ELECTRICAL SYSTEM

SECTION EL

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

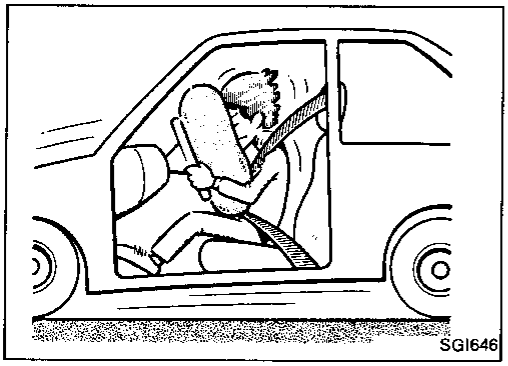
When you perform trouble diagnoses, read GI section, "HOW TO FOLLOW FLOW CHART IN TROUBLE DIAGNOSES" and "HOW TO PERFORM EFFICIENT DIAGNOSIS FOR AN ELECTRICAL INCIDENT".

CONTENTS

CONTENTS (Cont'd.)

CONTENTS (Cont'd.)

WIRING DIAGRAM REFERENCE CHART



Supplemental Restraint System "AIR BAG"

The Supplemental Restraint System "Air Bag", used along with a seat belt, helps to reduce the risk or severity of injury to the driver and front passenger in a frontal collision. The Supplemental Restraint System consists of air bag modules (located in the center of the steering wheel and on the instrument panel on the passenger side), a diagnosis sensor unit, warning lamp, wiring harness and spiral cable. Information necessary to service the system safely is included in the **BF 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 could result in air bag inflation, all maintenance must be performed by an authorized NISSAN dealer.**
- **Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system.**
- **All SRS air bag electrical wiring harnesses and connectors are covered with yellow outer insulation. Do not use electrical test equipment on any circuit related to the SRS "Air bag".**

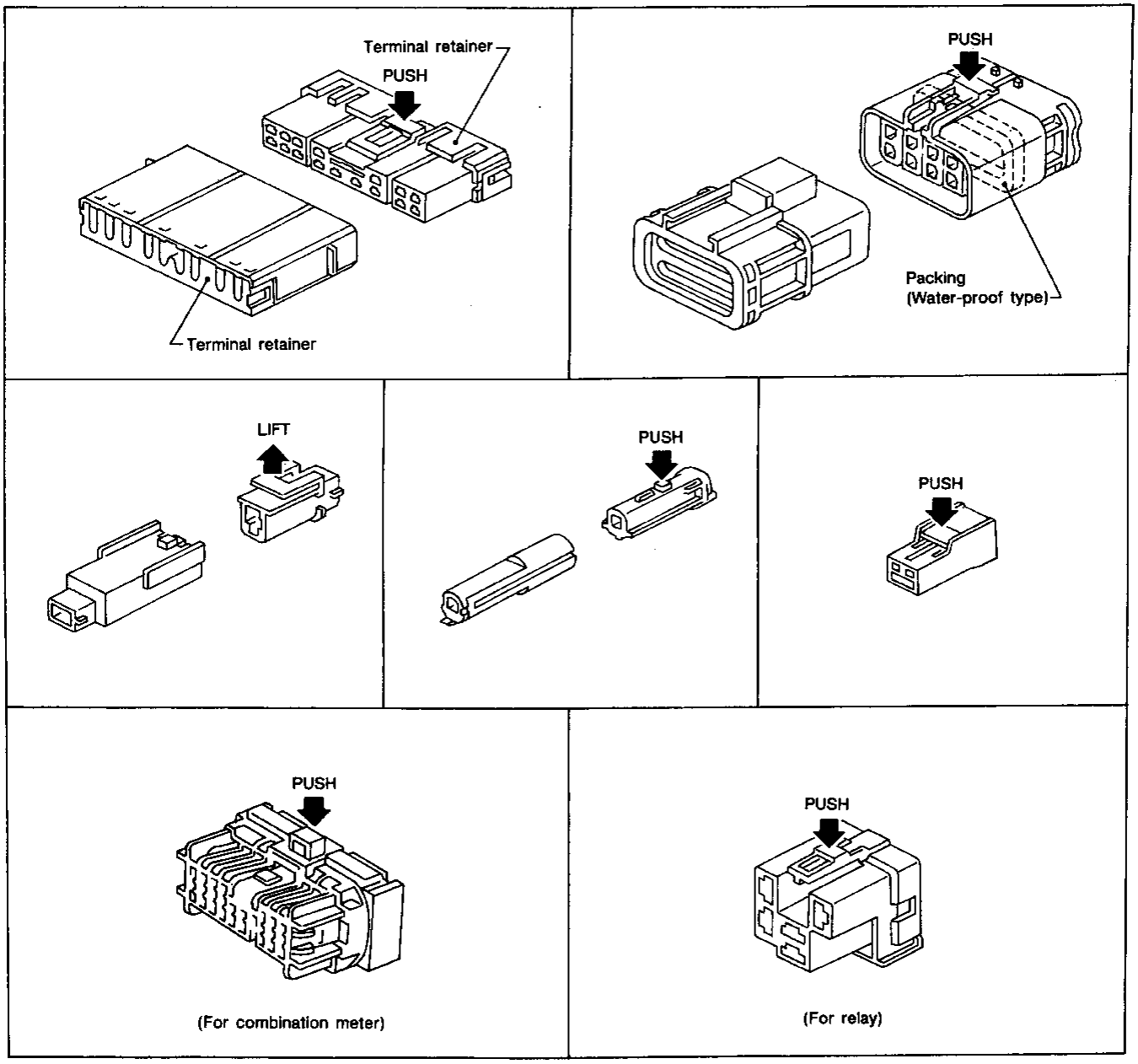
Description

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.

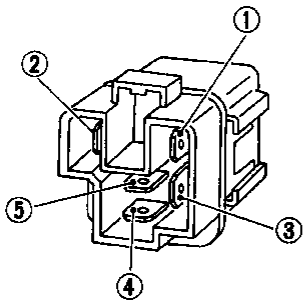
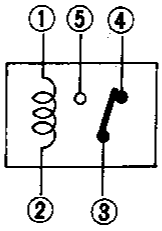
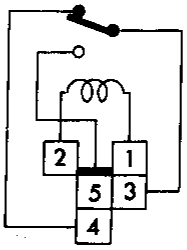
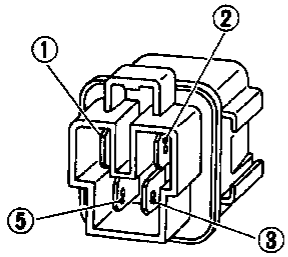
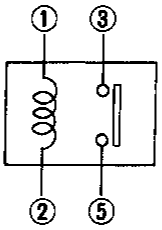
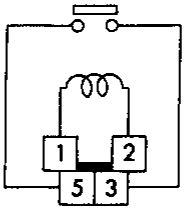
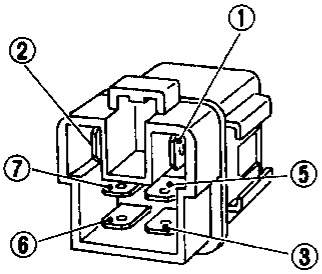
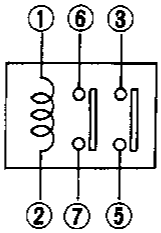
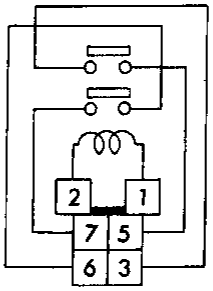
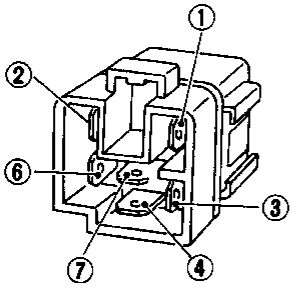
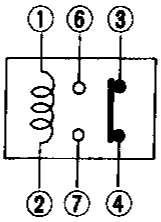
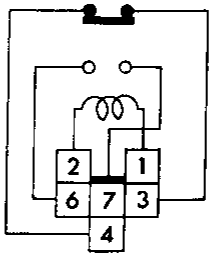
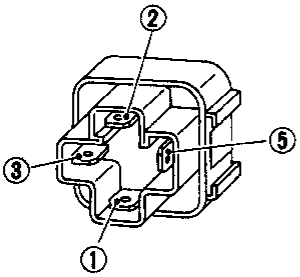
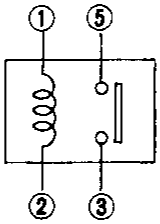
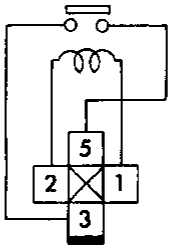
CAUTION:
Do not pull the harness when disconnecting the connector.

[Example]



MEL343D

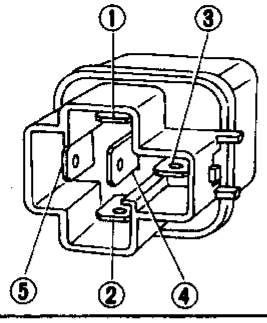
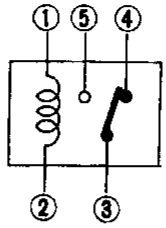
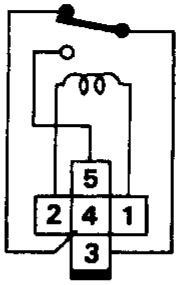
Description

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

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

SEL871SA

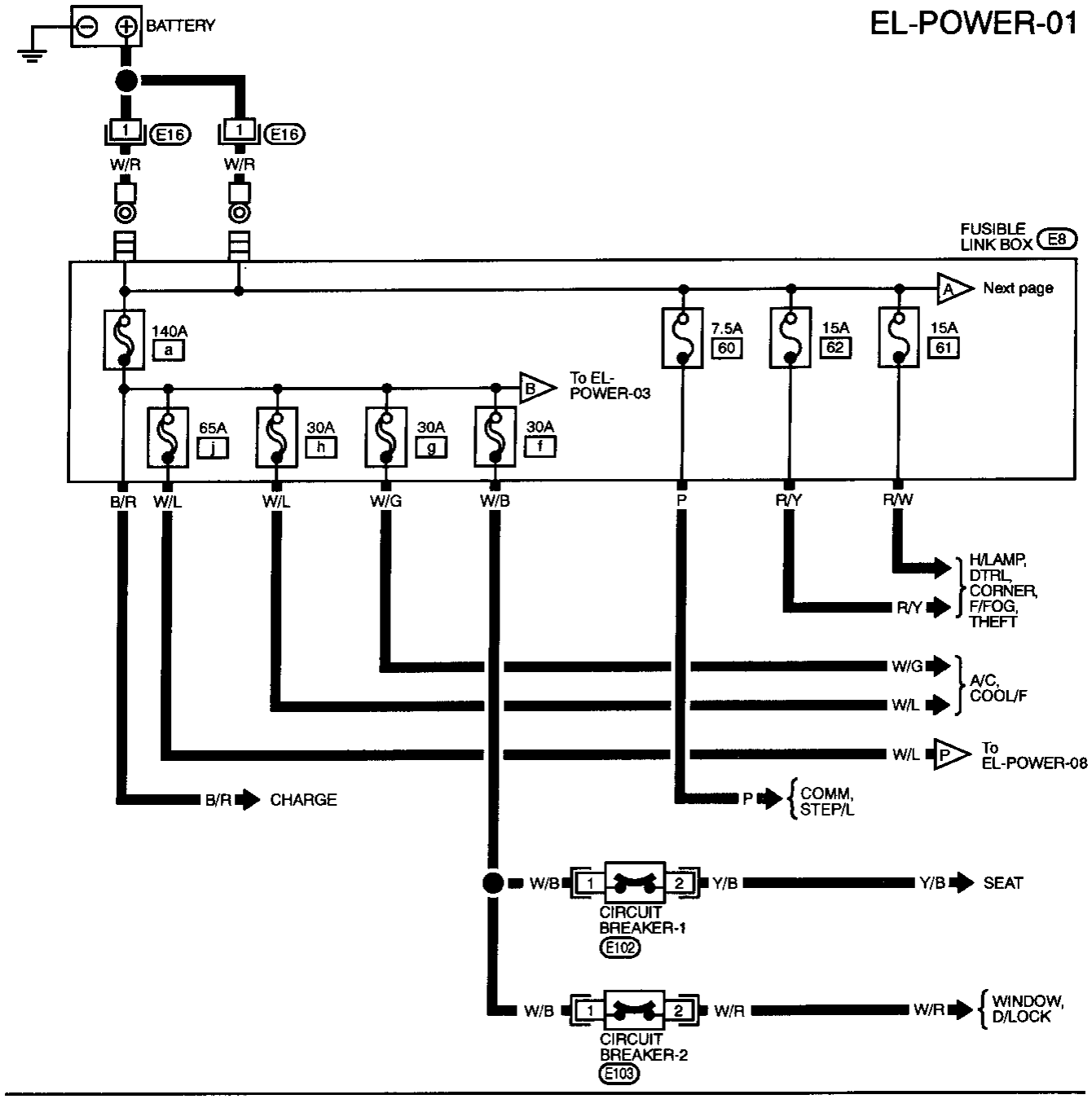
Description (Cont'd)

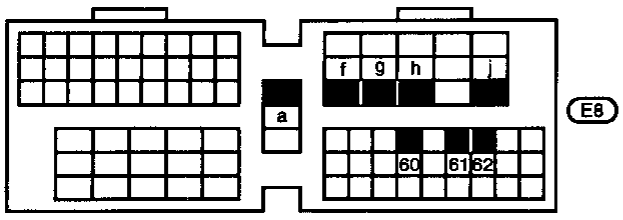
Type	Outer view	Circuit	Connector symbol and connection	Case color
1T				BLACK

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

MEL202BA

Wiring Diagram — POWER —





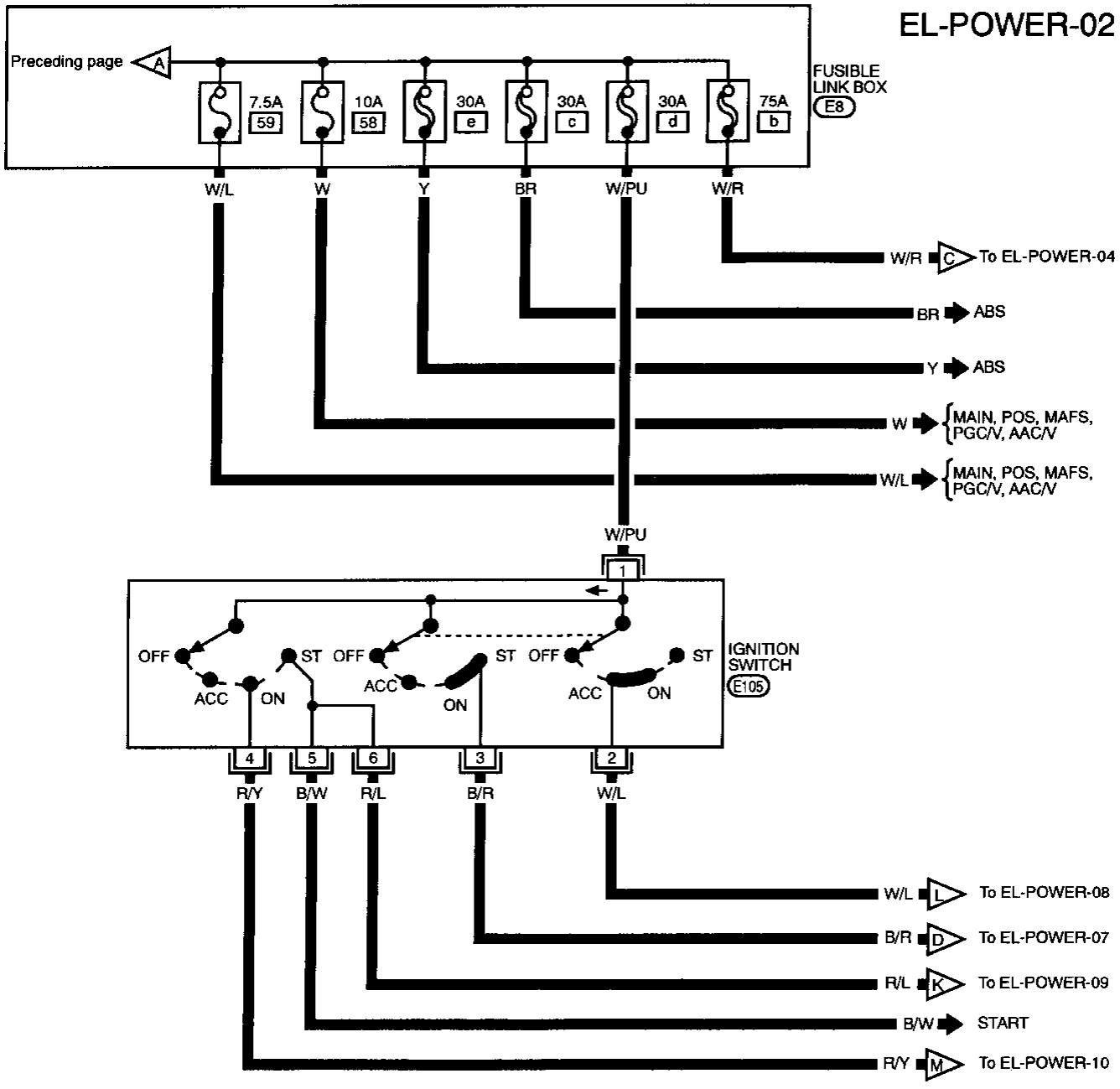
1 E16 B

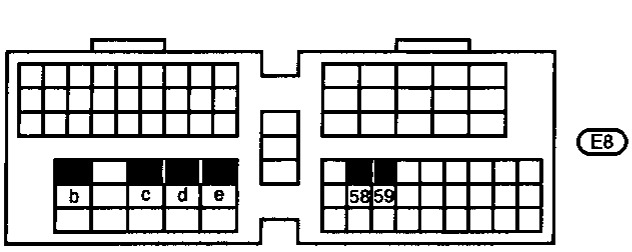
1 2 E102 W , E103 W

Refer to last page (Foldout page).
E101 , M3

MEL441D

Wiring Diagram — POWER — (Cont'd)





MEL442D

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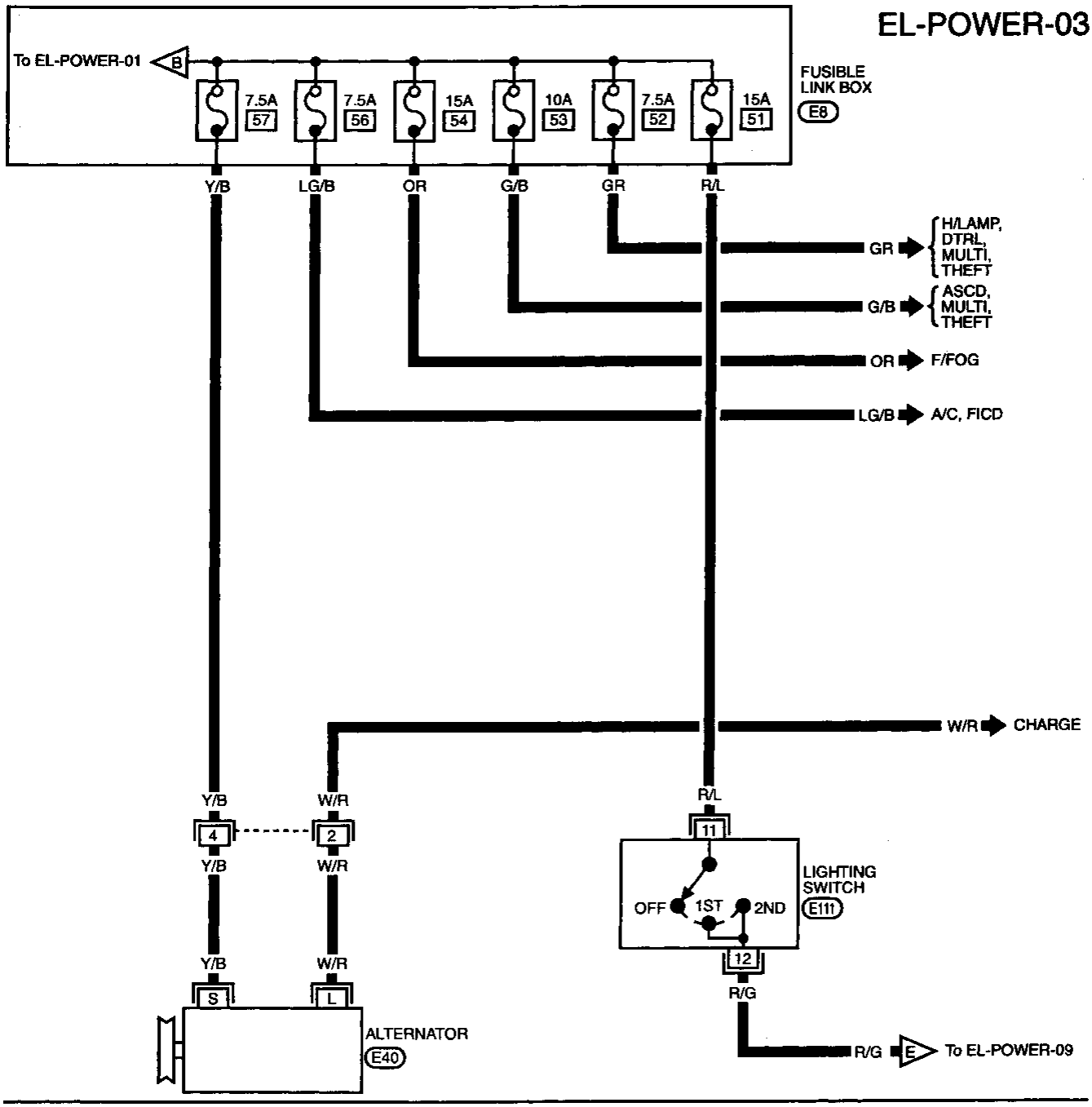

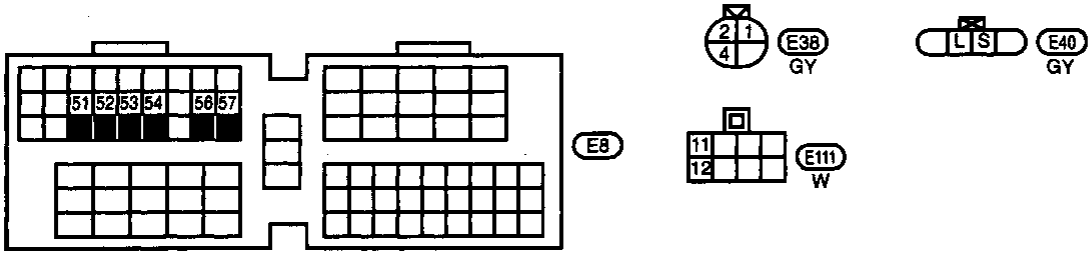

MEL443D

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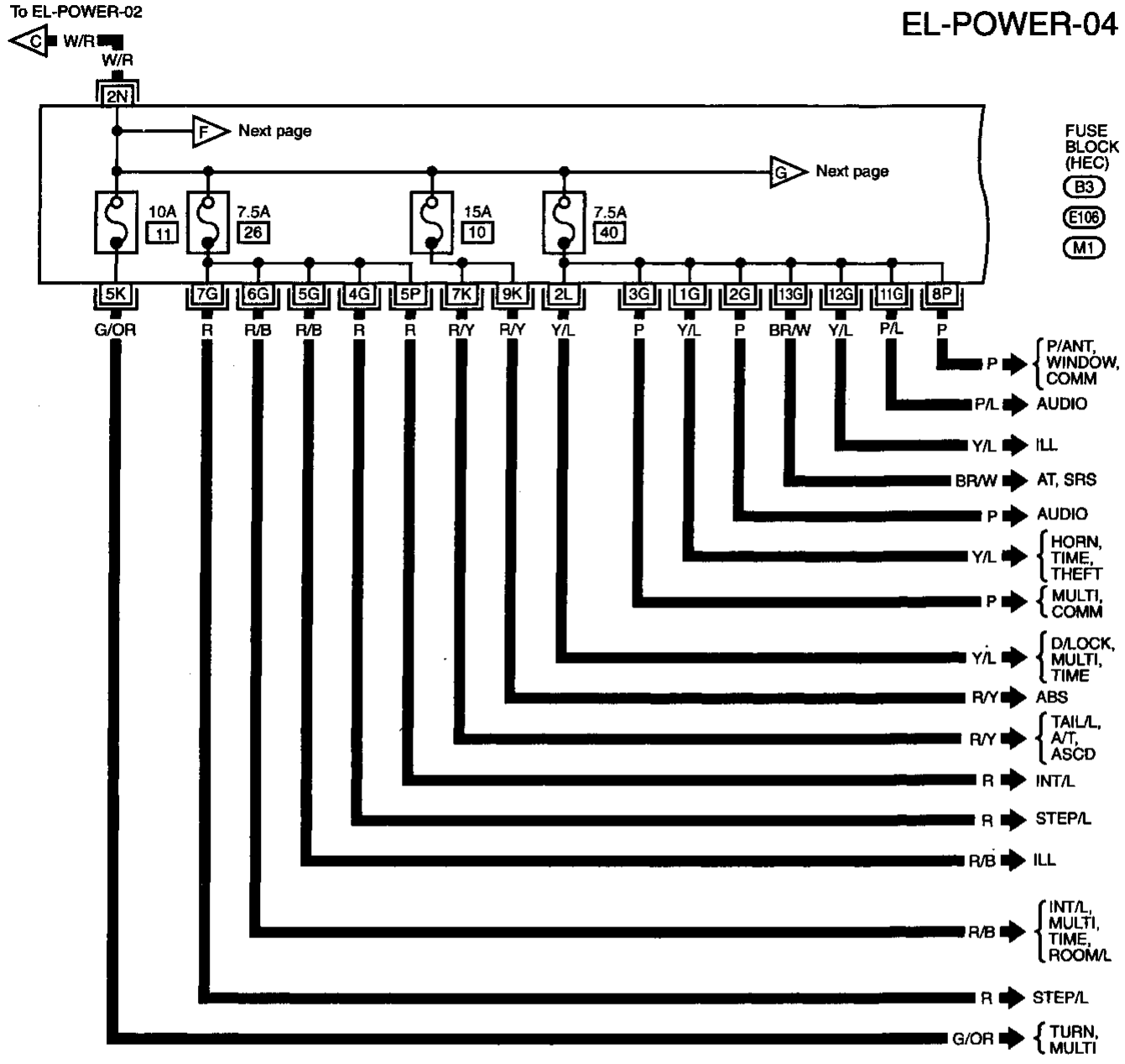
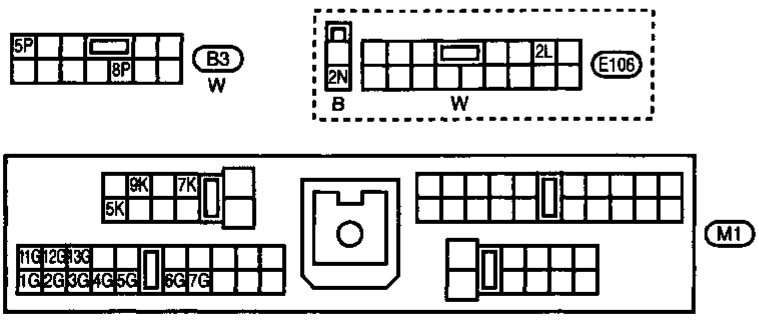
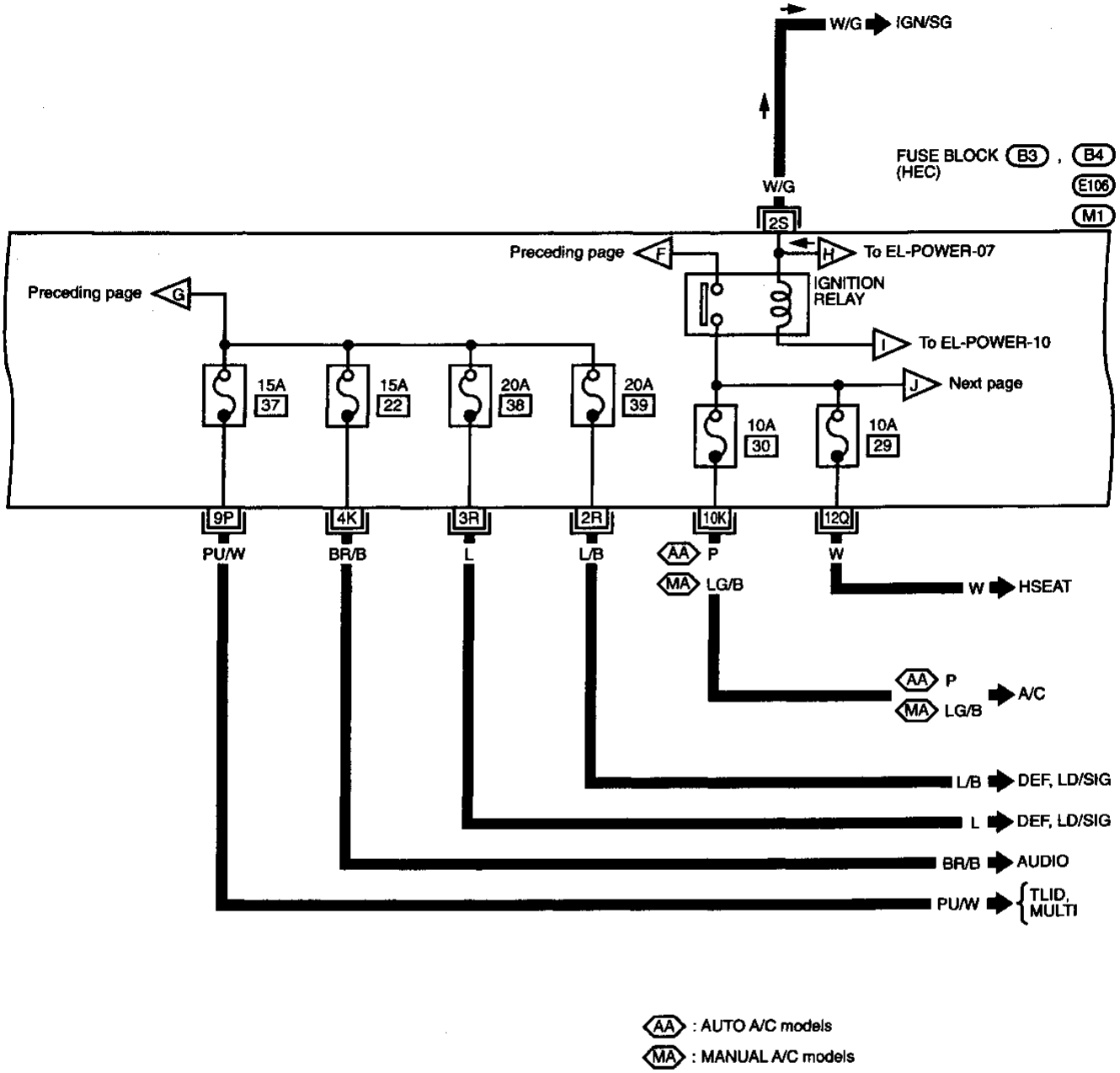




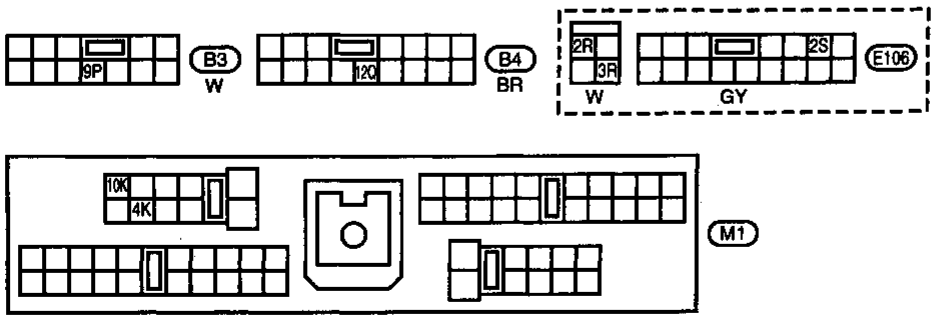
MEL444D

Wiring Diagram — POWER — (Cont'd)

EL-POWER-05

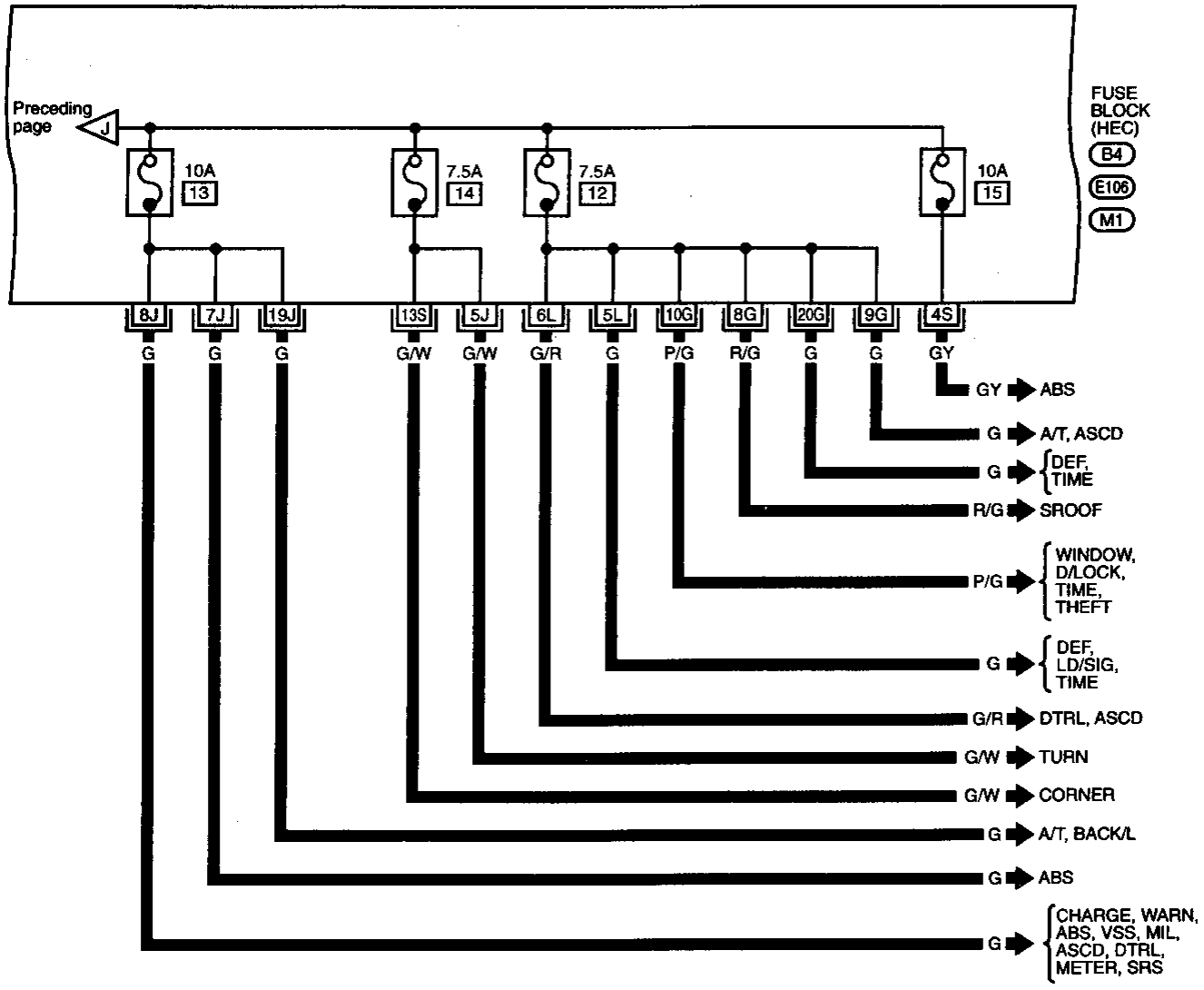


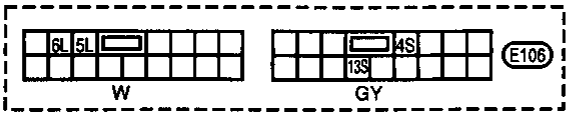
AA : AUTO A/C models
MA : MANUAL A/C models

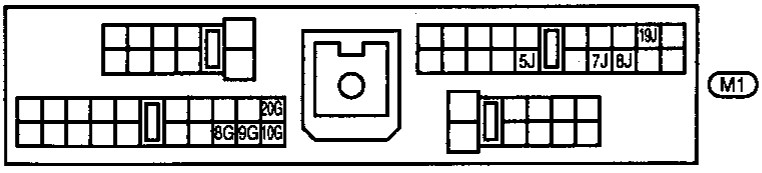


MEL445D

EL-POWER-06



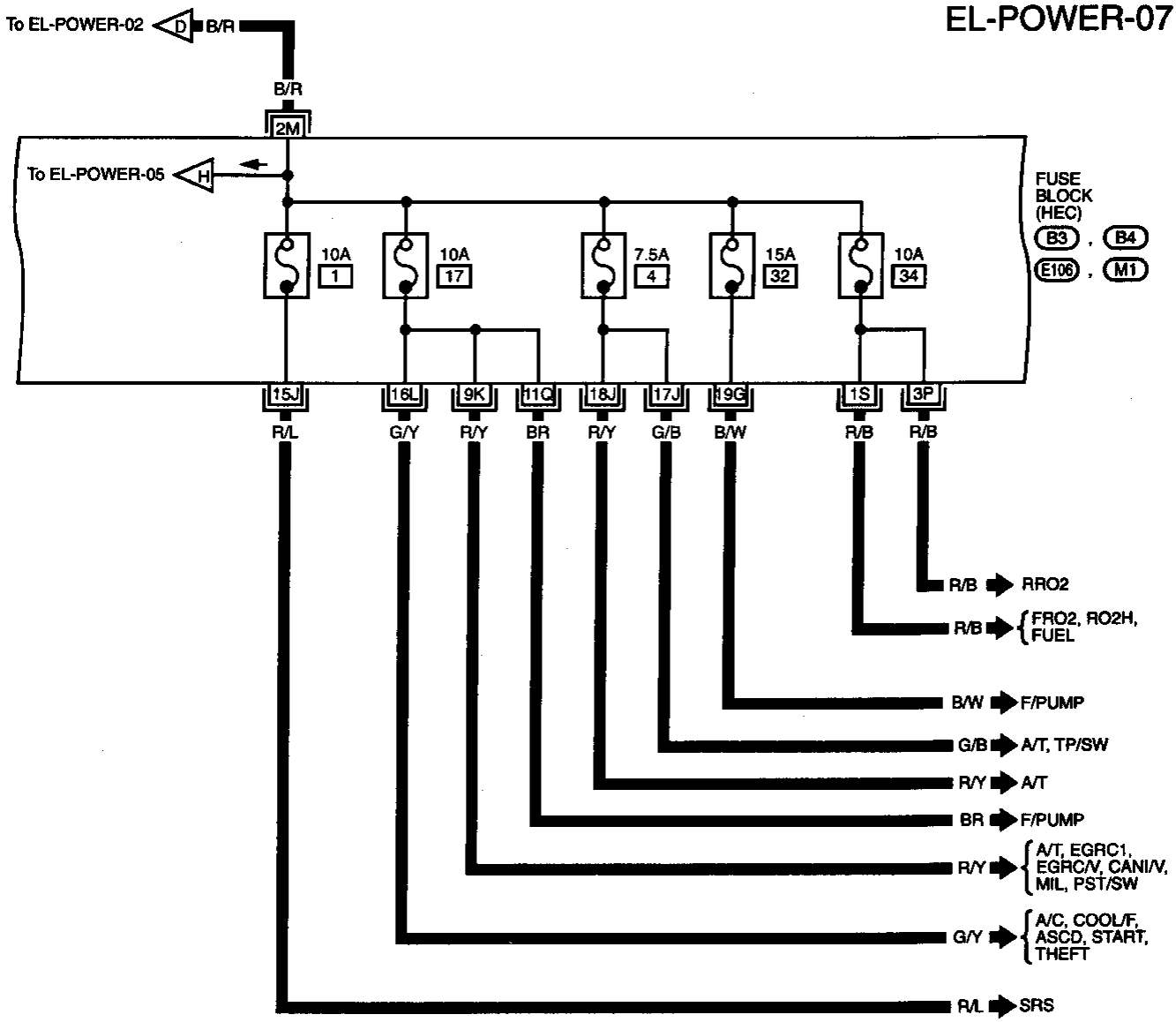


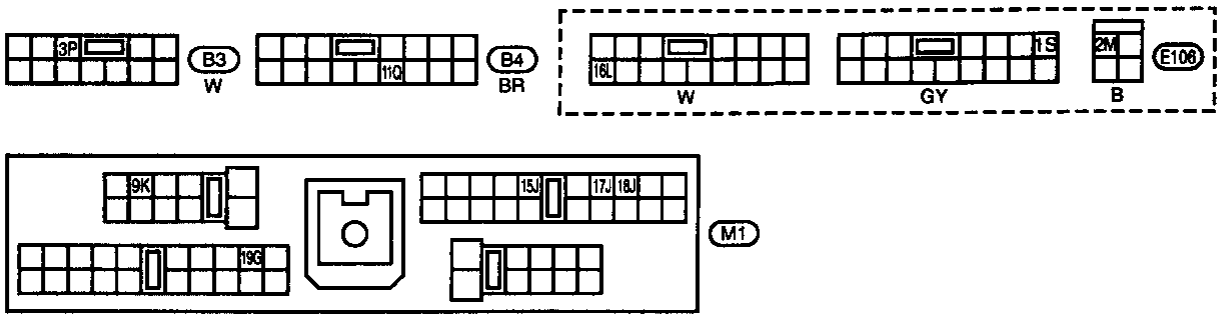


MEL446D

Wiring Diagram — POWER — (Cont'd)

EL-POWER-07

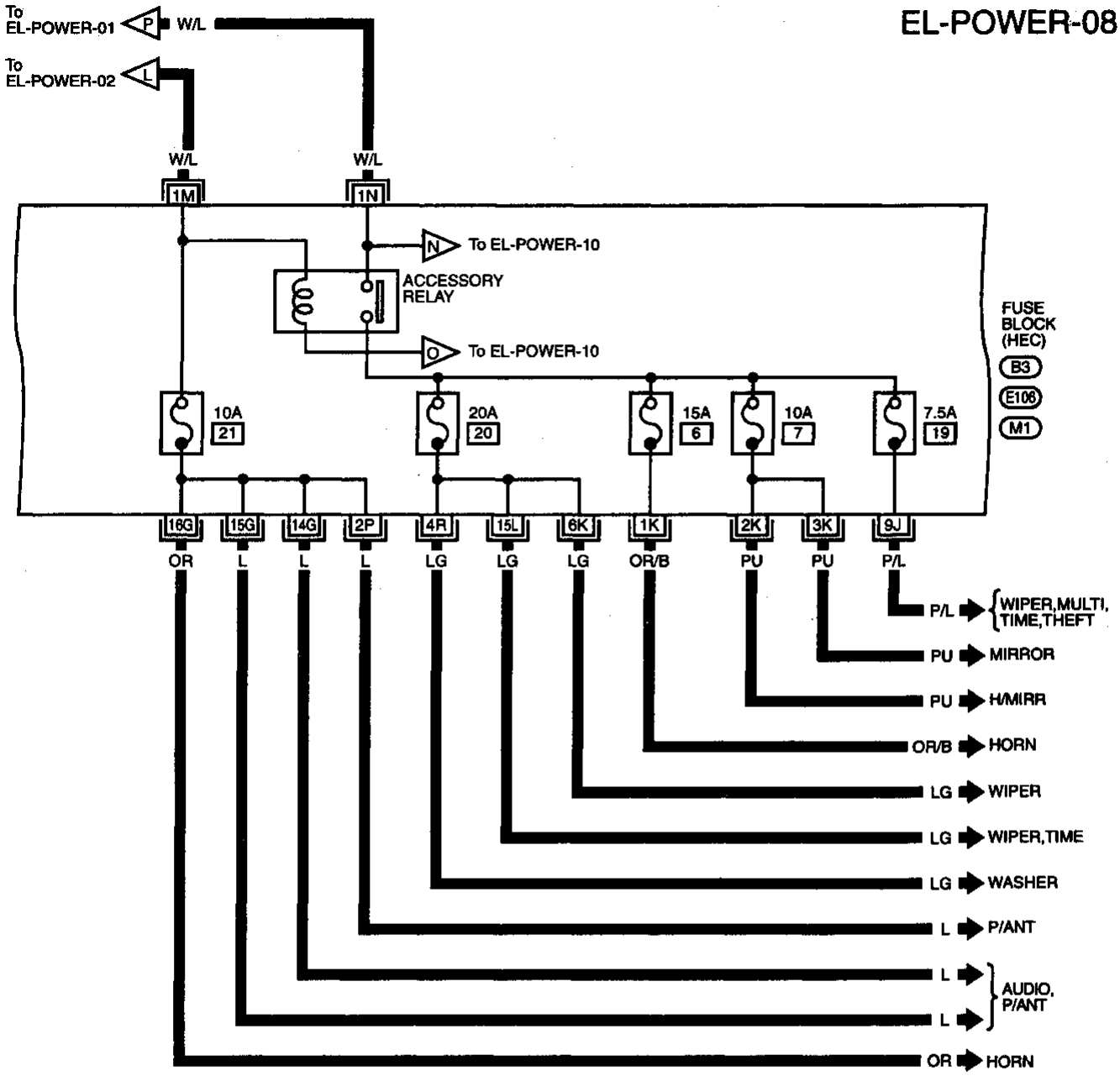


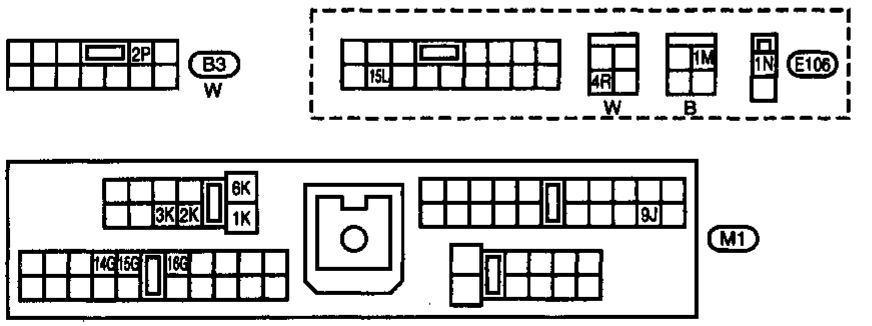


MEL447D

Wiring Diagram — POWER — (Cont'd)

EL-POWER-08

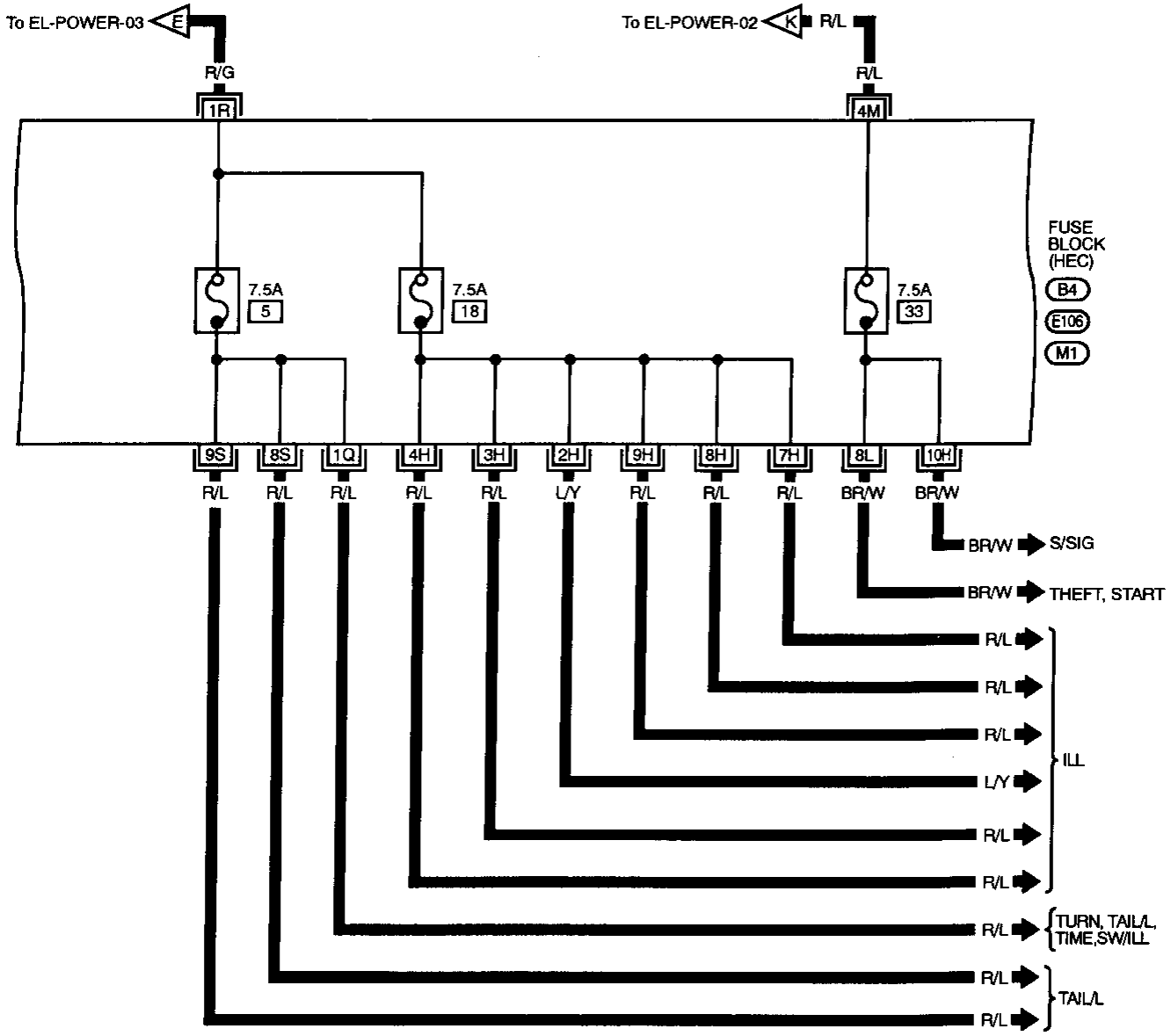


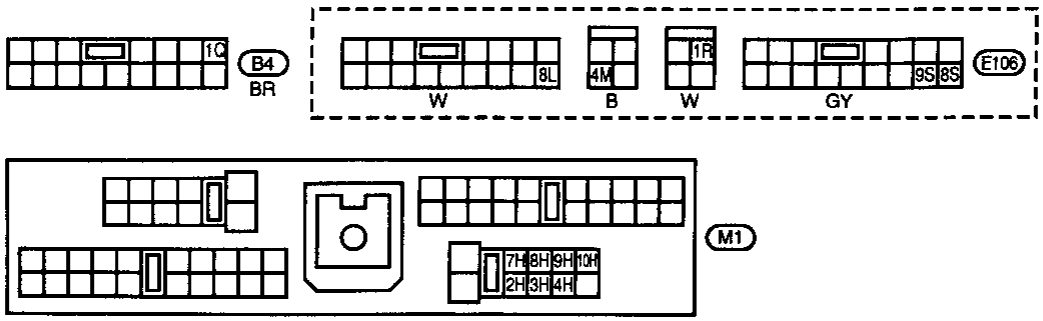


MEL448D

Wiring Diagram — POWER — (Cont'd)

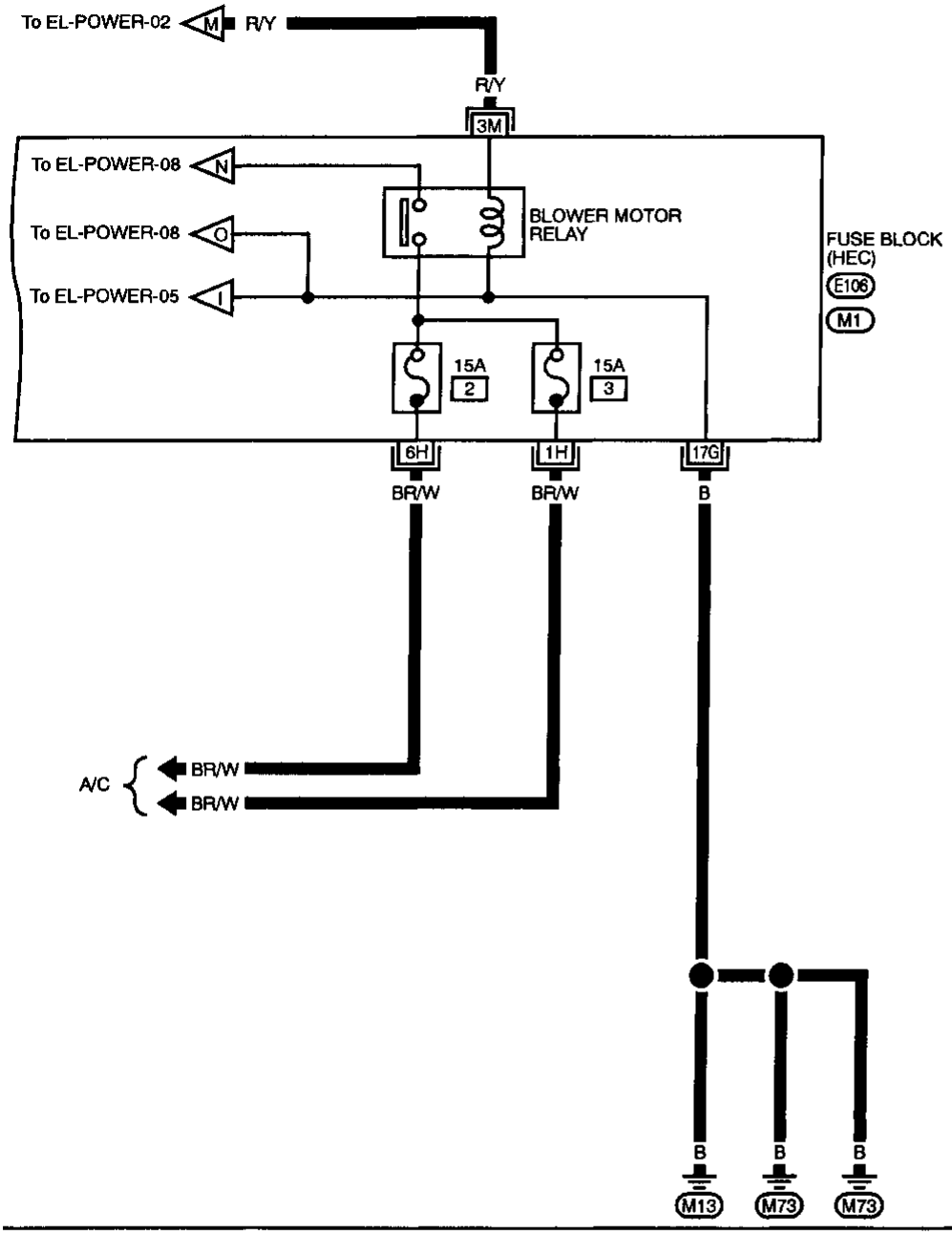
EL-POWER-09

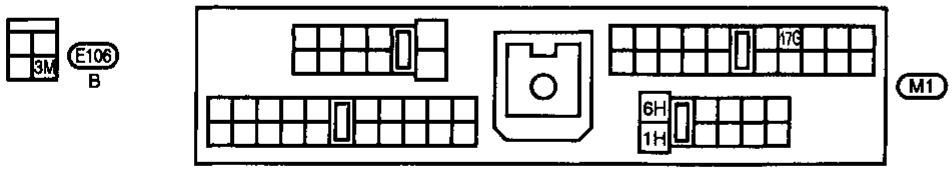




MEL449D

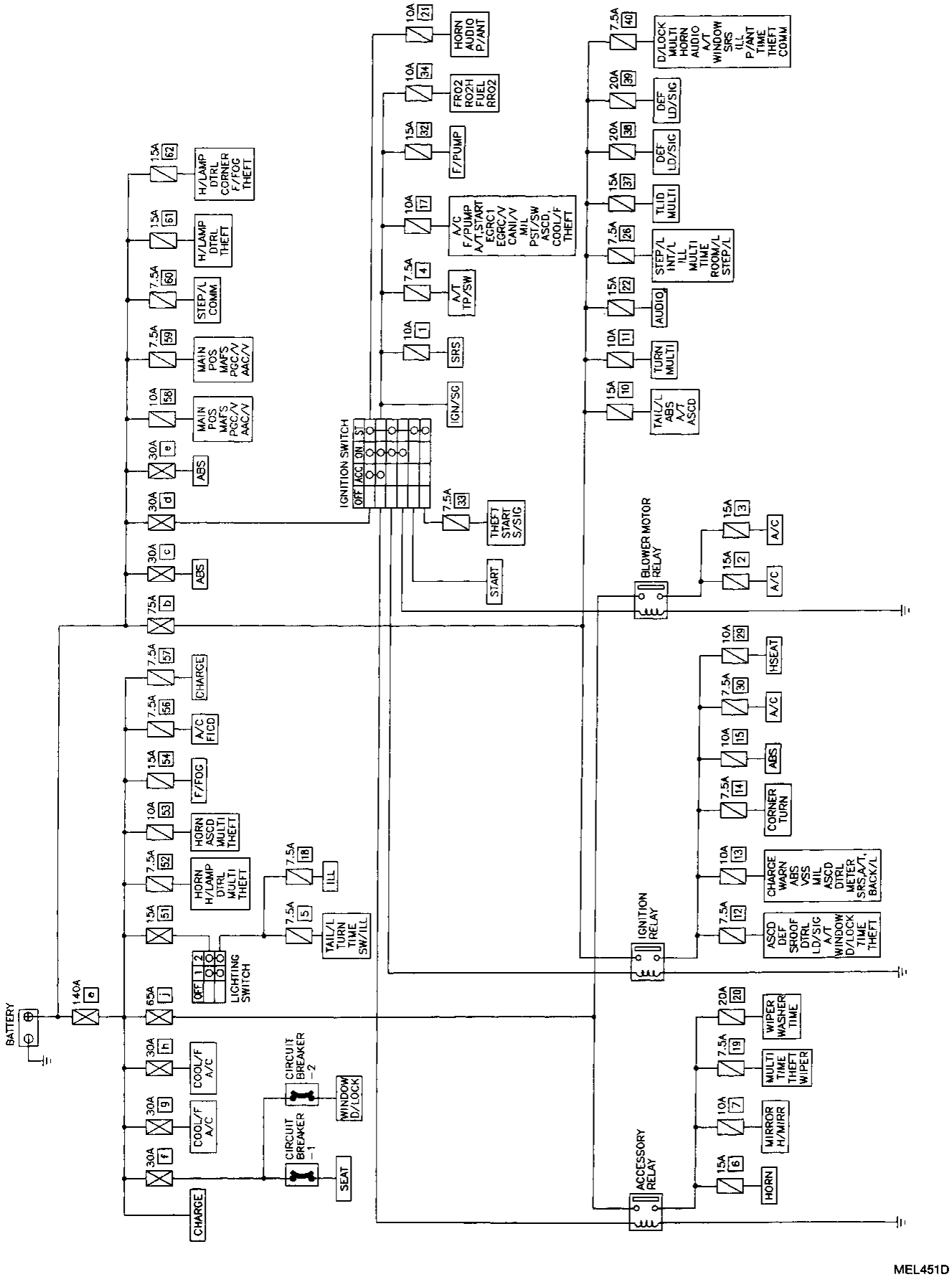
EL-POWER-10



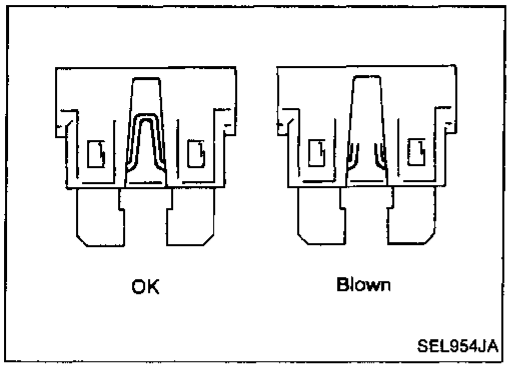


MEL450D

Schematic

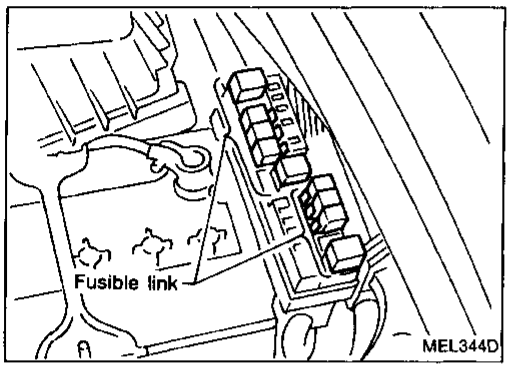


MEL451D



Fuse

a. If fuse is blown, be sure to eliminate cause of problem before installing new fuse.
b. Use fuse of specified rating. Never use fuse of more than specified rating.
c. Do not partially install fuse; always insert it into fuse holder properly.
d. Remove fuse for 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.

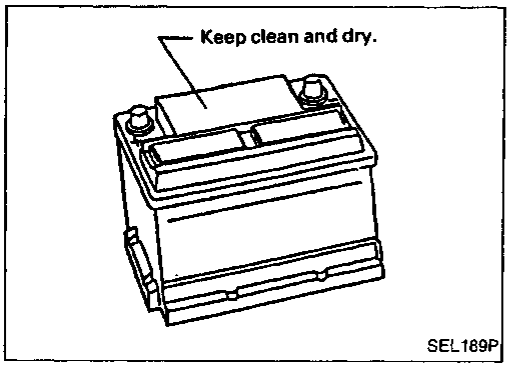
CAUTION:

a. If fusible link is melted, 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.
b. Never wrap outside of fusible link with vinyl tape.

Important: Never let fusible link touch any other wiring harness, vinyl or rubber parts.

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.**
c. **Never add distilled water through the hole used to check specific gravity.**

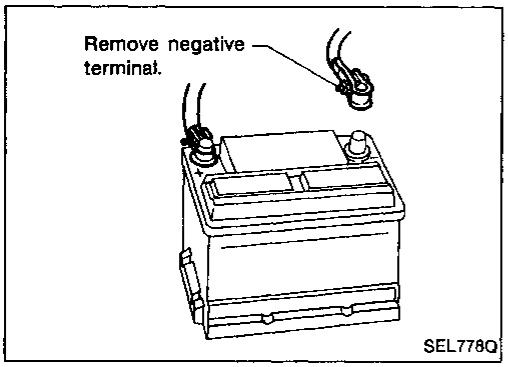


How to Handle Battery

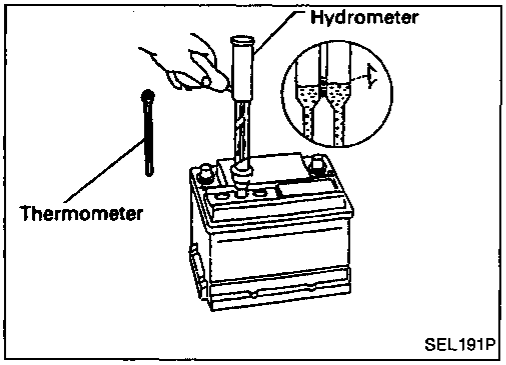
METHODS OF PREVENTING OVER-DISCHARGE

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

- The battery surface (particularly its top) should always be kept clean and dry.
- The terminal connections should be clean and tight.
- At every routine maintenance, check the electrolyte level. This also applies to batteries designated as "low maintenance" and "maintenance-free".



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



- Check the condition of the battery by checking the specific gravity of the electrolyte.

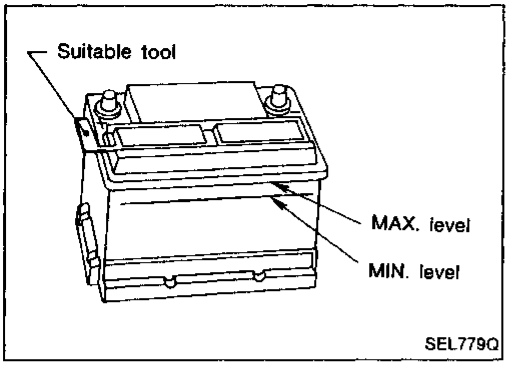
CHECKING ELECTROLYTE LEVEL

WARNING:

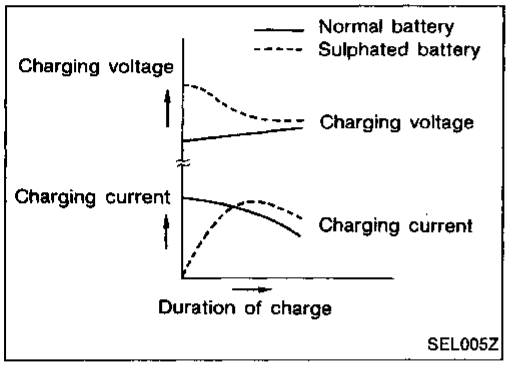
Do not allow battery fluid to come in contact with skin, eyes, fabrics, or painted surfaces. After touching a battery, do not touch or rub your eyes until you have thoroughly washed your hands. If the acid contacts the eyes, skin or clothing, immediately flush with water for 15 minutes and seek medical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

How to Handle Battery (Cont'd)



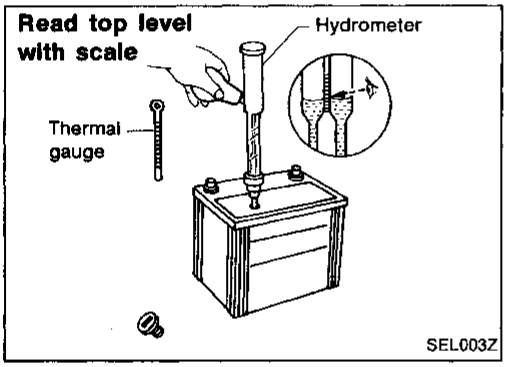
- Remove the cell plug using a suitable tool.
- Add distilled water up to the MAX level.



SULPHATION

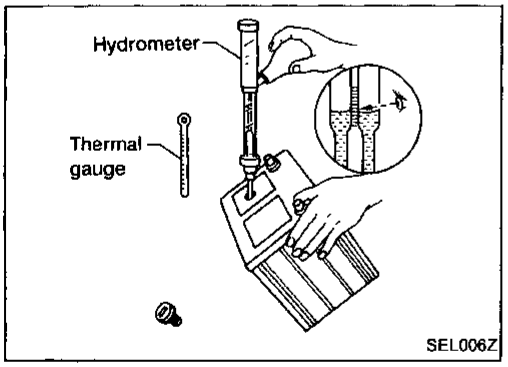
A battery will be completely discharged if it is left unattended for a long time and the specific gravity becomes less than 1.100. This may result in sulphation on the cell plates.

To find if a battery has been "sulphated", pay attention to its voltage and current when charging it. As shown in the figure at left, if the battery has been "sulphated", less current and higher voltage may be observed in the initial stages of charging.



SPECIFIC GRAVITY CHECK

- Read hydrometer and thermometer indications at eye level.



- When the electrolyte level is too low, tilt battery case for easier measurement.

How to Handle Battery (Cont'd)

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

Hydrometer temperature correction

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

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

CHARGING THE BATTERY

CAUTION:

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

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

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

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

Charging rates:

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

How to Handle Battery (Cont'd)

Do not charge at more than 50 ampere rate.

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

- **If, after charging, the specific gravity of any two cells varies more than .050, the battery should be replaced.**

MEMORY RESET

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

- Radio AM and FM preset
- Clock
- AUTO temperature setting trimmer

Service Data and Specifications (SDS)

Applied area		USA non-California	California	Canada and optional for USA
Type		55D23L	65D26R	80D26L
Capacity	V-AH	12-60	12-65	12-65
Cold cranking current (For reference)	A	356	413	582

System Description

M/T models for USA

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

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

With the ignition switch in the ON or START position, power is supplied
- through 10A fuse (No. [17], located in the fuse block in the HEC)
- to theft warning relay terminal ①

With the ignition switch in the START position, power is supplied
- through 7.5A fuse (No. [33], located in the fuse block in the HEC)
- to theft warning relay terminal ③

If the theft warning system is not triggered, power is supplied
- through theft warning relay terminal ④
- to clutch interlock relay terminal ①.

When the clutch pedal is depressed, ground is supplied to clutch interlock relay terminal ② through the clutch interlock switch and body grounds (M13) and (M73).
The clutch interlock relay is energized and power is supplied
- from terminal ⑤ of the clutch interlock relay
- to terminal ① of the starter motor windings.

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

M/T models for CANADA

Power is supplied at all times
- to ignition switch terminal ①
- 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 10A fuse (No. [17], located in the fuse block in the HEC)
- to theft warning relay terminal ①

With the ignition switch in the START position, power is supplied
- through 30A fusible link (letter [d], located in the fuse and fusible link box)
- to theft warning relay terminal ③

If the theft warning system is not triggered, power is supplied
- through theft warning relay terminal ④
- to terminal ① of the starter motor windings.

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

A/T models

Power is supplied at all times
- to ignition switch terminal ①
- 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 10A fuse (No. [17], located in the fuse block in the HEC)
- to theft warning relay terminal ①.

Also, with the ignition switch in the START position, power is supplied
- from ignition switch terminal ③
- to inhibitor relay terminal ⑥

If the theft warning system is not triggered, power is supplied

System Description (Cont'd)

- through theft warning relay terminal ④
- to inhibitor switch terminal ①
- through inhibitor relay terminal ①, with the selector lever in the P or N position
- to body grounds (F18) and (F19).

The inhibitor relay is energized and power is supplied

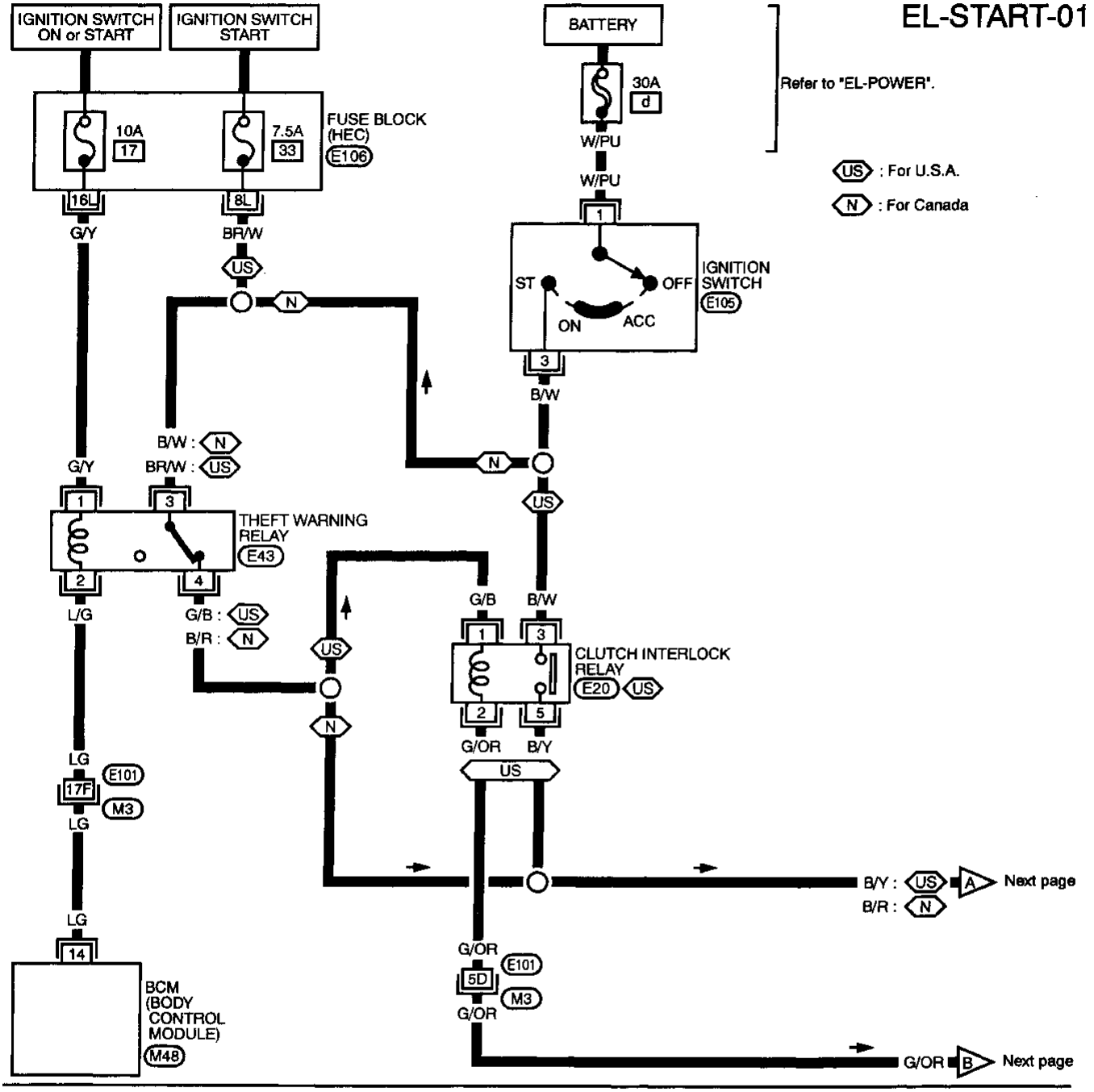
- from ignition switch terminal ③
- to terminal ① of the starter motor windings
- through inhibitor relay terminals ⑥ and ⑦

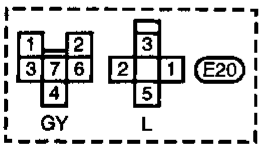
The starter motor plunger closes and provides a closed circuit between the battery and the starter motor. The starter motor is grounded to the cylinder block. With power and ground supplied, the starter motor operates.

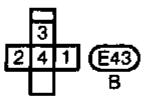
If the theft warning system is triggered, terminal ② of the theft warning relay is grounded and power to the inhibitor switch is interrupted.

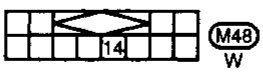
Wiring Diagram — START —

M/T MODEL







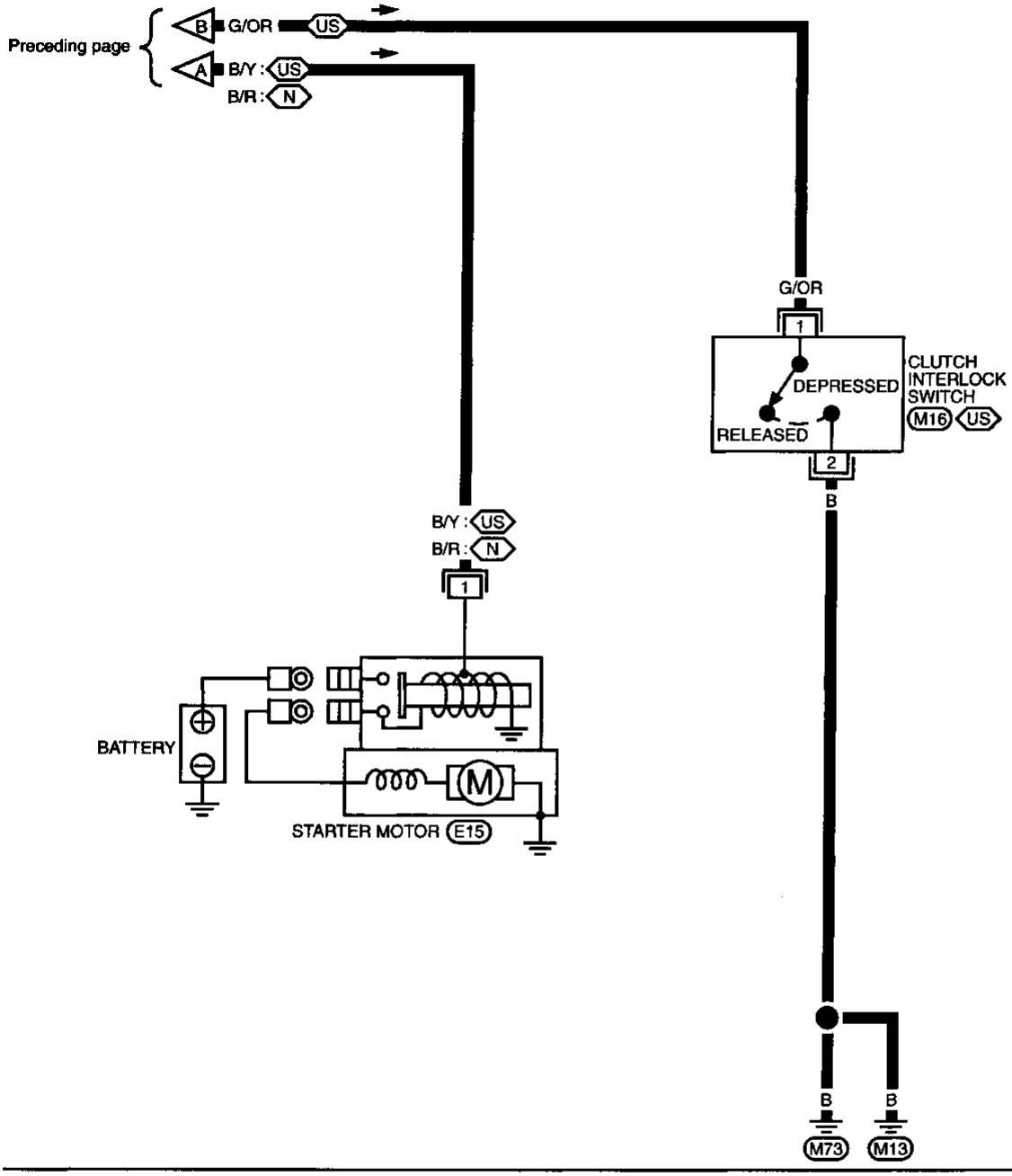


Refer to last page (Foldout page).
M3 , E101
E106

MEL508D

Wiring Diagram — START — (Cont'd)

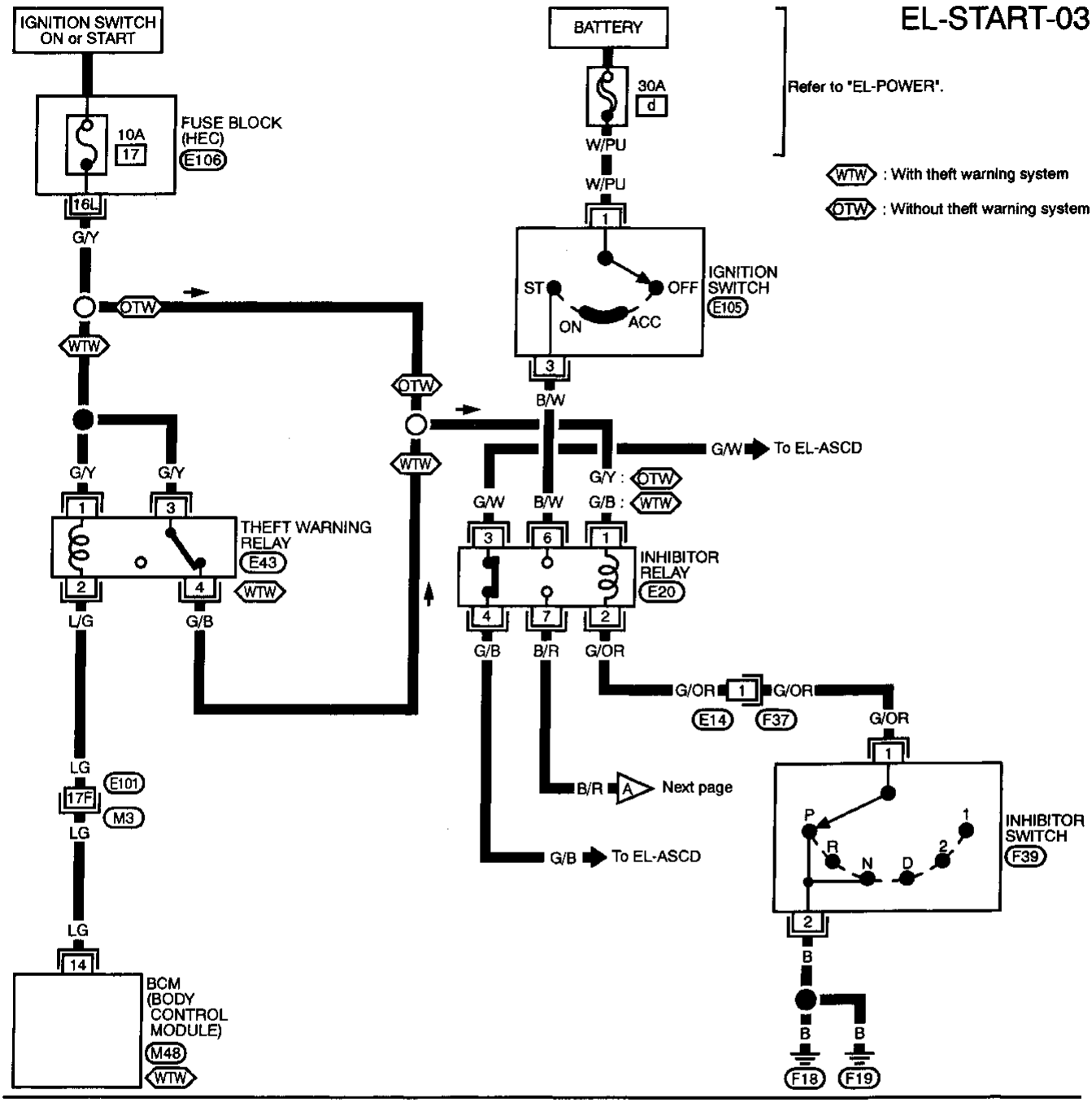
EL-START-02



MEL509D

Wiring Diagram — START — (Cont'd)

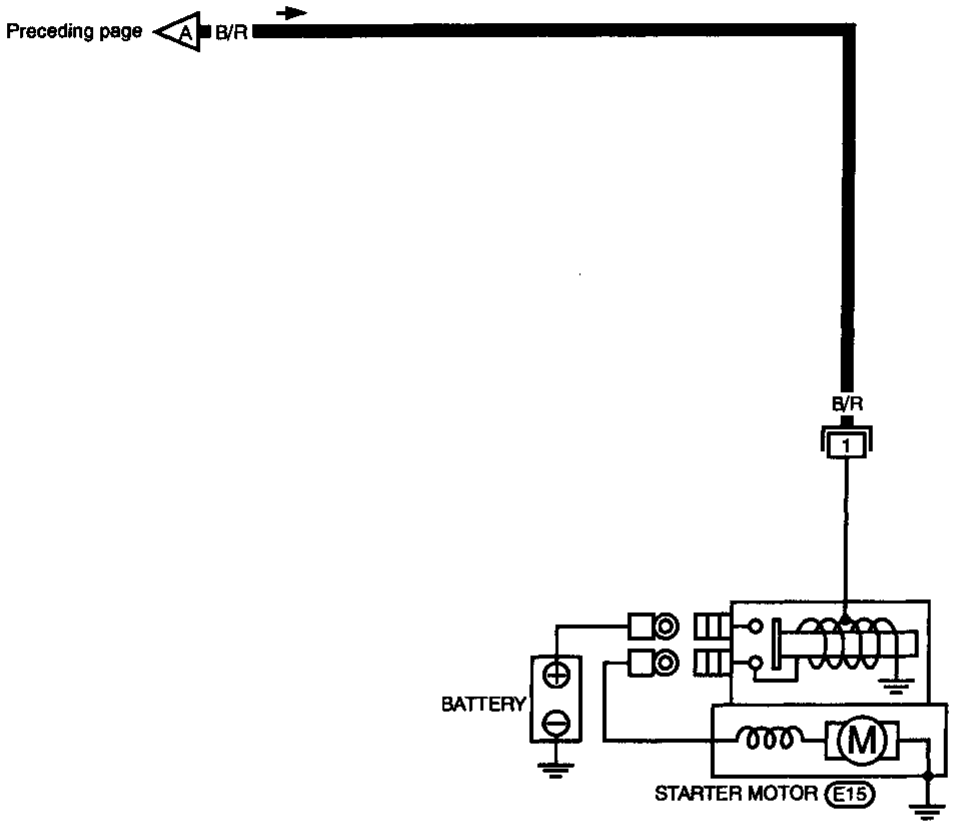
A/T MODEL



MEL510D

Wiring Diagram — START — (Cont'd)

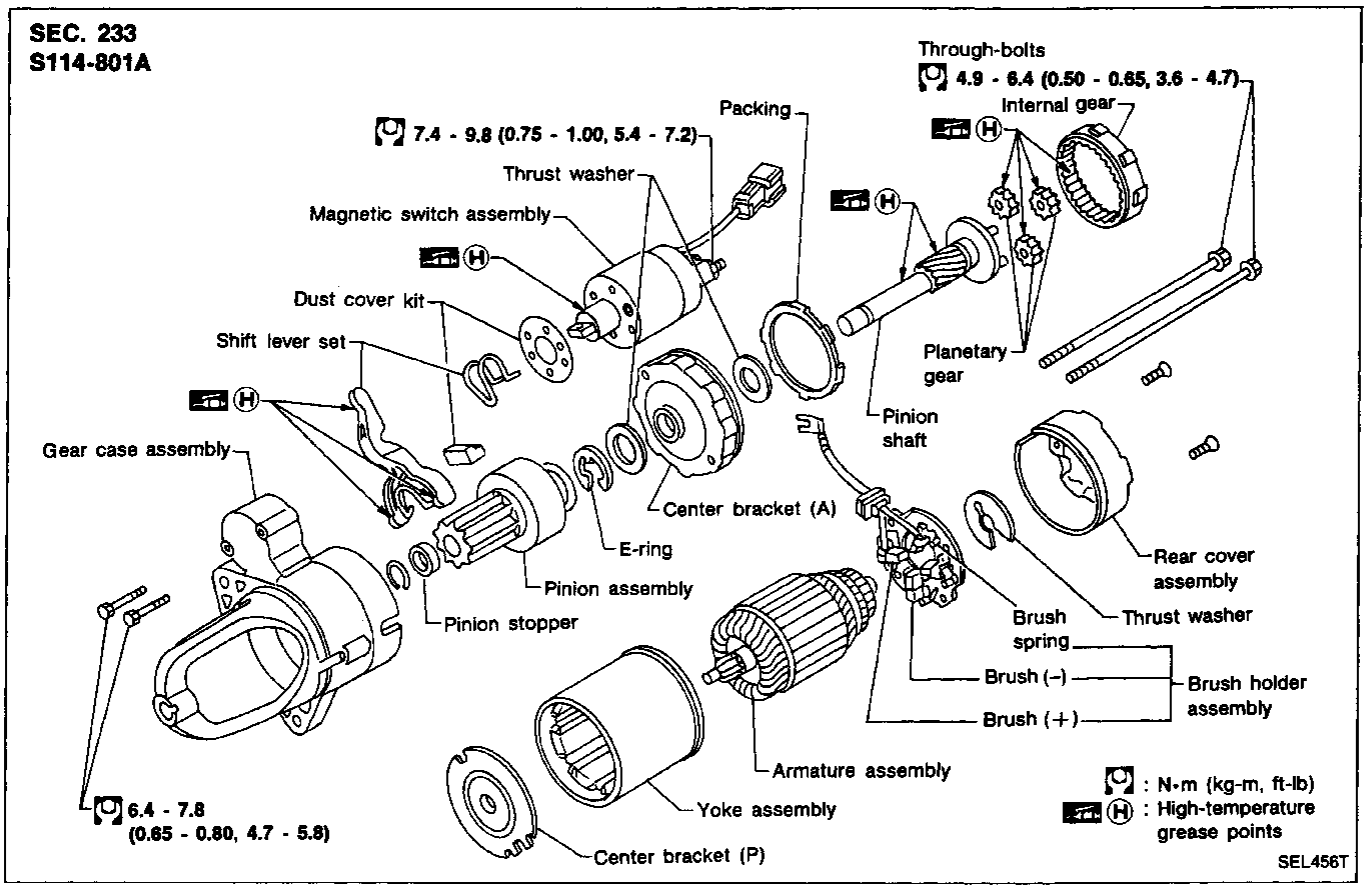
EL-START-04

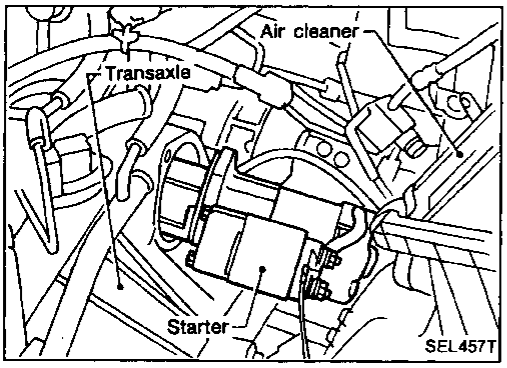


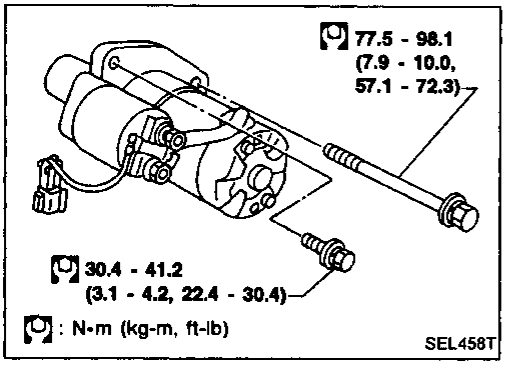
1 E15
GY

MEL511D

Construction







Removal and Installation

REMOVAL

1. Remove air duct assembly.
2. Disconnect starter harness.
3. Remove starter bolts (two).
4. Remove starter.

INSTALLATION

To install, reverse the removal procedure.

Pinion/Clutch Check

1. Inspect pinion teeth.
- Replace pinion if teeth are worn or damaged. (Also check condition of ring gear teeth.)
2. Inspect reduction gear teeth.
- Replace reduction gear if teeth are worn or damaged. (Also check condition of armature shaft gear teeth.)
3. Check to see if pinion locks in one direction and rotates smoothly in the opposite direction.
- If it locks or rotates in both directions, or unusual resistance is evident, replace.

Service Data and Specifications (SDS)

STARTER

Type		S114-801A HITACHI make Reduction gear type
System voltage	V	12
No-load		
Terminal voltage	V	11.0
Current	A	Less than 90
Revolution	rpm	More than 2,700
Minimum diameter of commutator	mm (in)	28 (1.10)
Minimum length of brush	mm (in)	10.5 (0.413)
Brush spring tension	N (kg, lb)	12.7 - 17.7 (1.3 - 1.8, 2.9 - 4.0)
Clearance of bearing metal and armature shaft	mm (in)	Less than 0.2 (0.008)
Clearance between pinion front edge and pinion stopper	mm (in)	0.3 - 2.5 (0.012 - 0.098)

System Description

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

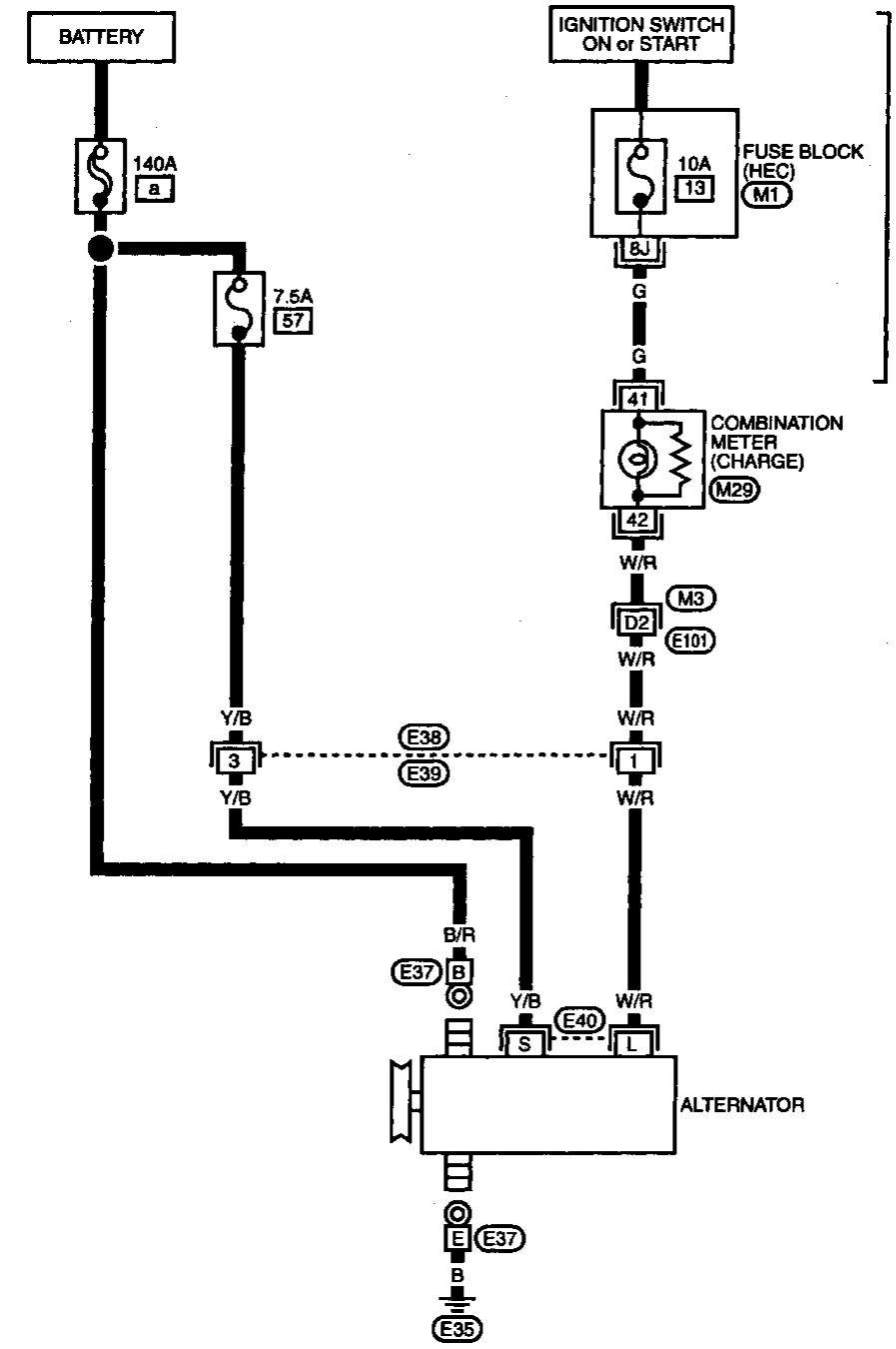
- 140A fusible link (letter [a], located in the fuse and fusible link box), and
- 7.5A fuse (No. [57], located in the fuse and fusible link box).

Voltage output through alternator terminal Ⓑ, is controlled by the IC regulator at terminal Ⓢ. The charging circuit is protected by the 140A fusible link.
Terminal Ⓔ of the alternator supplies ground through body ground (E35).
With the ignition switch in the ON or START position, power is supplied

- through 10A fuse (No. [13], located in the fuse block in the HEC)
- to combination meter terminal ㊶ for the charge warning indicator.

Ground is supplied to terminal ㊷ of the combination meter through terminal Ⓛ of the alternator. With power and ground supplied, the charge warning indicator will illuminate. When the alternator is providing sufficient voltage, the ground is opened and the charge warning indicator will go off.
If the charge warning indicator illuminates with the engine running, a malfunction is indicated. Refer to "Trouble Diagnoses" (EL-35).

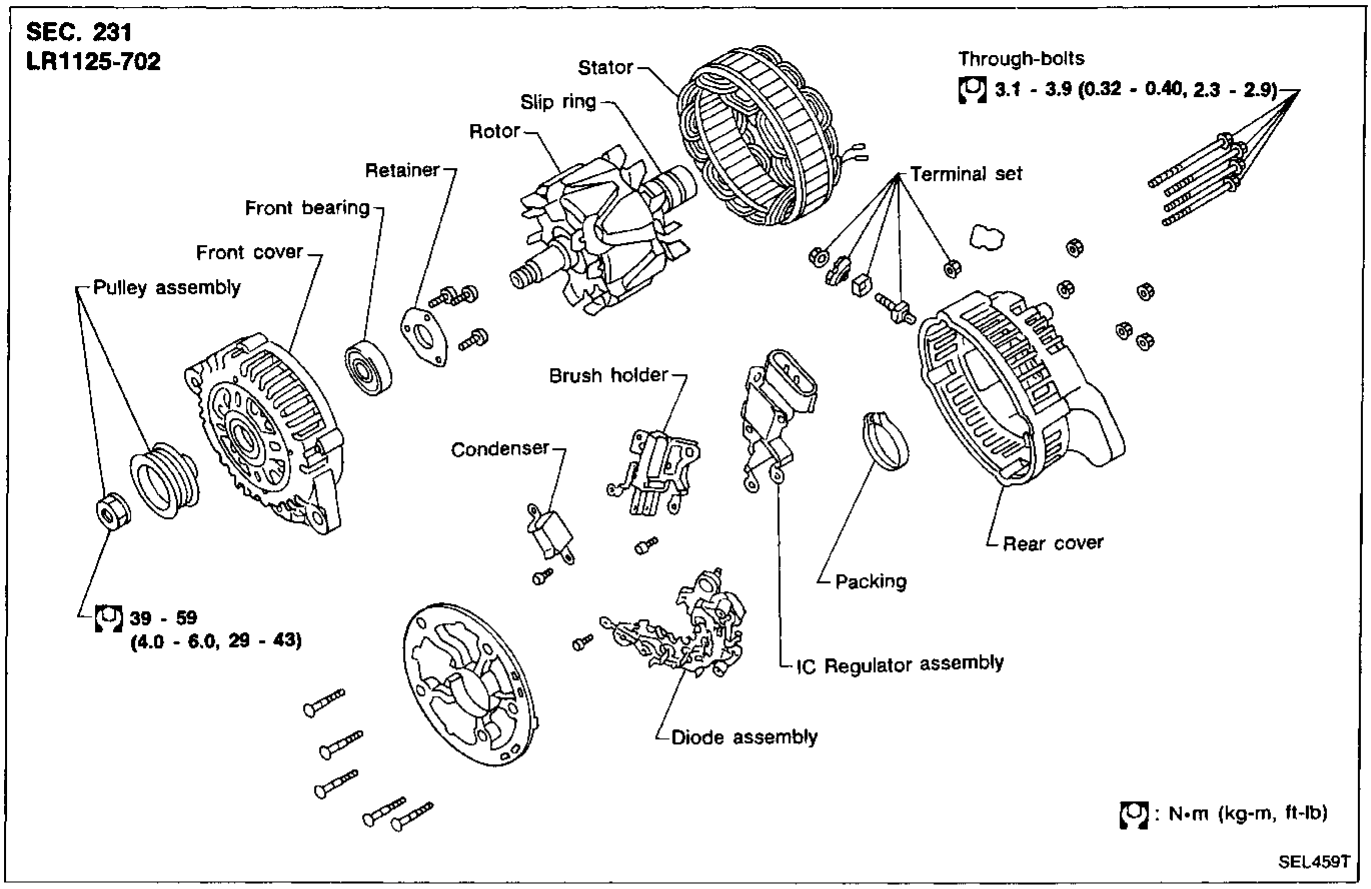
Wiring Diagram — CHARGE —

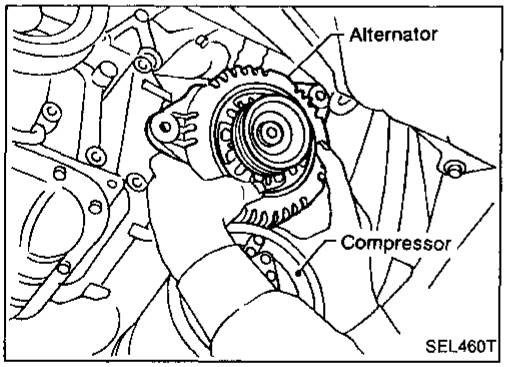


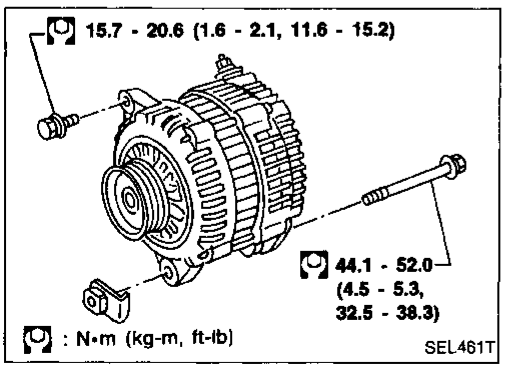
Refer to last page (Foldout page).
M3 , E101
M1

MEL461D

Construction







Removal and Installation

REMOVAL

1. Remove engine undercover RH.
2. Remove side inspection cover RH.
3. Loosen belt idler pulley.
4. Remove drive belt.
5. Remove A/C compressor mounting bolts (four).
6. Remove cooling fan and fan shroud.
7. Slide A/C compressor forward.
8. Disconnect alternator harness connector.
9. Remove alternator upper bolt and lower bolt.

INSTALLATION

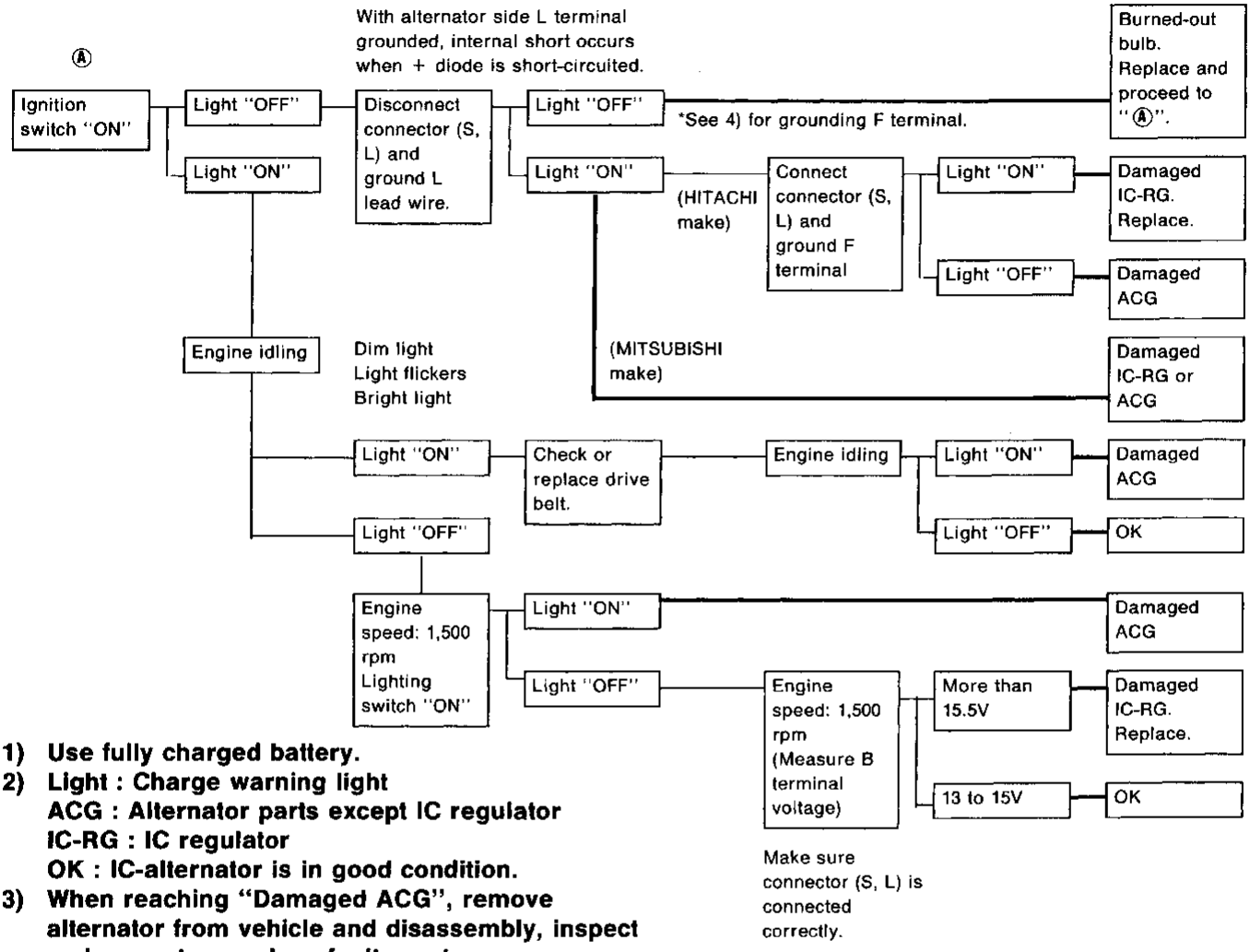
To install, reverse the removal procedure.

