ELECTRICAL SYSTEM

SECTION EL

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

CONTENTS

CONTENTS (Cont'd.)

CONTENTS (Cont'd.)

WIRING DIAGRAM REFERENCE CHART

Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

The Supplemental Restraint System "Air Bag" and "Seat Belt Pre-tensioner", used along with a seat belt, help 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), seat belt pre-tensioners, 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 INFINITI dealer.**
- **Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system.**
- **Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses are covered with yellow insulation either just before the harness connectors or for the complete harness, for easy identification.**

Description

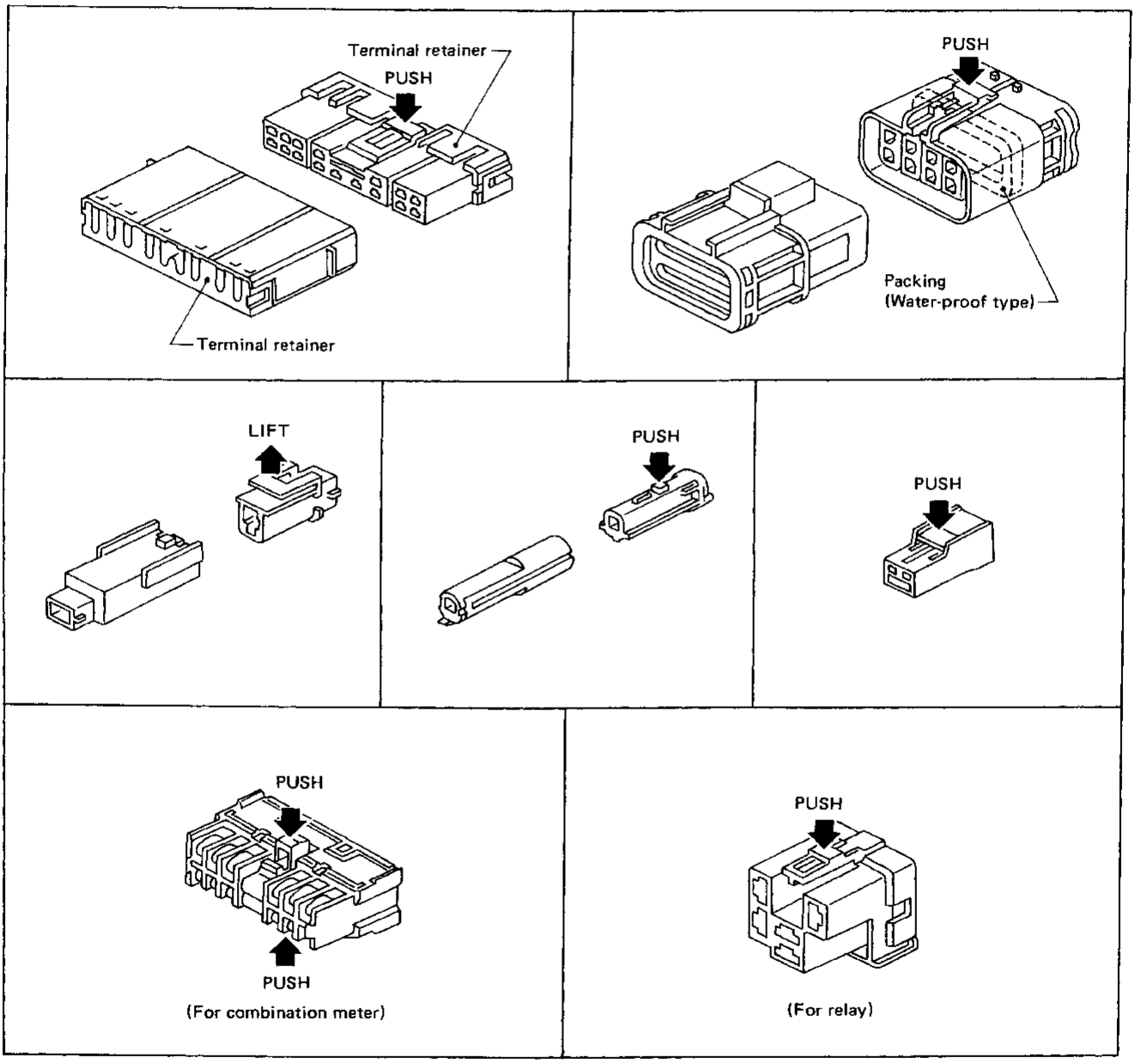
HARNESS CONNECTOR

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

CAUTION:

Do not pull the harness when disconnecting the connector.

[Example]

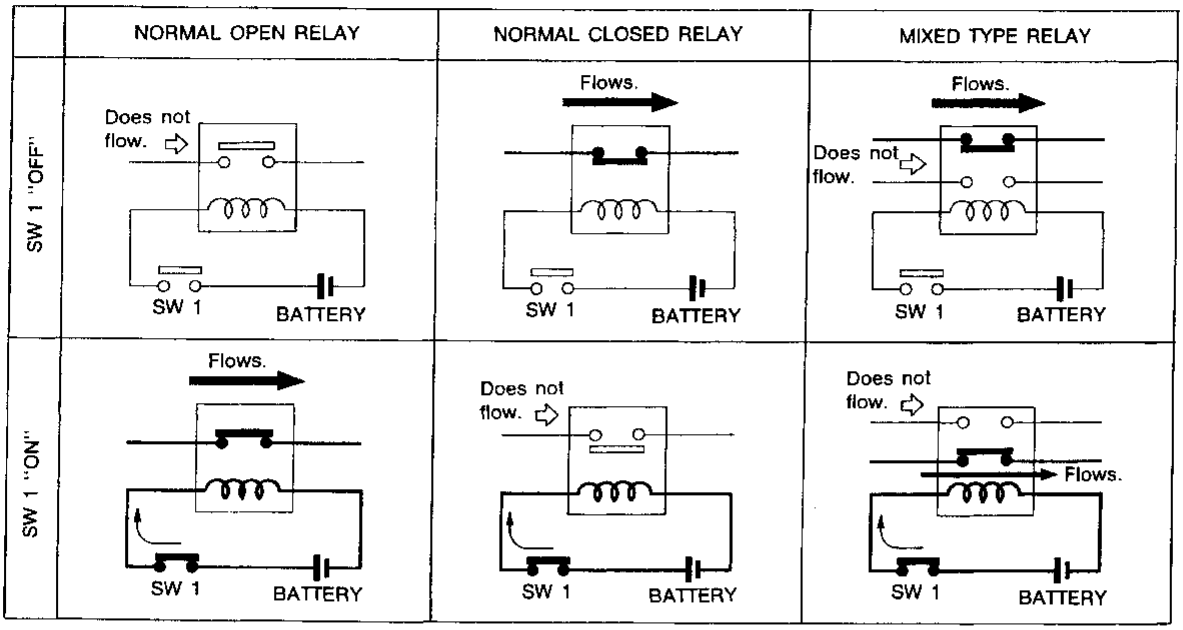


SEL769D

Description

NORMAL OPEN, NORMAL CLOSED AND MIXED TYPE RELAYS

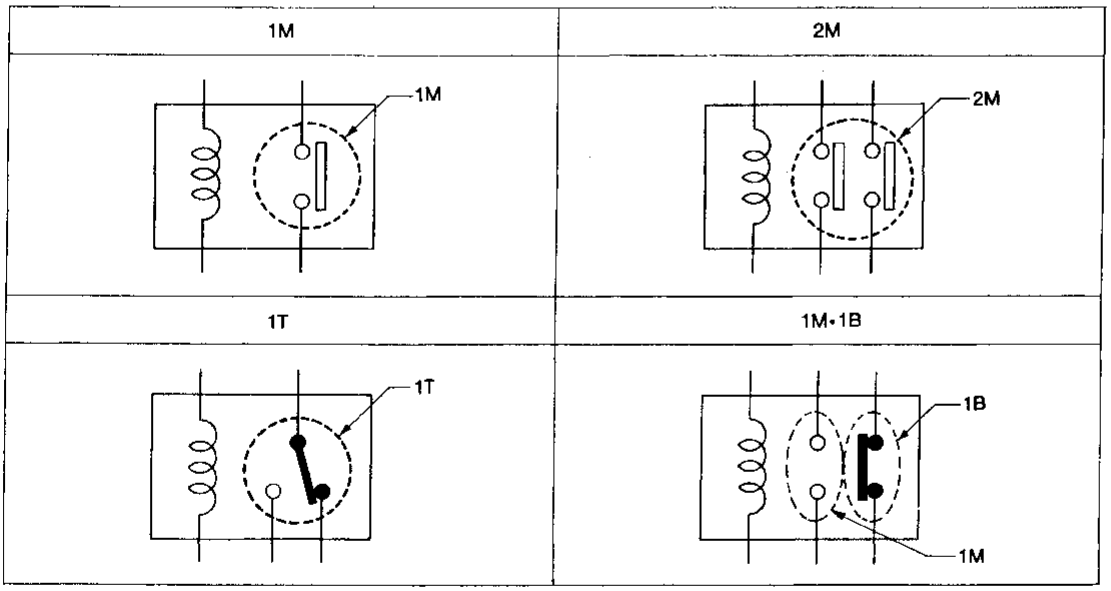
Relays can mainly be divided into three types: normal open, normal closed and mixed type relays.



SEL881H

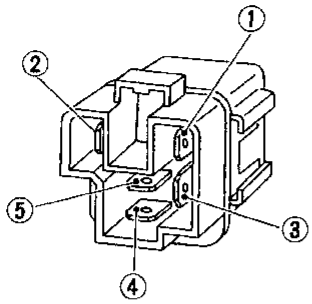
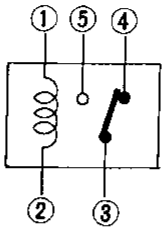
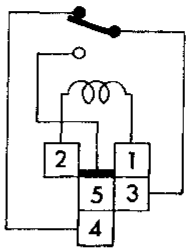
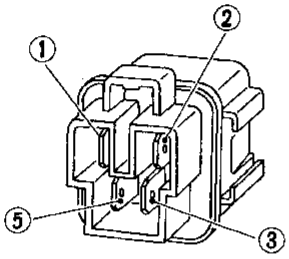
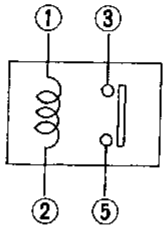
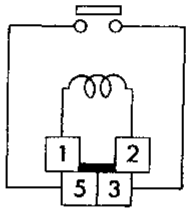
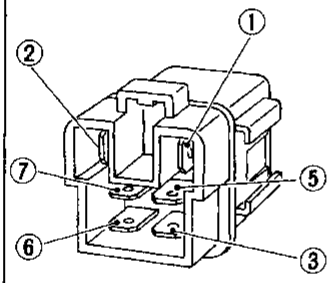
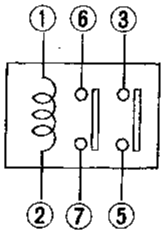
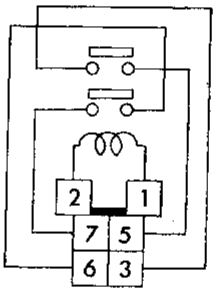
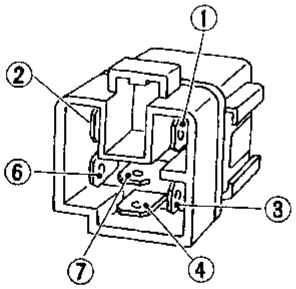
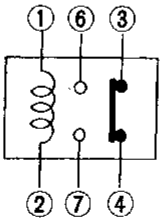
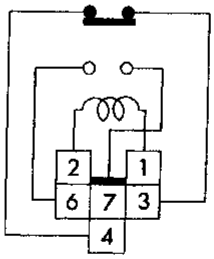
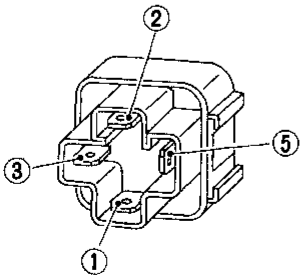
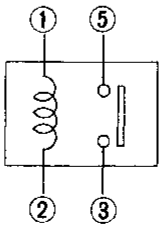
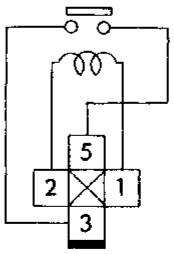
TYPE OF STANDARDIZED RELAYS

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



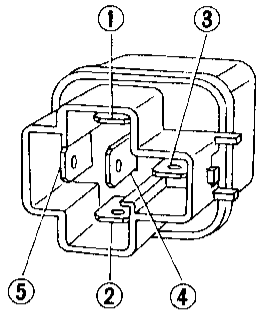
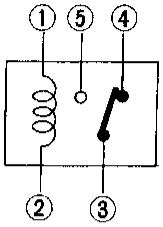
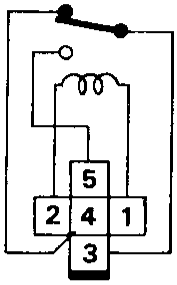
SEL882H

Description (Cont'd)

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

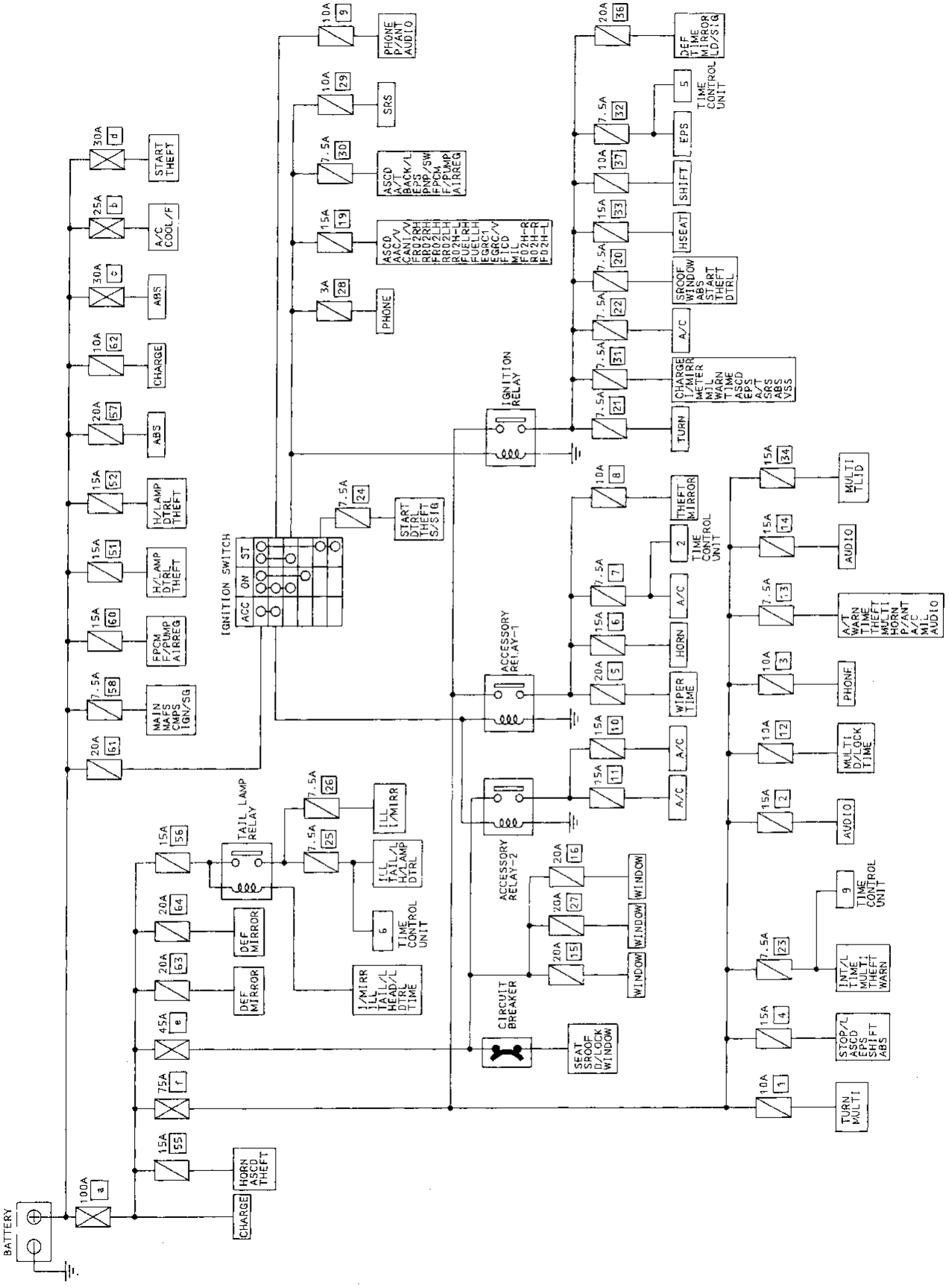
SEL871S

Description (Cont'd)

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

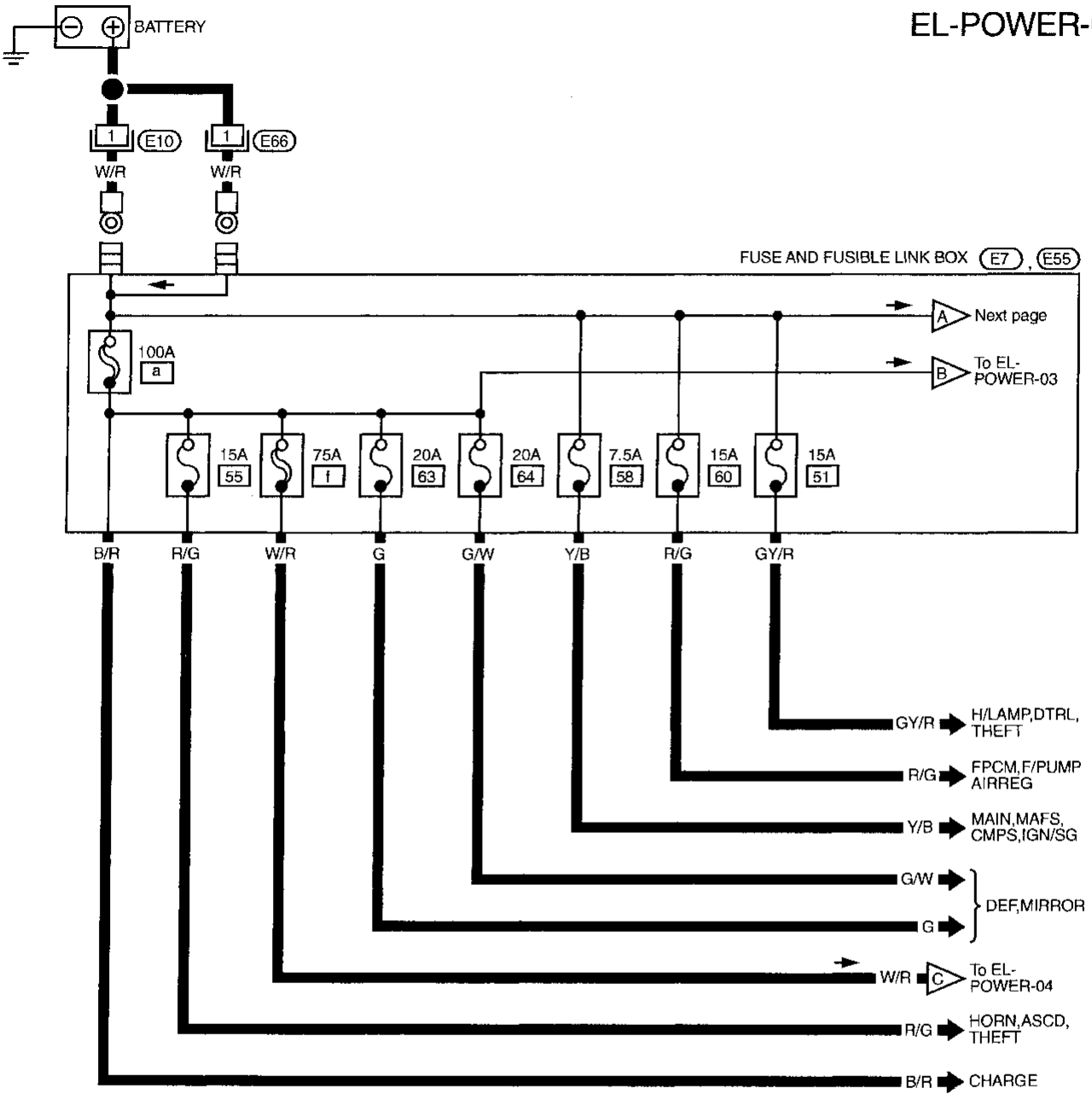
MEL202B

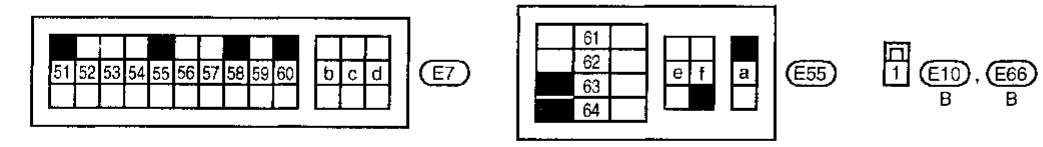
Schematic



TEL282

Wiring Diagram — POWER —

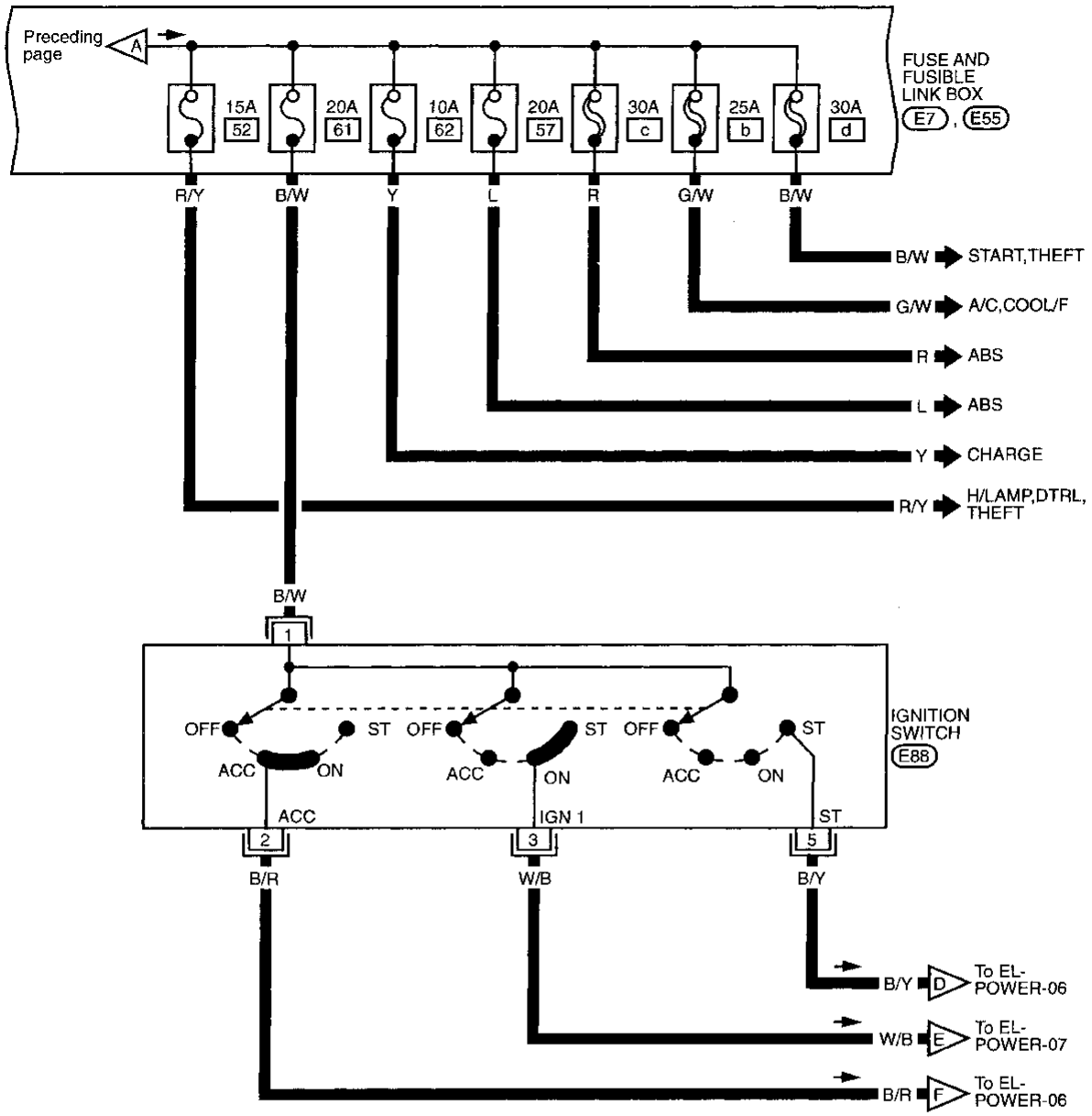


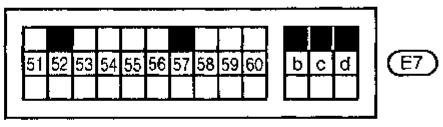


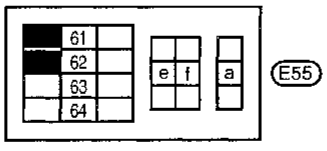
TEL159

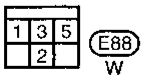
Wiring Diagram — POWER — (Cont'd)

EL-POWER-02





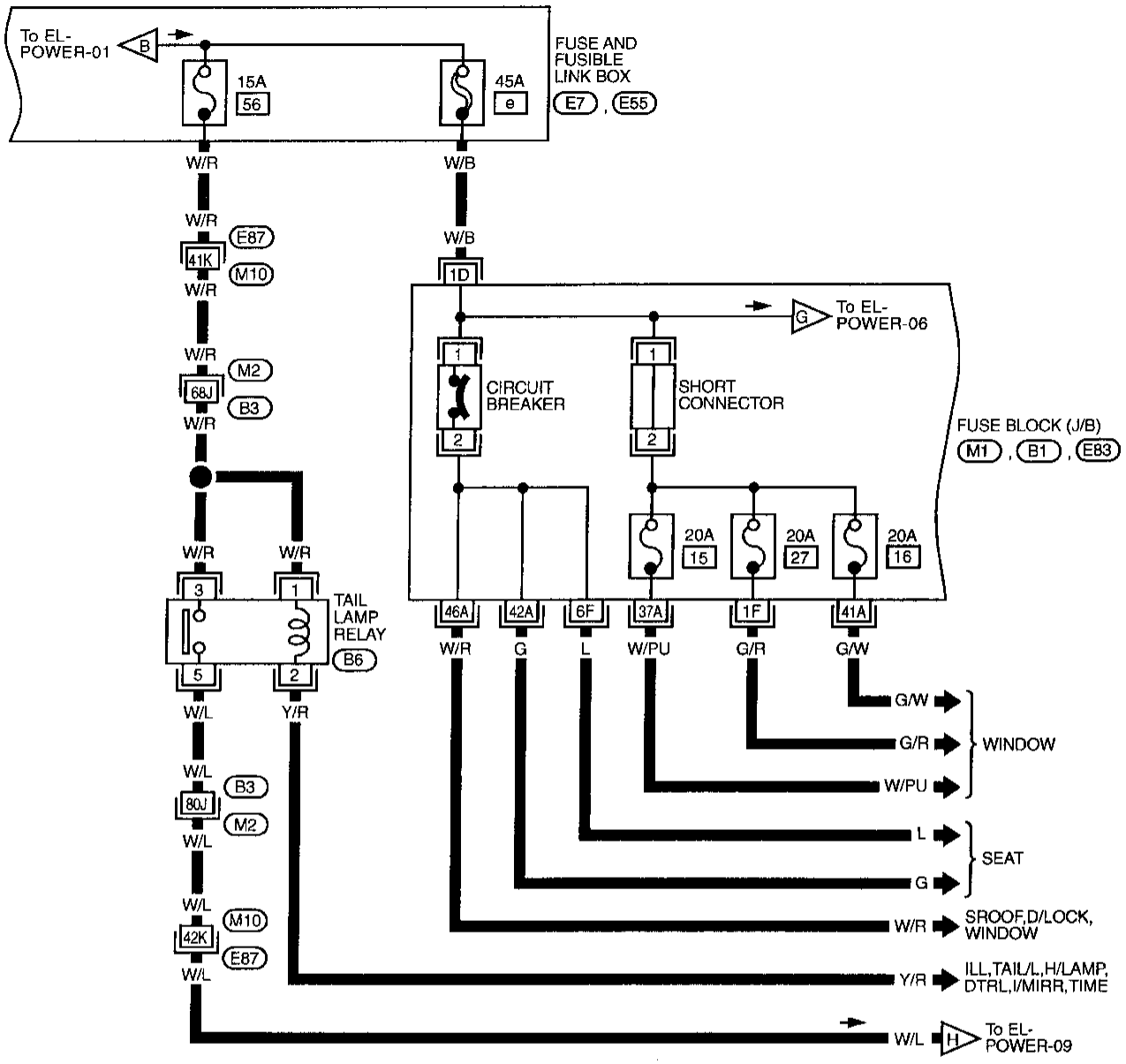


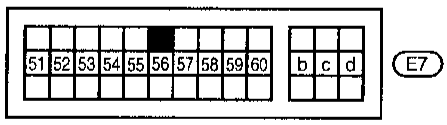


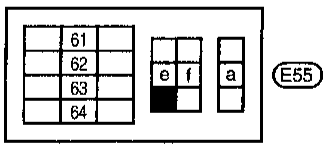
TEL160

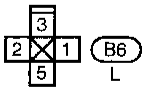
Wiring Diagram — POWER — (Cont'd)

EL-POWER-03









Refer to last page (Foldout page).

E83

M1, B1

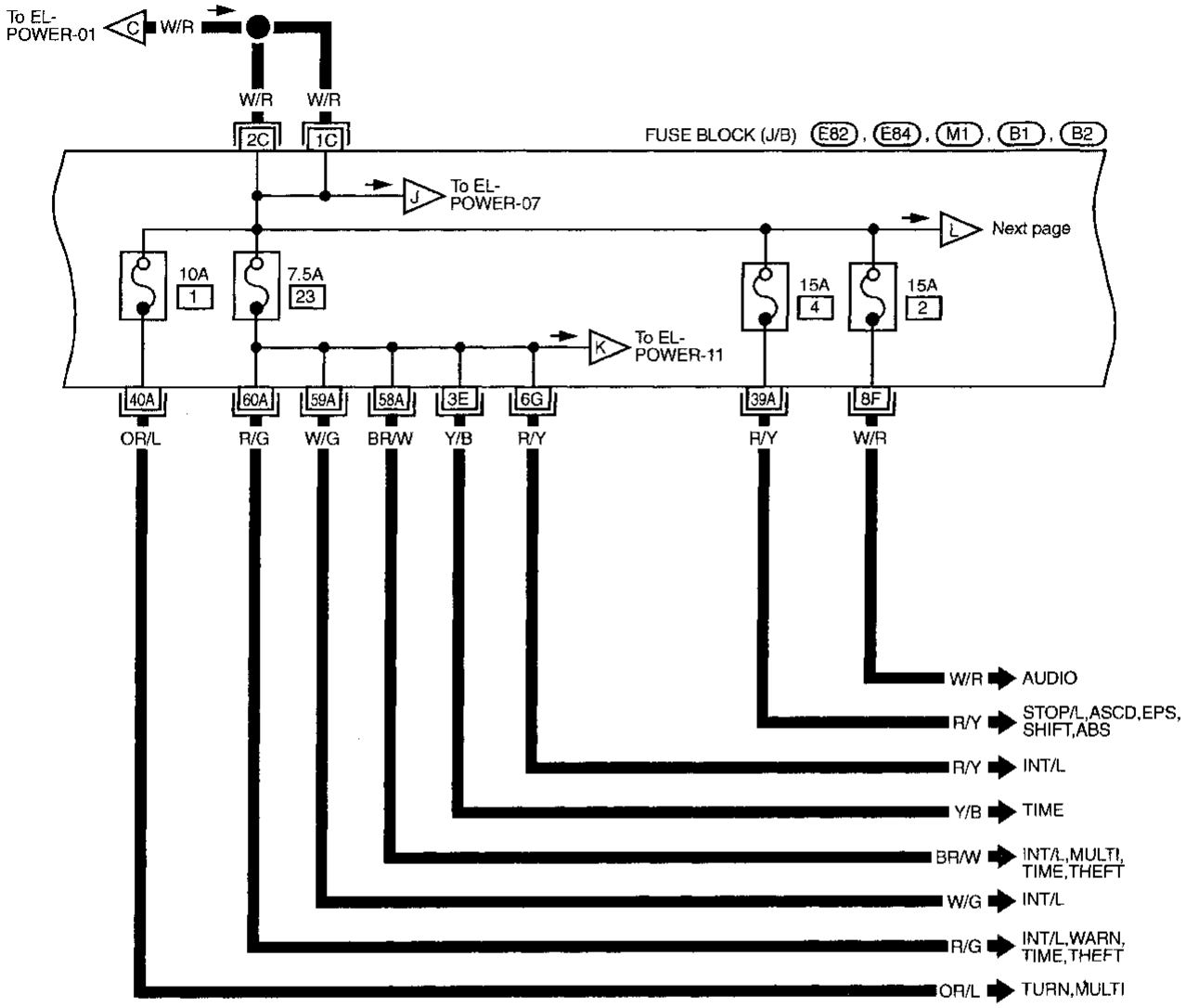
M2, B3

E87, M10

TEL161

Wiring Diagram — POWER — (Cont'd)

EL-POWER-04

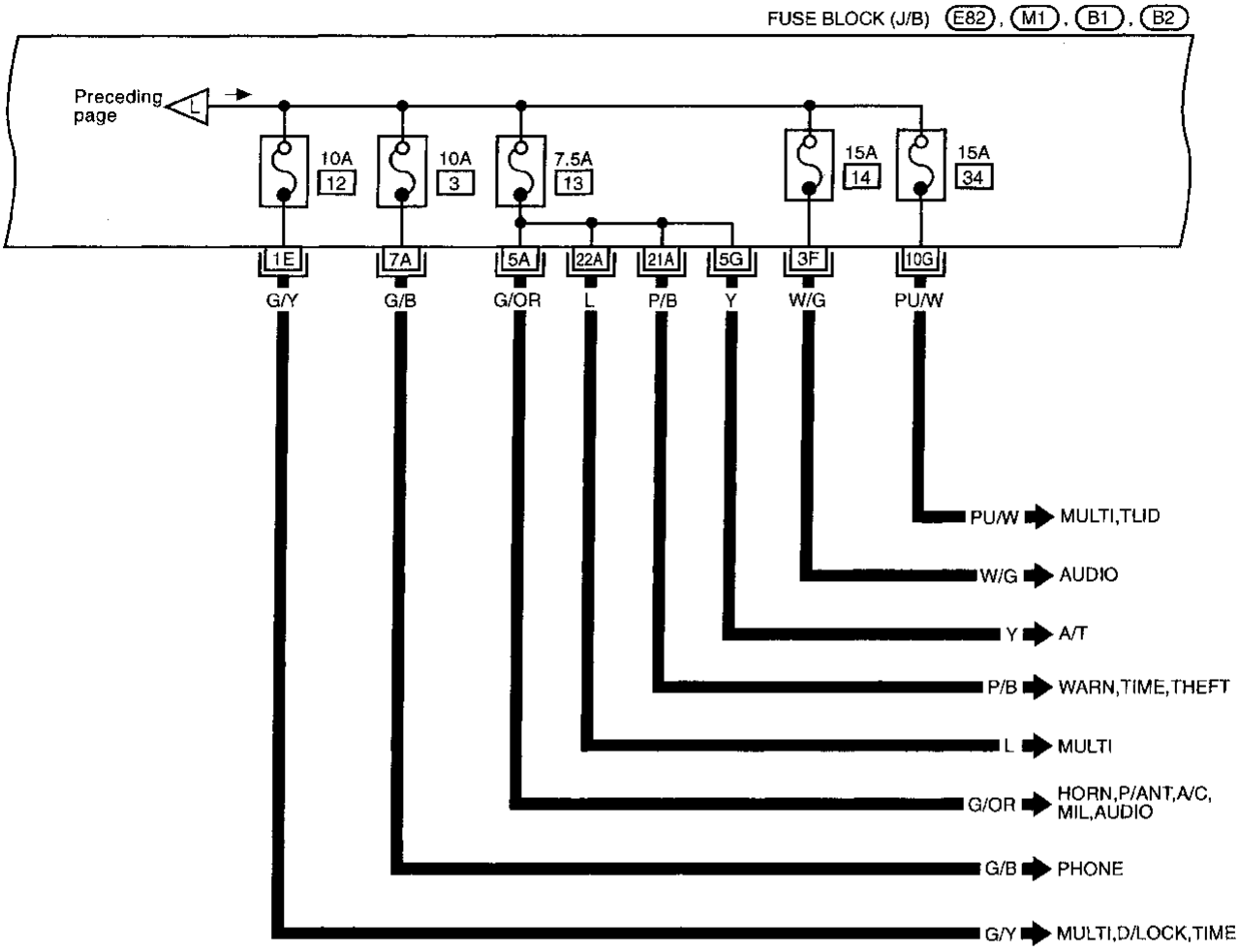


Refer to last page (Foldout page).
E82, E84
M1
B1, B2

TEL162

Wiring Diagram — POWER — (Cont'd)

EL-POWER-05

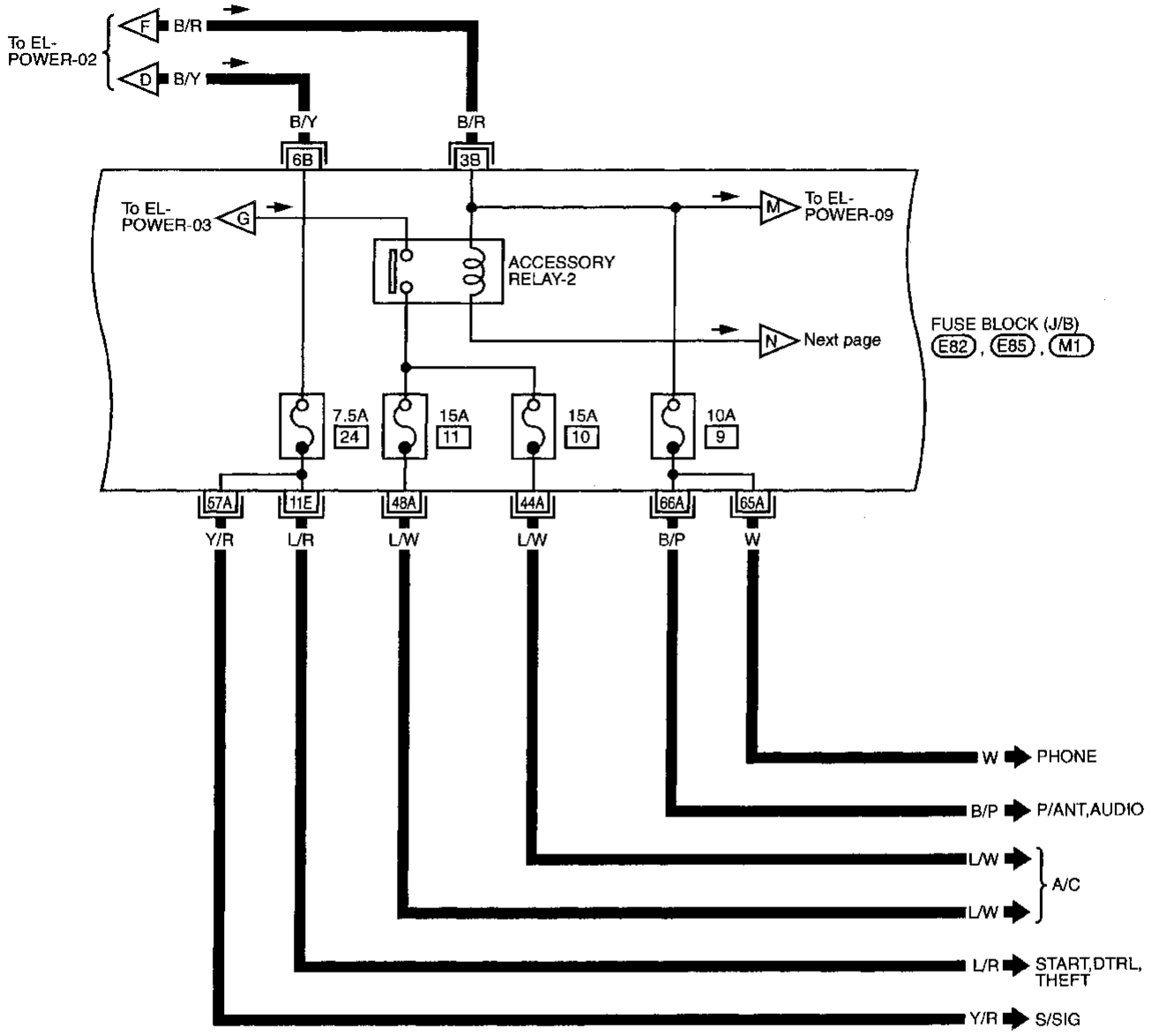


Refer to last page (Foldout page).
E82, M1
B1, B2

TEL163

Wiring Diagram — POWER — (Cont'd)

EL-POWER-06

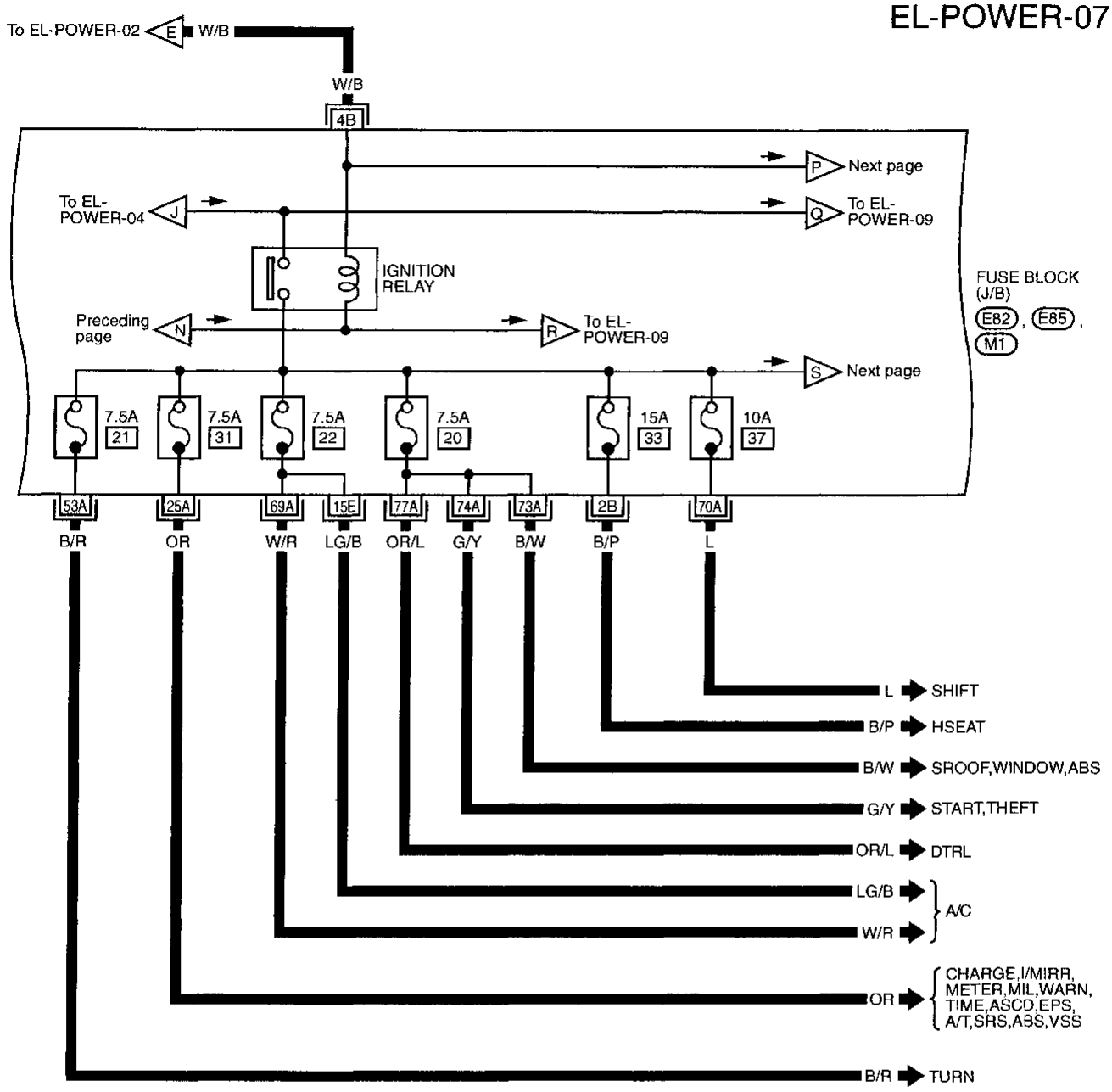


Refer to last page (Foldout page).
E82, E85
M1

TEL164

Wiring Diagram — POWER — (Cont'd)

EL-POWER-07

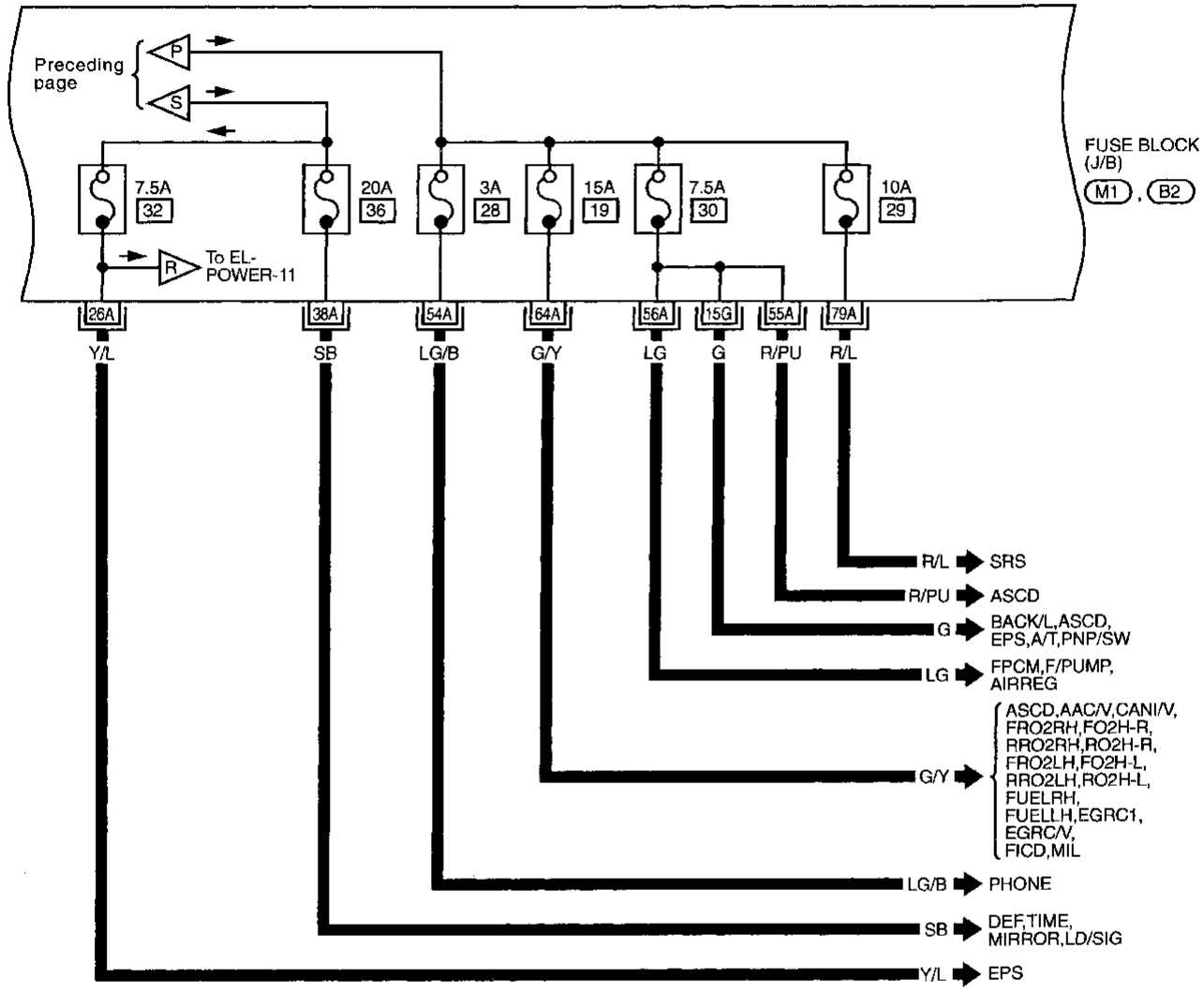


Refer to last page (Foldout page).
E82, E85
M1

TEL165

Wiring Diagram — POWER — (Cont'd)

EL-POWER-08

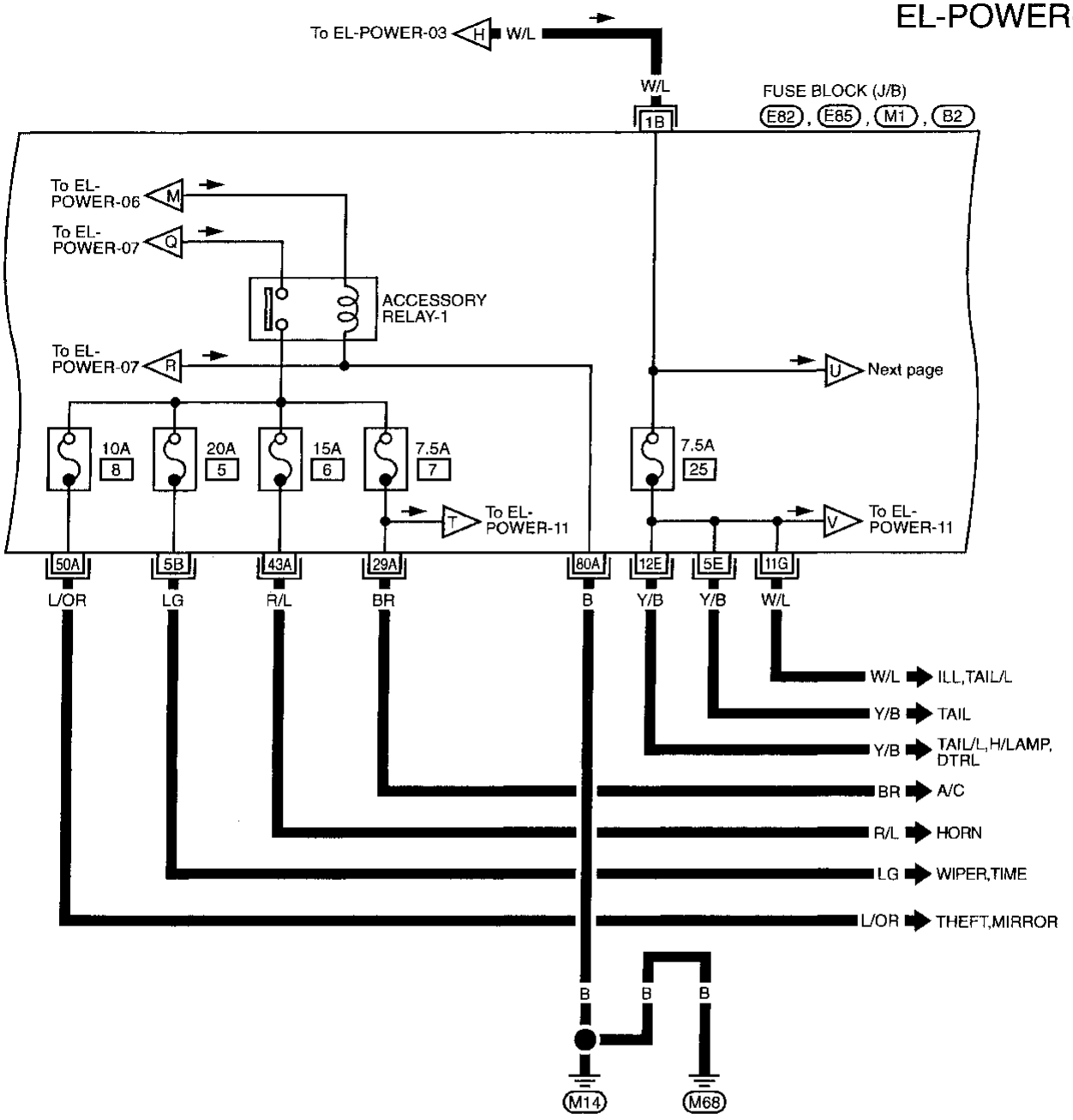


Refer to last page (Foldout page).
M1, B2

TEL166

Wiring Diagram — POWER — (Cont'd)

EL-POWER-09

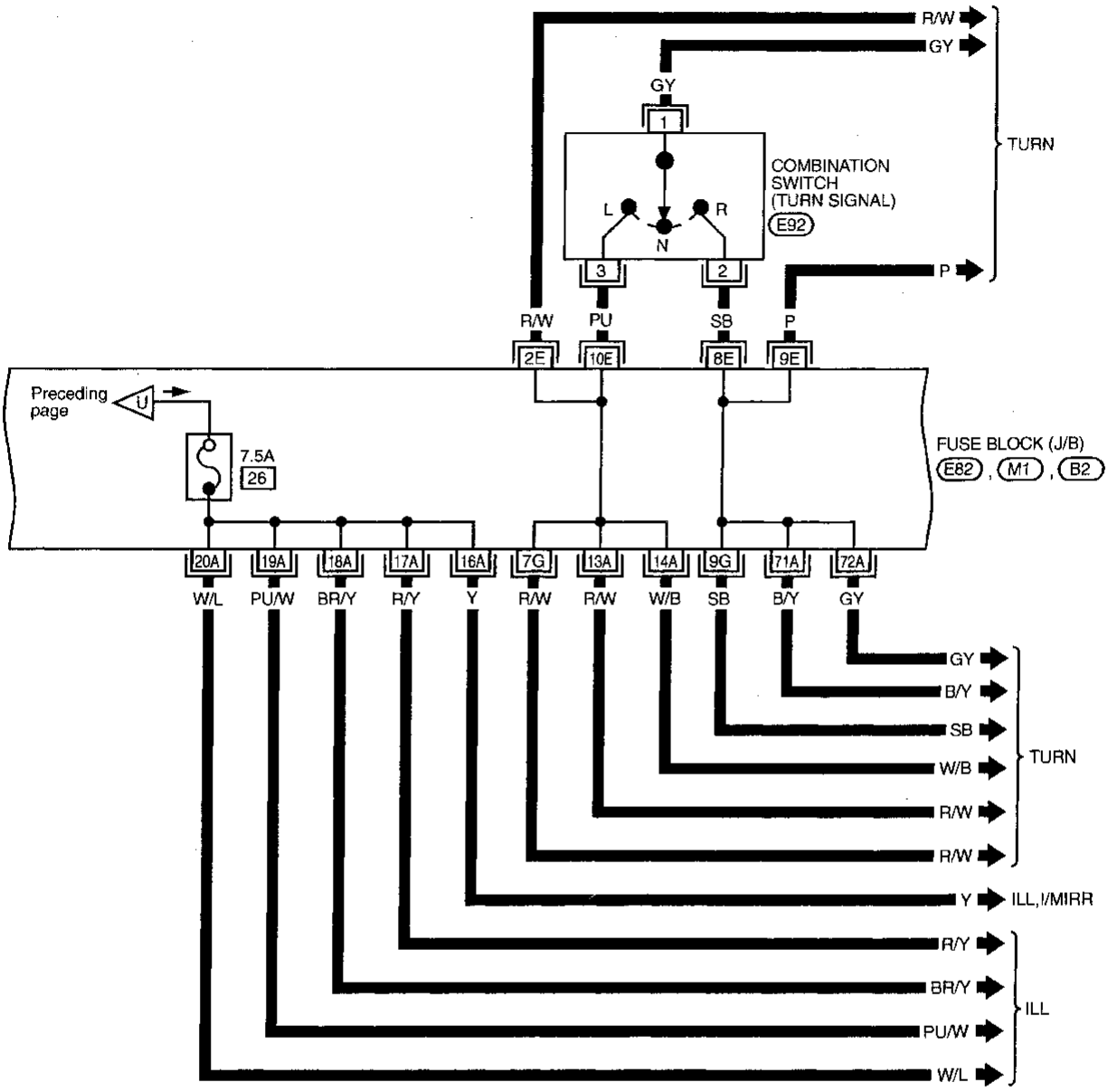


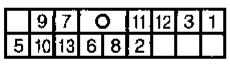
Refer to last page (Foldout page).
E82, E85
M1, B2

TEL167

Wiring Diagram — POWER — (Cont'd)

EL-POWER-10

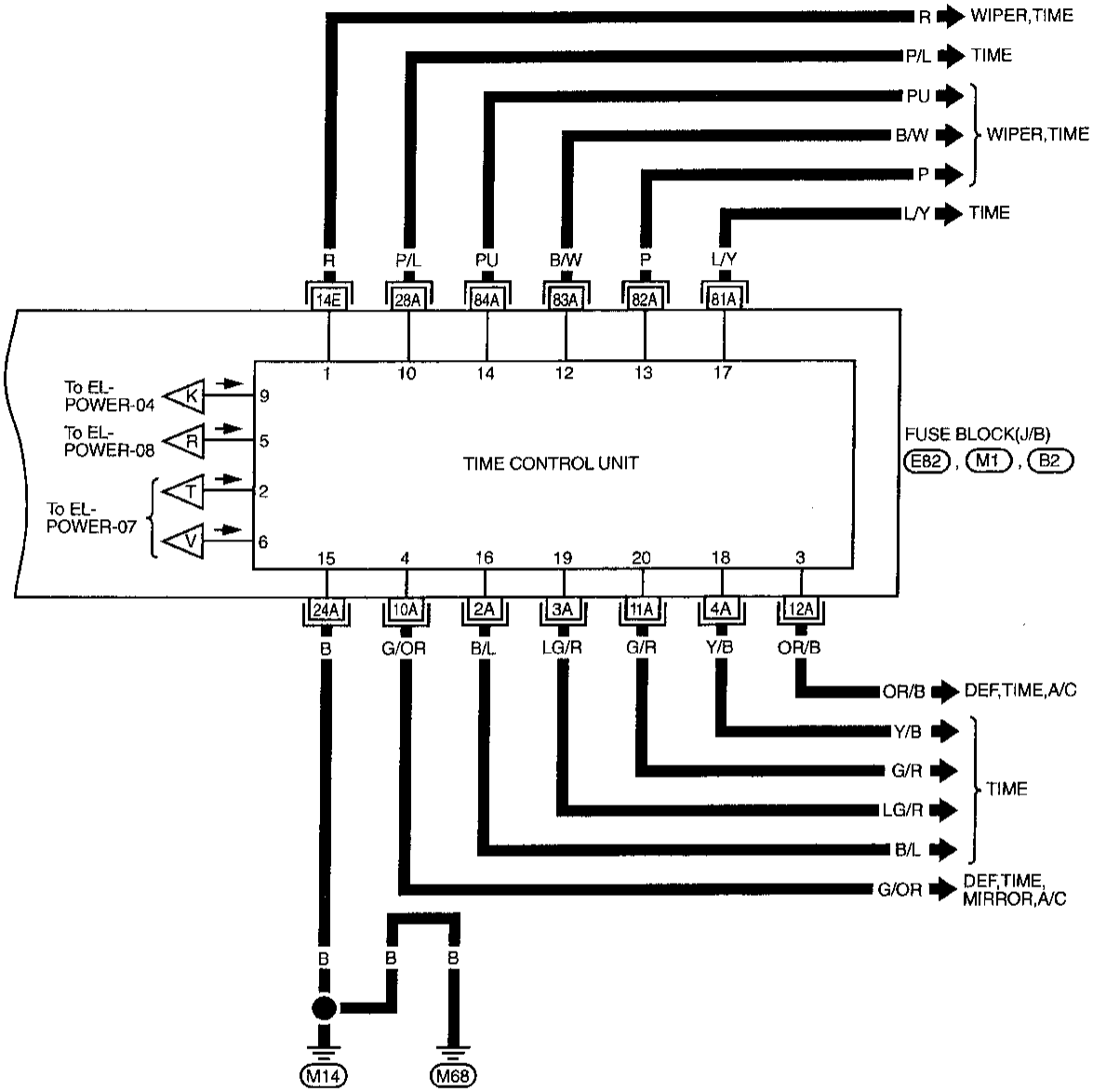




TEL168

Wiring Diagram — POWER — (Cont'd)

EL-POWER-11

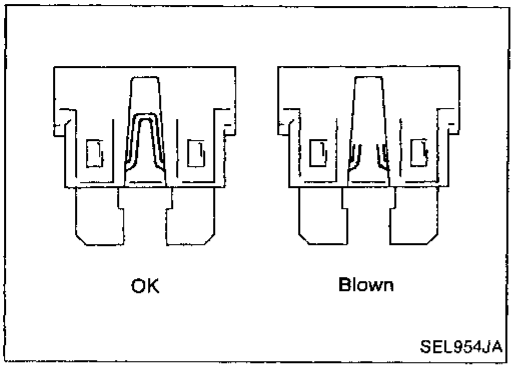


Refer to last page (Foldout page).

E82

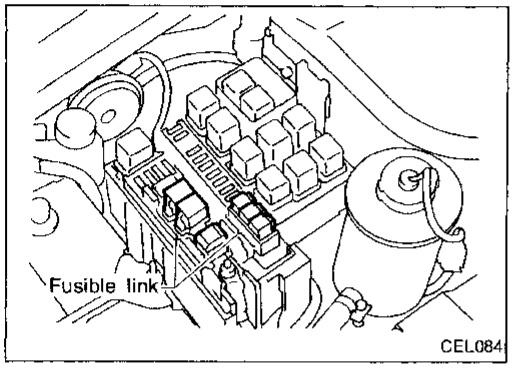
M1 , B2

TEL169



Fuse

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



Fusible Link

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

CAUTION:

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

GROUND	CONNECT TO	CONN. NO.	CELL CORD
E14	SHIELD WIRE (FRONT WHEEL SENSOR RH)	E13	BR-ABS
E15/E37	A/C AUTO AMP.	M44	HA-A/C
	ASCD HOLD RELAY	E64	EL-ASCD
	BRAKE FLUID LEVEL SWITCH	E41	EL-WARN
	CLEARANCE LAMP LH	E32	EL-TAIL/L
	CLEARANCE LAMP RH	E20	EL-TAIL/L
	COOLING FAN MOTOR	E27	HA-A/C
	DAYTIME LIGHT CONTROL UNIT (For CANADA)	E38	EL-DTRL EL-THEFT
	DOOR MIRROR DEFOGGER RELAY	E61	EL-H/MIRR
	FRONT SIDE MARKER LAMP LH	E35	EL-TAIL/L
	FRONT SIDE MARKER LAMP RH	E18	EL-TAIL/L
	FRONT TURN SIGNAL LAMP LH	E33	EL-TURN
	FRONT TURN SIGNAL LAMP RH	E19	EL-TURN
	FRONT WIPER MOTOR	E1	EL-WIPER
	FRONT WIPER SWITCH	E93	EL-WIPER EL-TIME
	HEADLAMP LH (HIGH)	E30	EL-H/LAMP EL-DTRL EL-THEFT
	HEADLAMP LH (LOW)	E31	EL-H/LAMP EL-DTRL
	HEADLAMP RH (HIGH) (For CANADA)	E22	EL-DTRL
	HEADLAMP RH (HIGH) (For U.S.A.)	E51	EL-H/LAMP EL-THEFT
	HEADLAMP RH (LOW) (For CANADA)	E21	EL-DTRL
	HEADLAMP RH (LOW) (For U.S.A.)	E50	EL-H/LAMP
	HEADLAMP CONTROL RELAY UNIT	E44	EL/H-LAMP EL-DTRL
	HOOD SWITCH	E5	EL-THEFT
	LIGHTING SWITCH	E92	EL-H/LAMP EL-DTRL EL-TAIL/L EL-ILL EL-INT/L EL-I/MIRR EL-TIME
	PARK/NEUTRAL POSITION RELAY	E58	ST-EPS EL-ASCD
	POWER STEERING OIL PRESSURE SWITCH	E108	EC-PST/SW
	STARTER HOLD RELAY	E60	EL-START
	TRIPLE-PRESSURE SWITCH	E29	HA-A/C
	WASHER SWITCH	E16	EL-WARN
	WIPER RELAY	E59	EL-WIPER
E39	SHIELD WIRE (FRONT WHEEL SENSOR LH)	E40	BR-ABS
M14/M68	A/C AUTO AMP.	M95	HA-A/C
	ABS ACTUATOR	F2	BR-ABS
	ACCESSORY RELAY-1	M1	EL-POWER
	AIR BAG DIAGNOSIS SENSOR UNIT	Z5	RS-SRS EL-TIME
	ASCD CONTROL UNIT	M18	EL-ASCD
	ASCD MAIN SWITCH	M41	EL-ASCD
	AUDIO AMP. RELAY	M75	EL-AUDIO
	AUTO ANTI-DAZZLING INSIDE MIRROR	R8	EL-I/MIRR
	BLOWER HI RELAY	M65	HA-A/C
	CIGARETTE LIGHTER	M50	EL-ILL EL-HORN
	CLOCK	M51	EL-HORN
	COMBINATION FLASHER UNIT	M46	EL-TURN
	COMBINATION METER (AIR BAG)	M29	RS-SRS EL-WARN
	COMBINATION METER (CRUISE INDICATOR LAMP)	M29	EL-ASCD
	COMBINATION METER (FUEL)	M28	EL-VSS
	COMBINATION METER (HIGH BEAM INDICATOR)	M28	EL-H/LAMP EL-DTRL
	COMBINATION METER (SPEEDOMETER)	M28	EC-VSS AT-A/T ST-EPS EL-METER EL-ASCD

GROUND	CONNECT TO	CONN. NO.	CELL CORD
M14/M68	COMBINATION METER (TACHOMETER)	M29	EL-METER
	COMBINATION METER (TURN)	M29	EL-TURN
	COMBINATION METER (WATER TEMP.)	M28	EL-METER
	DATA LINK CONNECTOR FOR CONSULT	M21	EL-ASCD
	DATA LINK CONNECTOR FOR GST	M91	EC-MIL
	DOOR LOCK TIMER	M93	EL-D/LOCK
	DOOR MIRROR DEFOGGER (DRIVER SIDE)	D6	EL-H/MIRR
	DOOR MIRROR DEFOGGER (PASSENGER SIDE)	D24	EL-H/MIRR
	DOOR MIRROR REMOTE CONTROL SWITCH	D9	EL-H/MIRR
	FAN CONTROL AMP.	M67	HA-A/C
	FIRST POSITION SWITCH	M49	AT-A/T
	FRONT DOOR HANDLE SWITCH (DRIVER SIDE)	D15	EL-TIME
	FRONT DOOR HANDLE SWITCH (PASSENGER SIDE)	D28	EL-TIME
	FRONT DOOR KEY CYLINDER SWITCH (DRIVER SIDE)	D14	EL-D/LOCK EL-THEFT
	FRONT DOOR KEY CYLINDER SWITCH (PASSENGER SIDE)	D27	EL-D/LOCK EL-THEFT
	FRONT DOOR LOCK ACTUATOR (DRIVER SIDE) (DOOR UNLOCK SENSOR)	D10	EL-D/LOCK EL-MULTI EL-THEFT
	FRONT DOOR LOCK ACTUATOR (PASSENGER SIDE) (DOOR UNLOCK SENSOR)	D29	EL-D/LOCK EL-MULTI EL-THEFT
	FUEL LID OPENER SWITCH	D12	EL-TLID
	GLOVE BOX LAMP (ILLUMINATION)	M81	EL-ILL
	ILLUMINATION CONTROL SWITCH	M16	EL-ILL
	INTAKE DOOR MOTOR	M63	HA-A/C
	KICKDOWN SWITCH	M35	AT-A/T
	MAX COLD RELAY	A4	HA-A/C
	MODE DOOR MOTOR	A2	HA-A/C
	PARKING POSITION SWITCH	M49	AT-SHIFT
	POWER STEERING CONTROL UNIT	M19	ST-EPS
	POWER WINDOW AMP. (PASSENGER SIDE)	D26	EL-WINDOW
	POWER WINDOW MAIN SWITCH	D17	EL-WINDOW EL-D/LOCK
	PUSH CONTROL UNIT	M53	HA-A/C
	REAR DOOR SWITCH RELAY	M36	EL-INT/L EL-WARN EL-TIME EL-THEFT
	RECEIVER CONTROL UNIT	M45	EL-PHONE
	SHIELD WIRE [FRONT DOOR SPEAKER (DRIVER SIDE)]	D5	EL-AUDIO
	SHIELD WIRE [FRONT DOOR SPEAKER (PASSENGER SIDE)]	D22	EL-AUDIO
	SHIFT LOCK CONTROL UNIT	M30	AT-SHIFT
	SHIFT LOCK SOLENOID	M49	AT-SHIFT
	SPOT LAMP	R4	EL-INT/L
	SUNROOF RELAY	M77	EL-SROOF
	THEFT WARNING CONTROL UNIT	M47	EL-THEFT
	THEFT WARNING STARTER RELAY	M17	EL-START EL-THEFT
	TIME CONTROL UNIT	M1	EC-LD/SIG EL-POWER EL-TIME
	TRUNK LID OPENER SWITCH	D12	EL-TLID EL-MULTI
	VANITY MIRROR ILLUMINATION (DRIVER SIDE)	R3	EL-INT/L
	VANITY MIRROR ILLUMINATION (PASSENGER SIDE)	R2	EL-INT/L
	WARNING BUZZER	M25	EL-TIME

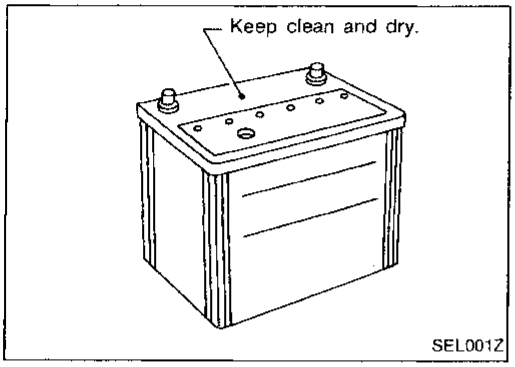
GROUND	CONNECT TO	CONN. NO.	CELL CORD
F15	IACV-AIR REGULATOR	F46	EC-AIRREG
F15/F37	CANISTER CONTROL VACUUM CHECK SWITCH	E46	EC-C/VCSW
	COOLING FAN MOTOR	E27	EC-COOL/F
	CRANKSHAFT POSITION SENSOR	F21	EC-CMPS
	DATA LINK CONNECTOR FOR GST	M91	EC-MIL
	ECM (ECCS CONTROL MODULE)	F27	EC-MAIN
	SHIELD WIRE (CRANKSHAFT POSITION SENSOR)	F21	EC-CMPS
	SHIELD WIRE (FRONT HEATED OXYGEN SENSOR LH)	F13	EC-FRO2LH EC-FO2H-L EC-FUELLH
	SHIELD WIRE (FRONT HEATED OXYGEN SENSOR RH)	F5	EC-FRO2RH EC-FO2H-R EC-FUELRH
	SHIELD WIRE (KNOCK SENSOR)	F81	EC-KS
	SHIELD WIRE (MASS AIR FLOW SENSOR)	F19	EC-MAFS
	SHIELD WIRE (REAR HEATED OXYGEN SENSOR LH)	B81	EC-RRO2LH EC-RO2H-L
	SHIELD WIRE (REAR HEATED OXYGEN SENSOR RH)	B80	EC-RRO2RH EC-RO2H-R
	SHIELD WIRE (THROTTLE POSITION SENSOR)	F17	EC-TPS AT-A/T HA-A/C
	SHIELD WIRE [CRANKSHAFT POSITION SENSOR (OBD)]	F71	EC-CKPS
	TRIPLE-PRESSURE SWITCH	E29	EC-COOL/F
F37	ECM (ECCS CONTROL MODULE)	F27	AT-A/T
	IGNITION COIL NO. 1	F31	EC-IGN/SG
	IGNITION COIL NO. 2	F33	EC-IGN/SG
	IGNITION COIL NO. 3	F36	EC-IGN/SG
	IGNITION COIL NO. 4	F39	EC-IGN/SG
	IGNITION COIL NO. 5	F43	EC-IGN/SG
	IGNITION COIL NO. 6	F45	EC-IGN/SG
	POWER TRANSISTOR UNIT	F48	EC-IGN/SG
E104	ALTERNATOR	E105	EL-CHARGE
	POWER STEERING SOLENOID VALVE	E111	ST-EPS
B9/B31	FRONT DOOR SWITCH (DRIVER SIDE)	B20	RS-SRS EL-D/LOCK EL-TIME
	HIGH-MOUNTED STOP LAMP	B27	EL-STOP/L
	MULTI-REMOTE CONTROL UNIT	B35	EL-MULTI
	POWER ANTENNA TIMER & MOTOR	B33	EL-P/ANT
	POWER SEAT (DRIVER SIDE)	B17	EL-SEAT
	REAR DOOR LOCK ACTUATOR LH (DOOR UNLOCK SENSOR)	D47	EL-MULTI EL-THEFT
	REAR DOOR SWITCH LH	D46	EL-INT/L EL-WARN EL-TIME EL-THEFT
	REAR POWER WINDOW AMP. LH	D43	EL-WINDOW
	REAR POWER WINDOW SUB-SWITCH LH (ILLUMINATION)	D45	EL-ILL
	SEAT BACK HEATER (DRIVER SIDE)	EL16	EL-HSEAT
	SEAT BELT BUCKLE SWITCH (DRIVER SIDE)	B18	RS-SRS EL-TIME
B54	SHIELD WIRE (ABS CONTROL UNIT)	B70	BR-ABS

GROUND	CONNECT TO	CONN. NO.	CELL CORD
B54/B71	DROPPING RESISTOR	B74	EC-FPCM EC-F/PUMP
	FRONT DOOR SWITCH (PASSENGER SIDE)	B59	EL-D/LOCK
	FUEL PUMP CONTROL MODULE (FPCM)	B75	EC-FPCM EC-F/PUMP
	FUEL TANK GAUGE UNIT	B67	EL-METER EL-WARN
	HANDSET	B57	EL-PHONE
	POWER SEAT (PASSENGER SIDE)	B55	EL-SEAT
	REAR DOOR LOCK ACTUATOR RH (DOOR UNLOCK SENSOR)	D57	EL-MULTI EL-THEFT
	REAR DOOR SWITCH RH	D56	EL-INT/L EL-WARN EL-TIME EL-THEFT
	REAR POWER WINDOW AMP. RH	D53	EL-WINDOW
	REAR POWER WINDOW SUB-SWITCH RH (ILLUMINATION)	D55	EL-ILL
	REAR SPEAKER LH	B68	EL-AUDIO
	REAR SPEAKER RH	B66	EL-AUDIO
	SEAT BACK HEATER (PASSENGER SIDE)	EL19	EL-HSEAT
	TRANSCEIVER UNIT	B82	EL-PHONE
B76	SHIELD WIRE (REAR WHEEL SENSOR)	B62	BR-ABS
T2/T5	BACK-UP LAMP LH	T16	EL-BACK/L
	BACK-UP LAMP RH	T13	EL-BACK/L
	LICENSE LAMP LH	T15	EL-TAIL/L
	LICENSE LAMP RH	T14	EL-TAIL/L
	REAR COMBINATION LAMP LH	T9	EL-TAIL/L EL-STOP/L EL-TURN
	REAR COMBINATION LAMP RH	T3	EL-TAIL/L EL-STOP/L EL-TURN
	REAR SIDE MARKER LAMP LH	T17	EL-TAIL/L
	REAR SIDE MARKER LAMP RH	T12	EL-TAIL/L
	STOP AND TAIL LAMP SENSOR	T8	EL-STOP/L
	TRUNK LID KEY CYLINDER SWITCH	T4	EL-THEFT
	TRUNK ROOM LAMP SWITCH	T7	EL-INT/L EL-MULTI EL-THEFT

CAUTION:

a. If it becomes necessary to start the engine with a booster battery and jumper cables, use a 12-volt booster battery.

b. After connecting battery cables, ensure that they are tightly clamped to battery terminals for good contact.

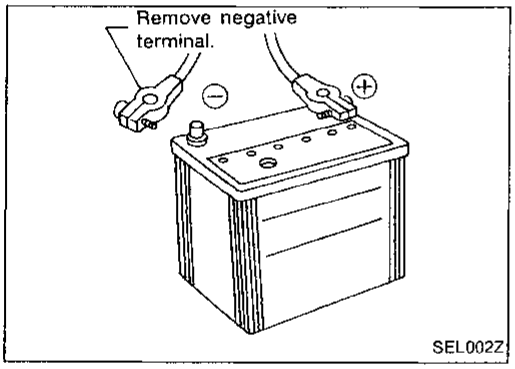


How to Handle Battery

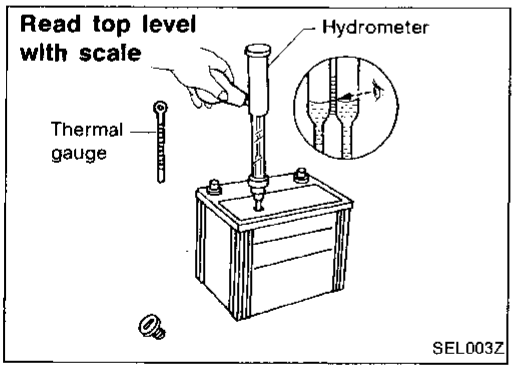
METHODS OF PREVENTING OVER-DISCHARGE

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.
  If the top surface of a battery is wet with electrolyte or water, leakage current will cause the battery to discharge. Always keep the battery clean and dry.



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



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

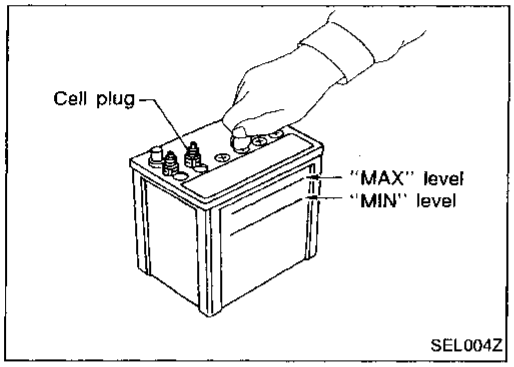
How to Handle Battery (Cont'd)

CHECKING ELECTROLYTE LEVEL

WARNING:

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

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

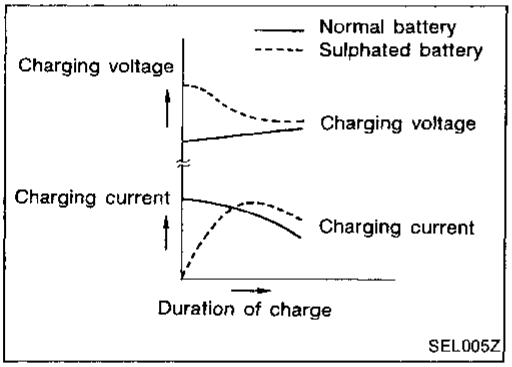


- Remove the cell plug using a suitable tool.
- Add distilled water up to the MAX level.

SULPHATION

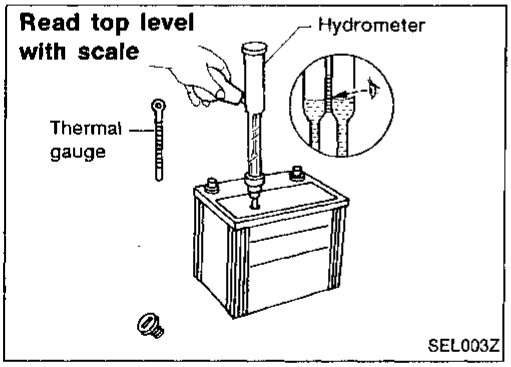
When a battery has been left unattended for a long period of time and has a specific gravity of less than 1.100, it will be completely discharged, resulting in sulphation on the cell plates.

Compared with a battery discharged under normal conditions, the current flow in a "sulphated" battery is not as smooth although its voltage is high during the initial stage of charging, as shown in the figure at the left.

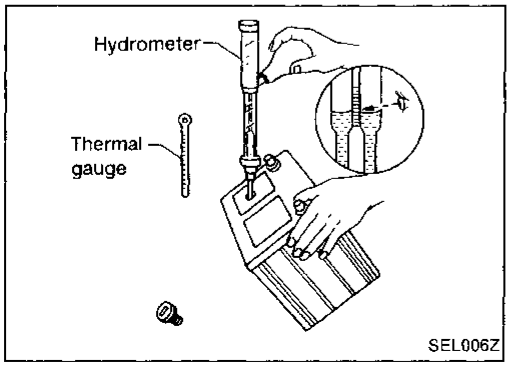


SPECIFIC GRAVITY CHECK

1. Read hydrometer and thermometer indications at eye level.



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

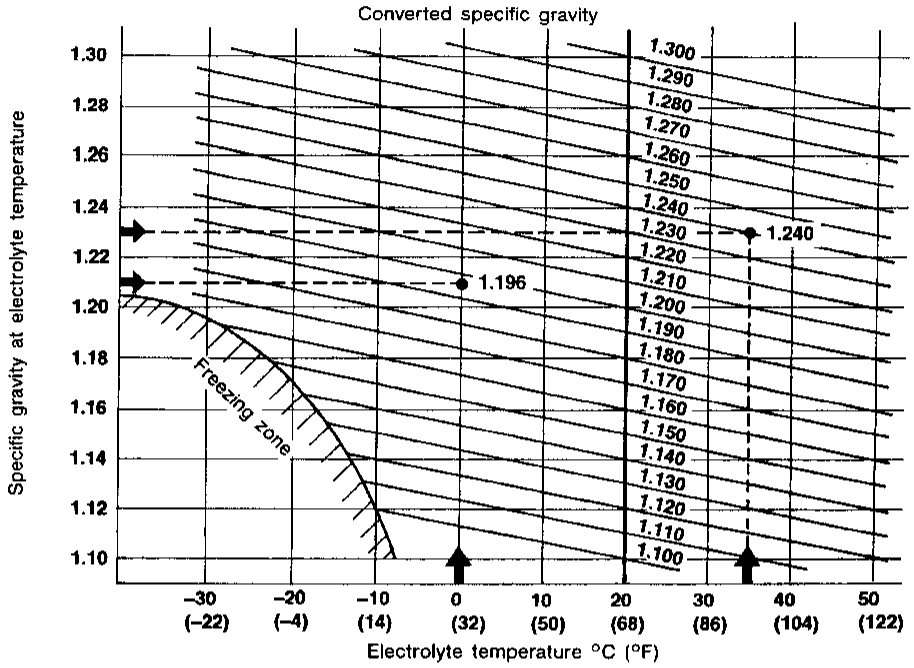


How to Handle Battery (Cont'd)

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

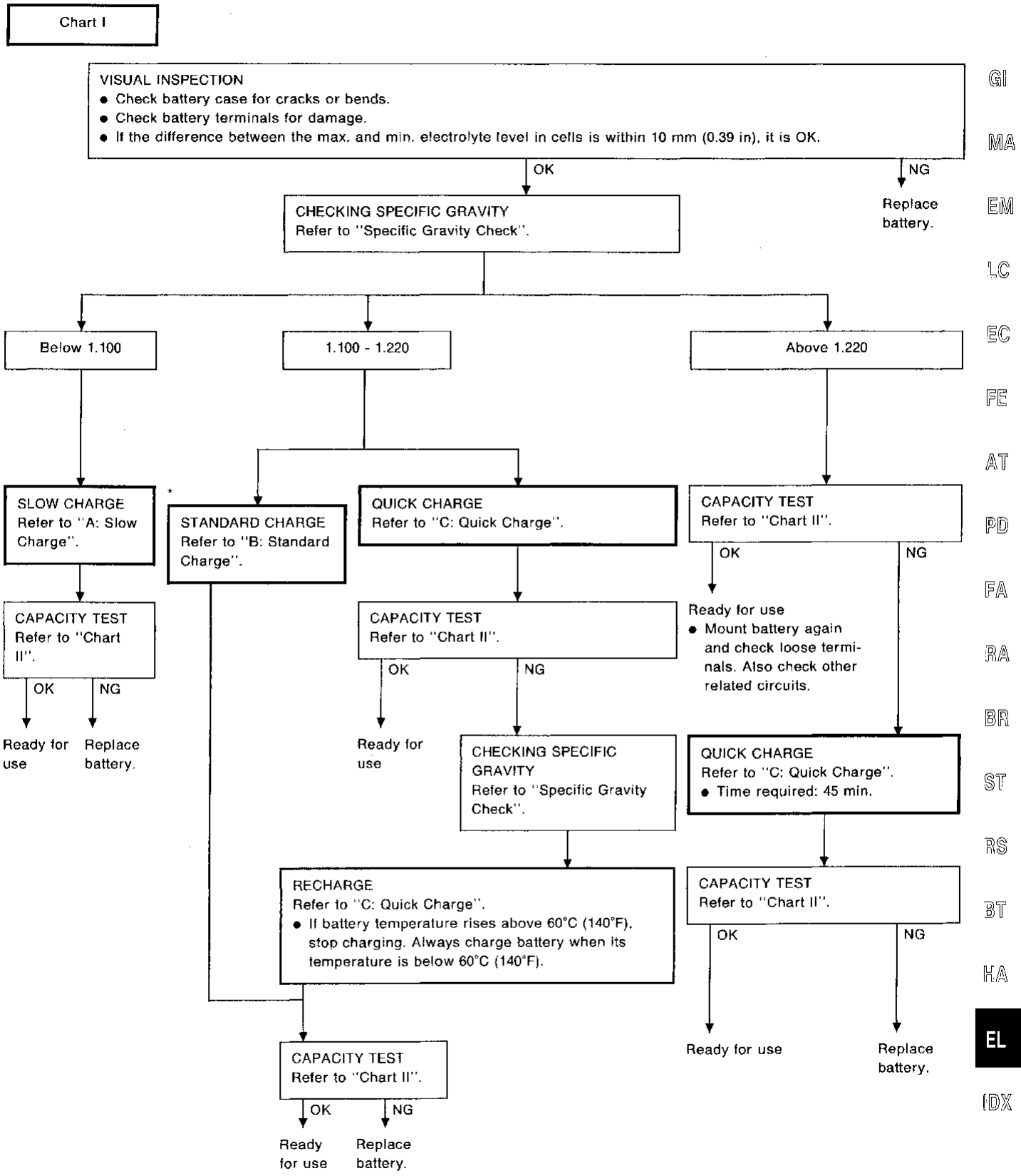
Example:

- 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.



SEL007Z

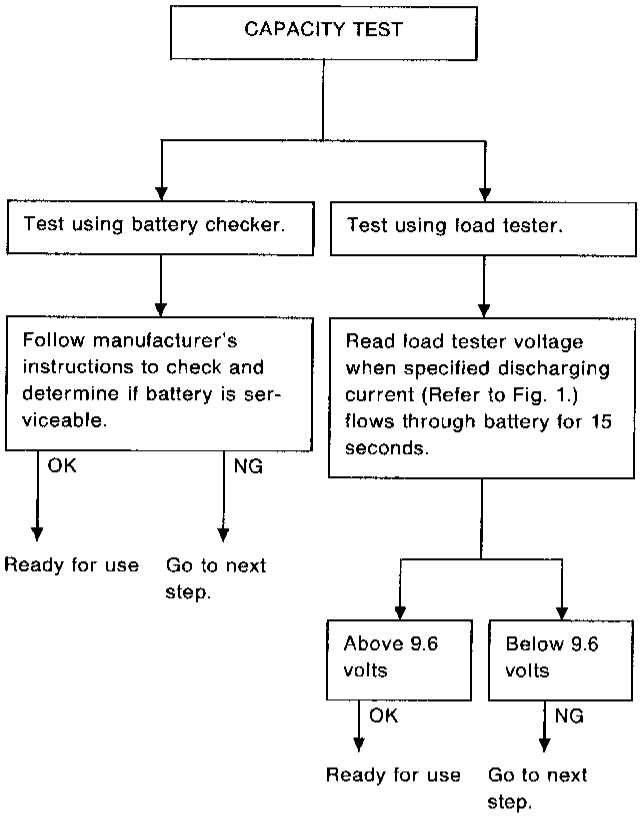
Battery Test and Charging Chart



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

Battery Test and Charging Chart (Cont'd)

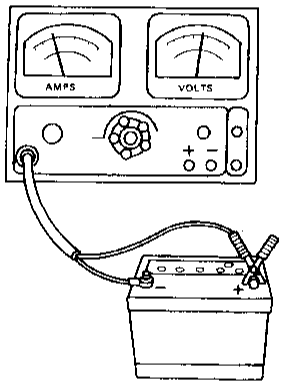
Chart II



- 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)

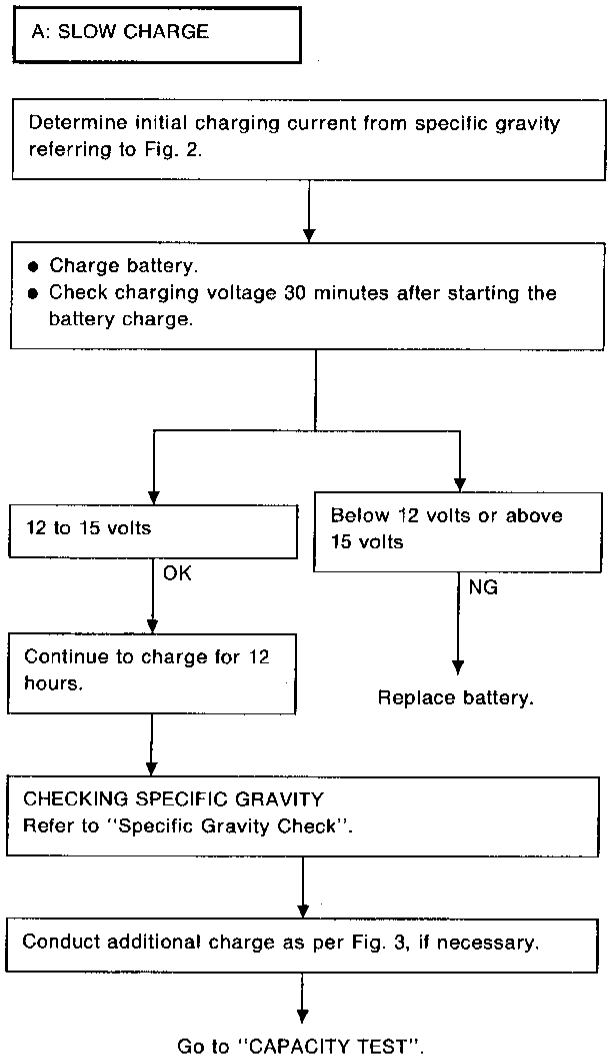
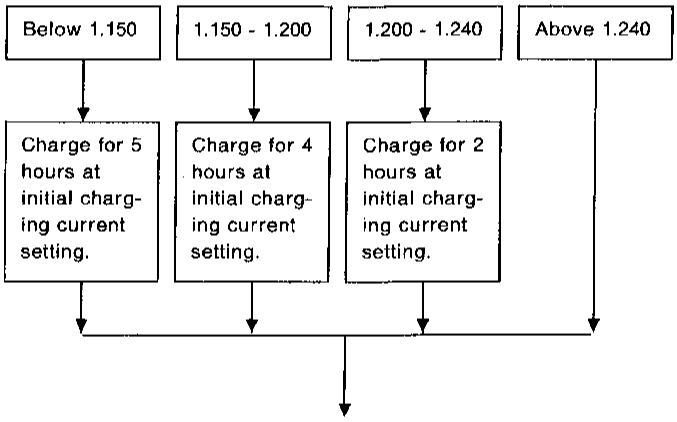


Fig. 2 INITIAL CHARGING CURRENT SETTING (Slow charge)

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.

↓

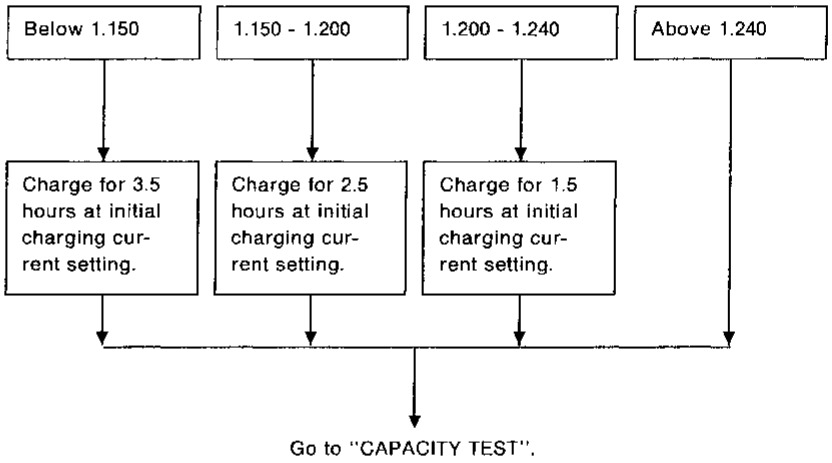
Go to "CAPACITY TEST".

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).**

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 area	USA		Canada
	Standard	Option	Standard
Type	65D26R	80D26R	
Capacity V-AH	12-65		

System Description

Power is supplied at all times
- to ignition switch terminal ①
- through 20A fuse (No. 61, located in the fuse and fusible link box).

Power is supplied at all times
- to starter relay terminal ③
- through 30A fusible link (letter d, located in the fuse and fusible link box).

With the ignition switch in the ON or START position, power is supplied
- through 7.5A fuse (No. 20, located in the fuse block [J/B])
- to theft warning starter relay terminal ①.

Also, with the ignition switch in the START position, power is supplied
- from ignition switch terminal ⑤
- to starter relay terminal ①
- through 7.5A fuse (No. 24, located in the fuse block [J/B]).

If the theft warning system is not triggered, ground is supplied
- to starter relay terminal ②
- through theft warning starter relay terminal ④
- to theft warning starter relay terminal ③
- through body grounds (M14) and (M68).

The starter relay is energized and power is supplied
- from starter relay terminal ⑤
- to starter hold relay terminal ⑤
- through starter hold relay terminal ③
- to starter relay terminal ①
- through diode.

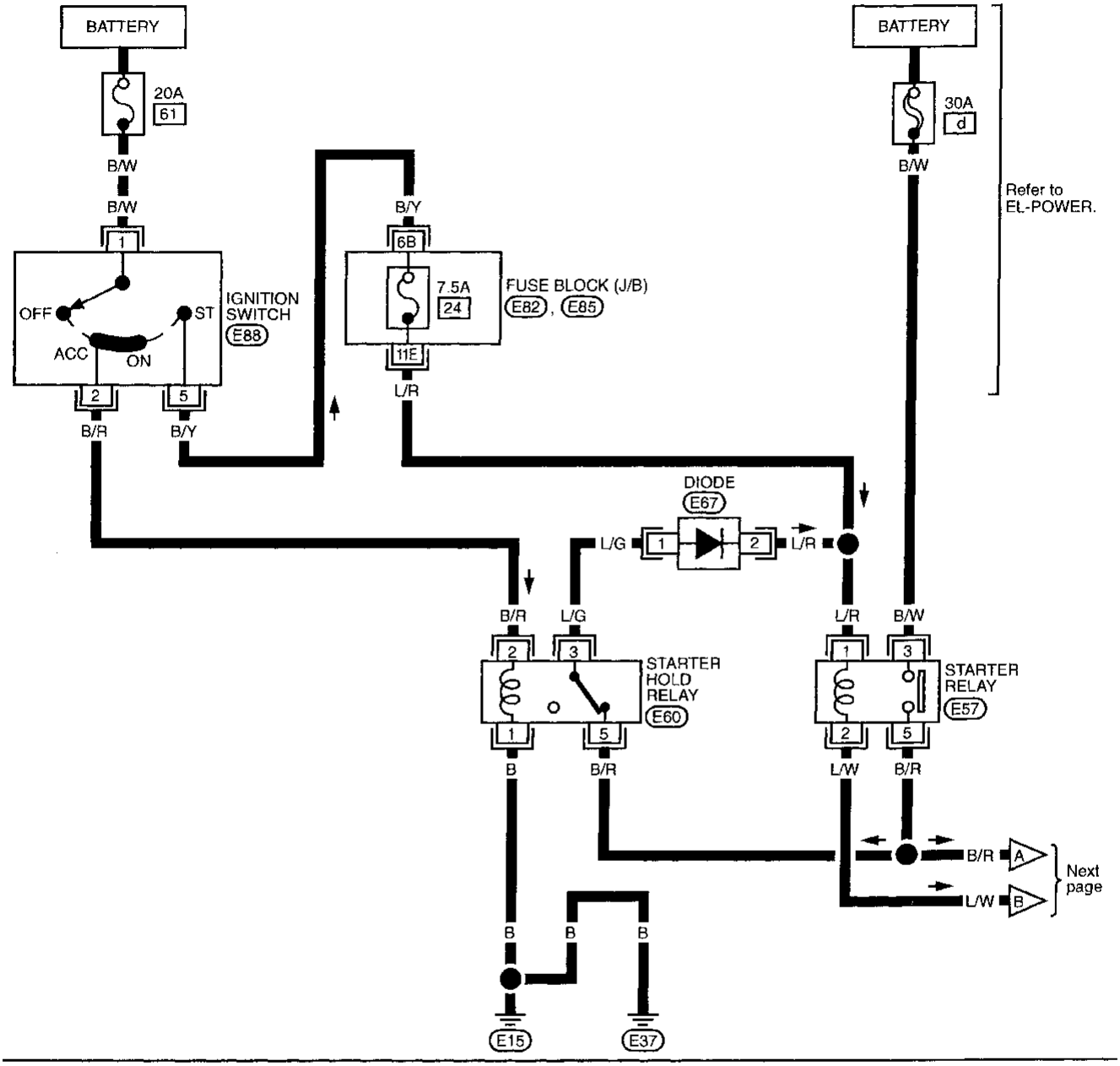
Power is also supplied
- from starter relay terminal ⑤
- to inhibitor switch terminal ②
- through inhibitor switch terminal ①, with the select lever in the P or N position
- to terminal ② of the starter motor windings.

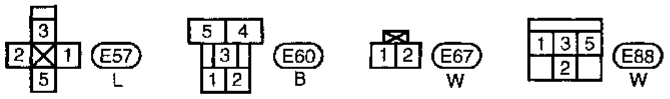
The starter motor plunger closes and provides a closed circuit between the battery and the starter motor. The starter motor is grounded to the cylinder block. With power and ground supplied, the starter motor operates.

If the theft warning system is triggered, terminal ② of the theft warning starter relay is grounded and power to the inhibitor switch is interrupted.

Wiring Diagram — START —

EL-START-01



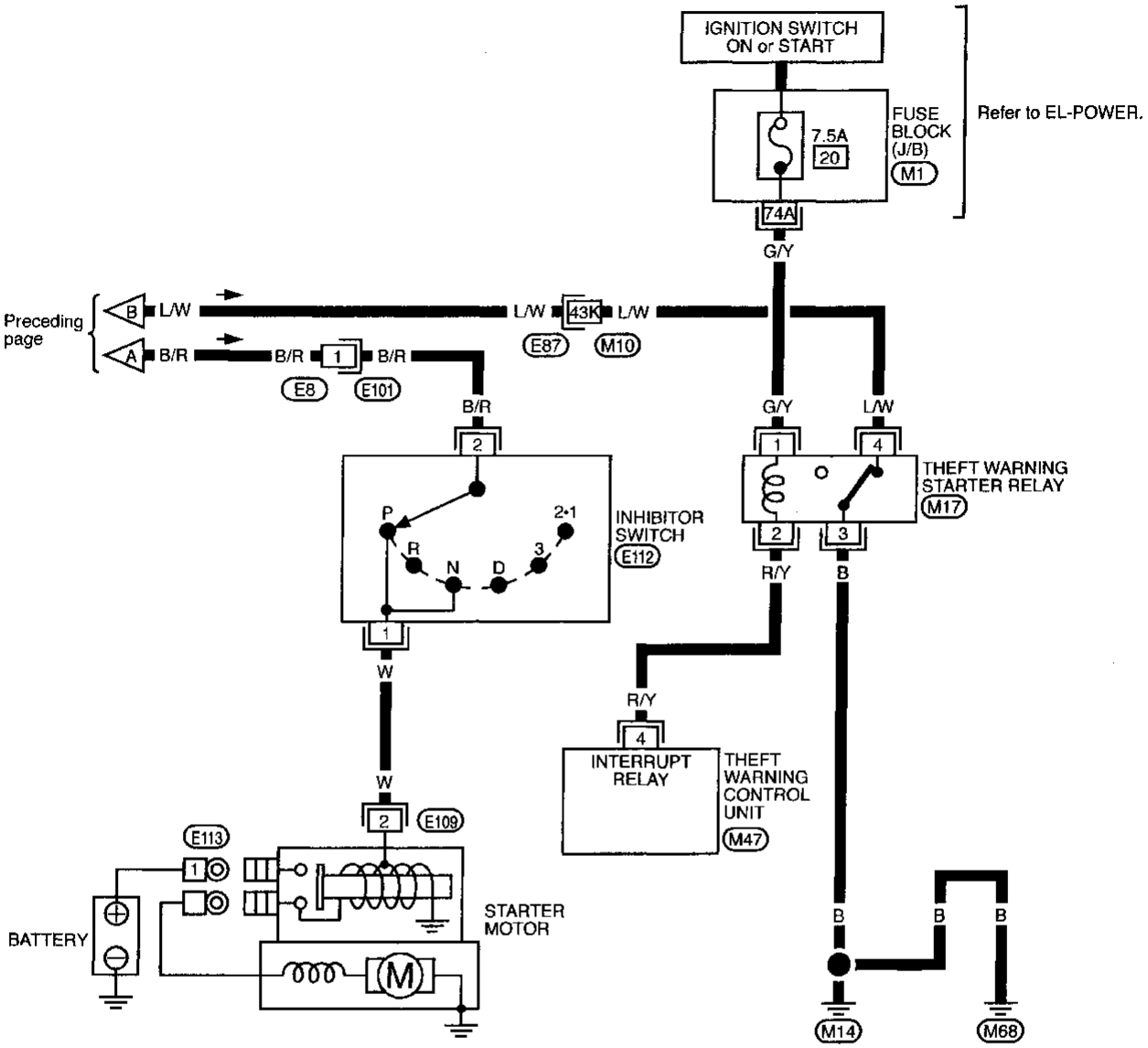


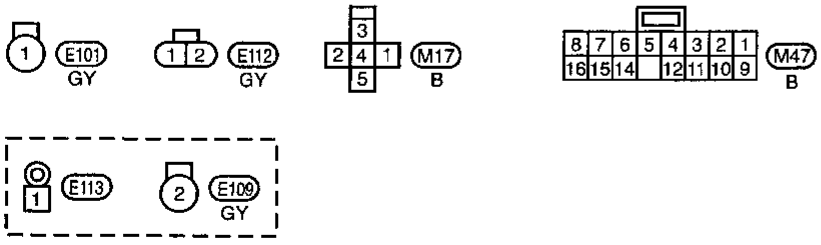
Refer to last page (Foldout page).
E82, E85

TEL170

Wiring Diagram — START — (Cont'd)

EL-START-02



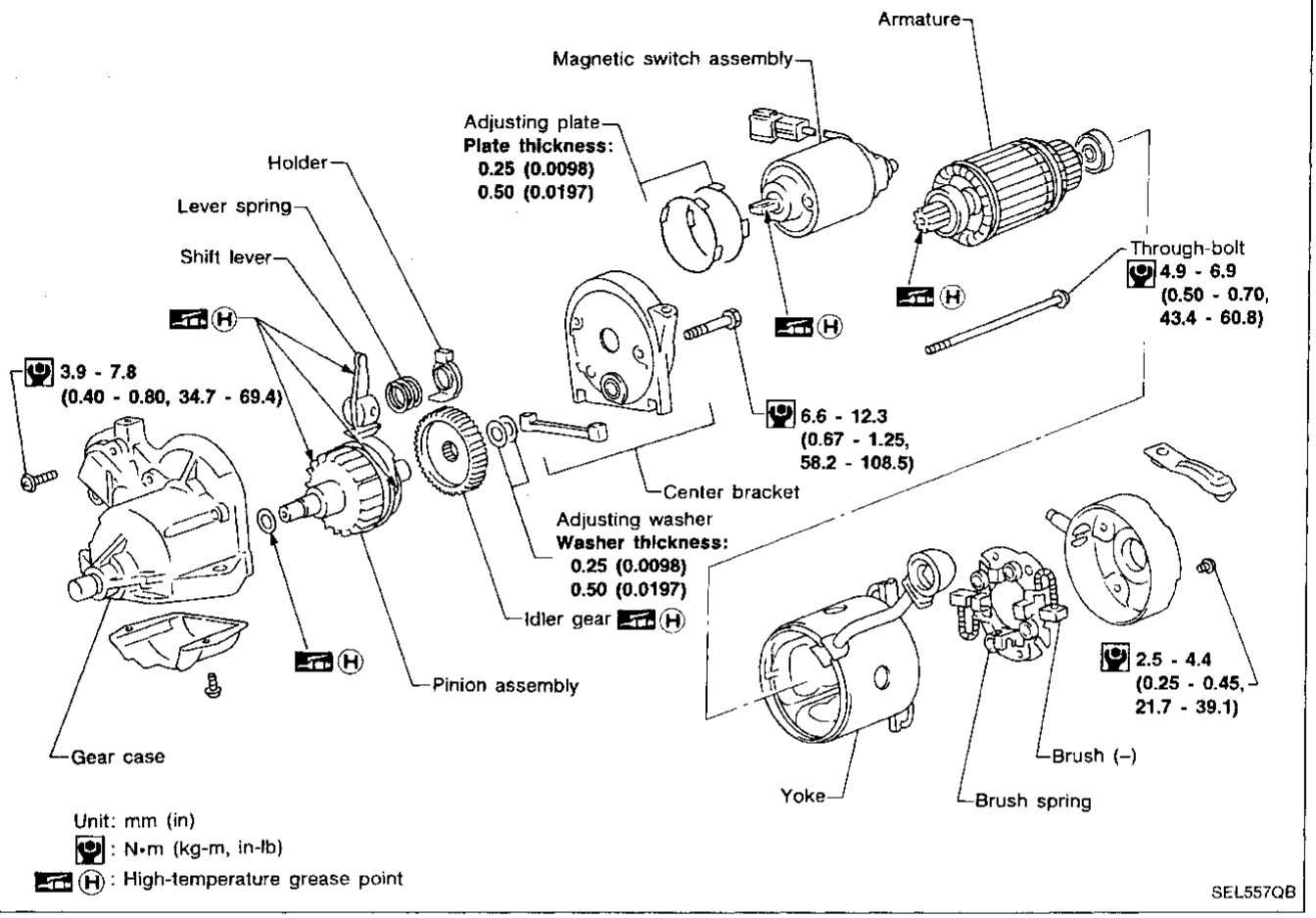


Refer to last page (Foldout page).
M10 , E87
M1

TEL171

Construction

M2T25282



Service Data and Specifications (SDS)

STARTER

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

System Description

The alternator provides DC voltage to operate the vehicle's electrical system and to keep the battery charged. AC voltage is converted into DC voltage by the diode assembly in the alternator.
Power is supplied at all times to alternator terminal ④ through:

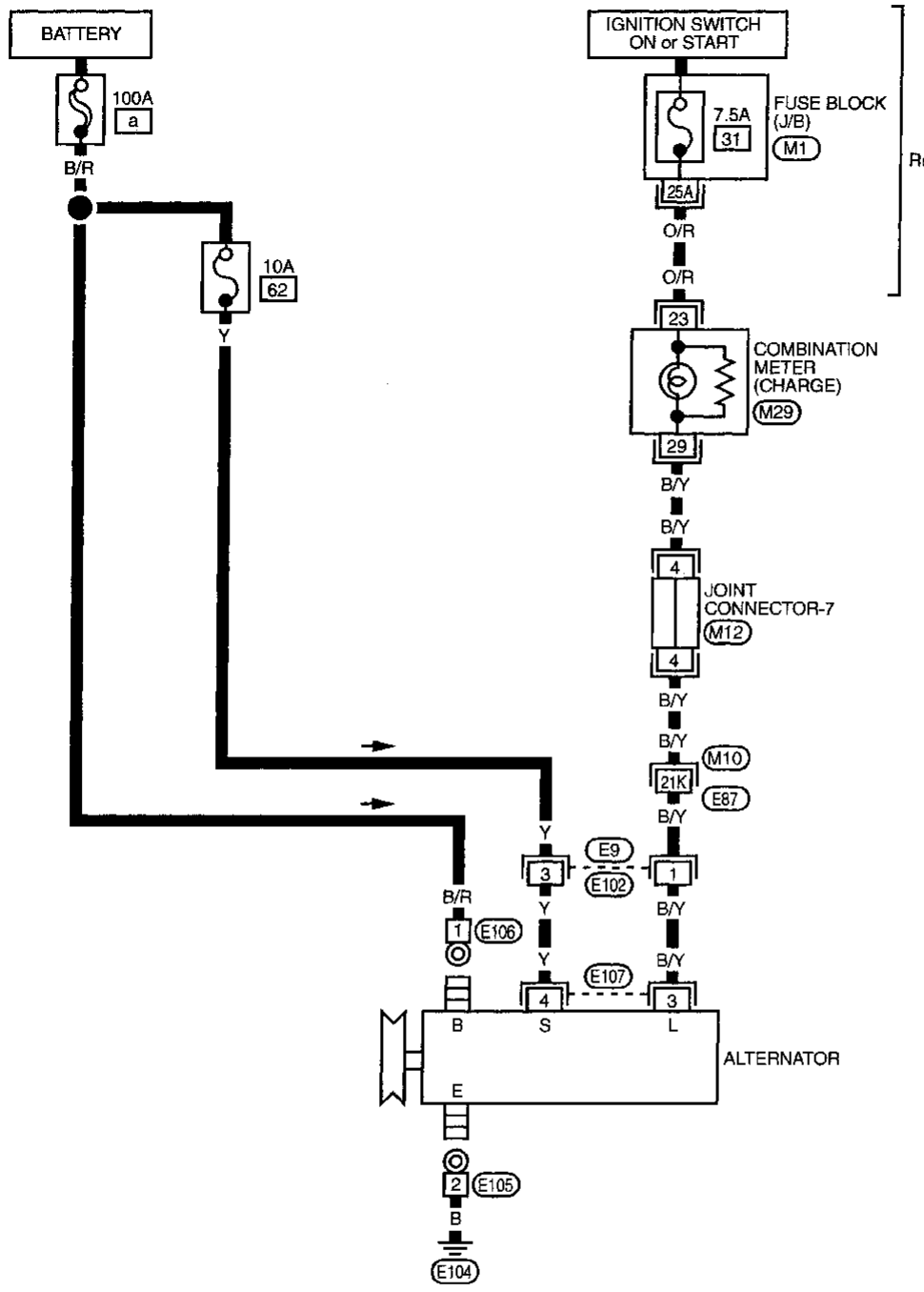
- 100A fusible link (letter [a], located in the fuse and fusible link box), and
- 10A fuse (No. [62], located in the fuse and fusible link box).

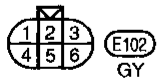
Voltage output through alternator terminal ①, is controlled by the IC regulator at terminal ④. The charging circuit is protected by the 100A fusible link.
Terminal ② of the alternator supplies ground through body ground (E104).
With the ignition switch in the ON or START position, power is supplied

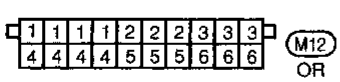
- through 7.5A fuse (No. [31], located in the fuse block [J/B])
- to combination meter terminal ㉓ for the charge warning indicator.

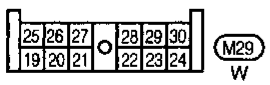
Ground is supplied to terminal ㉙ of the combination meter through terminal ③ of the alternator. With power and ground supplied, the charge warning indicator will illuminate. When the alternator is providing sufficient voltage, the ground is opened and the charge warning indicator will go off.
If the charge warning indicator illuminates with the engine running, a malfunction is indicated. Refer to "Trouble-shooting" (EL-40).

Wiring Diagram — CHARGE —









Refer to last page (Foldout page).
M10, E87
M1

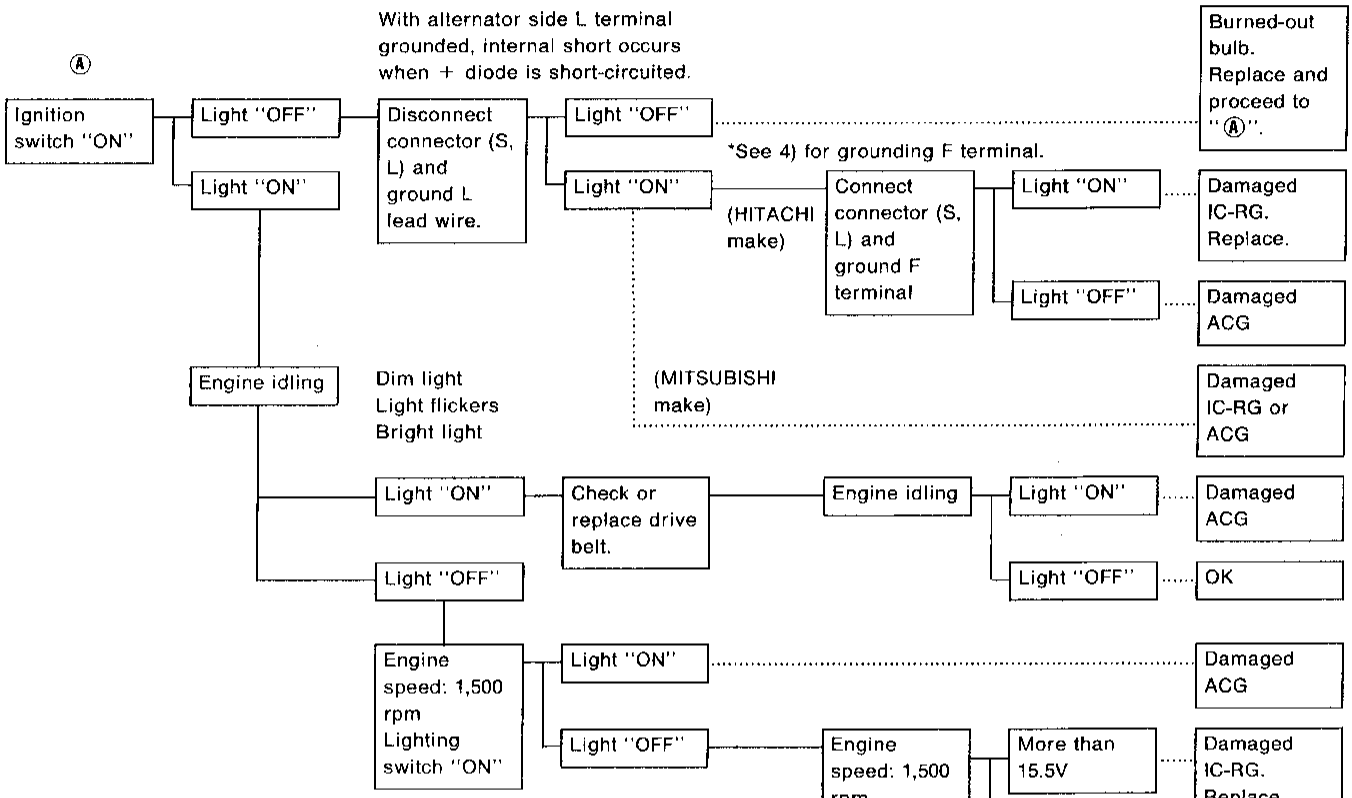
TEL172

Trouble-shooting

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 trouble-shooting, inspect the fusible link.

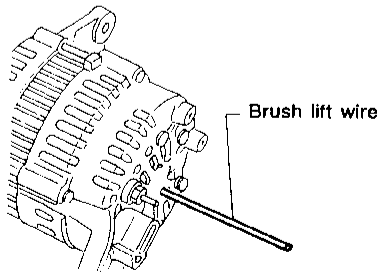
WITH IC REGULATOR



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

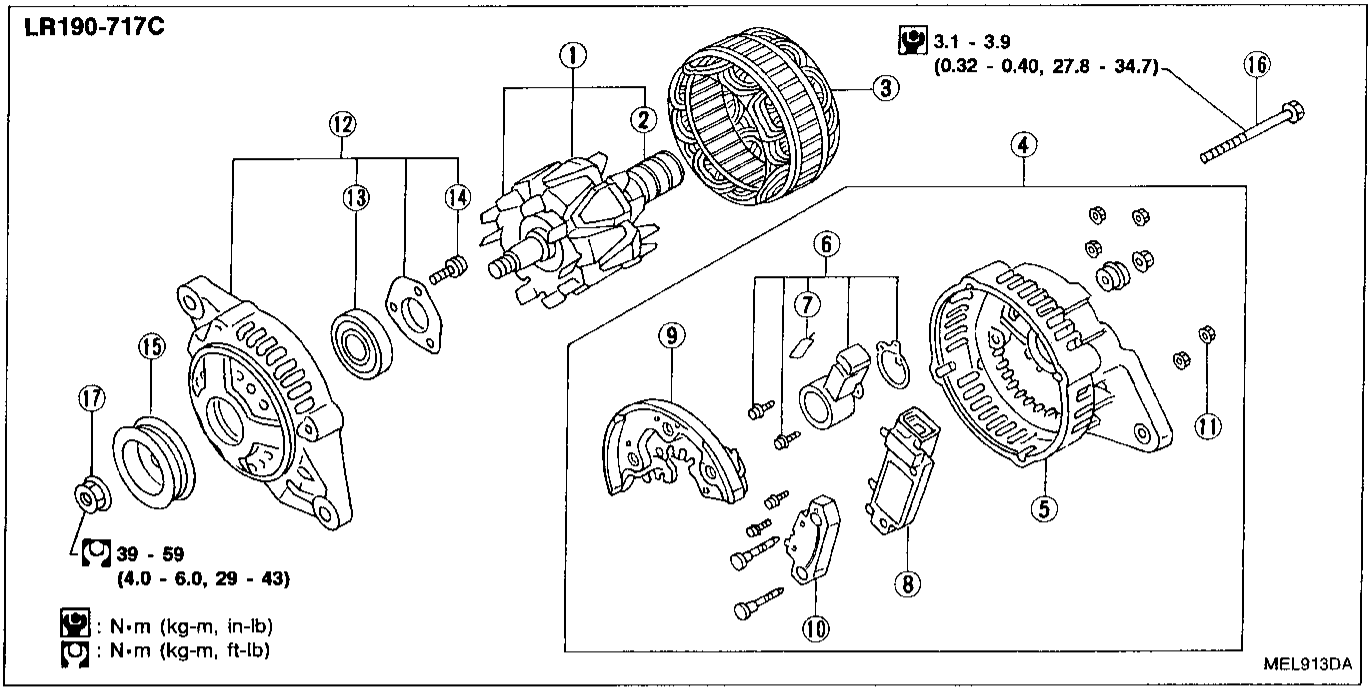
Contact tip of wire with brush and attach wire to alternator body.



