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 4
Supplemental Restraint System (SRS) "AIR BAG" (Dual Air Bag System) 4
Supplemental Restraint System (SRS) "AIR BAG" (Single Air Bag System) 4
HARNESS CONNECTOR 5
Description 5
STANDARDIZED RELAY 6
Description 6
POWER SUPPLY ROUTING 8
Schematic 8
Wiring Diagram — POWER — 10
Fuse 19
Fusible Link 19
Circuit Breaker 19
GROUND DISTRIBUTION 20
BATTERY 25
How to Handle Battery 25
Battery Test and Charging Chart 28
Service Data and Specifications (SDS) 32
STARTING SYSTEM 33
Wiring Diagram — START — 33
Trouble Diagnoses 35
Construction 36
Removal and Installation 45
Magnetic Switch Check 46
Pinion/Clutch Check 46
Brush Check 46
Yoke Check 47
Armature Check 48
Assembly 49
Service Data and Specifications (SDS) 50
CHARGING SYSTEM 52
Wiring Diagram — CHARGE — 52
Trouble Diagnoses 54
Construction 55
Removal and Installation 57
Disassembly 57
Rotor Check 57
Brush Check 58
Stator Check 58
Diode Check 59
Assembly 60
Service Data and Specifications (SDS) 61
COMBINATION SWITCH 62
Combination Switch/Check 62
Replacement 64
HEADLAMP — Without Daytime Light System — 65
Wiring Diagram — H/LAMP — 65
Trouble Diagnoses 67
HEADLAMP — Daytime Light System — 68
Operation (Daytime light system) 68
System Description 69
Schematic 70
Wiring Diagram — DTRL — 71
Trouble Diagnoses (Daytime Light) 74
HEADLAMP 75
Bulb Replacement 75
Aiming Adjustment 75
HEADLAMP — Headlamp Aiming Control — 77
Wiring Diagram — AIM — 77
Description 81
EXTERIOR LAMP 82
Clearance, License and Tail Lamps/Schematic 82
Clearance, License and Tail Lamps/Wiring Diagram — TAIL/L — 83
Stop Lamp/Wiring Diagram — STOP/L — 92
Back-up Lamp/Wiring Diagram — BACK/L — 94
Front Fog Lamp/Wiring Diagram — F/FOG — 96
Front Fog Lamp Bulb Replacement 101

CONTENTS (Cont'd.)

Front Fog Lamp Aiming Adjustment 101
Rear Fog Lamp/Wiring Diagram — R/FOG — 102
Turn Signal and Hazard Warning Lamps/ Schematic 106
Turn Signal and Hazard Warning Lamps/Wiring Diagram — TURN — 107
Turn Signal and Hazard Warning Lamps/Trouble Diagnoses 113
Combination Flasher Unit Check 113
Bulb Specifications 114
INTERIOR LAMP 115
Illumination/Schematic 115
Illumination/Wiring Diagram — ILL — 116
Interior, Spot, Trunk Room and Luggage Room Lamps/Wiring Diagram — INT/L — 122
Bulb Specifications 126
METER AND GAUGES 127
Combination Meter 127
Speedometer, Tachometer, Temp. and Fuel Gauges/Wiring Diagram — METER — 129
Inspection/Fuel Gauge and Water Temperature Gauge 133
Inspection/Tachometer 134
Inspection/Speedometer and Vehicle Speed Sensor 135
Fuel Tank Gauge Unit Check 137
Thermal Transmitter Check 137
Vehicle Speed Sensor Signal Check 137
WARNING LAMPS AND BUZZER 138
Warning Lamps/Schematic 138
Warning Lamps/Wiring Diagram — WARN — 139
Oil Pressure Switch Check 151
Fuel Warning Lamp Sensor Check 151
Diode Check 151
Warning Buzzer Unit 151
Warning Buzzer/System Description 152
Warning Buzzer/Wiring Diagram — BUZZER — 154
Components Inspection — Warning Buzzer 157
WIPER AND WASHER 160
Front Wiper and Washer/System Description 160
Front Wiper and Washer/Wiring Diagram — WIPER — 162
Front Wiper Amplifier Check 166
Front Wiper Installation and Adjustment 166
Front Wiper Linkage 167
Front Washer Nozzle Adjustment 168
Front Washer Tube Layout 168
Rear Wiper and Washer/System Description 169
Rear Wiper and Washer/Wiring Diagram — WIP/R — 171
Rear Wiper Amplifier Check 175
Rear Wiper Installation and Adjustment 175
Rear Washer Nozzle Adjustment 175
Rear Washer Tube Layout 176
Check Valve (for rear washer) 176
Headlamp Wiper and Washer/Wiring Diagram — HLC — 177
Headlamp Wiper Motor Check 179
Headlamp Wiper Installation 179
Headlamp Washer Tube Layout 179
Check Valve (For headlamp washer) 179
POWER WINDOW 180
System Description 180
Schematic 183
Wiring Diagram — WINDOW — 185
Trouble Diagnoses 197
POWER DOOR LOCK 198
System Description 198
Schematic 200
Wiring Diagram — D/LOCK — 202
Trouble Diagnoses — Type 1 (For Europe and Australia) 212
Trouble Diagnoses — Type 2 (Except for Europe and Australia) 216
POWER DOOR MIRROR 220
Wiring Diagram — MIRROR — 220
ELECTRIC SUN ROOF 224
Wiring Diagram — SROOF — 224
HORN, CIGARETTE LIGHTER AND CLOCK 226
Wiring Diagram — HORN — 226
REAR WINDOW DEFOGGER AND DOOR MIRROR DEFOGGER 230
System Description (For models with daytime light system) 230
Wiring Diagram — DEF — 231
Filament Check 235
Filament Repair 236
AUDIO AND ANTENNA 237
Audio/System Description 237
Wiring Diagram — AUDIO — 238
Radio Fuse Check 243
Location of Antenna 243
Antenna Rod Replacement 243
HEATED SEAT 245
Wiring Diagram — H/SEAT — 245
NATS (Nissan Anti-Theft System) 247
System Description 247
System Composition 247

CONTENTS (Cont'd.)

Component Parts Location 248
Wiring Diagram — NATS — 249
Trouble Diagnoses 251
LOCATION OF ELECTRICAL UNITS 266
Engine Compartment 266
Passenger Compartment 267
HARNESS LAYOUT 269
How to Read Harness Layout 269
Outline 270
Engine Control Harness 271
Engine Room Harness 274
Main Harness 280
Body Harness 284
Body No. 2 Harness 292
Engine Harness 294
Air Bag Harness 297
Room Lamp Harness 298
Back Door Harness 299
Front Door Harness (LH side) 300
Front Door Harness (RH side) 302
Rear Door Harness 304
SUPER MULTIPLE JUNCTION (SMJ) ..... Foldout
Terminal Arrangement ..... Foldout
FUSE BLOCK — Junction Box (J/B) ..... Foldout
Terminal Arrangement ..... Foldout
ELECTRICAL UNITS ..... Foldout
Terminal Arrangement ..... Foldout
JOINT CONNECTOR (J/C) ..... Foldout
Terminal Arrangement ..... Foldout

WIRING DIAGRAM REFERENCE CHART

COOLING SYSTEM ..... **LC SECTION**
ECCS (Ignition system) ..... **EC SECTION**
AUTOMATIC TRANSAXLE CONTROL SYSTEM ..... **AT SECTION**
ANTI-LOCK BRAKE SYSTEM ..... **BR SECTION**
SRS "AIR BAG" ..... **RS SECTION**
HEATER AND AIR CONDITIONER ..... **HA SECTION**

Supplemental Restraint System (SRS) "AIR BAG" (Dual Air Bag System)

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

WARNING:

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

Supplemental Restraint System (SRS) "AIR BAG" (Single Air Bag System)

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

WARNING:

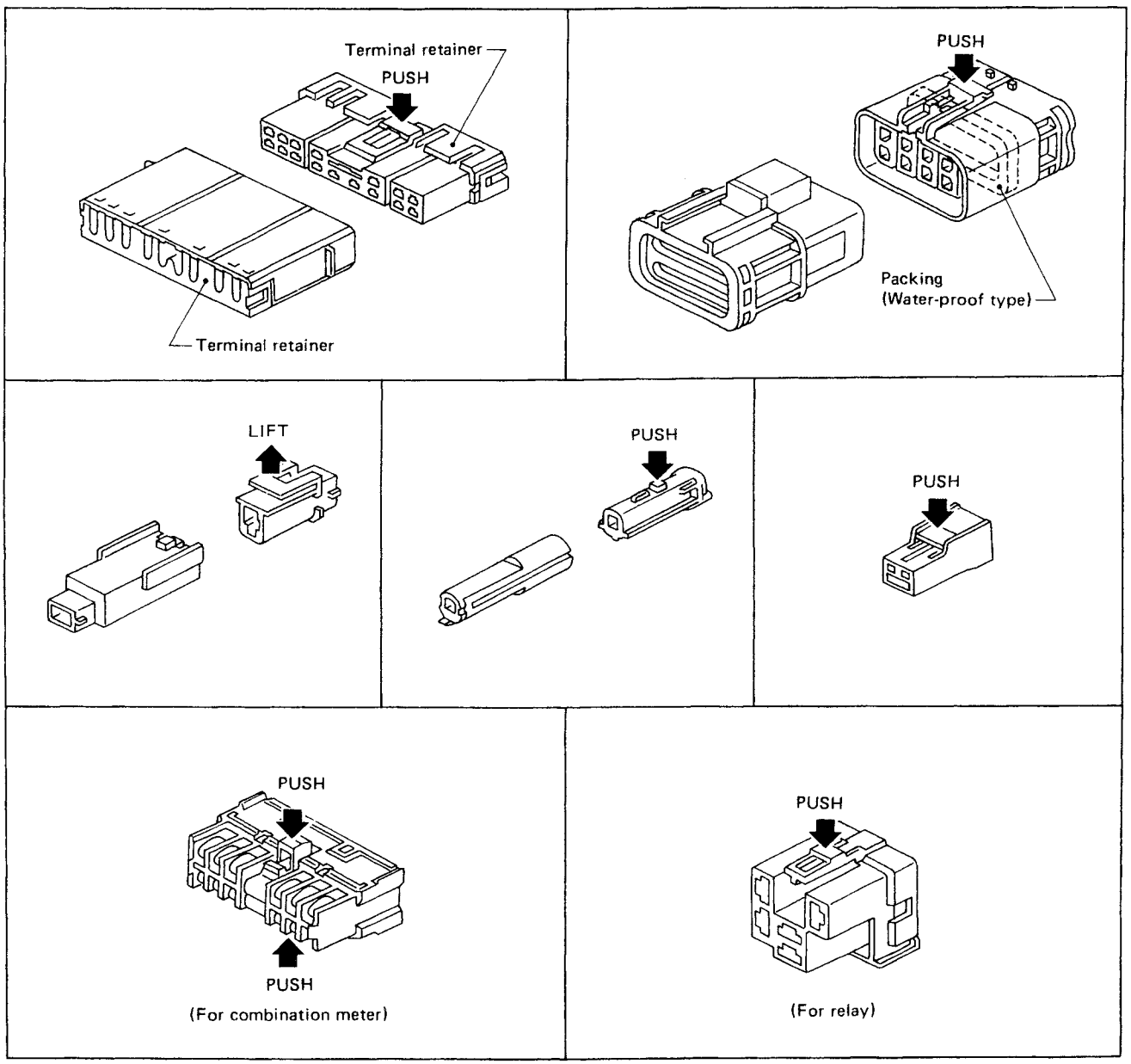
- **To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN dealer.**
- **Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system.**
- **Do not use electrical test equipment on any circuit related to the SRS.**

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]



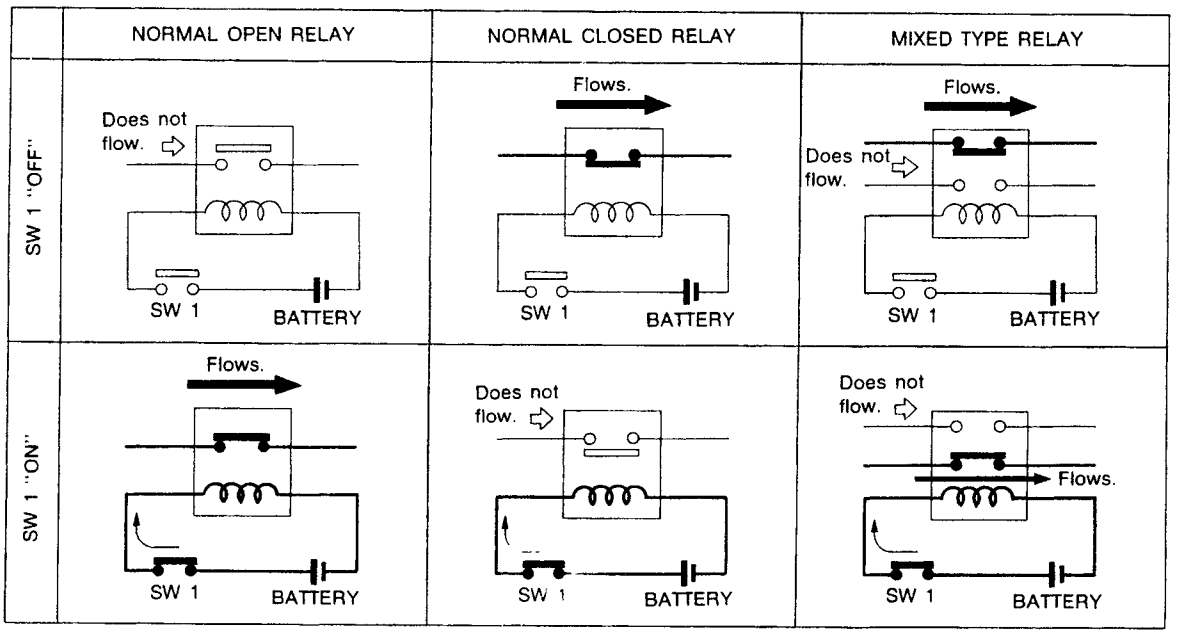
SEL769D

EL

Description

NORMAL OPEN, NORMAL CLOSED AND MIXED TYPE RELAYS

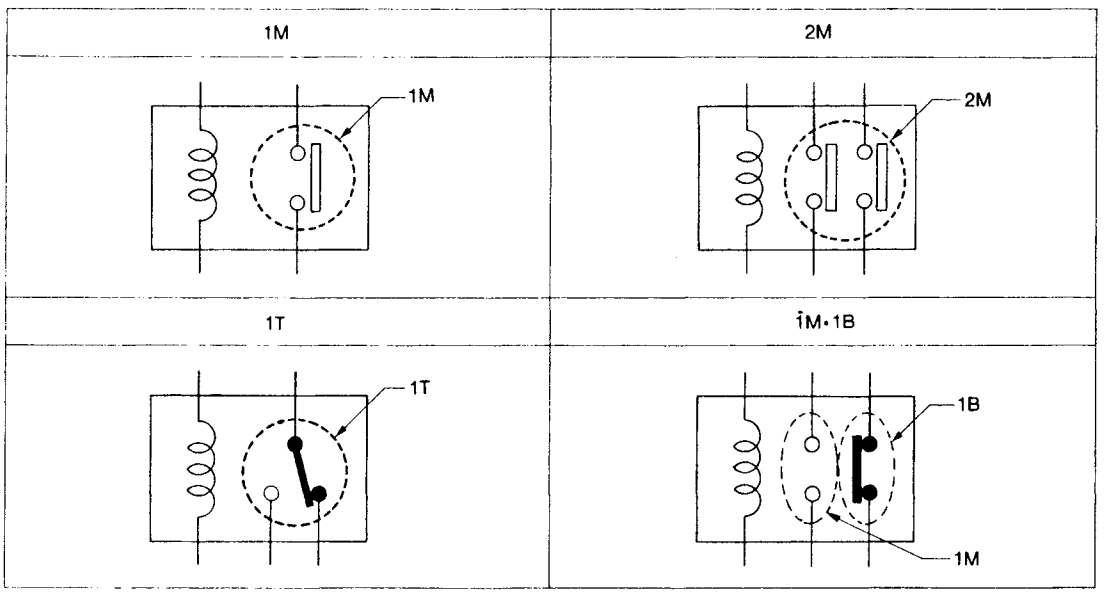
Relays can mainly be divided into three types: normal open, normal closed and mixed type relays.



SEL881H

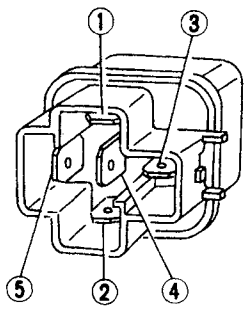
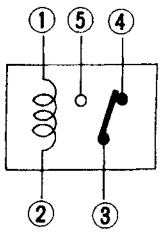
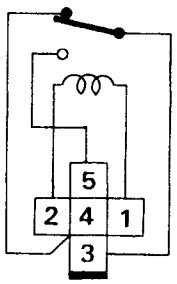
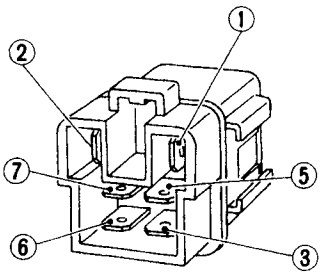
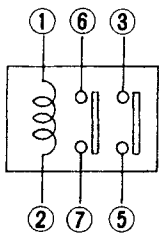
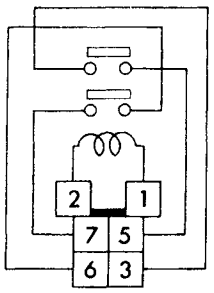
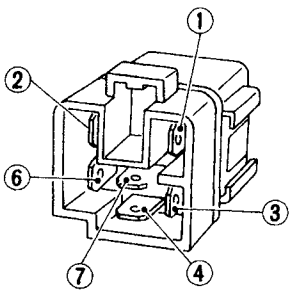
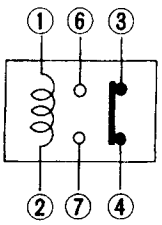
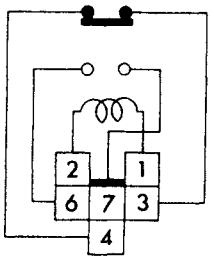
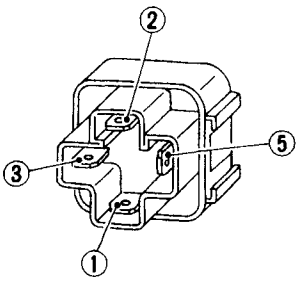
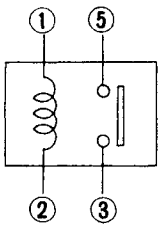
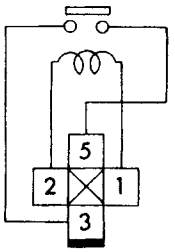
TYPE OF STANDARDIZED RELAYS

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



SEL882H

Description (Cont'd)

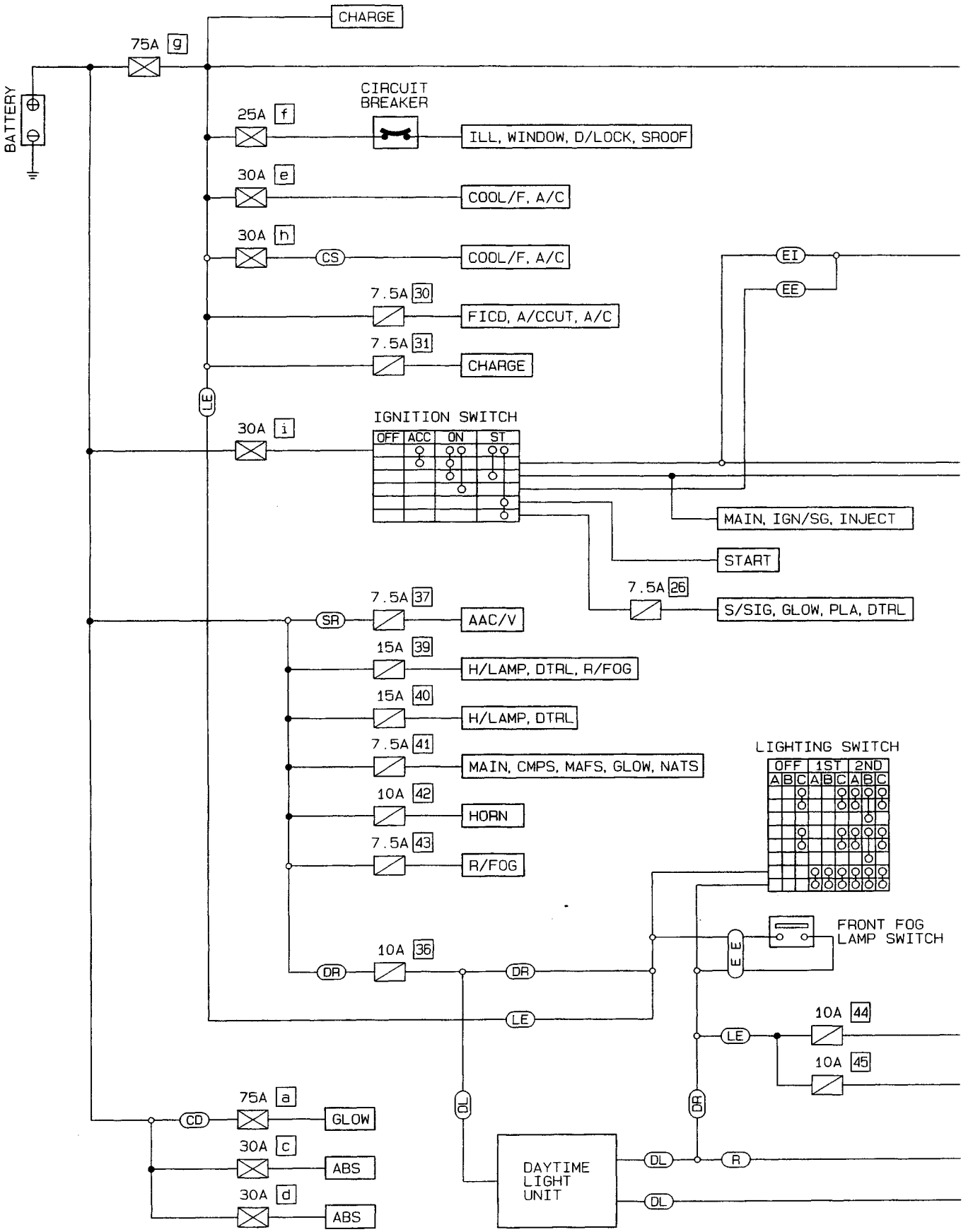
Type	Outer view	Circuit	Connector symbol and connection	Case color
1T				BLACK
2M				BROWN
1M•1B				GRAY
1M				BLUE

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

EL

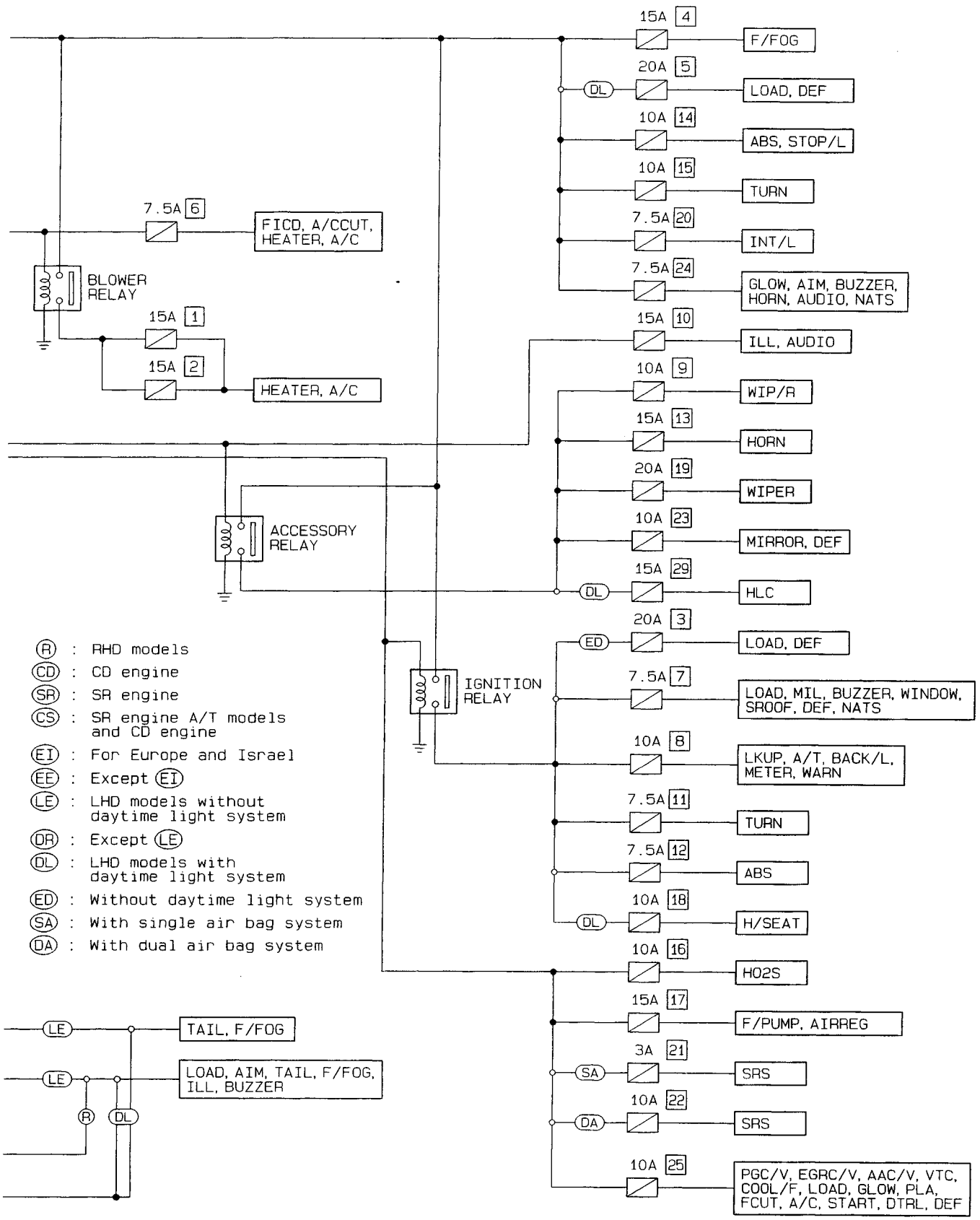
SEL661TA

Schematic



HEL001

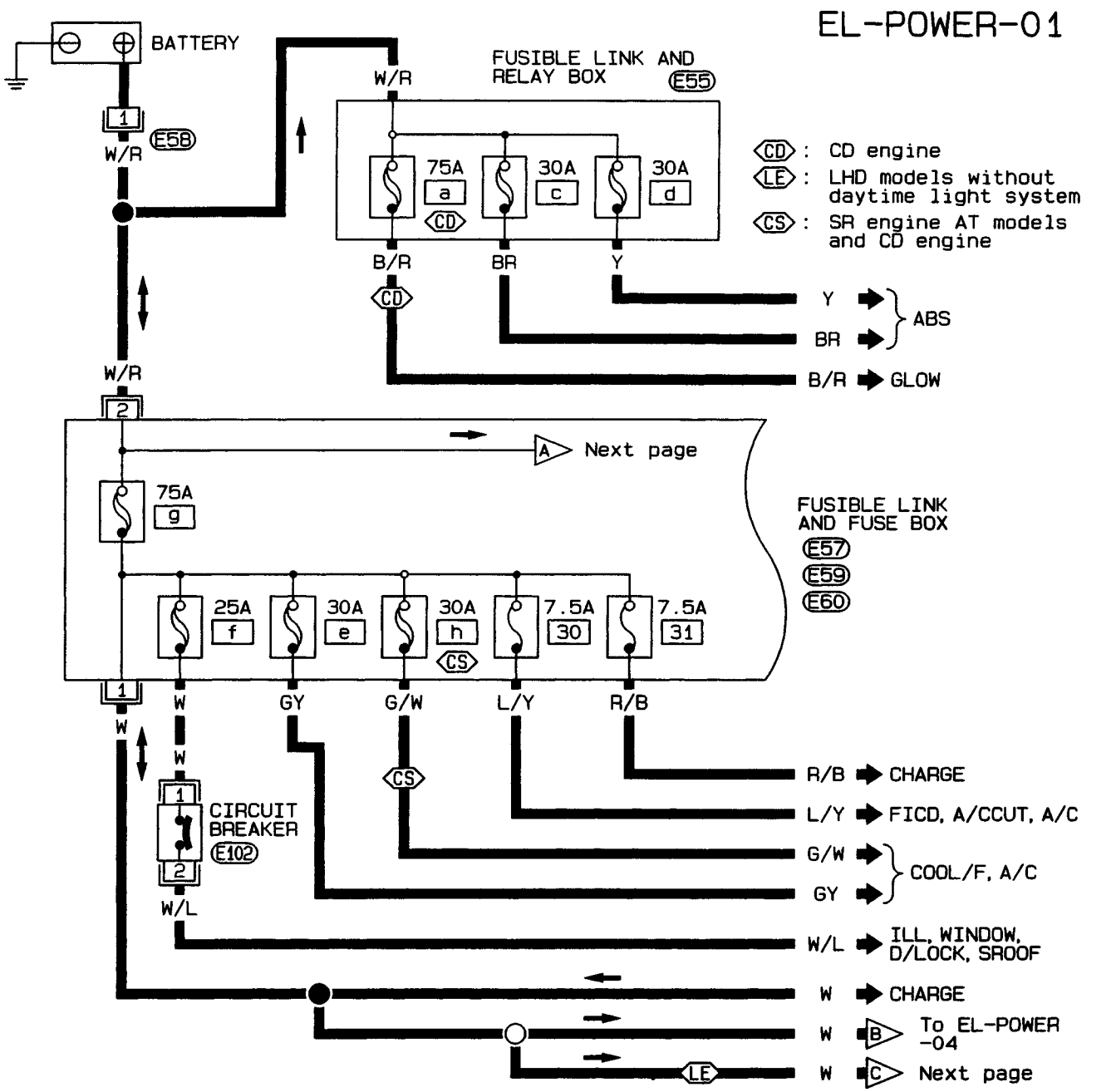
Schematic (Cont'd)

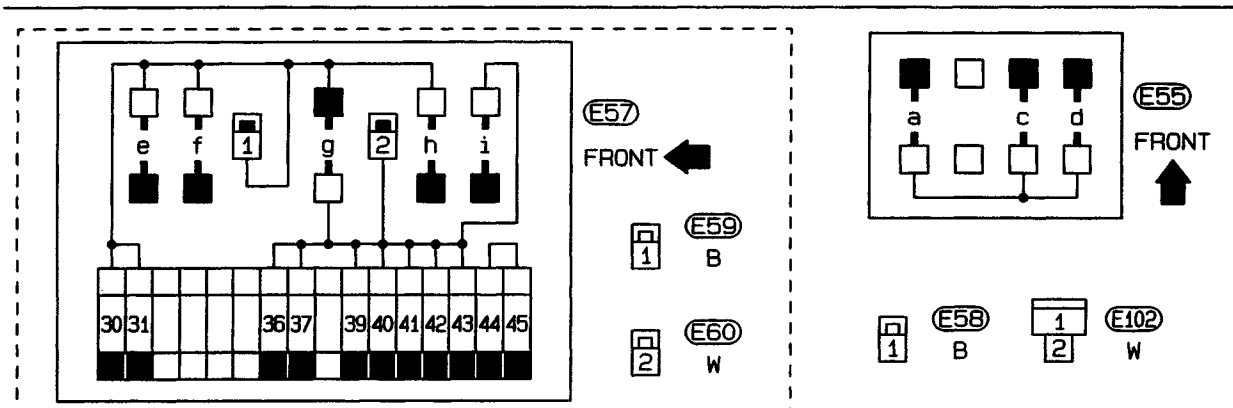


HEL096

EL

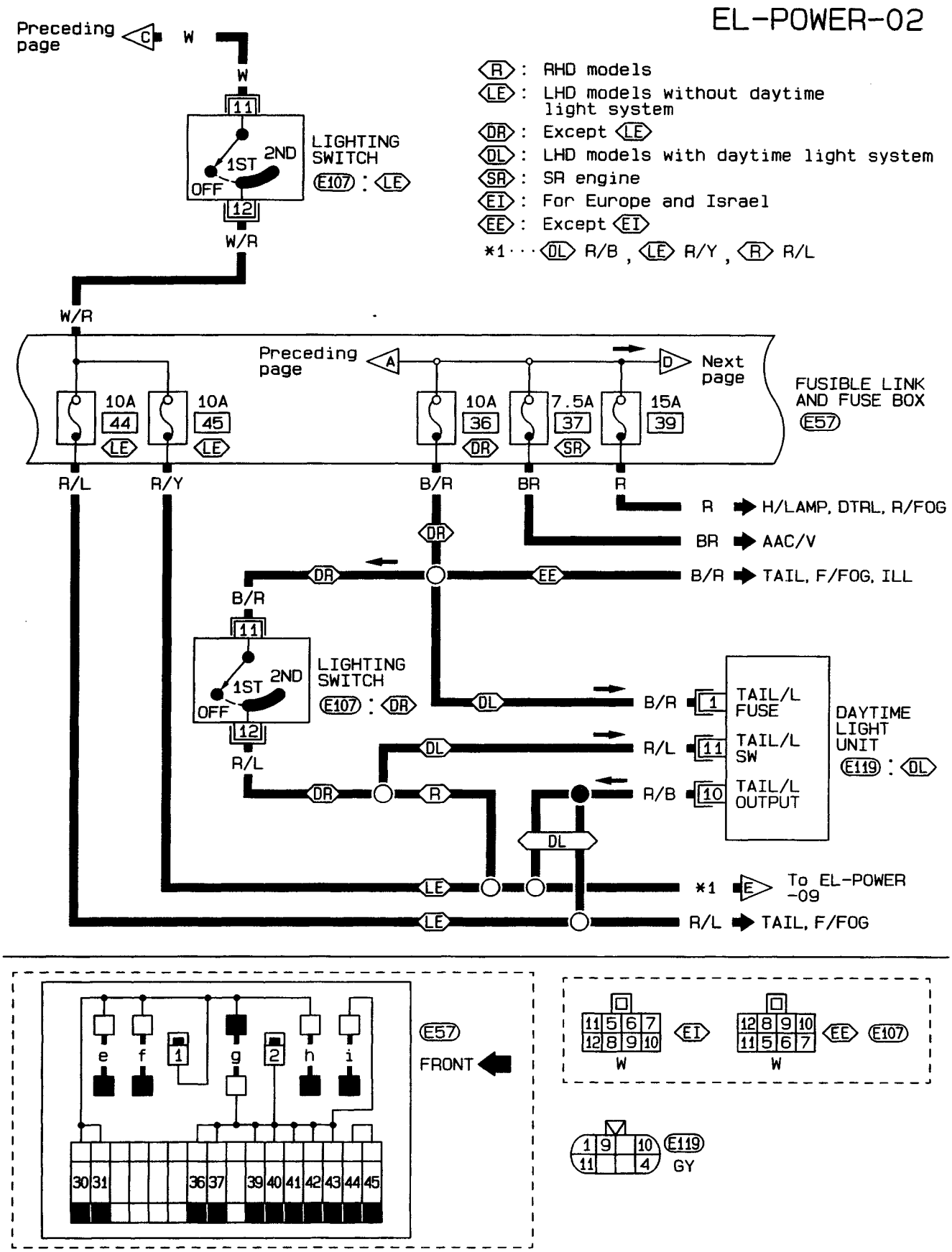
Wiring Diagram — POWER —





HEL002

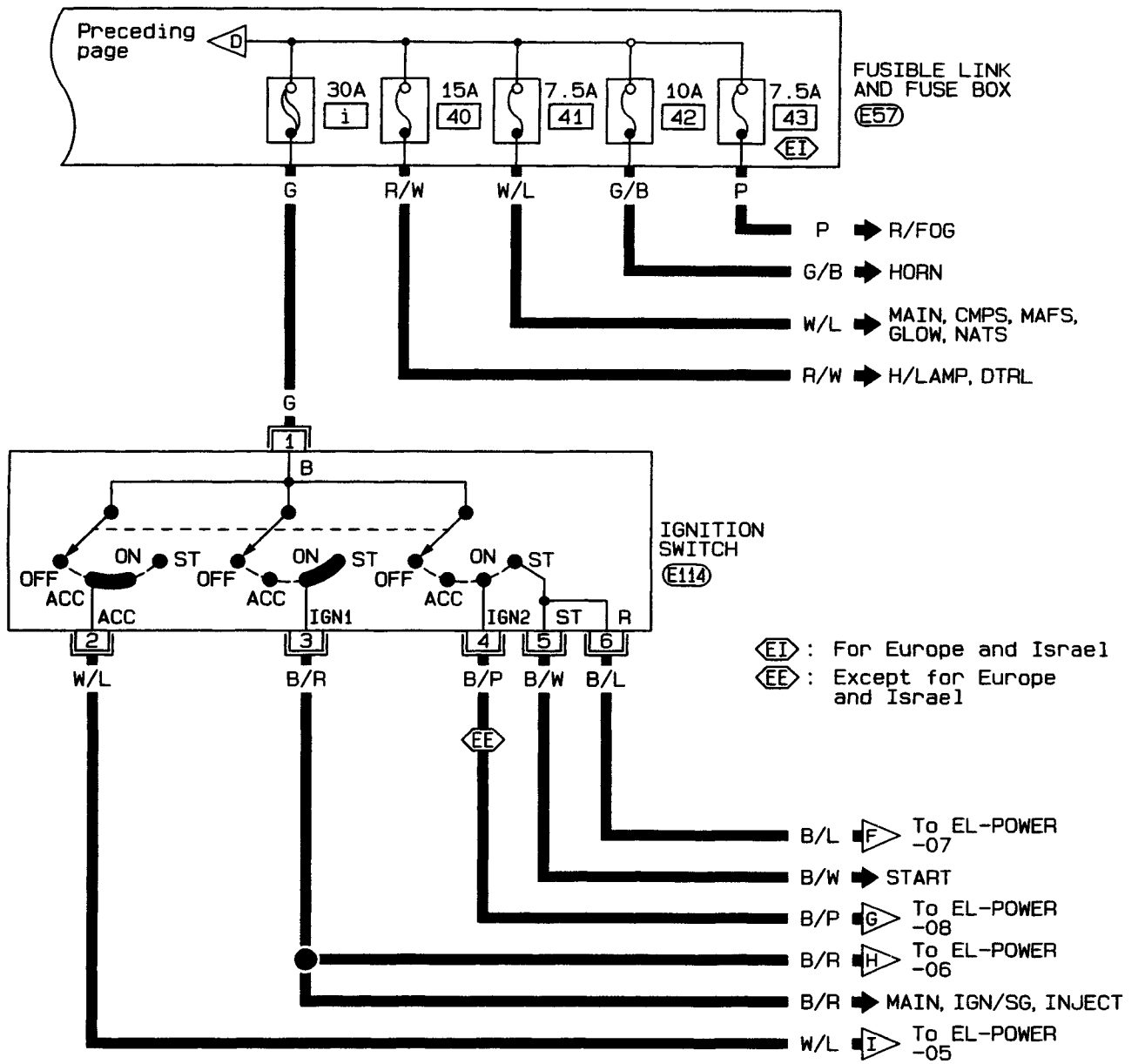
Wiring Diagram — POWER — (Cont'd)

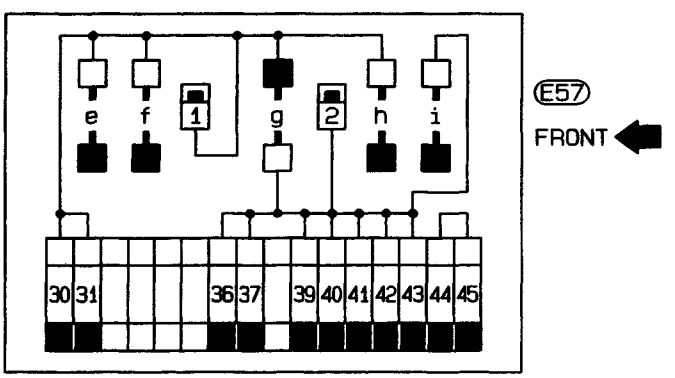


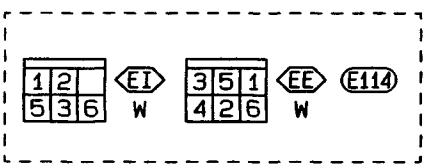
HEL003

Wiring Diagram — POWER — (Cont'd)

EL-POWER-03



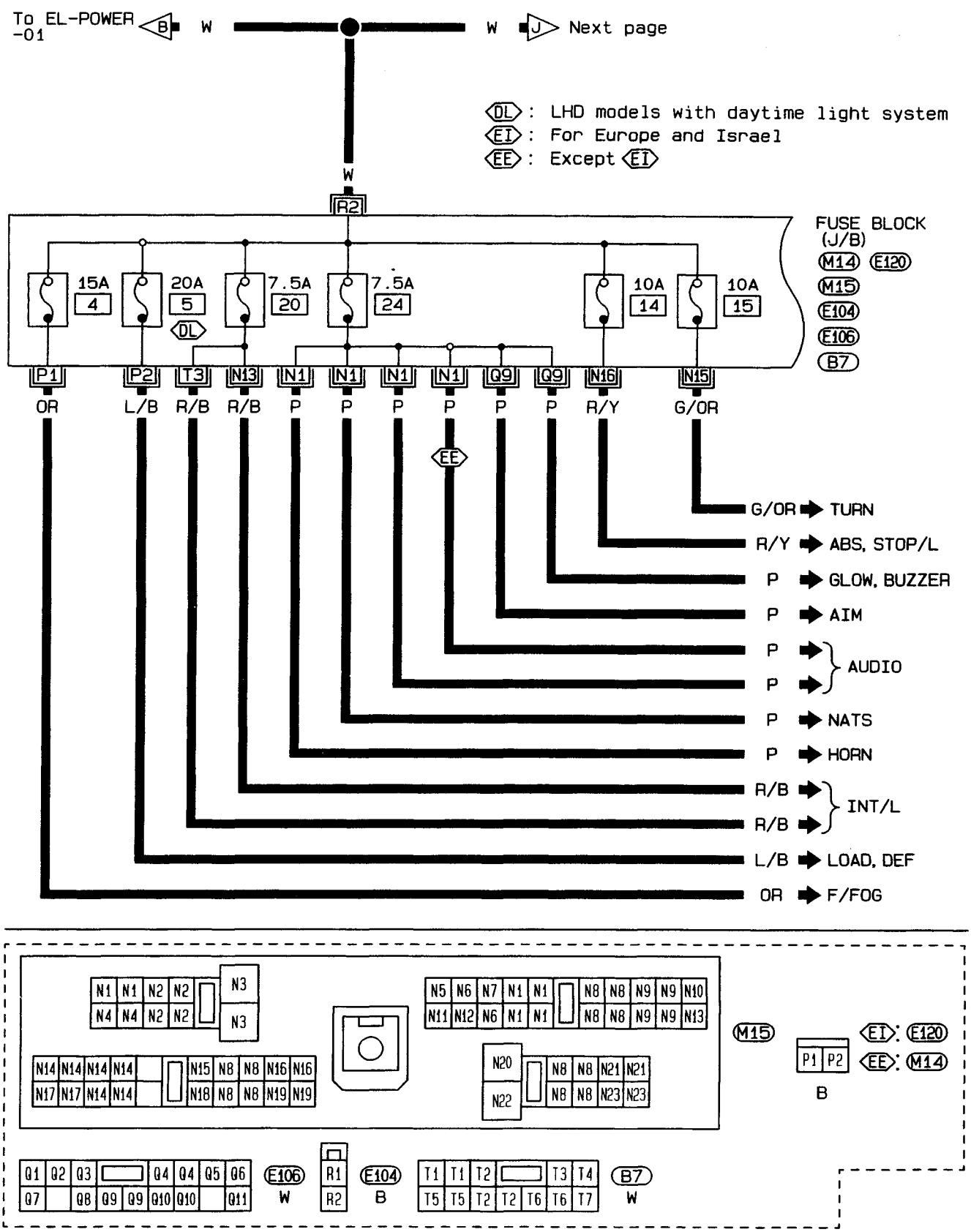




HEL004

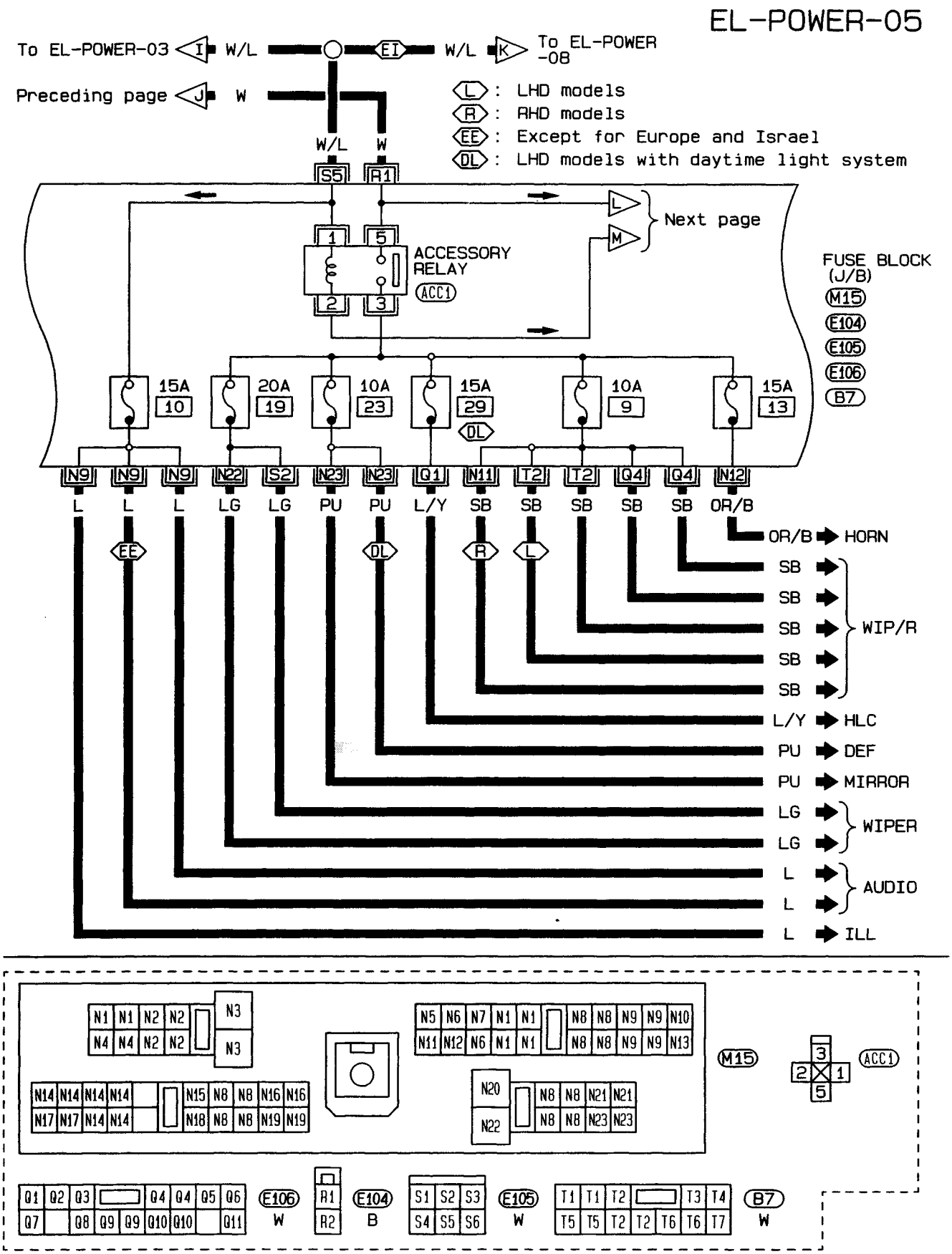
Wiring Diagram — POWER — (Cont'd)

EL-POWER-04



HEL005

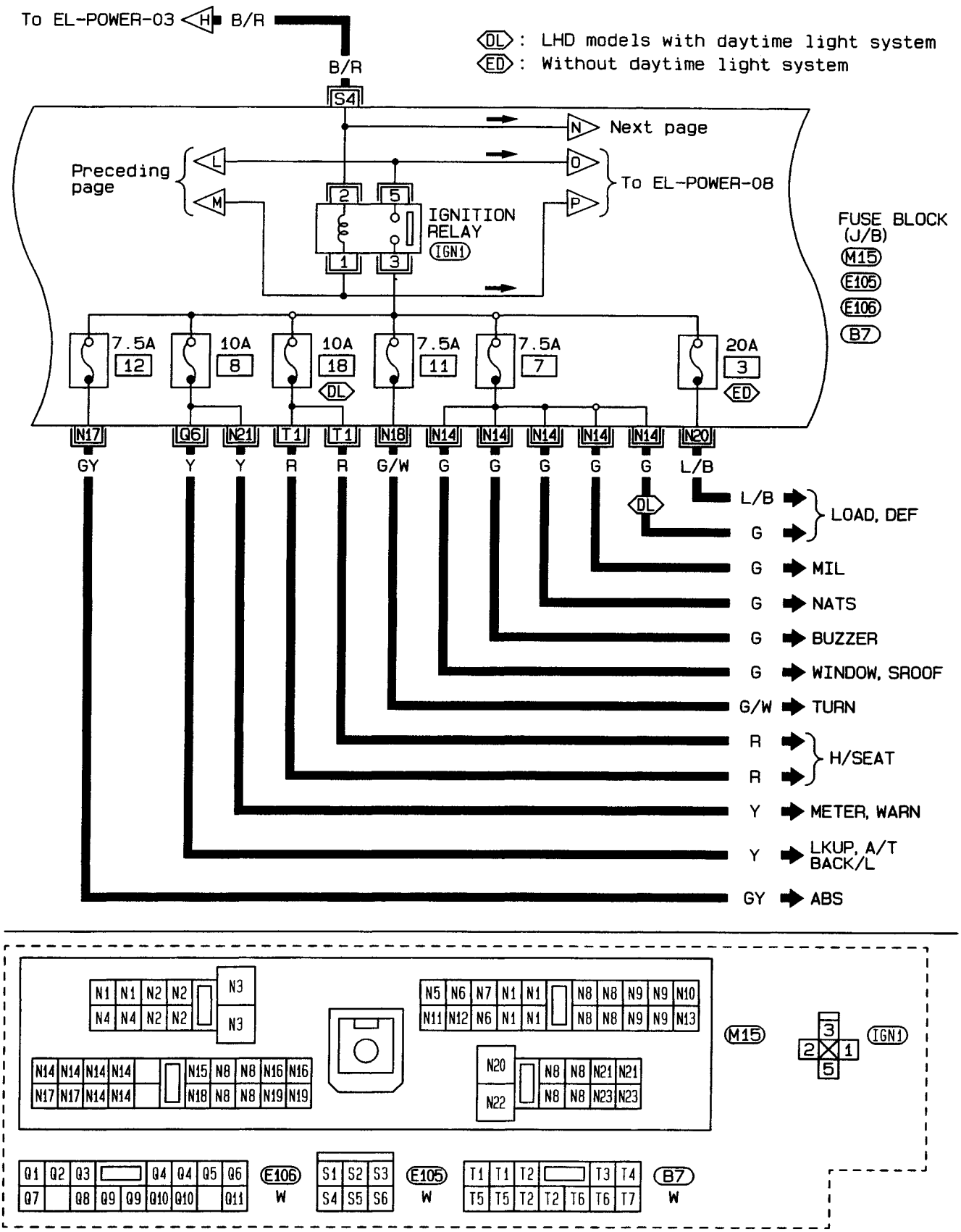
Wiring Diagram — POWER — (Cont'd)



HEL006

Wiring Diagram — POWER — (Cont'd)

EL-POWER-06



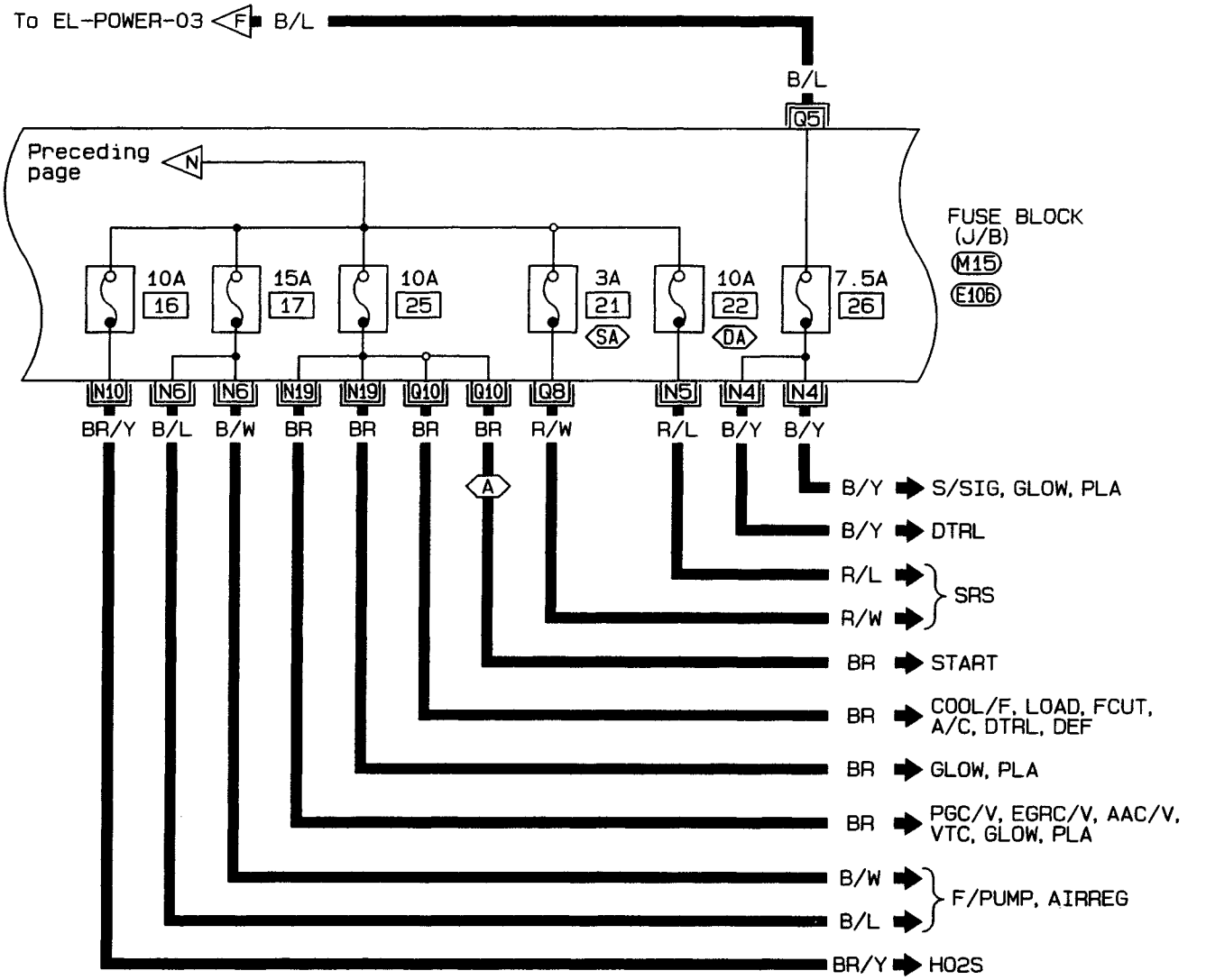
HEL007

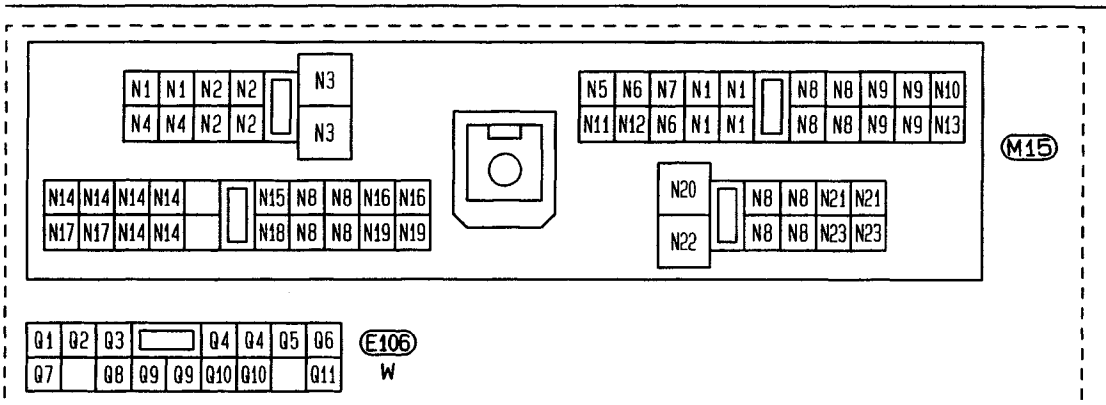
EL

Wiring Diagram — POWER — (Cont'd)

EL-POWER-07

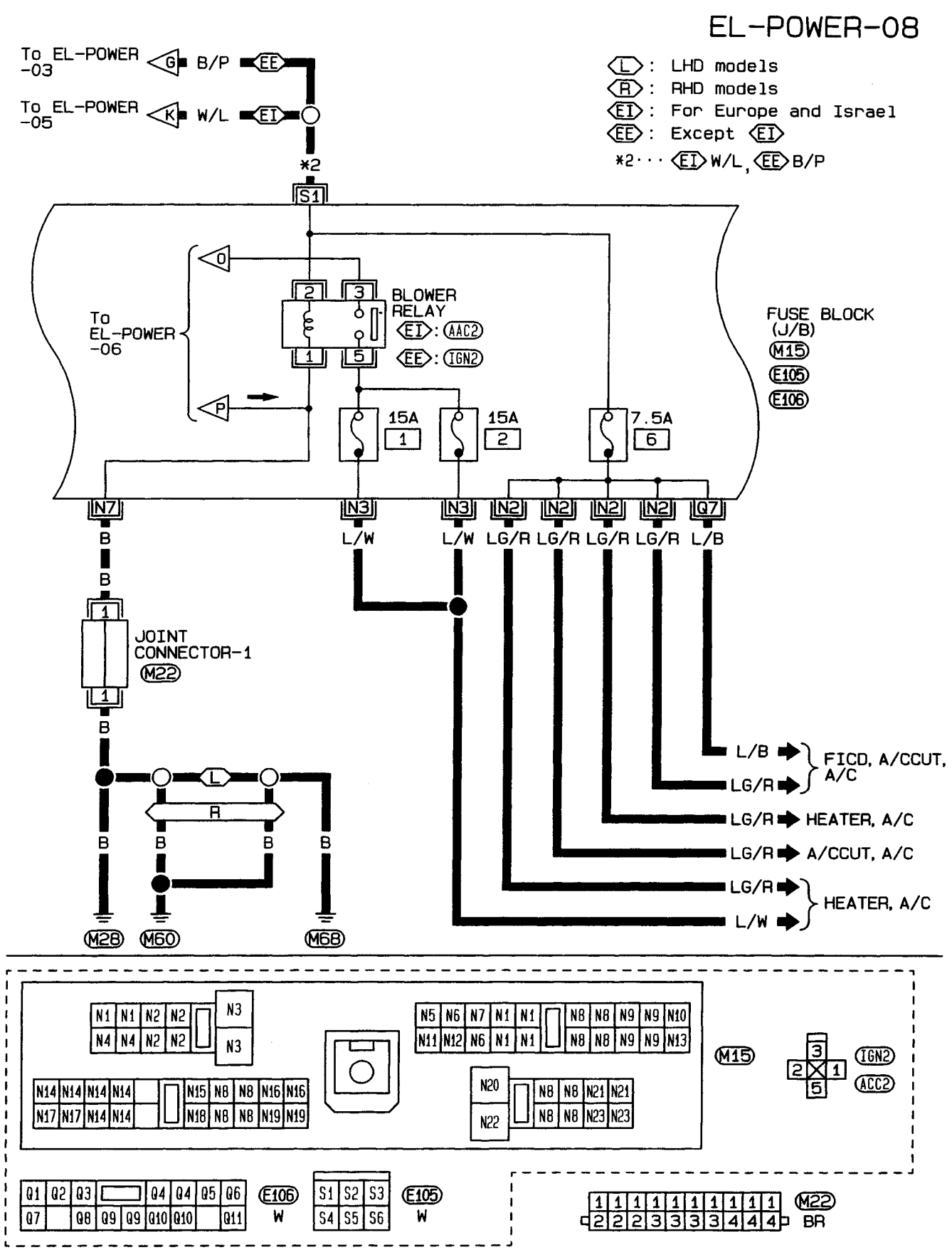
Ⓐ : A/T models
ⓈⒶ : With single air bag system
ⒹⒶ : With dual air bag system





HEL008

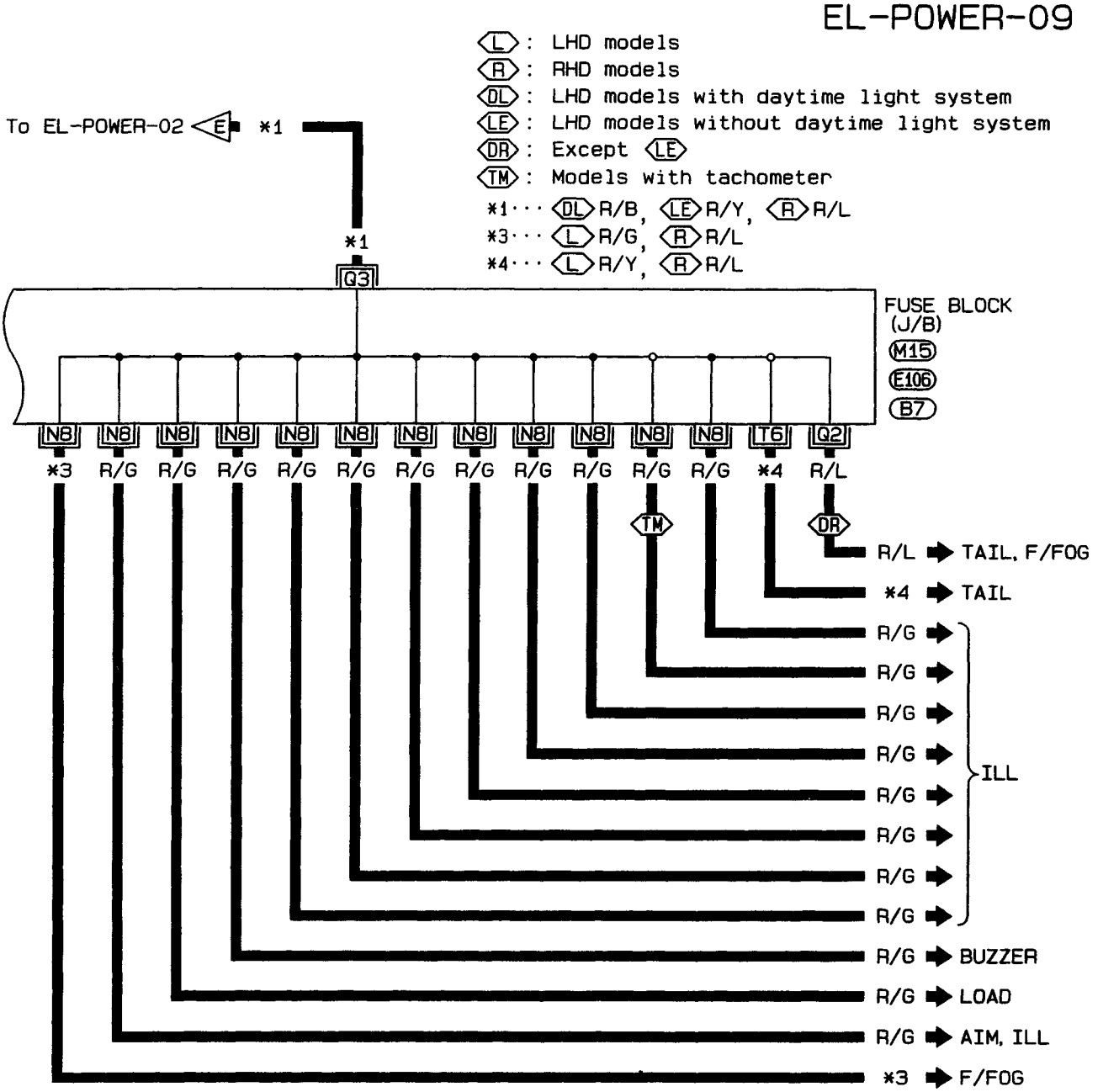
Wiring Diagram — POWER — (Cont'd)

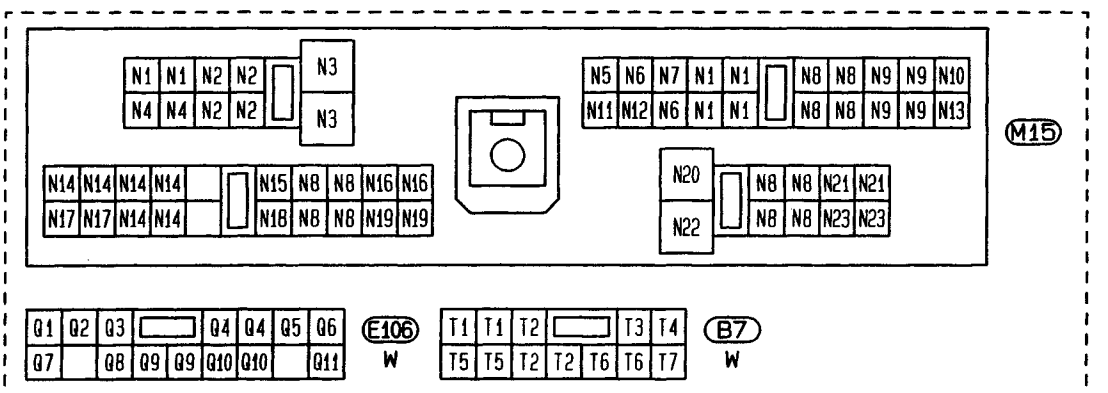


HEL009

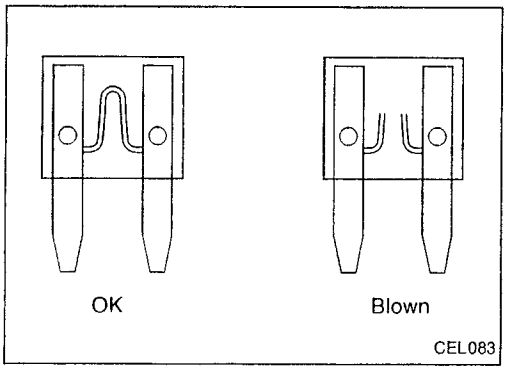
Wiring Diagram — POWER — (Cont'd)

EL-POWER-09



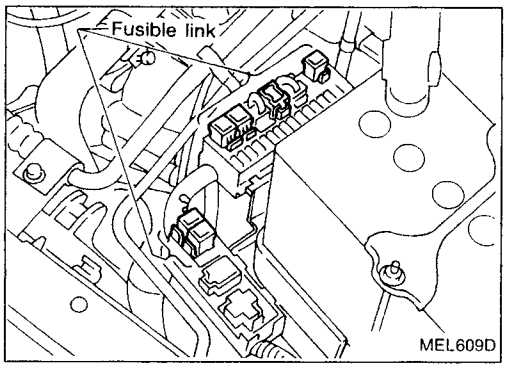


HEL010



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.

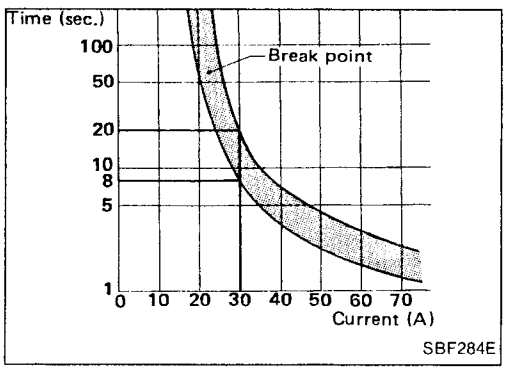


Fusible Link

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

CAUTION:

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



Circuit Breaker

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

Circuit breakers are used in the following systems.

- Power window
- Power door lock
- Electric sun roof

EL

GROUND	CONNECT TO	CONN. NO.	CELL CORD
E37/E51	AIR BAG DIAGNOSIS SENSOR UNIT (Single air bag system)	E108	RS-SRS
	BRAKE FLUID LEVEL SWITCH	E2	EL-WARN
	CLEARANCE LAMP LH	E50	EL-TAIL/L
	CLEARANCE LAMP RH	E33	EL-TAIL/L
	COOLING FAN MOTOR-1 (1-mode type)	E45	EC-COOL/F HA-A/C
	COOLING FAN MOTOR-1 (2-mode type—GA engine for Europe)	E66	EC-COOL/F HA-A/C
	COOLING FAN MOTOR-1 (2-mode type—except GA engine for Europe)	E46	EC-COOL/F HA-A/C
	COOLING FAN MOTOR-2 (1-mode type)	E39	EC-COOL/F HA-A/C
	COOLING FAN MOTOR-2 (2-mode type—GA engine for Europe)	E67	EC-COOL/F HA-A/C
	COOLING FAN MOTOR-2 (2-mode type—except GA engine for Europe)	E40	EC-COOL/F HA-A/C
	COOLING FAN RELAY-1	E12	EC-COOL/F HA-A/C
	COOLING FAN RELAY-2	E17	EC-COOL/F HA-A/C
	COOLING FAN RELAY-3	E18	EC-COOL/F HA-A/C
	DAYTIME LIGHT UNIT	E119	EL-DTRL
	FRONT FOG LAMP LH	E52	EL-F/FOG
	FRONT FOG LAMP RH	E36	EL-F/FOG
	FRONT TURN SIGNAL LAMP LH	E53	EC-TURN
	FRONT TURN SIGNAL LAMP RH	E32	EC-TURN
	FRONT WIPER AND WASHER SWITCH	E113	EL-WIPER
	FUEL FILTER SWITCH	E5	EL-WARN
	HEADLAMP AIMING MOTOR UNIT LH	E48	EL-AIM
	HEADLAMP AIMING MOTOR UNIT RH	E35	EL-AIM
	HEADLAMP LH	E49	EL-H/LAMP EL-DTRL
	HEADLAMP RH	E34	EL-H/LAMP EL-DTRL
	HEADLAMP WIPER MOTOR LH	E44	EL-HLC
	HEADLAMP WIPER MOTOR RH	E41	EL-HLC
	IACV-FICD SOLENOID VALVE (LHD models with CD20 engine)	E65	EC-A/CCUT HA-A/C
	INHIBITOR SWITCH	E222	EC-PNP/SW AT-A/T EL-START
	NEUTRAL POSITION SWITCH	E220	EC-PNP/SW
	POWER STEERING OIL PRESSURE SWITCH (RHD models with gasoline engine)	E3	EC-PST/SW
	REAR FOG LAMP RELAY	E20	EL-R/FOG
	REAR WIPER AND WASHER SWITCH	E112	EL-WIP/R
	REAR WIPER RELAY	E15	EL-WIP/R
	SIDE TURN SIGNAL LAMP (Driver side)	E1	EL-TURN
	WASHER FLUID LEVEL SWITCH	E30	EL-WARN

GROUND	CONNECT TO	CONN. NO.	CELL CORD
M27	COMBINATION METER (TACHOMETER)	M31	EL-METER
	COMBINATION METER (AIR BAG WARNING LAMP)	M*1	RS-SRS EL-WARN
	COMBINATION METER (CLOCK ILLUMINATION) (For Europe and Israel)	M*1	EL-ILL EL-HORN
	COMBINATION METER (FUEL GAUGE)	M*1	EL-METER
	COMBINATION METER (HIGH BEAM INDICATOR)	M*1	EL-H/LAMP EL-DTRL
	COMBINATION METER (SPEEDOMETER)	M*1	EC-VSS EC-COOL/F EL-METER
	COMBINATION METER (TURN)	M*2	EL-TURN
	COMBINATION METER (WATER TEMP. GAUGE)	M*1	EL-METER
M28/M68 (LHD models) M28/M60/M68 (RHD models)	A/T CONTROL DEVICE (OD CONTROL SWITCH)	M42	AT-A/T
	A/T CONTROL DEVICE (A/T INDICATOR ILLUMINATION)	M42	EL-ILL
	ACCESSORY RELAY (In fuse block)	M15	EL-POWER
	ASHTRAY ILLUMINATION	M44	EL-ILL
	BLOWER RELAY (In fuse block)	M15	EL-POWER
	CIGARETTE LIGHTER SOCKET	M43	EL-HORN
	COMBINATION FLASHER UNIT	M20	EL-TURN
	COMBINATION METER (METER ILLUMINATION) (For Europe and Israel)	M30 M32	EL-ILL
	DATA LINK CONNECTOR FOR CONSULT	M13	EC-MIL BR-ABS RS-SRS
	DOOR LOCK TIMER (Type-1)	M34	EL-D/LOCK
	DOOR LOCK TIMER (Type-2)	M35	EL-D/LOCK
	DOOR MIRROR REMOTE CONTROL SWITCH	M9	EL-MIRROR
	ECM (ENGINE CONTROL MODULE)	M39	EC-GLOW
	FAN SWITCH	M45	EC-A/CCUT EC-LOAD HA-A/C
	FAN SWITCH ILLUMINATION	M48	HA-A/C EL-ILL
	FRONT FOG LAMP SWITCH	M10	EL-F/FOG EL-ILL
	FRONT WIPER AMPLIFIER	M74	EL-WIPER
	FRONT WIPER MOTOR (With ABS, dual air bag or rear power window)	M83	EL-WIPER
	GLOVE BOX LAMP SWITCH	M66	EL-ILL
	HAZARD SWITCH	M54	EL-TURN EL-ILL
	HEADLAMP AIMING SWITCH	M11	EL-AIM
	HEADLAMP WIPER AND WASHER SWITCH	M56	EL-ILL EL-HLC
	IGNITION RELAY (In fuse block)	M15	EL-POWER
	ILLUMINATION CONTROL SWITCH	M21	EL-ILL
	MIRROR DEFOGGER RELAY	M17	EL-DEF
	NATS IMMU	M36	EL-NATS

*1: M30 (With tachometer), M32 (Without tachometer)
*2: M30 (Without tachometer), M31 (With tachometer)

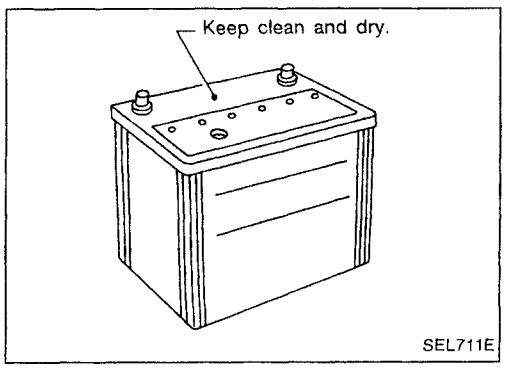
GROUND	CONNECT TO	CONN. NO.	CELL CORD
M28/M68 (LHD models) M28/M60/M68 (RHD models)	POWER STEERING OIL PRESSURE SWITCH (LHD models without ABS, dual air bag and rear power window)	M82	EC-PST/SW
	POWER WINDOW RELAY	M16	EL-ILL EL-WINDOW
	REAR FOG LAMP SWITCH	M55	EL-R/FOG EL-ILL EL-BUZZER
	REAR WINDOW DEFOGGER SWITCH	M53	EL-ILL EL-DEF
	REAR WINDOW DEFOGGER TIMER	M37	EL-DEF
	REAR WIPER AMPLIFIER (RHD models)	M21	EL-WIP/R
	RECIRCULATION SWITCH	M46	HA-A/C
	SIDE TURN SIGNAL LAMP (Passenger side) (GA engine without ABS, dual air bag and rear power window)	M81	EL-TURN
	SUN ROOF RELAY	M16	EL-SROOF
	WARNING BUZZER UNIT (For Australia)	M38	EL-BUZZER
	FRONT WIPER MOTOR (With ABS, dual air bag or rear power window)	B105	EL-WIPER
	REAR WIPER AMPLIFIER (LHD models)	B8	EL-WIP/R
	IACV-FICD SOLENOID VALVE (RHD models with CD engine)	B102	EC-A/CCUT HA-A/C
	POWER STEERING OIL PRESSURE SWITCH (LHD models with ABS, dual air bag or rear power window)	B102	EC-PST/SW
	SIDE TURN SIGNAL LAMP (Passenger side) (Except GA engine without ABS, dual air bag and rear power window)	B108	EL-TURN
	AIR BAG DIAGNOSIS SENSOR UNIT (Dual air bag system)	Z1	RS-SRS
	SPOT LAMP	R2	EL-INT/L
	DOOR LOCK ACTUATOR (Driver side)	D8	EL-D/LOCK
	DOOR LOCK ACTUATOR (Passenger side)	D38	EL-D/LOCK
	DOOR MIRROR DEFOGGER (Driver side)	D4	EL-DEF
	DOOR MIRROR DEFOGGER (Passenger side)	D34	EL-DEF
	LOCK KNOB SWITCH	D9	EL-D/LOCK
	POWER WINDOW MAIN SWITCH (Without rear power window)	D6	EL-WINDOW
	POWER WINDOW MAIN SWITCH (With rear power window)	D7	EL-WINDOW EL-D/LOCK

GROUND	CONNECT TO	CONN. NO.	CELL CORD
F13/F14	DISTRIBUTOR (CAMSHAFT POSITION SENSOR)	F24	EC-CMPS
	DISTRIBUTOR (POWER TRANSISTOR)	F24	EC-IGN/SG
	ECM (ECCS CONTROL MODULE)	F1	EC-MAIN
	IACV-FICD SOLENOID VALVE (GA16DE engine except for Europe and Israel)	F9	EC-FICD HA-A/C
	IACV-FICD SOLENOID VALVE (GA engine for Europe and Israel and GA15DE engine)	F11	EC-FICD HA-A/C
	SHIELD WIRE (CAMSHAFT POSITION SENSOR)	F24	EC-CMPS
	SHIELD WIRE (HEATED OXYGEN SENSOR)	F23	EC-HO2S
	SHIELD WIRE (KNOCK SENSOR) (GA engine)	F102	EC-KS
	SHIELD WIRE (MASS AIR FLOW SENSOR) (GA engine for Europe and Israel and GA15DE engine)	F12	EC-MAFS
	SHIELD WIRE (MASS AIR FLOW SENSOR) (GA16DE engine except for Europe and Israel and SR engine)	F27	EC-MAFS
	SHIELD WIRE (OXYGEN SENSOR)	F22	EC-O2S
	SHIELD WIRE (THROTTLE POSITION SENSOR)	F8	EC-TPS
	IACV-AIR REGULATOR	E214	EC-AIRREG
	IACV-FICD SOLENOID VALVE (SR engine)	E212	EC-FICD HA-A/C
	SHIELD WIRE (KNOCK SENSOR) (SR engine)	E215	EC-KS
E205	ALTERNATOR	E233	EL-CHARGE EL-WARN
B11/B32 (Sedan) B11/B32/D105 (Hatchback)	FRONT DOOR SWITCH (Driver side)	B9	RS-SRS EL-BUZZER
	FUEL PUMP	B17	EC-F/PUMP
	FUEL TANK GAUGE UNIT	B18	EL-METER EL-WARN
	HEATED SEAT LH	B12	EL-H/SEAT
	HEATED SEAT RH	B16	EL-H/SEAT
	HEATED SEAT SWITCH LH	B13	EL-H/SEAT
	HEATED SEAT SWITCH RH	B15	EL-H/SEAT
	REAR COMBINATION LAMP LH (TAIL AND STOP) (Hatchback)	B27	EL-TAIL/L EL-STOP/L
	REAR COMBINATION LAMP LH (TURN SIGNAL) (Hatchback)	B27	EL-TURN
	REAR COMBINATION LAMP RH (TAIL AND STOP) (Hatchback)	B28	EL-TAIL/L EL-STOP/L
	REAR COMBINATION LAMP RH (TURN SIGNAL) (Hatchback)	B28	EL-TURN
	HIGH-MOUNTED STOP LAMP (In rear air spoiler) (Hatchback)	D112	EL-STOP/L
	HIGH-MOUNTED STOP LAMP (On rear window) (Hatchback)	D108	EL-STOP/L
	LICENSE PLATE LAMP LH (Hatchback)	D107	EL-TAIL/L
	LICENSE PLATE LAMP RH (Hatchback)	D109	EL-TAIL/L

GROUND	CONNECT TO	CONN. NO.	CELL CORD
B11/B32 (Sedan) B11/B32/D105 (Hatchback)	LUGGAGE ROOM LAMP SWITCH	D110	EL-INT/L
	REAR COMBINATION LAMP LH (BACK-UP)	D103	EL-BACK/L
	REAR COMBINATION LAMP LH (REAR FOG) (LHD Hatchback models for Europe)	D103	EL-R/FOG
	REAR COMBINATION LAMP LH (TAIL) (Hatchback except for Europe and Australia)	D103	EL-TAIL/L
	REAR COMBINATION LAMP RH (BACK-UP)	D111	EL-BACK/L
	REAR COMBINATION LAMP RH (REAR FOG) (RHD Hatchback models for Europe)	D111	EL-R/FOG
	REAR COMBINATION LAMP RH (TAIL) (Hatchback except for Europe and Australia)	D111	EL-TAIL/L
T10/T11	HIGH-MOUNTED STOP LAMP (Sedan)	T6	EL-STOP/L
	LICENSE PLATE LAMP LH (Sedan)	T5	EL-TAIL/L
	LICENSE PLATE LAMP RH (Sedan)	T7	EL-TAIL/L
	REAR COMBINATION LAMP LH (BACK-UP) (LHD Sedan models)	T3	EL-BACK/L
	REAR COMBINATION LAMP LH (REAR FOG) (Sedan)	T3	EL-R/FOG
	REAR COMBINATION LAMP LH (TAIL AND STOP) (Sedan)	T2	EL-TAIL/L EL-STOP/L
	REAR COMBINATION LAMP LH (TAIL) (Sedan except for Europe and Australia)	T3	EL-TAIL/L
	REAR COMBINATION LAMP LH (TURN SIGNAL) (Sedan)	T2	EL-TURN
	REAR COMBINATION LAMP RH (BACK-UP) (Sedan)	T8	EL-BACK/L
	REAR COMBINATION LAMP RH (REAR FOG) (RHD Sedan models)	T8	EL-R/FOG
	REAR COMBINATION LAMP RH (TAIL AND STOP) (Sedan)	T9	EL-TAIL/L EL-STOP/L
	REAR COMBINATION LAMP RH (TAIL) (Sedan except for Europe and Australia)	T8	EL-TAIL/L
	REAR COMBINATION LAMP RH (TURN SIGNAL) (Sedan)	T9	EL-TAIL/L
	TRUNK ROOM LAMP SWITCH	T4	EL-INT/L
B110	SHIELD WIRE (WHEEL SPEED SENSOR FRONT LH) (LHD models)	E4	BR-ABS
	SHIELD WIRE (WHEEL SPEED SENSOR FRONT RH) (RHD models)	E11	BR-ABS
	SHIELD WIRE (WHEEL SPEED SENSOR FRONT LH) (RHD models)	B106	BR-ABS
	SHIELD WIRE (WHEEL SPEED SENSOR FRONT RH) (LHD models)	B107	BR-ABS
B112	ABS CONTROL UNIT	B111	BR-ABS
	ABS RELAY BOX	B104	BR-ABS
B204	REAR WINDOW DEFOGGER	B203	EL-DEF

CAUTION:

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

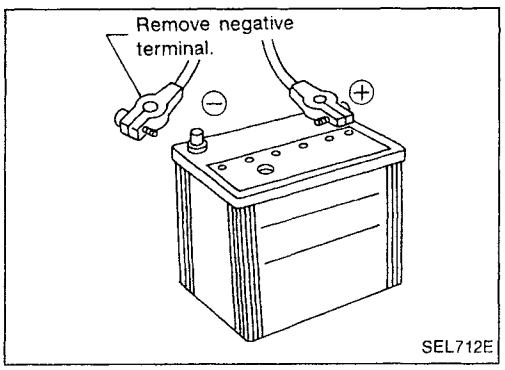


How to Handle Battery

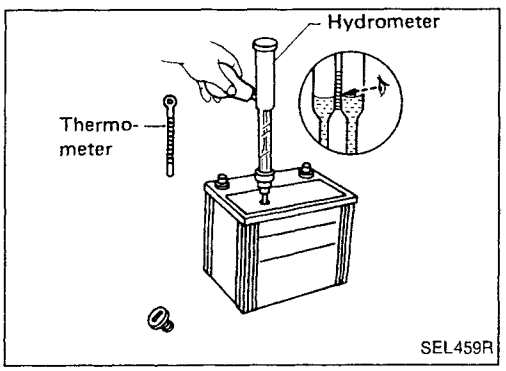
METHODS OF PREVENTING OVER-DISCHARGE

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

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



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



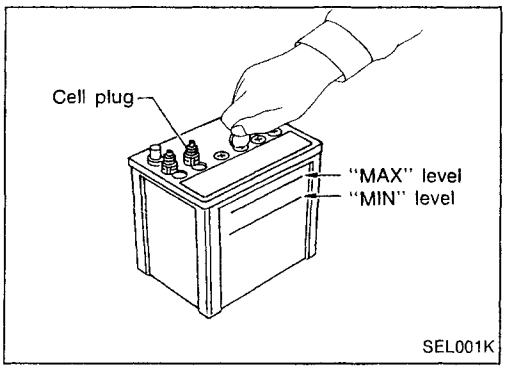
- Check the charge condition of the battery.
  Periodically check the specific gravity of the electrolyte. Keep a close check on charge condition to prevent overdischarge.

CHECKING ELECTROLYTE LEVEL

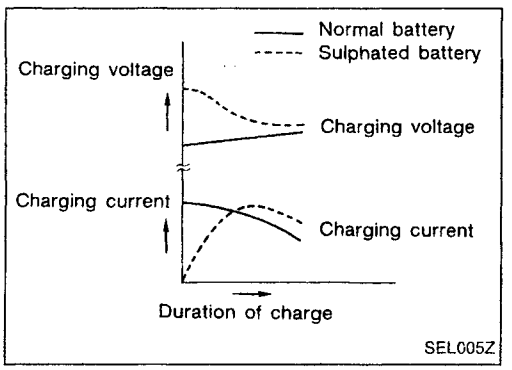
WARNING:

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)

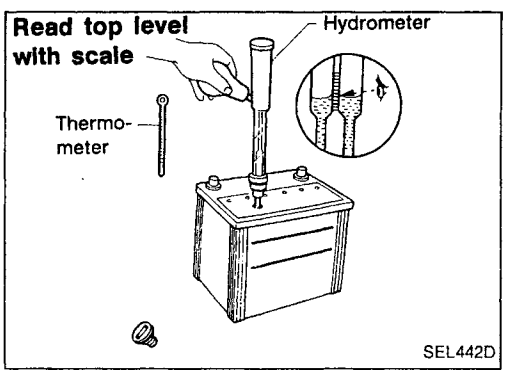


- Remove the cell plug using a suitable tool.
- Add distilled water up to the MAX level.



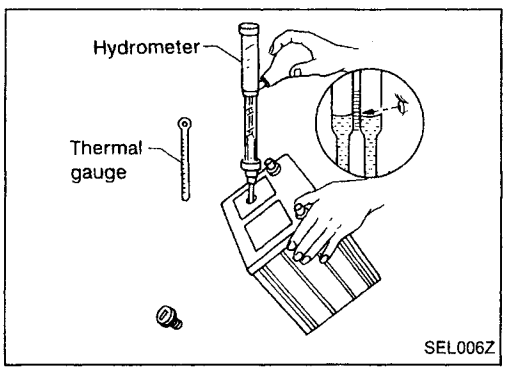
SULPHATION

A battery will be completely discharged if it is left unattended for a long time and the specific gravity becomes less than 1.100. This may result in sulphation on the cell plates.
To find if a discharged battery has been "sulphated", pay attention to its voltage and current when charging it. As shown in the figure at left, if the battery has been "sulphated", less current and higher voltage may be observed in the initial stage of charging.



SPECIFIC GRAVITY CHECK

1. Read hydrometer and thermometer indications at eye level.



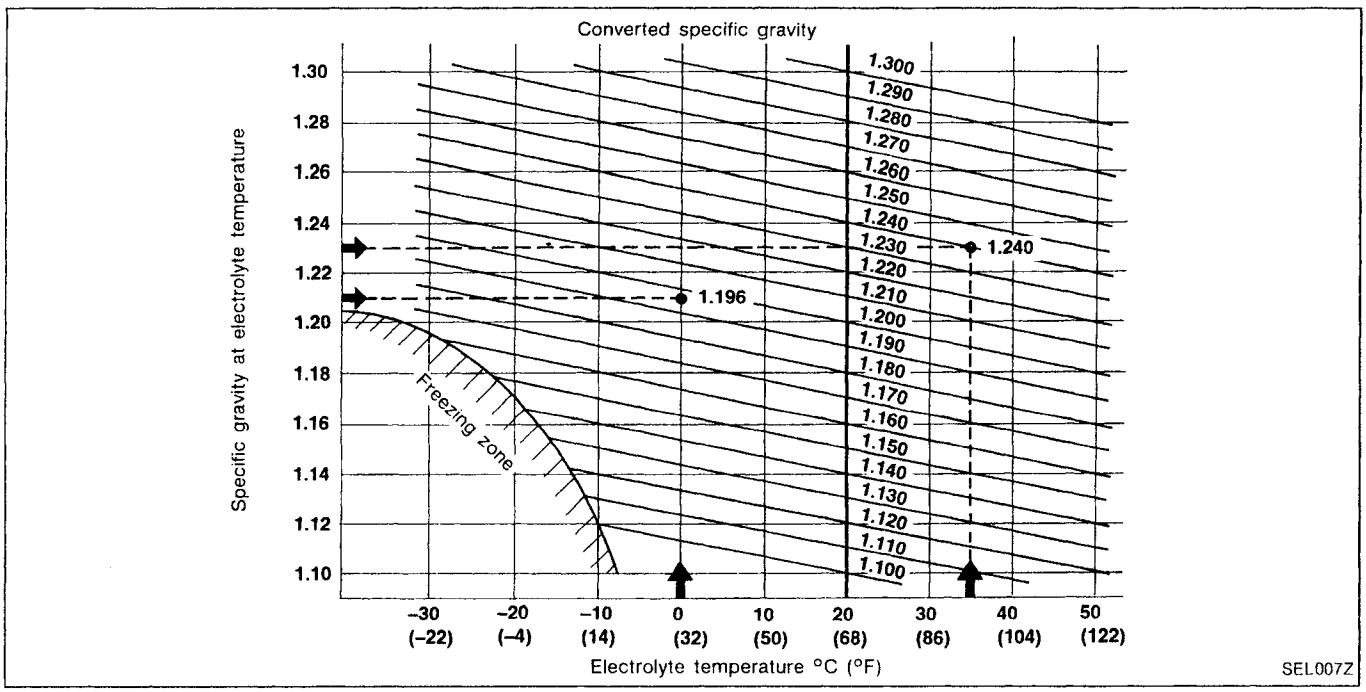
- When electrolyte level is too low, tilt battery case to raise it for easy measurement.

How to Handle Battery (Cont'd)

2. Convert into specific gravity at 20°C (68°F).

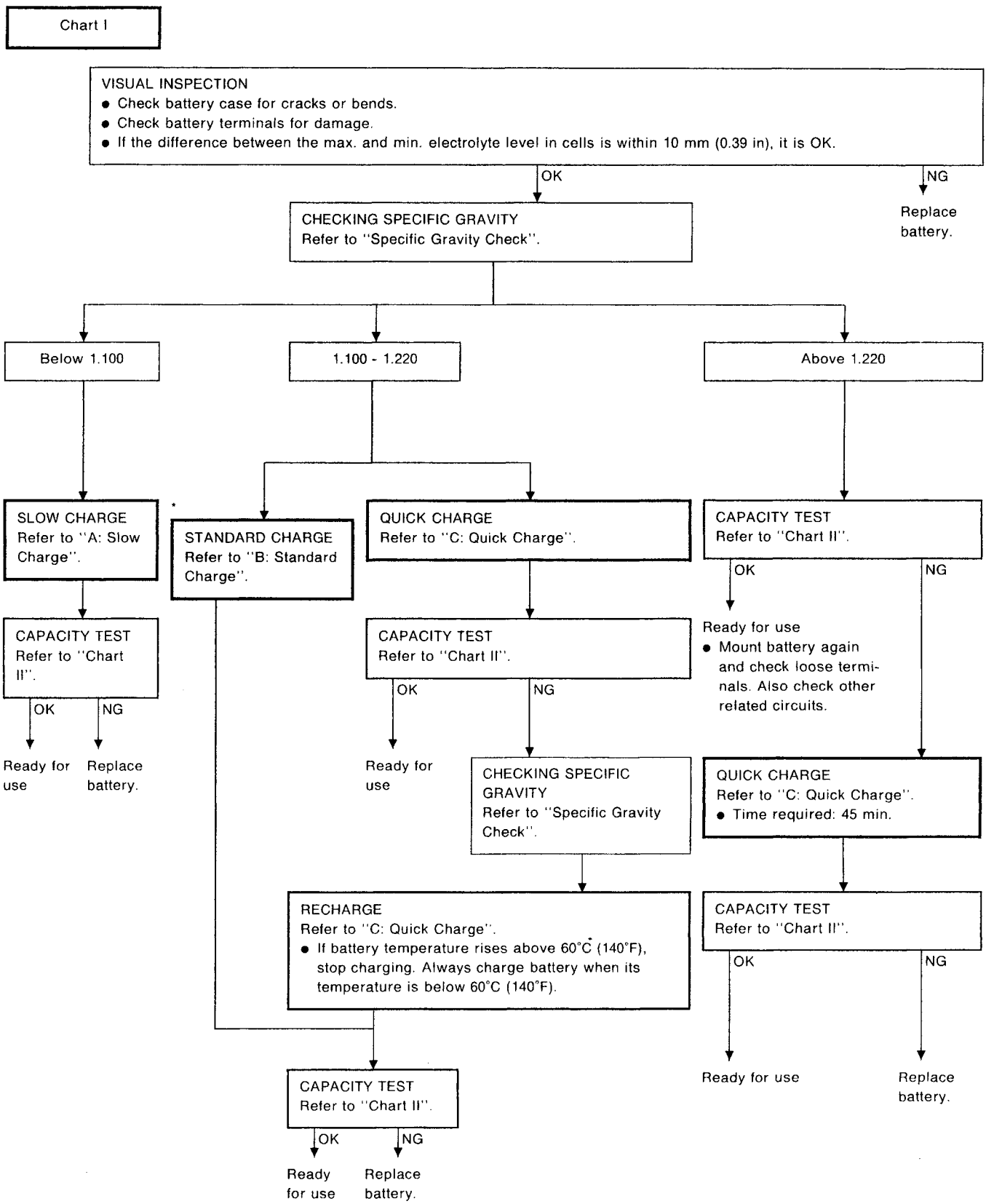
Example:

- When electrolyte temperature is 35°C (95°F) and specific gravity of electrolyte is 1.230, converted specific gravity at 20°C (68°F) is 1.240.
- When electrolyte temperature is 0°C (32°F) and specific gravity of electrolyte is 1.210, converted specific gravity at 20°C (68°F) is 1.196.



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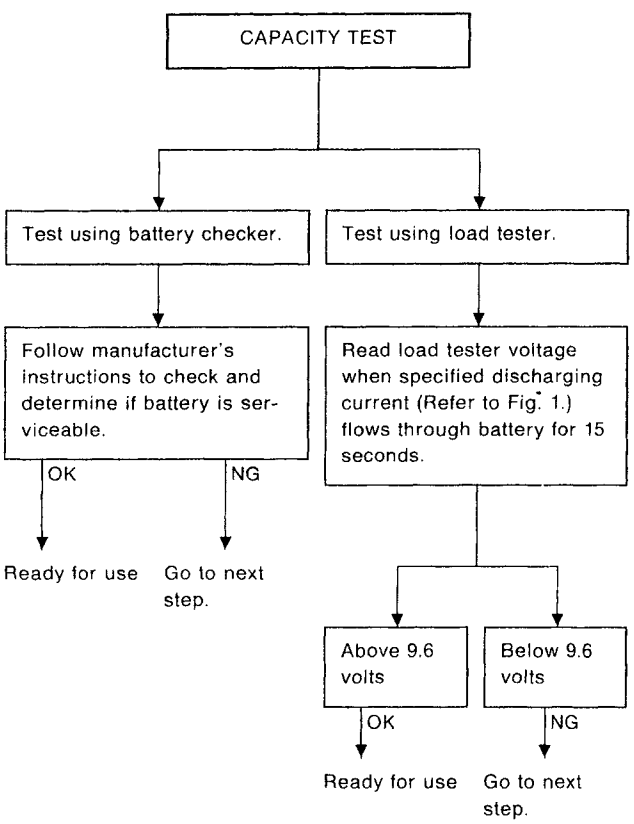
Battery Test and Charging Chart



*** "STANDARD CHARGE" is recommended if the vehicle is in storage after charging.**

Battery Test and Charging Chart (Cont'd)

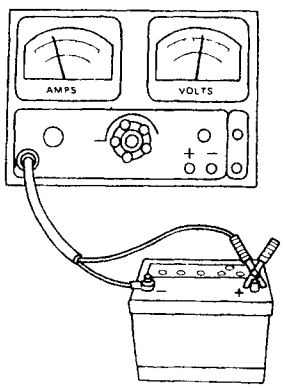
Chart II



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

Fig. 1 DISCHARGING CURRENT (Load Tester)

Type	Current (A)
28B19R(L)	90
34B19R(L)	99
46B24R(L)	135
55B24R(L)	135
50D23R(L)	150
55D23R(L)	180
65D26R(L)	195
80D26R(L)	195
75D31R(L)	210
95D31R(L)	240
115D31R(L)	240
95E41R(L)	300
130E41R(L)	330



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Battery Test and Charging Chart (Cont'd)

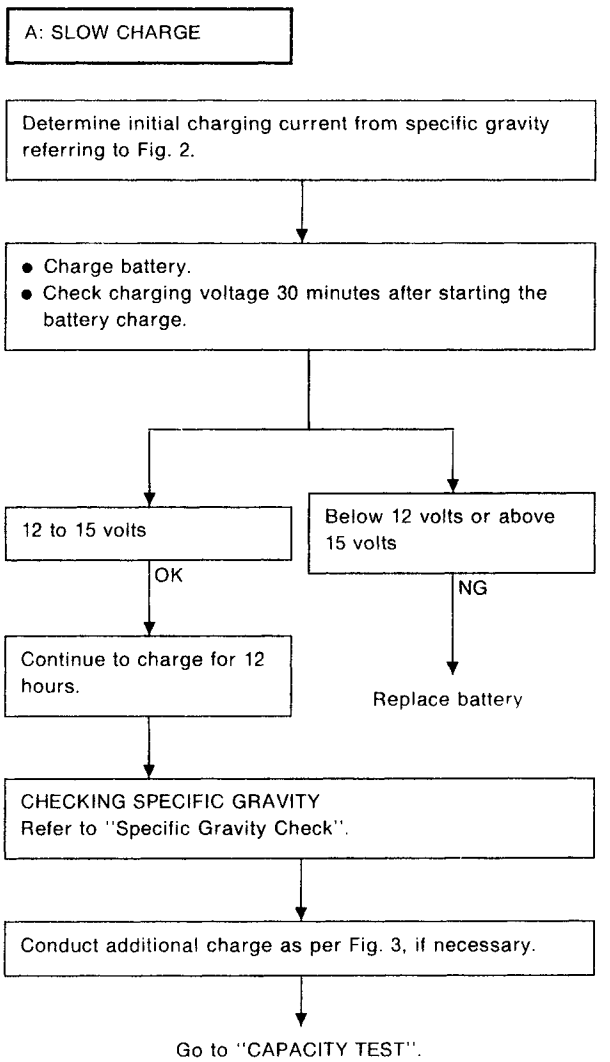
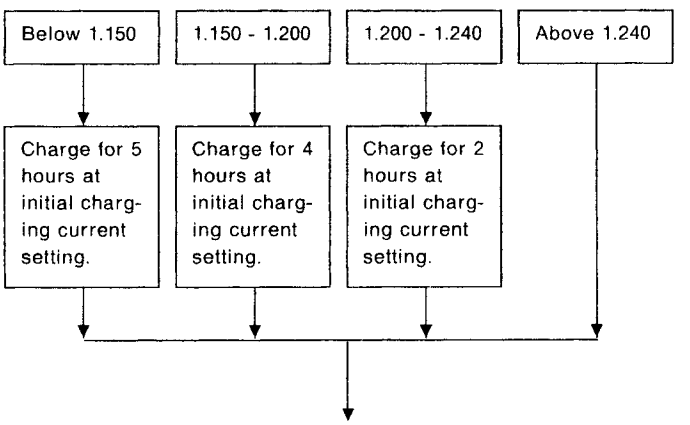


Fig. 2 INITIAL CHARGING CURRENT SETTING (Slow charge)

CONVERTED SPECIFIC GRAVITY	BATTERY TYPE												
	28B19R(L)	34B19R(L)	46B24R(L)	55B24R(L)	50D23R(L)	55D23R(L)	65D26R(L)	80D26R(L)	75D31R(L)	95D31R(L)	115D31R(L)	95E41R(L)	130E41R(L)
Below 1.100	4.0 (A)		5.0 (A)		7.0 (A)		8.0 (A)		9.0 (A)	10.0 (A)			14.0 (A)

- Check battery type and determine the specified current using the table shown above.
- After starting charging, adjustment of charging current is not necessary.

Fig. 3 ADDITIONAL CHARGE (Slow charge)



CAUTION:

- **Set charging current to value specified in Fig. 2. If charger is not capable of producing specified current value, set its charging current as close to that value as possible.**
- **Keep battery away from open flame while it is being charged.**
- **When connecting charger, connect leads first, then turn on charger. Do not turn on charger first, as this may cause a spark.**
- **If battery temperature rises above 60°C (140°F), stop charging. Always charge battery when its temperature is below 60°C (140°F).**

Battery Test and Charging Chart (Cont'd)

B: STANDARD CHARGE

Determine initial charging current from specific gravity, referring to Fig. 4.

↓

Charge battery for 8 hours.

↓

CHECKING SPECIFIC GRAVITY
Refer to "Specific Gravity Check".

↓

Conduct additional charge as per Fig. 5, if necessary.

↓

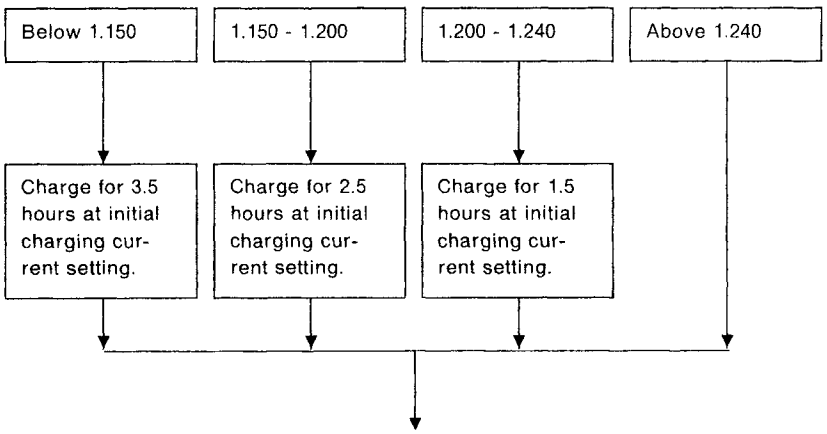
Go to "CAPACITY TEST".

Fig. 4 INITIAL CHARGING CURRENT SETTING
(Standard charge)

CONVERTED SPECIFIC GRAVITY	BATTERY TYPE										
	28B19R(L)	34B19R(L)	46B24R(L)	55B24R(L)	50D23R(L)	55D23R(L)	65D26R(L)	80D26R(L)	75D31R(L)	95D31R(L)	115D31R(L)	95E41R(L)	130E41R(L)
1.100 - 1.130	4.0 (A)		5.0 (A)		6.0 (A)		7.0 (A)		8.0 (A)	9.0 (A)			13.0 (A)
1.130 - 1.160	3.0 (A)		4.0 (A)		5.0 (A)		6.0 (A)		7.0 (A)	8.0 (A)			11.0 (A)
1.160 - 1.190	2.0 (A)		3.0 (A)		4.0 (A)		5.0 (A)		6.0 (A)	7.0 (A)			9.0 (A)
1.190 - 1.220	2.0 (A)		2.0 (A)		3.0 (A)		4.0 (A)		5.0 (A)	5.0 (A)			7.0 (A)

- Check battery type and determine the specified current using the table shown above.
- After starting charging, adjustment of charging current is not necessary.

Fig. 5 ADDITIONAL CHARGE (Standard charge)



CAUTION:

- **Do not use standard charge method on a battery whose specific gravity is less than 1.100.**
- **Set charging current to value specified in Fig. 4. If charger is not capable of producing specified current value, set its charging current as close to that value as possible.**
- **Keep battery away from open flame while it is being charged.**
- **When connecting charger, connect leads first, then turn on charger. Do not turn on charger first, as this may cause a spark.**
- **If battery temperature rises above 60°C (140°F), stop charging. Always charge battery when its temperature is below 60°C (140°F).**

EL

Battery Test and Charging Chart (Cont'd)

C: QUICK CHARGE

Determine initial charging current setting and charging time from specific gravity, referring to Fig. 6.

↓

Charge battery.

↓

Go to "CAPACITY TEST".

Fig. 6 INITIAL CHARGING CURRENT SETTING AND CHARGING TIME (Quick charge)

BATTERY TYPE		28B19R(L) 34B19R(L)	46B24R(L) 55B24R(L) 50D23R(L)	55D23R(L) 65D26R(L) 80D26R(L)	75D31R(L) 95D31R(L) 115D31R(L) 95E41R(L)	130E41R(L)
CURRENT [A]		10 (A)	15 (A)	20 (A)	30 (A)	40 (A)
CONVERTED SPECIFIC GRAVITY	1.100 - 1.130	2.5 hours				
	1.130 - 1.160	2.0 hours				
	1.160 - 1.190	1.5 hours				
	1.190 - 1.220	1.0 hours				
	Above 1.220	0.75 hours (45 min.)				

- Check battery type and determine the specified current using the table shown above.
- After starting charging, adjustment of charging current is not necessary.

CAUTION:

- **Do not use quick charge method on a battery whose specific gravity is less than 1.100.**
- **Set initial charging current to value specified in Fig. 6. If charger is not capable of producing specified current value, set its charging current as close to that value as possible.**
- **Keep battery away from open flame while it is being charged.**
- **When connecting charger, connect leads first, then turn on charger. Do not turn on charger first, as this may cause a spark.**
- **Be careful of a rise in battery temperature because a large current flow is required during quick-charge operation.**
  If battery temperature rises above 60°C (140°F), stop charging. Always charge battery when its temperature is below 60°C (140°F).
- **Do not exceed the charging time specified in Fig. 6, because charging battery over the charging time can cause deterioration of the battery.**

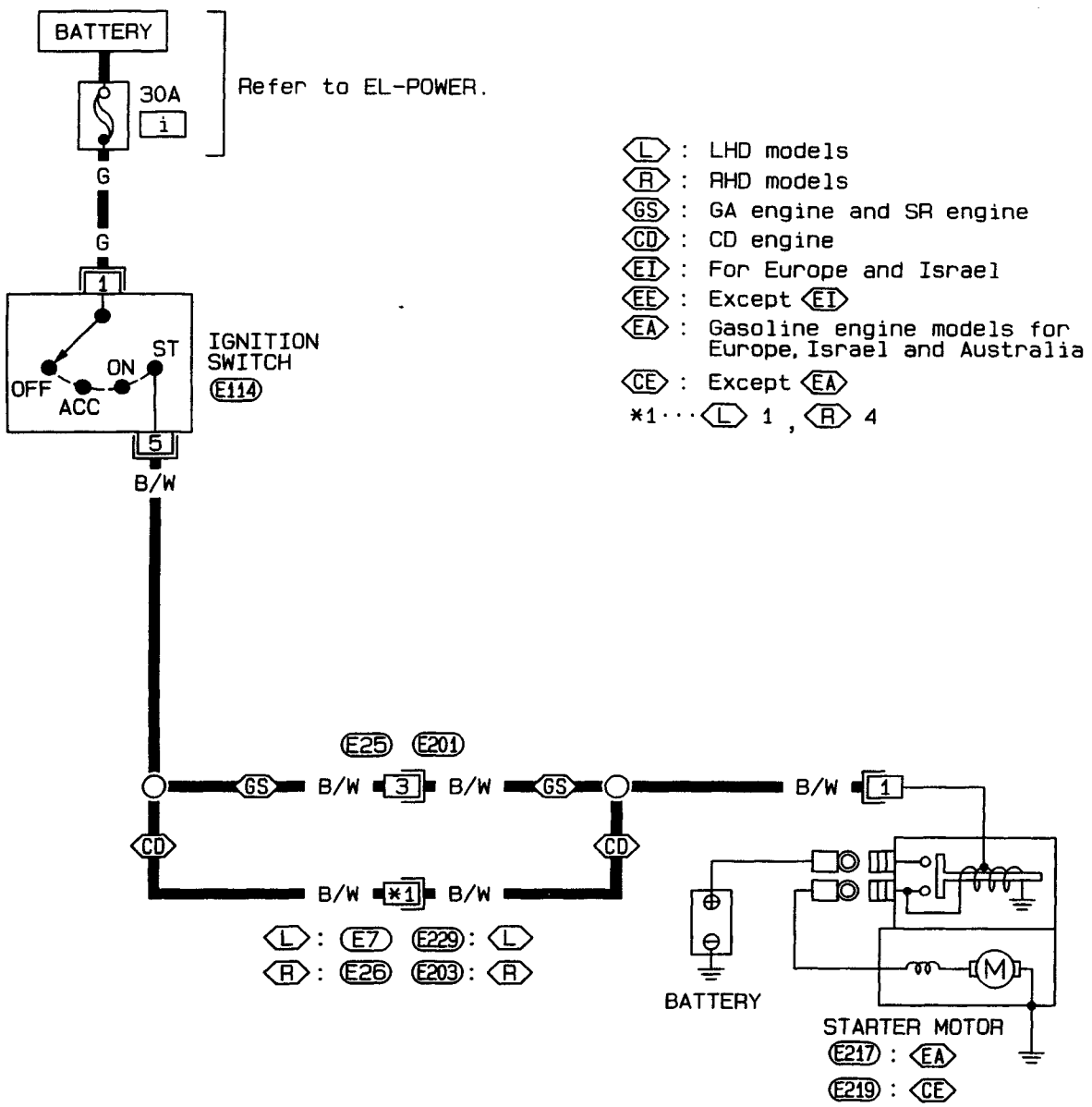
Service Data and Specifications (SDS)

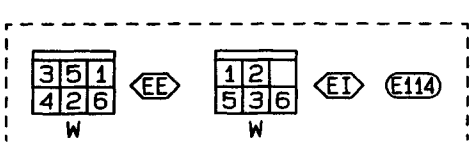
Applied model		GA engines			CD20	SR20DE
Type		28B19L	55D23L	65D26L	95D31L	34B19L
Capacity	V-AH	12 - 30	12 - 60	12 - 65	12 - 80	12 - 33

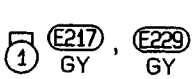
Wiring Diagram — START —

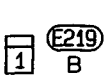
M/T MODELS

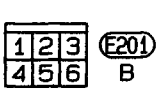
EL-START-01

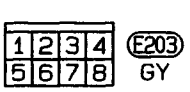












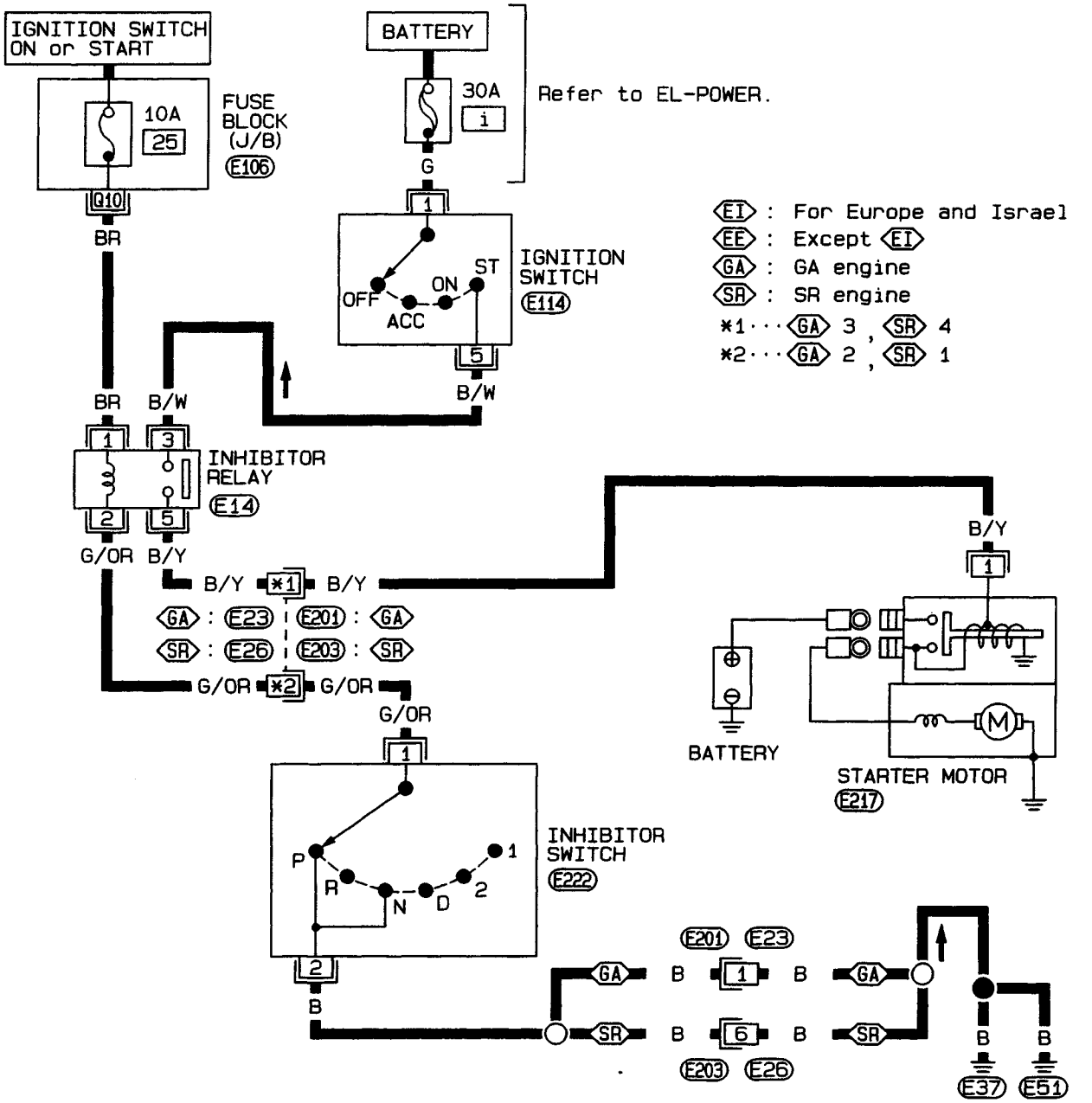
EL

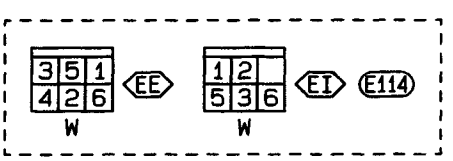
HEL194

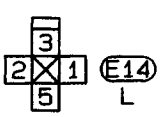
Wiring Diagram — START — (Cont'd)

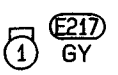
A/T MODELS

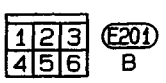
EL-START-02

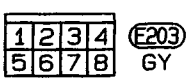


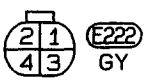












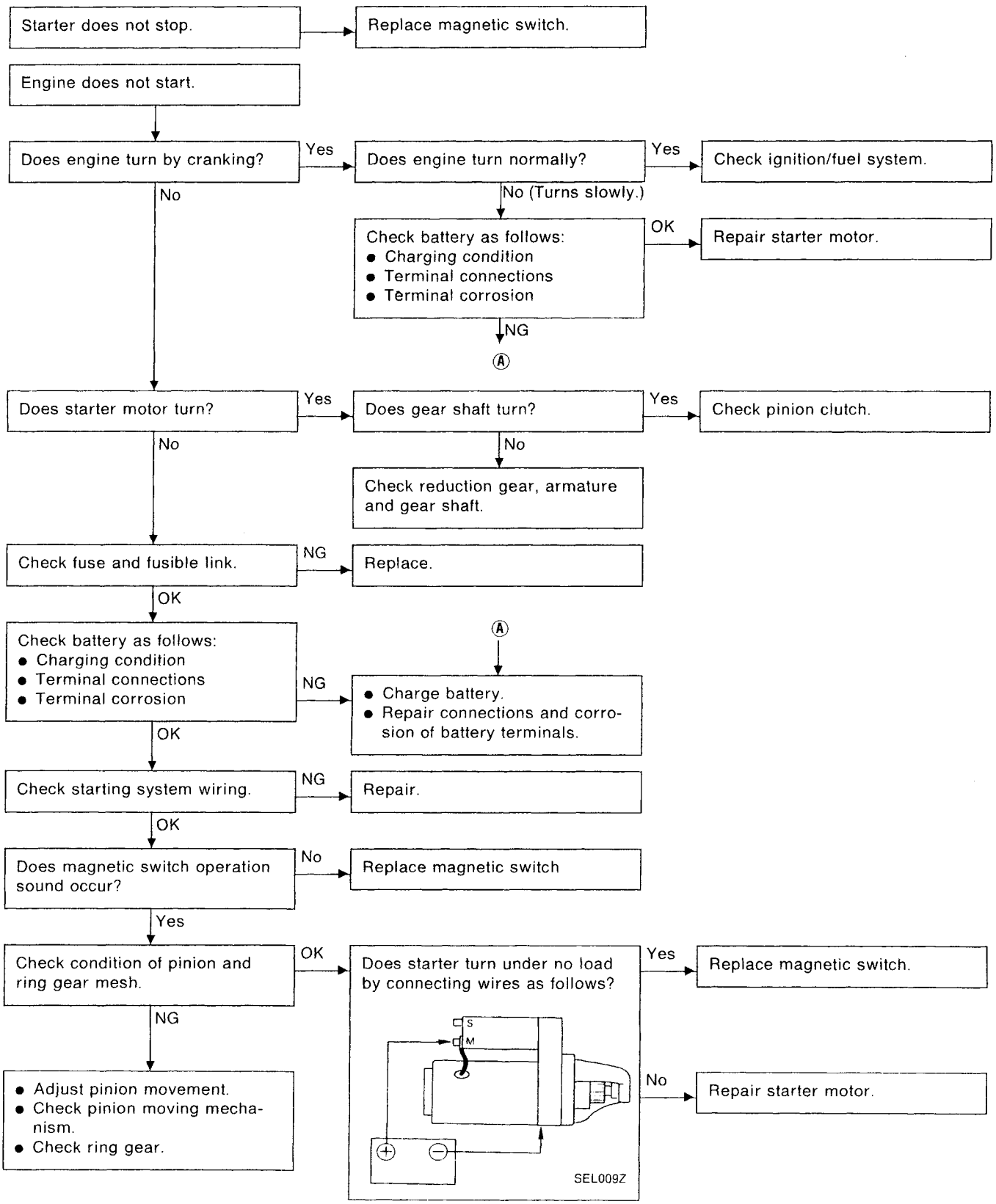
Refer to last page (Foldout page).

E106

HEL195

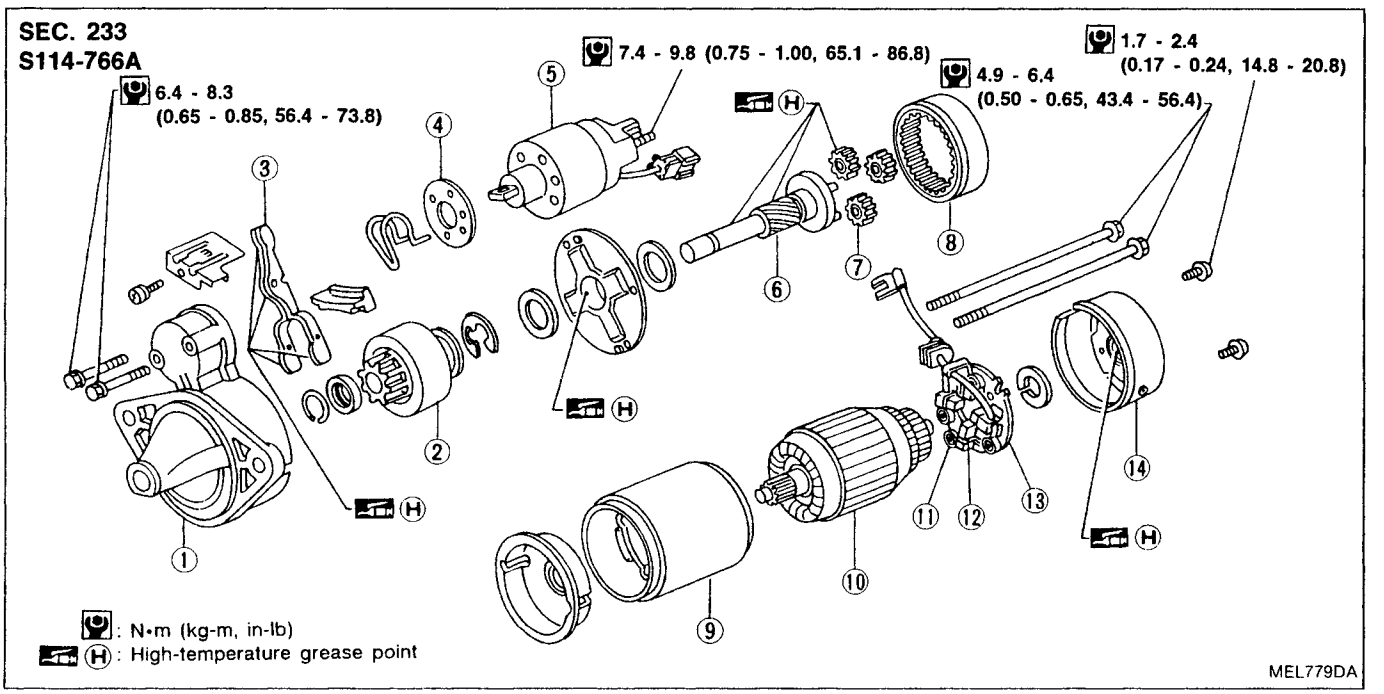
Trouble Diagnoses

If any abnormality is found, immediately disconnect battery negative terminal.

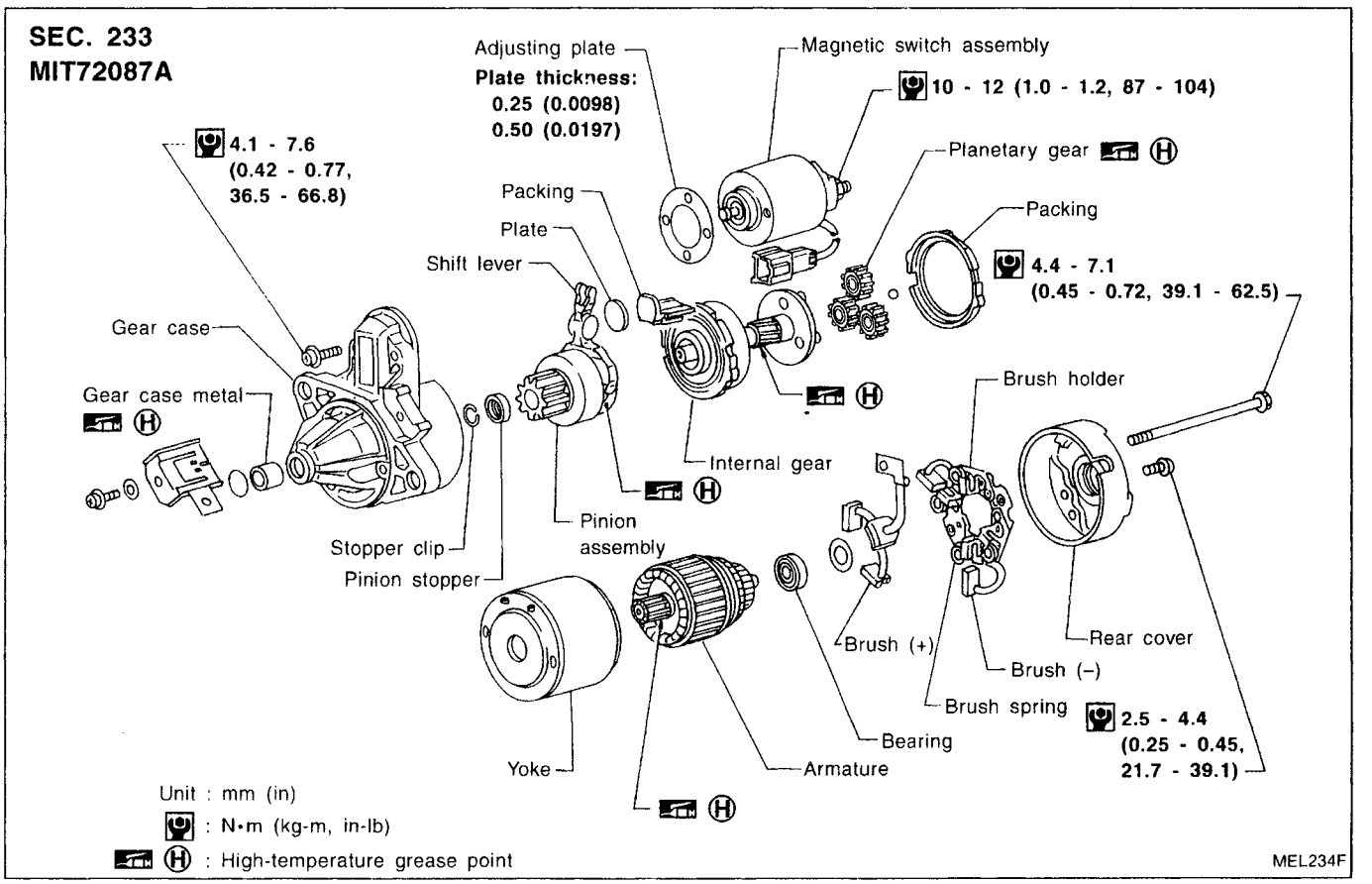


EL

Construction

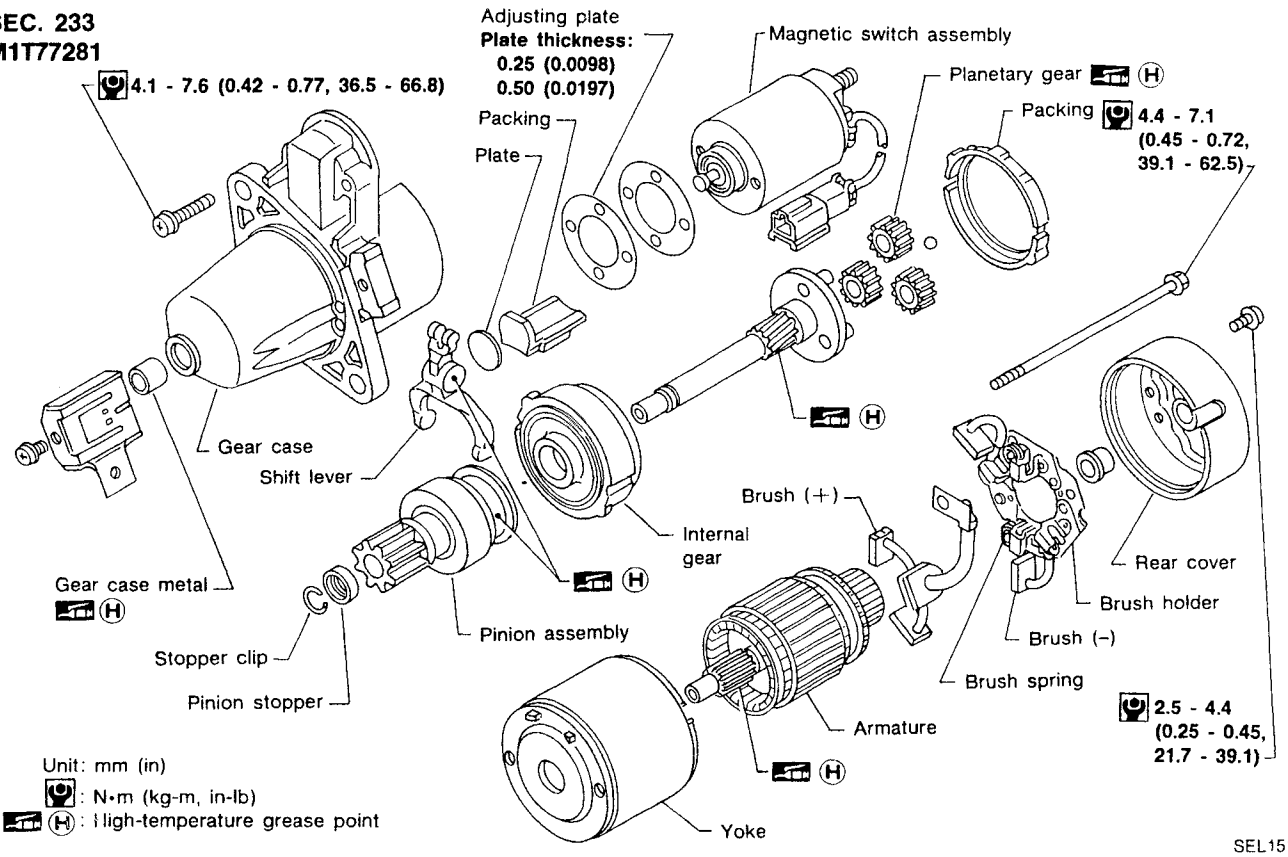


①	Gear case	⑥	Pinion shaft	⑪	Brush spring
②	Pinion assembly	⑦	Planetary gear	⑫	Brush (–)
③	Shift lever	⑧	Internal gear	⑬	Brush holder
④	Adjusting plate	⑨	Yoke	⑭	Rear cover
⑤	Magnetic switch assembly	⑩	Armature		

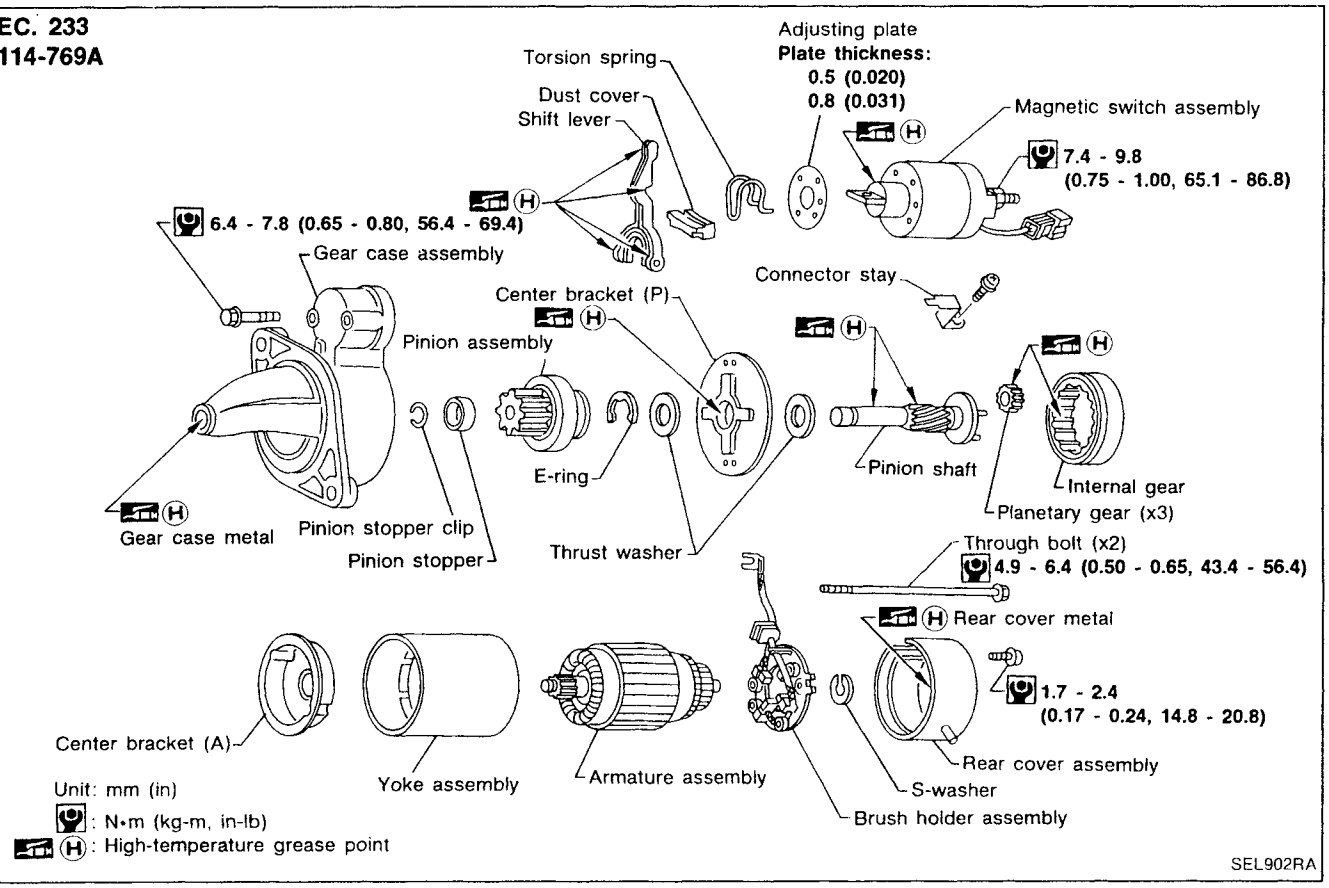


Construction (Cont'd)

SEC. 233
M1T77281



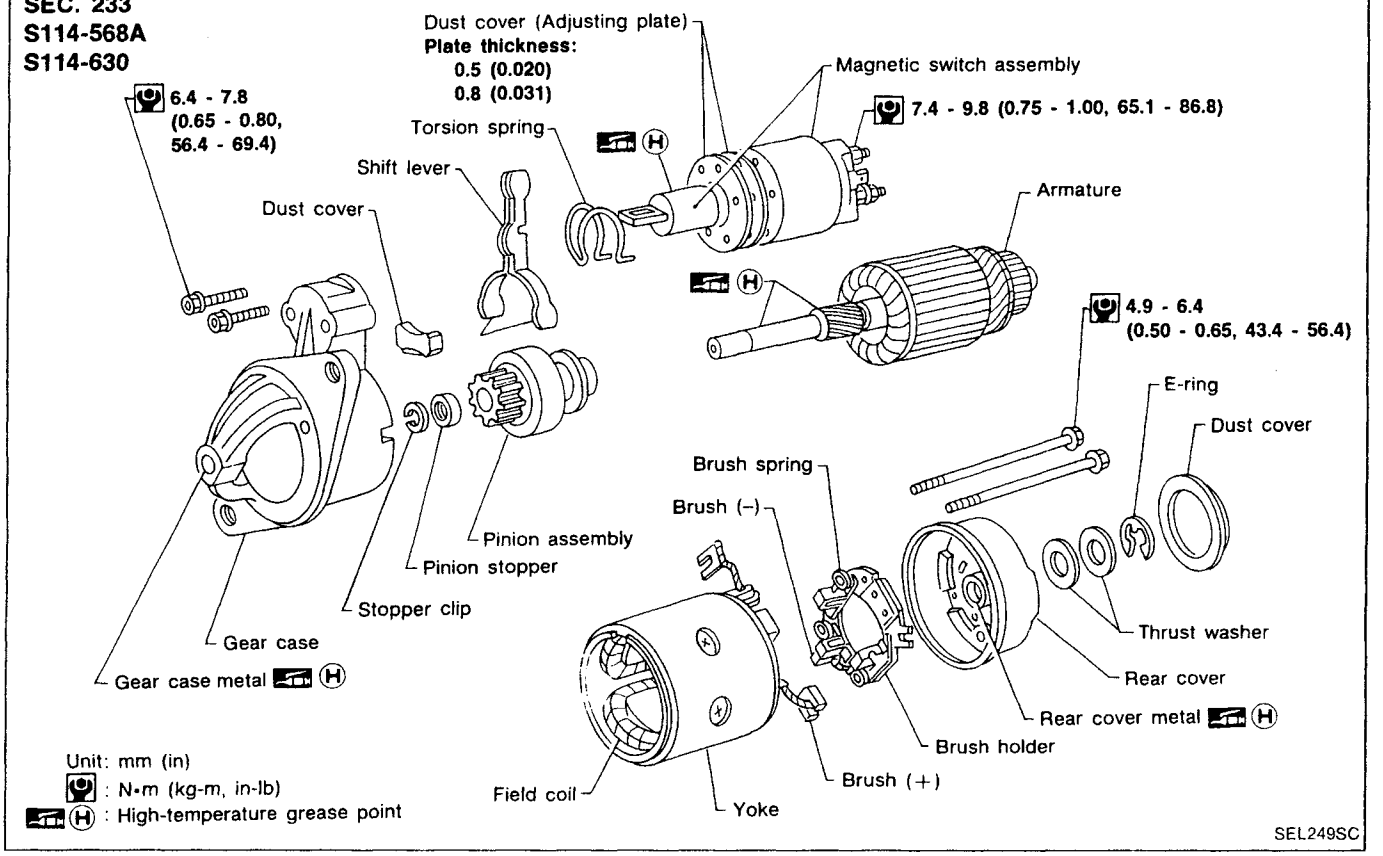
SEC. 233
S114-769A



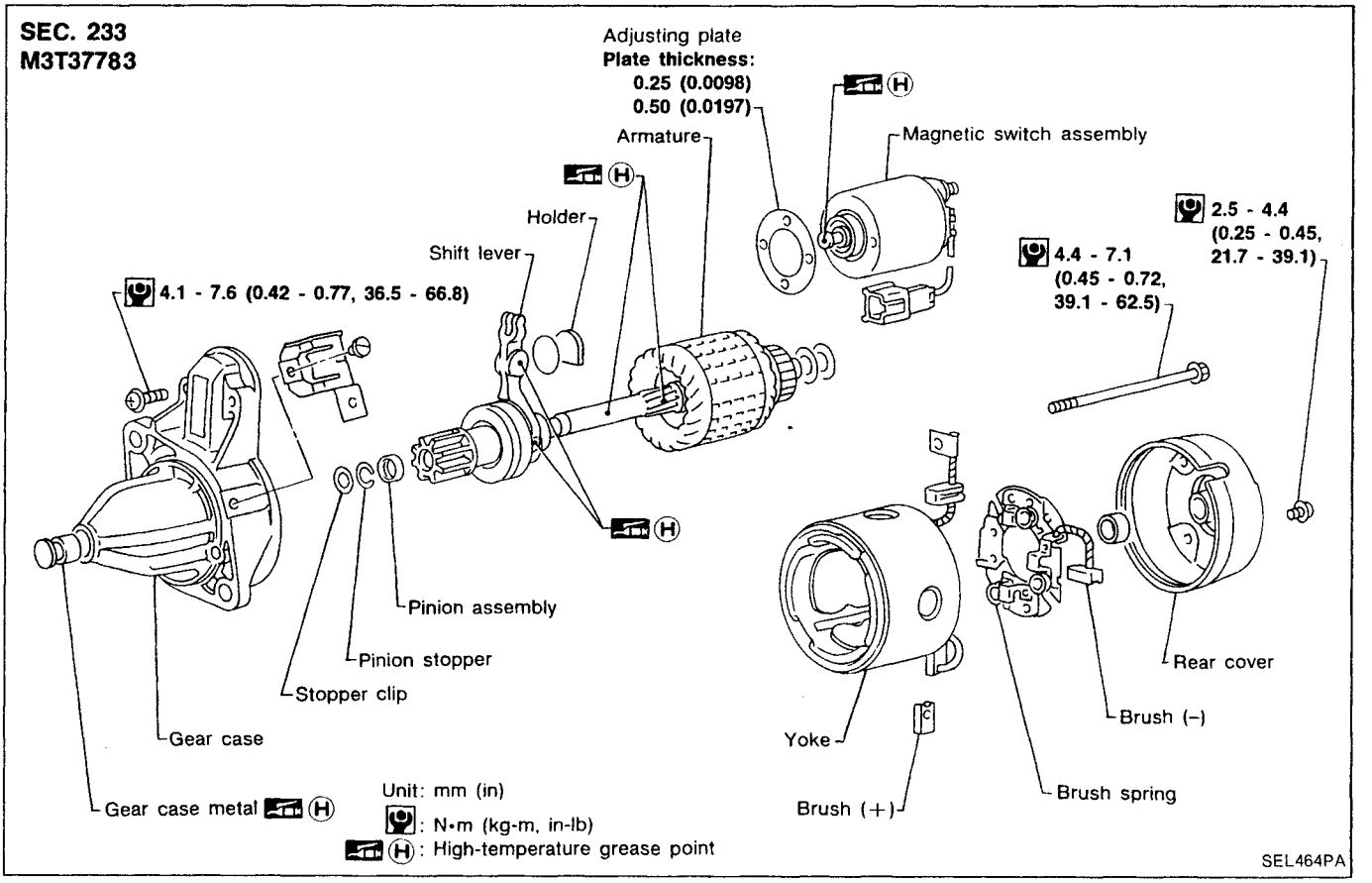
EL

Construction (Cont'd)

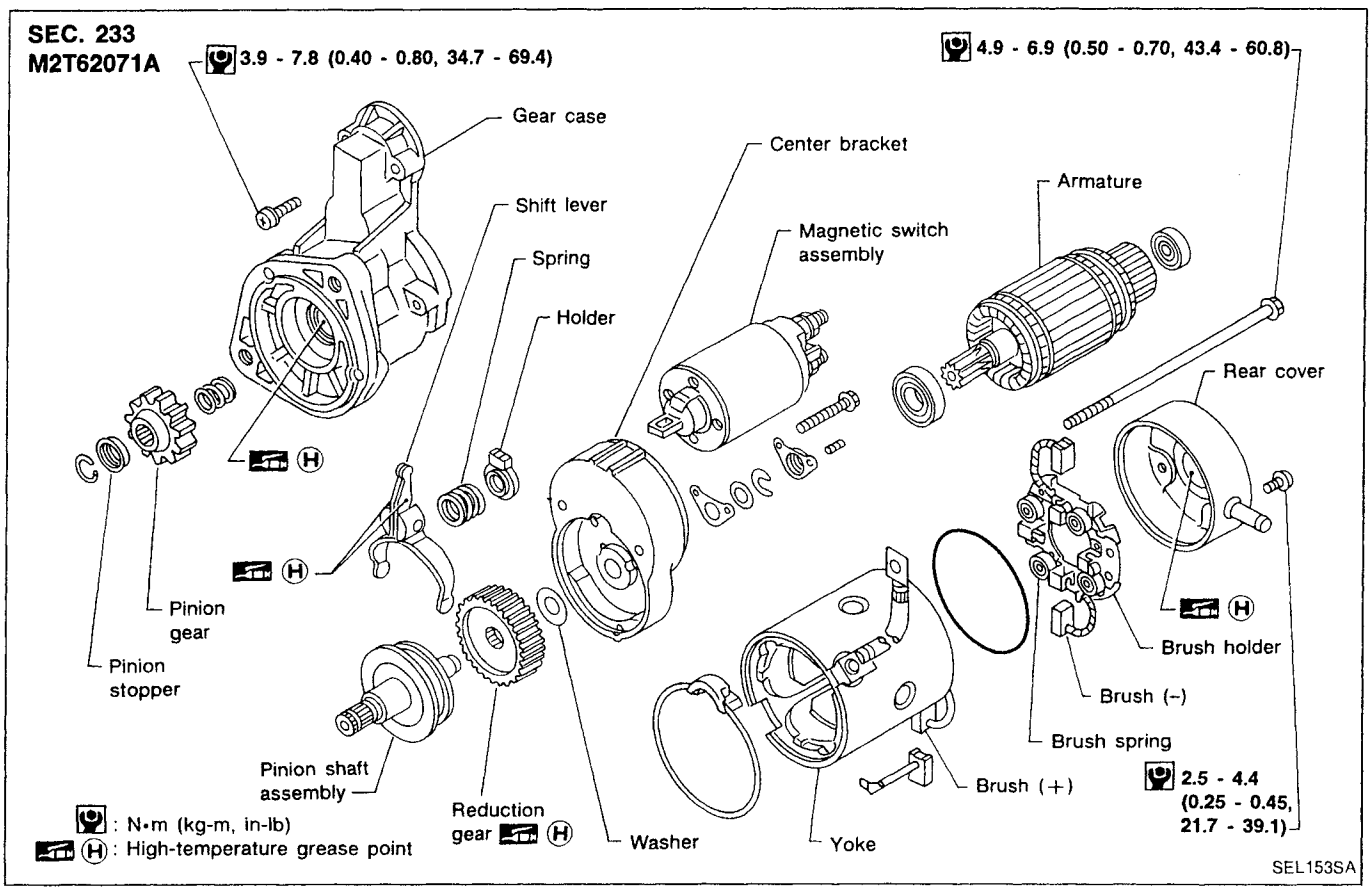
SEC. 233
S114-568A
S114-630



SEC. 233
M3T37783

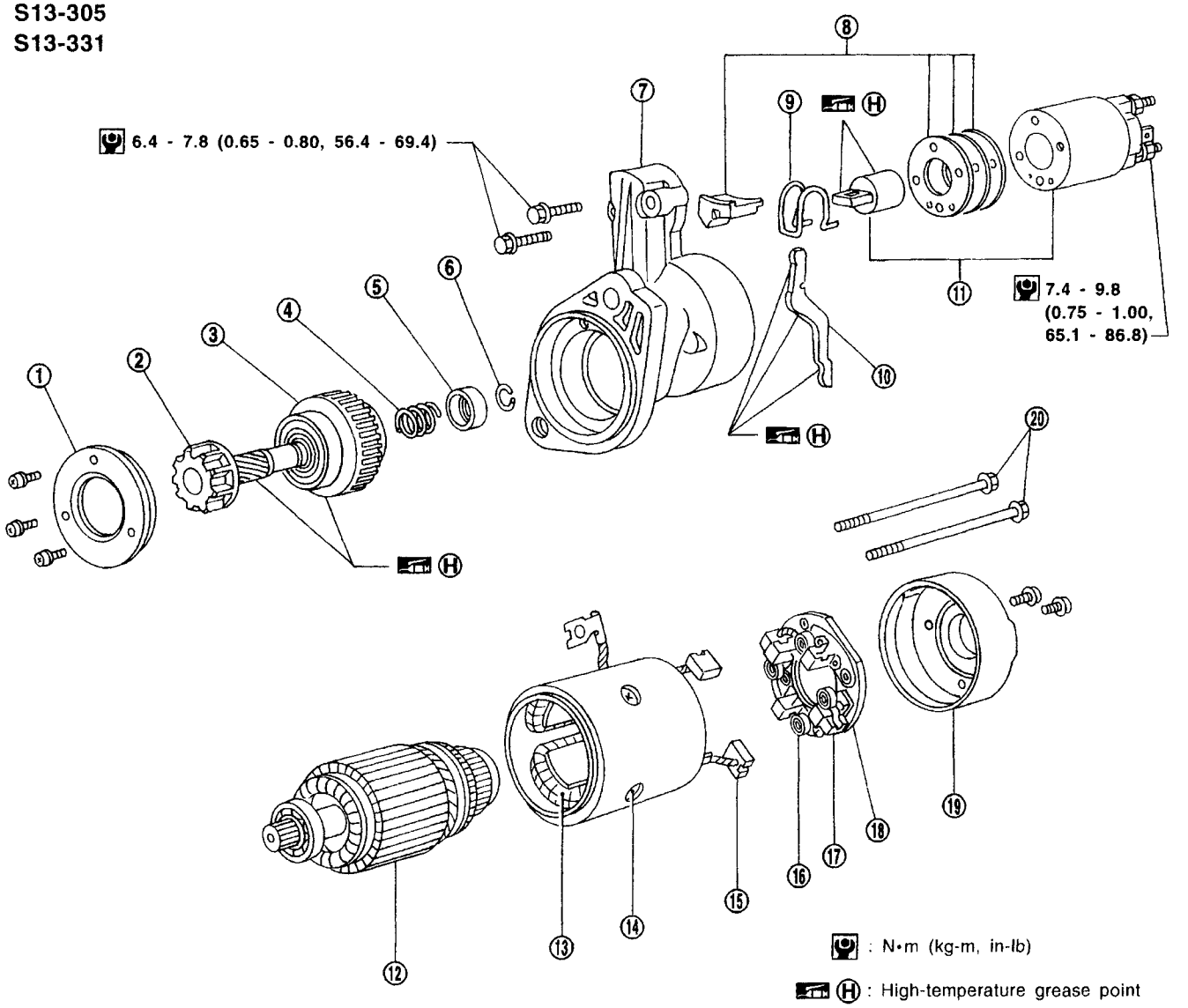


Construction (Cont'd)