Trouble Diagnoses

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

Before starting, inspect the fusible link.

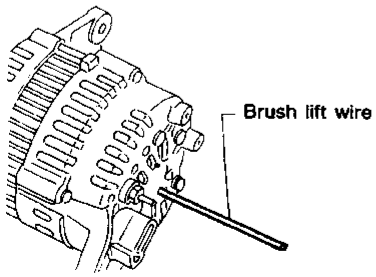
WITH IC REGULATOR



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

Gasoline engine model

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



SEL030Z

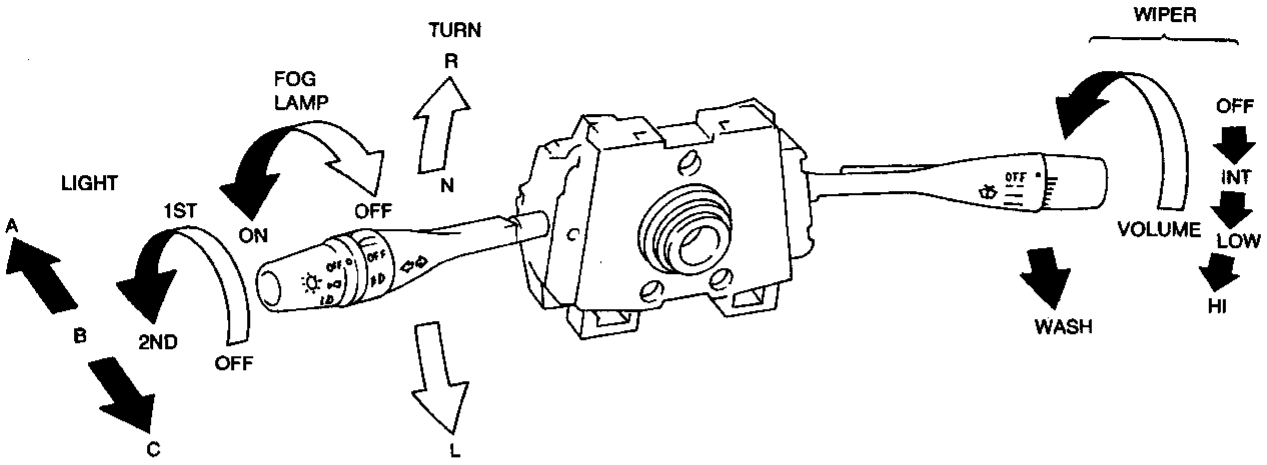
5) **Terminals "S", "L", "B" and "E" are marked on rear cover of alternator.**

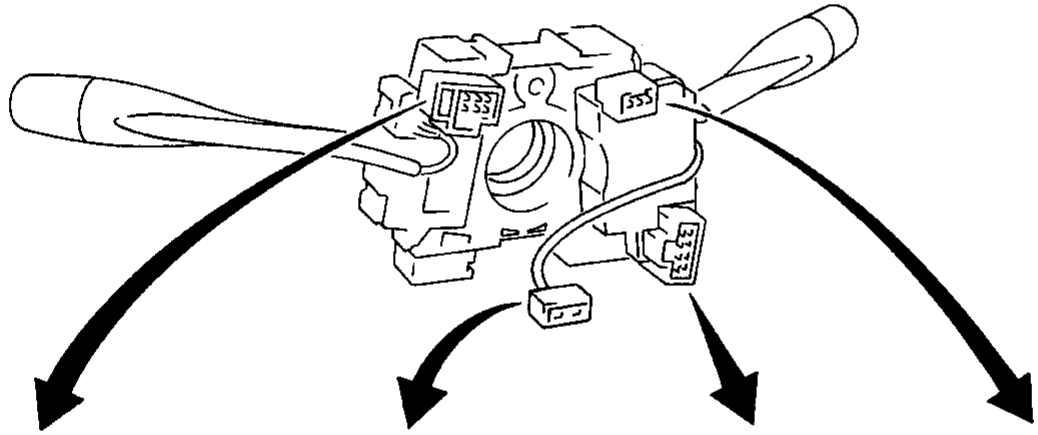
Service Data and Specifications (SDS)

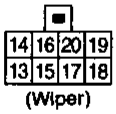
ALTERNATOR

Type		LR1125-702
		HITACHI make
Nominal rating		12-125
Ground polarity		Negative
Minimum revolution under no-load (When 13.5 volts is applied)	rpm	Less than 1,100
Hot output current (When 13.5 volts is applied)	A/rpm	More than 36/1,300 More than 94/2,500 More than 123/5,000
Regulated output voltage	V	14.1 - 14.7
Minimum length of brush	mm (in)	More than 6.00 (0.2362)
Brush spring pressure	N (g, oz)	1.000 - 3.432 (102 - 350, 3.60 - 12.34)
Slip ring minimum diameter	mm (in)	More than 26.0 (1.024)
Rotor (field coil) resistance	Ω	2.35

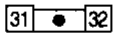
Combination Switch/Check



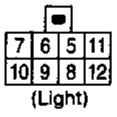




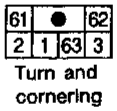
(Wiper)



(Front fog)



(Light)



Turn and cornering

LIGHTING SWITCH

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

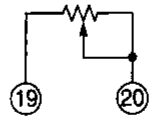
WIPER SWITCH

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

CORNERING LAMP SWITCH

	L	N	R
1	○		○
2	○		○
3	○		

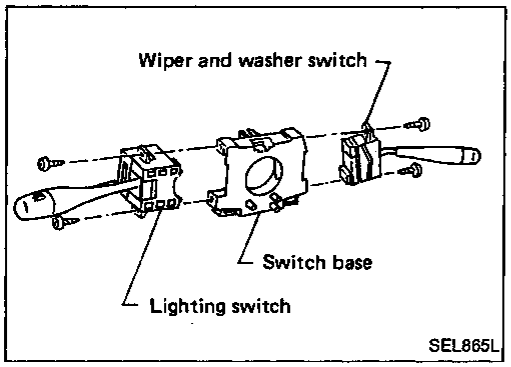
INTERMITTENT WIPER VOLUME



FRONT FOG LAMP SWITCH

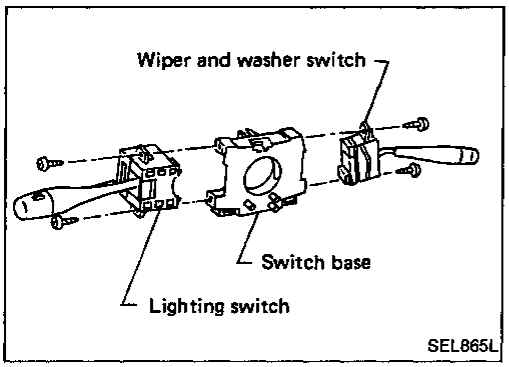
	OFF	ON
31		○
32		○

MEL346D



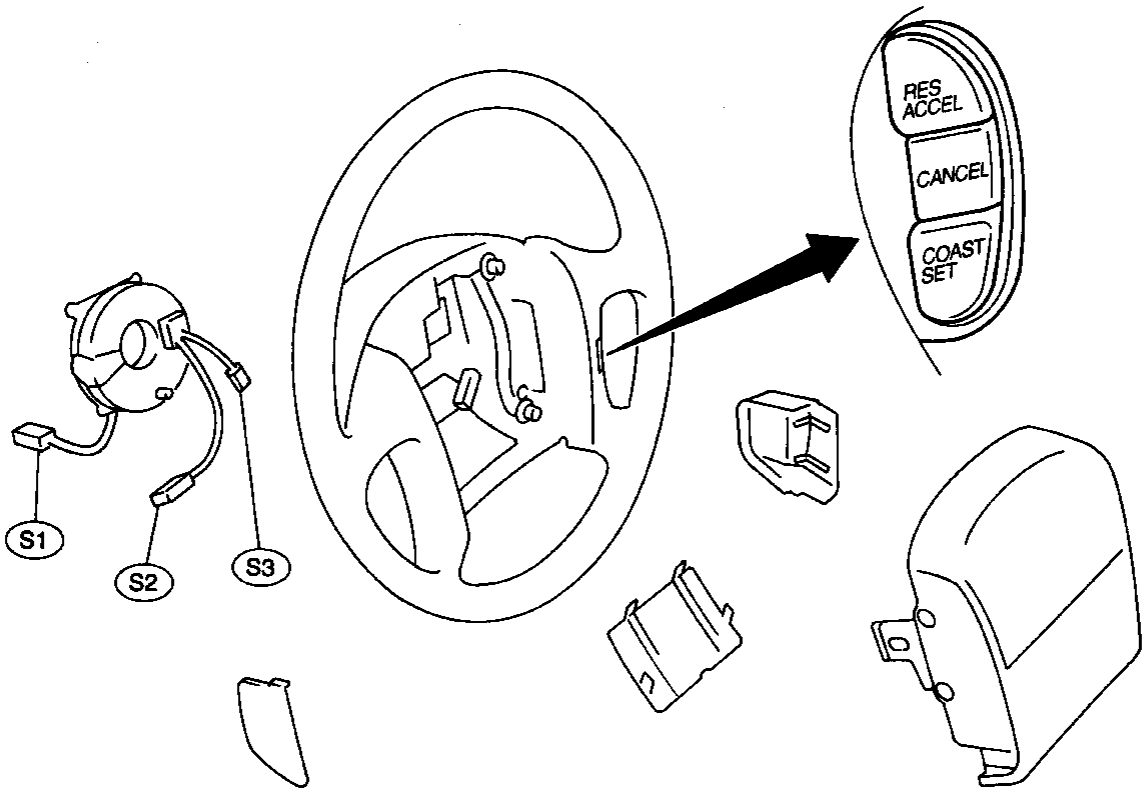
Combination Switch/Replacement

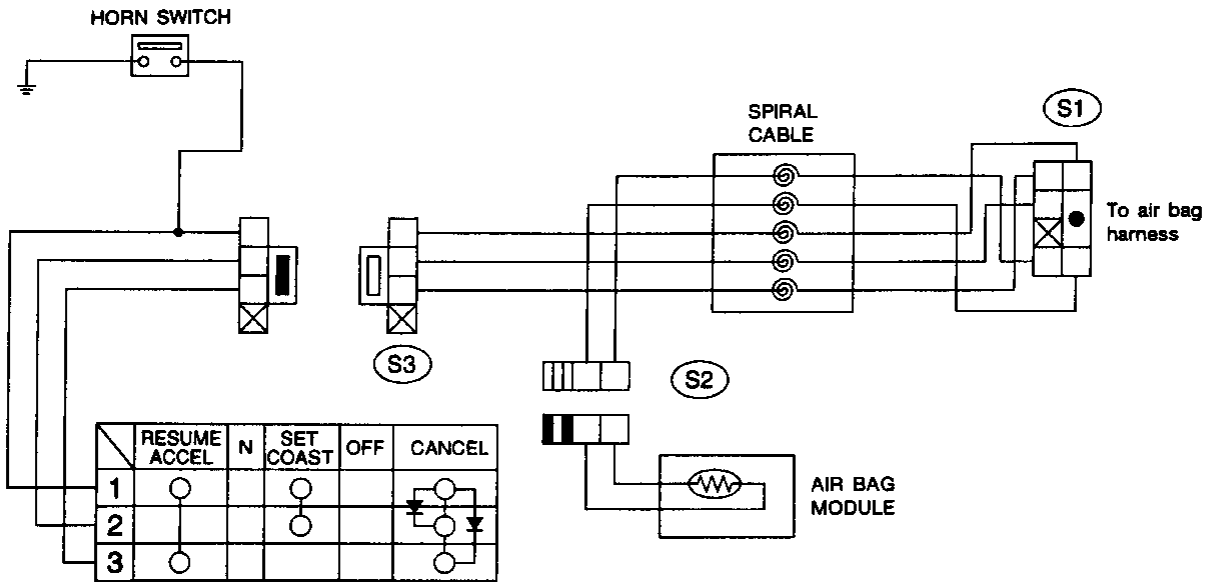
- Each switch can be replaced without removing combination switch base.



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

Steering Switch/Check





MEL347D

System Description (For USA)

Power is supplied at all times
- through 15A fuse (No. 61, located in the fuse and fusible link box)
- to lighting switch terminal ⑤, and
- through 15A fuse (No. 62, located in the fuse and fusible link box)
- to lighting switch terminal ⑧.

When the lighting switch is turned to the 2ND and LOW ("B") position, power is supplied
- from lighting switch terminal ⑩
- to terminal ② of the RH headlamp, and
- from lighting switch terminal ⑦
- to terminal ② of the LH headlamp.

Terminal ③ of each headlamp supplies ground through body grounds (E5) and (E30).
With power and ground supplied, the headlamps will illuminate.
When the lighting switch is placed in the 2ND and HIGH ("A") or PASS ("C") position, power is supplied
- from lighting switch terminal ⑥
- to terminal ① of the LH headlamp, and
- from lighting switch terminal ⑨
- to terminal ① of the RH headlamp, and
- to combination meter terminal ㉑ for the HIGH BEAM indicator.

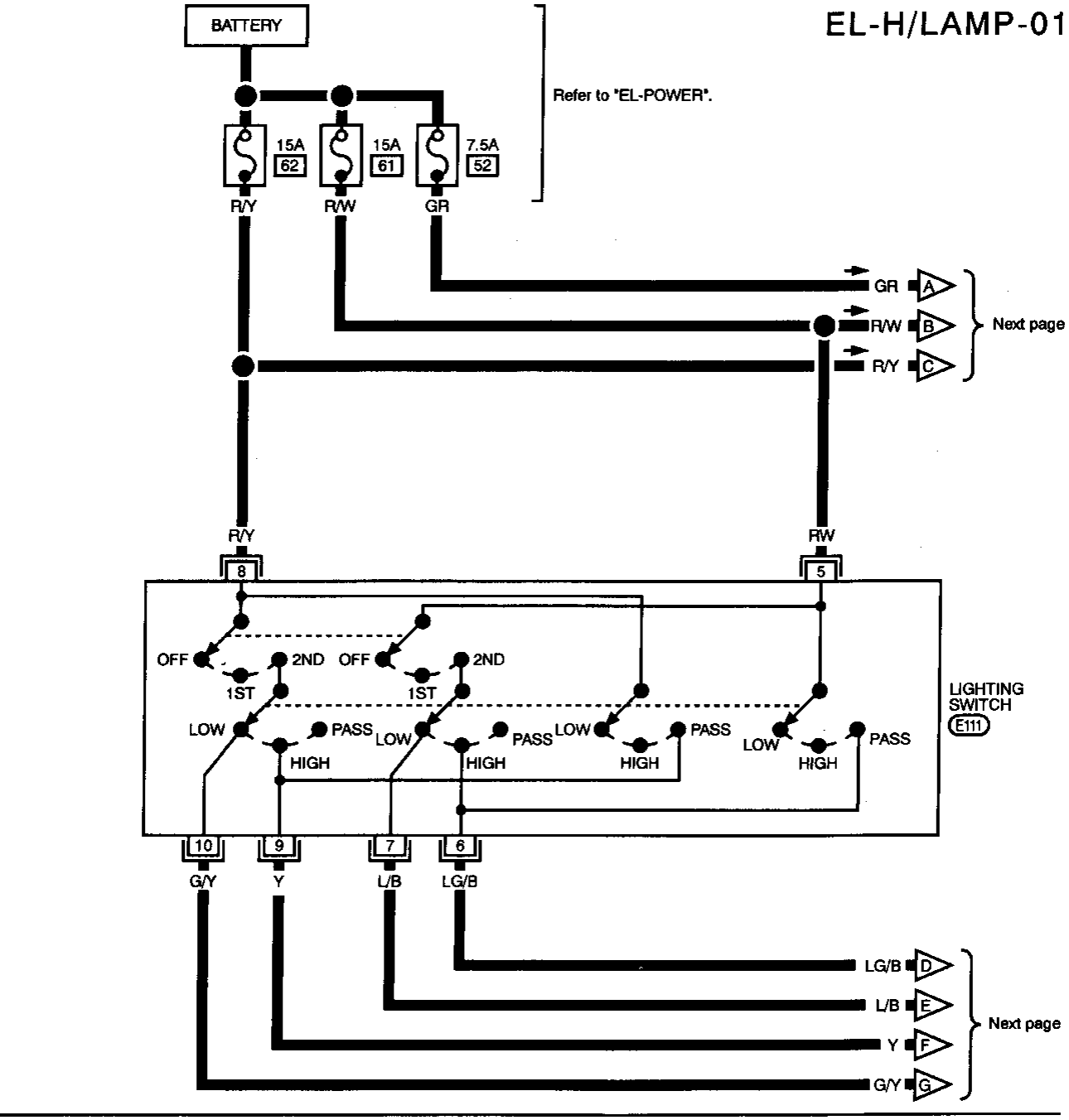
Ground is supplied to terminal ㉛ of the combination meter through body grounds (M13) and (M73).
With power and ground supplied, the high beams and the HIGH BEAM indicator illuminate.

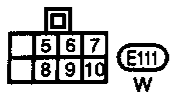
With theft warning system

The theft warning system will flash the high beams if the system is triggered. Refer to "THEFT WARNING SYSTEM — IVMS" (EL-242).

Wiring Diagram — H/LAMP —

FOR U.S.A.

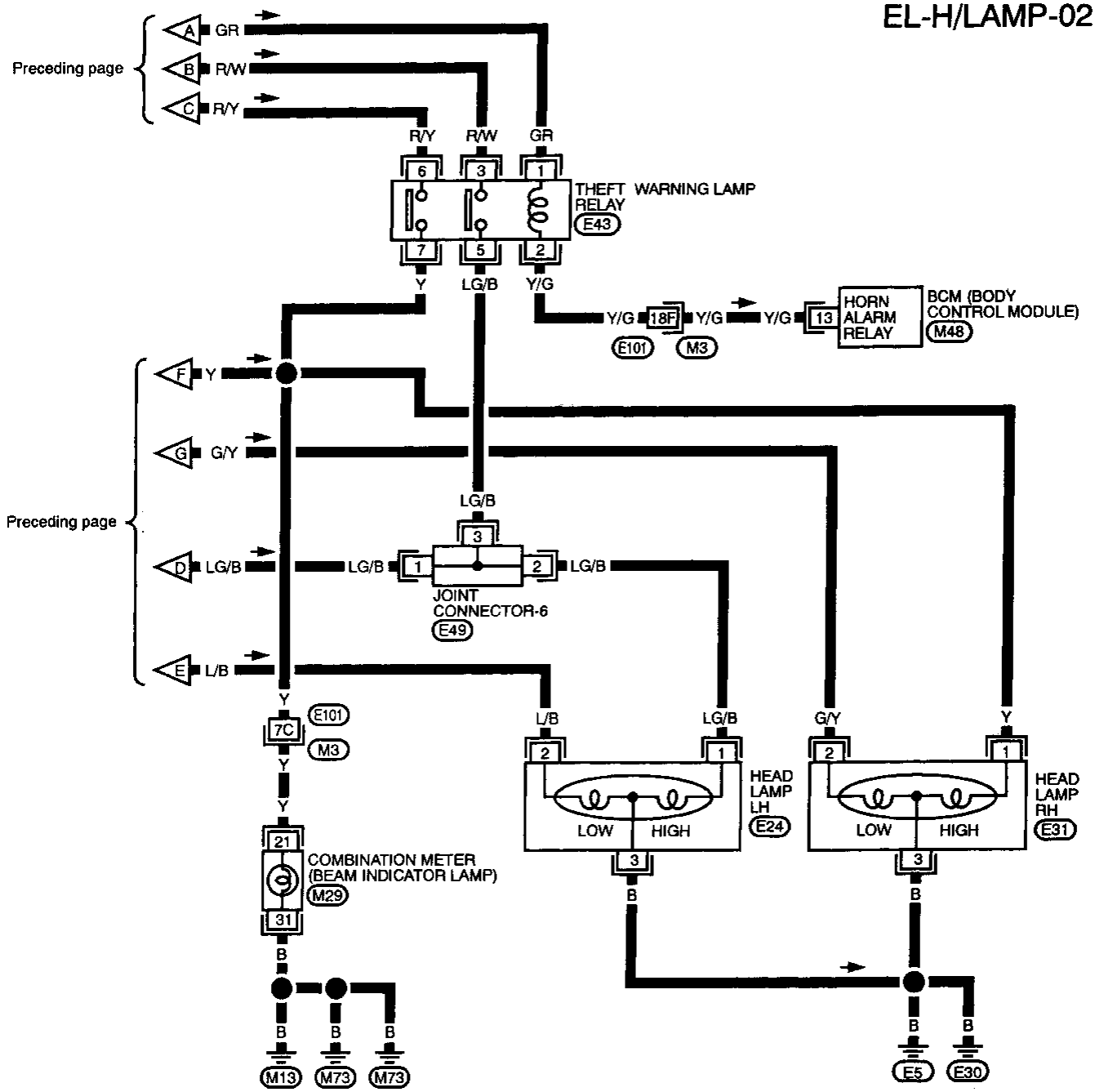


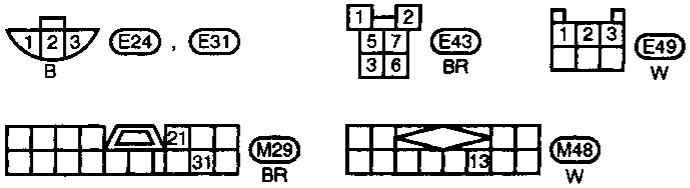


MEL452D

Wiring Diagram — H/LAMP — (Cont'd)

EL-H/LAMP-02





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M3 , E101

E49

MEL453D

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. 62, located in the fuse and fusible link box)
- to daytime light control unit terminal ③ and
- to lighting switch terminal ⑧.

Power is also supplied at all times
- through 15A fuse (No. 61, located in the fuse and fusible link box)
- to daytime light control unit terminal ②,
- to lighting switch terminal ⑤ and
- to theft warning relay terminal ③.

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

Ground is supplied to daytime light control unit terminal ⑤ through body grounds (M13) and (M73).

HEADLAMP OPERATION

Low beam operation

When the lighting switch is moved to the 2ND and LOW ("B") position, power is supplied
- from lighting switch terminal ⑩
- to LH headlamp terminal ②.

Ground is supplied to LH headlamp terminal ③ through body grounds (E5) and (E30).

Also, when the lighting switch is moved to the 2ND and LOW ("B") position, power is supplied
- from lighting switch terminal ⑦
- to RH headlamp terminal ②.

Ground is supplied to headlamp terminal ③ through body grounds (E5) and (E30) (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 and HIGH ("A") or PASS ("C") position, power is supplied
- from lighting switch terminal ⑨
- to LH headlamp terminal ①.

Also, when the lighting switch is moved to the 2ND and HIGH ("A") or PASS ("C") position, power is supplied
- from lighting switch terminal ⑨
- to daytime light control unit terminal ⑧
- through daytime light control unit terminal ⑥
- to RH headlamp terminal ①.

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

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

DAYTIME LIGHT OPERATION

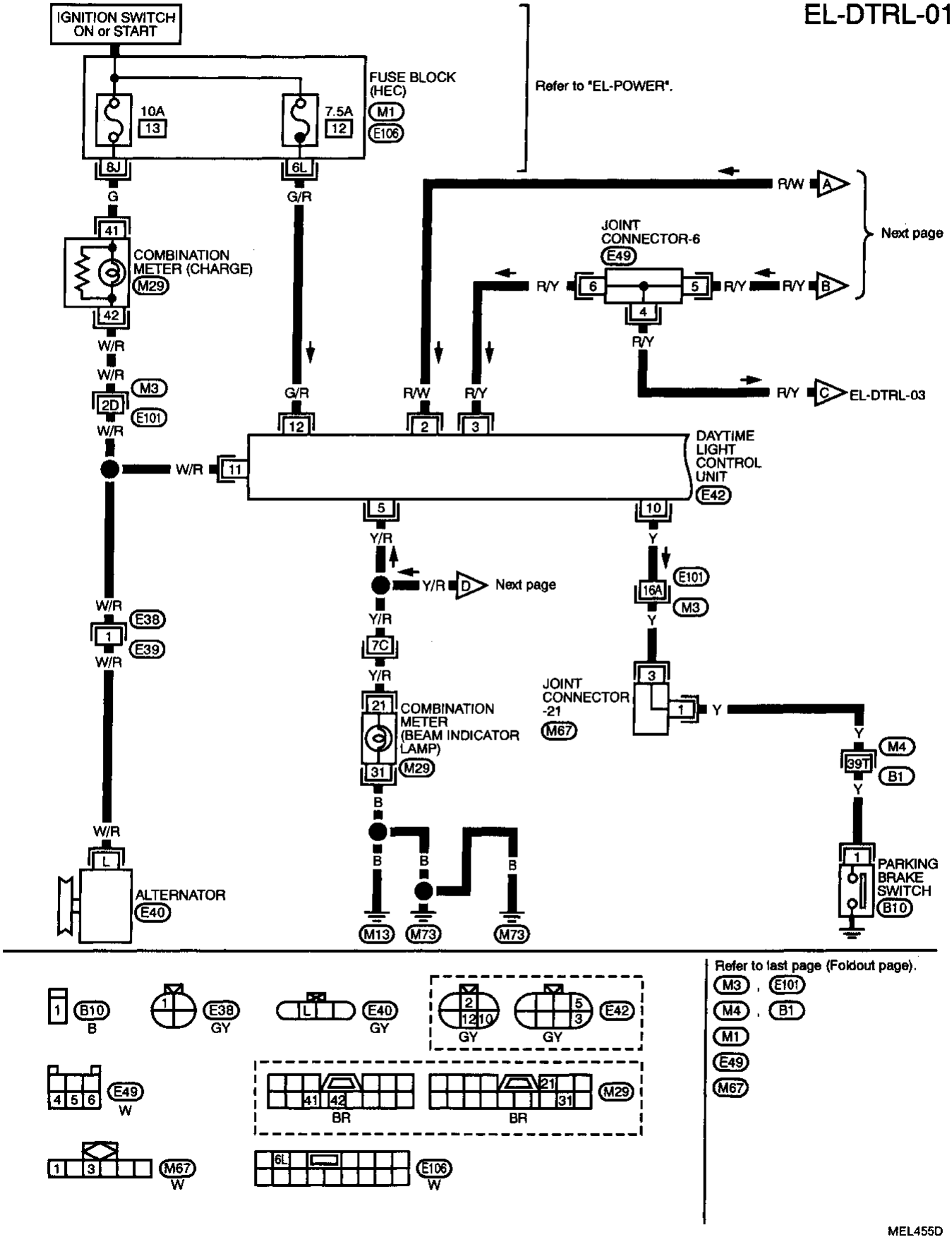
With the engine running and the lighting switch in the OFF position, power is supplied
- to daytime light control unit terminal ③
- through daytime light control unit terminal ⑥
- to headlamp RH terminal ①
- through headlamp RH terminal ③
- to daytime light control unit terminal ⑦
- through daytime light control unit terminal ⑧
- to headlamp LH terminal ①.

Ground is supplied to headlamp LH terminal ③ through body grounds (E5) and (E30).

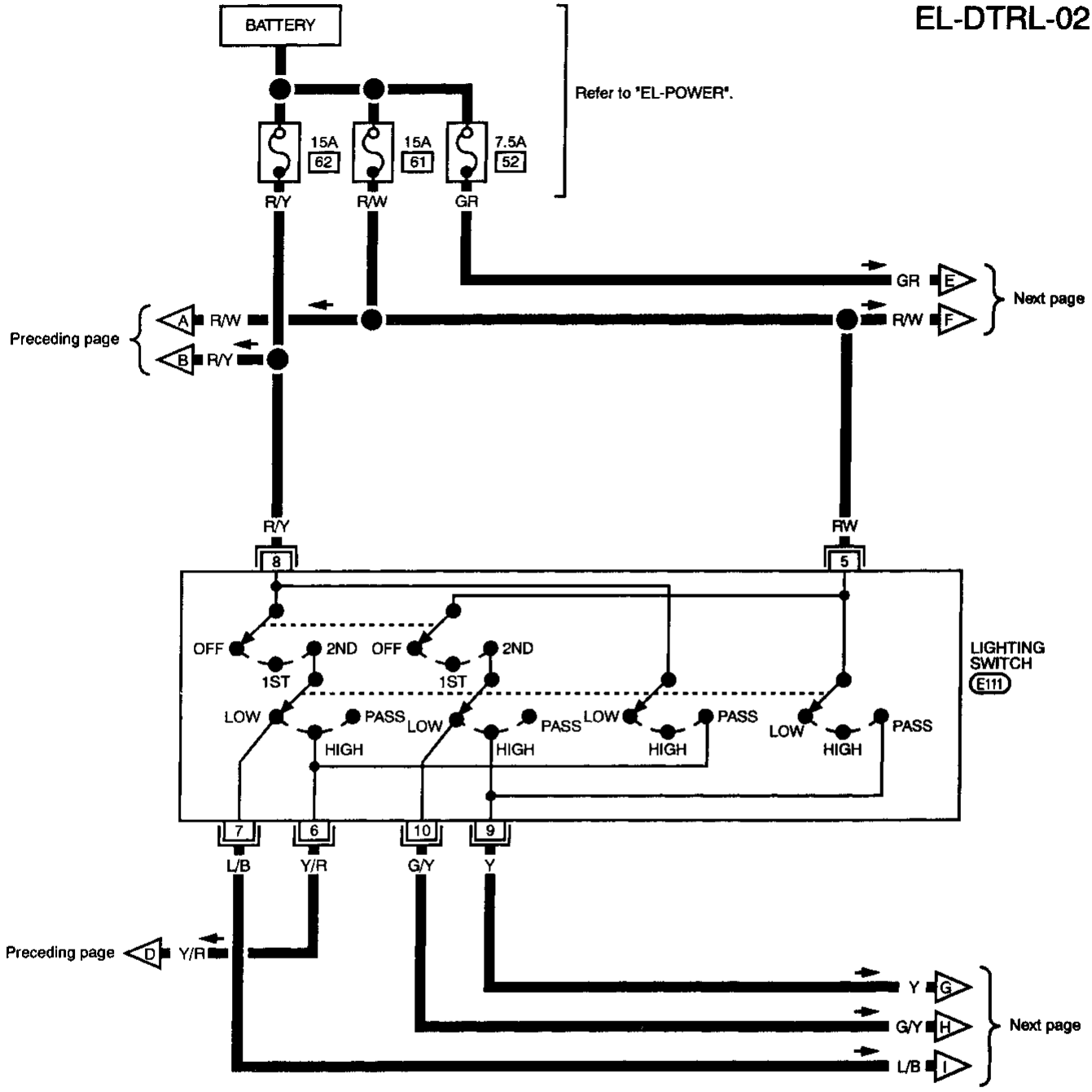
Because the high beam headlamps are now connected in series, they operate at half illumination.

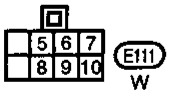
Wiring Diagram — DTRL —

FOR CANADA



Wiring Diagram — DTRL — (Cont'd)

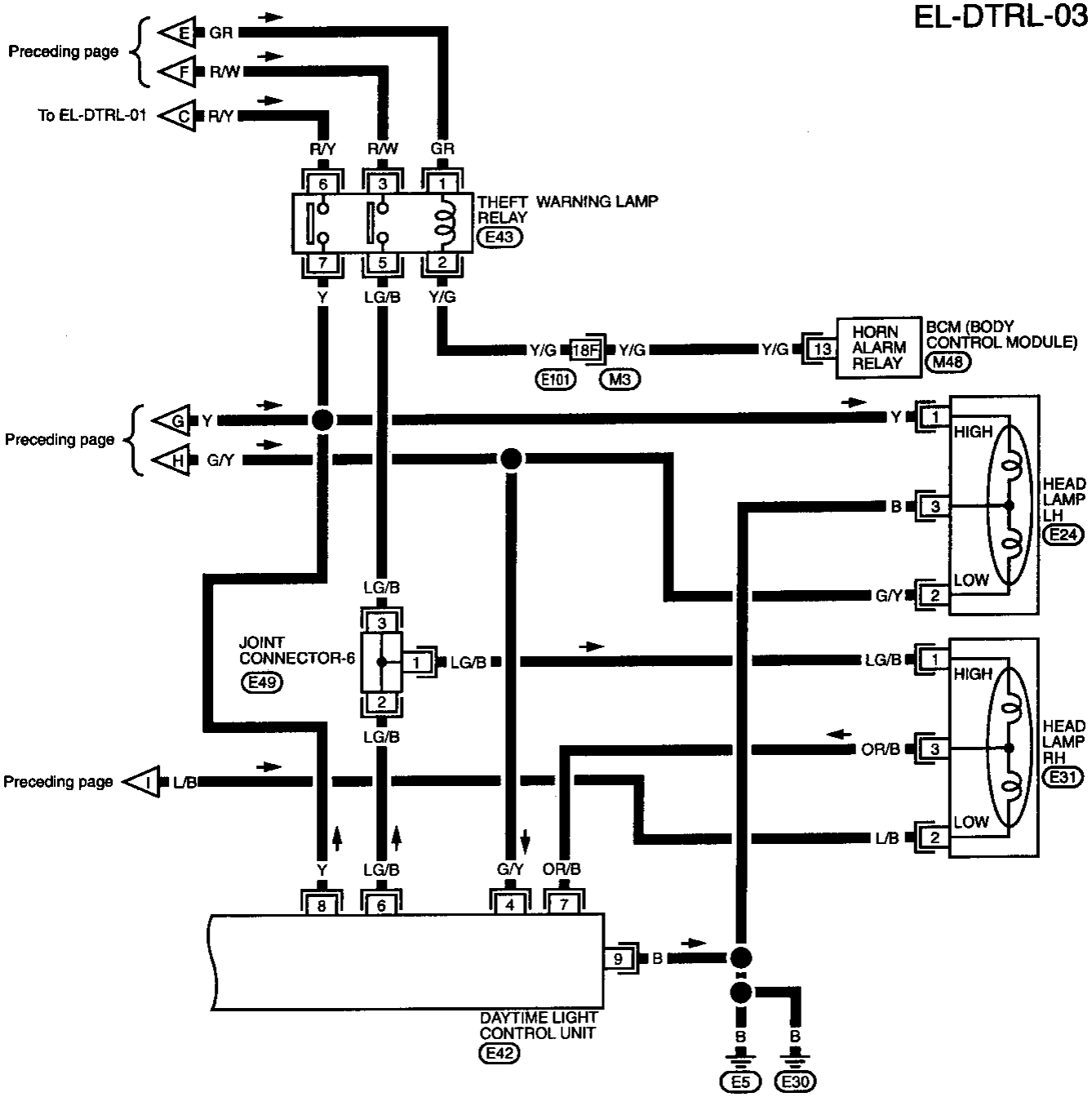


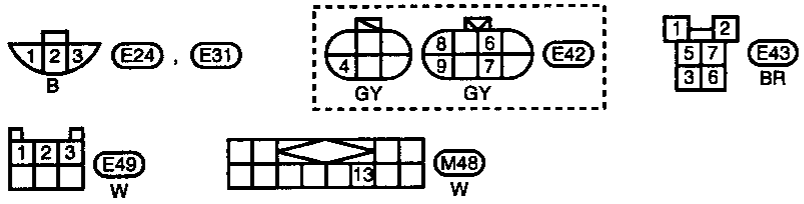


MEL456D

Wiring Diagram — DTRL — (Cont'd)

EL-DTRL-03





Refer to last page (Foldout page).
M3 , E101
E49

MEL457D

Operation (Daytime light system for Canada)

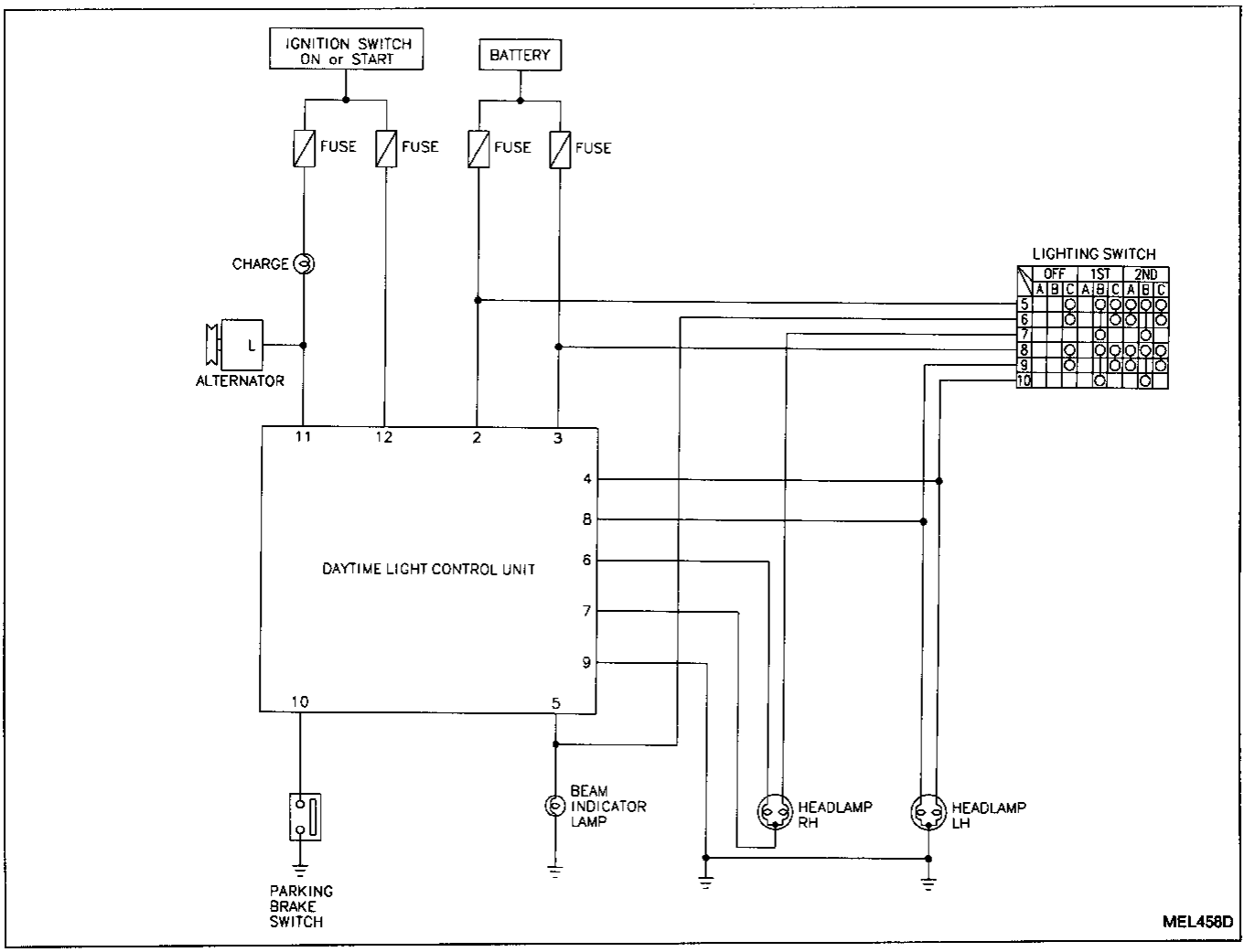
After starting the engine with the lighting switch in the "OFF" position or "1ST" position, the headlamp high beam automatically turns on. Lighting switch operations other than the above are the same as conventional light systems.

Engine		With engine stopped									With engine running								
Lighting switch		OFF			1ST			2ND			OFF			1ST			2ND		
		A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
Headlamp	High beam	X	X	O	X	X	O	O	X	O	△*	△*	O	△*	△*	O	O	X	O
	Low beam	X	X	X	X	X	X	X	O	X	X	X	X	X	X	X	X	O	X
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 pulled, the daytime lamp won't come ON.

Schematic

FOR CANADA



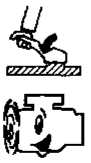
Trouble Diagnoses (For USA)

Symptom	Possible cause	Repair order
LH headlamps do not operate.	1. Bulb 2. Grounds (E5) and (E30) 3. 15A fuse 4. Lighting switch	1. Check bulb. 2. Check grounds (E5) and (E30). 3. Check 15A fuse (No. 62, located in fusible link and fuse box). Verify battery positive voltage is present at terminal ⑧ of lighting switch. 4. Check lighting switch.
RH headlamps do not operate.	1. Bulb 2. Grounds (E5) and (E30) 3. 15A fuse 4. Lighting switch	1. Check bulb. 2. Check grounds (E5) and (E30). 3. Check 15A fuse (No. 61, located in fusible link and fuse box). Verify battery positive voltage is present at terminal ⑤ of lighting switch. 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 lighting switch and LH headlamp for an open circuit. 3. Check lighting switch.
LH low beam does not operate, but LH high beam operates.	1. Bulb 2. Open in LH low beam circuit 3. Lighting switch	1. Check bulb. 2. Check G/Y wire between lighting switch and LH headlamp for an open circuit. 3. Check lighting switch.
RH high beam does not operate, but RH low beam operates.	1. Bulb. 2. Open in RH high beam circuit 3. Lighting switch.	1. Check bulb. 2. Check LG/B wire between lighting switch and RH headlamp for an open circuit. 3. Check lighting switch.
RH low beam does not operate, but RH high beam operates.	1. Bulb 2. Open in RH low beam circuit 3. Lighting switch	1. Check bulb. 2. Check L/B wire between lighting switch and RH headlamp for an open circuit. 3. Check lighting switch.
High beam indicator does not work.	1. Bulb 2. Grounds (M13) and (M73) 3. Open in high beam circuit	1. Check bulb in combination meter. 2. Check grounds (M13) and (M73). 3. Check Y wire between lighting switch and combination meter for an open circuit.

Trouble Diagnoses (For Canada)

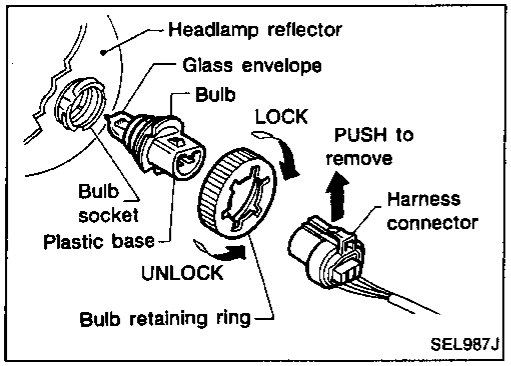
DAYTIME LIGHT CONTROL UNIT INSPECTION TABLE

(Data are reference values.)

Terminal No.	Item	Condition		Judgement standard
1	—		—	—
2	Power source		When turning ignition switch to "ON".	Battery positive voltage
			When turning ignition switch to "OFF".	Battery positive voltage
3	Power source		When turning ignition switch to "ON".	Battery positive voltage
			When turning ignition switch to "OFF".	Battery positive voltage
4	Lighting switch (Lo beam)		When turning lighting switch to "2ND" ("B").	Battery positive voltage
5	Lighting switch (Hi beam)		When turning lighting switch to "HIGH" ("A").	Battery positive voltage
			When turning lighting switch to "PASS" ("C").	Battery positive voltage
6	LH hi beam		When turning lighting switch to "HIGH" ("A").	Battery positive voltage
			When releasing parking brake with engine running and turning lighting switch to "OFF" (daytime light operation). **CAUTION: Block wheels and ensure selector lever is in N or P position.**	Battery positive voltage
7	LH headlamp control (ground)		When lighting switch is turned to "2ND" ("B").	1V or less
			When releasing parking brake with engine running and turning lighting switch to "OFF" (daytime light operation). **CAUTION: Block wheels and ensure selector lever is in N or P position.**	Approx. half battery voltage
8	RH hi beam		When turning lighting switch to "HIGH" ("A").	Battery positive voltage
			When releasing parking brake with engine running and turning lighting switch to "OFF" (daytime light operation). **CAUTION: Block wheels and ensure selector lever is in N or P position.**	Approx. half battery voltage
9	Ground		—	—

Trouble Diagnoses (For Canada) (Cont'd)

Terminal No.	Item	Condition		Judgement standard
10	Parking brake switch		When turning ignition switch to "ON" with parking brake set.	1V or less
			When releasing parking brake with ignition switch "ON".	Battery positive voltage
11	Alternator		When turning ignition switch to "ON".	1V or less
			When engine is running.	Battery positive voltage
			When turning ignition switch to "OFF".	1V or less
12	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



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:

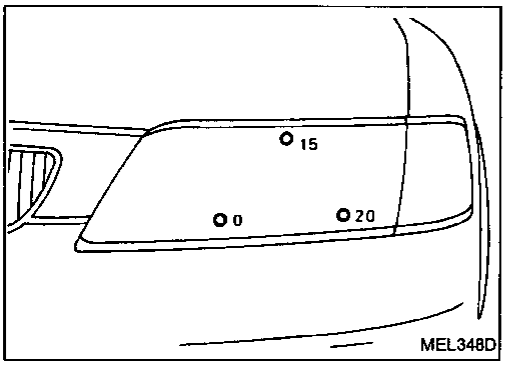
- **Do not leave the bulb out of the headlamp reflector for a long period of time. Dust, moisture, smoke, etc. entering headlamp may affect the performance of the headlamp. Remove headlamp bulb from the headlamp reflector just before a replacement bulb is installed.**

Aiming Adjustment

When performing headlamp aiming adjustment, use an aiming machine, aiming wall screen or headlamp tester. Aimers should be in good repair, calibrated and operated in accordance with respective operation manuals.
If any aimer is not available, aiming adjustment can be done as follows:

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

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



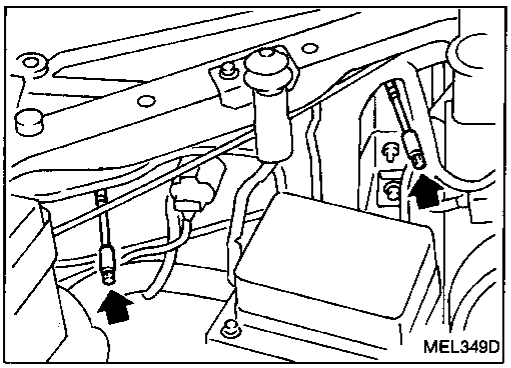
AIMER ADJUSTMENT MARK

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

Adjustment value for mechanical aimer

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

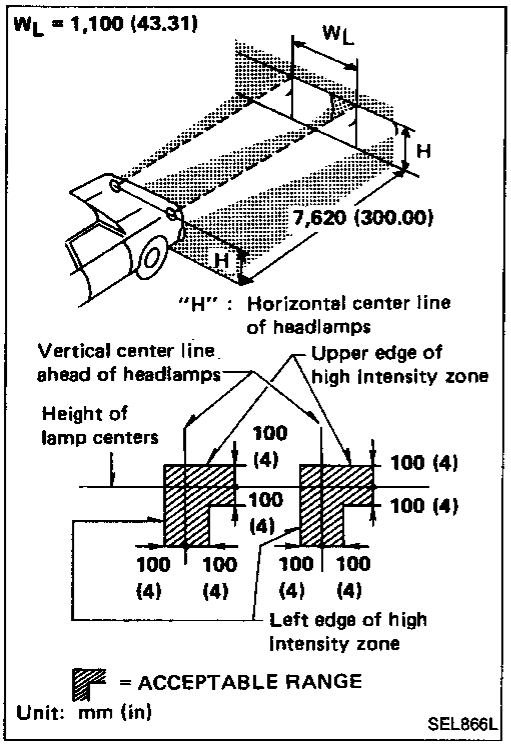
Aiming Adjustment (Cont'd)



LOW BEAM

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

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

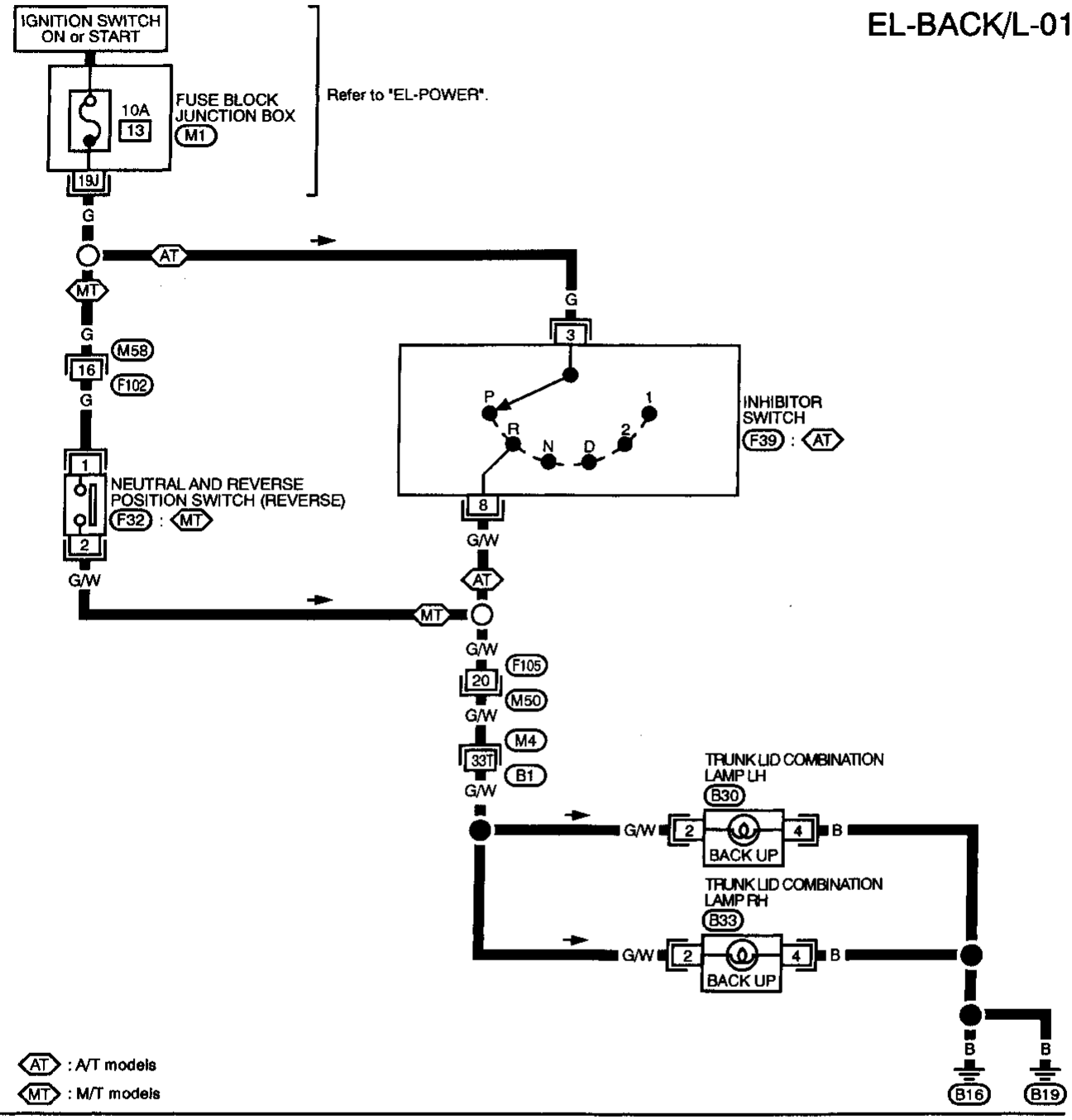


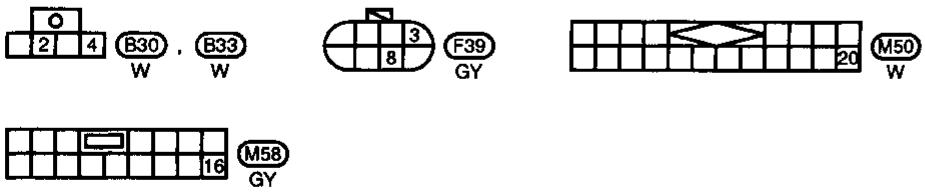
- **Upper edge and left edge of high intensity zone should be within the range shown at left. Adjust headlamps accordingly.**
- **Dotted lines in illustration show center of headlamp.**

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

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

EL-BACK/L-01





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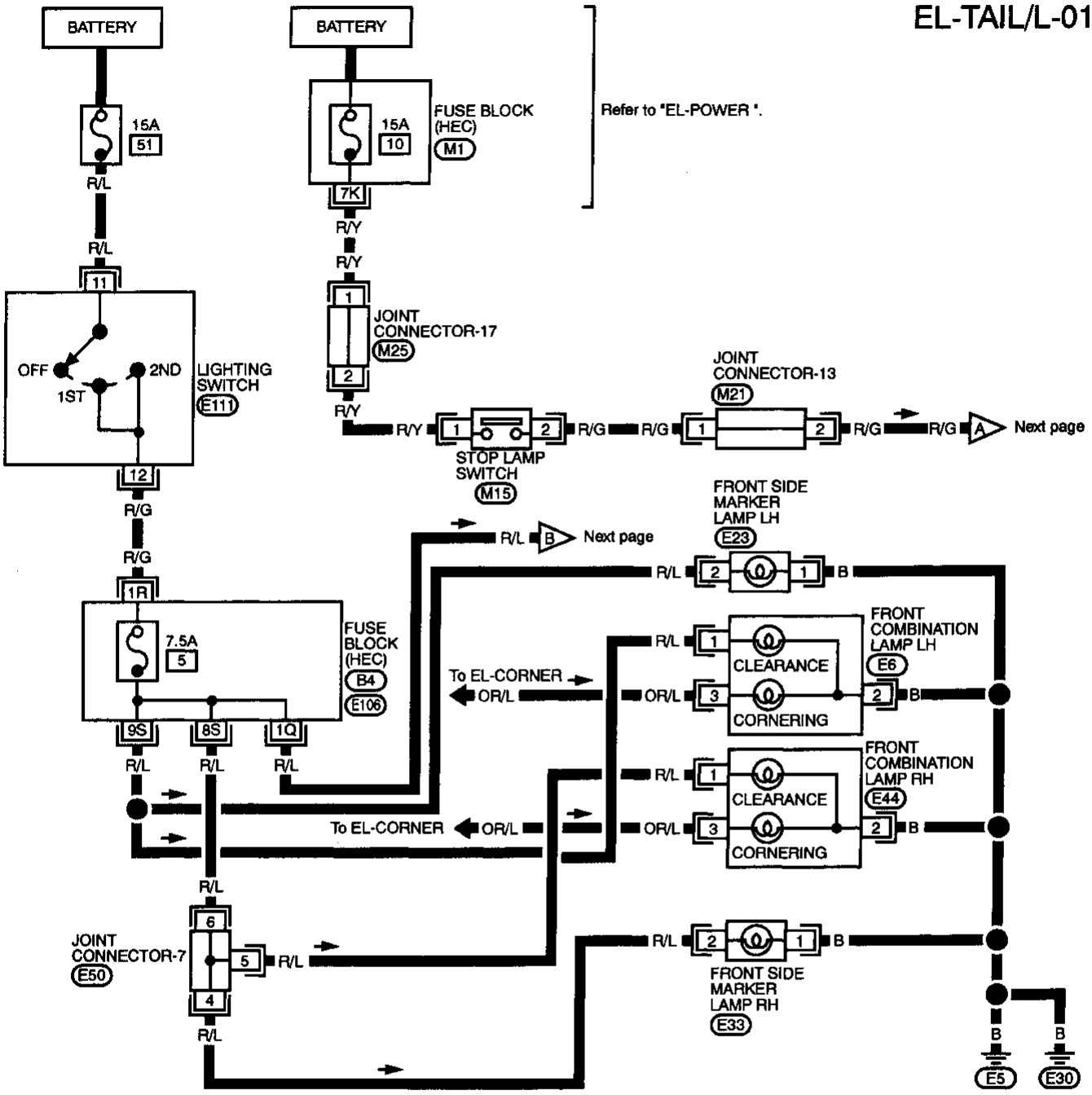
M4 , B1

M1

MEL464D

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

EL-TAIL/L-01



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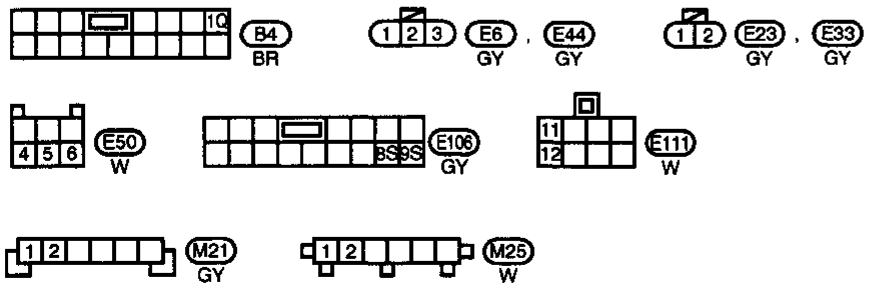
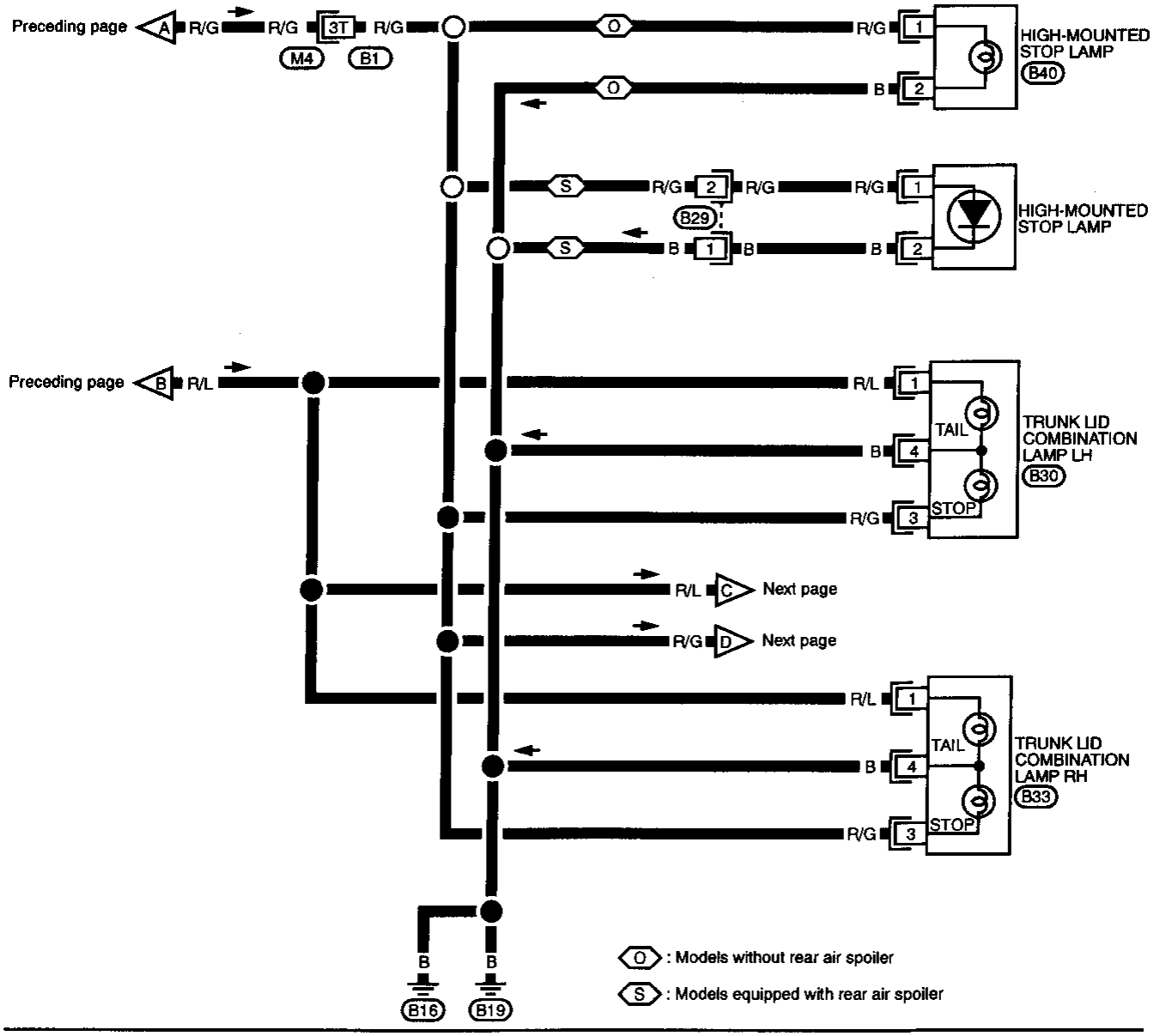
M1
E50
M21
M25

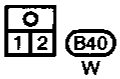


MEL489D

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

EL-TAIL/L-02





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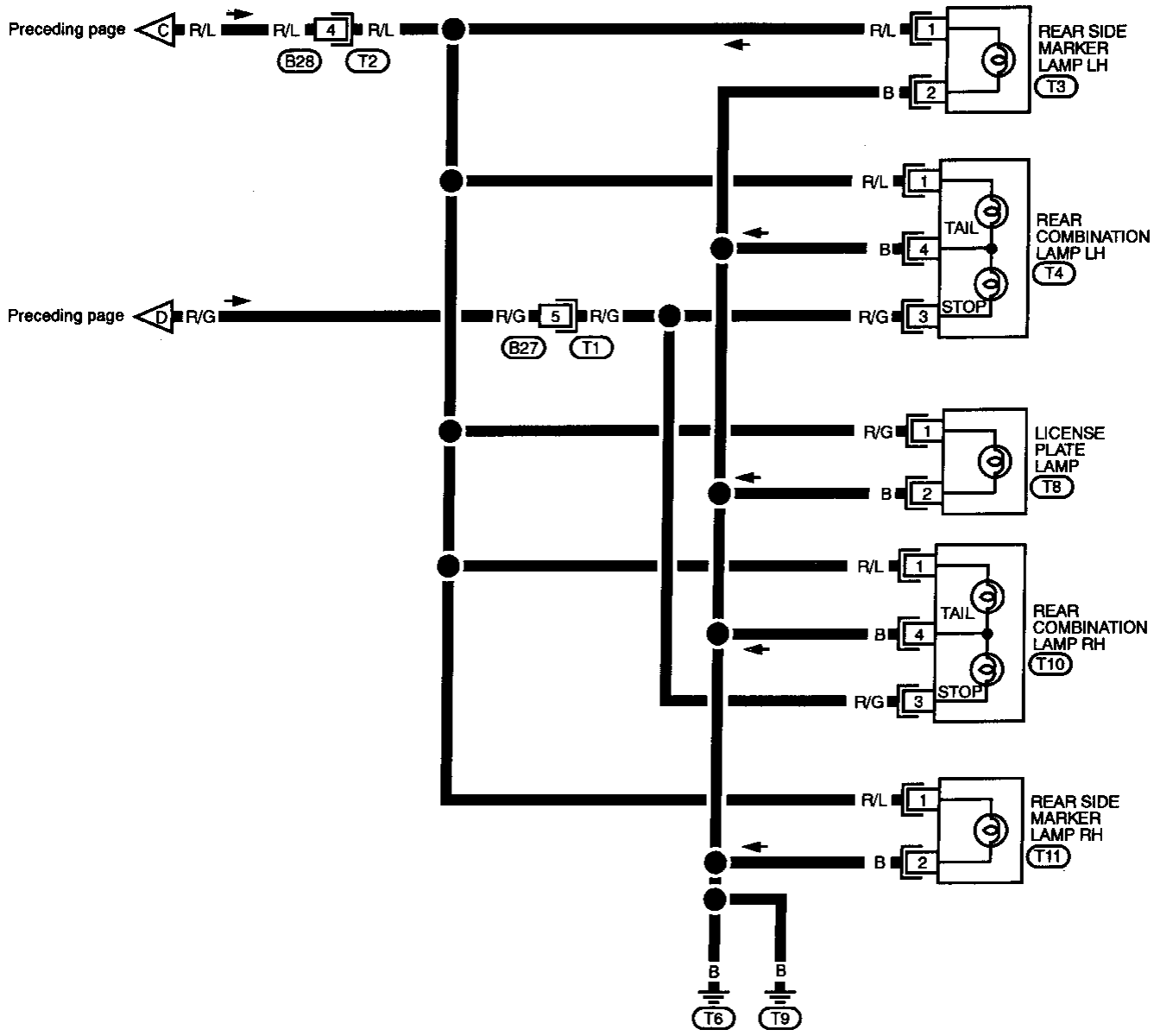
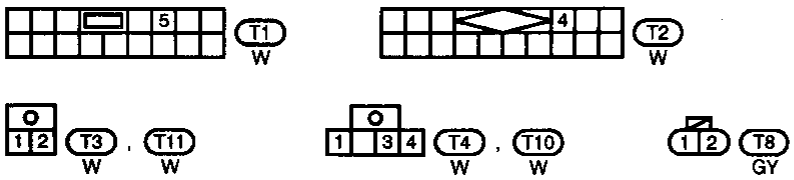
M4 , B1

MEL490D

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

EL-TAIL/L-03





MEL491D

Front Fog Lamp/System Description

Power is supplied at all times to front fog lamp relay terminal ③ through
- 15A fuse (No. 54, located in the fuse and fusible link box).

With the lighting switch in the 2ND and LOW ("B") position, power is supplied
- through 15A fuse (No. 62, located in the fuse and fusible link box)
- to lighting switch terminal ⑧
- through terminal ⑩ of the lighting switch
- to front fog lamp relay terminal ②.

Front fog lamp operation

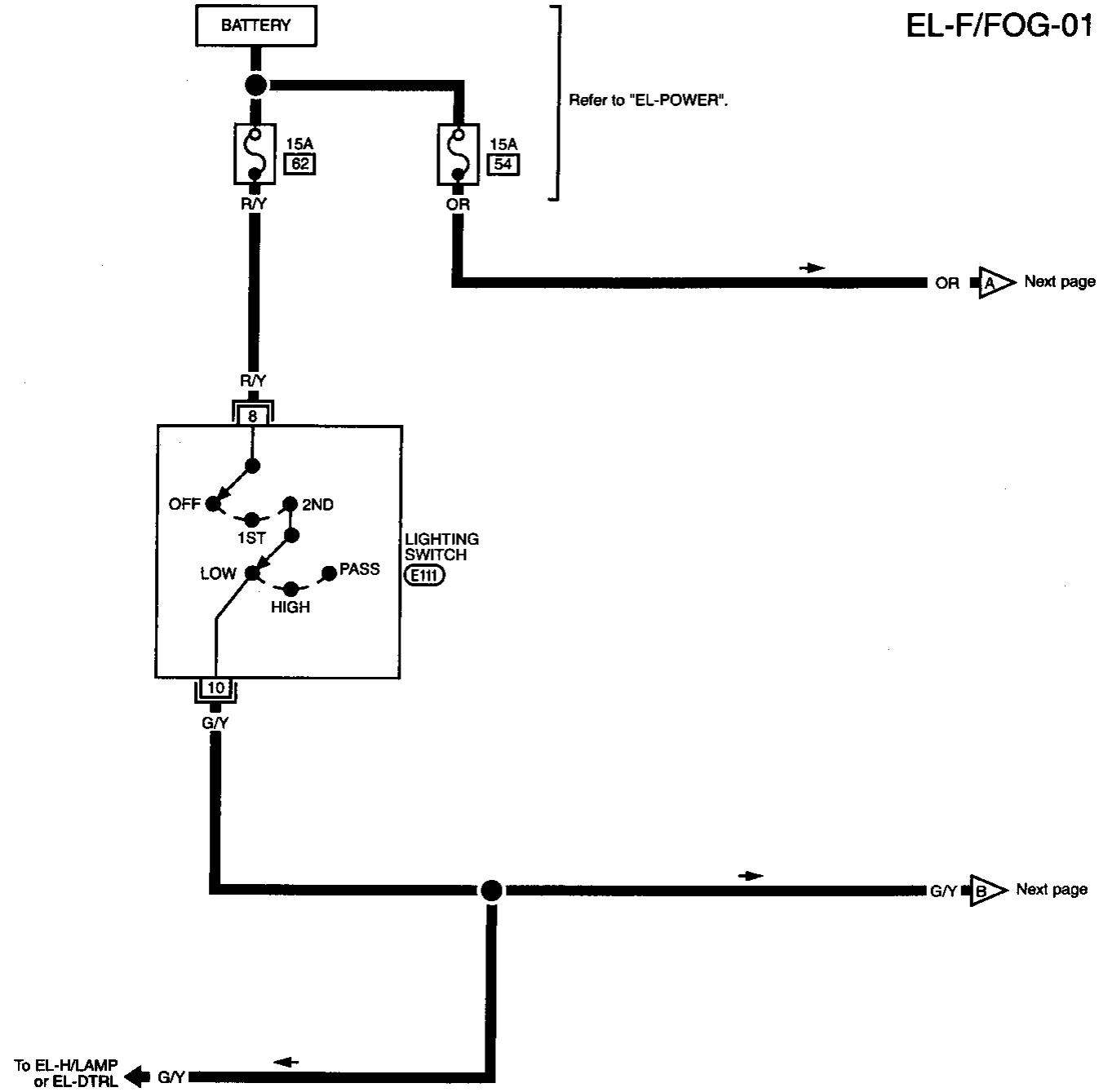
The lighting switch must be in the 2ND and LOW ("B") position for front fog lamp operation.
With the front fog lamp switch in the ON position
- ground is supplied to front fog lamp relay terminal ① through the front fog lamp switch and body grounds E5 and E30.

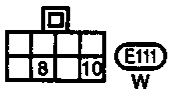
The front fog lamp relay is energized and power is supplied
- from front fog lamp relay terminal ⑤
- to terminal ① of each front fog lamp.

Ground is supplied to terminal ② of each front fog lamp through body grounds E5 and E30.
With power and ground supplied, the front fog lamps illuminate.

Front Fog Lamp/Wiring Diagram — F/FOG —

EL-F/FOG-01

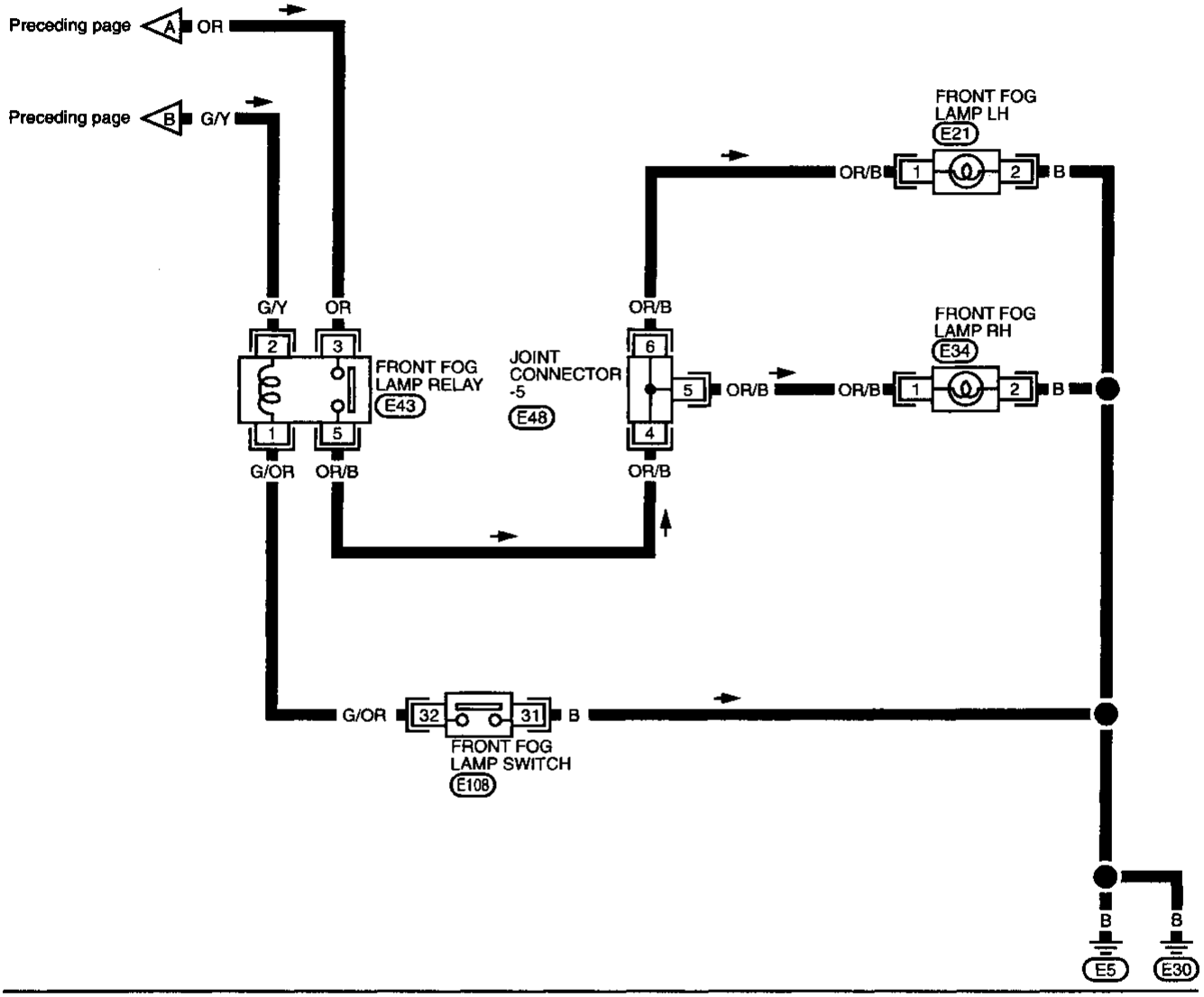




MEL495D

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

EL-F/FOG-02



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E48

MEL496D

1123

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. 14, located in the fuse block in the HEC)
- to hazard switch terminal ②
- through terminal ① of the hazard switch
- to combination flasher unit terminal Ⓑ
- through terminal Ⓛ of the combination flasher unit and terminal ④ of the multi-remote control relay-2
- to turn signal switch terminal ①.

Ground is supplied to combination flasher unit terminal Ⓔ through body grounds (M13) and (M73).

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 (through fuse block (HEC) terminals (5S) and (6S))
- rear combination lamp LH terminal ② (through fuse block (HEC) terminals (5S) and (4Q)) and
- combination meter terminal ㉜.

Ground is supplied to the front turn signal lamp LH terminal ② through body grounds (E5) and (E30).
Ground is supplied to the rear combination lamp LH terminal ④ through body grounds (T6) and (T9).
Ground is supplied to combination meter terminal ㉛ through body grounds (M13) and (M73).
With power and grounds supplied, the combination flasher unit controls the flashing interval of the LH turn signal lamps.

RH turn

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

- front turn signal lamp RH terminal ① (through fuse block (HEC) terminals (15S) and (10S))
- rear combination lamp RH terminal ② (through fuse block (HEC) terminals (15S) and (13Q)) and
- combination meter terminal ⑲.

Ground is supplied to the front turn signal lamp RH terminal ② through body grounds (E5) and (E30).
Ground is supplied to the rear combination lamp RH terminal ④ through body grounds (T6) and (T9).
Ground is supplied to combination meter terminal ㉛ through body grounds (M13) and (M73).
With power and ground supplied, the combination flasher unit controls the flashing interval of the RH turn signal lamps.

HAZARD LAMP OPERATION

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

- 10A fuse (No. 11, located in the fuse block in the HEC).

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

- through terminal ① of the hazard switch
- to combination flasher unit terminal Ⓑ
- through terminal Ⓛ of the combination flasher unit
- to hazard switch terminal ④ (through terminal ⑥ of the joint connector-17).

Ground is supplied to the combination flasher unit terminal Ⓔ through body grounds (M13) and (M73).
Power is supplied through terminal ⑤ of the hazard switch to

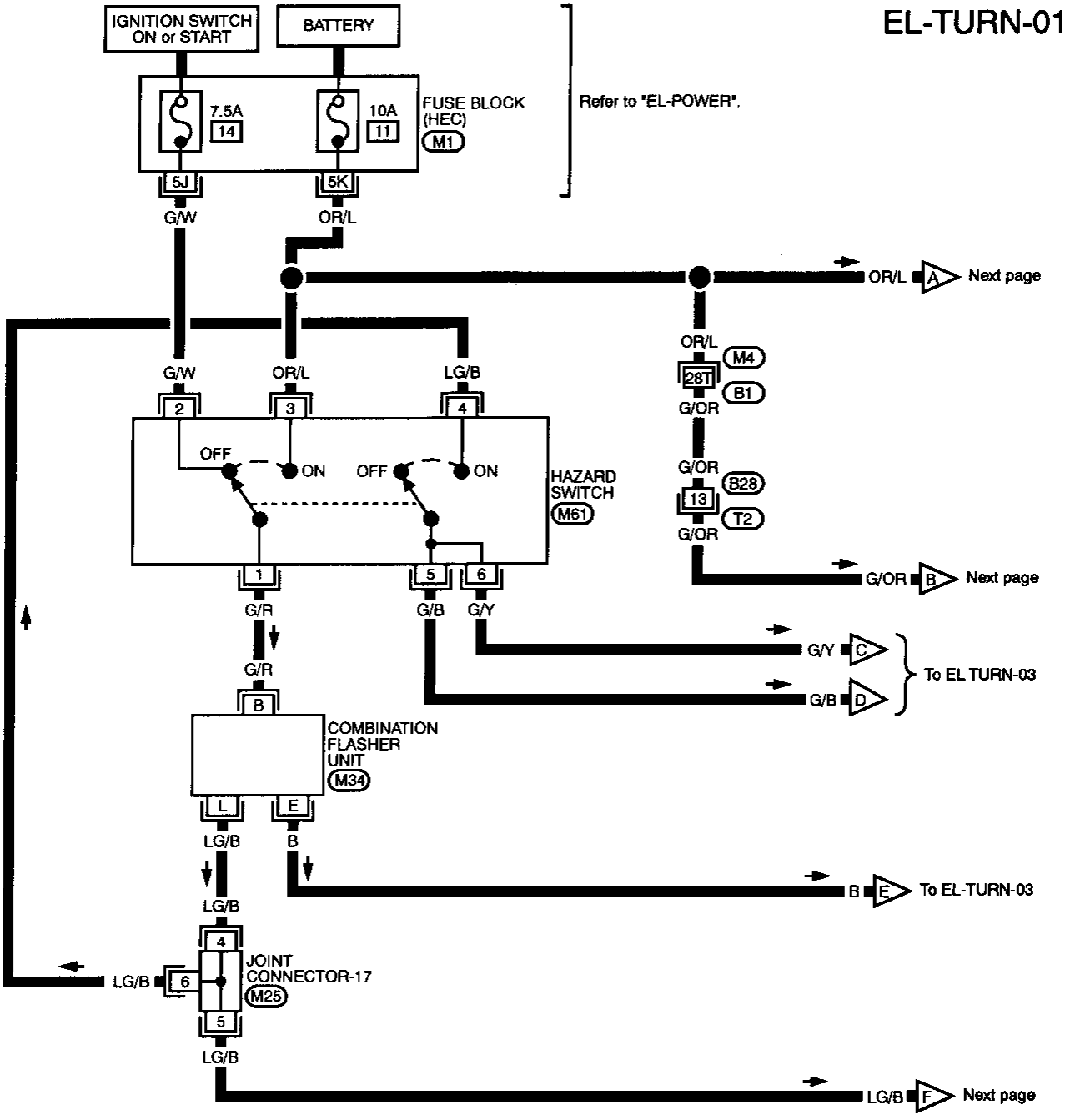
- front turn signal lamp LH terminal ① (through fuse block (HEC) terminals (2J) and (6S))
- rear combination lamp LH terminal ② (through fuse block (HEC) terminals (2J) and (4Q)) and
- combination meter terminal ㉜.

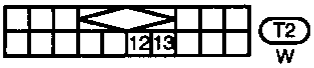
Power is also supplied through terminal ⑥ of the hazard switch to

- front turn signal lamp RH terminal ① (through fuse block (HEC) terminals (11J) and (10S))
- rear combination lamp RH terminal ② (through fuse block (HEC) terminals (11J) and (13Q)) and
- combination meter terminal ⑲ (through fuse block (HEC) terminals (11J) and (5H)).

Ground is supplied to terminal ② of the front turn signal lamps through body grounds (E5) and (E30).
Ground is supplied to terminal ④ of the rear combination lamps through body grounds (T6) and (T9).
Ground is supplied to combination meter terminal ㉛ through body grounds (M13) and (M73).
With power and ground supplied, the combination flasher unit controls the flashing interval of the hazard warning lamps.

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



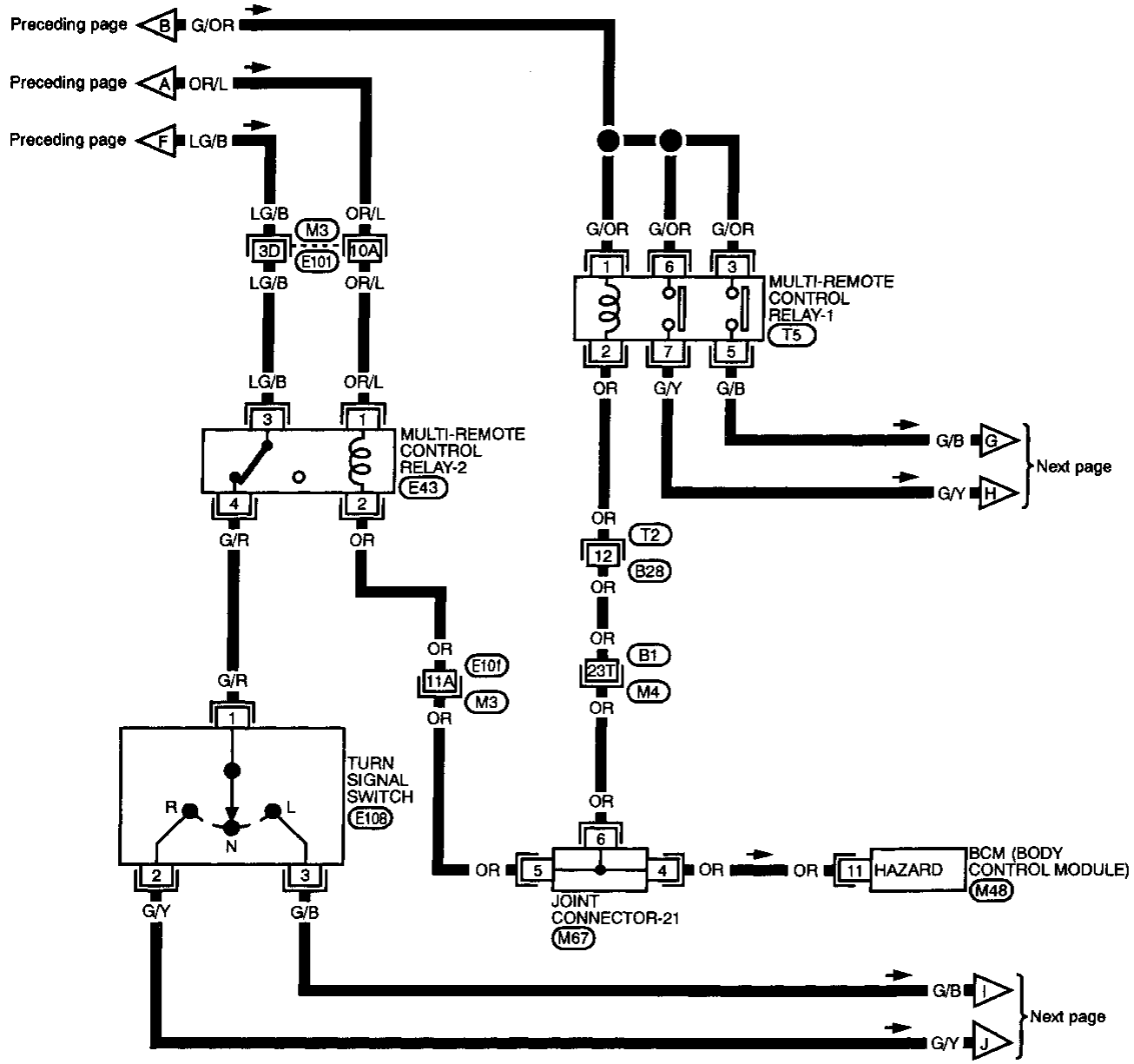


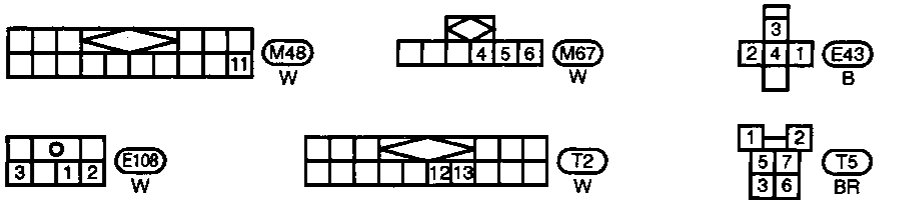
Refer to last page (Foldout page).
M1
M4 , B1
M25

MEL492D

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

EL-TURN-02





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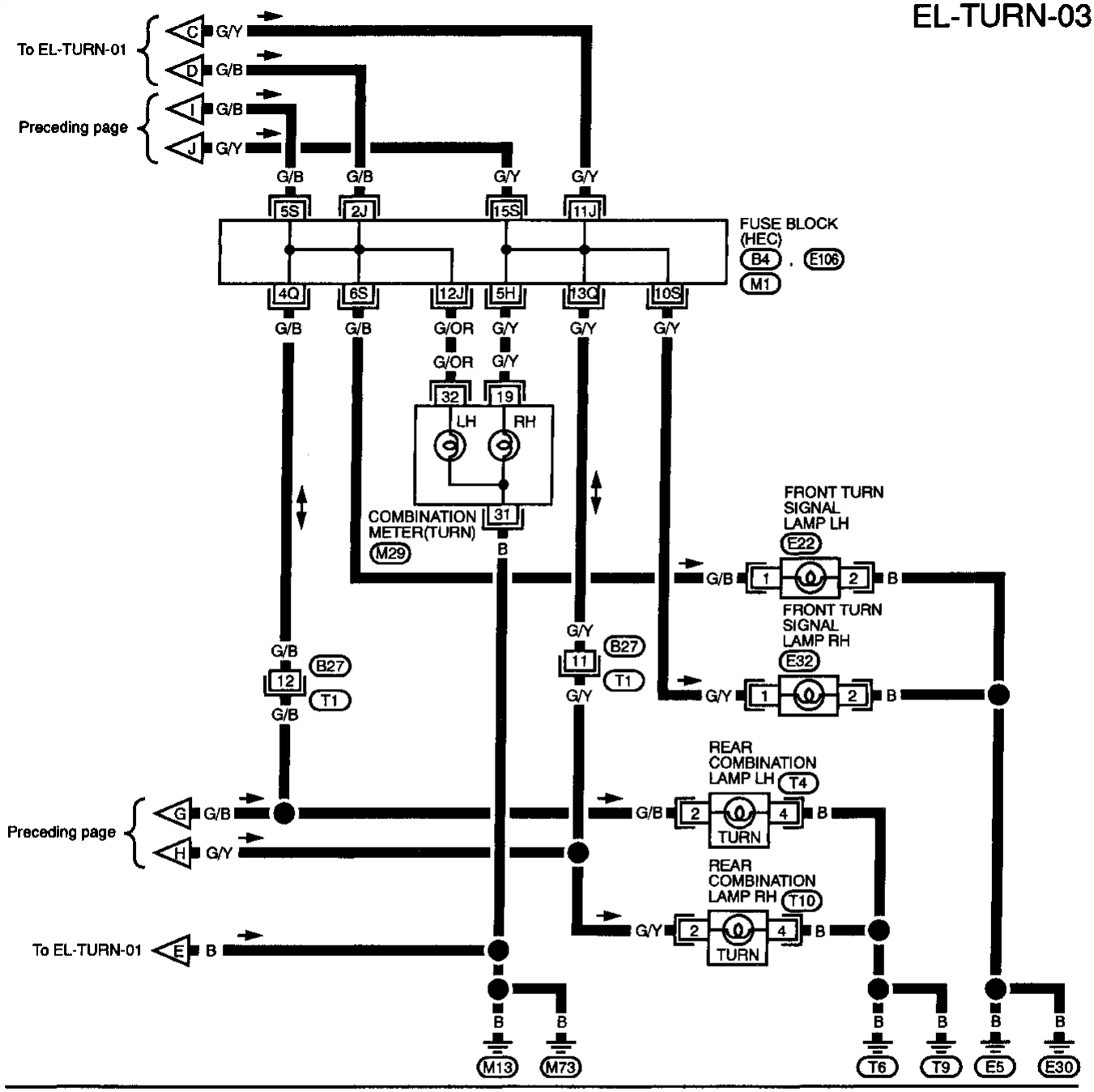
M3, E101
M4, B1
M67

MEL493D

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

EL-TURN-03



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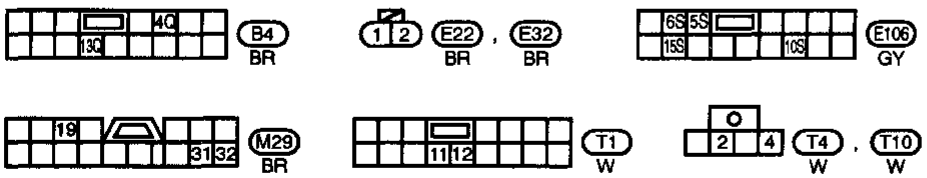
M1



MEL494D

1127

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 10A fuse (No. 14 , 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 LG/B wire between combination flasher unit and turn signal switch for open circuit.
Hazard warning lamps do not operate but turn signal lamps operate.	1. 10A fuse 2. Hazard switch 3. Open in hazard switch circuit	1. Check 10A fuse (No. 11 , located in fuse block). Verify battery positive voltage is present at terminal ③ of hazard switch. 2. Check hazard switch. 3. Check LG/B wire between combination flasher unit and hazard switch for open circuit.
Front turn signal lamp LH or RH does not operate.	1. Bulb 2. Grounds (E5) and (E30)	1. Check bulb. 2. Check grounds (E5) and (E30).
Rear turn signal lamp LH or RH does not operate.	1. Bulb 2. Grounds (T6) and (T9)	1. Check bulb. 2. Check grounds (T6) and (T9).
LH and RH turn indicators do not operate.	1. Ground	1. Check grounds (M13) and (M73).
LH or RH turn indicator does not operate.	1. Bulb	1. Check bulb in combination meter.

Cornering Lamp/System Description

The lighting switch must be in the 2ND and LOW ("B") or HIGH ("A") position for the cornering lamps to operate.

Power is supplied at all times to terminal ⑧ of the lighting switch through

- 15A fuse (No. 62, located in the fuse and fusible link box).

With the ignition switch in the ON or START position, power is supplied to cornering lamp relay terminal ③ through:

- 7.5A fuse (No. 14, located in the fuse block in the HEC).

Power is supplied to cornering lamp relay terminal ①

- through terminal ⑩ of the lighting switch in the LOW ("B") position or
- through terminal ⑨ of the lighting switch in the HIGH ("A") position.

Ground is supplied to cornering lamp relay terminal ② through body grounds E6 and E30.

With power and ground supplied, the cornering lamp relay is energized.

Power is supplied

- from terminal ⑤ of the cornering lamp relay
- to cornering lamp switch terminal ⑥①.

RH turn

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

- from terminal ⑥① of the cornering lamp switch
- through terminal ⑥② of the cornering lamp switch
- to cornering lamp RH terminal ③.

Ground is supplied to terminal ② of cornering lamp RH through body grounds E5 and E30.

The RH cornering lamp illuminates until the turn signal lever returns to NEUTRAL position.

LH turn

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

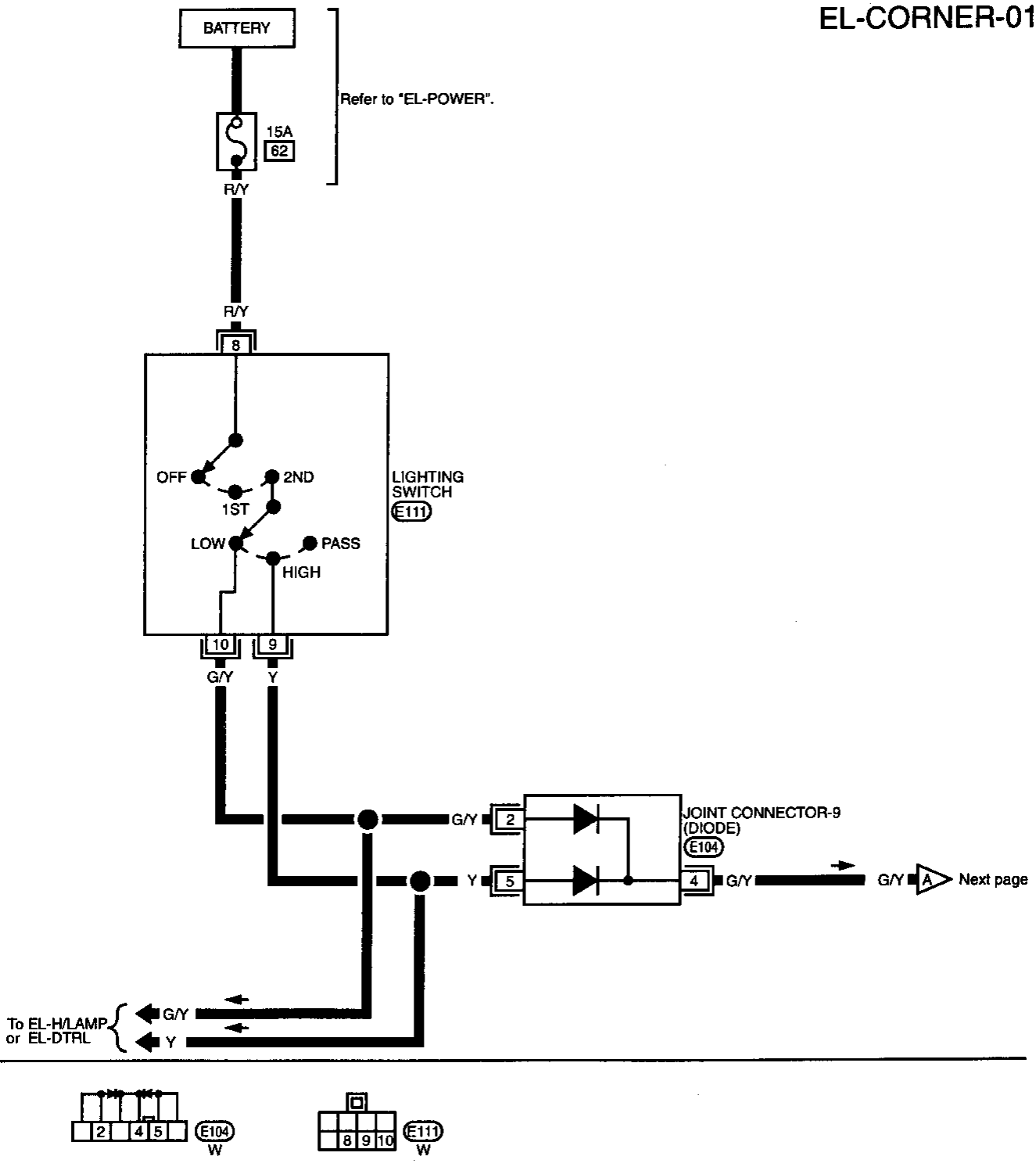
- from terminal ⑥① of the cornering lamp switch
- through terminal ⑥③ of the cornering lamp switch
- to cornering lamp LH terminal ③.

Ground is supplied to terminal ② of cornering lamp LH through body grounds E5 and E30.

The LH cornering lamp illuminates until the turn signal lever returns to NEUTRAL position.

Cornering Lamp/Wiring Diagram — CORNER —

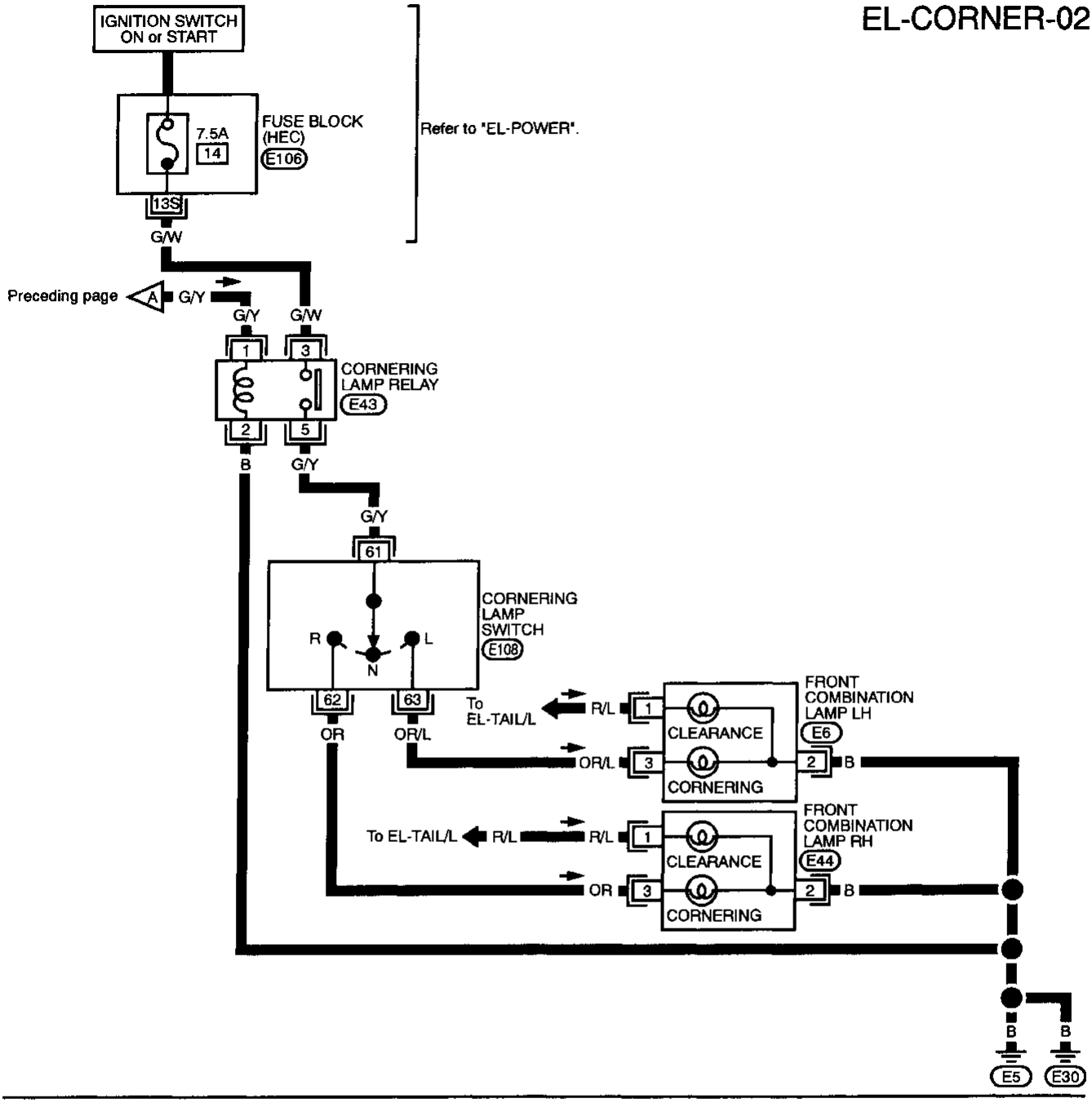
EL-CORNER-01

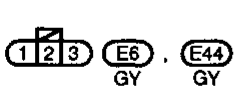


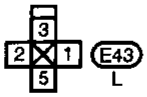
MEL467D

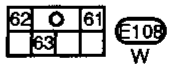
Cornering Lamp/Wiring Diagram — CORNER — (Cont'd)

EL-CORNER-02

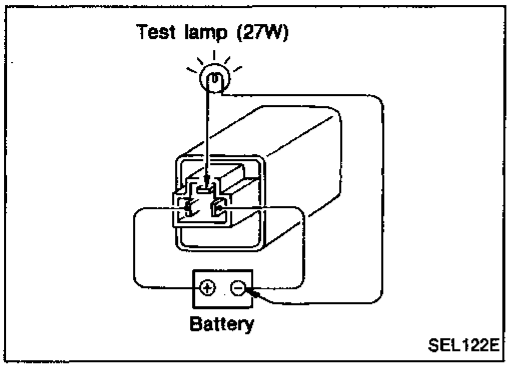








MEL468D



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)
Headlamp (Semi-sealed beam)	
High/low	65/45 (HB1)
Front turn signal lamp	27
Front combination lamp	
Cornering/Front clearance	27/8
Front side marker	3.8
Front fog lamp	55 (H3)
Rear combination lamp	
Turn signal	27
Stop/Tail	27/8
Back-up	27
Rear side marker lamp	3.8
License plate lamp	5
High-mounted stop lamp	27
Interior lamp	10
Spot lamp	10
Step lamp	3.4
Trunk room lamp	3.4

Illumination/System Description

Power is supplied at all times
- through 15A fuse (No. 51, located in the fuse and fusible link box)
- to lighting switch terminal ⑪.

The lighting switch must be in the 1ST or 2ND position for illumination.
Power is also supplied at all times
- through 7.5A fuse (No. 40, located in the fuse block in the HEC)
- to vanity mirror illumination terminal ①.

A variable resistor is built in the illumination control switch to control the amount of current to the illumination system.
The ashtray illumination, vanity mirror illumination and the glove box lamp are not controlled by the illumination control switch. The brightness of these lamps does not change.
The following chart shows the power and ground connector terminals for the components included in the illumination system.

Component	Power terminal	Ground terminal
Audio	⑧	⑦
CD player	㉓	㉒
Push control unit	①	②
PTC (Potentio Temperature Control)*	㉗**	㉟
A/T control device	⑥	③
Hazard switch	⑦	⑧
Power window switch (Front LH/RH)	⑦ / ⑭	⑩ / ⑩
Cigarette lighter	①	②
Ashtray	①	②
Combination meter	㊱	⑤ and ㊵
Clock	②	④
ASCD main switch	⑤	⑥
Rear window defogger switch	⑤	⑥
Glove box lamp	②	①
Illumination control switch	①	② and ③
Vanity mirror	①	②

*: If equipped.
**: Power supplied to PTC terminal ㉗ is supplied through the push control unit.

With the exception of the glove box lamp, vanity mirror illumination and the ashtray illumination, the ground for all of the components are controlled through terminals ② and ③ of the illumination control switch and body grounds (M13) and (M73).
When the glove box is open, glove box lamp terminal ① is grounded through the glove box lamp switch and body grounds (M13) and (M73).
The ashtray illumination terminal ② and vanity mirror illumination terminal ② are grounded directly through body grounds (M13) and (M73).
Vanity mirror will illuminate when cover of the vanity mirror is opened.