SEL030Z

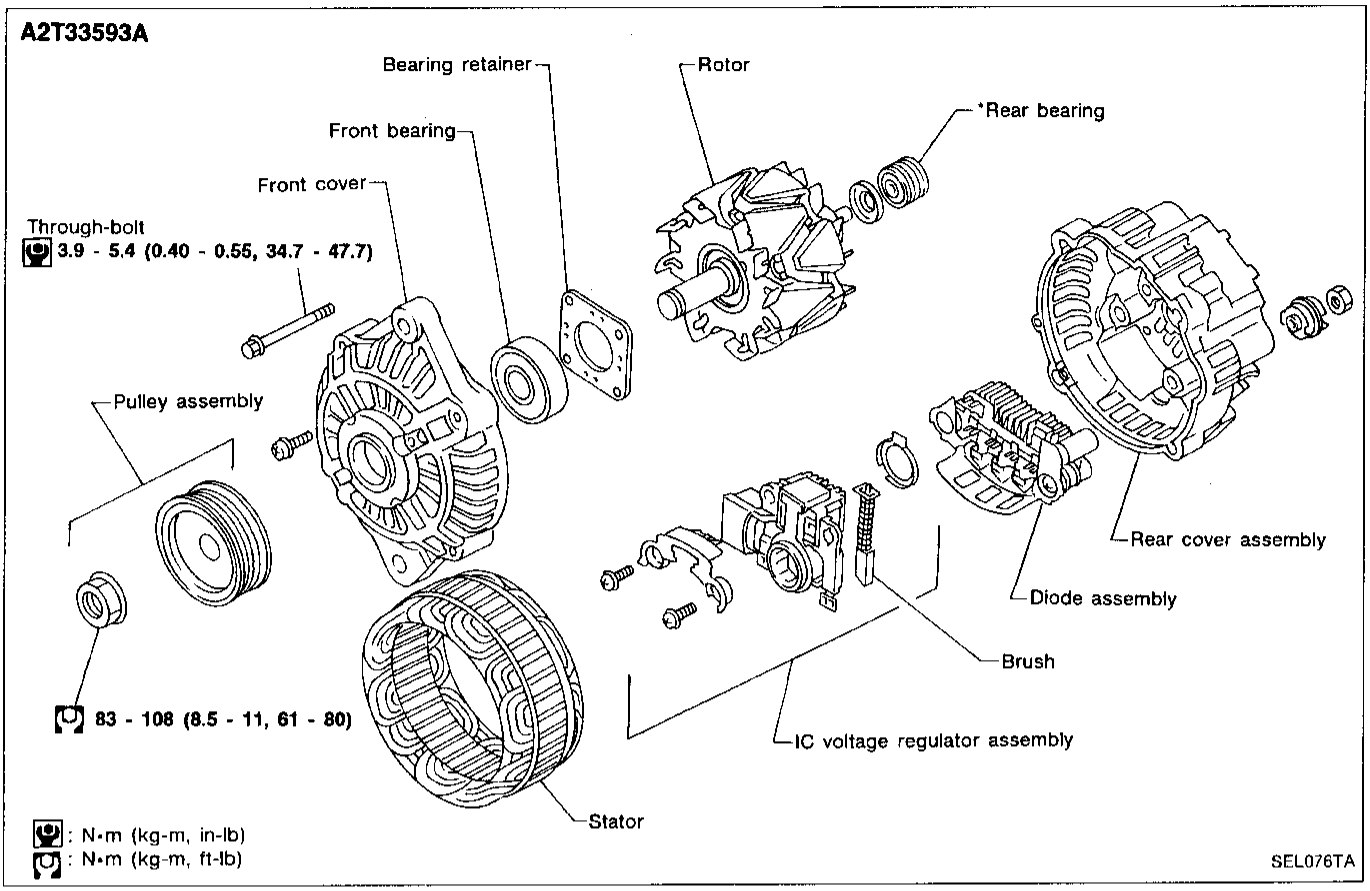
5) **Terminals "S", "L", "B" and "E" are marked on rear cover of alternator.**

Construction



① Rotor assembly
② Ball bearing
③ Stator assembly
④ Rear cover assembly
⑤ Rear cover
⑥ Brush holder assembly
⑦ Brush set
⑧ Regulator assembly
⑨ Diode assembly
⑩ Condenser
⑪ Nut assembly
⑫ Front cover assembly
⑬ Ball bearing
⑭ Screw kit
⑮ Pulley
⑯ Through bolt
⑰ Pulley nut

Construction (Cont'd)



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

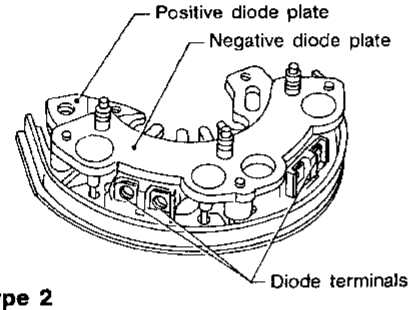
Diode Check

MAIN DIODES

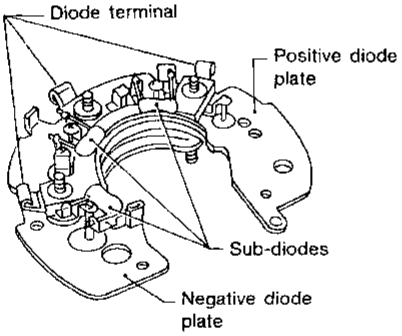
- Use an ohmmeter to check condition of diodes as indicated in chart below.
- If any of the test results is not satisfactory, replace diode assembly.

	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	

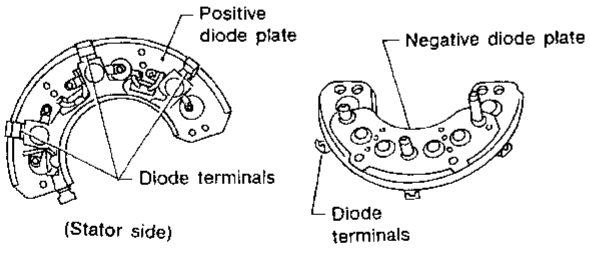
Type 1



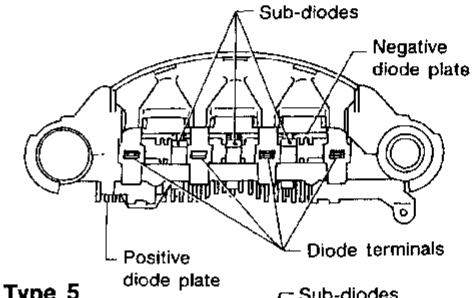
Type 2



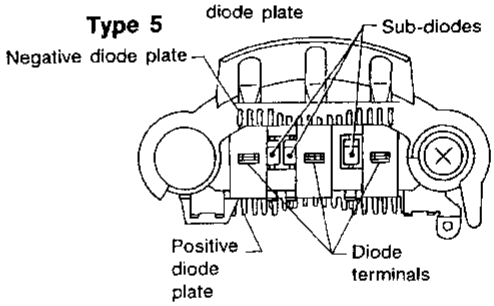
Type 3



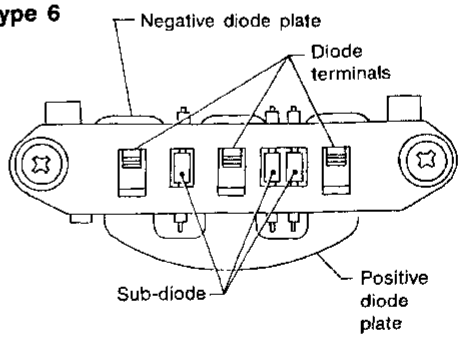
Type 4



Type 5



Type 6

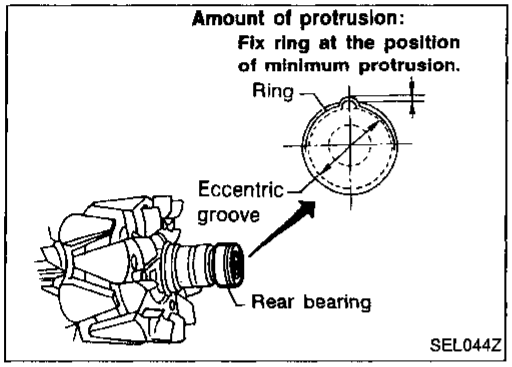


SEL039Z

Assembly

Carefully observe the following instructions.

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

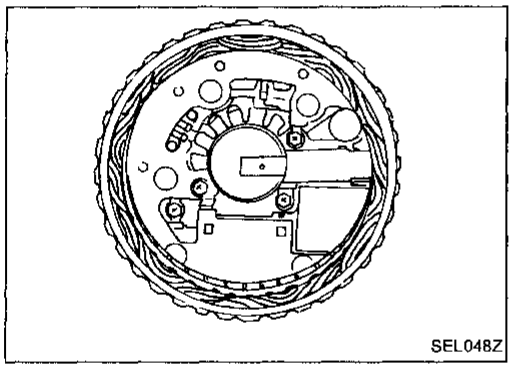


RING FITTING IN REAR BEARING

- 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.

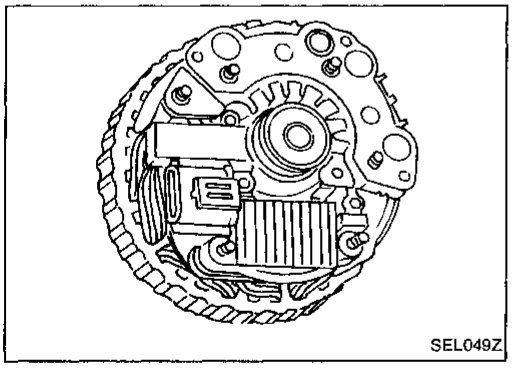


REAR COVER INSTALLATION

(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.

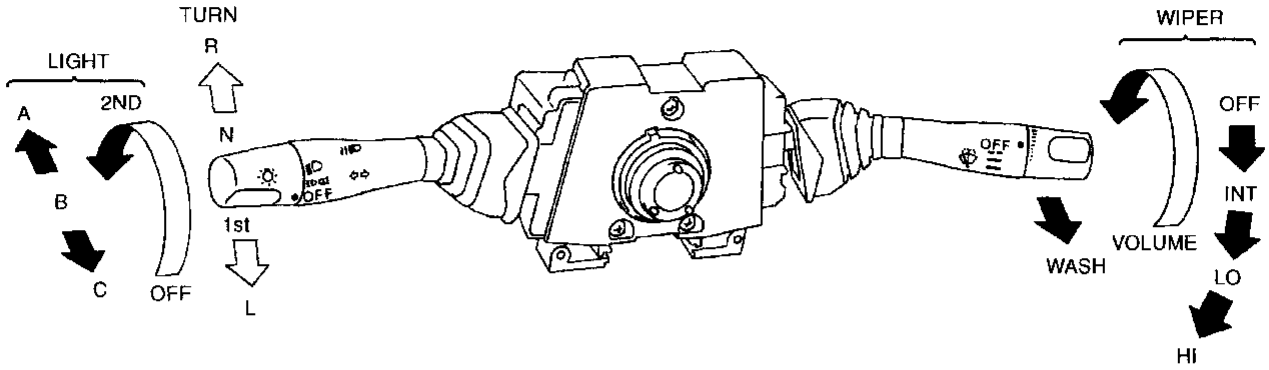


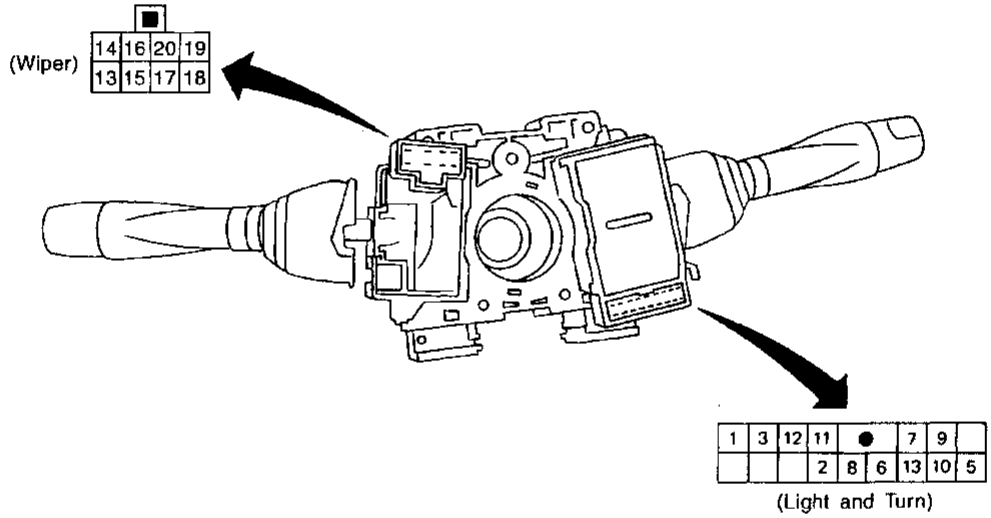
Service Data and Specifications (SDS)

ALTERNATOR

Type	LR190-717C	A2T33593A
	HITACHI	MITSUBISHI
Nominal rating V-A	12-90	
Ground polarity	Negative	
Minimum revolution under no-load (When 13.5 volts is applied) rpm	Less than 1,000	Less than 1,300
Hot output current A/rpm	More than 23/1,300 More than 63/2,500 More than 87/5,000	More than 20/1,300 More than 61/2,500
Regulated output voltage V	14.1 - 14.7	
Minimum length of brush mm (in)	6.0 (0.236)	More than 5.0 (0.197)
Brush spring pressure N (g, oz)	1.000 - 3.432 (102 - 350, 3.60 - 12.34)	4.609 - 5.786 (470 - 590, 16.58 - 20.81)
Slip ring minimum diameter mm (in)	More than 26.0 (1.024)	More than 22.1 (0.870)
Rotor (Field coil) resistance Ω	3.4	—

Combination Switch/Check





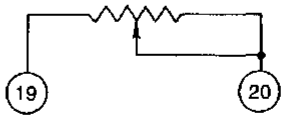
LIGHTING SWITCH

	OFF			1			2		
	A	B	C	A	B	C	A	B	C
5				○	○	○	○	○	○
6				○	○	○	○	○	○
7			○			○	○	○	○
8							○	○	○
9			○			○	○	○	○
10							○	○	○
11		○			○			○	
12		○			○			○	
13			○			○			○

FRONT WIPER SWITCH

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

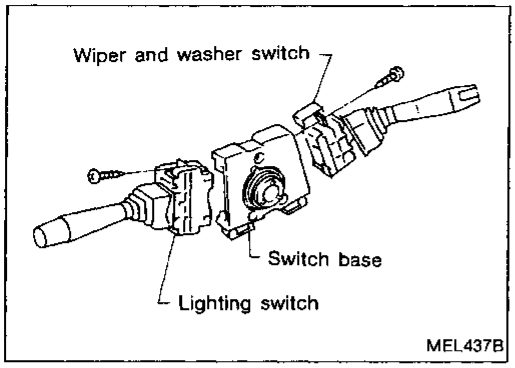
INTERMITTENT WIPER VOLUME



TURN SIGNAL LAMP SWITCH

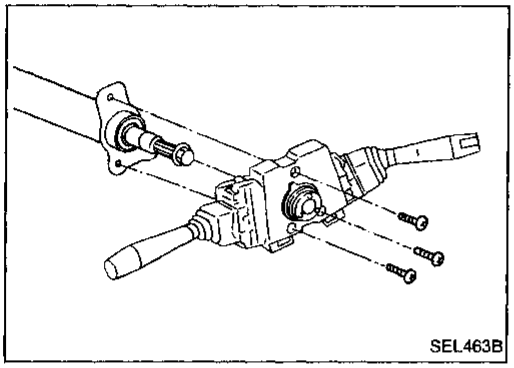
	R	N	L
1	○		○
2	○		
3			○

CEL085



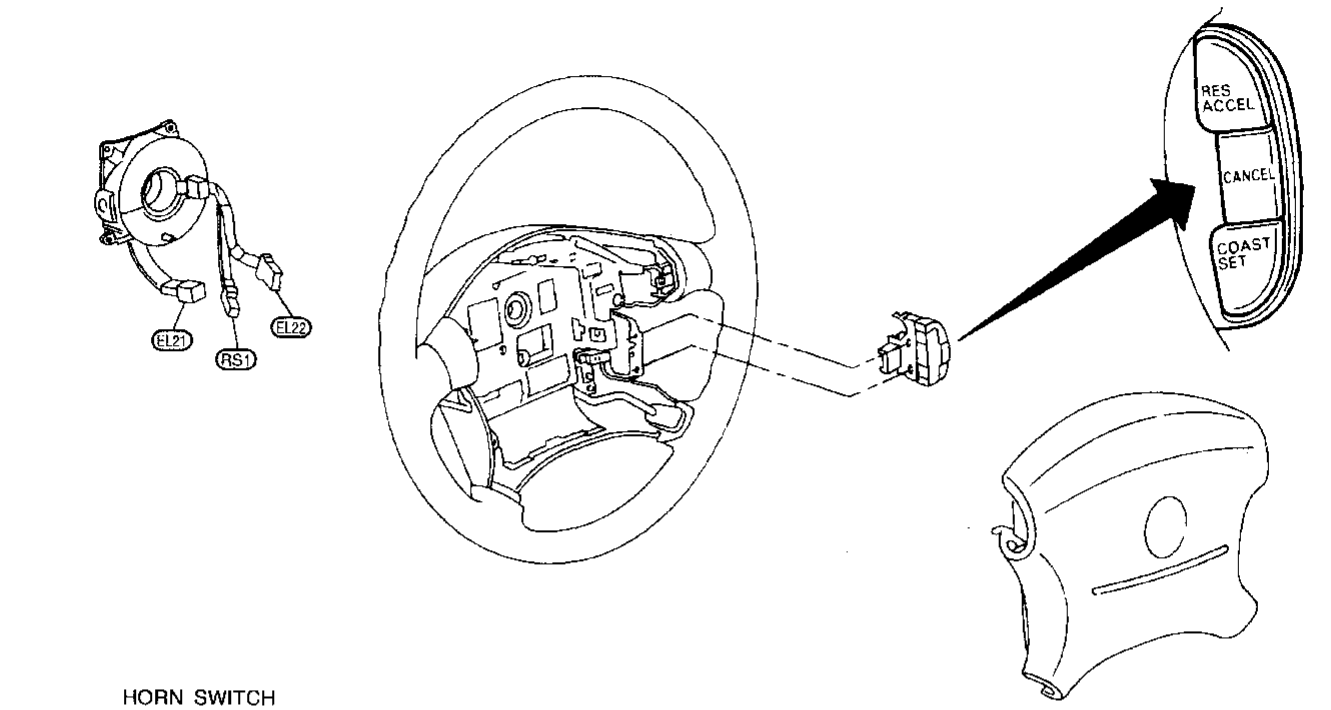
Combination Switch/Replacement

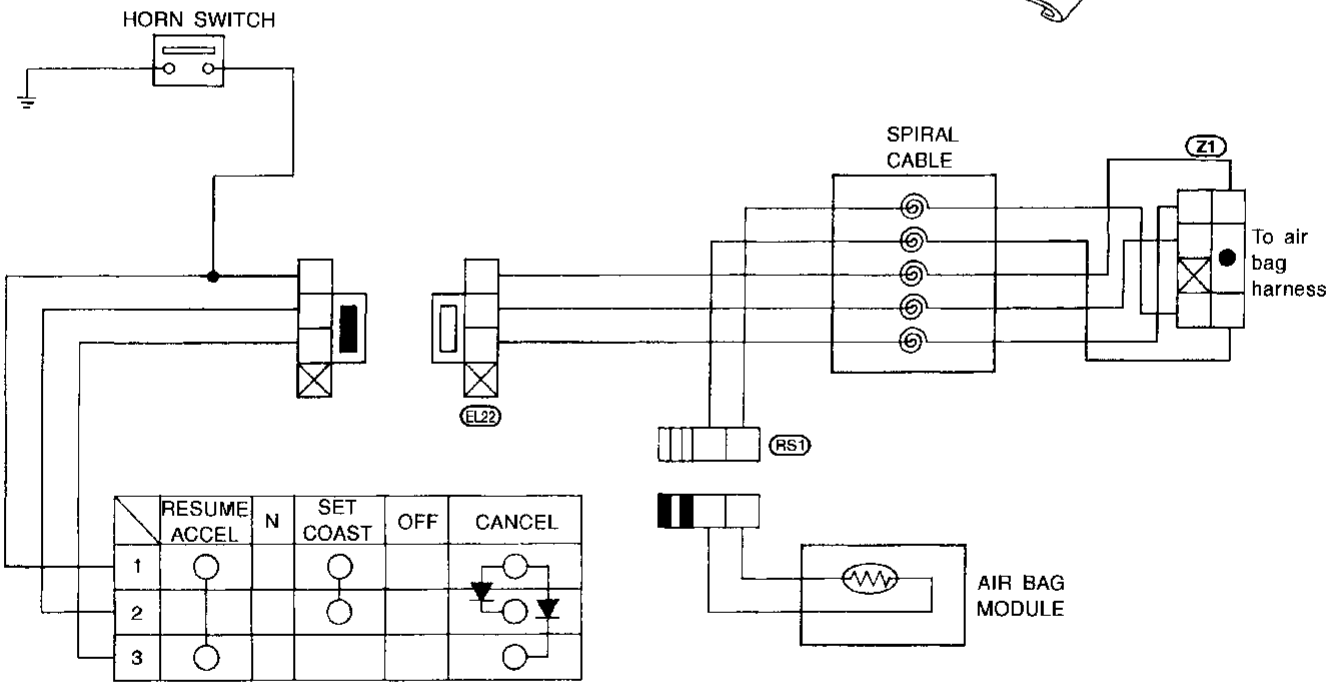
- Each switch can be replaced without removing combination switch base.



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

Steering Switch/Check





	RESUME ACCEL	N	SET COAST	OFF	CANCEL
1	○		○		○
2			○		○
3	○				○

CEL086

System Description (For U.S.A.)

Power is supplied at all times
- through 15A fuse (No. 52, located in the fuse and fusible link box)
- to headlamp control relay unit terminal ⑧.

Power is also supplied at all times
- through 15A fuse (No. 51, located in the fuse and fusible link box)
- to headlamp control relay unit terminal ①.

Low beam operation

When the lighting switch is moved to the 2ND position and placed in LOW ("B") position, power is supplied
- from headlamp control relay unit terminal ⑥
- to LH headlamp (low) terminal ①, and
- from headlamp control relay unit terminal ③
- to RH headlamp (low) terminal ①.

Terminal ② of each headlamp supplies ground through body grounds (E15) and (E37). With power and ground supplied, the low beam headlamps illuminate.

High beam operation

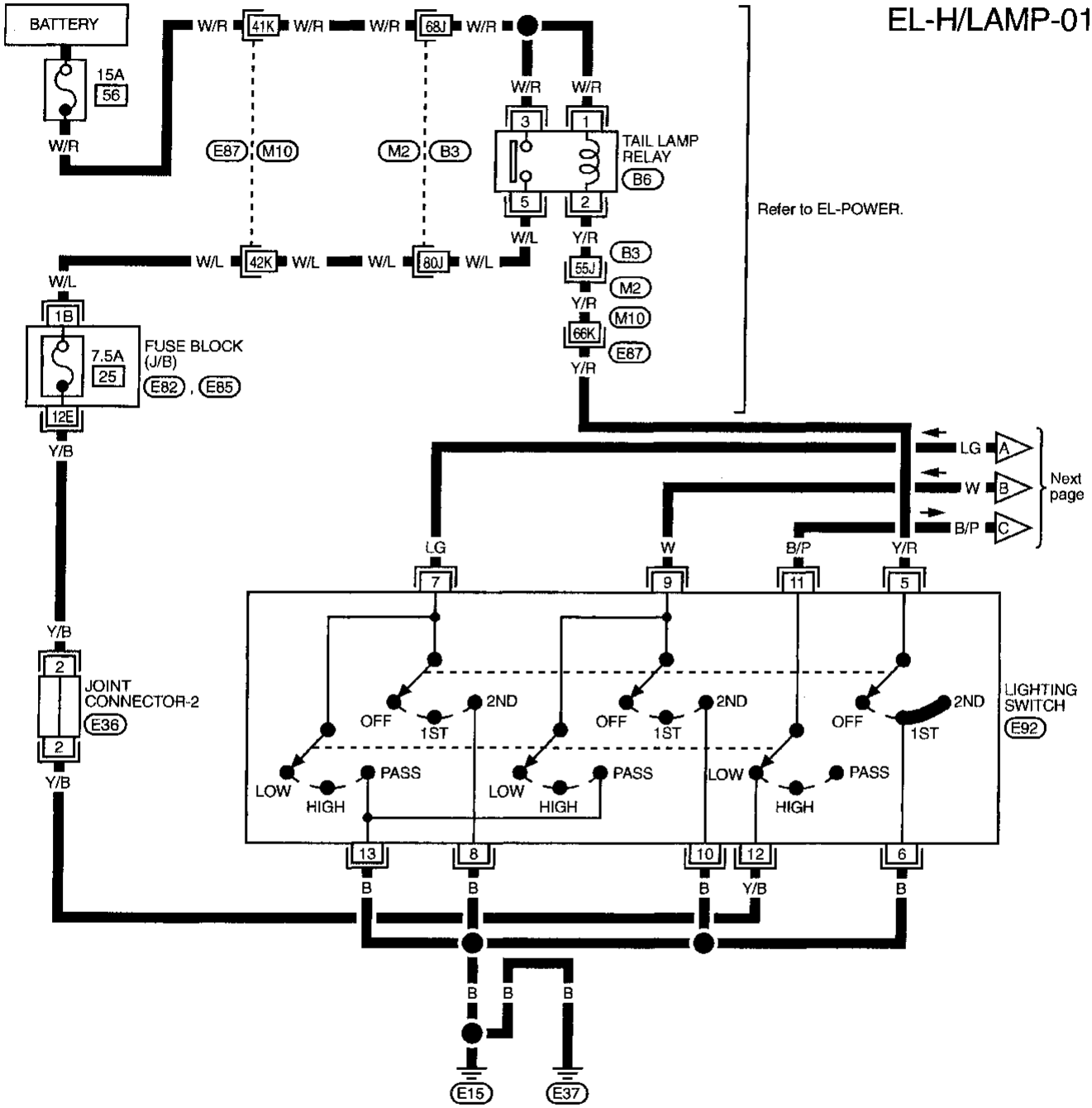
When the lighting switch is moved to the 2ND position and placed in HIGH ("A") or PASS ("C") position, power is supplied
- from headlamp control relay unit terminal ⑥
- to LH headlamp (low) terminal ①, and
- from headlamp control relay unit terminal ③
- to RH headlamp (low) terminal ①.

Terminal ② of each headlamp supplies ground through body grounds (E15) and (E37). Also, when the lighting switch is moved to the 2ND position and placed in HIGH ("A") or PASS ("C") position, power is supplied
- from headlamp control relay unit terminal ⑩
- to LH headlamp (high) terminal ①, and
- from headlamp control relay unit terminal ⑨
- to RH headlamp (high) terminal ①, and
- to combination meter terminal ⑬ for the HIGH BEAM indicator.

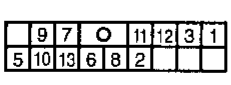
Terminal ② of each headlamp supplies ground through body grounds (E15) and (E37).
Ground is also supplied to terminal ⑫ of the combination meter through body grounds (M14) and (M68). With power and ground supplied, all headlamps and the HIGH BEAM indicator illuminate.

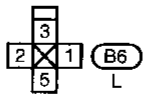
Wiring Diagram — H/LAMP —

FOR U.S.A.




E36 GY


E92 BR


B6 L

Refer to last page (Foldout page).

E82, E85

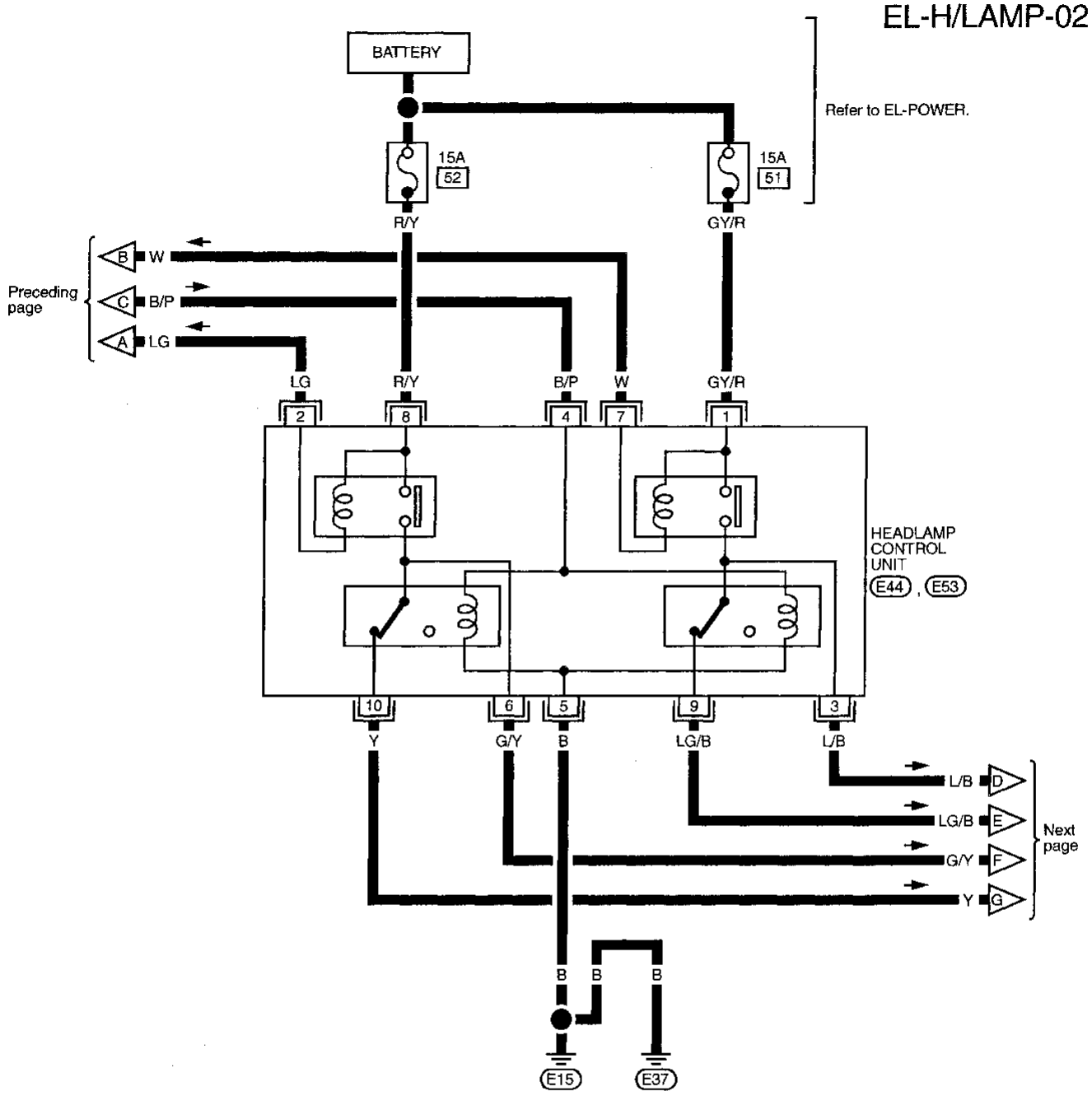
M2, B3

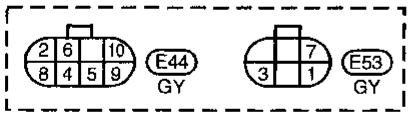
M10, E87

TEL210

Wiring Diagram — H/LAMP — (Cont'd)

EL-H/LAMP-02

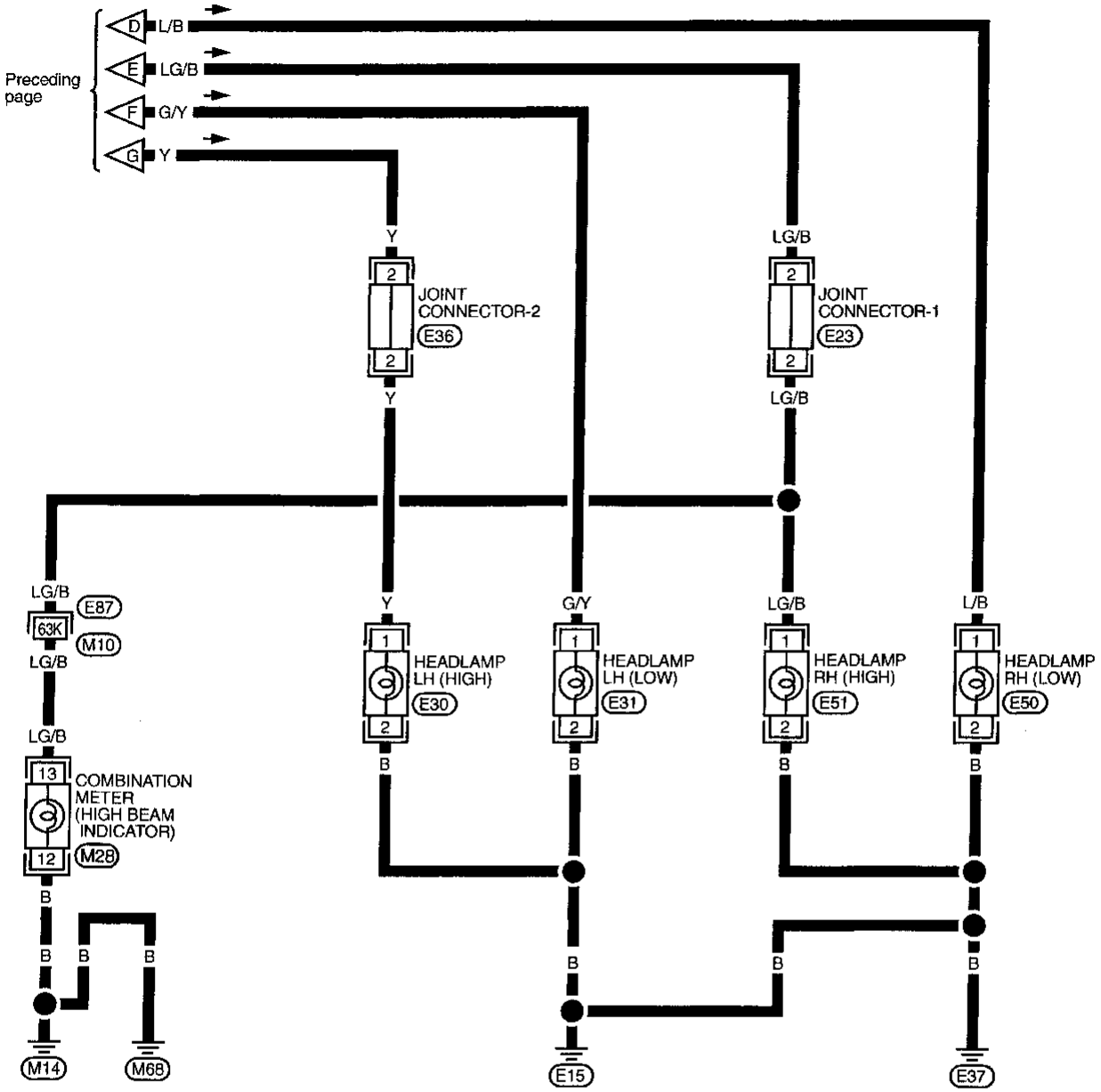


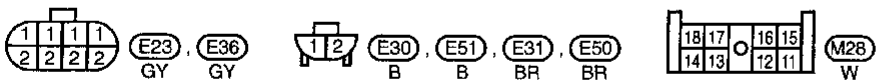


TEL211

Wiring Diagram — H/LAMP — (Cont'd)

EL-H/LAMP-03





Refer to last page (Foldout page).
E87, M10

TEL212

Trouble Diagnoses (For U.S.A.)

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. 52, located in fusible link). 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. 51, located in fusible link). 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 Y wire between control unit 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 G/Y wire between control unit 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 LG/B wire between control unit 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 L/B wire between control unit 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 ⑫) 3. Check LG/B wire between control unit and combination meter for an open circuit.

System Description (For Canada)

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

Power is supplied at all times

- through 15A fuse (No. 52 , located in the fuse and fusible link box)
- to daytime light control unit terminal ⑧ and
- to headlamp control unit terminal ⑧.

Power is also supplied at all times

- through 15A fuse (No. 51 , located in the fuse and fusible link box)
- to daytime light control unit terminal ⑦, and
- to headlamp control unit terminal ①.

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

- through 7.5A fuse (No. 20 , located in the fuse block [J/B])
- to daytime light control unit terminal ⑭.

Ground is supplied to daytime light control unit terminal ⑥ through body grounds E15 and E37.

HEADLAMP OPERATION

Low beam operation

When the lighting switch is moved to the 2ND position and placed in LOW ("B") position, power is supplied

- from headlamp control unit terminal ⑥
- to LH headlamp (low) terminal ①.

Ground is supplied to LH headlamp (low) terminal ② through body grounds E15 and E37.

Also, when the lighting switch is moved to the 2ND position and placed in LOW ("B") position, power is supplied

- from headlamp control unit terminal ③
- to RH headlamp (low) terminal ①.

Ground is supplied to RH headlamp (low) terminal ② through body grounds E15 and E37 (through daytime light control unit).

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

High beam operation

When the lighting switch is moved to the 2ND position and placed in HIGH ("A") or PASS ("C") position, power is supplied

- from headlamp control unit terminal ⑥
- to LH headlamp (low) terminal ①.

Ground is supplied to LH headlamp (low) terminal ② through body grounds E15 and E37.

Also, when the lighting switch is moved to the 2ND position and placed in HIGH ("A") or PASS ("C") position, power is supplied

- from headlamp control unit terminal ③
- to RH headlamp (low) terminal ①.

Ground is supplied to RH headlamp (low) terminal ② through body grounds E15 and E37 (through daytime light control unit).

Also, when the lighting switch is moved to the 2ND and HIGH ("A") or PASS ("C") position, power is supplied

- from headlamp control unit terminal ⑩
- to LH headlamp (high) terminal ①.

Ground is supplied to LH headlamp (high) terminal ② through body grounds E15 and E37.

Also, when the lighting switch is moved to the 2ND and HIGH ("A") or PASS ("C") position, power is supplied

- from headlamp control unit terminal ⑨
- to RH headlamp (high) terminal ①.

Ground is supplied to RH headlamp (high) terminal ② through body grounds E15 and E37 (through daytime light control unit).

With power and ground supplied, all headlamps illuminate.

System Description (For Canada) (Cont'd)

DAYTIME LIGHT OPERATION

With the engine running and the lighting switch in the OFF or 1ST position, power is supplied
- to headlamp control unit terminal ①
- through headlamp control unit terminal ⑨
- to RH headlamp (high) terminal ①
- through RH headlamp (high) terminal ②
- to daytime light control unit terminal ⑪.

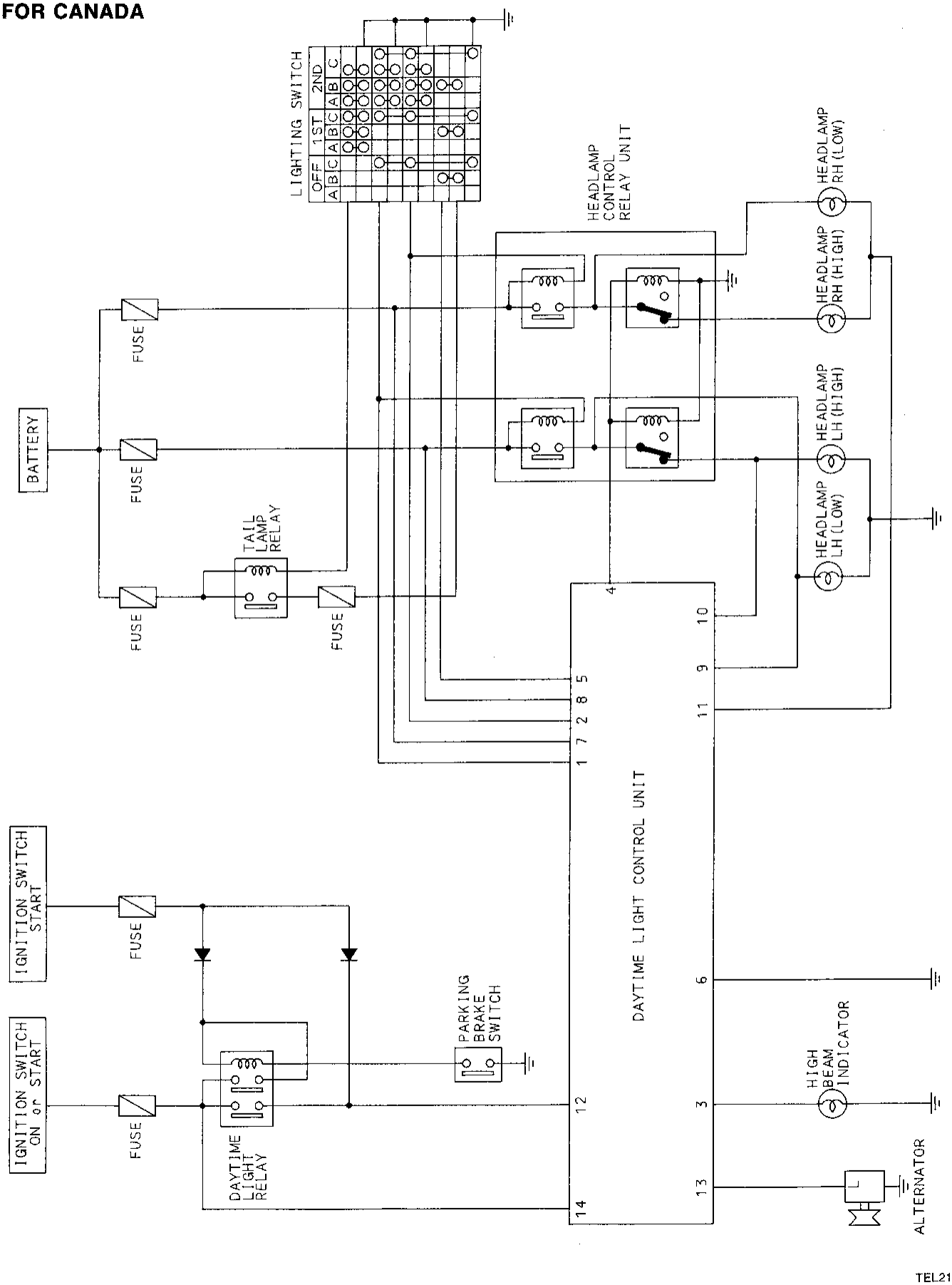
Also, with the engine running and the lighting switch in the OFF or 1ST position, power is supplied
- to headlamp control unit terminal ①
- through headlamp control unit terminal ③
- to RH headlamp (low) terminal ①
- through RH headlamp (low) terminal ②
- to daytime light control unit terminal ⑪.

These powers are supplied
- through daytime light control unit terminal ⑨
- to LH headlamp (low) terminal ①, and
- through daytime light control unit terminal ⑩
- to LH headlamp (high) terminal ①.

Ground is supplied to both headlamp terminals ② through body grounds (E15) and (E37).
Because RH and LH headlamps (low), and RH and LH headlamps (high) are now wired in series, they operate at half illumination.

Schematic

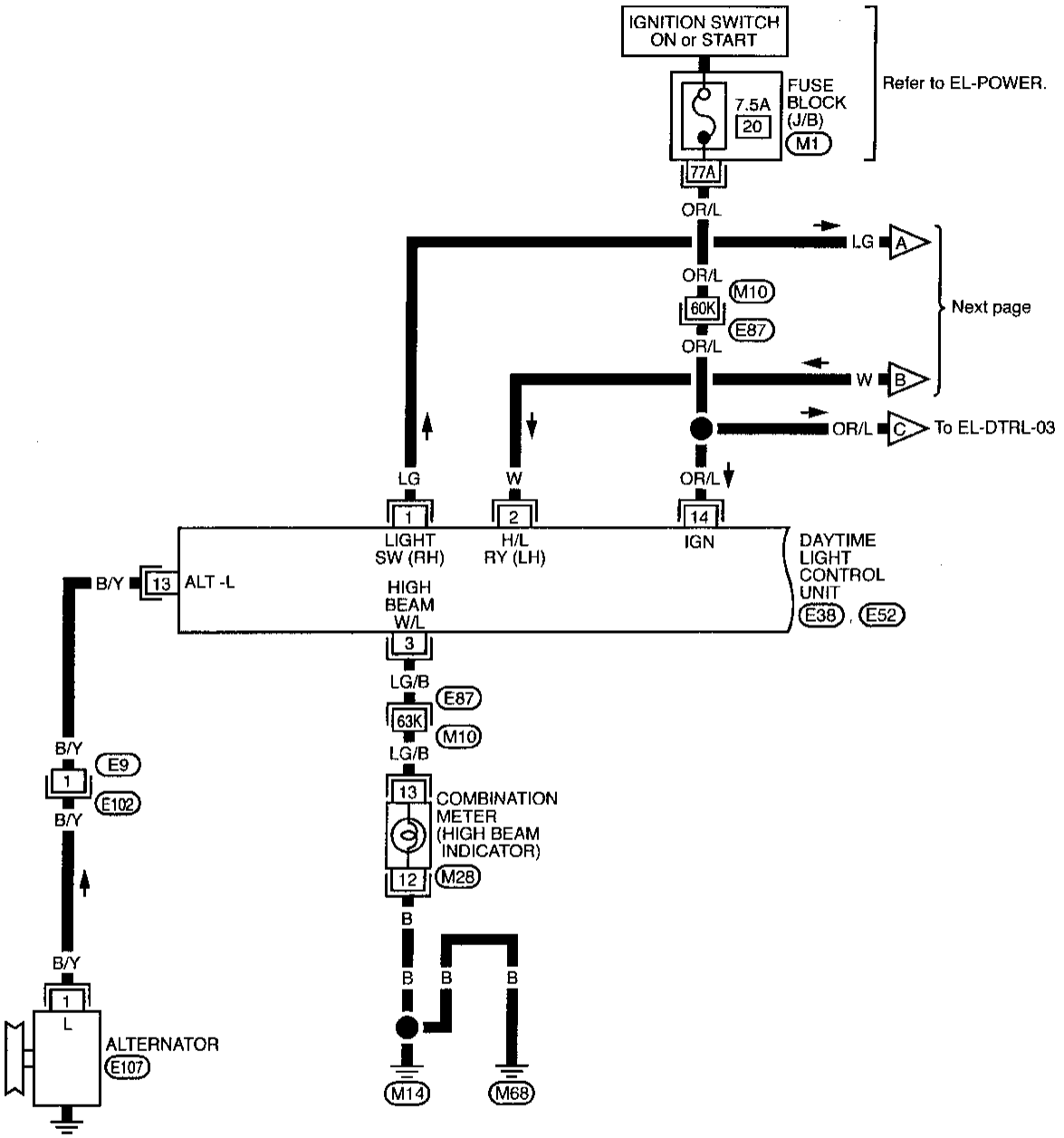
FOR CANADA

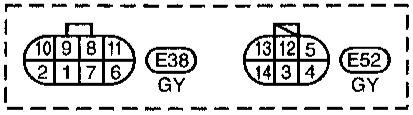


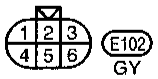
Wiring Diagram — DTRL —

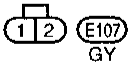
FOR CANADA

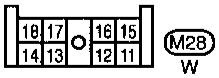
EL-DTRL-01







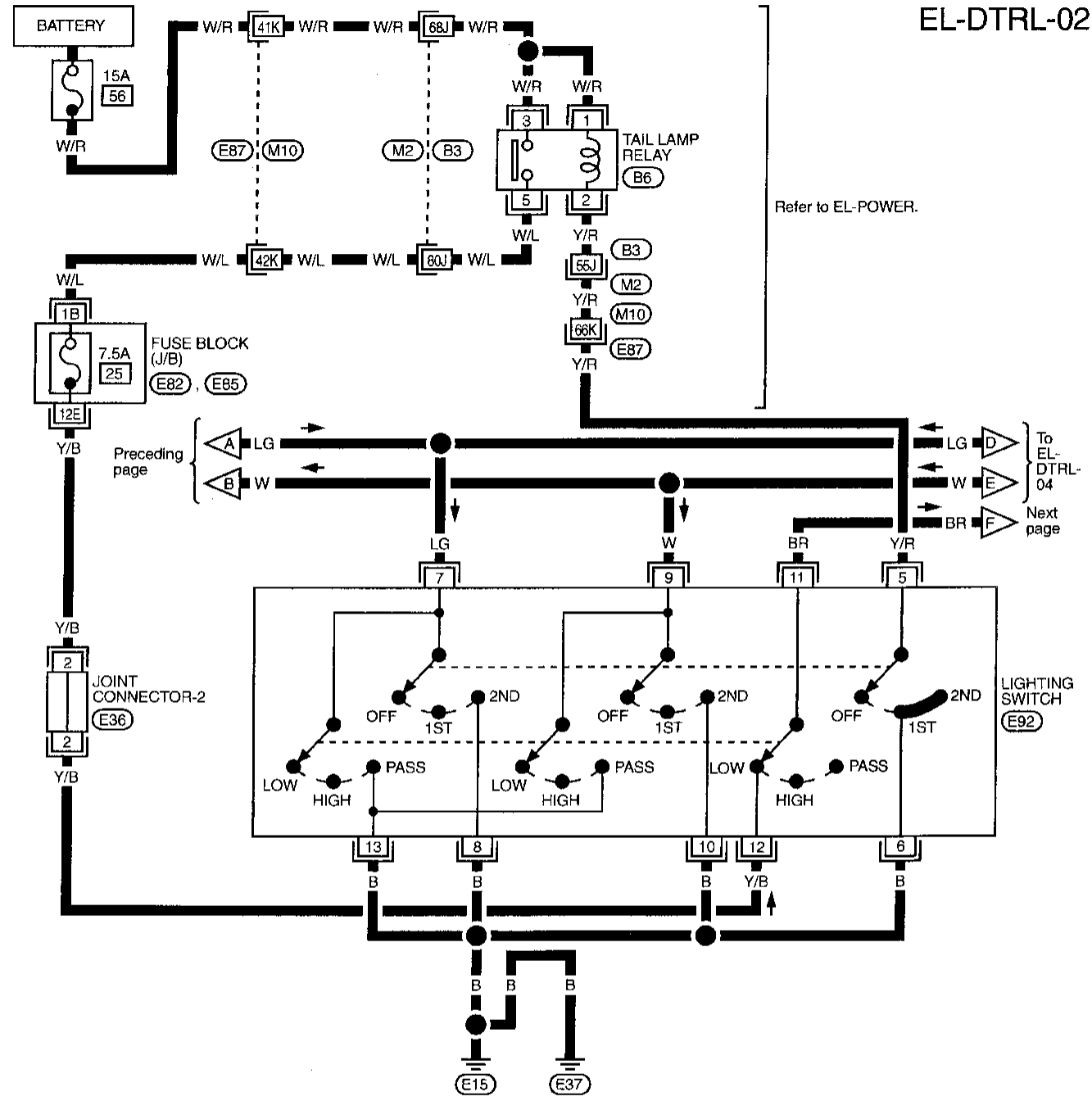


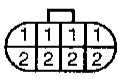


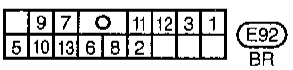
Refer to last page (Foldout page).
E87, M10
M1

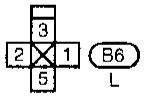
TEL213

Wiring Diagram — DTRL — (Cont'd)









Refer to last page (Foldout page).

E82, E85

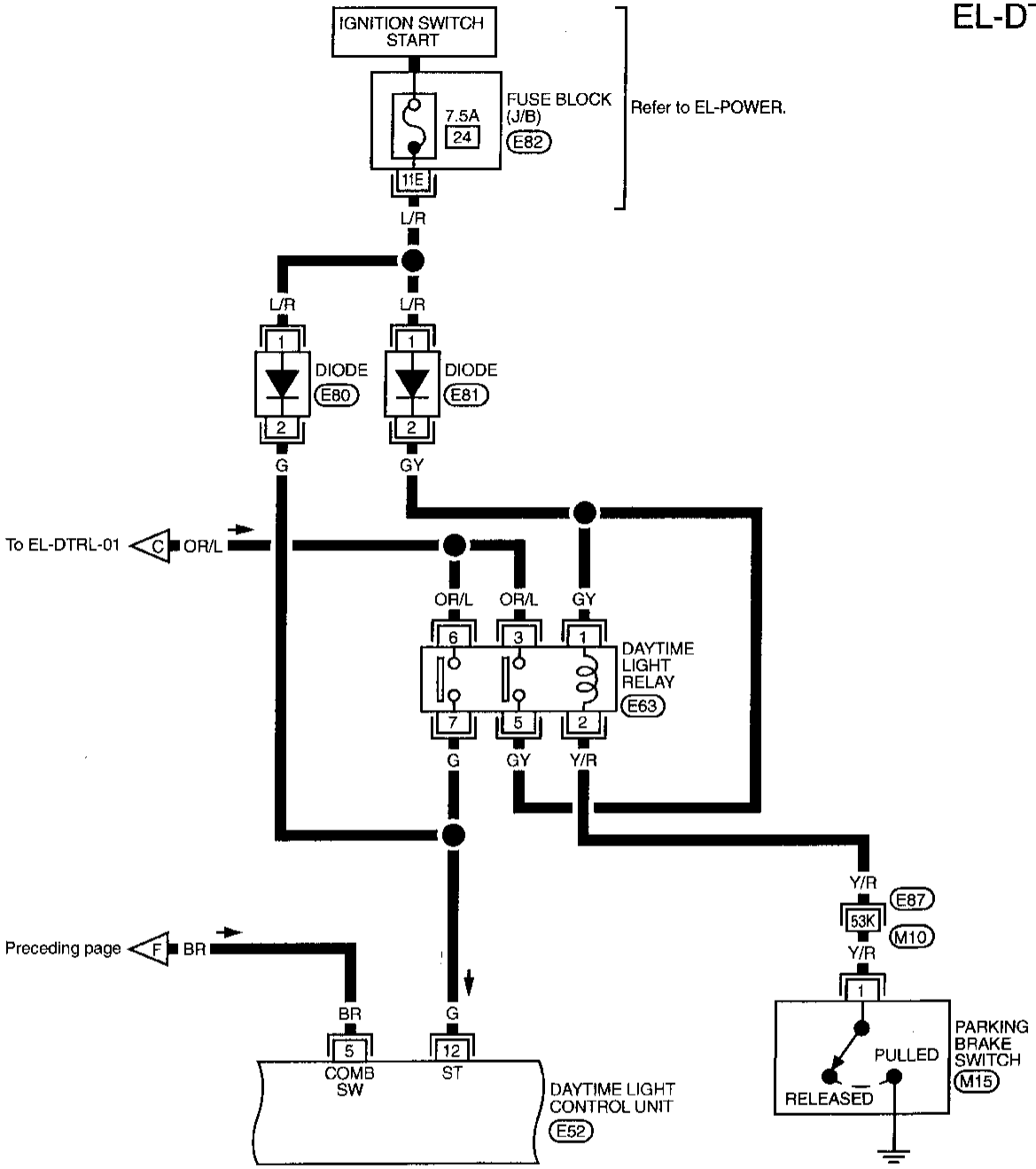
M2, B3

M10, E87

TEL214

Wiring Diagram — DTRL — (Cont'd)

EL-DTRL-03



E52 GY

E63 BR

E80, E81 W W

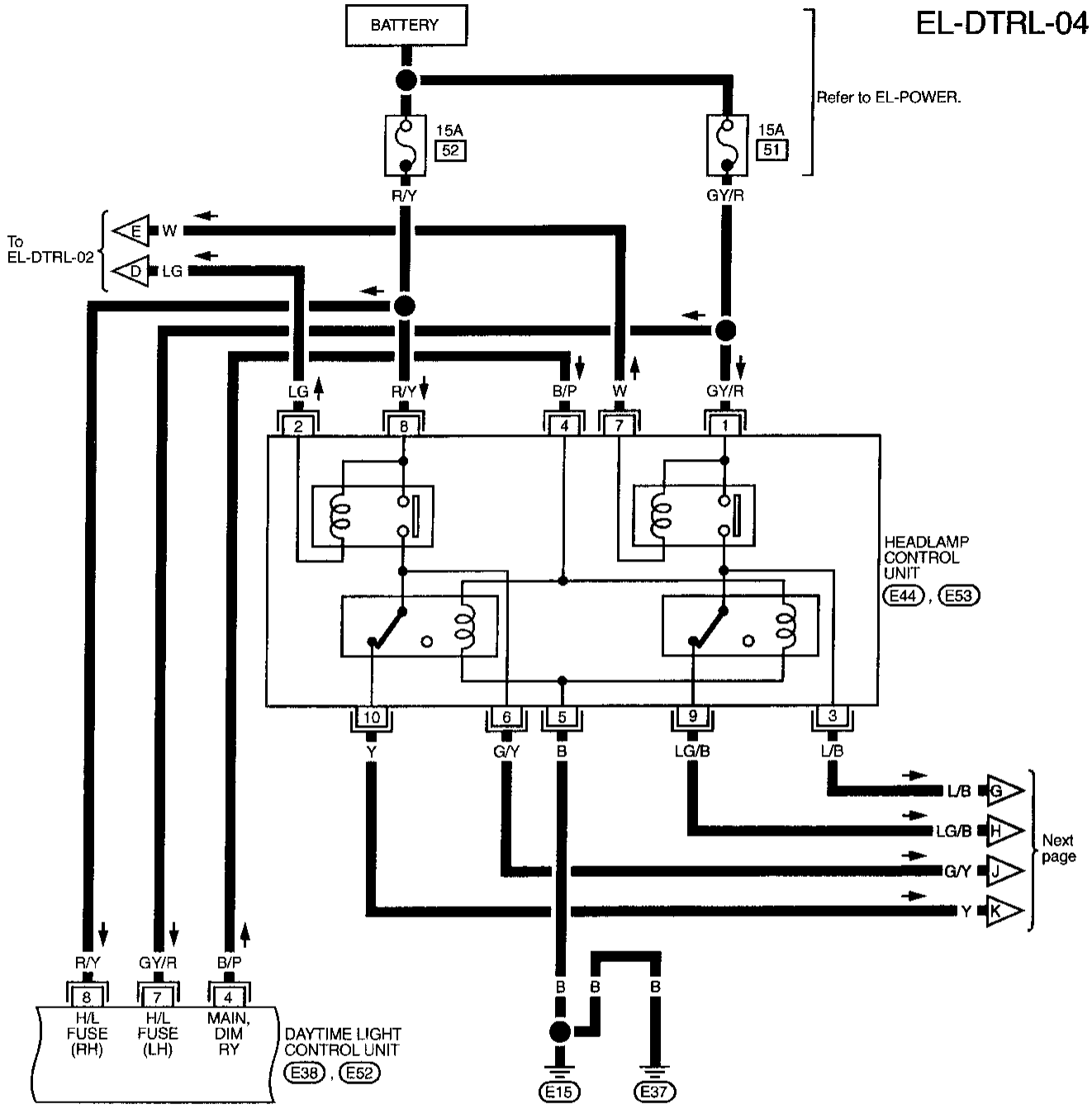
M15 B

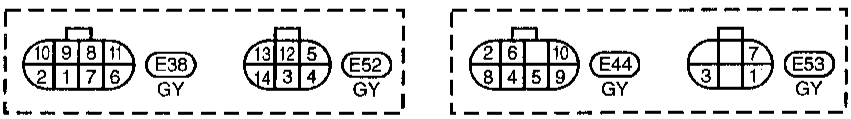
Refer to last page (Foldout page).
E87, M10
E82

TEL215

Wiring Diagram — DTRL — (Cont'd)

EL-DTRL-04

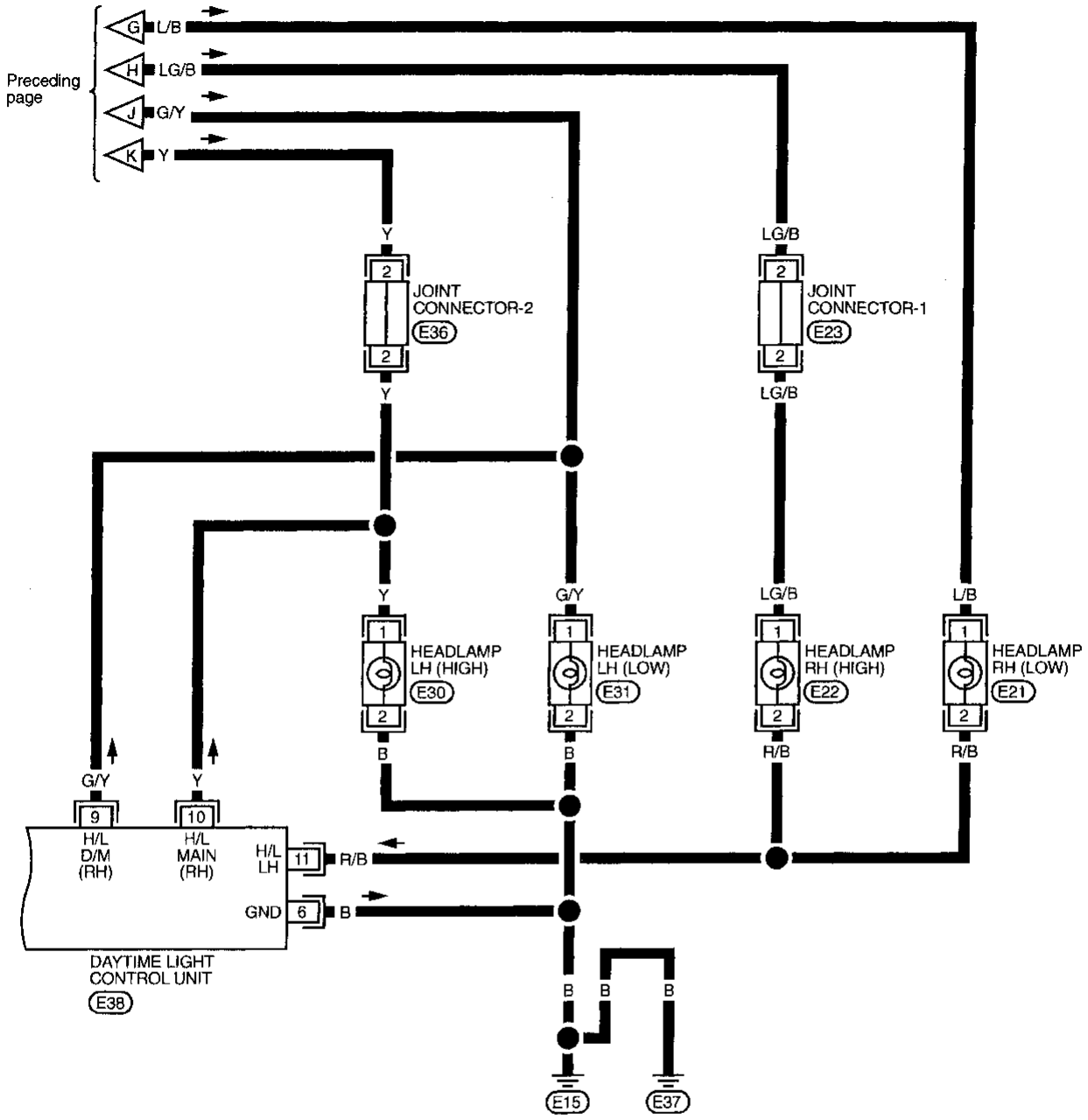


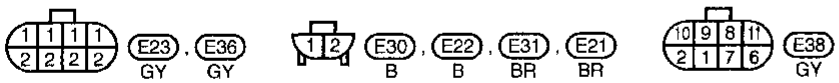


TEL216

Wiring Diagram — DTRL — (Cont'd)

EL-DTRL-05





TEL217

Operation (Daytime light system for Canada)

After starting the engine with the lighting switch in the "OFF" position or "1ST" position, the headlamps automatically turn on. Lighting switch operations other than the above are the same as conventional light systems.

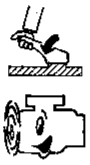
Engine		With engine stopped									With engine running								
Lighting switch		OFF			1ST			2ND			OFF			1ST			2ND		
		A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
Headlamp	High beam	X	X	O	X	X	O	O	X	O	△*	△*	O	△*	△*	O	O	X	O
	Low beam	X	X	O	X	X	O	O	O	O	△*	△*	O	△*	△*	O	O	O	O
Clearance and tail lamp		X	X	X	O	O	O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

O : Lamp "ON"
X : Lamp "OFF"
△ : Lamp dims.
* : When starting the engine with the parking brake released, the daytime lamp will come ON.
When starting the engine with the parking brake applied, the daytime lamp won't come ON.

Trouble Diagnoses (For Canada)

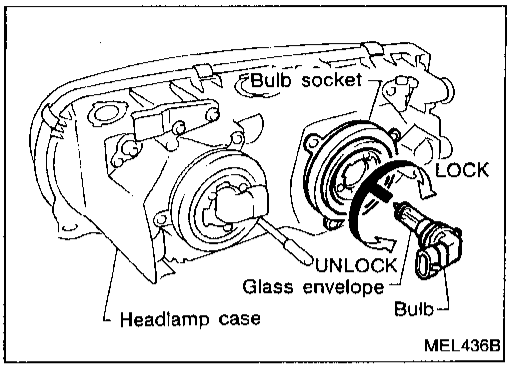
DAYTIME LIGHT CONTROL UNIT INSPECTION TABLE

(Data are reference values.)

Terminal No.	Item	Condition		Judgement standard
12	Start/parking brake signal		When turning ignition switch to "ST".	Battery positive voltage
			When turning ignition switch to "ON" from "ST" with parking brake set.	Battery positive voltage
			When releasing parking brake with engine running. **CAUTION: Block wheels and ensure selector lever is in N or P position.**	1V or less
			When turning ignition switch to "OFF".	1V or less
5	Lighting switch (Lo beam)		When turning lighting switch to "HEAD" (2nd position).	Battery positive voltage
7	Power source		When turning ignition switch to "ON".	Battery positive voltage
			When turning ignition switch to "OFF".	Battery positive voltage
8	Power source		When turning ignition switch to "ON".	Battery positive voltage
			When turning ignition switch to "OFF".	Battery positive voltage
14	Power source		When turning ignition switch to "ON".	Battery positive voltage
			When turning ignition switch to "ST".	Battery positive voltage
			When turning ignition switch to "OFF".	1V or less
3	Hi beam indicator (Combination meter)		When turning lighting switch to "HI BEAM".	Battery positive voltage
			When turning lighting switch to "FLASH TO PASS".	Battery positive voltage
9	LH hi beam LH headlamp control (Power source)		When turning lighting switch to "HI BEAM".	Battery positive voltage
10			When releasing parking brake with engine running and turning lighting switch to "OFF" or "1ST" (daytime light operation). **CAUTION: Block wheels and ensure selector lever is in N or P position.**	Approx. half battery voltage

Trouble Diagnoses (For Canada) (Cont'd)

Terminal No.	Item	Condition		Judgement standard
11	RH headlamp control (ground)		When lighting switch is turned to "HEAD".	1V or less
			When releasing parking brake with engine running and turning lighting switch to "OFF" or "1ST" position (daytime light operation). **CAUTION: Block wheels and ensure selector lever is in N or P position.**	Approx. half battery voltage
6	Ground		—	—
13	Alternator		When turning ignition switch to "ON".	1V or less
			When engine is running.	Battery positive voltage
			When turning ignition switch to "OFF".	1V or less



Bulb Replacement

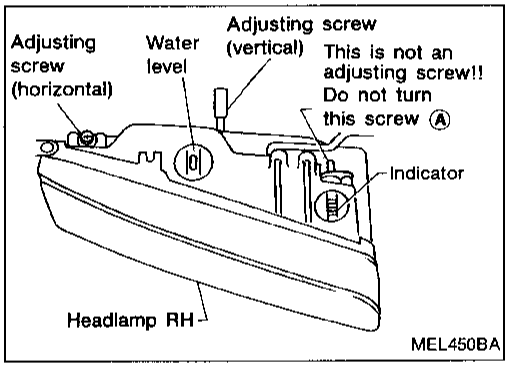
The headlamp is a semi-sealed beam type which uses a replaceable halogen bulb. The bulb can be replaced from the engine compartment side without removing the headlamp body.

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

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

CAUTION:

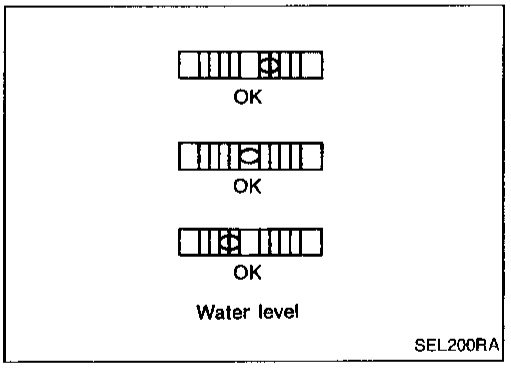
- **Do not leave the bulb out of the headlamp reflector for a long period of time as dust, moisture, smoke, etc. may enter the headlamp body and affect the performance of the headlamp. Thus, the headlamp bulb should not be removed from the headlamp reflector until just before a replacement bulb is to be installed.**



Aiming Adjustment

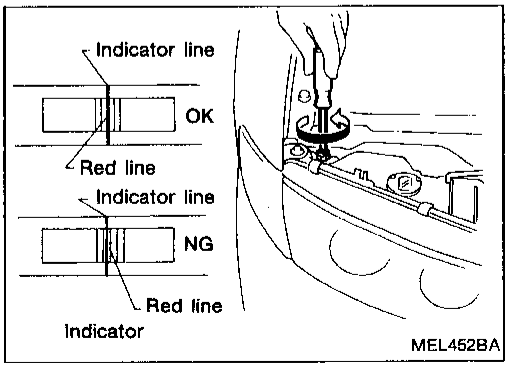
Before performing aiming adjustment, make sure of the following.

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



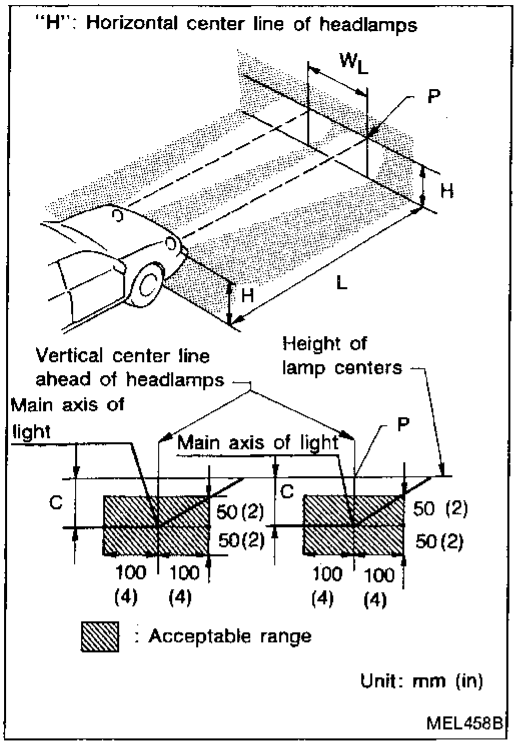
LOW BEAM

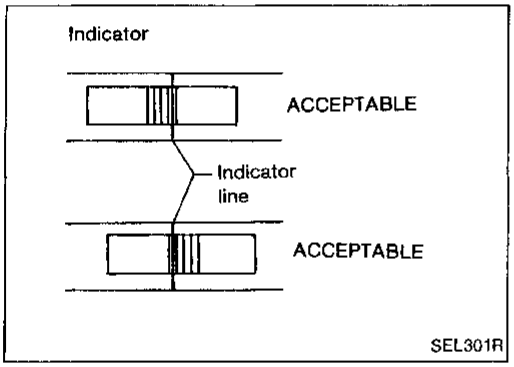
1. Open the hood.
2. Adjust water level by turning the adjusting screw (vertical direction).
   The bubble should be centered in the gauge as shown in the illustration.



3. Adjust indicator by turning the adjusting screw with a Phillips screwdriver. (horizontal direction)
   The inner red line should align with the indicator line.
   Never turn screw Ⓐ.

Aiming Adjustment (Cont'd)





ADJUSTMENT AFTER HEADLAMP ASSEMBLY REPLACEMENT

If the vehicle has had front body repair and the headlamp assembly has been replaced, the aiming should be checked using the aiming chart as shown in the illustration.

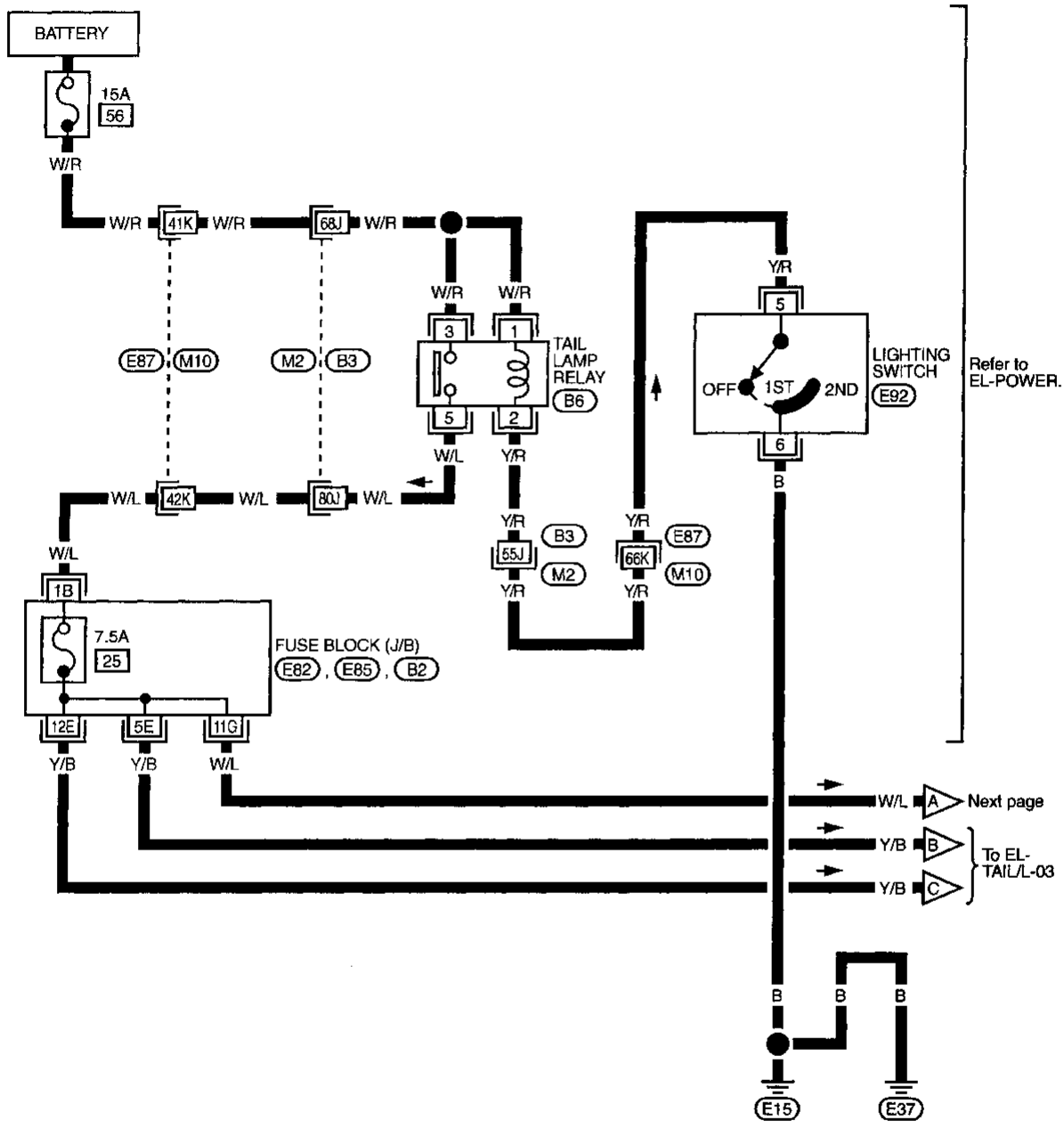
a. Adjust headlamps so that main axis of light is parallel to center line of body and is aligned with point P shown in the illustration.

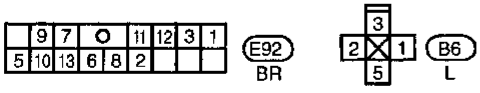
b. Dotted lines in illustration show center of headlamp.
"H": Horizontal center line of headlamps
"W_L": Distance between each headlamp center
"L": 7,620 mm (300.00 in)
"C": 75 mm (2.95 in)

Even if the horizontal indicator does not align with the indicator line after aiming by the chart, the following variations are acceptable.

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

EL-TAIL/L-01





Refer to last page (Foldout page).

E87, M10

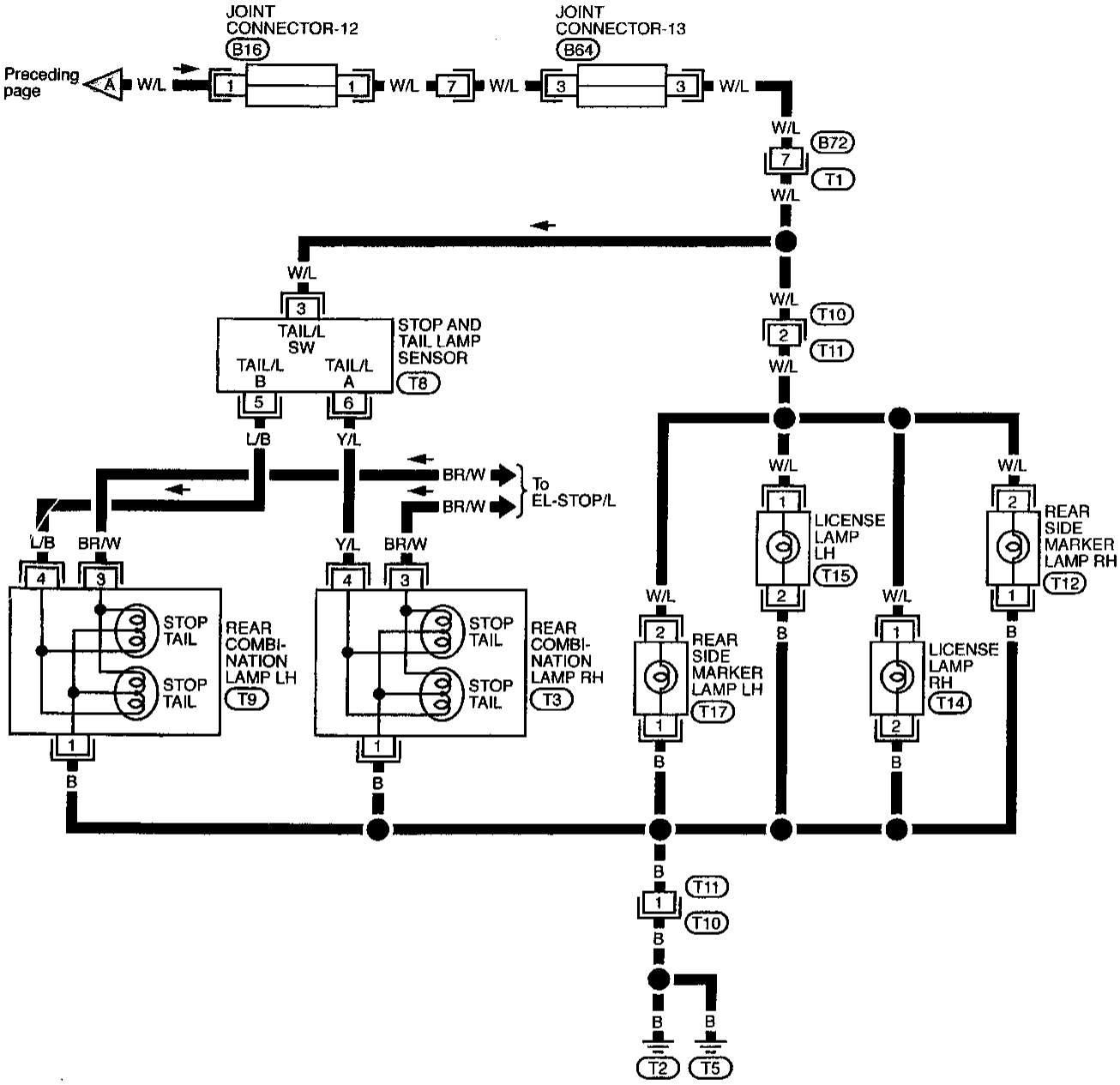
M2, B3

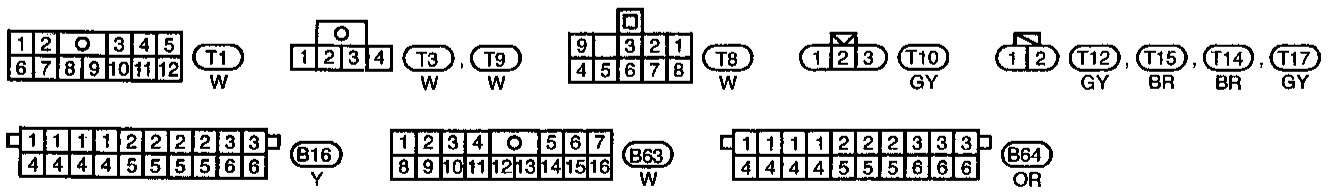
E82, E85, B2

TEL183

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

EL-TAIL/L-02

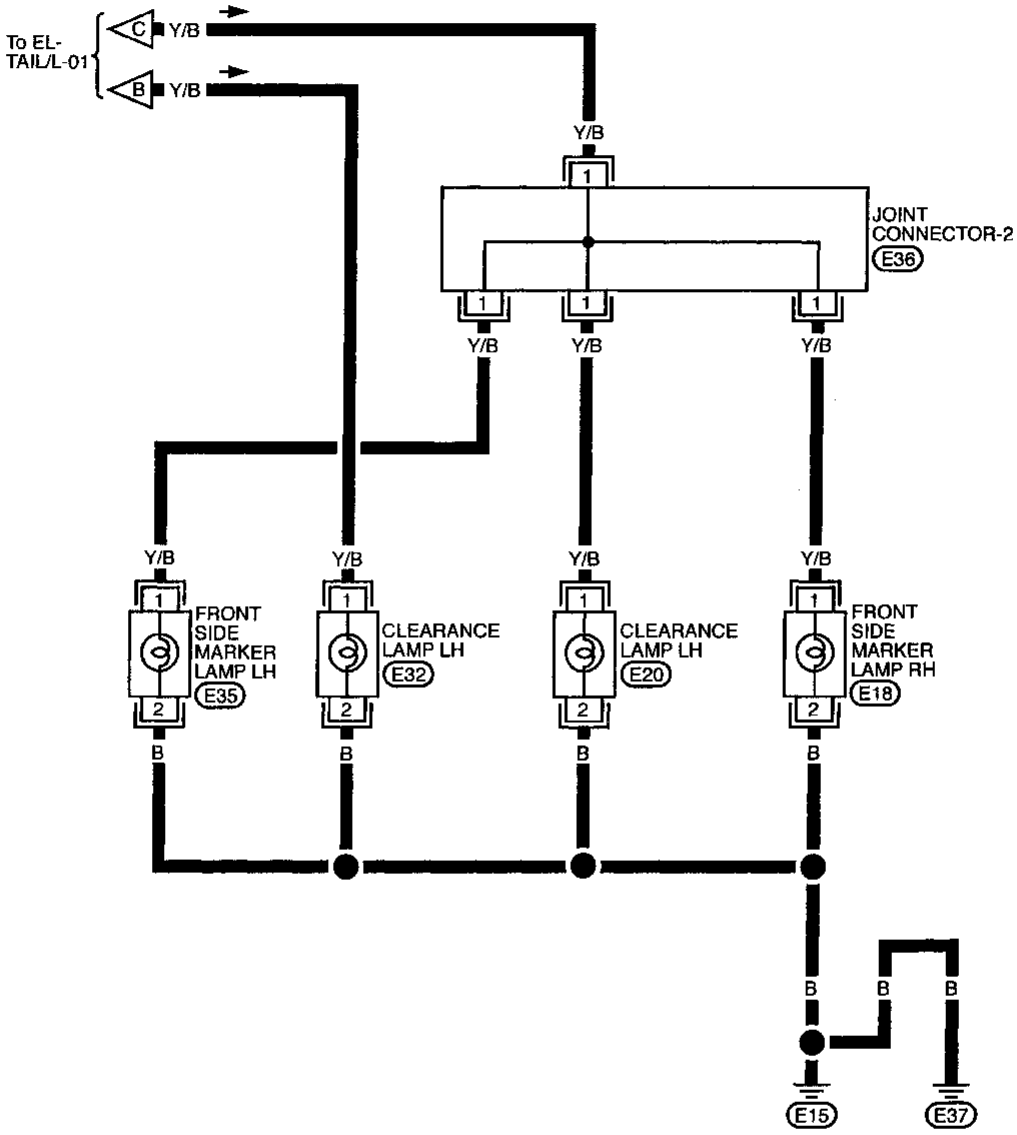


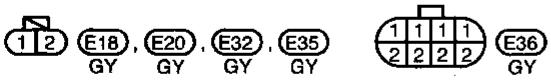


TEL184

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

EL-TAIL/L-03

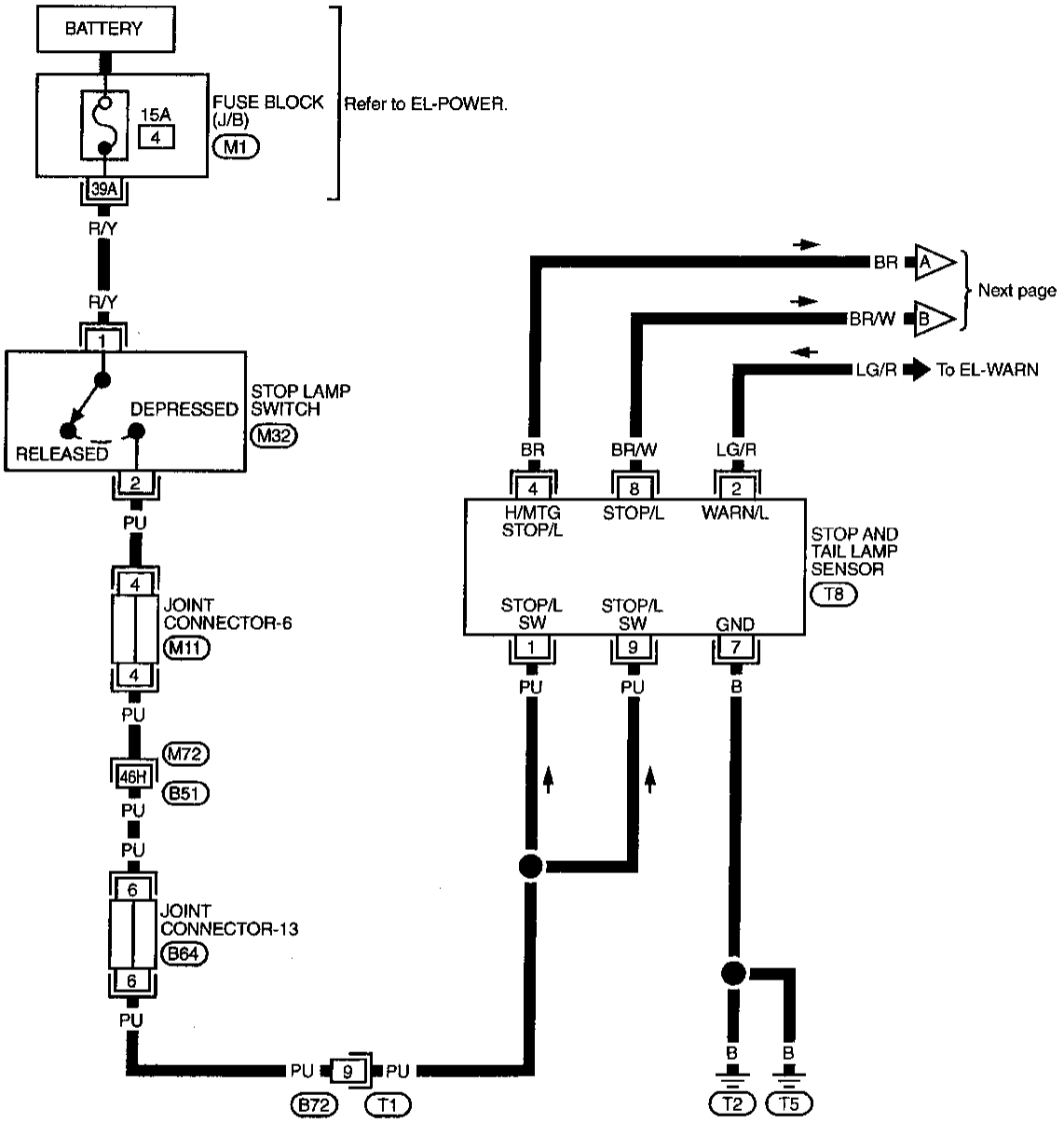


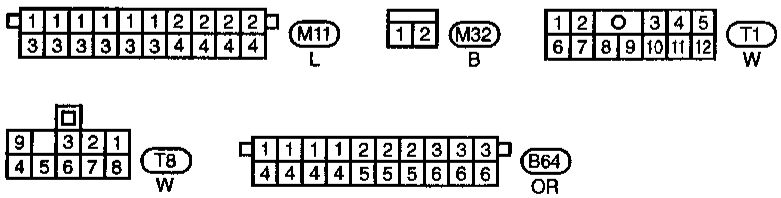


TEL185

Stop Lamp/Wiring Diagram — STOP/L —

EL-STOP/L-01





Refer to last page (Foldout page).

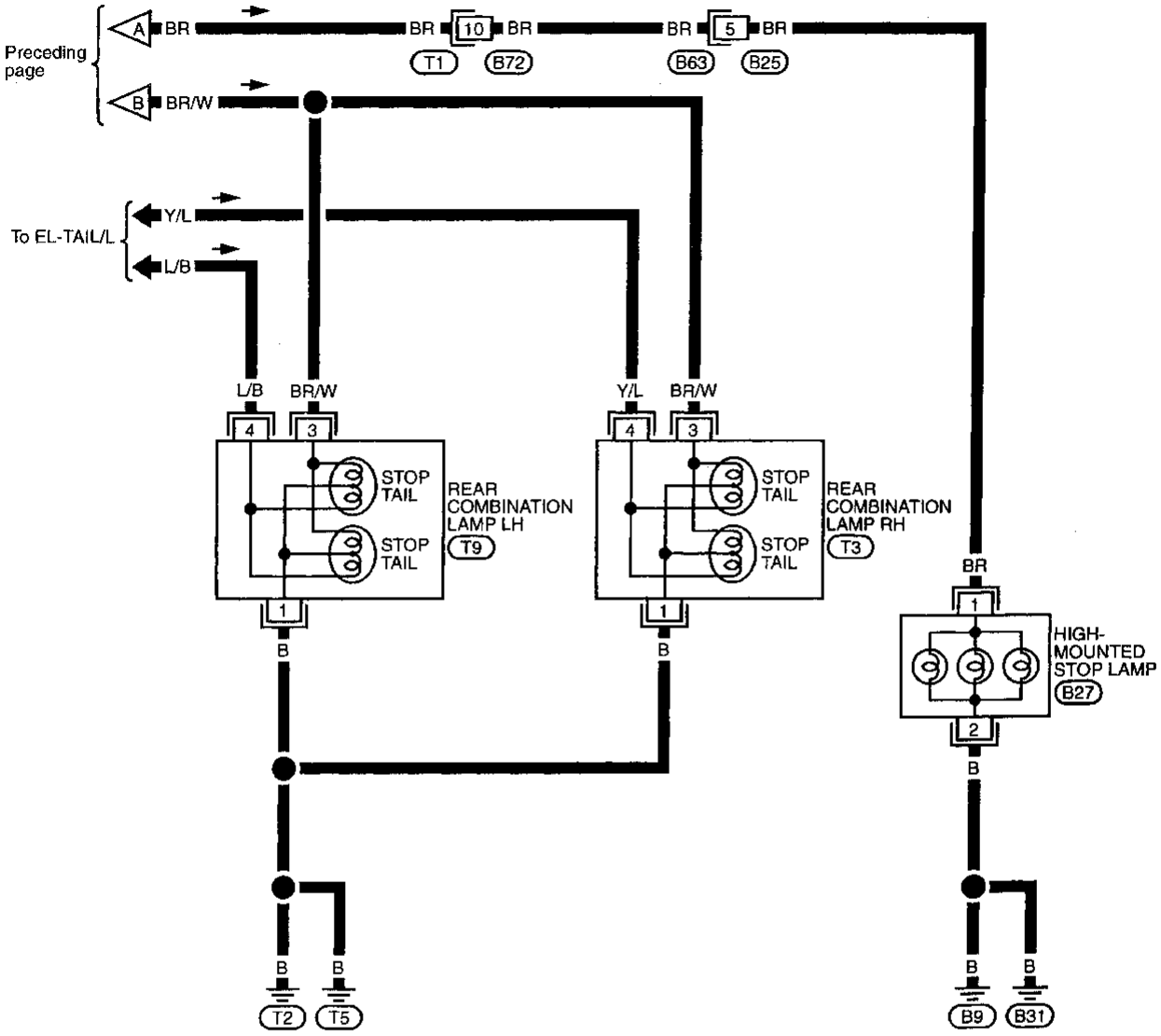
M1

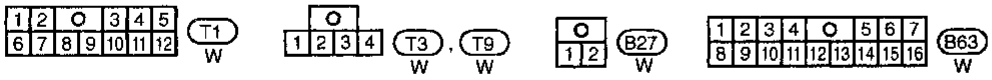
M72, B51

TEL175

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

EL-STOP/L-02

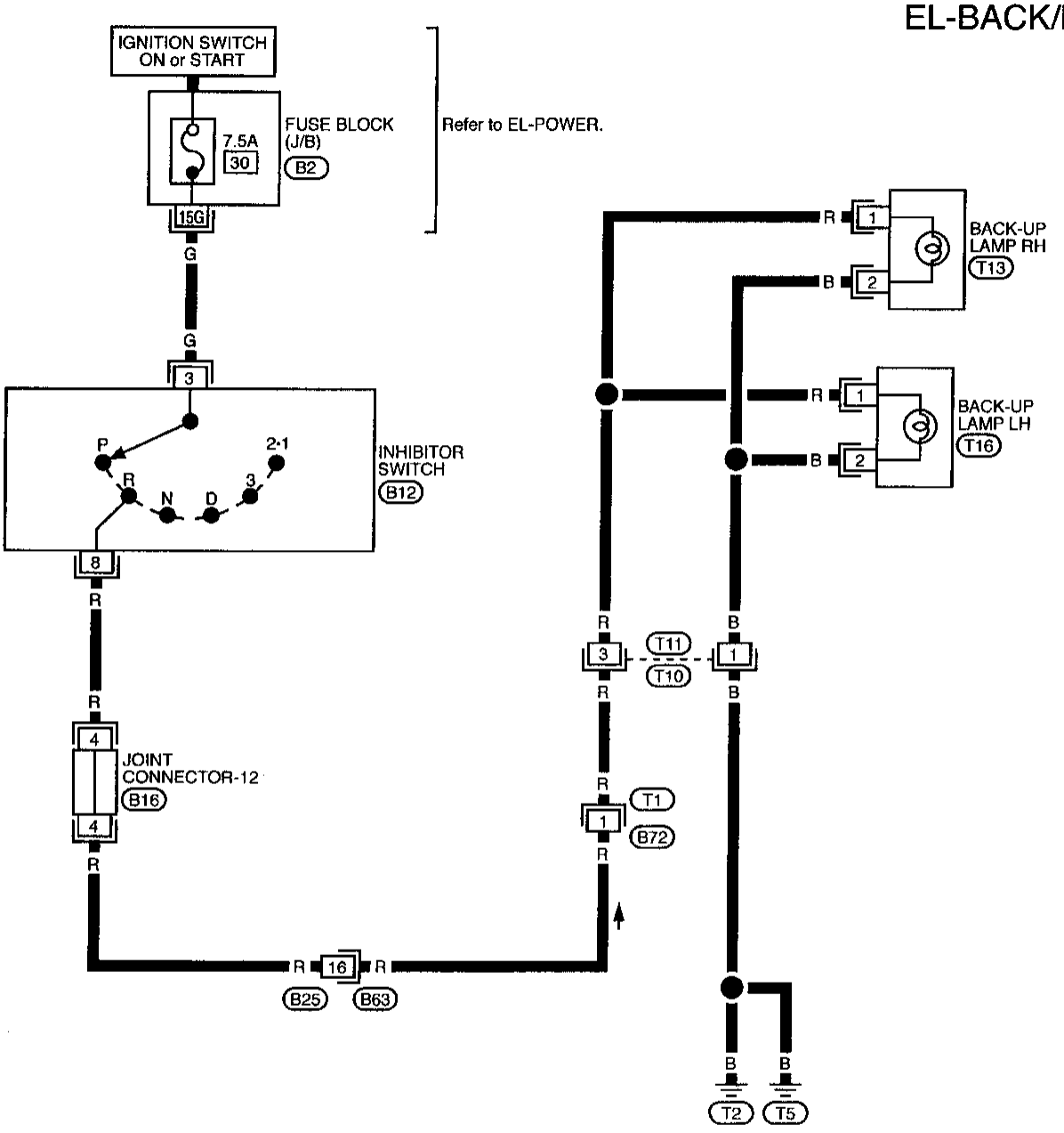


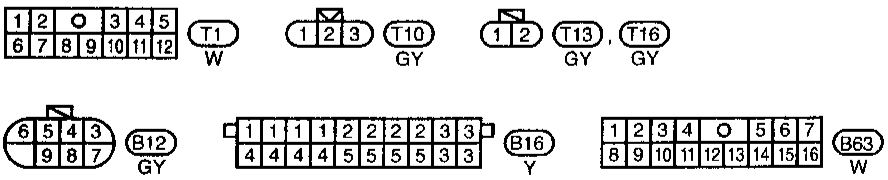


TEL284

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

EL-BACK/L-01





Refer to last page (Foldout page).
B2

TEL176

Turn Signal and Hazard Warning Lamps/System Description

TURN SIGNAL OPERATION

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

- through 7.5A fuse (No. 21, located in the fuse block [J/B])
- to hazard switch terminal ②
- through terminal ① of the hazard switch
- to combination flasher unit terminal ①
- through terminal ③ of the combination flasher unit
- to multi-remote control relay-2 terminal ④
- through terminal ③ of the multi-remote control relay-2
- to turn signal switch terminal ①.

Ground is supplied to combination flasher unit terminal ② through body grounds M14 and M68.

LH turn

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

- front turn signal lamp LH terminal ①
- rear combination lamp LH terminal ②
- combination meter terminal ⑭, and

Ground is supplied to the front turn signal lamp LH terminal ② through body grounds E15 and E37.
Ground is supplied to the rear combination lamp LH terminal ① through body grounds T2 and T5.
Ground is supplied to combination meter terminal ㉗ through body grounds M14 and M68.
With power and ground supplied, the flasher unit controls the flashing of the LH turn signal lamps.

RH turn

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

- front turn signal lamp RH terminal ①
- rear combination lamp RH terminal ②
- combination meter terminal ㉖, and

Ground is supplied to the front turn signal lamp RH terminal ② through body grounds E15 and E37.
Ground is supplied to the rear combination lamp RH terminal ① through body ground T2 and T5.
Ground is supplied to combination meter terminal ㉗ through body grounds M14 and M68.
With power and ground supplied, the flasher unit controls the flashing of the RH turn signal lamps.

HAZARD LAMP OPERATION

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

- 10A fuse (No. 1, located in the fuse block [J/B]).

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

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

Ground is supplied to combination flasher unit terminal ② through body grounds M14 and M68.
Power is supplied through terminal ⑤ of the hazard switch to

- front turn signal lamp LH terminal ①
- rear combination lamp LH terminal ②
- combination meter terminal ⑭.

Power is supplied through terminal ⑥ of the hazard switch to

- front turn signal lamp RH terminal ①
- rear combination lamp RH terminal ②
- combination meter terminal ㉖, and

Ground is supplied to terminal ② of the front turn signal lamps through body grounds E15 and E37.
Ground is supplied to terminal ① of the rear combination lamps through body grounds T2 and T5.

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

Ground is supplied to combination meter terminal ㉗ through body grounds (M14) and (M68).
With power and ground supplied, the flasher unit controls the flashing of the hazard warning lamps.

WITH MULTI-REMOTE CONTROL SYSTEM

Power is supplied at all times
- through 10A fuse (No. 1, located in the fuse block [J/B])
- to multi-remote control relay-1 terminal ①, ⑥ and ③, and
- to multi-remote control relay-2 terminal ②.

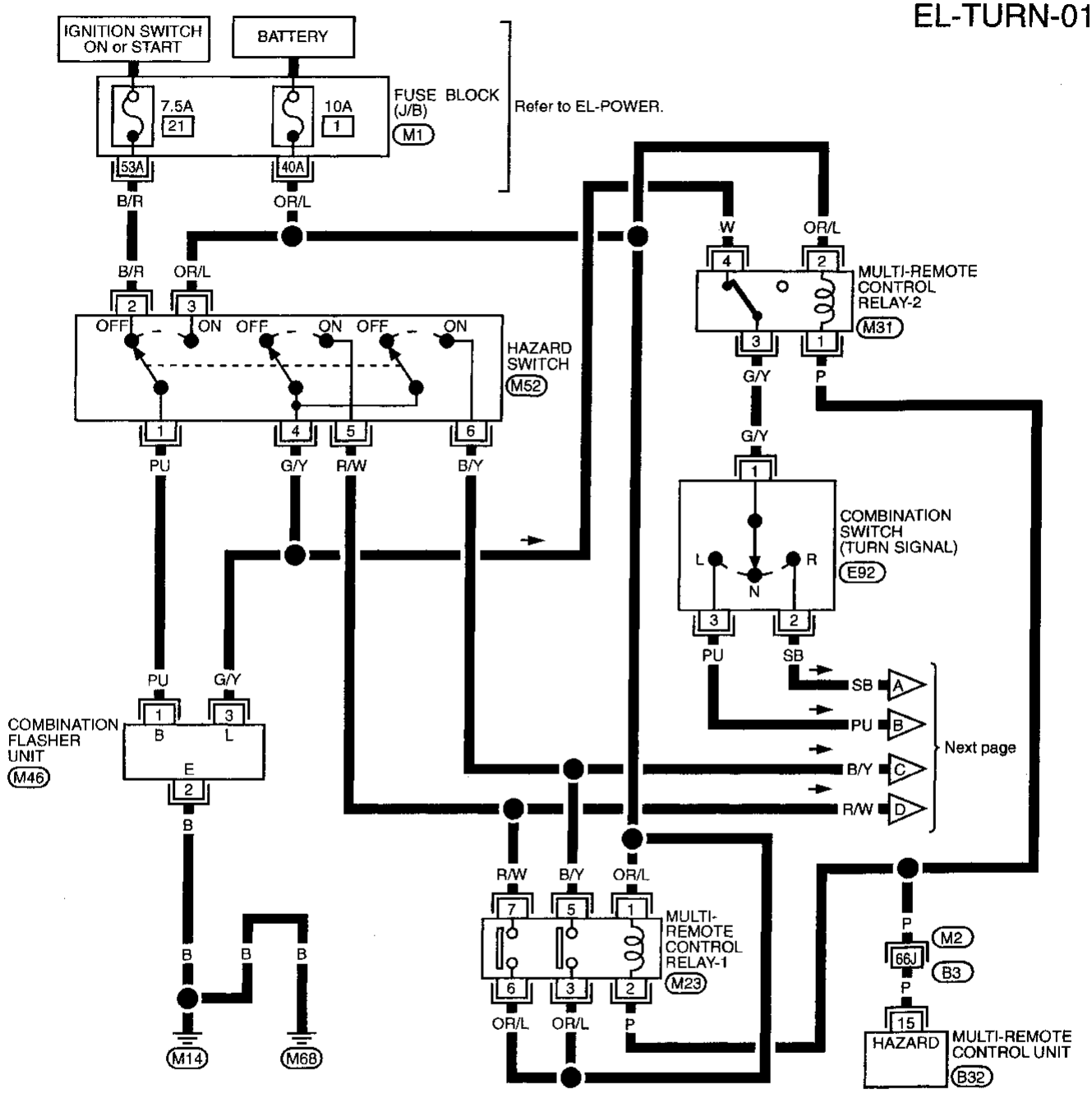
Ground is supplied to multi-remote control relay-1 terminal ② and multi-remote control relay-2 terminal ②, when the multi-remote control system is triggered through the multi-remote control unit.
(Refer to "MULTI-REMOTE CONTROL SYSTEM".)
The multi-remote control relay-1 and multi-remote control relay-2 are energized.
Power is supplied through terminal ⑤ of the multi-remote control relay-1
- to front turn signal lamp RH terminal ①,
- to rear combination lamp RH terminal ② and
- to combination meter terminal ㉖.

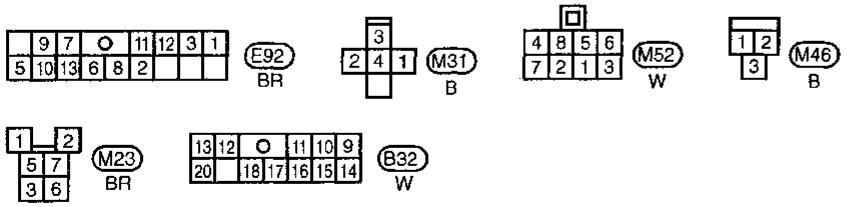
Power is supplied through terminal ⑦ of the multi-remote control relay-1
- to front turn signal lamp LH terminal ①,
- to rear combination lamp LH terminal ② and
- to combination meter terminal ⑭.

With power and ground supplied, the multi-remote control unit controls the flashing of the hazard warning lamps.

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

EL-TURN-01



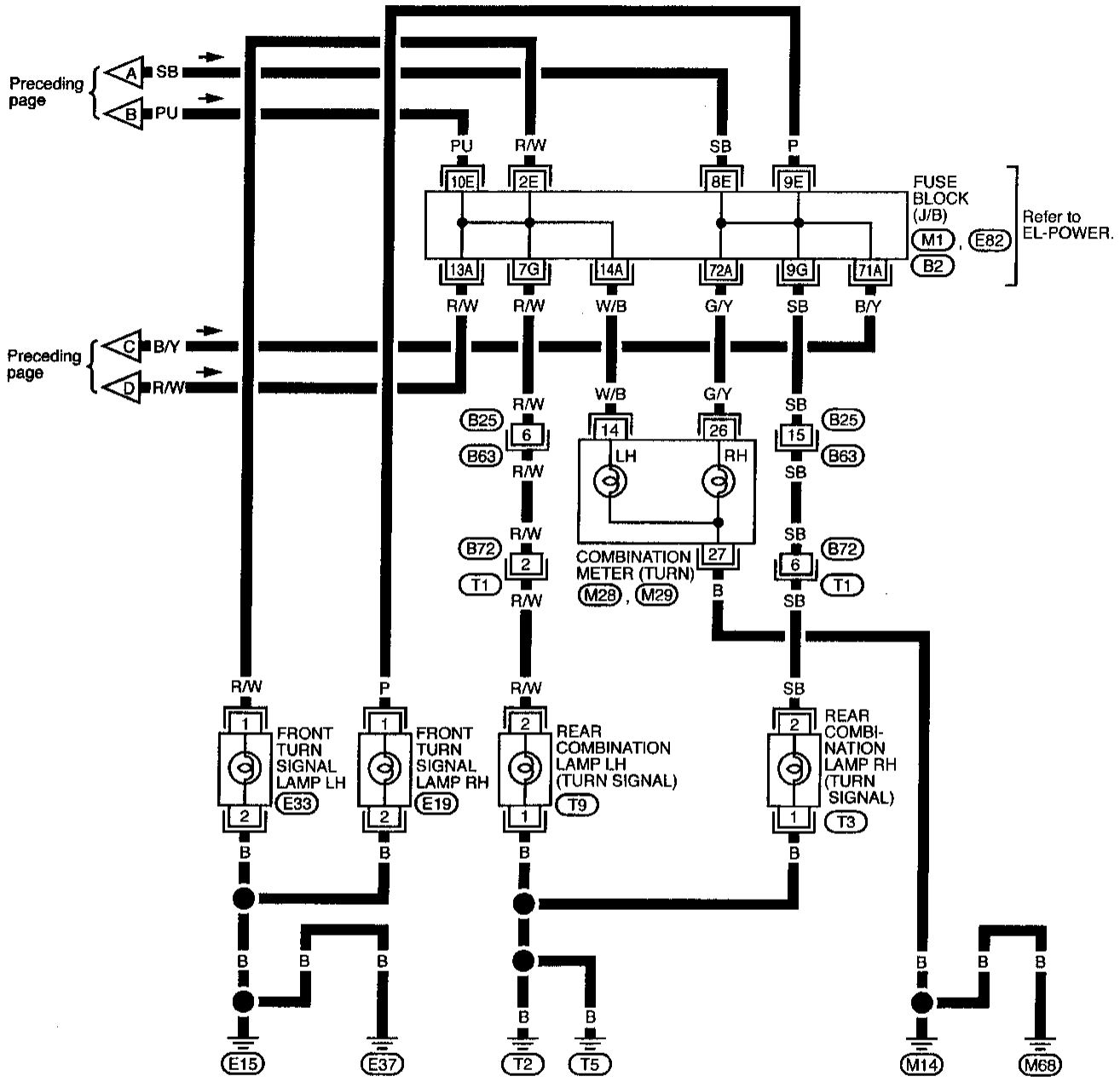


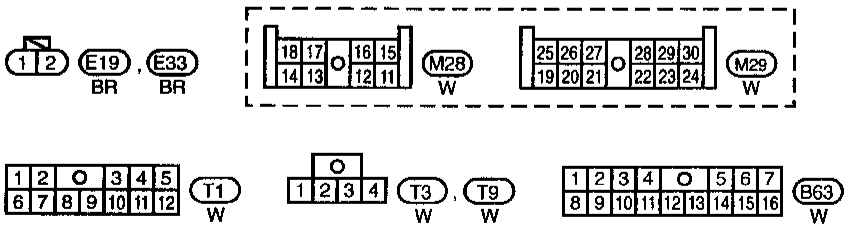
Refer to last page (Foldout page).
M1
M2, B3
M10, E87

TEL173

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

EL-TURN-02



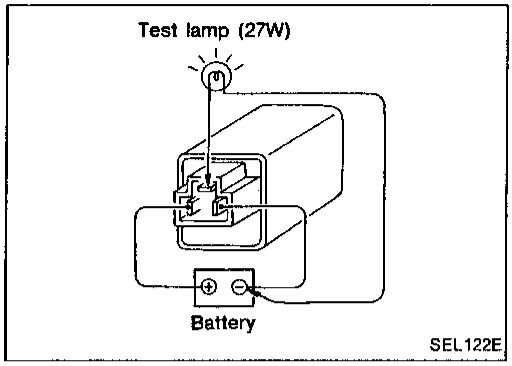


Refer to last page (Foldout page).
M1, E82
B2

TEL174

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. 21, 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. 1, located in fuse block). Verify battery positive voltage is present at terminal ③ of hazard switch. 2. Check hazard switch. 3. Check harness between combination flasher unit terminal ③ and hazard switch terminal ④ for open circuit.
Individual turn signal lamp or turn indicators do not operate.	1. Bulb 2. Grounds	1. Check bulb. 2. Check ground circuit for the bulb.



Combination Flasher Unit Check

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

Bulb Specifications

	Wattage (12 volt)	Bulb No.
Headlamp		
High beam (Inside)	65	9005
Low beam (Outside)	55	9006
Front turn signal	27	1157NA
Front clearance lamp	5	—
Front side marker lamp	3.8	194
Rear combination lamp		
Turn signal	27	1156
Stop/Tail	27/8	1157
Back-up lamp	27	1156
Rear side marker lamp	3.8	194
License plate lamp	5	—
High-mounted stop lamp	18	921

Illumination/System Description

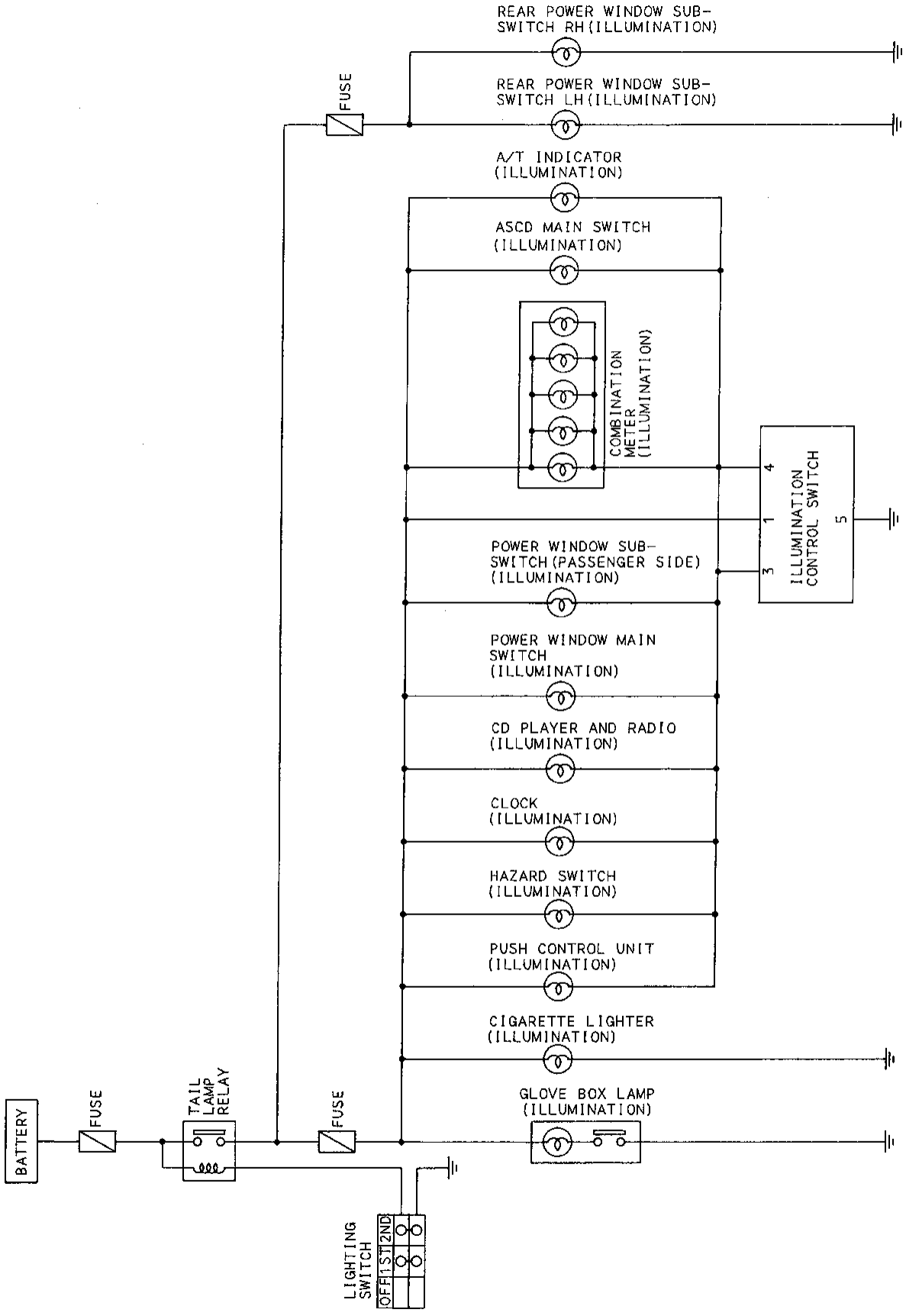
Power is supplied at all times
- through 15A fuse (No. 56 , located in the fuse and fusible link box)
- to tail lamp relay terminal ③ and ①.

Ground is supplied to tail lamp relay terminal ②, when the lighting switch is moved to the 1ST or 2ND position.
The tail lamp relay is energized.
The lighting switch must be in the 1ST or 2ND position for illumination.
The illumination control switch is a thumbwheel that controls the amount of current to the illumination system. As the amount of current increases, the illumination becomes brighter.
The glove box lamp, cigarette lighter, rear power window sub-switch LH, and rear power window sub-switch RH illumination is not controlled by the illumination control switch. The intensity of these lamps does not change.
The following chart shows the power and ground connector terminals for the components included in the illumination system.

Component	Connector No.	Power terminal	Ground terminal
CD player and radio	M54	⑧	⑦
Push control unit	M53	①	④
A/T indicator	M49	⑤	⑥
Hazard switch	M52	⑦	⑧
Power window main switch	D16	⑲	⑳
Power window sub-switch (passenger side)	D23	㉞	㉝
Rear power window sub-switch LH	D45	㉞	㉝
Rear power window sub-switch RH	D55	㉞	㉝
Cigarette lighter	M50	②	①
Combination meter	M26, M29	④	㉘
Clock	M51	②	③
ASCD main switch	M41	⑤	⑥
Glove box lamp	M81	④	③
Illumination control switch	M16	①	③

With the exception of the glove box lamp, cigarette lighter, rear power window sub-switch LH, and rear power window sub-switch RH illumination, the ground for all of the components are controlled through terminals ③ and ⑤ of the illumination control switch and body grounds M14 and M68.
The glove box lamp terminal ③ and cigarette lighter illumination terminal ① are grounded directly through body grounds M14 and M68.
The rear power window sub-switch LH terminal ㉝ is grounded directly through body grounds B9 and B31.
The rear power window sub-switch RH terminal ㉝ is grounded directly through body grounds B54 and B71.

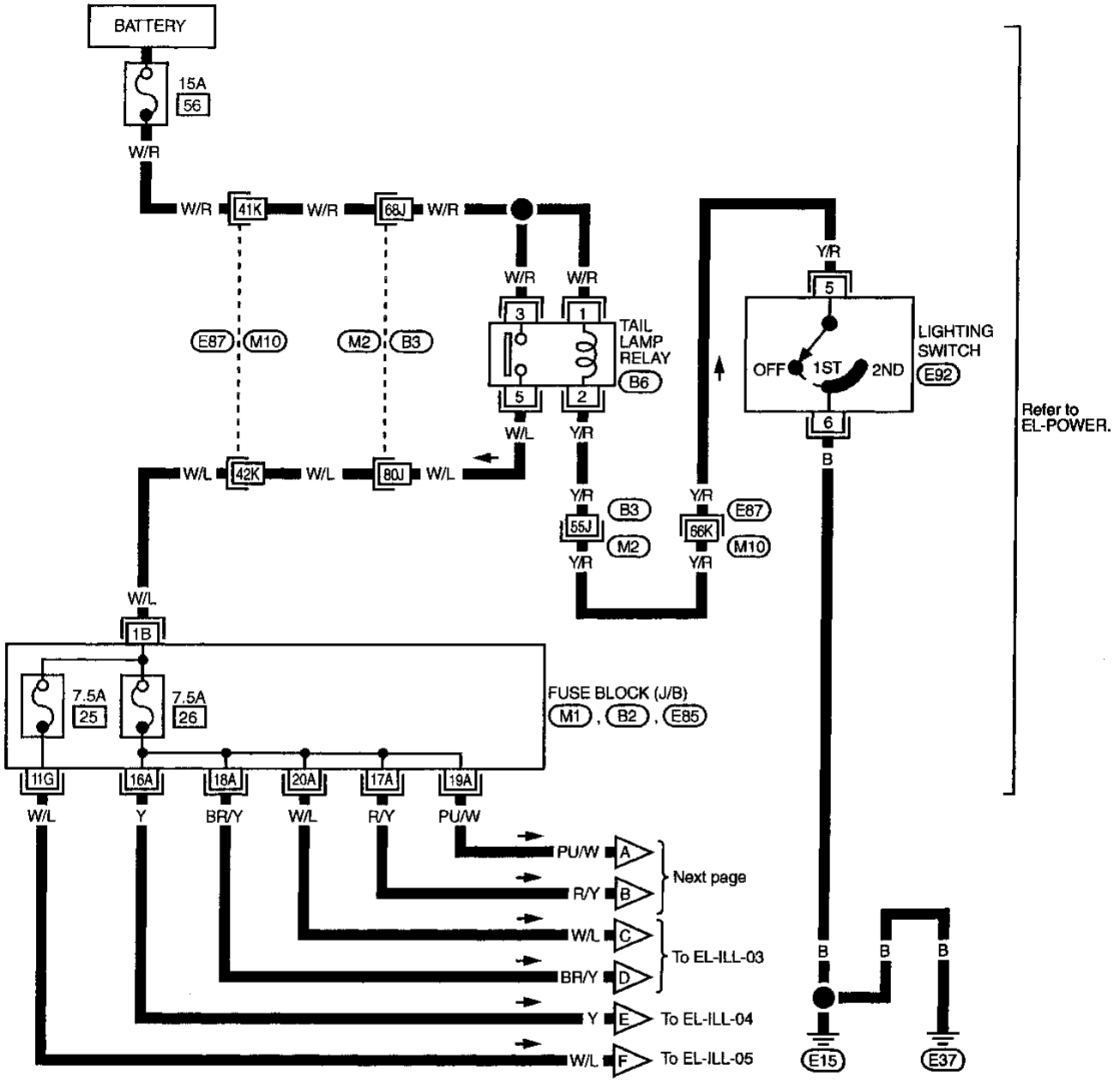
Illumination/Schematic

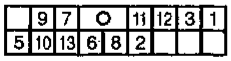


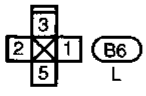
TEL182

Illumination/Wiring Diagram — ILL —

EL-ILL-01







Refer to last page (Foldout page).