Construction (Cont'd)

SEC. 233
S13-305
S13-331

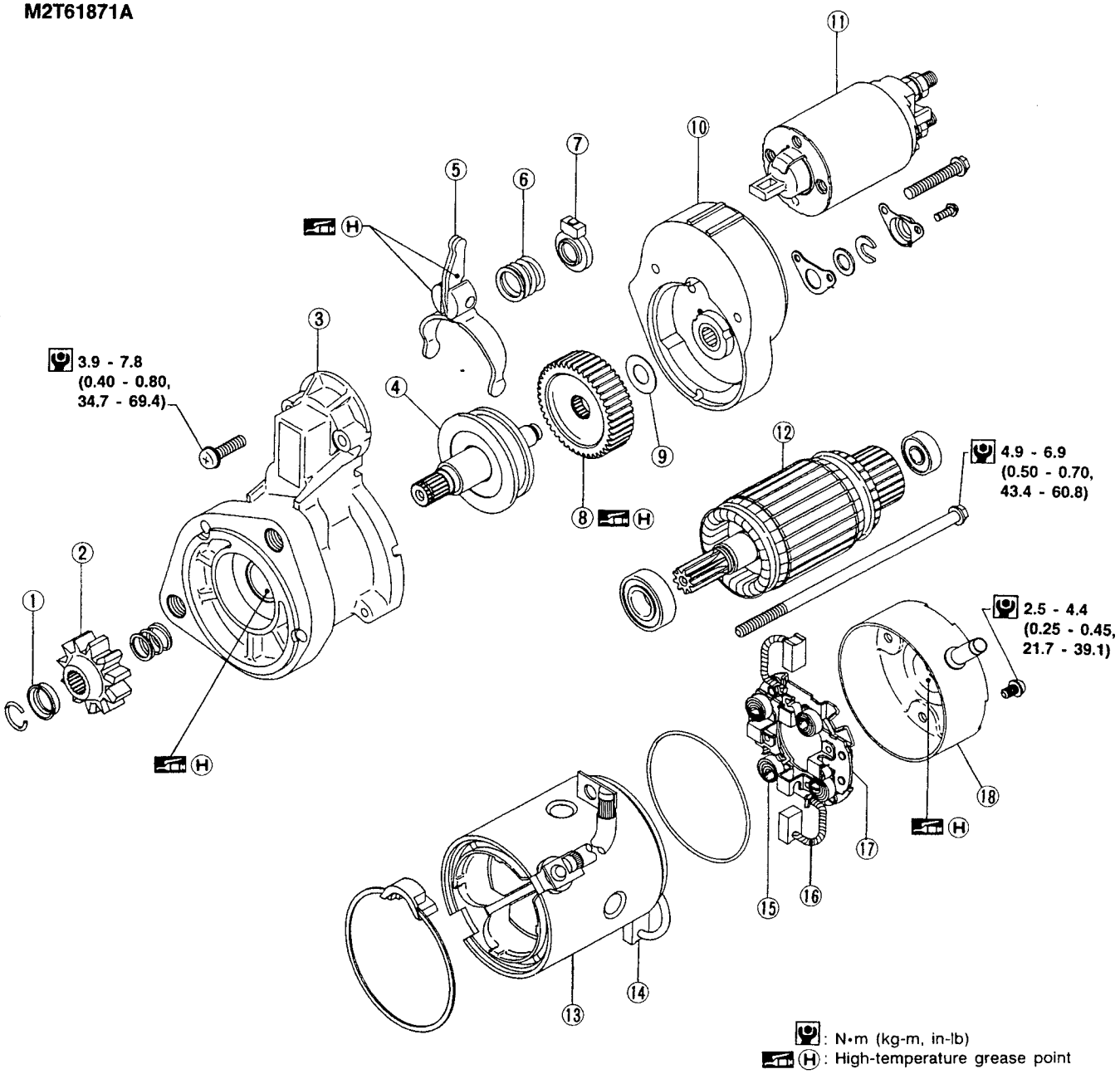


MEL233F

① Bearing retainer
② Pinion shaft
③ Clutch assembly
④ Return spring
⑤ Pinion stopper
⑥ Stopper clip
⑦ Gear case
⑧ Dust cover
⑨ Torsion spring
⑩ Shift lever
⑪ Magnetic switch assembly
⑫ Armature assembly
⑬ Field coil
⑭ Yoke
⑮ Brush (+)
⑯ Brush spring
⑰ Brush (–)
⑱ Brush holder
⑲ Rear cover
⑳ Through-bolt

Construction (Cont'd)

SEC. 233
M2T61871A



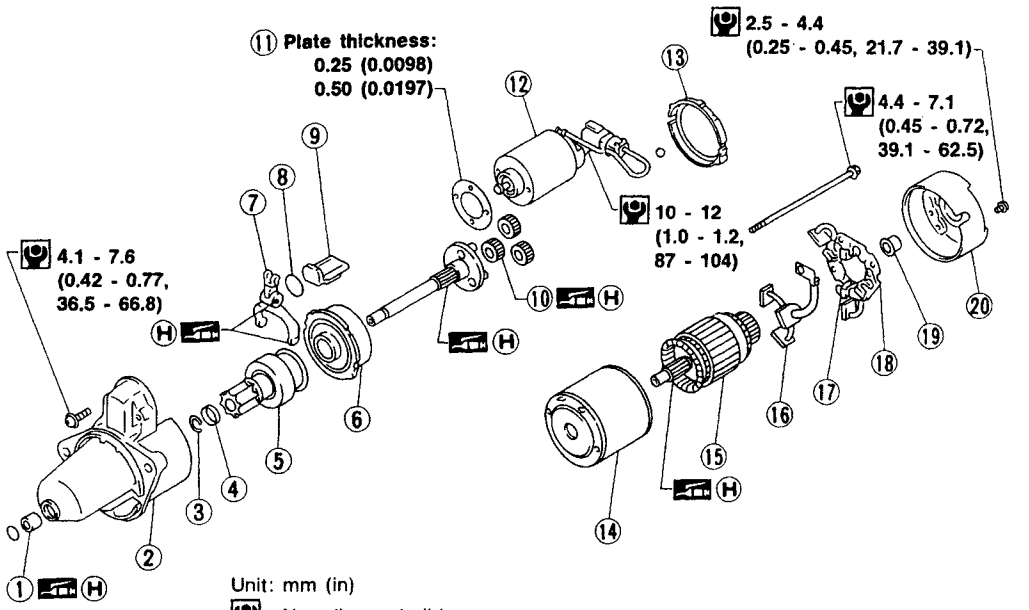
SEL554PA

① Pinion stopper
② Pinion assembly
③ Gear case
④ Pinion shaft assembly
⑤ Shift lever
⑥ Spring
⑦ Holder
⑧ Reduction gear
⑨ Washer
⑩ Center bracket
⑪ Magnetic switch assembly
⑫ Armature
⑬ Yoke
⑭ Brush (+)
⑮ Brush spring
⑯ Brush (–)
⑰ Brush holder
⑱ Rear cover

EL

Construction (Cont'd)

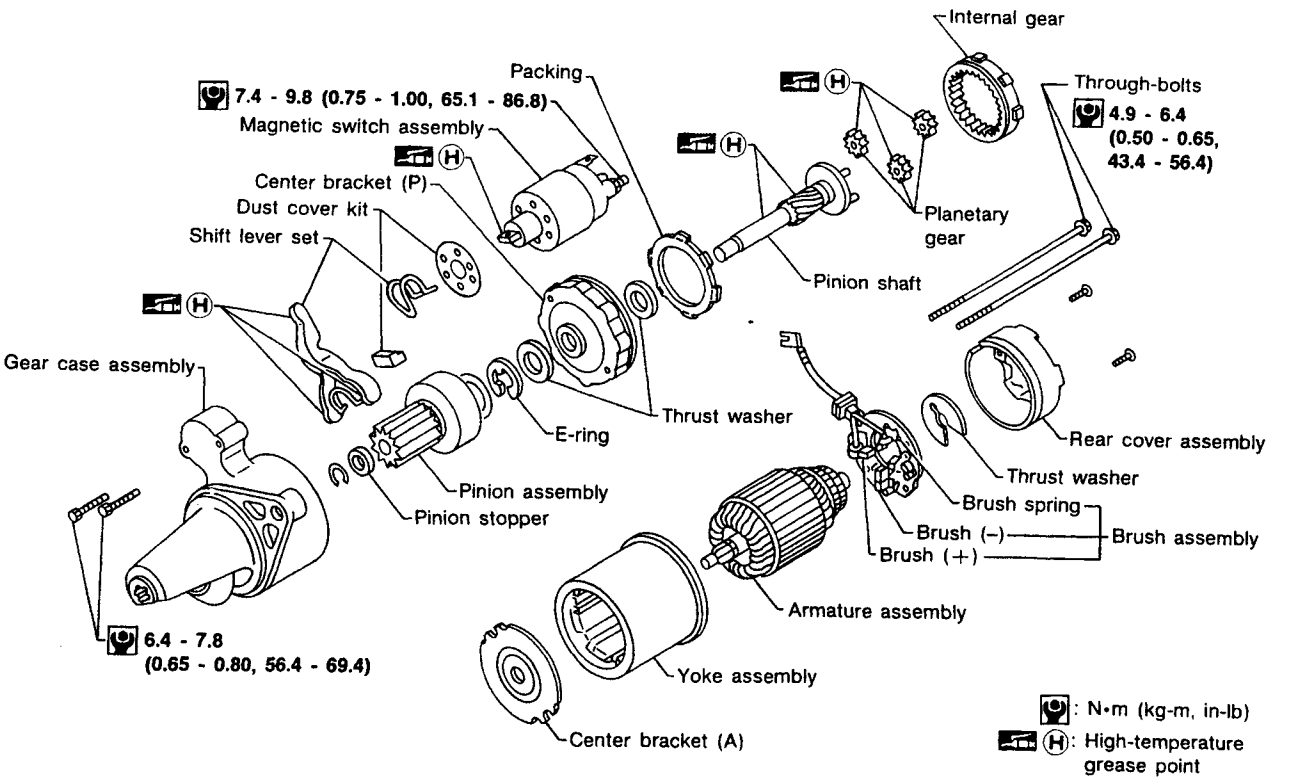
SEC. 233
M1T72985A



SEL663QA

① Sleeve bearing
② Gear case
③ Stopper clip
④ Pinion stopper
⑤ Pinion assembly
⑥ Internal gear
⑦ Shift lever
⑧ Plate
⑨ Packing
⑩ Planetary gear
⑪ Adjusting plate
⑫ Magnetic switch assembly
⑬ Packing
⑭ Yoke
⑮ Armature
⑯ Bush (+)
⑰ Brush spring
⑱ Brush holder
⑲ Bearing
⑳ Rear cover

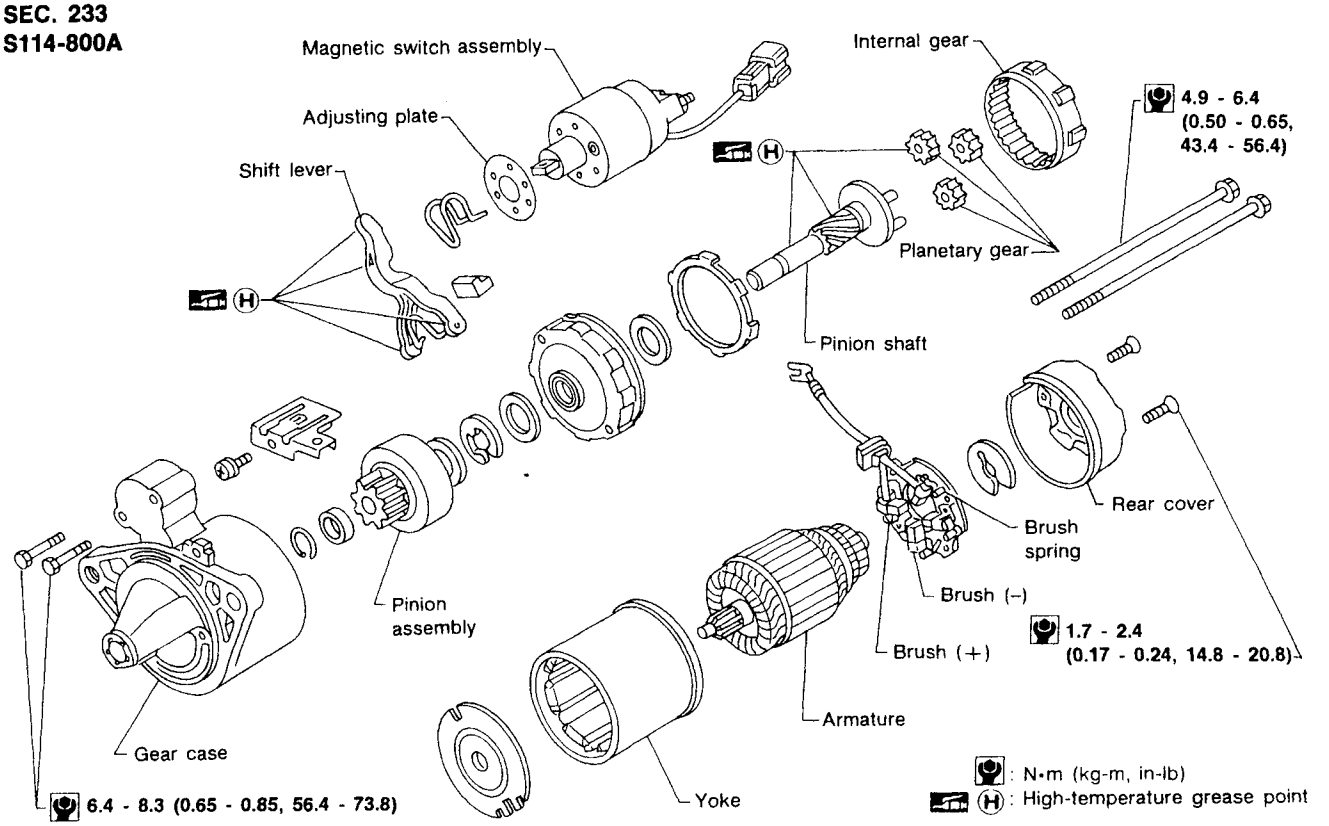
SEC. 233
S114-806



MEL675EA

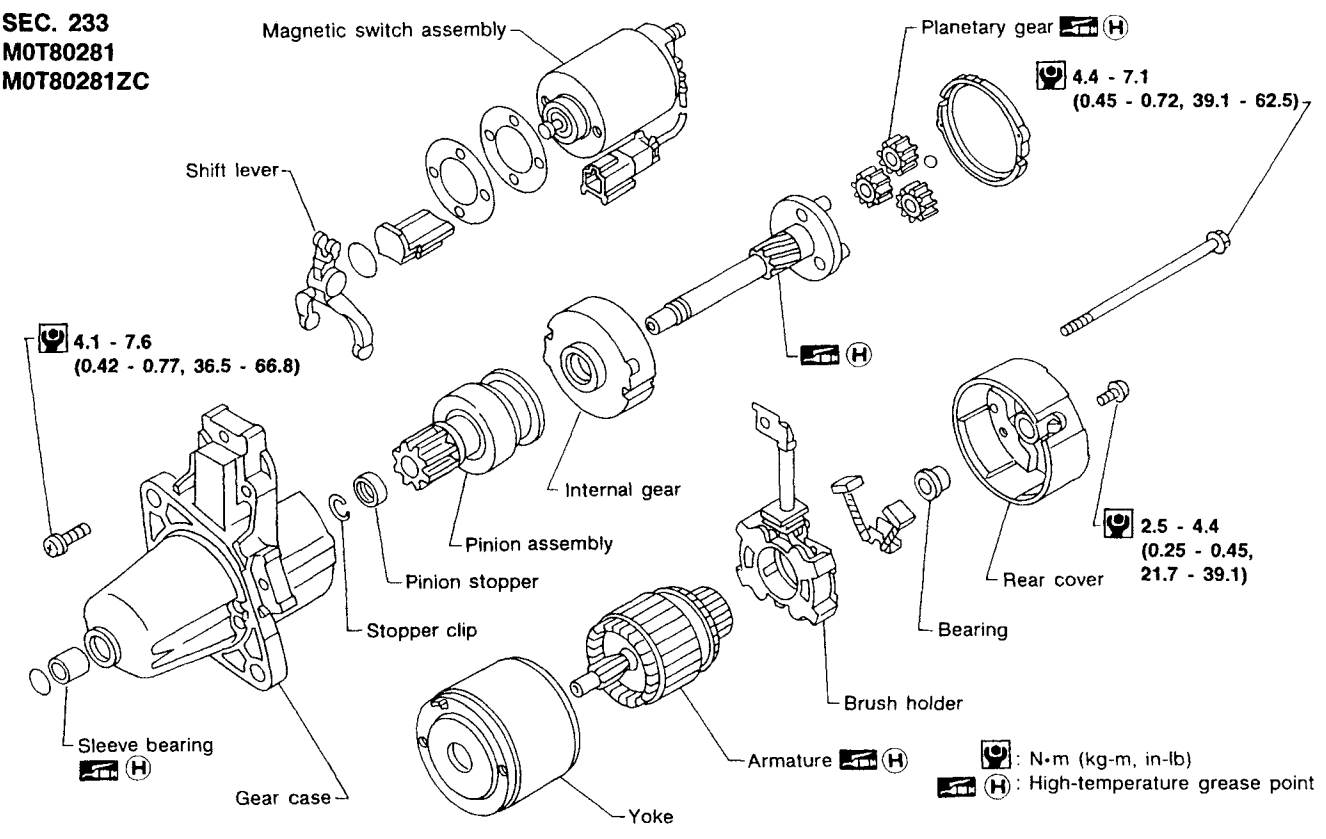
Construction (Cont'd)

SEC. 233
S114-800A



SEL027UA

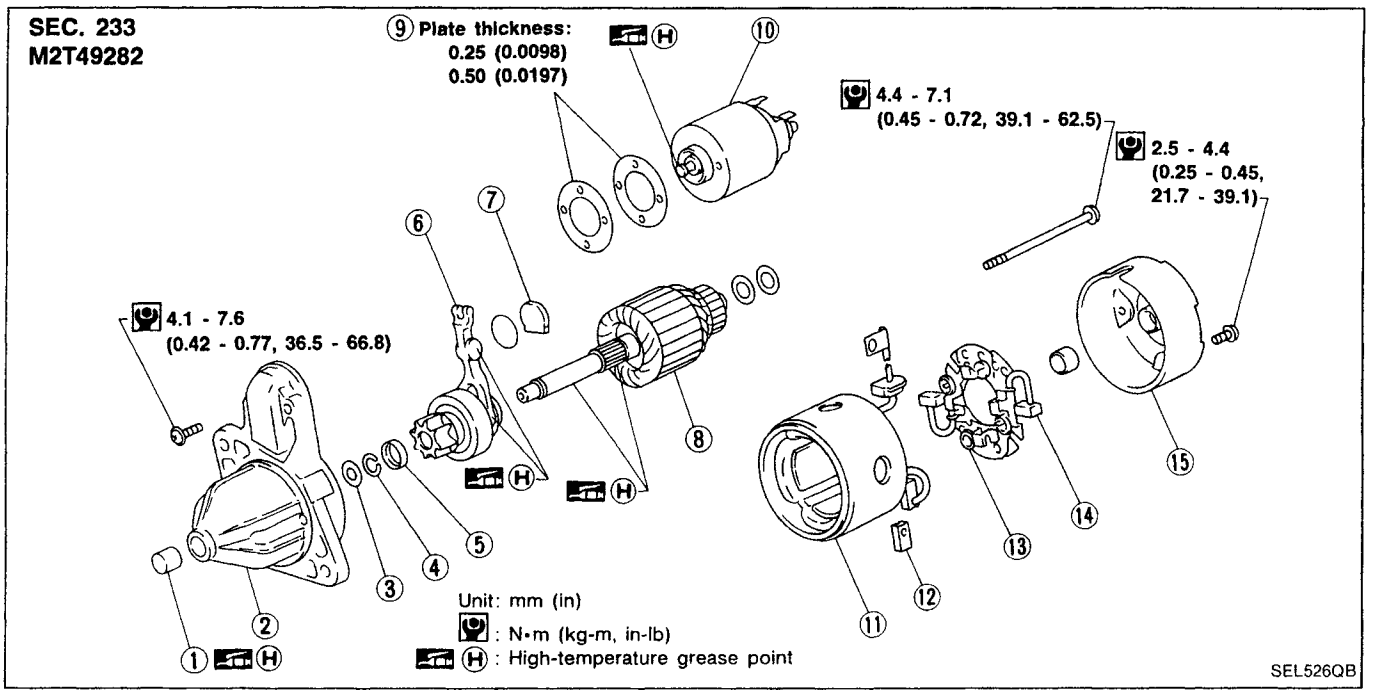
SEC. 233
M0T80281
M0T80281ZC



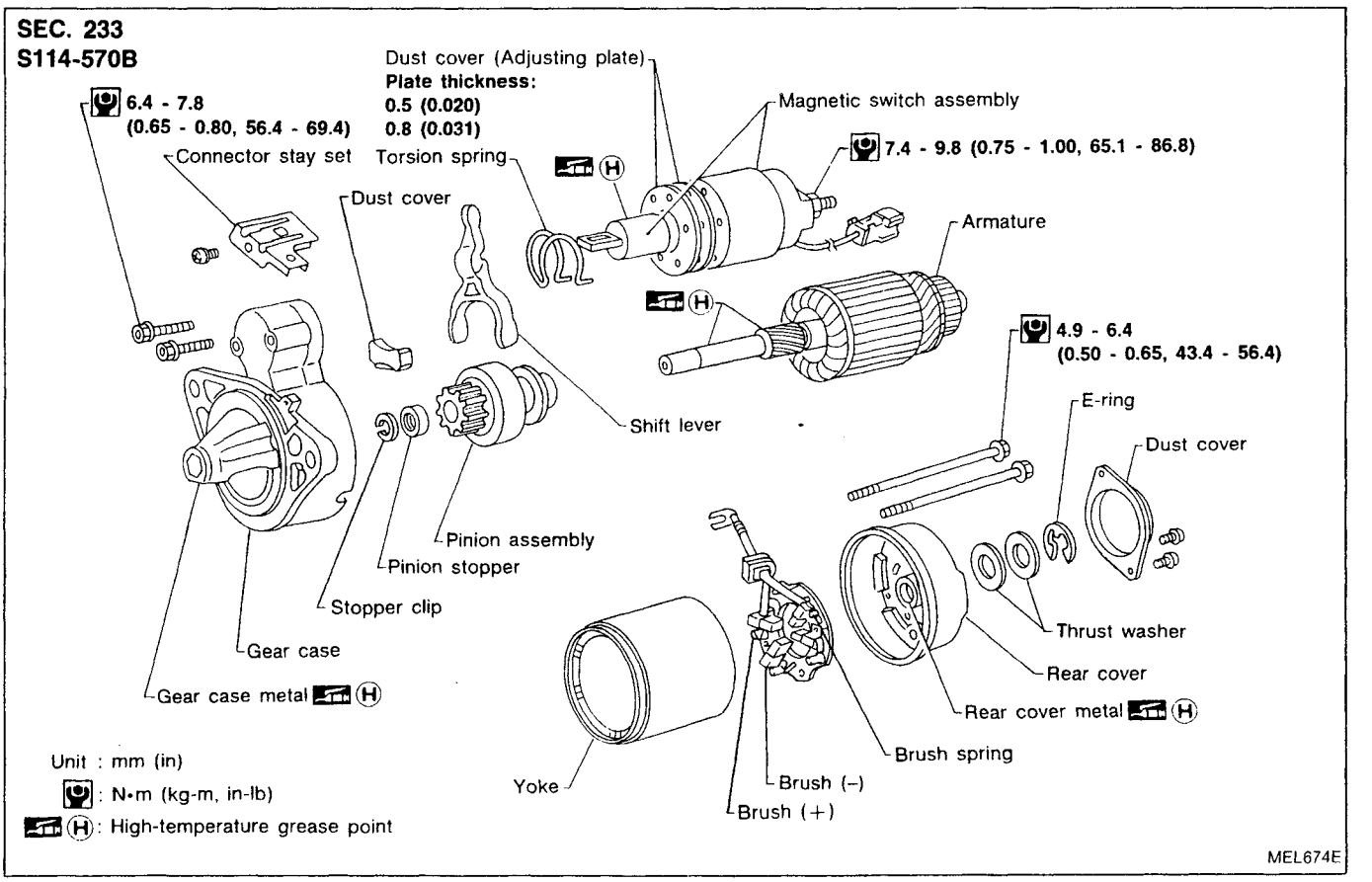
SEL026UA

EL

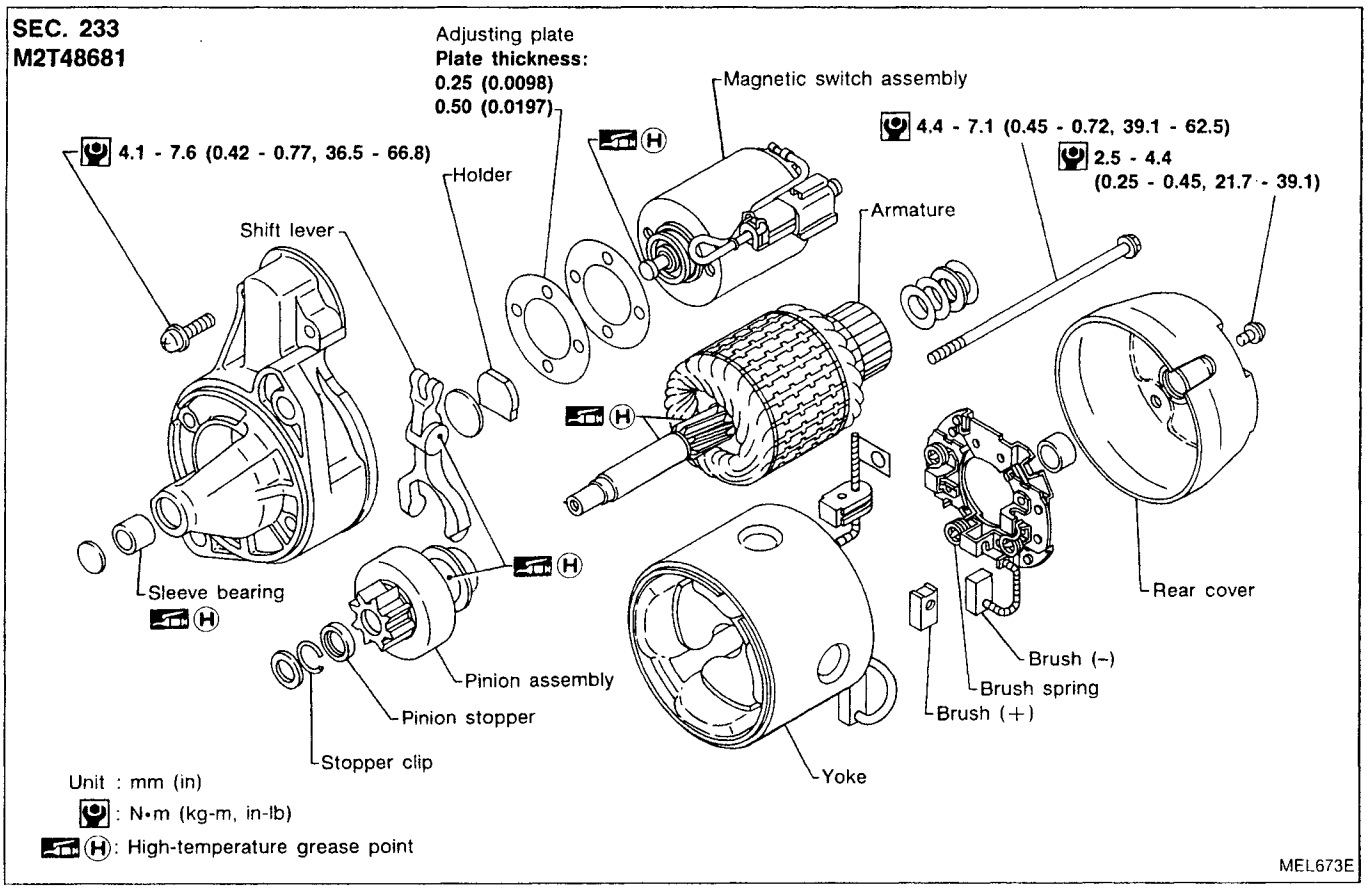
Construction (Cont'd)

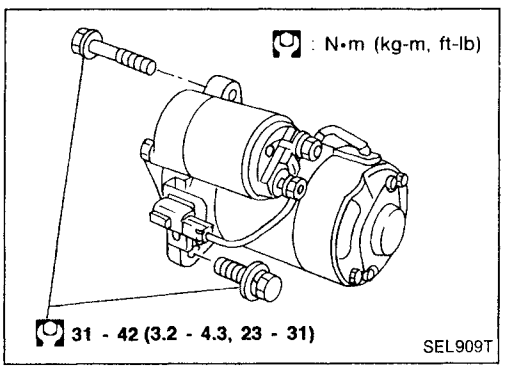


①	Gear case metal	⑥	Shift lever	⑪	Yoke
②	Gear case	⑦	Holder	⑫	Brush (+)
③	Stopper clip	⑧	Armature	⑬	Brush spring
④	Pinion stopper	⑨	Adjusting plate	⑭	Brush (–)
⑤	Pinion assembly	⑩	Magnetic switch assembly	⑮	Rear cover



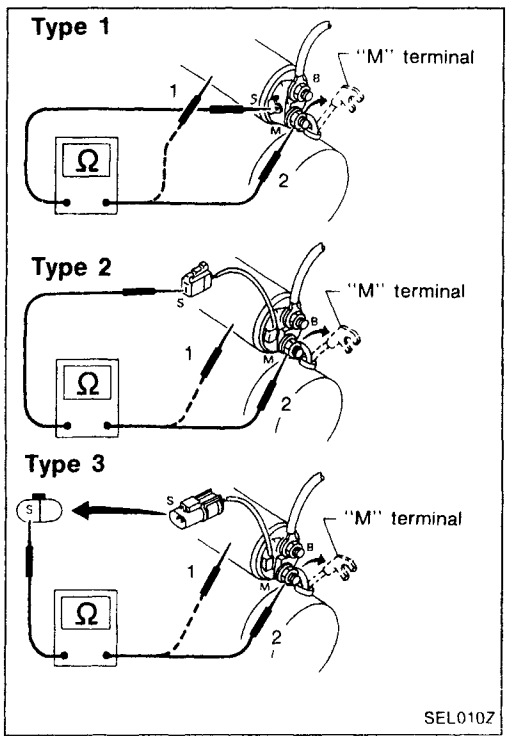
Construction (Cont'd)





Removal and Installation

EL



Magnetic Switch Check

- Before starting to check, disconnect battery ground cable.
- Disconnect "M" terminal of starter motor.

1. Continuity test (between "S" terminal and switch body).
- No continuity ... Replace.

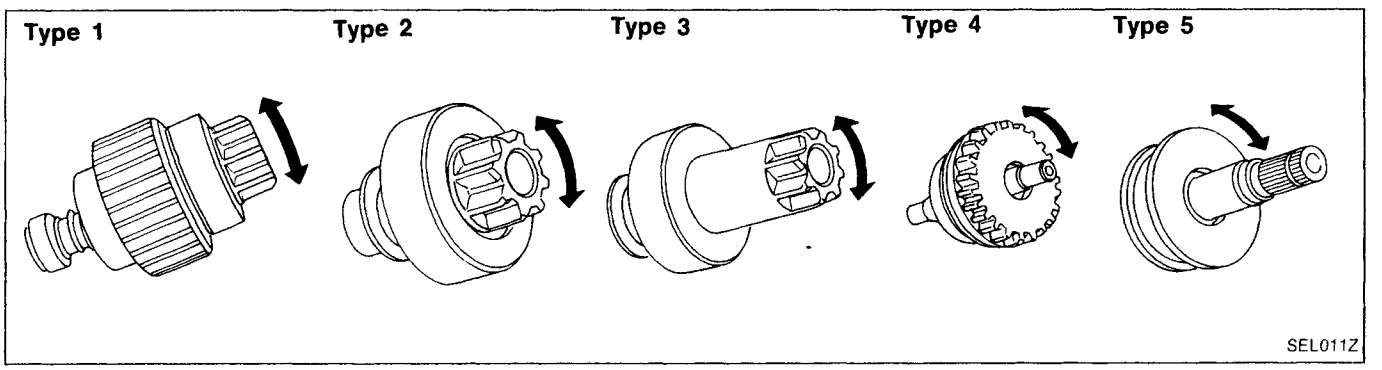
2. Continuity test (between "S" terminal and "M" terminal).
- No continuity ... Replace.

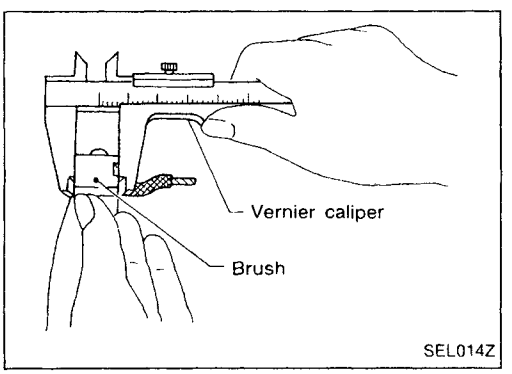
Pinion/Clutch Check

1. Inspect pinion teeth.
- Replace pinion if teeth are worn or damaged. (Also check condition of ring gear teeth.)

2. Inspect reduction gear teeth.
- Replace reduction gear if teeth are worn or damaged. (Also check condition of armature shaft gear teeth.)

3. Check to see if pinion locks in one direction and rotates smoothly in the opposite direction.
- If it locks or rotates in both directions, or unusual resistance is evident. ... Replace.





Brush Check

BRUSH

Check wear of brush.

Wear limit length:

Refer to SDS (EL-50).

- Excessive wear ... Replace.

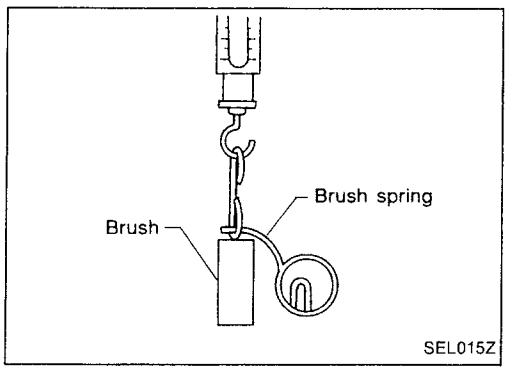
Brush Check (Cont'd)

BRUSH SPRING PRESSURE

Check brush spring pressure with brush spring detached from brush.

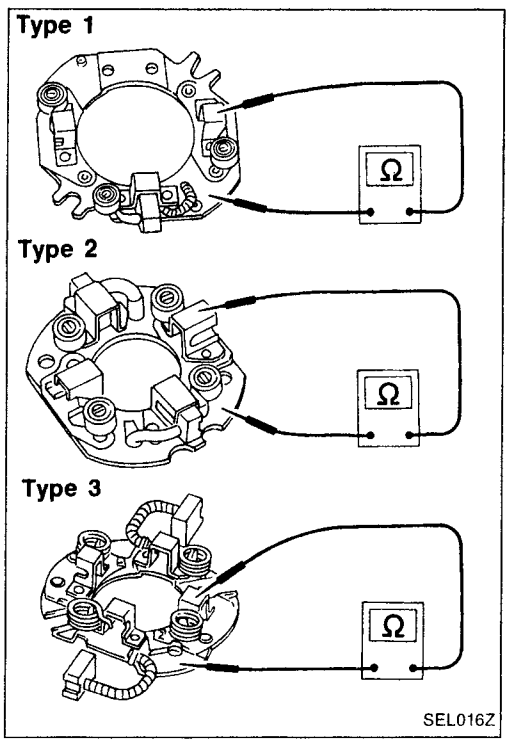
Spring pressure (with new brush):
Refer to SDS (EL-50).

- Not within the specified values ... Replace.



BRUSH HOLDER

1. Perform insulation test between brush holder (positive side) and its base (negative side).
- Continuity exists. ... Replace.
2. Check brush to see if it moves smoothly.
- If brush holder is bent, replace it; if sliding surface is dirty, clean.



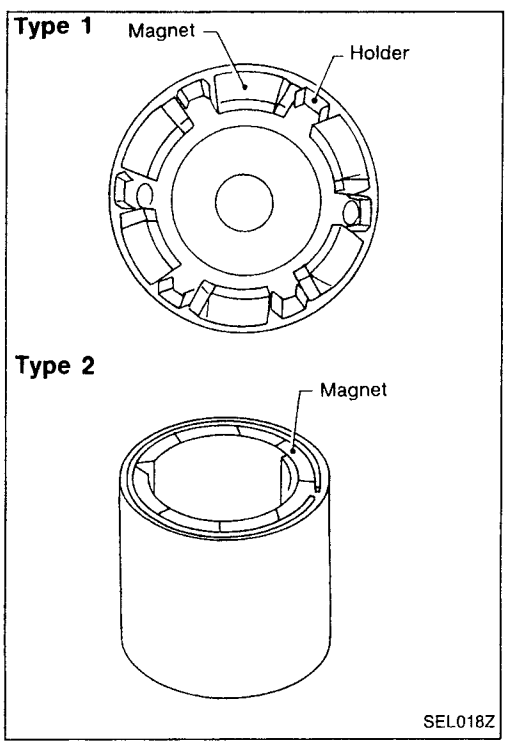
Yoke Check

Magnet is secured to yoke by bonding agent. Check magnet to see that it is secured to yoke and for any cracks. Replace malfunctioning parts as an assembly.

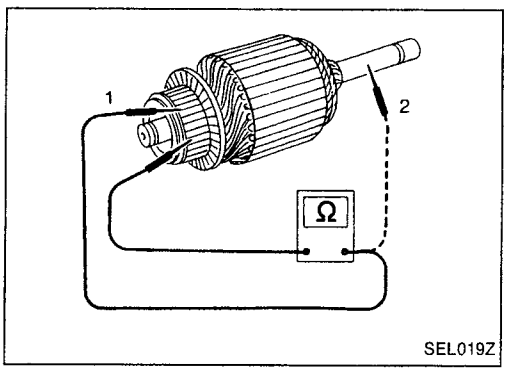
Holder may move slightly as it is only inserted and not bonded.

CAUTION:

Do not clamp yoke in a vice or strike it with a hammer.

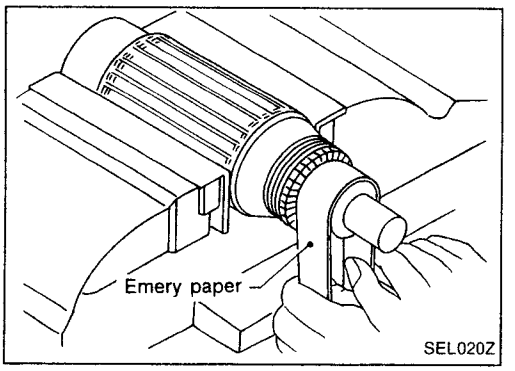


EL

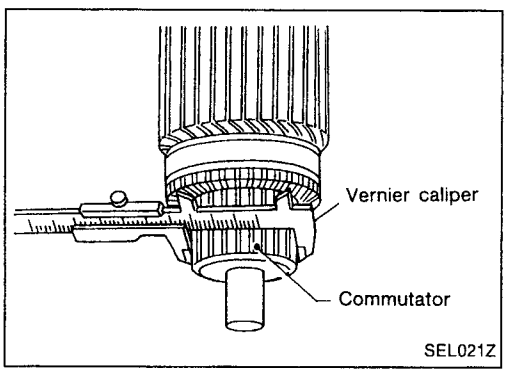


Armature Check

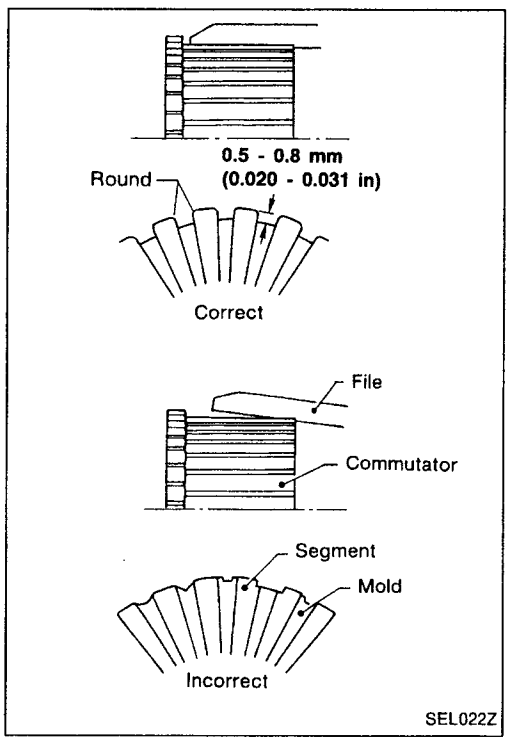
1. Continuity test (between two segments side by side).
- No continuity ... Replace.
2. Insulation test (between each commutator bar and shaft).
- Continuity exists. ... Replace.



3. Check commutator surface.
- Rough ... Sand lightly with No. 500 - 600 emery paper.



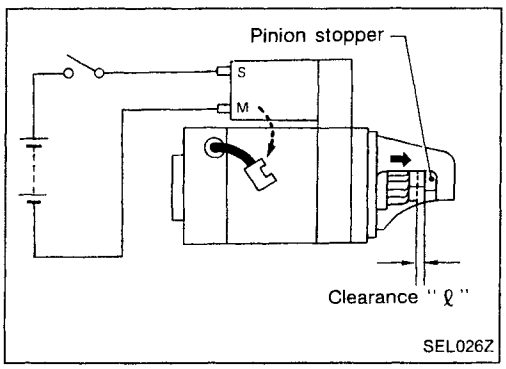
4. Check diameter of commutator.
   Commutator minimum diameter:
   Refer to SDS (EL-50).
- Less than specified value ... Replace.



5. Check depth of insulating mold from commutator surface.
- Less than 0.2 mm (0.008 in) ... Undercut to 0.5 to 0.8 mm (0.020 to 0.031 in)

Assembly

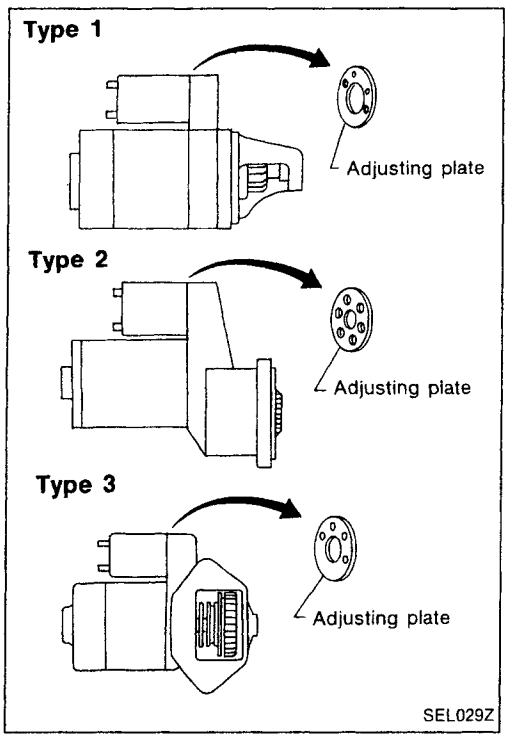
Apply high-temperature grease to lubricate the bearing, gears and frictional surface when assembling the starter.
Carefully observe the following instructions.



PINION PROTRUSION LENGTH ADJUSTMENT

With pinion driven out by magnetic switch, push pinion back to remove slack and measure clearance "ℓ" between the front edge of the pinion and the pinion stopper.

Clearance "ℓ":
Refer to SDS (EL-50).



- Not in the specified value ... Adjust by adjusting plate.

EL

Service Data and Specifications (SDS)

STARTER

Type	S114-766A	M1T72087A	M1T77281	S114-769A	S114-630	M3T37783	M2T62071A	S13-305	S13-331	M2T61871A
	HITACHI	MITSUBISHI		HITACHI		MITSUBISHI		HITACHI		MITSUBISHI
	Reduction				Non-reduction		Reduction			
Applied model	Europe									
	GA engines						CD20			
	A/T		M/T							
System voltage V	12									
No-load Terminal voltage V	11.0				11.5		11.0			
Current A	Less than 85	50 - 75		Less than 85	Less than 60		Less than 105	Less than 140		Less than 110
Revolution rpm	More than 2,950	3,000 - 4,000		More than 2,950	More than 7,000	More than 6,500	More than 4,030	More than 3,900		More than 4,100
Minimum diameter of commutator mm (in)	28.0 (1,102)	28.8 (1.134)		28.0 (1,102)	39.0 (1.535)	31.4 (1.236)		35.5 (1.398)		31.4 (1.236)
Minimum length of brush mm (in)	10.5 (0.413)	12.0 (0.472)		10.5 (0.413)	11.0 (0.433)	11.5 (0.453)		11.0 (0.433)		11.5 (0.453)
Brush spring tension N (kg, lb)	16.2 (1.65, 3.64)	13.7 - 25.5 (1.4 - 2.6, 3.1 - 5.7)		14.7 - 17.7 (1.5 - 1.8, 3.3 - 4.0)	17.7 - 21.6 (1.8 - 2.2, 4.0 - 4.9)	13.7 - 25.5 (1.4 - 2.6, 3.1 - 5.7)		28.4 - 34.3 (2.90 - 3.50, 6.38 - 7.71)		13.7 - 25.5 (1.4 - 2.6, 3.1 - 5.7)
Clearance between bearing metal and armature shaft mm (in)	Less than 0.2 (0.008)	—	Less than 0.2 (0.008)	—	Less than 0.2 (0.008)	—				
Clearance "ℓ" between pinion front edge and pinion stopper mm (in)	0.3 - 2.5 (0.012 - 0.098)	0.5 - 2.0 (0.020 - 0.079)		0.3 - 2.5 (0.012 - 0.098)		0.5 - 2.0 (0.020 - 0.079)	—	0.3 - 2.0 (0.012 - 0.079)	0.3 - 0.8 (0.012 - 0.031)	—
Movement "ℓ" in height of pinion assembly mm (in)	—						0.5 - 2.0 (0.020 - 0.079)	—	—	0.3 - 1.5 (0.012 - 0.059)

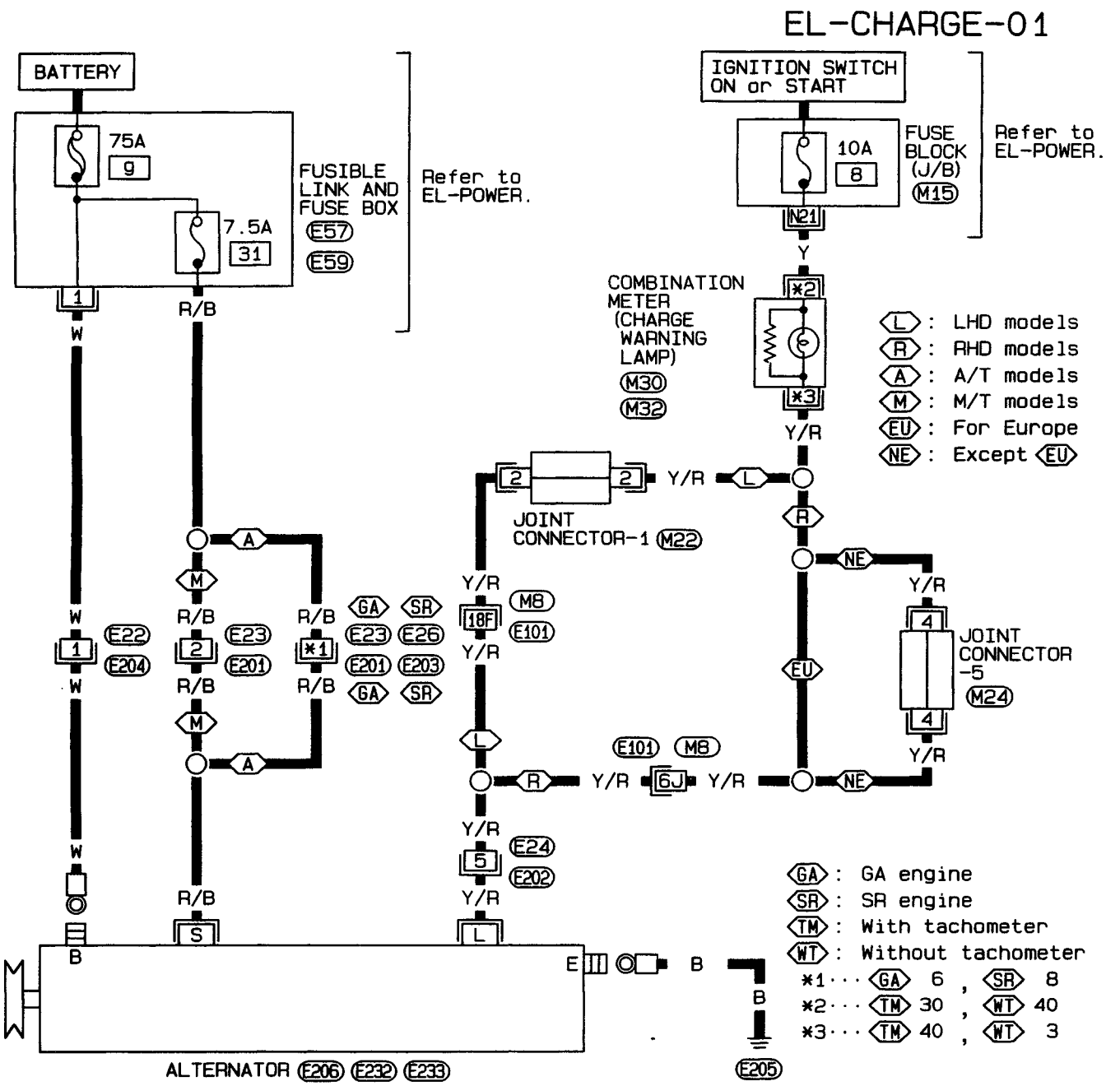
Service Data and Specifications (SDS) (Cont'd)

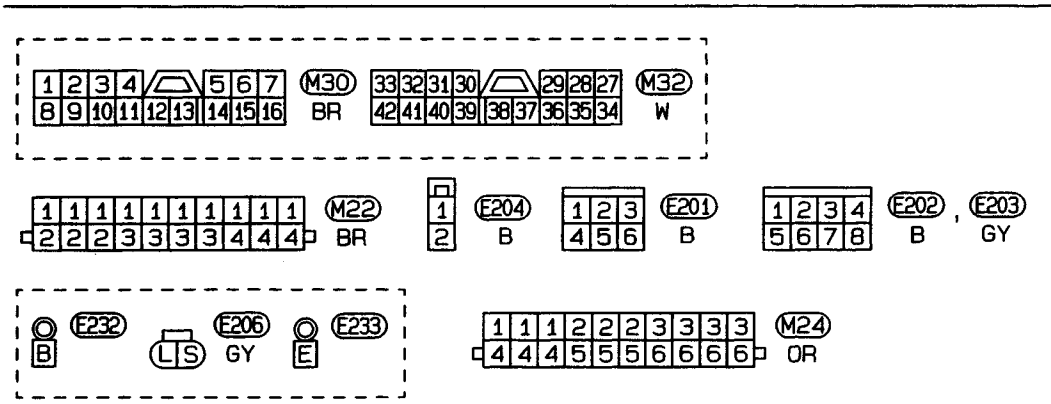
Type	M1T72985A	S114-806	S114-800A	M0T80281ZC	M0T80281	M2T49282	S114-568A	S114-570B	M2T48681
	MITSUBISHI	HITACHI		MITSUBISHI			HITACHI		MITSUBISHI
	Reduction			Non-reduction					
Applied model	Australia					RHD Except Europe and Australia			
	SR20DE	GA engines							
		A/T		M/T				A/T	
System voltage V	12								
No-load									
Terminal voltage V	11.0					11.5			
Current A	50 - 75	Less than 90				Less than 53	Less than 60		Less than 53
Revolution rpm	3,000 - 4,000	More than 2,700	More than 2,750			More than 6,000			
Minimum diameter of commutator mm (in)	28.8 (1.134)	28.0 (1.102)		28.8 (1.134)		31.4 (1.236)	28.0 (1.102)		31.4 (1.236)
Minimum length of brush mm (in)	12.0 (0.472)	10.5 (0.413)		7.0 (0.276)		11.5 (0.453)	9.0 (0.354)		11.5 (0.453)
Brush spring tension N (kg, lb)	13.7 - 25.5 (1.4 - 2.6, 3.1 - 5.7)	12.7 - 17.7 (1.3 - 1.8, 2.9 - 4.0)		11.77 - 23.53 (1.2 - 2.4, 2.6 - 5.3)		13.7 - 25.5 (1.4 - 2.6, 3.1 - 5.7)	9.8 - 13.7 (1.0 - 1.4, 2.2 - 3.1)		13.7 - 25.5 (1.4 - 2.6, 3.1 - 5.7)
Clearance between bearing metal and armature shaft mm (in)	Less than 0.2 (0.008)								
Clearance "l" between pinion front edge and pinion stopper mm (in)	0.5 - 2.0 (0.020 - 0.079)	0.3 - 2.5 (0.012 - 0.098)		0.5 - 2.0 (0.020 - 0.079)			0.3 - 2.5 (0.012 - 0.098)		0.5 - 2.0 (0.020 - 0.079)
Movement "l" in height of pinion assembly mm (in)	—								

EL

Wiring Diagram — CHARGE —

GASOLINE ENGINE MODELS



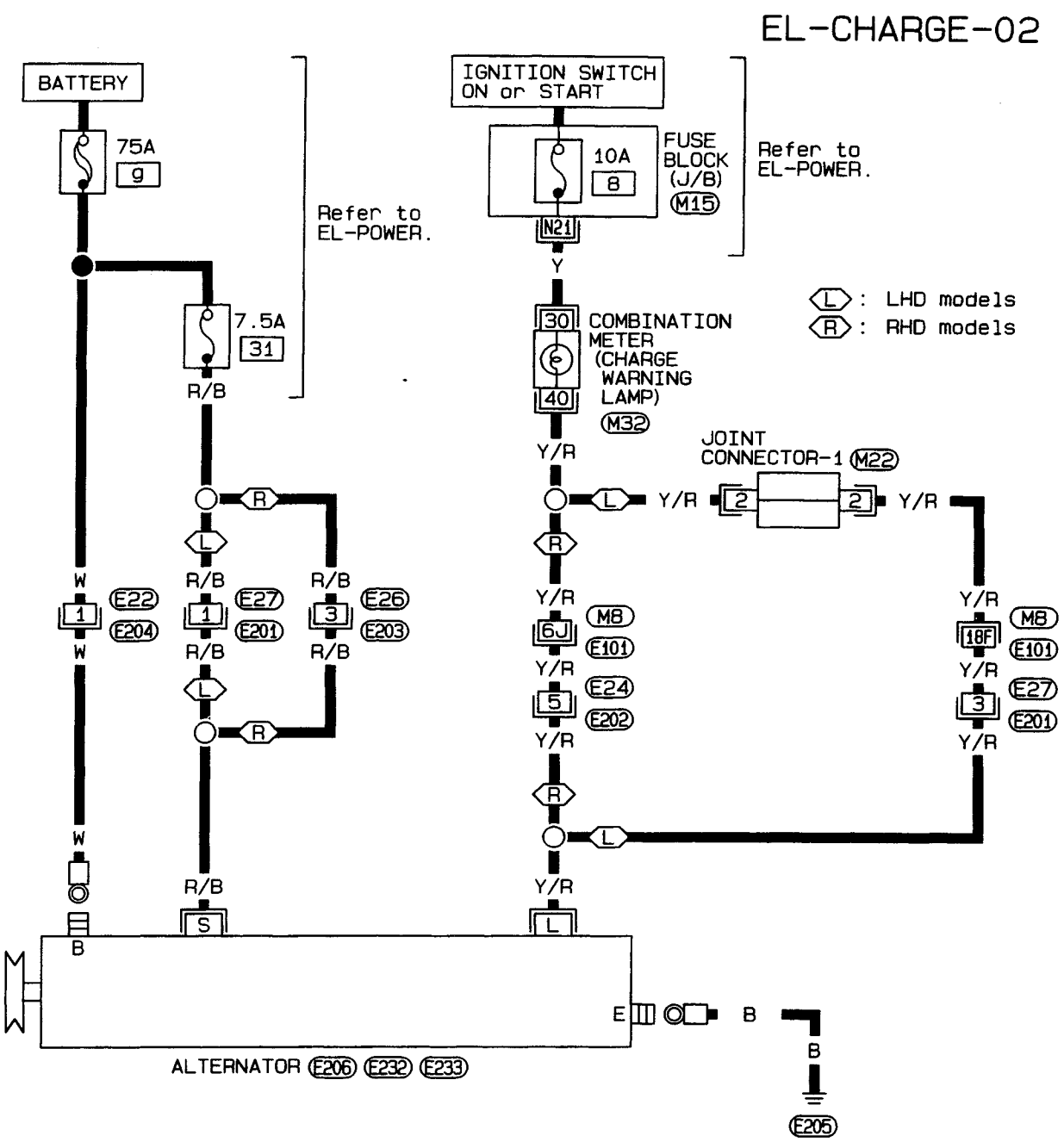


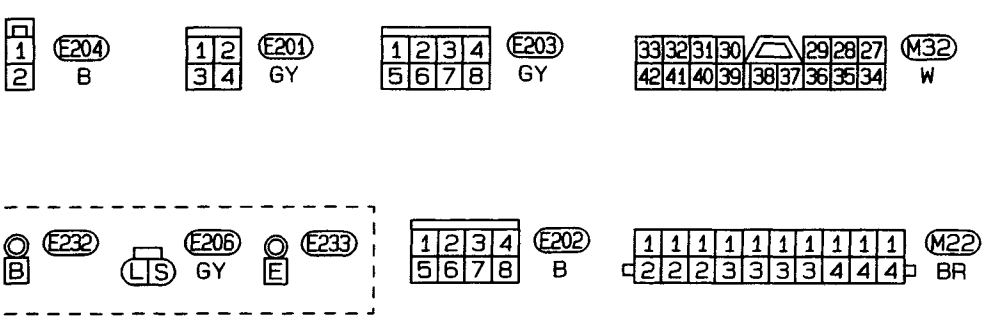
Refer to last page (Foldout page).
M8 , E101
M15
E57 , E59

HEL196

Wiring Diagram — CHARGE — (Cont'd)

DIESEL ENGINE MODELS





Refer to last page (Foldout page).
M8, E101
M15

EL

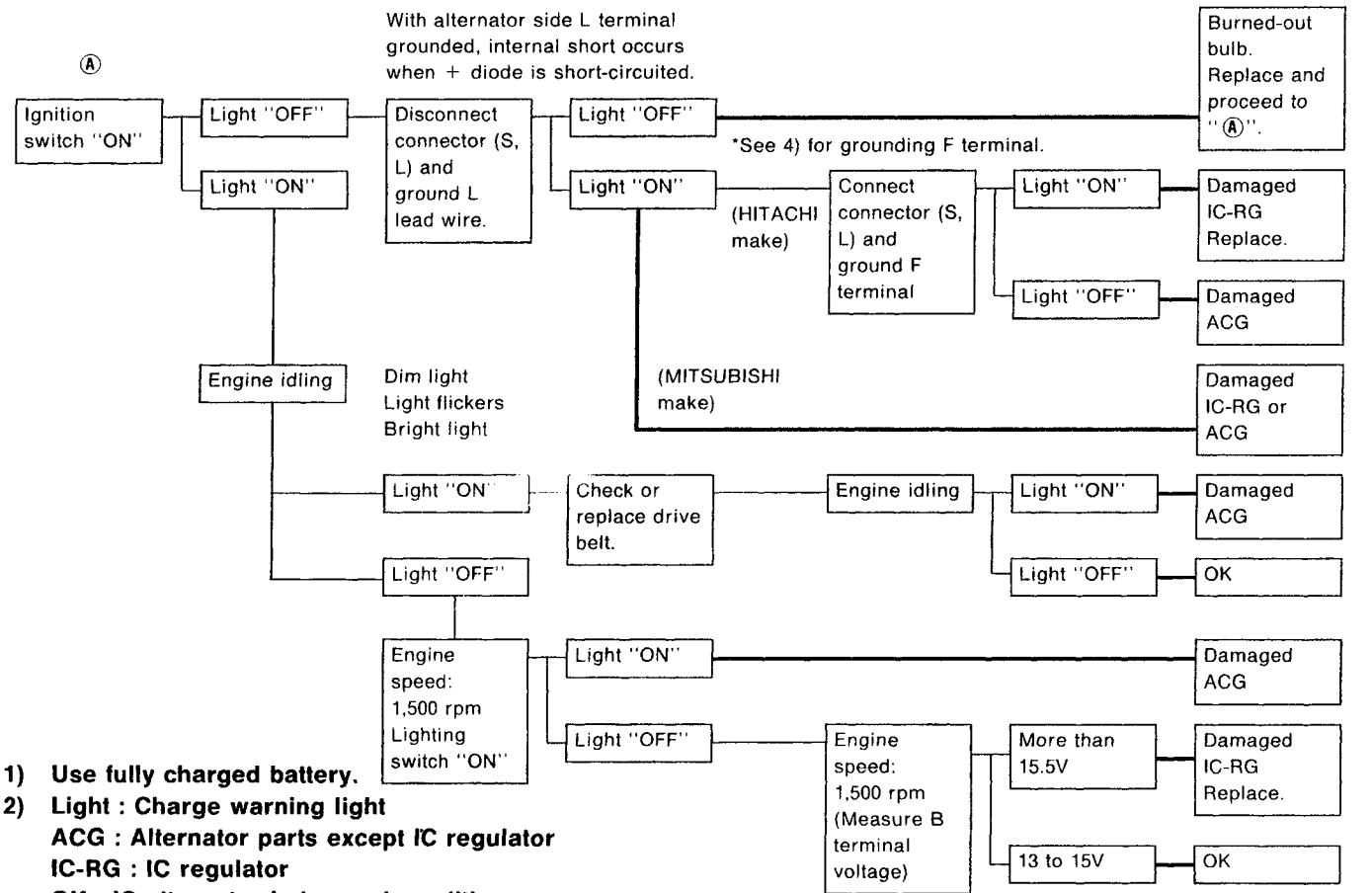
HEL197

Trouble Diagnoses

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

Before starting, inspect the fusible link.

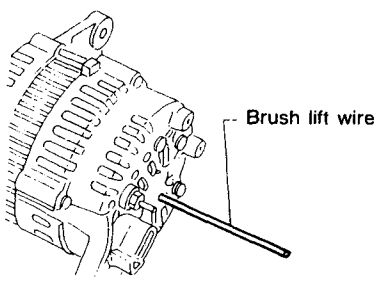
WITH IC REGULATOR



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

Gasoline engine model

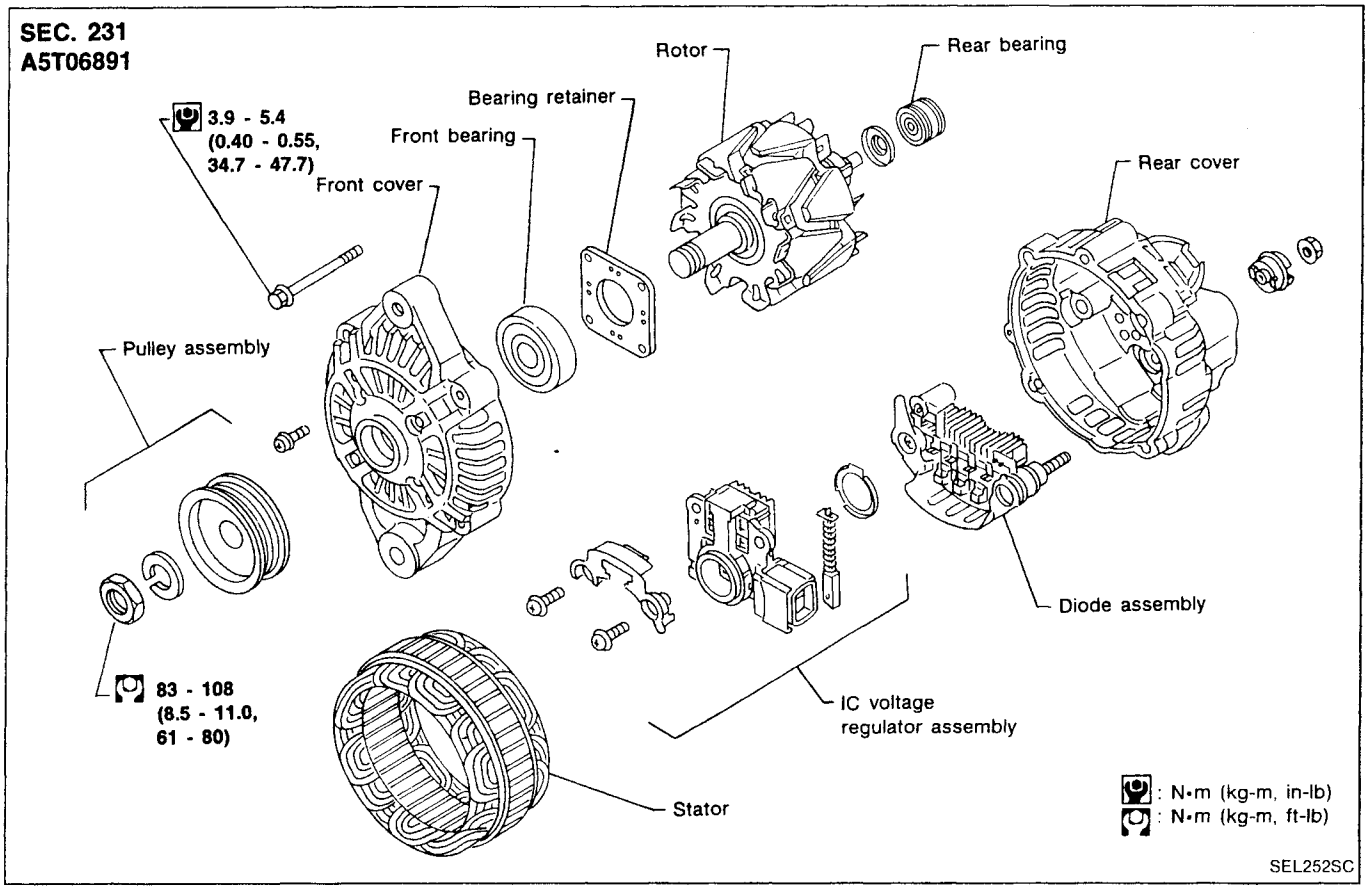
Contact tip of wire with brush and attach wire to alternator body.

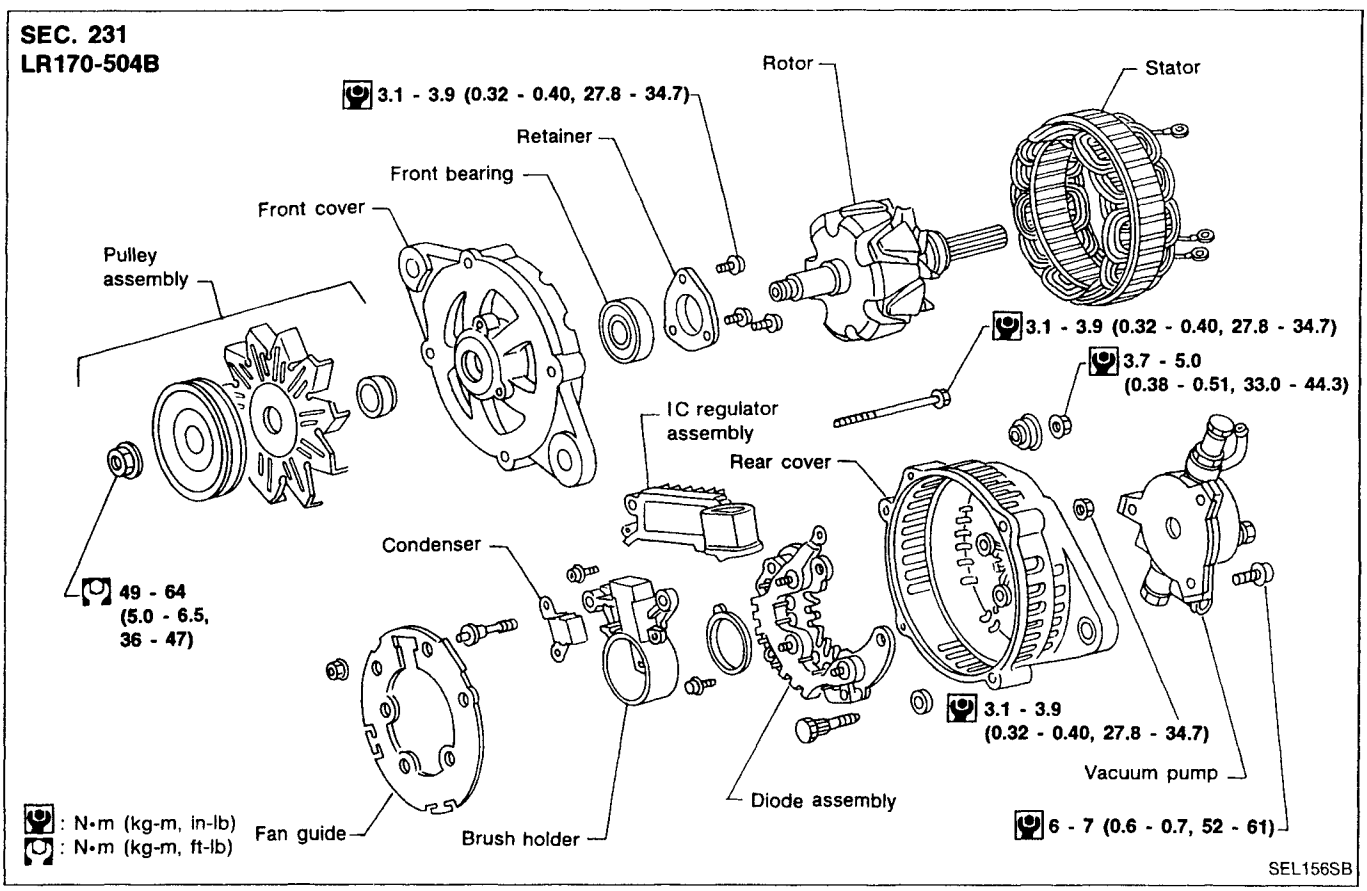


SEL030Z

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

Construction

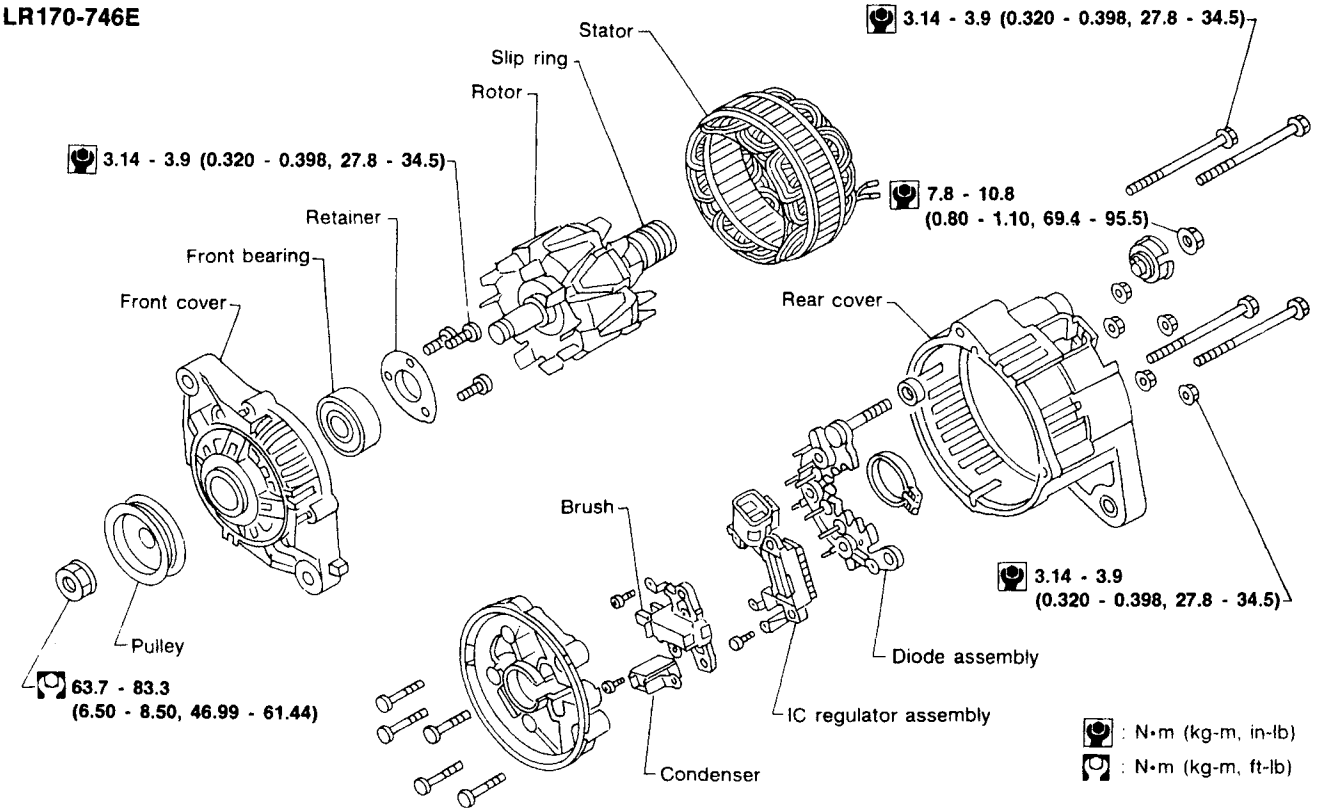




EL

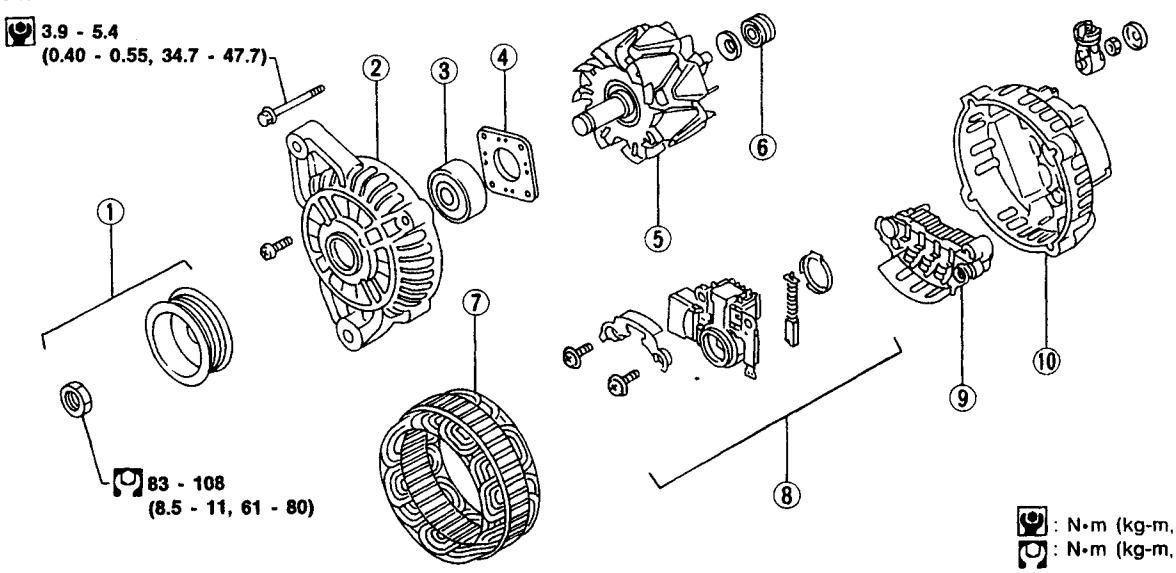
Construction (Cont'd)

SEC. 231
LR170-746E



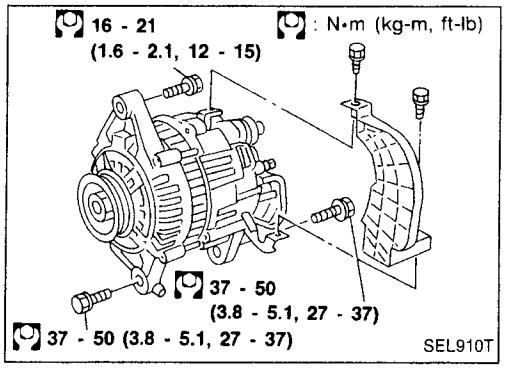
SEL025UB

SEC. 231
A2T82491A

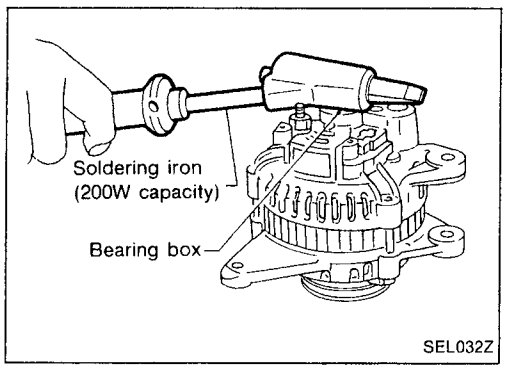


MEL782DB

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



Removal and Installation



Disassembly

REAR COVER REMOVAL

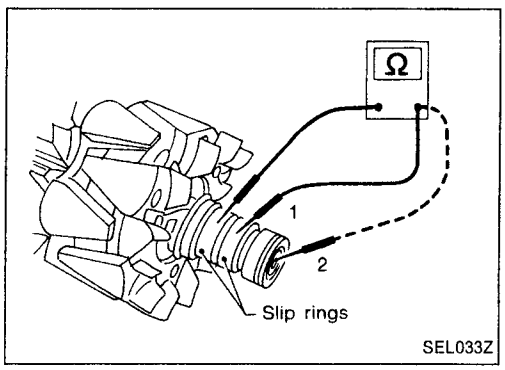
CAUTION:

Rear cover may be hard to remove because a ring is used to lock outer race of rear bearing. To facilitate removal of rear cover, heat just bearing box section with a 200W soldering iron. Do not use a heat gun, as it can damage diode assembly.

REAR BEARING

CAUTION:

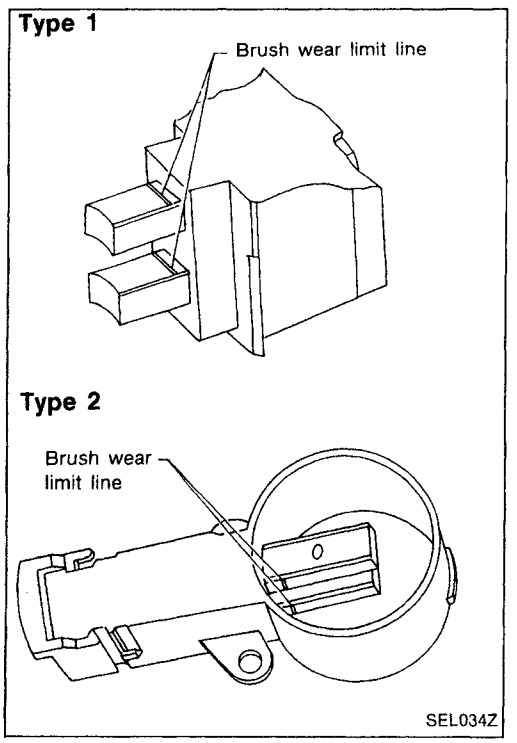
- **Do not reuse rear bearing after removal. Replace with a new one.**
- **Do not lubricate rear bearing outer race.**



Rotor Check

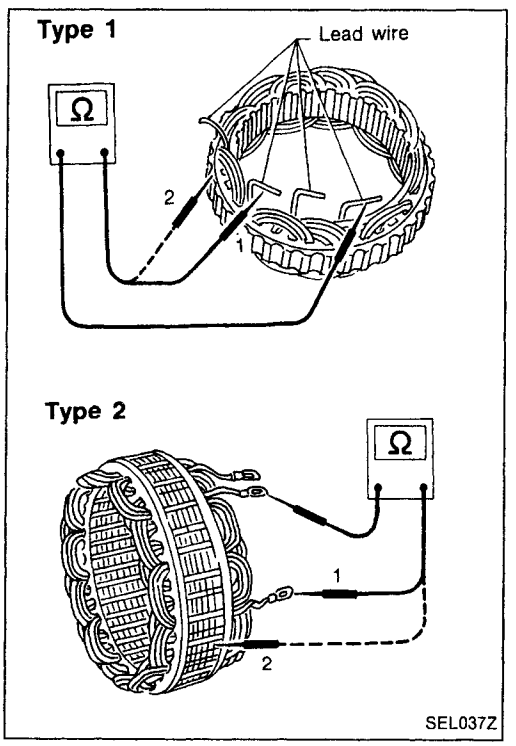
1. Resistance test
   Resistance: Refer to SDS (EL-61).
   - Not within the specified values ... Replace rotor.
2. Insulator test
   - Continuity exists ... Replace rotor.
3. Check slip ring for wear.
   Slip ring minimum outer diameter:
   Refer to SDS (EL-61).
   - Not within the specified values ... Replace rotor.

EL



Brush Check

1. Check smooth movement of brush.
   - Not smooth ... Check brush holder and clean.
2. Check brush for wear.
   - Replace brush if it is worn down to the limit line.



Stator Check

1. Continuity test
   - No continuity ... Replace stator.
2. Ground test
   - Continuity exists ... Replace stator.

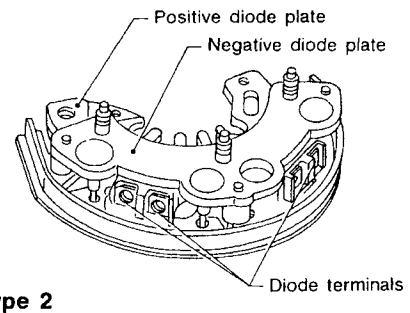
Diode Check

MAIN DIODES

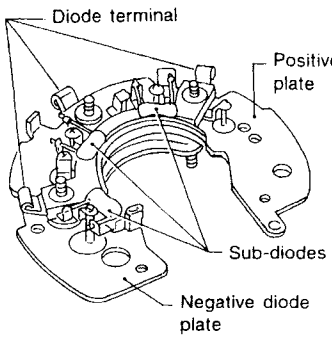
- Use an ohmmeter to check condition of diodes as indicated in chart below.
- If any of the test results is not satisfactory, replace diode assembly.

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

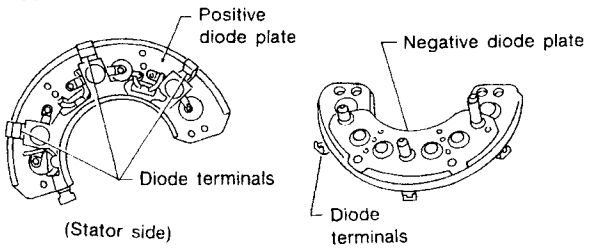
Type 1



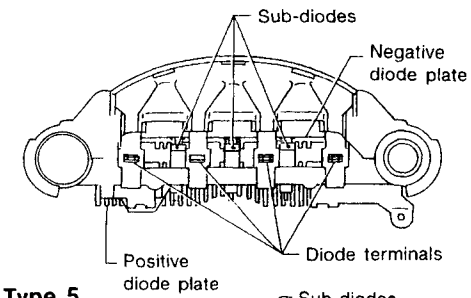
Type 2



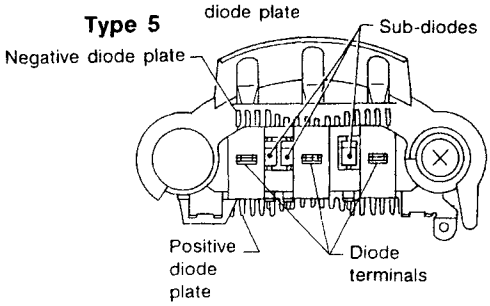
Type 3



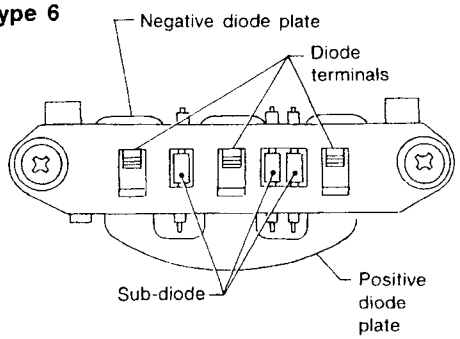
Type 4



Type 5

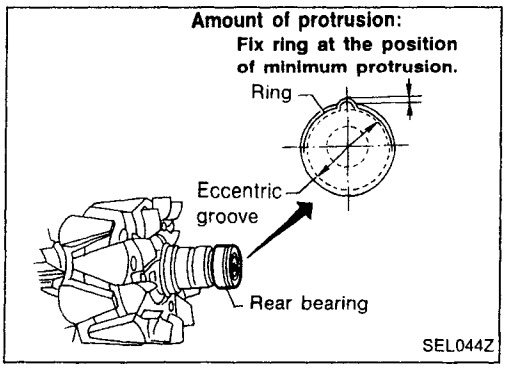


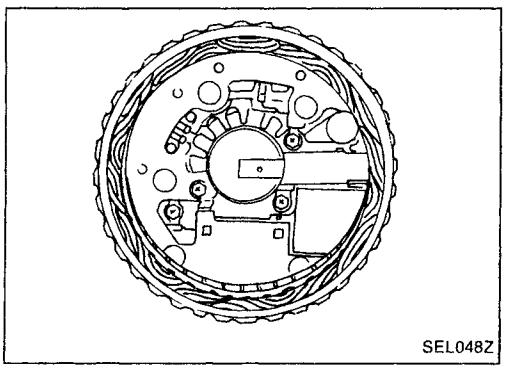
Type 6

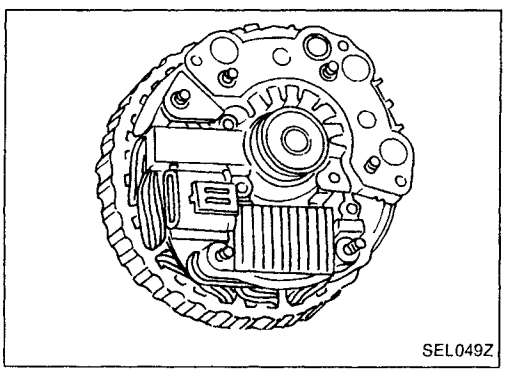


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EL







Assembly

RING FITTING IN REAR BEARING

- Fix ring into groove in rear bearing so that it is as close to the adjacent area as possible.

CAUTION:

Do not reuse rear bearing after removal.

REAR COVER INSTALLATION

(1) Fit brush assembly, diode assembly, regulator assembly and stator.

(2) Push brushes up with fingers and install them to rotor.

Take care not to damage slip ring sliding surface.

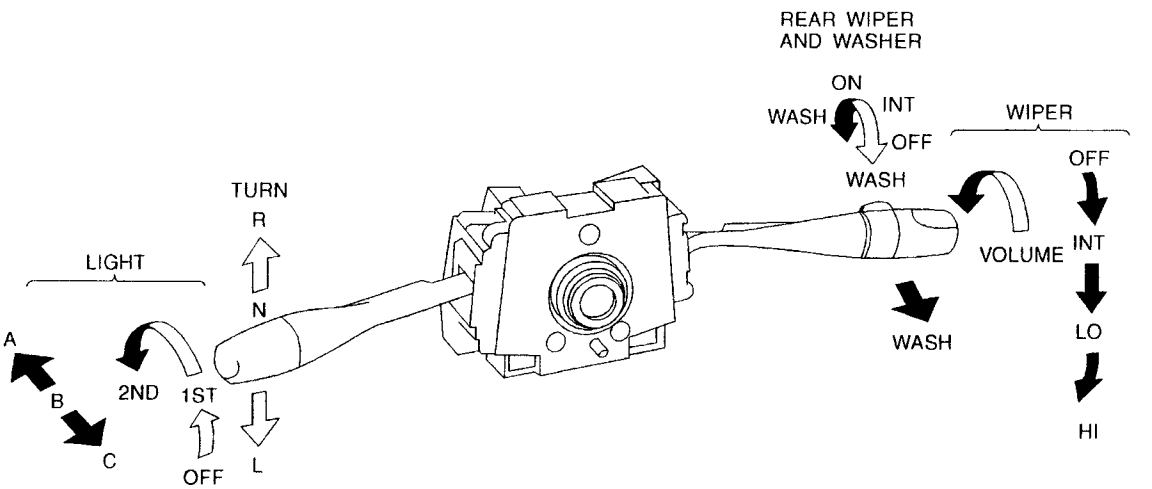
Service Data and Specifications (SDS)

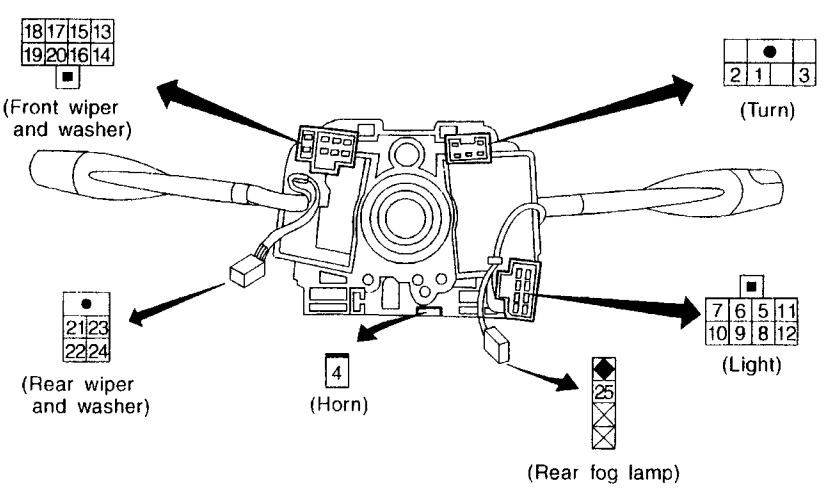
ALTERNATOR

Type	A5T06891	LR170-746E	LR170-504B	A2T82491A
	MITSUBISHI	HITACHI		MITSUBISHI
Applied model	GA engines		CD20	SR20DE
Nominal rating V-A	12-70			12-80
Ground polarity	Negative			
Minimum revolutions under no-load (when 13.5V is applied) rpm	Less than 1,300	Less than 1,000		Less than 1,300
Hot output current (When 13.5V is applied) A/rpm	More than 21/1,300 More than 50/2,500	More than 22/1,300 More than 50/2,500 More than 67/5,000	More than 27/1,300 More than 56/2,500 More than 66/5,000	More than 22/1,300 More than 65/2,500
Regulated output voltage V	14.1 - 14.7			
Minimum length of brush mm (in)	5.0 (0.197)	6.0 (0.236)		5.0 (0.197)
Brush spring pressure N (g, oz)	4.609 - 5.786 (470 - 590, 16.58 - 20.81)	1.0 - 3.43 (102 - 350, 3.60 - 12.34)	0.92 - 3.28 (94 - 334, 3.32 - 11.78)	4.609 - 5.786 (470 - 590, 16.58 - 20.81)
Slip ring minimum diameter mm (in)	22.1 (0.870)	26.0 (1.024)	31.6 (1.244)	22.1 (0.870)
Rotor coil resistance at 20°C (68°F) Ω	2.5 - 2.9	2.58	4.8	2.4 - 2.9

Combination Switch/Check

FOR EUROPE AND ISRAEL





LIGHTING SWITCH

	OFF			1ST			2ND		
	A	B	C	A	B	C	A	B	C
5			○			○	○	○	○
6			○			○	○		○
7								○	
8		○			○	○	○		○
9		○			○	○		○	
10								○	
11				○	○	○	○	○	○
12				○	○	○	○	○	○
25							○	○	○

FRONT WIPER AND WASHER SWITCH

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

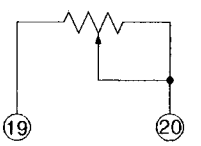
TURN SIGNAL SWITCH

	L	N	R
1	○		○
2			○
3	○		

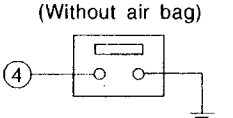
REAR WIPER AND WASHER SWITCH

	WASH	OFF	INT	ON	WASH
21			○		
22				○	○
23	○				○
24	○		○	○	○

INTERMITTENT WIPER VOLUME



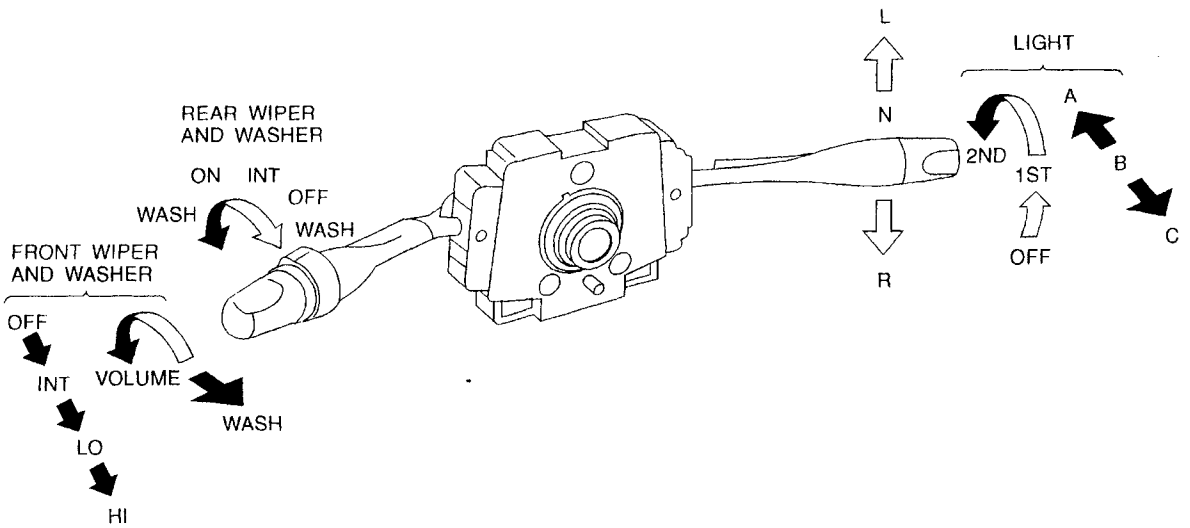
HORN SWITCH (Without air bag)

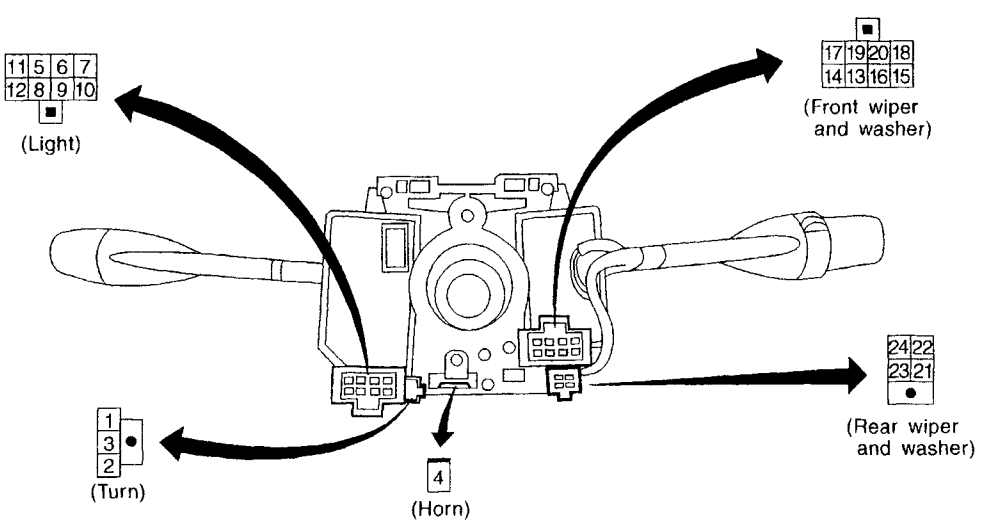


HEL011

Combination Switch/Check (Cont'd)

EXCEPT FOR EUROPE AND ISRAEL





LIGHTING SWITCH

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

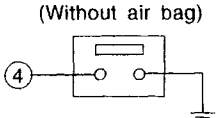
FRONT WIPER AND WASHER SWITCH

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

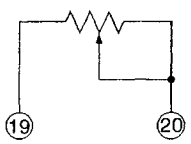
REAR WIPER AND WASHER SWITCH

	WASH	OFF	INT	ON	WASH
21			○		
22				○	○
23	○				○
24	○		○	○	○

HORN SWITCH
(Without air bag)



INTERMITTENT
WIPER VOLUME

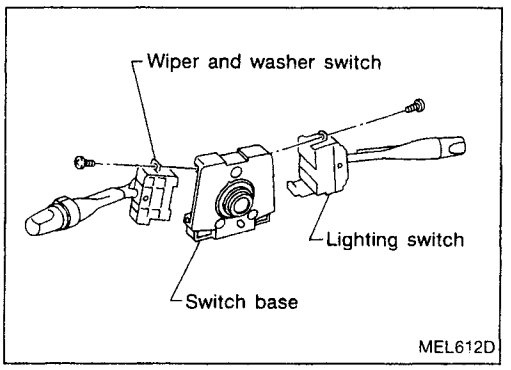


TURN SIGNAL
SWITCH

	L	N	R
1	○		○
2			○
3	○		

EL

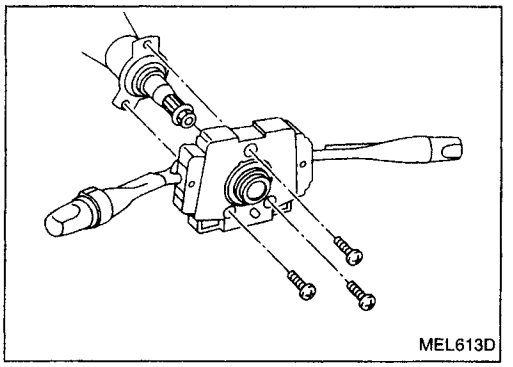
HEL012



Replacement

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

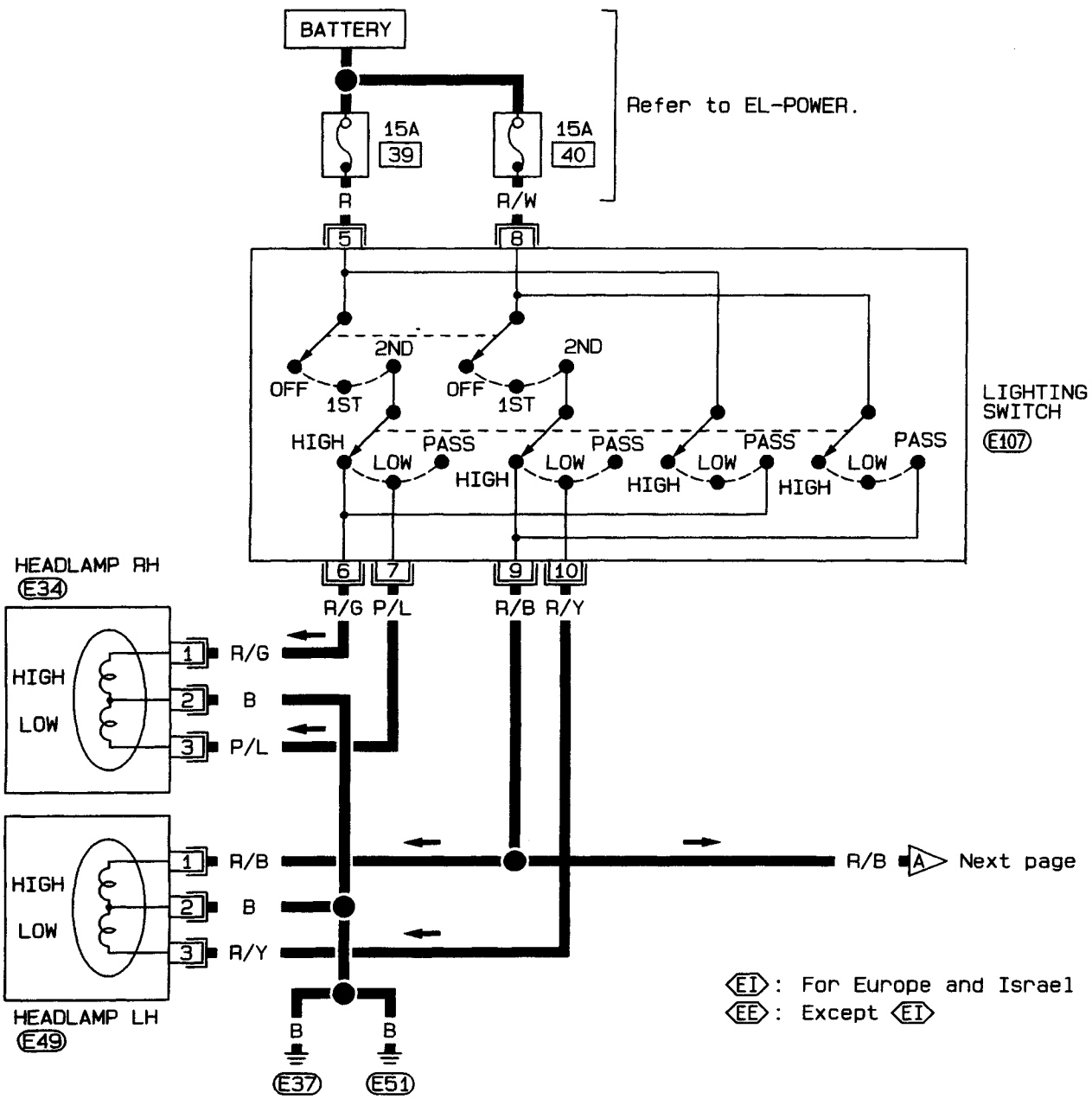
- Each switch can be replaced without removing combination switch base.

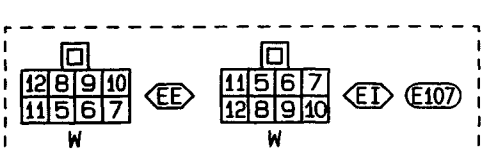


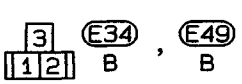
- To remove combination switch base, remove base attaching screw.

Wiring Diagram — H/LAMP —

EL-H/LAMP-01





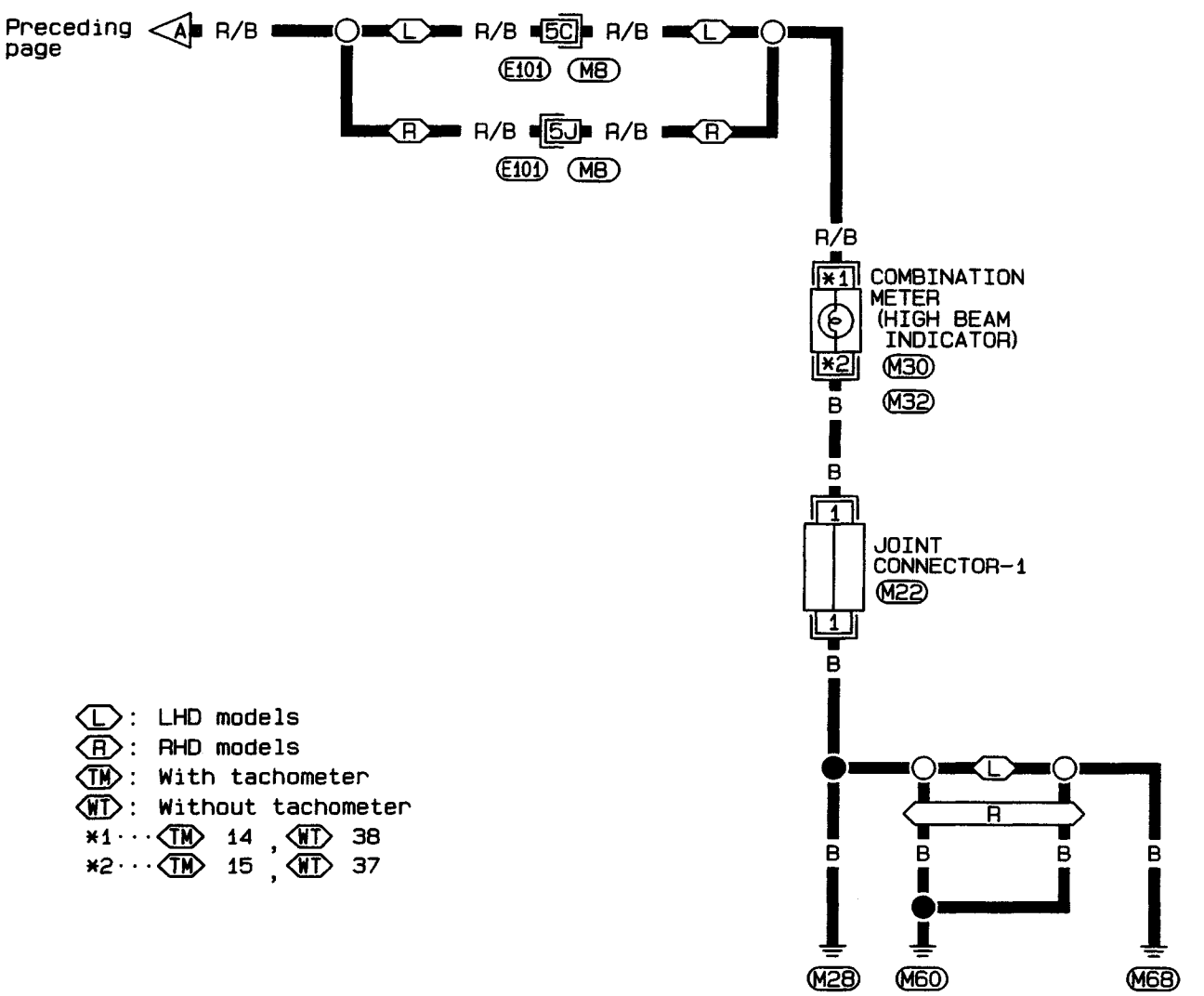


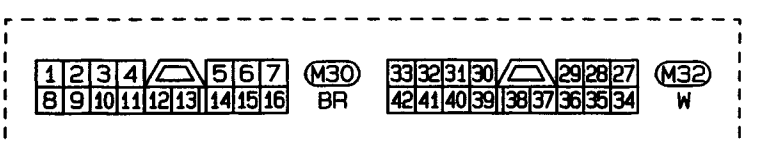
EL

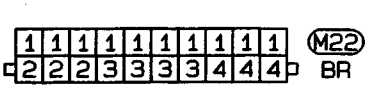
HEL013

Wiring Diagram — H/LAMP — (Cont'd)

EL-H/LAMP-02







Refer to last page (Foldout page).

M8 , E101

HEL014

Trouble Diagnoses

Symptom	Possible cause	Repair order
LH headlamps do not operate.	1. Bulb 2. LH headlamp ground 3. 15A fuse 4. Lighting switch	1. Check bulb. 2. Check LH headlamp ground. (Terminal ②) 3. Check 15A fuse (No. 40, located in fusible link and fuse box). 4. Check lighting switch.
RH headlamps do not operate.	1. Bulb 2. RH headlamp ground 3. 15A fuse 4. Lighting switch	1. Check bulb. 2. Check RH headlamp ground. (Terminal ②) 3. Check 15A fuse (No. 39, located in fusible link and fuse box). 4. Check lighting switch.
LH high beam does not operate, but LH low beam operates.	1. Bulb 2. Open in LH high beam circuit 3. Lighting switch	1. Check bulb. 2. Check R/B wire between lighting switch and LH headlamp for an open circuit. 3. Check lighting switch.
LH low beam does not operate, but LH high beam operates.	1. Bulb 2. Open in LH low beam circuit 3. Lighting switch	1. Check bulb. 2. Check R/Y wire between lighting switch and LH headlamp for an open circuit. 3. Check lighting switch.
RH high beam does not operate, but RH low beam operates.	1. Bulb. 2. Open in RH high beam circuit 3. Lighting switch.	1. Check bulb. 2. Check R/G wire between lighting switch and RH headlamp for an open circuit. 3. Check lighting switch.
RH low beam does not operate, but RH high beam operates.	1. Bulb 2. Open in RH low beam circuit 3. Lighting switch	1. Check bulb. 2. Check P/L wire between lighting switch and RH headlamp for an open circuit. 3. Check lighting switch.
High beam indicator does not work.	1. Bulb 2. High beam indicator ground 3. Open in high beam circuit	1. Check bulb in combination meter. 2. Check combination meter ground. [Terminal ⑮ (with tachometer) or ㊲ (without tachometer)] 3. Check R/B wire between lighting switch and combination meter for an open circuit.

Operation (Daytime light system)

The headlamps' low beam and clearance, license, tail and illumination lamps automatically turn on after starting the engine with lighting switch in "OFF" position.
Lighting switch operations other than the above are the same as conventional light systems.

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

○: Lamp "ON"
X: Lamp "OFF"
□ : Added functions

System Description

The headlamp system on vehicles for North Europe contains a daytime light unit. The unit activates the following whenever the engine is running with the lighting switch in the OFF position:

- Low beam headlamps
- Clearance, license, tail and illumination lamps

Power is supplied at all times

- through 15A fuse (No. 40 , located in the fusible link and fuse box)
- to daytime light unit terminal ② and
- to lighting switch terminal ⑧.

Power is also supplied at all times

- through 15A fuse (No. 39 , located in the fusible link and fuse box)
- to daytime light unit terminal ③ and
- to lighting switch terminal ⑤.

Power is also supplied at all times

- through 10A fuse (No. 36 , located in the fusible link and fuse box)
- to daytime light unit terminal ① and
- to lighting switch terminal ⑪.

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

- through 10A fuse (No. 25 , located in the fuse block)
- to daytime light unit terminal ⑦.

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

- through 7.5A fuse (No. 26 , located in the fuse block)
- to daytime light unit terminal ⑥.

Ground is supplied to daytime light unit terminal ⑨ through body grounds E37 and E51.

HEADLAMP OPERATION (Daytime light cancel operation)

Power is supplied at all times

- through 10A fuse (No. 36 , located in the fuse and fusible link box)
- to lighting switch terminal ⑪.

When the lighting switch is turned to the 1st or 2nd position

- through lighting switch terminal ⑫,
- to daytime light unit terminal ⑪.

Then daytime light will be canceled. And the lighting system operation will be the same as no daytime light system.

DAYTIME LIGHT OPERATION

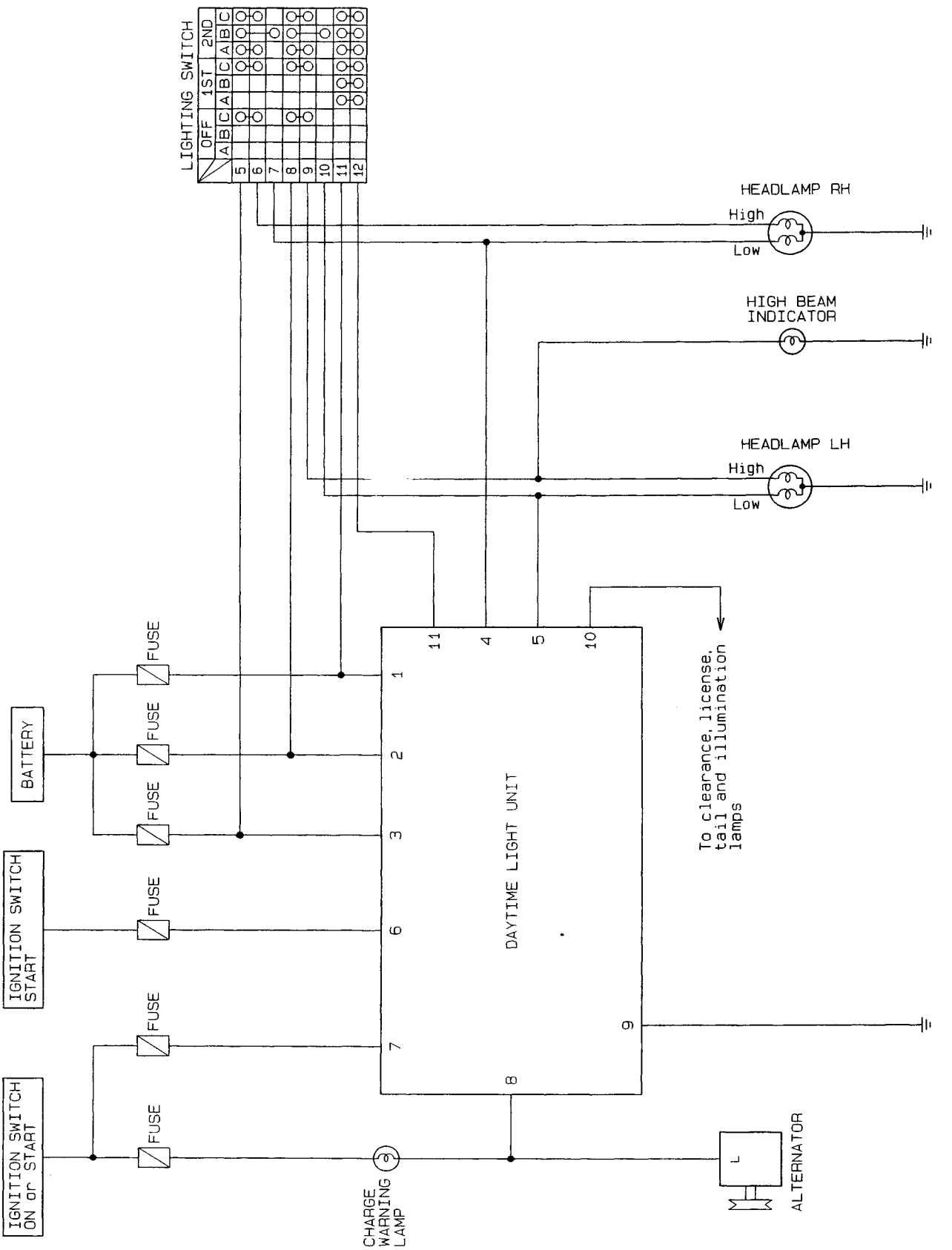
With the engine running and the lighting switch in the OFF position, power is supplied

- from alternator terminal Ⓛ
- to daytime light unit terminal ⑧
- to daytime light unit terminal ②
- through daytime light unit terminal ⑤
- to terminal ③ of LH headlamp
- to daytime light unit terminal ③
- through daytime light unit terminal ④
- to terminal ③ of RH headlamp
- to daytime light unit terminal ①
- through daytime light unit terminal ⑩
- to tail lamp and illumination.

Ground is supplied to terminal ② of each headlamp through body grounds E37 and E51.
Ground is also supplied to terminal ⑨ of daytime light unit through body grounds E37 and E51.

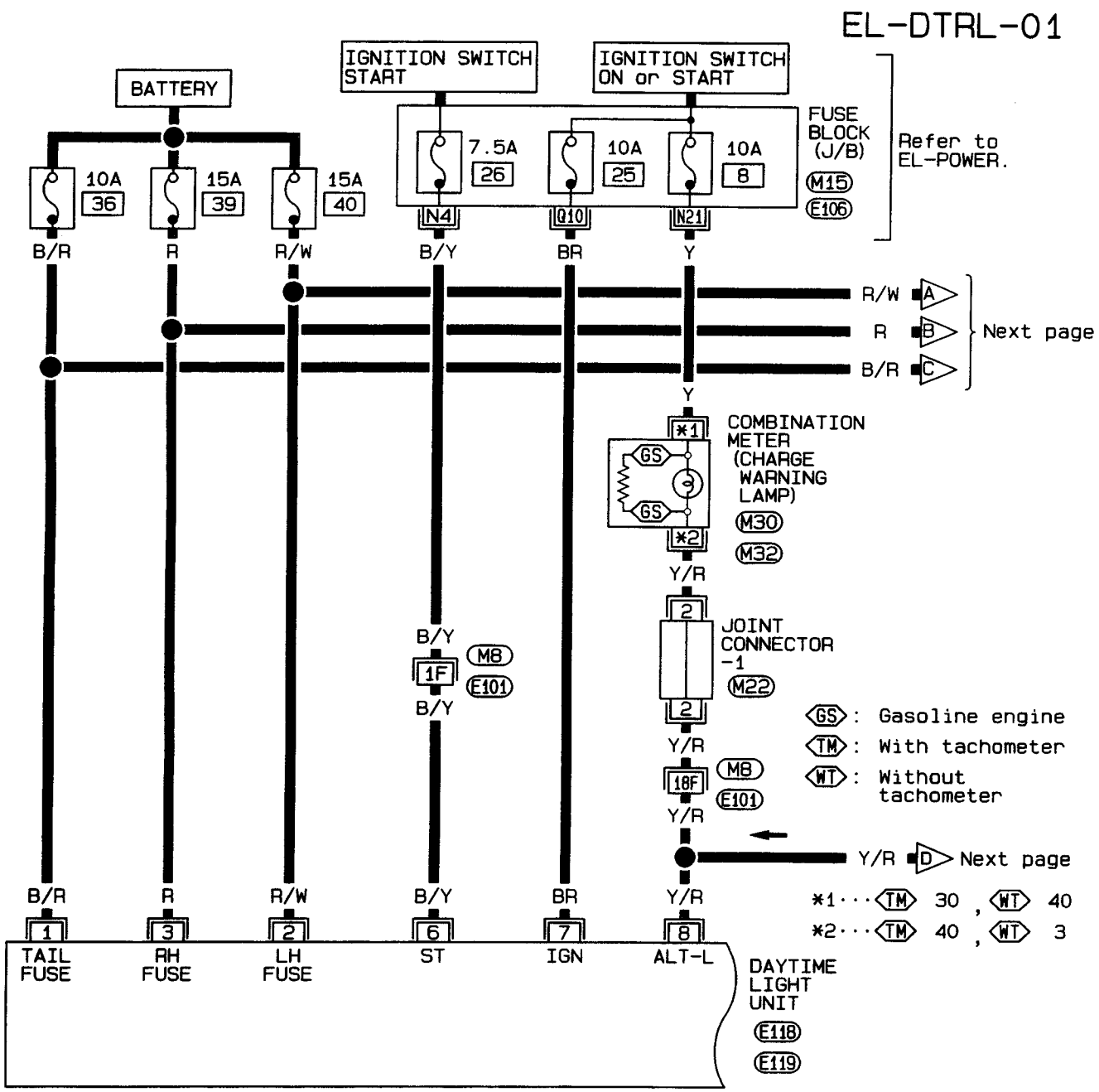
EL

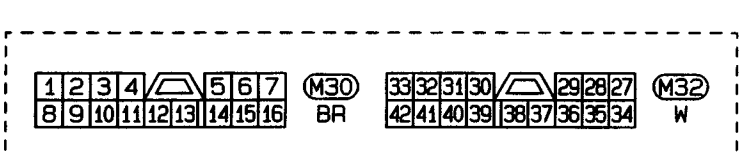
Schematic

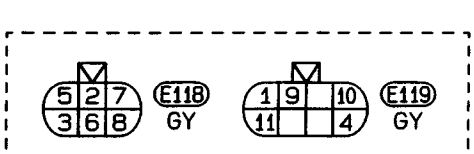


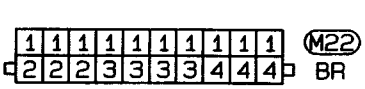
HEL015

Wiring Diagram — DTRL —









Refer to last page (Foldout page).

M8 , E101

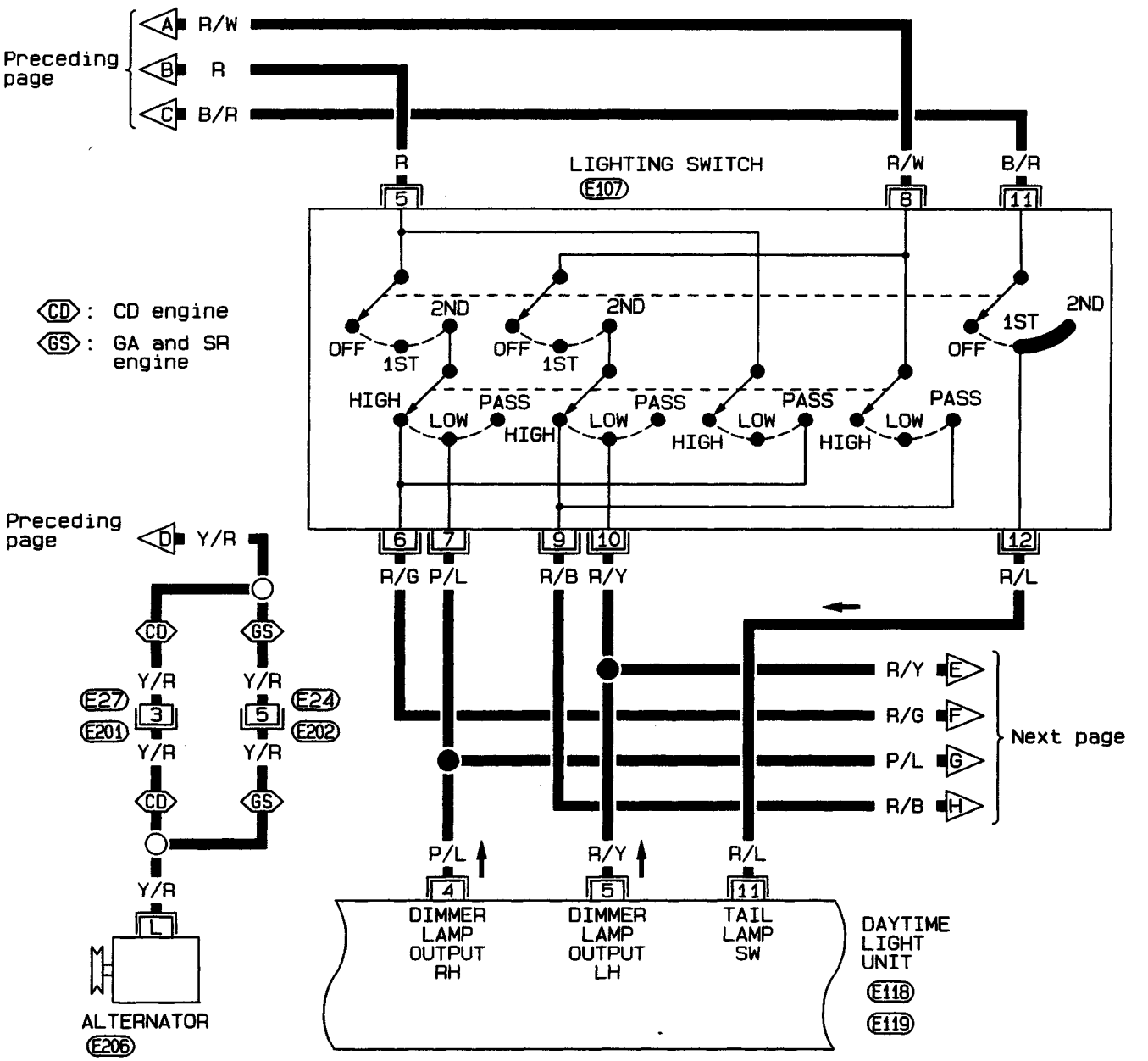
M15 , E106

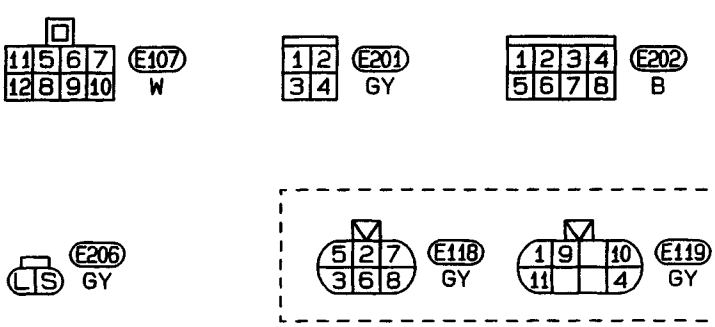
EL

HEL016

Wiring Diagram — DTRL — (Cont'd)

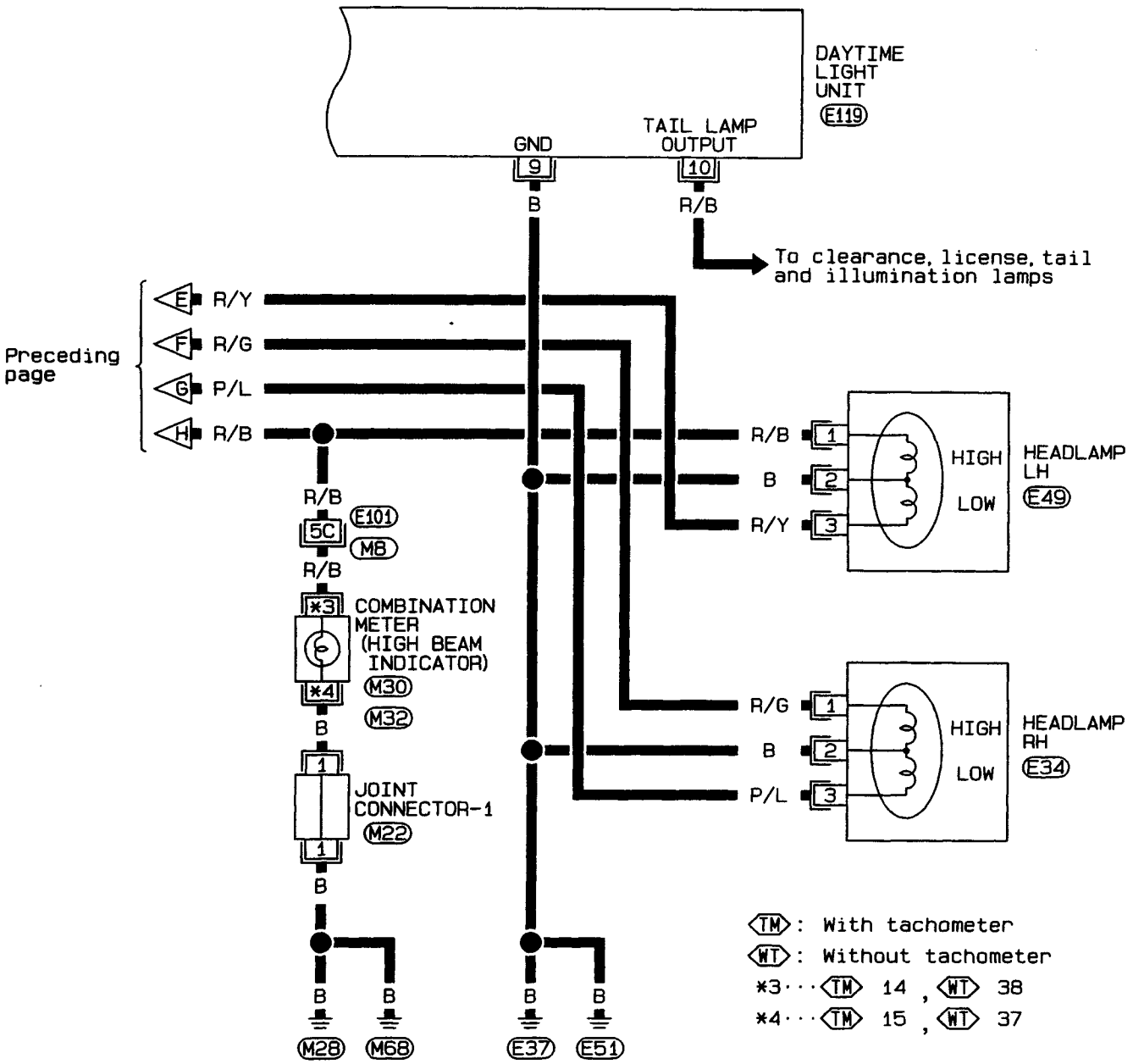
EL-DTRL-02

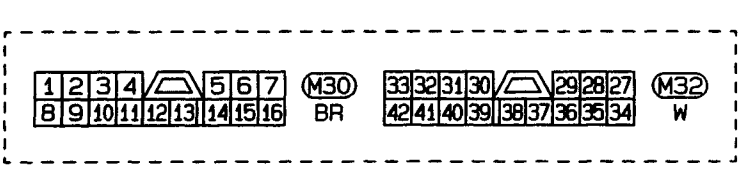


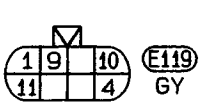


Wiring Diagram — DTRL — (Cont'd)

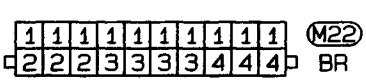
EL-DTRL-03











Refer to last page (Foldout page).

M8 , E101

EL

HEL018

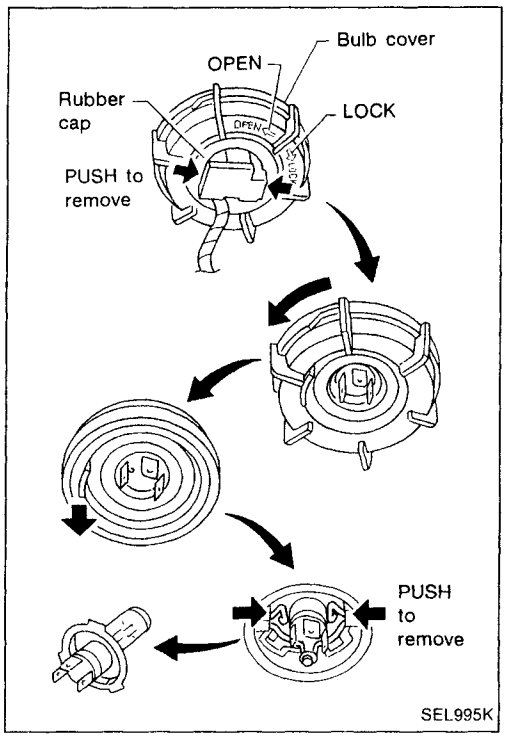
Trouble Diagnoses (Daytime Light)

DAYTIME LIGHT CONTROL UNIT INSPECTION TABLE

(Input/output operation signal)

Terminal No.	Connections	INPUT (I)/ OUTPUT (O)	Operated condition		Voltage (V) (Approximate values)
1	Power source for illumination & tail lamp	—	—		12
2	Power source for headlamp LH	—	—		12
3	Power source for headlamp RH	—	—		12
4	Headlamp RH	O	ON (daytime light operating*)		12
			OFF		0
5	Headlamp LH	O	ON (daytime light operating*)		12
			OFF		0
6	Start signal	I	Ignition switch	START	12
				ON, ACC or OFF	0
7	Power source	—	Ignition switch	ON or START	12
				ACC or OFF	0
8	Alternator "L" terminal	I	Engine	Running	12
				Stopped	0
9	Ground	—	—		—
10	Illumination & tail lamp	O	ON (daytime light operating*)		12
			OFF		0
11	Lighting switch	I	1ST·2ND position		12
			OFF		0

*: Daytime light operating: Lighting switch in "OFF" position with engine running.



Bulb Replacement

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

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

1. Disconnect the battery cable.
2. Disconnect the harness connector from the back side of the bulb.
3. Turn the bulb retaining ring counterclockwise until it is free from the headlamp reflector, and then remove it.
4. Pull off the rubber cap.
5. Remove the headlamp bulb carefully. Do not shake or rotate the bulb when removing it.
6. Install in the reverse order of removal.

CAUTION:

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

Bulb Specifications

Item	Wattage (W)
Semi-sealed beam	
High/Low	60/55

Aiming Adjustment

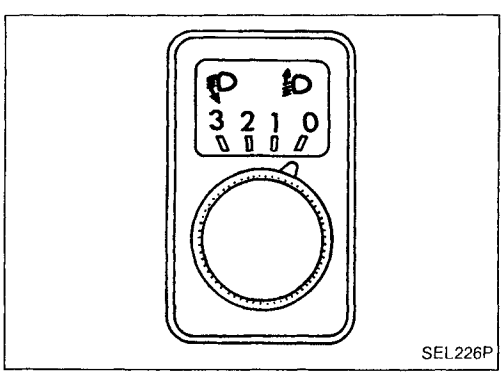
When performing headlamp aiming adjustment, use an aiming machine, aiming wall screen or headlamp tester. Aimers should be in good repair, calibrated and operated in accordance with respective operation manuals.

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

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

CAUTION:

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

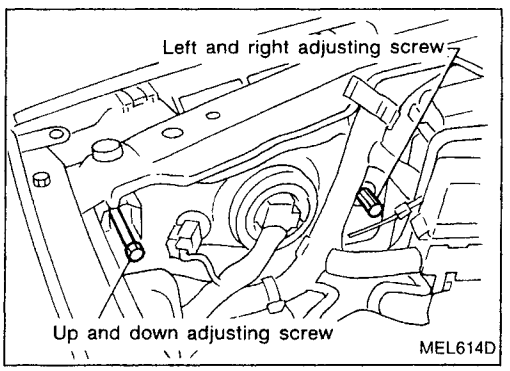


CAUTION:

Be sure aiming switch is set to "0" when performing aiming adjustment on vehicles equipped with headlamp aiming control.

EL

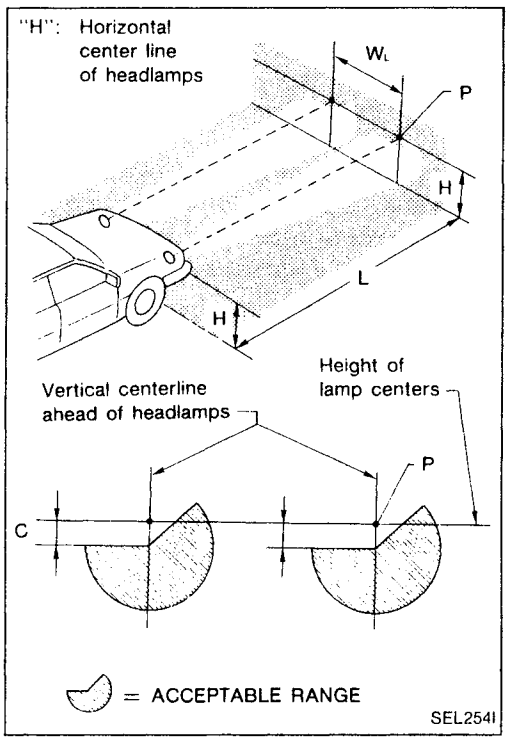
Aiming Adjustment (Cont'd)



LOW BEAM

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.**



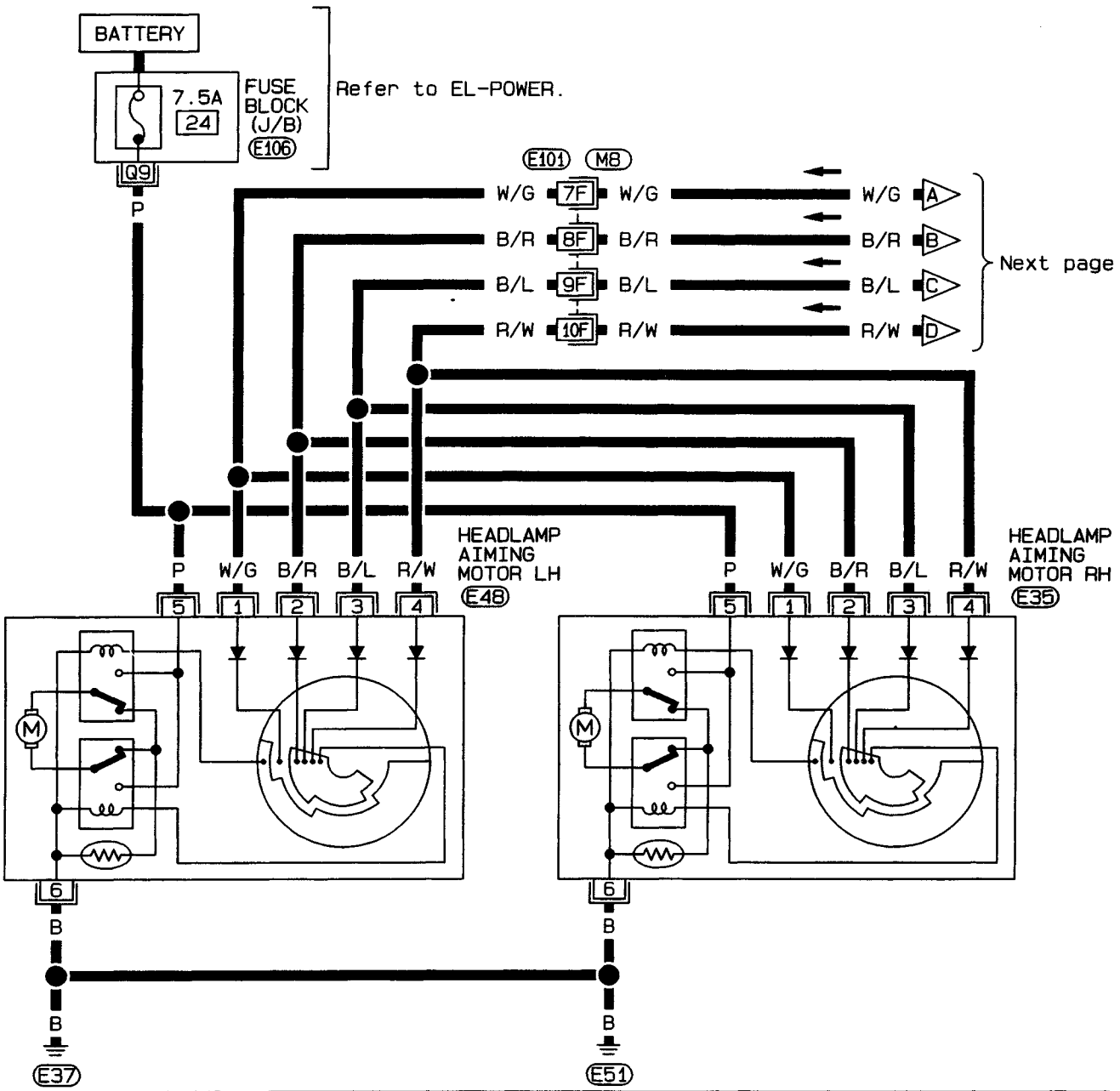
- **Adjust headlamps so that main axis of light is parallel to center line of body and is aligned with point P shown in illustration.**
- **Figure to the left shows headlamp aiming pattern for driving on right side of road; for driving on left side of road, aiming pattern is reversed.**
- **Dotted lines in illustration show center of headlamp.**

"H": Horizontal center line of headlamps
"W_L": Distance between each headlamp center
"L": 5,000 mm (196.85 in)
"C": 65 mm (2.56 in)

Wiring Diagram — AIM —

LHD MODELS

EL-AIM-01



1 2 3 4 5 6 E35 GY , E48 GY

Refer to last page (Foldout page).

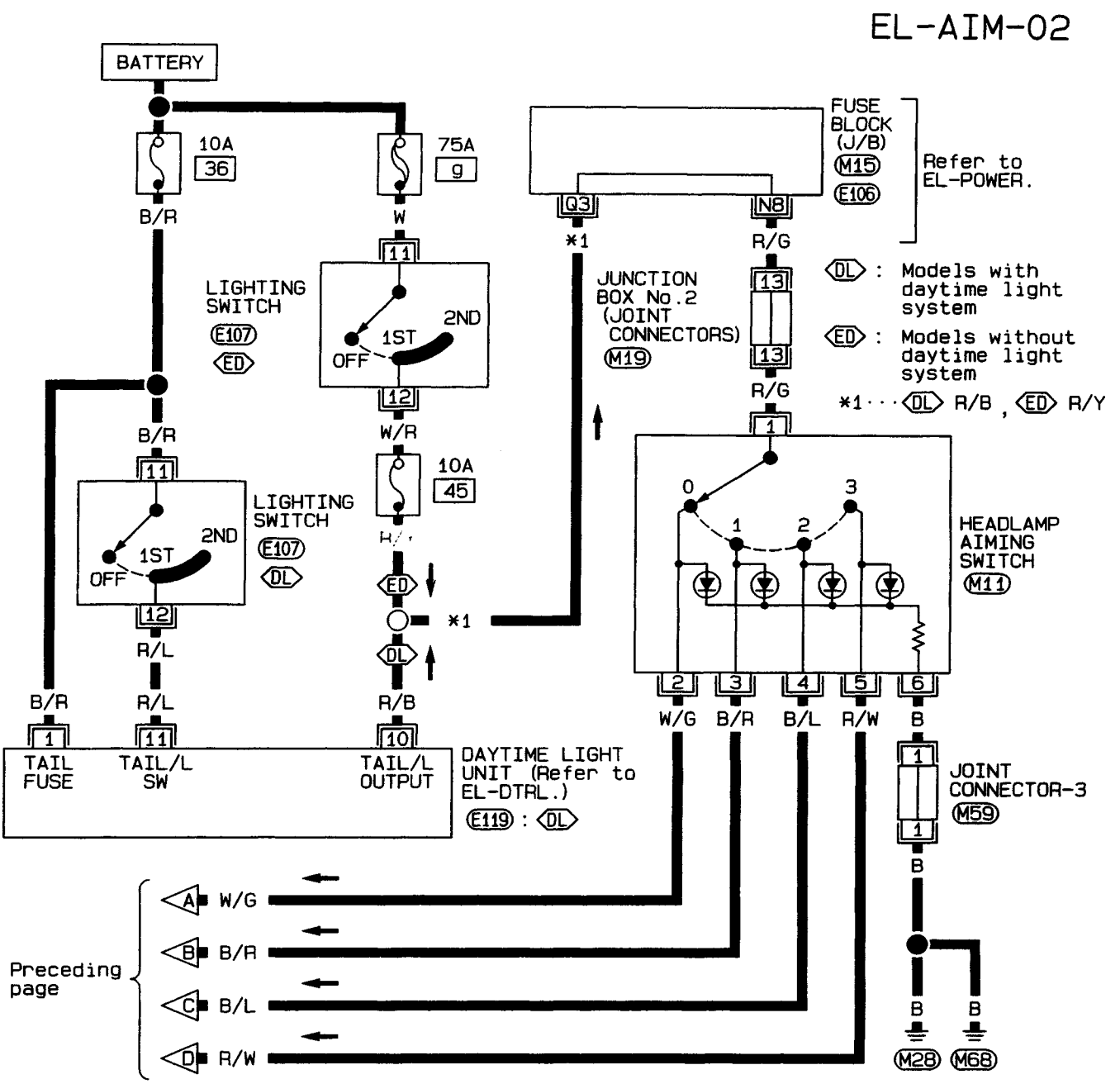
M8 , E101

E106

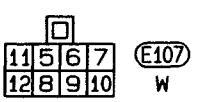
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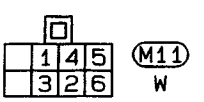
HEL019

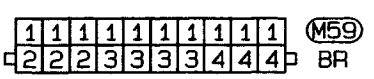
Wiring Diagram — AIM — (Cont'd)











Refer to last page (Foldout page).

M15 , E106

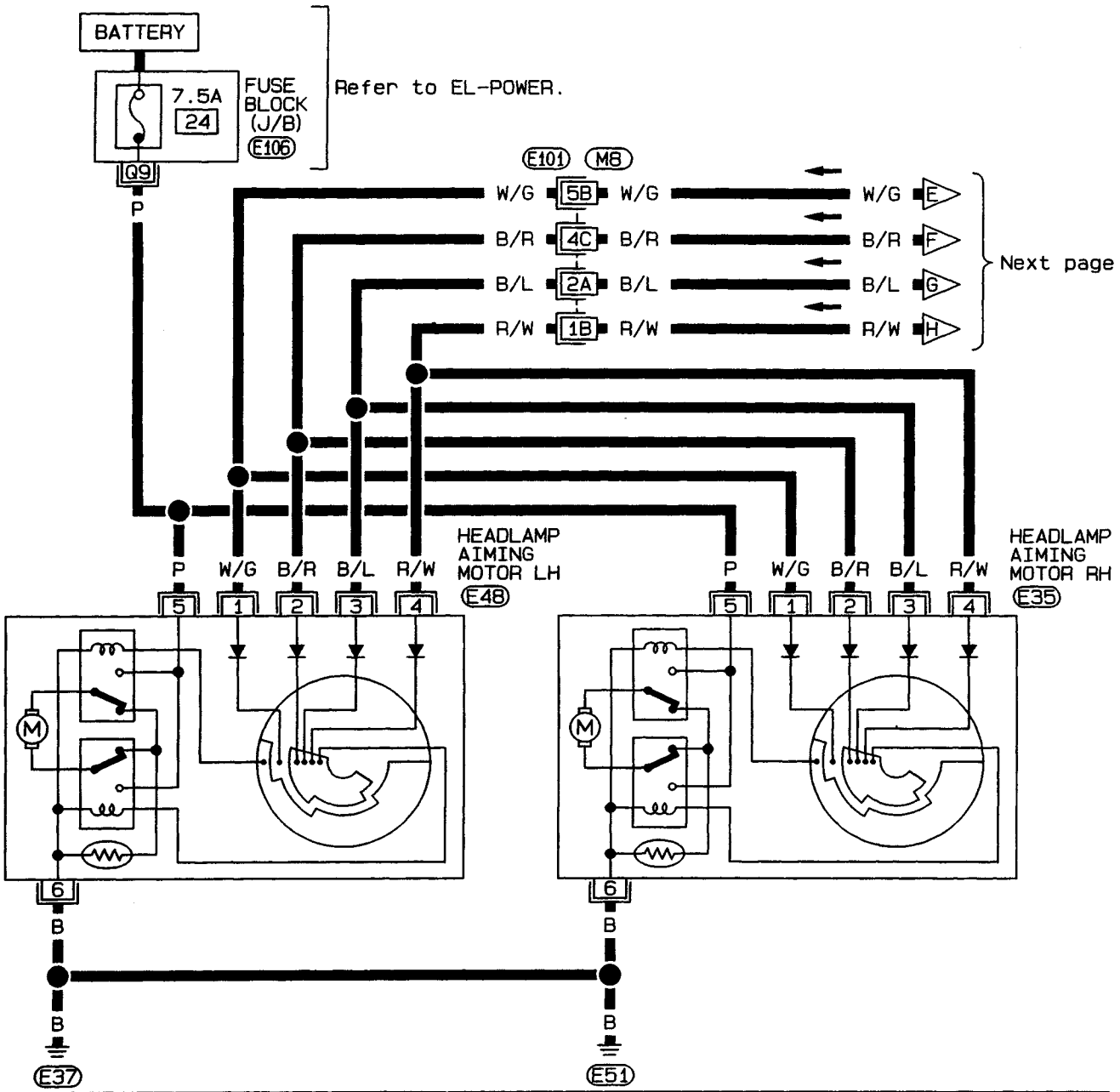
M19

HEL020

Wiring Diagram — AIM — (Cont'd)

RHD MODELS

EL-AIM-03





Refer to last page (Foldout page).