Spot and Trunk Room Lamps/System Description

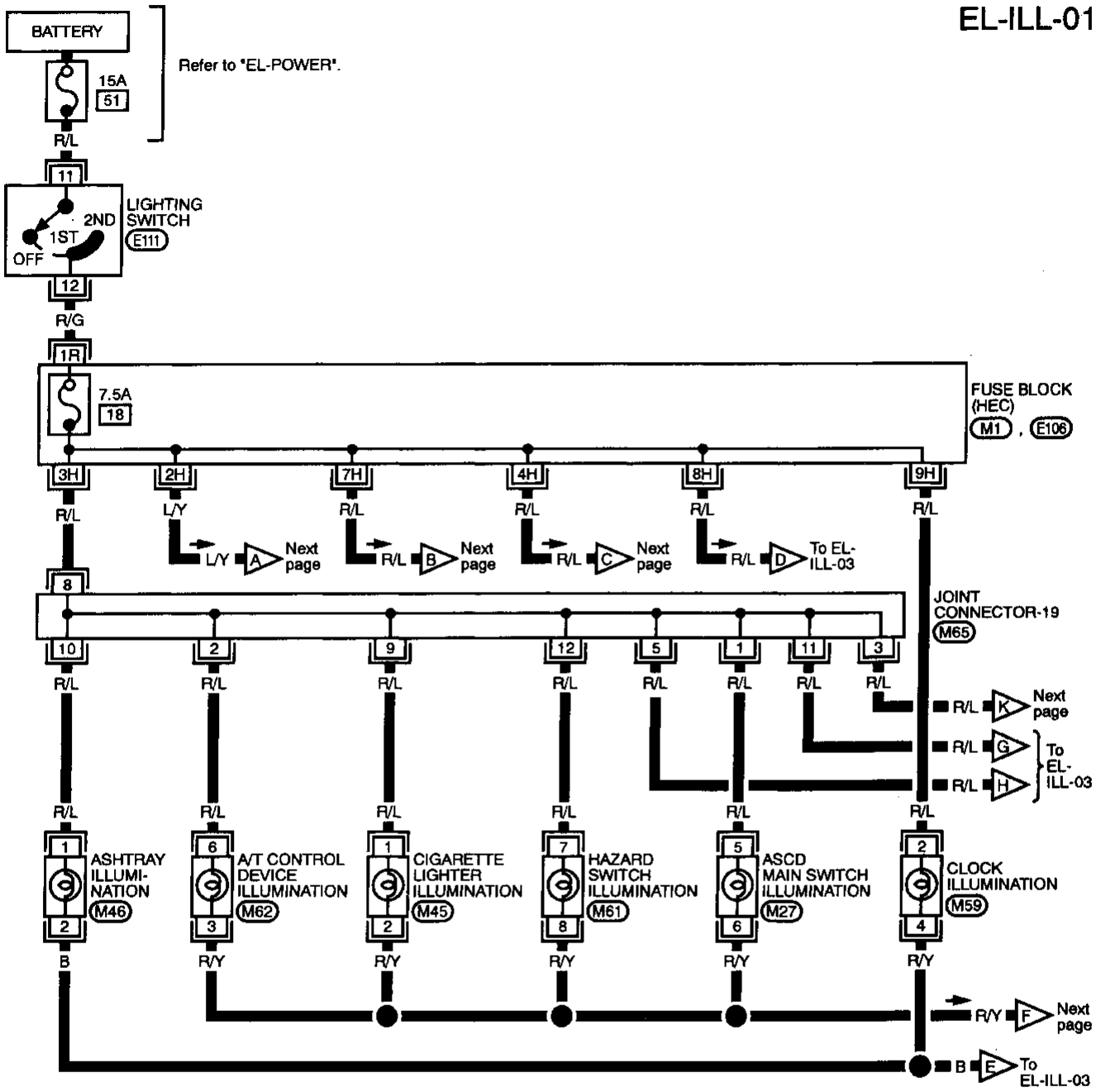
Power is supplied at all times
- through 7.5A fuse (No. 26, located in the fuse block in the HEC)
- to spot lamp terminal ①, and
- to trunk room lamp terminal ①.

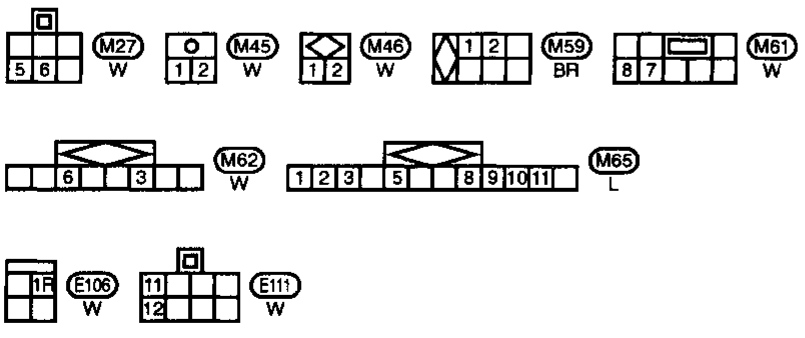
Ground is supplied when switch is ON
- to spot lamp terminal ②
- through body grounds (M13) and (M73).

Ground is supplied when trunk room lamp switch is ON
- to trunk room lamp terminal ②
- through body grounds (B16) and (B19).

Illumination/Wiring Diagram — ILL —

EL-ILL-01





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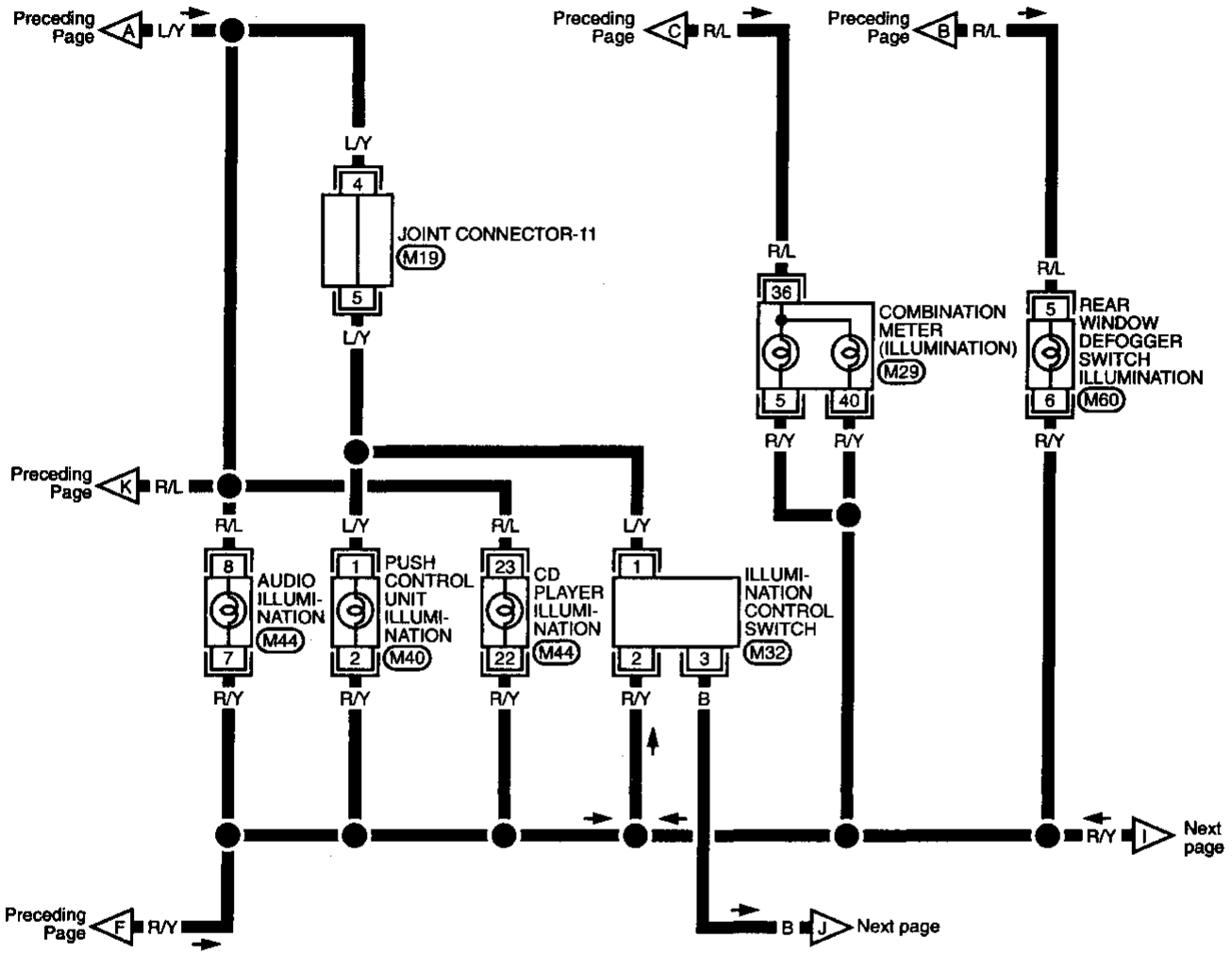
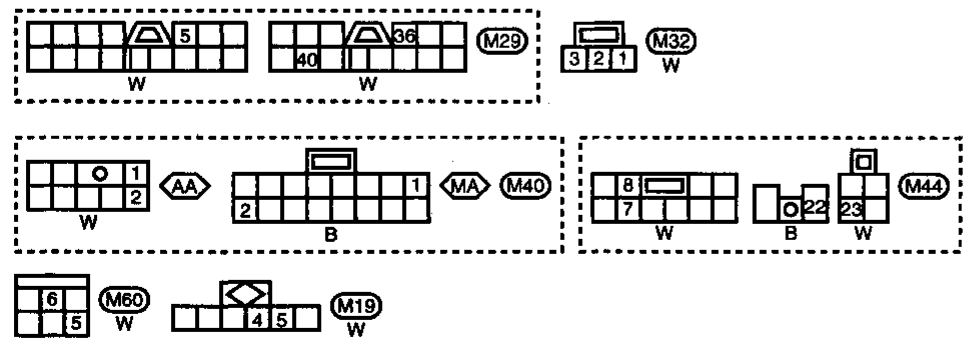
M1
M65

MEL402D

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

EL-ILL-02

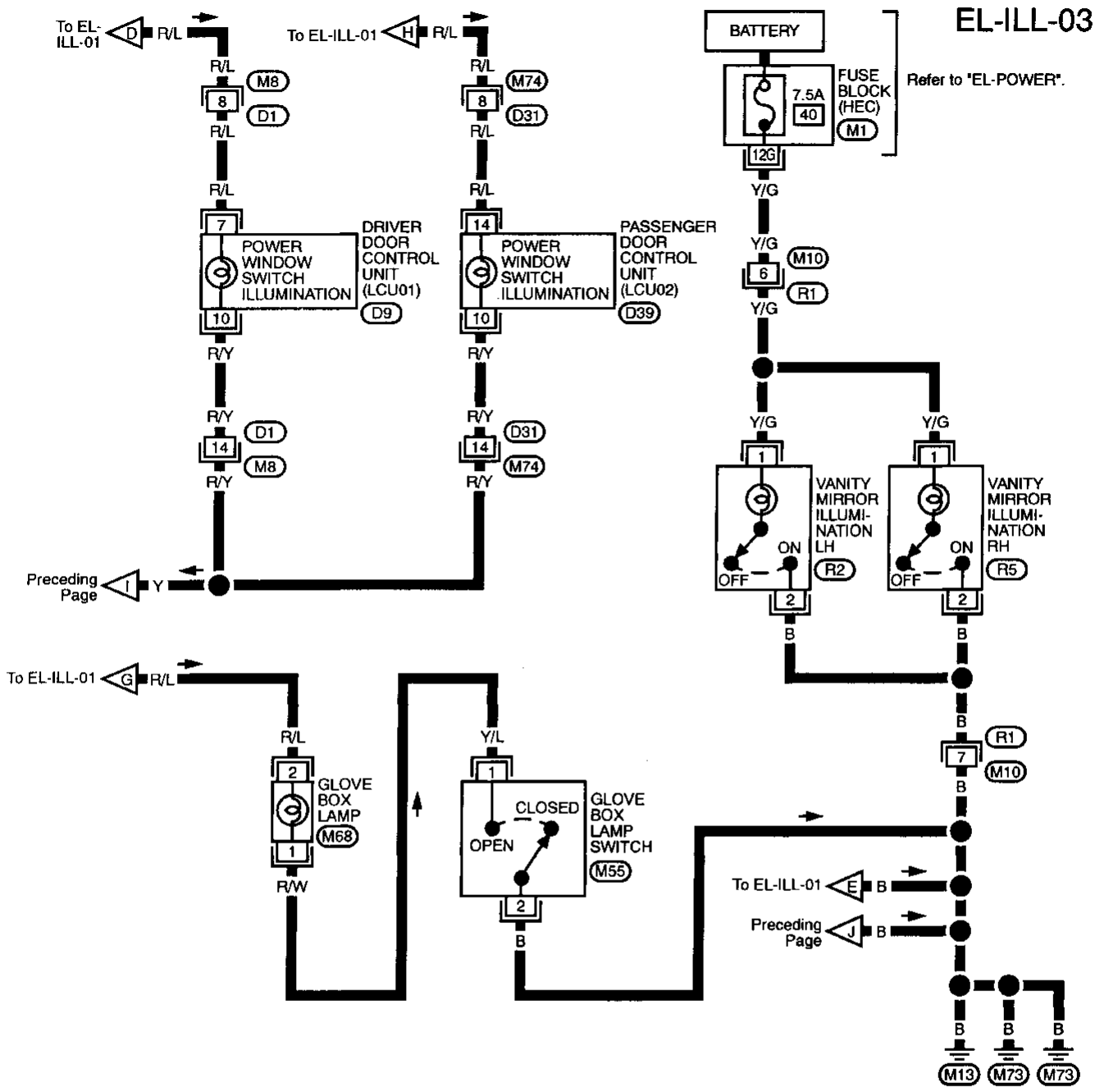


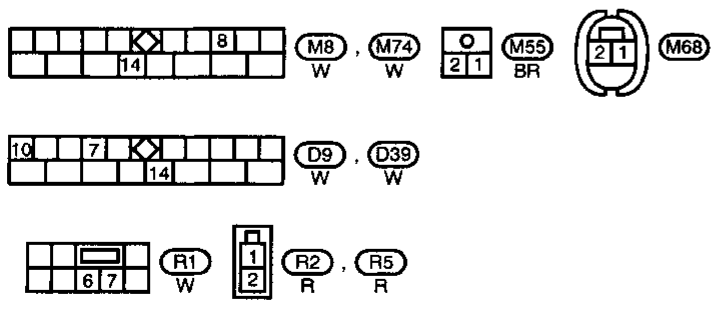


Refer to last page (Foldout page).
M19

MEL403D

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



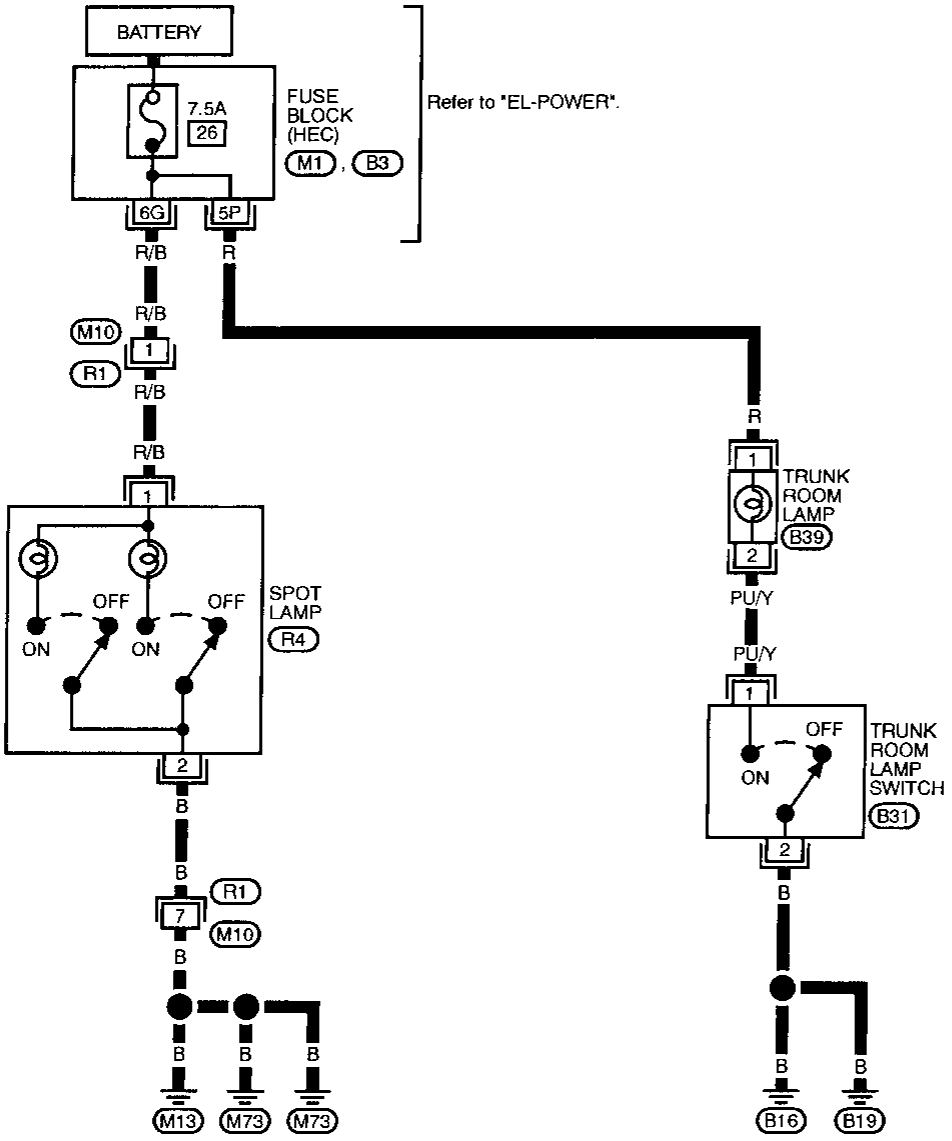


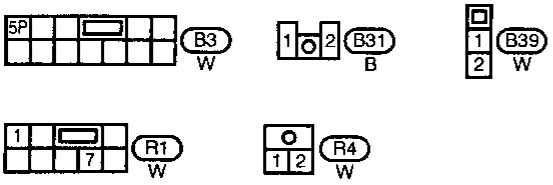
Refer to last page (Foldout page).
M1

MEL404D

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

EL-INT/L-01





Refer to last page (Foldout page).
M1

MEL514D

System Description

With the ignition switch in the ON or START position, power is supplied
- through 10A fuse (No. 13, located in the fuse block in the HEC)
- to combination meter terminal ㊶
- for the tachometer and
- for the fuel gauge and water temperature gauge.

Ground is supplied
- to combination meter terminals ㉛, ⑩ and ㊳
- through body grounds (M13) and (M73).

The reading on the water temperature gauge is based on the resistance change of the thermal transmitter.

A variable ground is supplied to terminal ㊲ of the combination meter for the water temperature gauge.

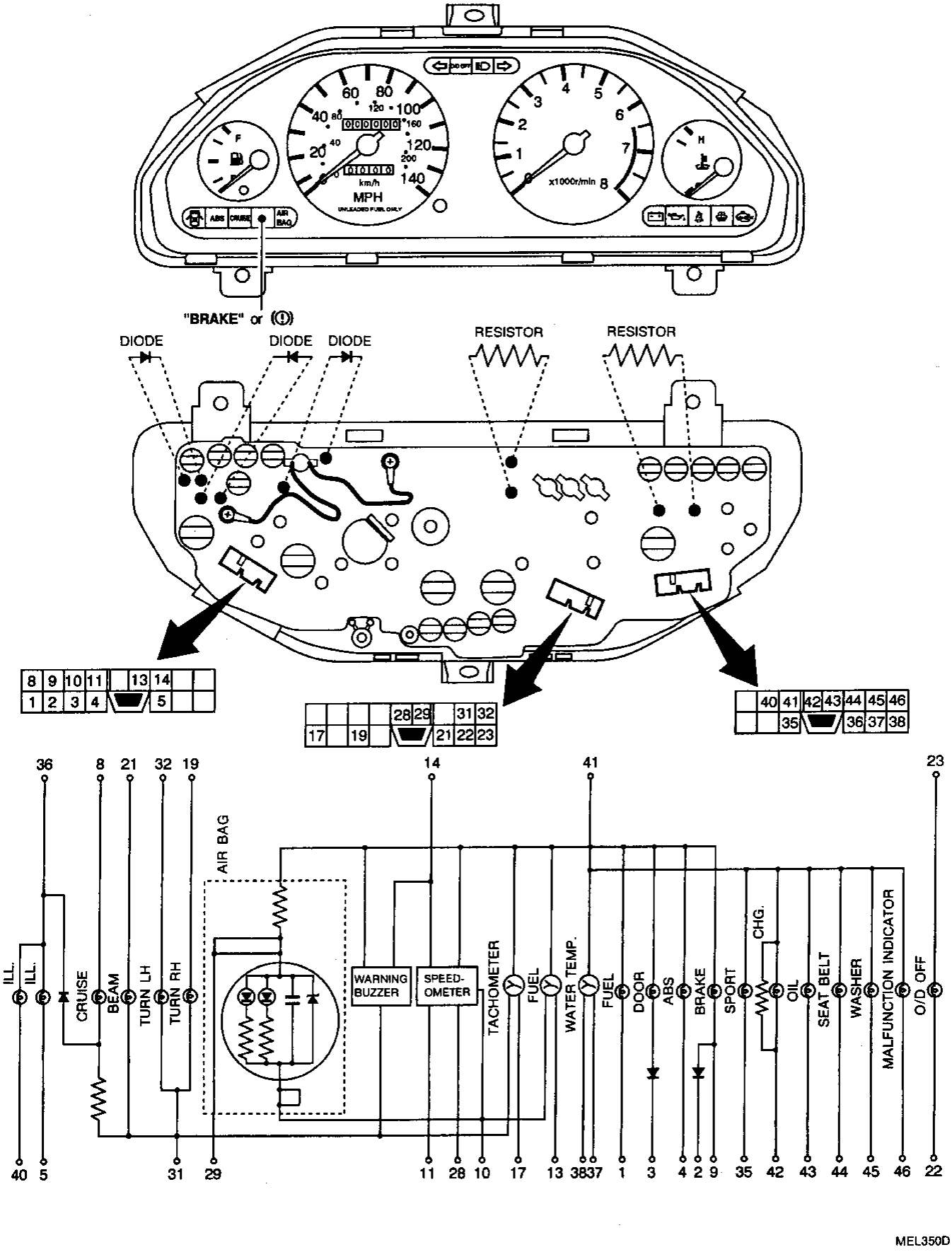
The tachometer is regulated by a signal
- from terminal ⑤ of the ECM (ECCS control module)
- to combination meter terminal ⑰ for the tachometer.

The fuel gauge is regulated by a variable ground signal supplied
- to combination meter terminal ⑬ for the fuel gauge
- from terminal ③ of the fuel tank gauge unit
- through terminal ② of the fuel tank gauge unit and
- through body grounds (F18) and (F19).

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 ⑪ and ㉘ for the speedometer
- from terminals ① and ② of the vehicle speed sensor.

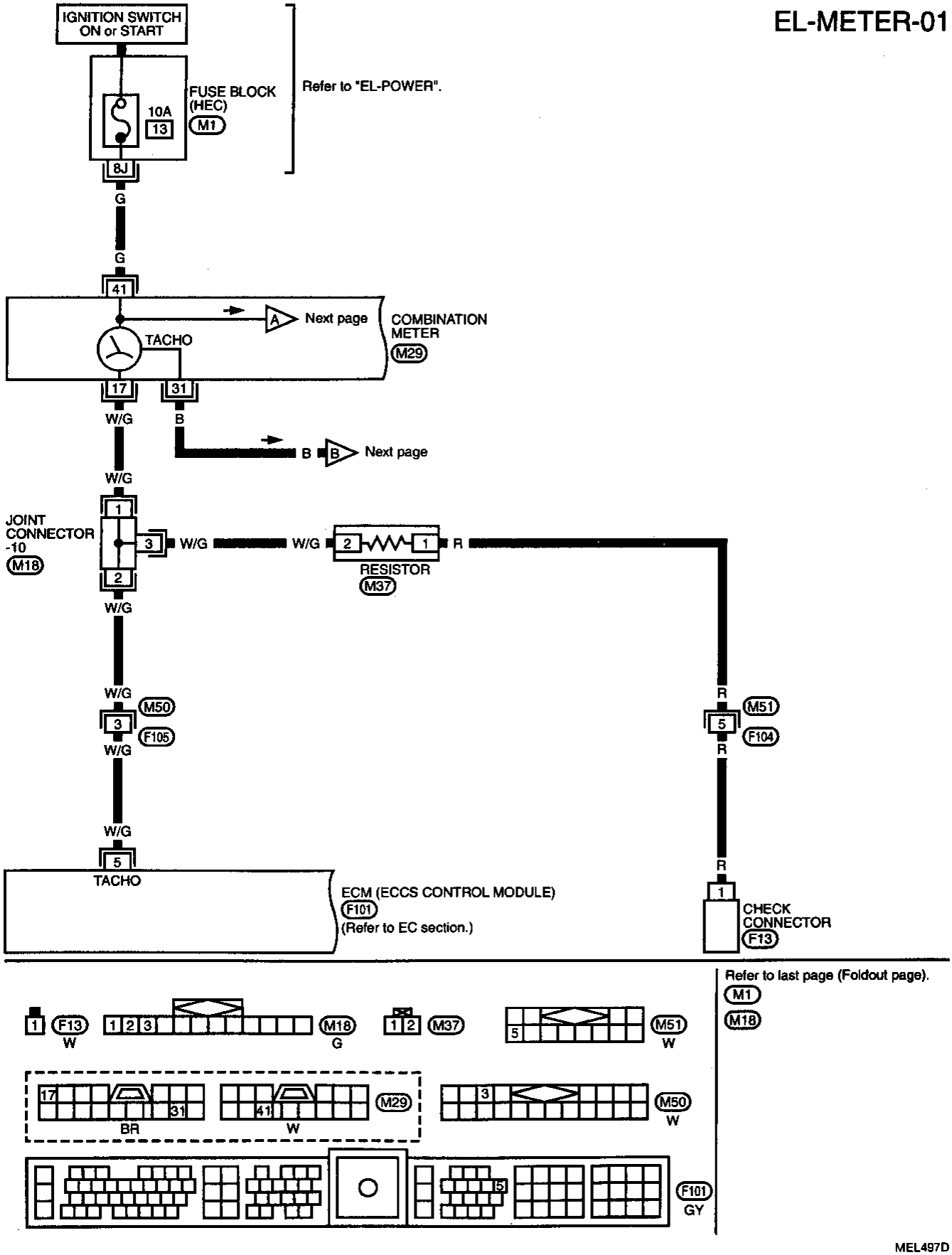
Combination Meter



MEL350D

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

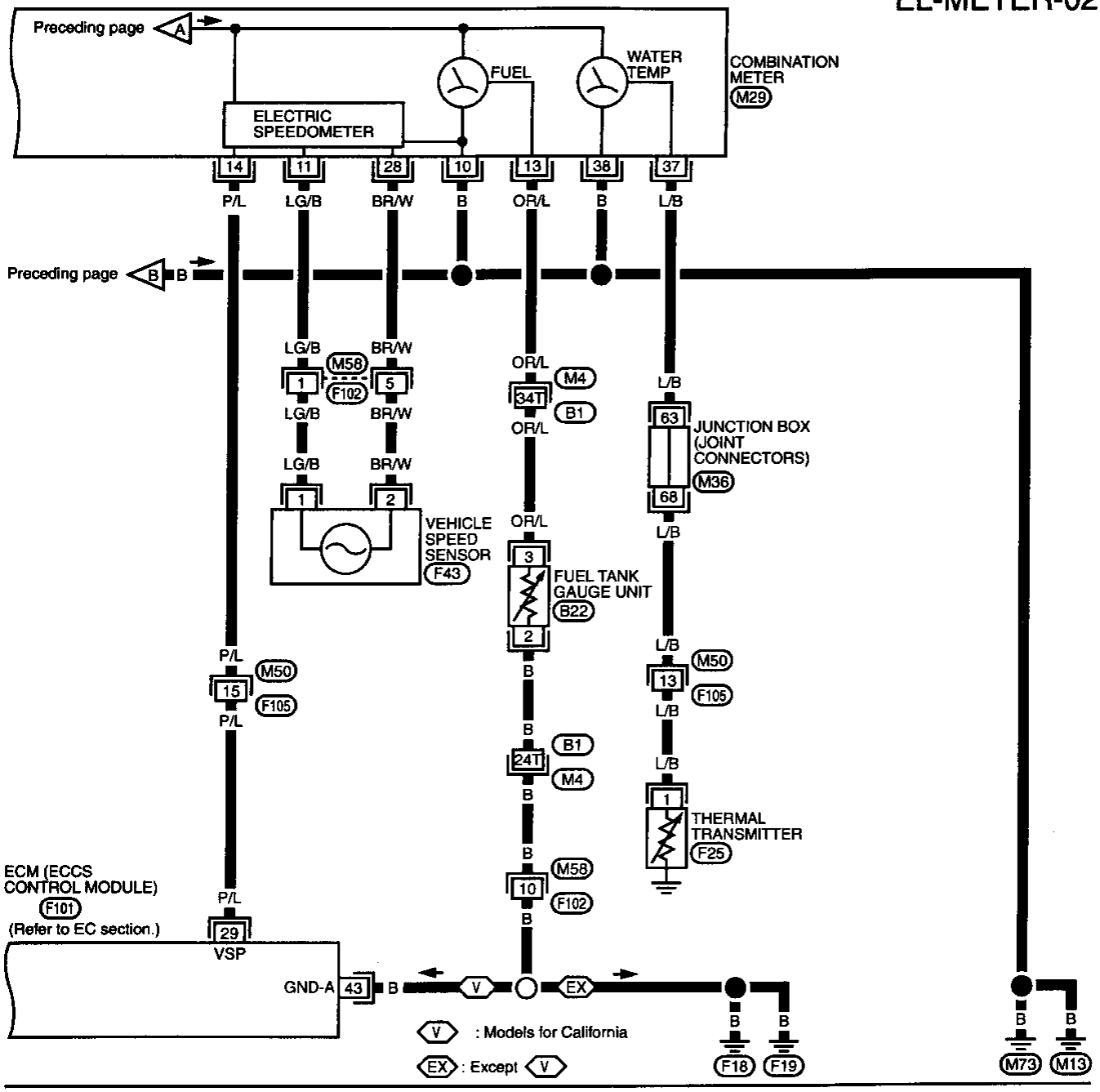
EL-METER-01

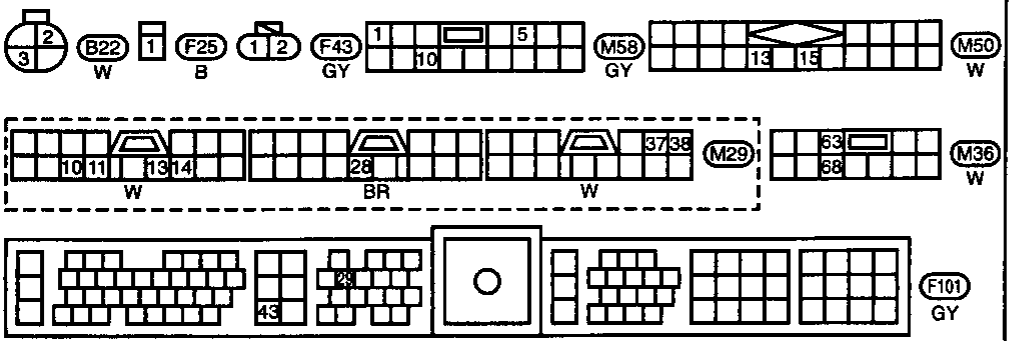


MEL497D

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

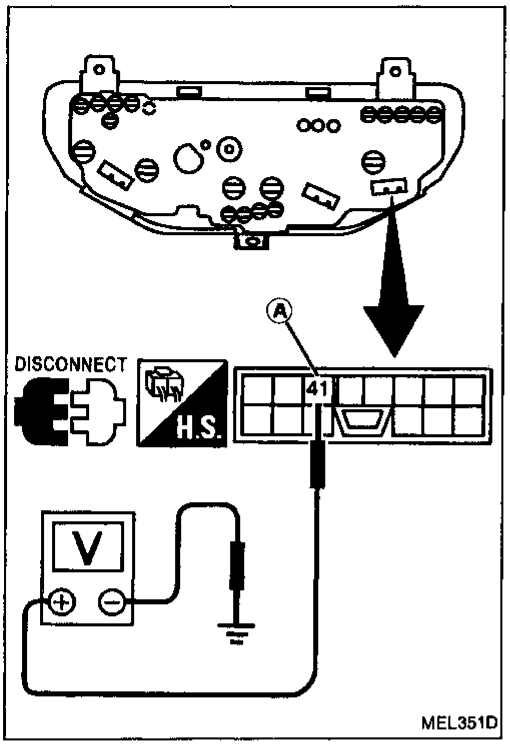
EL-METER-02

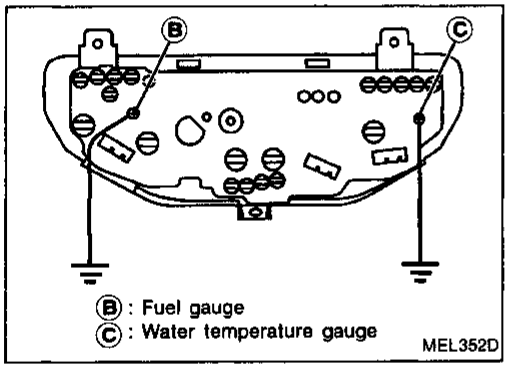


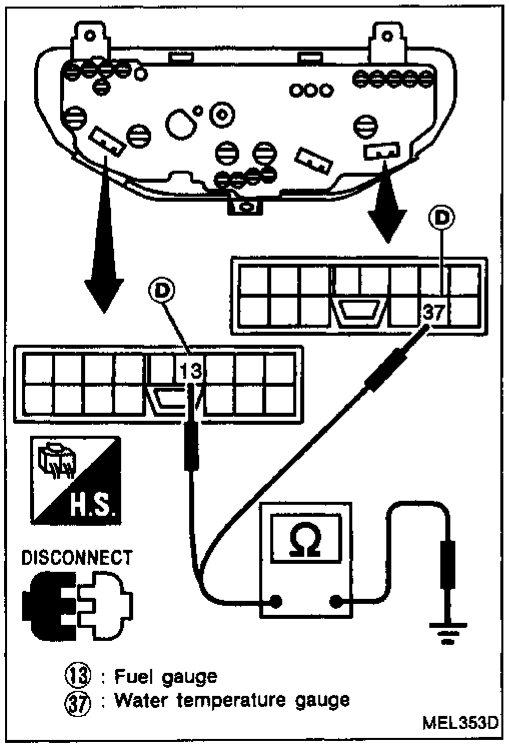


Refer to last page (Foldout page).
M4 , B1
M36

MEL498D







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

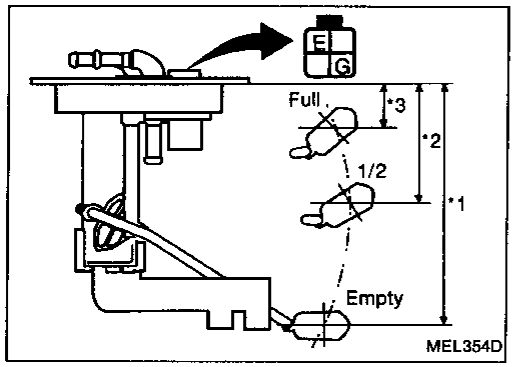
CHECK COMPONENT.
Check gauge units and harness.
Refer to "Fuel Tank Gauge Unit Check" (EL-80), "Thermal Transmitter Check" (EL-80).

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

OK

Reinstall any part removed.

INSPECTION END



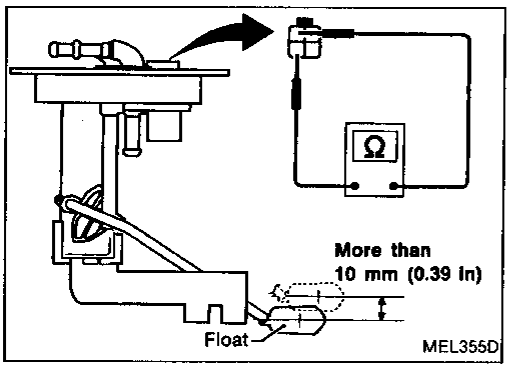
Fuel Tank Gauge Unit Check

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

Check the resistance between terminals Ⓖ and Ⓔ.

Ohmmeter (+)	Ohmmeter (−)	Float position		mm (in)	Resistance value (Ω)
G	E	*3	Full	33 (1.30)	Approx. 5 - 8
		*2	1/2	91 (3.58)	32 - 35
		*1	Empty	159 (6.26)	80 - 83

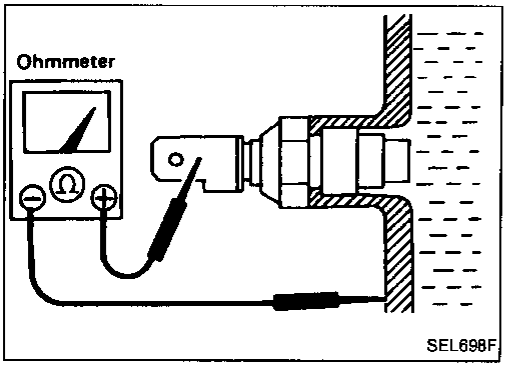
*1 and *3: When float rod is in contact with stopper.



Fuel Warning Lamp Sensor Check

- Raise the float with fingers more than the distance shown in the figure at left. Make sure that continuity does not exist.

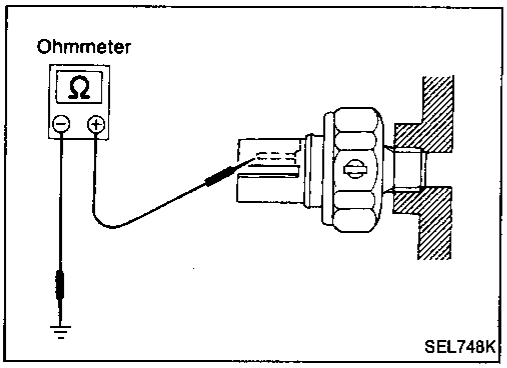
CAUTION:
Do not move the float beyond its mobile range.



Thermal Transmitter Check

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

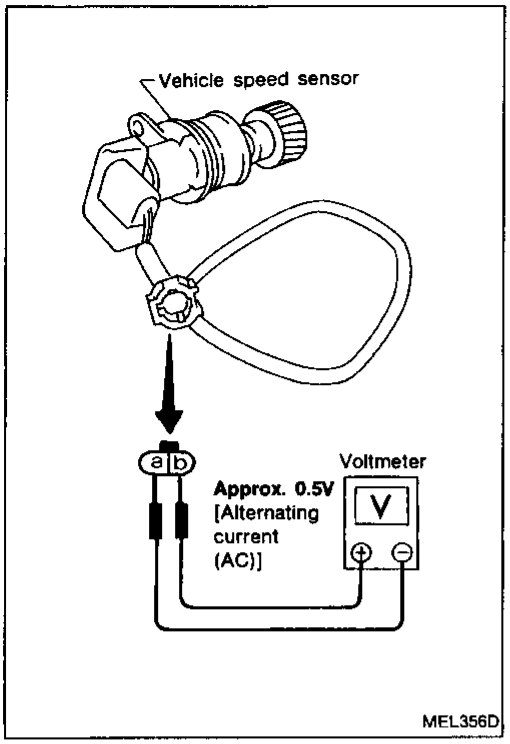
Water temperature	Resistance
60°C (140°F)	Approx. 70 - 90Ω
100°C (212°F)	Approx. 21 - 24Ω



Oil Pressure Switch Check

	Oil pressure kPa (kg/cm², psi)	Continuity
Engine start	More than 10 - 20 (0.1 - 0.2, 1 - 3)	NO
Engine stop	Less than 10 - 20 (0.1 - 0.2, 1 - 3)	YES

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

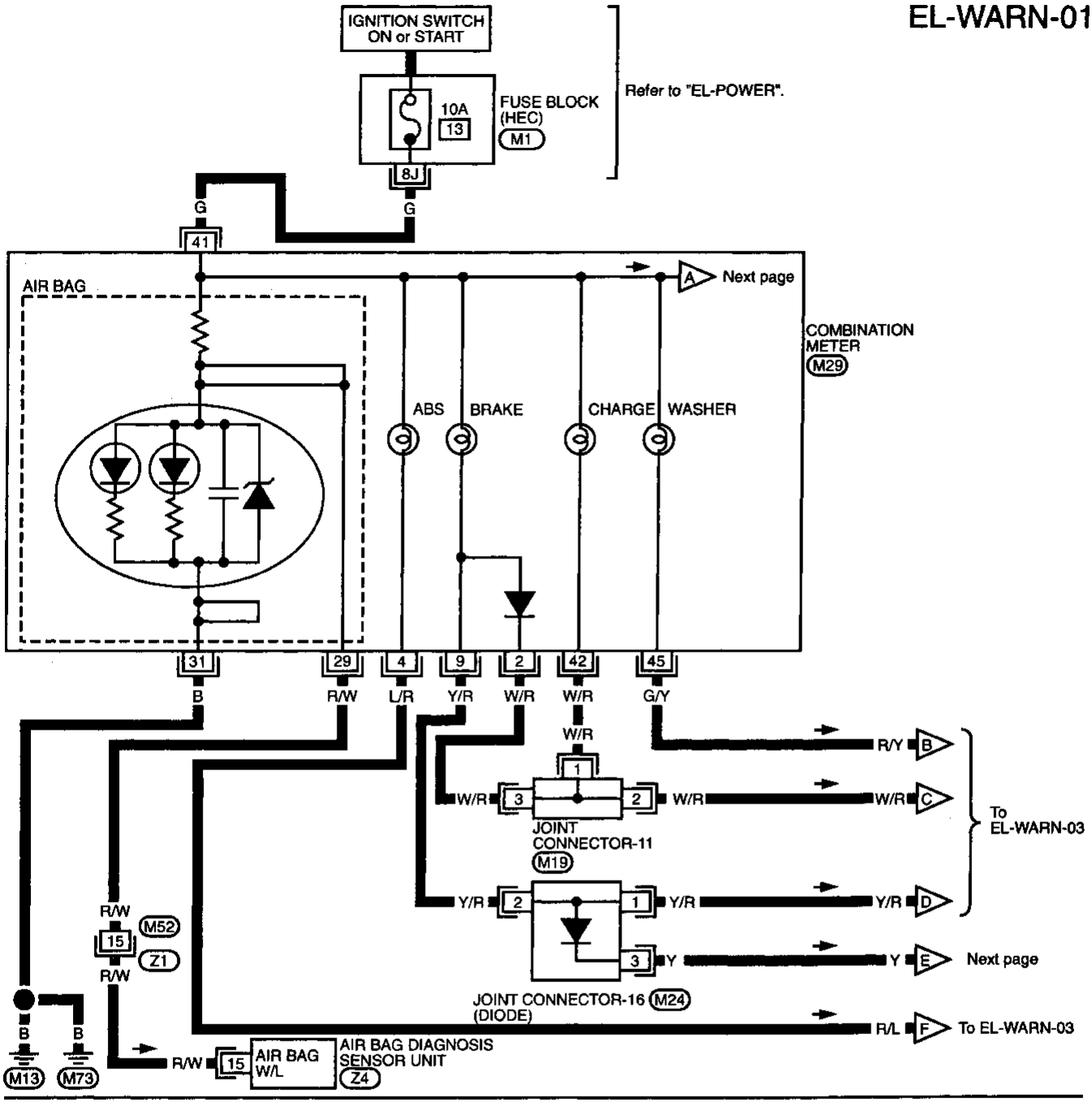


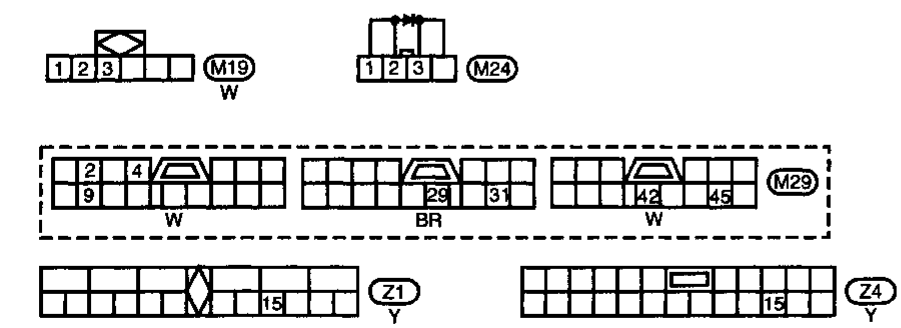
Vehicle Speed Sensor Signal Check

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

Wiring Diagram — WARN —

EL-WARN-01



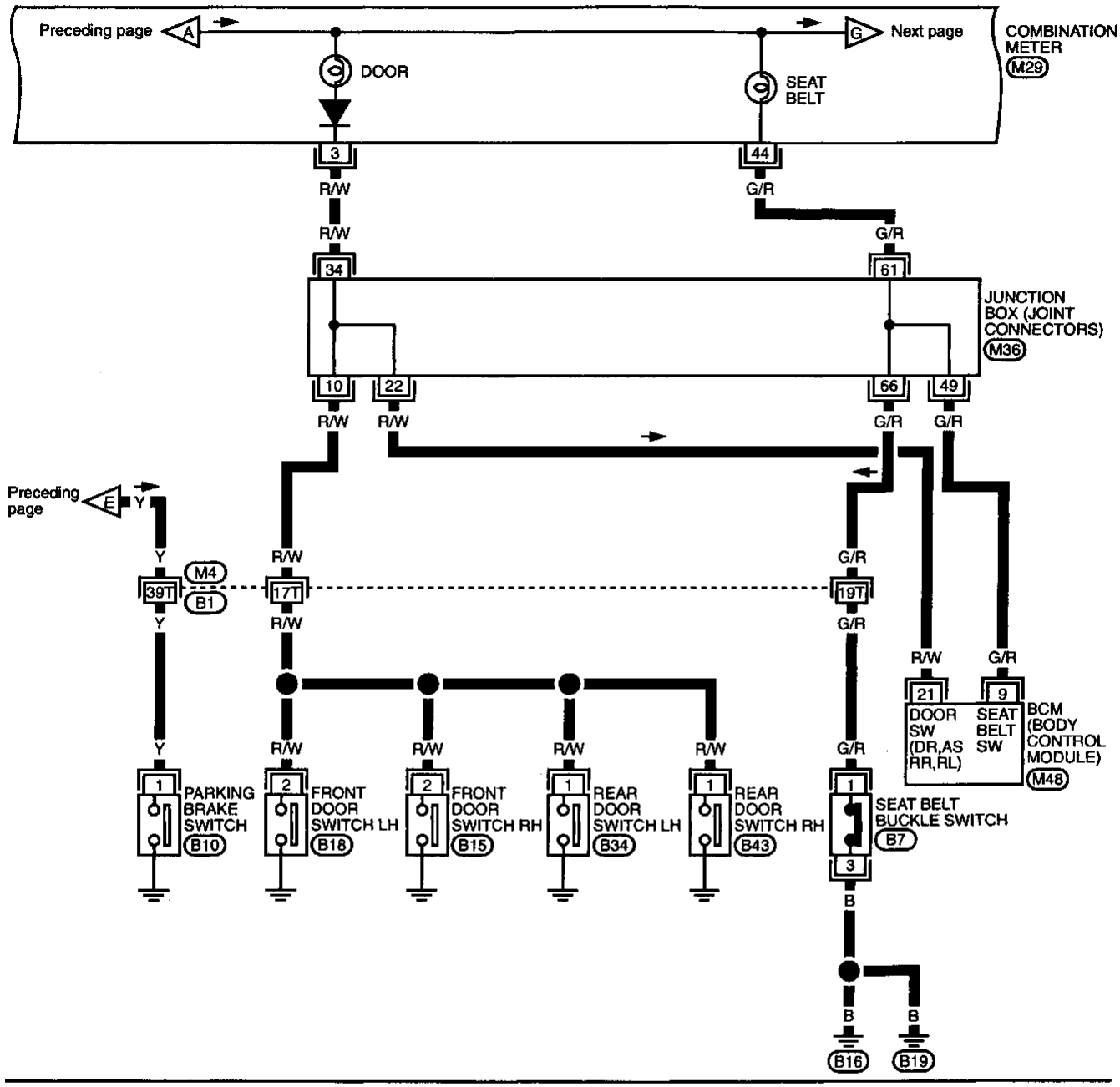


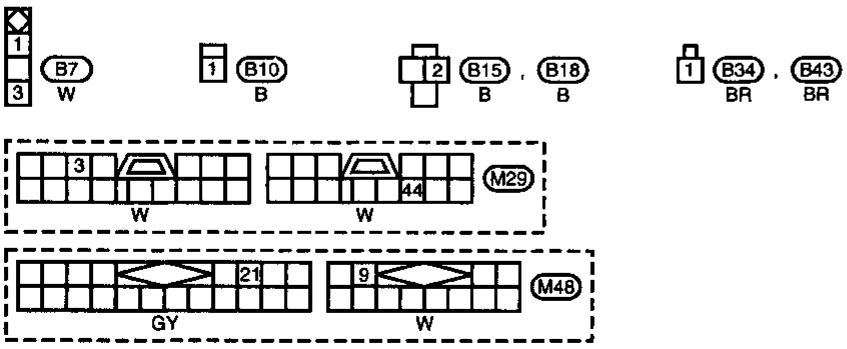
Refer to last page (Foldout page).
M1
M19

MEL471D

Wiring Diagram — WARN — (Cont'd)

EL-WARN-02



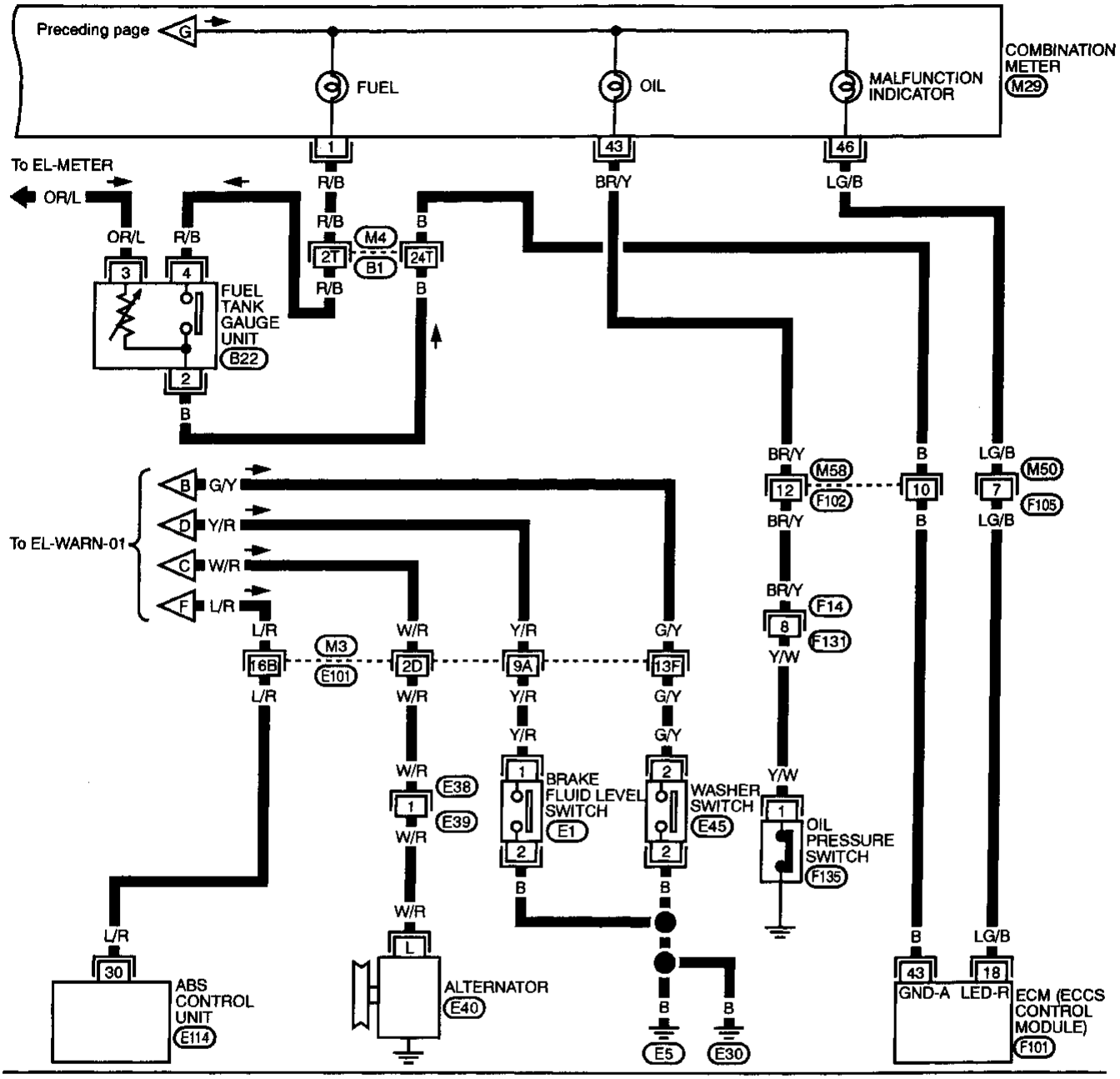


Refer to last page (Foldout page).
M4 , B1
M36

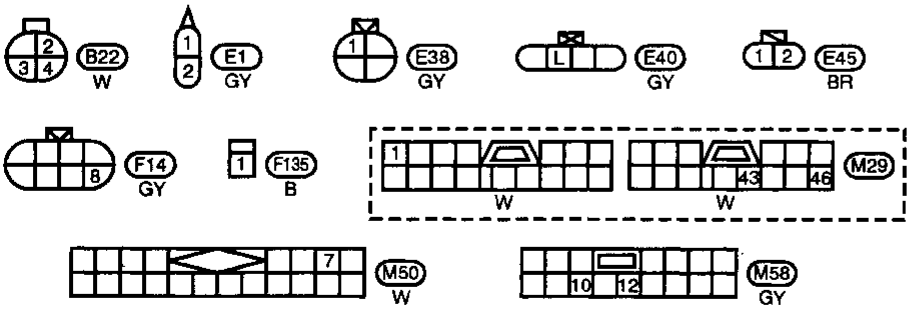
MEL472D

Wiring Diagram — WARN — (Cont'd)

EL-WARN-03

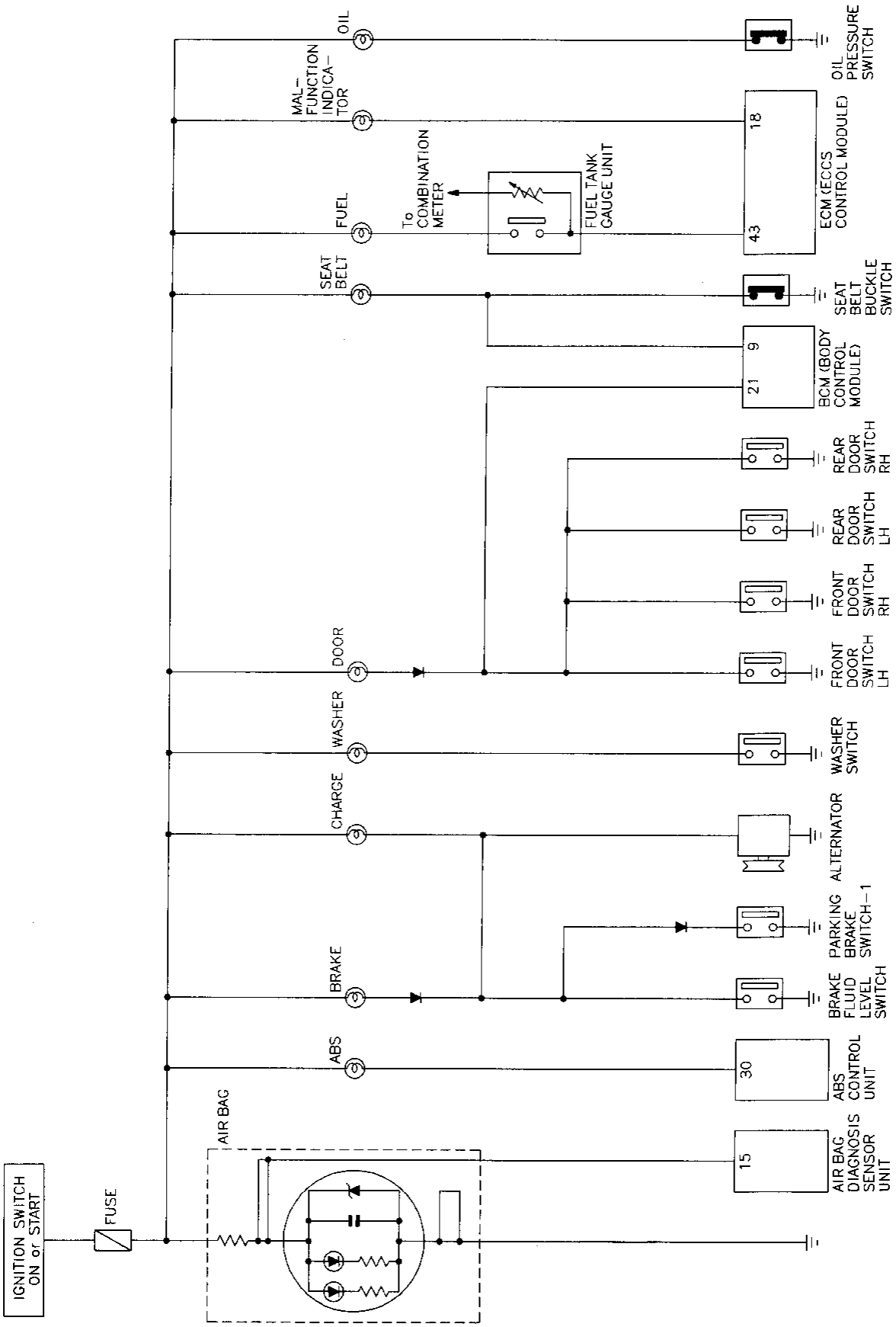


Refer to last page (Foldout page).
M3 , E101
M4 , B1
E114
F101

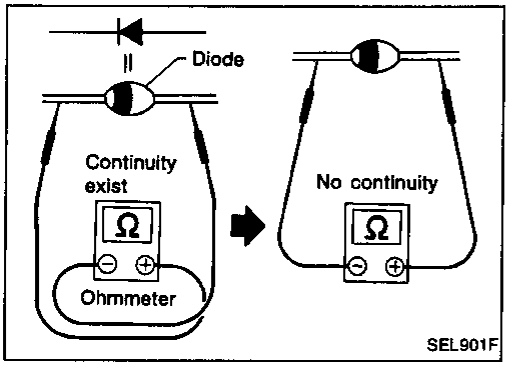


MEL473D

Schematic



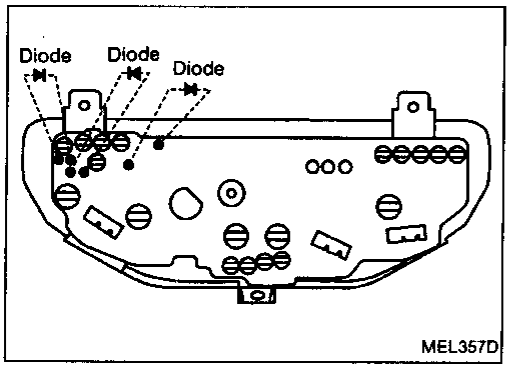
MEL474D



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-76).

System Description

WIPER OPERATION

With the ignition switch in the ACC or ON position, power is supplied
- through 20A fuse (No. 20, located in the fuse block in the HEC)
- to front wiper motor terminal ④.

Low and high speed wiper operation

Ground is supplied to front wiper switch terminal ⑰ through body grounds (E5) and (E30).
When the front wiper switch is placed in the LO position, ground is supplied
- through terminal ⑭ of the front wiper switch
- to front wiper motor terminal ②.

With power and ground supplied, the front wiper motor operates at low speed.
When the front wiper switch is placed in the HI position, ground is supplied
- through terminal ⑯ of the front wiper switch
- to front wiper motor terminal ③.

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

Auto stop operation

When the front wiper switch is placed in the OFF position, the front wiper motor will continue to operate until the wiper arms reach the base of the windshield (Auto stop).
When the front wiper switch is placed in the OFF position, ground is supplied
- from terminal ⑭ of the front wiper switch
- to front wiper motor terminal ②, in order to continue front wiper motor operation at low speed.

Ground is also supplied until the wiper arms reaches the base of the windshield
- through terminal ⑬ of the front wiper switch
- to wiper relay terminal ③
- through terminal ④ of the wiper relay
- to front wiper motor terminal ⑤
- through terminal ⑥ of the front wiper motor, and
- through body grounds (M13) and (M73).

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

Intermittent operation

Intermittent operation is controlled by the BCM.
When the front wiper switch is placed in the INT position, ground is supplied
- to BCM terminal ㉕
- from front wiper switch terminal ⑮
- through body grounds (E5) and (E30).

The desired interval time is input
- to BCM terminal ⑰
- from front wiper switch terminal ⑲.

Based on these two inputs, an intermittent ground is supplied
- to front wiper relay terminal ③
- from BCM terminal ⑩.

With power and ground supplied, the front wiper relay is activated.
When activated, an intermittent ground is supplied
- to front wiper motor terminal ②
- through the front wiper switch terminal ⑭
- to front wiper switch terminal ⑬
- through front wiper relay terminal ③
- to front wiper relay terminal ⑤
- through body grounds (E5) and (E30).

Front wiper motor operates at desired low speeds with BCM terminal ㉕ grounded.

WASHER OPERATION

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

System Description (Cont'd)

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

- to washer motor terminal ②, and
- to BCM terminal ㉖
- from terminal ⑱ of the front wiper switch
- through terminal ⑰ of the front wiper switch, and
- through body grounds (E5) and (E30).

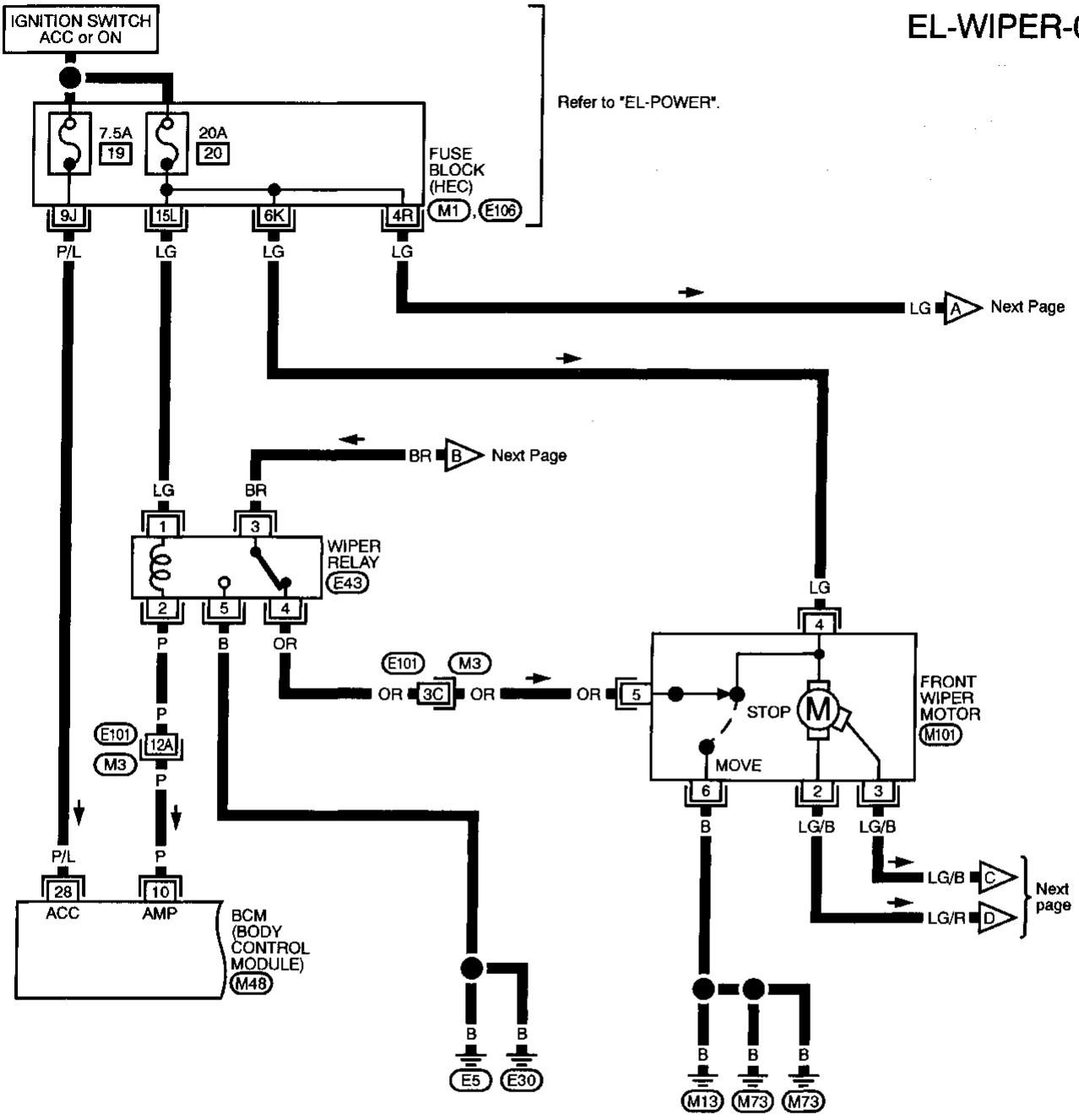
With power and ground supplied, the washer motor operates.

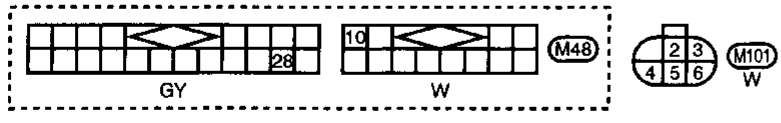
The front wiper motor operates at low speed for about 3 seconds. This feature is controlled by the BCM in the same manner as the intermittent operation.

For further information, refer to "TIME CONTROL SYSTEM" (EL-218).

Front Wiper and Washer/Wiring Diagram
— WIPER —

EL-WIPER-01



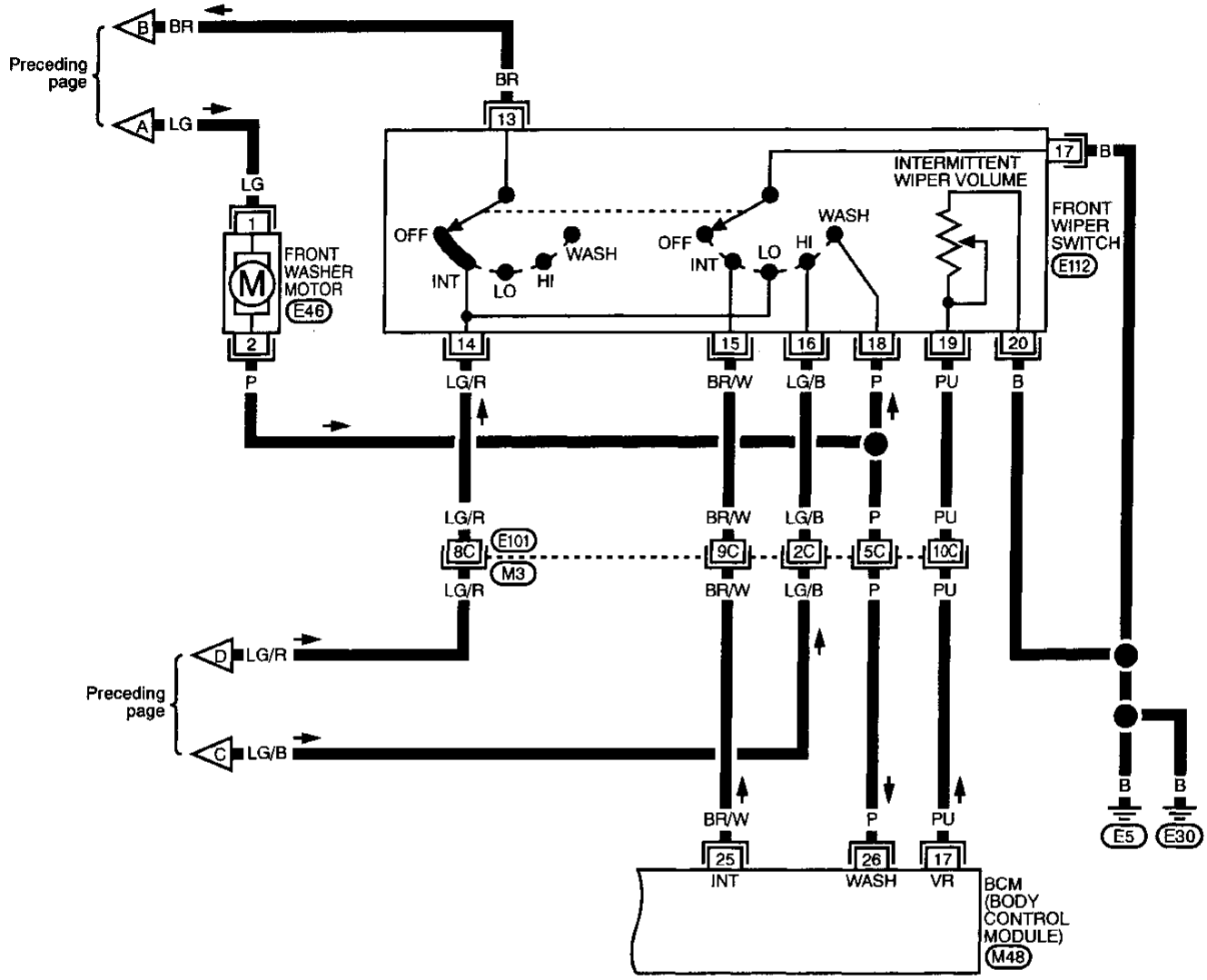


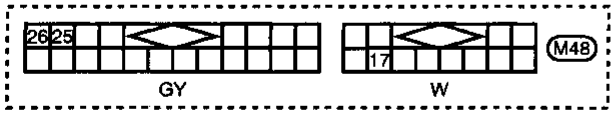
Refer to last page (Foldout page).
M3 , E101
M1

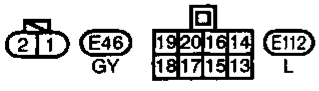
MEL400D

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

EL-WIPER-02







Refer to last page (Foldout page).
M3 , E101

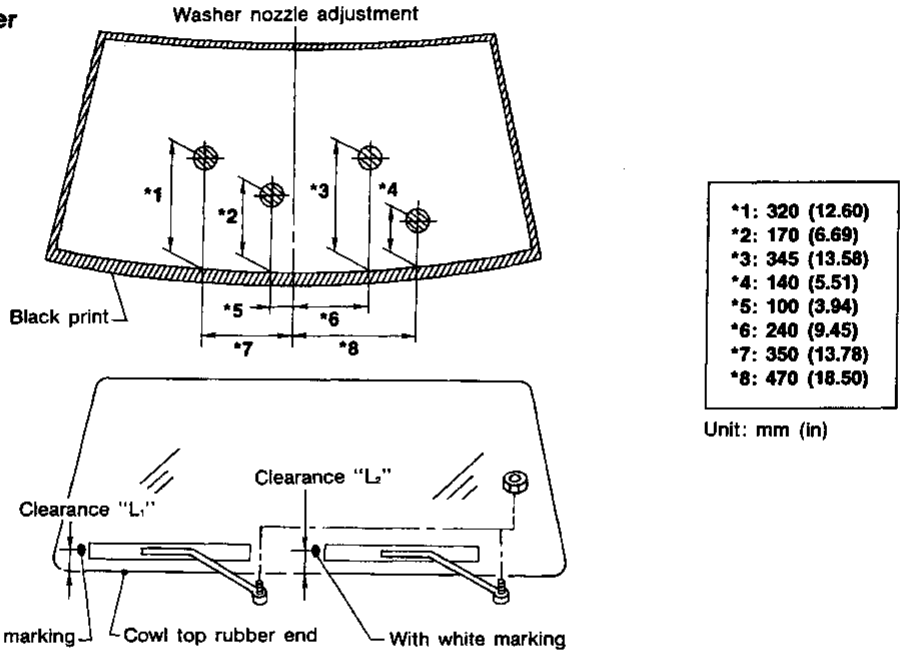
MEL401D

Installation

1. Turn on wiper switch to operate wiper motor and then turn it "OFF" (Auto Stop).
2. Lift the blade up and then set it down onto glass surface. Set the blade center to clearance "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": 32 - 48 mm (1.26 - 1.89 in)
   Clearance "L_2": 47 - 57 mm (1.85 - 2.24 in)

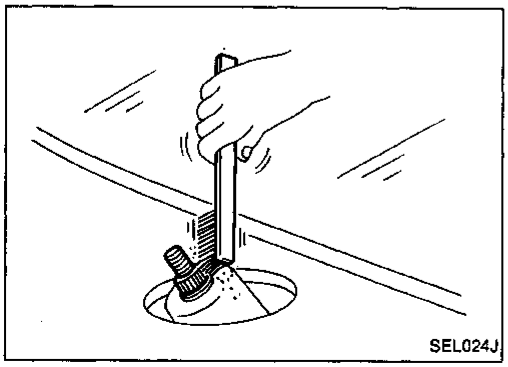
- Tighten windshield wiper arm nuts to specified torque.
  Windshield wiper:
  21 - 26 N·m (2.1 - 2.7 kg-m, 15 - 20 ft-lb)

Windshield wiper and washer



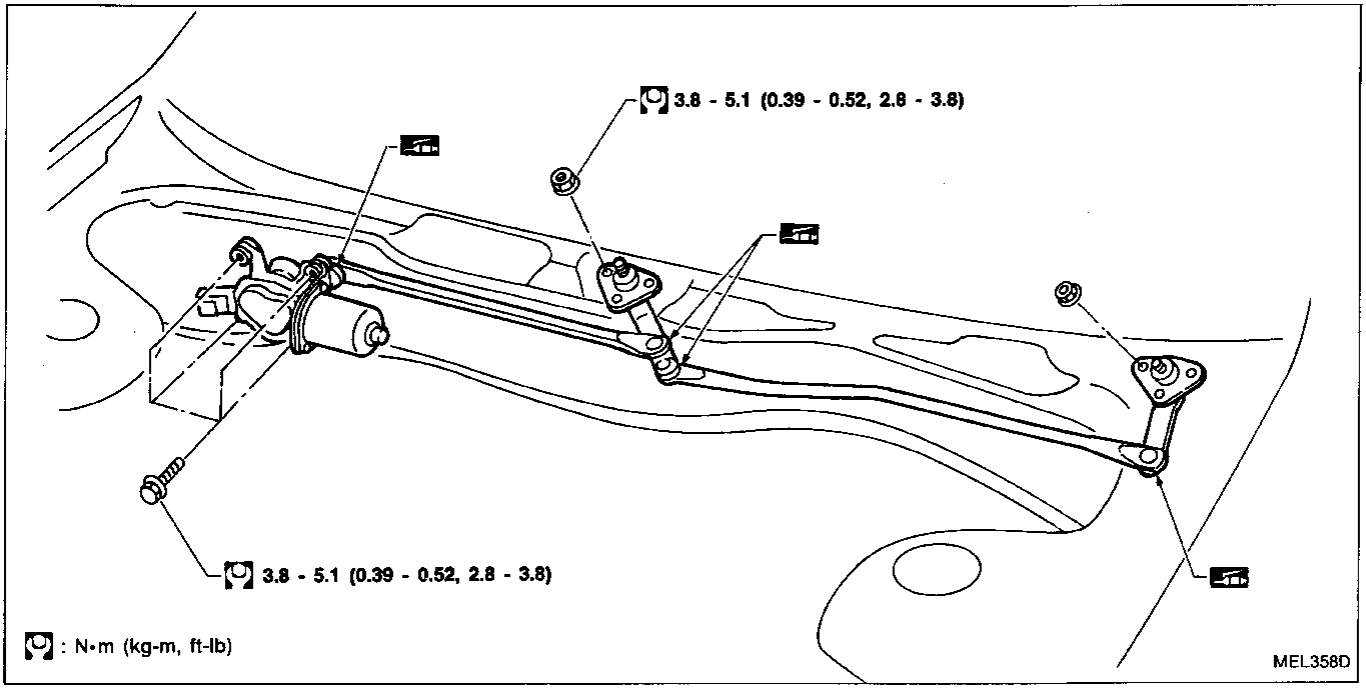
*1:	320 (12.60)
*2:	170 (6.69)
*3:	345 (13.58)
*4:	140 (5.51)
*5:	100 (3.94)
*6:	240 (9.45)
*7:	350 (13.78)
*8:	470 (18.50)

Unit: mm (in)



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

Wiper Linkage



REMOVAL

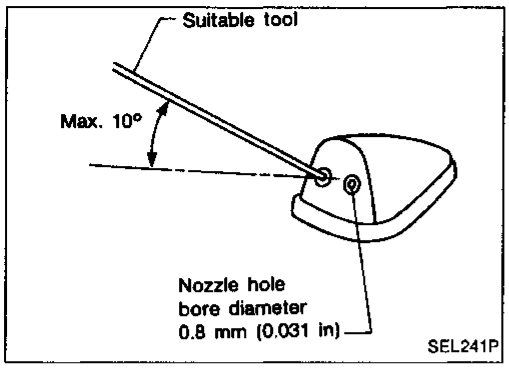
1. Remove 4 bolts that secure wiper motor.
2. Detach wiper motor from wiper linkage at ball joint.
3. Remove wiper linkage.

Be careful not to break ball joint rubber boot.

INSTALLATION

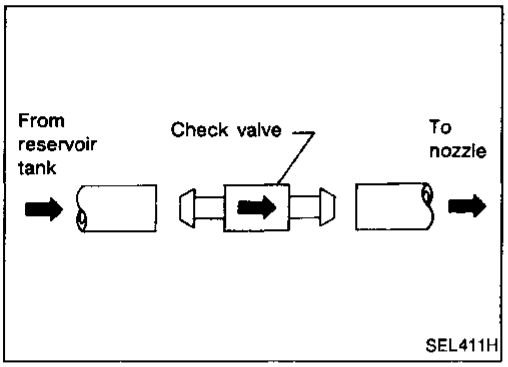
- Grease ball joint portion before installation.

Installation is in reverse order of removal.



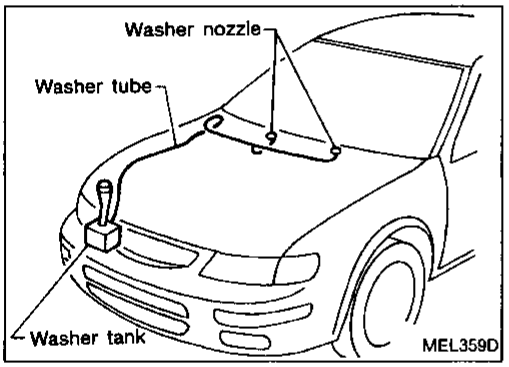
Washer Nozzle Adjustment

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



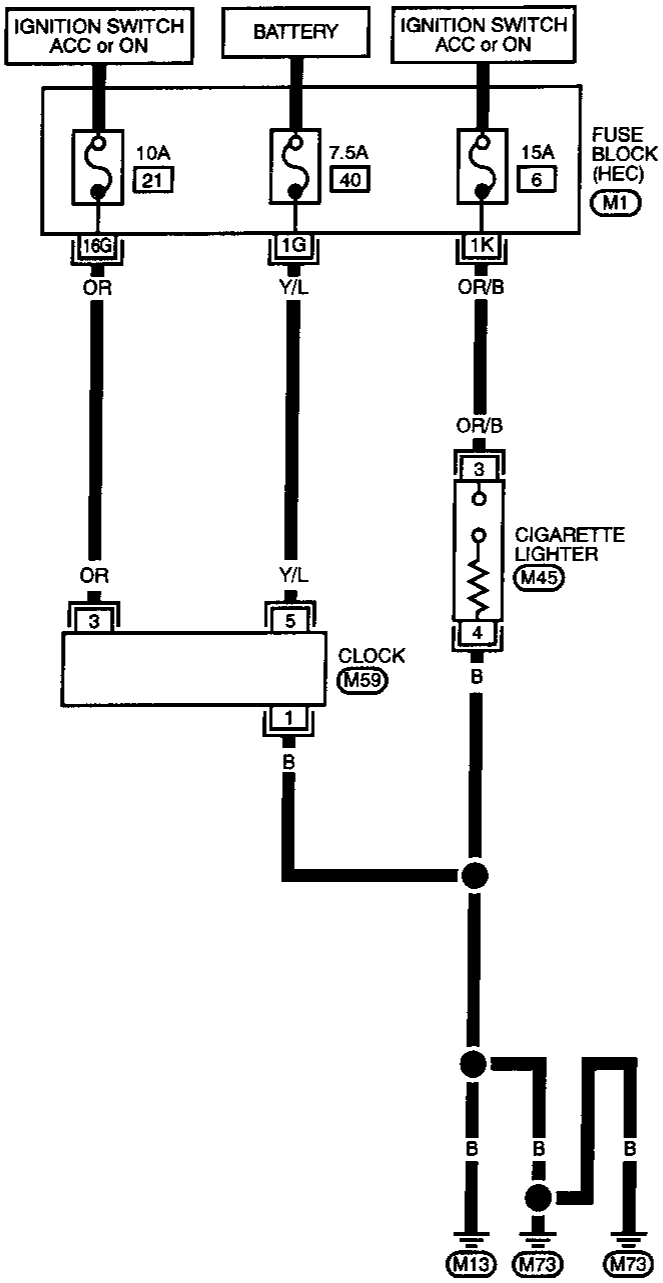
Check Valve

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



Wiring Diagram — HORN —

EL-HORN-01

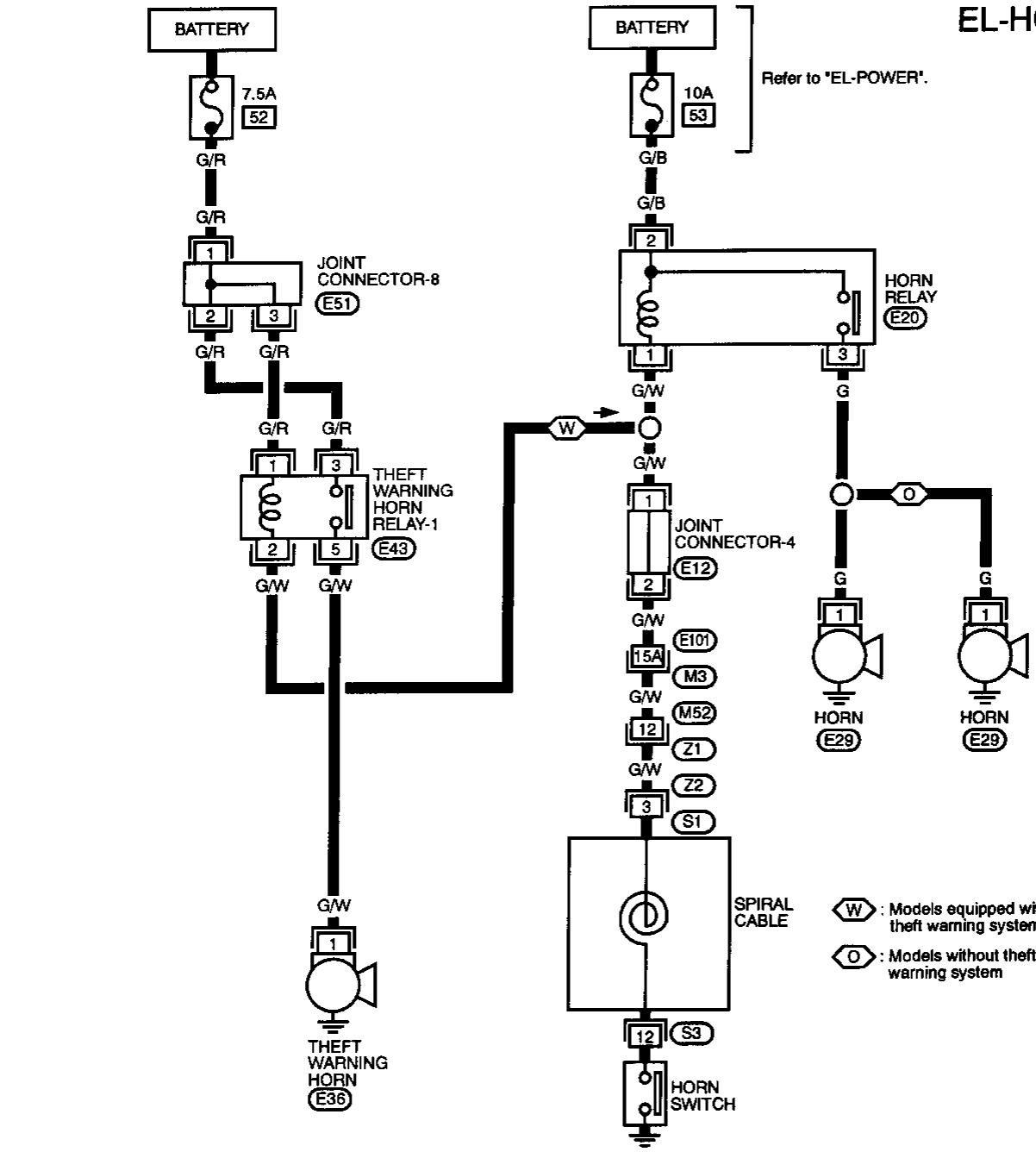


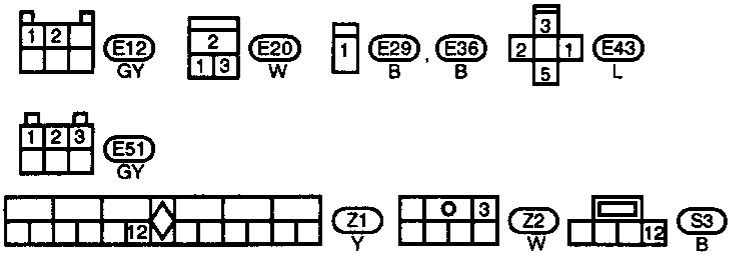
Refer to last page (Foldout page).
M1

MEL504D

Wiring Diagram — HORN — (Cont'd)

EL-HORN-02

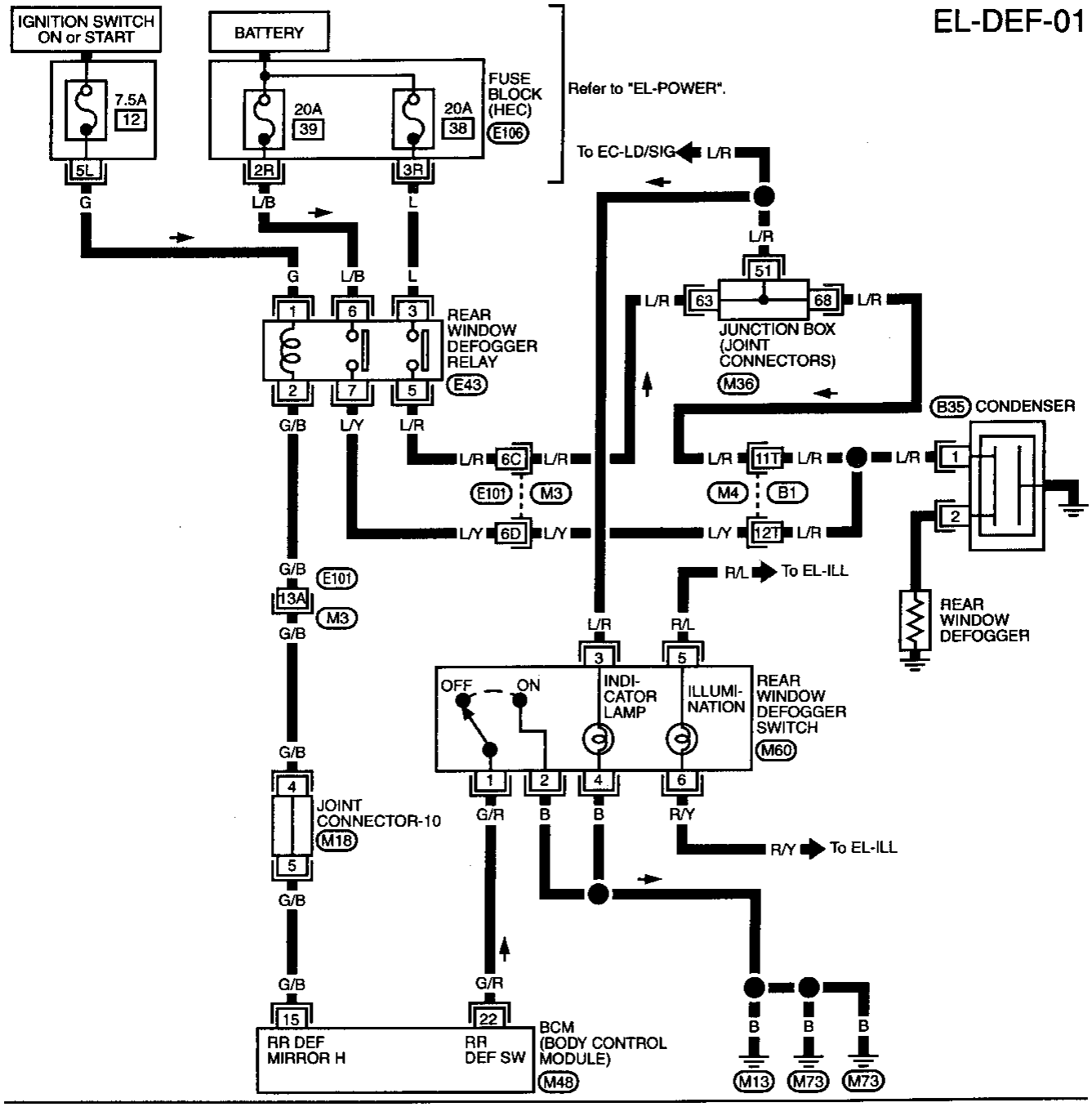




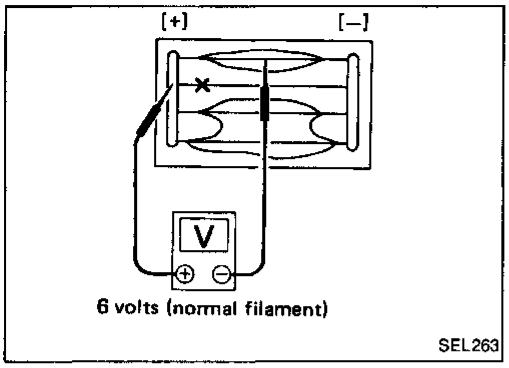
Refer to last page (Foldout page).
M3, E101
E12
E51

MEL505D

Wiring Diagram — DEF —

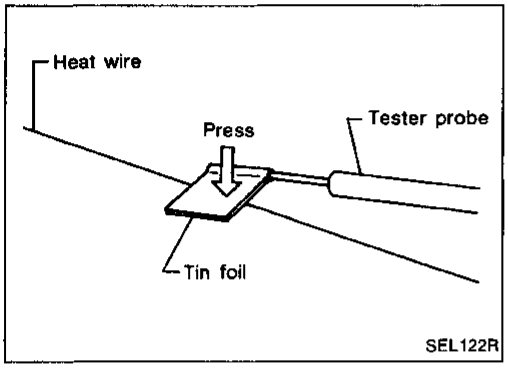


MEL513D

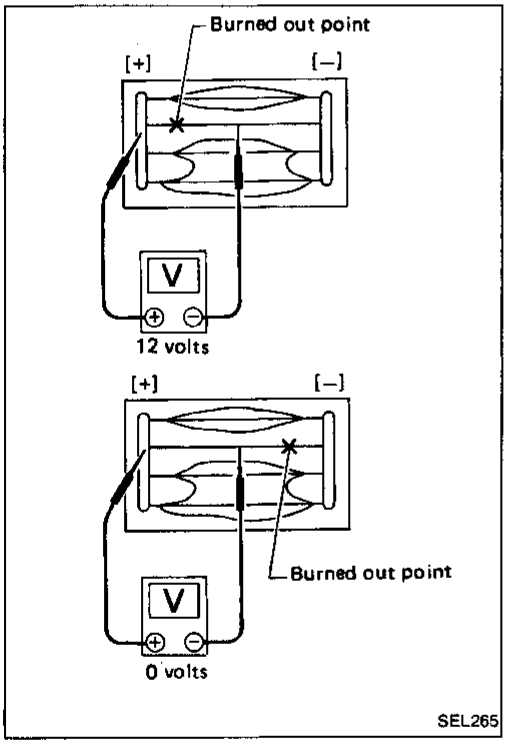


Filament Check

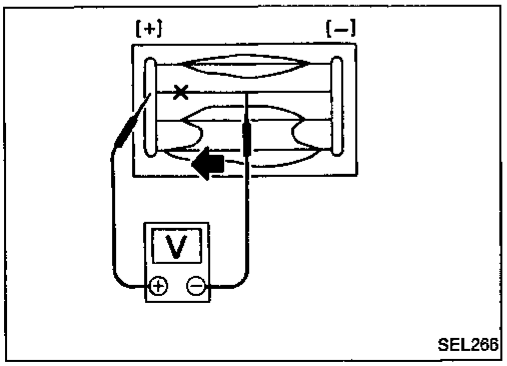
1. Attach probe circuit tester (in volt range) to middle portion of each filament.



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



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

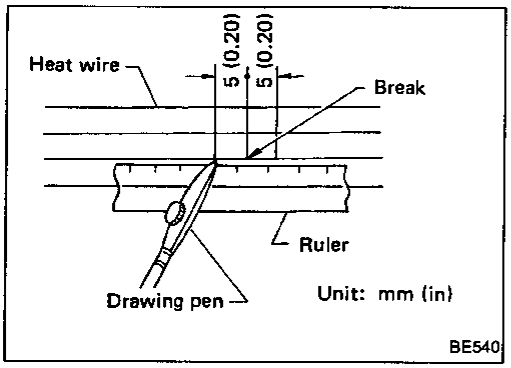


3. To locate burned out point, move probe along filament. Tester needle will swing abruptly when probe passes the point.

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



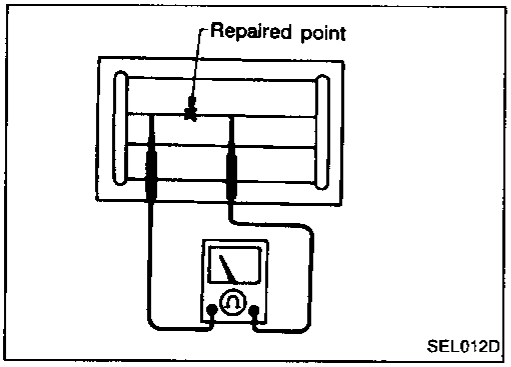
REPAIRING PROCEDURE

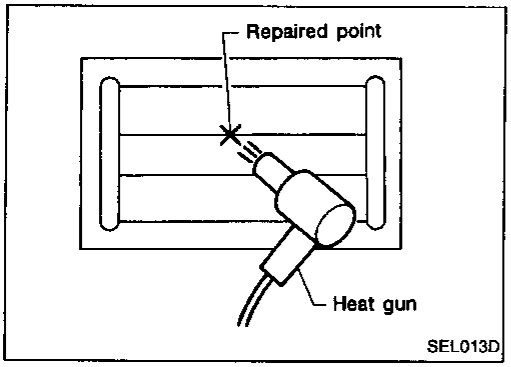
1. Wipe broken heat wire and its surrounding area clean with a cloth dampened in alcohol.
2. Apply a small amount of conductive silver composition to tip of drawing pen.

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. 40, located in the fuse block in the HEC)
- to radio and CD player terminal ⑥.

With the ignition switch in the ACC or ON position, power is supplied
- through 10A fuse (No. 21, located in the fuse block in the HEC)
- 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 (M13) and (M73) through audio amp. relay terminals ① and ②.
Power is supplied at all times
- through 15A fuse (No. 22, located in the fuse block in the HEC)
- to front door speaker LH terminal ⑤
- to front door speaker RH terminal ⑤ and
- to rear speaker LH terminal ③ and RH terminal ③.

When the radio POWER button is pressed, audio signals are supplied
- through radio and CD player terminals ①, ②, ③, ④, ⑬, ⑭, ⑮ and ⑯
- to terminals ③ and ⑥ of the LH and RH front speakers and terminals ② and ④ of the LH and RH rear speakers
- to LH and RH tweeters through terminals ① and ② of the front and rear speakers.

EXCEPT BOSE SYSTEM

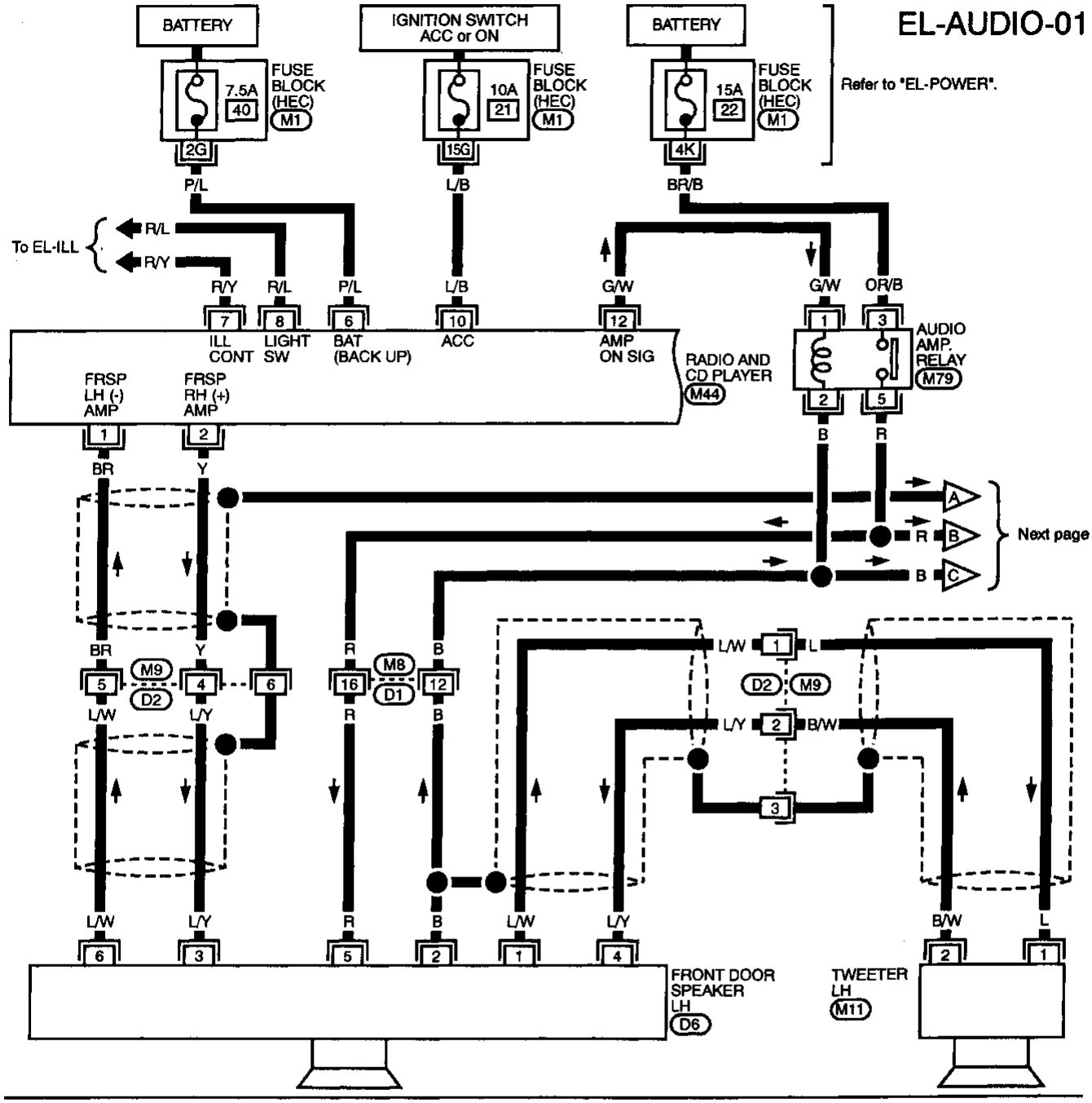
Power is supplied at all times
- through 7.5A fuse (No. 40, located in the fuse block in the HEC)
- to radio and cassette player terminal ⑥.

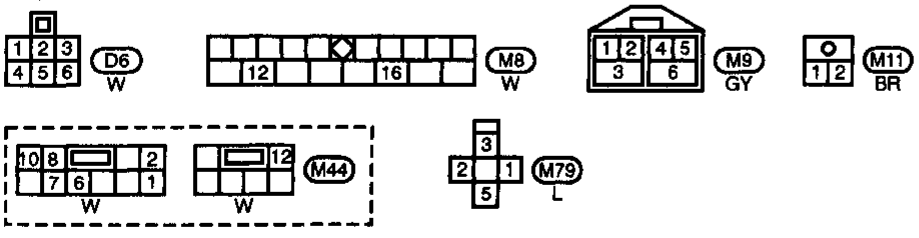
With the ignition switch in the ACC or ON position, power is supplied
- through 10A fuse (No. 21, located in the fuse block in the HEC)
- to radio and cassette player terminal ⑩.