M1 , B2 , E85

M2 , B3

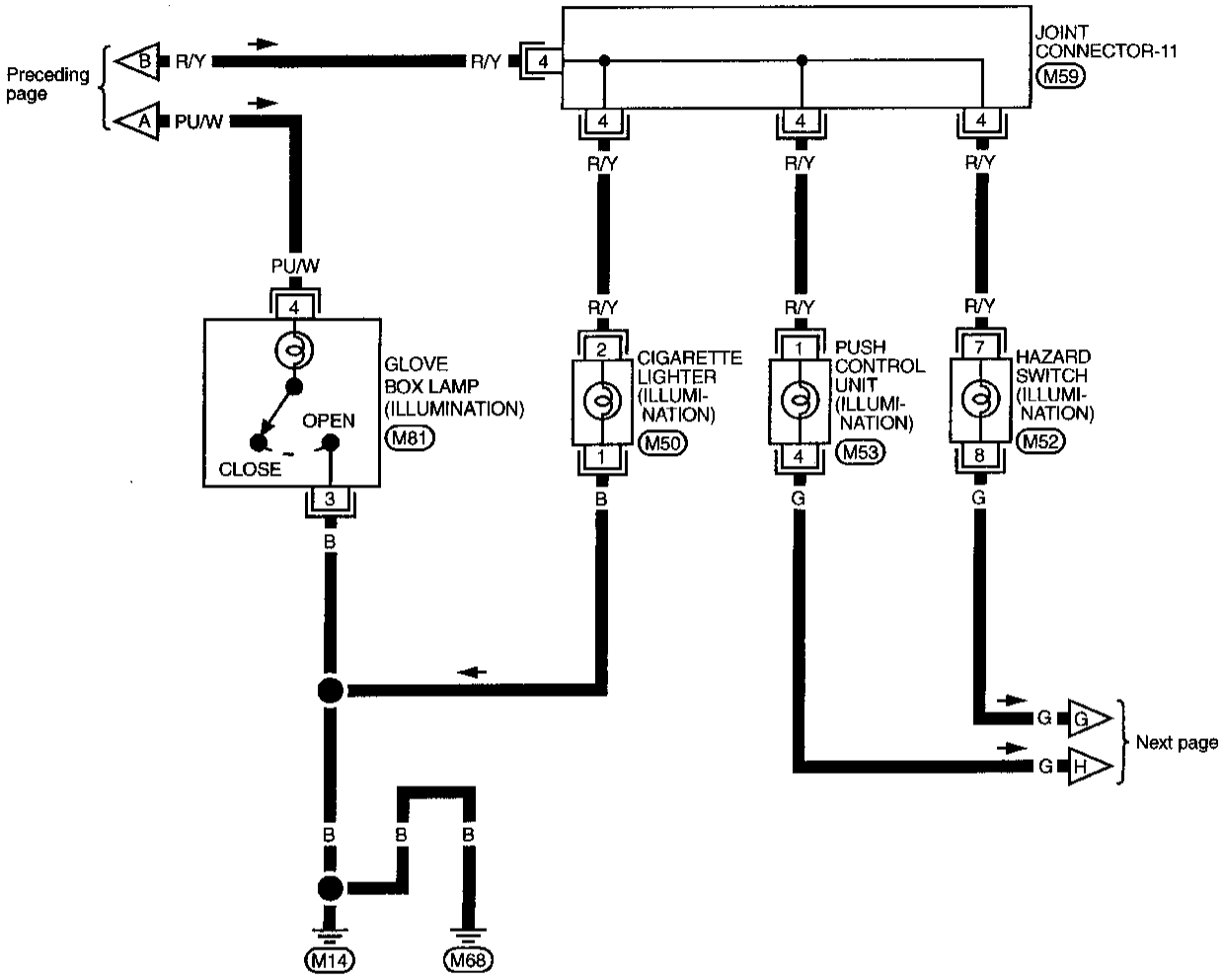
M10 , E87

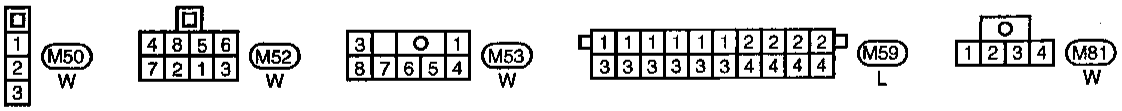
TEL177

1171

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

EL-ILL-02

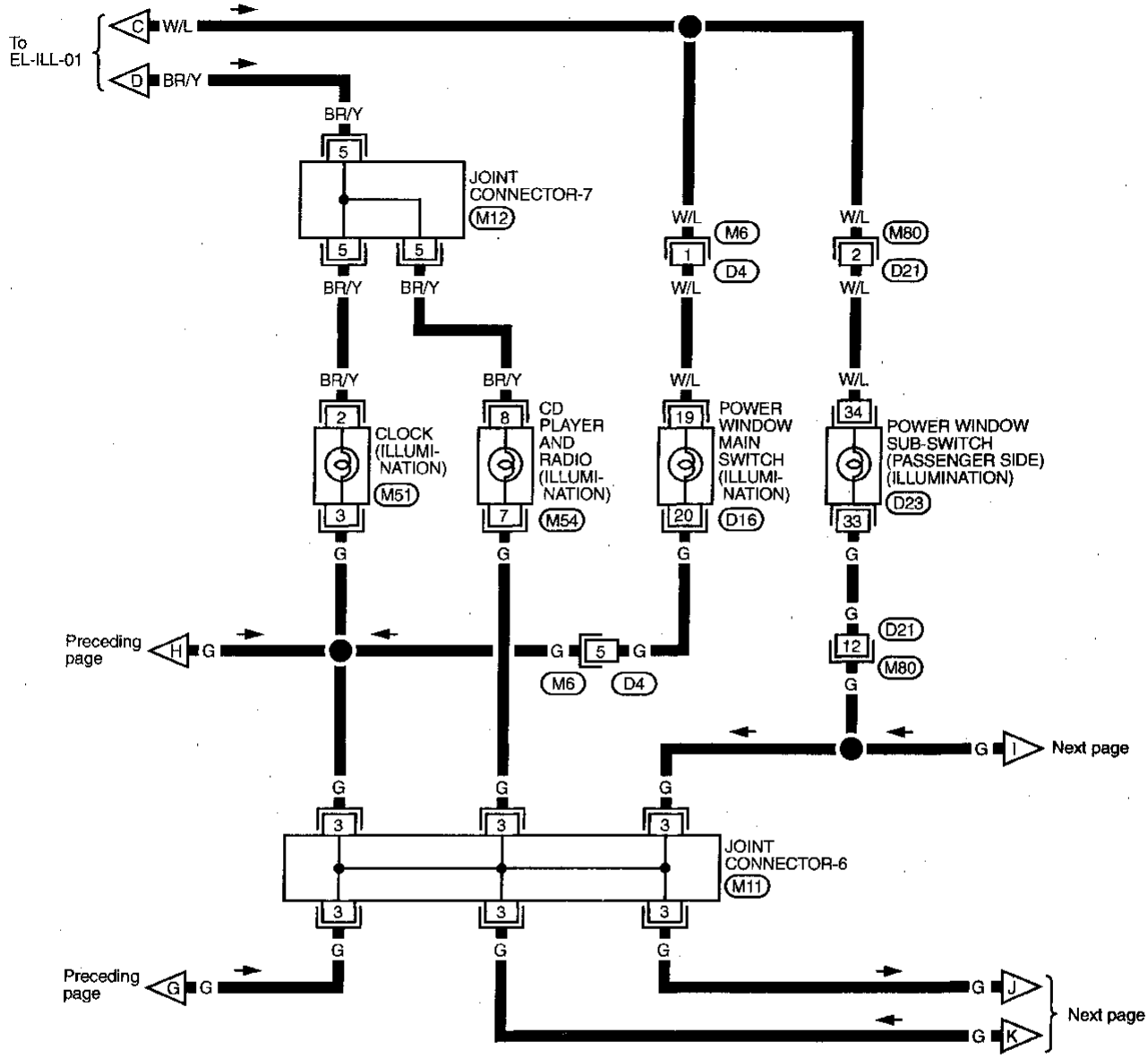


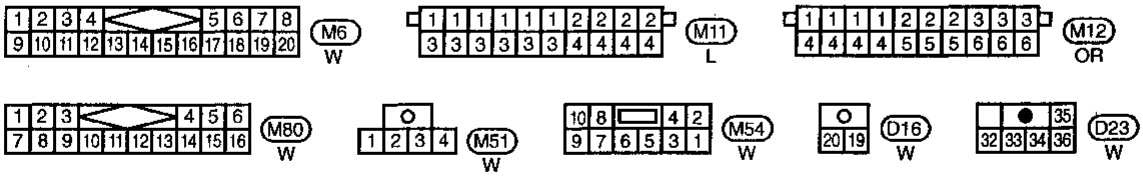


TEL178

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

EL-ILL-03



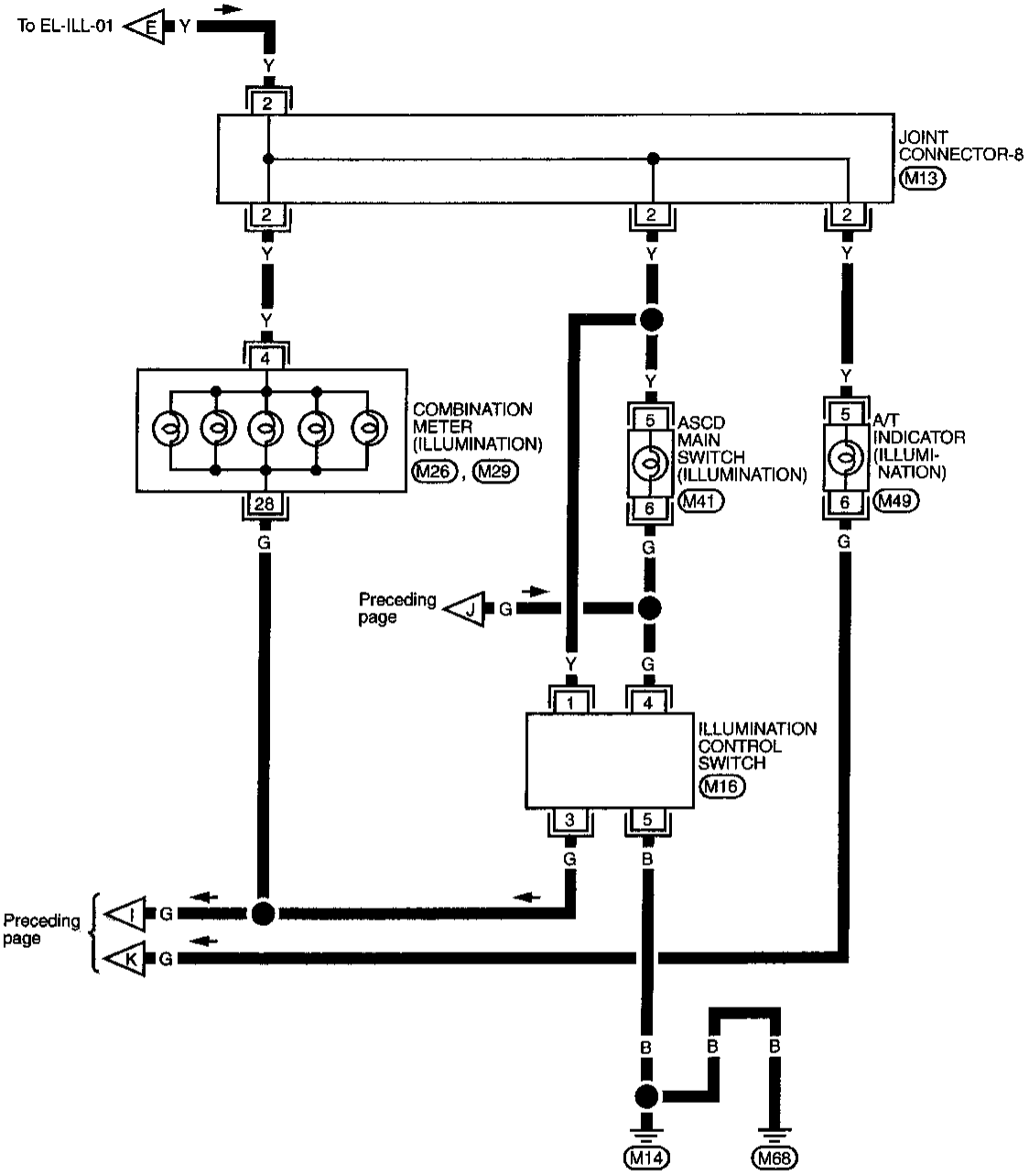


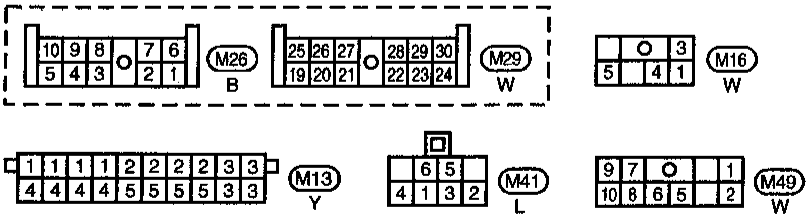
TEL179

1173

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

EL-ILL-04

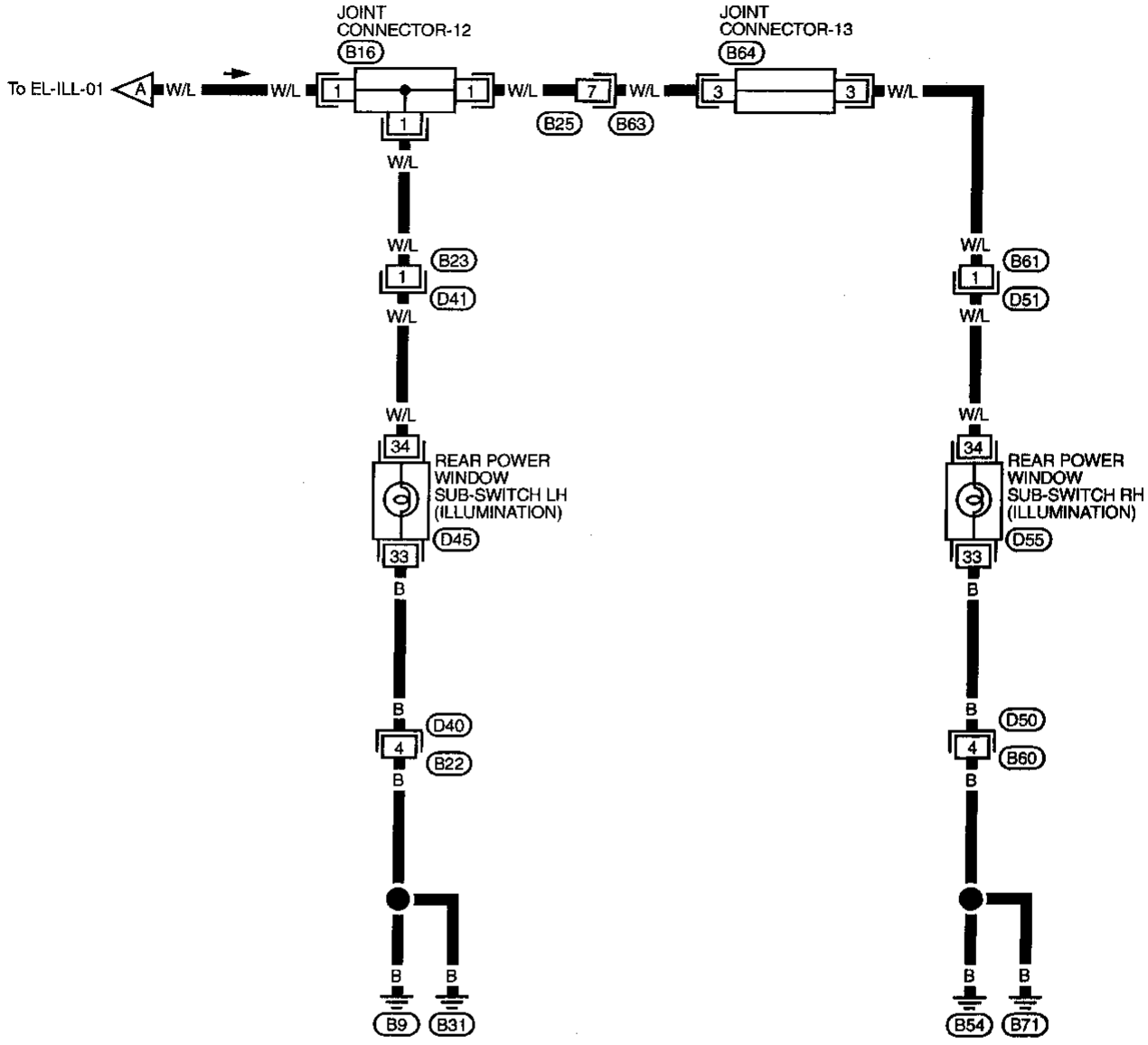


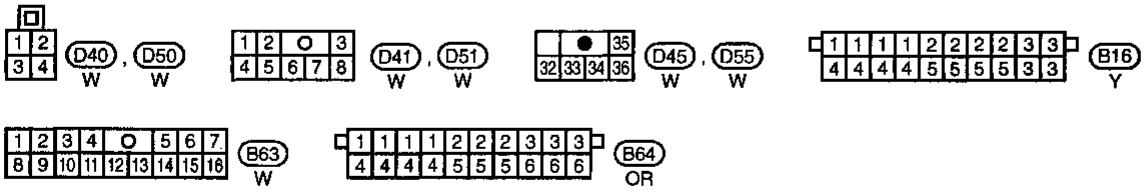


TEL180

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

EL-ILL-05





TEL181

1175

Interior, Spot and Trunk Room Lamps/System Description

Power is supplied at all times
- through 7.5A fuse (No. 23, located in the fuse block [J/B])
- to footwell lamp (driver side) terminal ②,
- to footwell lamp (passenger side) terminal ②,
- to step lamp (driver side) terminal ①,
- to step lamp (passenger side) terminal ①,
- to trunk room lamp terminal ①,
- to rear step lamp LH terminal ①,
- to rear step lamp RH terminal ①,
- to interior lamp terminal ①,
- to spot lamp terminal ①,
- to vanity mirror illumination (driver side) terminal ①,
- to vanity mirror illumination (passenger side) terminal ①, and
- to rear door switch relay terminal ②.

INTERIOR LAMP

Switch operation

With interior lamp switch is ON, ground is supplied to turn interior lamp on.
When a door switch is set to OPEN with interior lamp switch in DOOR, ground is supplied
- to interior lamp terminal ②
- through diode terminal ①
- to diode terminal ②
- through front door switch (driver side) terminal ①,
- through front door switch (passenger side) terminal ①,
- through rear door switch relay terminal ③ (when rear door switch relay is energized by rear door switch LH or rear door switch RH).

Interior lamp timer operation by time control system

With interior lamp switch in DOOR and front door switch (driver side) set to CLOSED, time control unit receives position signals. Ground is then supplied
- to interior lamp terminal ②
- through time control unit (fuse block [J/B]) terminal (11A).

Time control unit is grounded at terminal (11A) to control interior lamp operation.

Interior lamp control by multi-remote control system

Multi-remote control system receives a signal to turn interior lamp on with interior lamp switch set to DOOR. Ground is then supplied
- to interior lamp terminal ②
- through multi-remote control unit terminal ⑰.

Multi-remote control unit is grounded at terminal ⑰ to turn interior lamp on.

SPOT LAMP AND VANITY MIRROR LAMP

With a switch ON, power is supplied
- to spot lamp,
- to vanity mirror lamp (driver side) and
- to vanity mirror lamp (passenger side).

Ground is supplied
- to spot lamp terminal ②,
- to vanity mirror illumination (driver side) terminal ② and
- to vanity mirror lamp (passenger side) terminal ②
- through body grounds (M14) and (M68).

Also, when lighting switch is moved to 1ST or 2ND position, ground is supplied
- to spot lamp terminal ③
- through lighting switch terminal ⑤

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

- to lighting switch terminal ⑥
- through body grounds (E15) and (E37).

With power and ground supplied, the lamp turns on.

TRUNK ROOM LAMP

When trunk room lamp switch is in OPEN position, ground is supplied

- to trunk room lamp terminal ②
- through trunk room lamp switch terminal ①
- to trunk room lamp switch terminal ②
- through body grounds (T2) and (T5).

With power and ground supplied, trunk room lamp turns on.

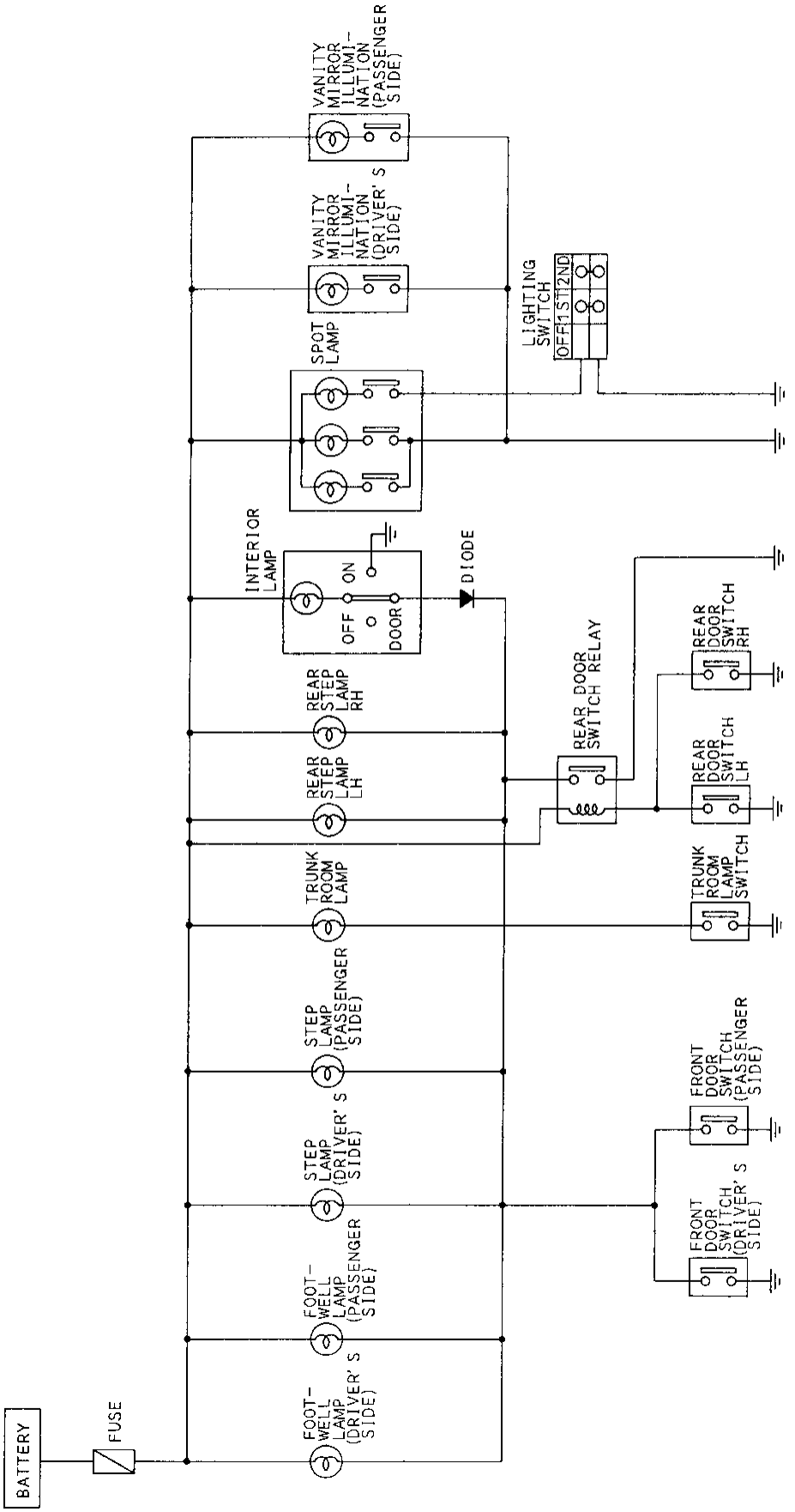
FOOTWELL AND STEP LAMPS

When front door switch (driver side) or front door switch (passenger side) is set to OPEN, ground is supplied

- to footwell lamp (driver side) terminal ①,
- to footwell lamp (passenger side) terminal ①,
- to step lamp (driver side) terminal ②,
- to step lamp (passenger side) terminal ②,
- to rear step lamp LH terminal ②, and
- to rear step lamp RH terminal ②
- through front door switch (driver side) terminal ① or
- through front door switch (passenger side) terminal ①.

Also, when rear door switch relay is energized by rear door switch LH or rear door switch RH, ground is supplied to the above terminals through rear door switch relay terminal ③.

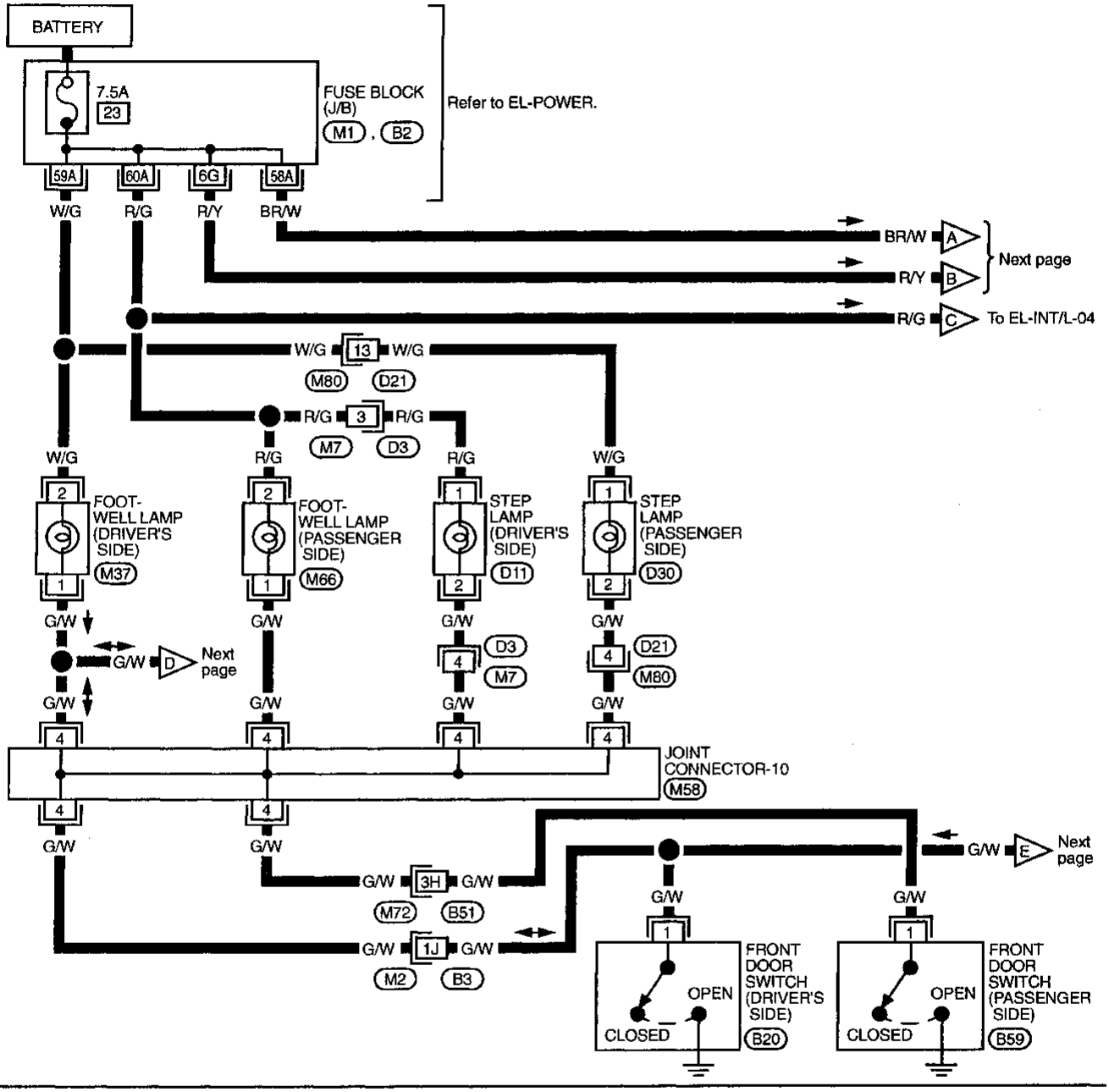
Interior, Spot and Trunk Room Lamp/Schematic

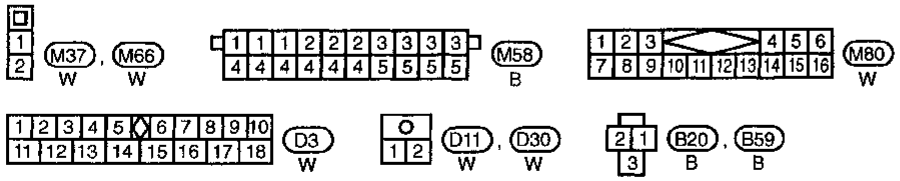


TEL186

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

EL-INT/L-01





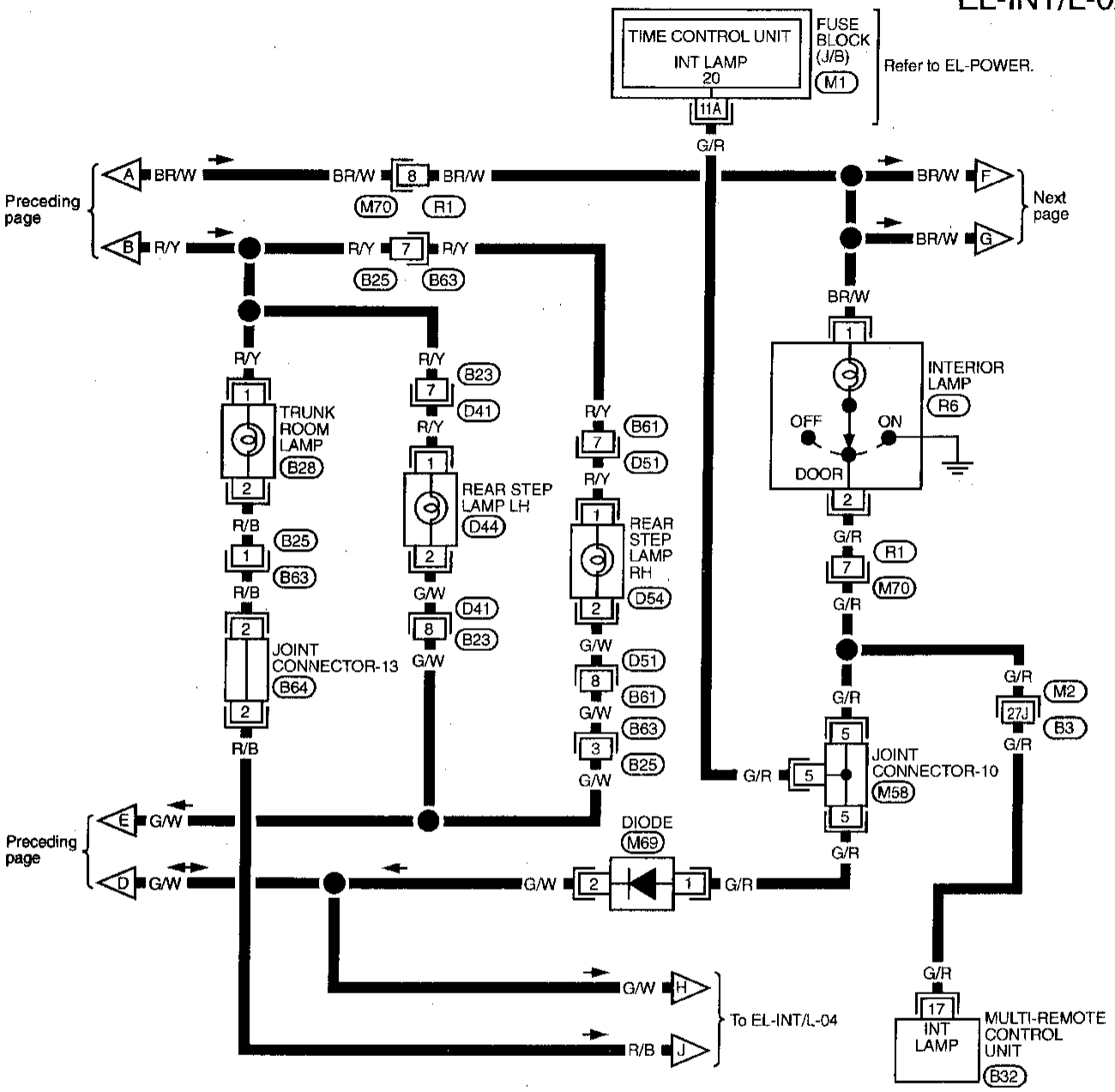
Refer to last page (Foldout page).

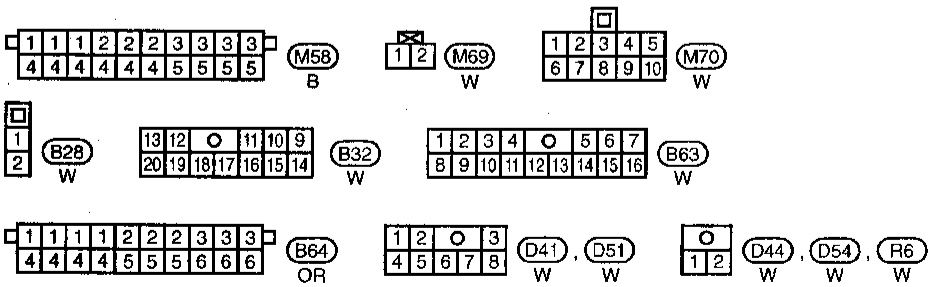
M2, B3
M1, B2
M72, B51

TEL187

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

EL-INT/L-02





Refer to last page (Foldout page).

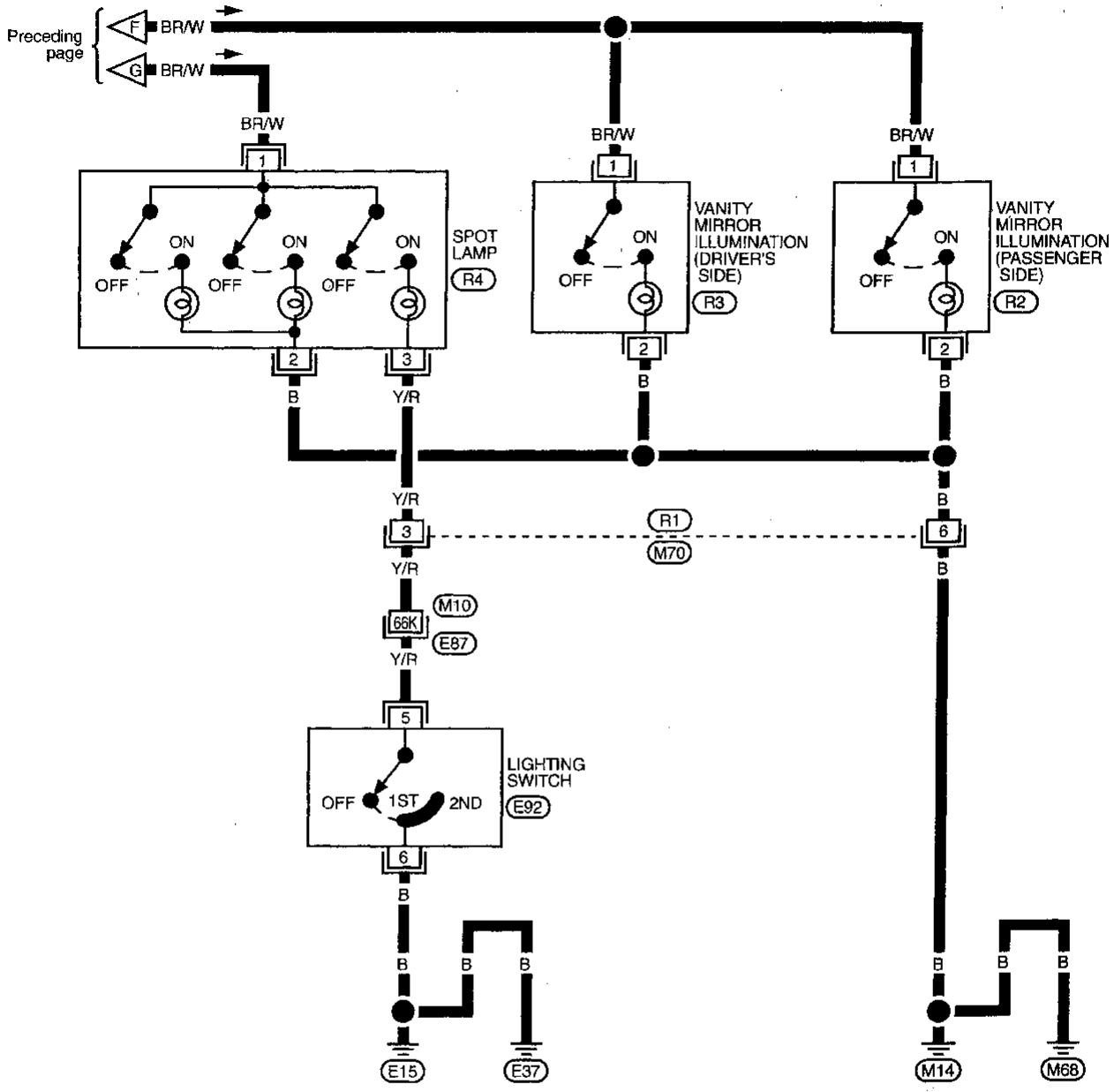
M1

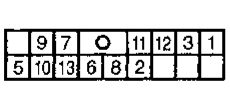
M2, B3

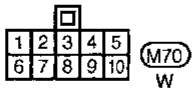
TEL188

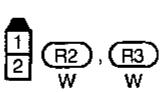
Interior, Spot and Trunk Room Lamp/Wiring Diagram — INT/L — (Cont'd)

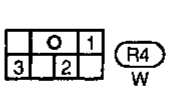
EL-INT/L-03




E92 BR


M70 W

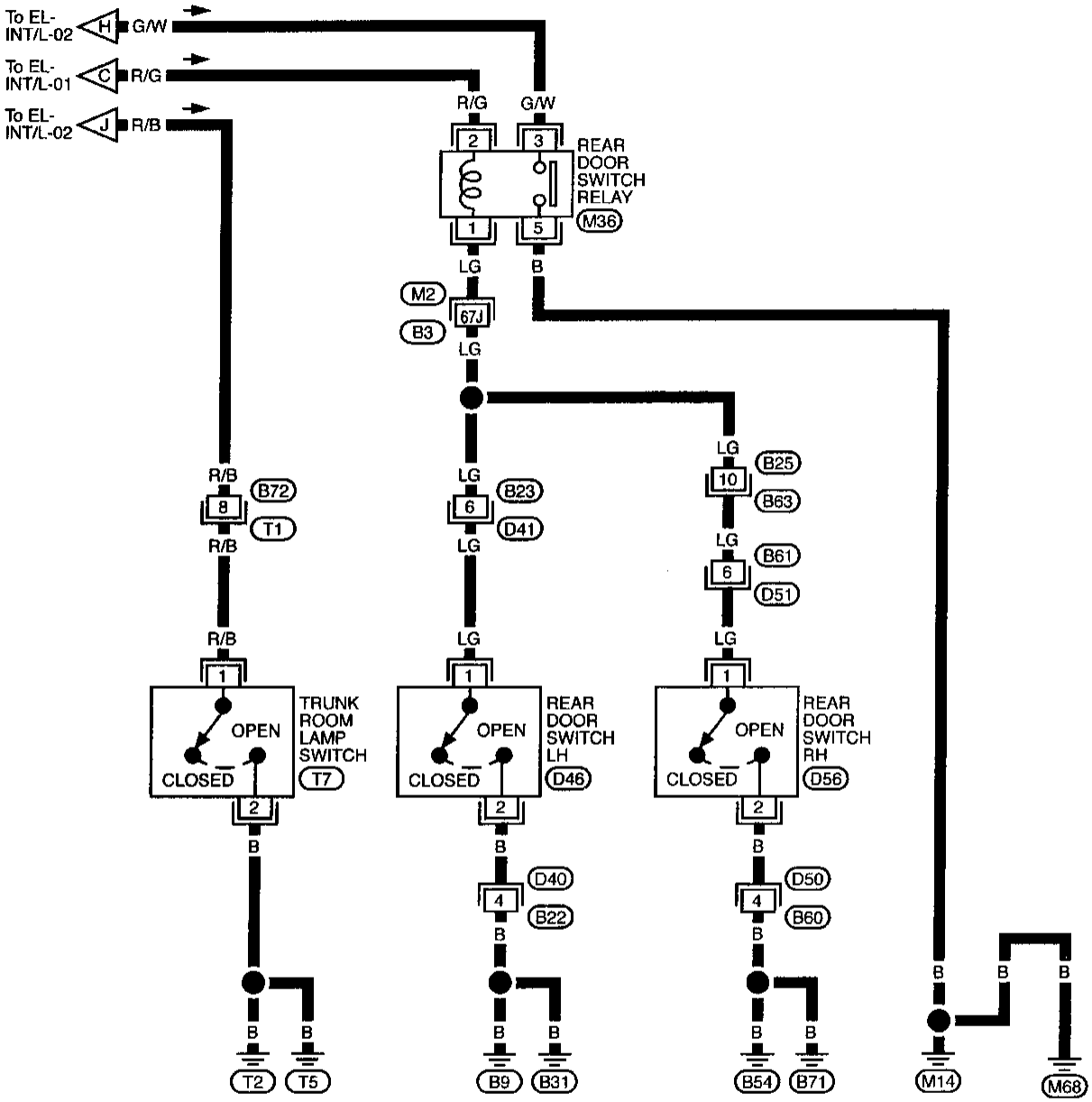

R2 W, R3 W

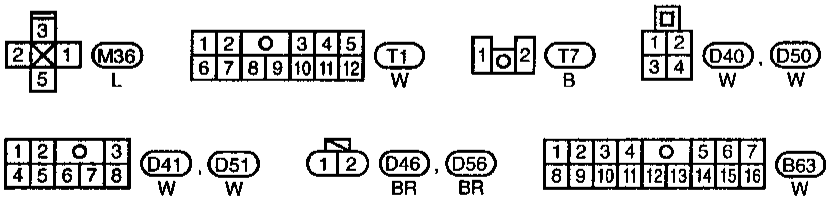

R4 W

Refer to last page (Foldout page).
M10, E87

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

EL-INT/L-04





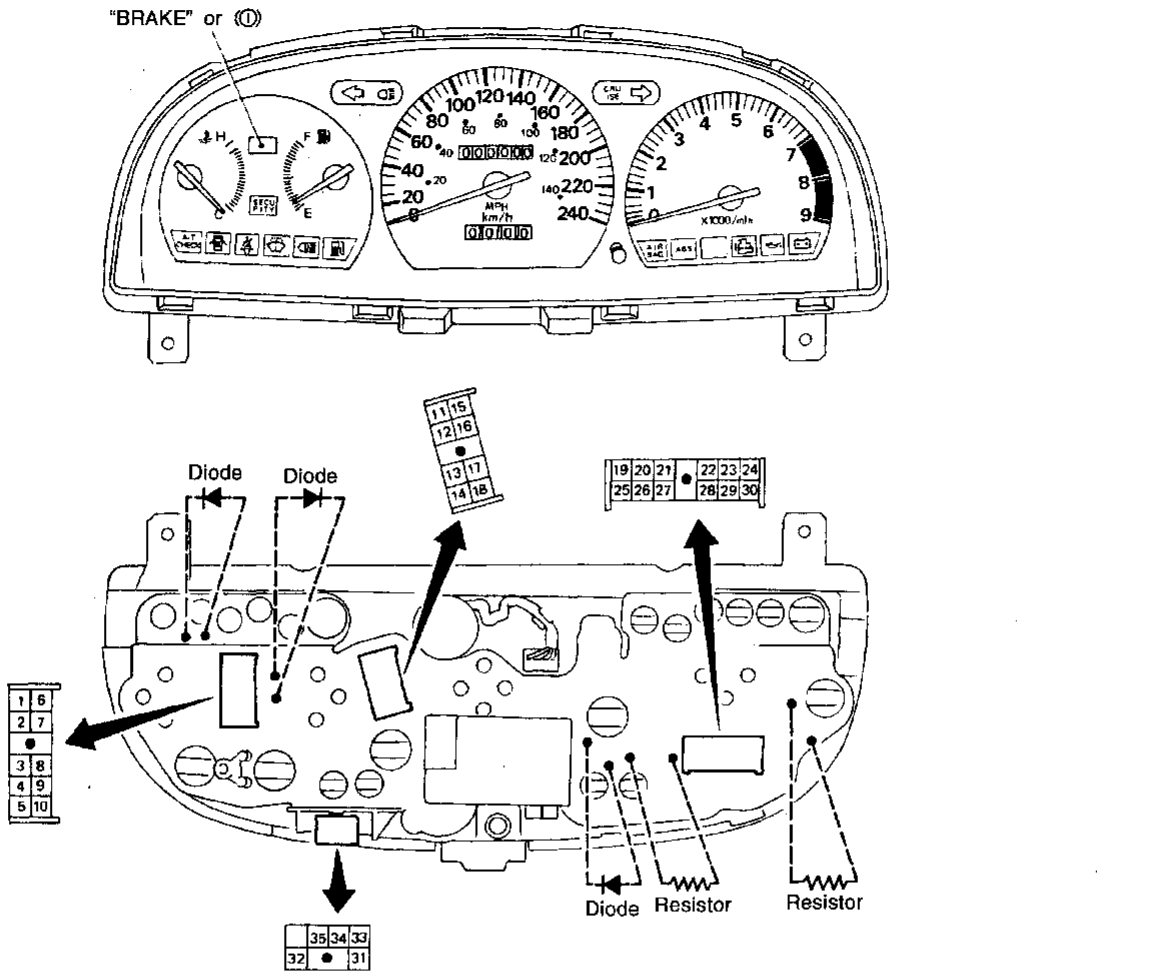
Refer to last page (Foldout page).
M2, B3

TEL190

Bulb Specifications

	Wattage (12 volt)
Interior lamp	10
Spot lamp	
(Type A)	10
(Type B)	8
Step lamp	3.4
Trunk room lamp	3.4

Combination Meter



CEL087

System Description

With the ignition switch in the ON or START position, power is supplied
- through 7.5A fuse (No. 31 , located in the fuse block [J/B])
- to combination meter terminal ㉓
- for the tachometer and
- for the fuel gauge and water temperature gauge.

Ground is supplied
- to combination meter terminals ㉗ and ⑪
- through body grounds (M14) and (M68).

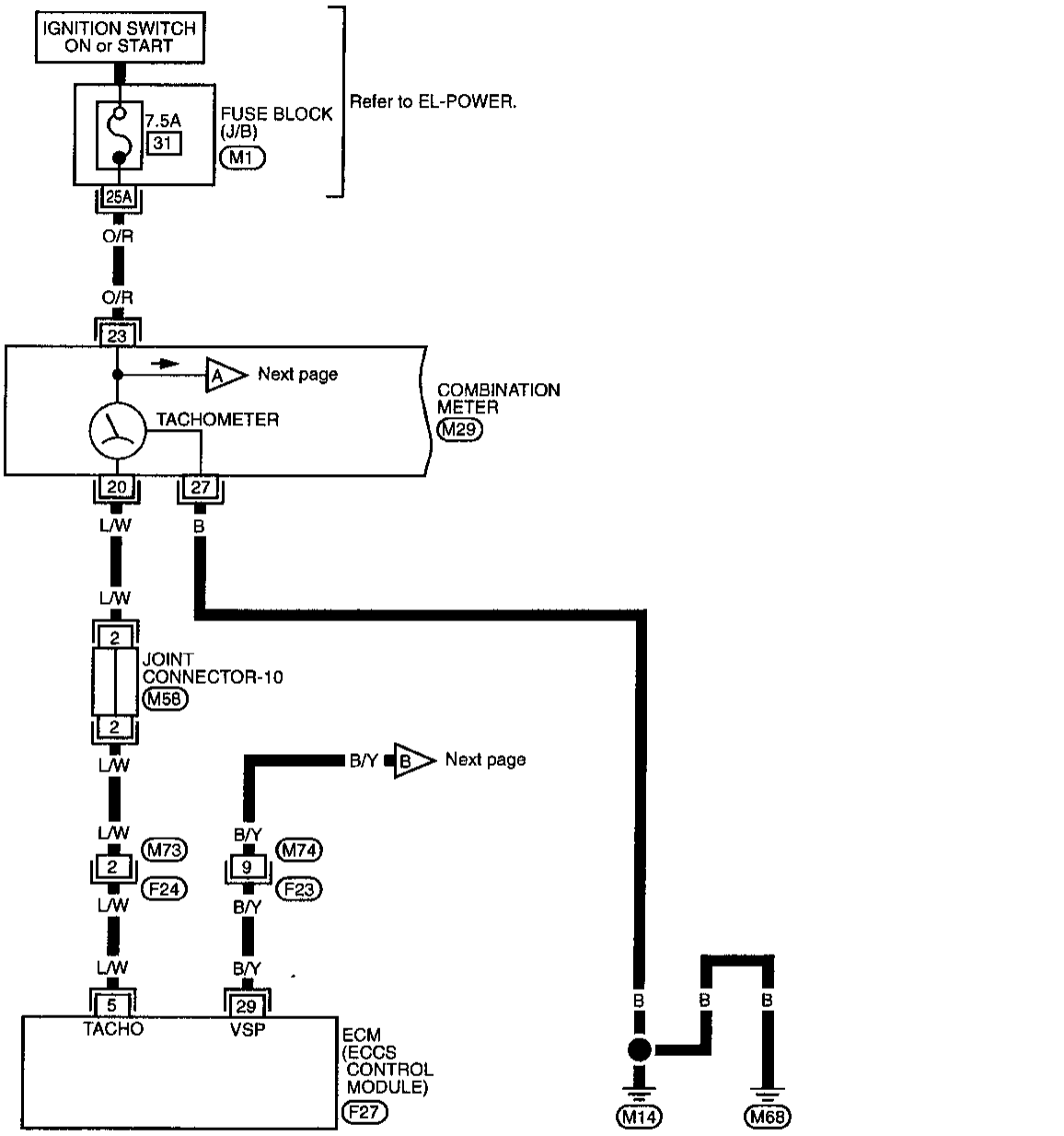
The reading on the water temperature gauge is based on the resistance change of the thermal transmitter.
A variable ground is supplied to terminal ⑤ of the combination meter for the water temperature gauge.
The tachometer is regulated by a signal
- from terminal ⑤ of the ECM (ECCS control module)
- to combination meter terminal ⑳ for the tachometer.

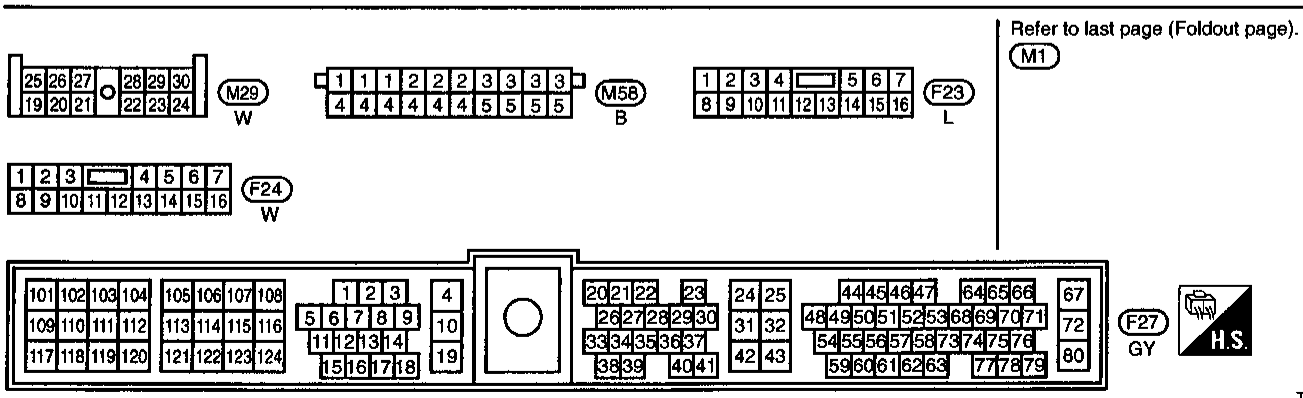
The fuel gauge is regulated by a variable ground signal supplied
- to combination meter terminal ⑩ for the fuel gauge
- from terminal ⑤ of the fuel tank gauge unit
- through terminal ④ of the fuel tank gauge unit and
- through body grounds (B54) and (B71).

The vehicle speed sensor provides a voltage signal to the combination meter for the speedometer and the voltage is converted into the vehicle speed.
The voltage is supplied
- to combination meter terminals ⑯ and ⑰ for the speedometer
- from terminals ② and ① of the vehicle speed sensor.

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

EL-METER-01

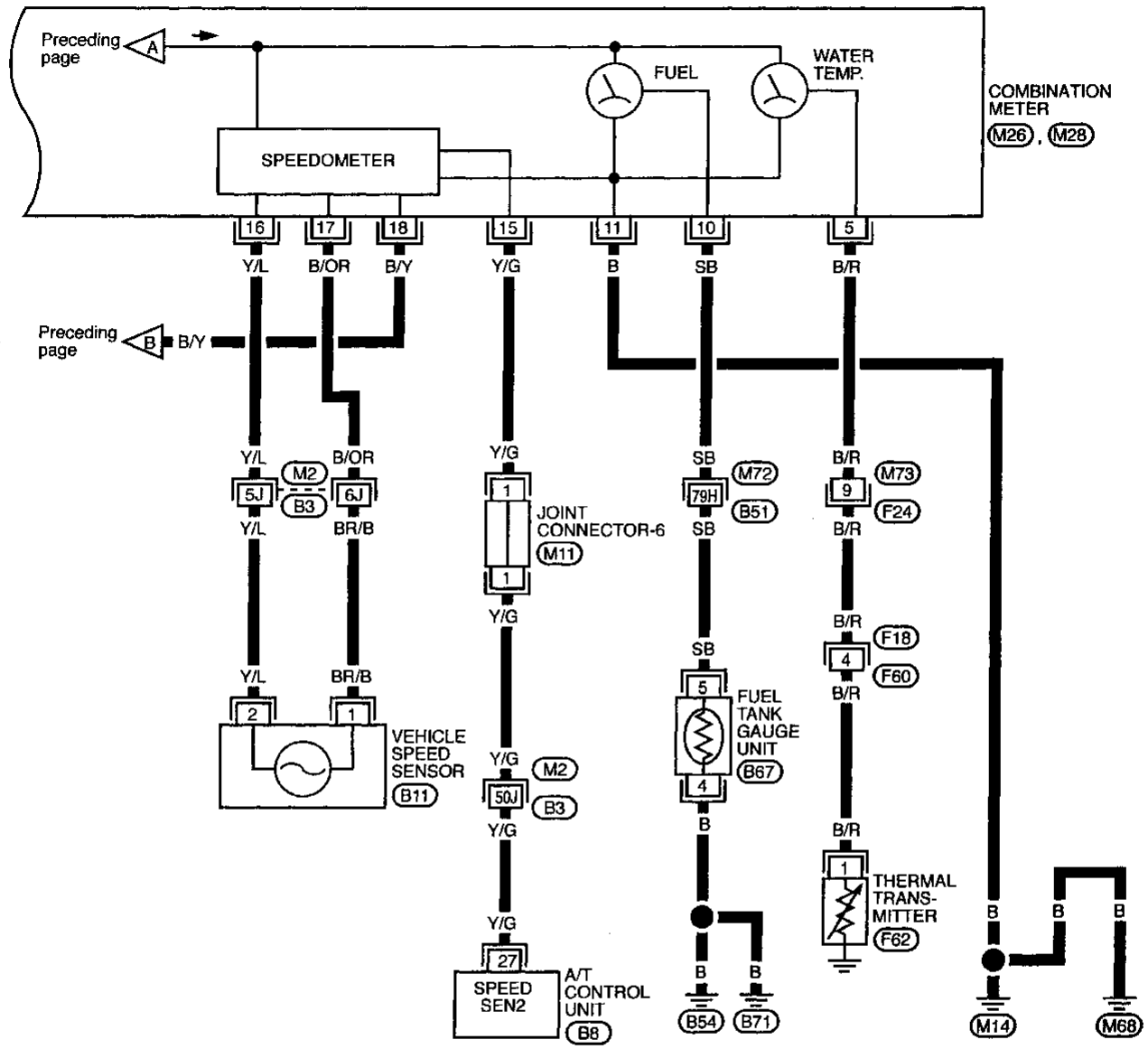


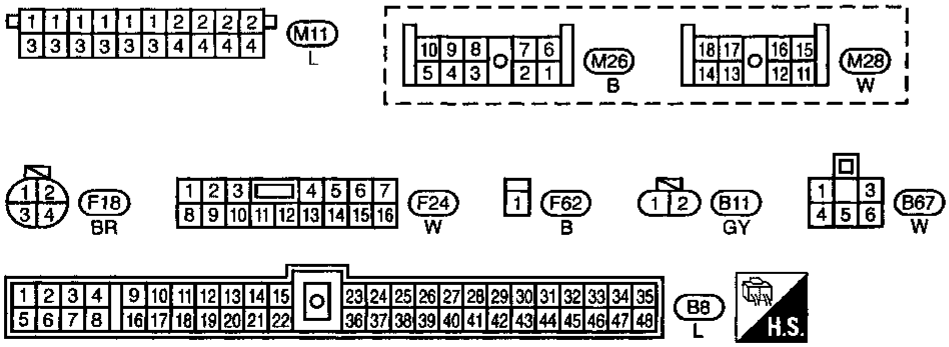


TEL191

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

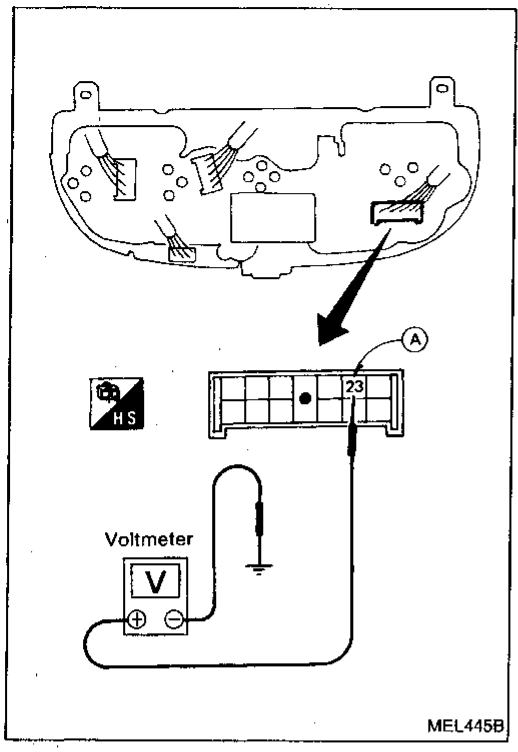
EL-METER-02

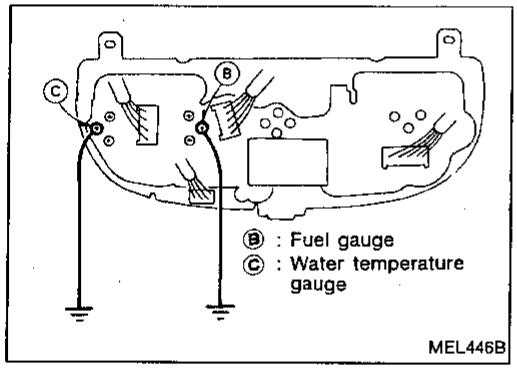


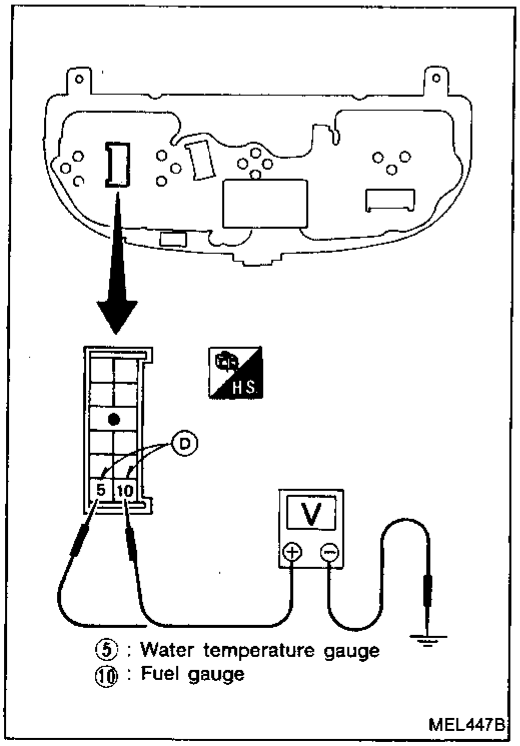


Refer to last page (Foldout page).
M2, B3
M72, B51

TEL192







Inspection/Fuel Gauge and Water Temperature Gauge

INSPECTION START

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

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

OK ↓

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 ↓

Check harness continuity between component and combination meter Ⓓ.

NG → Repair or replace.

OK ↓

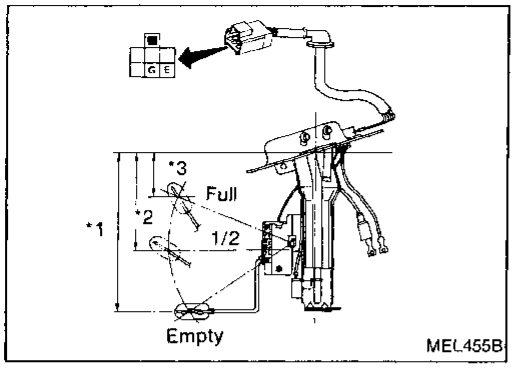
CHECK COMPONENT.
Check gauge units and harness.
Refer to "Fuel Tank Gauge Unit Check" (EL-99), "Thermal Transmitter Check" (EL-99).

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

OK ↓

Reinstall any part removed.

INSPECTION END



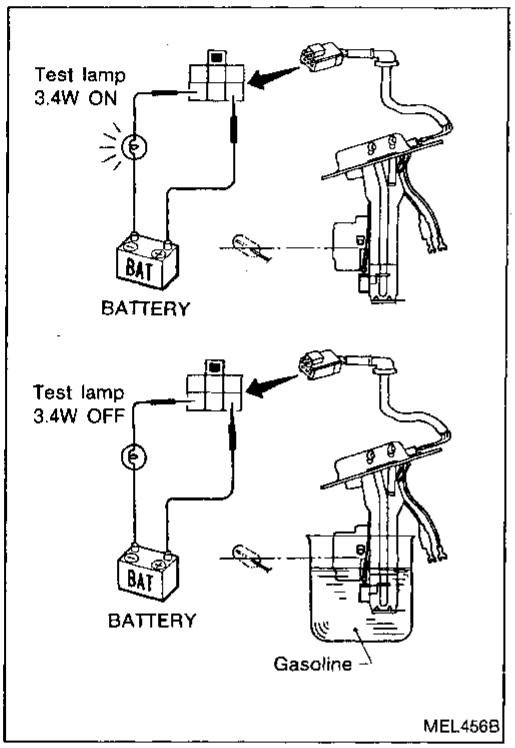
Fuel Tank Gauge Unit Check

- For removal, refer to FE section.

Check the resistance between terminals Ⓖ and Ⓔ.

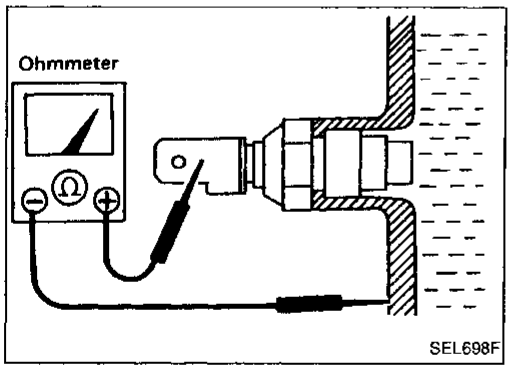
Ohmmeter (+)	Ohmmeter (−)	Float position mm (in)			Resistance value (Ω)
G	E	*3	Full	48 (1.89)	Approx. 4 - 6
		*2	1/2	112 (4.41)	27 - 34
		*1	Empty	172 (6.77)	78 - 85

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



Fuel Warning Lamp Sensor Check

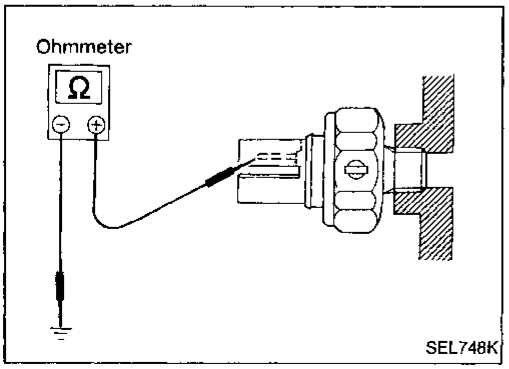
- It will take a short time for the bulb to light.



Thermal Transmitter Check

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

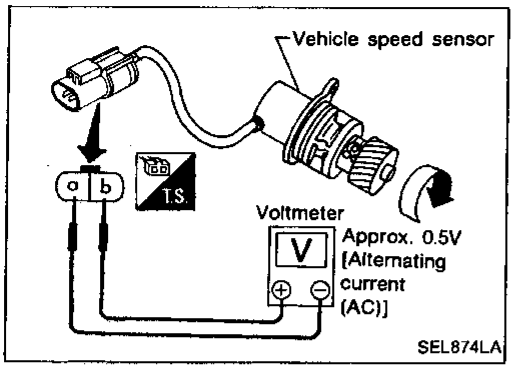
Water temperature	Resistance
60°C (140°F)	Approx. 70 - 90Ω
100°C (212°F)	Approx. 21 - 24Ω



Oil Pressure Switch Check

	Oil pressure kPa (kg/cm², psi)	Continuity
Engine start	More than 10 - 20 (0.1 - 0.2, 1.4 - 2.8)	NO
Engine stop	Less than 10 - 20 (0.1 - 0.2, 1.4 - 2.8)	YES

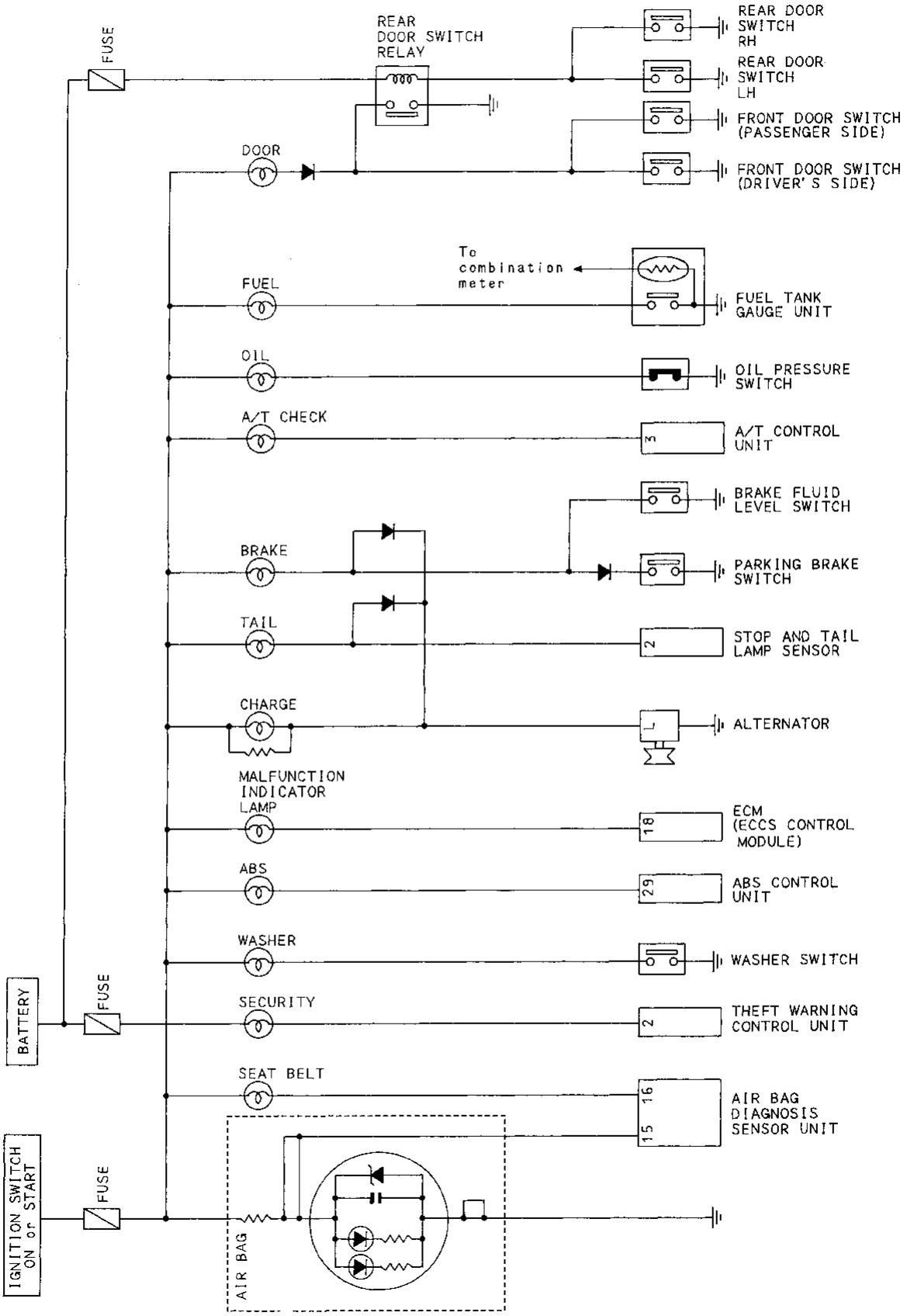
Check the continuity between the terminals of oil pressure switch and body ground.



Vehicle Speed Sensor Signal Check

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

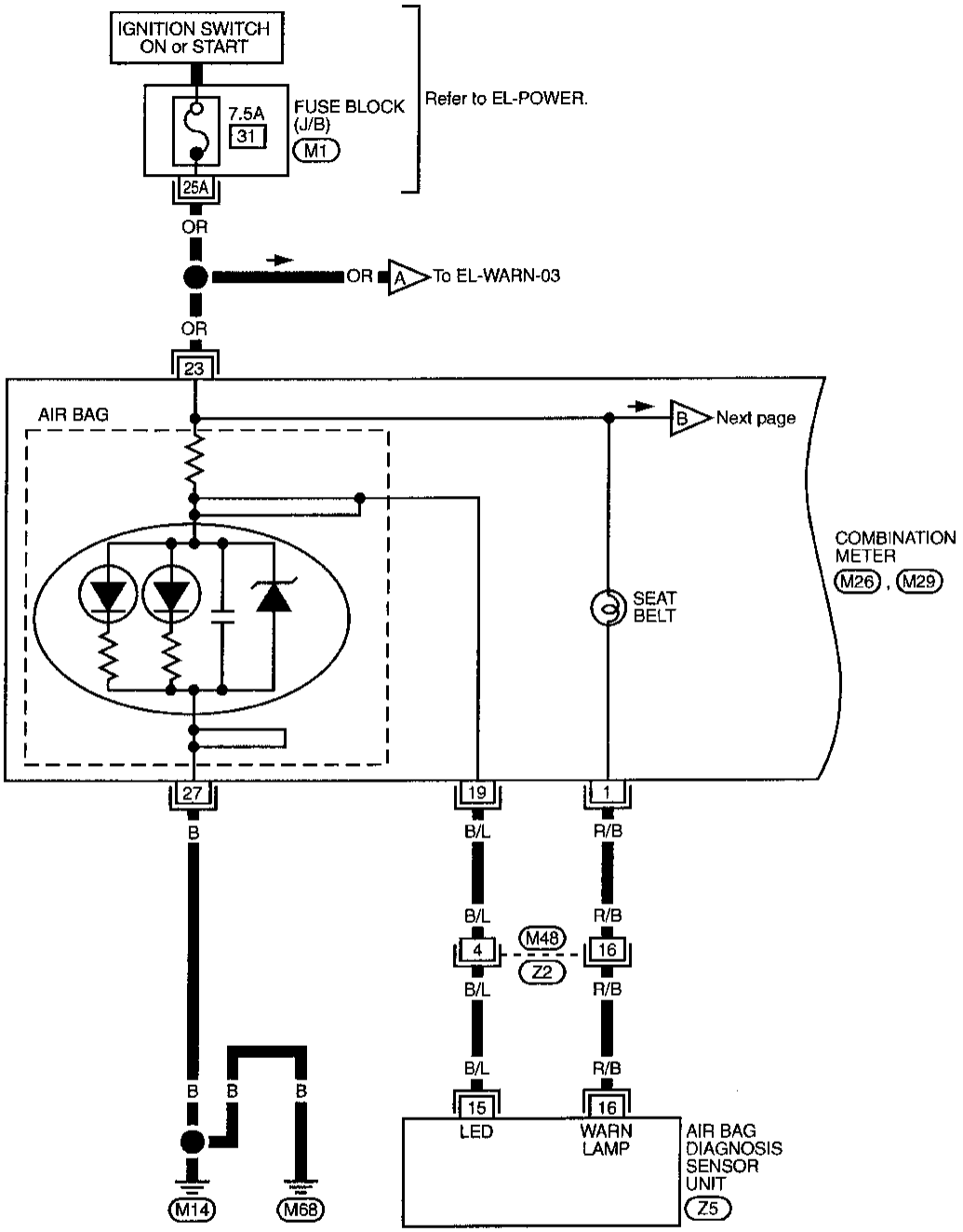
Schematic

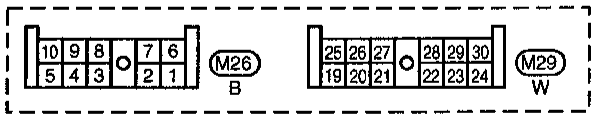


TEL251

Wiring Diagram — WARN —

EL-WARN-01



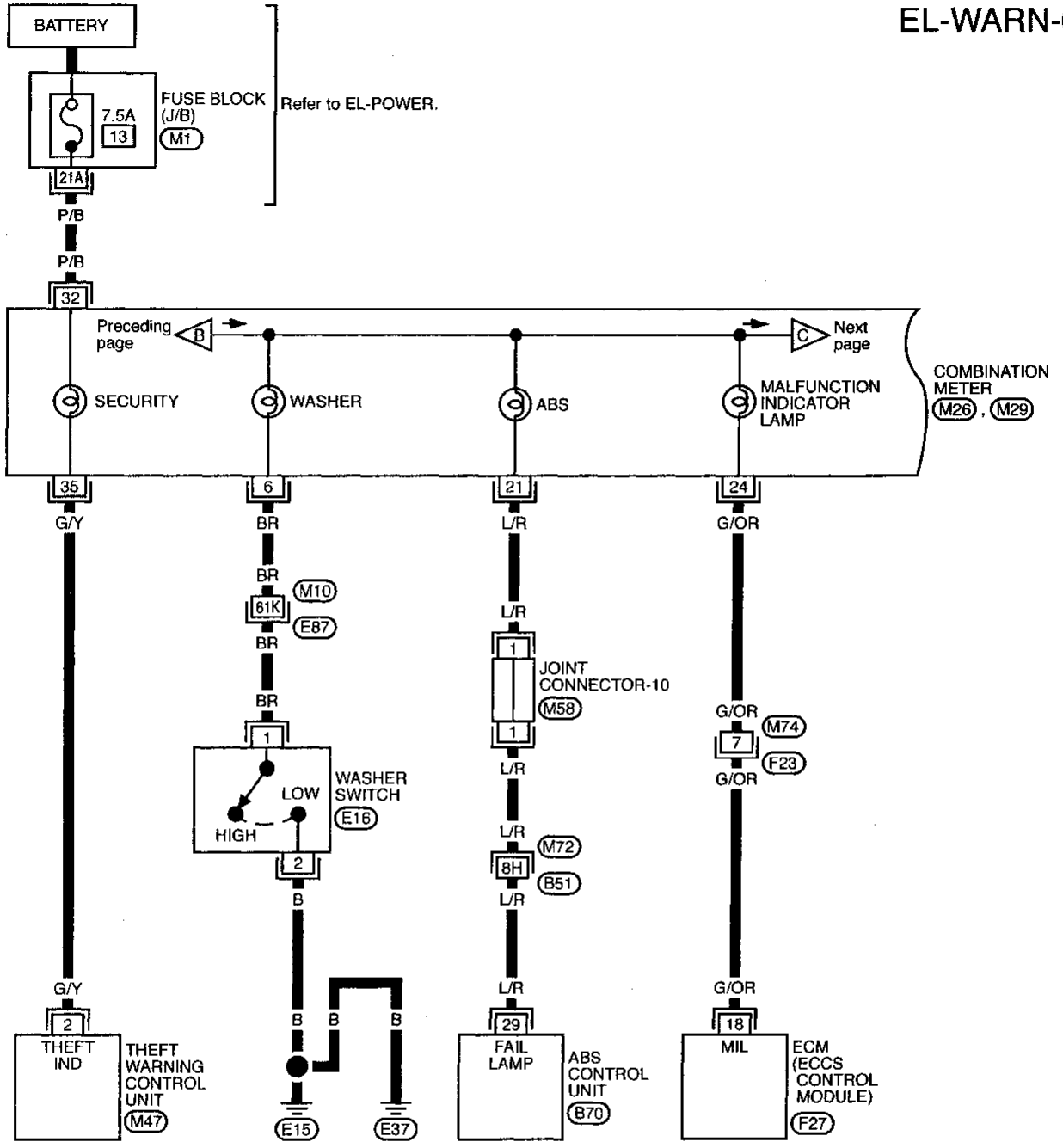


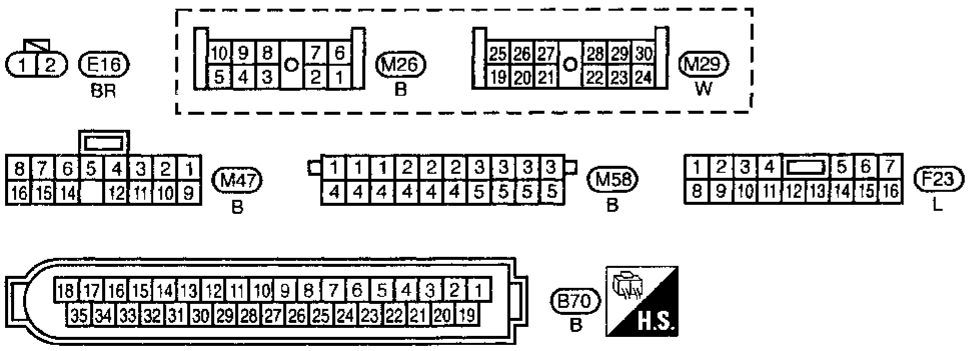
Refer to last page (Foldout page).
M1

TEL246

Wiring Diagram — WARN — (Cont'd)

EL-WARN-02

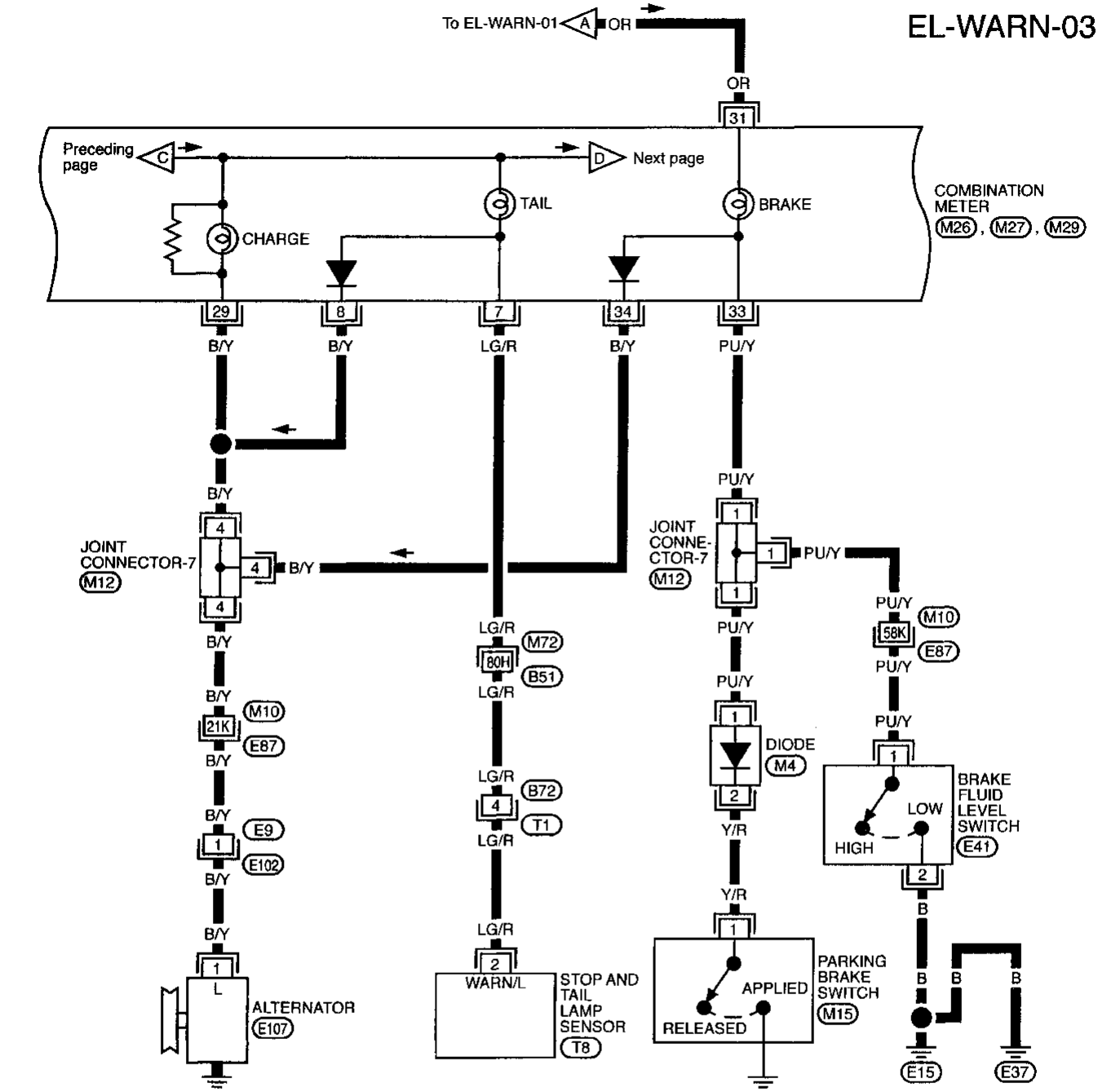


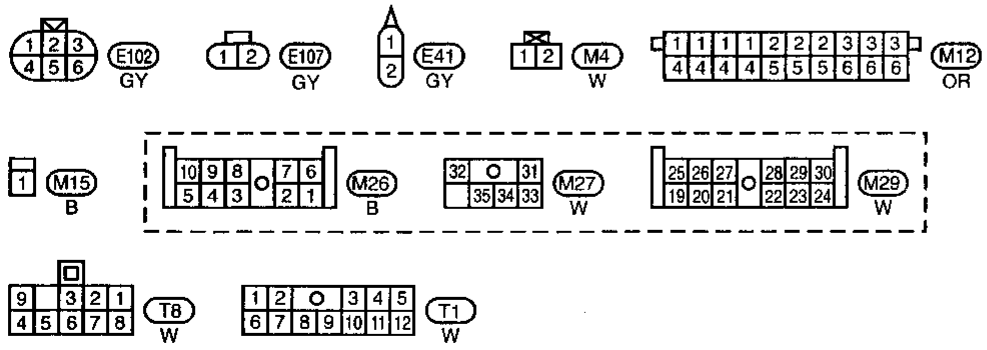


Refer to last page (Foldout page).
M10, E87
M72, B51
M1
F27

TEL247

Wiring Diagram — WARN — (Cont'd)



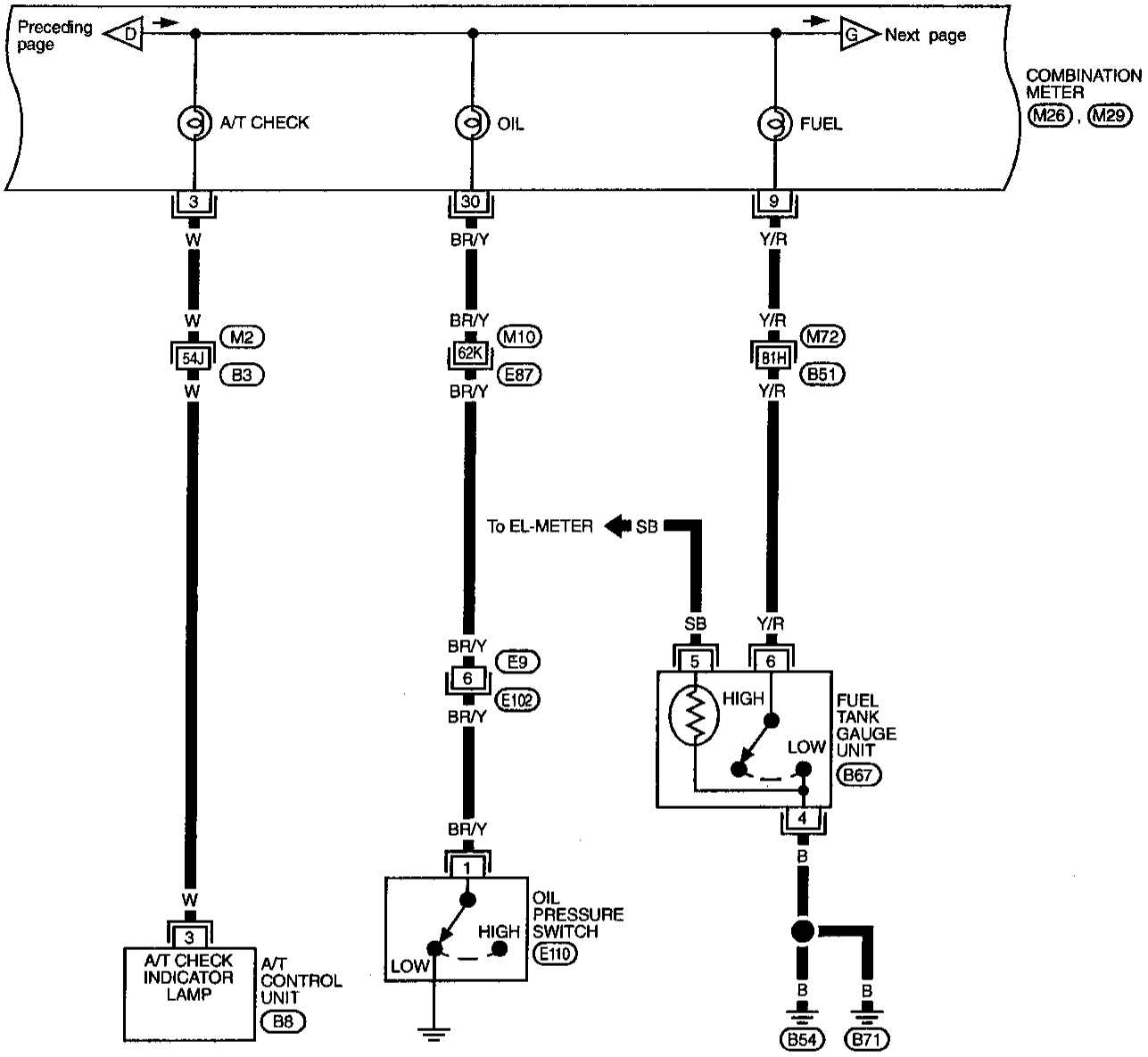


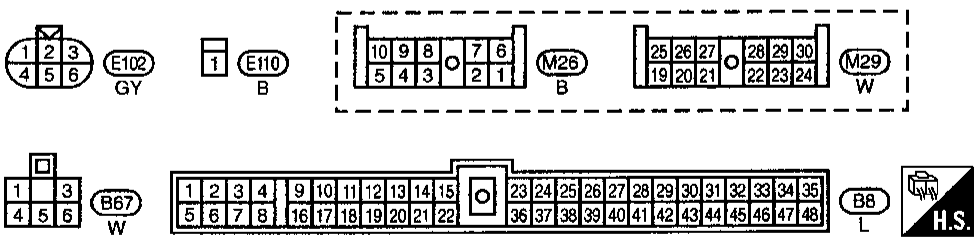
Refer to last page (Foldout page).
M10, E87
M72, B51

TEL248

Wiring Diagram — WARN — (Cont'd)

EL-WARN-04





Refer to last page (Foldout page).

M2, B3

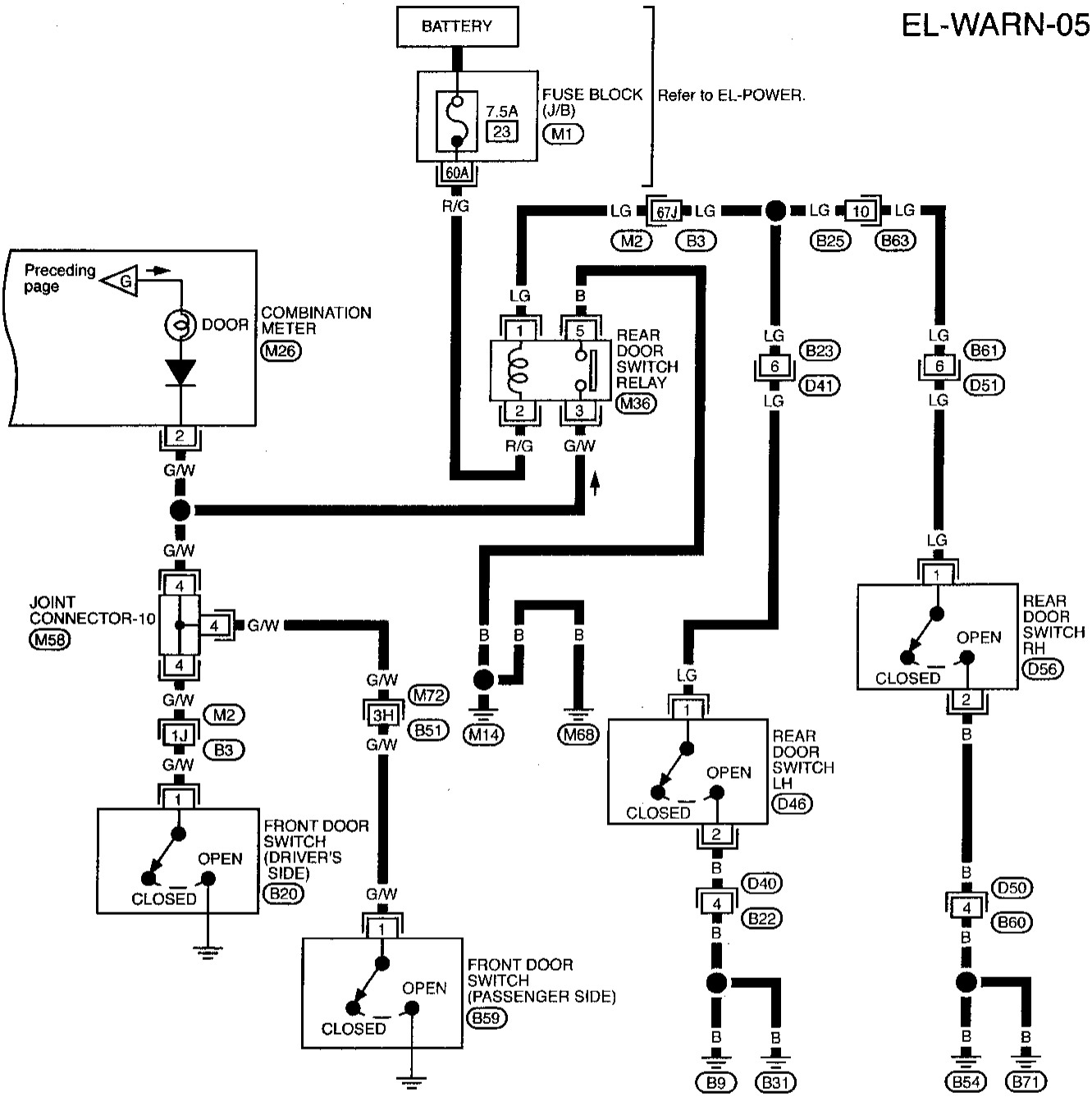
M10, E87

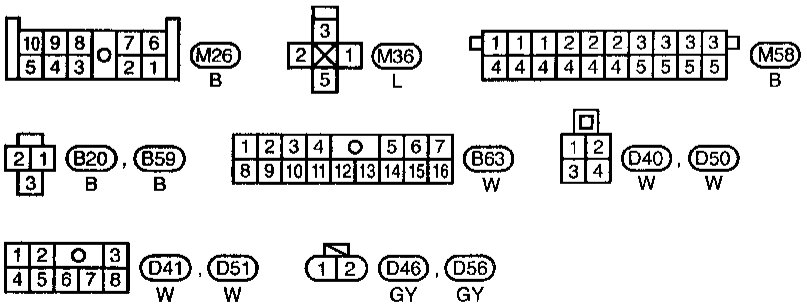
M72, B51

TEL249

Wiring Diagram — WARN — (Cont'd)

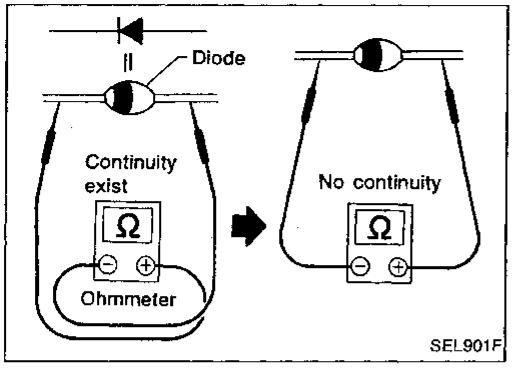
EL-WARN-05





Refer to last page (Foldout page).
M2, B3
M72, B51
M1

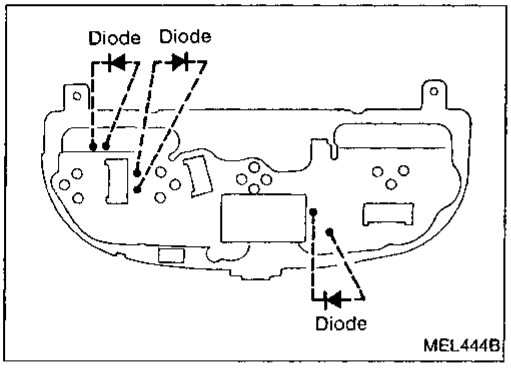
TEL250



Diode Check

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

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



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

Refer to "Combination Meter" (EL-94).

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. 5, located in the fuse block [J/B])
- to wiper motor terminal ② and
- to wiper relay terminal ①.

Low and high speed wiper operation

Ground is supplied to wiper switch terminal ⑰ through body grounds E15 and E37.
When the wiper switch is placed in the LO position, ground is supplied

- through terminal ⑭ of the wiper switch
- to wiper motor terminal ⑥.

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

- through terminal ⑯ of the wiper switch
- to wiper motor terminal ⑤.

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

Auto stop operation

When the wiper switch is placed in the OFF position, the wiper motor will continue to operate until the wiper arms reach the base of the windshield.
When wiper arms are not located at base of windshield with wiper switch OFF, ground is supplied

- from terminal ⑭ of the wiper switch
- to wiper motor terminal ⑥, in order to continue wiper motor operation at low speed.

Ground is also supplied

- through terminal ⑬ of the wiper switch
- to wiper relay terminal ③
- through terminal ④ of the wiper relay
- to wiper motor terminal ③
- through terminal ④ of the wiper motor, and
- through body grounds E15 and E37.

When wiper arms reach base of windshield, wiper motor terminals ③ and ② are connected instead of terminals ③ and ④. Wiper motor will then stop wiper arms at the PARK position.

Intermittent operation

The wiper motor operates the wiper arms one time at low speed at a set interval of approximately 2 to 21 seconds. This feature is controlled by the time control unit (in the fuse block [J/B]).
When the wiper switch is placed in the INT position, ground is supplied

- to time control unit (fuse block [J/B]) terminal 83A
- from wiper switch terminal ⑮
- through body grounds E15 and E37.

The desired interval time is input

- to time control unit (fuse block [J/B]) terminal 84A
- from wiper switch terminal ⑲.

Based on these two inputs, an intermittent ground is supplied

- to wiper relay terminal ②
- from time control unit (fuse block [J/B]) terminal 14E.

With power and ground supplied, the wiper relay is activated.
When activated, an intermittent ground is supplied

- to wiper motor terminal ⑥
- through the wiper switch terminal ⑭
- to wiper switch terminal ⑬

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

- through wiper relay terminal ③
- to wiper relay terminal ⑤
- through body grounds (E15) and (E37).

Wiper motor operates at desired low speeds with time control unit (fuse block [J/B]) terminal (14E) grounded.

WASHER OPERATION

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

- through 20A fuse (No. 5, located in the fuse block [J/B])
- to washer motor terminal ②.

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

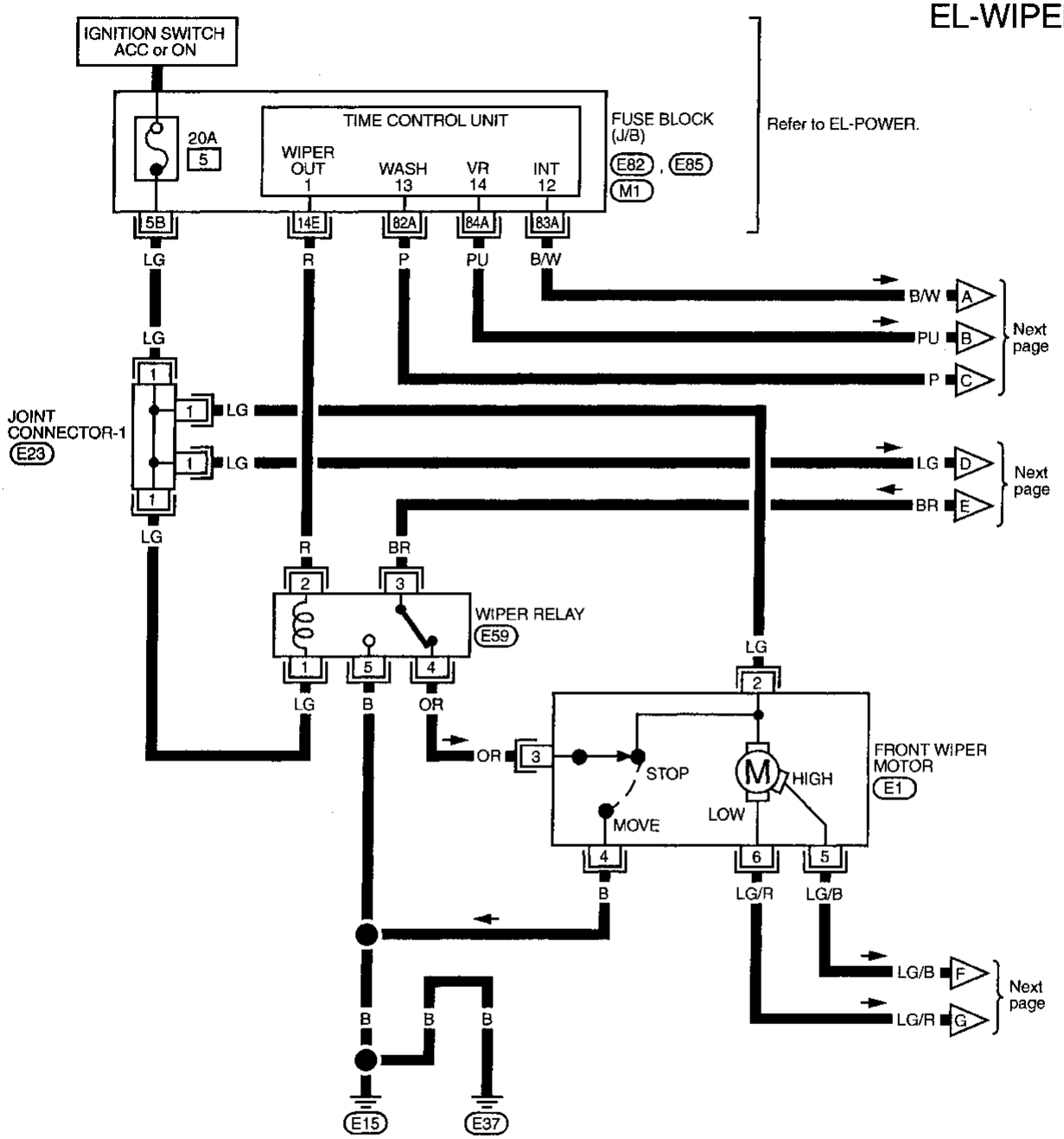
- to washer motor terminal ①, and
- to time control unit terminal ⑬ (fuse block [J/B] terminal (82A))
- from terminal ⑱ of the wiper switch
- through terminal ⑰ of the wiper switch, and
- through body grounds (E15) and (E37).

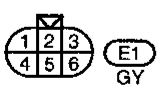
With power and ground supplied, the washer motor operates.

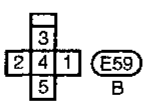
Wiper motor will then operate at low speed for approximately 3 seconds to clean windshield. This feature is controlled by the time control unit in the same manner as the intermittent operation.

Front Wiper and Washer/Wiring Diagram
— WIPER —

EL-WIPER-01





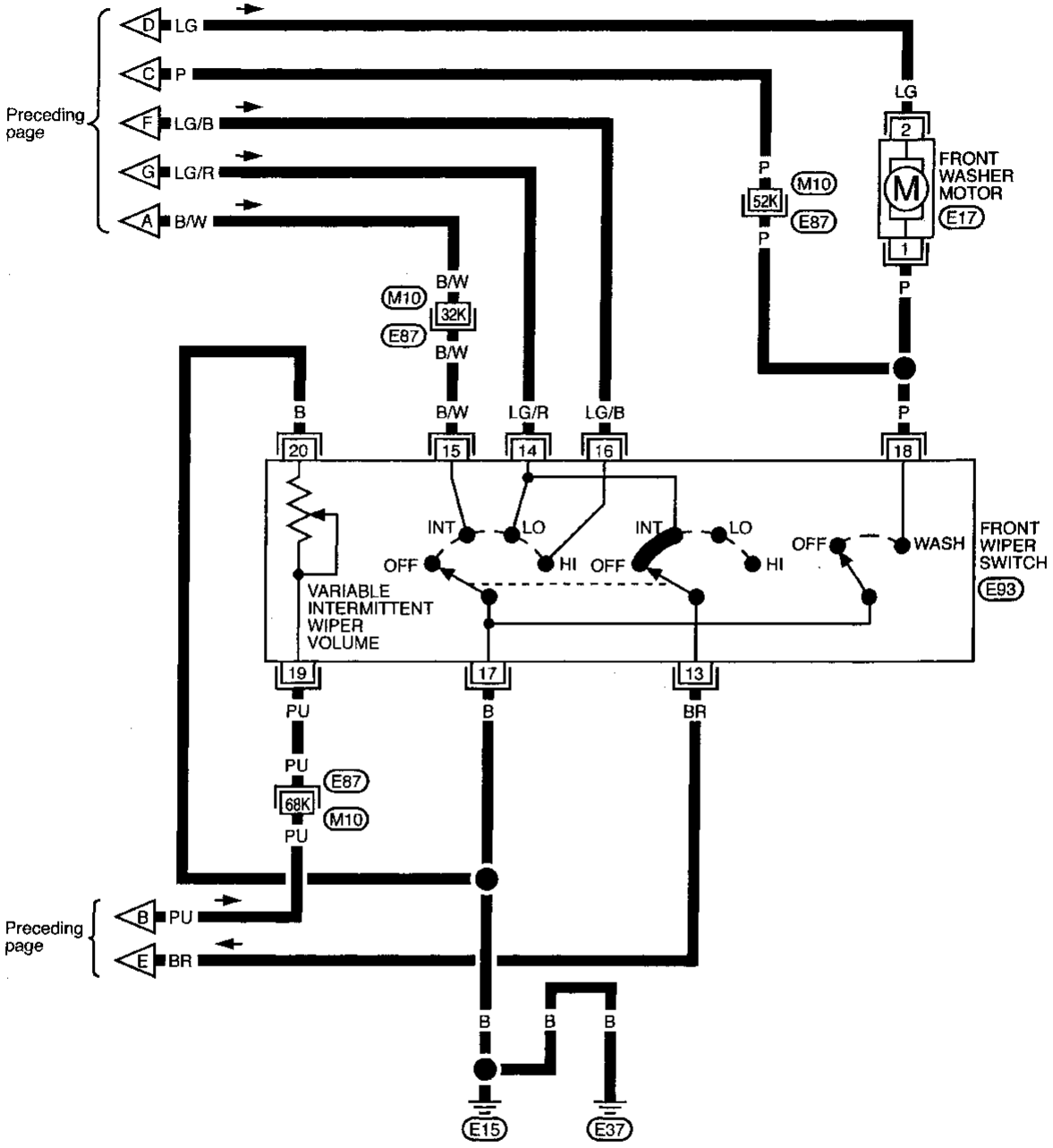


Refer to last page (Foldout page).
E82 , E85

TEL193

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

EL-WIPER-02



1 2 E17 GY

19 20 16 14 / 18 17 15 13 E93 L

Refer to last page (Foldout page).
E87, M10

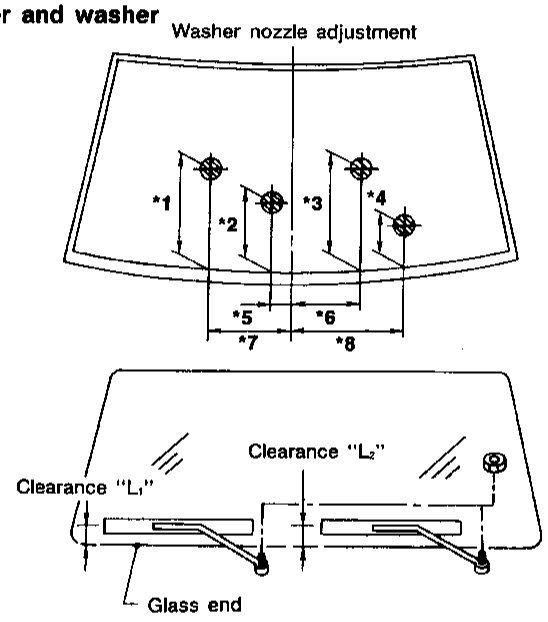
TEL194

Installation

1. Prior to wiper arm installation, turn on wiper switch to operate wiper motor and then turn it "OFF" (Auto Stop).
2. Lift the blade up and then set it down onto glass surface to set the blade center to clearance "L_1" or "L_2" immediately before tightening nut.
3. Eject washer fluid. Turn on wiper switch to operate wiper motor and then turn it "OFF".
4. Ensure that wiper blades stop within clearance "L_1" & "L_2".
   Clearance "L_1": 29 - 44 mm (1.14 - 1.73 in)
   Clearance "L_2": 22 - 37 mm (0.87 - 1.46 in)

- Tighten windshield wiper arm nuts to specified torque.
  Windshield wiper:
  17 - 23 N·m (1.7 - 2.3 kg-m, 12 - 17 ft-lb)

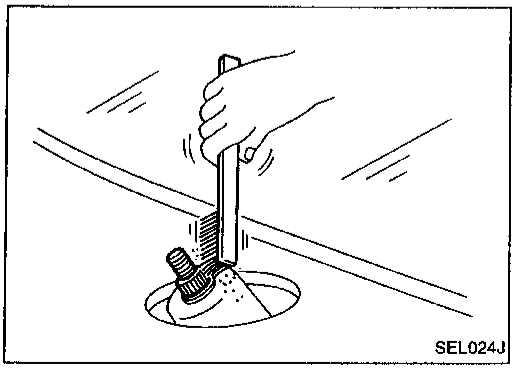
Windshield wiper and washer



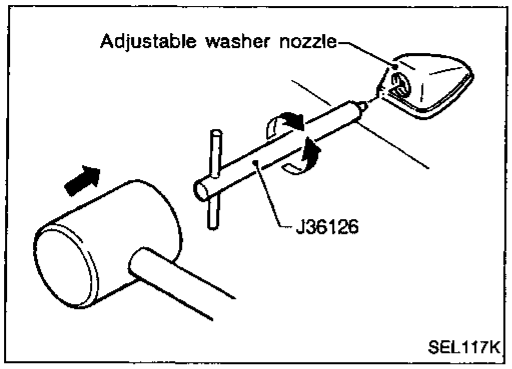
*1: 371 (14.61)
*2: 238 (9.37)
*3: 409 (16.10)
*4: 249 (9.80)
*5: 87 (3.43)
*6: 138 (5.43)
*7: 364 (14.33)
*8: 515 (20.28)

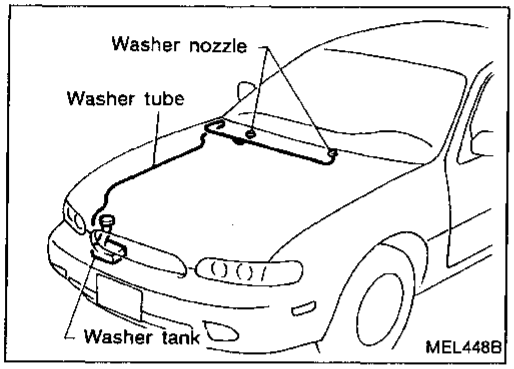
Unit: mm (in)

MEL468B



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





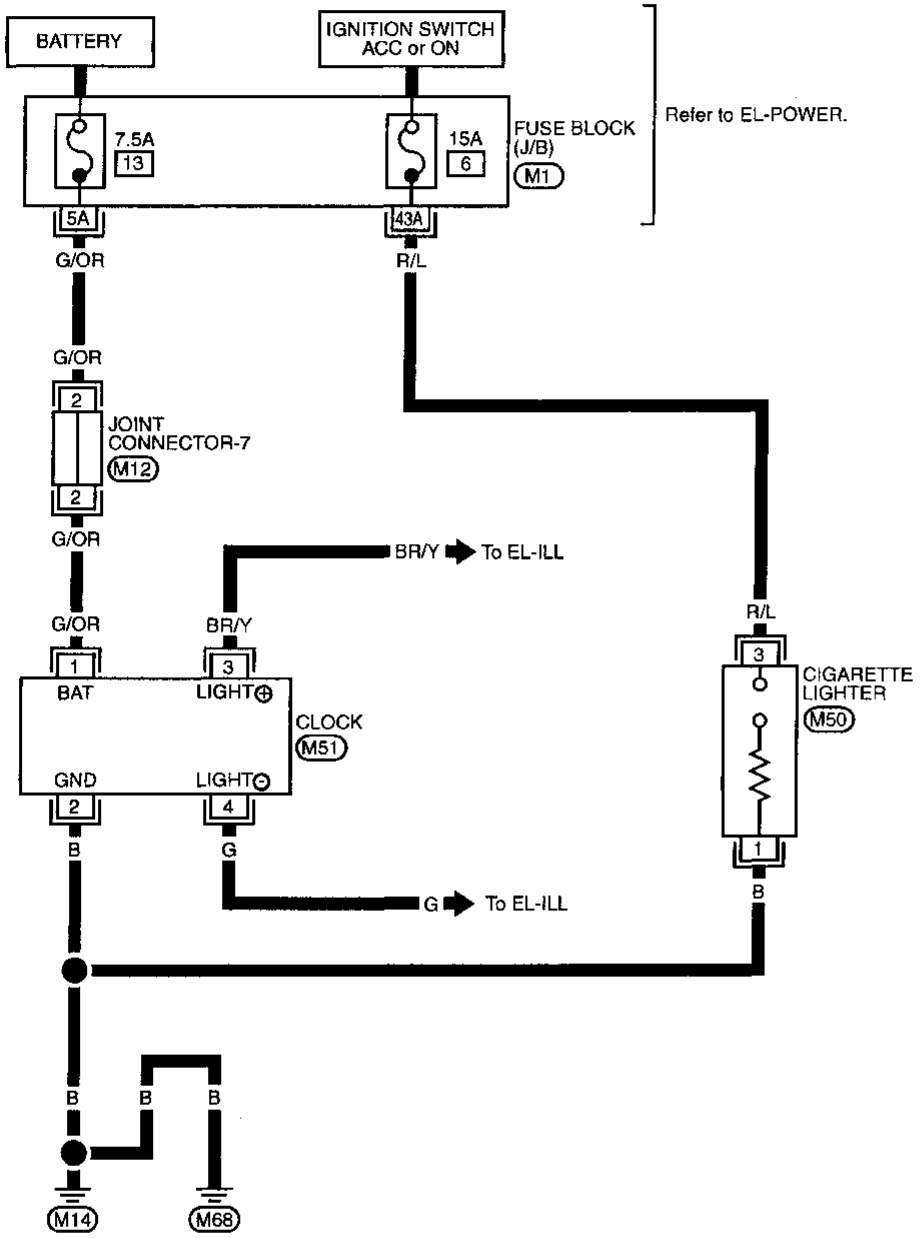
Washer Nozzle Adjustment

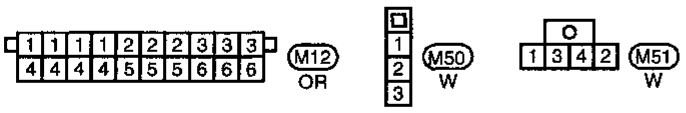
- Using Tool J36126, adjust windshield washer nozzle to correct its spray pattern.

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

Wiring Diagram — HORN —

EL-HORN-01



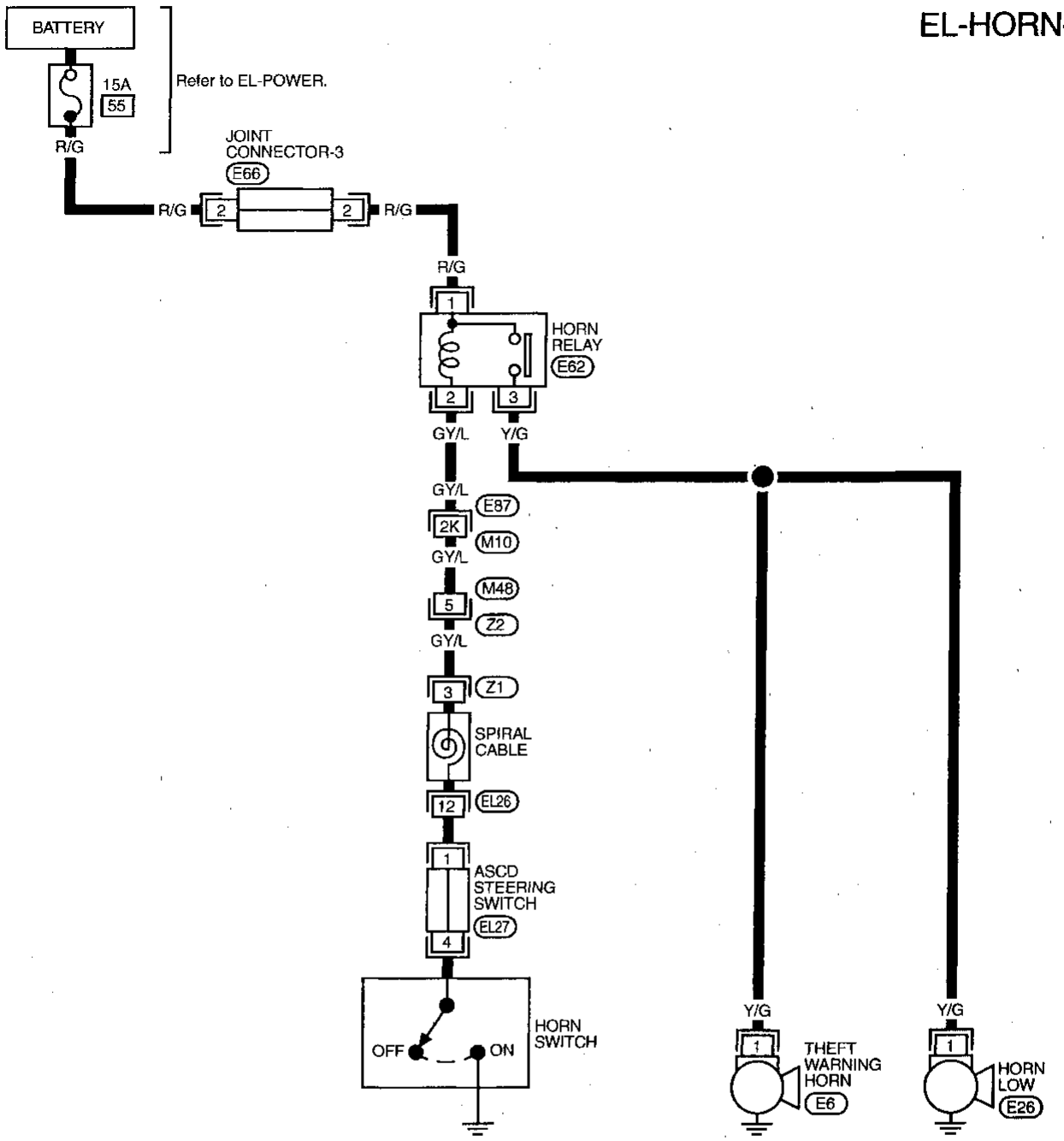


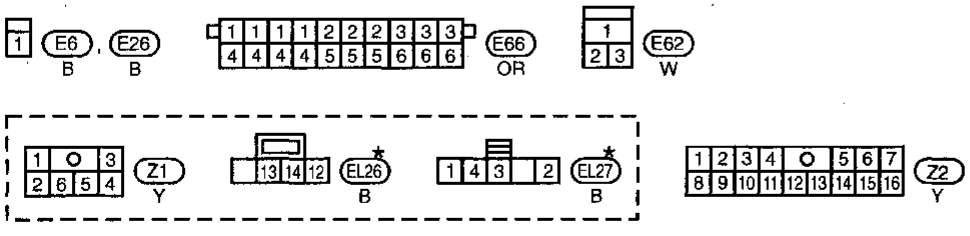
Refer to last page (Foldout page).
M1

TEL195

Wiring Diagram — HORN — (Cont'd)

EL-HORN-02





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

Refer to last page (Foldout page).
E87, M10

TEL196

System Description

The rear window defogger system is controlled by the time control unit. The rear window defogger operates only for approximately 15 minutes.
Power is supplied at all times
- to rear window defogger relay terminal ③
- through 20A fuse (No. 63 , located in the fuse block [J/B]) and
- to rear window defogger relay terminal ⑥
- through 20A fuse (No. 64 , located in the fuse block [J/B]).

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

When the rear window defogger switch in the AUTO A/C is activated, ground is supplied
- through terminal ⑳ of the A/C auto amplifier
- to the time control unit (fuse block [J/B]) terminal (12A).

The time control unit (fuse block [J/B]) terminal (10A) then supplies ground to the rear window defogger relay terminal ②.
With power and ground supplied, the rear window defogger relay is energized.
Power is supplied
- through terminals ⑤ and ⑦ of the rear window defogger relay
- to condenser terminal ①
- through terminal ② of the condenser
- to the rear window defogger terminal ③.

The rear window defogger has an independent ground.
With power and ground supplied, the rear window defogger filaments heat and defog the rear window.
When the system is activated, the rear window defogger ON signal is sent.
- to terminal ㉚ of the A/C auto amplifier
- from terminal ② of the rear window defogger relay.