M8 , E101

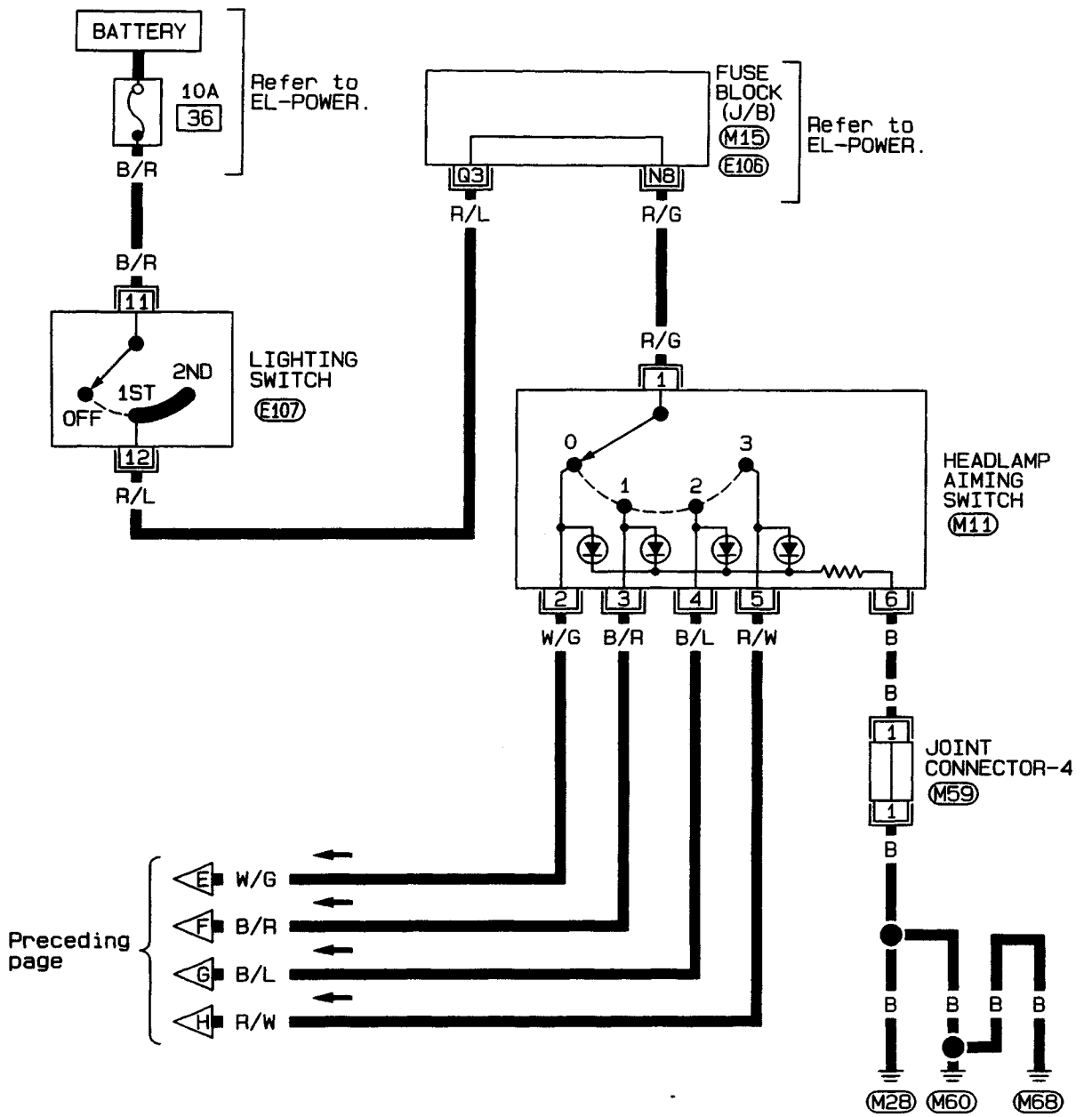
E106

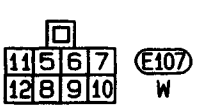
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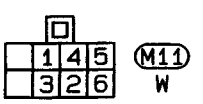
HEL021

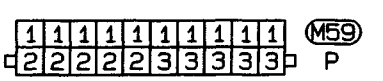
Wiring Diagram — AIM — (Cont'd)

EL-AIM-04





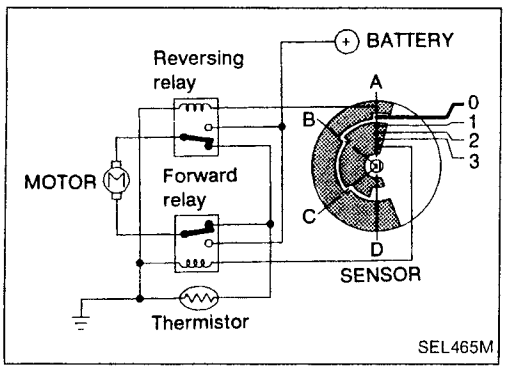


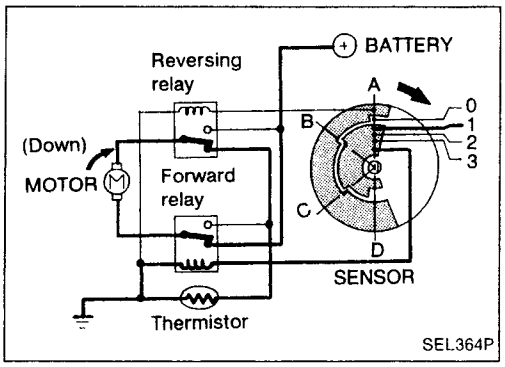


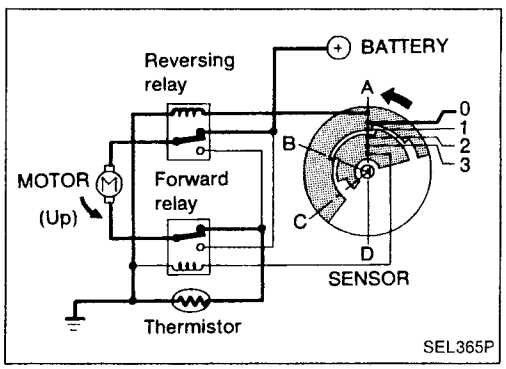
Refer to last page (Foldout page).

M15 , E106

HEL022







Description

CIRCUIT OPERATION

[Example]

Aiming switch "0"

- When the aiming switch is set to "0", the motor will not start. This is because the power terminals are positioned at the nonconductive section of the sensor's rotary unit.

Aiming switch "0" → "1"

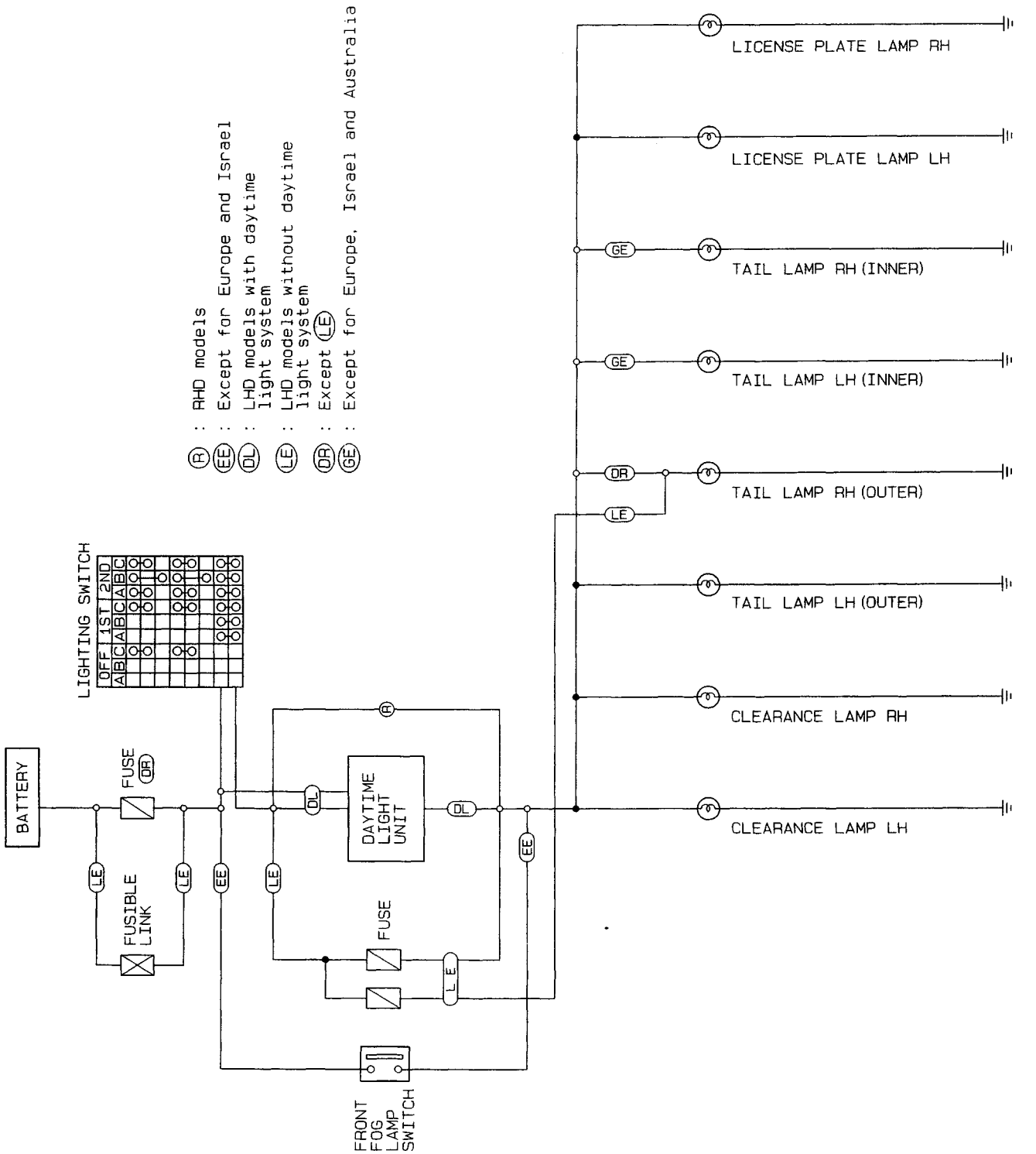
- When the aiming switch is moved from "0" to "1", the sensor's conductive section activates the relay. Power is supplied through the relay to the motor. The headlamps will then move in the "DOWN" direction.
- The motor continues to rotate while the rotary unit of the sensor moves from point A to point B.
- The power terminals will then be positioned at the nonconductive section, disconnecting the power to the motor. The motor will then stop.

Aiming switch "1" → "0"

- When the aiming switch is moved from "1" to "0", the sensor's conductive section activates the relay. Power is supplied through the relay to the motor. The motor will rotate to move the headlamps in the "UP" direction.
- When the rotary unit of the sensor moves from point B to point A, the motor will stop.

EL

Clearance, License and Tail Lamps/Schematic

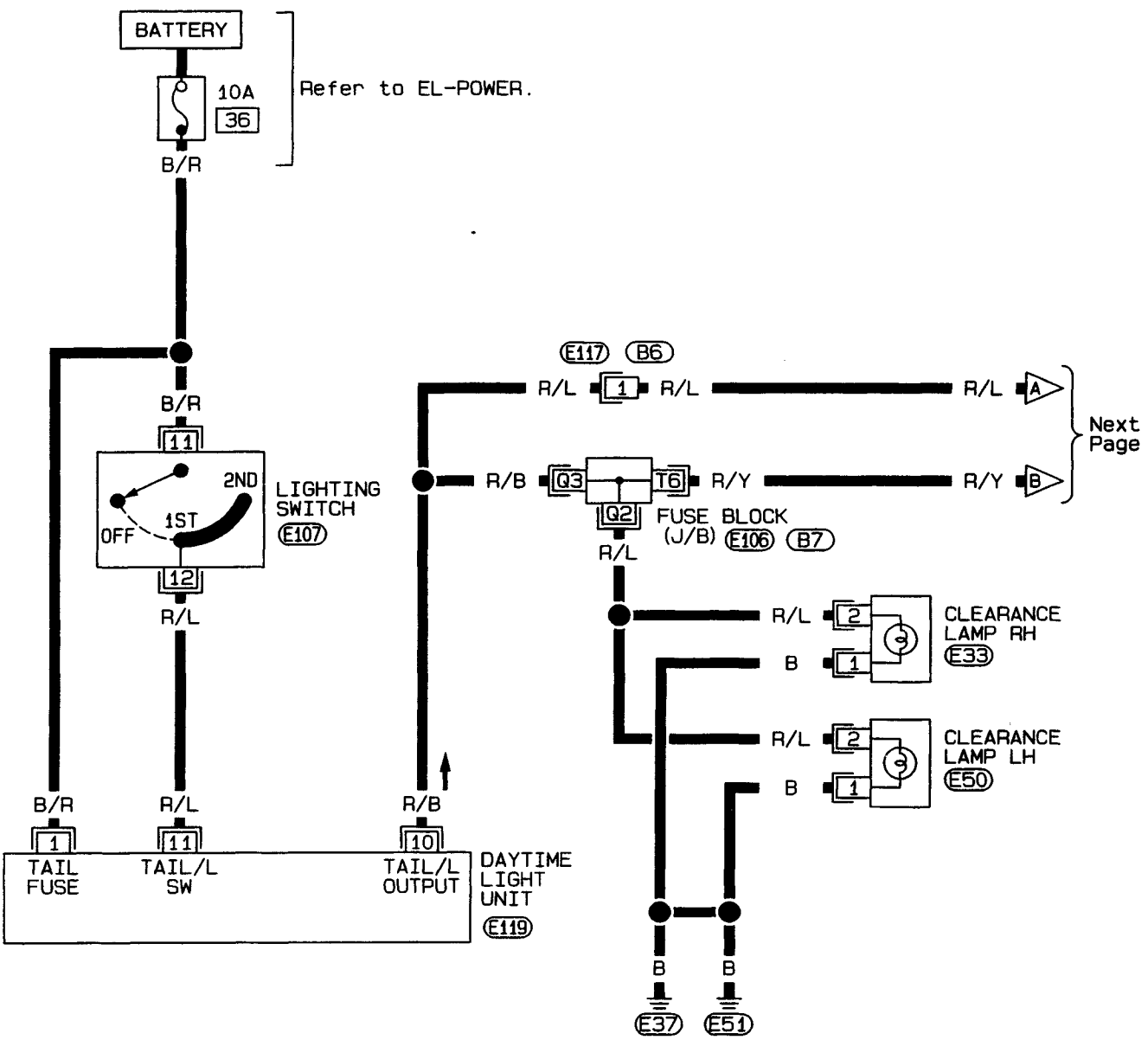


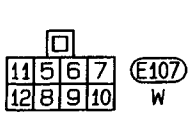
HEL032

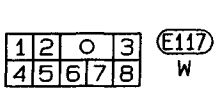
Clearance, License and Tail Lamps/Wiring Diagram — TAIL/L —

LHD MODELS WITH DAYTIME LIGHT SYSTEM

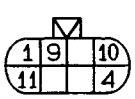
EL-TAIL/L-01











Refer to last page (Foldout page).

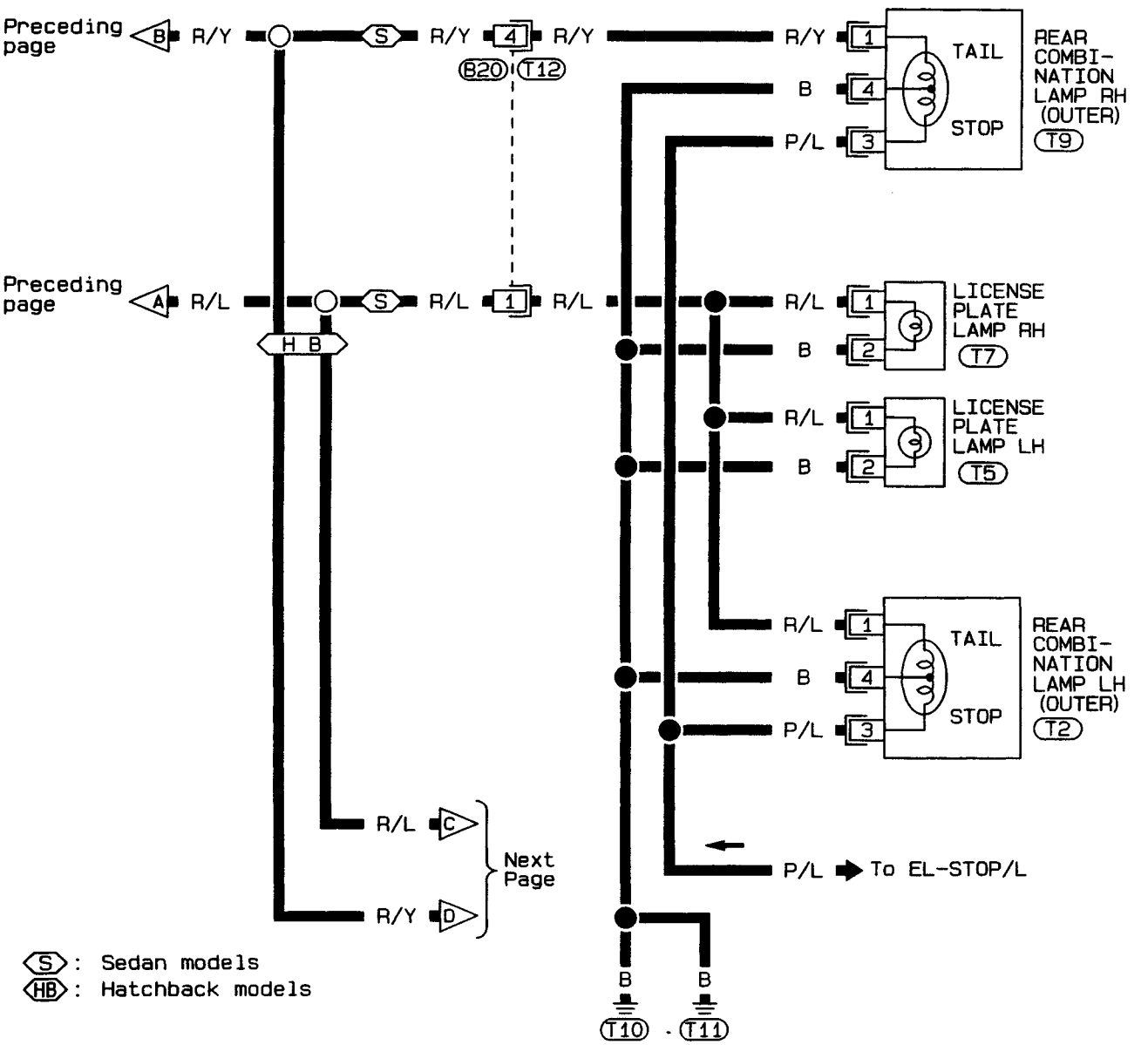
E106, B7

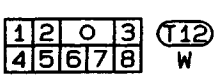
HEL023

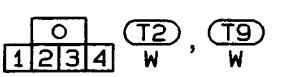
EL

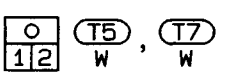
Clearance, License and Tail Lamps/Wiring Diagram — TAIL/L — (Cont'd)

EL-TAIL/L-02





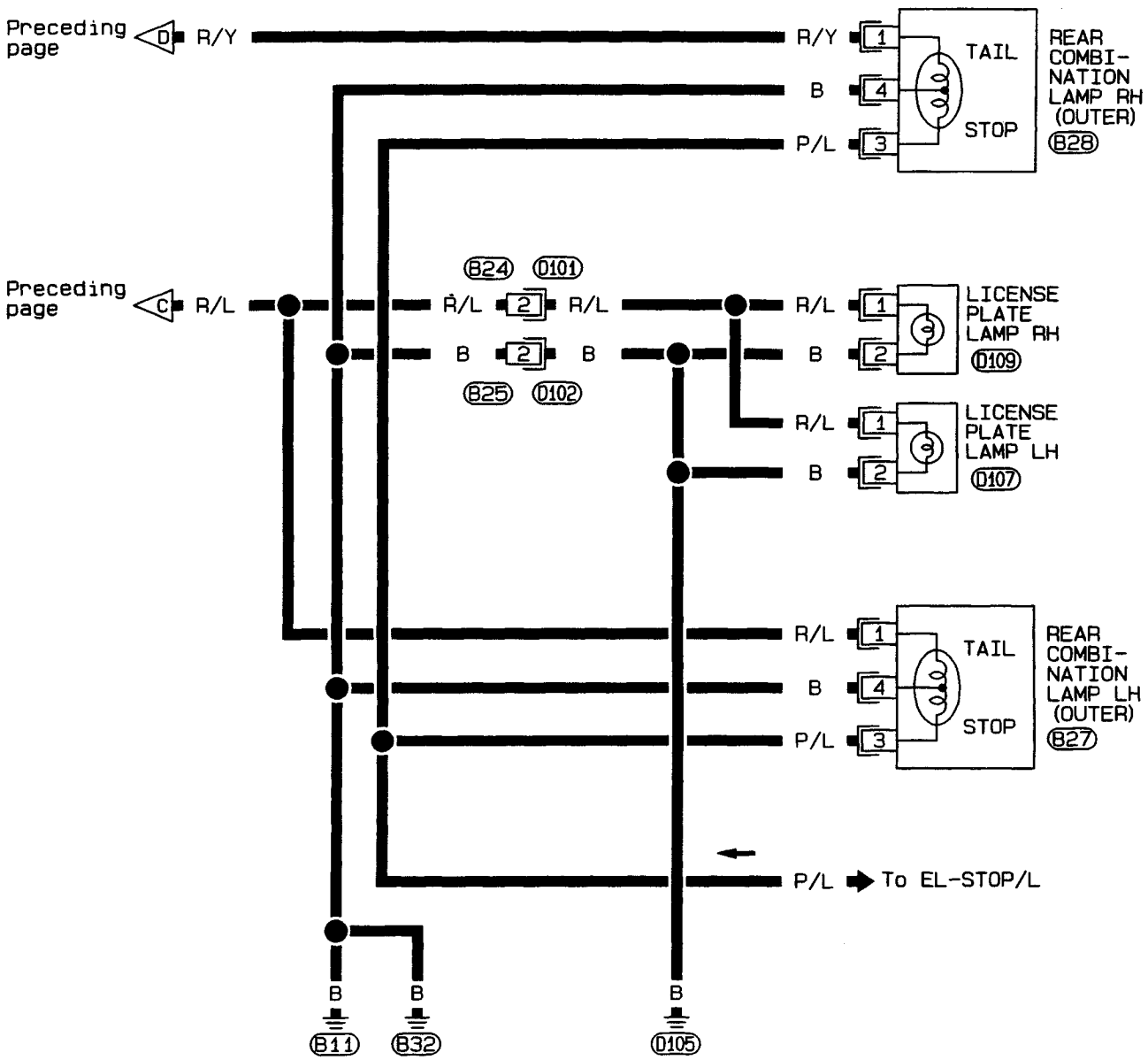


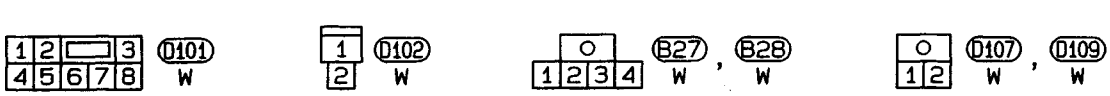


HEL024

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

EL-TAIL/L-03





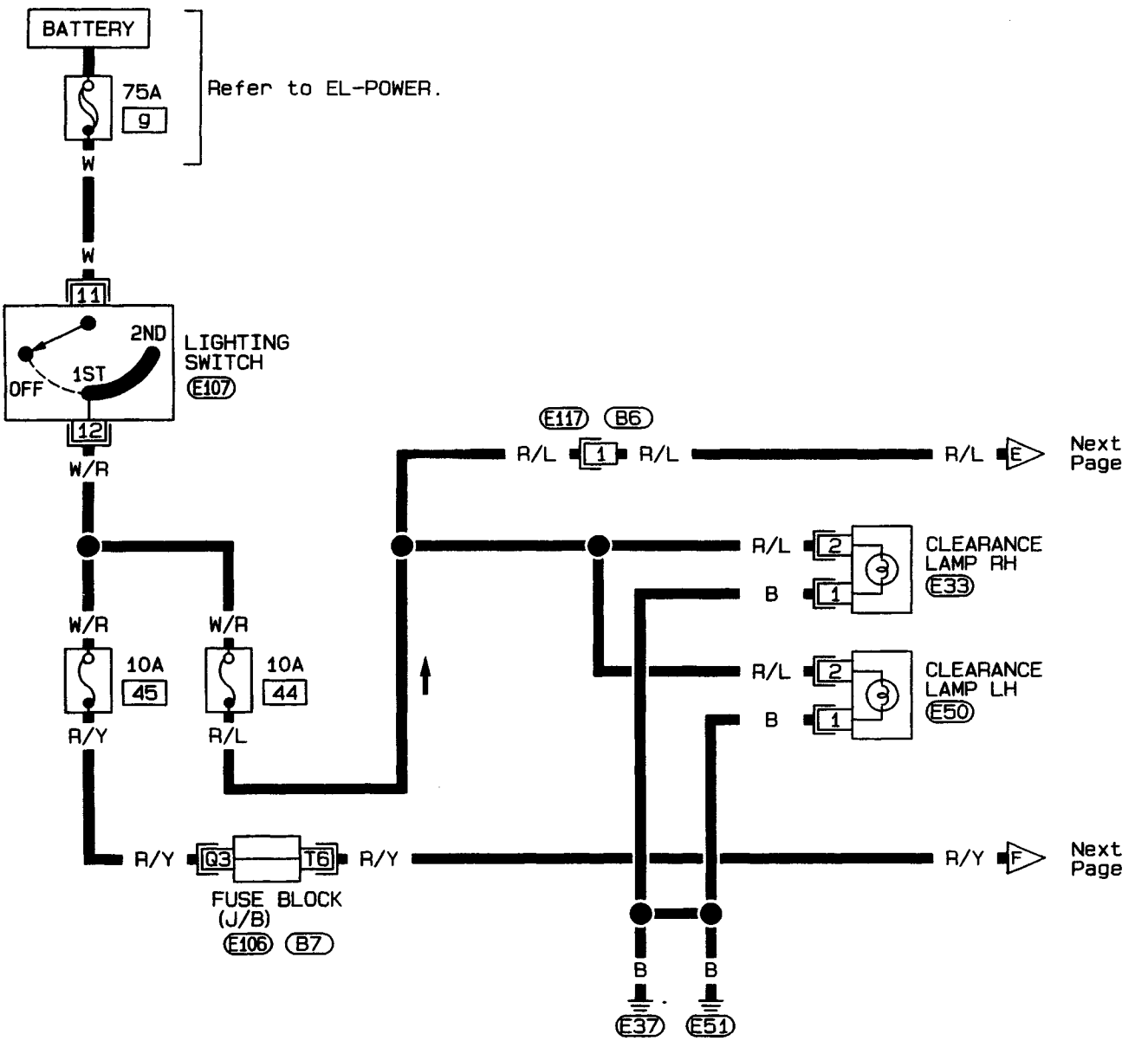
EL

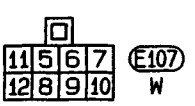
HEL025

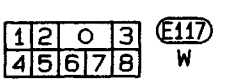
Clearance, License and Tail Lamps/Wiring Diagram — TAIL/L — (Cont'd)

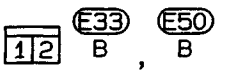
LHD MODELS WITHOUT DAYTIME LIGHT SYSTEM

EL-TAIL/L-04









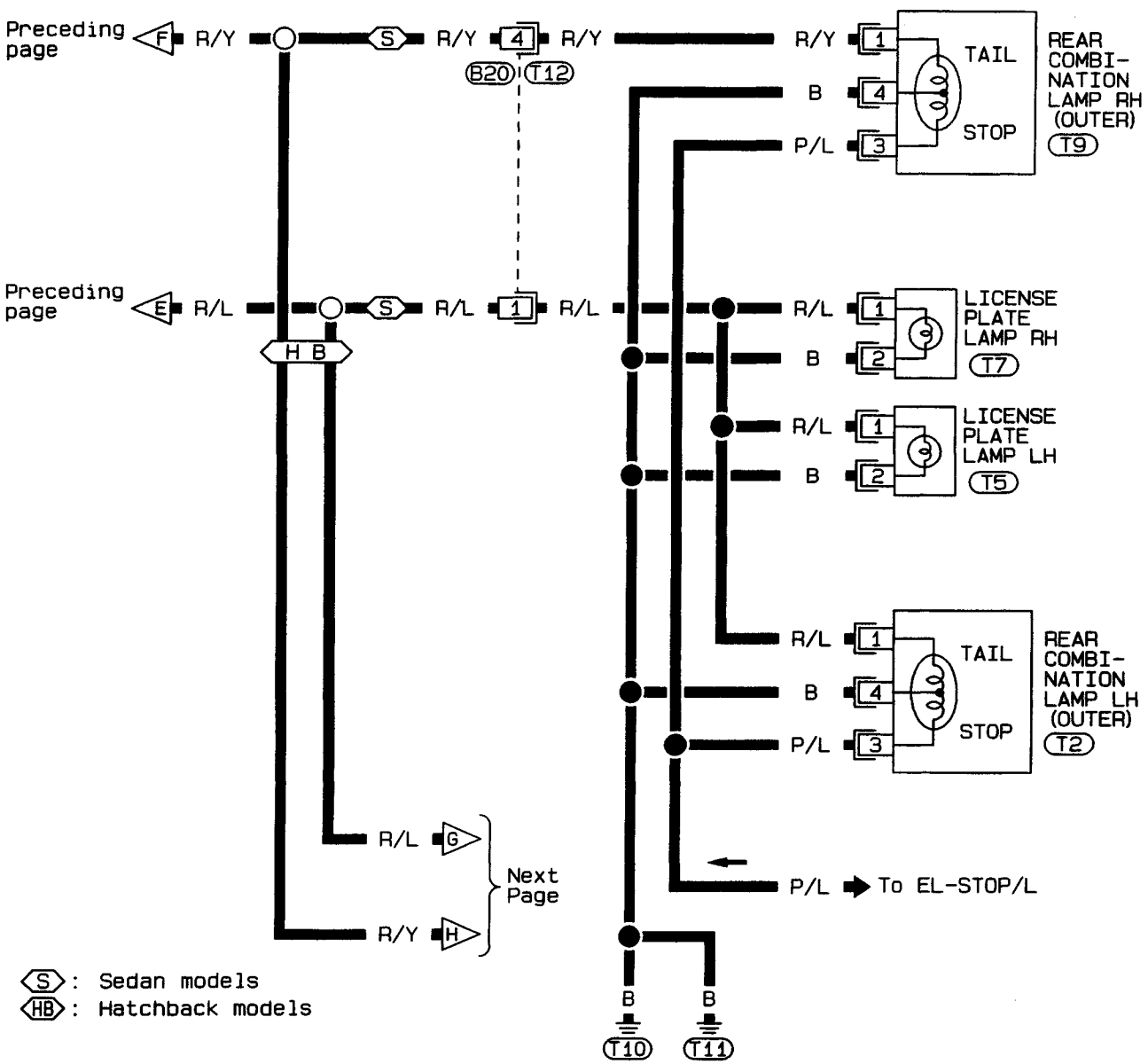
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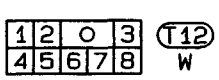
E106, B7

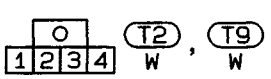
HEL026

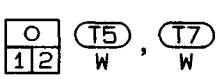
Clearance, License and Tail Lamps/Wiring Diagram — TAIL/L — (Cont'd)

EL-TAIL/L-05







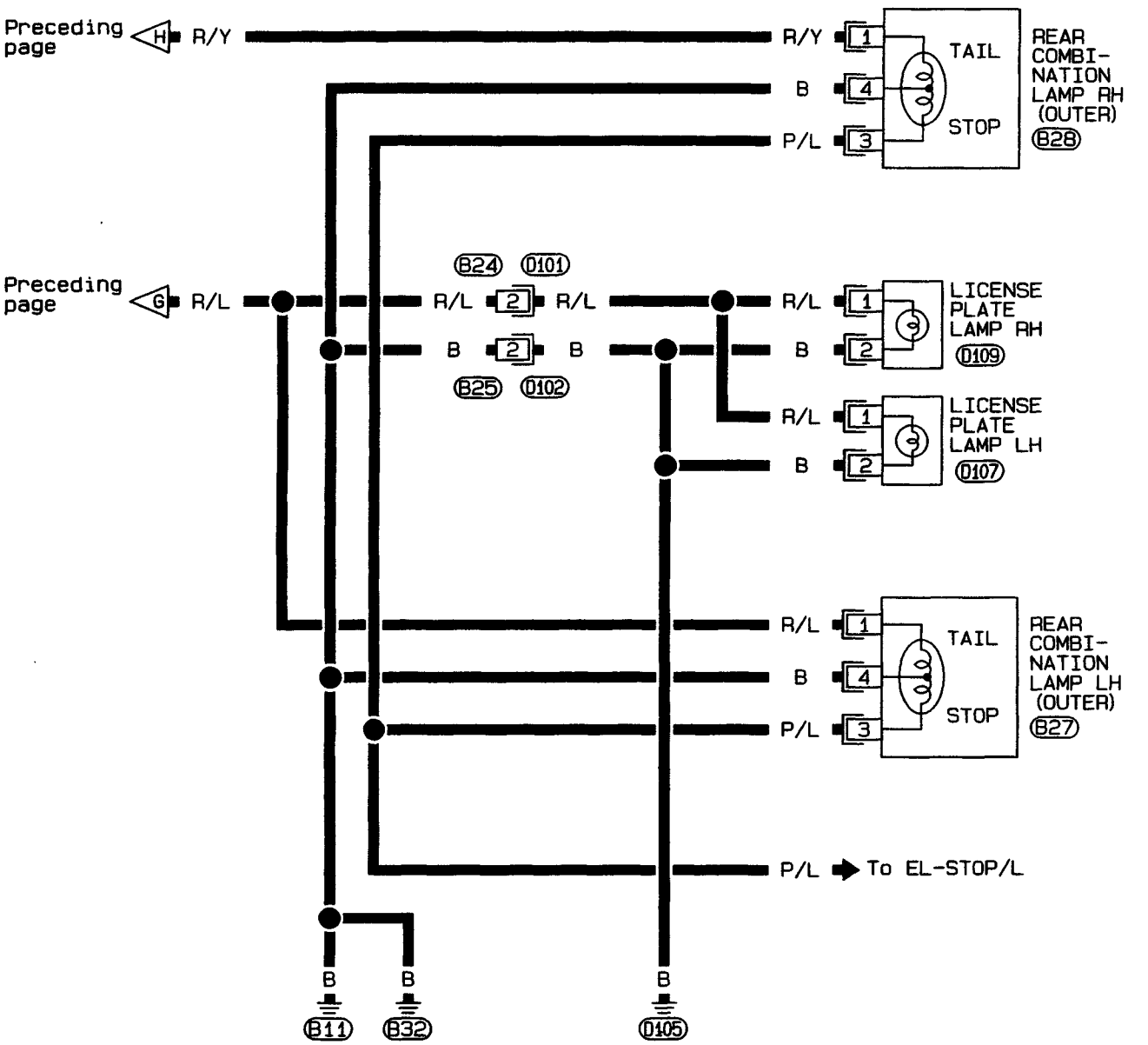


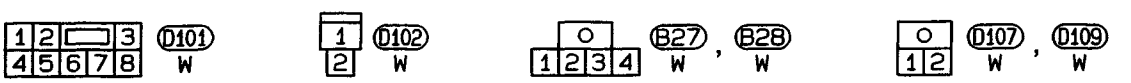
EL

HEL027

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

EL-TAIL/L-06



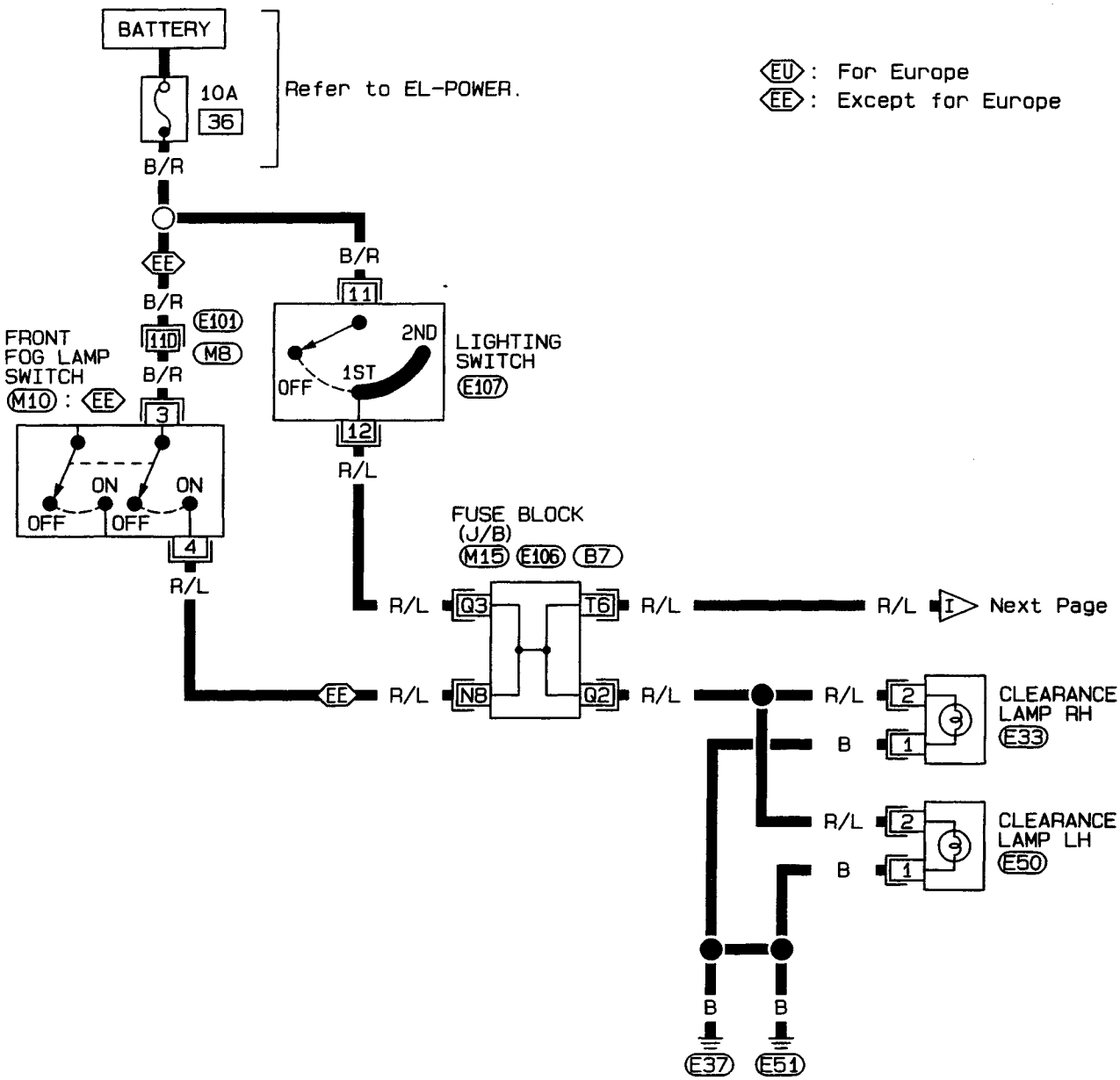


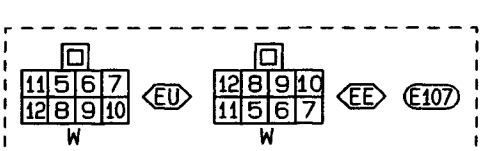
HEL028

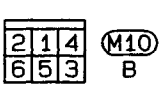
Clearance, License and Tail Lamps/Wiring Diagram — TAIL/L — (Cont'd)

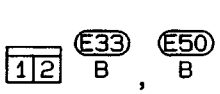
RHD MODELS

EL-TAIL/L-07









Refer to last page (Foldout page).

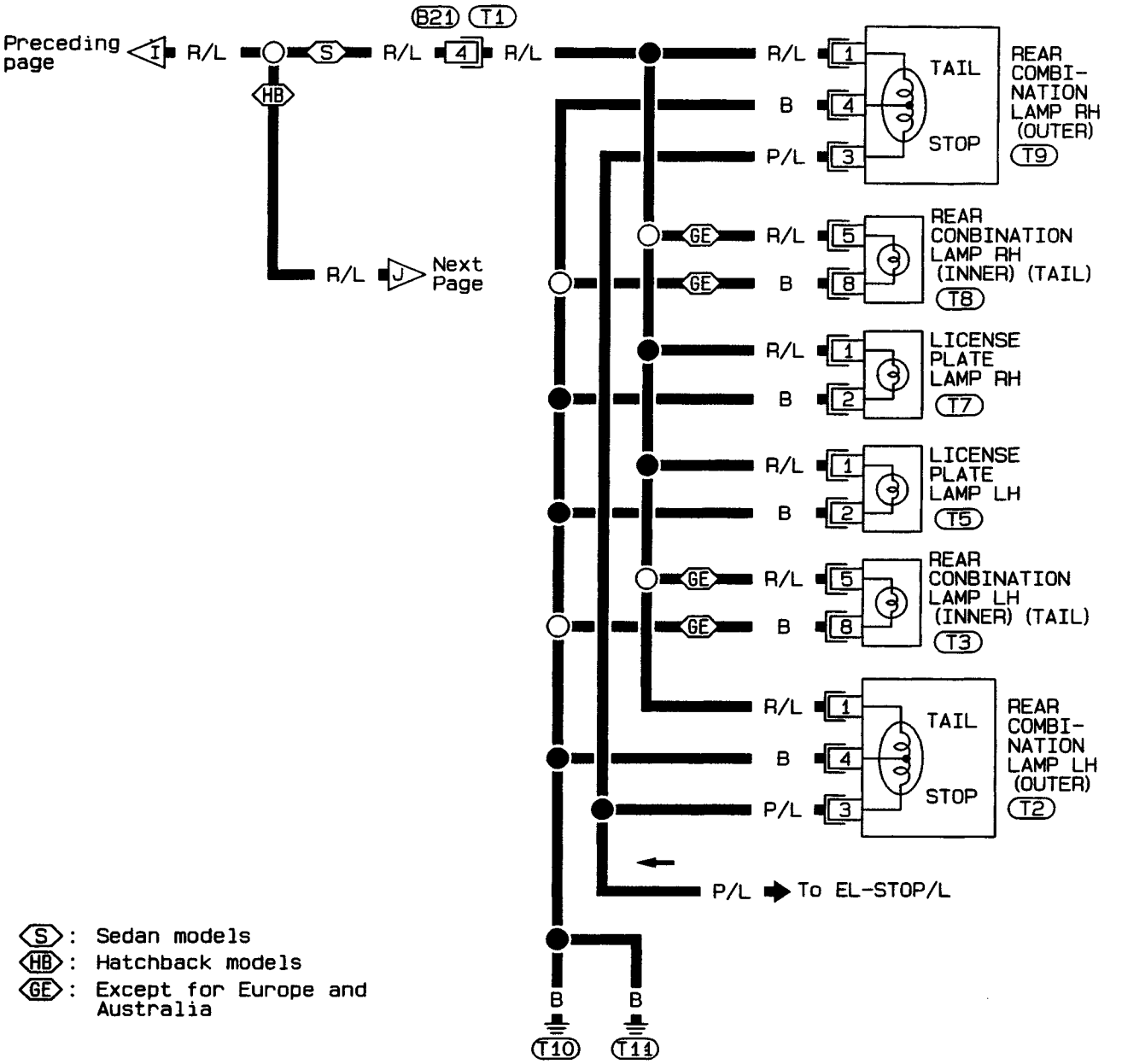
M8, E101
M15, E106, B7

EL

HEL029

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

EL-TAIL/L-08

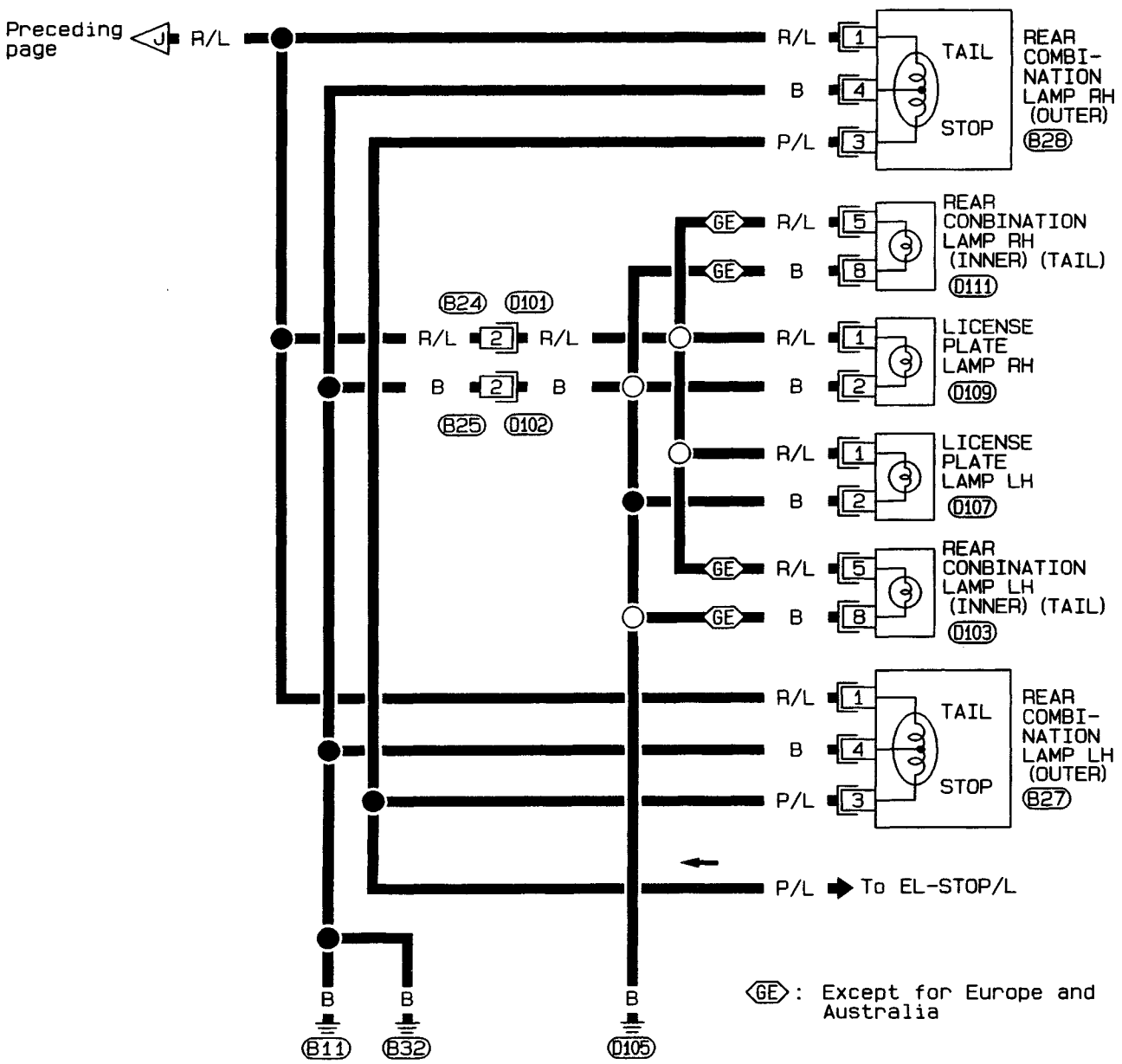


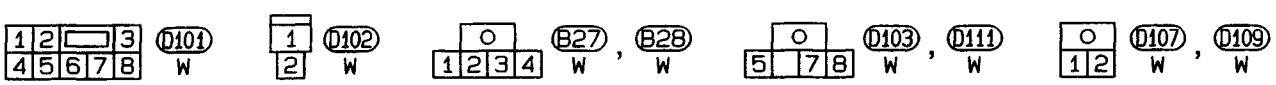


HEL030

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

EL-TAIL/L-09



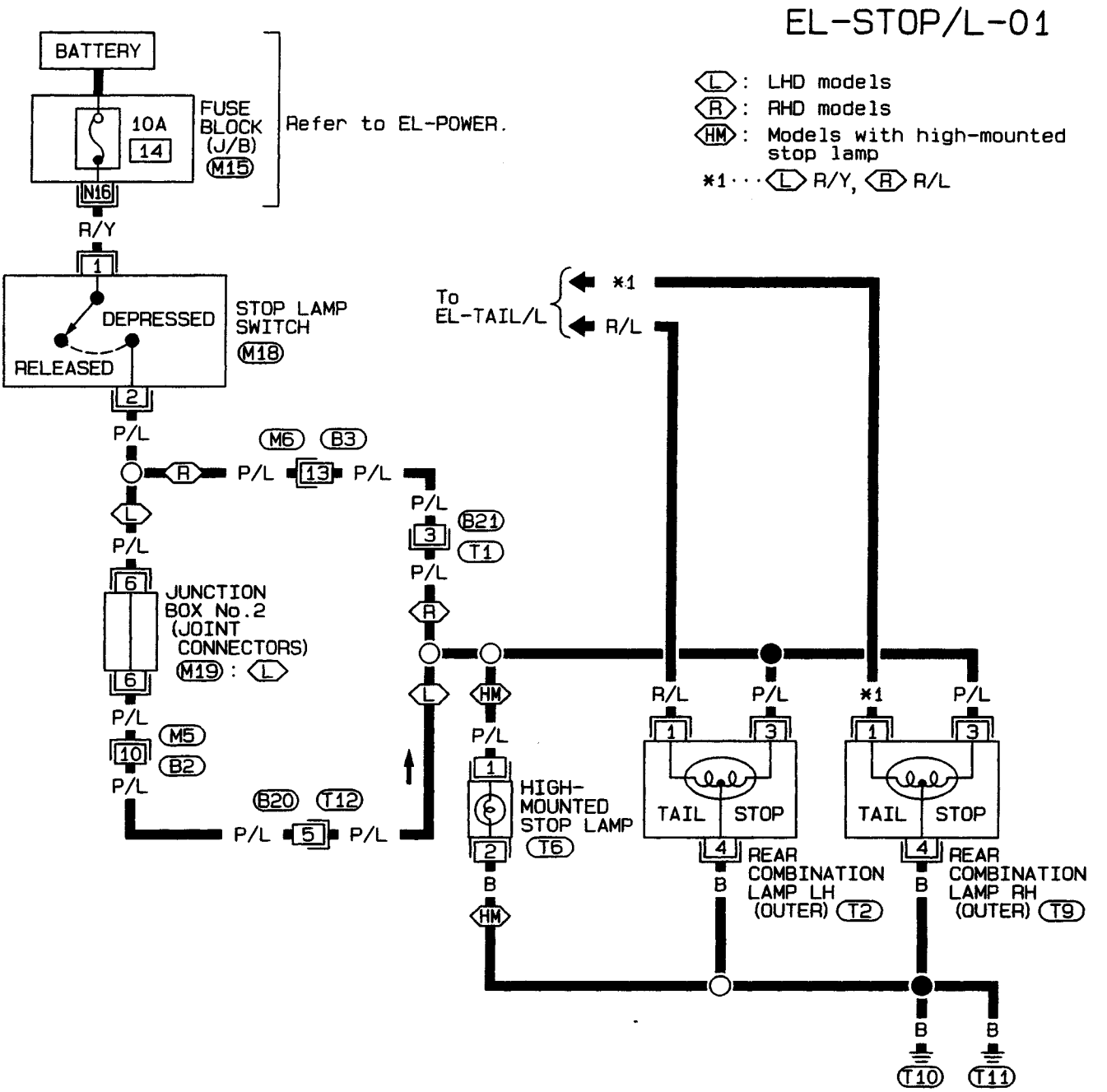


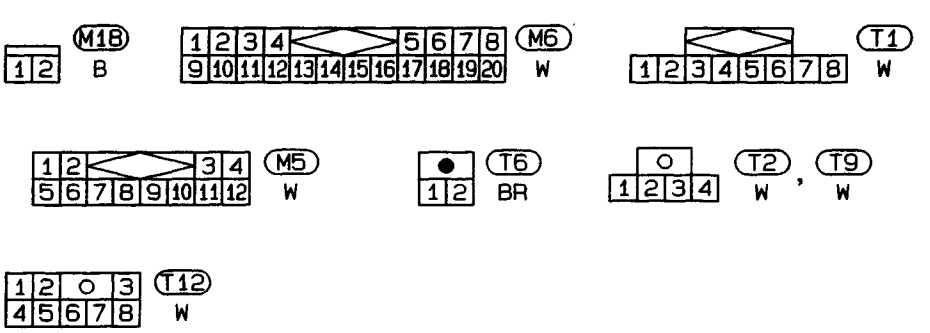
EL

HEL031

Stop Lamp/Wiring Diagram — STOP/L —

SEDAN MODELS





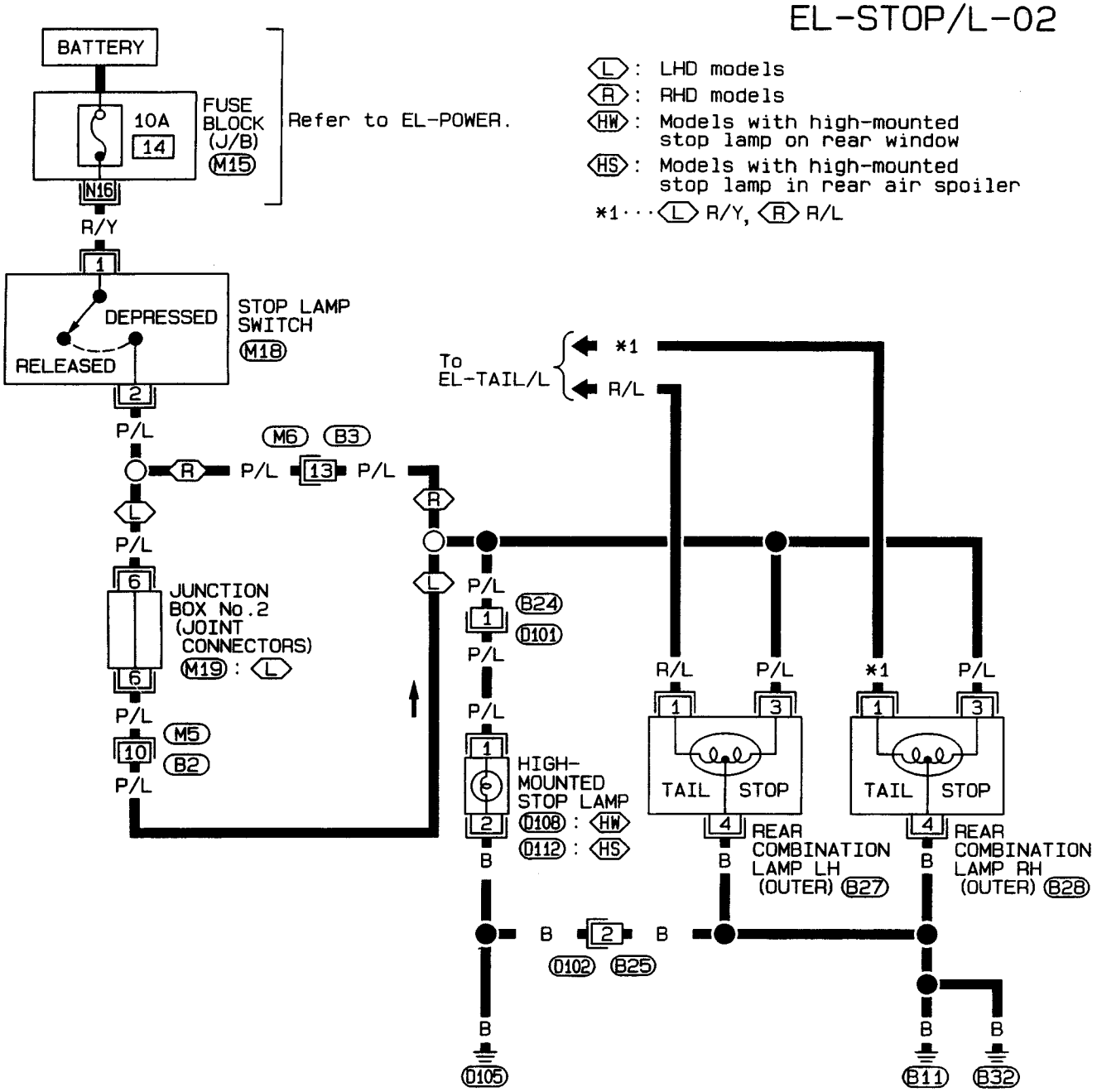
Refer to last page (Foldout page).
M15
M19

HEL033

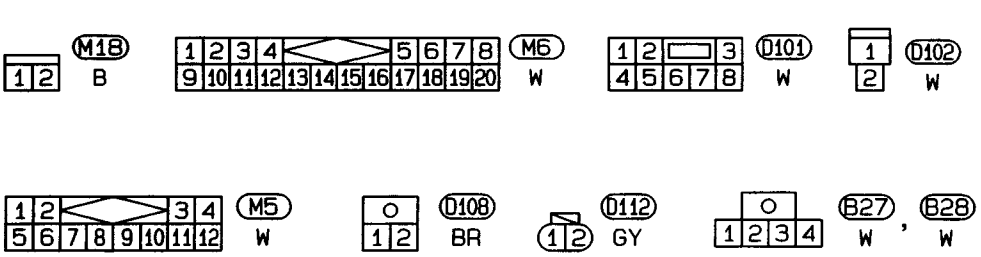
Stop Lamp/Wiring Diagram — STOP/L — (Cont'd)

HATCHBACK MODELS

EL-STOP/L-02



: LHD models
: RHD models
: Models with high-mounted stop lamp on rear window
: Models with high-mounted stop lamp in rear air spoiler
*1 ··· L R/Y, R R/L



Refer to last page (Foldout page).

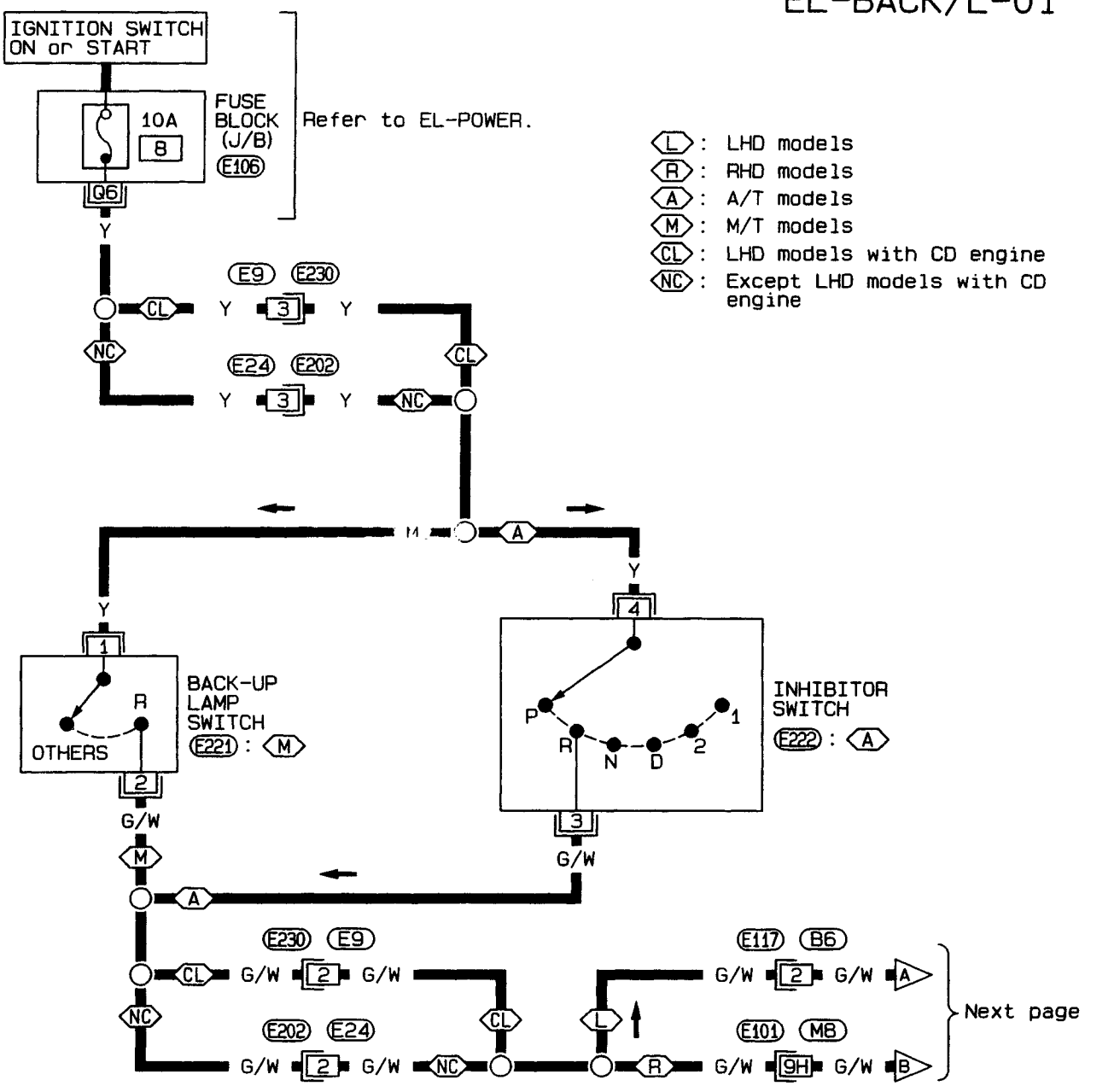
M15
M19

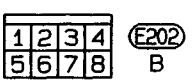
EL

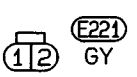
HEL034

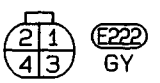
Back-up Lamp/Wiring Diagram — BACK/L —

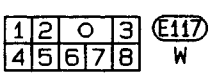
EL-BACK/L-01

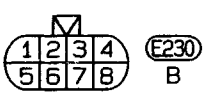












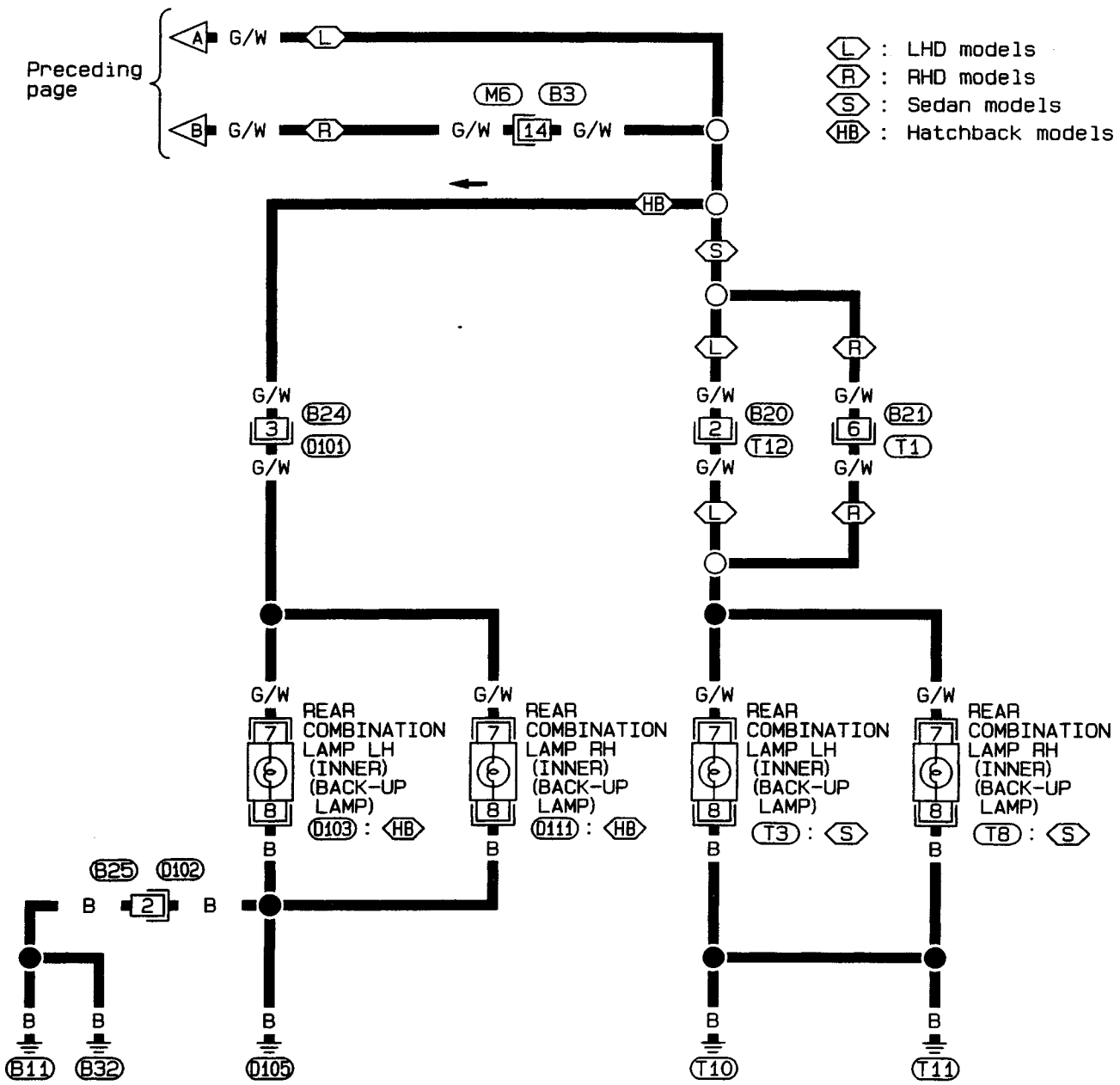
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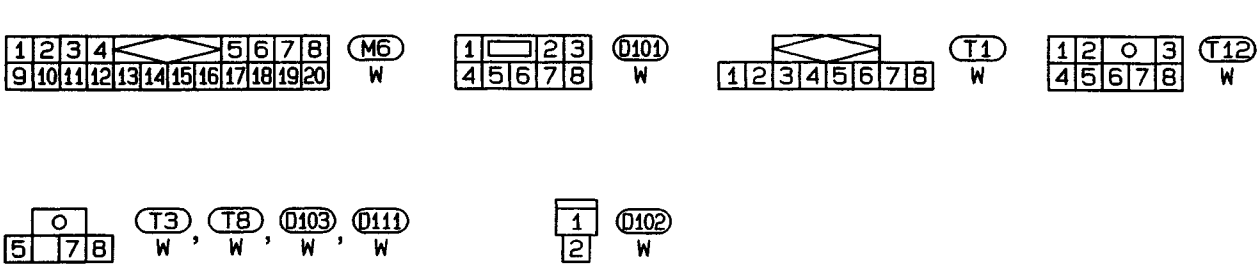
M8 , E101

E106

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

EL-BACK/L-02



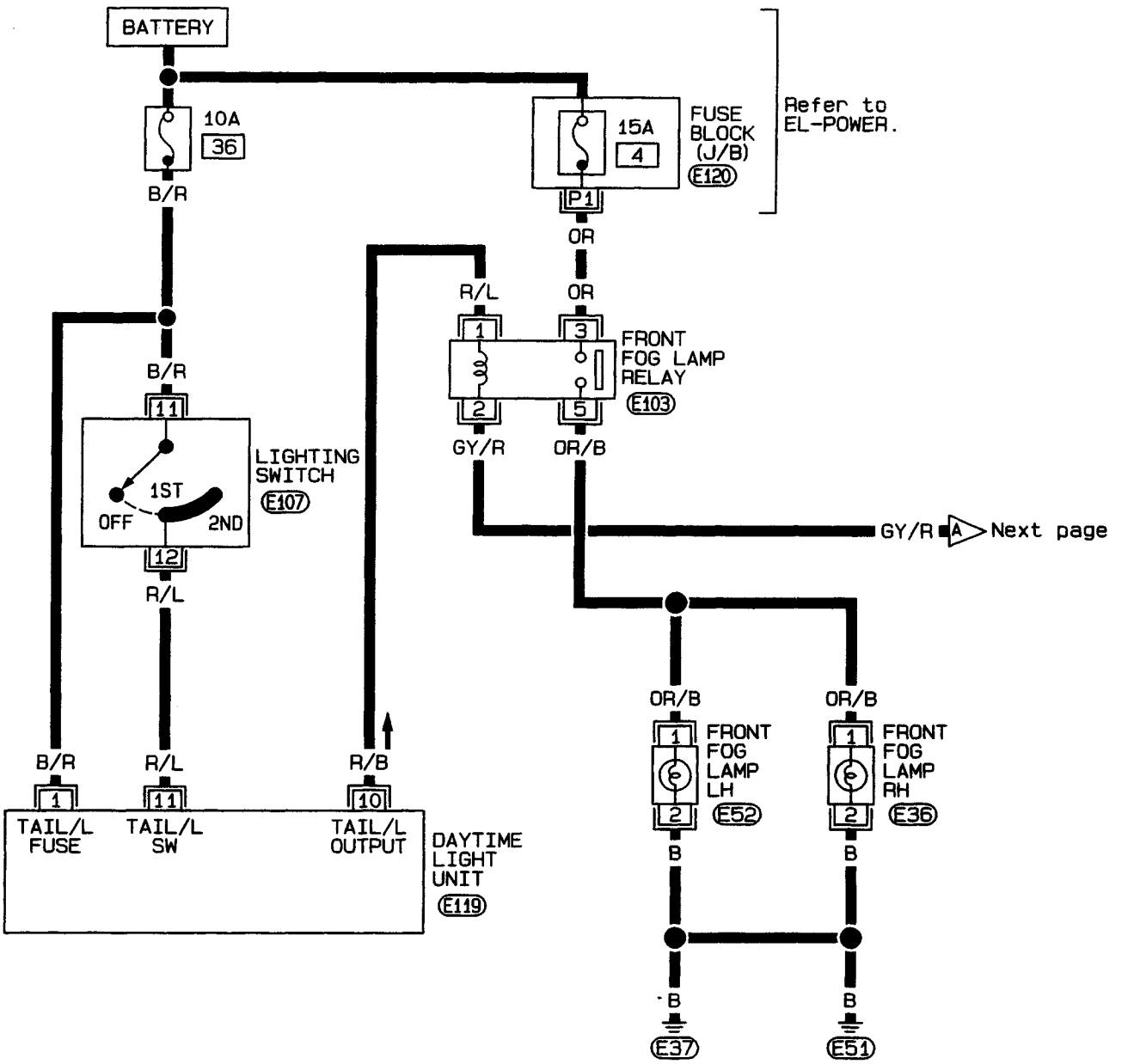


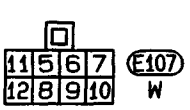
EL

Front Fog Lamp/Wiring Diagram — F/FOG —

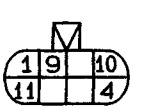
LHD MODELS WITH DAYTIME LIGHT SYSTEM

EL-F/FOG-01





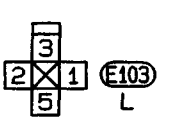
E107 W



E119 GY



E36, E52 GY GY



E103 L

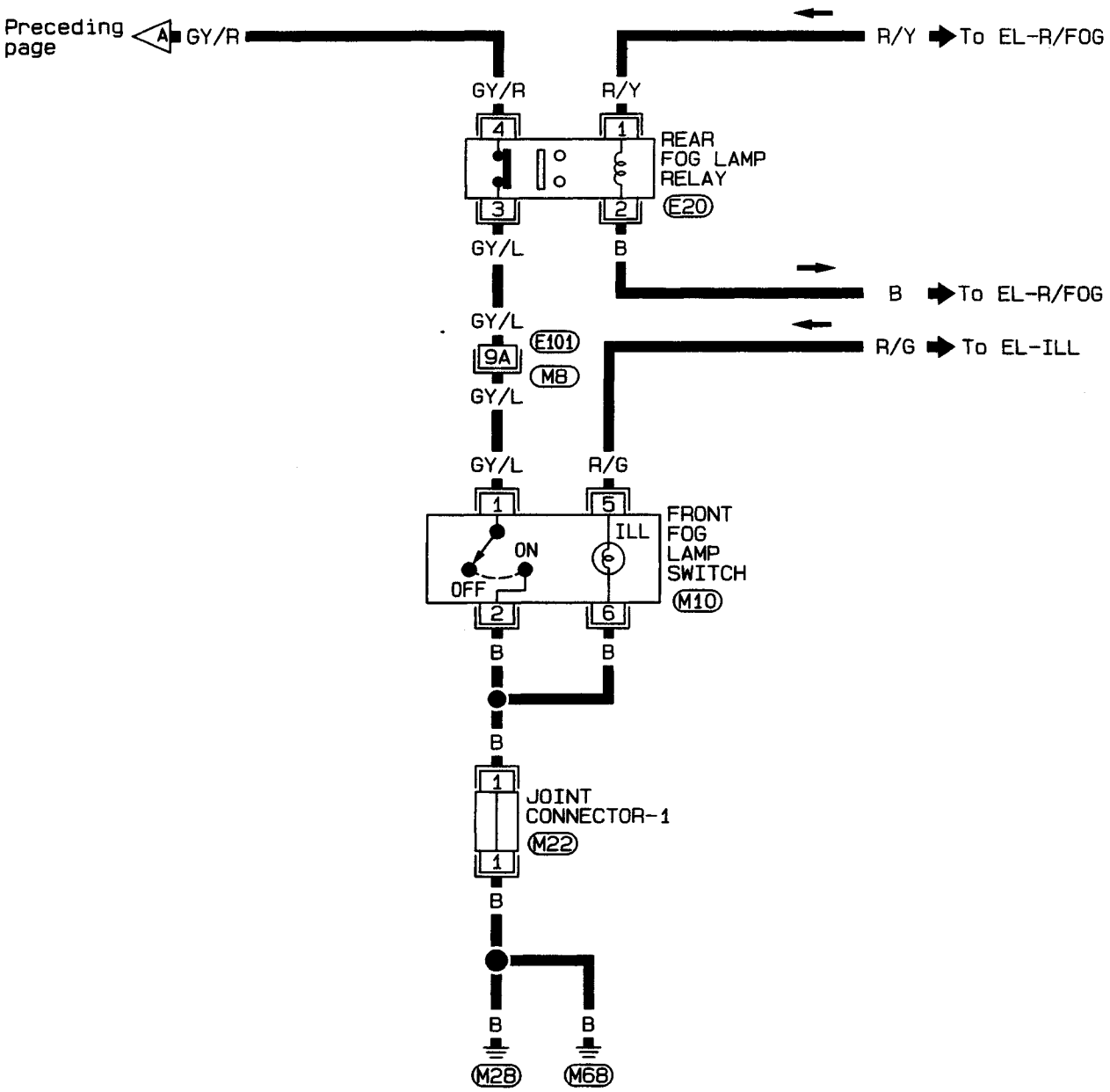
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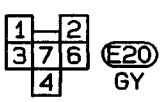
E120

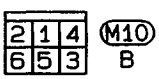
HEL037

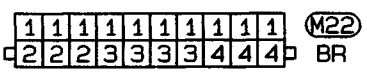
Front Fog Lamp/Wiring Diagram — F/FOG — (Cont'd)

EL-F/FOG-02









Refer to last page (Foldout page).

M8, E101

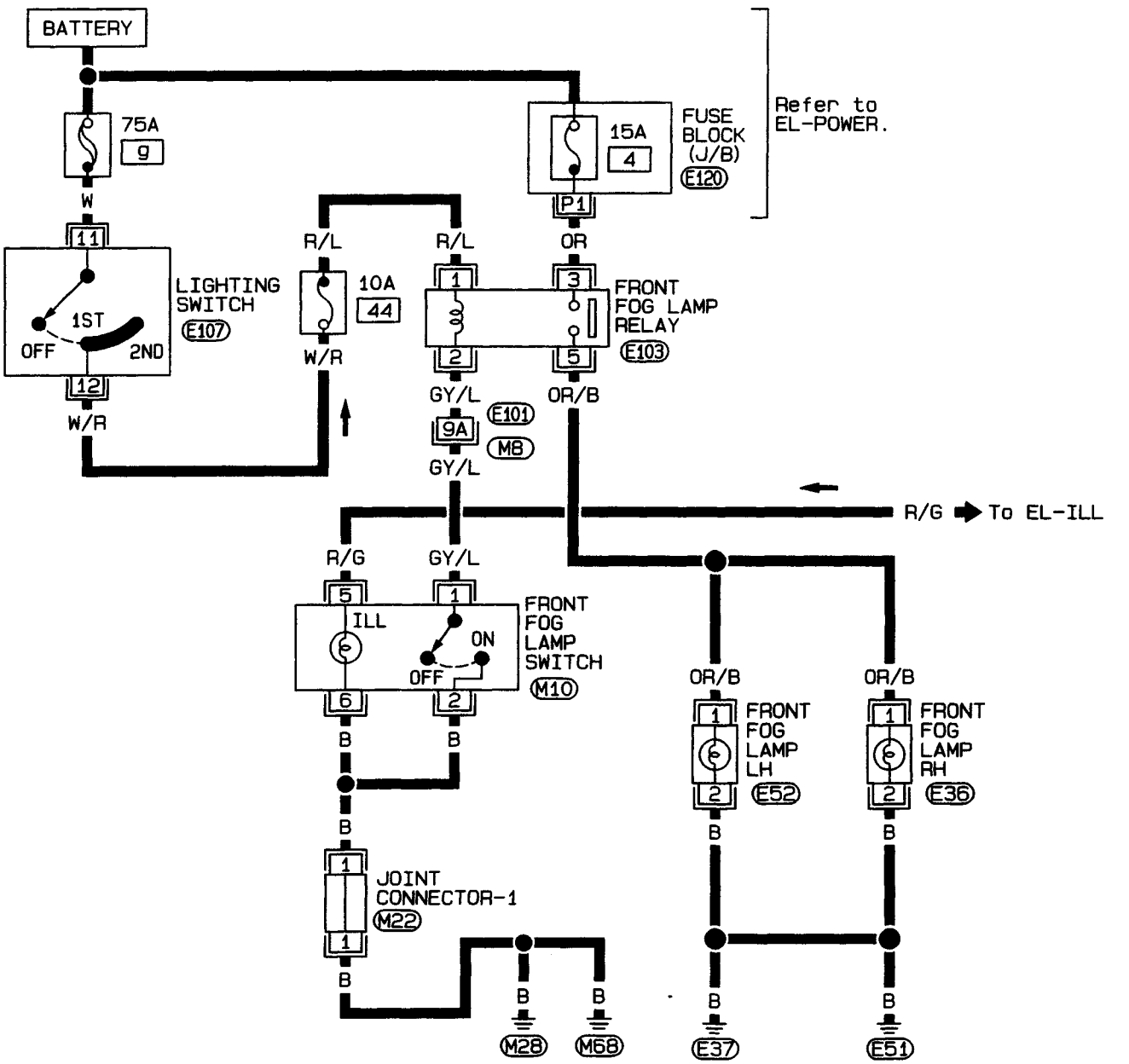
EL

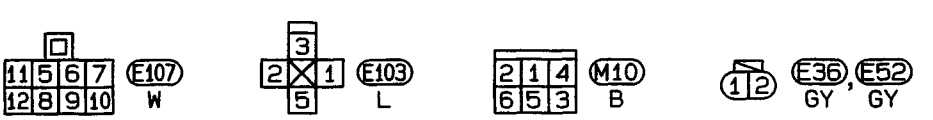
HEL038

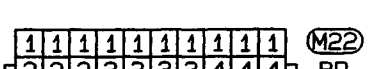
Front Fog Lamp/Wiring Diagram — F/FOG — (Cont'd)

LHD MODELS WITHOUT DAYTIME LIGHT SYSTEM

EL-F/FOG-03







Refer to last page (Foldout page).

M8, E101

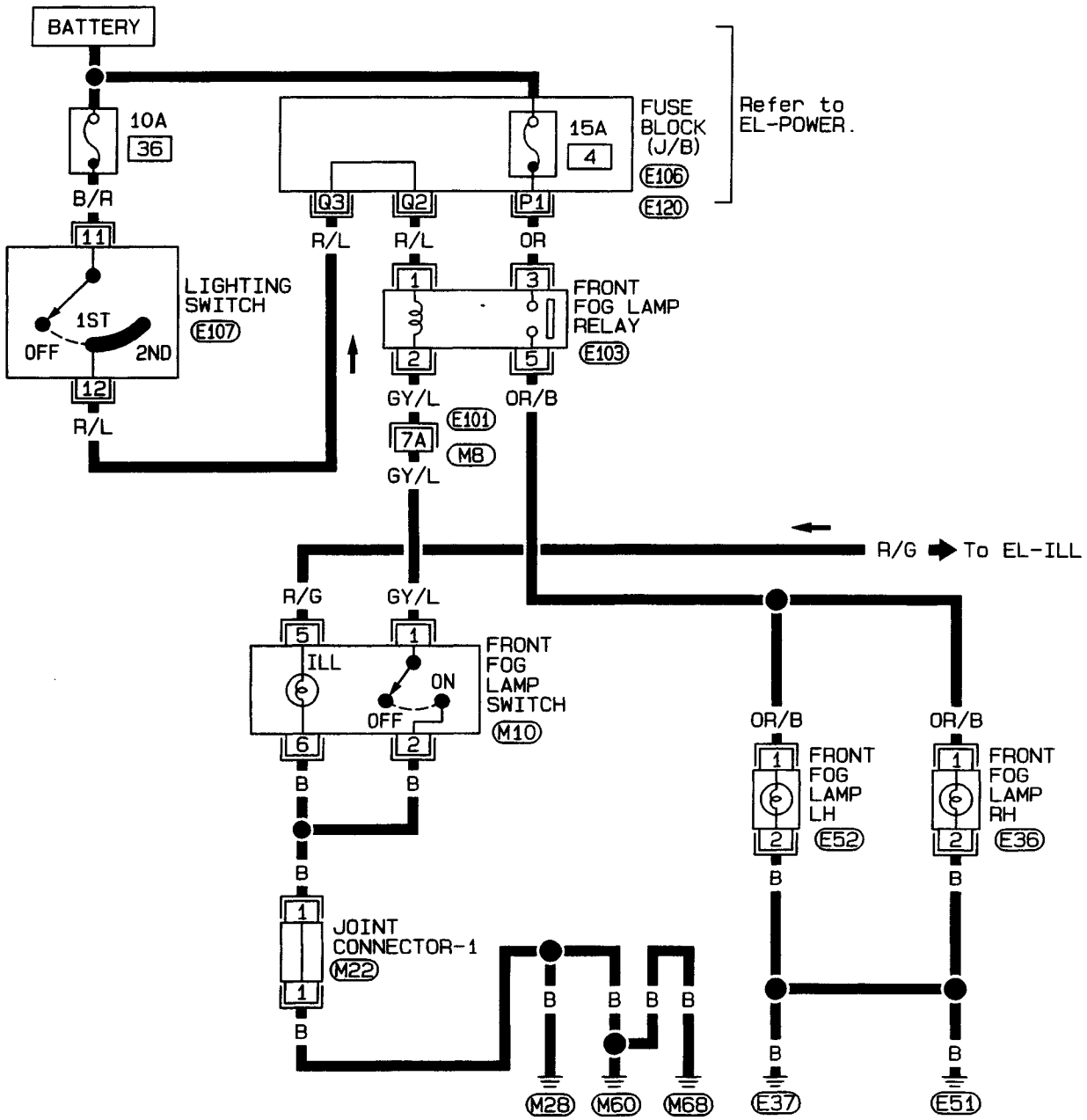
E120

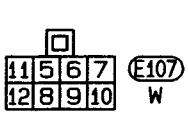
HEL039

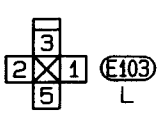
Front Fog Lamp/Wiring Diagram — F/FOG — (Cont'd)

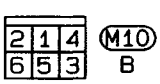
RHD MODELS FOR EUROPE

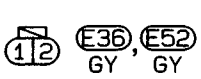
EL-F/FOG-04

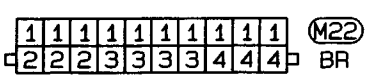












Refer to last page (Foldout page).

M8, E101

E106, E120

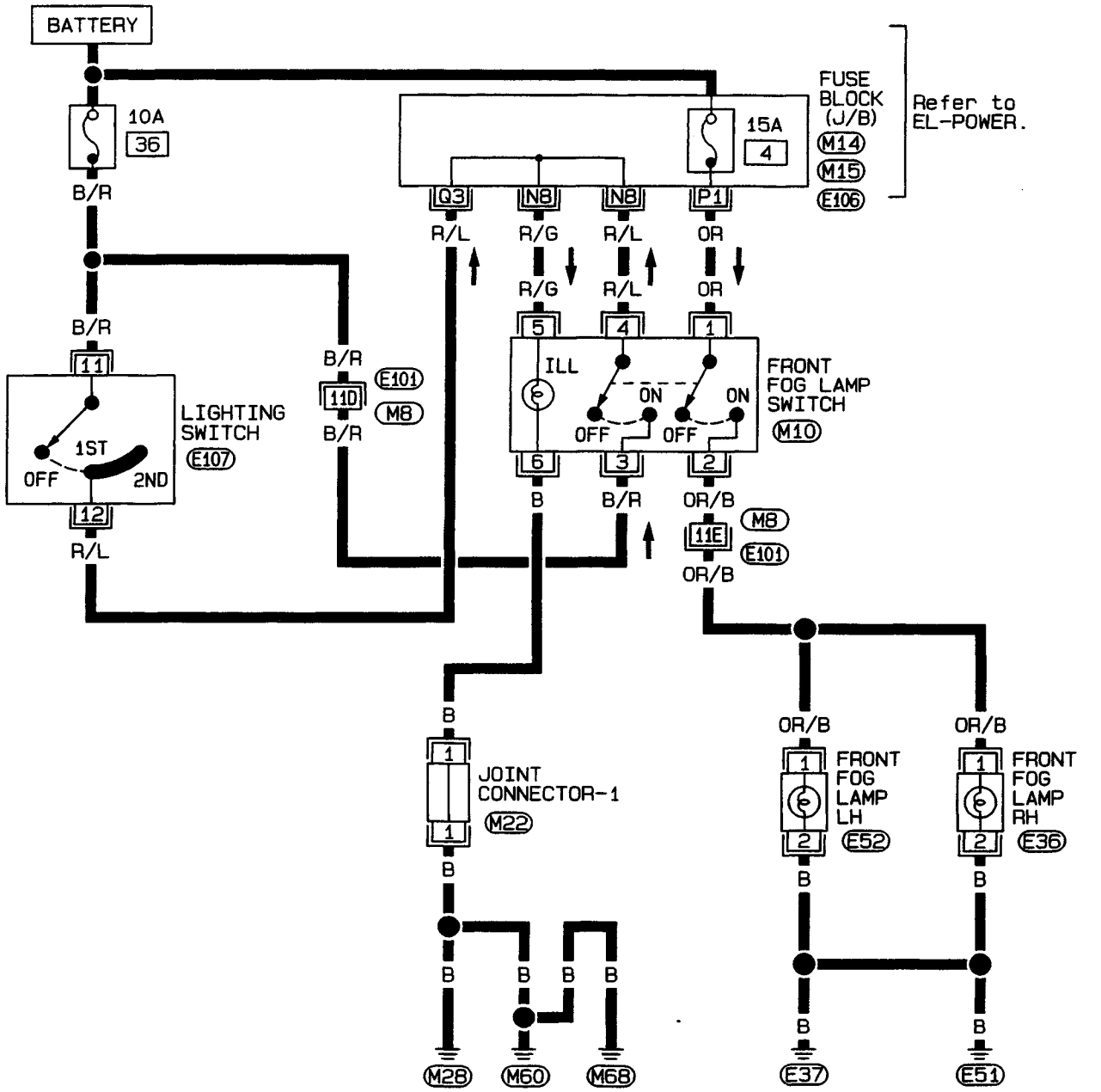
EL

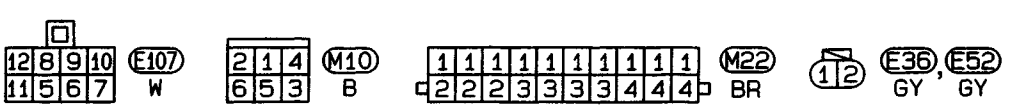
HEL040

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

RHD MODELS EXCEPT FOR EUROPE

EL-F/FOG-05



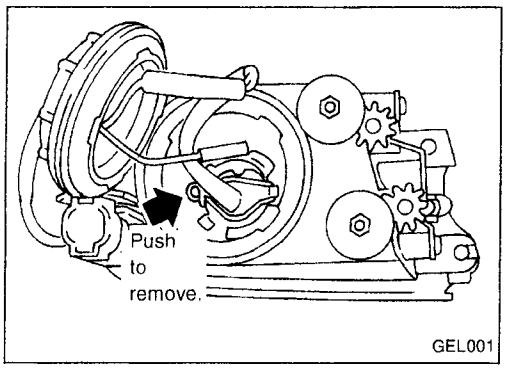


Refer to last page (Foldout page).

M8, E101

M14, M15, E106

HEL041



Front Fog Lamp Bulb Replacement

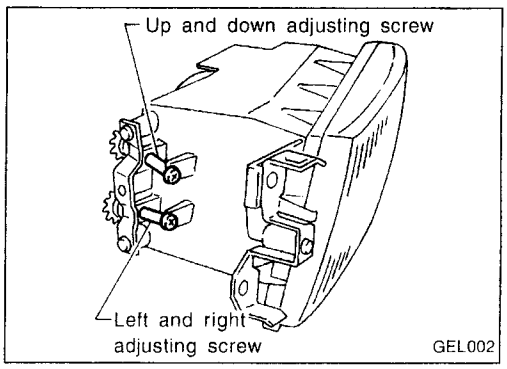
The front fog lamp is a semi-sealed beam type which uses a replaceable halogen bulb.

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

1. Disconnect the battery cable.
2. Disconnect the harness connector from the back side of the bulb.
3. Turn the bulb retaining ring counterclockwise until it is free from the front fog lamp reflector, and then remove it.
4. Pull off the rubber cap.
5. Remove the front fog lamp bulb carefully. Do not shake or rotate the bulb when removing it.
6. Install in the reverse order of removal.

CAUTION:

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



Front Fog Lamp Aiming Adjustment

Before performing aiming adjustment, make sure of the following.

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

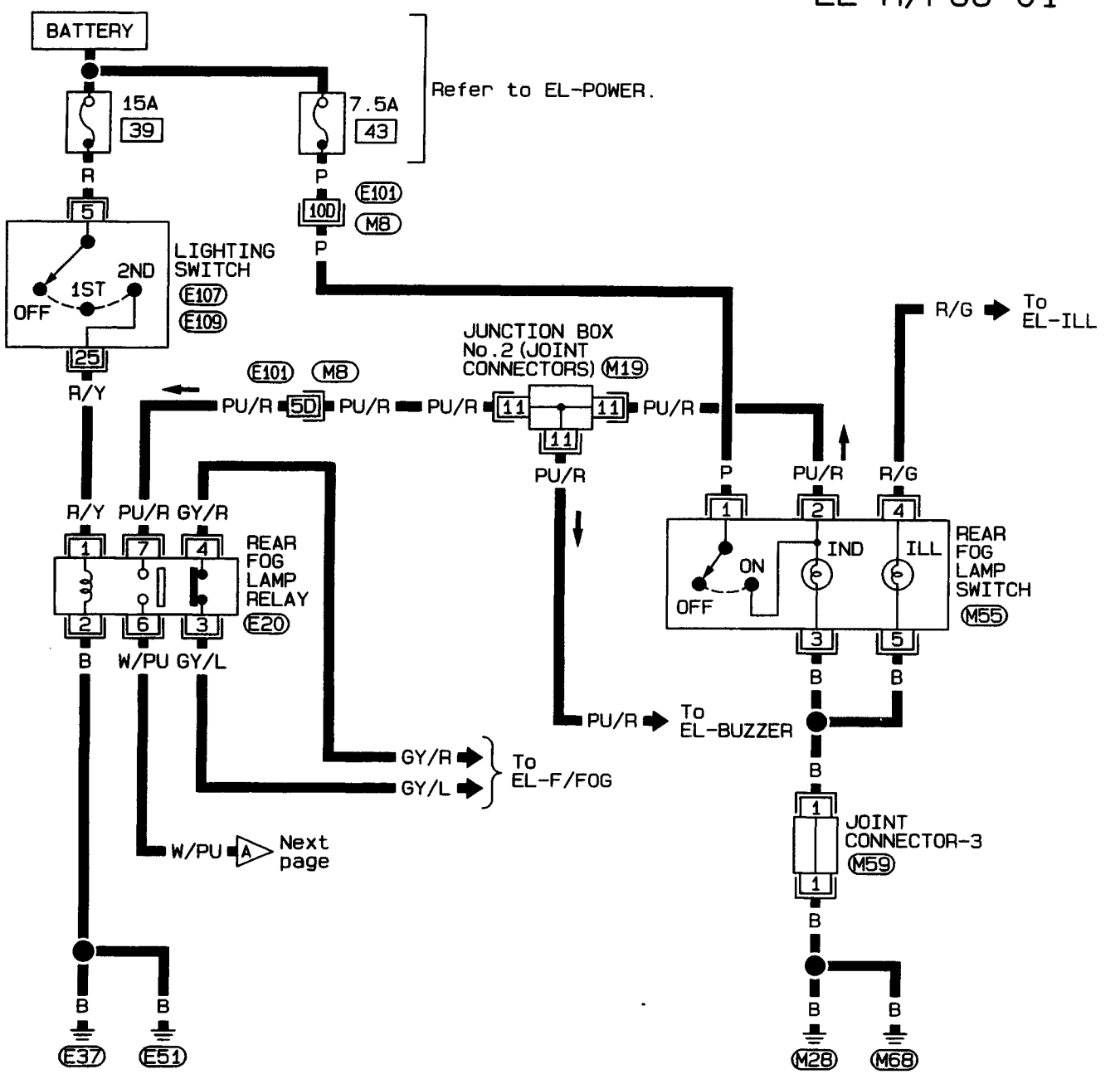
Adjust aiming by turning the adjusting screw.

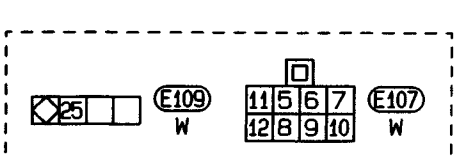
EL

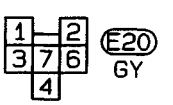
Rear Fog Lamp/Wiring Diagram — R/FOG —

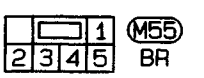
WITH DAYTIME LIGHT SYSTEM

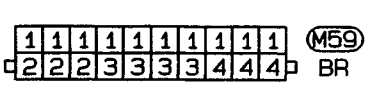
EL-R/FOG-01











Refer to last page (Foldout page).

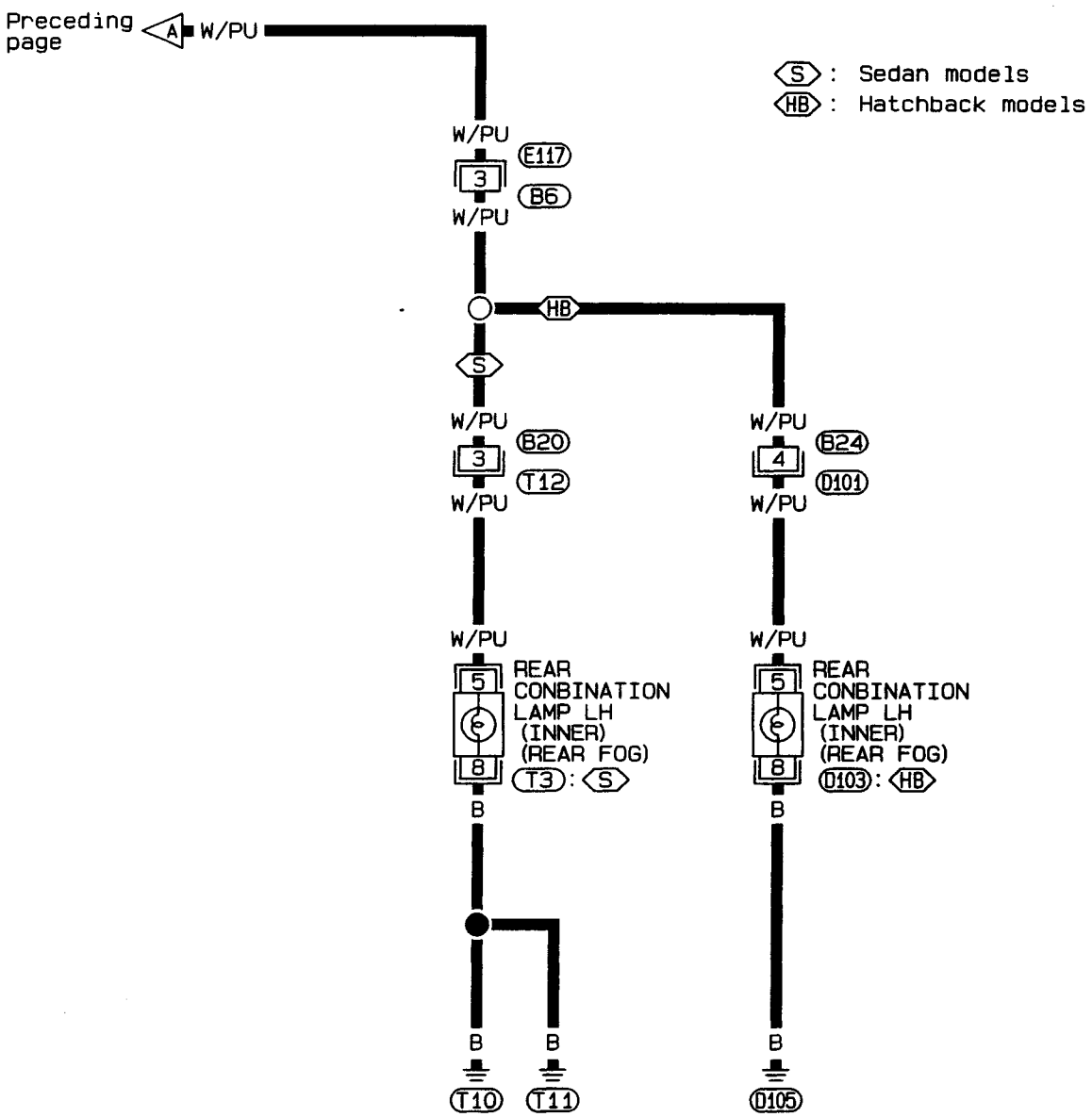
M8, E101

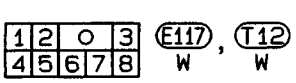
M19

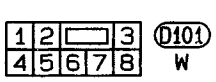
HEL042

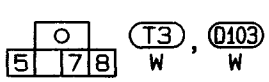
Rear Fog Lamp/Wiring Diagram — R/FOG — (Cont'd)

EL-R/FOG-02









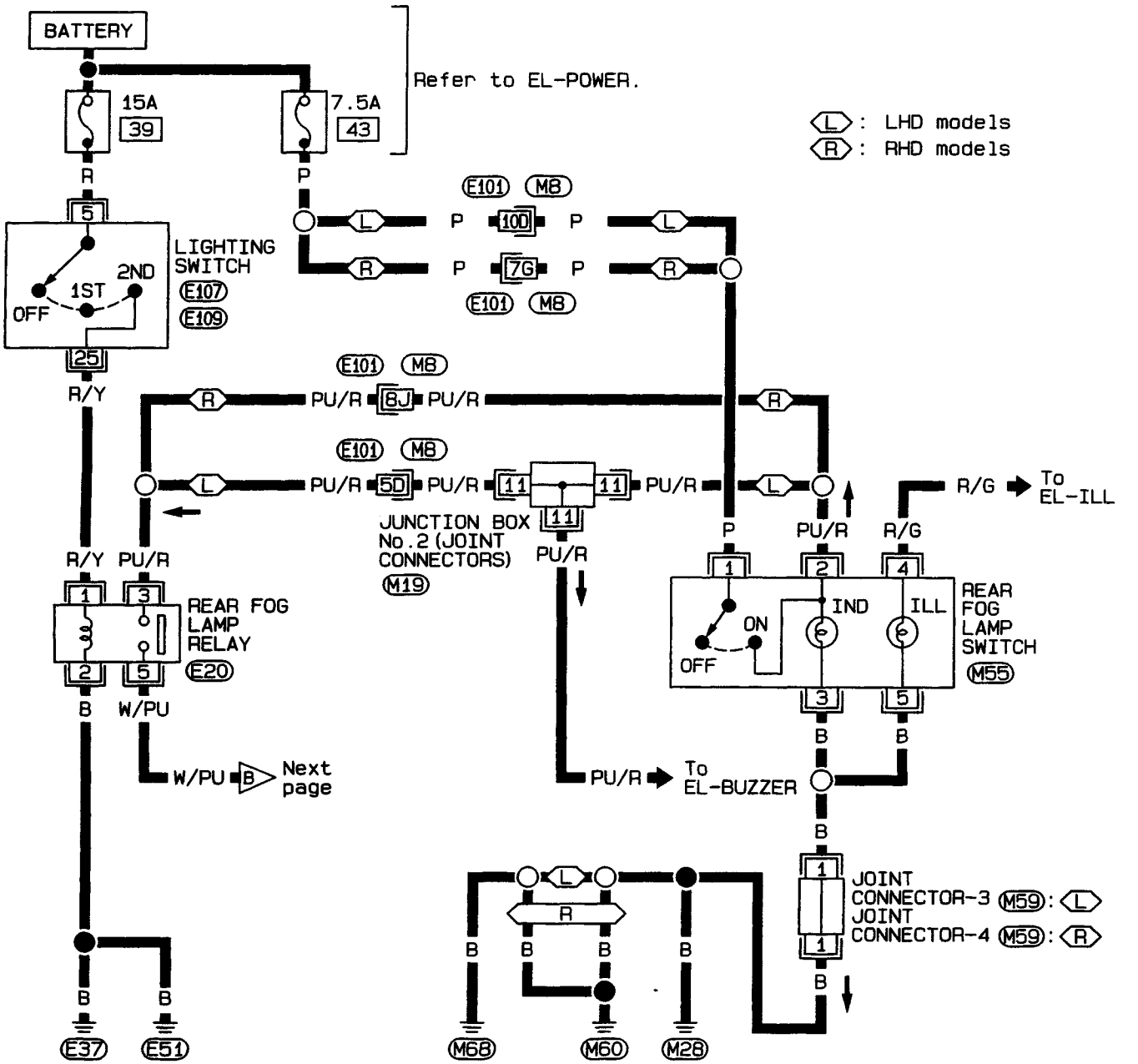
EL

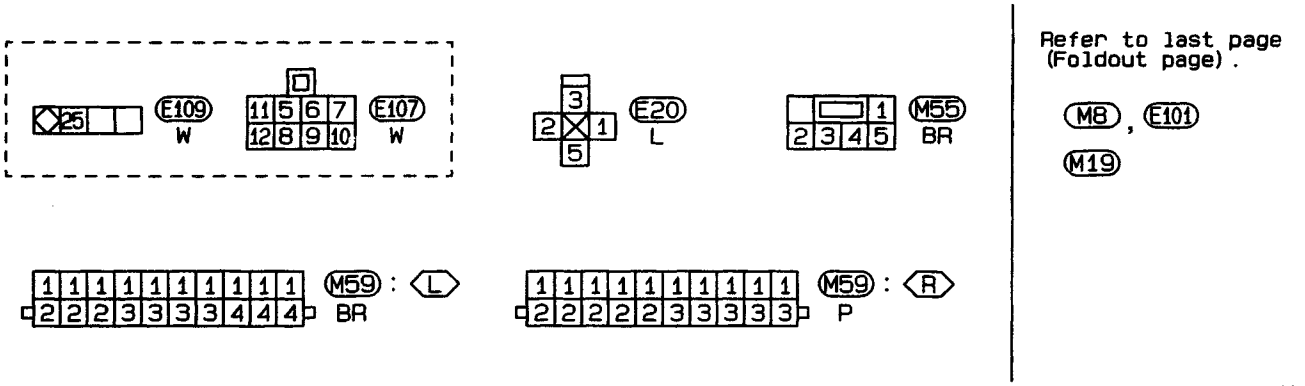
HEL043

Rear Fog Lamp/Wiring Diagram — R/FOG — (Cont'd)

WITHOUT DAYTIME LIGHT SYSTEM

EL-R/FOG-03





Refer to last page (Foldout page).

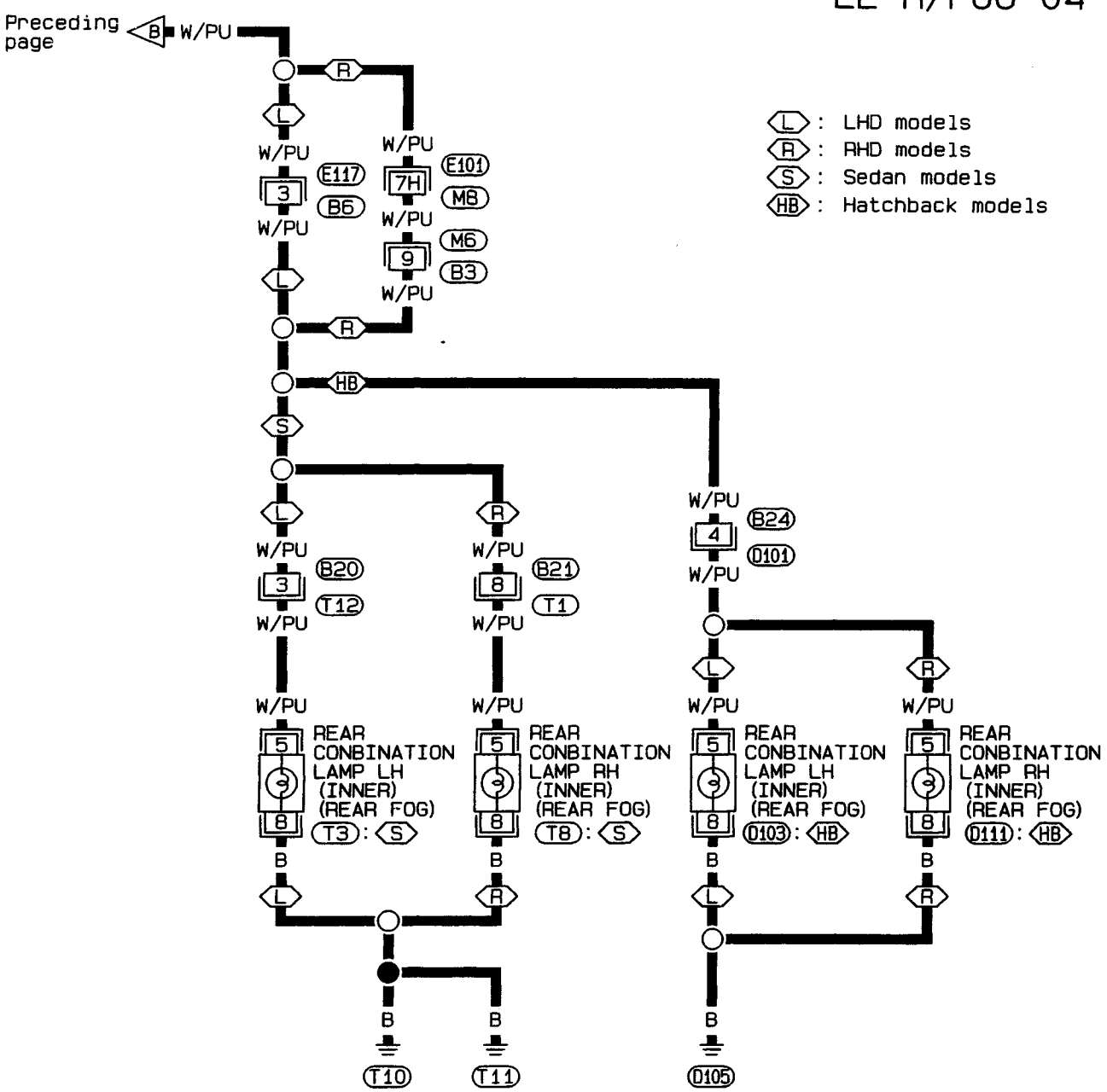
M8, E101

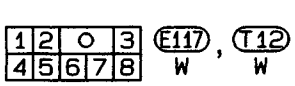
M19

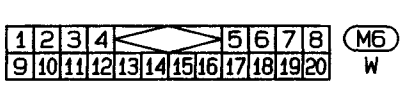
HEL044

Rear Fog Lamp/Wiring Diagram — R/FOG — (Cont'd)

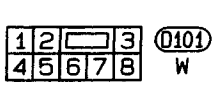
EL-R/FOG-04

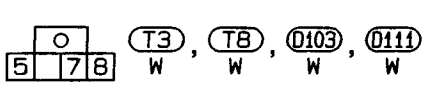










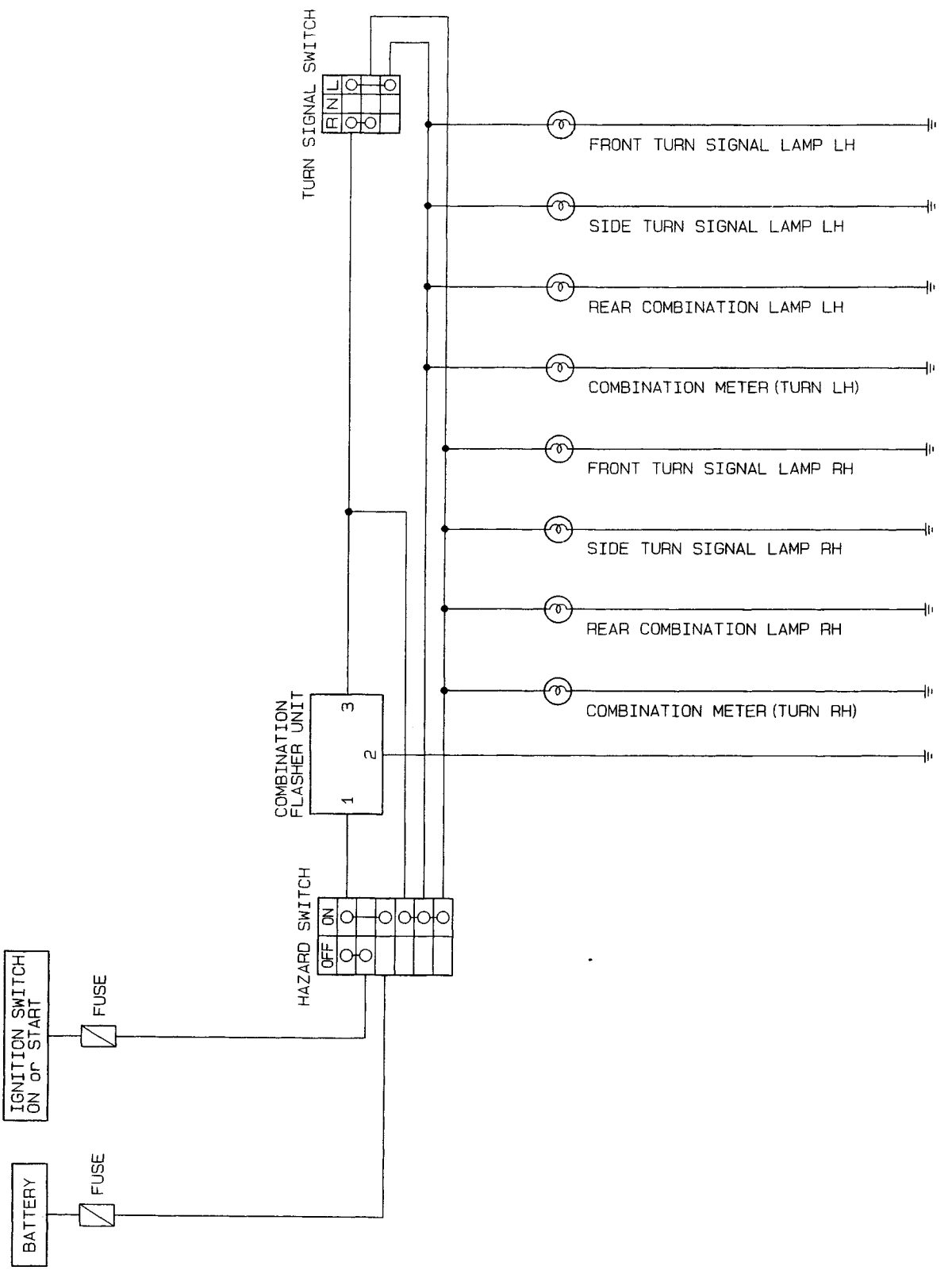


Refer to last page (Foldout page).

M8, E101

HEL045

Turn Signal and Hazard Warning Lamps/ Schematic

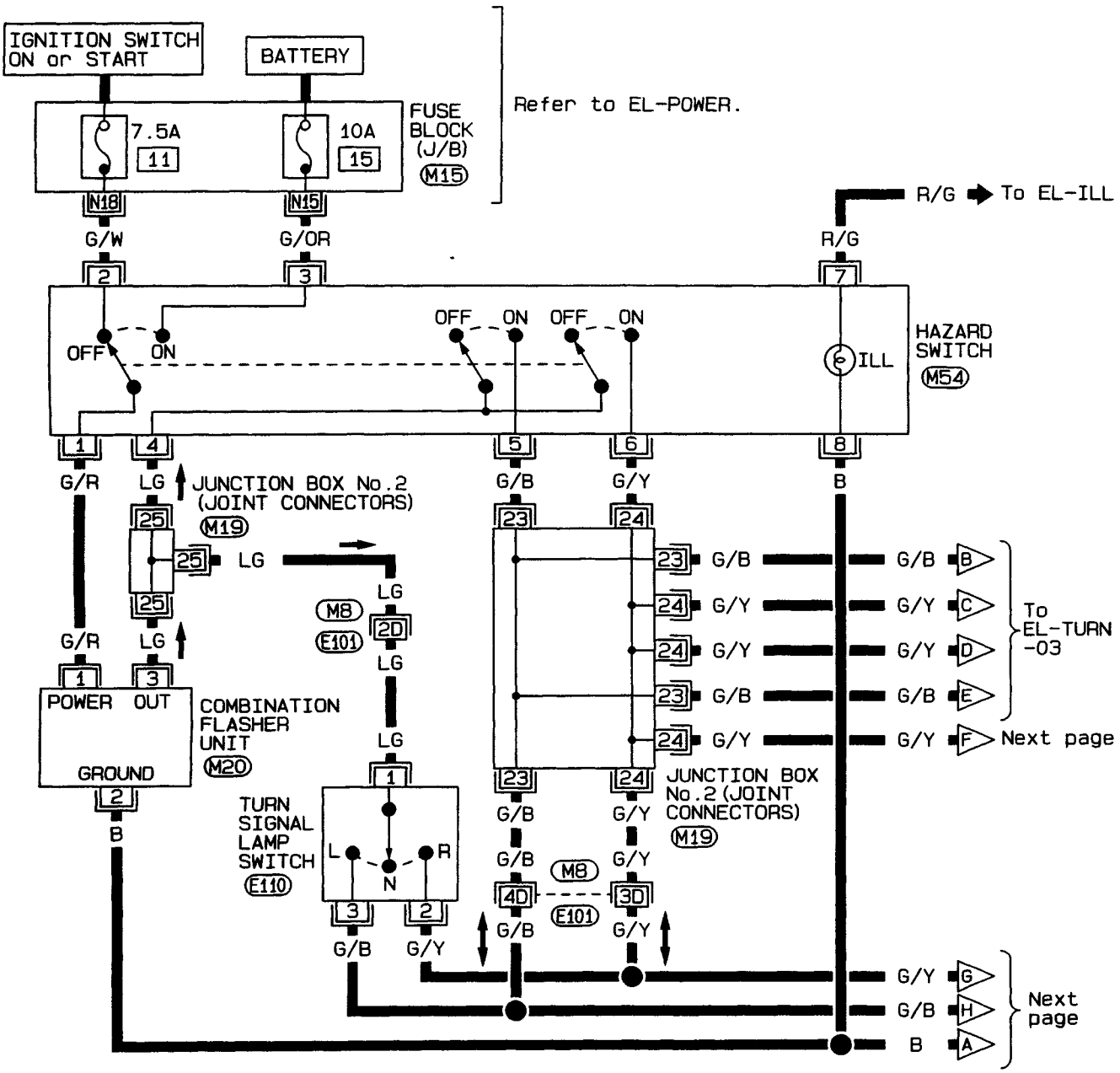


HEL052

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

LHD MODELS

EL-TURN-01



M54 W

M20 B

E110 W

Refer to last page (Foldout page).

M8, E101

M15

M19

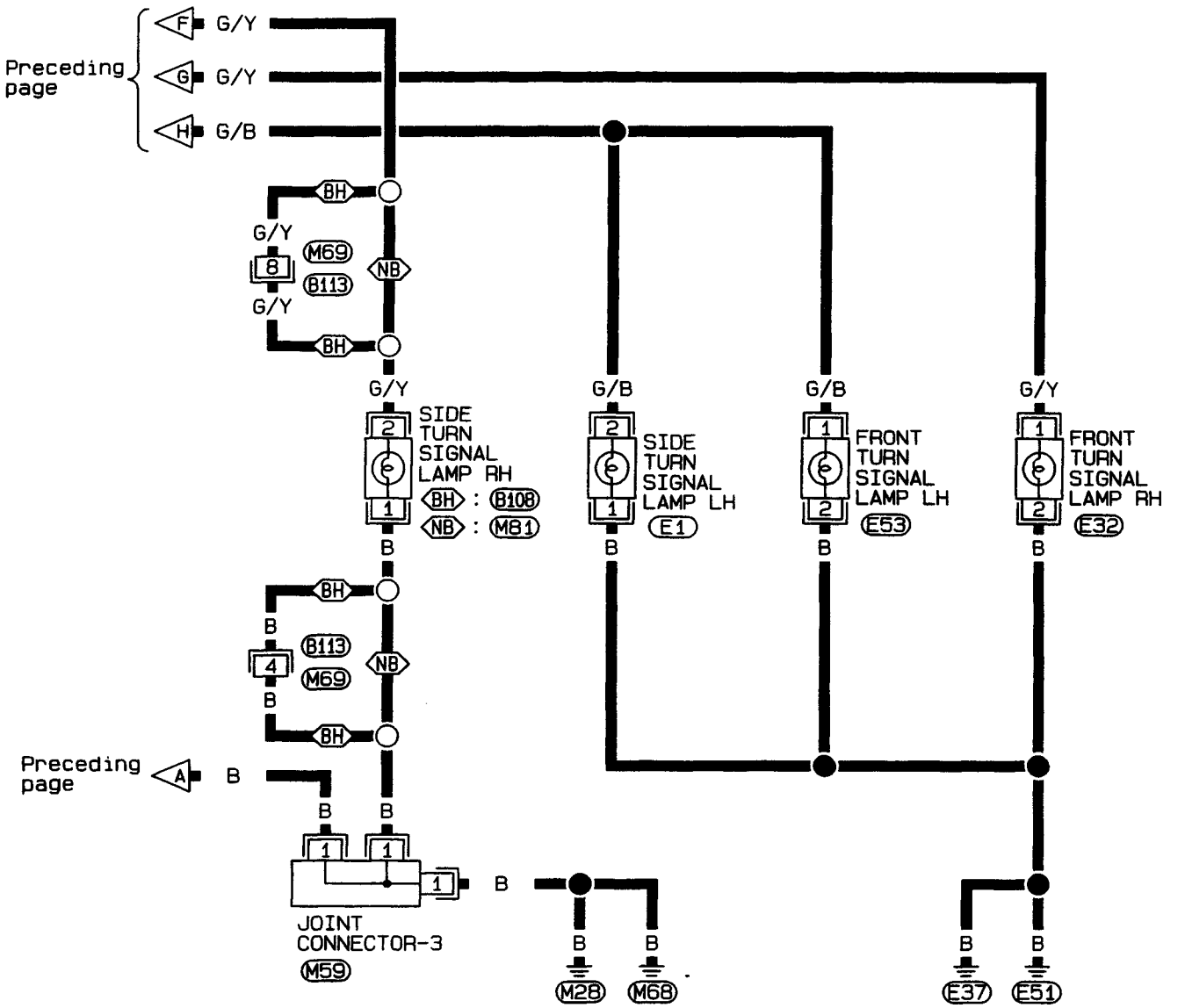
HEL046

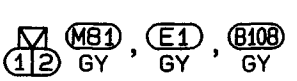
EL

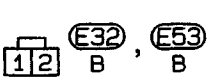
Turn Signal and Hazard Warning Lamps/Wiring Diagram — TURN — (Cont'd)

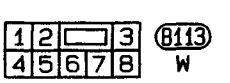
EL-TURN-02

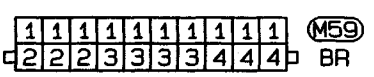
NB : GA engine without dual air bag system and ABS
BH : Except NB











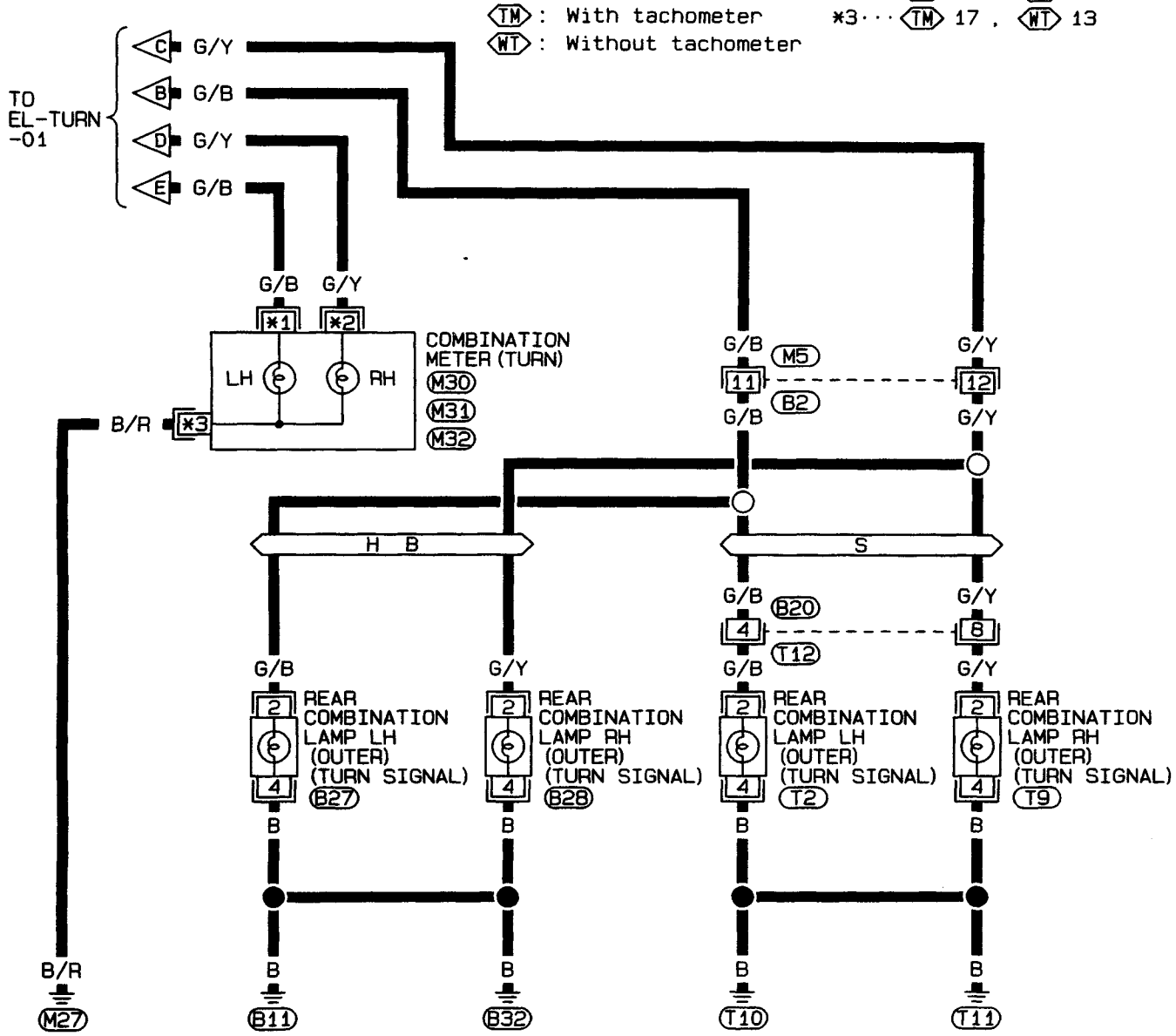
HEL047

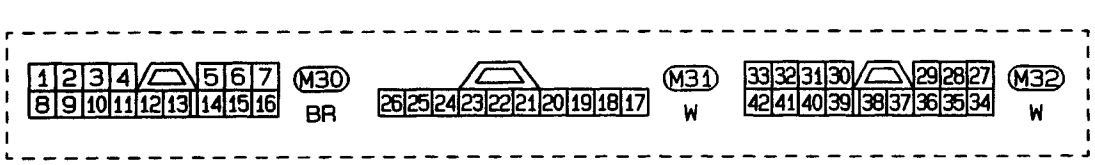
Turn Signal and Hazard Warning Lamps/Wiring Diagram — TURN — (Cont'd)

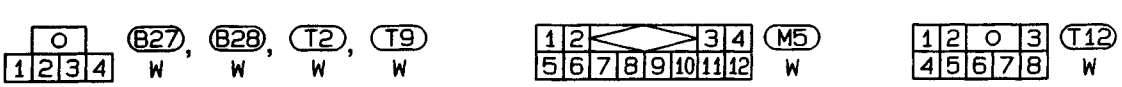
EL-TURN-03

Ⓢ : Sedan models
Ⓗⓑ : Hatchback models
Ⓣⓜ : With tachometer
ⓌⓉ : Without tachometer

*1 ··· Ⓣⓜ 37 , ⓌⓉ 14
*2 ··· Ⓣⓜ 36 , ⓌⓉ 12
*3 ··· Ⓣⓜ 17 , ⓌⓉ 13





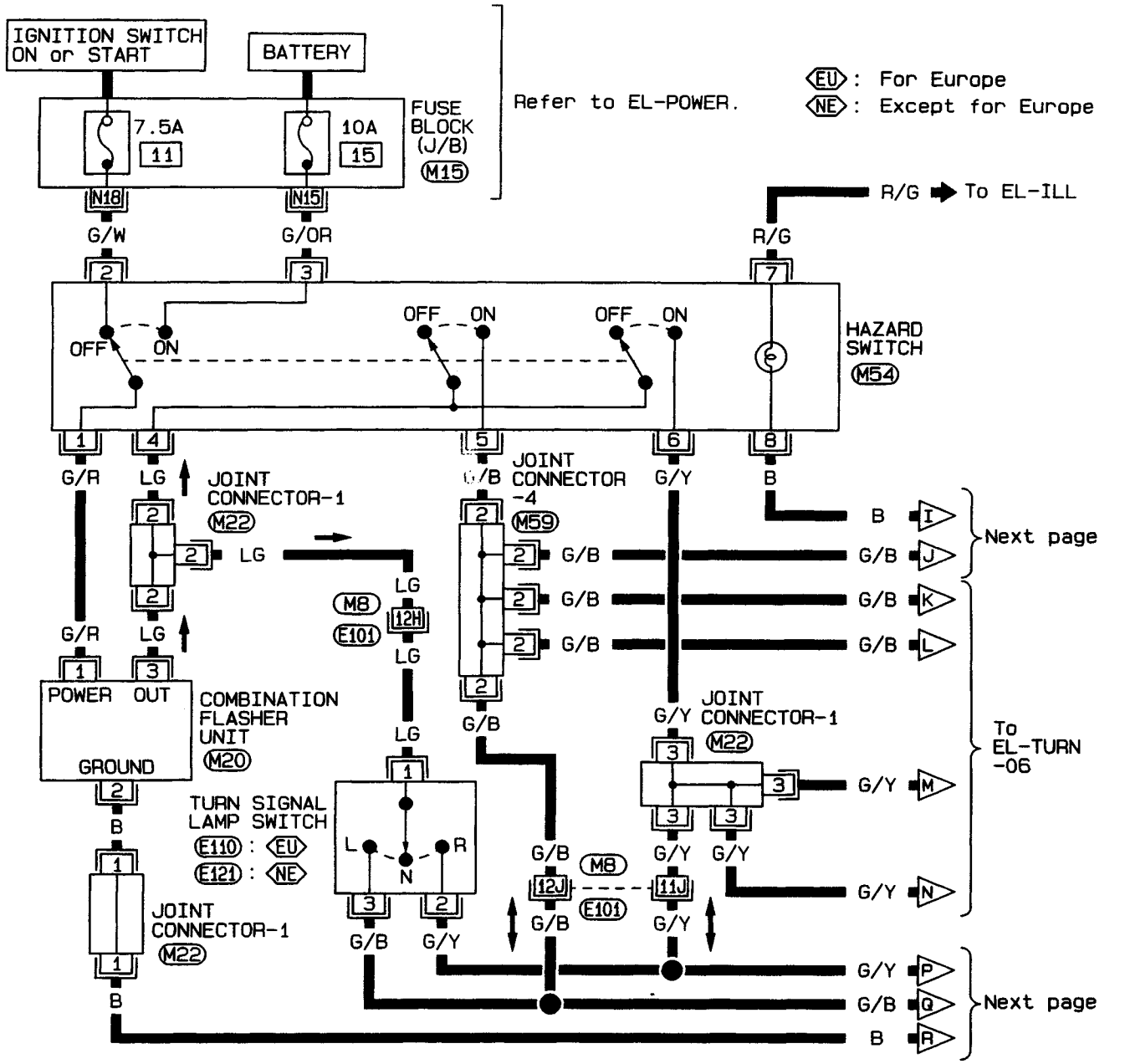


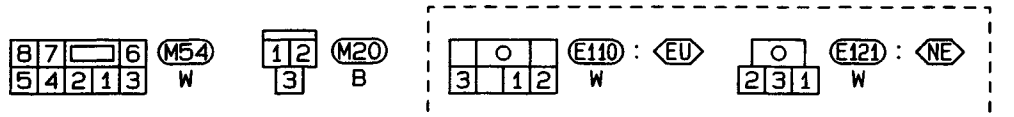
HEL048

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

RHD MODELS

EL-TURN-04



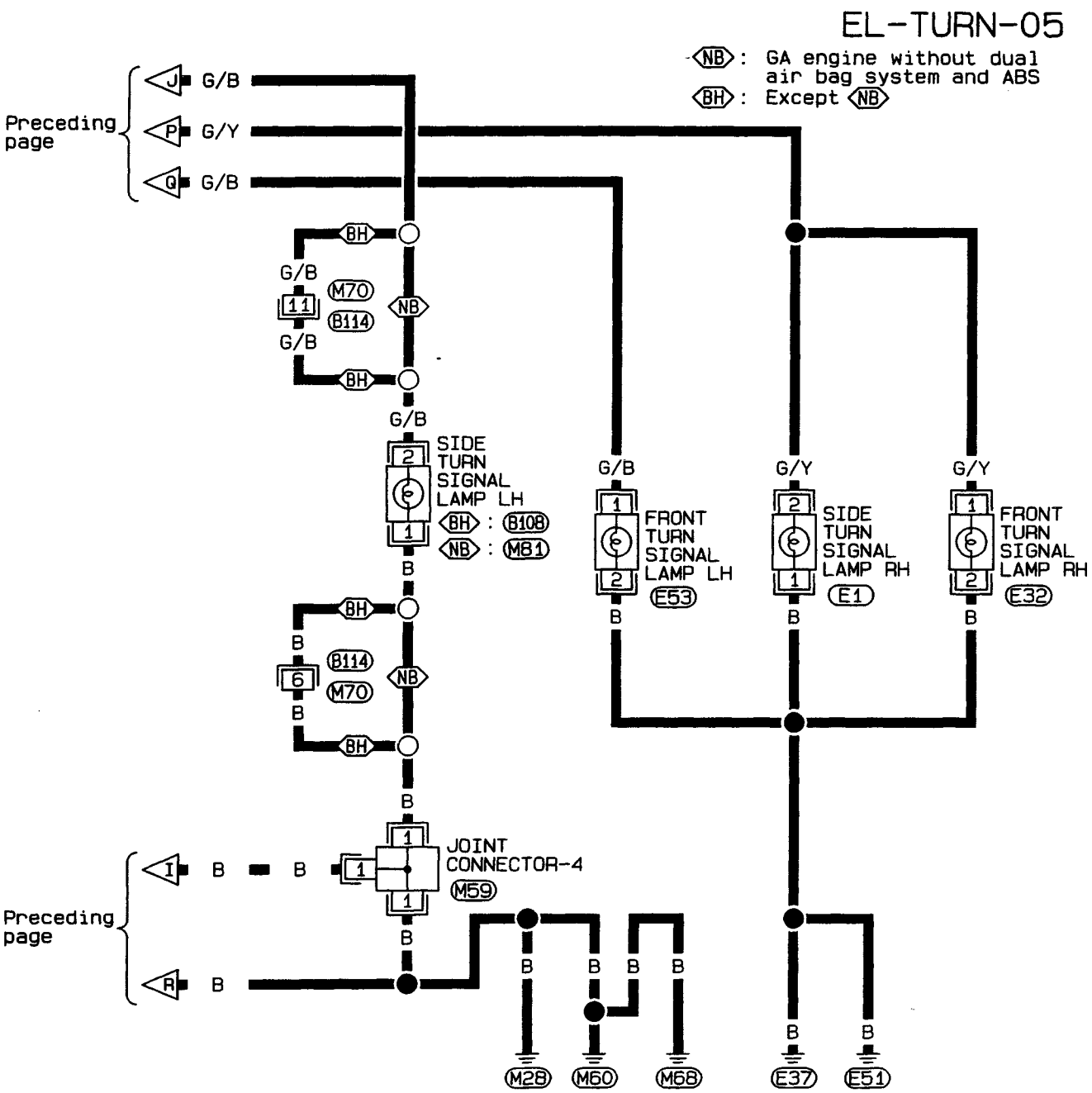


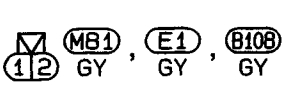


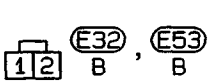
Refer to last page (Foldout page).
M8, E101
M15

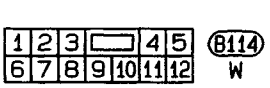
HEL049

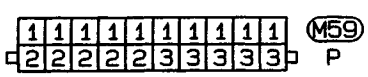
Turn Signal and Hazard Warning Lamps/Wiring Diagram — TURN — (Cont'd)











EL

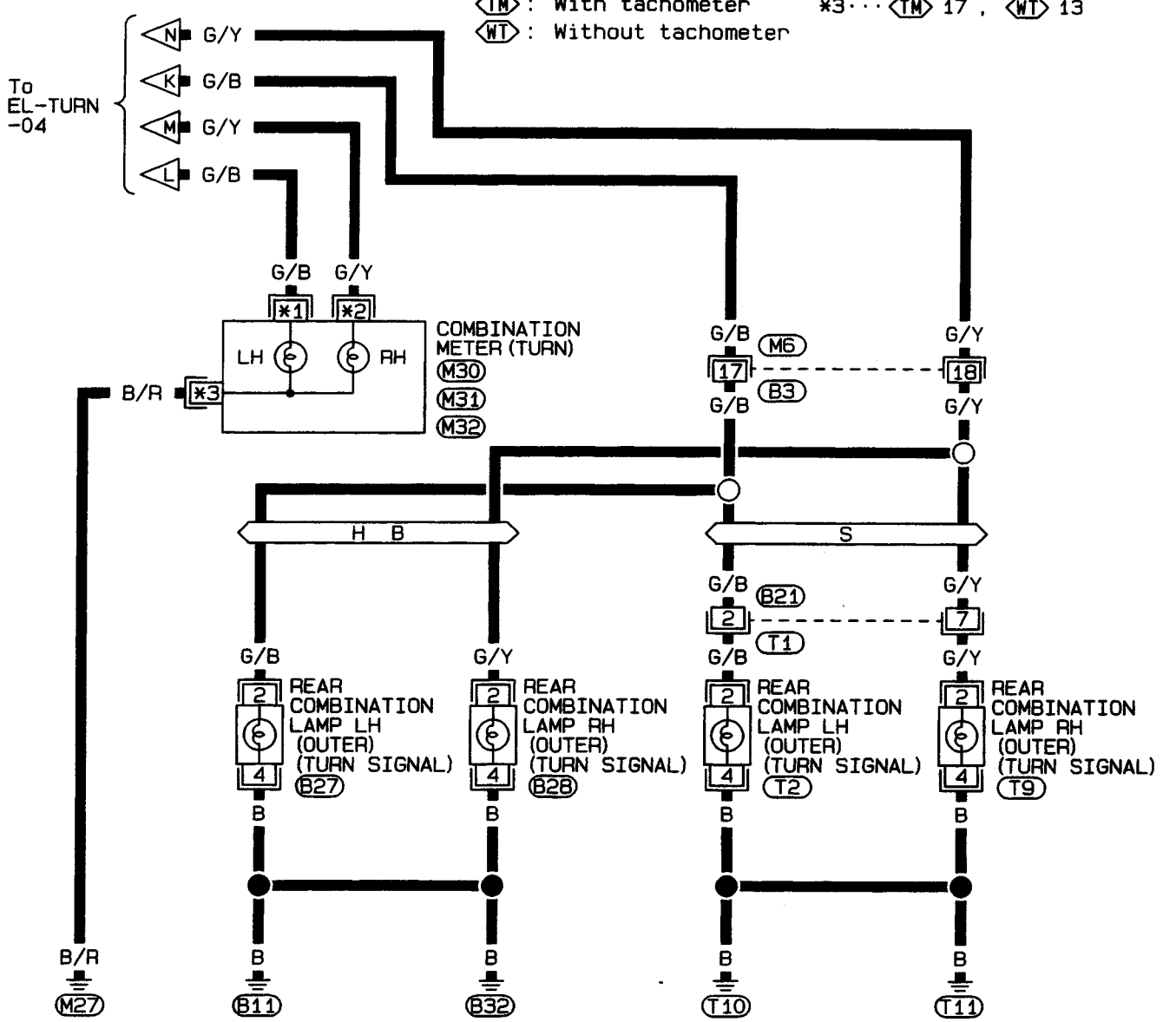
HEL050

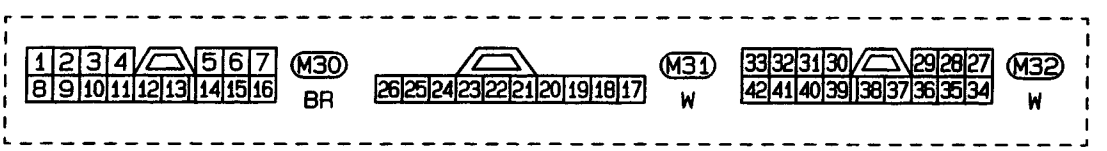
Turn Signal and Hazard Warning Lamps/Wiring Diagram — TURN — (Cont'd)

EL-TURN-06

Ⓢ : Sedan models
Ⓗⓑ : Hatchback models
Ⓣⓜ : With tachometer
Ⓦⓣ : Without tachometer

*1 ··· Ⓣⓜ 37 , Ⓦⓣ 14
*2 ··· Ⓣⓜ 36 , Ⓦⓣ 12
*3 ··· Ⓣⓜ 17 , Ⓦⓣ 13



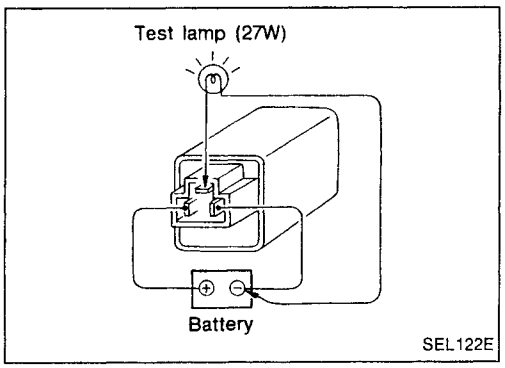




HEL051

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. 7.5A fuse 2. Hazard switch 3. Turn signal switch 4. Open in turn signal switch circuit	1. Check 7.5A fuse (No. 11, 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. 15, 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

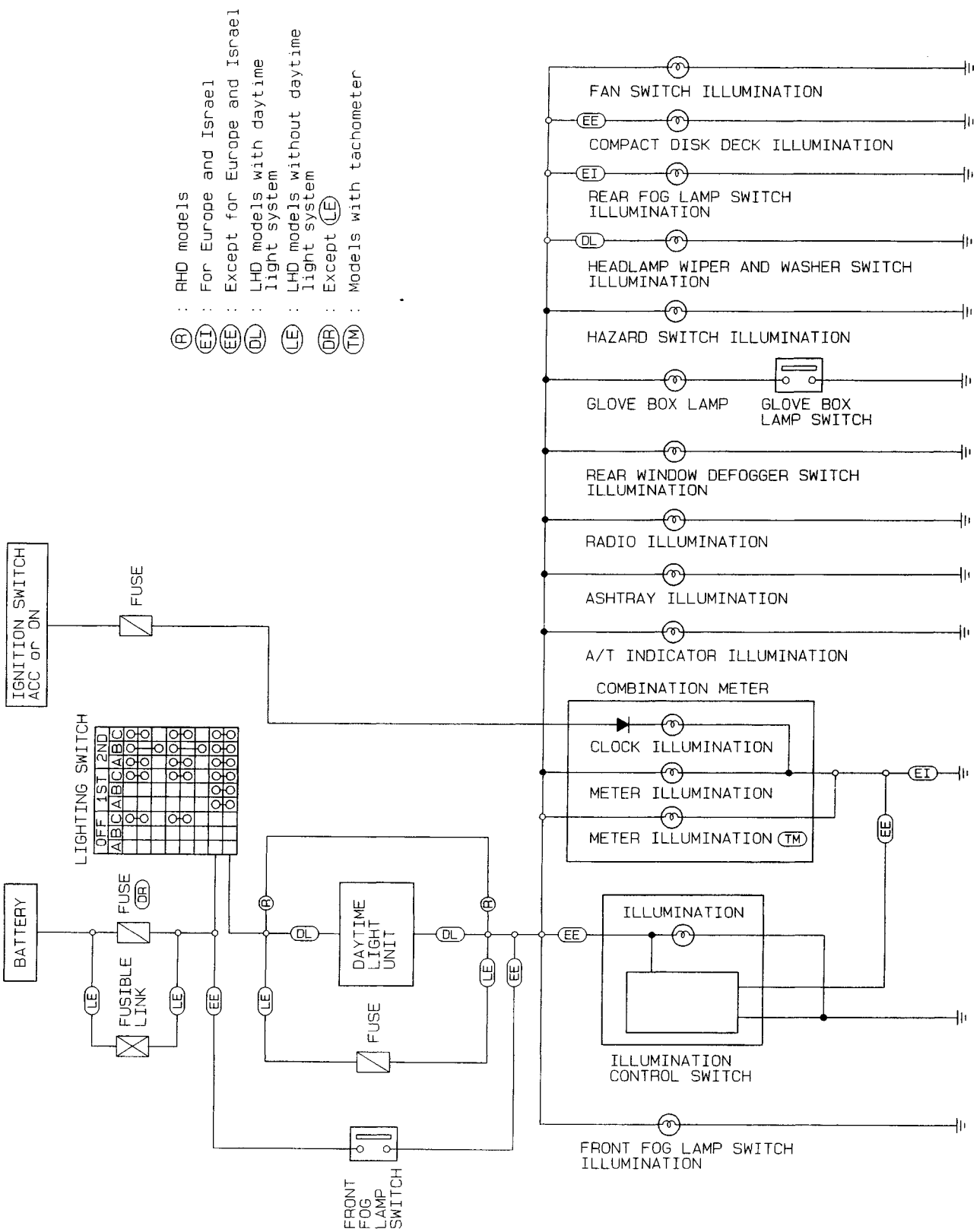
- Before checking, ensure that bulbs meet specifications.
- Connect a battery and test lamp to the combination flasher unit, as shown. Combination flasher unit is properly functioning if it blinks when power is supplied to the circuit.