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

Audio/Wiring Diagram — AUDIO —

BOSE SYSTEM

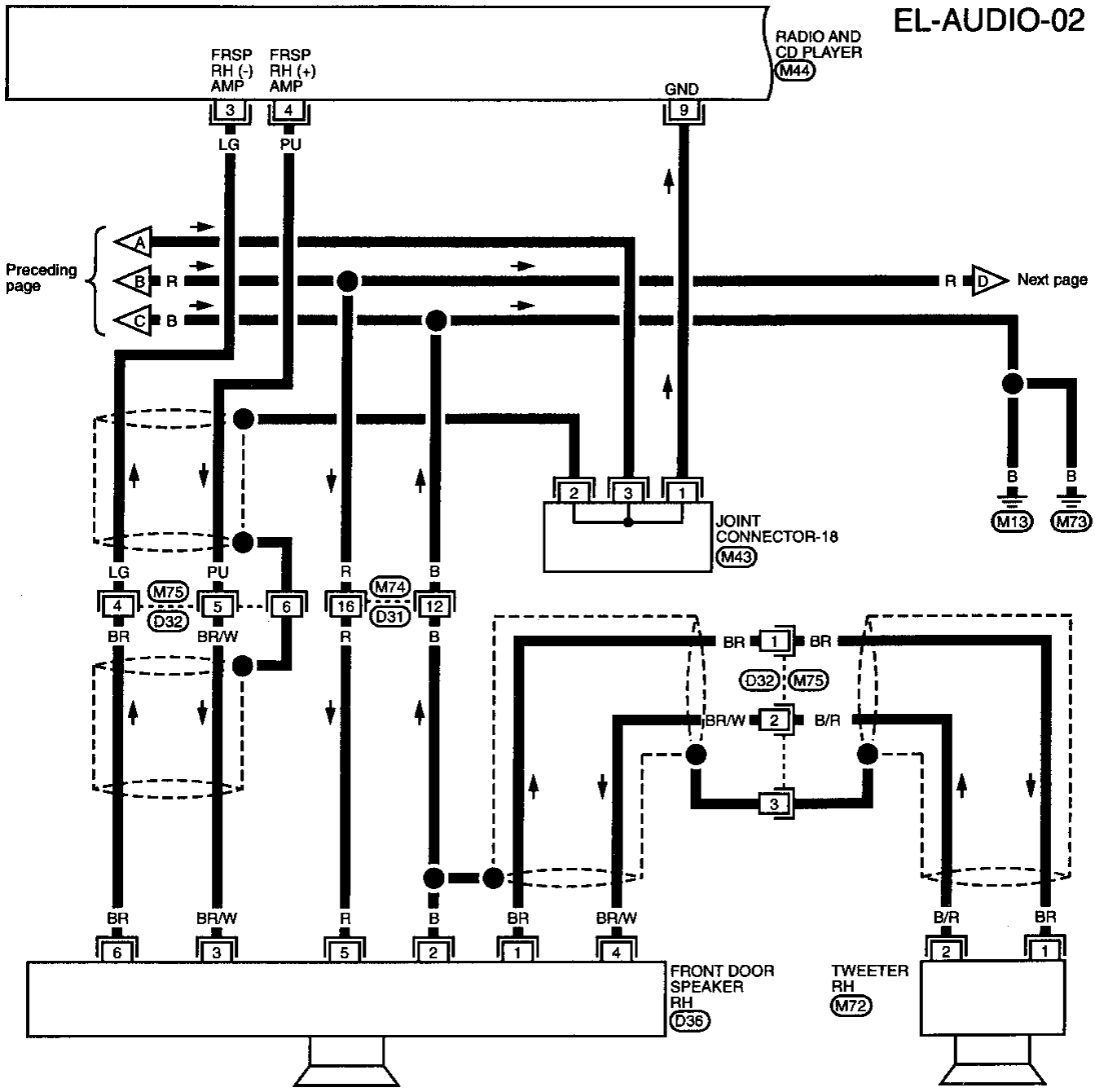


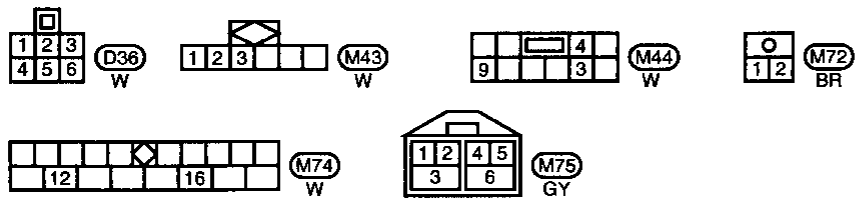


Refer to last page (Foldout page). M1

MEL484D

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



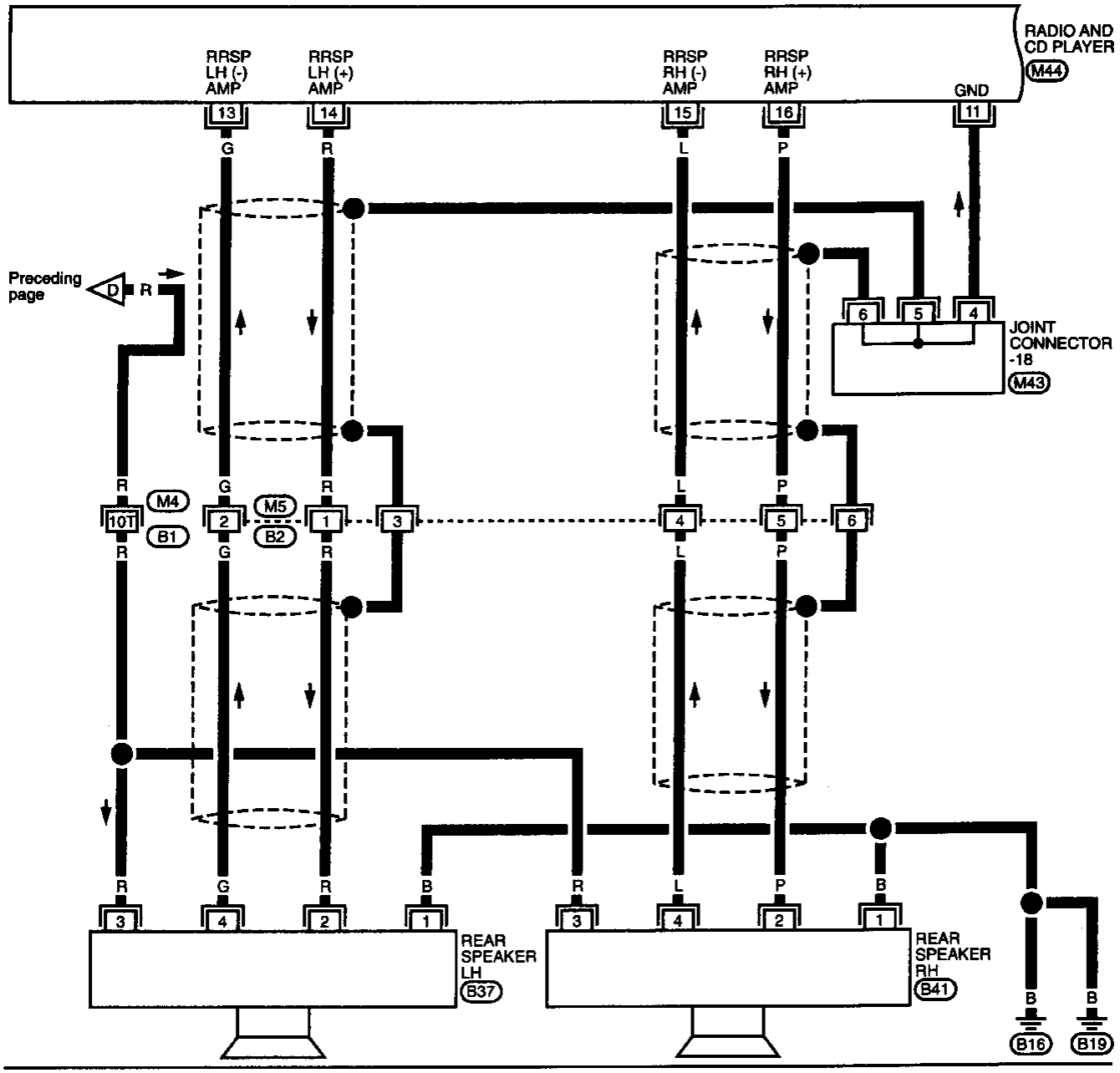


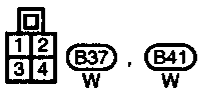
Refer to last page (Foldout page).
M43

MEL485D

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

EL-AUDIO-03





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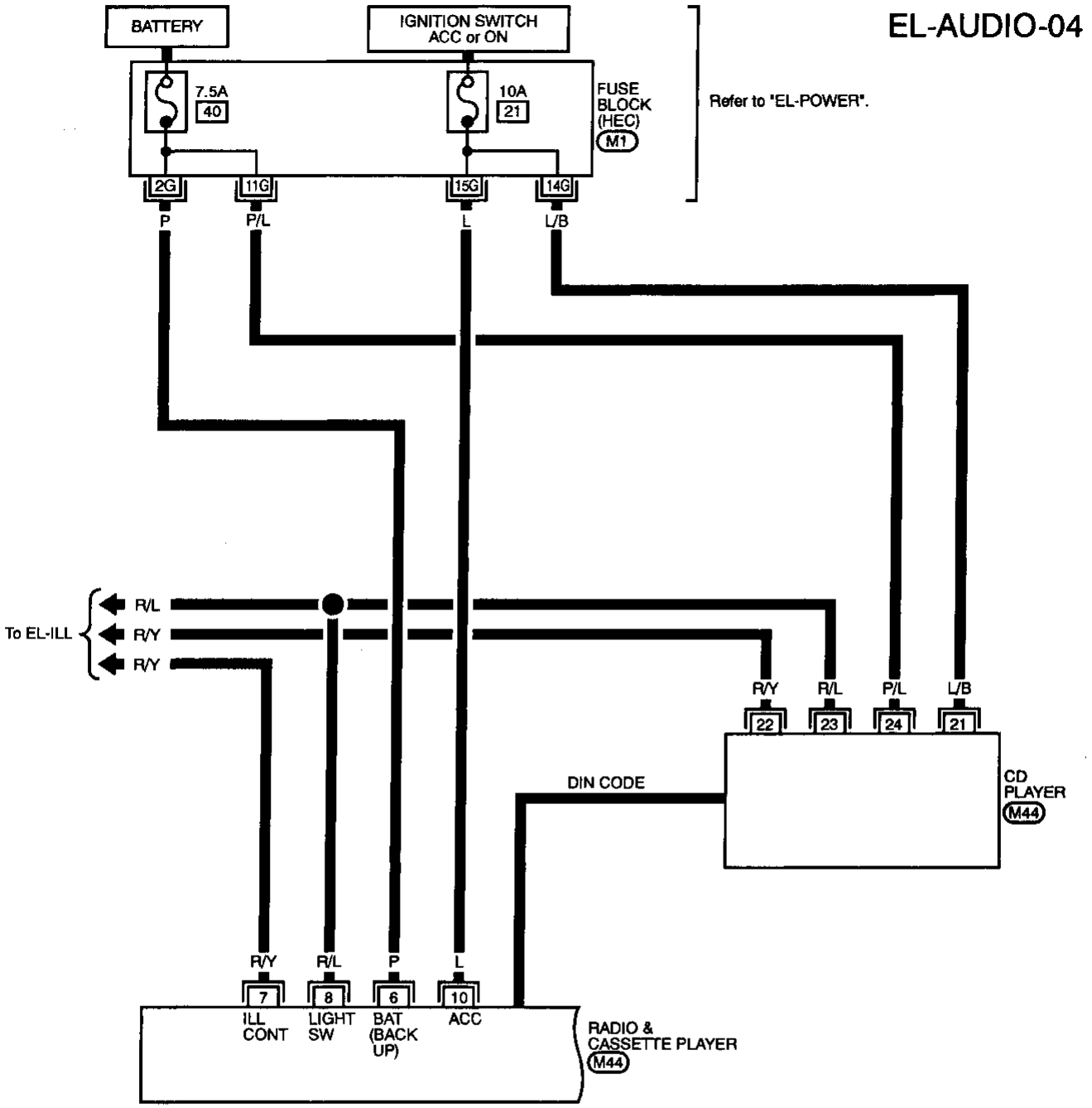
B1 , M4

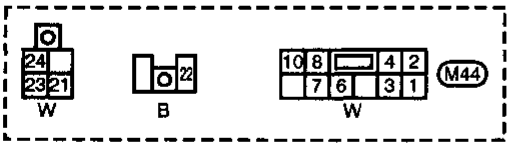
M43

MEL486D

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

EXCEPT FOR BOSE SYSTEM



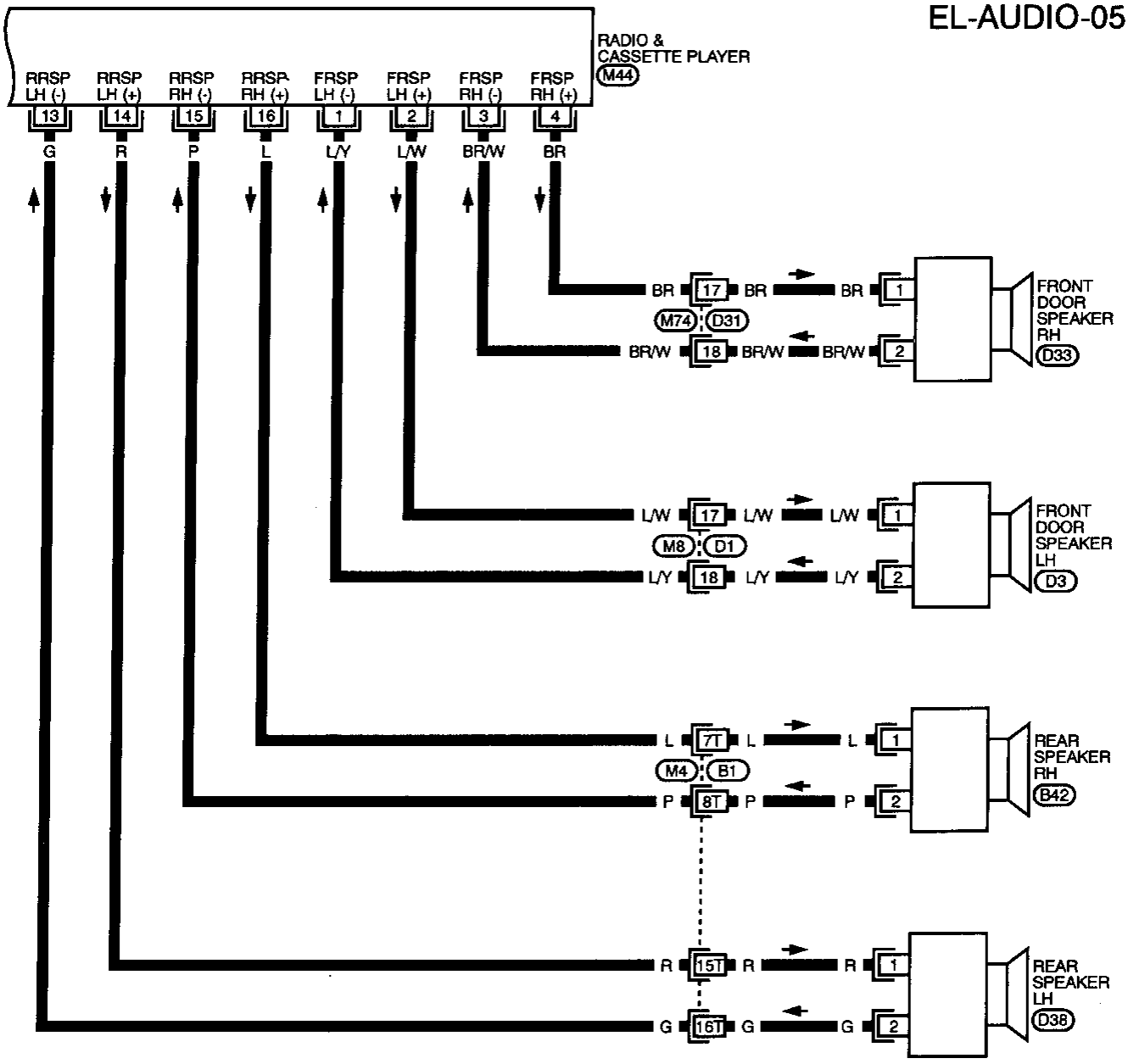


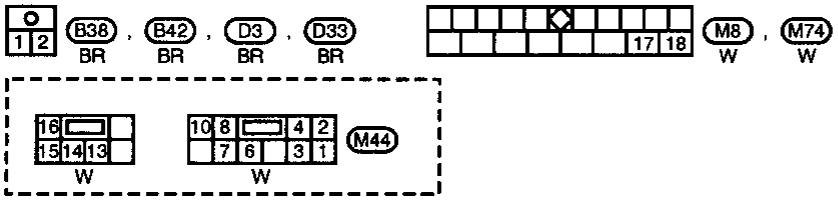
Refer to last page (Foldout page).
M1

MEL499D

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

EL-AUDIO-05





Refer to last page (Foldout page).
M4 , B1

MEL500D

Power Antenna/System Description

Power is supplied at all times
- through 7.5A fuse (No. 40, located in the fuse block in the HEC)
- to power antenna timer and motor terminal ③.

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

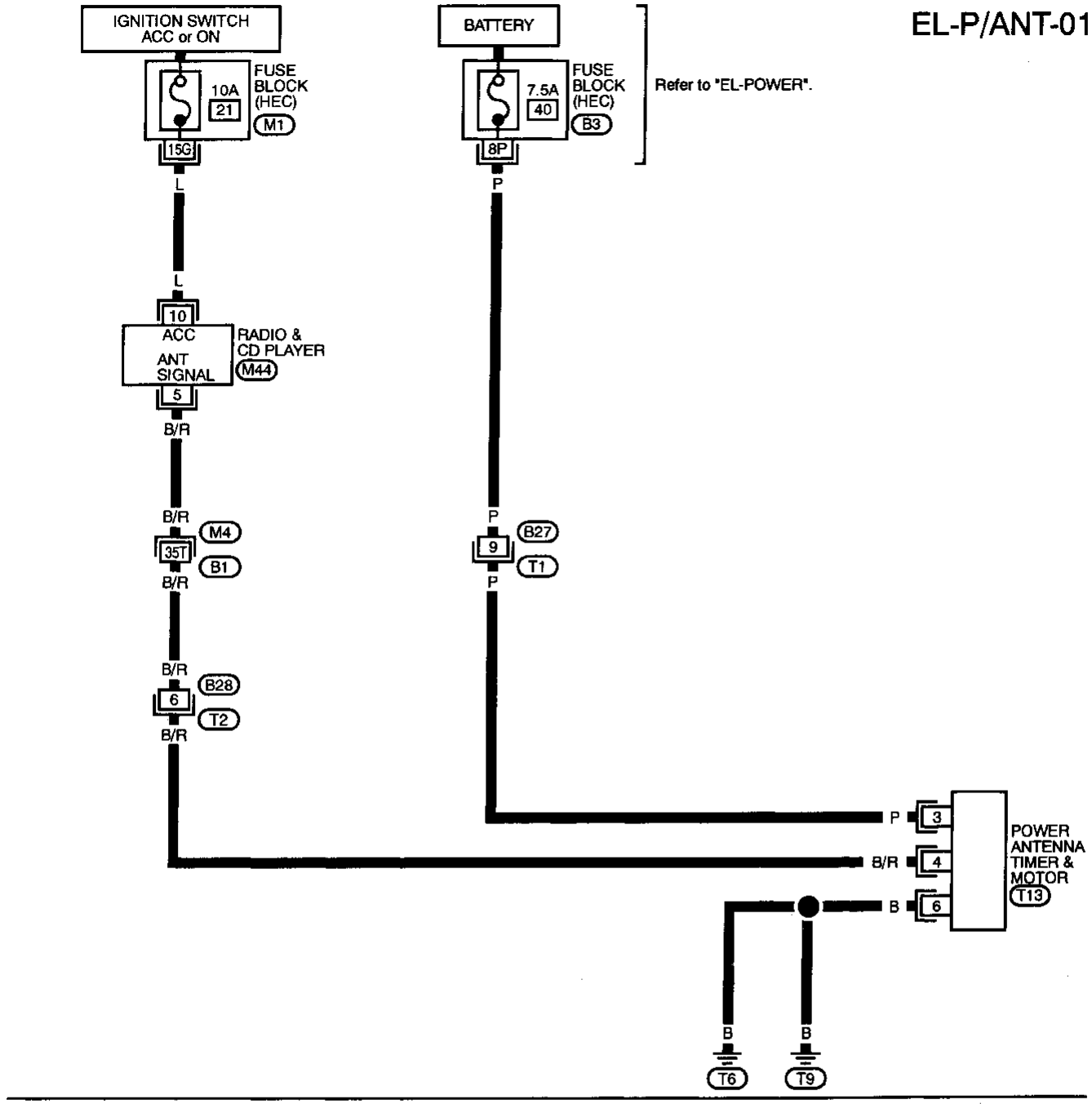
Ground is supplied to the power antenna timer and motor through body grounds T6 and T9.
When the radio is turned to the ON position, battery voltage is supplied
- through radio and CD player terminal ⑤
- to power antenna timer and motor terminal ④.

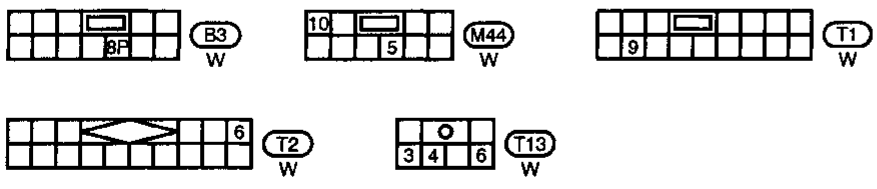
When battery voltage is supplied to the power antenna timer and motor terminal ④, power supplied to the power antenna timer and motor terminal ③ drives the motor.
The antenna rises and is held in the extended position.
When the radio is turned to the OFF position, battery voltage is interrupted
- from radio and CD player terminal ⑤
- to power antenna terminal ④.

The antenna retracts.

Power Antenna/Wiring Diagram — P/ANT —

EL-P/ANT-01





Refer to last page (Foldout page).
M4 , B1
M1

MEL487D

Trouble Diagnoses

6-SPEAKER TYPE (BOSE SYSTEM)

Symptom	Possible causes	Repair order
Radio is inoperative (no digital display and no sound from speakers).	1. 10A fuse	1. Check 10A fuse (No. 21, 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. 40, located in fuse block). Verify battery positive voltage is present at terminal ⑥ of radio.
	2. Radio	2. Remove radio for repair.
Radio controls are operational, but no sound is heard from any speaker.	1. 15A fuse	1. Check 15A fuse (No. 22, located in fuse block). Verify battery positive voltage is present at terminal ③ of audio switching relay.
	2. Audio switching relay	2. Check audio switching relay.
	3. Grounds (M13) and (M73).	3. Check grounds (M13) and (M73).
	4. Radio output	4. Check radio output voltage.
	5. Radio	5. Remove radio for repair.
Rear speakers are inoperative.	1. Grounds (B16) and (B19)	1. Check grounds (B16) and (B19).
	2. Radio	2. Remove radio for repair.
Front speakers are inoperative.	1. Front speaker ground circuits	1. Check front speaker ground circuits.
	2. Radio	2. Remove radio for repair.
Individual speaker is noisy or inoperative.	1. Speaker	1. Check speaker.
	2. Radio output	2. Check radio output voltages.
	3. Speaker circuit	3. Check wires for open or short between radio and speaker.
	4. Radio	4. 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 window 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 stations 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. Malfunctioning accessory	4. Replace accessory.

Trouble Diagnoses (Cont'd)

4-SPEAKER TYPE

Symptom	Possible causes	Repair order
Radio is inoperative (no digital display and no sound from speakers).	1. 10A fuse	1. Check 10A fuse (No. 21, 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. 40, located in fuse block). Verify battery positive voltage is present at terminal ⑥ of radio.
	2. Radio	2. Remove radio for repair.
Individual speaker is noisy or inoperative.	1. Speaker	1. Check speaker.
	2. Radio output	2. Check radio output voltages.
	3. Speaker circuit	3. Check wires for open or short between radio and speaker.
	4. Radio	4. Remove radio for repair.
All speakers are inoperative.	1. Radio	1. 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.

POWER ANTENNA

Symptom	Possible causes	Repair order
Power antenna does not operate.	1. 7.5A fuse	1. Check 7.5A fuse (No. 40, located in fuse block). Verify that battery positive voltage is present at terminal ① of power antenna timer and motor.
	2. 10A fuse	2. Check 10A fuse (No. 21, 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 and motor.
	4. Grounds T6 and T9	4. Check grounds T6 and T9.
	5. Power antenna timer and motor	5. Check power antenna timer and motor.

Trouble Diagnoses (Cont'd)

SPEAKER INSPECTION

1. Disconnect speaker harness connector.
2. Measure the resistance between speaker terminals ① and ② (for 4-speaker) or ① and ② of tweeter, ③ and ⑥ of front speaker or ② and ④ of rear speaker (for 6-speaker).

- The resistance should be 2-4 Ω.

3. Using jumper wires, momentarily connect a 9V battery between speaker terminals ① and ② (for 4-speaker) or ① and ② of tweeter, ③ and ⑥ of front speaker or ② and ④ of rear speaker (for 6-speaker).

- A momentary hum or pop should be heard.

ANTENNA INSPECTION

1. Using a jumper wire, clip an auxiliary ground between antenna and body.

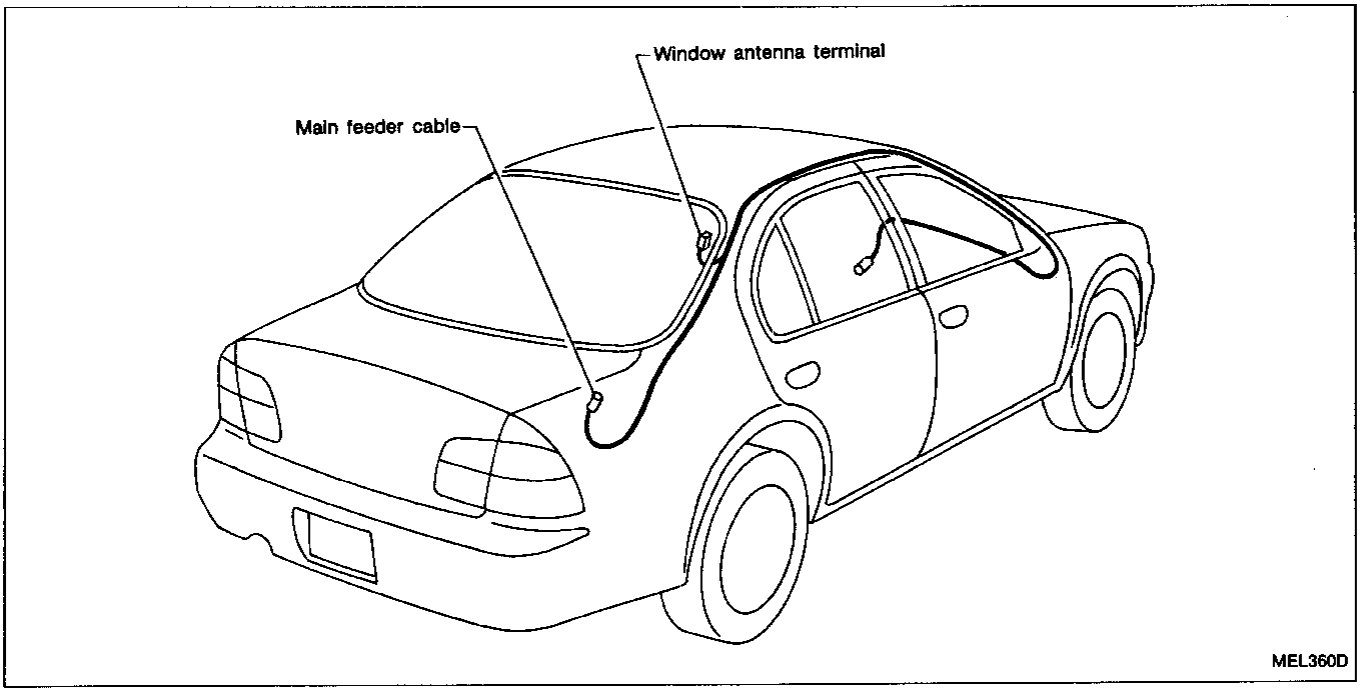
- If reception improves, check antenna ground (at body surface).
- If reception does not improve, check main feeder cable for short circuit or open circuit.

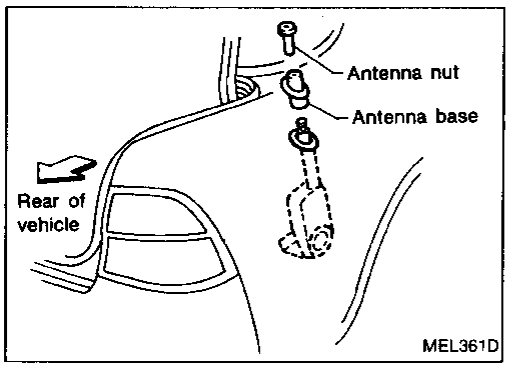
RADIO INSPECTION

All voltage inspections are made with:

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

Location of Antenna

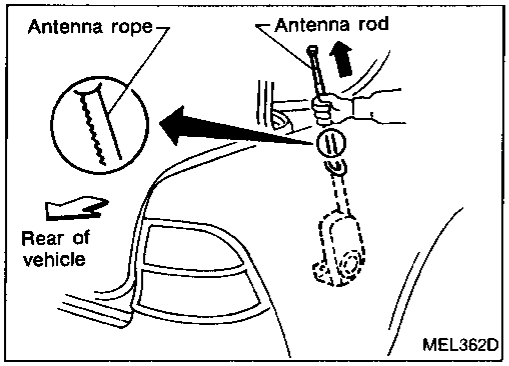




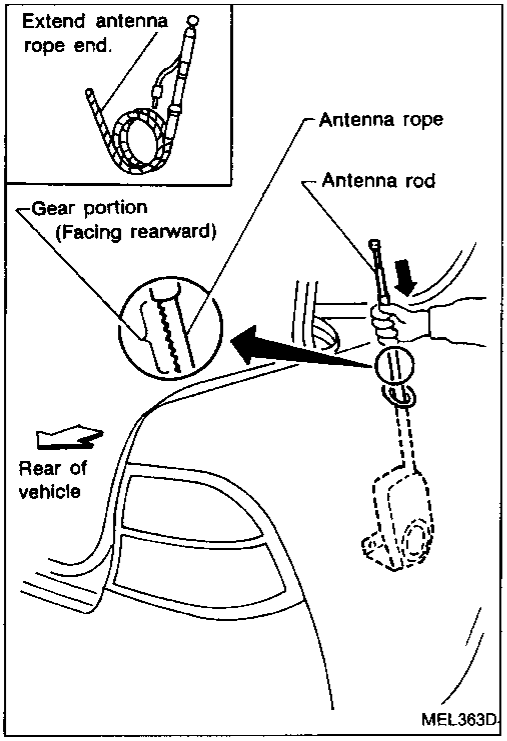
Antenna Rod Replacement

REMOVAL

1. Remove antenna nut and antenna base.

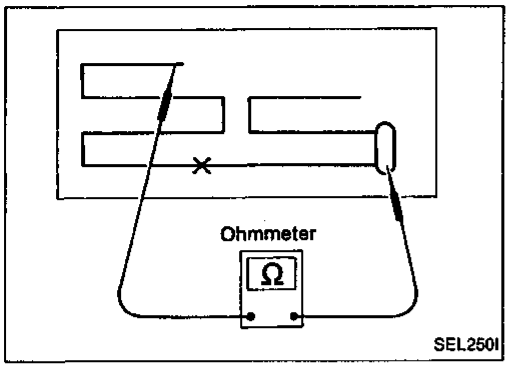


2. Withdraw antenna rod while raising it by operating antenna motor.



INSTALLATION

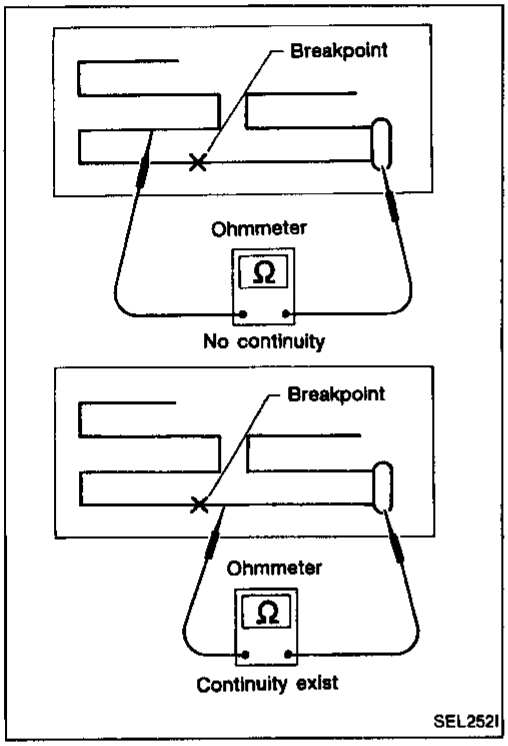
1. Lower antenna rod by operating antenna motor.
2. Insert gear section of antenna rope into place with it facing toward antenna motor.
3. As soon as antenna rope is wound on antenna motor, stop antenna motor. Insert antenna rod lower end into antenna motor pipe.
4. Retract antenna rod completely by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



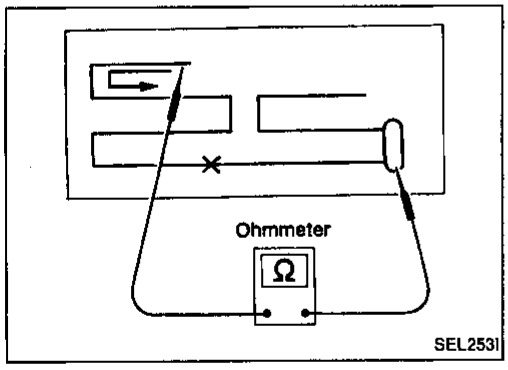
Window Antenna Repair

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.

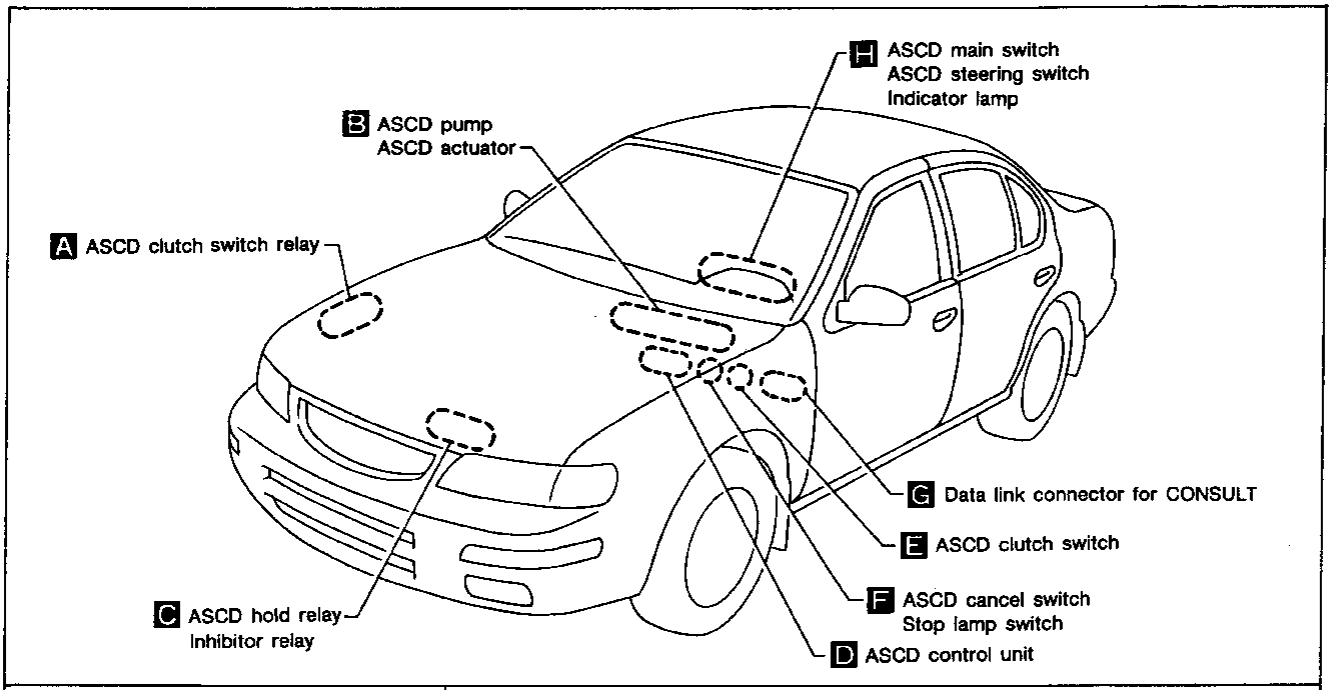


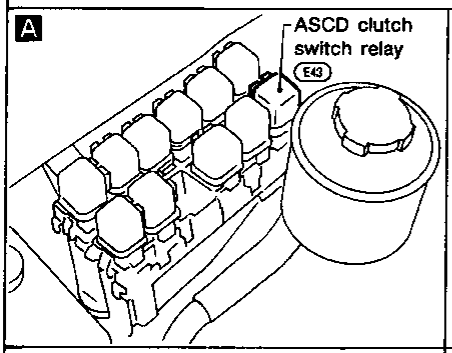
3. To locate broken point, move probe along element. Tester needle will swing abruptly when probe passes the point.

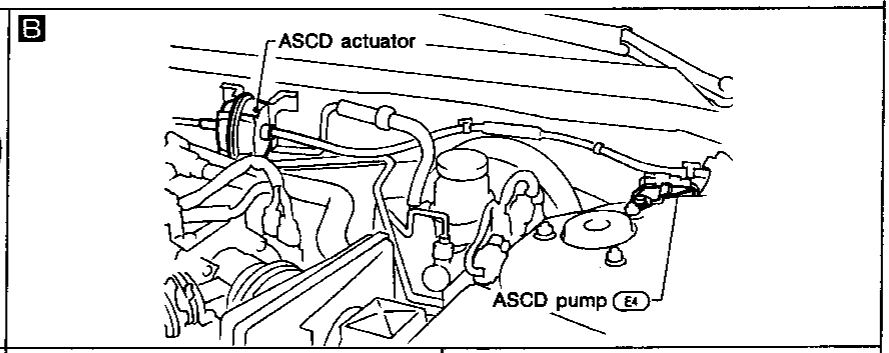
ELEMENT REPAIR

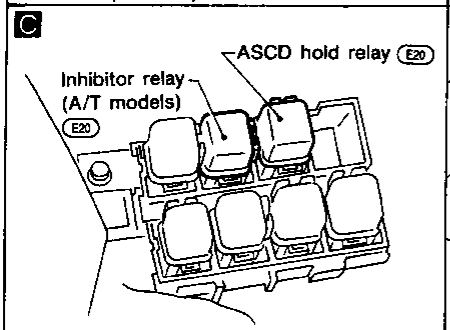
Refer to REAR WINDOW DEFOGGER "Filament Repair" (EL-98).

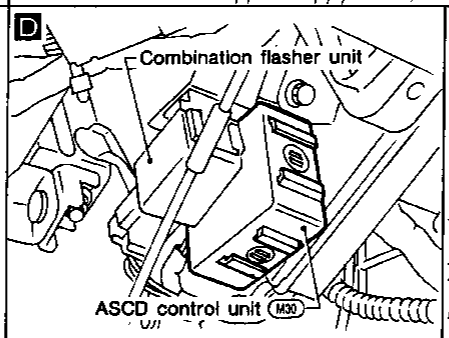
Component Parts and Harness Connector Location

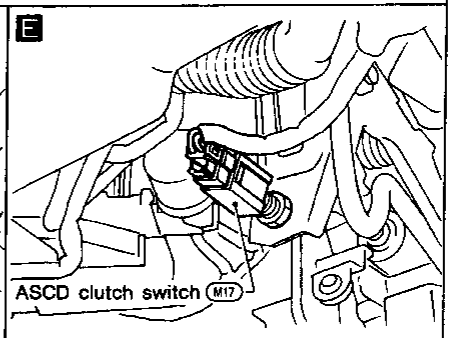


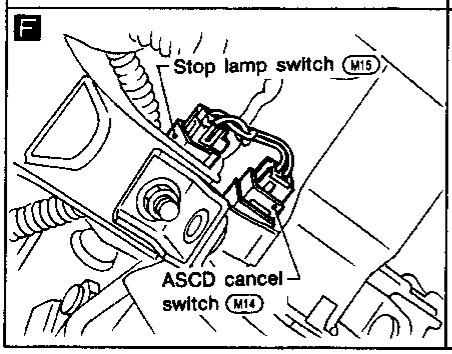


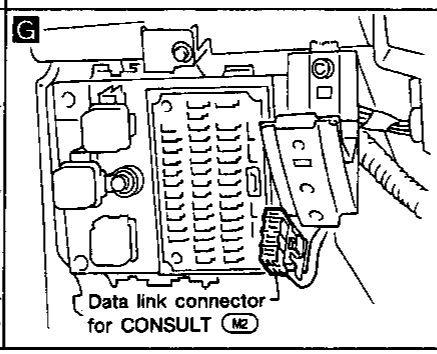


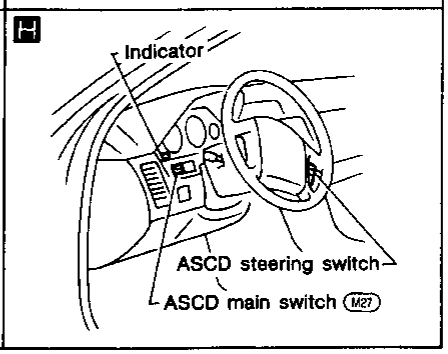












MEL365D

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. 12, located in the fuse block in the HEC)
- to ASCD main switch terminal ① and
- to ASCD hold relay terminal ⑤ and ASCD clutch switch relay terminal ① (M/T models).

When ASCD main switch is in the ON position, power is supplied
- from terminal ② of the ASCD main switch
- to ASCD control unit terminal ④ and
- from terminal ③ of the ASCD main switch
- to ASCD hold relay terminal ①.

Ground is supplied
- to ASCD hold relay terminal ②
- through body grounds E5 and E30.

With power and ground supplied, the ASCD hold relay is activated, and power is supplied
- from terminal ③ of the ASCD hold relay
- to ASCD clutch switch relay terminal ⑥ (M/T models) or
- to inhibitor relay terminal ③ (A/T models).

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 M13 and M73.

Inputs

At this point, the system is ready to activate or deactivate, based on inputs from the following:
- speedometer in the combination meter
- stop lamp switch
- ASCD steering switch
- inhibitor relay (A/T models)
- ASCD clutch switch (M/T models) and
- ASCD cancel switch.

A vehicle speed input is supplied
- from terminal ⑭ 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. 10, located in the fuse block in the HEC).

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

Power is supplied at all times
- through 10A fuse (No. 53, located in the fuse and fusible link box)
- to horn relay terminal ②
- through terminal ① of the horn relay
- to ASCD steering switch terminal 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 ①.

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

System Description (Cont'd)

- the brake pedal is depressed.

Outputs

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

Power is supplied
- from terminal ⑧ of the ASCD control unit
- to ASCD 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 ⑧ and
- to A/T control unit terminal ㊲ (A/T models).

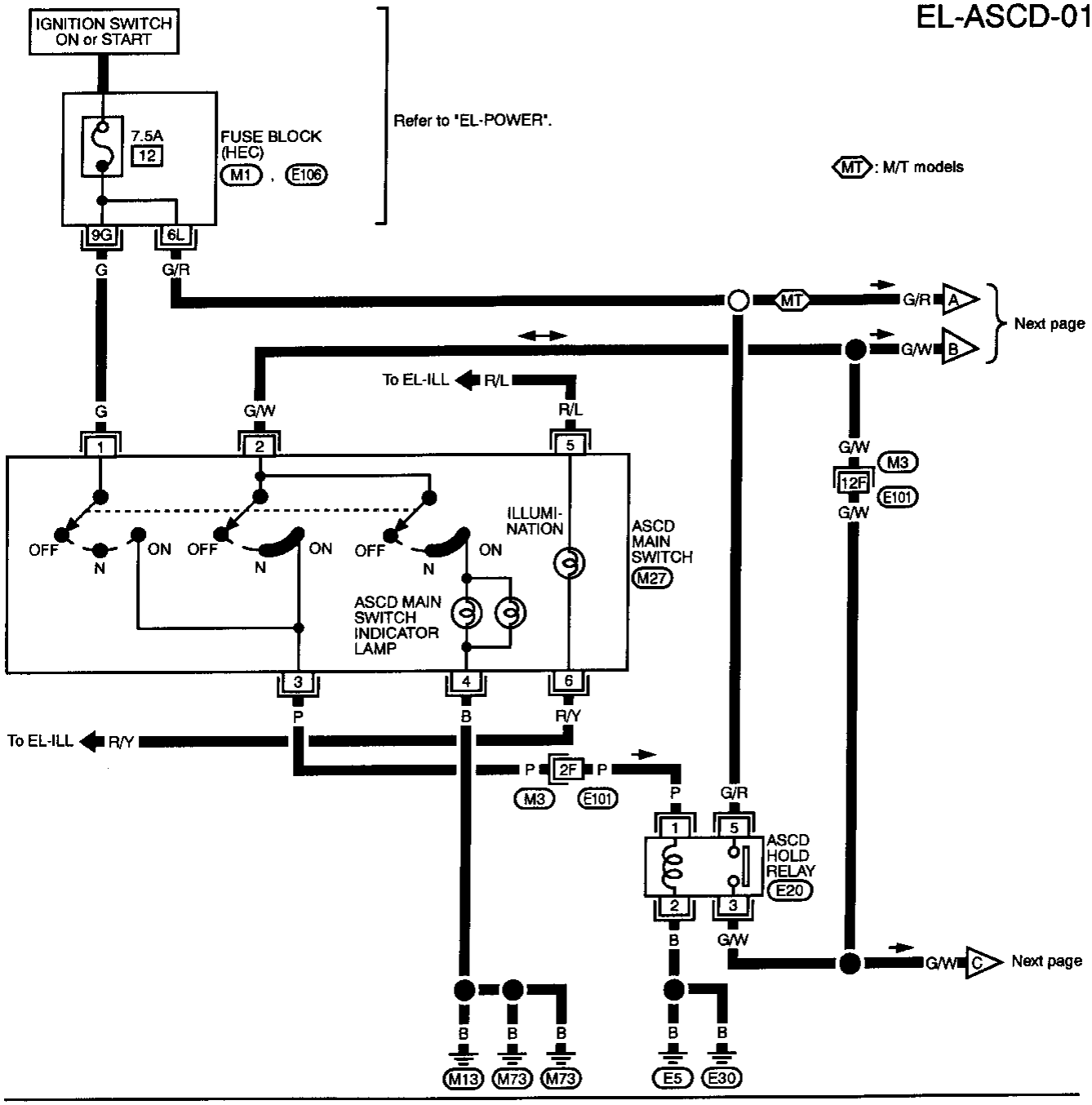
Ground is supplied
- to combination meter terminal ㉛
- through body grounds (M13) and (M73).

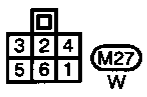
With power and ground supplied, the CRUISE indicator illuminates.

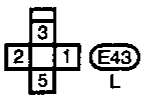
When the RESUME/ACCEL button is depressed on A/T models, a signal is sent
- from terminal ⑫ of the ASCD control unit
- to A/T control unit terminal ㊵.

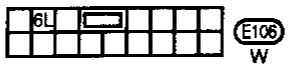
When this occurs, the A/T control unit cancels overdrive.

Wiring Diagram — ASCD —





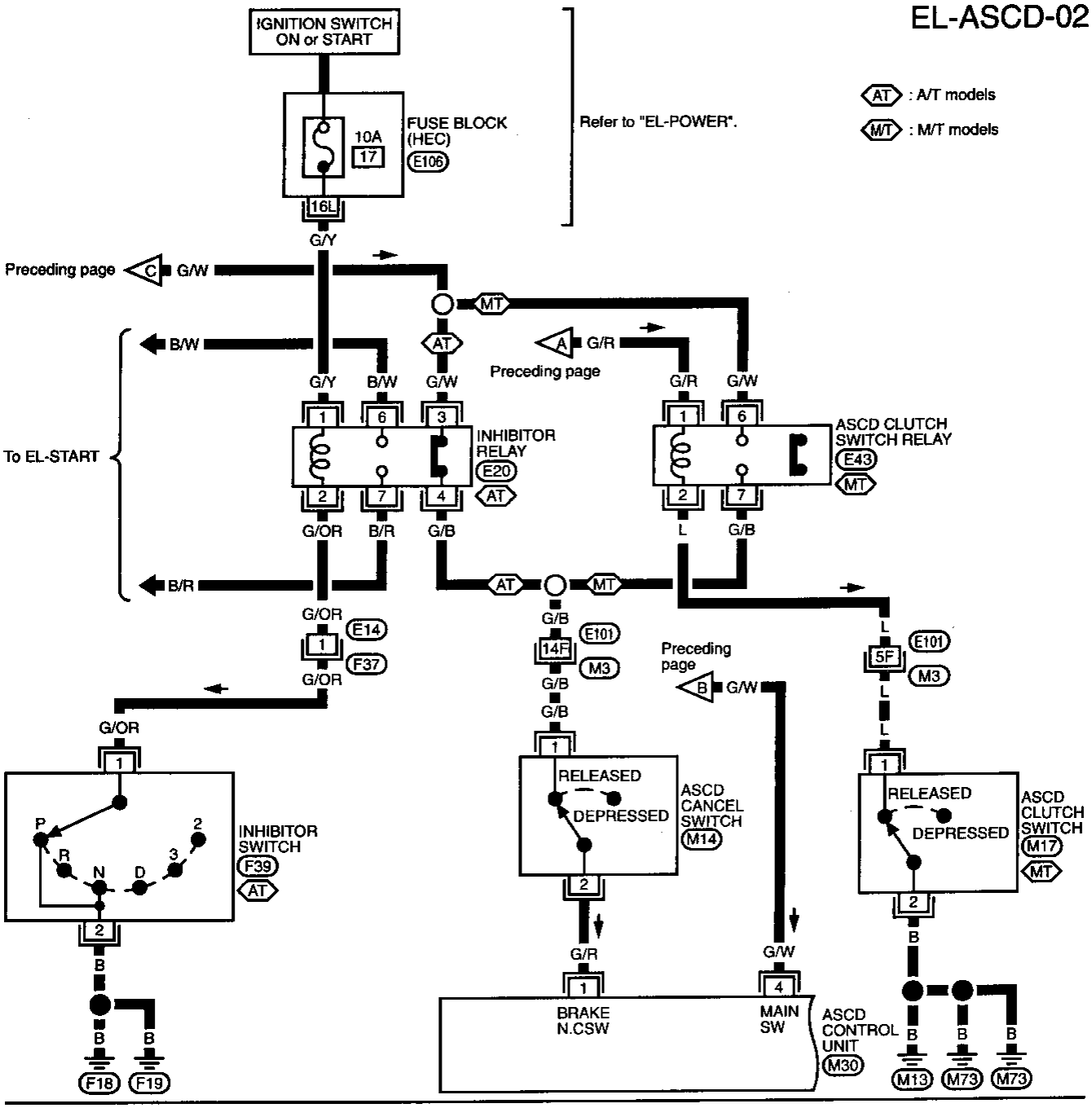




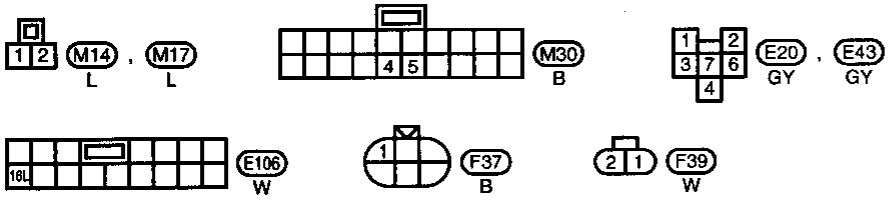
Refer to last page (Foldout page).
M3 , E101
M1

MEL475D

Wiring Diagram — ASCD — (Cont'd)

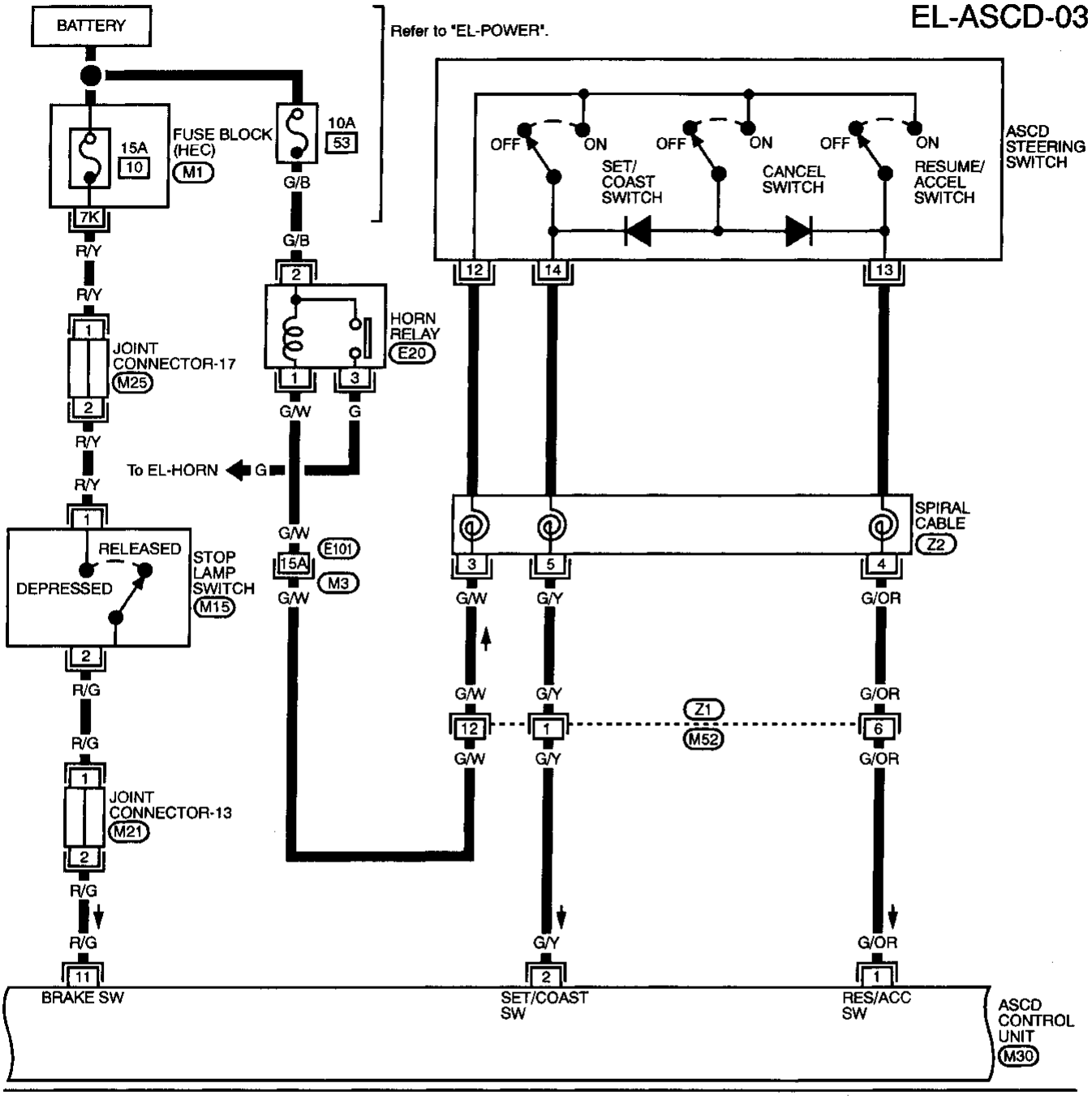


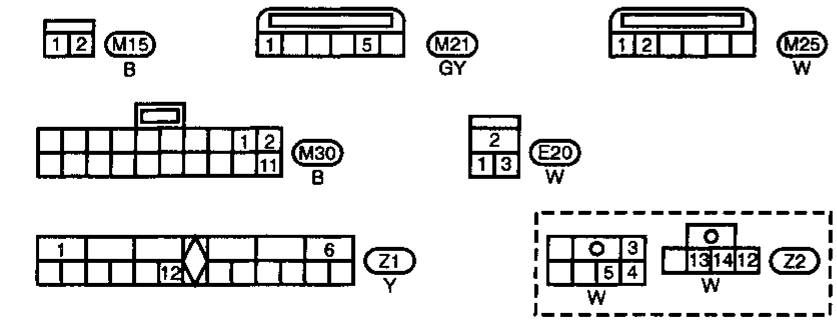
Refer to last page (Foldout page).
M3 , E101



MEL476D

Wiring Diagram — ASCD — (Cont'd)



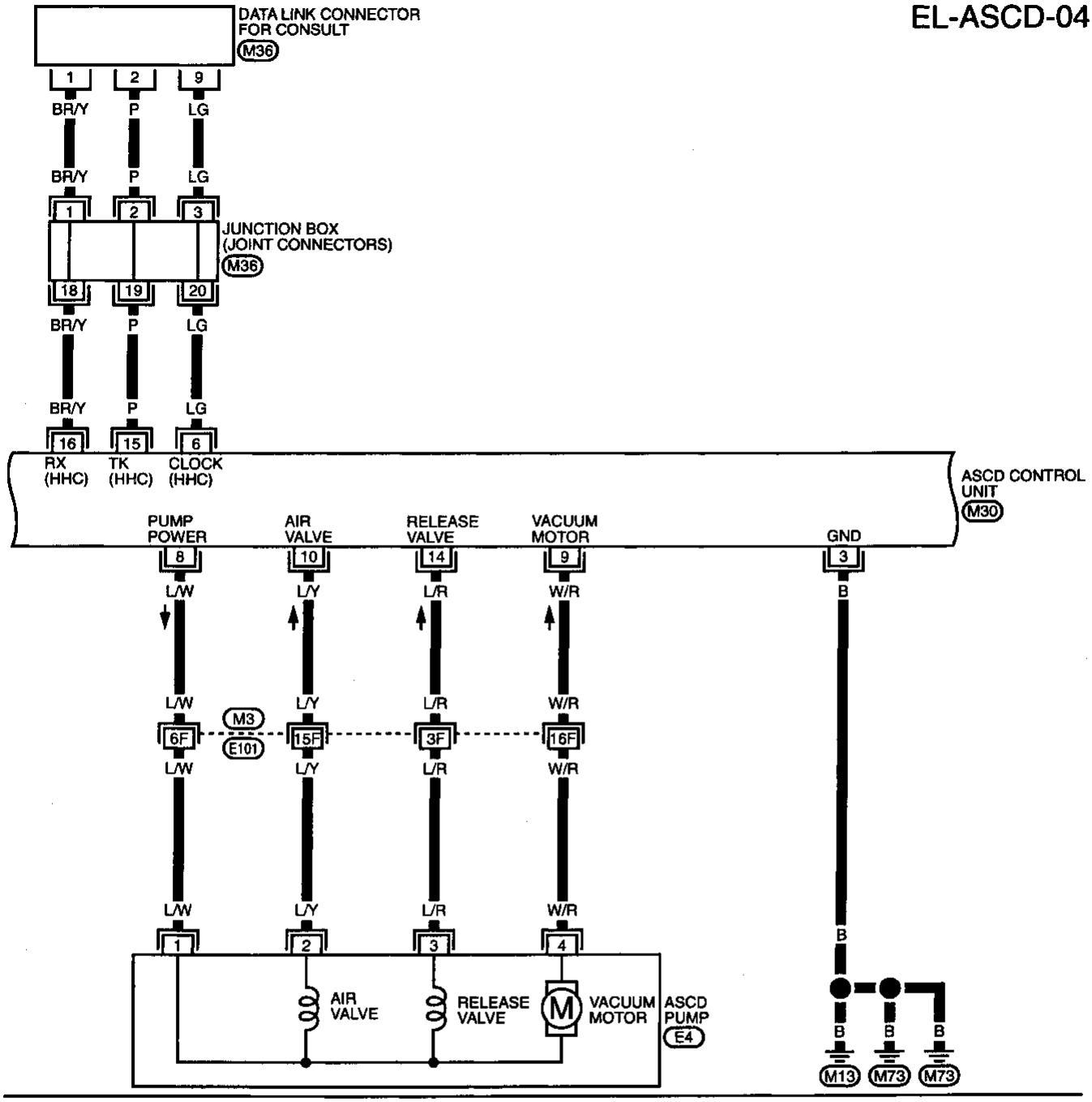


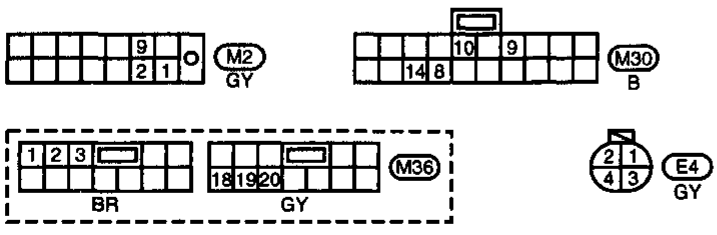
Refer to last page (Foldout page).
M3 , E101
M1
M25
M21

MEL477D

Wiring Diagram — ASCD — (Cont'd)

EL-ASCD-04

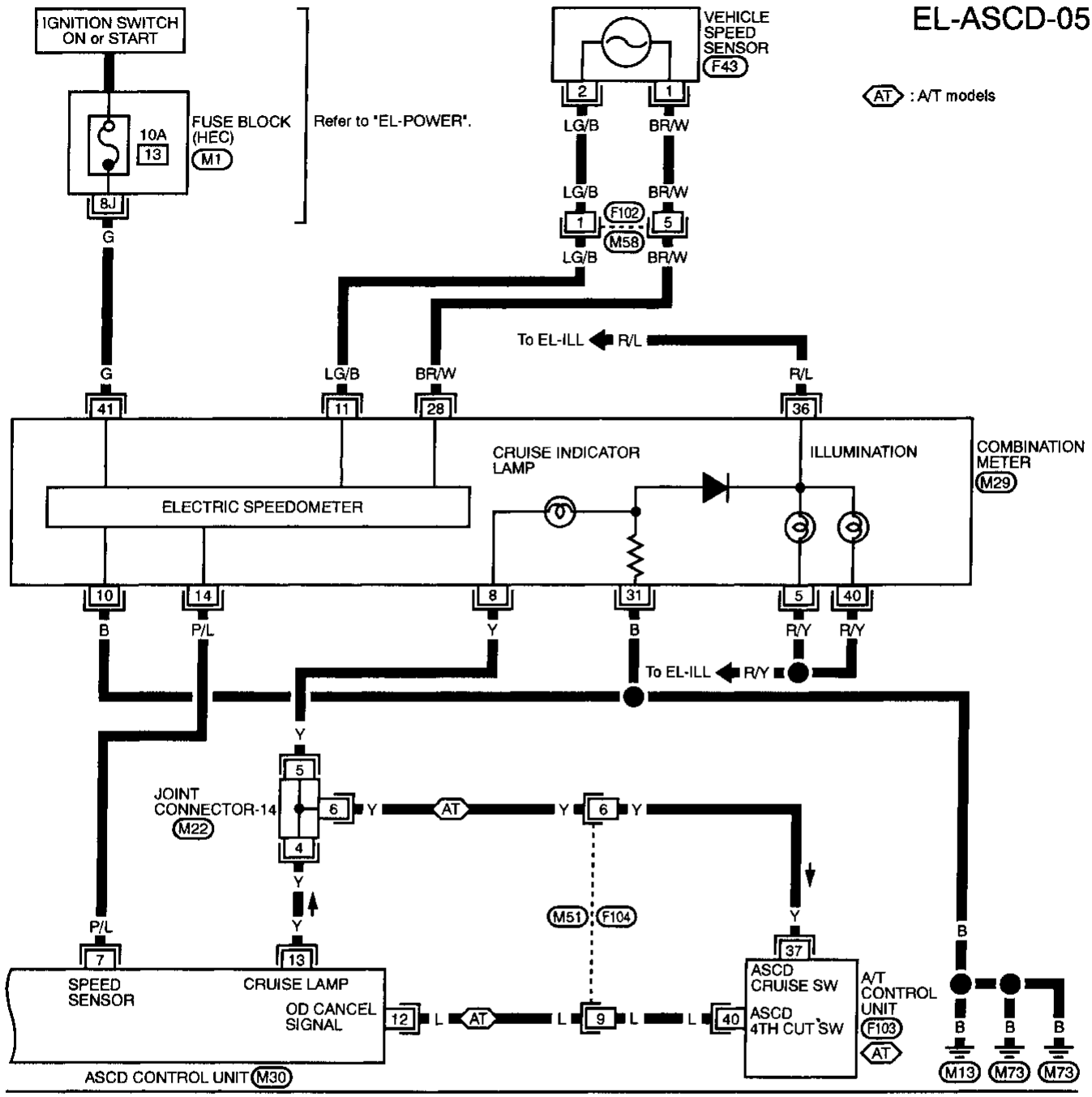




Refer to last page (Foldout page).
M3 , E101
M36

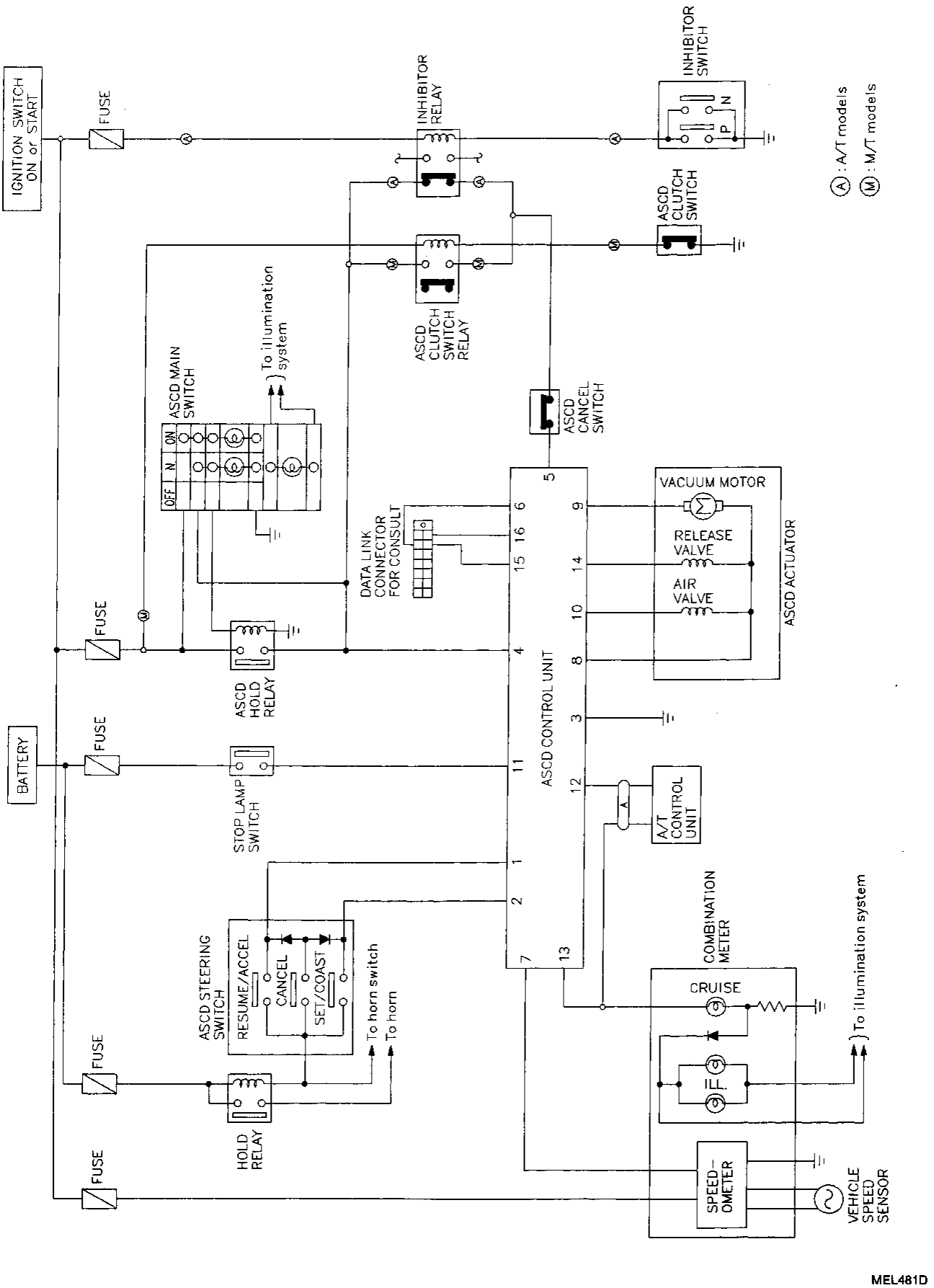
MEL478D

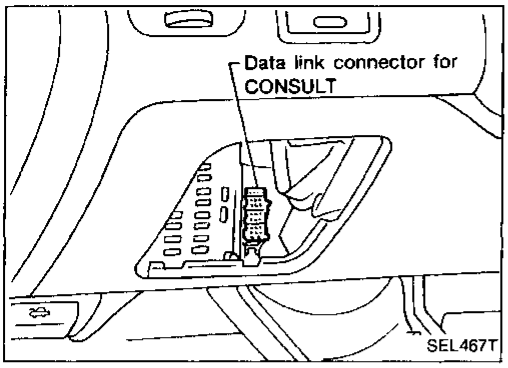
Wiring Diagram — ASCD — (Cont'd)



MEL479D

Schematic

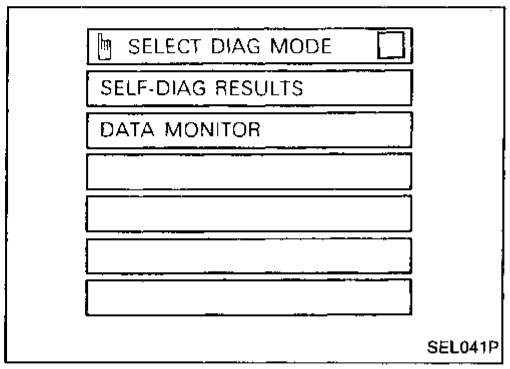

IGNITION SWITCH ON or START
FUSE
INHIBITOR RELAY
INHIBITOR SWITCH
P
N
Ⓐ : A/T models
Ⓜ : M/T models
ASCD CLUTCH SWITCH
ASCD CLUTCH SWITCH RELAY
To illumination system
ASCD MAIN SWITCH
OFF
N
ON
ASCD CANCEL SWITCH
DATA LINK CONNECTOR FOR CONSULT
VACUUM MOTOR
RELEASE VALVE
AIR VALVE
ASCD ACTUATOR
ASCD HOLD RELAY
BATTERY
STOP LAMP SWITCH
ASCD CONTROL UNIT
A/T CONTROL UNIT
ASCD STEERING SWITCH
RESUME/ACCEL
CANCEL
SET/COAST
To horn switch
To horn
HOLD RELAY
COMBINATION METER
CRUISE
To illumination system
SPEED-OMETER
VEHICLE SPEED SENSOR
MEL481D



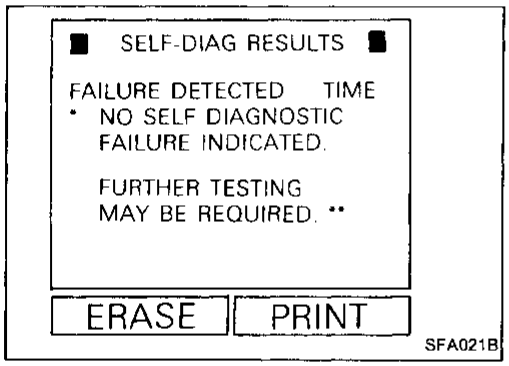
Trouble Diagnoses

CONSULT

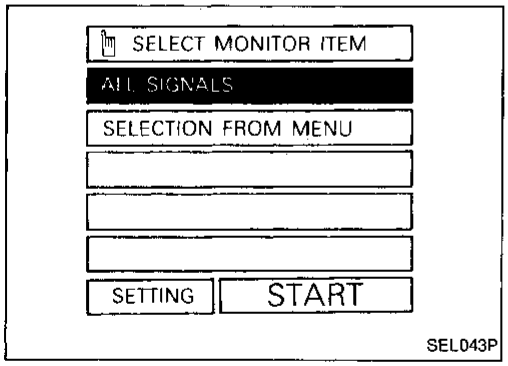
1. Turn off ignition switch.
2. Connect "CONSULT" to data link connector.



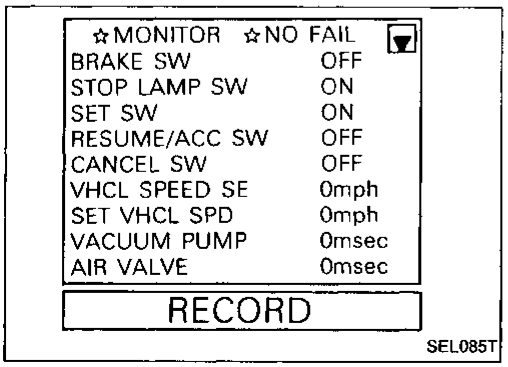
3. Turn on ignition switch.
4. Turn on ASCD main switch.
5. Touch START (on CONSULT display).
6. Touch ASCD.
7. Touch SELF-DIAG RESULTS.



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



8. Touch DATA MONITOR.



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

For further information, read the CONSULT Operation Manual.

Trouble Diagnoses (Cont'd)

Self-diagnostic results

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

Data monitor

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

Trouble Diagnoses (Cont'd)

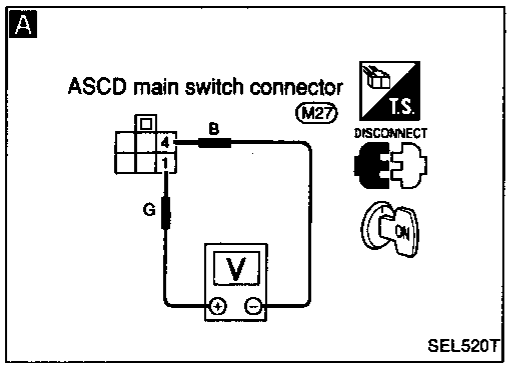
SYMPTOM CHART

PROCEDURE	Diagnostic Procedure									Electrical Components Inspection						
REFERENCE PAGE	EL-124	EL-128	EL-128	EL-129	EL-129	EL-131	EL-132	EL-134	EL-135	EL-136	EL-136	EL-137	EL-137	EL-137	EL-137	EL-138
SYMPTOM	Diagnostic Procedure 1	Diagnostic Procedure 2	Diagnostic Procedure 3	Diagnostic Procedure 4	Diagnostic Procedure 5	Diagnostic Procedure 6	Diagnostic Procedure 7	Diagnostic Procedure 8	ASCD wire adjustment	ASCD actuator/ASCD pump	ASCD main switch	ASCD steering switch	ASCD cancel switch and stop lamp switch	ASCD clutch switch	Inhibitor switch	Vehicle speed sensor
ASCD control unit cannot be set properly.	○									○	○	○	○	○	○	○
Engine hunts		○							○	○						
Large difference between set speed and actual vehicle speed.			○						○	○						
Deceleration is greatest immediately after ASCD has been set.				○					○	○						
ACCEL switch will not operate.	○					○						○				
RESUME switch will not operate.	○						○					○	○			
Set speed cannot be canceled.					○				○	○			○	○		
"CRUISE" indicator lamp blinks.								○		○		○	○			

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 1

SYMPTOM: ASCD control cannot be set.



1. Turn ignition switch ON.
2. Turn ASCD main switch "ON" to make sure indicators illuminate.

NG → A

OK

A

CHECK POWER SUPPLY FOR ASCD MAIN SWITCH.
1. Disconnect main switch connector.
2. Measure voltage between main switch terminals ① and ④. **Battery voltage should exist.**

OK → Check ASCD main switch. Refer to "ELECTRICAL COMPONENTS INSPECTION" (EL-136).

NG → Check fuse and harness.

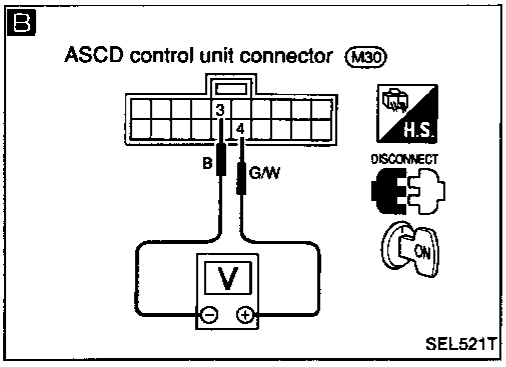
Check ASCD main switch. Refer to "ELECTRICAL COMPONENTS INSPECTION" (EL-136).

OK → Check ASCD hold relay.

NG → Replace.

Check ASCD hold relay.

B



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

NG → Check ASCD hold relay.

OK → Check continuity between control unit connector terminal ④ and ASCD hold relay.

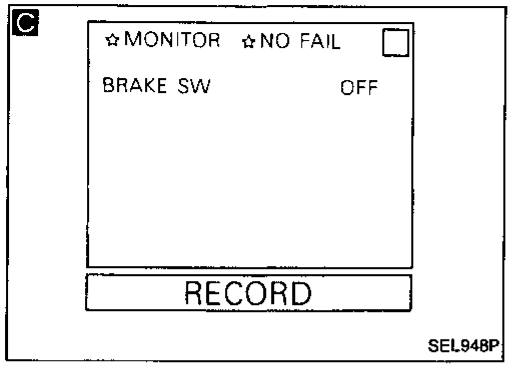
NG → Replace.

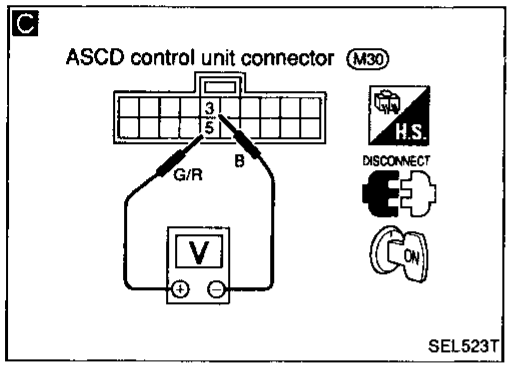
OK

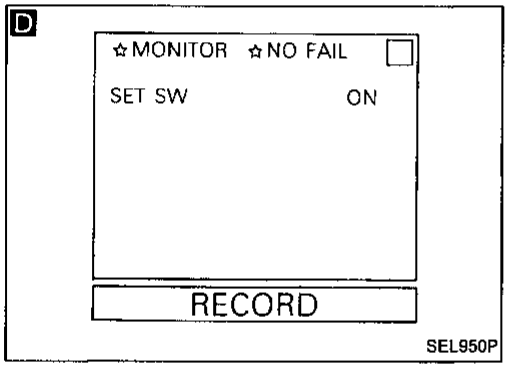
Ⓐ

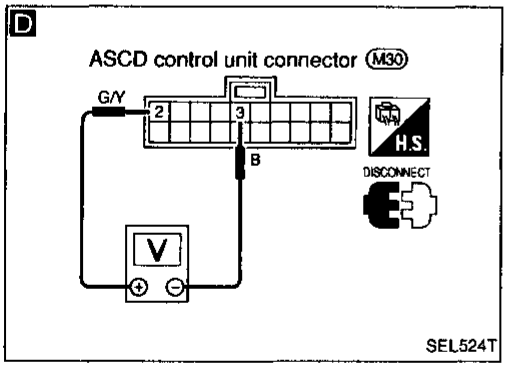
(Next page)

Trouble Diagnoses (Cont'd)









Ⓐ

C

CHECK CUT-OFF CIRCUIT FOR ASCD CONTROL UNIT.

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

When brake pedal or clutch pedal (M/T) is depressed or A/T shift lever (A/T) is in "N" or "P" range:

BRAKE SW OFF

When both brake pedal and clutch pedal (M/T) are released and A/T shift lever (A/T) is not in "N" or "P" range:

BRAKE SW ON

NG → Check ASCD cancel switch (on brake pedal), ASCD clutch switch (M/T models) and inhibitor switch (A/T models). Refer to "ELECTRICAL COMPONENTS INSPECTION" (EL-137). Check inhibitor relay (A/T models).

OK → Check and repair harness.

NG → Replace.

OR

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

OK

D

CHECK SET/COAST SWITCH CIRCUIT FOR ASCD CONTROL UNIT.

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

SET SW

When switch is pressed: ON

When switch is released: OFF

NG → Does horn work?

No → Check fuse and horn relay.

Yes → CHECK ASCD STEERING SWITCH. Refer to "Electrical Components Inspection" (EL-137).

OR

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

OK

Ⓑ

(Next page)

Trouble Diagnoses (Cont'd)

E

☆MONITOR ☆NO FAIL

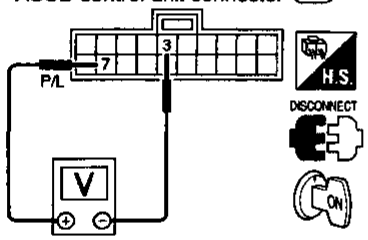
VHCL SPEED SE 45mph

RECORD

SEL084T

E

ASCD control unit connector M30



SEL525T

Ⓑ

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. Disconnect control unit connector.
3. Connect voltmeter between control unit harness terminals ⑦ and ③.
4. Slowly turn rear wheel.
5. Check deflection of voltmeter pointer.

NG → CHECK VEHICLE SPEED SENSOR. Refer to "Electrical Components Inspection" (EL-138).

OK → Check and repair harness.

NG → Replace.

OK

CHECK ASCD ACTUATOR/ASCD PUMP. Refer to "Electrical Components Inspection" (EL-136).

NG → Replace.

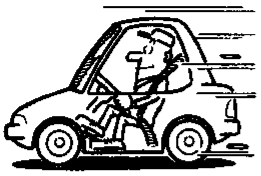
OK

Ⓒ

(Next page)

Trouble Diagnoses (Cont'd)

F



☆ MONITOR ☆ NO FAIL

PW SUP-VALVE ON

RECORD

SEL860R

Ⓒ

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

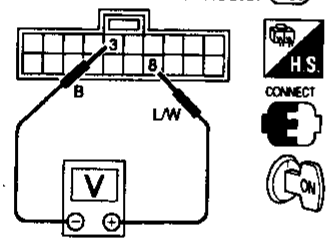
1. Turn ignition switch ON.
2. Check voltage between control unit harness terminals ⑧ and ③.

Voltage is 0V.

OK

F

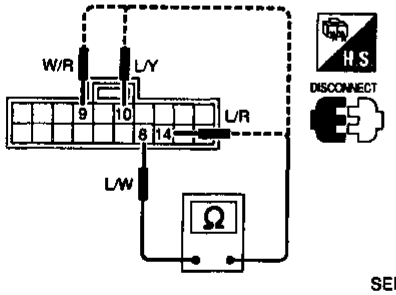
ASCD control unit connector (M30)



SEL526T

G

ASCD control unit connector (M30)



SEL527T

G

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

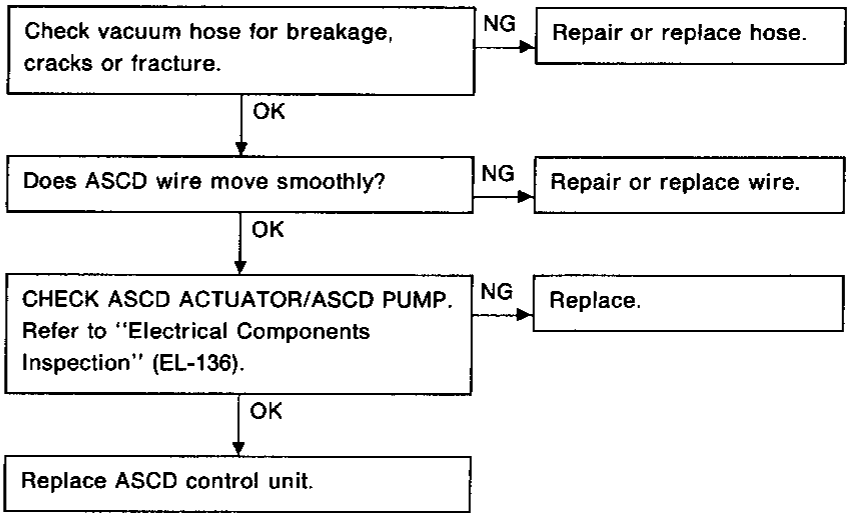
OK → Replace ASCD control unit.

NG → Repair short or open circuit in ASCD pump.

Trouble Diagnoses (Cont'd)

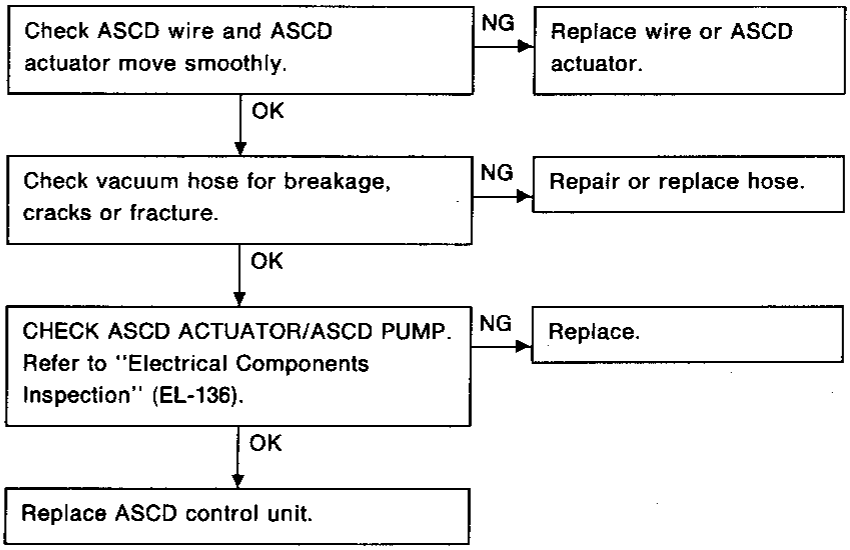
DIAGNOSTIC PROCEDURE 2

SYMPTOM: Engine hunts.



DIAGNOSTIC PROCEDURE 3

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



Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 4

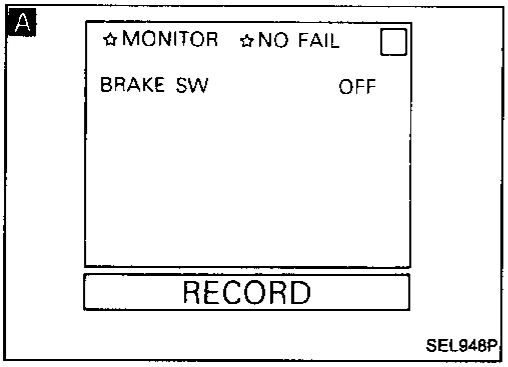
SYMPTOM: Deceleration is greatest immediately after ASCD has been set.

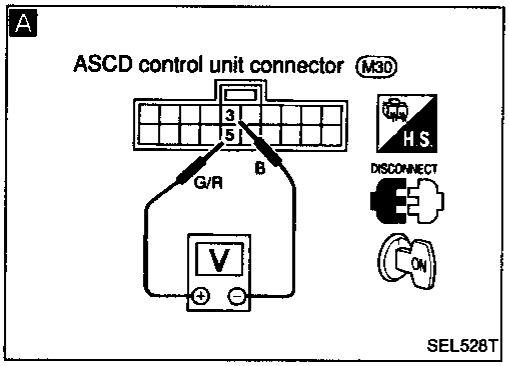
Check tension of ASCD wire and that ASCD wire moves smoothly.
- NG → ADJUST OR REPLACE ASCD WIRE. Refer to "ASCD Wire Adjustment" (EL-135).
- OK ↓

Check vacuum hose for breakage, cracks or fracture.
- NG → Repair or replace hose.
- OK ↓

CHECK ASCD ACTUATOR/ASCD PUMP. Refer to "Electrical Components Inspection" (EL-136).
- NG → Replace.
- OK ↓

Replace ASCD control unit.





DIAGNOSTIC PROCEDURE 5

SYMPTOM: Set speed cannot be cancelled.

A

CHECK ASCD BRAKE AND INHIBITOR/ CLUTCH SWITCH CIRCUIT.
1. Turn ASCD main switch "ON".
2. See "BRAKE SW" in "Data monitor" mode.
   When brake pedal or clutch pedal (M/T) is depressed or A/T shift lever (A/T) is in "N" or "P" range:
   BRAKE SW OFF
   When both brake pedal and clutch pedal (M/T) is released and A/T shift lever (A/T) is not in "N" or "P" range:
   BRAKE SW ON

- NG → CHECK ASCD CANCEL, CLUTCH, and INHIBITOR SWITCH. Refer to "Electrical Components Inspection" (EL-137).

— OR —

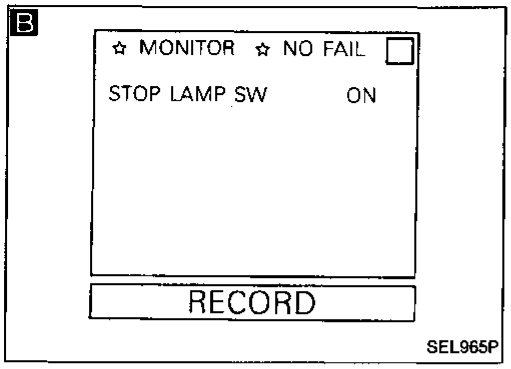
2. Disconnect control unit connector.
3. Check voltage between control unit harness terminals ⑤ and ③.

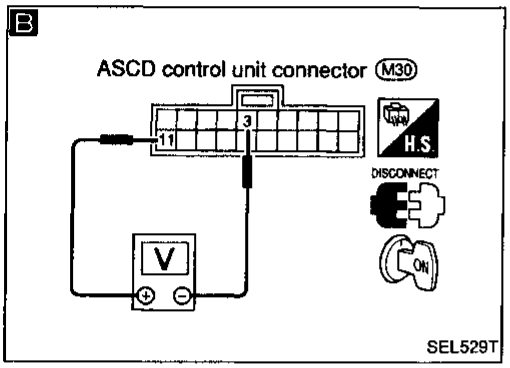
Conditions			Voltage [V]
ASCD cancel switch		De-pressed	0
		Released	Approx. 12
M/T	ASCD clutch switch	De-pressed	0
		Released	Approx. 12
A/T	A/T shift lever position is not at N or P.		Approx. 12
	A/T shift lever position is at N or P.		0

OK ↓

Ⓒ
(Next page)

Trouble Diagnoses (Cont'd)





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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-137).

OK → Check and repair harness.

NG → Replace.

OR

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

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

OK

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

OK

CHECK ASCD ACTUATOR/ASCD PUMP. Refer to "Electrical Components Inspection" (EL-136). NG → Replace.

OK

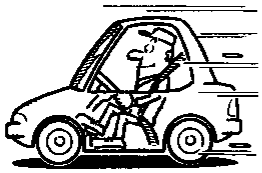
Replace ASCD control unit.

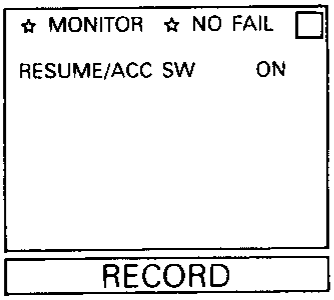
Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 6

SYMPTOM: ACCEL switch will not operate.

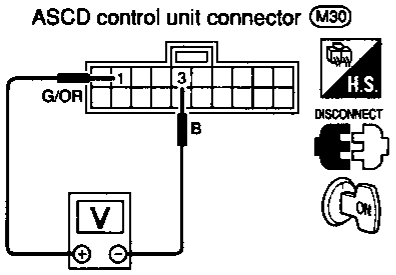
A





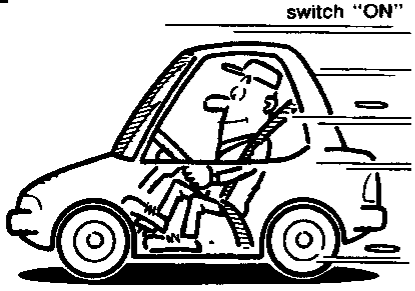
SEL861R

A



SEL530T

B



SEL862R

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

NG → Go to "DIAGNOSTIC PROCEDURE 1" (EL-124).

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-137).

OK → Check and repair harness.

NG → Replace.

OR

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

OK

B

Does vehicle accelerate when RESUME/ACCEL switch is turned on?

No → Replace control unit.

Yes

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

No → Replace control unit.

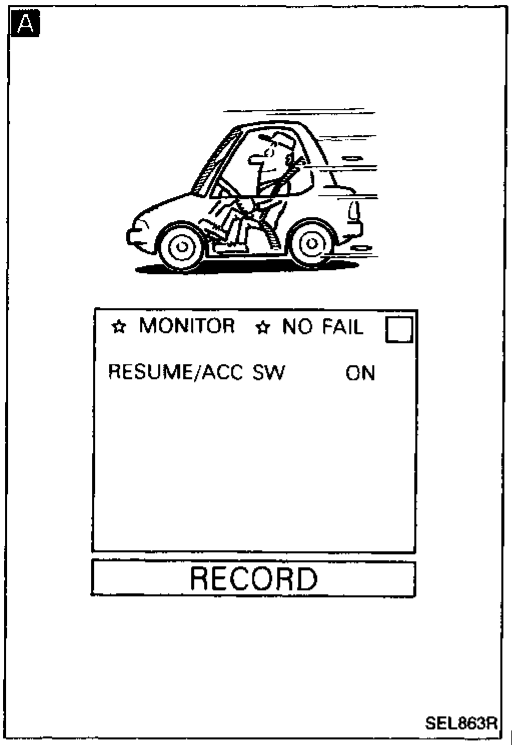
Yes

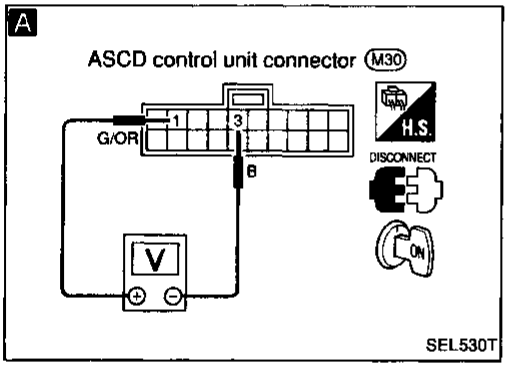
System is OK.

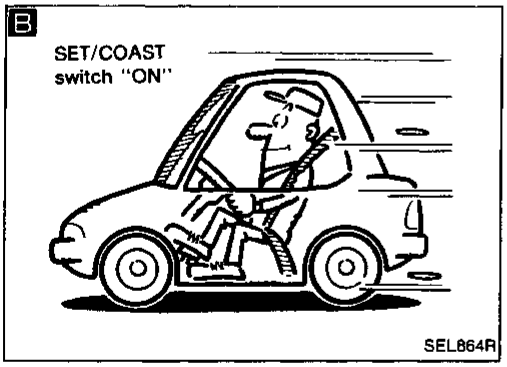
Trouble Diagnoses (Cont'd)

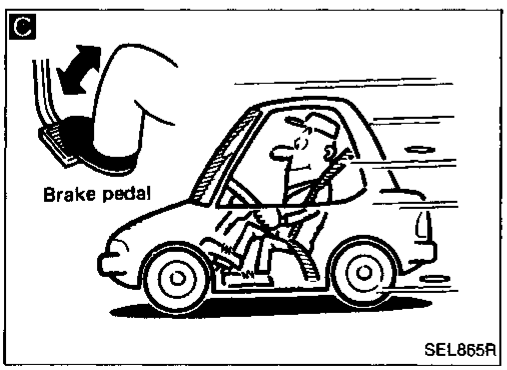
DIAGNOSTIC PROCEDURE 7

SYMPTOM: RESUME switch will not operate.









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

NG → Go to "DIAGNOSTIC PROCEDURE 1" (EL-124).

OK ↓

A

CHECK RESUME/ACCEL SWITCH CIRCUIT.

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

RESUME/ACC SW

When switch is pressed: ON

When switch is released: OFF

OR

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

NG → CHECK ASCD STEERING SWITCH.
Refer to "Electrical Components Inspection" (EL-137).

OK → Check and repair harness.

NG → Replace.

OK ↓

B

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

OK ↓

C

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

OK ↓

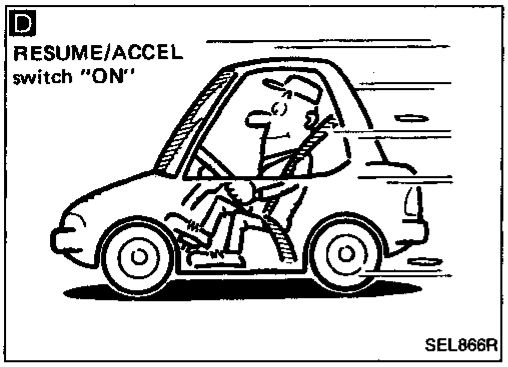
Does speed control disengage and "CRUISE" lamp turn off?

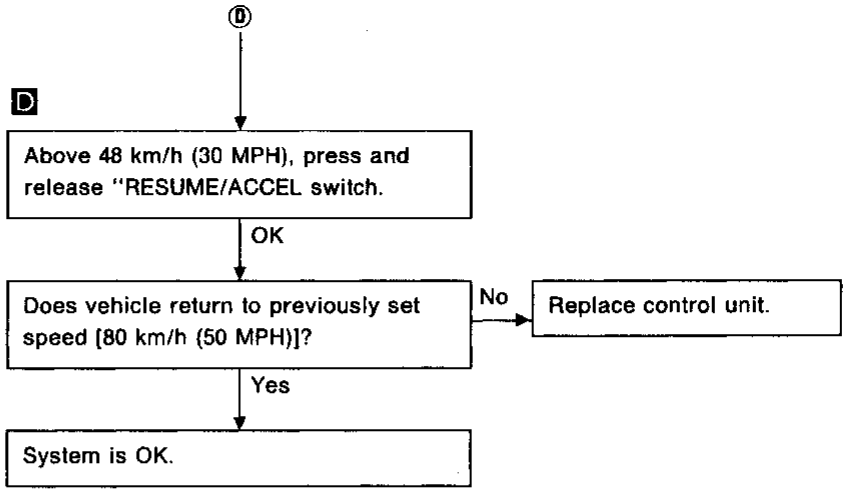
No → CHECK STOP LAMP SWITCH, ASCD CANCEL SWITCH AND ASCD CLUTCH SWITCH (M/T models).
Refer to "Electrical Components Inspection" (EL-137).

Yes ↓

Ⓓ
(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

Yes → Adjust installation of stop lamp switch and ASCD cancel switch. Refer to BR section.

No → CHECK ASCD STEERING SWITCH. Refer to "Electrical Components Inspection" (EL-137).

NG → Replace.

OK → Replace control unit.

CHECK ASCD ACTUATOR/ ASCD PUMP. Refer to "Electrical Components Inspection" (EL-136).

NG → Replace.

OK

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.

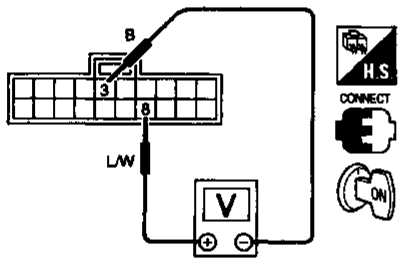
Terminals		Resistance [Ω]
⑧	⑨	Approx. 8 - 45
	⑩	Approx. 65
	⑭	Approx. 65

NG → Repair short or open circuit in ASCD pump harness.

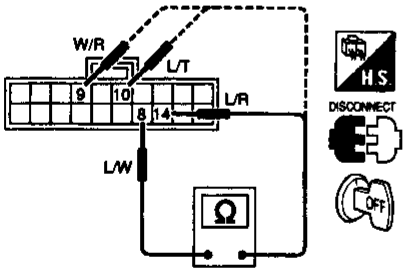
OK → Replace ASCD control unit.

A

ASCD control unit connector (M30)



ASCD control unit connector (M30)



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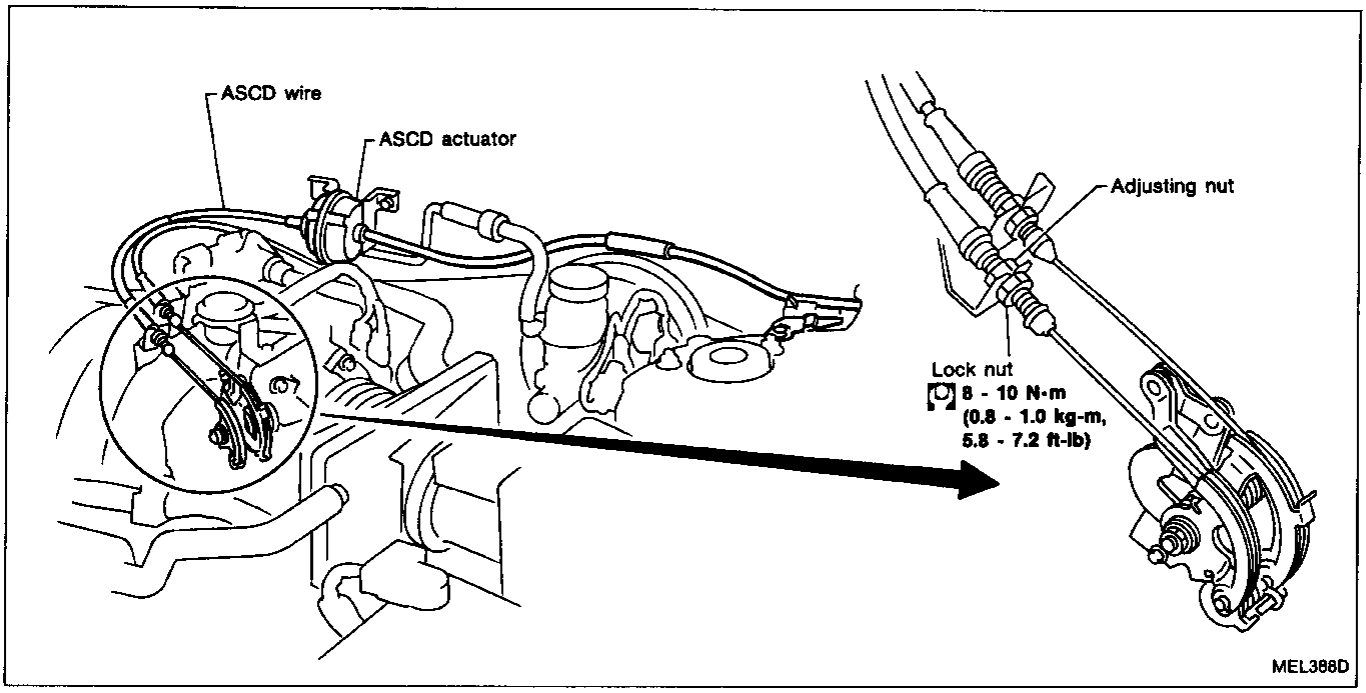
Trouble Diagnoses (Cont'd)

ASCD WIRE ADJUSTMENT



CAUTION:

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

Adjust the tension of ASCD wire in the following manner.

1. Loosen lock nut and adjusting nut.
2. Make sure that accelerator wire is properly adjusted. (Refer to FE section, "ACCELERATOR CONTROL SYSTEM".)
3. Tighten adjusting nut until throttle drum just starts to move.
4. Loosen adjusting nut again 1/2 to 1 turn.
5. Tighten lock nut.

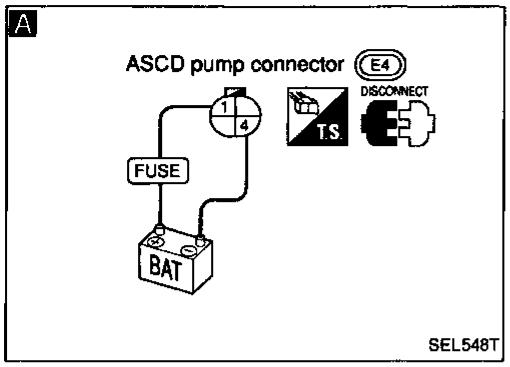
Trouble Diagnoses (Cont'd)

ELECTRICAL COMPONENTS INSPECTION

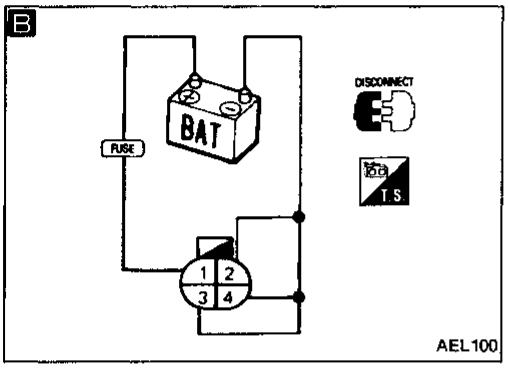
ASCD actuator/ASCD pump

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

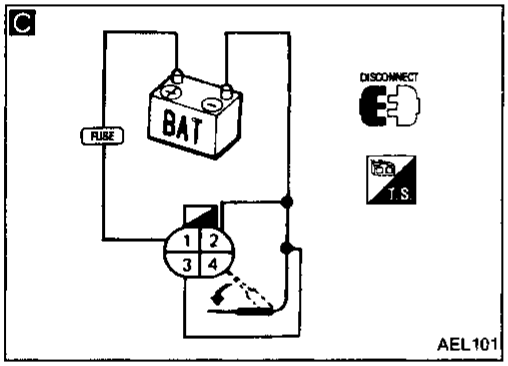
A



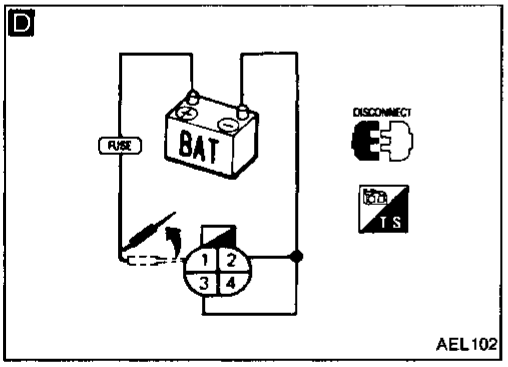
B



C



D



A

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

B

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

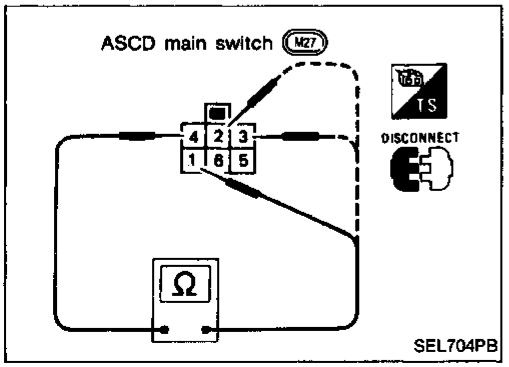
C

Does ASCD wire return to original position 50 to 60 seconds after disconnecting lead from ④?
- Yes → Replace ASCD pump.
- No ↓

D

Disconnect lead from ①. Does ASCD wire return immediately?
- No → Replace ASCD pump.
- Yes ↓

ASCD actuator/ASCD pump are OK.

