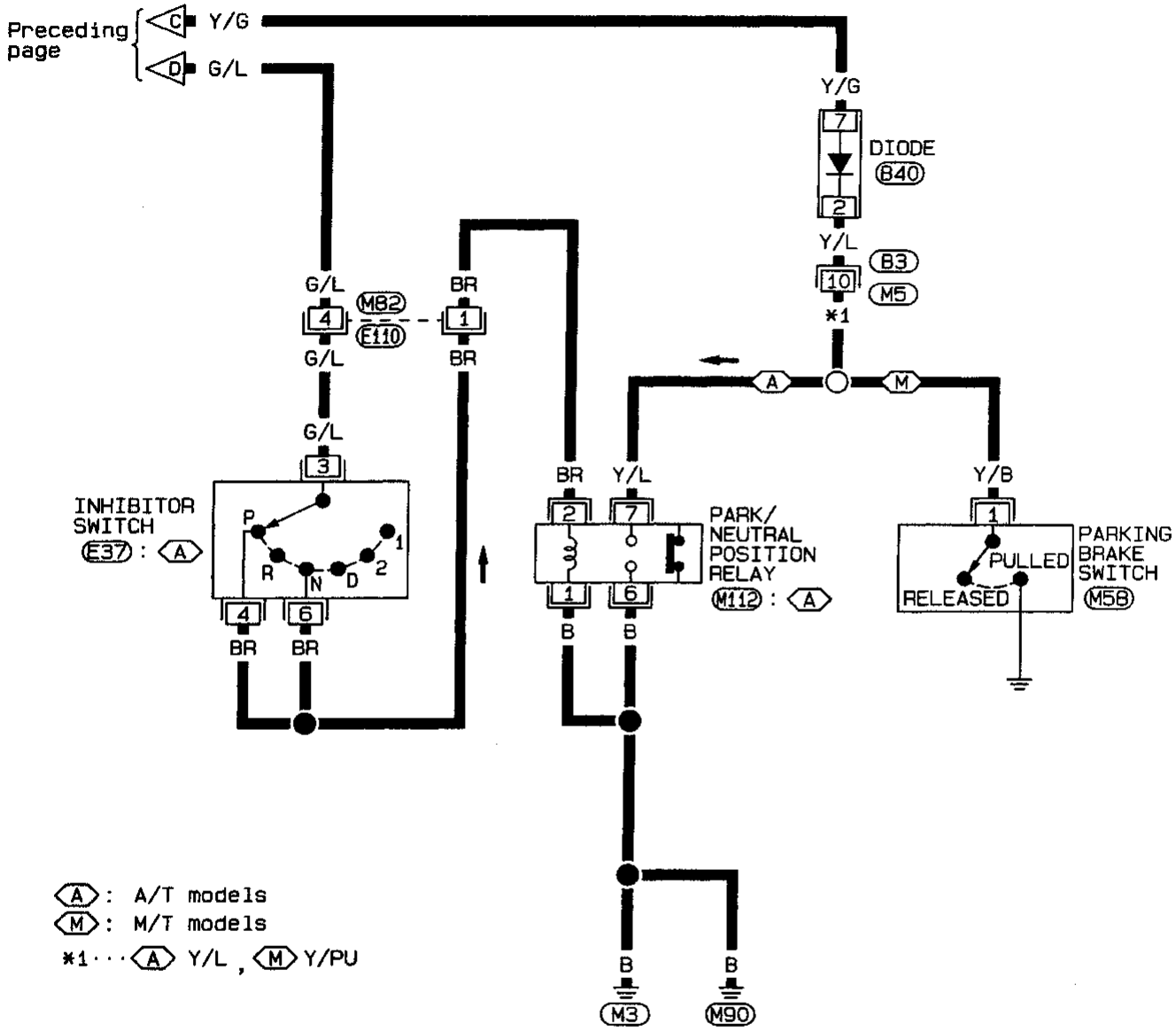
Refer to last page (Foldout page).

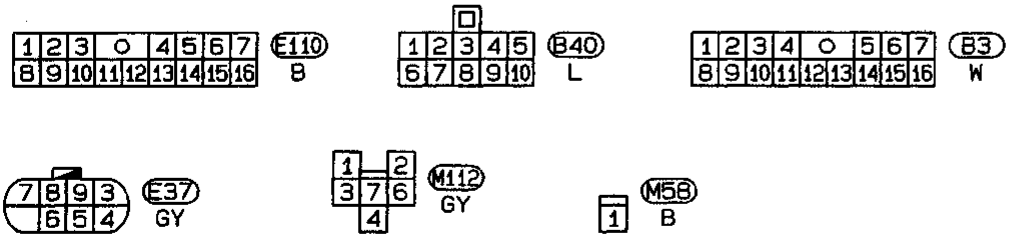
M11, B4

HEL340

Storage Lid Opener/Wiring Diagram — ST/LID — (Cont'd)

EL-ST/LID-03



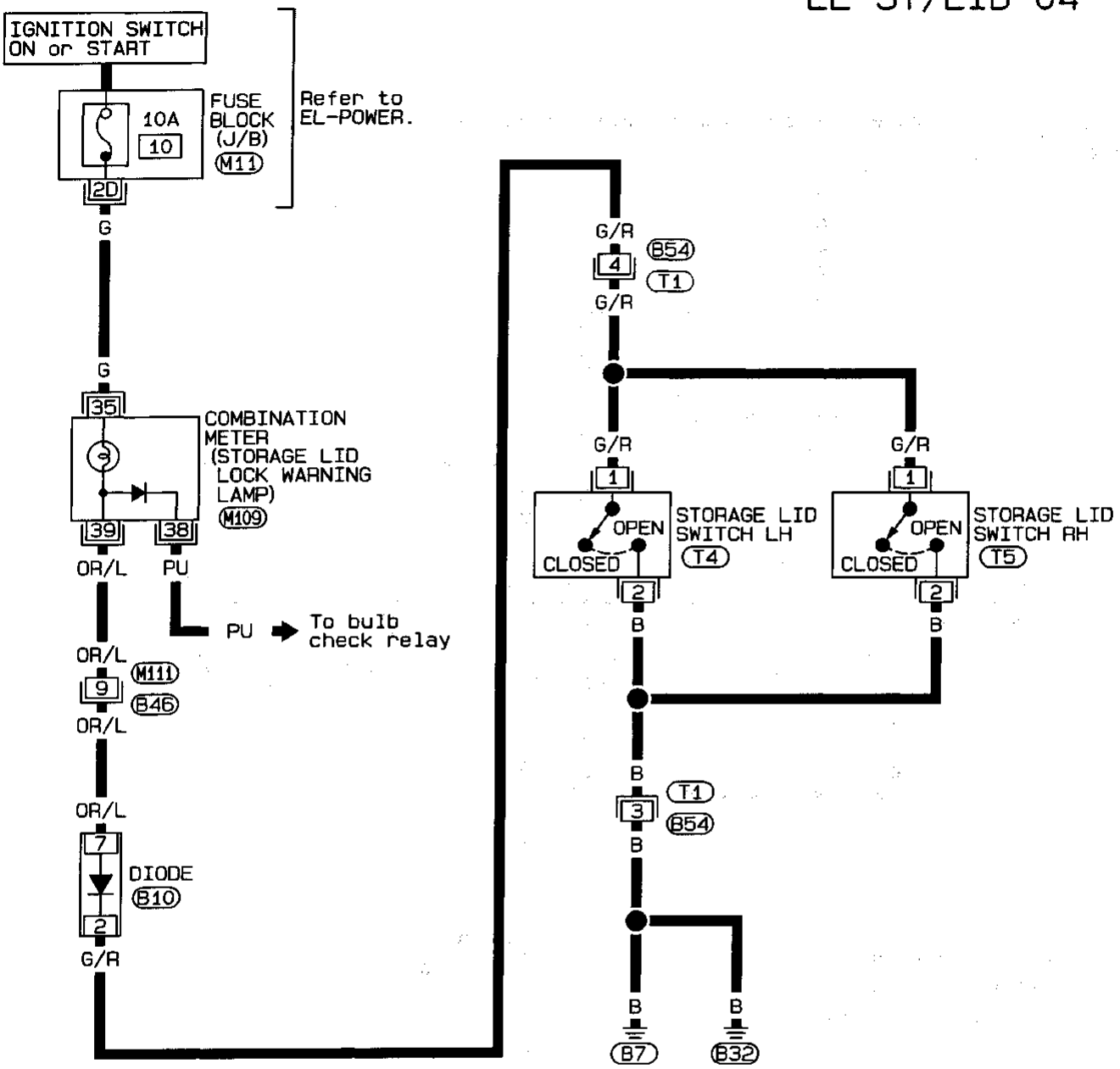


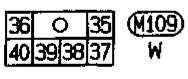
HEL341

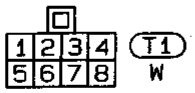
1405

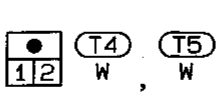
Storage Lid Opener/Wiring Diagram — ST/LID — (Cont'd)

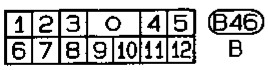
EL-ST/LID-04

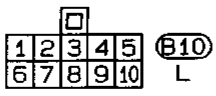












Refer to last page (Foldout page).

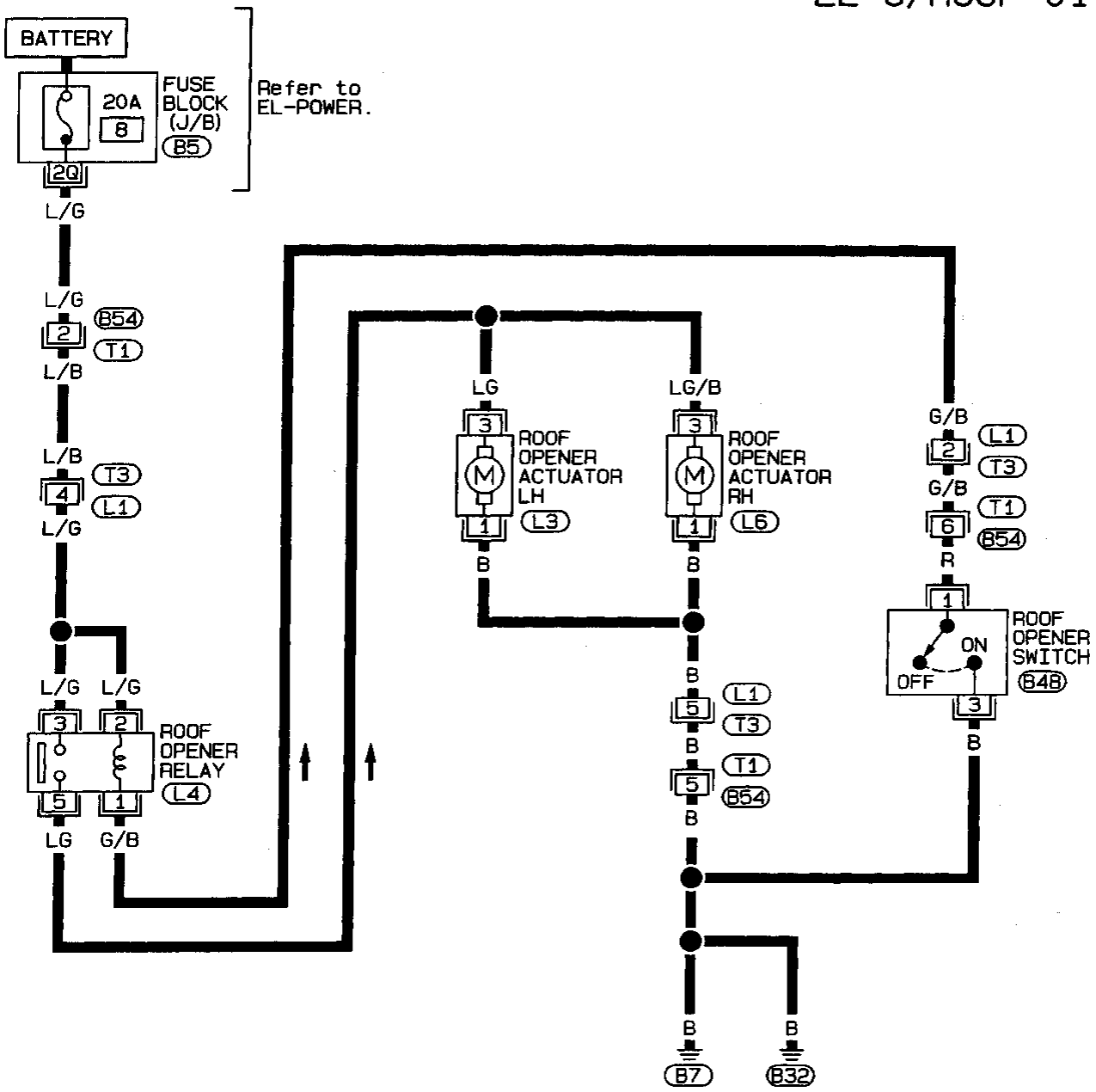
M11

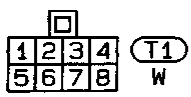
HEL342

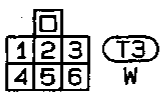
★ For removal and adjustment of convertible roof, refer to "CONVERTIBLE ROOF" in BT section.

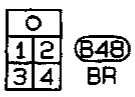
Convertible Roof Opener/Wiring Diagram — C/ROOF —

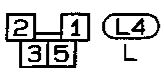
EL-C/ROOF-01









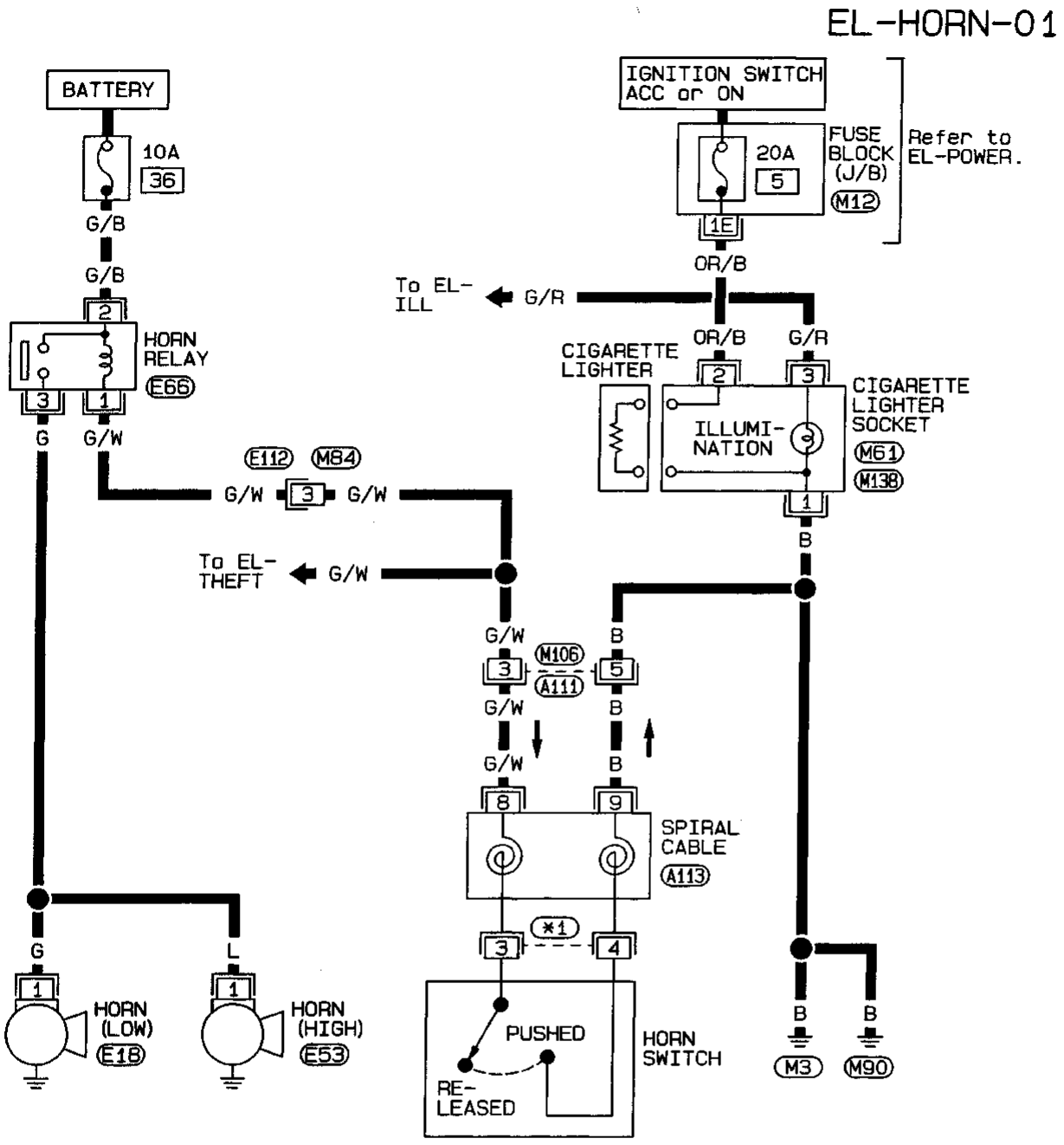


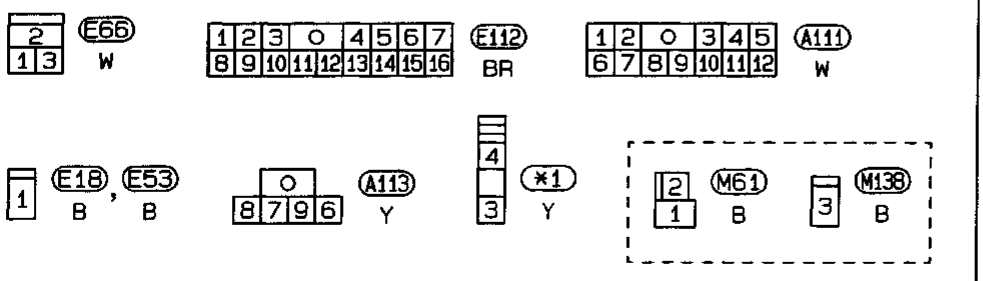
Refer to last page (Foldout page).

B5

HEL343

Wiring Diagram — HORN —



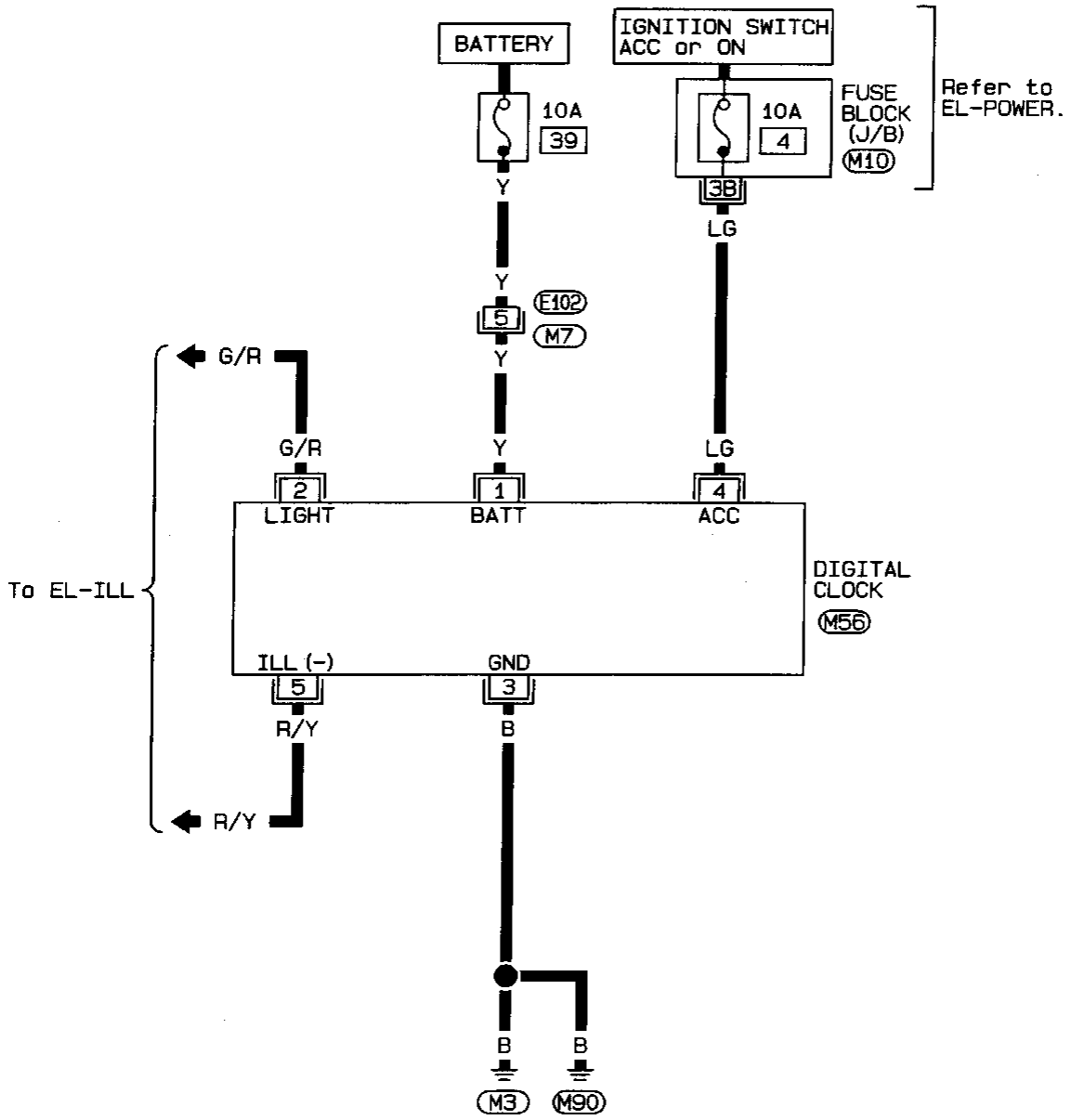


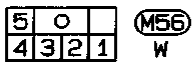
Refer to last page (Foldout page).
M12

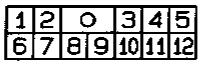
HEL344

Wiring Diagram — HORN — (Cont'd)

EL-HORN-02







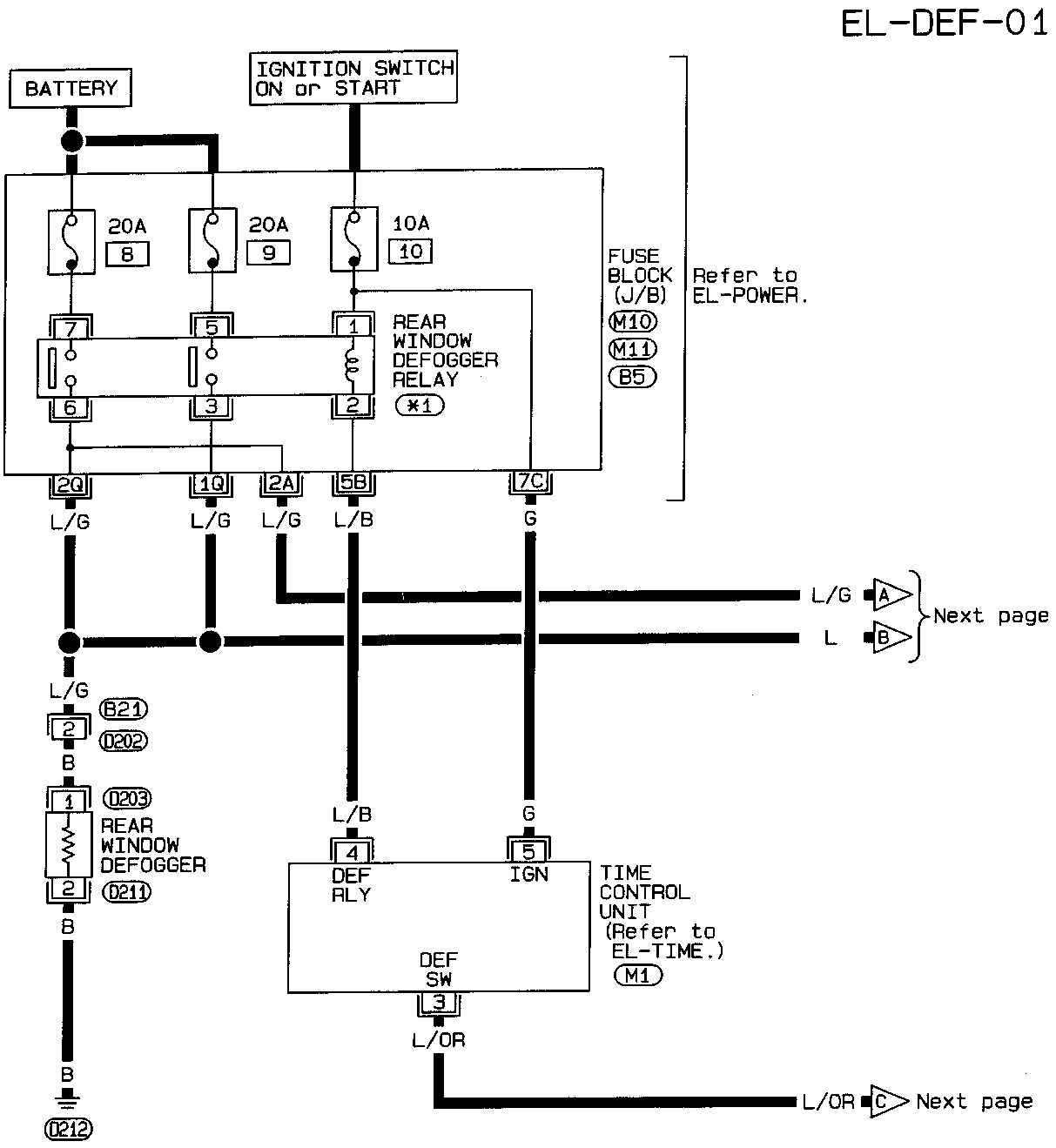
Refer to last page (Foldout page).

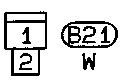
M10

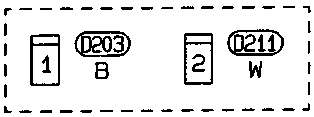
HEL345

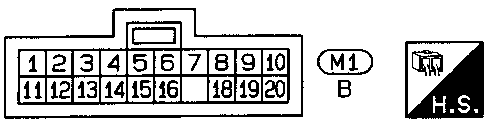
Wiring Diagram — DEF —

EXCEPT CONVERTIBLE









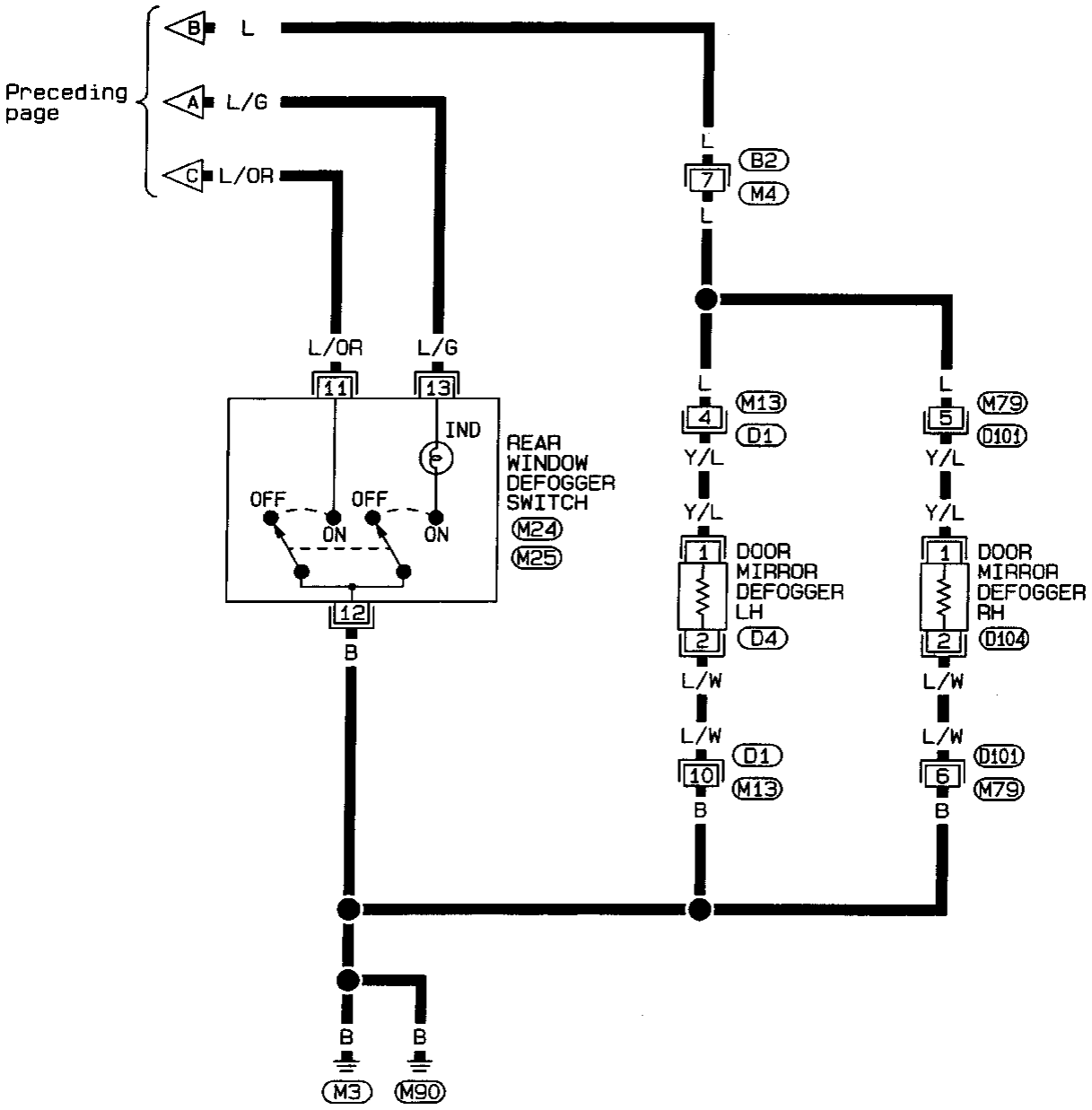
Refer to last page (Foldout page).

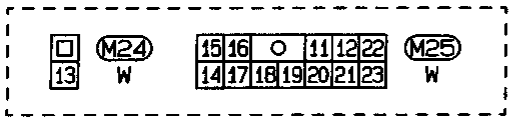
M10, M11, B5

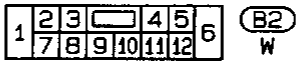
HEL346

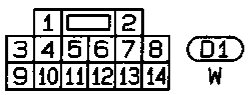
Wiring Diagram — DEF — (Cont'd)

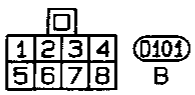
EL-DEF-02









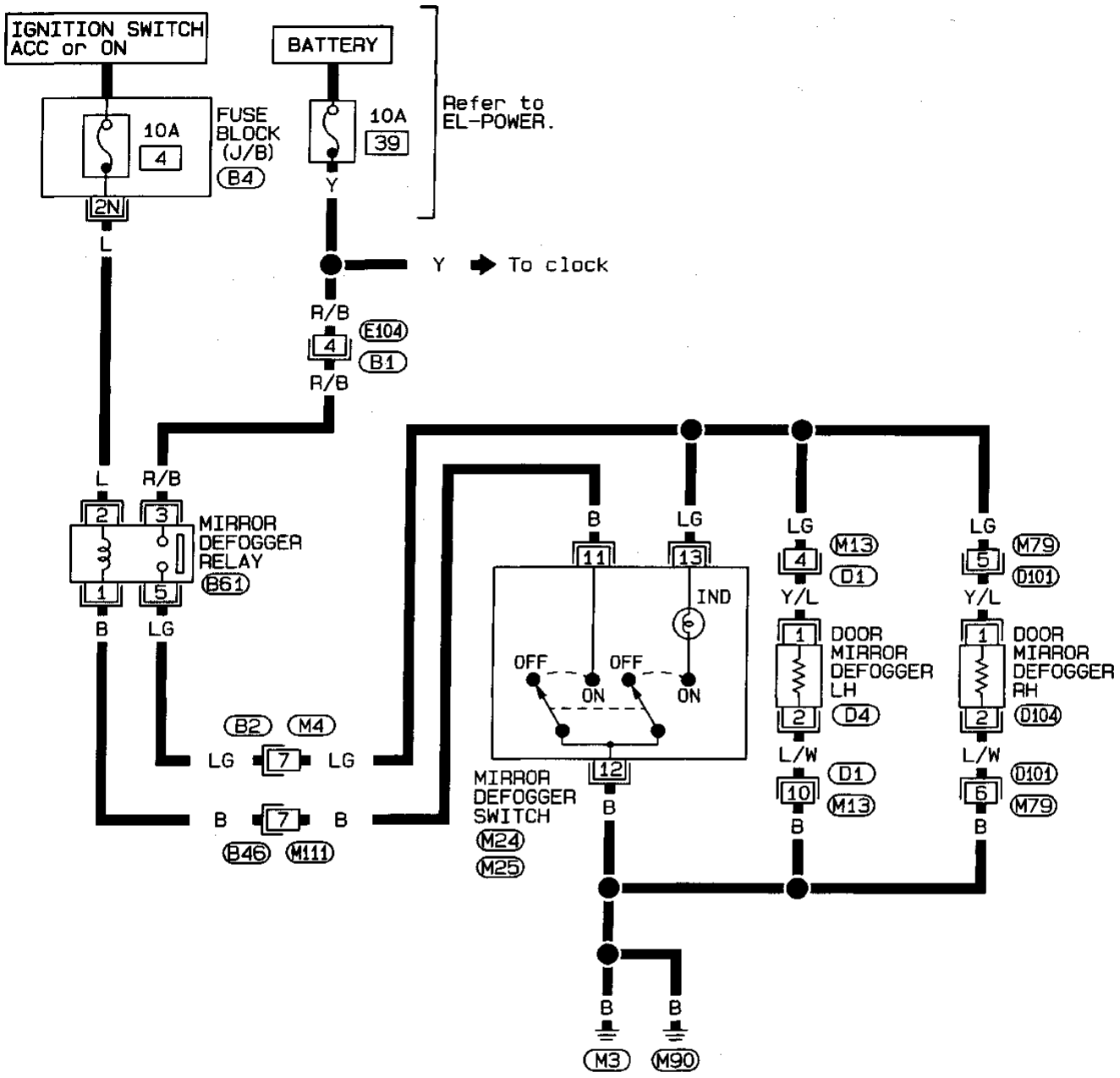


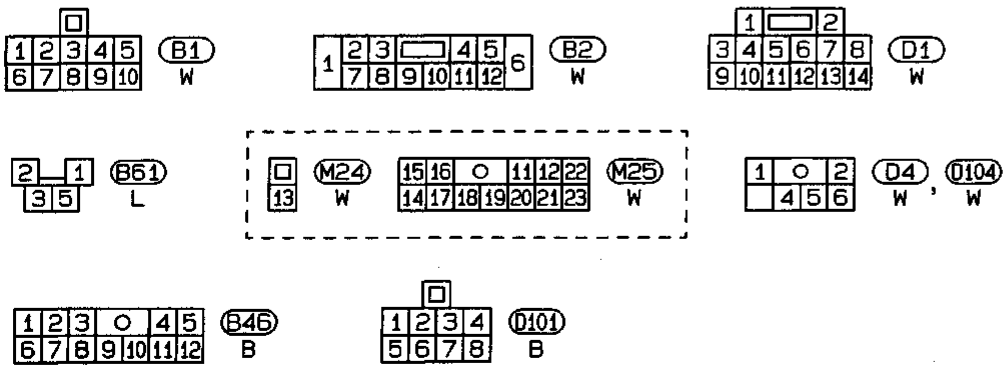
HEL347

Wiring Diagram — DEF — (Cont'd)

CONVERTIBLE

EL-DEF-03

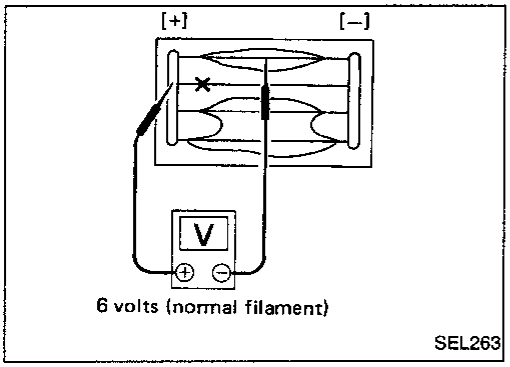




Refer to last page (Foldout page).

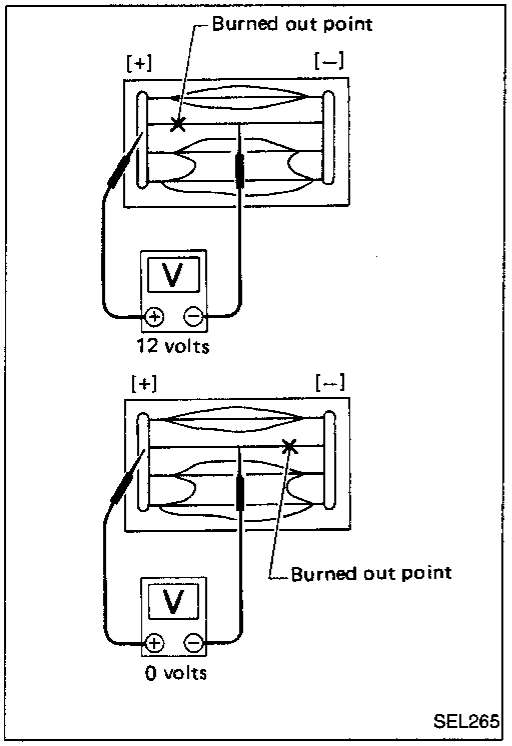
B4

HEL348

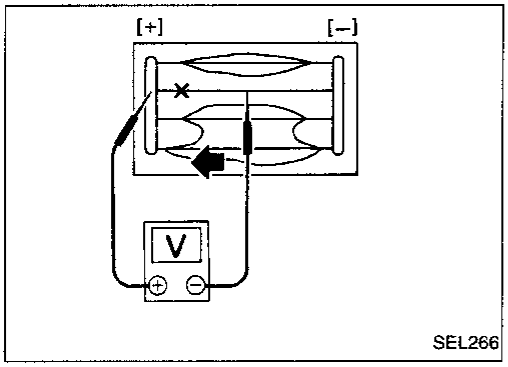


Filament Check

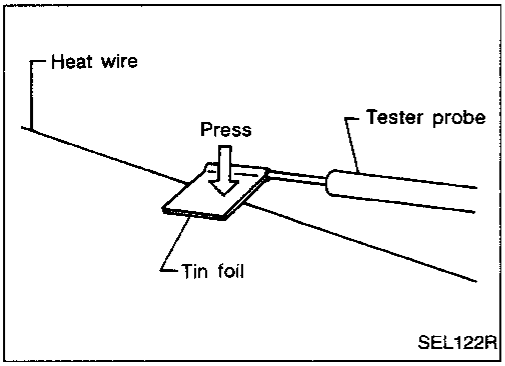
1. Attach probe circuit tester (in volt range) to middle portion of each filament.



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



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

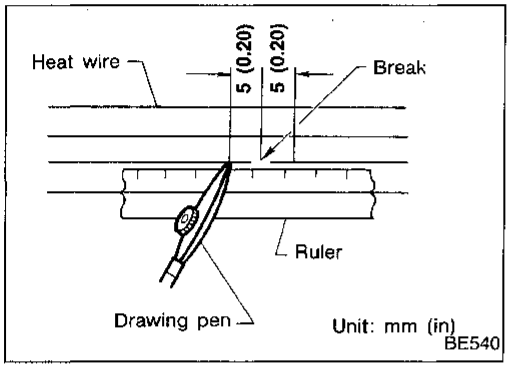


- **When measuring voltage, wind a piece of tin foil around the top of the negative probe and press the foil against the wire with your finger as shown.**

Filament Repair

REPAIR EQUIPMENT

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



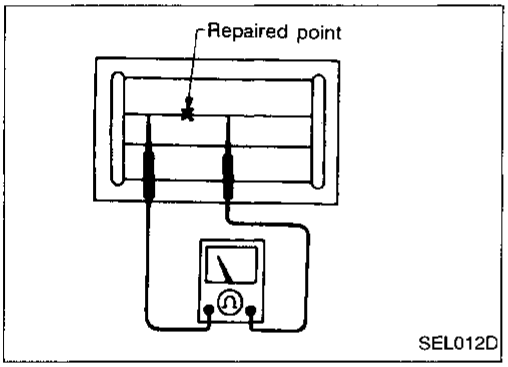
REPAIRING PROCEDURE

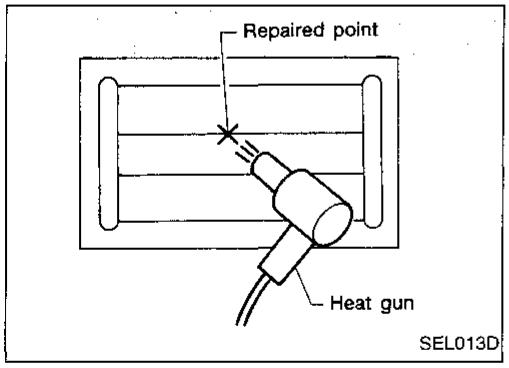
1. Wipe broken heat wire and its surrounding area clean with a cloth dampened in alcohol.
2. Apply a small amount of conductive silver composition to tip of drawing pen.

Shake silver composition container before use.

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

Do not touch repaired area while test is being conducted.





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

Audio/System Description

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

BOSE SYSTEM

Power is supplied at all times
- through 10A fuse [No. 39, located in the fuse block (in relay box)]
- to radio and cassette player terminal ⑥.

Power is also supplied at all times
- through 20A fuse [No. 1, located in the fuse block (J/B)]
- to audio relay terminal ③.

With the ignition switch in the ACC or ON position, power is supplied
- through 10A fuse [No. 6, located in the fuse block (J/B)]
- to radio and cassette player terminal ⑩.

Ground is supplied through terminal ⑰ of the radio and cassette player and body ground. (This body ground is not shown in Harness Layout.)

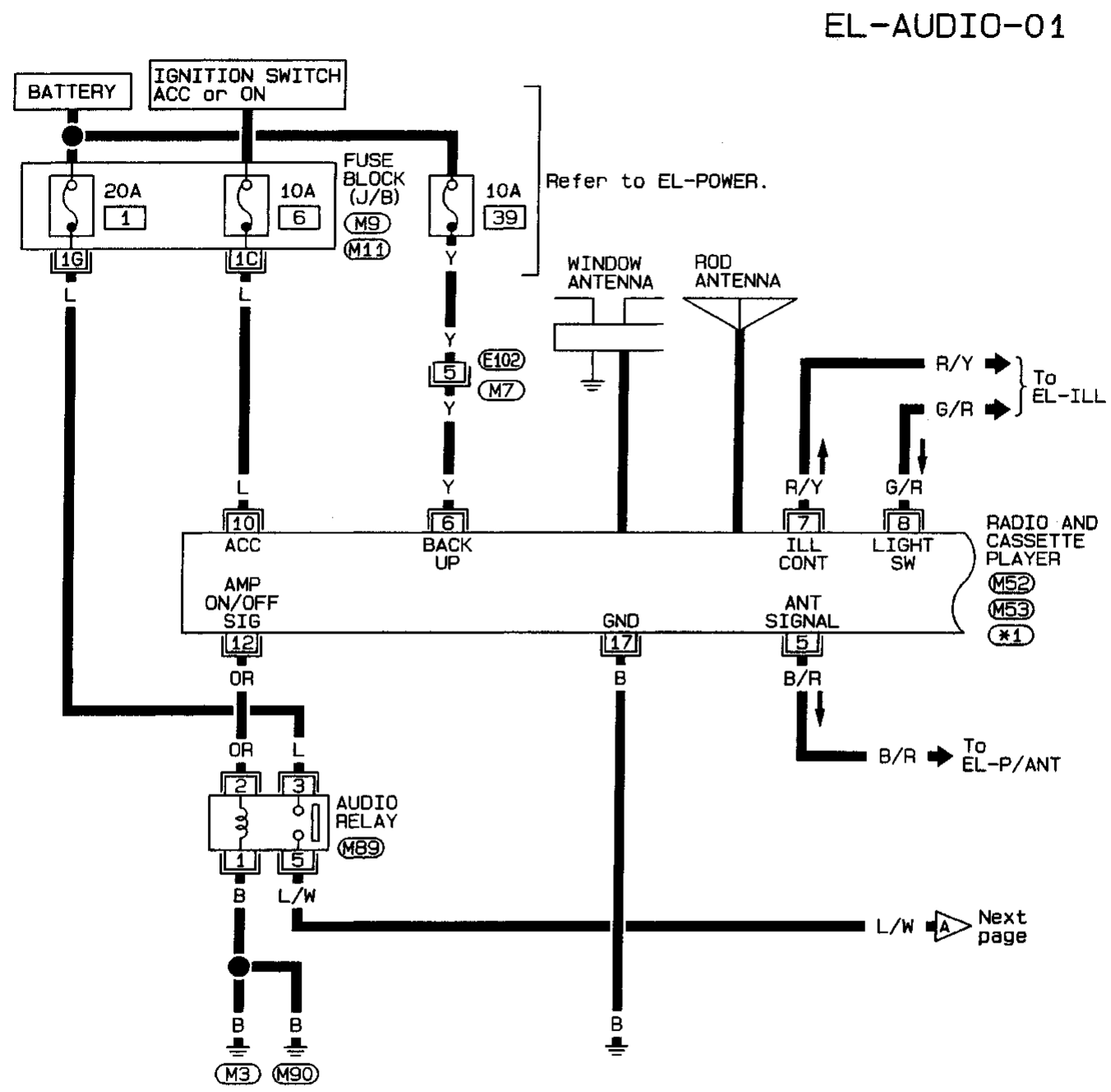
Also, radio and cassette player terminal ⑫ is grounded to body grounds (M3) and (M90) through audio relay terminals ① and ②.

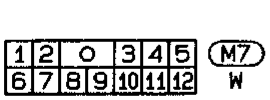
Then, audio relay is activated and power is supplied
- through audio relay terminal ⑤
- to door speaker LH terminal ③,
- to door speaker RH terminal ③ and
- to rear speaker LH terminal ③ and RH terminal ③.

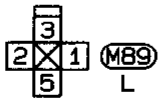
When the radio POWER button is pressed, audio signals are supplied
- through radio and cassette player terminals ①, ②, ③, ④, ⑬, ⑭, ⑮ and ⑯
- to terminals ② and ④ of all speakers

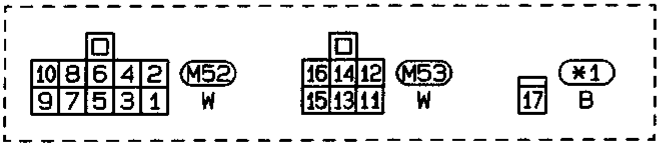
Audio/Wiring Diagram — AUDIO —

EXCEPT BOSE SYSTEM









Refer to last page (Foldout page).

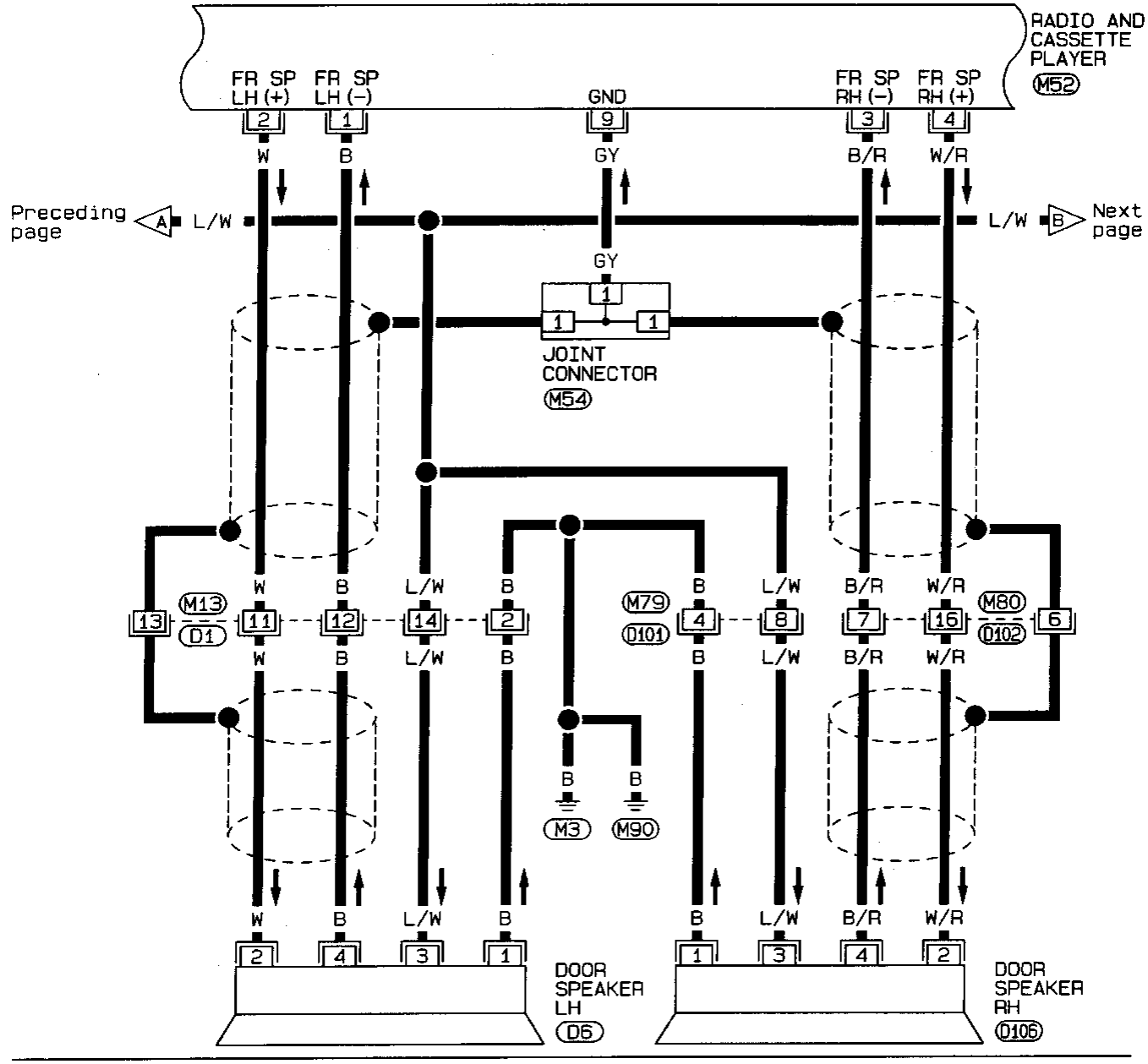
M9, M11

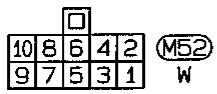
HEL349

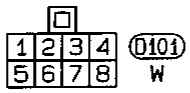
Audio/Wiring Diagram — AUDIO — (Cont'd)

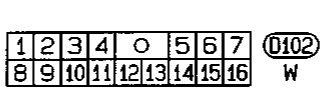
BOSE SYSTEM

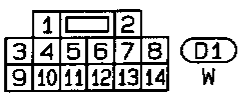
EL-AUDIO-02

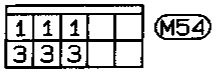


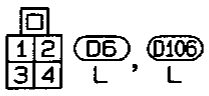








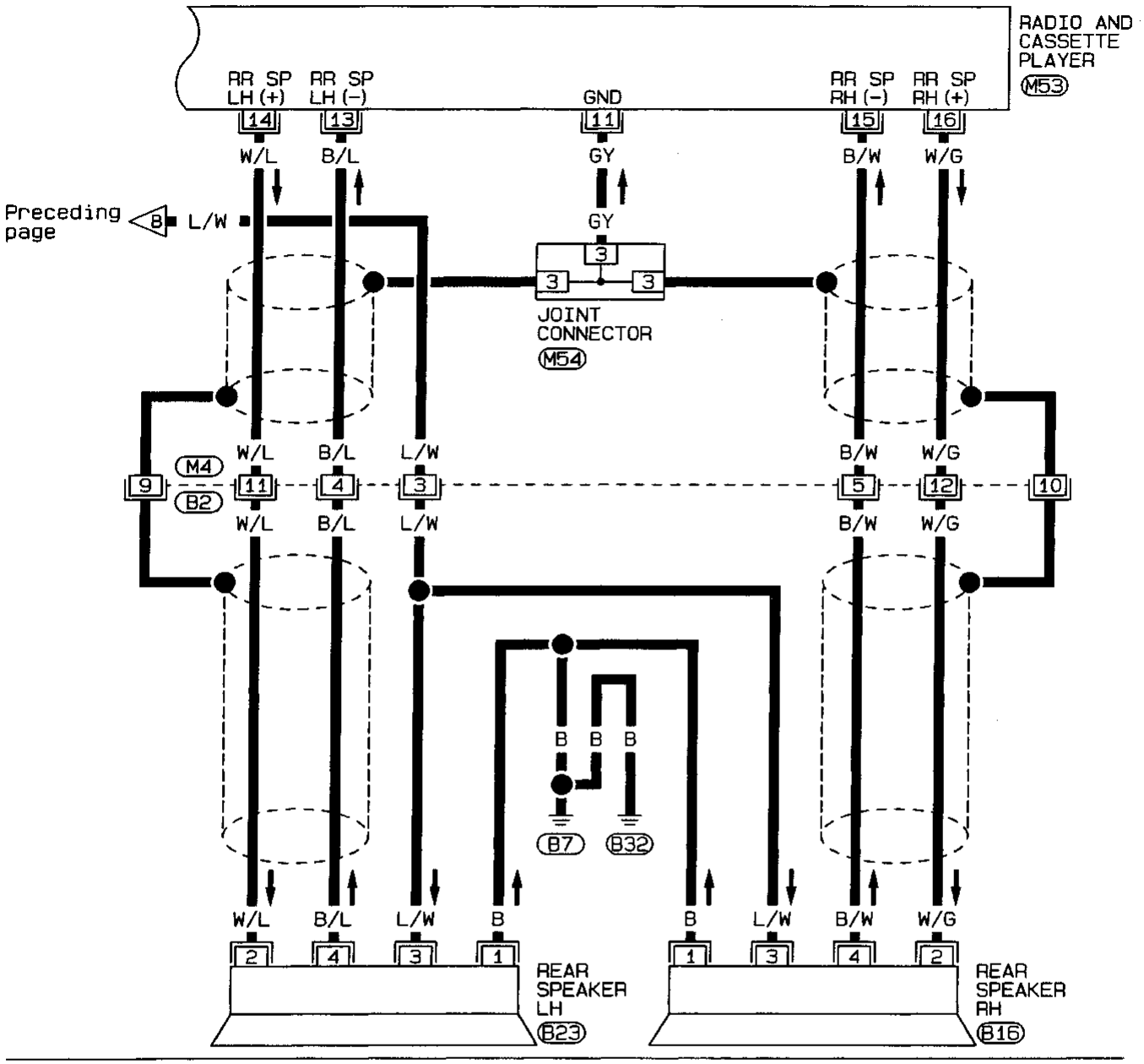


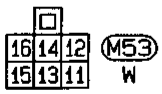


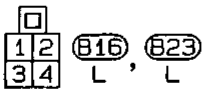
HEL350

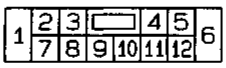
Audio/Wiring Diagram — AUDIO — (Cont'd)

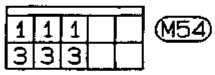
EL-AUDIO-03







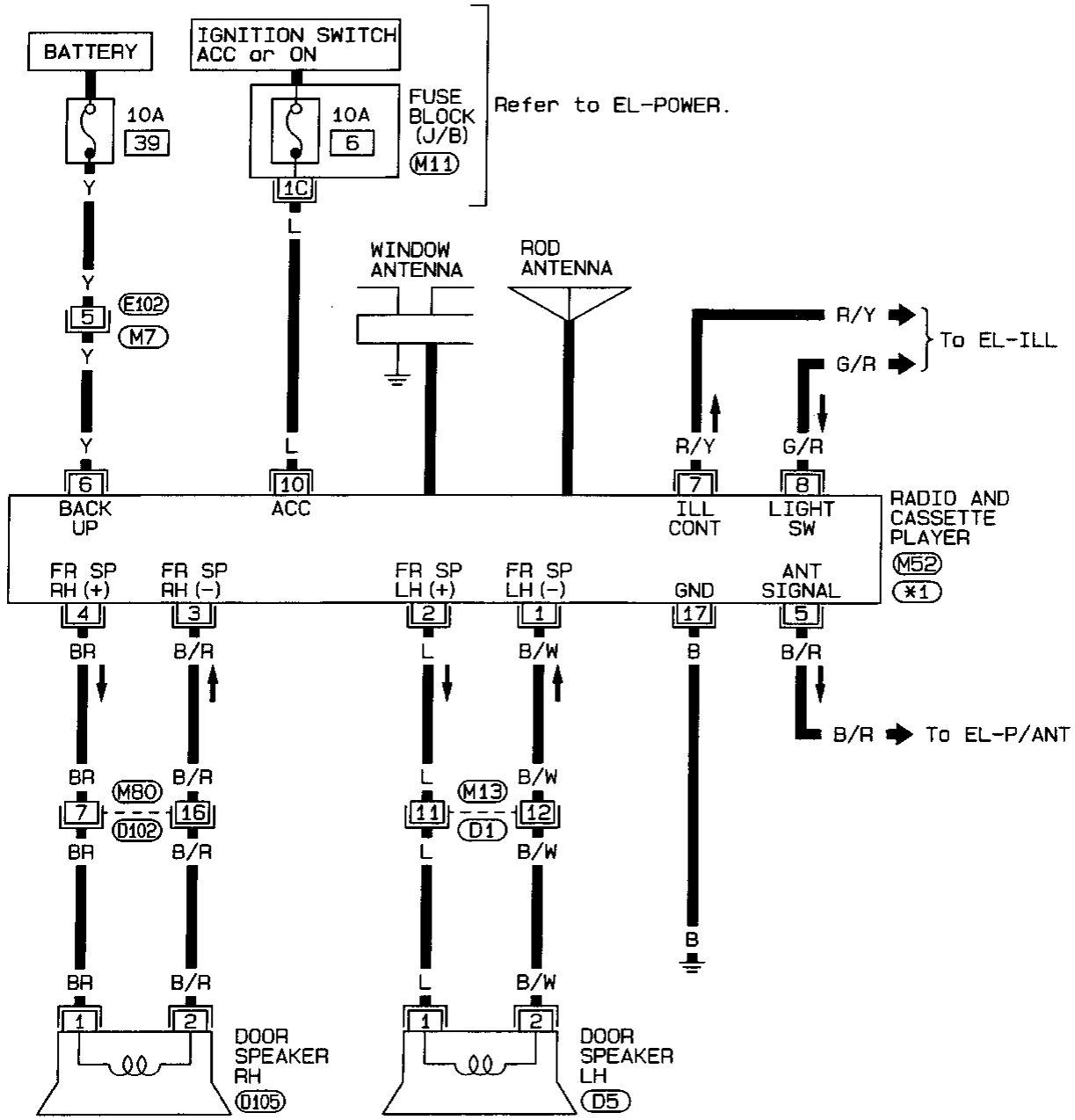


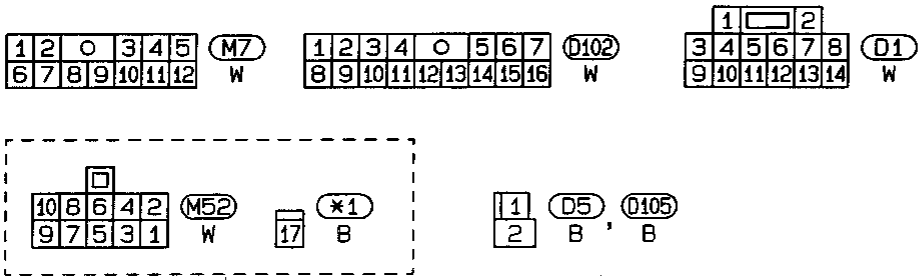


HEL351

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

EL-AUDIO-04



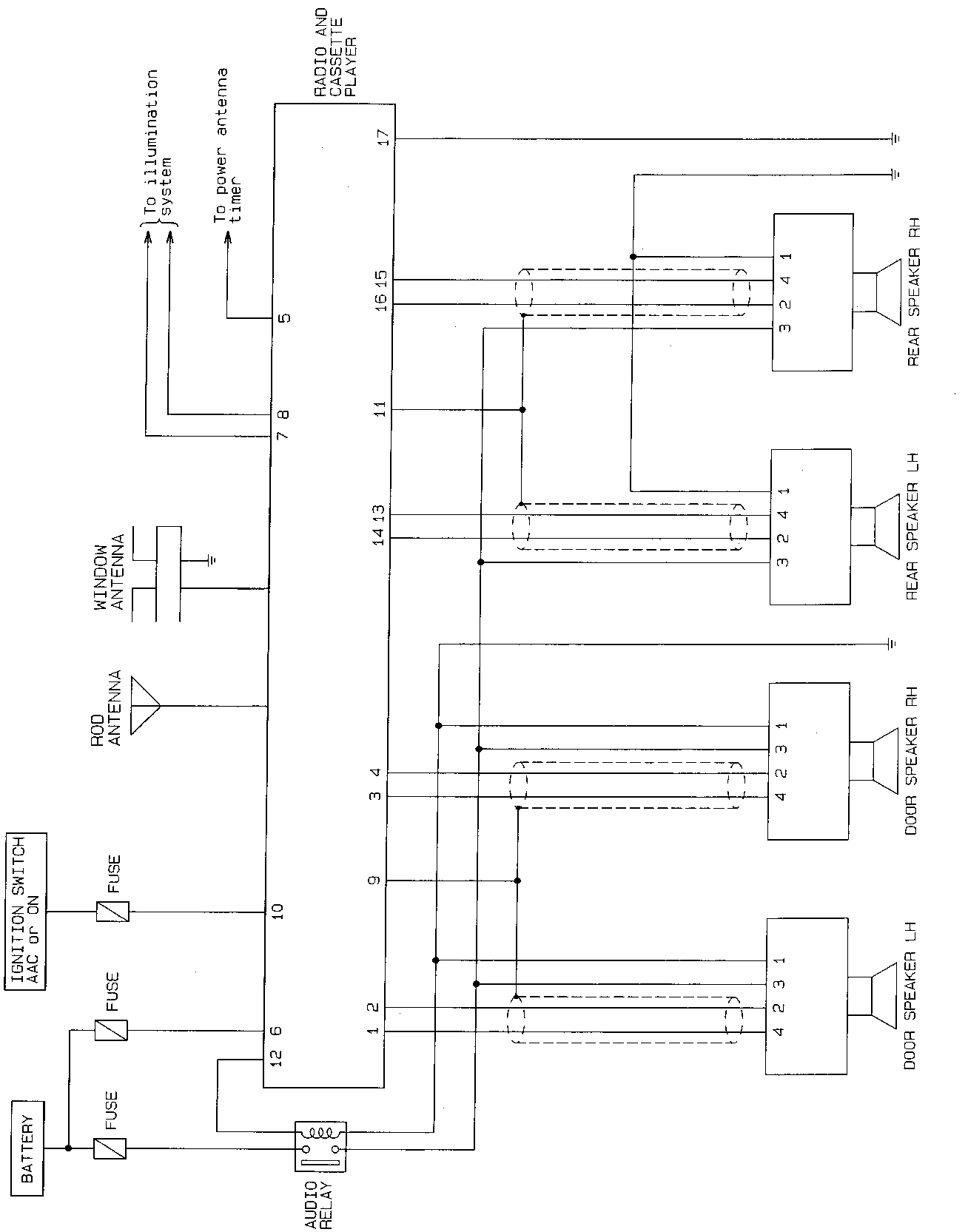


Refer to last page (Foldout page).