EL

Bulb Specifications

	Wattage (W)
Front turn signal lamp	21
Clearance lamp	5
Front fog lamp	55
Side turn signal lamp	5
Rear combination lamp	
Turn signal	21
Stop/Tail	21/5
Tail	5
Back-up	21
Rear fog	21
License plate lamp	5
High-mounted stop lamp	
Bulb type (Sedan)	5 (x6)
Bulb type (Hatchback)	21
LED type	4.6

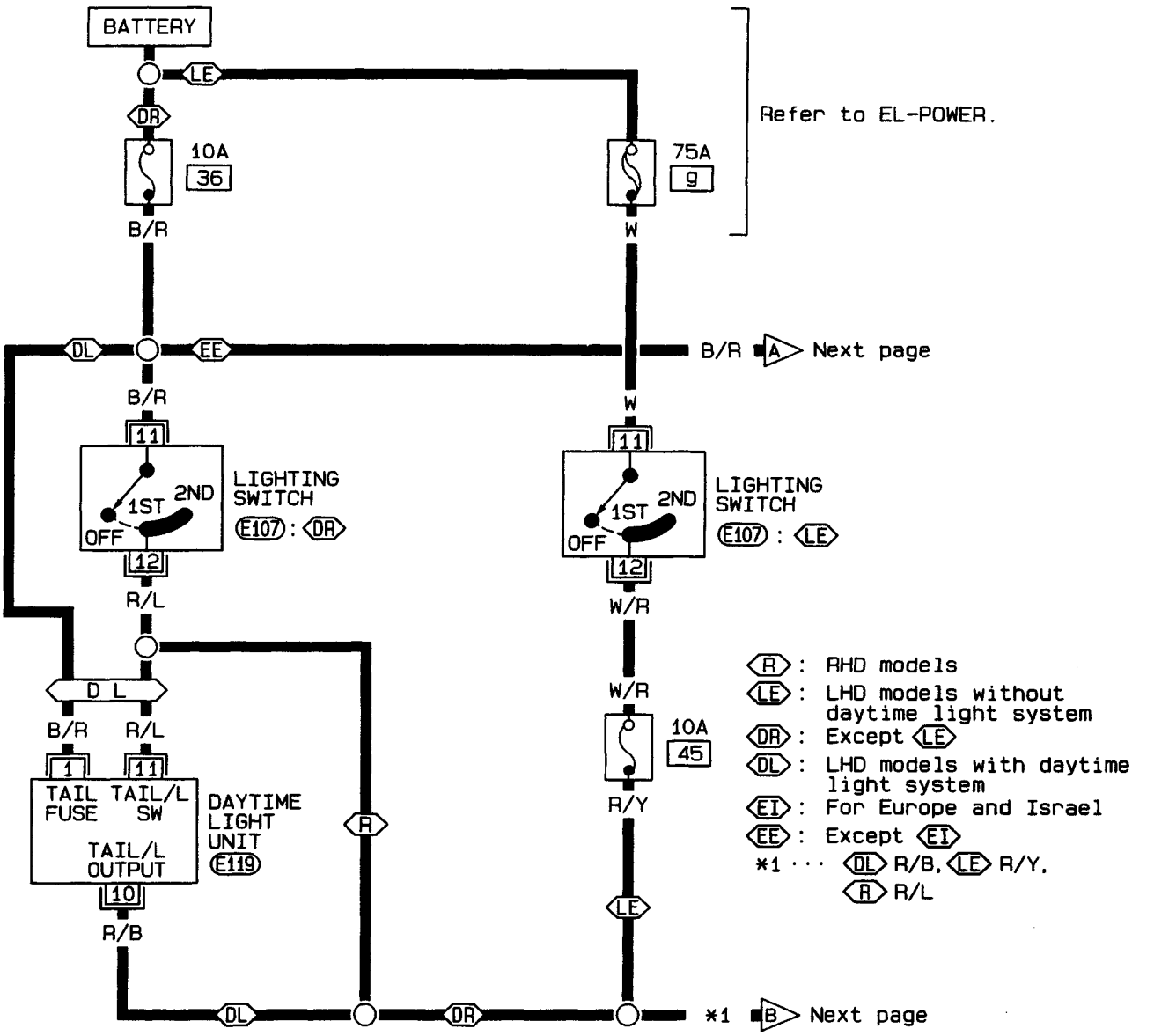
Illumination/Schematic

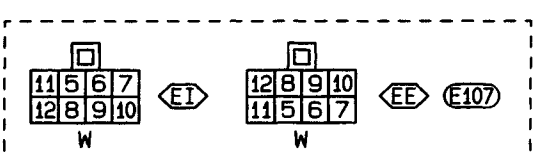


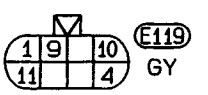
HEL060

Illumination/Wiring Diagram — ILL —

EL-ILL-01

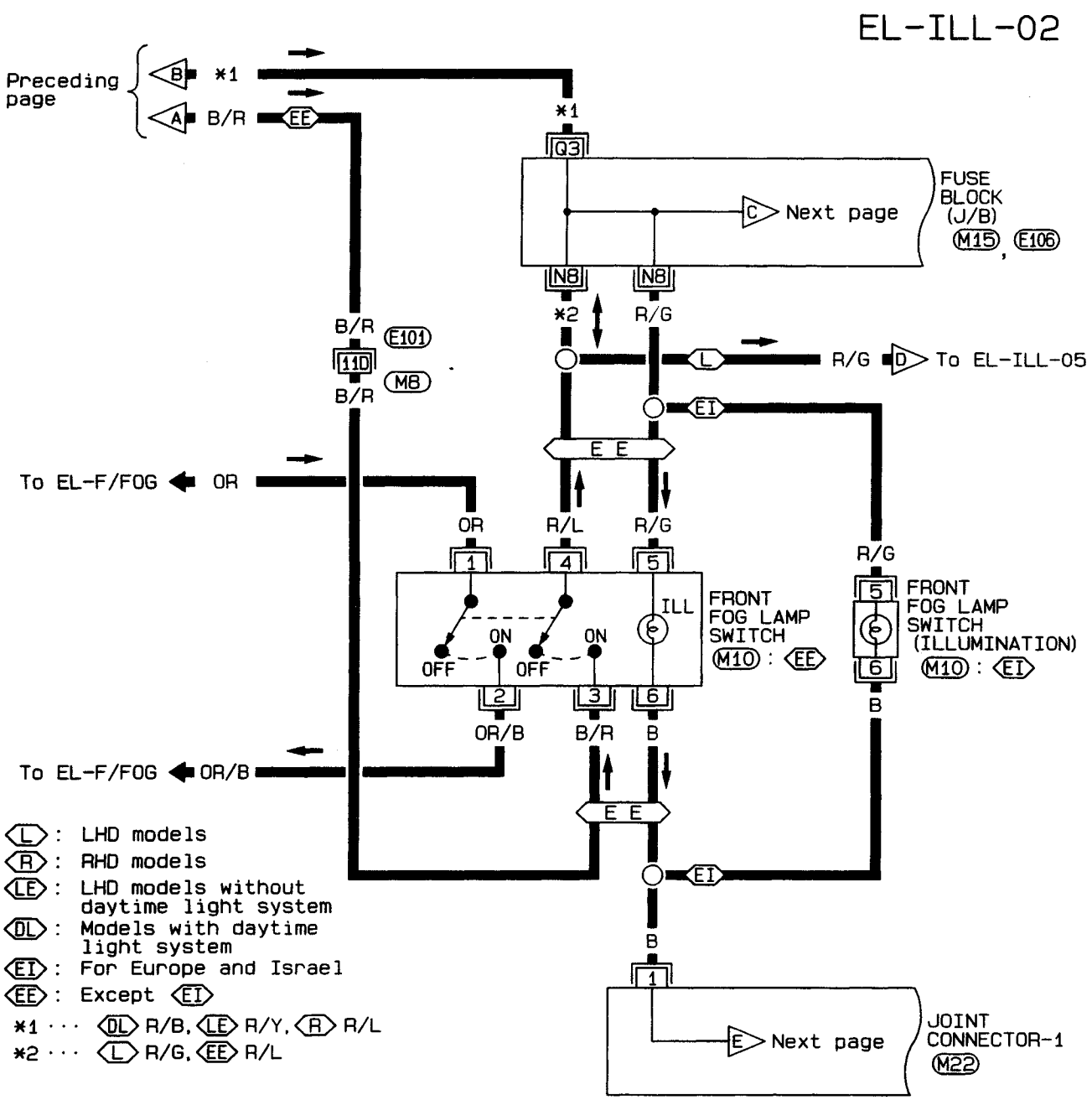


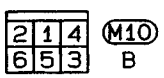


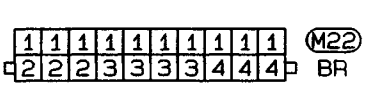


HEL053

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







Refer to last page (Foldout page).

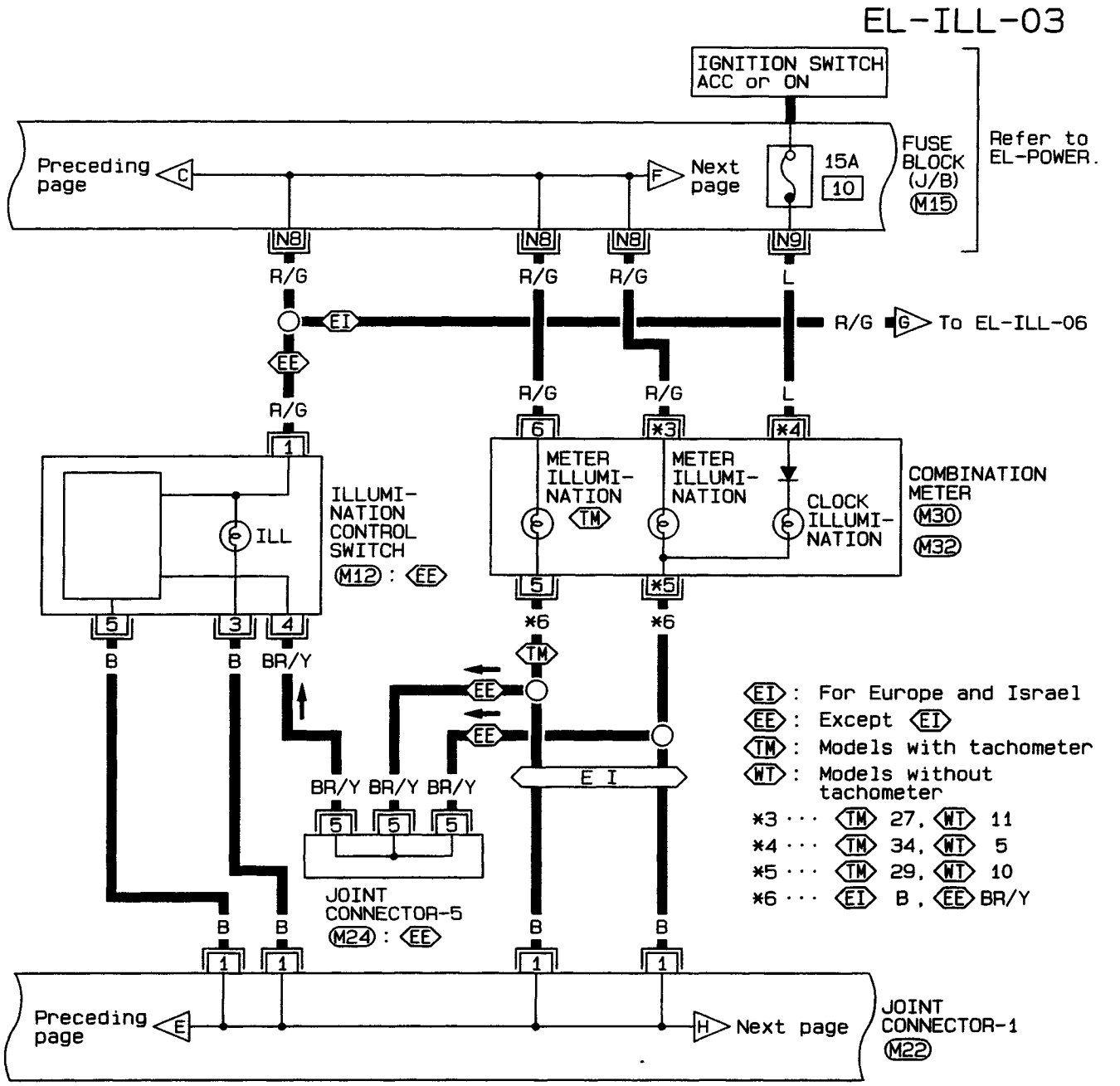
M8, E101

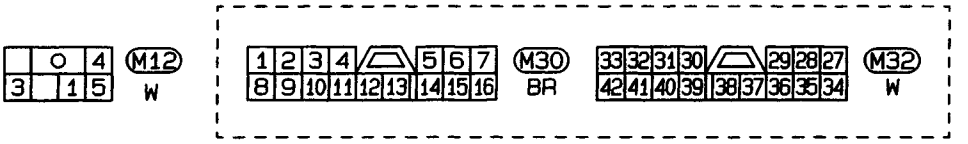
M15, E106

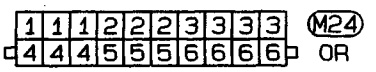
EL

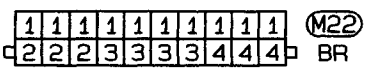
HEL054

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







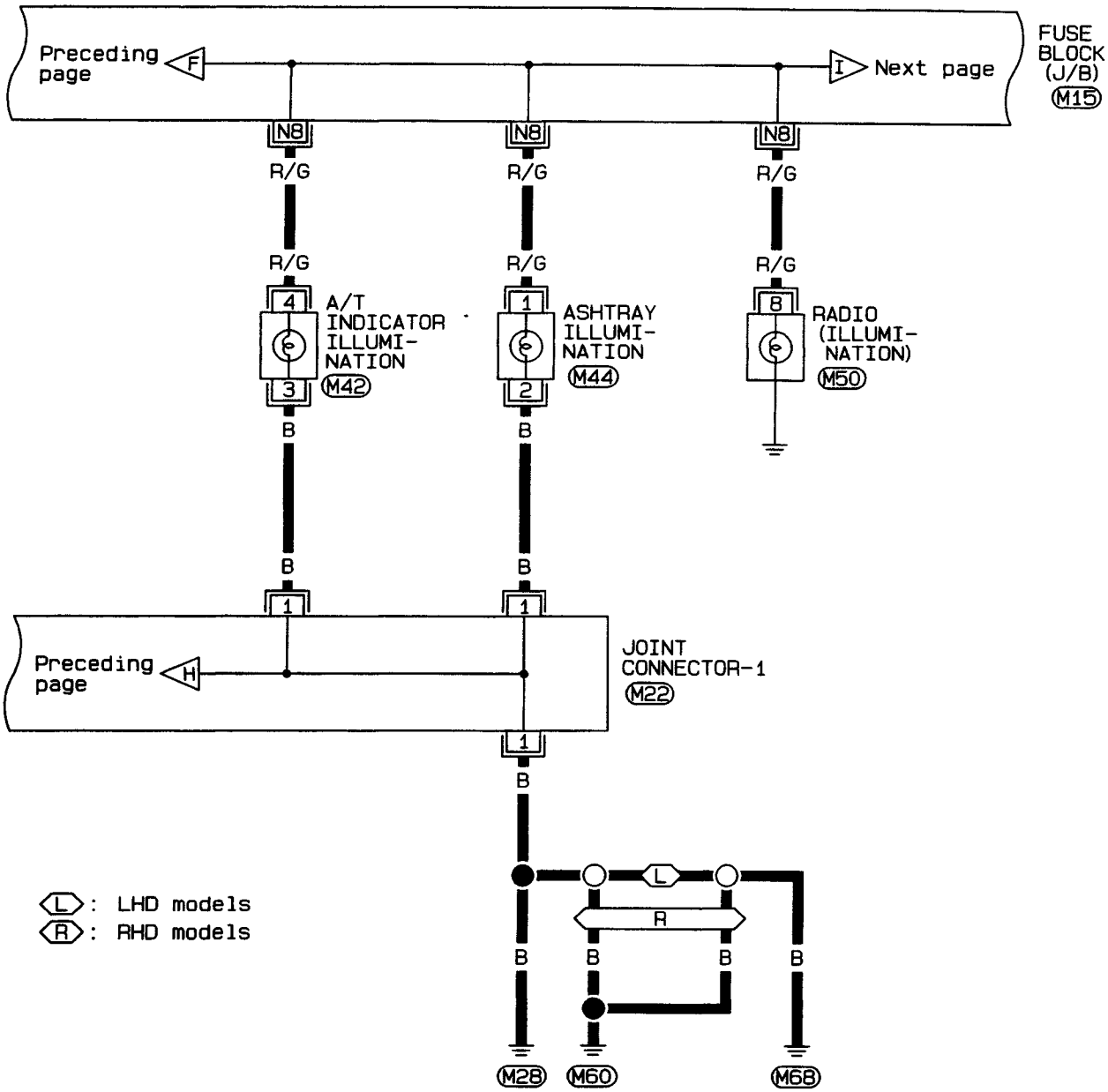


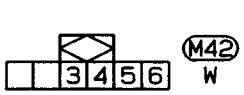
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M15

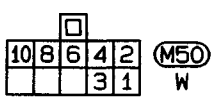
HEL055

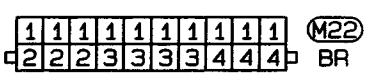
EL-ILL-04











Refer to last page (Foldout page).

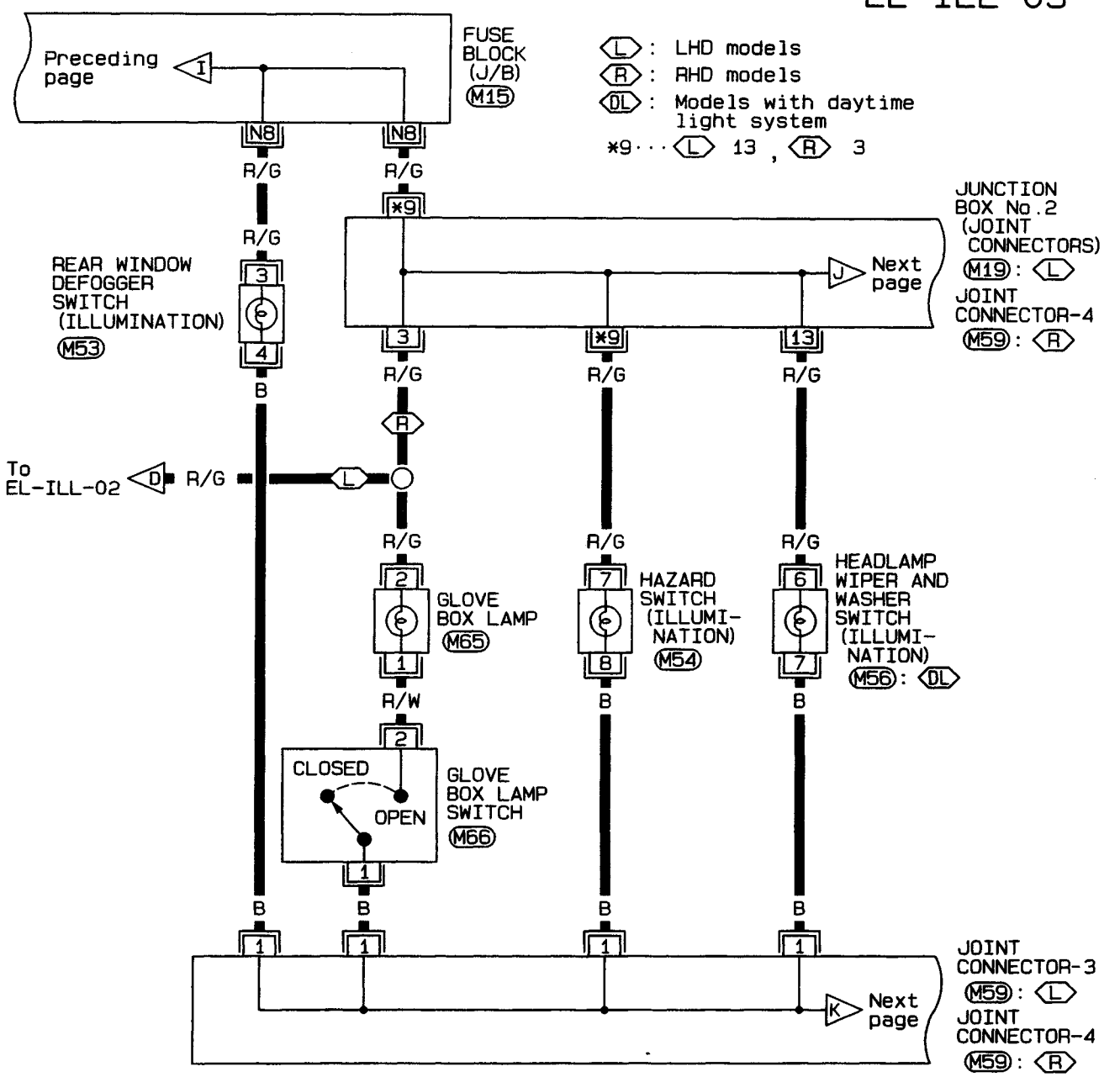
M15

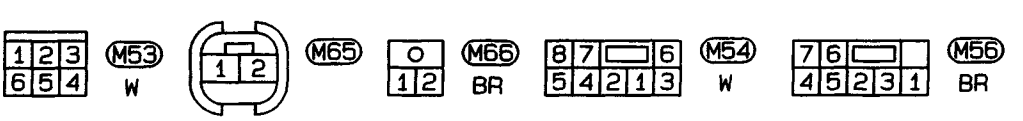
EL

HEL056

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

EL-ILL-05







Refer to last page (Foldout page).

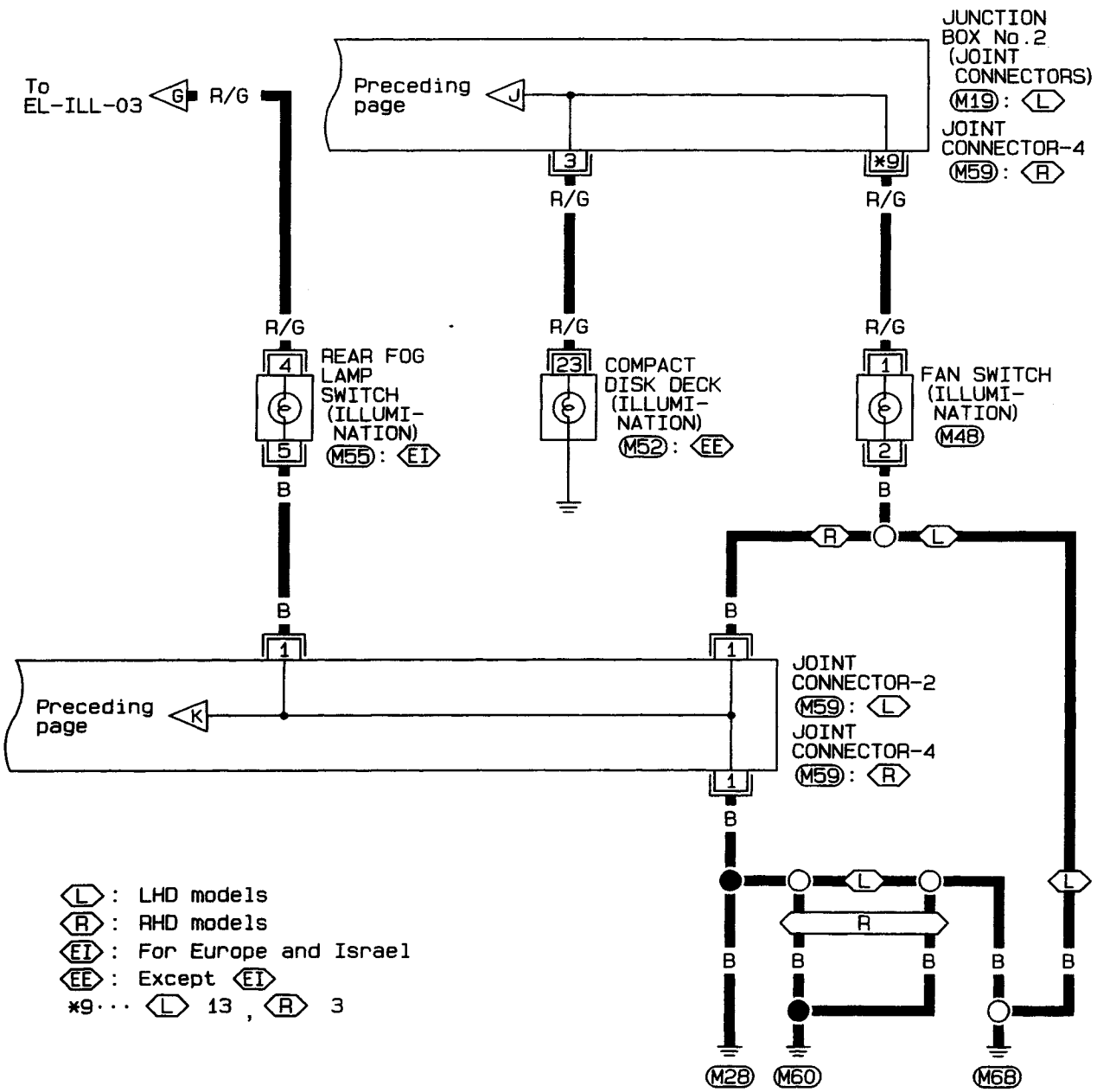
M15

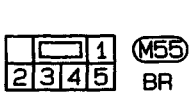
M19

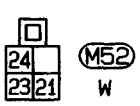
HEL057

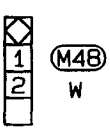
Illumination/Wiring Diagram — ILL — (Cont'd)

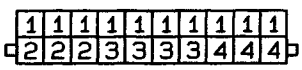
EL-ILL-06

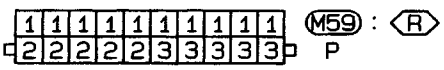












Refer to last page (Foldout page).

M19

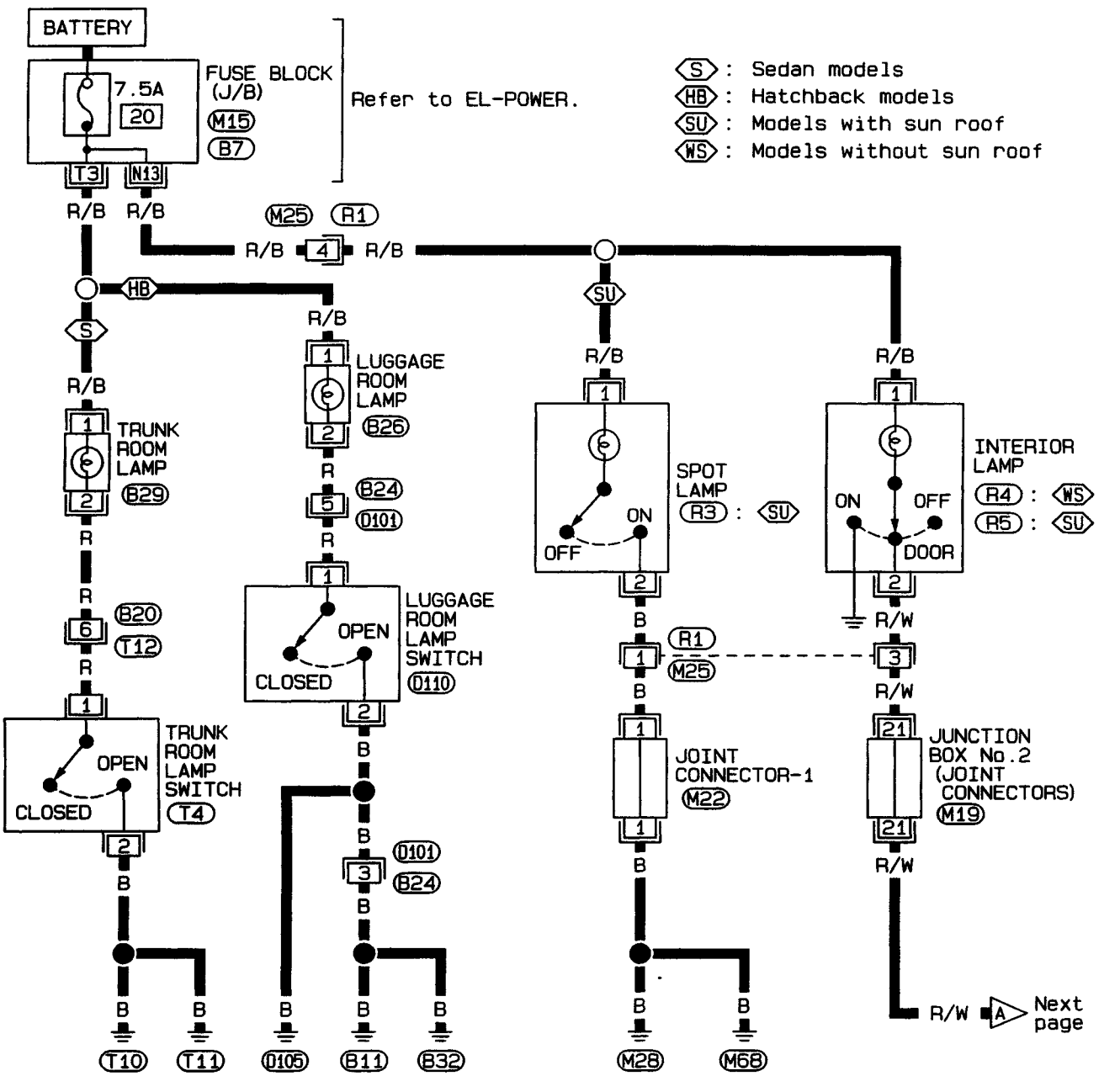
EL

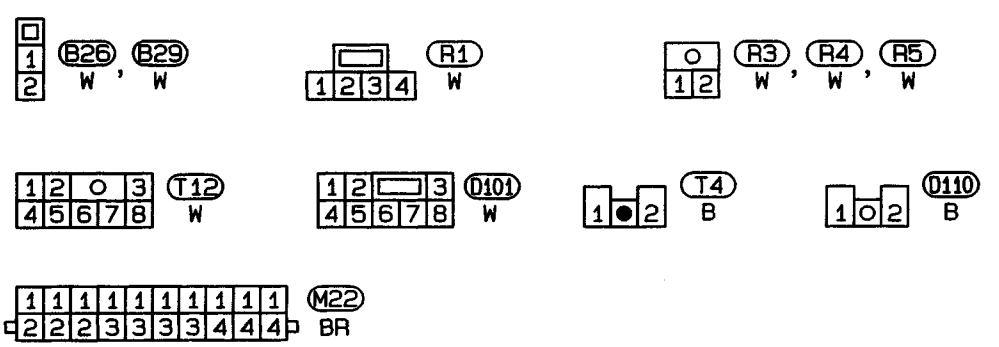
HEL058

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

LHD MODELS

EL-INT/L-01





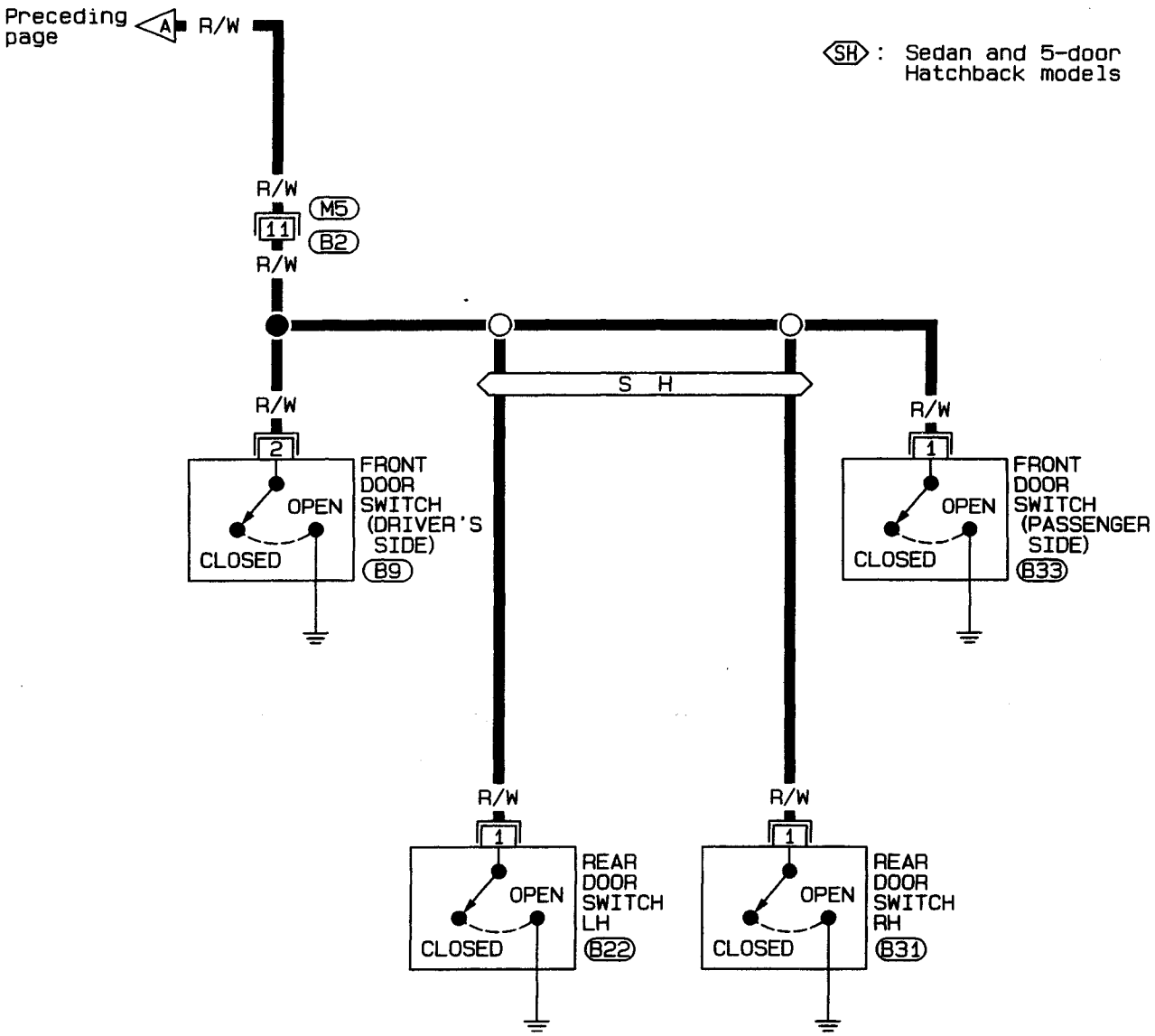
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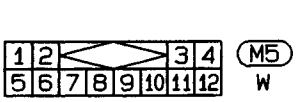
M15, B7
M19

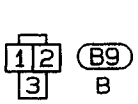
HEL061

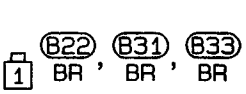
Interior, Spot, Trunk Room and Luggage Room Lamps/Wiring Diagram — INT/L — (Cont'd)

EL-INT/L-02









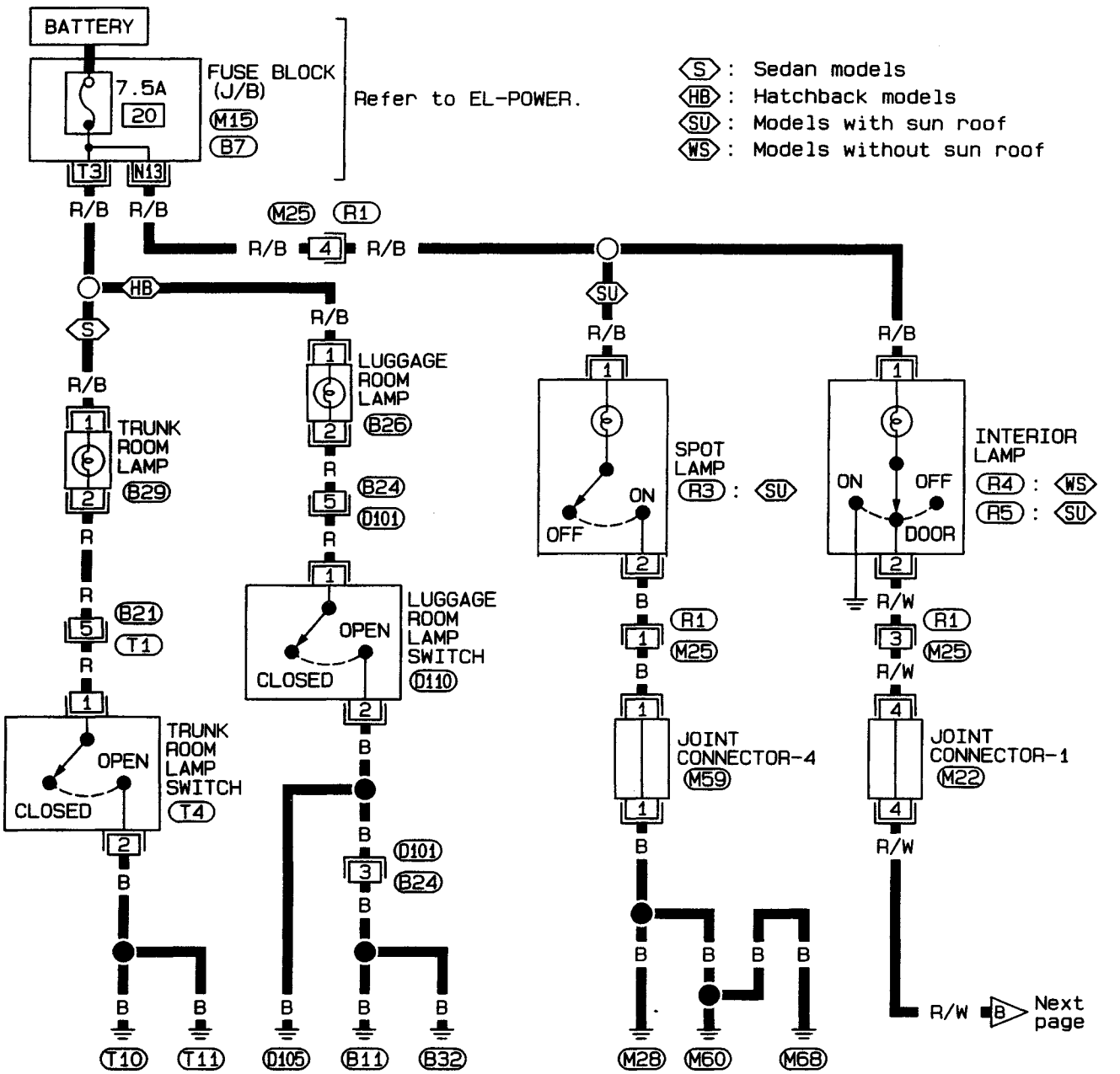
EL

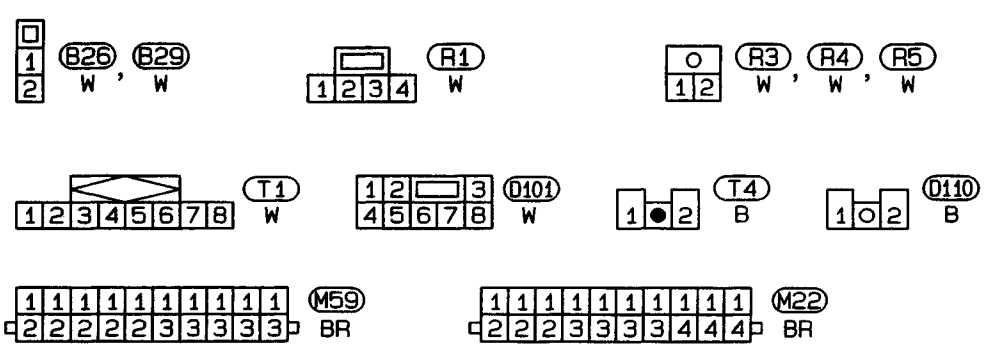
HEL062

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

RHD MODELS

EL-INT/L-03





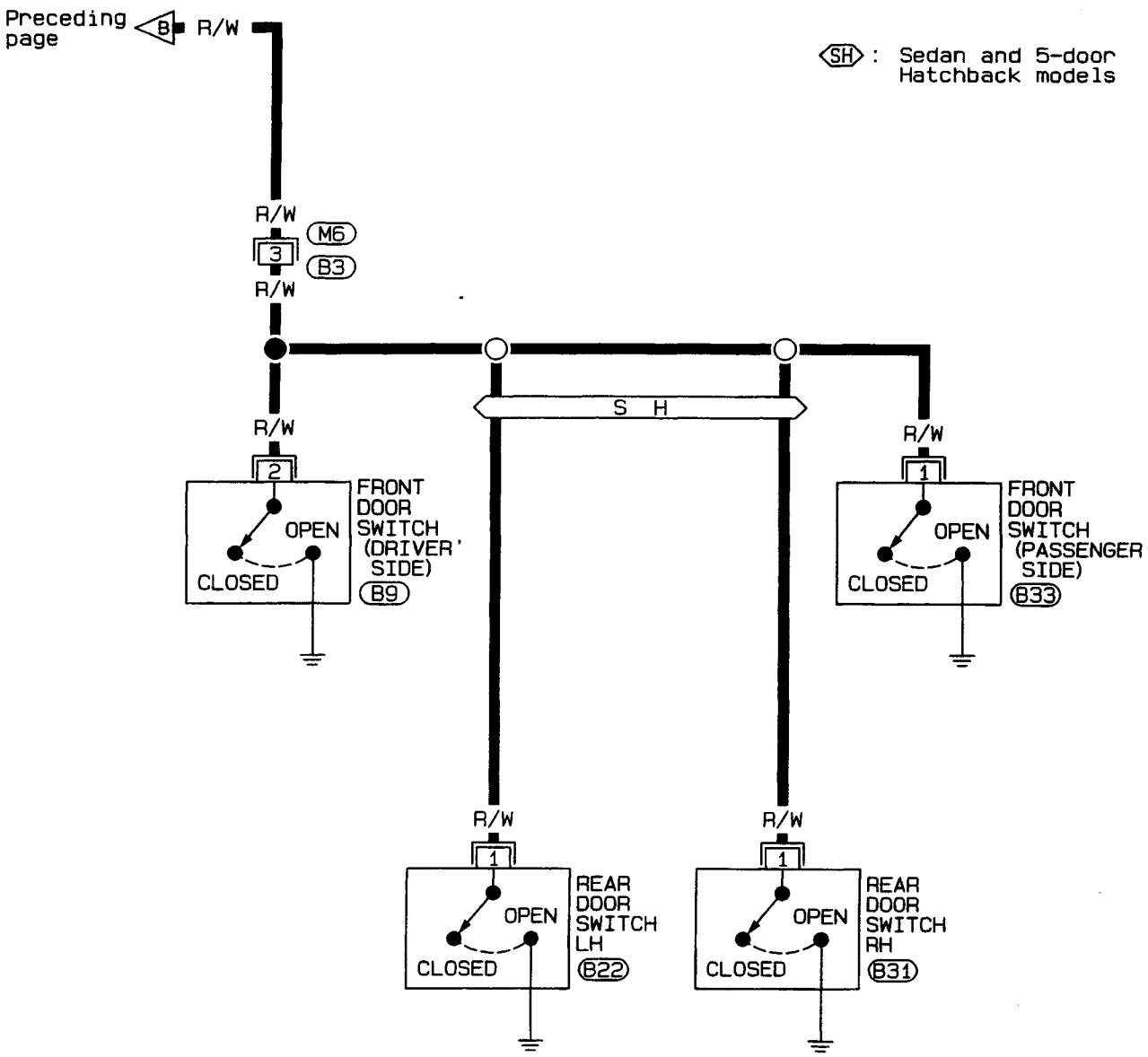
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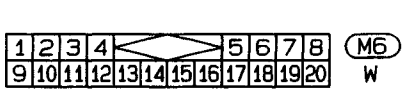
M15, B7

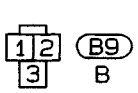
HEL063

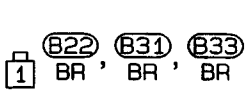
Interior, Spot, Trunk Room and Luggage Room Lamps/Wiring Diagram — INT/L — (Cont'd)

EL-INT/L-04









EL

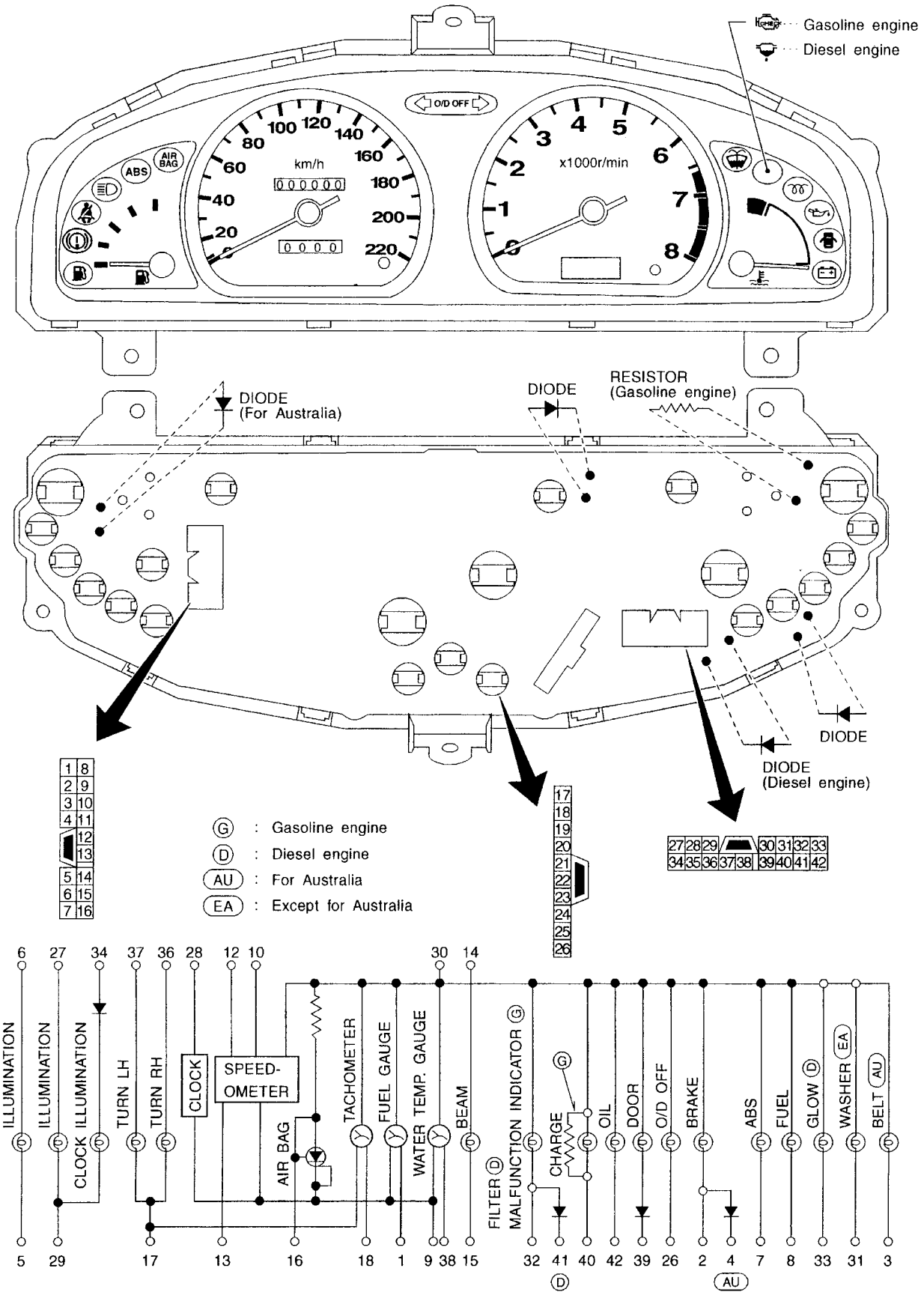
HEL064

Bulb Specifications

	Wattage (W)
Interior lamp	10
Spot lamp	10
Turn room lamp	3.4
Luggage room lamp	3.4

Combination Meter

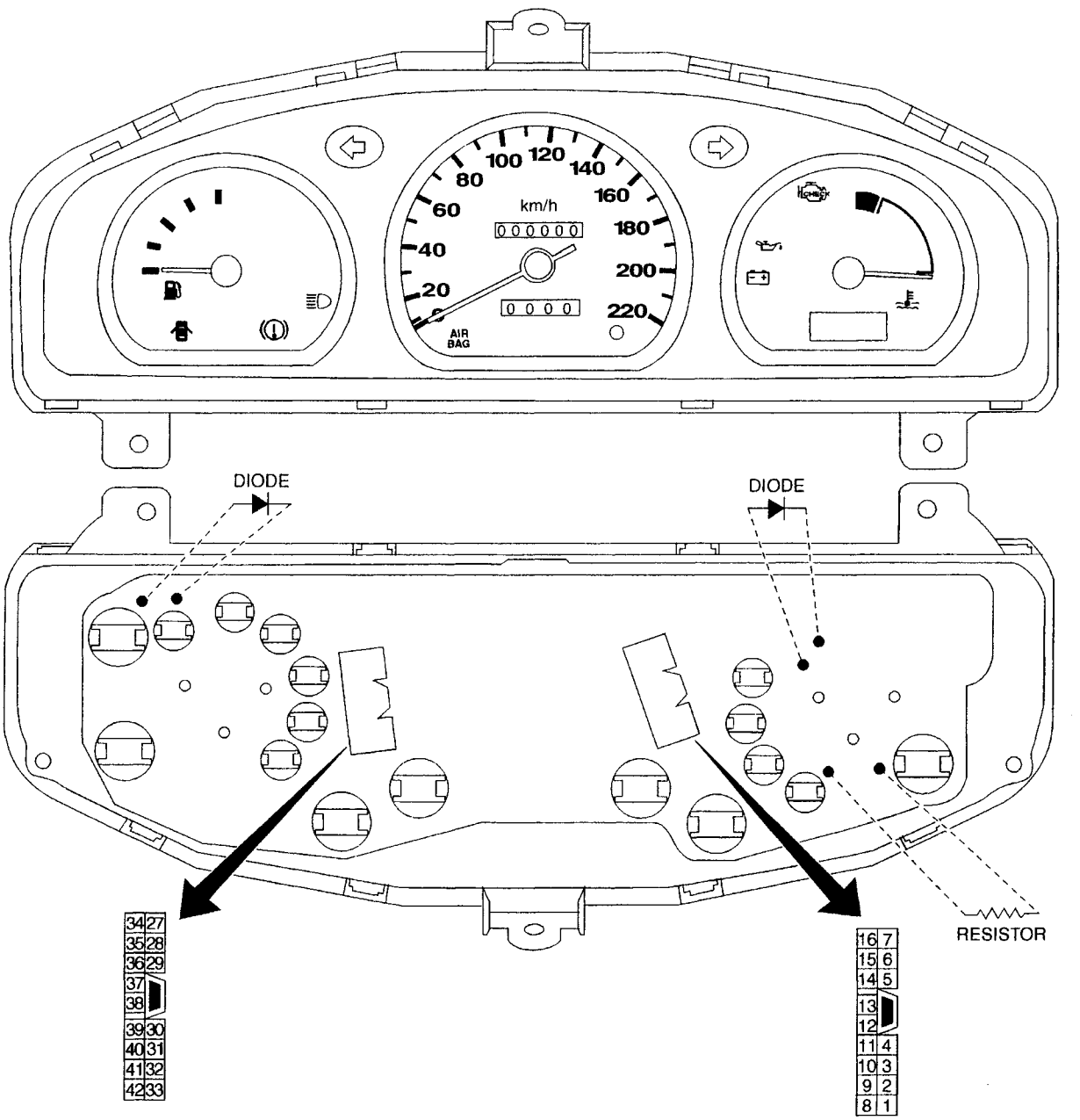
WITH TACHOMETER

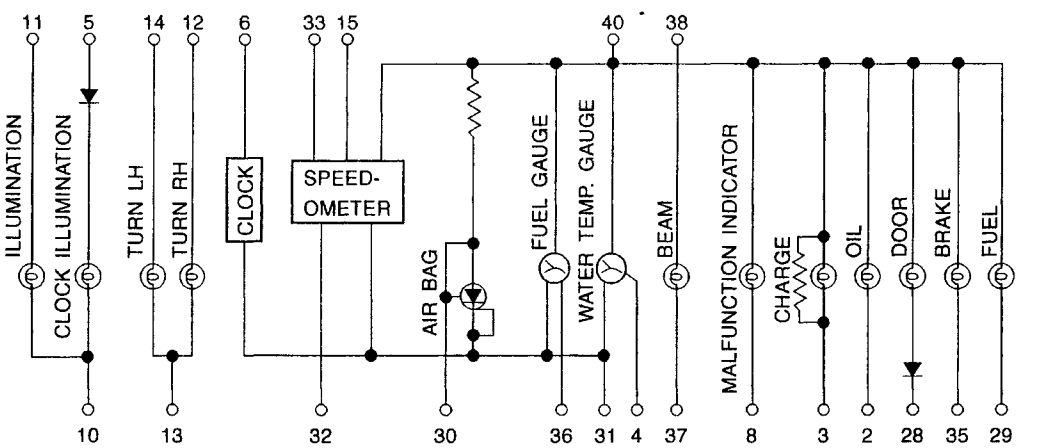


HEL065

Combination Meter (Cont'd)

WITHOUT TACHOMETER



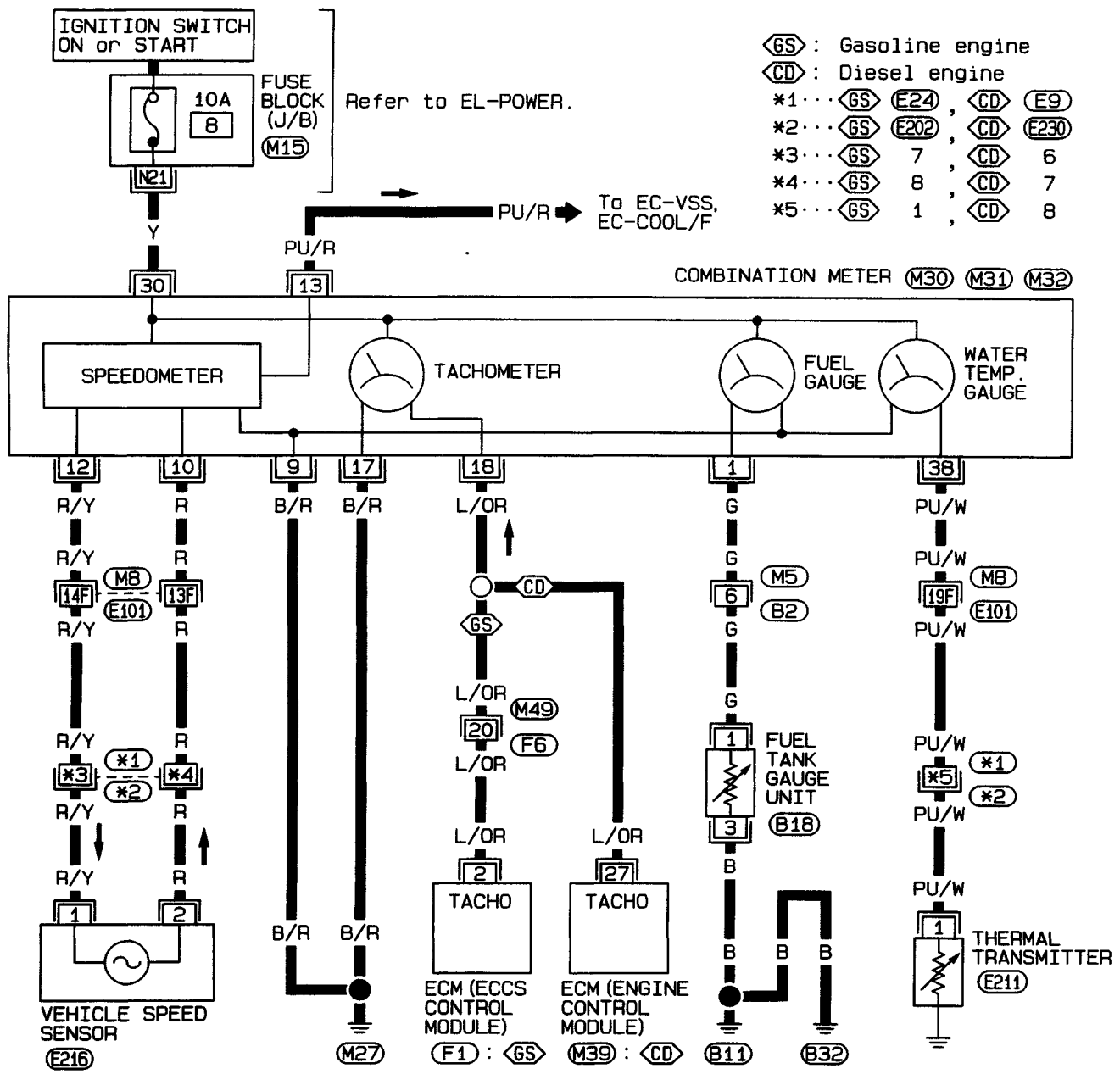


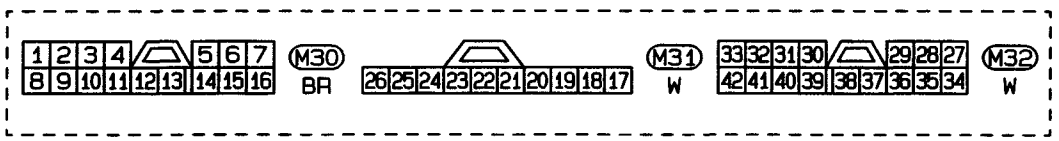
HEL066

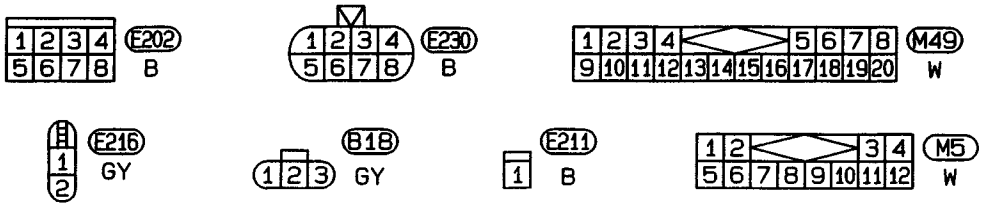
Speedometer, Tachometer, Temp. and Fuel Gauges/Wiring Diagram — METER —

LHD MODELS WITH TACHOMETER

EL-METER-01







Refer to last page (Foldout page).

M8 , E101

M15

F1

M39

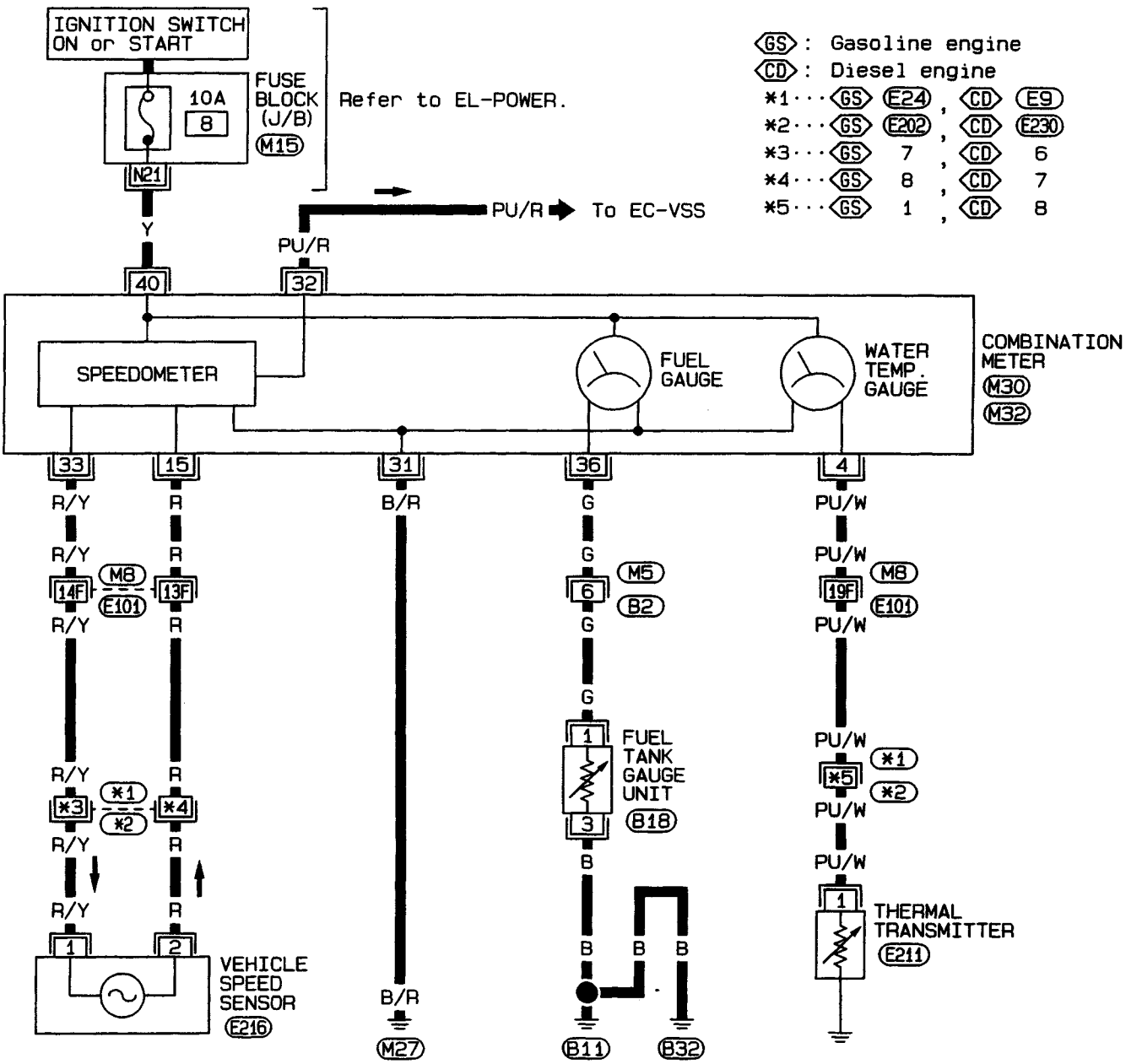
HEL067

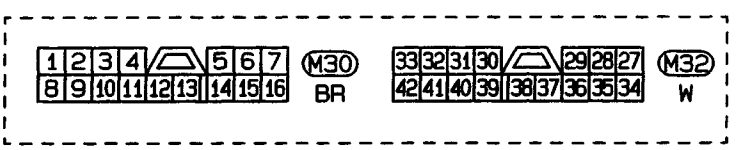
EL

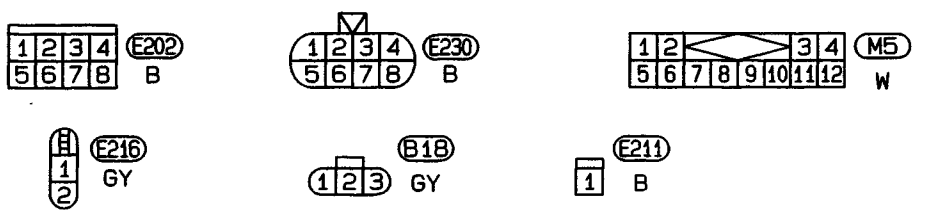
Speedometer, Tachometer, Temp. and Fuel Gauges/Wiring Diagram — METER — (Cont'd)

LHD MODELS WITHOUT TACHOMETER

EL-METER-02







Refer to last page (Foldout page).

M8 , E101

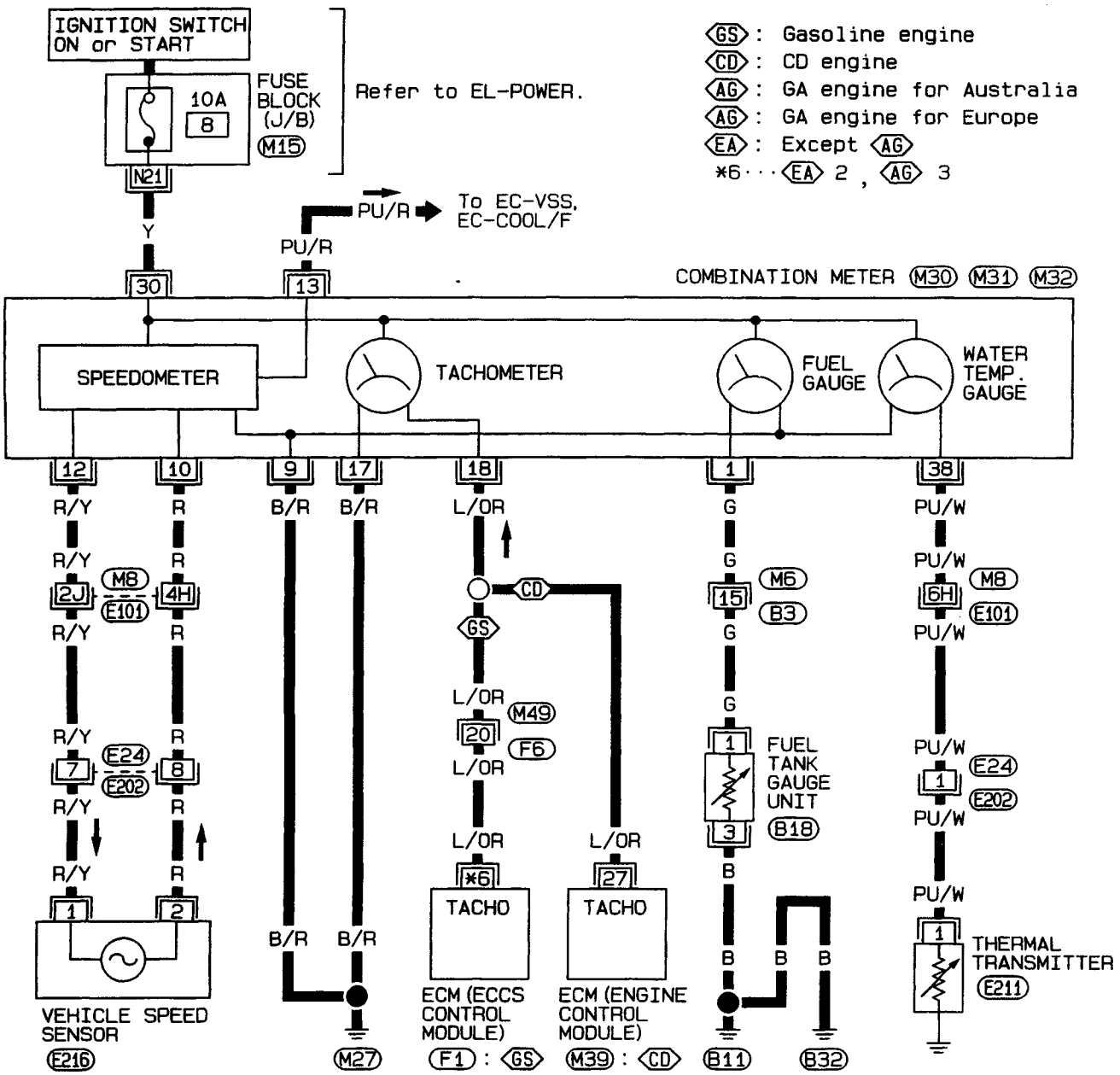
M15

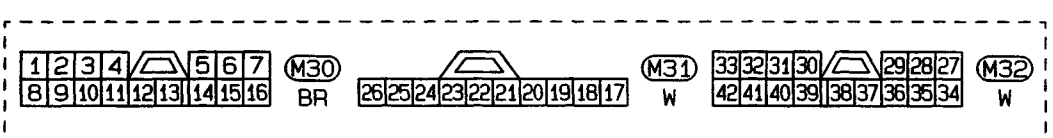
HEL068

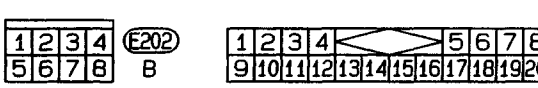
Speedometer, Tachometer, Temp. and Fuel Gauges/Wiring Diagram — METER — (Cont'd)

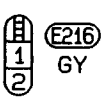
RHD MODELS WITH TACHOMETER

EL-METER-03









Refer to last page (Foldout page).

M8 , E101

M15

F1

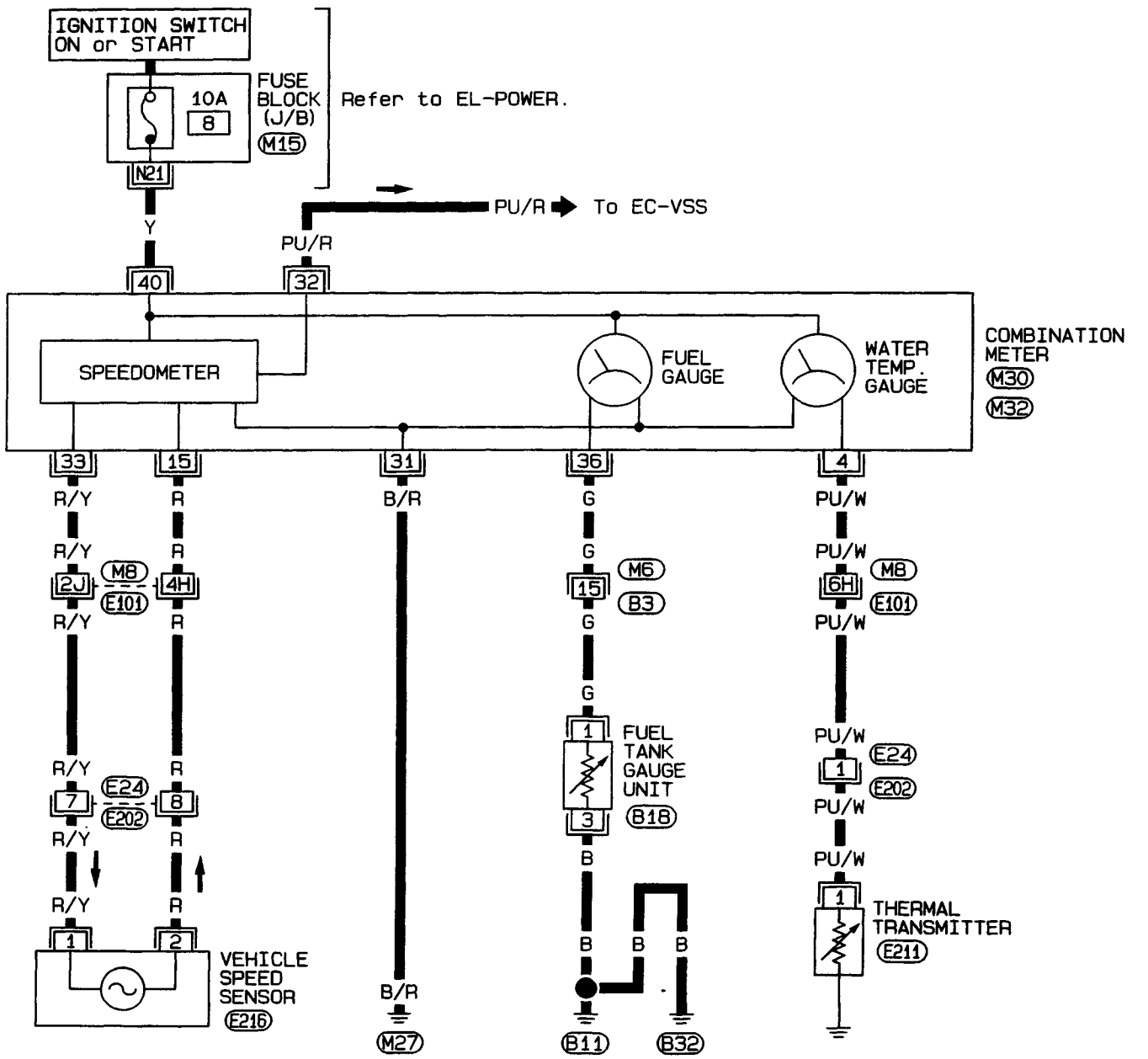
M39

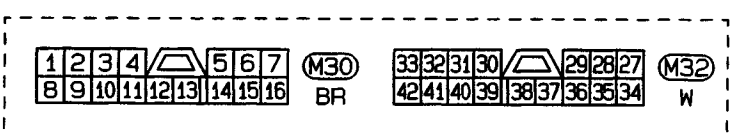
HEL069

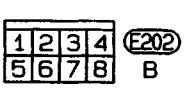
Speedometer, Tachometer, Temp. and Fuel Gauges/Wiring Diagram — METER — (Cont'd)

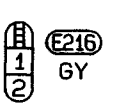
RHD MODELS WITHOUT TACHOMETER

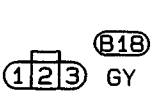
EL-METER-04

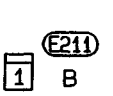


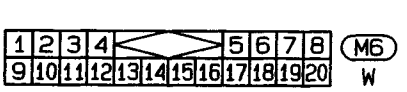












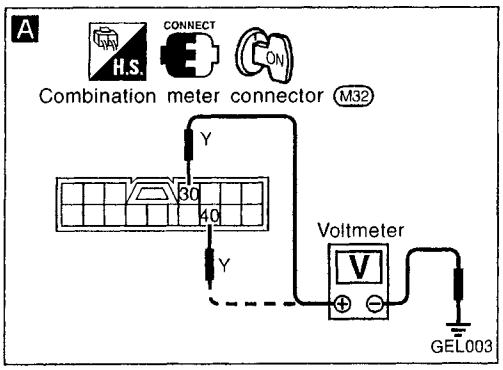
Refer to last page (Foldout page).

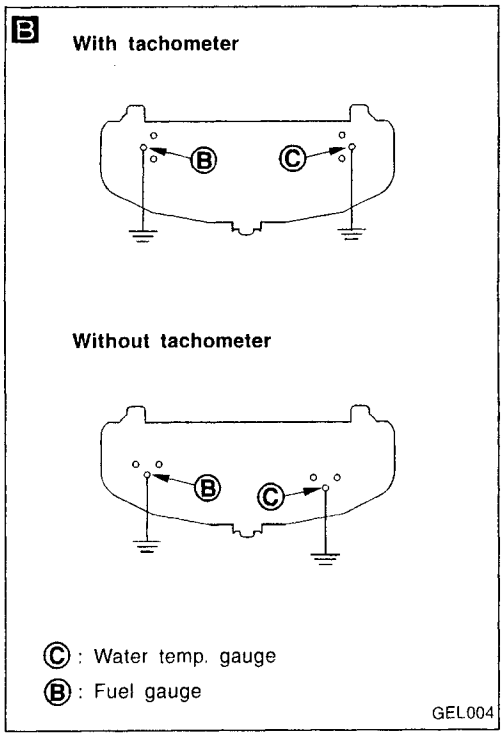
M8 , E101

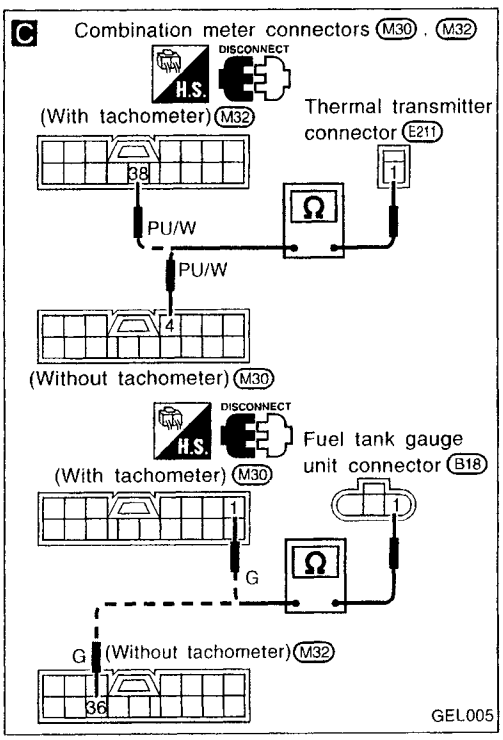
M15

HEL070

Inspection/Fuel Gauge and Water Temperature Gauge







INSPECTION START

A

CHECK POWER SOURCE.
1) Turn ignition switch "ON".
2) Check voltage between terminal ㉚ (with tachometer) or ㊵ (without tachometer) and ground.
Battery voltage should exist.

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

OK ↓

B

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

NG → Repair or replace gauge.

OK ↓

C

CHECK HARNESS CONTINUITY between terminals as follows.
Continuity should exist.

NG → Repair or replace.

	Terminals		
	Combination meter connector	Thermal transmitter connector	Fuel tank gauge unit connector
With tachometer	㊳	①	
	①		①
Without tachometer	④	①	
	㊱		①

OK ↓

CHECK COMPONENT.
Check gauge units and harness.
Refer to "Fuel Tank Gauge Unit Check" (EL-137) or "Thermal Transmitter Check" (EL-137).

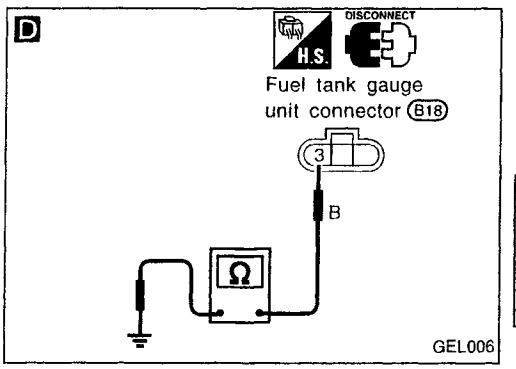
NG → Repair or replace.
Refer to FE section. (Fuel gauge)

OK ↓

(Go to Ⓐ on next page)

EL

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



Ⓐ

D

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

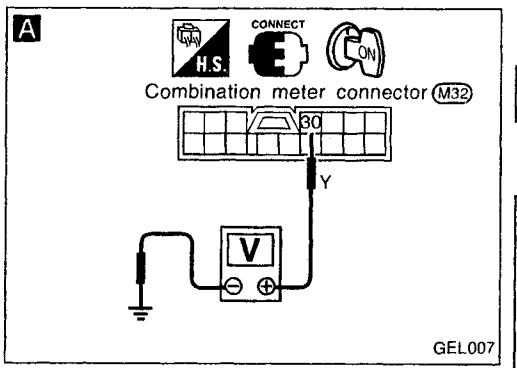
NG → Repair harness or connector.

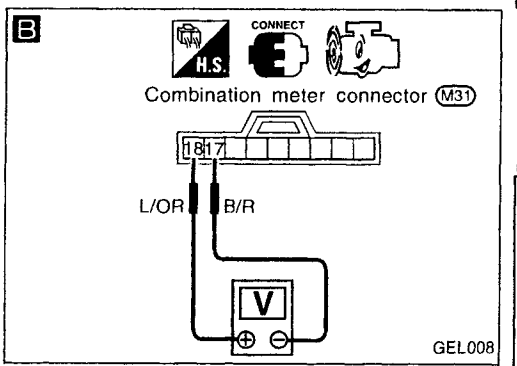
OK

Reinstall any part removed.

INSPECTION END

Inspection/Tachometer





INSPECTION START

A

CHECK POWER SOURCE.
1) Turn ignition switch "ON".
2) Check voltage between terminal ㉚ and ground.
Battery voltage should exist.

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

OK

B

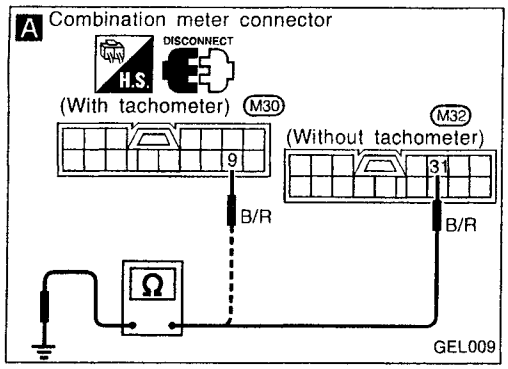
CHECK ECM OUTPUT.
1) Start engine.
2) Check voltage between terminals ⑱ and ⑰ at idle and 2,000 rpm.
Higher rpm = Higher voltage
Lower rpm = Lower voltage
Voltage should change with rpm.

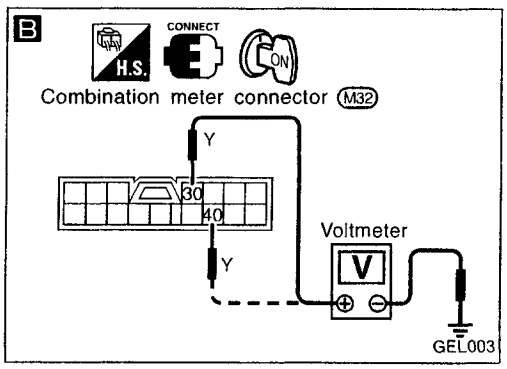
NG → Check harness and connector between ECM and combination meter, or check ground.

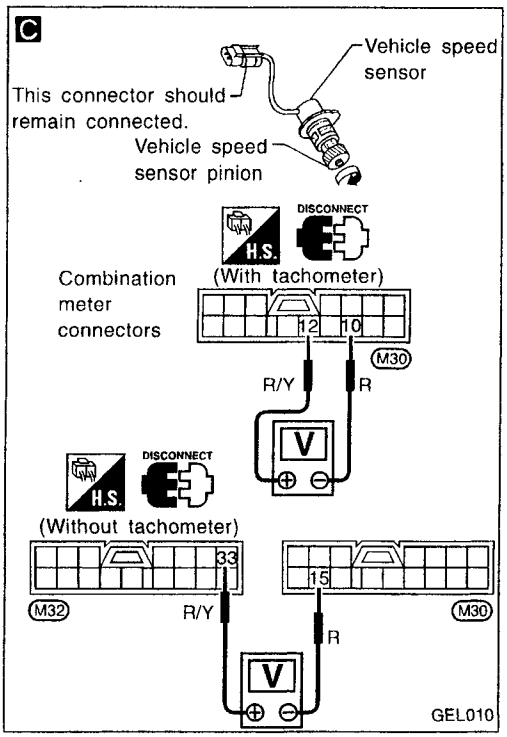
OK

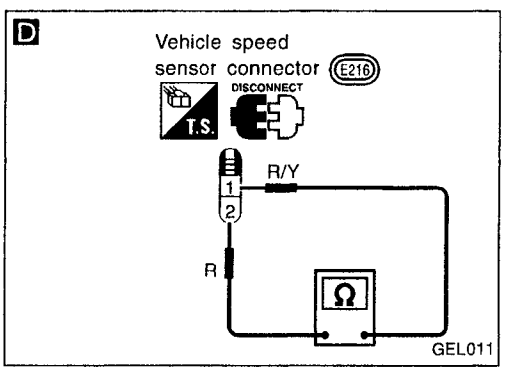
Replace tachometer.

INSPECTION END









Inspection/Speedometer and Vehicle Speed Sensor

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

INSPECTION START

A

CHECK GROUND CIRCUIT OF SPEEDOMETER.
Check continuity between terminal ⑨ (with tachometer) or ㉛ (without tachometer) and body ground.
Continuity should exist.

NG → Repair harness or connector.

OK

B

CHECK SPEEDOMETER CIRCUIT.
1) Turn ignition switch "ON".
2) Check voltage between terminal ㉚ (with tachometer) or ㊵ (without tachometer) and body ground.
Battery voltage should exist.

NG → Repair harness or connector.

OK

C

CHECK VEHICLE SPEED SENSOR OUTPUT.
1) Remove vehicle speed sensor from transaxle.
2) Check voltage between terminals ⑫ and ⑩ (with tachometer) or ㉝ and ⑮ (without tachometer) while quickly turning speed sensor pinion.
Voltage: Approx. 0.5V

OK → Replace speedometer.

NG

D

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

NG → Replace vehicle speed sensor.

OK

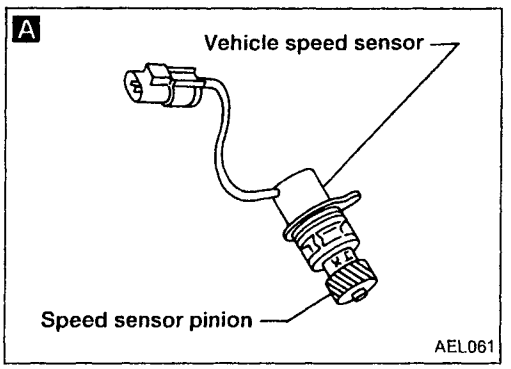
Repair harness or connector between speedometer and vehicle speed sensor.

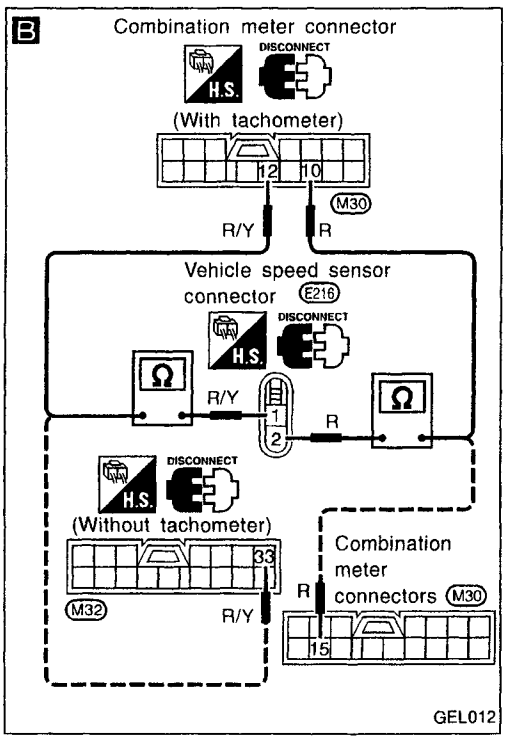
INSPECTION END

EL

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

SYMPTOM: Speedometer indication flutters.





INSPECTION START

Is vehicle speed sensor installed properly? Check looseness and so on.
- NG → Install vehicle speed sensor properly.
- OK ↓

A

Do you feel resistance when turning vehicle speed sensor pinion?
- No → Replace vehicle speed sensor.
- Yes ↓

B

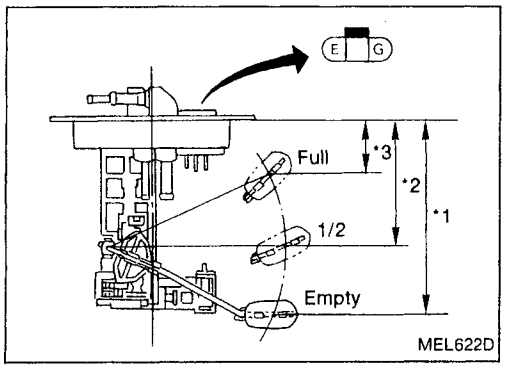
Check continuity between speedometer terminals and vehicle speed sensor terminals.
- NG → Repair harness and connector.

Continuity should exist.

Combination meter terminal		Vehicle speed sensor terminal
With tachometer	⑫	①
	⑩	②
Without tachometer	㉝	①
	⑮	②

OK ↓

Replace speedometer.



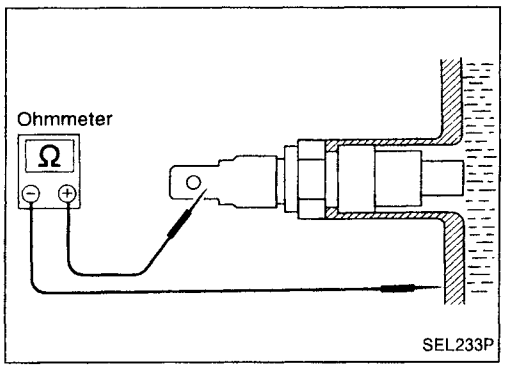
Fuel Tank Gauge Unit Check

- For removal, refer to FE section ("FUEL SYSTEM").

Check the resistance between terminals (G) and (E).

Ohmmeter (+)	Ohmmeter (−)	Float position mm (in)			Resistance value (Ω)
G	E	*3	Full	36 (1.42)	Approx. 4 - 6
		*2	1/2	86 (3.39)	27 - 35
		*1	Empty	131 (5.16)	78 - 85

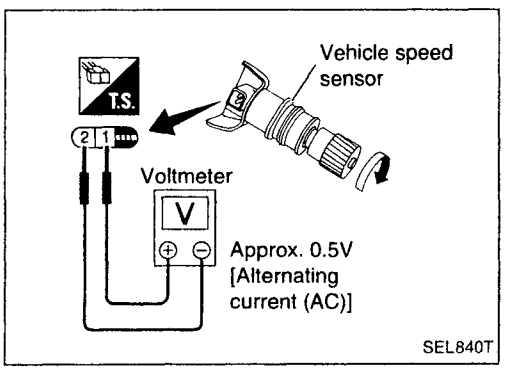
*1 and *3: When float rod is in contact with stopper.



Thermal Transmitter Check

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

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

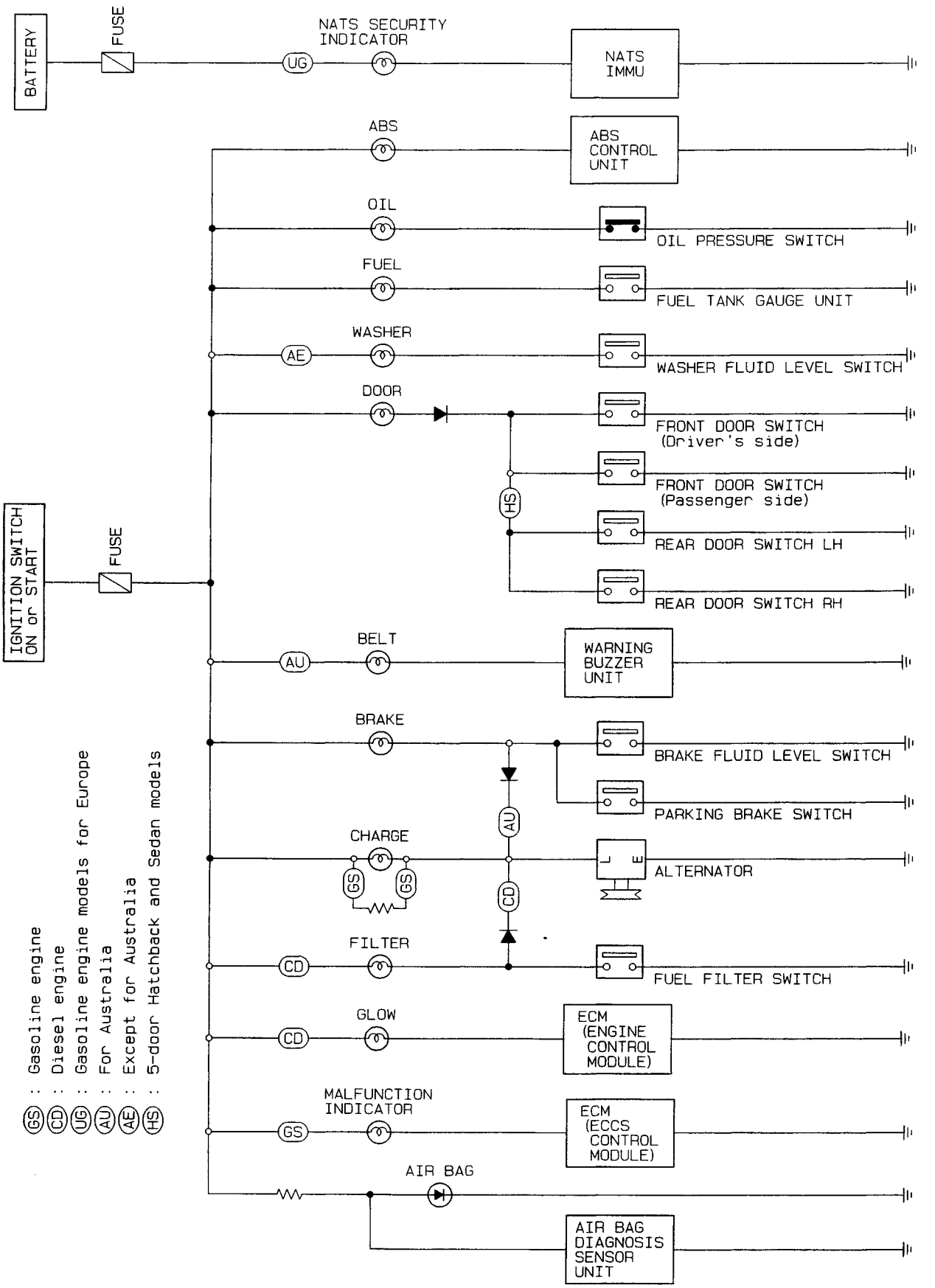


Vehicle Speed Sensor Signal Check

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

EL

Warning Lamps/Schematic

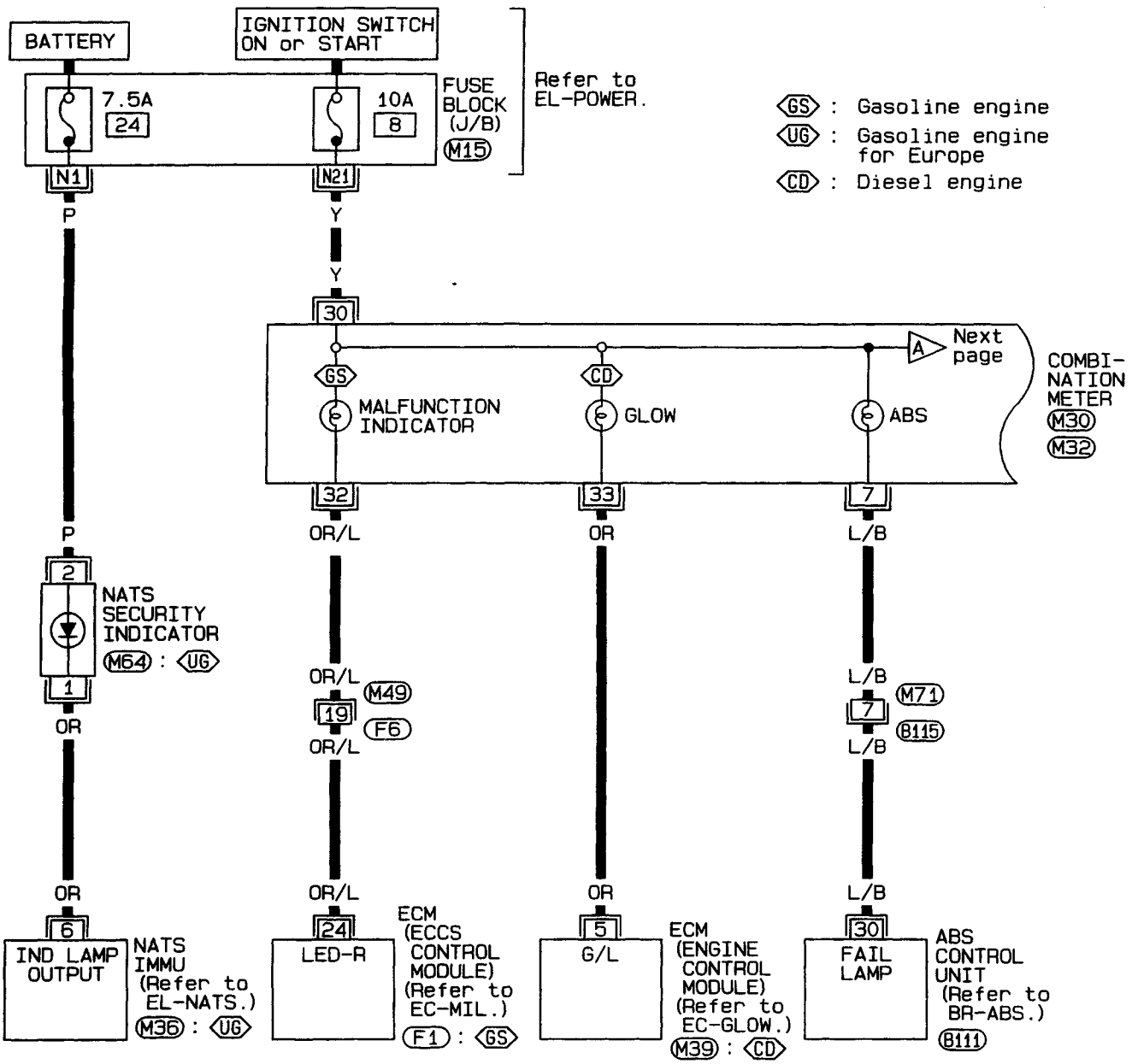


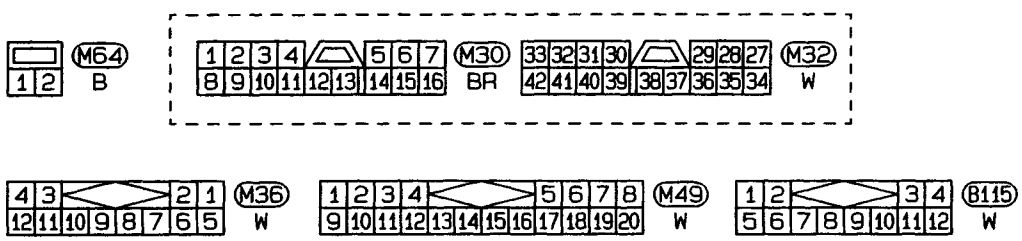
HEL082

Warning Lamps/Wiring Diagram — WARN —

LHD MODELS WITH TACHOMETER

EL-WARN-01





Refer to last page (Foldout page).

M15

F1

M39

B111

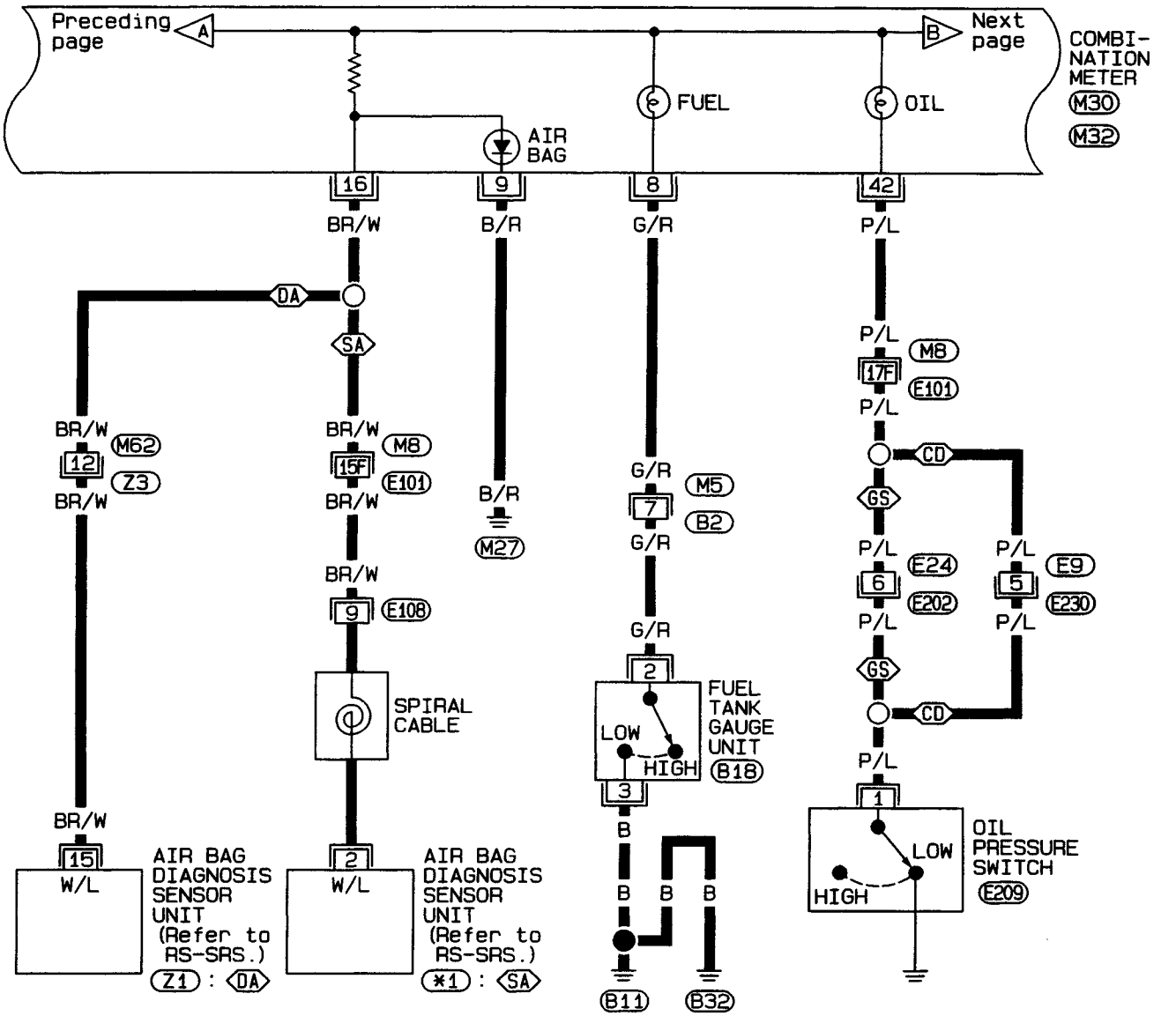
EL

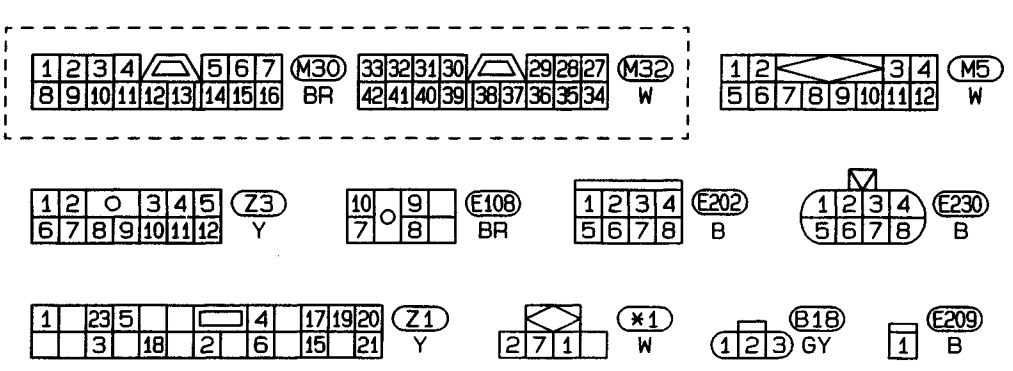
HEL071

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

EL-WARN-02

GS : Gasoline engine
CD : Diesel engine
DA : Models with dual air bag system
SA : Models with single air bag system





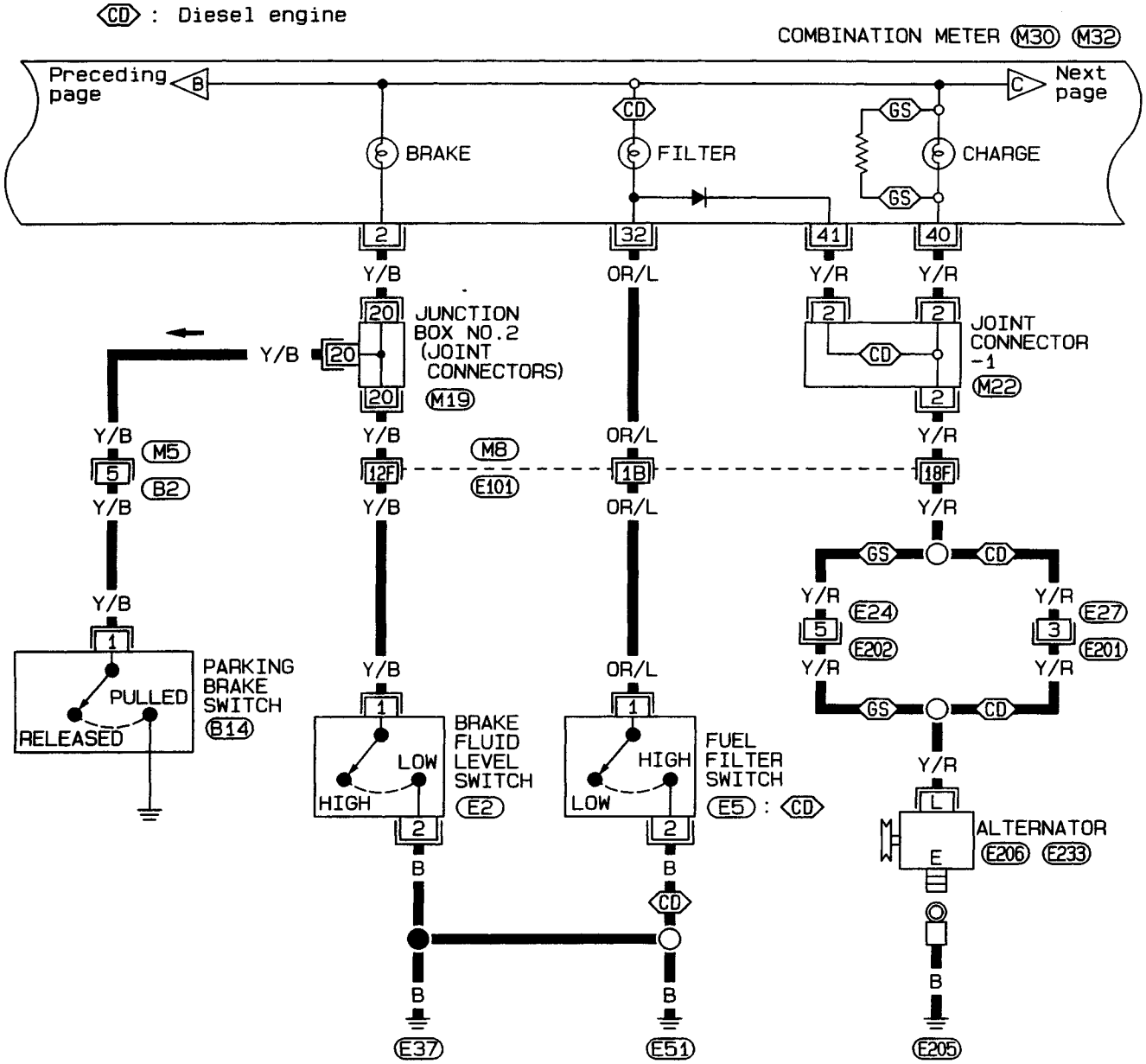
Refer to last page (Foldout page).
M8 , E101

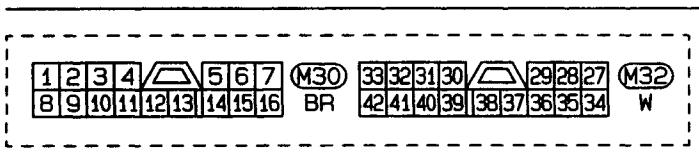
HEL072

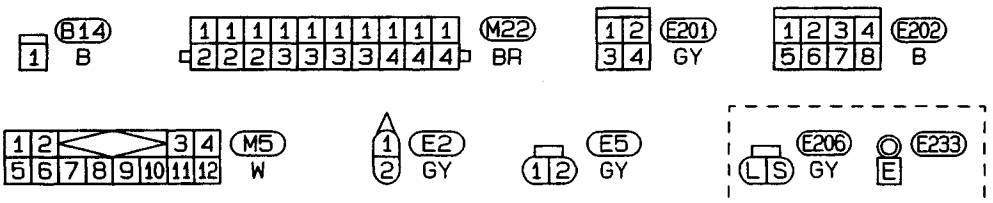
Warning Lamps/Wiring Diagram — WARN — (Cont'd)

EL-WARN-03

GS : Gasoline engine
CD : Diesel engine







Refer to last page (Foldout page).

M8 , E101

M19

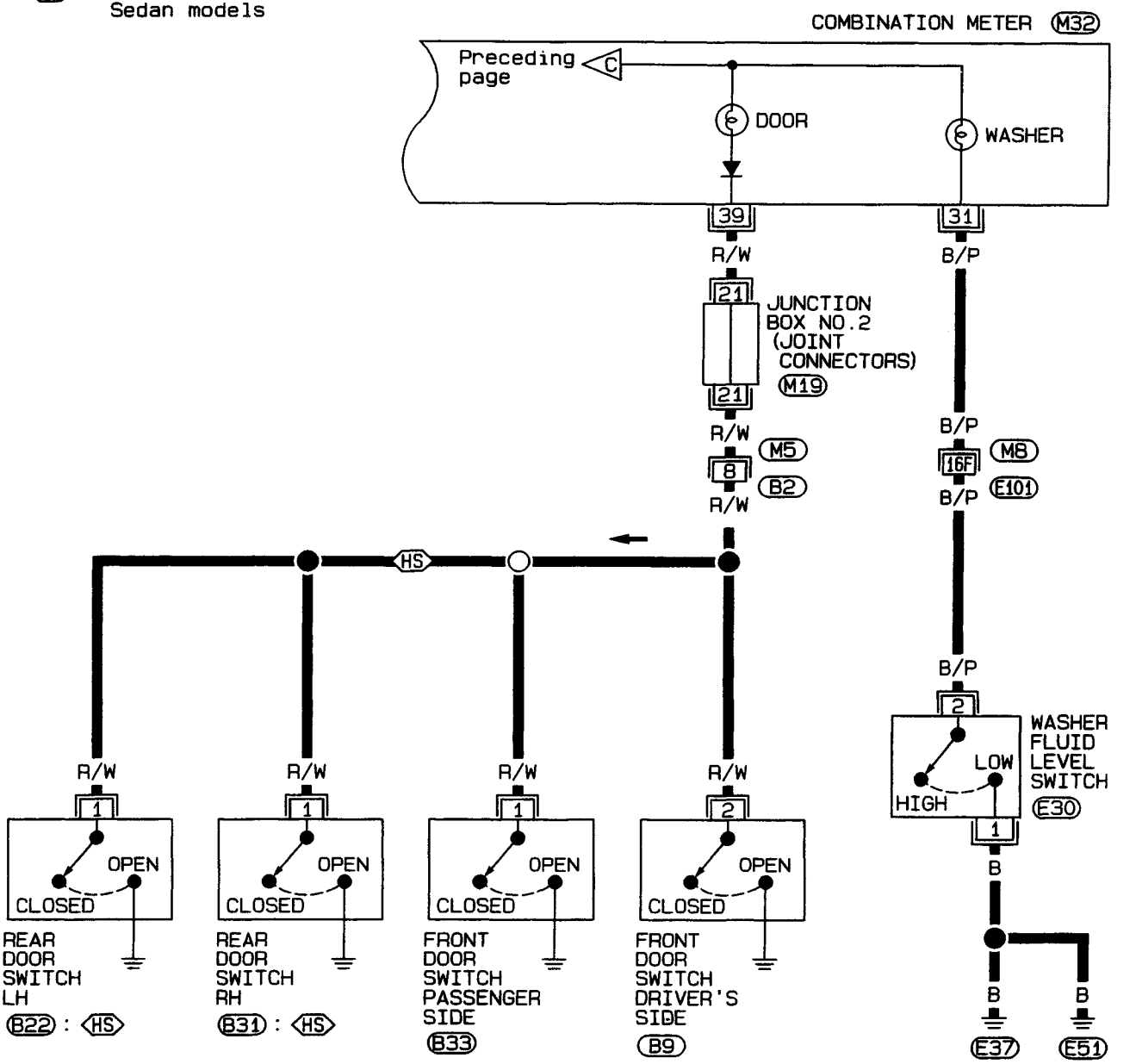
EL

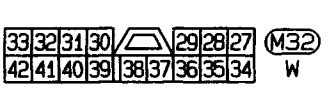
HEL073

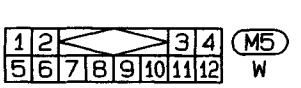
Warning Lamps/Wiring Diagram — WARN — (Cont'd)

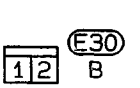
EL-WARN-04

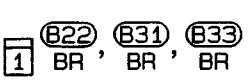
HS : 5-door Hatchback and Sedan models

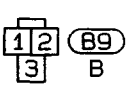












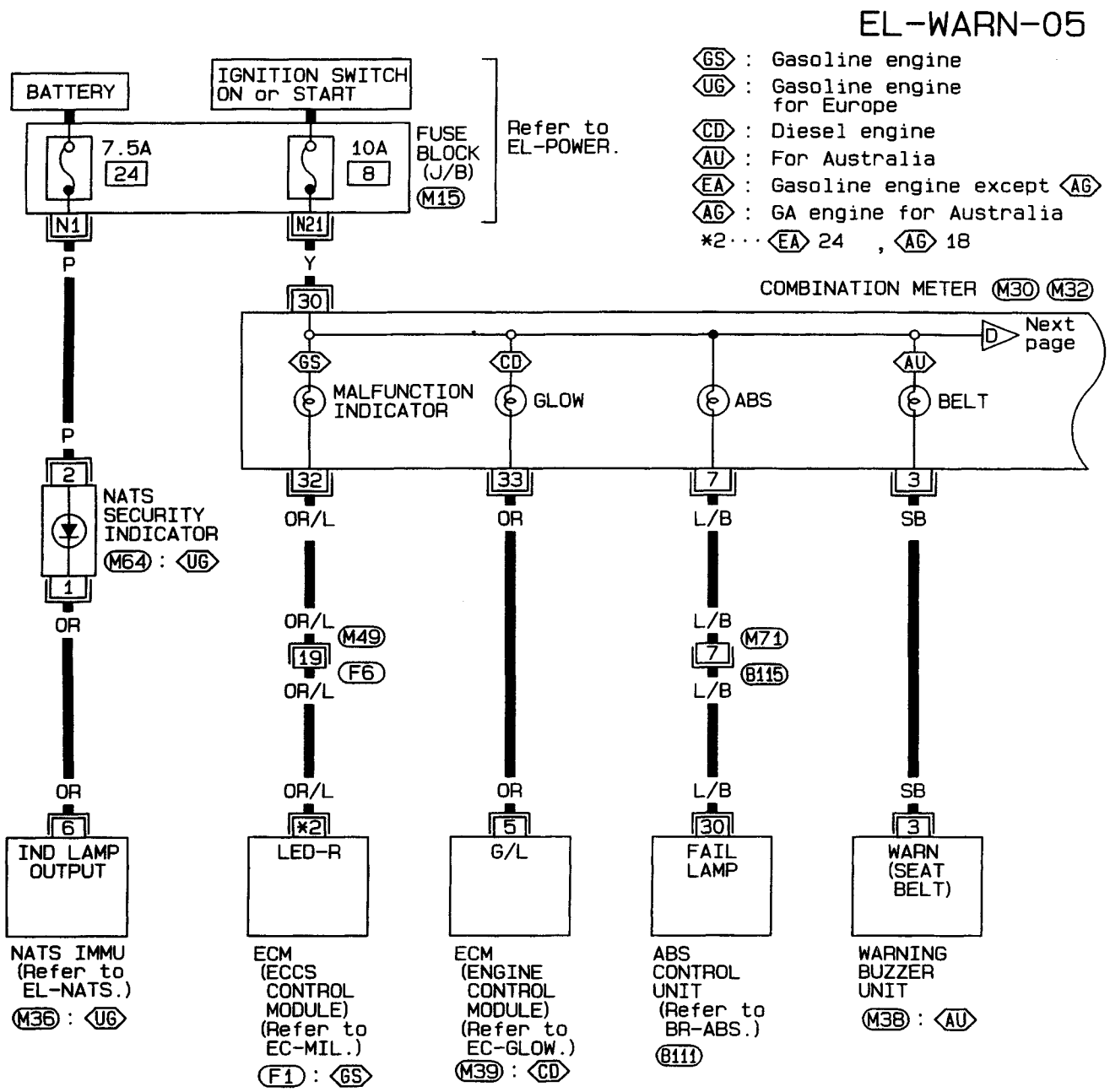
Refer to last page (Foldout page).

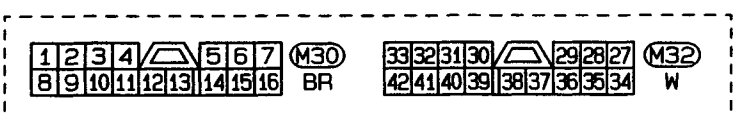
M8, E101

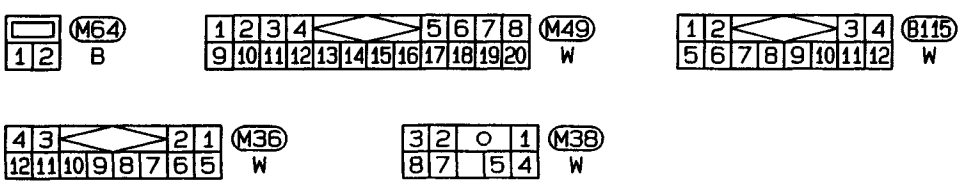
M19

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

RHD MODELS WITH TACHOMETER







Refer to last page (Foldout page).

M15

F1

M39

B111

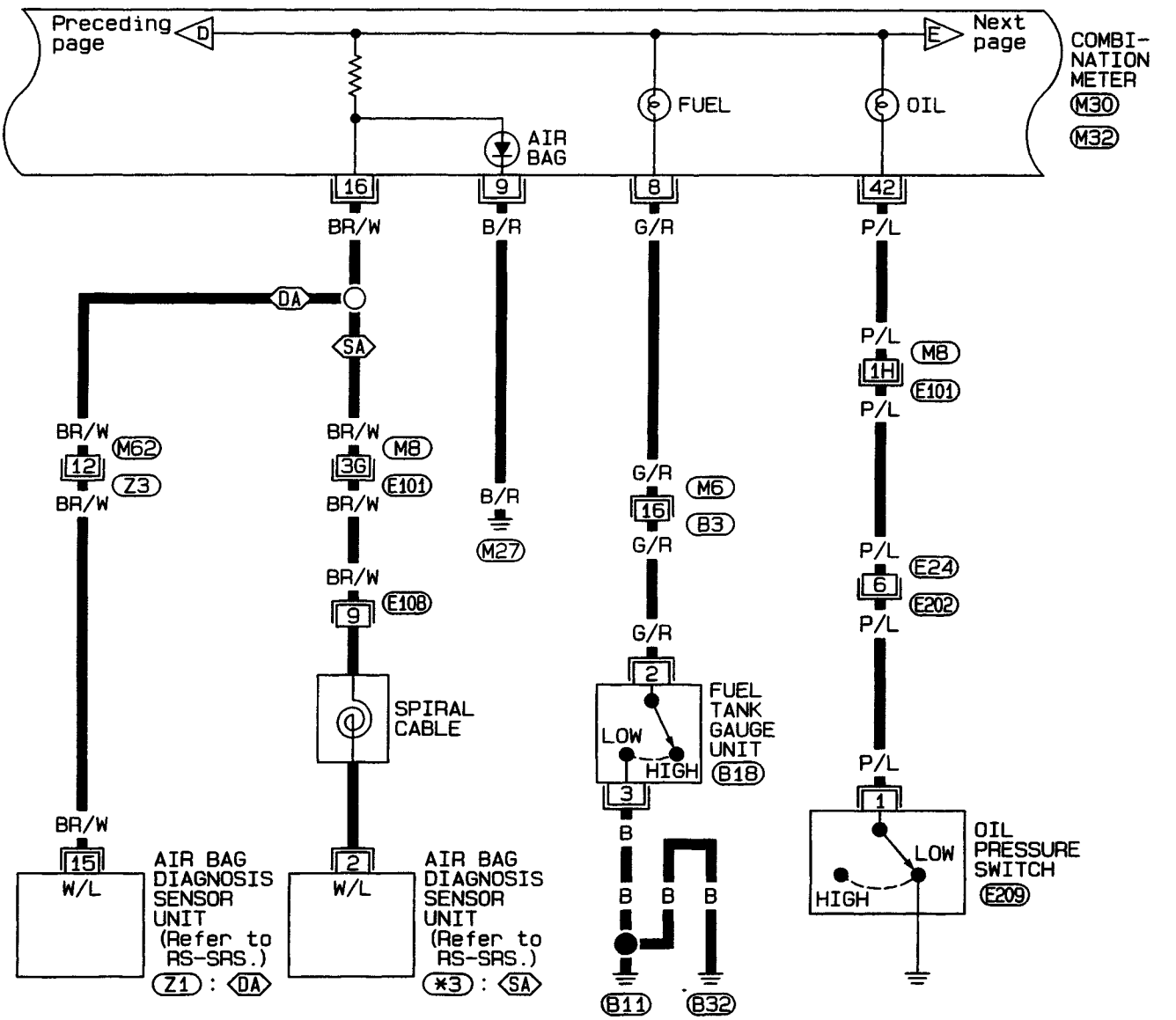
EL

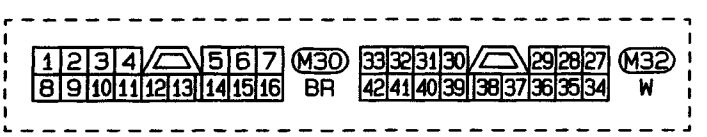
HEL075

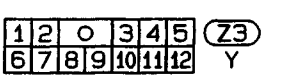
Warning Lamps/Wiring Diagram — WARN — (Cont'd)

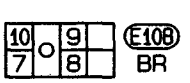
EL-WARN-06

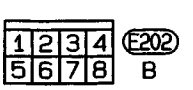
DA : Models with dual air bag system
SA : Models with single air bag system

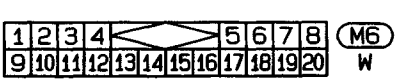


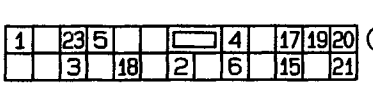


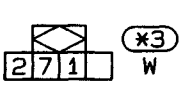


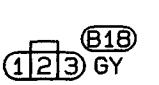


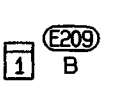










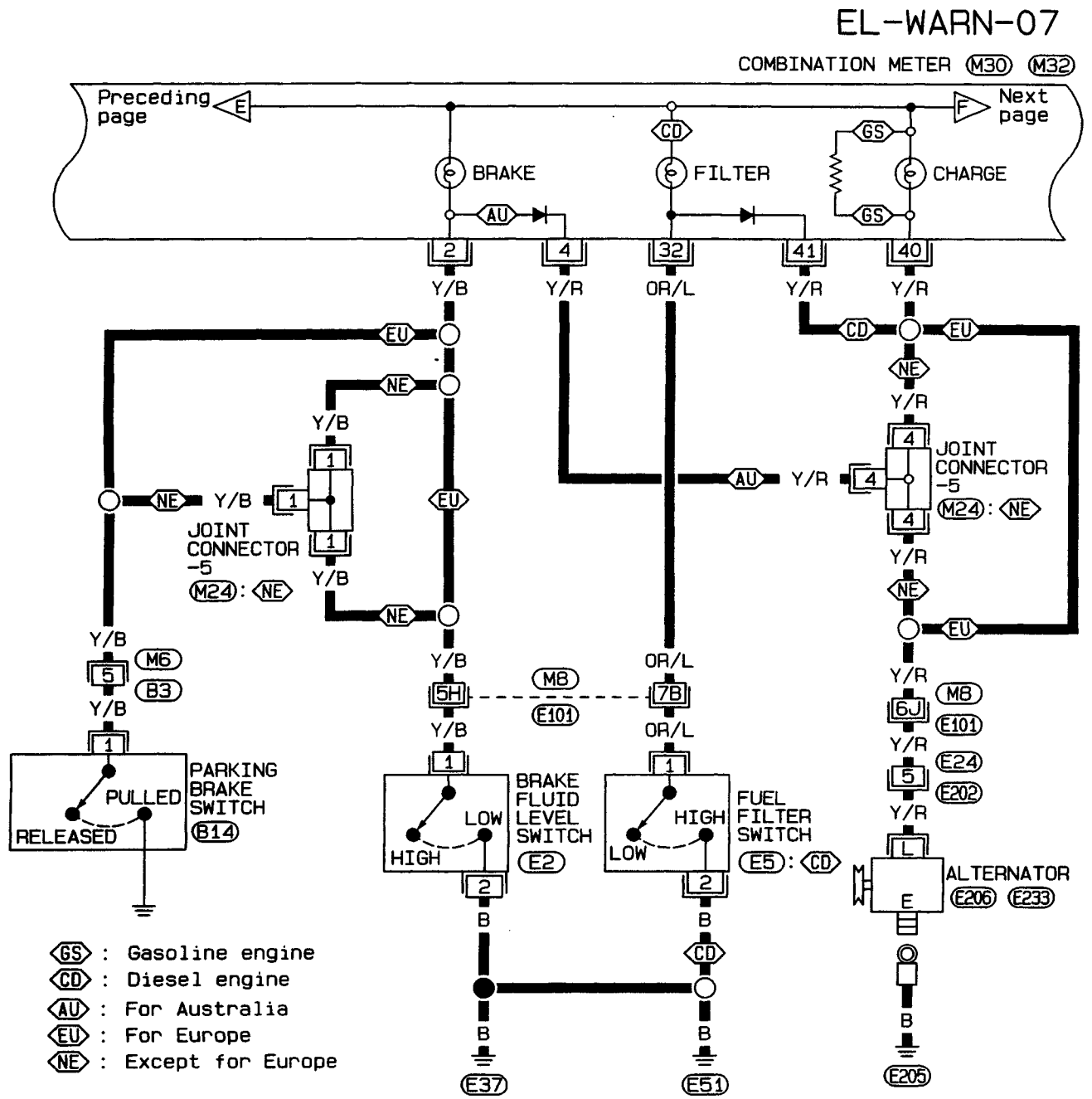


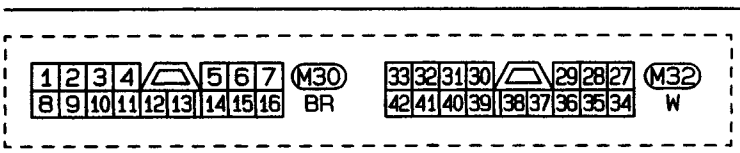
Refer to last page (Foldout page).

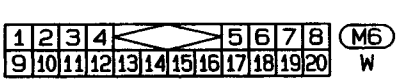
M8 , E101

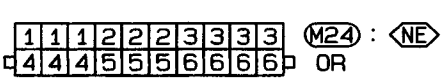
HEL076

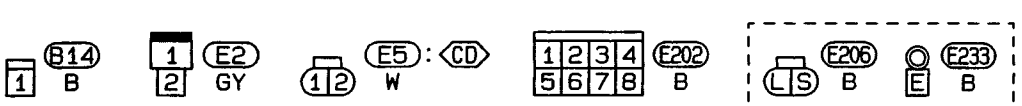
Warning Lamps/Wiring Diagram — WARN — (Cont'd)











Refer to last page (Foldout page).

M8 , E101

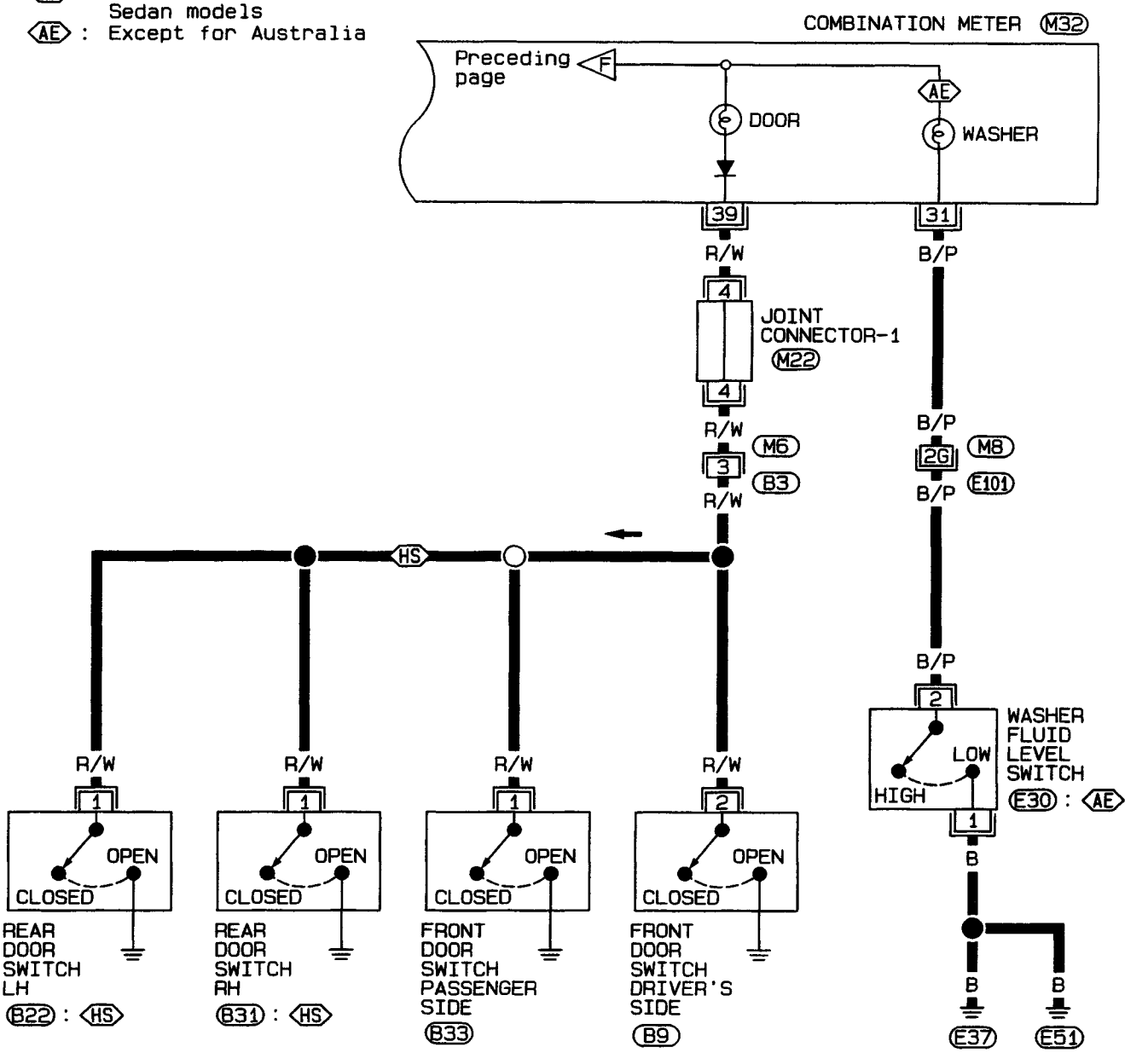
EL

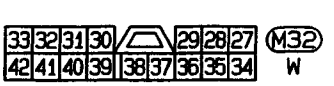
HEL077

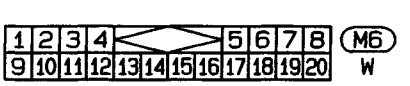
Warning Lamps/Wiring Diagram — WARN — (Cont'd)

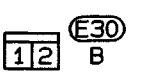
EL-WARN-08

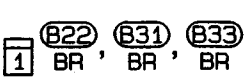
HS : 5-door Hatchback and Sedan models
AE : Except for Australia

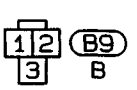












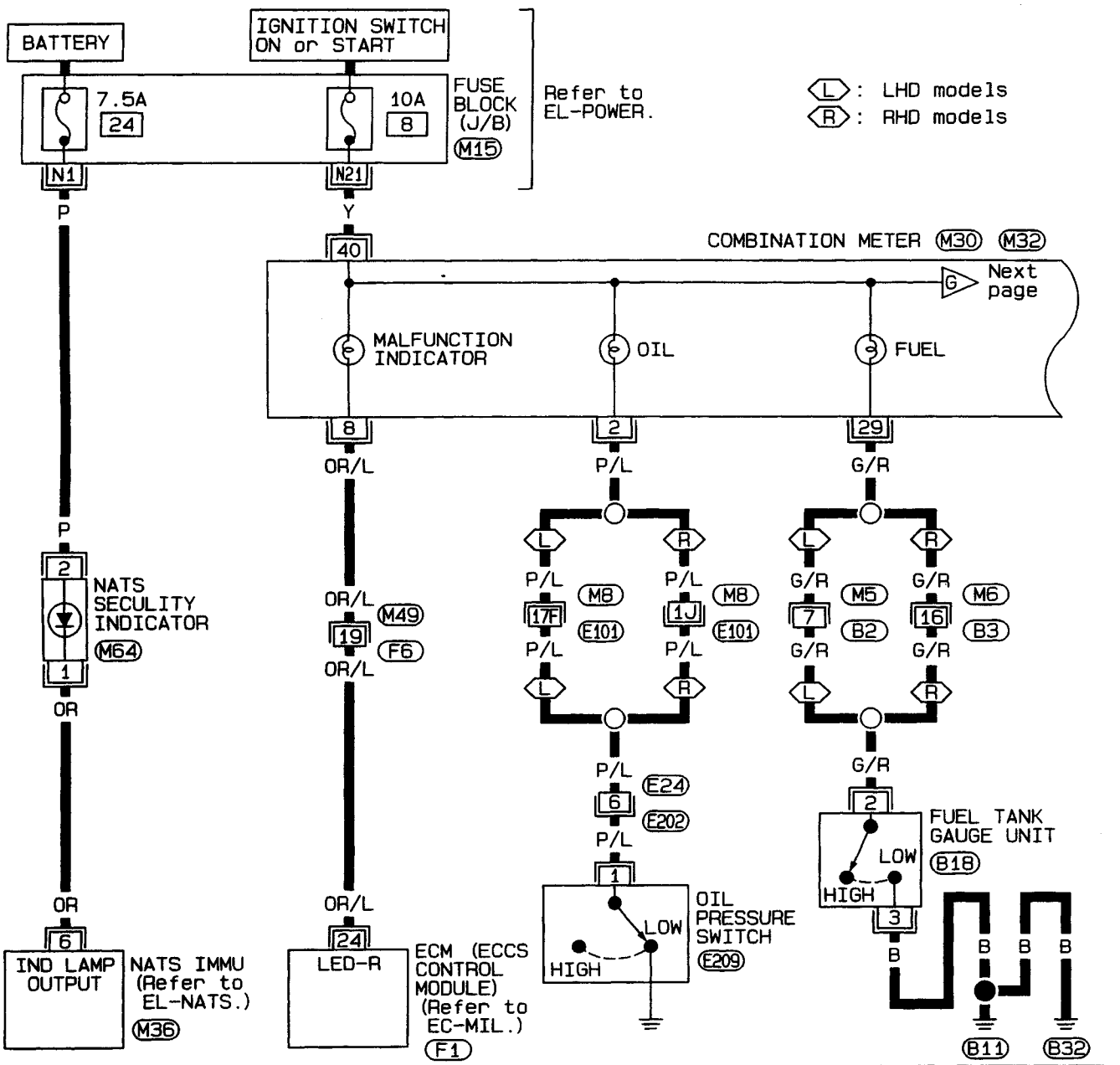
Refer to last page (Foldout page).
M8 , E101

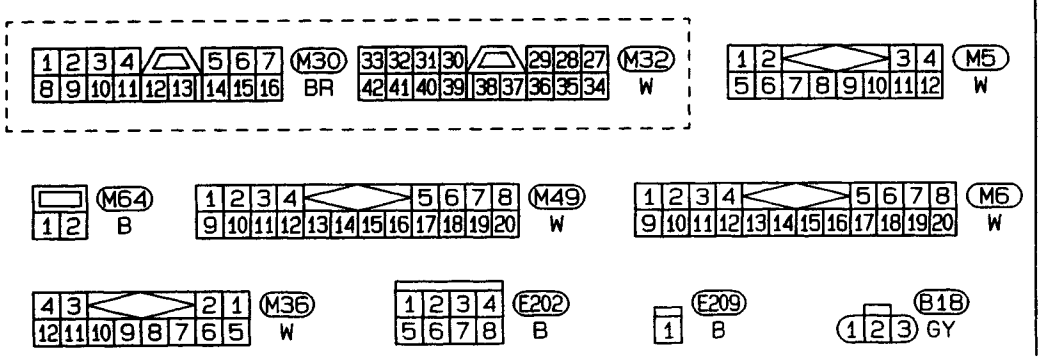
HEL078

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

WITHOUT TACHOMETER

EL-WARN-09





Refer to last page (Foldout page).

M8 , E101

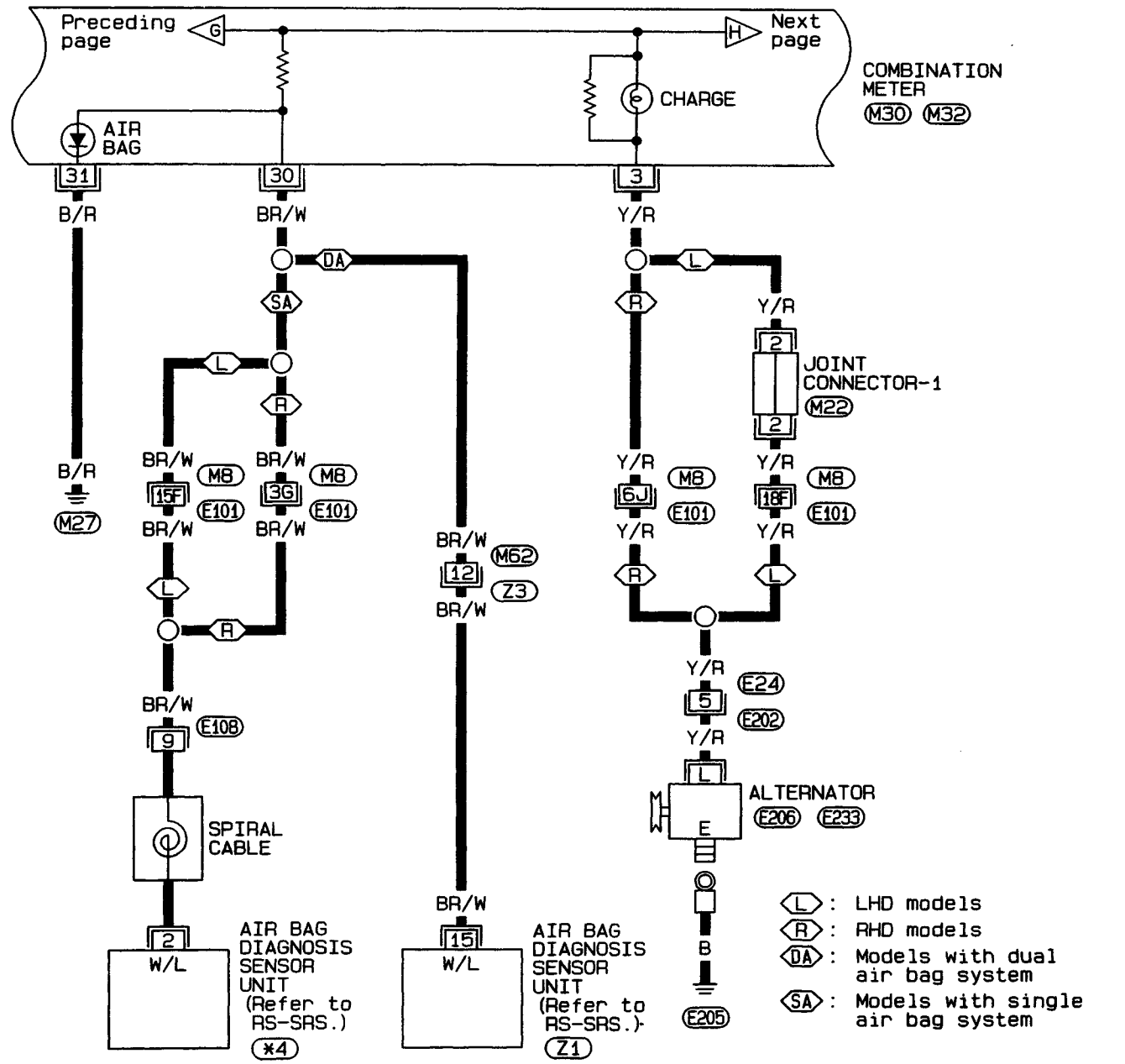
F1

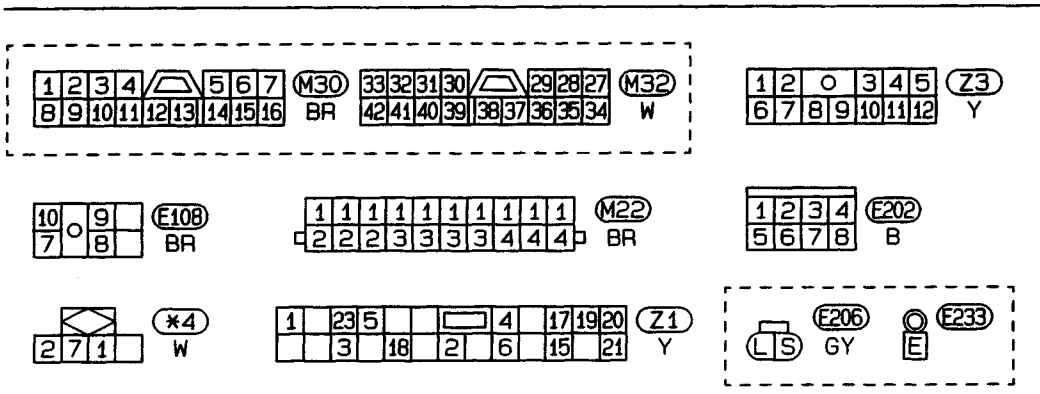
EL

HEL079

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

EL-WARN-10





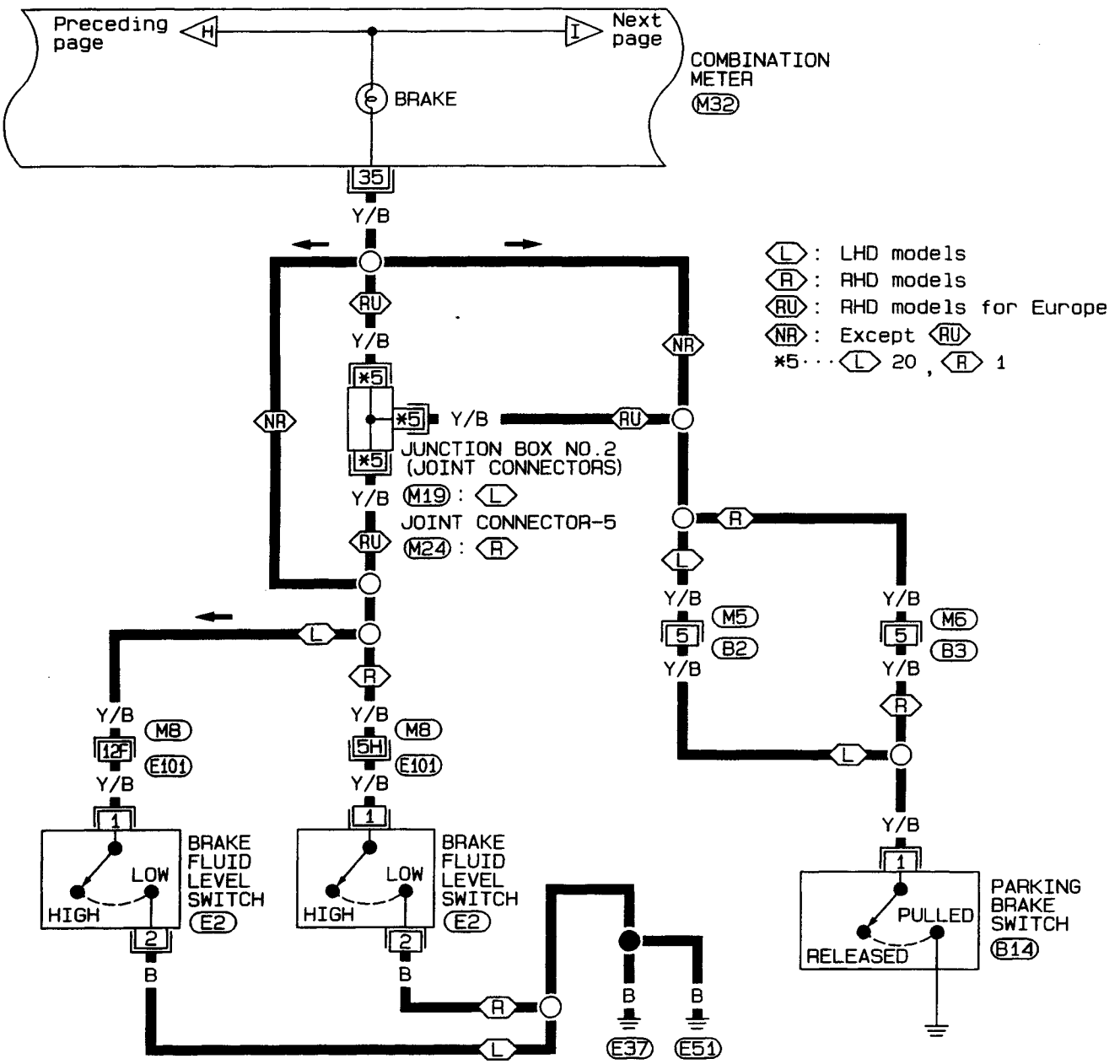
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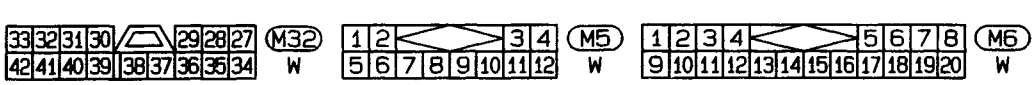
M8 , E101

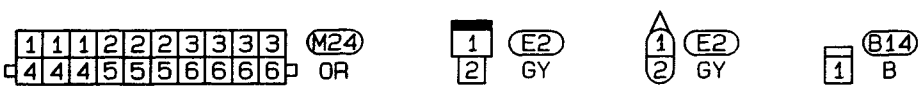
HEL080

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

EL-WARN-11







Refer to last page (Foldout page).

M8 , E101

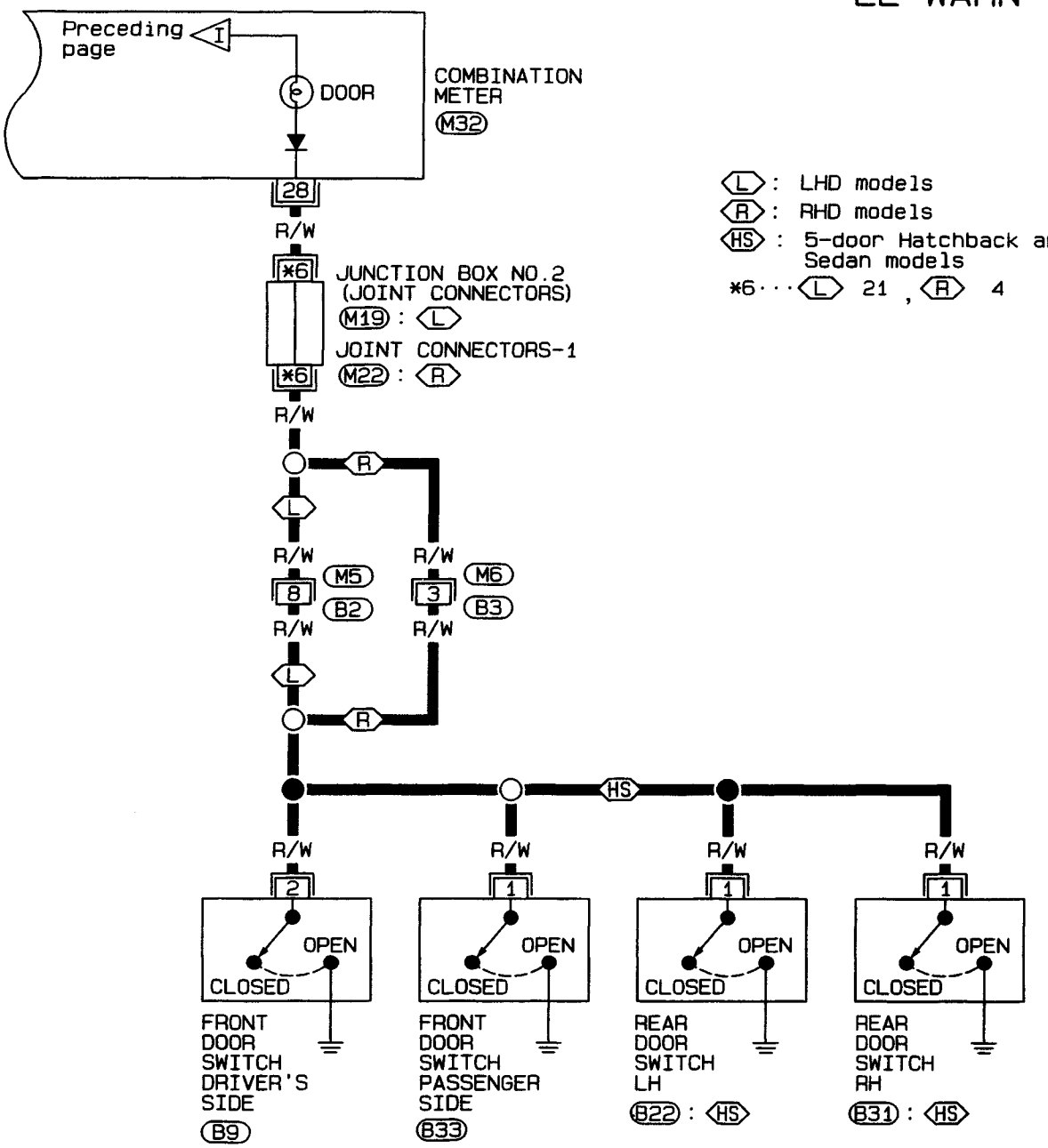
M19

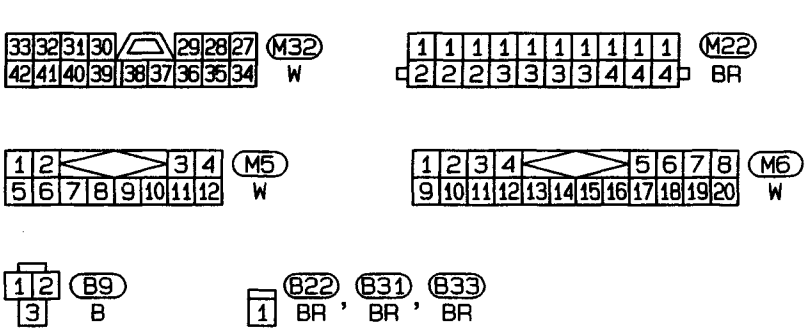
EL

HEL081

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

EL-WARN-12

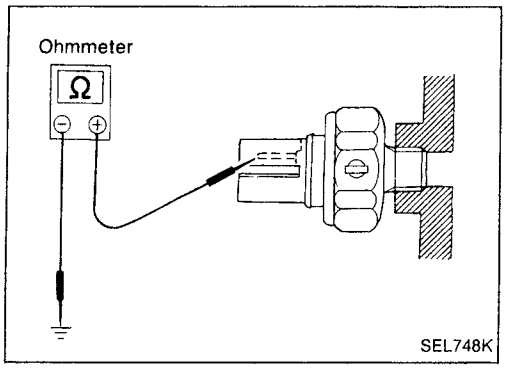




Refer to last page (Foldout page).