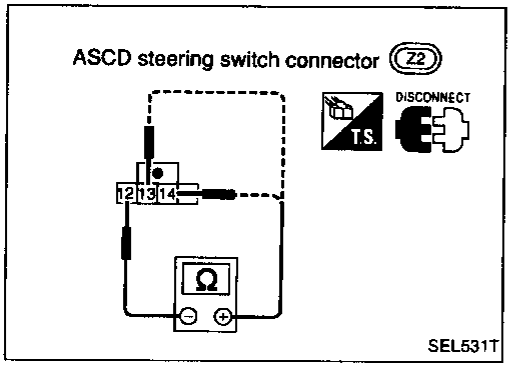


ASCD main switch

Check continuity between terminals by pushing switch to each position.

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

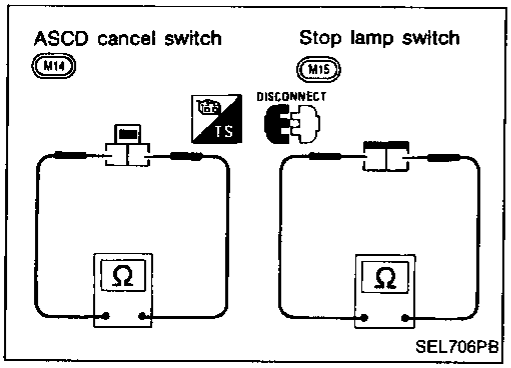
Trouble Diagnoses (Cont'd)



ASCD steering switch

Check continuity between terminals by pushing each button.

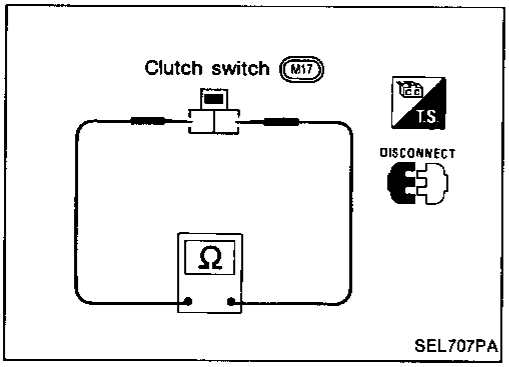
Button	Terminal		
	12	13	14
SET/COAST	○		○
RESUME/ACCEL	○	○	
CANCEL	○	▶I○	
	○	▶	○



ASCD cancel switch and stop lamp switch

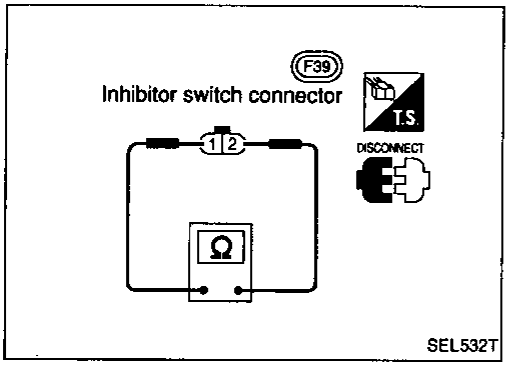
Condition	Continuity	
	ASCD cancel switch	Stop lamp switch
When brake pedal is depressed	No	Yes
When brake pedal is released	Yes	No

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



Clutch switch (For M/T models)

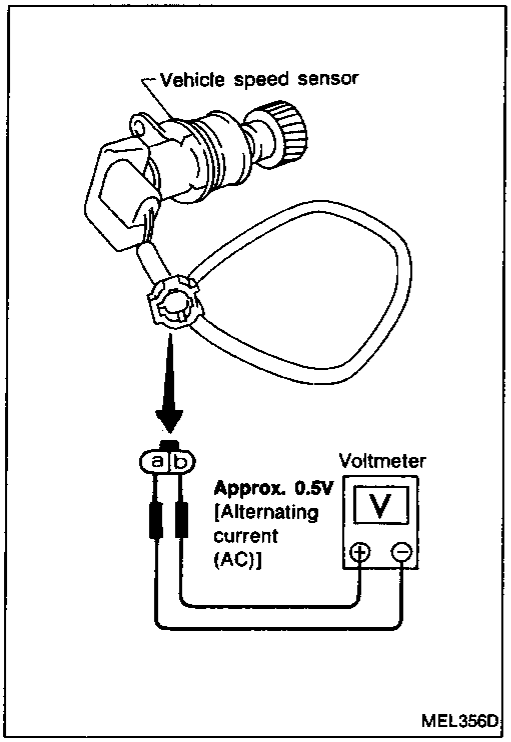
Condition	Continuity
When clutch pedal is depressed	No
When clutch pedal is released	Yes



Inhibitor switch (For A/T models)

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

Trouble Diagnoses (Cont'd)



Vehicle speed sensor

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

Overall Description

OUTLINE

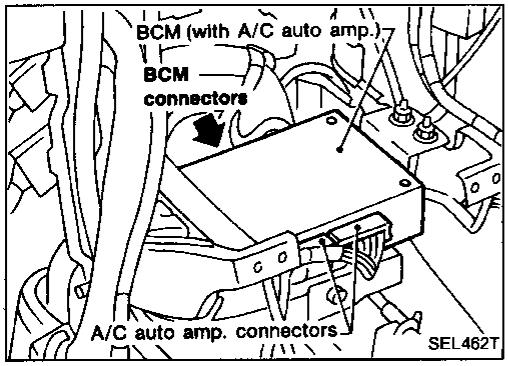
The In-Vehicle Multiplexing System, IVMS (LAN system), consists of a BCM (Body Control Module) and five LCU's (Local Control Units). Some switches and electrical loads are connected to each LCU. Some electrical systems are directly connected to the BCM. Control of each LCU, (which is provided by a switch and electrical load), is accomplished by the BCM, via two multiplex data lines (A and B) connected between the two.

Refer to the System Diagram (EL-142).

BCM (Body Control Module)

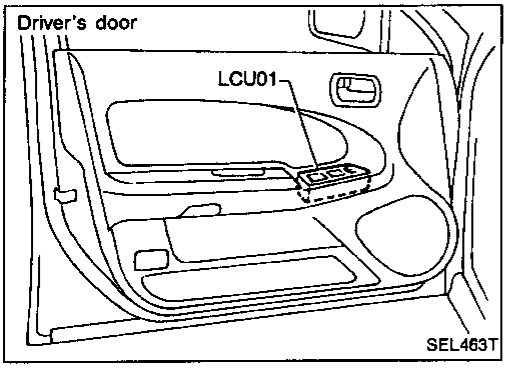
The BCM, which is a master unit of the IVMS (LAN), consists of microprocessor, memory and communication LSI sections and has communication and control functions. It receives data signals from the LCUs and sends electrical load data signals to them.

The BCM is described as a "control assembly (for IVMS)" in the Parts Catalog.



The auto amp. for auto air conditioner, if equipped, is built into the BCM. The BCM connectors are located on the front side of the BCM. Do not be confused with the auto amp. connectors on the rear side of the BCM.

NOTE: The auto amp. function has nothing to do with the IVMS.



LCU (Local Control Unit)

The LCU's, which are slave units of the BCM, have only a communication function and consist of communication LSI and input-output interface circuits. They receive data signals from the BCM, control the ON/OFF operations of electrical loads and the sleep operation, as well as send switch signals to the BCM.

Overall Description (Cont'd)

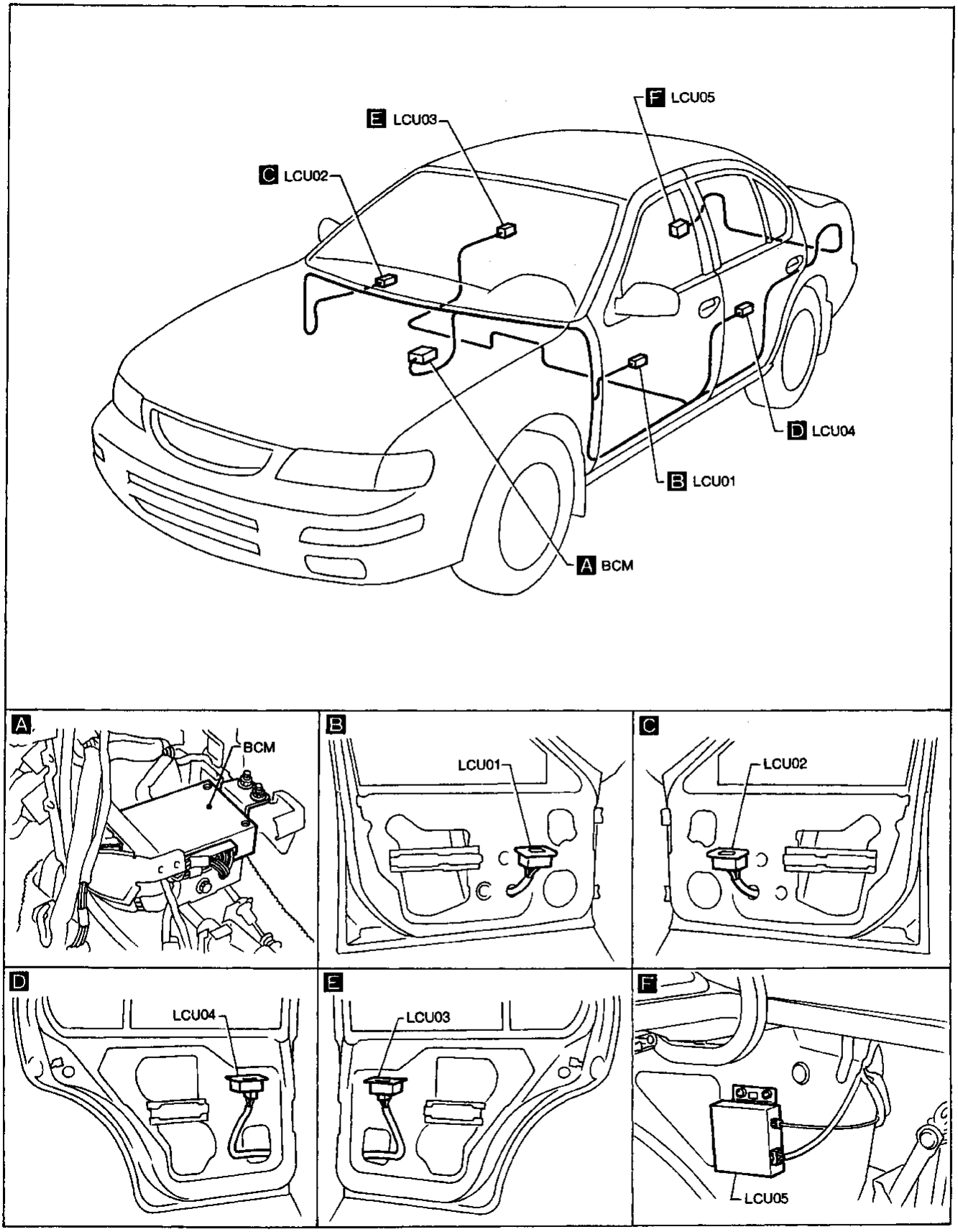
CONTROLLED SYSTEMS

The IVMS controls several body-electrical systems. The systems included in the IVMS are as follows:

- Power window
- Power door lock
- Time control system
  - — Intermittent wiper
  - — Rear window defogger timer
  - — Ignition key warning
  - — Light warning
  - — Interior lamp and ignition keyhole illumination timer
  - — Seat belt warning
  - — Battery saver
- Step lamps
- Multi-remote control system
- Illumination
- Theft warning system
- Interior lamp (ON-OFF control)
- Trouble-diagnosing system
  - — with CONSULT
  - — ON-BOARD

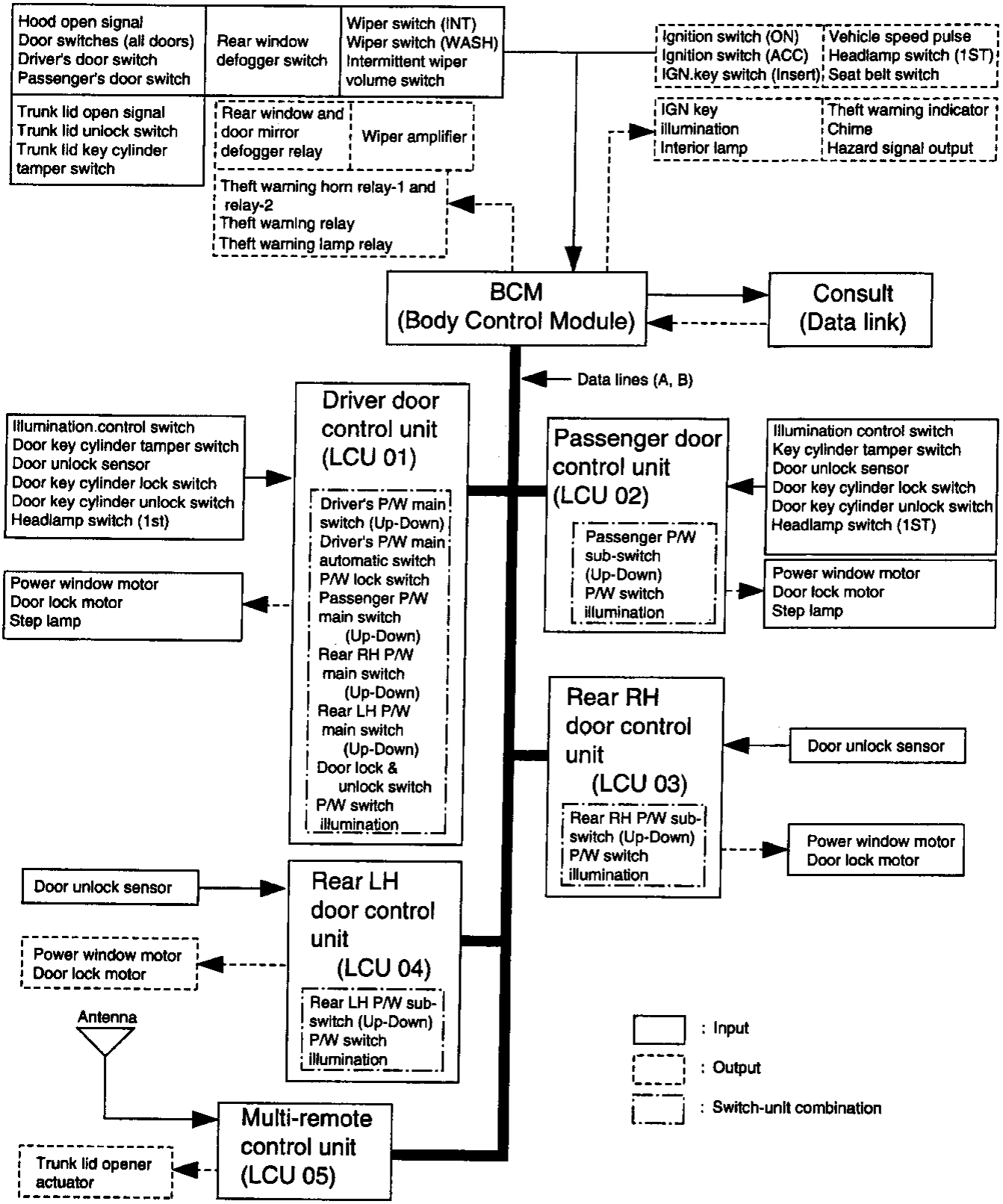
Also, IVMS has the "sleep/wake-up control" function. IVMS puts itself (the whole IVMS system) to sleep under certain conditions to prevent unnecessary power consumption. Then, when a certain input is detected, the system wakes itself up. For more detailed information, refer to "Sleep/Wake-up Control" (EL-143).

Component Parts Location



MEL387D

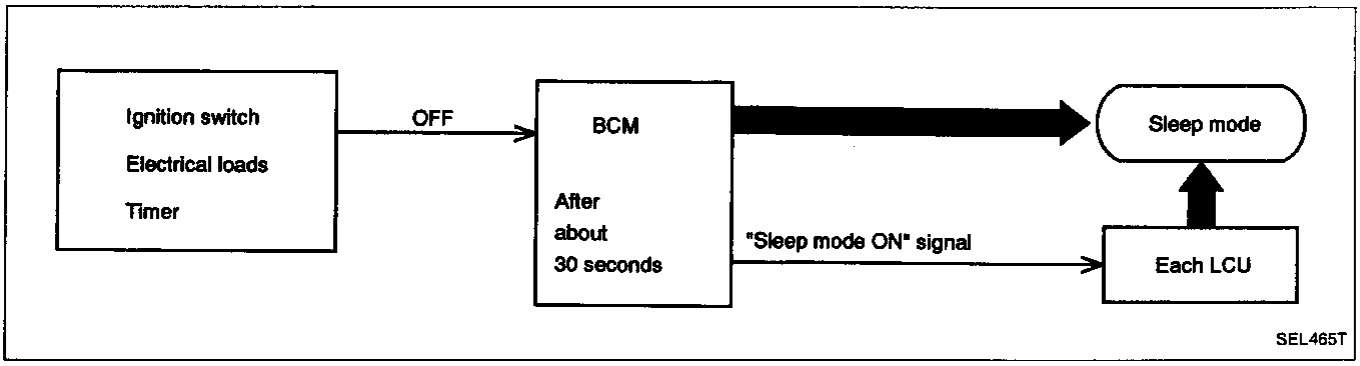
System Diagram



SEL464T

Sleep/Wake-up Control

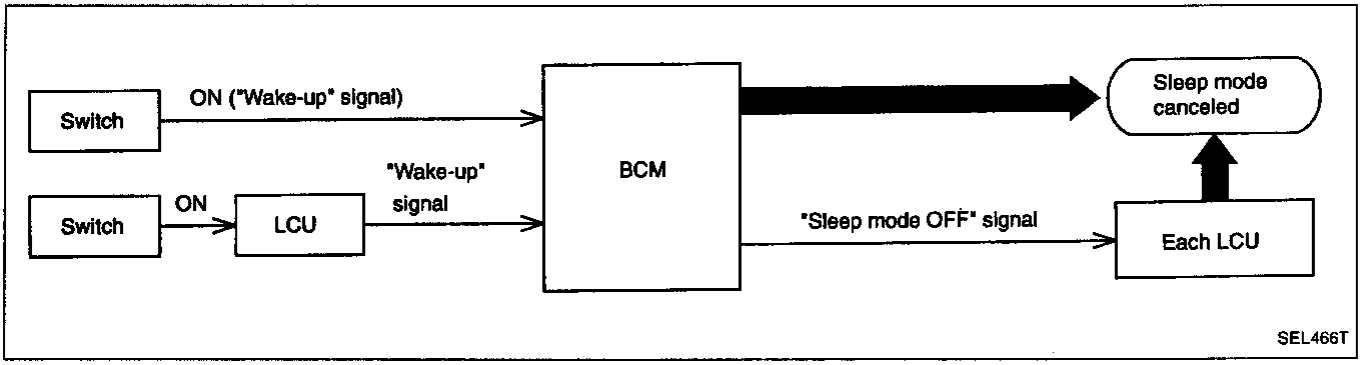
SLEEP CONTROL



"Sleep" control prevents unnecessary power consumption. About 30 seconds after the following conditions are met, the BCM suspends the communication between itself and all LCU's. The whole IVMS system is set in the "sleep" mode.

- Ignition switch "OFF"
- All electrical loads (in the IVMS) "OFF" (except the security indicator lamp)
- Timer "OFF"

WAKE-UP CONTROL



As shown above, when the BCM detects a "wake-up" signal, it wakes up the whole system and starts communicating again. The "sleep" mode of all LCU's is now canceled, and the BCM returns to the normal control mode. When any one of the following switches are turned ON, the "sleep" mode is canceled:

- Ignition key switch (Insert)*
- Ignition switch "ACC" or "ON"
- Lighting switch (1st)
- Door switches (all doors)
- Trunk lid unlock switch
- Trunk lid key cylinder tamper switch
- Trunk room lamp switch
- Hood switch
- Door unlock sensors (all doors)
- Door key cylinder tamper switches (front doors)
- Door key cylinder lock switches and unlock switches (front doors)

* Also, when key is pulled out of ignition (ignition key switch is turned from ON to OFF), the "sleep" mode is canceled.

Fail-safe System

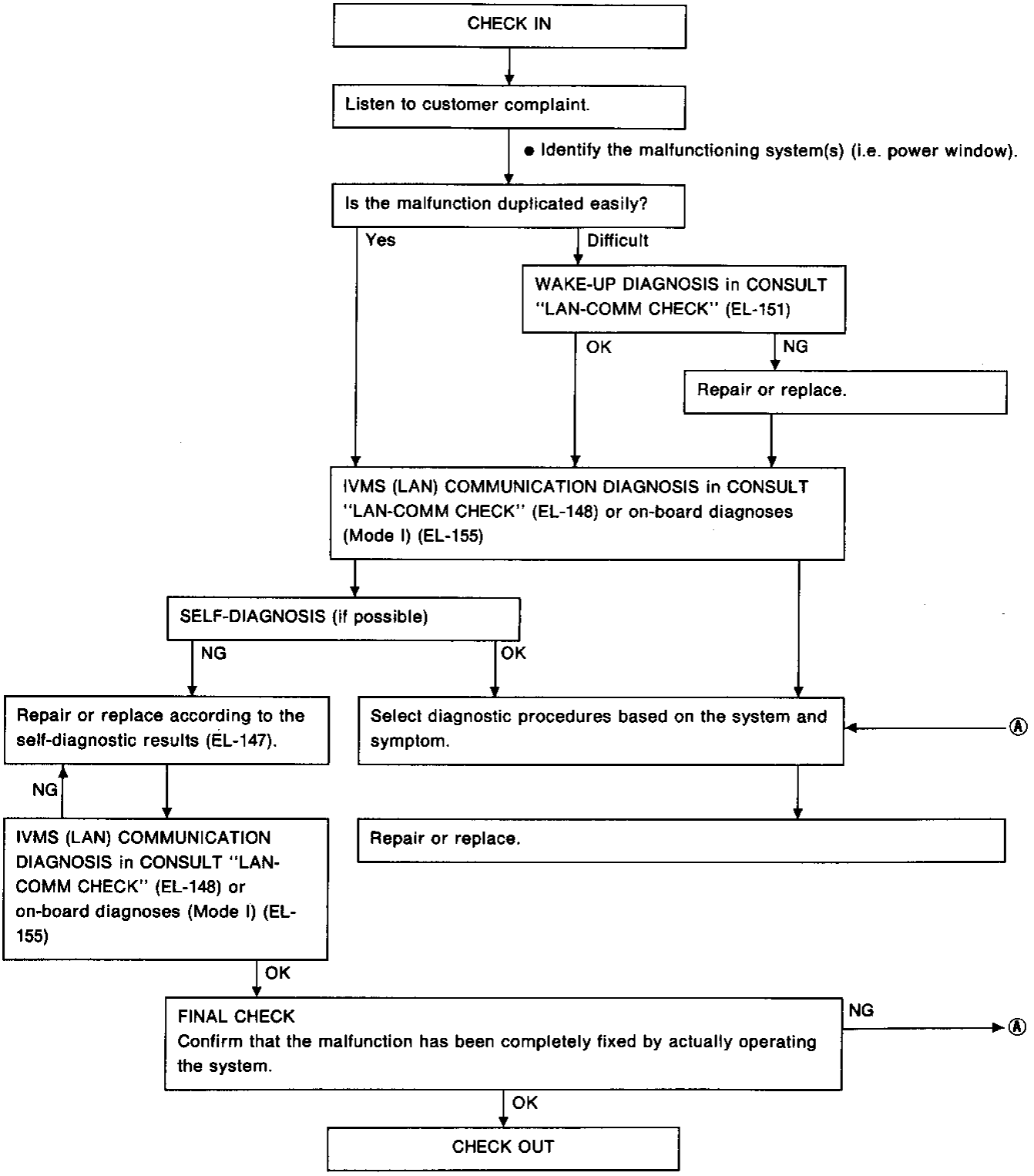
SYSTEM DESCRIPTION

Fail-safe system operates when the computing function of the BCM is judged to be malfunctioning.
If BCM sends no signal or an abnormal signal to an LCU 15 times in succession, the LCU is set in a fail-safe condition. During the fail-safe condition, operation of each electrical load is as indicated in the table below.

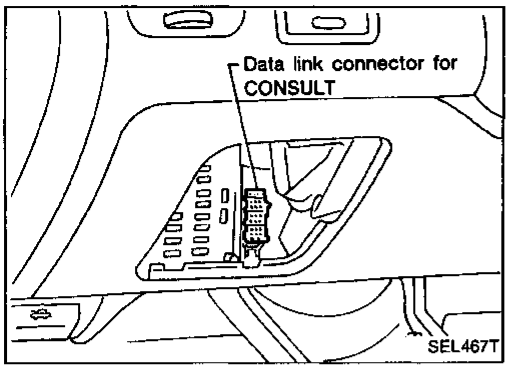
Control system	Electrical load	Operation	Remarks
Power window control	Front power window motor LH (UP/DOWN)	Does not operate.	
	Front power window motor RH (UP/DOWN)	Does not operate.	
	Rear power window motor LH (UP/DOWN)	Does not operate.	
	Rear power window motor RH (UP/DOWN)	Does not operate.	
Power door lock control	Door lock motor (driver side) (LOCK/UNLOCK)	Does not operate.	
	Door lock motor (passenger side) (LOCK/UNLOCK)	Does not operate.	
	Door lock motor (rear LH) (LOCK/UNLOCK)	Does not operate.	
	Door lock motor (rear RH) (LOCK/UNLOCK)	Does not operate.	
Rear window defogger timer control (Door mirror defogger is synchronized)	• Rear window defogger • Door mirror defogger	Operates.	
Ignition key warning control	Chime	Operates.	
Light warning control	Chime	Operates.	
Interior lamp timer control	Interior lamp	Operates.	
	Ignition keyhole illumination	Operates.	
Seat belt timer control	Chime	Operates.	
Wiper control	• Intermittent wiper • Washer and wiper combination	Operates.	
Theft warning control	Theft warning horn relay-1 and -2	Operates.	
	Theft warning relay-1 and -2	Operates.	
	Security indicator lamp	Operates.	
Step lamp control	Step lamp (driver side)	Goes off.	
	Step lamp (passenger side)	Goes off.	
	Step lamp (rear LH)	Goes off.	
	Step lamp (rear RH)	Goes off.	
Illumination control	Power window switch illumination (All doors)	Goes off.	
Multi-remote control	Trunk lid opener actuator	Does not operate.	Cannot be operated by multi-remote controller
	Hazard warning lamps	Does not operate.	
Interior lamp ON-OFF control	Interior lamp	Operates.	

Work Flow

- The IVMS may be diagnosed with the CONSULT or by the on-board diagnosis system.



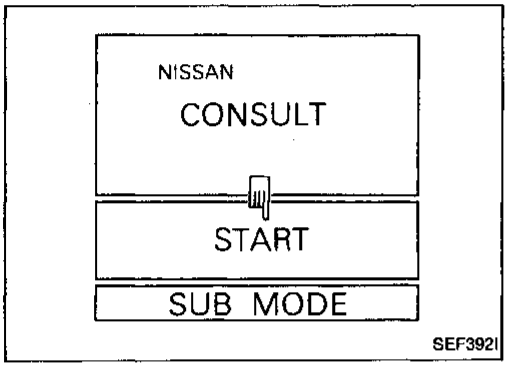
NOTICE:
When LCU connectors are disconnected for more than one minute as in trouble diagnoses, the "disconnected" data will be memorized by the BCM. "IVMS communication diagnosis" with CONSULT will indicate "PAST NO RESPONSE" after the LCU connectors are connected.



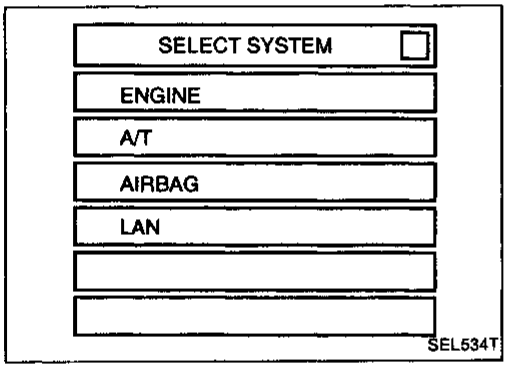
Consult

CONSULT INSPECTION PROCEDURE

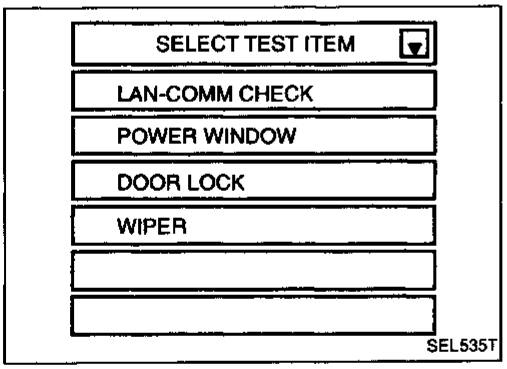
1. Turn ignition switch "OFF".
2. Connect "CONSULT" to the data link connector. (The data link connector is located in left dash side panel.)



3. Turn ignition switch "ON".
4. Touch "START".



5. Touch "LAN".



6. Perform each diagnostic item according to the function chart as follows:

For further information, read the CONSULT Operation Manual.

Consult (Cont'd)

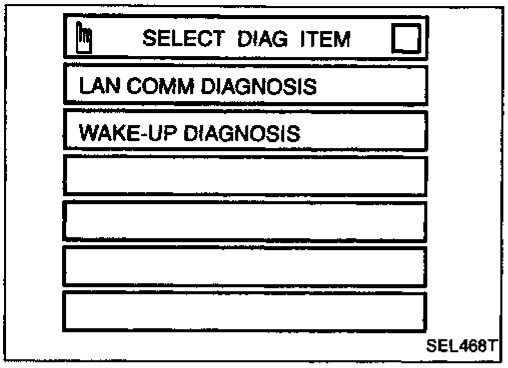
DIAGNOSTIC ITEMS APPLICATION

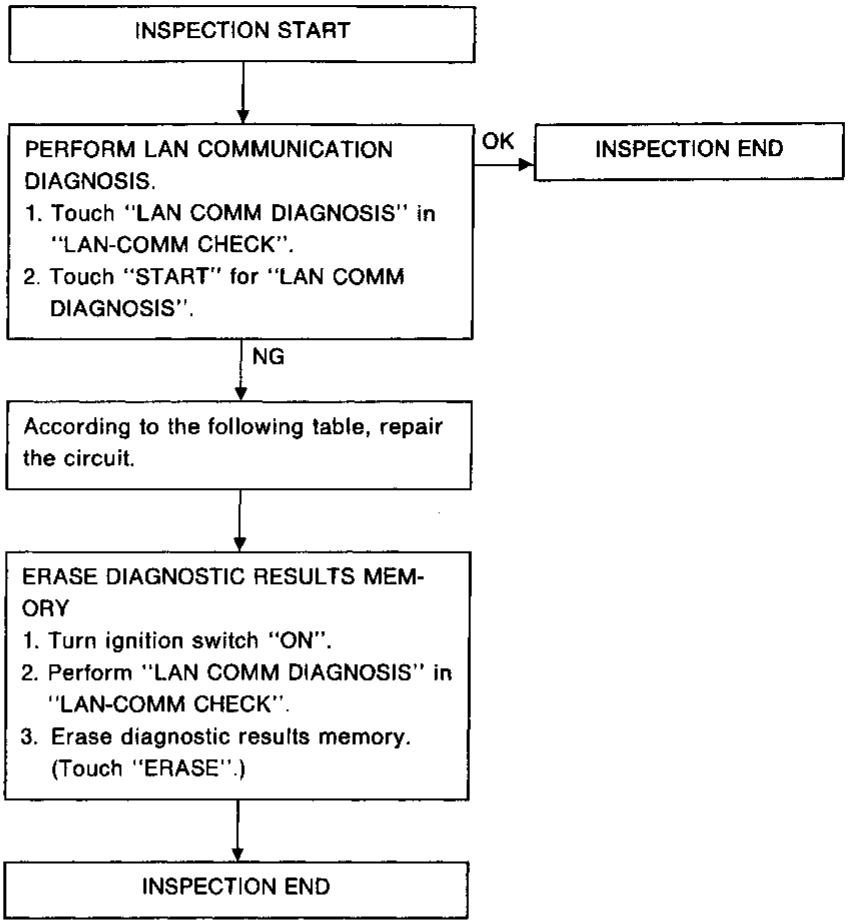
Test item	Diagnosed system	MODE				
		LAN COMM DIAGNOSIS	WAKE-UP DIAGNOSIS	SELF-DIAG-NOSTIC RESULTS	DATA MONI-TOR	ACTIVE TEST
LAN-COMM CHECK	IVMS (LAN) communication and wake-up function	X	X			
POWER WINDOW	Power window				X	X
DOOR LOCK	Power door lock			X	X	X
WIPER	Wiper and washer				X	X
REAR DEFOGGER	Rear window defogger				X	X
IGN KEY WARN ALM	Ignition key warning chime				X	X
LIGHT WARN ALM	Light warning chime				X	X
ROOM LAMP TIMER	Interior lamp timer				X	X
SEAT BELT TIMER	Seat belt timer				X	X
THEFT WARNING SYSTEM	Theft warning system				X	X
STEP LAMP	Step lamps				X	X
ILLUM LAMP	Interior lamp				X	X
MULTI-REMOTE CONT SYS	Multi-remote control				X	X

X: Applicable
For diagnostic item in each control system, read the CONSULT Operation Manual.

Consult (Cont'd)

IVMS COMMUNICATION DIAGNOSIS





DIAGNOSTIC CHART

Diagnostic item	Diagnostic explanation	Number of malfunctioning LCU's	Expected cause	Service procedure
[COMM FAIL] (Communication malfunctioning)	A communication signal is sent from the BCM to all LCU's. LCU's return a signal to the BCM as they receive the signal above. The signals sent from the BCM and returned from LCU's should be the same. If they are different, LCU('s) and/or communication between the BCM and LCU's are malfunctioning.	One	1. Poor connection at LCU connector 2. Open or short circuit in the data lines A and/or B 3. Ground circuit of the LCU open 4. Malfunctioning LCU	1. Check for connector looseness. 2. Check continuity of the data line circuits between the LCU in question and harness-to-harness connector. 3. Check ground circuit of the LCU in question. 4. Replace the LCU in question.
		All	1. Open or short circuit in the data lines. 2. Malfunctioning BCM	1. Check continuity of the data line circuits between the BCM and harness-to-harness connector. 2. Replace the BCM.
[A-LINE NO RESPONSE]* (Communication via data line A not responded)	A communication signal is sent from the BCM to LCU's via data lines A and B. LCU's return the signal via the data line A. If the signal does not return, the data line A is malfunctioning.	One	1. Poor connection in the data line A at the LCU connector 2. Open circuit in the data line A 3. Malfunctioning LCU	1. Check for connector looseness. 2. Check continuity of the data line A circuit between the LCU in question and harness-to-harness connector. 3. Replace the LCU in question.
		Two or more	1. Poor connections at LCU connectors or harness-to-harness connectors 2. Open circuit in the data line A	1. Check for connector looseness. 2. Check continuity of the data line A circuit for the LCU's in question.
		All	1. Short circuit in the data line A with ground 2. Poor connection in the data line A at the BCM connectors 3. Open circuit in the data line A between the BCM and harness-to-harness connector 4. Malfunctioning BCM	1. Check continuity between data line A terminal of BCM connectors and ground. 2. Check for connector looseness. 3. Check continuity of the data line A circuit for the BCM. 4. Replace BCM.
[B-LINE NO RESPONSE]* (Communication via data line B not responded)	A communication signal is sent from the BCM to LCU's via data lines A and B. LCU's return the signal via the data line B. If the signal does not return, the data line B is malfunctioning.	One	1. Poor connection in the data line B at the LCU connector 2. Open circuit in the data line B 3. Malfunctioning LCU	1. Check for connector looseness. 2. Check continuity of the data line B circuit between the LCU in question and harness-to-harness connector. 3. Replace the LCU in question.
		Two or more	1. Poor connection at LCU connectors or harness-to-harness connectors 2. Open circuit in the data line B	1. Check for connector looseness. 2. Check continuity of the data line B circuit for the LCU's in question.
		All	1. Short circuit in the data line B with ground 2. Poor connection in the data line B at the BCM connectors 3. Open circuit in the data line B between the BCM and harness-to-harness connector 4. Malfunctioning BCM	1. Check continuity between data line B terminal of the BCM connectors and ground. 2. Check for connector looseness. 3. Check continuity of the data line B circuit for the BCM. 4. Replace BCM.

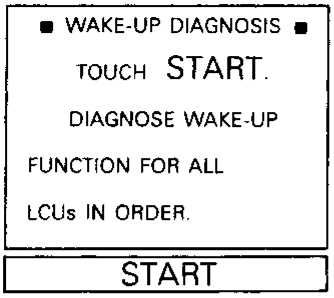
*: There may be cases that a malfunction is detected in one of the two data lines but all systems in the IVMS (such as power window or power door lock) are functioning correctly. In such cases, it is not essential to repair the malfunctioning data line. This is because communication is still accomplished via the other data line that is functioning.

Diagnostic item	Diagnostic explanation	Number of malfunctioning LCU's	Expected cause	Service procedure
[A-LINE NO RESPONSE] [B-LINE NO RESPONSE] (Communication via data lines A and B not responded)	A communication signal is sent from the BCM to LCU's via data lines A and B. LCU's return the signal via the data lines A and B. If the signal does not return, the data lines A and B are malfunctioning.	One	1. Open circuit in the power source for the LCU in question. 2. Poor connection at LCU connector 3. Open circuit in the data lines A and B 4. Open circuit in LCU ground 5. Malfunctioning LCU	1. Check fuse, fusible link, circuit breaker or harness. 2. Check for connector looseness. 3. Check continuity of each data line between the LCU in question and harness-to-harness connectors. 4. Check ground circuit of the LCU in question. 5. Replace the LCU in question.
		Two or more	1. Open circuit in the power source for the LCU's in question 2. Poor connection at LCU connectors or harness-to-harness connectors 3. Open circuit in the data lines A and B 4. Malfunctioning LCU's	1. Check fuse, fusible link, circuit breaker or harness. 2. Check for connector looseness. 3. Check continuity of each data line between the LCU's in question and harness-to-harness connectors. 4. Replace the LCU's in question.
		All	1. Short circuit between data lines A and B 2. Short circuits in the data lines A and B with ground 3. Poor connection at the BCM connectors 4. Open circuit in the data lines A and B between the BCM and harness-to-harness connectors 5. Malfunctioning BCM	1. Check continuity between data lines A and B. 2. Check continuity between data line terminals of the BCM connectors and ground. 3. Check for connector looseness. 4. Check continuity of each data line between the BCM and harness-to-harness connectors. 5. Replace the BCM.
[COMM FAIL] [A-LINE NO RESPONSE] [B-LINE NO RESPONSE]	All malfunctions indicated above are evident.	One	1. Open circuit in LCU ground	1. Check ground circuit of the LCU in question.
		Two or more	1. Open circuits in LCU grounds	1. Check ground circuits of the LCU's in question.
		All	1. Malfunctioning BCM	1. Replace BCM.

Consult (Cont'd)

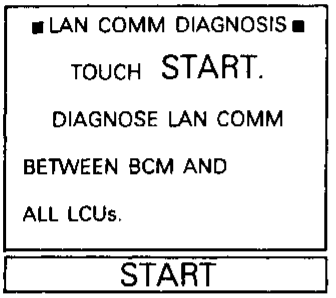
WAKE-UP DIAGNOSIS

1



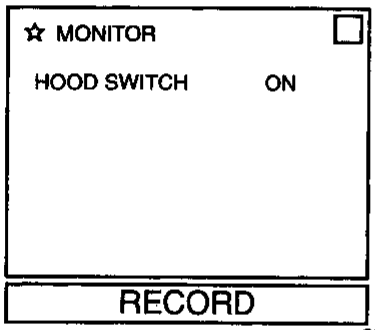
SEL513S

2

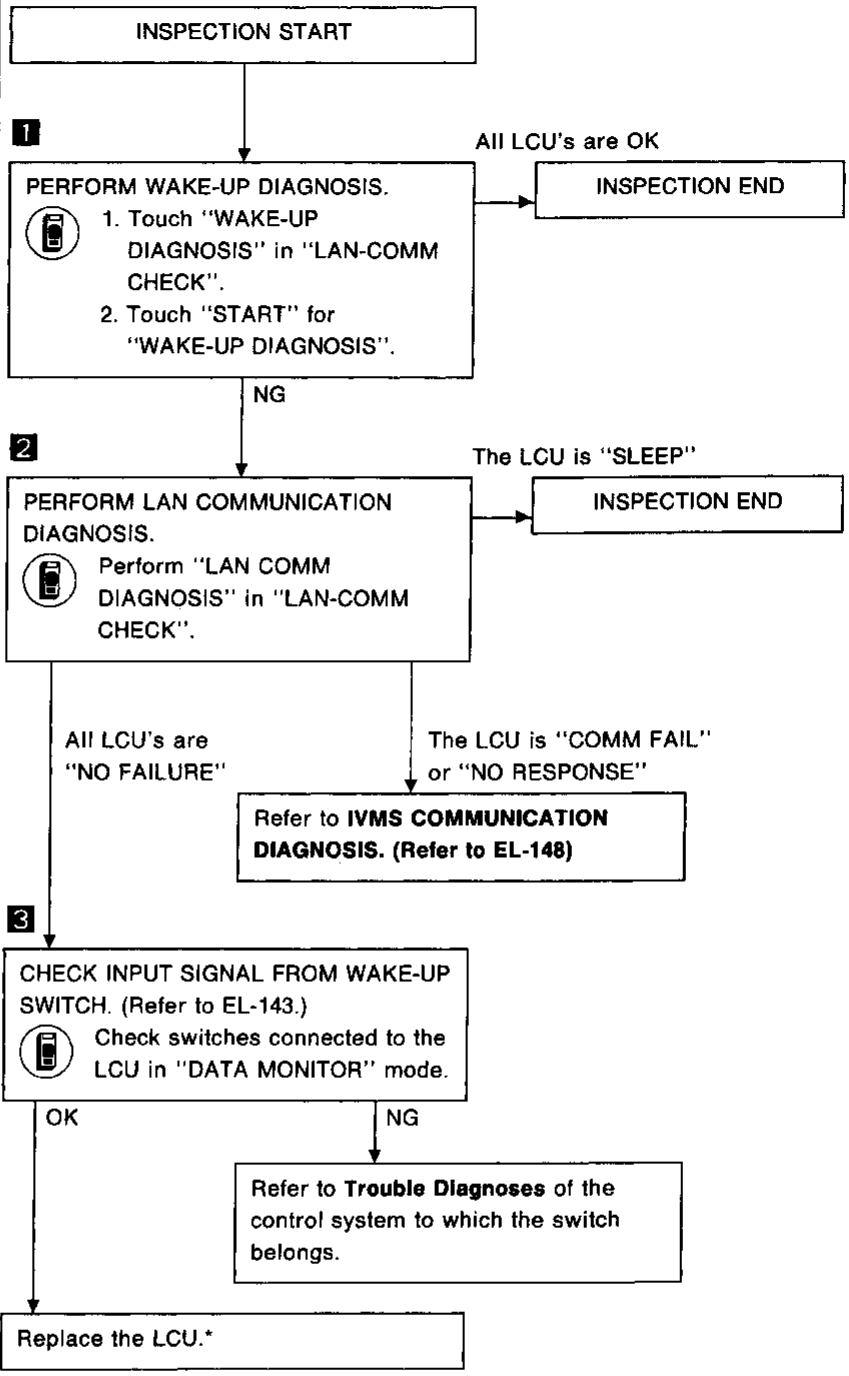


SEL514S

3



SEL533T



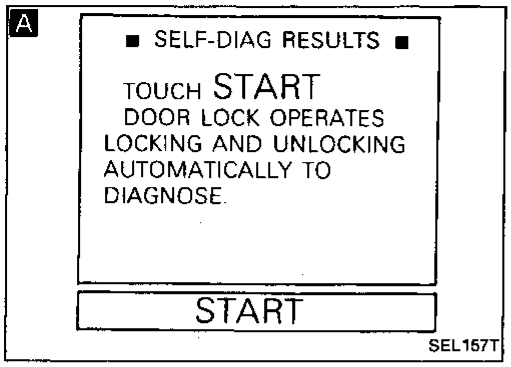
*: LCU may be the cause of a problem, but this is rarely the case.

Consult (Cont'd)

POWER DOOR LOCK — Self-diagnostic results

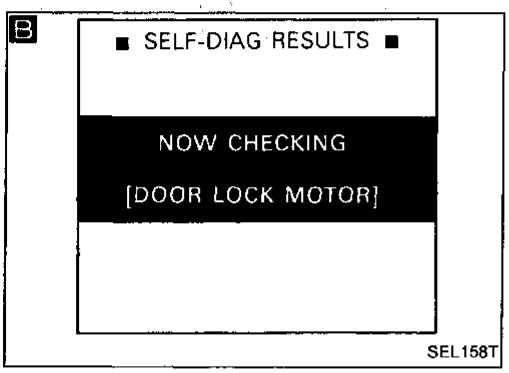
Diagnostic procedure

A



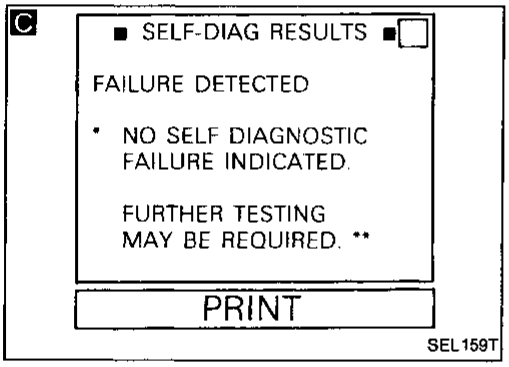
1) Choose "**DOOR LOCK**" in SELECT TEST ITEM.
2) Touch "**SELF-DIAG RESULTS**" of SELECT DIAG mode.
3) Touch "**START**".

B

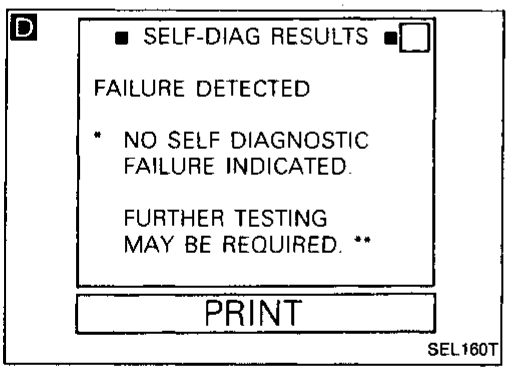


Start self-diagnosis on all door motors. Lock and unlock all doors by operating door motors automatically.

C D



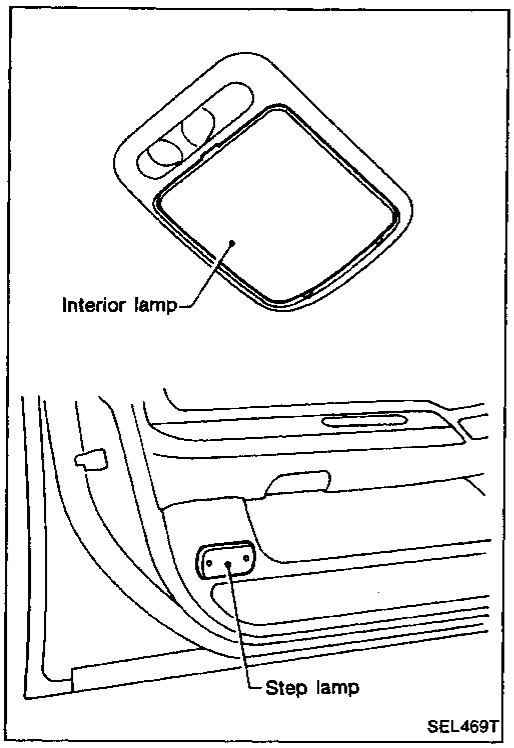
Diagnostic contents are as shown in the figure at left.
C : When no malfunction is detected
D : When malfunction is detected
A summary of diagnostic results is given in the following chart.



Consult (Cont'd)

Power door lock result list

Diagnostic item	Explanation	Repair order
*NO SELF DIAGNOSTIC FAILURE INDICATED/FURTHER TESTING MAY BE REQUIRED.**	Normal The door lock system is in good order.	—
DOOR LOCK MOTOR-DR	The circuit for the driver side door lock motor is malfunctioning.	1. Visually check the wiring harness connections. 2. Diagnose the door lock motor circuit referring to the DIAGNOSTIC PROCEDURES of "POWER DOOR LOCK — IVMS" (EL-197).
DOOR LOCK MOTOR-AS	The circuit for the passenger side door lock motor is malfunctioning.	
DOOR LOCK MOTOR-RR/RH	The circuit for the rear RH side door lock motor is malfunctioning.	
DOOR LOCK MOTOR-RR/LH	The circuit for the rear LH side door lock motor is malfunctioning.	



On-board Diagnosis

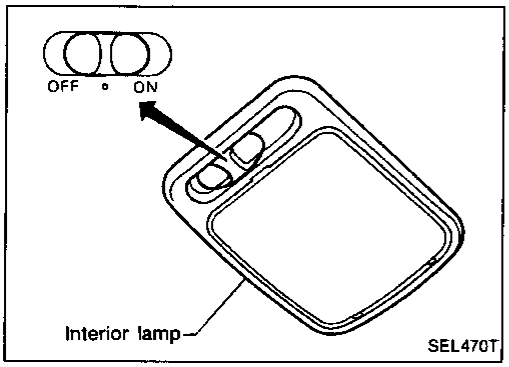
SELF-DIAGNOSTIC RESULTS INDICATOR LAMP

The interior lamp and step lamps (front seats) act as the indicators for the on-board diagnosis. These lamps blink simultaneously in response to self-diagnostic results.

SELF-DIAGNOSTIC FUNCTION

Mode	Function	Self-diagnostic results indicator lamp	
		Interior lamp	Step lamps (front seats)
Mode I	IVMS communication diagnosis	X	X
Mode II	Switch monitor	X	X
Mode III	Power door lock operation	X	X
Mode IV	Power window monitor	X	X

X : applicable



On-board Diagnosis — Mode I (IVMS communication diagnosis)

HOW TO PERFORM MODE I

Condition
- Ignition switch: OFF
- Headlamp switch: OFF
- Rear window defogger switch: OFF
- Doors: Closed
- Interior lamp: Center "○" position

↓

Turn ignition switch "ON".

↓

Return ignition switch to "OFF" and press rear window defogger switch more than 10 times during 10 seconds.

↓

Self-diagnostic results indicator lamps should turn on.

↓

Rear window defogger switch holds off.

↓

Turn ignition switch "ON" within 5 seconds after the indicator lamps turn on.

↓

Indicator lamp turn off.

↓ After a second

Mode I is performed.

↓

Turn ignition switch "OFF".

↓

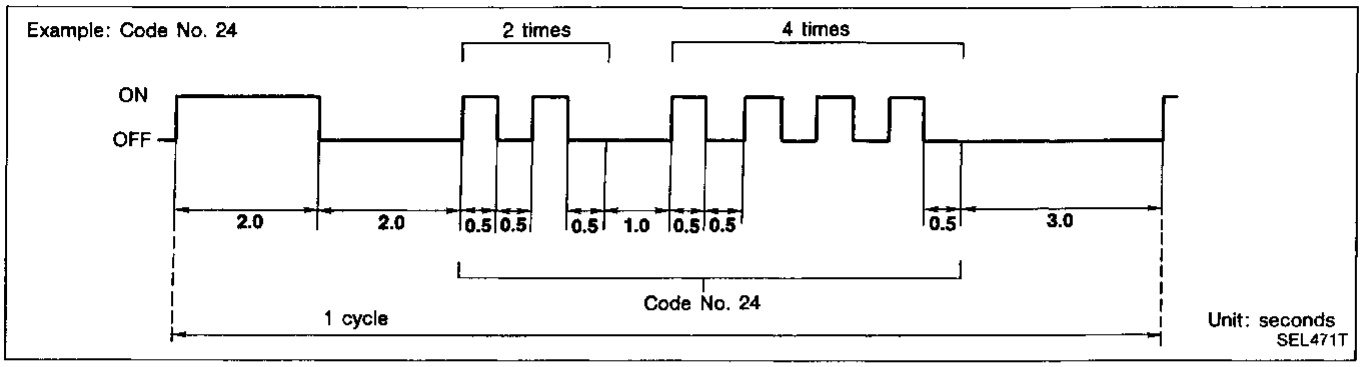
DIAGNOSIS END*

*: Diagnosis ends after self-diagnostic results have been indicated for 10 minutes if left unattended.

On-board Diagnosis — Mode I (IVMS communication diagnosis) (Cont'd)

DESCRIPTION

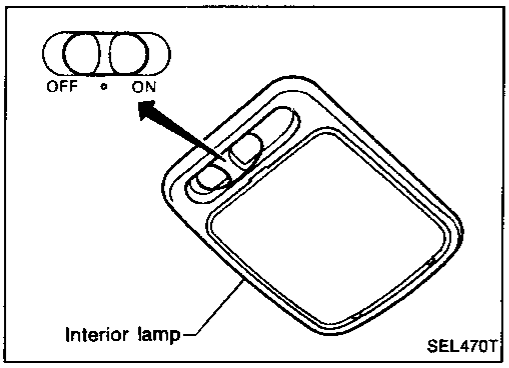
In this mode, a malfunction code is indicated by the number of flashes from the interior lamp and front step lamps as shown below:



After indicator lamp turns on for 2 seconds then off for 2 seconds, it flashes [cycling ON (0.5 sec.)/OFF (0.5 sec.)] to indicate a malfunction code of the 10th digit. Then, 1 second after indicator lamp turns off, it again flashes [cycling ON (0.5 sec.)/OFF (0.5 sec.)] to indicate a malfunction code of the 1st digit.
For example, the indicator lamp goes on and off for 0.5 seconds twice and after 1.0 seconds, it goes on and off for 0.5 seconds four times. This indicates malfunction code "24". The self-diagnostic results will remain in the BCM memory.

Malfunction code table

Code No.	Malfunctioning LCU	Detected items	Diagnostic procedure
24	Driver door control unit (LCU01)	Malfunctioning communication	Refer to Consult DIAGNOSTIC CHART, "COMM FAIL" (EL-149).
25		No response from data line A	Refer to Consult DIAGNOSTIC CHART, "A-LINE NO RESPONSE" (EL-149).
26		No response from data line B	Refer to Consult DIAGNOSTIC CHART, "B-LINE NO RESPONSE" (EL-149).
34	Passenger door control unit (LCU02)	Malfunctioning communication	Refer to Consult DIAGNOSTIC CHART, "COMM FAIL" (EL-149).
35		No response from data line A	Refer to Consult DIAGNOSTIC CHART, "A-LINE NO RESPONSE" (EL-149).
36		No response from data line B	Refer to Consult DIAGNOSTIC CHART, "B-LINE NO RESPONSE" (EL-149).
41	Rear LH door control unit (LCU03)	Malfunctioning communication	Refer to Consult DIAGNOSTIC CHART, "COMM FAIL" (EL-149).
42		No response from data line A	Refer to Consult DIAGNOSTIC CHART, "A-LINE NO RESPONSE" (EL-149).
43		No response from data line B	Refer to Consult DIAGNOSTIC CHART, "B-LINE NO RESPONSE" (EL-149).
44	Rear RH door control unit (LCU04)	Malfunctioning communication	Refer to Consult DIAGNOSTIC CHART, "COMM FAIL" (EL-149).
45		No response from data line A	Refer to Consult DIAGNOSTIC CHART, "A-LINE NO RESPONSE" (EL-149).
46		No response from data line B	Refer to Consult DIAGNOSTIC CHART, "B-LINE NO RESPONSE" (EL-149).
54	Multi-remote control unit (LCU05)	Malfunctioning communication	Refer to Consult DIAGNOSTIC CHART, "COMM FAIL" (EL-149).
55		No response from data line A	Refer to Consult DIAGNOSTIC CHART, "A-LINE NO RESPONSE" (EL-149).
56		No response from data line B	Refer to Consult DIAGNOSTIC CHART, "B-LINE NO RESPONSE" (EL-149).



On-board Diagnosis — Mode II (Switch monitor)

HOW TO PERFORM MODE II

Condition
- Ignition switch: OFF
- Headlamp switch: OFF
- Rear window defogger switch: OFF
- Doors: Closed
- Interior lamp: Center "○" position

↓

Turn ignition switch "ON".

↓

Return ignition switch to "OFF" and press rear window defogger switch more than 10 times during 10 seconds.

↓

Self-diagnostic results indicator lamps should turn on.

↓

Turn ignition switch "ON" within 5 seconds after the indicator lamps turn on.

↓

Indicator lamps turn off.

↓ After a second

Mode II is performed.

↓

Turn ignition switch "OFF".

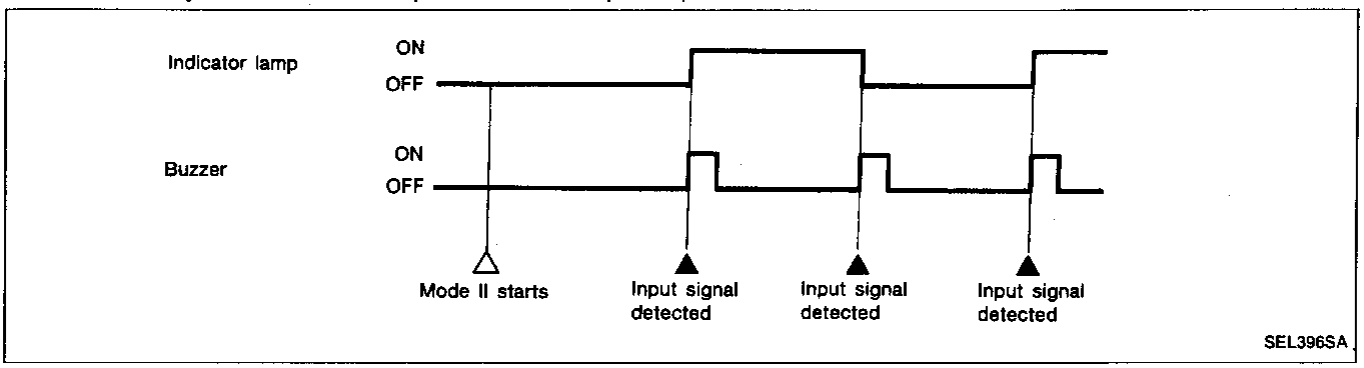
↓

DIAGNOSIS END

On-board Diagnosis — Mode II (Switch monitor) (Cont'd)

DESCRIPTION

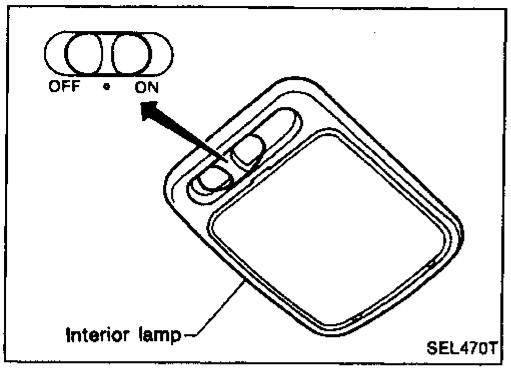
In this mode, when BCM detects the input signal from a switch in IVMS as shown below, the detection is indicated by the interior lamp and front step lamps with buzzer.



Switch monitor item

BCM	• Hood switch • Trunk room lamp switch • Trunk lid key cylinder tamper switch • Trunk lid unlock switch • Door switches • Headlamp switch (1st) • Wiper switch (INT) • Wiper switch (WASH) • Door switch (driver's side) • Door switch (passenger side) • Seat belt buckle switch
LCU 01	• Power window lock switch • Power window main switches (UP/DOWN) • Power window automatic switch • Illumination control switch • Door lock & unlock switch (LOCK/UNLOCK) • Door key cylinder switch • Key cylinder tamper switch

LCU 02	• Door key cylinder switch • Key cylinder tamper switch • Door unlock sensor • Passenger power window sub-switch (UP/DOWN)	
LCU 03	• Power window sub-switch (Rear RH) (UP/DOWN)	
LCU 04	• Power window sub-switch (Rear LH) (UP/DOWN)	
LCU 05	• Door lock button • Door unlock button • Interior lamp button • Trunk lid opener button	Operated by multi-remote controller



On-board Diagnosis — Mode III (Power door lock operation)

HOW TO PERFORM MODE III

Condition
- Ignition switch: OFF
- Headlamp switch 1st: ON
- Rear window defogger switch: OFF
- Doors: Closed
- Interior lamp: Center "○" position

↓

Turn ignition switch "ON".

↓

Return ignition switch to "OFF" and press rear window defogger switch more than 10 times during 10 seconds.

↓

Self-diagnostic results indicator lamps should turn on.

↓

Rear window defogger switch holds off.

↓

Turn ignition switch "ON" within 5 seconds after the indicator lamps turn on.

↓

Indicator lamps turn off.

↓ After a second

Mode III is performed.

↓

Turn ignition switch "OFF".

↓

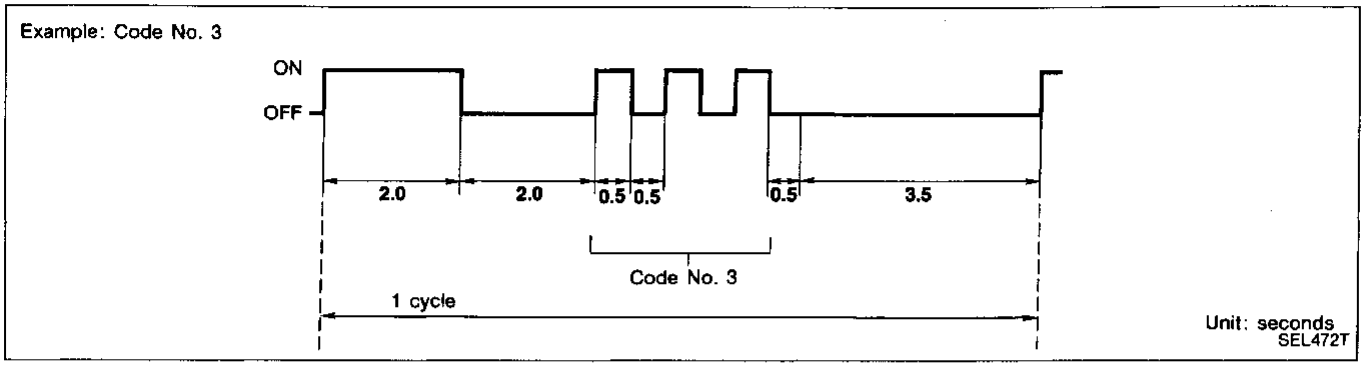
DIAGNOSIS END* (**Be sure to turn off the lighting switch.**)

*: Diagnosis ends after self-diagnostic results have been indicated for 10 minutes if left unattended.

On-board Diagnosis — Mode III (Power door lock operation) (Cont'd)

DESCRIPTION

In this mode, a malfunction code is indicated by the number of flashes from the interior lamp and front step lamps as shown below:

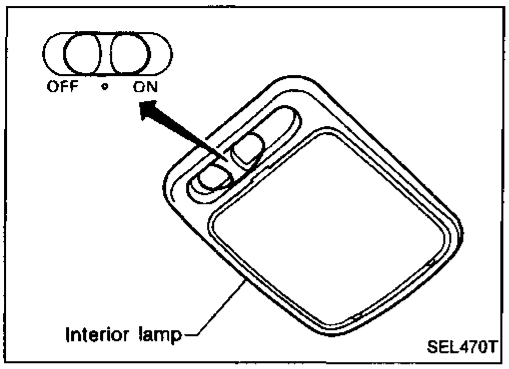


After indicator lamp turns ON for 2 seconds and then turns OFF, it flashes to indicate a malfunction code. For example, the indicator lamp goes on and off for 0.5 seconds three times. This indicates malfunction code "3".

The self-diagnostic results will remain in the BCM memory.

Malfunction code table

Code No.	Detected items	Repair order
1	Front LH door lock motor circuit	1. Visually check the wiring harness connections. 2. Diagnose the door lock motor circuit referring to the DIAGNOSTIC PROCEDURES of "POWER DOOR LOCK — IVMS" (EL-197).
2	Front RH door lock motor circuit	
3	Rear RH door lock motor circuit	
4	Rear LH door lock motor circuit	
9	No malfunction in the above circuit	—



On-board Diagnosis — Mode IV (Power window monitor)

HOW TO PERFORM MODE IV

Condition
- Ignition switch: OFF
- Headlamp switch 1st: ON
- Rear window defogger switch: OFF
- Front LH window: Closed
- Doors: Closed
- Interior lamp: Center "○" position

↓

Turn ignition switch "ON".

↓

Return ignition switch to "OFF" and press rear window defogger switch more than 10 times during 10 seconds.

↓

Self-diagnostic results indicator lamps should turn on.

↓

Keep the rear window defogger switch pressed in, and turn ignition switch "ON" within 5 seconds after the indicator lamps turn on.

↓

Indicator lamps turn off.

↓ After a second

Mode IV is performed.

↓

Turn ignition switch "OFF".

↓

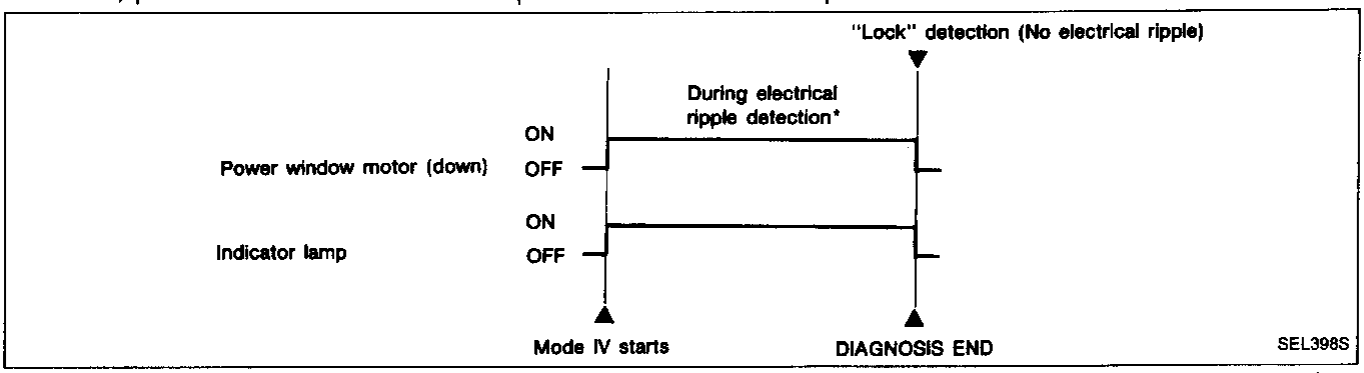
DIAGNOSIS END* (**Be sure to turn off the lighting switch.**)

*: Diagnosis ends after self-diagnostic results have been indicated for 10 minutes if left unattended.

On-board Diagnosis — Mode IV (Power window monitor) (Cont'd)

DESCRIPTION

In mode IV, front LH window is automatically operated. In conjunction with power window motor (DOWN) "ON", indicator lamps (interior lamp and front step lamps) turn on. When power window "lock" is detected, power window motor will stop and the indicator lamps will turn off.

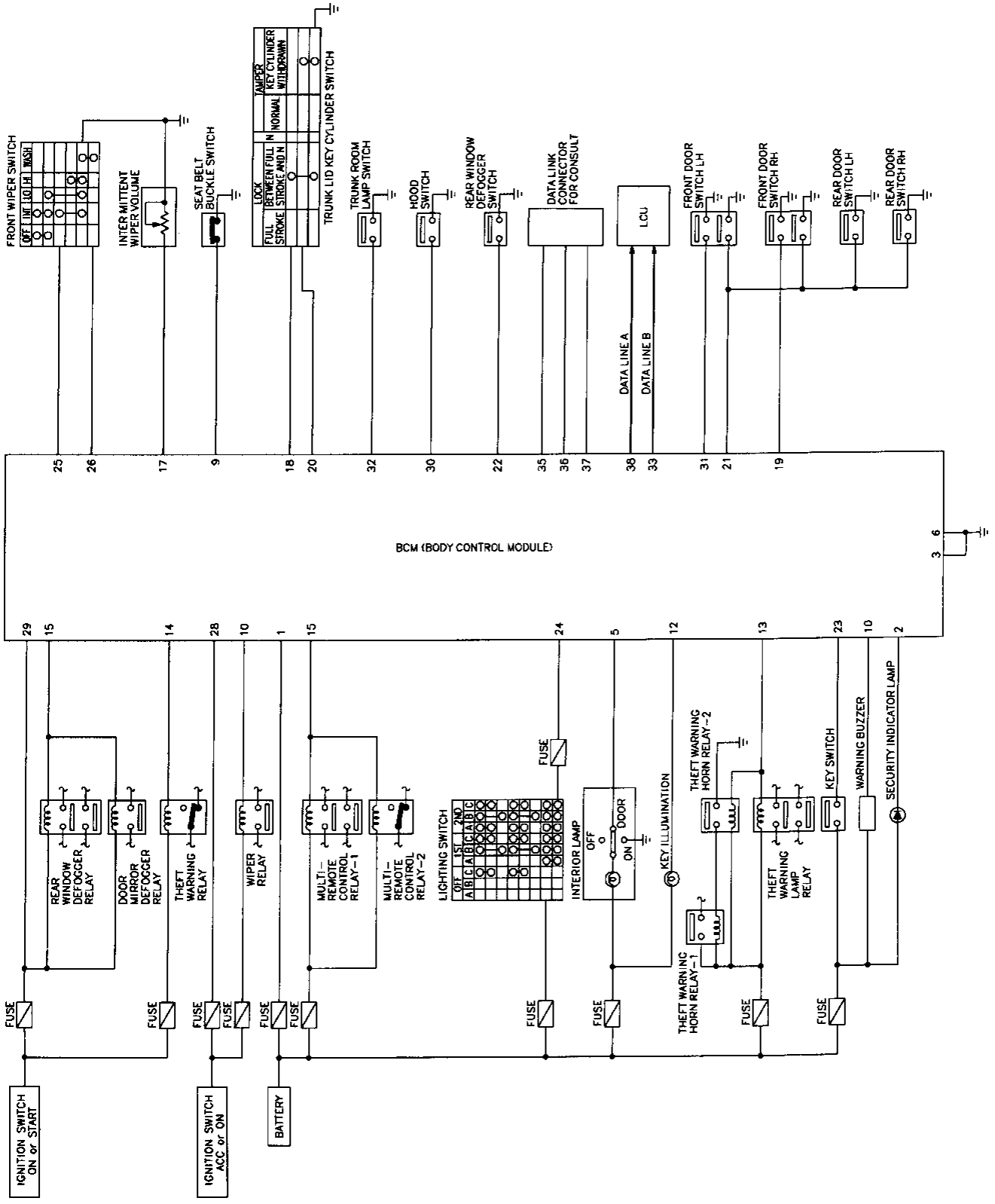


NOTE: As soon as manual switches (each seat's power window switch) turn ON, front LH power window motor (DOWN) stops and diagnosis ends.

* While power window motor is being operated, electrical ripple occurs.

Body Control Module (BCM)

CIRCUIT DIAGRAM



MEL413D

Body Control Module (BCM) (Cont'd)

INPUT/OUTPUT OPERATION SIGNAL

Terminal No.	Connections	INPUT (I)/ OUTPUT (O)	Operated condition		Voltage (V) (Approximate values)
1	Power source	—	—		12
2	Theft warning indicator	O	Theft warning control	Illuminated	0
				Turned off	12
3	Ground	—	—		—
4	—	—	—		—
5	Interior lamp	O	ON (Illuminated)		0
			OFF		12
6	Ground	—	—		—
7	—	—	—		—
8					
9	Seat belt switch	I	When the seat belt is fastened		12
			When the seat belt is not fastened		0
10	Wiper amplifier (ON signal)	O	Wiper switch	ON	0
				OFF	12
11	Hazard	O	Flasher lamp	ON	0
				OFF	12
12	Ignition keyhole illumination	O	ON		0
			OFF		12
13	Theft warning horn relays and theft warning lamp relay	O	ON		0
			OFF		12
14	Theft warning relay	O	Theft warning control	ON	0
				OFF	12
15	Defogger relay	O	Time control	ON	0
				OFF	12
16	Buzzer	O	ON		0
			OFF		12
17	Intermittent wiper volume switch	I	Intermittent time	Max. (20 sec)	3.6
				Min. (2 sec)	0
18	Trunk lid unlock switch	I	Unlocked		0
			Locked		5
19	Passenger's door switch	I	ON (Open)		0
			OFF (Closed)		5
20	Trunk lid tamper switch	I	ON		0
			OFF		12
21	Door switches (All doors)	I	Door switch	ON (Open)	0
				OFF (Closed)	12
22	Rear window defogger switch	I	ON		0
			OFF		5

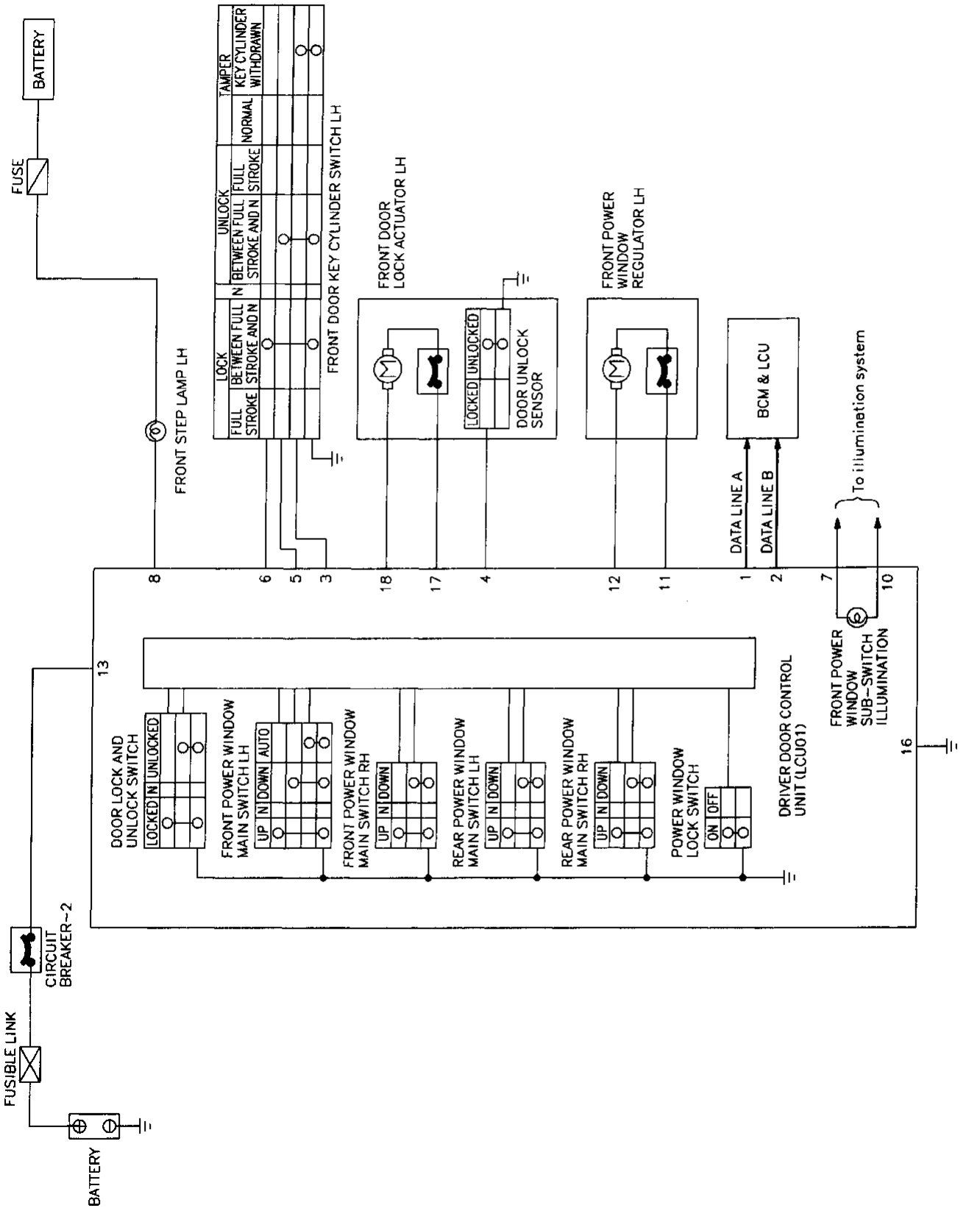
Body Control Module (BCM) (Cont'd)

Terminal No.	Connections		INPUT (I)/ OUTPUT (O)	Operated condition	Voltage (V) (Approximate values)
23	Ignition key switch (Insert)		I	IGN key removed from ignition key cylinder (OFF)	0
				IGN key inserted into ignition key cylinder (ON)	12
24	Headlamp switch (1ST)		I	1ST, 2ND positions: ON	12
				OFF	0
25	Wiper switch (Intermittent)		I	ON	0
				OFF	12
26	Wiper switch (Wash)		I	ON	0
				OFF	12
27	Vehicle speed pulse		I	Pulse	0 - 5
28	Ignition switch (ACC)		I	Ignition key in "ACC" position	12
29	Ignition switch (ON)		I	Ignition key in "ON" position	12
30	Hood switch		I	Open (ON)	0
				Closed (OFF)	5
31	Driver's door switch		I	Open (ON)	0
				Closed (OFF)	12
32	Trunk lid open signal		I	Open (ON)	0
				Closed (OFF)	12
33	Data line (B)		I/O	—	—
34	CONSULT	On-board diagnostic results	—	—	—
35		TX signal	—	—	—
36		RX signal	—	—	—
37		CLK signal	—	—	—
38	Data line (A)		I/O	—	—

Local Control Units (LCU's)

CIRCUIT DIAGRAM

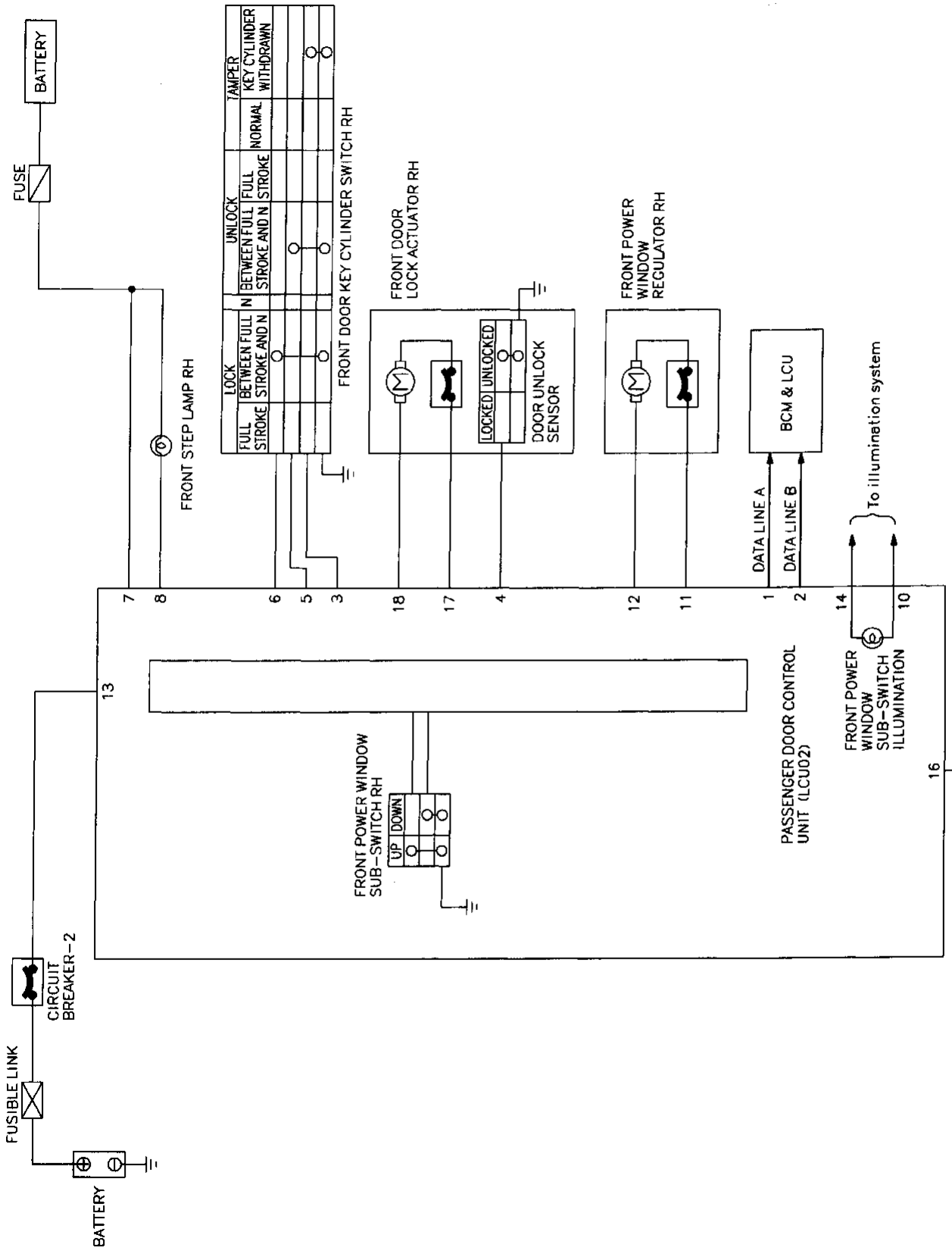
Driver door control unit (LCU01)



MEL414D

Local Control Units (LCU's) (Cont'd)

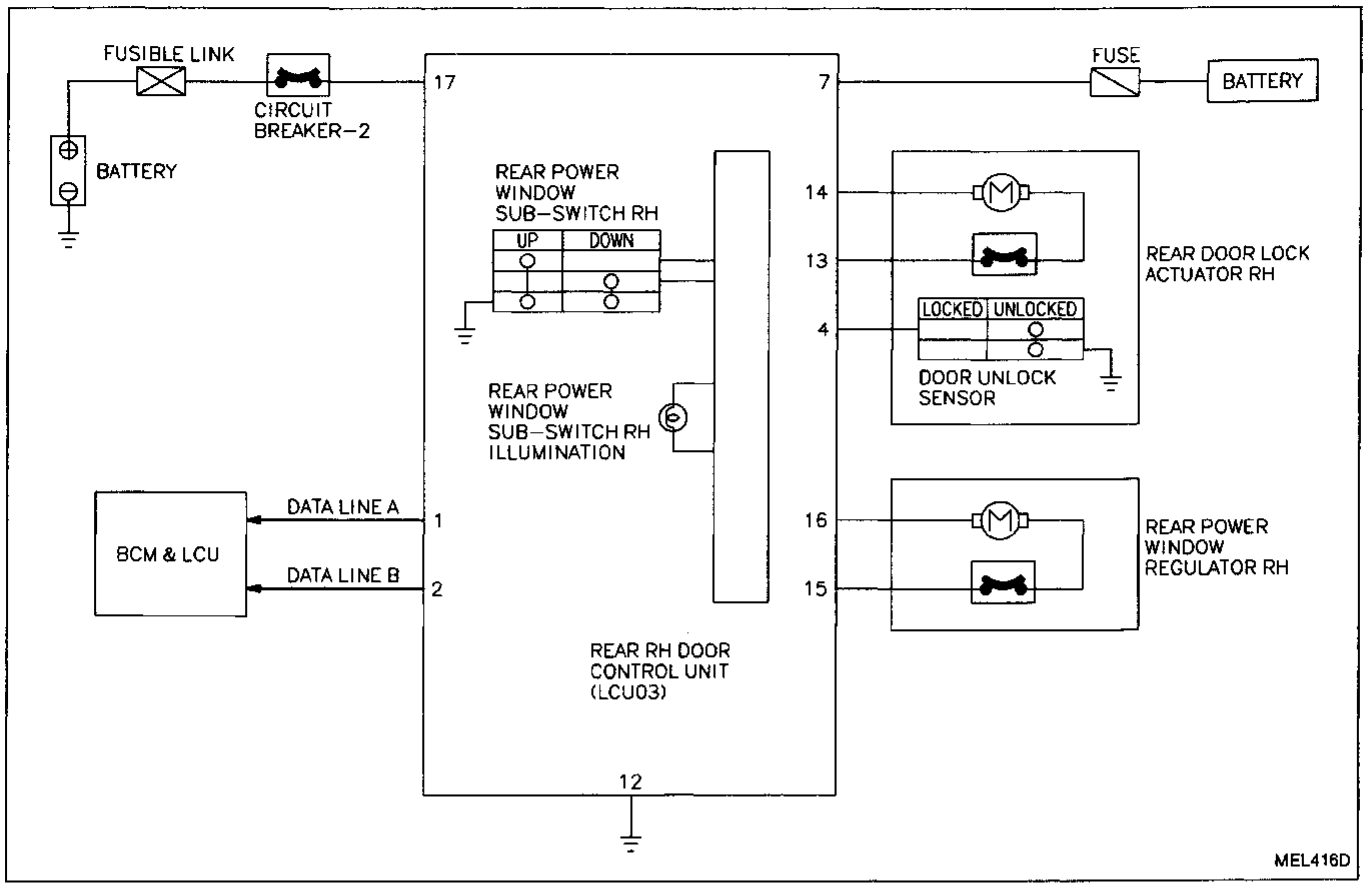
Passenger door control unit (LCU02)



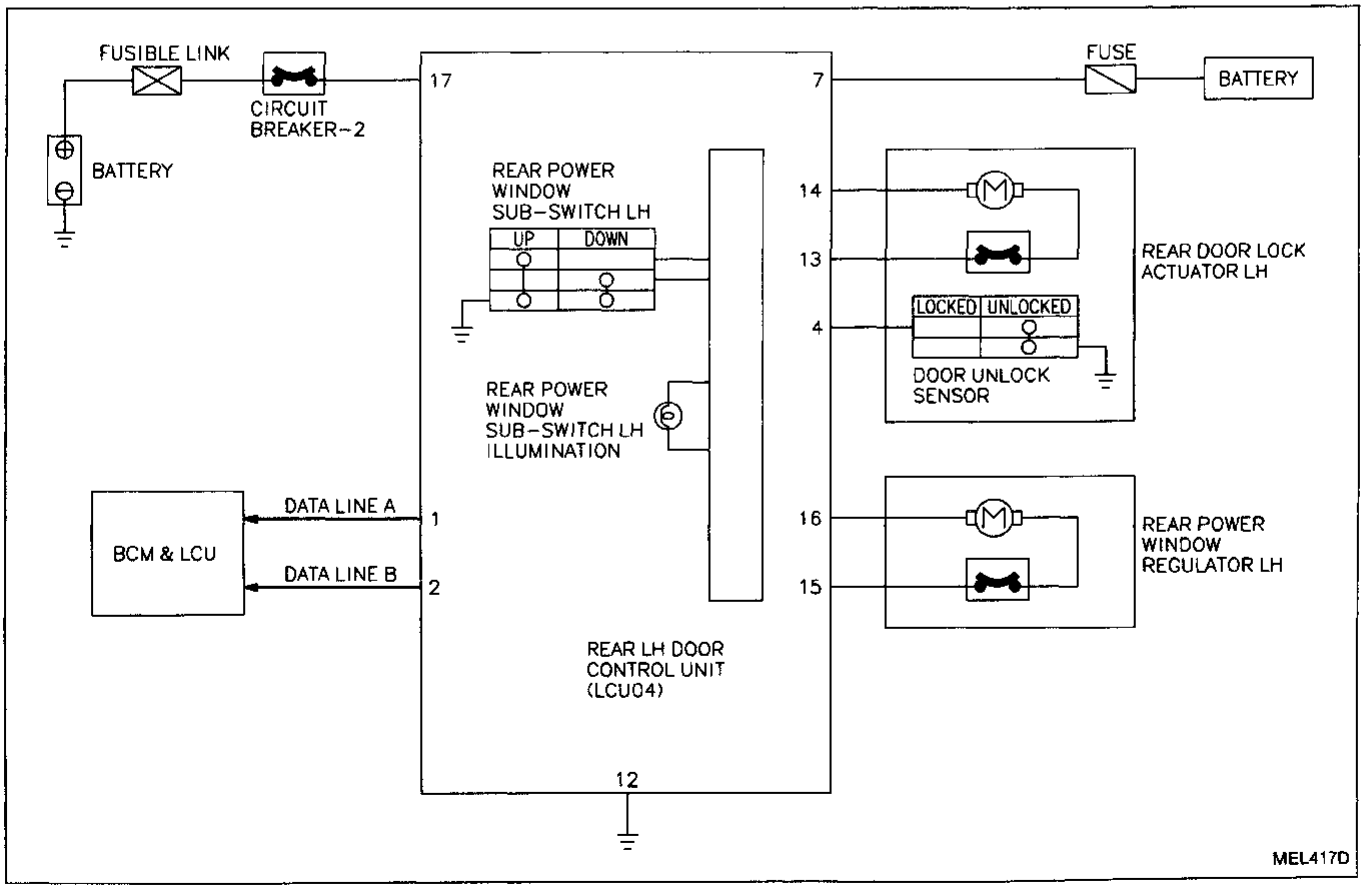
MEL415D

Local Control Units (LCU's) (Cont'd)

Rear RH door control unit (LCU03)

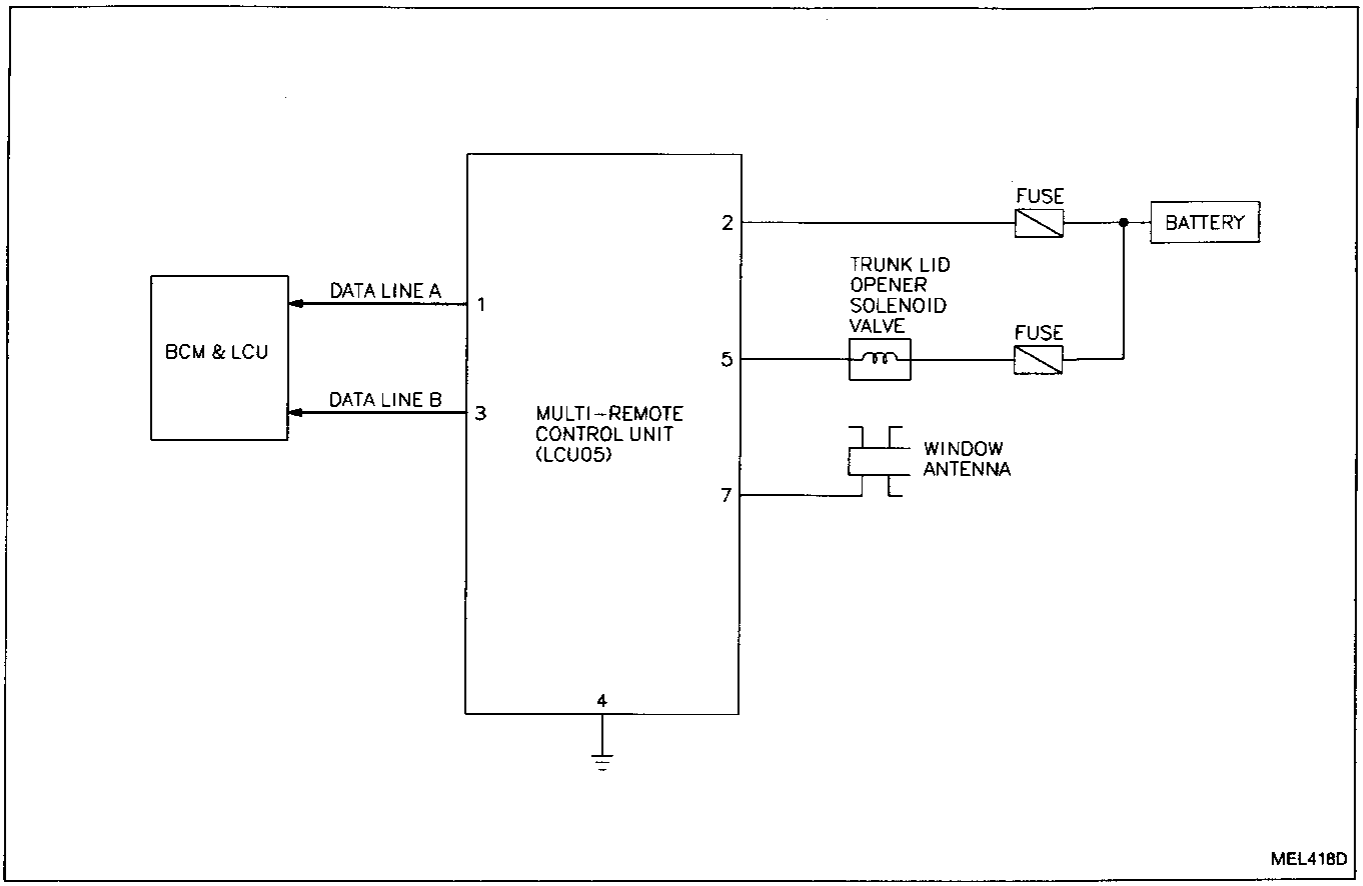


Rear LH door control unit (LCU04)



Local Control Units (LCU's) (Cont'd)

Multi-remote control unit (LCU05)



Local Control Units (LCU's) (Cont'd)

INPUT/OUTPUT OPERATION SIGNAL

Driver door control unit (LCU01)

Terminal No.	Connections	INPUT (I)/ OUTPUT (O)	Operated condition		Voltage (V) (Approximate values)
1	Data line (A)	I/O	—		—
2	Data line (B)	I/O	—		—
3	Door key cylinder tamper switch	I	ON (Key cylinder removed)		0
			OFF (Key cylinder installed)		12
4	Door unlock sensor	I	Unlocked (ON)		0
			Locked (OFF)		5
5	Door key cylinder unlock switch	I	Unlocked (ON)		0
			Locked (OFF)		12
6	Door key cylinder lock switch	I	Locked (ON)		0
			Unlocked (OFF)		12
7	Headlamp switch (1st)	I	1st, 2nd: ON		12
			OFF		0
8	Step lamp	O	ON		0
			OFF		12
9	—	—	—		—
10	Illumination control signal	I	Brightened - Darkened		0 - 12
11	Power window motor (P/W) — Up	O	Driver's P/W switch	Up	12
				Free	0
12	Power window motor (P/W) — Down	O	Driver's P/W switch	Down	12
				Free	0
13	Power source (C/B)	—	—		12
14	—	—	—		—
15	—	—	—		—
16	Ground	—	—		—
17	Door lock motor — Lock	O	Door lock & unlock switch	Locked	12
				Free	0
18	Door lock motor — Unlock	O	Door lock & unlock switch	Unlocked	12
				Free	0

Local Control Units (LCU's) (Cont'd)

Passenger door control unit (LCU02)

Terminal No.	Connections	INPUT (I)/ OUTPUT (O)	Operated condition		Voltage (V) (Approximate values)
1	Data line (A)	I/O	—		—
2	Data line (B)	I/O	—		—
3	Door key cylinder tamper switch	I	ON		0
			OFF		12
4	Door unlock sensor	I	Unlocked (ON)		0
			Locked (OFF)		5
5	Door key cylinder unlock switch	I	Unlocked (ON)		0
			Locked (OFF)		12
6	Door key cylinder lock switch	I	Locked (ON)		0
			Unlocked (OFF)		12
7	Power source (FUSE)	—	—		12
8	Step lamp	O	ON		0
			OFF		12
9	—	—	—		—
10	Illumination control signal	I	Brightened - Darkened		0 - 12
11	Power window motor (P/W) — Up	O	Passenger's P/W switch	Up	12
				Free	0
12	Power window motor (P/W) — Down	O	Passenger's P/W switch	Down	12
				Free	0
13	Power source (C/B)	—	—		12
14	Headlamp switch (1st)	I	1st, 2nd: ON		12
			OFF		0
15	—	—	—		—
16	Ground	—	—		—
17	Door lock motor — Lock	O	Door lock & unlock switch	Locked	12
				Free	0
18	Door lock motor — Unlock	O	Door lock & unlock switch	Unlocked	12
				Free	0

Local Control Units (LCU's) (Cont'd)

Rear RH door control unit (LCU03) and rear LH door control unit (LCU04)

Terminal No.	Connections	INPUT (I)/ OUTPUT (O)	Operated condition		Voltage (V) (Approximate values)
1	Data line (A)	I/O	—		—
2	Data line (B)	I/O	—		—
3	—	—	—		—
4	Door unlock sensor	I	Unlocked (ON)		0
			Locked (OFF)		5
5	—	—	—		—
6	—	—	—		—
7	Power source (FUSE)	—	—		12
8	—	—	—		—
9	—	—	—		—
10	—	—	—		—
11	—	—	—		—
12	Ground	—	—		—
13	Door lock motor — Lock	O	Door lock & unlock switch	Locked	12
				Free	0
14	Door lock motor — Unlock	O	Door lock & unlock switch	Unlocked	12
				Free	0
15	Power window motor (P/W) — Up	O	Rear P/W switch	Up	12
				Free	0
16	Power window motor (P/W) — Down	O	Rear P/W switch	Down	12
				Free	0
17	Power source (C/B)	—	—		12
18	—	—	—		—

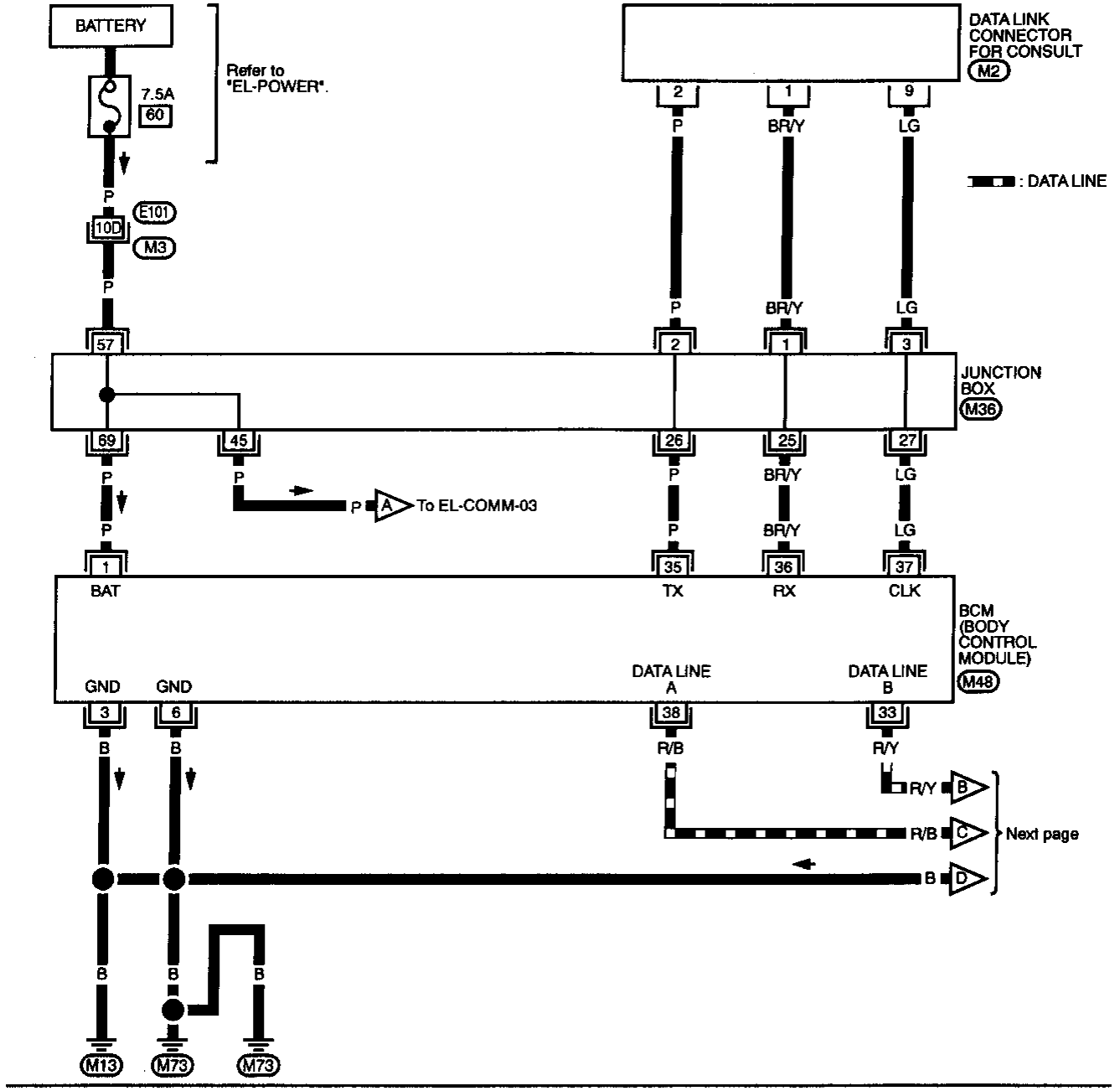
Local Control Units (LCU's) (Cont'd)

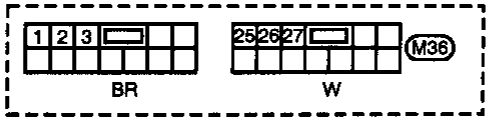
Multi-remote control unit (LCU05)

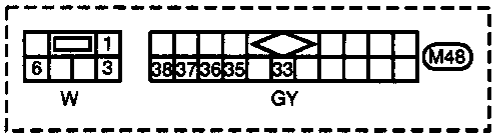
Terminal No.	Connections	INPUT (I)/ OUTPUT (O)	Operated condition	Voltage (V) (Approximate values)
1	Data line (A)	I/O	—	—
2	Power source	—	—	12
3	Data line (B)	I/O	—	—
4	Ground	—	—	—
5	Trunk lid opener actuator	O	Open	0
			OFF	12
6	—	—	—	—

Main Power Supply, Ground and Communication Circuits/Wiring Diagram — COMM —

EL-COMM-01





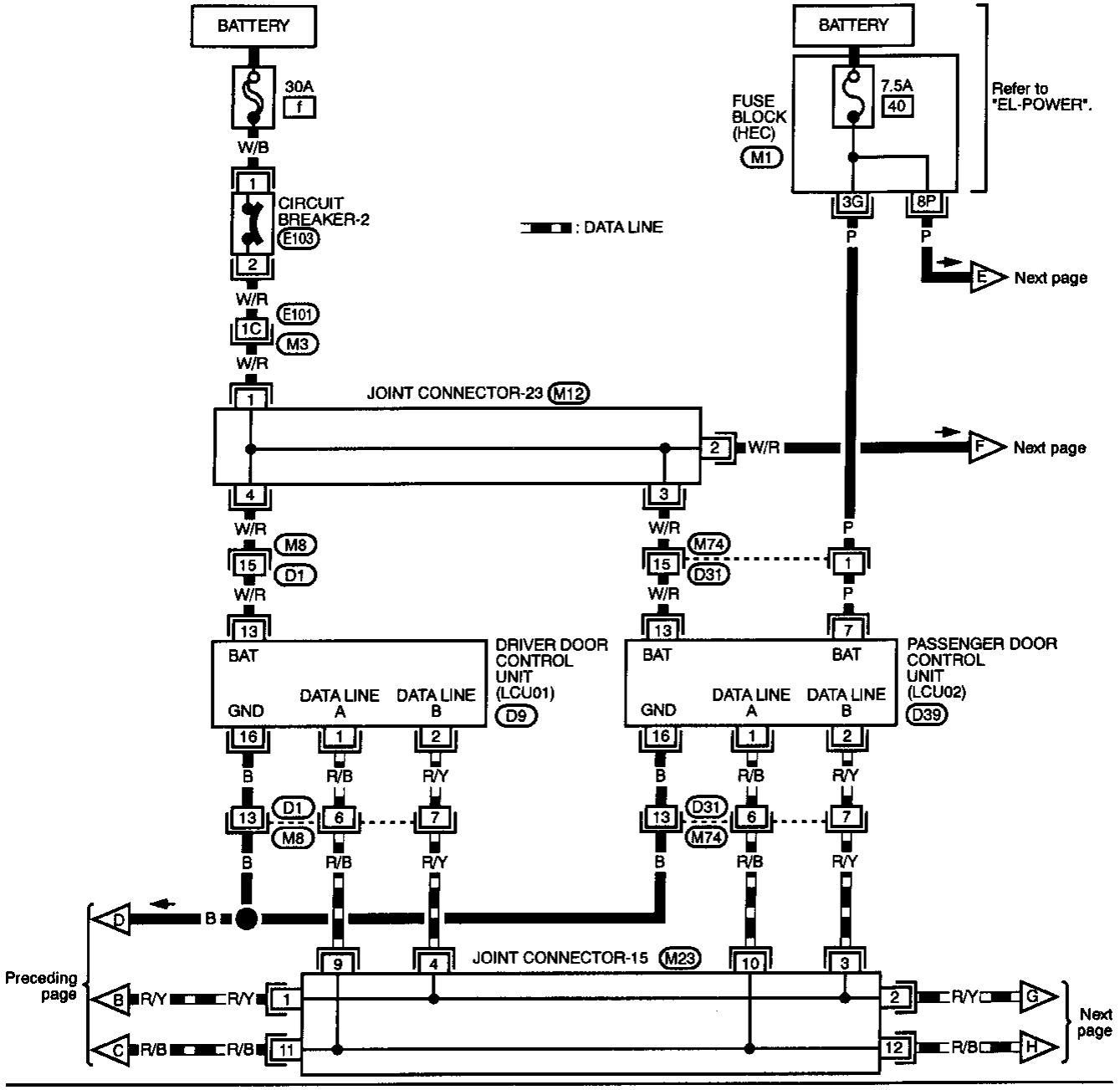


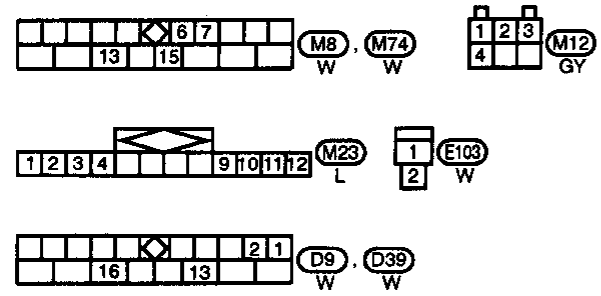
Refer to last page (Foldout page).
M3, E101
M36