M11

HEL352

Schematic



HEL353

Power Antenna/System Description

Power is supplied at all times
- through 10A fuse [No. 39, located in the fuse block (in relay box)]
- to power antenna timer terminal ③.

With the ignition switch in the ACC or ON position, power is supplied
- through 10A fuse [No. 6, located in the fuse block (J/B)]
- to radio terminal ⑩.

Ground is supplied to the power antenna timer through body grounds B7 and B32.
When the radio is turned to the ON position, battery voltage is supplied
- through radio terminal ⑤
- to power antenna timer terminal ④.

When battery voltage is supplied to the power antenna timer terminal ④, power is supplied
- to power antenna motor terminal ②
- through power antenna timer terminal ⑧.

Ground is supplied
- to power antenna motor terminal ①
- through power antenna timer terminal ⑨.

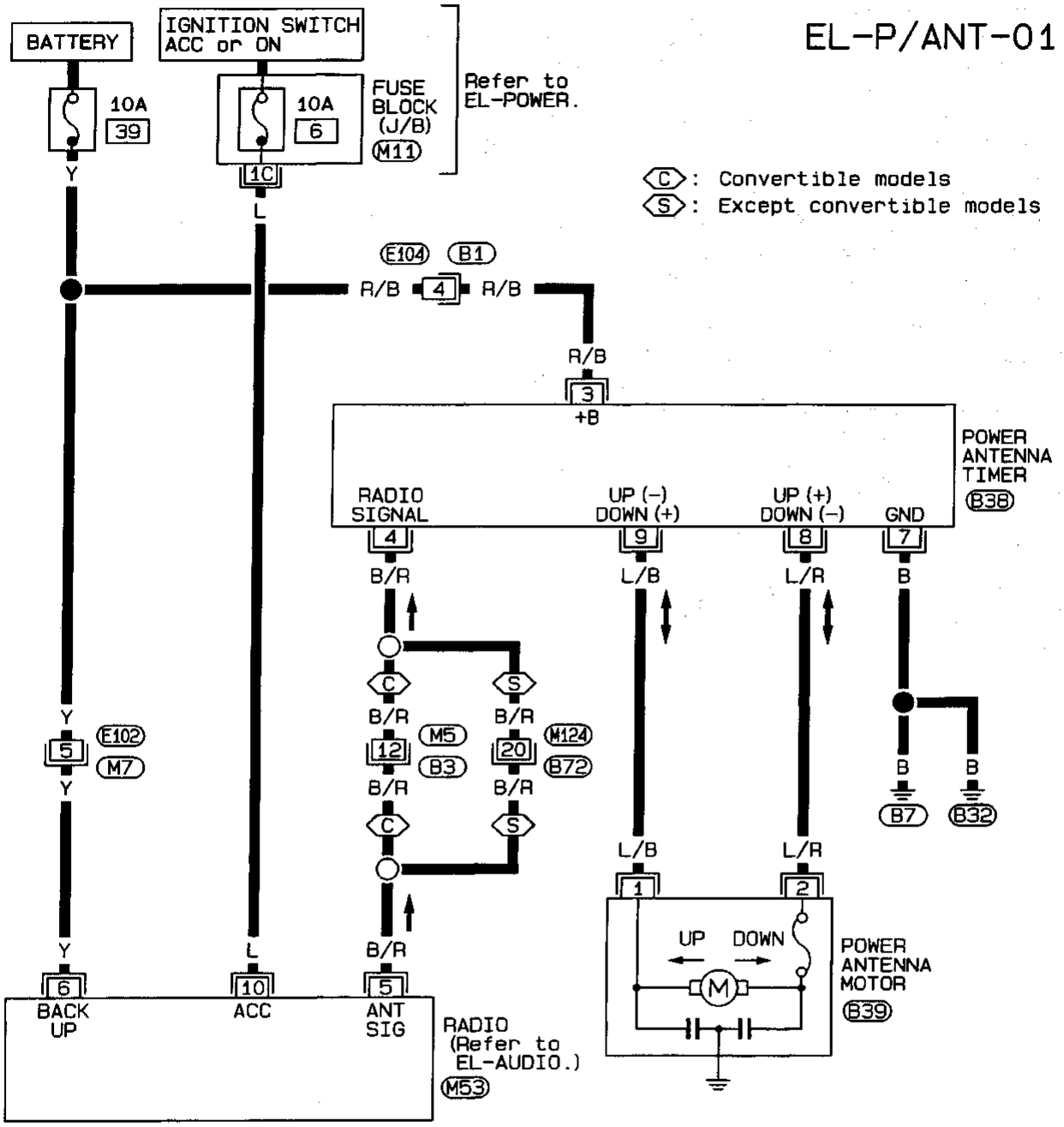
The antenna rises and is held in the extended position.
When the radio is turned to the OFF position, battery voltage is interrupted
- from radio terminal ⑤
- to power antenna timer terminal ④.

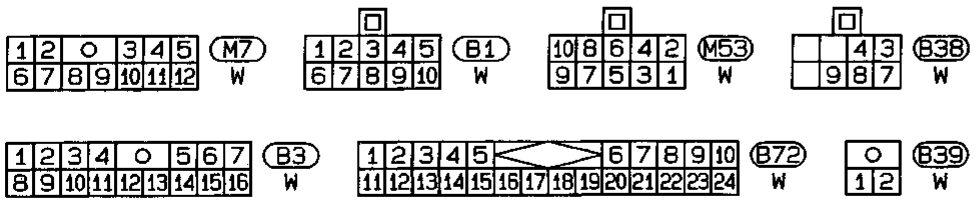
Then, power is supplied
- to power antenna motor terminal ①
- through power antenna timer terminal ⑨.

Ground is supplied
- to power antenna motor terminal ②
- through power antenna timer terminal ⑧.

The antenna retracts.

Power Antenna/Wiring Diagram — P/ANT —





Refer to last page (Foldout page).

M11

HEL354

Trouble Diagnoses

RADIO

Symptom	Possible causes	Repair order
Radio is inoperative (no digital display and no sound from speakers).	1. 10A fuse	1. Check 10A fuse (No. 6, located in fuse block). Turn ignition switch ON and verify battery positive voltage is present at terminal ⑩ of radio.
	2. Poor radio ground	2. Check radio ground.
	3. Radio	3. Remove radio for repair.
Radio presets are lost when ignition switch is turned OFF.	1. 10A fuse	1. Check 10A fuse (No. 39, located in relay box). Verify battery positive voltage is present at terminal ⑥ of radio.
	2. Radio	2. Remove radio for repair.
AM stations are weak or noisy (FM stations OK).	1. Antenna	1. Check antenna.
	2. Poor radio ground	2. Check radio ground.
	3. Radio	3. Remove radio for repair.
FM stations are weak or noisy (AM stations OK).	1. Window antenna	1. Check antenna.
	2. Radio	2. Remove radio for repair.
Radio generates noise in AM and FM modes with engine running.	1. Poor radio ground	1. Check radio ground.
	2. Loose or missing ground bonding straps	2. Check ground bonding straps.
	3. Ignition condenser or rear window defogger noise suppressor condenser	3. Replace ignition condenser or rear window defogger noise suppressor condenser.
	4. Alternator	4. Check alternator.
	5. Ignition coil or secondary wiring	5. Check ignition coil and secondary wiring.
	6. Radio	6. Remove radio for repair.
Radio generates noise in AM and FM modes with accessories on (switch pops and motor noise).	1. Poor radio ground	1. Check radio ground.
	2. Antenna	2. Check antenna.
	3. Accessory ground	3. Check accessory ground.
	4. Faulty accessory	4. Replace accessory.

BOSE SYSTEM

Symptom	Possible causes	Repair order
Radio controls are operational, but no sound is heard from any speaker.	1. 20A fuse	1. Check 20A fuse (No. 1, located in fuse block). Verify battery positive voltage is present at terminal ③ of audio relay.
	2. Audio relay	2. Check audio relay.
	3. Audio relay ground	3. Check audio relay ground (Terminal ①).
	4. Amp. ON signal	4. Turn ignition switch ACC and radio ON. Verify battery positive voltage is present at terminal ② of audio relay.
	5. Radio output	5. Check radio output voltage.
	6. Radio	6. Remove radio for repair.
Individual speaker is noisy or inoperative.	1. Speaker ground	1. Check speaker ground (Terminal ①).
	2. Power supply	2. Check power supply for speaker.
	3. Radio output	3. Check radio output voltage for amp.
	4. Speaker	4. Replace speaker.

Trouble Diagnoses (Cont'd)

POWER ANTENNA

Symptom	Possible causes	Repair order
Power antenna does not operate.	1. 10A fuse	1. Check 10A fuse (No. 39, located in relay box). Verify that battery positive voltage is present at terminal ⑥ of power antenna timer.
	2. 10A fuse	2. Check 10A fuse (No. 6, located in fuse block). Turn ignition switch ON and verify that battery positive voltage is present at terminal ⑩ of radio.
	3. Radio signal	3. Turn ignition switch and radio ON. Verify that battery positive voltage is present at terminal ④ of power antenna timer.
	4. Power antenna timer ground	4. Check power antenna timer ground (Terminal ⑦).
	5. Power antenna timer and motor	5. Check power antenna timer and motor.

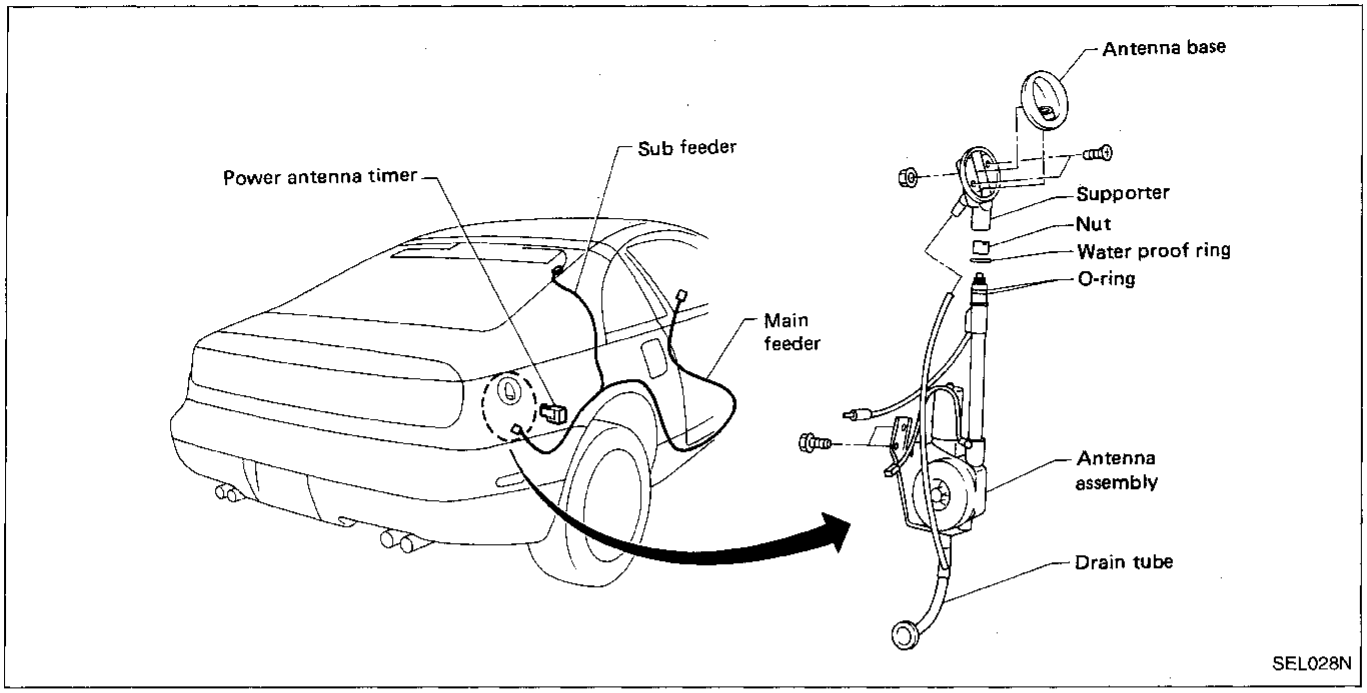
ANTENNA INSPECTION

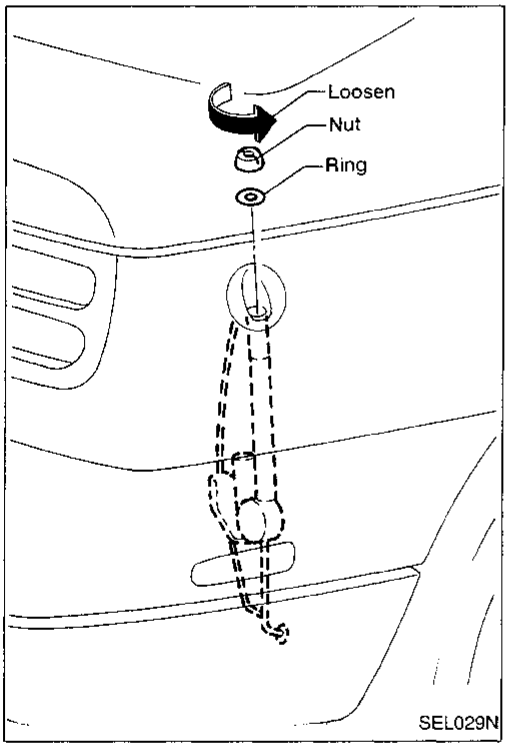
1. Using a jumper wire, clip an auxiliary ground between antenna and body.
- If reception improves, check antenna ground (at body surface).
- If reception does not improve, check main feeder cable for short circuit or open circuit.

RADIO INSPECTION

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

Location of Antenna

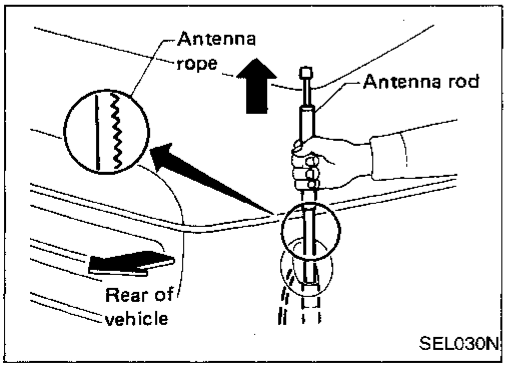




Antenna Rod Replacement

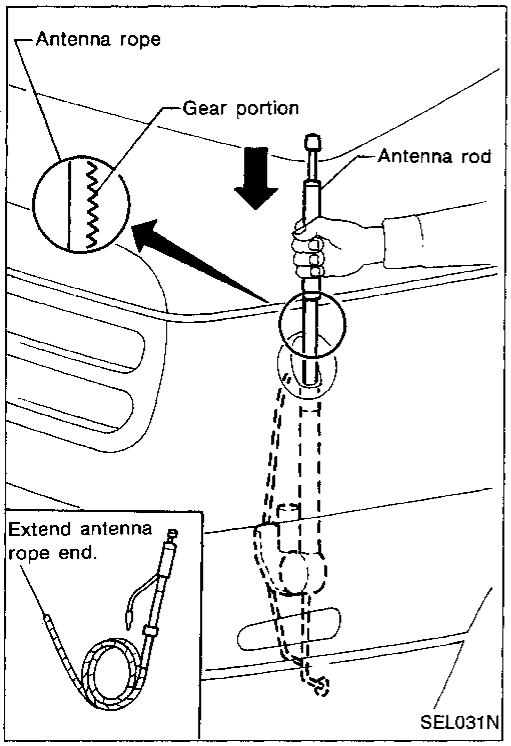
REMOVAL

1. Remove antenna nut and antenna base.



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

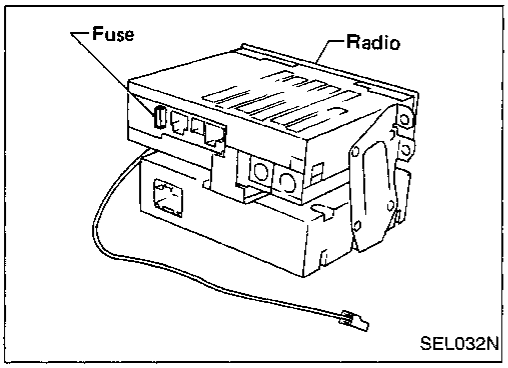
Antenna Rod Replacement (Cont'd)

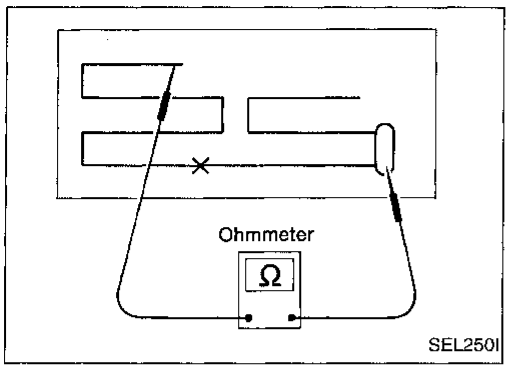


INSTALLATION

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

Radio Fuse Check

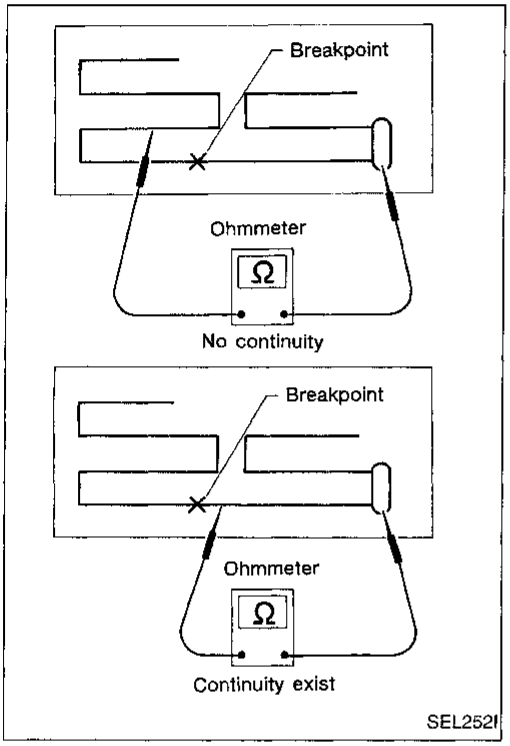




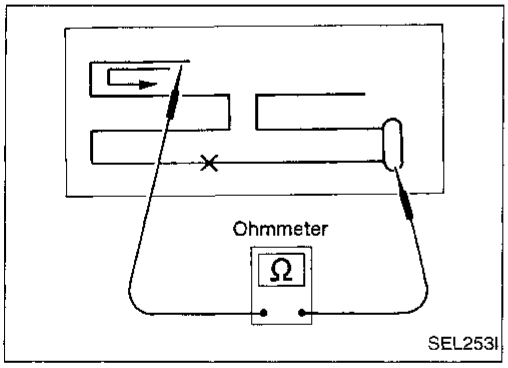
Window Antenna Repair

ELEMENT CHECK

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



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

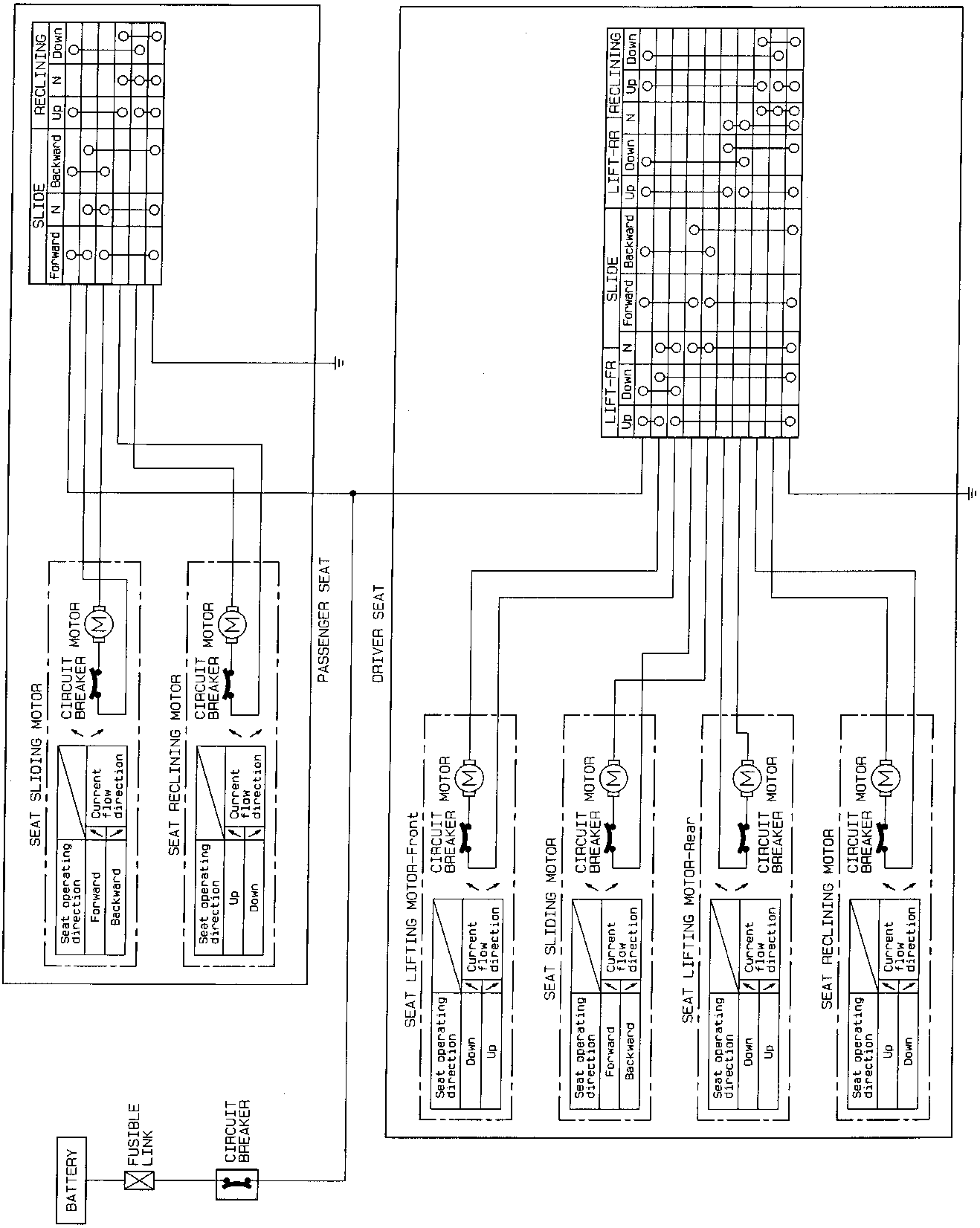


3. To locate broken point, move probe to left and right along element to determine point where tester needle swings abruptly.

ELEMENT REPAIR

Refer to REAR WINDOW DEFOGGER "Filament Repair" (EL-176).

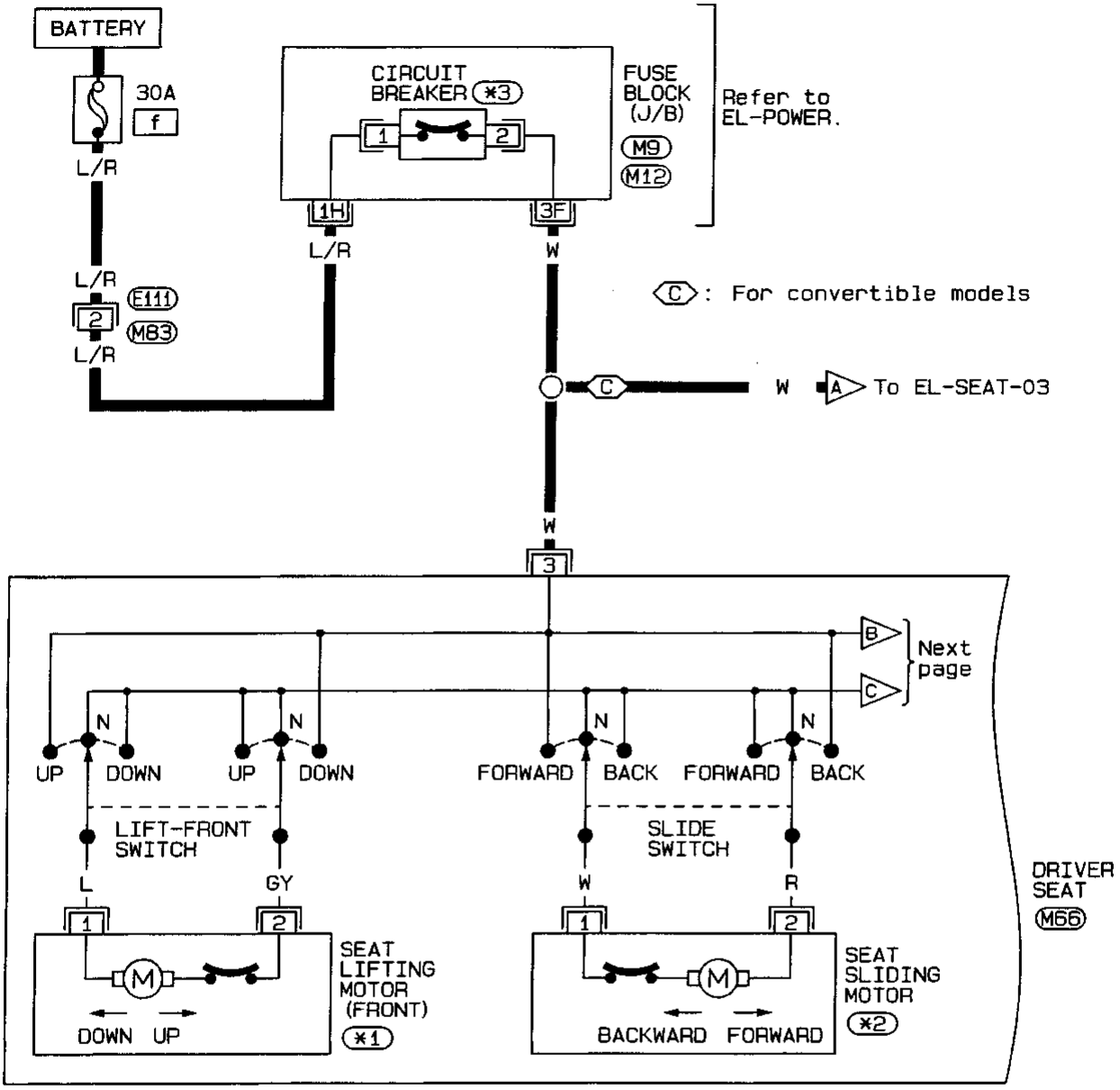
Schematic

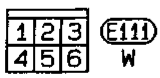


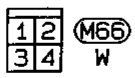
HEL392

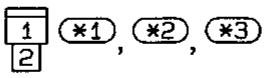
Wiring Diagram — SEAT —

EL-SEAT-01









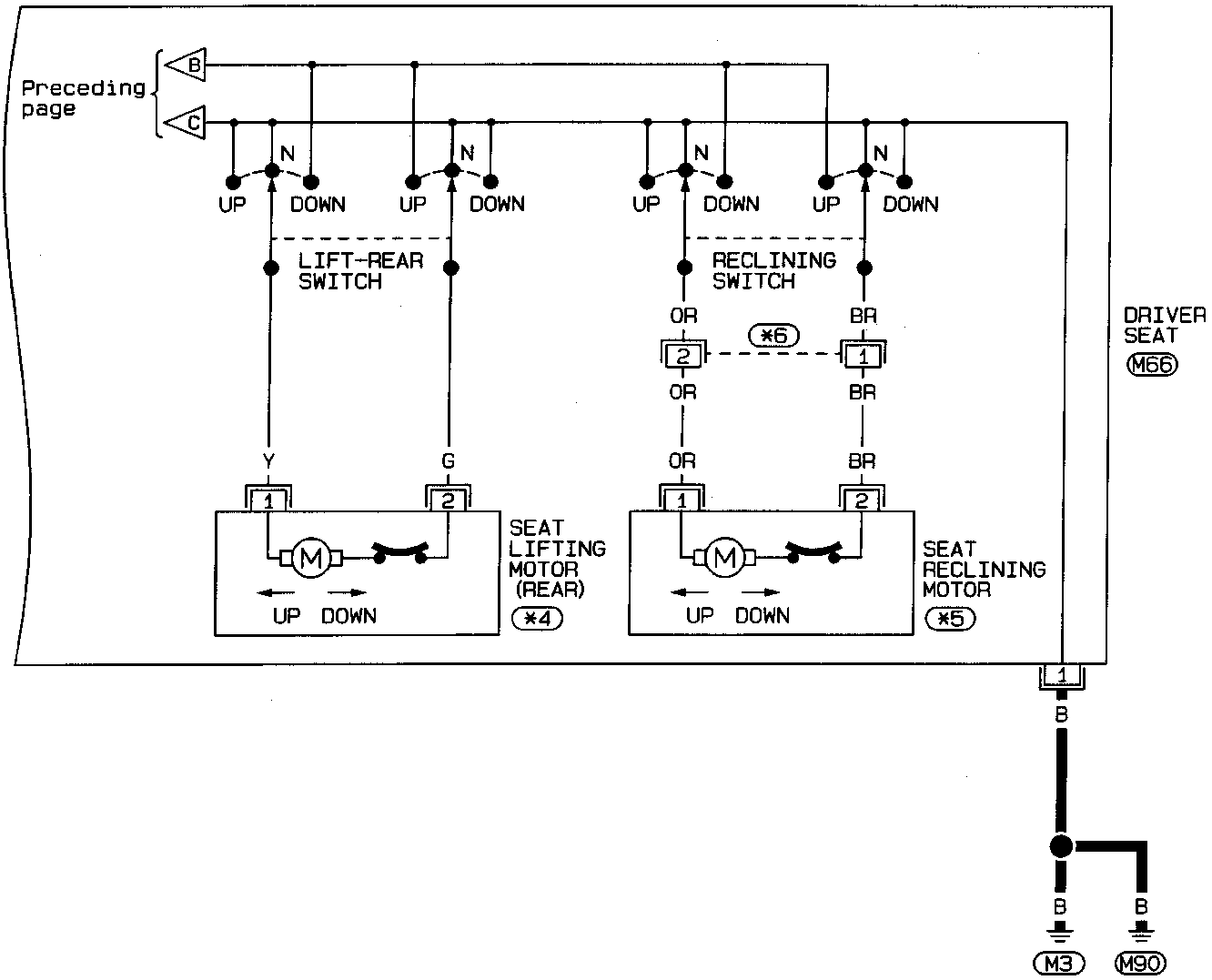
Refer to last page (Foldout page).

M9, M12

HEL355

Wiring Diagram — SEAT — (Cont'd)

EL-SEAT-02



M66 W

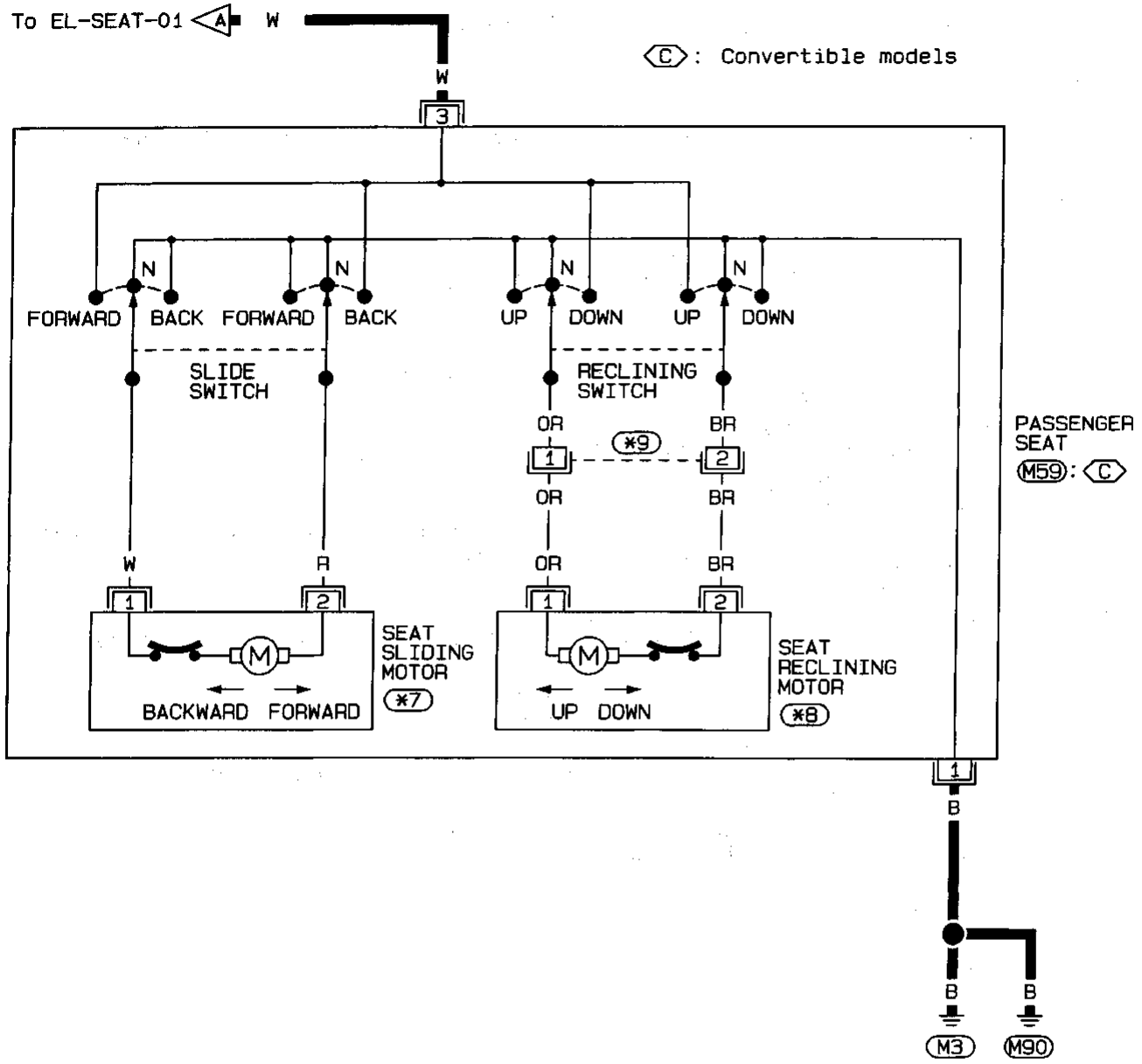
*4, *5

*6

HEL356

Wiring Diagram — SEAT — (Cont'd)

EL-SEAT-03



M59 W

*7, *8

*9

HEL393

System Description

Power is supplied at all times
- to remote control unit terminal ①
- through 10A fuse [No. 39, located in the fuse block (In relay box)].

Power is supplied at all times
- to remote control unit terminal ② and
- to trunk lid opener relay terminal ③
- through 10A fuse [No. 20 (Except convertible models) or No. 9 (Convertible models), located in the fuse block (J/B)].

Power is also supplied
- to key switch terminal ①
- through 10A fuse [No. 33 located in the fuse block (In relay box)].

Terminal ⑧ of the remote control unit is grounded through body grounds M3 and M90.

INPUTS

When the key switch is ON (ignition key is inserted in key cylinder), power is supplied
- through key switch terminal ②
- to remote control unit terminal ⑨.

When any front door switches are set to OPEN position, ground is provided
- to remote control unit terminal ⑬
- through door switches body grounds.

When the back door switch (Except convertible models) or trunk room lamp switch (Convertible models) is in OPEN position (back door or trunk lid is open), ground is supplied
- to remote control unit terminal ④
- through back door or trunk lid switch body ground.

When the front door lock actuator LH (lock knob switch) is in UNLOCK position, ground is supplied
- to remote control unit terminal ⑩
- through front door lock actuator LH (lock knob switch) terminal ④
- to front door lock actuator LH (lock knob switch) terminal ③
- through body grounds M3 and M90.

When the front door lock actuator RH (lock knob switch) is in UNLOCK position, ground is supplied
- to remote control unit terminal ⑪
- through front door lock actuator RH (lock knob switch) terminal ④
- to front door lock actuator RH (lock knob switch) terminal ③
- through body grounds M3 and M90.

Remote controller signal input
- through window antenna
- to remote control unit terminal ㉑.

The multi-remote control system controls operation of the
- power door lock
- back door opener (Except convertible models) or trunk lid opener (Convertible models)
- interior lamp (Except convertible models) or spot lamp (Convertible models)
- panic alarm
- hazard warning lamp
- ID code entry

OPERATED PROCEDURE

Remote control unit can receive signals from remote controller when key switch is in the OFF position (key not in cylinder).

Power door lock operation

LOCK
- Key switch OFF signal (key not in cylinder)
- Door switch CLOSE signal (all doors closed)

The two above signals are already input into remote control unit. At this point, remote control unit can receive a LOCK signal from remote controller. Remote control unit will then send a signal
- from its terminal ⑯
- to door lock timer terminal ⑪ and
- to theft warning control unit terminal ⑦.

System Description (Cont'd)

Door lock timer now locks front doors and activates theft warning system.
UNLOCK
When remote control unit receives an UNLOCK signal from remote controller, remote control unit will send a signal
- from its terminal ⑭
- to door lock timer terminal ⑧
- from remote control unit terminal ⑳
- to theft warning control unit terminal ⑨.

Door lock timer now unlocks front doors and deactivates theft warning system.
For detailed description, refer to "POWER DOOR LOCK" (EL-150) and "THEFT WARNING SYSTEM" (EL-240).

Back door opener or trunk lid opener operation

BACK DOOR OPENER (Except convertible models)
When remote control unit receives an OPEN signal from remote controller, power is supplied
- from remote control unit terminal ③
- to back door actuator terminal ①.

Ground is supplied to back door actuator terminal ③ through body grounds (B7) and (B32).
With power and ground supplied, back door actuator activates to open back door.
Remote control unit now deactivates theft warning system.

TRUNK LID OPENER (Convertible models)
When remote control unit receives an OPEN signal from remote controller, and storage lid switch is in OFF position (storage lid closed), power is supplied
- from remote control unit terminal ③
- through trunk lid opener cancel relay terminals ④ and ③
- to trunk lid opener relay terminal ②.

Ground is supplied
- through body grounds (B7) and (B32)
- to trunk lid opener relay terminal ① and
- to trunk lid opener solenoid terminal ③.

Then, trunk lid opener relay activates and power is supplied
- through trunk lid opener relay terminal ⑤
- to trunk lid opener solenoid terminal ①.

With power and ground supplied, trunk lid opener solenoid activates to open trunk lid.
Remote control unit now deactivates theft warning system.
For detailed description, refer to "THEFT WARNING SYSTEM" (EL-240).

Interior lamp (Except convertible models)/spot lamp (Convertible models) operation

Remote control unit turns interior lamp/spot lamp ON or OFF when interior lamp switch or spot lamp switch is in DOOR position, according to various inputs received.
Operating conditions
- Key switch in OFF position (key not in cylinder)
- Door switch in CLOSE position (front doors closed).

With interior lamp/spot lamp OFF under the above conditions, an ON signal is sent from remote controller.
- Interior lamp/spot lamp then comes on for 30 seconds.

An ON or LOCK signal is sent from remote controller with interior lamp/spot lamp on.
- Interior lamp/spot lamp will turn off.

An UNLOCK signal is sent from remote controller with interior lamp/spot lamp ON or OFF.
- Interior lamp/spot lamp will turn on for 30 seconds.

For detailed description, refer to "Interior, Spot, Foot, Luggage Room and Trunk Room Lamps" (EL-86).

Panic alarm operation

Multi-remote control system activates horn and headlamps intermittently under the following conditions:
- Key switch OFF (key not in cylinder)
- An alarm signal is sent from remote controller to remote control unit.

For detailed description, refer to "THEFT WARNING SYSTEM" (EL-240).

System Description (Cont'd)

Hazard warning lamp operation

Remote control unit receives a LOCK signal from remote controller with the following signals already entered.

- Key switch OFF signal (key not in cylinder)
- Door switch CLOSE signal (all doors and trunk lid closed)
- Door lock actuator (lock knob switch) LOCK (front doors locked)

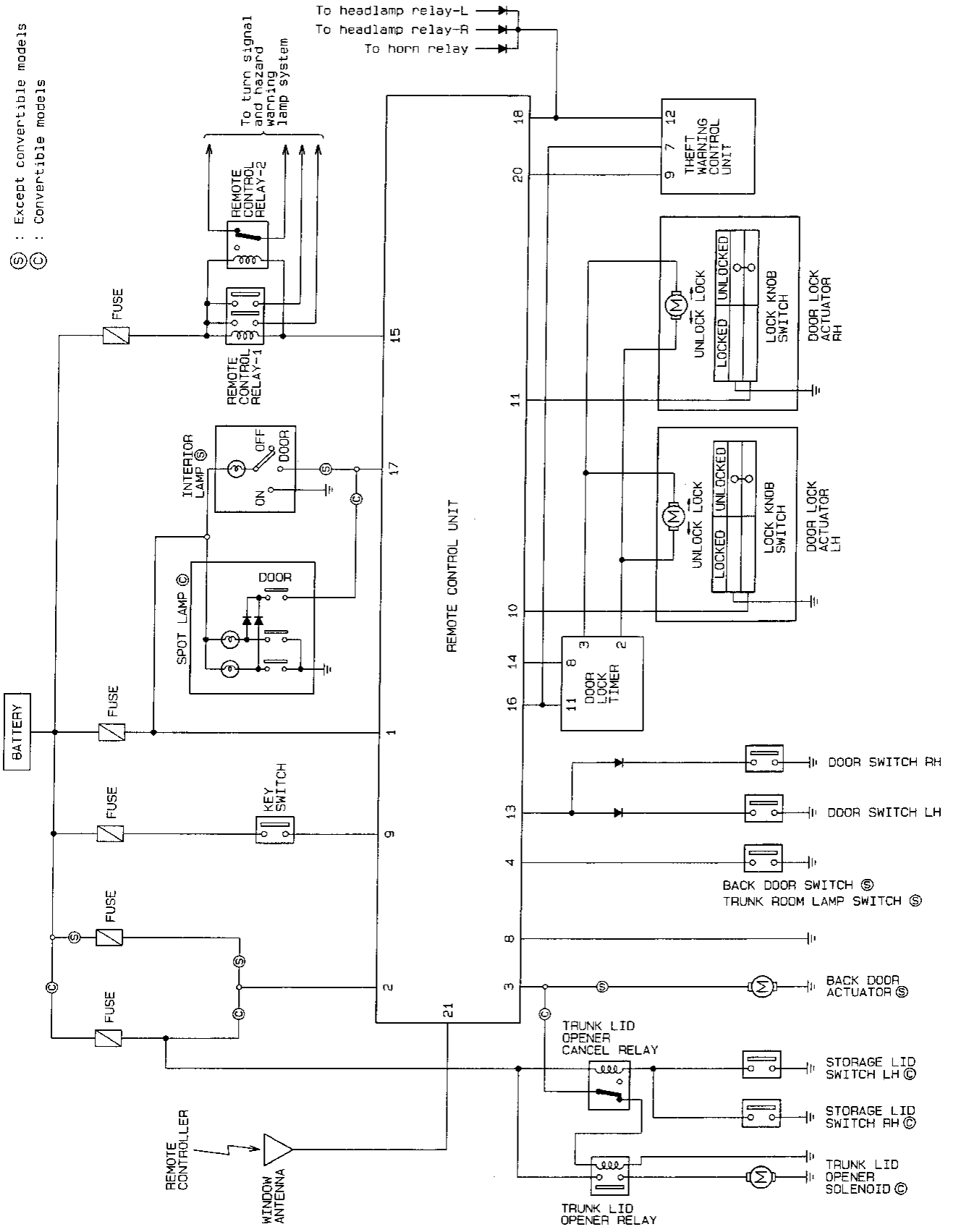
Remote control system will then send a ground signal

- to remote control relay terminal ②
- through remote control unit terminal ⑮.

Remote control relay is now energized and hazard warning lamps flash twice.

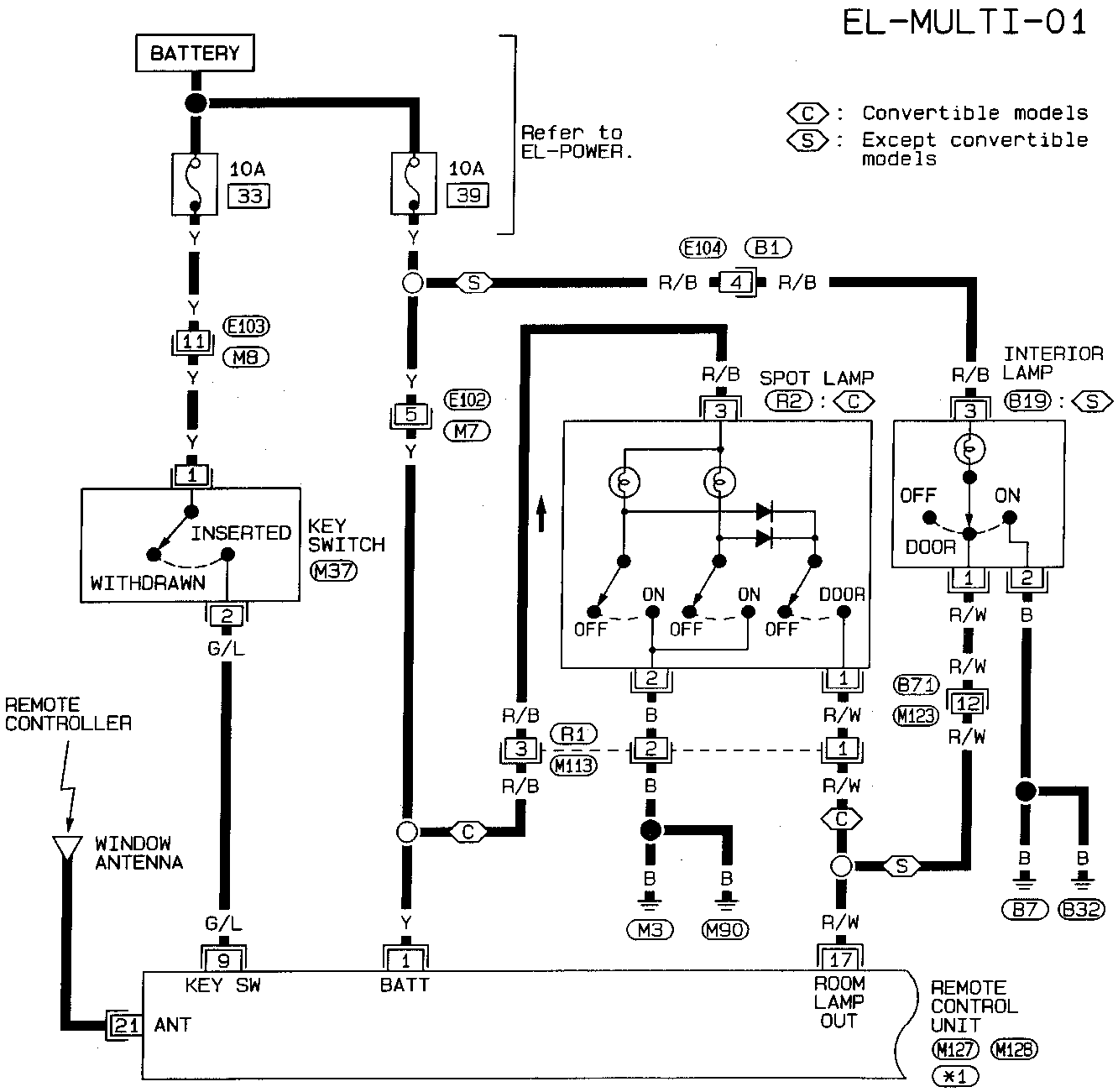
For further description, refer to "TURN SIGNAL AND HAZARD WARNING LAMPS" (EL-73).