M19

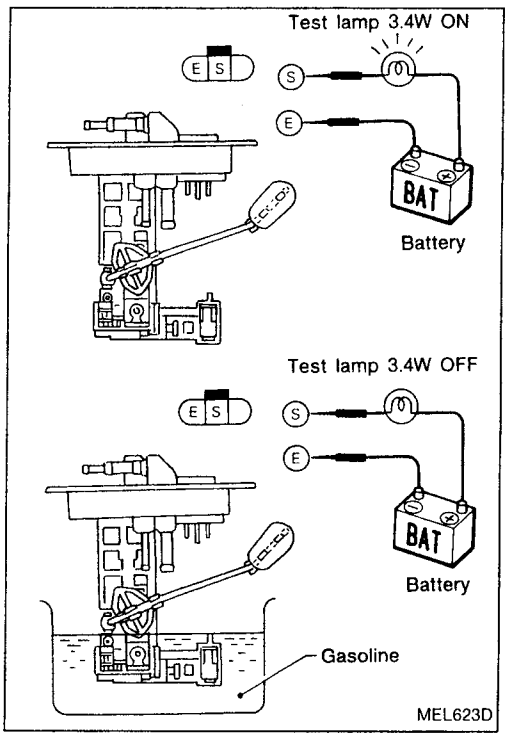
HEL198



Oil Pressure Switch Check

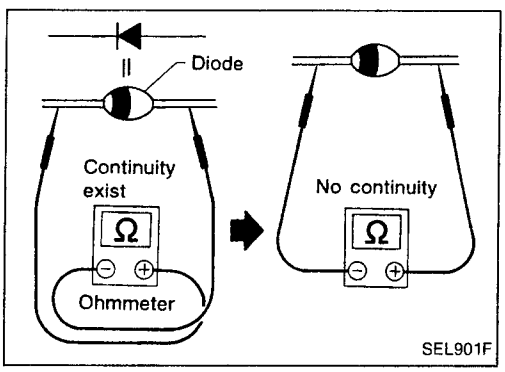
	Oil pressure kPa (bar, kg/cm^2, psi)	Continuity
Engine start	More than 10 - 20 (0.10 - 0.20, 0.1 - 0.2, 1.4 - 2.8)	NO
Engine stop	Less than 10 - 20 (0.10 - 0.20, 0.1 - 0.2, 1.4 - 2.8)	YES

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



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.

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

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

Refer to "Combination Meter" (EL-127).

Warning Buzzer Unit

- Seat belt warning lamp is controlled by the warning buzzer unit.

Refer to "Warning Buzzer" (EL-152).

EL

Warning Buzzer/System Description

The warning buzzer is controlled by the warning buzzer unit.
Power is supplied at all times
(RHD models except for Europe)
- through 7.5A fuse (No. 24 , located in the fuse block)
- to key switch terminal ①.

Power is supplied at all times
(LHD models without daytime light system)
- through 75A fusible link (letter g , located in the fusible link and fuse box).
- to lighting switch terminal ⑪.

(LHD models with daytime light system and RHD models)
- through 10A fuse (No. 36 , located in the fuse block)
- to lighting switch terminal ⑪.

Power is supplied at all times
(Except for Australia)
- through 7.5A fuse (No. 43 , located in the fusible link and fuse box)
- to rear fog lamp switch terminal ①.

With the ignition switch in the ON or START position, power is supplied
- through 7.5A fuse (No. 7 , located in the fuse block)
- to warning buzzer unit terminal ⑪ (LHD models except for Australia) or ① (For Australia).

When driver's door is opened, ground is supplied
- through body grounds (B11) and (B32)
- to driver's side door switch terminal ③
- through driver's side door switch terminal ①
- to warning buzzer unit terminal ④ (Except for Australia) or ⑦ (For Australia).

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

Ignition key warning buzzer (RHD models except for Europe)

With the key in the ignition switch in the OFF position, and the driver's door open, the warning buzzer will sound. A battery positive voltage is supplied
- from key switch terminal ②
- to warning buzzer unit terminal ⑨ (Except for Australia) or ⑤ (For Australia).

Ground is supplied
- from driver side door switch terminal ①
- to warning buzzer unit terminal ④ (Except for Australia) or ⑦ (For Australia).

Driver side door switch terminal ③ is grounded through body grounds (B11) and (B32).

Light warning buzzer

With ignition switch OFF, driver's door open, and lighting switch in 1ST or 2ND position, warning buzzer will sound. A battery positive voltage is supplied
(LHD models without daytime light system)
- from lighting switch terminal ⑫
- through 10A fuse (No. 45 , located in the fusible link and fuse box)
- to warning buzzer unit terminal ⑩.

(LHD models with daytime light system)
- from lighting switch terminal ⑫
- to daytime light unit terminal ⑪
- through daytime light unit terminal ⑩
- to warning buzzer unit terminal ⑩

(RHD models)
- from lighting switch terminal ⑫
- to warning buzzer unit terminal ⑩ (Except for Australia) or ④ (For Australia).

Ground is supplied
- from driver side door switch terminal ①
- to warning buzzer unit terminal ④ (Except for Australia) or ⑦ (For Australia).

Driver side door switch terminal ③ is grounded through body grounds (B11) and (B32).

Rear fog lamp switch warning buzzer (For Europe models)

With ignition switch OFF, driver's door open, and rear fog lamp switch ON, warning buzzer will sound. A battery positive voltage is supplied

Warning Buzzer/System Description (Cont'd)

- from rear fog lamp switch terminal ②
- to warning buzzer unit terminal ⑨.

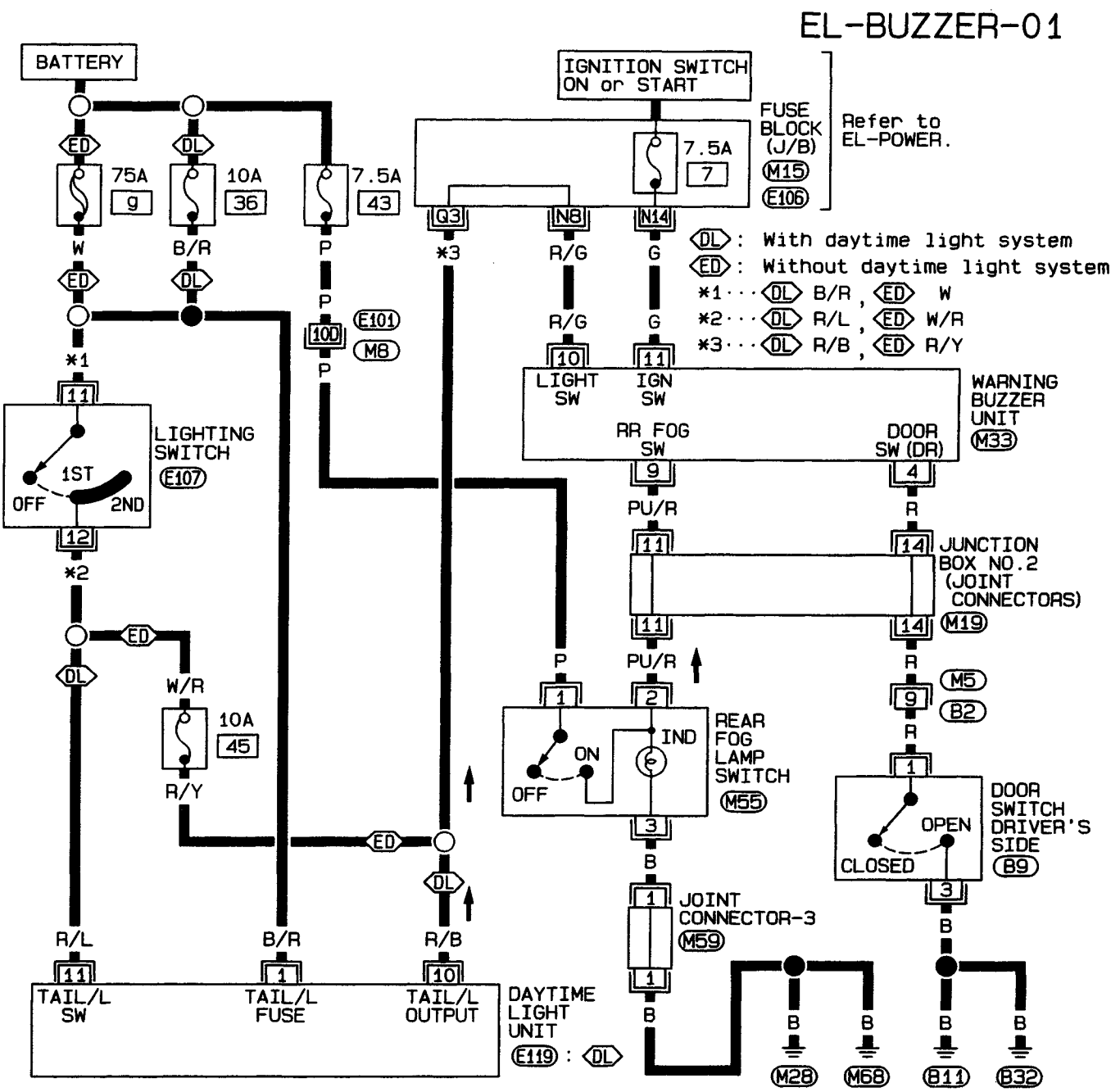
Ground is supplied

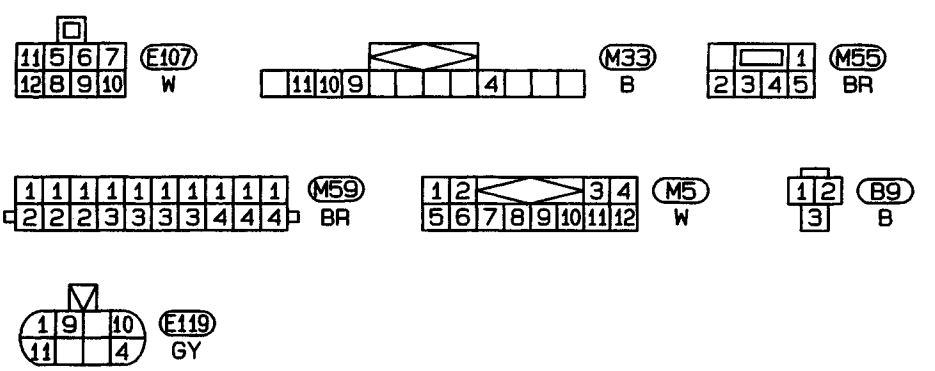
- from driver side door switch terminal ①
- to warning buzzer unit terminal ④.

Driver side door switch terminal ③ is grounded through body grounds (B11) and (B32).

Warning Buzzer/Wiring Diagram — BUZZER —

LHD MODELS



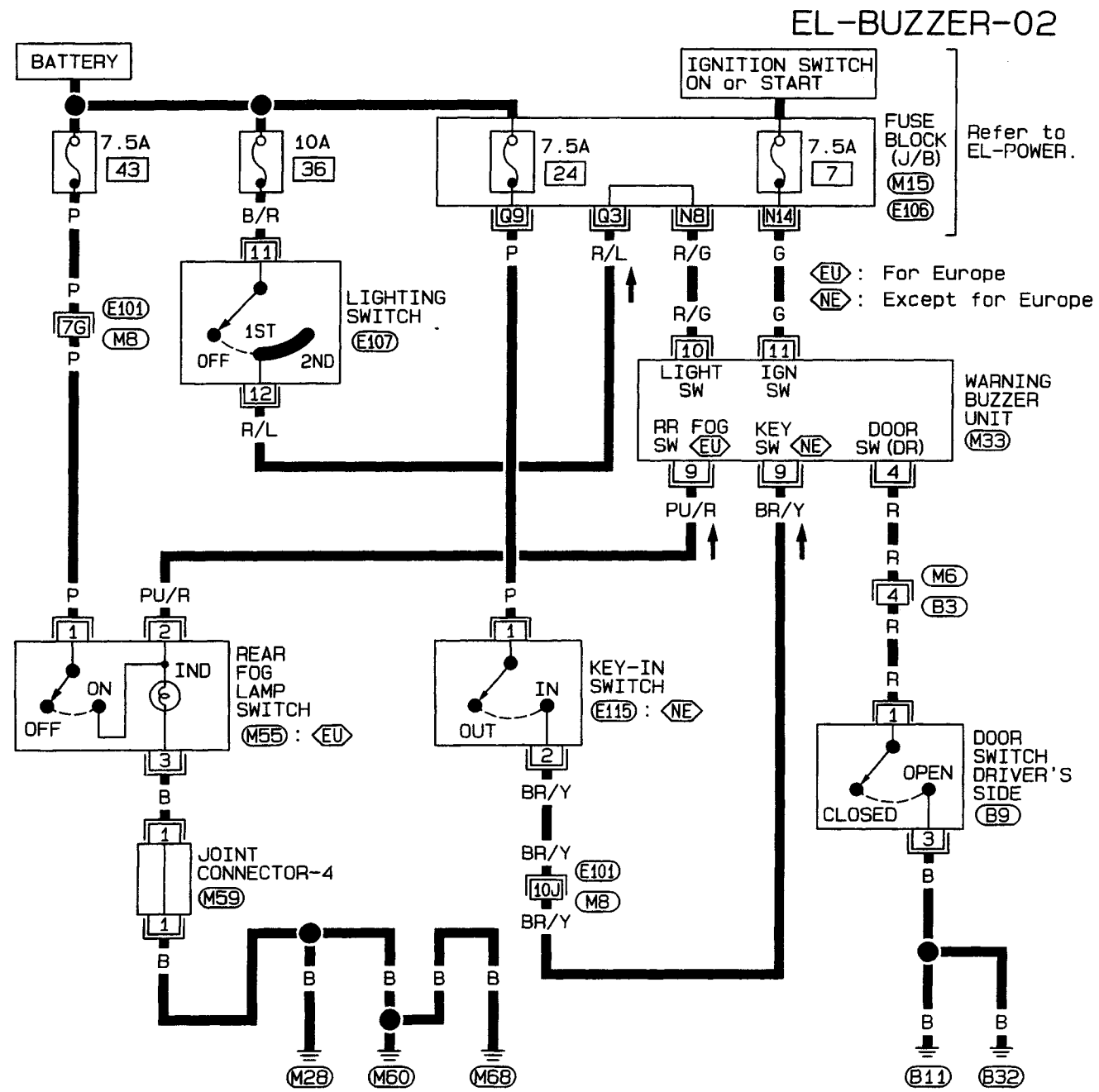


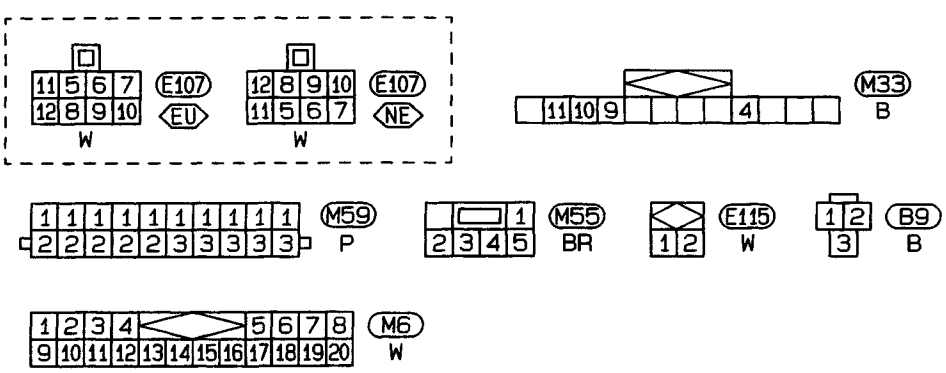
Refer to last page (Foldout page).
M8 , E101
M15 , E106
M19

HEL083

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

RHD MODELS EXCEPT FOR AUSTRALIA





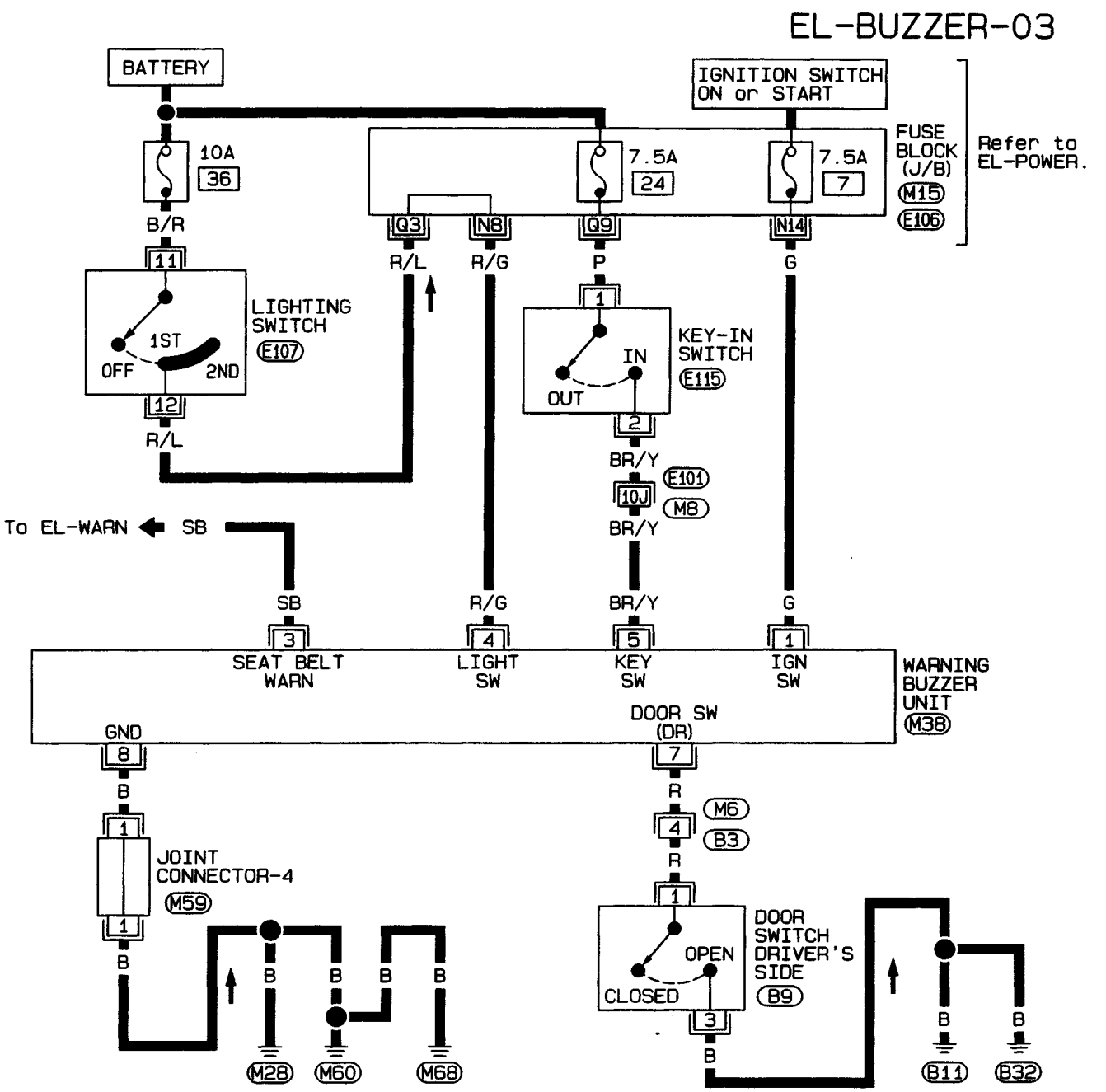
Refer to last page (Foldout page).
M8, E101
M15, E106

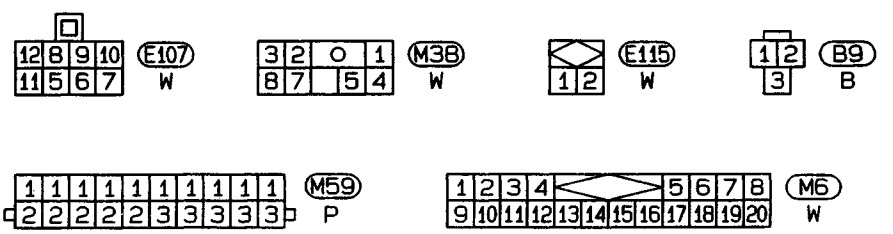
EL

HEL084

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

FOR AUSTRALIA



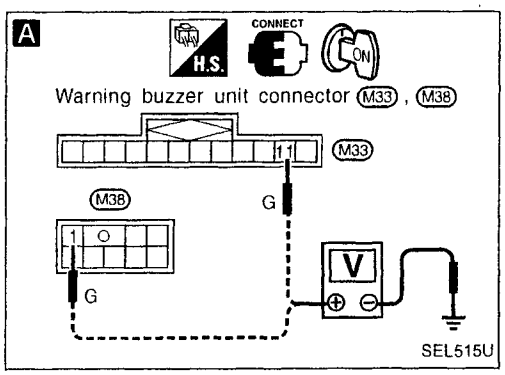


Refer to last page (Foldout page).

M8, E101

M15, E106

HEL085



Components Inspection — Warning Buzzer

IGNITION POWER SUPPLY CHECK

A

IGNITION POWER SUPPLY CHECK
1) Turn ignition switch to "ON".
2) Measure voltage between warning buzzer unit connector and body ground.

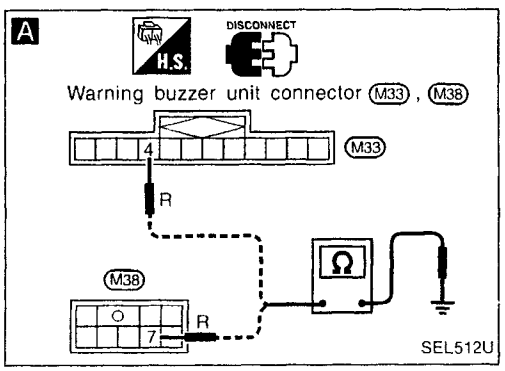
Destination	Connector No.	Terminal No.
For Australia	M38	①
Except for Australia	M33	⑪

Battery voltage should exist.

NG → Check the following.
1) 7.5A fuse (No. 7, located in fuse block [J/B])
2) Harness

OK ↓

Ignition power supply is OK.



DRIVER'S DOOR SWITCH CHECK

A

DOOR SWITCH INPUT SIGNAL CHECK
Check continuity between warning buzzer unit connector and body ground.

Destination	Connector No.	Terminal No.	Door switch condition and continuity	
			Open	Close
For Australia	M38	⑦	Yes	No
Except for Australia	M33	④		

NG → Check the following.
1) Driver's door switch
2) Driver's door switch ground circuit
3) Harness (continuity and ground short)

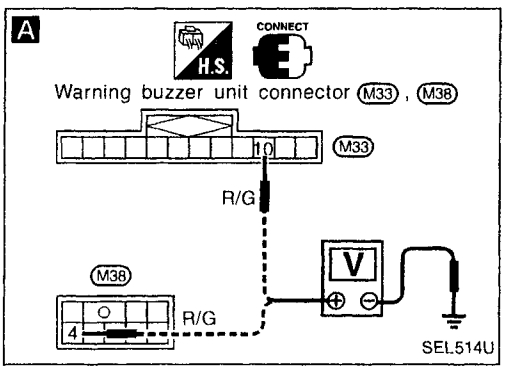
OK ↓

Driver's door switch is OK.

EL

Components Inspection — Warning Buzzer (Cont'd)

LIGHTING SWITCH CHECK



A

LIGHTING SWITCH INPUT SIGNAL CHECK
Measure voltage between warning buzzer unit connector and body ground.

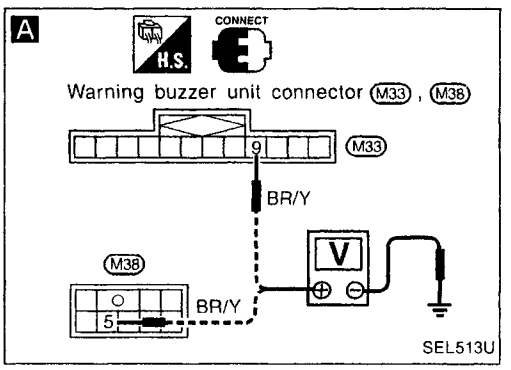
Destination	Connector No.	Terminal No.	Lighting switch condition and voltage [V]	
			1st or 2nd	OFF
For Australia	M38	④	Approx. 12	0
Except for Australia	M33	⑩		

NG → Check the following.
1) 10A fuse (No. 36), and 75A fuse (No. 9)
2) Lighting switch
3) Harness

OK ↓

Lighting switch is OK.

IGNITION KEY-IN SWITCH SIGNAL CHECK — RHD models except for Europe



A

KEY-IN SWITCH INPUT SIGNAL CHECK
Measure voltage between warning buzzer unit connector and body ground.

Destination	Connector No.	Terminal No.	Ignition key condition and voltage [V]	
			Inserted	Removed
For Australia	M38	⑤	Approx. 12	0
RHD models except for Australia	M33	⑨		

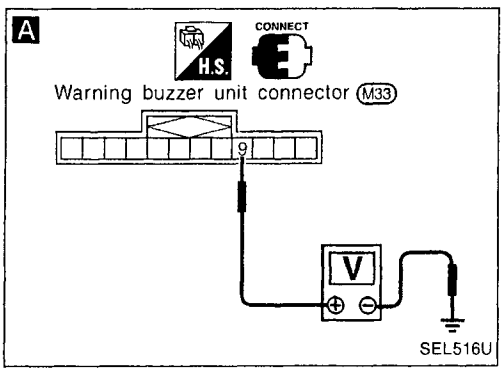
NG → Check the following.
1) 7.5A fuse (No. 24 , located in fuse block [J/B])
2) Ignition key switch
3) Harness

OK ↓

Ignition key switch is OK.

Components Inspection — Warning Buzzer (Cont'd)

REAR FOG LAMP SWITCH CHECK — For Europe models



A

REAR FOG LAMP SWITCH INPUT SIGNAL CHECK
Measure voltage between warning buzzer unit connector terminal ⑨ and body ground.

Condition	Voltage [V]
Rear fog lamp switch ON	Approx. 12
Rear fog lamp switch OFF	0

NG → Check the following.
1) 7.5A fuse (No. 43)
2) Rear fog lamp switch
3) Harness

OK ↓

Rear fog lamp switch is OK.

EL

Front Wiper and Washer/System Description

WIPER OPERATION

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

- LO speed
- HI speed
- INT (Intermittent)

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

- through 20A fuse (No. 19 , located in the fuse block)
- to wiper motor terminal ⑥.

Low and high speed wiper operation

Ground is supplied to wiper switch terminal ⑰ through body grounds E37 and E51.
When the wiper switch is placed in the LO position, ground is supplied

- through terminal ⑭ of the wiper switch
- to wiper motor terminal ②.

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

- through terminal ⑯ of the wiper switch
- to wiper motor terminal ①.

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

Auto stop operation

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

- from terminal ⑭ of the wiper switch
- to wiper motor terminal ②, in order to continue wiper motor operation at low speed.

Ground is also supplied

- through terminal ⑬ of the wiper switch
- to wiper amplifier terminal ②
- through terminal ⑦ of the wiper amplifier
- to wiper motor terminal ⑤
- through terminal ④ of the wiper motor, and
- through body grounds M28, M60 and M68.

When wiper arms reach base of windshield, wiper motor terminals ⑤ and ⑥ are connected instead of terminals ⑤ and ④. Wiper motor will then stop wiper arms at the PARK position.

Intermittent operation

With variable intermittent

The wiper motor operates the wiper arms at a set interval of approximately 2 to 20 seconds. This feature is controlled by the wiper amplifier.
When the wiper switch is placed in the INT position, ground is supplied

- to wiper amplifier terminal ①
- from wiper switch terminal ⑮
- through body grounds E37 and E51.
- to wiper motor terminal ②
- through the wiper switch terminal ⑭
- to wiper switch terminal ⑬
- through wiper amplifier terminal ②
- to wiper amplifier terminal ③
- through body grounds M28, M60 and M68.

The desired interval time is input

- to wiper amplifier terminal ⑧
- from wiper switch terminal ⑲.

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

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

Without variable intermittent

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

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

- to wiper amplifier terminal ①
- from wiper switch terminal ⑮
- through body grounds (E37) and (E51)
- to wiper motor terminal ②
- through the wiper switch terminal ⑭
- to wiper switch terminal ⑬
- through wiper amplifier terminal ②
- to wiper amplifier terminal ③
- through body grounds (M28), (M60) and (M68).

WASHER OPERATION

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

- through 20A fuse (No. 19 , located in the fuse block)
- to washer motor terminal ①.

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

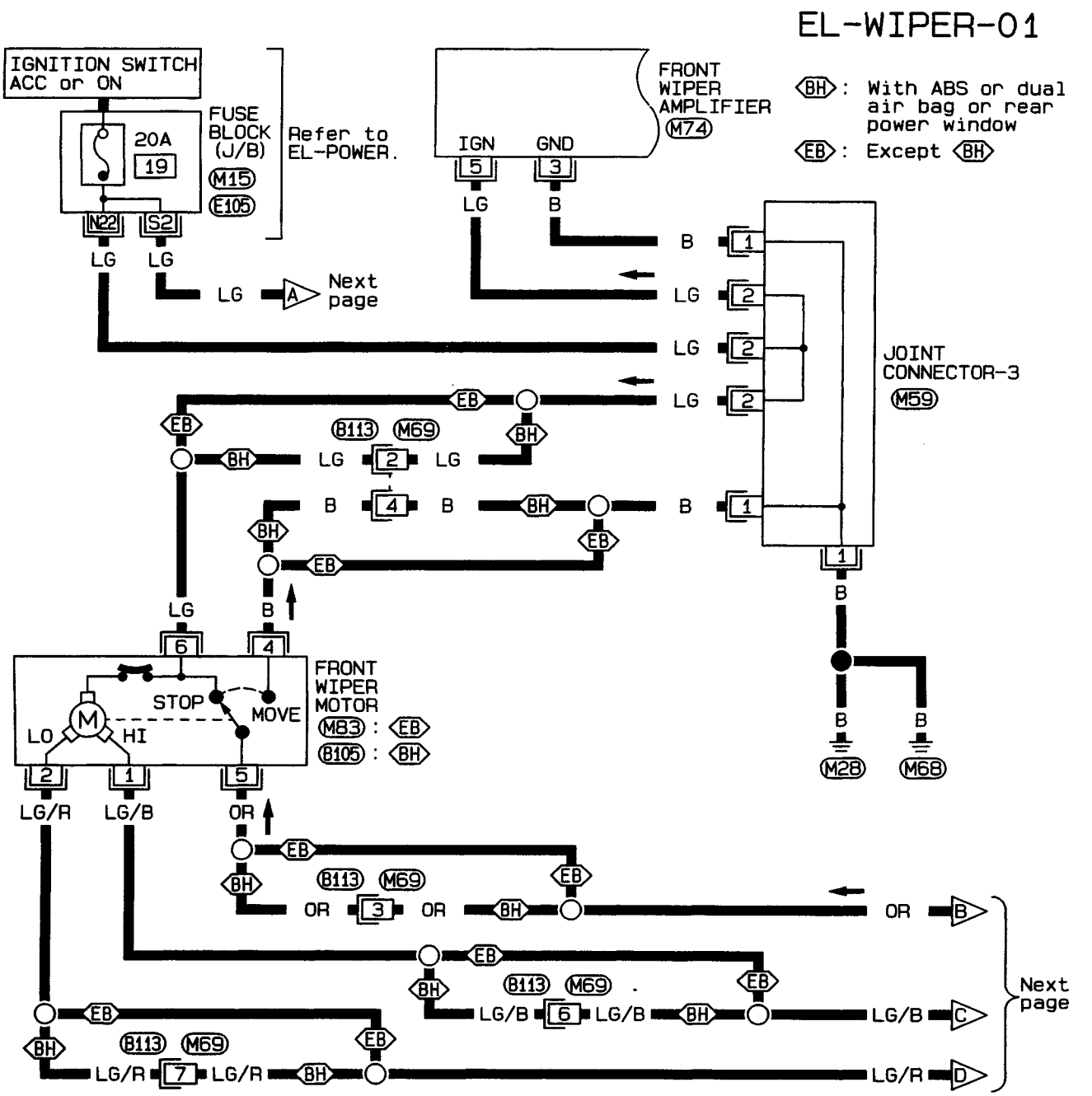
- to washer motor terminal ②, and
- to wiper amplifier terminal ⑥
- from terminal ⑱ of the wiper switch
- through terminal ⑰ of the wiper switch, and
- through body grounds (E37) and (E51).

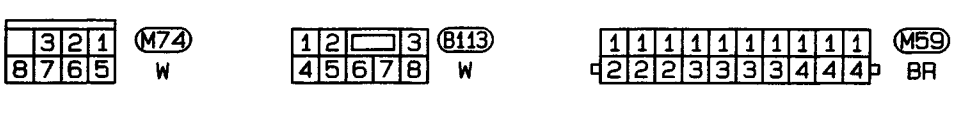
With power and ground supplied, the washer motor operates.

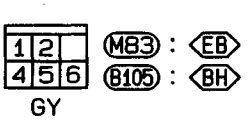
When the lever is pulled to the WASH position for one second or more, the wiper motor operates at low speed for approximately 3 seconds to clean windshield. This feature is controlled by the wiper amplifier in the same manner as the intermittent operation.

Front Wiper and Washer/Wiring Diagram
— WIPER —

LHD MODELS







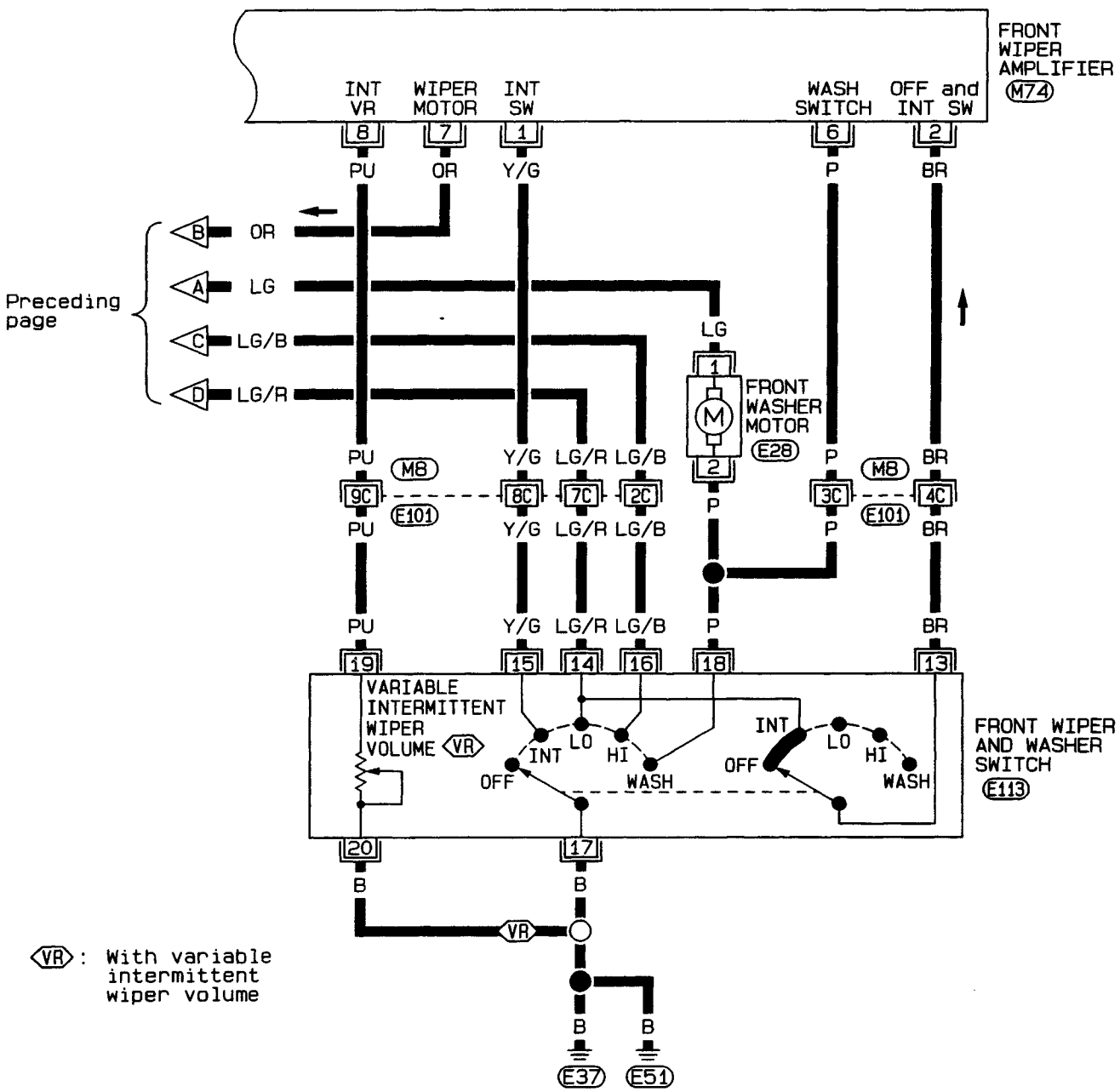
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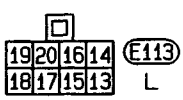
M15 , E105

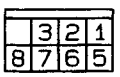
HEL086

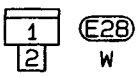
Front Wiper and Washer/Wiring Diagram — WIPER — (Cont'd)

EL-WIPER-02









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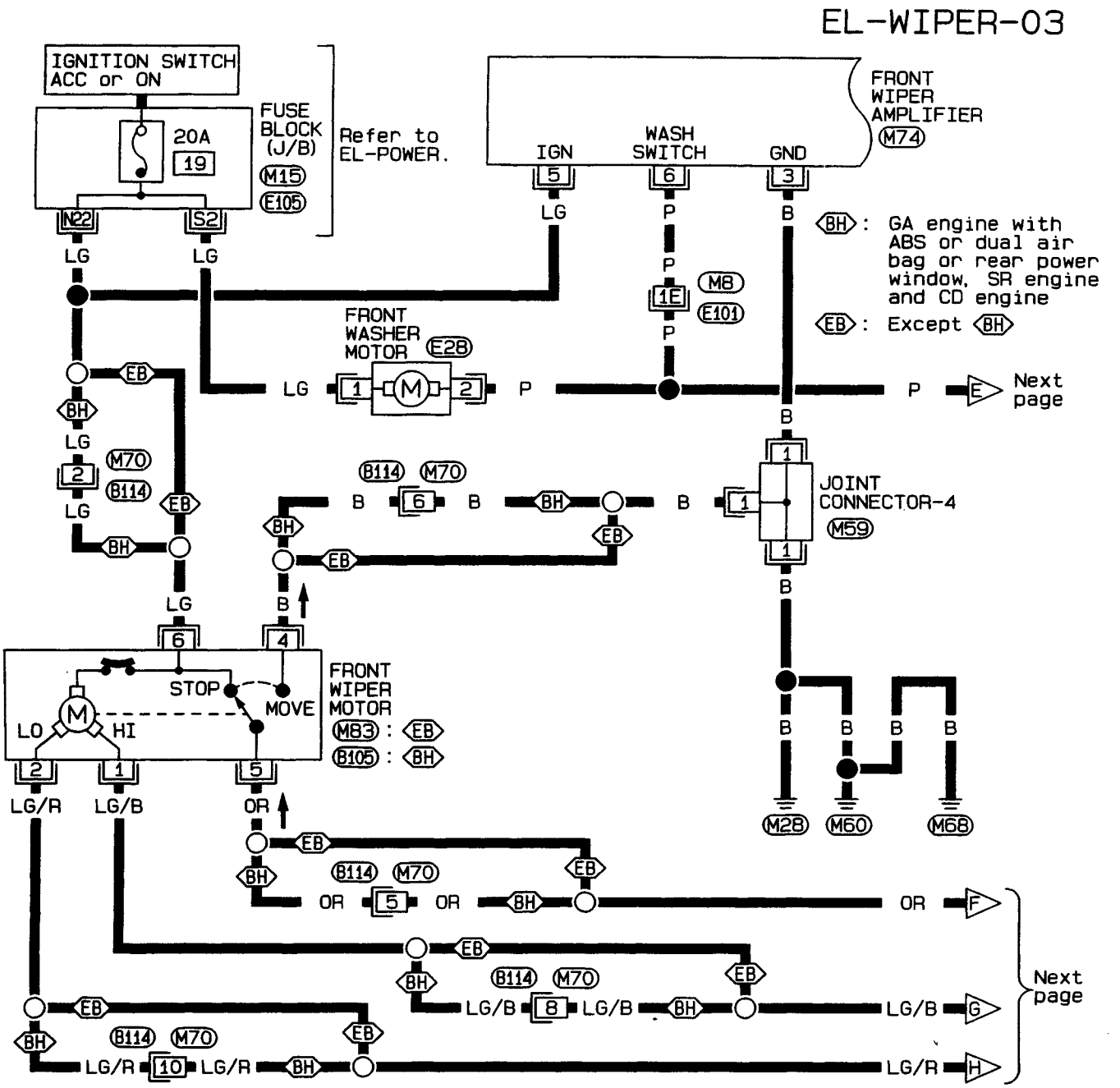
M8, E101

EL

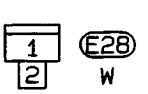
HEL087

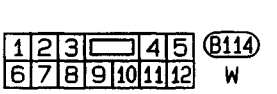
Front Wiper and Washer/Wiring Diagram — WIPER — (Cont'd)

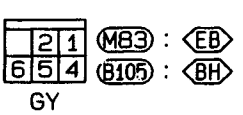
RHD MODELS

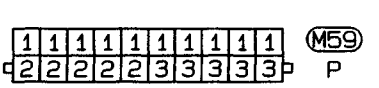



M74 W


E28 W


B114 W




M59 P

Refer to last page (Foldout page).

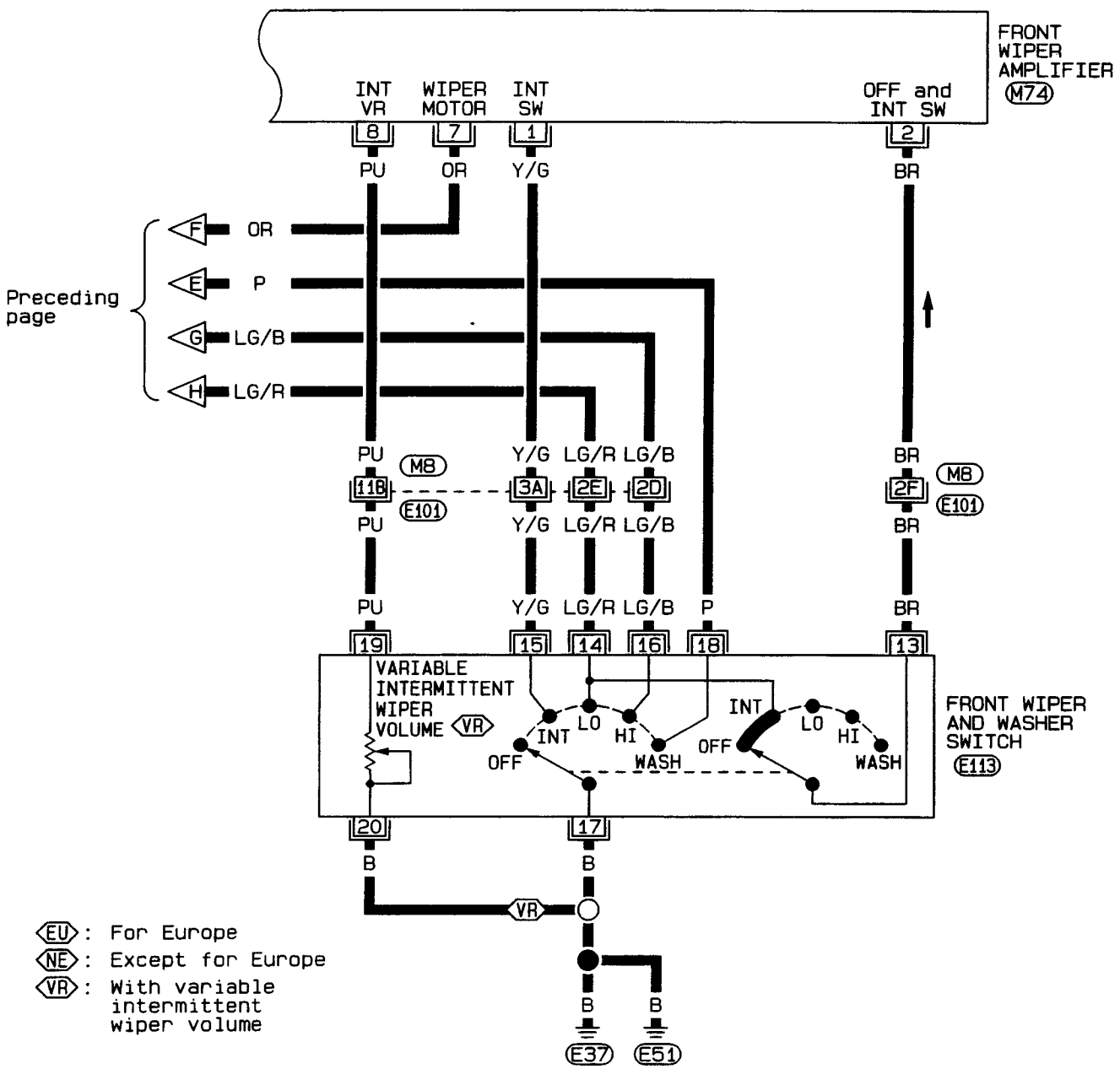
M8 , E101

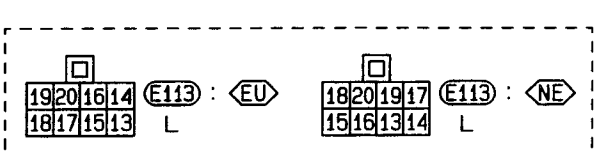
M15 , E105

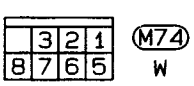
HEL088

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

EL-WIPER-04



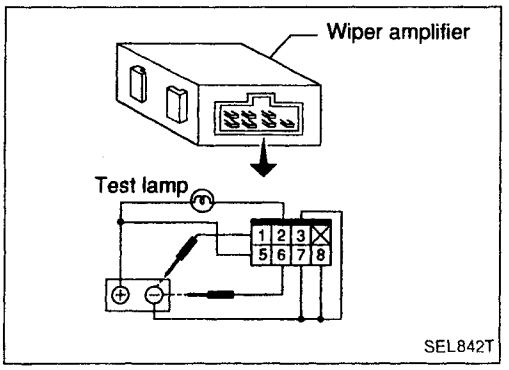




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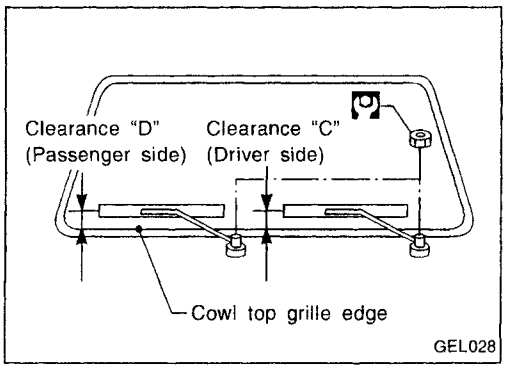
M8 , E101

HEL089



Front Wiper Amplifier Check

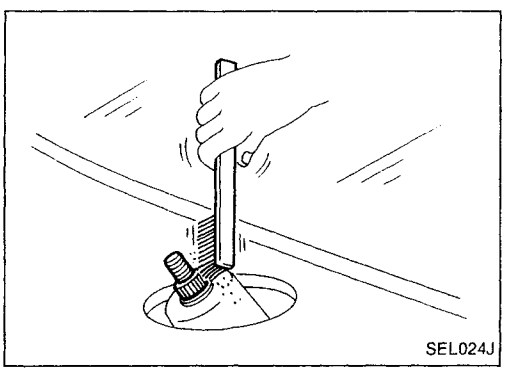
1. Connect as shown in the figure at left.
2. If test lamp comes on when connected to terminal ① or ⑥ and battery ground, wiper amplifier is normal.



Front Wiper Installation and Adjustment

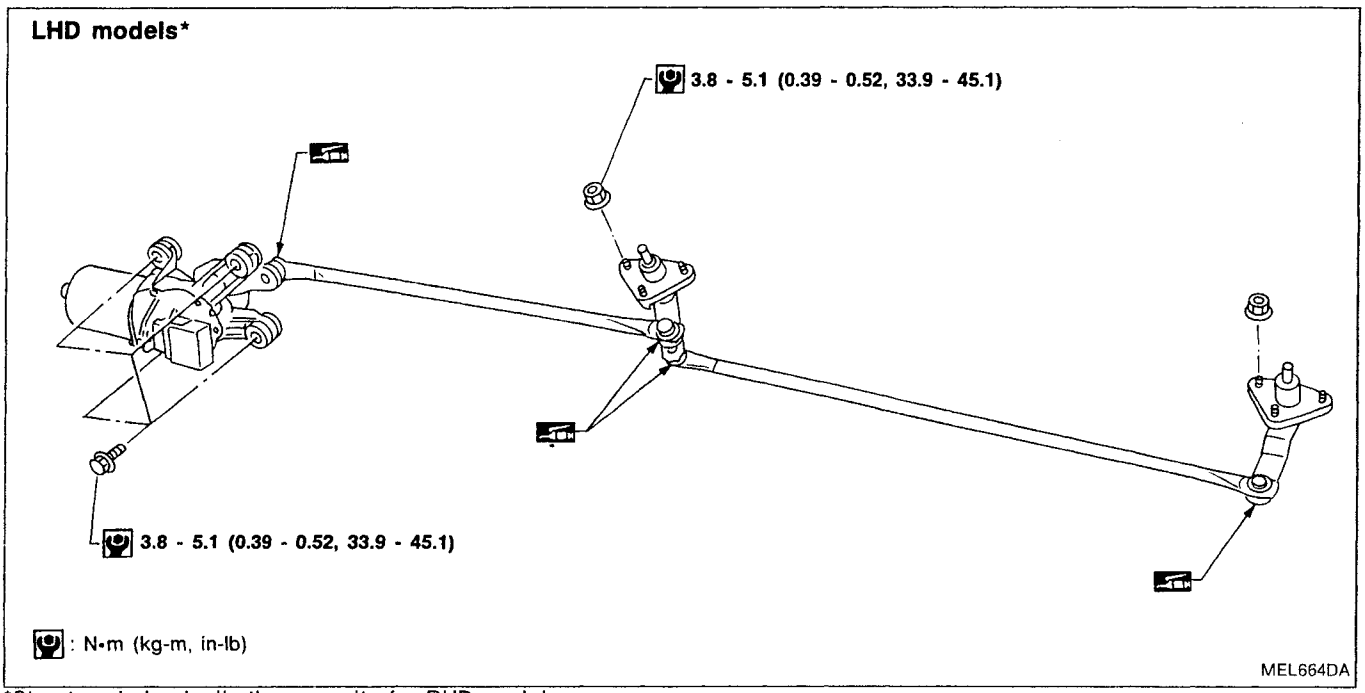
1. Prior to wiper arm installation, turn on wiper switch to operate wiper motor and then turn it "OFF" (Auto Stop).
2. Lift the blade up and then set it down onto glass surface. Set the blade center to clearance "C" & "D" immediately before tightening nut.
3. Eject washer fluid. Turn on wiper switch to operate wiper motor and then turn it "OFF".
4. Ensure that wiper blades stop within clearance "C" & "D".
   Clearance "C": 23 - 38 mm (0.91 - 1.50 in)
   Clearance "D": 27 - 42 mm (1.06 - 1.65 in)

- Tighten windshield wiper arm nuts to specified torque.
  : 21 - 26 N·m (2.1 - 2.7 kg-m, 15 - 20 ft-lb)



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

Front Wiper Linkage



*Structure is basically the opposite for RHD models.

REMOVAL

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

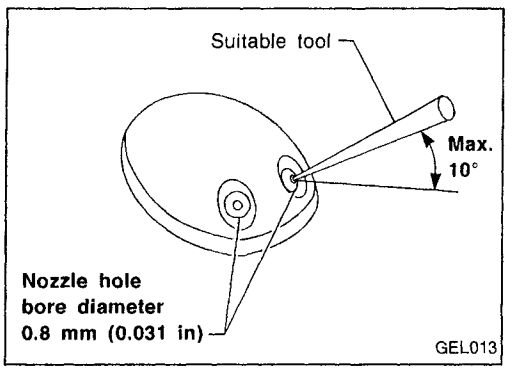
Be careful not to break ball joint rubber boot.

INSTALLATION

- Grease ball joint portion before installation.

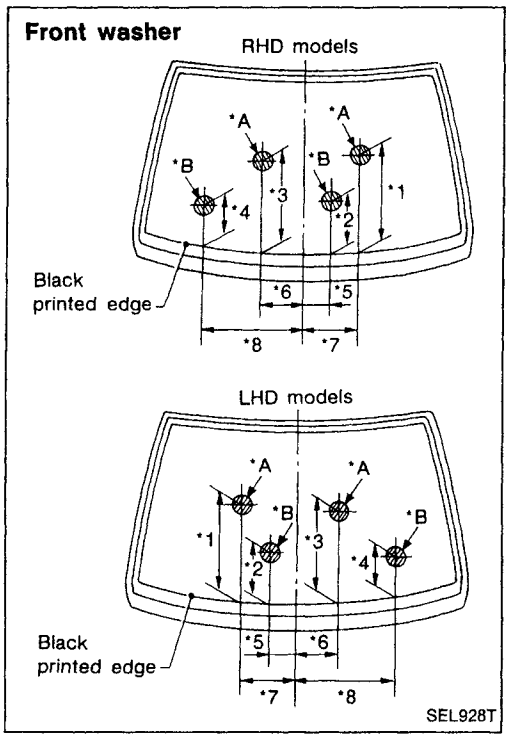
1. Installation is the reverse order of removal.

EL



Front Washer Nozzle Adjustment

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

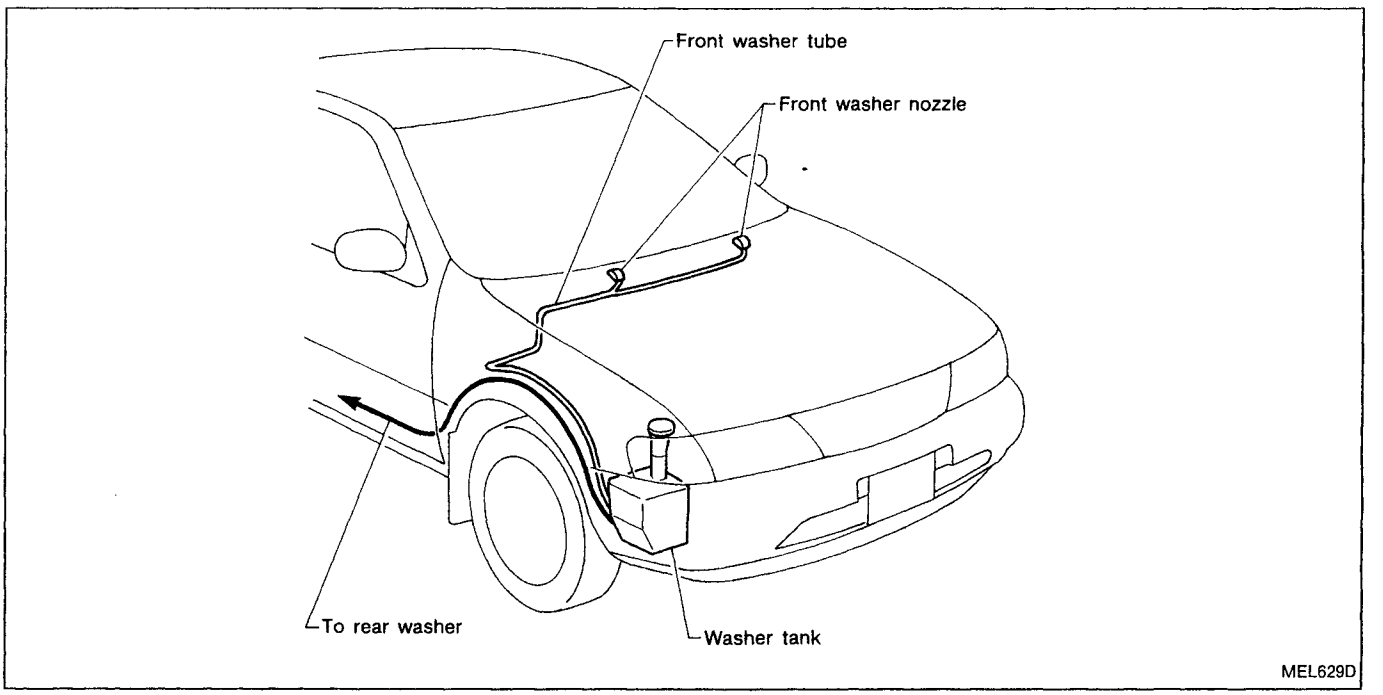


Unit: mm (in)

*1	310 (12.20)	*5	160 (6.30)
*2	265 (10.43)	*6	170 (6.69)
*3	365 (14.37)	*7	345 (13.58)
*4	175 (6.89)	*8	410 (16.14)

*A: The diameters of these circles are less than 140 mm (5.51 in).
*B: The diameters of these circles are less than 80 mm (3.15 in).

Front Washer Tube Layout



Rear Wiper and Washer/System Description

WIPER OPERATION

The rear wiper switch is controlled by a ring built into the combination switch.
There are two wiper switch positions:

- ON (LO speed)
- INT (Intermittent)

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

- through 10A fuse (No. 9, located in the fuse block)
- to rear wiper motor terminal ④, and
- to rear wiper relay terminal ①.

Low speed wiper operation

Ground is supplied to rear wiper switch terminal ㉔ through body grounds (E37) and (E51).
When the rear wiper is placed in the ON position, ground is supplied

- through rear wiper switch terminal ㉒
- to rear wiper relay terminal ②.

The rear wiper relay is energized and ground is supplied

- to rear wiper motor terminal ①
- through rear wiper relay terminal ③
- to rear wiper relay terminal ⑤
- through body grounds (E37) and (E51).

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, rear wiper relay is not energized and ground is supplied

- to rear wiper motor terminal ①
- through rear wiper relay terminal ③
- to rear wiper relay terminal ④
- through rear wiper motor terminal ③, in order to continue rear wiper motor operation at low speed.

Ground is also supplied

- to rear wiper motor terminal ②
- through body grounds (B11), (B32) and (D105).

When wiper arm reaches base of rear window, rear wiper motor terminals ① and ④ are connected instead of terminals ① and ③. Rear wiper motor will then stop wiper arm at the PARK position.

Intermittent operation

The rear wiper motor operates the wiper arm one time at low speed at an interval of approximately 7 seconds. This feature is controlled by rear wiper amplifier.
With the ignition switch in the ACC or ON position, power is supplied

- through 10A fuse (No. 9, located in the fuse block)
- to rear wiper relay terminal ①.

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

- to rear wiper amplifier terminal ②
- from rear wiper switch terminal ㉑
- through body grounds (E37) and (E51).

Ground is also supplied

- to rear wiper relay terminal ②
- through rear wiper amplifier terminal ⑥
- to rear wiper amplifier terminal ⑤
- through body grounds (M28), (M60) and (M68).

Then the rear wiper relay is energized and ground is supplied

- to rear wiper motor terminal ①
- through rear wiper relay terminal ③
- to rear wiper relay terminal ⑤

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

- through body grounds (E37) and (E51).

With power and ground supplied, the rear wiper motor operates intermittently.

WASHER OPERATION

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

- through 10A fuse (No. [9], located in the fuse block)
- to rear washer motor terminal ①.

When the ring is turned WASH position, ground is supplied

- to rear washer motor terminal ②, and
- to rear wiper amplifier terminal ①
- from terminal ㉓ of rear wiper switch
- through terminal ㉔ of rear wiper switch, and
- through body grounds (E37) and (E51).

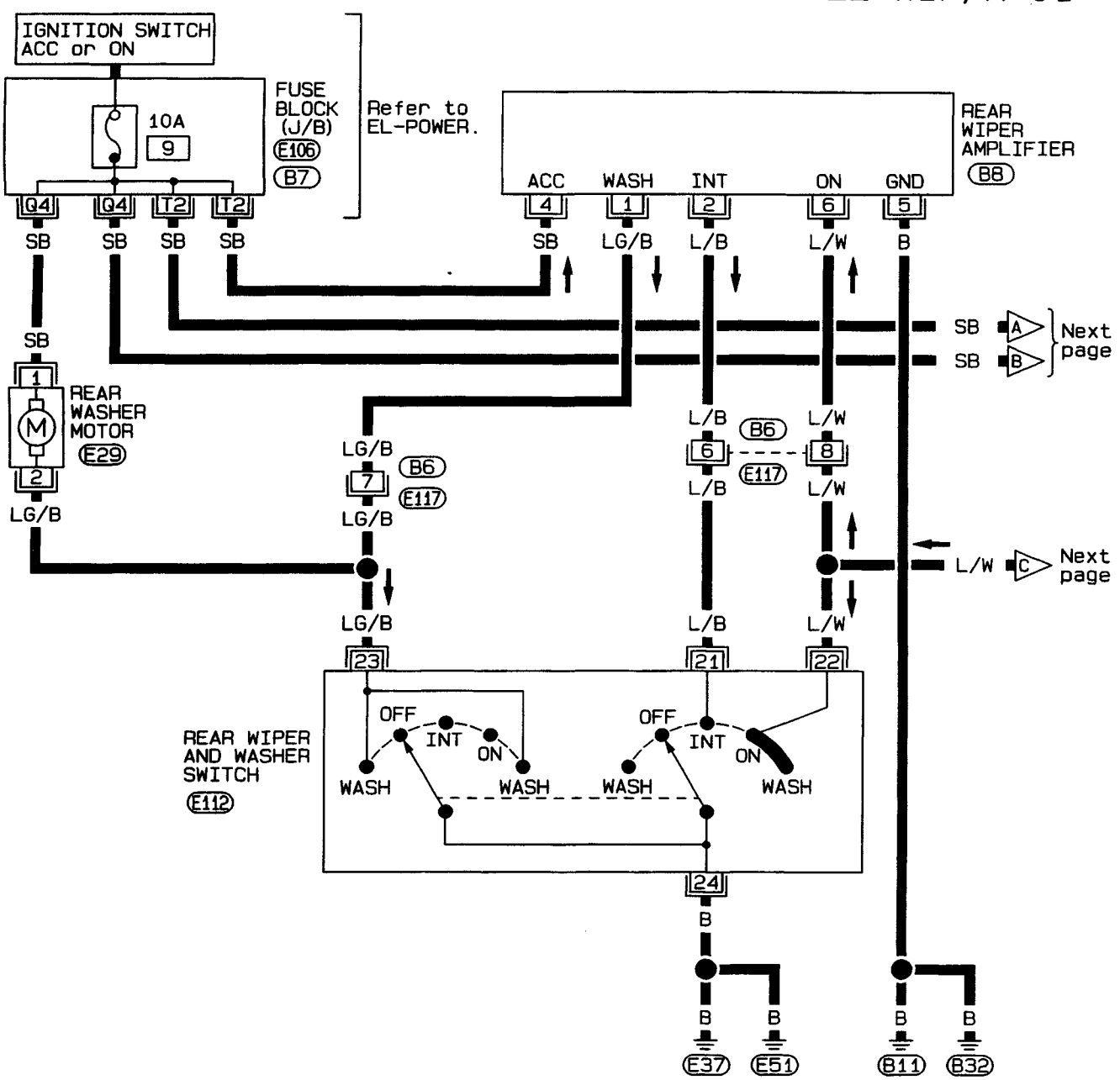
With power and ground is supplied, the rear washer motor operates.

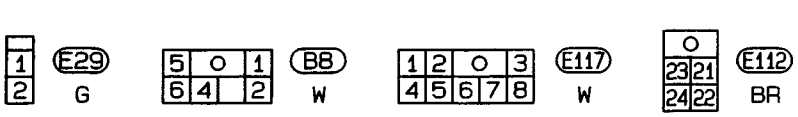
The rear wiper motor operates when the ring is turned to WASH position for one second or more and for approximately 3 seconds after the ring is released. This feature is controlled by the rear wiper amplifier in the same manner as the intermittent operation.

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

LHD MODELS

EL-WIP/R-01





Refer to last page (Foldout page).

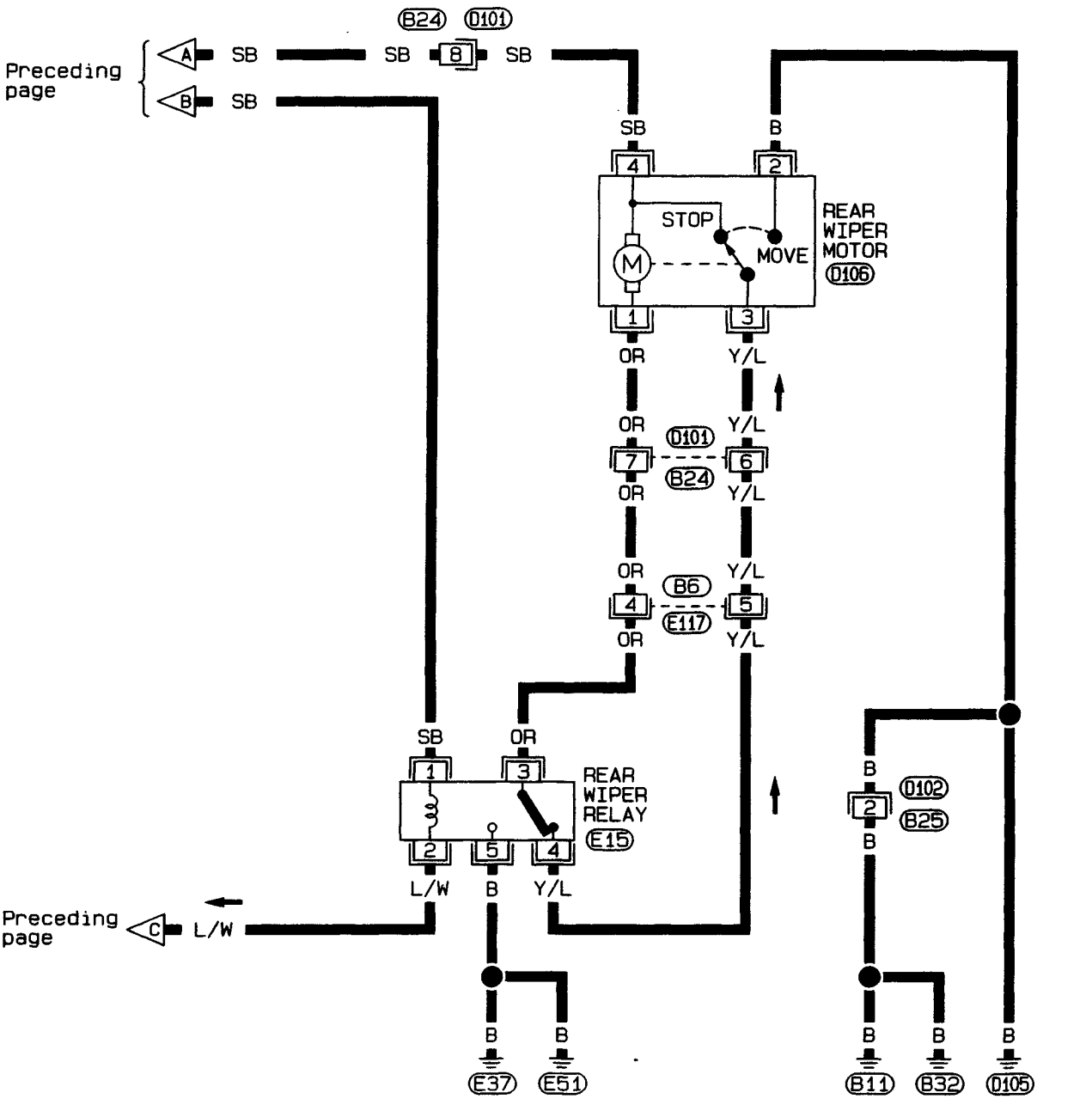
E106, B7

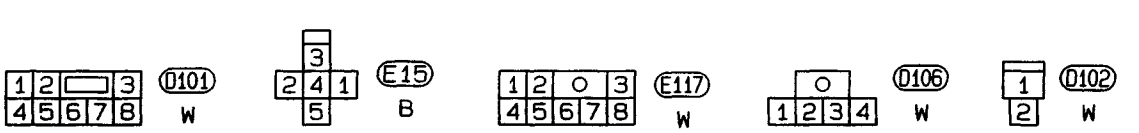
HEL090

EL

Rear Wiper and Washer/Wiring Diagram — WIP/R — (Cont'd)

EL-WIP/R-02



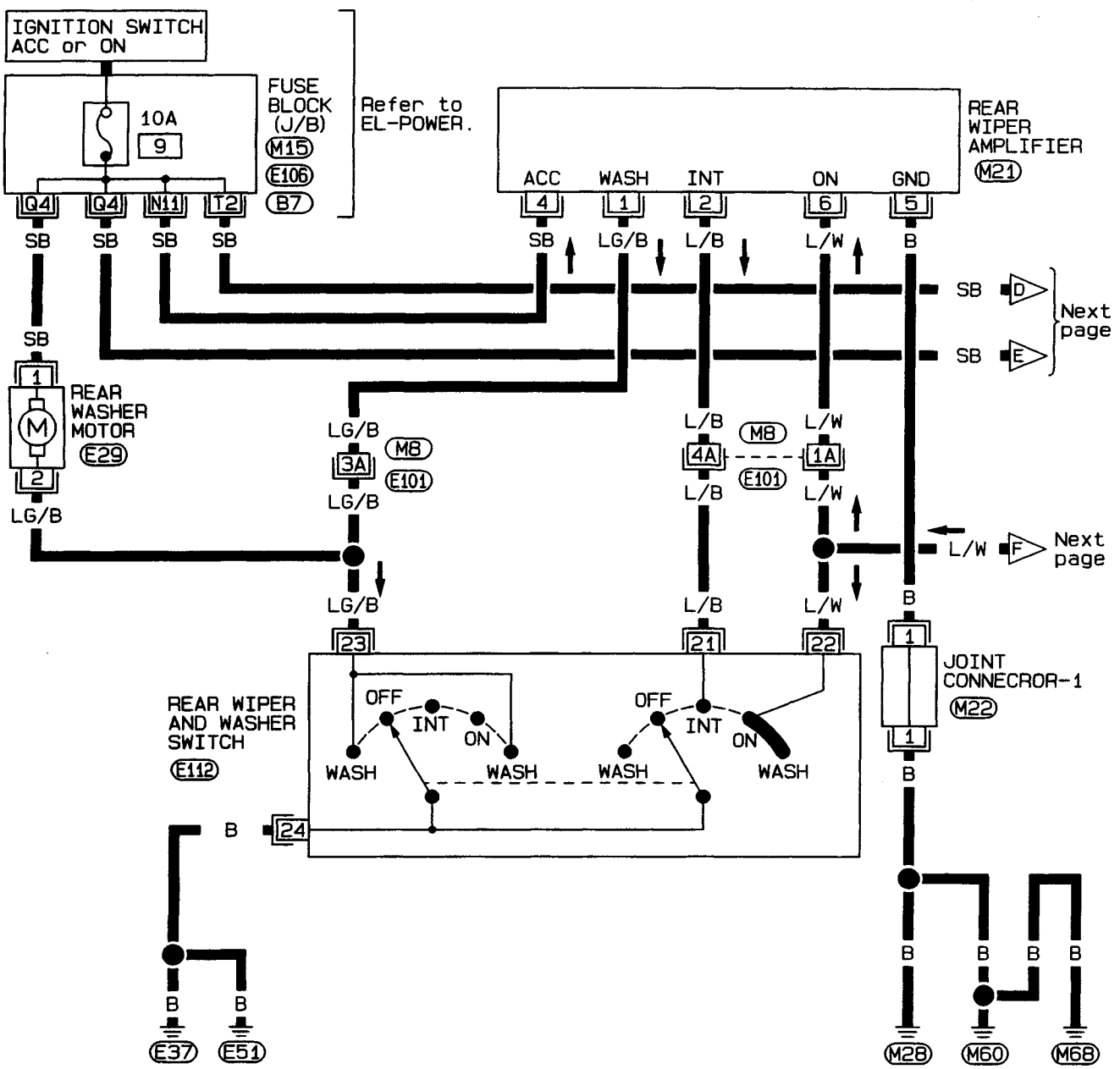


HEL091

Rear Wiper and Washer/Wiring Diagram — WIP/R — (Cont'd)

RHD MODELS

EL-WIP/R-03



E29 G

M21 W

E112 BR

M22 BR

Refer to last page (Foldout page).

M8, E101

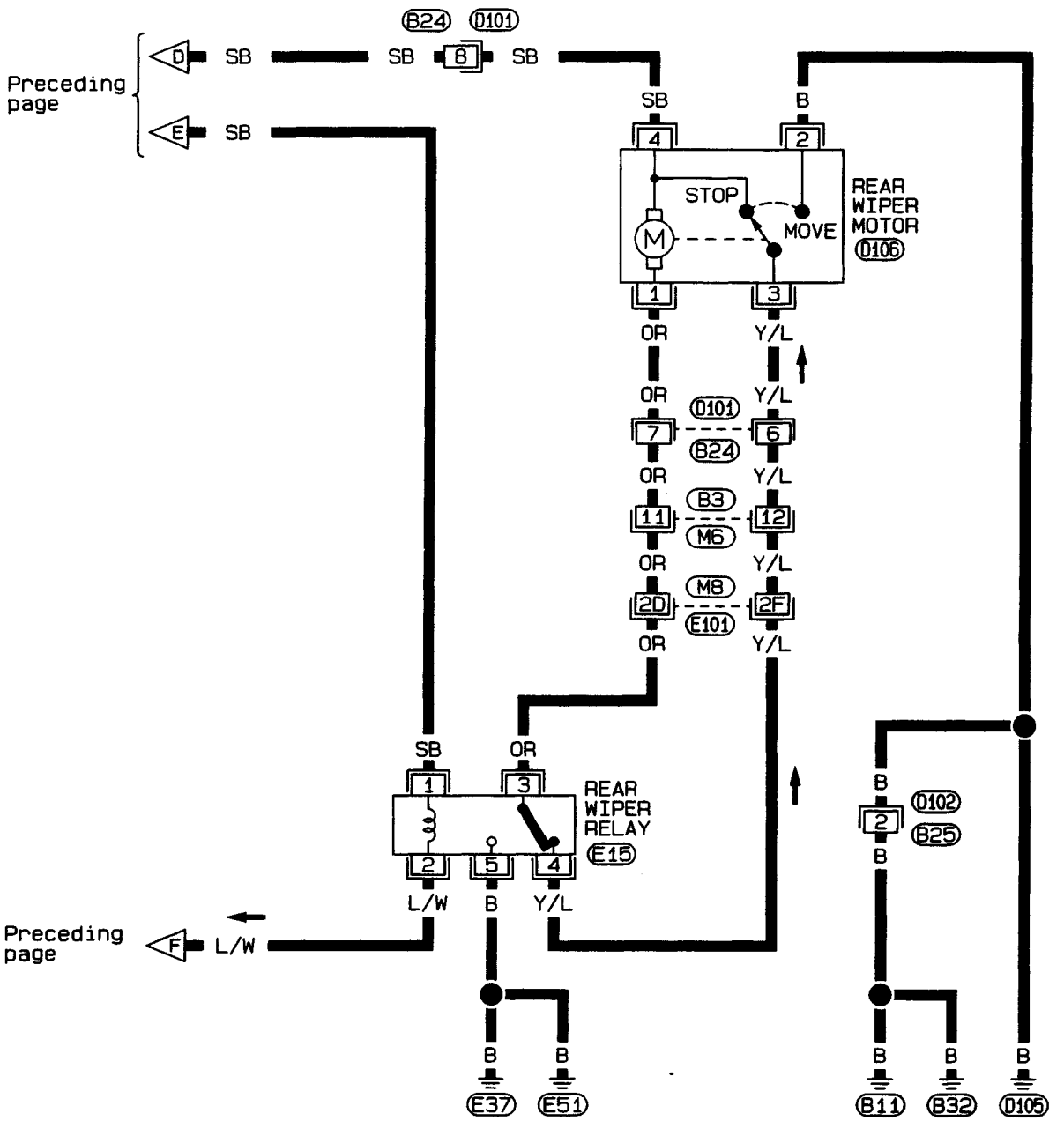
M15, E106, B7

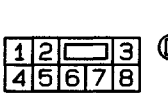
EL

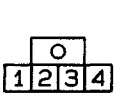
HEL092

Rear Wiper and Washer/Wiring Diagram — WIP/R — (Cont'd)

EL-WIP/R-04

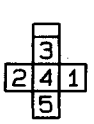



D101 W


D106 W


M6 W

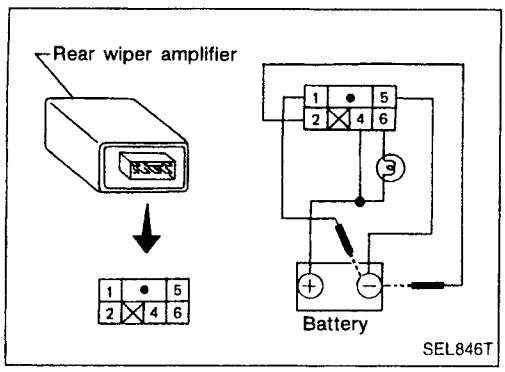

D102 W


E15 B

Refer to last page (Foldout page).

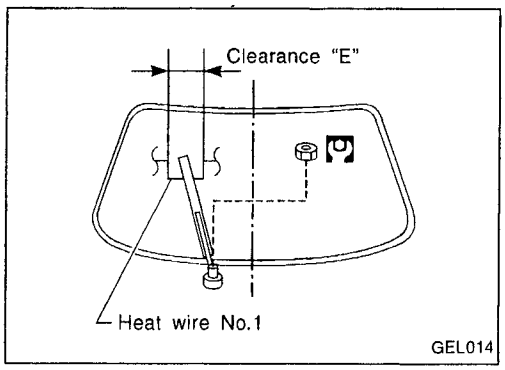
M8, E101

HEL093



Rear Wiper Amplifier Check

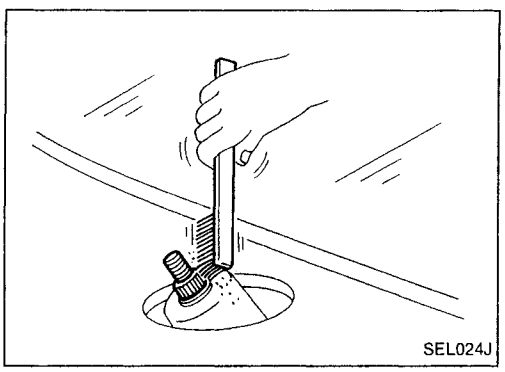
1. Connect as shown in the figure at left.
2. If test lamp illuminates when connected to terminal ① or ② and battery ground, wiper amplifier is normal.



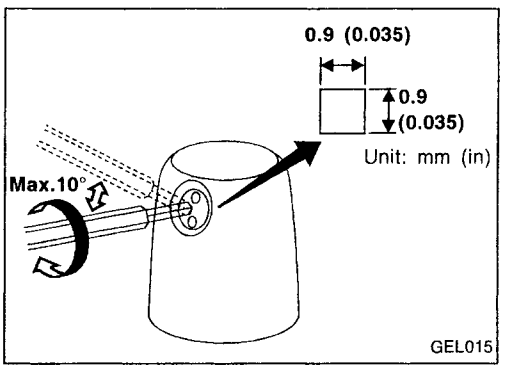
Rear Wiper Installation and Adjustment

1. Prior to wiper arm installation, turn on wiper switch to operate wiper motor and then turn it "OFF" (Auto Stop).
2. Lift the blade up and then set it down onto glass surface. Set the blade center to clearance "E" 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 "E".
   Clearance "E": 20 mm (0.79 in)

- Tighten windshield wiper arm nuts to specified torque.
  : 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.**

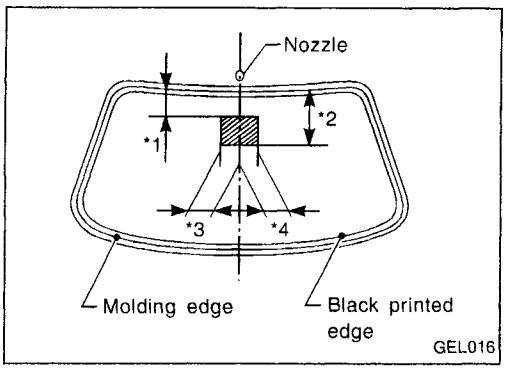


Rear Washer Nozzle Adjustment

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

EL

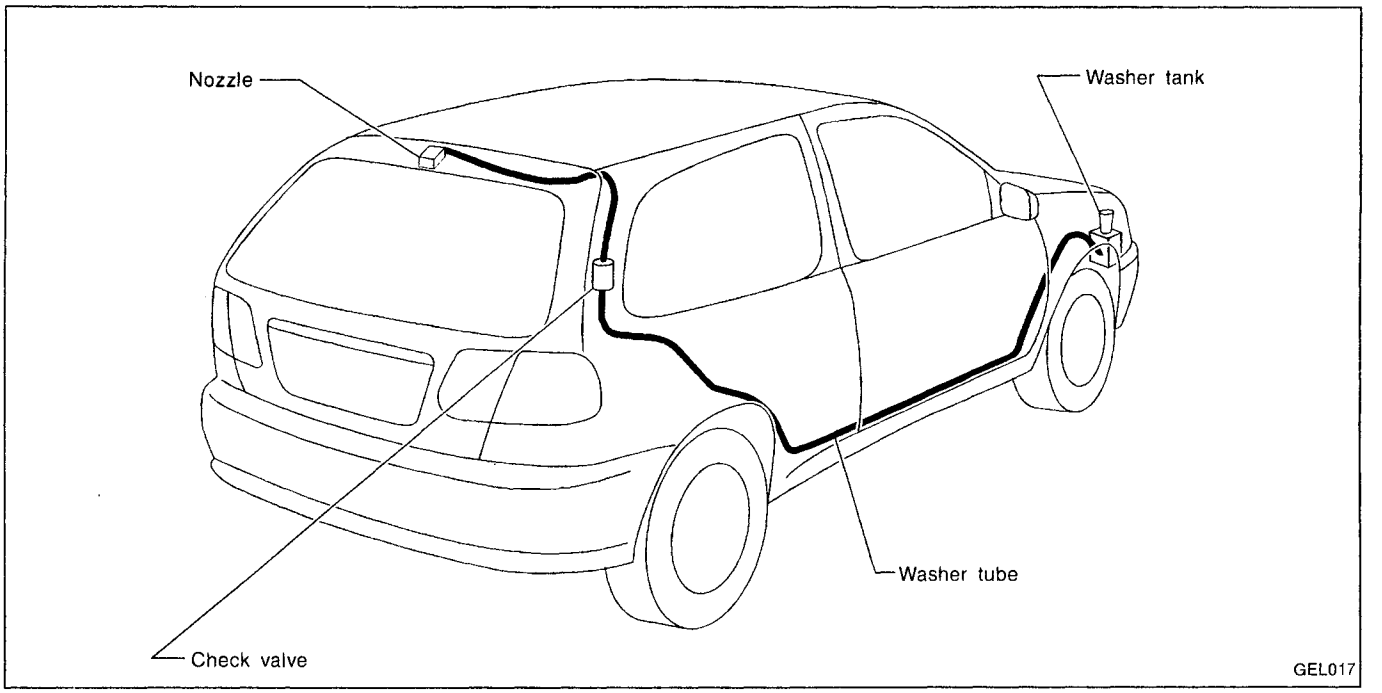
Rear Washer Nozzle Adjustment (Cont'd)

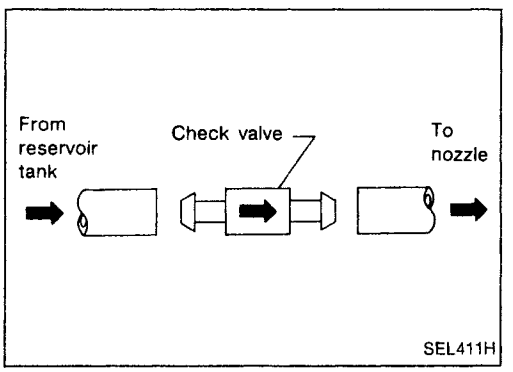


Unit: mm (in)

*1	40 (1.57)	*3	35 (1.38)
*2	95 (3.74)	*4	35 (1.38)

Rear Washer Tube Layout



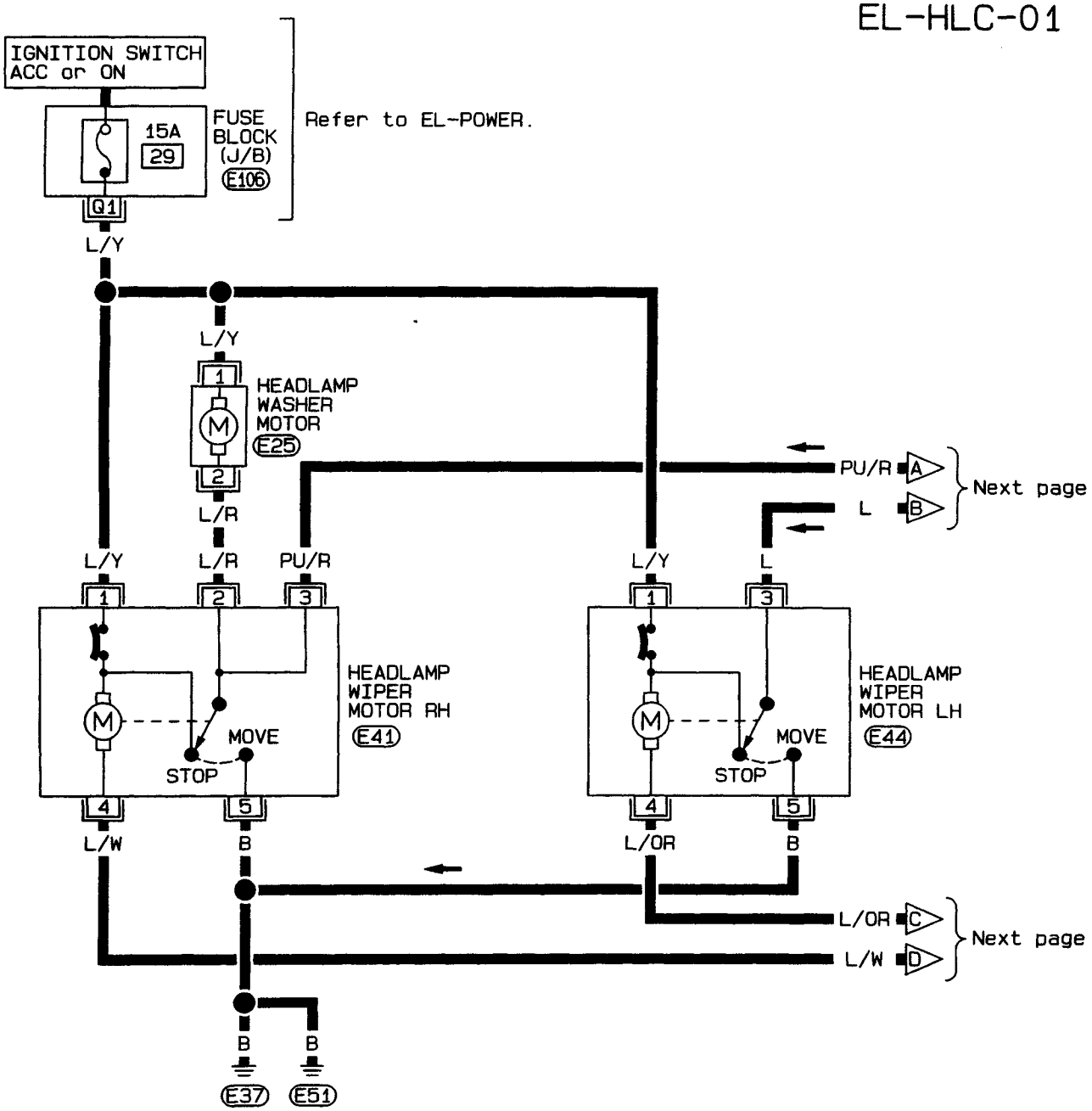


Check Valve (for rear washer)

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

Headlamp Wiper and Washer/Wiring Diagram — HLC —

EL-HLC-01



E41, E44 GY, GY

E25 W

Refer to last page (Foldout page).

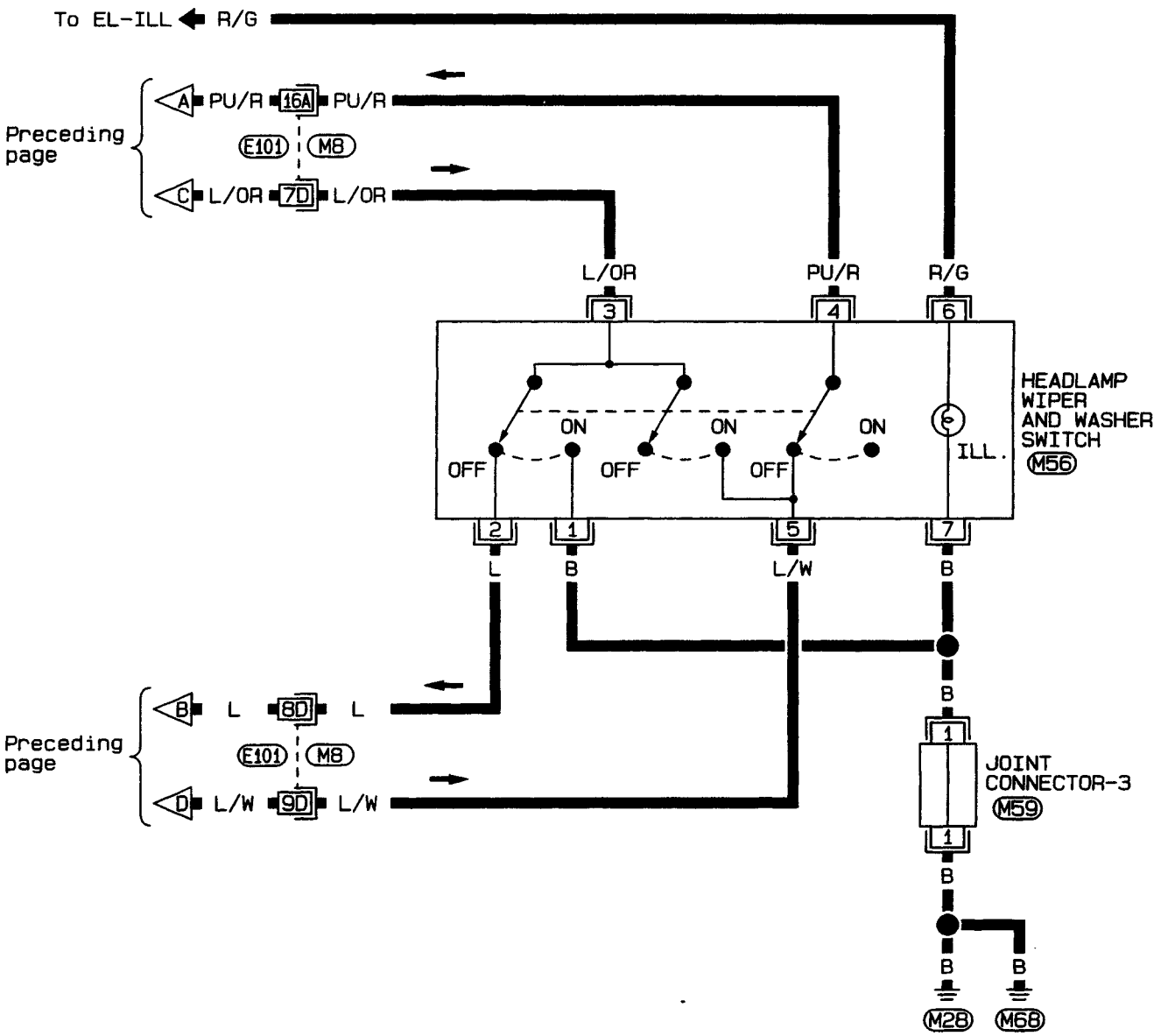
E106

EL

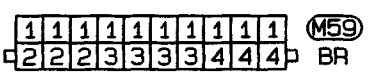
HEL094

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

EL-HLC-02



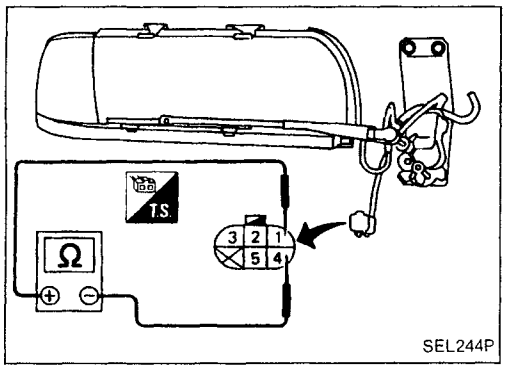




Refer to last page (Foldout page).

M8, E101

HEL095

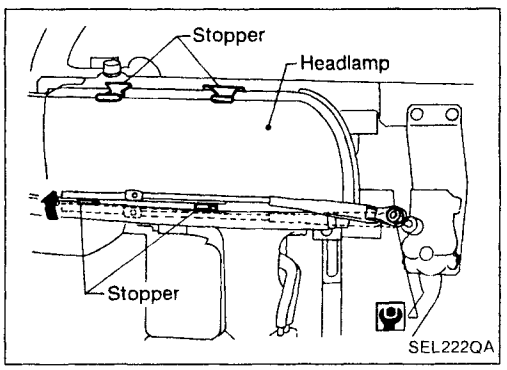


Headlamp Wiper Motor Check

When wiper motor is locked, a protective circuit built into wiper motor activates to stop wiper motor. If wiper motor will not restart even after cause of problems has been eliminated, turn ignition switch OFF and leave it off for approx. 1 to 3 minutes.

1. Turn headlamp wiper switch OFF.
2. Connect ohmmeter and check continuity.

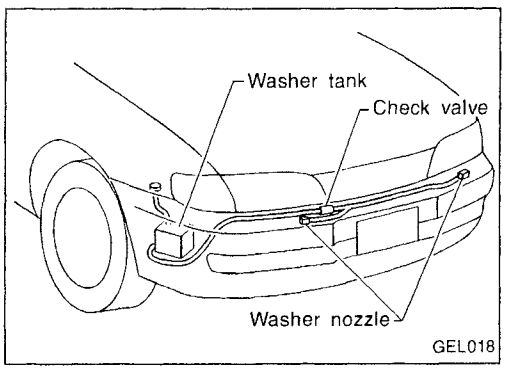
Headlamp wiper motor	Ohmmeter probe		Continuity
	(+)	(−)	
Stop position	①	④	Yes
	①	②	Yes
	①	③	Yes
-	③	⑤	No



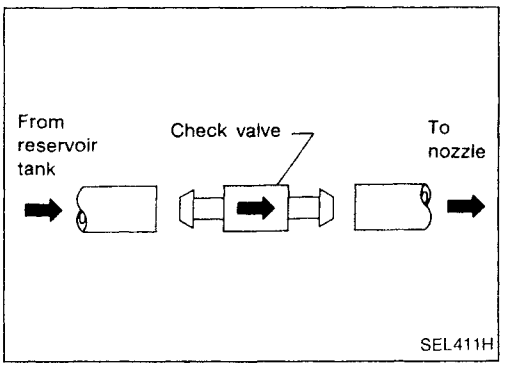
Headlamp Wiper Installation

Tighten nut to secure wiper arm with wiper blade held below lower stopper.
After installing wiper arm, position wiper blade on stopper upper surface.

- Tighten headlamp wiper arm nut to the specified torque.
  : 2.3 - 3.0 N·m (0.23 - 0.31 kg-m, 20.0 - 26.9 in-lb)



Headlamp Washer Tube Layout



Check Valve (For headlamp washer)

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

EL

System Description

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

With ignition switch in ON or START position, power is supplied
- through 7.5A fuse (No.[7] located in the fuse block)
- to power window relay terminal ①.

Ground is supplied to power window relay terminal ②
- through body grounds (M28), (M60) and (M68).

The power window relay is energized and power is supplied
- through power window relay terminal ⑤
- to power window main switch terminals ① and ②,
- to passenger side power window sub-switch terminals ⑤ and ⑥,
- to rear power window sub-switch LH terminal ⑥,
- to rear power window sub-switch RH terminal ⑥.

MANUAL OPERATION

Driver's door

Ground is supplied
- to front power window main switch terminals ③ and ④
- through body grounds (M28), (M60) and (M68).

WINDOW UP

When a driver side switch in the power window main switch is pressed in the up position, power is supplied
- to driver side power window regulator terminal ②
- through power window main switch terminal ⑨.

Ground is supplied
- to driver side power window regulator terminal ①
- through power window main switch terminal ⑧.

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

WINDOW DOWN

When a driver side switch in the power window main switch is pressed in the down position, power is supplied
- to driver side power window regulator terminal ①
- through power window main switch terminal ⑧.

Ground is supplied
- to driver side power window regulator terminal ②
- through power window main switch terminal ⑨.

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

Except driver's door

Ground is supplied
- to power window main switch terminal ③
- through body grounds (M28), (M60) and (M68).

PASSENGER'S DOOR

NOTE:

Figures in parentheses ( ) refer to terminal Nos. arranged in order when the UP or DOWN section of power window switch is pressed.

Operation by main switch

Power is supplied
- through power window main switch (⑤, ⑥)
- to passenger side power window sub-switch (④, ③).

System Description (Cont'd)

The subsequent operations are the same as those outlined under "Operation by sub-switches".
Operation by sub-switches
Power is supplied
- through passenger side power window sub-switch (②, ①)
- to passenger side power window regulator (②, ①).

Ground is supplied
- to passenger side power window regulator (①, ②)
- through passenger side power window sub-switch (①, ②)
- to passenger side power window sub-switch (③, ④)
- through power window main switch (⑥, ⑤).

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

NOTE:

Figures in parentheses ( ) refer to terminal Nos. arranged in order when the UP or DOWN section of power window switch is pressed.

Operation by main switch
Power is supplied
- through power window main switch (⑮, ⑯)
- to rear power window sub-switch LH (④, ③).

The subsequent operations are the same as those outlined under "Operation by sub-switches".
Operation by sub-switches
Power is supplied
- through rear power window sub-switch LH (②, ①)
- to rear power window regulator LH (②, ①).

Ground is supplied
- to rear power window regulator LH (①, ②)
- through rear power window sub-switch LH (①, ②)
- to rear power window sub-switch LH (③, ④)
- through power window main switch LH (⑯, ⑮).

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

NOTE:

Figures in parentheses ( ) refer to terminal Nos. arranged in order when the UP or DOWN section of power window switch is pressed.

Operation by main switch
Power is supplied
- through power window main switch (⑩, ⑪)
- to rear power window sub-switch RH (④, ③).

The subsequent operations are the same as those outlined under "Operation by sub-switches".
Operation by sub-switches
Power is supplied
- through rear power window sub-switch RH (②, ①)
- to rear power window regulator RH (②, ①).

Ground is supplied
- to rear power window regulator RH (①, ②)
- through rear power window sub-switch RH (①, ②)
- to rear power window sub-switch RH (③, ④)
- through power window main switch (⑪, ⑩)

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

AUTO OPERATION

The power window AUTO feature enables the driver to open or close the driver's window without holding the window switch in the respective position.
When the AUTO switch in the main switch is pressed and released, the driver's window will travel to the fully open or closed position.

System Description (Cont'd)

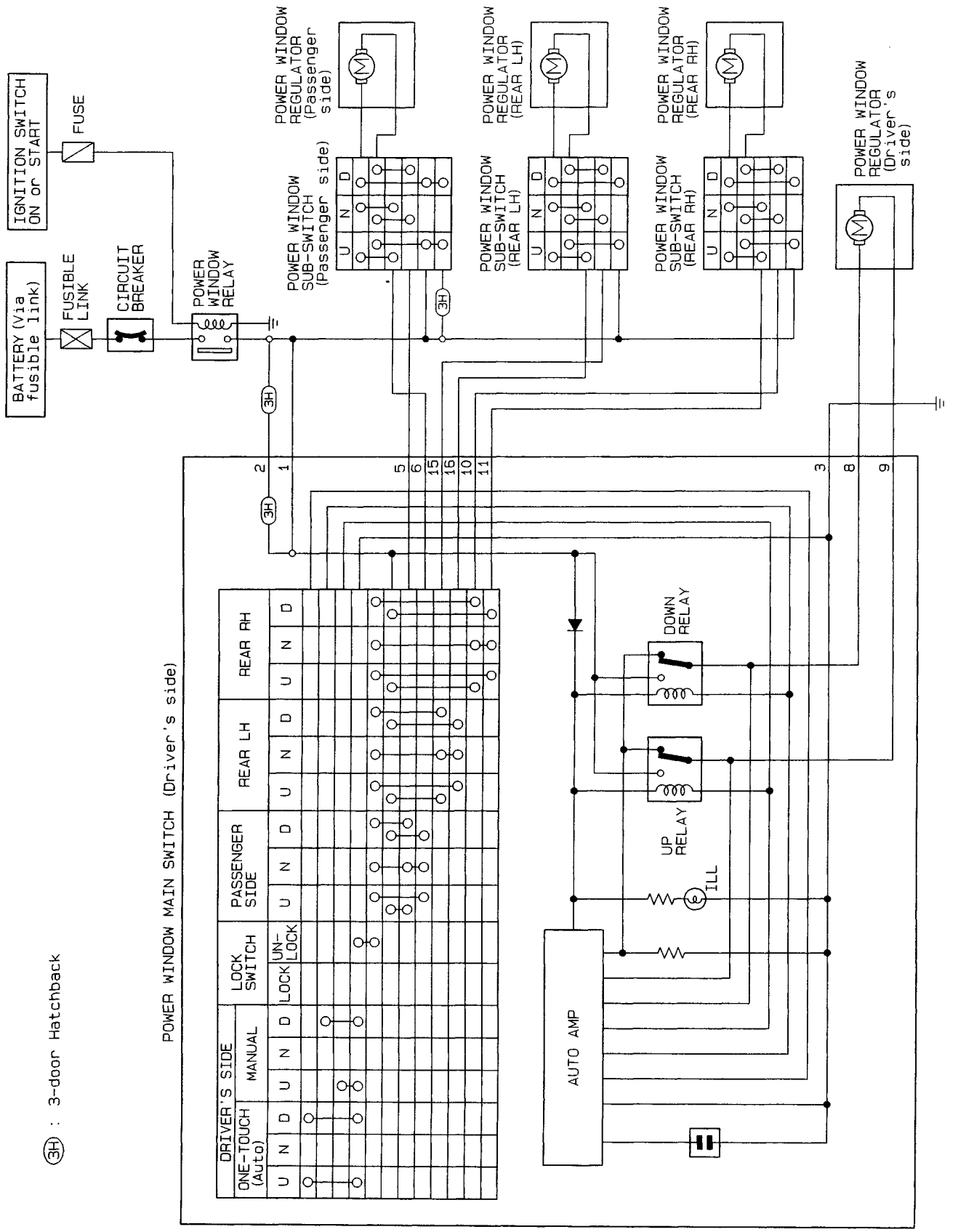
POWER WINDOW LOCK

The power window lock is designed to lock-out window operation to all windows except the driver's door window.

When the lock switch is pressed to lock position, ground of the passenger side switch, rear RH switch and rear LH switch in the power window main switch is disconnected. This prevents the power window motors from operating.

Schematic

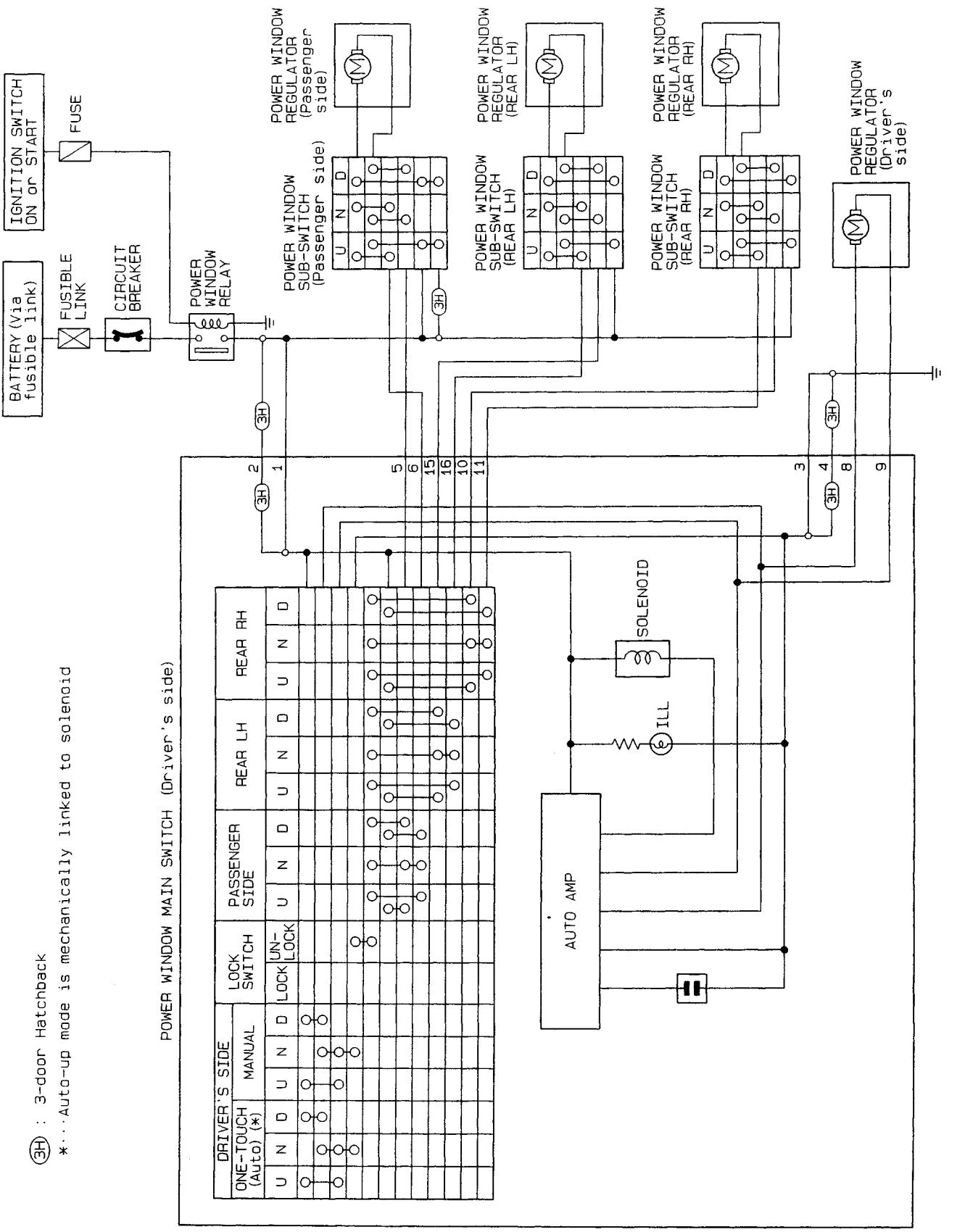
LHD MODELS AND RHD MODELS EXCEPT FOR EUROPE AND AUSTRALIA



HEL097

Schematic (Cont'd)

RHD MODELS FOR EUROPE AND AUSTRALIA

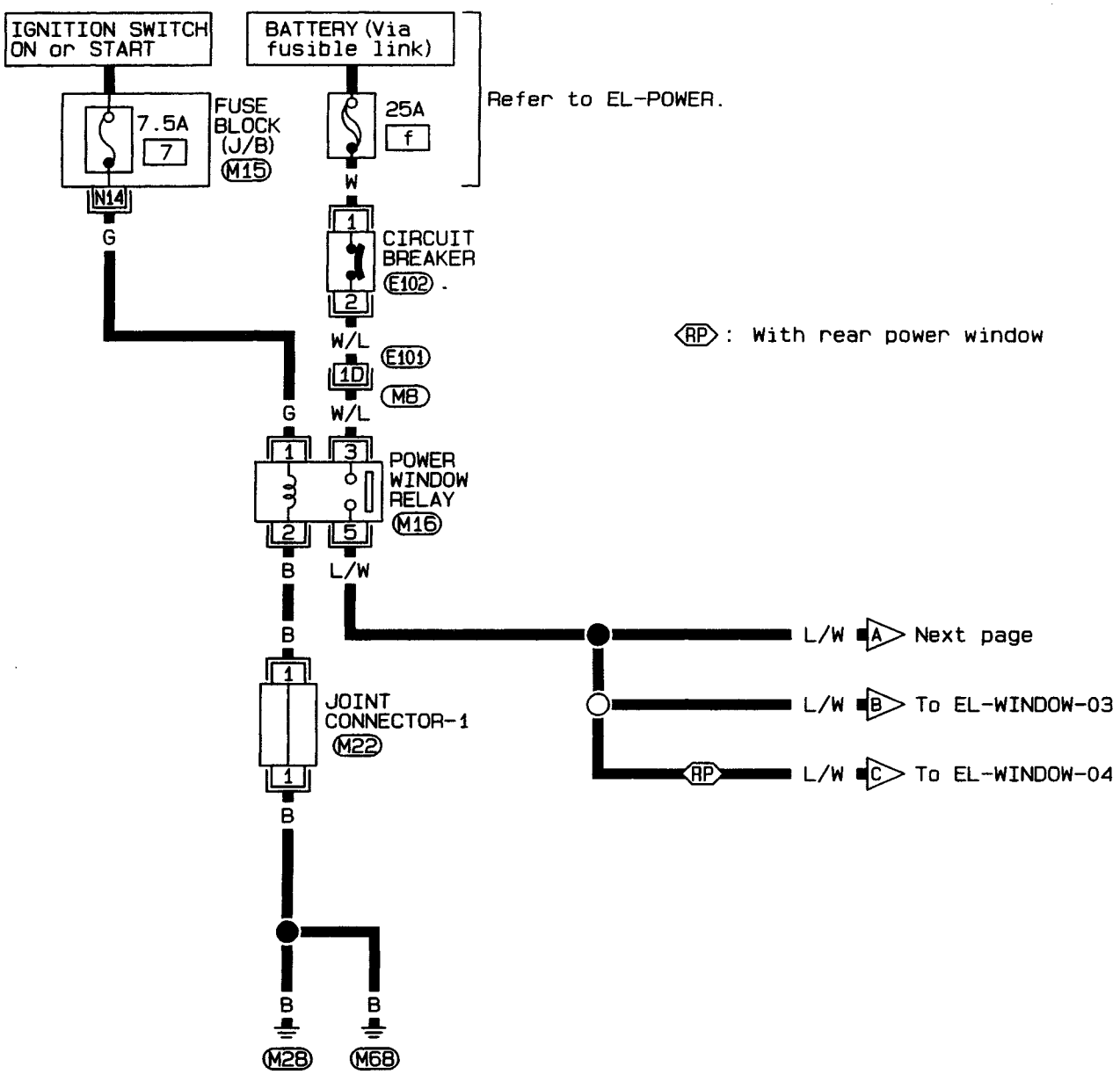


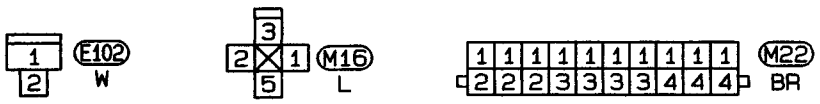
HEL098

Wiring Diagram — WINDOW —

LHD MODELS

EL-WINDOW-01





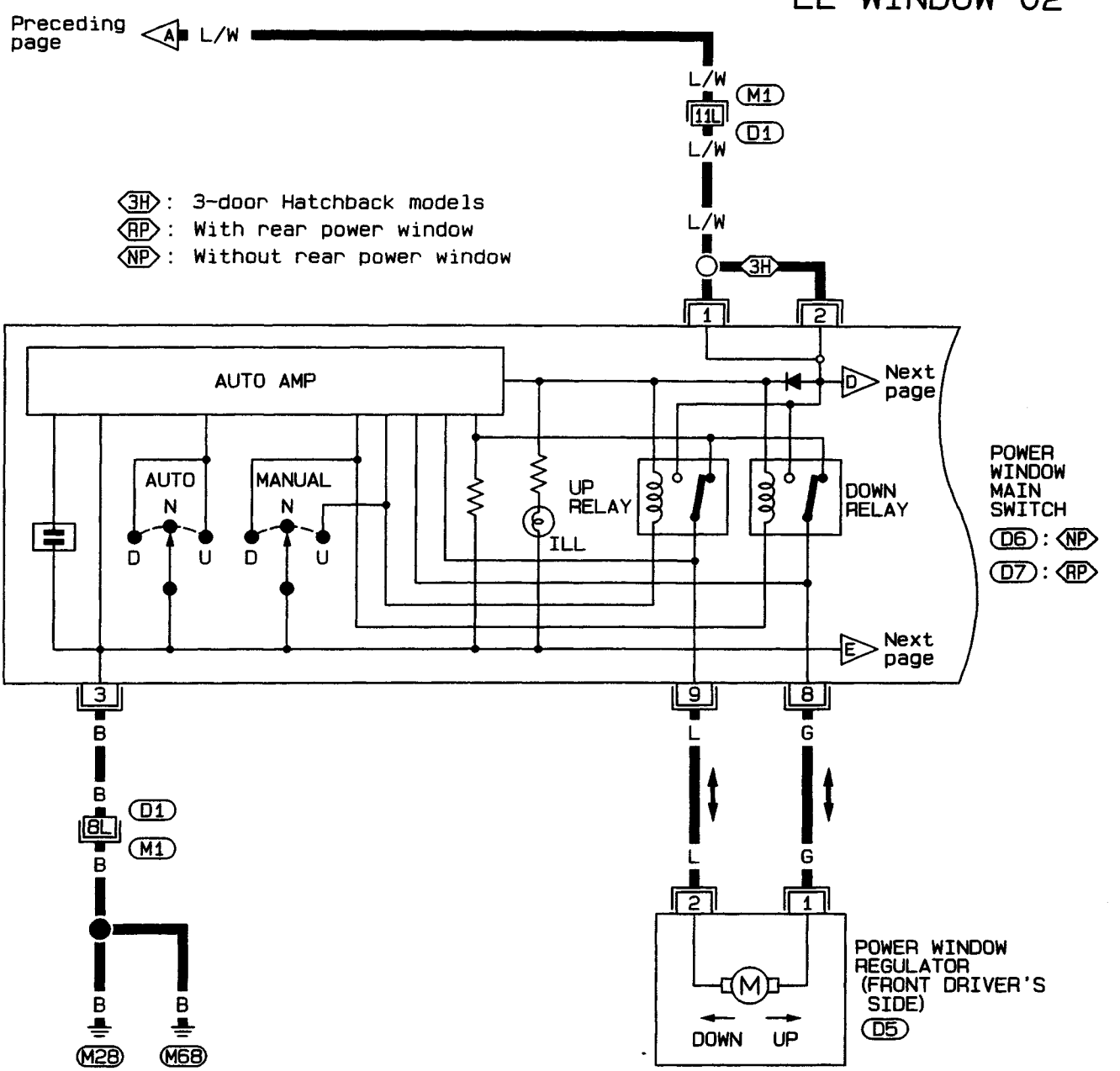
Refer to last page (Foldout page).
M8, E101
M15

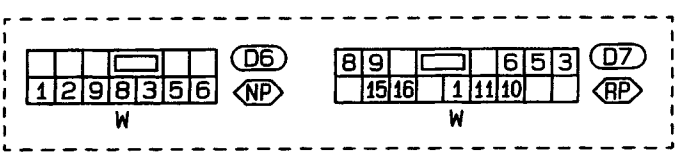
EL

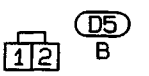
HEL099

Wiring Diagram — WINDOW — (Cont'd)

EL-WINDOW-02







Refer to last page (Foldout page).

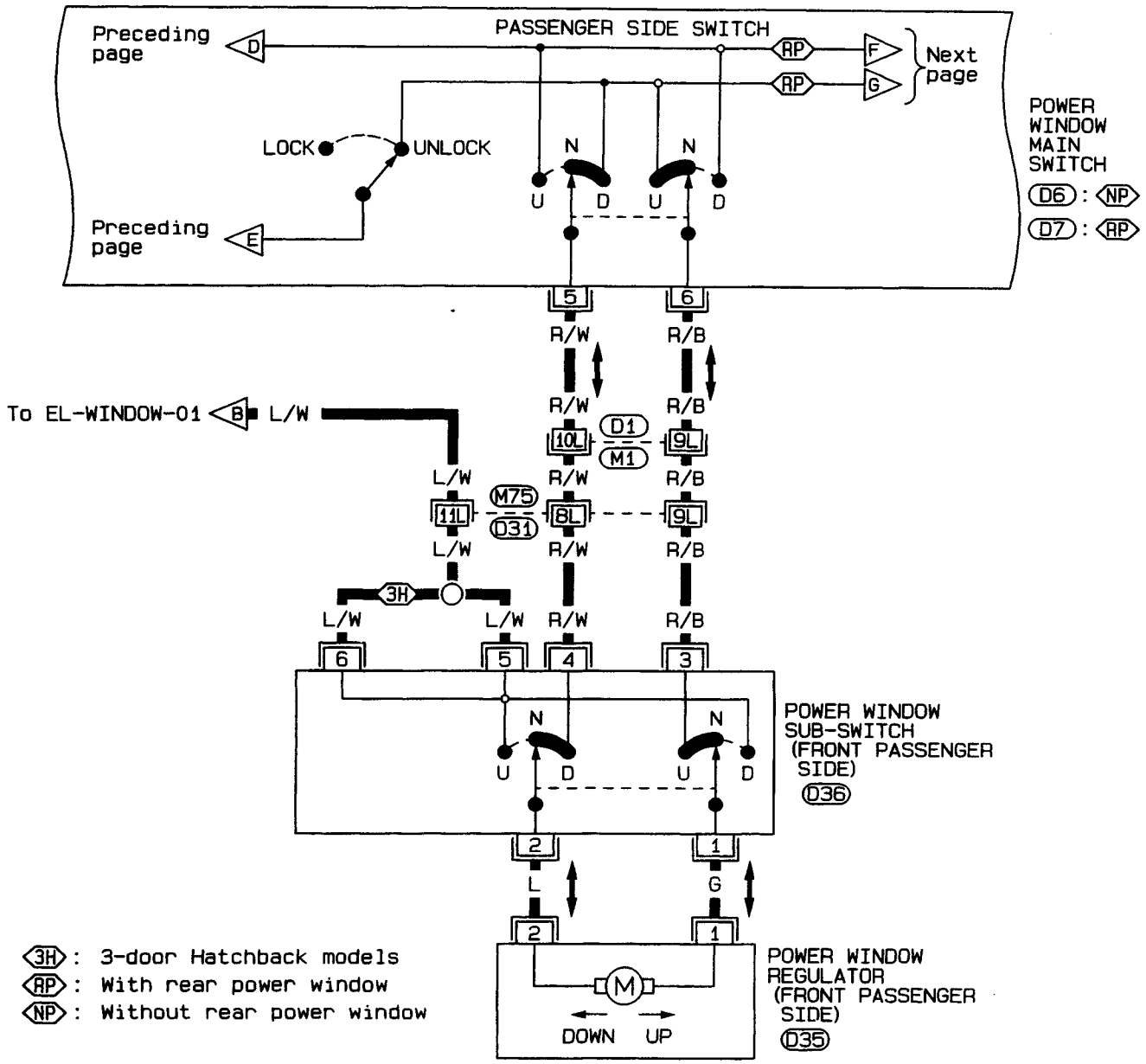
M1, D1

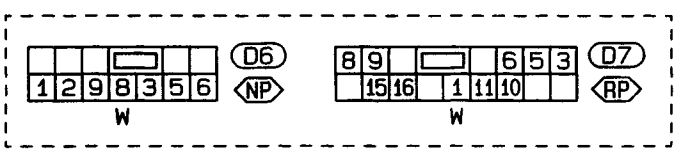
CAUTION : Don't attempt to repair, splice or modify the flexible flat circuit (FFC). If the FFC is damaged, replace with a new one.

HEL100

Wiring Diagram — WINDOW — (Cont'd)

EL-WINDOW-03







CAUTION : Don't attempt to repair, splice or modify the flexible flat circuit (FFC). If the FFC is damaged, replace with a new one.

Refer to last page (Foldout page).

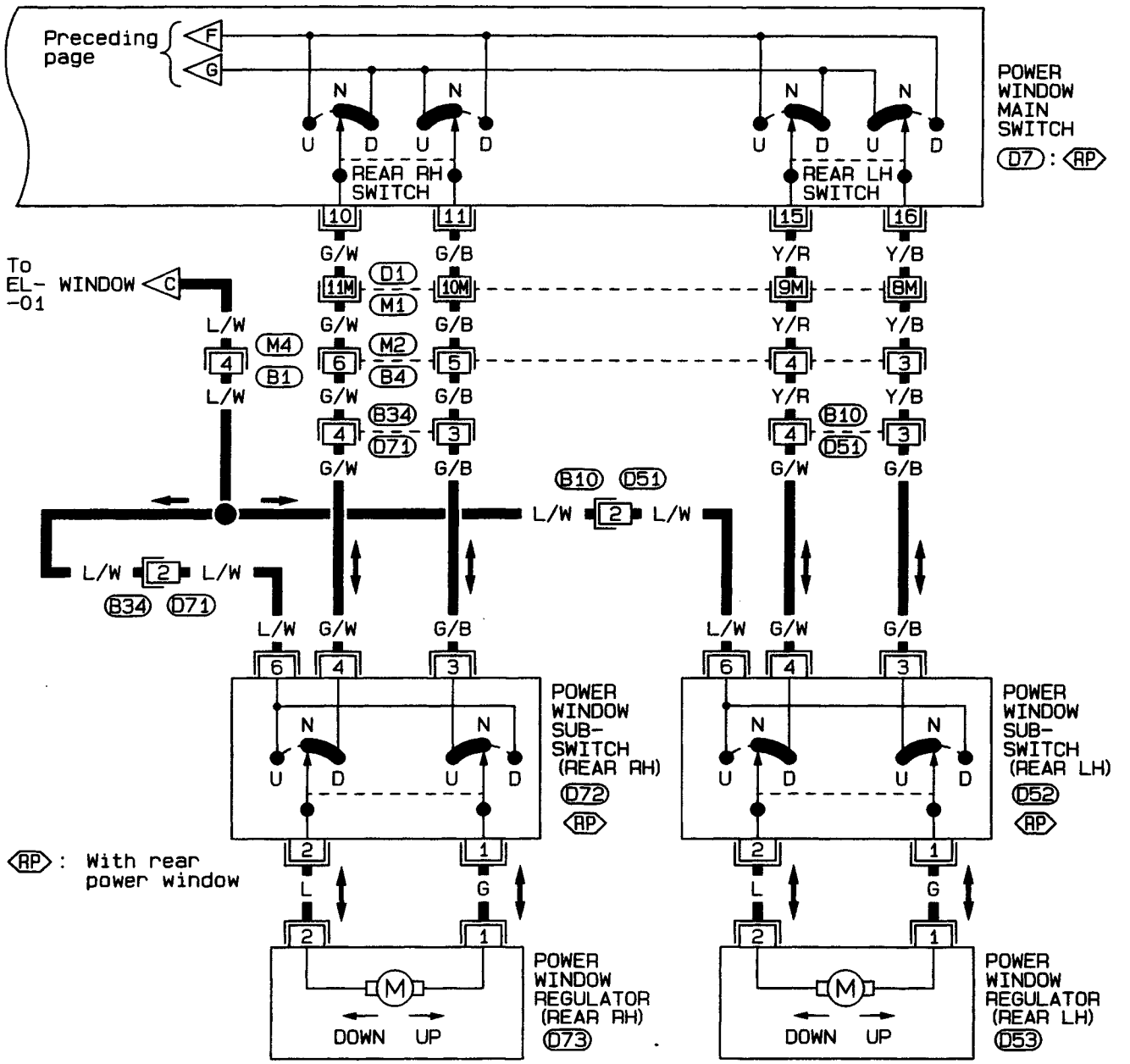
M1, D1

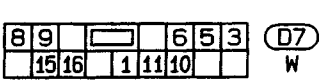
M75, D31

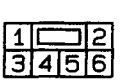
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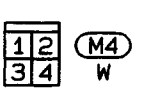
Wiring Diagram — WINDOW — (Cont'd)

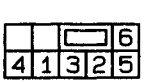
EL-WINDOW-04




D7
W


M2 , B10 , B34
W W W


M4
W


D52 , D72
W W


D53 , D73
B B

Refer to last page (Foldout page).

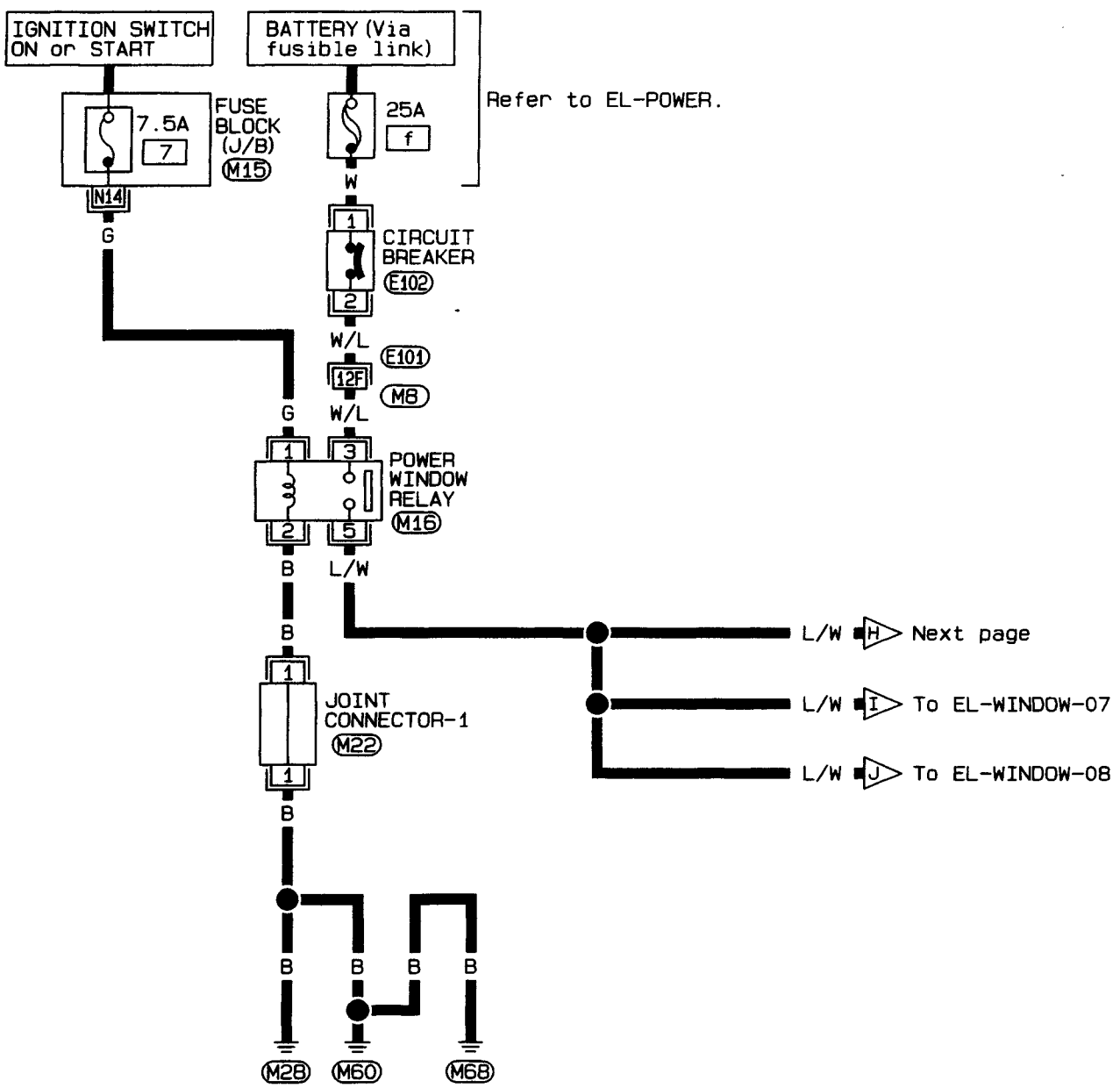
M1 , D1

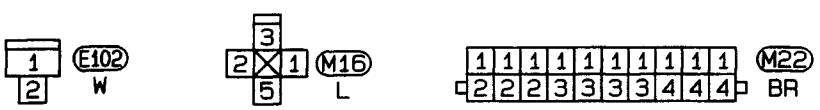
HEL102

Wiring Diagram — WINDOW — (Cont'd)

RHD MODELS EXCEPT FOR EUROPE AND AUSTRALIA

EL-WINDOW-05





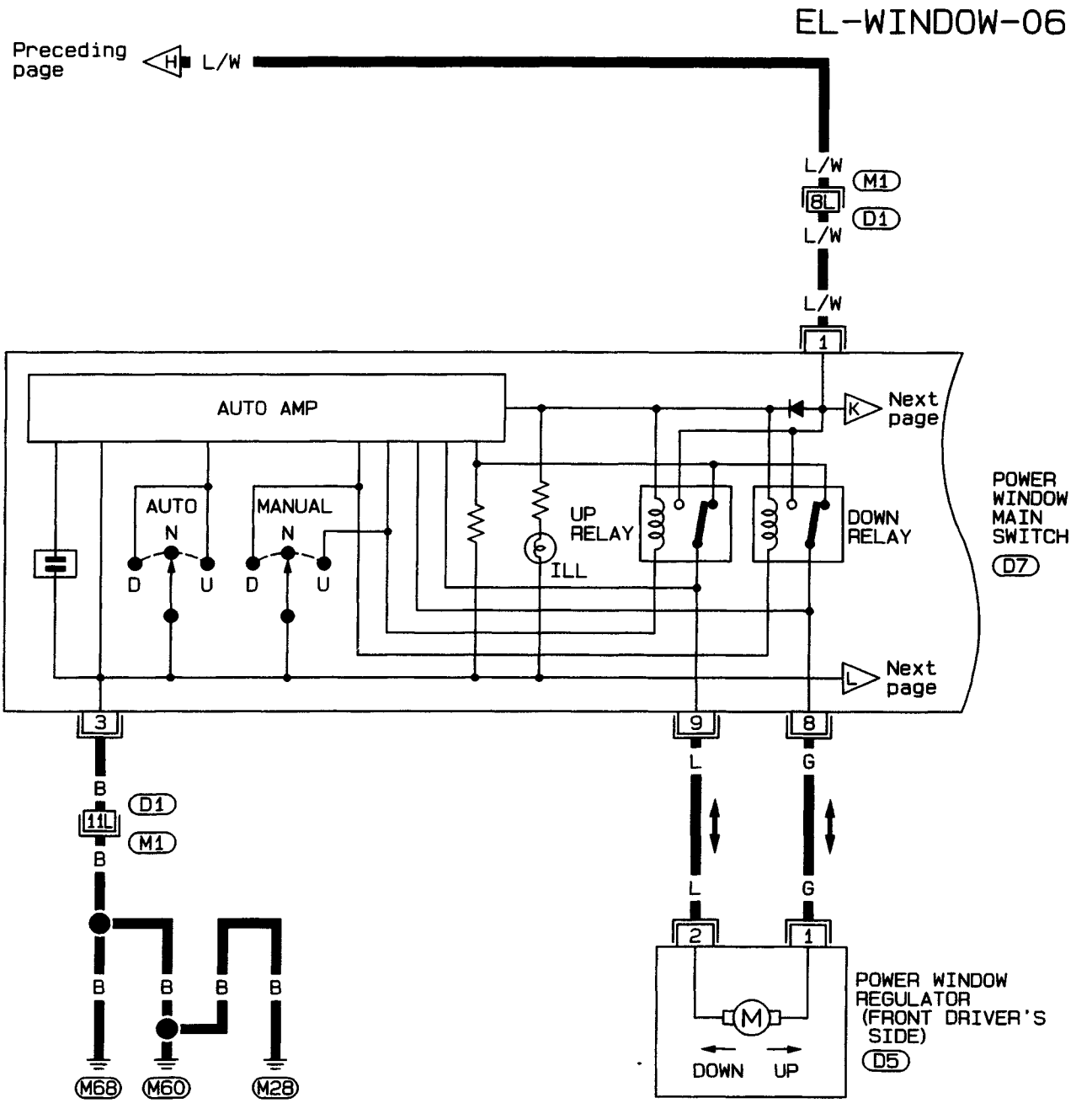
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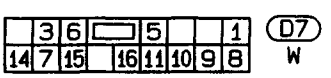
M8, E101
M15

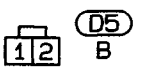
EL

HEL103

Wiring Diagram — WINDOW — (Cont'd)







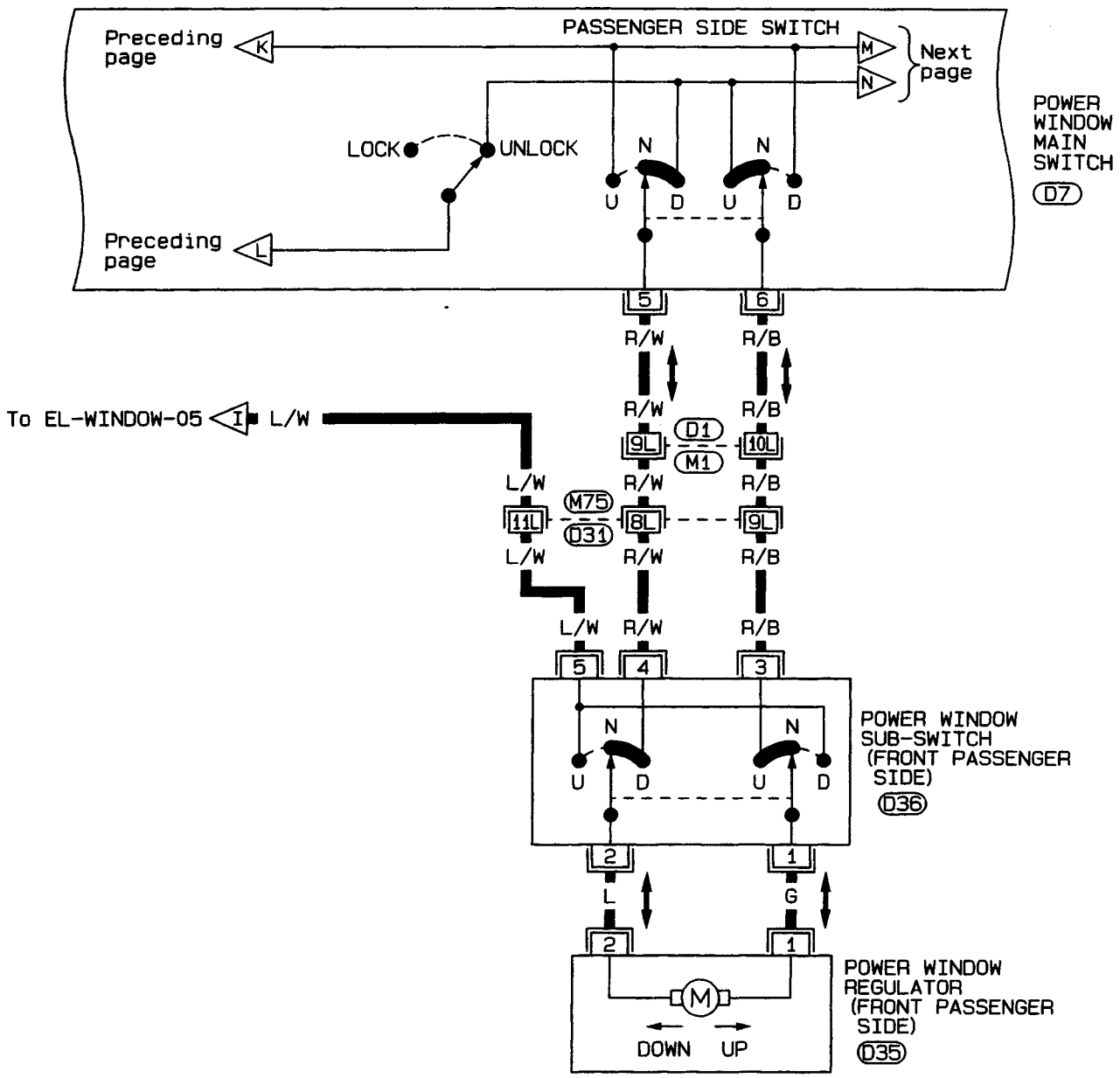
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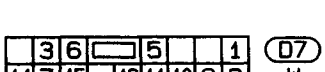
M1, D1

HEL104

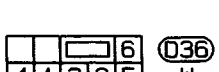
Wiring Diagram — WINDOW — (Cont'd)

EL-WINDOW-07





D7
W



D36
W



D35
B

Refer to last page (Foldout page).

M1, D1

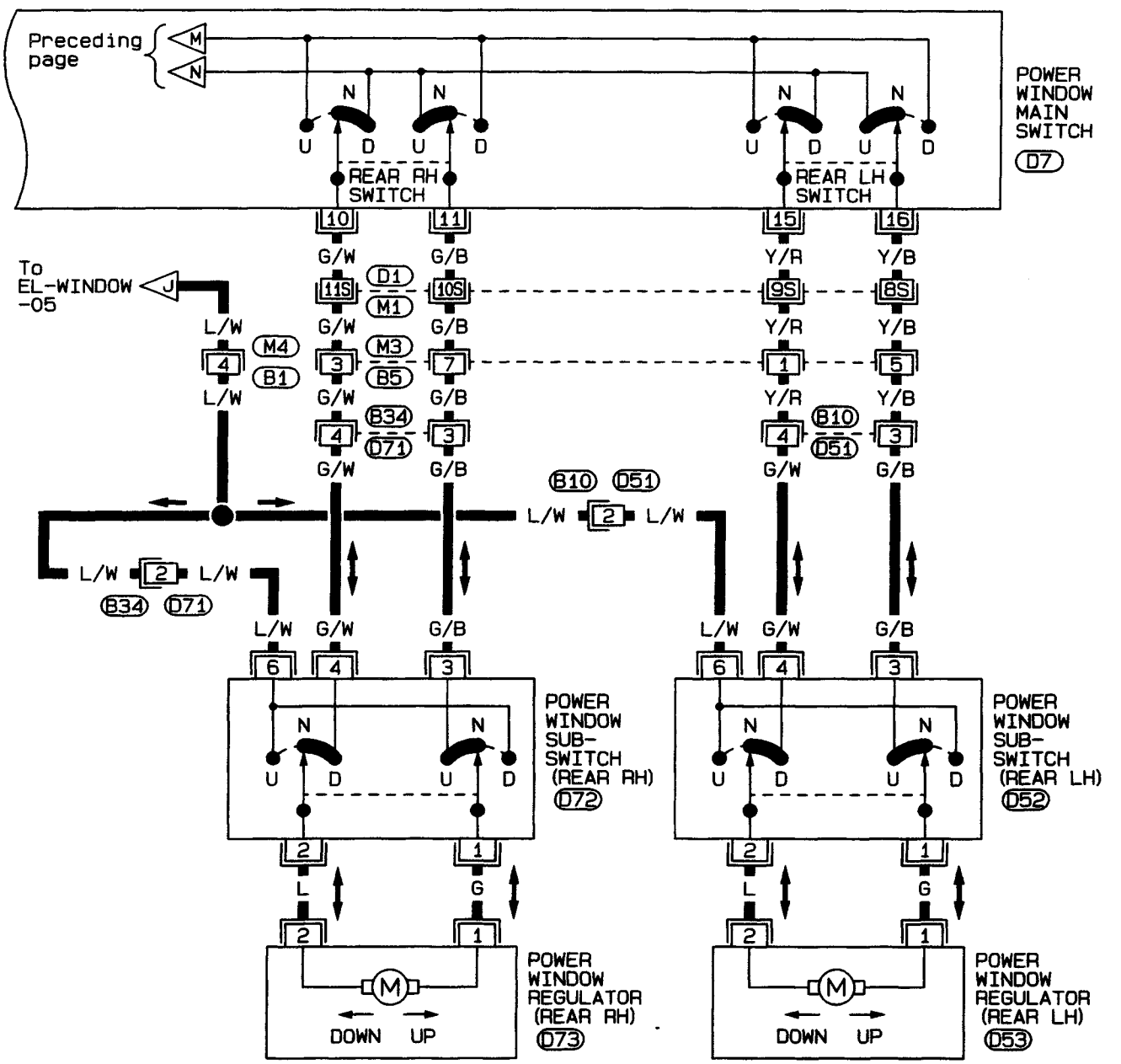
M75, D31

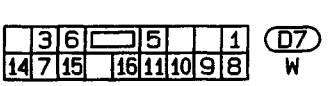
EL

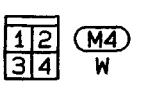
HEL105

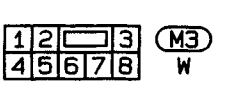
Wiring Diagram — WINDOW — (Cont'd)

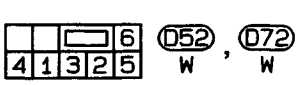
EL-WINDOW-08

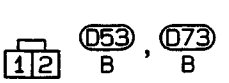


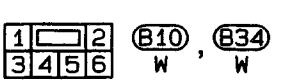












Refer to last page (Foldout page).