MEL410D

Main Power Supply, Ground and Communication Circuits/Wiring Diagram — COMM — (Cont'd)

EL-COMM-02





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M3 , E101

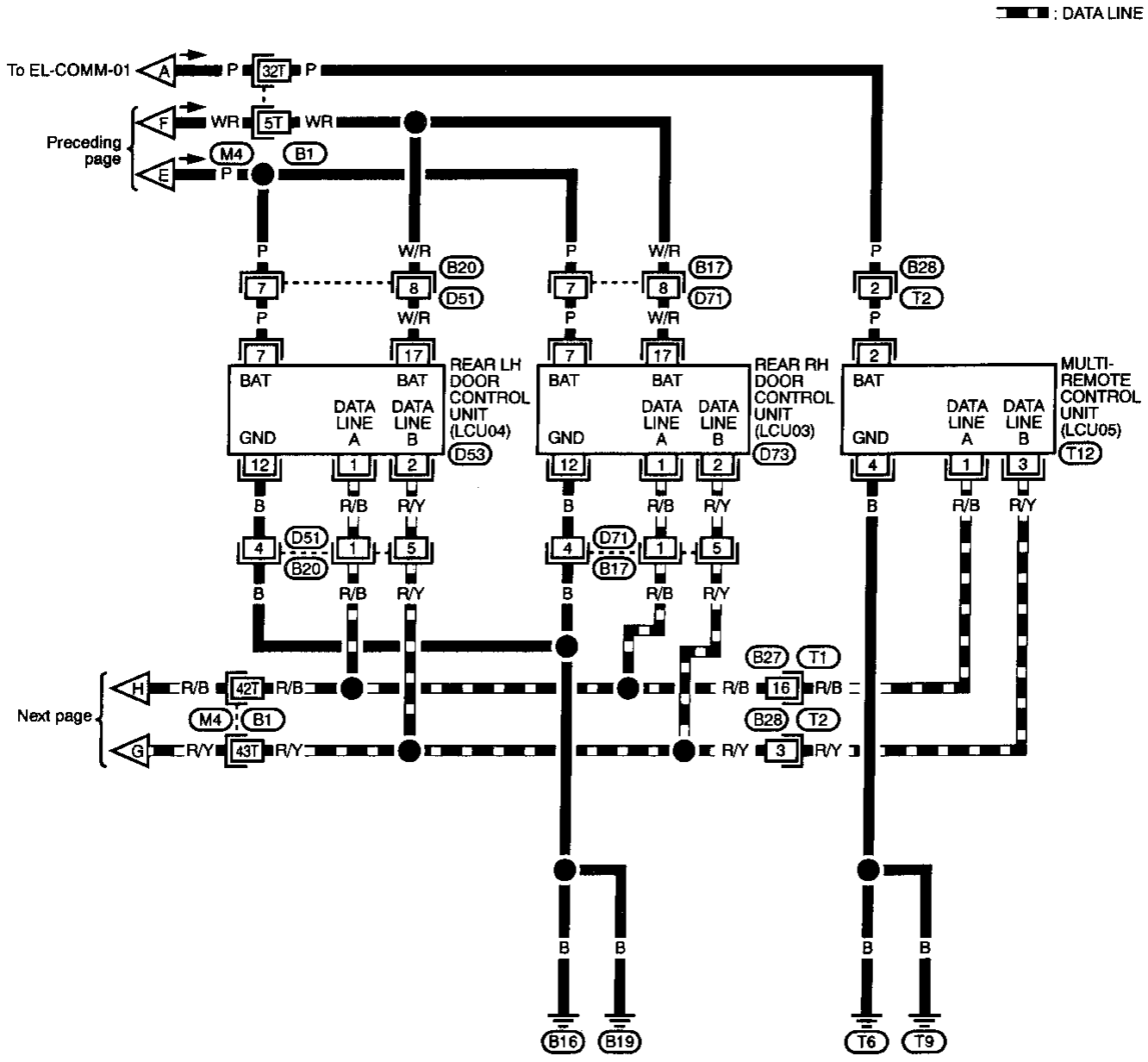
M12

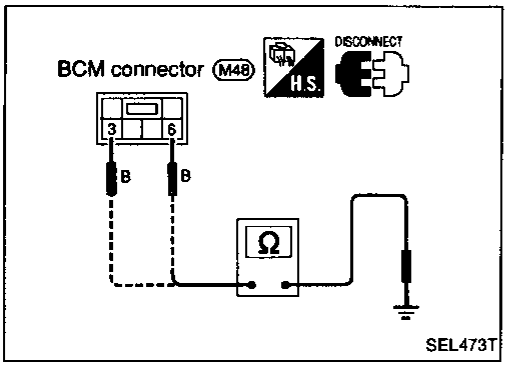
M23

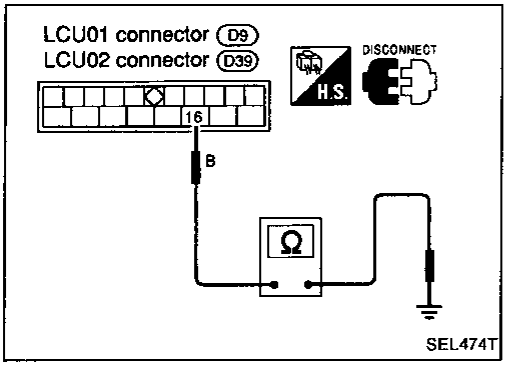
MEL411D

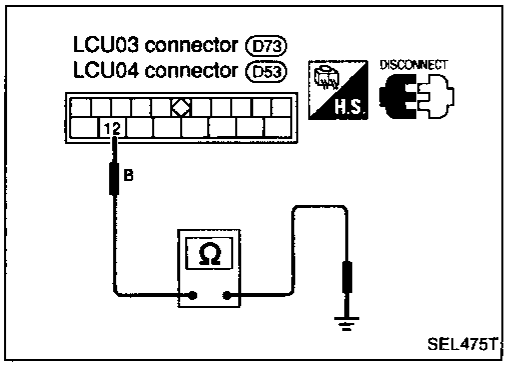
Main Power Supply, Ground and Communication Circuits/Wiring Diagram — COMM — (Cont'd)

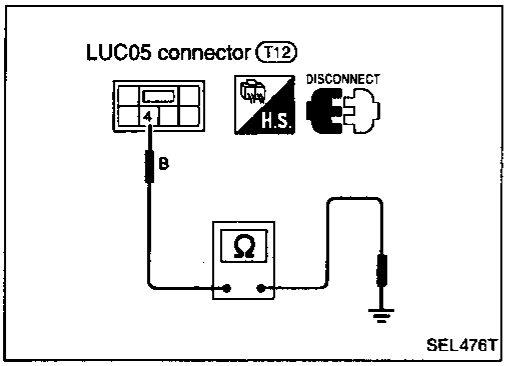
EL-COMM-03











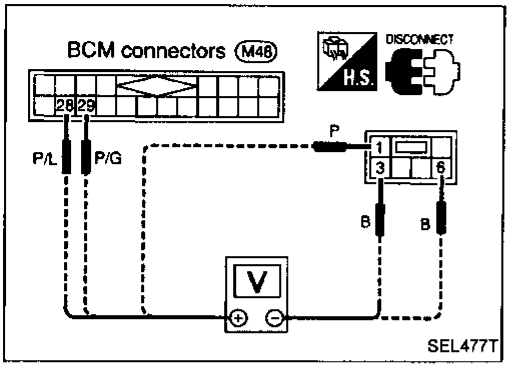
Power Supply and Ground Circuit Check

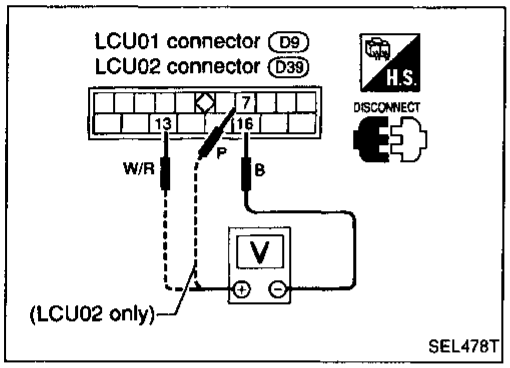
GROUND CIRCUIT CHECK

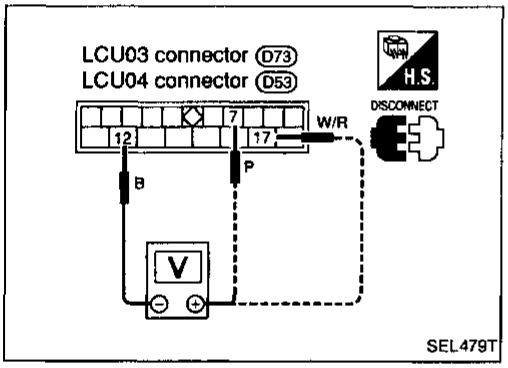
Control unit	Terminals	Continuity
BCM	③ - Ground	Yes
	⑥ - Ground	
LCU01	⑮ - Ground	
LCU02		
LCU03	⑫ - Ground	
LCU04		
LCU05	④ - Ground	

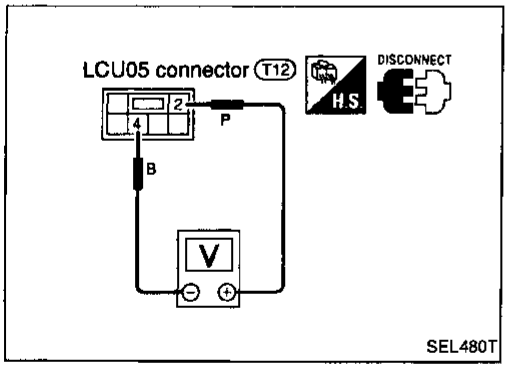
Power Supply and Ground Circuit Check (Cont'd)

POWER SUPPLY CIRCUIT CHECK





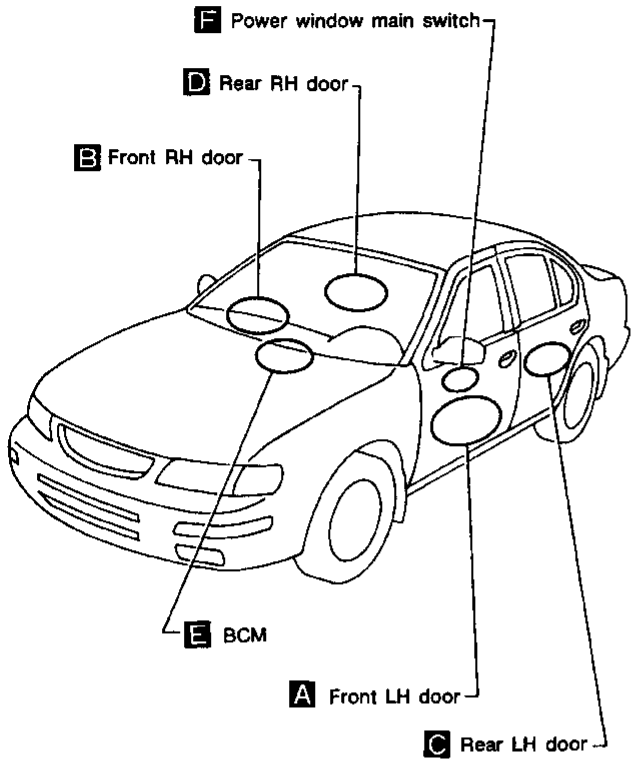


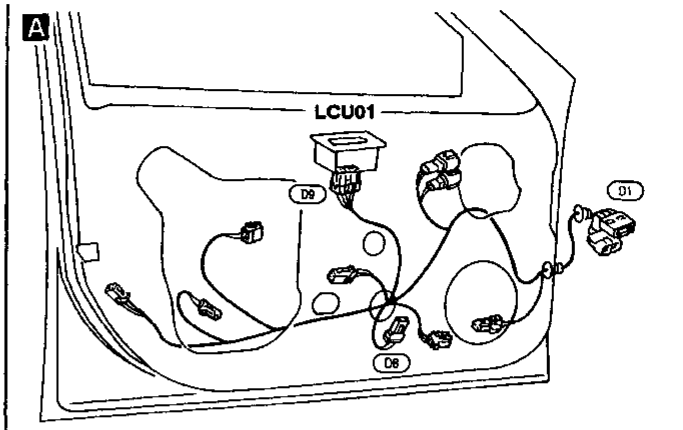


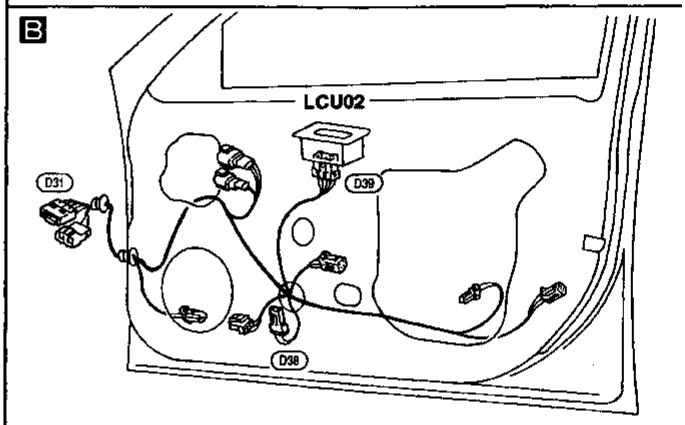
Control unit	Terminals	Ignition switch position			
		OFF	ACC	ON	START
BCM*	① - ③, ⑥	Battery voltage			
	㉘ - ③, ⑥	Approx. 0V	Battery voltage		Approx. 0V
	㉙ - ③, ⑥	Approx. 0V		Battery voltage	
LCU01	⑬ - ⑯	Battery voltage			
LCU02	⑬ - ⑯	Battery voltage			
	⑦ - ⑯	Battery voltage			
LCU03 and LCU04	⑦ - ⑫	Battery voltage			
	⑰ - ⑫	Battery voltage			
LCU05	② - ④	Battery voltage			

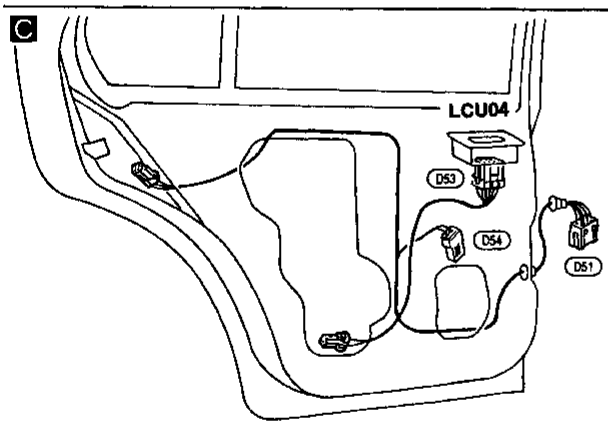
* CONSULT (data monitor) may be used to check for the ignition switch input (ACC, ON).

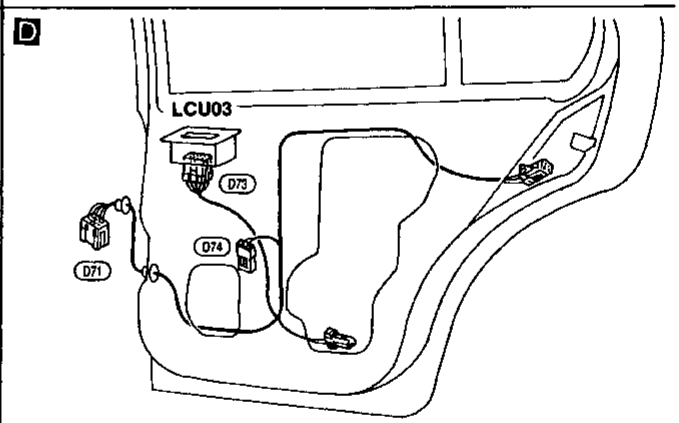
Component Parts and Harness Connector Location

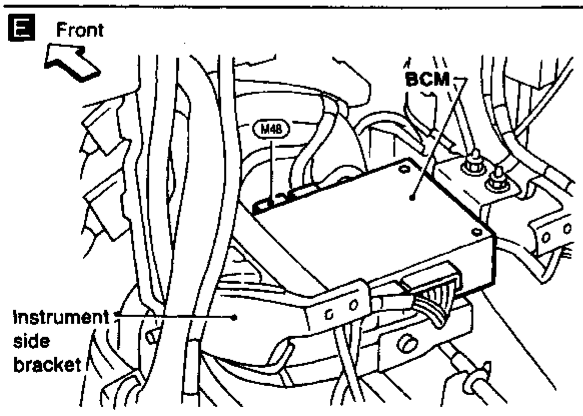


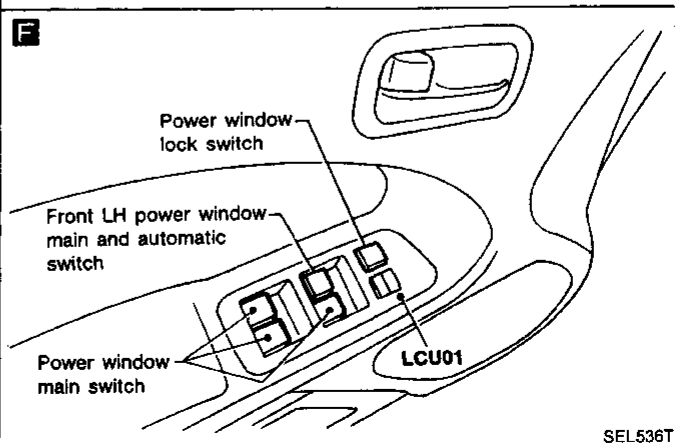












SEL536T

System Description

With the ignition switch in the ON or START position, power is supplied
- from 7.5A fuse (No. 12 , located in the fuse block in the HEC)
- to BCM terminal 29 .

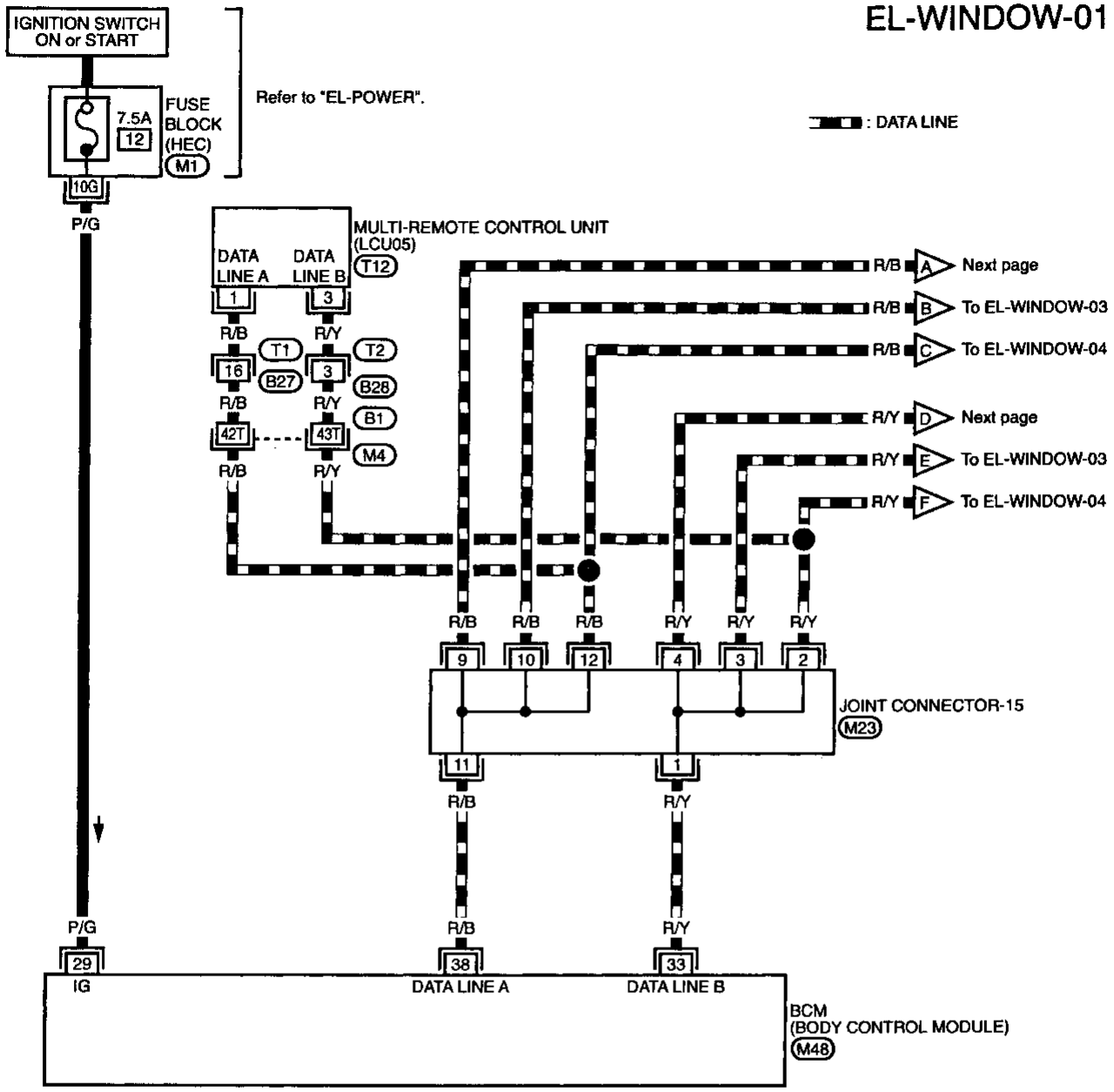
Driver door control unit (LCU01) terminals ① and ② are connected to BCM terminals 38 and 33 by DATA LINES A and B. Also, driver door control unit terminals 11 and 12 are connected to front power window regulator LH terminals ② and ① respectively.
Rear LH door control unit (LCU04) and rear RH door control unit (LCU03) terminals ① and ② are connected to BCM terminals 38 and 33 by DATA LINES A and B. Also, rear LH and RH door control unit terminals 15 and 16 are connected to rear power window regulator LH and RH terminals ② and ① respectively.
Passenger door control unit (LCU02) terminals ① and ② are connected to BCM terminals 38 and 33 by DATA LINES A and B. Also, passenger door control unit terminals 11 and 12 are connected to front power window regulator RH terminals ② and ① respectively.
BCM terminals 38 and 33 connected to multi-remote control unit (LCU05) terminals ① and ③ by DATA LINES A and B.
When a power window switch is pushed, a signal is sent to BCM by DATA LINES. BCM sends a signal to all door control units and all door control units supply power and ground to all power window regulators.

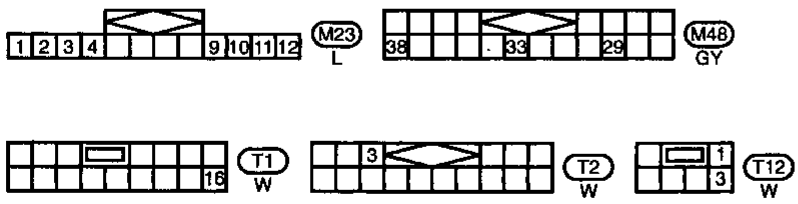
Control by remote controller

When multi-remote control unit receives DOWN signal from remote controller, the signal is sent to all door control units through BCM by DATA LINES. When door control units receive the signal, power and ground are supplied to all power window regulators.

Wiring Diagram — WINDOW —

EL-WINDOW-01



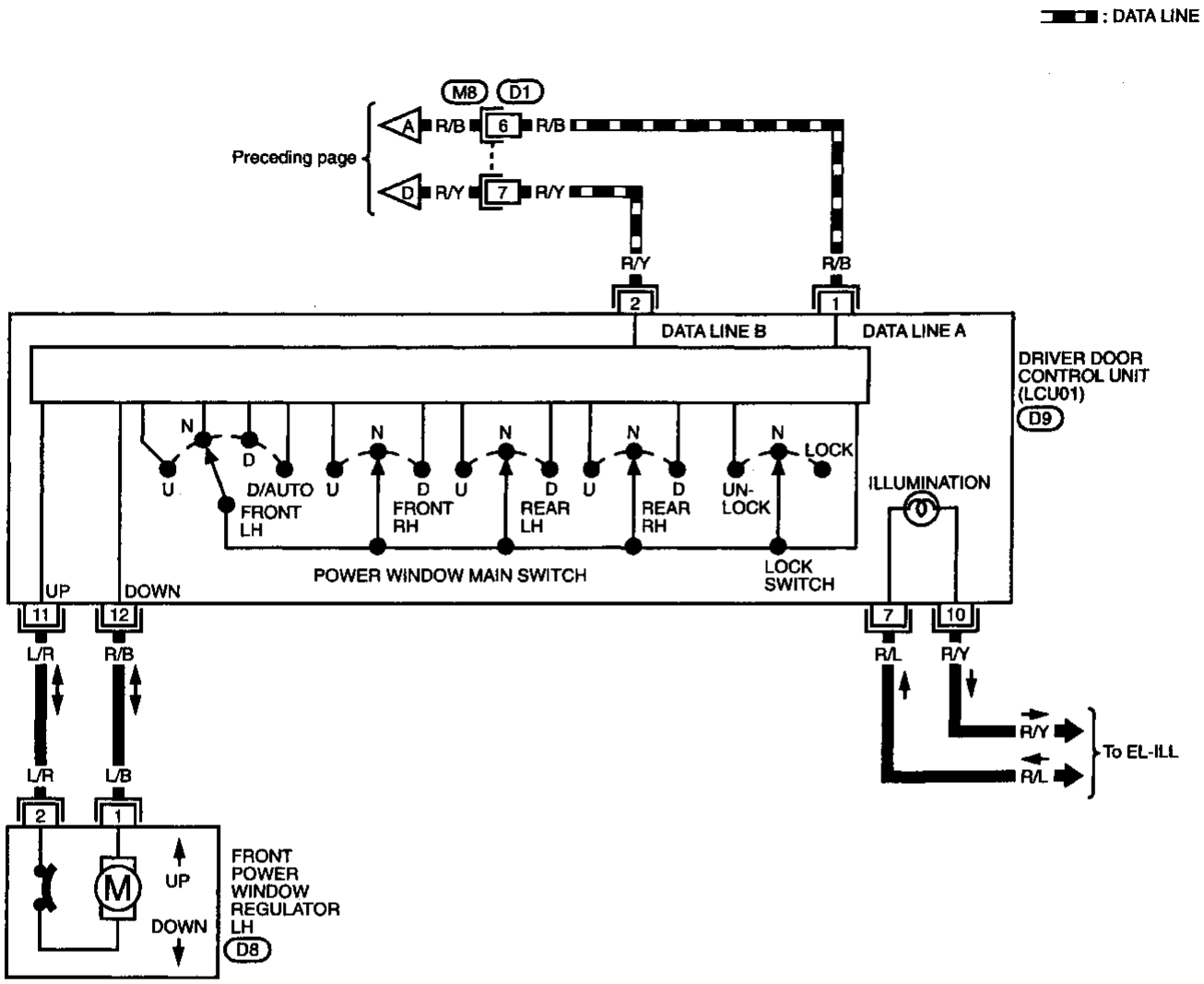


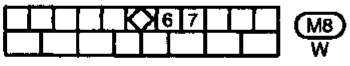
Refer to last page (Foldout page).
M4 , B1
M1
M23

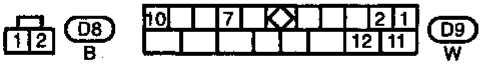
MEL439D

Wiring Diagram — WINDOW — (Cont'd)

EL-WINDOW-02



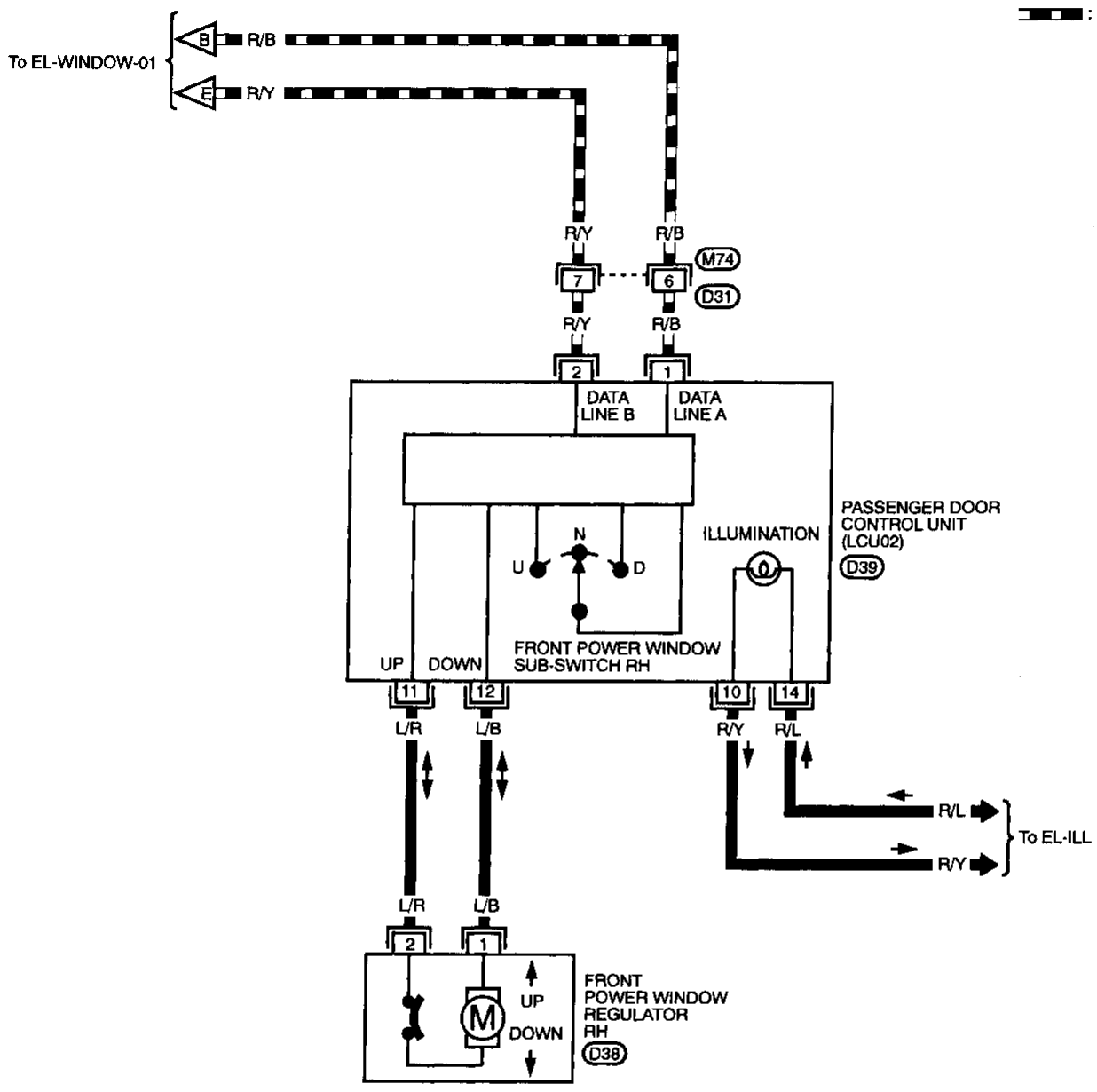


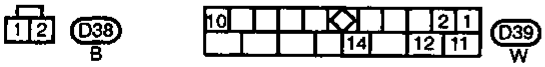


MEL406D

Wiring Diagram — WINDOW — (Cont'd)

EL-WINDOW-03

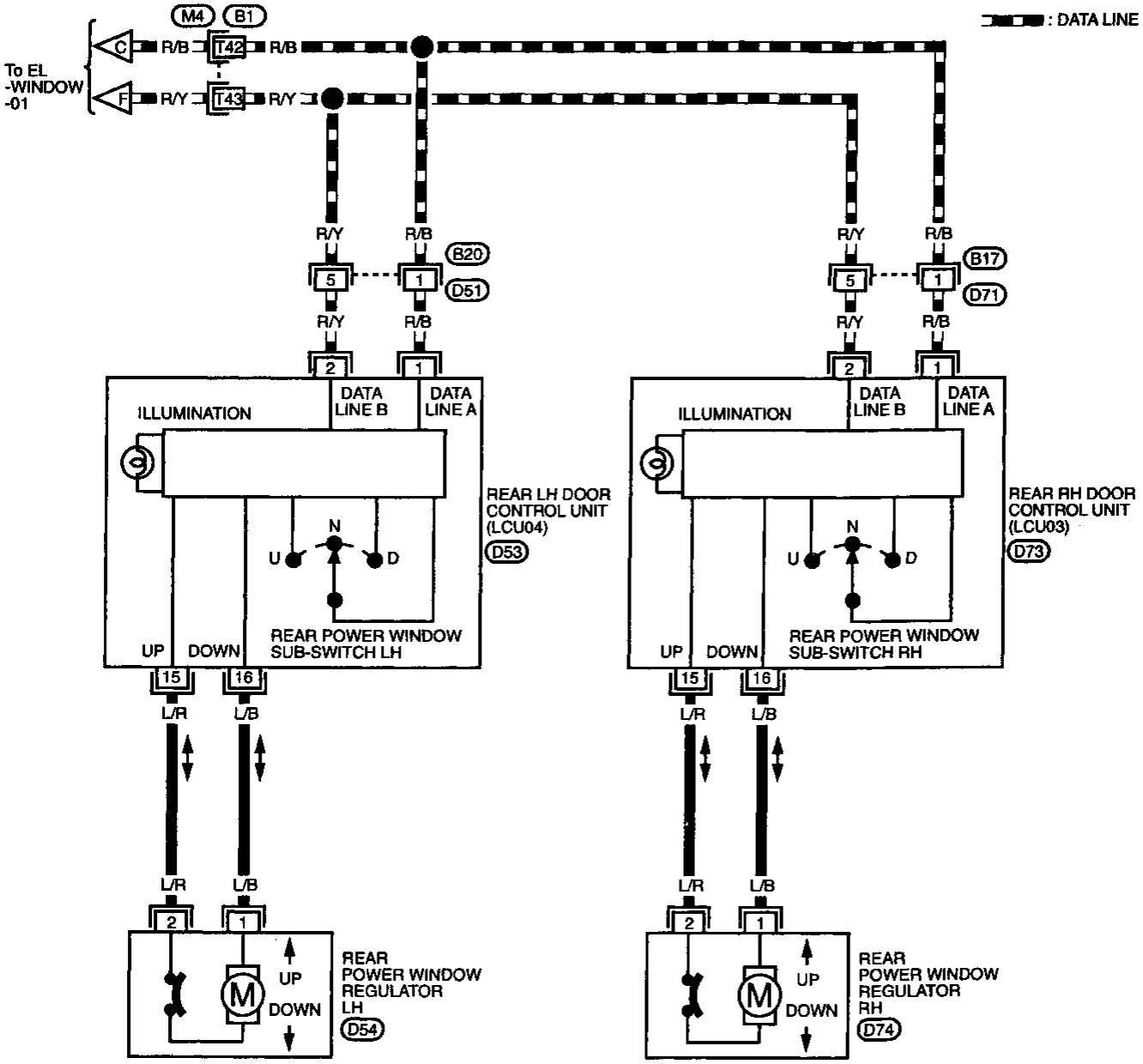




MEL407D

Wiring Diagram — WINDOW — (Cont'd)

EL-WINDOW-04



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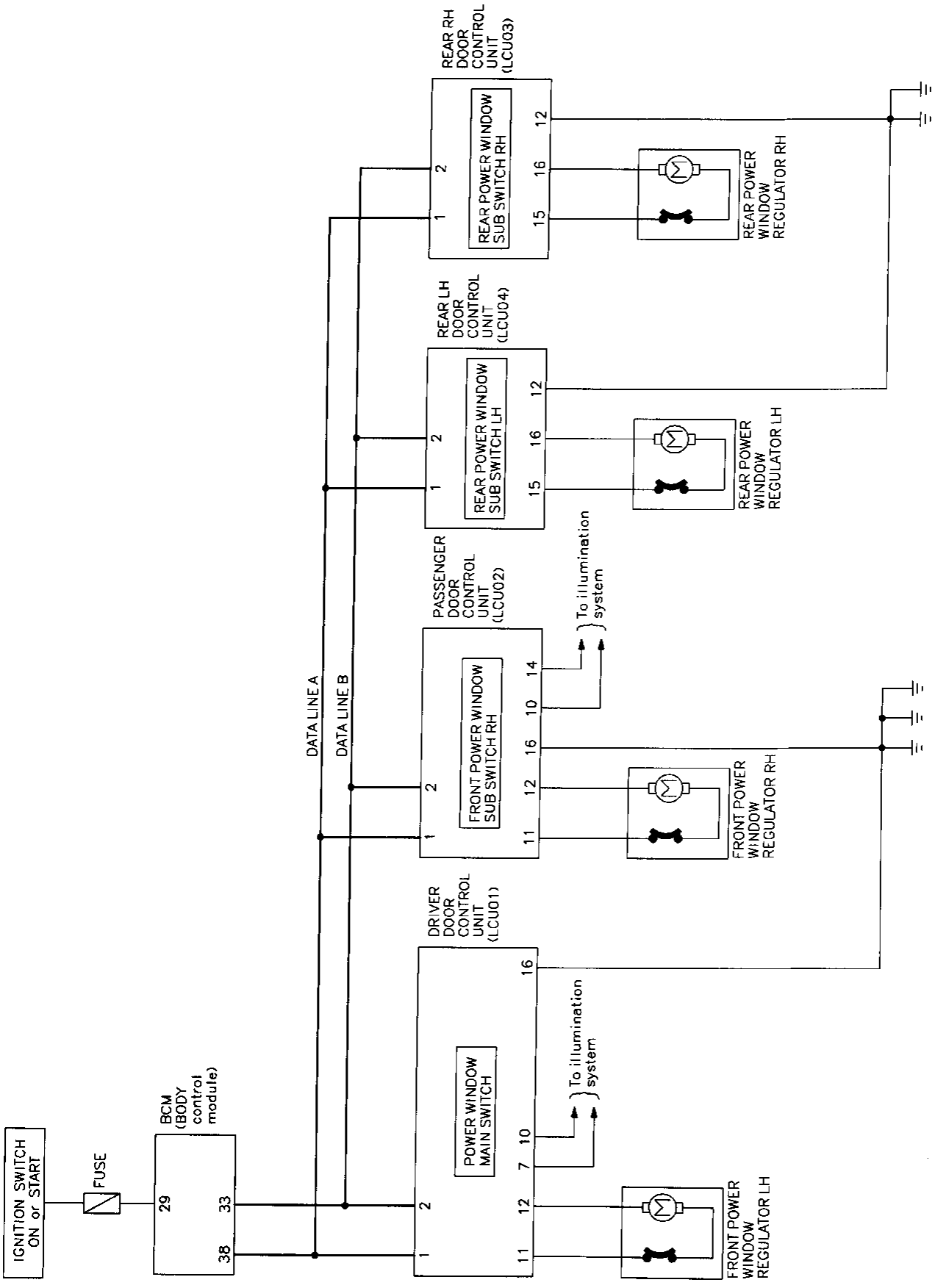
M4, B1

MEL408D

Schematic



MEL409D

Trouble Diagnoses

OPERATIVE CONDITION

- Power windows can be raised or lowered with each sub-switch or the power window main switch located on the driver's door trim when ignition key is in the "ON" position and power window lock switch on the driver's door trim is unlocked.
- When power window lock switch is locked, no windows can be raised or lowered except for driver side window.
- When ignition key is in the "ON" position, to fully open the driver side window, press down completely on the automatic switch (main switch) and release it; it needs not be held. The window will automatically open all the way. To stop the window, press then release the "UP" side of the switch.

TROUBLE SYMPTOM

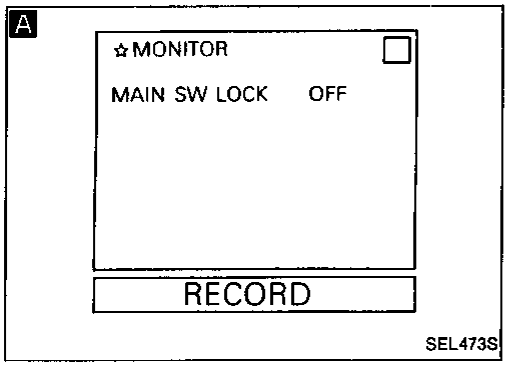
Perform "IVMS Communication Diagnosis" (EL-148), "Power Supply and Ground Circuit Check" (EL-177) before starting with the following items.

Trouble symptom	Power window lock switch	Power window main switch	Power window sub-switch	Power window regulator
	Procedure 1 (EL-187)	Procedure 2 (EL-187)	Procedure 3 (EL-188)	Procedure 4 (EL-188)
One or more of the sub-switches do not function.			X	X
One or more of the main switches on driver's door trim do not function (including automatic switch).		X		X
Power window lock switch on main switch does not lock and/or unlock all windows.	X			
All power window main switches and sub-switches do not function.	X	X	X	X

The following ABBREVIATIONS are used in this Trouble Diagnoses.
(FL): Front LH
(FR): Front RH
(RL): Rear LH
(RR): Rear RH

Trouble Diagnoses (Cont'd)

PROCEDURE 1 — Power window lock switch



CHECK POWER WINDOW LOCK SWITCH CIRCUIT.

A CONSULT

See "MAIN SW LOCK" in DATA MONITOR mode.

"MAIN SW LOCK" should change from "OFF" to "ON" when pushing power window lock switch.

NG → Replace LCU01.

OR

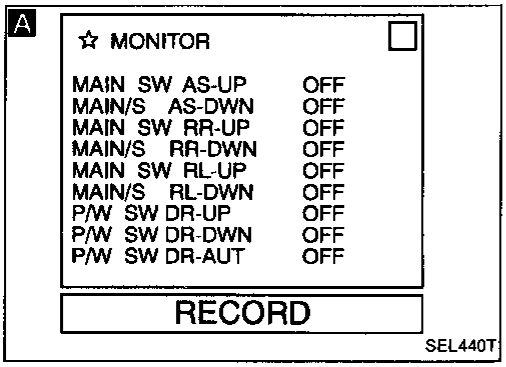
ON-BOARD

Check power window lock switch operation in Switch monitor (Mode II) mode. (Refer to On-board Diagnoses, EL-157.)

OK ↓

Check IVMS communication (EL-148) and system operation again.

PROCEDURE 2 — Power window main switch (Front LH, RH, Rear LH, RH)



CHECK DRIVER'S DOOR TRIM POWER WINDOW MAIN SWITCH CIRCUIT FOR MALFUNCTIONING PORTION.

A CONSULT

See "MAIN SW UP or DOWN" in DATA MONITOR mode.

"MAIN SW UP or DOWN" should change from "OFF" to "ON" when pushing power window main switches.

NG → Replace LCU01.

OR

ON-BOARD

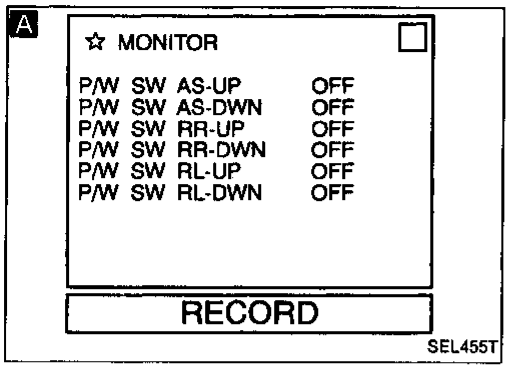
Check power window main switch operation in Switch monitor (Mode II) mode. (Refer to On-board Diagnoses, EL-157.)

OK ↓

Check IVMS communication (EL-148) and system operation again.

Trouble Diagnoses (Cont'd)

PROCEDURE 3 — Power window sub-switch (Front RH, Rear LH, RH)



CHECK POWER WINDOW SUB-SWITCH CIRCUIT FOR MALFUNCTIONING PORTION.

A CONSULT

See "P/W SW UP or DOWN" in DATA MONITOR mode.

"P/W SW UP or DOWN" should change from "OFF" to "ON" when each sub-switch is turned ON.

NG → Replace LCU for malfunctioning portion.

- Front RH: LCU02
- Rear LH: LCU04
- Rear RH: LCU03

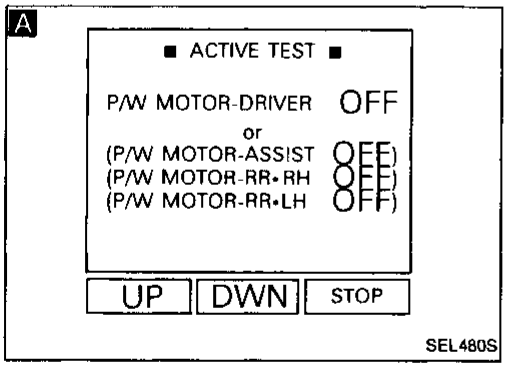
OR

ON-BOARD

Check power window sub-switch operation in Switch monitor (Mode II) mode. (Refer to On-board Diagnoses, EL-157.)

OK

Check IVMS communication (EL-148) and system operation again.



PROCEDURE 4 — Power window regulator

A

CHECK POWER WINDOW REGULATOR CIRCUIT.

CONSULT

See "P/W MOTOR" in ACTIVE TEST mode.

Perform operation shown on display.

Power window motor should operate.

NOTE:

If CONSULT is not available, start with the diagnostic procedure B .

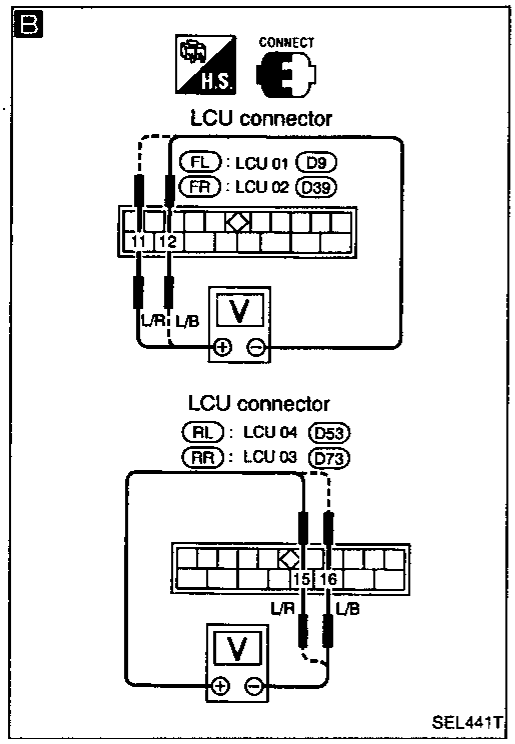
OK → Check IVMS communication again (EL-148).

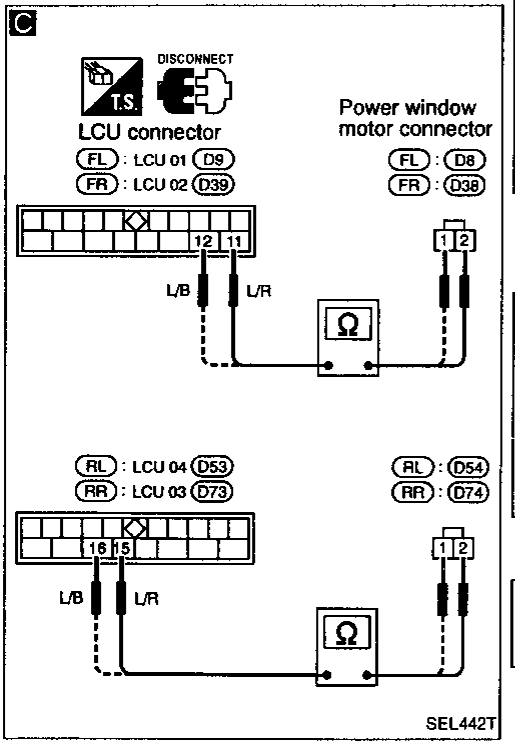
NG

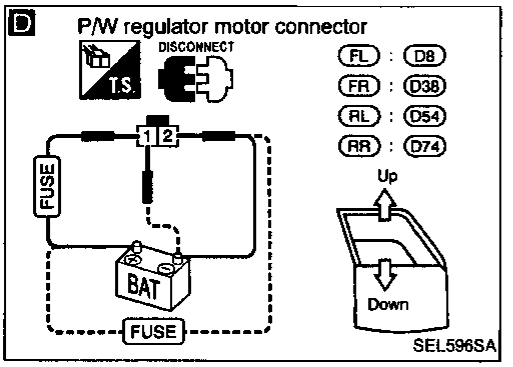
Ⓐ

(Go to next page.)

Trouble Diagnoses (Cont'd)







Ⓐ

B

Check voltage between LCU connector terminals ⑪ and ⑫, or/and ⑮ and ⑯.

NG → Replace LCU for malfunctioning portion.

Operation		Terminals ⊕	Terminals ⊖	Voltage
Front (FL, FR)	Down	⑫	⑪	Battery voltage
	Up	⑪	⑫	
Rear (RL, RR)	Down	⑯	⑮	
	Up	⑮	⑯	

OK

C

1) Disconnect LCU connector and power window motor connector.
2) Check continuity.

NG → Repair harness.

	Terminals	Continuity
Front	⑪ - ②	Yes
	⑫ - ①	
Rear	⑮ - ②	
	⑯ - ①	

OK

D

Check power window motor operation.

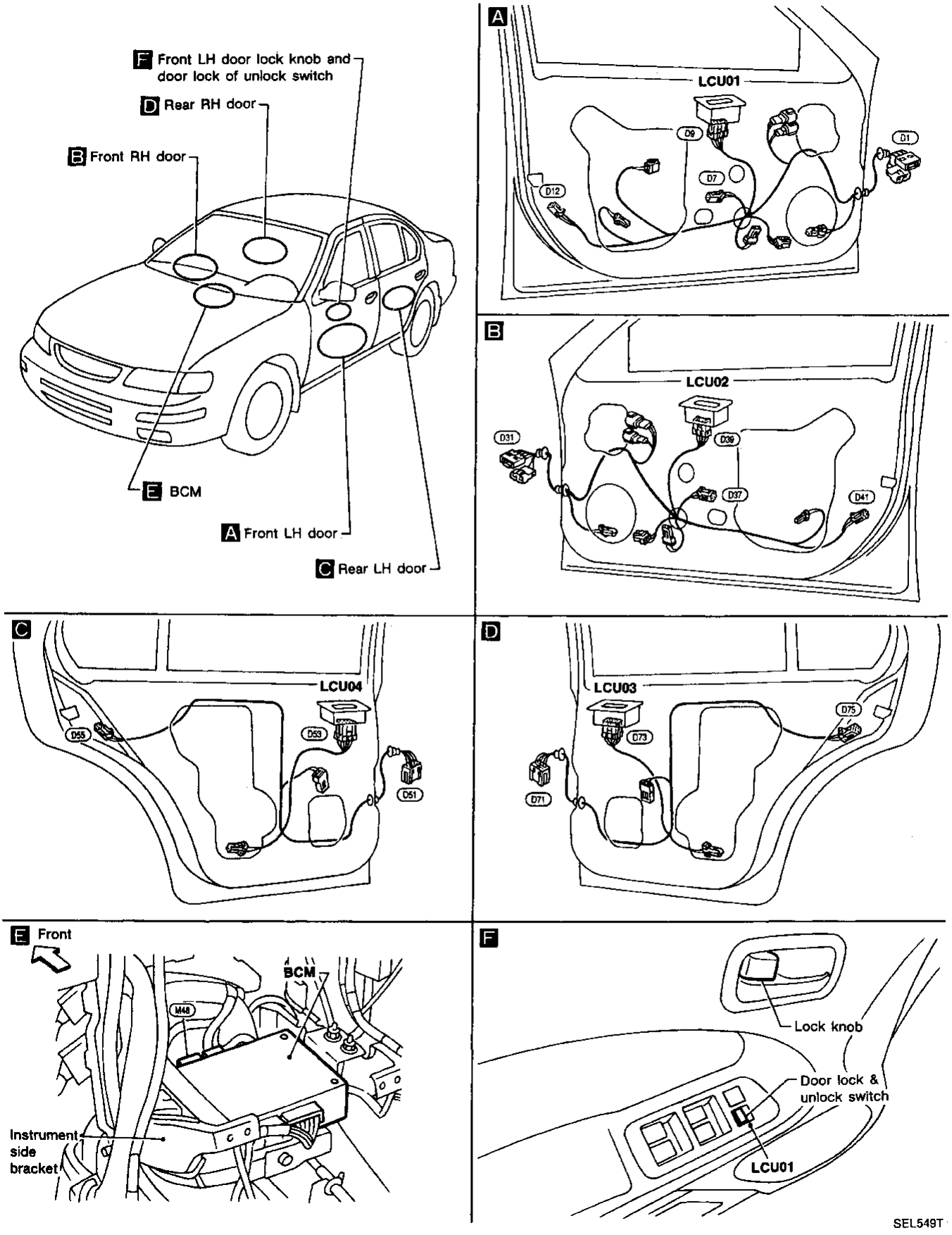
NG → Replace power window motor.

Terminals ⊕	Terminals ⊖	Operation
①	②	Downward
②	①	Upward

OK

Check IVMS communication (EL-148) and system operation again.

Component Parts and Harness Connector Location



System Description

POWER SUPPLY AND GROUND

Power is supplied at all times
- through 7.5A fuse (No. 40, located in the fuse block in the HEC)
- to key switch terminal ①.

Power is supplied to BCM terminal ㉓ through key switch terminal ② when key switch is in ON position (ignition key is inserted in the key cylinder).
With the ignition switch in ON or START position, power is also supplied
- through 7.5A fuse (No. 12 , located in the fuse block in the HEC)
- to BCM terminal ㉙.

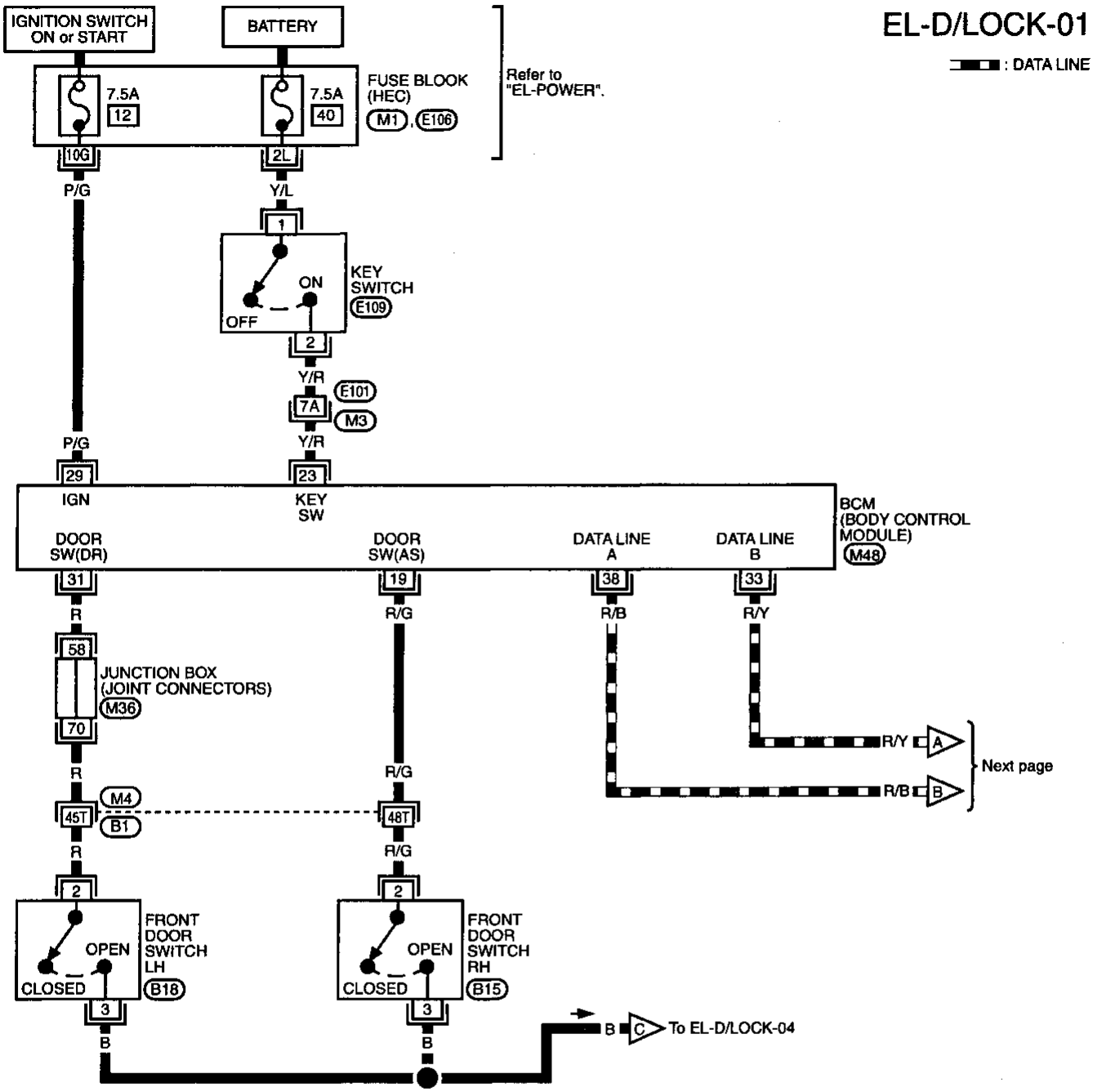
BCM terminal ㊳ is connected to driver door control unit (LCU01) terminal ①, passenger door control unit (LCU02) terminal ①, rear LH door control unit (LCU04) terminal ①, rear RH door control unit (LCU03) terminal ① and multi-remote control unit (LCU05) terminal ① by DATA LINE A.
Also, BCM terminal ㉝ is connected to driver door control unit (LCU01) terminal ②, passenger door control unit (LCU02) terminal ②, rear LH door control unit (LCU04) terminal ②, rear RH door control unit (LCU03) terminal ② and multi-remote control unit (LCU05) terminal ③ by DATA LINE B.
Ground is supplied
- to BCM terminal ㉛ or ⑲
- from front LH or RH door switch terminal ②
- through front LH or RH door switch terminal ③ when door switch is in OPEN position and
- through body grounds (B16) and (B19).

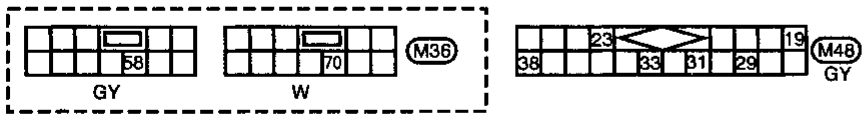
Ground is supplied
- to driver door control unit (LCU01) terminals ⑥, ⑤ or ④
- from front LH door key cylinder switch terminals ① or ②, or door unlock sensor (in the front LH door lock actuator) terminal ② when door key cylinder is in BETWEEN FULL STROKE AND N position
- through front LH door key cylinder switch terminal ④ or front LH door lock actuator terminal ④ and
- through body grounds (M13) and (M73).

Ground is supplied
- to rear LH door control unit (LCU04) or RH (LCU03) terminals ④, ⑬ or ⑭
- from door unlock sensor (in the rear LH or RH door lock actuator) terminal ② when door lock is in UNLOCKED position
- through rear LH or RH door lock actuator terminal ④ and
- through body grounds (B16) and (B19).

Ground is supplied
- to passenger door control unit (LCU02) terminals ⑥, ⑤ or ④
- from front RH door key cylinder switch terminals ① or ②, or door unlock sensor (in the front RH door lock actuator) terminal ② when door key cylinder is in BETWEEN FULL STROKE AND N position
- through front RH door key cylinder switch terminal ④ or front RH door lock actuator terminal ④ and
- through body grounds (M13) and (M73).

Wiring Diagram — D/LOCK —



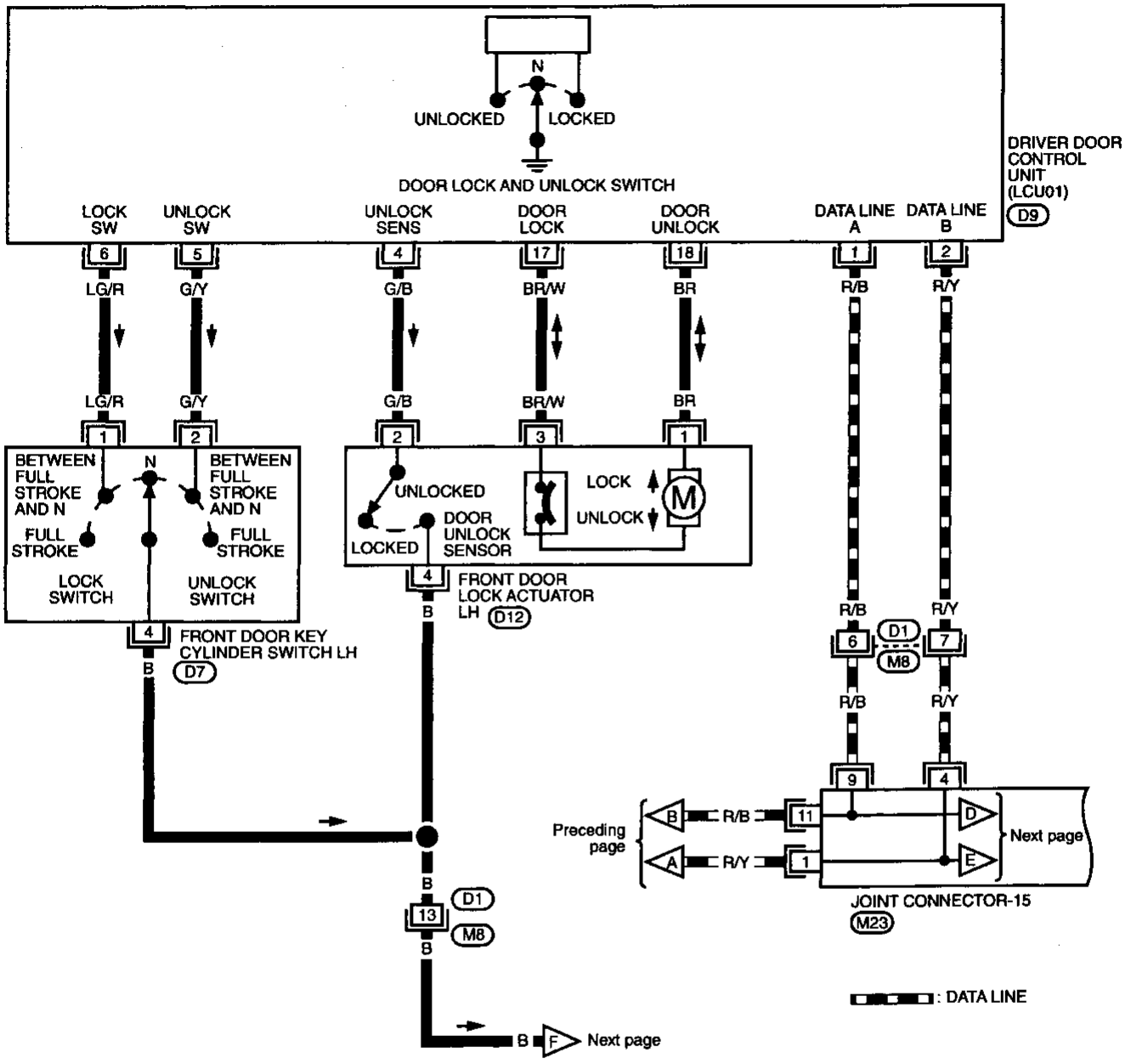


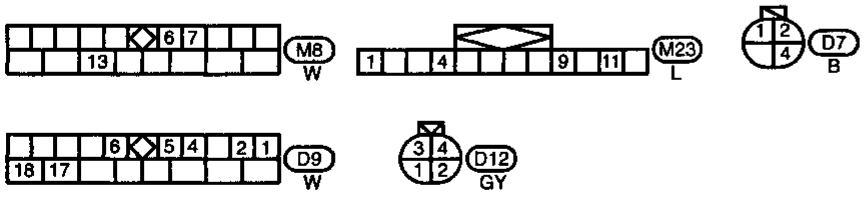
Refer to last page (Foldout page).
M3, E101
M4, B1
M36
M1

MEL419D

Wiring Diagram — D/LOCK — (Cont'd)

EL-D/LOCK-02





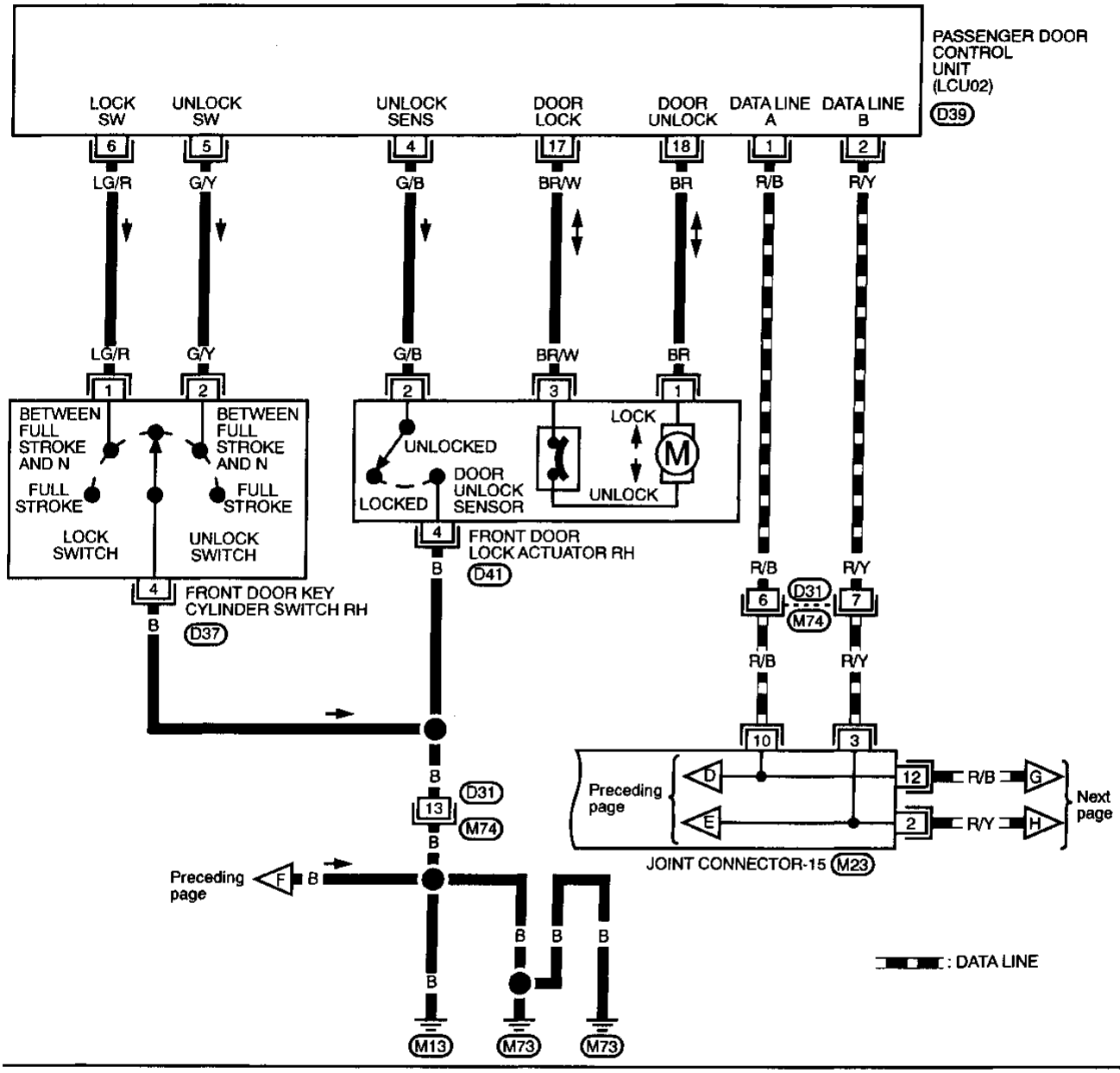
Refer to last page (Foldout page).
M23

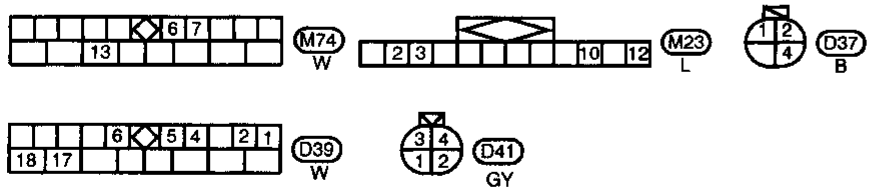
MEL420D

1257

Wiring Diagram — D/LOCK — (Cont'd)

EL-D/LOCK-03



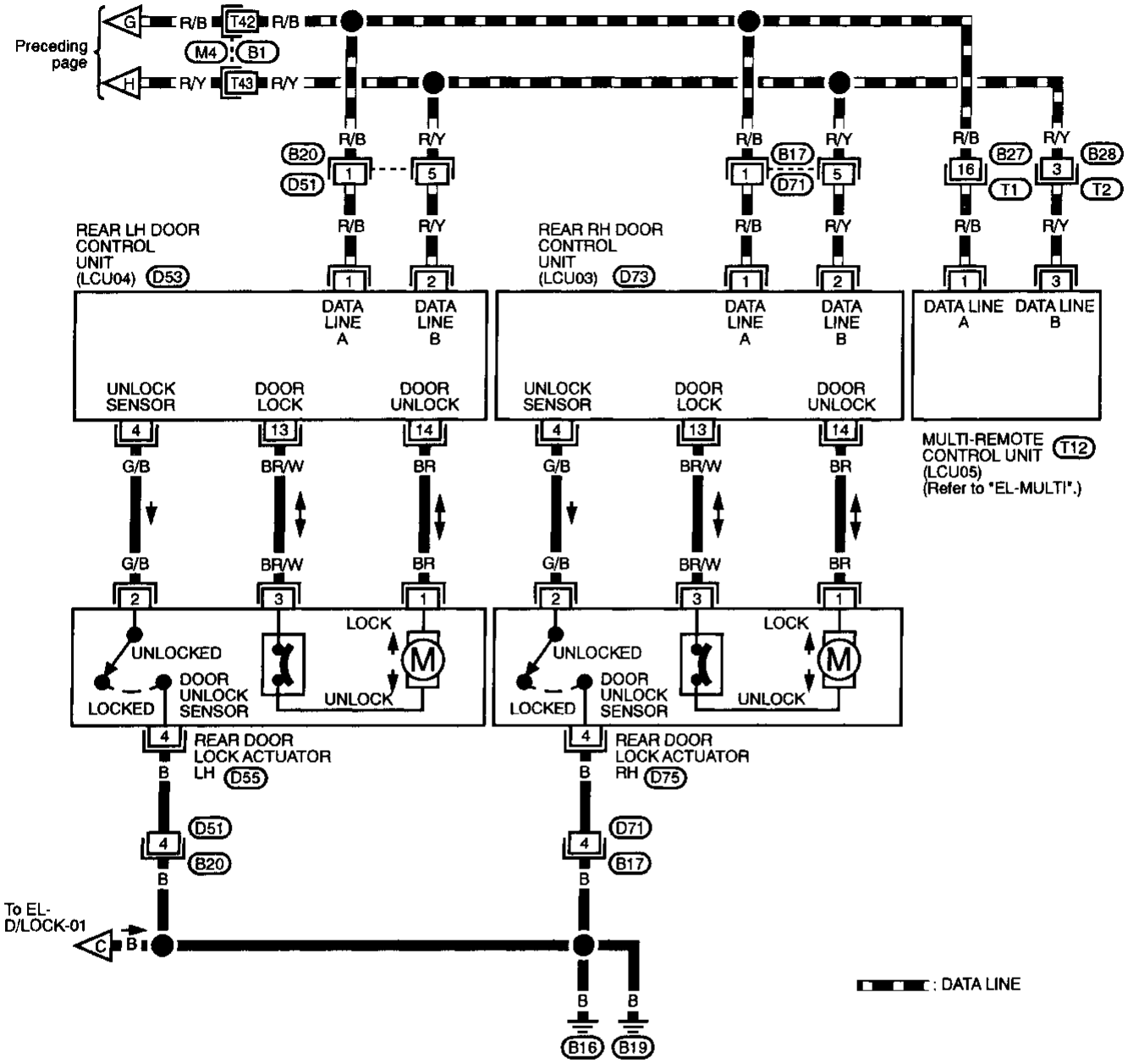


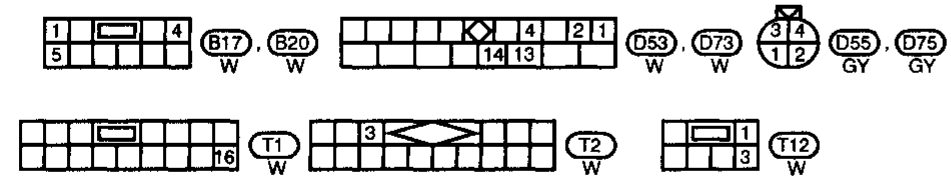
Refer to last page (Foldout page).
M23

MEL421D

Wiring Diagram — D/LOCK — (Cont'd)

EL-D/LOCK-04



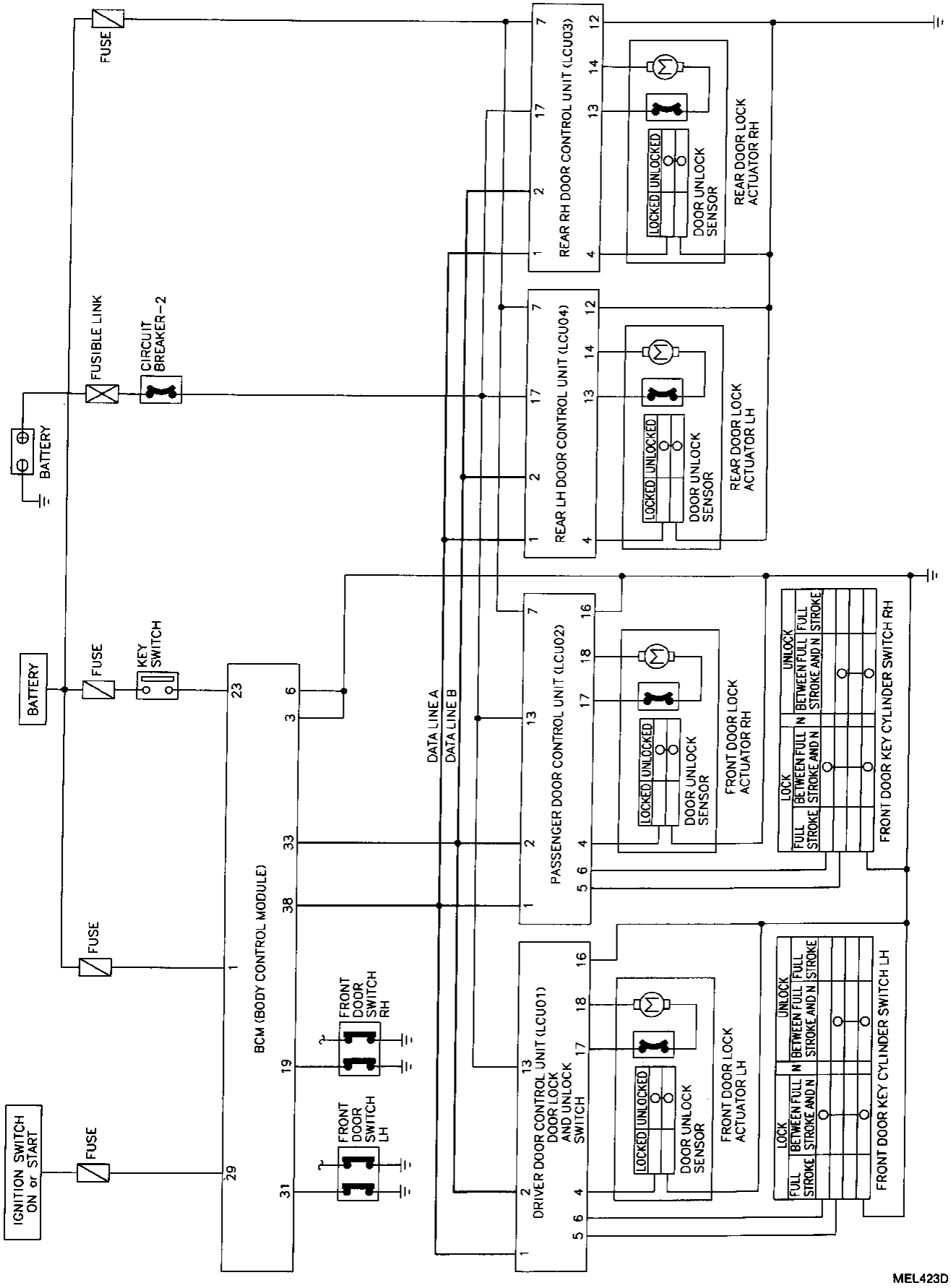


Refer to last page (Foldout page).
M4, B1

MEL422D

1259

Schematic


FUSE
FUSIBLE LINK
CIRCUIT BREAKER–2
BATTERY
KEY SWITCH
IGNITION SWITCH ON or START
BCM (BODY CONTROL MODULE)
DATA LINE A
DATA LINE B
REAR RH DOOR CONTROL UNIT (LCU03)
REAR LH DOOR CONTROL UNIT (LCU04)
PASSENGER DOOR CONTROL UNIT (LCU02)
DRIVER DOOR CONTROL UNIT (LCU01)
DOOR LOCK AND UNLOCK SWITCH
DOOR UNLOCK SENSOR
LOCKED
UNLOCKED
REAR DOOR LOCK ACTUATOR RH
REAR DOOR LOCK ACTUATOR LH
FRONT DOOR LOCK ACTUATOR RH
FRONT DOOR LOCK ACTUATOR LH
FRONT DOOR SWITCH RH
FRONT DOOR SWITCH LH
FRONT DOOR KEY CYLINDER SWITCH RH
FRONT DOOR KEY CYLINDER SWITCH LH
LOCK
UNLOCK
FULL STROKE
BETWEEN FULL STROKE AND N
MEL423D

Trouble Diagnoses

OPERATIVE CONDITION

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

However, if the ignition key is in the steering key cylinder and one or more of the front doors are open, setting the lock & unlock switch, lock knob, or the door key to "LOCK" locks the doors once but then immediately unlocks them. — (KEY REMINDER DOOR SYSTEM)
If any of the following symptoms occur, key reminder door system is malfunctioning.

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

TROUBLE SYMPTOM

Perform "IVMS Communication Diagnoses" (EL-148), "Power Supply and Ground Circuit Check" (EL-177), and "SELF DIAG RESULTS" mode in DOOR LOCK with CONSULT or On-board Diagnosis-Mode III (refer to EL-159) before starting with the following items:

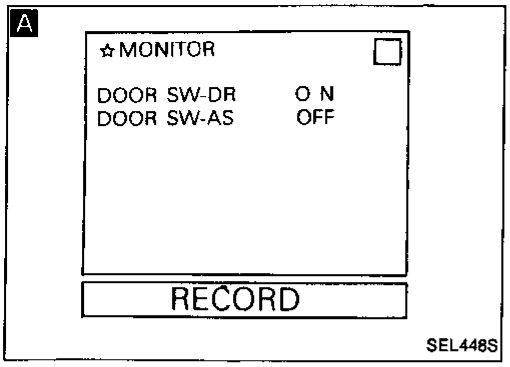
Trouble symptom	Door switch	IGN key switch	Lock & unlock switch	Door key cylinder switch	Lock knob switch (Unlock sensor)	Door lock actuator
	Procedure 1 (EL-198)	Procedure 2 (EL-199)	Procedure 3 (EL-199)	Procedure 4 (EL-200)	Procedure 5 (EL-201)	Procedure 6 (EL-202)
Key reminder door system does not operate properly.	X	X	X	X	X	X
All doors are not locked and/or unlocked when operating lock & unlock switch.			X		X	X
All doors are not locked and/or unlocked when operating front LH or RH door key cylinder switch.				X	X	X
One or more doors are not locked and/or unlocked when operating front door lock knobs, lock & unlock switch and/or door key cylinder switch.					X	X

The following ABBREVIATIONS are used in this Trouble Diagnoses.
(FL): Front LH
(FR): Front RH
(RL): Rear LH
(RR): Rear RH

Trouble Diagnoses (Cont'd)

PROCEDURE 1 — Door switch

A



CHECK DOOR SWITCH CIRCUIT.

A CONSULT

See "DOOR SW DR" and "DOOR SW AS" in DATA MONITOR mode.

Front LH, RH door	"DOOR SW" display
Open	"ON"
Closed	"OFF"

OK → Go to PROCEDURE 2 (EL-199).

OR

ON-BOARD

Check front LH and RH door switches in Switch monitor (Mode II) mode. (Refer to On-board Diagnoses, EL-157.)

NG

B

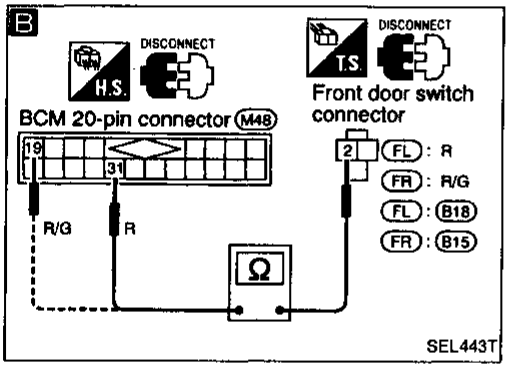
1) Disconnect BCM 20-pin connector, and front door switch connector.
2) Check continuity.

	Terminals	Continuity
FL	㉛ - ②	Yes
FR	⑲ - ②	

NG → Repair harness.

OK

B



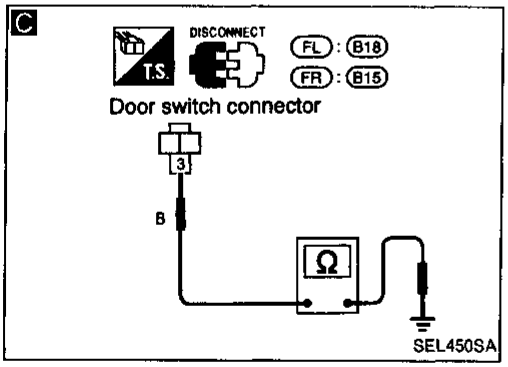
C

Check harness continuity between front door switch connector terminal ③ and body ground.
Continuity should exist.

NG → Repair ground harness.

OK

C



D

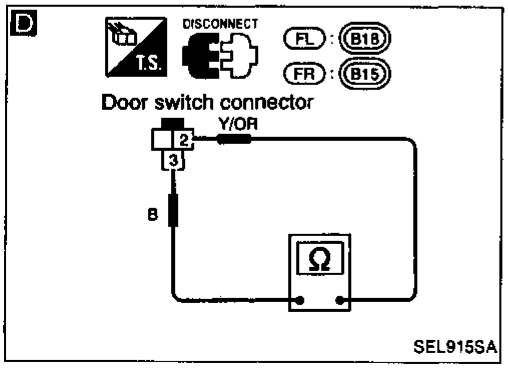
Check continuity of door switch circuit with door open.
Continuity should exist.

NG → Replace door switch.

OK

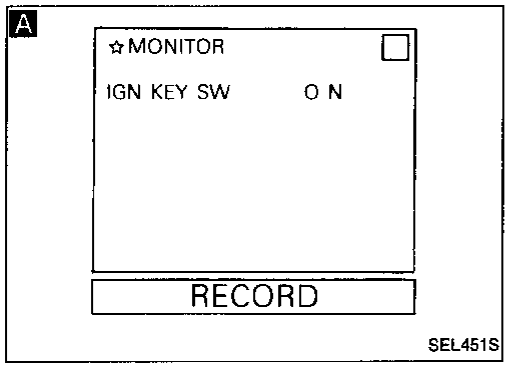
Check door switch circuit and IVMS communication again.

D



Trouble Diagnoses (Cont'd)

PROCEDURE 2 — Ignition key switch



CHECK KEY SWITCH CIRCUIT.

A CONSULT

See "IGN KEY SW" in DATA MONITOR mode.

"IGN KEY SW" should be "ON" when IGN key is inserted in steering key cylinder.

OR

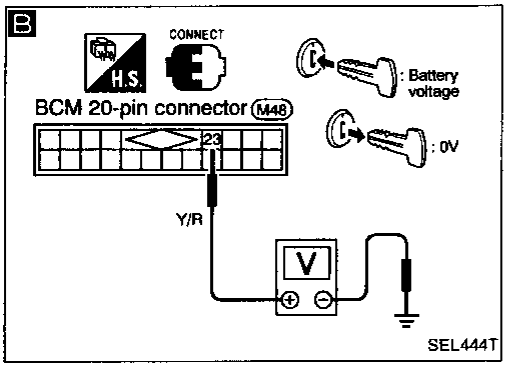
B TESTER

Check voltage when key is inserted in steering key cylinder.

Battery voltage should exist.

OK → Go to PROCEDURE 6 (EL-202).

NG



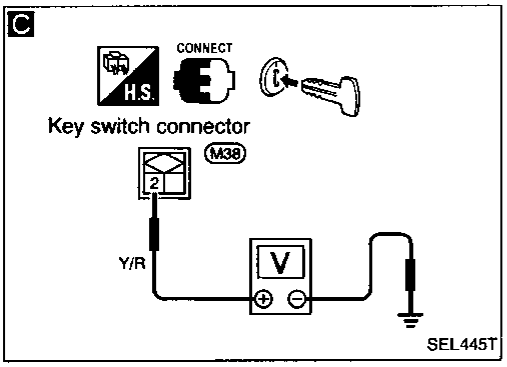
C

Check voltage of key switch connector terminal ② when key is inserted in steering key cylinder.

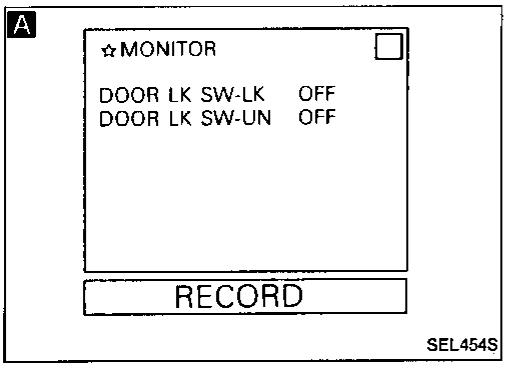
Battery voltage should exist.

OK → Repair harness between key switch and BCM connector.

NG → Check key switch unit and fuse circuit.



PROCEDURE 3 — Lock & unlock switch



CHECK DOOR LOCK & UNLOCK SWITCH CIRCUIT.

A CONSULT

See "DOOR LK SW-LK or UN" in DATA MONITOR mode.

These signals should be "ON" when door lock switch was operated.

OR

ON-BOARD

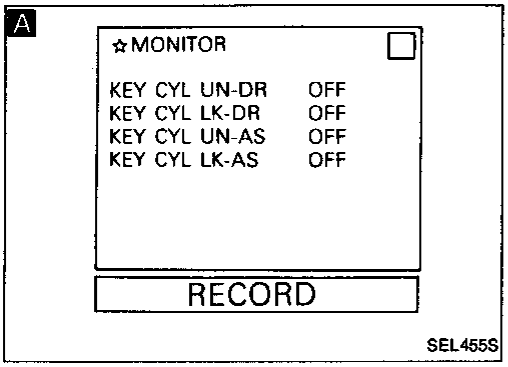
Check door lock & unlock switch operation in Switch monitor (Mode II) mode. (Refer to On-board Diagnoses, EL-157.)

OK → Go to PROCEDURE 5 (EL-201).

NG → Replace driver door control unit (LCU01).

Trouble Diagnoses (Cont'd)

PROCEDURE 4 — Door key cylinder switch



CHECK DOOR KEY CYLINDER SIGNAL.

A CONSULT

See "KEY CYL DR or AS" in DATA MONITOR mode.
These signals should be "ON" when ignition key inserted in the door key cylinder was turned to lock or unlock.
If signals turn from "OFF" to "ON" too quickly on CONSULT display when key cylinder is turned, check these signals in the graphic mode.
(Refer to CONSULT OPERATION MANUAL.)

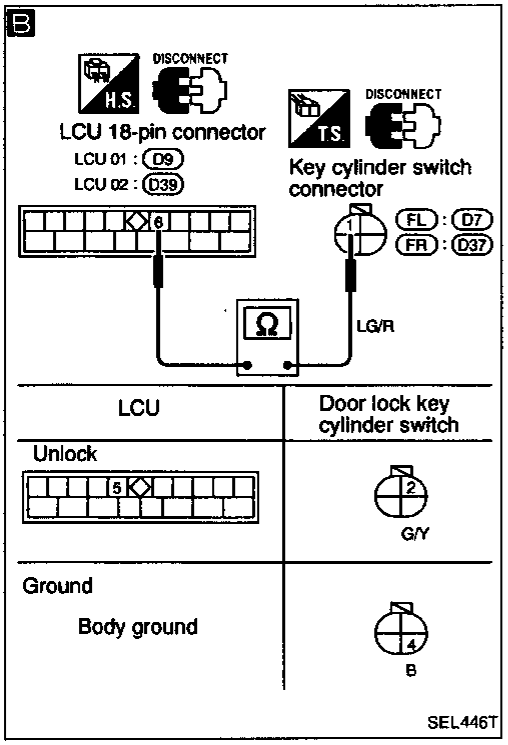
OR

ON-BOARD

Check front LH or RH door lock key cylinder lock and unlock switch in Switch monitor (Mode II) mode.
(Refer to On-board Diagnoses, EL-157.)

OK → Go to PROCEDURE 5 (EL-201).

NG



B

1) Disconnect LCU connector, and connector from key cylinder switch.
2) Check continuity.

Terminals	Continuity
⑥ - ①	Yes
⑤ - ②	
GND - ④	

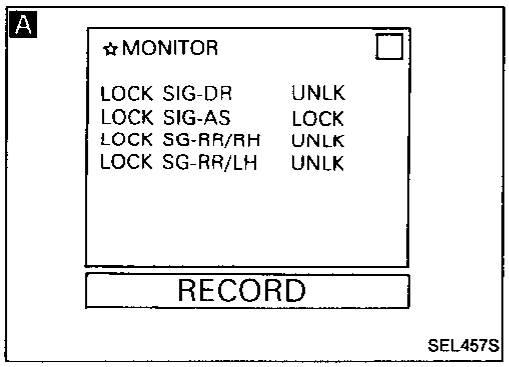
NG → Repair harness.

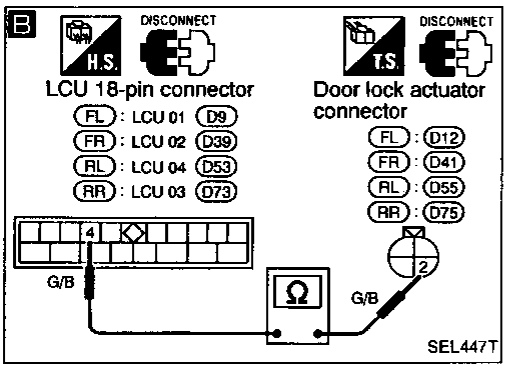
OK

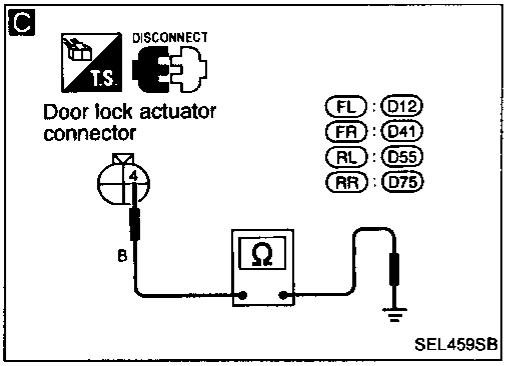
Check door lock key cylinder switch circuit.

Trouble Diagnoses (Cont'd)

PROCEDURE 5 — Door unlock sensor







CHECK DOOR LOCK KNOB SWITCH CIRCUITS.

A CONSULT

See "LOCK SIG SW" in DATA MONITOR mode.

"LOCK SIG SW" should be "LOCK" when lock knob was locked.

OR

ON-BOARD

Check front door lock knob operation in Switch monitor (Mode II) mode.
(Refer to On-board Diagnoses, EL-157.)

OK → Go to PROCEDURE 6 (EL-202).

NG

B

1) Disconnect LCU connector and door lock actuator connector.
2) Check harness continuity between LCU connector terminal ④ and door lock actuator connector terminal ②.

Continuity should exist.

NG → Repair harness.

OK

C

CHECK GROUND CIRCUIT FOR FRONT LH OR RH LOCK KNOB SWITCH.
Check harness continuity between door lock actuator connector harness terminal ④ and body ground.

Continuity should exist.

NG → Repair ground harness.

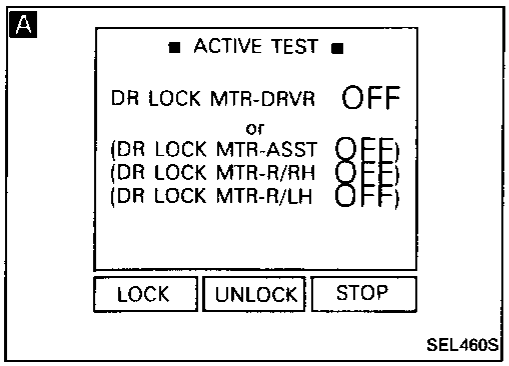
OK

Replace front door lock actuator.

Trouble Diagnoses (Cont'd)

PROCEDURE 6 — Door lock actuator

A



CHECK DOOR LOCK MOTOR OPERATION.

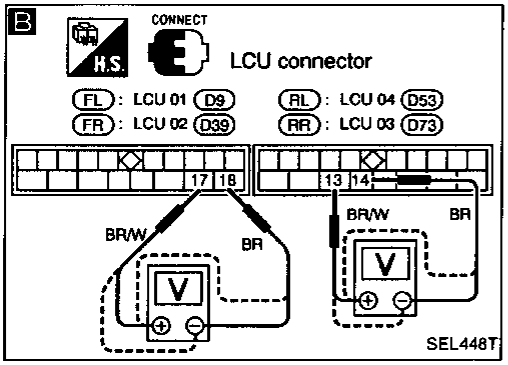
CONSULT

See "DR LOCK MTR" in ACTIVE TEST mode.
Perform operation shown on display.
Door lock motor should operate.
NOTE:
If CONSULT is not available, start with the diagnostic procedure B .

OK → Check IVMS Communication again. Refer to EL-148.

NG ↓

B



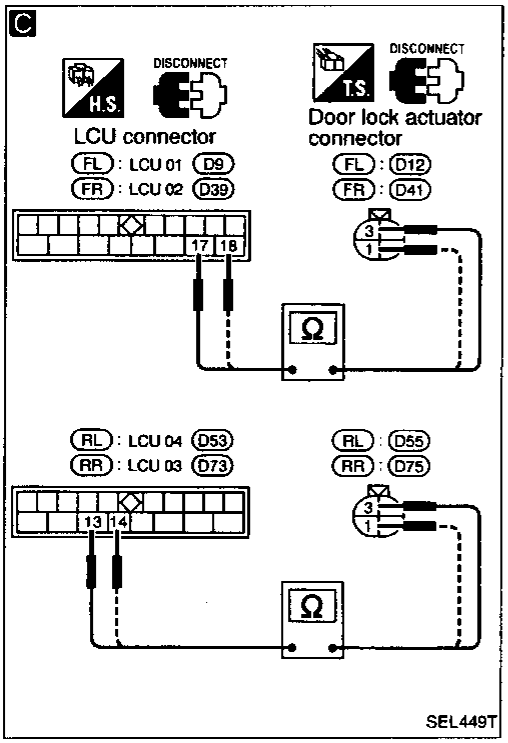
Check voltage between LCU connector terminals ⑰ and ⑱, or/and ⑬ and ⑭.

NG → Replace LCU for malfunctioning portion.

Door lock operation		Terminals ⊕	Terminals ⊖	Voltage
Front (FL), (FR)	Lock	⑰	⑱	Battery voltage
	Unlock	⑱	⑰	
Rear (RL), (RR)	Lock	⑬	⑭	
	Unlock	⑭	⑬	

OK ↓

C



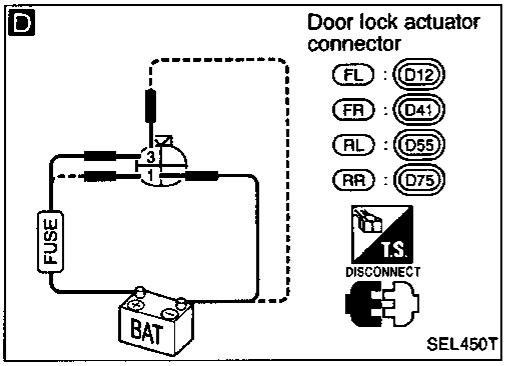
1) Disconnect LCU connector and door lock actuator connector.
2) Check continuity.

NG → Repair harness.

	Terminals	Continuity
Front (FL), (FR)	⑰ - ③	Yes
	⑱ - ①	
Rear (RL), (RR)	⑬ - ③	
	⑭ - ①	

OK ↓

D



Check door lock motor operation.

NG → Replace door lock motor.

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

OK ↓

Check IVMS communication again. Refer to EL-148.

System Description

POWER SUPPLY AND GROUND

Power is supplied at all times
- through 10A fuse (No. 11 , located in the fuse block in the HEC)
- to multi-remote control relay-1 terminal ① and multi-remote control relay-2 terminal ①.

Terminals ② of multi-remote control relay-1 and relay-2 are connected to BCM terminal ⑪.
Power is supplied at all times
- through 7.5A fuse (No. 52, located in the fuse and fusible link box)
- to theft warning relay terminal ①.

Theft warning relay terminal ② is connected to BCM terminal ⑬.
Power is supplied at all times
- through 15A fuse (No. 37, located in the fuse block in the HEC)
- to trunk lid opener actuator terminal ②.

Trunk lid opener actuator terminal ① is connected to multi-remote control unit terminal ⑤
BCM is connected to Multi-remote control unit, driver door control unit, passenger door control unit, rear LH door control unit and rear RH door control unit by DATA LINES A and B.
Power is supplied at all times
- through 7.5A fuse (No. 40, located in the fuse block in the HEC)
- to key switch terminal ①.

When the key switch is in ON position (ignition key is inserted in key cylinder), power is supplied
- through key switch terminal ②
- to BCM terminal ㉓.

When ignition switch is in ACC or ON position, power is supplied
- through 7.5A fuse (No. 19, located in the fuse block in the HEC)
- to BCM terminal ㉘.

Power is supplied at all times
- through 7.5A fuse (No. 26, located in the fuse block in the HEC)
- to interior lamp terminal ①.

When interior lamp is in DOOR position, ground is supplied
- to interior lamp terminal ②
- through BCM terminal ⑤.

When any of the four door switches is in OPEN position, ground is supplied
- to BCM terminal ㉑
- through door switches body grounds.

When the front door lock actuator LH (door unlock sensor) is in UNLOCKED position, ground is supplied
- to driver door control unit (LCU01) terminal ④
- through front door lock actuator LH (door unlock sensor) terminal ②
- to front door lock actuator LH (door unlock sensor) terminal ④
- through body grounds (M13) and (M73).

When the front door lock actuator RH (door unlock sensor) is in UNLOCKED position, ground is supplied
- to passenger door control unit (LCU02) terminal ④
- through front door lock actuator RH (door unlock sensor) terminal ②
- to front door lock actuator RH (door unlock sensor) terminal ④
- through body grounds (M13) and (M73).

When the rear door lock actuator LH and/or RH (door unlock sensor) is in UNLOCKED position, ground is supplied
- to rear LH and/or RH door control unit terminal ④
- through rear door lock actuator LH (door unlock sensor) terminal ② and/or
- through rear door lock actuator RH (door unlock sensor) terminal ②
- to rear door lock actuator LH (door unlock sensor) terminal ④ and/or
- to rear door lock actuator RH (door unlock sensor) terminal ④
- through body grounds (B16) and (B19).

Remote controller signal input
- through window antenna
- to multi-remote control unit (LCU05) terminal ⑦.

System Description (Cont'd)

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

OPERATING PROCEDURE

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

Power door lock operation

Multi-remote control unit is connected to BCM, driver door control unit, passenger door control unit and rear LH/RH door control units by DATA LINES A and B.
- Key switch OFF signal (ignition key is not in key cylinder)
- Door switch CLOSE signal (all doors closed)

The two above signals are already input into BCM. At this point, multi-remote control unit receives a LOCK signal from remote controller. Multi-remote control unit will then send a LOCK signal
- from its terminals ① and ③ (DATA LINES A and B)
- to each door control unit terminal ① and ②

When multi-remote control unit (LCU05) receives a LOCK signal, ground is supplied
- to multi-remote control relays-1 and -2 terminal ②
- through BCM terminal ⑪.

Multi-remote control relays are now energized and door lock actuators lock all doors. (Hazard warning lamps flash twice as a reminder.)
When an UNLOCK signal is sent from remote controller, door lock actuators unlock all doors.
Refer to "POWER DOOR LOCK — IVMS" (EL-190).

Trunk lid opener operation

Ground is supplied
- to trunk lid opener actuator terminal ①
- through multi-remote control unit.

When power and ground are supplied, trunk lid opener actuator opens trunk lid.