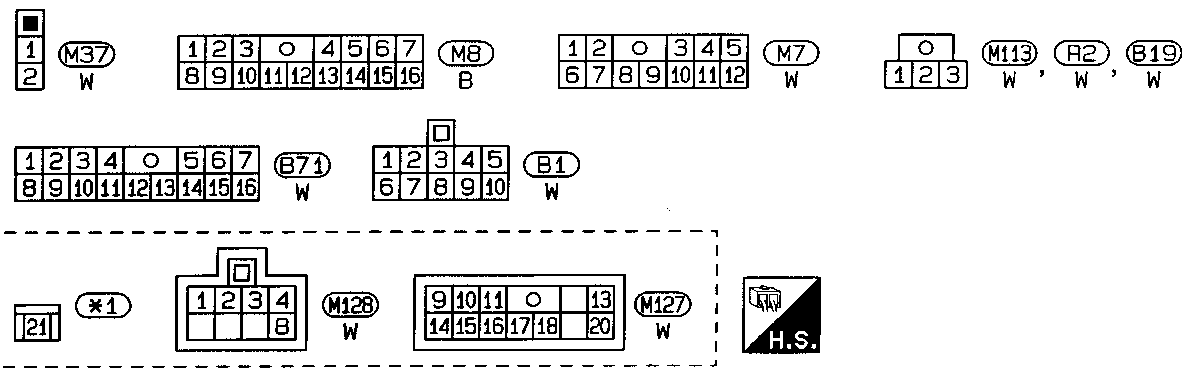
Schematic



HEL363

Wiring Diagram — MULTI —

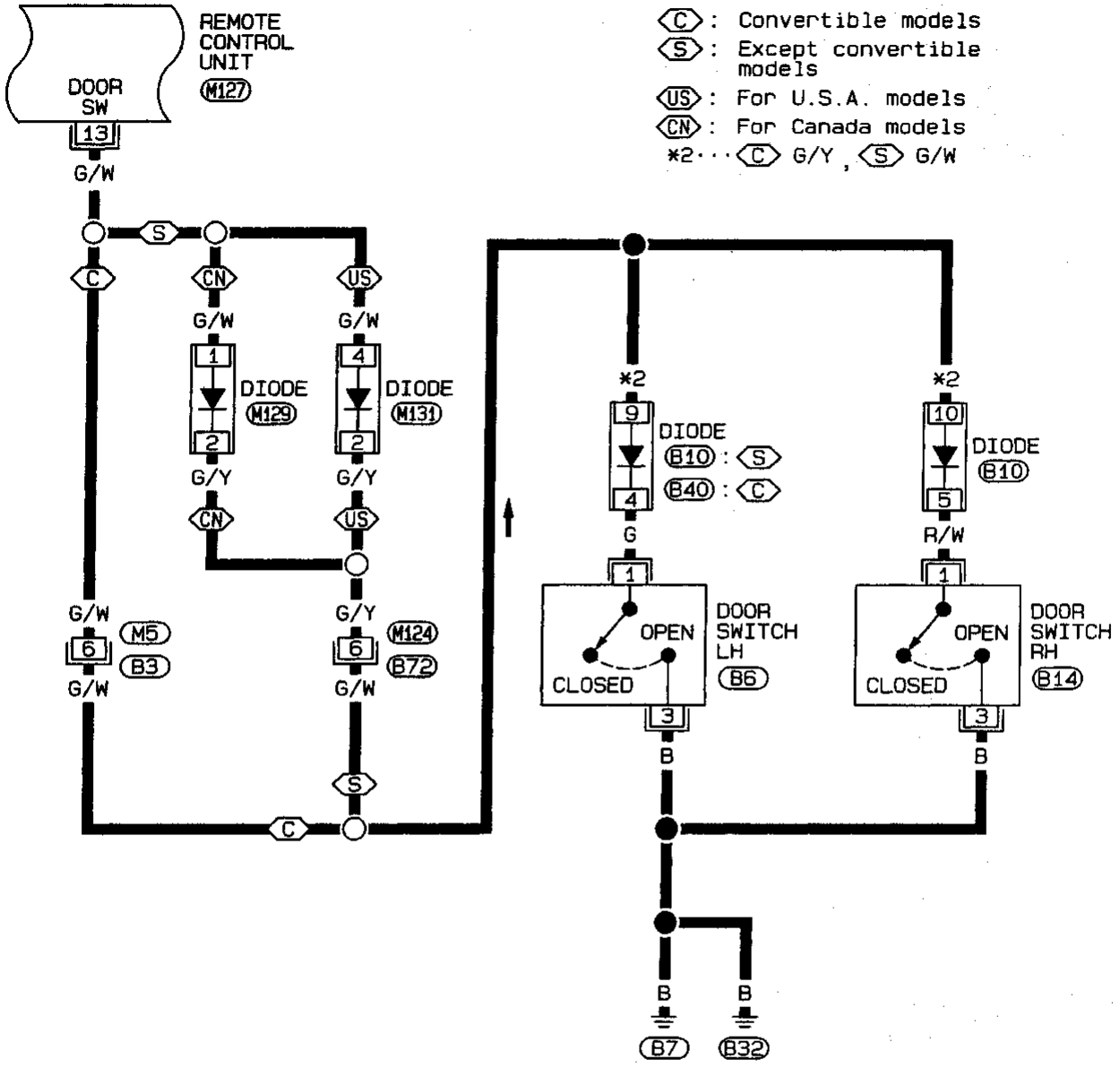


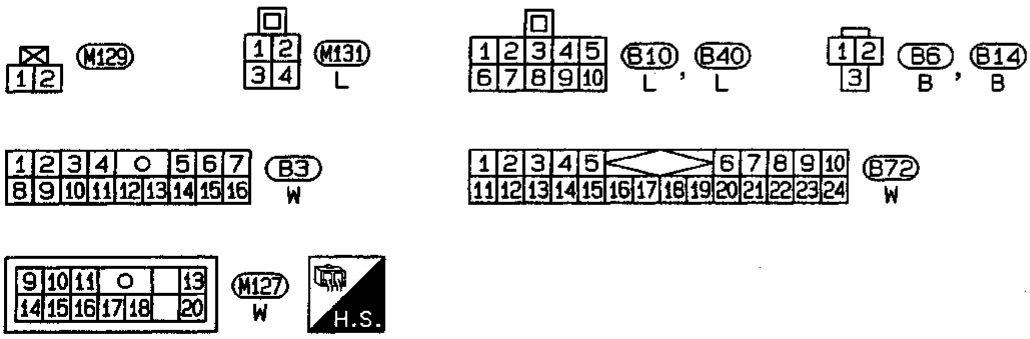


HEL364

Wiring Diagram — MULTI — (Cont'd)

EL-MULTI-02

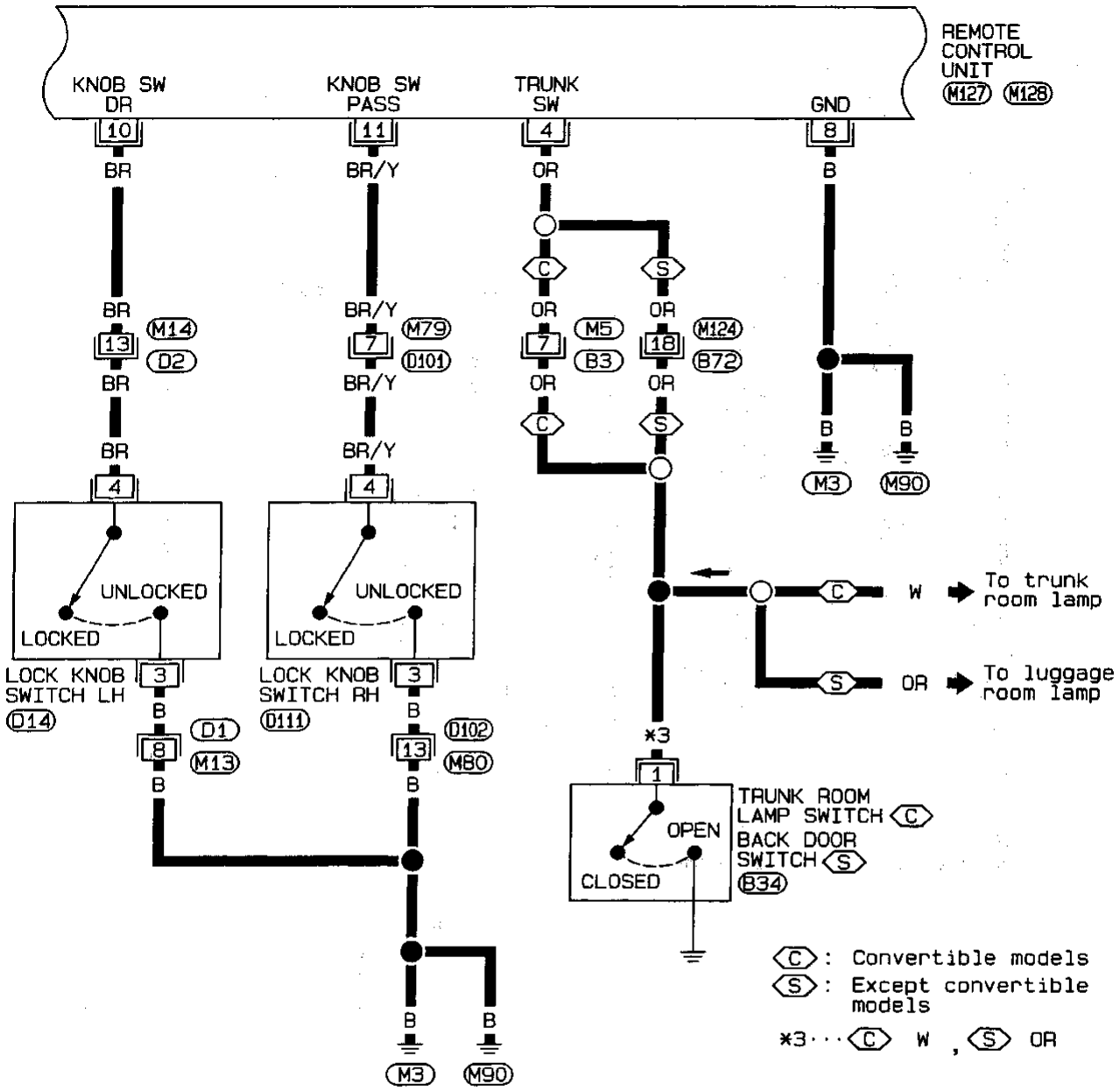


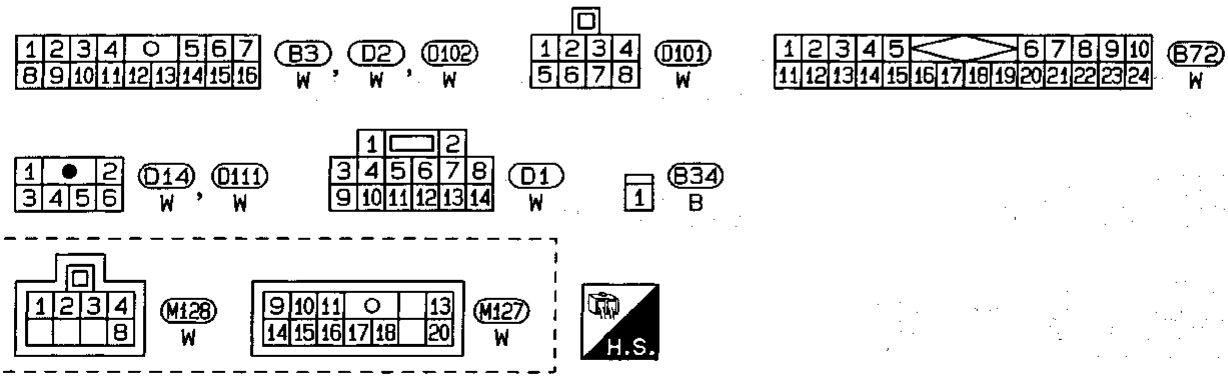


HEL365

Wiring Diagram — MULTI — (Cont'd)

EL-MULTI-03

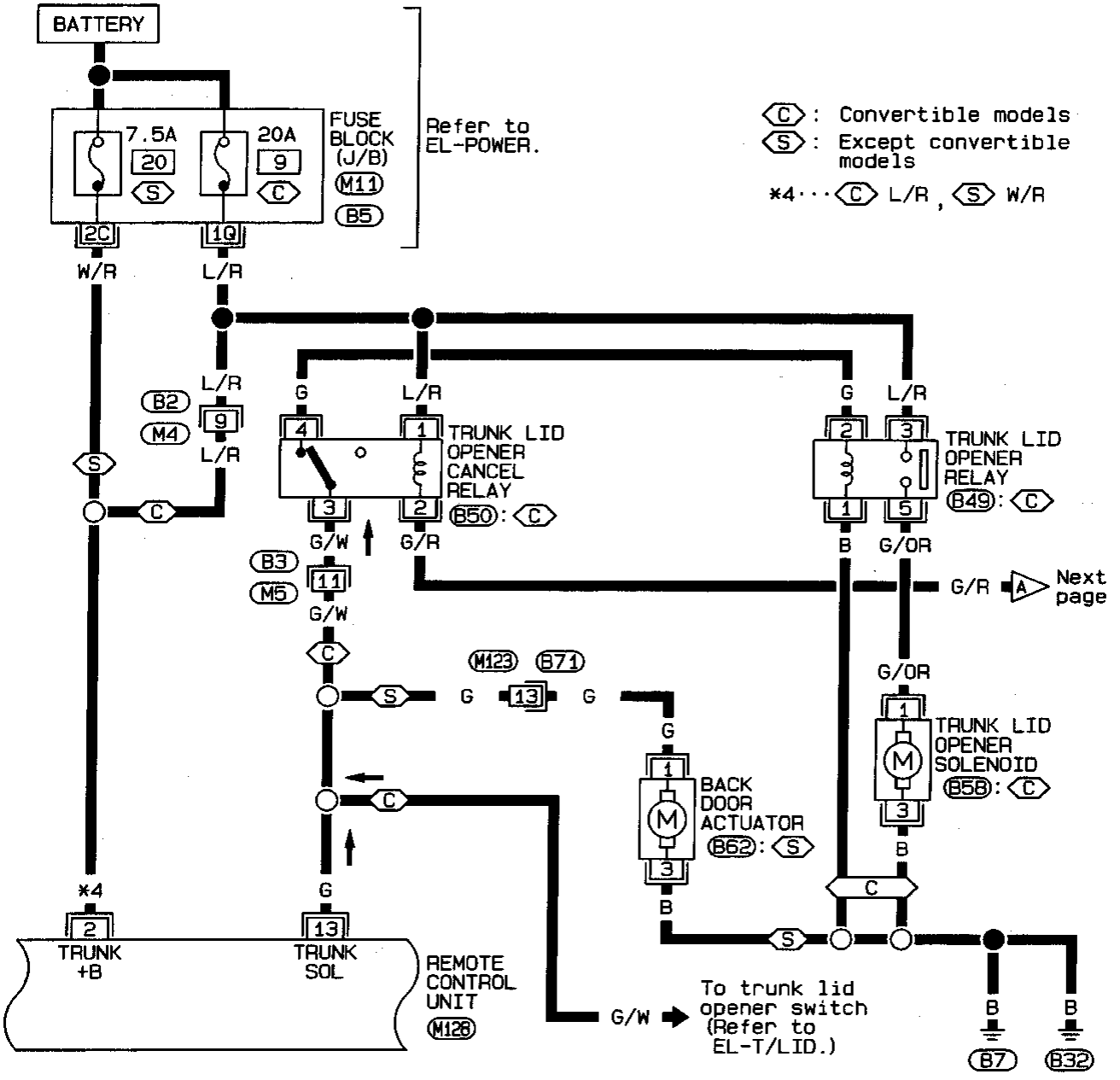


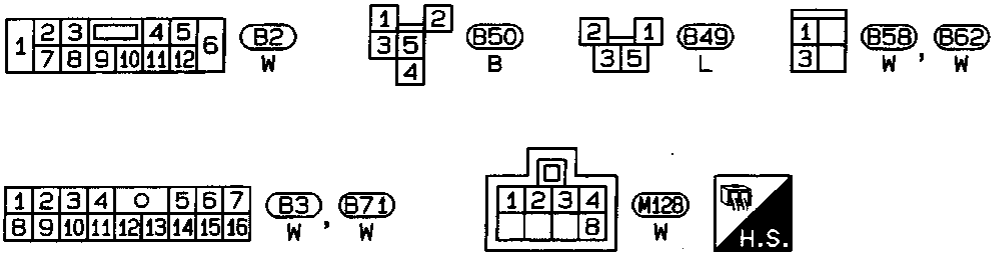


HEL366

Wiring Diagram — MULTI — (Cont'd)

EL-MULTI-04





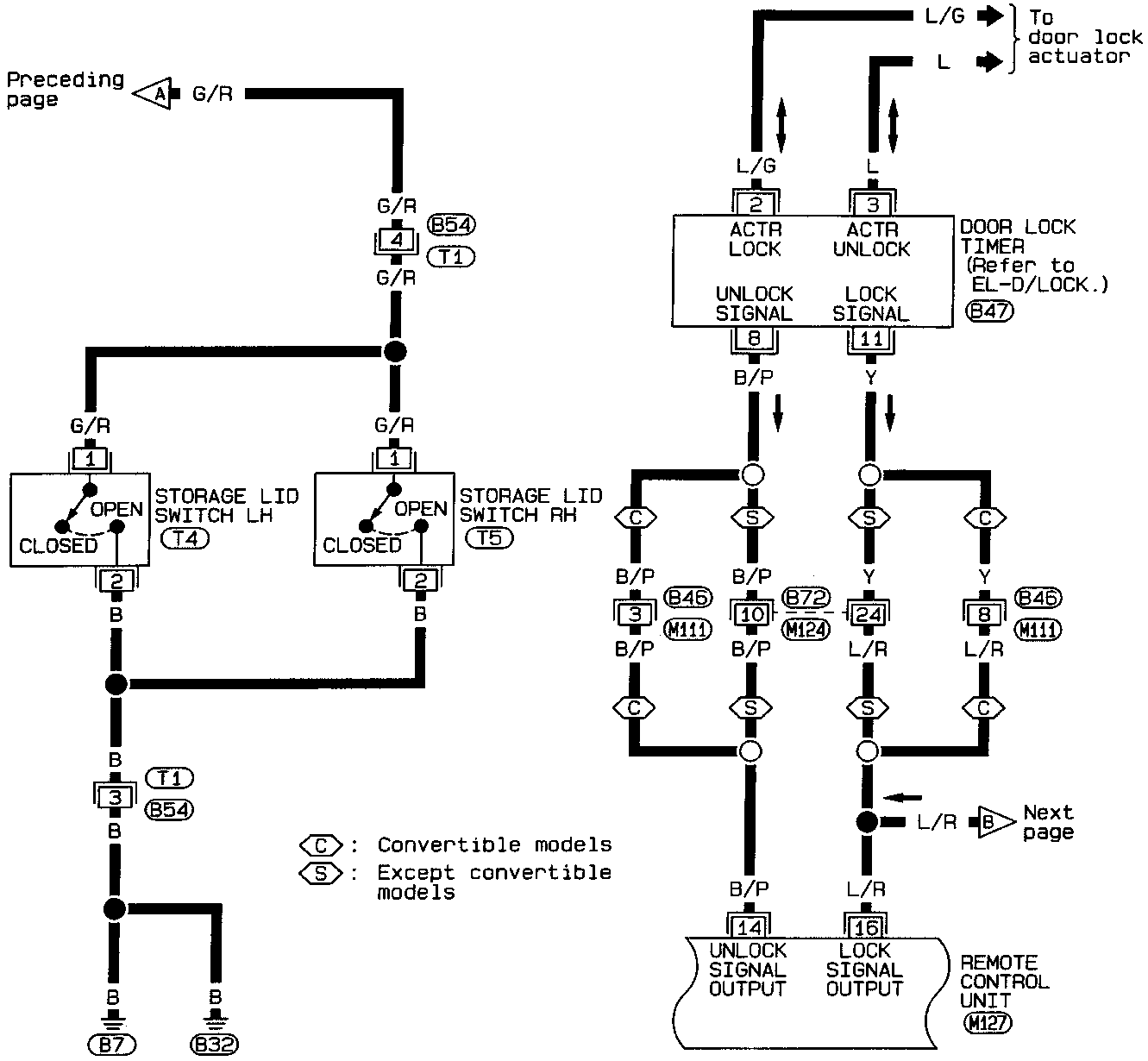
Refer to last page (Foldout page).

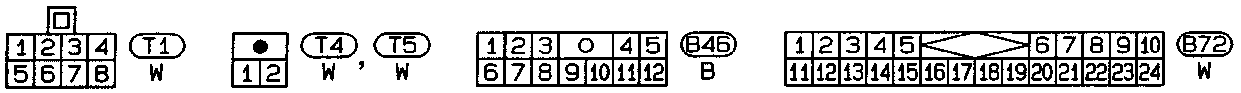
M11 , B5

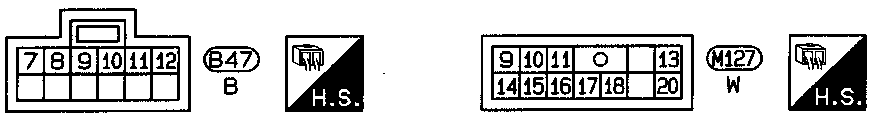
HEL367

Wiring Diagram — MULTI — (Cont'd)

EL-MULTI-05



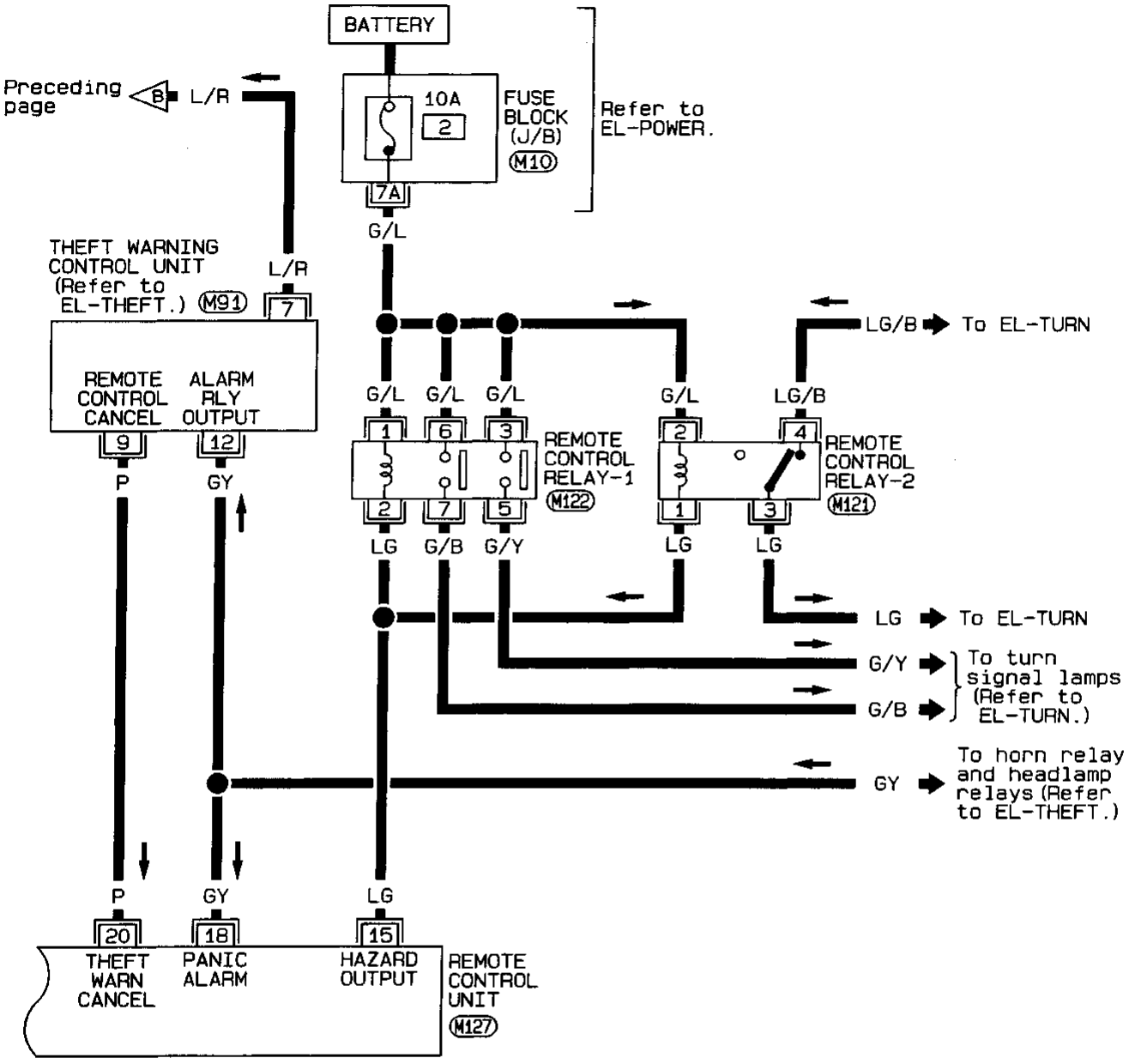


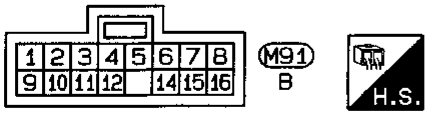


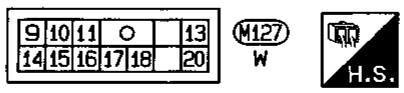
HEL368

Wiring Diagram — MULTI — (Cont'd)

EL-MULTI-06







Refer to last page (Foldout page).

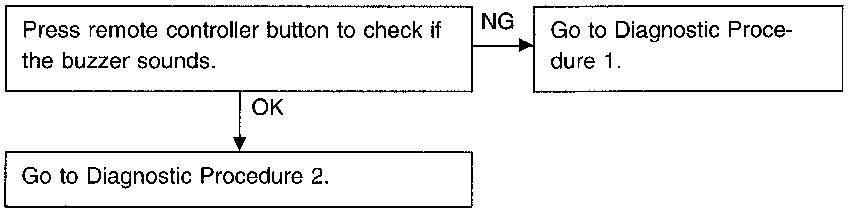
M10

HEL369

Trouble Diagnoses Preliminary Inspection

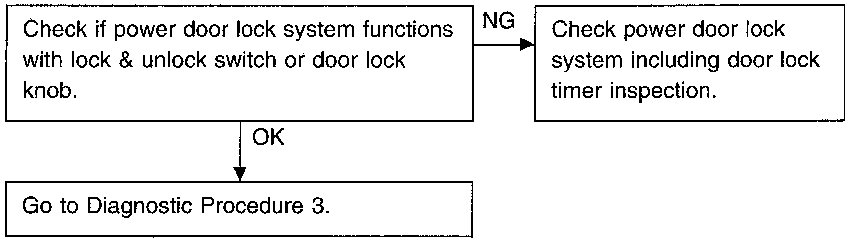
PRELIMINARY INSPECTION PROCEDURE 1

All functions of multi remote control system do not function.



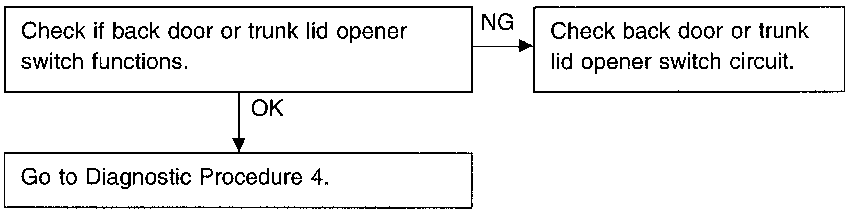
PRELIMINARY INSPECTION PROCEDURE 2

Door lock and unlock do not function.



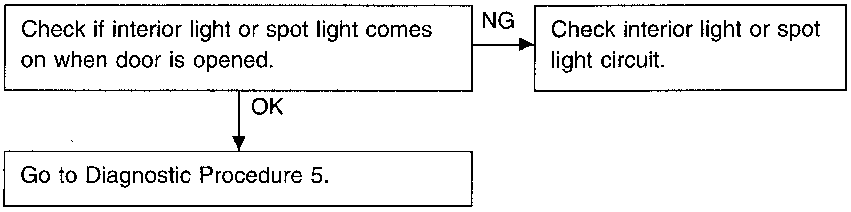
PRELIMINARY INSPECTION PROCEDURE 3

Back door or trunk lid open function does not function.



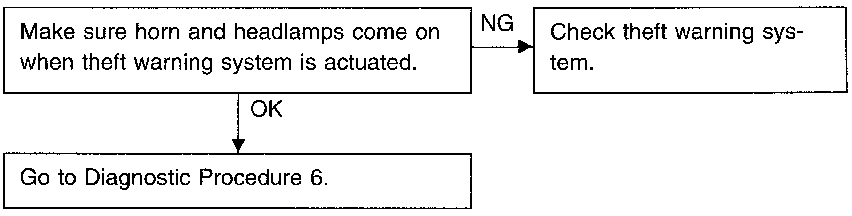
PRELIMINARY INSPECTION PROCEDURE 4

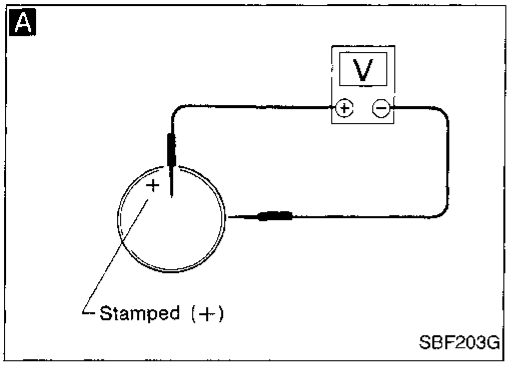
Interior light or spot light does not function.



PRELIMINARY INSPECTION PROCEDURE 5

Panic alarm does not function.





Trouble Diagnoses

DIAGNOSTIC PROCEDURE 1

Remote controller buzzer does not sound when the button is pressed.

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

NG → Replace battery.

OK ↓

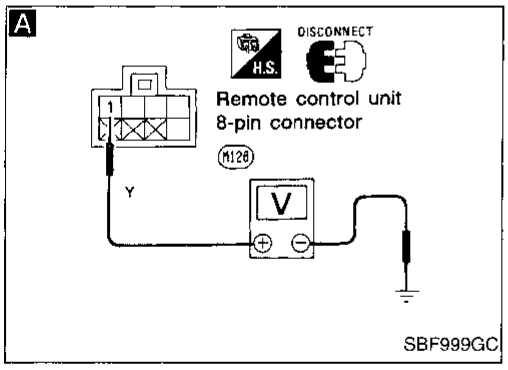
1) Push door lock button of remote controller before installing battery.
2) Reset battery in remote controller to make sure the buzzer sound.

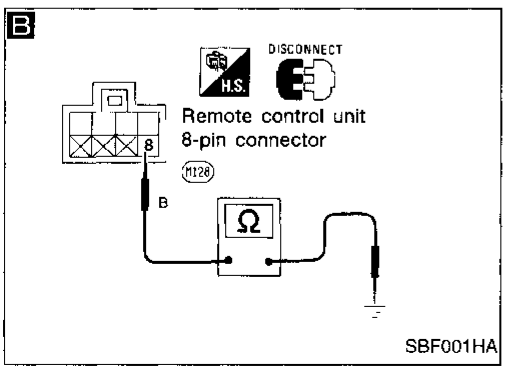
OK → Check system operation.

NG ↓

Replace controller.

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 buzzer does sound.

A

CHECK MAIN POWER SUPPLY AND GROUND CIRCUIT.
1) Remove key from ignition.
2) Disconnect 8-pin connector from control unit. Check voltage across remote control unit terminal ① and GND.
Battery voltage should exist.

NG → Check power supply harness.

OK ↓

B

Check continuity between terminal ⑧ and GND.
Continuity should exist.

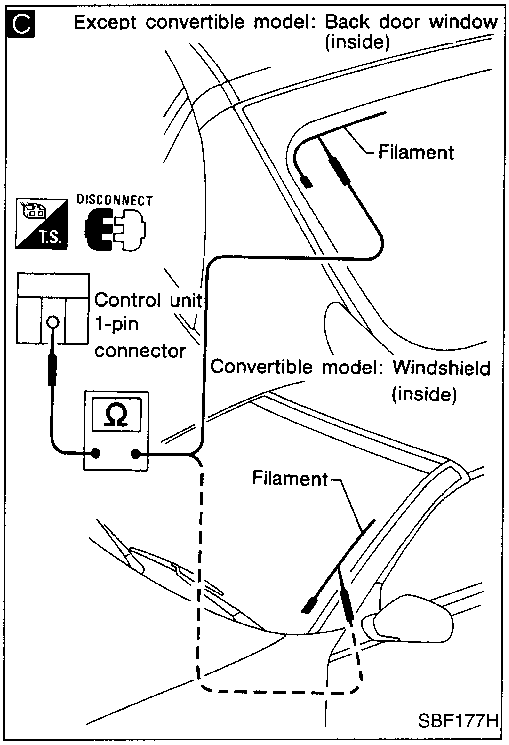
NG → Check GND harness.

OK ↓

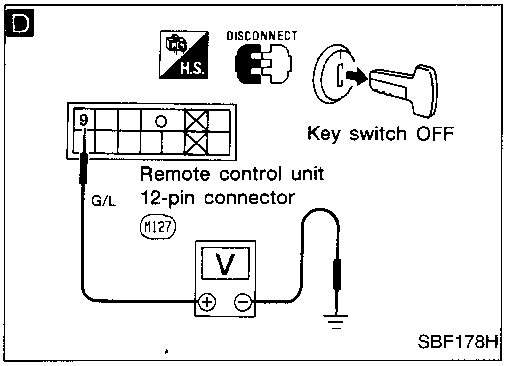
Ⓐ

Trouble Diagnoses (Cont'd)

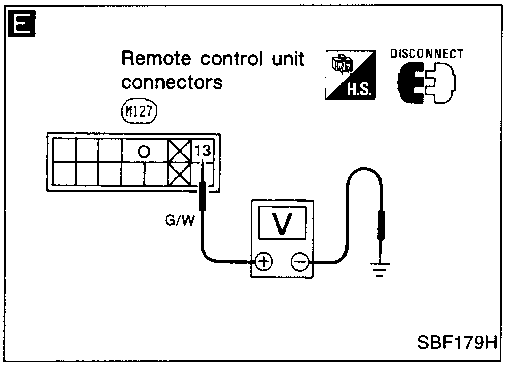
C



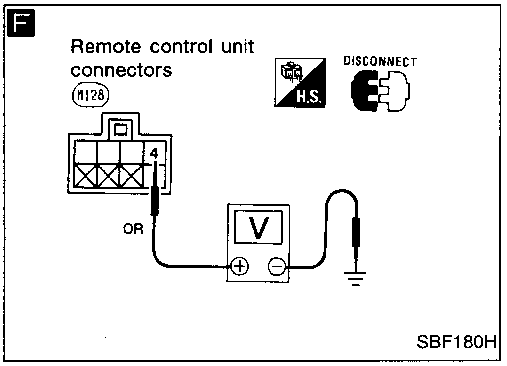
D



E



F



Ⓐ

C

CHECK ANTENNA CIRCUIT.
Disconnect 1-pin connector from control unit.
Check continuity between a terminal and filament on the window.
Continuity should exist.

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

OK ↓

D

CHECK IGNITION KEY SWITCH CIRCUIT.
Disconnect 12-pin connector from control unit.
Check voltage across remote control unit terminal ⑨ and GND.
Voltage should be approx. 0V

NG → Check ignition key switch.

OK ↓

E

CHECK DOOR SWITCH CIRCUIT.
Close all doors.
Check voltage across terminal ⑬ and GND.
Does battery voltage exist?

No → Check door switch circuit.

Yes ↓

F

CHECK LUGGAGE ROOM LAMP SWITCH CIRCUIT.
Close back door or trunk lid.
Check voltage across terminal ④ and GND.
Does battery voltage exist?

No → Check luggage room lamp switch circuit.

Yes ↓

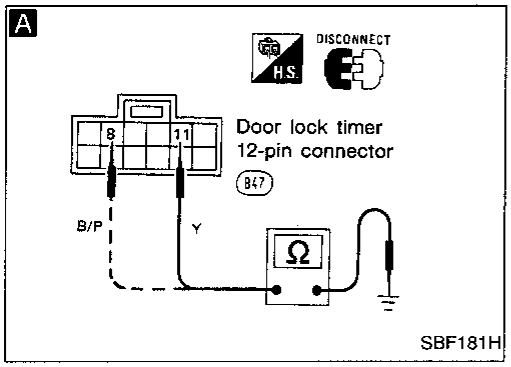
Replace control unit.

Trouble Diagnoses (Cont'd)

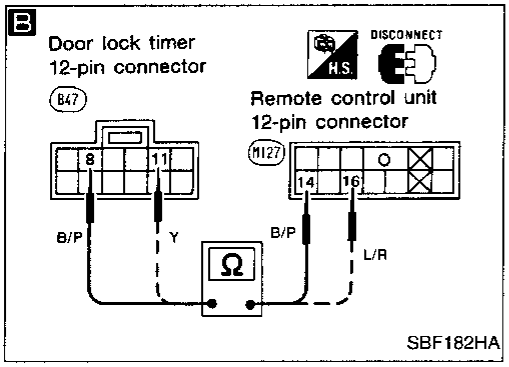
DIAGNOSTIC PROCEDURE 3

Door lock and unlock remote control do not function. Everything else does function.

A



B



A

CHECK DOOR LOCK AND UNLOCK SIGNAL FOR DOOR LOCK TIMER.

1) Remove key from ignition.
2) Close all doors and trunk lid.
3) Remove door lock timer 12-pin connector.
   Push remote controller buttons and check continuity between terminals ⑪, ⑧ and GND.

Terminals	Operation	Continuity
⑪ - GND	Lock	Yes
	Unlock	No
⑧ - GND	Unlock	Yes
	Lock	No

OK → Check power door lock system.

NG

Does continuity exist continually?

Yes → Repair harness. (There might be incorrect grounding.)

No

B

Remove remote control unit 12-pin connector.
Check continuity between remote control unit terminals and door lock timer terminals.

Terminals	
Remote control	Door lock timer
⑭	⑧
⑯	⑪

Continuity should exist.

NG → Repair harness.

OK

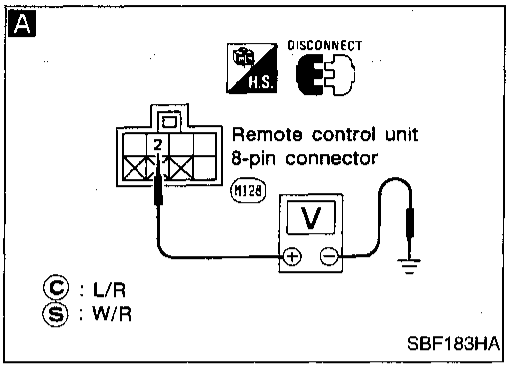
Replace control unit.

Trouble Diagnoses (Cont'd)

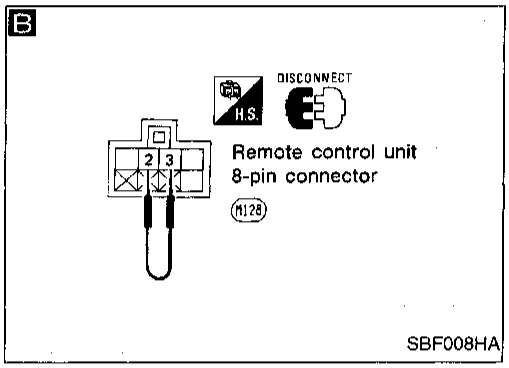
DIAGNOSTIC PROCEDURE 4

Trunk lid open remote control does not function. Everything else does function.

A



B



A

CHECK POWER SUPPLY CIRCUIT FOR TRUNK OPEN FUNCTION.
Disconnect 8-pin connector from remote control unit.
Check voltage between terminal ② and ground.
Battery voltage should exist.

NG → Repair harness.

OK ↓

B

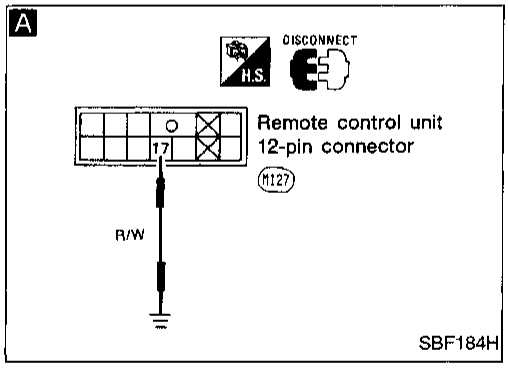
Connect remote control unit connector terminal ② to ③.
Does trunk lid opener function?

No → Check trunk lid opener circuit.

Yes ↓

Replace control unit.

A



DIAGNOSTIC PROCEDURE 5

Interior light or spot light (convertible model) does not function. Everything else does function.

A

CHECK INTERIOR LIGHT OR SPOT LIGHT (CONVERTIBLE MODEL) CIRCUIT.
Disconnect remote control unit 12-pin connector.
Ground remote control unit connector terminal ⑰.
Does interior light or spot light (convertible model) function?

No → Check interior light or spot light (convertible model) circuit.

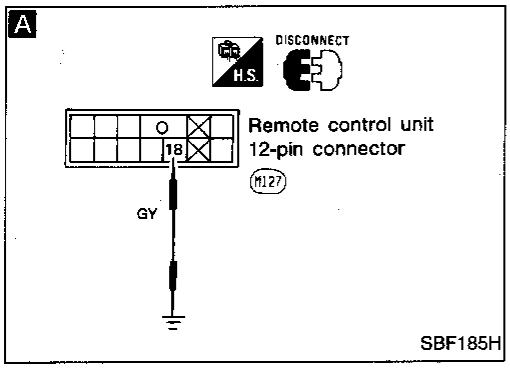
Yes ↓

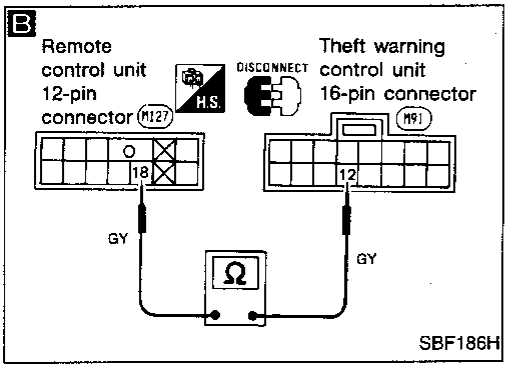
Replace control unit.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 6

Panic alarm function does not function. Everything else does function.





A

CHECK PANIC ALARM CIRCUIT.
Disconnect 12-pin connector from remote control unit.
Ground remote control unit connector terminal (18).
Does panic alarm function function?

Yes → Replace control unit.

No ↓

B

Disconnect 16-pin connector from theft warning control unit.
Check continuity between remote control unit connector terminal (18) and theft warning control unit connector terminal (12).
Does continuity exist?

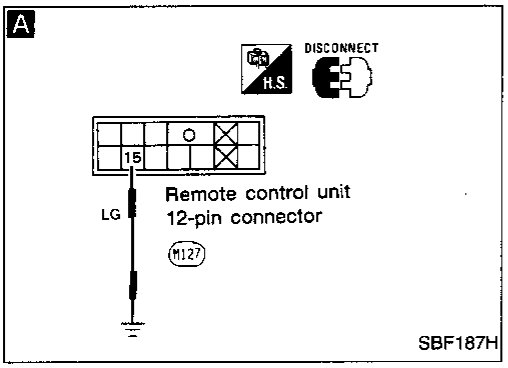
Yes → Check theft warning system.

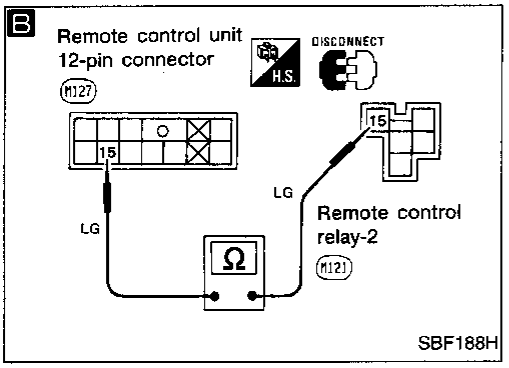
No ↓

Repair harness.

DIAGNOSTIC PROCEDURE 7

Hazard indicator flashing does not function. Everything else does function.





A

CHECK HAZARD INDICATOR FLASHING CIRCUIT.
Disconnect 12-pin connector from remote control unit.
Ground remote control unit connector terminal (15).
Does hazard indicator flashing function function?

Yes → Replace control unit.

No ↓

B

Disconnect remote control relay-2 connector.
Check continuity between remote control unit connector terminal (15) and remote control relay-2 terminal (15).
Does continuity exist?

Yes → Check remote control relay-2 and harness.

No ↓

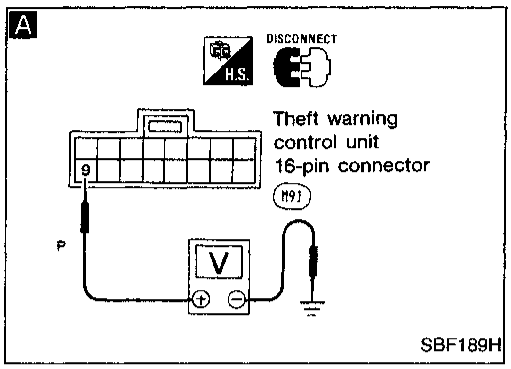
Repair harness.

Trouble Diagnoses (Cont'd)

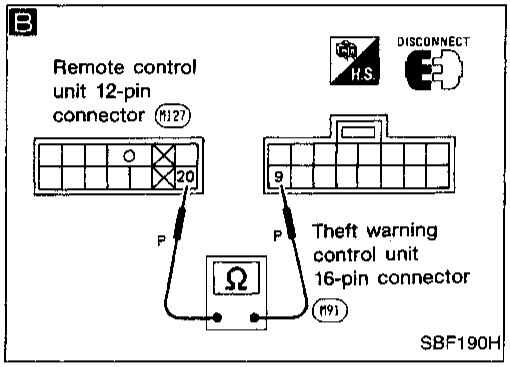
DIAGNOSTIC PROCEDURE 8

Theft warning is actuated when door is unlocked or trunk lid is opened with remote control.

A



B



A

CHECK THEFT WARNING CANCEL SIGNAL CIRCUIT.

1) Disconnect theft warning control unit 16-pin connector.
2) Remove key from ignition.
3) Close all doors and back door or trunk lid.
   Check voltage between terminal ⑨ and GND when door unlock remote control function is operated.

Terminal	Operation	Voltage
⑨ - GND	Door is unlocked.	12V → 0V → 12V

Does voltmeter gauge move when door is unlocked?

Yes → Check theft warning system.

No ↓

B

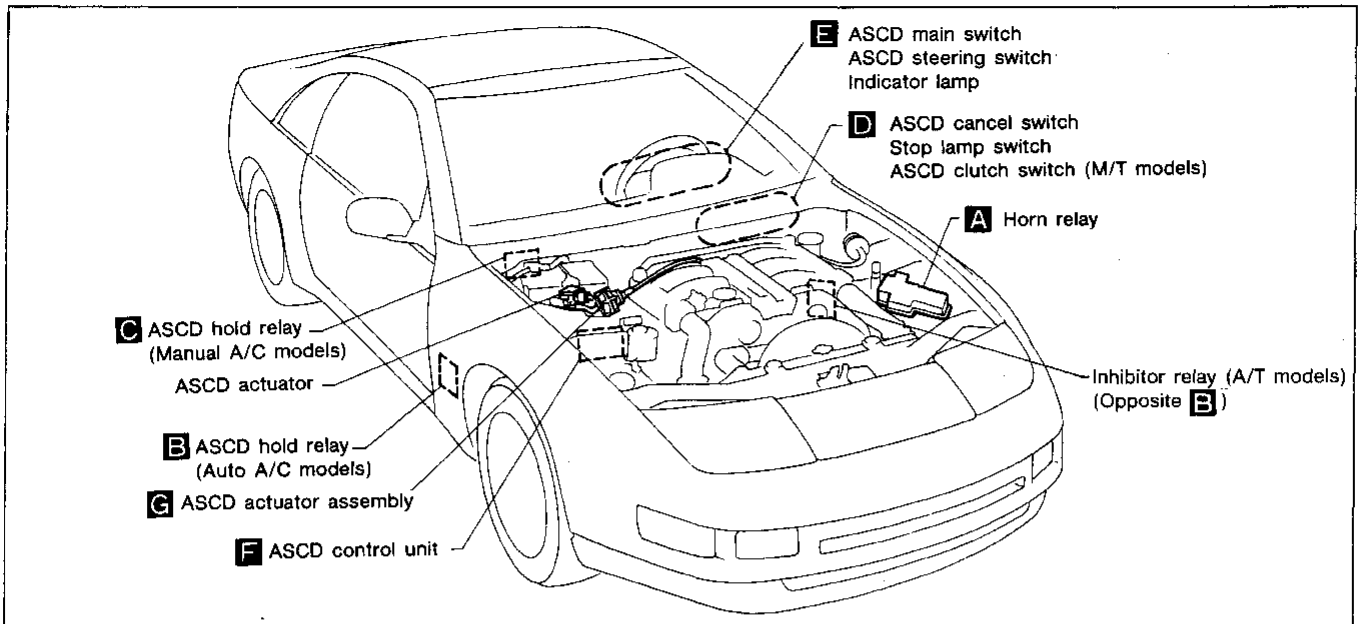
Disconnect 12-pin connector from remote control unit.
Check continuity between remote control unit connector terminal ⑳ and theft warning control unit connector terminal ⑨.
Does continuity exist?

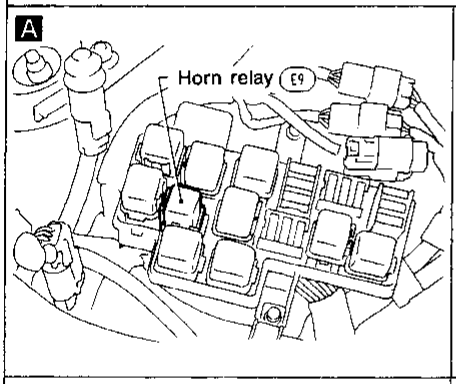
Yes → Replace remote control unit.

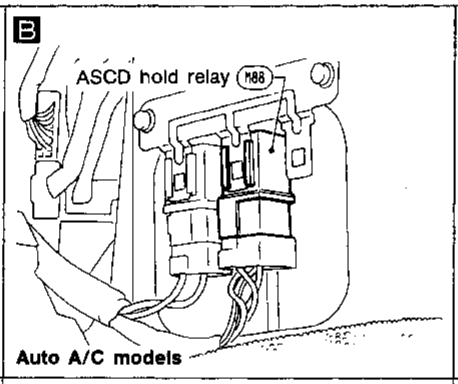
No ↓

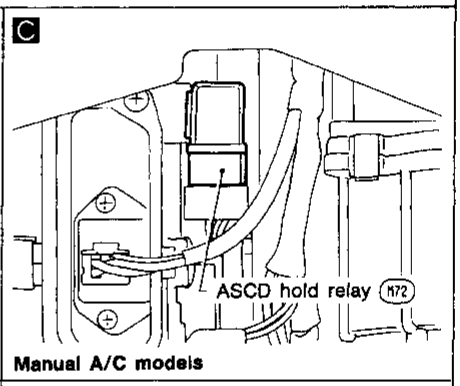
Repair harness.

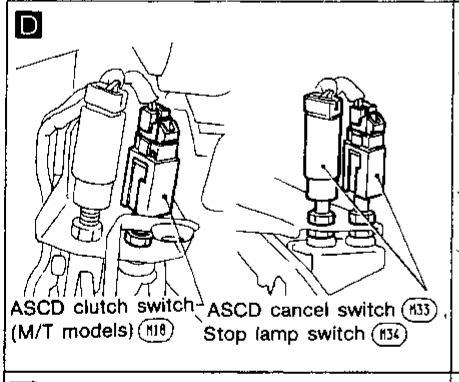
Component Parts and Harness Connector Location

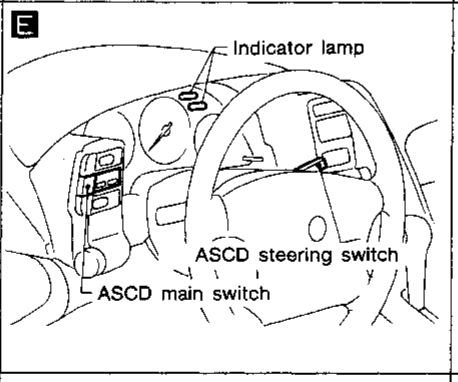


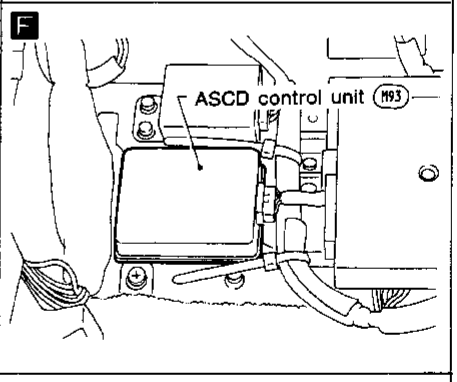


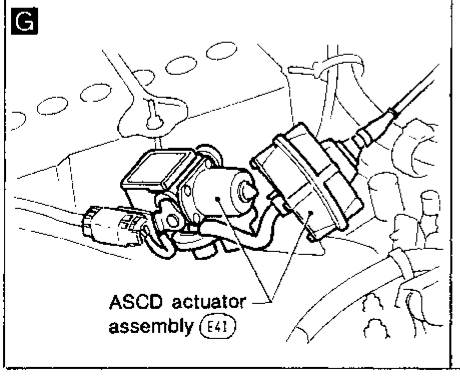












SEL078TA

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. 19, located in the fuse block (J/B)]
- to ASCD hold relay terminals ① and ⑤, and
- to ASCD switch (in combination switch) terminal ⑪.

When ASCD main switch is in the ON position, ground is supplied
- to ASCD hold relay terminal ②
- through ASCD main switch terminal ⑮
- to ASCD main switch terminal ⑭
- through body grounds M3 and M90.

With power and ground supplied, the ASCD hold relay is activated, and power is supplied
- from terminal ③ of the ASCD hold relay
- to ASCD control terminal ④,
- to ASCD clutch switch terminal ① (M/T models) or
- to park/neutral position relay terminal ④ (A/T models) and
- to CRUISE CONT. indicator (in combination meter) terminal ㊸.

Power remains supplied to ASCD control module terminal ④ when the ASCD main switch is released to the N (neutral) position.
Ground is supplied
- to combination meter terminal ㊺ for CRUISE CONT. indicator
- through body grounds M3 and M90.

With power and ground supplied, the CRUISE CONT. indicator illuminates and shows the system is ready.
Ground is supplied
- to ASCD control unit terminal ③
- through body grounds M3 and M90.

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 switch (in combination switch)
- park/neutral position relay (A/T models)
- ASCD clutch switch (M/T models)
- ASCD cancel switch.

A vehicle speed input is supplied
- to ASCD control unit terminal ⑦
- from terminal ⑮ of the combination meter.

Power is supplied at all times
- to stop lamp switch terminal ①
- through 20A fuse [No. 32, located in the fuse block (in relay box)].

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

When the SET/COAST switch is depressed, power is supplied
- from terminal ⑫ of the ASCD switch
- to ASCD control unit terminal ②.

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

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

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

Power is interrupted when
- the shift lever is placed in P or N (A/T models)
- the clutch pedal is depressed (M/T models) or
- the brake pedal is depressed.