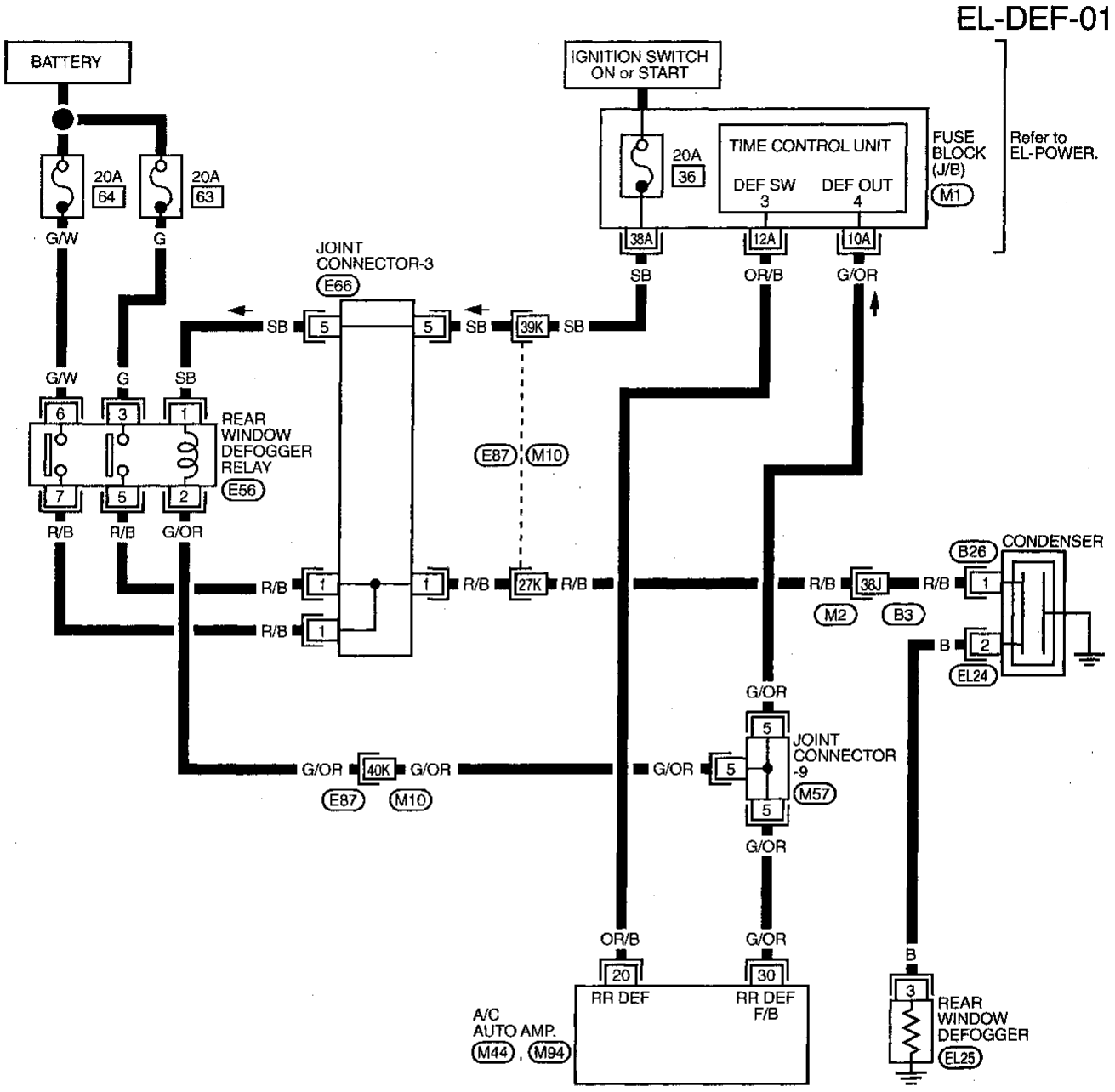
The rear window defogger indicator in the AUTO A/C illuminates.

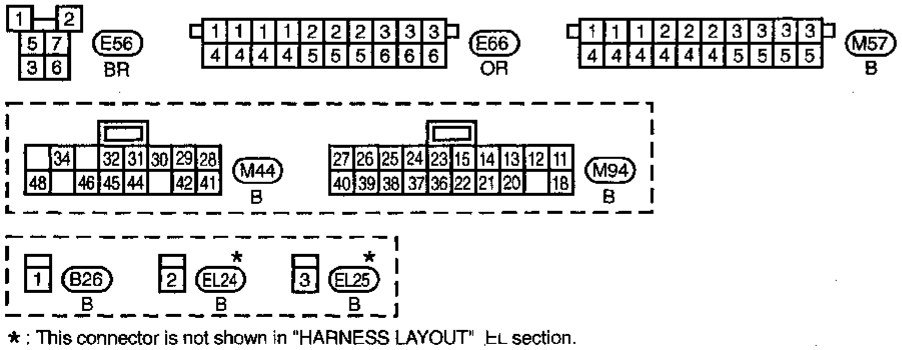
Door mirror defogger

Door mirror defogger is connected parallel to rear window defogger. For wiring diagram of door mirror defogger, refer to "POWER DOOR MIRROR WITH HEATED MIRROR" (EL-143).
With rear window defogger switch ON, time control unit activates rear window defogger relay. Power is supplied
- to door mirror defogger relay terminal ①
- through terminals ⑤ and ⑦ of the rear window defogger relay.

Then door mirror defogger relay is energized power is supplied to door mirror defogger.

Wiring Diagram — DEF —

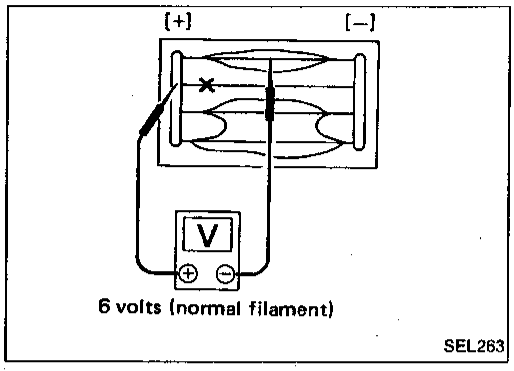




★ : This connector is not shown in "HARNESS LAYOUT" EL section.

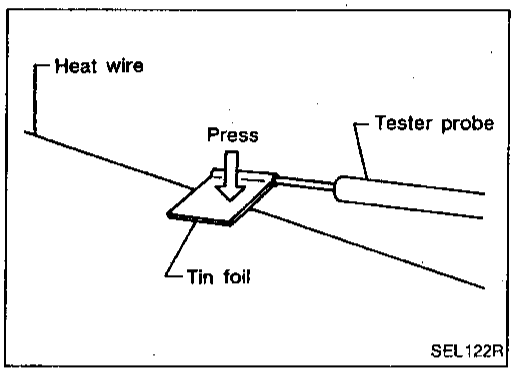
Refer to last page (Foldout page).
M1
E87, M10
M2, B3

TEL199

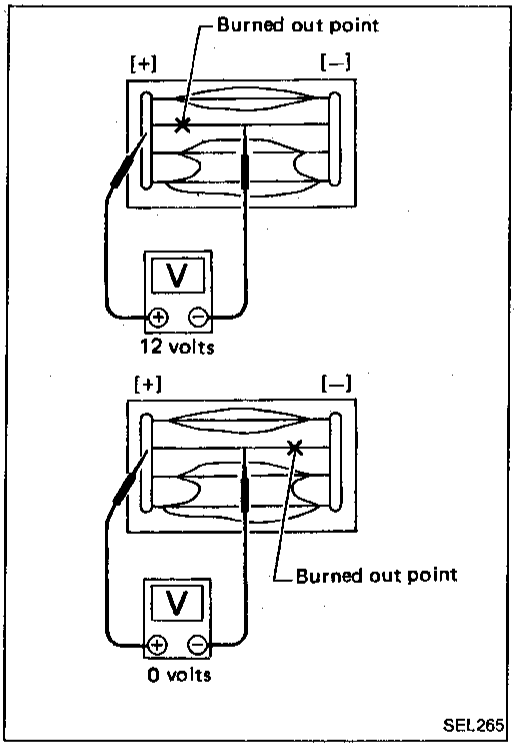


Filament Check

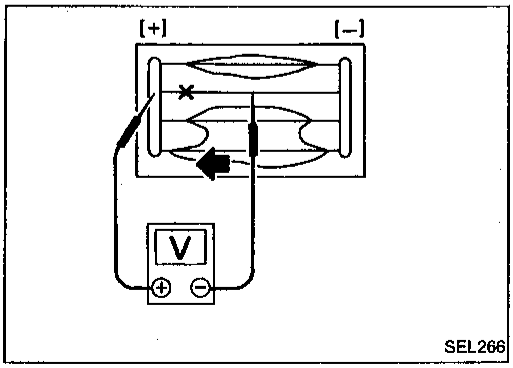
1. Attach probe circuit tester (in volt range) to middle portion of each filament.



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



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

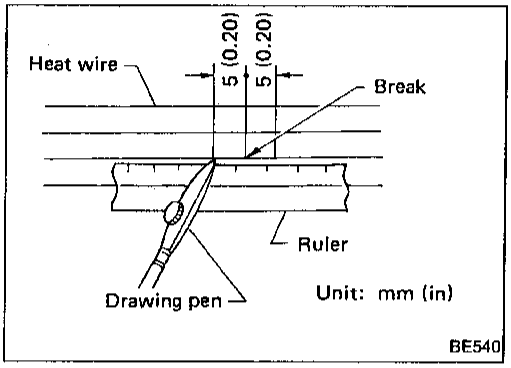


3. To locate burned out point, move probe to left and right along filament to determine point where tester needle swings abruptly.

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



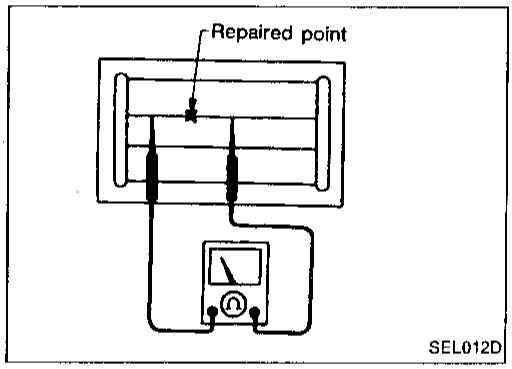
REPAIRING PROCEDURE

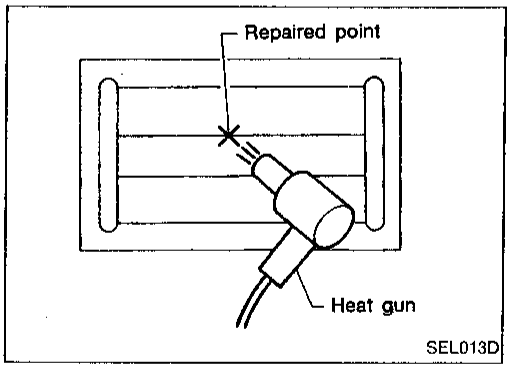
1. Wipe broken heat wire and its surrounding area clean with a cloth dampened in alcohol.
2. Apply a small amount of conductive silver composition to tip of drawing pen.

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.

WITH BOSE SYSTEM

Power is supplied at all times
- through 7.5A fuse (No. 13, located in the fuse block [J/B])
- to radio and CD player terminal ⑥.

With the ignition switch in the ACC or ON position, power is supplied
- through 10A fuse (No. 9, located in the fuse block [J/B])
- to radio and CD player terminal ⑩.

Ground is supplied through the case of the radio.
Also, radio and CD player terminal ⑫ is grounded to body grounds (M14) and (M68) through audio amp. relay terminals ① and ②.
Power is supplied at all times
- through 15A fuse (No. 2, located in the fuse block [J/B])
- to front door speaker (driver side) terminal ④
- to front door speaker (passenger side) terminal ①.

Power is also supplied at all times
- through 15A fuse (No. 14, located in the fuse block [J/B])
- to rear speaker LH terminal ⑩ and
- to rear speaker RH terminal ⑦.

When the radio POWER button is pressed, audio signals are supplied
- through radio and CD player terminals ①, ②, ③, ④, ⑬, ⑭, ⑮ and ⑯
- to terminals ⑤ and ⑥ of the front door speaker (driver side)
- to terminals ③ and ② of the front door speaker (passenger side)
- to terminals ⑪ and ⑫ of the rear speaker LH
- to terminals ⑨ and ⑧ of the rear speaker RH
- to LH and RH tweeters through terminals ⑦, ⑧, ⑨ and ⑩ of the front door speakers.

Power Antenna/System Description

Power is supplied at all times
- through 7.5A fuse (No. 13, located in the fuse block [J/B])
- to power antenna timer and motor terminal ⑥.

With the ignition switch in the ACC or ON position, power is supplied
- through 10A fuse (No. 9, located in the fuse block [J/B])
- to radio and CD player terminal ⑩.

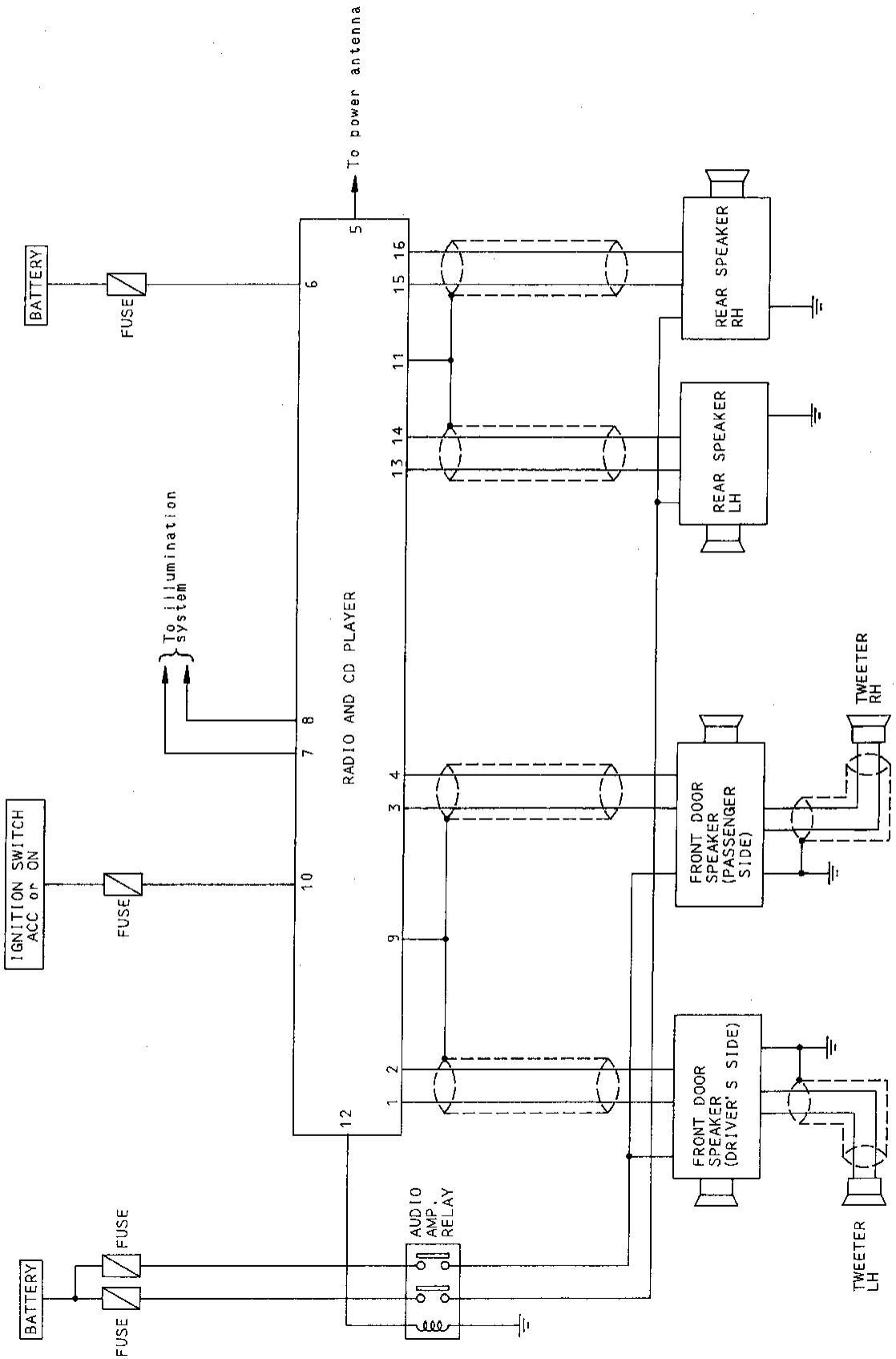
Ground is supplied to the power antenna timer and motor through body grounds (B9) and (B31).
When the radio is turned to the ON position, battery voltage is supplied
- through radio and CD player terminal ⑤
- to power antenna timer and motor terminal ④.

When battery voltage is supplied to the power antenna timer and motor terminal ④, power supplied to the power antenna timer and motor terminal ⑥ drives the motor.
The antenna rises and is held in the extended position.
When the radio is turned to the OFF position, battery voltage is interrupted
- from radio and CD player terminal ⑤
- to power antenna terminal ④.

The antenna retracts.

Schematic

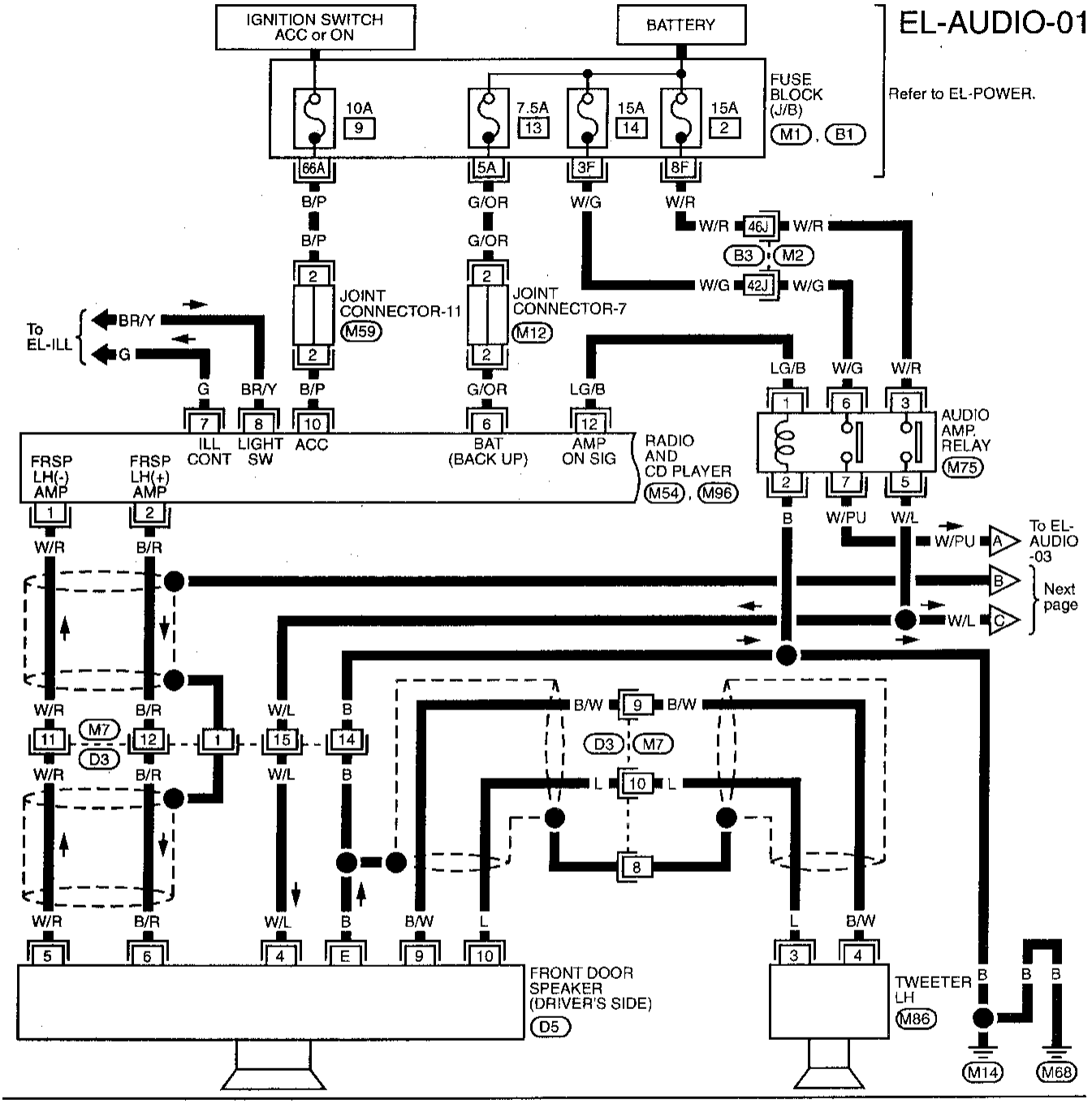
BOSE SYSTEM

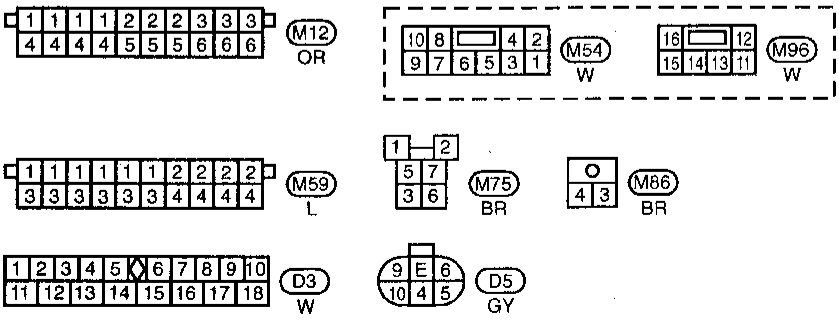


TEL200

Audio/Wiring Diagram — AUDIO —

BOSE SYSTEM



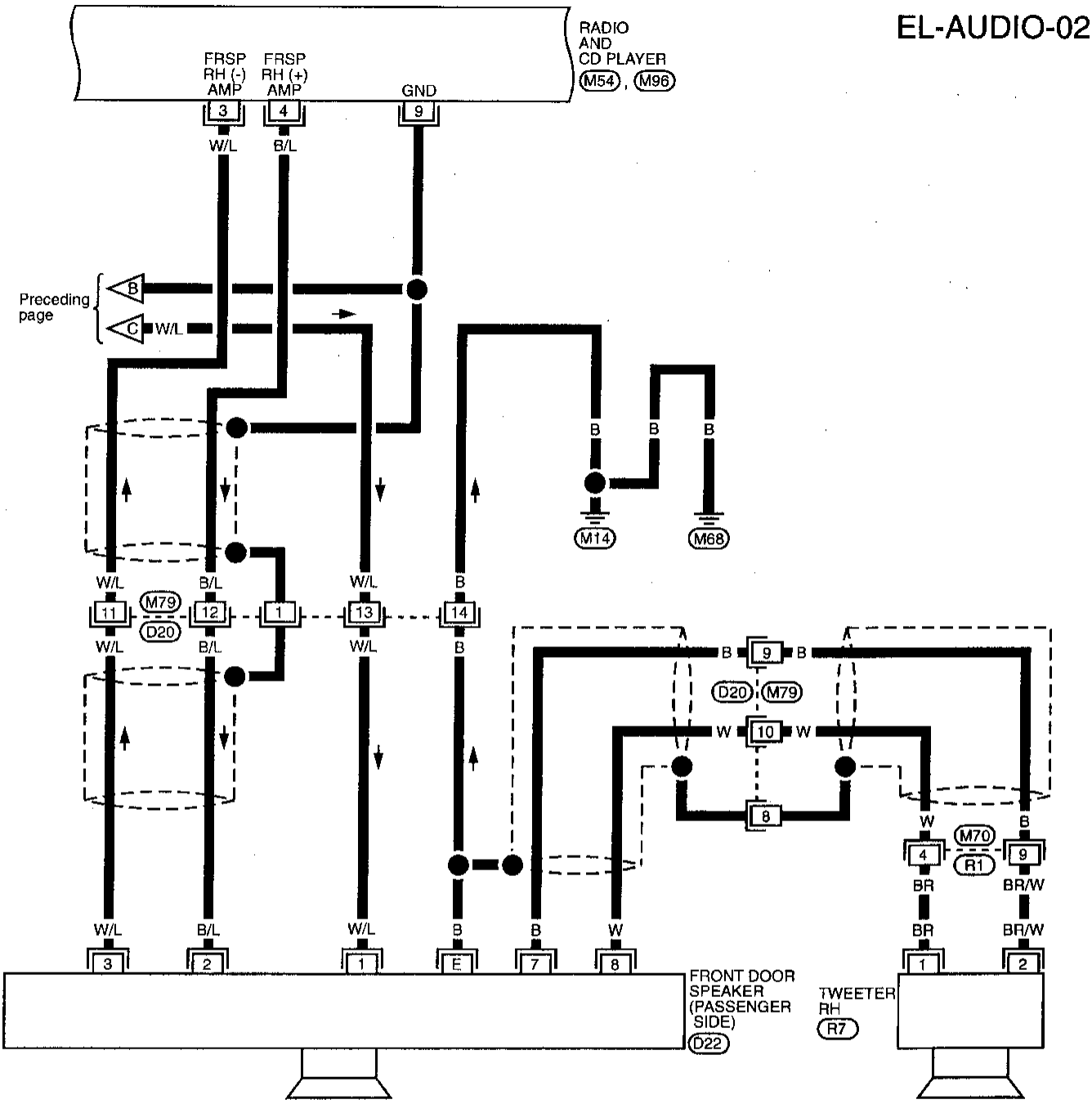


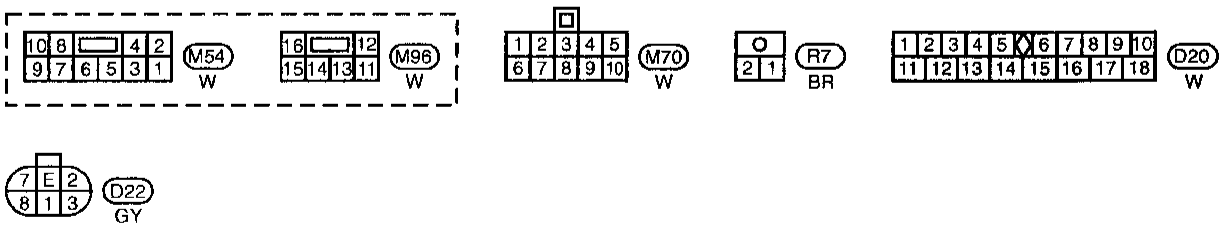
Refer to last page (Foldout page).
M1, B1
M2, B3

TEL201

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

EL-AUDIO-02

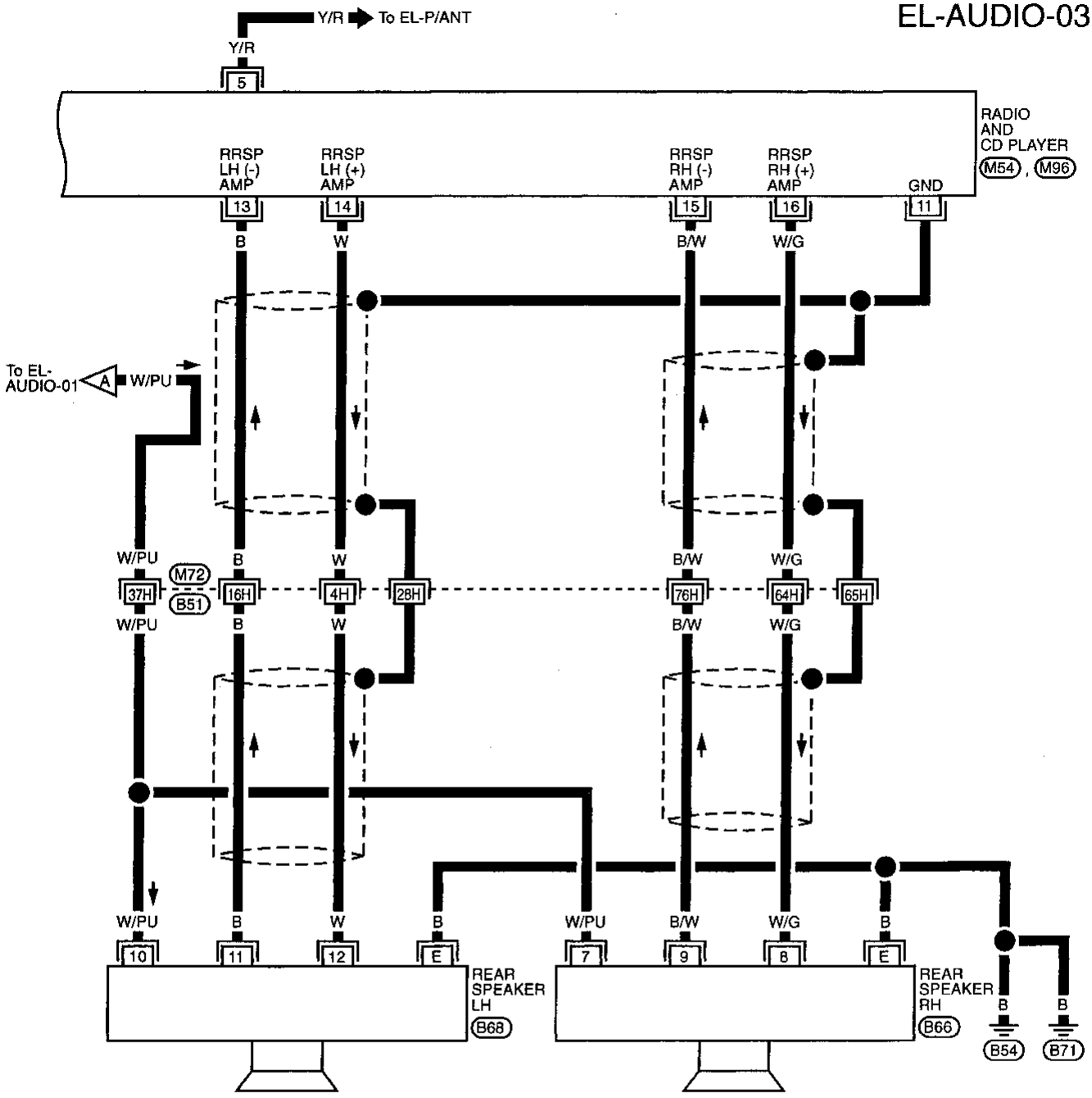


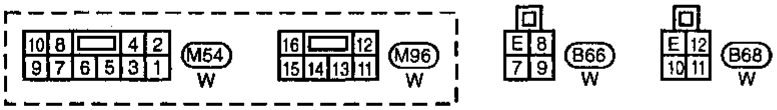


TEL202

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

EL-AUDIO-03



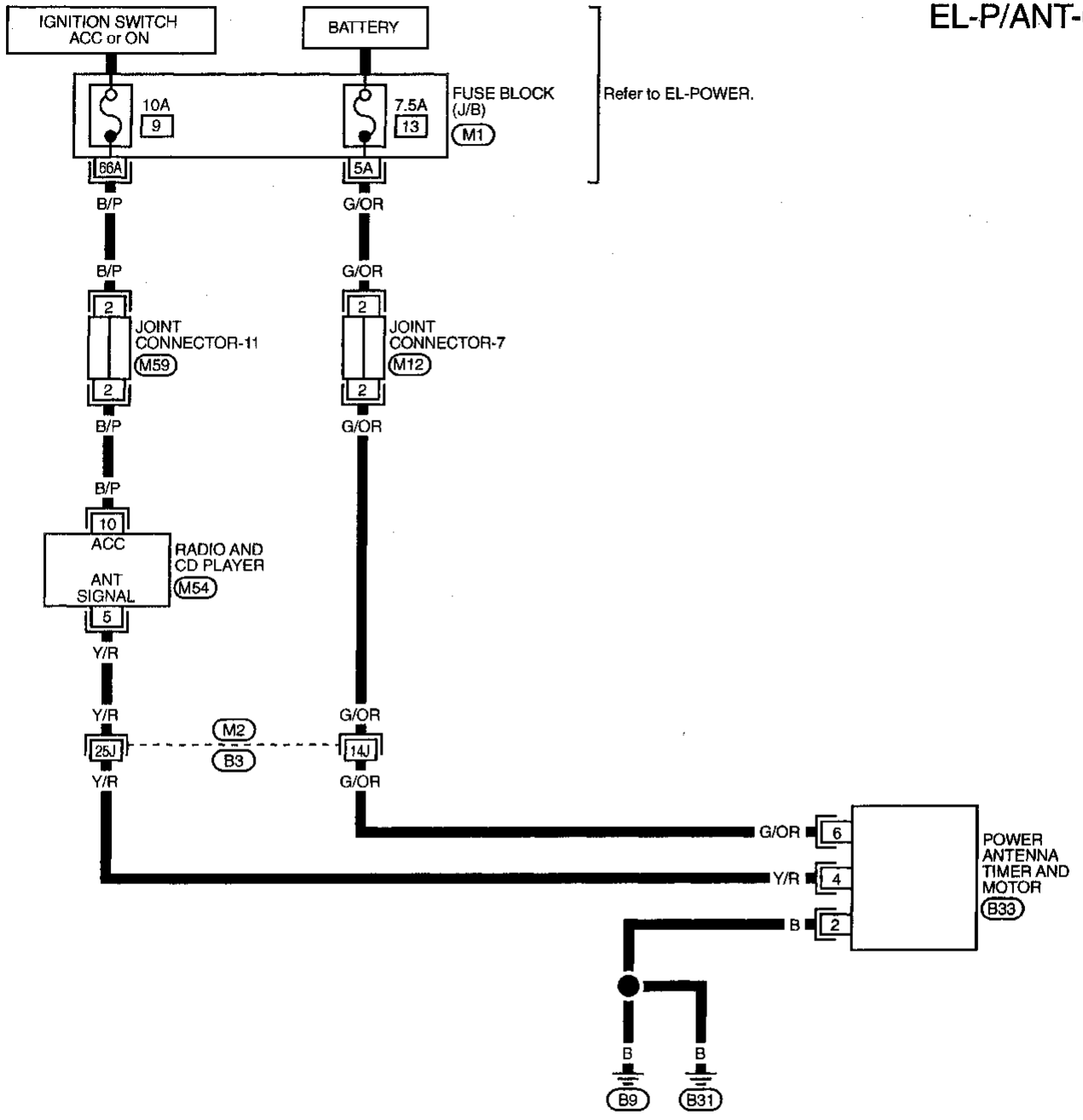


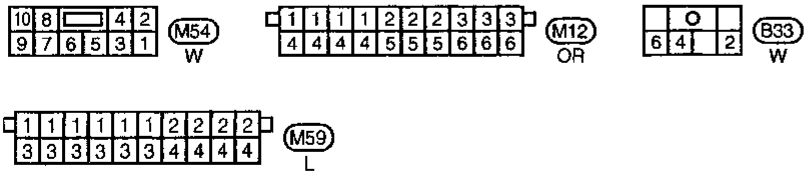
Refer to last page (Foldout page).
B51, M72

TEL203

Power Antenna/Wiring Diagram — P/ANT —

EL-P/ANT-01





Refer to last page (Foldout page).
M2, B3
M1

TEL204

1215

Trouble Diagnoses

RADIO

Symptom	Possible causes	Repair order
Radio is inoperative (no digital display and no sound from speakers).	1. 10A fuse	1. Check 10A fuse (No. 9, located in fuse block). Turn ignition switch ON and verify battery positive voltage is present at terminal ⑩ of radio.
	2. Poor radio case ground	2. Check radio case ground.
	3. Radio	3. Remove radio for repair.
Radio presets are lost when ignition switch is turned OFF.	1. 7.5A fuse	1. Check 7.5A fuse (No. 13, located in fuse block). Verify battery positive voltage is present at terminal ⑥ of radio.
	2. Radio	2. Remove radio for repair.
AM stations are weak or noisy (FM stations OK).	1. Antenna	1. Check antenna.
	2. Poor radio ground	2. Check radio ground.
	3. Radio	3. Remove radio for repair.
FM stations are weak or noisy (AM stations OK).	1. Window antenna	1. Check antenna.
	2. Radio	2. Remove radio for repair.
Radio generates noise in AM and FM modes with engine running.	1. Poor radio ground	1. Check radio ground.
	2. Loose or missing ground bonding straps	2. Check ground bonding straps.
	3. Ignition condenser or rear window defogger noise suppressor condenser	3. Replace ignition condenser or rear window defogger noise suppressor condenser.
	4. Alternator	4. Check alternator.
	5. Ignition coil or secondary wiring	5. Check ignition coil and secondary wiring.
	6. Radio	6. Remove radio for repair.
Radio generates noise in AM and FM modes with accessories on (switch pops and motor noise).	1. Poor radio ground	1. Check radio ground.
	2. Antenna	2. Check antenna.
	3. Accessory ground	3. Check accessory ground.
	4. Faulty accessory	4. Replace accessory.

BOSE SYSTEM

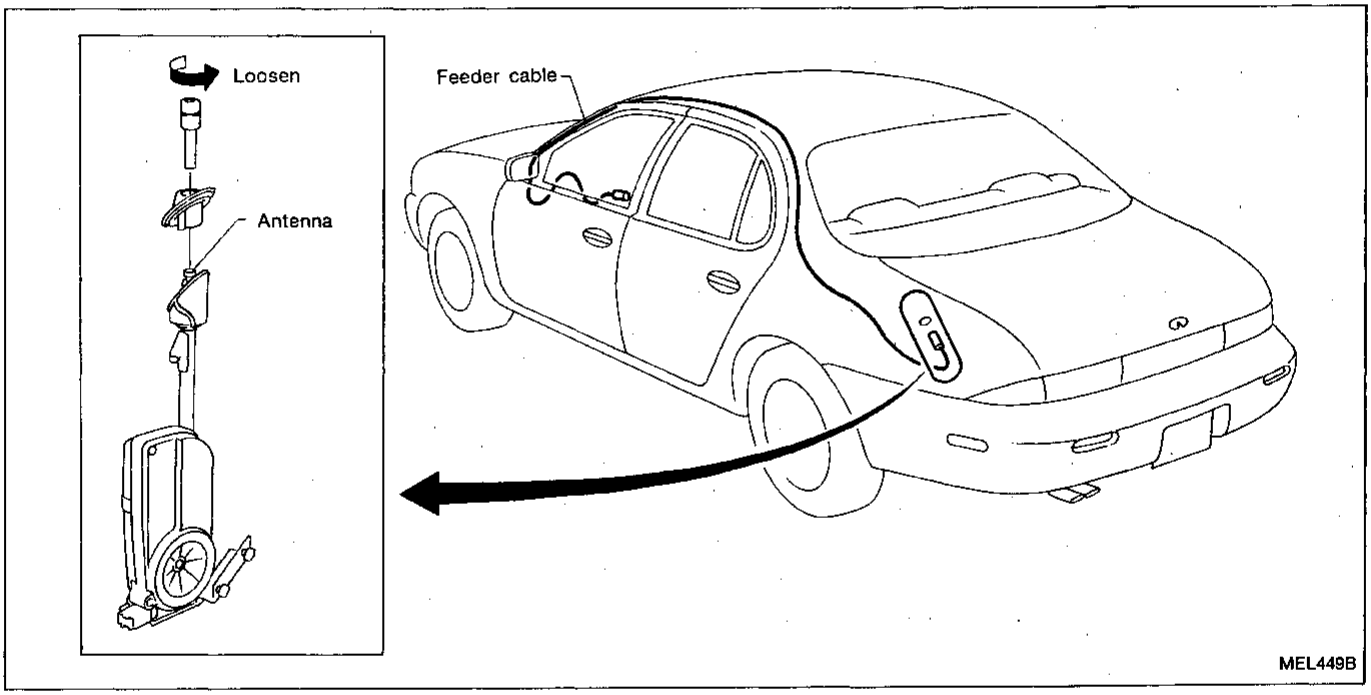
Symptom	Possible causes	Repair order
Radio controls are operational, but no sound is heard from any speaker.	1. 15A fuse	1. Check 15A fuse (No. 2, located in fuse block). Verify battery positive voltage is present at terminal ③ of audio amp. relay.
	2. Audio amp. relay	2. Check audio amp. relay.
	3. Audio amp. relay ground	3. Check audio amp. relay ground (Terminal ②).
	4. Amp. ON signal	4. Turn ignition switch ACC and radio ON. Verify battery positive voltage is present at terminal ① of audio amp. relay.
	5. Radio output	5. Check radio output voltage.
	6. Radio	6. Remove radio for repair.
Individual speaker is noisy or inoperative.	1. Speaker ground	1. Check speaker ground (Terminal Ⓔ).
	2. Power supply	2. Check power supply for speaker.
	3. Radio output	3. Check radio output voltage for amp.
	4. Speaker	4. Replace speaker.

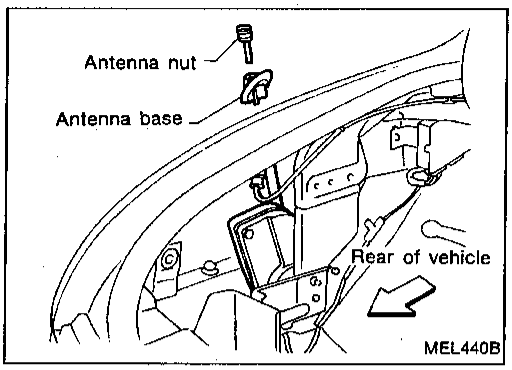
Trouble Diagnoses (Cont'd)

POWER ANTENNA

Symptom	Possible causes	Repair order
Power antenna does not operate.	1. 7.5A fuse	1. Check 7.5A fuse (No. 13, located in fuse block). Verify that battery positive voltage is present at terminal ⑥ of power antenna timer and motor.
	2. 10A fuse	2. Check 10A fuse (No. 9, located in fuse block). Turn ignition switch ON and verify that battery positive voltage is present at terminal ⑩ of radio.
	3. Radio signal	3. Turn ignition switch and radio ON. Verify that battery positive voltage is present at terminal ④ of power antenna timer.
	4. Power antenna timer ground	4. Check power antenna timer ground (Terminal ②).
	5. Power antenna timer and motor	5. Check power antenna timer and motor.

Location of Antenna

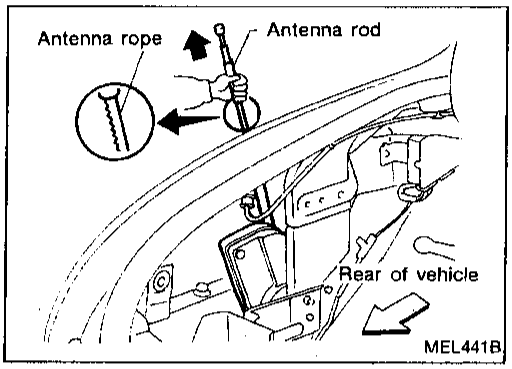




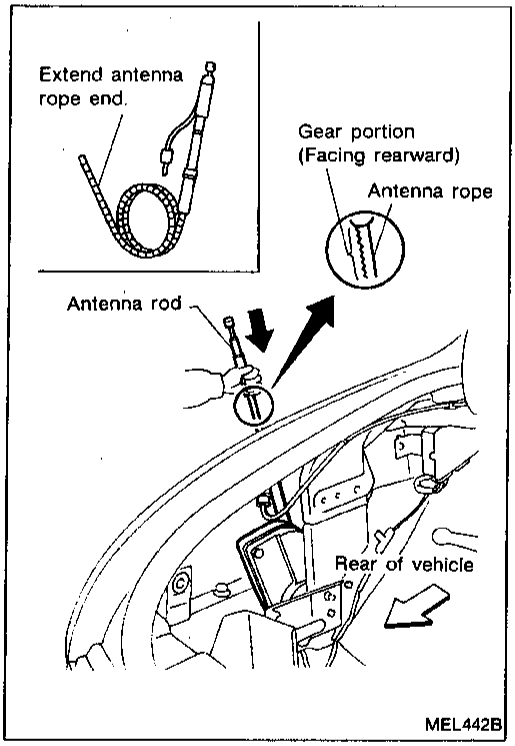
Antenna Rod Replacement

REMOVAL

1. Remove antenna nut and antenna base.

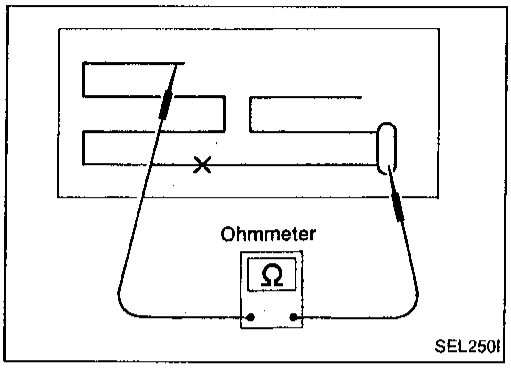


2. Withdraw antenna rod while raising it by operating antenna motor.



INSTALLATION

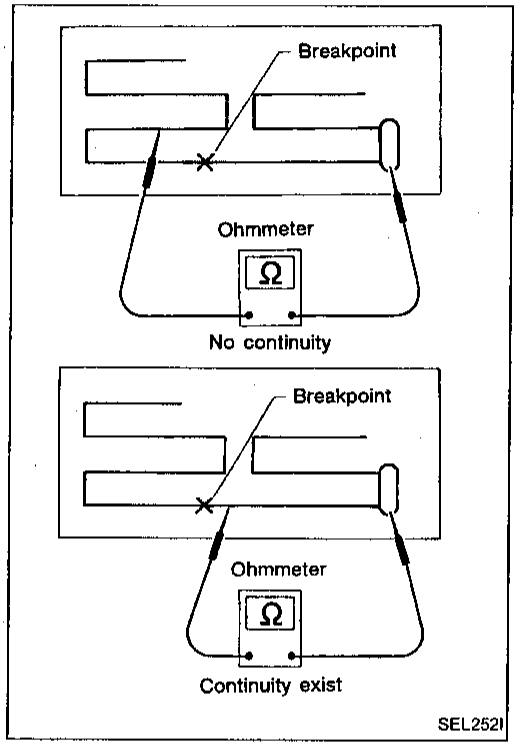
1. Lower antenna rod by operating antenna motor.
2. Insert gear section of antenna rope into place with it facing toward antenna motor.
3. As soon as antenna rope is wound on antenna motor, stop antenna motor. Insert antenna rod lower end into antenna motor pipe.
4. Retract antenna rod completely by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



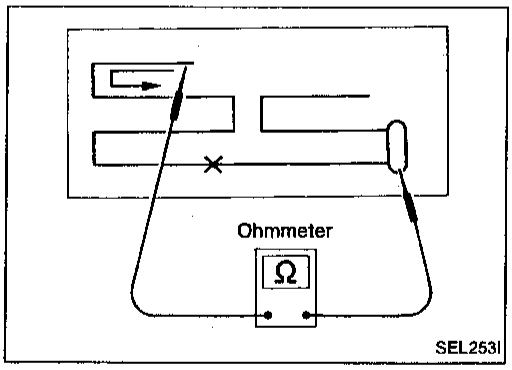
Window Antenna Repair

ELEMENT CHECK

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



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

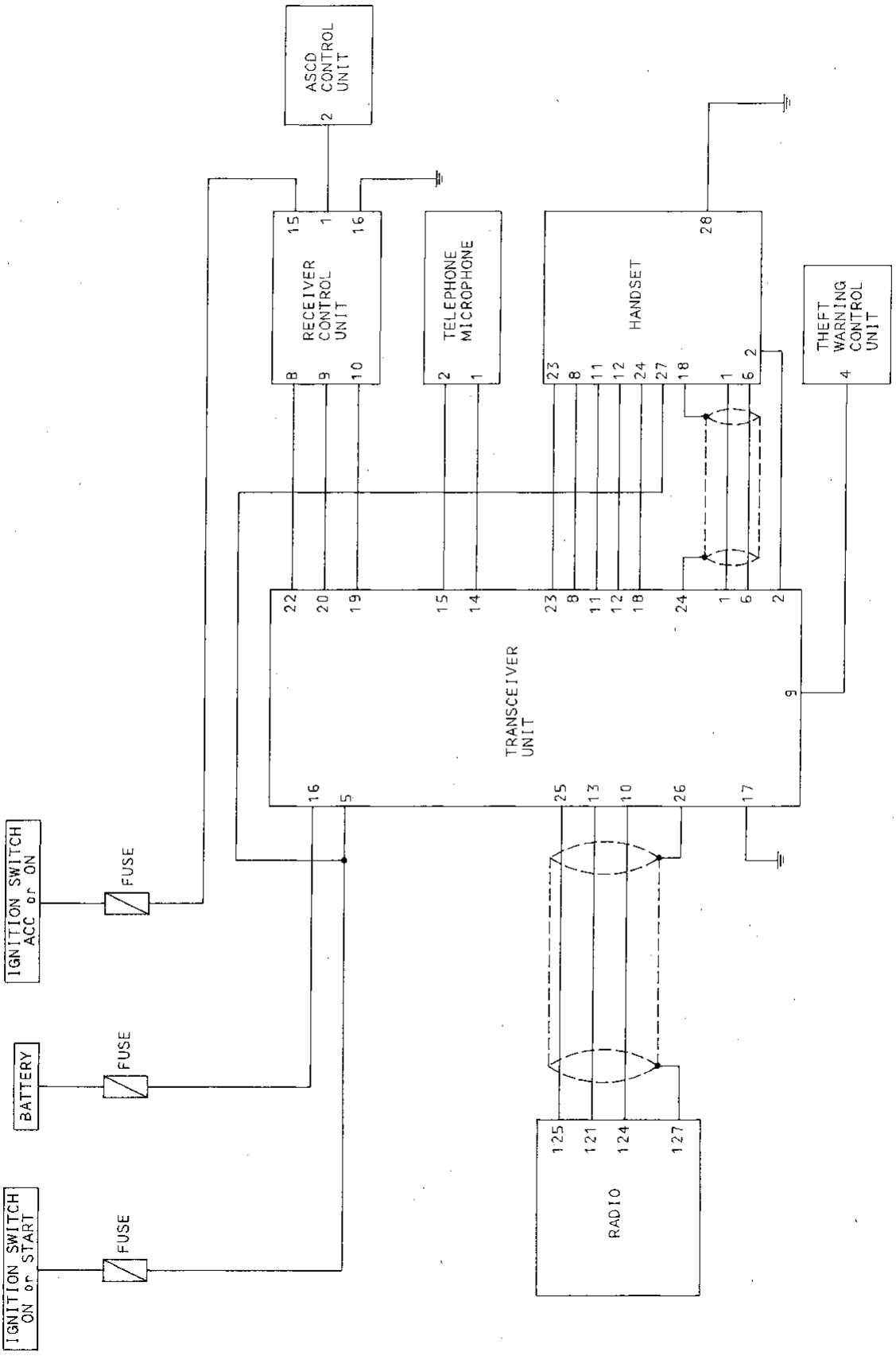


3. To locate broken point, move probe to left and right along element to determine point where tester needle swings abruptly.

ELEMENT REPAIR

Refer to REAR WINDOW DEFOGGER "Filament Repair" (EL-119).

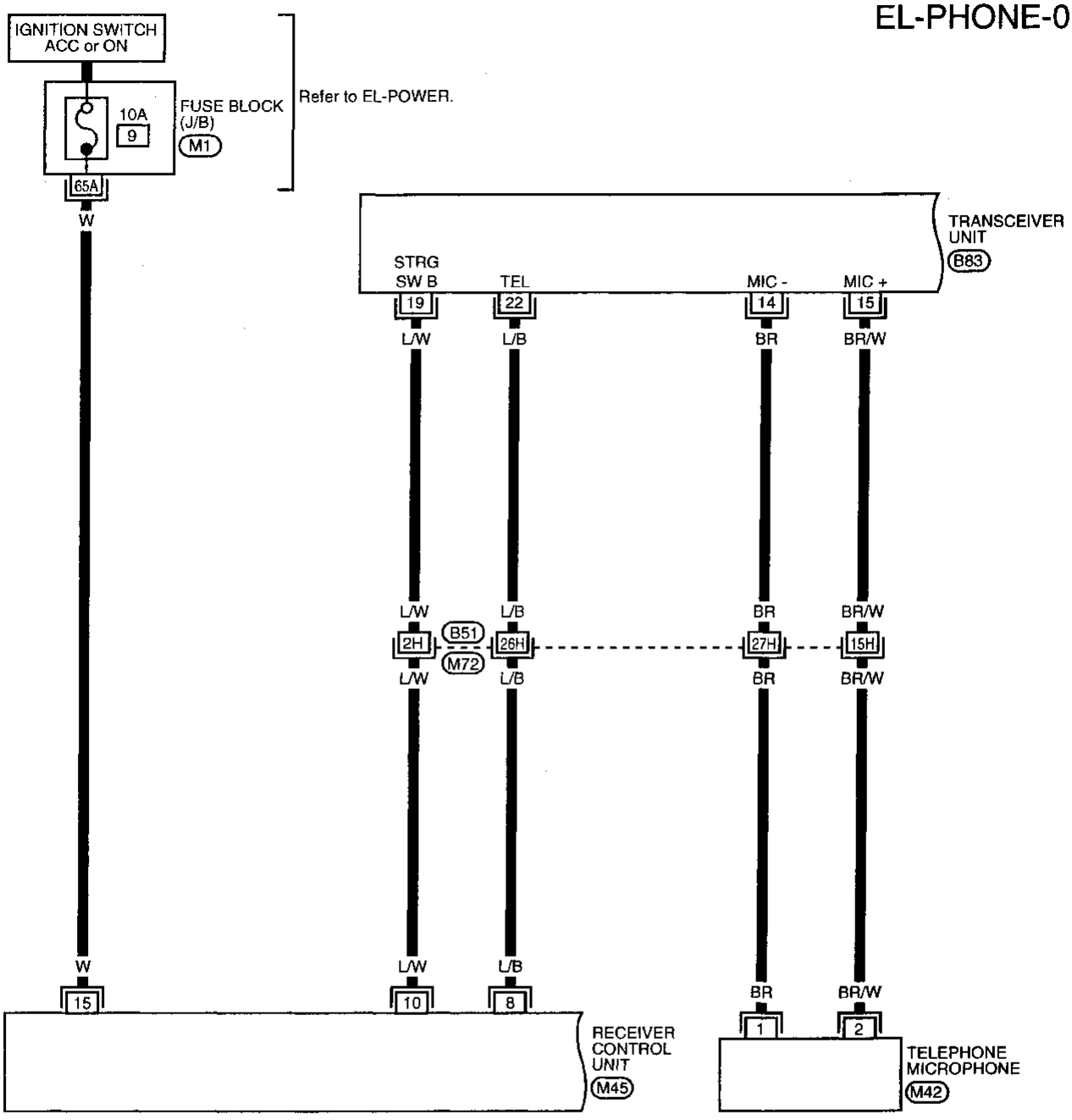
Schematic

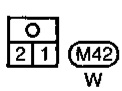


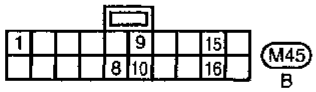
TEL205

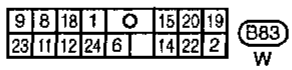
Telephone/Wiring Diagram — PHONE —

EL-PHONE-01







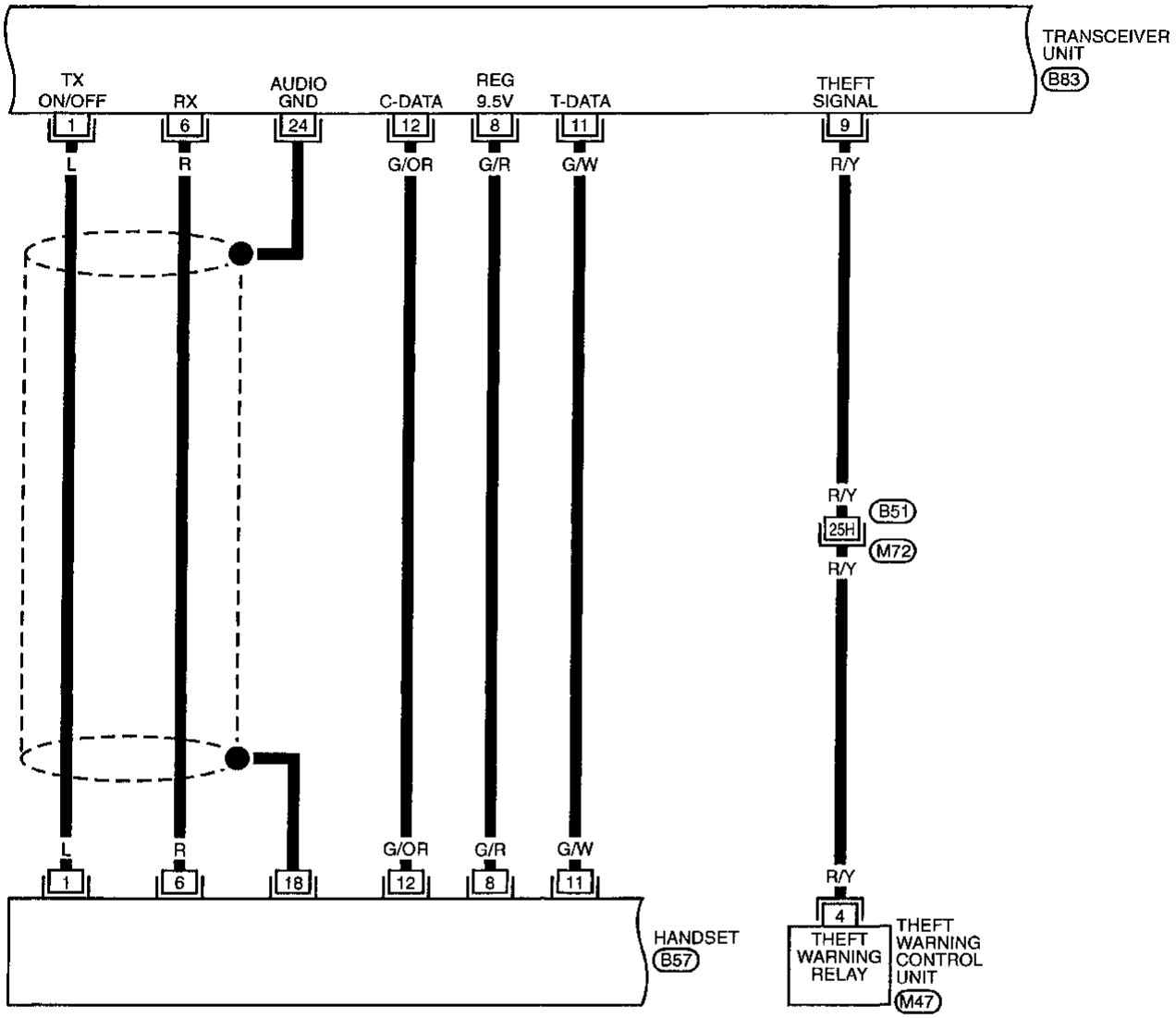


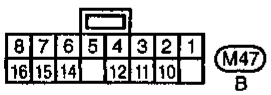
Refer to last page (Foldout page).
M72, B51
M1

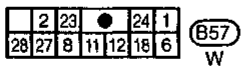
TEL206

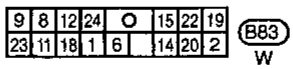
Telephone/Wiring Diagram — PHONE — (Cont'd)

EL-PHONE-02







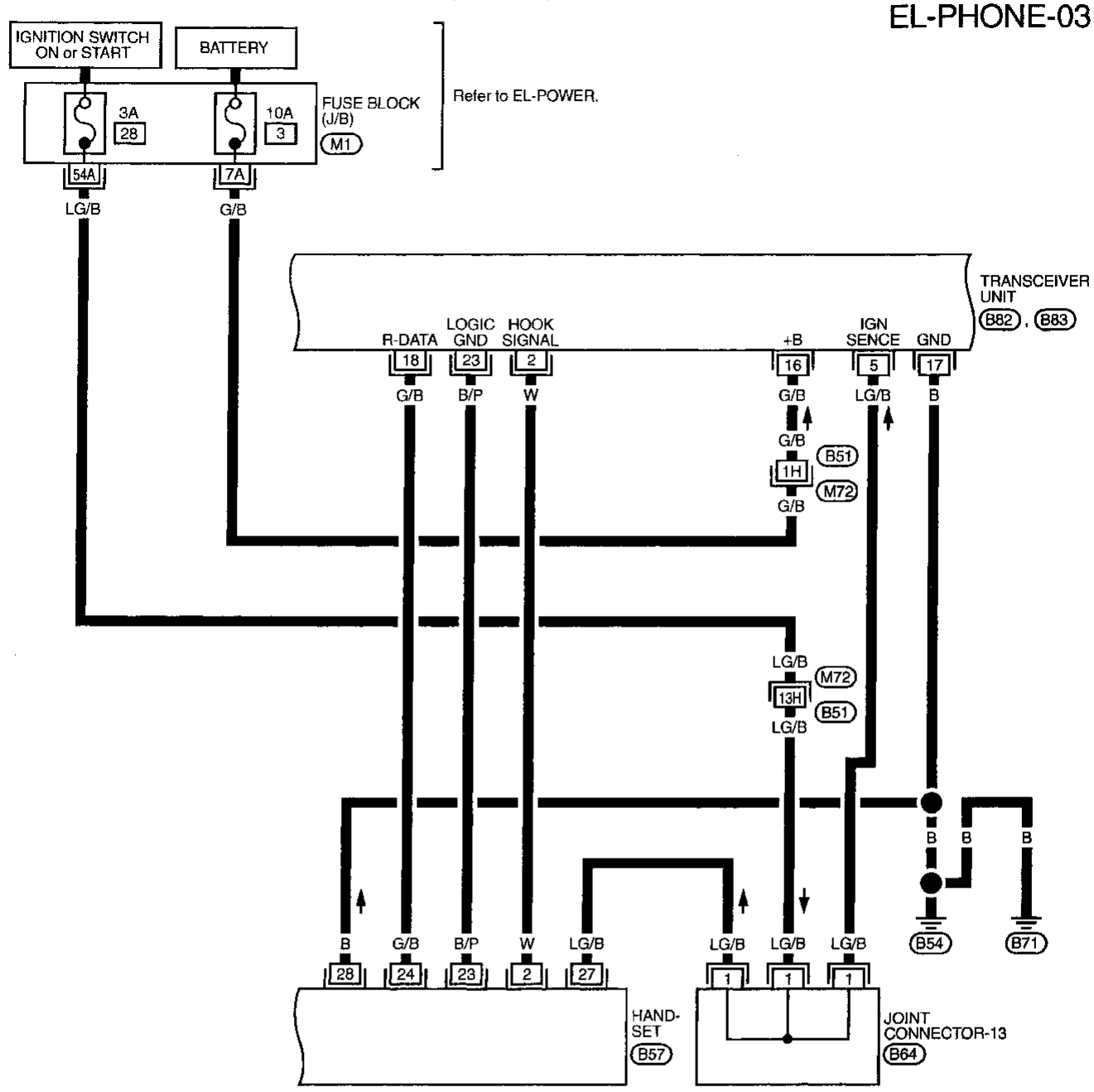


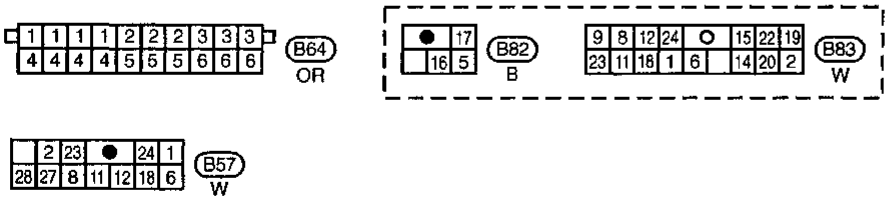
Refer to last page (Foldout page).
M72, B51

TEL207

Telephone/Wiring Diagram — PHONE — (Cont'd)

EL-PHONE-03





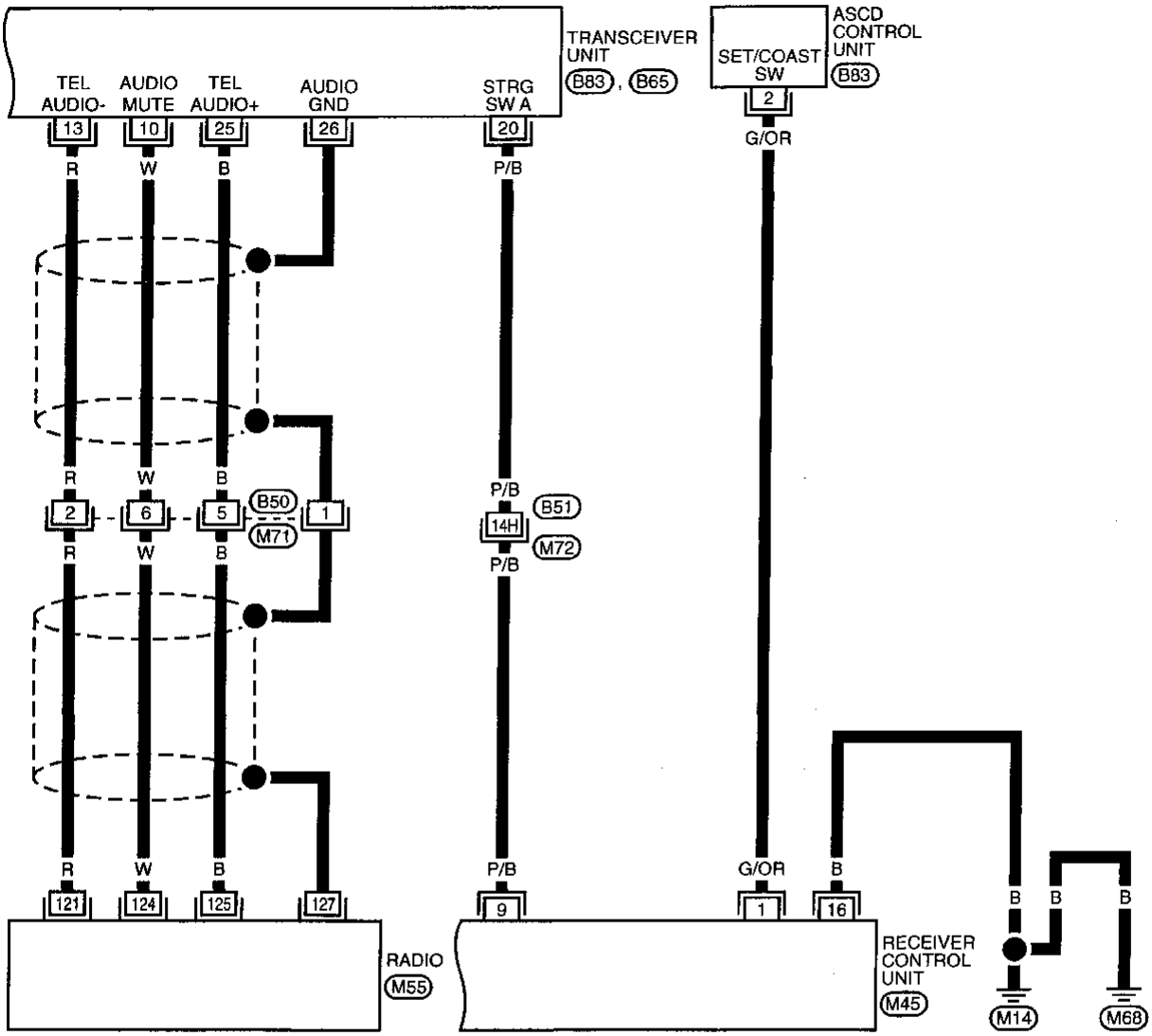
Refer to last page (Foldout page).
M72, B51
M1

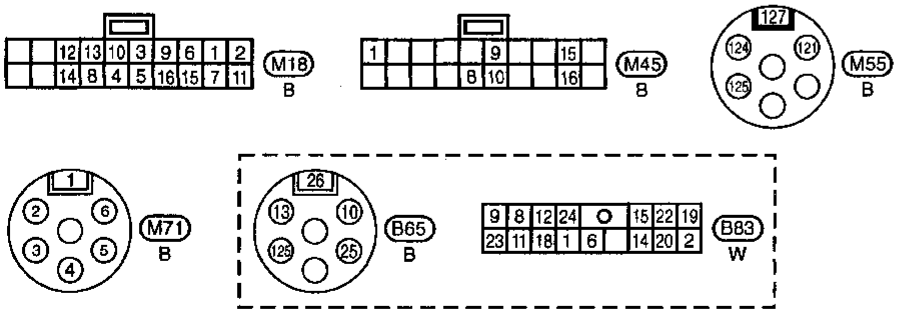
TEL208

1223

Telephone/Wiring Diagram — PHONE — (Cont'd)

EL-PHONE-04



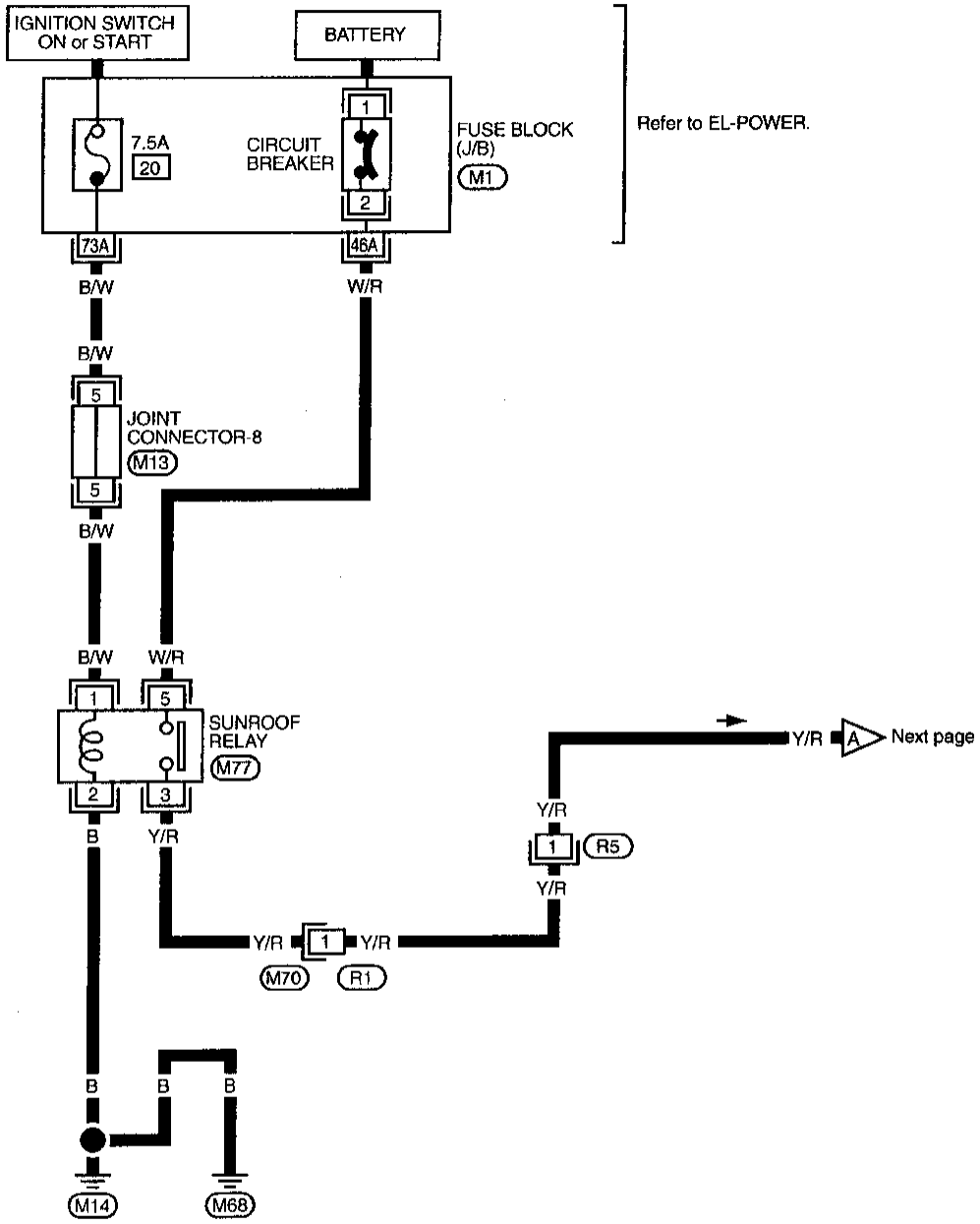


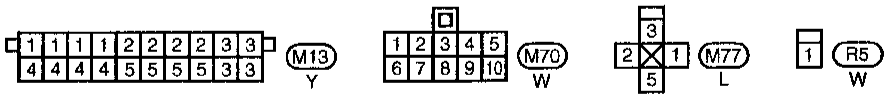
Refer to last page (Foldout page).
M72, B51

TEL209

Wiring Diagram — SROOF —

EL-SROOF-01



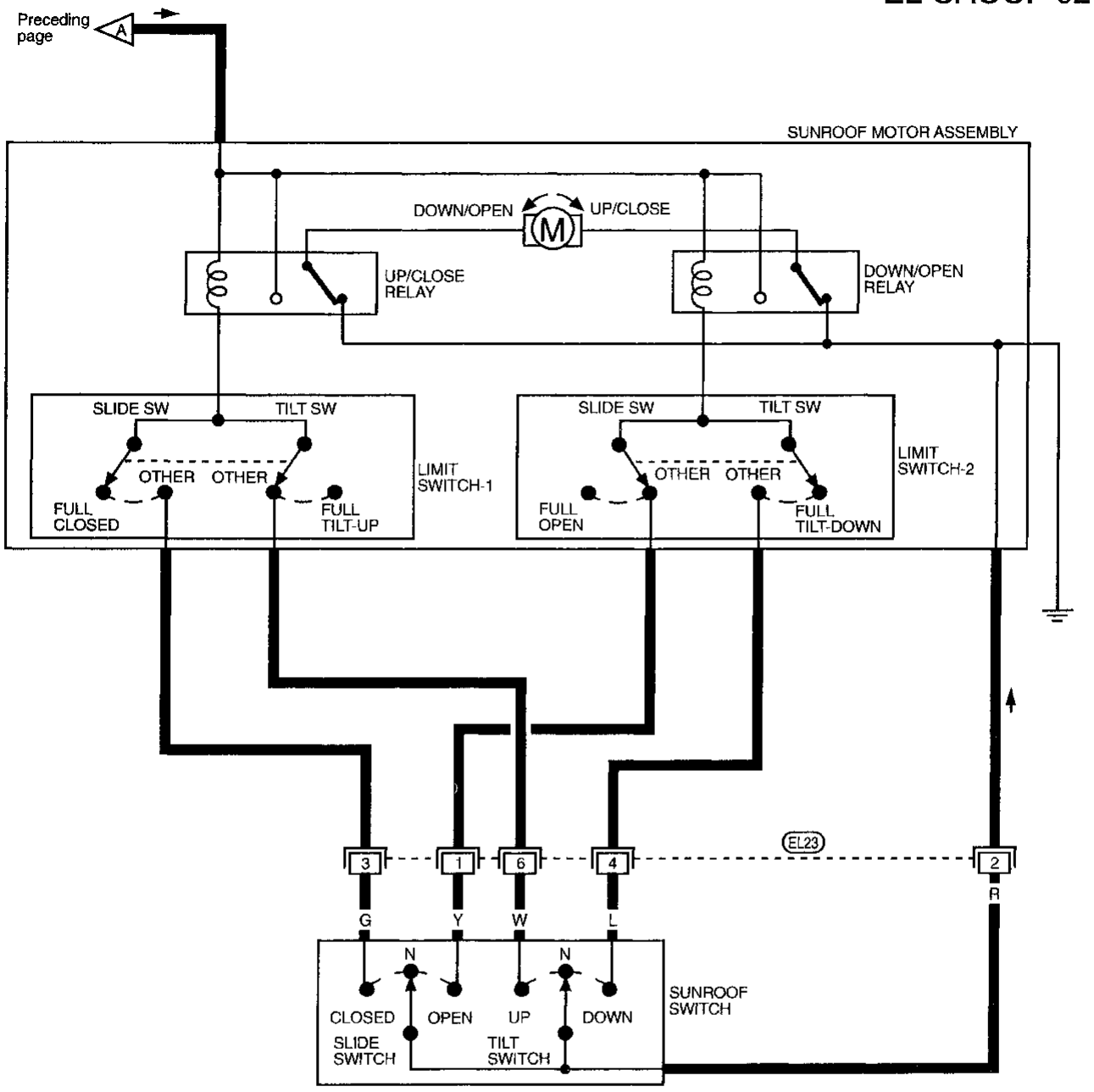


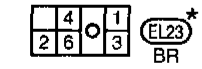
Refer to last page (Foldout page).
(M1)

TEL197

Wiring Diagram — SROOF — (Cont'd)

EL-SROOF-02



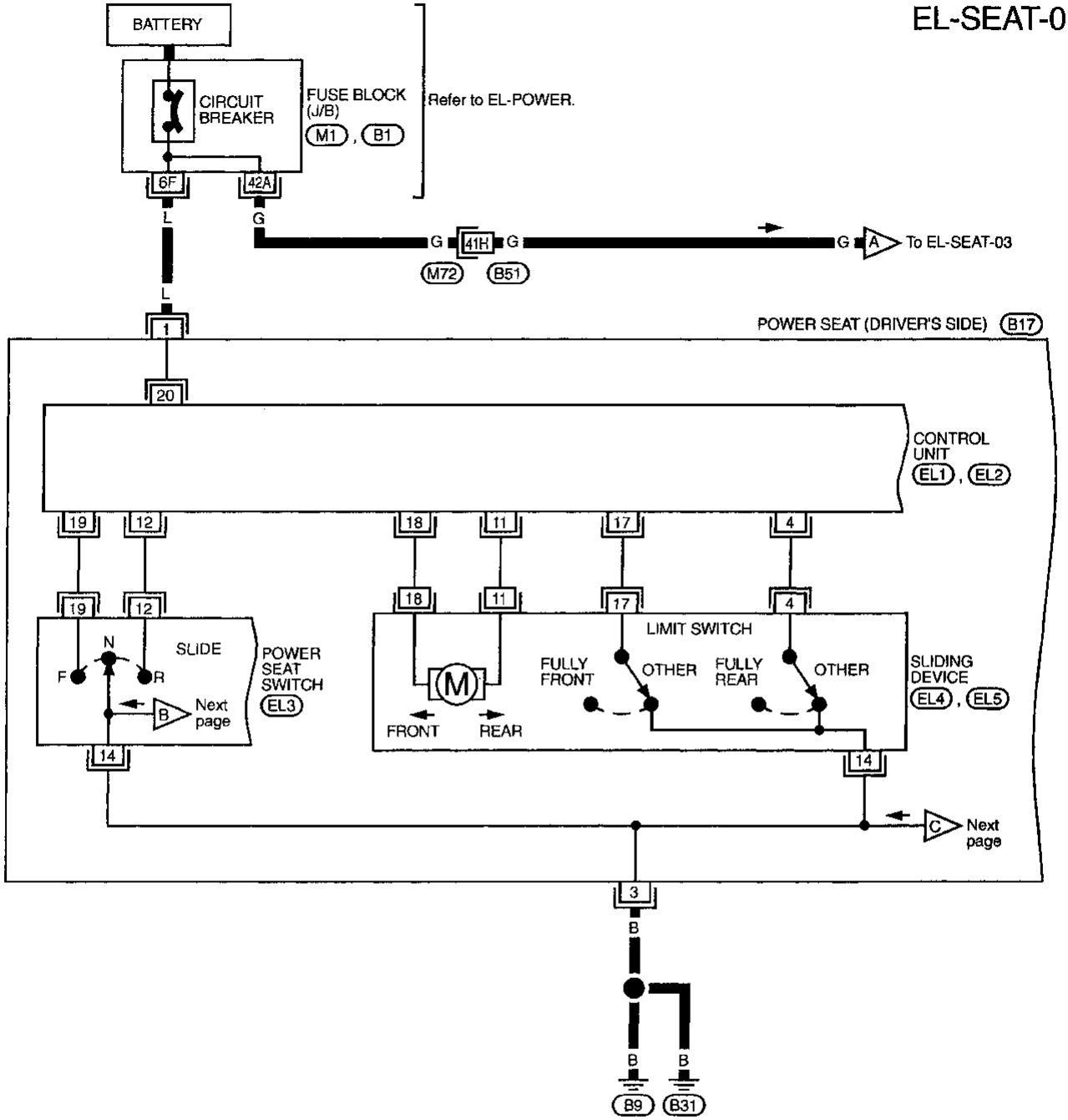


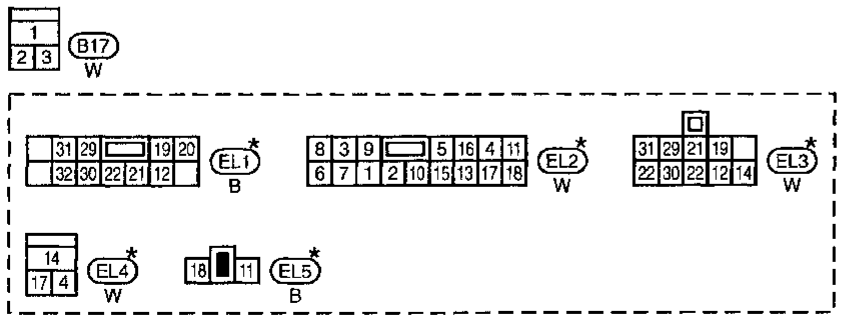
*: This connector is not shown in "HARNESS LAYOUT" EL section.

TEL198

Power Seat/Wiring Diagram — SEAT —

EL-SEAT-01





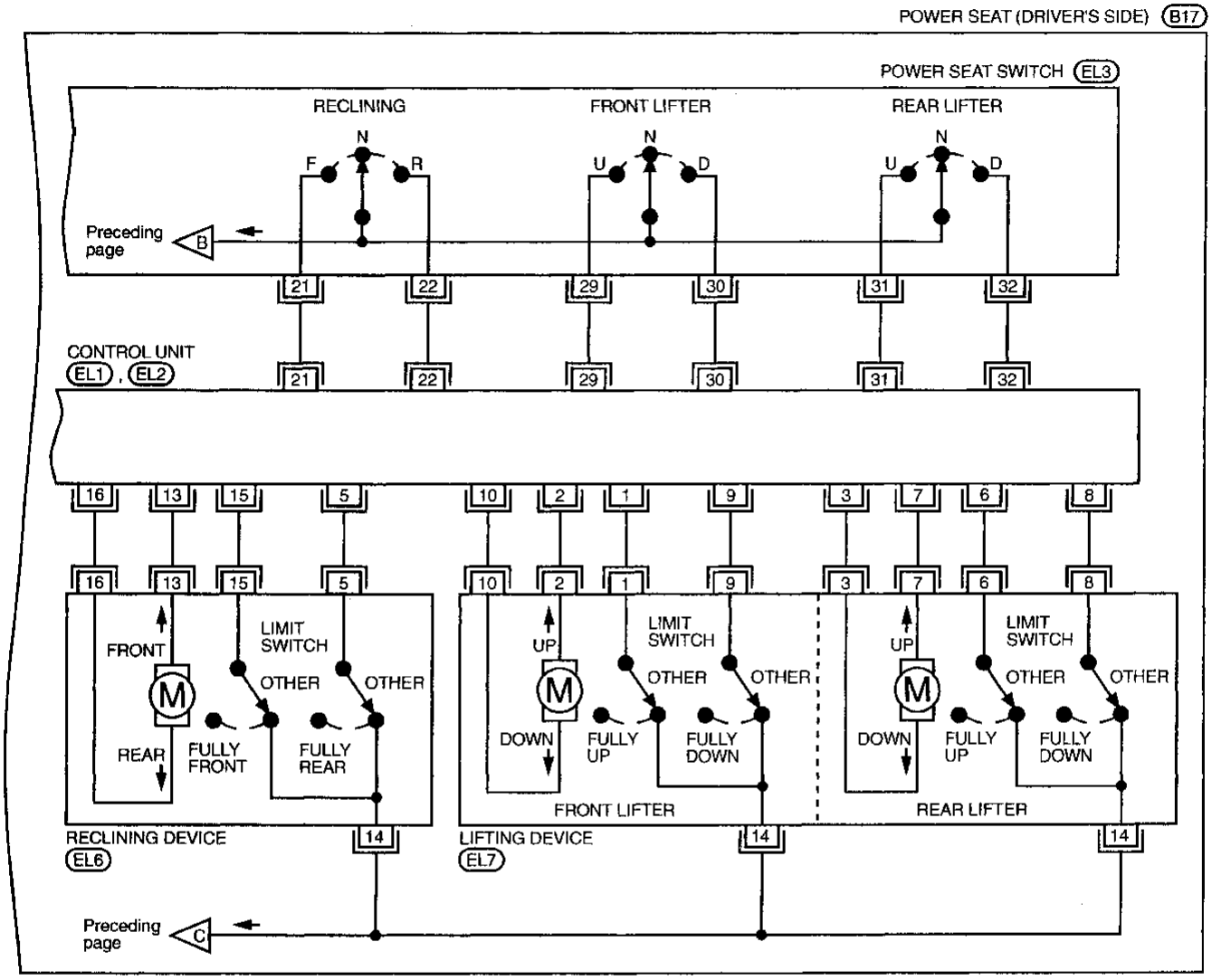
★ : This connector is not shown in "HARNESS LAYOUT" EL section.

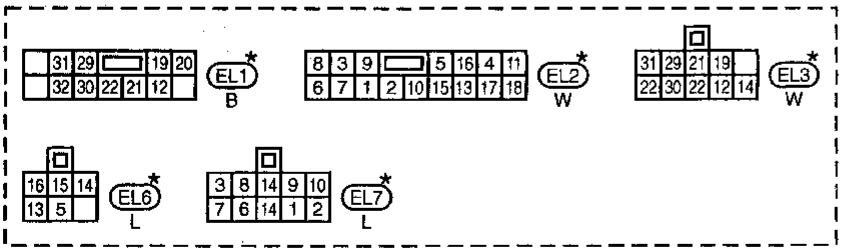
Refer to last page (Foldout page).
M1 , B1
M72 , B51

TEL242

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

EL-SEAT-02

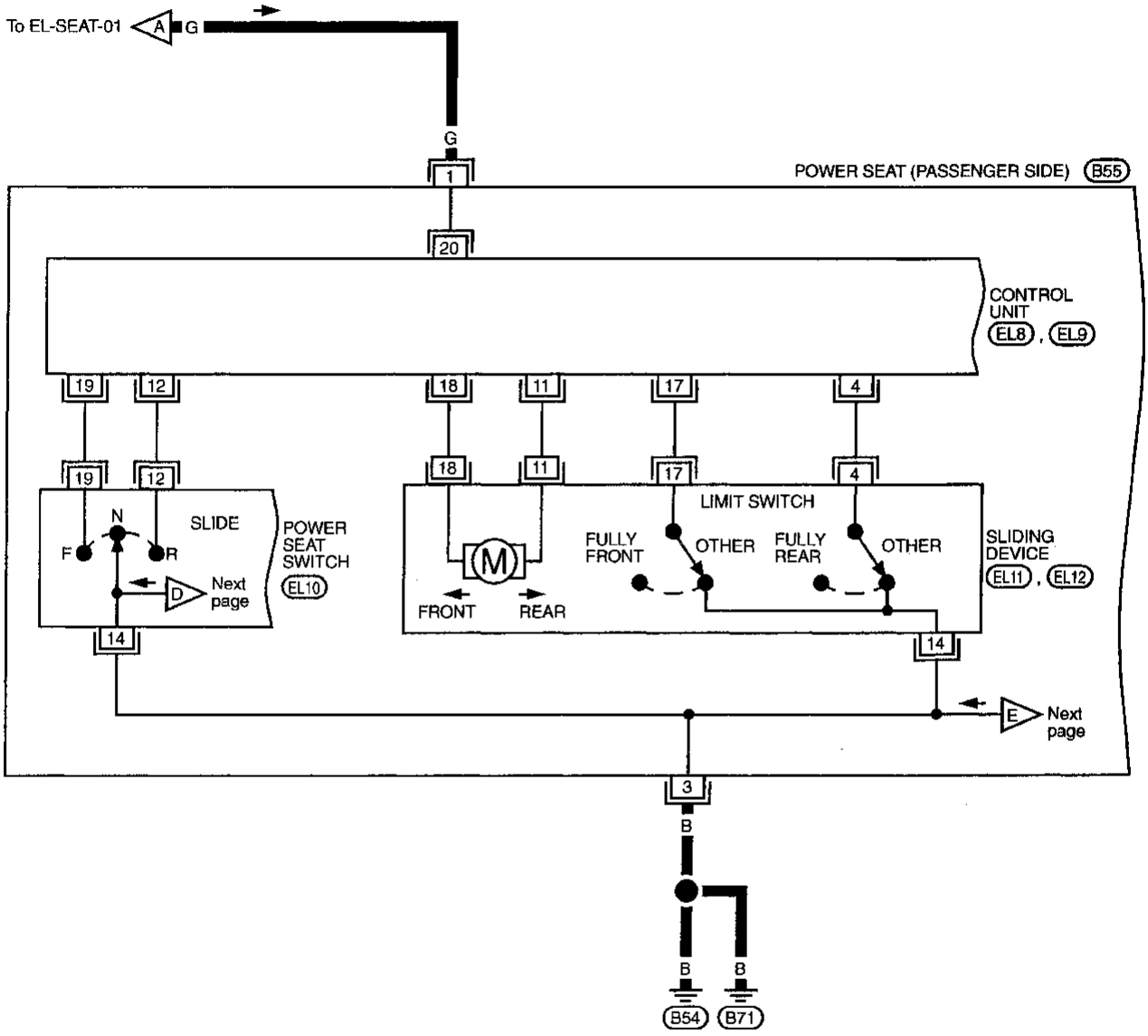


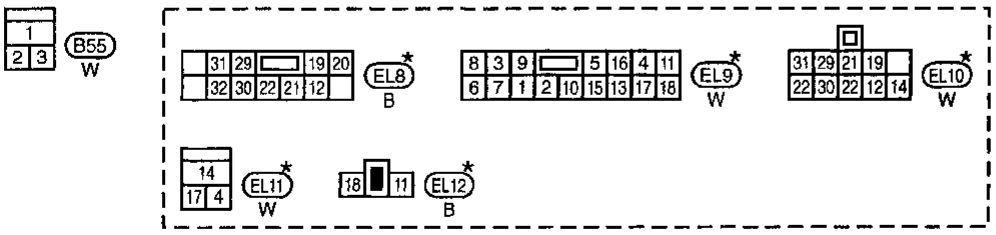


★ : This connector is not shown in "HARNESS LAYOUT" EL section.

TEL243

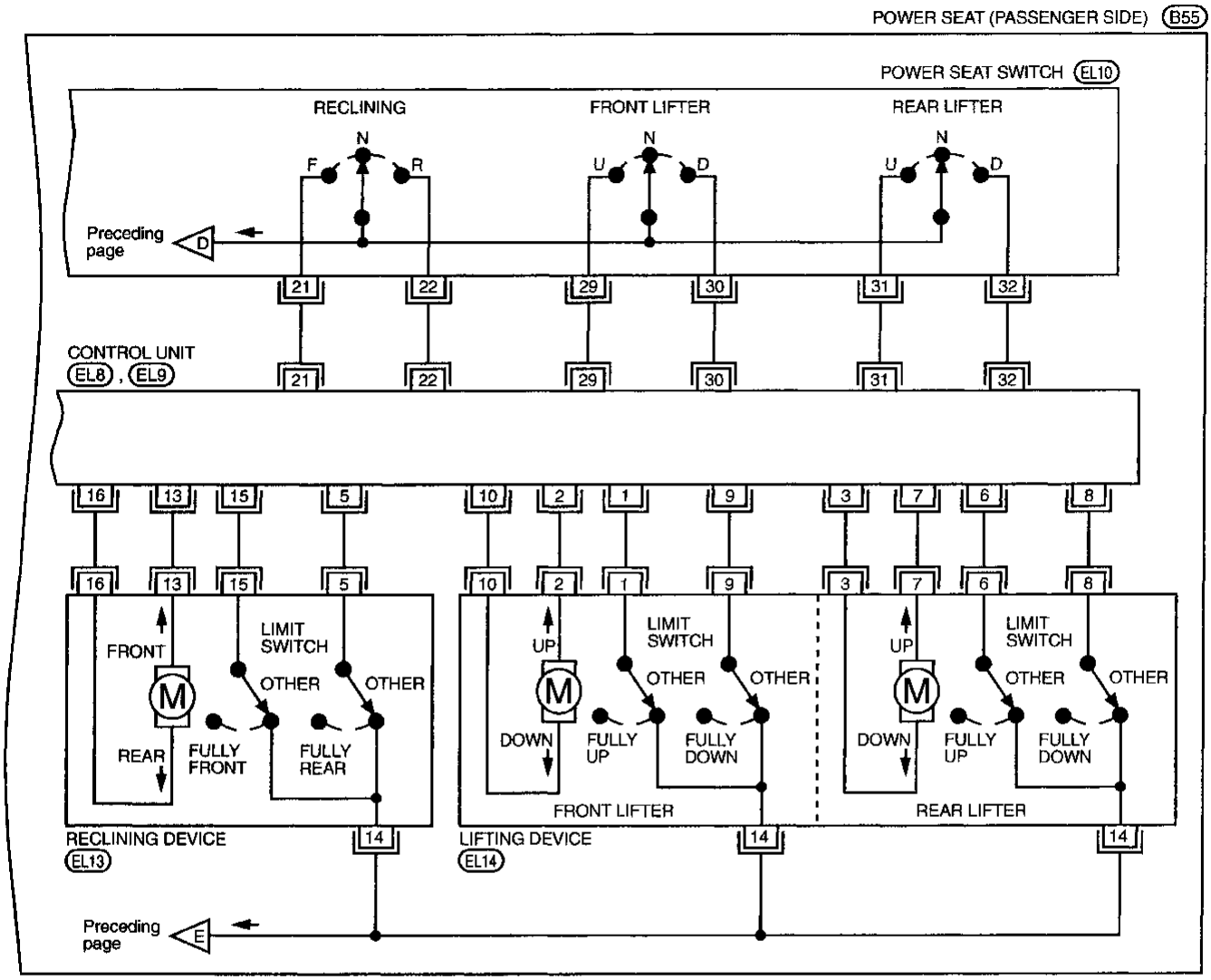
EL-SEAT-03

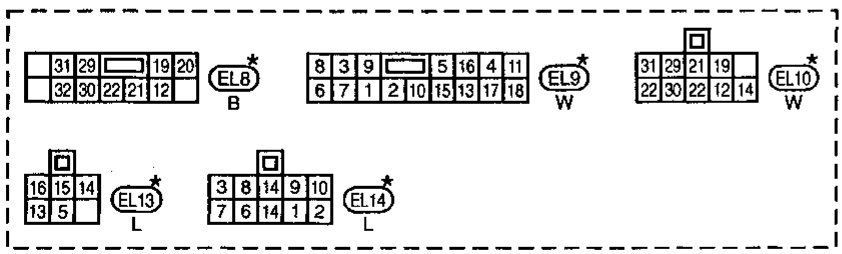




★ : This connector is not shown in "HARNESS LAYOUT" EL section.

TEL244



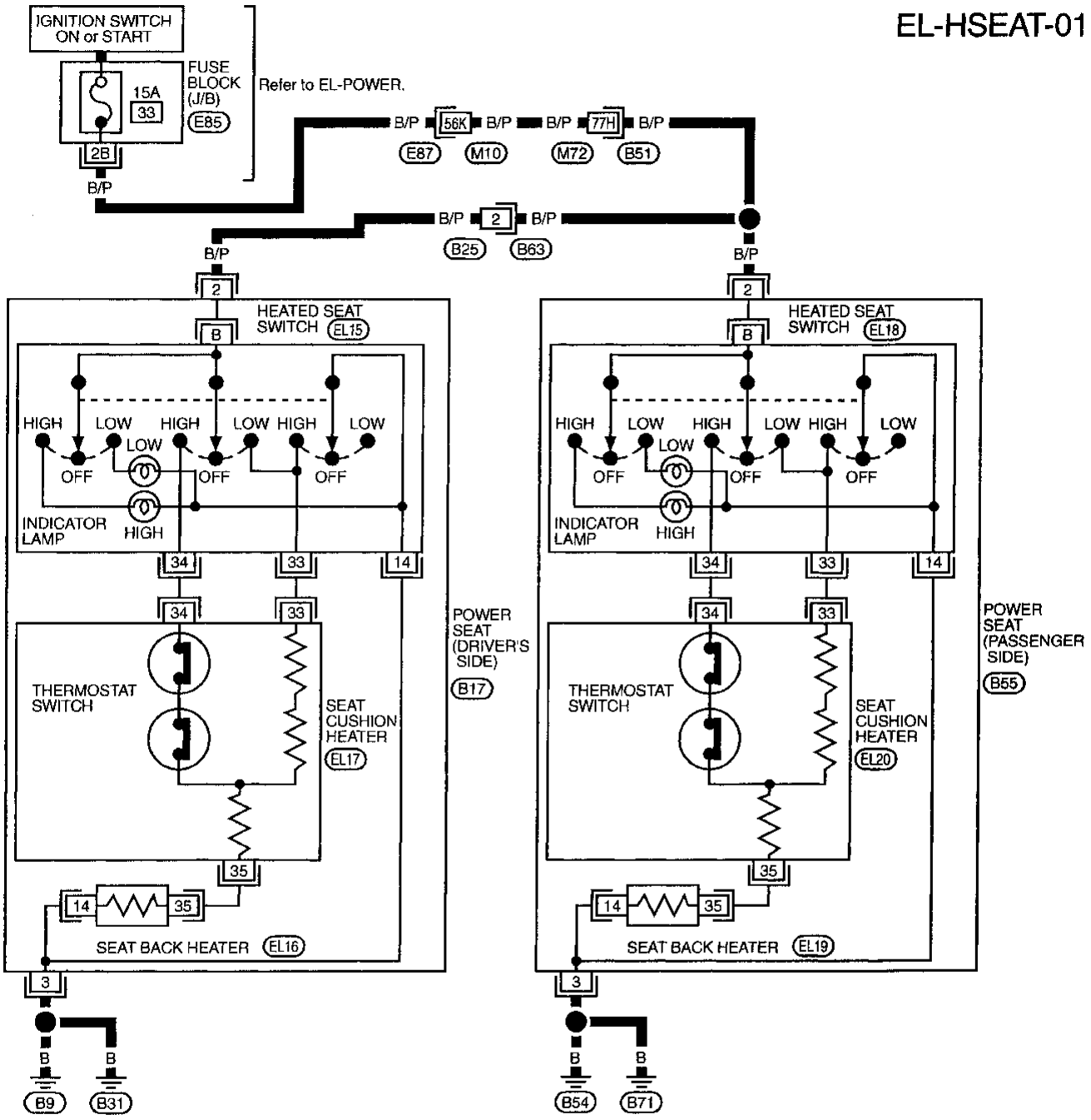


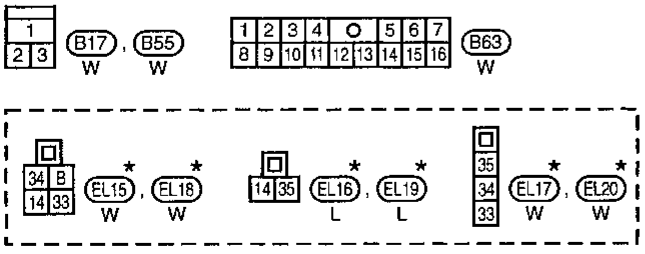
★ : This connector is not shown in "HARNESS LAYOUT" EL section.

TEL245

Heated Seat/Wiring Diagram — HSEAT —

EL-HSEAT-01



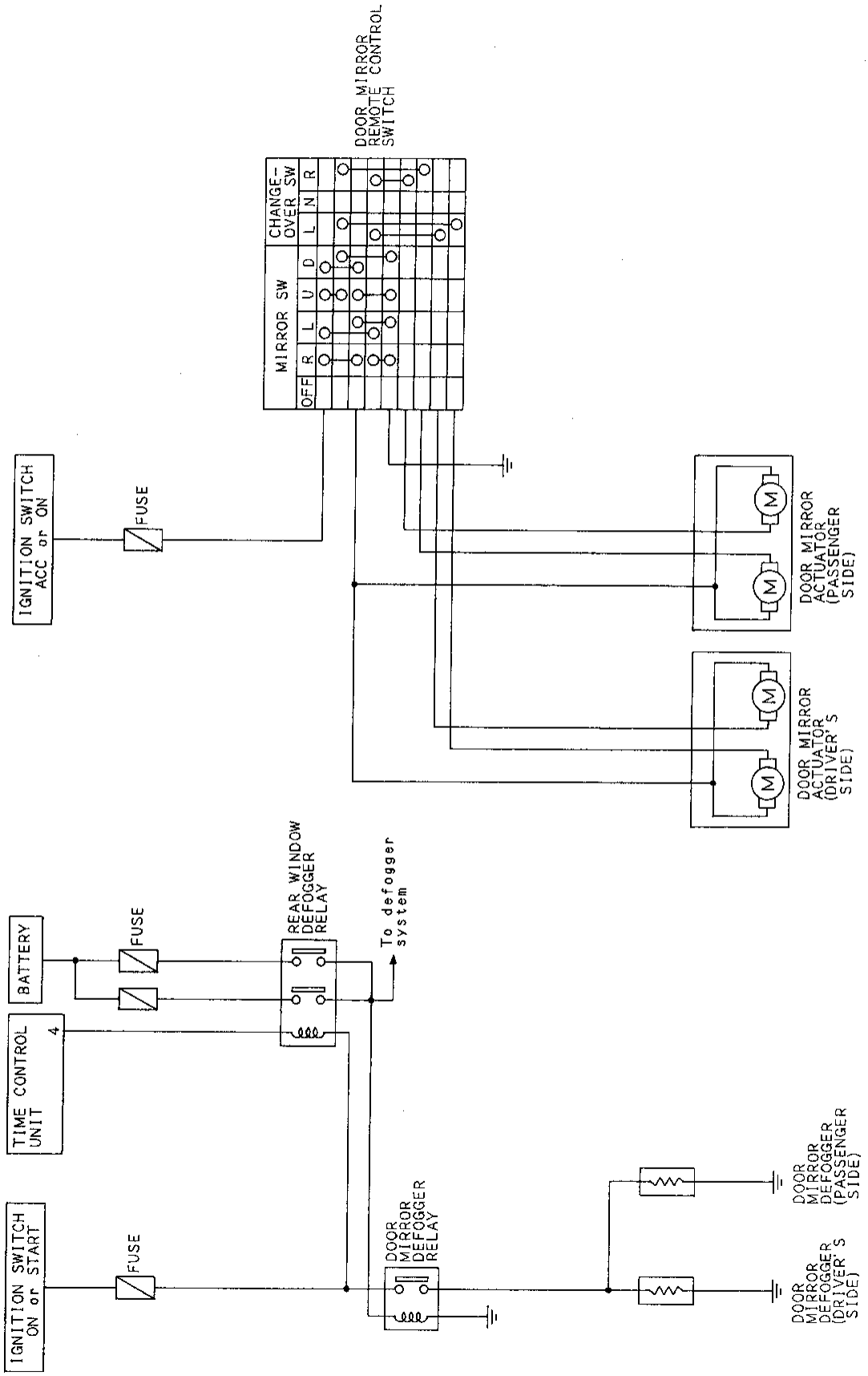


★ : This connector is not shown in "HARNESS LAYOUT" EL section.

Refer to last page (Foldout page).
E87, M10
M72, B51
E85

TEL241

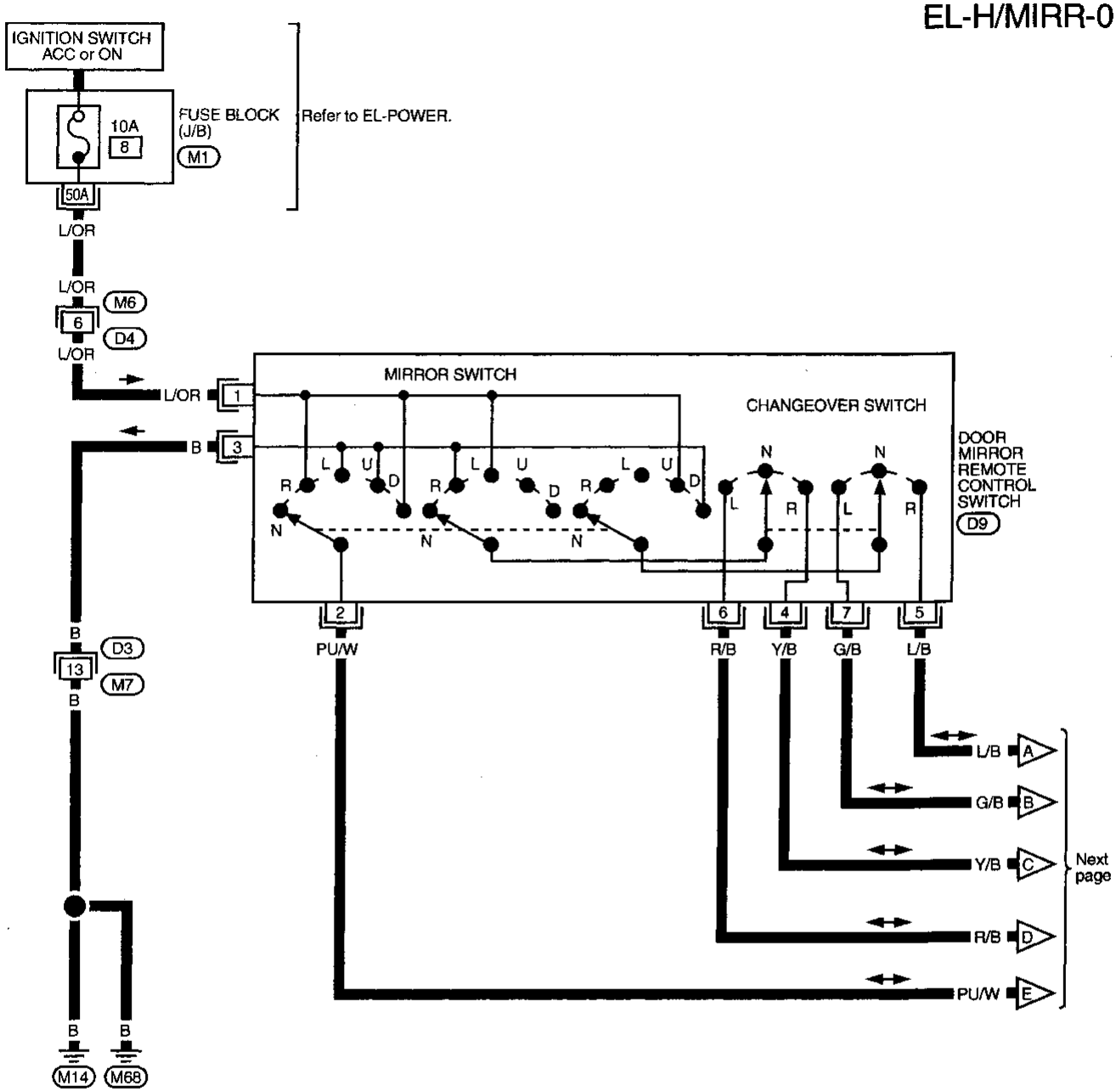
Schematic

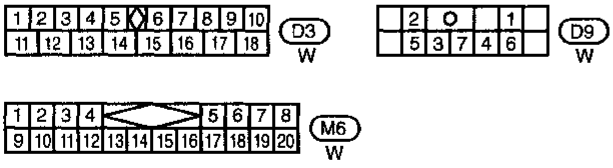


TEL263

Wiring Diagram — H/MIRR —

EL-H/MIRR-01

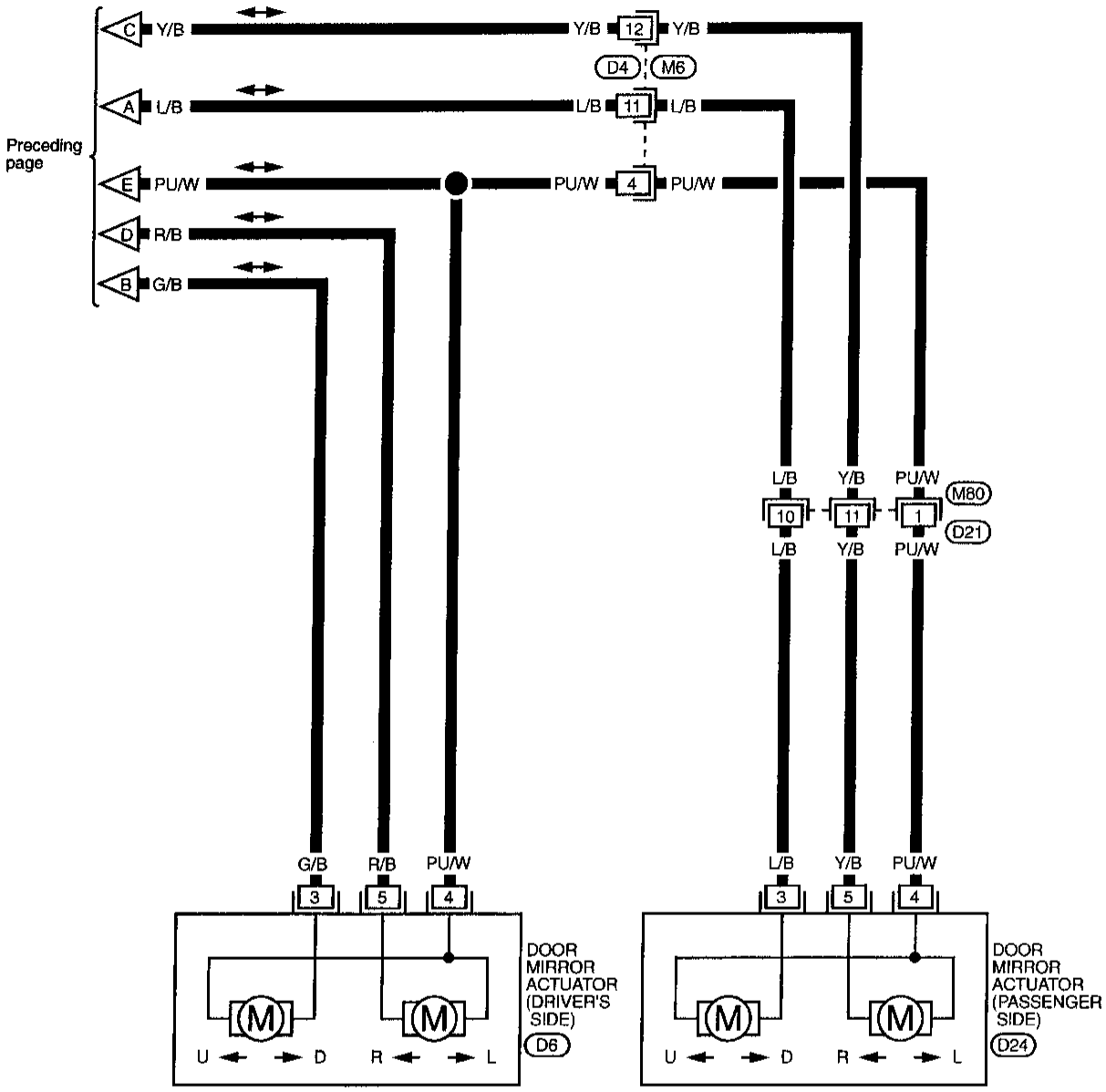


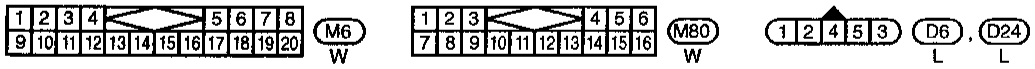


Refer to last page (Foldout page).
M1

Wiring Diagram — H/MIRR — (Cont'd)

EL-H/MIRR-02

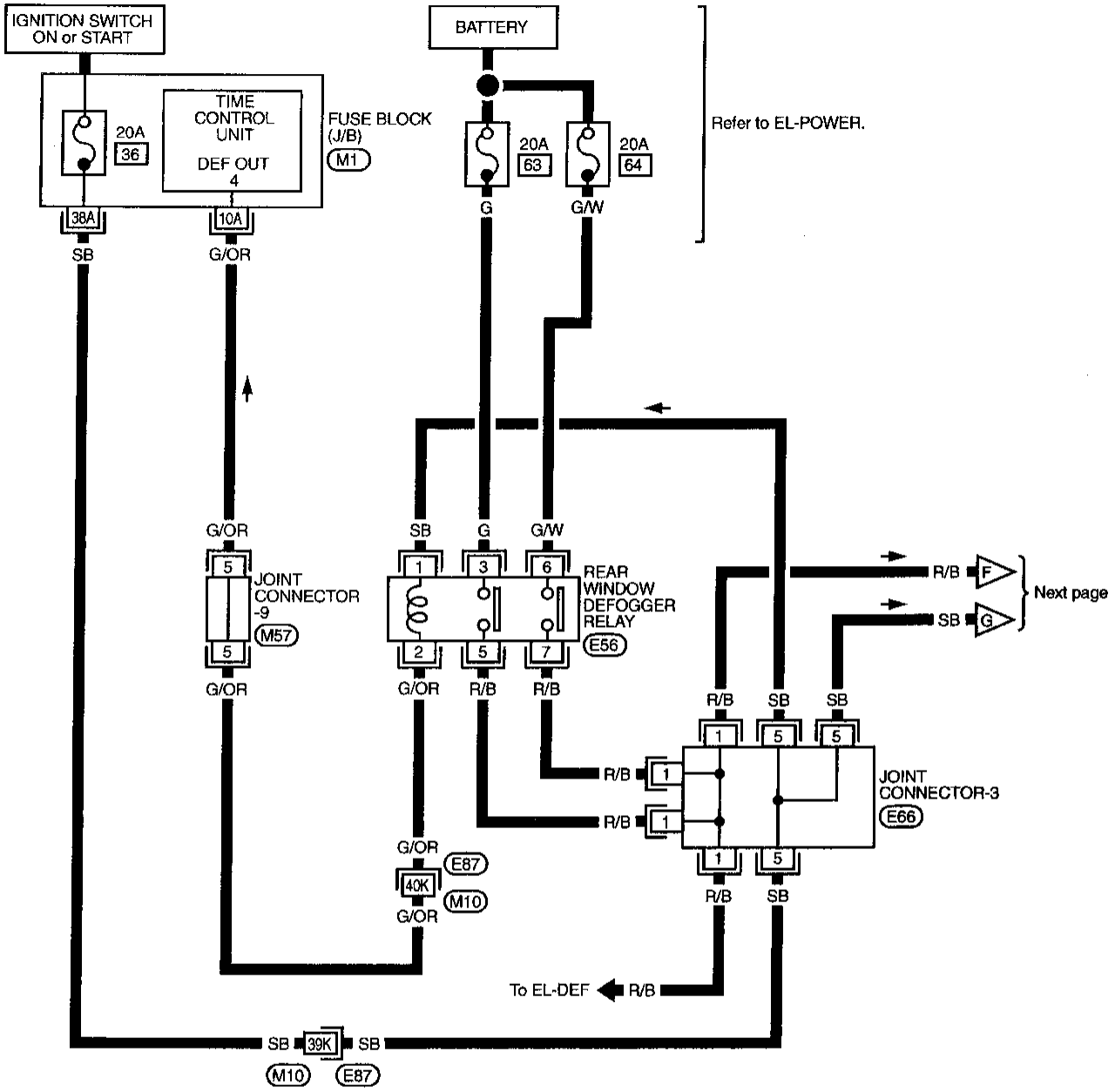


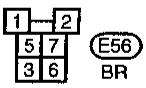


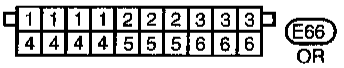
TEL260

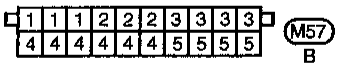
Wiring Diagram — H/MIRR — (Cont'd)

EL-H/MIRR-03







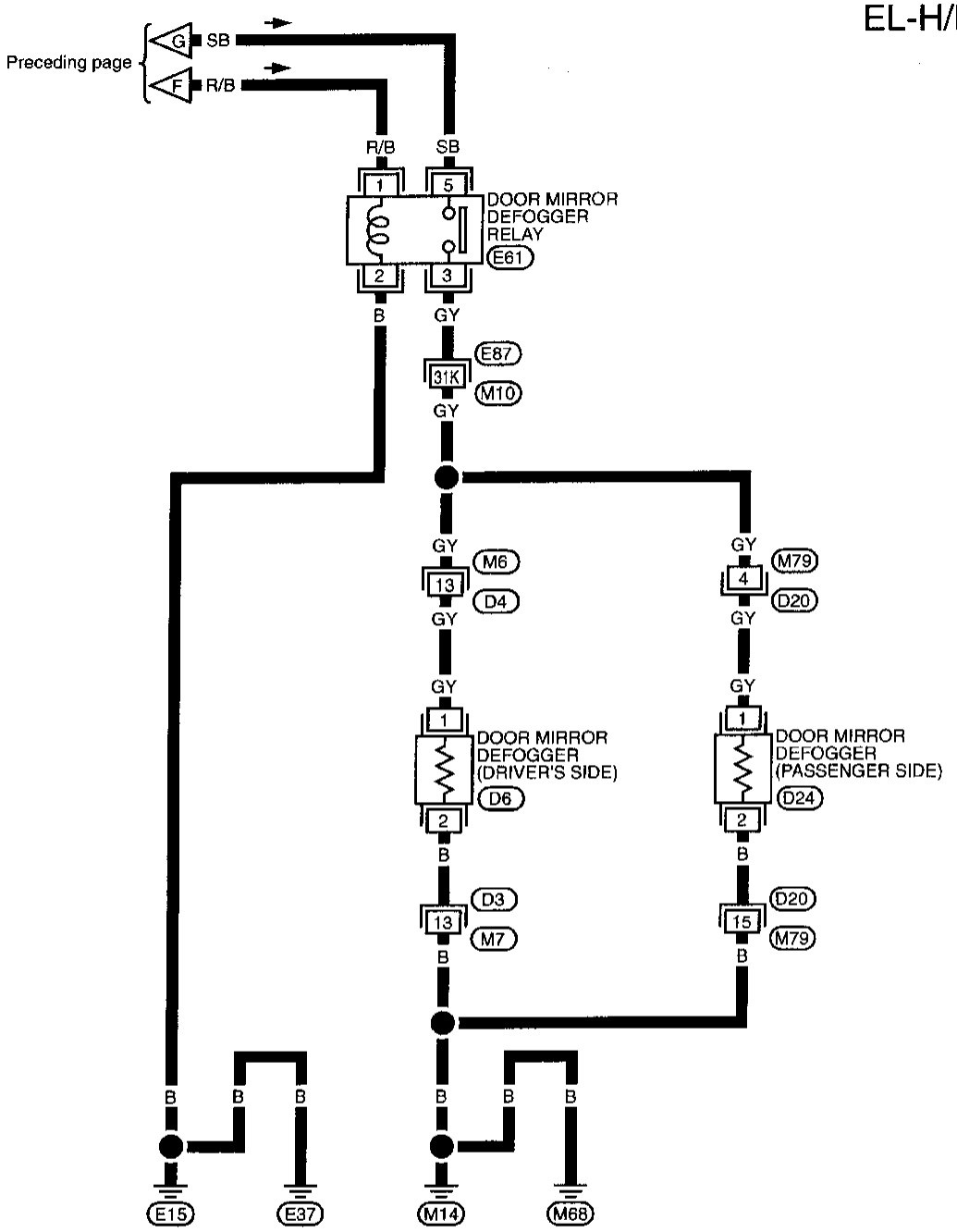


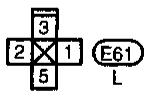
Refer to last page (Foldout page).
E87, M10
M1

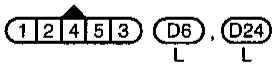
TEL261

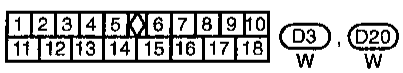
Wiring Diagram — H/MIRR — (Cont'd)

EL-H/MIRR-04







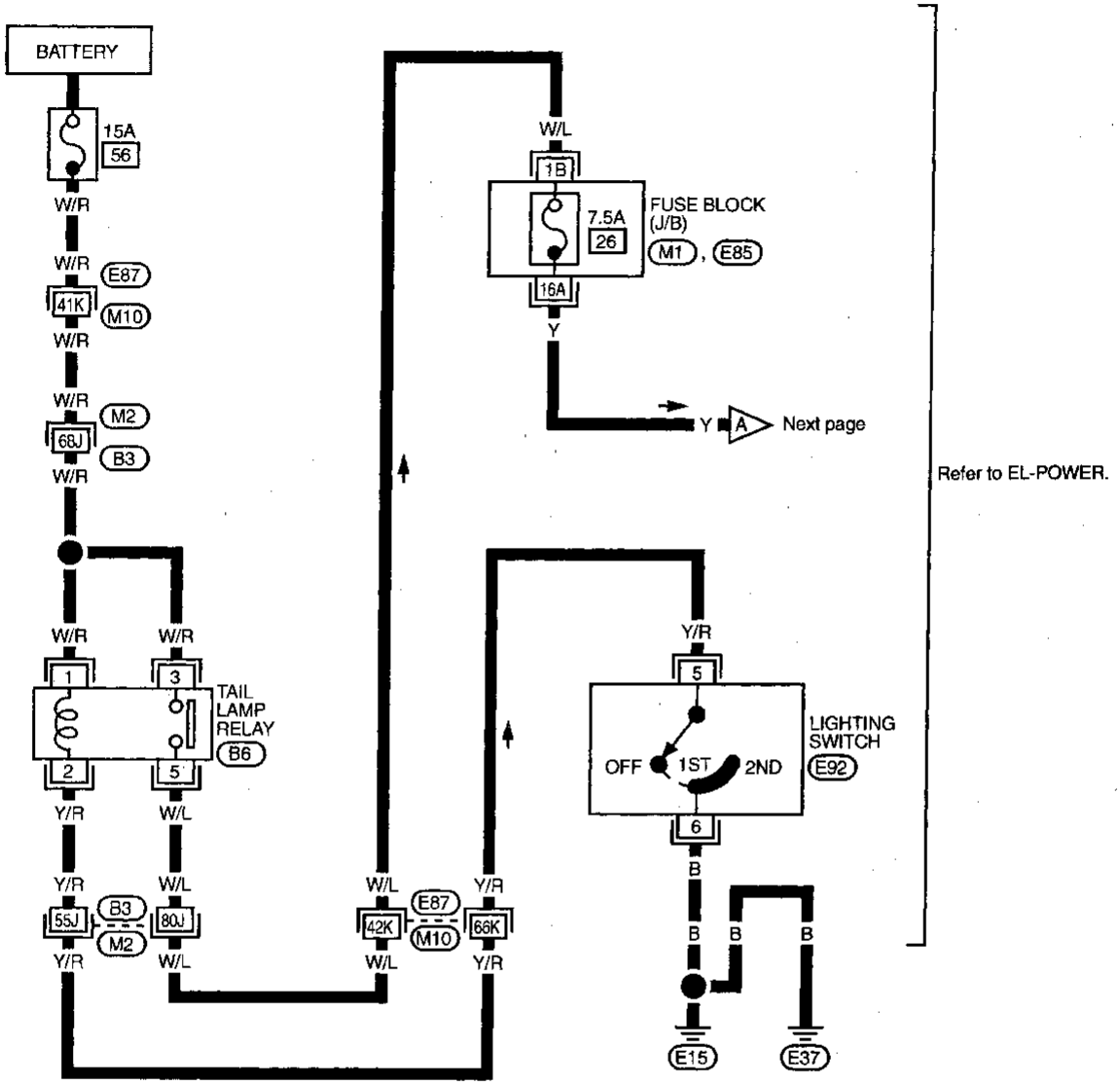


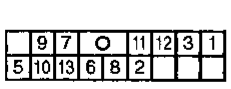
Refer to last page (Foldout page).
E87 , M10

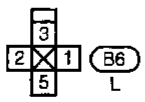
TEL262

Auto Anti-dazzling Inside Mirror/Wiring Diagram — I/MIRR —

EL-I/MIRR-01







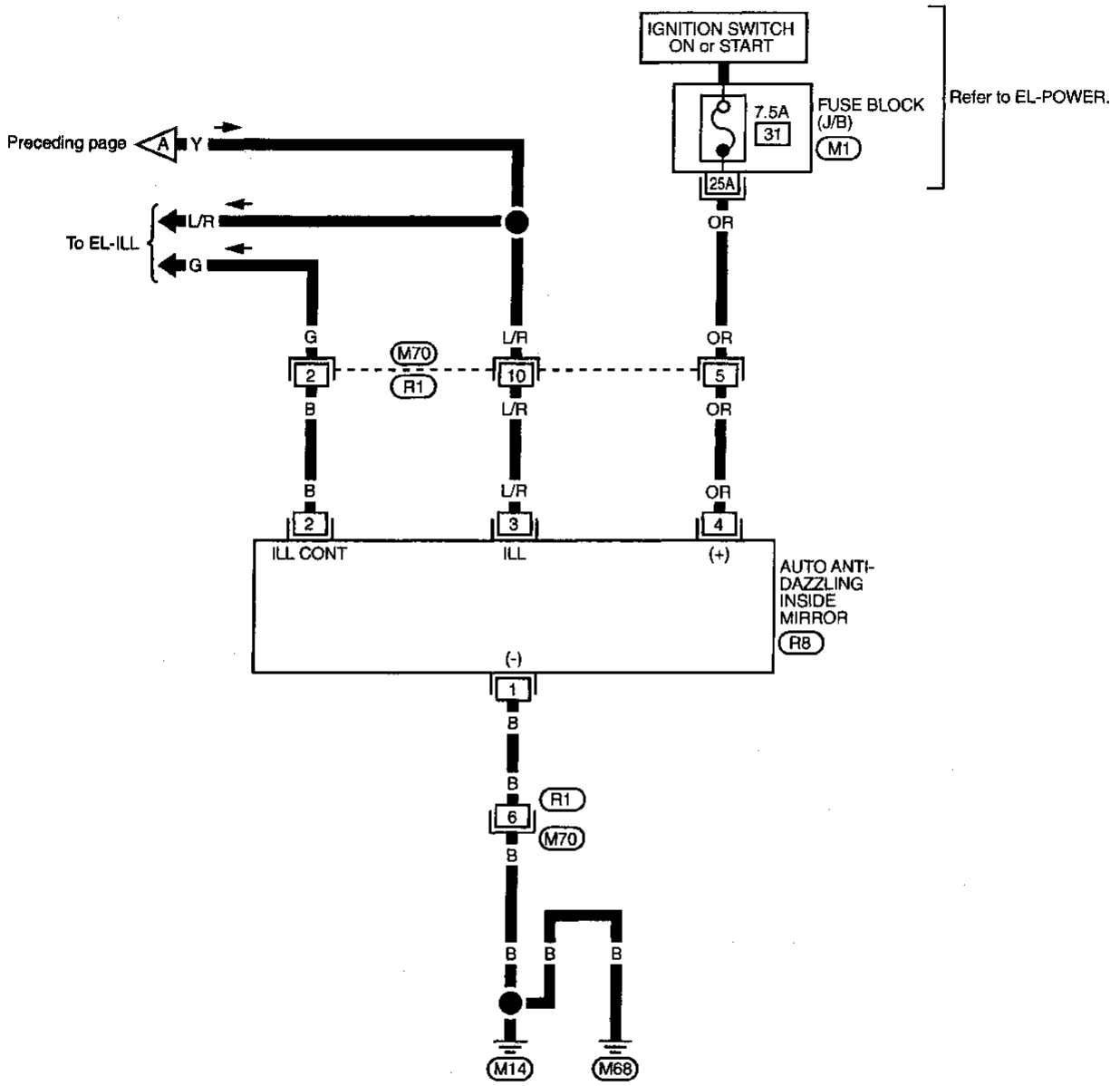
Refer to last page (Foldout page).