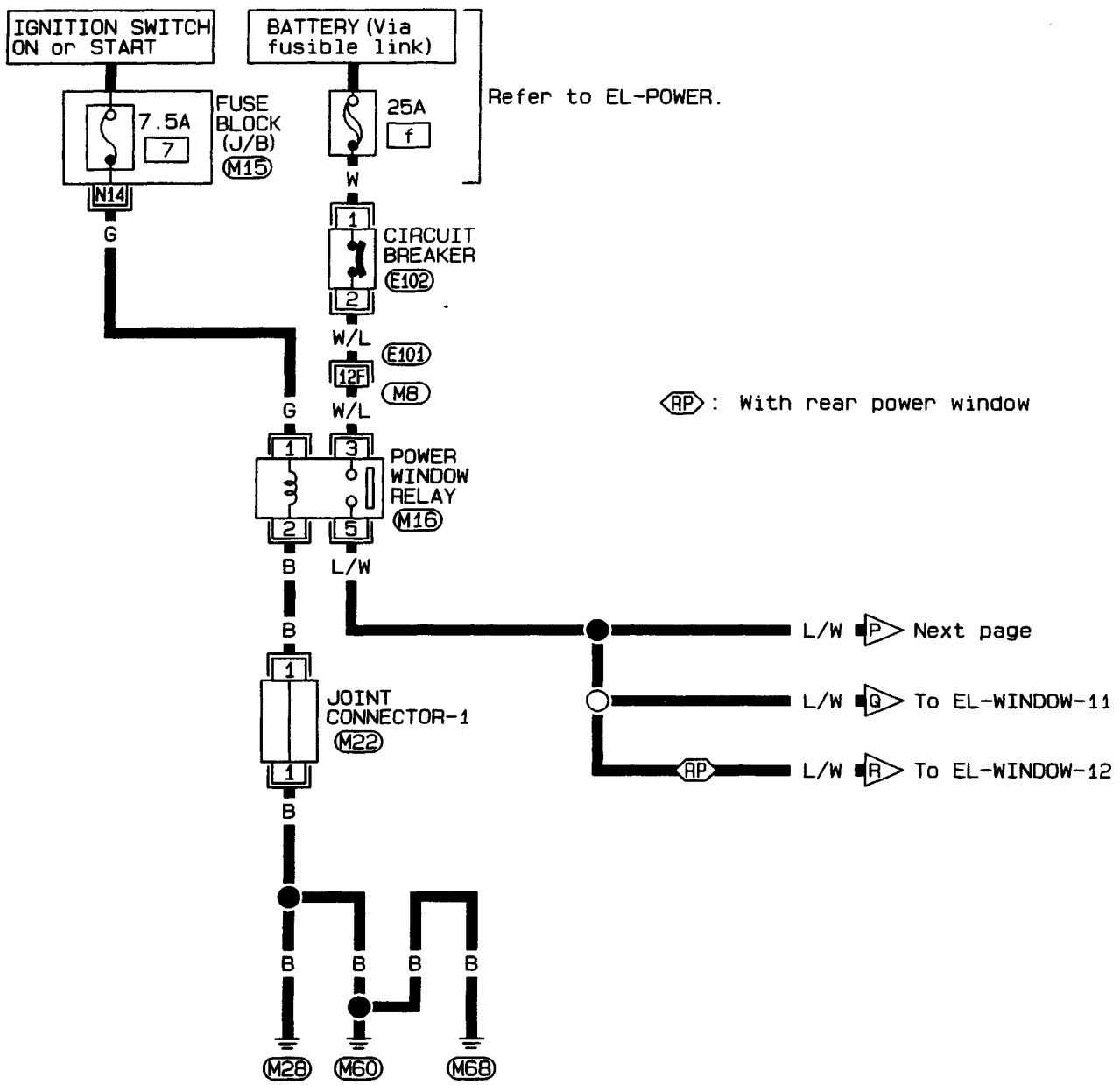
M1, D1

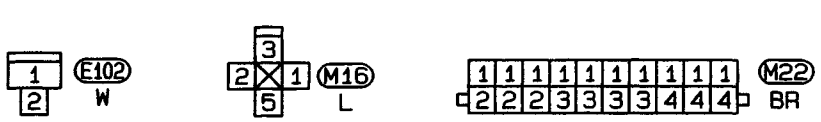
HEL106

Wiring Diagram — WINDOW — (Cont'd)

RHD MODELS FOR EUROPE AND AUSTRALIA

EL-WINDOW-09





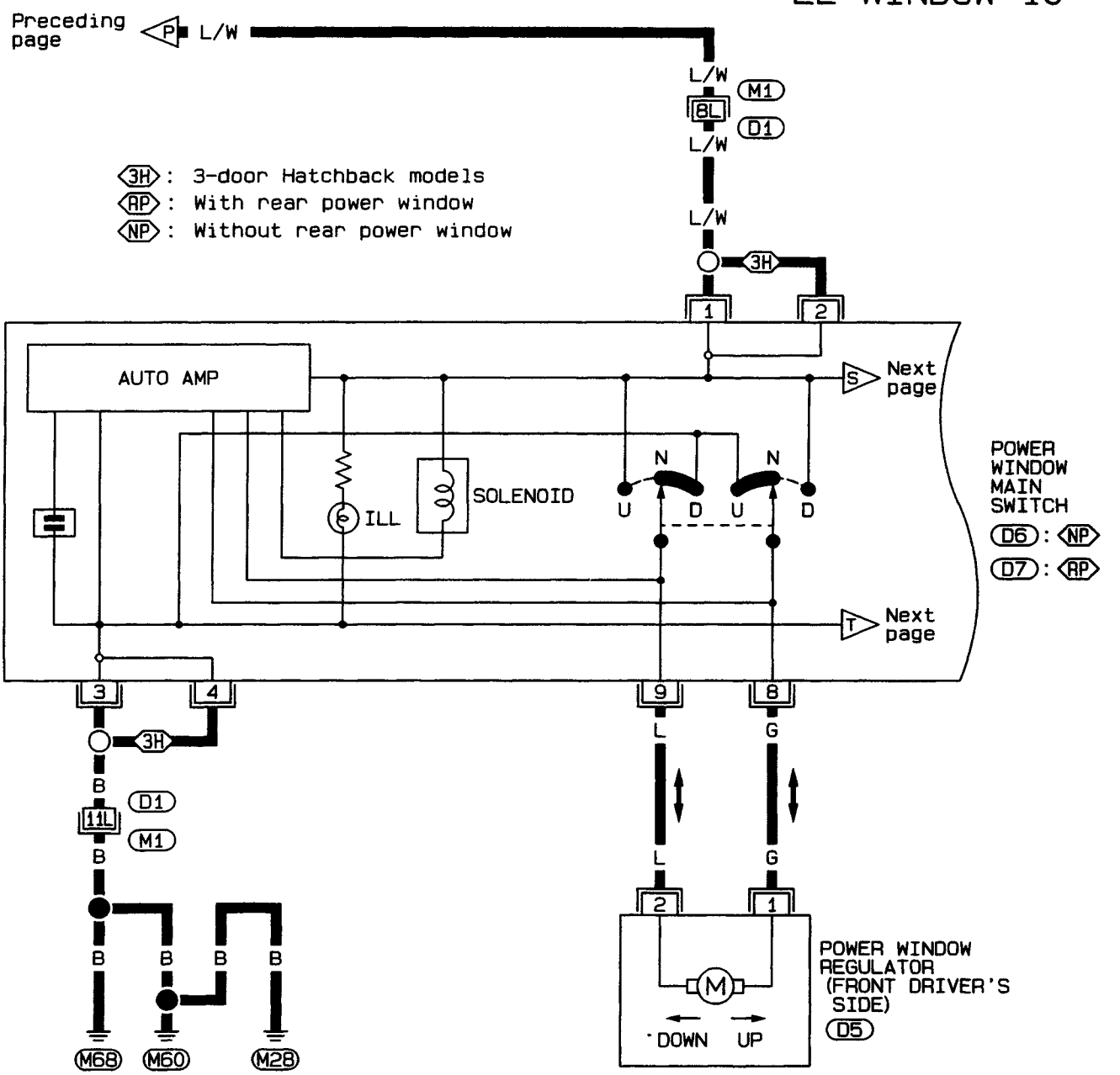
Refer to last page (Foldout page).
M8, E101
M15

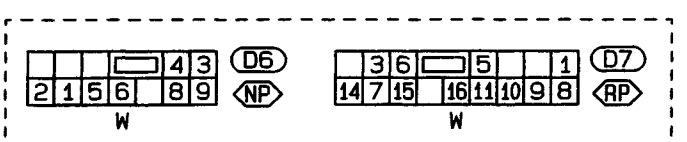
EL

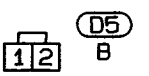
HEL107

Wiring Diagram — WINDOW — (Cont'd)

EL-WINDOW-10







Refer to last page (Foldout page).

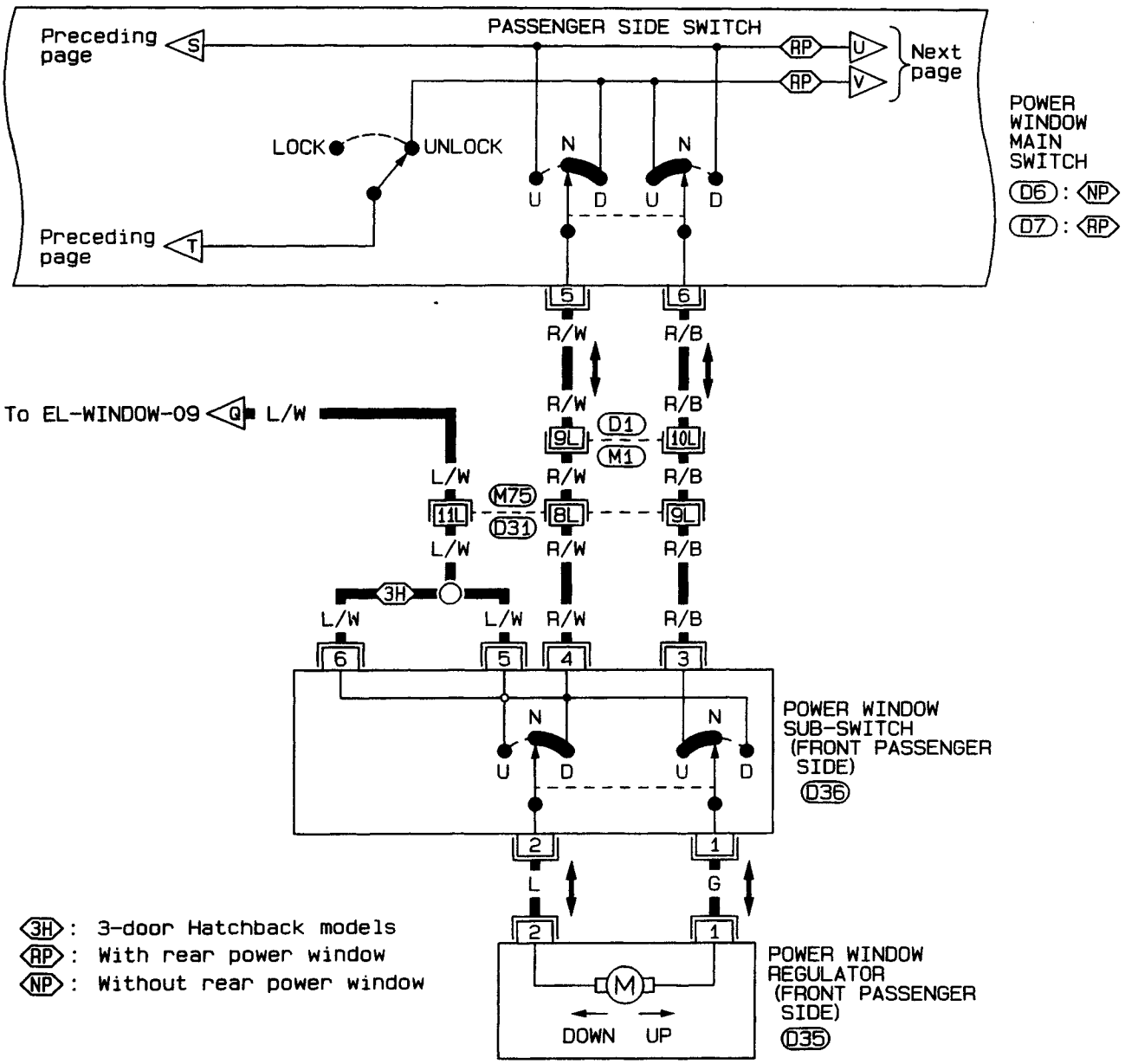
M1, D1

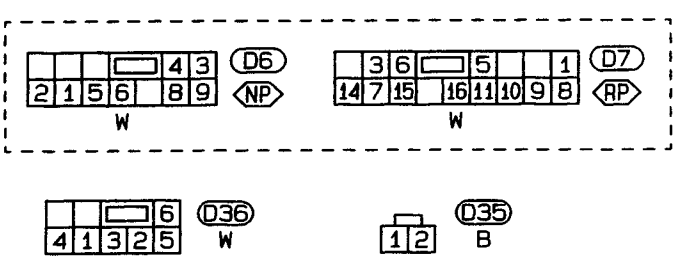
CAUTION : Don't attempt to repair, splice or modify the flexible flat circuit (FFC). If the FFC is damaged, replace with a new one.

HEL108

Wiring Diagram — WINDOW — (Cont'd)

EL-WINDOW-11





CAUTION : Don't attempt to repair, splice or modify the flexible flat circuit (FFC). If the FFC is damaged, replace with a new one.

Refer to last page (Foldout page).

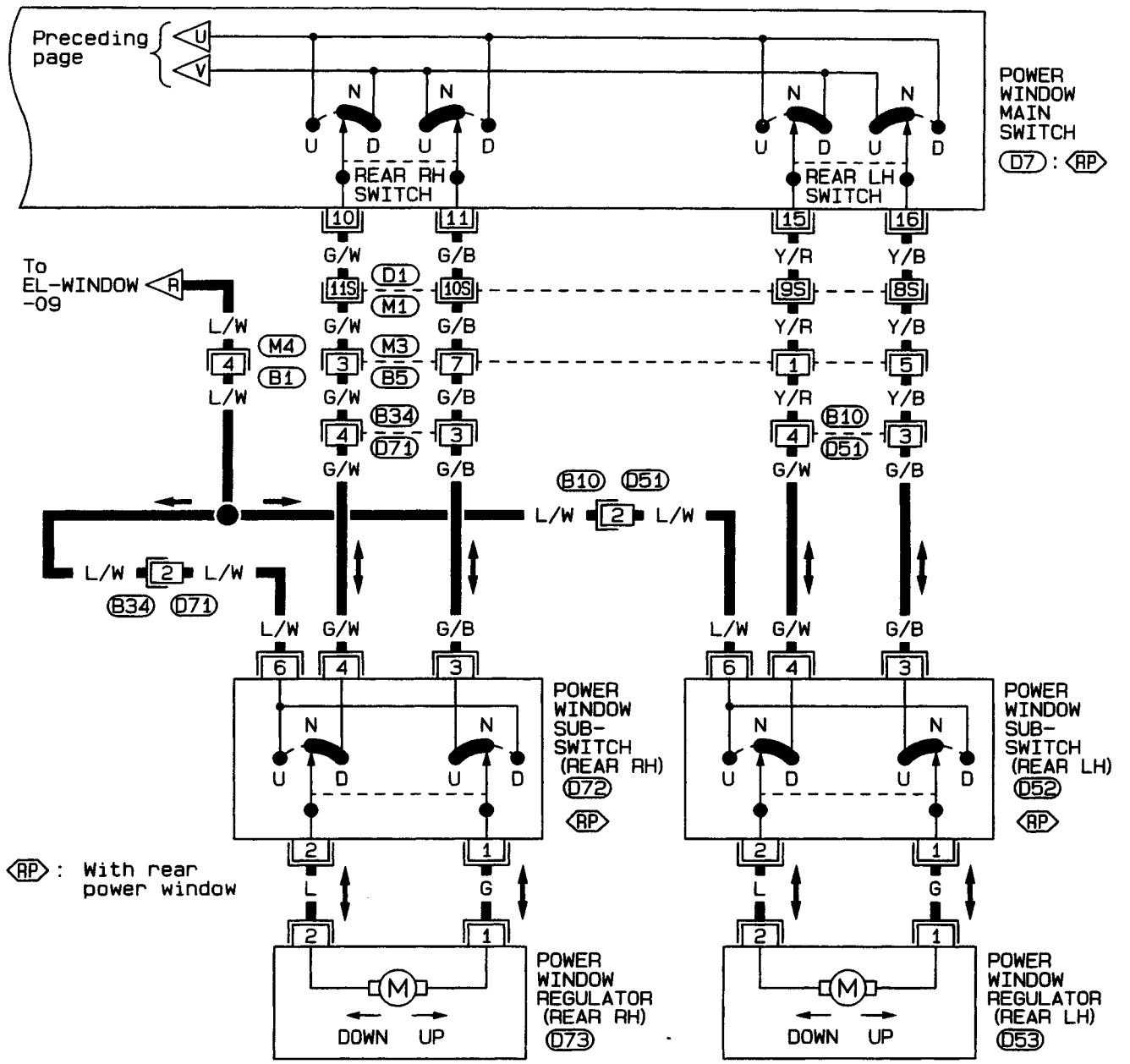
M1, D1

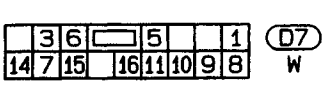
M75, D31

EL

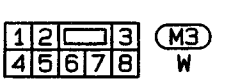
Wiring Diagram — WINDOW — (Cont'd)

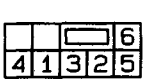
EL-WINDOW-12



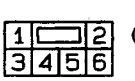

D7 W


M4 W


M3 W


D52 , D72 W W


D53 , D73 B B


B10 , B34 W W

Refer to last page (Foldout page).

M1 , D1

Trouble Diagnoses

<table>
<tr><th>Symptom</th><th>Possible cause</th><th>Repair order</th></tr>
<tr><td>None of the power windows can be operated using any switch.</td><td>1. 7.5A fuse, 25A fusible link and (E102) circuit breaker
2. Grounds (M28), (M60) and (M68)
3. Power window relay
4. Open/short in power window main switch circuit</td><td>1. Check 7.5A fuse (No. 7, located in fuse block [J/B]), 25A fusible link (letter f, located in fuse and fusible link box) and (E102) circuit breaker. Turn ignition switch "ON" and verify battery positive voltage is present at terminals ① and ② of power window main switch, and other switches as follows.
<table>
<tr><th>Models
Location of sub-switch</th><th>Terminals
LHD models</th><th>RHD models except for Europe and Australia</th><th>RHD models for Europe and Australia</th></tr>
<tr><td>Passenger 3H*</td><td>⑤ and ⑥</td><td>—</td><td>⑤ and ⑥</td></tr>
<tr><td>Other</td><td>⑤</td><td>⑤</td><td>⑤</td></tr>
<tr><td>Rear RH</td><td>⑥</td><td>⑥</td><td>⑥</td></tr>
<tr><td>Rear LH</td><td>⑥</td><td>⑥</td><td>⑥</td></tr>
</table>
2. Check grounds (M28), (M60) and (M68).
3. Check power window relay.
4. Check L/W wire between power window relay and power window main switch for open/short circuit.</td></tr>
<tr><td>Driver's side power window cannot be operated but other windows can be operated.</td><td>1. Driver's side power window regulator circuit
2. Driver's side power window regulator</td><td>1. Check driver's side power window regulator circuit
2. Check driver's side power window regulator</td></tr>
<tr><td>One or more passenger power windows cannot be operated.</td><td>1. Power window switches (front sub-switch, rear sub-switch RH, rear sub-switch LH)
2. Power window regulators (front sub-switch, rear sub-switch RH, rear sub-switch LH)
3. Power window main switch
4. Power window circuit</td><td>1. Check power window switches (front sub-switch, rear sub-switch RH, rear sub-switch LH)
2. Check power window regulators (front sub-switch, rear sub-switch RH, rear sub-switch LH)
3. Check power window main switch
4-1. Check harnesses between power window main switch and power window sub-switches for open/short circuit.
4-2. Check harnesses between power window sub-switches and power window regulators for open/short circuit.</td></tr>
<tr><td>One or more passenger power windows cannot be operated using power window main switch but can be operated by power window sub-switches.</td><td>1. Power window main switch</td><td>1. Check power window main switch.</td></tr>
<tr><td>Driver's side power window auto function cannot be operated using power window main switch.</td><td>1. Power window main switch</td><td>1. Check power window main switch.</td></tr>
</table>

*3-door Hatchback models

EL

System Description

NISSAN model N15 has two types of power door lock system:
- Type 1: For Europe and Australia
- Type 2: Except for Europe and Australia

Power is supplied at all times
- through 25A fusible link (letter [f], located in the fusible link and fuse box)
- to circuit breaker terminal ①
- through circuit breaker terminal ②
- to door lock timer terminal ⑪ (Type-1) or ③ (Type-2).

Ground is supplied to door lock timer terminal ⑯ (Type-1) or ① (Type-2) through body grounds (M28), (M60) and (M68).

POWER DOOR LOCK OPERATION

When one of the following input signals is supplied:
- driver side door is locked/unlocked using key or lock knob,
- passenger side door is locked/unlocked using key or lock knob (Only for type-1);
- door lock & unlock switch in the power window main switch is locked/unlocked (Only for RHD models type-2)

Door lock timer locks/unlocks driver side door (Only for type-1) and other doors.

Input (Type-1)

Unlock signal

When the driver side door is unlocked using key or lock knob, ground is supplied
- to door lock timer terminal ④
- through driver side door lock actuator (door unlock sensor) terminal ④
- to driver side door lock actuator (door unlock sensor) terminal ②
- through body grounds (M28), (M60) and (M68).

When the passenger side door is unlocked using key or lock knob, ground is supplied
- to door lock timer terminal ⑤
- through passenger side door lock actuator (door unlock sensor) terminal ④
- to passenger side door lock actuator (door unlock sensor) terminal ②
- through body grounds (M28), (M60) and (M68).

Lock signal

The door lock timer terminal ④ or ⑤ receives lock signal when the unlock signal is shut off.

Input (Type-2)

When the lock knob switch is in UNLOCKED position, ground is supplied
- to door lock timer terminal ⑥
- through lock knob switch terminal ②
- to lock knob switch terminal ①
- through body grounds (M28), (M60) and (M68).

The door lock timer terminal ⑥ receives lock signal when the unlock signal is shut off.

Input (Only for RHD models type-2)

When the door lock & unlock switch in the power window main switch is in LOCKED position, ground is supplied
- to door lock timer terminal ⑤
- through door lock & unlock switch in the power window main switch terminal ⑭
- to door lock & unlock switch in the power window main switch terminal ③
- through body grounds (M28), (M60) and (M68).

When the door lock & unlock switch in the power window main switch is in UNLOCKED position, ground is supplied
- to door lock timer terminal ⑧
- through door lock & unlock switch in the power window main switch terminal ⑦
- to door lock & unlock switch in the power window main switch terminal ③
- through body grounds (M28), (M60) and (M68).

System Description (Cont'd)

Output (Type-1)

Unlock signal

Ground is supplied
- to each door lock actuator terminal ③
- through door lock timer terminal ⑮.

Power is supplied
- to each door lock actuator terminal ①
- through door lock timer terminal ⑭.

Then, the door is unlocked.

Lock signal

Ground is supplied
- to each door lock actuator terminal ①
- through door lock timer terminal ⑭.

Power is supplied
- to each door lock actuator terminal ③.
- through door lock timer terminal ⑮.

Then, the door is locked.

Output (Type-2)

Unlock signal

Ground is supplied
- to each door lock actuator terminal ①
- through door lock timer terminal ②.

Power is supplied
- to each door lock actuator terminal ③
- through door lock timer terminal ④.

Then, the door is unlocked.

Lock signal

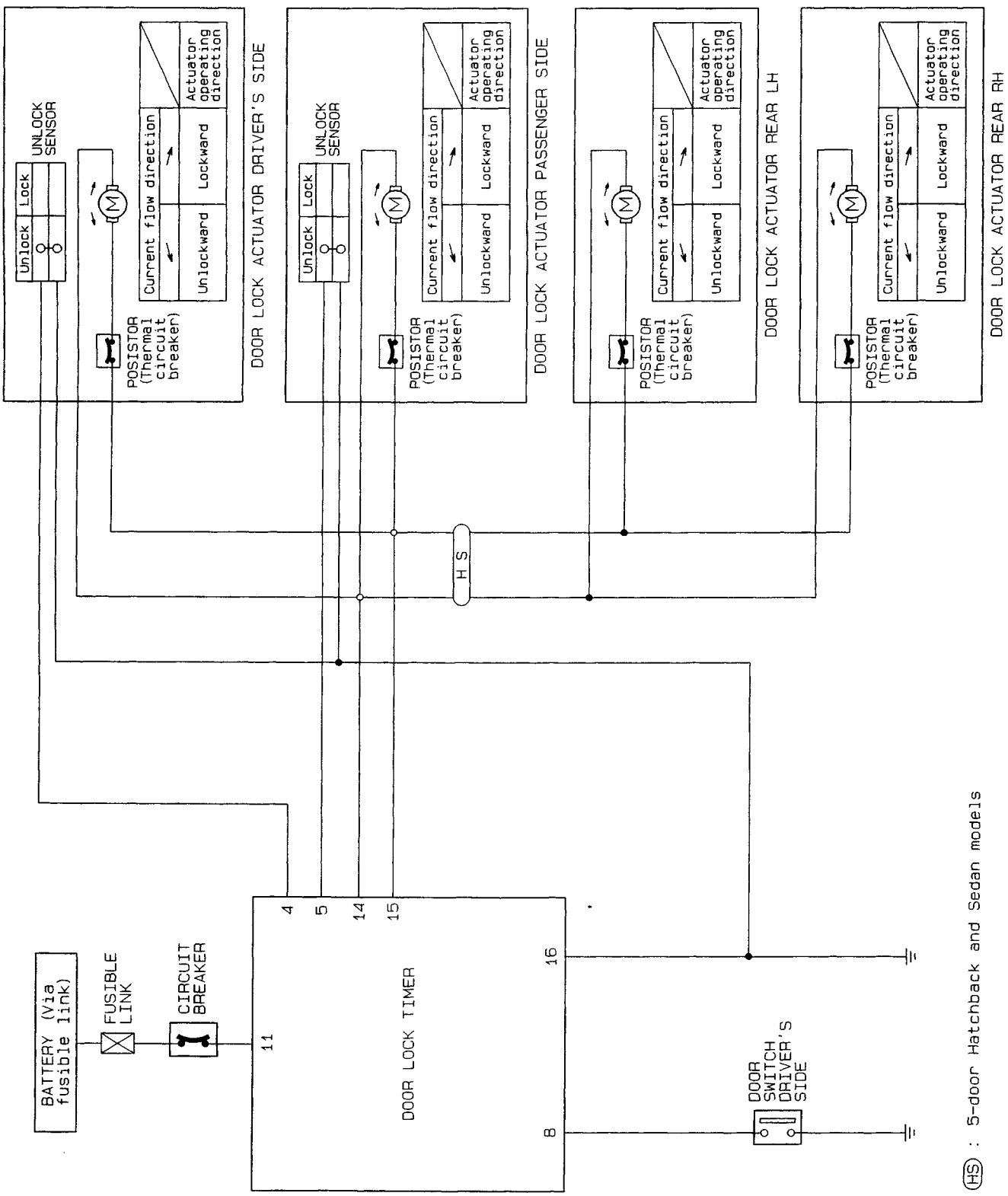
Ground is supplied
- to each door lock actuator terminal ③
- through door lock timer terminal ④.

Power is supplied
- to each door lock actuator terminal ①
- through door lock timer terminal ②.

Then, the door is locked.

Schematic

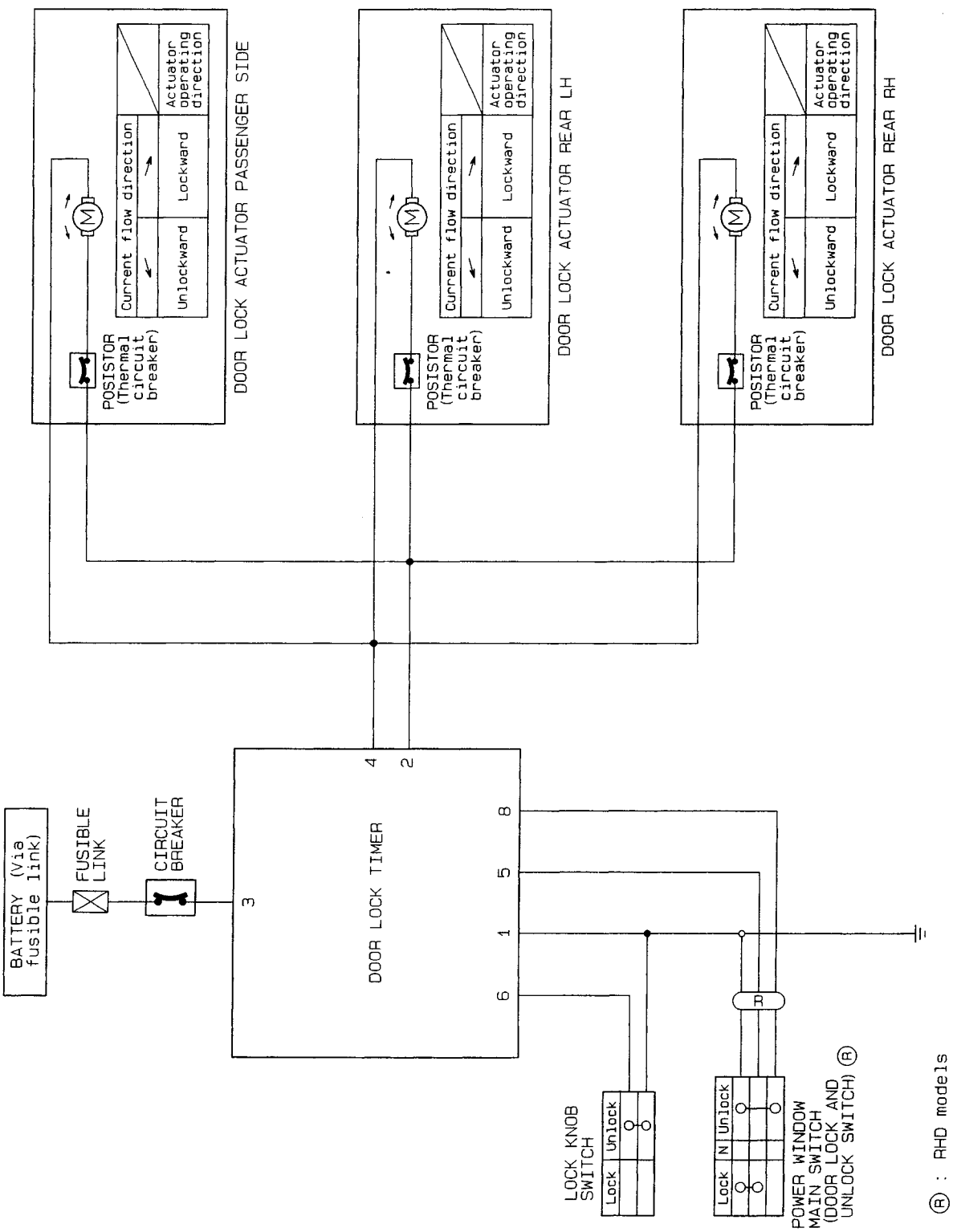
TYPE-1 (For Europe and Australia)



HEL114

Schematic (Cont'd)

TYPE-2 (Except for Europe and Australia)

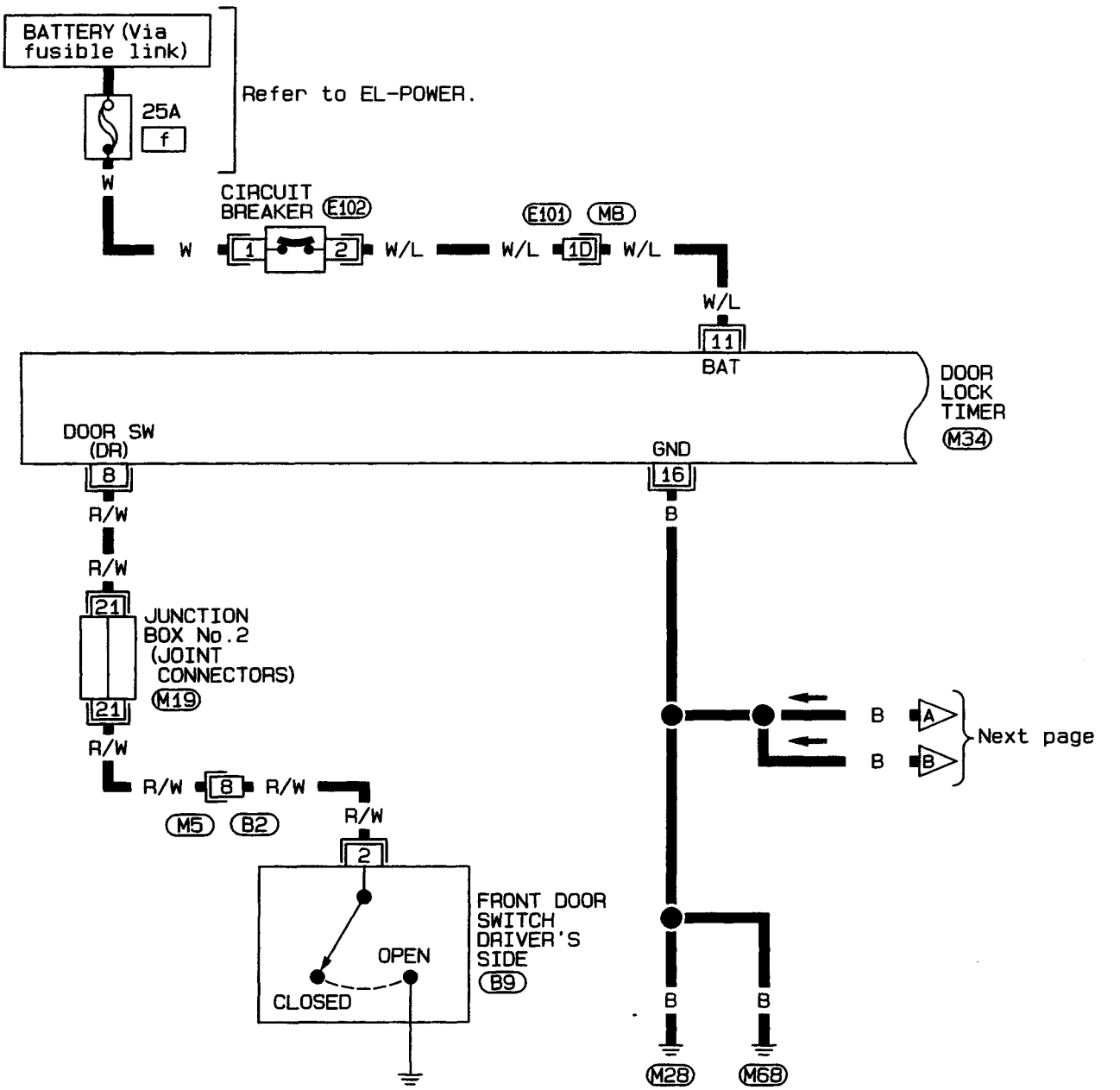


HEL115

Wiring Diagram — D/LOCK —

TYPE-1 (LHD models for Europe)

EL-D/LOCK-01





Refer to last page (Foldout page).

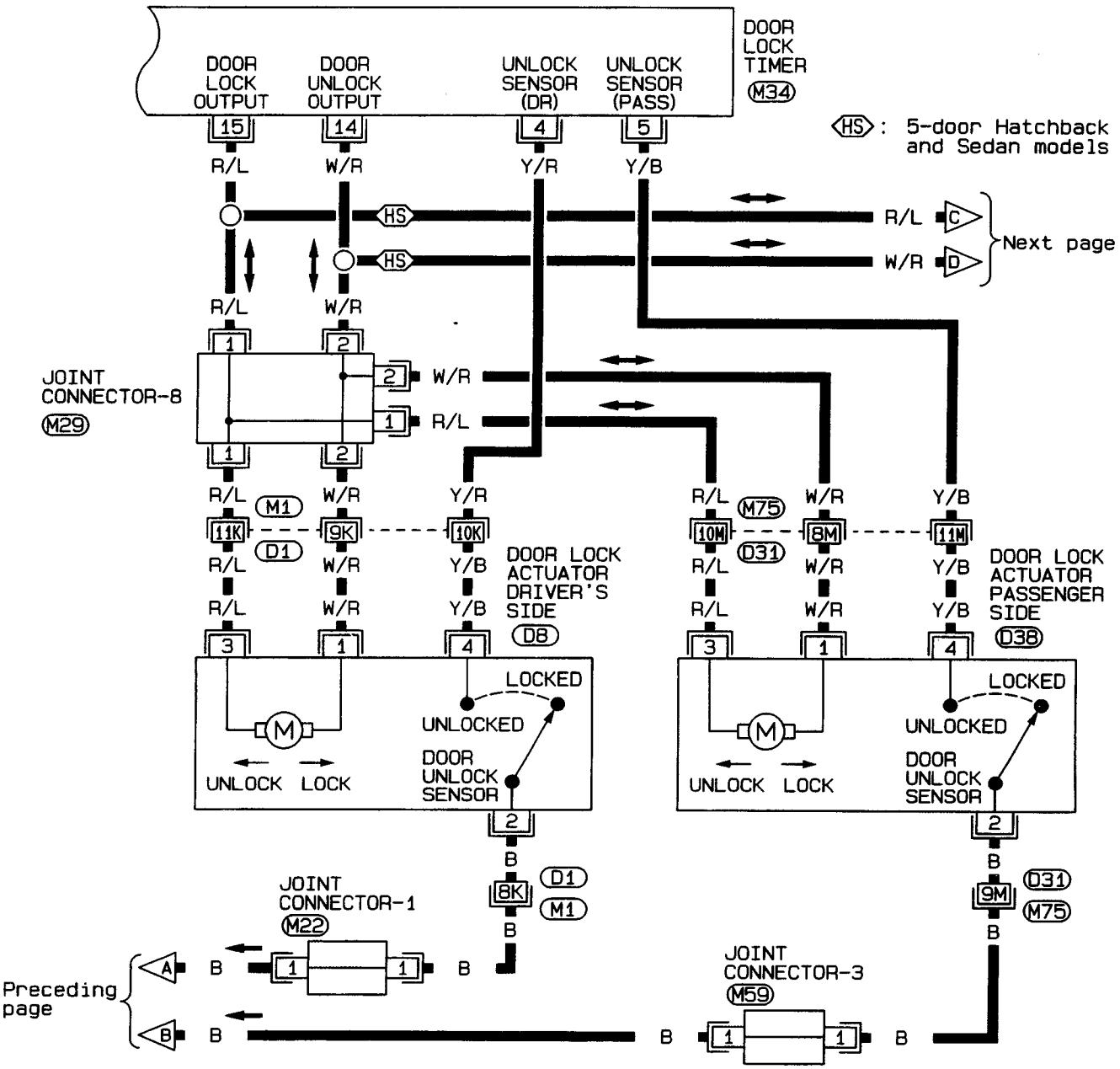
M8, E101

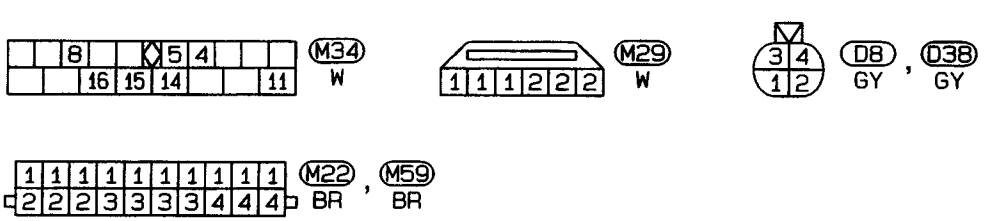
M19

HEL116

Wiring Diagram — D/LOCK — (Cont'd)

EL-D/LOCK-02





CAUTION : Don't attempt to repair, splice or modify the flexible flat circuit (FFC). If the FFC is damaged, replace with a new one.

Refer to last page (Foldout page).

M1 , D1

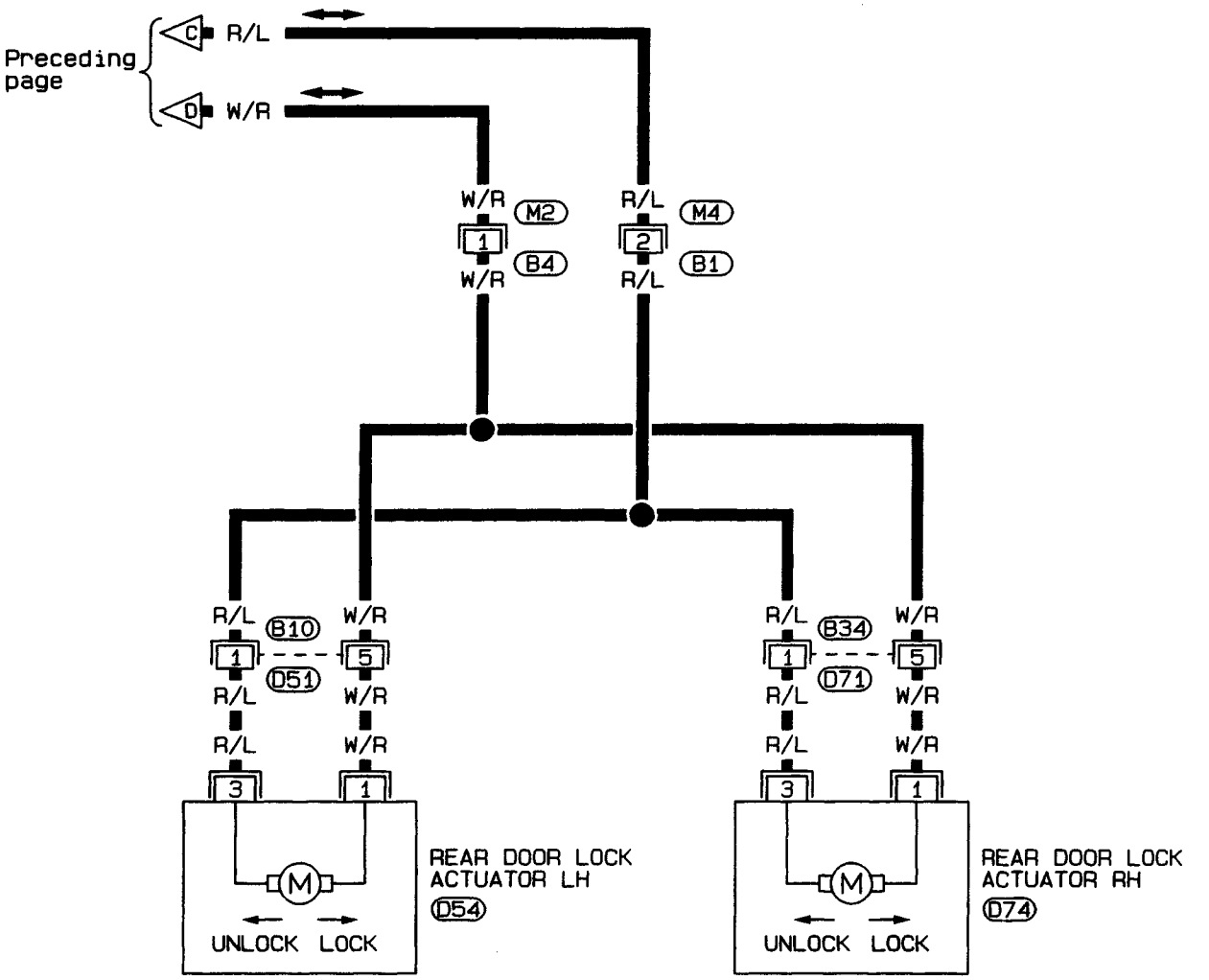
M75 , D31

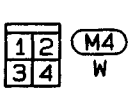
EL

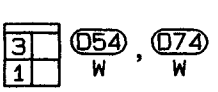
HEL117

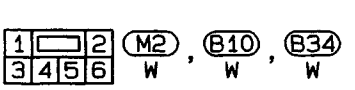
Wiring Diagram — D/LOCK — (Cont'd)

EL-D/LOCK-03







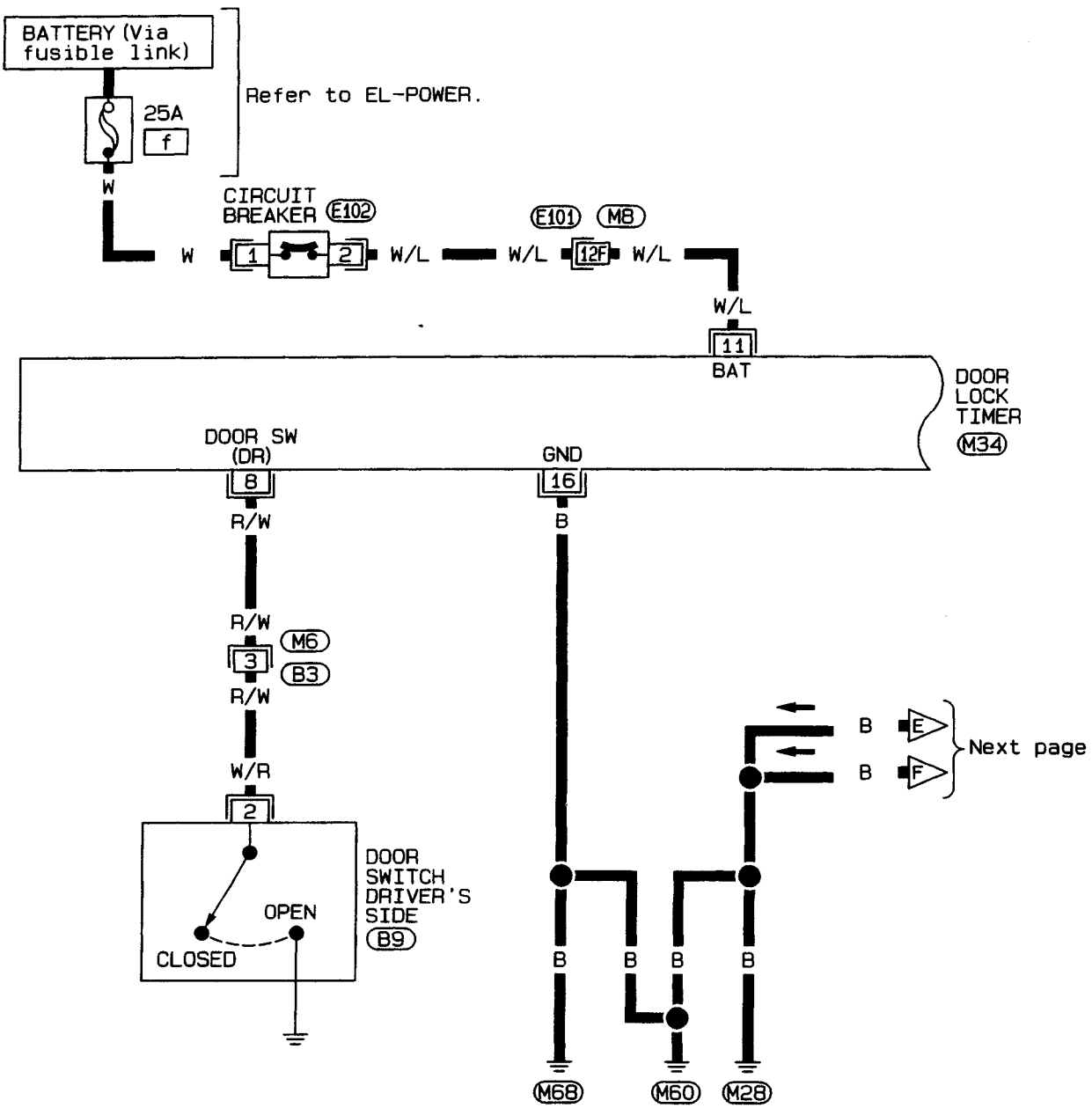


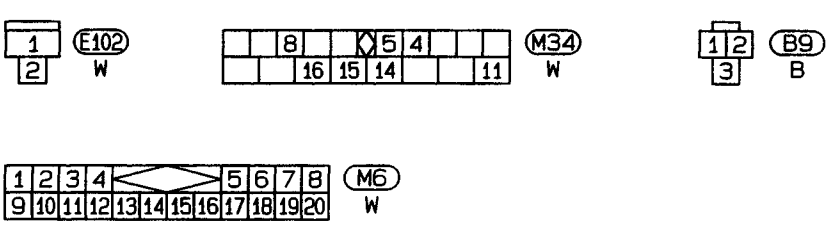
HEL118

Wiring Diagram — D/LOCK — (Cont'd)

TYPE-1 (RHD models for Europe and Australia)

EL-D/LOCK-04





Refer to last page (Foldout page).

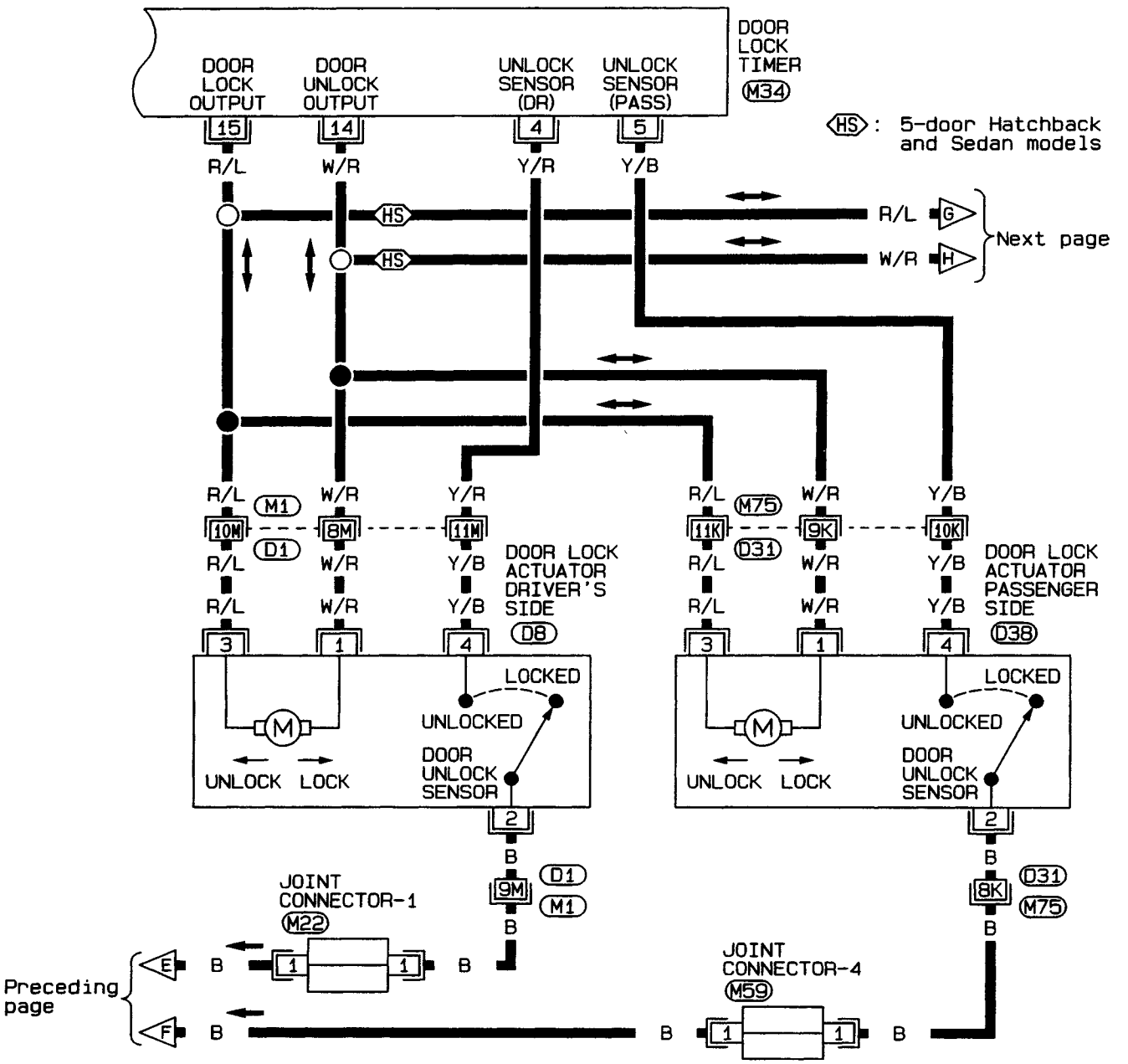
M8, E101

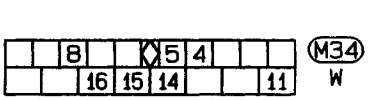
EL

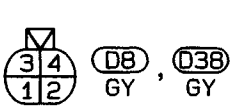
HEL119

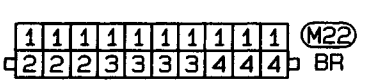
Wiring Diagram — D/LOCK — (Cont'd)

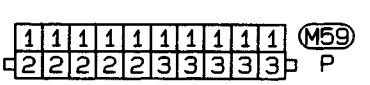
EL-D/LOCK-05











CAUTION : Don't attempt to repair, splice or modify the flexible flat circuit (FFC). If the FFC is damaged, replace with a new one.

Refer to last page (Foldout page).

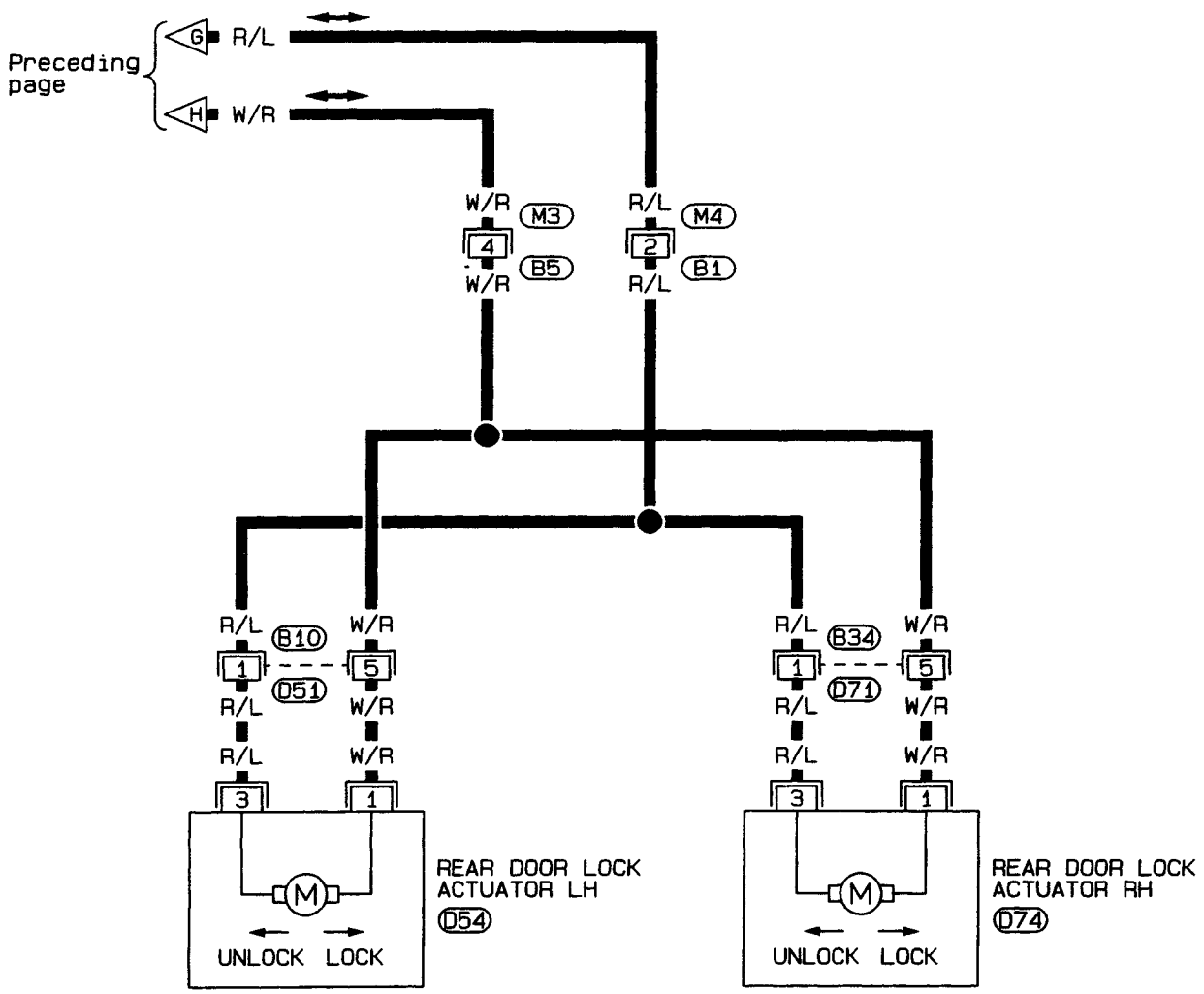
M1, D1

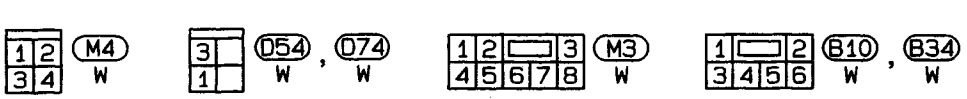
M75, D31

HEL120

Wiring Diagram — D/LOCK — (Cont'd)

EL-D/LOCK-06





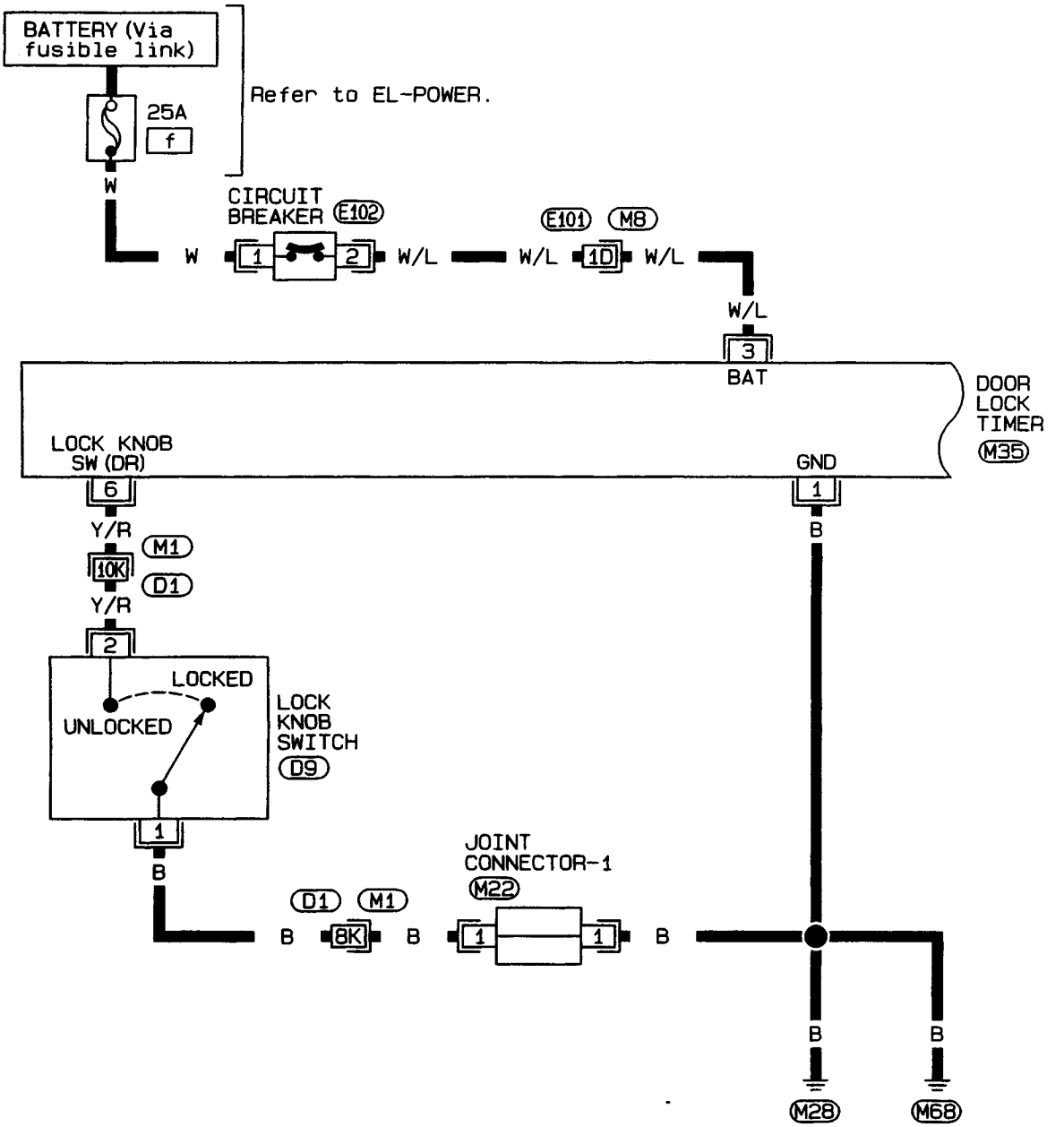
EL

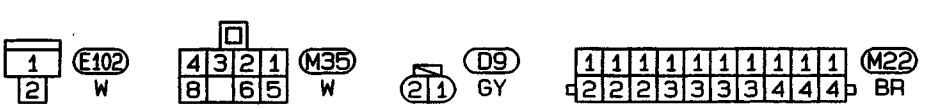
HEL121

Wiring Diagram — D/LOCK — (Cont'd)

TYPE-2 (LHD models except for Europe)

EL-D/LOCK-07





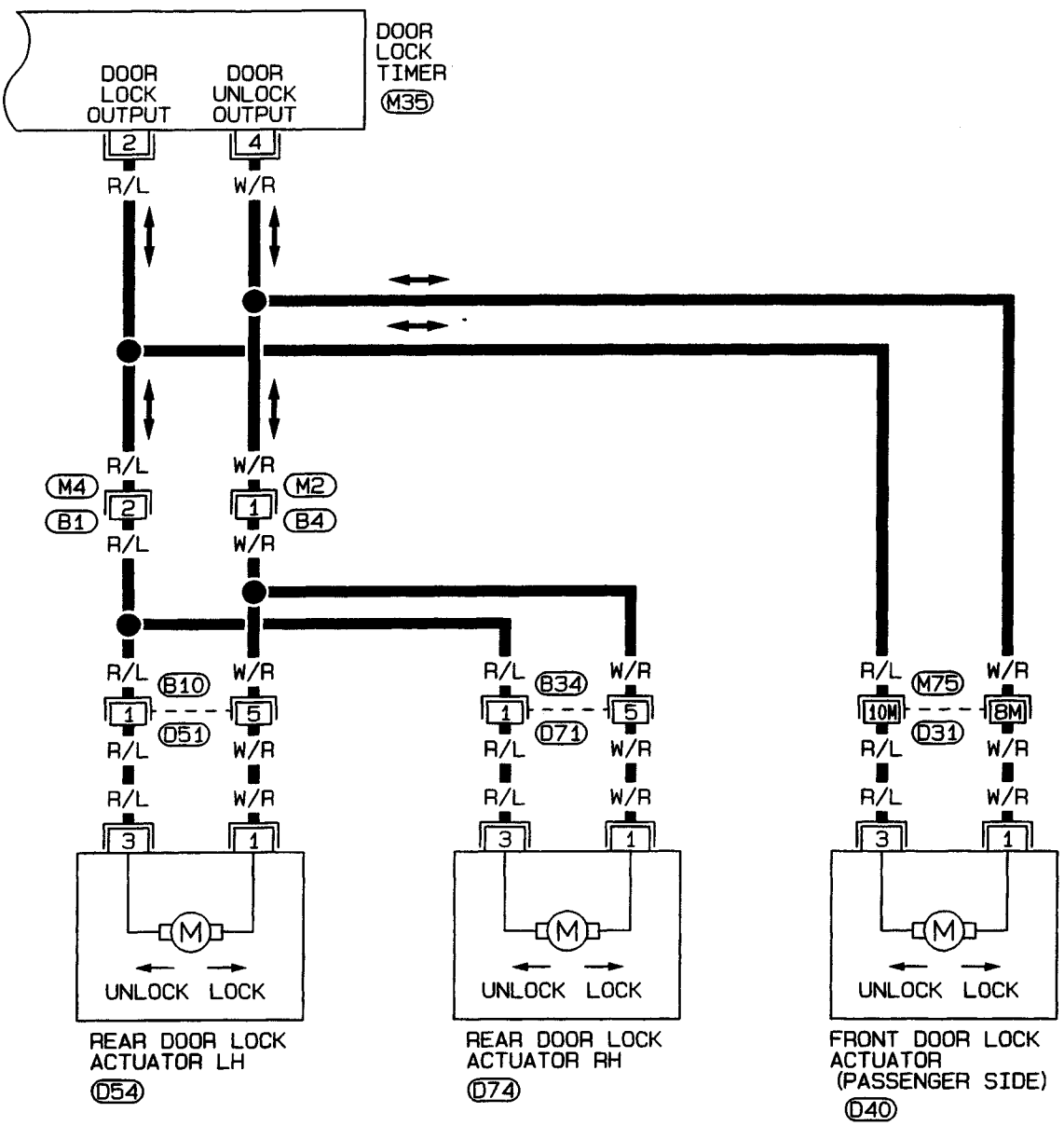
Refer to last page (Foldout page).

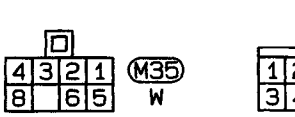
M8, E101
M1, D1

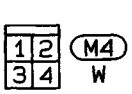
HEL122

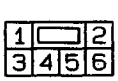
Wiring Diagram — D/LOCK — (Cont'd)

EL-D/LOCK-08




M35 W


M4 W


M2 W, B10 W, B34 W


D40 W, D54 W, D74 W

Refer to last page (Foldout page).

M75, D31

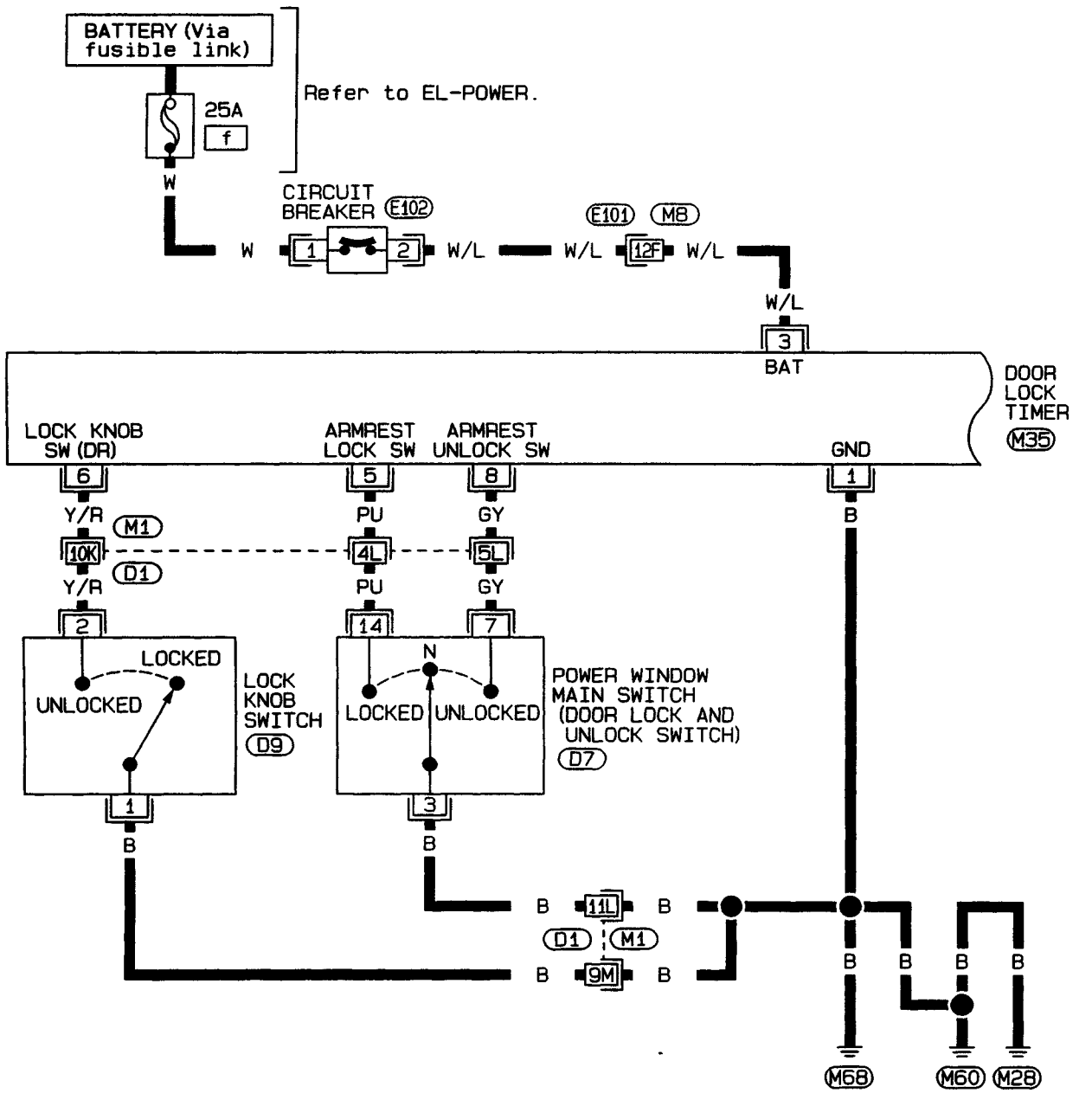
EL

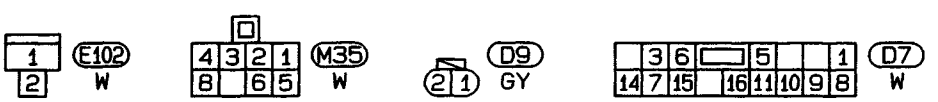
HEL123

Wiring Diagram — D/LOCK — (Cont'd)

TYPE-2 (RHD models except for Europe and Australia)

EL-D/LOCK-09





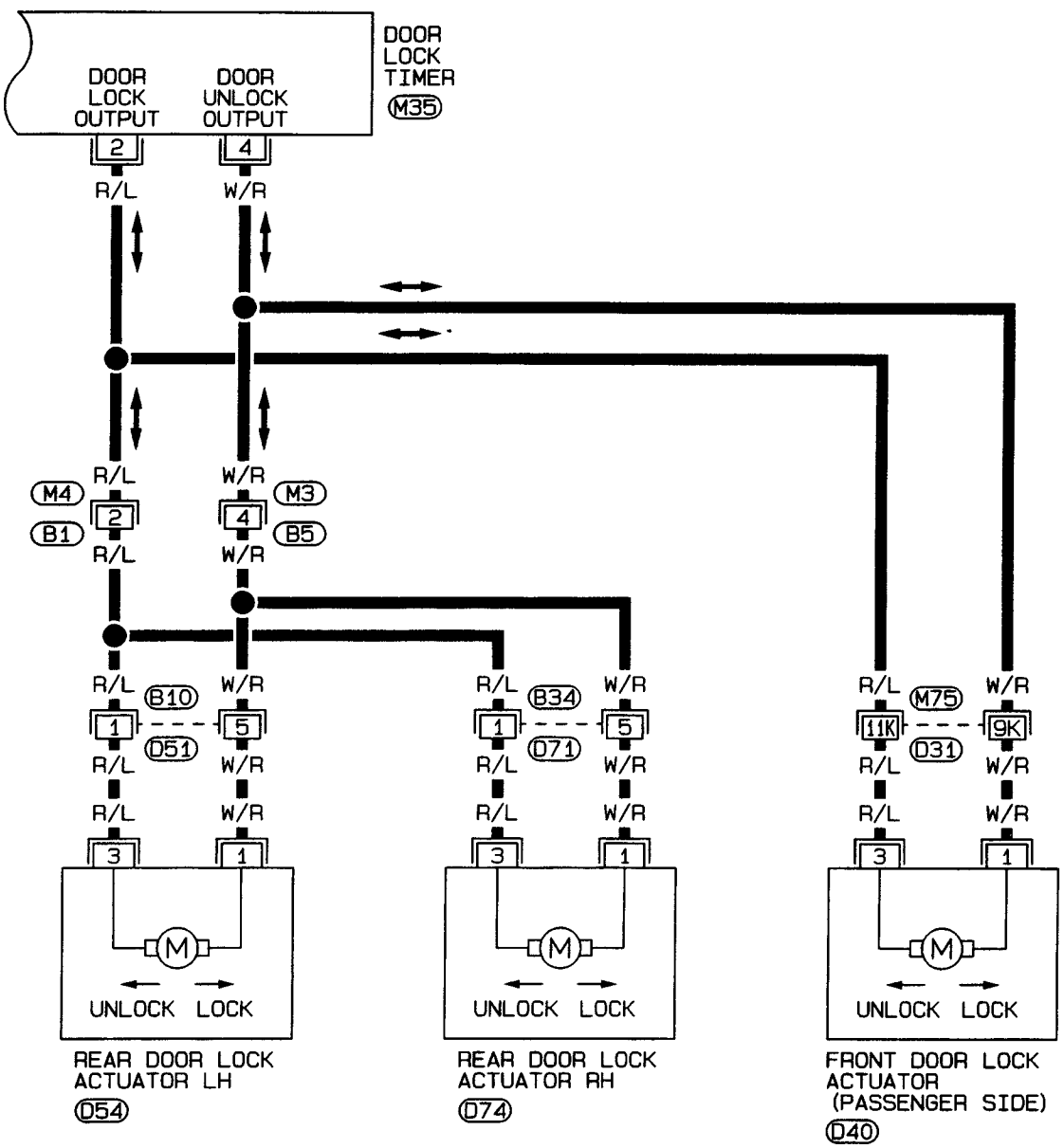
Refer to last page (Foldout page).

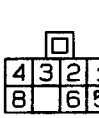
M8, E101
M1, D1

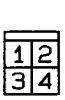
HEL124

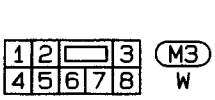
Wiring Diagram — D/LOCK — (Cont'd)

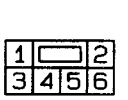
EL-D/LOCK-10




M35 W


M4 W


M3 W


B10 , B34 W W


D40 , D54 , D74 W W W

Refer to last page (Foldout page).

M75 , D31

EL

HEL125

Trouble Diagnoses — Type 1 (For Europe and Australia)

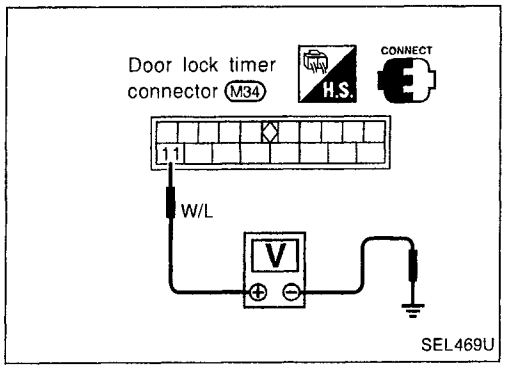
SYMPTOM CHART

PROCEDURE		Diagnostic Procedure	
REFERENCE PAGE	EL-213	EL-214	EL-215
SYMPTOM	Power supply and ground circuit check	Procedure 1 (Unlock sensor check)	Procedure 2 (Door lock actuator check)
Power door lock does not operate with driver's side lock knob switch and driver door key cylinder.	①		②
Power door lock does not operate with door lock and unlock switch on power window main switch.	①	②	③
Specific door lock actuator does not operate.			①

Perform Diagnostic Procedures in numerical order shown in the symptom chart. Carry out functional tests whenever each step is finished. If the trouble remains after performing all Diagnostic Procedures, replace the door lock timer.

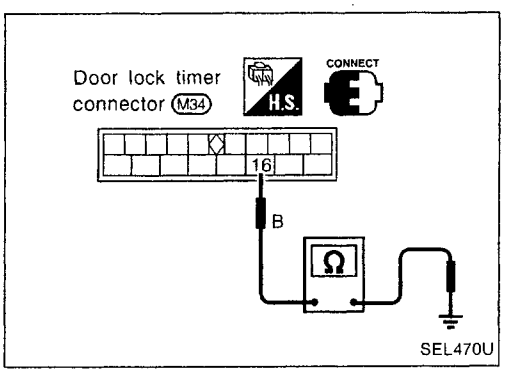
Trouble Diagnoses — Type 1 (For Europe and Australia) (Cont'd)

POWER SUPPLY AND GROUND CIRCUIT CHECK



Power supply check

Terminals	Ignition switch operation			
	OFF	ACC	ON	START
⑪ - Ground	Battery voltage			



Ground circuit check

Terminals	Continuity
⑯ - Ground	Yes

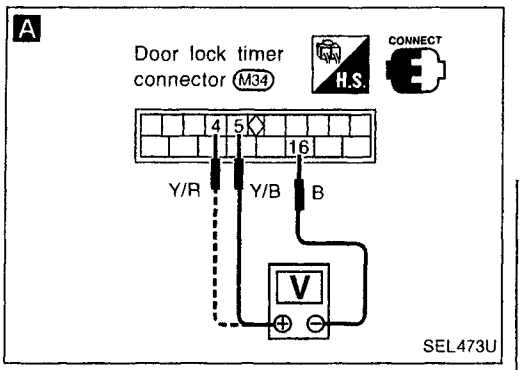
EL

Trouble Diagnoses — Type 1 (For Europe and Australia) (Cont'd)

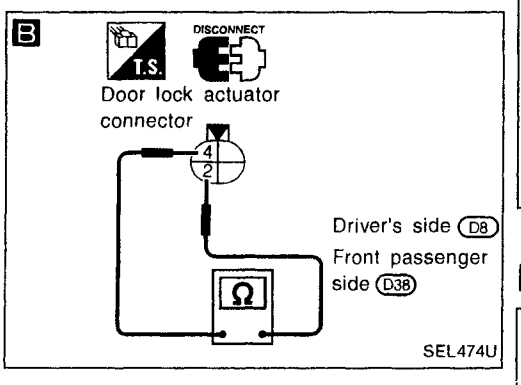
PROCEDURE 1

(Unlock sensor check)

A



B



A

UNLOCK SENSOR SIGNAL CHECK
Measure voltage between door lock timer harness terminals ④ and ⑯, ⑤ and ⑯.

Terminals		Condition of unlock sensor and voltage [V]	
⊕	⊖	Lock	Unlock
④	⑯	0	Approx. 12
⑤	⑯		

OK → Unlock sensor signal is OK.

NG ↓

B

UNLOCK SENSOR CHECK
Check continuity between door lock actuator connector terminals ④ and ②.

Terminals	Condition of door lock actuator	Continuity
④ and ②	Lock	Yes
	Unlock	Yes

NG → Replace door lock actuator.

OK ↓

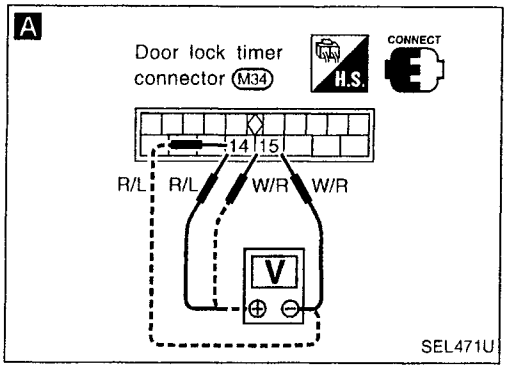
Check the following.
1) Harness between door lock timer and door lock actuator for open/short circuit
2) Door lock actuator ground circuit

Trouble Diagnoses — Type 1 (For Europe and Australia) (Cont'd)

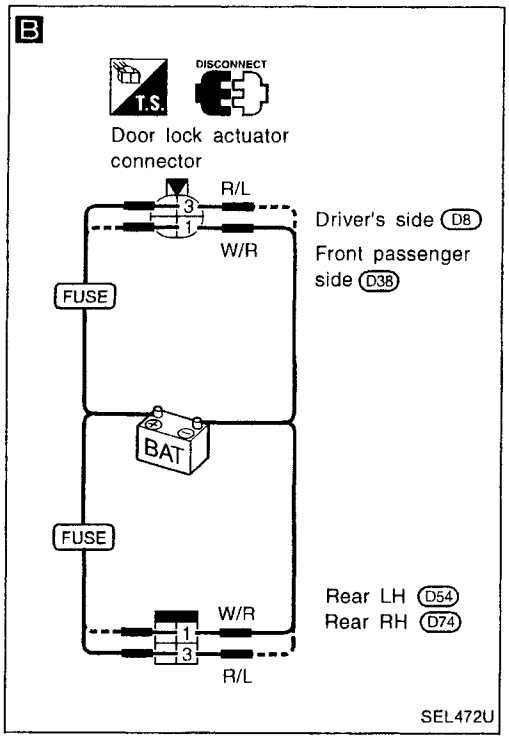
PROCEDURE 2

(Door lock actuator check)

A



B



A

DOOR LOCK ACTUATOR OUTPUT SIGNAL CHECK

Measure voltage between door lock timer harness terminals ⑭ and ⑮.

Terminals ⊕	Terminals ⊖	Condition of door lock & unlock switch	Voltage [V]
⑭	⑮	Neutral → Unlock	0 → 12 → 0 (Approx. 1.0 sec.)
⑮	⑭	Neutral → Lock	0 → 12 → 0 (Approx. 1.0 sec.)

* The voltage values are approximate.

NG → Replace door lock timer.

OK ↓

B

DOOR LOCK ACTUATOR CHECK

Apply 12V direct current to terminals and check operation.

Door lock actuator operation	Terminals ⊕	Terminals ⊖
Lock	③	①
Unlock	①	③

NG → Replace door lock actuator.

OK ↓

Check harness between door lock timer and door lock actuator for open/short circuit.

EL

Trouble Diagnoses — Type 2 (Except for Europe and Australia)

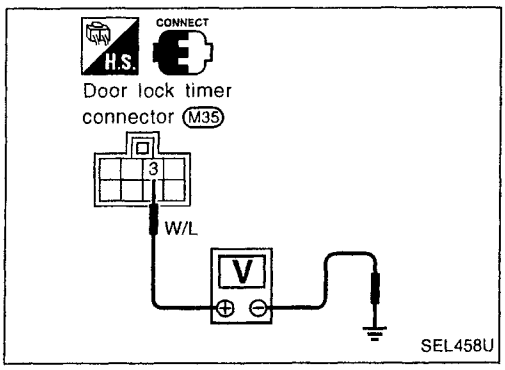
SYMPTOM CHART

PROCEDURE		Diagnostic Procedure		
REFERENCE PAGE	EL-217	EL-217	EL-218	EL-219
SYMPTOM	Power supply and ground circuit check	Procedure 1 (Lock knob switch check)	Procedure 2 (Door lock & unlock switch check)	Procedure 3 (Door lock actuator check)
Power door lock does not operate with driver's side lock knob switch and driver door key cylinder.	①	②		③
Power door lock does not operate with door lock and unlock switch on power window main switch.	①		②	③
Specific door lock actuator does not operate.				①

Perform Diagnostic Procedures in numerical order shown in the symptom chart. Carry out functional tests whenever each step is finished. If the trouble remains after performing all Diagnostic Procedures, replace the door lock timer.

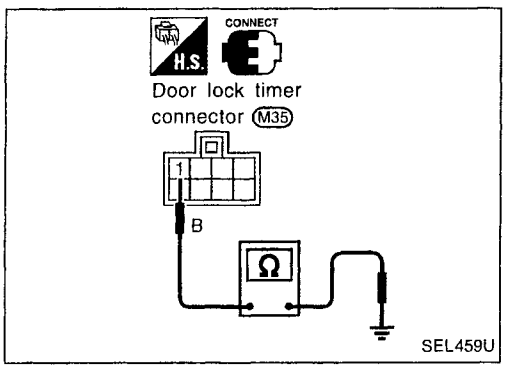
Trouble Diagnoses — Type 2 (Except for Europe and Australia) (Cont'd)

POWER SUPPLY AND GROUND CIRCUIT CHECK



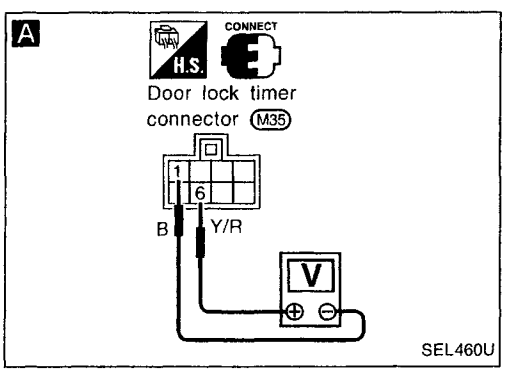
Power supply check

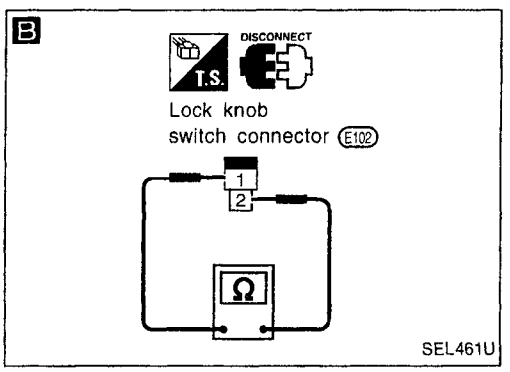
Terminals	Ignition switch operation			
	OFF	ACC	ON	START
③ - Ground	Battery voltage			



Ground circuit check

Terminals	Continuity
① - Ground	Yes





PROCEDURE 1

(Lock knob switch check)

A

LOCK KNOB SWITCH SIGNAL CHECK
Measure voltage between door lock timer harness terminals ⑥ and ①.

Condition of lock knob switch	Voltage [V]
Lock	Approx. 12
Unlock	0

OK → Lock knob switch is OK.

NG ↓

B

LOCK KNOB SWITCH CHECK
Check continuity between lock knob switch terminals ① and ②.

Condition of lock knob switch	Continuity
Lock	No
Unlock	Yes

NG → Replace lock knob switch.

OK ↓

Check the following.
1) Harness between door lock timer and lock knob switch for open/short circuit
2) Lock knob switch ground circuit

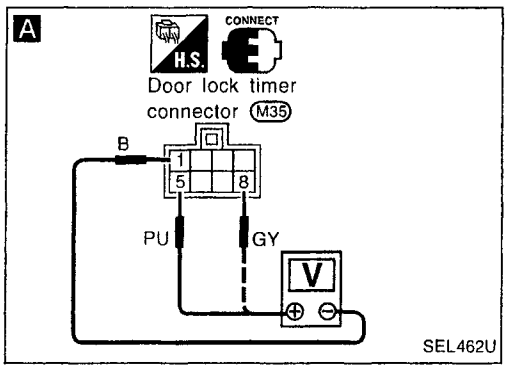
EL

Trouble Diagnoses — Type 2 (Except for Europe and Australia) (Cont'd)

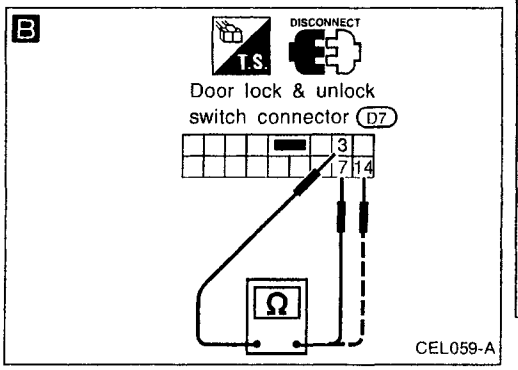
PROCEDURE 2

(Door lock & unlock switch check)

A



B



A

DOOR LOCK & UNLOCK SWITCH SIGNAL CHECK

Measure voltage between door lock timer harness terminals ⑤ and ①, ⑧ and ①.

Terminals		Condition of door lock & unlock switch	Voltage [V]
⊕	⊖		
⑤	①	Lock	Approx. 12
⑧	①	Unlock	Approx. 12

OK → Door lock & unlock switch is OK.

NG ↓

B

DOOR LOCK & UNLOCK SWITCH CHECK

Check continuity between door lock & unlock switch terminals ⑦ and ③, ⑭ and ③.

Terminals	Condition of door lock & unlock switch	Continuity
⑦ and ③	Lock	Yes
⑭ and ③	Unlock	Yes

NG → Replace door lock & unlock switch.

OK ↓

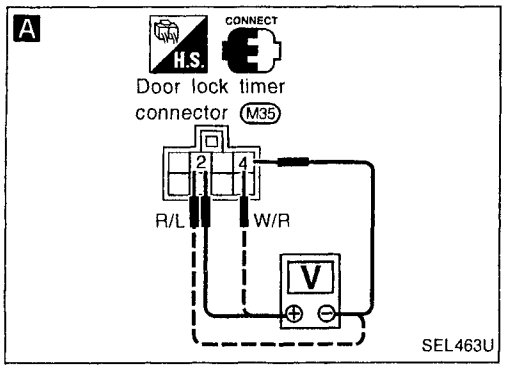
Check the following.
1) Harness between door lock timer and door lock & unlock switch for open/short circuit
2) Door lock & unlock switch ground circuit

Trouble Diagnoses — Type 2 (Except for Europe and Australia) (Cont'd)

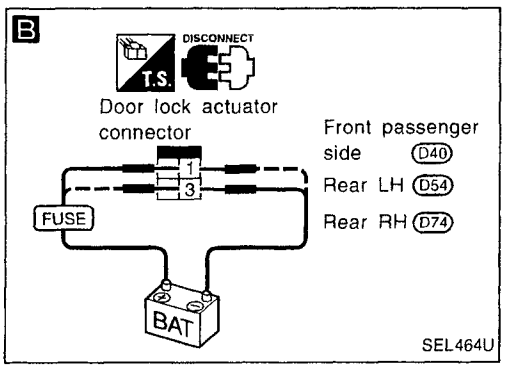
PROCEDURE 3

(Door lock actuator check)

A



B



A

DOOR LOCK ACTUATOR OUTPUT SIGNAL CHECK

Measure voltage between door lock timer harness terminals ② and ④.

Terminals		Condition of door lock & unlock switch	Voltage [V]
⊕	⊖		
②	④	Neutral → Lock	0 → 12 → 0 (Approx. 1.0 sec.)
④	②	Neutral → Unlock	0 → 12 → 0 (Approx. 1.0 sec.)

* The voltage values are approximate.

NG → Replace door lock timer.

OK ↓

B

DOOR LOCK ACTUATOR CHECK

Apply 12V direct current to terminals and check operation.

Door lock actuator operation	Terminals	
	⊕	⊖
Lock	①	③
Unlock	③	①

NG → Replace door lock actuator.

OK ↓

Check harness between door lock timer and door lock actuator for open/short circuit.

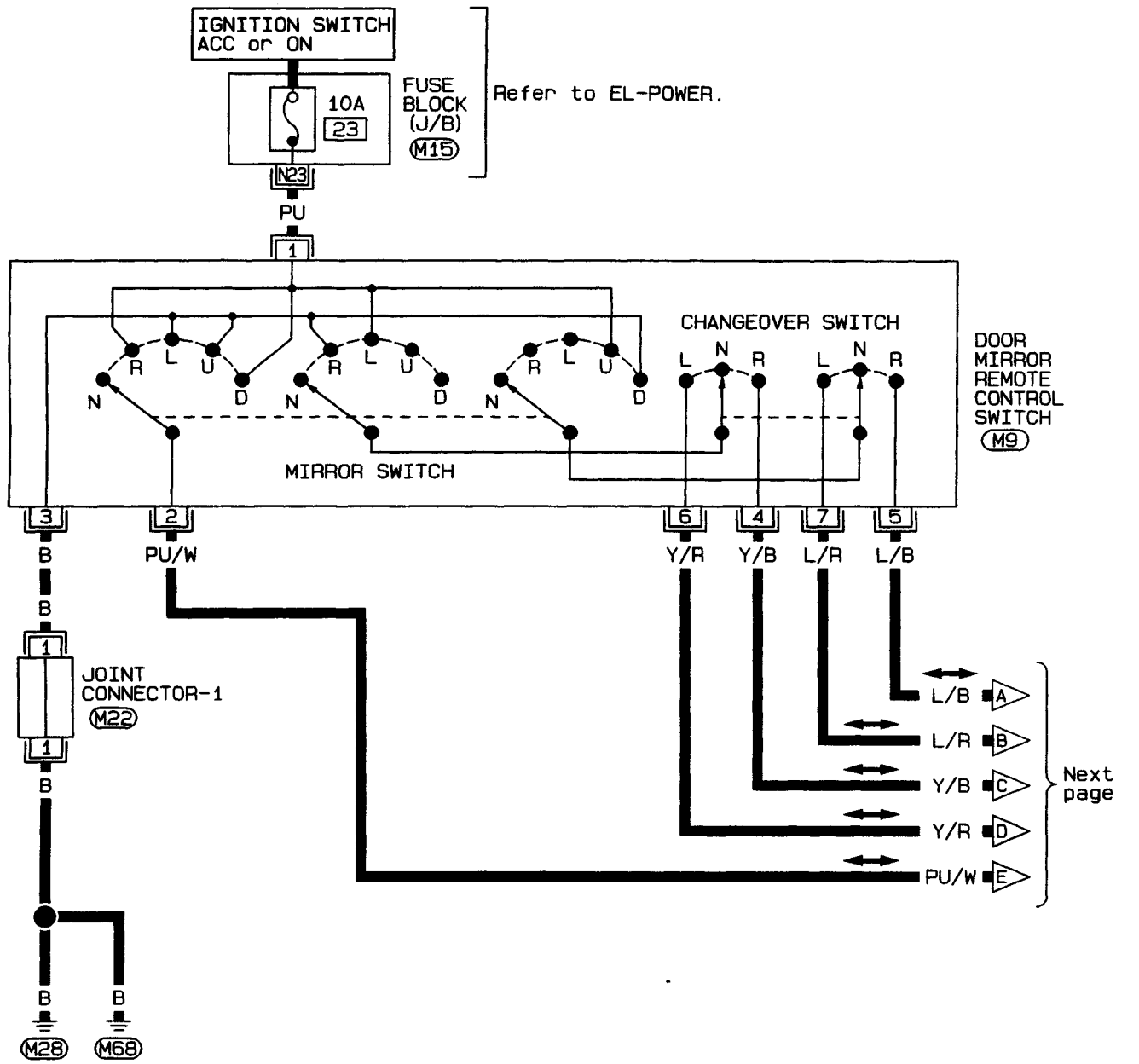
EL

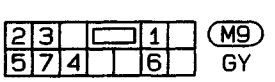
★ For removal of door mirror, refer to "DOOR MIRROR" in BT section.

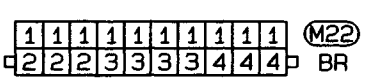
Wiring Diagram — MIRROR —

LHD MODELS

EL-MIRROR-01







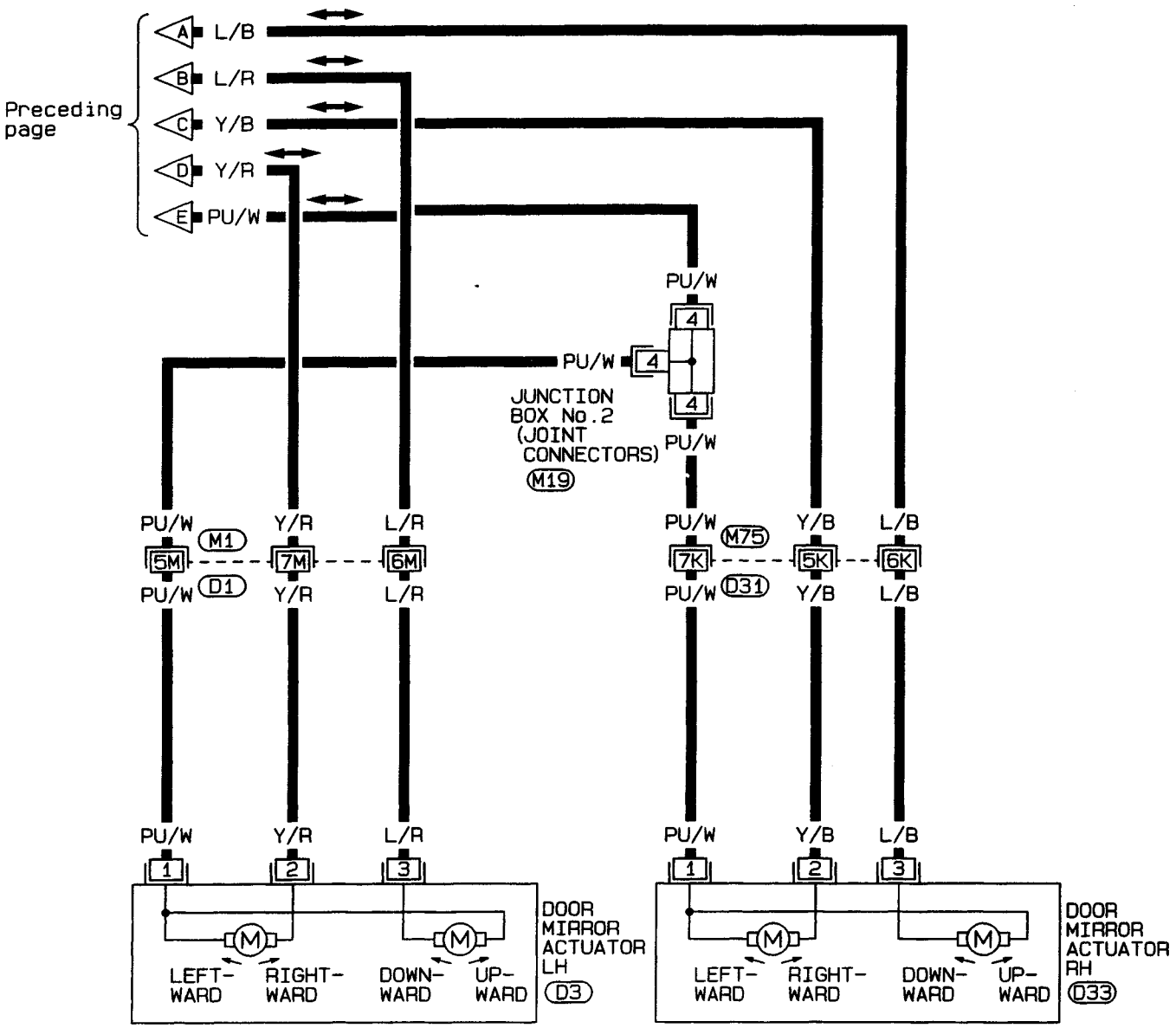
Refer to last page
(Foldout page).

M15

HEL126

Wiring Diagram — MIRROR — (Cont'd)

EL-MIRROR-02



1 2 3 D3 BR, D33 BR

Refer to last page (Foldout page).

M1, D1
M75, D31
M19

CAUTION : Don't attempt to repair, splice or modify the flexible flat circuit (FFC). If the FFC is damaged, replace with a new one.

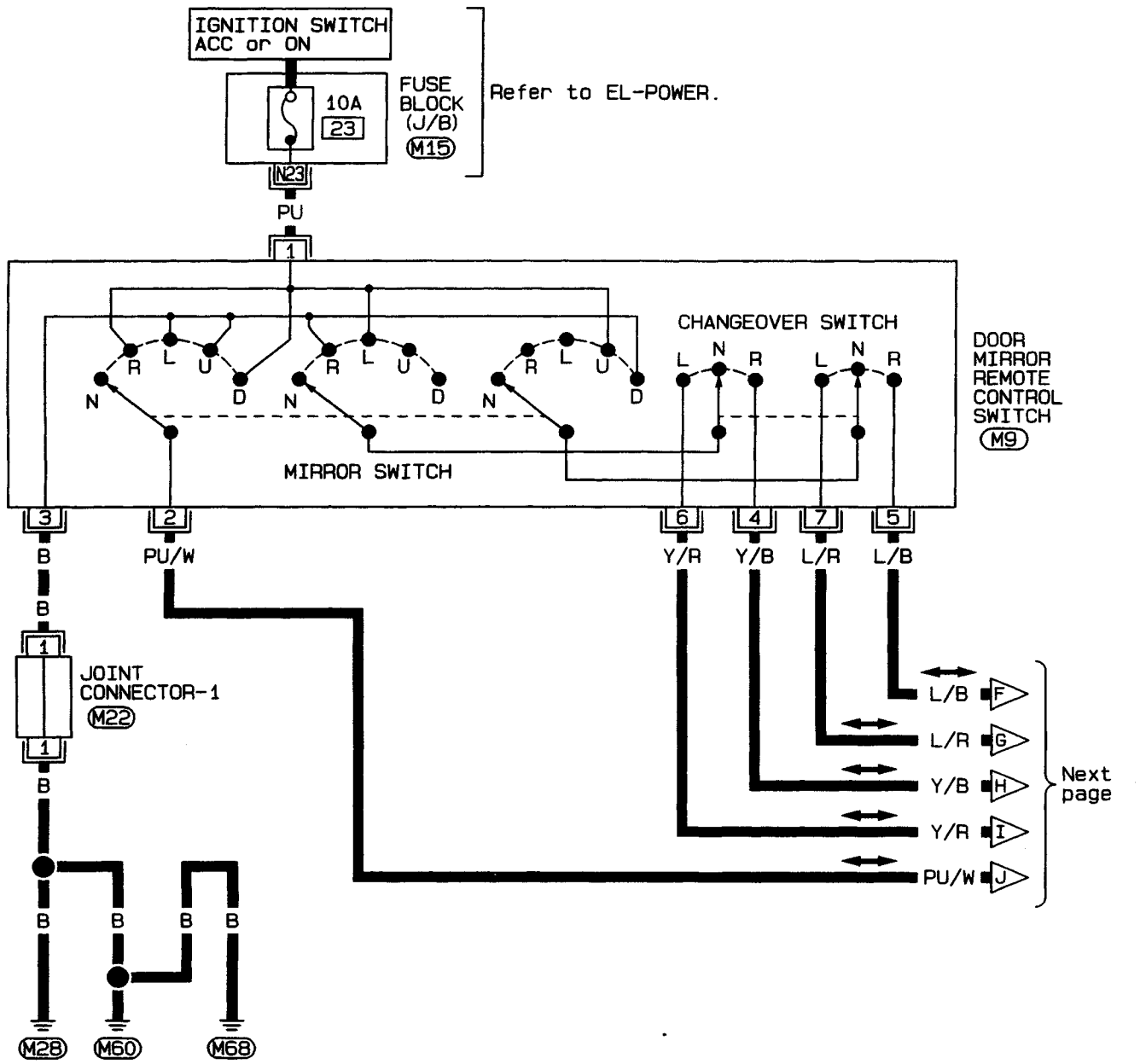
HEL127

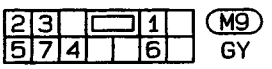
EL

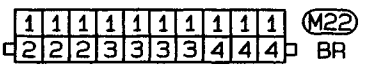
Wiring Diagram — MIRROR — (Cont'd)

RHD MODELS

EL-MIRROR-03







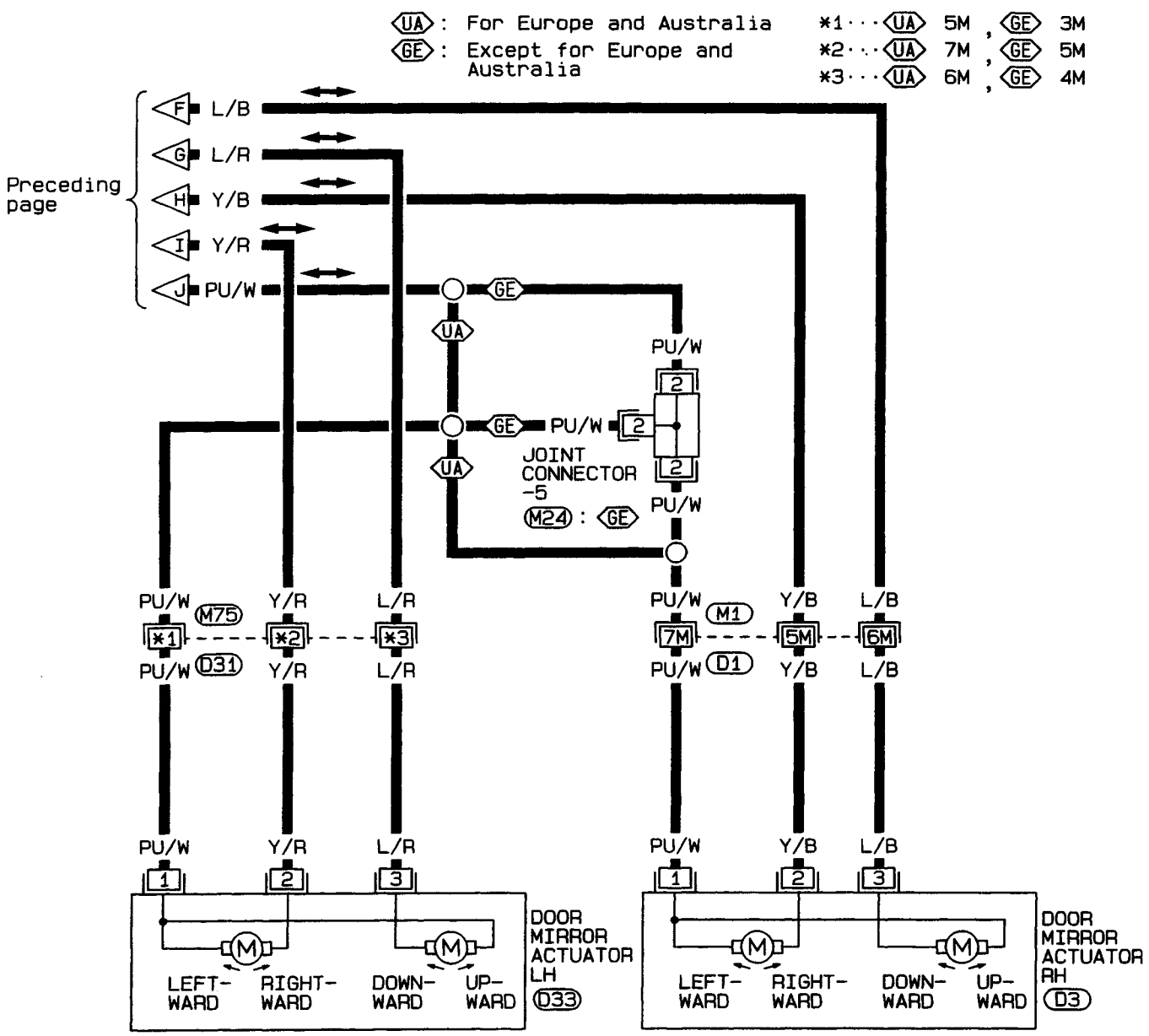
Refer to last page (Foldout page).

M15

HEL128

Wiring Diagram — MIRROR — (Cont'd)

EL-MIRROR-04



D3 , D33 BR , BR

M24 OR

Refer to last page (Foldout page).

M1 , D1

M75 , D31

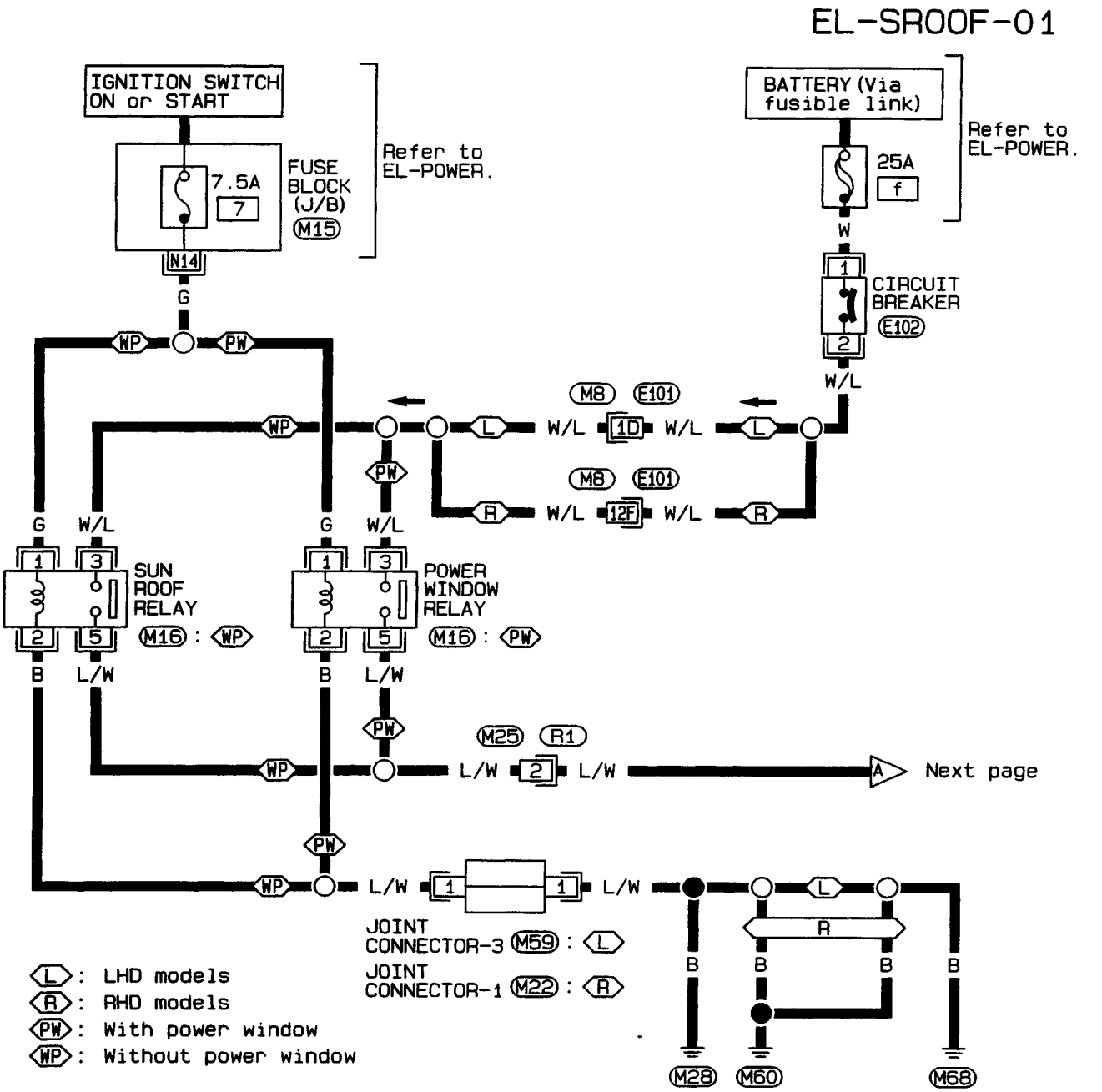
CAUTION : Don't attempt to repair, splice or modify the flexible flat circuit (FFC). If the FFC is damaged, replace with a new one.

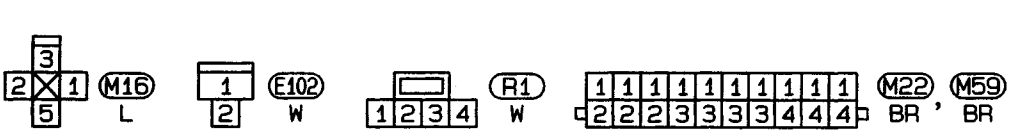
HEL129

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

Wiring Diagram — SROOF —

EL-SROOF-01





Refer to last page (Foldout page).

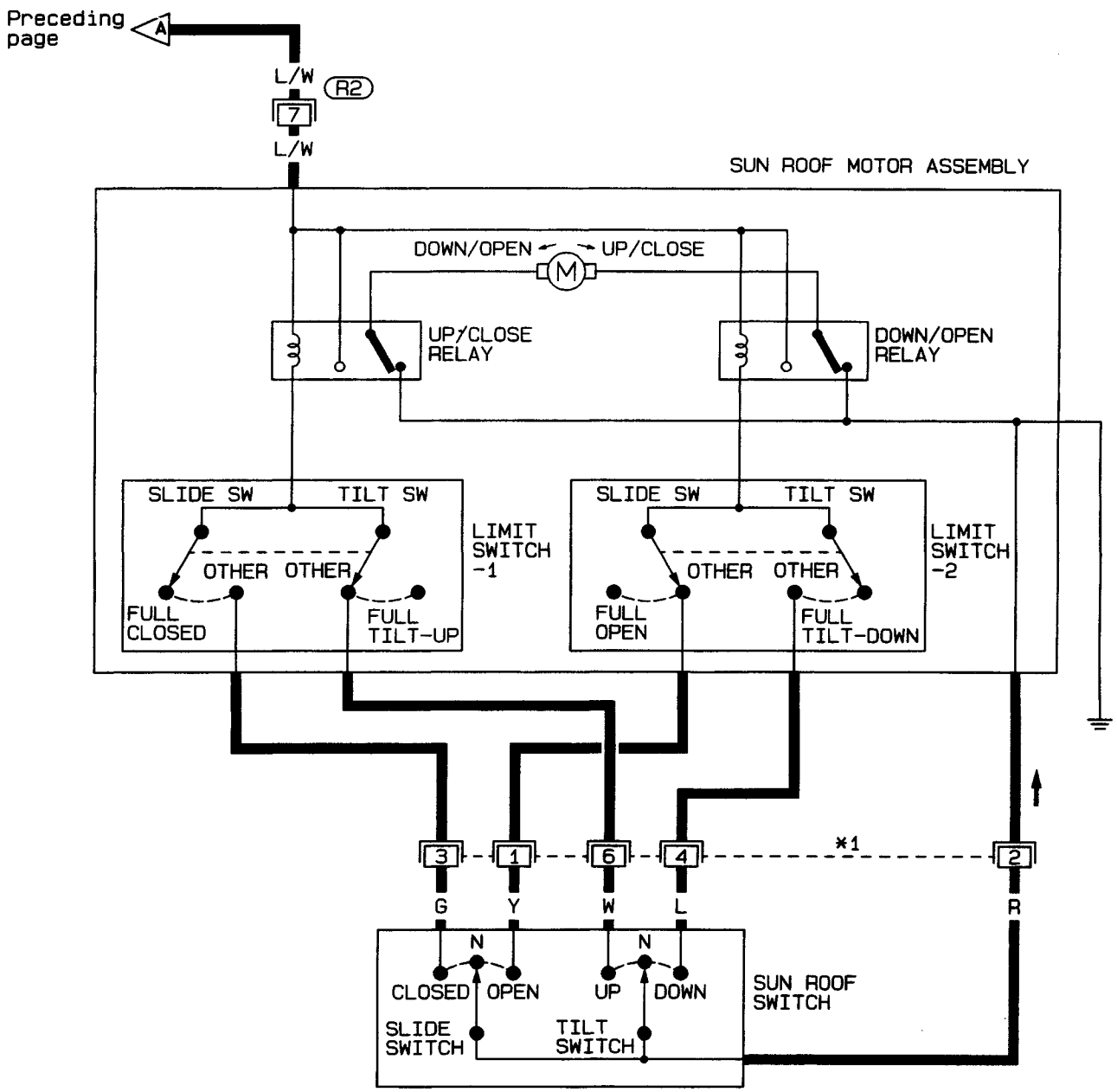
M8 , E101

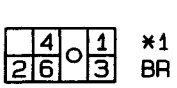
M15

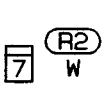
HEL130

Wiring Diagram — SROOF — (Cont'd)

EL-SROOF-02







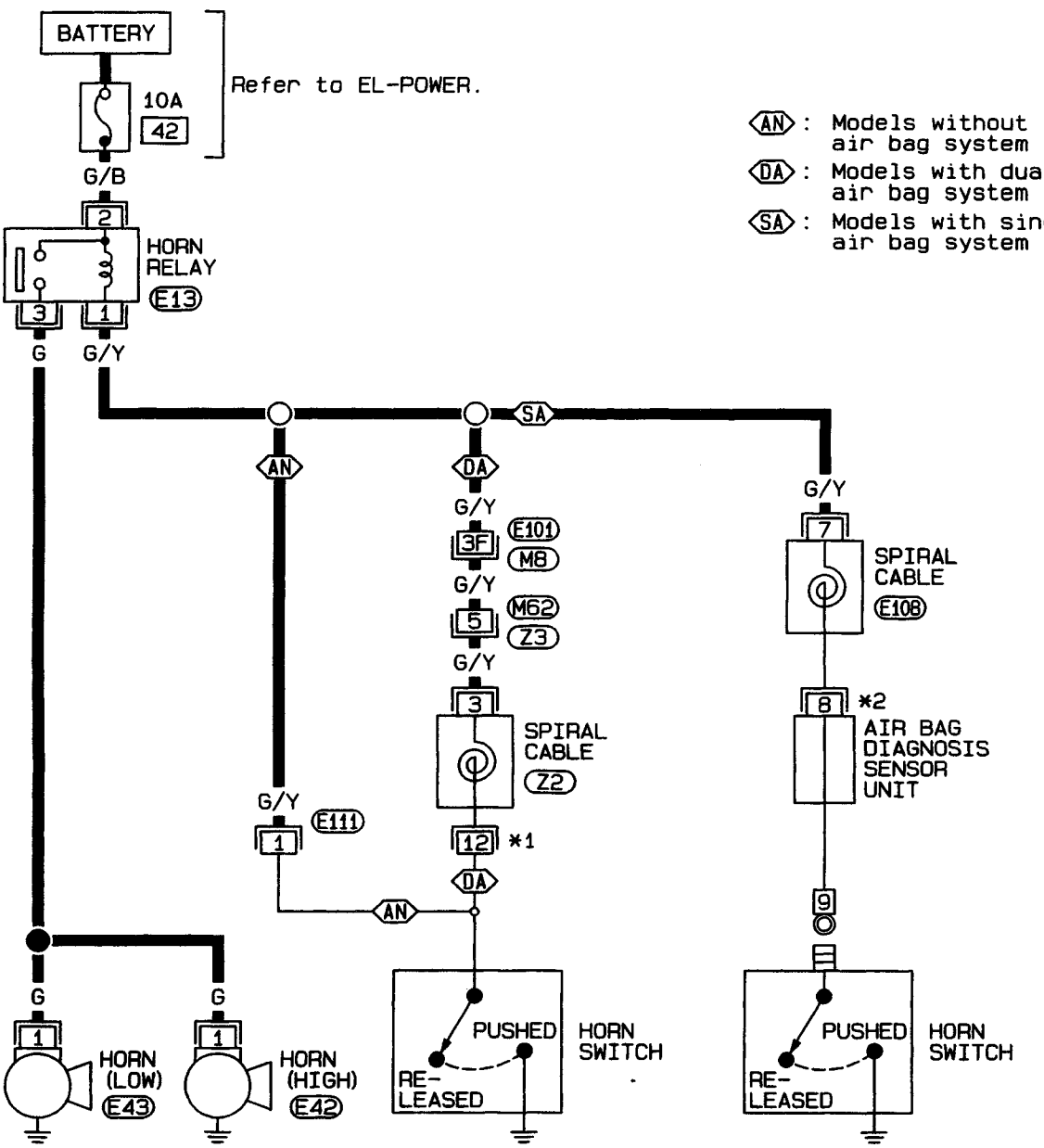
EL

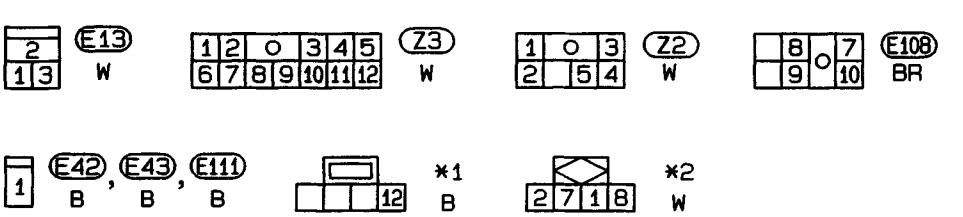
HEL131

Wiring Diagram — HORN —

LHD MODELS

EL-HORN-01





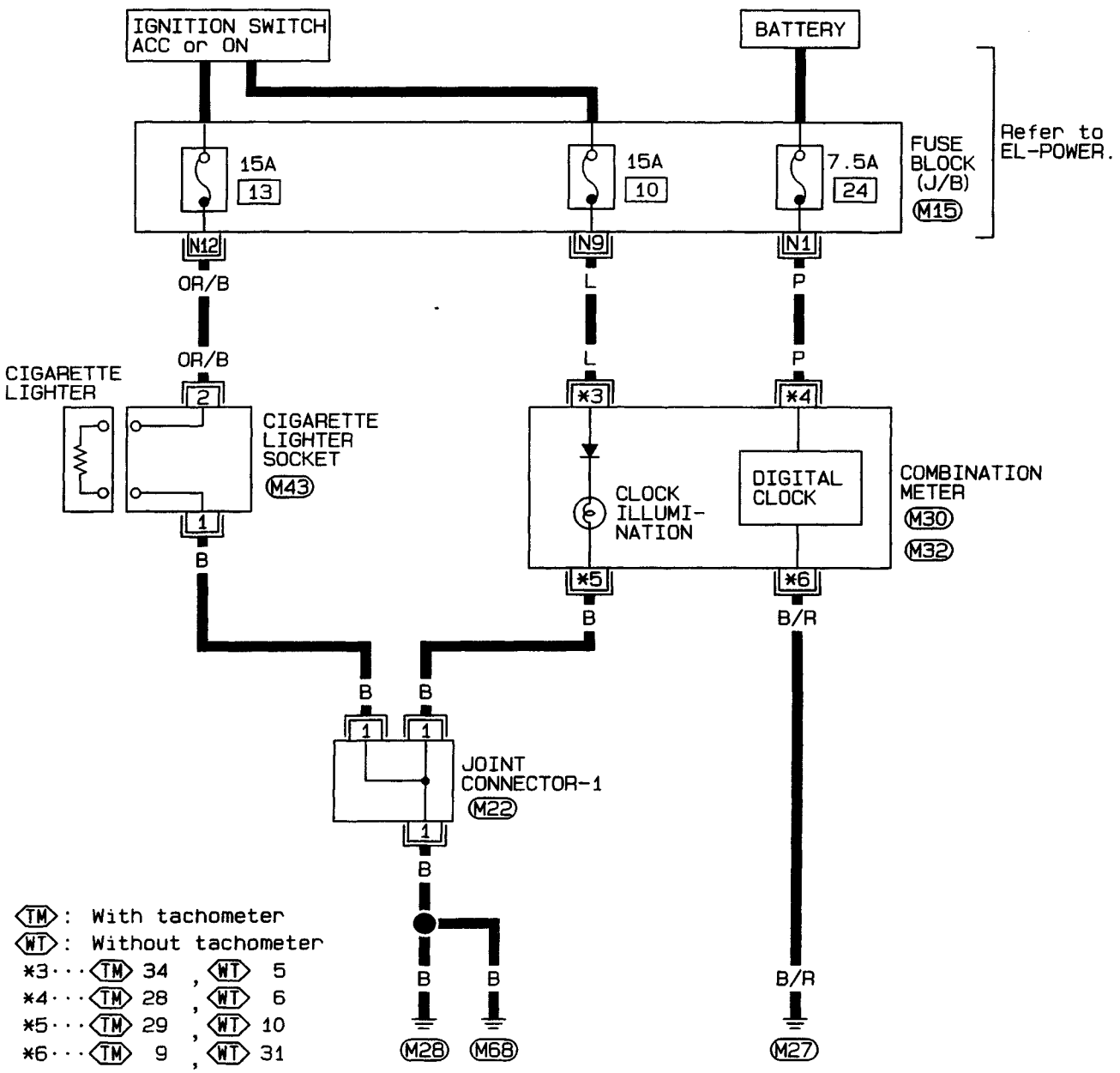
Refer to last page (Foldout page).

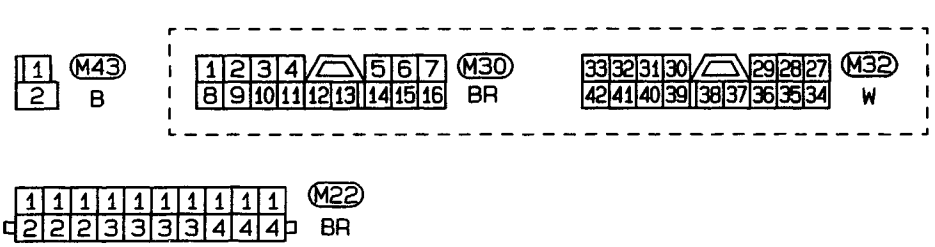
M8, E101

HEL132

Wiring Diagram — HORN — (Cont'd)

EL-HORN-02





Refer to last page (Foldout page).
M15

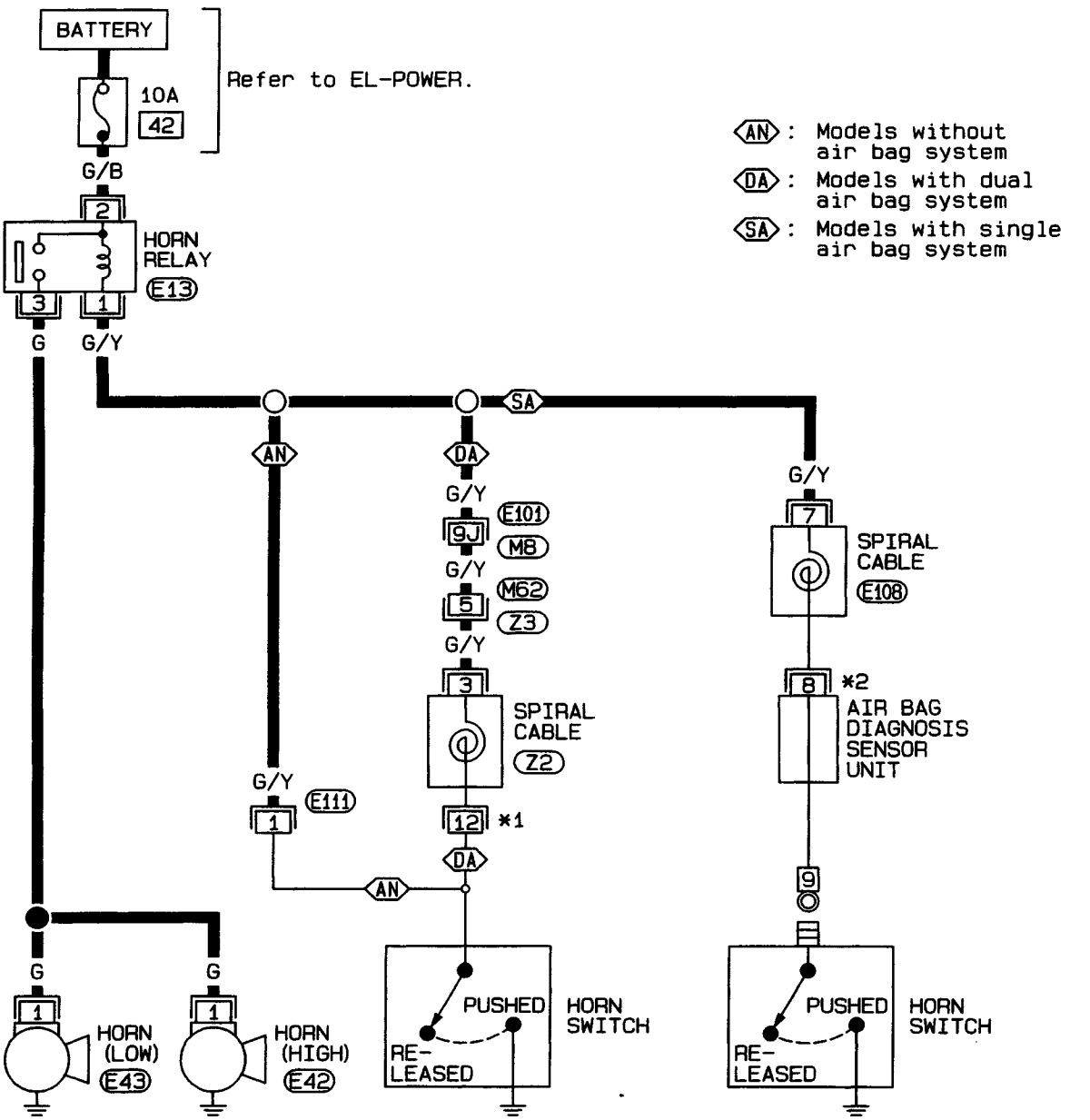
EL

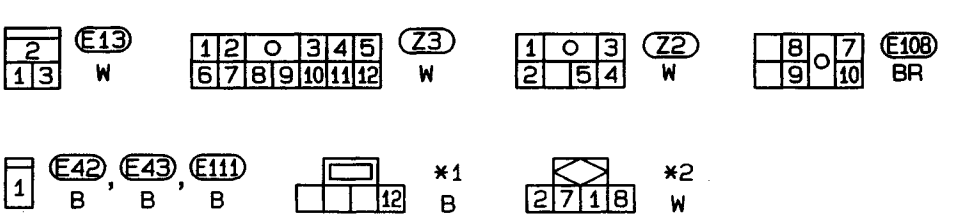
HEL133

Wiring Diagram — HORN — (Cont'd)

RHD MODELS

EL-HORN-03





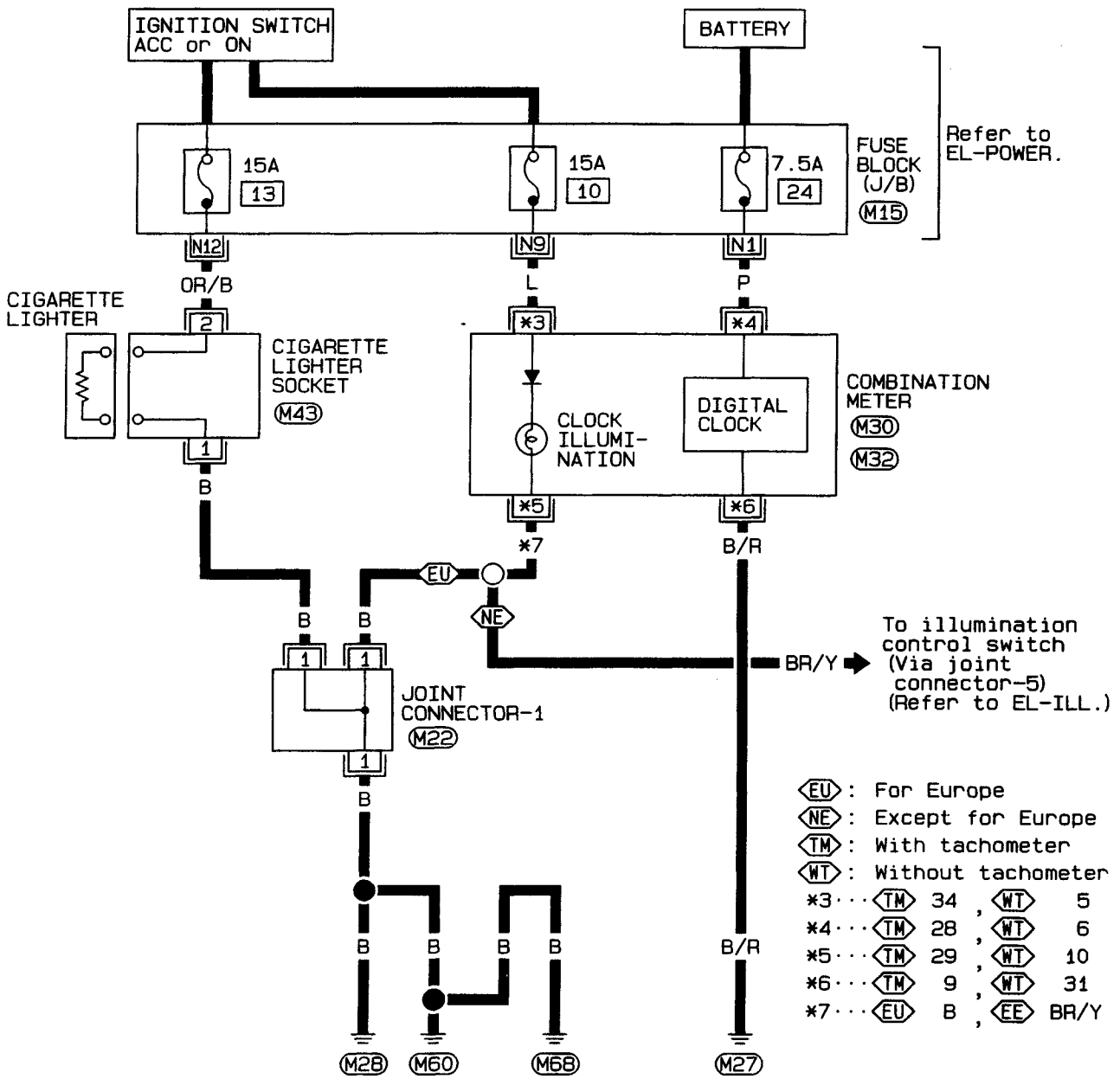
Refer to last page (Foldout page).

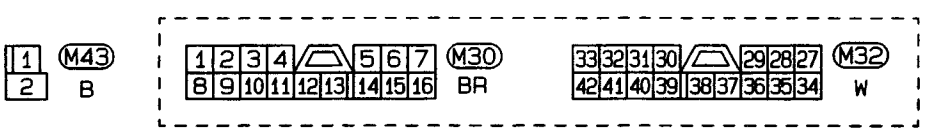
M8, E101

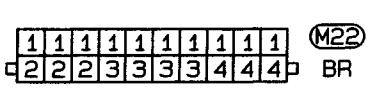
HEL134

Wiring Diagram — HORN — (Cont'd)

EL-HORN-04







Refer to last page (Foldout page).

M15

EL

HEL135

System Description (For models with daytime light system)

For models without daytime light system, refer to wiring diagrams, EL-233 and 234.

The rear window and door mirror defogger system is controlled by the rear window defogger timer.
Power is supplied at all times
- to rear window defogger relay terminal ③
- through 20A fuse (No. 5, located in the fuse block).

With the ignition switch in the ACC or ON position, power is supplied
- to mirror defogger relay terminal ③
- through 10A fuse (No. 23, located in the fuse block).

With the ignition switch in the ON or START position, power is supplied
- to rear window defogger relay terminal ①
- through 10A fuse (No. 25, located in the fuse block)
- to rear window defogger timer terminal ①
- through 7.5A fuse (No. 7, located in the fuse block).

Ground is supplied
- to rear window defogger switch terminal ② and
- to rear window defogger timer terminal ④
- through body grounds (M28) and (M68).

Operation

The ignition switch must be in the ON or START position for defogger operation.
With the rear window defogger switch in the ON position and for approximately 12 - 16 minutes after the rear window defogger switch has turned to OFF from ON, ground is supplied
- through terminal ① of the rear window defogger switch
- to rear window defogger timer terminal ③.

Terminal ② of the rear window defogger timer then supplies ground to rear window defogger relay terminal ②.
With power and ground supplied, rear window defogger relay is energized.
For rear window defogger system, power is supplied
- through terminal ⑤ of the rear window defogger relay
- to condenser terminal ①
- through terminal ② of the condenser
- to the rear window defogger terminal ①.

For mirror defogger system, power is supplied
- through terminal ⑤ of the rear window defogger relay
- to mirror defogger relay terminal ①.

Ground is supplied
- through body grounds (M28) and (M68)
- to mirror defogger relay terminal ②.

With power and ground supplied, mirror defogger relay is energized.
- through mirror defogger relay terminal ⑤
- to each door mirror defogger terminal ②.

Ground is supplied
- to rear window defogger terminal ②
- through body ground (B204), and
- to each door mirror defogger terminal ①
- through body grounds (M28) and (M68).

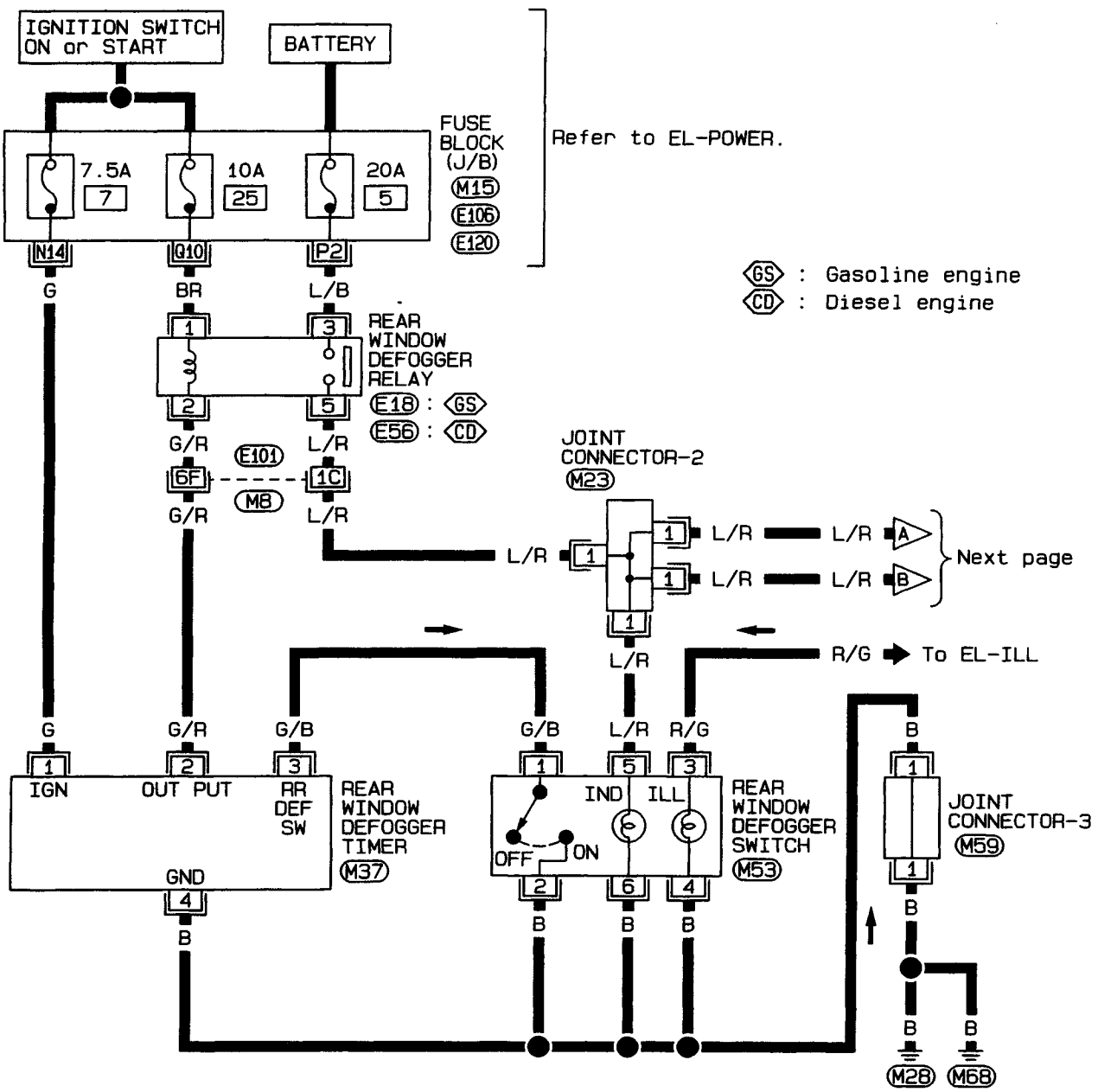
With power and ground supplied, each defogger filament heats and defogs the rear window and door mirror.
When the system is activated, the rear window defogger indicator illuminates in the rear window defogger switch.
Power is supplied
- to terminal ⑤ of the rear window defogger switch
- from terminal ⑤ of the rear window defogger relay.

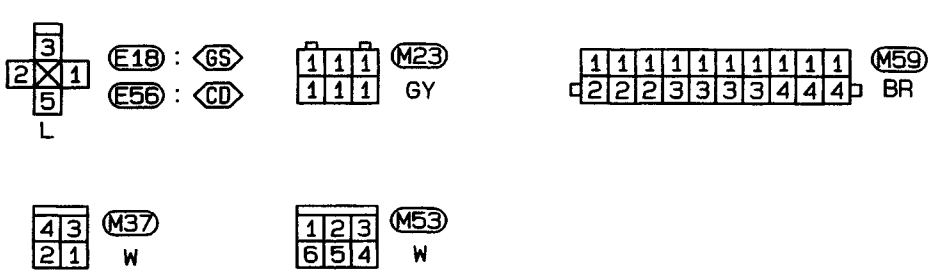
Terminal ⑥ of the rear window defogger switch is grounded through body grounds (M28) and (M68).

Wiring Diagram — DEF —

LHD MODELS WITH DAYTIME LIGHT SYSTEM

EL-DEF-01





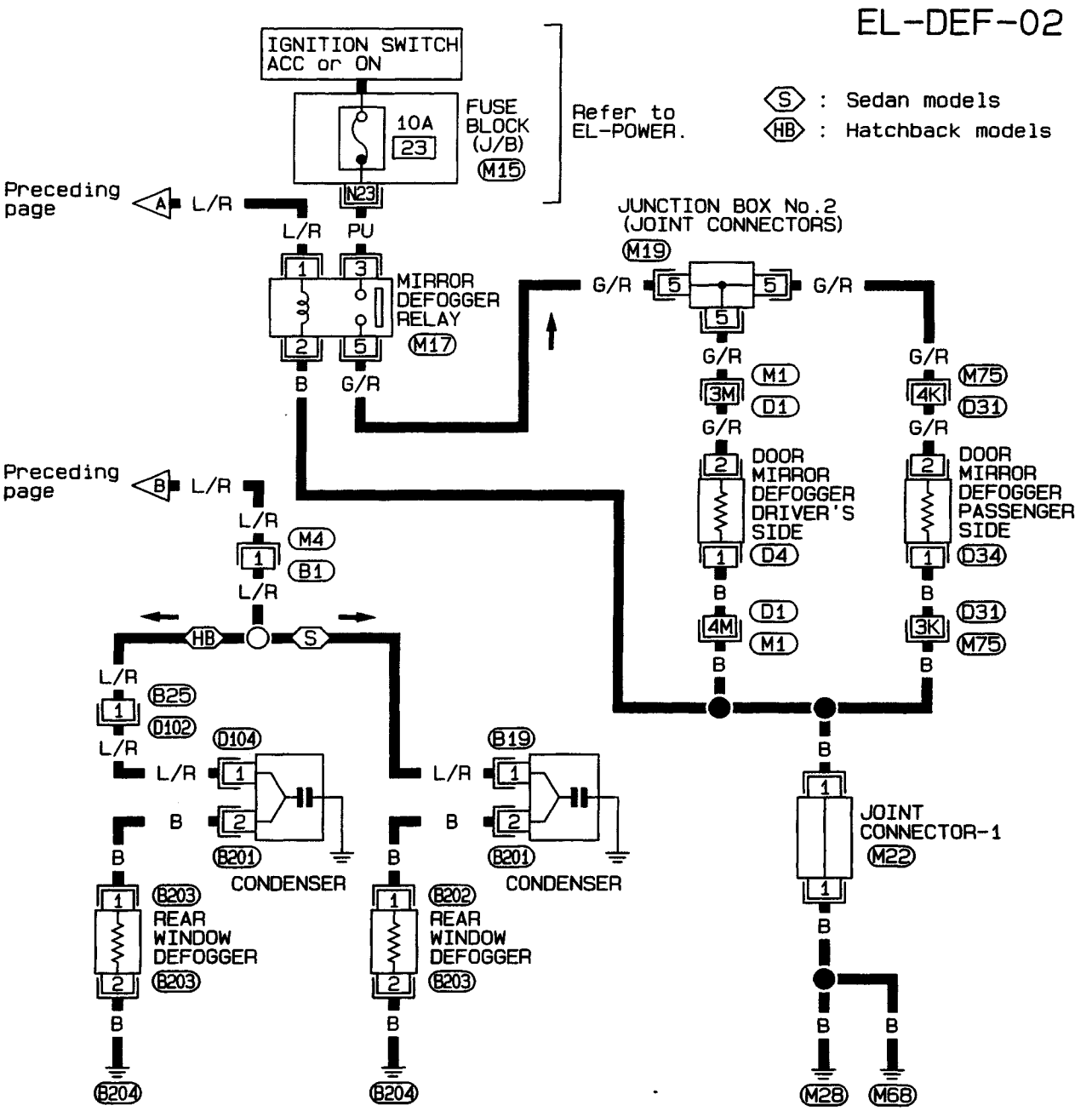
Refer to last page (Foldout page).

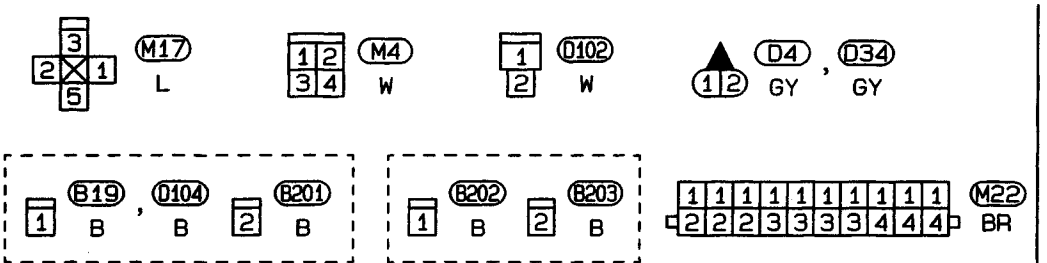
M8, E101
M15, E106, E120

EL

HEL136

Wiring Diagram — DEF — (Cont'd)





Refer to last page (Foldout page).

M1 , D1
M75 , D31
M15
M19

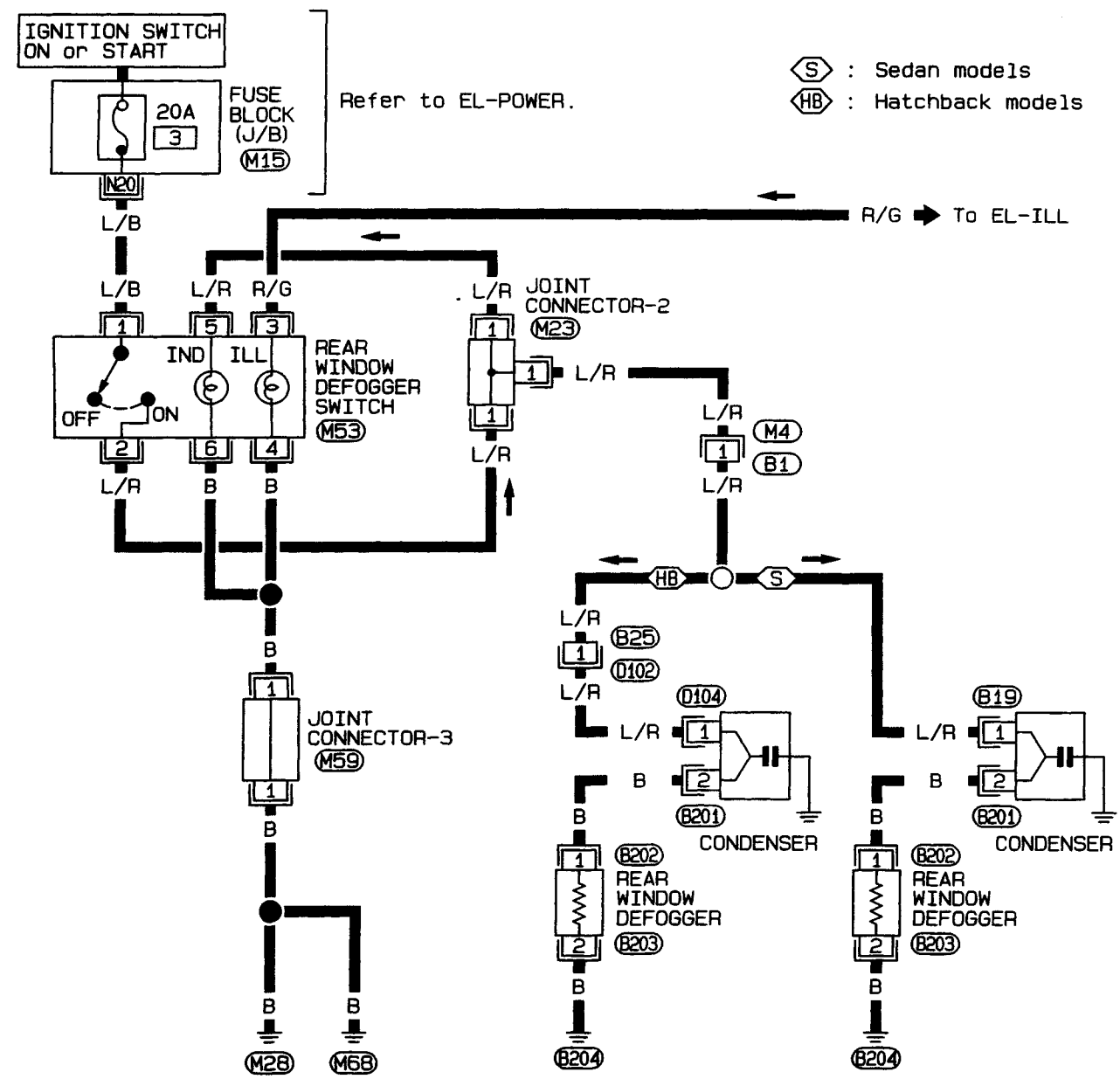
CAUTION : Don't attempt to repair, splice or modify the flexible flat circuit (FFC). If the FFC is damaged, replace with a new one.

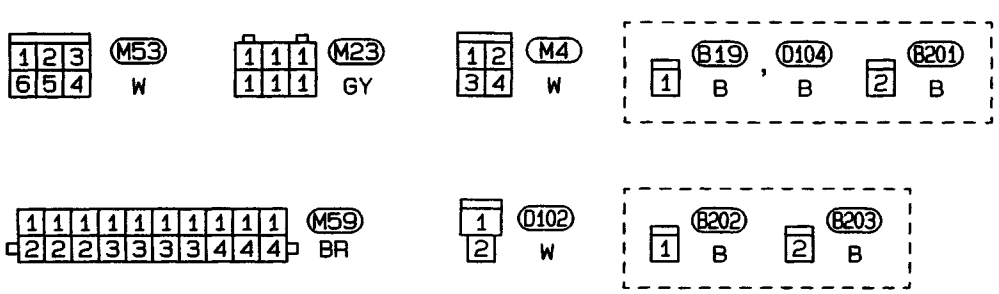
HEL137

Wiring Diagram — DEF — (Cont'd)

LHD MODELS WITHOUT DAYTIME LIGHT SYSTEM

EL-DEF-03





Refer to last page (Foldout page).