Outputs

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

System Description (Cont'd)

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

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

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

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

When the system is activated, power is supplied
- from terminal ⑬ of the ASCD control unit
- to combination meter terminal ㊶ and
- to A/T control unit terminal ㊲ (A/T models).

Ground is supplied
- to combination meter terminal ㊺
- through body grounds (M3) and (M90).

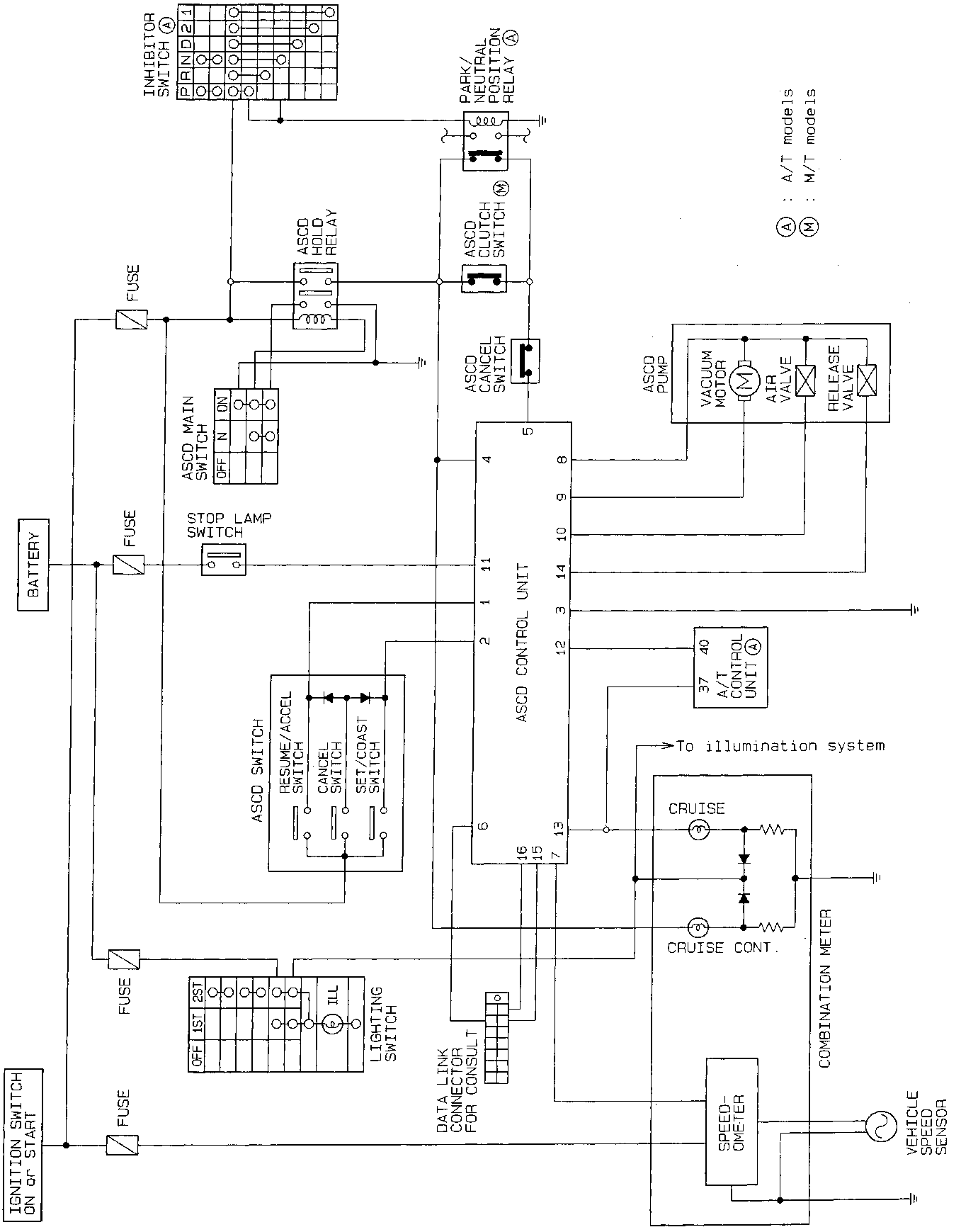
With power and ground supplied, the CRUISE indicator illuminates.

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

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

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

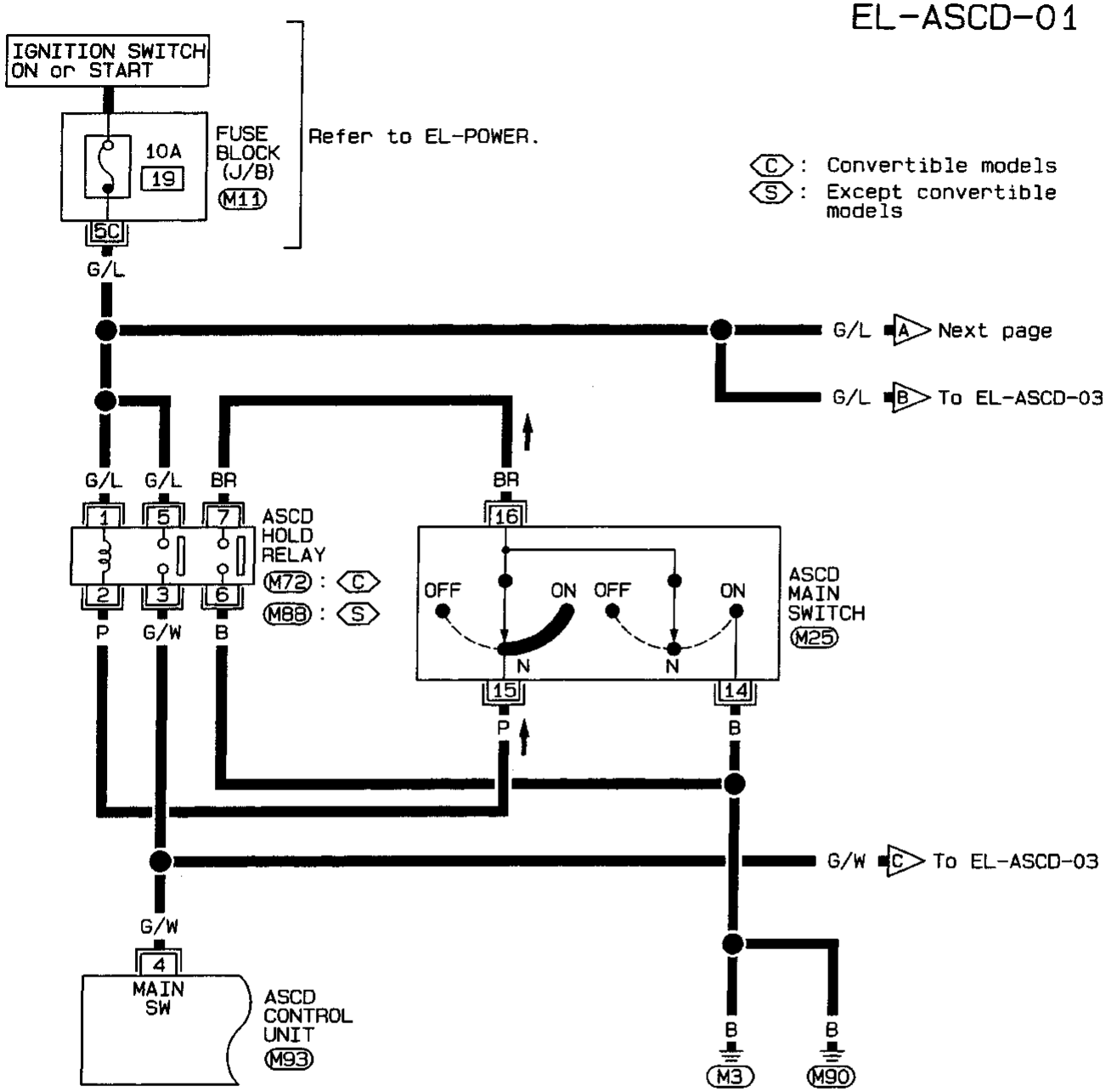
Schematic

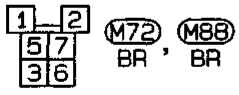


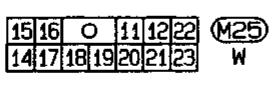
HEL357

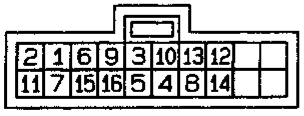
Wiring Diagram — ASCD —

EL-ASCD-01









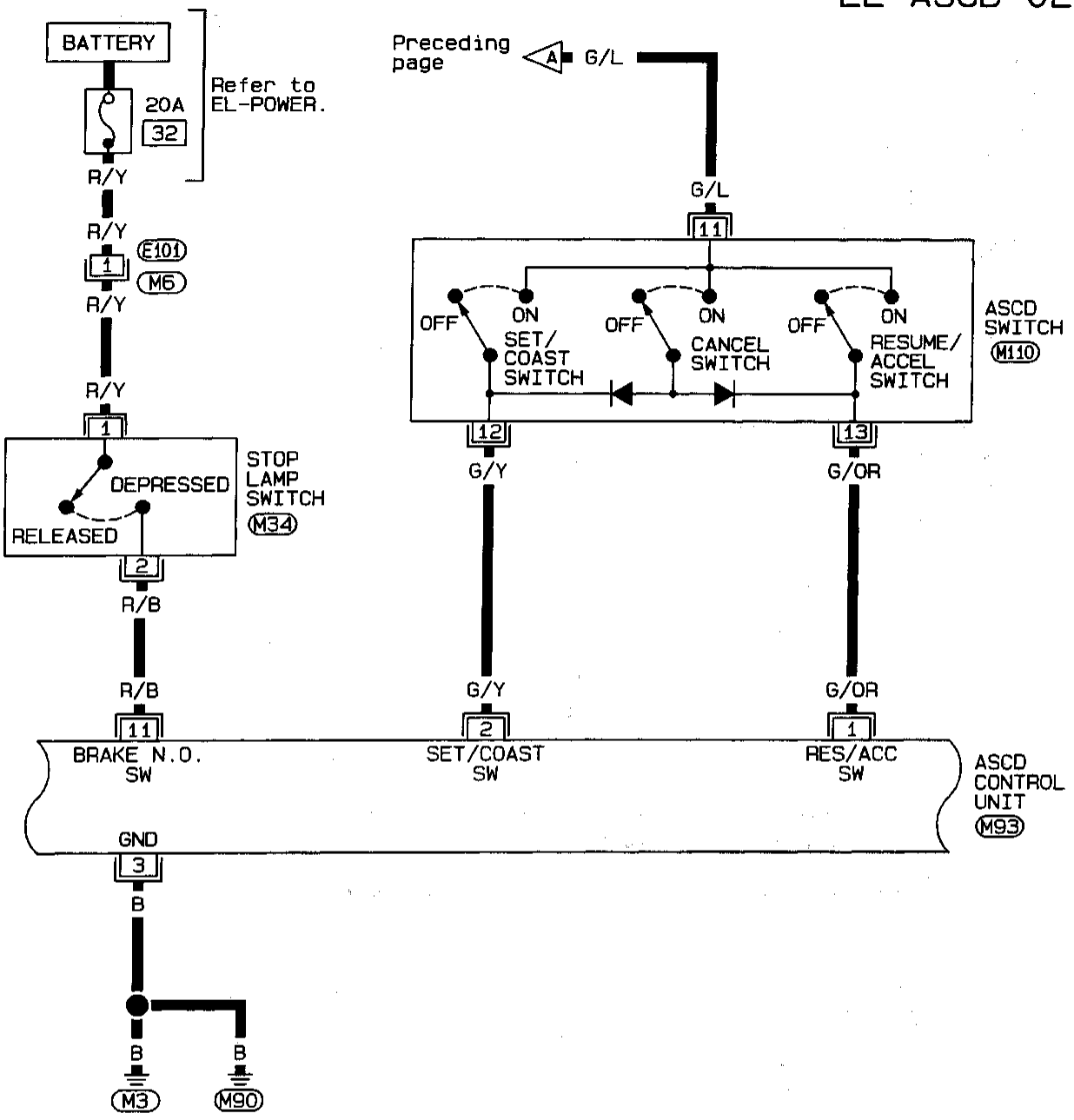
Refer to last page (Foldout page).

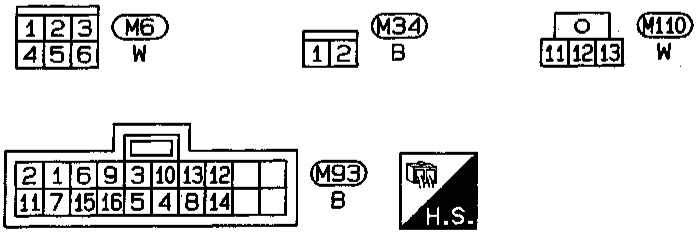
M11

HEL358

Wiring Diagram — ASCD — (Cont'd)

EL-ASCD-02

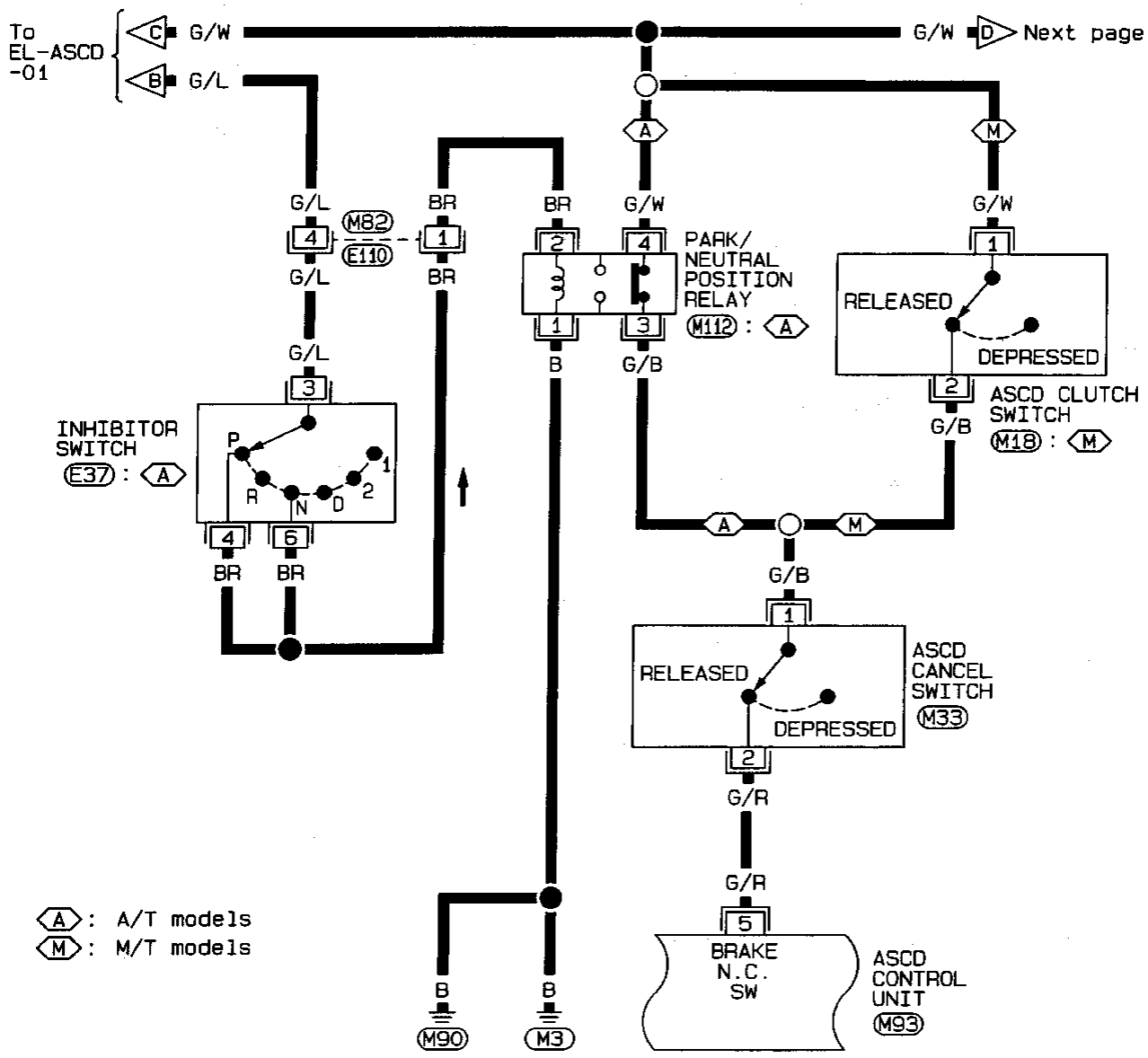


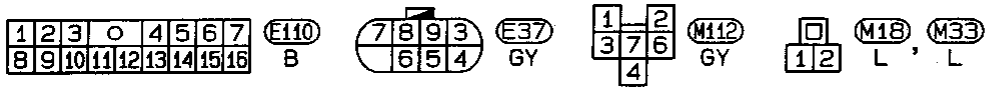


HEL359

Wiring Diagram — ASCD — (Cont'd)

EL-ASCD-03



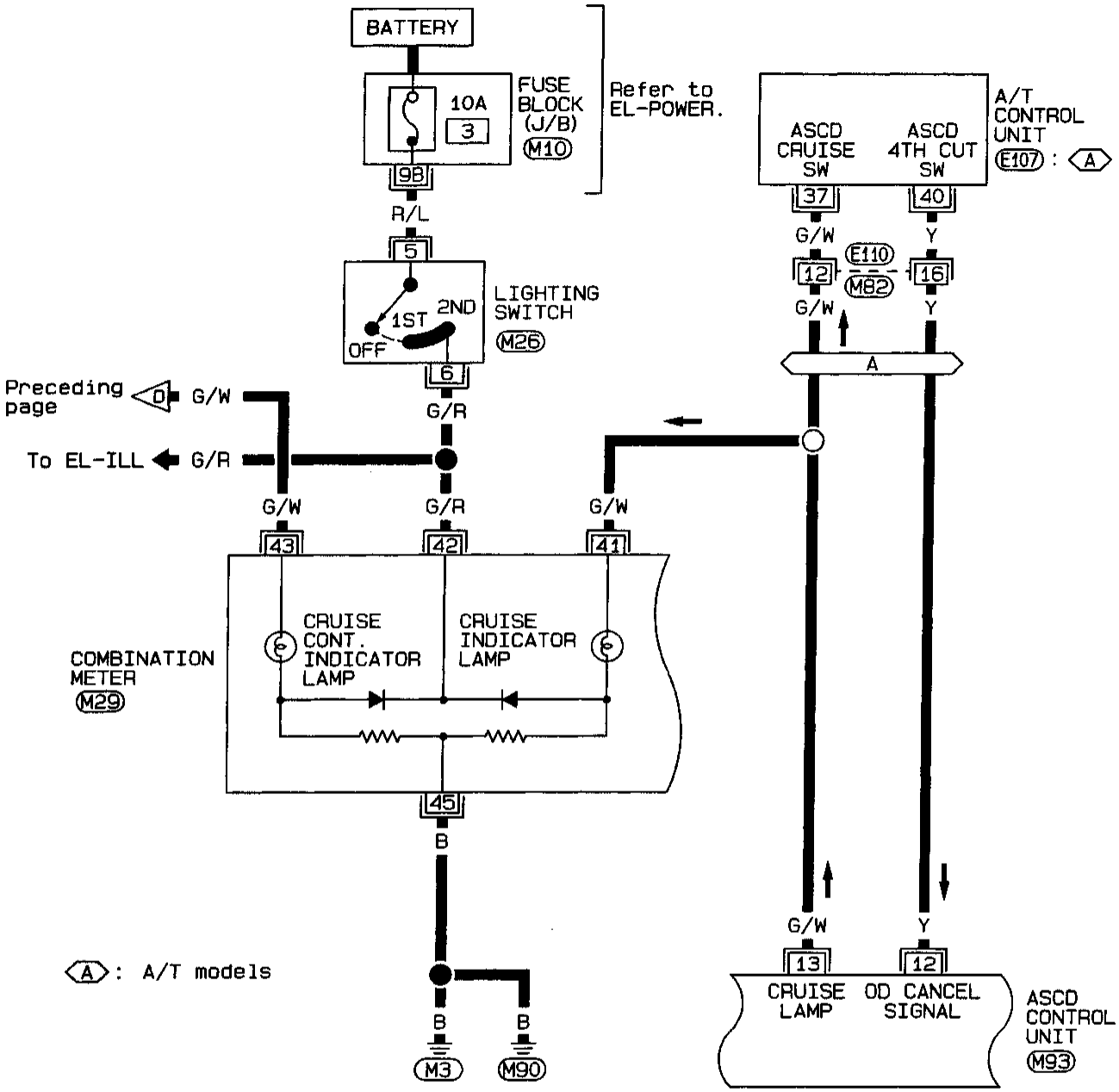


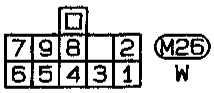
Refer to last page (Foldout page).
M11

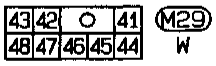
HEL360

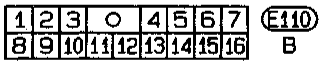
Wiring Diagram — ASCD — (Cont'd)

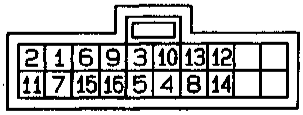
EL-ASCD-04











Refer to last page (Foldout page).

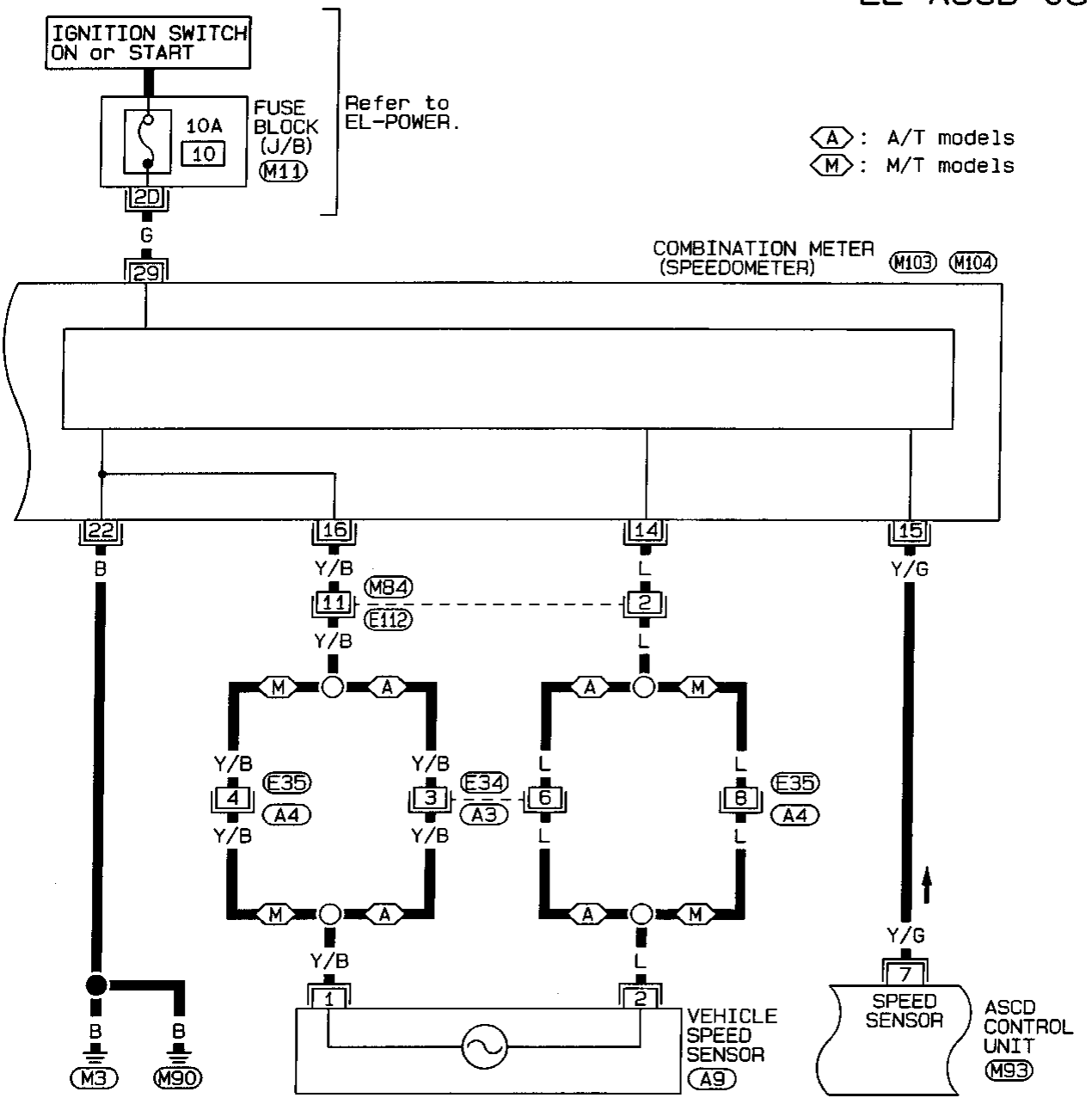
M10

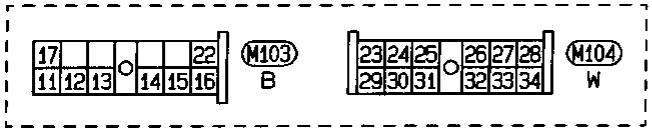
E107

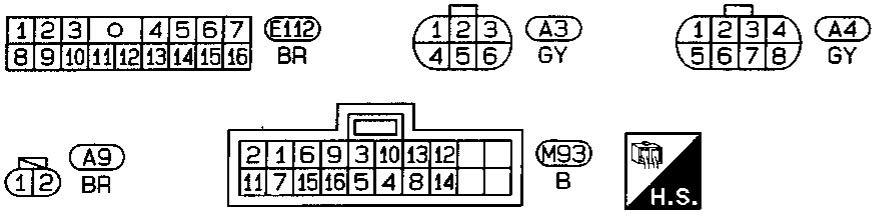
HEL361

Wiring Diagram — ASCD — (Cont'd)

EL-ASCD-05







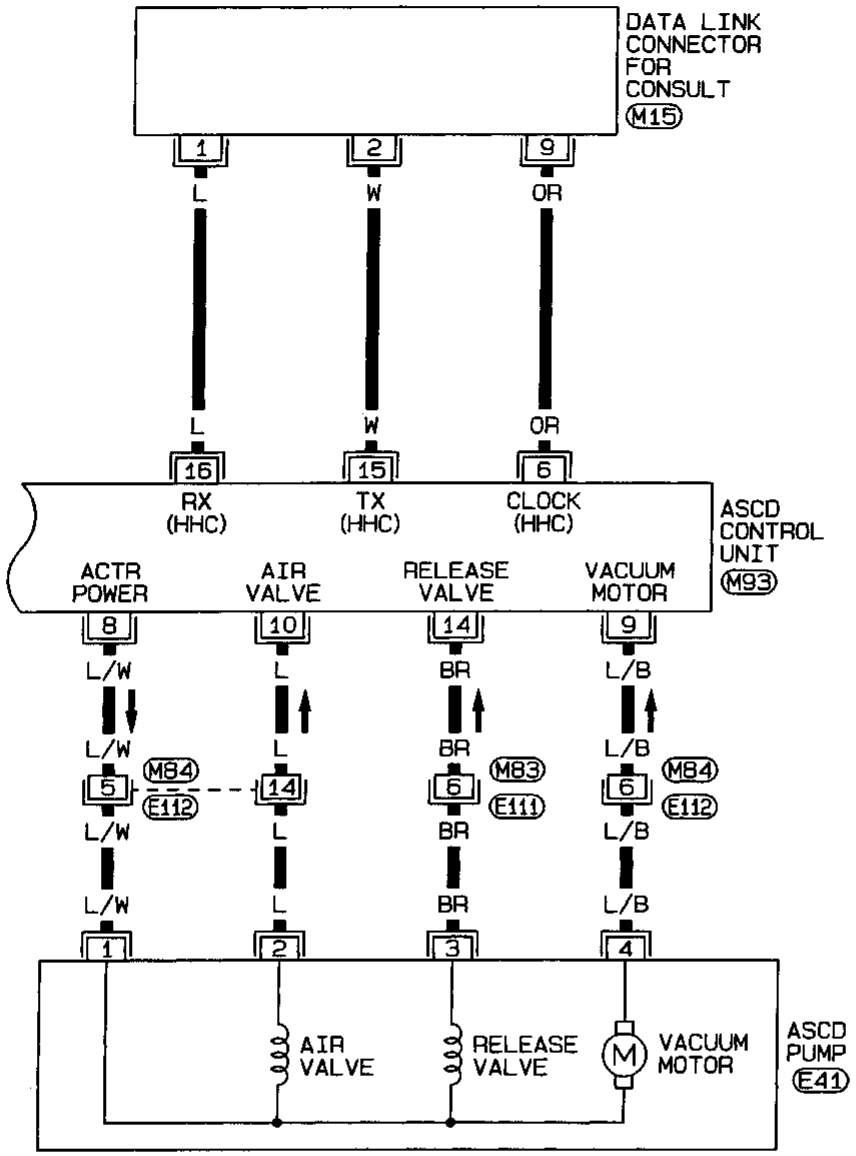
Refer to last page (Foldout page).

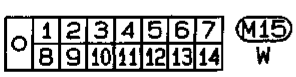
M11

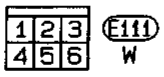
HEL362

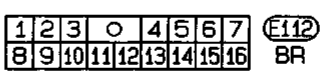
Wiring Diagram — ASCD — (Cont'd)

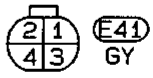
EL-ASCD-06

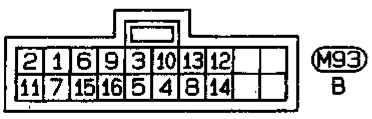




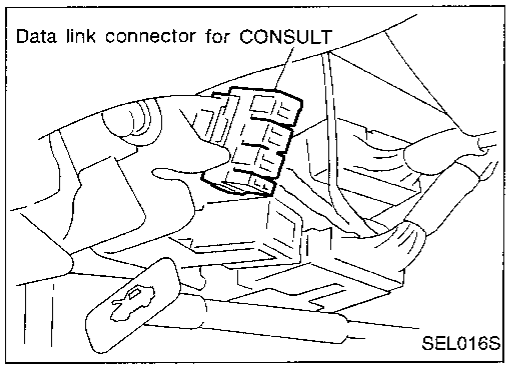








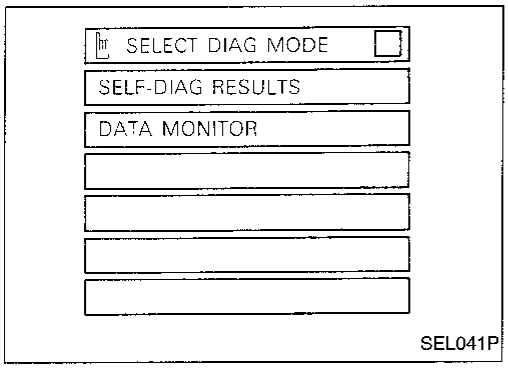
HEL394



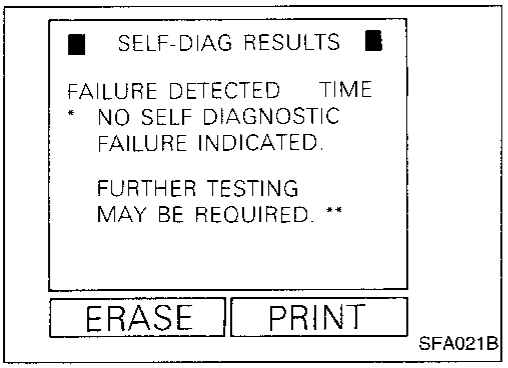
Trouble Diagnoses

CONSULT

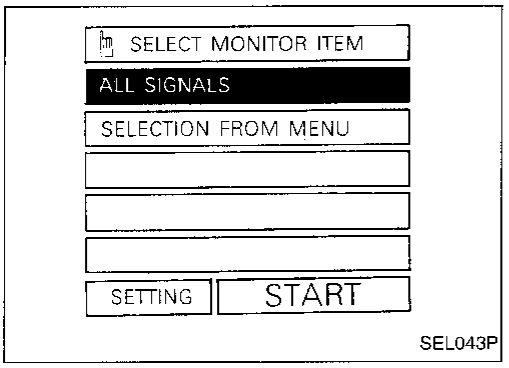
1. Turn off ignition switch.
2. Connect "CONSULT" to data link connector.



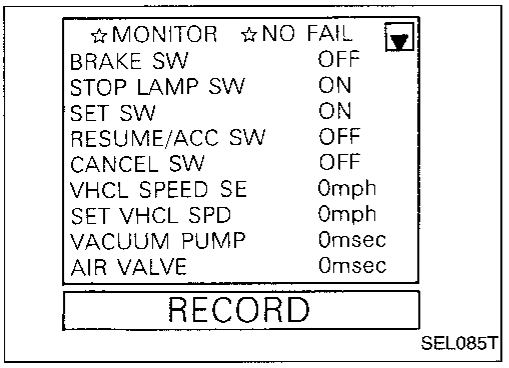
3. Turn on ignition switch.
4. Turn on ASCD main switch.
5. Touch START (on CONSULT display).
6. Touch ASCD.
7. Touch SELF-DIAG RESULTS.



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



8. Touch DATA MONITOR.



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

For further information, read the CONSULT Operation Manual.

Trouble Diagnoses (Cont'd)

Self-diagnostic results

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

Data monitor

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

Trouble Diagnoses (Cont'd)

SYMPTOM CHART

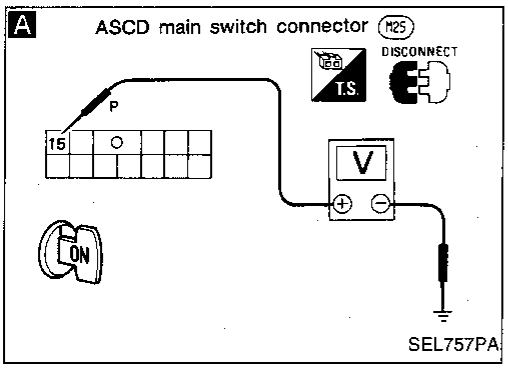
PROCEDURE	Diagnostic Procedure								Electrical Components Inspection							
REFERENCE PAGE	EL-225	EL-228	EL-228	EL-229	EL-229	EL-231	EL-232	EL-234	EL-235	EL-236	EL-237	EL-237	EL-237	EL-237	EL-237	EL-238
SYMPTOM	Diagnostic Procedure 1	Diagnostic Procedure 2	Diagnostic Procedure 3	Diagnostic Procedure 4	Diagnostic Procedure 5	Diagnostic Procedure 6	Diagnostic Procedure 7	Diagnostic Procedure 8	ASCD wire adjustment	ASCD actuator/ASCD pump	ASCD main switch	ASCD steering switch	ASCD cancel switch and stop lamp switch	Clutch switch (For M/T models)	Inhibitor switch (For A/T models)	Vehicle speed sensor
ASCD control unit cannot be set properly.	○									○	○	○	○	○	○	○
Engine hunts		○							○	○						
Large difference between set speed and actual vehicle speed.			○						○	○						
Deceleration is greatest immediately after ASCD has been set.				○					○	○						
ACCEL switch will not operate.	○					○						○				
RESUME switch will not operate.	○						○					○	○			
Set speed cannot be canceled.					○				○	○			○			
"CRUISE" indicator lamp blinks.								○		○		○	○			

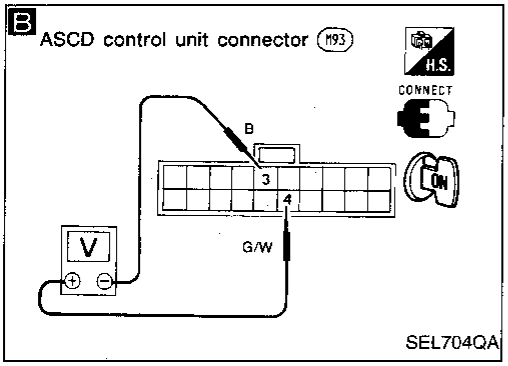
NOTE

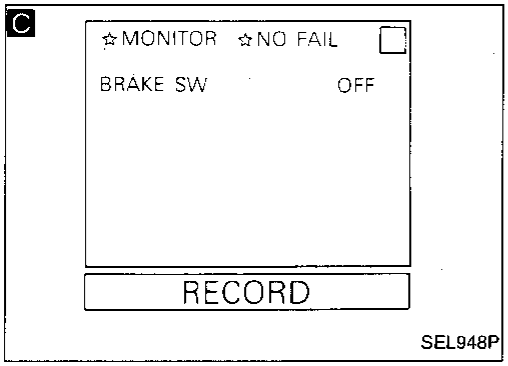
Trouble Diagnoses (Cont'd)

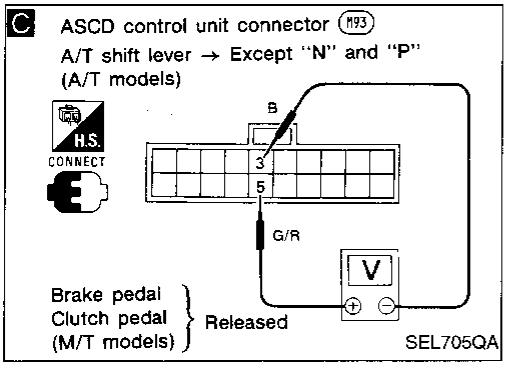
DIAGNOSTIC PROCEDURE 1

SYMPTOM: ASCD control cannot be set.









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

NG → **A**

A

CHECK POWER SUPPLY FOR ASCD MAIN SWITCH.
1. Disconnect main switch harness connector.
2. Do approx. 12 volts exist between main switch harness terminal (15) and body ground?

No → Check fuse and harness.

Yes → CHECK ASCD MAIN SWITCH.
Refer to "Electrical Components Inspection" (EL-237).
CHECK ASCD HOLD RELAY.

OK

B

CHECK POWER SUPPLY CIRCUIT FOR ASCD CONTROL UNIT.
1. Turn ASCD main switch "ON".
2. Check voltage between control unit harness terminals (4) and (3).
Battery voltage should exist.

NG → Check continuity between control unit harness terminal (4) and ASCD hold relay.

OK

C

CHECK CUT-OFF CIRCUIT FOR ASCD CONTROL UNIT.

See "BRAKE SW" in "Data monitor" mode.
BRAKE SWITCH
When switch is depressed: OFF
When switch is released: ON

NG → CHECK ASCD CANCEL SWITCH, ASCD CLUTCH SWITCH (M/T models) AND INHIBITOR SWITCH (A/T models).
Refer to "Electrical Components Inspection" (EL-237).
CHECK INHIBITOR RELAY (A/T models).

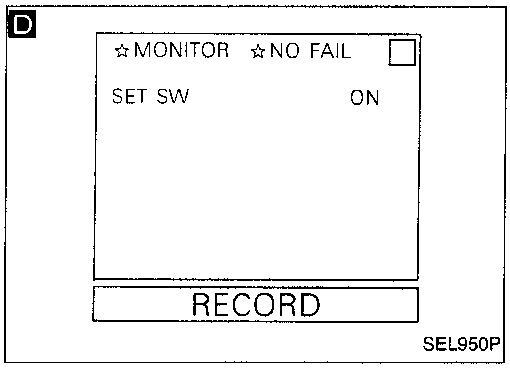
OR

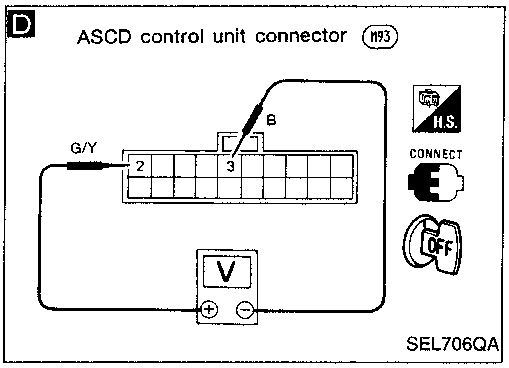
Check voltage between control unit harness terminals (5) and (3).
Battery voltage should exist.

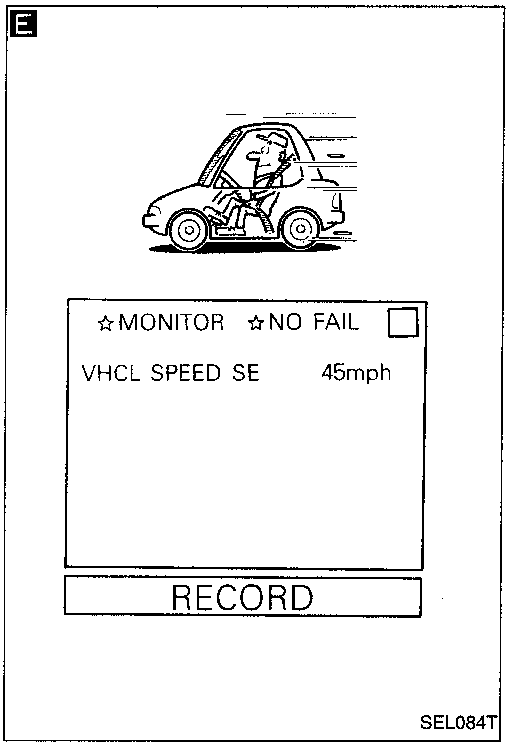
OK

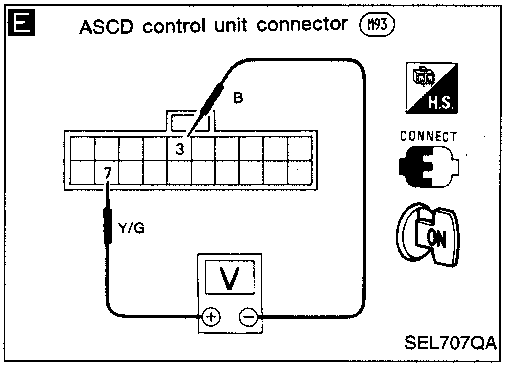
Ⓐ
(Next page)

Trouble Diagnoses (Cont'd)









Ⓐ

D

CHECK SET/COAST SWITCH CIRCUIT FOR ASCD CONTROL UNIT.

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

SET SW
When switch is pressed: ON
When switch is released: OFF

NG → Does horn work?

No → Check fuse and horn relay.

Yes → CHECK ASCD STEERING SWITCH.
Refer to "Electrical Components Inspection" (EL-237).

OR

1. Turn and keep on SET/COAST switch of ASCD steering switch.
2. Check voltage between control unit harness terminals ② and ③.
   Battery voltage should exist.

OK

E

CHECK VEHICLE SPEED SENSOR CIRCUIT.

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

NG → CHECK VEHICLE SPEED SENSOR.
Refer to "Electrical Components Inspection" (EL-238).

OR

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

OK

CHECK ASCD ACTUATOR/ASCD PUMP.
Refer to "Electrical Components Inspection" (EL-236).

NG → Replace ASCD actuator assembly.

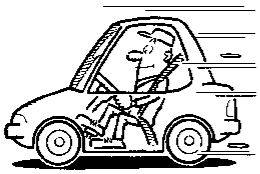
OK

Ⓑ

(Next page)

Trouble Diagnoses (Cont'd)

F



☆ MONITOR ☆ NO FAIL

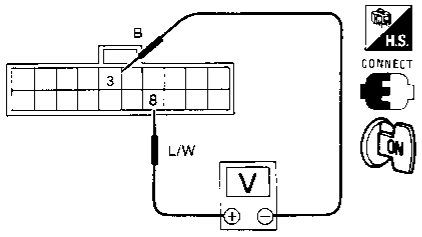
PW SUP-VALVE ON

RECORD

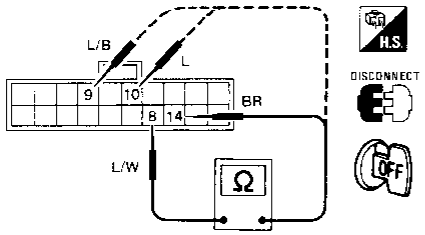
SEL860R

F

ASCD control unit connector M93



ASCD control unit connector M93



SEL708QA

Ⓑ

F

CHECK OUTPUT FOR ASCD ACTUATOR/ASCD PUMP.

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

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

NG → Repair ASCD control unit.

OR

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

Voltage is 0V.

OK

F

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

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

OK → Repair ASCD control unit.

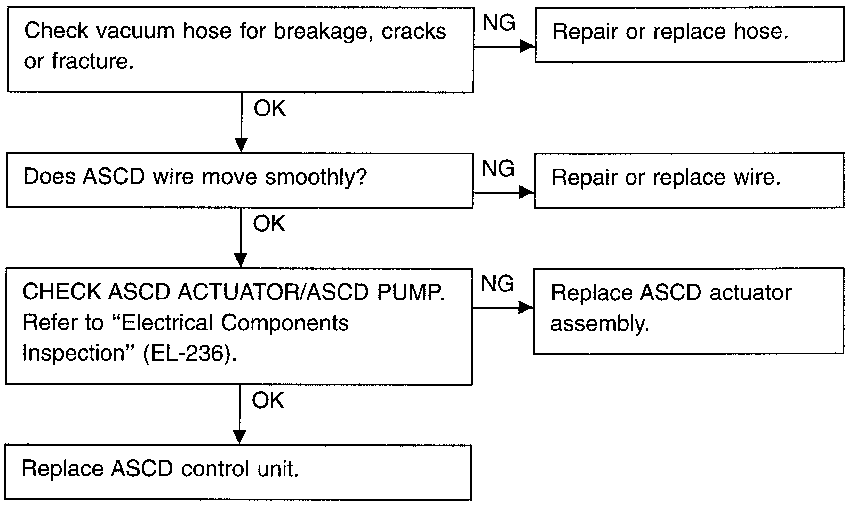
NG

Repair short or open circuit in ASCD actuator assembly.

Trouble Diagnoses (Cont'd)

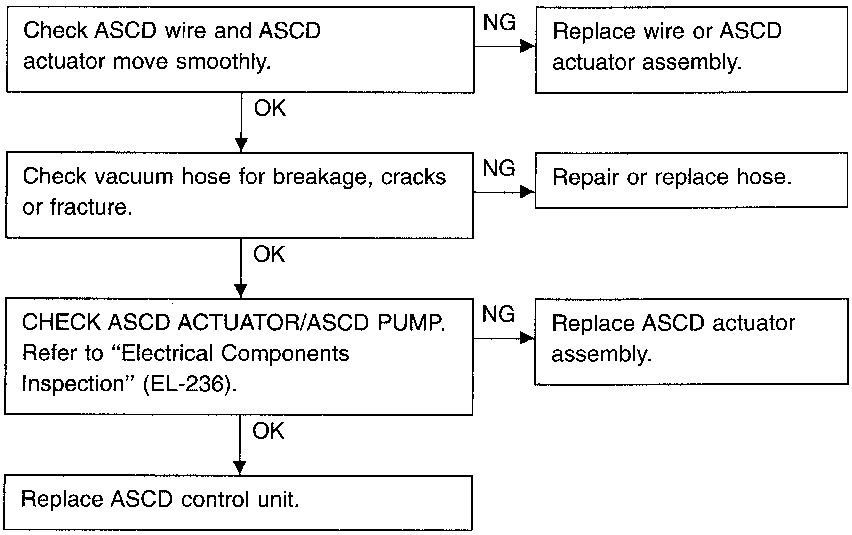
DIAGNOSTIC PROCEDURE 2

SYMPTOM: Engine hunts.



DIAGNOSTIC PROCEDURE 3

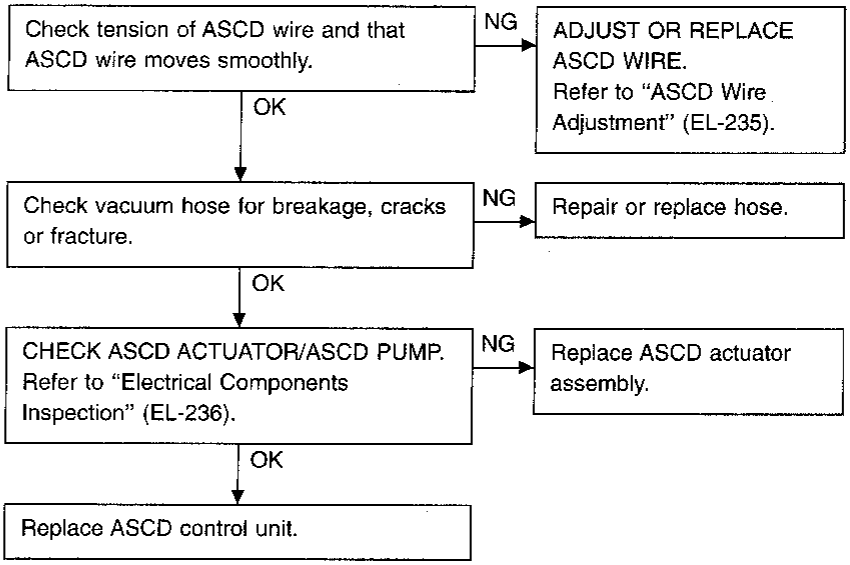
SYMPTOM: Large difference between set vehicle speed and actual speed.

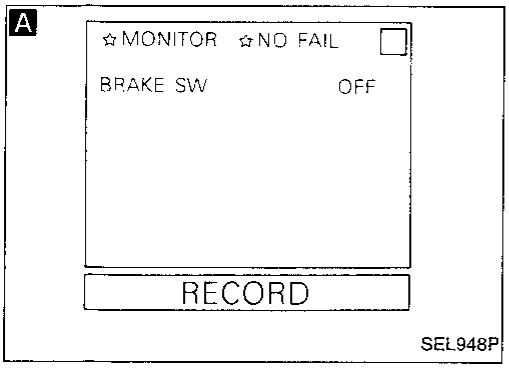


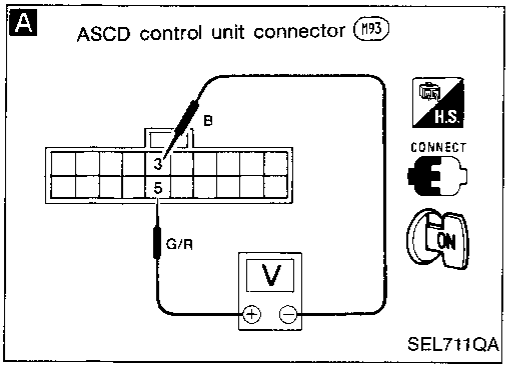
Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 4

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







DIAGNOSTIC PROCEDURE 5

SYMPTOM: Set speed cannot be cancelled.

A

CHECK ASCD BRAKE AND INHIBITOR SWITCH CIRCUIT.

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

NG → CHECK ASCD CANCEL, CLUTCH, and INHIBITOR SWITCH. Refer to "Electrical Components Inspection" (EL-237).

OR

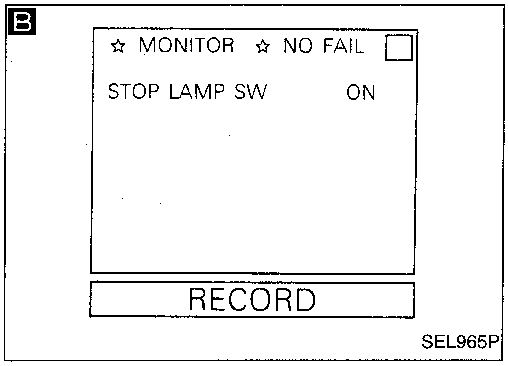
2. Check voltage between control unit harness terminals (5) and (3).

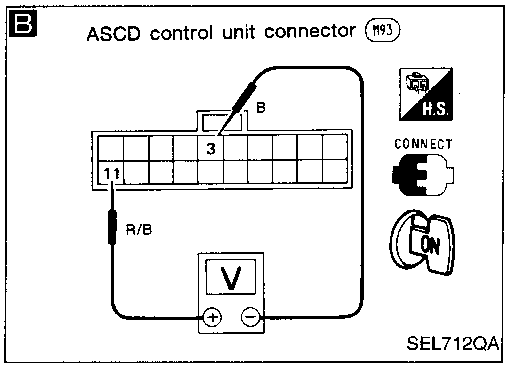
Conditions			Voltage [V]
M/T	ASCD cancel switch	Depressed	0
		Released	Approx. 12
	ASCD clutch switch	Depressed	0
		Released	Approx. 12
A/T	A/T shift lever position is at any position except N or P.		Approx. 12
	A/T shift lever position is at N or P.		0

OK

Ⓒ (Next page)

Trouble Diagnoses (Cont'd)





Ⓒ

B

CHECK STOP LAMP SWITCH CIRCUIT.

See "STOP LAMP SW" in "Data monitor" mode.

STOP LAMP SW

When brake pedal is released: OFF

When brake pedal is depressed: ON

NG → CHECK STOP LAMP SWITCH. Refer to "Electrical Components Inspection" (EL-237).

OR

Check voltage between control unit harness terminals ⑪ and ③.

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

OK

Check ASCD wire moves smoothly. NG → Replace ASCD wire.

OK

CHECK ASCD ACTUATOR/ASCD PUMP. Refer to "Electrical Components Inspection" (EL-236). NG → Replace ASCD actuator assembly.

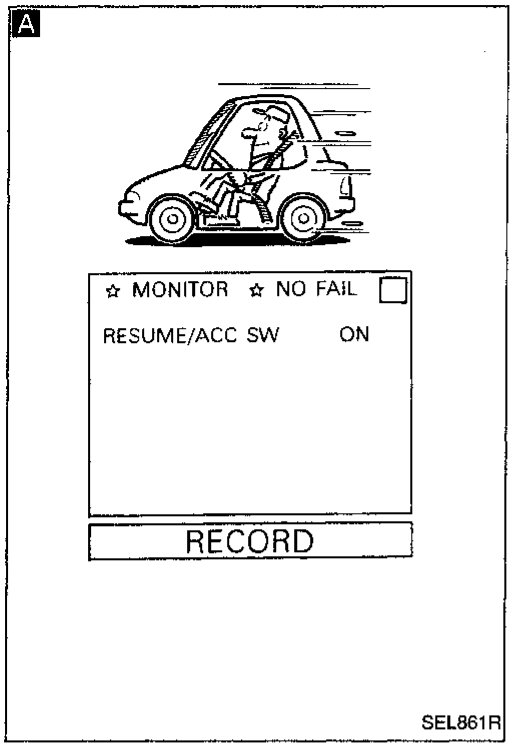
OK

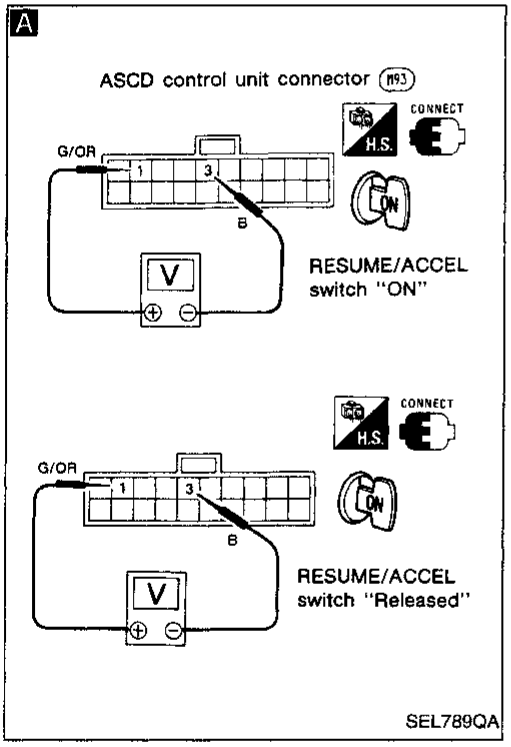
Replace ASCD control unit.