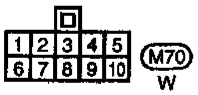
E85, M1
E87, M10
M2, B3

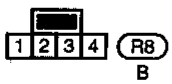
TEL219

Auto Anti-dazzling Inside Mirror/Wiring Diagram — I/MIRR — (Cont'd)

EL-I/MIRR-02





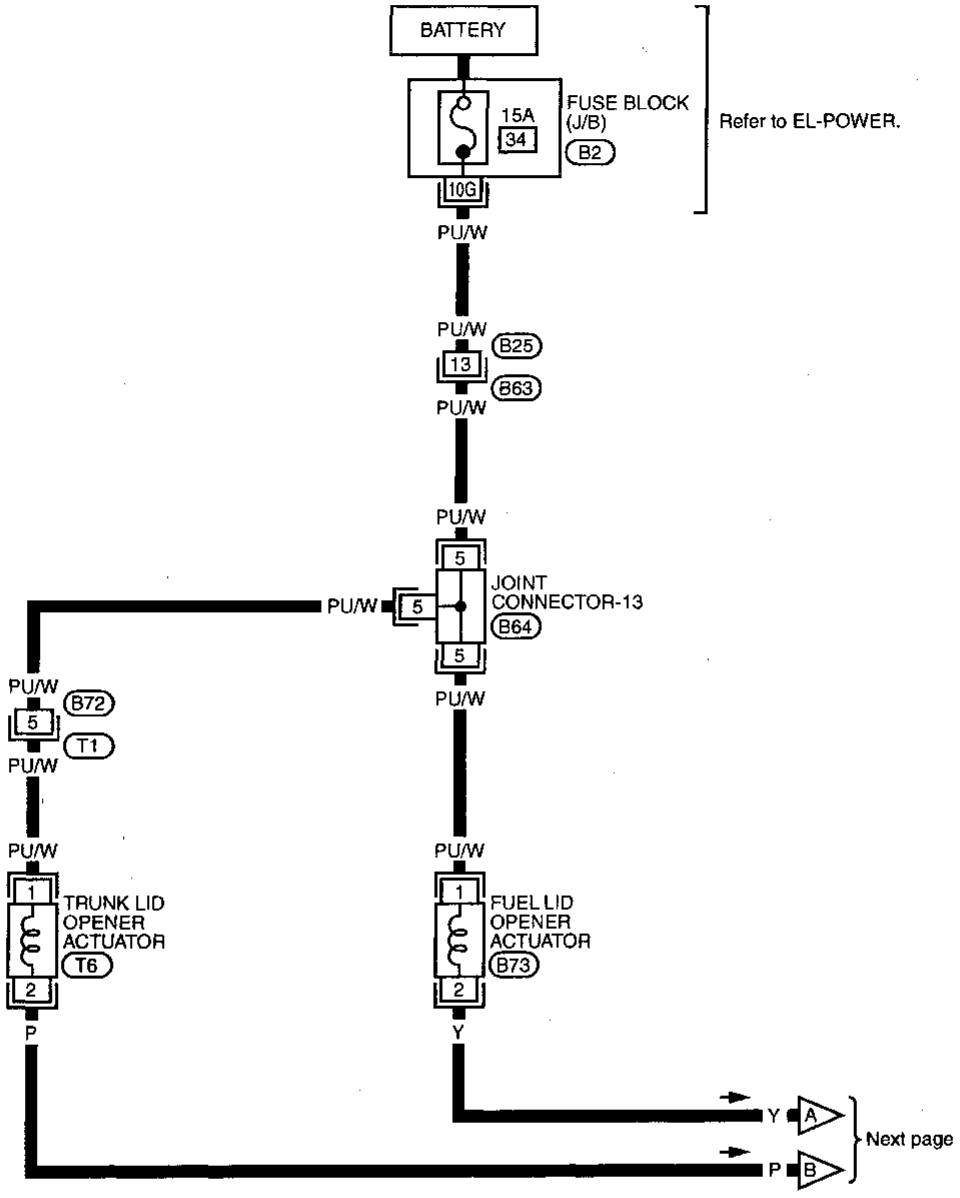


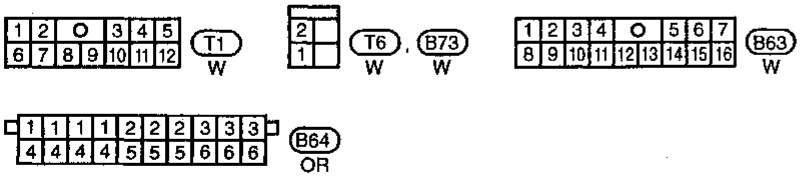
Refer to last page (Foldout page).
M1

TEL220

Wiring Diagram — TLID —

EL-TLID-01



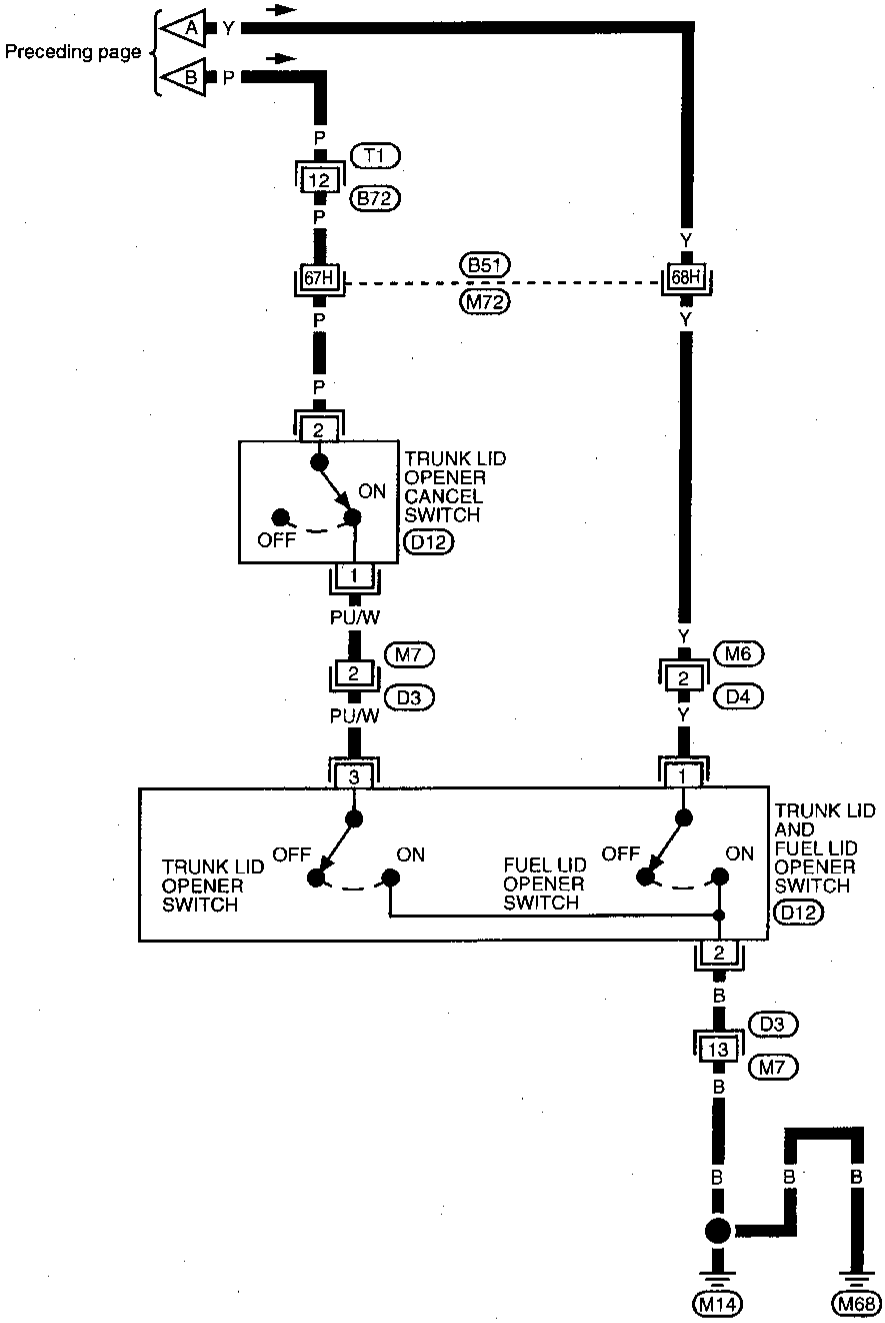


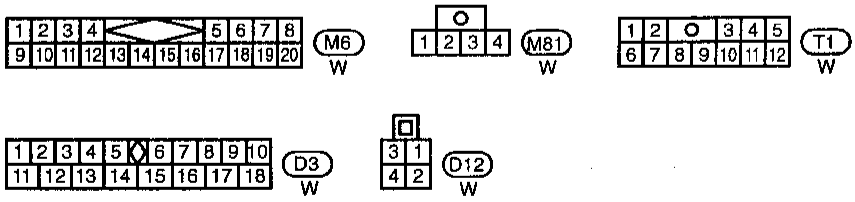
Refer to last page (Foldout page).
B2

TEL257

Wiring Diagram — TLID — (Cont'd)

EL-TLID-02

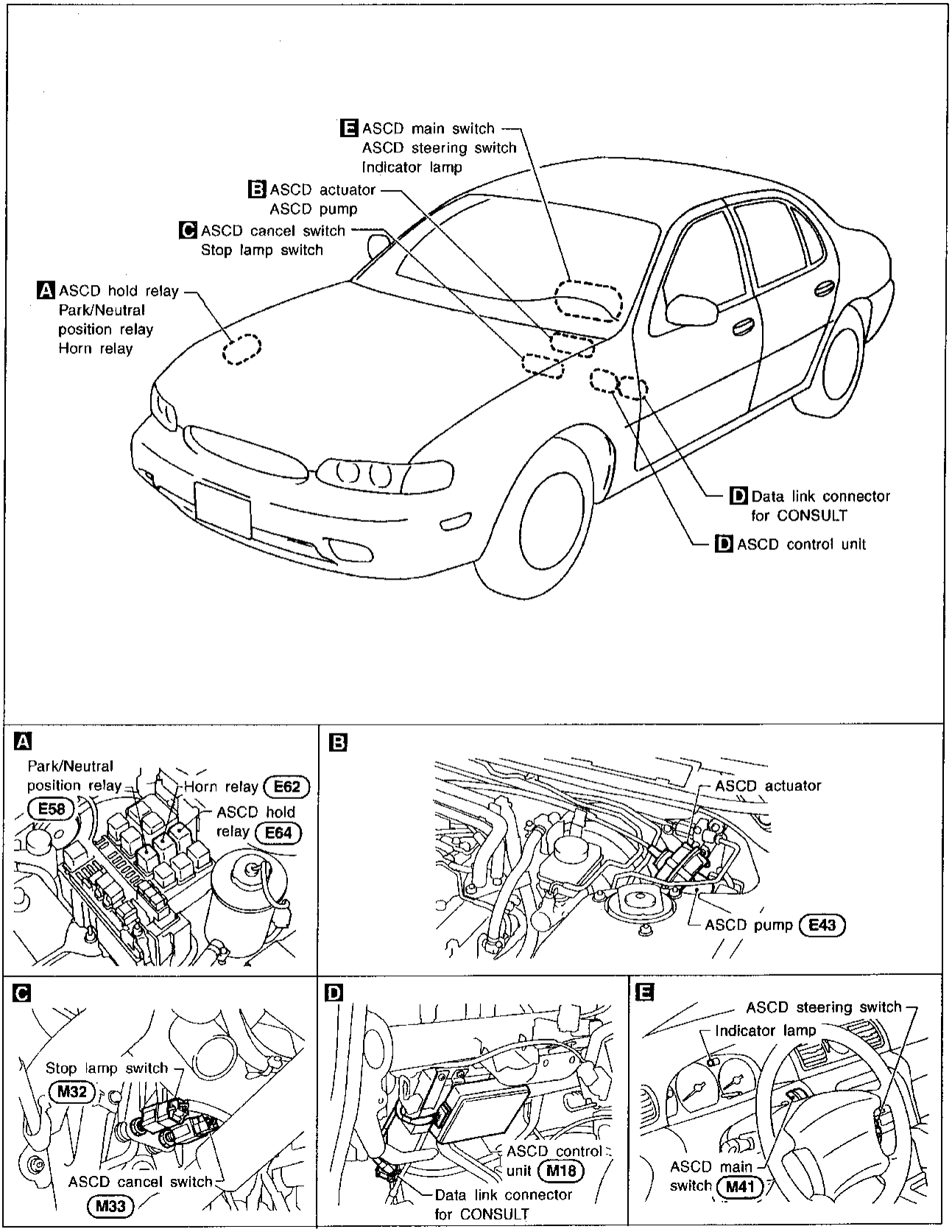




Refer to last page (Foldout page).
(B51), (M72)

TEL258

Component Parts and Harness Connector Location



CEL133

System Description

Refer to Owner's Manual for ASCD operating instructions.
When the ignition switch is in the ON or START position, power is supplied
- through 7.5A fuse (No. 30, located in the fuse block [J/B])
- to ASCD main switch terminal ① and
- to ASCD hold relay terminal ⑤.

When ASCD main switch is in the ON position, power is supplied
- from terminal ② of the ASCD main switch
- to ASCD control unit terminal ④ and
- from terminal ③ of the ASCD main switch
- to ASCD hold relay terminal ②.

Ground is supplied
- to ASCD hold relay terminal ①
- through body grounds E15 and E37.

With power and ground supplied, the ASCD hold relay is activated, and power is supplied
- from terminal ③ of the ASCD hold relay
- to park/neutral position relay terminal ④.

Power remains supplied also to ASCD control unit terminal ④ when the ASCD main switch is released to the N (neutral) position.
Ground is supplied
- to ASCD control unit terminal ③
- through body grounds M14 and M68.

Inputs

At this point, the system is ready to activate or deactivate, based on inputs from the following:
- speedometer in the combination meter
- stop lamp switch
- ASCD steering switch
- park/neutral position relay
- ASCD cancel switch.

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

Power is supplied at all times
- to stop lamp switch terminal ①
- through 15A fuse (No. 4, located in the fuse block [J/B]).

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

Power is supplied at all times
- through 15A fuse (No. 55, located in the fuse and fusible link box)
- to horn relay terminal ①
- through terminal ② of the horn relay
- to ASCD steering switch terminal ⑫.

When the SET/COAST switch is depressed, power is supplied
- from terminal ⑭ of the ASCD steering switch
- to ASCD control unit terminal ②.

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

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

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

Power is interrupted when
- the shift lever is placed in P or N or
- the brake pedal is depressed.

System Description (Cont'd)

Outputs

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

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

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

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

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

When the system is activated, power is supplied
- from terminal ⑬ of the ASCD control unit
- to combination meter terminal ㉕ and
- to A/T control unit terminal ㊲.

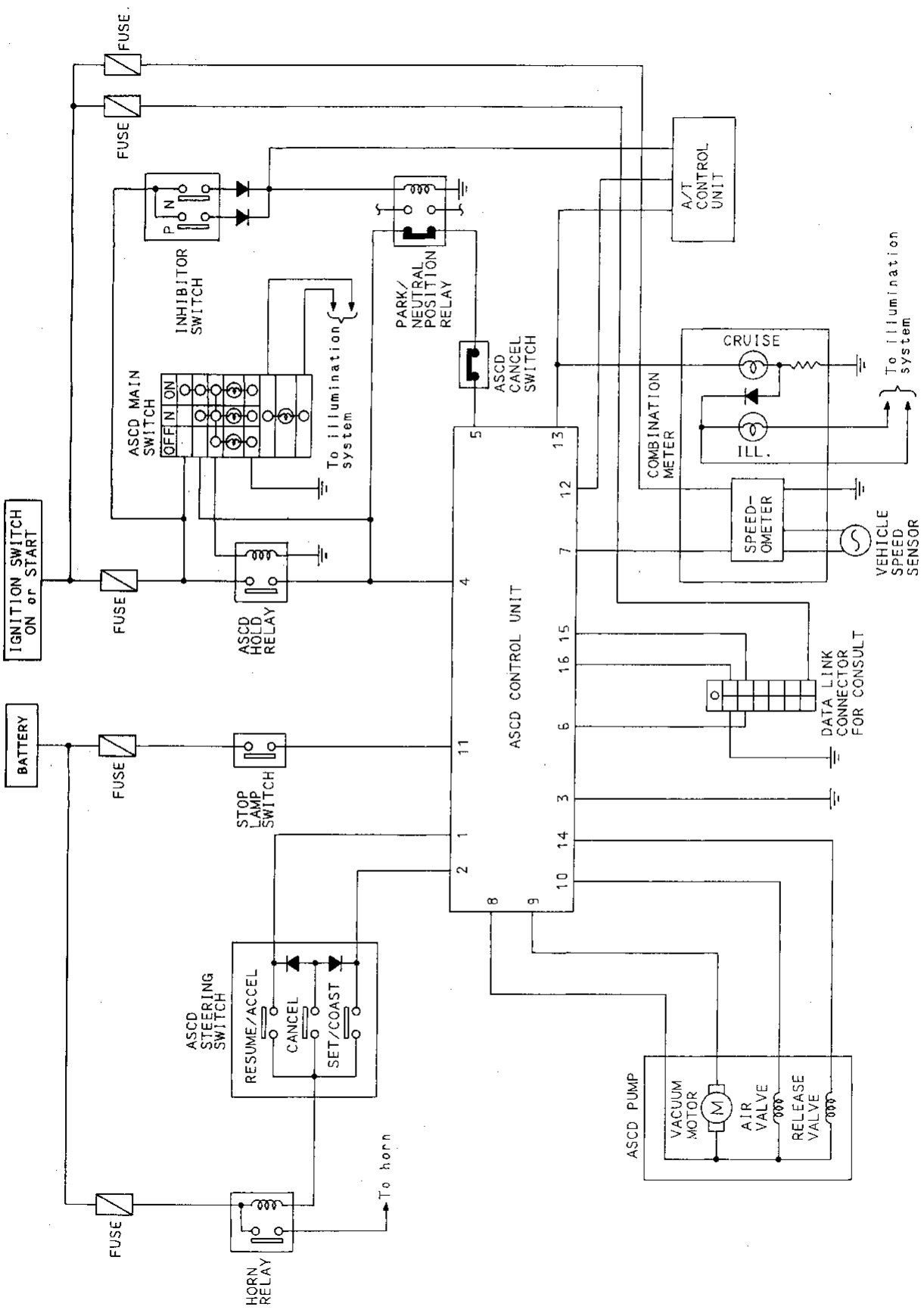
Ground is supplied
- to combination meter terminal ㉗
- through body grounds (M14) and (M68).

With power and ground supplied, the CRUISE indicator illuminates.

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

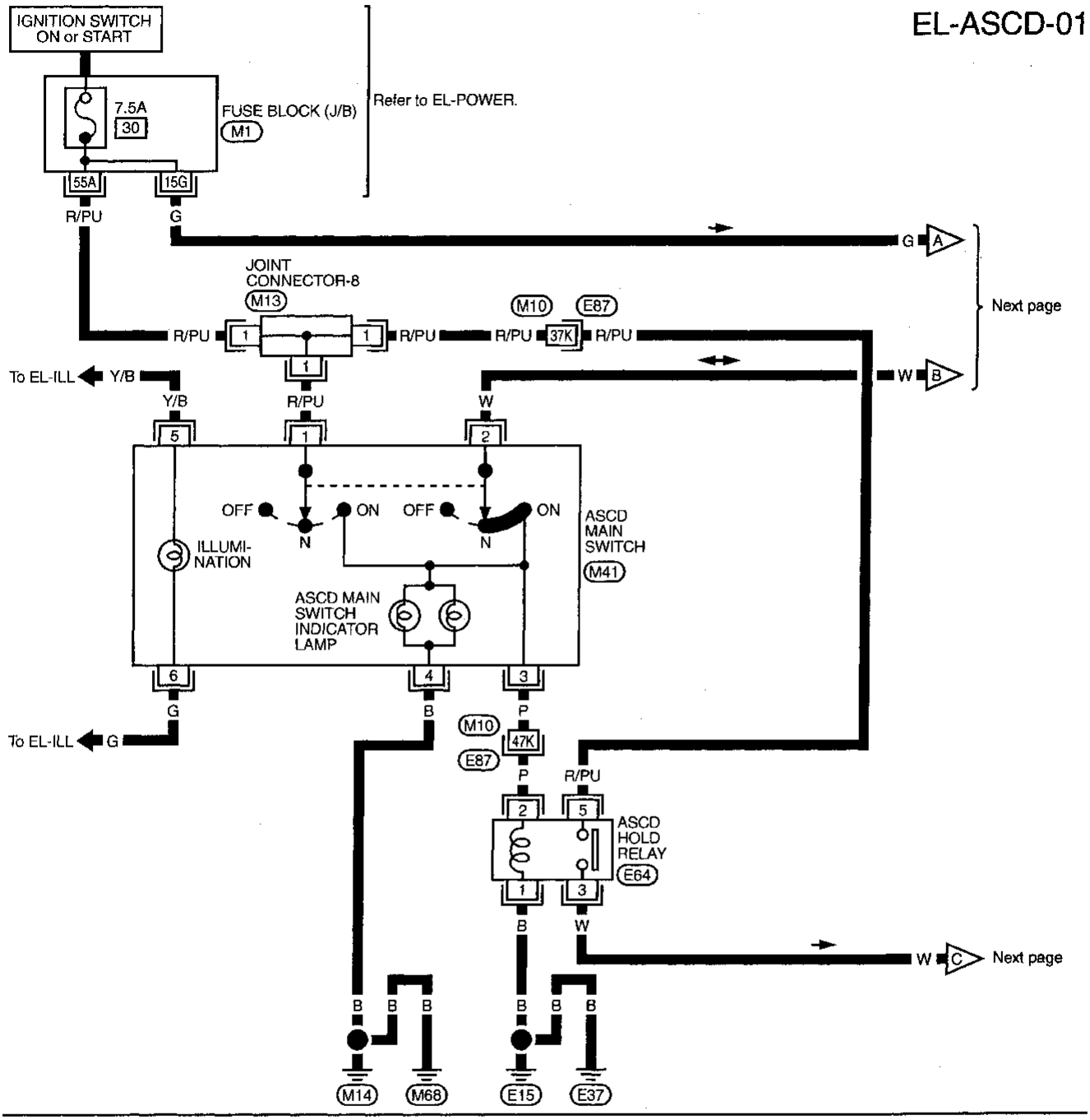
When this occurs, the A/T control unit cancels overdrive.

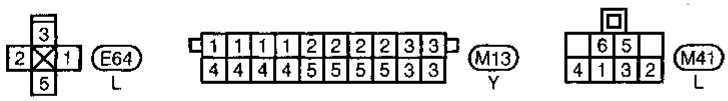
Schematic



TEL264

Wiring Diagram — ASCD —



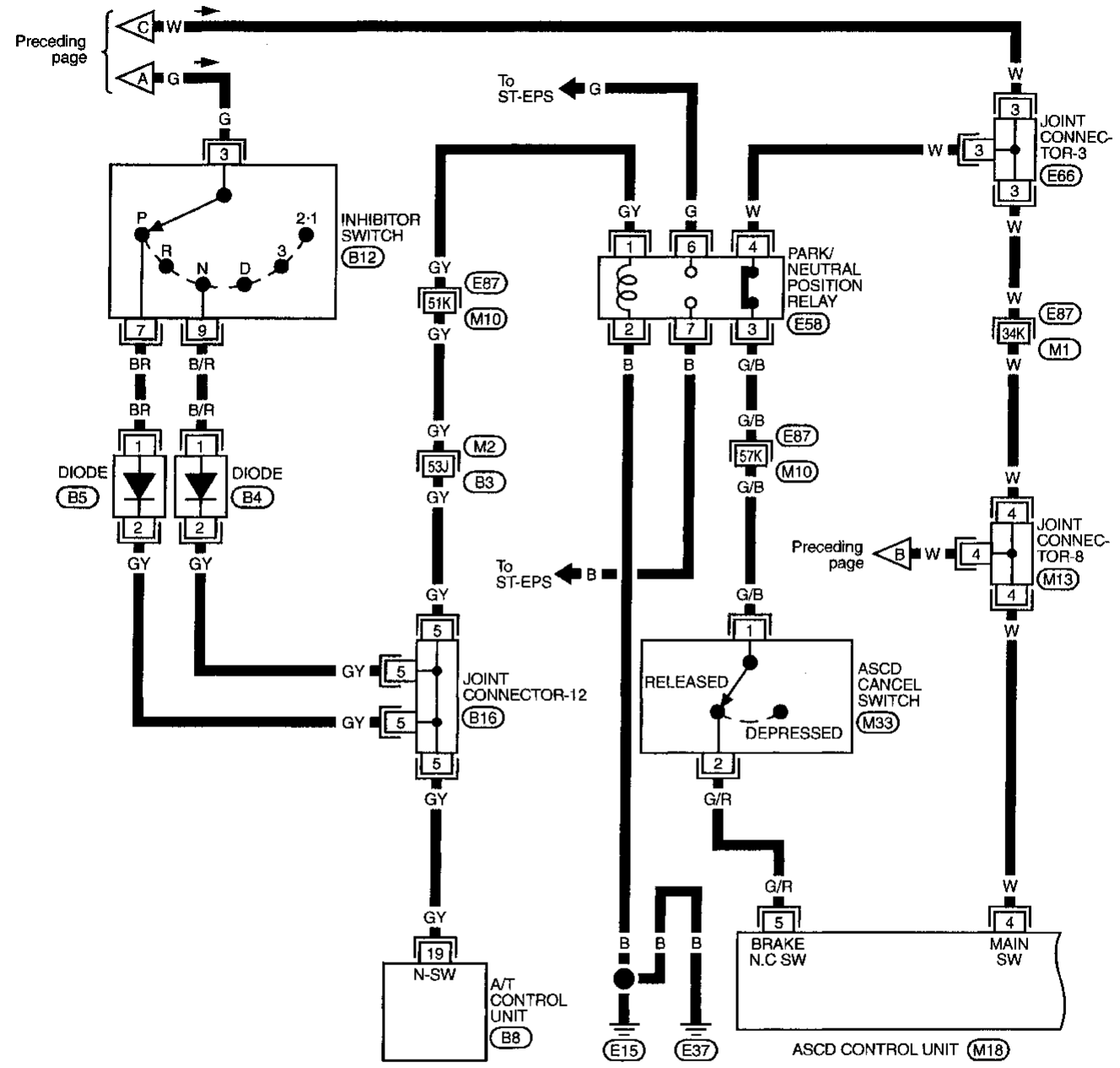


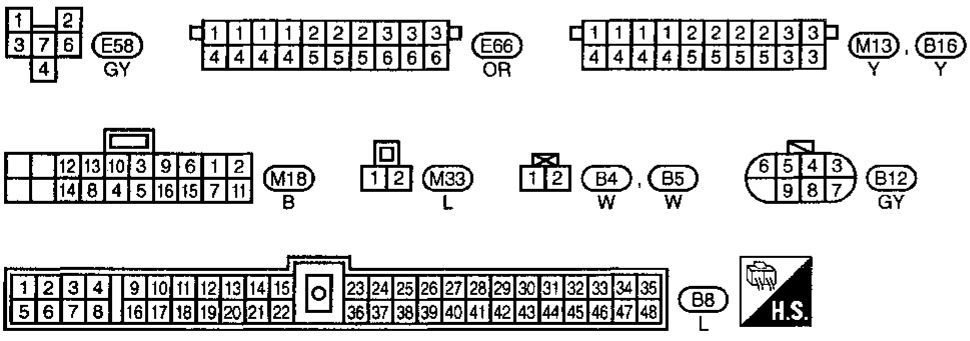
Refer to last page (Foldout page).
E87, M10
M1

TEL265

Wiring Diagram — ASCD — (Cont'd)

EL-ASCD-02

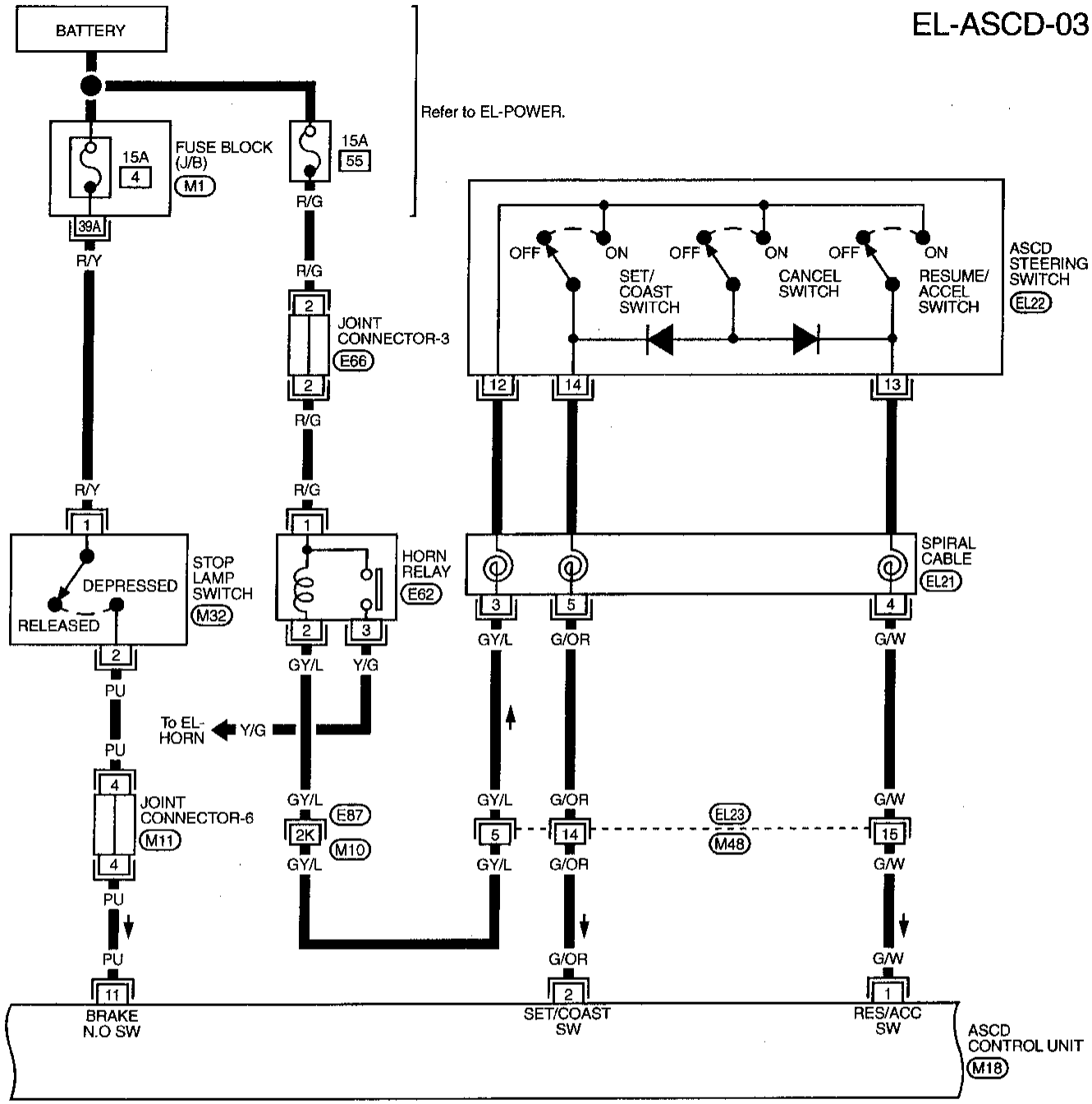


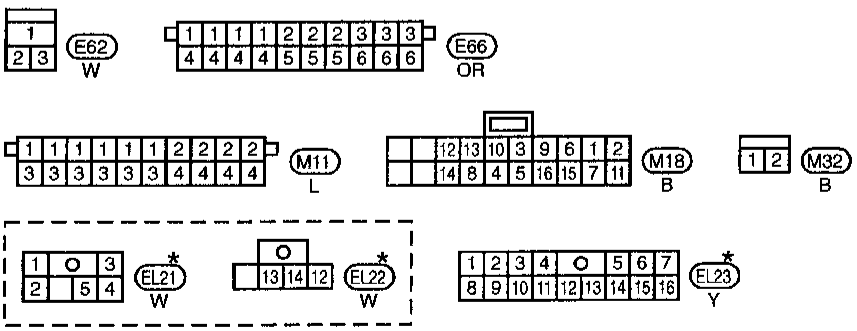


Refer to last page (Foldout page).
E87, M10
M2, B3
B2

Wiring Diagram — ASCD — (Cont'd)

EL-ASCD-03





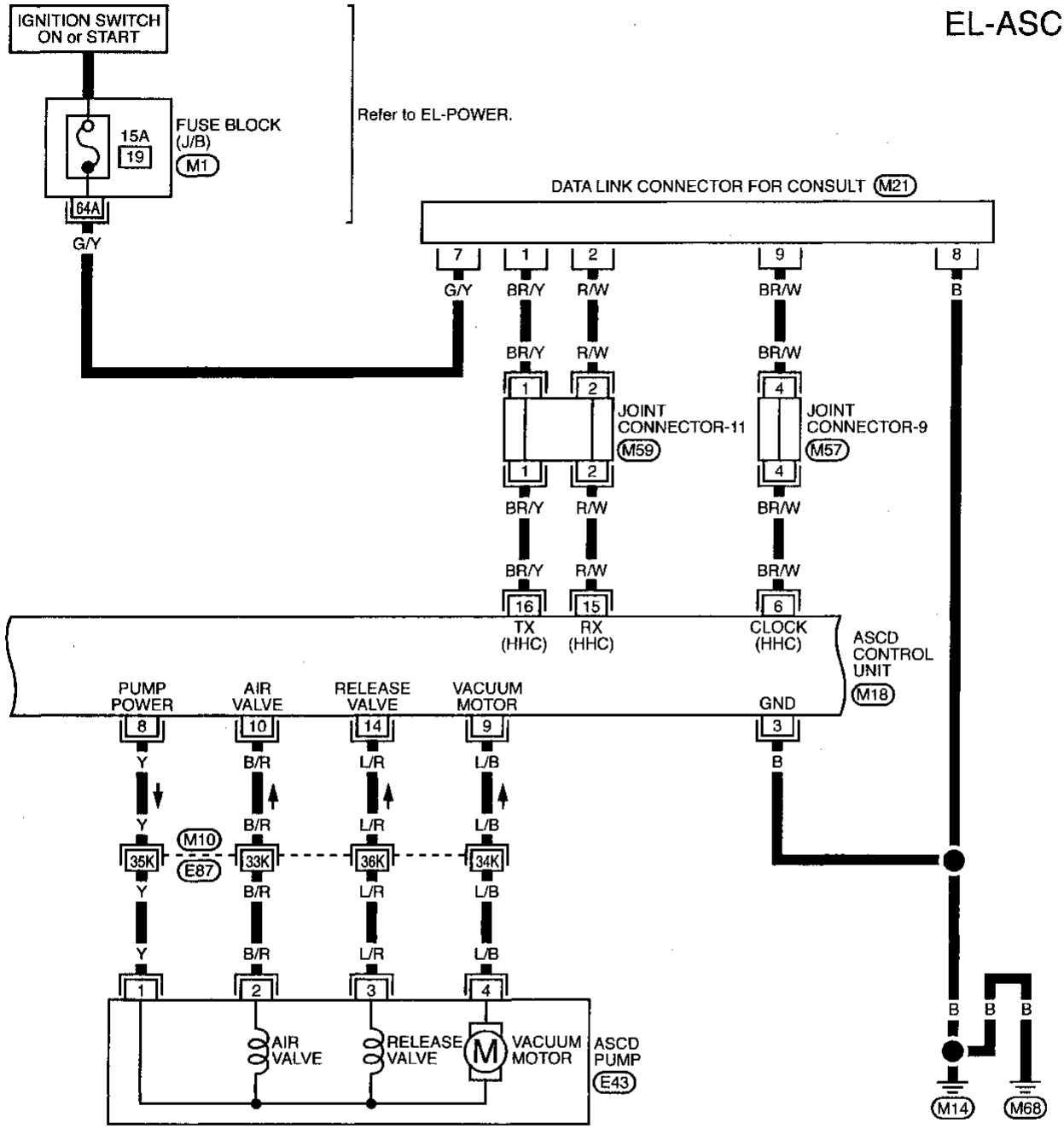
★: This connector is not shown in "HARNESS LAYOUT" EL section.

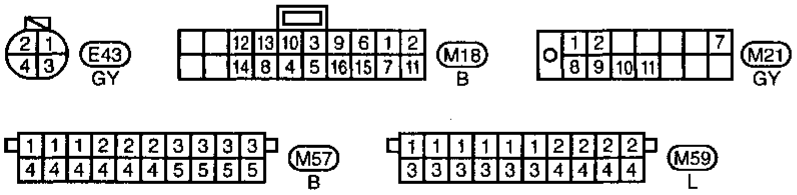
Refer to last page (Foldout page).
E87, M10
M1

TEL267

Wiring Diagram — ASCD — (Cont'd)

EL-ASCD-04



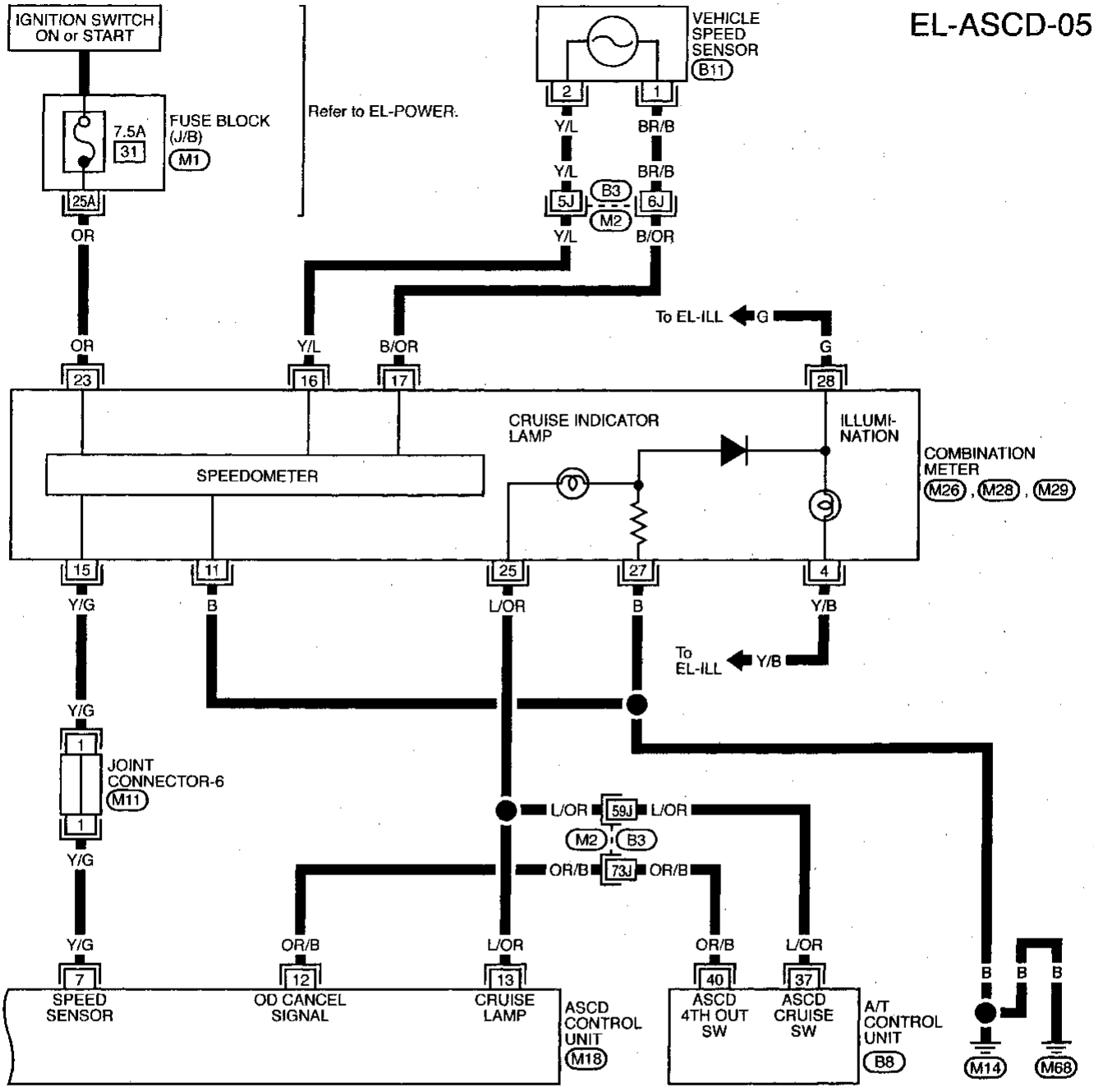


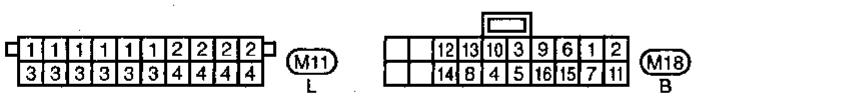
Refer to last page (Foldout page).
E87, M10
M1

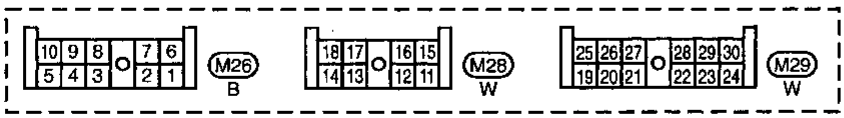
TEL268

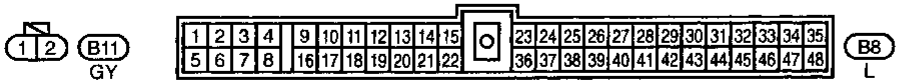
Wiring Diagram — ASCD — (Cont'd)

EL-ASCD-05



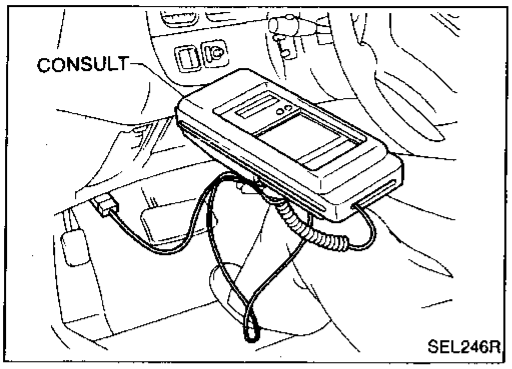






Refer to last page (Foldout page).
M2, B3
M1

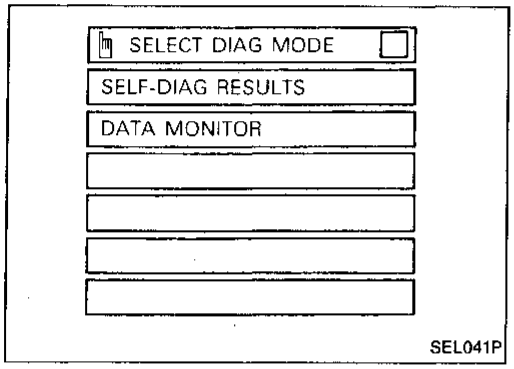
TEL269



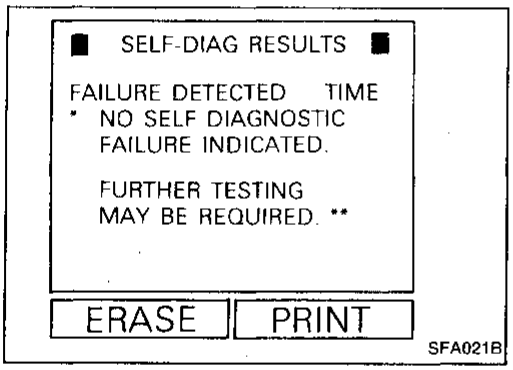
Trouble Diagnoses

CONSULT

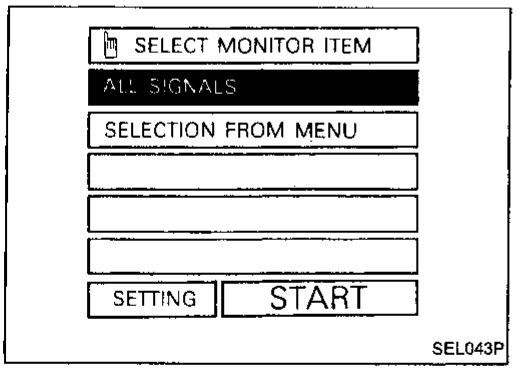
1. Turn off ignition switch.
2. Connect "CONSULT" to data link connector.



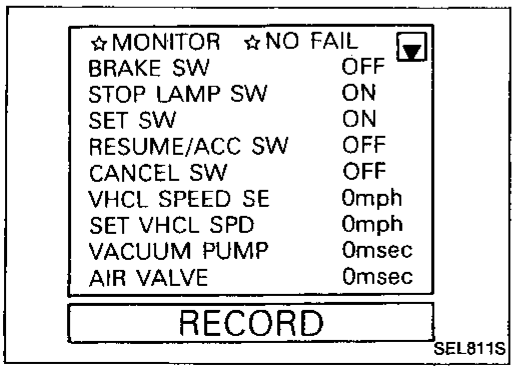
3. Turn on ignition switch.
4. Turn on ASCD main switch.
5. Touch START (on CONSULT display).
6. Touch ASCD.
7. Touch SELF-DIAG RESULTS.



- Self-diagnostic results are shown on display. Refer to table on page EL-161.



8. Touch DATA MONITOR.



- Touch START.
- Data monitor results are shown on display. Refer to table on page EL-161.

For further information, read the CONSULT Operation Manual.

Trouble Diagnoses (Cont'd)

Self-diagnostic results

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

Data monitor

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

Trouble Diagnoses (Cont'd)

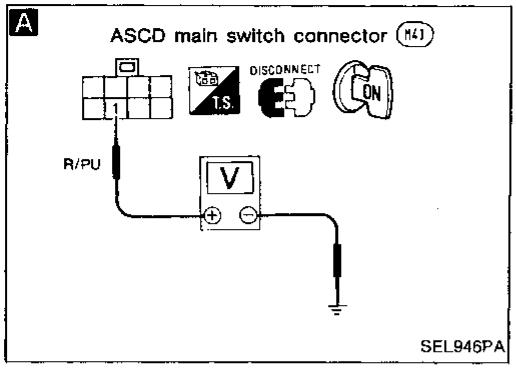
SYMPTOM CHART

PROCEDURE	Diagnostic Procedure								Electrical Components Inspection						
REFERENCE PAGE	EL-163	EL-166	EL-166	EL-167	EL-168	EL-169	EL-171	EL-173	EL-174	EL-175	EL-175	EL-175	EL-175	EL-175	EL-176
SYMPTOM	Diagnostic Procedure 1	Diagnostic Procedure 2	Diagnostic Procedure 3	Diagnostic Procedure 4	Diagnostic Procedure 5	Diagnostic Procedure 6	Diagnostic Procedure 7	Diagnostic Procedure 8	ASCD actuator/ASCD pump	ASCD main switch	ASCD steering switch	ASCD cancel switch and stop lamp switch	Park/Neutral position switch	Vehicle speed sensor	ASCD wire adjustment
ASCD control unit cannot be set properly.	○								○	○	○	○	○	○	
Engine hunts		○							○						○
Large difference between set speed and actual vehicle speed.			○						○						○
Deceleration is greatest immediately after ASCD has been set.				○					○						○
ACCEL switch will not operate.	○				○						○				
RESUME switch will not operate.	○					○					○	○			
Set speed cannot be canceled.							○		○			○			○
"CRUISE" indicator lamp blinks.								○	○		○	○			

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 1

SYMPTOM: ASCD control cannot be set.



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

NG → A

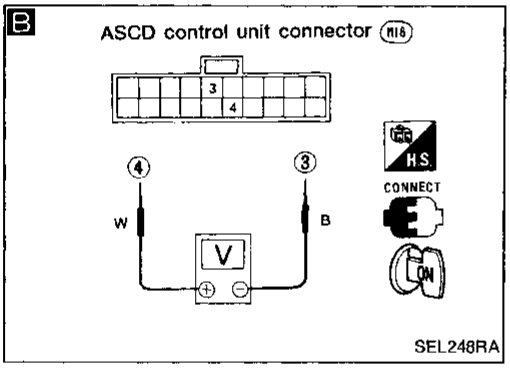
OK

A

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

No → Check fuse and harness.

Yes → CHECK ASCD MAIN SWITCH.
Refer to "Electrical Components Inspection" (EL-175).
CHECK ASCD HOLD RELAY.

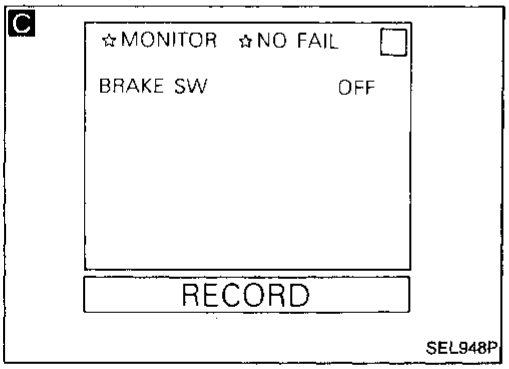


B

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

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

OK



C

CHECK CUT-OFF CIRCUIT FOR ASCD CONTROL UNIT.

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

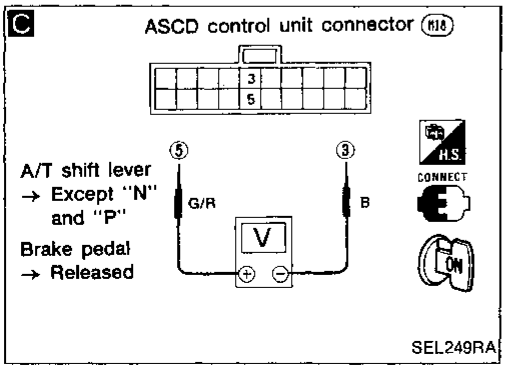
OR

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

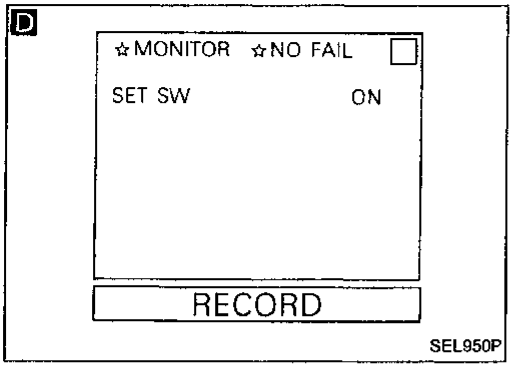
NG → CHECK ASCD BRAKE SWITCH AND PARK/NEUTRAL POSITION SWITCH.
Refer to "Electrical Components Inspection" (EL-175).
CHECK PARK/NEUTRAL POSITION RELAY.

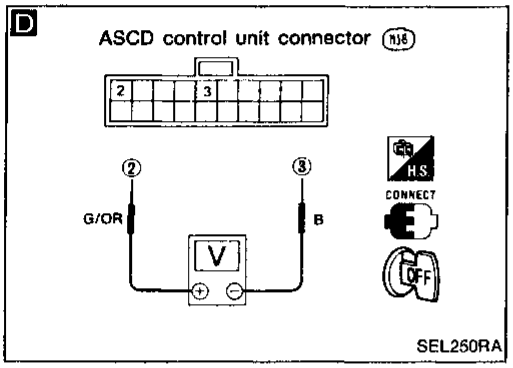
OK

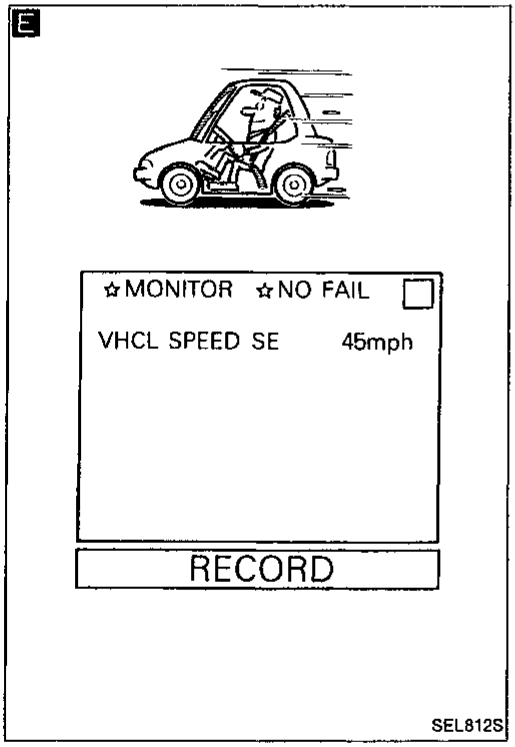
Ⓐ
(Next page)

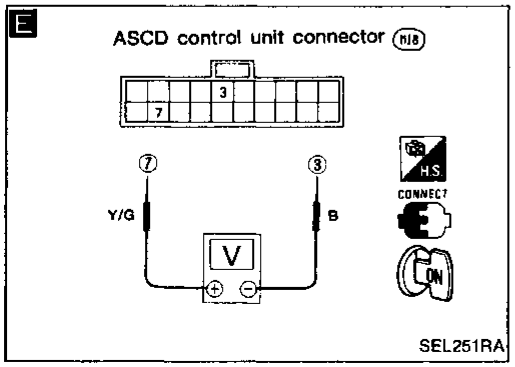


Trouble Diagnoses (Cont'd)









Ⓐ

D

CHECK SET/COAST SWITCH CIRCUIT FOR ASCD CONTROL UNIT.

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

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

OR

1. Push and hold SET/COAST button on ASCD steering switch.
2. Check voltage between control unit harness terminals ② and ③.
   Battery voltage should exist.

NG → Does horn work?

No → Check fuse and horn relay.

Yes → CHECK ASCD STEERING SWITCH.
Refer to "Electrical Components Inspection" (EL-175).

OK ↓

E

CHECK VEHICLE SPEED SENSOR CIRCUIT.

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

OR

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

NG → CHECK VEHICLE SPEED SENSOR.
Refer to "Electrical Components Inspection" (EL-175).

OK ↓

CHECK ASCD ACTUATOR/ASCD PUMP.
Refer to "Electrical Components Inspection" (EL-174).

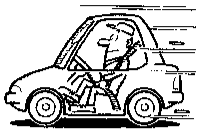
NG → Replace ASCD actuator/ASCD pump.

OK ↓

Ⓑ
(Next page)

Trouble Diagnoses (Cont'd)

F



☆ MONITOR ☆ NO FAIL

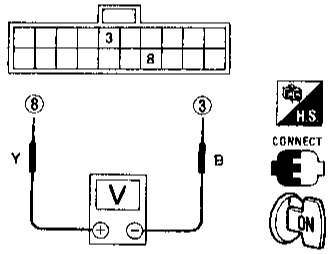
PW SUP-VALVE ON

RECORD

SEL954P

F

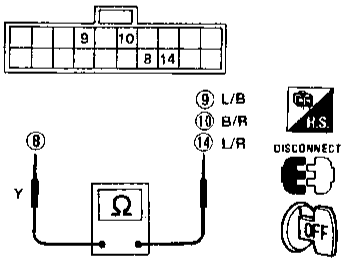
ASCD control unit connector M18



SEL252RA

G

ASCD control unit connector M18



SEL253RA

⑧

F

CHECK OUTPUT FOR ASCD ACTUATOR/ASCD PUMP.

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

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

NG → Replace ASCD control unit.

OR

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

Voltage is 0V

OK

G

CHECK ASCD ACTUATOR/ASCD PUMP CIRCUIT.

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

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

OK

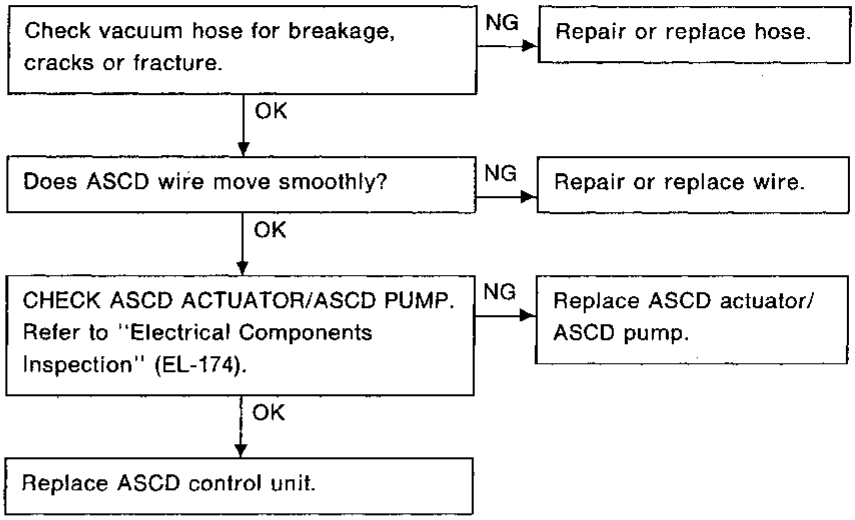
NG

Repair short or open circuit in ASCD actuator/ASCD pump harness.

Trouble Diagnoses (Cont'd)

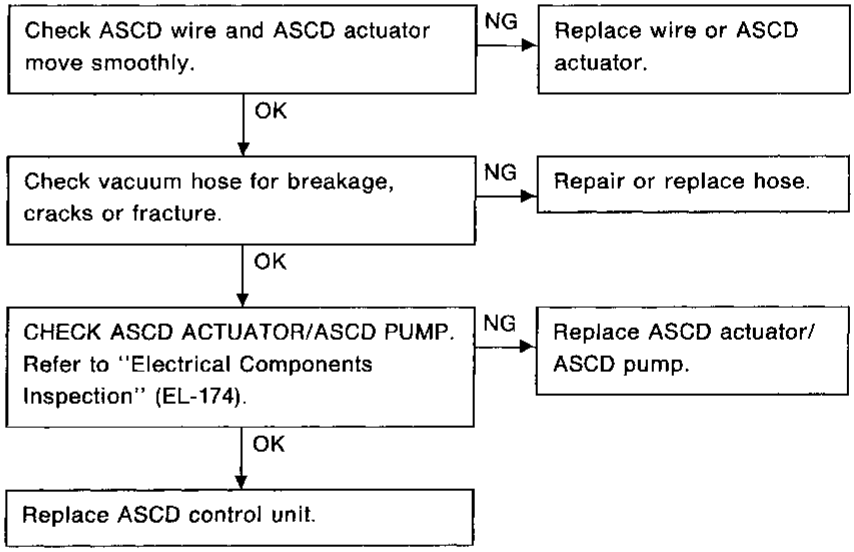
DIAGNOSTIC PROCEDURE 2

SYMPTOM: Engine hunts.



DIAGNOSTIC PROCEDURE 3

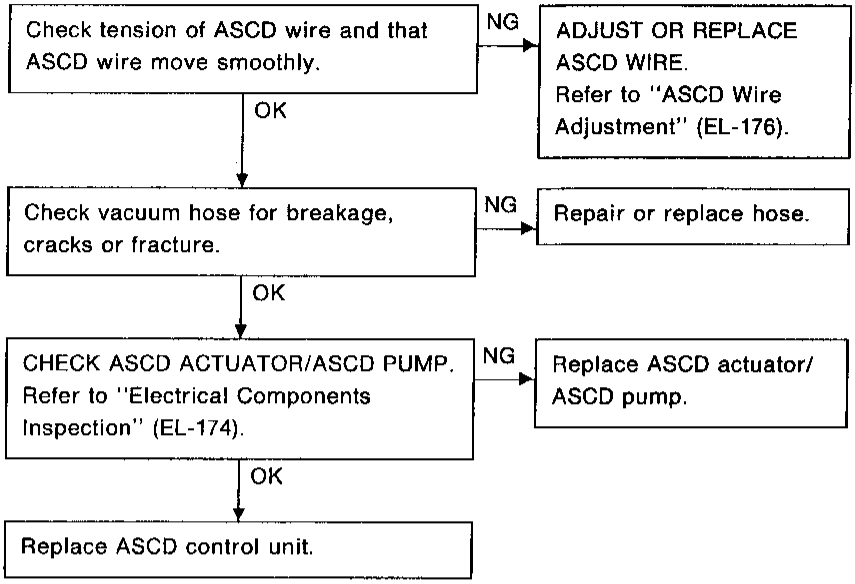
SYMPTOM: Large difference between set vehicle speed and actual speed.



Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 4

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

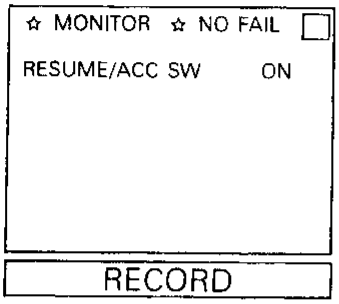


Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 5

SYMPTOM: ACCEL switch will not operate.

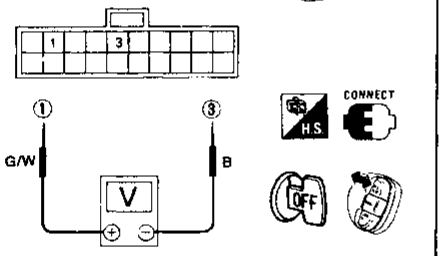
A



SEL957P

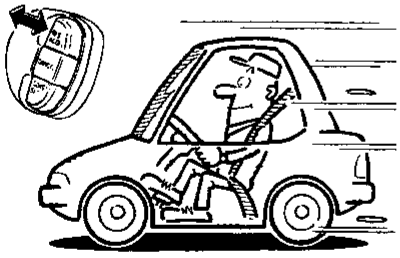
A

ASCD control unit connector M16



SEL254RA

B



SEL959P

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

NG → Go to "DIAGNOSTIC PROCEDURE 1" (EL-163).

OK

A

CHECK RESUME/ACCEL SWITCH CIRCUIT.

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

RESUME/ACC SW

When switch is pressed: ON

When switch is released: OFF

NG → CHECK ASCD STEERING SWITCH. Refer to "Electrical Components Inspection" (EL-175).

OR

Check voltage between control unit harness terminals ① and ③.

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

OK

B

Does vehicle accelerate when RESUME/ACCEL switch is pressed?

No → Replace control unit.

Yes

B

Does vehicle maintain the new (faster) speed when RESUME/ACCEL switch is released?

No → Replace control unit.

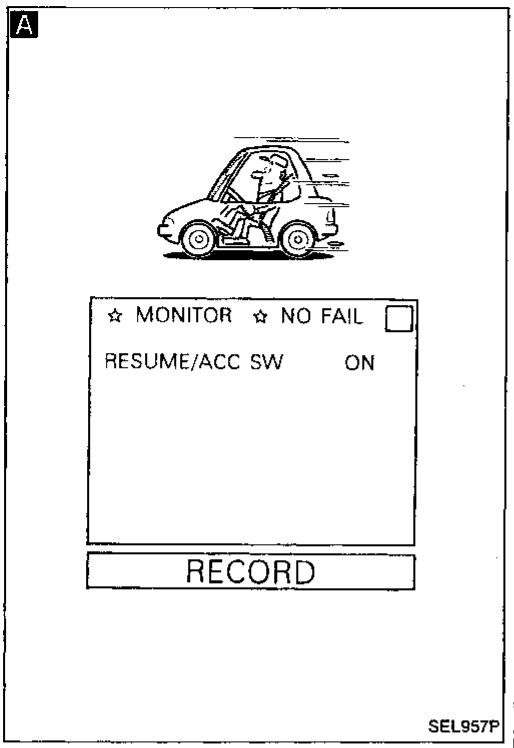
Yes

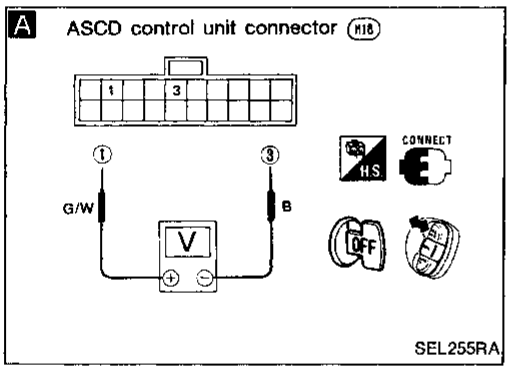
System is OK.

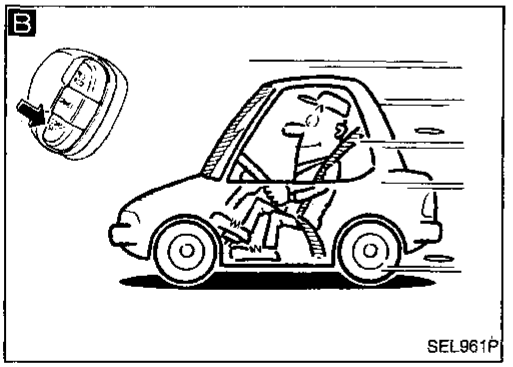
Trouble Diagnoses (Cont'd)

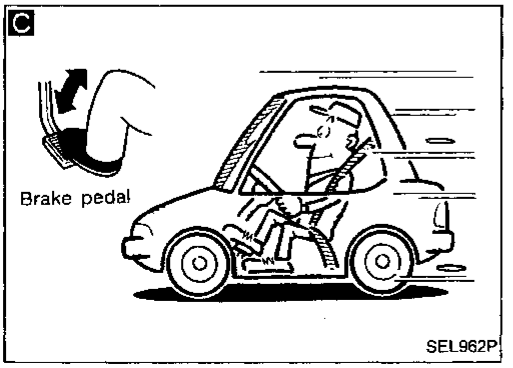
DIAGNOSTIC PROCEDURE 6

SYMPTOM: RESUME switch will not operate.









Check constant-speed function for operation using SET/COAST switch.
NG → Go to "DIAGNOSTIC PROCEDURE 1" (EL-163).
OK ↓

A

CHECK RESUME/ACCEL SWITCH CIRCUIT.
See "RESUME/ACC SW" in "Data monitor" mode.
RESUME/ACC SW
When switch is pressed: ON
When switch is released: OFF
NG → CHECK ASCD STEERING SWITCH.
Refer to "Electrical Components Inspection" (EL-175).

OR

Check voltage between control unit harness terminals ① and ③.
- After pressing and holding RESUME/ACC switch.
  Battery voltage should exist.
- After releasing RESUME/ACC switch.
  Voltage is 0V.

OK ↓

B

Set vehicle speed at 80 km/h (50 MPH) by pressing SET/COAST switch.
OK ↓

C

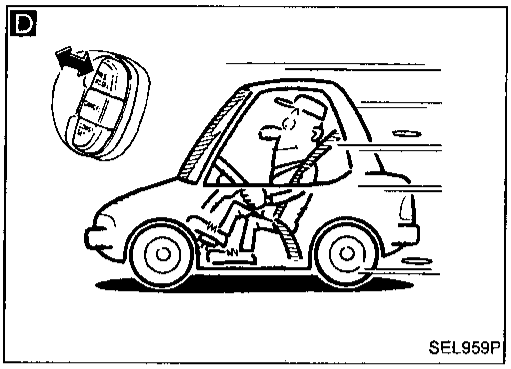
While cruising at set speed, depress and release brake pedal.
OK ↓

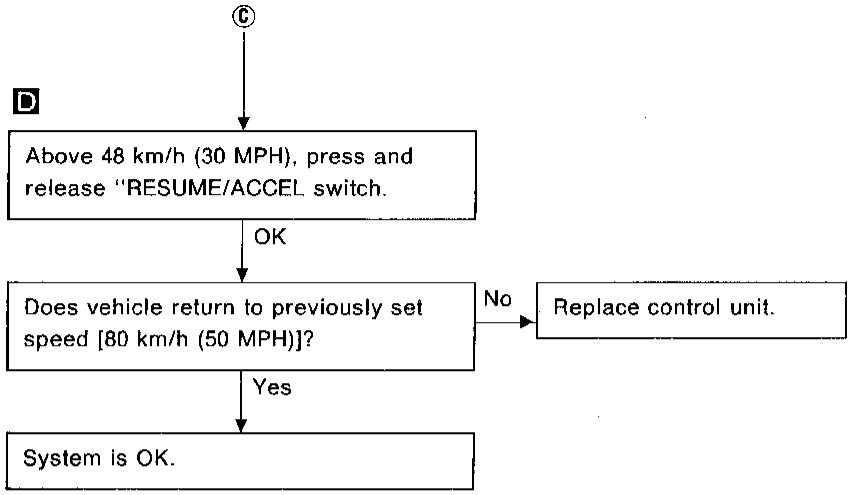
Does speed control disengage and "CRUISE" lamp turn off?
No → CHECK ASCD CANCEL SWITCH AND STOP LAMP SWITCH.
Refer to "Electrical Components Inspection" (EL-175).

Yes ↓

Ⓒ
(Next page)

Trouble Diagnoses (Cont'd)

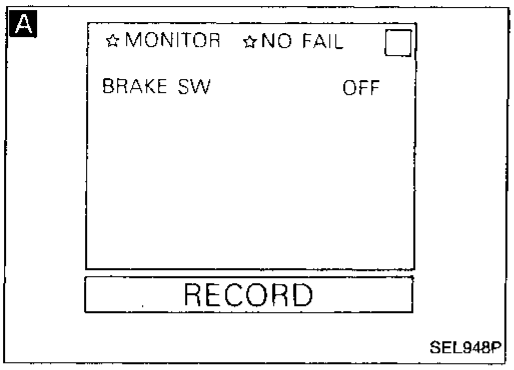


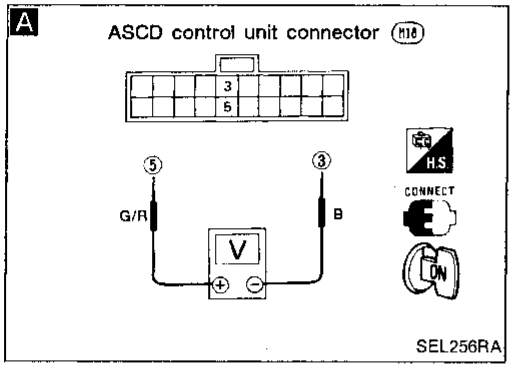


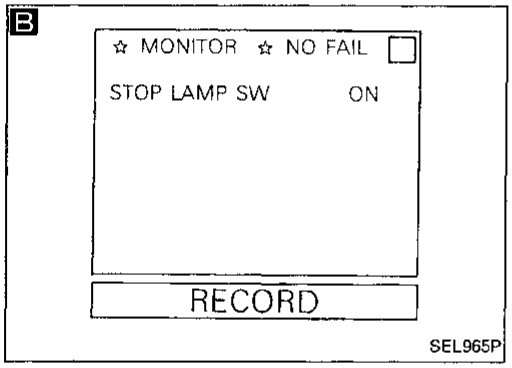
Trouble Diagnoses (Cont'd)

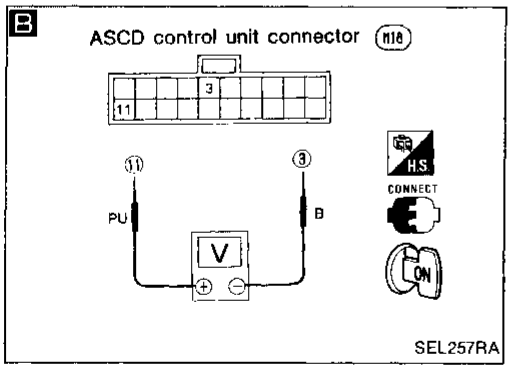
DIAGNOSTIC PROCEDURE 7

SYMPTOM: Set speed cannot be cancelled.









A

CHECK ASCD CANCEL AND PARK/NEUTRAL POSITION SWITCH CIRCUIT.

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

NG → CHECK ASCD CANCEL and PARK/NEUTRAL POSITION SWITCH. Refer to "Electrical Components Inspection" (EL-175).

OR

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

Condition		Voltage [Ω]
ASCD CANCEL switch	Depressed	0
	Released	Approx. 12
A/T shift lever position is at any position except N or P.		Approx. 12
A/T shift lever position is at N or P.		0

OK ↓

B

CHECK STOP LAMP SWITCH CIRCUIT.

See "STOP LAMP SW" in "Data monitor" mode.
STOP LAMP SW
When brake pedal is released: OFF
When brake pedal is depressed: ON

NG → CHECK STOP LAMP SWITCH. Refer to "Electrical Components Inspection" (EL-175).

OR

Check voltage between control unit harness terminals ⑪ and ③.

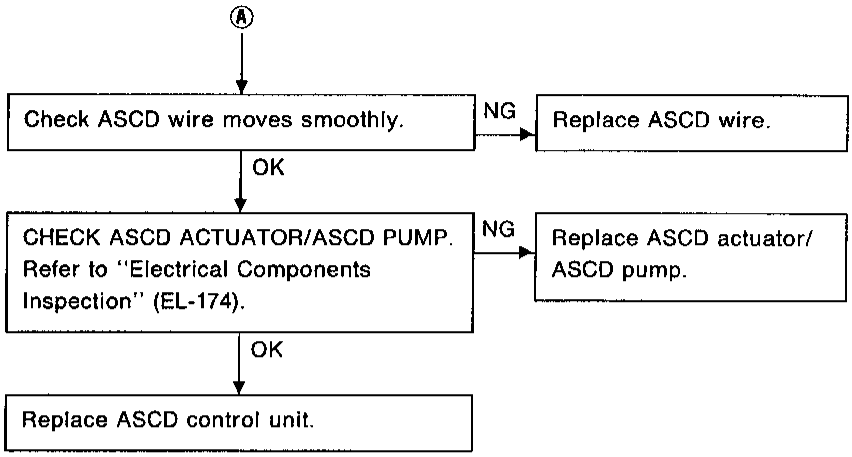
Condition		Voltage [V]
Stop lamp switch	Depressed	Approx. 12
	Released	0

OK ↓

Ⓐ

(Next page)

Trouble Diagnoses (Cont'd)



Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 8

SYMPTOM: "CRUISE" indicator lamp blinks.

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

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

- No → Adjust installation of stop lamp switch and ASCD brake switch. Refer to BR section.
- Yes → CHECK ASCD STEERING SWITCH. Refer to "Electrical Components Inspection" (EL-175).
  - NG → Replace ASCD steering switch.
  - OK → Replace control unit.

No → CHECK ASCD ACTUATOR/ASCD PUMP. Refer to "Electrical Components Inspection" (EL-174).

- NG → Replace ASCD actuator/ASCD pump.
- OK → A

A

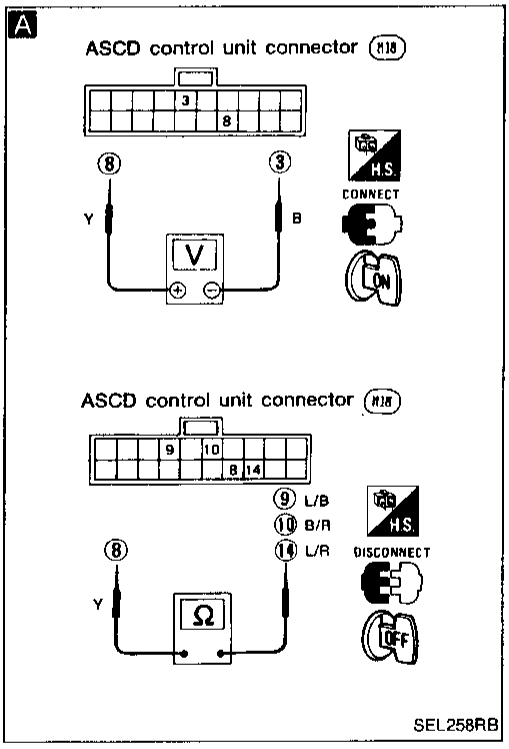
CHECK ASCD ACTUATOR/ASCD PUMP CIRCUIT.

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

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

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

A



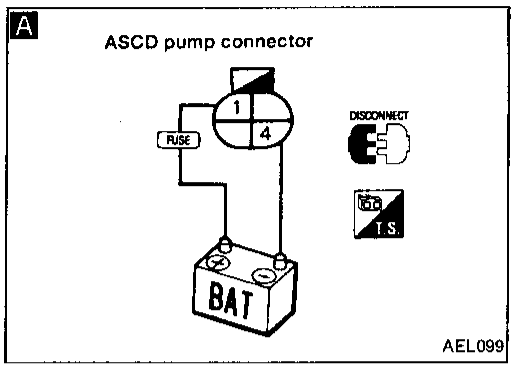
Trouble Diagnoses (Cont'd)

ELECTRICAL COMPONENTS INSPECTION

ASCD actuator/ASCD pump

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

A

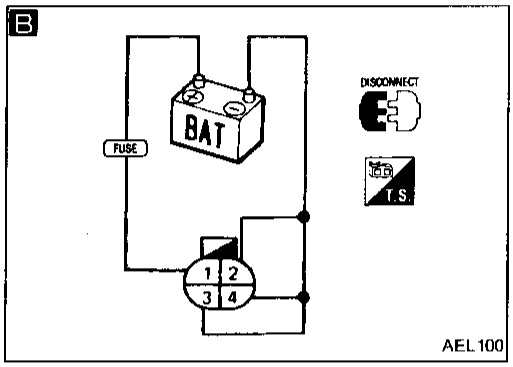


Check to see if motor starts when 12V DC is applied across ① and ④.

NG → Replace ASCD pump.

OK ↓

B



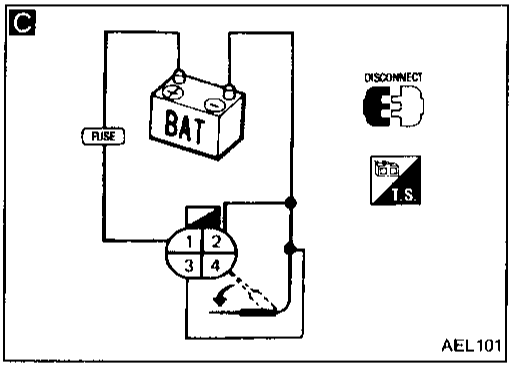
Check to see if ASCD wire is pulled when 12V DC is applied across ①, ②, ③ and ④.

NG → Disconnect vacuum hose from ASCD actuator and check for presence of vacuum pressure at ASCD pump.

- NG → Replace ASCD pump.
- OK → Replace ASCD actuator.

OK (wire is pulled.) ↓

C

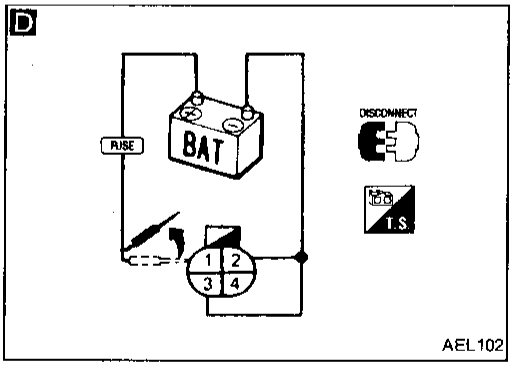


Check to see if ASCD wire returns to original position 50 to 60 seconds after disconnecting lead from ④.

NG → Replace ASCD pump.

OK (Wire does not return.) ↓

D



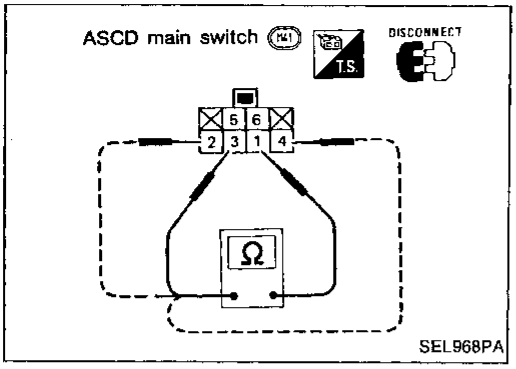
Disconnect lead from ① to see if ASCD wire returns immediately.

NG → Replace ASCD pump.

OK (Wire returns.) ↓

ASCD actuator/ASCD pump are OK.

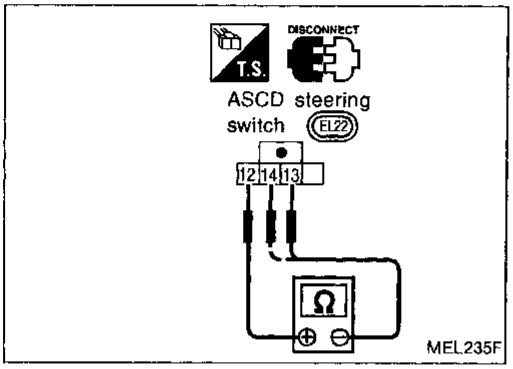
Trouble Diagnoses (Cont'd)



ASCD main switch

Check continuity between terminals by pushing switch to each position.

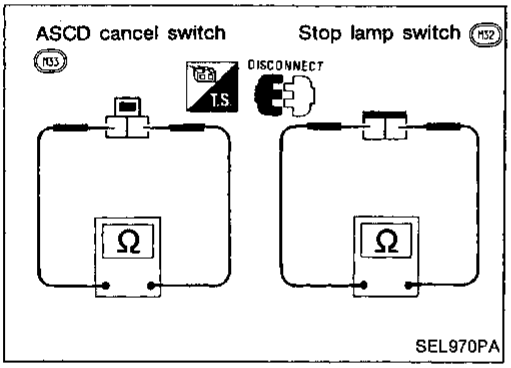
Switch position \ Terminals	1	2	3	4	5	6
ON	○	○	○	○		
N		○	○	○	ILL. ○	○
OFF			○	○		



ASCD steering switch

Check continuity between terminals by pushing each button.

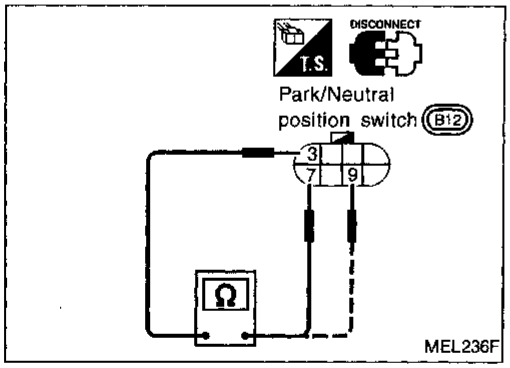
Button \ Terminal	12	14	13
SET/COAST	○	○	
RESUME/ACCEL	○	▶	○
CANCEL	○	○	
	○	▶	○



ASCD cancel switch and stop lamp switch

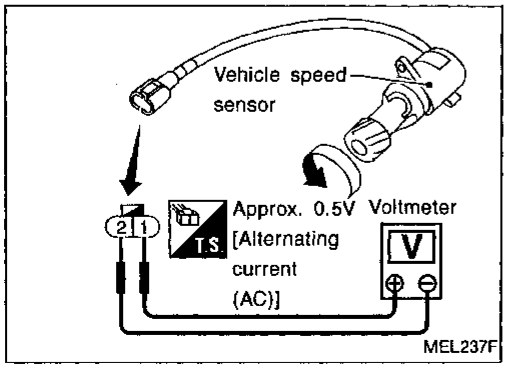
Condition	Continuity	
	ASCD cancel switch	Stop lamp switch
When brake pedal is depressed	No	Yes
When brake pedal is released	Yes	No

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



Park/Neutral position switch

Condition	Continuity
When shift lever position is "N" or "P"	Yes
When shift lever position is any position except "N" or "P"	No

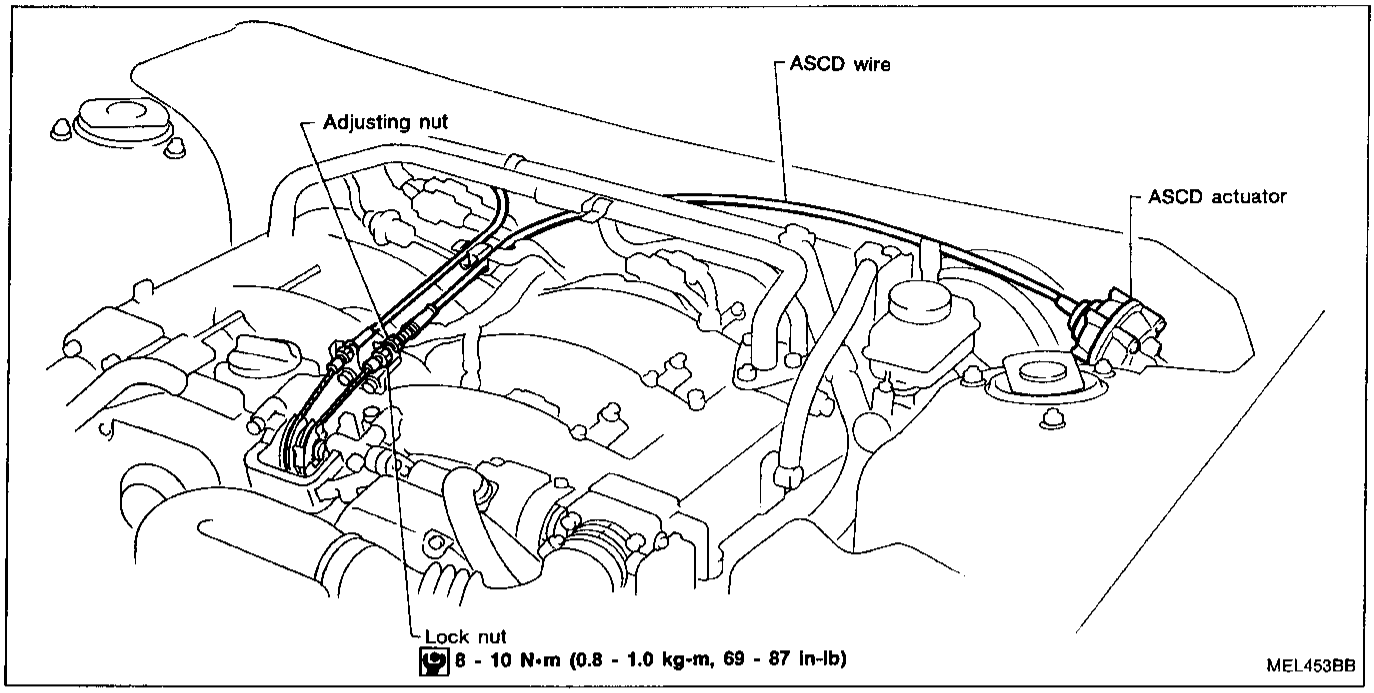


Vehicle speed sensor

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

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

ASCD Wire Adjustment



CAUTION:

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

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

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

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

- For ASCD cancel switch and clutch switch adjustment, refer to BR and CL sections.

System Description

Power is supplied at all times
- through circuit breaker (located in the fuse block [J/B])
- to power window main switch terminal ④.

With ignition switch in ON or START position, power is supplied
- through 7.5A fuse (No.[20], located in the fuse block [J/B])
- to power window main switch terminal ⑯.

Power is supplied at all times
- through 20A fuse (No.[15], located in the fuse block [J/B])
- to power window amplifier (passenger side) terminal ㉑.

Power is supplied at all times
- through 20A fuse (No.[27], located in the fuse block [J/B])
- to rear power window amplifier LH terminal ㉑.

Power is supplied at all times
- through 20A fuse (No.[16], located in the fuse block [J/B])
- to rear power window amplifier RH terminal ㉑.

MANUAL OPERATION

Driver's door

Ground is supplied
- to power window main switch terminal ③
- through body grounds (M14) 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 power window regulator (driver side) terminal ①
- through power window main switch terminal ⑥.

Ground is supplied
- to power window regulator (driver side) terminal ②
- through power window main switch terminal ①.

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 power window regulator (driver side) terminal ②
- through power window main switch terminal ①.

Ground is supplied
- to power window regulator (driver side) terminal ①
- through power window main switch terminal ⑥.

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 (M14) and (M68).

PASSENGER'S DOOR

Ground is supplied
- to power window amplifier (passenger side) terminal ㉒
- through body grounds (M14) and (M68).

NOTE:

Figures in brackets [ ] refer to terminal Nos. arranged in order when the UP or DOWN section of power window switch is pressed.

Operation by main switch

Power window main switch signal is sent
- through power window main switch terminal ⑫
- to power window amplifier (passenger side) terminal ㉘.

System Description (Cont'd)

The subsequent operations are the same as those outlined under "Operation by sub-switches".

Operation by sub-switches

Power window sub-switch (passenger side) signal is sent

- from power window sub-switch (passenger side) terminals ㉜, ㉟ and ㊱
- to power window amplifier (passenger side) terminals ㉓, ㉗ and ㉔.

Power is supplied

- through power window amplifier (passenger side) [㉕, ㉖]
- to power window regulator (passenger side) [①, ②].

Ground is supplied

- to power window regulator (passenger side) [②, ①]
- through power window sub-switch (passenger side) [㉖, ㉕].

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

REAR DOOR LH

Ground is supplied

- to rear power window amplifier LH terminal ㉒
- through body grounds (B9) and (B31).

NOTE:

Figures in brackets [ ] refer to terminal Nos. arranged in order when the UP or DOWN section of power window switch is pressed.

Operation by main switch

Power window main switch signal is sent

- through power window main switch terminal ⑪
- to rear power window amplifier LH terminal ㉘.

The subsequent operations are the same as those outlined under "Operation by sub-switches".

Operation by sub-switches

Rear power window sub-switch LH signal is sent

- from rear power window sub-switch LH terminals ㉜, ㉟ and ㊱
- to rear power window amplifier LH terminals ㉓, ㉗ and ㉔.

Power is supplied

- through rear power window sub-switch LH [㉕, ㉖]
- to rear power window regulator LH [①, ②].

Ground is supplied

- to rear power window regulator LH [②, ①]
- through rear power window sub-switch LH [㉖, ㉕].

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

REAR DOOR RH

Ground is supplied

- to rear power window amplifier RH terminal ㉒
- through body grounds (B54) and (B71).

NOTE:

Figures in brackets [ ] refer to terminal Nos. arranged in order when the UP or DOWN section of power window switch is pressed.

Operation by main switch

Power window main switch signal is sent

- through power window main switch terminal ⑩
- to rear power window amplifier RH terminal ㉘.

The subsequent operations are the same as those outlined under "Operation by sub-switches".

Operation by sub-switches

Rear power window sub-switch RH signal is sent

- from rear power window sub-switch RH terminals ㉜, ㉟ and ㊱
- to rear power window amplifier RH terminals ㉓, ㉗ and ㉔.

Power is supplied

- through rear power window sub-switch RH [㉕, ㉖]
- to rear power window regulator RH [①, ②].

Ground is supplied

- to rear power window regulator RH [②, ①]
- through rear power window sub-switch RH [㉖, ㉕].

System Description (Cont'd)

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 the driver's window without holding the window switch in the down position.
The AUTO feature only operates on the driver's window downward movement.
When the AUTO switch in the power window main switch is pressed and released, the driver's window will travel to the fully open position.

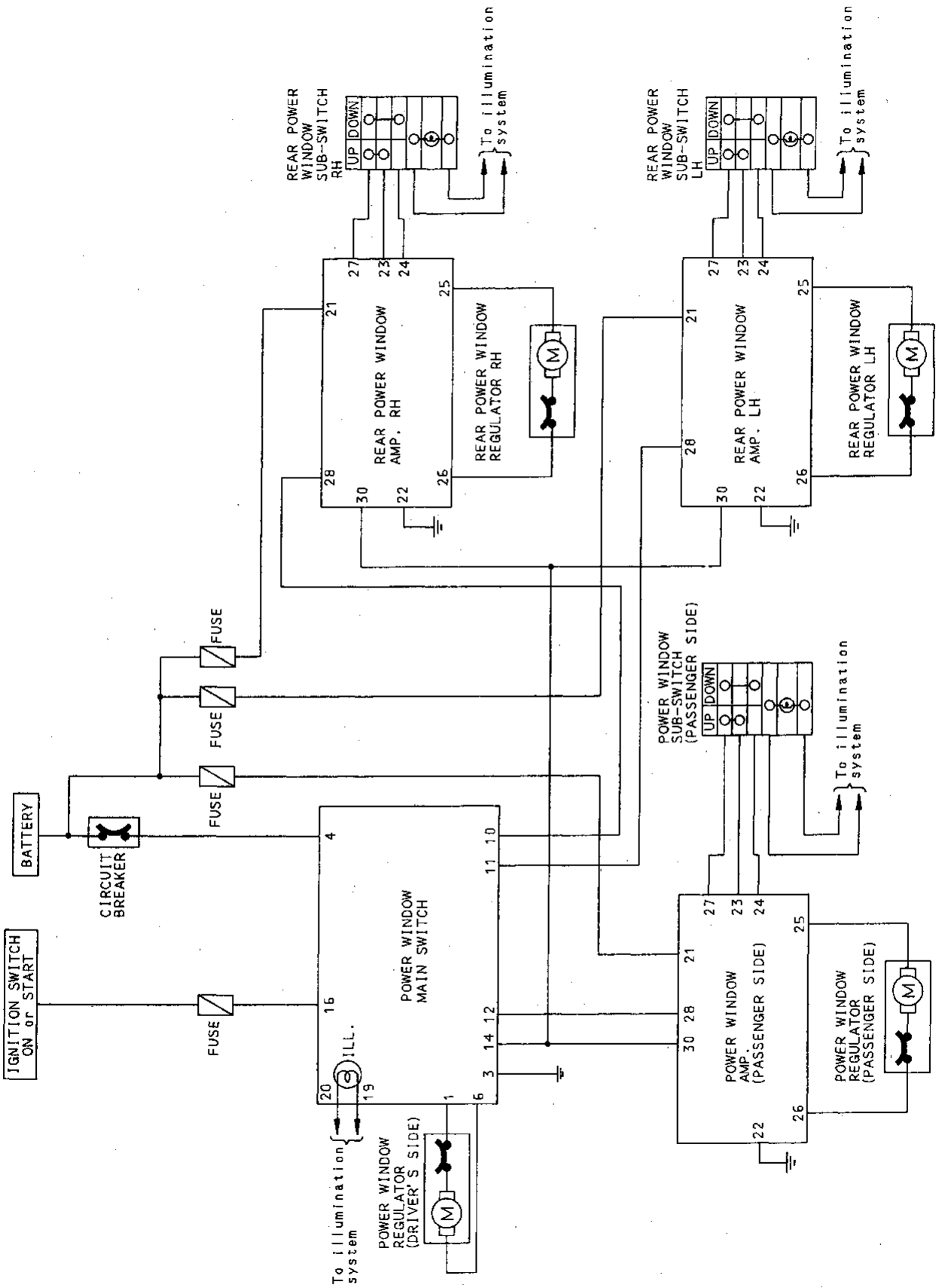
POWER WINDOW LOCK

The power window lock is designed to lock-out window operation to all windows except the driver's door window.
When the lock switch in power window main switch is pressed to LOCK position, power window lock signal is sent

- through power window main switch terminal ⑭
- to power window amplifier (passenger side) terminal ⑳,
- to rear power window amplifier LH terminal ⑳, and
- to rear power window amplifier RH terminal ⑳.

This prevents all power window motors except driver side from operating.

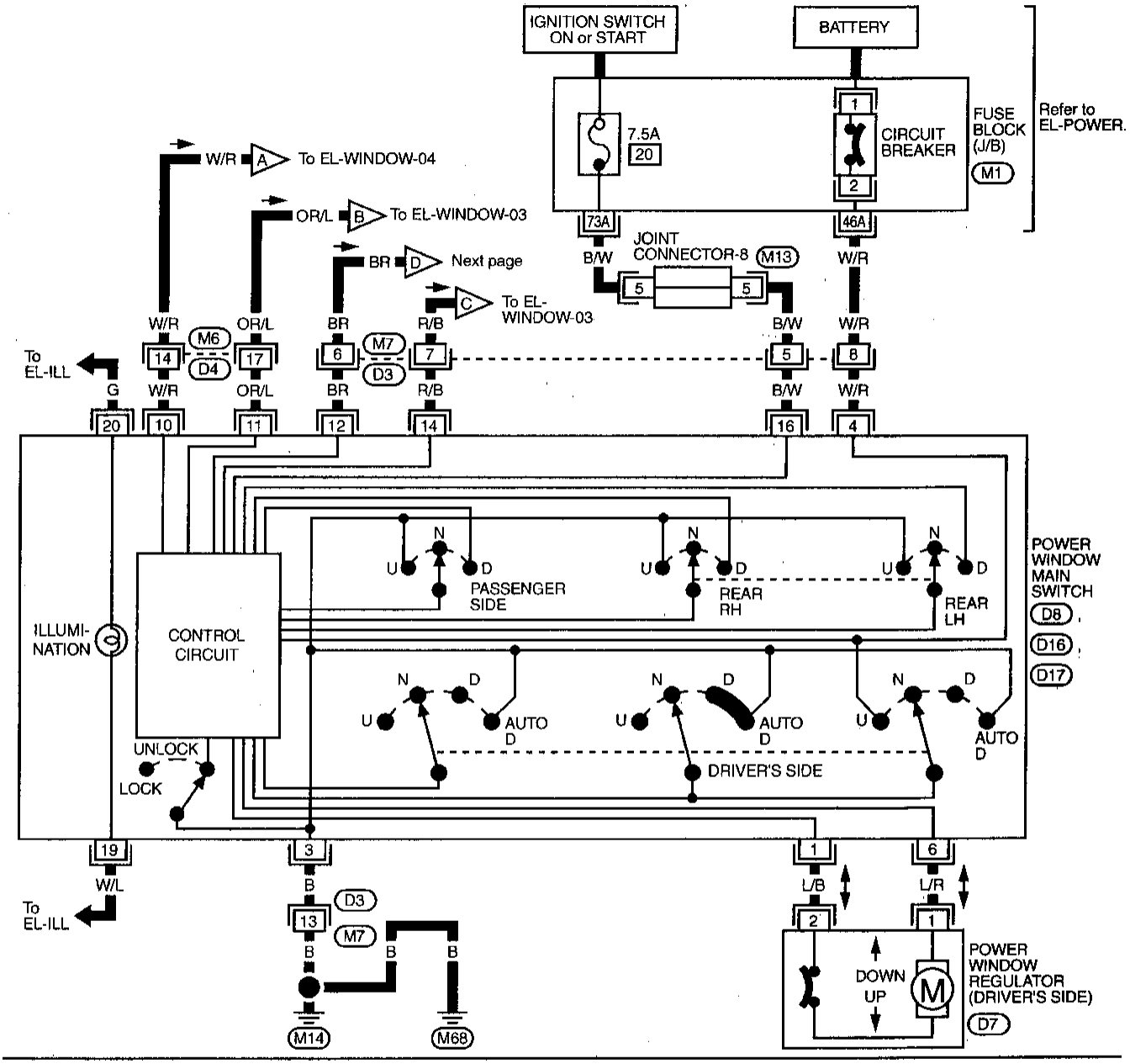
Schematic

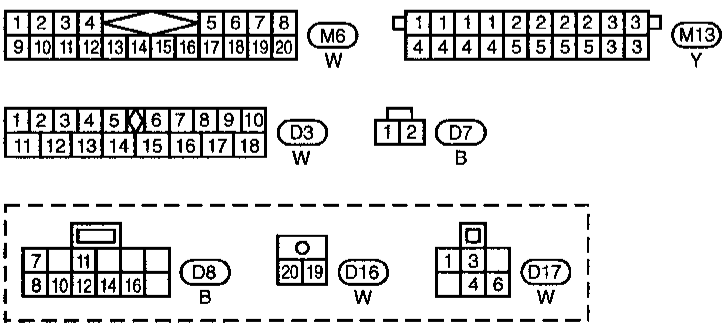


TEL256

Wiring Diagram — WINDOW —

EL-WINDOW-01

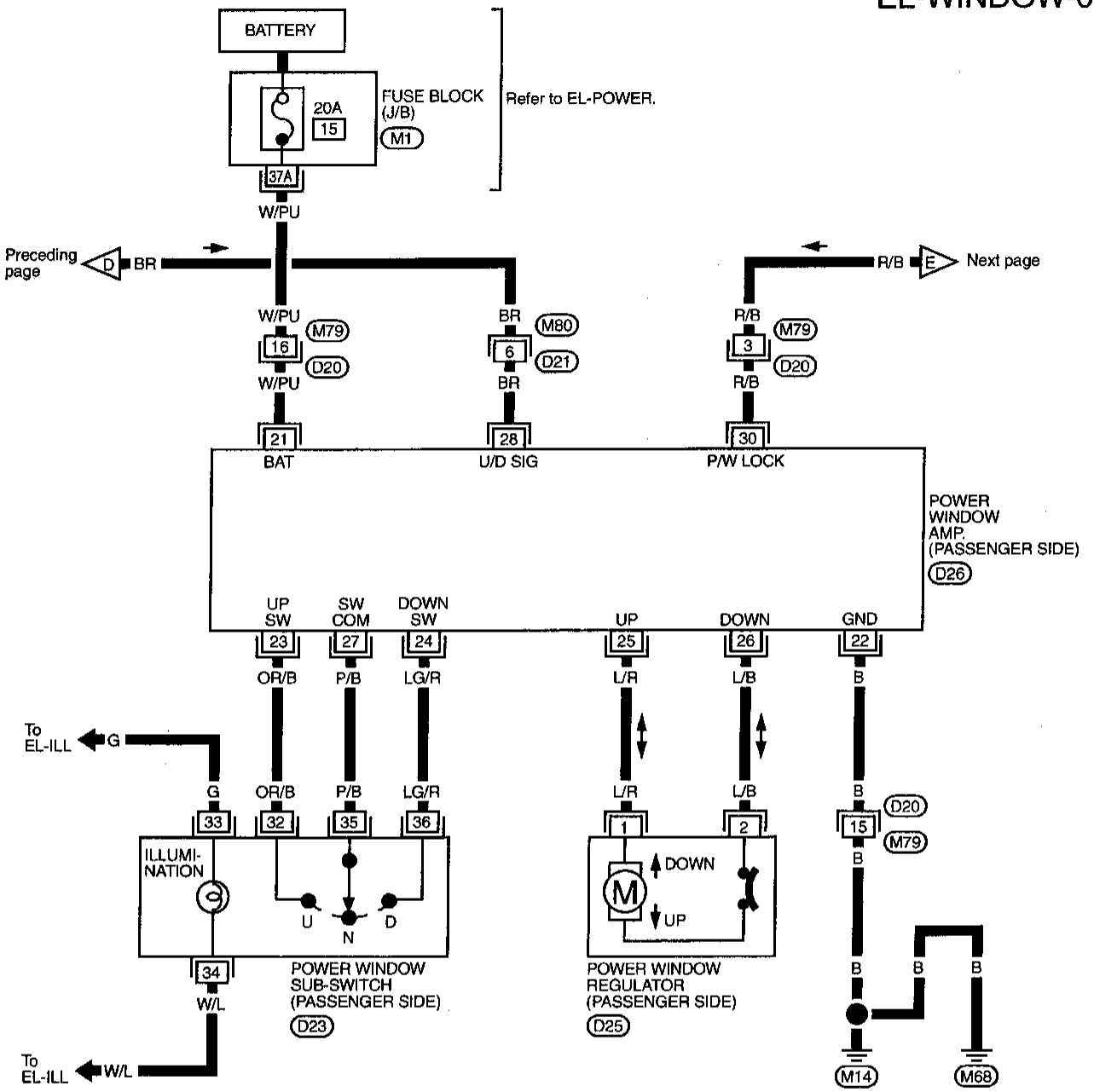


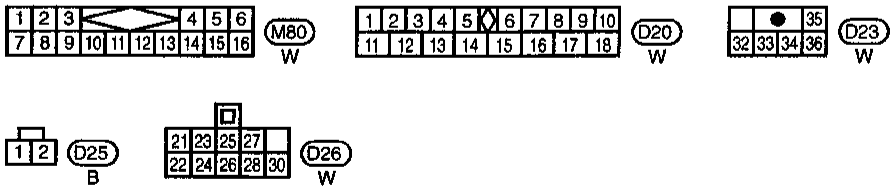


Refer to last page (Foldout page).
M1

Wiring Diagram — WINDOW — (Cont'd)

EL-WINDOW-02



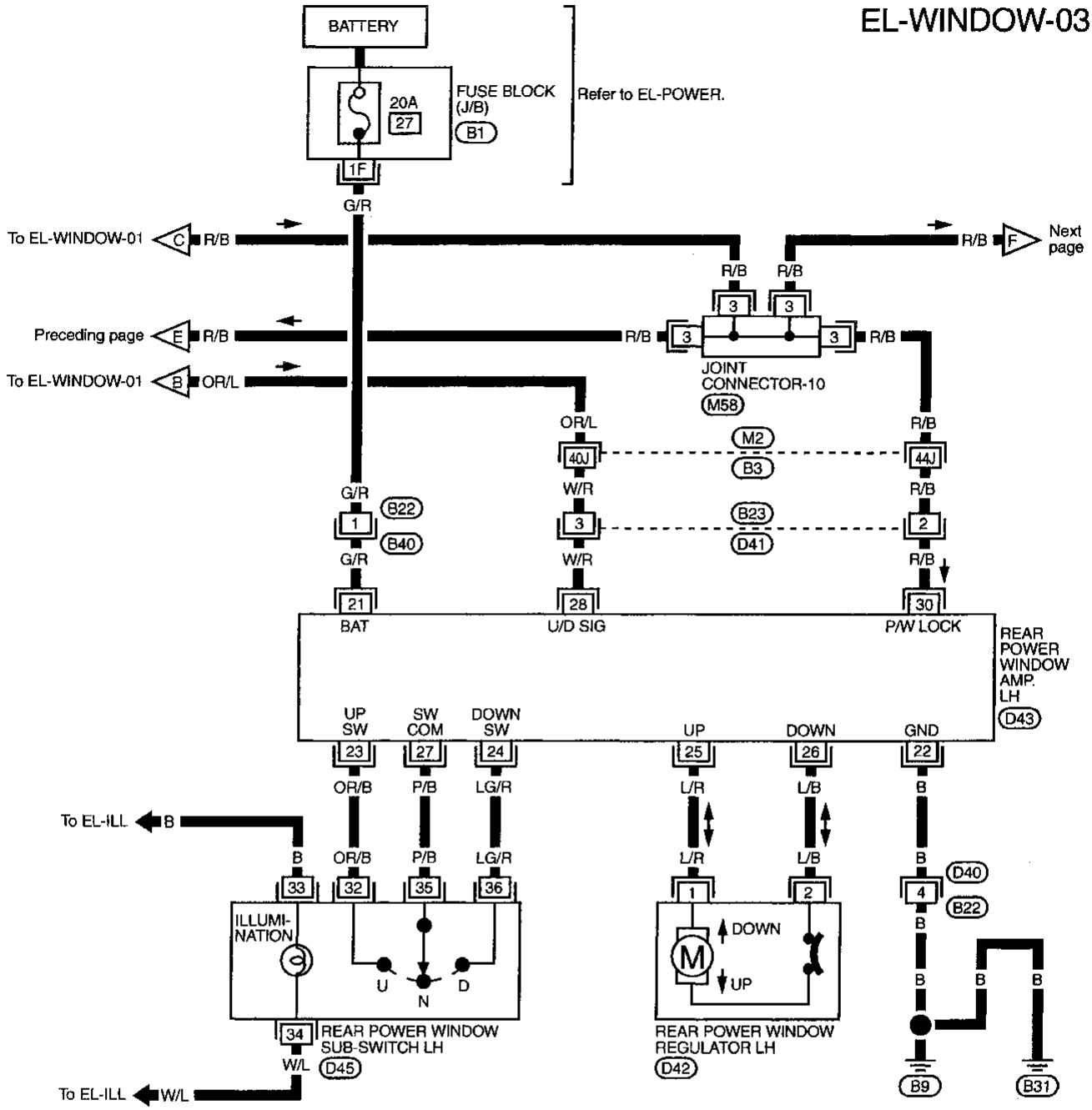


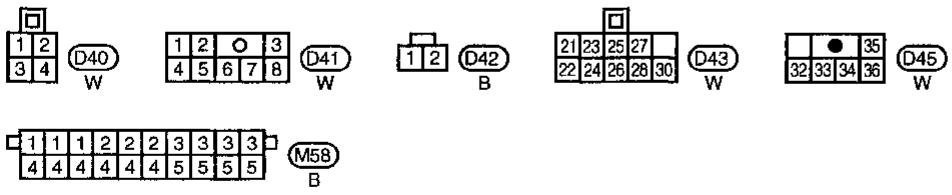
Refer to last page (Foldout page).
M1

TEL253

Wiring Diagram — WINDOW — (Cont'd)

EL-WINDOW-03



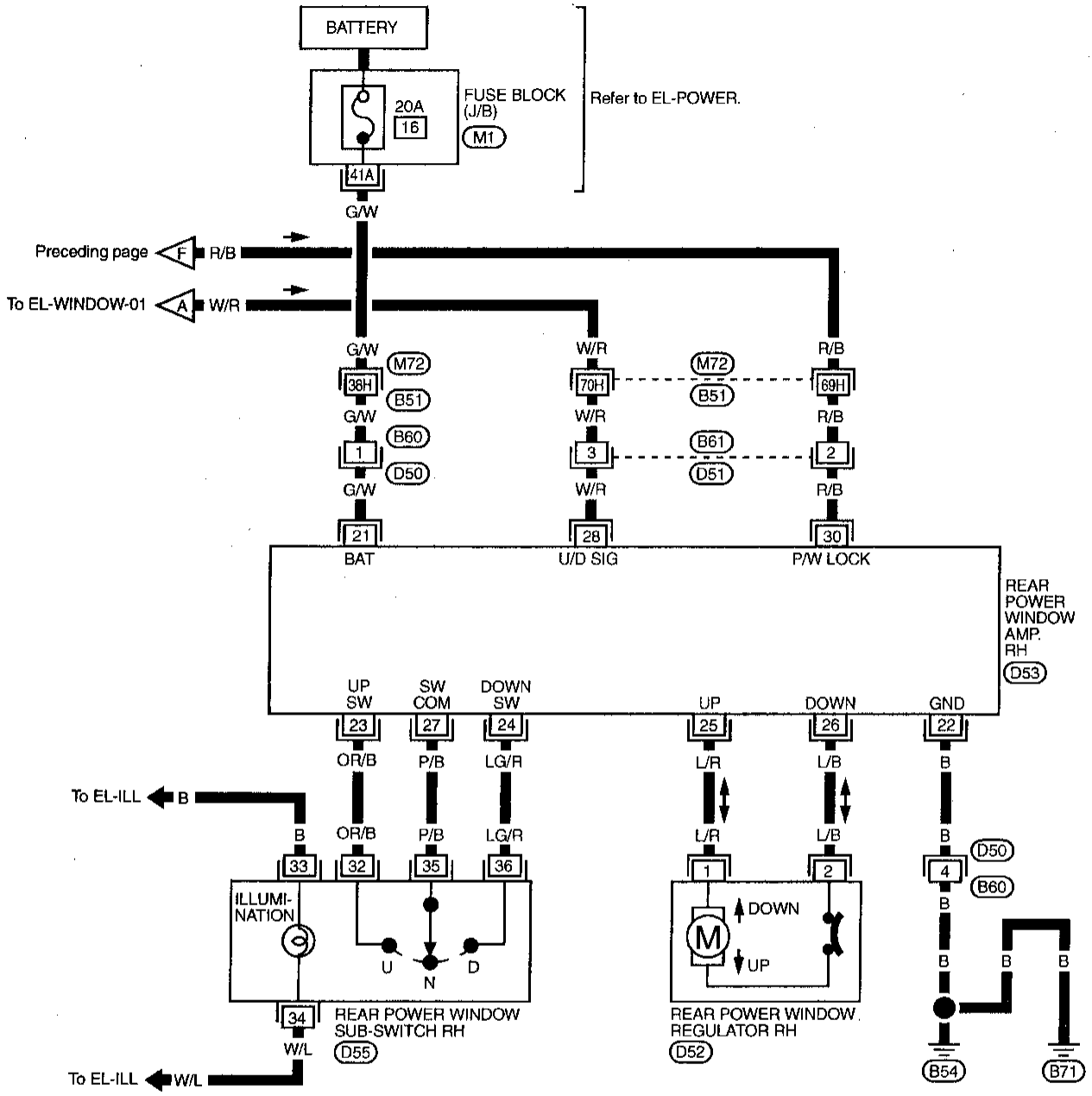


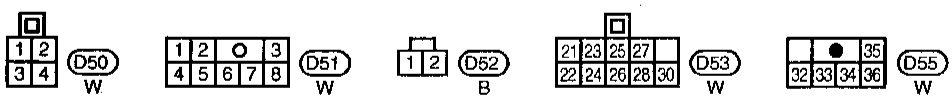
Refer to last page (Foldout page).
M2, B3
B1

TEL254

Wiring Diagram — WINDOW — (Cont'd)

EL-WINDOW-04





Refer to last page (Foldout page).
M72 , B51
M1

TEL255

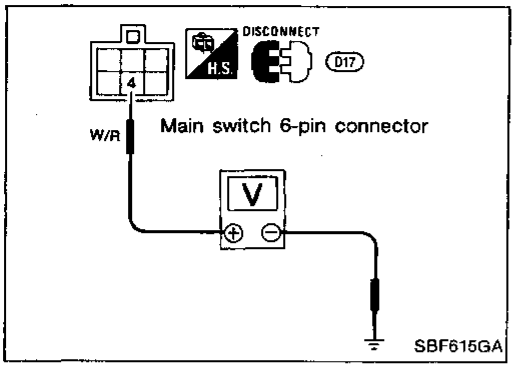
Trouble Diagnoses

SYMPTOM CHART

Procedure	Main Power Supply and Ground Circuit Check			Diagnostic Procedure				Electrical Components Inspection	
Reference Page	EL-186	EL-186	EL-186	EL-187	EL-188	EL-189	EL-190	EL-191	EL-191
SYMPTOM	Procedure 1	Procedure 2	Procedure 3	Procedure 1	Procedure 2	Procedure 3	Procedure 4	Power window motor	Power window sub-switch
All power windows cannot be operated.	○		○	○	○	○	○	○	○
Passenger power windows cannot be operated.		○			○	○	○	○	○
Driver's power window cannot be operated but other windows can be operated.				○				○	
Passenger power windows cannot be operated by main switch but can be operated by passenger's switches.							○		

Trouble Diagnoses (Cont'd)

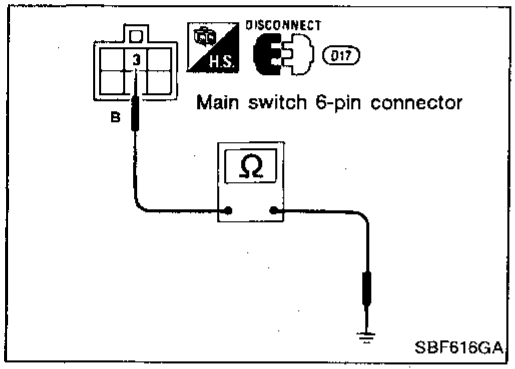
MAIN POWER SUPPLY AND GROUND CIRCUIT CHECK



Procedure 1

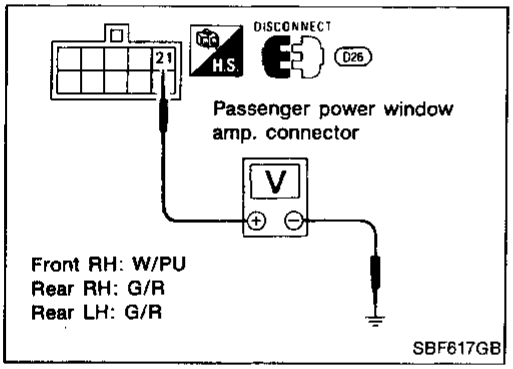
Main power supply

Terminals	Battery voltage existence
④ - Ground	Yes



Ground circuit

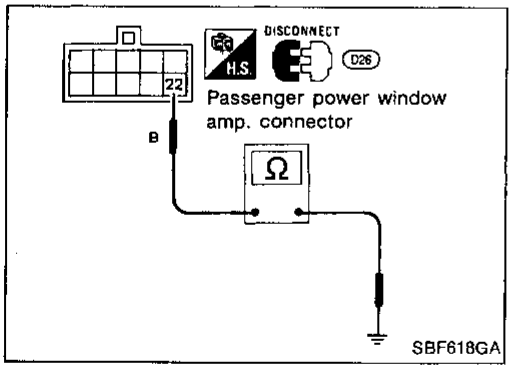
Terminals	Continuity
③ - Ground	Yes



Procedure 2

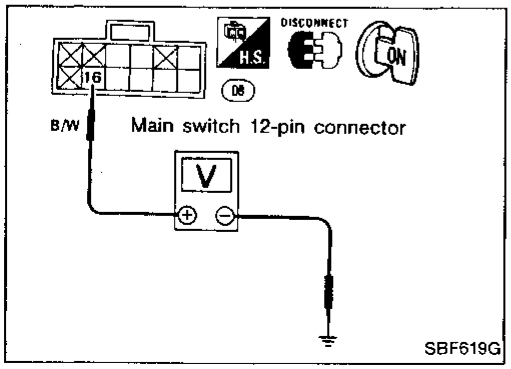
Power supply for power window amp. (front and rear passengers)

Terminals	Battery voltage existence
㉑ - Ground	Yes



Ground circuit for power window amp. (front and rear passengers)

Terminals	Continuity
㉒ - Ground	Yes



Procedure 3

Power supply for ignition signal

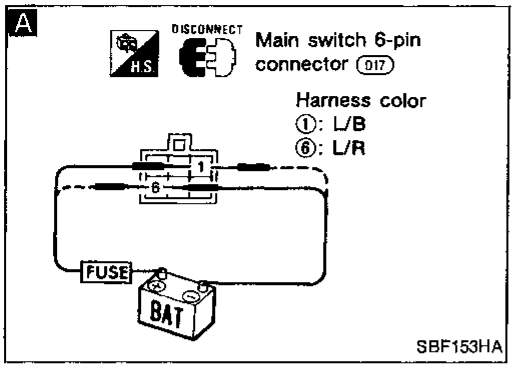
Terminals	Ignition switch	Battery voltage existence
⑯ - Ground	ON	Yes

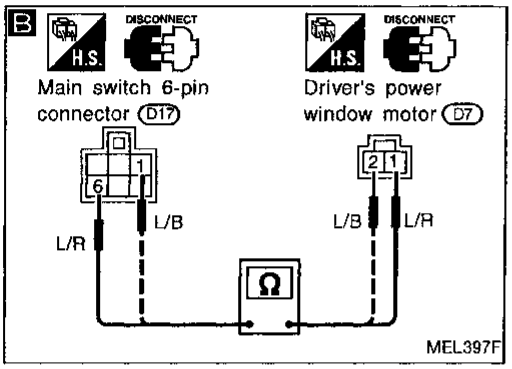
Trouble Diagnoses (Cont'd)

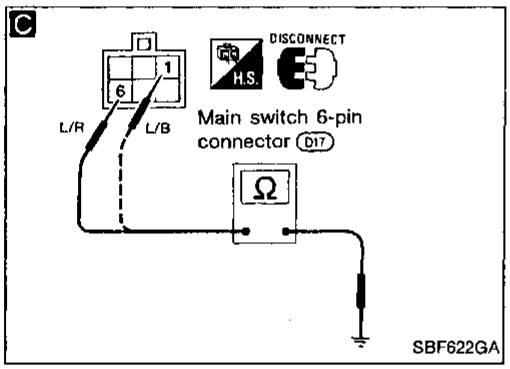
DIAGNOSTIC PROCEDURE 1

SYMPTOM:

Driver's power window cannot be operated but other power windows can be operated.