Interior lamp operation

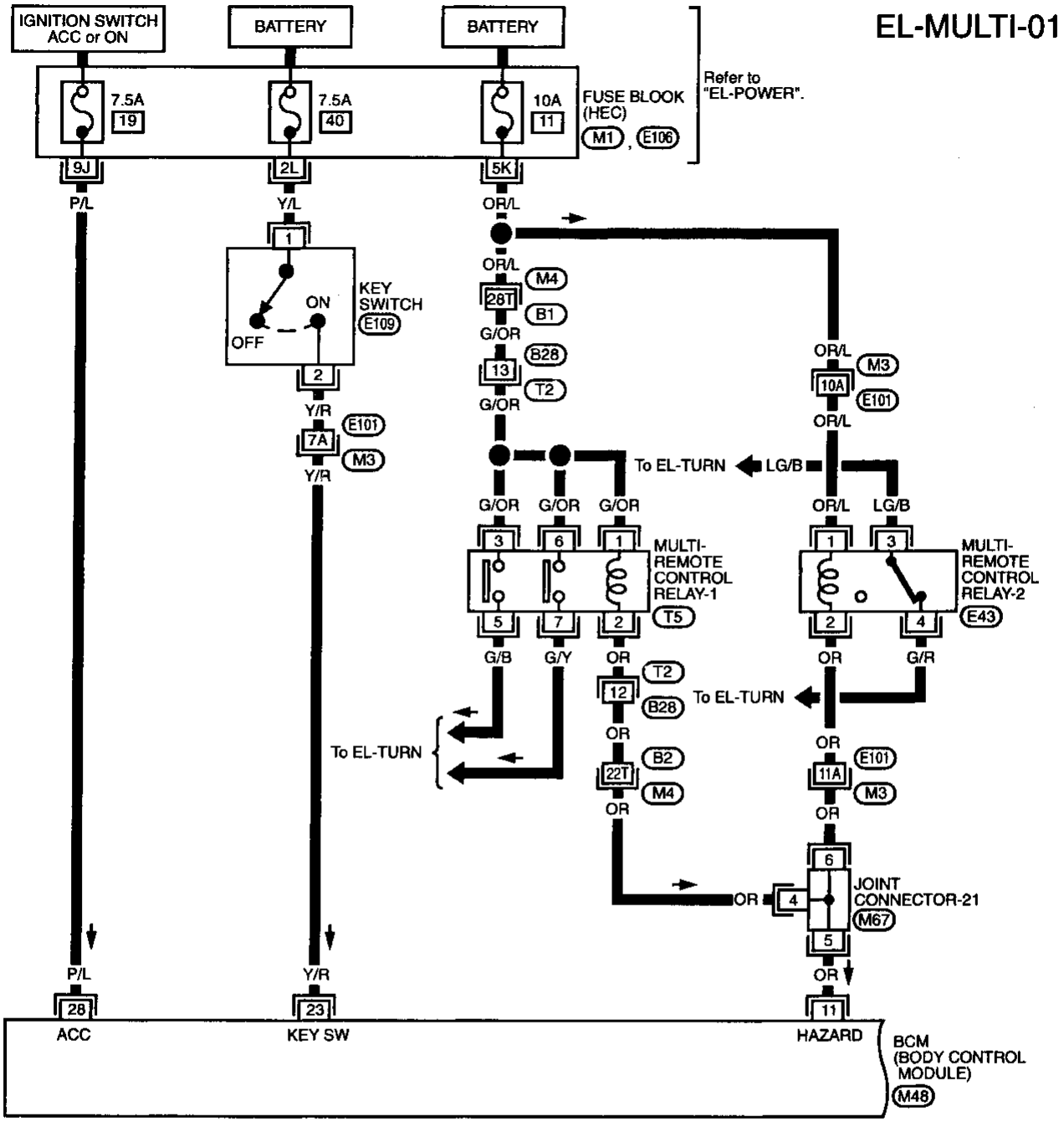
Multi-remote control system turns interior lamp ON or OFF when door switch is in CLOSED position (all doors closed).
For detailed description, refer to "INTERIOR LAMP" (EL-69).

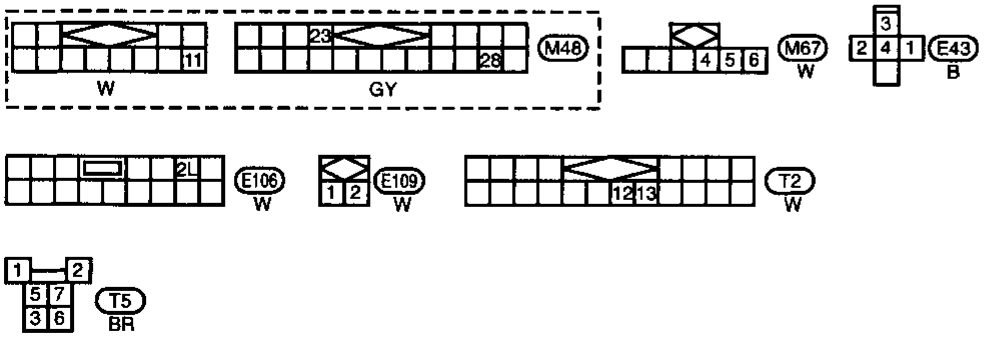
Panic alarm operation

Multi-remote control system activates horn and headlamps intermittently when an alarm signal is sent from remote controller to multi-remote control system.
For detailed description, refer to "THEFT WARNING SYSTEM — IVMS" (EL-242).

Wiring Diagram — MULTI —

EL-MULTI-01



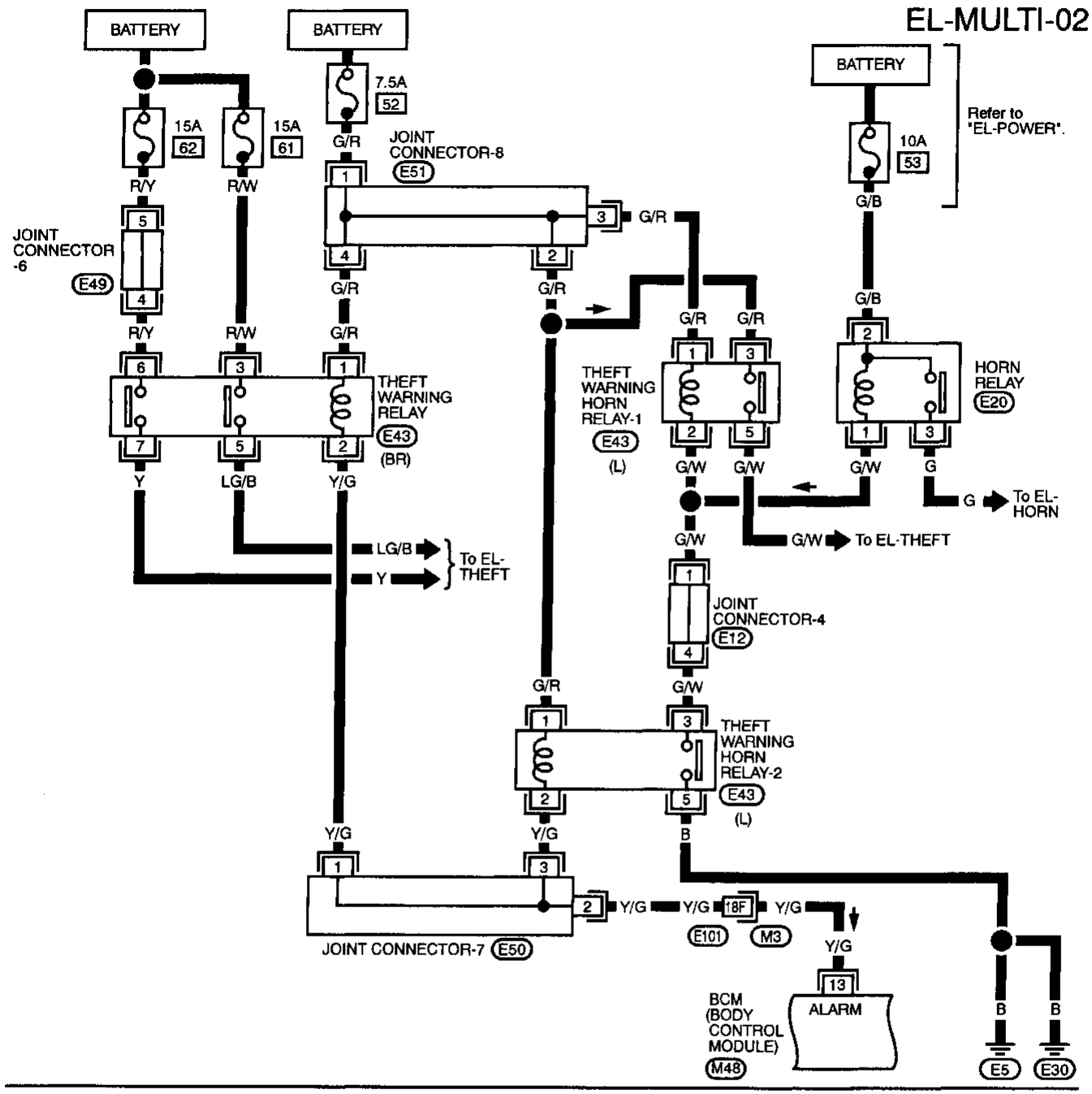


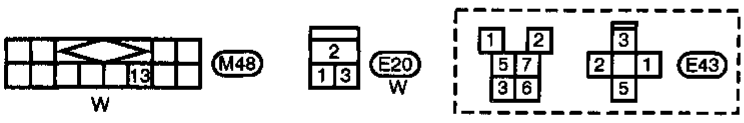
Refer to last page (Foldout page).
M3, E101
M4, B2
M67
M1

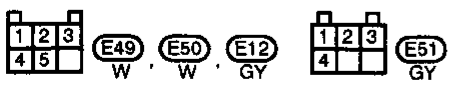
MEL424D

1269

Wiring Diagram — MULTI — (Cont'd)





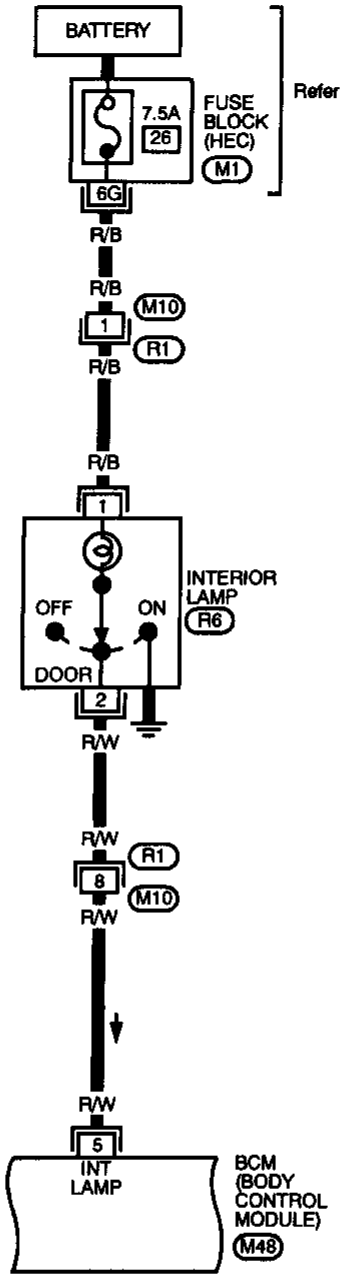


Refer to last page (Foldout page).
M3 , E101
E12
E49
E50
E51

MEL502D

Wiring Diagram — MULTI — (Cont'd)

EL-MULTI-03

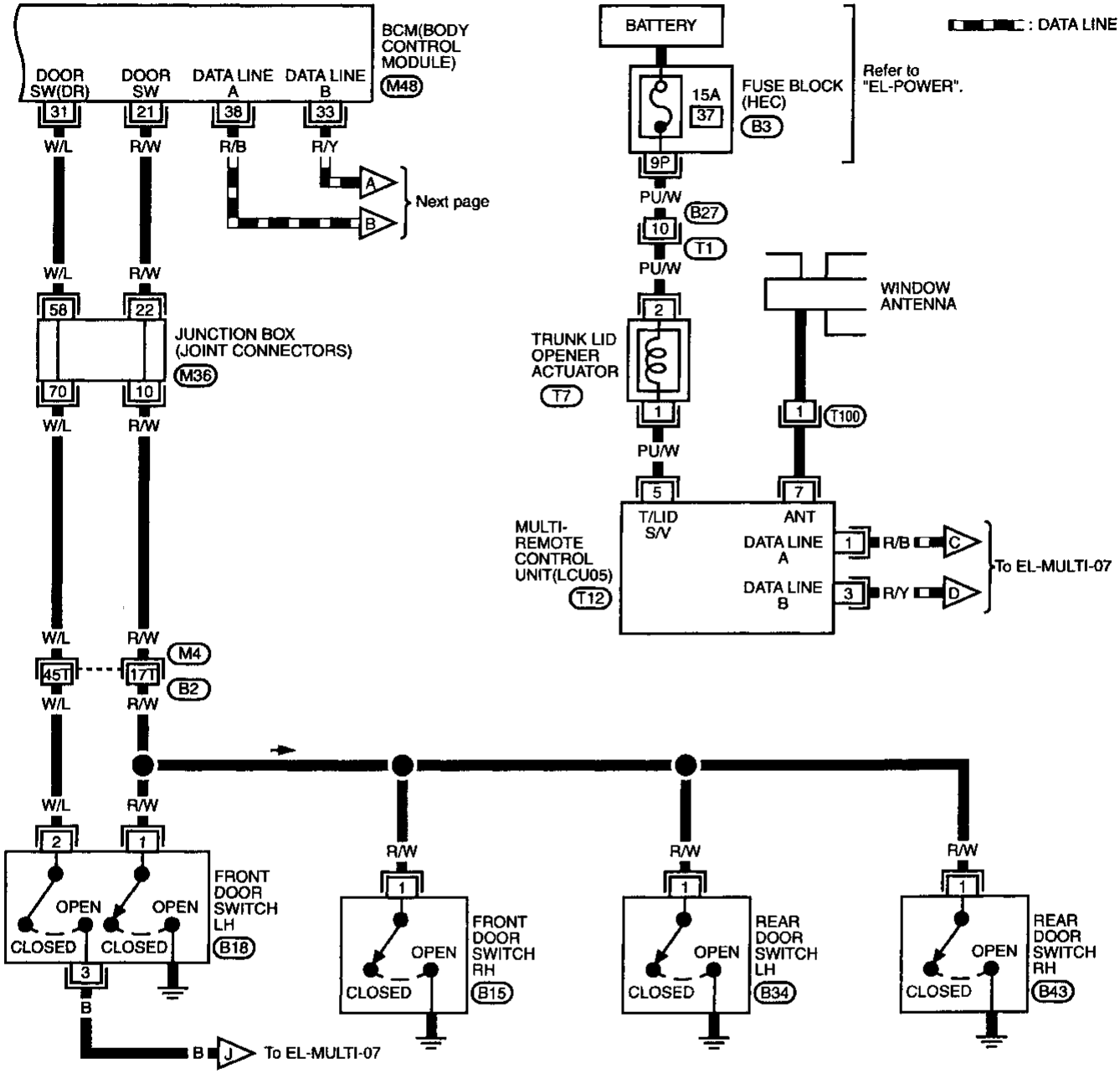


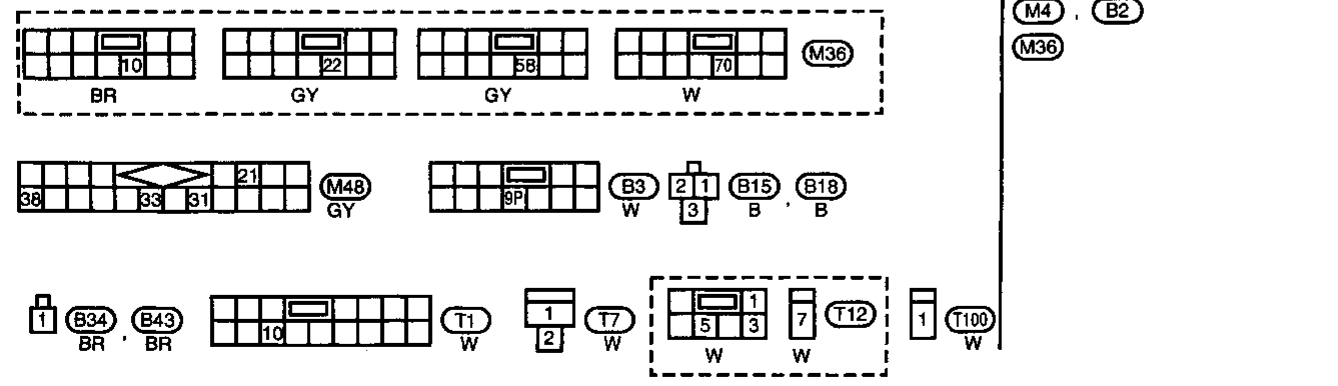
Refer to last page (Foldout page).
M1

MEL503D

Wiring Diagram — MULTI — (Cont'd)

EL-MULTI-04



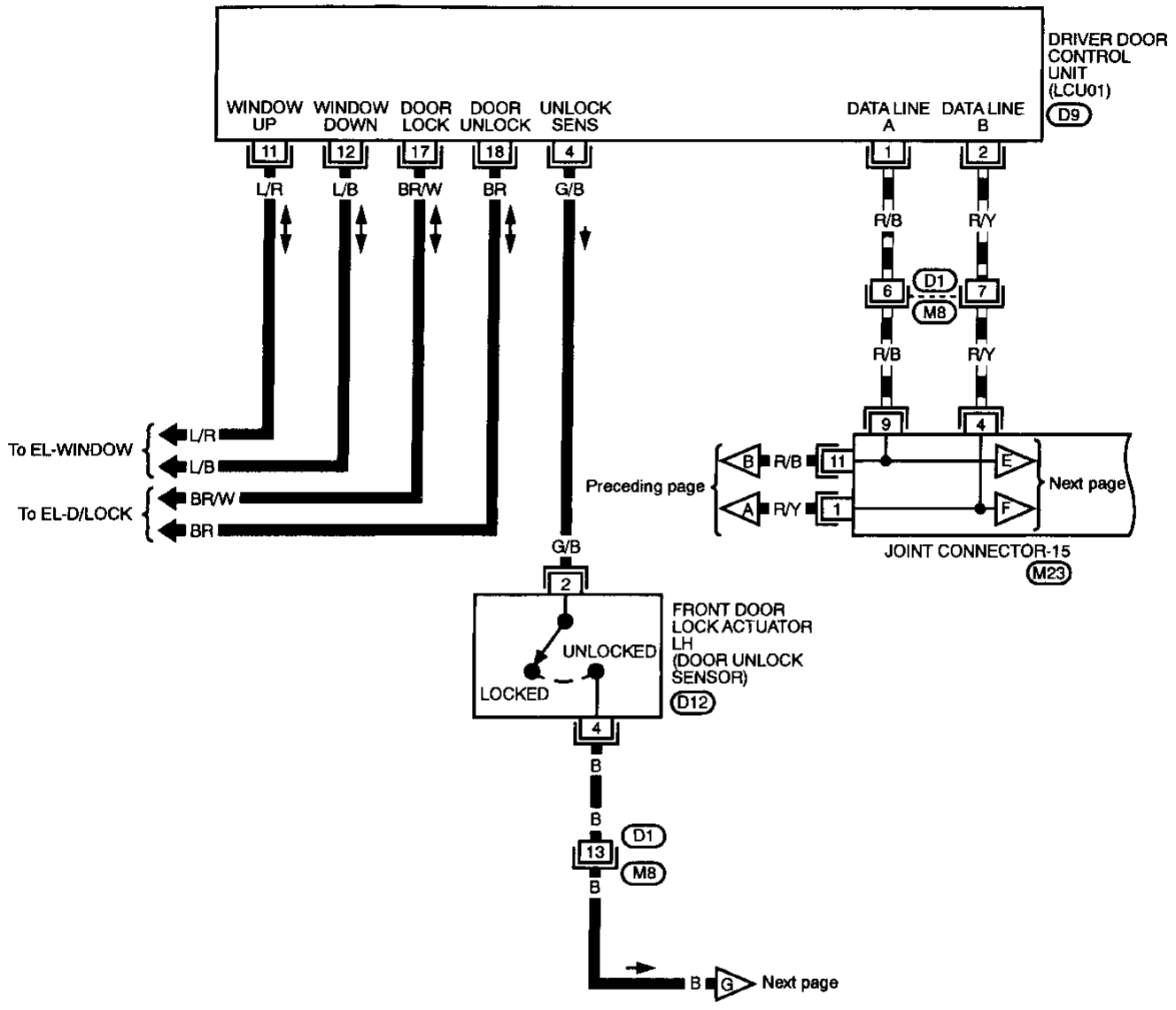


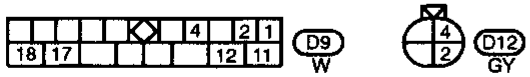
MEL426D

Wiring Diagram — MULTI — (Cont'd)

EL-MULTI-05

: DATA LINE





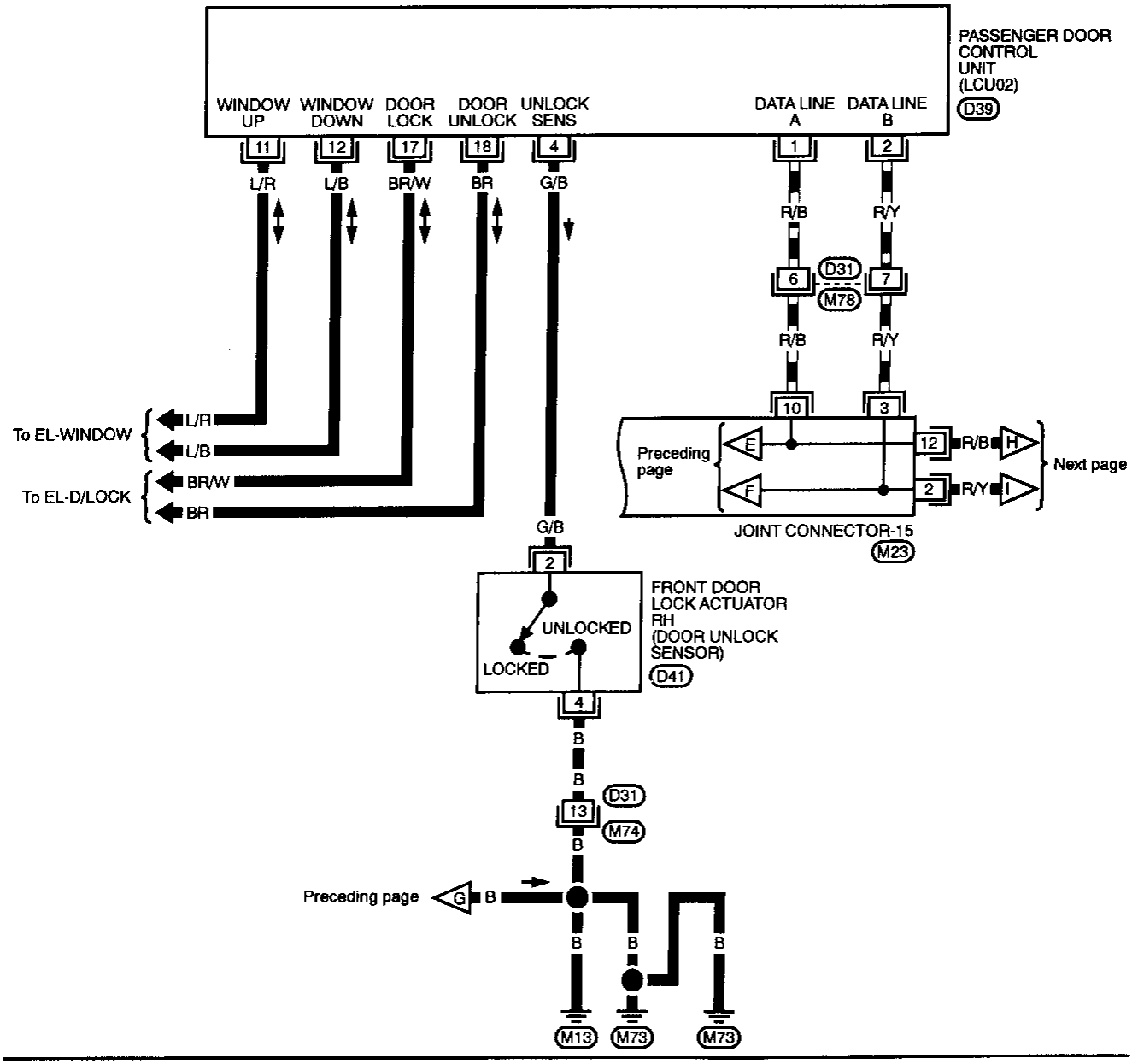
Refer to last page (Foldout page).
M23

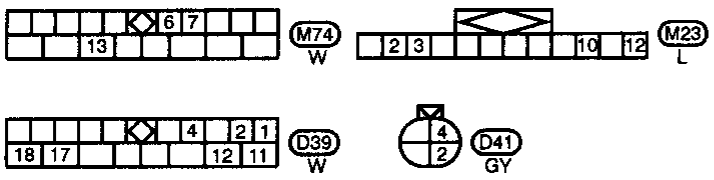
MEL427D

Wiring Diagram — MULTI — (Cont'd)

EL-MULTI-06

: DATA LINE



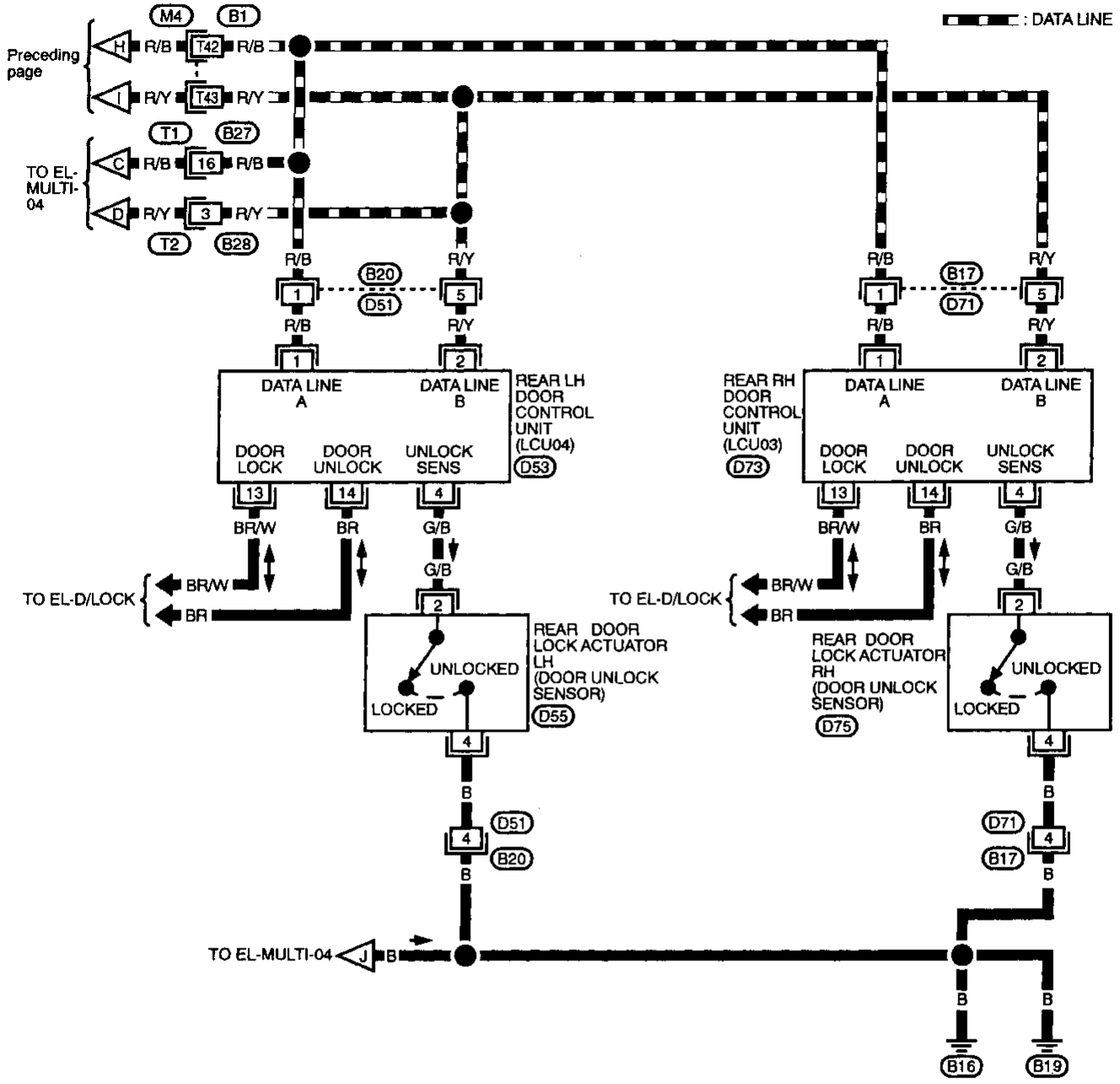


Refer to last page (Foldout page).
M23

MEL428D

Wiring Diagram — MULTI — (Cont'd)

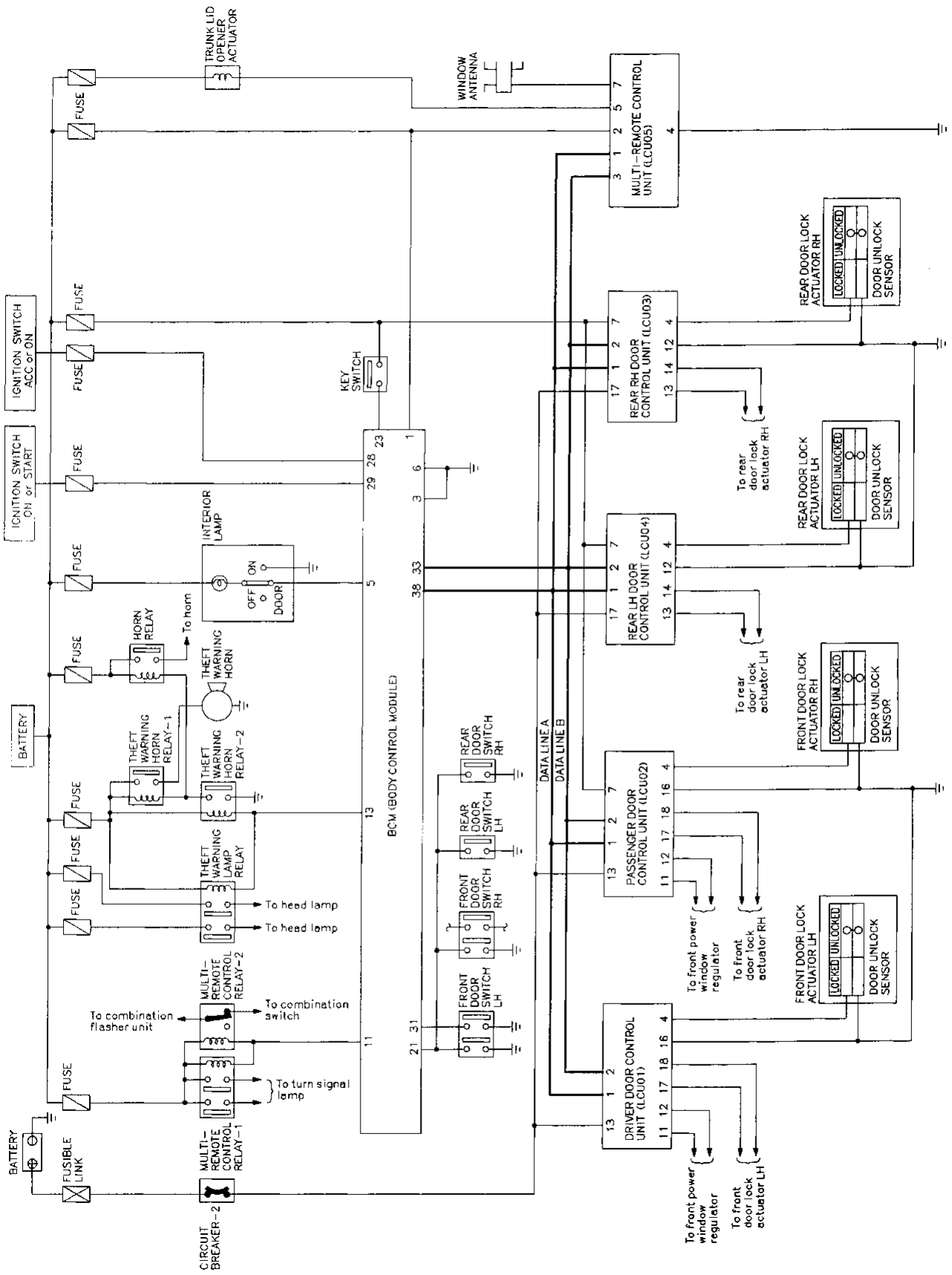
EL-MULTI-07



Refer to last page (Foldout page).
M4, B1

MEL429D

Schematic



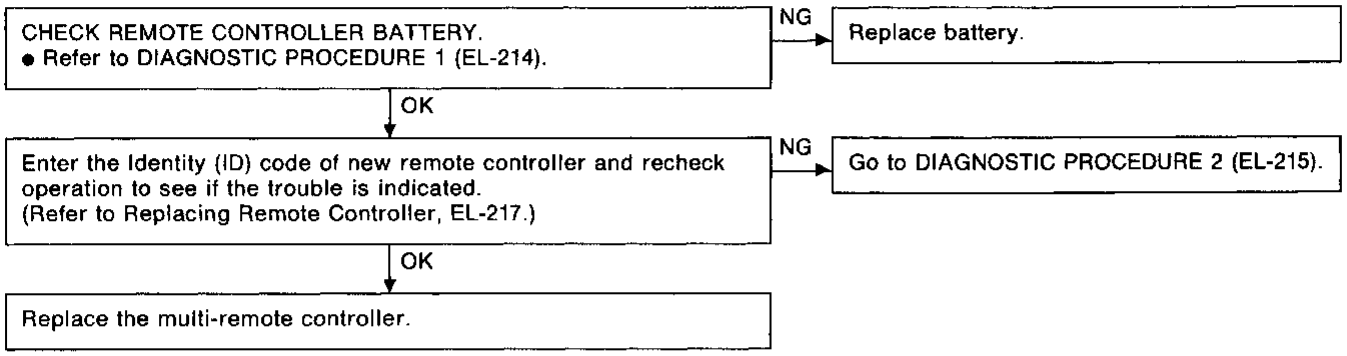
MEL430D

Trouble Diagnoses

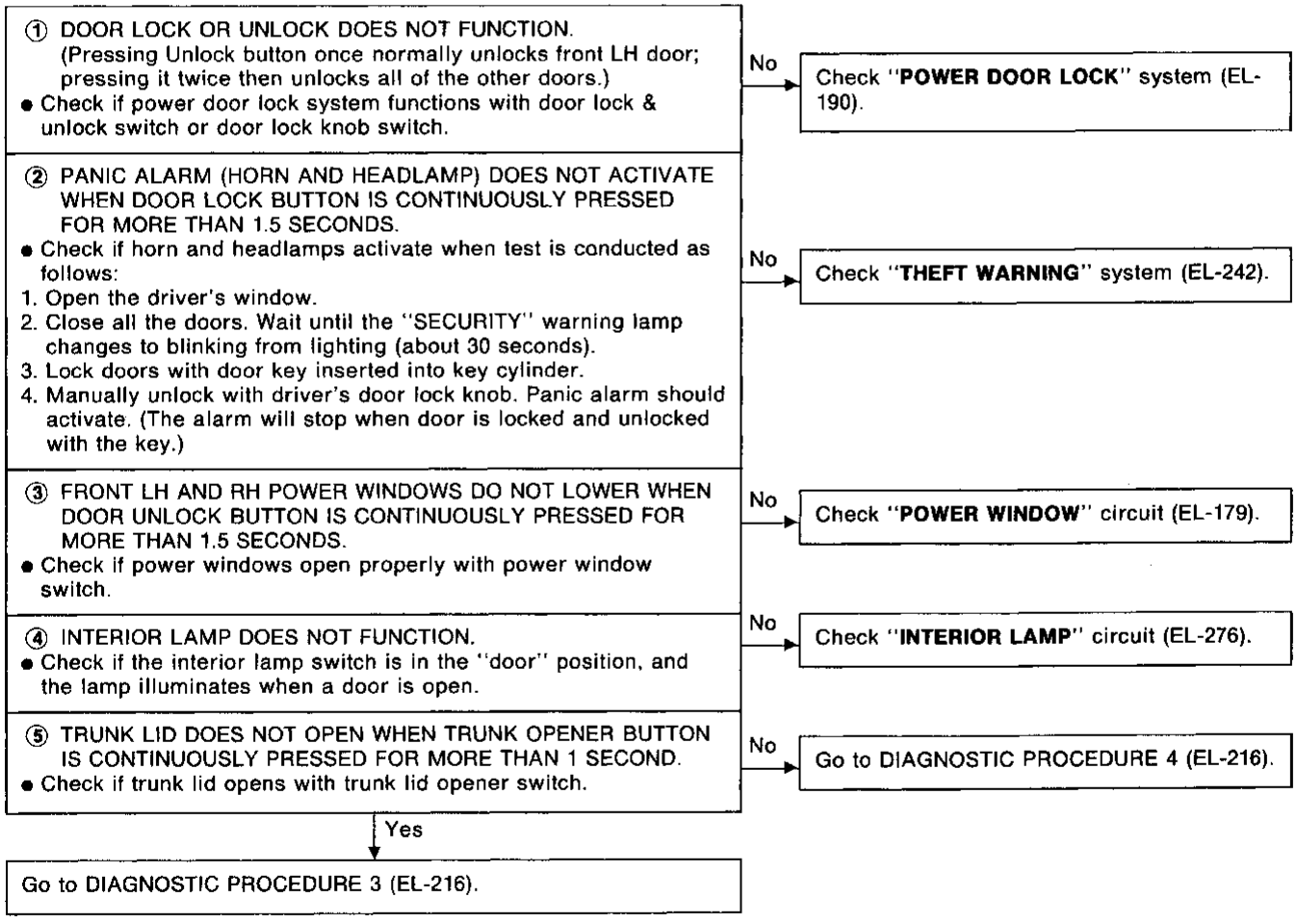
TROUBLE SYMPTOM

Perform "IVMS Communication Diagnosis" (refer to EL-148), "Power Supply and Ground Circuit Check" (EL-177), before starting with the following items.

- All functions of remote control system do not function.



- Multi-remote controller does not operate a part of the functions.

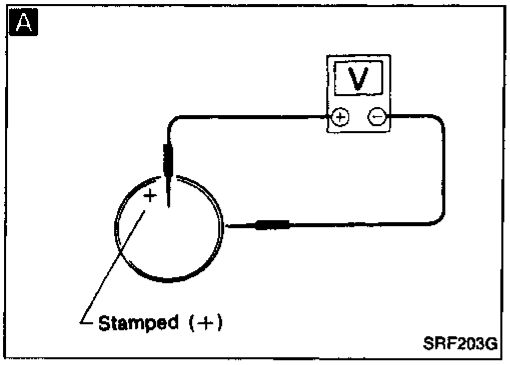


Note: The multi-remote control system does not activate with the ignition key inserted in the ignition key cylinder.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 1

A



A

CHECK REMOTE CONTROLLER BATTERY.

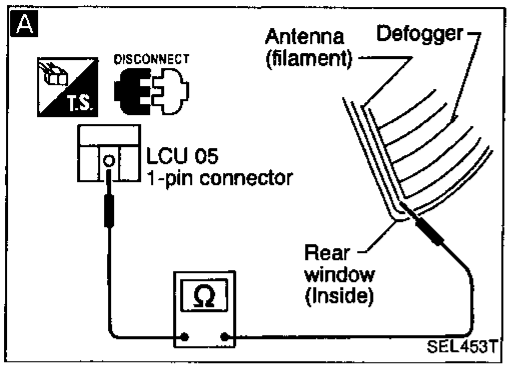
Remove battery and measure voltage across battery positive and negative terminals, ⊕ and ⊖.

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

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

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 2

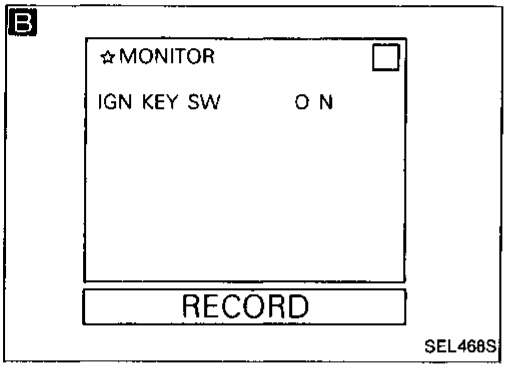


A

CHECK ANTENNA CIRCUIT.
1) Disconnect 1-pin connector from LCU05.
2) Remove rear pillar finisher.
3) Check continuity between the terminal center and filament on the rear window.
Continuity should exist.

NG → Repair antenna circuit. Refer to REAR WINDOW DEFOGGER "Filament Repair" (EL-98).

OK ↓



CHECK IGNITION KEY SWITCH CIRCUIT.

B CONSULT

See "IGN KEY SW" in DATA MONITOR mode.
"IGN KEY SW" should be "ON" when IGN key is inserted in steering key cylinder.

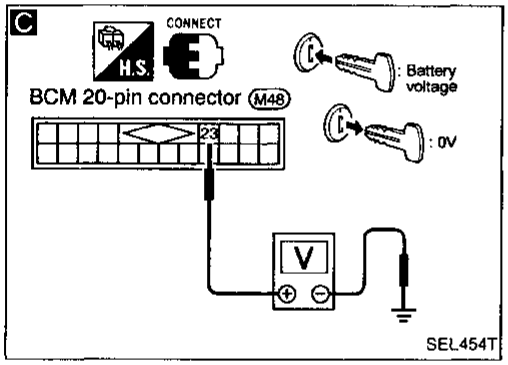
NG → Check and repair ignition key switch circuit.

OR

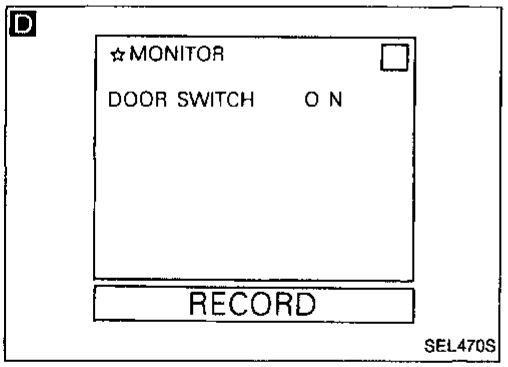
C TESTER

Check voltage when key is inserted in steering key cylinder.
Battery voltage should exist.

Condition	Voltage
Key inserted	Battery voltage
Key not inserted	0V



OK ↓



CHECK DOOR SWITCH CIRCUIT.

D CONSULT

See "DOOR SWITCH" in DATA MONITOR mode.
If all doors are closed, "DOOR SWITCH" should be "OFF".

NG → Check and repair door switch circuit.

OR

ON-BOARD

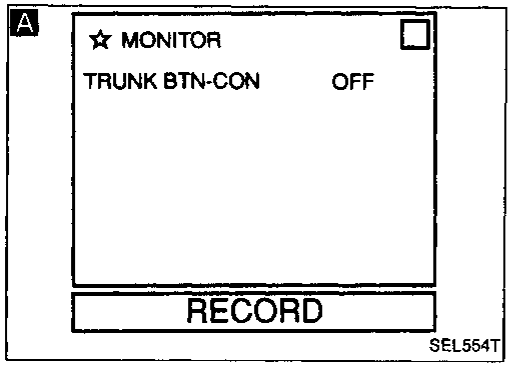
Check all doors switches in Switch monitor (Mode II) mode.
(Refer to On-board Diagnoses, EL-157.)

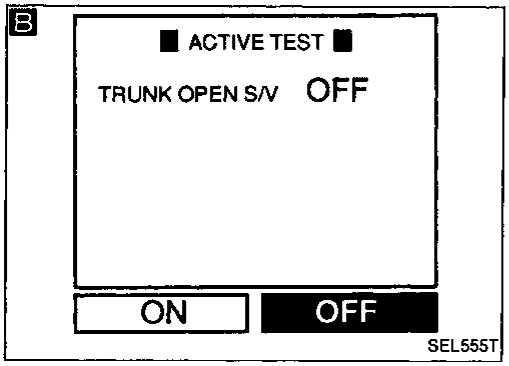
OK ↓

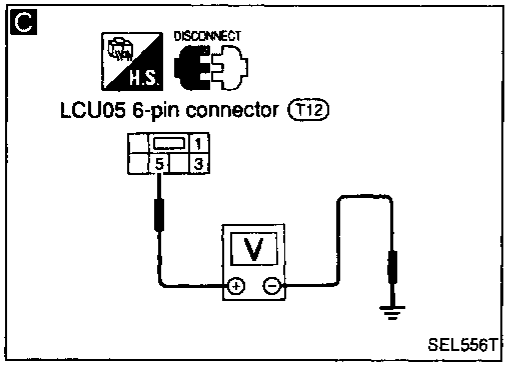
Perform "WAKE-UP DIAGNOSIS" (EL-151) and IVMS communication diagnosis (EL-148) again.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 3







CHECK MULTI-REMOTE CONTROLLER OPERATION.

A CONSULT

See "TRUNK BTN-CON" in DATA MONITOR mode.

"TRUNK BTN-CON" should be "ON" when trunk lid opener button on multi-remote controller is continuously pressed for more than 1 second.

NG → Replace multi-remote controller.

OR

ON-BOARD

See Switch monitor (Mode II) mode. (Refer to On-board Diagnosis, EL-157).

OK ↓

CHECK TRUNK LID OPENER CIRCUIT.

B CONSULT

See "TRUNK OPEN S/V" in ACTIVE TEST mode.

Perform operation shown on display. Trunk lid opener should operate.

OK → Check IVMS communication again. Refer to EL-148.

OK → Replace LCU05.

OR

C TESTER

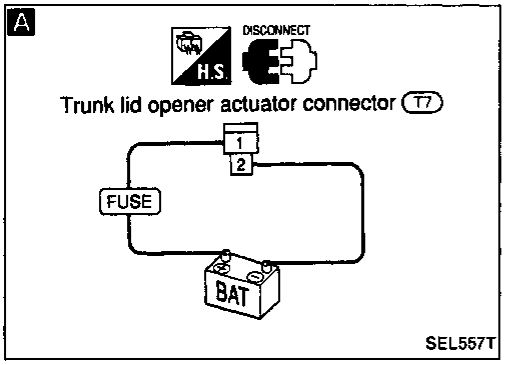
Check voltage between LCU05 6-pin connector terminal ⑤ and ground.

Battery voltage should exist.

NG ↓

Repair harness between LCU05 and trunk lid opener actuator.

DIAGNOSTIC PROCEDURE 4



A

Check to see if trunk lid opens when 12V DC is applied across trunk lid opener actuator connector terminals ① and ②.

NG → Replace trunk lid opener actuator.

OK ↓

Check and repair harness.

Replacing Remote Controller or Multi-Remote Control Unit (LCU05)

Enter the identity (ID) code manually when:

- **remote controller or multi-remote control unit LCU05 is replaced.**
- **an additional remote controller is activated.**

ID Code Entry Procedure

To enter the ID code, follow this procedure.

"Setting mode":

(1) Close and lock all doors.
(2) Insert and remove the key from the ignition more than six times within 10 seconds. (The hazard warning lamp will then flash twice.)

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

ID code entry:

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

- **At this time, the new ID code is entered. (The hazard warning lamp will then flash twice.)**

Additional ID code entry

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

NOTE

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

System Description

FUNCTION

- The IVMS has the following time control functions.

Item	Details of control
Intermittent wiper control	Regulates intermittent time approximately from 2 to 21 seconds depending on the intermittent wiping time setting.
Washer and wiper combination control	Operates wiper when washer switch is turned "ON" for at least 0.3 seconds.
Light warning buzzer timer	Sounds warning buzzer when driver's door is opened with light switch in the 1st or 2nd position and ignition switch "OFF".
Ignition key warning buzzer timer	Sounds warning buzzer when driver's door is opened with key in ignition.
Seat belt warning buzzer timer	Sounds warning buzzer for about 6 seconds if ignition switch is turned "ON" when driver's seat belt is unfastened.
Rear window defogger timer	Turn off rear window defogger and door mirror heater, if equipped, about 15 minutes after the rear window defogger switch is turned "ON".
Battery saver	Shuts off interior lamp, step lamps and ignition keyhole illumination in 30 minutes if any door is left open when ignition switch is "OFF". The battery saver will reset if ignition switch is cycled or any door is opened or closed.
Interior lamp timer	Keeps interior lamp and ignition keyhole illuminated for about 30 seconds when: • driver's door is unlocked while key is out of ignition, • key is pulled out of ignition while driver's door is closed, and • key is pulled out of ignition and driver's door is opened and then closed. The timer is cancelled, and interior lamp and ignition keyhole illumination turn off when • driver's door is locked, or • ignition switch is turned "ON".

INTERMITTENT WIPER CONTROL

Intermittent operation

Intermittent operation can be set variable by turning the intermittent wiper volume knob. The wiper motor then operates the wiper at low speed at a set interval of about 1 to 20 seconds. This feature is controlled by the BCM.

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

- to BCM terminal ㉕
- from wiper switch terminal ⑮
- to wiper switch terminal ⑰
- through body grounds E5 and E30.

The desired interval time is input

- to BCM terminal ⑰
- from wiper switch terminal ⑲.

For further information, refer to "WIPER AND WASHER" (EL-87).

System Description (Cont'd)

REAR WINDOW DEFOGGER TIMER

The rear window defogger and door mirror defogger system are controlled by the BCM.
With the ignition switch in the ON or START position, power is supplied

- to the rear window defogger relay terminal ① and
- to the door mirror defogger relay terminal ① and
- to BCM terminal ㉙
- through 7.5A fuse (No. 12 , located in the fuse block in the HEC).

Ground is supplied to terminal ② of the rear window defogger switch through body grounds (M13) and (M73).
When the rear window defogger switch is ON, ground is supplied

- through terminal ① of the rear window defogger switch
- to BCM terminal ㉒.

Terminal ⑮ of the BCM then supplies ground to the rear window defogger relay terminal ② and door mirror defogger relay terminal ②.
With power and ground supplied, the rear window defogger relay and door mirror defogger relay are energized.
Power is supplied

- through terminals ⑤ and ⑦ of the rear window defogger relay
- to the rear window defogger and
- through terminal ⑤ of the door mirror defogger relay
- to the door mirror defogger.

The rear window defogger and door mirror defogger have an independent ground.
With power and ground supplied, the rear window defogger and door mirror defogger hot wires heat and defog the rear window and door mirror. When the system is operated, the indicator illuminates.
For power supply and ground to the rear window defogger, refer to "REAR WINDOW DEFOGGER" (EL-96). Also, for power supply and ground to the door mirror defogger, refer to "DOOR MIRROR" in BF section.

IGNITION KEY WARNING BUZZER TIMER

Power is supplied at all times

- through 7.5A fuse (No. 40, located in the fuse block in the HEC)
- to warning buzzer terminal ①, and
- key switch terminal ②.

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

- through 7.5A fuse (No. 12, located in the fuse block in the HEC)
- to BCM terminal ㉙.

Ground is supplied to BCM terminal ㉛ through front door switch LH terminals ② and ③ when switch is in OPEN position from body grounds (B16) and (B19).
With the key in the ignition switch in the OFF position, and the driver's door OPEN, the warning buzzer will sound.

LIGHT WARNING BUZZER TIMER

Power is supplied at all times

- through 15A fuse (No. 51, located in the fuse and fusible link box)
- to lighting switch terminal ⑪.

Power is supplied at all times

- through 7.5A fuse (No. 40, located in the fuse block in the HEC)
- to warning buzzer terminal ①.

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

- through 7.5A fuse (No. 12, located in the fuse block in the HEC)
- to BCM terminal ㉙.

Ground is supplied to BCM terminal ㉛ through front door switch LH terminals ② and ③ when switch is in OPEN position from body grounds (B16) and (B19).
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 buzzer will sound.

System Description (Cont'd)

INTERIOR LAMP AND IGNITION KEY ILLUMINATION TIMER

Power is supplied at all times
- through 7.5A fuse (No. 26, located in the fuse block in the HEC)
- to interior lamp terminal ①,
- to ignition keyhole illumination terminal ①.

Power is also supplied at all times
- through 7.5A fuse (No. 40, located in the fuse block in the HEC)
- to key switch terminal ②.

With the ignition switch in the ON or START position, power is supplied
- through 7.5A fuse (No. 12, located in the fuse block in the HEC)
- to BCM terminal ㉙.

Driver door control unit (LCU01) terminal ① is connected to BCM terminal ㊳ by DATA LINE A. Also, driver door control unit terminal ② is connected to BCM terminal ㉝ by DATA LINE B.

Ground is supplied to driver door control unit terminal ④
- through front door lock actuator LH (unlock sensor) terminals ② and ④ when front door lock actuator is in UNLOCK position
- through body grounds (M13) and (M73).

Switch operation

With interior lamp switch ON, ground is continuously supplied to turn interior lamp on.

When a door switch is set to OPEN position with interior lamp switch in DOOR position, ground is supplied
- to interior lamp terminal ②
- through BCM terminal ⑤,
- to ignition keyhole illumination terminal ②
- through BCM terminal ⑫ and
- to BCM terminal ㉛
- through front door switch LH terminal ②
- to front door switch LH terminal ③
- through body grounds (B16) and (B19).

SEAT BELT WARNING BUZZER TIMER

Power is supplied at all times
- through 7.5A fuse (No. 40, located in the fuse block in the HEC)
- to warning buzzer terminal ①.

With the ignition switch in the ON or START position, power is supplied
- through 7.5A fuse (No. 12, located in the fuse block in the HEC)
- to BCM terminal ㉙.

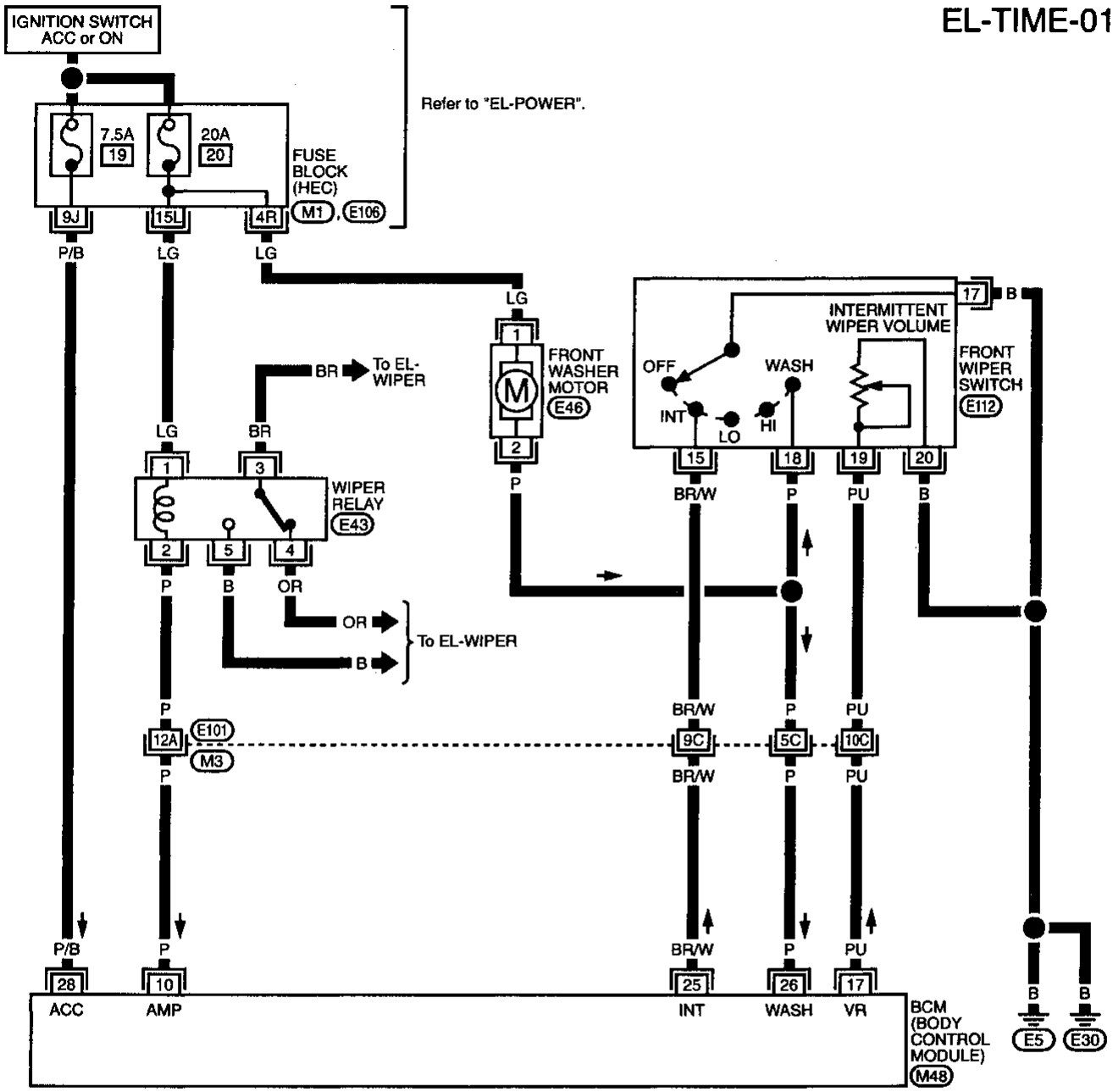
Ground is supplied to BCM terminal ⑨ through seat belt buckle switch terminals ① and ③, when seat belt buckle switch is in UNFASTENED position, and body grounds (B16) and (B19).

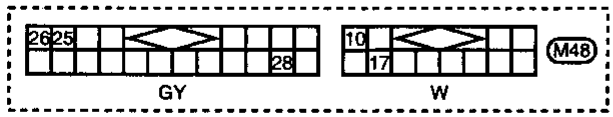
This warning buzzer sounds for about 6 seconds
- when ignition switch is turned from OFF to ON and seat belt is unfastened (seat belt buckle switch ON).

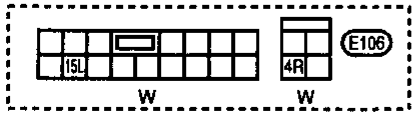
Wiring Diagram — TIME —

INTERMITTENT WIPER CONTROL

EL-TIME-01







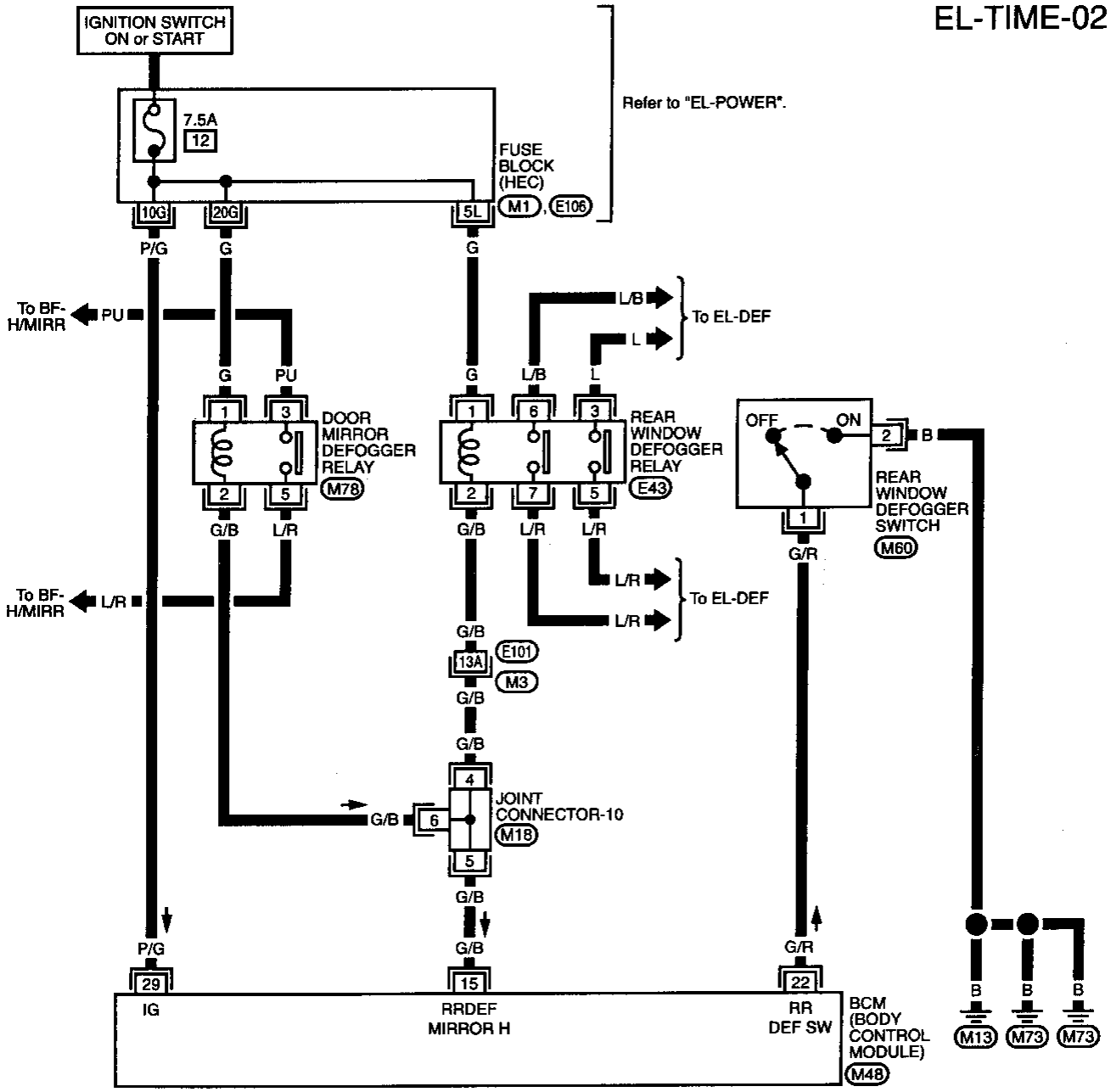
Refer to last page (Foldout page).
M3, E101
M1

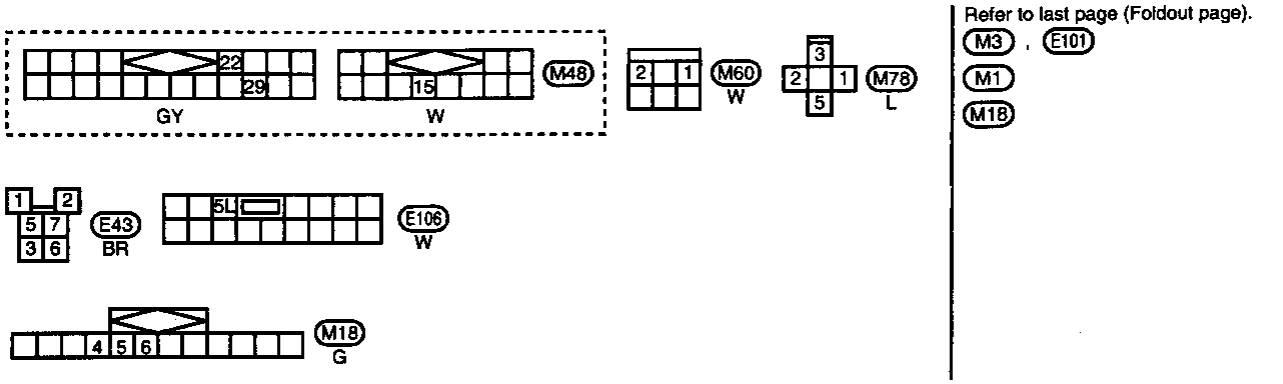
MEL389D

Wiring Diagram — TIME — (Cont'd)

REAR WINDOW DEFOGGER TIMER CONTROL

EL-TIME-02





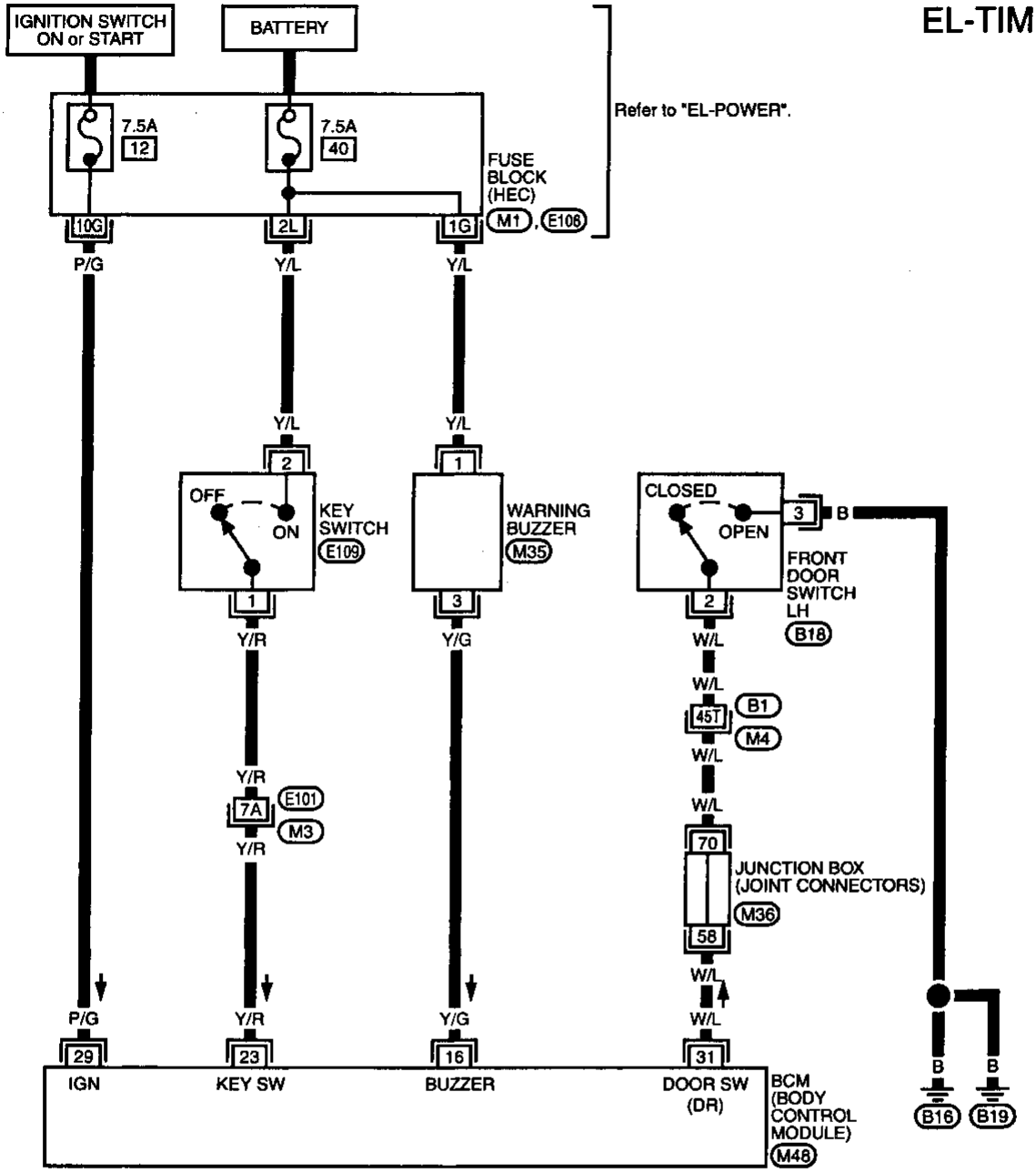
Refer to last page (Foldout page).
M3, E101
M1
M18

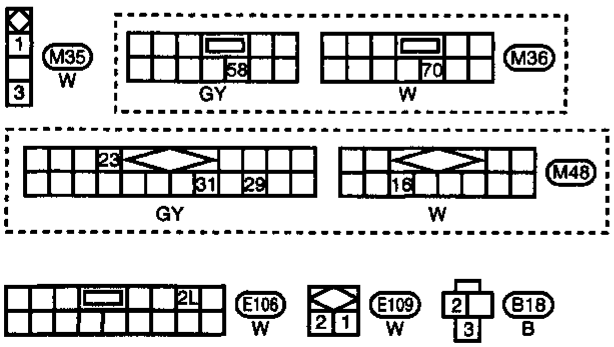
MEL390D

Wiring Diagram — TIME — (Cont'd)

IGNITION KEY WARNING CONTROL

EL-TIME-03





Refer to last page (Foldout page).

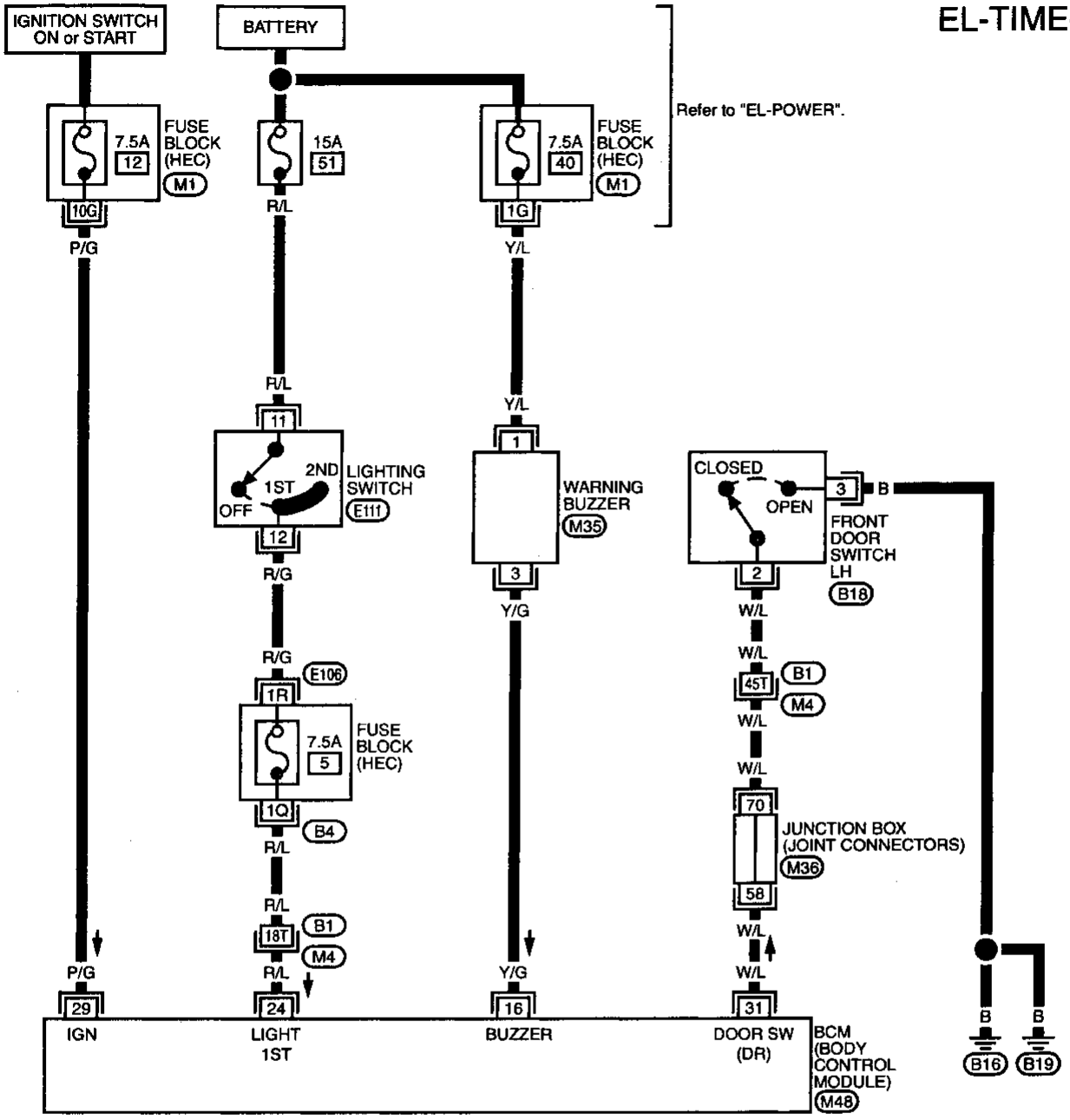
M3, E101
M4, B1
M1
M36

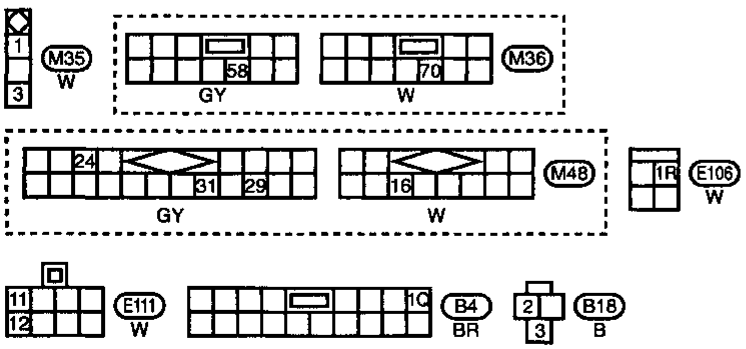
MEL391D

Wiring Diagram — TIME — (Cont'd)

LIGHT WARNING CONTROL

EL-TIME-04





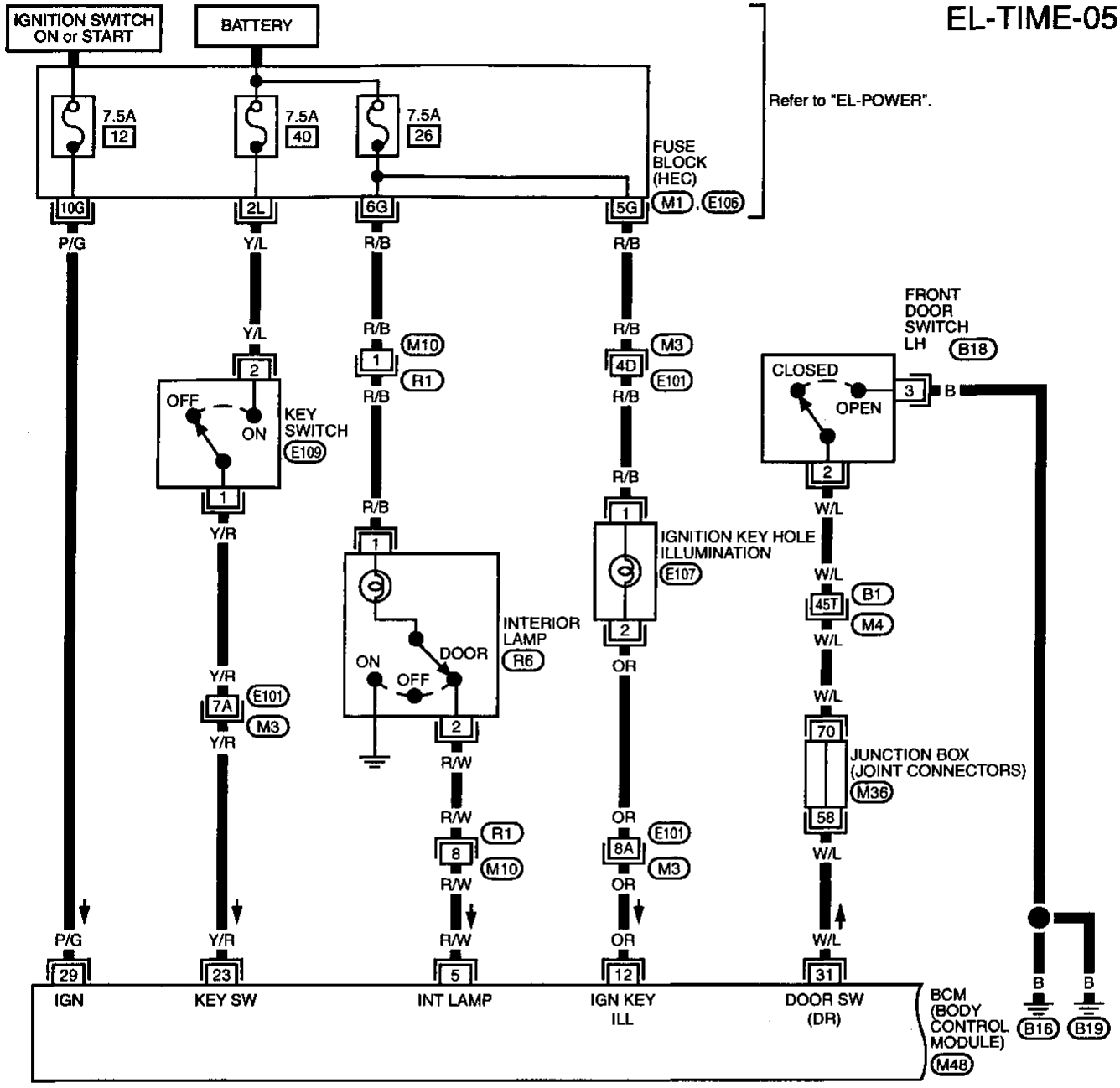
Refer to last page (Foldout page).
M4 , B1
M1
M36

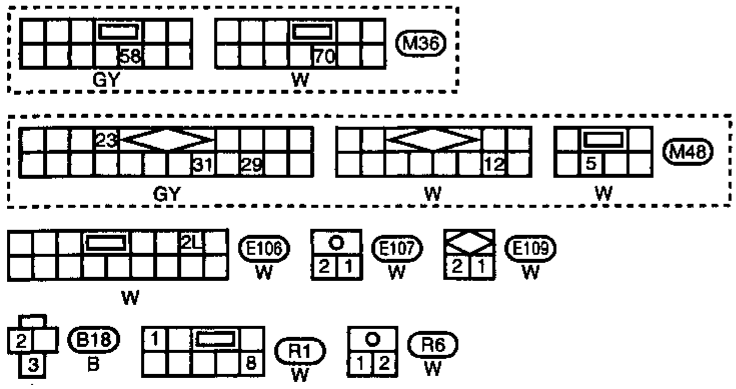
MEL392D

Wiring Diagram — TIME — (Cont'd)

INTERIOR LAMP, IGNITION KEYHOLE ILLUMINATION TIMER CONTROL

EL-TIME-05



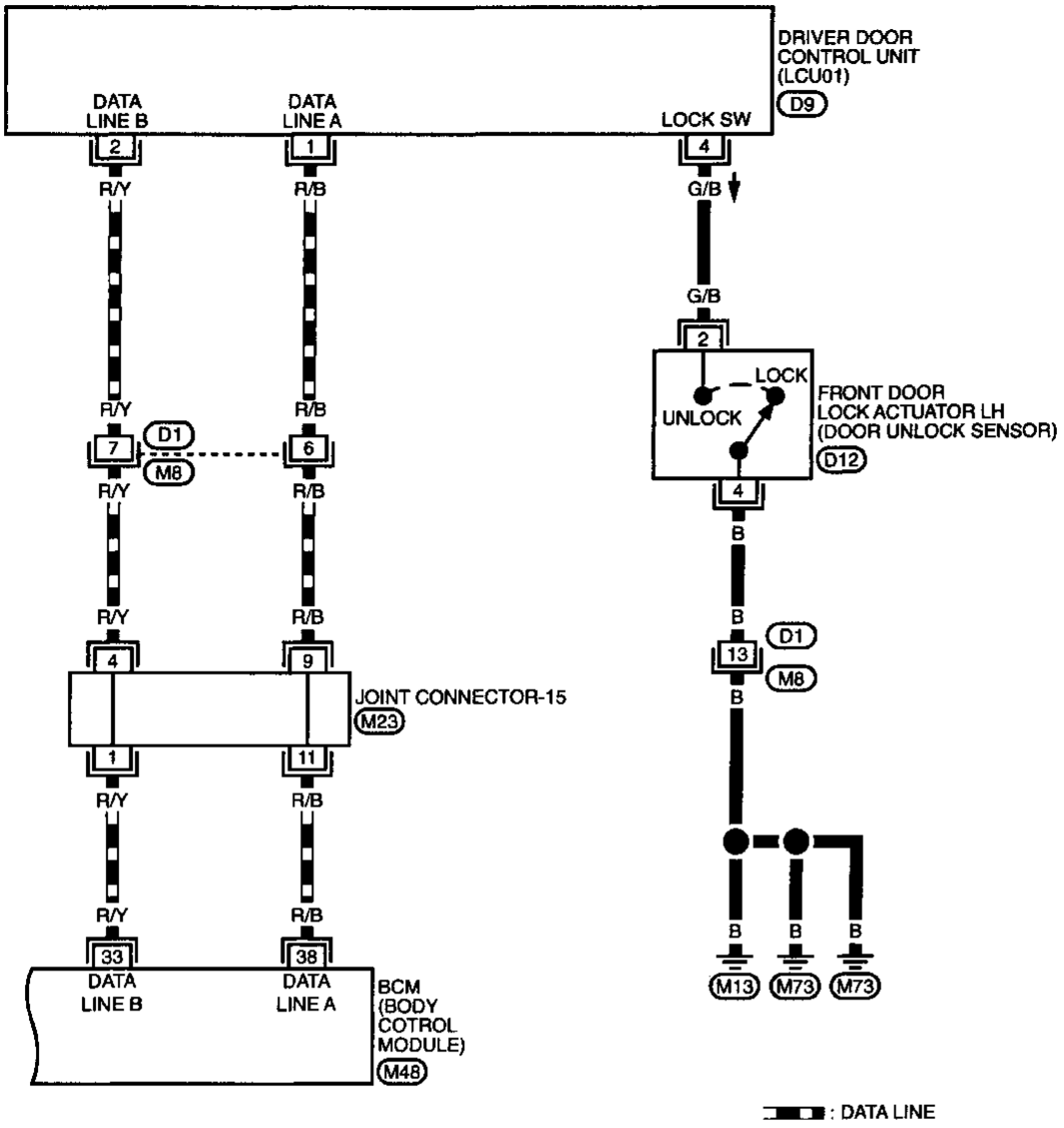


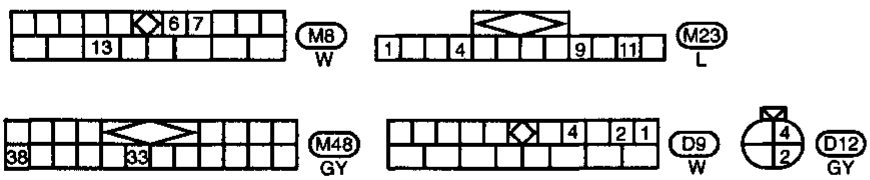
Refer to last page (Foldout page).
M3, E101
M4, B1
M1
M36

MEL393D

Wiring Diagram — TIME — (Cont'd)

EL-TIME-06





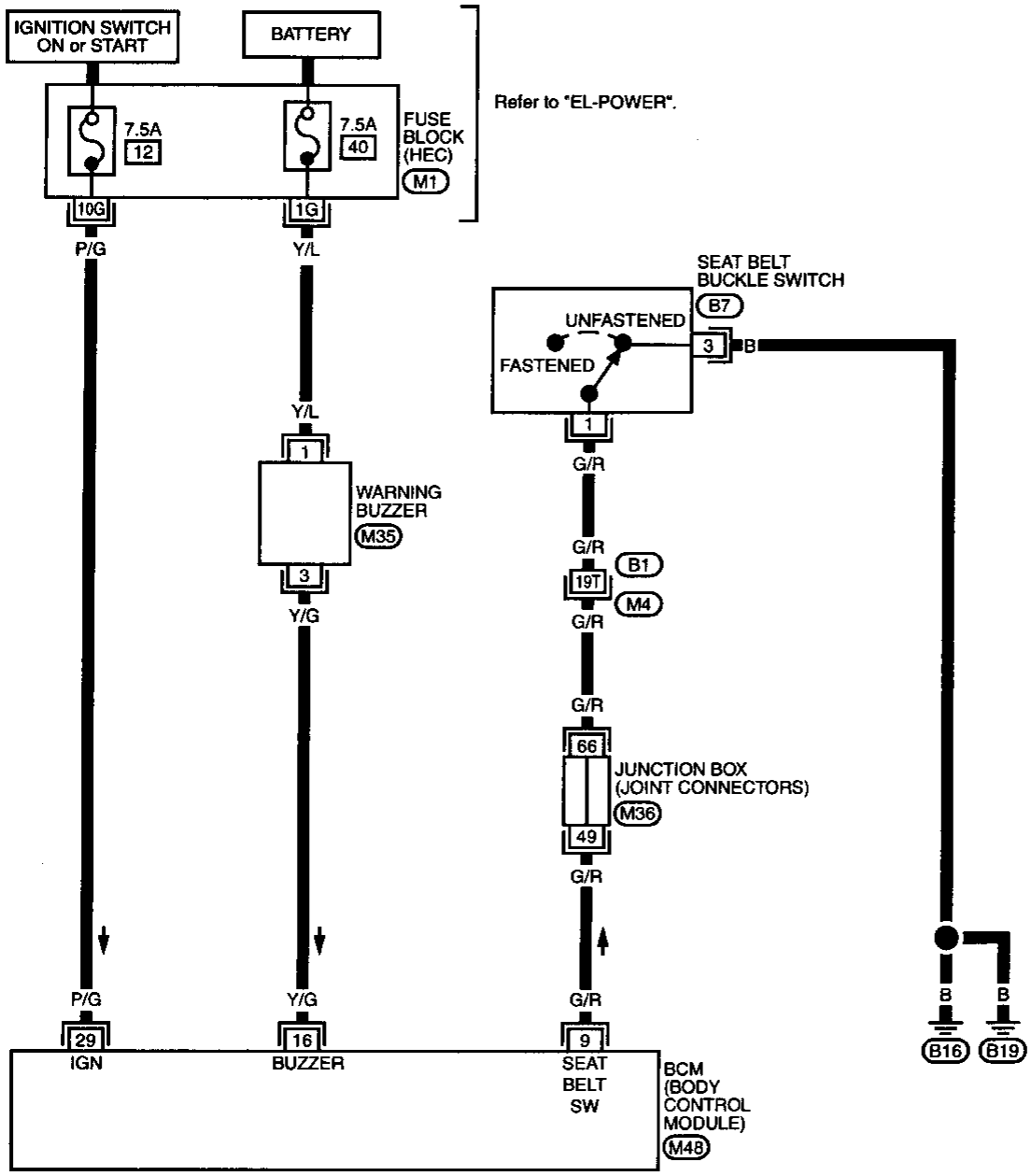
Refer to last page (Foldout page).
M23

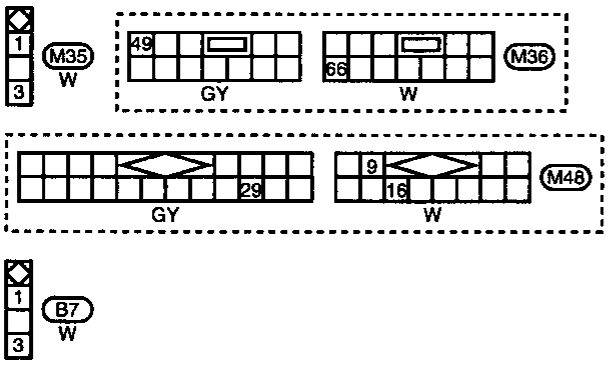
MEL394D

Wiring Diagram — TIME — (Cont'd)

SEAT BELT TIMER CONTROL

EL-TIME-07





Refer to last page (Foldout page).

M4 , B1

M1

M36

MEL395D

Trouble Diagnoses

- Perform "IVMS Communication Diagnosis" and "Power Supply and Ground Circuit Check" as necessary before starting Diagnostic Procedures.

SYMPTOM CHART

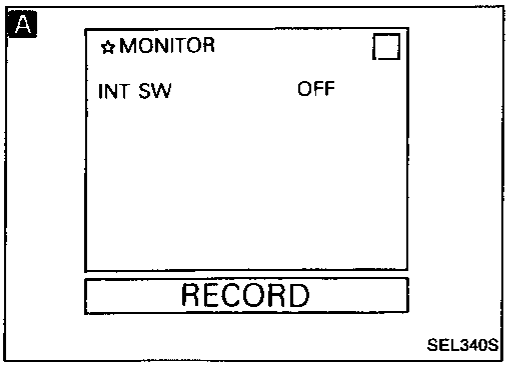
PROCEDURE		IVMS Communication diagnosis	Power supply and ground circuit check		Diagnostic Procedure							
REFERENCE PAGE		EL-148	EL-177	EL-178	EL-229	EL-231	EL-232	EL-233	EL-235	EL-237	EL-238	EL-239
SYMPTOM		IVMS Communication diagnosis	Ground circuit check	Power supply circuit check	Diagnostic Procedure 1	Diagnostic Procedure 2	Diagnostic Procedure 3	Diagnostic Procedure 4	Diagnostic Procedure 5	Diagnostic Procedure 6	Diagnostic Procedure 7	Diagnostic Procedure 8
Wiper & washer	Intermittent wiper does not operate.		BCM	BCM	○							
	Intermittent time of wiper cannot be adjusted.		BCM	BCM		○						
	Wiper and washer activate individually but not in combination.		BCM	BCM			○					
Warning	Light warning chime does not activate.		BCM	BCM				○				
	Ignition key warning chime does not activate.		BCM	BCM					○			
	Seat belt warning chime does not activate.		BCM	BCM						○		
Rear defogger	Rear defogger does not activate, or go off after activating.		BCM	BCM							○	
Interior lamp	Interior lamp timer does not operate or interior lamp timer does not cancel when driver's door is locked or ignition switch is turned "ON".	○	BCM, LCU01	BCM, LCU01								○

Trouble Diagnoses (Cont'd)

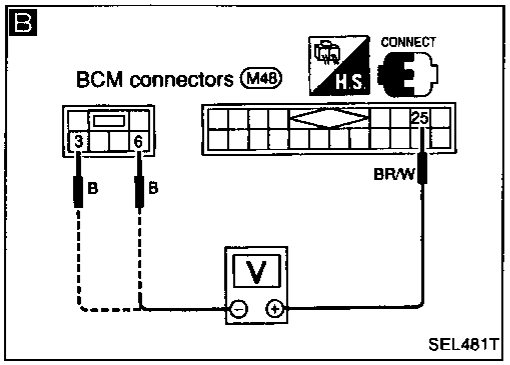
DIAGNOSTIC PROCEDURE 1

SYMPTOM: Intermittent wiper does not operate.

A



B



A

See "INT SW" in "Data monitor" mode.
When wiper switch is in INT position:
INT SW ON
When wiper switch is in OFF position:
INT SW OFF

OK → Go to C below.

OR

Perform On-board diagnosis — Mode II (switch monitor) for wiper switch (INT). Refer to EL-157.

NG ↓

B

INTERMITTENT SWITCH INPUT SIGNAL CHECK
Measure voltage between BCM terminals 25 and 3 or 6.

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

NG → Check wiper switch. Refer to "COMBINATION SWITCH" (EL-37).

OK → Check harness continuity between BCM and wiper switch.

NG → Replace wiper switch.

OK → Replace BCM.

NG → Repair harness or connectors.

OK ↓

C

WIPER OPERATION CIRCUIT CHECK

1. Perform "WIPER AMP" in "Active test" mode.
2. Check wiper operation.

If CONSULT is not available, skip this procedure and go to the next procedure below.

OK → Go to E next page.

NG ↓

Check wiper relay.

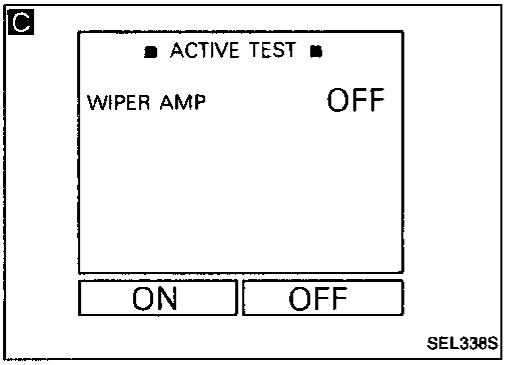
NG → Replace wiper relay.

OK ↓

Ⓐ

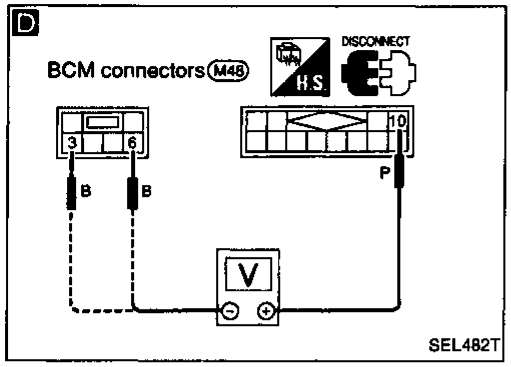
(Go to next page.)

C

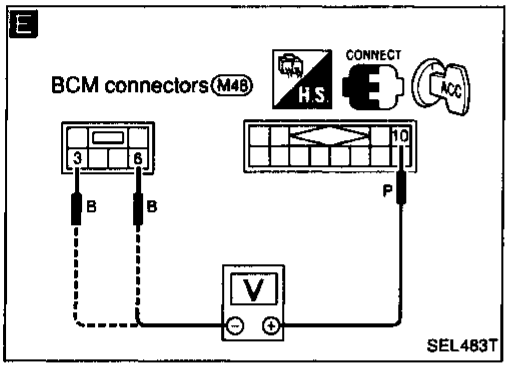


Trouble Diagnoses (Cont'd)

D



E



Ⓐ

D

WIPER RELAY CIRCUIT CHECK
1. Disconnect BCM connectors.
2. Measure voltage between BCM terminals ⑩ and ③ or ⑥.
Battery voltage should exist.

NG → Check harness continuity between fuse and wiper relay and wiper relay and BCM.

OK → Check wiper circuit. Refer to "WIPER AND WASHER" (EL-89).

NG → Repair harness.

OK ↓

E

INTERMITTENT OPERATION CHECK
1. Connect BCM connectors.
2. Turn ignition switch to "ACC" or "ON".
3. Measure voltage between BCM terminals ⑩ and ③ or ⑥ under the following condition.

Condition of wiper switch	Voltage [V]
OFF	Approx. 12
INT	Pointer swings from 0V to battery voltage every 2 to 21 seconds depending on intermittent wiper volume setting.

NG → Replace BCM.

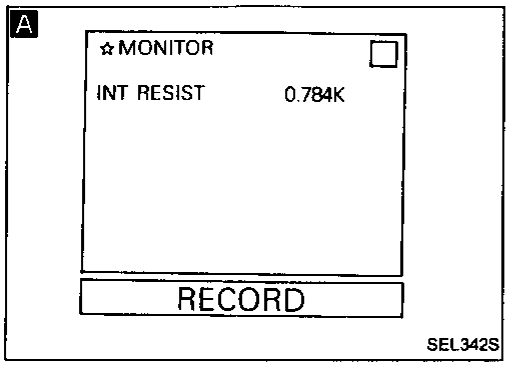
OK ↓

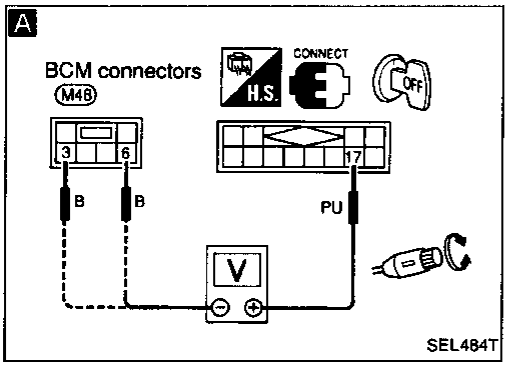
System is OK.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 2

SYMPTOM: Intermittent time of wiper cannot be adjusted.





A

INTERMITTENT WIPER VOLUME INPUT SIGNAL CHECK

See "INT RESIST" in "Data monitor" mode while turning intermittent wiper volume.

Position of wiper knob	Resistance [kΩ]
Short interval	0
Long interval	Approx. 1

OR

Measure voltage between BCM terminals ⑰ and ③ or ⑥ while turning intermittent wiper volume.

Position of wiper knob	Voltage [V]
Short interval	0
Long interval	Approx. 3.6

OK → Replace BCM.

NG

Check intermittent wiper volume. Refer to "COMBINATION SWITCH". (EL-37)

NG → Replace intermittent wiper volume.

OK

Check harness continuity between BCM and intermittent wiper volume and intermittent wiper volume ground circuit.

NG → Repair harness.

OK

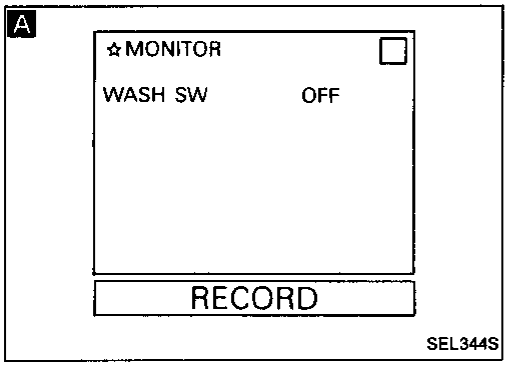
Replace BCM.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 3

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

A



A

See "WASH SW" in "Data monitor" mode.
When washer switch is ON:
WASH SW ON
When washer switch is OFF:
WASH SW OFF

OK → Go to C below.

— OR —

Perform On-board diagnosis — Mode II (switch monitor) for wiper switch (WASH). Refer to EL-157.

NG

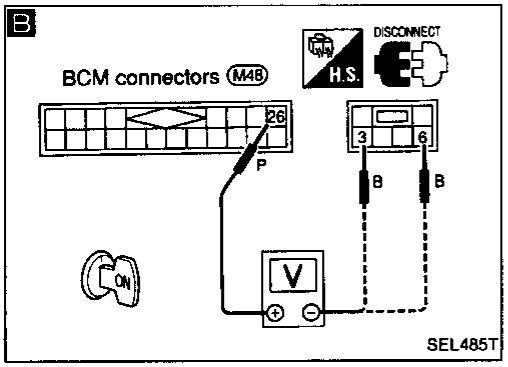
B

WASHER SWITCH INPUT SIGNAL CHECK
1. Disconnect BCM connectors.
2. Turn ignition switch to "ON".
3. Measure voltage between BCM terminals ㉖ and ③ or ⑥.

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

NG → Check harness continuity between BCM and washer switch.

B



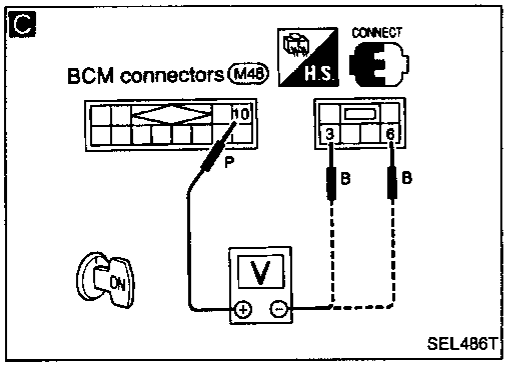
OK

C

WIPER RELAY OUTPUT SIGNAL CHECK
1. Connect BCM connectors.
2. Turn ignition switch to "ON".
3. Measure voltage between BCM terminals ⑩ and ③ or ⑥ right after turning washer switch ON and OFF.
0V for approx. 3 seconds after washer has operated.

NG → Replace BCM.

C



OK

Check wiper relay and wiper relay circuit.

NG → Repair or replace.

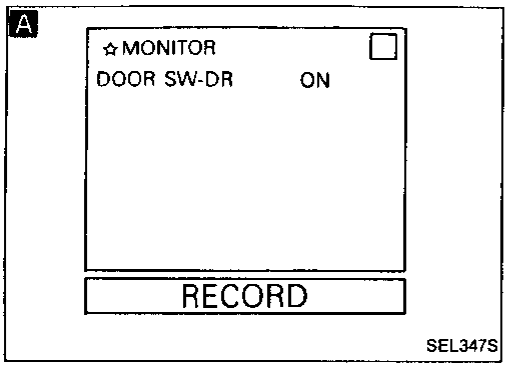
OK

System is OK.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 4

SYMPTOM: Light warning buzzer does not activate.



A

See "DOOR SW-DR" in "Data monitor" mode.
When driver's door is open:
DOOR SW-DR ON
When driver's door is closed:
DOOR SW-DR OFF

OK → Go to C below.

— OR —

Perform On-board diagnosis — Mode II (switch monitor) for door switch (driver side). Refer to EL-157.

NG ↓

Check driver's door switch. NG → Replace door switch.

OK ↓

B

DOOR SWITCH INPUT SIGNAL CHECK
Measure voltage between BCM terminals 31 and 3 or 6.

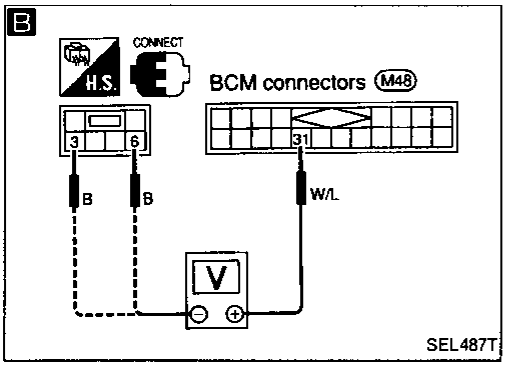
Condition of driver's door	Voltage [V]
Closed	Approx. 12
Open	0

NG → Check harness between BCM and driver's door switch and door switch ground circuit.

OK → Replace BCM.

NG → Repair harness.

OK ↓



C

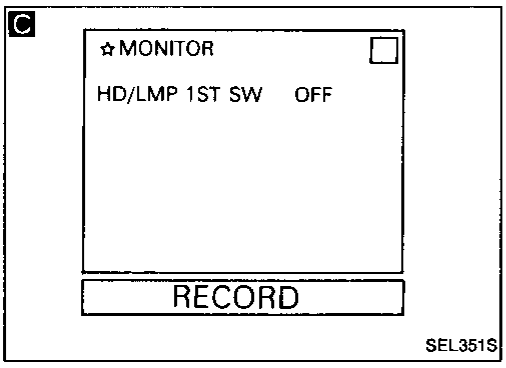
See "HD/LMP 1ST SW" in "Data Monitor" mode.
When lighting switch is in 1ST or 2ND:
HD/LMP 1ST SW ON
When lighting switch is OFF:
HD/LMP 1ST SW OFF
If CONSULT is not available, skip this procedure and go to the next procedure below.

OK → Go to E next page.

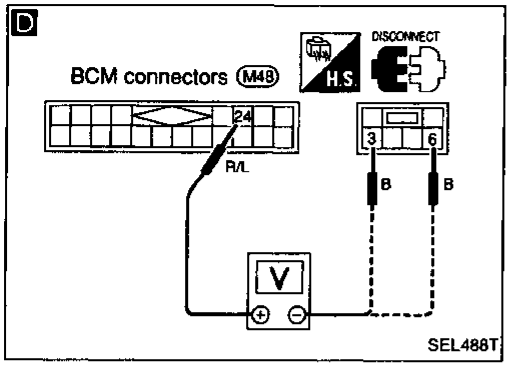
NG ↓

Ⓐ

(Go to next page.)



Trouble Diagnoses (Cont'd)



Ⓐ

D

LIGHTING SWITCH INPUT SIGNAL CHECK

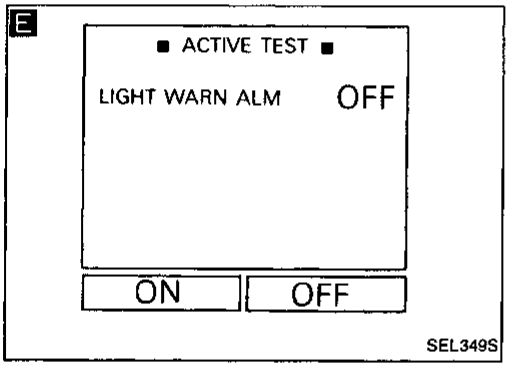
1. Disconnect BCM connectors.
2. Measure voltage between BCM terminals ㉔ and ③ or ⑥.

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

NG → Check fuse (7.5A) between lighting switch and BCM.

- OK → Check lighting switch. Refer to "COMBINATION SWITCH" (EL-37).
  - OK → Check harness.
  - NG → Replace lighting switch.
- NG → Replace fuse.

OK



E

BUZZER OUTPUT SIGNAL CHECK

Perform "LIGHT WARN ALM" in "Active Test" mode.

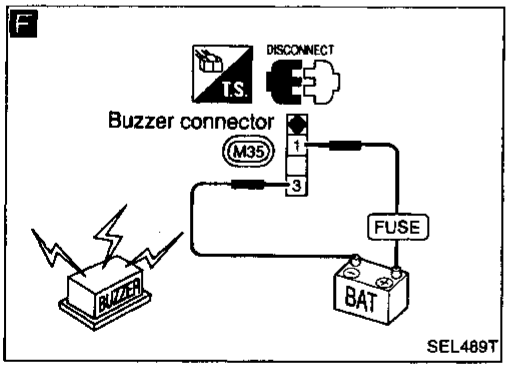
Check buzzer operation.