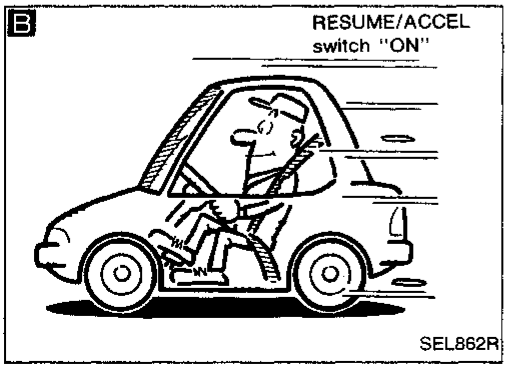
Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 6

SYMPTOM: ACCEL switch will not operate.







Check constant-speed function for operating using SET/COAST switch.
- NG → Go to "DIAGNOSTIC PROCEDURE 1" (EL-225).
- OK ↓

A

CHECK RESUME/ACCEL SWITCH CIRCUIT.

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

— OR —

Check voltage between control unit harness terminals ① and ③ after turning on and holding RESUME/ACCEL switch.
Battery voltage should exist.
Check voltage between control unit harness terminals ① and ③ after releasing RESUME/ ACCEL switch.
Voltage is 0V.

- NG → CHECK ASCD STEERING SWITCH. Refer to "Electrical Components Inspection" (EL-237).
- OK ↓

B

Does vehicle accelerate when RESUME/ ACCEL switch is turned on?
- No → Replace control unit.
- Yes ↓

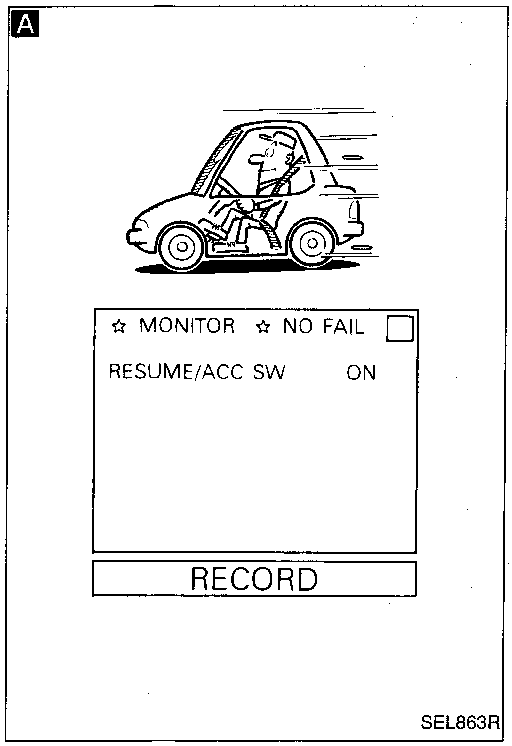
Does vehicle maintain the new (faster) speed when RESUME/ACCEL switch is released?
- No → Replace control unit.
- Yes ↓

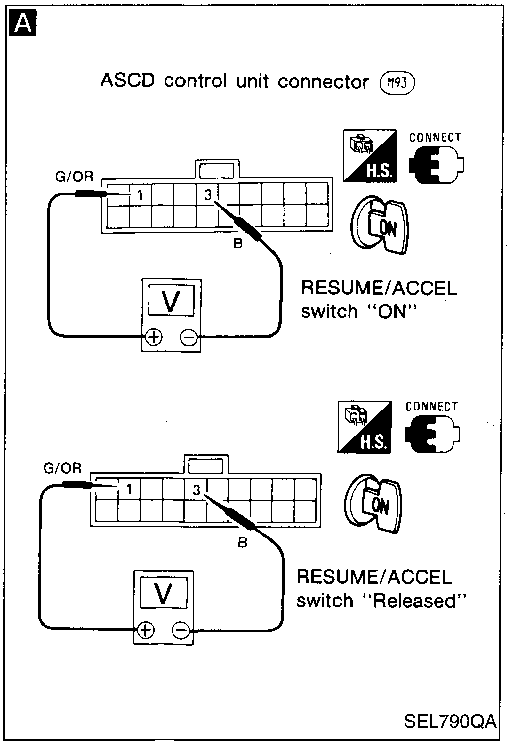
System is OK.

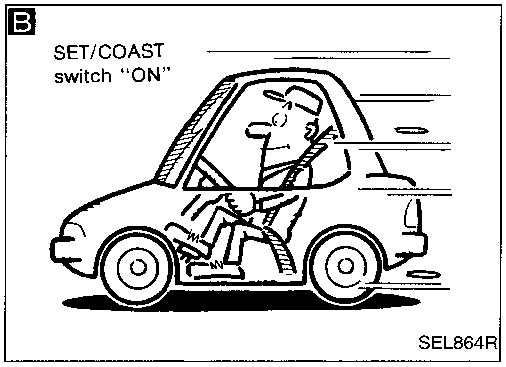
Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 7

SYMPTOM: RESUME switch will not operate.







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

NG → Go to "DIAGNOSTIC PROCEDURE 1" (EL-225).

OK

A

CHECK RESUME/ACCEL SWITCH CIRCUIT.

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

RESUME/ACC SW

When switch is pressed: ON

When switch is released: OFF

NG → CHECK ASCD STEERING SWITCH. Refer to "Electrical Components Inspection" (EL-237).

OR

Check voltage between control unit harness terminals ① and ③.

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

OK

B

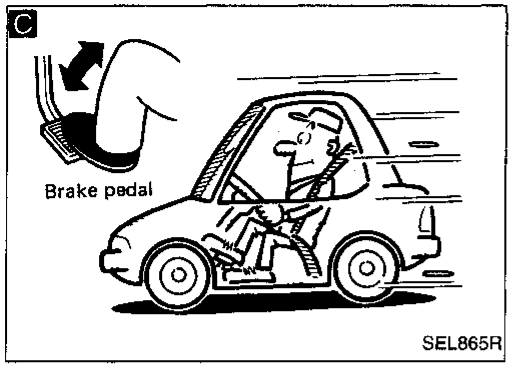
Set vehicle speed at 80 km/h (50 MPH) by turning on SET/COAST switch.

OK

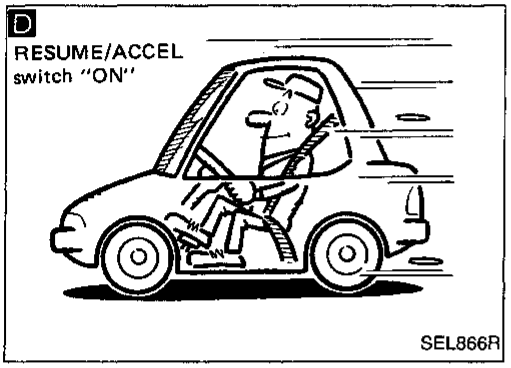
Ⓓ (Next page)

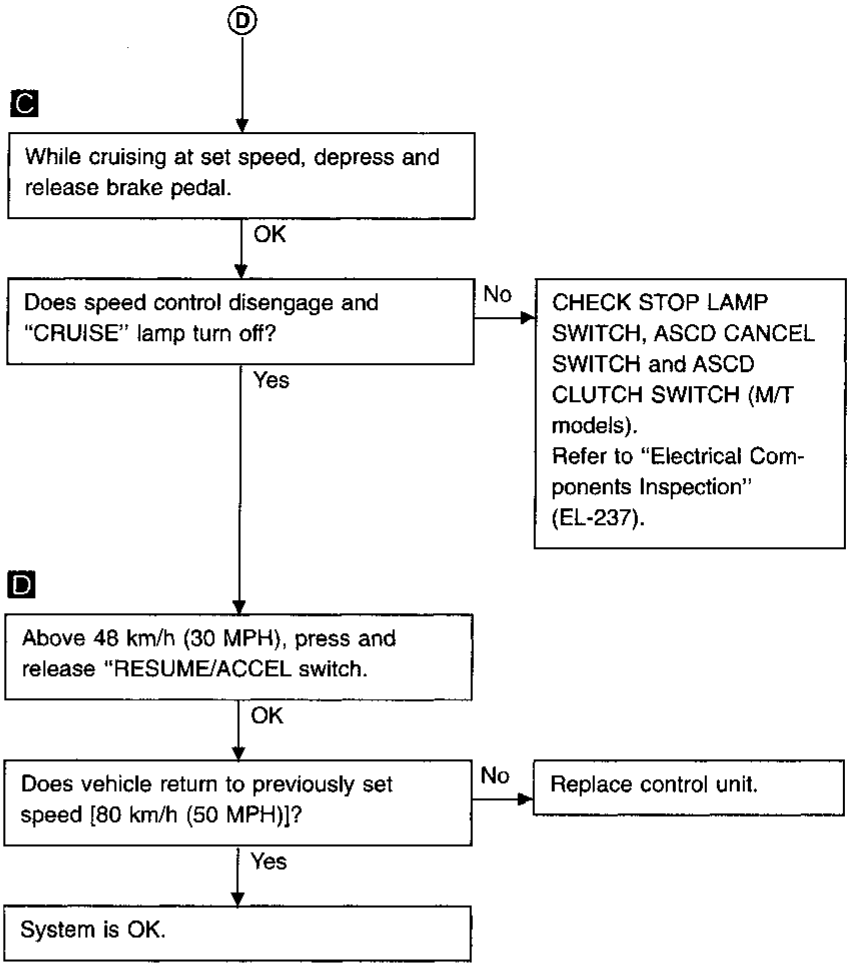
Trouble Diagnoses (Cont'd)

C



D





Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 8

SYMPTOM: "CRUISE" indicator lamp blinks.

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

Yes → Does indicator lamp blink when brake pedal is depressed slowly?

- Yes → Adjust installation of stop lamp switch and ASCD cancel switch. Refer to BR section.
- No → CHECK ASCD STEERING SWITCH. Refer to "Electrical Components Inspection" (EL-237).
  - NG → Replace ASCD combination switch.
  - OK → Replace control unit.

No → CHECK ASCD ACTUATOR/ ASCD PUMP. Refer to "Electrical Components Inspection" (EL-236).

- NG → Replace ASCD actuator assembly.
- OK → A

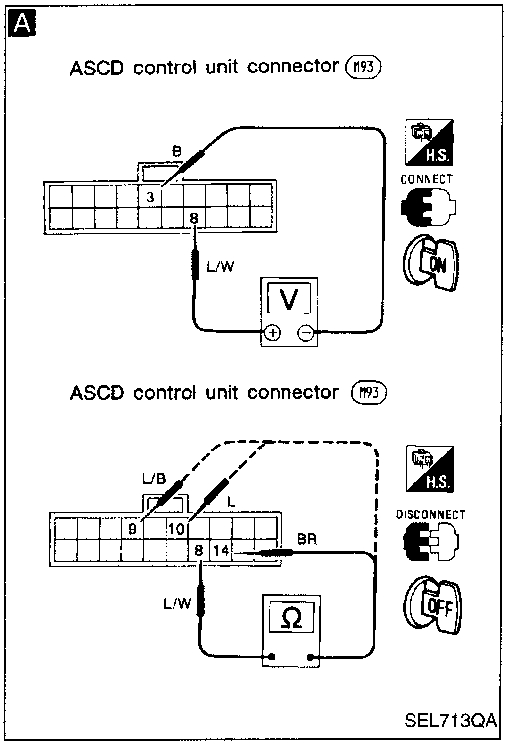
A

CHECK ASCD ACTUATOR/ ASCD PUMP CIRCUIT.

1. Check voltage between control unit harness terminals ⑧ and ③.
   Voltage is 0V.
2. Disconnect ASCD control unit connector.
3. Measure resistance between control unit harness terminals ⑧ and ⑨, ⑩, ⑭.

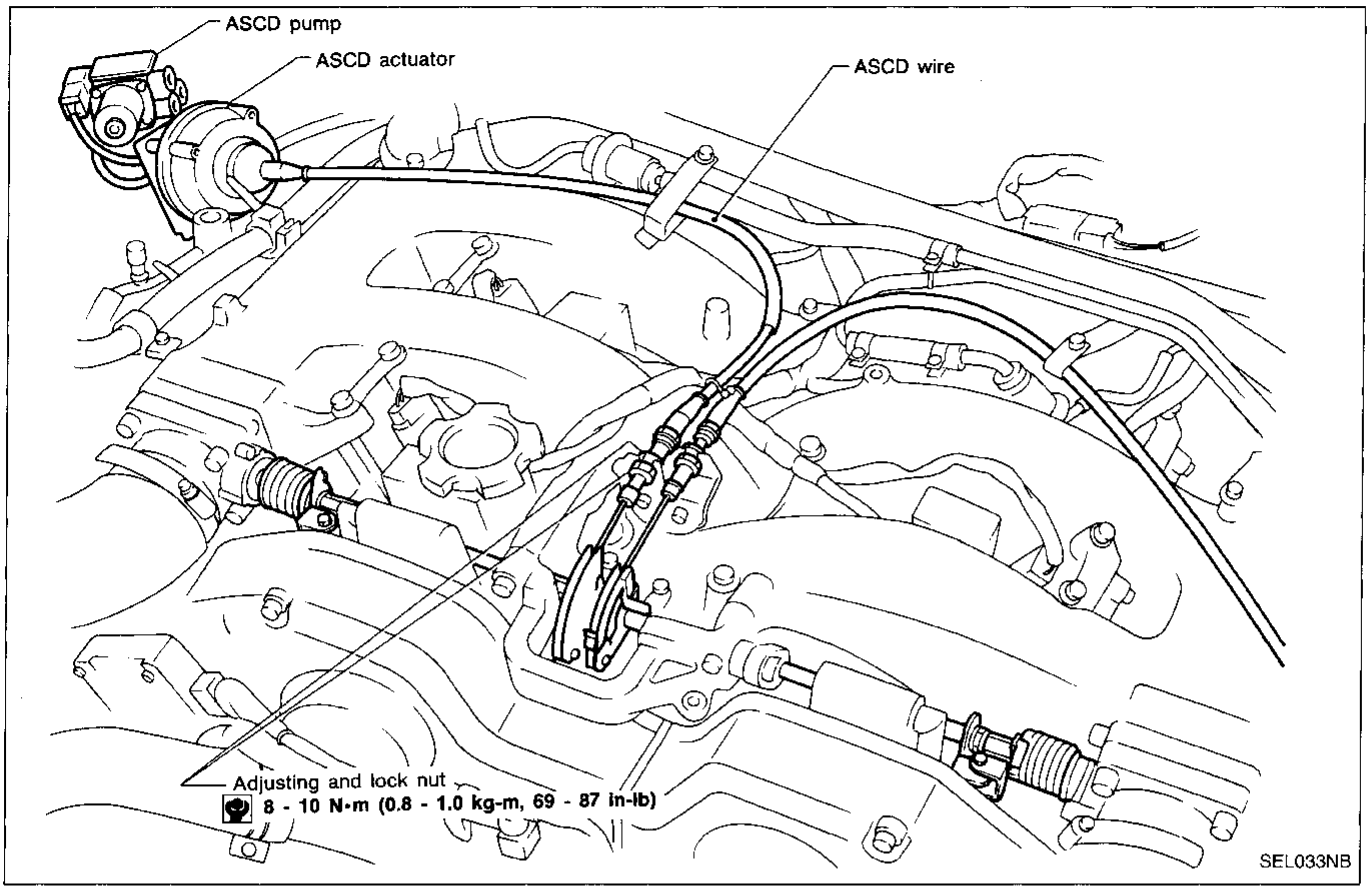
Terminals		Resistance [Ω]
⑧	⑨	Approx. 8 - 45
	⑩	Approx. 65
	⑭	Approx. 65

- NG → Repair short or open circuit in ASCD actuator/ ASCD pump harness.
- OK → Replace ASCD control unit.



Trouble Diagnoses (Cont'd)

ASCD WIRE ADJUSTMENT



CAUTION:

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

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

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

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

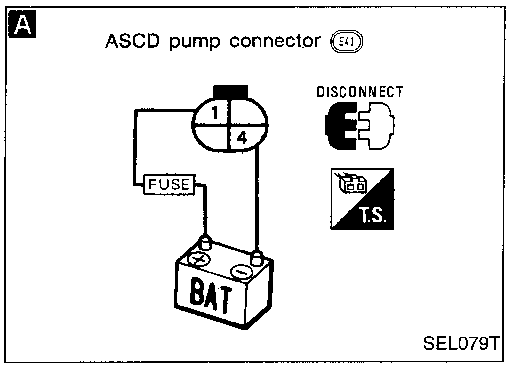
Trouble Diagnoses (Cont'd)

ELECTRICAL COMPONENTS INSPECTION

ASCD actuator/ASCD pump

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

A

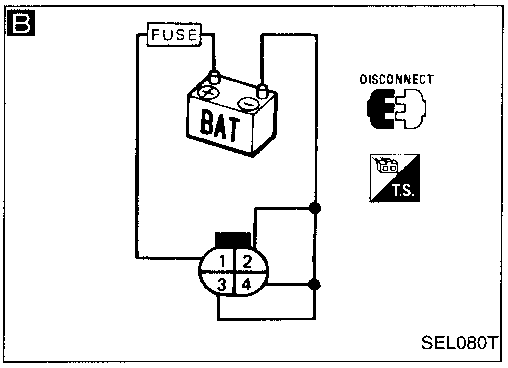


Check to see if motor starts when 12V DC is applied across ① and ④.

NG → Replace ASCD actuator assembly.

OK ↓

B

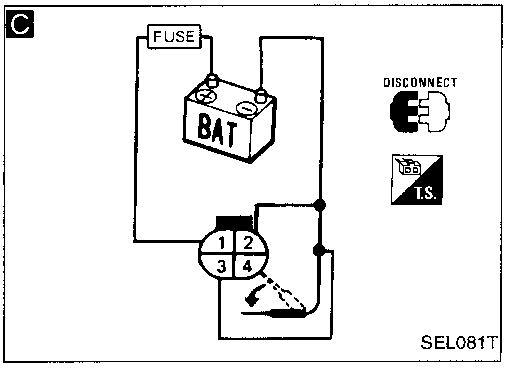


Check to see if ASCD wire is pulled when 12V DC is applied across ①, ②, ③ and ④.

NG → Replace ASCD actuator assembly.

OK (Wire is pulled.) ↓

C

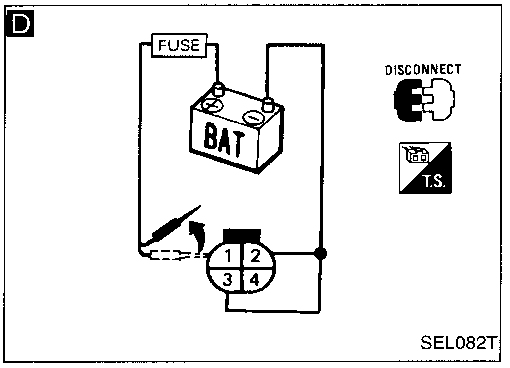


Check to see if ASCD wire returns to original position 50 to 60 seconds after disconnecting lead from ④.

NG → Replace ASCD actuator assembly.

OK (Wire does not return.) ↓

D



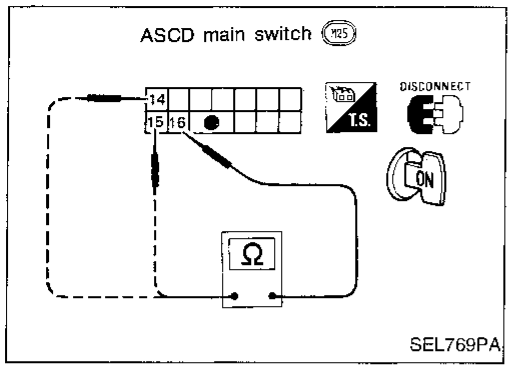
Disconnect lead from ① to see if ASCD wire returns immediately.

NG → Replace ASCD actuator assembly.

OK (Wire returns.) ↓

ASCD actuator/ASCD pump are OK.

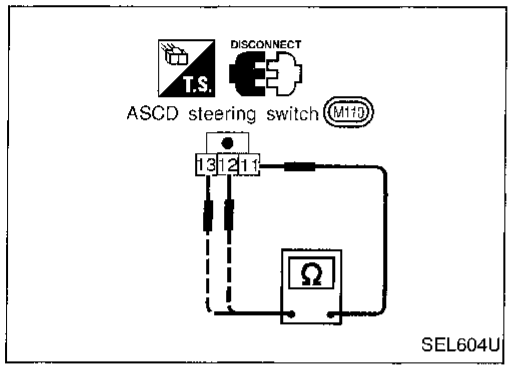
Trouble Diagnoses (Cont'd)



ASCD main switch

Check continuity between terminals by pushing switch to each position.

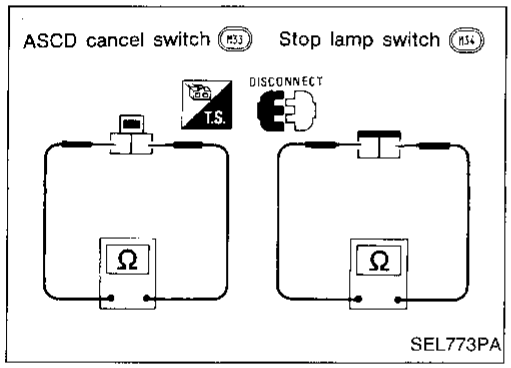
Switch position	Terminals		
	14	15	16
ON	○	○	○
N		○	○
OFF			



ASCD steering switch

Check continuity between terminals by turning lever.

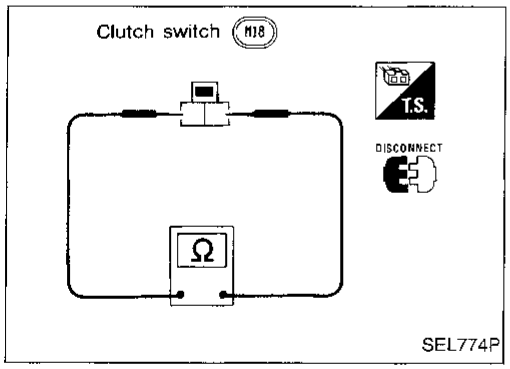
Lever	Terminals		
	11	12	13
SET/COAST	○	○	
RESUME/ACCEL	○		○
CANCEL	○	▶|○	
	○	▶	○



ASCD cancel switch and stop lamp switch

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

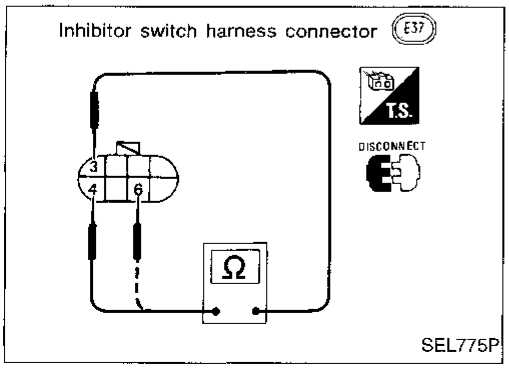
Check each switch after adjusting brake pedal — refer to BR section.



Clutch switch (For M/T models)

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

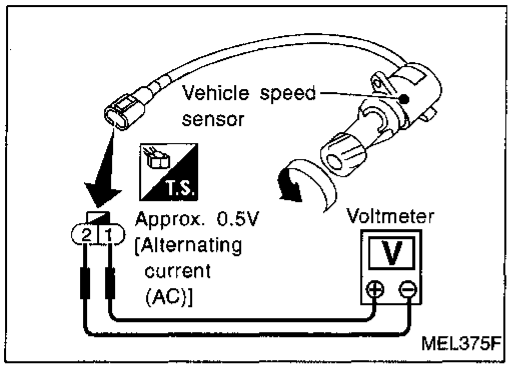
Check switch after adjusting clutch pedal — refer to CL section.



Inhibitor switch (For A/T models)

Shift lever position	Terminals		
	3	4	6
"P"	○	○	
"N"	○		○
Except "N" or "P"			

Trouble Diagnoses (Cont'd)

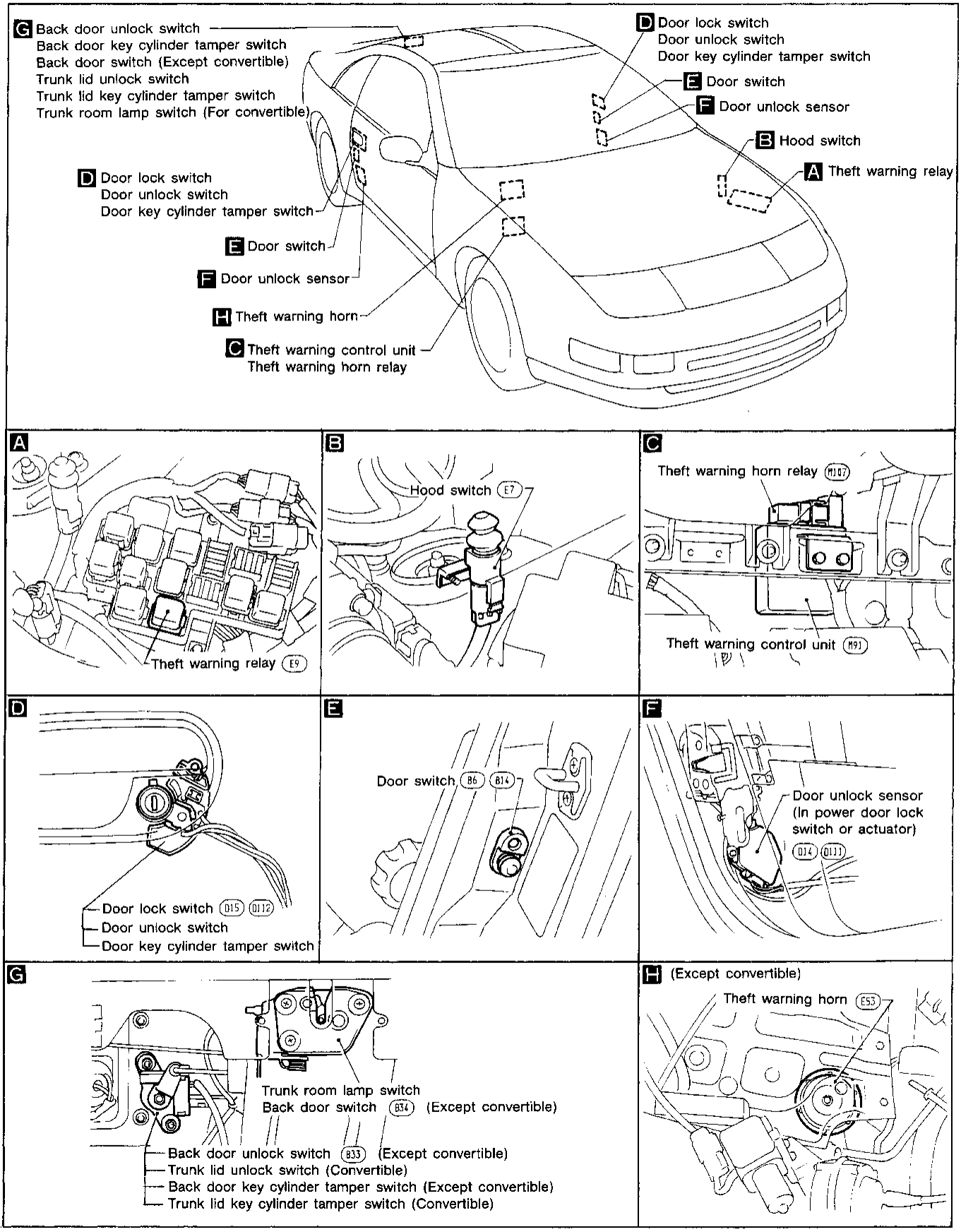


Vehicle speed sensor

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

NOTE

Component Parts and Harness Connector Location

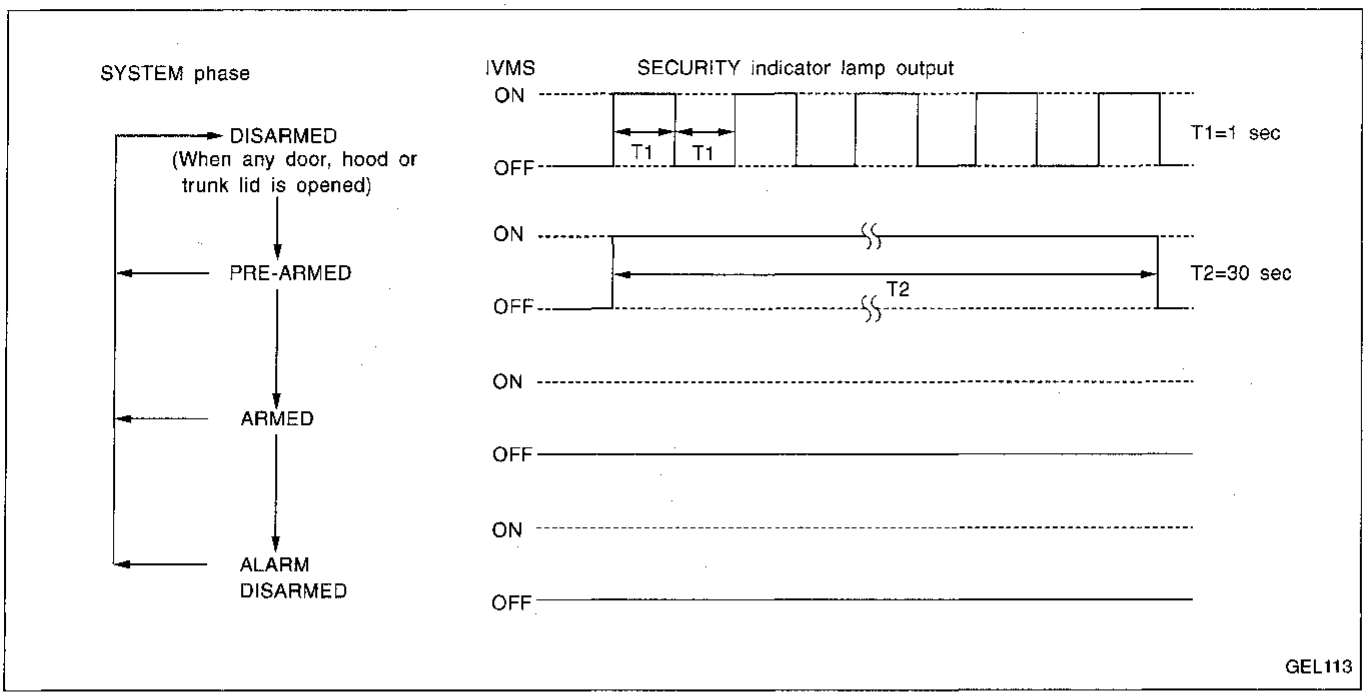


SEL397R

Trouble Diagnoses

DESCRIPTION

1. Operation flow



2. Setting the theft warning system

Initial condition

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

Disarmed phase

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

Pre-armed phase and armed phase

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

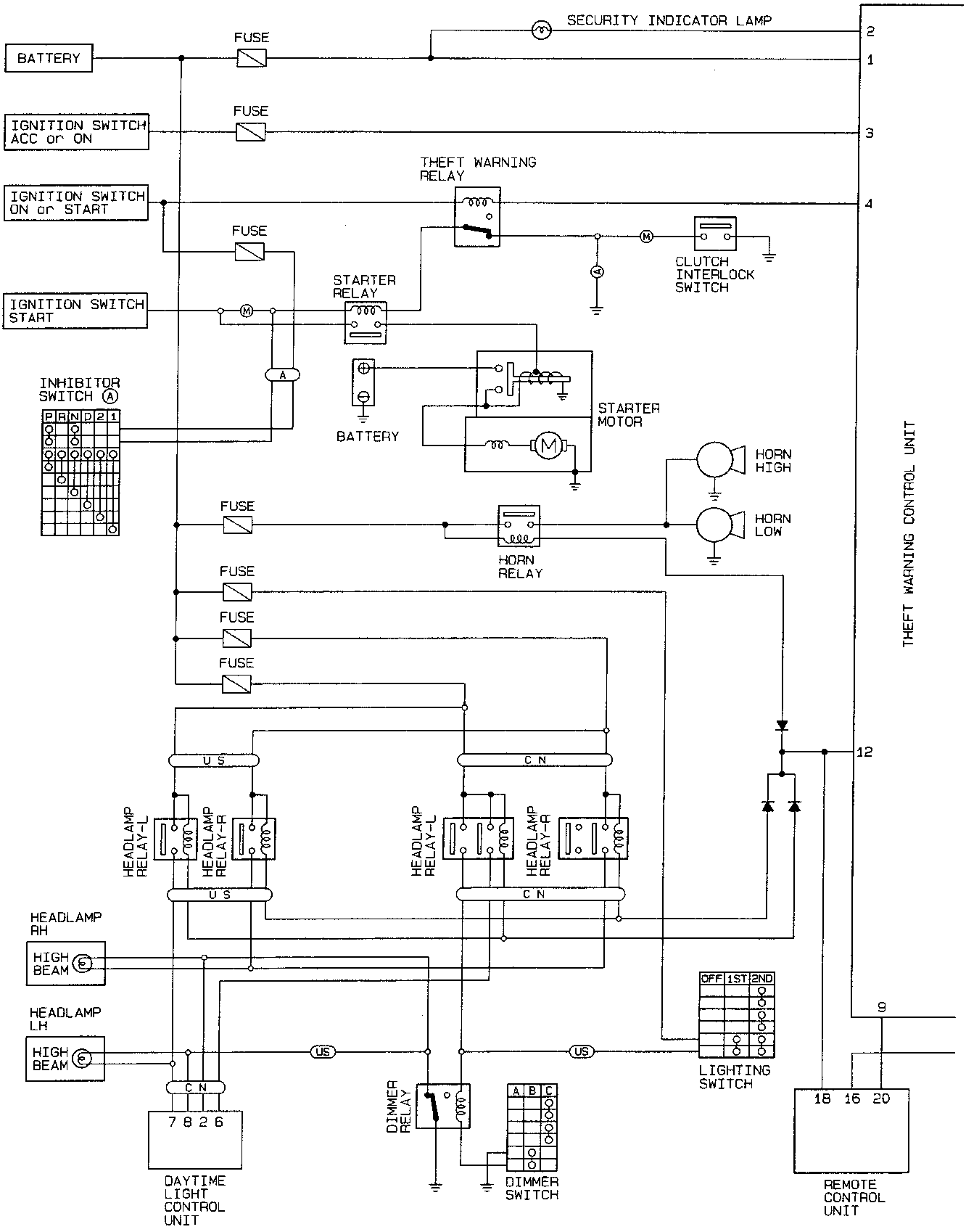
3. Canceling the set theft warning system

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

4. Activating the alarm operation of the theft warning system

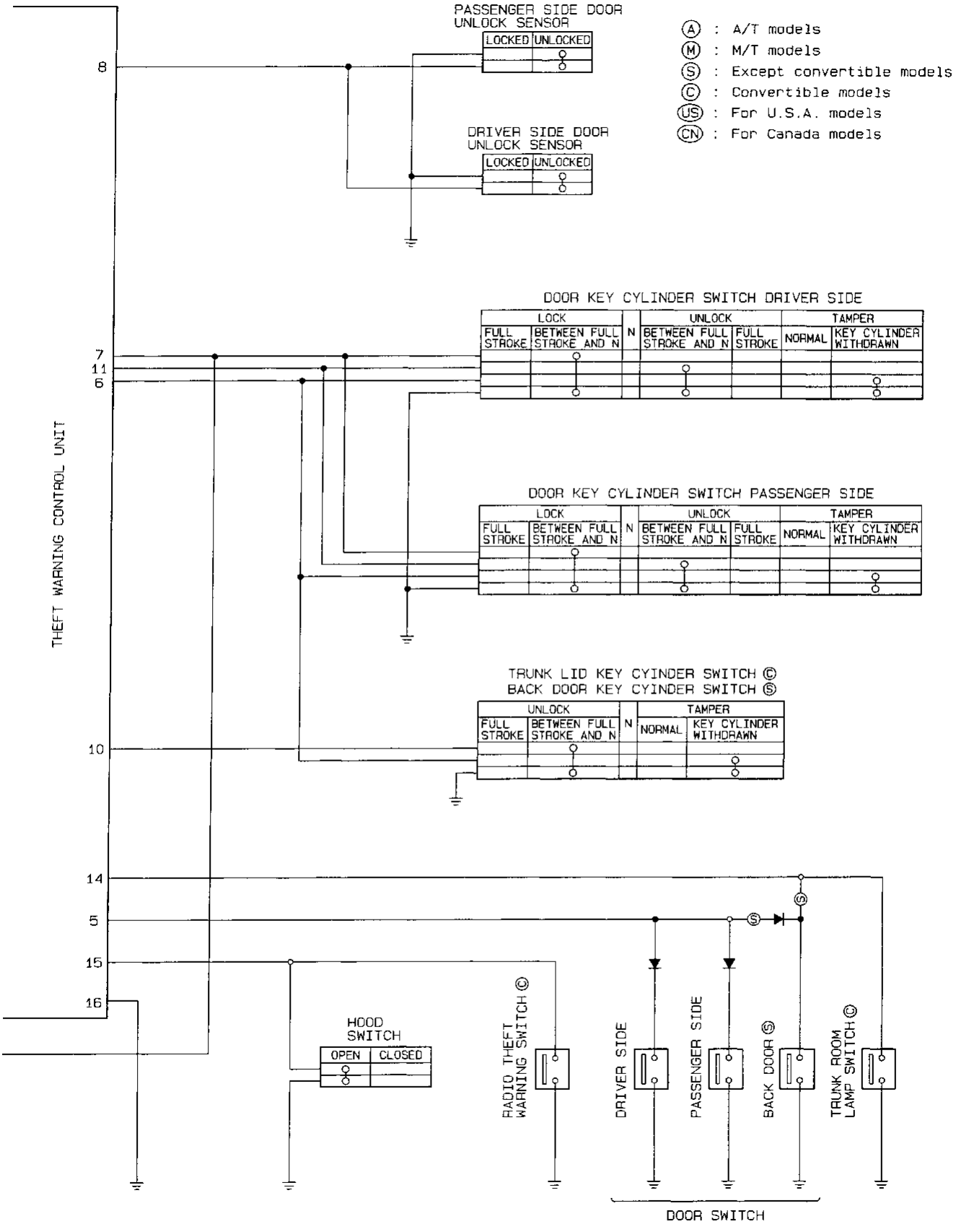
Make sure the system is in the armed phase.
When any of the following operations (a), (b) and (c) is performed, the system sounds the horns and flashes the headlamps for about 2.5 minutes. (At the same time, the system disconnects the starting system circuit.)
The starting system is kept dead even after the alarm turns off.
(a) Open the engine hood or trunk lid using the hood or trunk lid opener.
(b) Unlock any door without key or remote controller.
(c) Pull out the key cylinder from either door or the trunk lid.

Schematic



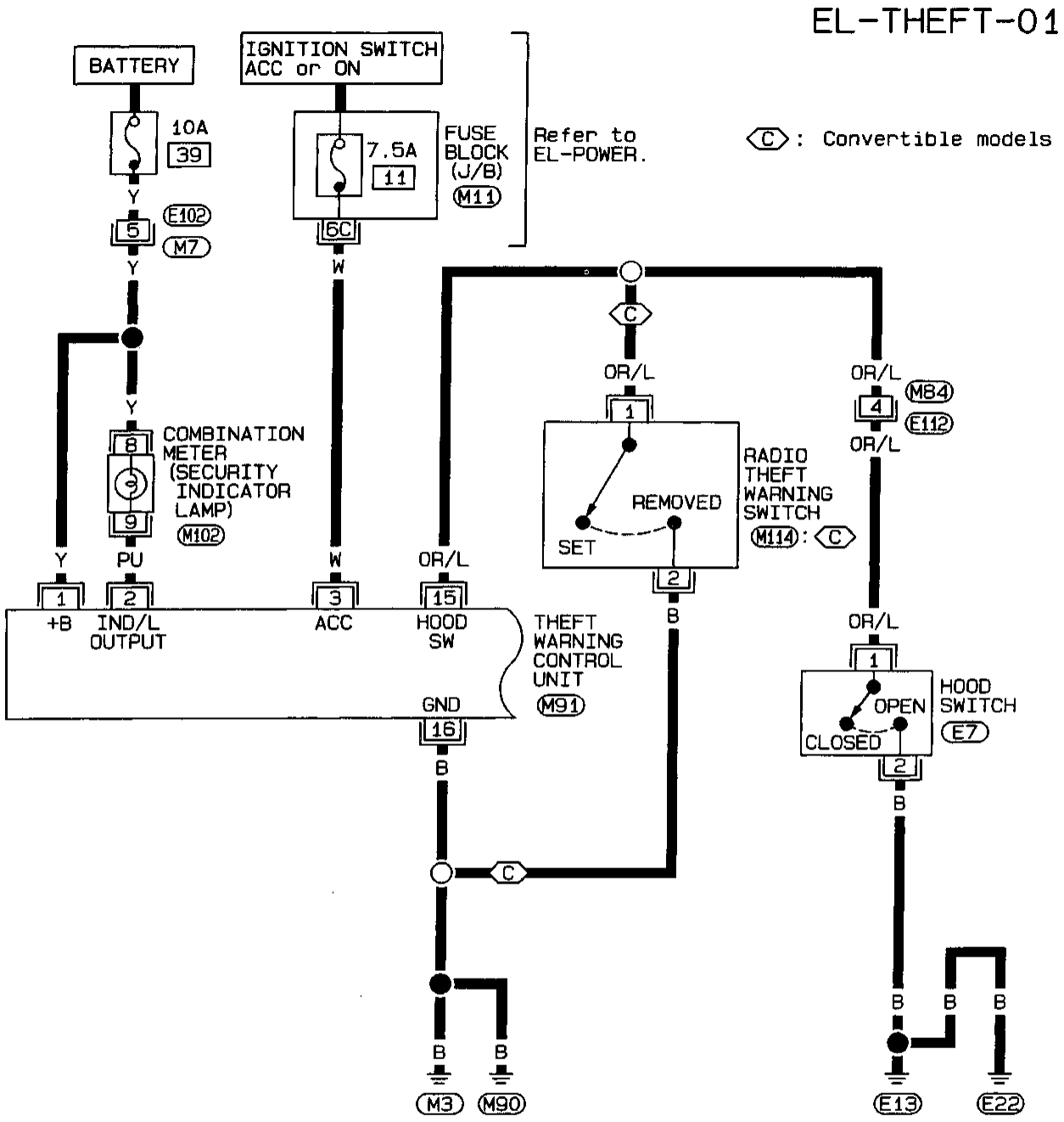
HEL370

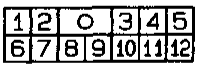
Schematic (Cont'd)

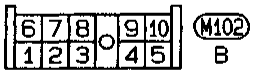


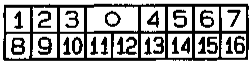
HEL389

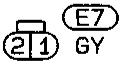
Wiring Diagram — THEFT —

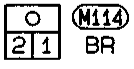


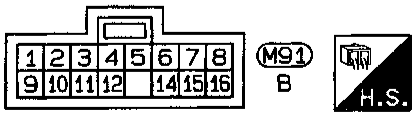












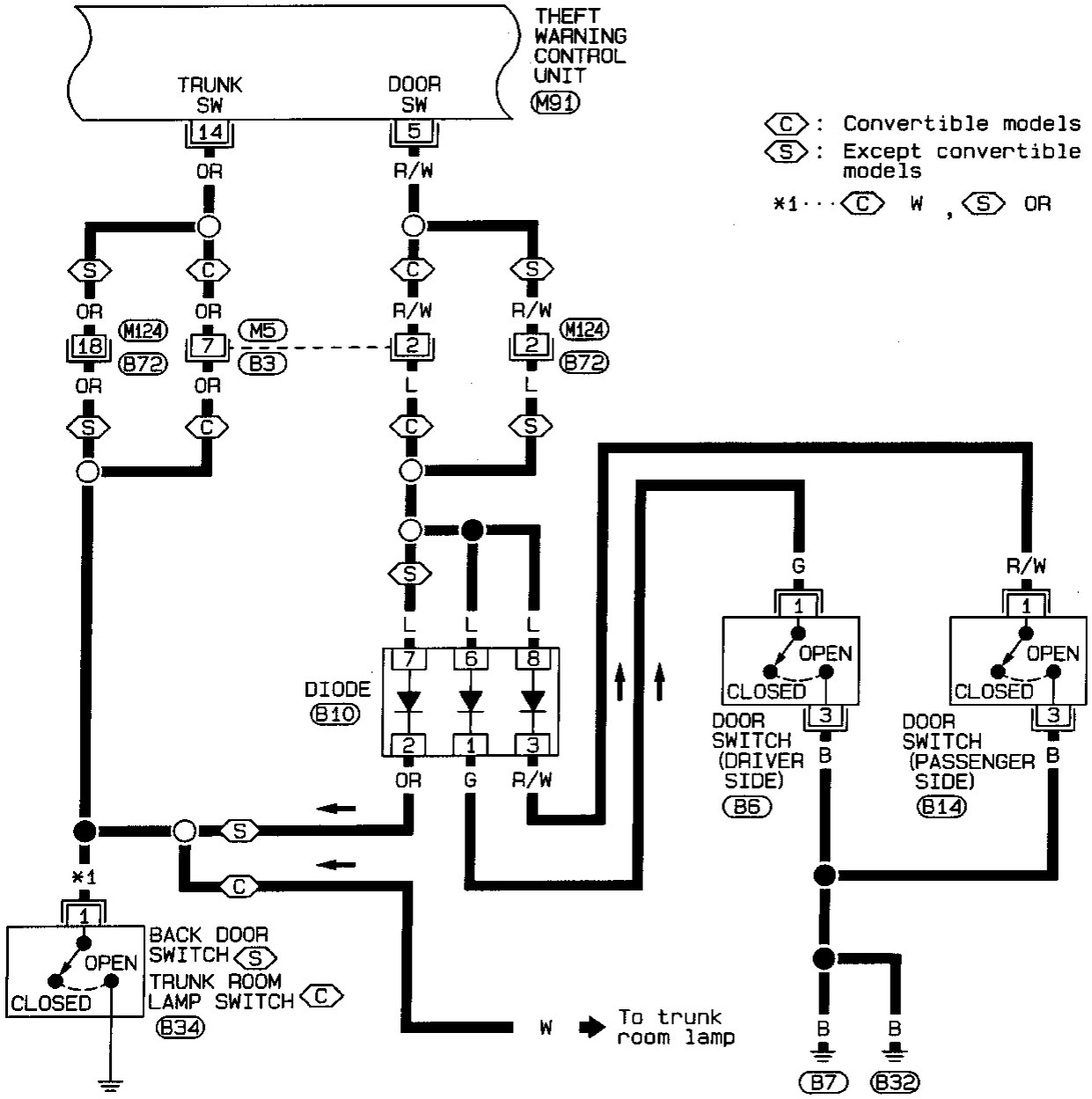
Refer to last page (Foldout page).

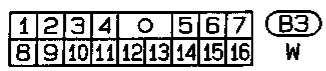
M11

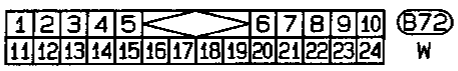
HEL371

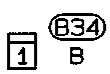
Wiring Diagram — THEFT — (Cont'd)

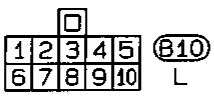
EL-THEFT-02

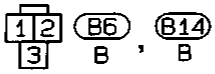


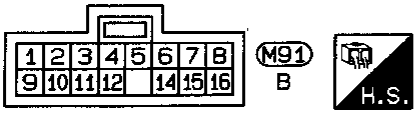








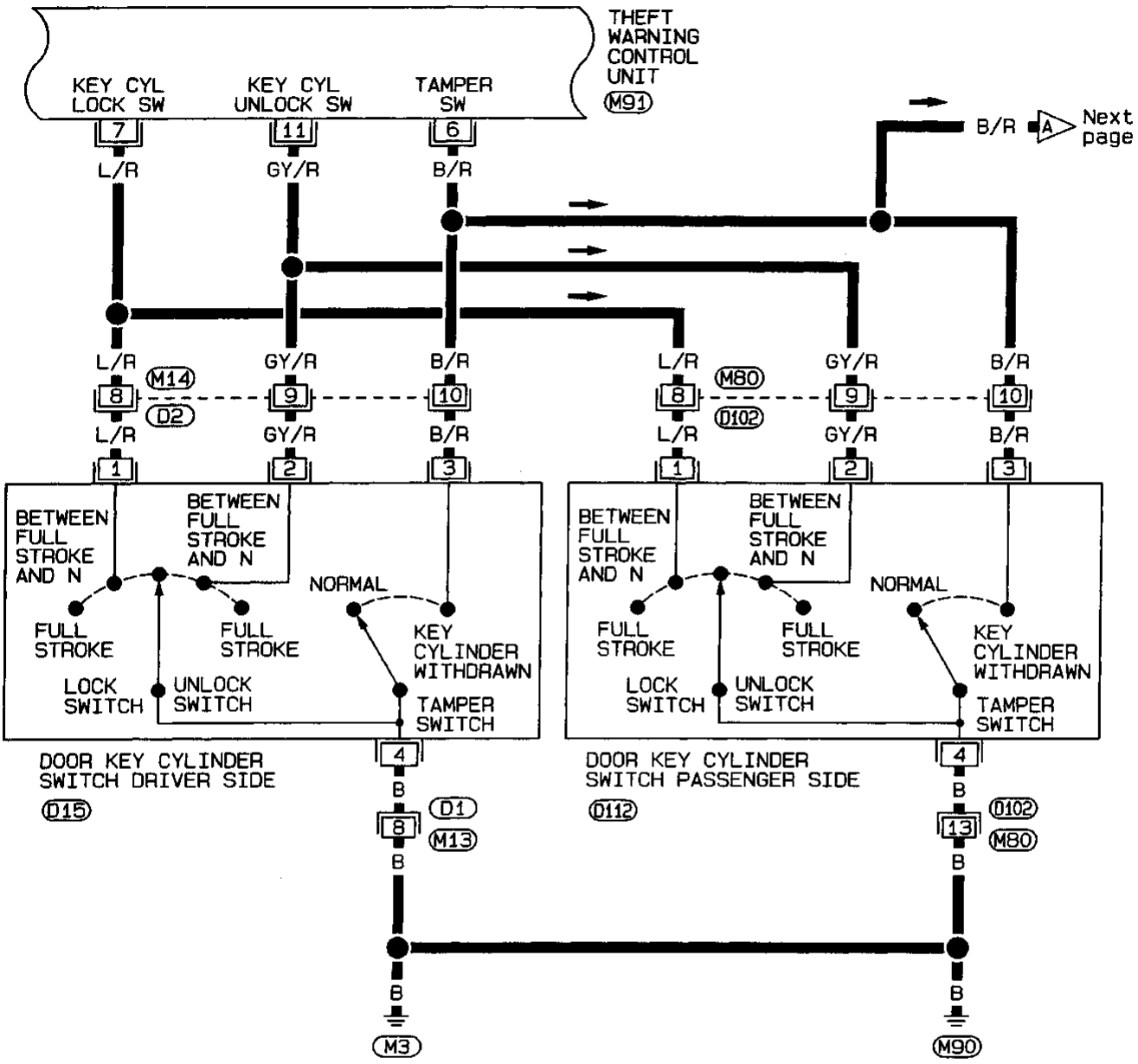


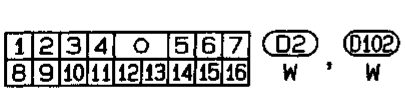


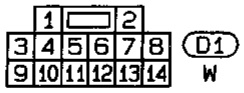
HEL372

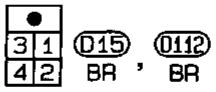
Wiring Diagram — THEFT — (Cont'd)

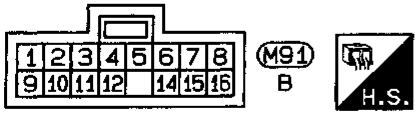
EL-THEFT-03







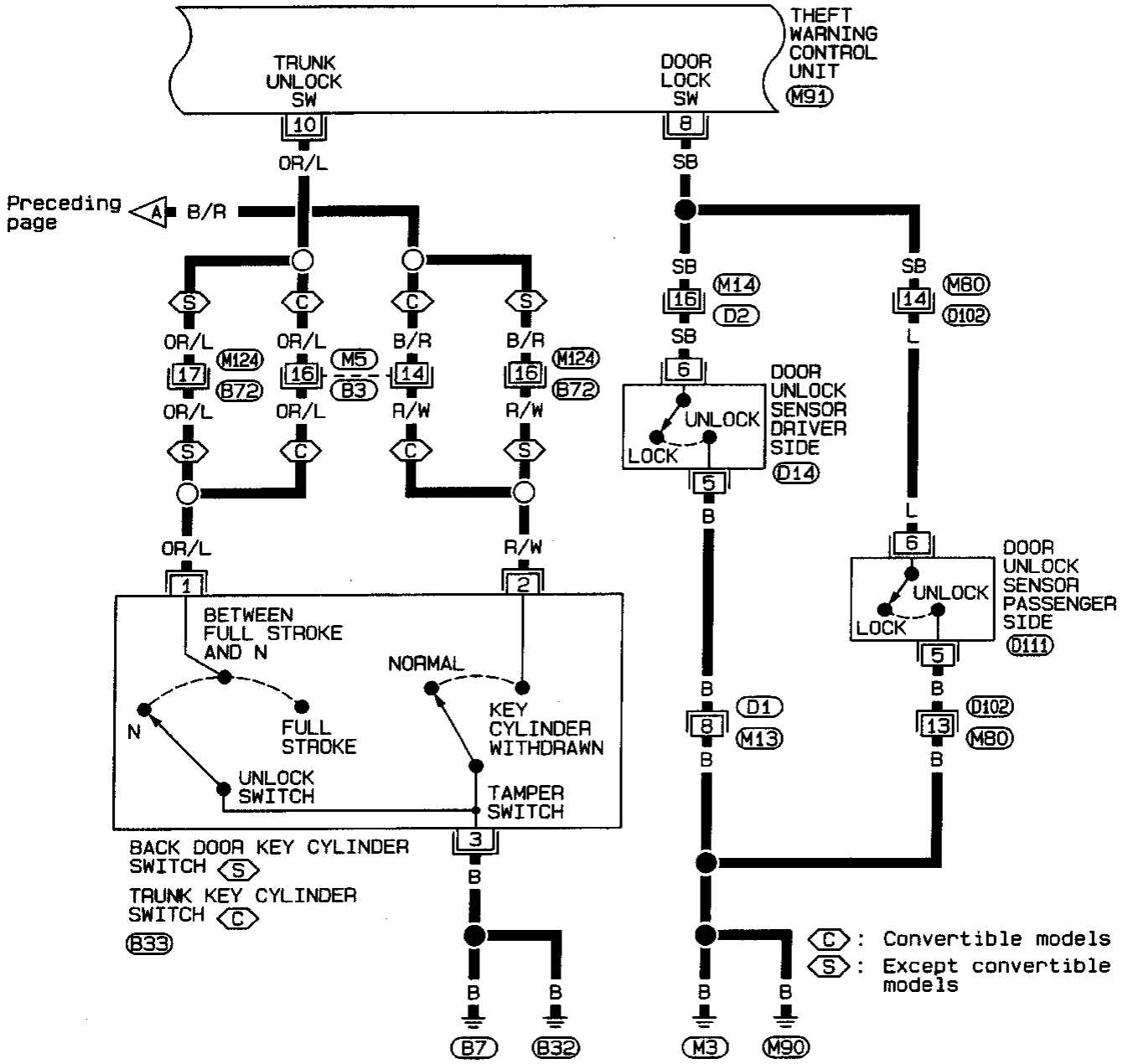


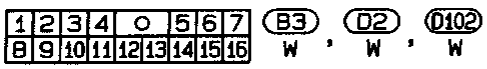


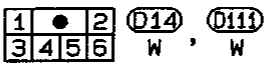
HEL373

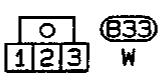
Wiring Diagram — THEFT — (Cont'd)