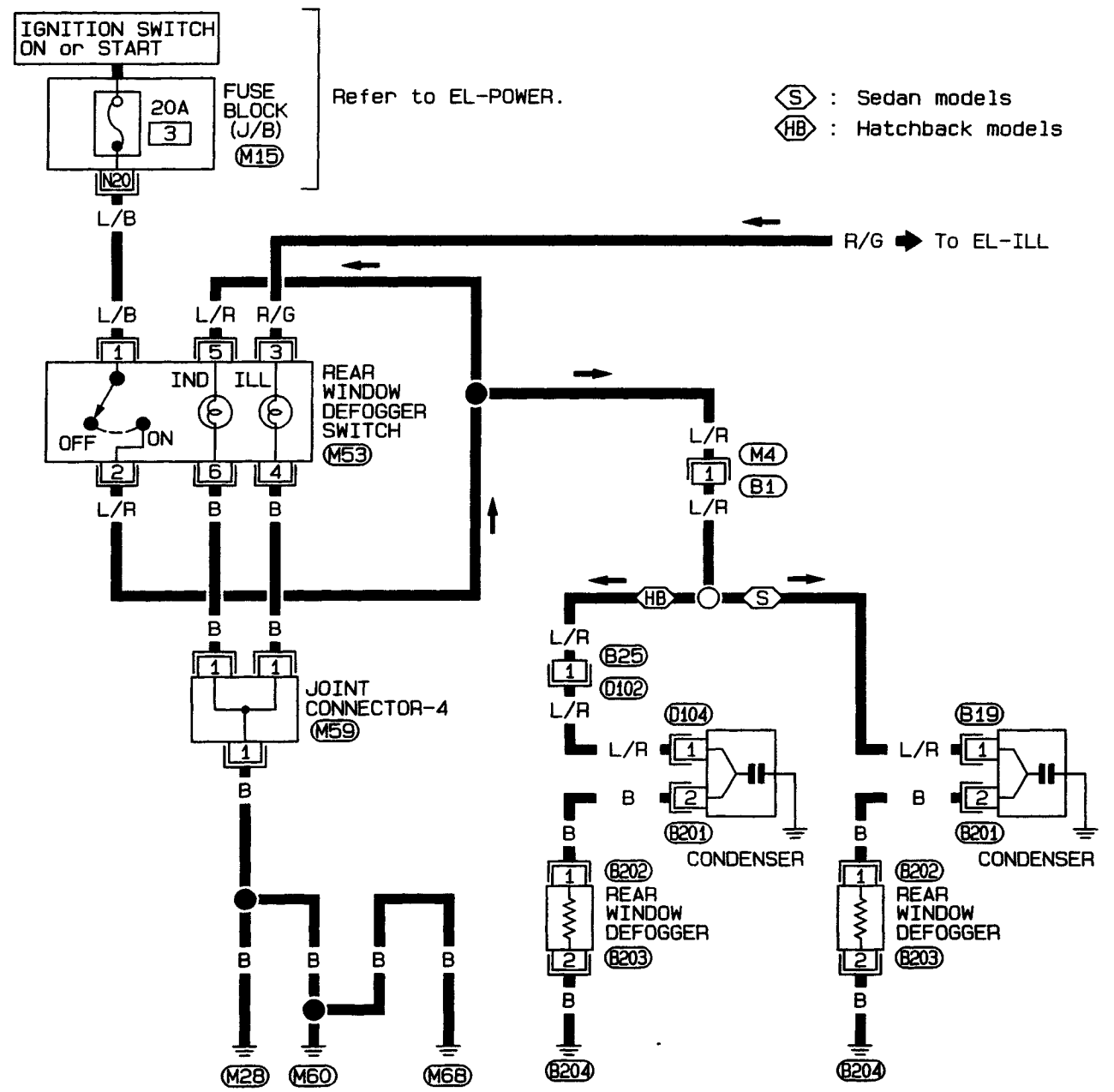
M15

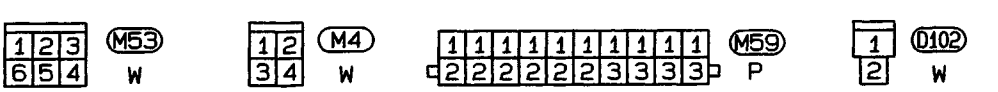
EL

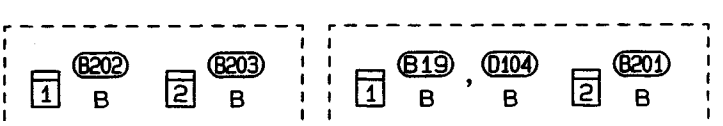
Wiring Diagram — DEF — (Cont'd)

RHD MODELS

EL-DEF-04

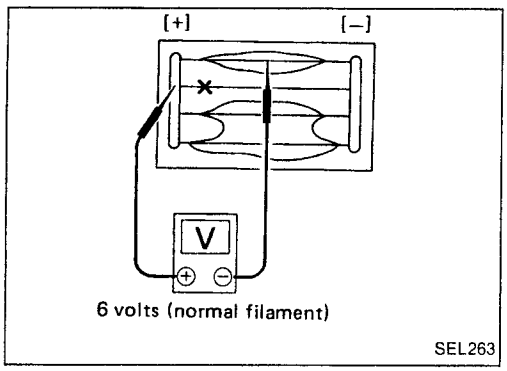






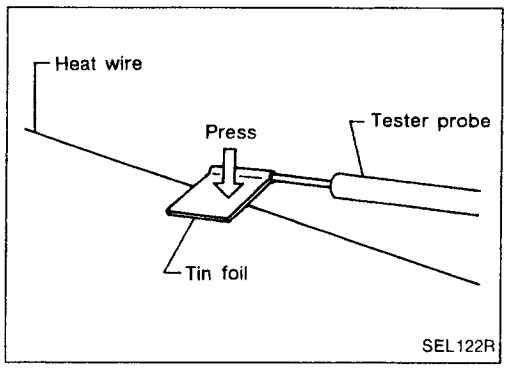
Refer to last page (Foldout page).

M15

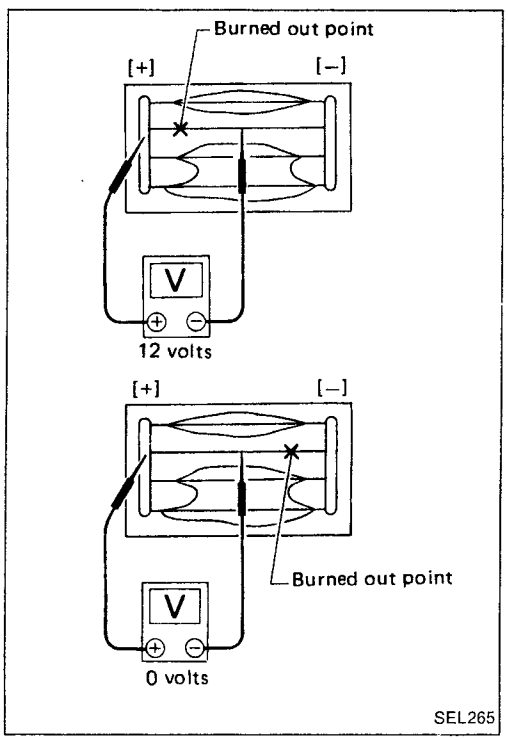


Filament Check

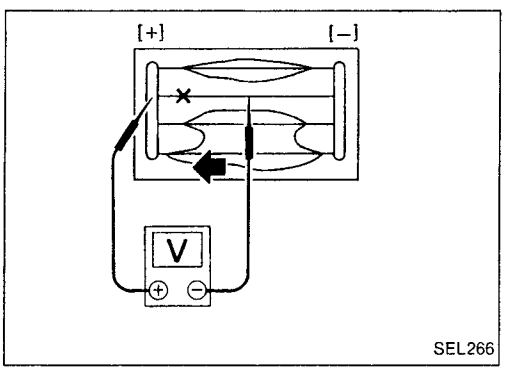
1. Attach probe circuit tester (in volt range) to middle portion of each filament.



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



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



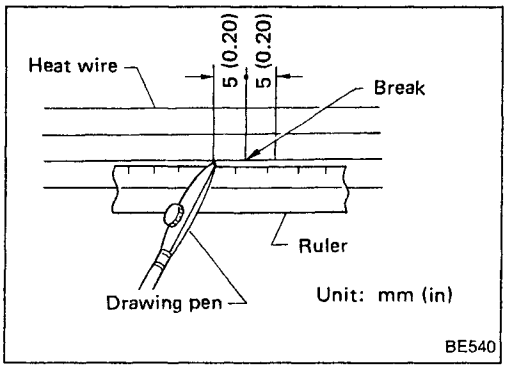
3. To locate burned out point, move probe along filament. Tester needle will swing abruptly when probe passes the point.

EL

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



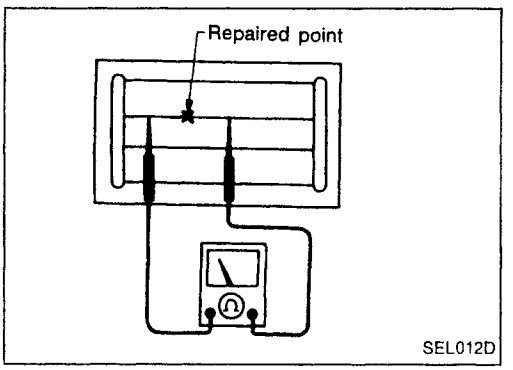
REPAIRING PROCEDURE

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.

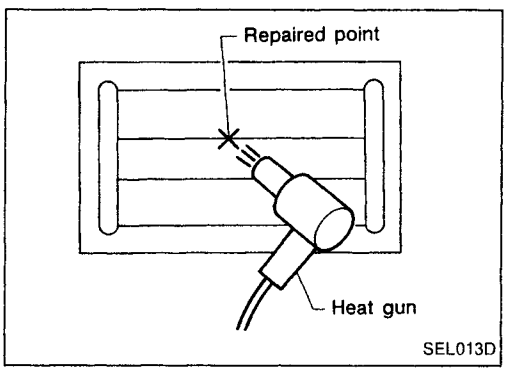
Shake silver composition container before use.

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.

Power is supplied at all times
- through 7.5A fuse (No. 24, located in the fuse block)
- to radio terminal ⑥, and
- to compact disk deck terminal ㉔.

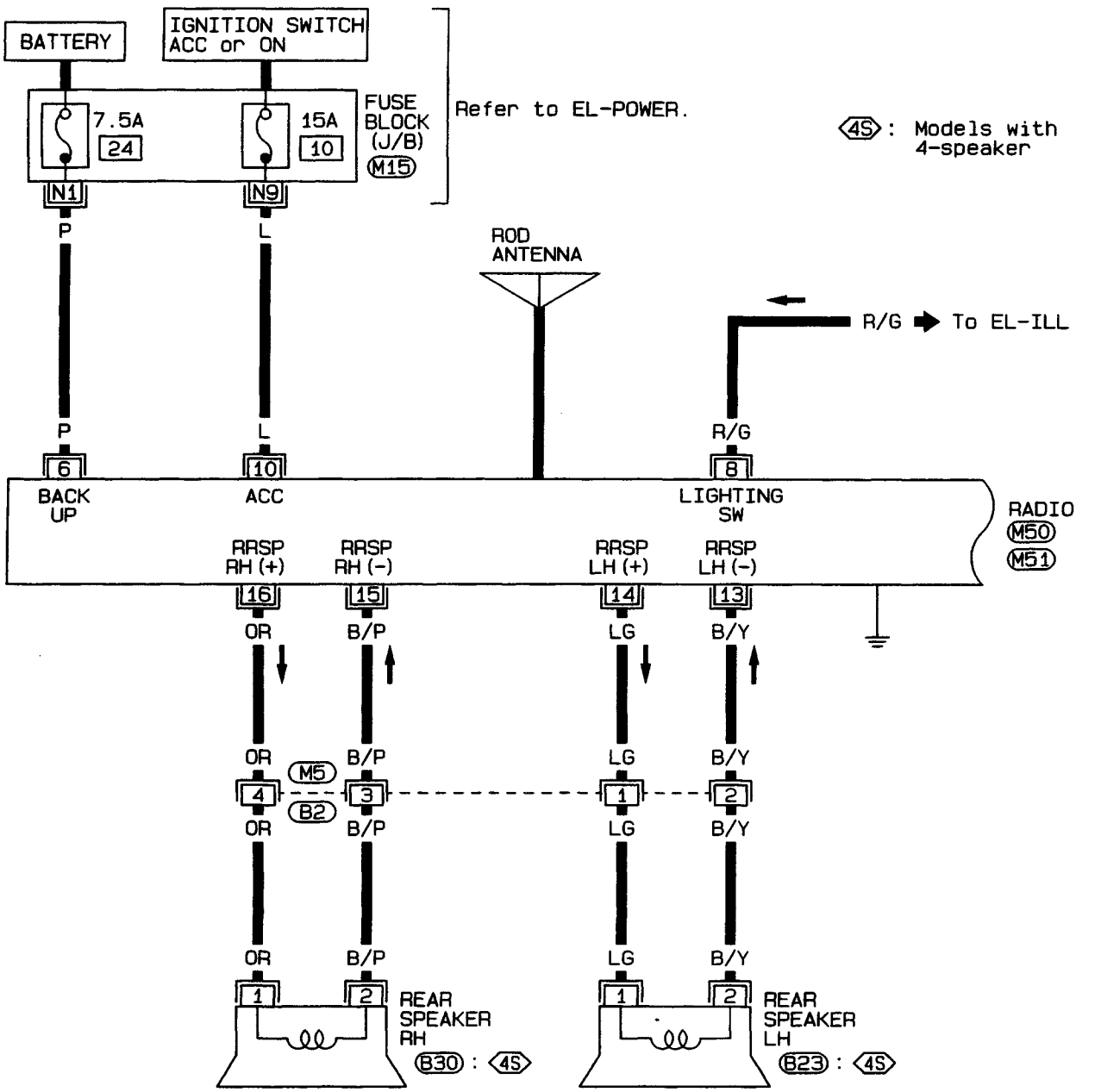
With the ignition switch in the ACC or ON position, power is supplied
- through 15A fuse (No. 10, located in the fuse block)
- to radio terminal ⑩, and
- to compact disk deck terminal ㉑.

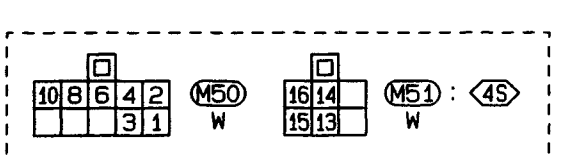
Ground is supplied through the case of the radio.
When the radio power knob is pushed to the ON position, audio signals are supplied
- through radio terminals 1, 2, 3, 4, 13, 14, 15 and 16
- to the door, pillar and rear speakers.

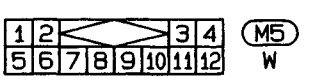
Wiring Diagram — AUDIO —

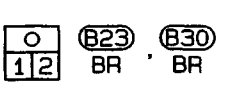
LHD MODELS

EL-AUDIO-01









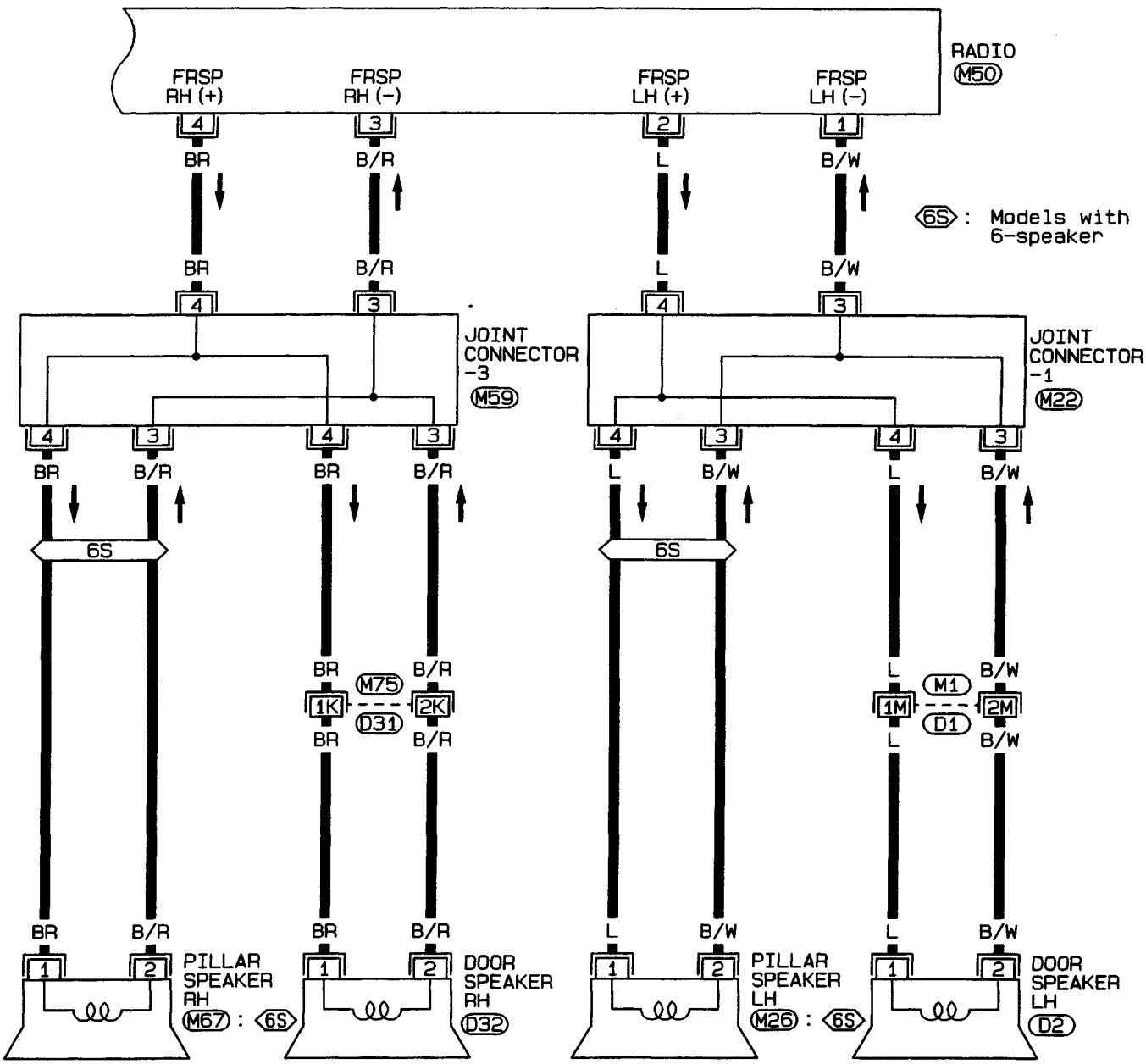
Refer to last page (Foldout page).

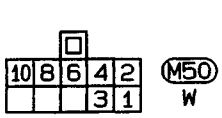
M15

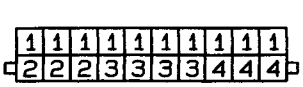
HEL140

Wiring Diagram — AUDIO — (Cont'd)

EL-AUDIO-02









CAUTION : Don't attempt to repair, splice or modify the flexible flat circuit (FFC). If the FFC is damaged, replace with a new one.

Refer to last page (Foldout page).

M1, D1

M75, D31

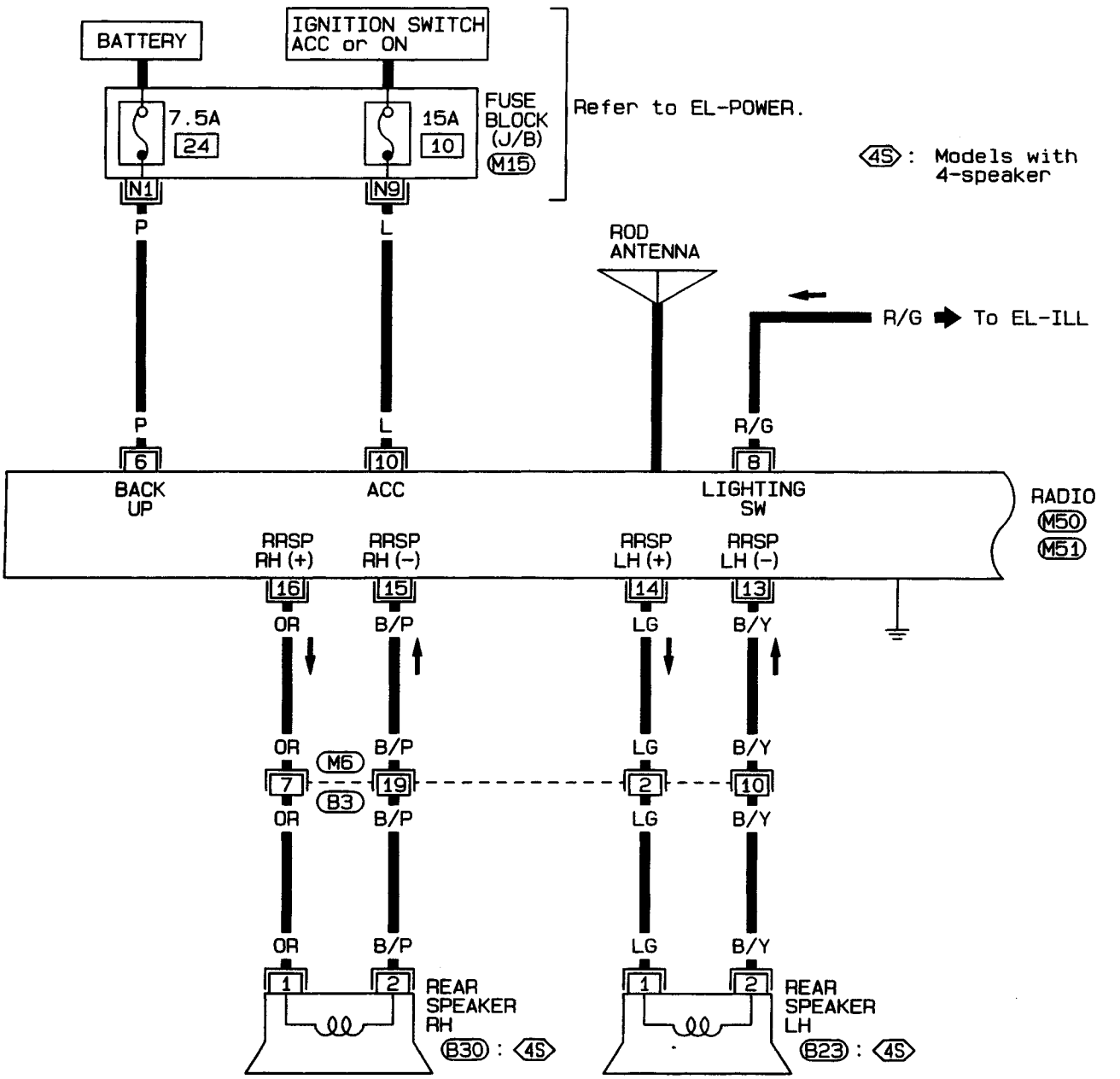
EL

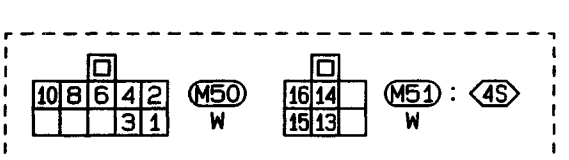
HEL141

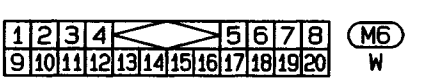
Wiring Diagram — AUDIO — (Cont'd)

RHD MODELS FOR EUROPE

EL-AUDIO-03









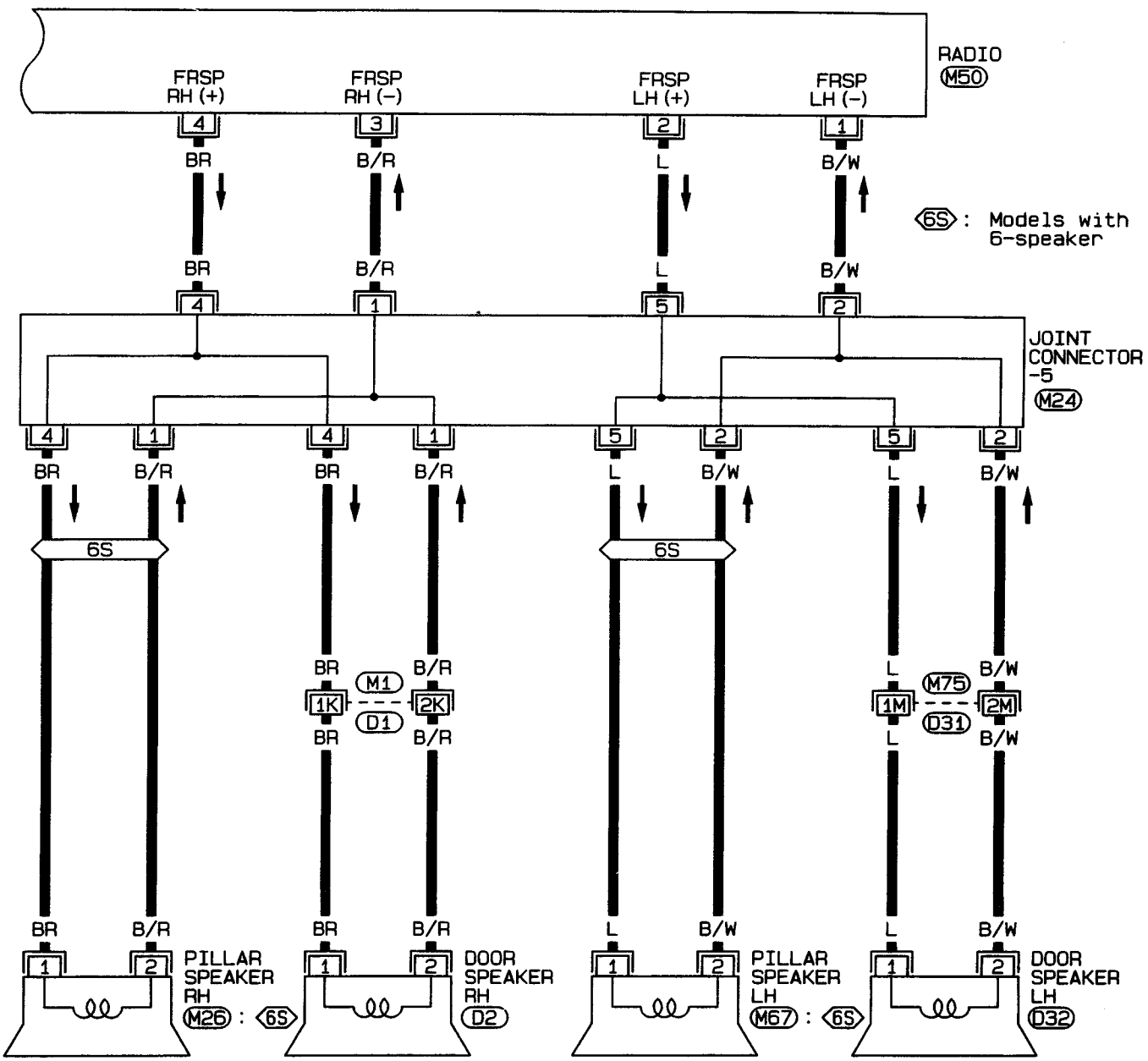
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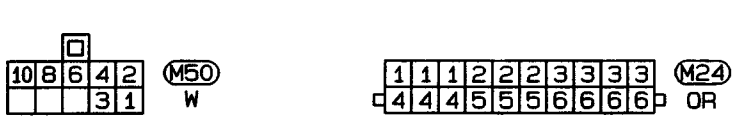
M15

HEL142

Wiring Diagram — AUDIO — (Cont'd)

EL-AUDIO-04







CAUTION : Don't attempt to repair, splice or modify the flexible flat circuit (FFC). If the FFC is damaged, replace with a new one.

Refer to last page (Foldout page).

M1 , D1

M75 , D31

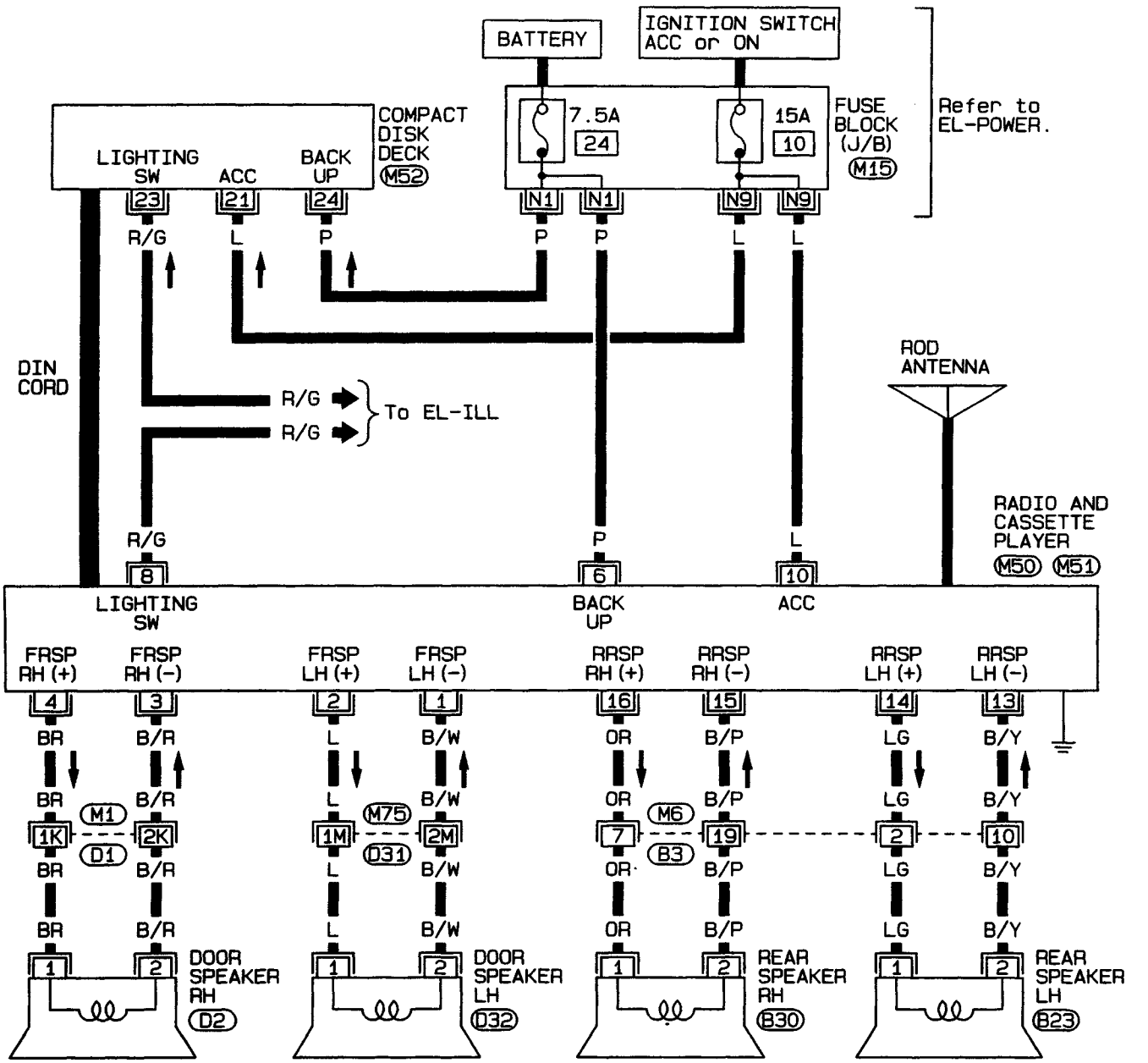
EL

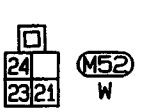
HEL143

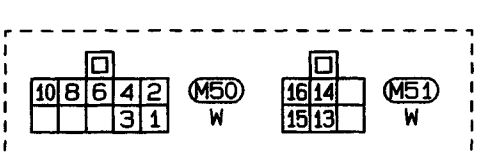
Wiring Diagram — AUDIO — (Cont'd)

RHD MODELS EXCEPT FOR EUROPE

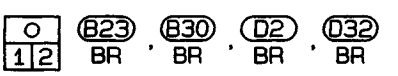
EL-AUDIO-05







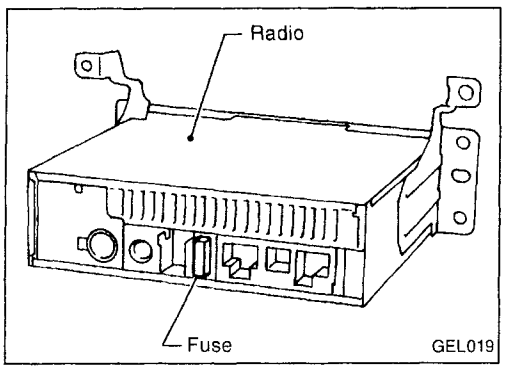




Refer to last page (Foldout page).

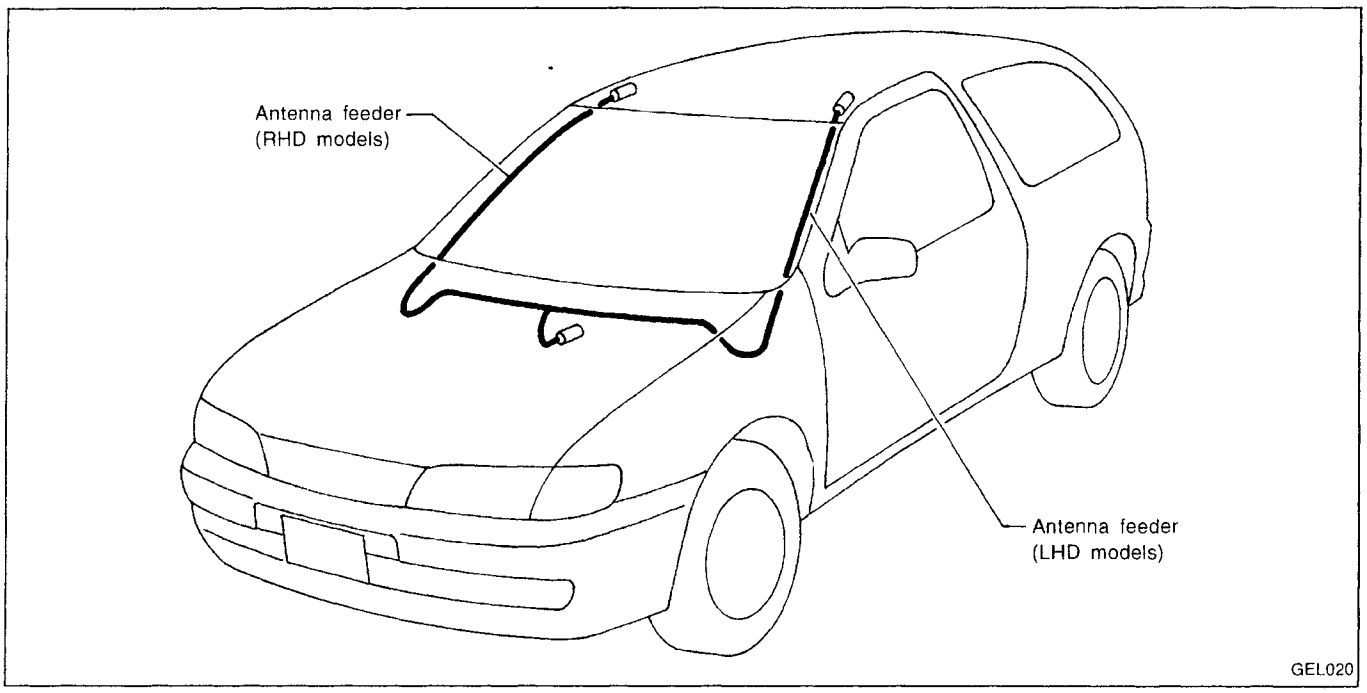
M1, D1
M75, D031
M15

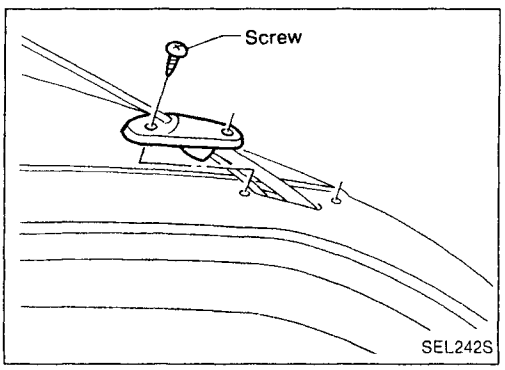
HEL144



Radio Fuse Check

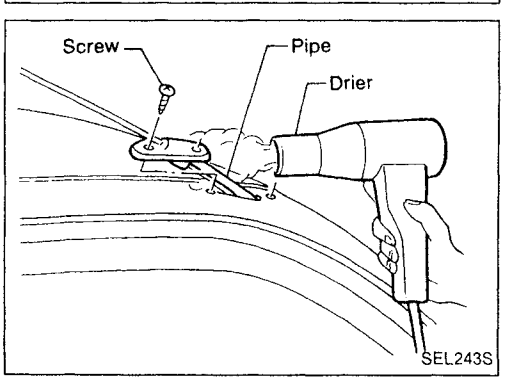
Location of Antenna





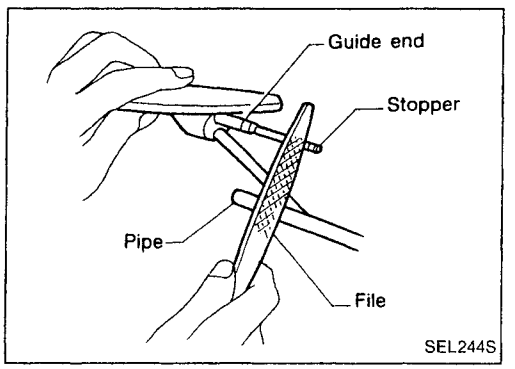
Antenna Rod Replacement

1. Loosen screws securing antenna base.

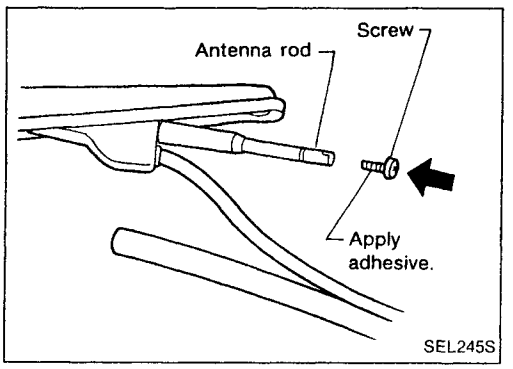


2. Pull out pipe from antenna base.
   Heating the pipe with a drier makes it easier.

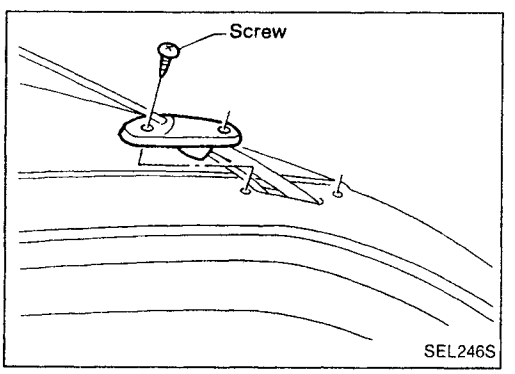
Antenna Rod Replacement (Cont'd)



3. Cut off stopper at end of antenna rod using a file.
4. Pull out antenna rod from antenna base.



5. Insert new antenna rod to antenna base.
6. Apply adhesive to screw thread and tighten screw.

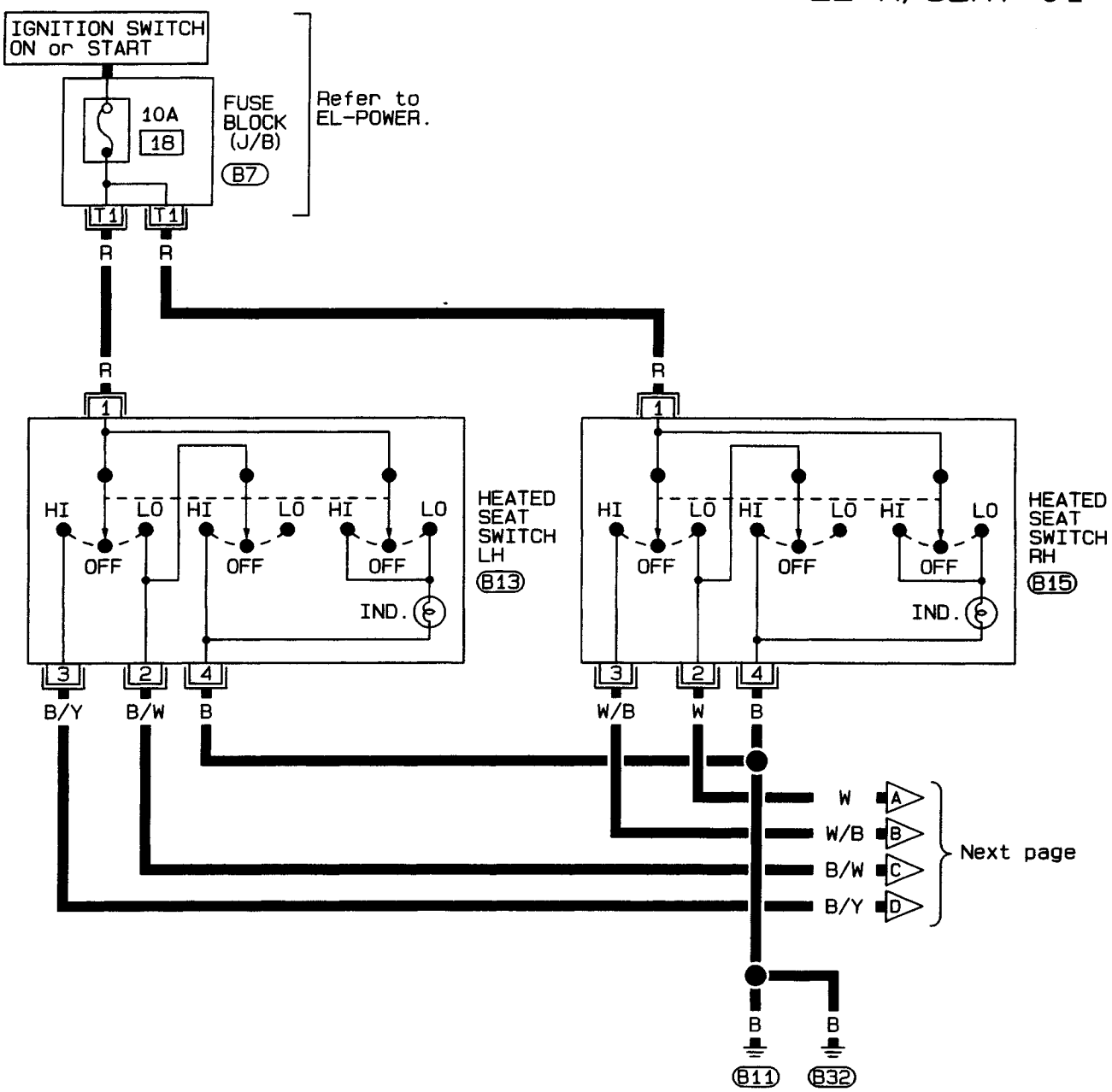


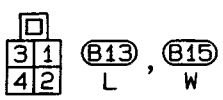
7. Tighten screws to antenna base.

★ For location of heating unit, refer to "SEAT" in BT section.

Wiring Diagram — H/SEAT —

EL-H/SEAT-01





Refer to last page
(Foldout page).

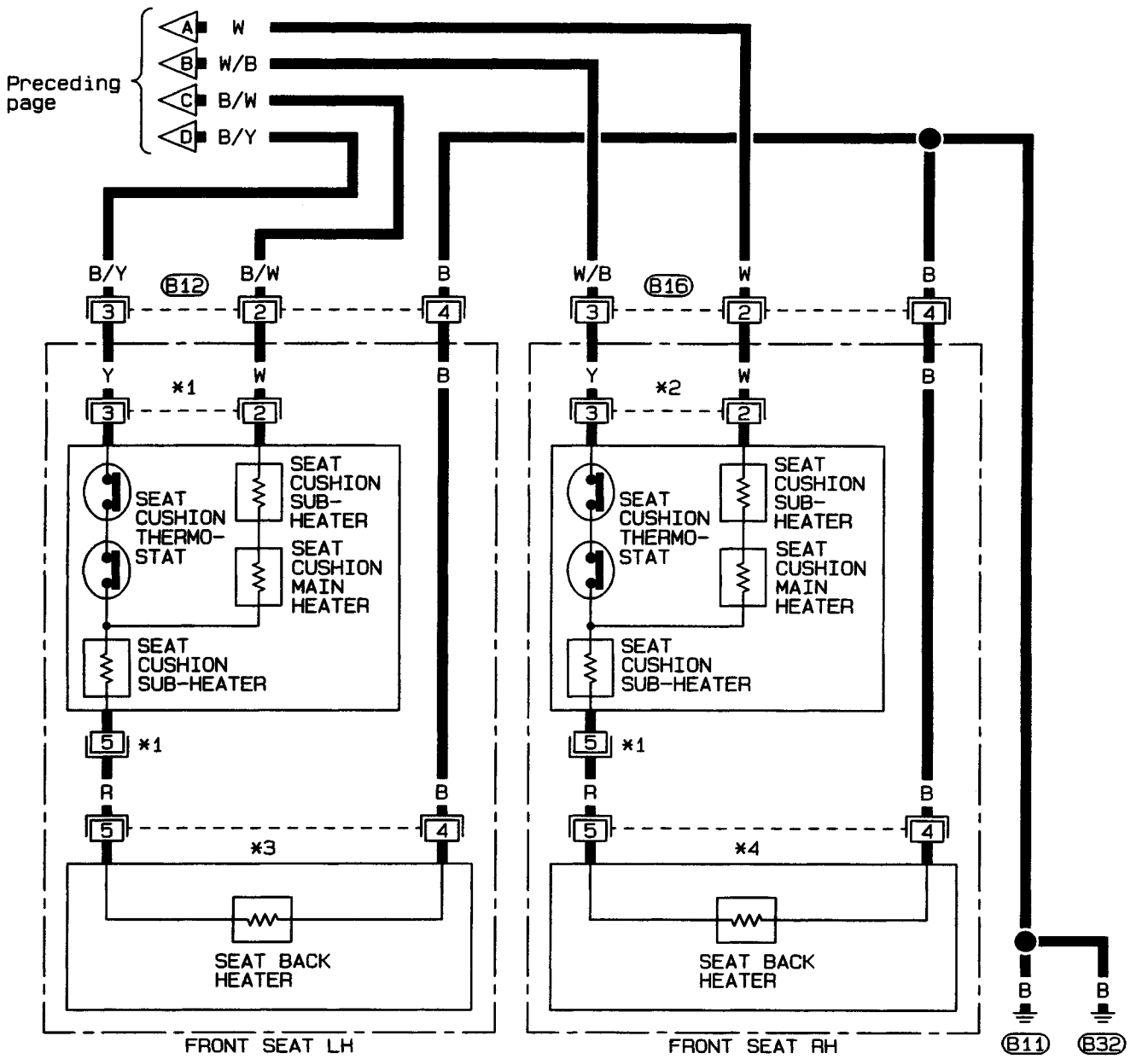
B7

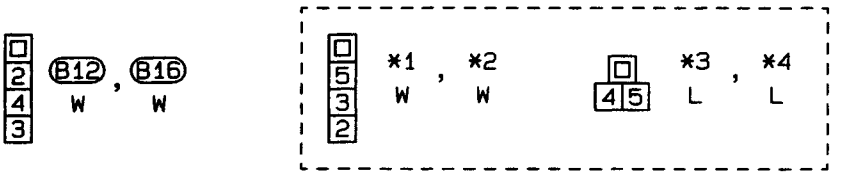
HEL145

EL

Wiring Diagram — H/SEAT — (Cont'd)

EL-H/SEAT-02





HEL146

System Description

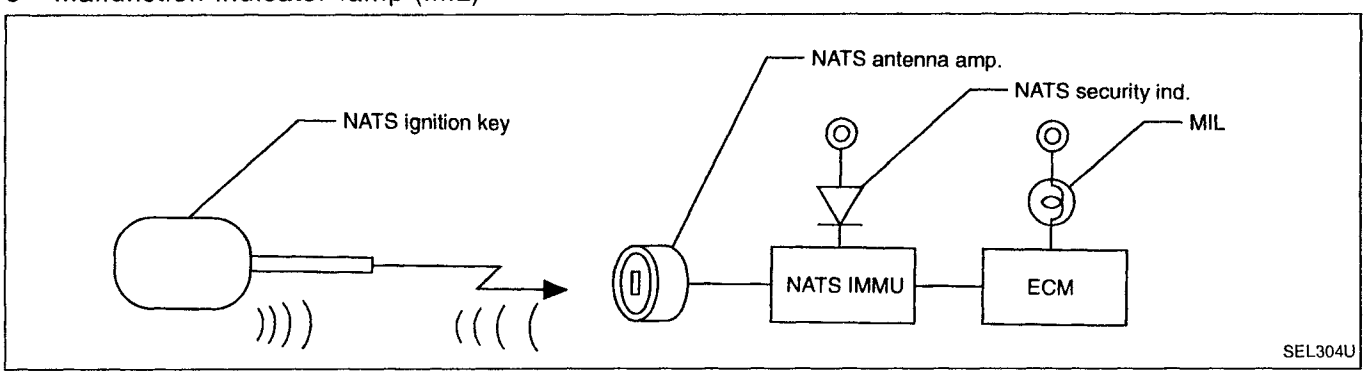
NATS V2.0 for Nissan model N15 has the following immobiliser functions:

- Since only NATS ignition keys, whose ID nos. have been registered into the ECM and IMMU of NATS, allow the engine to run, operation of a stolen vehicle without a NATS registered key is prevented by NATS.
  That is to say, NATS V2.0 will immobilize the engine if someone tries to start it without the registered key of NATS V2.0.
- Both of the originally supplied ignition key IDs have been NATS registered.
  If requested by the vehicle owner, a maximum of four key IDs can be registered into the NATS components.
- The NATS security indicator (NATS security ind.) blinks when the ignition switch is in "OFF" or "ACC" position. Therefore, NATS warns outsiders that the vehicle is equipped with the anti-theft system.
- When NATS detects trouble, the malfunction indicator lamp (MIL) blinks.
- NATS trouble diagnoses, system initialisation and additional registration of other NATS ignition key IDs must be carried out using CONSULT hardware and CONSULT NATS software.
  When NATS initialisation has been completed, the ID of the inserted ignition key is automatically NATS registered. Then, if necessary, additional registration of other NATS ignition key IDs can be carried out.
  Regarding the procedures of NATS initialisation and NATS ignition key ID registration, refer to CONSULT operation manual, NATS V2.0.
- When diagnosing NATS V2.0 using CONSULT, adapter and adapter harness for NATS V1.0 are not necessary, although a direct DDL cable connection between CONSULT and DDL connector is required.
- When servicing a malfunction of the NATS V2.0 (indicated by flashing of Malfunction Indicator Lamp) or registering another NATS ignition key ID no., it may be necessary to re-register original key identification. Therefore, be sure to receive all keys from vehicle owner.

System Composition

The immobiliser function of the NATS for Nissan model N15 consists of the following:

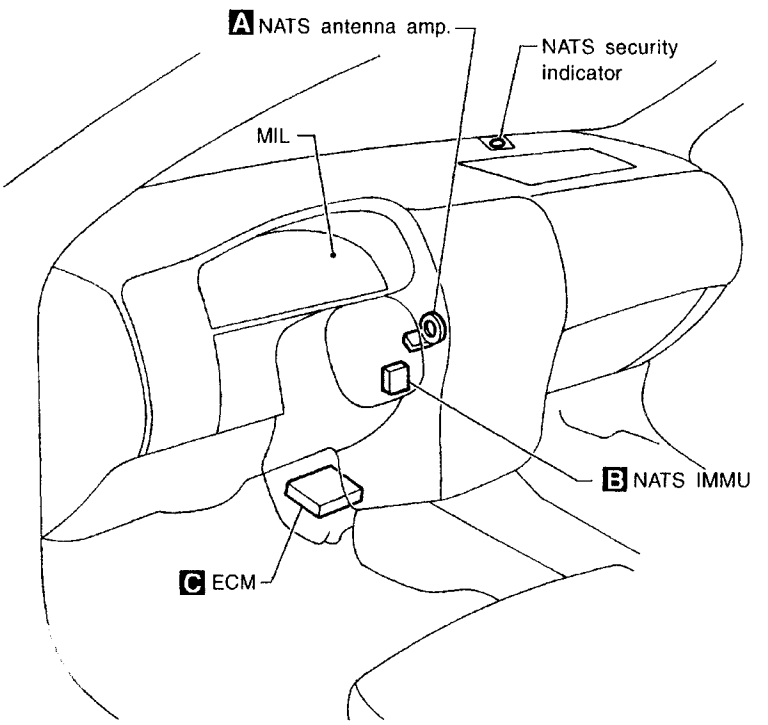
- NATS ignition key
- NATS antenna amp. located in the ignition key cylinder
- NATS immobiliser control unit (NATS IMMU)
- Engine control module (ECM)
- NATS security indicator located under the center cluster (NATS security ind.)
- Malfunction indicator lamp (MIL)



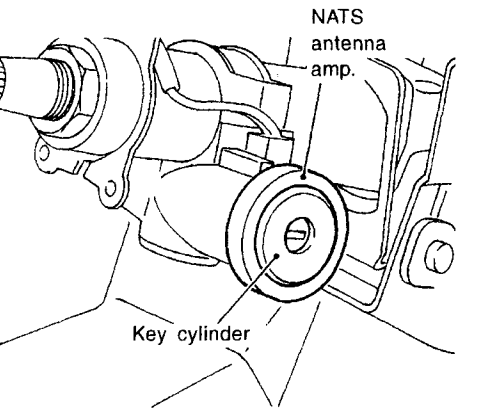
EL

Component Parts Location

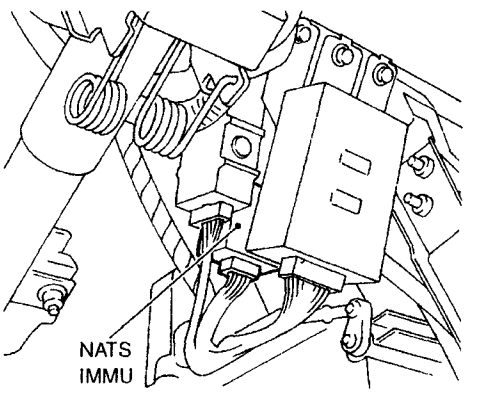
LHD models



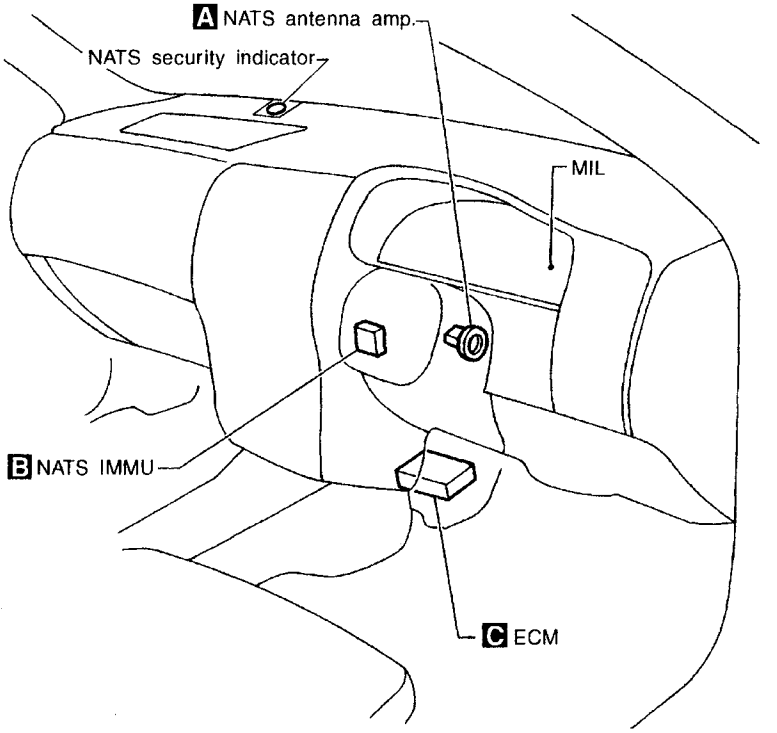
A



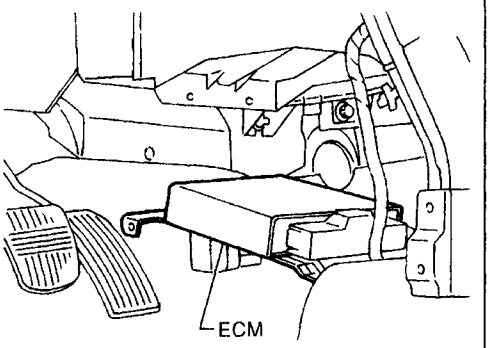
B



RHD models



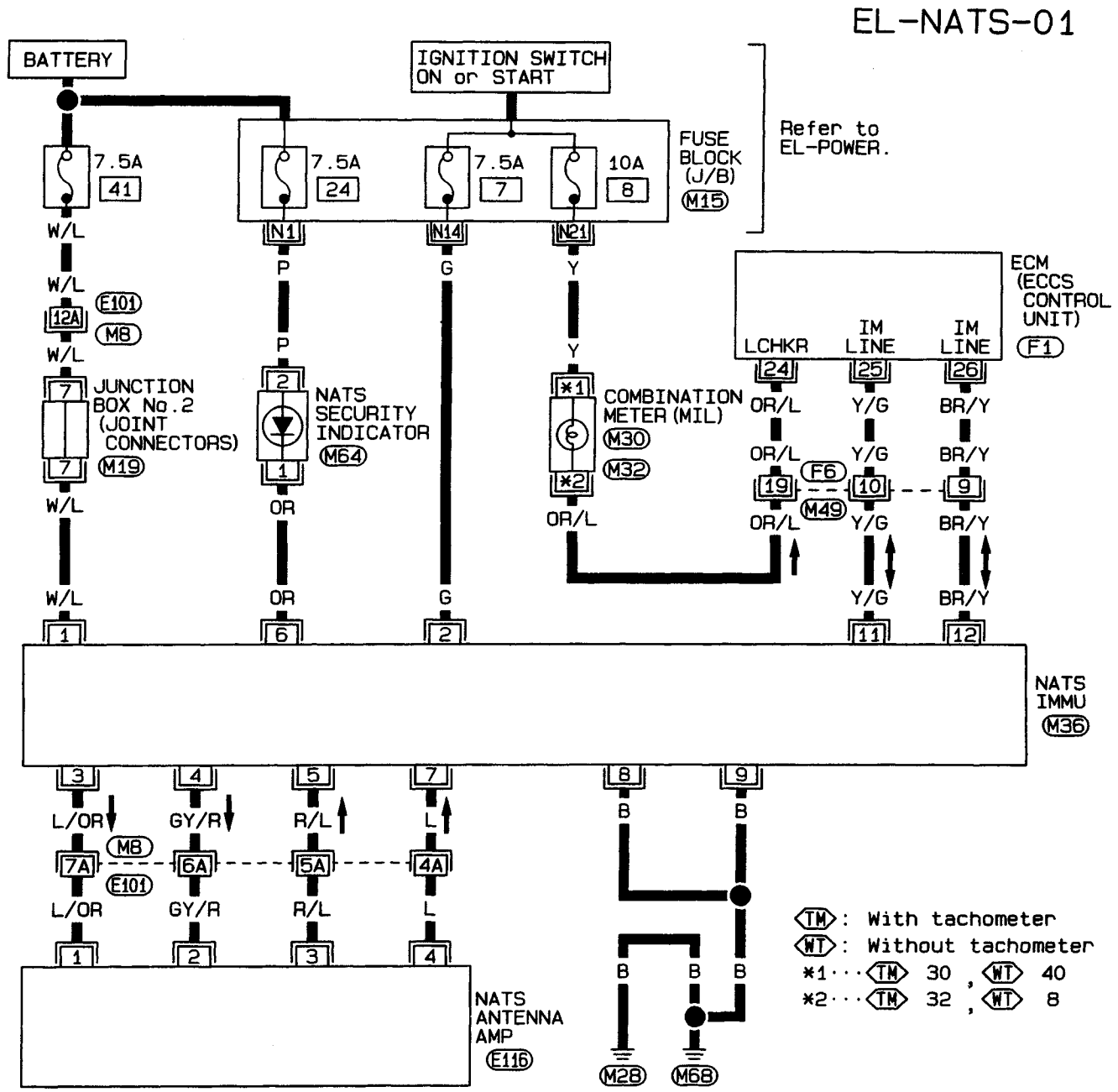
C

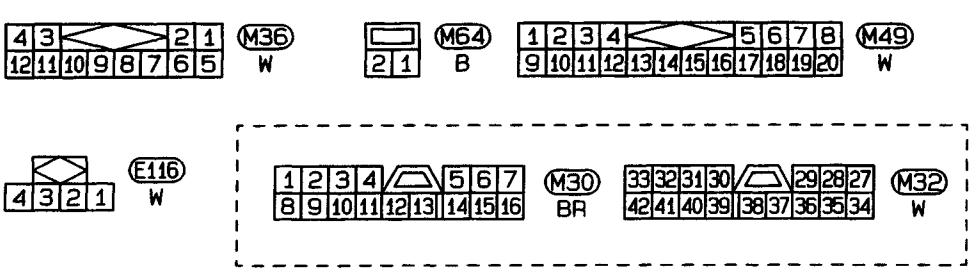


GEL021

Wiring Diagram — NATS —

LHD MODELS





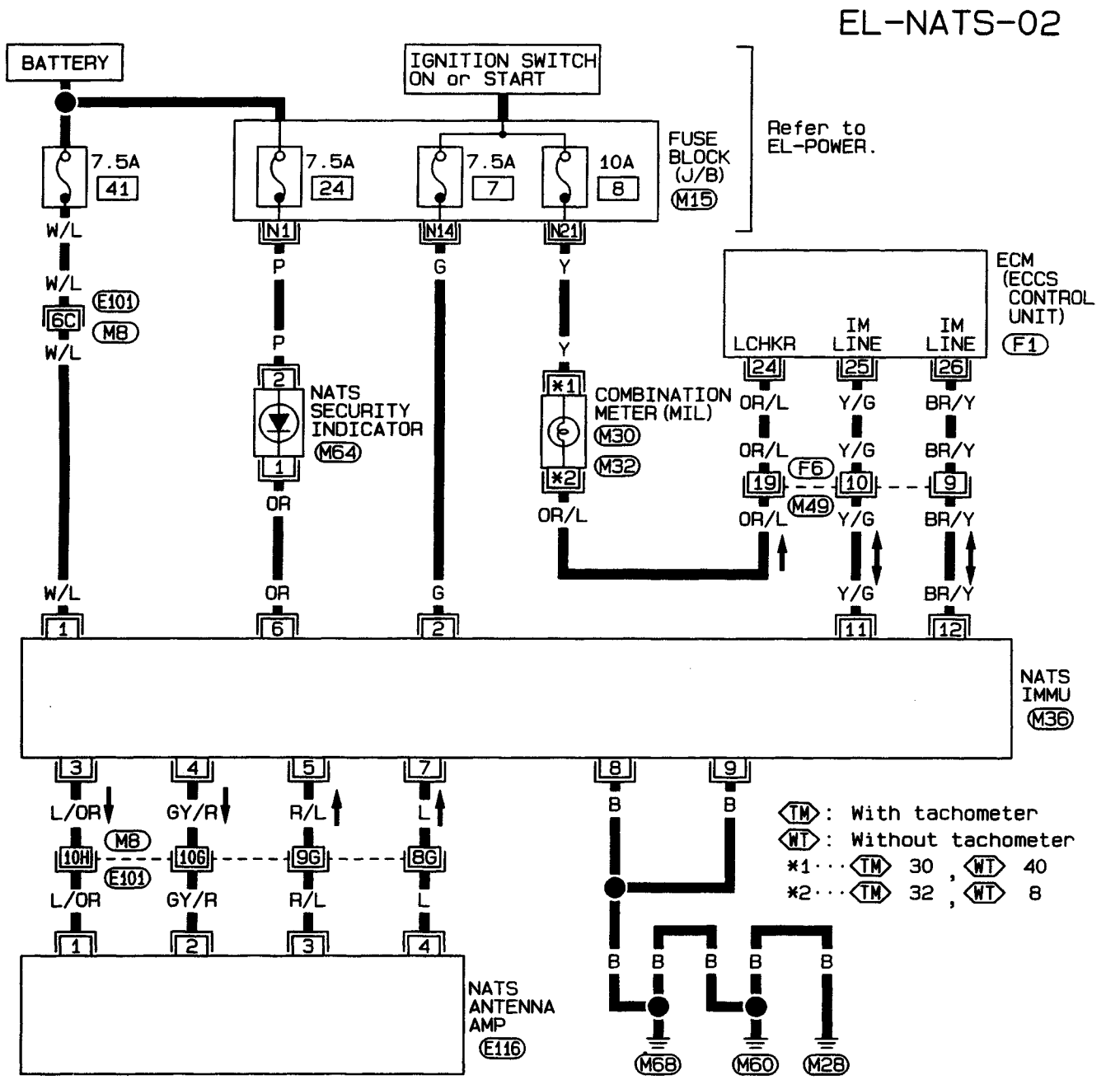
Refer to last page (Foldout page).
M8 , E101
M15
M19
F1

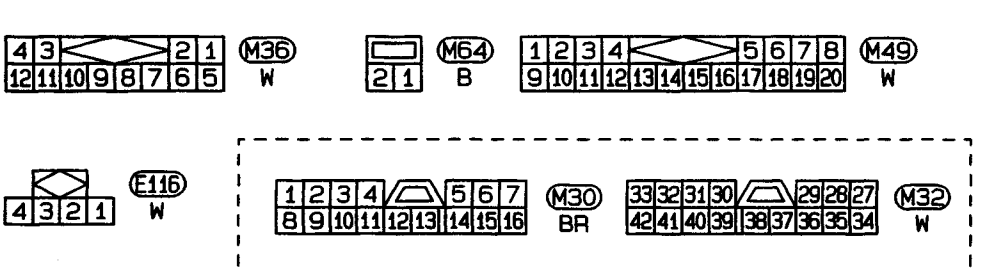
EL

HEL147

Wiring Diagram — NATS — (Cont'd)

RHD MODELS



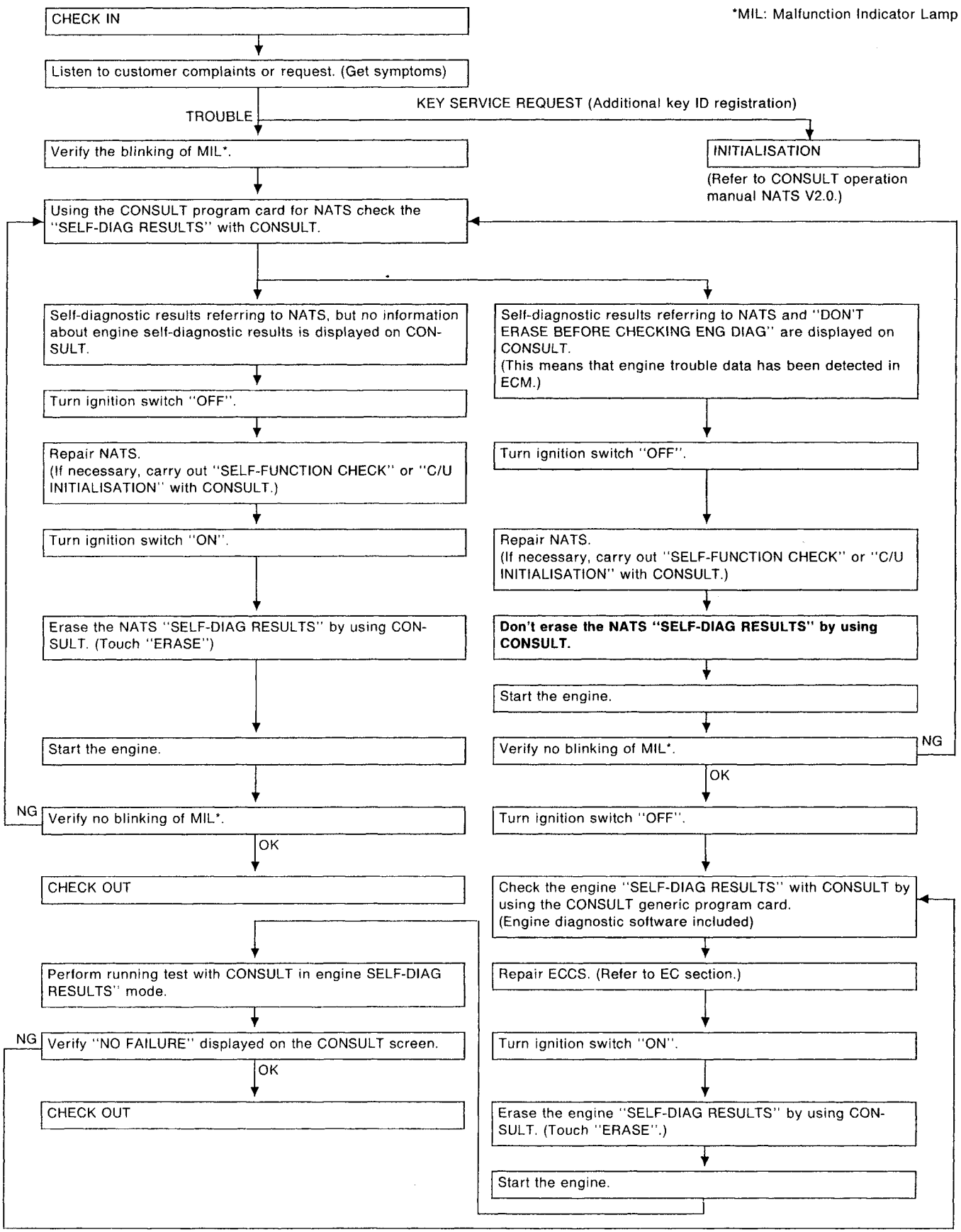


Refer to last page (Foldout page).
M8 , E101
M15
F1

HEL148

Trouble Diagnoses

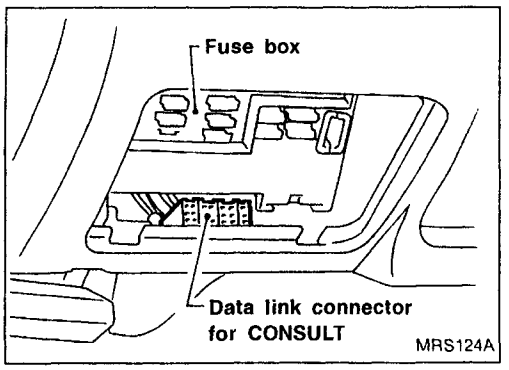
WORK FLOW



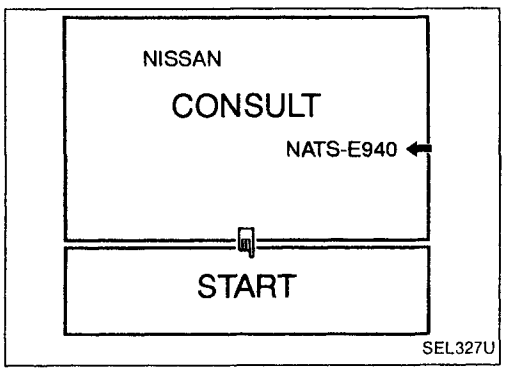
EL

Trouble Diagnoses (Cont'd)

CONSULT INSPECTION PROCEDURE



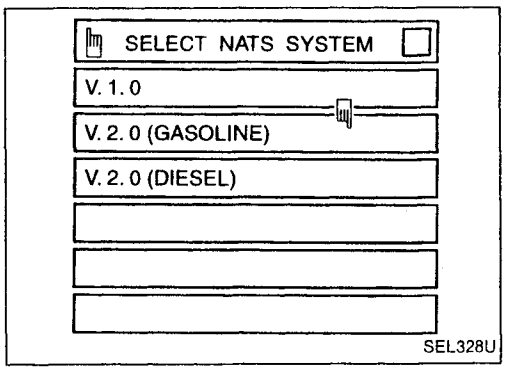
1. Turn off ignition switch.
2. Connect "CONSULT" to Data link connector for CONSULT. (Data link connector for CONSULT is located behind the fuse box cover.)



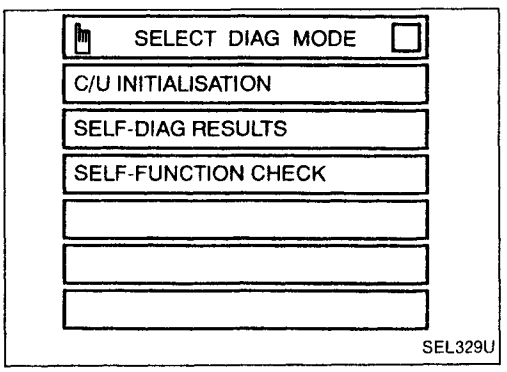
3. Insert NATS program card into CONSULT.

⬅: Program card
NATS-E940

4. Turn on ignition switch.
5. Touch "START".



6. Touch "V.2.0 (GASOLINE)".

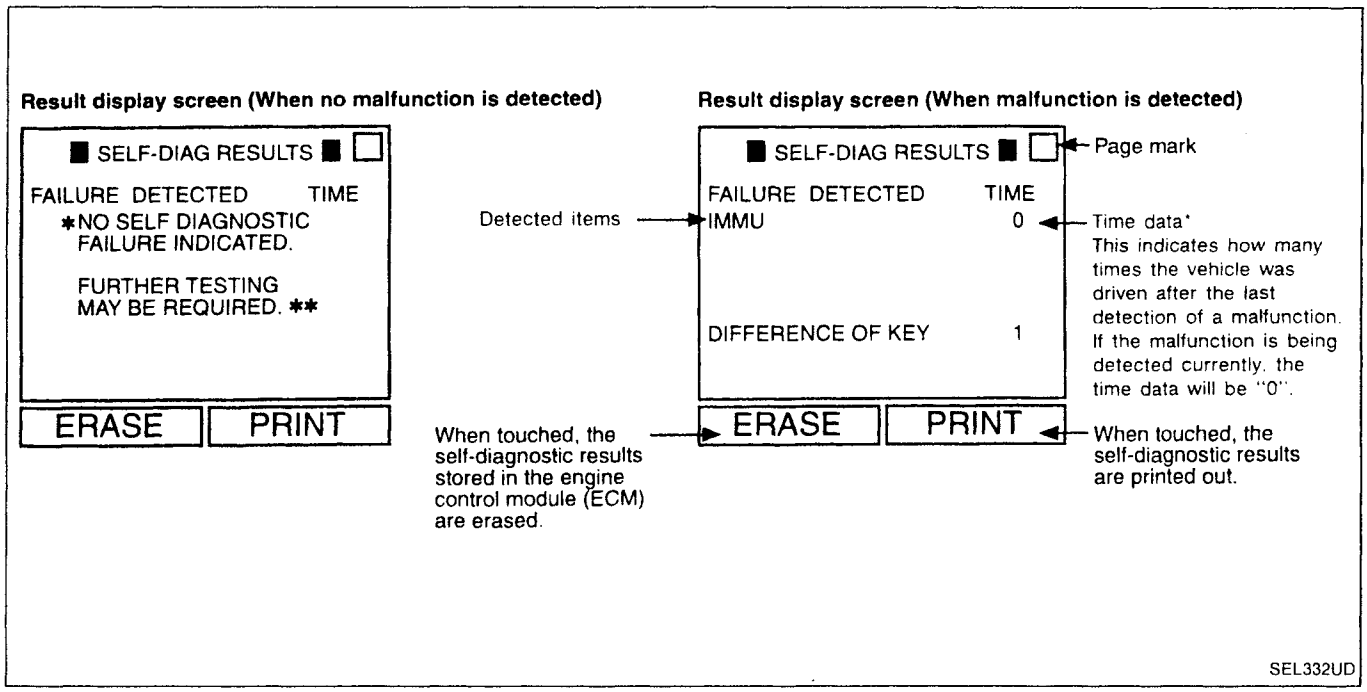


7. Perform each diagnostic test mode according to each service procedure.

For further information, see the CONSULT Operation Manual, NATS V2.0.

Trouble Diagnoses (Cont'd)

HOW TO READ SELF-DIAGNOSTIC RESULTS



* If trip number is more than 1, MIL does not blink.

EL

Trouble Diagnoses (Cont'd)

CONSULT DIAGNOSTIC TEST MODE FUNCTION

CONSULT DIAGNOSTIC TEST MODE	Description
C/U INITIALIZATION	When replacing any of the following three components, C/U initialization is necessary. [NATS ignition key/IMMU/ECM]
SELF-FUNCTION CHECK	ECM checks its own NATS communication interface by itself.
SELF-DIAGNOSTIC RESULTS	Detected items (screen terms) are as shown in the chart below.

SELF-DIAGNOSTIC RESULTS ITEM CHART

Detected items (Screen terms)	Description	Reference page
IMMU	ECM received the signal from IMMU that IMMU is malfunctioning.	EL-257
ECM	ECM is malfunctioning.	EL-257
CHAIN OF ECM-IMMU	Communication impossible between ECM and IMMU.	EL-258
DIFFERENCE OF KEY	IMMU can receive the key ID signal but the result of ID verification between key ID and IMMU is NG.	EL-260
CHAIN OF IMMU-KEY	IMMU cannot receive the key ID signal.	EL-261
ID DISCORD, IMM-ECM	The result of ID verification between IMMU and ECM is NG. System initialisation is required.	EL-263
MINGLE NOISE	Noise (interference) mingled into NATS communication lines during communicating.	EL-264
DON'T ERASE BEFORE CHECKING ENG DIAG	Engine trouble data and NATS trouble data have been detected in ECM.	EL-264

SYMPTOM MATRIX CHART 1
(Self-diagnosis related item)

X: Possibility item, *MIL: Malfunction Indicator Lamp

SYSTEM (Malfunctioning part or mode)	REFERENCE PART NO. OF ILLUSTRATION ON NEXT PAGE	SYMPTOM		Displayed "SELF-DIAG RESULTS" on CONSULT screen.	DIAGNOSTIC PROCEDURE (Reference page)
		• Blinking of MIL*. • Engine will start.	• Blinking of MIL*. • Hard to start engine.		
IMMU	A	X		IMMU	PROCEDURE 1 (EL-257)
ECM	B	X		ECM	PROCEDURE 2 (EL-257)
Open circuit in battery voltage line of IMMU circuit	C1		X	CHAIN OF ECM-IMMU	PROCEDURE 3 (EL-258)
Open circuit in ignition line of IMMU circuit	C2		X		
Open circuit in ground line of IMMU circuit	C3		X		
Open circuit in communication line between IMMU and ECM	C4		X		
Short circuit between IMMU and ECM communication line and battery voltage line	C4		X		
Short circuit between IMMU and ECM communication line and ground line	C4		X		
Open circuit in power source line of ANT/AMP circuit	E3		X		
ECM	B		X		
IMMU	A		X		
Unregistered key	D		X	DIFFERENCE OF KEY	PROCEDURE 4 (EL-260)
IMMU	A		X		
Communication line between ANT/AMP and IMMU: Open circuit or short circuit of battery voltage line or short circuit of ground line	E1		X	CHAIN OF IMMU-KEY	PROCEDURE 5 (EL-261)
	E2		X		
Open circuit in power source line of ANT/AMP circuit	E3		X		
Open circuit in ground line of ANT/AMP circuit	E4		X		
Malfunction of key ID chip	E5		X		
IMMU	A		X		
Antenna amp.	E6		X		

EL

Trouble Diagnoses (Cont'd)

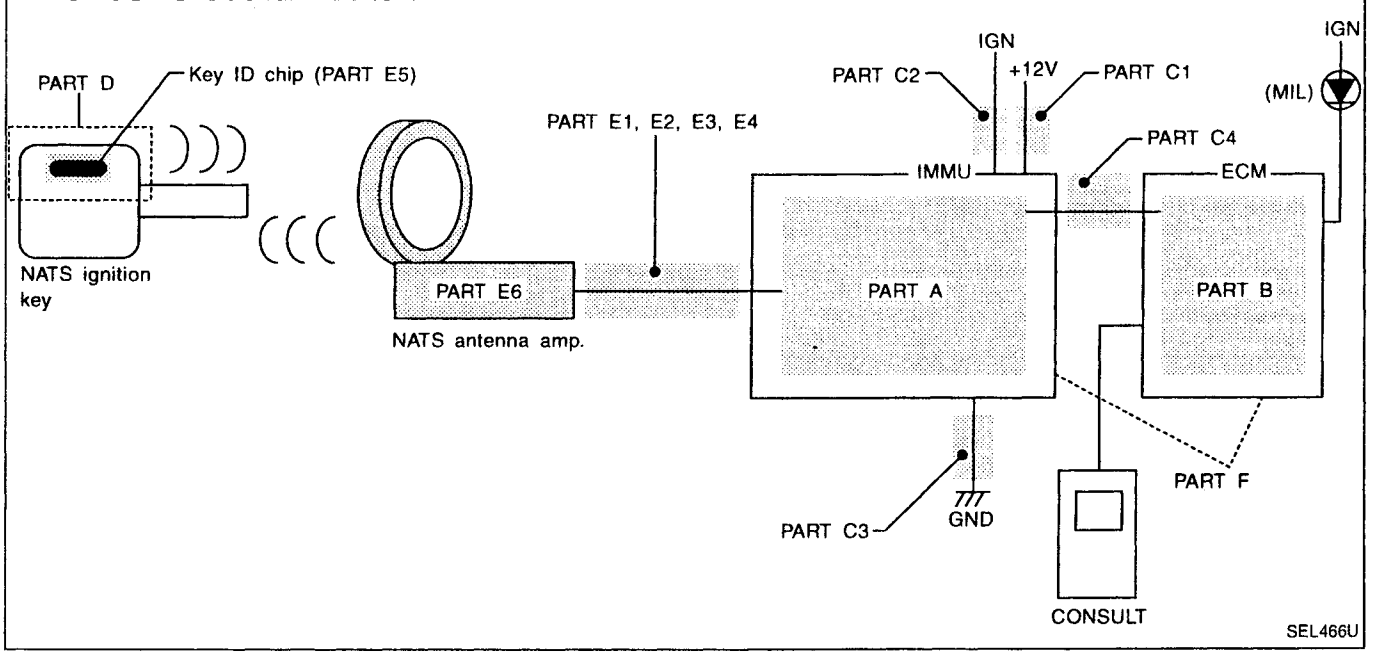
SYSTEM (Malfunctioning part or mode)	REFERENCE PART NO. OF ILLUSTRATION ON NEXT PAGE	SYMPTOM		Displayed "SELF-DIAG RESULTS" on CONSULT screen.	DIAGNOSTIC PROCEDURE (Reference page)
		• Blinking of MIL*. • Engine will start.	• Blinking of MIL*. • Hard to start engine.		
System initialisation has not yet been completed.	F		X	ID DISCORD, IMM-ECM	PROCEDURE 6 (EL-263)
ECM	F		X		
Noise interference in communication line			X	MINGLE NOISE	PROCEDURE 7 (EL-264)
Engine trouble data and NATS trouble data have been detected in ECM		X	X	DON'T ERASE BEFORE CHECKING ENG DIAG	WORK FLOW (EL-251)

SYMPTOM MATRIX CHART 2
(Non self-diagnosis related item)

X: Possibility item

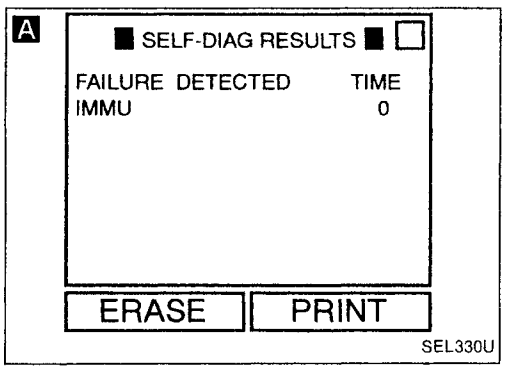
SYSTEM (Malfunctioning part or mode)	SYMPTOM	DIAGNOSTIC PROCEDURE (Reference page)
	NATS security ind. does not light up.	
NATS security ind.	X	PROCEDURE 8 (EL-264)
Open circuit between Fuse and NATS IMMU		
Continuation of initialisation mode		
NATS IMMU		

DIAGNOSTIC SYSTEM DIAGRAM



Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 1



Self-diagnostic results:
"IMMU" displayed on CONSULT screen

A

Confirm SELF-DIAGNOSTIC RESULTS "IMMU" displayed on CONSULT screen.
Ref. part No.* A.

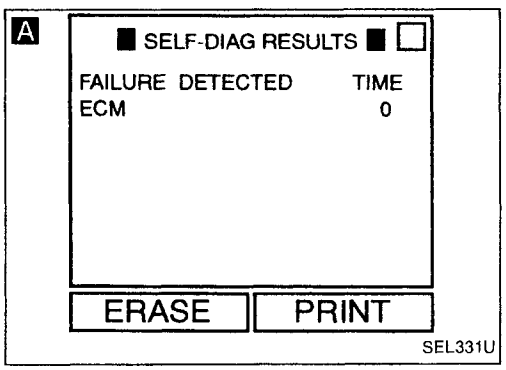
Yes

Replace IMMU.

Perform initialisation with CONSULT.
For the operation of initialisation, refer to "CONSULT operation manual NATS V2.0".

* Ref. part No.: reference part No. of Diagnostic System Diagram on EL-255

DIAGNOSTIC PROCEDURE 2



Self-diagnostic results:
"ECM" displayed on CONSULT screen

A

Confirm SELF-DIAGNOSTIC RESULTS "ECM" displayed on CONSULT screen.
Ref. part No. B.

Replace ECM.

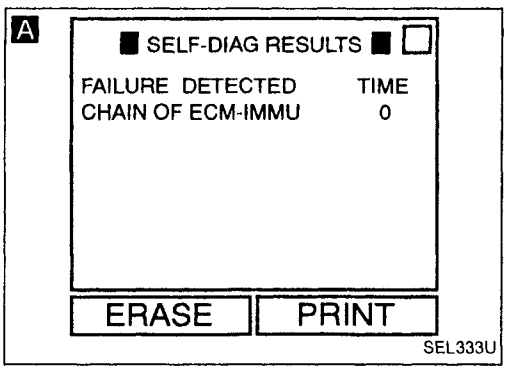
Perform initialisation with CONSULT.
For the operation of initialisation, refer to "CONSULT operation manual NATS V2.0".

EL

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 3

Self-diagnostic results:
"CHAIN OF ECM-IMMU" displayed on CONSULT screen



A

Confirm SELF-DIAGNOSTIC RESULTS "CHAIN OF ECM-IMMU" displayed on CONSULT screen.

OK ↓

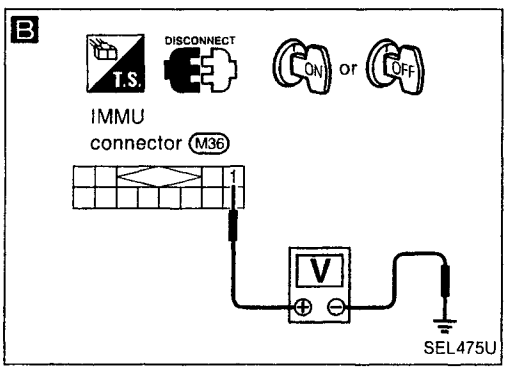
B

Check voltage between terminal ① of IMMU and ground with CONSULT or tester.
Voltage: Battery voltage

NG → Check the following:
- 7.5A fuse
- Harness continuity between fuse and IMMU connector (M36)

If NG, repair harness or connector.
Ref. part No. C1

OK ↓



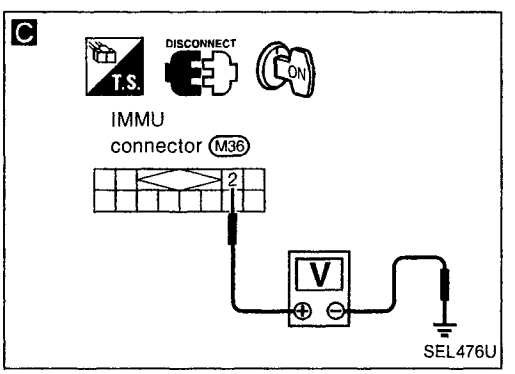
C

Check voltage between terminal ② of IMMU and ground with CONSULT or tester.
Voltage: Battery voltage

NG → Check the following:
- 7.5A fuse
- Harness continuity between fuse and IMMU connector (M36), or between ignition switch and fuse.

If NG, repair harness or connectors.
Ref. part No. C2

OK ↓

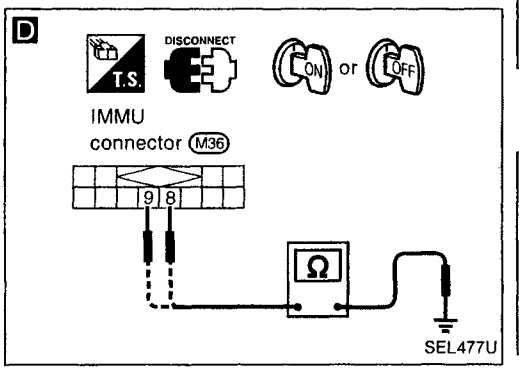


D

Check harness continuity between IMMU terminal ⑧ or ⑨ and ground.
Continuity should exist.

NG → Repair harness or check the body ground screws (M28), (M60) and (M68).
Ref. part No. C3

OK ↓



E

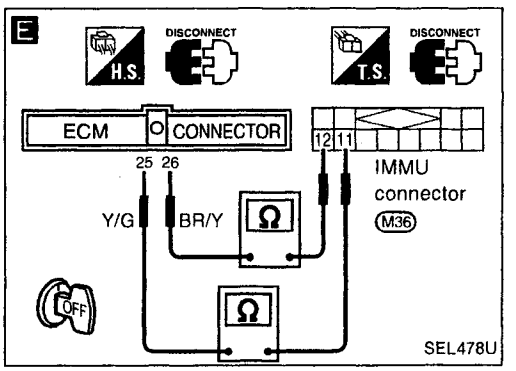
Check harness continuity between the following ECM terminals and IMMU terminals.
ECM ㉕ and IMMU ⑪
ECM ㉖ and IMMU ⑫
Continuity should exist.

NG → Check the following.
- Harness connectors (M49), (F6)
- Harness continuity between ECM and IMMU.

If NG, repair harness or connectors.
Ref. part No. C4

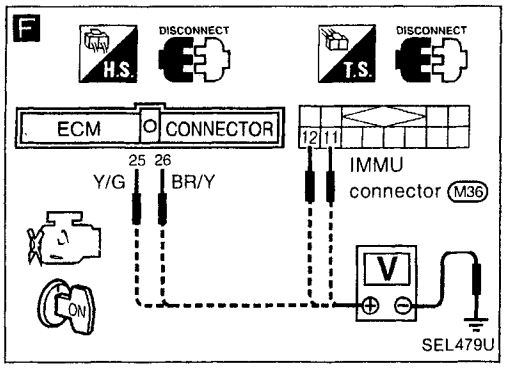
OK ↓

Ⓐ

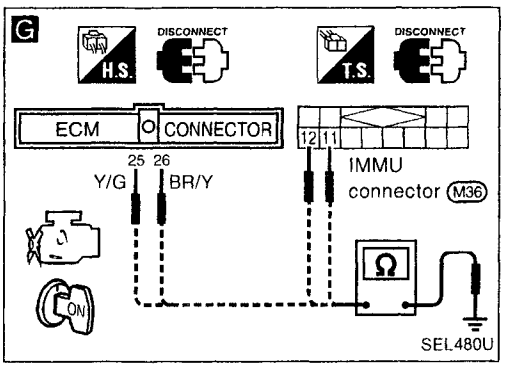


Trouble Diagnoses (Cont'd)

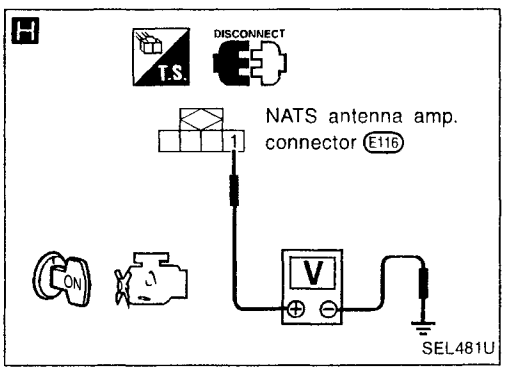
F



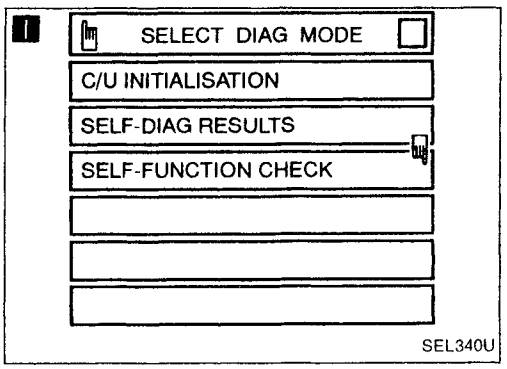
G



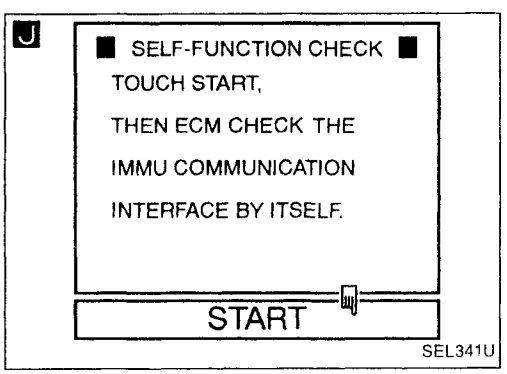
H



I



J



Ⓐ

F

CHECK COMMUNICATION LINE CIRCUIT.
1) Disconnect ECM connector and IMMU connector.
2) Check voltage between the following terminals and ground.
ECM ㉕, ECM ㉖, IMMU ⑪ and IMMU ⑫
Voltage: 0V

NG → Communication line is short-circuited with battery voltage line or ignition switch ON line. Repair harness or connectors.
Ref. part No. C4

OK ↓

G

Check continuity between the following terminals and ground.
ECM ㉕, ECM ㉖, IMMU ⑪ and IMMU ⑫
Continuity should not exist.

NG → Communication line is short-circuited with ground line. Repair harness or connectors.
Ref. part No. C4

OK ↓

H

CHECK NATS ANTENNA AMP. CIRCUIT.
1) Disconnect NATS antenna amp. connector.
2) Turn ignition switch "ON".
3) Check voltage between antenna amp. terminal ① and ground.
Voltage: More than 4.7V

NG → NATS antenna amp. +5V line is short-circuited with battery voltage line or ground line. Repair harness or connectors.
Ref. part No. E3

OK ↓

I

SELF-FUNCTION CHECK
1) Connect ECM connector and disconnect IMMU connector.
2) Turn ignition switch "ON".
3) Touch "SELF-FUNCTION CHECK" on CONSULT "SELECT DIAG MODE" screen.

J

Touch "START". ECM will then check its communication interface by itself.

NG → **K** (See next page.)
ECM is malfunctioning. Replace ECM.
Ref. part No. B

Perform initialisation with CONSULT.
For the operation of initialisation, refer to "CONSULT operation manual NATS V2.0".

OK ↓

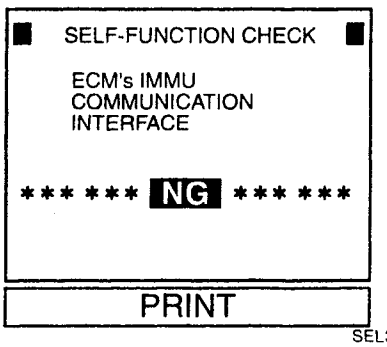
L (See next page.)

Ⓑ

EL

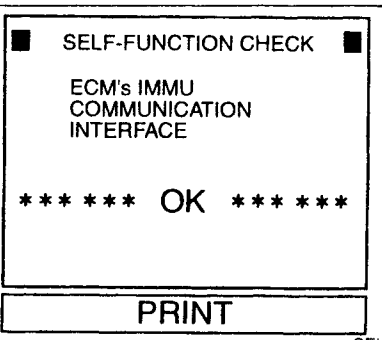
Trouble Diagnoses (Cont'd)

K



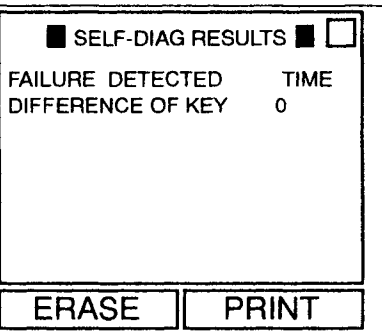
SEL342U

L



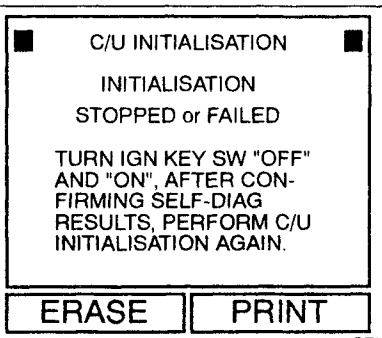
SEL343U

A



SEL344U

B



SEL372U

Ⓑ

IMMU is malfunctioning.
Replace IMMU.
Ref. part No. A

Perform initialisation with CONSULT.
For the operation of initialisation, refer to "CONSULT operation manual NATS V2.0".

DIAGNOSTIC PROCEDURE 4

Self-diagnostic results:
"DIFFERENCE OF KEY" displayed on CONSULT screen

A

Confirm SELF-DIAGNOSTIC RESULTS "DIFFERENCE OF KEY" displayed on CONSULT screen.

OK

Perform initialisation with CONSULT.
Re-register all NATS ignition key IDs.
For the operation of initialisation, refer to "CONSULT operation manual NATS V2.0".

Initialisation incompleted or failed with CONSULT → B

IMMU is malfunctioning.
Replace IMMU.
Ref. part No. A

Initialisation completed

Start engine.

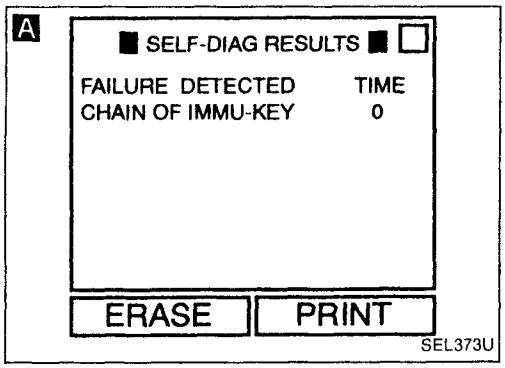
END
(Ignition key ID was unregistered.)
Ref. part No. D

Perform initialisation with CONSULT.
For the operation of initialisation, refer to "CONSULT operation manual NATS V2.0".

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 5

Self-diagnostic results:
"CHAIN OF IMMU-KEY" displayed on CONSULT screen

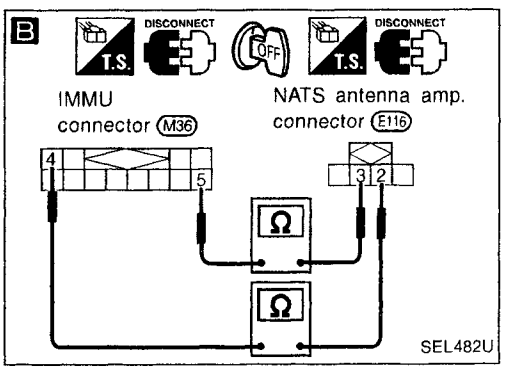


A

Confirm SELF-DIAGNOSTIC RESULTS "CHAIN OF IMMU-KEY" displayed on CONSULT screen.

OK ↓

B



CHECK ANTENNA AMP. CIRCUIT.
1) Disconnect IMMU connector and NATS antenna amp. connector.
2) Check continuity between the following IMMU terminals and NATS antenna amp. terminals.

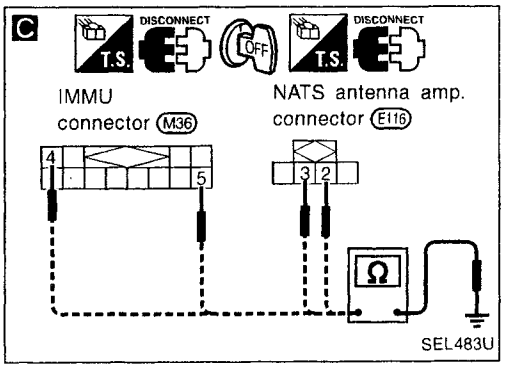
IMMU terminal	NATS antenna amp. terminal	Ref. part No.
⑤	③	E1
④	②	E2

Continuity should exist.

NG → Check harness and connectors.
If NG, repair harness or connectors.

OK ↓

C



Check continuity between the following terminals and ground.

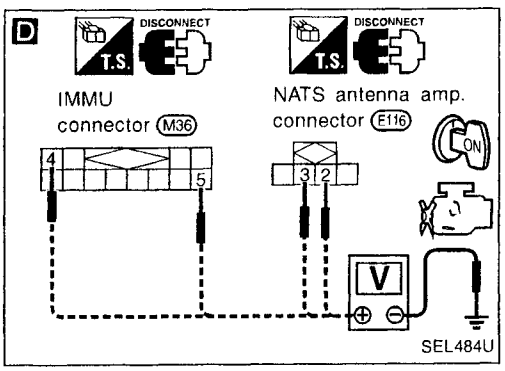
IMMU terminal	NATS antenna amp. terminal	Ref. part No.
⑤	③	E1
④	②	E2

Continuity should not exist.

NG → Communication line is short-circuited with ground line.
Repair harness or connectors.

OK ↓

D



Check voltage between the following terminals and ground.

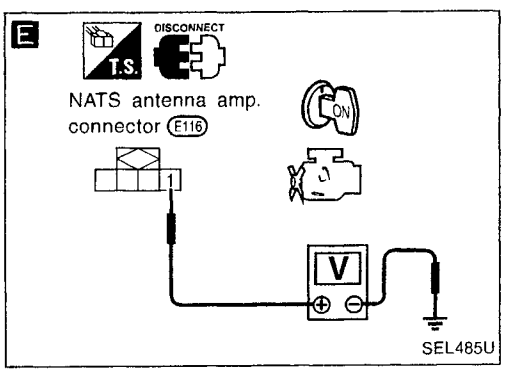
IMMU terminal	NATS antenna amp. terminal	Ref. part No.
⑤	③	E1
④	②	E2

Voltage: 0V

NG → Communication line is short-circuited with battery voltage line or ignition switch "ON" line.
Repair harness or connectors.

OK ↓

E



CHECK ANTENNA AMP. POWER SOURCE CIRCUIT.
1) Connect IMMU connector.
2) Check voltage between NATS antenna amp. terminal ① and ground.

Voltage: More than 4.7V

NG → Power source line is open circuit.
Repair harness or connector.
Ref. part No. E3

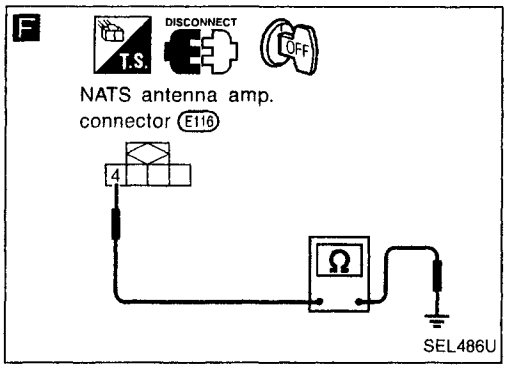
OK ↓

Ⓐ

EL

Trouble Diagnoses (Cont'd)

F



Ⓐ

F

CHECK ANTENNA AMP. GROUND LINE CIRCUIT.
1) Turn ignition switch "OFF".
2) Check continuity between NATS antenna amp. terminal ④ and ground.
Continuity should exist.

NG → NATS antenna amp. ground line is open circuit.
Check harness continuity between IMMU terminal ⑦ and NATS antenna amp. terminal ④.
If NG, repair harness or connectors.
Ref. part No. E4

OK ↓

CHECK NATS IGNITION KEY ID CHIP.
1) Connect NATS antenna amp. connector.
2) Pull the ignition key out.
3) Start engine with another registered NATS ignition key.

Start OK → Ignition key ID chip was malfunctioning.
Replace the ignition key.
Ref. part No. E5

Start NG ↓

G

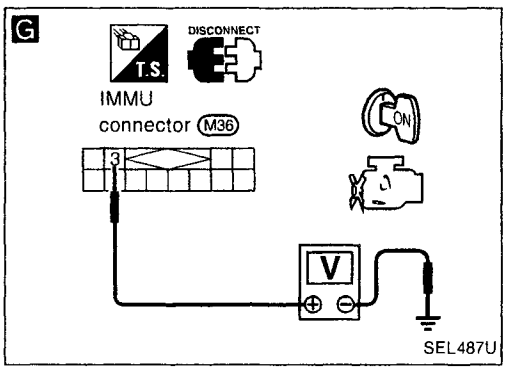
CHECK IMMU OUTPUT VOLTAGE.
1) Turn the ignition switch "ON".
2) Check voltage between IMMU terminal ③ and ground.
Voltage: More than 4.7V

NG → Perform initialisation with CONSULT.
For the operation of initialisation, refer to "CONSULT operation manual NATS V2.0".

OK ↓

Replace IMMU.
Ref. part No. A

G



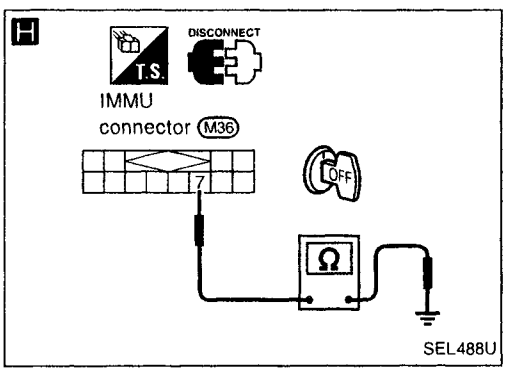
H

CHECK IMMU GROUND CIRCUIT.
1) Turn the ignition switch "OFF".
2) Disconnect IMMU connector.
3) Check continuity between IMMU terminal ⑦ and ground.
Continuity should exist.

NG → Replace IMMU.
Ref. part No. A

OK ↓

H



I

CHECK IMMU FUNCTION 1.
1) Connect IMMU connector and NATS antenna amp. connector.
2) Check voltage between IMMU terminal ④ and ground.

Voltage

Time (After turning ignition switch "ON".)	Voltage [V]
For approx. 0.5 sec.	Approx. 2.3 - 5
After 1 sec.	0

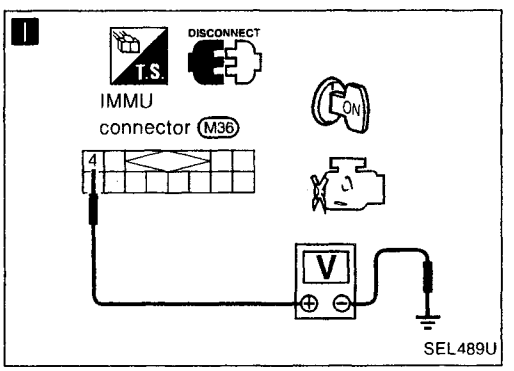
NG → Perform initialisation with CONSULT.
For the operation of initialisation, refer to "CONSULT operation manual NATS V2.0".

NG → Replace IMMU.
Ref. part No. A

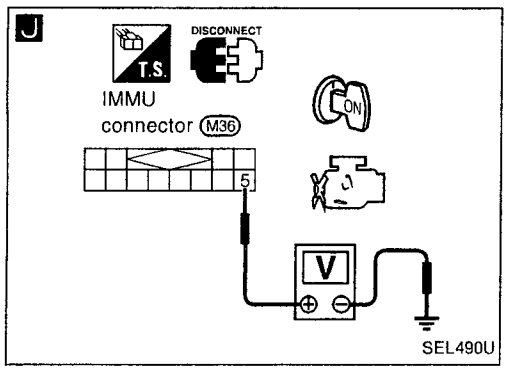
OK ↓

Ⓑ

I



Trouble Diagnoses (Cont'd)



Ⓑ

J

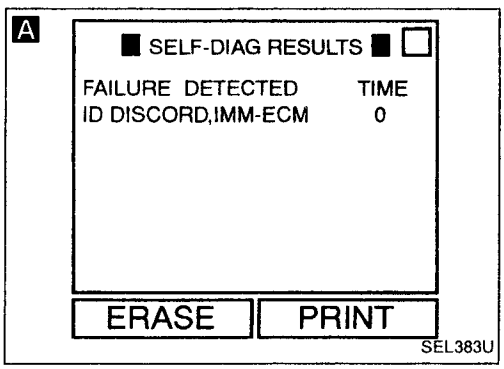
CHECK IMMU FUNCTION 2.
1) Disconnect NATS antenna amp. connector.
2) Turn ignition switch "ON".
3) Check voltage between IMMU terminal ⑤ and ground.
Voltage:
6 sec. after turning ignition switch "ON"
Approx. 4.5 - 5V

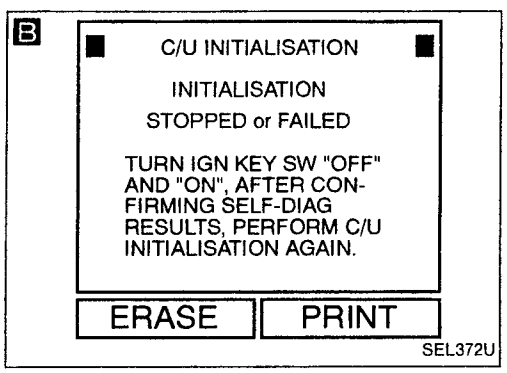
NG → Replace IMMU.
Ref. part No. A

Perform initialisation with CONSULT.
For the operation of initialisation, refer to "CONSULT operation manual NATS V2.0".

OK ↓

NATS antenna amp. is malfunctioning.
When replacing the amp. hold on to amp. body. Take care not to pull on amp. harness.
Ref. part No. E6





DIAGNOSTIC PROCEDURE 6

Self-diagnostic results:
"ID DISCORD, IMM-ECM" displayed on CONSULT screen

A

Confirm SELF-DIAGNOSTIC RESULTS "ID DISCORD, IMM-ECM*" displayed on CONSULT screen.

* "ID DISCORD, IMM-ECM": Registered ID of IMMU is in discord with that of ECM.

Perform initialisation with CONSULT.
Re-register all NATS ignition key IDs.
For the operation of initialisation, refer to "CONSULT operation manual NATS V2.0".

Initialisation incompleted or failed with CONSULT → B

ECM is malfunctioning.
Replace ECM.
Ref. part No. F

Perform initialisation with CONSULT.
For the operation of initialisation, refer to "CONSULT operation manual NATS V2.0".

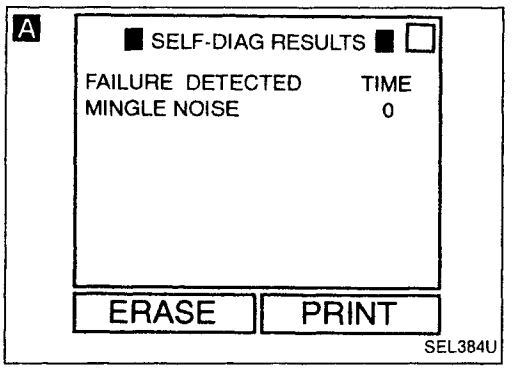
Initialisation completed ↓

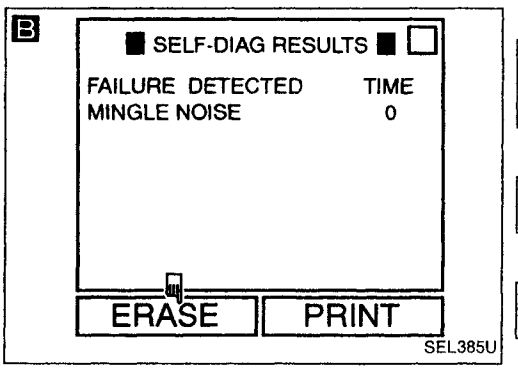
Start engine. ↓

END
Ref. part No. F

EL

Trouble Diagnoses (Cont'd)





DIAGNOSTIC PROCEDURE 7

Self-diagnostic results:
"MINGLE NOISE" displayed on CONSULT screen

A

Confirm SELF-DIAGNOSTIC RESULTS "MINGLE NOISE" displayed on CONSULT screen.

↓

Turn off or remove any possible noise sources.

↓

B

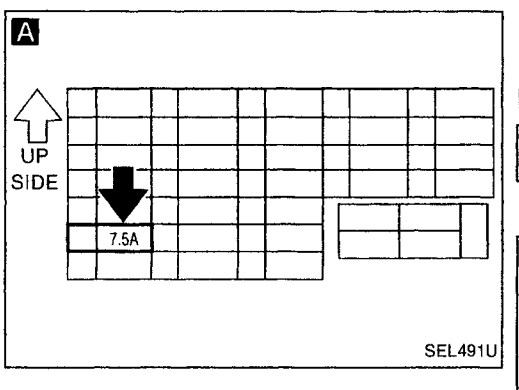
Touch "ERASE" on CONSULT SELF-DIAGNOSTIC RESULTS screen.

↓

Start engine. — NG → (back to A)

↓ OK

END



DIAGNOSTIC PROCEDURE 8

"NATS SECURITY IND. DOES NOT LIGHT UP"

A

Check fuse (7.5A) in the fuse box. — NG → Replace fuse.

↓ OK

NATS INITIALISATION
1) Fix the 7.5A fuse shown left A .
2) Perform initialisation with CONSULT.
For the operation of initialisation, refer to "CONSULT operation manual NATS V2.0".

↓

Turn ignition switch "OFF".

↓

Start engine and turn ignition switch "OFF".

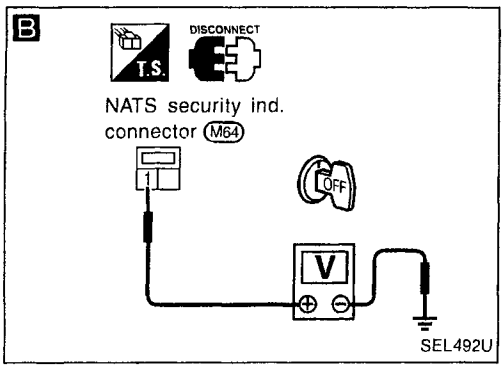
↓

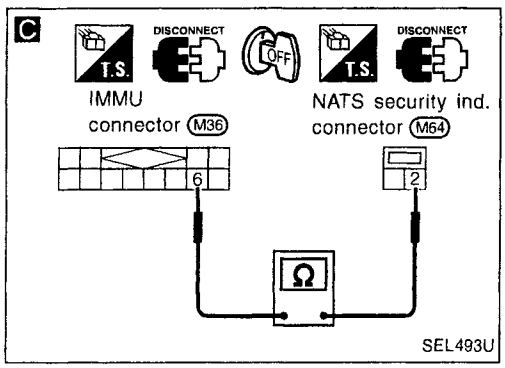
Check NATS security ind. blinking. — OK → END

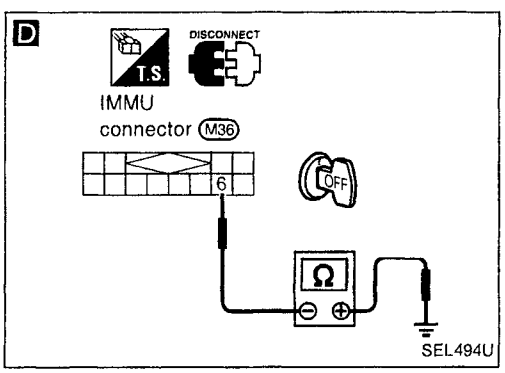
↓ NG

Ⓐ

Trouble Diagnoses (Cont'd)







Ⓐ

B

Check voltage between NATS security ind. connector terminal ① (Located under the instrument panel) and ground.
Voltage : Battery voltage

NG → Check harness continuity between fuse and NATS security ind. connector M64.
If NG, repair harness or connector.

OK ↓

C

CHECK NATS SECURITY IND. CIRCUIT.
1) Disconnect NATS IMMU connector.
2) Check harness continuity between NATS security ind. connector terminal ② and NATS IMMU connector terminal ⑥.
Continuity should exist.

NG → Repair harness.

OK ↓

D

CHECK NATS IMMU FUNCTION
1) Connect NATS IMMU connector.
2) Disconnect NATS security ind. connector.
3) Check continuity between NATS IMMU terminal ⑥ and ground.
Continuity should exist intermittently.

NG → NATS IMMU is malfunctioning. Replace IMMU.

Perform initialisation with CONSULT.
For the operation of initialisation, refer to "CONSULT operation manual NATS V2.0".

OK ↓

NATS security ind. is malfunctioning.
Pull out NATS security ind. with harness and connector.
Check harness connection

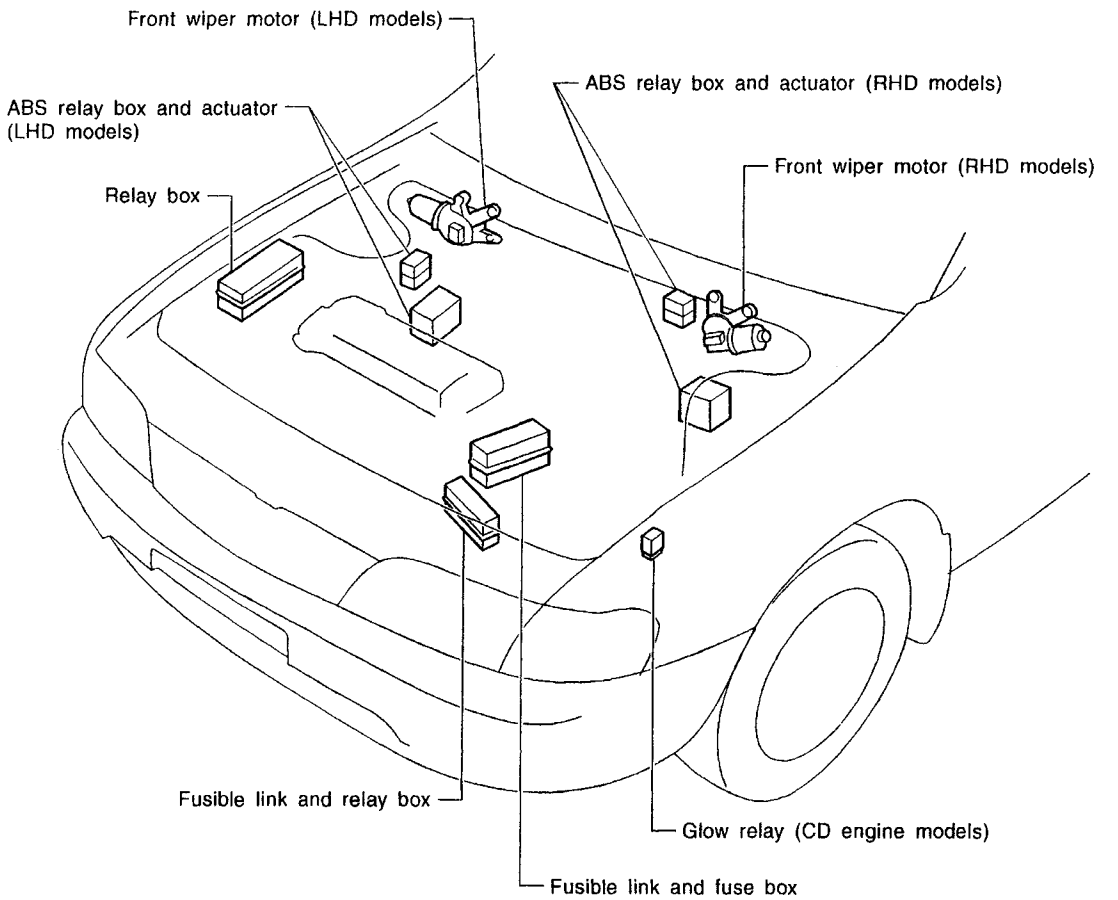
NG → Repair harness.

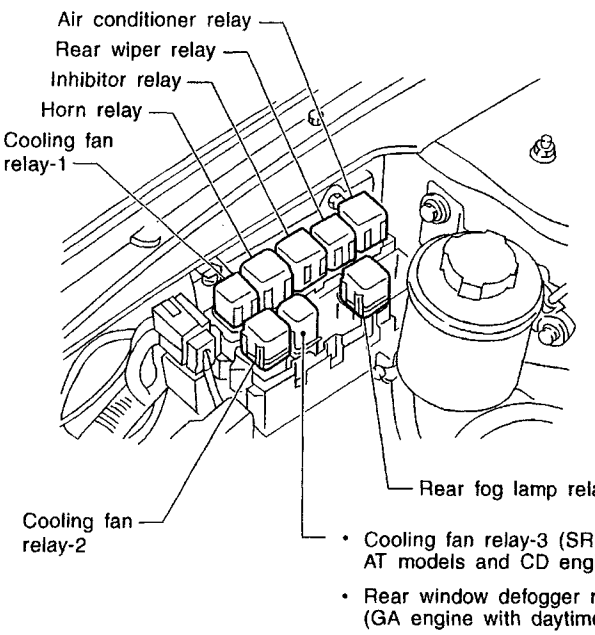
OK ↓

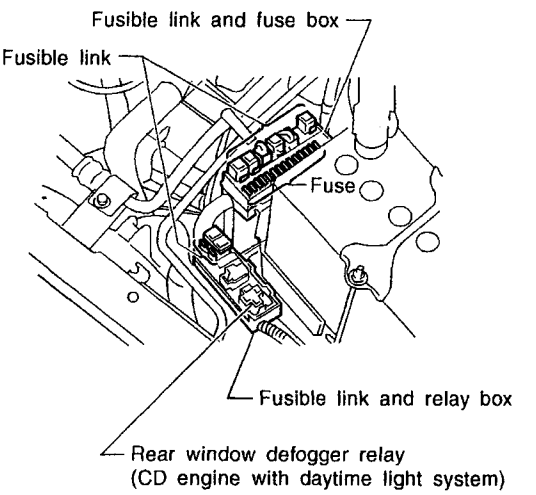
NATS security ind. cell is malfunctioning.
Replace NATS security ind.

EL

Engine Compartment



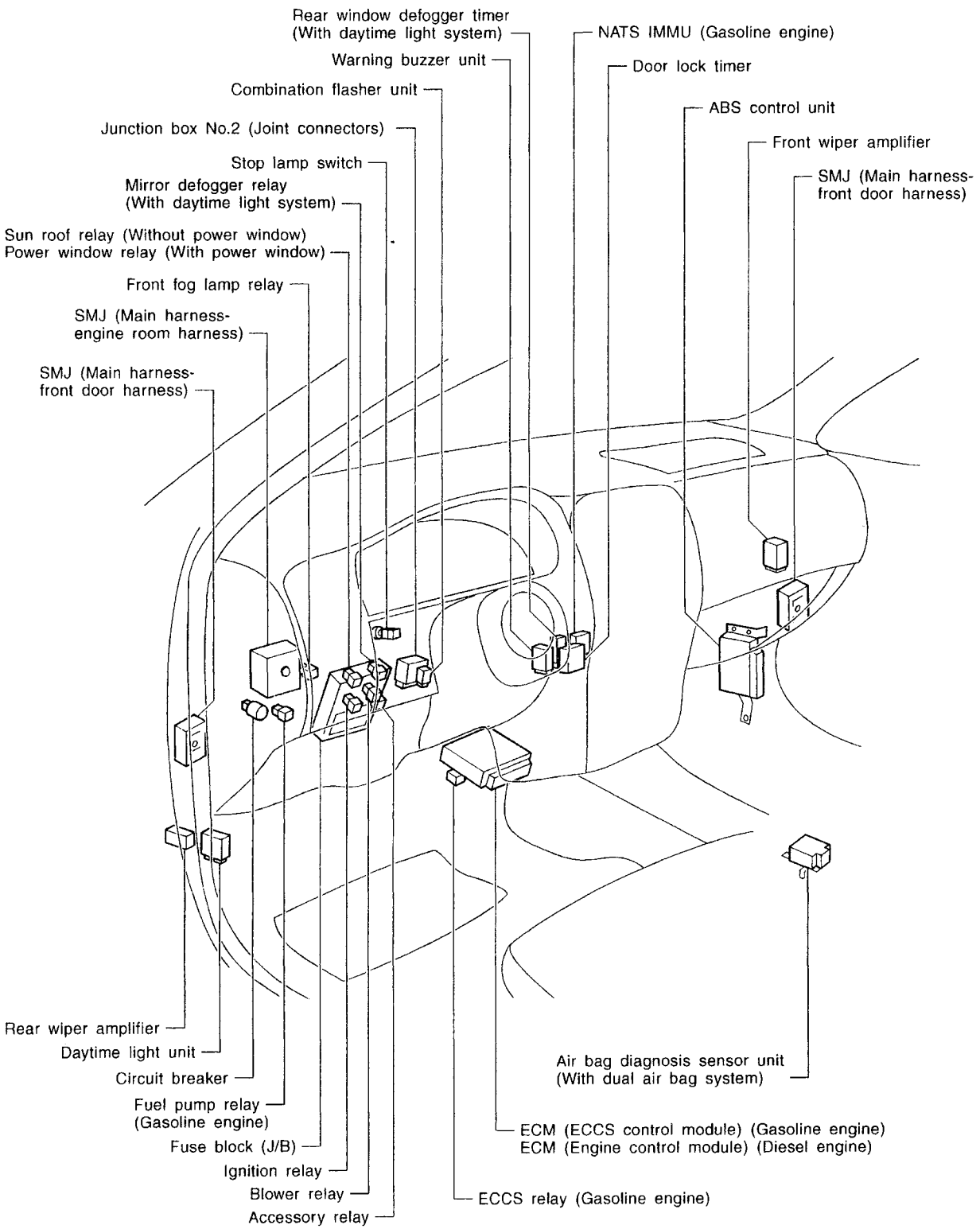




HEL149

Passenger Compartment

LHD MODELS

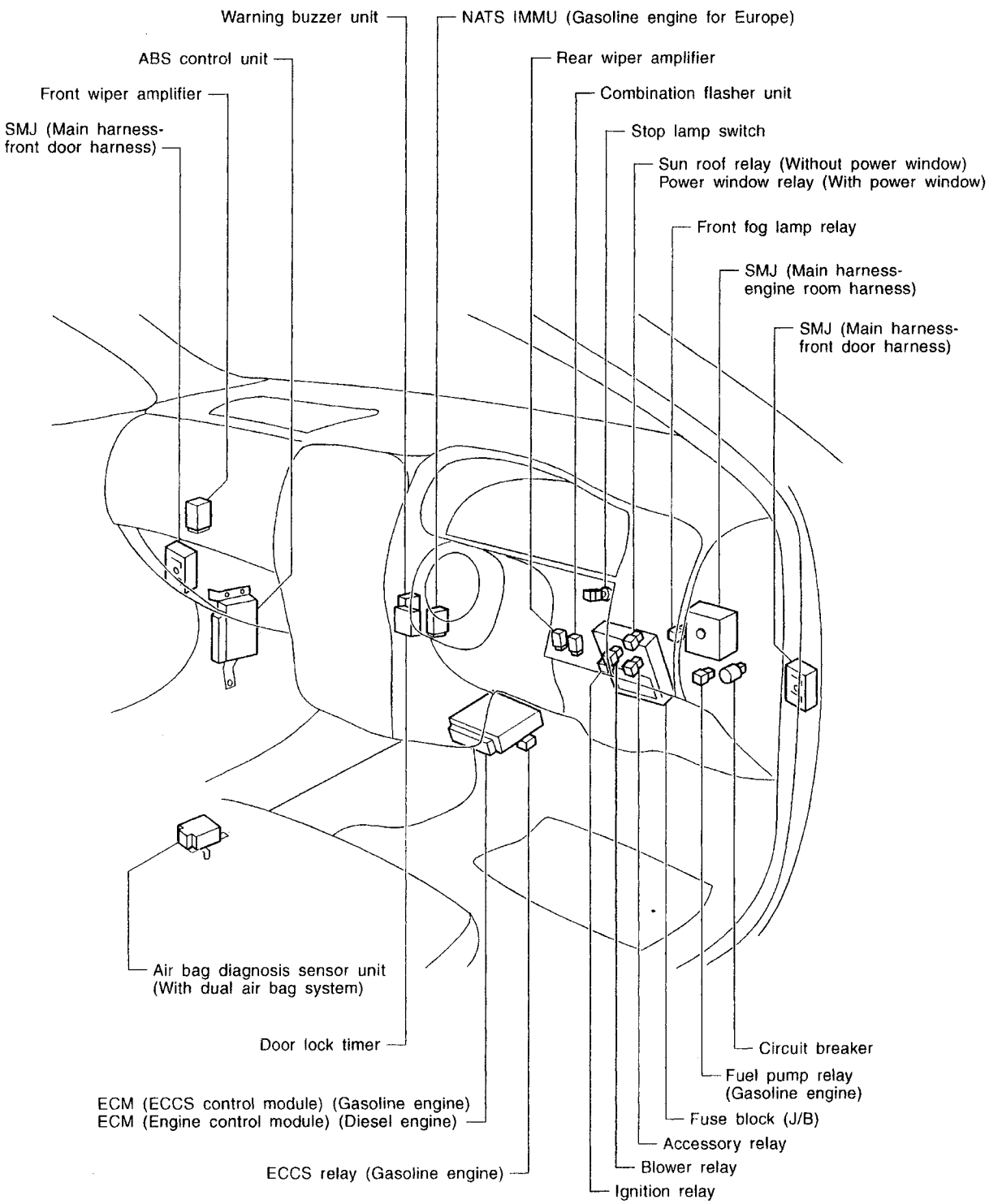


EL

HEL150

Passenger Compartment (Cont'd)

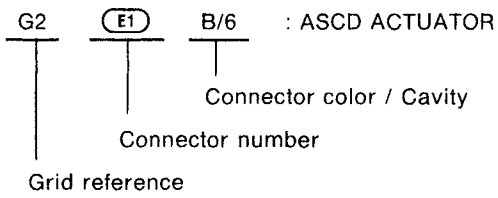
RHD MODELS



HEL151

How to Read Harness Layout

Example:



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

To use the grid reference

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

CONNECTOR SYMBOL

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

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

FFC (FLAT FLEXIBLE CIRCUIT)

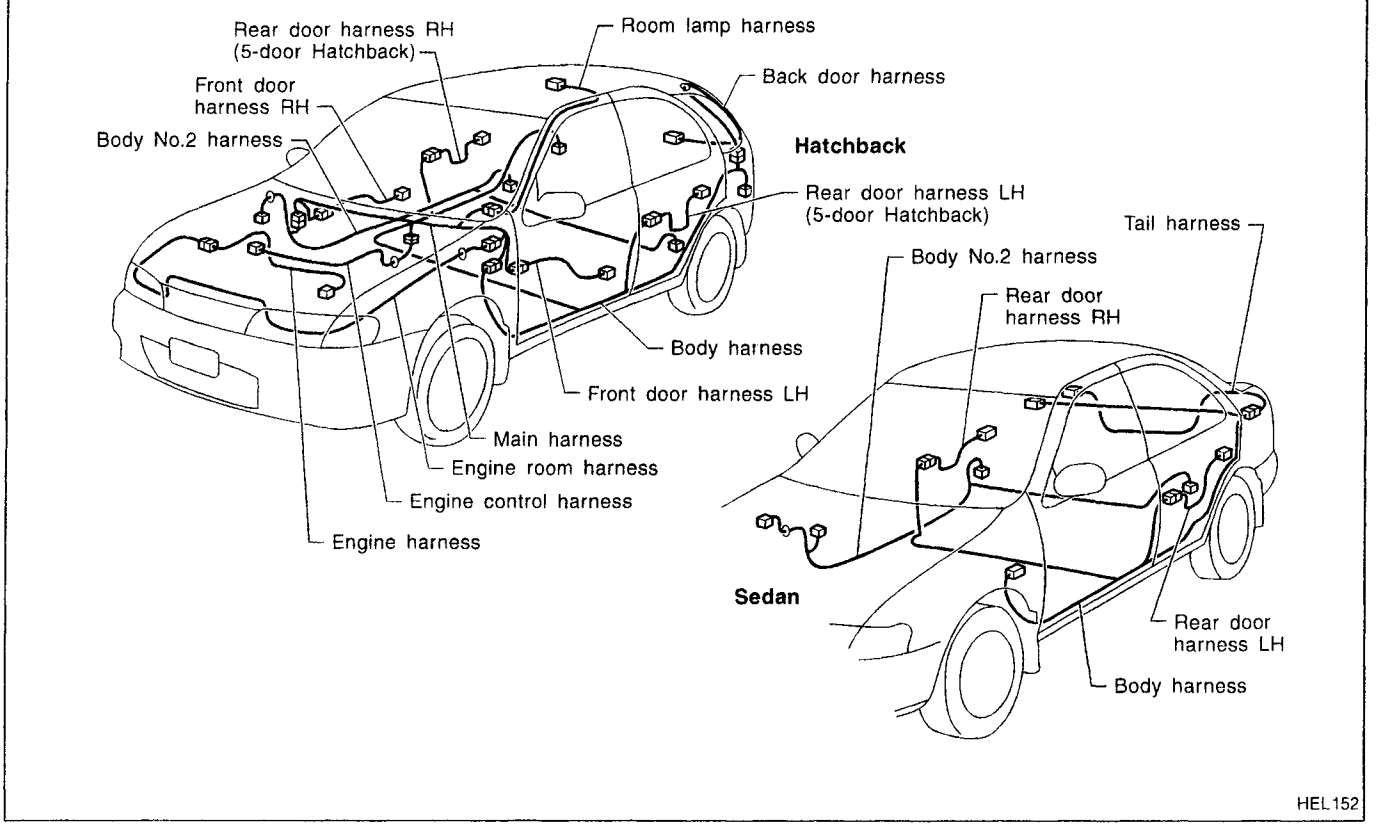
An FFC (Flat Flexible Circuit) has been adopted for door harness of 3-door Hatchback models for Europe.