START

A

CHECK DRIVER'S WINDOW MOTOR CIRCUIT.
1) Disconnect 6-pin connector from main switch.
2) Check power window operation.

Terminals		Window
⊕	⊖	
⑥	①	Up
①	⑥	Down

OK → Replace main switch.

NG

B

1) Disconnect connector from driver's power window motor.
2) Check continuity.

Terminals
① - ②
⑥ - ①

Continuity should exist.

NG → Repair harness.

OK

C

Does continuity exist?

Terminals
① - Ground
⑤ - Ground

Yes → Repair harness. There will be incorrect grounding.

No

Go to POWER WINDOW MOTOR in Electrical Components Inspection. (See page EL-191.)

OK → Check system again.

NG

Check power window motor harness for open or short circuit.

NG → Repair harness.

OK

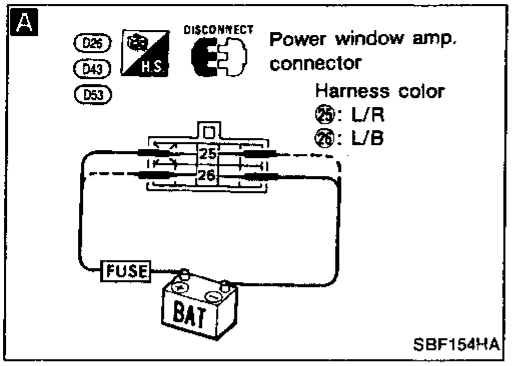
Replace power window motor.

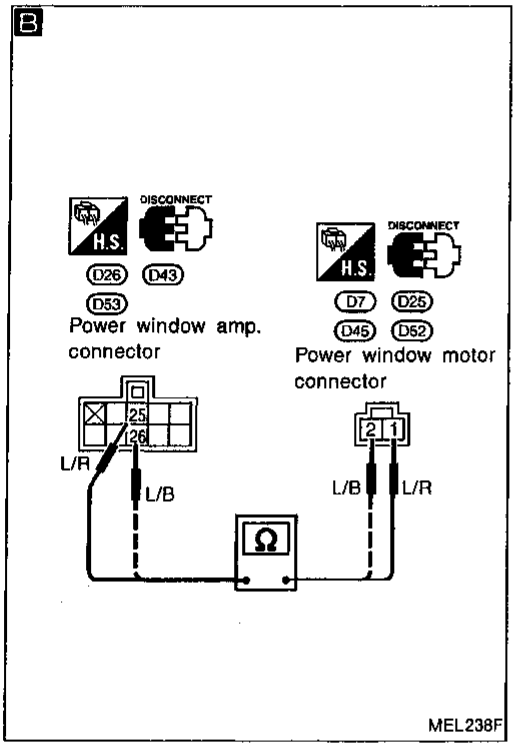
Trouble Diagnoses (Cont'd)

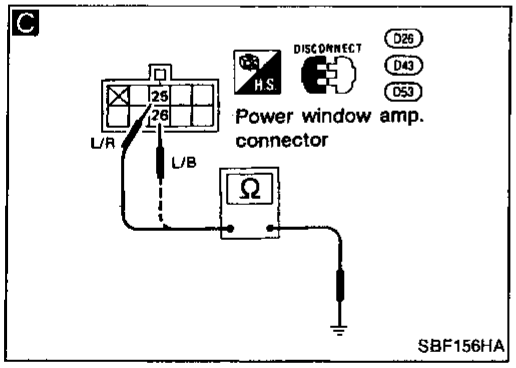
DIAGNOSTIC PROCEDURE 2

SYMPTOM:

Passenger power windows cannot be operated.







START

A

CHECK PASSENGER POWER WINDOW CIRCUIT.
1) Disconnect connector from power window amp.
2) Check power window.

Terminals		Window operation
⊕	⊖	
25	26	Up
26	25	Down

OK → Go to Diagnostic Procedure 3. (See page EL-189.)

NG

B

1) Disconnect connector from power window motor.
2) Check continuity.

Terminals
25 - ①
26 - ②
Continuity should exist.

NG → Repair harness.

OK

C

Does continuity exist?

Terminals
25 - Ground
26 - Ground

Yes → Repair harness. There will be incorrect grounding.

No

Go to POWER WINDOW MOTOR in Electrical Components Inspection. (See page EL-191.)

OK → Check system again.

NG

Check power window motor harness for open or short circuit.

NG → Repair harness.

OK

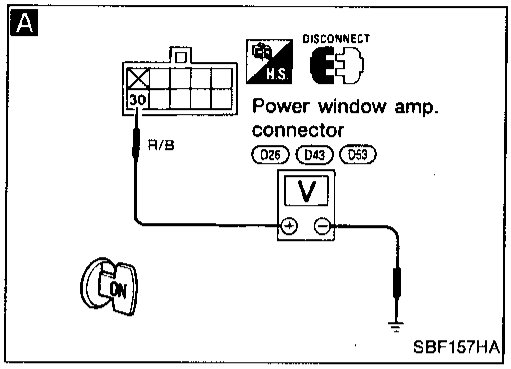
Replace power window motor.

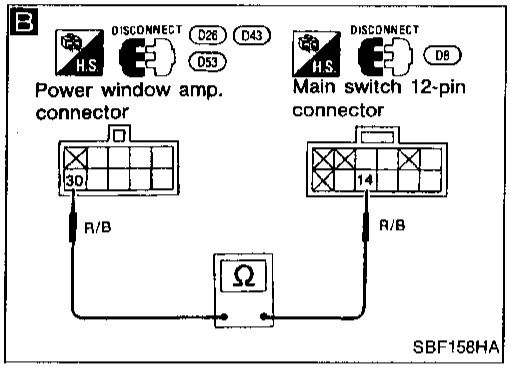
Trouble Diagnoses (Cont'd)

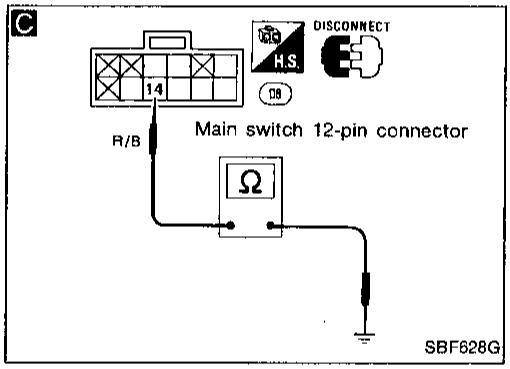
DIAGNOSTIC PROCEDURE 3

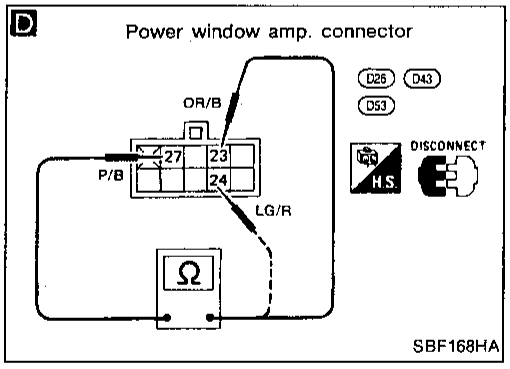
SYMPTOM:

Passenger power windows cannot be operated but driver's power window can be operated.









START

A

CHECK POWER WINDOW LOCK SIGNAL CIRCUIT.
1) Disconnect connector from power window amp.
2) Check battery voltage between terminal ㉚ for each connector and ground while ignition switch is "ON".

Terminals	Power window lock switch	Battery voltage exists
㉚ - Ground	ON	No
	OFF	Yes

OK → **D**

Check continuity.

Terminals	Passenger switches	Continuity
㉓ - ㉗	Up	Yes
	Down	No
㉔ - ㉗	Up	No
	Down	Yes

OK → Replace power window amp.

NG → Go to POWER WINDOW SUB-SWITCH in Electrical Components Inspection. (See page EL-191.)

OK → Repair harness between power window amp. and power window switch.

NG → Replace power window switch.

NG → **B**

1) Disconnect 12-pin connector from main switch.
2) Check continuity between terminal ㉚ for each connector and ⑭ for main switch connector.

Terminals
㉚ - ⑭

Continuity should exist.

NG → Repair harness.

OK → **C**

Does continuity exist?

Terminals
⑭ - Ground

Yes → Repair harness. There will be incorrect grounding.

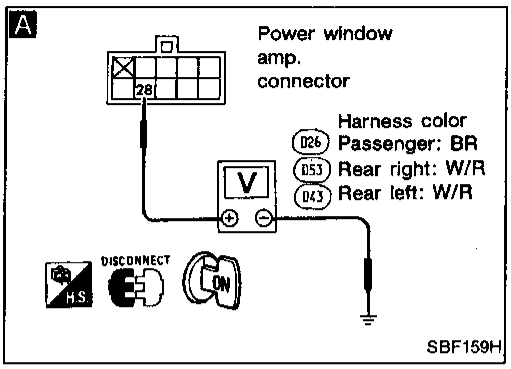
No → Replace main switch.

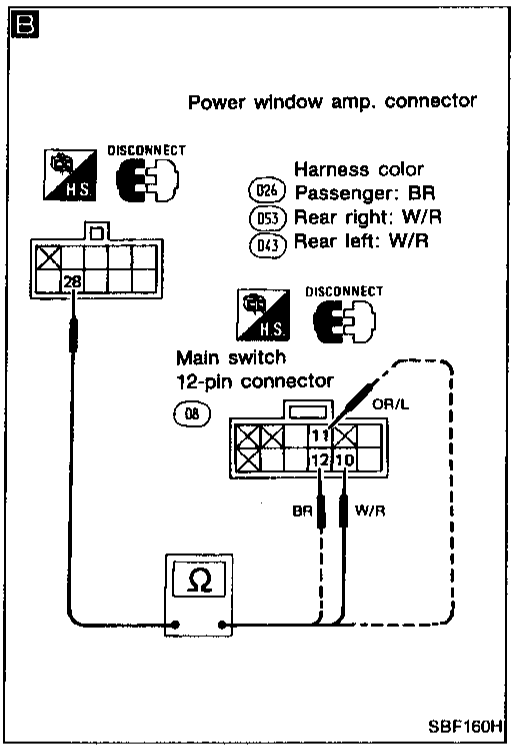
Trouble Diagnoses (Cont'd)

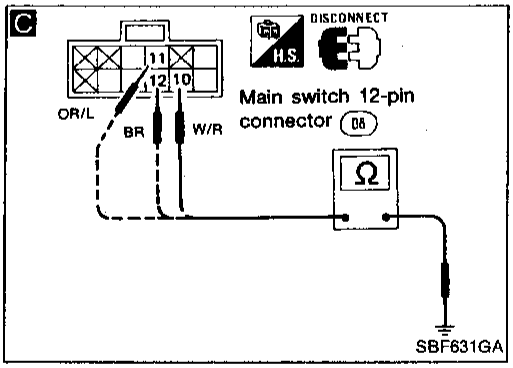
DIAGNOSTIC PROCEDURE 4

SYMPTOM:

Passenger power windows cannot be operated by main switch but can be operated by passenger's switches.







START

A

CHECK DATA LINE SIGNAL CIRCUIT.
1) Disconnect connectors from power window amp.
2) Check voltage while power window lock switch is "OFF".

Terminals	Main switch operation	Voltage
㉘ - Ground	Up	Above 12V
	Down	Approx. 4V
	No operation	Approx. 0V

OK → Replace switch.

NG

B

1) Disconnect 12-pin connector from main switch.
2) Check continuity.

	Terminals
Passenger	⑫ - ㉘
Rear left	⑪ - ㉘
Rear right	⑩ - ㉘

Continuity should exist.

NG → Repair harness.

OK

C

Does continuity exist?

	Terminals
Passenger	⑫ - Ground
Rear left	⑪ - Ground
Rear right	⑩ - Ground

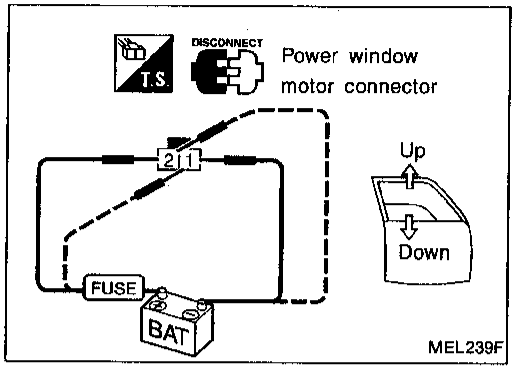
Yes → Repair harness. There will be incorrect grounding.

No

Replace main switch.

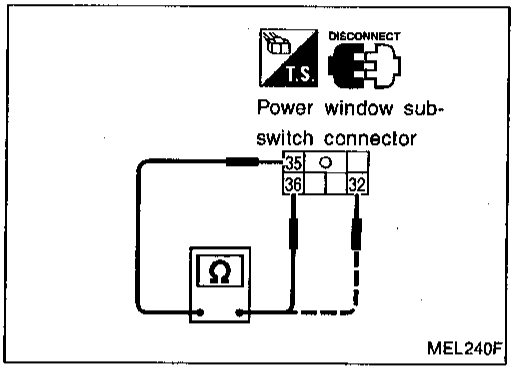
Trouble Diagnoses (Cont'd)

ELECTRICAL COMPONENTS INSPECTION



Power window motor

Terminals		Operation
⊕	⊖	
②	①	Downward
①	②	Upward



Power window sub-switch

Terminals	Condition	Continuity
㉜ - ㉟	UP	Yes
	Down	No
㊱ - ㉟	UP	No
	Down	Yes

System Description

Power is supplied at all times
- through circuit breaker (located in the fuse block [J/B])
- to door lock timer terminal ①.

Power is also supplied
- through 10A fuse (No. 12, located in the fuse block)
- to key switch terminal ①.

INPUT

When the key switch is in ON position (ignition key is inserted in the key cylinder), power is supplied
- through key switch terminal ②
- to door lock timer terminal ⑦.

When the driver door is open, ground signal is supplied
- to door lock timer terminal ④
- through front door switch (driver side) terminal ②
- to front door switch (driver side) terminal ③
- through body grounds B9 and B31.

When the passenger door is open, ground signal is supplied
- to door lock timer terminal ⑫
- through front door switch (passenger side) terminal ②
- to front door switch (passenger side) terminal ③
- through body grounds B54 and B71.

When the door lock & unlock switch in the power window main switch is in LOCK position, ground signal is supplied
- to door lock timer terminal ⑯
- through power window main switch terminal ⑦
- to power window main switch terminal ③
- through body grounds M14 and M68.

When the door lock & unlock switch in the power window main switch is in UNLOCK position, ground signal is supplied
- to door lock timer terminal ⑮
- through power window main switch terminal ⑧
- to power window main switch terminal ③
- through body grounds M14 and M68.

When the door lock knob or door key is turned to UNLOCK position, then door lock actuator (door unlock sensor) is in UNLOCK position.
Ground signal is supplied
- to door lock timer terminal ⑩
- through front door lock actuator (driver side) (door unlock sensor) terminal ④
- to front door lock actuator (driver side) (door unlock sensor) terminal ③
- through body grounds M14 and M68, and
- to door lock timer terminal ⑨
- through front door lock actuator (passenger side) (door unlock sensor) terminal ④
- to front door lock actuator (passenger side) (door unlock sensor) terminal ③
- through body grounds M14 and M68.

With door key turned to UNLOCK position, continuity exists between Full Stroke and Neutral of the front door key cylinder switch (unlock switch).
A ground signal is then sent
- to door lock timer terminal ⑭
- through front door key cylinder switches (driver side) and (passenger side) (unlock switch) terminal ②
- to front door key cylinder switches (driver side) and (passenger side) (unlock switch) terminal ④
- through body grounds M14 and M68.

System Description (Cont'd)

OUTPUT

Unlock

Ground is supplied
- to front door lock actuator (driver side) terminal ②,
- to front door lock actuator (passenger side) terminal ②,
- to rear door lock actuator LH terminal ② and
- to rear door lock actuator RH terminal ②
- through door lock timer terminal ②.

DRIVER'S DOOR
Power is supplied to front door lock actuator (driver side) terminal ①
- through door lock timer terminal ⑥.

OTHER DOORS
Power is supplied
- to front door lock actuator (passenger side) terminal ①,
- to rear door lock actuator LH terminal ① and
- to rear door lock actuator RH terminal ①
- through door lock timer terminal ③.

Then, the door is unlocked.

Lock

Ground is supplied
- to front door lock actuator (driver side) terminal ①
- through door lock timer terminal ⑥, and
- to front door lock actuator (passenger side) terminal ①,
- to rear door lock actuator LH terminal ① and
- to rear door lock actuator RH terminal ①
- through door lock timer terminal ③.

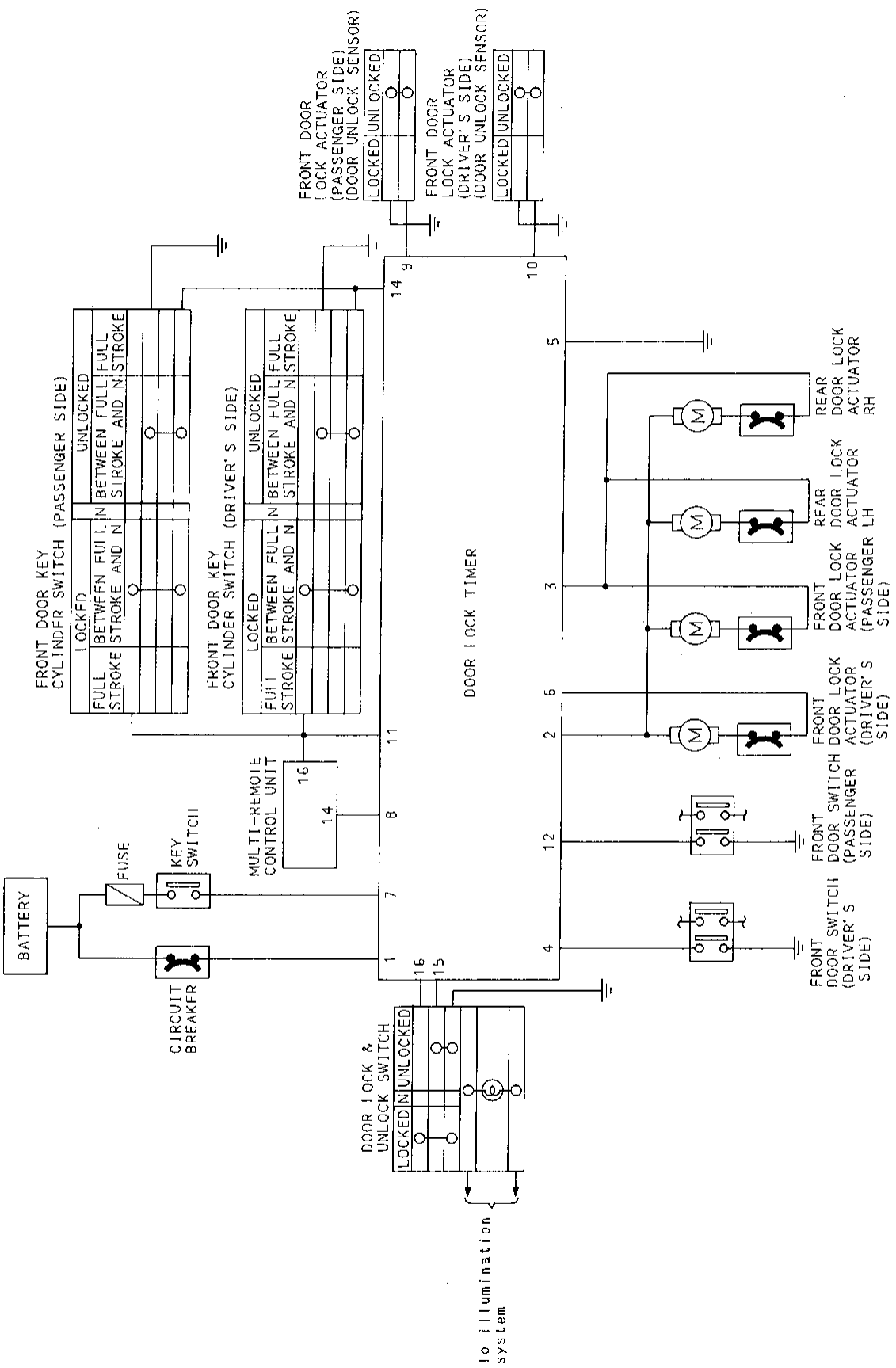
Power is supplied
- to front door lock actuator (driver side) terminal ②,
- to front door lock actuator (passenger side) terminal ②,
- to rear door lock actuator LH terminal ② and
- to rear door lock actuator RH terminal ②
- through door lock timer terminal ②.

Then, the door is locked.
For details concerning input and output conditions, refer to "DOOR LOCK TIMER INSPECTION".

OPERATION BY MULTI-REMOTE CONTROL SYSTEM

Multi-remote control unit sends a signal to terminal ⑧ (Unlock signal) or terminal ⑪ (Lock signal) of door lock timer. Door lock timer will operate the same when it receives a lock or unlock signal from other switches.

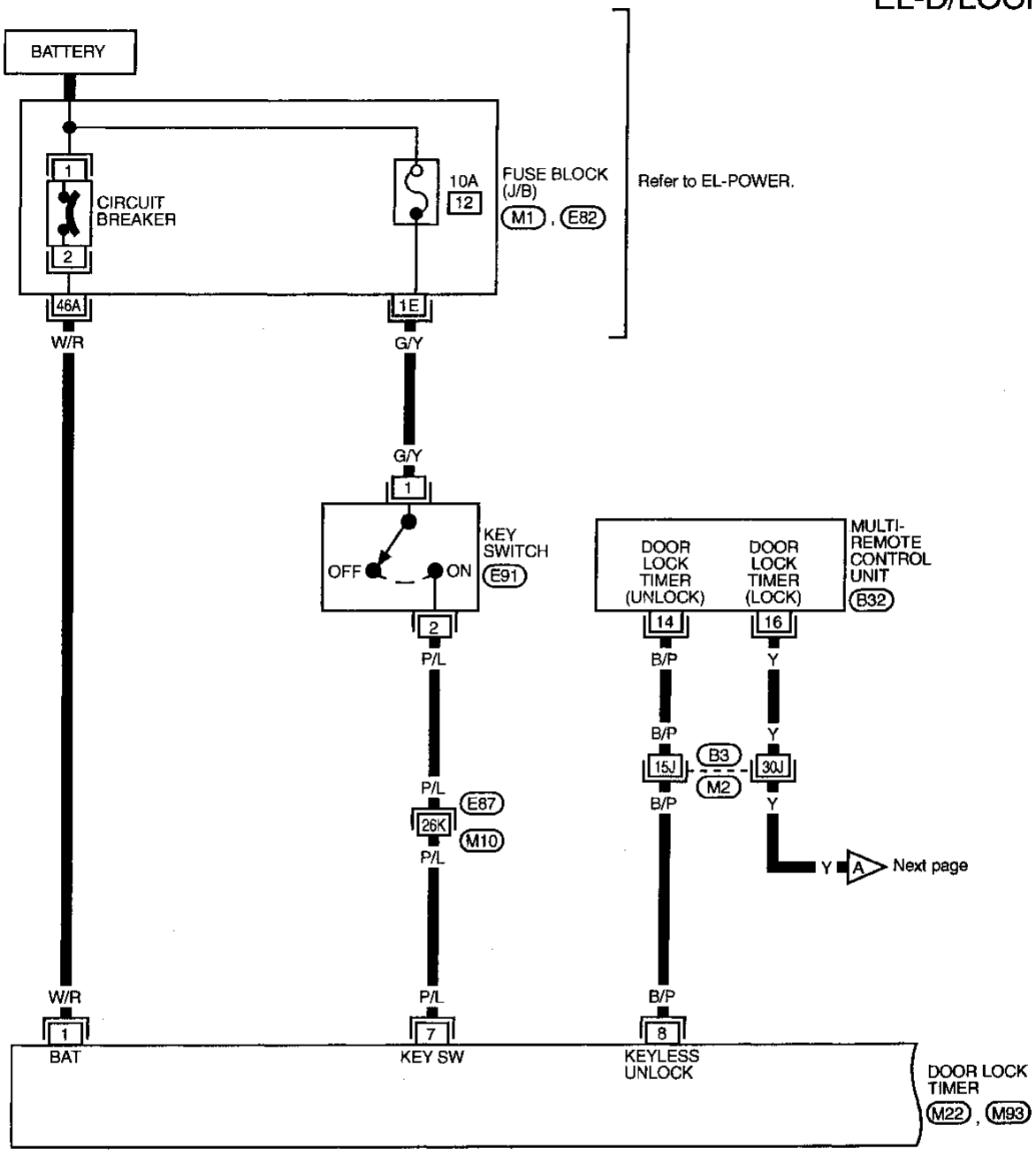
Schematic

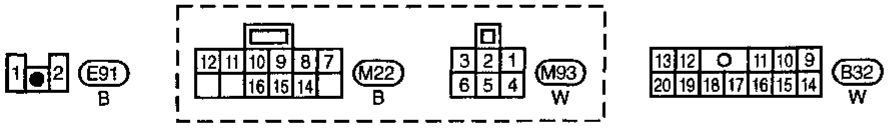


TEL227

Wiring Diagram — D/LOCK —

EL-D/LOCK-01





Refer to last page (Foldout page).

E82, M1

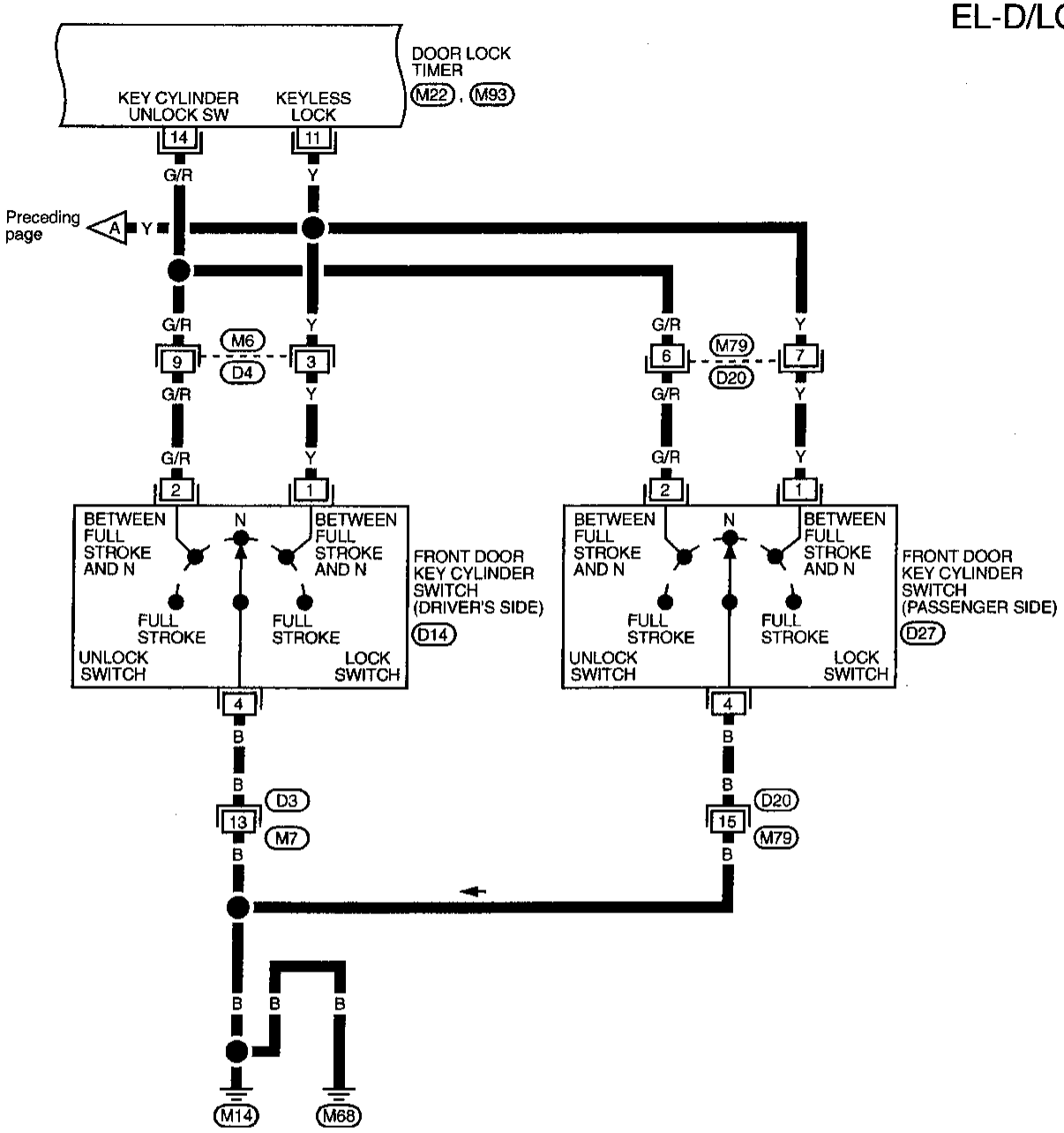
E87, M10

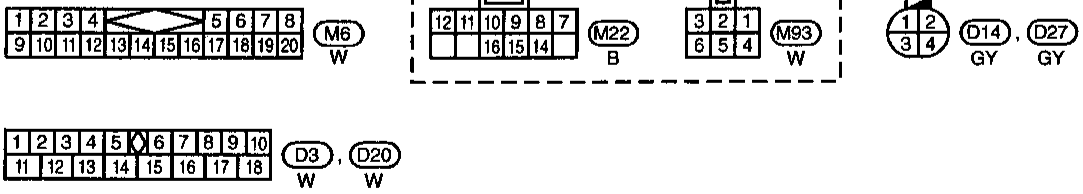
M2, B3

TEL228

Wiring Diagram — D/LOCK — (Cont'd)

EL-D/LOCK-02

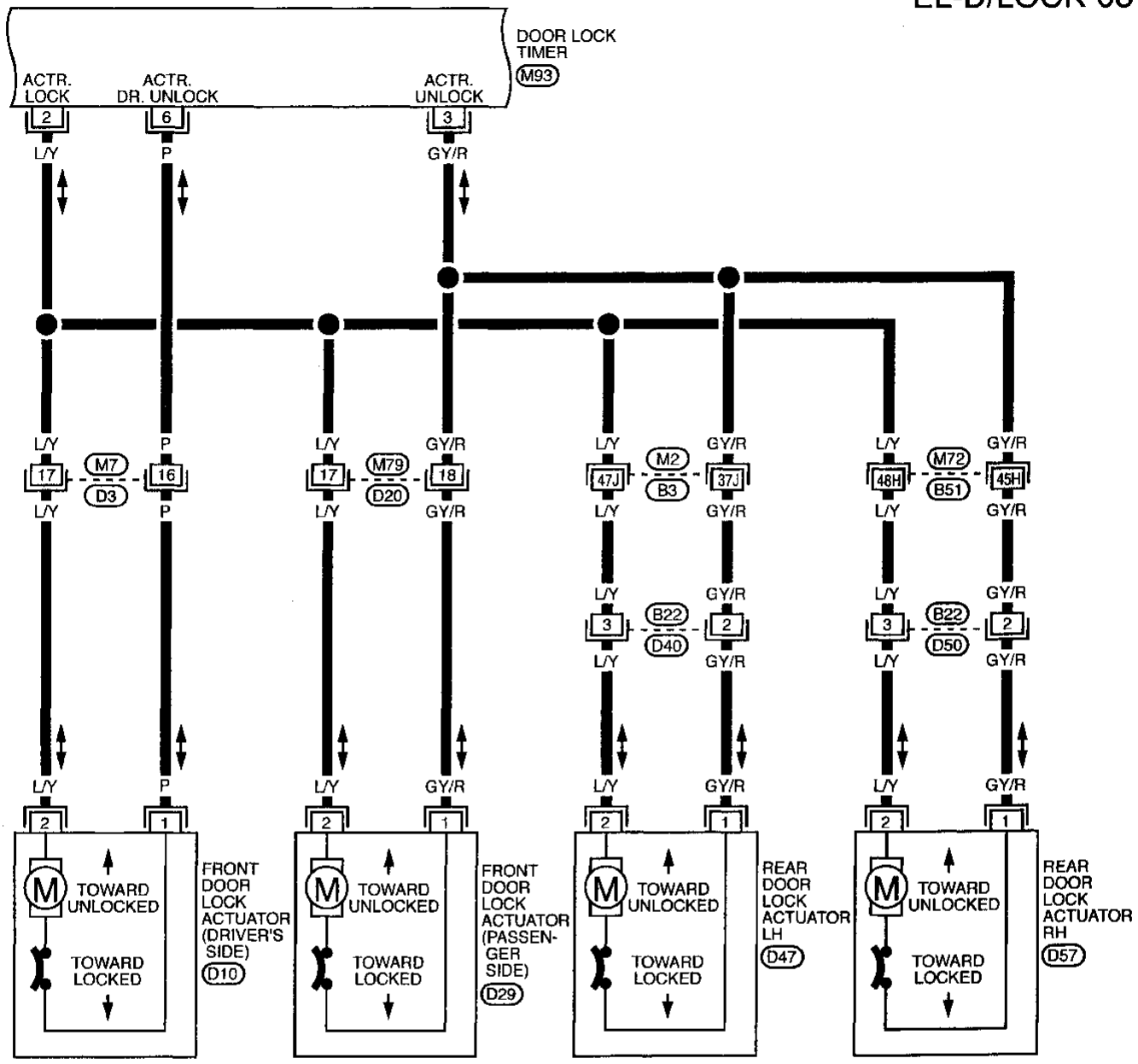


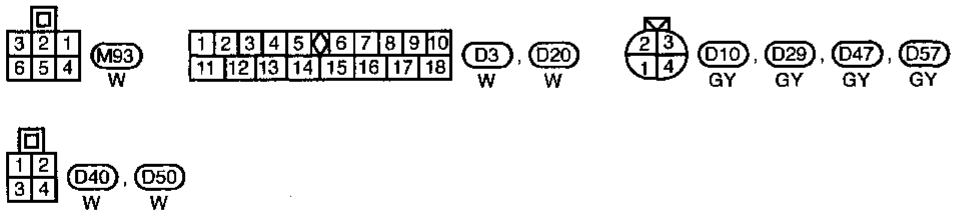


TEL229

Wiring Diagram — D/LOCK — (Cont'd)

EL-D/LOCK-03

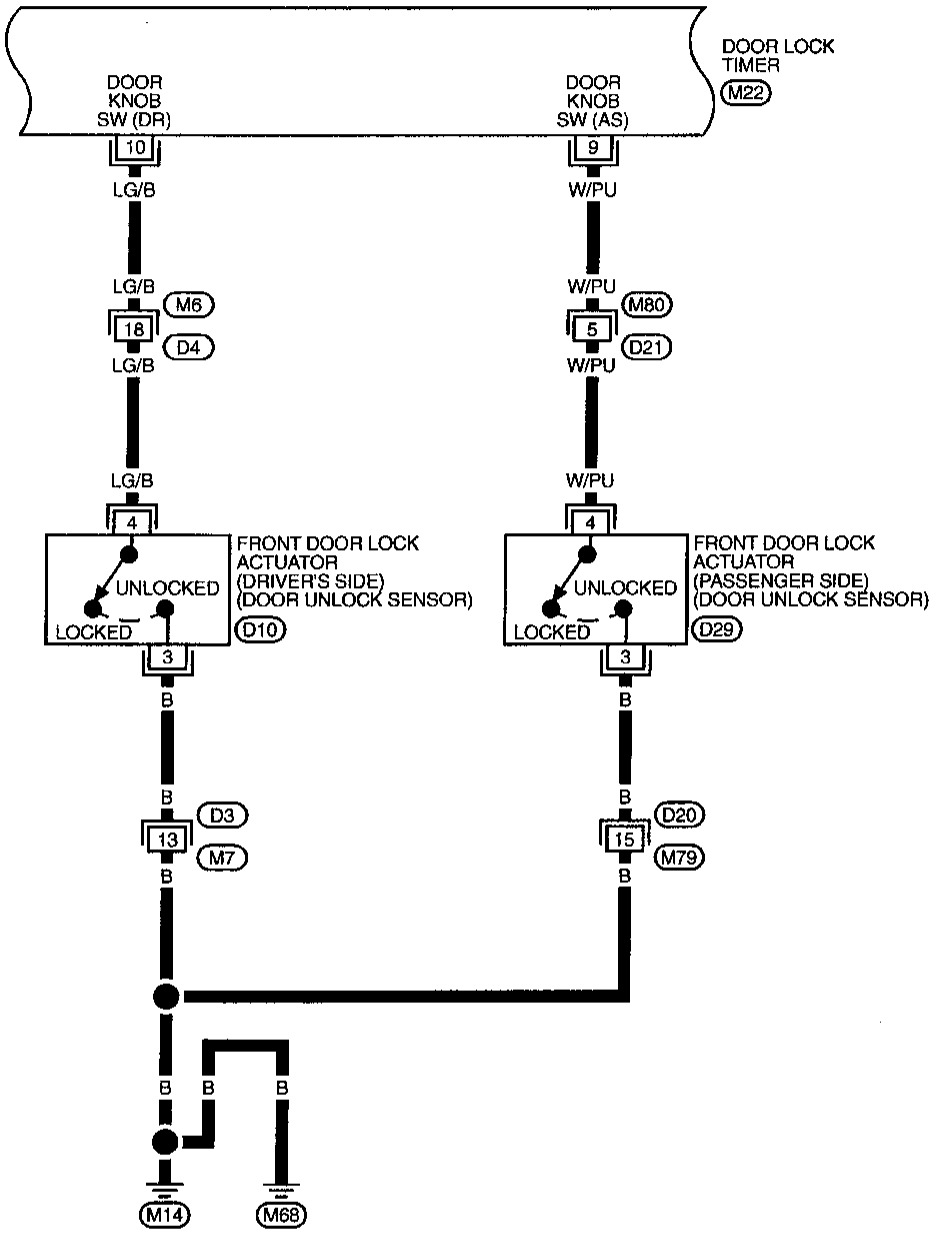


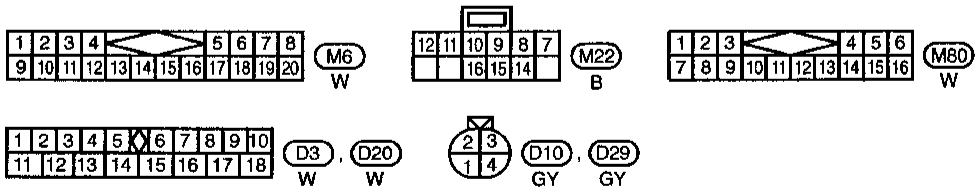


Refer to last page (Foldout page).
M2, B3
M72, B51

Wiring Diagram — D/LOCK — (Cont'd)

EL-D/LOCK-04

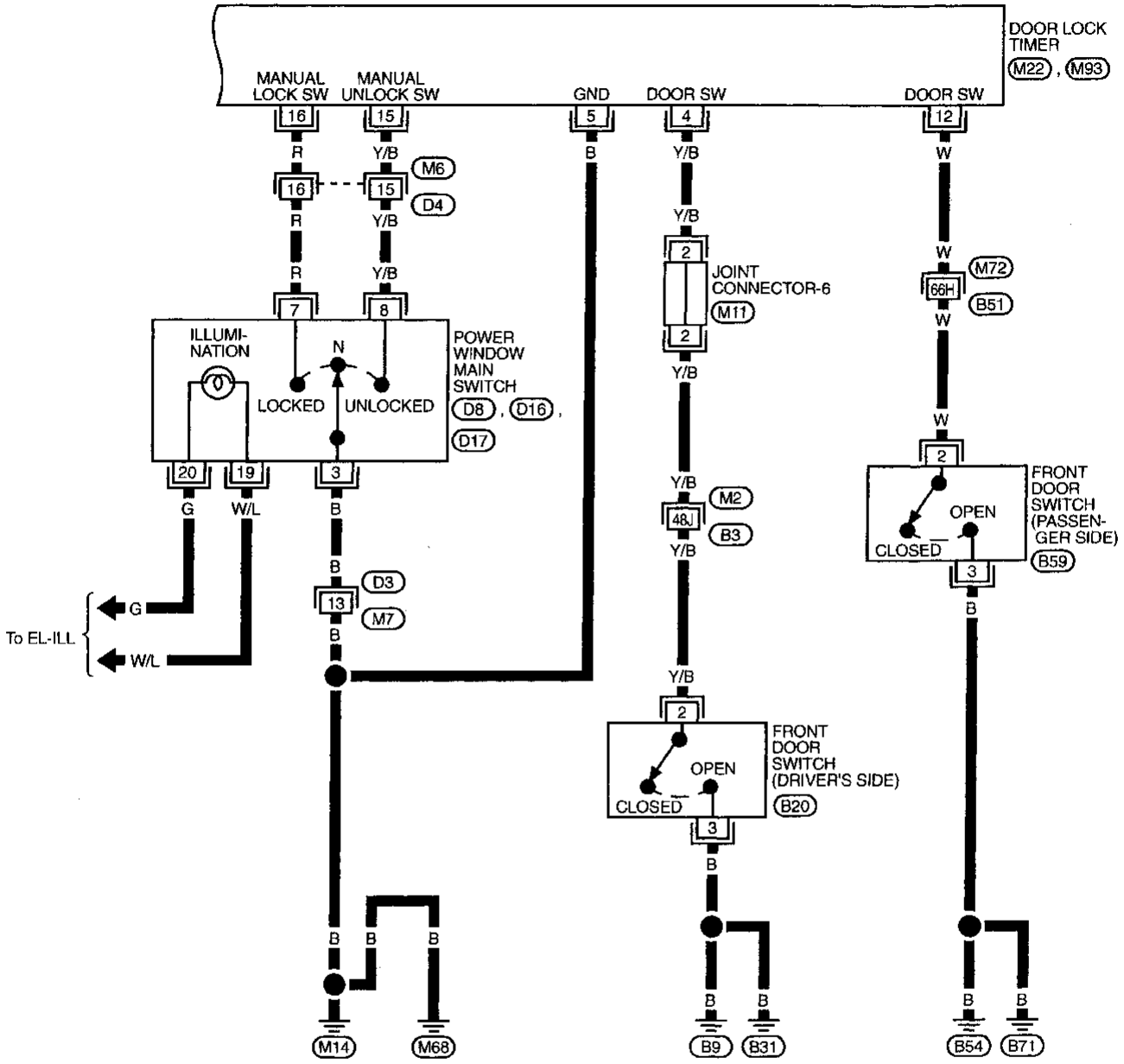


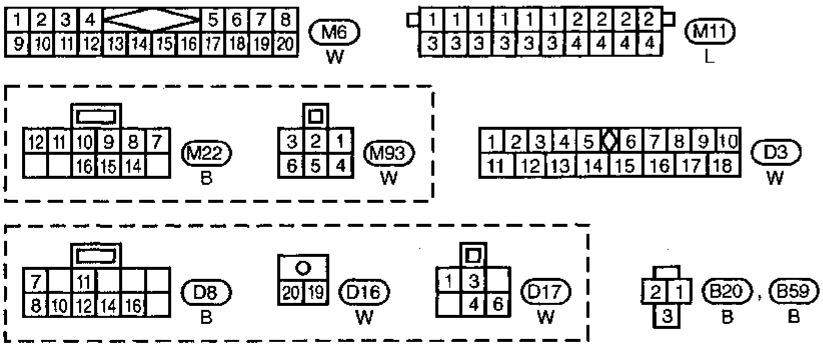


TEL231

Wiring Diagram — D/LOCK — (Cont'd)

EL-D/LOCK-05





Refer to last page (Foldout page).
M2, B3
M72, B51

TEL232

Trouble Diagnoses

DOOR LOCK TIMER INSPECTION

- Carry out the following inspections:

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

Lock & unlock operation by lock knob or main switch

(The voltages are approximate values.)

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

*: When conducting the active test on the driver and passenger sides, door lock motors switch between the "LOCK", "UNLOCK" and "STOP" positions at intervals of more than two seconds.

Trouble Diagnoses (Cont'd)

Unlock operation by door lock key switch

(The voltages are approximate values.)

	Connections		Operations		
			Door lock key switch LH		
			N → Unlock → N → Unlock		Unlock → Lock
1	Lock source		12V	12V	12V
5	Ground		Ground	Ground	Ground
7	Input signal	Key switch	Either key switch or door switches are off. (Key is not in the ignition or all doors are closed.)		
4		Door switch LH			
12		Door switch RH			
10		Lock knob switch LH	—	—	ON (Ground) → OFF (Open)
9		Lock knob switch RH	—	—	—
11		Door lock key switch (Lock)	OFF (Open)		ON (Ground) → OFF (Open)
14		Door lock key switch (Unlock)	OFF (Open) → ON (Ground) → OFF (Open) → ON (Ground)		ON (Ground) → OFF (Open)
16		Lock & unlock switch (Lock)	—	—	—
15		Lock & unlock switch (Unlock)	—	—	—
2	Output signal	Door lock actuator (Lock power source)	0V	0V	*0V → 12V → 0V (Approx. 1.0 sec.)
3		Door lock actuator (Unlock power source)	0V	*0V → 12V → 0V (Approx. 1.0 sec.)	0V
6		Driver's door lock actuator (Unlock power source)			

- The second unlock signal of door lock key switch is counted when it is within approximately 4 seconds of the first signal.
- Lock operation by key is mechanically transmitted to the lock knob switch.
- Operation of door lock key switch RH is the same as LH.

*: When conducting the active test on the driver and passenger sides, door lock motors switch between the "LOCK", "UNLOCK" and "STOP" positions at intervals of more than two seconds.

Trouble Diagnoses (Cont'd)

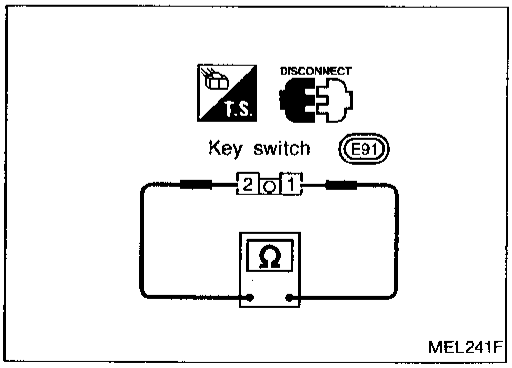
Key reminder operation

(The voltages are approximate values.)

	Connections		Operations	
			Lock knob switch LH	Main switch
			Unlock → Lock → Automatically unlocked	N → Lock → Automatically unlocked
1	Power source		12V	12V
5	Ground		0V	0V
7	Input signal	Key switch	ON (12V) — Key is in the ignition.	
4		Door switch LH	ON (Ground) — Either door is open.	
12		Door switch RH		
10		Lock knob switch LH	ON (Ground) → OFF (Open) → ON (Ground)	—
9		Lock knob switch RH	—	—
11		Door lock key switch (Lock)	—	—
14		Door lock key switch (Unlock)		
16		Lock & unlock switch lock	—	OFF (Open) → ON (Ground) → OFF (Open)
15		Lock & unlock switch unlock	—	—
2	Output signal	Door lock actuator (Lock power source)	*0V → 12V → 0V (Approx. 0.3 sec.)	*0V → 12V → 0V (Approx. 0.3 sec.)
3		Door lock actuator (Unlock power source)	*0V → 12V → 0V (Approx. 1.4 sec.)	*0V → 12V → 0V (Approx. 1.4 sec.)
6		Driver's door lock actuator (Unlock power source)		

- Operation of lock knob switch RH is the same as LH.

*: When conducting the active test on the driver and passenger sides, door lock motors switch between the "LOCK", "UNLOCK" and "STOP" positions at intervals of more than two seconds.

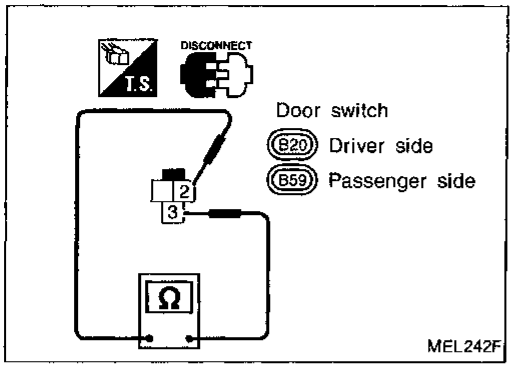


ELECTRICAL COMPONENTS INSPECTION

Key switch

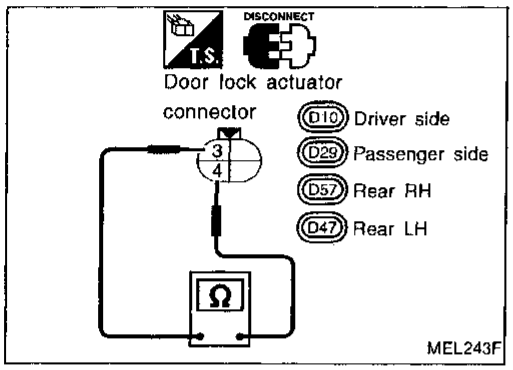
Terminals	Condition	Continuity
② - ①	Key is in the ignition.	Yes
	Key is not in the ignition.	No

Trouble Diagnoses (Cont'd)



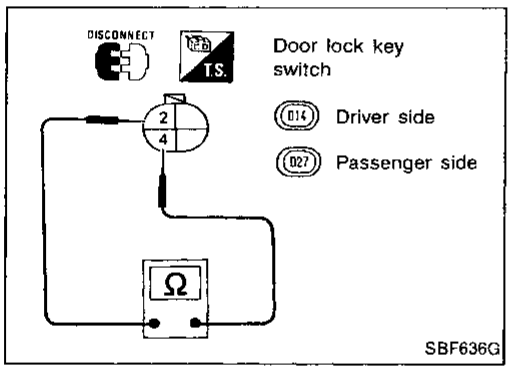
Door switch

Terminals	Condition	Continuity
③ - ②	Door is closed.	No
	Door is open.	Yes



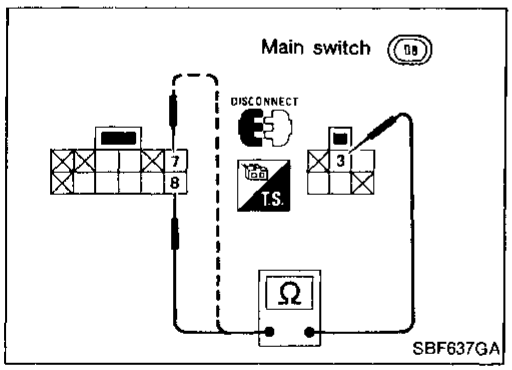
Lock knob switch

Terminals	Condition	Continuity
③ - ④	Lock	No
	Unlock	Yes



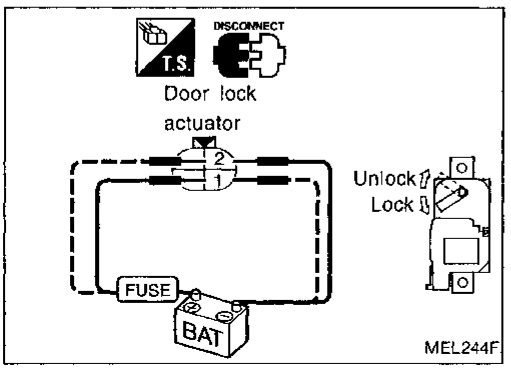
Door unlock key switch

Terminals	Operation	Continuity
② - ④	Key is turned toward unlock	Yes
	Except above	No



Lock and unlock switch

Terminals	Operation	Continuity
③ - ⑦	Lock	Yes
	Neutral and unlock	No
③ - ⑧	Unlock	Yes
	Neutral and unlock	No



Door lock actuator

Terminals		Operation
⊕	⊖	
②	①	Lock
①	②	Unlock

System Description

Power is supplied at all times
- through 7.5A fuse (No. 13, located in the fuse block [J/B])
- to multi-remote control unit terminal ①.

Power is supplied at all times
- through 10A fuse (No. 12, located in the fuse block [J/B])
- to key switch terminal ①.

Power is supplied at all times
- through 15A fuse (No. 34, located in the fuse block [J/B])
- to trunk lid opener actuator terminal ①.

Terminals ⑧ and ③ of the multi-remote control unit are grounded through body grounds (B9) and (B31).

INPUTS

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

When any of the four door switches are set to OPEN position, ground is provided
- to multi-remote control unit terminal ⑬
- through front door switch body grounds, and/or
- through rear door switch relay terminal ③
- to rear door switch relay terminal ⑤
- through body grounds (M14) and (M68).

(Rear door switch relay becomes energized by rear door switches.)

When the trunk room lamp switch is in OPEN position (trunk lid is open), ground is supplied
- to multi-remote control unit terminal ④
- through body grounds (T2) and (T5).

When the front door lock actuator (driver side) (door unlock sensor) is in UNLOCK position, ground is supplied
- to multi-remote control unit terminal ⑩
- through front door lock actuator (driver side) (door unlock sensor) terminal ④
- to front door lock actuator (driver side) (door unlock sensor) terminal ③
- through body grounds (M14) and (M68).

When the front door lock actuator (passenger side) (door unlock sensor) is in UNLOCK position, ground is supplied
- to multi-remote control unit terminal ⑪
- through front door lock actuator (passenger side) (door unlock sensor) terminal ④
- to front door lock actuator (passenger side) (door unlock sensor) terminal ③
- through body grounds (M14) and (M68).

When the rear door lock actuator LH and/or RH (door unlock sensor) is in UNLOCK position, ground is supplied
- to multi-remote control unit terminal ⑫
- through rear door lock actuator LH (door unlock sensor) terminal ④
- to rear door lock actuator LH (door unlock sensor) terminal ③
- through body grounds (B9) and (B31), and/or
- through rear door lock actuator RH (door unlock sensor) terminal ④
- to rear door lock actuator RH (door unlock sensor) terminal ③
- through body grounds (B54) and (B71).

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

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

System Description (Cont'd)

OPERATED PROCEDURE

Power door lock operation

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

The two above signals are already input into multi-remote control unit. At this point, multi-remote control receives a LOCK signal from remote controller. Multi-remote control unit will then send a signal

- from its terminal ⑯
- to door lock timer terminal ⑪.

Door lock timer now locks all doors.

With key switch in OFF position (key not in cylinder), multi-remote control unit receives an UNLOCK signal from remote controller. Multi-remote control unit will then send a signal

- from its terminal ⑭
- to door lock timer terminal ⑧
- from multi-remote control unit terminal ⑳
- to theft warning control unit terminal ⑨.

Door lock timer now unlocks all doors and deactivates theft warning system.

Refer to "Power Door Lock" and "THEFT WARNING SYSTEM".

Trunk lid opener operation

With key switch in OFF position (key not in cylinder), multi-remote control unit receives an OPEN signal from remote controller. Ground is then supplied

- to trunk lid opener actuator terminal ②
- from trunk lid opener cancel switch terminal ②.

With trunk lid opener cancel switch in ON position, a signal is sent

- to trunk lid opener cancel switch terminal ①
- from multi-remote control unit terminal ②
- to multi-remote control unit terminal ③
- through body grounds (B9) and (B31).

When power and ground are provided, trunk lid opener actuator activates to open trunk lid. At this point, with signals door switch CLOSE (all doors closed) and door lock actuator (door unlock sensor) LOCK (all doors locked) inputted, an OPEN signal and a signal are sent

- from multi-remote control unit terminal ⑳
- to theft warning control unit terminal ⑨
- from multi-remote control unit terminal ⑯
- to door lock timer terminal ⑪.

Theft warning system now deactivates.

Refer to "THEFT WARNING SYSTEM".

Interior lamp operation

Multi-remote control system turns interior lamp ON or OFF according to various inputs received.

Operating conditions

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

With interior lamp OFF under the above conditions, an ON signal is sent from remote controller.

- Interior lamp then comes on for 30 seconds.

An ON or LOCK signal is sent from remote controller with interior lamp on.

- Interior lamp will turn off.

An UNLOCK signal is sent from remote controller with interior lamp ON or OFF.

- Interior lamp will turn on for 30 seconds.

For detailed description, refer to "Interior, Spot and Trunk Room Lamps".

Panic alarm operation

Multi-remote control system activates horn and headlamps intermittently under the following conditions:

- Key switch OFF (key not in cylinder)
- An alarm signal is sent from remote controller to multi-remote control system.

Ground is supplied intermittently

System Description (Cont'd)

- to horn relay terminal ② and theft warning relay terminal ①
- through multi-remote control unit terminal ⑱.

Through this, horn and headlamps operate intermittently.

- Panic alarm operates for 30 seconds.
- When multi-remote control system receives any signal from remote controller during panic alarm operation, the alarm stops. However, the function indicated on remote controller will not be activated.

Hazard lamp operation

Multi-remote control system receives a LOCK signal from remote controller with the following signals already entered.

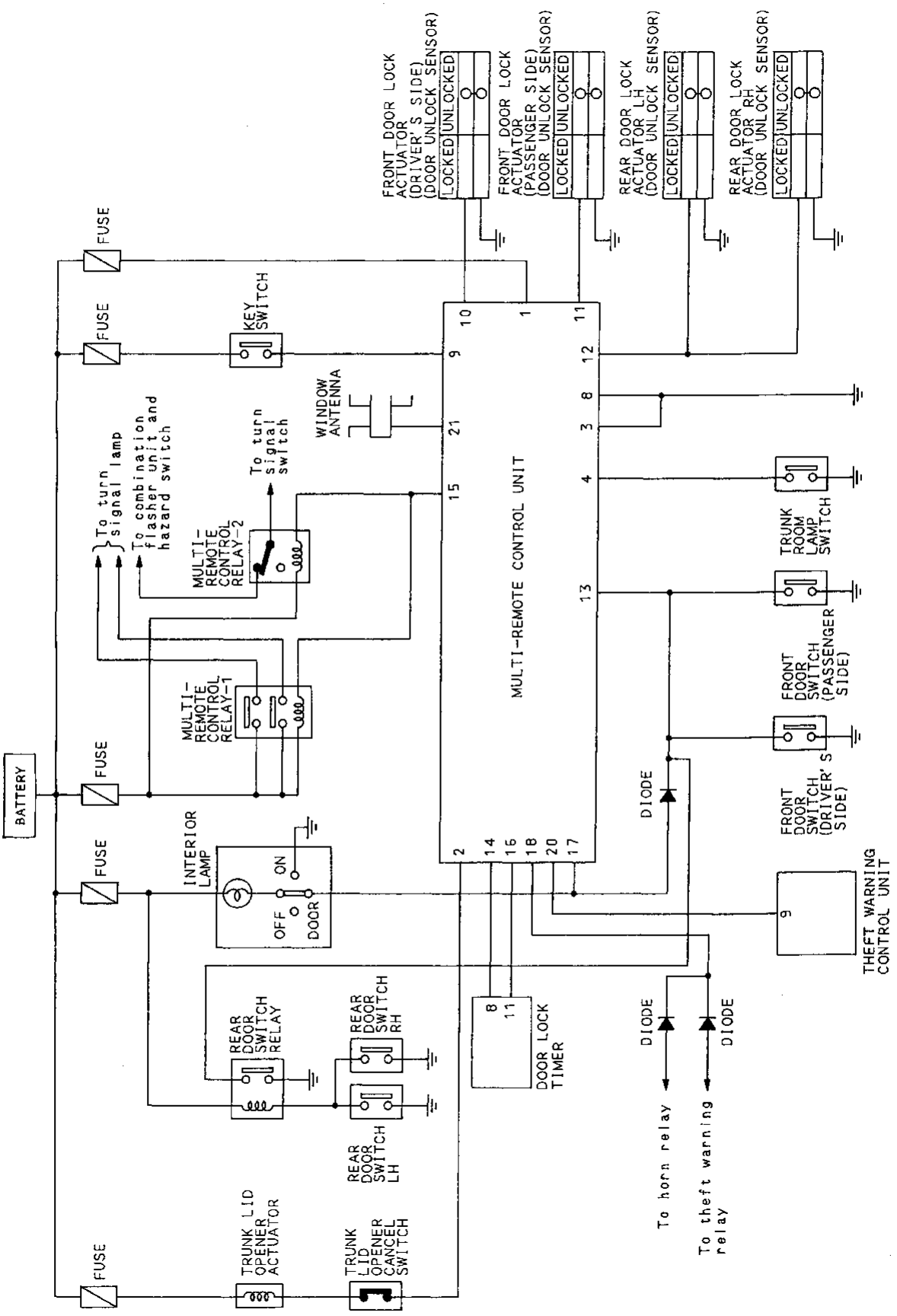
- Key switch OFF signal (key not in cylinder)
- Door switch CLOSE signal (all doors closed)
- Door lock actuator (door unlock sensor) LOCK (all doors locked)

Multi-remote control system will then send a ground signal

- to terminal ② of the multi-remote control relay-1 and
- to terminal ① of the multi-remote control relay-2
- through multi-remote control unit terminal ⑮.

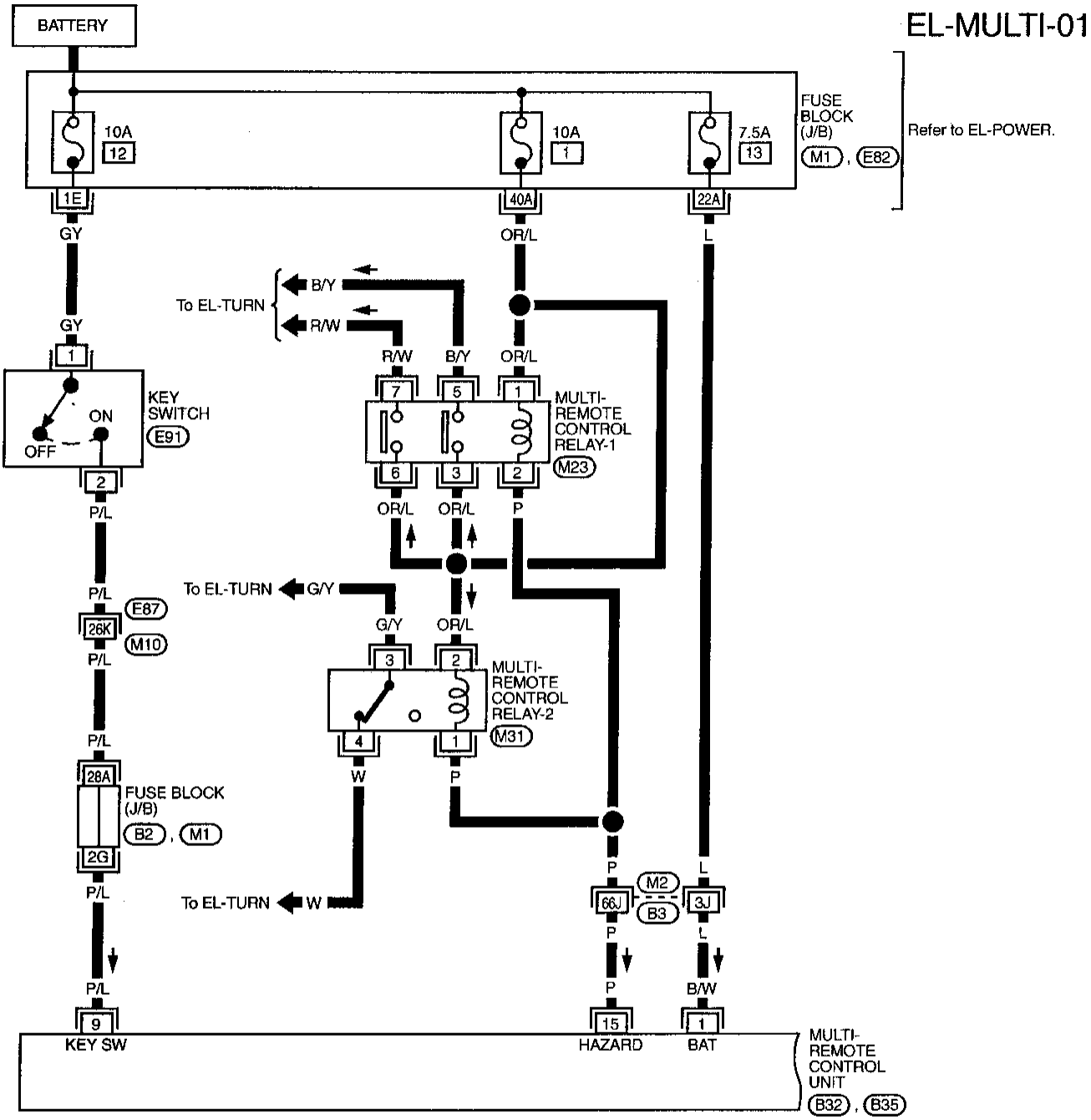
Multi-remote control relay is now energized and hazard warning lamps flash.

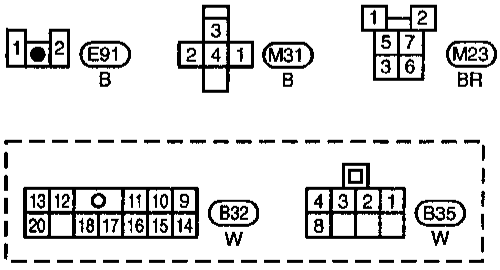
Schematic



TEL221

Wiring Diagram — MULTI —



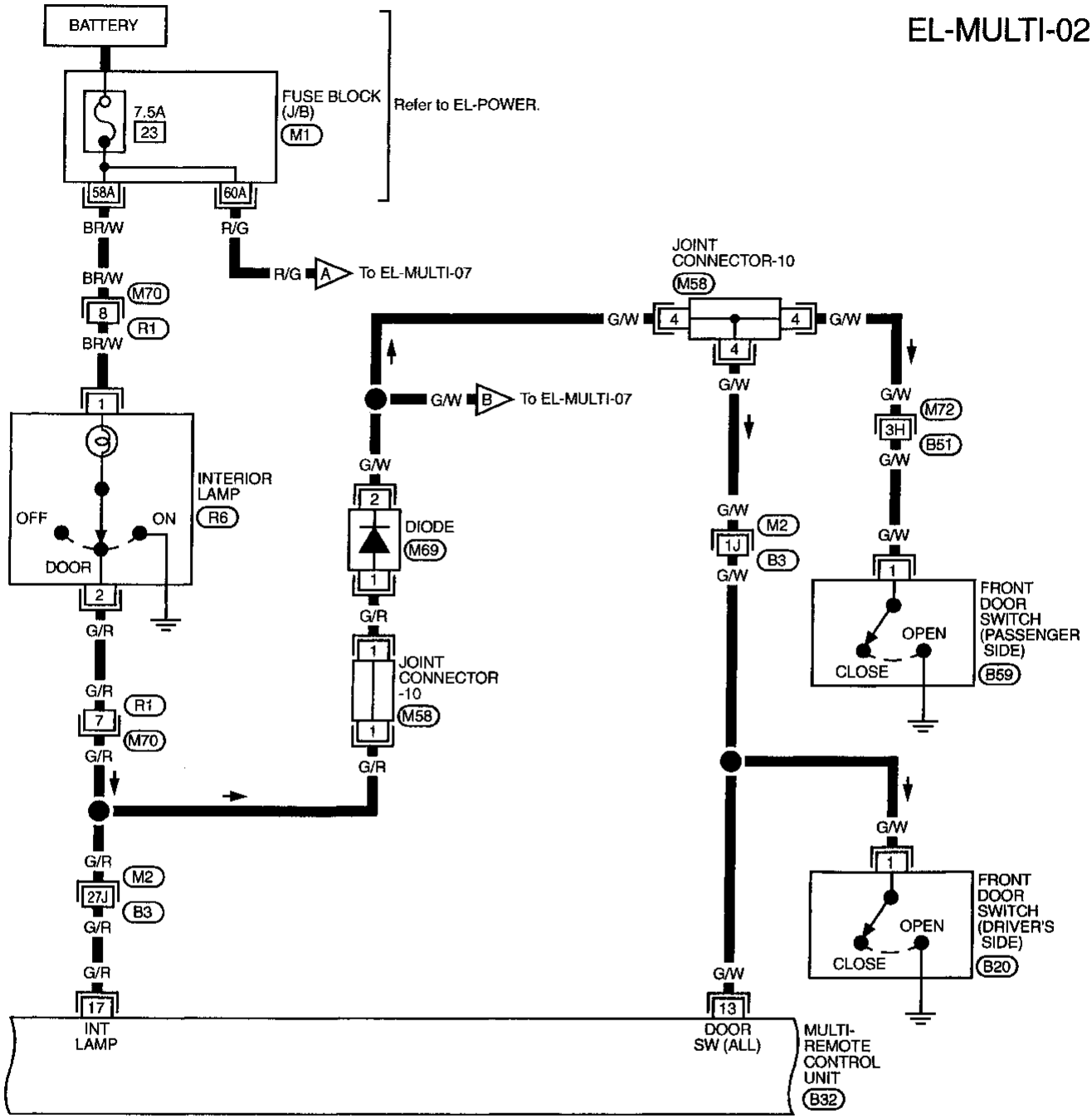


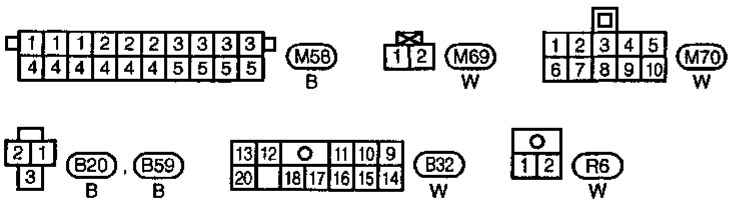
Refer to last page (Foldout page).
E82, M1, B2
E87, M10
M2, B3

TEL222

Wiring Diagram — MULTI — (Cont'd)

EL-MULTI-02





Refer to last page (Foldout page).

M2 , B3

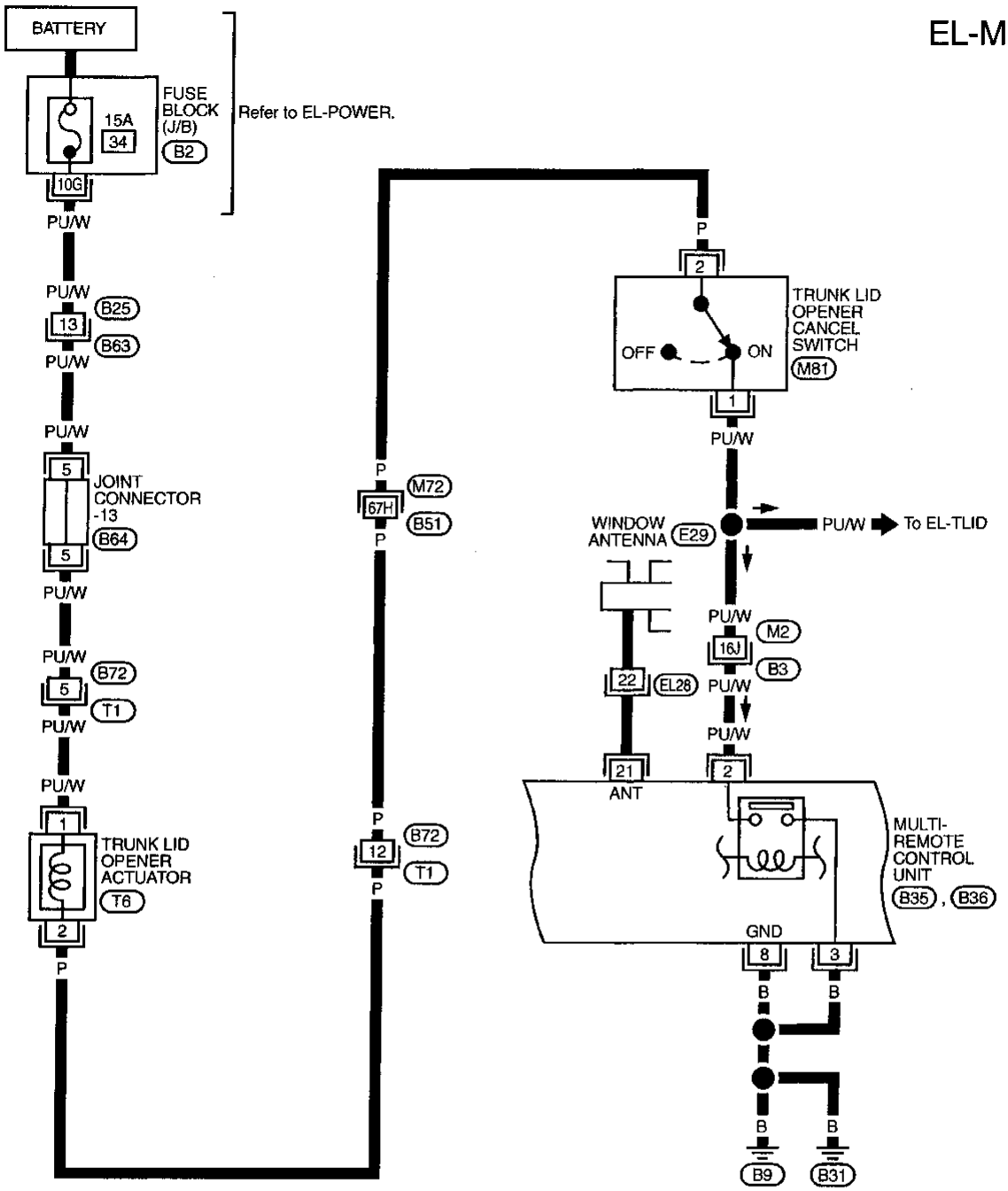
M72 , B51

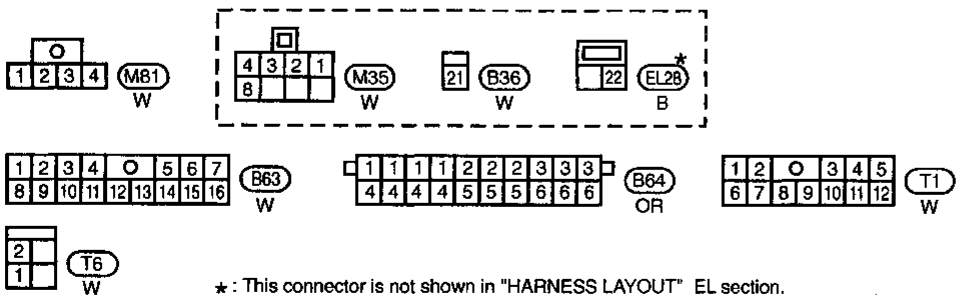
M1

TEL223

Wiring Diagram — MULTI — (Cont'd)

EL-MULTI-03





Refer to last page (Foldout page).

M2 , B3

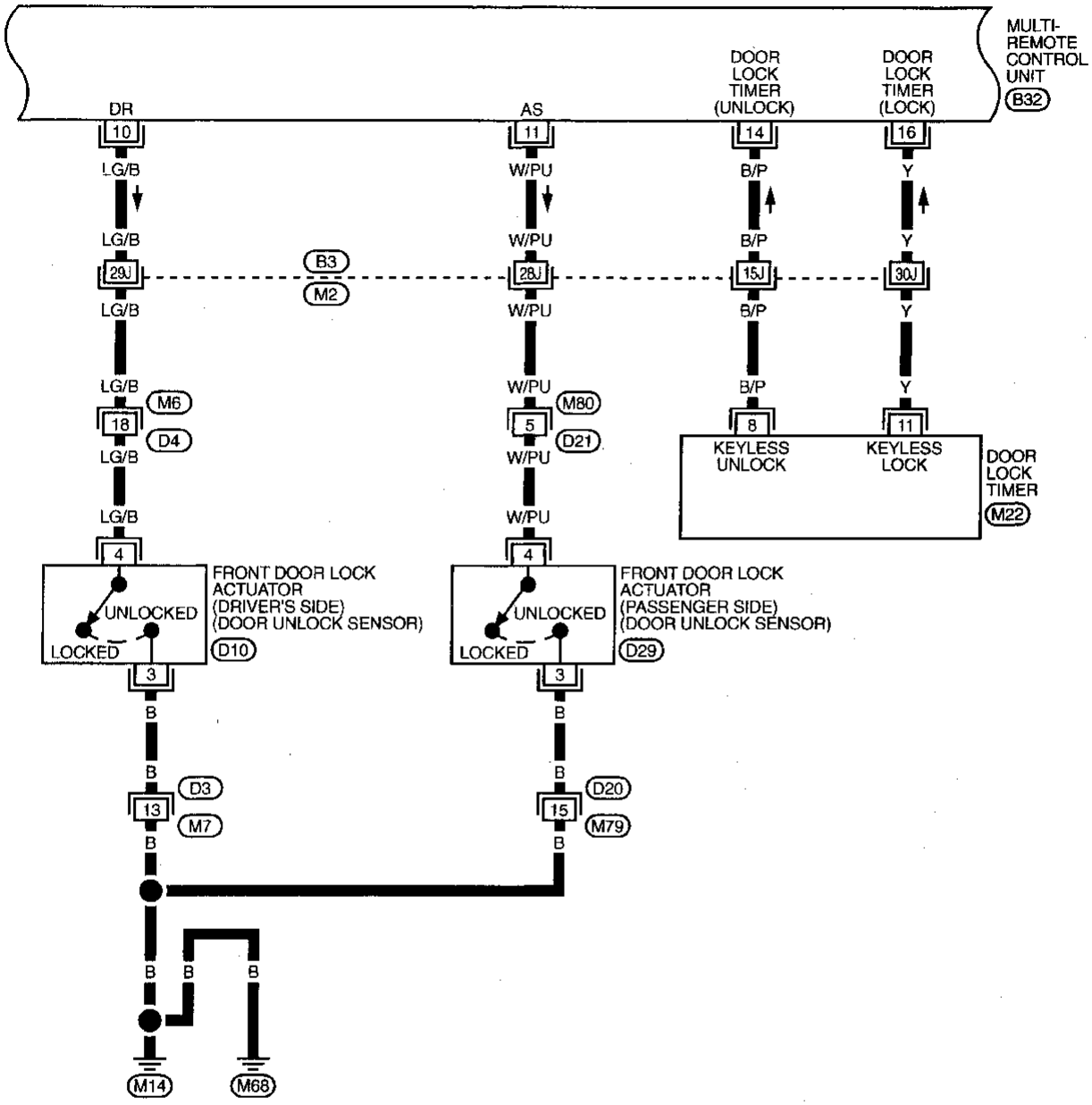
M72 , B51

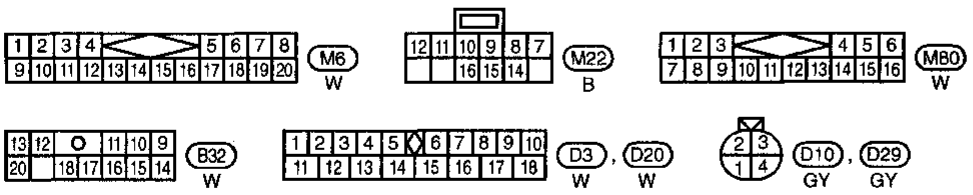
B2

TEL224

Wiring Diagram — MULTI — (Cont'd)

EL-MULTI-04



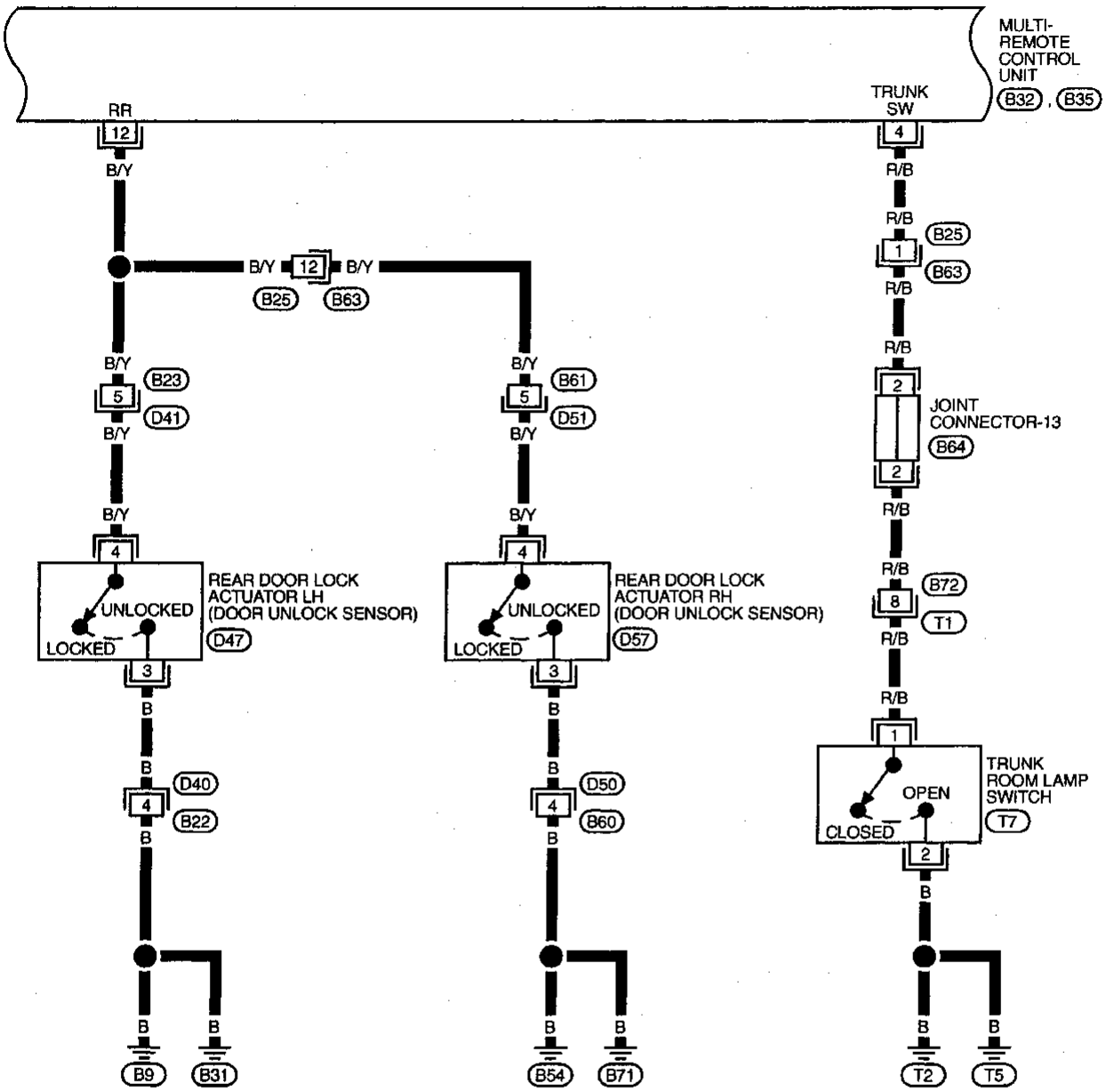


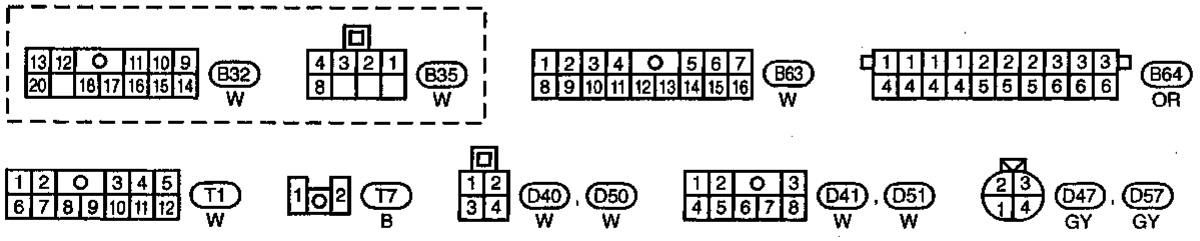
Refer to last page (Foldout page).
(M2), (B3)

TEL225

Wiring Diagram — MULTI — (Cont'd)

EL-MULTI-05

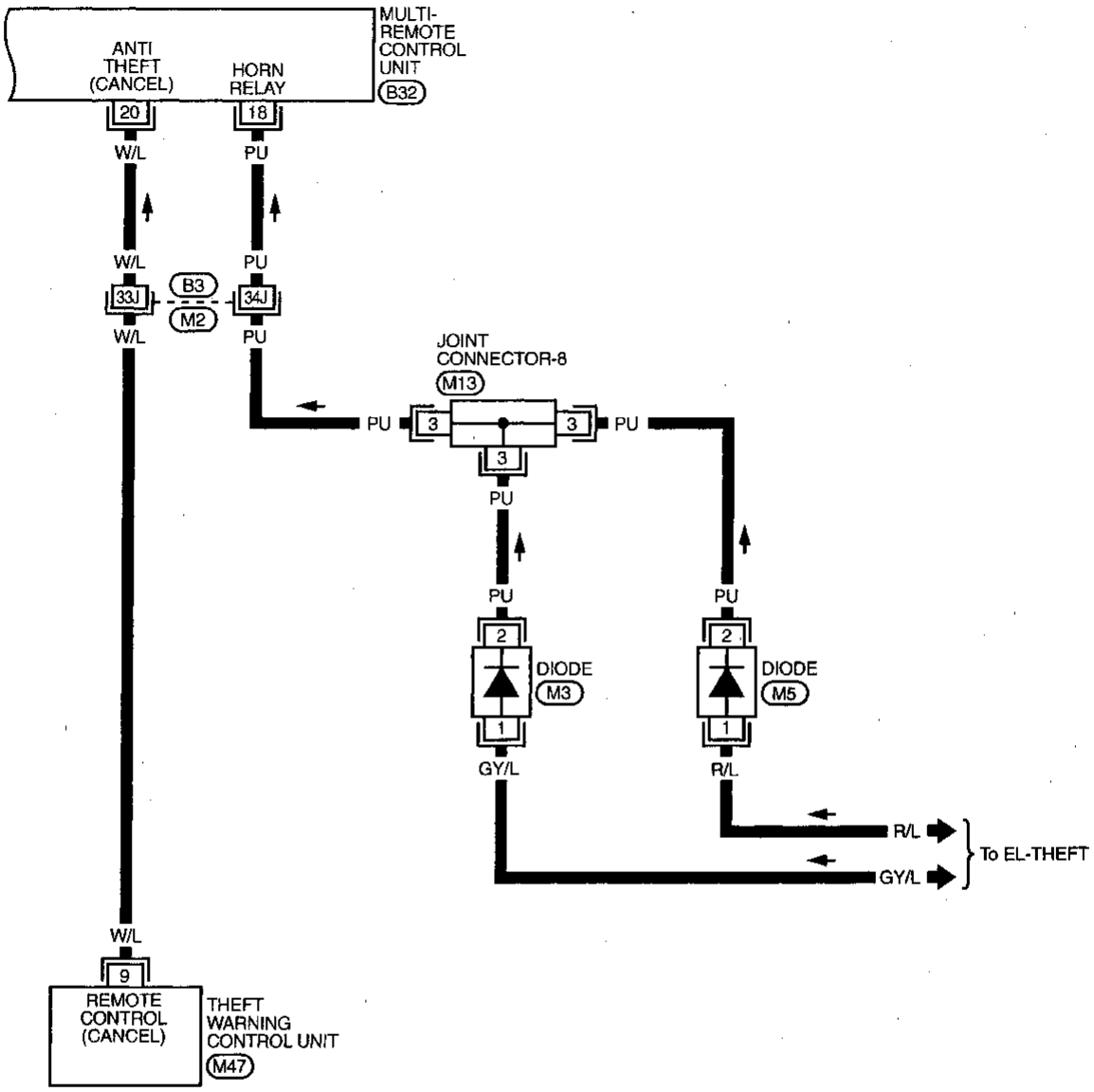


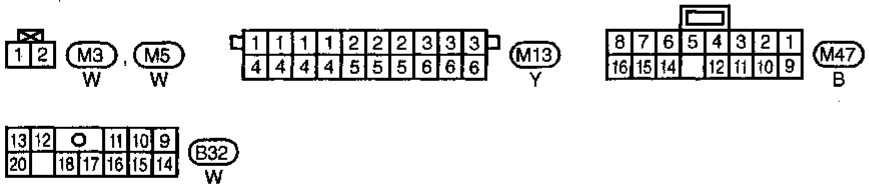


TEL226

Wiring Diagram — MULTI — (Cont'd)

EL-MULTI-06



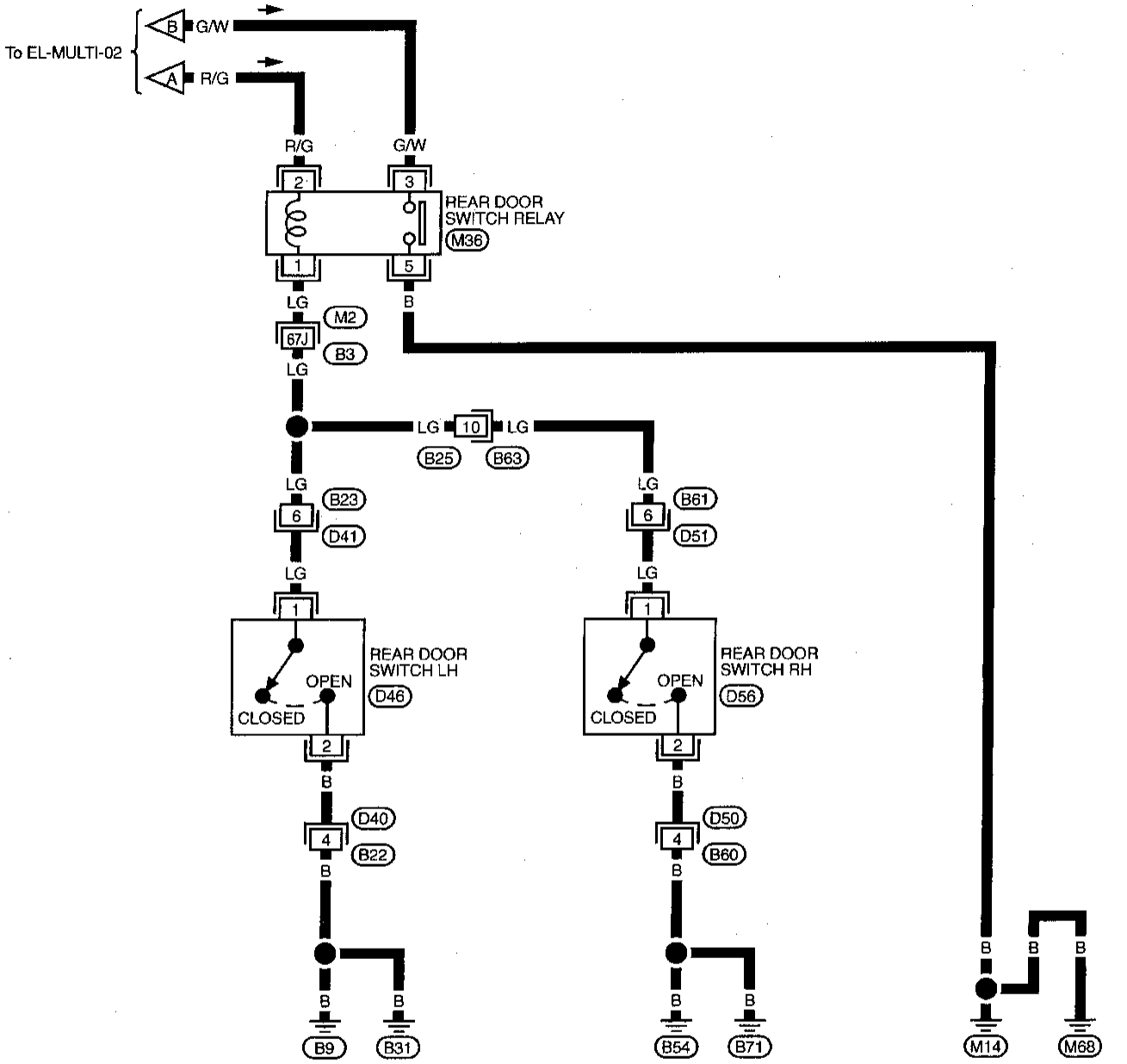


Refer to last page (Foldout page).
M2, B3

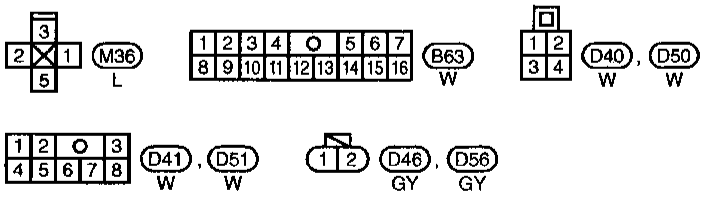
TEL285

Wiring Diagram — MULTI — (Cont'd)

EL-MULTI-07



Refer to last page (Foldout page).
M2 , B3

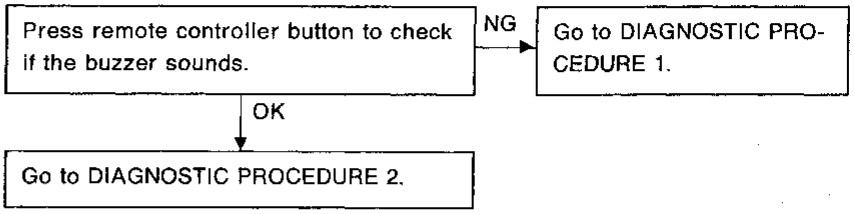


TEL335

Trouble Diagnoses Preliminary Inspection

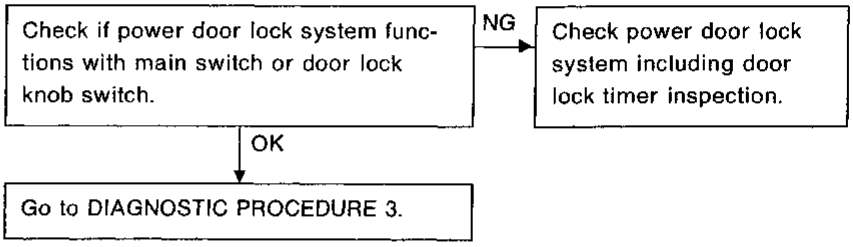
PRELIMINARY INSPECTION PROCEDURE 1

All functions of remote control system function.



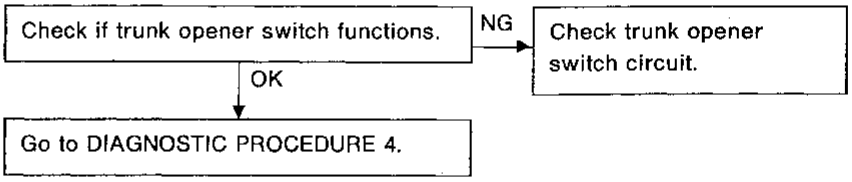
PRELIMINARY INSPECTION PROCEDURE 2

Door lock and unlock does not function.



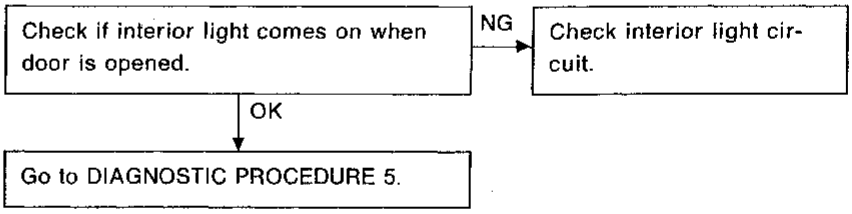
PRELIMINARY INSPECTION PROCEDURE 3

Trunk open function does not function.



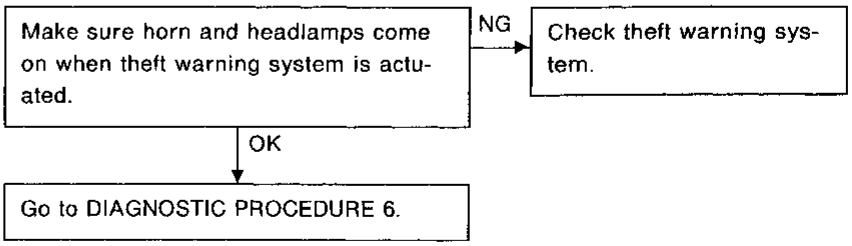
PRELIMINARY INSPECTION PROCEDURE 4

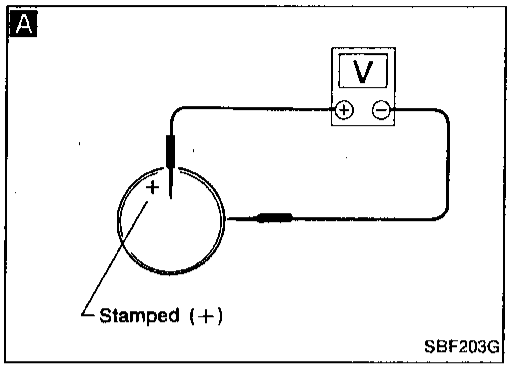
Interior light does not function.



PRELIMINARY INSPECTION PROCEDURE 5

Panic alarm does not function.





Trouble Diagnoses

DIAGNOSTIC PROCEDURE 1

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

A

CHECK REMOTE CONTROLLER BATTERY.
Remove battery and measure voltage across battery positive and negative terminals ⊕ and ⊖.

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

NG → Replace battery.

OK ↓

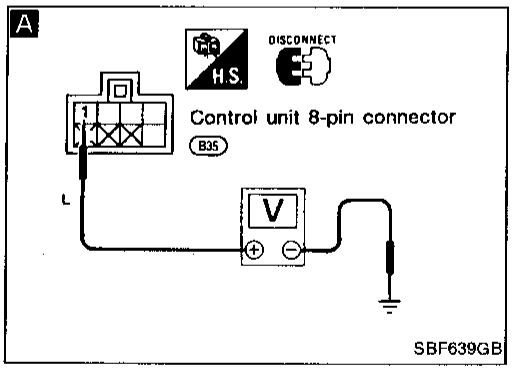
1) Push door lock button of remote controller before installing battery.
2) Reset battery in remote controller to make sure the buzzer sounds twice.

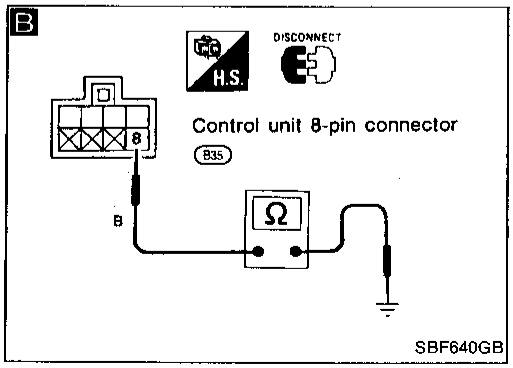
OK → Check system operation.

NG ↓

Replace controller.

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





DIAGNOSTIC PROCEDURE 2

All remote controls do not function even if remote controller buzzer does sound.

A

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

NG → Check power supply harness.

OK ↓

B

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

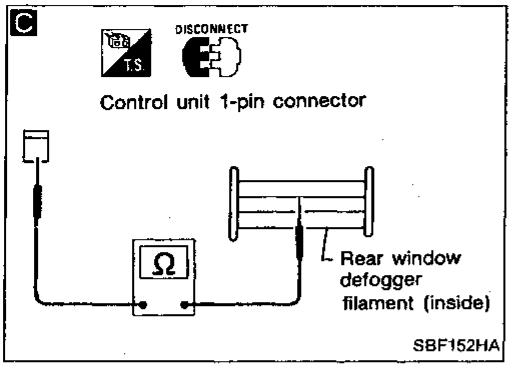
NG → Check GND harness.

OK ↓

Ⓐ

Trouble Diagnoses (Cont'd)

C



Ⓐ

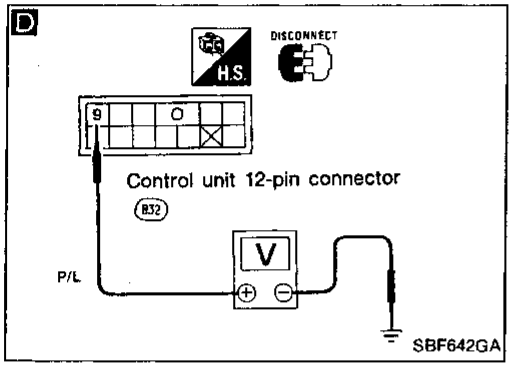
C

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

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

OK ↓

D

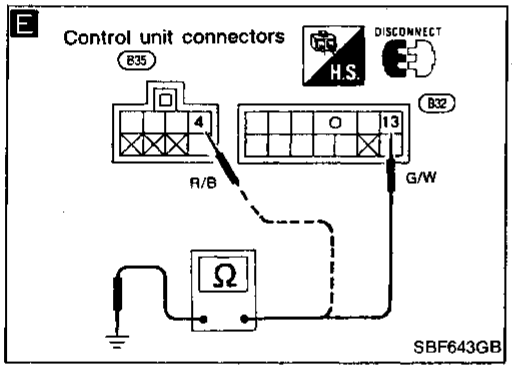


CHECK IGNITION KEY SWITCH CIRCUIT.
Disconnect 12-pin connector from control unit.
Check voltage across remote control unit terminal ⑨ and GND.
Does battery voltage exist?

Yes → Check ignition key switch.

No ↓

E



CHECK DOOR SWITCH CIRCUIT.
Close all doors and push trunk switch.
Check continuity between terminals ④ and GND, ⑬ and GND.
Does continuity exist?

Yes → Check door switch circuit.

No ↓

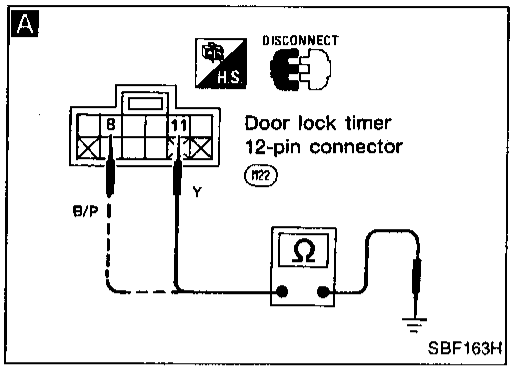
Replace control unit.

Trouble Diagnoses (Cont'd)

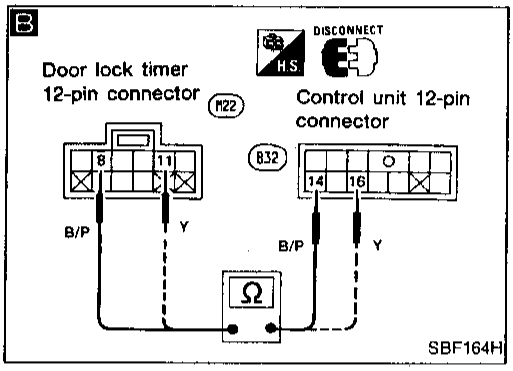
DIAGNOSTIC PROCEDURE 3

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

A



B



A

CHECK DOOR LOCK AND UNLOCK SIGNAL FOR DOOR LOCK TIMER.

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

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

OK → Check power door lock system.

NG ↓

Does continuity exist continually?

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

No ↓

B

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

Terminals	
Remote control	Door lock timer
⑭	⑧
⑯	⑪

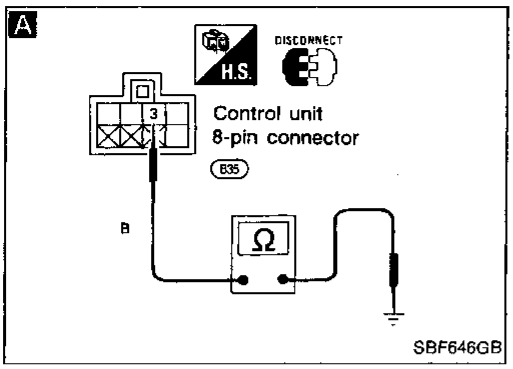
Continuity should exist.

NG → Repair harness.

OK ↓

Replace remote control unit.

Trouble Diagnoses (Cont'd)



DIAGNOSTIC PROCEDURE 4

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

A

CHECK GROUND CIRCUIT FOR TRUNK OPEN FUNCTION.
Disconnect 8-pin connector from remote control unit.
Check continuity between terminal ③ and ground.
Continuity should exist.

NG → Repair harness.

OK ↓

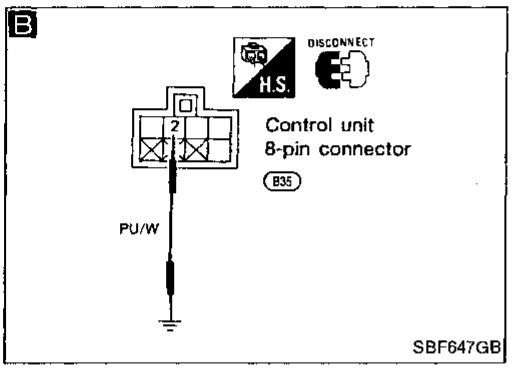
B

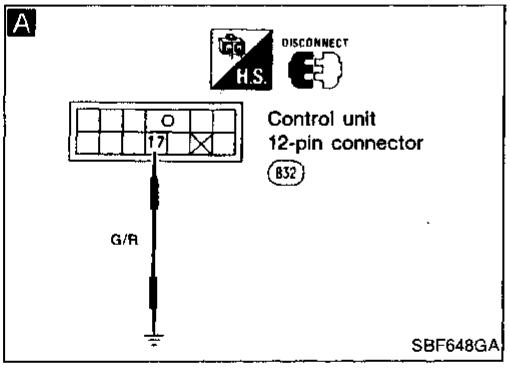
Ground remote control unit connector terminal ②.
Does trunk lid opener function?

No → Check trunk lid opener circuit.

Yes ↓

Replace control unit.





DIAGNOSTIC PROCEDURE 5

Interior light does not function. Everything else does function.

A

CHECK INTERIOR LIGHT CIRCUIT.
Disconnect remote control unit 12-pin connector.
Ground remote control unit connector terminal ⑰.
Does interior light function?

No → Check interior light circuit.

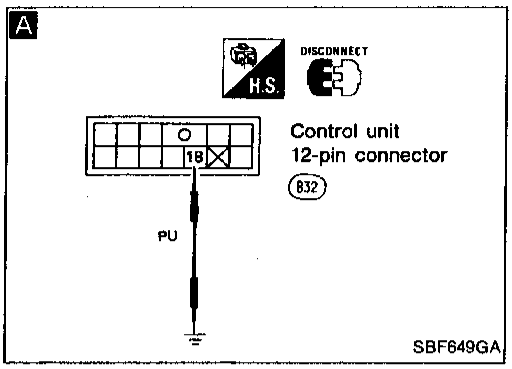
Yes ↓

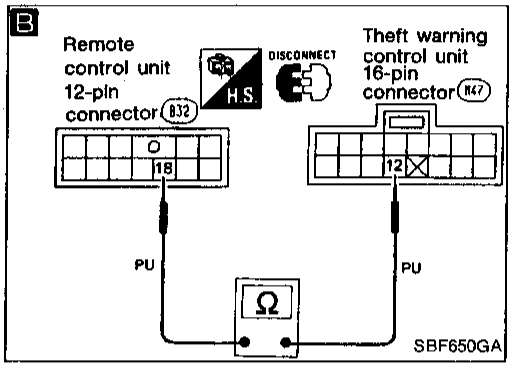
Replace control unit.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 6

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





A

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

Yes → Replace control unit.

No ↓

B

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

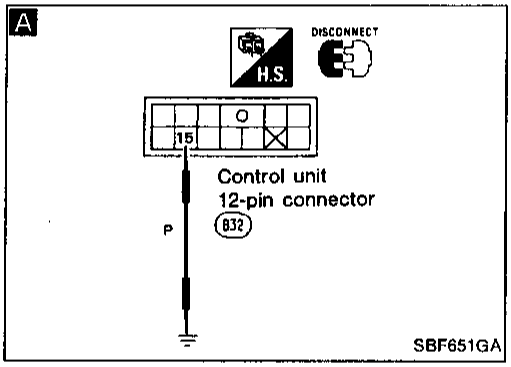
Yes → Check theft warning system.

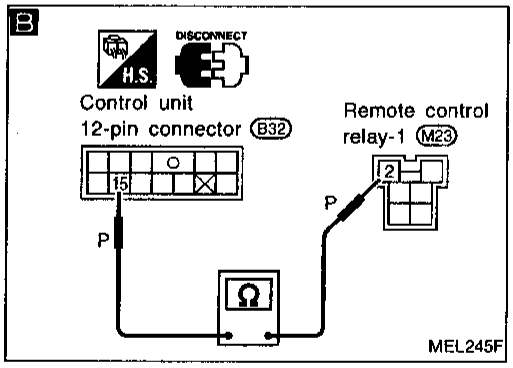
No ↓

Repair harness.

DIAGNOSTIC PROCEDURE 7

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





A

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

Yes → Replace control unit.

No ↓

B

Disconnect remote control relay-1 connector.
Check continuity between terminal ⑮ of remote control unit connector and terminal ② of remote control relay-1.
Does continuity exist?

Yes → Check remote control relay-1 and harness.

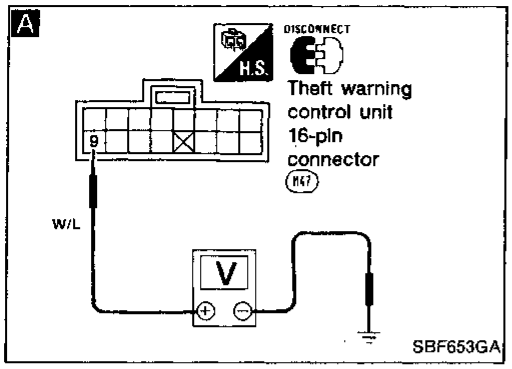
No ↓

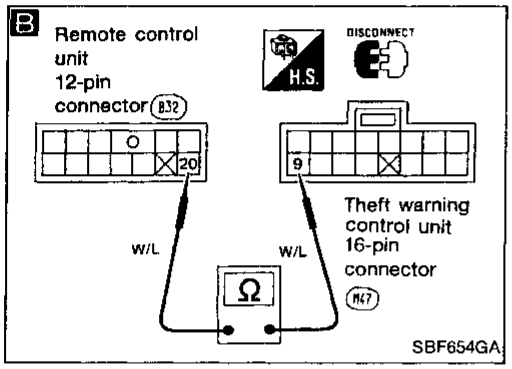
Repair harness.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 8

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





A

CHECK THEFT WARNING CANCEL SIGNAL CIRCUIT.

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

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

Does voltmeter gauge move when door is unlocked?

Yes → Check theft warning system.

No ↓

B

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

Yes → Replace remote control unit.

No ↓

Repair harness.

Replacing Remote Controller or Control Unit

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

ID Code Entry Procedure

To enter the ID code, follow this procedure.

"Setting mode".

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

(1) Open the trunk.
(2) Close and lock all doors.
(3) Insert and remove the key from the ignition more than six times within 10 seconds.

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

ID code entry:

(4) Unlock and lock the driver's door inside lock lever once.
(5) Push lock button on the new remote controller once (for example, if door is locked using the remote controller during this ID code entry enable state, a new ID code can be entered).

- **At this time, the new ID code is entered.**

(6) If you need to enter additional remote controllers (including the original) repeat the step (4) and (5) for each additional controller.
(7) This ID code entry enable state and setting mode remain until any one of the doors is opened.

Note

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

System Description

FUNCTION

- Time control unit has the following functions.

Item	Details of control
Intermittent wiper control	Regulates intermittent time from approximately 2 to 21 seconds depending on the intermittent wiper volume setting.
Washer and wiper combination control	Wiper is operated in conjunction with washer switch.
Light warning chime timer	When driver's door is opened with light switch ON and ignition switch OFF, warning chime sounds.
Ignition key warning chime timer	When driver's door is opened with ignition switch OFF, warning chime sounds.
Rear defogger timer	Rear defogger operates for about 15 minutes when defogger switch is ON.
Interior lamp timer	Fades out interior lamp when driver's side door is opened and closed.

Power is supplied at all times
- to time control unit terminal ⑨ (located in the fuse block [J/B])
- through 7.5A fuse (No. 23, located in the fuse block [J/B]).

With the ignition switch in the ACC or ON position, power is supplied
- to time control unit terminal ② (located in the fuse block [J/B])
- through 7.5A fuse (No. 7, located in the fuse block [J/B]).

With the ignition switch in the ON or START position, power is supplied
- to time control unit terminal ⑤ (located in the fuse block [J/B])
- through 7.5A fuse (No. 32, located in the fuse block [J/B]).

Time control unit (located in the fuse block [J/B]) terminal (24A) is grounded through body grounds (M14) and (M68).

REAR WINDOW AND DOOR MIRROR DEFOGGER

The time control unit will operate the rear window and door mirror defogger for 15 minutes as long as the rear window defogger switch is in the ON position. For detailed description, refer to "REAR WINDOW DEFOGGER" (EL-116).

WARNING CHIME

Power is supplied at all times
- through 10A fuse (No. 12, located in the fuse block [J/B])
- to key switch terminal ①.

Power is supplied at all times
- through 7.5A fuse (No. 13, located in the fuse block [J/B])
- to warning chime terminal ①.

Power is supplied at all times
- through 15A fuse (No. 56, located in the fuse and fusible link box)
- to tail lamp relay terminals ① and ③.

Ground is supplied
- to warning chime terminal ③
- through body grounds (M14) and (M68).

When a signal, or combination of signals, is received by the time control unit, chime signal is supplied
- through time control unit (located in the fuse block [J/B]) terminal (3A).
- to warning chime terminal ②.

With power, ground and chime signal supplied, the warning chime will sound.

Ignition key warning chime

With the key in the ignition switch in the OFF position, and the driver's door open, the warning chime will sound. A battery positive voltage is supplied
- from key switch terminal ②
- to time control unit (located in the fuse block [J/B]) terminal (28A).

System Description (Cont'd)

Ground is supplied
- from front door switch (driver side) terminal ②
- to time control unit (located in the fuse block [J/B]) terminal (4A).

Front door switch (driver side) terminal ③ is grounded through body grounds (B9) and (B31).

Light warning chime

With the ignition switch in the OFF position, the driver's door open, and the lighting switch in the 1ST or 2ND position, the warning chime will sound.
Tail lamp relay is energized.
A battery positive voltage is supplied
- through 7.5A fuse (No. 25, located in the fuse block [J/B])
- to time control unit terminal ⑥ (located in the fuse block [J/B]) and
- from key switch terminal ②
- to time control unit (located in the fuse block [J/B]) terminal (28A).

Ground is supplied
- from front door switch (driver side) terminal ②
- to time control unit (located in the fuse block [J/B]) terminal (4A).

Seat belt warning chime

This warning chime sounds for approximately 6 seconds
- when ignition switch is turned from OFF to ON and seat belt is unfastened (seat belt switch ON).

The warning chime sounds until seat belt buckle switch is turned OFF (seat belt tongue is inserted into buckle).
Ground is supplied to time control unit terminal ⑯ when the seat belt is unfastened through the seat belt buckle switch and body grounds (B9) and (B31).