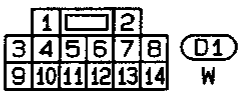
EL-THEFT-04

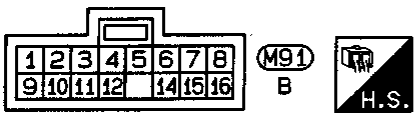








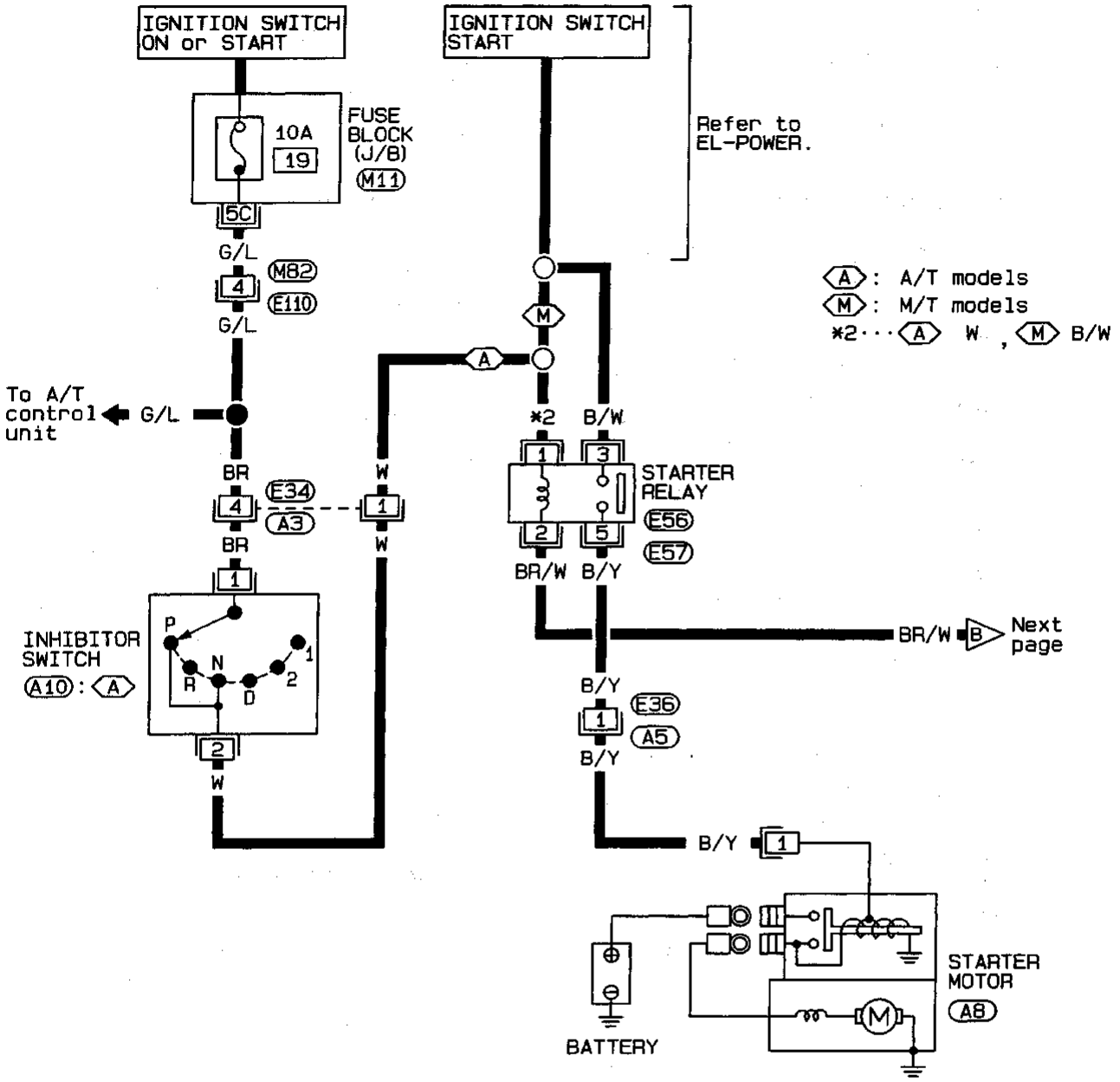


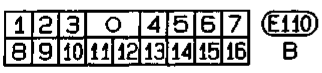


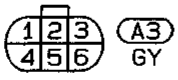
HEL374

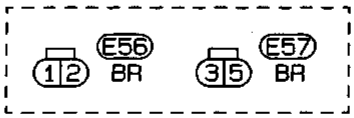
Wiring Diagram — THEFT — (Cont'd)

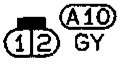
EL-THEFT-05

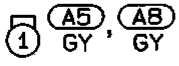








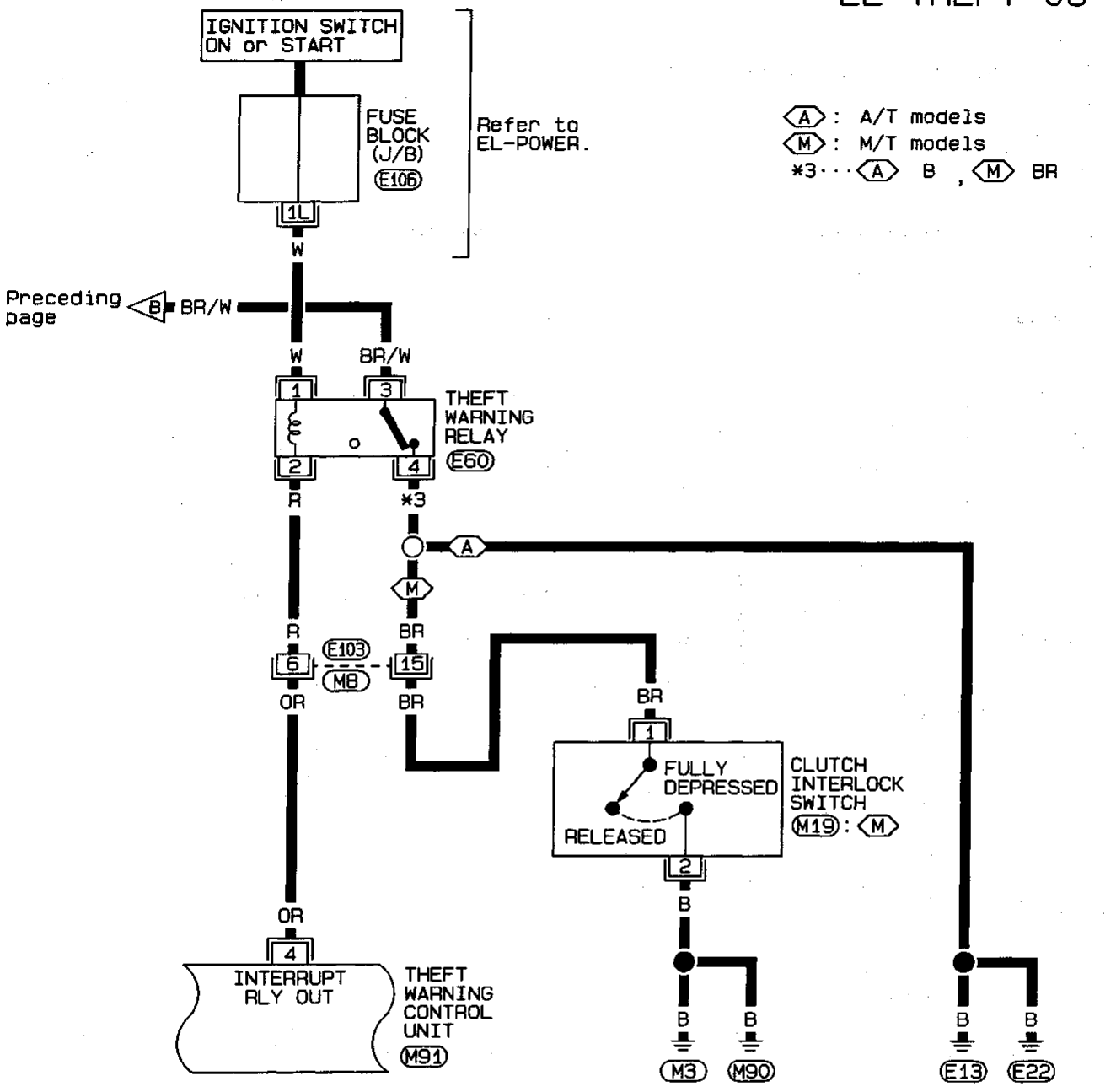


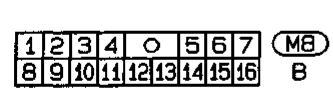


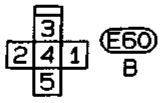
HEL375

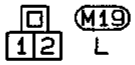
Wiring Diagram — THEFT — (Cont'd)

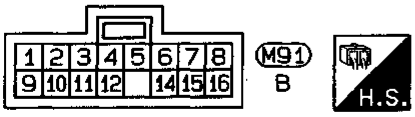
EL-THEFT-06











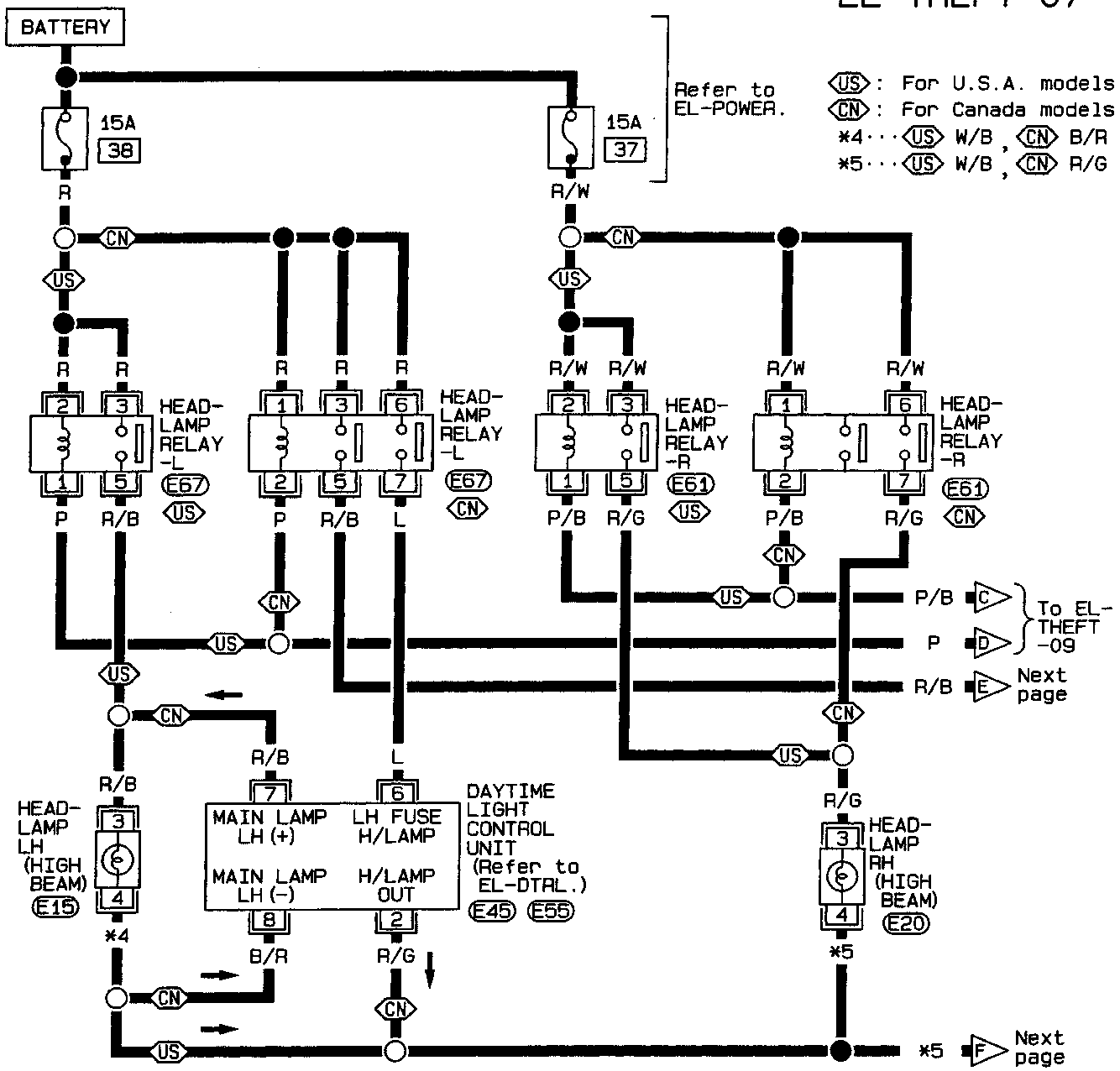
Refer to last page (Foldout page).

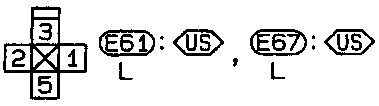
E106

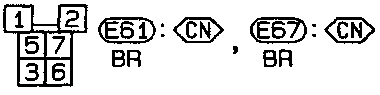
HEL376

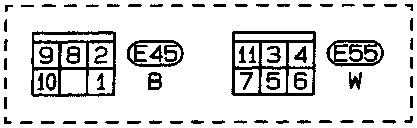
Wiring Diagram — THEFT — (Cont'd)

EL-THEFT-07





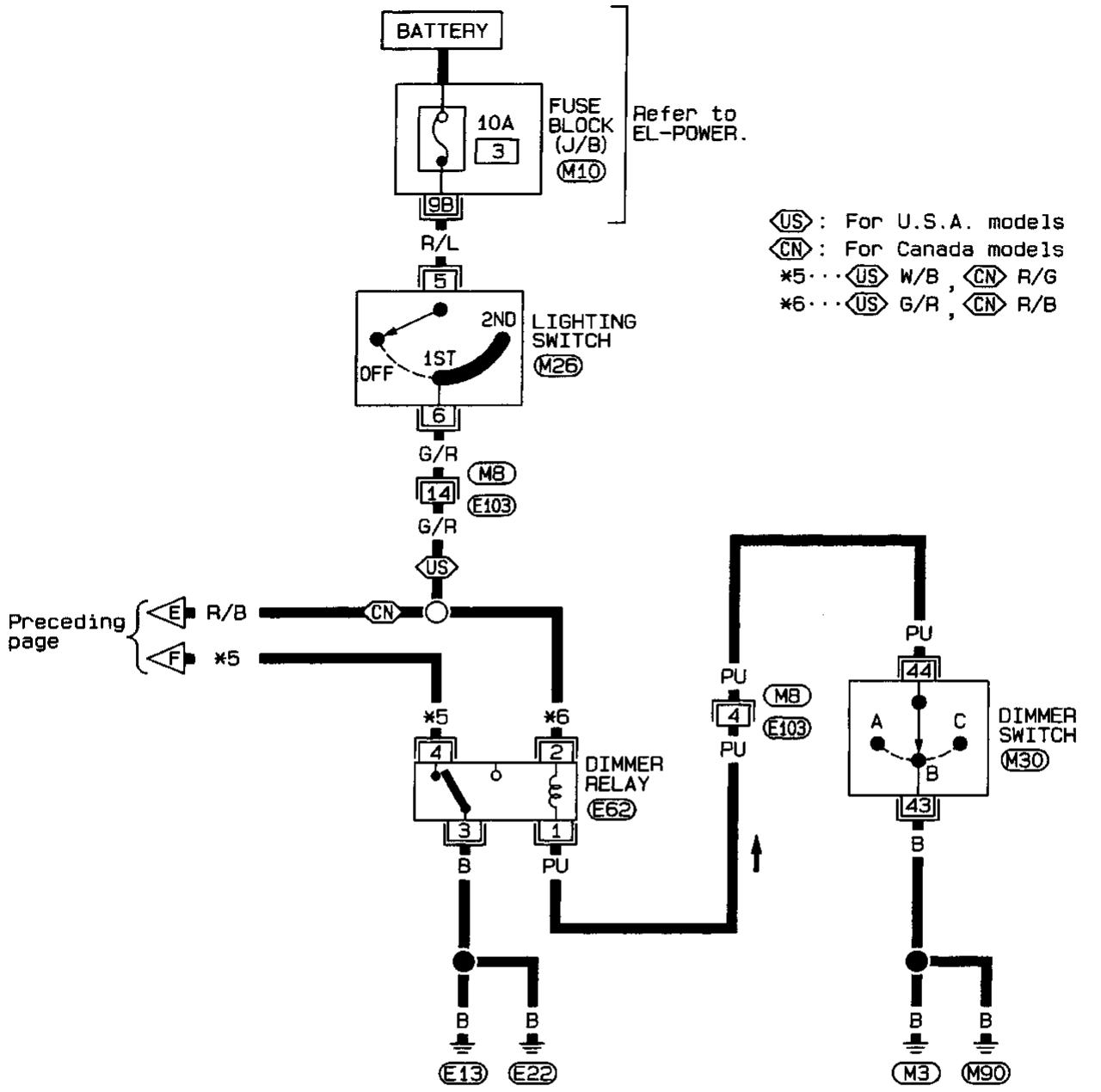




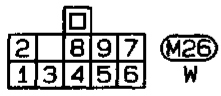
HEL377

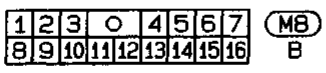
Wiring Diagram — THEFT — (Cont'd)

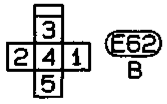
EL-THEFT-08

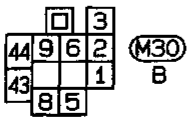


US : For U.S.A. models
CN : For Canada models
*5 ··· US W/B , CN R/G
*6 ··· US G/R , CN R/B







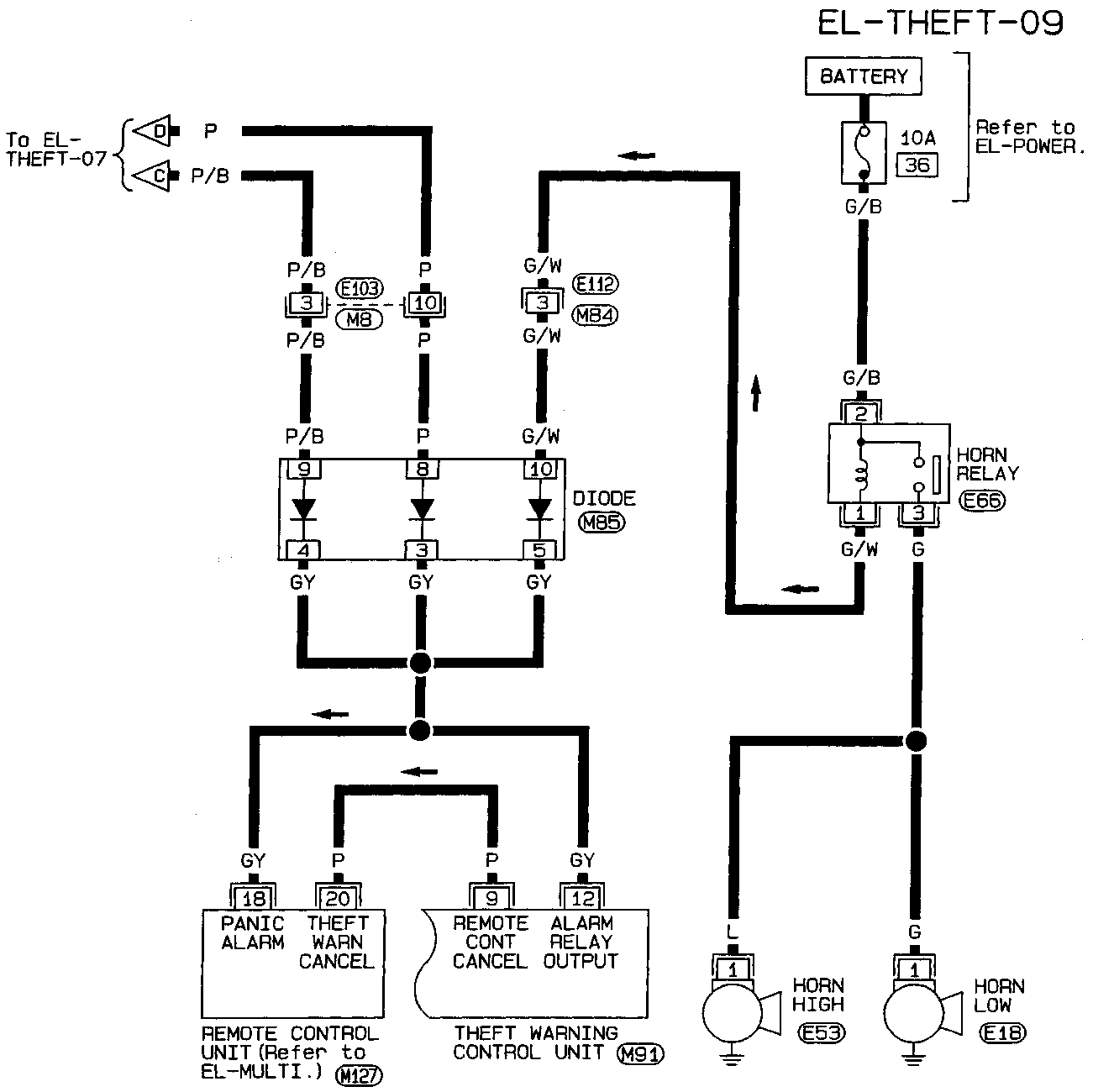


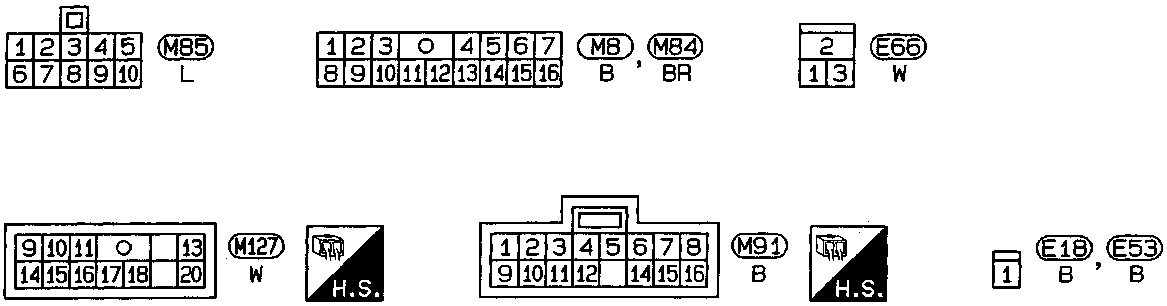
Refer to last page (Foldout page).

M10

HEL387

Wiring Diagram — THEFT — (Cont'd)



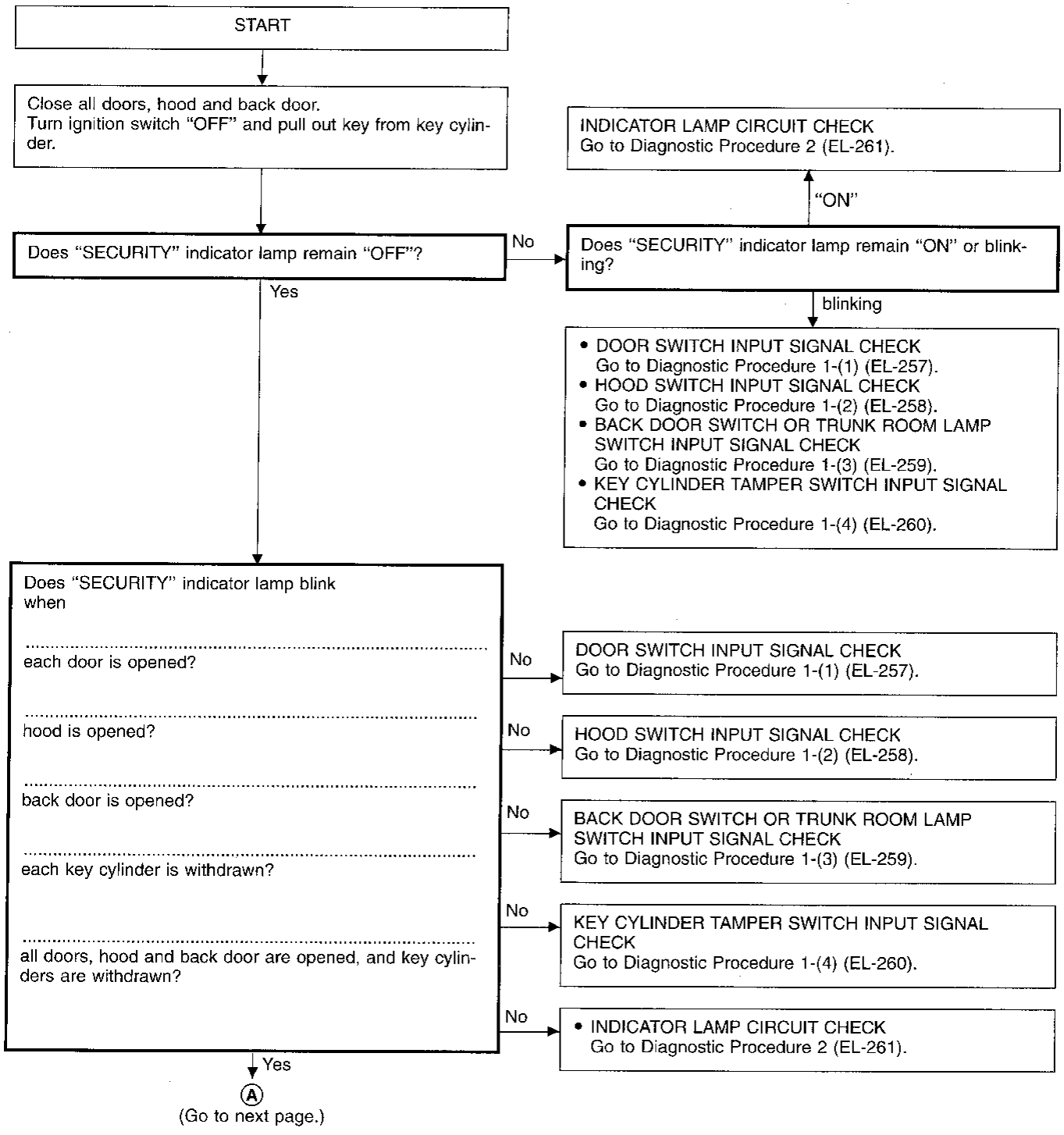


HEL388

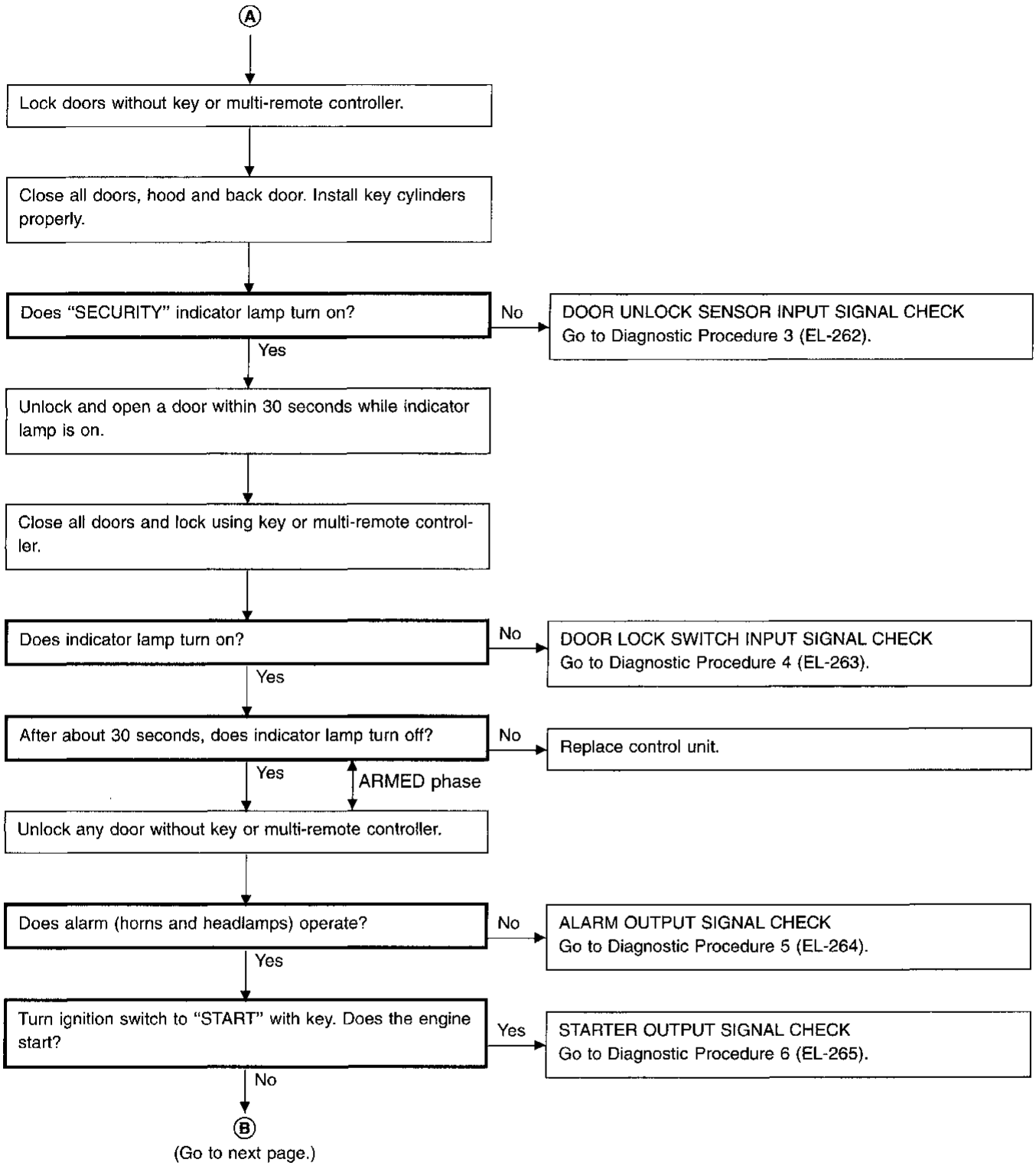
Trouble Diagnoses

SYSTEM OPERATION CHECK

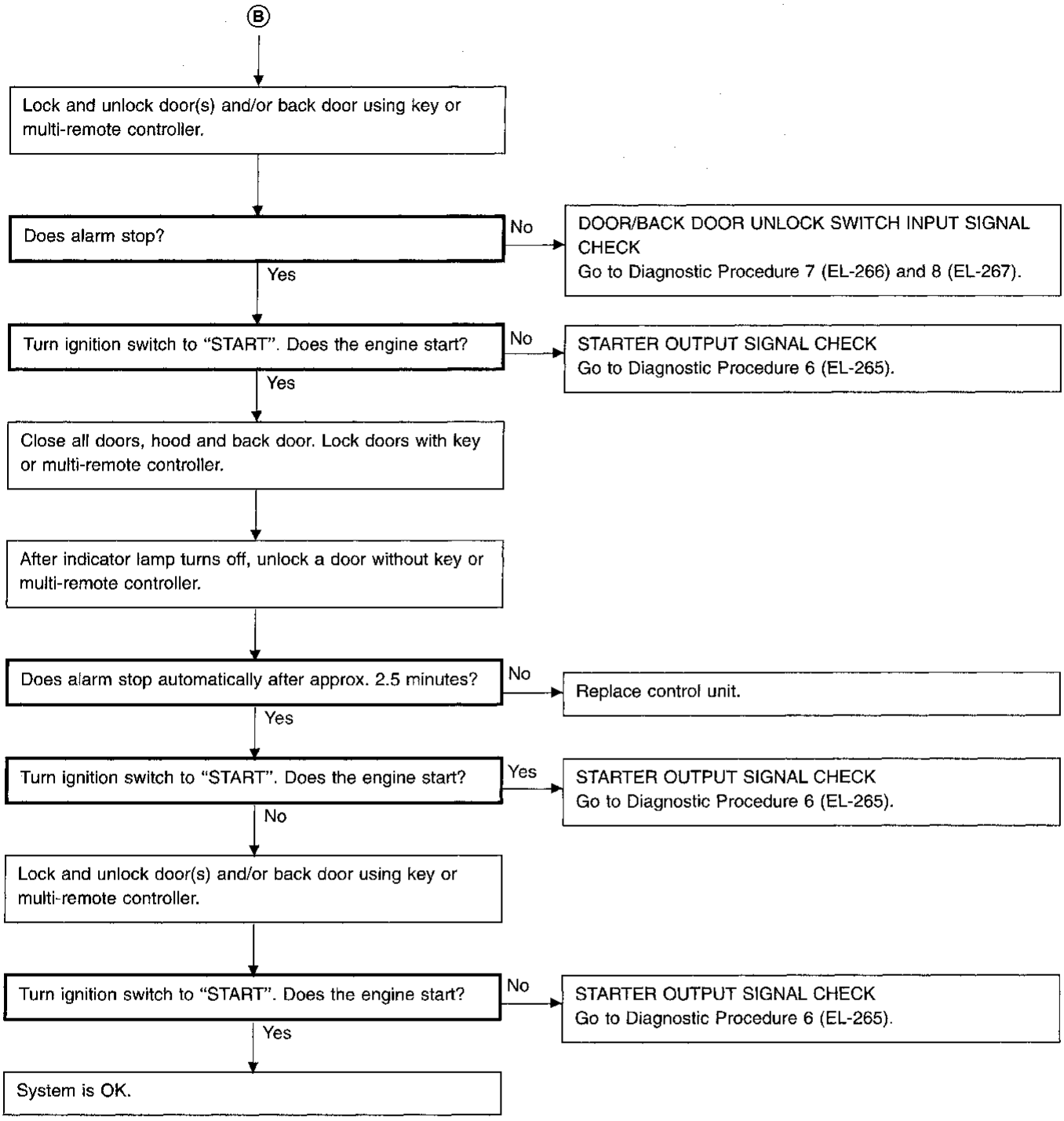
If ignition switch is turned to "ACC" at a step between START and ARMED or in the ARMED phase shown in this flow chart, the system operation is canceled.



Trouble Diagnoses (Cont'd)

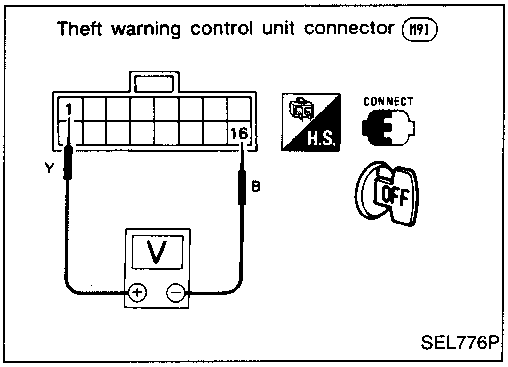


Trouble Diagnoses (Cont'd)



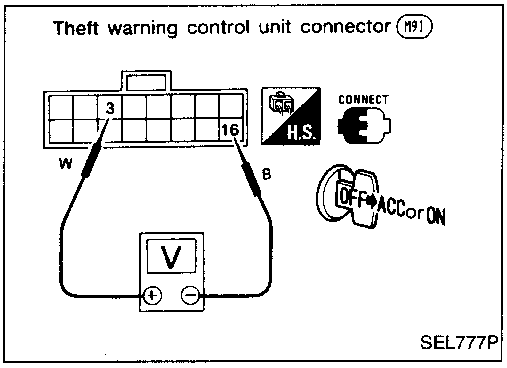
Trouble Diagnoses (Cont'd)

POWER SUPPLY AND GROUND CIRCUIT CHECK



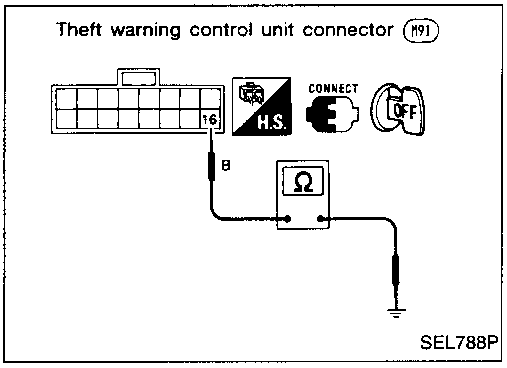
Main power supply circuit check

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



Power supply circuit check for system cancel

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



Ground circuit check

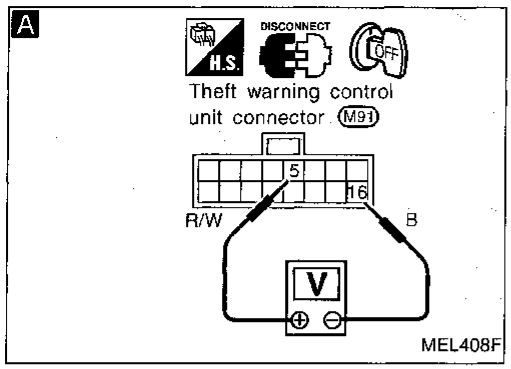
Terminals	Continuity
⑯ - Ground	Yes

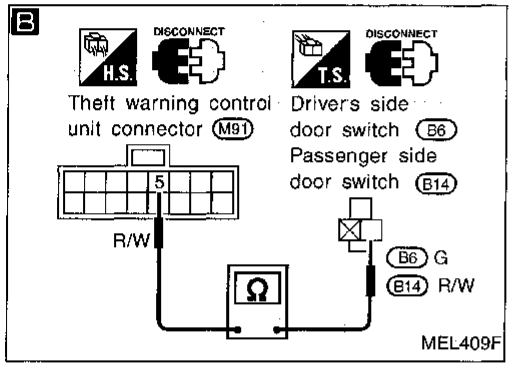
Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 1

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

Diagnostic procedure 1-(1)





A

DOOR SWITCH INPUT SIGNAL CHECK
Check voltage between control unit harness terminals (5) and (16).

Condition	Voltage
All doors are closed.	Battery voltage
At least one door is open.	0V

OK → Go to Diagnostic Procedure 2 (EL-261).

NG ↓

DOOR SWITCH CHECK
Refer to "Electrical Components Inspection" (EL-268).

NG → Replace door switch.

OK ↓

B

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

NG → Repair harness or connectors.

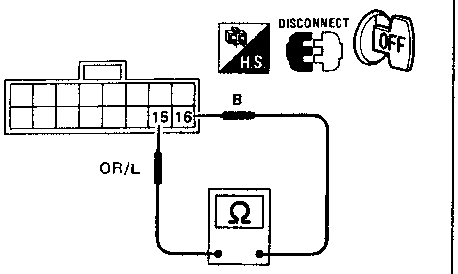
OK ↓

CHECK THE CONNECTIONS AT EACH CONNECTOR.

Trouble Diagnoses (Cont'd)

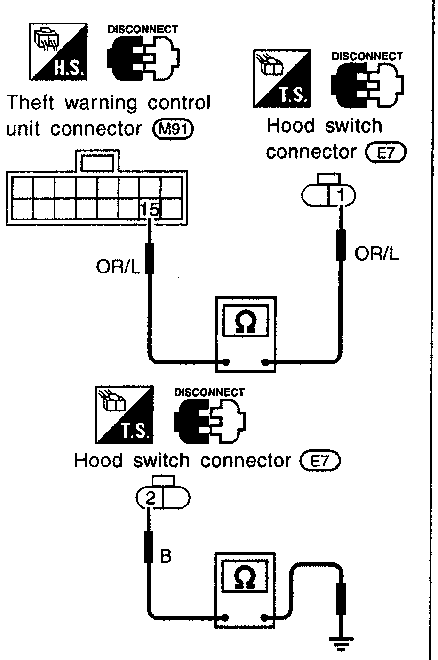
Diagnostic procedure 1-(2)

A Theft warning control unit connector (M91)



SEL019S

B



MEL410F

A

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

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

OK → Go to Diagnostic Procedure 2 (EL-261).

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-268).

NG → Replace hood switch.

OK

B

HOOD SWITCH CIRCUIT CHECK
- Check harness continuity between control unit harness terminal (15) 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.

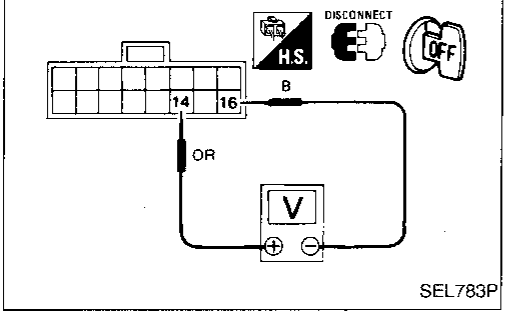
OK

CHECK THE CONNECTIONS AT EACH CONNECTOR.

Trouble Diagnoses (Cont'd)

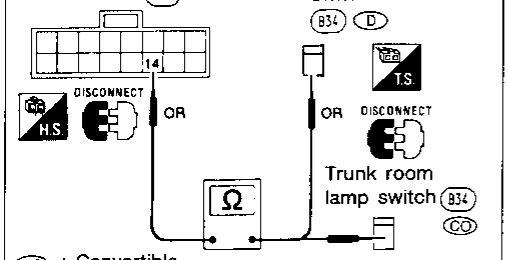
Diagnostic procedure 1-(3)

A Theft warning control unit connector (M91)



B Theft warning control unit connector (M91)

Back door switch connector (B34) (D)



(CO) : Convertible
(D) : Except convertible

SEL927SB

A

BACK DOOR SWITCH OR TRUNK ROOM LAMP SWITCH INPUT SIGNAL CHECK
Check voltage between control unit harness terminals (14) and (16).

Condition	Voltage
Back door or trunk is open.	Approx. 0V
Back door or trunk is closed.	Approx. 12V

OK → Go to Diagnostic Procedure 2 (EL-261).

NG ↓

Does room lamp come on?

Yes → B

No ↓

BACK DOOR SWITCH OR TRUNK ROOM LAMP SWITCH CHECK
Refer to "Electrical Components Inspection" (EL-268).

OK → B

NG ↓

Replace back door switch or trunk room lamp switch.

B

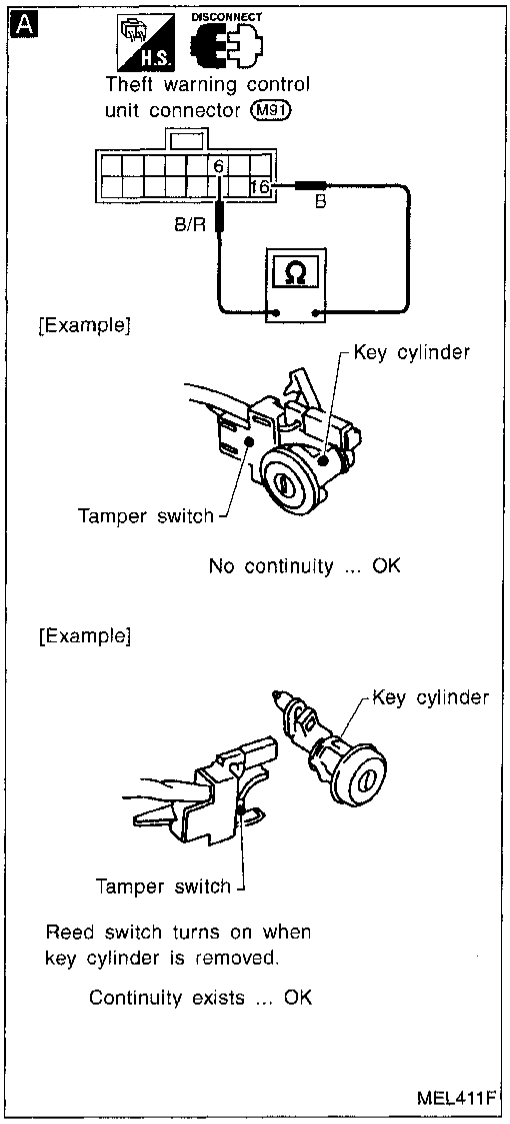
BACK DOOR SWITCH OR TRUNK ROOM LAMP SWITCH CIRCUIT CHECK
Check harness continuity between control unit harness terminal (14) and back door switch harness terminal or trunk room lamp switch harness terminal.

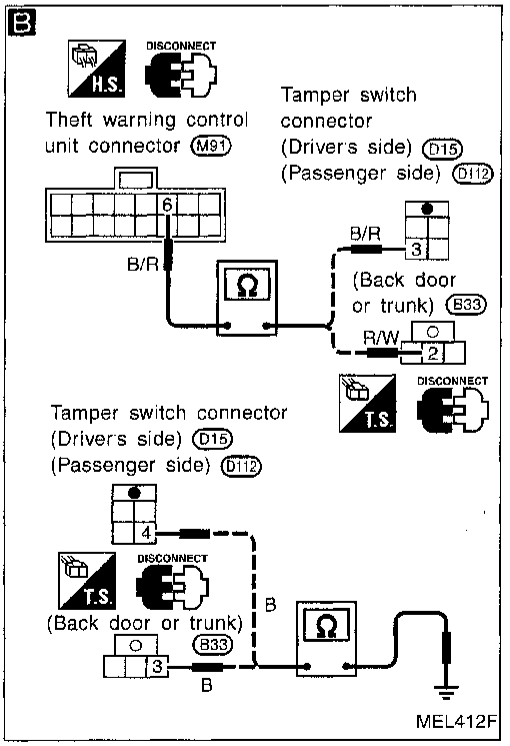
OK ↓

CHECK THE CONNECTIONS AT EACH CONNECTOR.

Trouble Diagnoses (Cont'd)

Diagnostic procedure 1-(4)





A

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

Condition	Continuity
Tamper switch is	
Normal	No
Removed	Yes

OK → Go to Diagnostic Procedure 2 (EL-261).

NG ↓

KEY CYLINDER TAMPER SWITCH CHECK
Refer to "Electrical Components Inspection" (EL-269).

NG → Replace key cylinder tamper switch.

OK ↓

B

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

Continuity should exist.

NG → Repair harness and connectors.

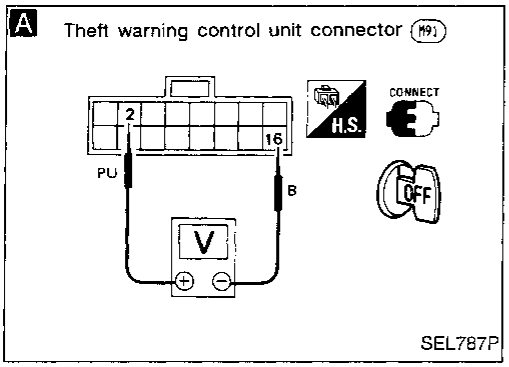
OK ↓

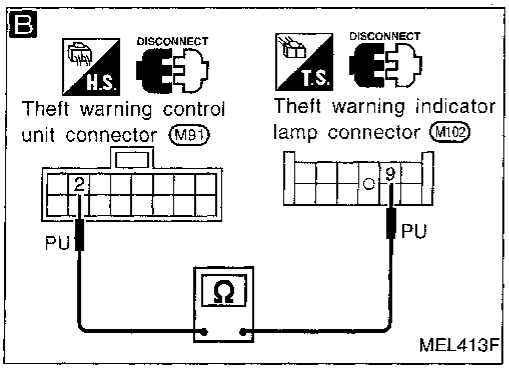
CHECK THE CONNECTIONS AT EACH CONNECTOR.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 2

SYMPTOM: Indicator lamp does not blink.





A

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

NG → Replace control unit.

OK ↓

INDICATOR LAMP CHECK

NG → Replace indicator lamp.

OK ↓

B

INDICATOR LAMP CIRCUIT CHECK
Check harness continuity between control unit harness terminal ② and indicator lamp harness terminal ⑨.
Continuity should exist.

NG → Repair harness or connectors.

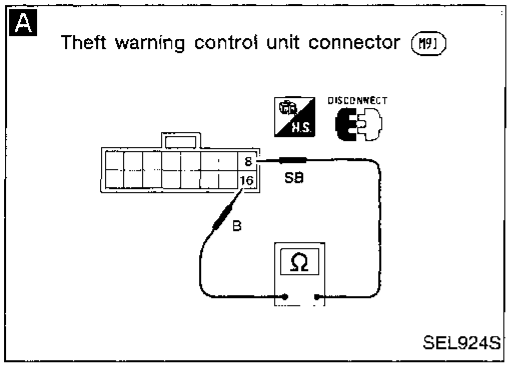
OK ↓

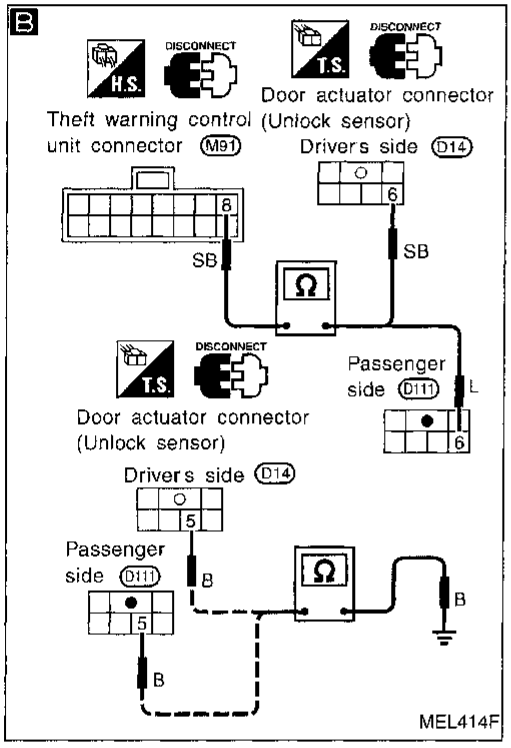
CHECK THE CONNECTIONS AT EACH CONNECTOR.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 3

SYMPTOM: Indicator lamp does not come on.





A

DOOR UNLOCK SENSOR INPUT SIGNAL CHECK
Check continuity between control unit harness terminals (8) and (16).

Condition	Continuity
Locked	No
Unlocked	Yes

OK → Go to Diagnostic Procedure 5 (EL-264).

OK → Replace control unit.

NG

DOOR UNLOCK SENSOR CHECK
Refer to "Electrical Components Inspection" (EL-268).

NG → Replace door lock actuator.

OK

B

DOOR UNLOCK SENSOR CIRCUIT CHECK
- Check harness continuity between control unit harness terminal (8) and door actuator terminal (6).
- Check harness continuity between door actuator terminal (5) and body ground.

Continuity should exist.

NG → Repair harness or connectors.

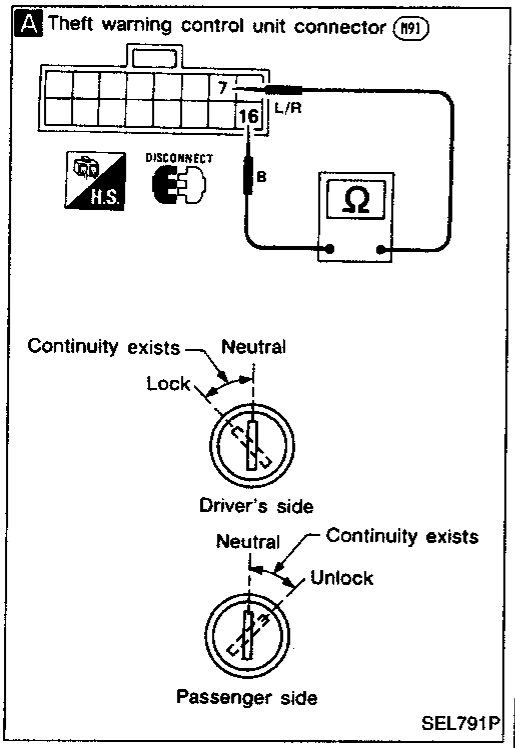
OK

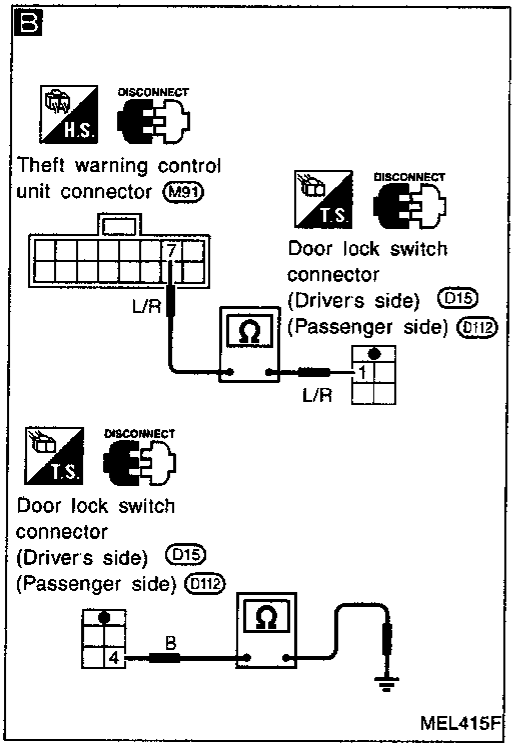
CHECK THE CONNECTIONS AT EACH CONNECTOR.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 4

SYMPTOM: Indicator lamp does not come on.





A

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

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

OK → Go to Diagnostic Procedure 5 (EL-264).
OK → Replace control unit.

NG

DOOR LOCK SWITCH CHECK
Refer to "Electrical Components Inspection" (EL-269).

NG → Replace key cylinder switch.

OK

B

DOOR LOCK SWITCH CIRCUIT CHECK
- Check harness continuity between control unit harness terminal ⑦ and door lock switch terminal ①.
- Check harness continuity between door lock switch terminal ④ and body ground.

Continuity should exist.

NG → Repair harness or connectors.

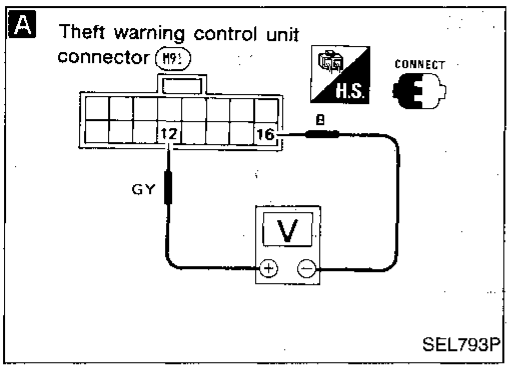
OK

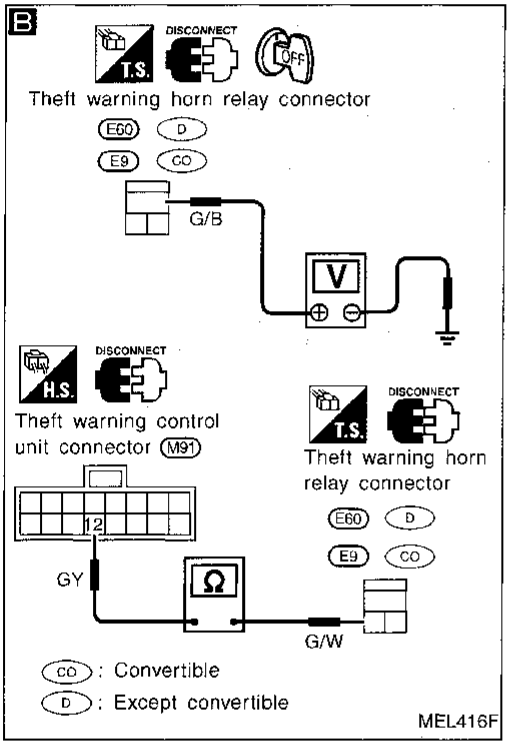
CHECK THE CONNECTIONS AT EACH CONNECTOR.

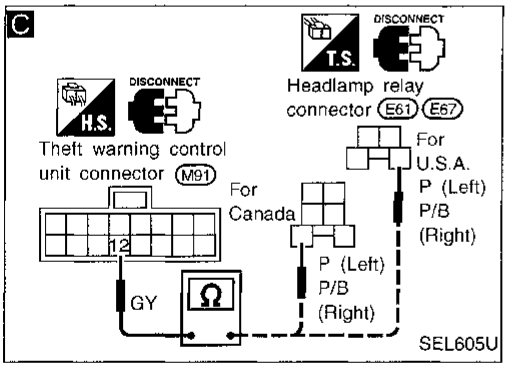
Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 5

SYMPTOM: Alarm does not operate.