CAUTION:
- **Do not attempt to repair, splice or modify the FFC. If the FFC is damaged, replace with a new one.**
- **Do not force the FFC in the opposite direction to which it is bent.**

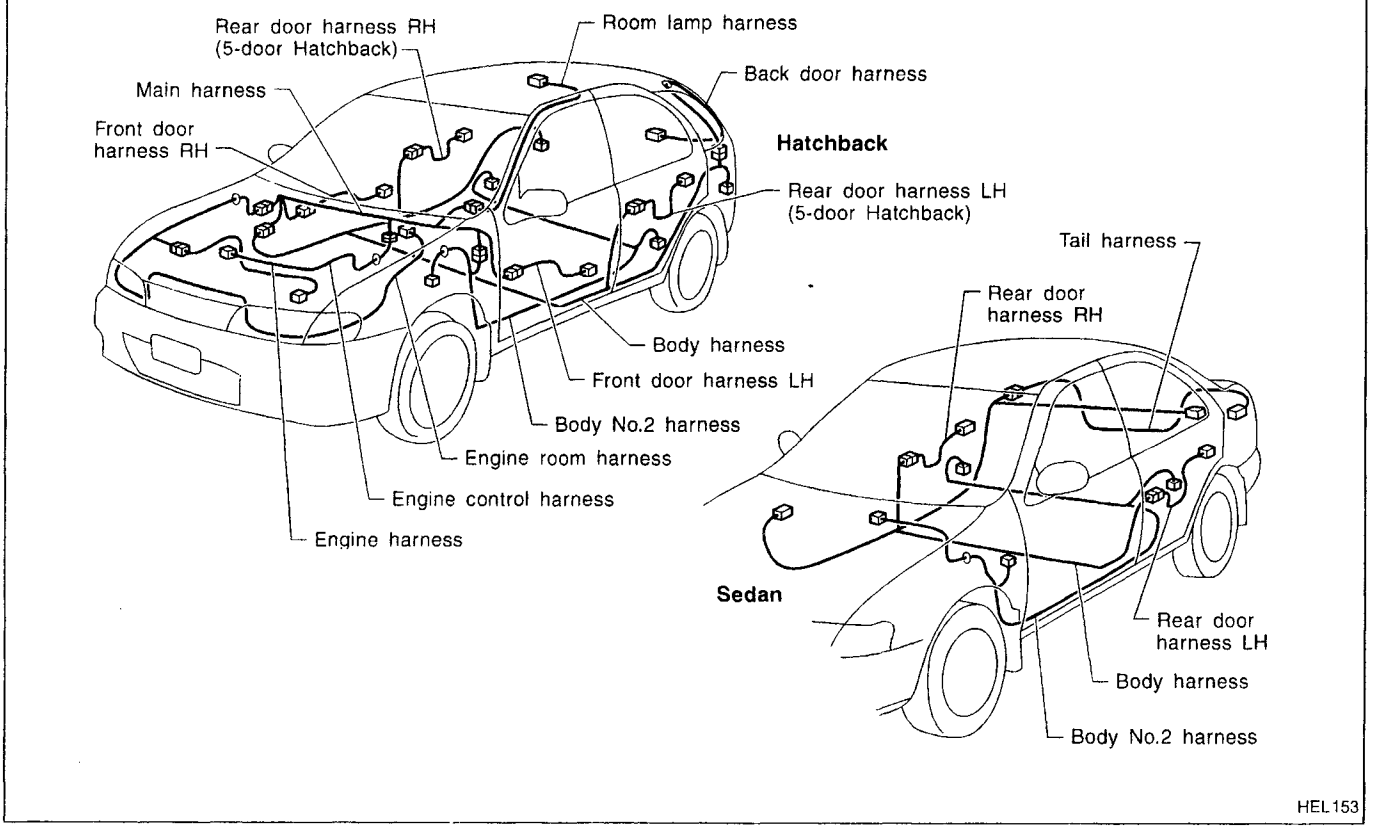
EL

Outline

LHD MODELS

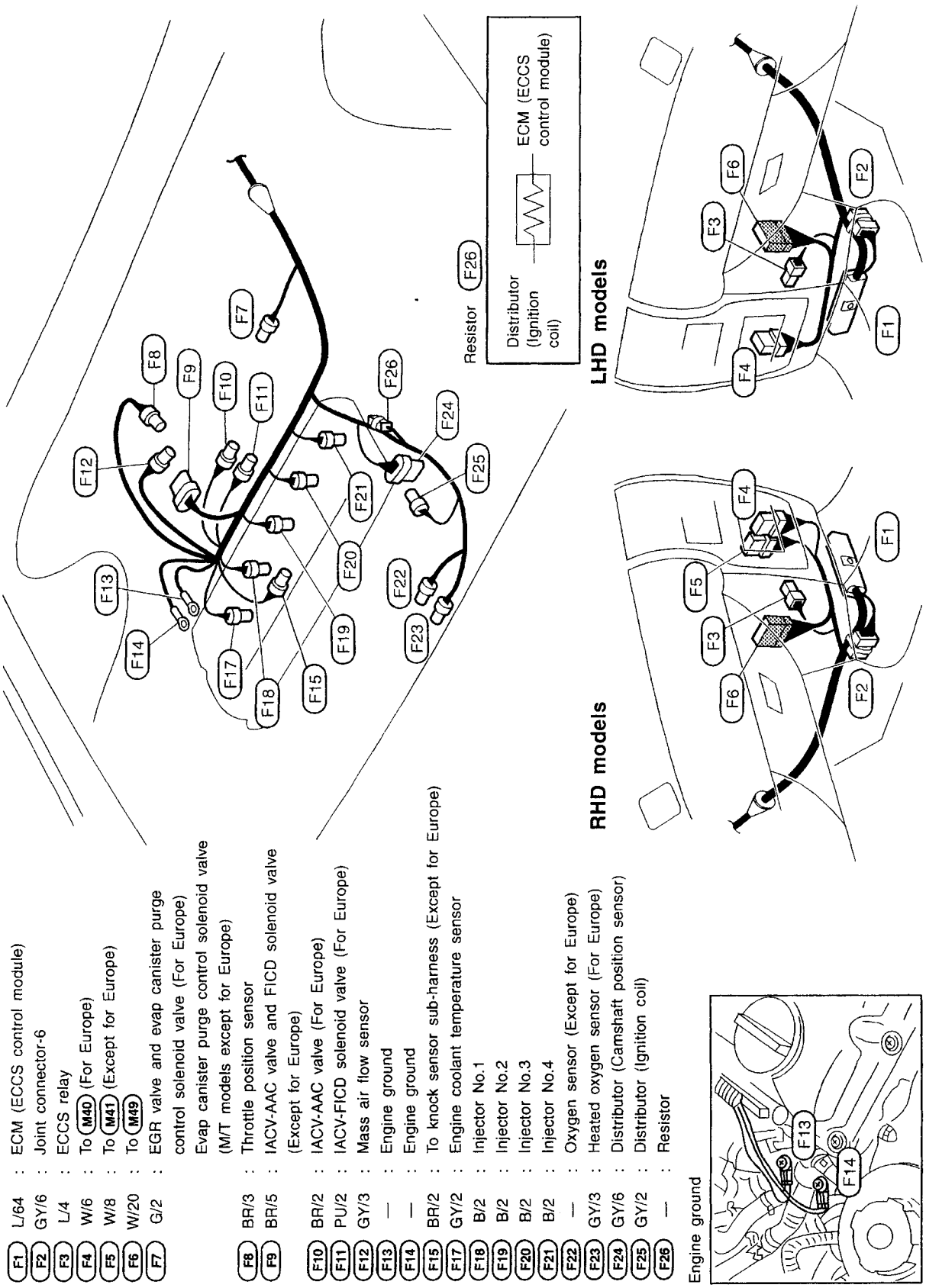


RHD MODELS



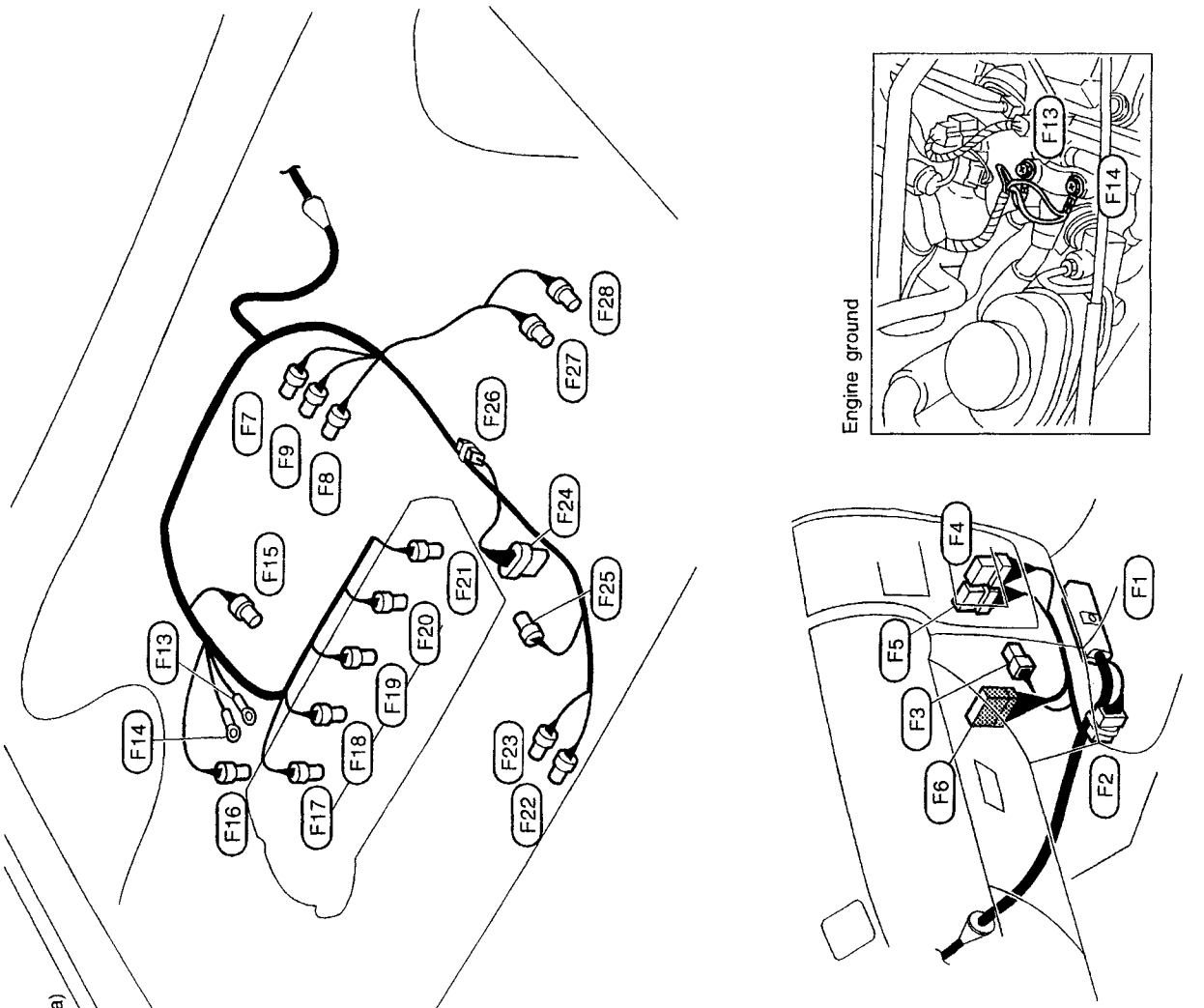
Engine Control Harness

GA14DE, 16DE ENGINE FOR EUROPE AND GA15DE ENGINE



Engine Control Harness (Cont'd)

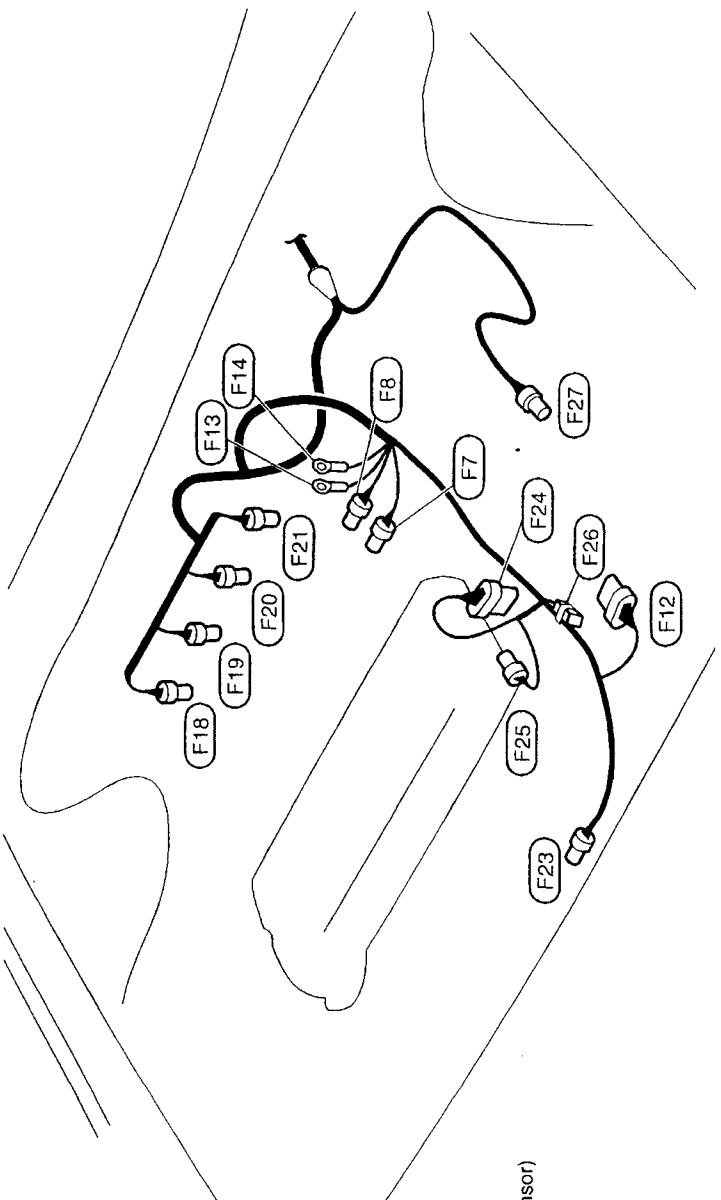
GA16DE ENGINE EXCEPT FOR EUROPE



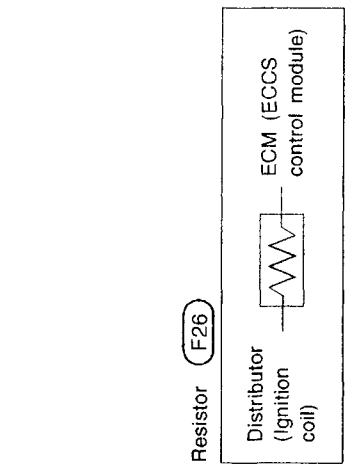
HEL165

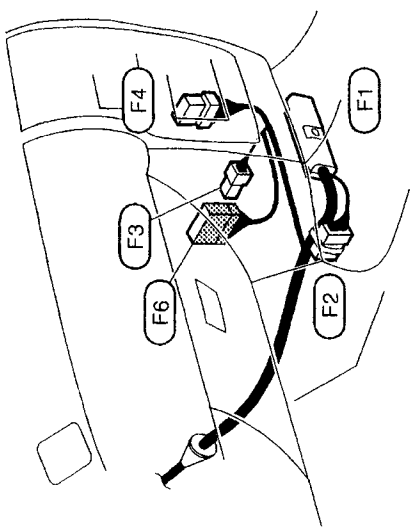
Engine Control Harness (Cont'd)

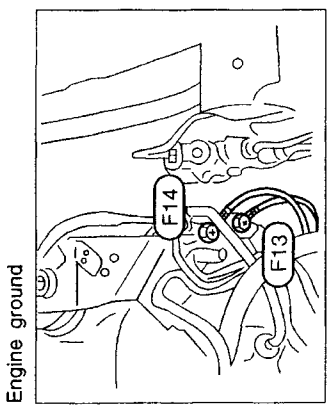
SR20DE ENGINE



F1 L/64 : ECM (ECCS control module)
F2 GY/6 : Joint connector-6
F3 L/4 : ECCS relay
F4 W/6 : To (M40)
F6 W/20 : To (M49)
F7 B/2 : EGR valve and evap canister purge control solenoid valve
F8 BR/3 : Throttle position sensor
F12 GY/6 : To (E227)
F13 — : Engine ground
F14 — : Engine ground
F18 B/2 : Injector No.1
F19 B/2 : Injector No.2
F20 B/2 : Injector No.3
F21 B/2 : Injector No.4
F23 GY/3 : Heated oxygen sensor
F24 GY/6 : Distributor (Camshaft position sensor)
F25 GY/2 : Distributor (Ignition coil)
F26 — : Resistor
F27 BR/4 : Mass air flow sensor





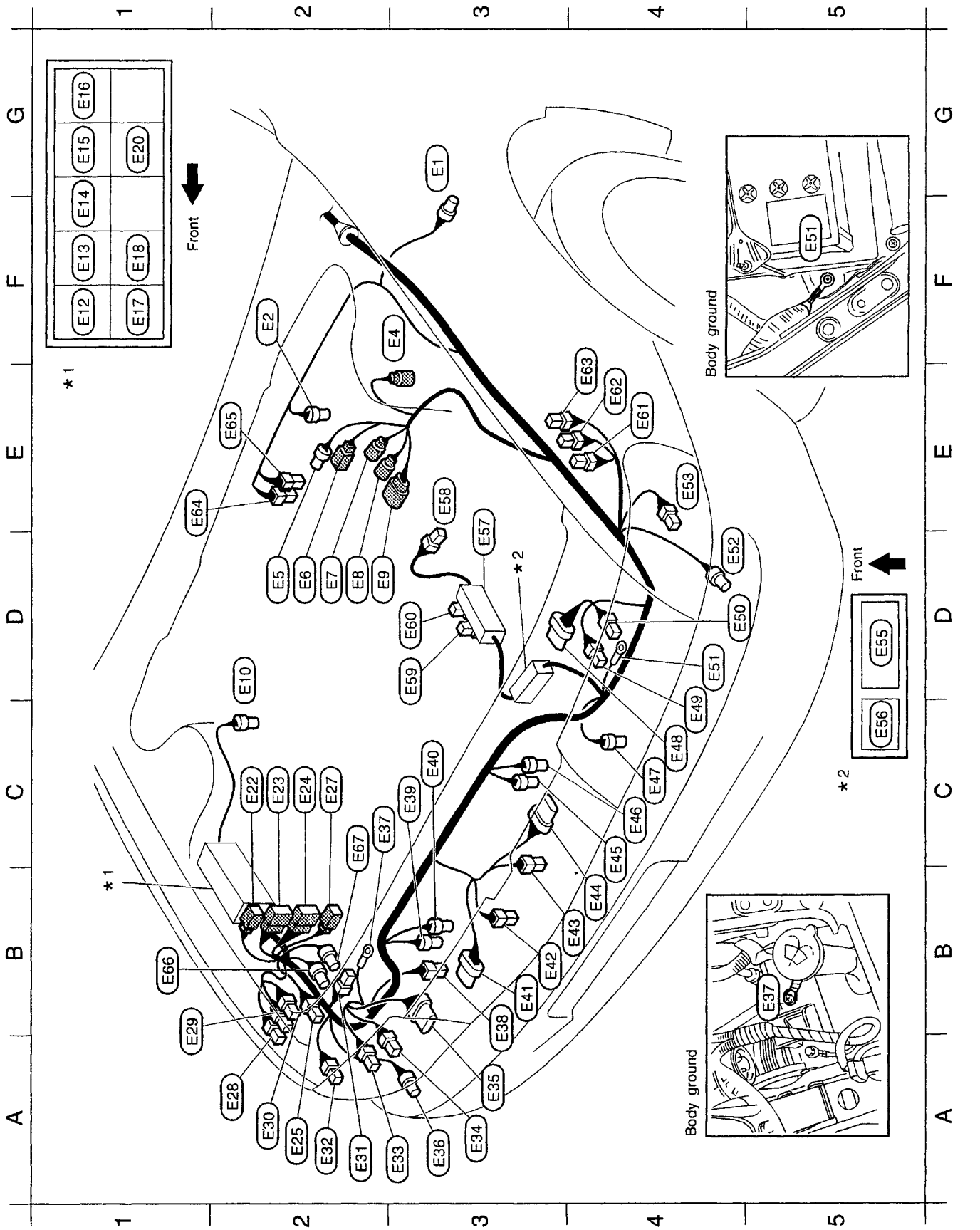


EL

HEL166

Engine Room Harness

ENGINE COMPARTMENT — LHD models



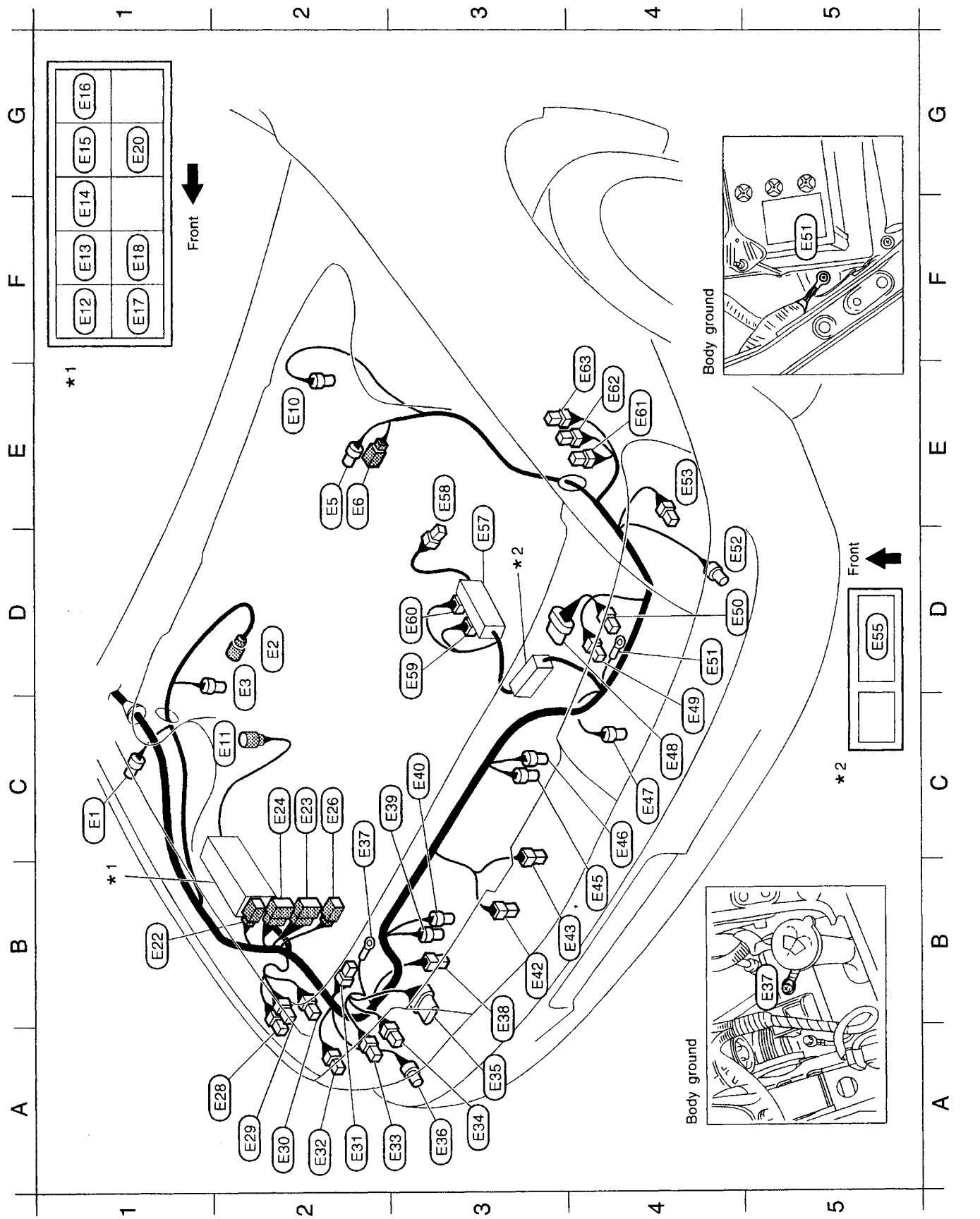
HEL154

G3 (E1) GY/2 : Side turn signal lamp LH
F2 (E2) GY/2 : Brake fluid level switch
F3 (E4) BR/2 : Front wheel speed sensor LH (For ABS)
D2 (E5) GY/2 : Fuel filter sensor (CD engine)
D2 (E6) B/1 : To (E228) (CD engine)
D2 (E7) GY/1 : To (E229) (CD engine)
D2 (E8) GY/4 : To (E231) (CD engine)
D2 (E9) B/8 : To (E230) (CD engine)
D2 (E10) GY/2 : ABS relay box
F1 (E12) L/4 : Cooling fan relay-1 (Gasoline engine)
BR/6 : Cooling fan relay-1 (CD engine)
F1 (E13) W/3 : Horn relay
F1 (E14) L/4 : Inhibitor relay
G1 (E15) B/5 : Rear wiper relay
G1 (E16) L/4 : A/C relay
F1 (E17) BR/6 : Cooling fan relay-2 (GA engine A/T models for Europe without daytime light system and CD engine)
F1 (E18) BR/6 : Cooling fan relay-3 (CD engine)
F1 (E18) L/4 : Rear window defogger relay (GA engine with daytime light system)
G1 (E20) L/4 : Rear fog lamp relay (Without daytime light system)
GY/6 : Rear fog lamp relay (With daytime light system)
C2 (E22) B/2 : To (E204)
C2 (E23) B/6 : To (E201) (Gasoline engine)
C2 (E24) B/8 : To (E202) (Gasoline engine)
A2 (E25) W/2 : Headlamp washer motor (With daytime light system)
C2 (E27) GY/4 : To (E201) (CD engine)
A2 (E28) W/2 : Front washer motor
B1 (E29) G/2 : Rear washer motor
A2 (E30) B/2 : Washer fluid level switch
A2 (E31) GY/2 : To front fog lamp sub-harness
A2 (E32) B/2 : Front turn signal lamp RH
A3 (E33) B/2 : Clearance lamp RH
A3 (E34) B/3 : Headlamp RH
A3 (E35) GY/6 : Headlamp aiming motor unit RH

A3 (E36) GY/2 : Front fog lamp RH (GA engine M/T models)
C2 (E37) — : Body ground
B3 (E38) GY/1 : Brake vacuum switch (CD engine)
C3 (E39) GY/2 : Cooling fan motor-2 (1-mode type)
C3 (E40) GY/4 : Cooling fan motor-2 (2-mode type with CD engine)
B3 (E41) GY/6 : Headlamp wiper motor RH (With daytime light system)
B3 (E42) B/1 : Horn high
B4 (E43) B/1 : Horn low
B4 (E44) GY/6 : Headlamp wiper motor LH (With daytime light system)
C4 (E45) GY/2 : Cooling fan motor-1 (1-mode type)
C4 (E46) GY/4 : Cooling fan motor-1 (2-mode type with CD engine)
C4 (E47) B/2 : Dual-pressure switch
C4 (E48) GY/6 : Headlamp aiming motor unit LH
D4 (E49) B/3 : Headlamp LH
D4 (E50) B/2 : Clearance lamp LH
D4 (E51) — : Body ground
D4 (E52) GY/2 : Front fog lamp LH (GA engine M/T models)
E4 (E53) B/2 : Front turn signal lamp LH
D5 (E55) — : Fusible link
C5 (E56) L/4 : Rear window defogger relay (CD engine with daytime light system)
E3 (E57) — : Fusible link and fuse box
E3 (E58) B/1 : Battery
D3 (E59) B/1 : Fusible link and fuse box
D3 (E60) W/1 : Fusible link and fuse box
E4 (E61) G/2 : Glow relay (CD engine)
E4 (E62) W/1 : Glow relay (CD engine)
E4 (E63) W/1 : Glow relay (CD engine)
E1 (E64) B/1 : IACV-FICD solenoid valve (CD engine)
E2 (E65) B/1 : IACV-FICD solenoid valve (CD engine)
B1 (E66) GY/4 : Cooling fan motor-1 (GA engine A/T models without daytime light system)
C2 (E67) GY/4 : Cooling fan motor-2 (GA engine A/T models without daytime light system)

Engine Room Harness (Cont'd)

ENGINE COMPARTMENT — RHD models



HEL156

Engine Room Harness (Cont'd)

C1 (E1) GY/2 : Side turn signal lamp RH
D2 (E2) GY/2 : Brake fluid level switch
D2 (E3) GY/2 : Power steering oil pressure switch
E2 (E5) GY/2 : Fuel filter sensor (CD engine)
E2 (E6) B/1 : To (E228) (CD engine)
E2 (E10) GY/2 : ABS relay box (For ABS)
C2 (E11) GY/2 : Front wheel speed sensor RH (For ABS)
F1 (E12) L/4 : Cooling fan relay-1
(SR engine M/T models and GA engine)
BR/6 : Cooling fan relay-1
(SR engine A/T models and CD engine)
F1 (E13) W/3 : Horn relay
F1 (E14) L/4 : Inhibitor relay (A/T models)
G1 (E15) B/5 : Rear wiper relay
G1 (E16) L/4 : A/C relay
F1 (E17) BR/6 : Cooling fan relay-2
(A/T models for Australia and CD engine)
F1 (E18) BR/6 : Cooling fan relay-3
(SR engine A/T models and CD engine)
G1 (E20) L/4 : Rear fog lamp relay (For Europe)
B1 (E22) B/2 : To (E204)
C2 (E23) B/6 : To (E201) (SR engine M/T models and GA engine)
C2 (E24) B/8 : To (E202) (Gasoline engine)
C2 (E26) GY/8 : To (E203) (SR engine A/T models and CD engine)
A2 (E28) W/2 : Front washer motor
A2 (E29) G/2 : Rear washer motor
A2 (E30) B/2 : Washer fluid level switch (Except for Australia)
A2 (E31) GY/2 : To front fog lamp sub-harness
A2 (E32) B/2 : Front turn signal lamp RH

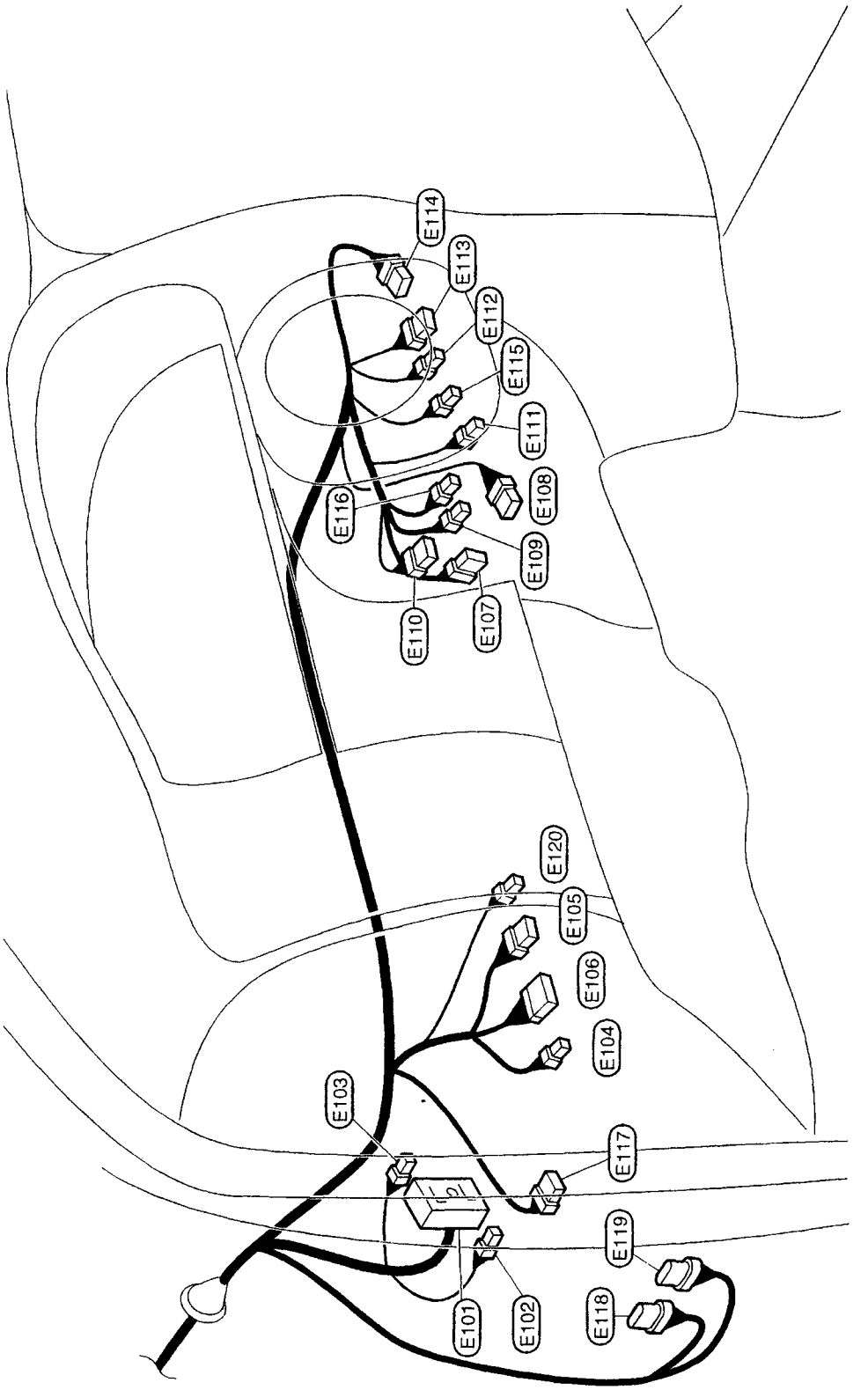
A3 (E33) B/2 : Clearance lamp RH
A3 (E34) B/3 : Headlamp RH
A3 (E35) GY/6 : Headlamp aiming motor unit RH (For Europe)
A3 (E36) GY/2 : Front fog lamp RH
C2 (E37) — : Body ground
B3 (E38) GY/1 : Brake vacuum switch (CD engine)
C3 (E39) GY/2 : Cooling fan motor-2 (1-mode type)
C3 (E40) GY/4 : Cooling fan motor-2 (2-mode type)
B3 (E42) B/1 : Horn high
B4 (E43) B/1 : Horn low (Except for New Zealand, LX and Q grade for Australia)
B4 (E45) GY/2 : Cooling fan motor-1 (1-mode type)
C4 (E46) GY/4 : Cooling fan motor-1 (2-mode type)
C4 (E47) B/2 : Dual-pressure switch
C4 (E48) GY/6 : Headlamp aiming motor unit LH (For Europe)
C4 (E49) B/3 : Headlamp LH
D4 (E50) B/2 : Clearance lamp LH
D4 (E51) — : Body ground
D4 (E52) GY/2 : Front fog lamp LH
E4 (E53) B/2 : Front turn signal lamp LH
D5 (E55) — : Fusible link
E3 (E57) — : Fusible link and fuse box
E3 (E58) B/1 : Battery
D3 (E59) B/1 : Fusible link and fuse box
D3 (E60) W/1 : Fusible link and fuse box
E4 (E61) G/2 : Glow relay (CD engine)
E4 (E62) W/1 : Glow relay (CD engine)
E4 (E63) W/1 : Glow relay (CD engine)

EL

HEL157

Engine Room Harness (Cont'd)

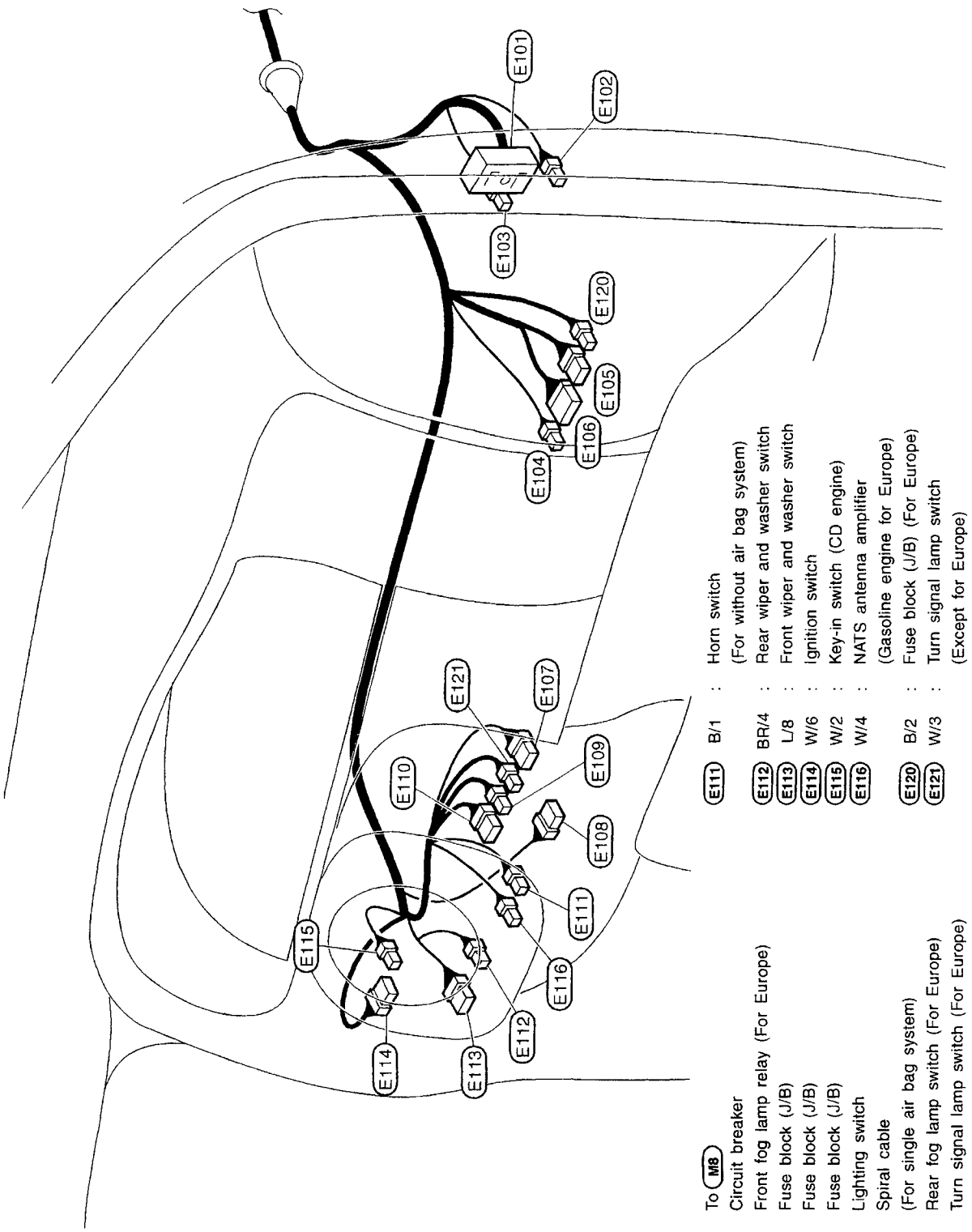
PASSENGER COMPARTMENT — LHD models



HEL158

Engine Room Harness (Cont'd)

PASSENGER COMPARTMENT — RHD models



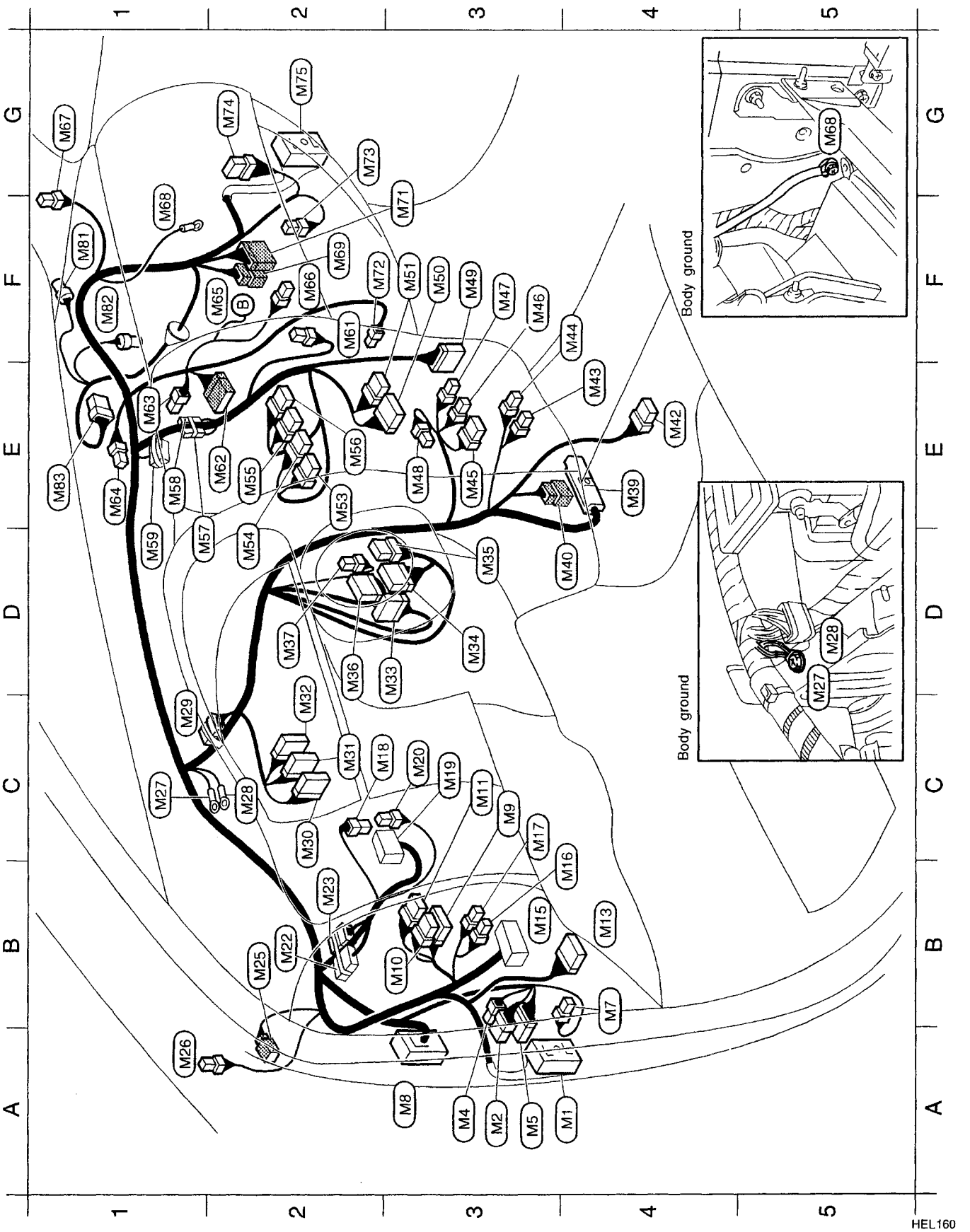
E101	SMJ	:	To M8	E111	B/1	: Horn switch
E102	W/2	:	Circuit breaker			(For without air bag system)
E103	L/4	:	Front fog lamp relay (For Europe)	E112	BR/4	: Rear wiper and washer switch
E104	B/2	:	Fuse block (J/B)	E113	L/8	: Front wiper and washer switch
E105	W/6	:	Fuse block (J/B)	E114	W/6	: Ignition switch
E106	W/16	:	Fuse block (J/B)	E115	W/2	: Key-in switch (CD engine)
E107	W/8	:	Lighting switch	E116	W/4	: NATS antenna amplifier
E108	BR/6	:	Spiral cable			(Gasoline engine for Europe)
			(For single air bag system)	E120	B/2	: Fuse block (J/B) (For Europe)
E109	W/3	:	Rear fog lamp switch (For Europe)	E121	W/3	: Turn signal lamp switch
E110	W/6	:	Turn signal lamp switch (For Europe)			(Except for Europe)

EL

HEL159

Main Harness

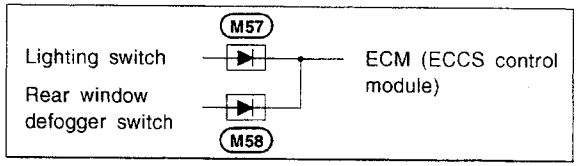
LHD MODELS



HEL160

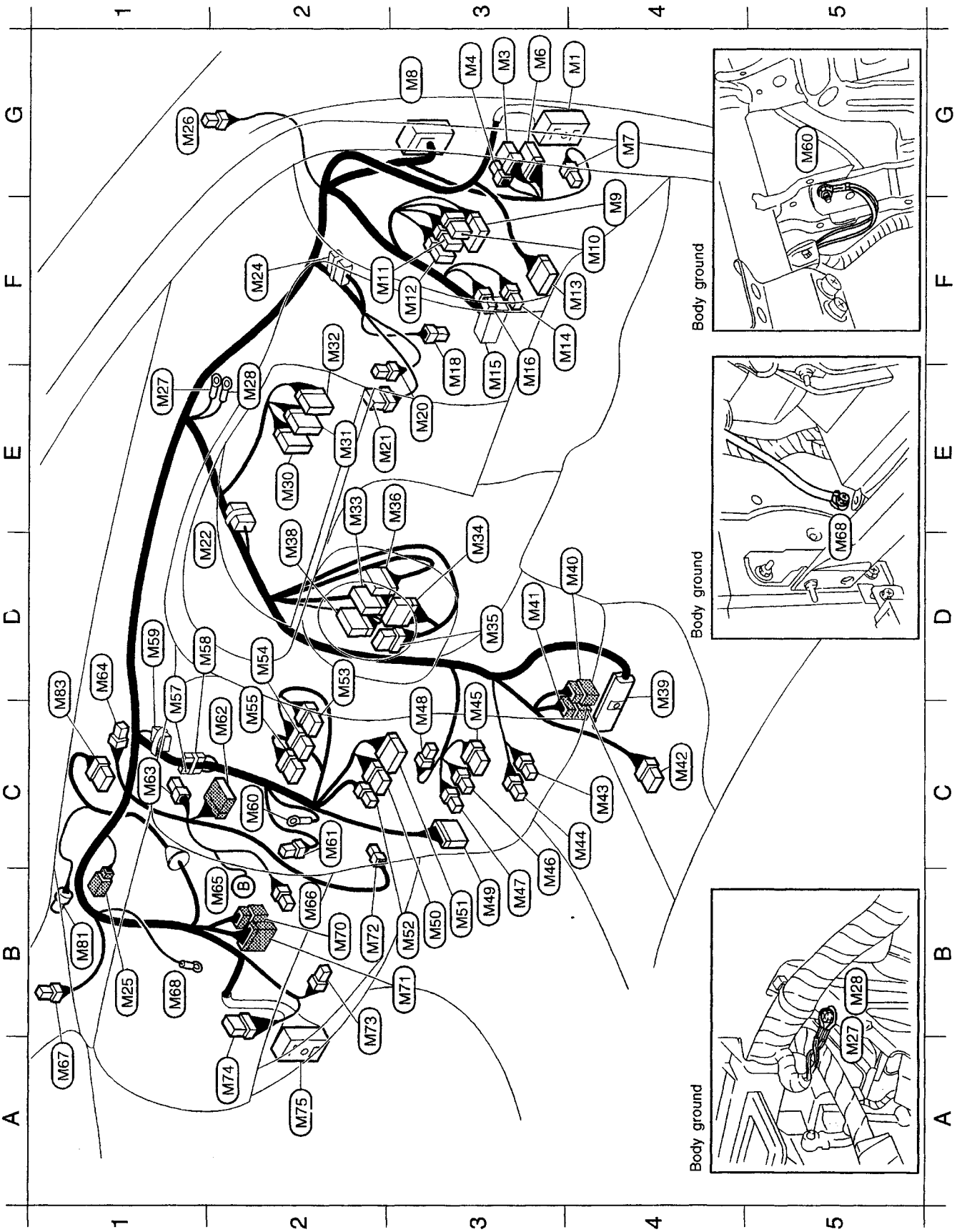
A4	M1	SMJ	: To D1
A3	M2	W/6	: To B4 (With power door lock)
A3	M4	W/4	: To B1
A3	M5	W/12	: To B2
B4	M7	L/4	: Fuel pump relay (Gasoline engine)
A3	M8	SMJ	: To E101
C3	M9	GY/12	: Door mirror remote control switch
B3	M10	B/6	: Front fog lamp switch
C3	M11	W/8	: Headlamp aiming switch
B4	M13	GY/14	: Data link connector for CONSULT
B3	M15	—	: Fuse block (J/B)
B4	M16	L/4	: Power window relay (With power window) Sun roof relay (Without power window)
C3	M17	L/4	: Mirror defogger relay (With daytime light system)
C2	M18	B/2	: Stop lamp switch
C3	M19	—	: Junction box No.2 (Joint connectors)
C3	M20	B/3	: Combination flasher unit
B2	M22	BR/20	: Joint connector-1
B2	M23	GY/6	: Joint connector-2
B2	M25	W/4	: To R1
A1	M26	BR/2	: Pillar speaker LH (For 6-speaker system)
C1	M27	—	: Body ground
C2	M28	—	: Body ground
C1	M29	W/6	: Joint connector-8
C2	M30	BR/16	: Combination meter
C2	M31	W/10	: Combination meter (With tachometer)
C2	M32	W/16	: Combination meter
D3	M33	B/12	: Warning buzzer unit
D3	M34	W/18	: Door lock timer (For Europe)
D3	M35	W/8	: Door lock timer (Except for Europe)
D2	M36	W/12	: NATS IMMU (Gasoline engine for Europe)
D2	M37	W/4	: Rear window defogger timer (With daytime light system)
E4	M39	L/48	: ECM (Engine control module) (Diesel engine)
D4	M40	W/6	: To F4 (Gasoline engine)
E4	M42	W/6	: Overdrive control switch • A/T illumination
E4	M43	B/2	: Cigarette lighter
F4	M44	W/2	: Ashtray illumination
E3	M45	W/6	: Fan switch
F3	M46	W/4	: Recirculation switch
F3	M47	W/3	: A/C switch
E3	M48	W/3	: Fan switch illumination
F3	M49	W/20	: To F6 (Gasoline engine)
F3	M50	W/10	: Radio
F3	M51	W/6	: Radio (For rear speaker)
E2	M53	W/6	: Rear window defogger switch
D2	M54	W/8	: Hazard switch
E2	M55	BR/6	: Rear fog lamp switch
E2	M56	BR/8	: Headlamp wiper and washer switch (With daytime light system)
D1	M57	—	: Diode-1 (GA engine)
E1	M58	—	: Diode-2 (GA engine)
D1	M59	BR/20	: Joint connector-3
F2	M61	W/3	: Thermo control amplifier
E2	M62	Y/12	: To Z3 (For dual air bag system)
E1	M63	W/4	: Intake door motor
E1	M64	B/2	: NATS security indicator (Gasoline engine for Europe)
F2	M65	Bulb	: Glove box lamp
F2	M66	BR/2	: Glove box lamp switch
G1	M67	BR/2	: Pillar speaker RH (For 6-speaker system)
F1	M68	—	: Body ground
F2	M69	W/8	: To B113
F3	M71	W/12	: To B115
F2	M72	BR/4	: Fan resistor
G2	M73	W/2	: Blower motor
G2	M74	W/8	: Front wiper amplifier
G2	M75	SMJ	: To D31
F1	M81	GY/2	: Side turn signal lamp RH (Without ABS, dual air bag, daytime light system and rear power window)
F1	M82	GY/2	: Power steering oil pressure switch (GA engine without ABS, dual air bag, daytime light system and rear power window)
E1	M83	GY/6	: Front wiper motor (Without ABS, dual air bag, daytime light system and rear power window)

Diode-1 (M57), Diode-2 (M58)



Main Harness (Cont'd)

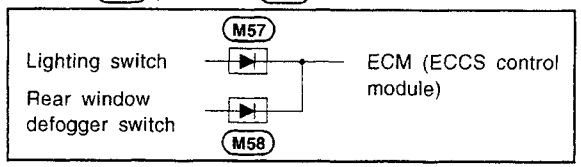
RHD MODELS



HEL162

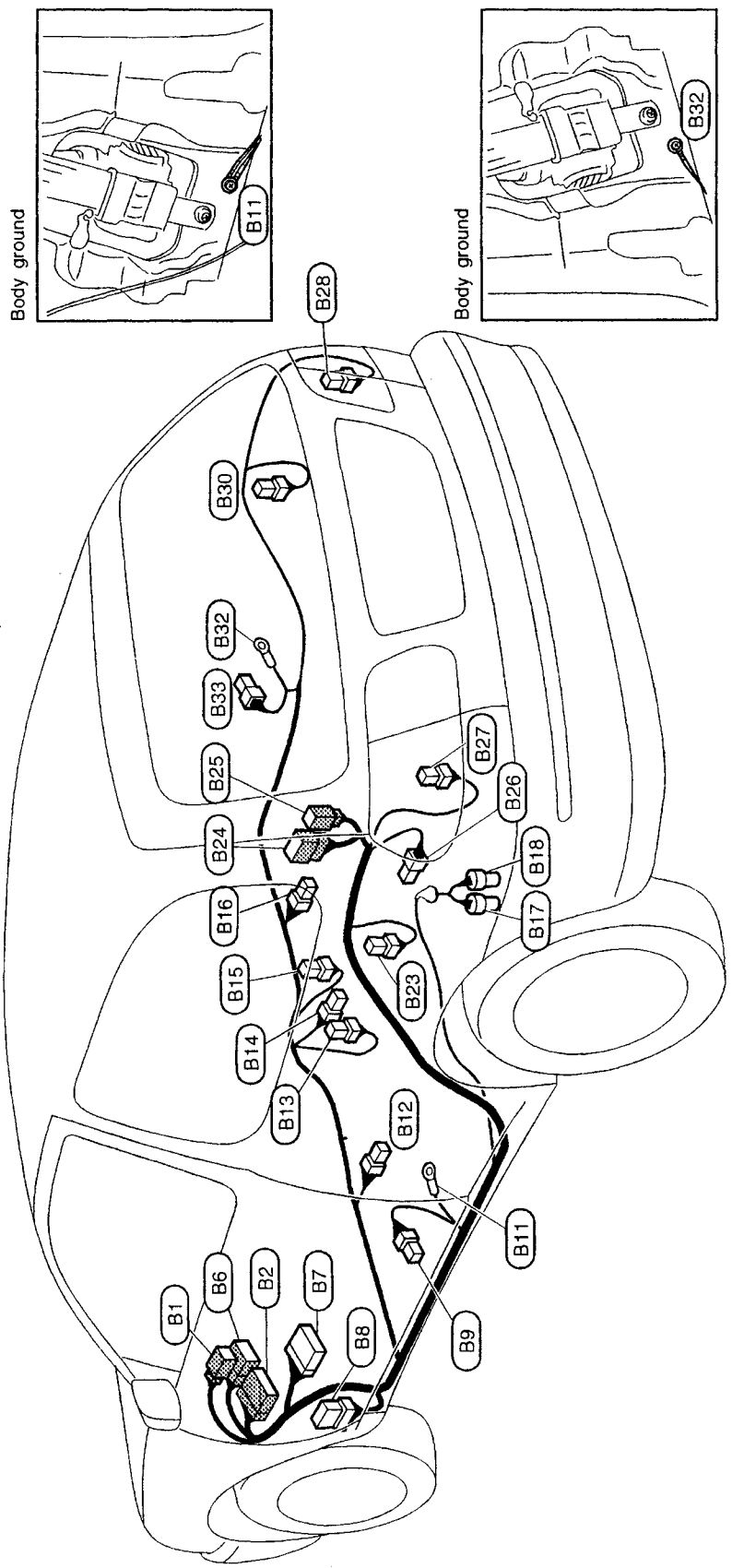
G4	M1	SMJ	: To D1
G3	M3	W/8	: To B5 (With power door lock)
G3	M4	W/4	: To B1
G3	M6	W/20	: To B3
G4	M7	L/4	: Fuel pump relay (Gasoline engine)
G3	M8	SMJ	: To E101
F4	M9	GY/12	: Door mirror remote control switch
F4	M10	B/6	: Front fog lamp switch
F2	M11	W/8	: Headlamp aiming switch (For Europe)
F3	M12	W/6	: Illumination control switch (Except for Europe)
F4	M13	GY/14	: Data link connector for CONSULT
F3	M14	B/2	: Fuse block (J/B) (Except for Europe)
E3	M15	—	: Fuse block (J/B)
E3	M16	L/4	: Power window relay (With power window)
		L/4	: Sun roof relay (Without power window)
E3	M18	B/2	: Stop lamp switch
E3	M20	B/3	: Combination flasher unit
E2	M21	W/6	: Rear wiper amplifier
D1	M22	BR/20	: Joint connector-1
F2	M24	OR/20	: Joint connector-5
B1	M25	W/4	: To R1
G1	M26	BR/2	: Pillar speaker RH (For 6-speaker system)
E1	M27	—	: Body ground
E2	M28	—	: Body ground
E2	M30	BR/16	: Combination meter
E2	M31	W/10	: Combination meter (With tachometer)
F2	M32	W/16	: Combination meter
E2	M33	B/12	: Warning buzzer unit (Except for Australia)
D3	M34	W/18	: Door lock timer (For Europe and Australia)
D3	M35	W/8	: Door lock timer (Except for Europe and Australia)
E3	M36	W/12	: NATS IMMU (Gasoline engine for Europe)
D2	M38	W/8	: Warning buzzer unit (For Australia)
D4	M39	L/48	: ECM (Engine control module) (Diesel engine)
D4	M40	W/6	: To F4 (Gasoline engine for Europe and Australia)
D3	M41	W/8	: To F5 (Except for Europe and Australia)
C4	M42	W/6	: Overdrive control switch • A/T illumination
C4	M43	B/2	: Cigarette lighter
C4	M44	W/2	: Ashtray illumination
C3	M45	W/6	: Fan switch
B3	M46	W/4	: Recirculation switch
B3	M47	W/3	: A/C switch
C3	M48	W/3	: Fan switch illumination
B3	M49	W/20	: To F6 (Gasoline engine)
B3	M50	W/10	: Radio
B3	M51	W/6	: Radio (For rear speaker)
B3	M52	W/4	: Compact disk deck (Except for Europe)
D2	M53	W/6	: Rear window defogger switch
D2	M54	W/8	: Hazard switch
C2	M55	BR/6	: Rear fog lamp switch (For Europe)
D1	M57	—	: Diode-1 (GA engine except for Australia)
D1	M58	—	: Diode-2 (GA engine except for Australia)
D1	M59	P/20	: Joint connector-4
C2	M60	—	: Body ground
C2	M61	W/3	: Thermo control amplifier
C2	M62	Y/12	: To Z3 (For dual air bag system)
C1	M63	W/4	: Intake door motor
D1	M64	B/2	: NATS security indicator (Gasoline engine for Europe)
B2	M65	Bulb	: Glove box lamp
B2	M66	BR/2	: Glove box lamp switch
A1	M67	BR/2	: Pillar speaker LH (For 6-speaker system)
B1	M68	—	: Body ground
B2	M70	W/12	: To B114
B3	M71	W/12	: To B115
B2	M72	BR/4	: Fan resistor
B2	M73	W/2	: Blower motor
A2	M74	W/8	: Front wiper amplifier
A2	M75	SMJ	: To D31
B1	M81	GY/2	: Side turn signal lamp LH (GA engine without ABS, dual air bag and rear power window)
D1	M83	GY/6	: Front wiper motor (GA engine without ABS, dual air bag and rear power window)

Diode-1 (M57), Diode-2 (M58)



Body Harness

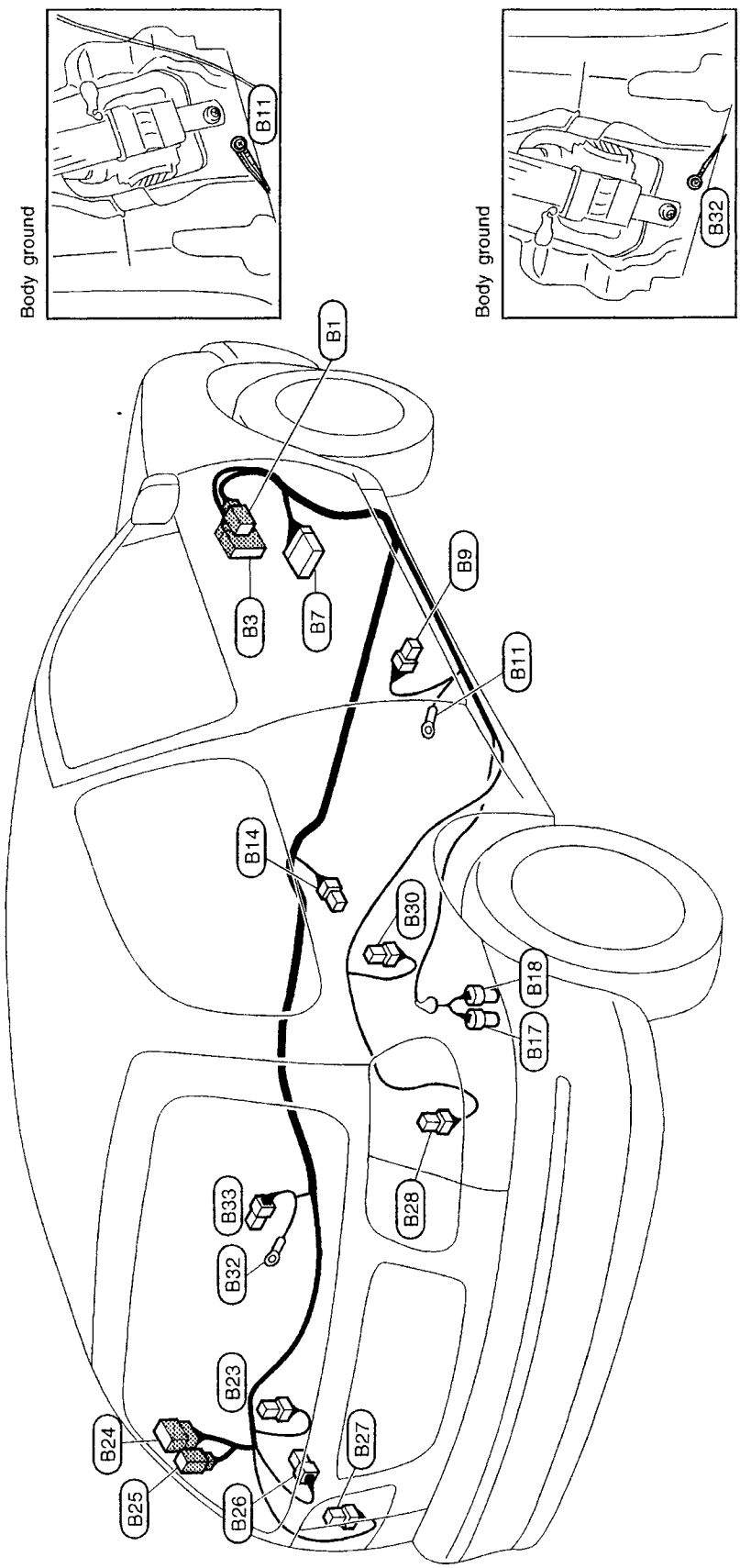
3-DOOR HATCHBACK — LHD models



HEL170

Body Harness (Cont'd)

3-DOOR HATCHBACK — RHD models

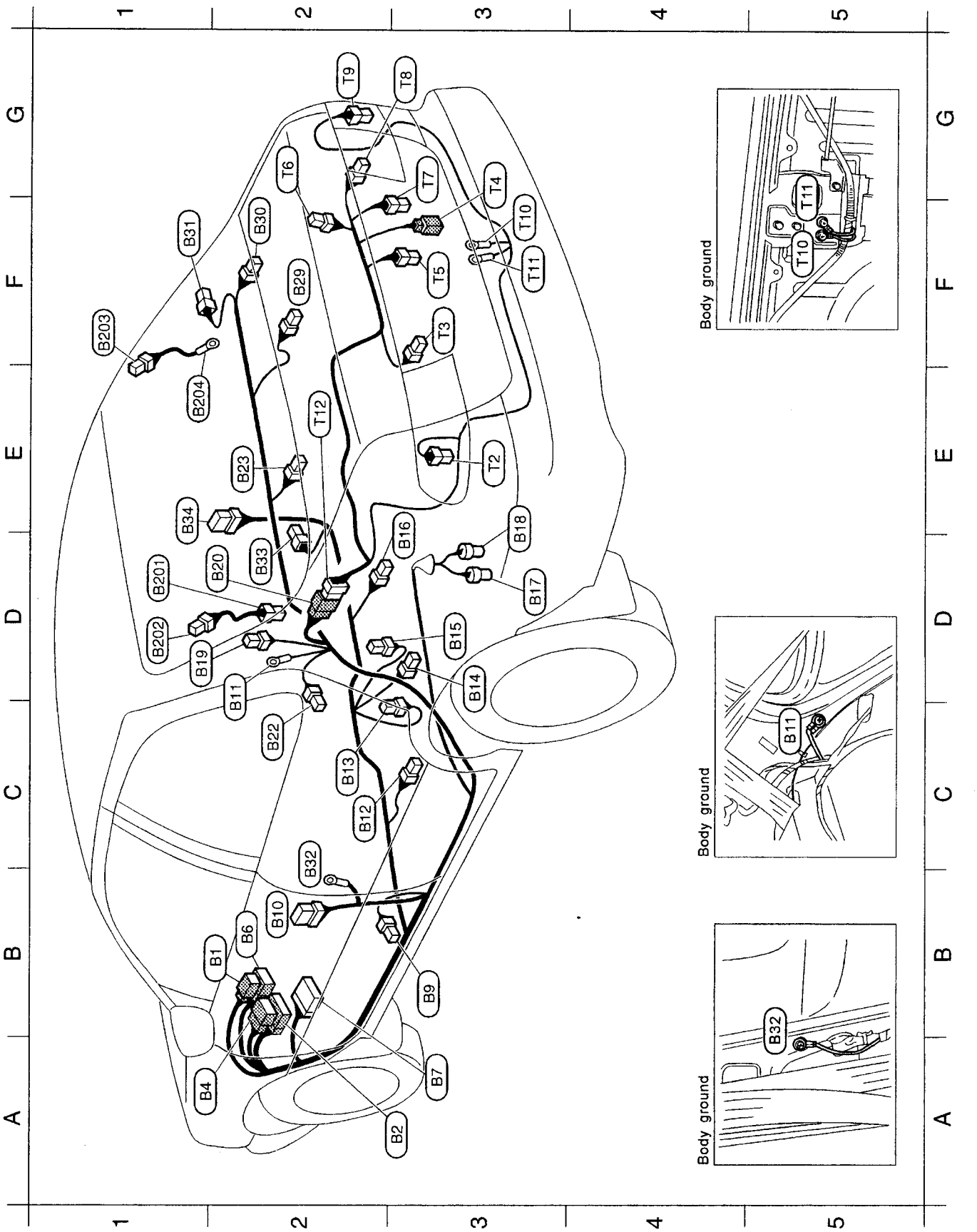


HEL171

EL

Body Harness (Cont'd)

SEDAN — LHD models



HEL172

Body harness

B2 (B1)	W/4	:	To (M4)
A3 (B2)	W/12	:	To (M5)
A1 (B4)	W/6	:	To (M2) (With power door lock)
B2 (B6)	W/8	:	To (E117)
A3 (B7)	W/12	:	Fuse block (J/B)
B3 (B9)	B/3	:	Front door switch driver's side
B2 (B10)	W/6	:	To (D51) (With power door lock)
D2 (B11)	—	:	Body ground
C2 (B12)	W/3	:	Heated seat LH (With daytime light system)
C2 (B13)	L/4	:	Heated seat switch LH (With daytime light system)
D3 (B14)	B/1	:	Parking brake switch
D3 (B15)	W/4	:	Heated seat switch RH (With daytime light system)
D3 (B16)	W/3	:	Heated seat RH (With daytime light system)
D3 (B17)	GY/2	:	To fuel pump sub-harness (Gasoline engine)
D3 (B18)	GY/3	:	Fuel tank gauge unit
D2 (B19)	B/1	:	Condenser (For rear window defogger)
D2 (B20)	W/8	:	To (T12)
C2 (B22)	BR/1	:	Rear door switch LH
E2 (B23)	BR/2	:	Rear speaker LH
F2 (B29)	W/2	:	Trunk room lamp
F2 (B30)	BR/2	:	Rear speaker RH
F1 (B31)	BR/1	:	Rear door switch RH
C2 (B32)	—	:	Body ground
D2 (B33)	BR/1	:	Front door switch passenger side
E1 (B34)	W/6	:	To (D71) (With power door lock)

Tail harness

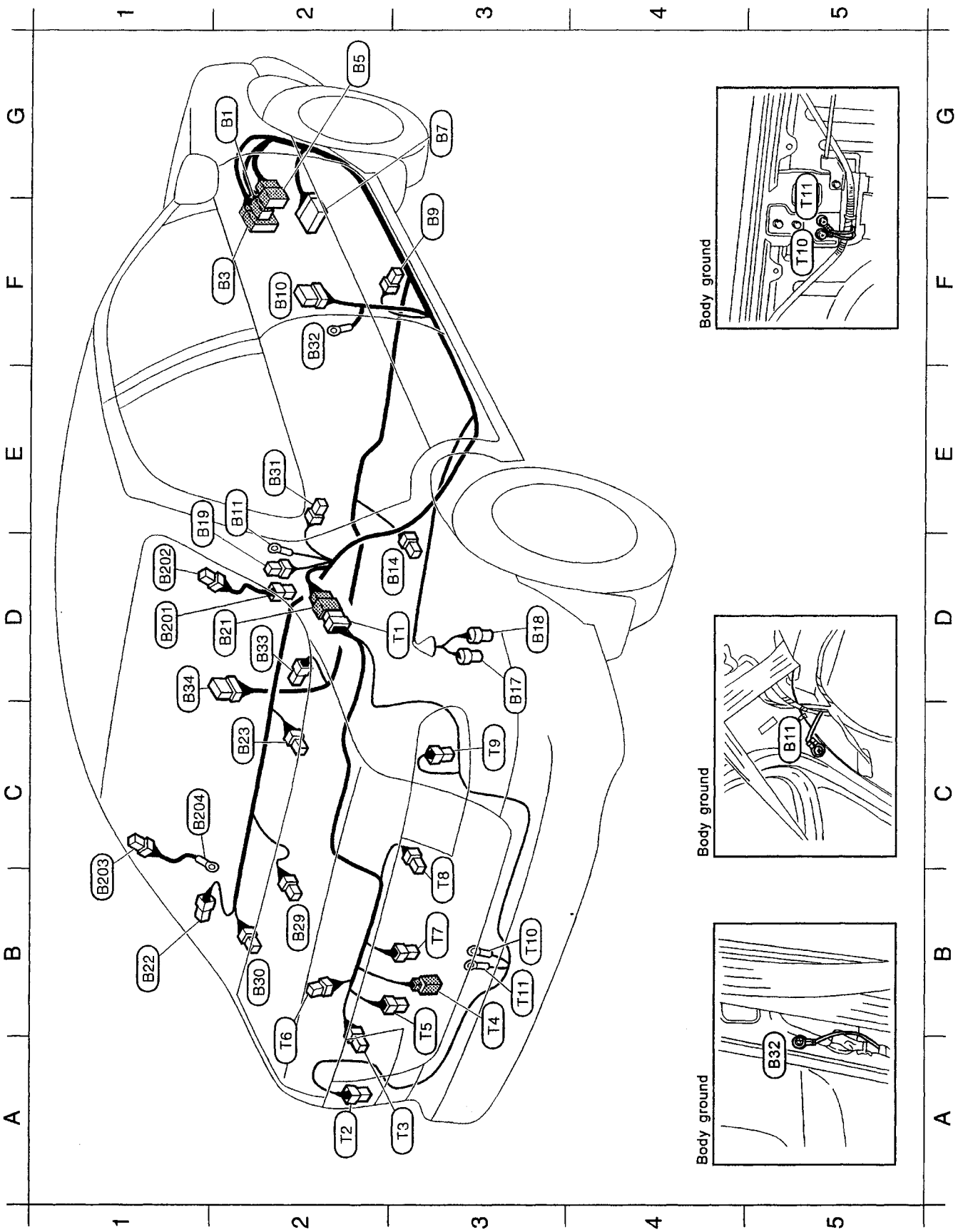
E3 (T2)	W/4	:	Rear combination lamp LH (Outer)
F3 (T3)	W/4	:	Rear combination lamp LH (Inner)
G3 (T4)	B/2	:	Trunk room lamp switch
F3 (T5)	W/2	:	License plate lamp LH
G2 (T6)	BR/2	:	High-mounted stop lamp
G3 (T7)	W/2	:	License plate lamp RH
G3 (T8)	W/4	:	Rear combination lamp RH (Inner)
G2 (T9)	W/4	:	Rear combination lamp RH (Outer)
F3 (T10)	—	:	Body ground
F3 (T11)	—	:	Body ground
E2 (T12)	W/8	:	To (B20)

Sub-harness

D1 (B201)	B/1	:	Condenser
D1 (B202)	B/1	:	Rear window defogger (+)
F1 (B203)	B/1	:	Rear window defogger (−)
E1 (B204)	—	:	Body ground

Body Harness (Cont'd)

SEDAN — RHD models



HEL174

Body harness

G2	B1	W/4	: To M4
F2	B3	W/20	: To M6
G2	B5	W/8	: To M3 (With power door lock)
G3	B7	W/12	: Fuse block (J/B)
F3	B9	B/3	: Front door switch driver's side
F2	B10	W/6	: To D51 (With power door lock)
E2	B11	—	: Body ground
D3	B14	B/1	: Parking brake switch
D3	B17	GY/2	: To fuel pump sub-harness (Gasoline engine)
D3	B18	GY/3	: Fuel tank gauge unit
E1	B19	B/1	: Condenser(For rear window defogger)
D2	B21	W/8	: To T1
B1	B22	BR/1	: Rear door switch LH
C2	B23	BR/2	: Rear speaker LH
B2	B29	W/2	: Trunk room lamp
B2	B30	BR/2	: Rear speaker RH
E2	B31	BR/1	: Rear door switch RH
F2	B32	—	: Body ground
D2	B33	BR/1	: Front door switch passenger side
D1	B34	W/6	: To D71 (With power door lock)

Tail harness

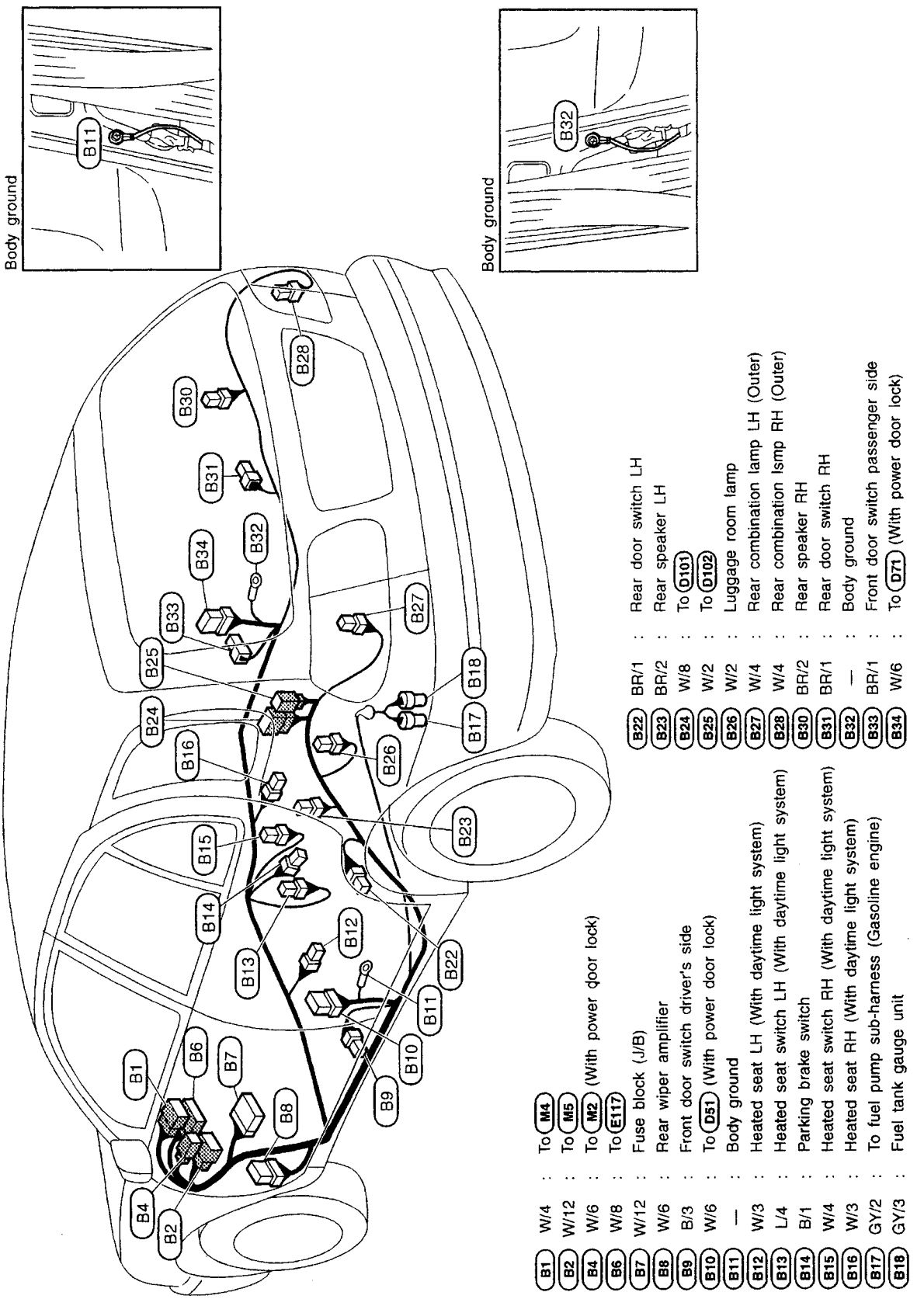
D3	T1	W/8	: To B21
A2	T2	W/4	: Rear combination lamp LH (Outer)
A3	T3	W/4	: Rear combination lamp LH (Inner)
B3	T4	B/2	: Trunk room lamp switch
B3	T5	W/2	: License plate lamp LH
A2	T6	BR/2	: High-mounted stop lamp
B3	T7	W/2	: License plate lamp RH
B3	T8	W/4	: Rear combination lamp RH (Inner)
C3	T9	W/4	: Rear combination lamp RH (Outer)
B3	T10	—	: Body ground
B3	T11	—	: Body ground

Sub-harness

D1	B201	B/1	: Condenser
D1	B202	B/1	: Rear window defogger (+)
B1	B203	B/1	: Rear window defogger (–)
C1	B204	—	: Body ground

Body Harness (Cont'd)

5-DOOR HATCHBACK — LHD models

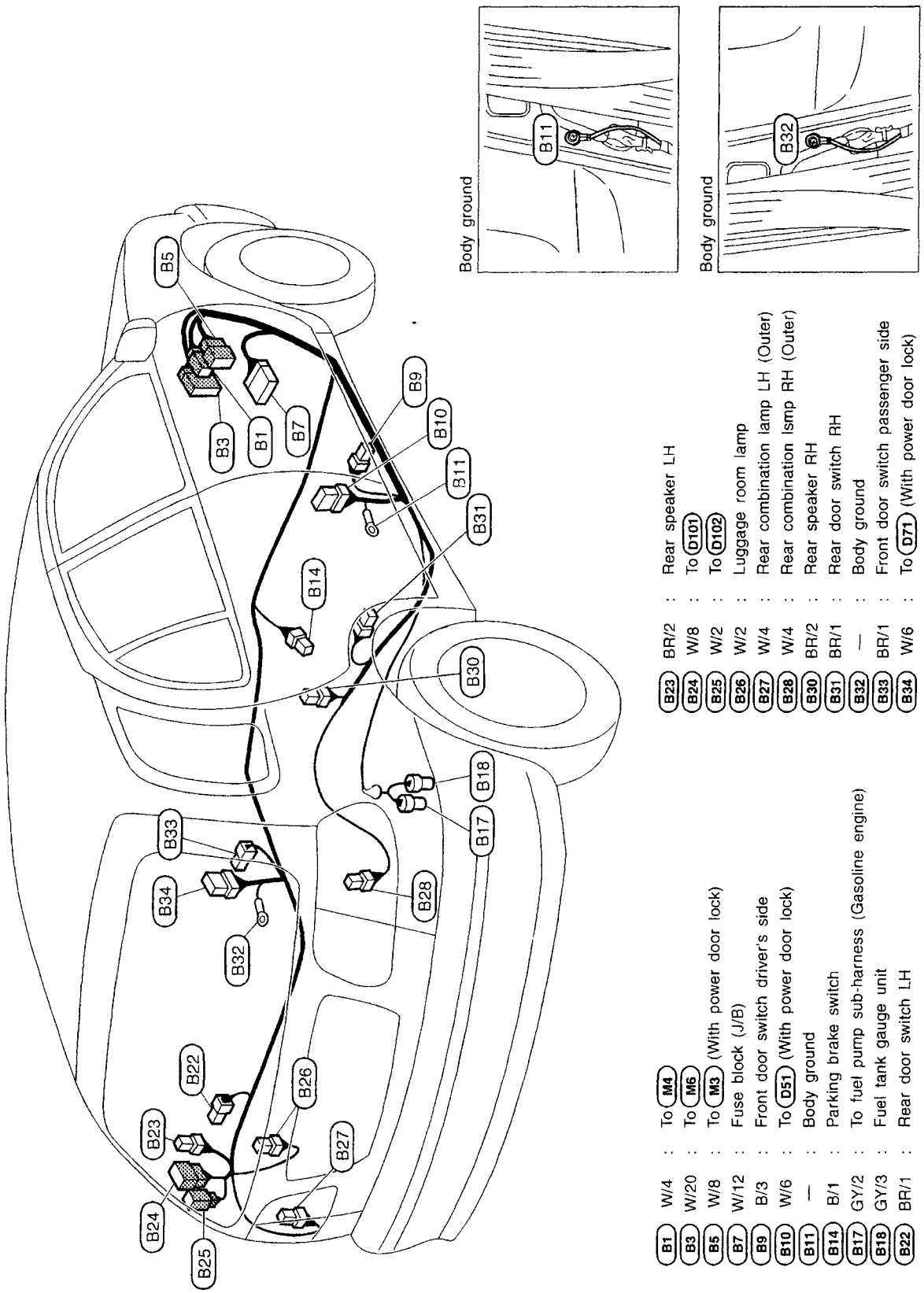


B1	W/4	:	To M4
B2	W/12	:	To M5
B4	W/6	:	To M2 (With power door lock)
B6	W/8	:	To E117
B7	W/12	:	Fuse block (J/B)
B8	W/6	:	Rear wiper amplifier
B9	B/3	:	Front door switch driver's side
B10	W/6	:	To D51 (With power door lock)
B11	—	:	Body ground
B12	W/3	:	Heated seat LH (With daytime light system)
B13	L/4	:	Heated seat switch LH (With daytime light system)
B14	B/1	:	Parking brake switch
B15	W/4	:	Heated seat switch RH (With daytime light system)
B16	W/3	:	Heated seat RH (With daytime light system)
B17	GY/2	:	To fuel pump sub-harness (Gasoline engine)
B18	GY/3	:	Fuel tank gauge unit
B22	BR/1	:	Rear door switch LH
B23	BR/2	:	Rear speaker LH
B24	W/8	:	To D101
B25	W/2	:	To D102
B26	W/2	:	Luggage room lamp
B27	W/4	:	Rear combination lamp LH (Outer)
B28	W/4	:	Rear combination lamp RH (Outer)
B30	BR/2	:	Rear speaker RH
B31	BR/1	:	Rear door switch RH
B32	—	:	Body ground
B33	BR/1	:	Front door switch passenger side
B34	W/6	:	To D71 (With power door lock)

HEL176

Body Harness (Cont'd)

5-DOOR HATCHBACK — RHD models



B1 W/4 : To M4
B3 W/20 : To M6
B5 W/8 : To M3 (With power door lock)
B7 W/12 : Fuse block (J/B)
B9 B/3 : Front door switch driver's side
B10 W/6 : To D51 (With power door lock)
B11 — : Body ground
B14 B/1 : Parking brake switch
B17 GY/2 : To fuel pump sub-harness (Gasoline engine)
B18 GY/3 : Fuel tank gauge unit
B22 BR/1 : Rear door switch LH

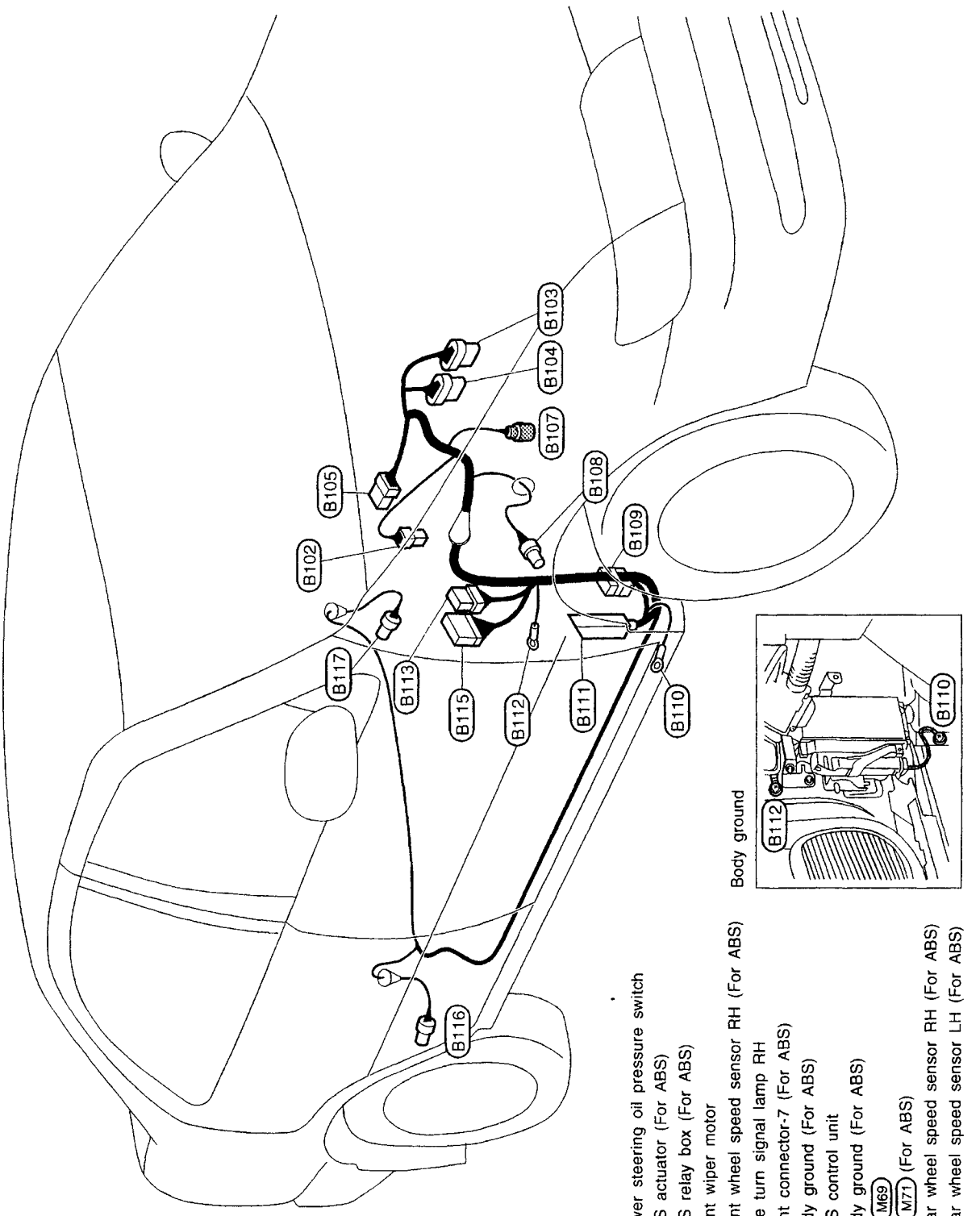
B23 BR/2 : Rear speaker LH
B24 W/8 : To D101
B25 W/2 : To D102
B26 W/2 : Luggage room lamp
B27 W/4 : Rear combination lamp LH (Outer)
B28 W/4 : Rear combination lsmp RH (Outer)
B30 BR/2 : Rear speaker RH
B31 BR/1 : Rear door switch RH
B32 — : Body ground
B33 BR/1 : Front door switch passenger side
B34 W/6 : To D71 (With power door lock)

EL

HEL177

Body No. 2 Harness

LHD MODELS

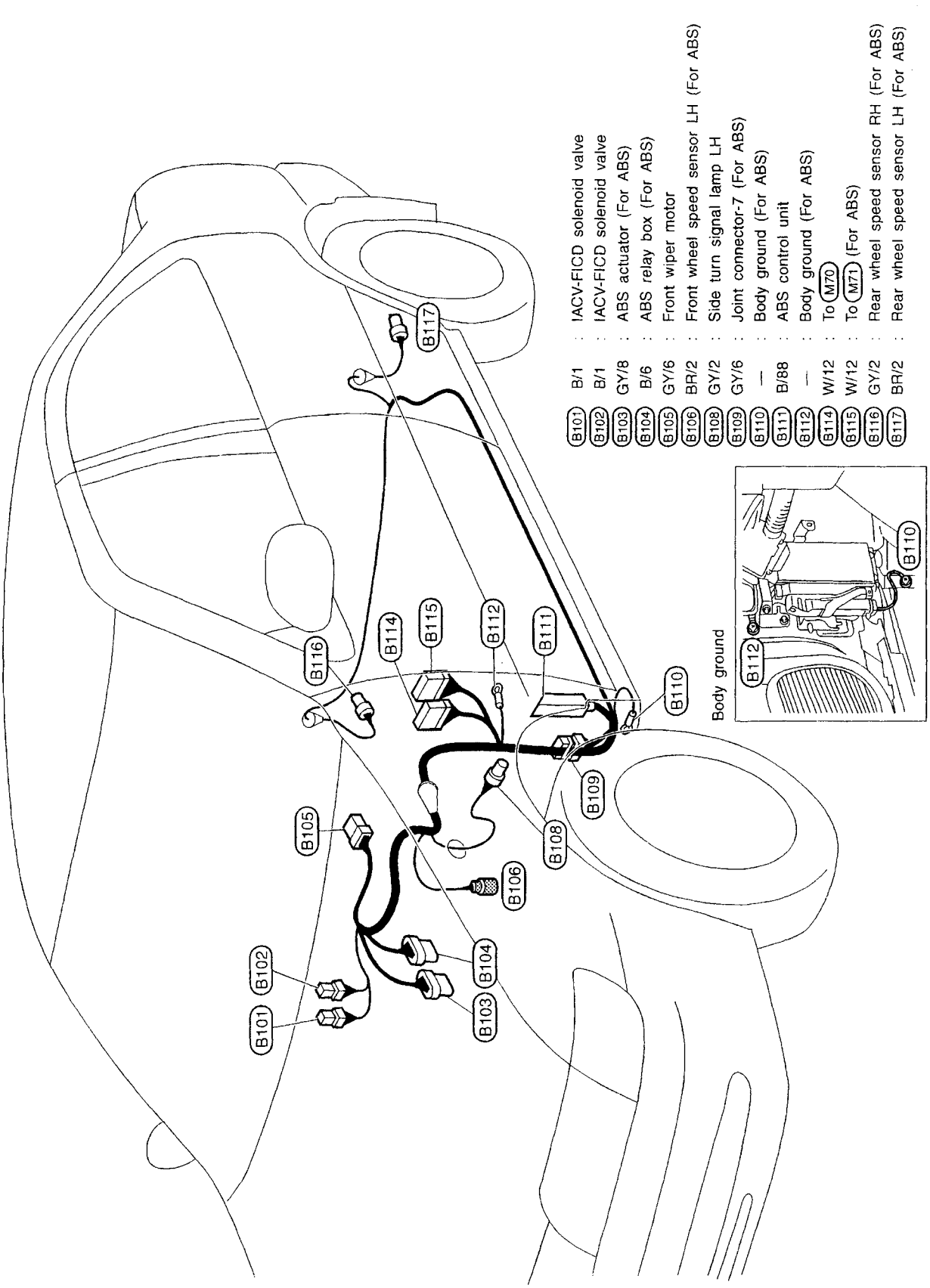


B102	GY/2	:	Power steering oil pressure switch
B103	GY/8	:	ABS actuator (For ABS)
B104	B/6	:	ABS relay box (For ABS)
B105	GY/6	:	Front wiper motor
B107	GY/2	:	Front wheel speed sensor RH (For ABS)
B108	GY/2	:	Side turn signal lamp RH
B109	GY/6	:	Joint connector-7 (For ABS)
B110	—	:	Body ground (For ABS)
B111	B/88	:	ABS control unit
B112	—	:	Body ground (For ABS)
B113	W/8	:	To M69
B115	W/12	:	To M71 (For ABS)
B116	GY/2	:	Rear wheel speed sensor RH (For ABS)
B117	BR/2	:	Rear wheel speed sensor LH (For ABS)

HEL178

Body No. 2 Harness (Cont'd)

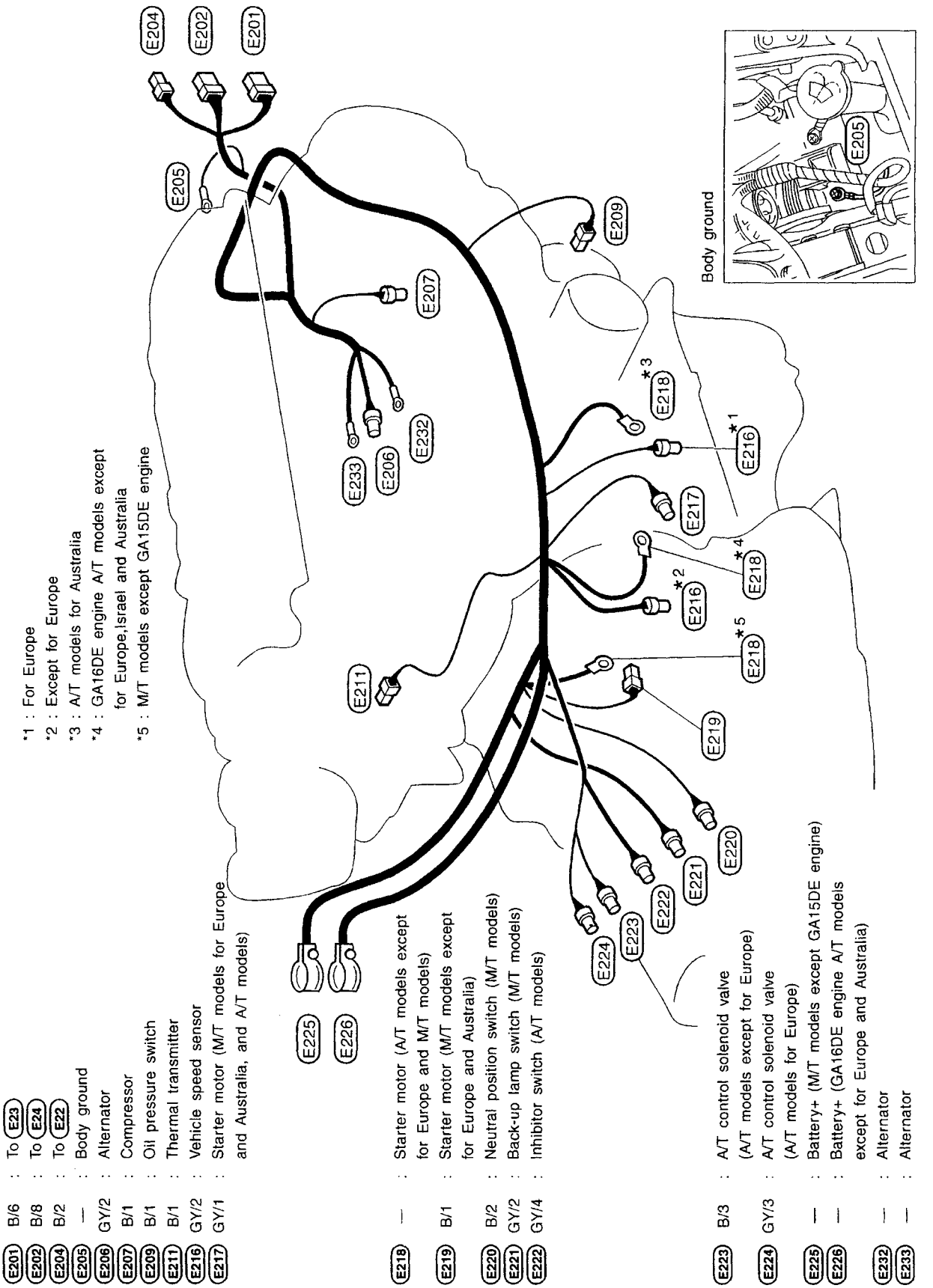
RHD MODELS



HEL179

Engine Harness

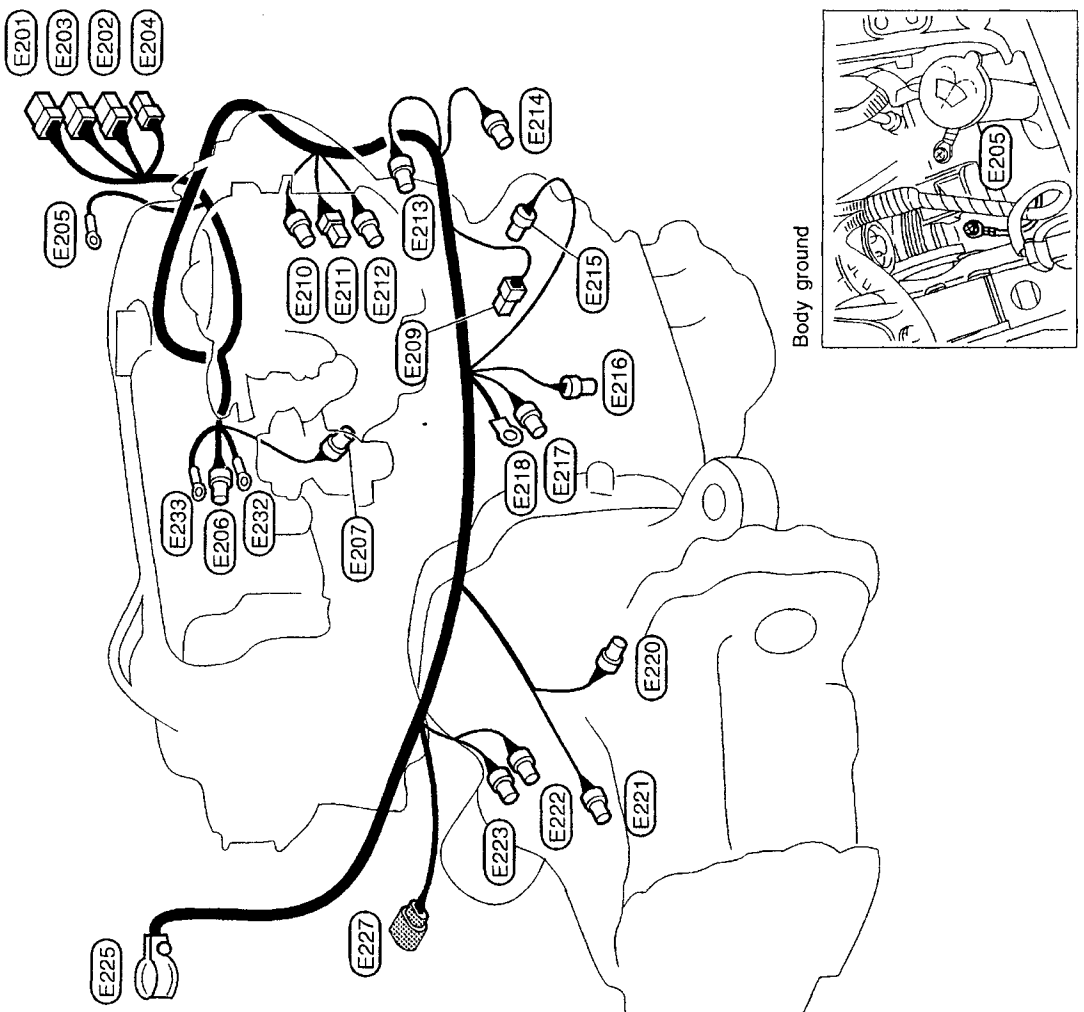
GA ENGINE



HEL167

Engine Harness (Cont'd)

SR ENGINE



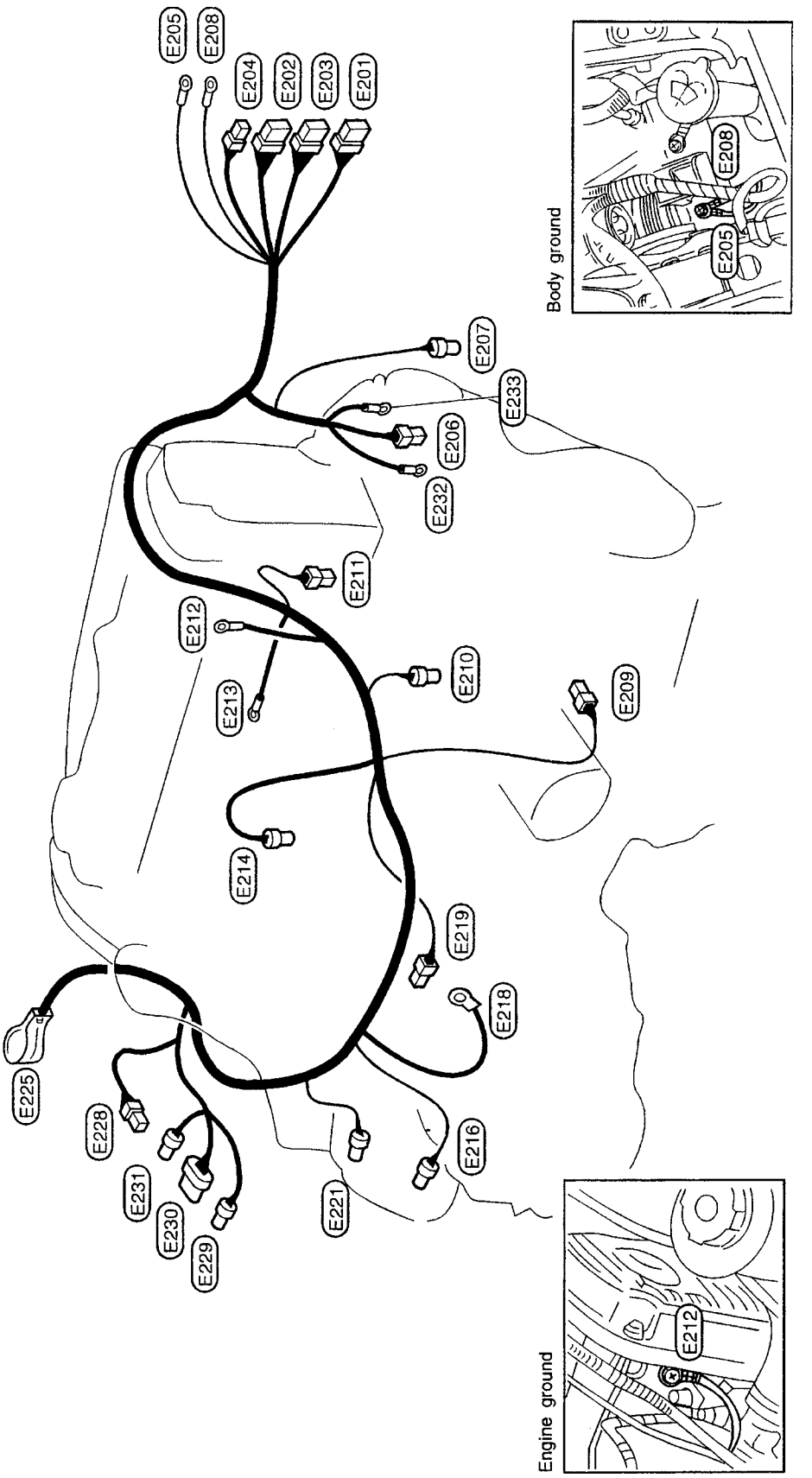
E201	B/6	: To E23 (M/T models)
E202	B/8	: To E24
E203	GY/8	: To E26 (A/T models)
E204	B/2	: To E22
E205	—	: Body ground
E206	GY/2	: Alternator
E207	B/1	: Compressor
E209	B/1	: Oil pressure switch
E210	L/2	: Engine coolant temperature sensor
E211	B/1	: Thermal transmitter
E212	GY/2	: IACV-FICD solenoid valve
E213	BR/2	: IACV-AAC valve
E214	GY/2	: IACV-Air regulator
E215	B/2	: Knock sensor
E216	GY/2	: Vehicle speed sensor
E217	GY/1	: Starter motor
E218	—	: Starter motor
E220	B/2	: Neutral position switch (M/T models)
E221	GY/2	: Back-up lamp switch (M/T models)
E222	GY/4	: Inhibitor switch (A/T models)
E223	B/3	: A/T control solenoid valve (A/T models)
E225	—	: Battery+
E227	GY/6	: To F12
E232	—	: Alternator
E233	—	: Alternator

EL

HEL168

Engine Harness (Cont'd)

CD ENGINE



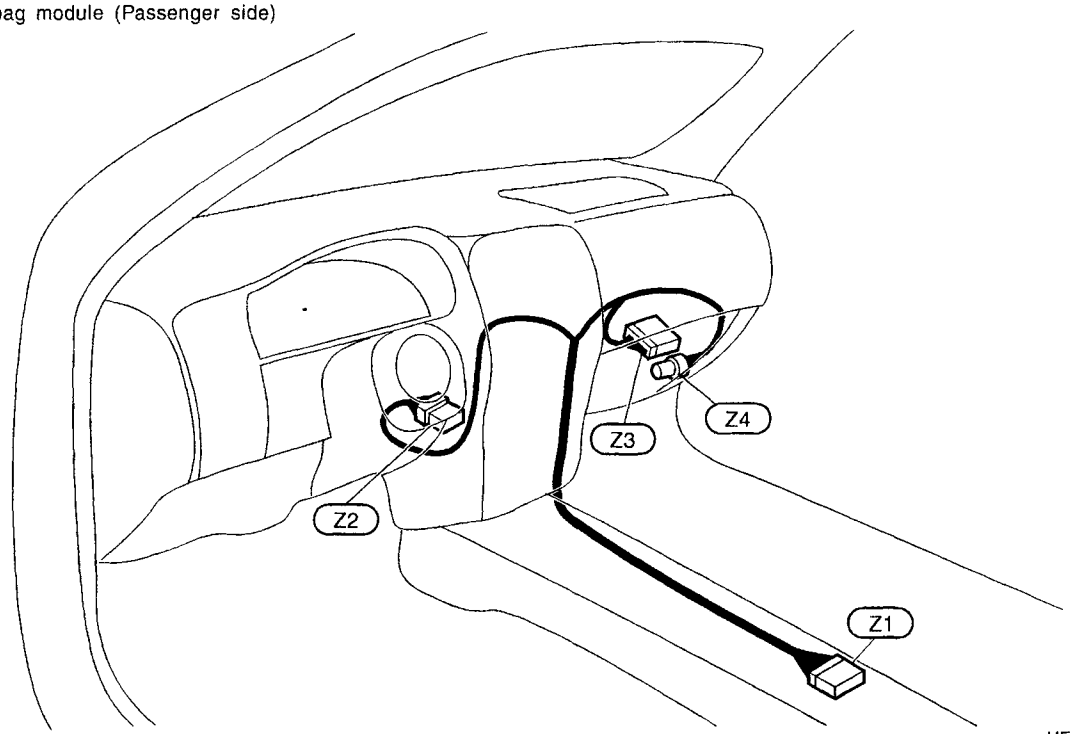
E201	GY/4	: To E27 (LHD models)	E210	GY/2	: Engine coolant temperature sensor	E225	—	: Battery+	
E202	B/8	: To E24 (RHD models)	E211	B/1	: Thermal transmitter	E228	B/1	: To E6	
E203	GY/8	: To E26 (RHD models)	E212	—	: Engine ground	E229	GY/1	: To E7 (LHD models)	
E204	B/2	: To E22	E213	—	: Glow plug	E230	B/8	: To E9 (LHD models)	
E205	—	: Body ground	E214	GY/4	: Injection pump	E231	GY/4	: To E8 (LHD models)	
E206	GY/2	: Alternator	E216	GY/2	: Vehicle speed sensor	E232	—	: Alternator	
E207	B/1	: Compressor	E218	—	: Starter motor	E233	—	: Alternator	
E208	—	: Body ground	E219	B/1	: Starter motor				
E209	B/1	: Oil pressuer switch	E221	GY/2	: Back-up lamp switch				

HEL169

Air Bag Harness

LHD MODELS

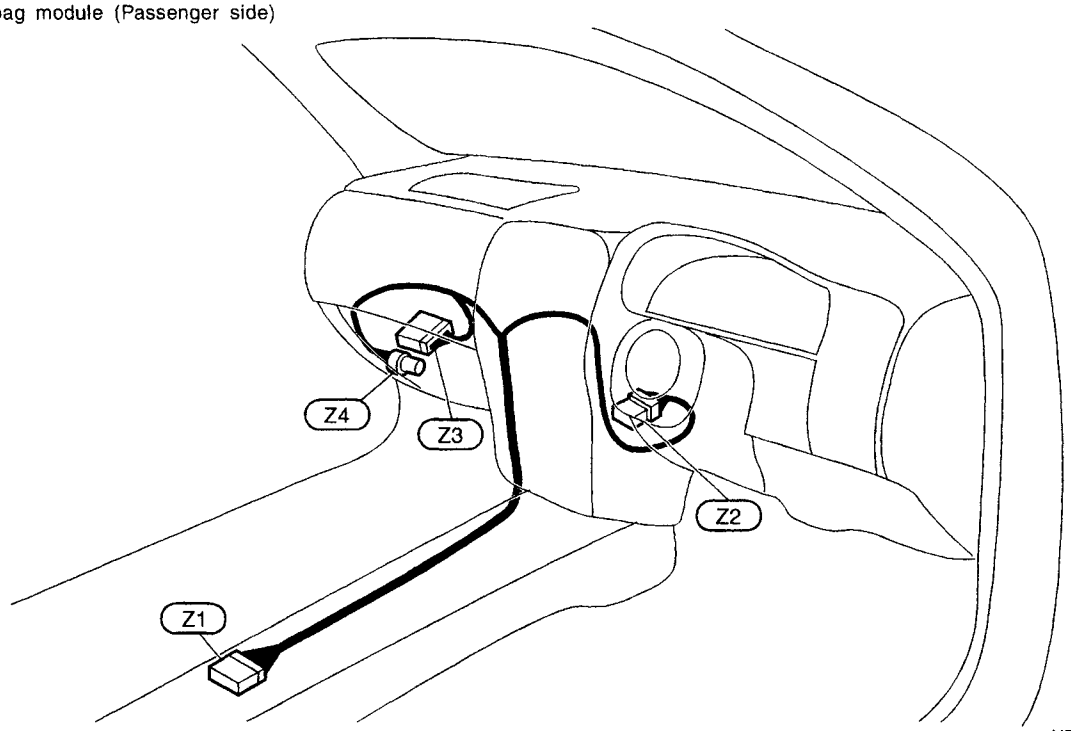
(Z1) Y/24 : Air bag diagnosis sensor unit
(Z2) Y/6 : Spiral cable
(Z3) Y/12 : To (M62)
(Z4) Y/2 : Air bag module (Passenger side)



HEL180

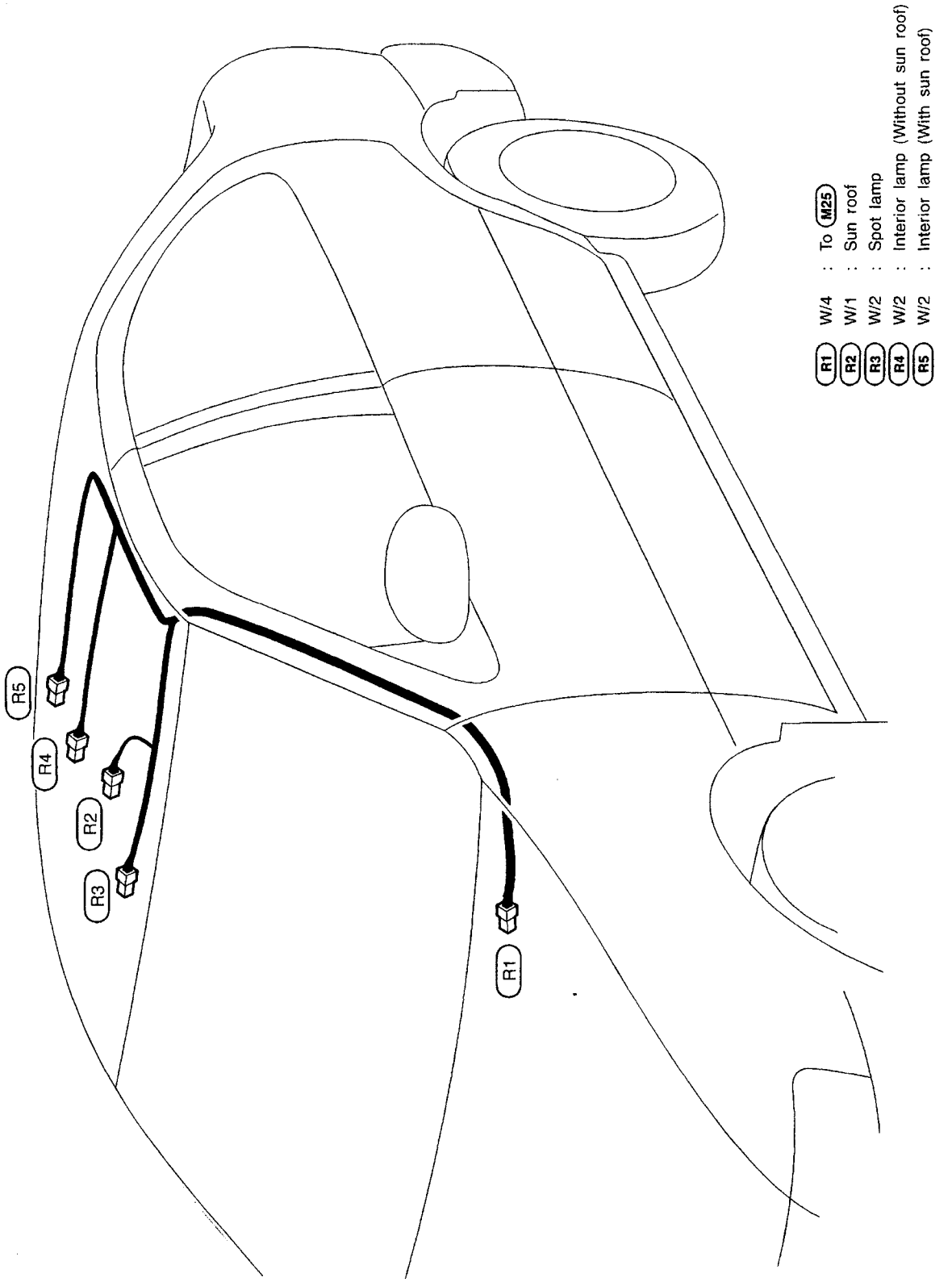
RHD MODELS

(Z1) Y/24 : Air bag diagnosis sensor unit
(Z2) Y/6 : Spiral cable
(Z3) Y/12 : To (M62)
(Z4) Y/2 : Air bag module (Passenger side)



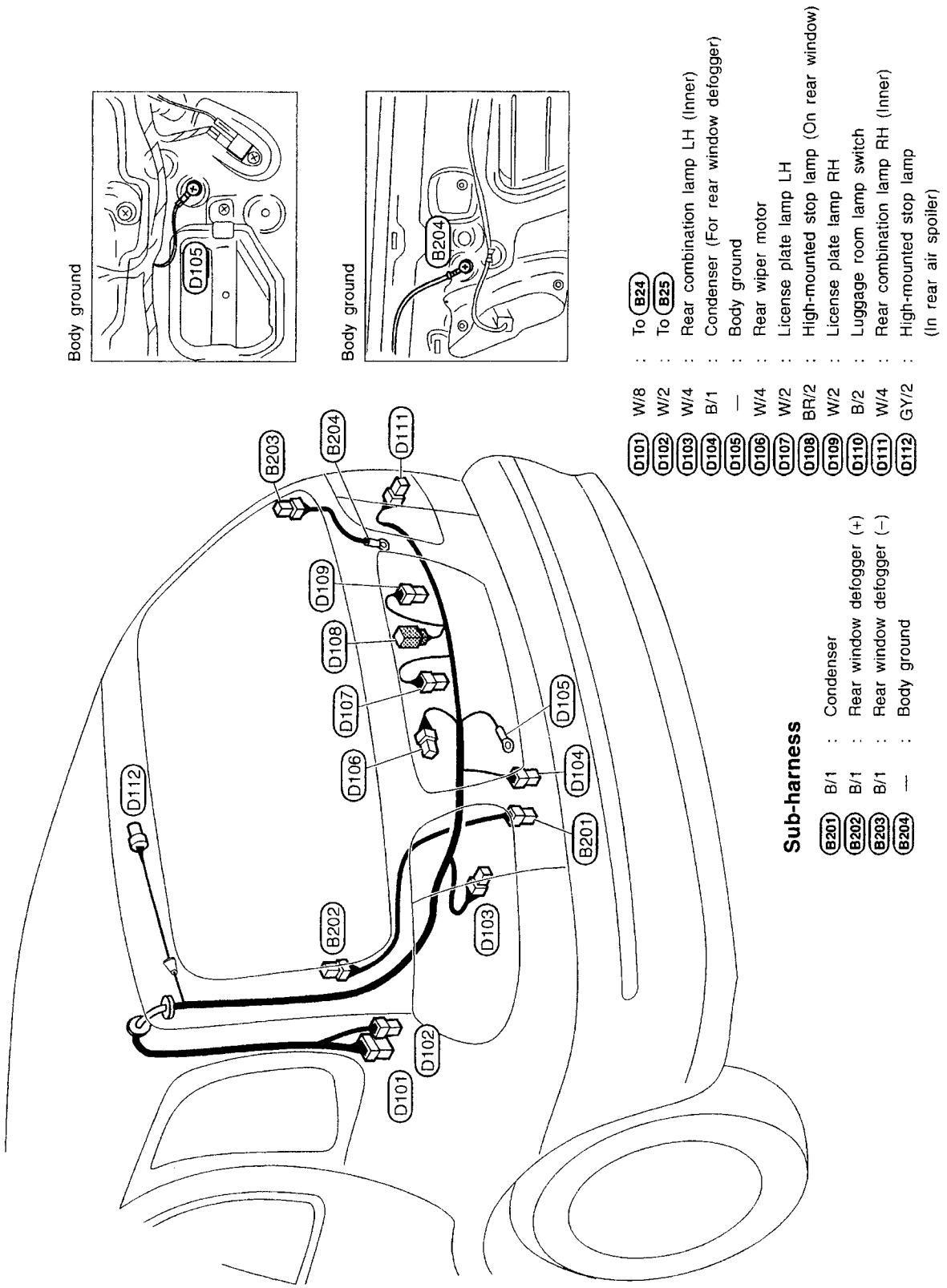
HEL181

Room Lamp Harness



HEL182

Back Door Harness



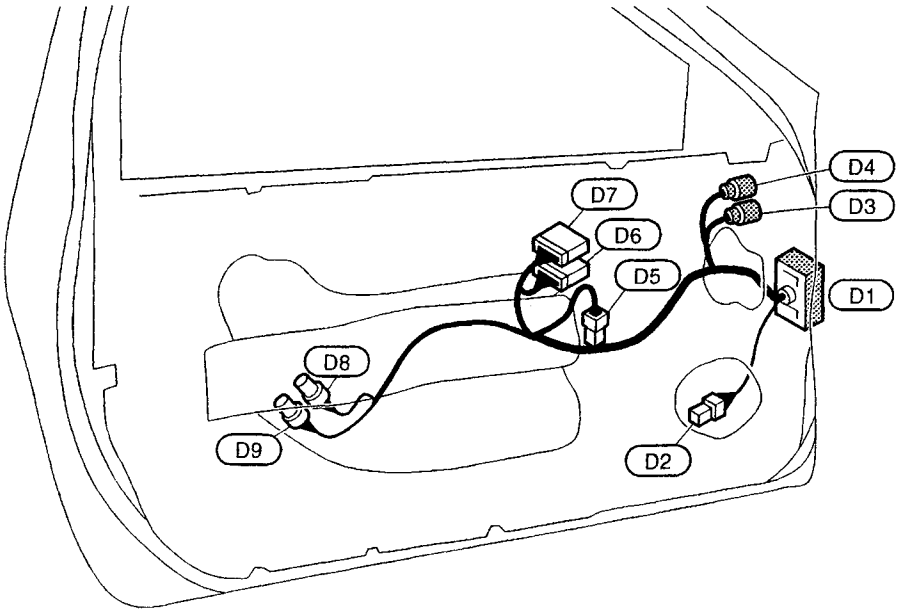
EL

HEL183

Front Door Harness (LH side)

LHD MODELS (Standard type)

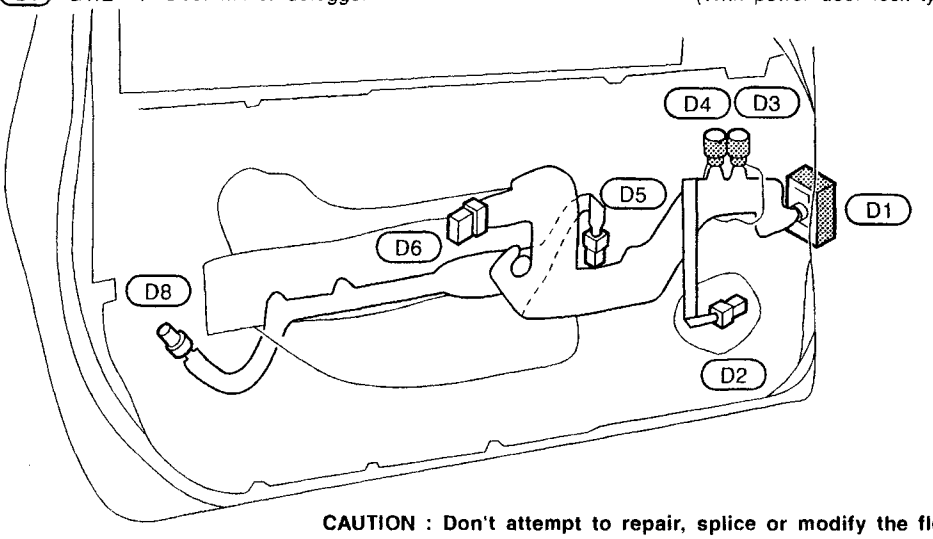
(D1) SMJ : To (M1)
(D2) BR/2 : Door speaker
(D3) BR/3 : Door mirror actuator
(D4) GY/2 : Door mirror defogger
(D5) B/2 : Power window regulator
(D6) W/12 : Power window main switch (With front door power window)
(D7) W/16 : Power window main switch (With front and rear door power window)
(D8) GY/4 : Door lock actuator (With power door lock type-1)
(D9) GY/2 : Lock knob switch (With power door lock type-2)



HEL184

LHD MODELS (FFC type)

(D1) SMJ : To (M1)
(D2) BR/2 : Door speaker
(D3) BR/3 : Door mirror actuator
(D4) GY/2 : Door mirror defogger
(D5) B/2 : Power window regulator
(D6) W/12 : Power window main switch
(D8) GY/4 : Door lock actuator (With power door lock type-1)



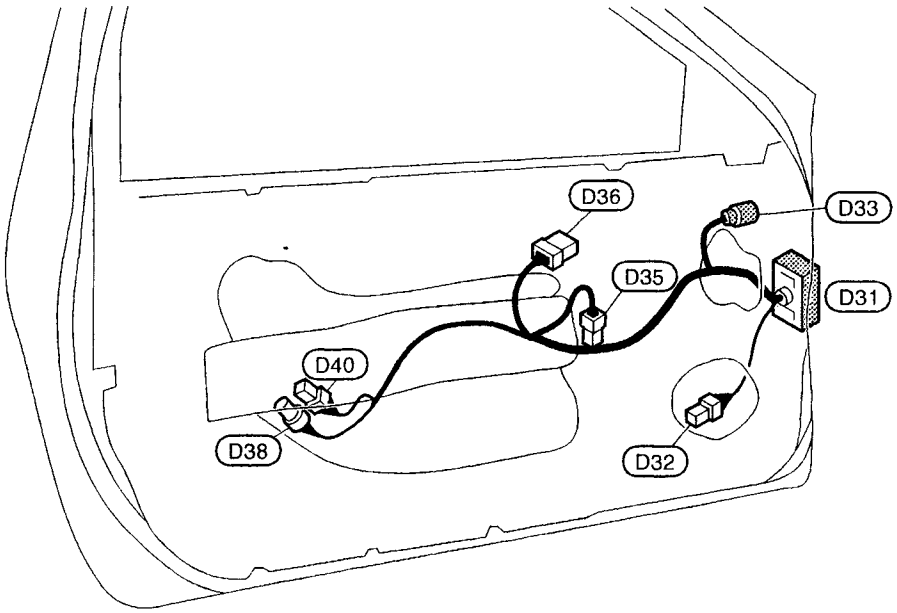
CAUTION : Don't attempt to repair, splice or modify the flexible flat circuit (FFC). If the FFC is damaged, replace with a new one.

HEL185

Front Door Harness (LH side) (Cont'd)

RHD MODELS (Standard type)

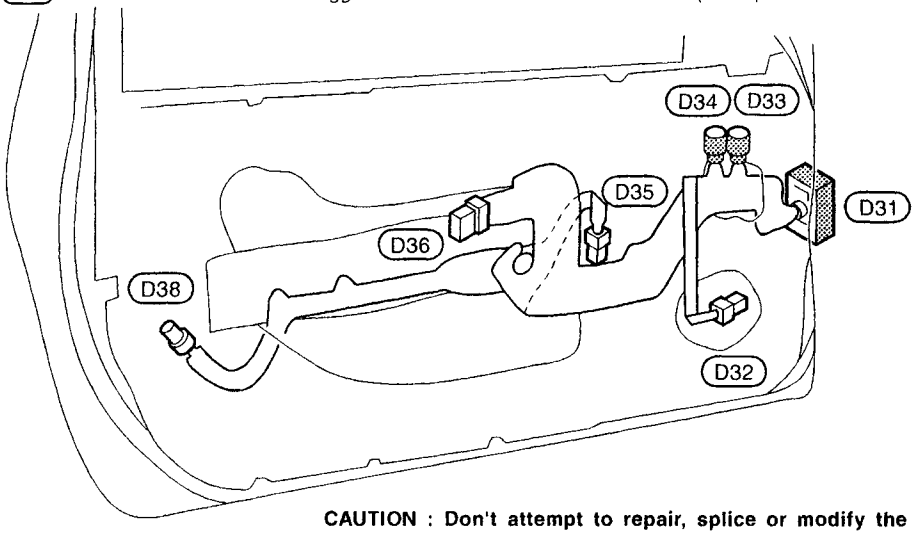
(D31) SMJ : To (M75)
(D32) BR/2 : Door speaker
(D33) BR/3 : Door mirror actuator
(D35) B/2 : Power window regulator
(D36) W/8 : Power window sub-switch
(D38) GY/4 : Door lock actuator (With power door lock type-1)
(D40) W/4 : Door lock actuator (With power door lock type-2)



HEL186

RHD MODELS (FFC type)

(D31) SMJ : To (M75)
(D32) BR/2 : Door speaker
(D33) BR/3 : Door mirror actuator
(D34) GY/2 : Door mirror defogger
(D35) B/2 : Power window regulator
(D36) W/8 : Power window sub-switch
(D38) GY/4 : Door lock actuator (With power door lock type-1)



CAUTION : Don't attempt to repair, splice or modify the flexible flat circuit (FFC). If the FFC is damaged, replace with a new one.

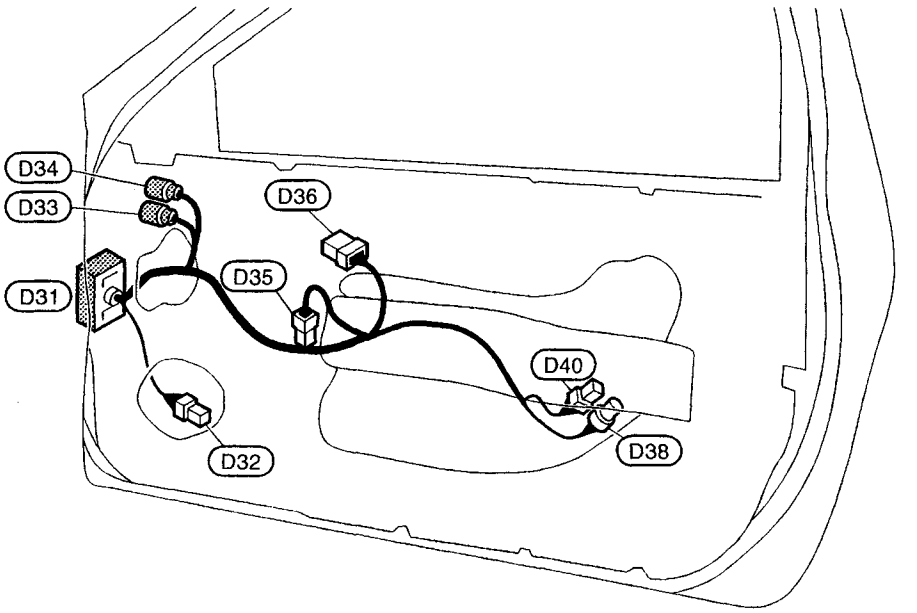
HEL187

EL

Front Door Harness (RH side)

LHD MODELS (Standard type)

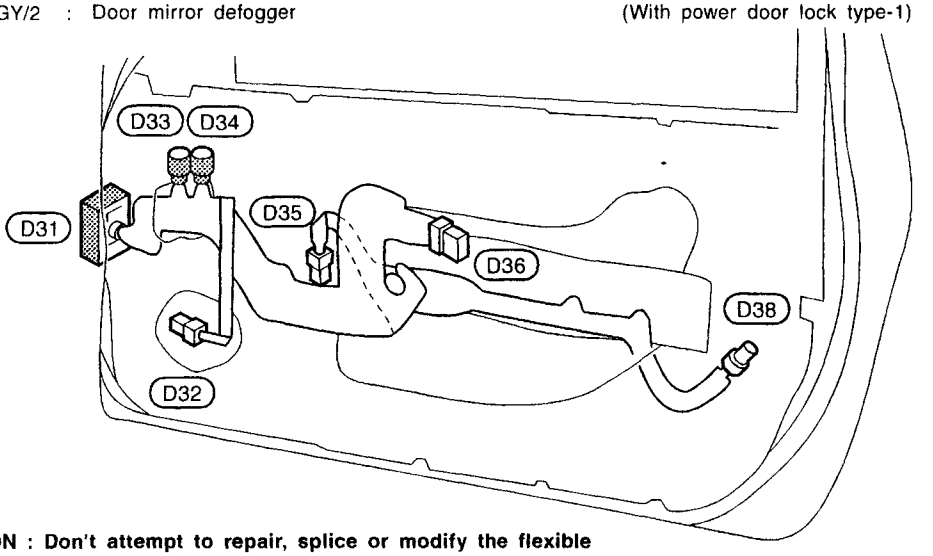
(D31) SMJ : To (M75)
(D32) BR/2 : Door speaker
(D33) BR/3 : Door mirror actuator
(D34) GY/2 : Door mirror defogger
(D35) B/2 : Power window regulator
(D36) W/8 : Power window sub-switch
(D38) GY/4 : Door lock actuator (With power door lock type-1)
(D40) W/4 : Door lock actuator (With power door lock type-2)



HEL188

LHD MODELS (FFC type)

(D31) SMJ : To (M75)
(D32) BR/2 : Door speaker
(D33) BR/3 : Door mirror actuator
(D34) GY/2 : Door mirror defogger
(D35) B/2 : Power window regulator
(D36) W/8 : Power window sub-switch
(D38) GY/4 : Door lock actuator (With power door lock type-1)



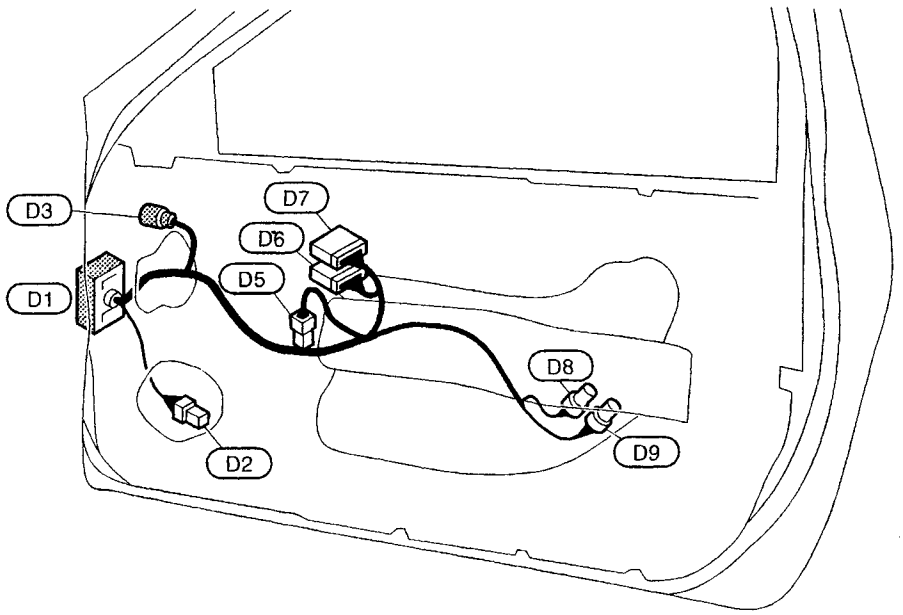
CAUTION : Don't attempt to repair, splice or modify the flexible flat circuit (FFC). If the FFC is damaged, replace with a new one.

HEL189

Front Door Harness (RH side) (Cont'd)

RHD MODELS (Standard type)

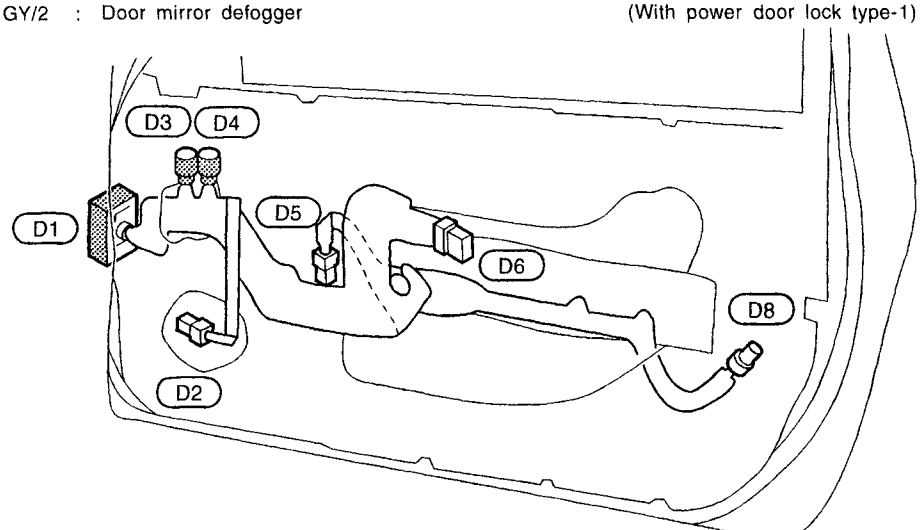
(D1) SMJ : To (M1)
(D2) BR/2 : Door speaker
(D3) BR/3 : Door mirror actuator
(D5) B/2 : Power window regulator
(D6) W/12 : Power window main switch (With front door power window)
(D7) W/16 : Power window main switch (With front and rear door power window)
(D8) GY/4 : Door lock actuator (With power door lock type-1)
(D9) GY/2 : Lock knob switch (With power door lock type-2)



HEL190

RHD MODELS (FFC type)

(D1) SMJ : To (M1)
(D2) BR/2 : Door speaker
(D3) BR/3 : Door mirror actuator
(D4) GY/2 : Door mirror defogger
(D5) B/2 : Power window regulator
(D6) W/12 : Power window main switch
(D8) GY/4 : Door lock actuator (With power door lock type-1)



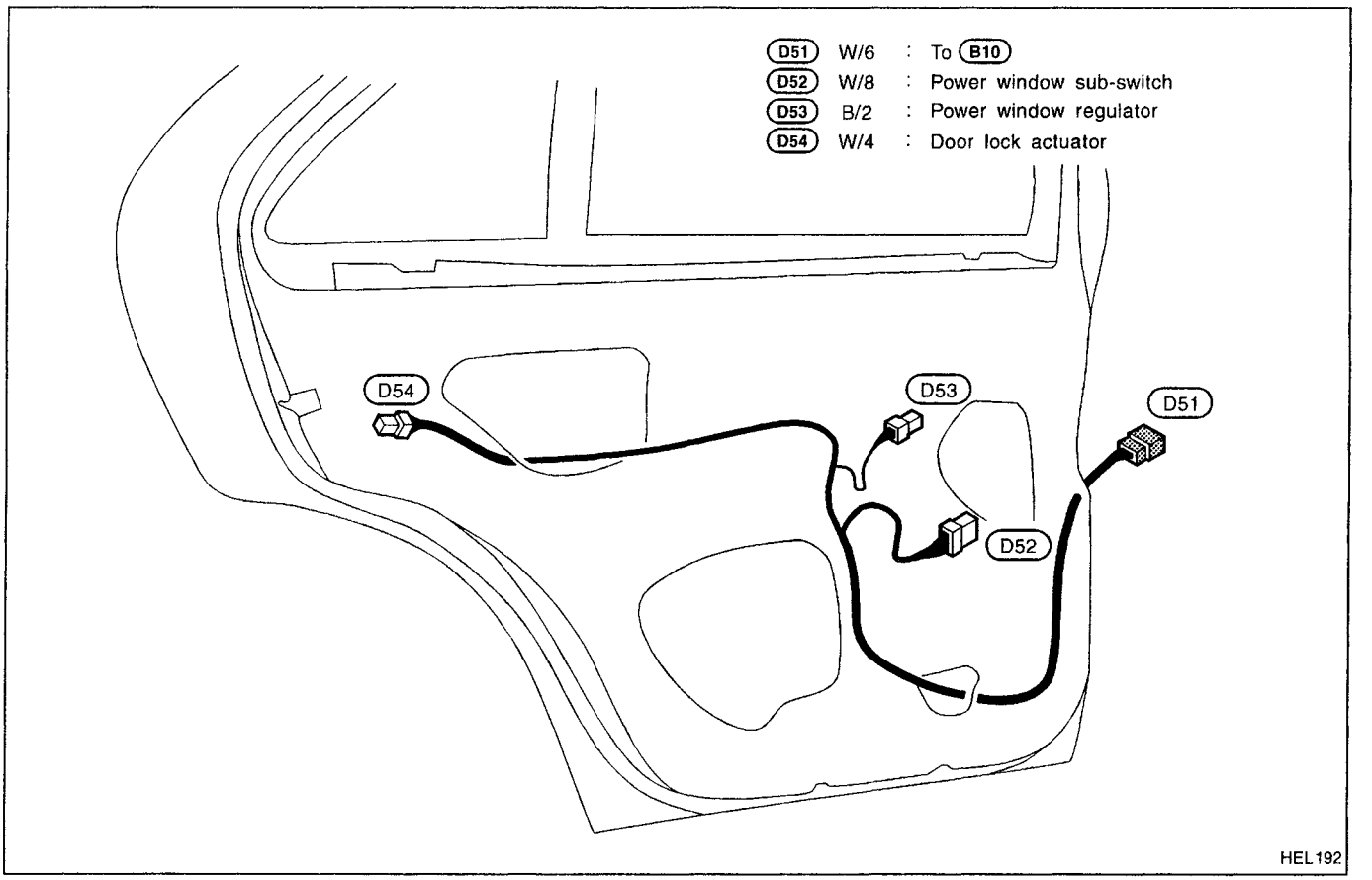
CAUTION : Don't attempt to repair, splice or modify the flexible flat circuit (FFC). If the FFC is damaged, replace with a new one.

HEL191

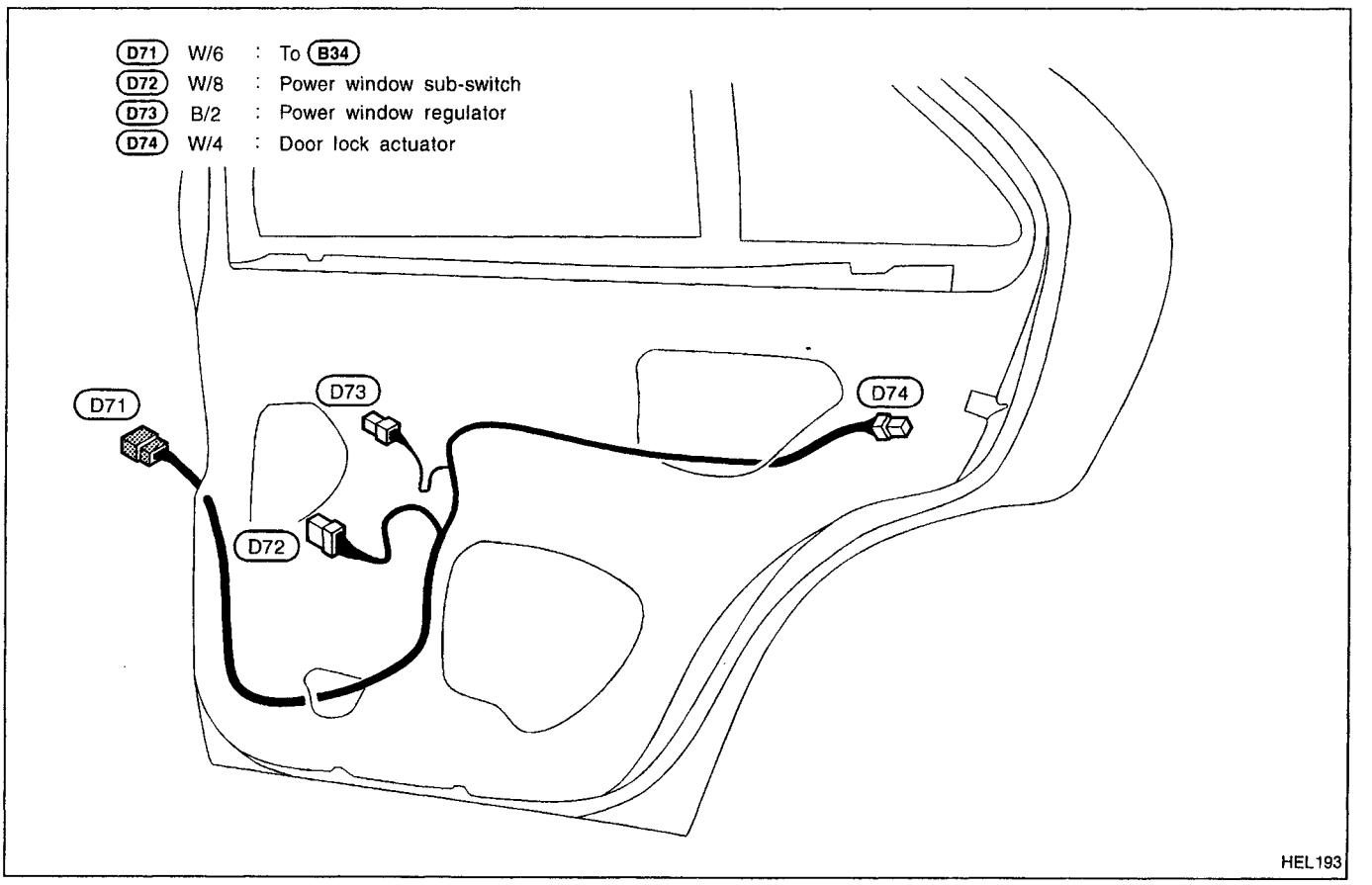
EL

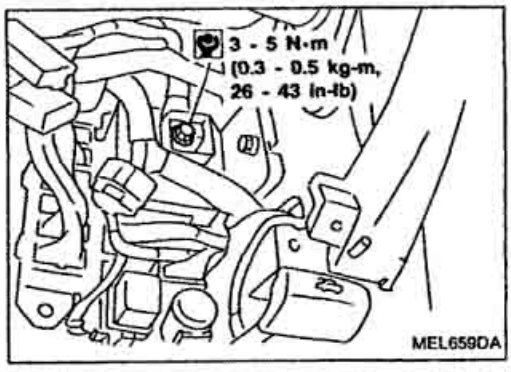
Rear Door Harness

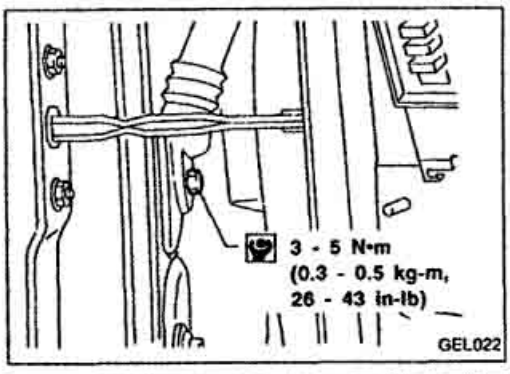
LH SIDE

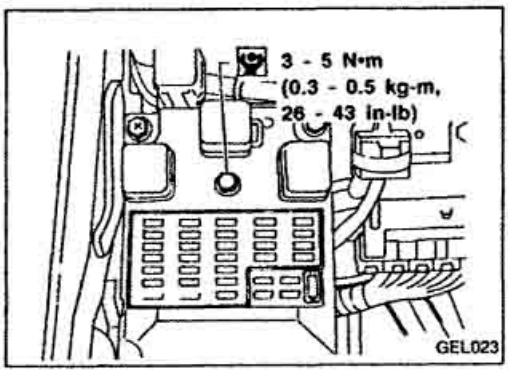


RH SIDE









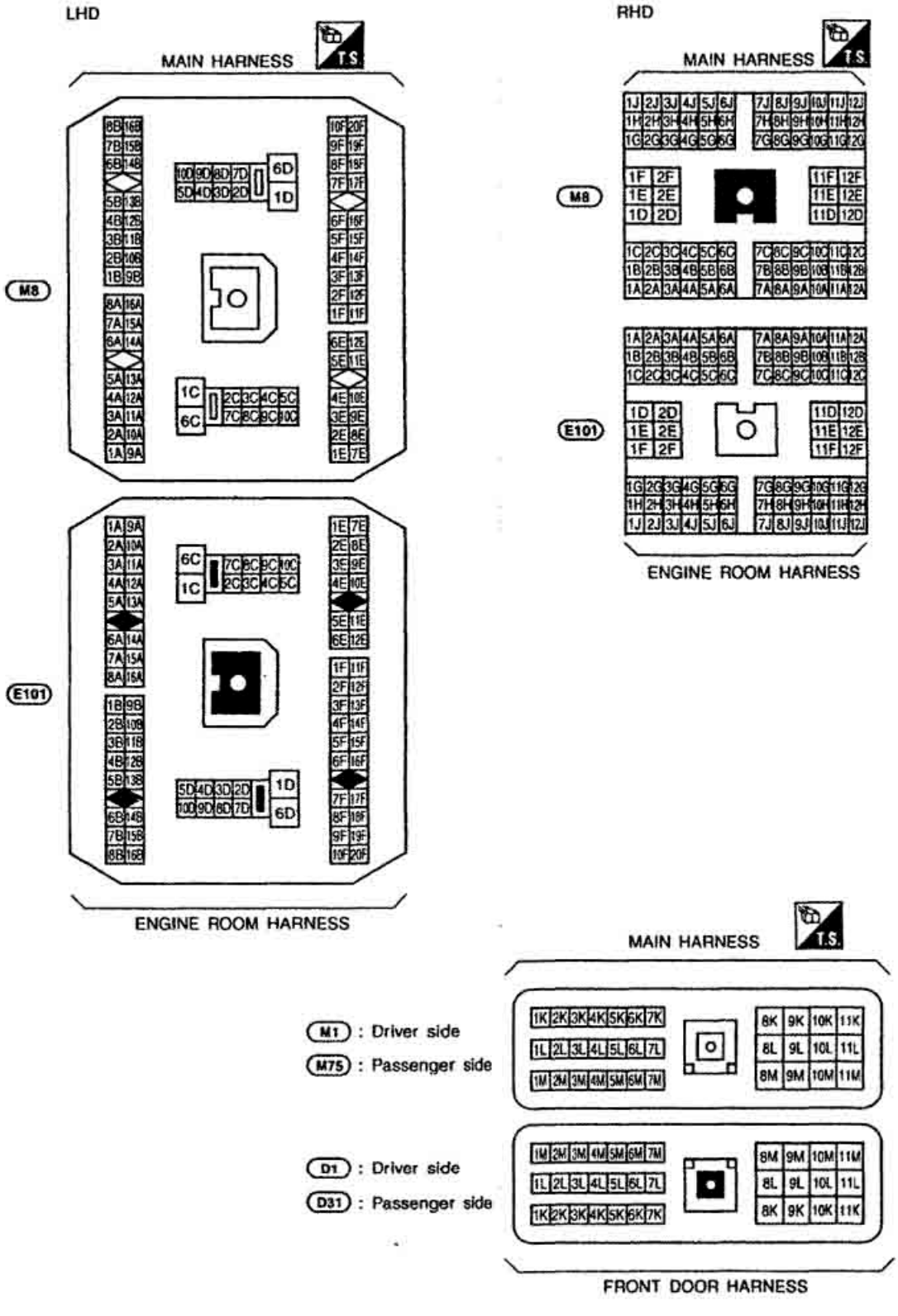
INSTALLATION

To install SMJ and FUSE BLOCK (J/B), tighten bolts until orange "fulltight" mark appears and then retighten to specified torque as required.

: 3 - 5 N·m
(0.3 - 0.5 kg-m, 26 - 43 in-lb)

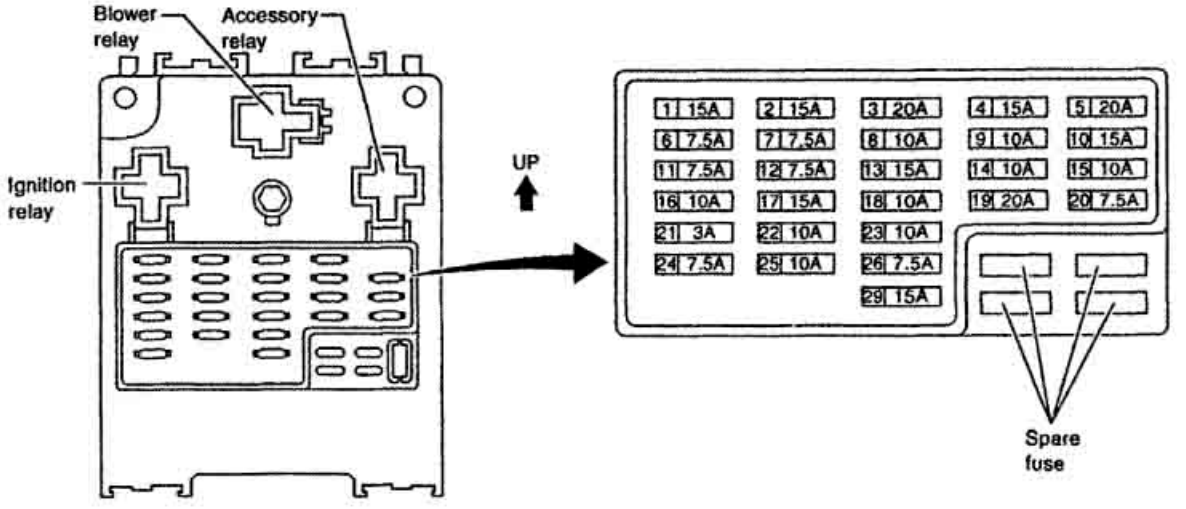
CAUTION:
Do not overtighten bolts, otherwise, they may be damaged.

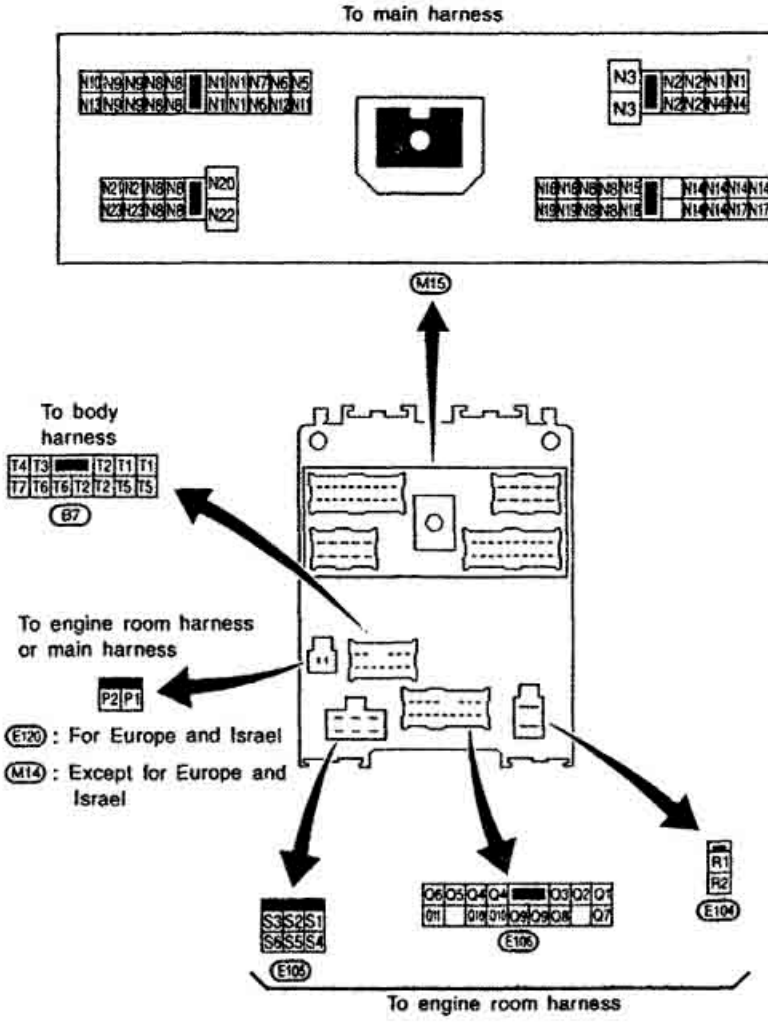
Terminal Arrangement



FUSE BLOCK — Junction Box (J/B)

Terminal Arrangement





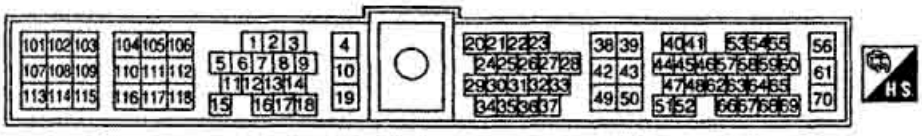
GEL025

Terminal Arrangement

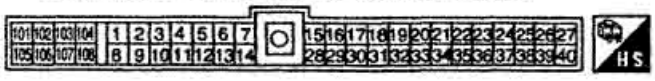
ECM (ECCS control module) (F1) (GA engine except for Australia and SR engine)



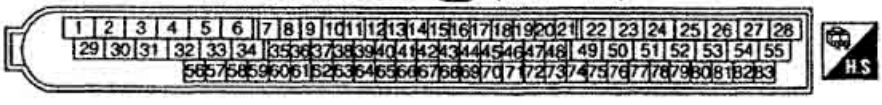
ECM (ECCS control module) (F1) (GA engine for Australia)



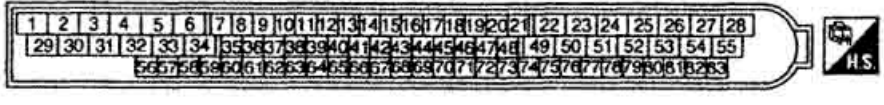
ECM (Engine control module) (M39) (CD engine)



ABS CONTROL UNIT (B111) (LHD models)



ABS CONTROL UNIT (B111) (RHD models)



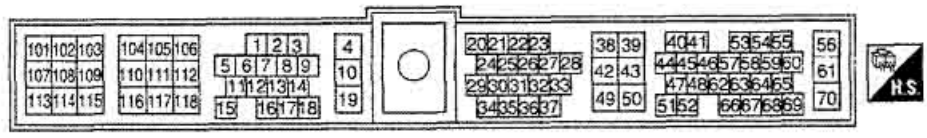
GEL027

Terminal Arrangement

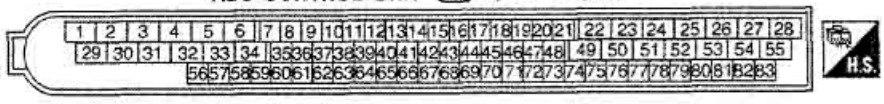
ECM (ECCS control module) (F1) (GA engine except for Australia and SR engine)



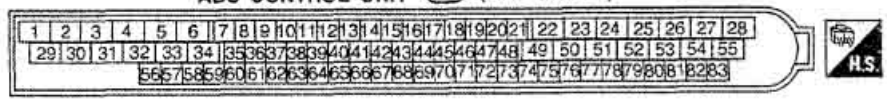
ECM (ECCS control module) (F1) (GA engine for Australia)
(M39) (CD engine)



ABS CONTROL UNIT (B111) (LHD models)

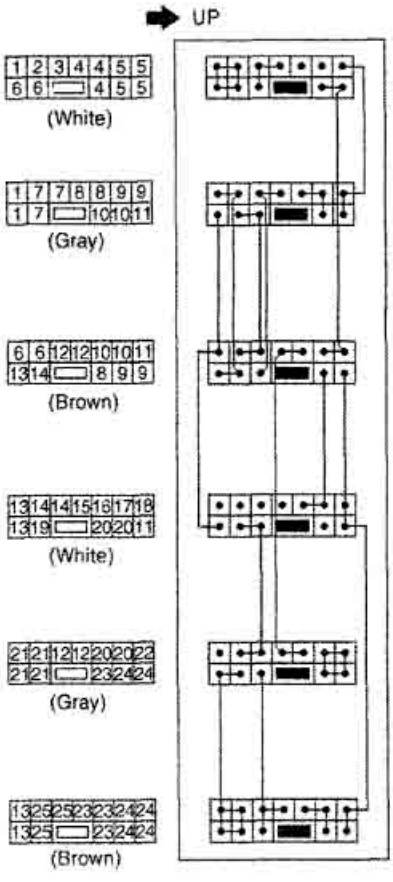


ABS CONTROL UNIT (B111) (RHD models)

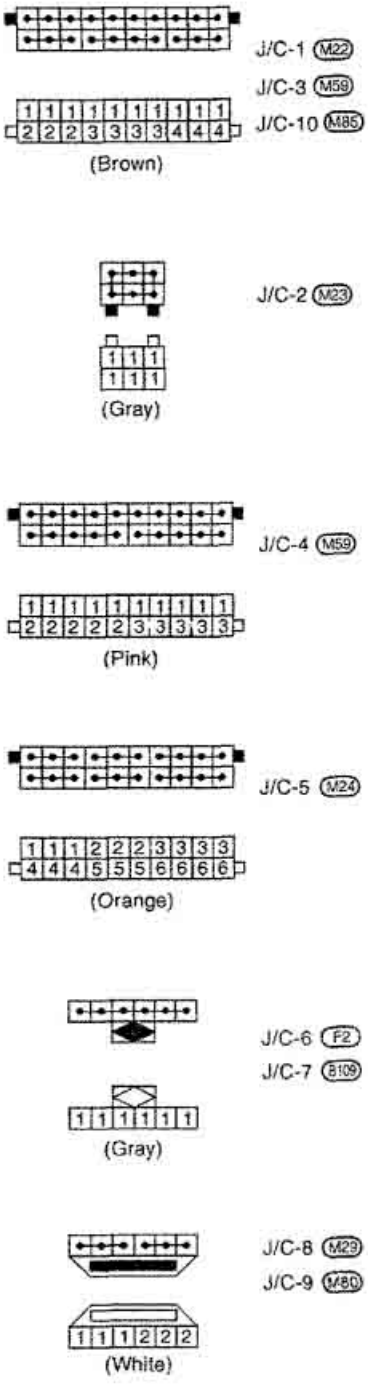


JOINT CONNECTOR (J/C)

Terminal Arrangement



JUNCTION BOX No.2
(Joint connectors) (M19)



GEL026-A