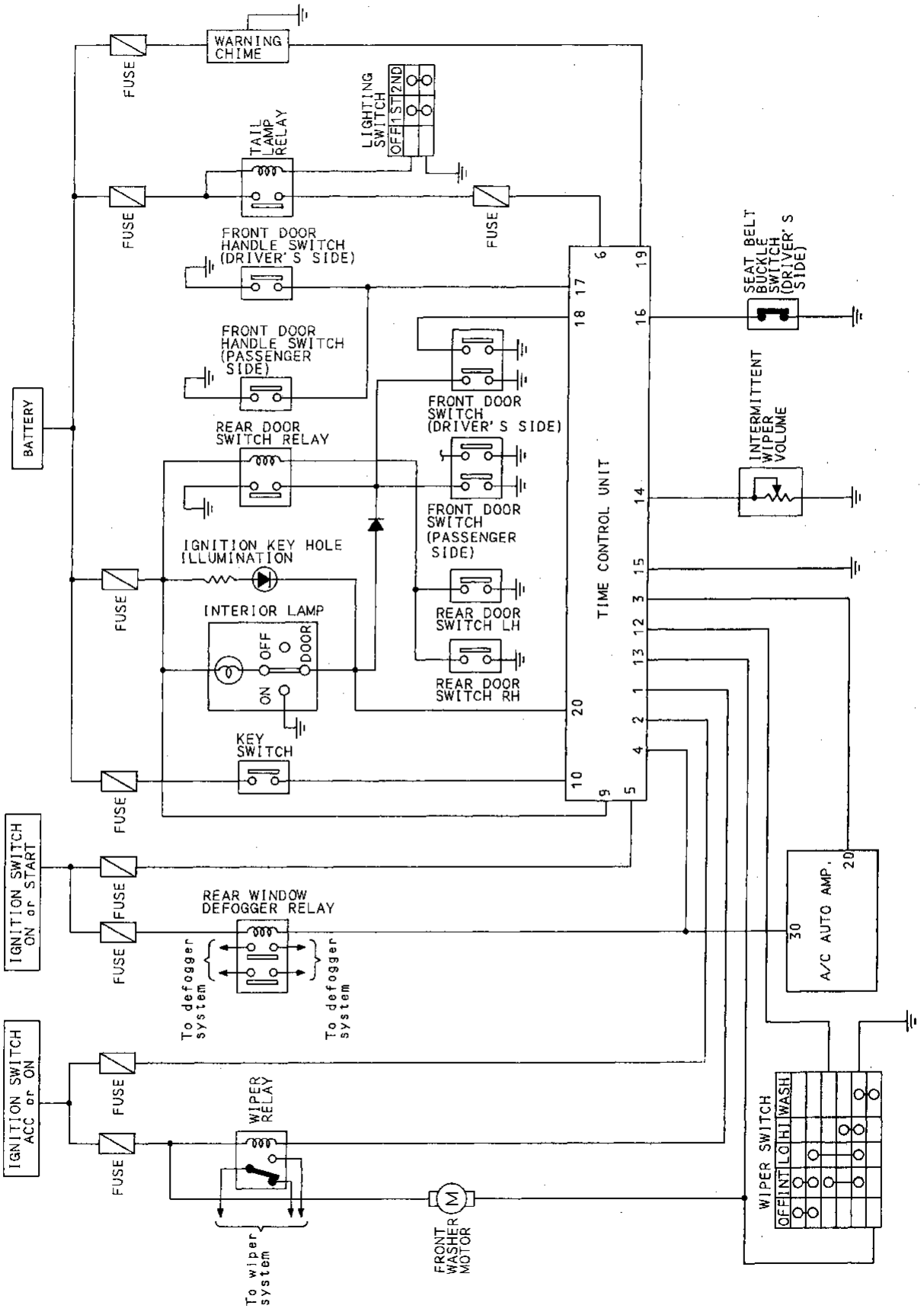
FRONT WIPER AND WASHER

The time control system controls operation of the intermittent feature for the front wiper. It also controls wiper motor for the washer operation.
For detailed description, refer to "FRONT WIPER AND WASHER" (EL-108).

Interior lamp

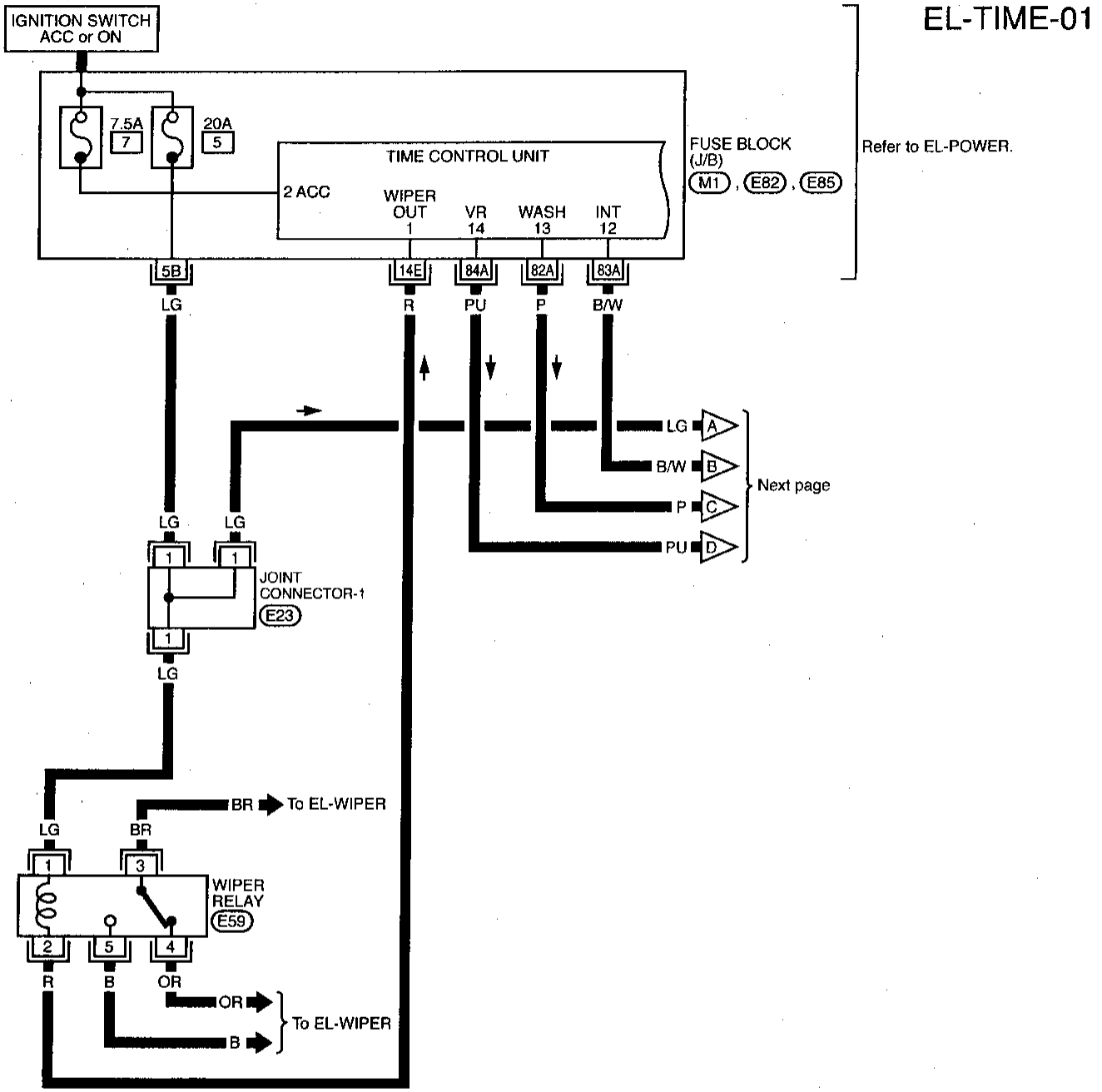
Time control unit starts to dim interior lamp and ignition key hole illumination and turns them off within approximately 10 seconds when
- interior lamp switch is set to DOOR and front door switch (driver side) to CLOSED or
- interior lamp switch is set to DOOR and front door switch (driver side) is CLOSED and front door handle switches are moved from PULL to RELEASED.

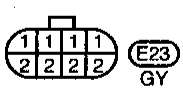
Schematic

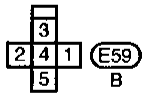


TEL233

Wiring Diagram — TIME —





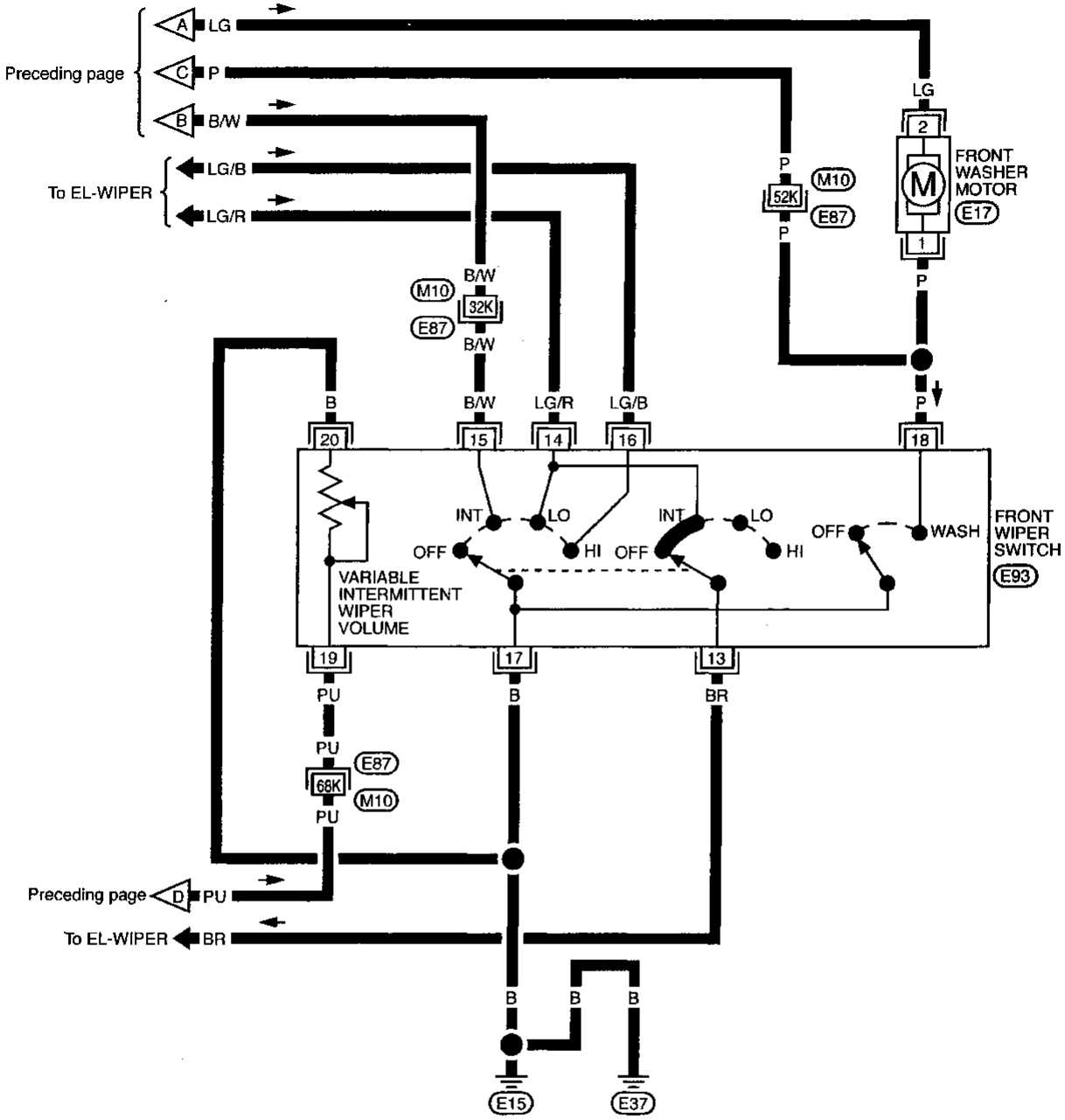


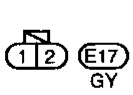
Refer to last page (Foldout page).
E82, E85, M1
E87, M10

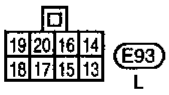
TEL234

Wiring Diagram — TIME — (Cont'd)

EL-TIME-02



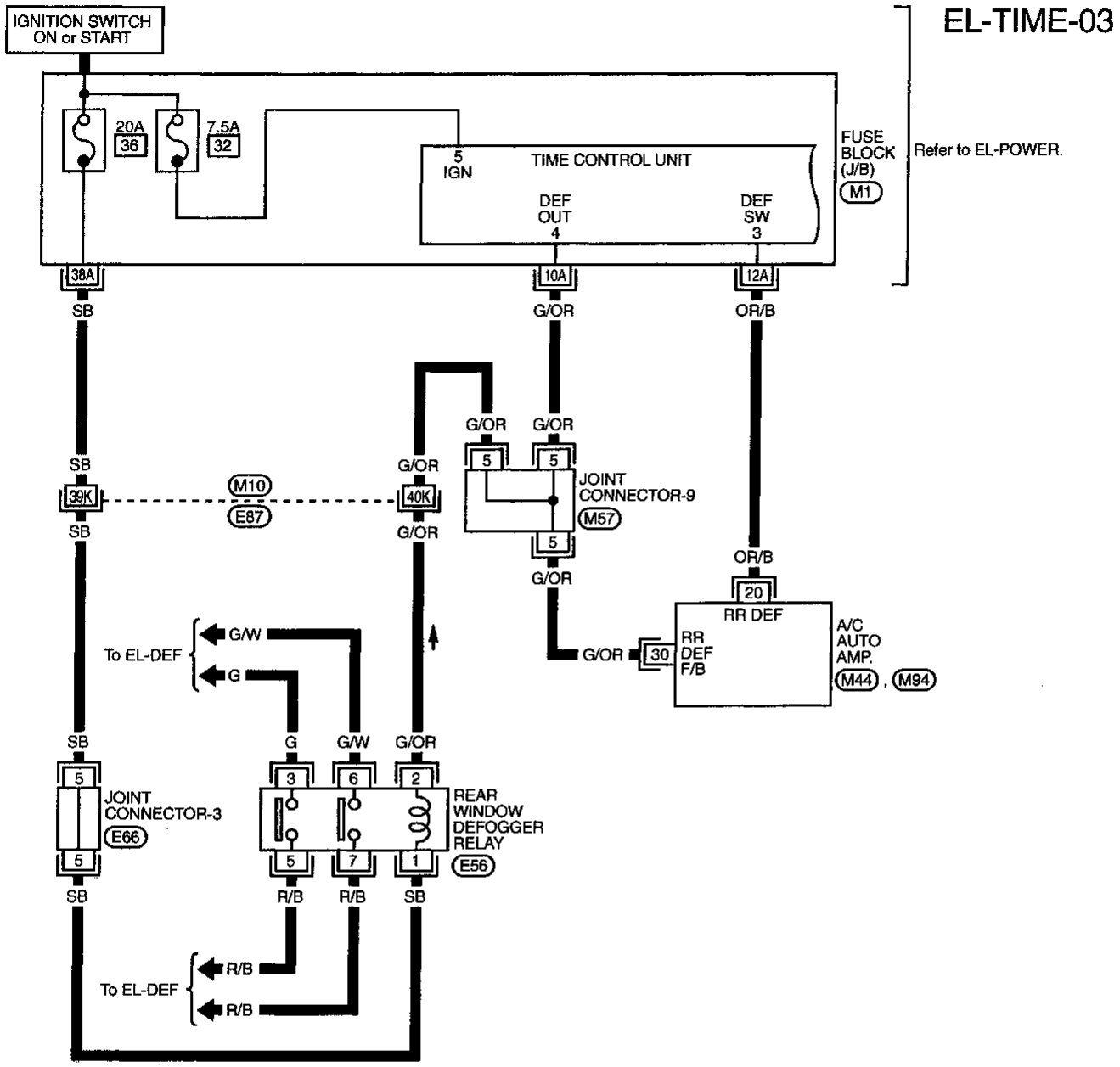


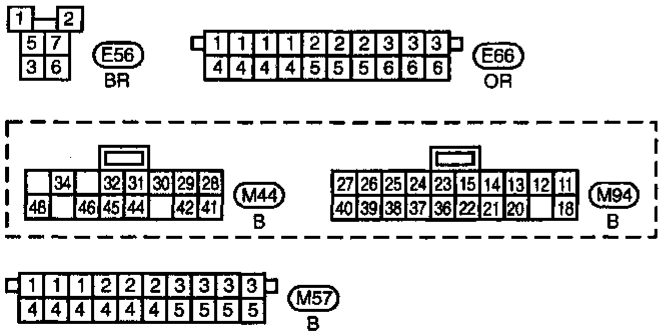


Refer to last page (Foldout page).
E87 , M10

TEL336

Wiring Diagram — TIME — (Cont'd)



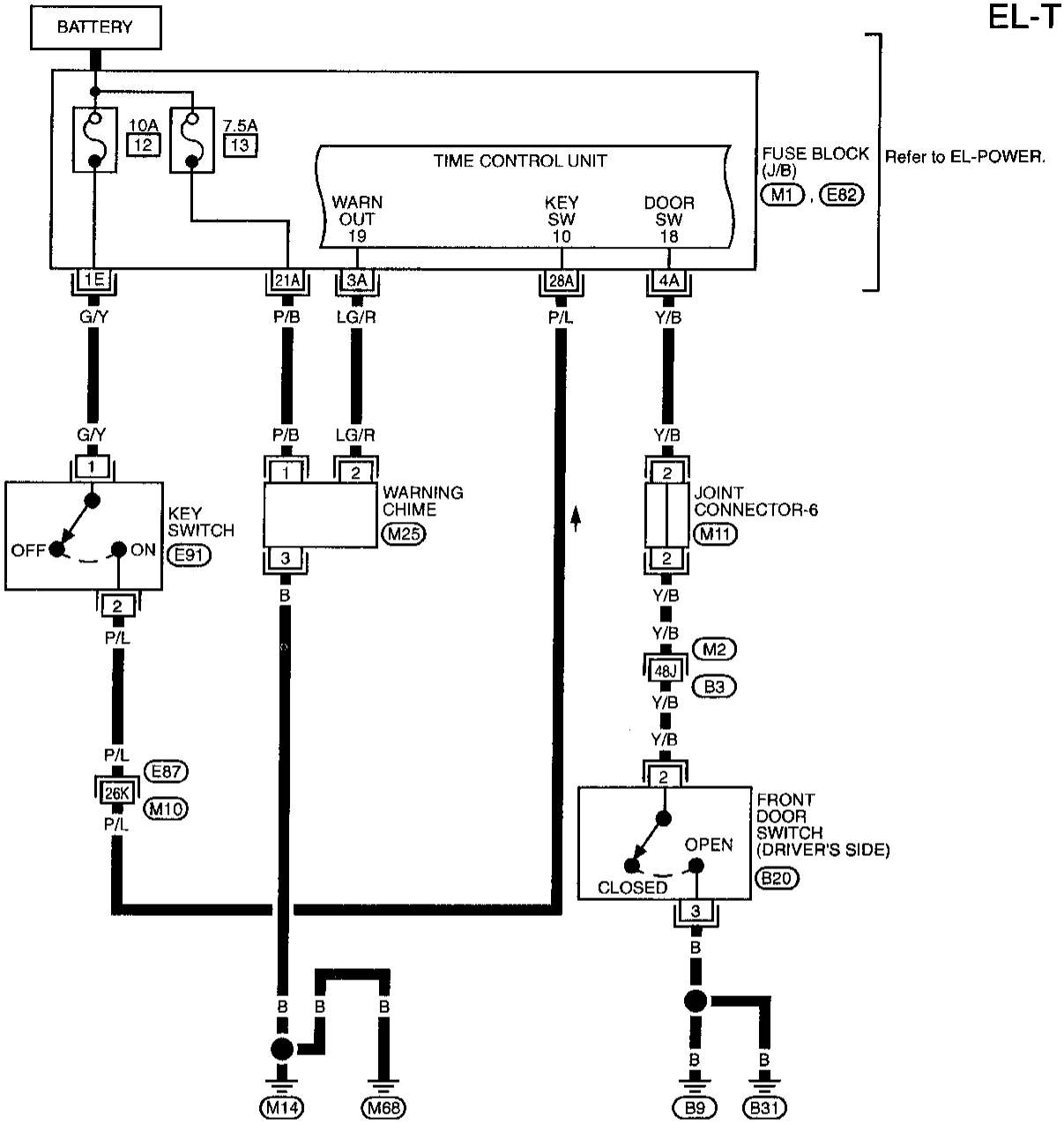


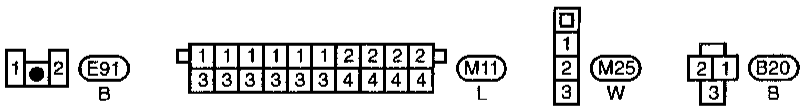
Refer to last page (Foldout page).
E67, M10
M1

TEL235

Wiring Diagram — TIME — (Cont'd)

EL-TIME-04





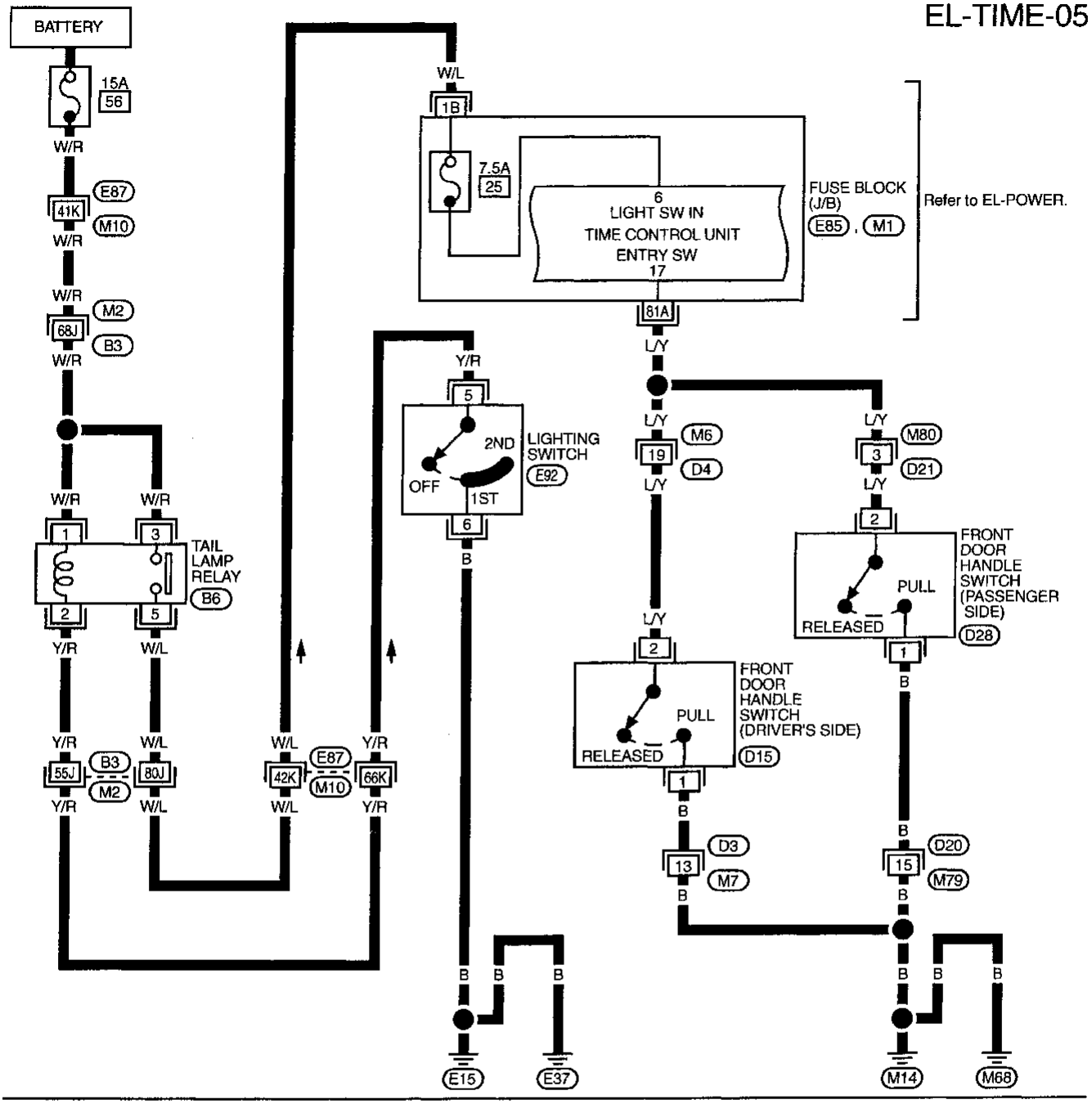
Refer to last page (Foldout page).
E82, M1
E87, M10
M2, B3

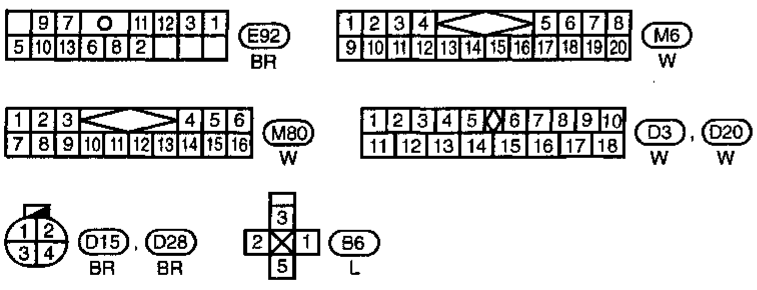
GI MA EM LC EC FE AT PD FA RA BR ST RS BT HA EL IDX

TEL236

Wiring Diagram — TIME — (Cont'd)

EL-TIME-05





Refer to last page (Foldout page).

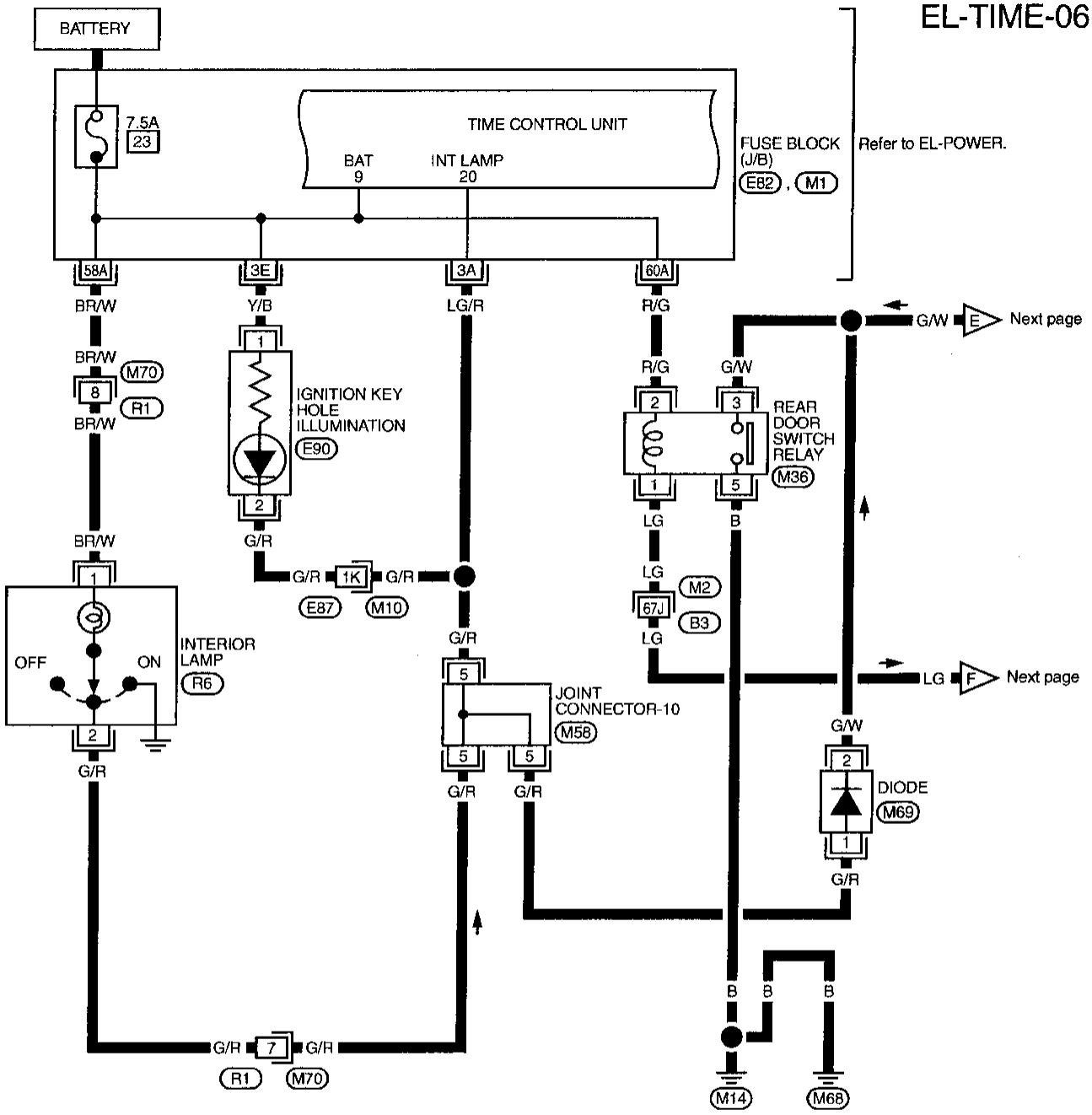
E85 , M1

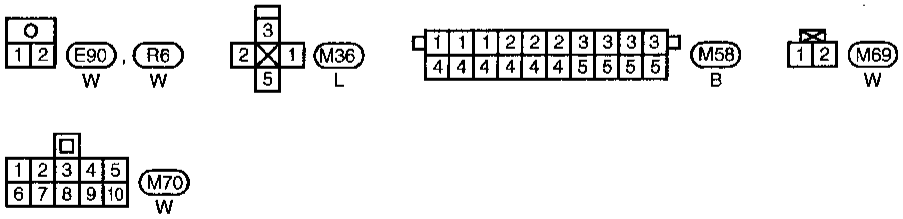
E87 , M10

M2 , B3

TEL237

Wiring Diagram — TIME — (Cont'd)





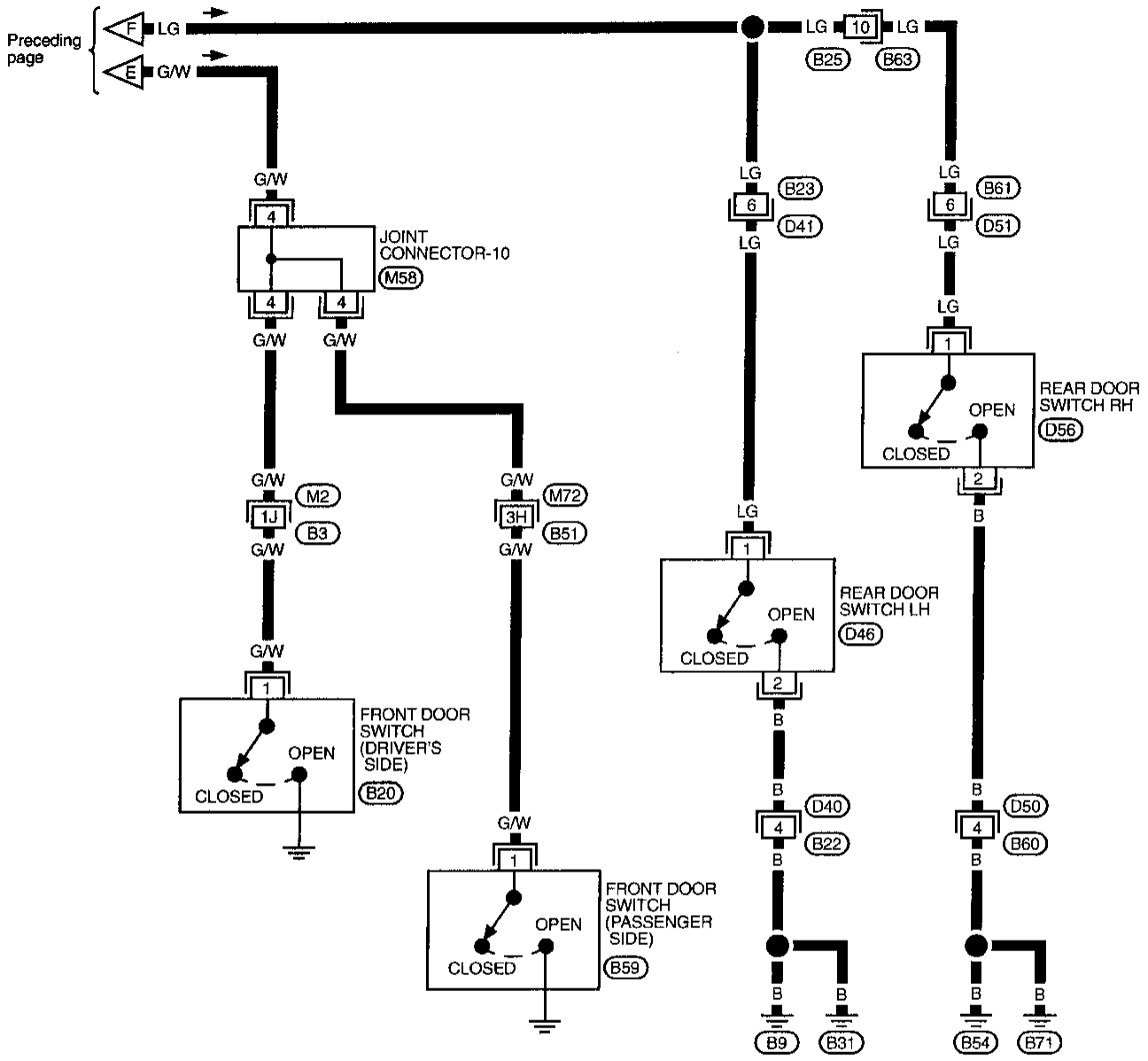
Refer to last page (Foldout page).

E82, M1
E87, M10
M2, B3

TEL238

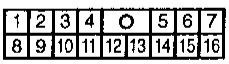
Wiring Diagram — TIME — (Cont'd)

EL-TIME-07

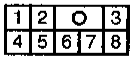



M58
B


B20 , B59
B B


B63
W


D40 , D50
W W


D41 , D51
W W


D46 , D56
GY GY

Refer to last page (Foldout page).

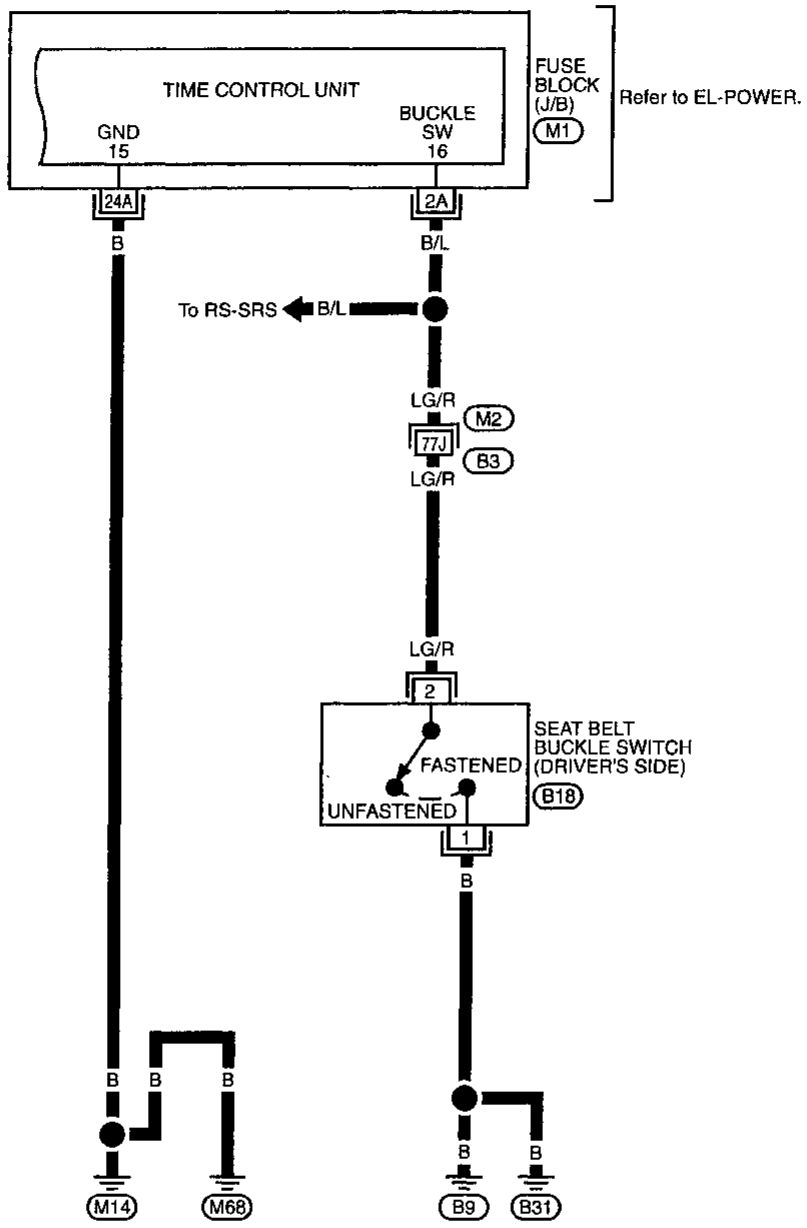
M2 , B3

M72 , B51

TEL239

Wiring Diagram — TIME — (Cont'd)

EL-TIME-08



O
1 2
B18
W

Refer to last page (Foldout page).
M2, B3
M1

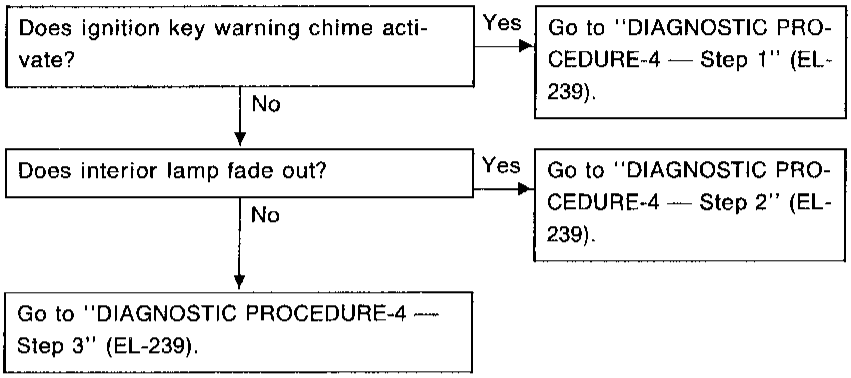
TEL240

Trouble Diagnoses

PRELIMINARY CHECK

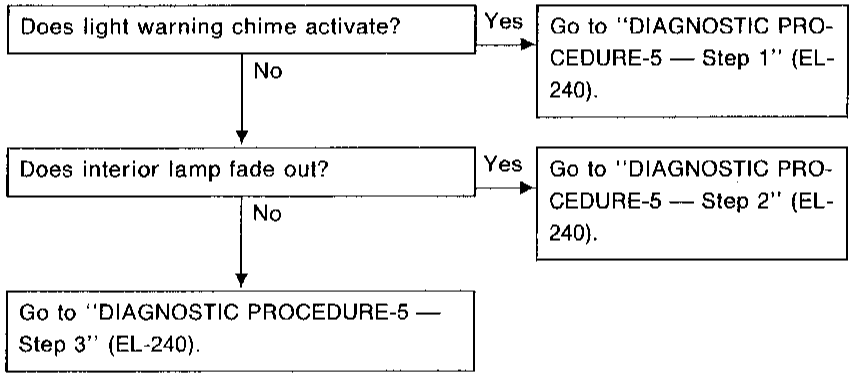
Procedure 1

- Light warning chime does not activate.



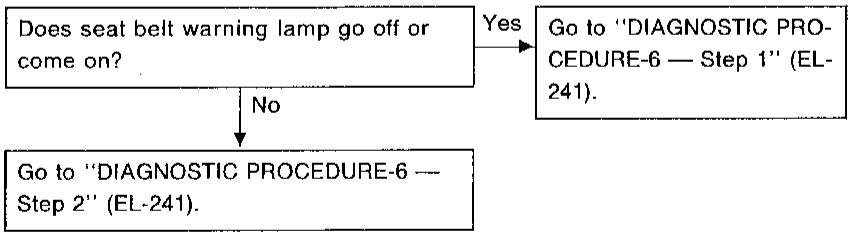
Procedure 2

- Ignition key warning chime dose not activate.



Procedure 3

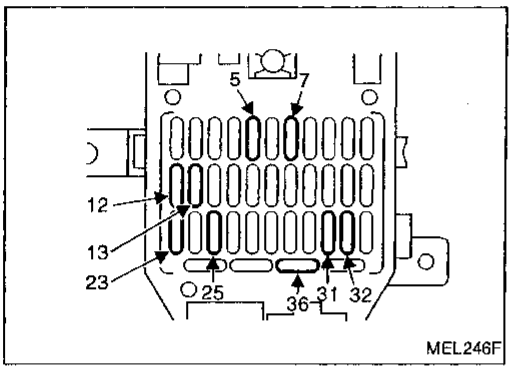
- Seat belt warning chime does not activate.



Trouble Diagnoses (Cont'd)

PREPARATIONS FOR TROUBLE DIAGNOSES

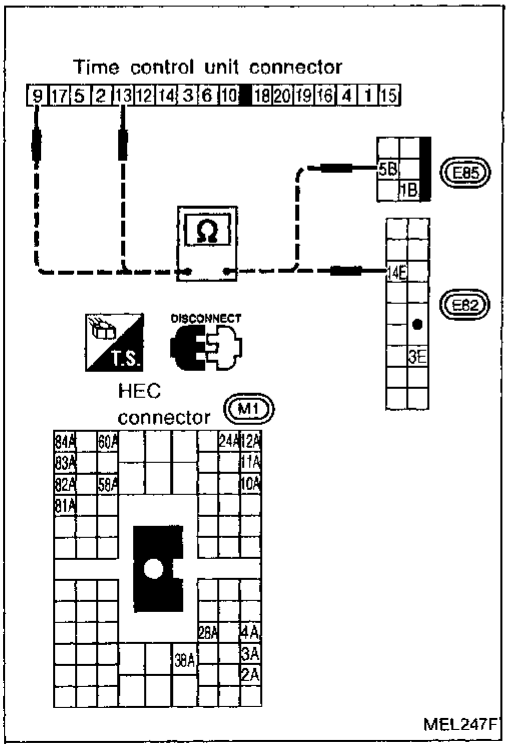
- Check for blown fuses. If necessary, repair or replace harness or related part.
- Check HEC internal circuit (continuity check) before diagnosing. This is because the time control unit is directly connected to the HEC which functions as an intermediate joint for input and output.
- Check the power supply and ground circuits of time control unit. Repair or replace harness if necessary.



FUSE CHECK

Power fuse check in HEC

Fuse	Amperage	Power supply system	Main part generating loads
#5	20A	ACC	Wiper motor
#7	7.5A	ACC	Power antenna, Audio
#12	10A	BAT	Key switch, Air bag, Theft warning system
#13	7.5A	BAT	Clock, A/T control, Remote control door lock
#23	7.5A	BAT	Interior lamp, Footwell lamp
#25	7.5A	BAT	Tail lamp, Clearance lamp
#31	7.5A	IGN	Charge, A/T, ABS
#32	7.5A	IGN	HICAS, Power steering
#36	20A	IGN	Mirror, LD/SIG, DEF



INTERNAL CIRCUIT CHECK IN HEC (Continuity check)

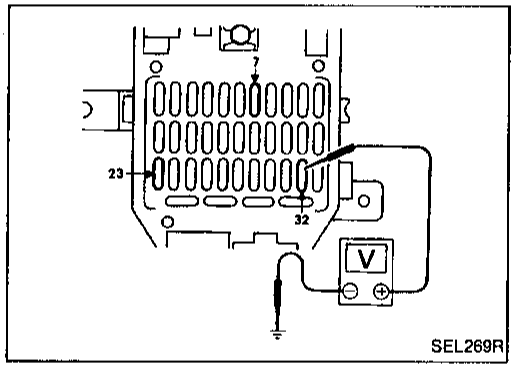
- Remove HEC from vehicle.
- Remove TCU from HEC.

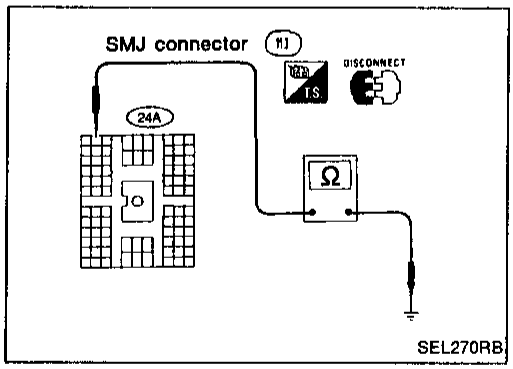
Trouble Diagnoses (Cont'd)

- Check for continuity between TCU connector and connector for the TCU output and input listed below:

TCU connector	Connector for TCU output and input	TCU connector	Connector for TCU output and input
1	14E (E82)	12	83A (M1)
2	5D (E85)	13	82A (M1)
3	12A (M1)	14	84A (M1)
4	10A (M1)	15	24A (M1)
5	38A (M1)	16	2A (M1)
6	1B (E85)	17	81A (M1)
9	3E (E82)	18	4A (M1)
9	58A (M1)	19	3A (M1)
9	60A (M1)	20	11A (M1)
10	28A (M1)		

When checking TCU connector terminals ⑤ and ②, apply 12V to (E64) connector terminals ⑪ and ㉑ while grounding (M1) connector terminal (24A).





MAIN POWER SUPPLY AND GROUND CIRCUIT CHECK

Main power supply

Check the voltage at the back side of each fuse.

Fuse	Battery voltage existence condition		
	Ignition switch position		
	OFF	ACC	ON
#23	Yes	Yes	Yes
#32	No	No	Yes
#7	No	Yes	Yes

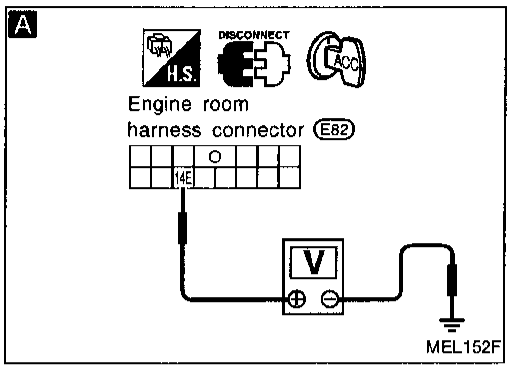
Ground circuit

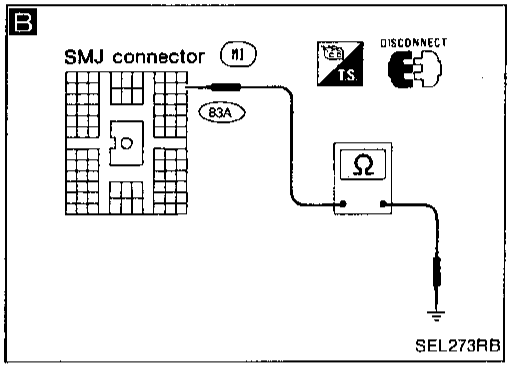
Terminals	Continuity
(24A) - Ground	Yes

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 1

SYMPTOM: Intermittent wiper does not operate.





A

WIPER RELAY OUTPUT SIGNAL CHECK
1) Turn ignition switch to "ACC".
2) Turn wiper switch to "INT" or "OFF".
3) Measure voltage between E82 connector terminal 14E and ground.

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

OK → Check wiper relay.
Refer to "WIPER AND WASHER " (EL-108).

OK → Check wiper relay circuit.

NG → Replace wiper relay.

NG

B

INTERMITTENT SWITCH INPUT SIGNAL CHECK
Measure resistance between SMJ connector M1 terminal 83A and ground.
Turn wiper switch to "INT" or "OFF".

Condition of wiper switch	Continuity
OFF	No
INT	Yes

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

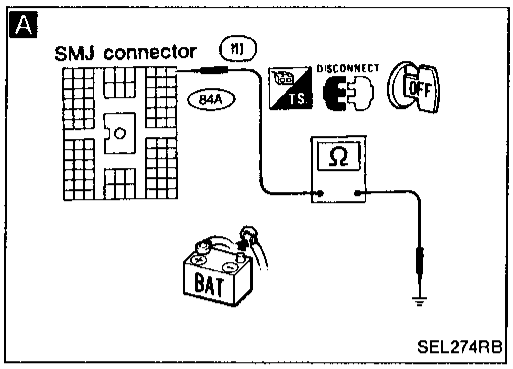
OK

Replace control unit.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 2

SYMPTOM: Intermittent time of wiper cannot be adjusted.



A

INTERMITTENT WIPER VOLUME INPUT SIGNAL CHECK

Measure resistance between SMJ connector (M1) terminal (84A) and ground while turning intermittent wiper volume.

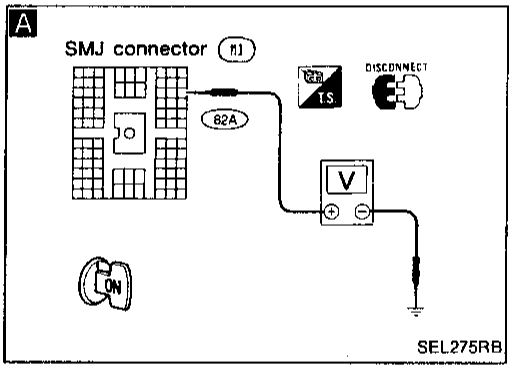
Position of wiper knob	Resistance [Ω]
S	0
L	Approx. 1 k

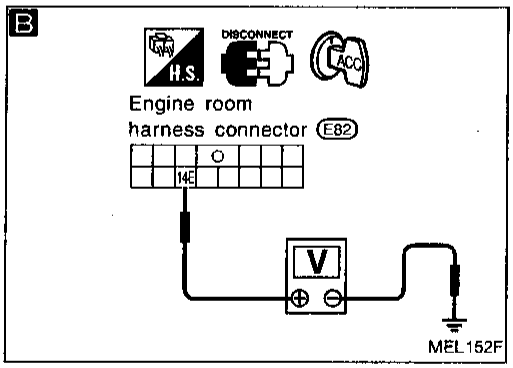
OK → Replace control unit.

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

DIAGNOSTIC PROCEDURE 3

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





A

WASHER SWITCH INPUT SIGNAL CHECK

1) Turn ignition switch to "ACC".
2) Measure voltage between SMJ connector (M1) terminal (82A) and ground.

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

NG → Check harness continuity between TCU and washer switch.

OK ↓

B

WIPER RELAY OUTPUT SIGNAL CHECK

Connect SMJ connector.
Measure voltage between engine room harness connector (E82) terminal (14E) and ground after operating washer switch.
0V for approx. 3 seconds after washer has operated.

NG → Replace control unit.

OK ↓

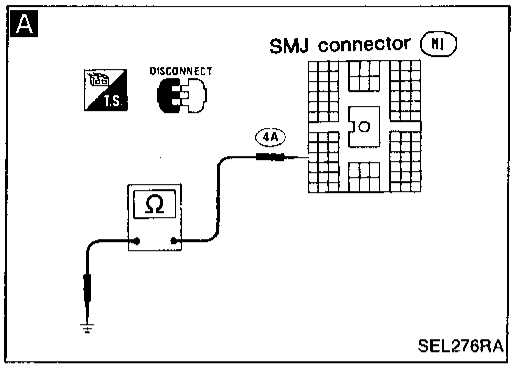
Replace wiper relay.

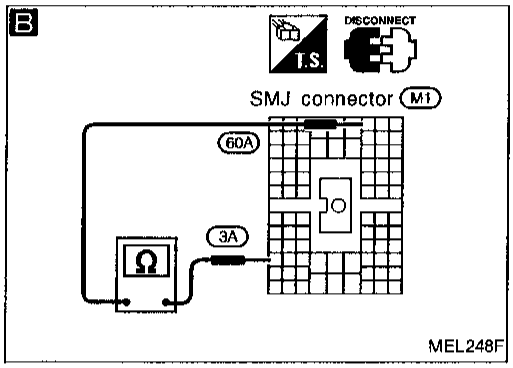
Trouble Diagnoses (Cont'd)

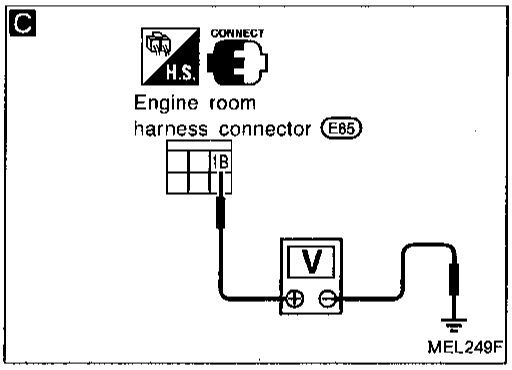
DIAGNOSTIC PROCEDURE 4

SYMPTOM: Light warning chime does not activate.

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







A — Step 3

DOOR SWITCH FUNCTION CHECK
Measure resistance between SMJ connector (M1) terminal (4A) and ground.

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

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

OK ↓

B — Step 2

CHIME CONTINUITY CHECK
Measure resistance between SMJ connector (M1) terminals (3A) and (60A).
Continuity should exist.

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

OK ↓

C — Step 1

LIGHT SWITCH INPUT SIGNAL CHECK
Connect SMJ connector (M1).
Measure voltage between engine room harness connector (E85) terminal (1B) and ground.

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

NG → Check light switch and tail lamp relay. Check harness continuity between TCU and light switch.

OK ↓

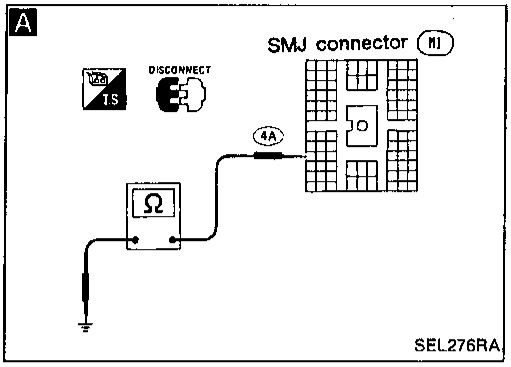
Replace control unit.

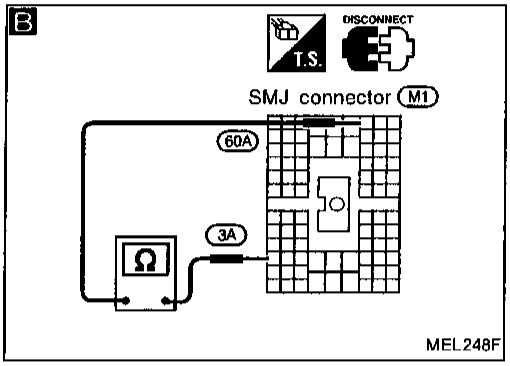
Trouble Diagnoses (Cont'd)

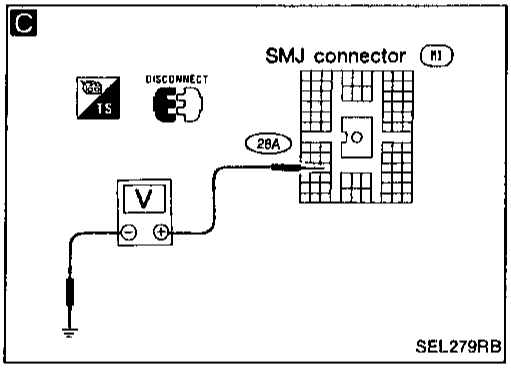
DIAGNOSTIC PROCEDURE 5

SYMPTOM: Ignition key warning chime does not activate.

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







A — Step 3

DOOR SWITCH FUNCTION CHECK
Measure resistance between SMJ connector (M1) terminal (4A) and ground.

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

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

OK ↓

B — Step 2

CHIME CONTINUITY CHECK
Measure resistance between SMJ connector (M1) terminals (3A) and (60A).
Continuity should exist.

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

OK ↓

C — Step 1

IGNITION KEY SWITCH INPUT SIGNAL CHECK
Measure voltage between SMJ connector (M1) terminal (28A) and ground.

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

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

OK ↓

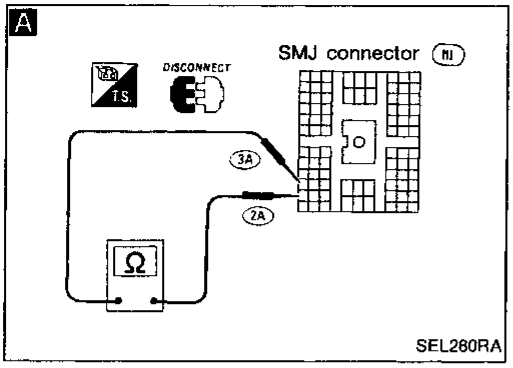
Replace control unit.

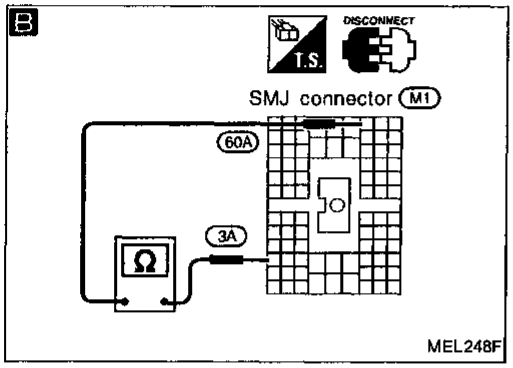
Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 6

SYMPTOM: Seat belt warning chime does not activate.

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





A

Step 2

SEAT BELT SWITCH FUNCTION CHECK
Check continuity between SMJ connector (M1) terminals (3A) and (2A).

Condition	Continuity
Unfastened	Yes
Fastened	No

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

OK ↓

B

Step 1

CHIME CONTINUITY CHECK
Measure resistance between SMJ connector (M1) terminal (3A) and (60A).
Continuity should exist.

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

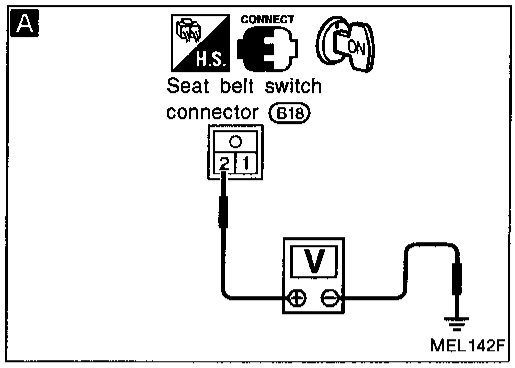
OK ↓

Replace control unit.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 7

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



A

WARNING LAMP OUTPUT SIGNAL CHECK
1) Connect all HEC connectors.
2) Turn ignition switch "ON".
   Measure voltage between terminal and ground as shown.
3) Does voltmeter needle keep swinging for about 7 seconds after ignition switch has been turned on?

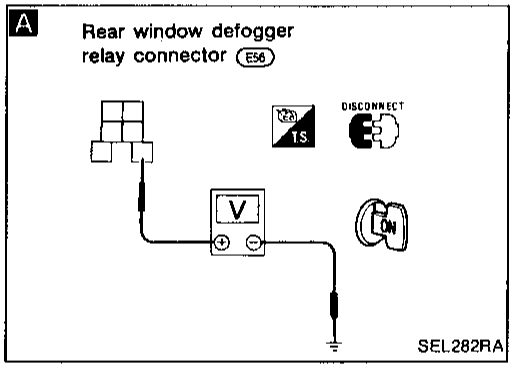
Yes → Check warning lamp.
Check harness continuity between TCU and warning lamp.

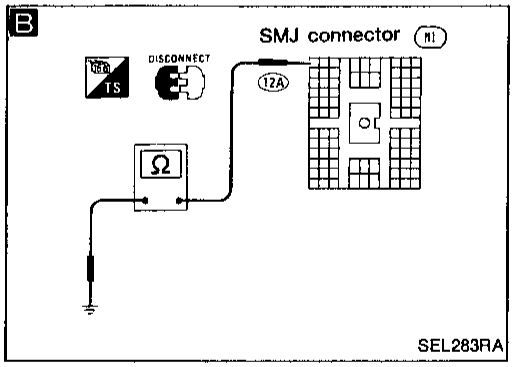
No ↓

Replace control unit.

DIAGNOSTIC PROCEDURE 8

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





A

REAR WINDOW DEFOGGER OUTPUT SIGNAL CHECK
Measure voltage between rear window defogger relay connector terminal and ground.

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

OK → Check rear window defogger relay.
Check circuit between rear window defogger relay and SMJ connector terminal (10A).
Check rear window defogger circuit.

NG ↓

Check power supply. → NG → Remedy.

OK ↓

B

REAR WINDOW DEFOGGER SWITCH FUNCTION CHECK
1) Disconnect SMJ connector (M1).
2) Check continuity between SMJ connector terminal (12A) and ground.

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

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

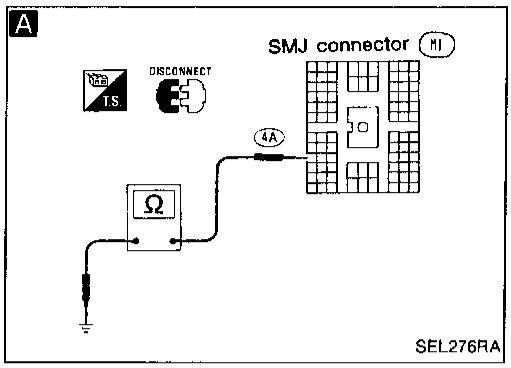
OK ↓

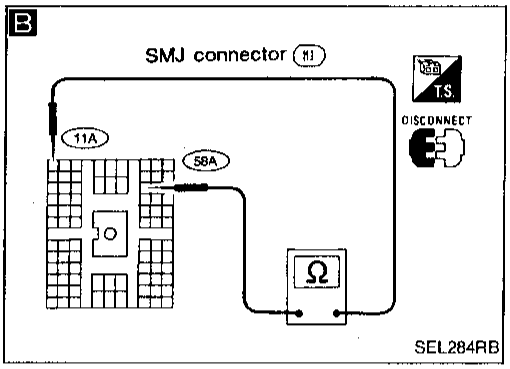
Replace control unit.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 9

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





A

DOOR SWITCH FUNCTION CHECK
Measure resistance between SMJ connector (M1) terminal (4A) and ground.

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

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

OK ↓

B

INTERIOR LAMP SIGNAL CHECK
Measure resistance between SMJ connector (M1) terminal (11A) and (58A).

Interior lamp switch position	Continuity
Interior lamp: Door	Yes
Interior lamp: OFF	No

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

NG ↓

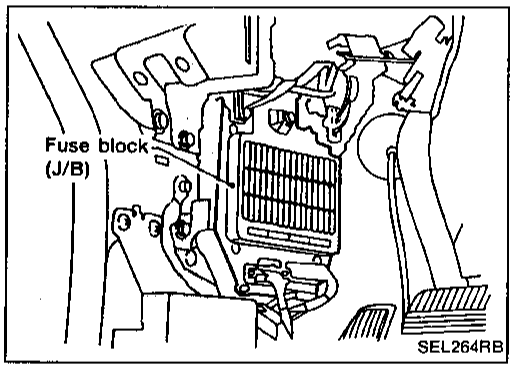
Replace TCU.

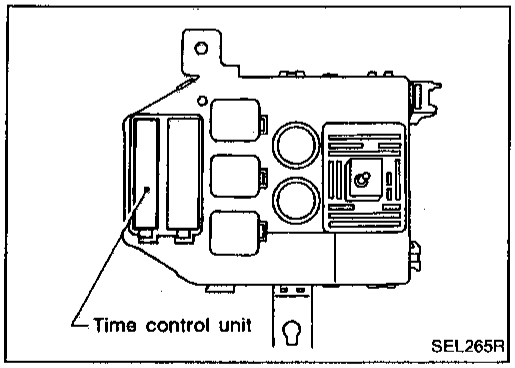
Description

FUNCTION

- Time control unit has the following functions.

Item		Details of control
1, 2	Intermittent wiper control	Regulates intermittent time from approximately 3 to 23 seconds depending on the intermittent wiper volume setting.
3	Washer and wiper combination control	Wiper is operated in conjunction with washer switch.
4	Light warning chime timer	When driver's door is opened with light switch ON and ignition switch OFF, warning chime sounds.
5	Ignition key warning chime timer	When driver's door is opened with ignition switch OFF, warning chime sounds.
6	Seat belt warning chime timer	Sounds warning chime for about 7 seconds if ignition switch is turned "ON" when seat belt switch is "ON" (seat belt is unfastened).
7	Seat belt warning lamp timer	Seat belt warning lamp blinks for about 7 seconds when ignition switch is turned to "ON".
8	Rear defogger timer	Rear defogger operates for about 15 minutes when defogger switch is ON.
9	Interior lamp timer	Fades out interior lamp when driver's side door is opened and closed.
10	Door key hole illumination	Illuminates for about 7 seconds when door outside handle is pulled.



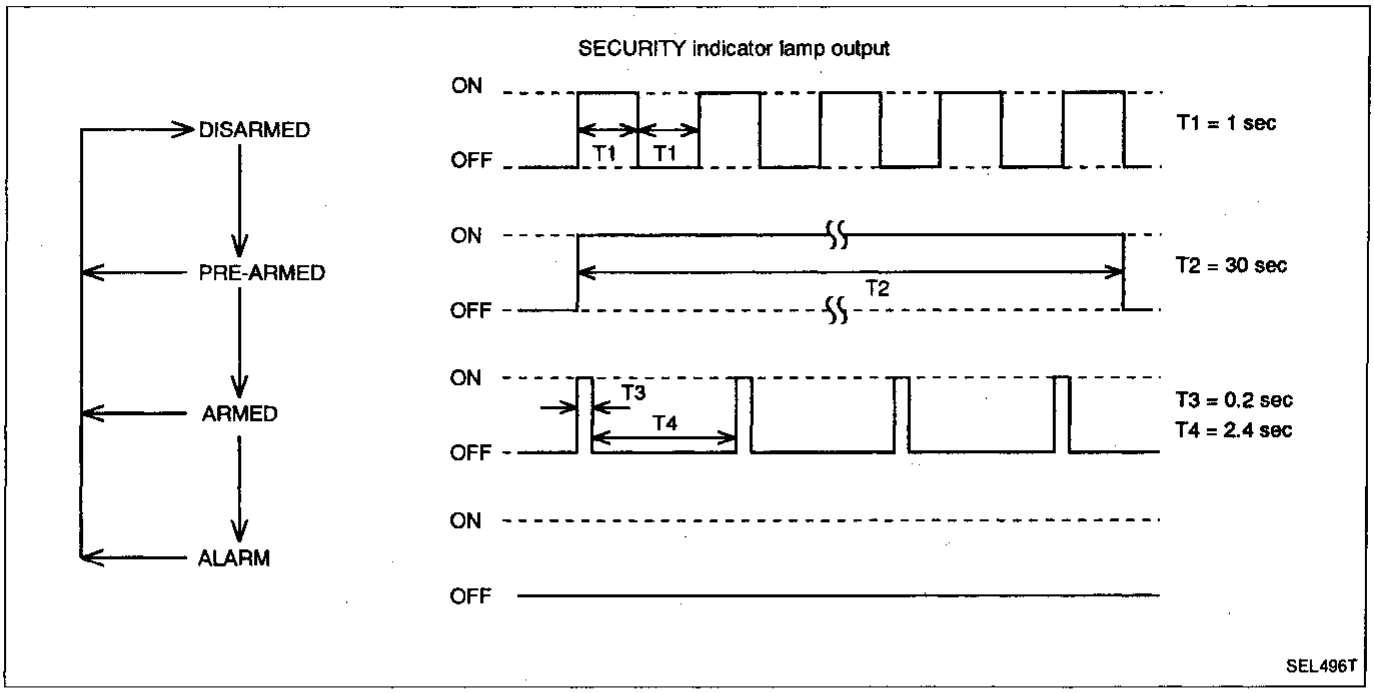


UNIT LOCATION

- Time control unit locates behind fuse block (J/B).

Description

1. OPERATION FLOW



2. SETTING THE THEFT WARNING SYSTEM

Initial condition

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

Disarmed phase

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

Pre-armed phase and armed phase

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

3. CANCELING THE SET THEFT WARNING SYSTEM

When any of the following operations (a), (b) and (c) is performed, the armed phase is canceled.
(a) Unlock at least one door using either the key or the multi remote controller.
(b) Unlock the trunk lid with the key or the multi remote controller.
(c) Insert the key in ignition and turn ignition to "ACC" or "ON".

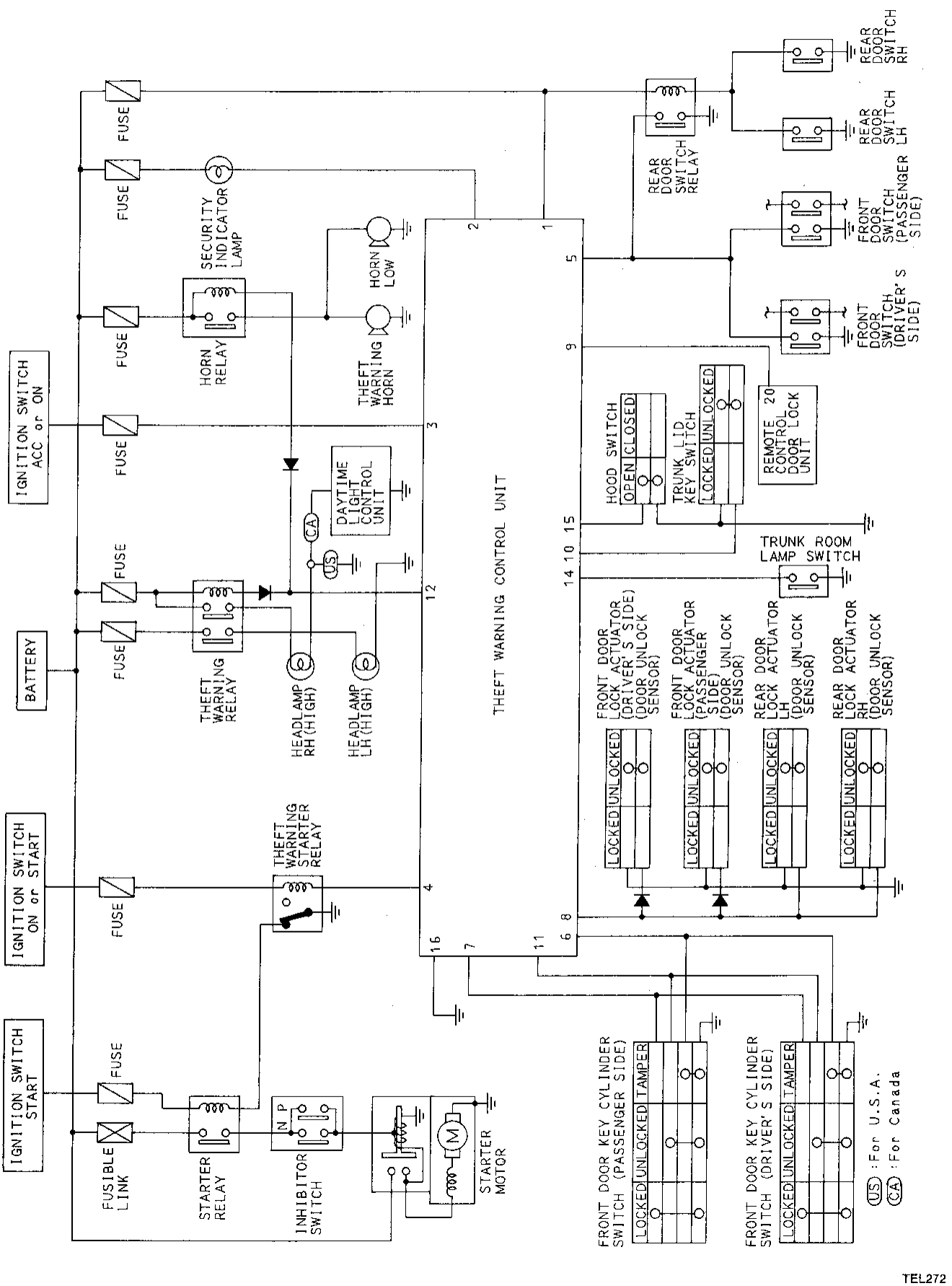
4. ACTIVATING THE ALARM OPERATION OF THE THEFT WARNING SYSTEM

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

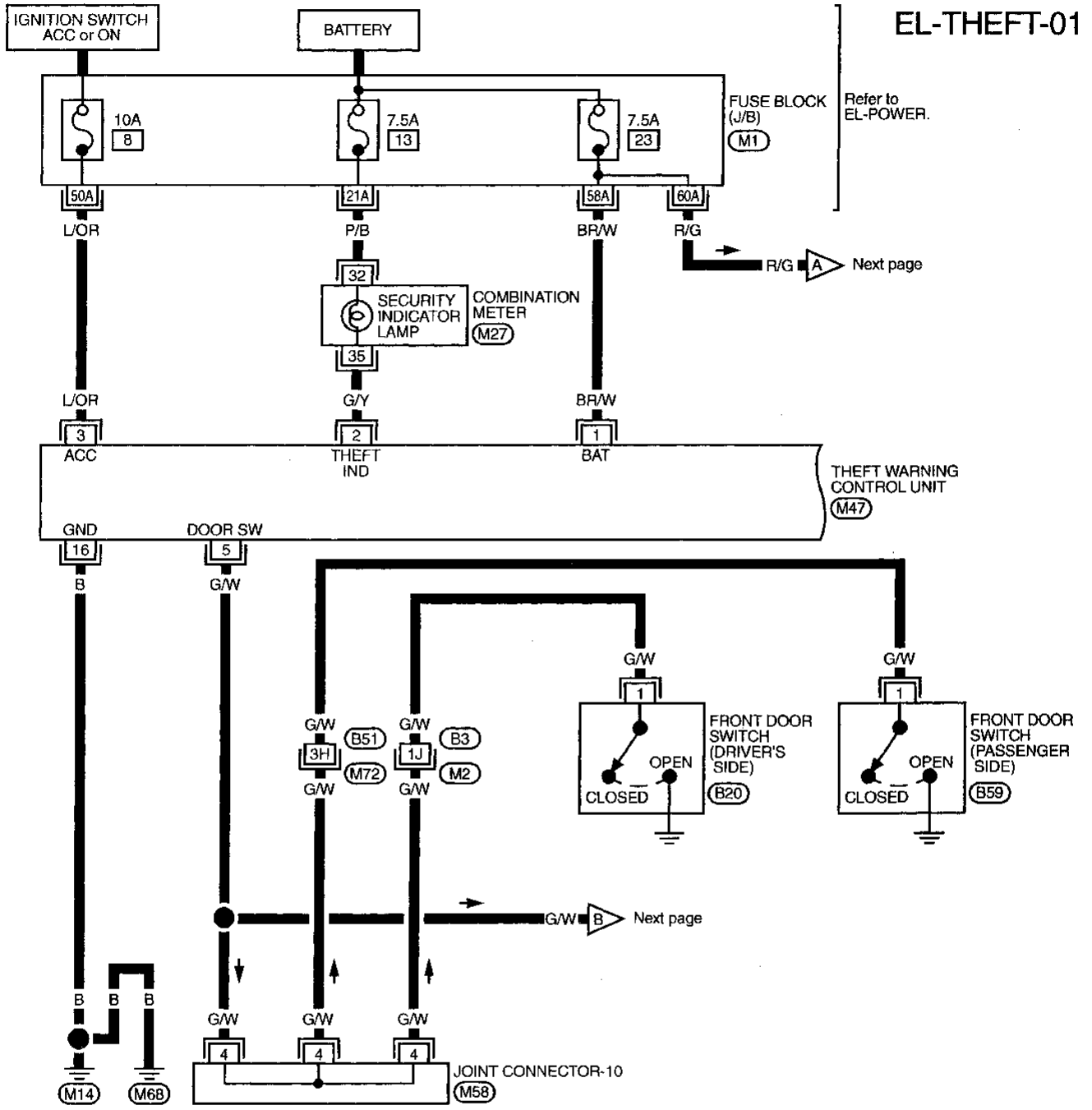
5. CANCELING THE ALARM OPERATION OF THE THEFT WARNING SYSTEM

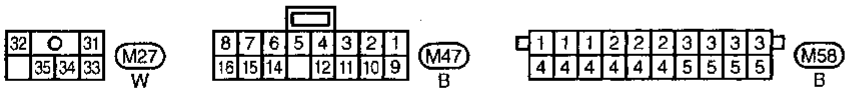
The alarm operation can be canceled when the trunk lid or either front door is unlocked with key or multi remote controller.

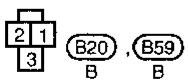
Schematic


IGNITION SWITCH ACC or ON
IGNITION SWITCH ON or START
IGNITION SWITCH START
BATTERY
FUSE
FUSIBLE LINK
SECURITY INDICATOR LAMP
HORN RELAY
HORN LOW
THEFT WARNING HORN
DAYTIME LIGHT CONTROL UNIT
THEFT WARNING RELAY
HEADLAMP RH (HIGH)
HEADLAMP LH (HIGH)
THEFT WARNING STARTER RELAY
STARTER RELAY
INHIBITOR SWITCH
STARTER MOTOR
THEFT WARNING CONTROL UNIT
REAR DOOR SWITCH RELAY
REAR DOOR SWITCH RH
REAR DOOR SWITCH LH
FRONT DOOR SWITCH (PASSENGER SIDE)
FRONT DOOR SWITCH (DRIVER'S SIDE)
HOOD SWITCH
OPEN
CLOSED
TRUNK LID KEY SWITCH
LOCKED
UNLOCKED
REMOTE CONTROL DOOR LOCK UNIT
TRUNK ROOM LAMP SWITCH
FRONT DOOR LOCK ACTUATOR (DRIVER'S SIDE) (DOOR UNLOCK SENSOR)
FRONT DOOR LOCK ACTUATOR (PASSENGER SIDE) (DOOR UNLOCK SENSOR)
REAR DOOR LOCK ACTUATOR LH (DOOR UNLOCK SENSOR)
REAR DOOR LOCK ACTUATOR RH (DOOR UNLOCK SENSOR)
FRONT DOOR KEY CYLINDER SWITCH (PASSENGER SIDE)
FRONT DOOR KEY CYLINDER SWITCH (DRIVER'S SIDE)
LOCKED
UNLOCKED
TAMPER
US : For U.S.A.
CA : For Canada
TEL272

Wiring Diagram — THEFT —







Refer to last page (Foldout page).

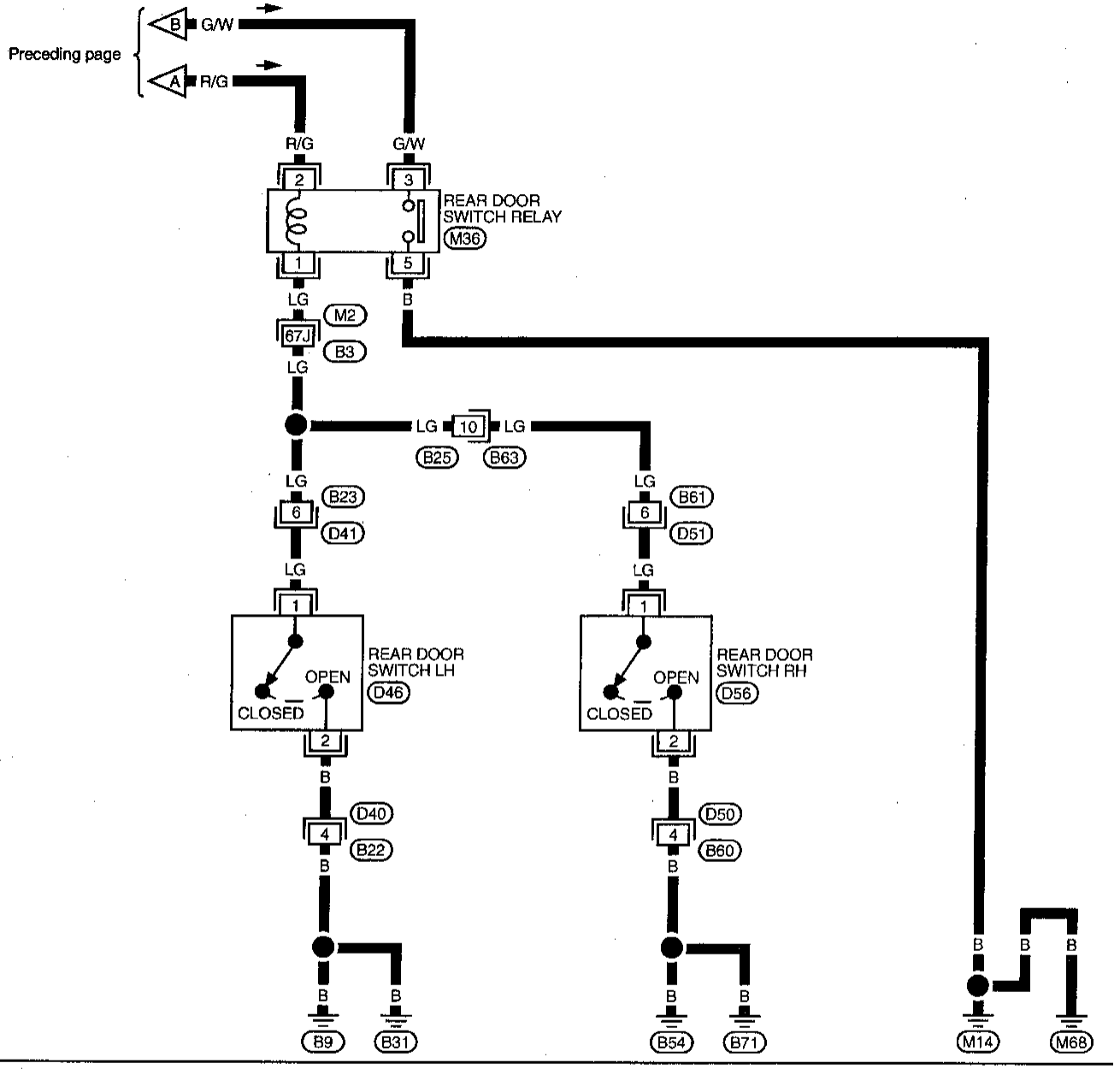
M2, B3

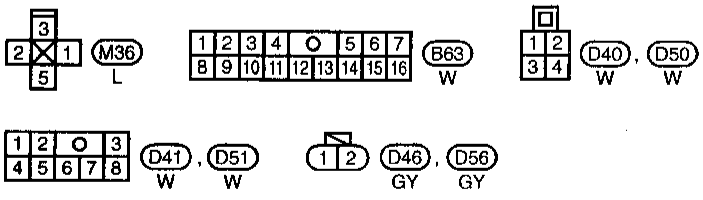
M72, B51

M1

Wiring Diagram — THEFT — (Cont'd)

EL-THEFT-02





Refer to last page (Foldout page).

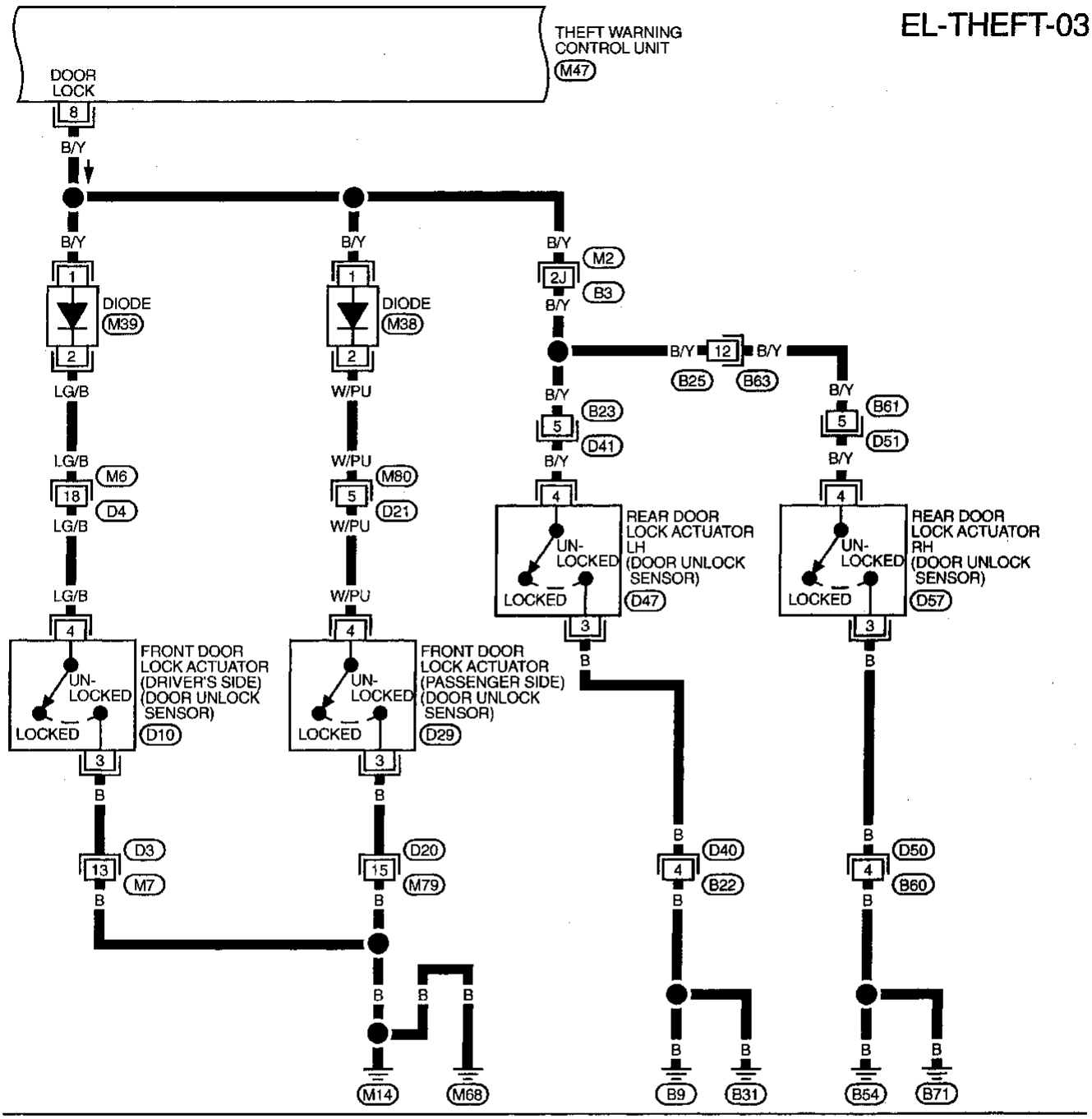
M2, B3

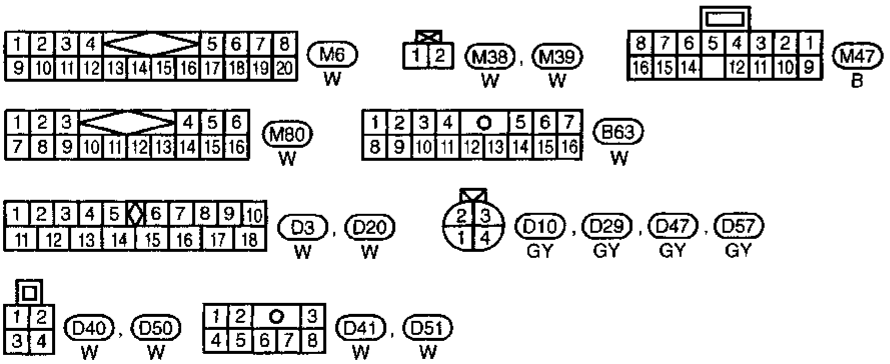
M1

TEL274

Wiring Diagram — THEFT — (Cont'd)

EL-THEFT-03



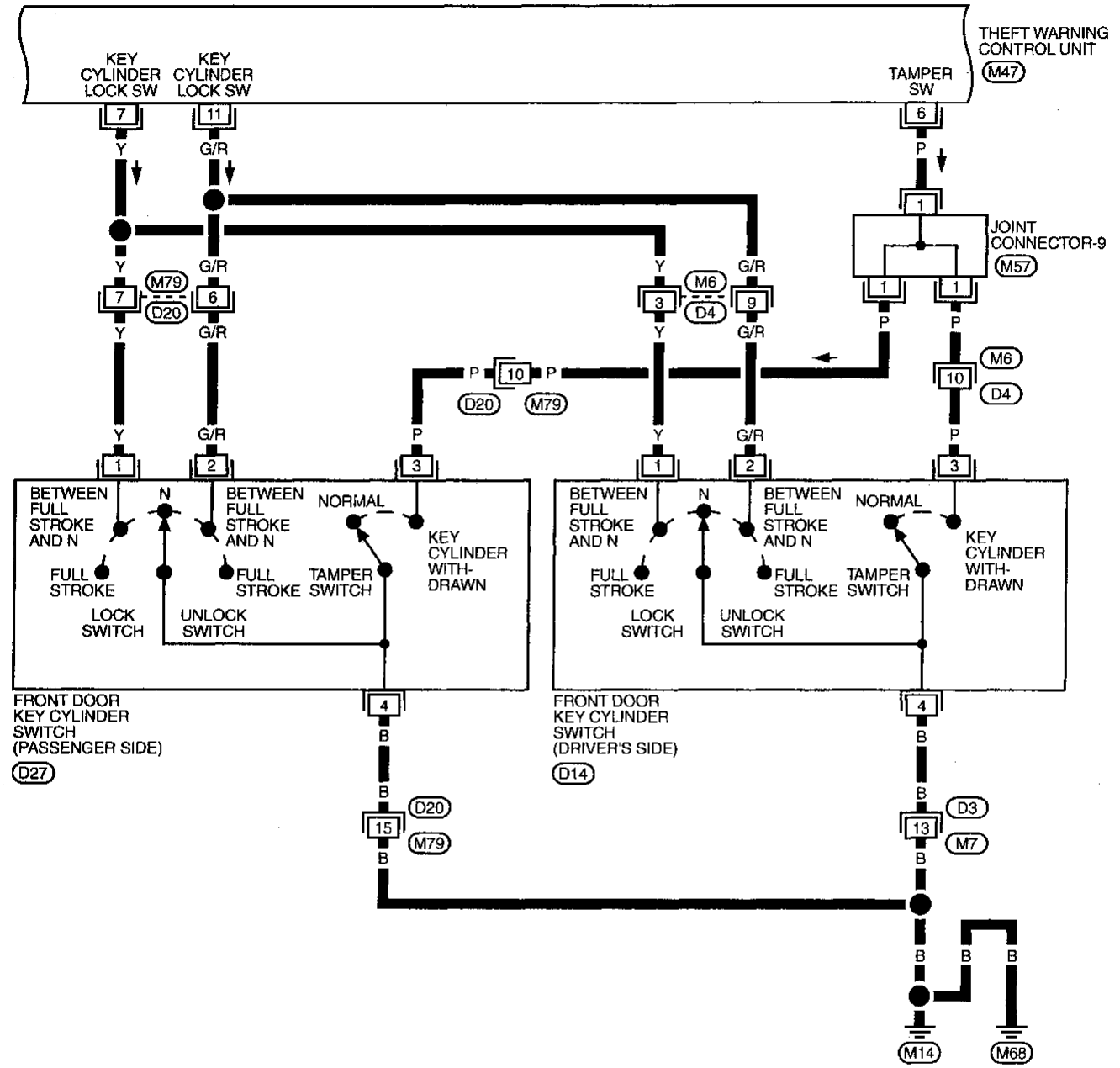


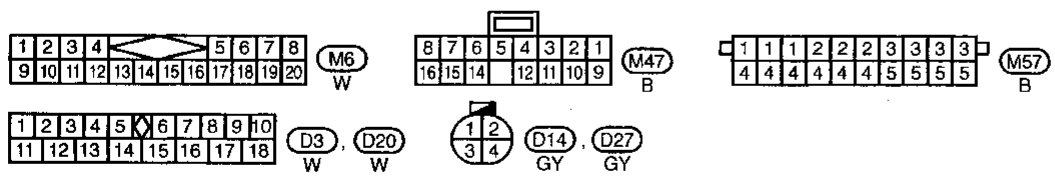
Refer to last page (Foldout page).
M2, B3

TEL275

Wiring Diagram — THEFT — (Cont'd)

EL-THEFT-04

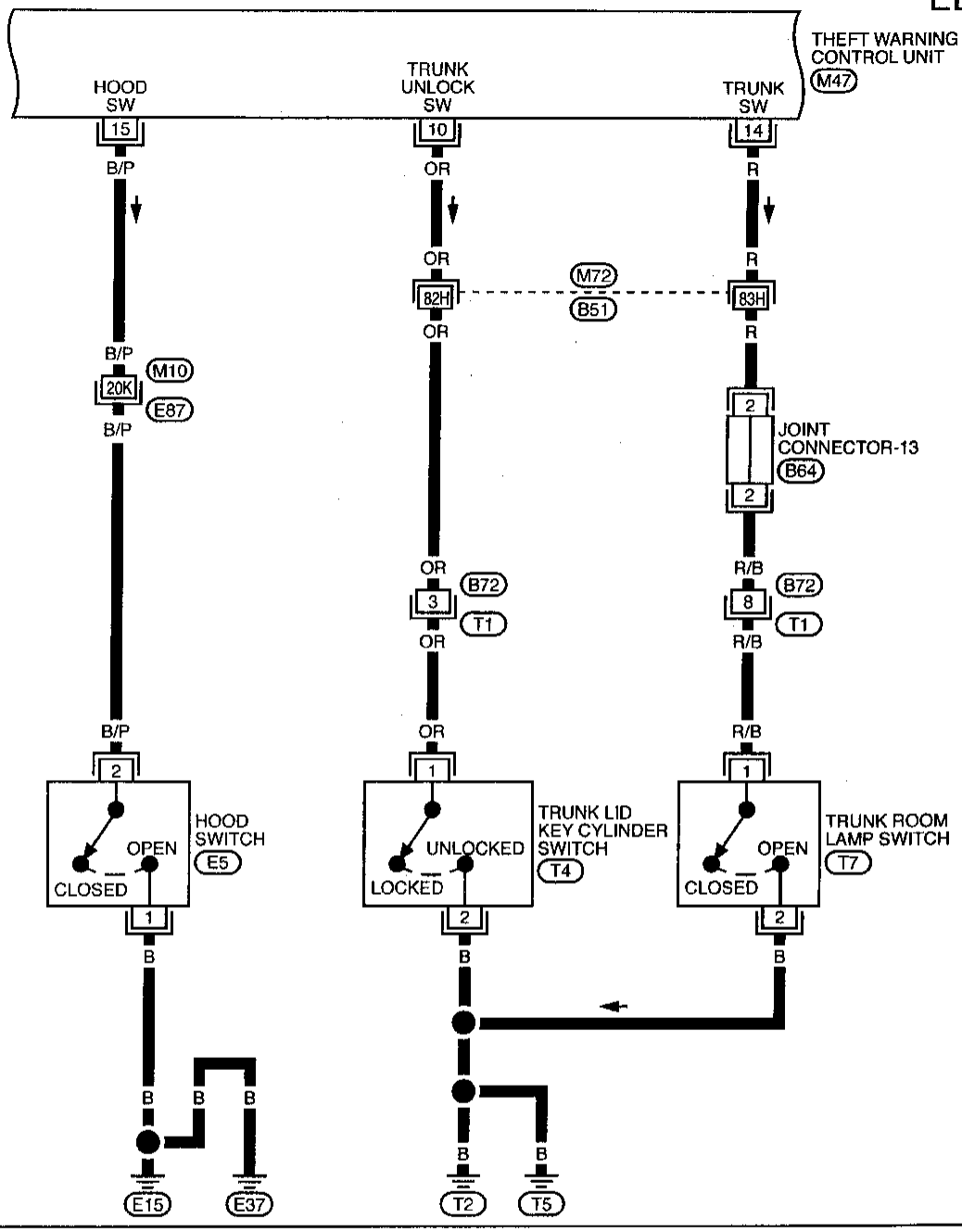


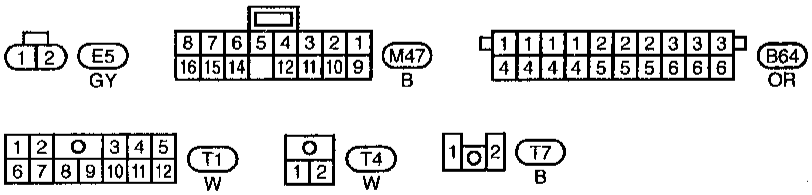


TEL276

Wiring Diagram — THEFT — (Cont'd)

EL-THEFT-05



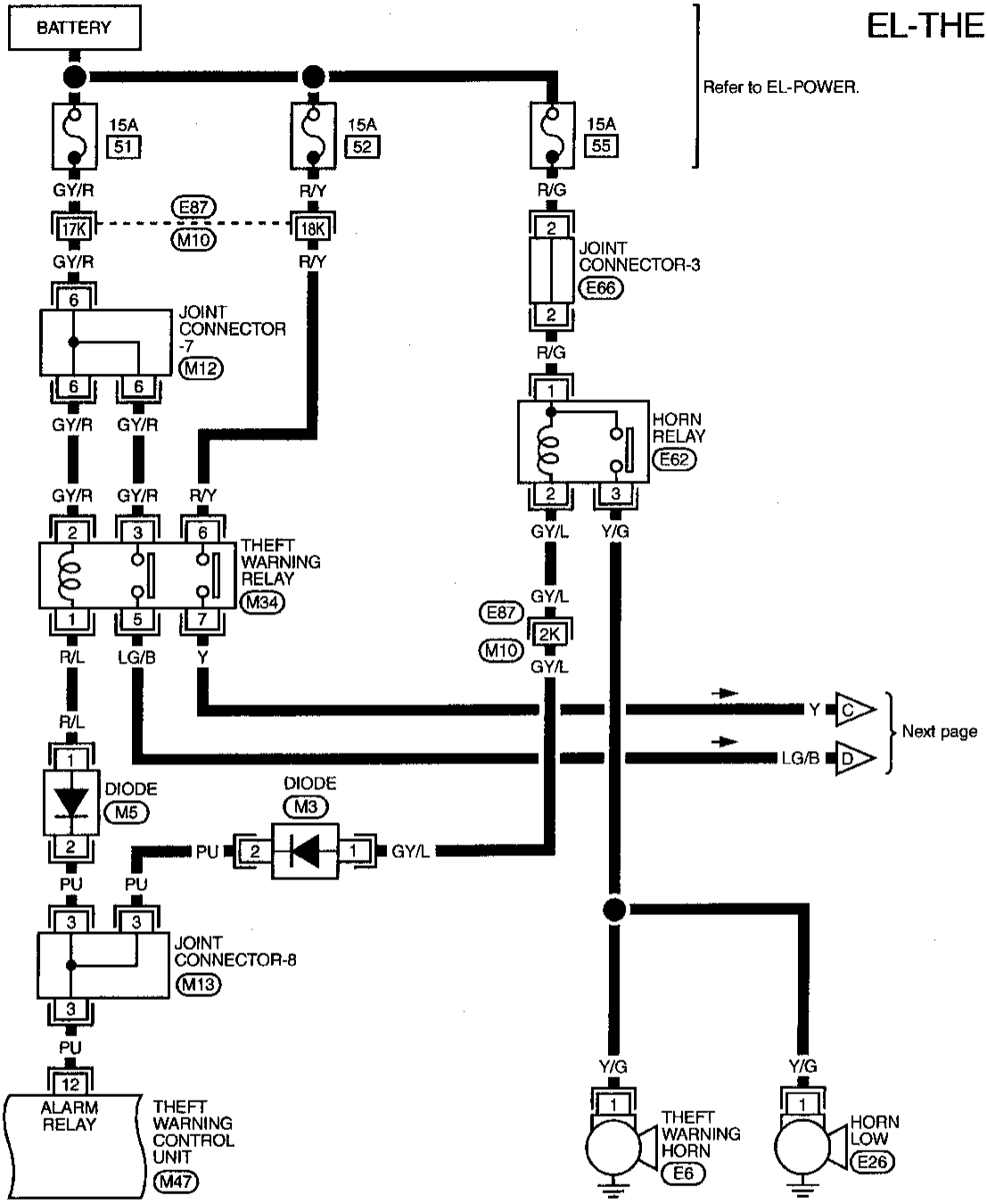


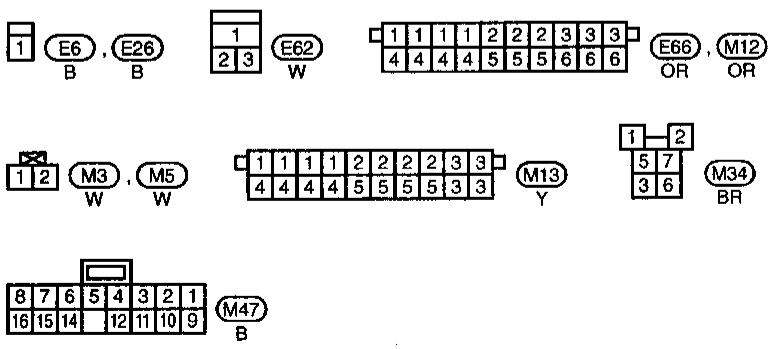
Refer to last page (Foldout page).
E87, M10
M72, B51

TEL277

Wiring Diagram — THEFT — (Cont'd)

EL-THEFT-06



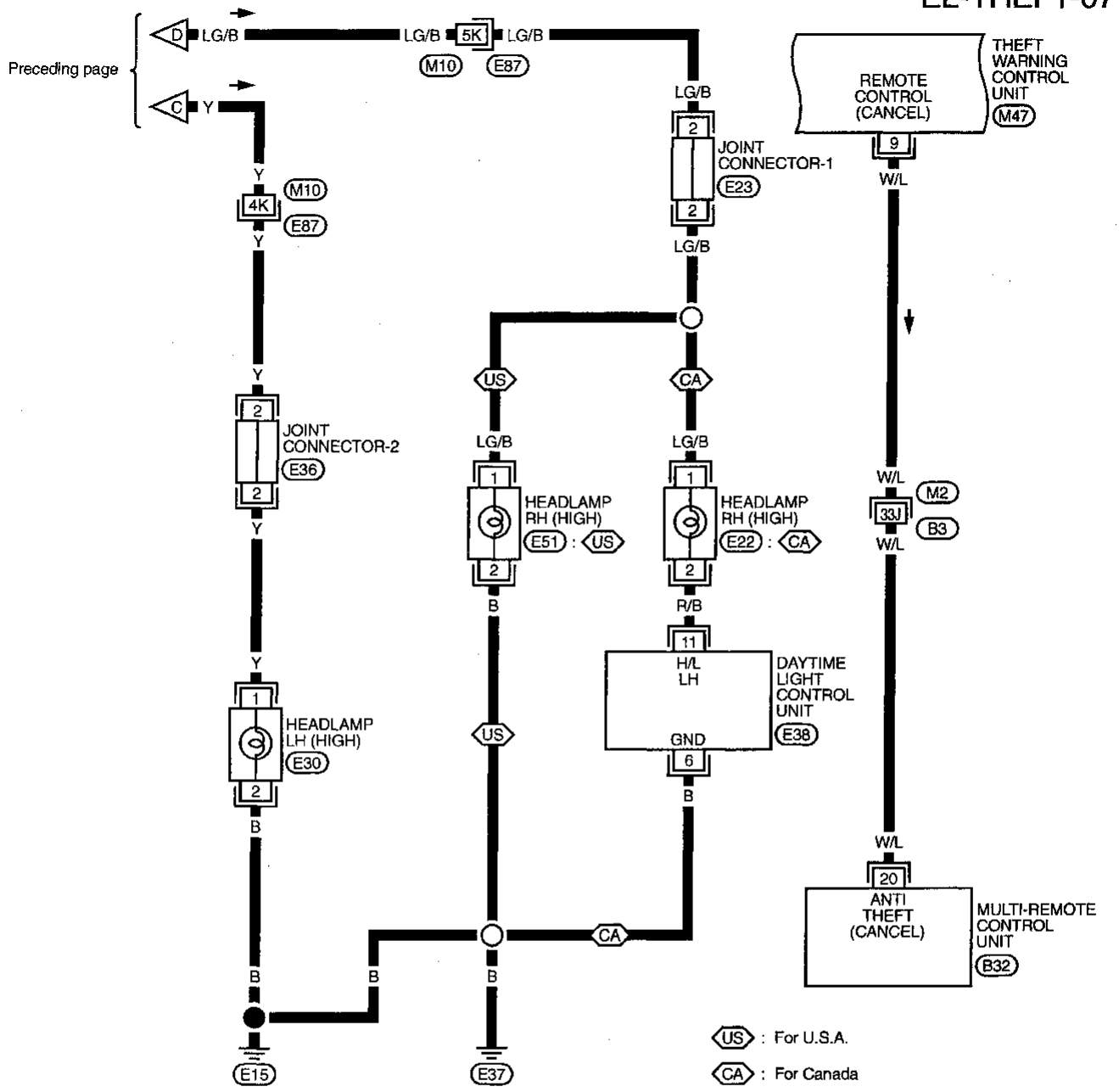


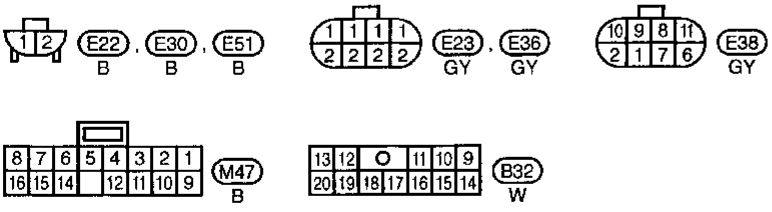
Refer to last page (Foldout page).
E87, M10

TEL278

Wiring Diagram — THEFT — (Cont'd)

EL-THEFT-07

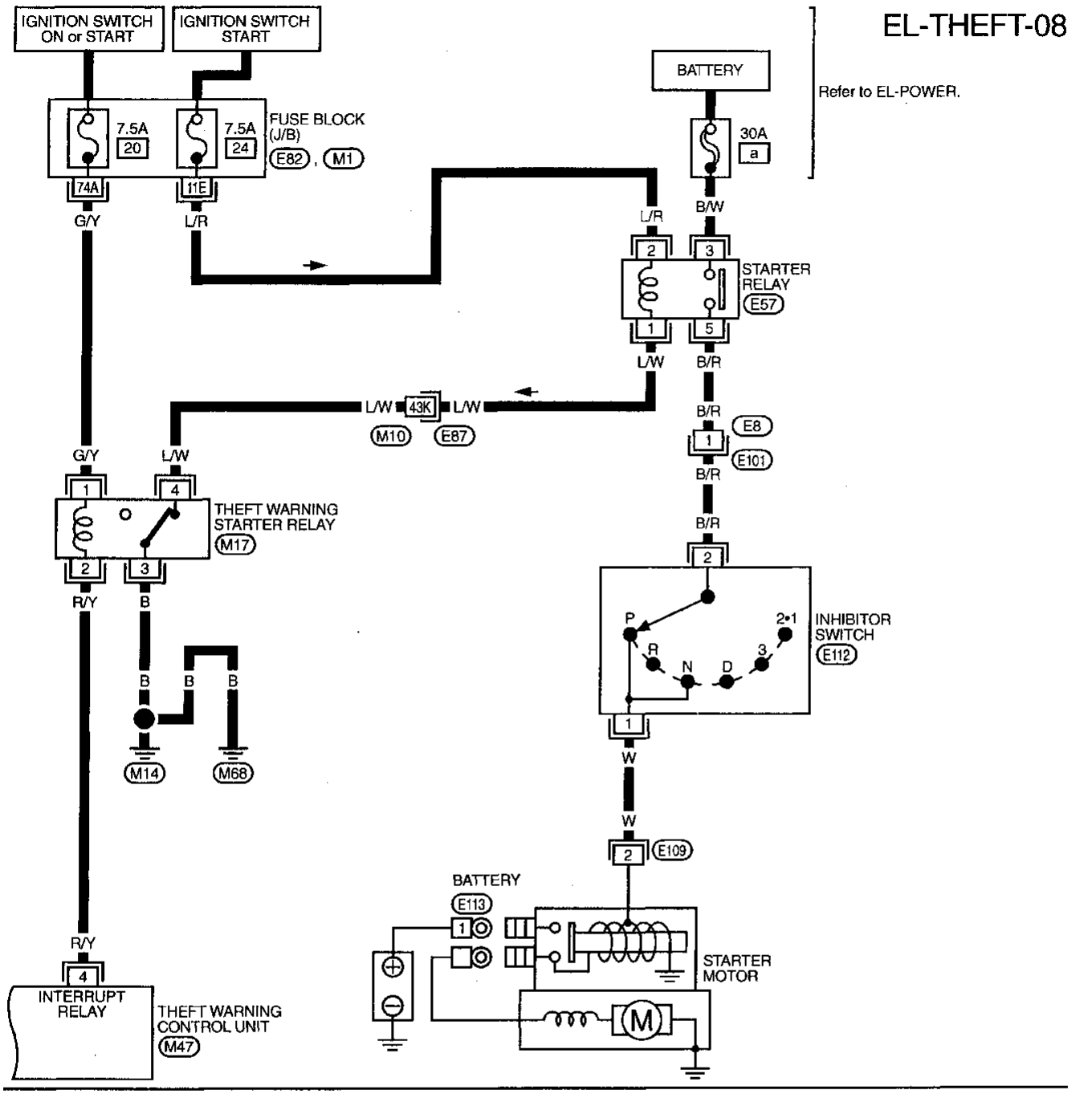




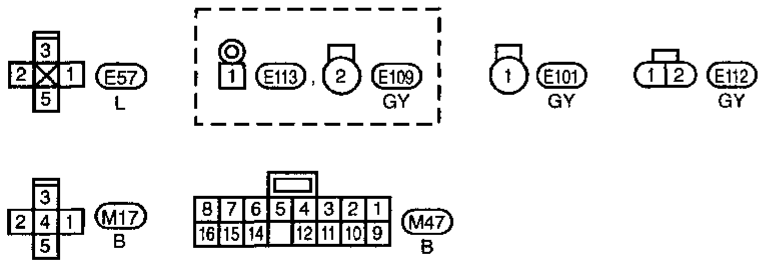
Refer to last page (Foldout page).
E87, M10
M2, B3

TEL279

Wiring Diagram — THEFT — (Cont'd)



Refer to last page (Foldout page).
E87, M10
E1



TEL280

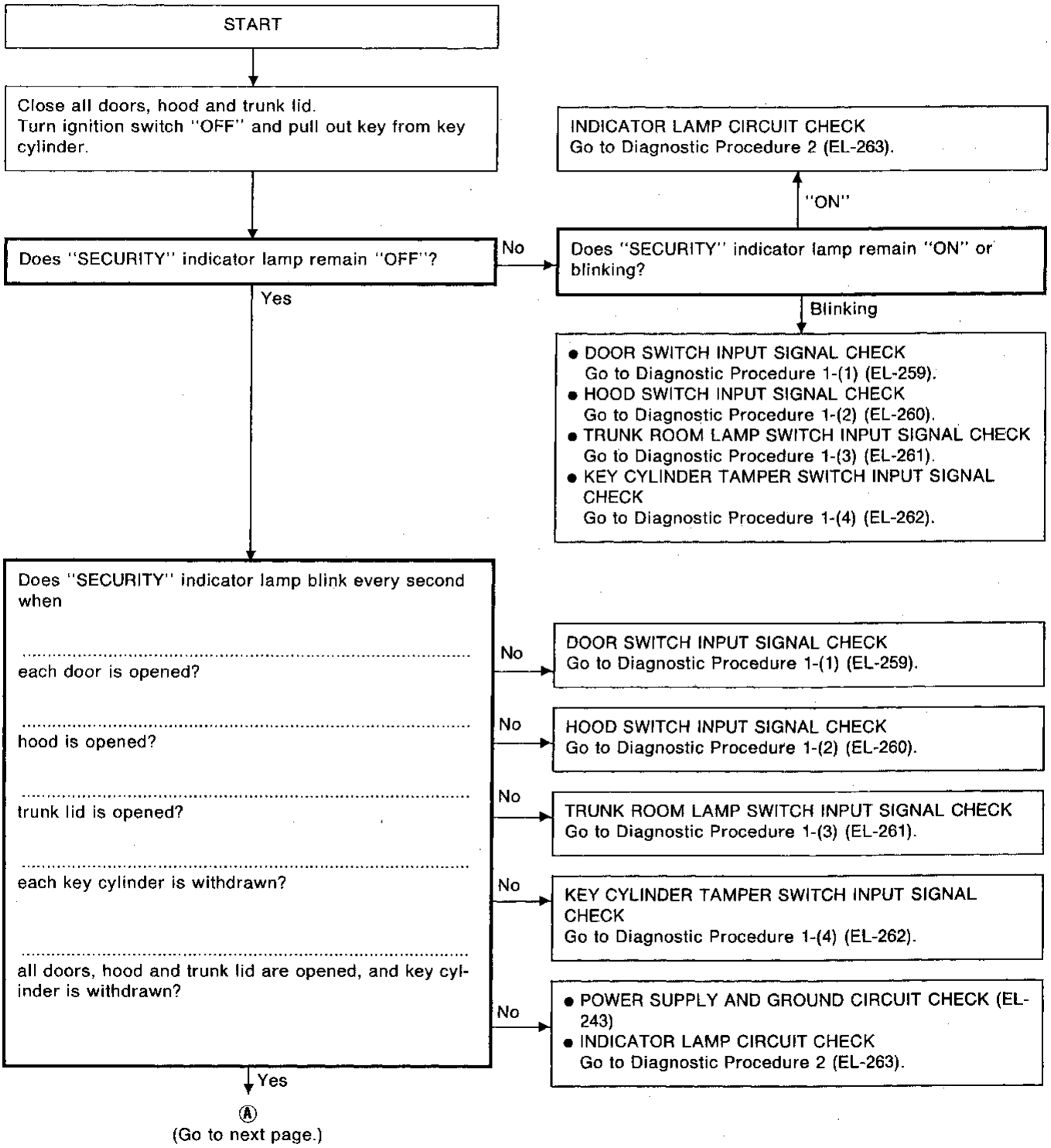
Trouble Diagnoses

SYSTEM OPERATION CHECK

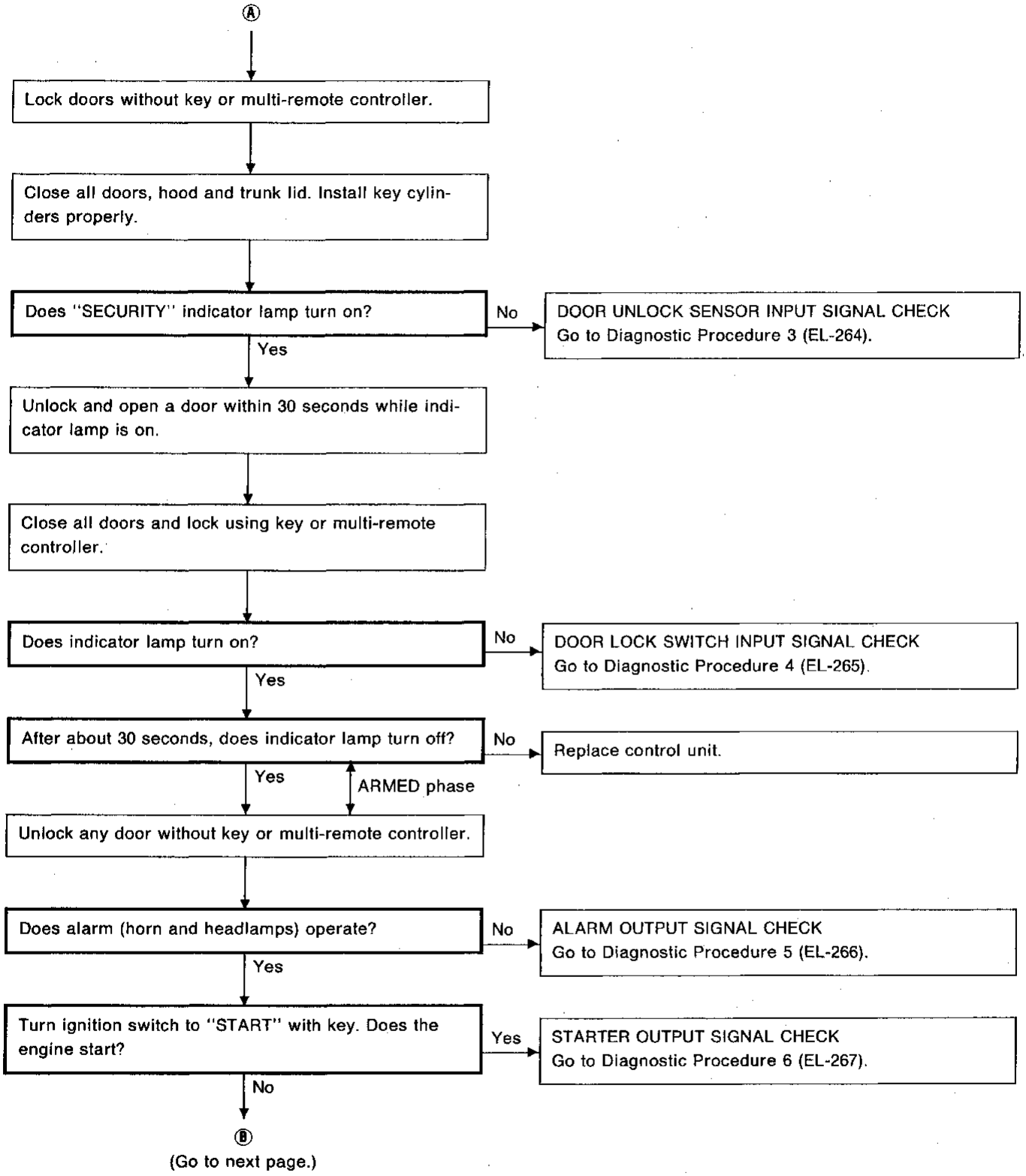
The system operation is canceled by turning ignition switch to "ACC" at any step in the following:

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

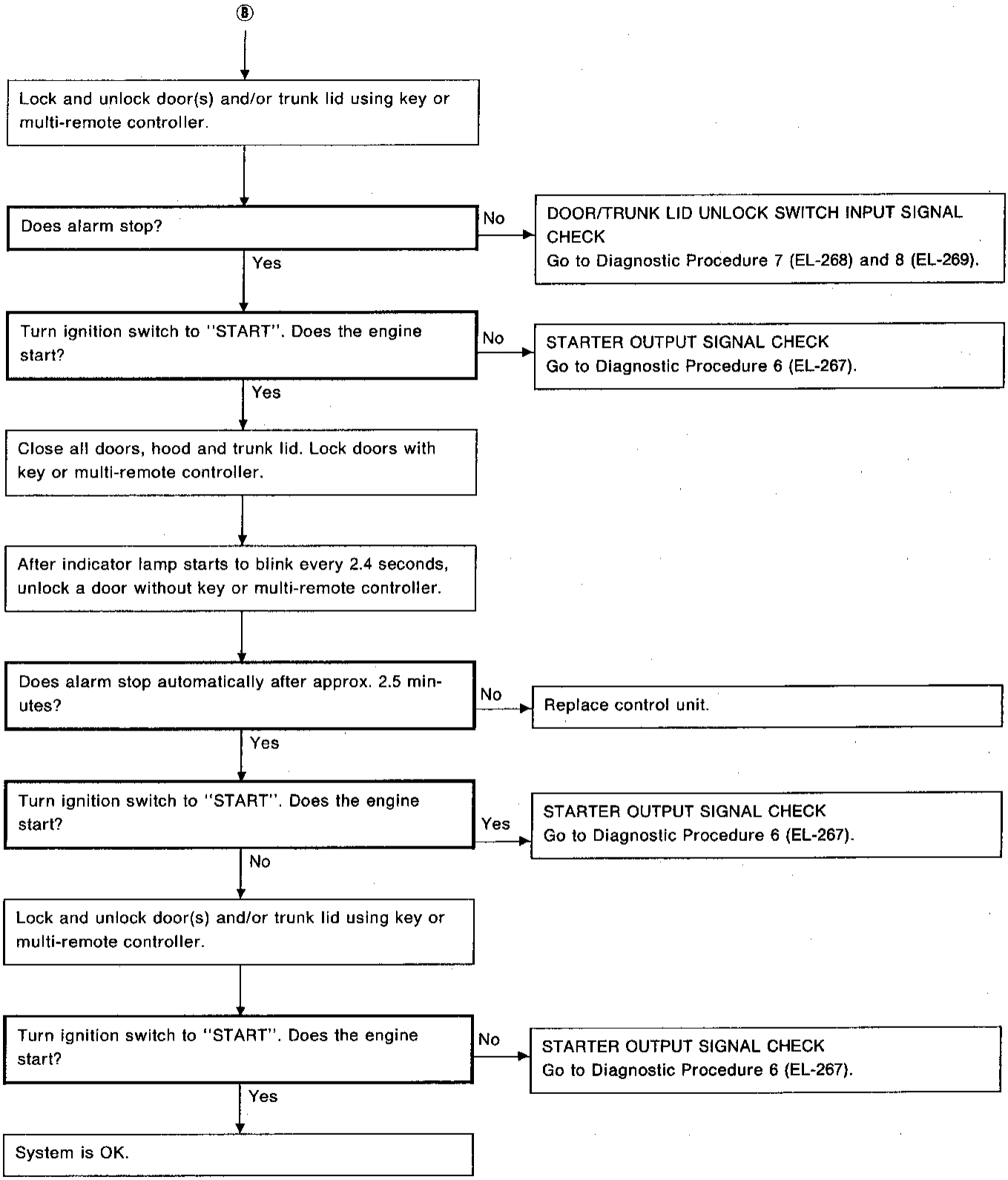
in the following flow chart.