A

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

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

NG → Replace control unit.

OK ↓

Check theft warning horn relay. NG → Replace relay.

OK ↓

B

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

NG → Repair harness and connectors.

OK ↓

C

THEFT WARNING HEADLAMP CIRCUIT CHECK
Check continuity between headlamp relay terminal and control unit harness terminal ⑫.

NG → Repair harness and connectors.

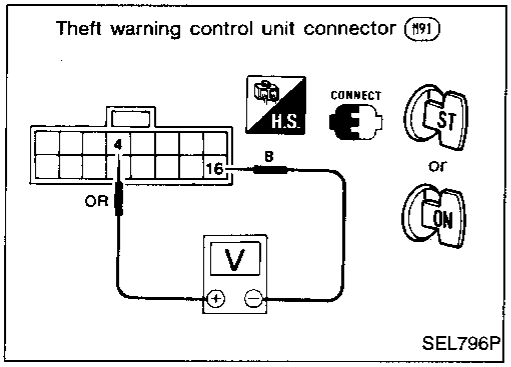
OK ↓

Check headlamp system. Refer to "HEADLAMP" (EL-44).

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 6

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



Approx. 12V

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

→ Replace control unit.

Approx. 0 volt

Check theft warning relay.

NG → Replace theft warning relay.

OK

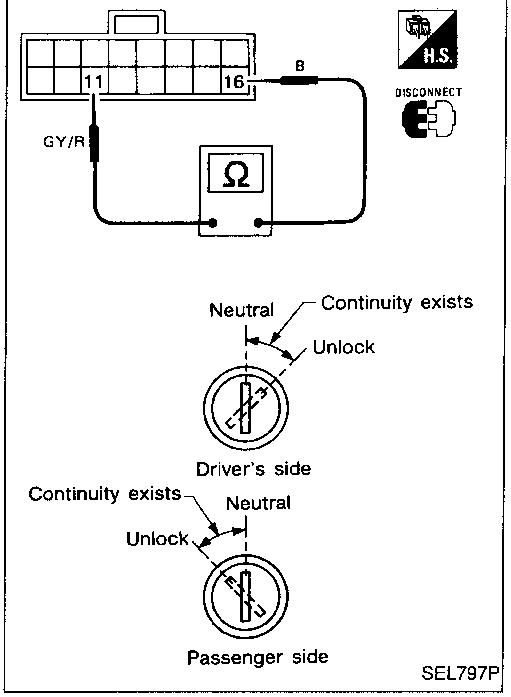
Repair harness between control unit and theft warning relay.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 7

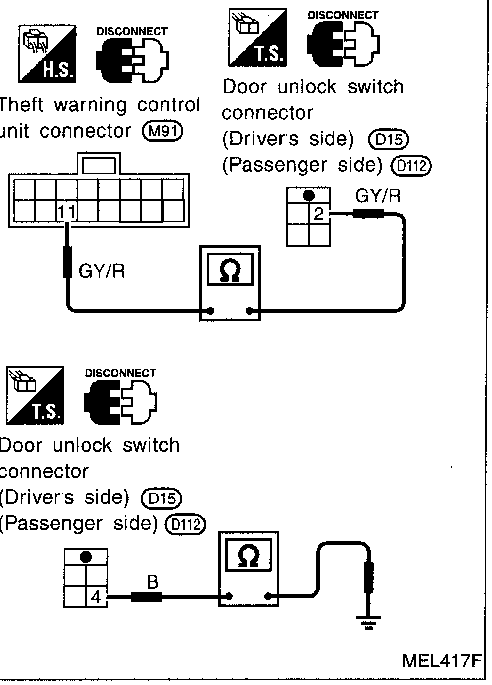
SYMPTOM: Alarm does not stop even if stop signal is given.

A Theft warning control unit connector (M91)



SEL797P

B



MEL417F

A

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

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

OK → Replace control unit.

NG ↓

DOOR UNLOCK SWITCH CHECK
Refer to "Electrical Components Inspection" (EL-269).

NG → Replace key cylinder switch.

OK ↓

B

DOOR UNLOCK SWITCH CIRCUIT CHECK
- Check harness continuity between control unit harness terminal (11) and door unlock switch terminal (2).
- Check harness continuity between door unlock switch terminal (4) and body ground.

Continuity should exist.

NG → Repair harness or connectors.

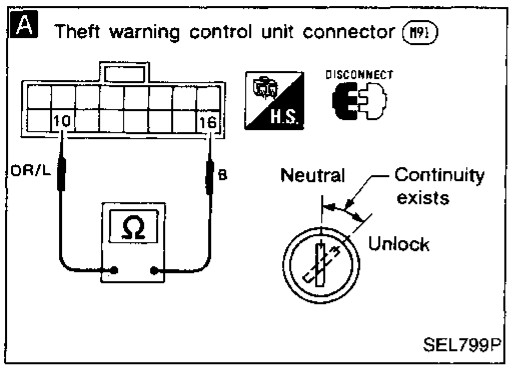
OK ↓

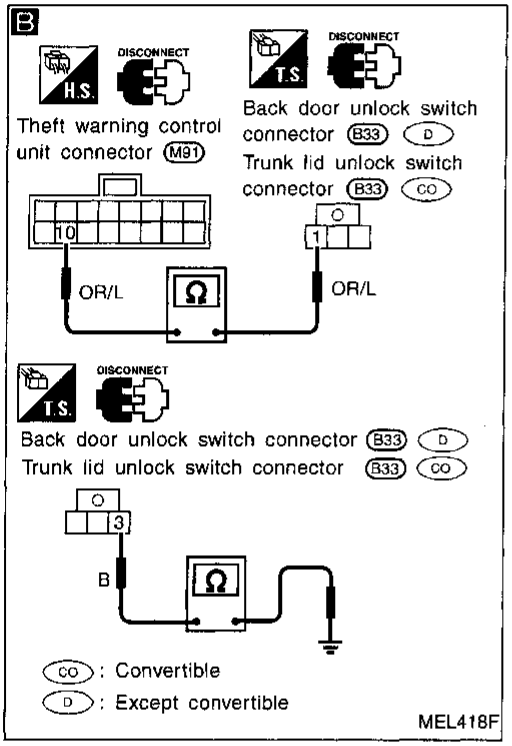
CHECK THE CONNECTIONS AT EACH CONNECTOR.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 8

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





A

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

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

OK → Replace control unit.

NG ↓

BACK DOOR UNLOCK SWITCH OR TRUNK LID UNLOCK SWITCH CHECK
Refer to "Electrical Components Inspection" (EL-269).

NG → Replace key cylinder switch.

OK ↓

B

BACK DOOR UNLOCK SWITCH OR TRUNK LID UNLOCK SWITCH CIRCUIT CHECK

- Check harness continuity between control unit harness terminal ⑩ and back door unlock switch terminal ① or trunk lid unlock switch terminal ①.
- Check harness continuity between back door unlock switch terminal ③ or trunk lid unlock switch terminal ③ and body ground.

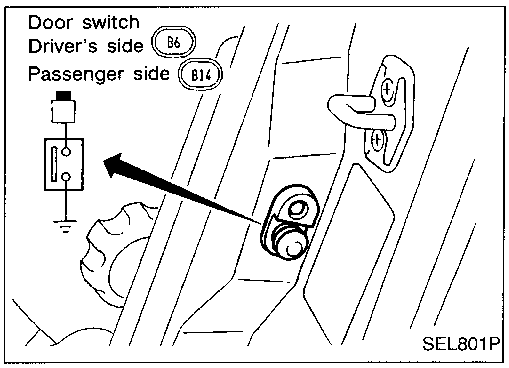
NG → Repair harness or connectors.

OK ↓

CHECK THE CONNECTIONS AT EACH CONNECTOR.

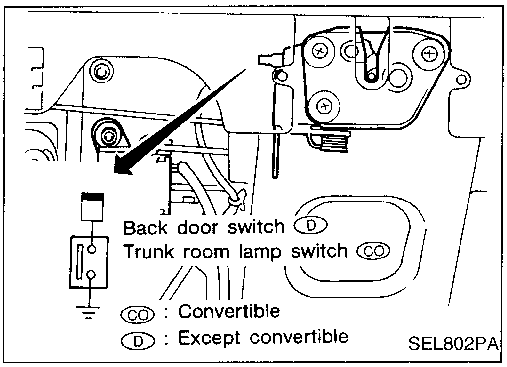
Trouble Diagnoses (Cont'd)

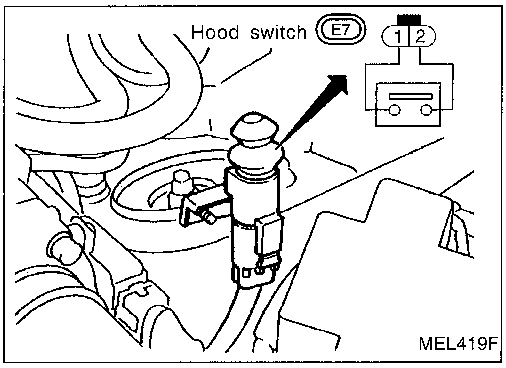
ELECTRICAL COMPONENTS INSPECTION



Door switches

Check continuity between terminal and switch body.

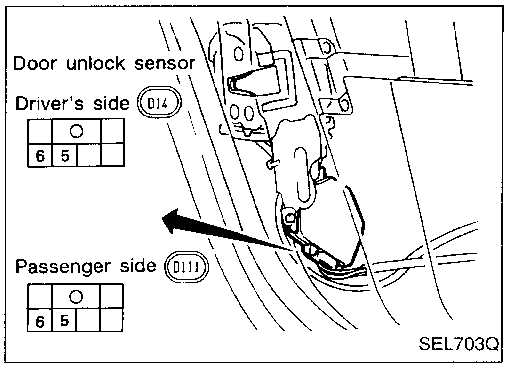




Hood switch

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

Terminal	Pushed	Released
1		○
2		○



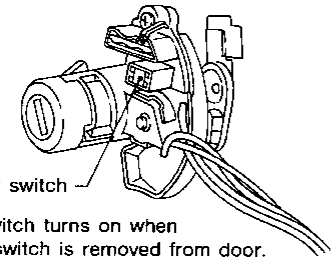
Door unlock sensor

Terminal	LOCK	UNLOCK
5		○
6		○

Trouble Diagnoses (Cont'd)

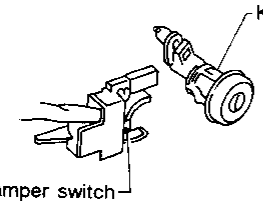
Key cylinder tamper switch, door lock switch and door unlock switch

Tamper switch for door

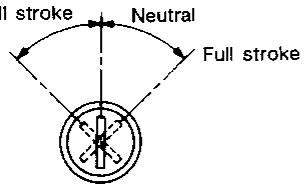


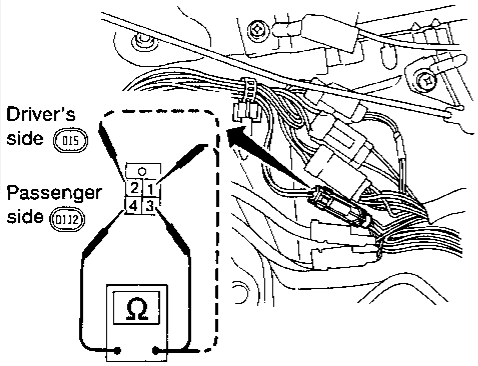
Reed switch turns on when tamper switch is removed from door.

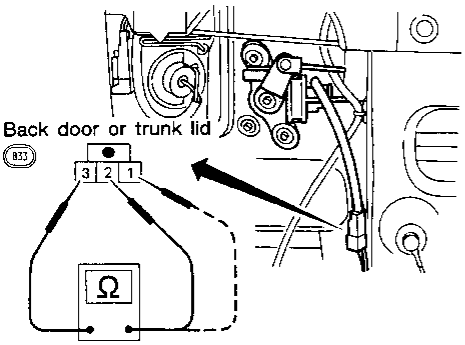
Tamper switch for back door or trunk lid



Reed switch turns on when key cylinder is removed.







SEL270U

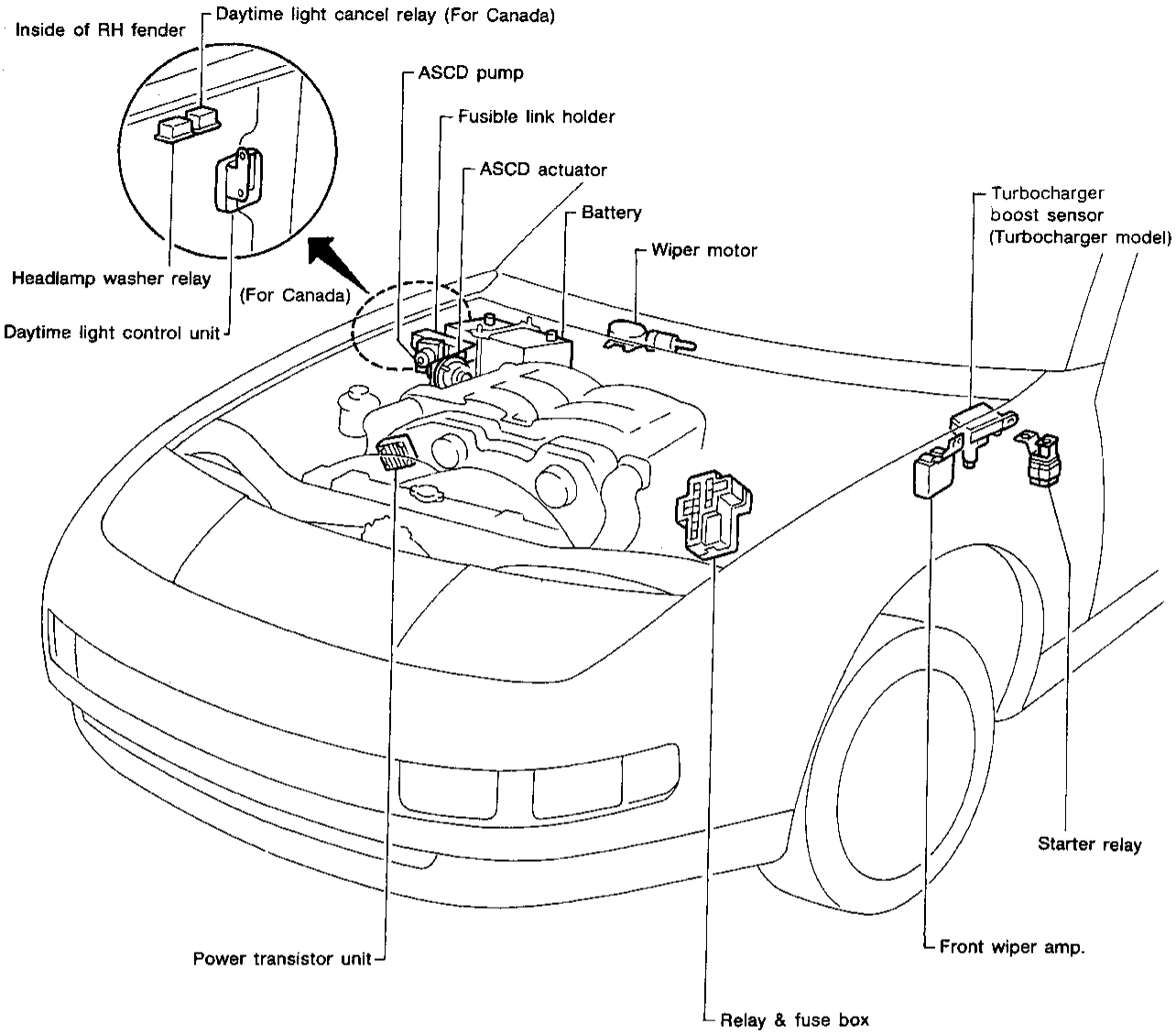
- **Door**

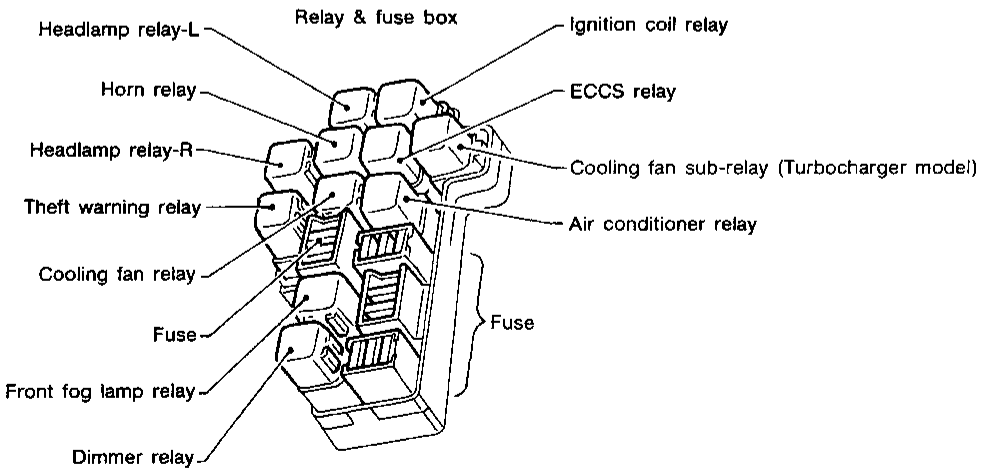
	TAMPER SWITCH		DOOR LOCK SWITCH			DOOR UNLOCK SWITCH	
	Key cylinder is installed	Key cylinder is removed	Full stroke	Between full stroke and neutral	Neutral	Between full stroke and neutral	Full stroke
1				○			
2				○		○	
3		○		○		○	
4		○		○		○	

- **Back door or trunk lid**

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

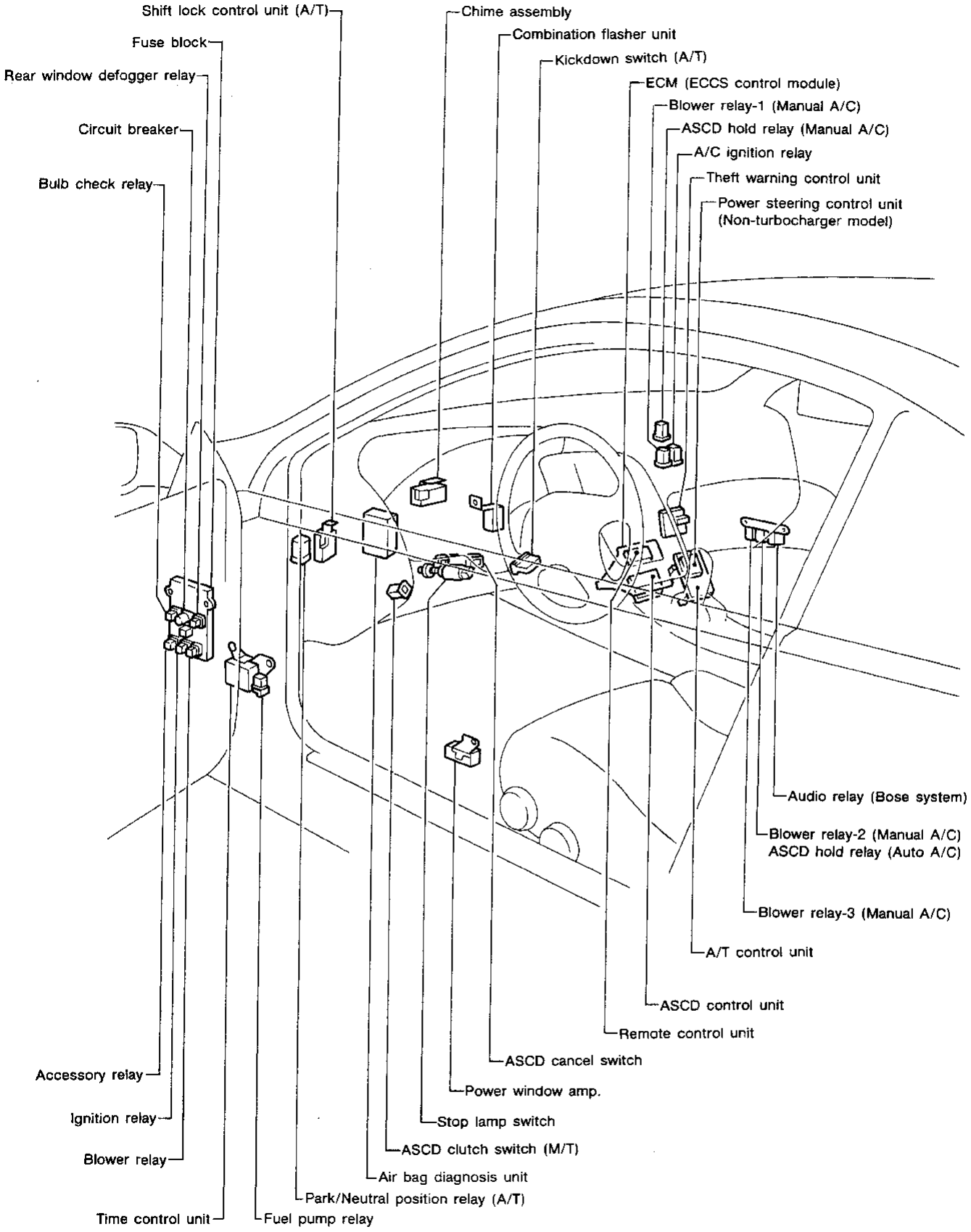
Engine Compartment





GEL035

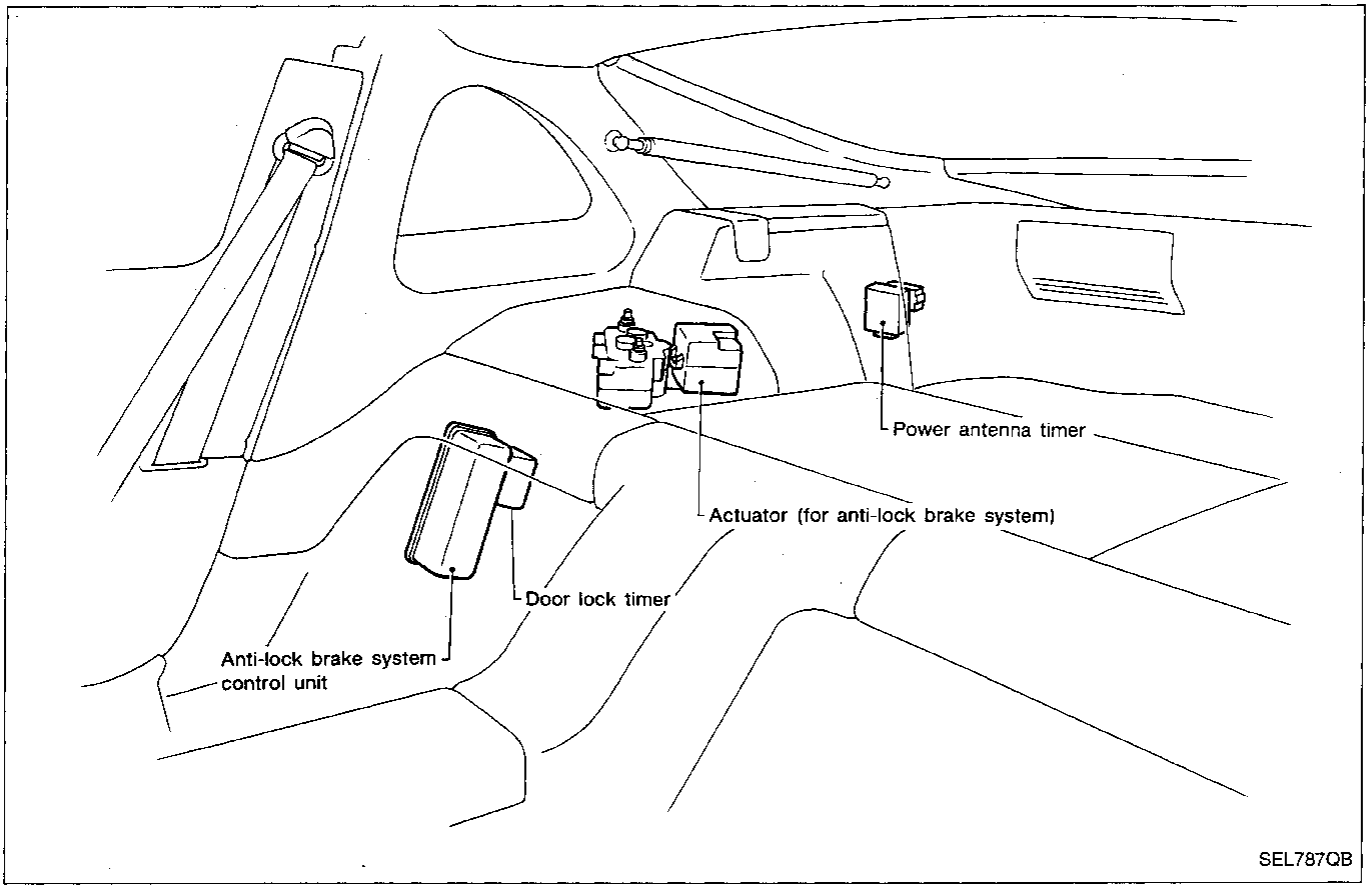
Passenger Compartment

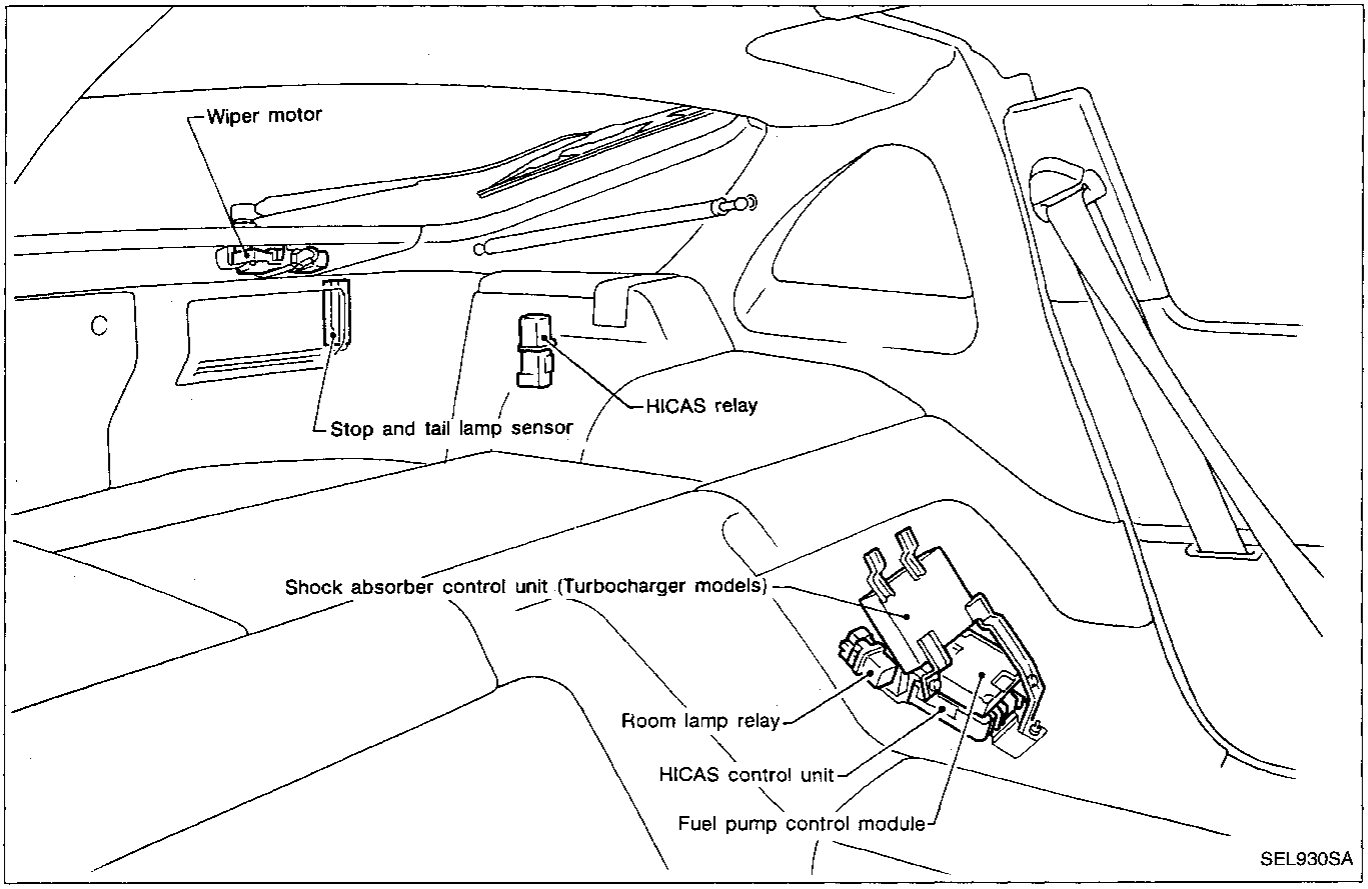


GEL036

Luggage Compartment

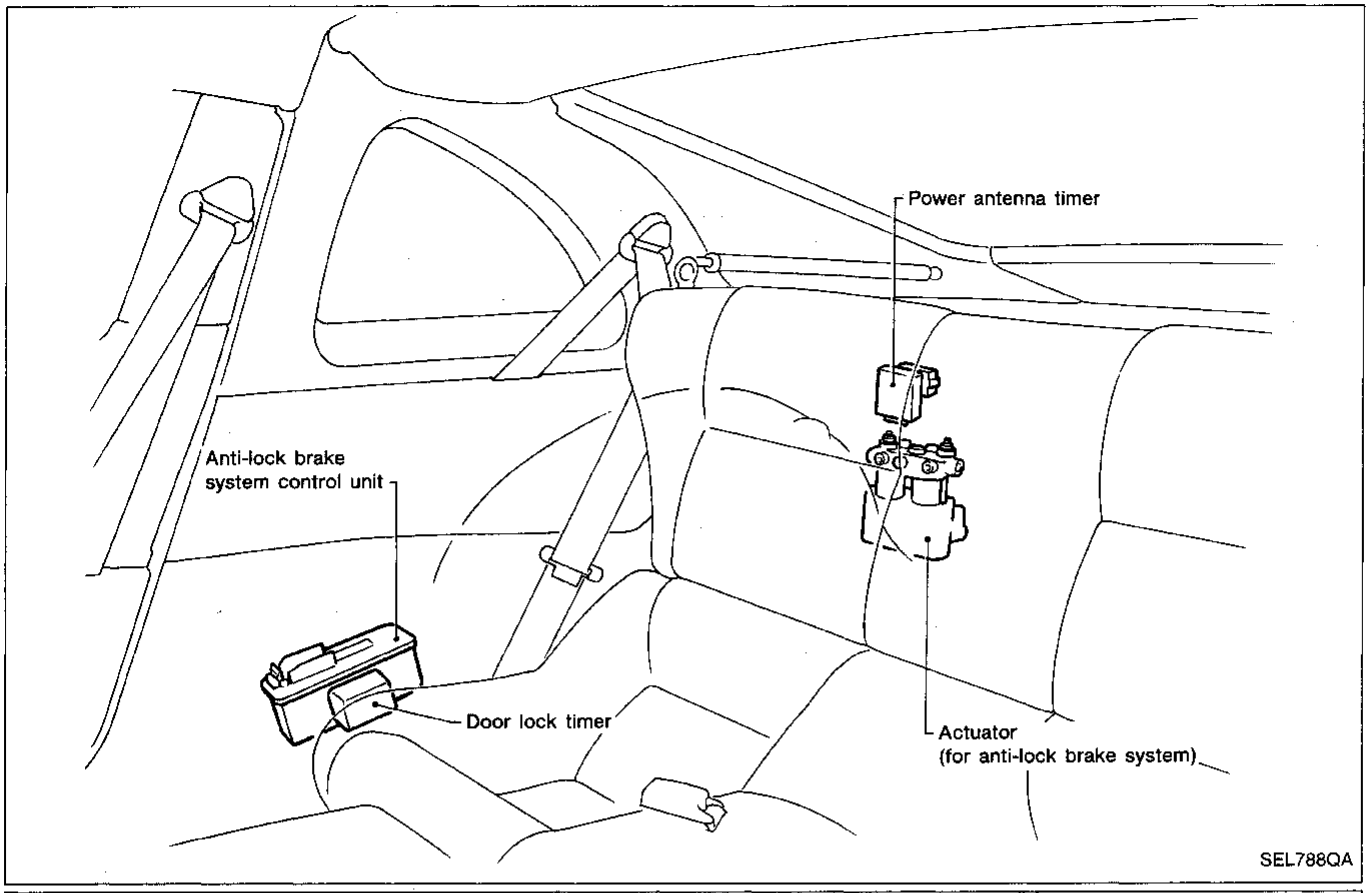
2 SEATER

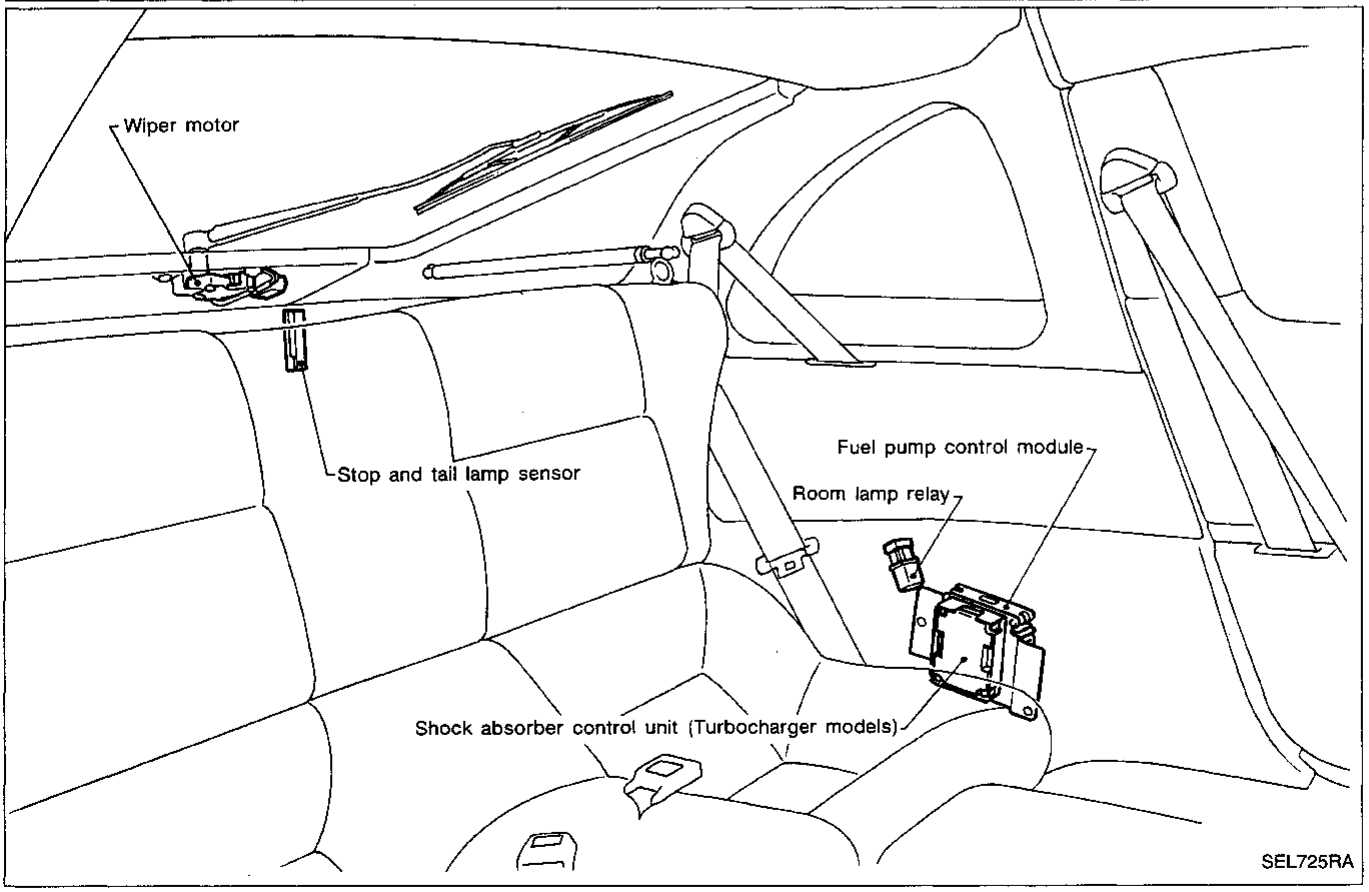




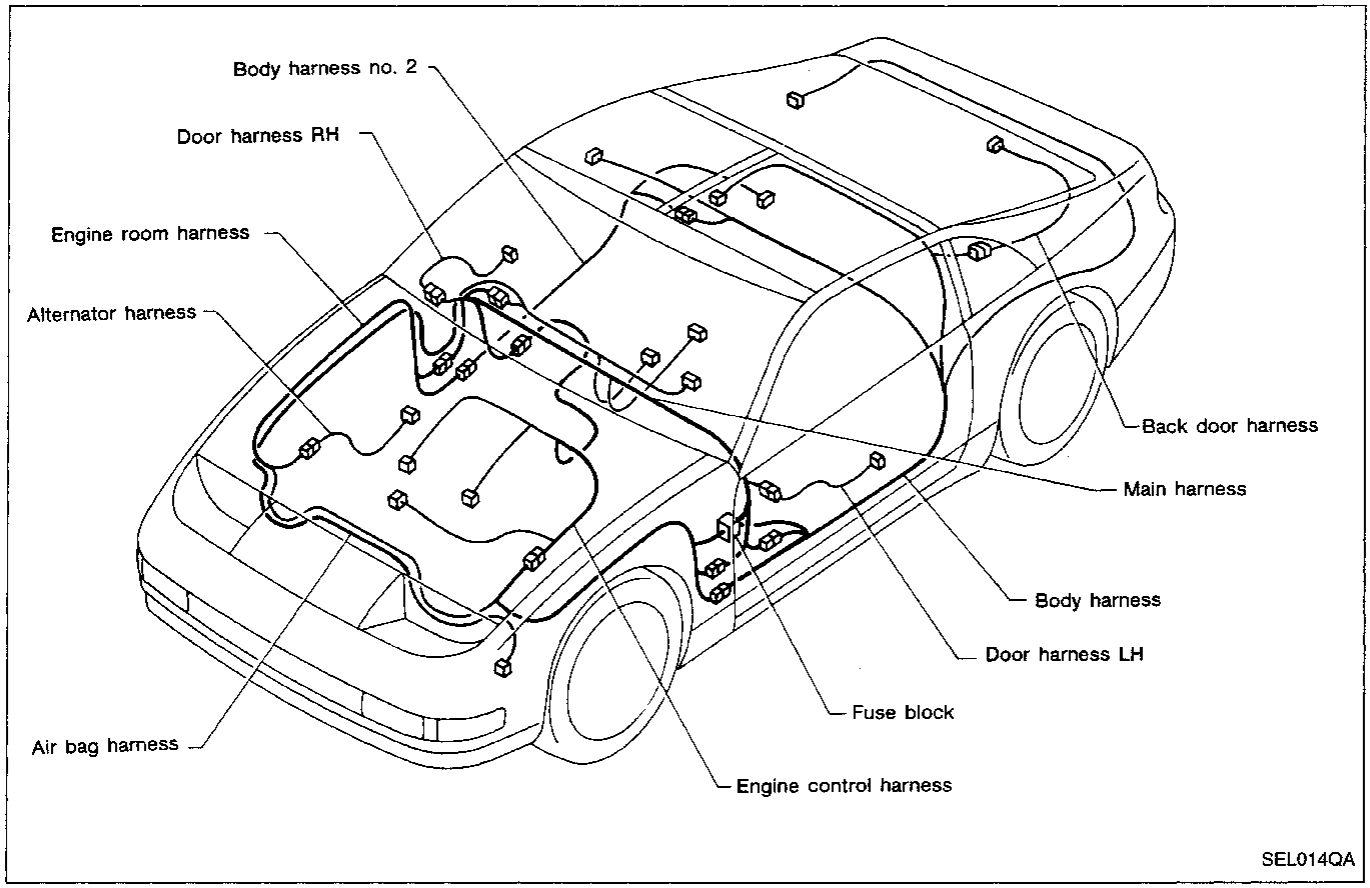
Luggage Compartment (Cont'd)

2+2 SEATER

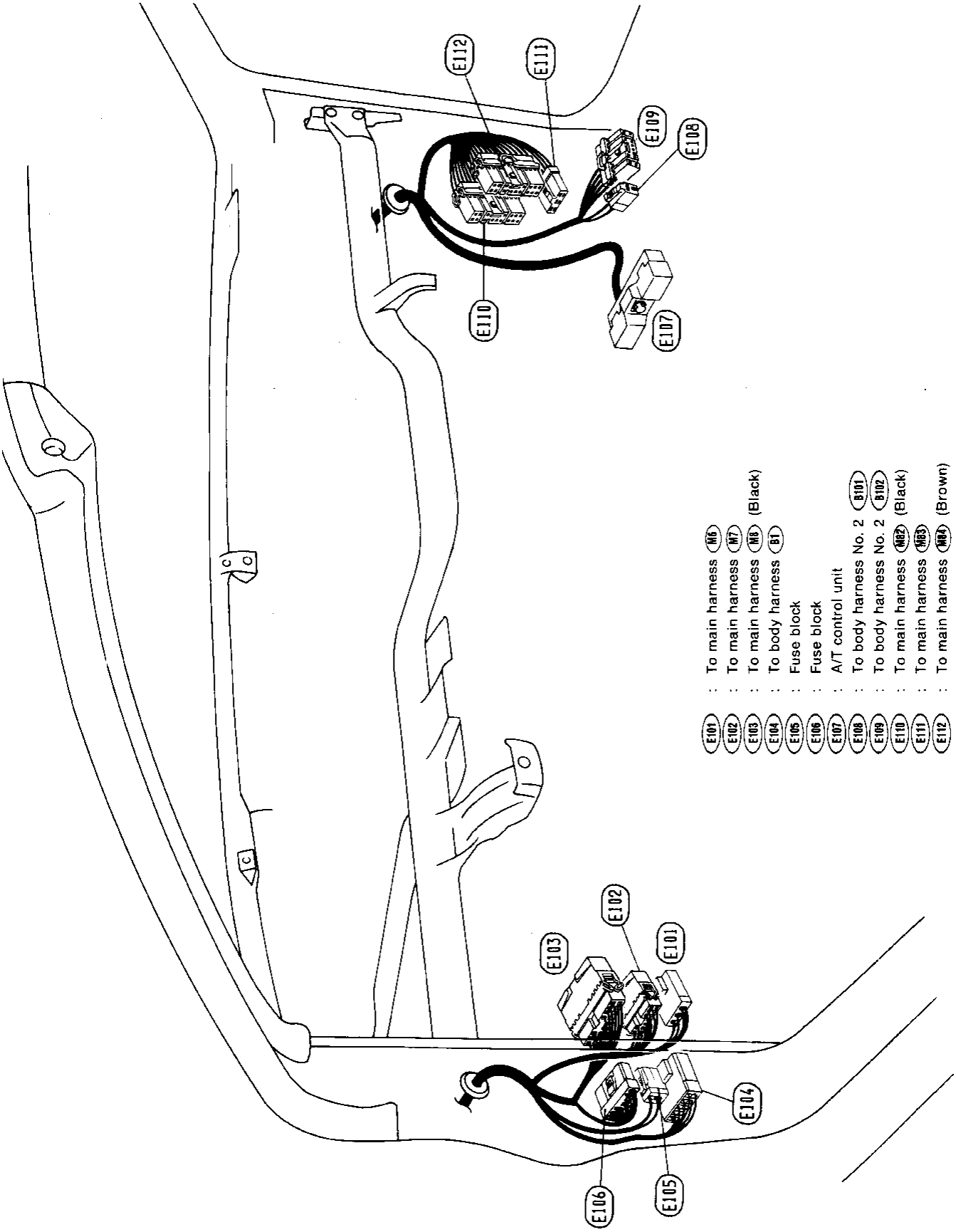




Outline

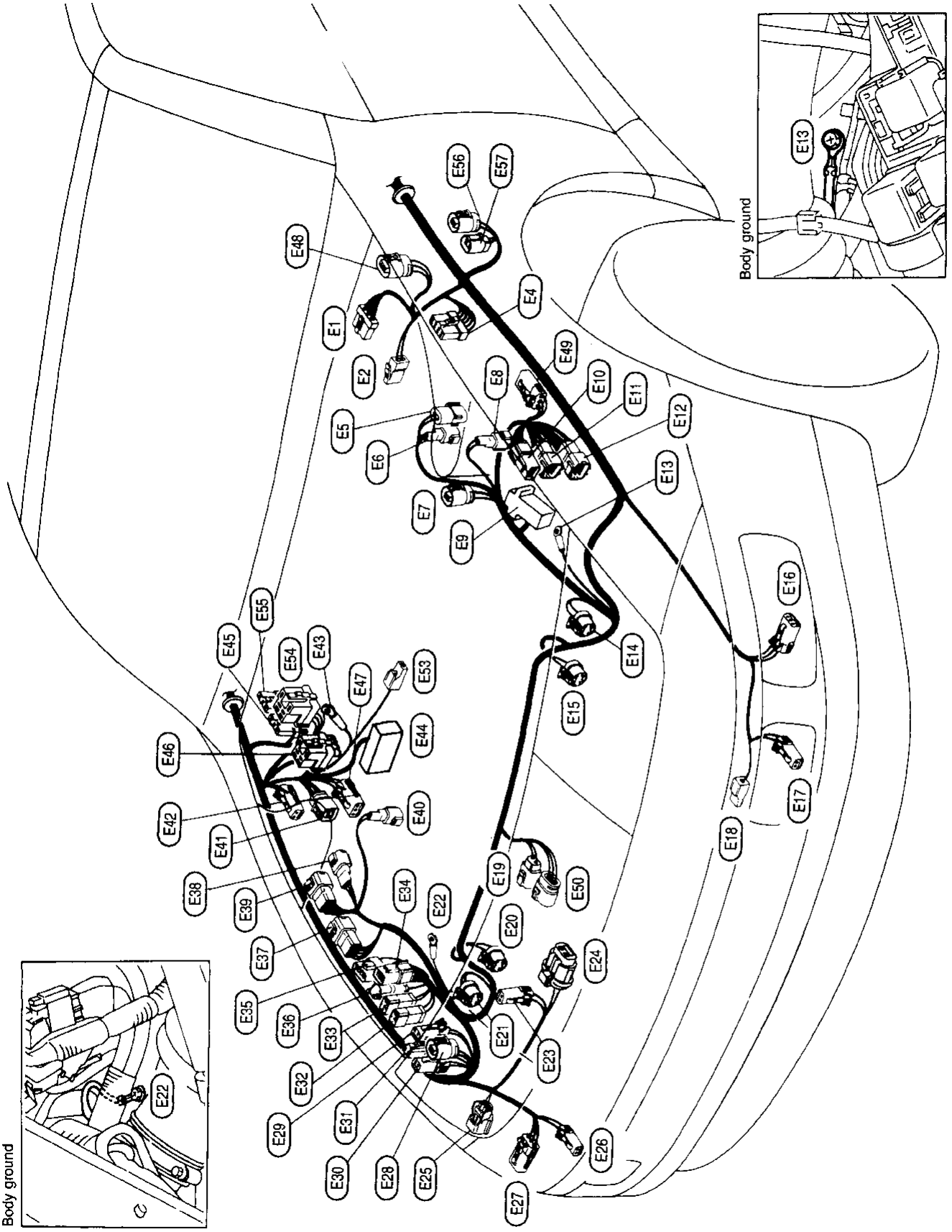

Body harness no. 2
Door harness RH
Engine room harness
Alternator harness
Air bag harness
Back door harness
Main harness
Body harness
Door harness LH
Fuse block
Engine control harness
SEL014QA

Engine Room Harness



SEL931S

Engine Room Harness (Cont'd)



GEL040

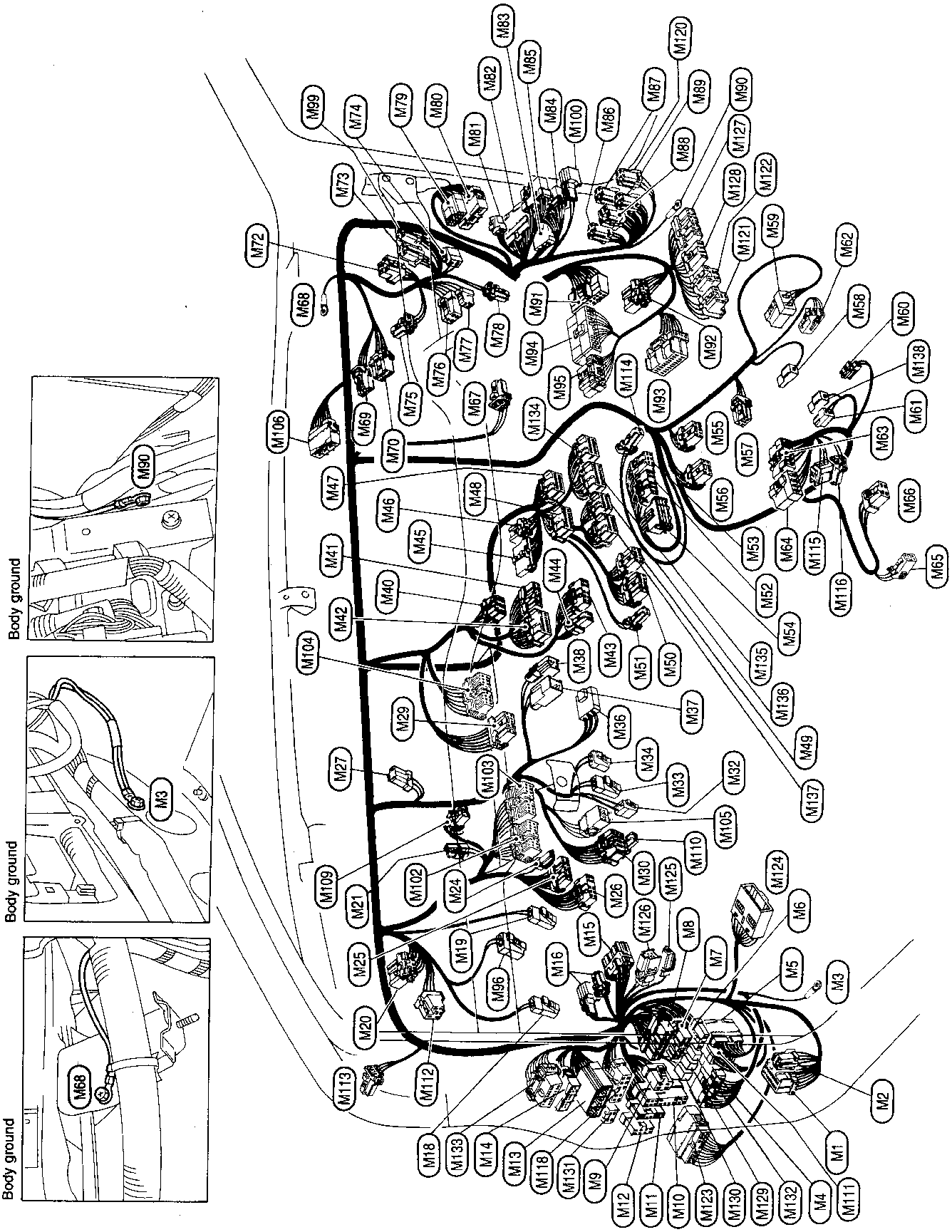
Engine Room Harness (Cont'd)

E1 : Front wiper motor
E2 : Brake fluid level switch
E4 : Front wiper amplifier
E5 : Power steering oil pressure switch (Black)
E6 : Power steering solenoid (Gray)
E7 : Hood switch
E8 : Front sensor LH (For anti-lock brake system)
E9 : Relay box
E10 : To engine control harness (F23) (Gray)
E11 : To engine control harness (F24) (Gray)
E12 : To engine control harness (F25) (Brown)
E13 : Body ground
E14 : Headlamp LH (Low beam) (Brown)
E15 : Headlamp LH (High beam) (Black)
E16 : Front combination lamp LH
E17 : Front fog lamp LH
E18 : Horn — low
E19 : Cooling fan motor (Non-turbocharger model)
E20 : Headlamp RH (High beam) (Black)
E21 : Headlamp RH (Low beam) (Brown)
E22 : Body ground
E23 : Ambient sensor (Auto A/C model)
E24 : Dual-pressure switch
E25 : Intake air temperature sensor
E26 : Front fog lamp RH
E27 : Front combination lamp RH
E28 : Front washer motor (White)
E29 : Rear washer motor (Gray)
E30 : Washer fluid level switch (Brown) (Except turbocharger model for California)
E31 : Headlamp washer motor (Black) (For Canada)

E32 : To alternator harness (A1) (Black)
E33 : To alternator harness (A2) (Blue)
E34 : To alternator harness (A3) (A/T model)
E35 : To alternator harness (A4) (M/T model)
E36 : To alternator harness (A5)
E37 : Inhibitor switch (A/T model)
E38 : Revolution sensor (A/T model)
E39 : To A/T solenoid harness (A/T model)
E40 : Front sensor RH (For anti-lock brake system)
E41 : ASCD pump
E42 : Dropping resistor (A/T model)
E43 : Battery
E44 : Fusible link holder
E45 : Daytime light control unit (For Canada)
E46 : Headlamp washer relay (For Canada)
E47 : Front shock absorber actuator RH (Turbocharger model)
E48 : Turbocharger boost sensor (Turbocharger model)
E49 : Front shock absorber actuator LH (Turbocharger model)
E50 : Cooling fan motor (Turbocharger model)
E53 : Horn — high
E54 : Daytime light cancel relay (For Canada)
E55 : Daytime light control unit (For Canada)
E56 : Starter relay
E57 : Starter relay
E60 : Theft warning relay
E61 : Headlamp relay-R
E62 : Dimmer relay
E63 : Front fog lamp relay
E64 : Fuse
E65 : Cooling fan relay
E66 : Horn relay
E67 : Headlamp relay-L
E68 : Fuse
E69 : Fuse
E70 : Fuse
E71 : Air conditioner relay
E72 : ECCS relay
E73 : Ignition coil relay
E74 : Cooling fan sub-relay (Turbocharger model)