Trouble Diagnoses (Cont'd)

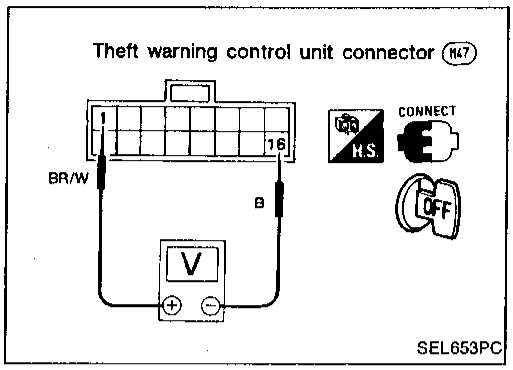


Trouble Diagnoses (Cont'd)



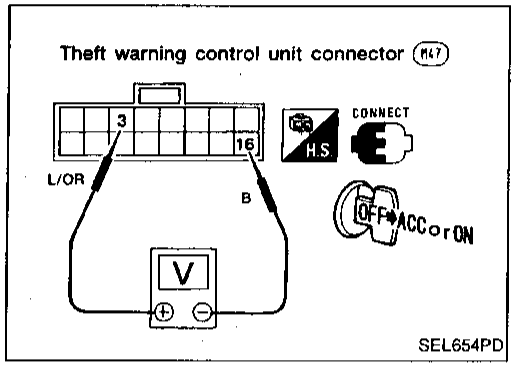
Trouble Diagnoses (Cont'd)

POWER SUPPLY AND GROUND CIRCUIT CHECK



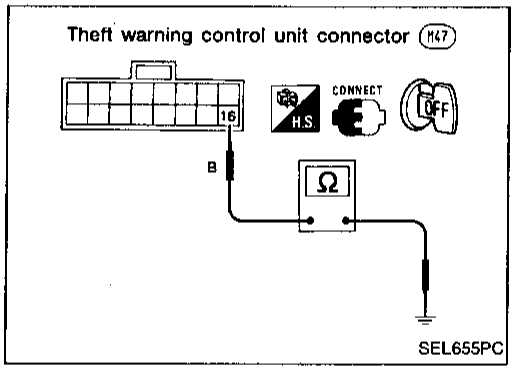
Main power supply circuit check

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



Power supply circuit check for system cancel

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



Ground circuit check

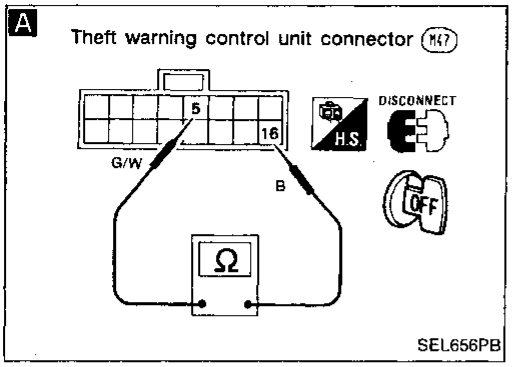
Terminals	Continuity
⑯ - Ground	Yes

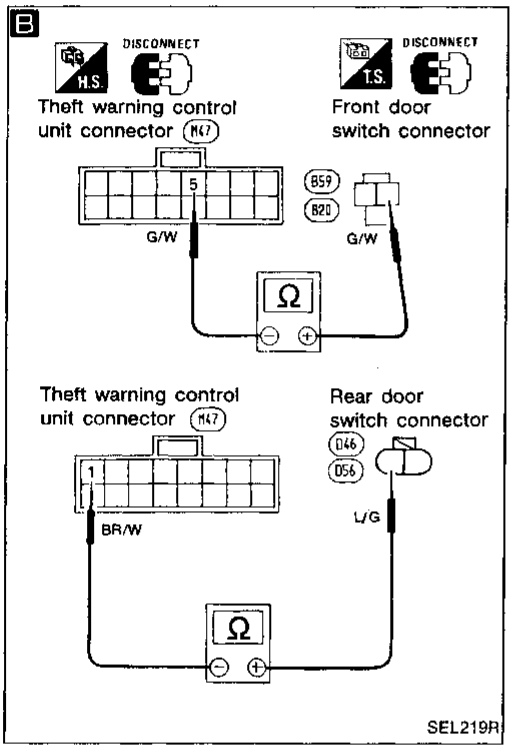
Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 1

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

Diagnostic procedure 1-(1)





A

DOOR SWITCH INPUT SIGNAL CHECK
Check continuity between control unit harness terminals ⑤ and ⑯.

Condition	Continuity
All doors are closed	No
At least one door is open	Yes

OK → Go to Diagnostic Procedure 2 (EL-263).

NG ↓

DOOR SWITCH CHECK
Refer to "Electrical Components Inspection" (EL-270).

NG → Replace door switch.

OK ↓

B

DOOR SWITCH CIRCUIT CHECK
Check harness continuity between control unit harness terminal ⑤ or ① and door switch harness terminal.
Continuity should exist.

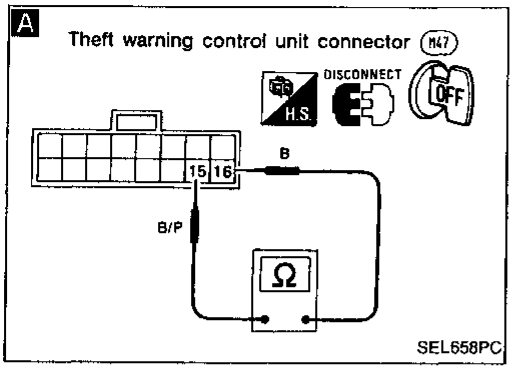
NG → Repair harness or connectors.

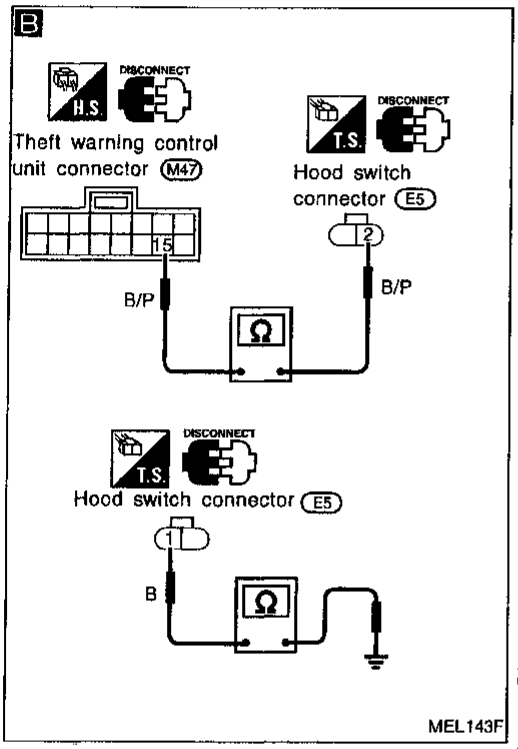
OK ↓

CHECK THE CONNECTIONS AT EACH CONNECTOR.

Trouble Diagnoses (Cont'd)

Diagnostic procedure 1-(2)





A

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

Condition	Continuity
Hood is open	Yes
Hood is closed	No

OK → Go to Diagnostic Procedure 2 (EL-263).

NG

Check hood switch and hood fitting condition.

NG → Adjust installation of hood switch or hood.

OK

HOOD SWITCH CHECK
Refer to "Electrical Components Inspection" (EL-270).

NG → Replace hood switch.

OK

B

HOOD SWITCH CIRCUIT CHECK
- Check harness continuity between control unit harness terminal ⑮ and hood switch harness terminal ②.
- Check harness continuity between hood switch terminal ① and body ground.

Continuity should exist.

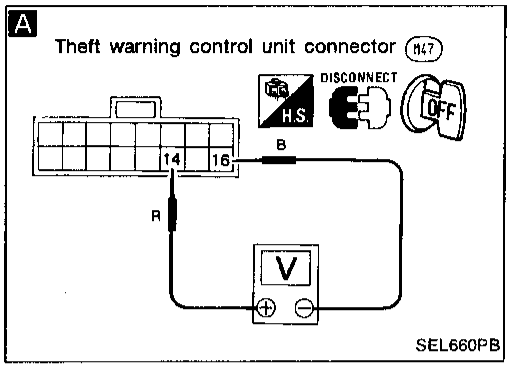
NG → Repair harness or connectors.

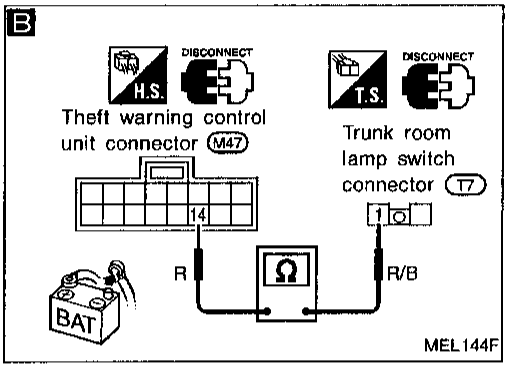
OK

CHECK THE CONNECTIONS AT EACH CONNECTOR.

Trouble Diagnoses (Cont'd)

Diagnostic procedure 1-(3)





A

TRUNK ROOM LAMP SWITCH INPUT SIGNAL CHECK
Check voltage between control unit harness terminals ⑭ and ⑯.

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

OK → Go to Diagnostic Procedure 2 (EL-263).

NG ↓

Does trunk room lamp come on?

Yes → B

No ↓

TRUNK ROOM LAMP SWITCH CHECK
Refer to "Electrical Components Inspection" (EL-270).

OK → B

NG ↓

Replace trunk room lamp switch.

B

TRUNK ROOM LAMP SWITCH CIRCUIT CHECK
Check harness continuity between control unit harness terminal ⑭ and trunk room lamp harness terminal ①.

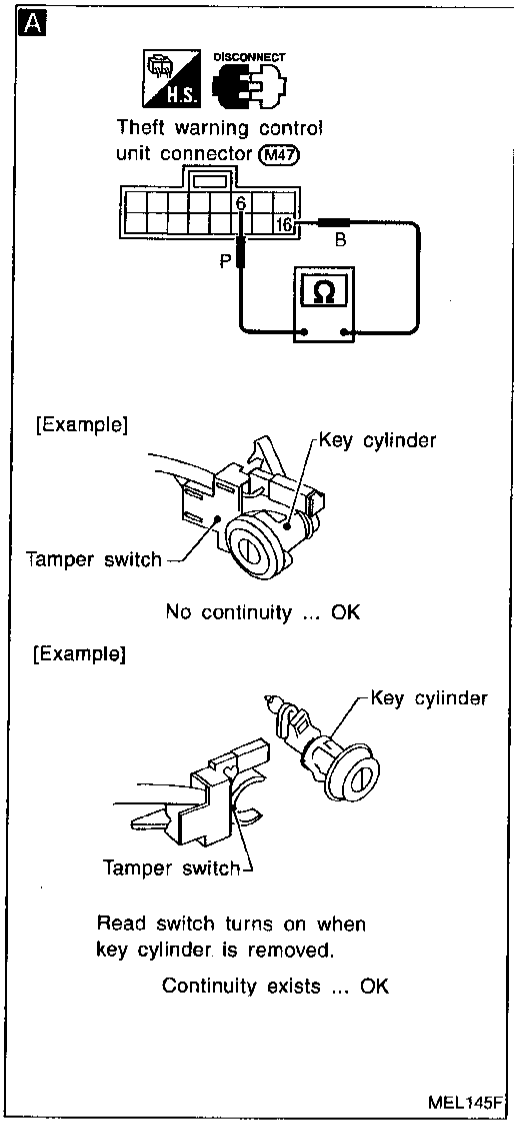
OK ↓

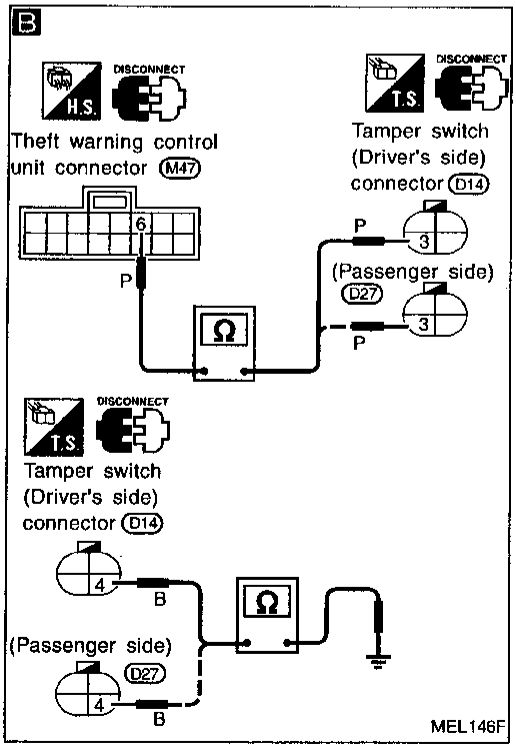
CHECK THE CONNECTIONS AT EACH CONNECTOR.

Trouble Diagnoses (Cont'd)

Diagnostic procedure 1-(4)

A





A

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

Condition	Continuity
Tamper switch is	
Normal	No
Removed	Yes

OK → Go to Diagnostic Procedure 2 (EL-263).

NG ↓

KEY CYLINDER TAMPER SWITCH CHECK
Refer to "Electrical Components Inspection" (EL-271).

NG → Replace key cylinder tamper switch.

OK ↓

B

KEY CYLINDER TAMPER SWITCH CIRCUIT CHECK
- Check harness continuity between control unit harness terminal ⑥ and tamper switch harness terminal ③.
- Check harness continuity between tamper switch terminal ④ and body ground.

Continuity should exist.

NG → Repair harness and connectors.

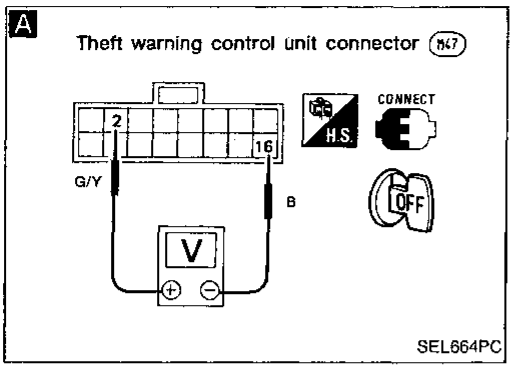
OK ↓

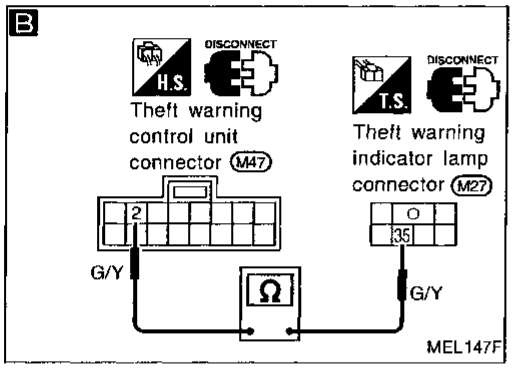
CHECK THE CONNECTIONS AT EACH CONNECTOR.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 2

SYMPTOM: Indicator lamp does not blink.





A

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

NG → Replace control unit.

OK ↓

CHECK INDICATOR LAMP.

NG → Replace indicator lamp.

OK ↓

B

INDICATOR LAMP CIRCUIT CHECK
Check harness continuity between control unit harness terminal ② and indicator lamp harness terminal ㉟.
Continuity should exist.

NG → Repair harness or connectors.

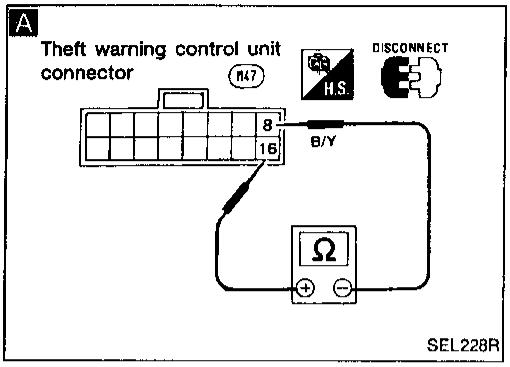
OK ↓

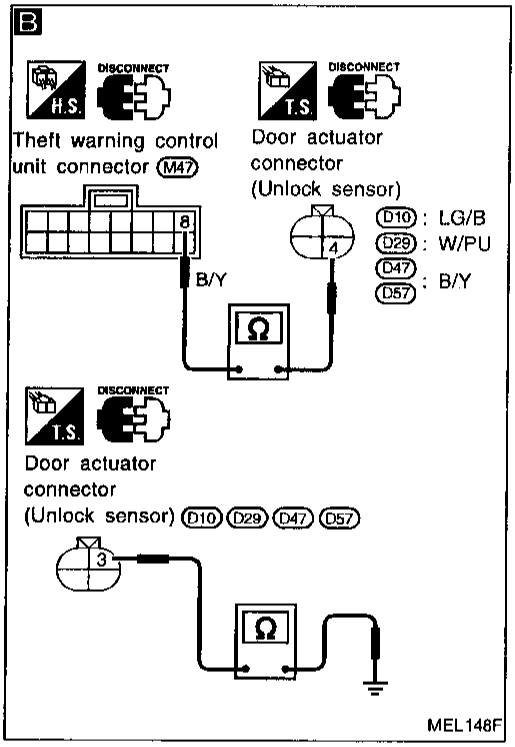
CHECK THE CONNECTIONS AT EACH CONNECTOR.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 3

SYMPTOM: Indicator lamp does not come on.





A

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

Condition		Continuity
⑧	All doors are locked.	No
	At least one is unlocked.	Yes

OK → Go to Diagnostic Procedure 4 (EL-265).

OK → Replace control unit.

NG

DOOR UNLOCK SENSOR CHECK
Refer to "Electrical Components Inspection" (EL-271).

NG → Replace door lock actuator.

OK

B

DOOR UNLOCK SENSOR CIRCUIT CHECK
- Check harness continuity between control unit harness terminal ⑧ and door actuator terminal ④.
- Check harness continuity between door actuator terminal ③ and body ground.

Continuity should exist.

NG → Repair harness or connectors.

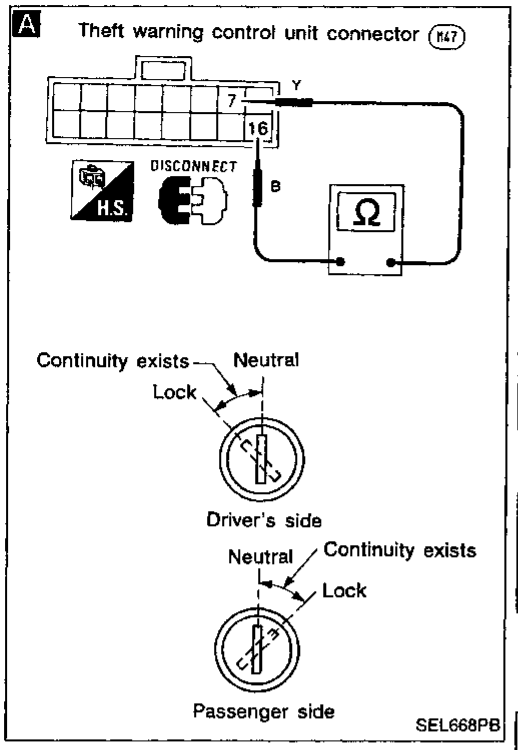
OK

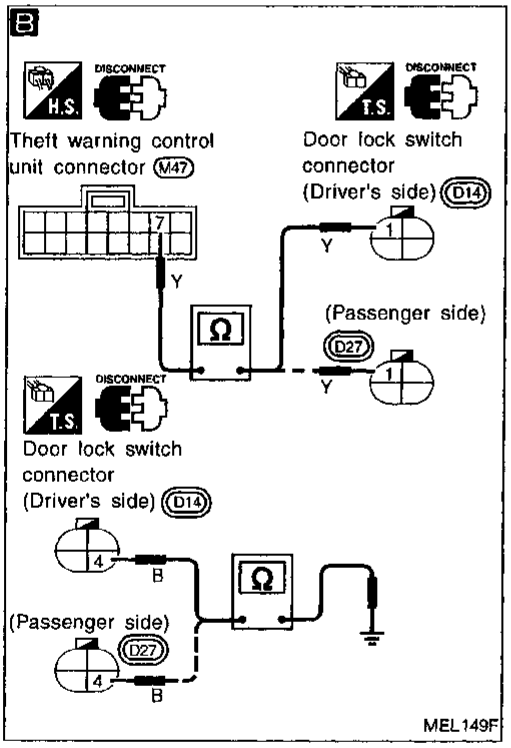
CHECK THE CONNECTIONS AT EACH CONNECTOR.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 4

SYMPTOM: Indicator lamp does not come on.





A

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

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

OK → Go to Diagnostic Procedure 3 (EL-264).
OK → Replace control unit.

NG

DOOR LOCK SWITCH CHECK
Refer to "Electrical Components Inspection" (EL-271).

NG → Replace key cylinder switch.

OK

B

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

Continuity should exist.

NG → Repair harness or connectors.

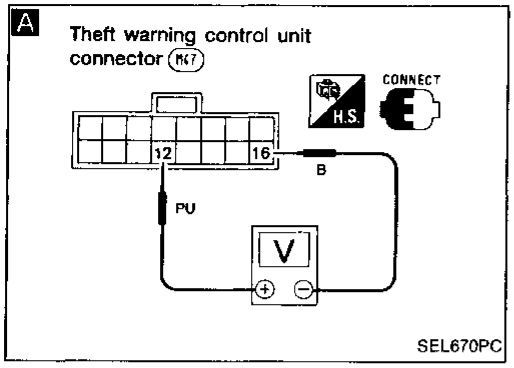
OK

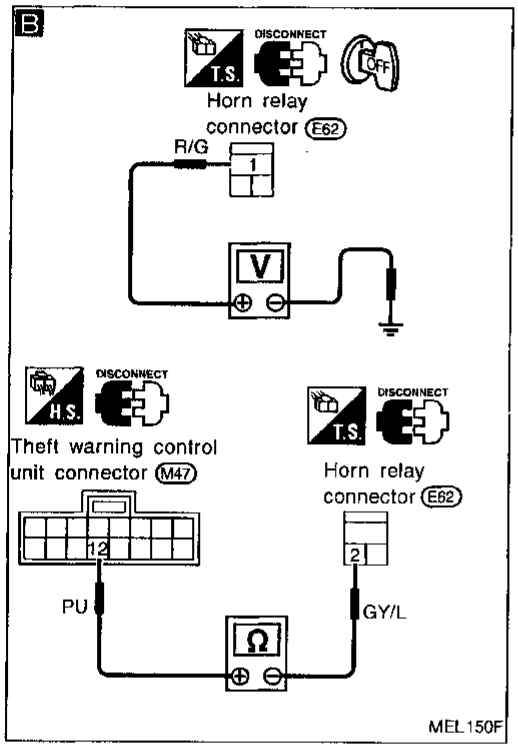
CHECK THE CONNECTIONS AT EACH CONNECTOR.

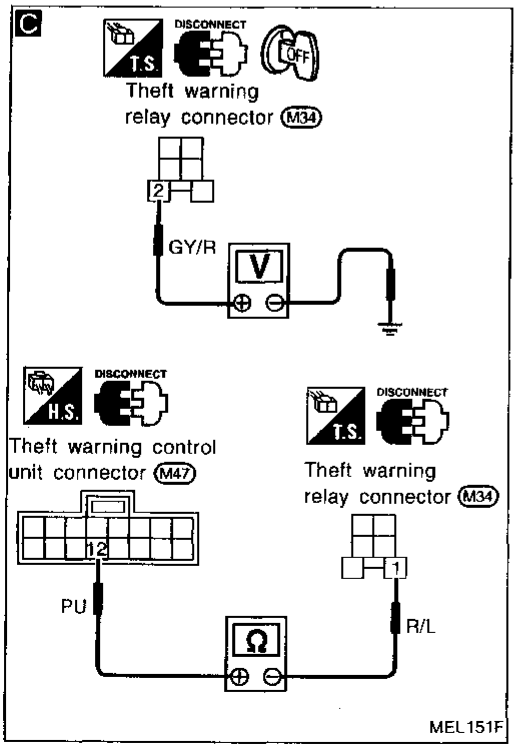
Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 5

SYMPTOM: Alarm does not operate.







A

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

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

NG → Replace control unit.

OK ↓

Check horn relay. NG → Replace relay.

OK ↓

B

HORN CIRCUIT CHECK
Check if voltage across horn relay harness terminal ① and body is 12V.
Check continuity between horn relay terminal ② and control unit harness terminal ⑫.
Continuity should exist.

NG → Repair harness and connectors.

OK ↓

Check theft warning relay-1. NG → Replace theft warning relay-1.

OK ↓

C

THEFT WARNING HEADLAMP CIRCUIT CHECK
Check if voltage across theft warning relay-1 harness terminal ② and body is 12V.
Check continuity between theft warning relay-1 terminal ① and control unit harness terminals ⑫.

NG → Repair harness and connectors.

OK ↓

Does headlamp come on when turning lighting switch "ON"? No → Check headlamp system. Refer to "HEADLAMP" (EL-49).

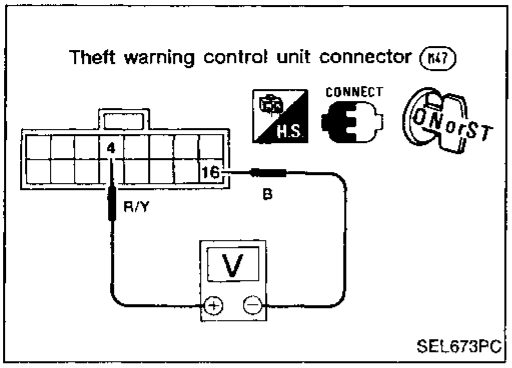
Yes ↓

Repair harness and connectors between lamp relay and headlamp.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 6

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



Approx. 12V

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

→ Replace control unit.

Approx. 0V

↓

Check theft warning relay-2.

NG → Replace theft warning relay-2.

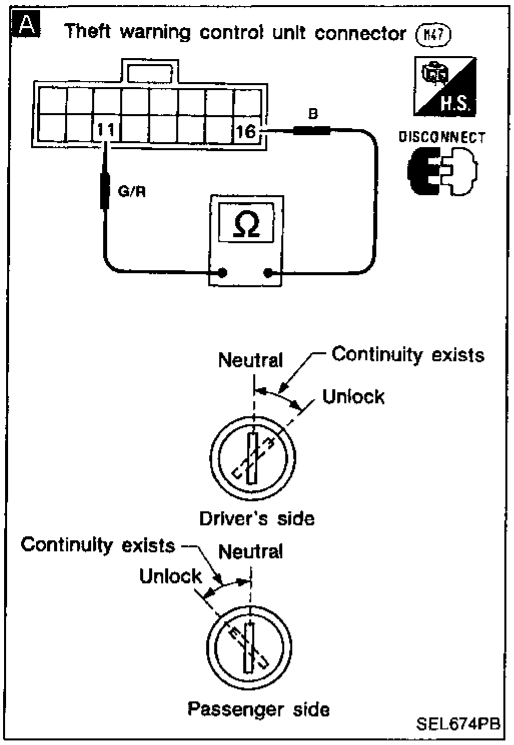
OK ↓

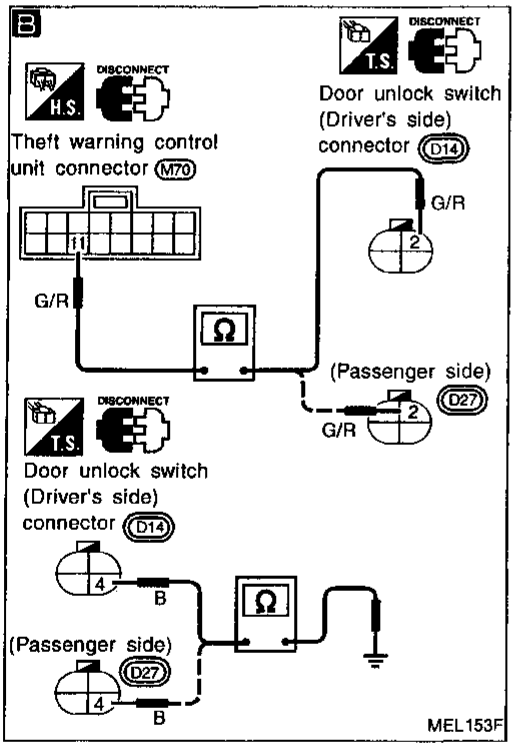
Repair harness between control unit and theft warning relay-2.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 7

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





A

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

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

OK → Replace control unit.

NG ↓

DOOR UNLOCK SWITCH CHECK
Refer to "Electrical Components Inspection" (EL-271).

NG → Replace key cylinder switch.

OK ↓

B

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

Continuity should exist.

NG → Repair harness or connectors.

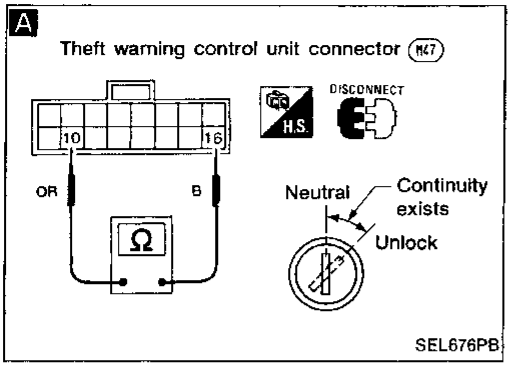
OK ↓

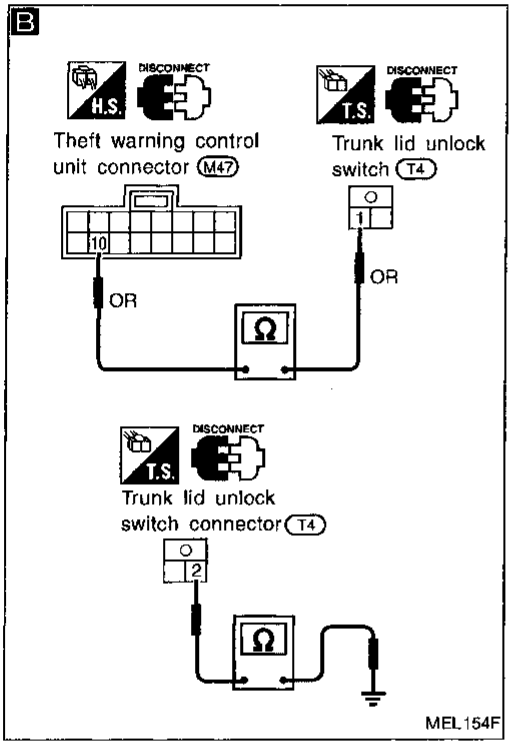
CHECK THE CONNECTIONS AT EACH CONNECTOR.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 8

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





A

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

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

OK → Replace control unit.

NG ↓

TRUNK LID UNLOCK SWITCH CHECK
Refer to "Electrical Components Inspection" (EL-271).

NG → Replace key cylinder switch.

OK ↓

B

TRUNK LID UNLOCK SWITCH CIRCUIT CHECK
- Check harness continuity between control unit harness terminal ⑩ and trunk lid unlock switch terminal ①.
- Check harness continuity between trunk lid unlock switch terminal ② and body ground.

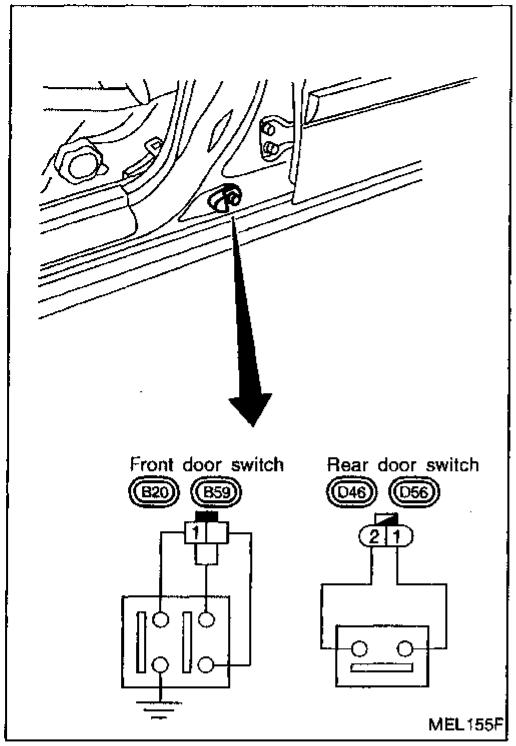
NG → Repair harness or connectors.

OK ↓

CHECK THE CONNECTIONS AT EACH CONNECTOR.

Trouble Diagnoses (Cont'd)

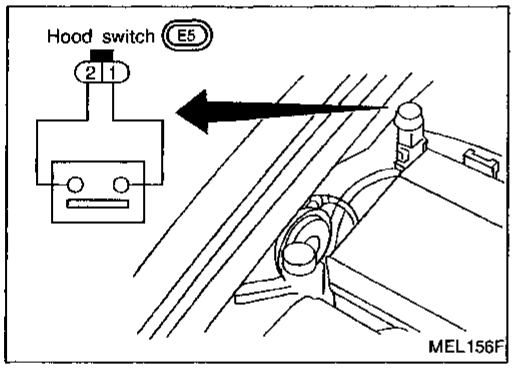
ELECTRICAL COMPONENTS INSPECTION



Door switches

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

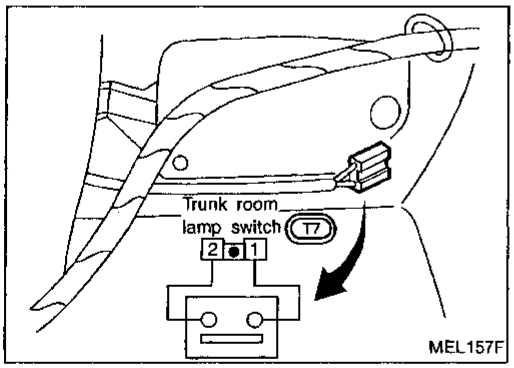
Terminal	Pushed	Released
1		○
2 (switch body)		○



Hood switch

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

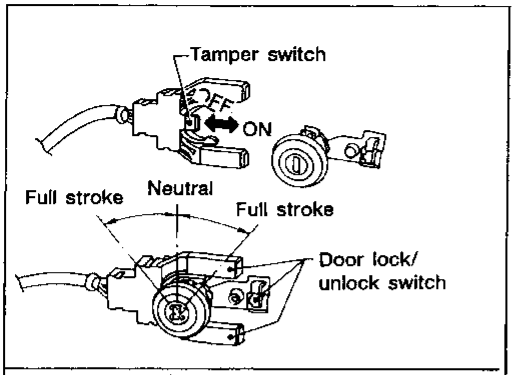
Terminal	Pushed	Released
2		○
1		○

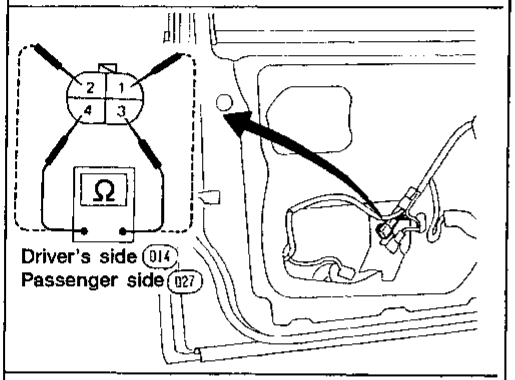


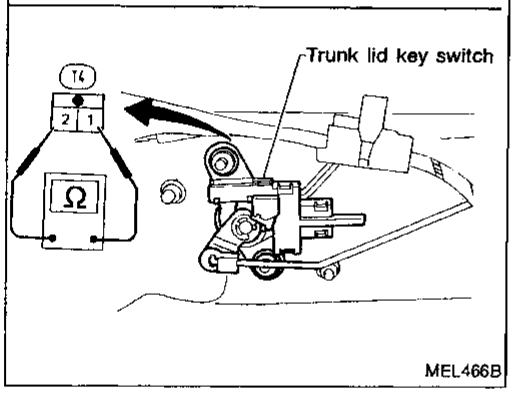
Trunk room lamp switch

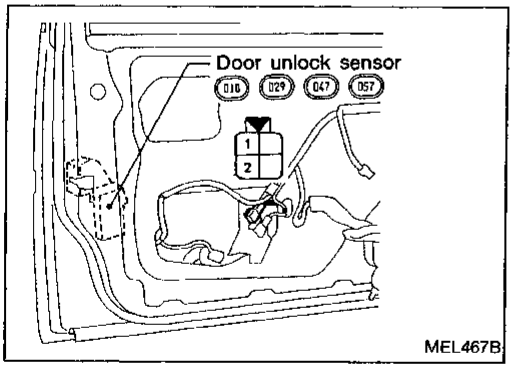
Terminal \ Trunk lid	Closed	Open
2		○
1		○

Trouble Diagnoses (Cont'd)









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

- **Door**

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

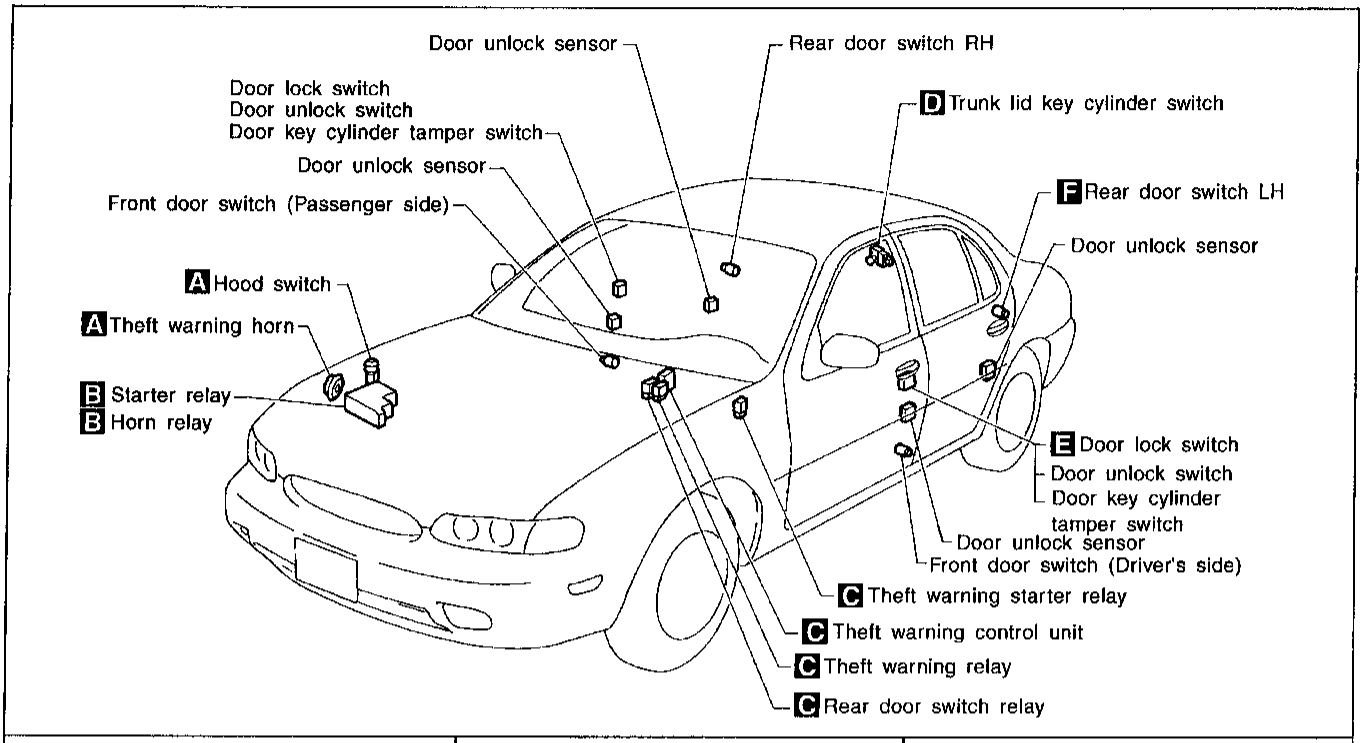
- **Trunk lid**

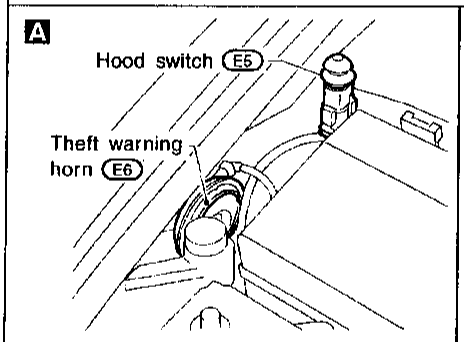
	TAMPER SWITCH		TRUNK LID UNLOCK SWITCH		
	Key cylinder is installed	Key cylinder is removed	Full stroke	Between full stroke and neutral	Neutral
1				○	
2		○		|	
3		○		○	

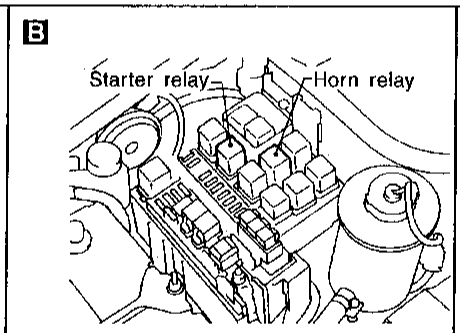
Door unlock sensor

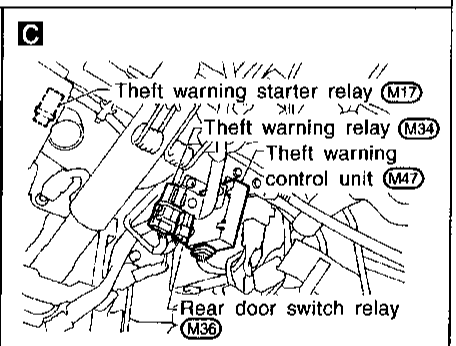
	LOCK	UNLOCK
1		○
2		○

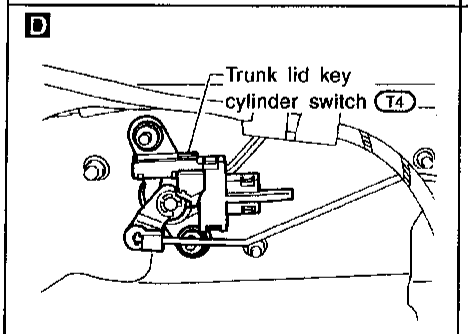
Component Parts and Harness Connector Location

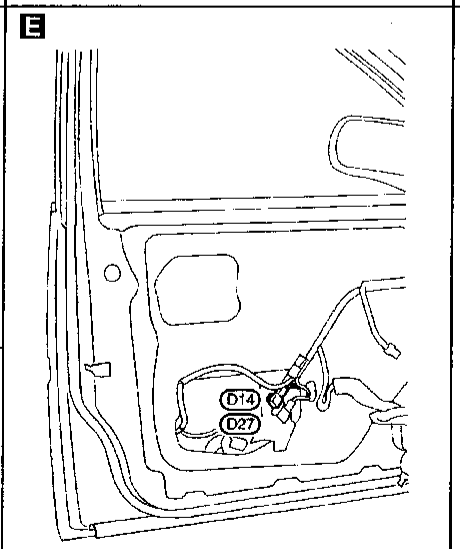


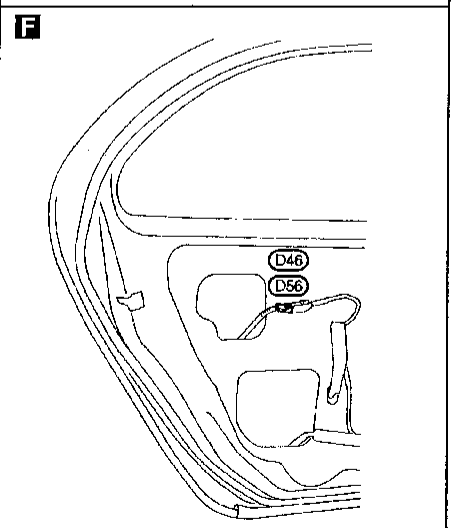






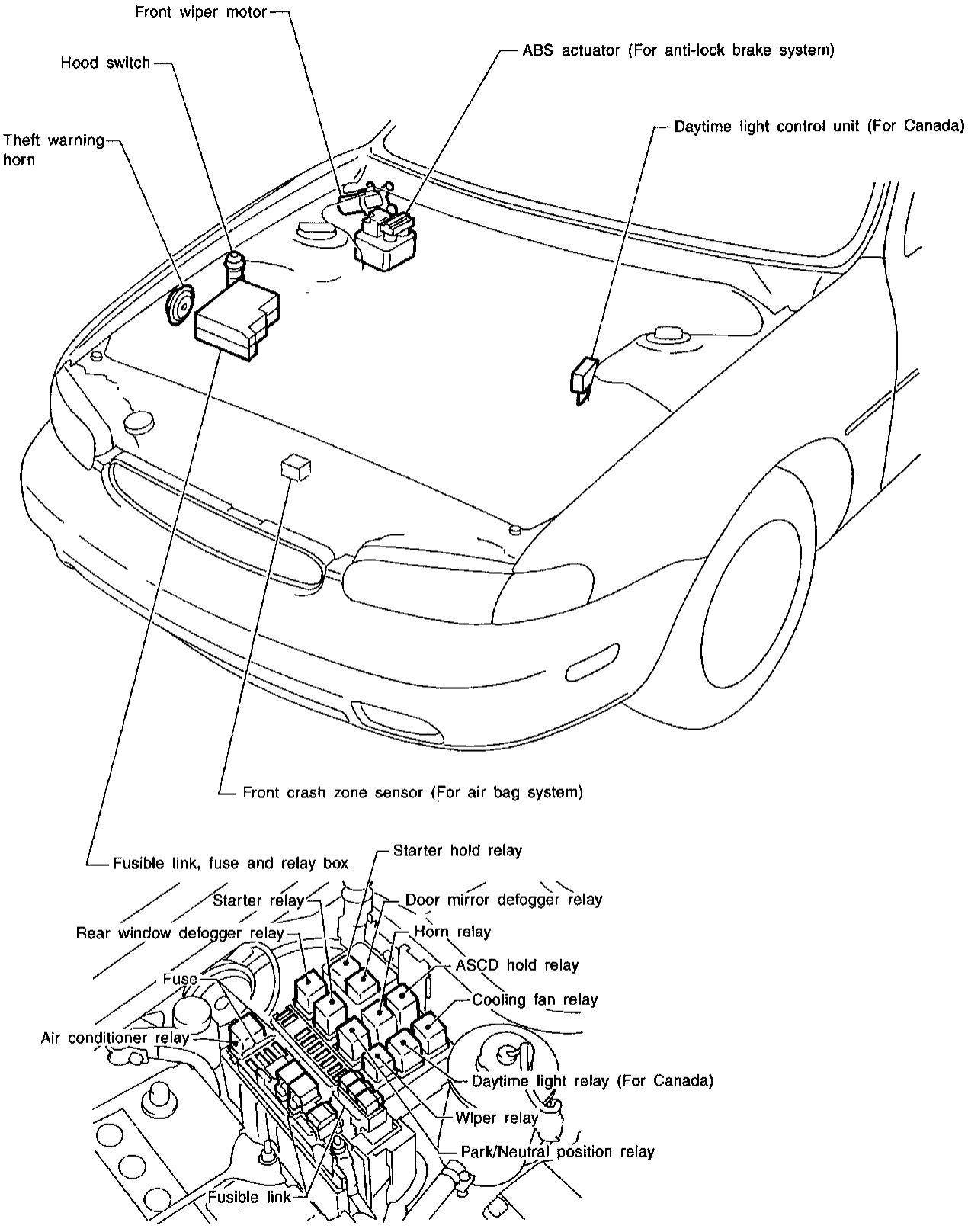






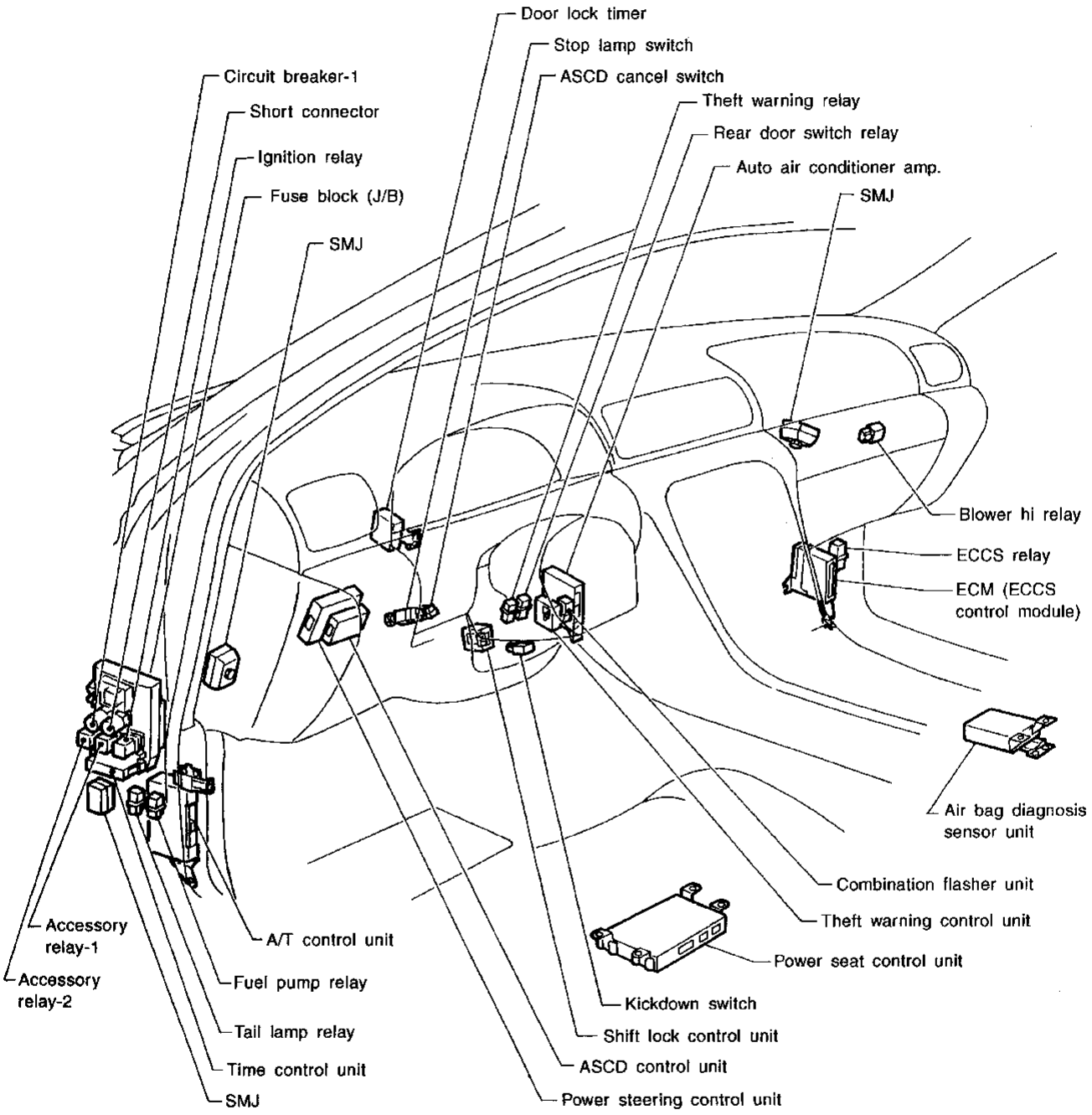
CEL089

Engine Compartment



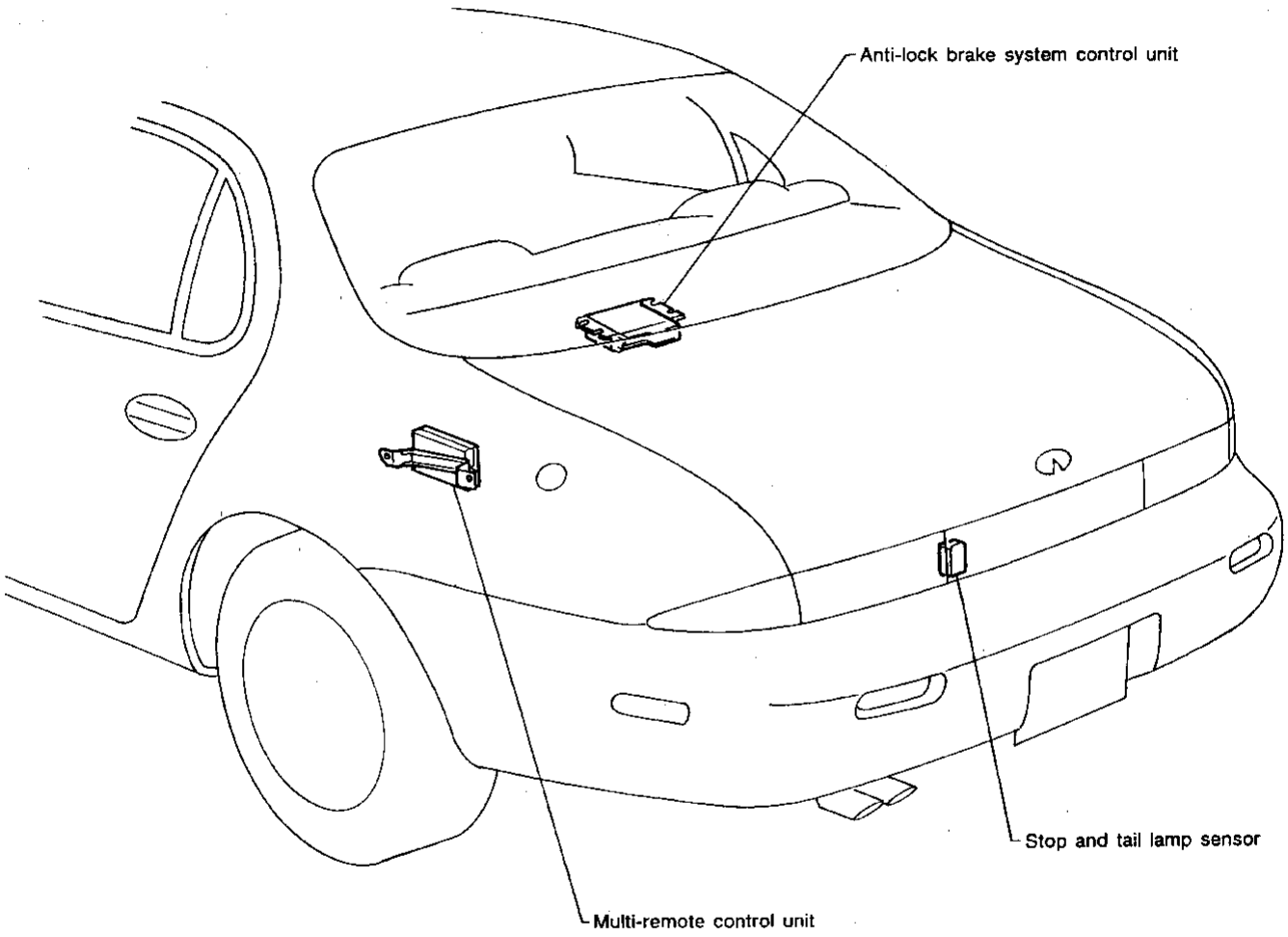
CEL090

Passenger Compartment



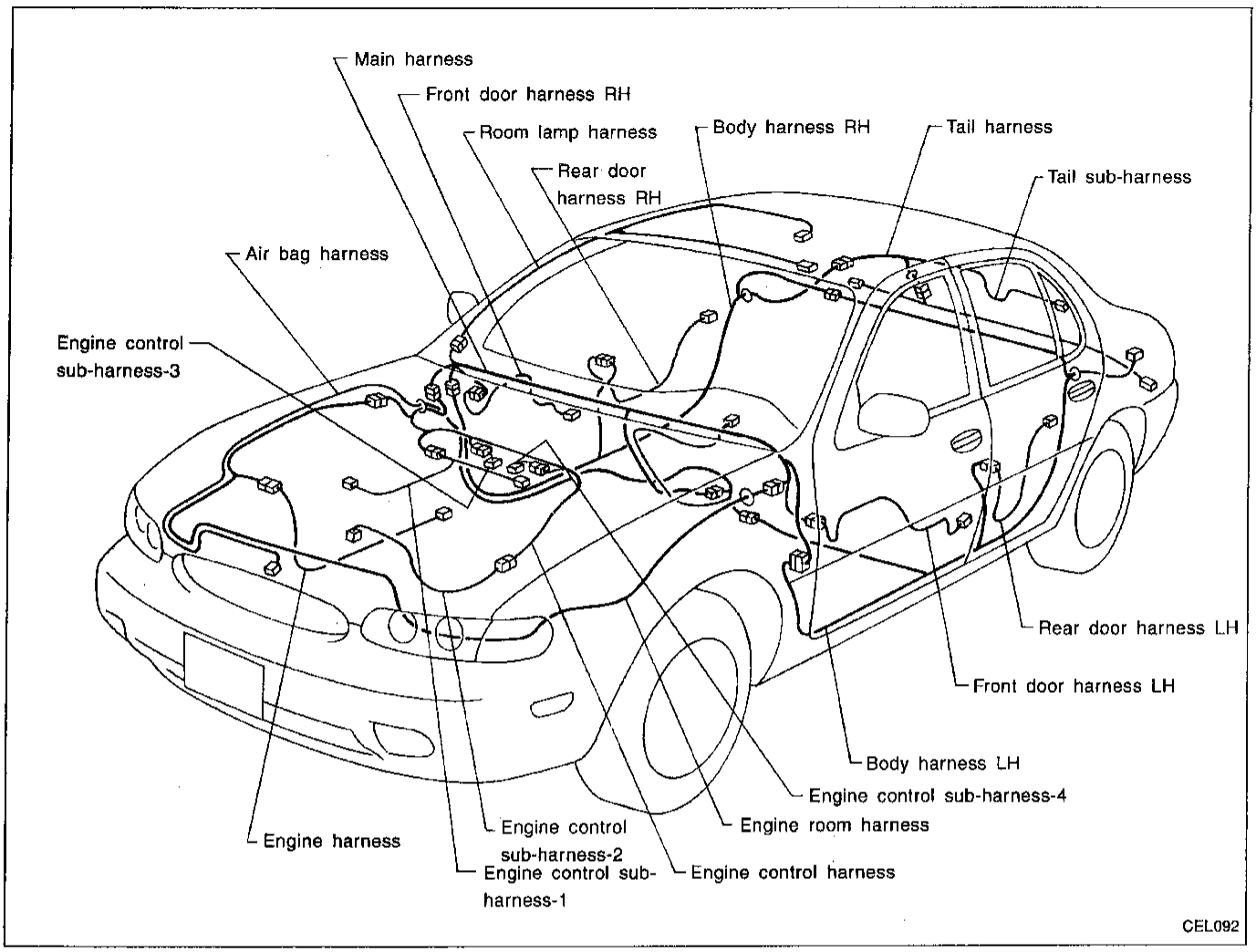
CEL091

Luggage Compartment



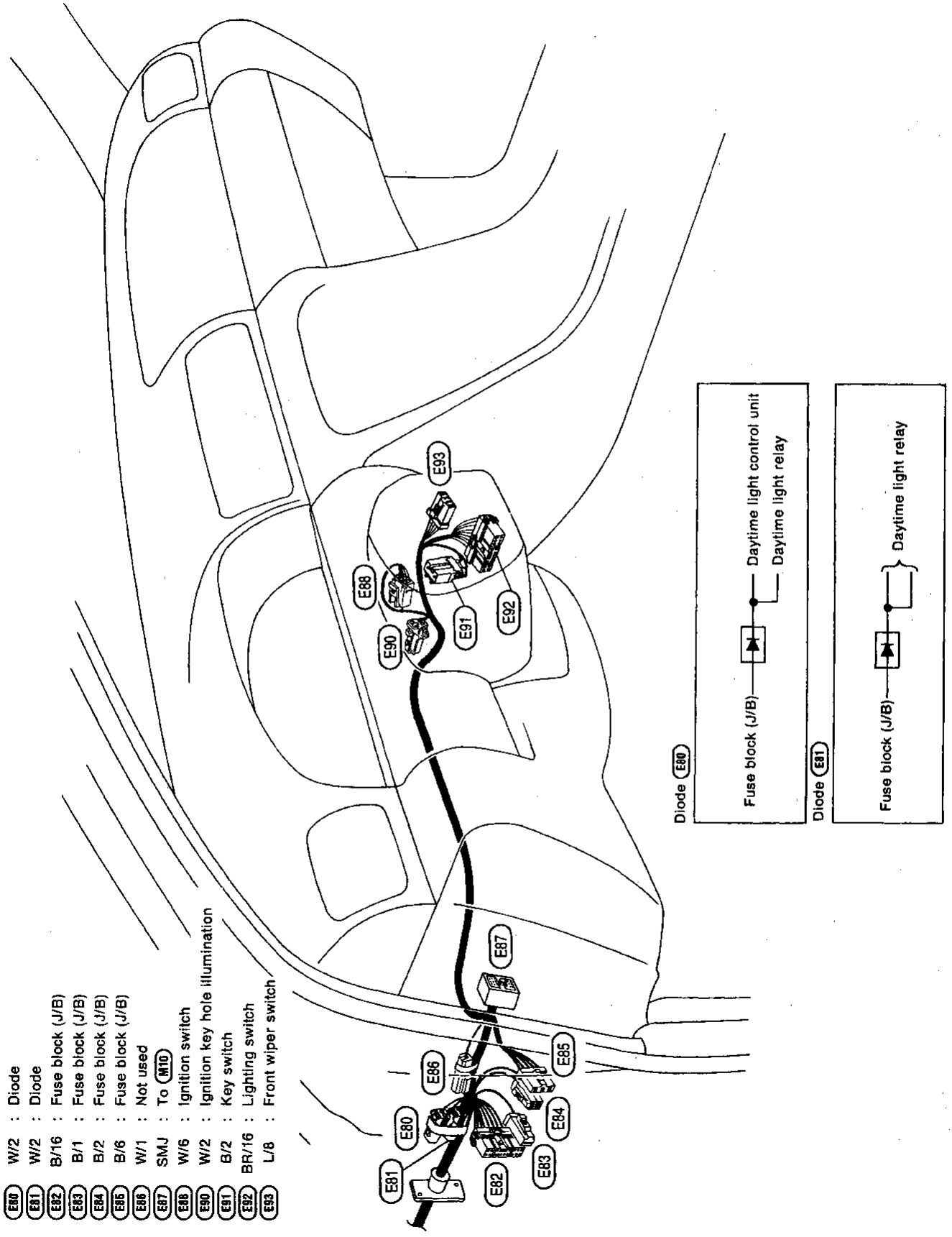
MEL989DA

Outline


Main harness
Front door harness RH
Room lamp harness
Body harness RH
Tail harness
Rear door harness RH
Tail sub-harness
Air bag harness
Engine control sub-harness-3
Rear door harness LH
Front door harness LH
Body harness LH
Engine control sub-harness-4
Engine room harness
Engine harness
Engine control sub-harness-2
Engine control sub-harness-1
Engine control harness
CEL092

Engine Room Harness

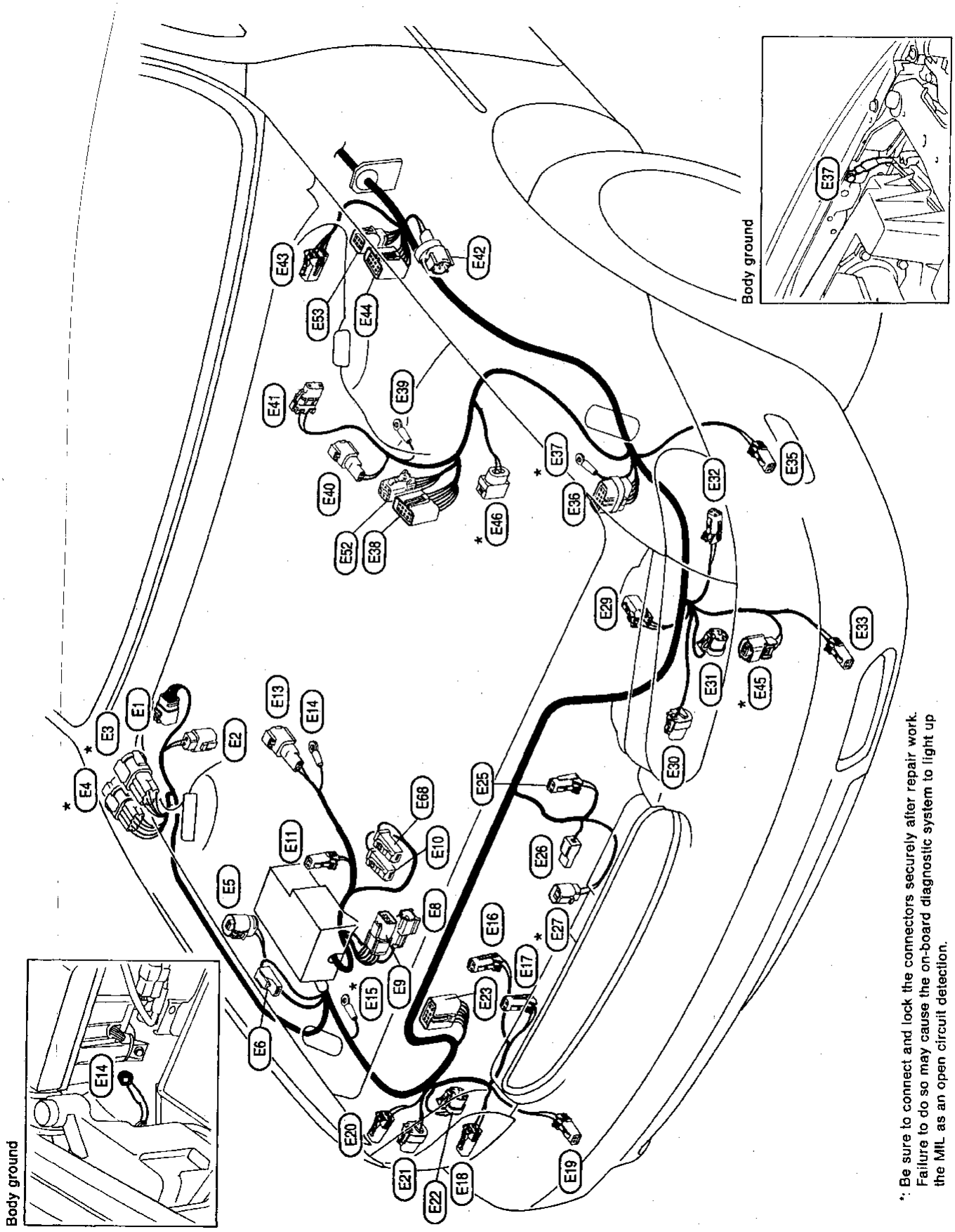
PASSENGER COMPARTMENT



CEL095

Engine Room Harness (Cont'd)

ENGINE COMPARTMENT



*: Be sure to connect and lock the connectors securely after repair work. Failure to do so may cause the on-board diagnostic system to light up the MIL as an open circuit detection.

CEL093

Engine Room Harness (Cont'd)

E1 GY/6 : Front wiper motor
E2 GY/2 : ABS actuator (For anti-lock brake system)
*E3 B/6 : To F3
*E4 GY/8 : To F4
E5 GY/2 : Hood switch
E6 B/1 : Theft warning horn
E7 — : Fuse and fusible link box (Fuse, fusible link and relay box)
E8 GY/1 : To E101
E9 GY/6 : To E102
E10 B/1 : Battery
E11 GY/2 : Dropping resistor
E13 GY/2 : Front wheel sensor RH (For anti-lock brake system)
E14 — : Body ground (For anti-lock brake system)
*E15 — : Body ground
E16 BR/2 : Washer switch
E17 GY/2 : Front washer motor
E18 GY/2 : Front side marker lamp RH
E19 BR/2 : Front turn signal lamp RH
E20 GY/2 : Clearance lamp RH
E21 BR/2 : Headlamp RH (LOW) (For Canada)
E22 B/2 : Headlamp RH (HIGH) (For Canada)
E23 GY/8 : Joint connector-1
E25 BR/2 : Ambient sensor
E26 B/1 : Horn low
*E27 GY/2 : Cooling fan motor
E29 GY/4 : Triple-pressure switch
E30 B/2 : Headlamp LH (HIGH)
E31 BR/2 : Headlamp LH (LOW)
E32 GY/2 : Clearance lamp LH
E33 BR/2 : Front turn signal lamp LH
E35 GY/2 : Front side marker lamp LH
E36 GY/8 : Joint connector-2
*E37 — : Body ground
E38 GY/8 : Daytime light control unit (For Canada)
E39 — : Body ground (For anti-lock brake system)
E40 GY/2 : Front wheel sensor LH (For anti-lock brake system)
E41 GY/2 : Brake fluid level switch
E42 GY/1 : Not used
E43 GY/4 : ASCD pump
E44 GY/8 : Headlamp control relay unit
*E45 GY/2 : Intake air temperature sensor
*E46 GY/2 : Canister control vacuum check switch
E50 BR/2 : Headlamp RH (LOW) (For U.S.A.)
E51 B/2 : Headlamp RH (HIGH) (For U.S.A.)
E52 GY/6 : Daytime light control unit (For Canada)
E53 GY/6 : Headlamp control relay unit
E54 L/4 : Air conditioner relay
E55 — : Fuse box
E56 BR/6 : Rear window defogger relay
E57 L/4 : Starter relay
E58 GY/6 : Park/Neutral position relay
E59 B/5 : Wiper relay
E60 B/5 : Starter hold relay
E61 L/4 : Door mirror defogger relay
E62 W/3 : Horn relay
E63 BR/6 : Daytime light relay (For Canada)
E64 L/4 : ASCD hold relay
*E65 L/4 : Cooling fan relay
*E66 OR/20 : Joint connector-3
E67 W/2 : Diode
E68 B/1 : Battery

(Fuse, fusible link and relay box)

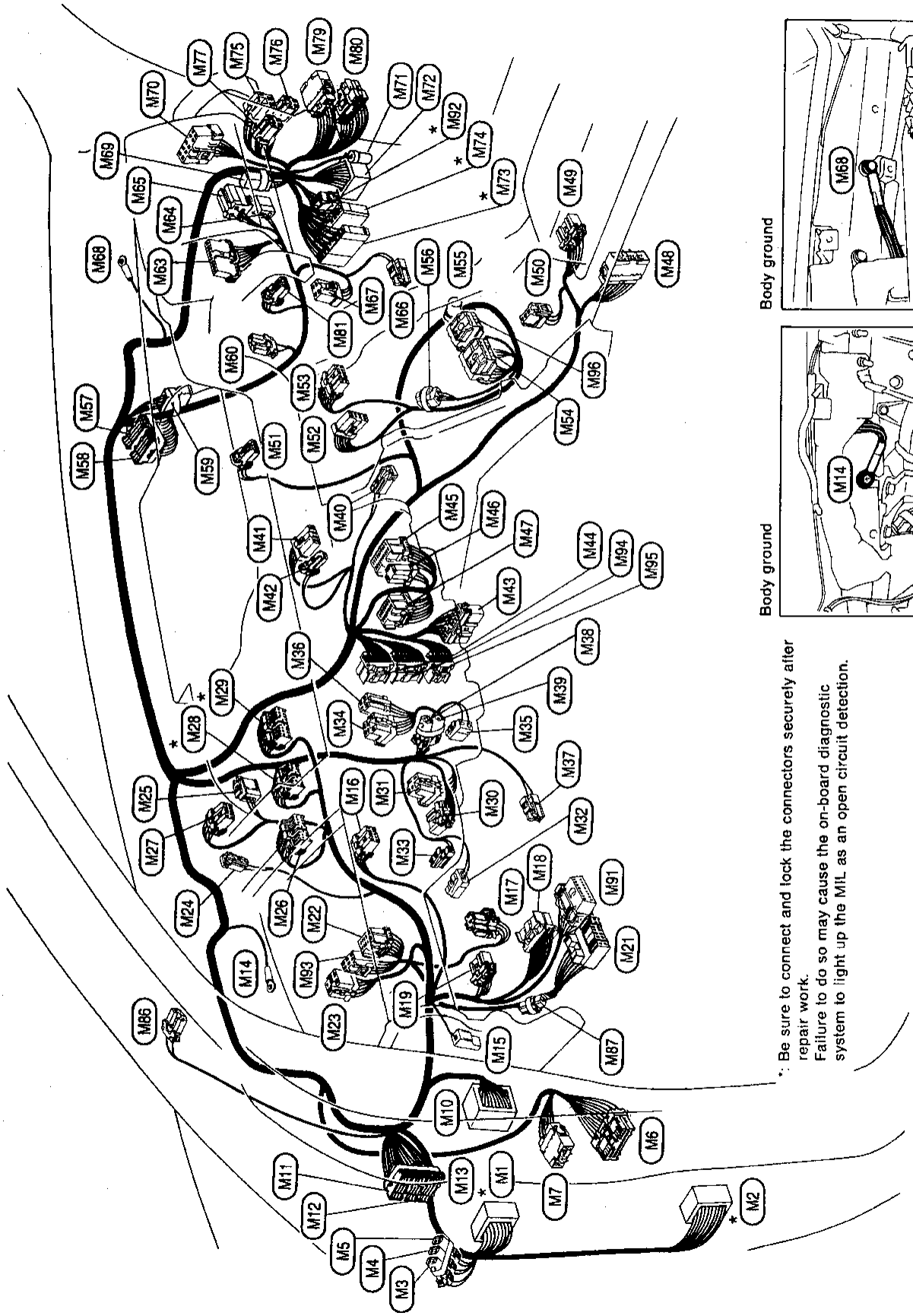
Resistor E11

Fuse, fusible link and relay box

*: Be sure to connect and lock the connectors securely after repair work. Failure to do so may cause the on-board diagnostic system to light up the MIL as an open circuit detection.

CEL094

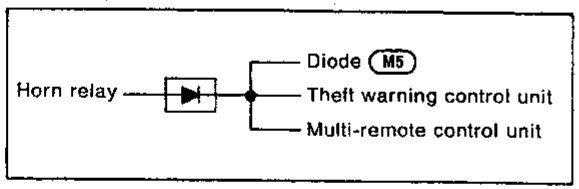
Main Harness



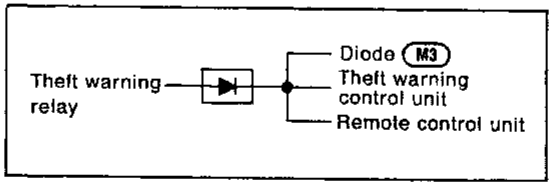
CEL096

*M1	SMJ	:	Fuse block (J/B)
*M2	SMJ	:	To B3
M3	W/2	:	Diode
M4	W/2	:	Diode
M5	W/2	:	Diode
M6	W/20	:	To D4
M7	W/18	:	To D3
M10	SMJ	:	To E87
M11	L/20	:	Joint connector-6
M12	OR/20	:	Joint connector-7
M13	Y/20	:	Joint connector-8
M14	—	:	Body ground
M15	B/1	:	Parking brake switch
M16	W/6	:	Illumination control switch
M17	B/5	:	Theft warning starter relay
M18	B/20	:	ASCD control unit
M19	W/8	:	Power steering control unit
M21	GY/14	:	Data link connector for CONSULT
M22	B/12	:	Door lock timer
M23	BR/6	:	Multi-remote control relay-1
M24	W/16	:	Sunload sensor
M25	W/3	:	Warning chime
M26	B/10	:	Combination meter
M27	W/6	:	Combination meter
*M28	W/8	:	Combination meter
*M29	W/12	:	Combination meter
M30	W/8	:	Shift lock control unit
M31	B/5	:	Multi-remote control relay-2
M32	B/2	:	Stop lamp switch
M33	L/2	:	ASCD cancel switch
M34	BR/6	:	Theft warning relay
M35	W/2	:	Kickdown switch
M36	L/4	:	Rear door switch relay
M37	W/2	:	Footwell lamp (Driver's side)
M38	W/2	:	Diode
M39	W/2	:	Diode
M40	B/2	:	In-vehicle sensor
M41	L/8	:	ASCD main switch
M42	W/2	:	Telephone microphone
M43	B/16	:	To A5
M44	B/16	:	Air conditioner auto amp.
M45	B/20	:	Receiver control unit
M46	B/3	:	Combination flasher unit
M47	B/16	:	Theft warning control unit
M48	Y/16	:	To Z2
M49	W/10	:	Park position switch
M50	W/3	:	Cigarette lighter
M51	W/4	:	Clock
M52	W/8	:	Hazard switch
M53	W/8	:	Push control unit
M54	W/10	:	Radio and CD player
M55	B/6	:	Radio
M56	W/4	:	Not used
M57	B/20	:	Joint connector-9
M58	B/20	:	Joint connector-10
M59	L/20	:	Joint connector-11
M60	B/2	:	Intake sensor
M63	BR/10	:	Intake door motor
M64	W/2	:	Blower motor
M65	L/4	:	Blower HI relay
M66	W/2	:	Footwell lamp (Passenger side)
M67	W/4	:	Fan control amp.
M68	—	:	Body ground
M69	W/2	:	Diode
M70	W/10	:	To R1
M71	B/6	:	To B50
M72	SMJ	:	To B51
*M73	W/16	:	To F24
*M74	L/16	:	To F23
M75	BR/6	:	Audio amp. relay
M76	L/4	:	A/T indicator relay
M77	L/4	:	Sunroof relay
M79	W/18	:	To D20
M80	W/16	:	To D21
M81	W/4	:	Glove box lamp and trunk opener cancel switch
M86	BR/2	:	Tweeter LH
M87	W/1	:	Check connector (For anti-lock brake system)
M91	W/16	:	Data link connector for GST
*M92	W/6	:	To F54
M93	W/6	:	Door lock timer
M94	B/20	:	Air conditioner auto amp.
M95	B/12	:	Air conditioner auto amp.
M96	W/6	:	Radio and CD player

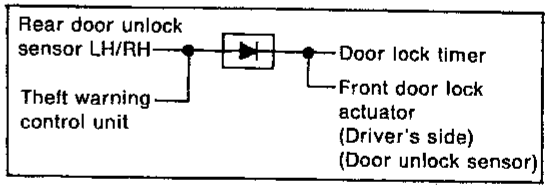
Diode (M3)



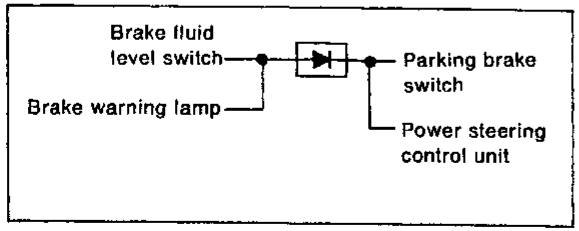
Diode (M5)



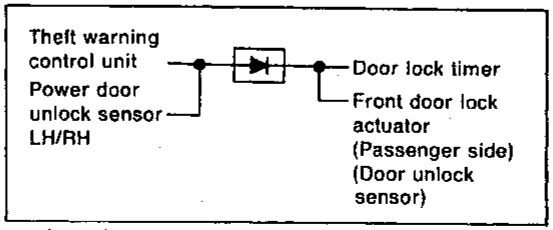
Diode (M39)



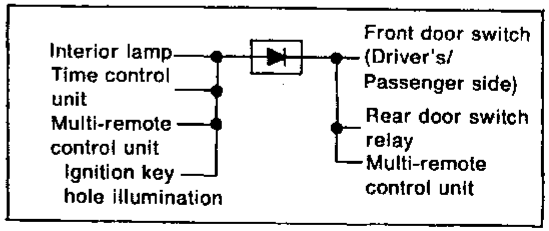
Diode (M4)



Diode (M38)

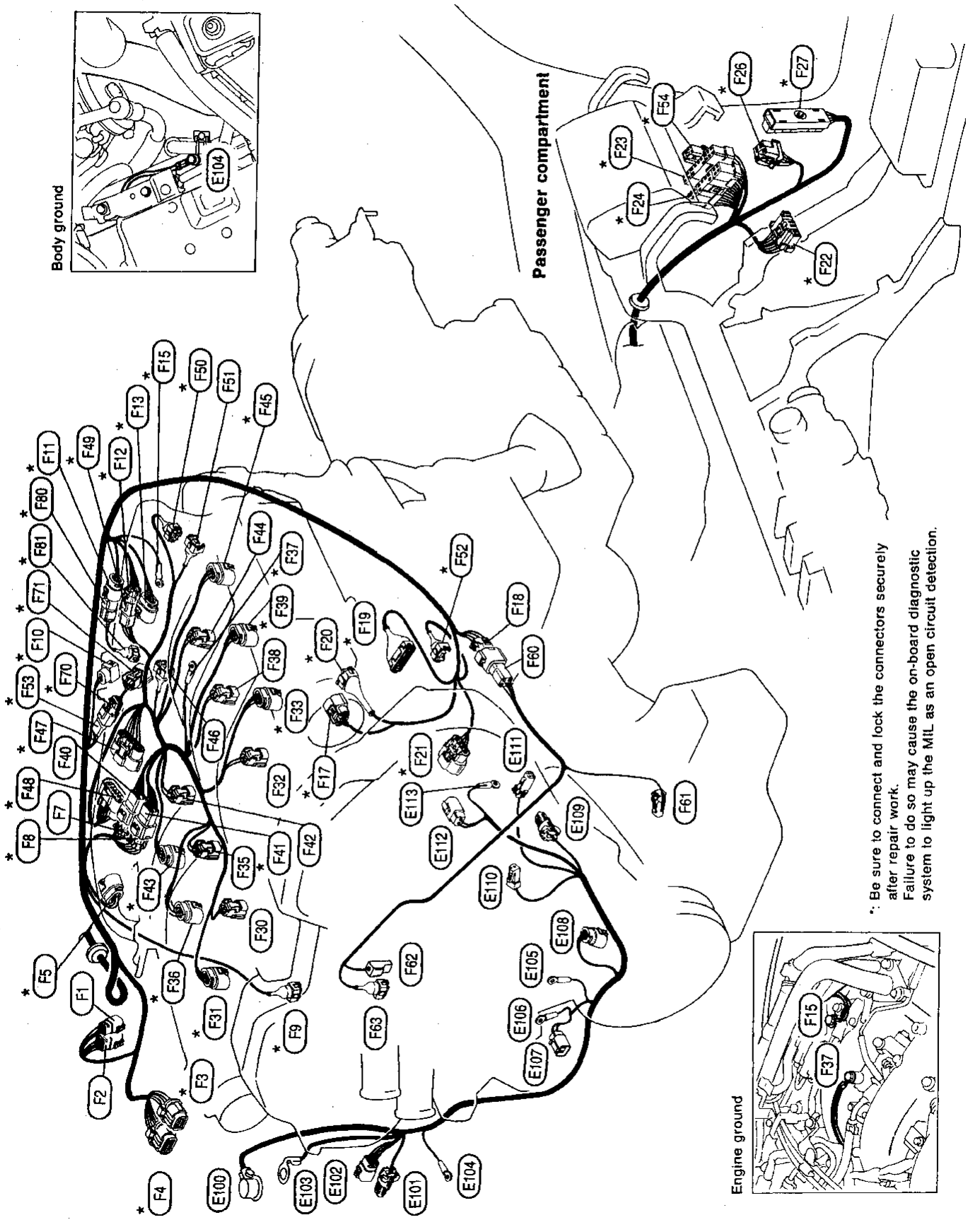


Diode (M69)



*: Be sure to connect and look the connectors securely after repair work.
Failure to do so may cause the on-board diagnostic system to light up the MIL as an open circuit detection.

Engine Control Harness and Engine Harness



CEL098

Engine control harness

F1	GY/4	:	ABS actuator (For anti-lock brake system)
F2	GY/6	:	ABS actuator (For anti-lock brake system)
*F3	B/6	:	To E3
*F4	GY/8	:	To E4
*F5	GY/3	:	Front heated oxygen sensor RH
F7	BR/8	:	To F40
*F8	GY/8	:	To F41
*F9	BR/2	:	EGRC-solenoid valve
*F10	B/2	:	EGR temperature sensor
*F11	GY/2	:	To F80
*F12	GY/6	:	To F49
*F13	GY/3	:	Front heated oxygen sensor LH
*F15	—	:	Engine ground
*F17	BR/3	:	Throttle position sensor
F18	BR/4	:	To F60
*F19	GY/3	:	Mass air flow sensor
F20	GY/3	:	Throttle position switch
*F21	GY/4	:	Camshaft position sensor
*F22	W/14	:	To B52
*F23	L/16	:	To M74
*F24	W/16	:	To M73
*F26	BR/6	:	ECCS relay
*F27	SMJ	:	ECM (ECCS control module)
*F52	B/2	:	EVAP canister purge control solenoid valve
*F53	GY/2	:	To F70
*F54	W/6	:	To M92

Engine control sub-harness-1

F30	B/2	:	Injector No. 1
*F31	GY/3	:	Ignition coil No. 1
F32	B/2	:	Injector No. 2
*F33	GY/3	:	Ignition coil No. 2
F35	B/2	:	Injector No. 3
*F36	GY/3	:	Ignition coil No. 3
F37	—	:	Engine ground
F38	B/2	:	Injector No. 4
*F39	GY/3	:	Ignition coil No. 4
F40	BR/8	:	To F7
*F41	GY/8	:	To F8
F42	B/2	:	Injector No. 5
*F43	GY/3	:	Ignition coil No. 5
F44	B/2	:	Injector No. 6
*F45	GY/3	:	Ignition coil No. 6
F46	SB/2	:	IACV-air regulator
*F47	GY/6	:	Power transistor unit
*F48	GY/7	:	Power transistor unit
*F49	GY/6	:	To F12
*F50	Y/2	:	IACV-AAC valve
F51	SB/2	:	IACV-FICD solenoid valve

Engine control sub-harness-2

F60	BR/4	:	To F18
F61	GY/1	:	Compressor
F62	B/1	:	Thermal transmitter
F63	GY/2	:	Engine coolant temperature sensor

Engine control sub-harness-3

*F70	GY/2	:	To F53
*F71	GY/2	:	Crankshaft position sensor (OBD)

Engine control sub-harness-4

*F80	GY/2	:	To F11
*F81	B/2	:	Knock sensor

Engine harness

E100	—	:	Battery
E101	GY/1	:	To E8
E102	GY/6	:	To E9
E103	—	:	Fuse box
E104	—	:	Body ground
E105	—	:	Alternator
E106	—	:	Alternator
E107	GY/2	:	Alternator
E108	GY/2	:	Power steering oil pressure switch
E109	GY/1	:	Starter motor
E110	B/1	:	Oil pressure switch
E111	GY/2	:	Power steering solenoid valve
E112	GY/2	:	Inhibitor switch
E113	—	:	Starter motor

*: Be sure to connect and lock the connectors securely after repair work.
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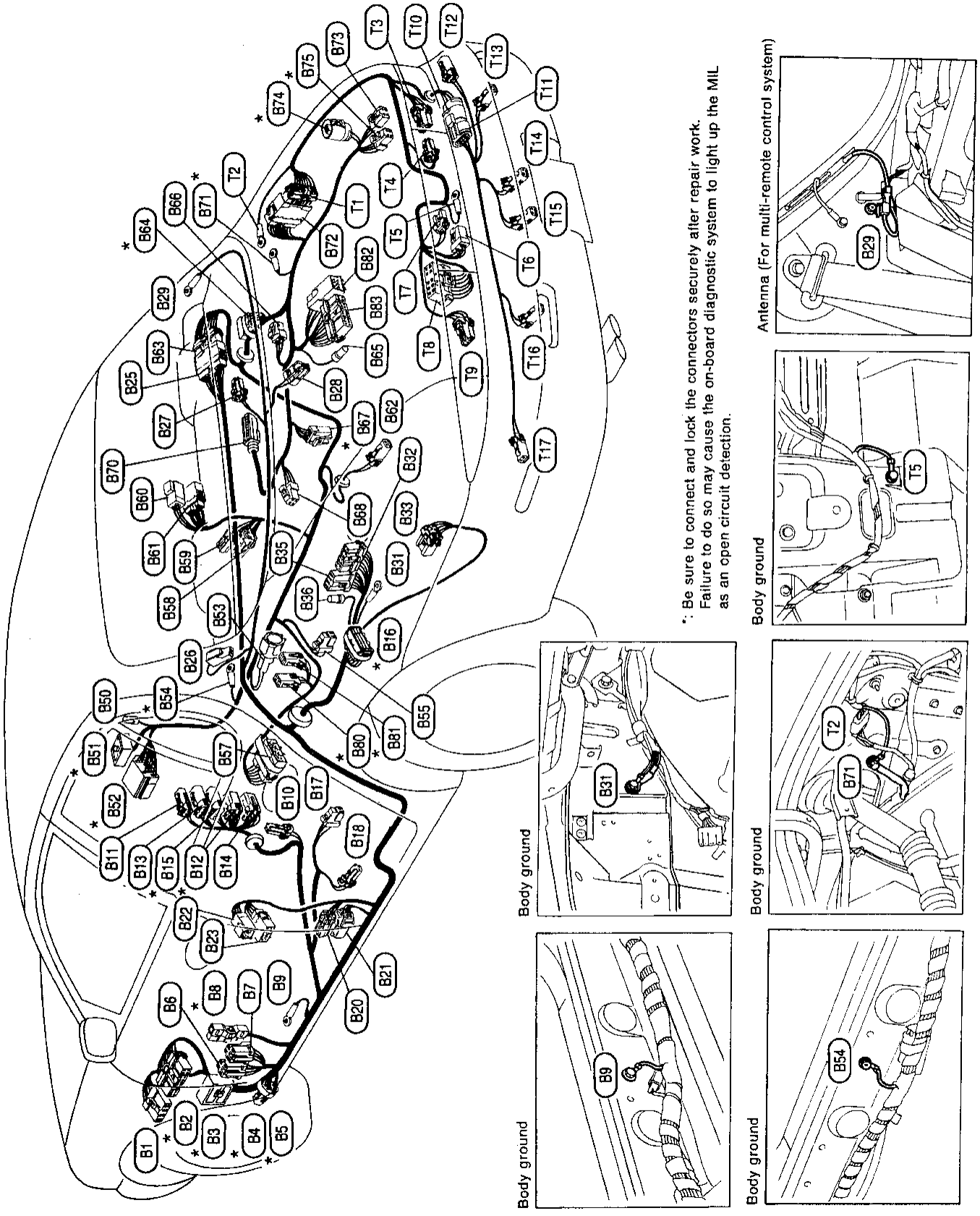
Body Harness and Tail Harness



CEL100

Body harness LH

B1	W/8	:	Fuse block (J/B)
*B2	W/16	:	Fuse block (J/B)
*B3	SMJ	:	To M2
*B4	W/2	:	Diode
*B5	W/2	:	Diode
B6	L/4	:	Tail lamp relay
B7	G/4	:	Fuel pump relay
*B8	SMJ	:	A/T control unit
B9	—	:	Body ground
B10	W/2	:	To Z3
B11	GY/2	:	Vehicle speed sensor
*B12	GY/8	:	Inhibitor switch
B13	BR/3	:	Turbine sensor
B14	BR/8	:	To terminal cord assembly
*B15	BR/3	:	Revolution sensor
*B16	Y/20	:	Joint connector-12
B17	W/3	:	To power seat harness (Driver's side)
B18	W/2	:	Seat belt buckle switch (Driver's side)
B20	B/3	:	Front door switch (Driver's side)
B21	BR/4	:	Seat belt pre-tensioner (Driver's side)
B22	W/4	:	To D40
B23	W/8	:	To D41
B25	W/16	:	To B63
B26	B/1	:	Rear window defogger
B27	W/2	:	High-mounted stop lamp
B28	W/2	:	Trunk room lamp
B29	—	:	Antenna (For multi-remote control system)
B31	—	:	Body ground
B32	W/12	:	Multi-remote control unit
B33	W/6	:	Power antenna timer and motor
B35	W/8	:	Multi-remote control unit
B36	W/1	:	Multi-remote control unit

Body harness RH

B50	B/6	:	To M71
*B51	SMJ	:	To M72
*B52	W/14	:	To F22
B53	GY/2	:	To Z6
*B54	—	:	Body ground
B55	W/3	:	To power seat harness (Passenger side)
B57	W/12	:	Handset
B58	BR/4	:	Seat belt pre-tensioner (Passenger side)
B59	B/3	:	Front door switch (Passenger side)
B60	W/4	:	To D50
B61	W/8	:	To D51
B62	GY/2	:	Rear wheel sensor (For anti-lock brake system)
B63	W/16	:	To B25
*B64	OR/20	:	Joint connector-13
B65	B/6	:	Transceiver unit
B66	W/4	:	Rear speaker RH
*B67	W/6	:	Fuel tank unit
B68	W/4	:	Rear speaker LH
B70	SMJ	:	Anti-lock brake system control unit
*B71	—	:	Body ground
B72	W/12	:	To T1
B73	W/4	:	Fuel lid opener actuator
*B74	GY/2	:	Dropping resistor
*B75	W/4	:	Fuel pump control module (FPCM)
B76	—	:	Body ground
*B80	GY/4	:	Rear heated oxygen sensor RH
*B81	BR/4	:	Rear heated oxygen sensor LH
B82	B/4	:	Transceiver unit
B83	W/16	:	Transceiver unit

*: Be sure to connect and lock the connectors securely after repair work. Failure to do so may cause the on-board diagnostic system to light up the MIL as an open circuit detection.

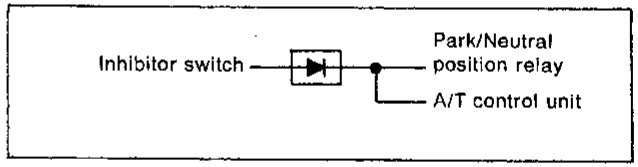
Tail harness

T1	W/12	:	To B72
T2	—	:	Body ground
T3	W/4	:	Rear combination lamp RH
T4	W/2	:	Trunk lid key cylinder switch
T5	—	:	Body ground
T6	W/4	:	Trunk lid opener actuator
T7	B/2	:	Trunk room lamp switch
T8	W/10	:	Stop and tail lamp sensor
T9	W/4	:	Rear combination lamp LH
T10	GY/3	:	To T11

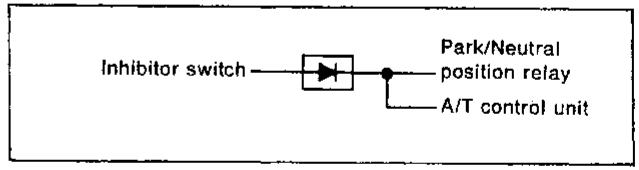
Tail sub-harness

T11	GY/3	:	To T10
T12	GY/2	:	Rear side marker RH
T13	GY/2	:	Back-up lamp RH
T14	BR/2	:	License lamp RH
T15	BR/2	:	License lamp LH
T16	GY/2	:	Back-up lamp LH
T17	GY/2	:	Rear side marker LH

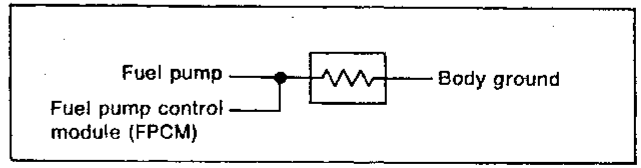
Diode B4



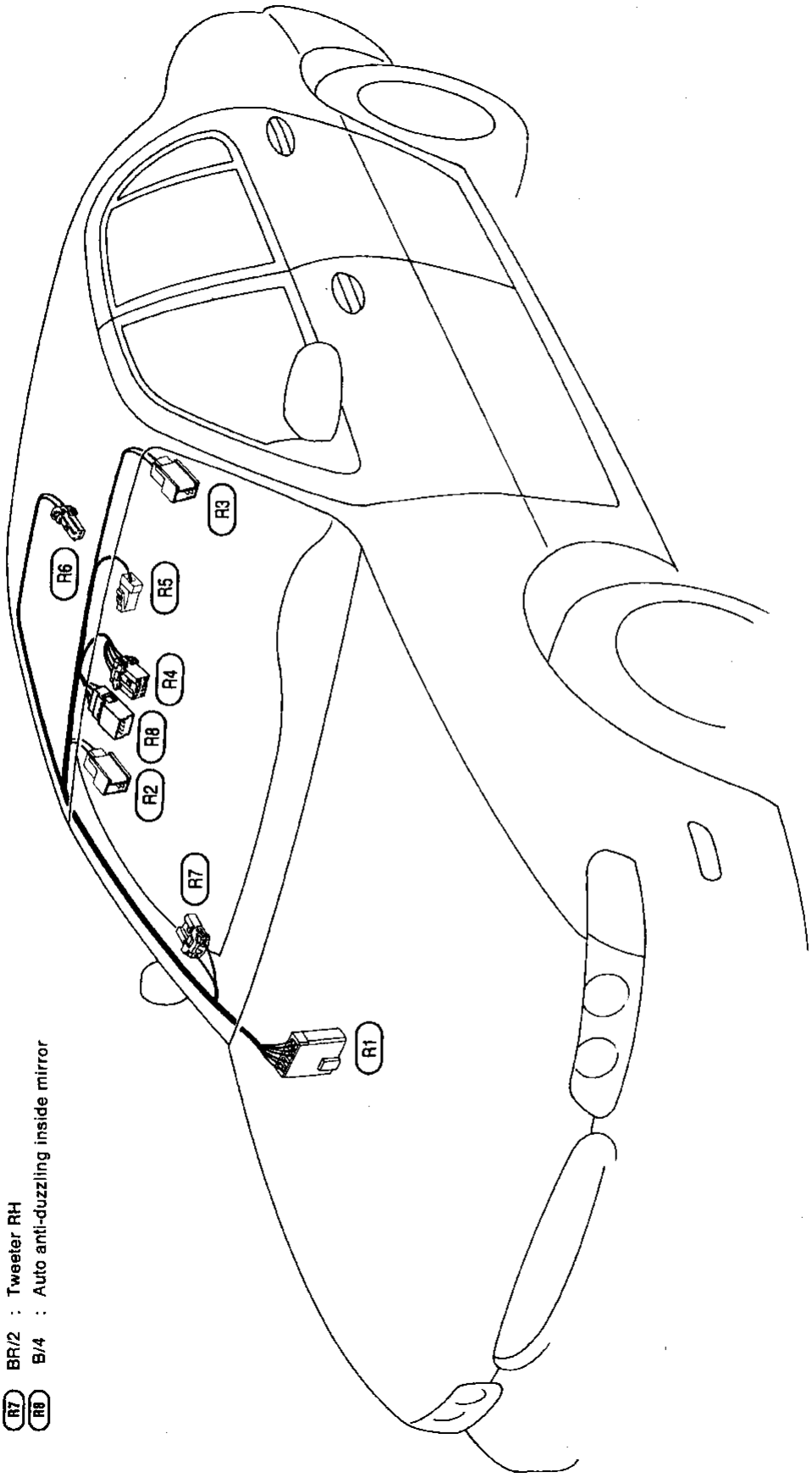
Diode B5



Resistor B74



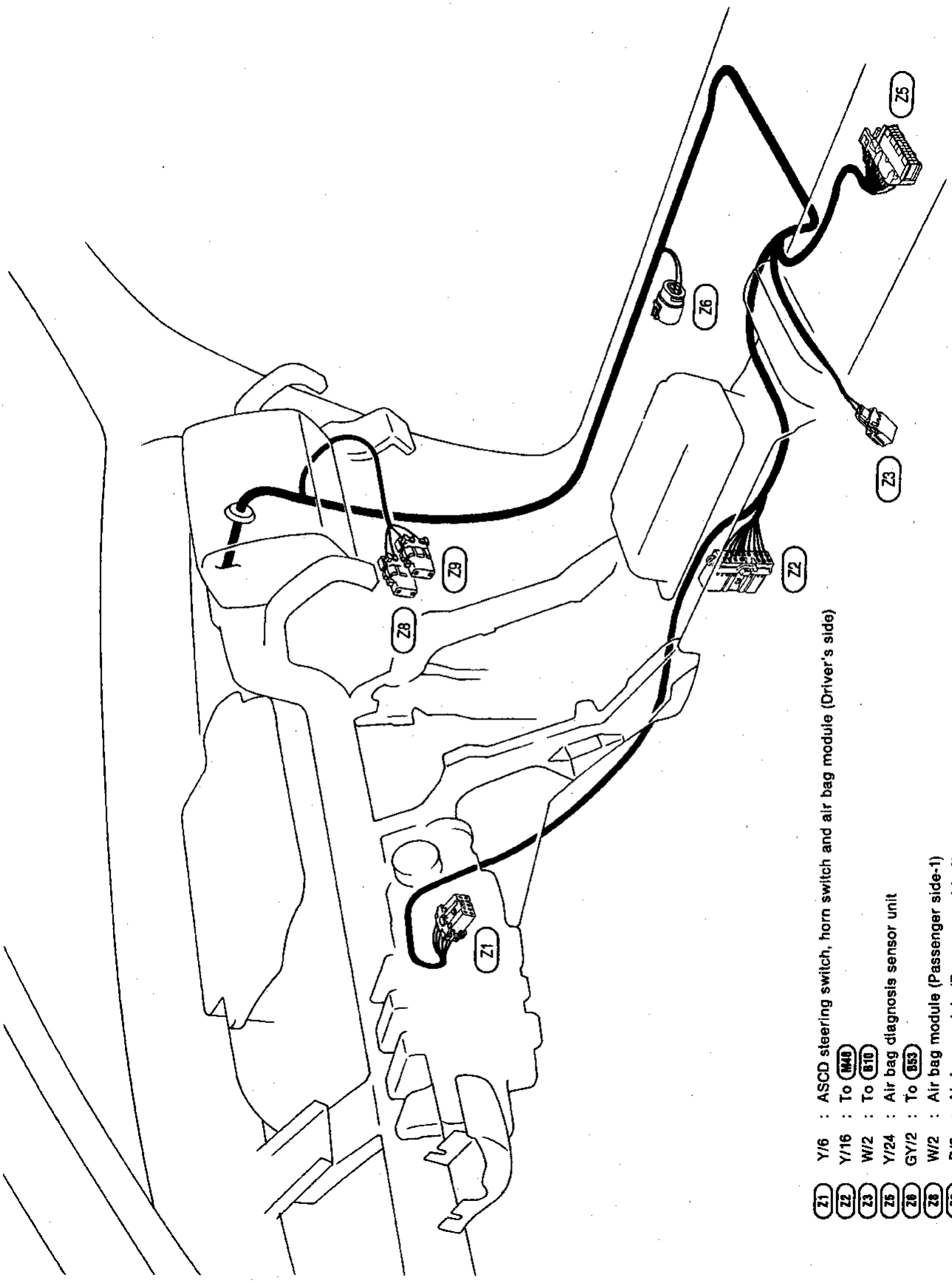
Room Lamp Harness



R1	W/10	: To (M70)
R2	W/2	: Vanity mirror illumination (Passenger side)
R3	W/2	: Vanity mirror illumination (Driver's side)
R4	W/6	: Spot lamp
R5	W/1	: To sunroof harness
R6	W/2	: Interior lamp
R7	BR/2	: Tweeter RH
R8	B/4	: Auto anti-duzzling inside mirror

CEL102

Air Bag Harness

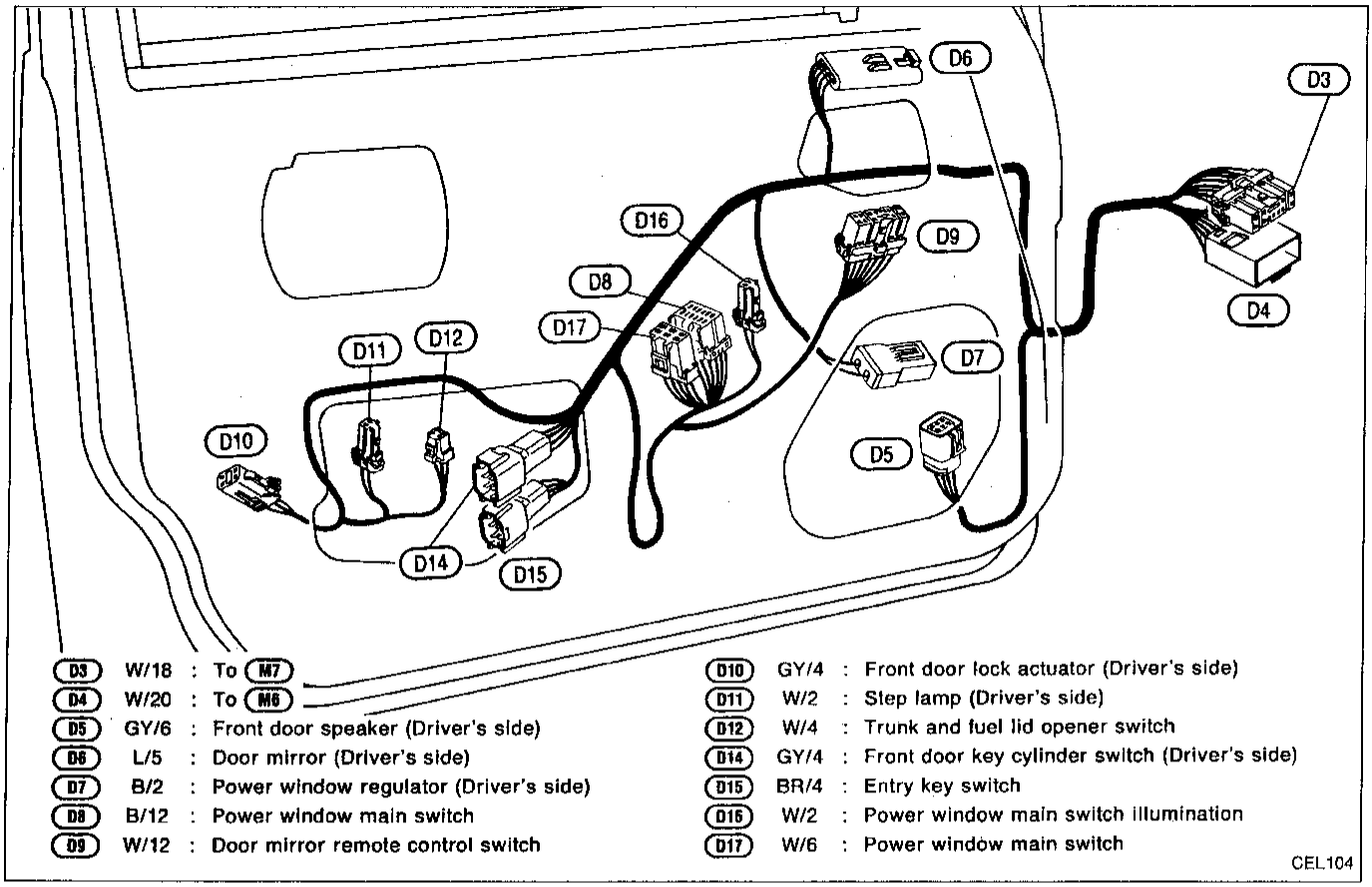


Z1 : Y/6 : ASCD steering switch, horn switch and air bag module (Driver's side)
Z2 : Y/16 : To M44
Z3 : W/2 : To B10
Z5 : Y/24 : Air bag diagnosis sensor unit
Z6 : GY/2 : To B53
Z8 : W/2 : Air bag module (Passenger side-1)
Z9 : B/2 : Air bag module (Passenger side-2)

CEL103

Door Harness (LH side)

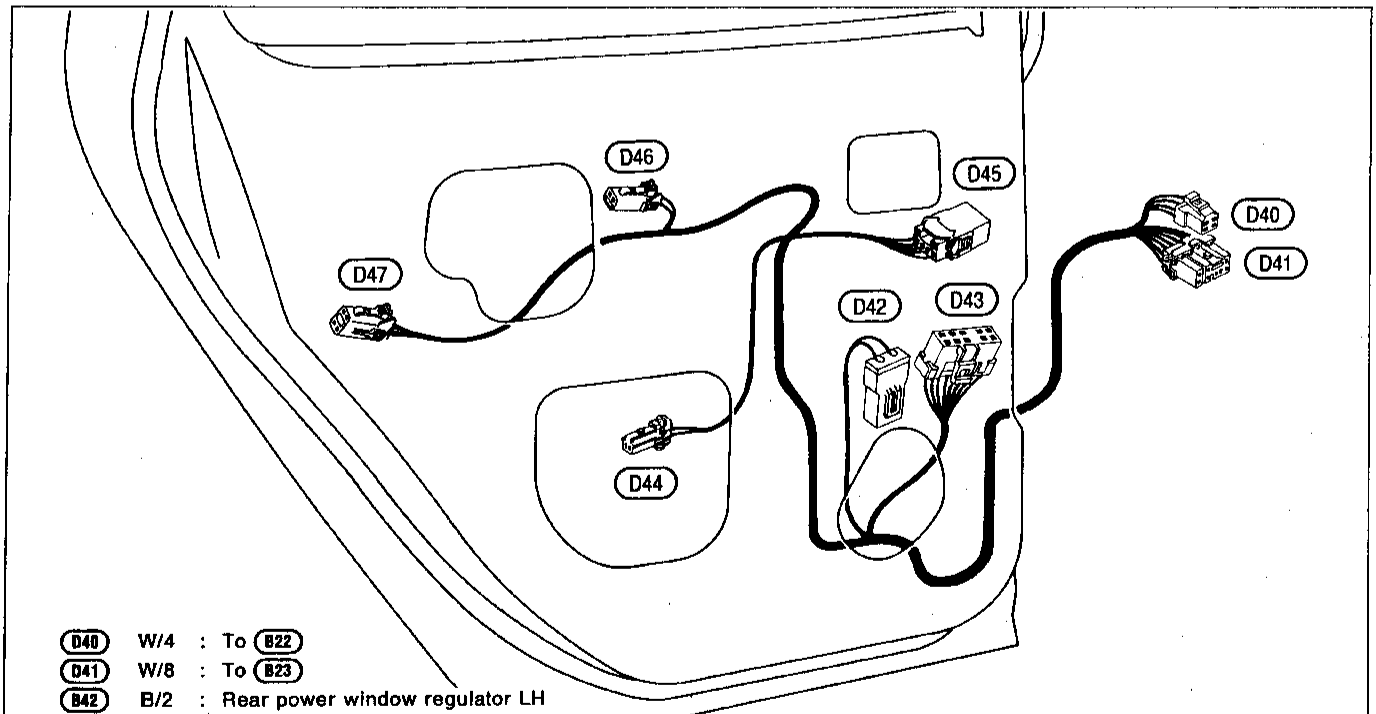
FRONT



D3	W/18	: To M7	
D4	W/20	: To M6	
D5	GY/6	: Front door speaker (Driver's side)	
D6	L/5	: Door mirror (Driver's side)	
D7	B/2	: Power window regulator (Driver's side)	
D8	B/12	: Power window main switch	
D9	W/12	: Door mirror remote control switch	
D10	GY/4	: Front door lock actuator (Driver's side)	
D11	W/2	: Step lamp (Driver's side)	
D12	W/4	: Trunk and fuel lid opener switch	
D14	GY/4	: Front door key cylinder switch (Driver's side)	
D15	BR/4	: Entry key switch	
D16	W/2	: Power window main switch illumination	
D17	W/6	: Power window main switch	

CEL104

REAR

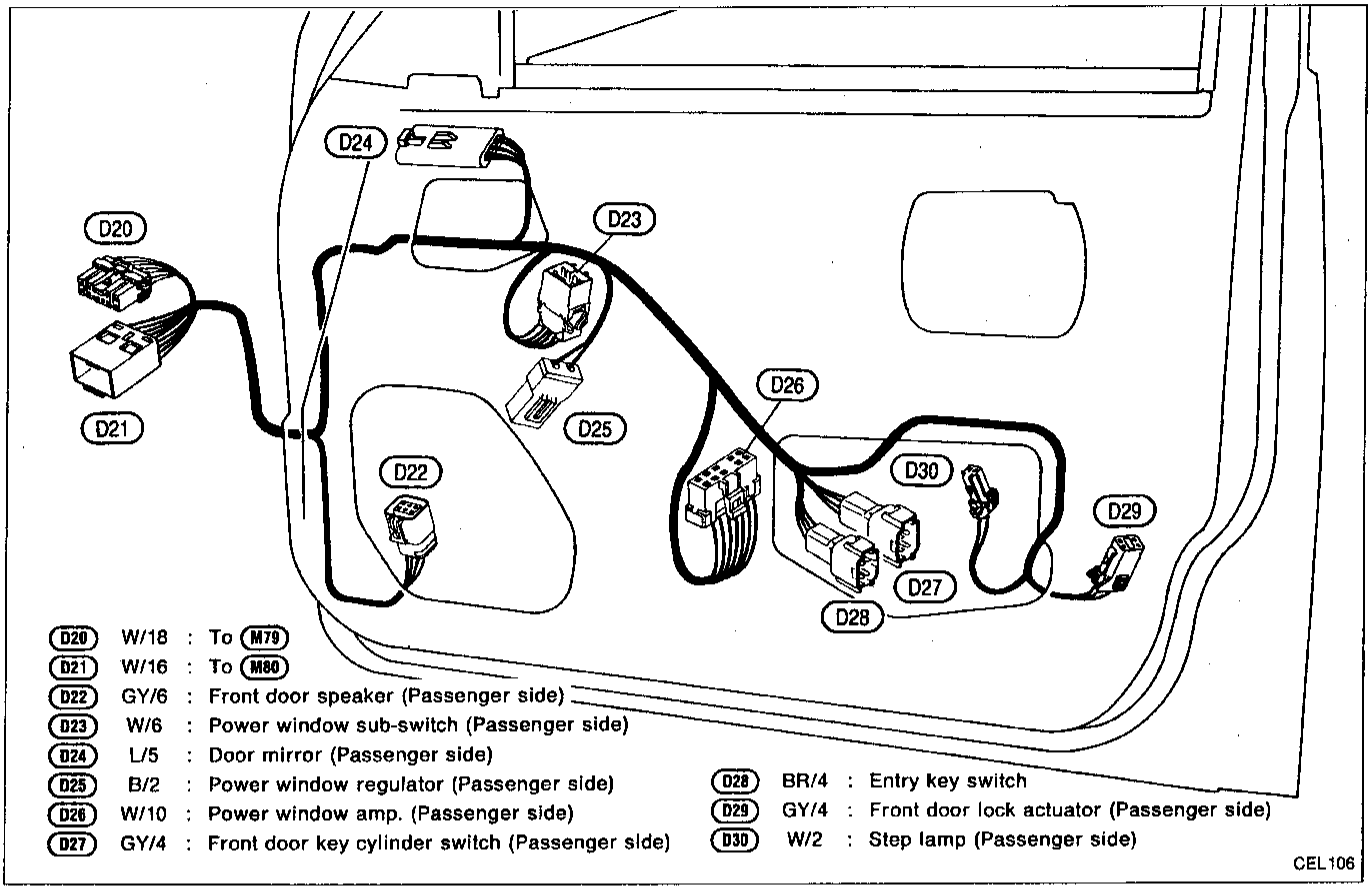


D40	W/4	: To B22	
D41	W/8	: To B23	
B42	B/2	: Rear power window regulator LH	
D43	W/10	: Rear power window amp. LH	
D44	W/2	: Rear step lamp LH	
D45	W/8	: Rear power window sub-switch LH	
D46	BR/2	: Rear door switch LH	
D47	GY/4	: Rear door lock actuator LH	

CEL105

FRONT

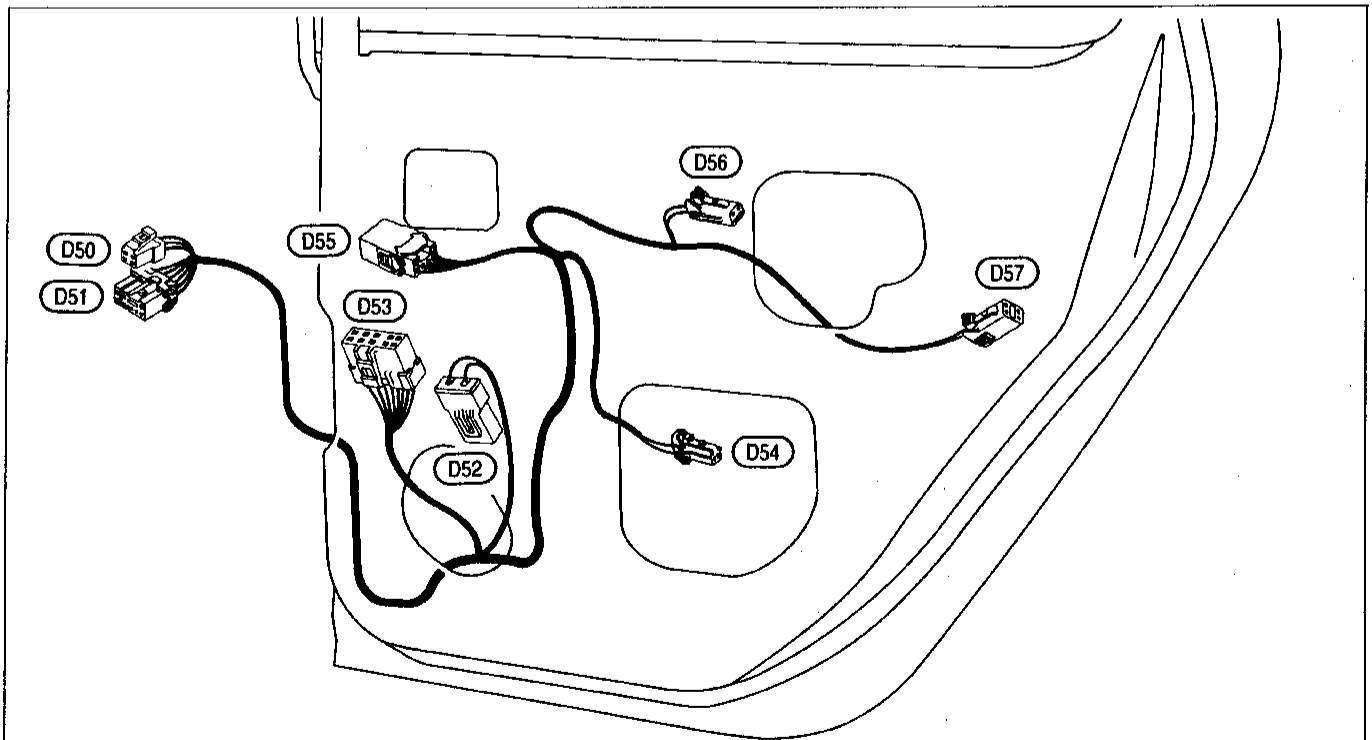
Door Harness (RH side)



D20	W/18	: To M79	
D21	W/16	: To M80	
D22	GY/6	: Front door speaker (Passenger side)	
D23	W/6	: Power window sub-switch (Passenger side)	
D24	L/5	: Door mirror (Passenger side)	
D25	B/2	: Power window regulator (Passenger side)	
D26	W/10	: Power window amp. (Passenger side)	
D27	GY/4	: Front door key cylinder switch (Passenger side)	
D28	BR/4	: Entry key switch	
D29	GY/4	: Front door lock actuator (Passenger side)	
D30	W/2	: Step lamp (Passenger side)	

CEL106

REAR



D50	W/4	: To B60	
D51	W/8	: To B61	
D52	B/2	: Rear power window regulator RH	
D53	W/10	: Rear power window amp. RH	
D54	W/2	: Rear step lamp RH	
D55	W/6	: Rear power window sub-switch RH	
D56	BR/2	: Rear door switch RH	
D57	GY/4	: Rear door lock actuator RH	

CEL107