GEL041

Main Harness



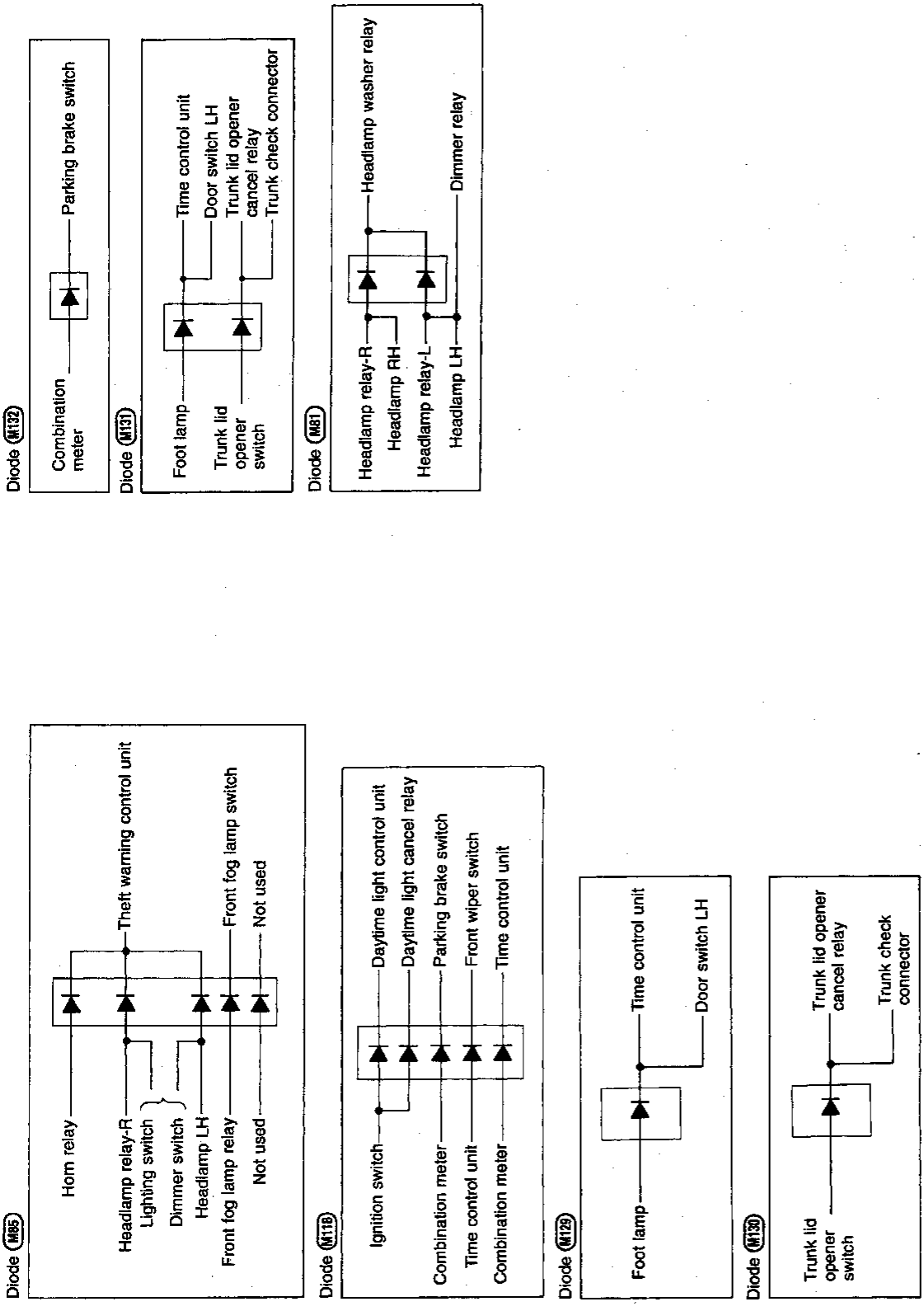
GEL042

Main Harness (Cont'd)

(M1) : Time control unit
(M2) : Fuel pump relay
(M3) : Body ground
(M4) : To body harness (B2)
(M5) : To body harness (B3) (Convertible)
(M6) : To engine room harness (E101)
(M7) : To engine room harness (E102)
(M8) : To engine room harness (E103) (Black)
(M9) : Fuse block
(M10) : Fuse block
(M11) : Fuse block
(M12) : Fuse block
(M13) : To door harness LH (D1)
(M14) : To door harness LH (D2)
(M15) : Data link connector for CONSULT
(M16) : Joint connector (Turbocharger model)
(M18) : ASCD clutch switch (Blue)
(M19) : Clutch interlock switch (Blue) (M/T model)
(M20) : Shift lock control unit (A/T model)
(M21) : Warning chime
(M24) : Cluster switch
(M25) : Cluster switch
(M26) : Lighting switch•Headlamp washer switch
(M27) : Combination flasher unit
(M29) : Combination meter
(M30) : Dimmer switch
(M32) : Kickdown switch (White) (A/T model)
(M33) : ASCD cancel switch (Blue)
(M34) : Stop lamp switch (Black)
(M36) : Ignition switch
(M37) : Key switch
(M38) : Key hole illumination
(M40) : Hazard warning switch
(M41) : A/C switch unit (Manual A/C model)
(M42) : A/C switch unit (Auto A/C model)
(M43) : Front wiper and washer switch
(M44) : Rear wiper and washer switch
(M45) : Mode door motor (Manual A/C model)
(M46) : Mode door motor (Auto A/C model)
(M47) : A/C control amp. (Manual A/C model)
(M48) : A/C control amp. (Manual A/C model)
(M49) : Air mix actuator (Manual A/C model)
(M50) : To A/C sub-harness (Auto A/C model)
(M51) : Foot lamp LH
(M52) : Radio and cassette player
(M53) : Radio and cassette player
(M54) : Joint connector (Bose system model)
(M55) : Shift lock solenoid•Detention switch (A/T model)
(M56) : Digital clock
(M57) : Overdrive control switch and A/T illumination (A/T model)
(M58) : Parking brake switch
(M59) : Seat belt switch RH (Convertible)
(M60) : Ashtray illumination
(M61) : Cigarette lighter
(M62) : Rear heated oxygen sensor RH
(M63) : Door mirror control switch•Shock absorber select switch (Turbocharger model)
(M64) : Door mirror control switch (Non-turbocharger model)
(M65) : Rear heated oxygen sensor LH
(M66) : To seat sub-harness (With power seat)
(M67) : Thermo control amplifier (Manual A/C model)
(M68) : Body ground
(M69) : Intake door motor (Manual A/C model)
(M70) : Intake door motor (Auto A/C model)
(M72) : ASCD hold relay (Manual A/C model)
(M73) : Blower relay-1 (Manual A/C model)
(M74) : Blower motor
(M75) : A/C sensor (Auto A/C model)
(M76) : Heater resistor (Manual A/C model)
(M77) : Blower control amplifier (Auto A/C model)
(M78) : Foot lamp RH
(M79) : To door harness RH (D101)
(M80) : To door harness RH (D102)
(M81) : Diode (For Canada)
(M82) : To engine room harness (E110) (Black)
(M83) : To engine room harness (E111)
(M84) : To engine room harness (E112) (Brown)
(M85) : Diode
(M86) : Blower relay-3 (Manual A/C model)
(M87) : Blower relay-2 (Manual A/C model)
(M88) : ASCD hold relay (Auto A/C model)
(M89) : Audio relay (Manual A/C model with Bose system)
(M90) : Body ground
(M91) : Theft warning control unit
(M92) : Power steering control unit (Non-turbocharger model)
(M93) : ASCD control unit
(M94) : To engine control harness (F5)
(M95) : To engine control harness (F2)
(M96) : Clutch pedal position switch (Black) (M/T)
(M99) : A/C ignition relay (Convertible)
(M100) : To body harness No. 2 (B109) (Turbocharger model)
(M102) : Combination meter
(M103) : Combination meter
(M104) : Combination meter
(M105) : Steering angle sensor (Turbocharger model)
(M106) : To air bag harness (A11)
(M109) : Combination meter
(M110) : ASCD switch
(M111) : To (B46) (Convertible)
(M112) : Park/Neutral position relay (A/T model)
(M113) : To room lamp harness (R1) (Convertible)
(M114) : Radio theft warning switch (Convertible)
(M115) : Fuel filler lid opener switch (Convertible)
(M116) : Trunk lid opener switch (Convertible)
(M118) : Diode (For Canada)
(M120) : Seat belt warning relay
(M121) : Remote control relay-2
(M122) : Remote control relay-1
(M123) : To body harness (B71) (Except convertible)
(M124) : To body harness (B72) (Except convertible)
(M125) : ABS check connector
(M126) : Trunk check connector
(M127) : Remote control unit
(M128) : Remote control unit
(M129) : Diode (For Canada)
(M130) : Diode (For Canada)
(M131) : Diode (For U.S.A.)
(M132) : Diode (Convertible for U.S.A.)
(M133) : Data link connector for GST
(M134) : A/C control amp. (Auto A/C model)
(M135) : A/C control amp. (Auto A/C model)
(M136) : A/C control amp. (Auto A/C model)
(M137) : A/C control amp. (Auto A/C model)
(M138) : Cigarette lighter illumination

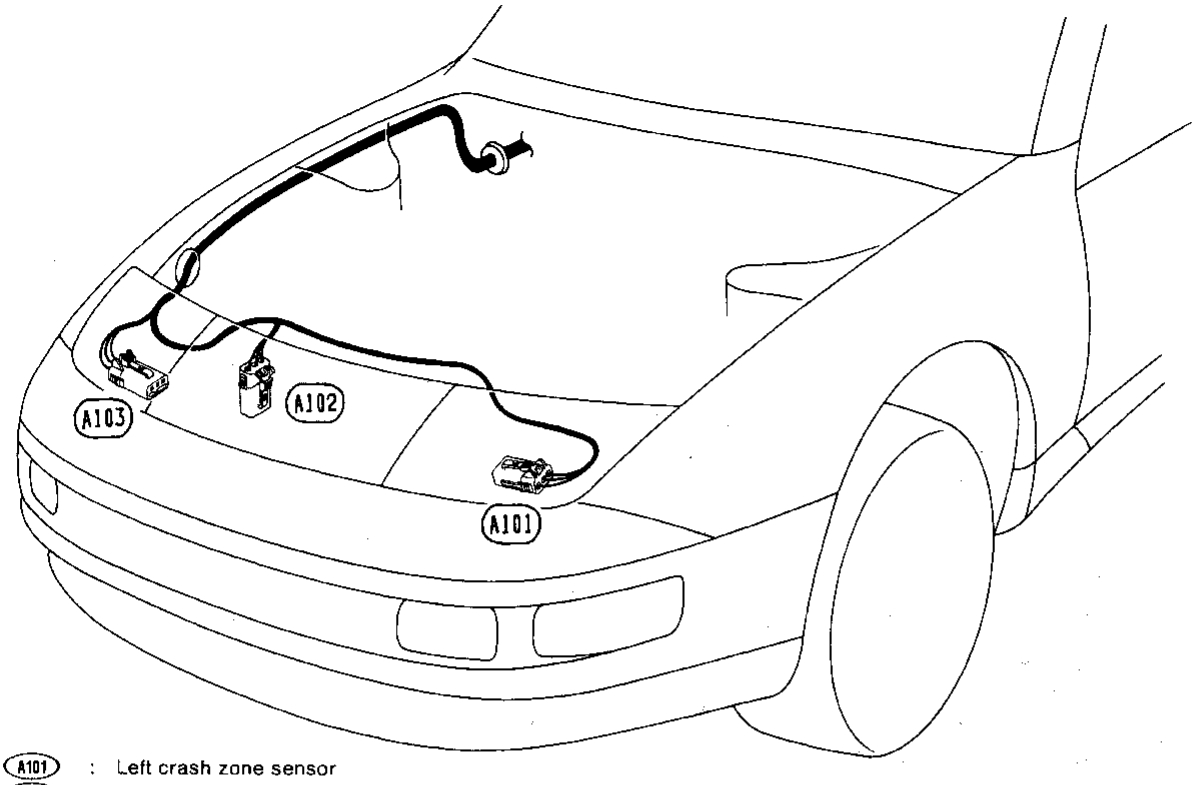
GEL043

Main Harness (Cont'd)

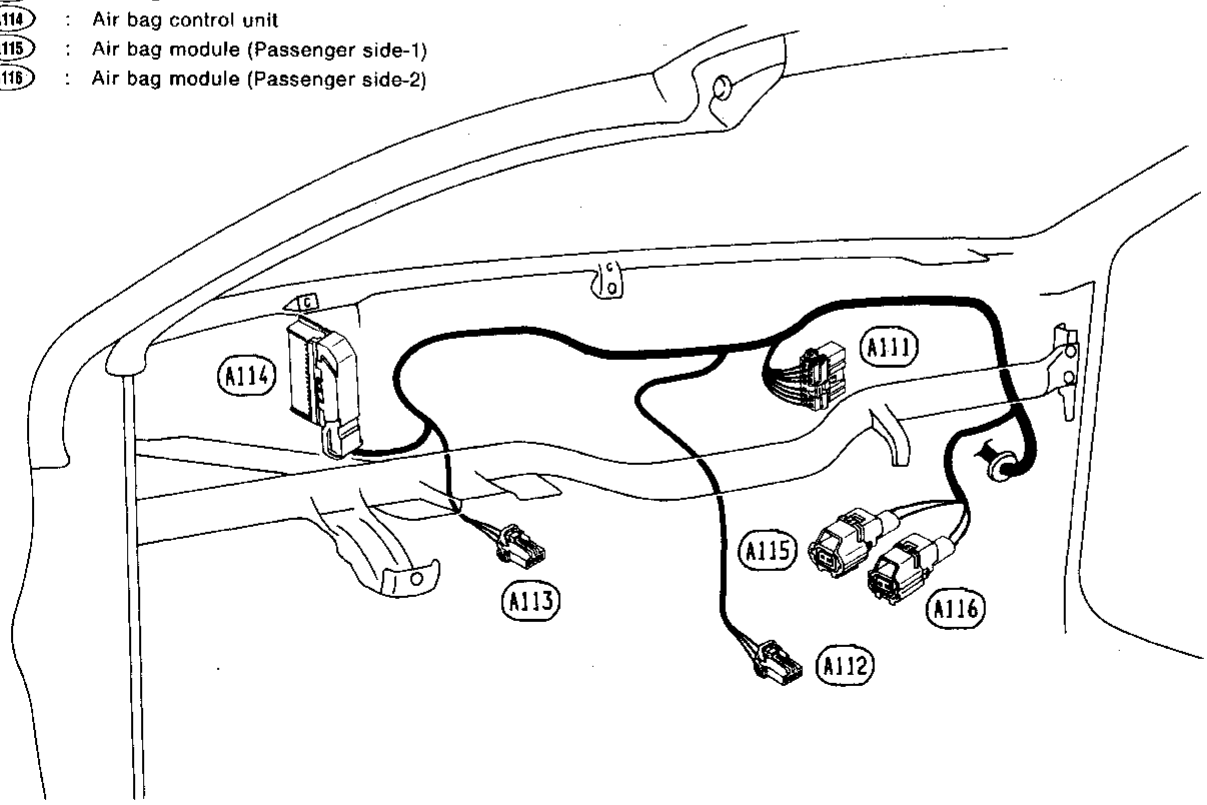


GEL044

Air Bag Harness

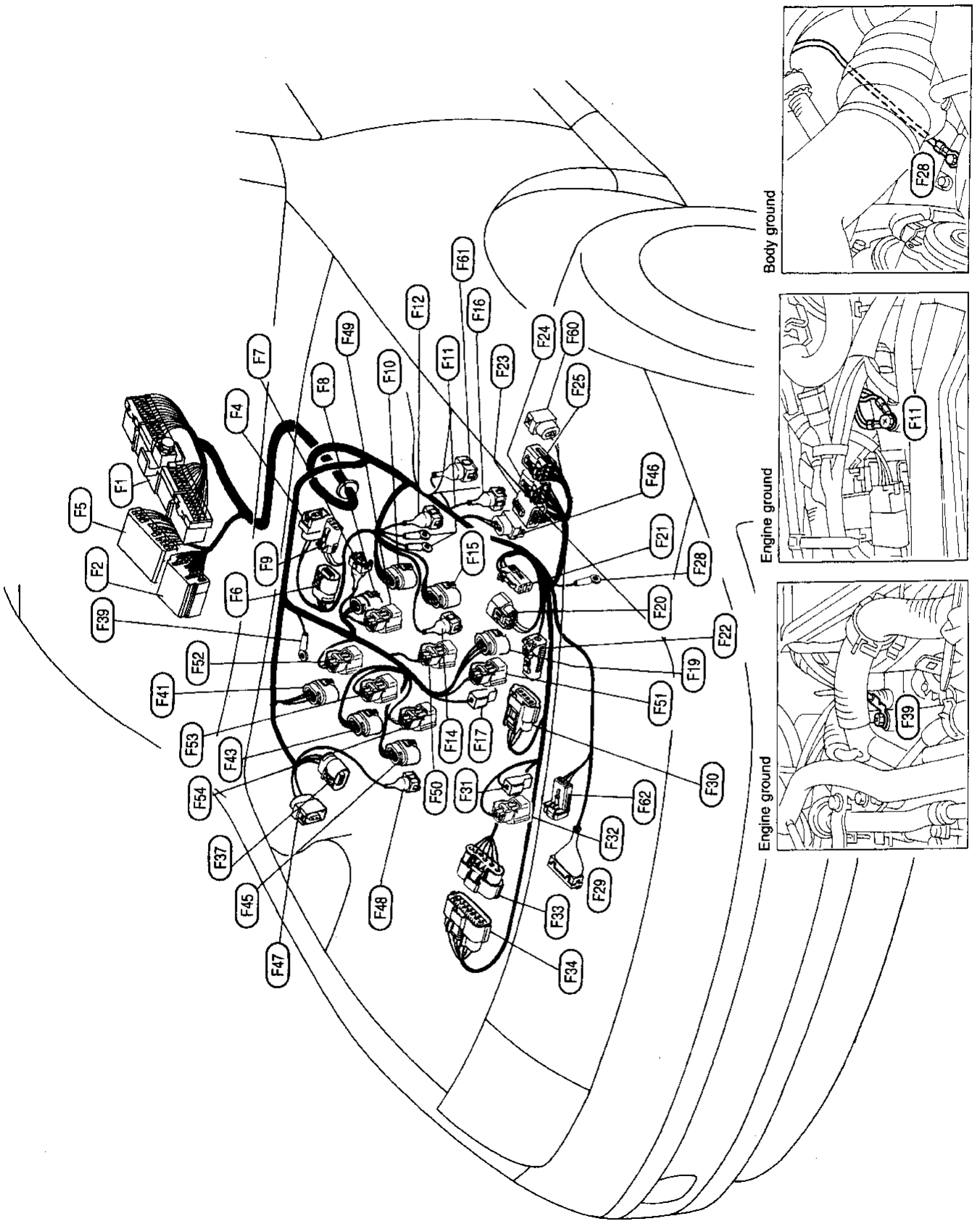


A101 : Left crash zone sensor
A102 : Center crash zone sensor
A103 : Right crash zone sensor
A111 : To main harness M106
A112 : Tunnel and safing sensor
A113 : Air bag module
A114 : Air bag control unit
A115 : Air bag module (Passenger side-1)
A116 : Air bag module (Passenger side-2)



SEL938S

Engine Control Harness



GEL045

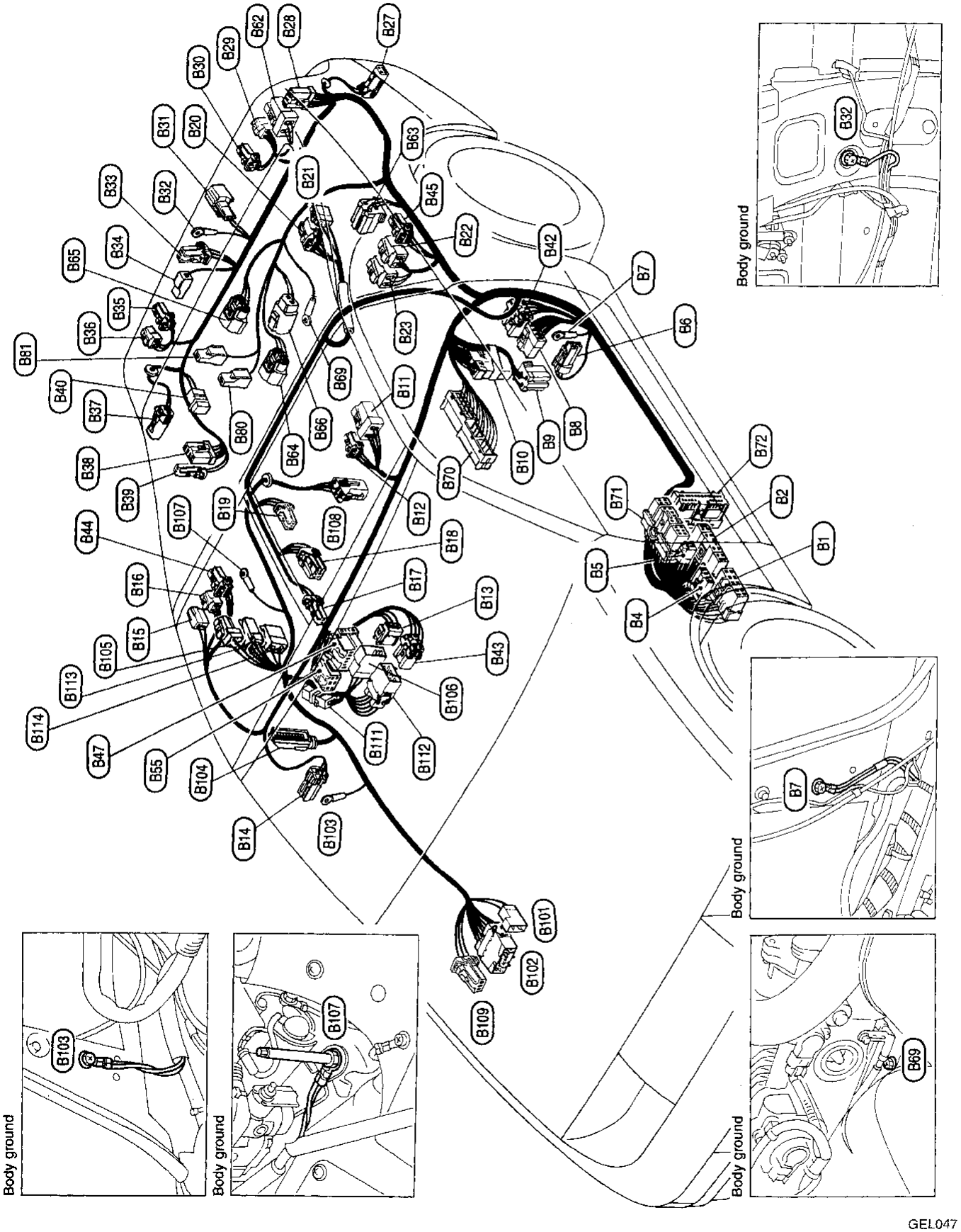
Engine Control Harness (Cont'd)

(F1) : ECM (ECCS control module)
(F2) : To main harness (M95)
(F4) : EGR temperature sensor
(F5) : To main harness (M94)
(F6) : Front heated oxygen sensor LH
(F7) : IACV-Air regulator
(F8) : To knock sensor sub-harness
(F9) : To crankshaft position sensor (OBD) sub-harness
(F10) : Ignition coil No. 6
(F11) : Engine ground
(F12) : IACV-AAC valve
(F14) : IACV-FICD solenoid valve
(F15) : Ignition coil No. 4
(F16) : Fuel pressure regulater control solenoid valve
(F17) : Fuel temperature sensor
(F19) : Ignition coil No. 2
(F20) : Throttle position switch
(F21) : To throttle position sensor sub-harness
(F22) : Compressor
(F23) : To engine room harness (E10) (Gray)
(F24) : To engine room harness (E11) (Gray)
(F25) : To engine room harness (E12) (Brown)
(F28) : Body ground
(F29) : Mass air flow sensor
(F30) : Camshaft position sensor
(F31) : Thermal transmitter
(F32) : Engine coolant temperature sensor
(F33) : Power transistor unit
(F34) : Power transistor unit
(F37) : Front heated oxygen sensor RH
(F39) : Engine ground
(F41) : Ignition coil No. 5
(F43) : Ignition coil No. 3
(F45) : Ignition coil No. 1
(F46) : Wastegate valve control solenoid valve LH (Turbocharger model)
(F47) : Wastegate valve control solenoid valve RH (Turbocharger model)
(F48) : EGRC-solenoid valve
(F49) : Injector No. 6
(F50) : Injector No. 4
(F51) : Injector No. 2
(F52) : Injector No. 5
(F53) : Injector No. 3
(F54) : Injector No. 1
(F60) : Canister control vacuum check switch
(F61) : EVAP canister purge control solenoid valve
(F62) : Turbocharger boost sensor (Turbocharger model)

GEL046

Body Harness

2 SEATER



GEL047

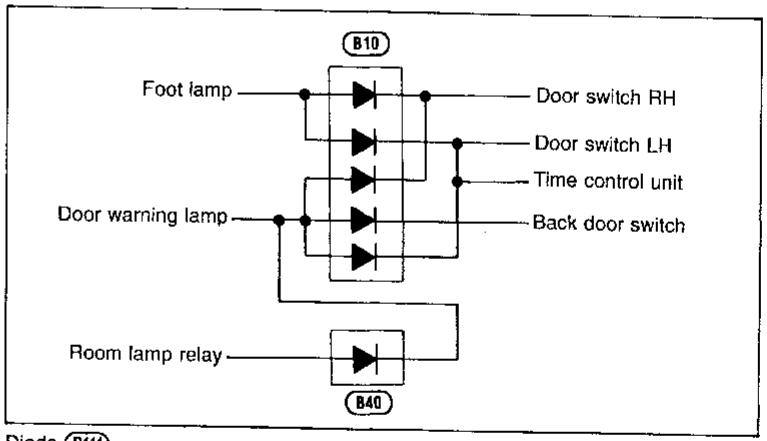
Body harness

- (B1) : To engine room harness (E104)
- (B2) : To main harness (M4)
- (B4) : Fuse block
- (B5) : Fuse block
- (B6) : Door switch LH
- (B7) : Body ground
- (B8) : Fuel pump control module
- (B9) : Room lamp relay
- (B10) : Diode
- (B11) : Fuel pump
- (B12) : Fuel tank gauge unit
- (B13) : To body harness No. 2 (B106)
- (B14) : Door switch RH
- (B16) : Rear speaker RH (Bose system)
- (B17) : Spot lamp
- (B18) : In-vehicle sensor upper•Aspirator motor (Auto A/C model)
- (B19) : Interior lamp
- (B20) : To back door harness (D201)
- (B21) : To back door harness (D202)
- (B23) : Rear speaker LH (Bose system)
- (B27) : Rear side marker lamp LH
- (B28) : Stop and tail lamp sensor
- (B29) : Rear combination lamp LH
- (B30) : Back-up lamp LH
- (B31) : License lamp
- (B32) : Body ground
- (B33) : Back door key switch
- (B34) : Back door switch
- (B35) : Back-up lamp RH
- (B36) : Rear combination lamp RH
- (B37) : Rear side marker lamp RH
- (B38) : Power antenna timer
- (B39) : Power antenna motor
- (B40) : Diode
- (B42) : Shock absorber control unit (Turbocharger model)
- (B43) : To body harness No. 2 (B112) (Turbocharger model)
- (B44) : Rear shock absorber actuator RH (Turbocharger model)
- (B45) : Rear shock absorber actuator LH (Turbocharger model)
- (B47) : Door lock timer
- (B55) : Door lock timer
- (B62) : Back door actuator
- (B63) : HICAS relay
- (B64) : Rear sub sensor
- (B65) : Main sensor
- (B66) : HICAS motor
- (B69) : Body ground
- (B70) : HICAS control unit
- (B71) : To main harness (M123)
- (B72) : To main harness (M124)
- (B80) : HICAS motor
- (B81) : HICAS motor

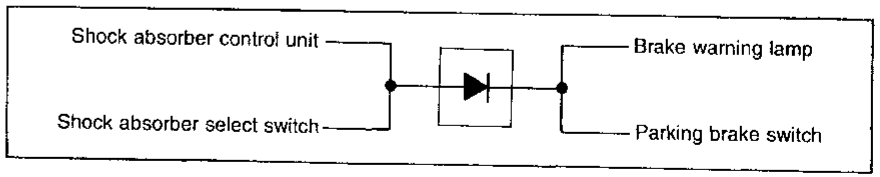
Body harness No. 2

- (B101) : To engine room harness (E108)
- (B102) : To engine room harness (E109)
- (B103) : Body ground
- (B104) : ABS control unit
- (B105) : Actuator (For ABS)
- (B106) : To body harness (B13)
- (B107) : Body ground
- (B108) : Rear sensor (For ABS)
- (B109) : To main harness (M100)
- (B111) : Diode (Turbocharger model)
- (B112) : To body harness (B43) (Turbocharger model)
- (B113) : Actuator (For ABS)
- (B114) : Actuator (For ABS)

Diode (B10) (B40)

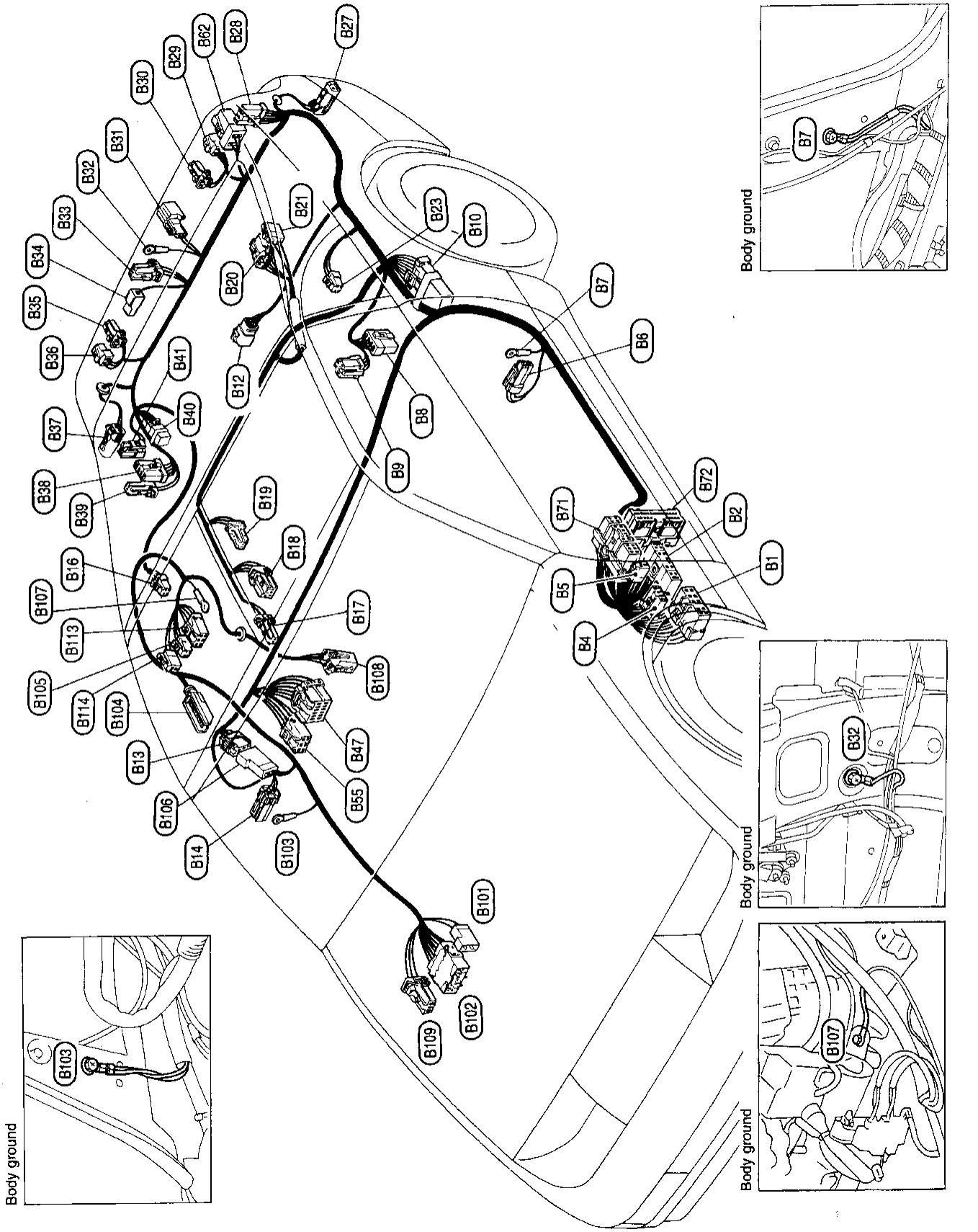


Diode (B111)



Body Harness (Cont'd)

2+2 SEATER



GEL049

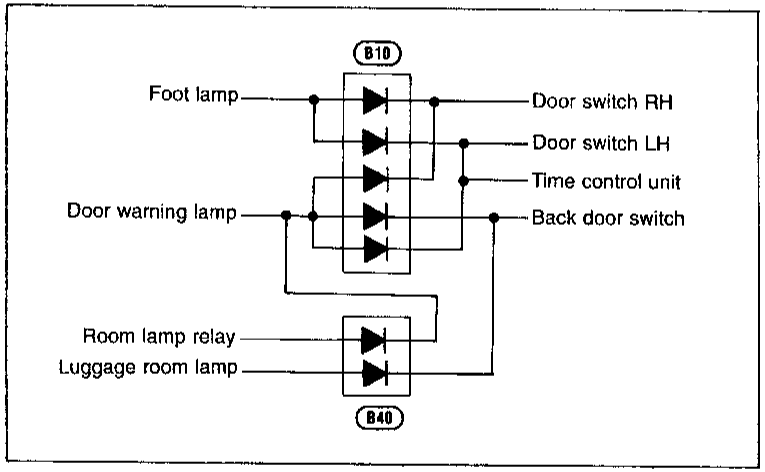
Body harness

- (B1) : To engine room harness (E104)
- (B2) : To main harness (M4)
- (B4) : Fuse block
- (B5) : Fuse block
- (B6) : Door switch LH
- (B7) : Body ground
- (B8) : Fuel pump control module
- (B9) : Room lamp relay
- (B10) : Diode
- (B12) : Fuel tank gauge unit
- (B13) : To body harness No. 2 (B106)
- (B14) : Door switch RH
- (B16) : Rear speaker RH (Bose system)
- (B17) : Spot lamp
- (B18) : In-vehicle sensor upper•Aspirator motor (Auto A/C model)
- (B19) : Interior lamp
- (B20) : To back door harness (D201)
- (B21) : To back door harness (D202)
- (B23) : Rear speaker LH (Bose system)
- (B27) : Rear side marker lamp LH
- (B28) : Stop and tail lamp sensor
- (B29) : Rear combination lamp LH
- (B30) : Back-up lamp LH
- (B31) : License lamp
- (B32) : Body ground
- (B33) : Back door key switch
- (B34) : Back door switch
- (B35) : Back-up lamp RH
- (B36) : Rear combination lamp RH
- (B37) : Rear side marker lamp RH
- (B38) : Power antenna timer
- (B39) : Power antenna motor
- (B40) : Diode
- (B41) : Luggage room lamp
- (B47) : Door lock timer
- (B55) : Door lock timer
- (B62) : Back door actuator
- (B71) : To main harness (M123)
- (B72) : To main harness (M124)

Body harness No. 2

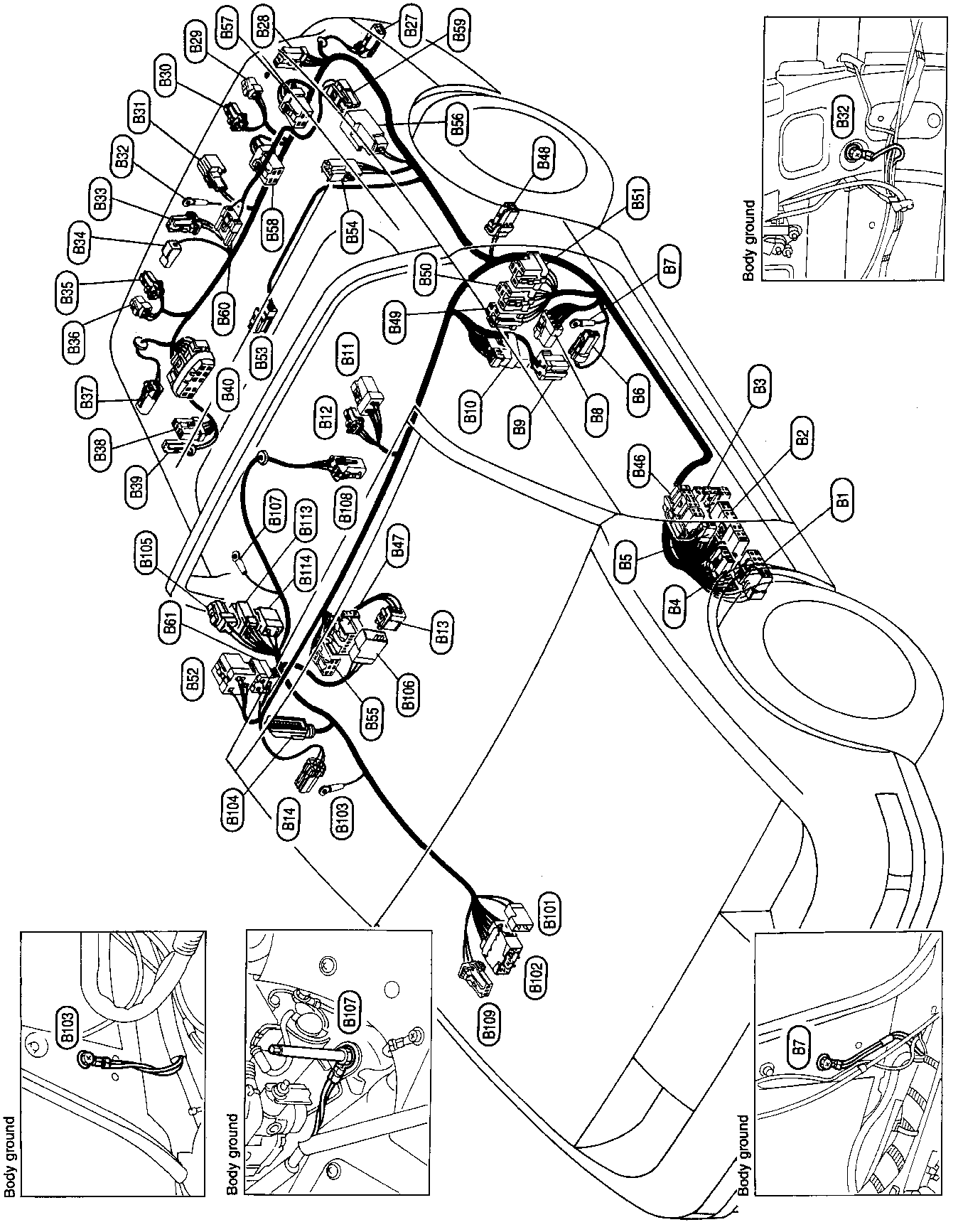
- (B101) : To engine room harness (E108)
- (B102) : To engine room harness (E109)
- (B103) : Body ground
- (B104) : ABS control unit
- (B105) : Actuator (For ABS)
- (B106) : To body harness (B13)
- (B107) : Body ground
- (B108) : Rear sensor (For ABS)
- (B109) : To main harness (M100)
- (B113) : Actuator (For ABS)
- (B114) : Actuator (For ABS)

Diode (B10) (B40)



Body Harness (Cont'd)

CONVERTIBLE



GEL051

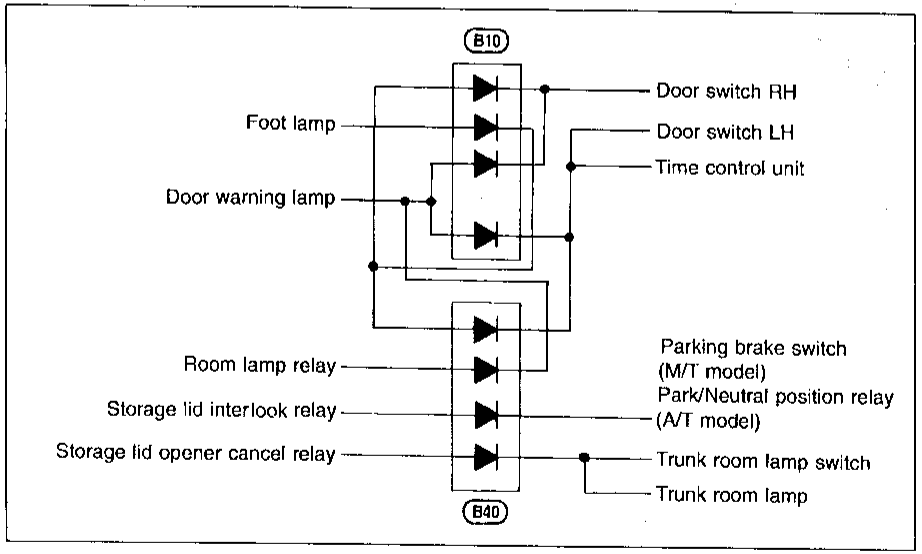
Body harness

- B1 : To engine room harness E104
- B2 : To main harness M4
- B3 : To main harness M5
- B4 : Fuse block
- B5 : Fuse block
- B6 : Door switch LH
- B7 : Body ground
- B8 : Fuel pump control module
- B9 : Room lamp relay
- B10 : Diode
- B11 : Fuel pump
- B12 : Fuel tank gauge unit
- B13 : To body harness No. 2 B106
- B14 : Door switch RH
- B27 : Rear side marker lamp LH
- B28 : Stop and tail lamp sensor
- B29 : Rear combination lamp LH
- B30 : Back-up lamp LH
- B31 : License lamp
- B32 : Body ground
- B33 : Back door key switch
- B34 : Trunk room lamp switch
- B35 : Back-up lamp RH
- B36 : Rear combination lamp RH
- B37 : Rear side marker lamp RH
- B38 : Power antenna timer
- B39 : Power antenna motor
- B40 : Diode
- B46 : To main harness M111
- B47 : Door lock timer
- B48 : Storage lid opener and roof opener switch
- B49 : Trunk lid opener relay
- B50 : Trunk lid opener cancel relay
- B51 : Storage lid opener cancel relay
- B52 : Storage lid interlock relay
- B53 : Trunk room lamp
- B54 : To tail harness T1
- B55 : Door lock timer
- B56 : To high-mounted stop lamp sub-harness B59
- B57 : Fuel filler lid opener solenoid
- B58 : Trunk lid opener solenoid
- B59 : To body harness B56
- B60 : High-mounted stop lamp
- B61 : Mirror defogger relay

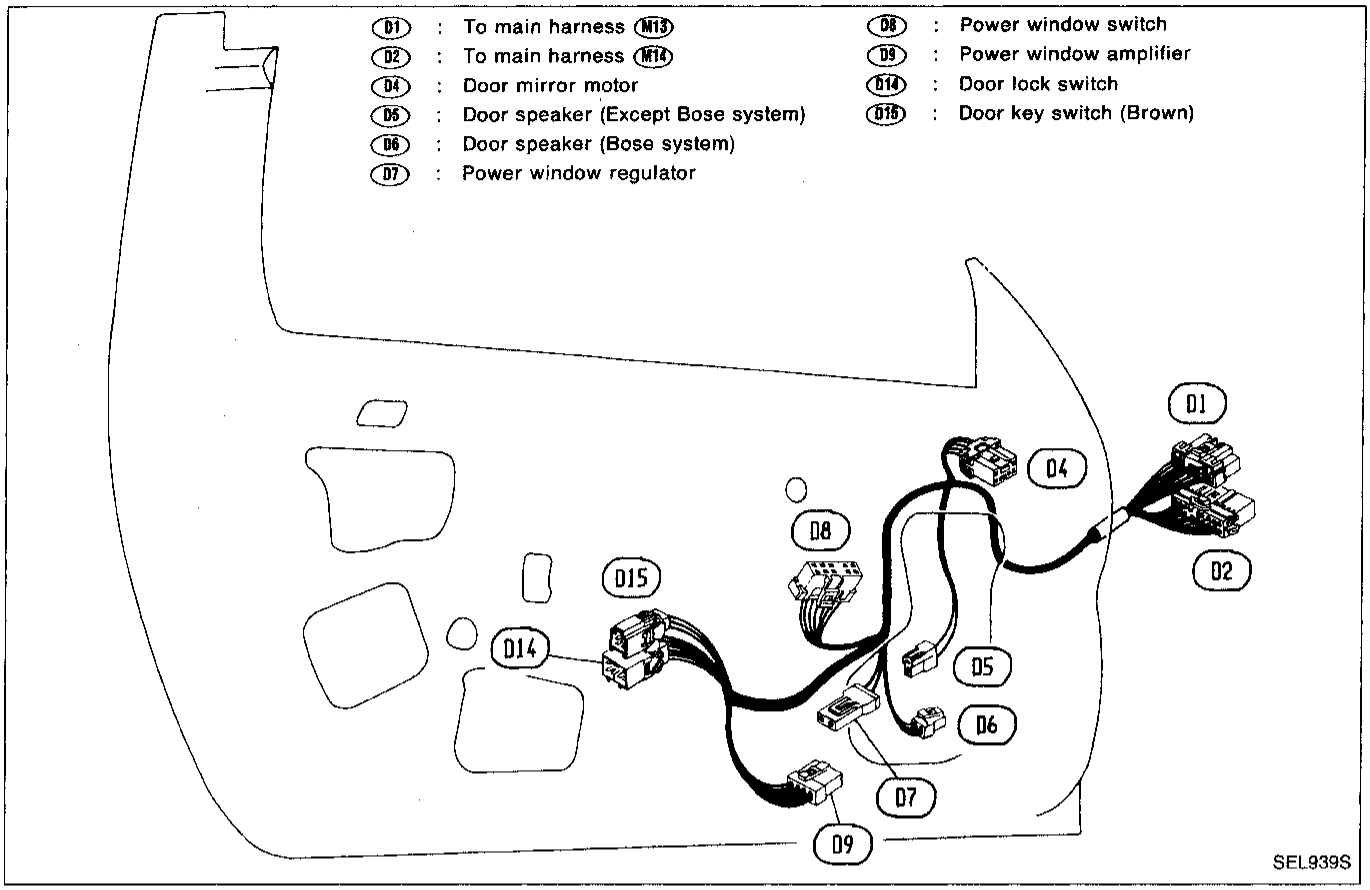
Body harness No. 2

- B101 : To engine room harness E108
- B102 : To engine room harness E109
- B103 : Body ground
- B104 : ABS control unit
- B105 : Actuator (For ABS)
- B106 : To body harness B13
- B107 : Body ground
- B108 : Rear sensor (For ABS)
- B109 : To main harness M190
- B113 : Actuator (For ABS)
- B114 : Actuator (For ABS)

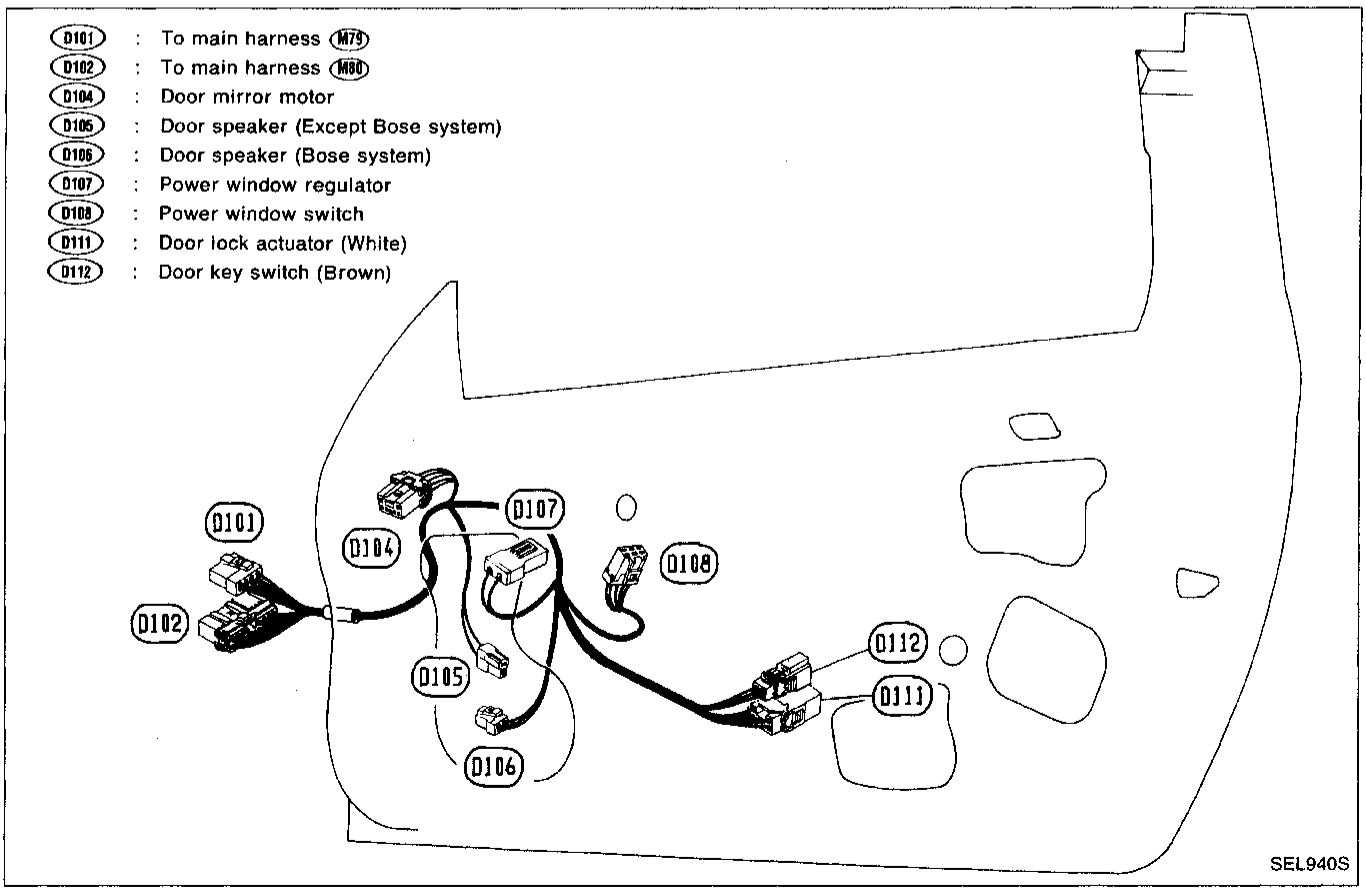
Diode B10 B40



Door Harness LH

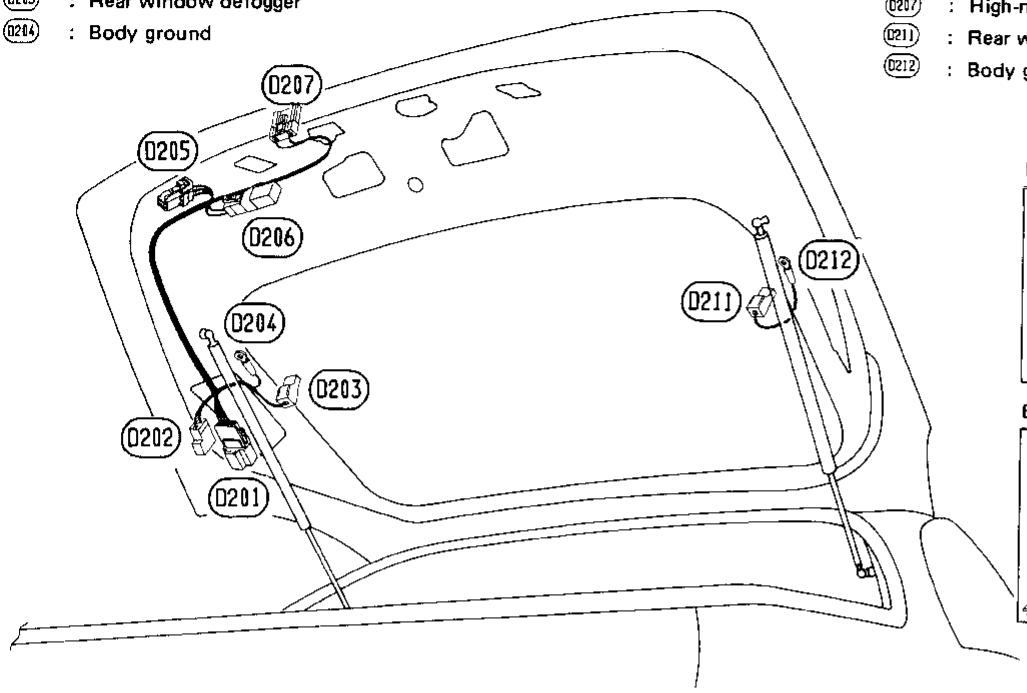


Door Harness RH

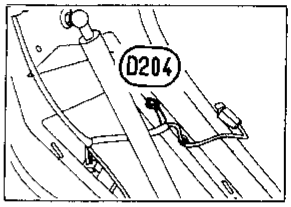


Back Door Harness

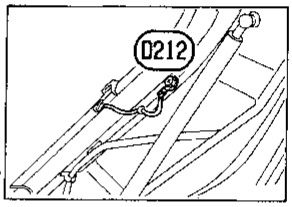
D201 : To body harness B20
D202 : To body harness B21
D203 : Rear window defogger
D204 : Body ground
D205 : Rear wiper motor
D206 : Condenser
D207 : High-mounted stop lamp
D211 : Rear window defogger
D212 : Body ground



Body ground



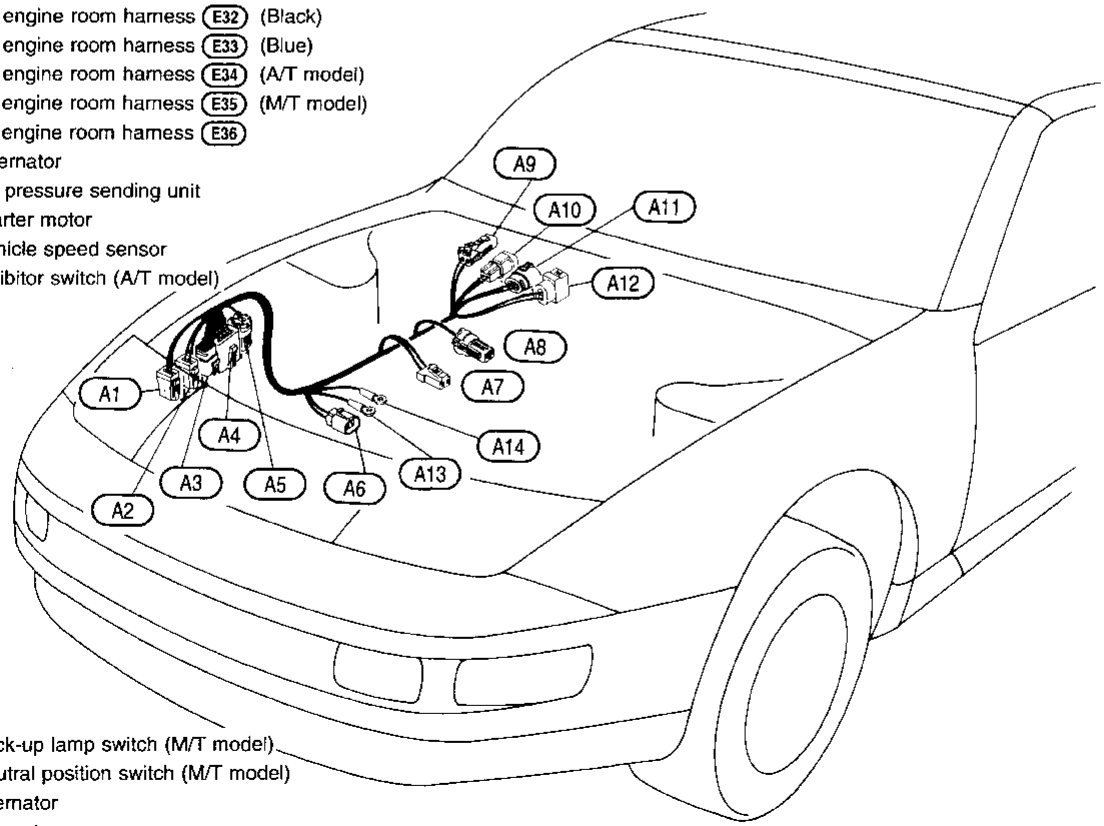
Body ground



SEL711R

Alternator Harness

A1 : To engine room harness E32 (Black)
A2 : To engine room harness E33 (Blue)
A3 : To engine room harness E34 (A/T model)
A4 : To engine room harness E35 (M/T model)
A5 : To engine room harness E36
A6 : Alternator
A7 : Oil pressure sending unit
A8 : Starter motor
A9 : Vehicle speed sensor
A10 : Inhibitor switch (A/T model)



A11 : Back-up lamp switch (M/T model)
A12 : Neutral position switch (M/T model)
A13 : Alternator
A14 : Alternator

GEL053