If CONSULT is not available, skip this procedure and go to the next procedure below.

OK → Is the symptom still evident?

- Yes → Replace BCM.
- No → System is OK.

NG



F

BUZZER OPERATION CHECK

1. Disconnect buzzer connector.
2. Connect battery to buzzer and check buzzer operation.

NG → Replace buzzer.

OK

Check harness continuity between BCM and buzzer and between buzzer and fuse.

NG → Repair harness.

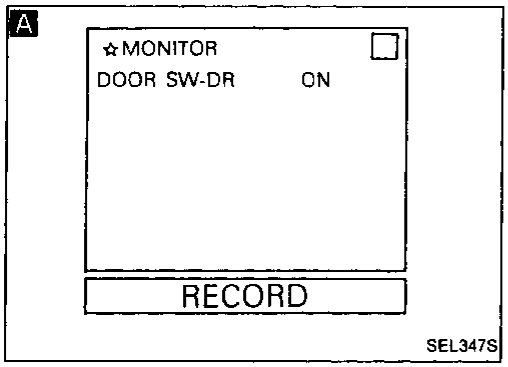
OK

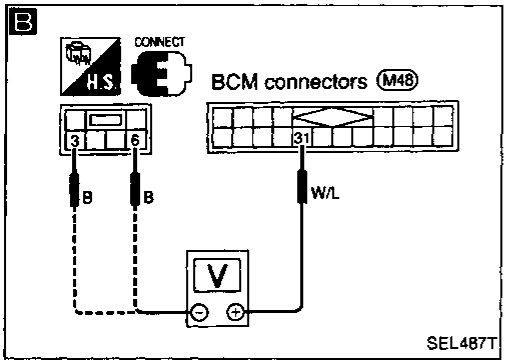
Replace BCM.

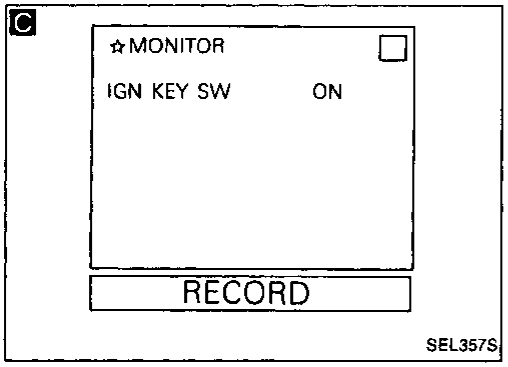
Trouble Diagnoses (Cont'd)

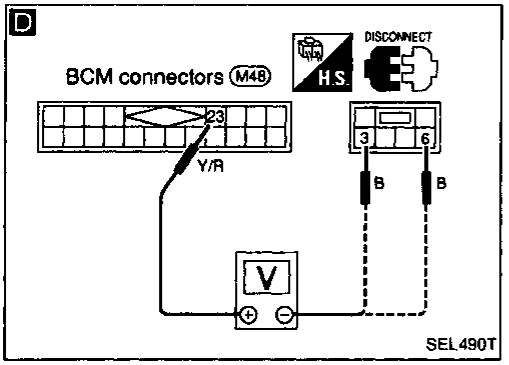
DIAGNOSTIC PROCEDURE 5

SYMPTOM: Ignition key warning buzzer does not activate.









A

See "DOOR SW-DR" in "Data monitor" mode.
When driver's door is open:
DOOR SW-DR ON
When driver's door is closed:
DOOR SW-DR OFF

OK → Go to **C** below.

— OR —

Perform On-board diagnosis — Mode II (switch monitor) for door switch (driver side). Refer to EL-157.

NG ↓

Check driver's door switch.

NG → Replace door switch.

OK ↓

B

DOOR SWITCH INPUT SIGNAL CHECK
Measure voltage between BCM terminals 31 and 3 or 6.

Condition of driver's door	Voltage [V]
Closed	Approx. 12
Open	0

NG → Check harness between BCM and driver's door switch and door switch ground circuit.

OK → Replace BCM.

NG → Repair harness.

OK ↓

C

See "IGN KEY SW" in "Data Monitor" mode.
When key is in ignition:
IGN KEY SW ON
When key is out of ignition:
IGN KEY SW OFF
If CONSULT is not available, skip this procedure and go to the next procedure below.

OK → Go to **E** next page.

NG ↓

D

IGNITION KEY SWITCH INPUT SIGNAL CHECK
1. Disconnect BCM connectors.
2. Measure voltage between BCM terminals 23 and 3 or 6.

Condition of key switch	Voltage [V]
Key in ignition	Approx. 12
Key out of ignition	0

NG → Check ignition key switch.

OK → Check harness.

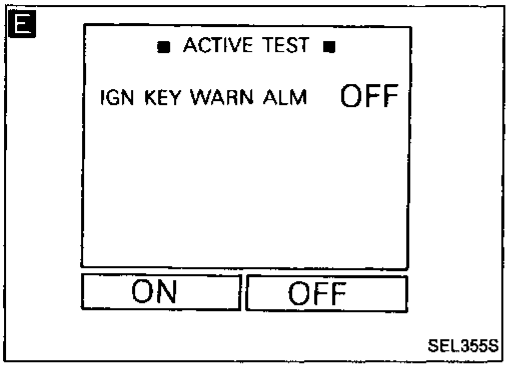
NG → Replace ignition key switch.

OK ↓

Ⓐ
(Go to next page.)

Trouble Diagnoses (Cont'd)

E



Ⓐ

E

Perform "IGN KEY WARN ALM" in "Active Test" mode.
Check buzzer operation.
If CONSULT is not available, skip this procedure and go to the next procedure below.

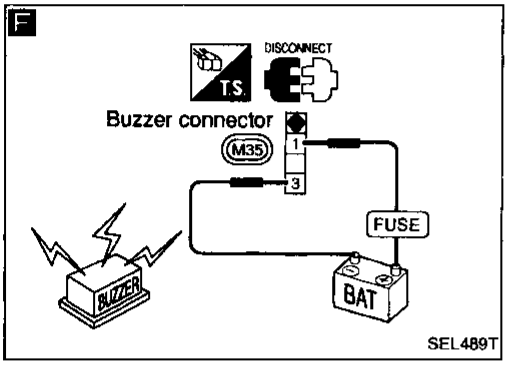
OK → Is the symptom still evident?

Yes → Replace BCM.

No → System is OK.

NG → Replace BCM.

F



F

BUZZER OPERATION CHECK
1. Disconnect buzzer connector.
2. Connect battery to buzzer and check buzzer operation.

NG → Replace buzzer.

OK → Check harness continuity between BCM and buzzer and between buzzer and fuse.

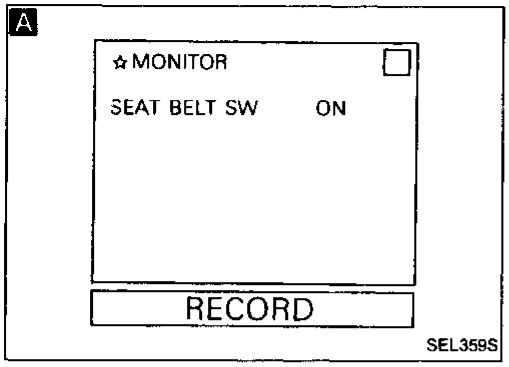
NG → Repair harness.

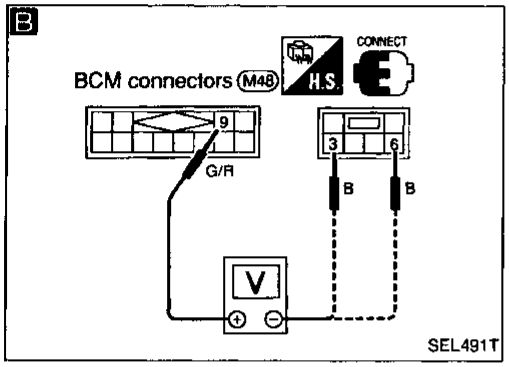
OK → Replace BCM.

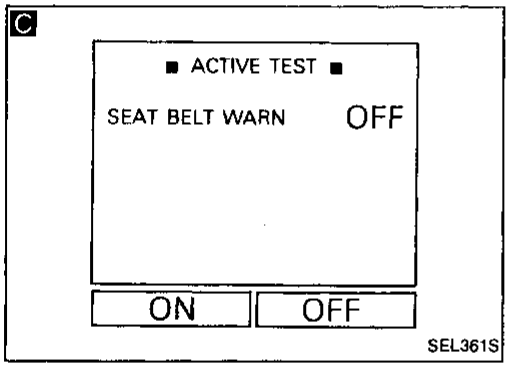
Trouble Diagnoses (Cont'd)

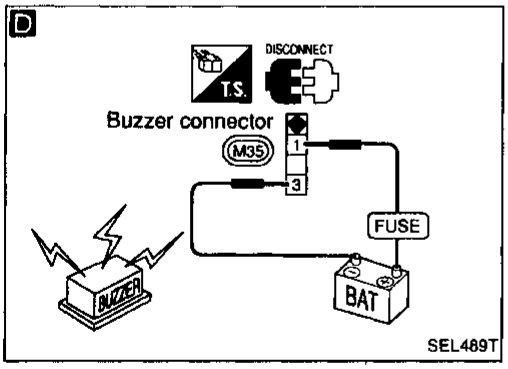
DIAGNOSTIC PROCEDURE 6

SYMPTOM: Seat belt warning buzzer does not activate.









A

See "SEAT BELT SW" in "Data Monitor" mode.
When driver's seat belt is not fastened:
SEAT BELT SW ON
When driver's seat belt is fastened:
SEAT BELT SW OFF

OK → Go to C below.

— OR —

Perform On-board diagnosis — Mode II (switch monitor) for seat belt buckle switch. Refer to EL-157.

NG ↓

B

SEAT BELT BUCKLE SWITCH INPUT SIGNAL CHECK
1. Insert key into ignition.
2. Measure voltage between BCM terminals ⑨ and ③ or ⑥.

Condition of driver's seat belt	Voltage [V]
Unfastened	0
Fastened	Approx. 12

NG → Check seat belt buckle switch.
- OK → Check harness continuity between BCM and seat belt buckle switch and seat belt buckle switch ground circuit.
  - OK → Replace BCM.
  - NG → Repair harness.
- NG → Replace seat belt buckle switch.

OK ↓

C

Perform "SEAT BELT WARN" in "Active Test" mode.
Check buzzer operation.
If CONSULT is not available, skip this procedure and go to the next procedure below.

OK → Is the symptom still evident?
- Yes → Replace BCM.
- No → System is OK.

NG ↓

D

BUZZER OPERATION CHECK
1. Disconnect buzzer connector.
2. Connect battery to buzzer and check buzzer operation.

NG → Replace buzzer.

OK ↓

Check harness continuity between BCM and buzzer and between buzzer and fuse.

NG → Repair harness.

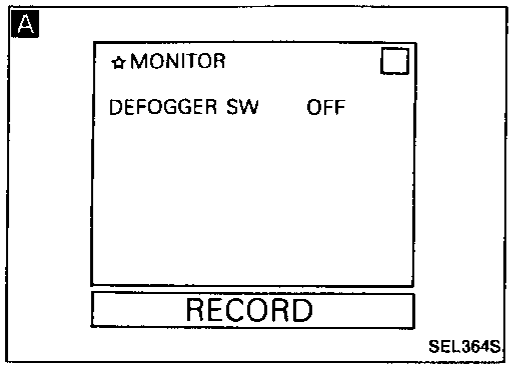
OK ↓

Replace BCM.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 7

SYMPTOM: Rear window defogger (and door mirror heater) do not activate or do not turn off after activating.

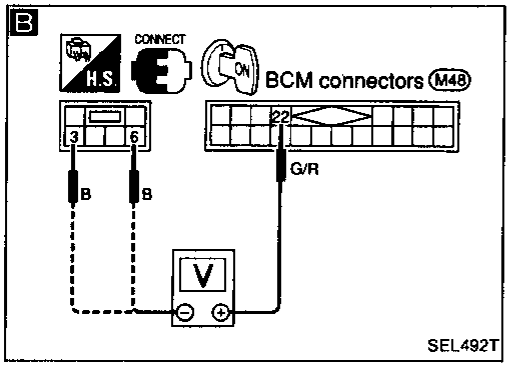


A

See "DEFOGGER SW" in "Data Monitor" mode.
When defogger switch is pushed (turned ON):
DEFOGGER SW ON
When defogger switch is pushed again (turned OFF):
DEFOGGER SW OFF
If CONSULT is not available, skip this procedure and go to the next procedure below.

OK → Go to **C** below.

NG ↓



B

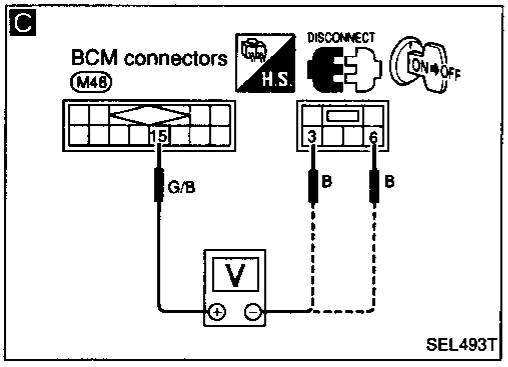
REAR WINDOW DEFOGGER SWITCH INPUT SIGNAL CHECK
1. Turn ignition switch ON.
2. Measure voltage between BCM terminals ㉒ and ③ or ⑥.

Condition of defogger switch	Voltage [V]
ON	0
OFF	Approx. 5

NG → Check rear window defogger switch.

- OK → Check harness continuity between BCM and rear window defogger switch and rear window defogger switch ground circuit.
  - OK → Replace BCM.
  - NG → Repair harness.
- NG → Replace rear window defogger switch.

OK ↓



C

REAR WINDOW DEFOGGER OUTPUT SIGNAL CHECK
1. Disconnect BCM connectors.
2. Measure voltage between BCM terminals ⑮ and ③ or ⑥.

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

OK → Replace BCM.

NG ↓

Check rear window defogger relay (and door mirror defogger) relay.

NG → Replace relay(s).

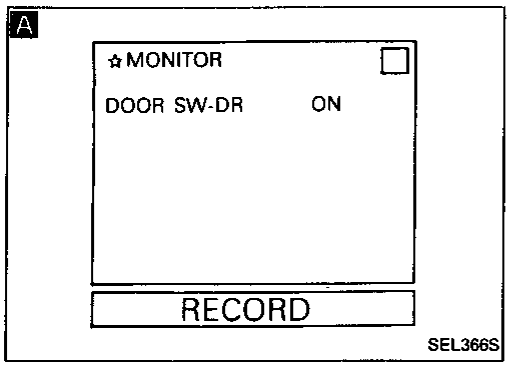
OK ↓

Check rear window defogger circuit. (Refer to "REAR WINDOW DEFOGGER" EL-96.) And/or check door mirror defogger circuit. (Refer to BF section "MIRROR".)

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 8

SYMPTOM: Interior lamp timer does not operate or does not cancel when driver's door is locked or ignition switch is turned ON.



A

See "DOOR SW-DR" in "Data Monitor" mode.
When driver's door is open:
DOOR SW-DR ON
When driver's door is closed:
DOOR SW-DR OFF

OK → Go to C below.

OR

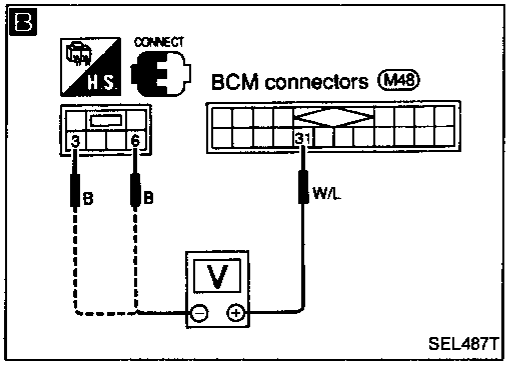
Perform On-board diagnosis — Mode II (switch monitor) for door switch (driver side). Refer to EL-157.

NG ↓

Check driver's door switch. NG → Replace door switch.

OK ↓

B



DOOR SWITCH INPUT SIGNAL CHECK
Measure voltage between BCM terminals 31 and 3 or 6.

Condition of driver's door	Voltage [V]
Open	0
Closed	Approx. 12

NG → Check harness continuity between BCM and driver's door switch and door switch ground circuit.

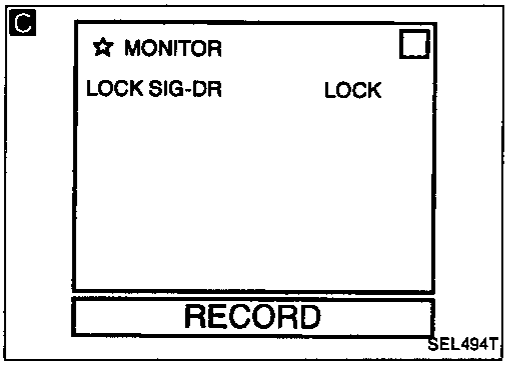
OK → ↓

NG → Repair harness.

Replace BCM.

OK ↓

C



C

See "LOCK SIG-DR" in "Data Monitor" mode.
When driver's door is locked:
LOCK SIG-DR LOCK
When driver's door is unlocked:
LOCK SIG-DR UNLK

OK → Go to E on next page.

OR

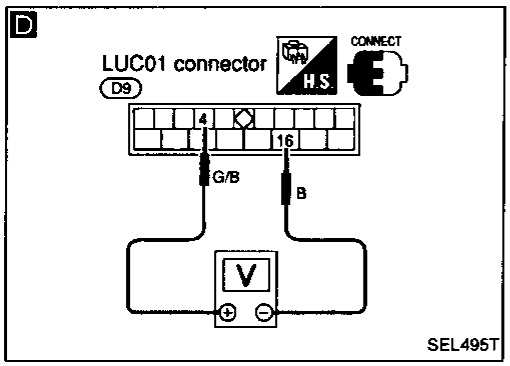
Perform On-board diagnosis — Mode II (switch monitor) for door lock switch (driver side). Refer to EL-157.

NG ↓

Ⓐ

(Go to next page.)

Trouble Diagnoses (Cont'd)



Ⓐ

D

DOOR LOCK SWITCH INPUT SIGNAL CHECK

Measure voltage between LCU01 terminals ④ and ⑯.

Condition of driver's door	Voltage [V]
Locked	Approx. 5
Unlocked	0

NG → Check driver's door lock actuator (lock switch).

- OK → Check harness continuity between BCM and driver's door lock switch and door lock switch ground circuit.
  - OK → Perform IVMS communication diagnosis again. Refer to EL-148.
    - OK → Replace LCU01.
    - NG → Repair harness.
  - NG → Repair harness.
- NG → Replace.

OK ↓

E

IGNITION KEY SWITCH INPUT SIGNAL CHECK

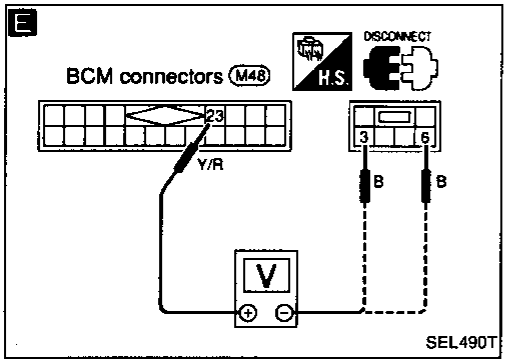
1. Disconnect BCM connectors.
2. Measure voltage between BCM terminals ㉓ and ③ or ⑥.

Condition of key switch	Voltage [V]
Key in ignition	Approx. 12
Key out of ignition	0

NG → Check ignition key switch.

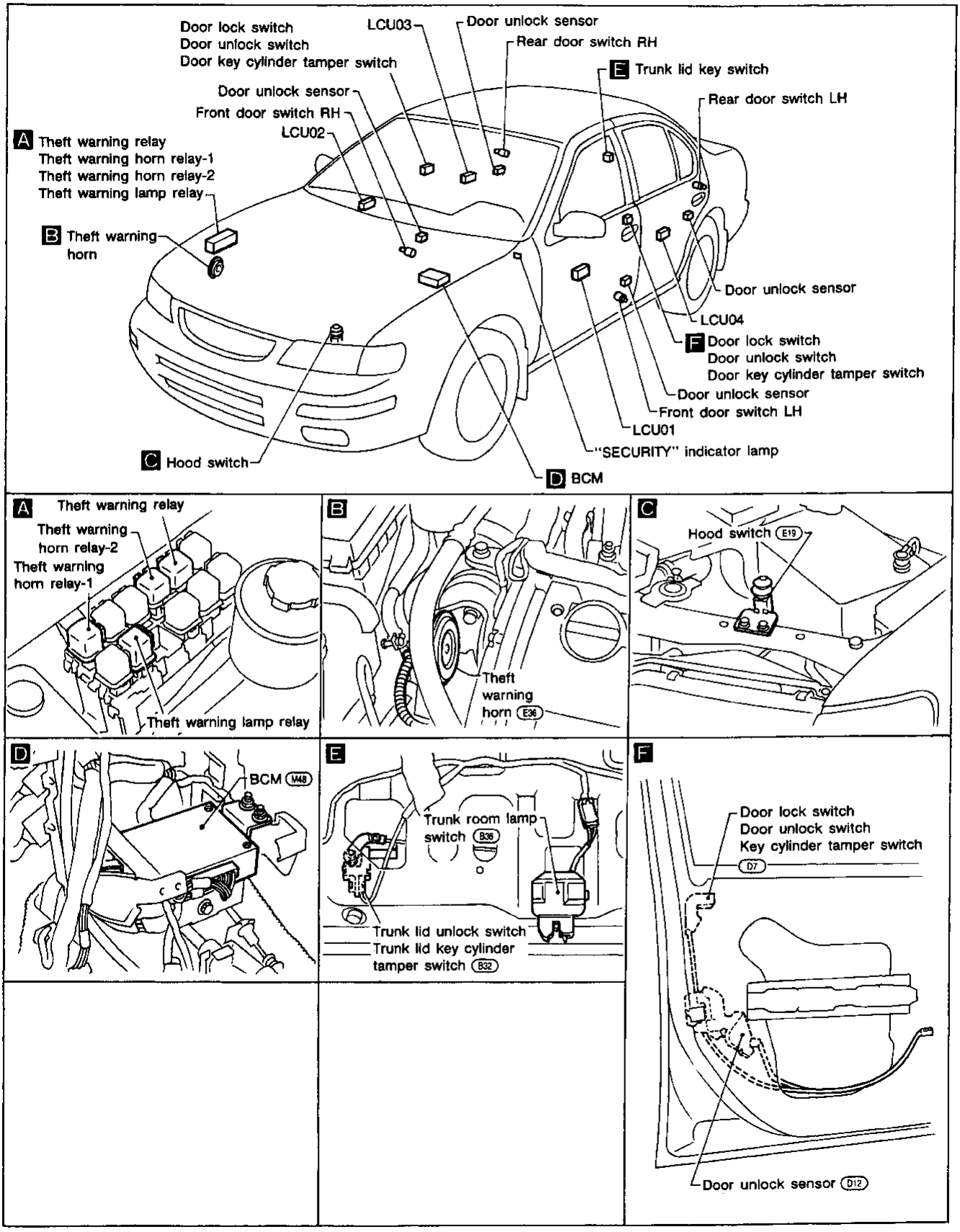
- OK → Check harness.
- NG → Replace ignition key switch.

OK ↓ Replace BCM.



NOTE

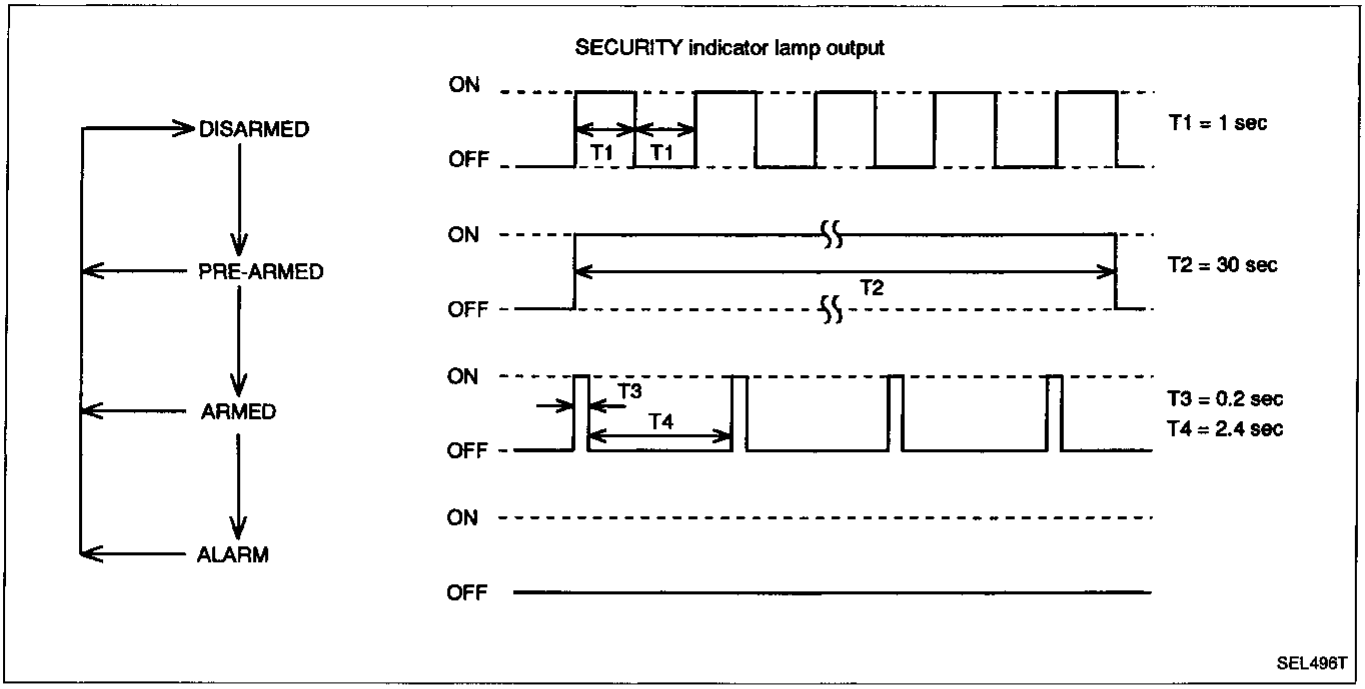
Component Parts and Harness Connector Location



MEL366D

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.

System Description

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

With the ignition switch in the START position, power is supplied
- from terminal ⑤ of the ignition switch
- to theft warning relay terminal ③ (M/T models for Canada).

With the ignition switch in the START position, power is supplied
- through 7.5A fuse (No. [33], located in the fuse block in the HEC)
- to theft warning relay terminal ③ (M/T models for U.S.A.).

With the ignition switch in the ON or START position, power is supplied
- through 10A fuse (No. [17], located in the fuse block in the HEC)
- to theft warning relay terminal ③ (A/T models).

Power is supplied at all times
- through 7.5A fuse (No. [40], located in the fuse block in the HEC)
- to security indicator lamp terminal ②.

BCM terminal ㊳ is connected to terminal ① of all door control units and to multi-remote control unit terminal ①.

BCM terminal ㉝ is connected to terminal ① of all door control units and to multi-remote control unit terminal ①.

With the ignition switch in the ACC or ON position, power is supplied
- through 7.5A fuse (No. [19], located in the fuse block in the HEC)
- to BCM terminal ㉘.

With the ignition switch in the ON or START position, power is supplied
- through 7.5A fuse (No. [12], located in the fuse block in the HEC)
- to BCM terminal ㉙.

Power is supplied at all times
- through 15A fuse (No. [61], located in the fuse and fusible link box)
- to theft warning lamp relay terminal ③.

Power is supplied at all times
- through 15A fuse (No. [62], located in the fuse and fusible link box)
- to theft warning lamp relay terminal ⑥.

Power is supplied at all times
- through 7.5A fuse (No. [52], located in the fuse and fusible link box)
- to theft warning horn relay-1 terminal ③ and ①
- to theft warning horn relay-2 terminal ①
- to theft warning lamp relay terminal ①.

Power is supplied at all times
- through 10A fuse (No. [53], located in the fuse and fusible link box)
- to horn relay terminal ②.

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

When a door is open, BCM terminal ㉑ receives a ground signal from the door switch that is in the OPEN position.

When a door is unlocked, terminal ④ of the respective door control unit receives a ground signal
- from terminal ② of the respective door unlock sensor in door lock actuator
- through body grounds (M13) and (M73) (for the front doors) or
- through body grounds (B16) and (B19) (for the rear doors).

When the hood is open, BCM terminal ㉚ receives a ground signal
- from terminal ① of the hood switch
- through body grounds (E5) and (E30).

When the trunk lid is open, BCM terminal ㉜ receives a ground signal
- from terminal ① of the trunk room lamp switch
- through body grounds (B16) and (B19)

When none of the above conditions exists, the theft warning system is armed.

System Description (Cont'd)

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

If the rear doors are locked and the key or remote controller is used to lock either front door, driver side and passenger door control unit terminal ⑥ receives a ground signal
- from terminal ① of the front door key cylinder switch LH or RH
- from body grounds (M13) and (M73).

If this signal is received by the BCM, the theft warning system will be armed automatically.
Once the theft warning system has been armed, BCM terminal ② supplies ground to security indicator lamp terminal ①.

THEFT WARNING SYSTEM OPERATION

The theft warning system is triggered by
- opening a door or the trunk lid without using the key or remote controller
- opening the hood
- tampering with (punching out etc.) the key cylinder in the door or trunk lid.

Once the theft warning system has been armed, and if the BCM receives a ground signal at terminal ㉜, terminal ㉑ or terminal ㉚ (as described under THEFT WARNING SYSTEM ARMING), the theft warning system will be triggered. Also, when one of the following signals is received at the BCM, the system will be triggered.
When a door key cylinder switch has been tampered with, driver side and passenger side door control unit terminal ③ receives a ground signal
- from terminal ③ of the front door key cylinder switch LH or RH
- to terminal ④ of the front door key cylinder switch LH or RH
- from body grounds (M13) and (M73).

When the trunk lid key cylinder switch has been tampered with, BCM terminal ⑳ receives a ground signal
- from terminal ② of the trunk lid key cylinder switch
- to terminal ③ of the trunk lid key cylinder switch
- from body grounds (B16) and (B19).

If the theft warning system is triggered, ground is supplied
- from terminal ⑭ of the BCM
- to theft warning relay terminal ②.

With power and ground supplied, power to the clutch interlock relay (M/T models) or inhibitor switch (A/T models) is interrupted. So the starter motor will not operate. Refer to "STARTING SYSTEM" (EL-24).
When the theft warning system is triggered, ground is supplied intermittently
- from terminal ⑬ of the BCM
- to theft warning horn relay-2 terminal ② and
- to theft warning lamp relay terminal ②.

When the theft warning lamp relay is energized, power is supplied
- from theft warning lamp relay terminal ⑦
- to headlamp LH terminal ① and
- from theft warning lamp relay terminal ⑤
- to headlamp RH terminal ①.

Ground is supplied
- to headlamp LH or RH terminal ③
- from body grounds (E5) and (E30).

When the theft warning horn relay-2 is energized, ground is supplied
- to theft warning horn relay-1 terminal ②
- through theft warning horn relay-2 terminal ⑤
- through body grounds (E5) and (E30) and
- to horn relay terminal ①
- through theft warning relay terminal ③.

When the theft warning horn relay-1 and horn relay are energized, power is supplied
- to theft warning horn terminal ① and
- to horn terminal ①.

The headlamp flash and the horn sounds intermittently and the starting system is kept dead.

System Description (Cont'd)

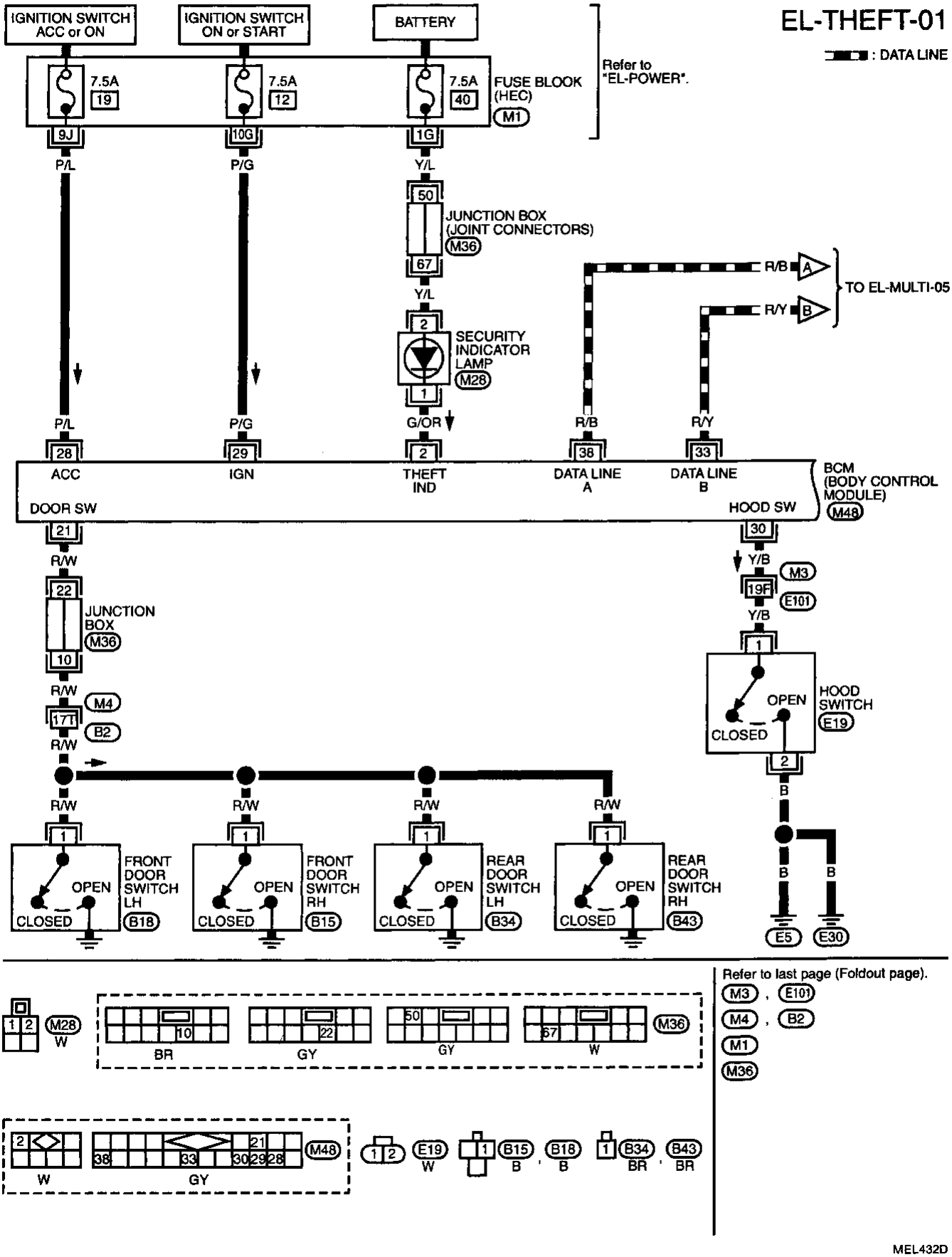
THEFT WARNING SYSTEM DISARMING

When the key or remote controller is used to unlock a door, driver or passenger door control unit terminal ⑤ receives a ground signal from terminal ② of the front door key cylinder switch LH or RH.
When the key or remote controller is used to unlock the trunk lid, BCM terminal ⑱ receives a ground signal from terminal ① of the trunk lid key cylinder switch.
When the BCM receives any one of these signals, the theft warning system is disarmed.

PANIC ALARM OPERATION

Multi-remote control system may operate the alarm (horn and headlamps) as required.
When the multi-remote control system receives a signal from remote controller, ground is supplied intermittently from BCM terminal ⑬ and BCM outputs alarm.

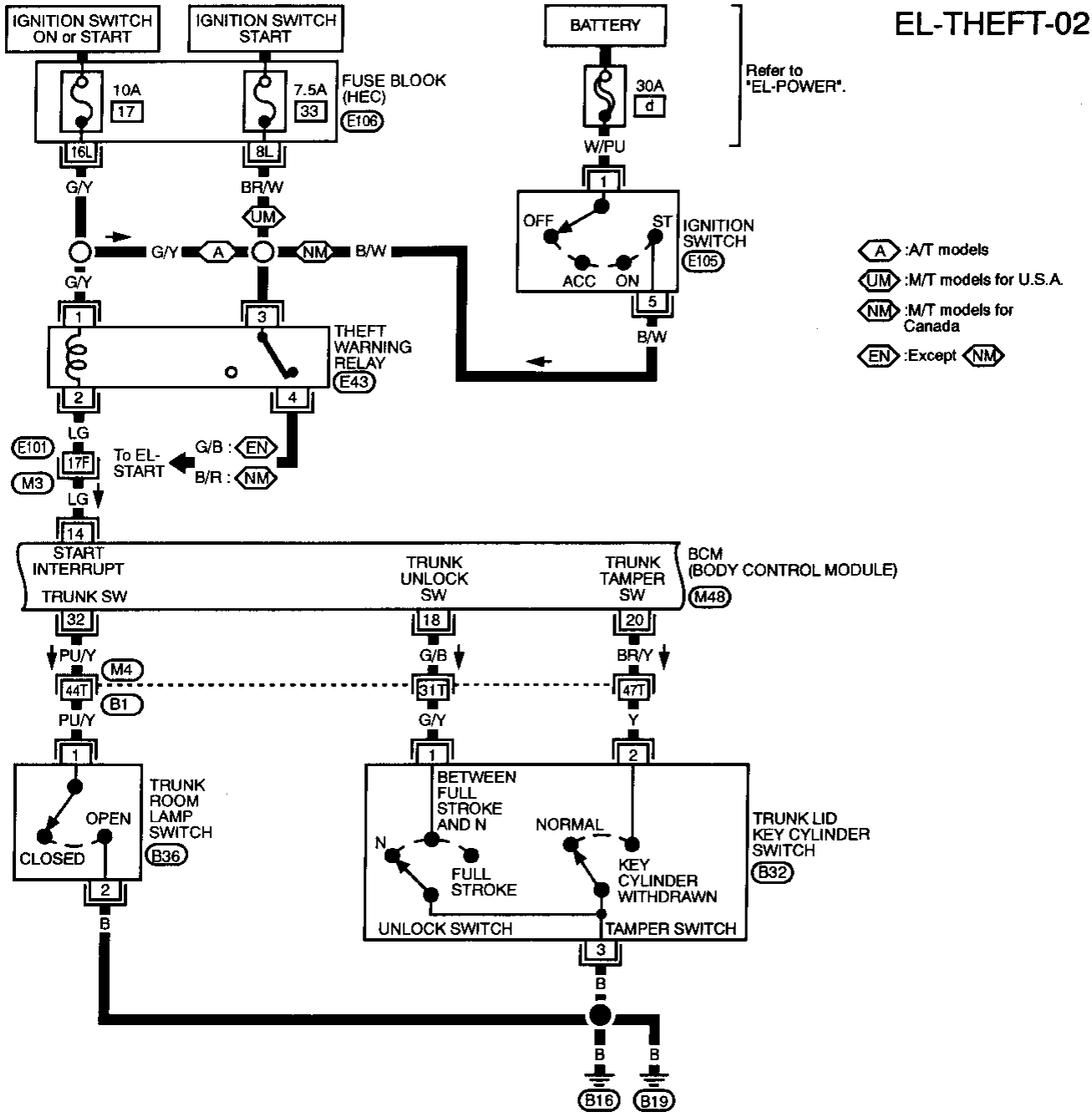
Wiring Diagram — THEFT —

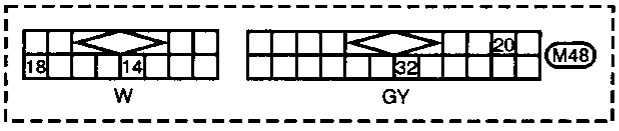


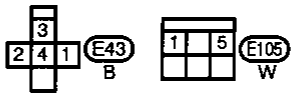
MEL432D

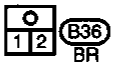
Wiring Diagram — THEFT — (Cont'd)

EL-THEFT-02





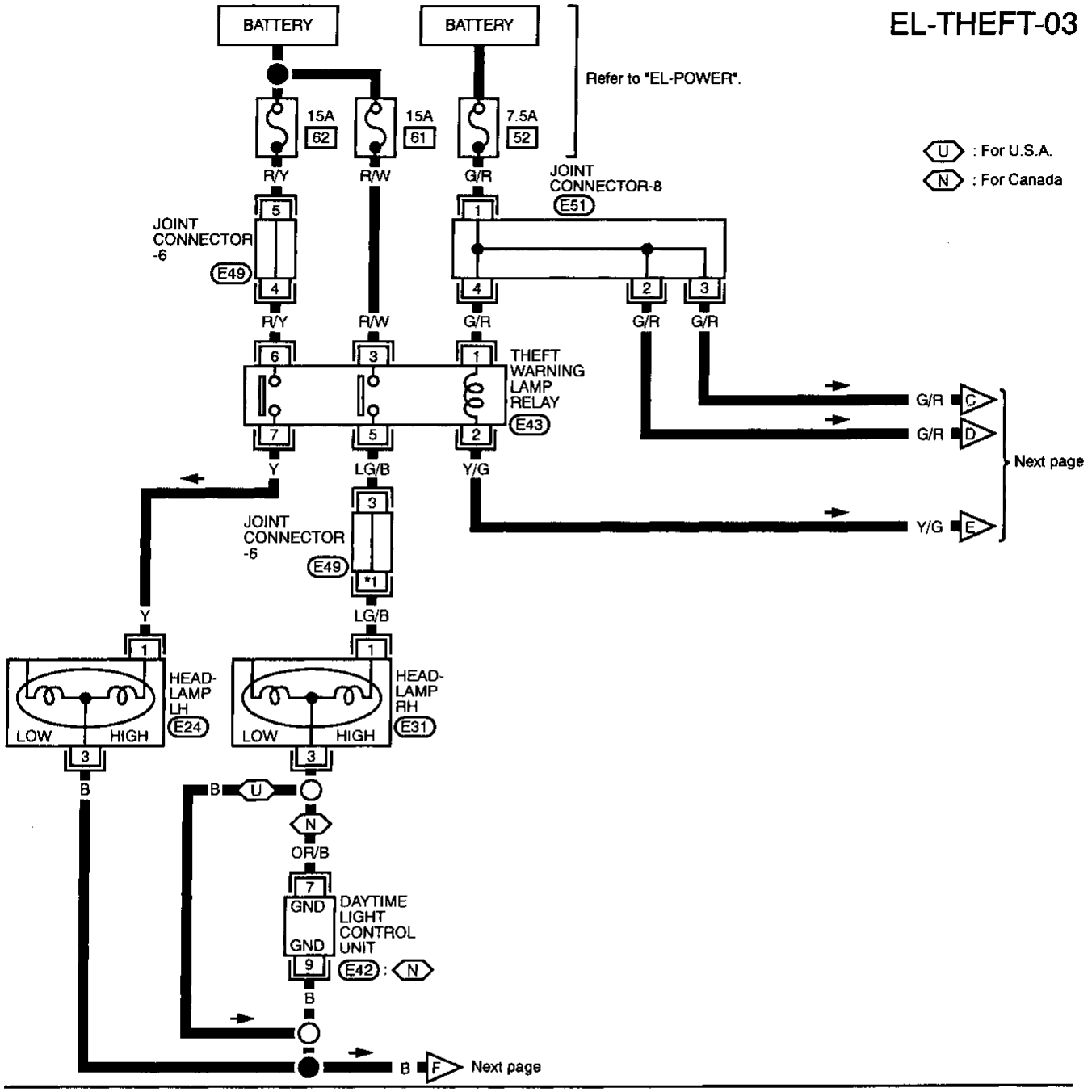


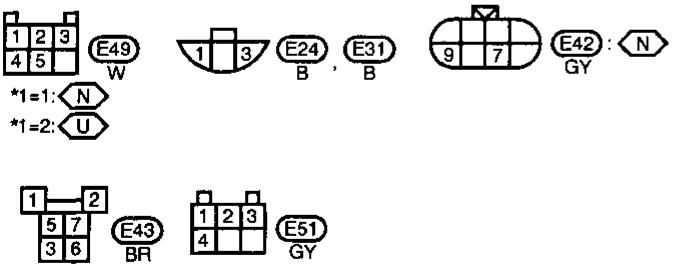


Refer to last page (Foldout page).
M3 , E101
M4 , B1

MEL433D

Wiring Diagram — THEFT — (Cont'd)





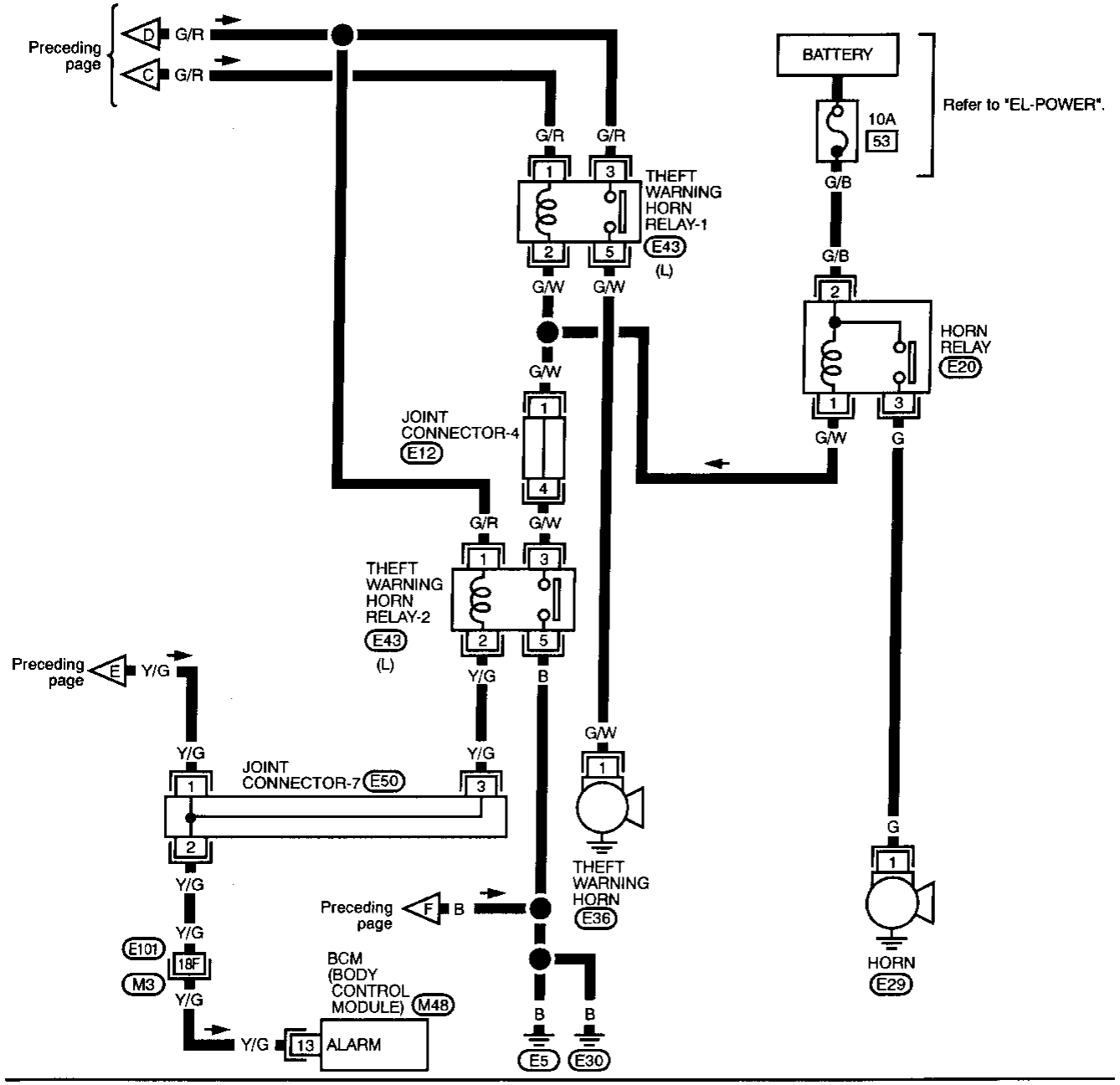
Refer to last page (Foldout page).
E49
E51

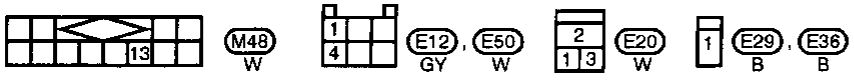
MEL506D

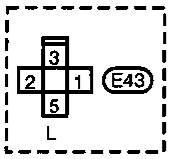
1313

Wiring Diagram — THEFT — (Cont'd)

EL-THEFT-04





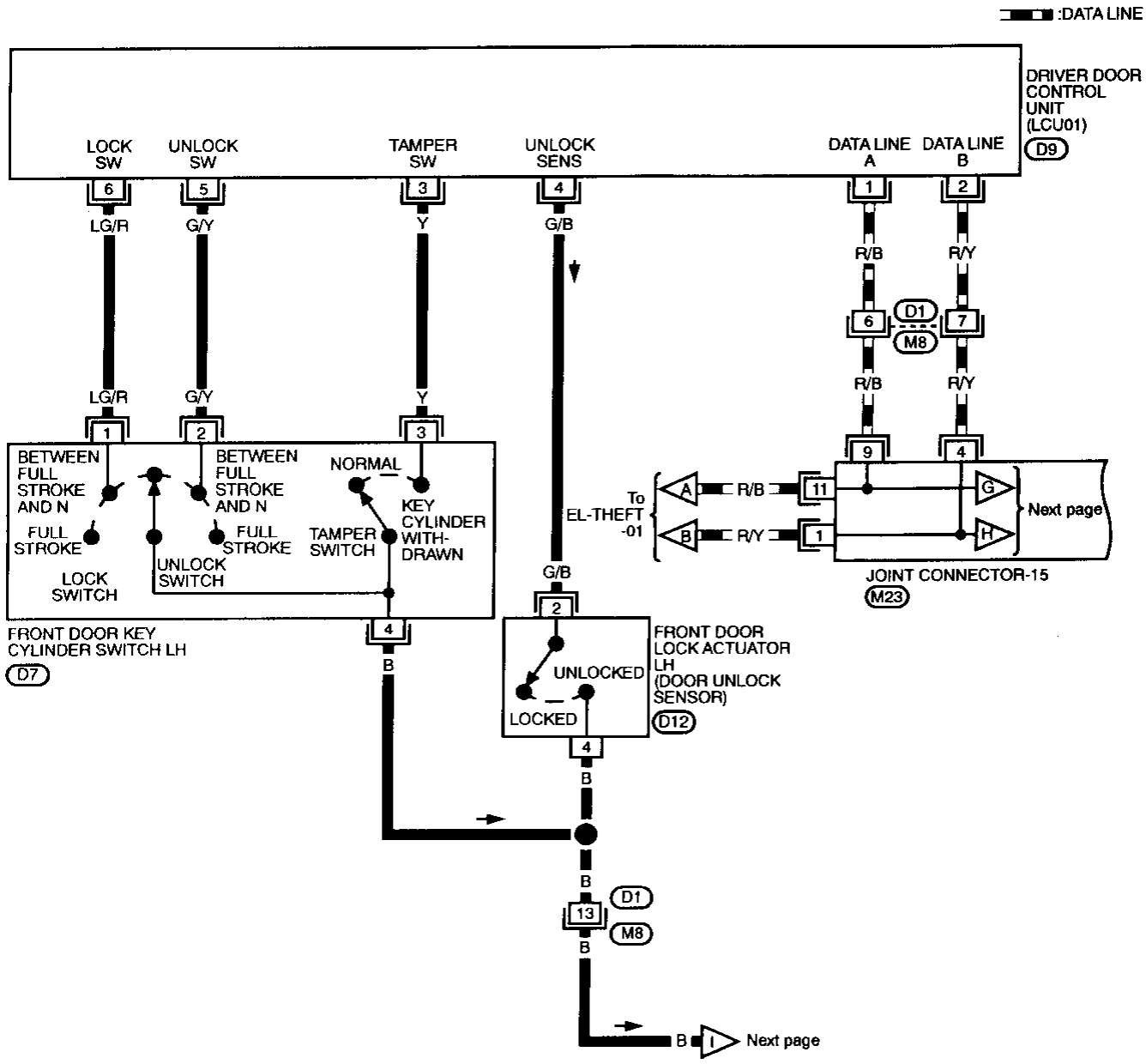


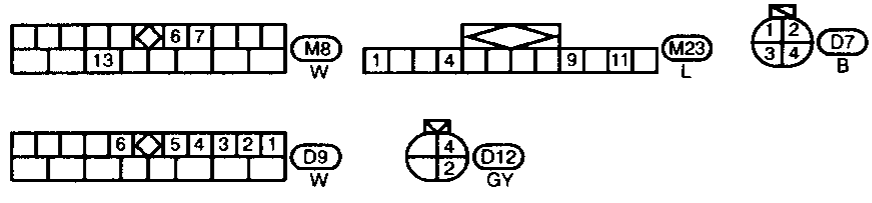
Refer to last page (Foldout page).
M3, E101
E12
E50

MEL507D

Wiring Diagram — THEFT — (Cont'd)

EL-THEFT-05





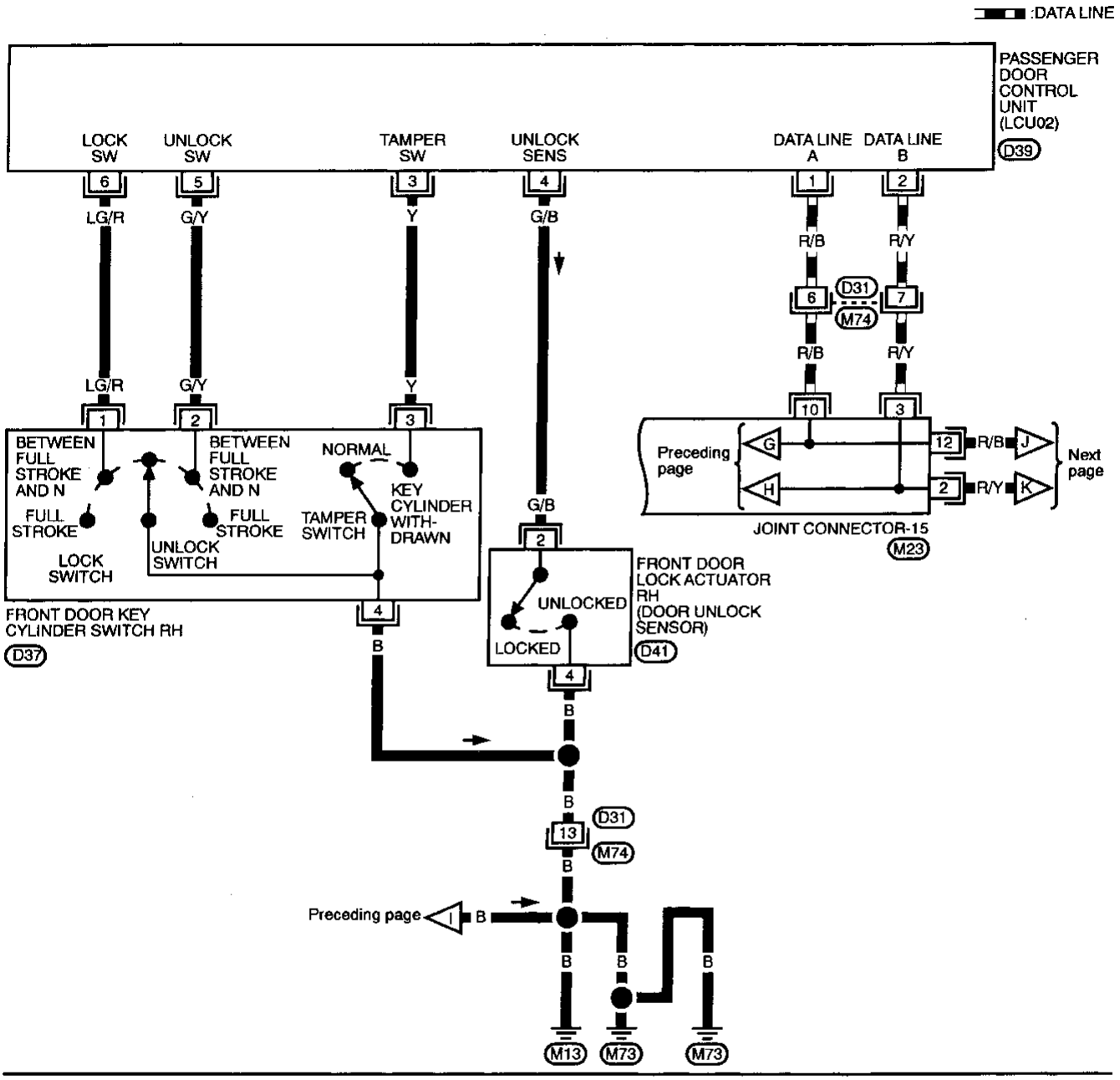
Refer to last page (Foldout page).
M23

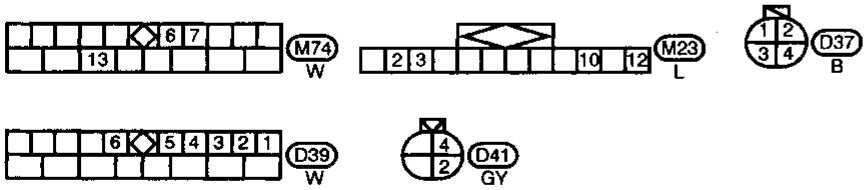
MEL435D

1315

Wiring Diagram — THEFT — (Cont'd)

EL-THEFT-06



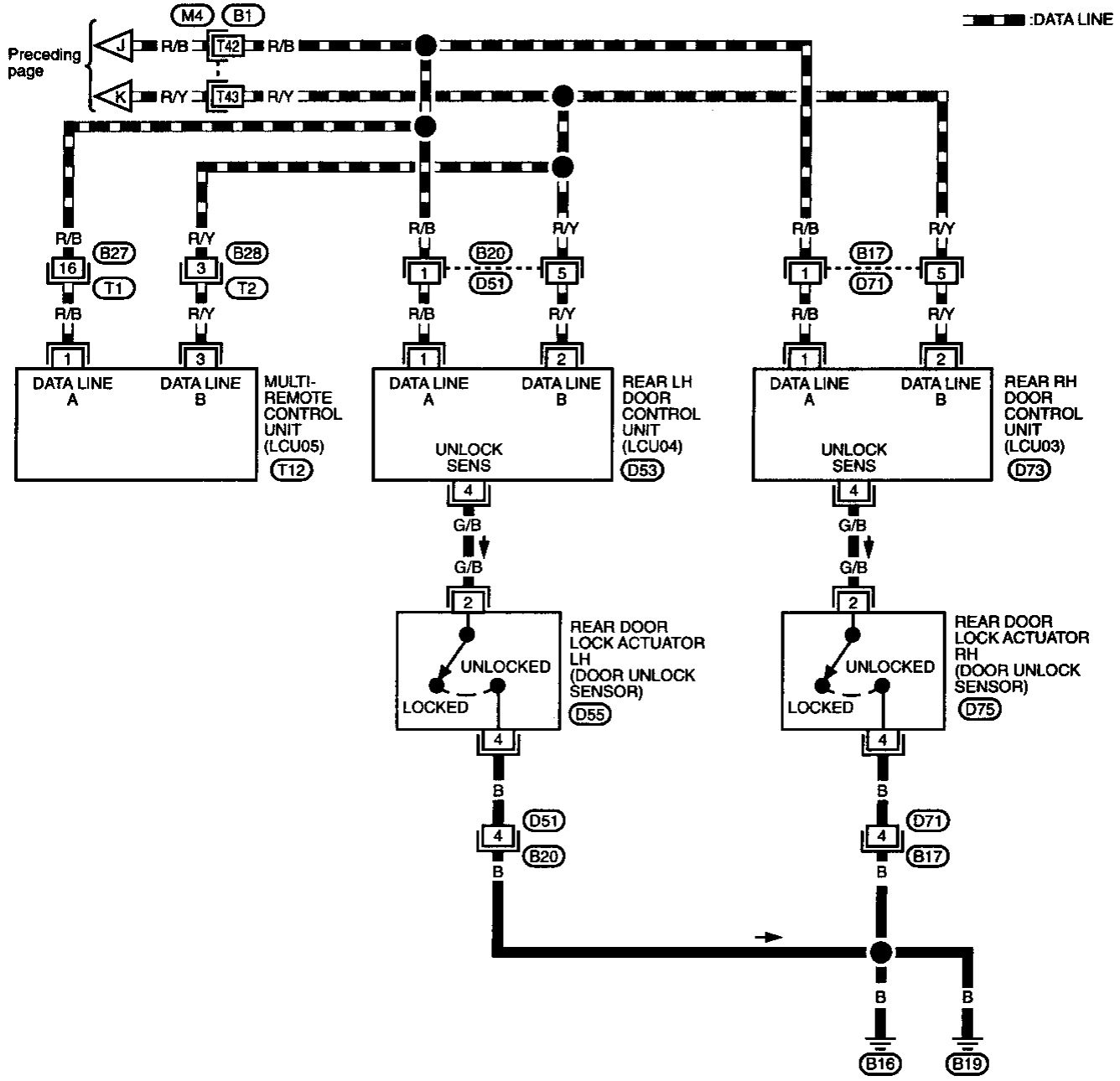


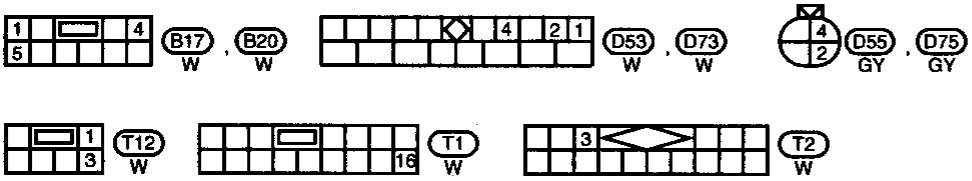
Refer to last page (Foldout page).
M23

MEL436D

Wiring Diagram — THEFT — (Cont'd)

EL-THEFT-07

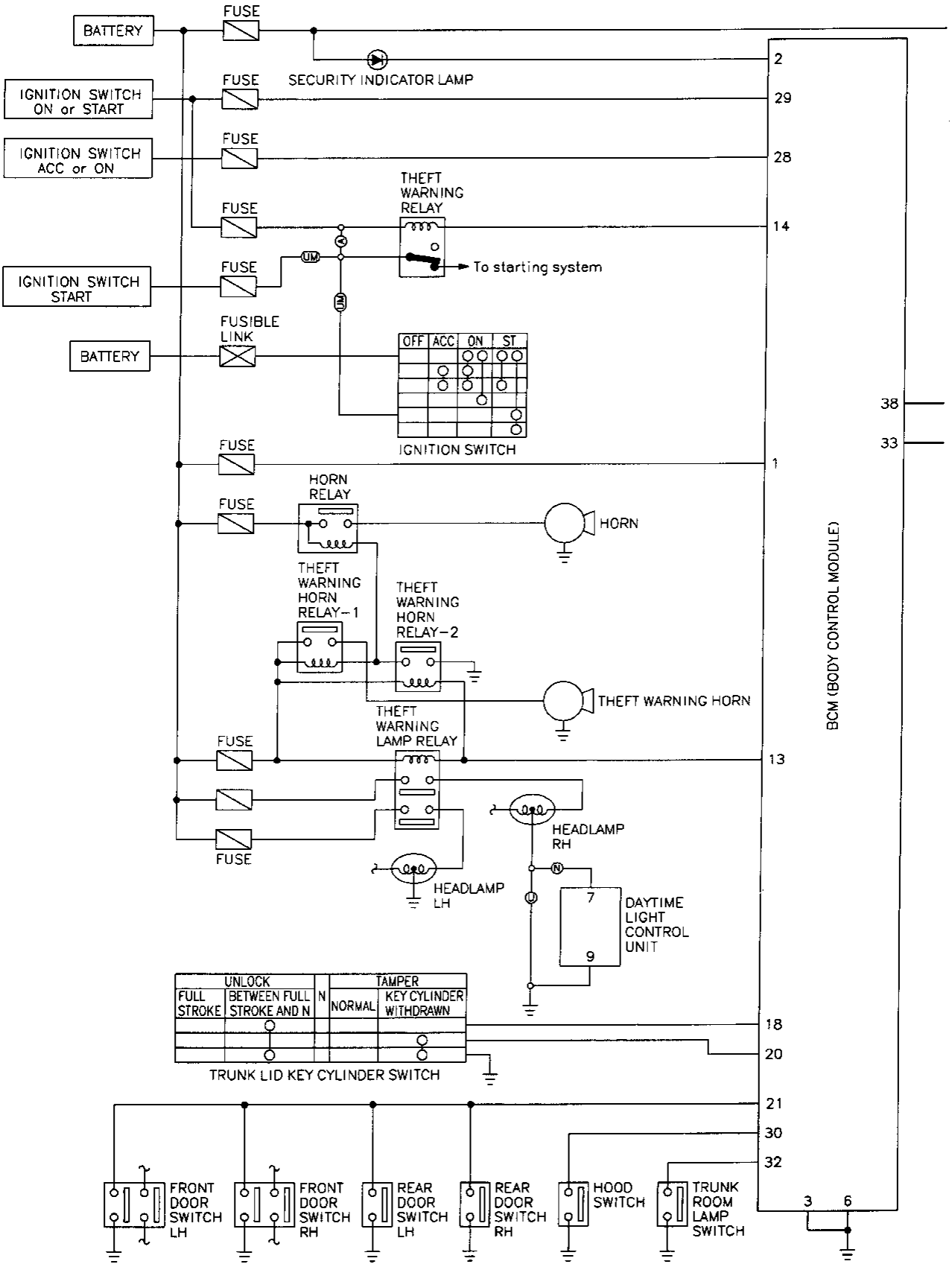




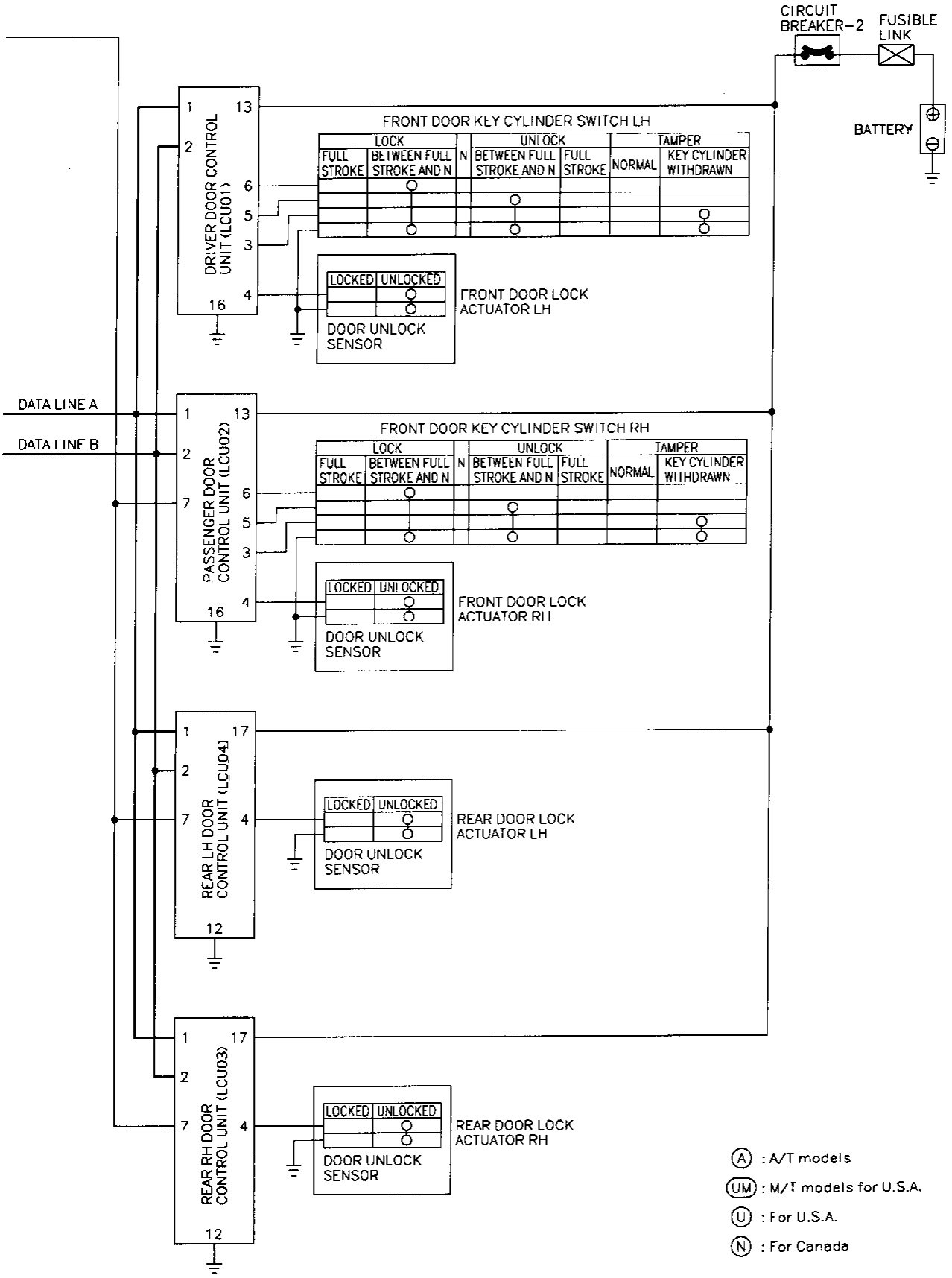
Refer to last page (Foldout page).
M4, B1

MEL437D

Schematic


BATTERY
FUSE
SECURITY INDICATOR LAMP
IGNITION SWITCH ON or START
IGNITION SWITCH ACC or ON
IGNITION SWITCH START
THEFT WARNING RELAY
To starting system
FUSIBLE LINK
OFF ACC ON ST
IGNITION SWITCH
HORN RELAY
HORN
THEFT WARNING HORN RELAY-1
THEFT WARNING HORN RELAY-2
THEFT WARNING HORN
THEFT WARNING LAMP RELAY
HEADLAMP RH
HEADLAMP LH
DAYTIME LIGHT CONTROL UNIT
UNLOCK
FULL STROKE
BETWEEN FULL STROKE AND N
N
TAMPER
NORMAL
KEY CYLINDER WITHDRAWN
TRUNK LID KEY CYLINDER SWITCH
FRONT DOOR SWITCH LH
FRONT DOOR SWITCH RH
REAR DOOR SWITCH LH
REAR DOOR SWITCH RH
HOOD SWITCH
TRUNK ROOM LAMP SWITCH
BCM (BODY CONTROL MODULE)
2
29
28
14
38
33
1
13
18
20
21
30
32
3
6
7
9

Schematic (Cont'd)



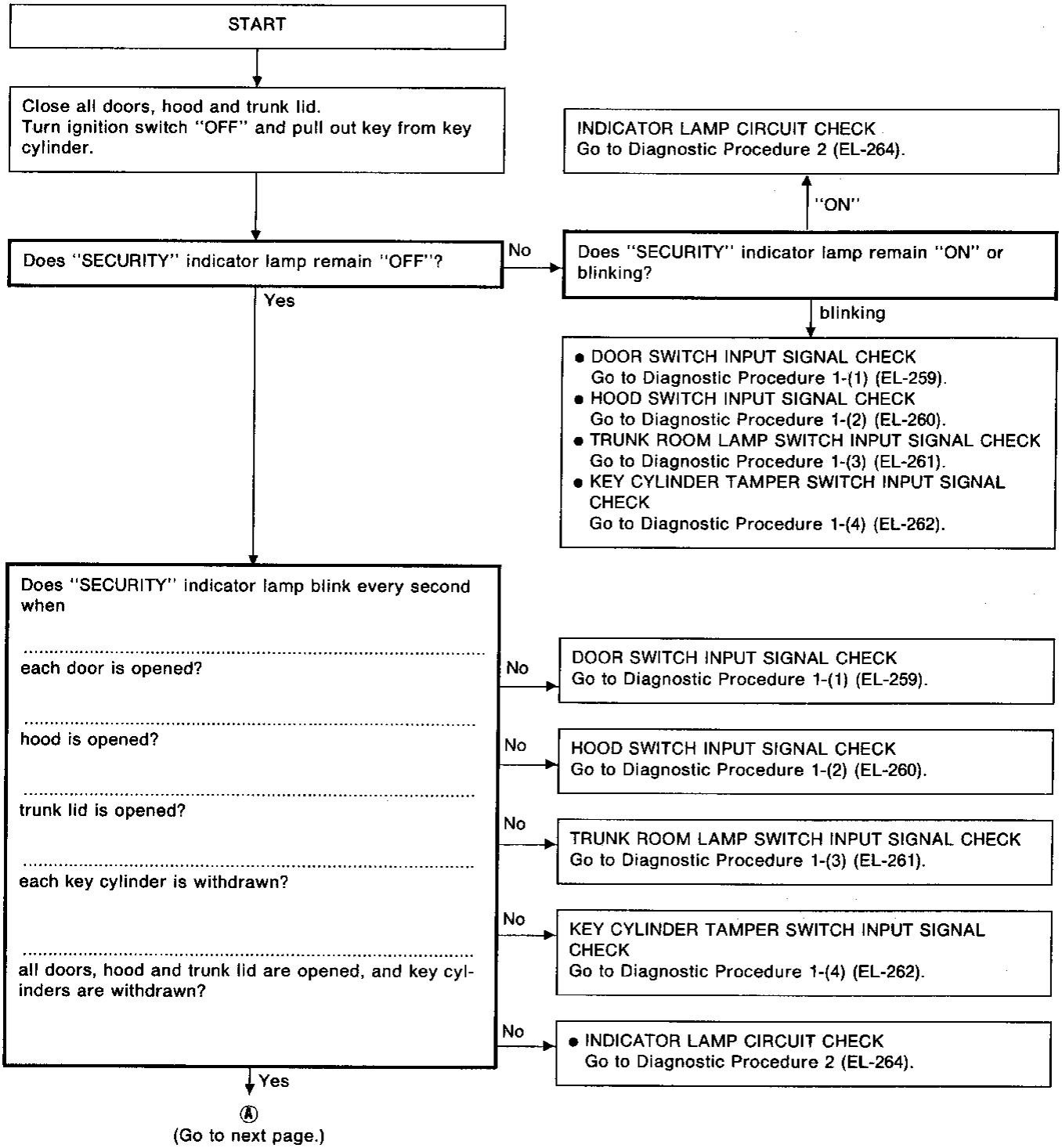
MEL438D

Trouble Diagnoses

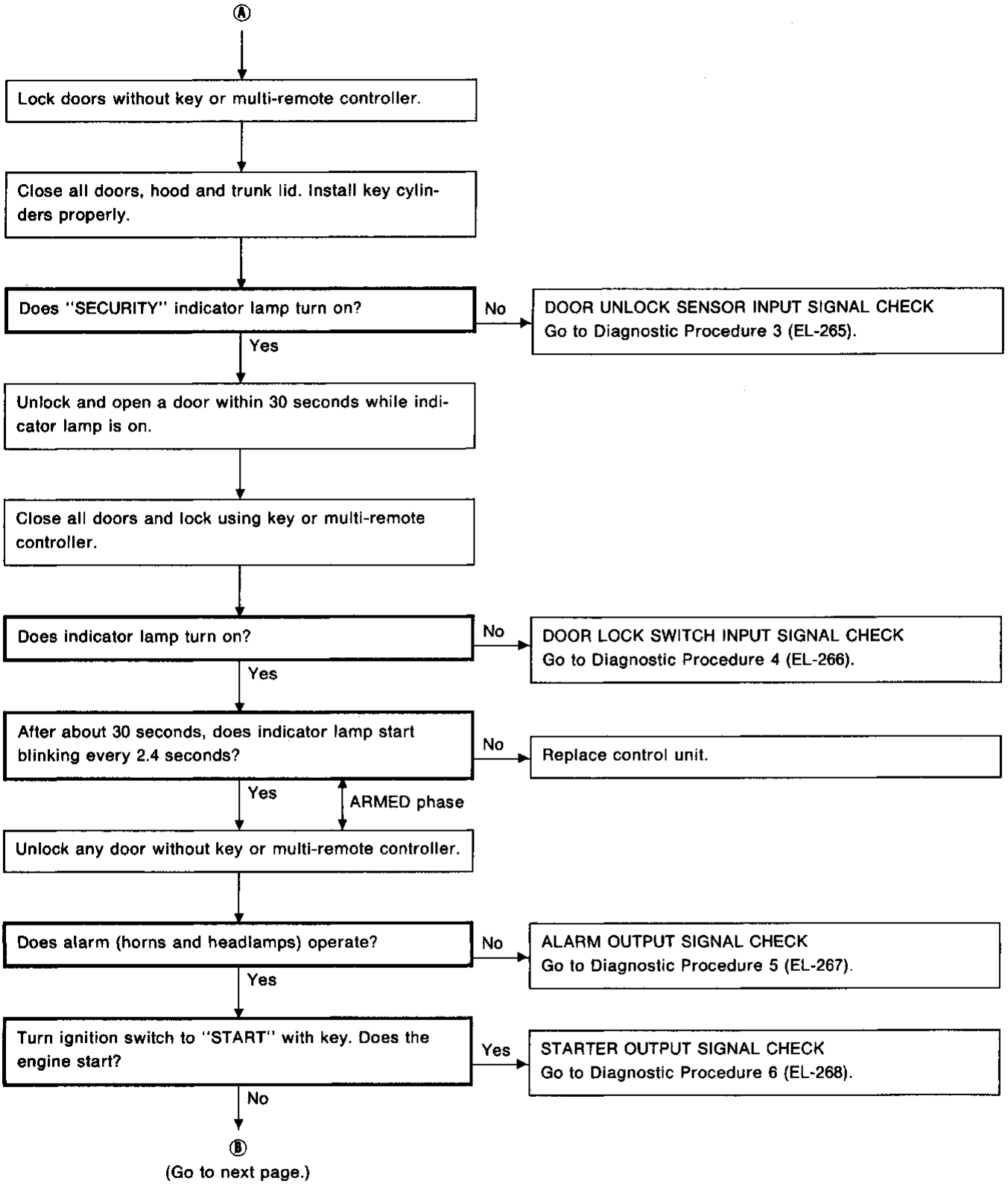
Before starting with the following "SYSTEM OPERATION CHECK", be sure to perform "IVMS Communication Diagnosis" (EL-148) and "Power Supply and Ground Circuit Check" (EL-177).

SYSTEM OPERATION CHECK

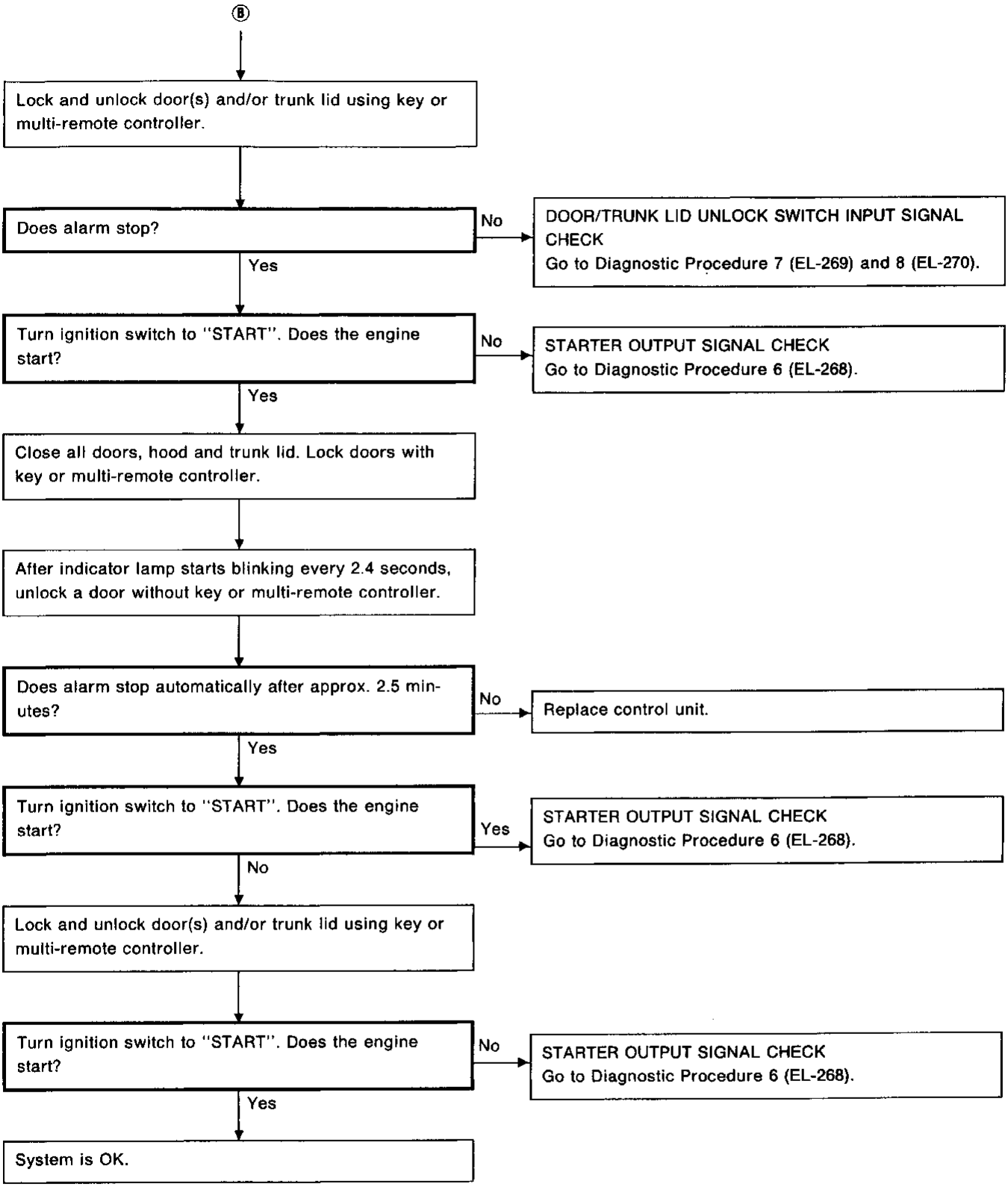
If ignition switch is turned to "ACC" at a step between START and ARMED or in the ARMED phase shown in this flow chart, the system operation is canceled.



Trouble Diagnoses (Cont'd)



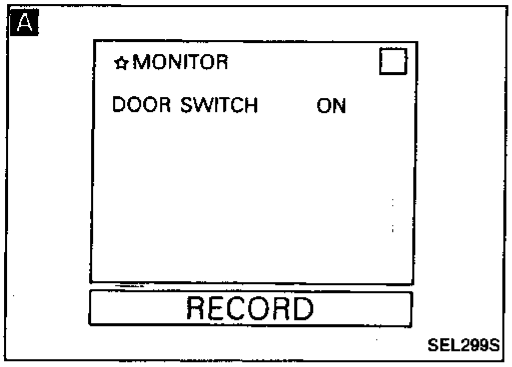
Trouble Diagnoses (Cont'd)

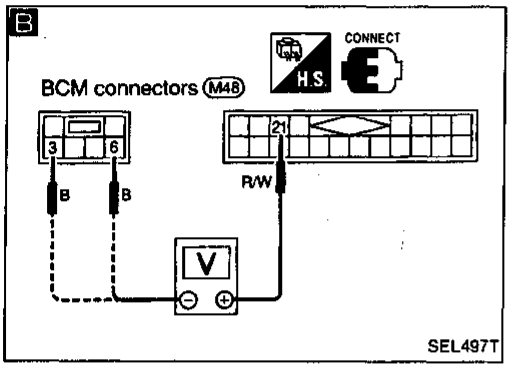


Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 1

Diagnostic procedure 1-(1)





A

See "DOOR SWITCH" in "Data Monitor" mode.
When all doors are closed:
DOOR SWITCH OFF
When at least one door is open:
DOOR SWITCH ON

OK → Go to DIAGNOSTIC PROCEDURE 2 (EL-264).

OR

Perform On-board diagnosis — Mode II (switch monitor) for all door switches. Refer to EL-157.

NG

B

DOOR SWITCH INPUT SIGNAL CHECK
Measure voltage between BCM terminals ㉑ and ③ or ⑥.

Condition	Voltage [V]
All doors closed	Approx. 12
At least one door open	0

OK → Go to DIAGNOSTIC PROCEDURE 2 (EL-264).

NG

Check all door switches. Refer to "Electrical Components Inspection" (EL-271).

NG → Replace.

OK

Check harness between each door switch and BCM and each door switch ground circuit.

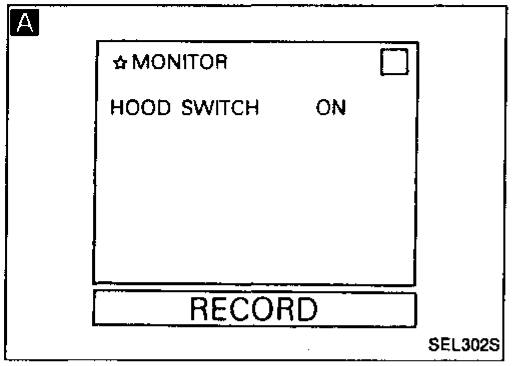
NG → Repair harness.

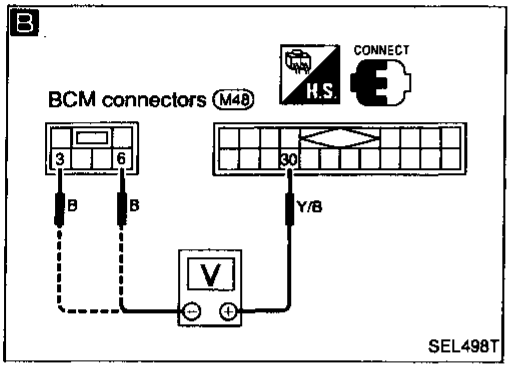
OK

Replace BCM.

Trouble Diagnoses (Cont'd)

Diagnostic procedure 1-(2)





A

See "HOOD SWITCH" in "Data Monitor" mode.
When hood is open:
HOOD SWITCH ON
When hood is closed:
HOOD SWITCH OFF

OK → Go to DIAGNOSTIC PROCEDURE 2 (EL-264).

OR

Perform On-board diagnosis — Mode II (switch monitor) for hood switch. Refer to EL-157.

NG ↓

B

HOOD SWITCH INPUT SIGNAL CHECK
Measure voltage between BCM terminals ㉚ and ③ or ⑥.

Condition of hood	Voltage [V]
Open	0
Closed	Approx. 5

OK → Go to DIAGNOSTIC PROCEDURE 2 (EL-264).

NG ↓

Check fitting condition of hood and hood switch.

NG → Adjust installation of hood and hood switch.

OK ↓

Check hood switch. Refer to "Electrical Components Inspection" (EL-271).

NG → Replace hood switch.

OK ↓

Check harness continuity between BCM and hood switch and hood switch ground circuit.

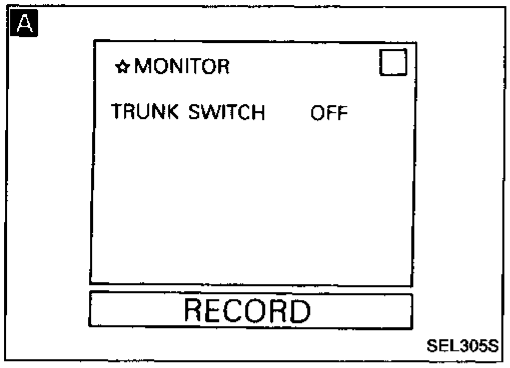
NG → Repair harness.

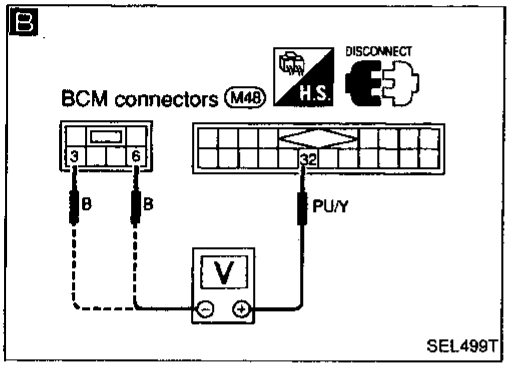
OK ↓

Replace BCM.

Trouble Diagnoses (Cont'd)

Diagnostic procedure 1-(3)





A

See "TRUNK SWITCH" in "Data Monitor" mode.
When trunk lid is open:
TRUNK SWITCH ON
When trunk lid is closed:
TRUNK SWITCH OFF
If CONSULT is not available, skip this procedure and go to the next procedure below.

OK → Go to DIAGNOSTIC PROCEDURE 2 (EL-264).

NG

B

TRUNK ROOM LAMP SWITCH INPUT SIGNAL CHECK
1. Disconnect BCM connectors.
2. Measure voltage between BCM terminals ㉜ and ③ or ⑥.

Condition of trunk lid	Voltage [V]
Open	Approx. 12
Closed	0

OK → Go to DIAGNOSTIC PROCEDURE 2 (EL-264).

NG

Does trunk room lamp turn on when trunk lid is opened and turn off when trunk lid is closed?

Yes → Check harness between BCM and trunk room lamp switch.

No

Check trunk room lamp bulb.

NG → Replace bulb.

OK

Check trunk room lamp switch. Refer to "Electrical Components Inspection" (EL-271).

NG → Replace trunk room lamp switch.

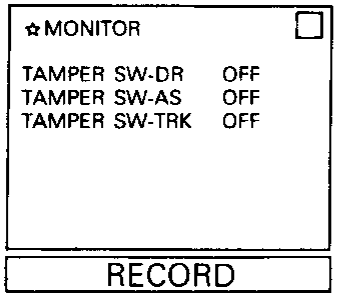
OK

Check and repair harness.

Trouble Diagnoses (Cont'd)

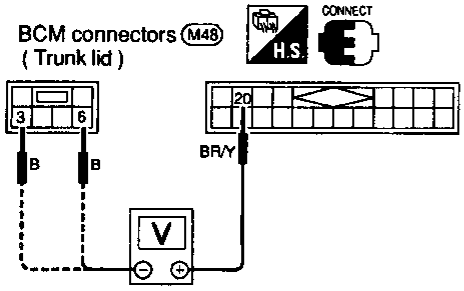
Diagnostic procedure 1-(4)

A

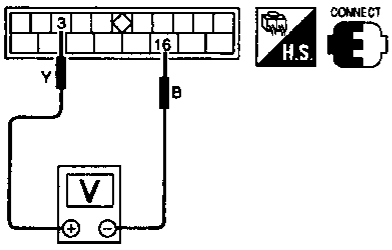


SEL308S

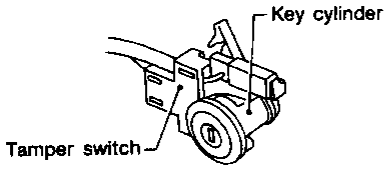
B



LCU01 connector (D9) (driver side)
LCU02 connector (D39) (passenger side)

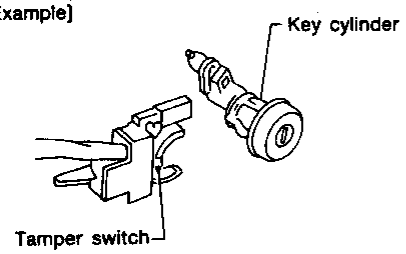


[Example]



No continuity ... OK

[Example]



Read switch turns on when key cylinder is removed.

Continuity exists ... OK

SEL500T

A

See "TAMPER SW" in "Data Monitor" mode.
When driver side key cylinder is removed,
TAMPER SW-DR ON
When driver side key cylinder is installed,
TAMPER SW-DR OFF
When passenger side key cylinder is removed,
TAMPER SW-AS ON
When passenger side key cylinder is installed,
TAMPER SW-AS OFF
When trunk lid key cylinder is removed,
TAMPER SW-TRK ON
When trunk lid key cylinder is installed,
TAMPER SW-TRK OFF

OK → Go to DIAGNOSTIC PROCEDURE 2 (EL-264).

OR

Perform On-board diagnosis — Mode II (switch monitor) for each tamper switch. Refer to EL-157.

NG ↓

B

KEY CYLINDER TAMPER SWITCH INPUT SIGNAL CHECK
Measure voltage between BCM terminals ⑳ and ③ or ⑥ (trunk lid), LCU01 terminals ③ and ⑯ (driver side), and LCU02 terminals ③ and ⑯ (passenger side).

Condition		Voltage [V]
Key cylinder removed		0
Key cylinder installed	Front doors	Approx. 12
	Trunk lid	Approx. 5

OK → Go to DIAGNOSTIC PROCEDURE 2 (EL-264).

NG ↓

Check key cylinder tamper switch in question. Refer to "Electrical Components Inspection" (EL-272).

NG → Replace.

OK ↓

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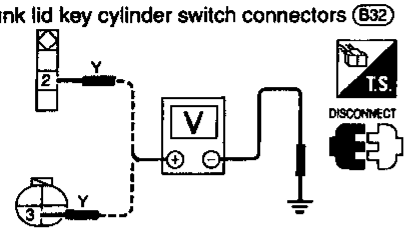
(Go to next page.)

Trouble Diagnoses (Cont'd)

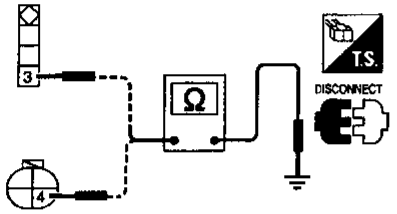
C

Trunk lid key cylinder switch connectors (B32)



Front door key cylinder switch connectors
(D7) (driver side)
(D37) (passenger side)

Trunk lid key cylinder switch connector (B32)



Front door key cylinder switch connectors
(D7) (driver side)
(D37) (passenger side)

SEL501T

Ⓐ

C

KEY CYLINDER TAMPER SWITCH CIRCUIT CHECK

1. Disconnect key cylinder switch connector in question.
2. Measure voltage between key cylinder switch terminal ② (trunk lid) or ③ (front doors) and body.

	Voltage [V]
Trunk lid	Approx. 5
Front doors	Approx. 12

3. Check continuity between key cylinder switch terminal ③ (trunk lid) or ④ (front doors) and body.
Continuity should exist.

NG → Repair harness or connectors accordingly.

OK ↓

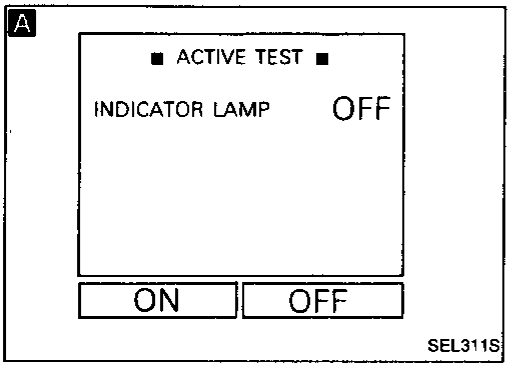
Perform IVMS communication diagnosis again. Refer to EL-148.

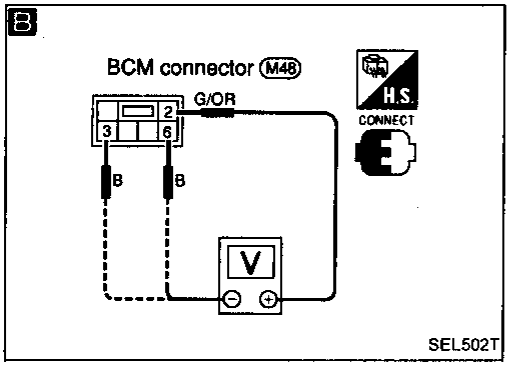
OK ↓

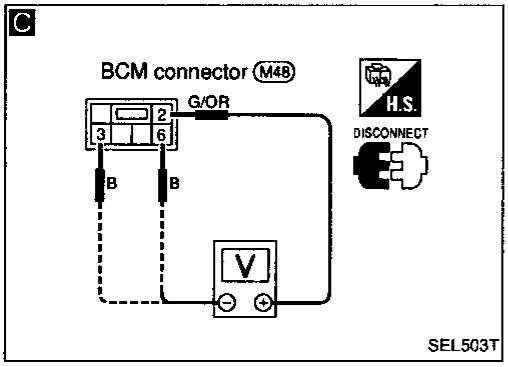
Replace BCM, LCU01 or LCU02 accordingly.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 2







Check indicator lamp. — NG → Replace indicator lamp.

OK ↓

A

Perform "INDICATOR LAMP" in "Active Test" mode.
Check indicator lamp operation.
If CONSULT is not available, skip this procedure and go to the next procedure below.

OK → Perform IVMS communication diagnosis again. Refer to EL-148.

OK ↓

Is the symptom still evident?

Yes → Replace BCM.

No → System is OK.

NG ↓

B

INDICATOR LAMP OUTPUT SIGNAL CHECK
1. Open at least one door.
2. Check voltage between BCM terminals ② and ③ or ⑥.
Pointer of voltmeter should deflect intermittently.

OK → System is OK.

NG ↓

Check fuse. — NG → Replace fuse.

OK ↓

C

INDICATOR LAMP CIRCUIT CHECK
1. Disconnect BCM connector.
2. Measure voltage between BCM terminals ② and ③ or ⑥.
Positive battery voltage should exist.

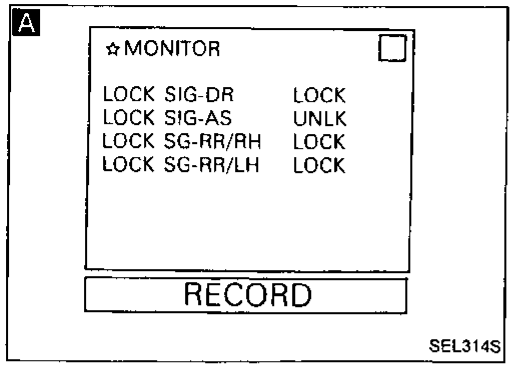
OK → Replace BCM.

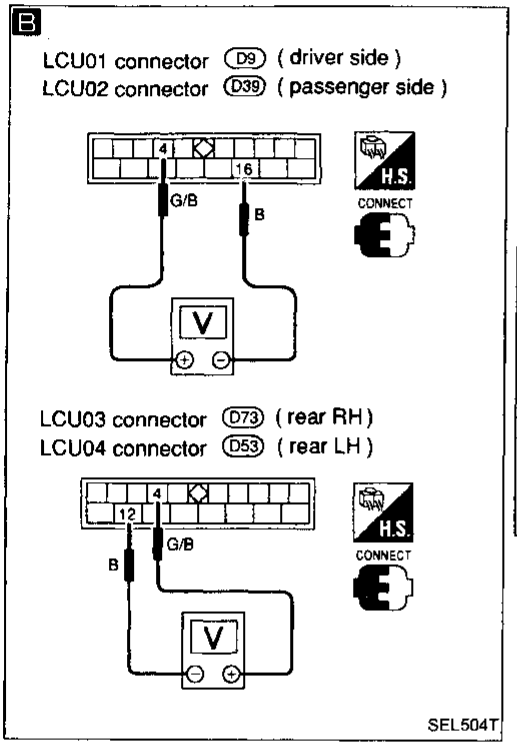
NG ↓

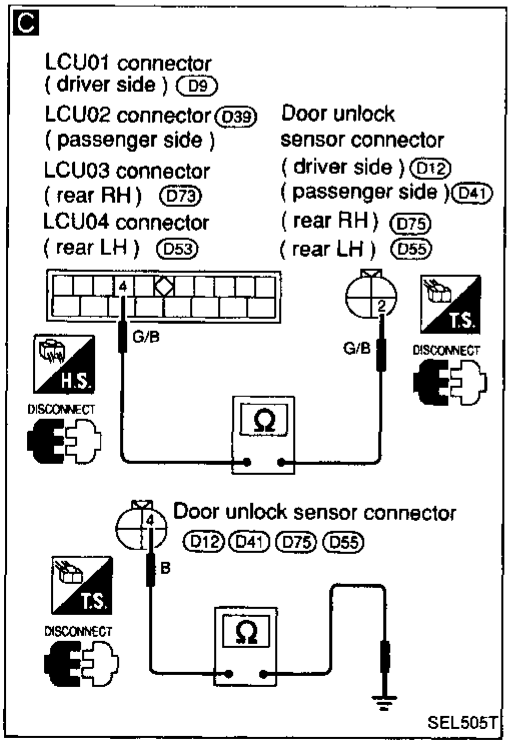
Check and repair harness.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 3







A

See "LOCK SIG (SG)" in "Data Monitor" mode for all doors.
When door is locked
LOCK SIG (SG) LOCK
When door is unlocked
LOCK SIG (SG) UNLK

OR

Perform On-board diagnosis — Mode II (switch monitor) for each door unlock sensor. Refer to EL-157.

OK → Go to DIAGNOSTIC PROCEDURE 4 (EL-266).

OK → Perform IVMS communication diagnosis again. Refer to EL-148.

OK → Is the symptom still evident?

Yes → Replace BCM.

No → System is OK.

NG

B

DOOR UNLOCK SENSOR INPUT SIGNAL CHECK
Measure voltage between terminals ④ and ⑯ of LCU01 and LCU02 and terminals ④ and ⑫ of LCU03 and LCU04.

Condition	Voltage [V]
Door locked	Approx. 5
Door unlocked	0

OK → Go to DIAGNOSTIC PROCEDURE 4 (EL-266).

OK → Perform IVMS communication diagnosis again. Refer to EL-148.

OK → Is the symptom still evident?

Yes → Replace BCM.

No → System is OK.

NG

Check door unlock sensor. Refer to "Electrical Components Inspection" (EL-272).

NG → Replace door lock actuator.

OK

C

DOOR UNLOCK SENSOR CIRCUIT CHECK
1. Disconnect LCU and door lock actuator connectors in question.
2. Check harness continuity between terminal ④ of LCU01, LCU02, LCU03, or LCU04 and terminal ② of door lock actuator in question.
3. Check continuity between terminal ④ of door lock actuator in question and body.
Continuity should exist.

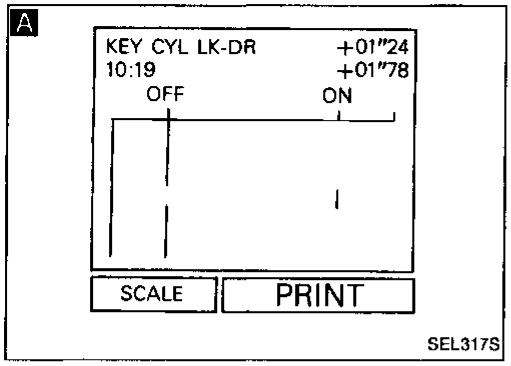
NG → Repair harness or connectors.

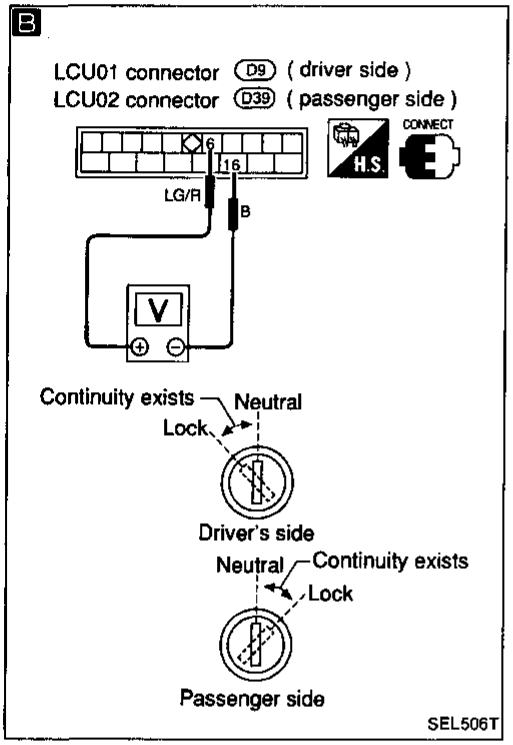
OK

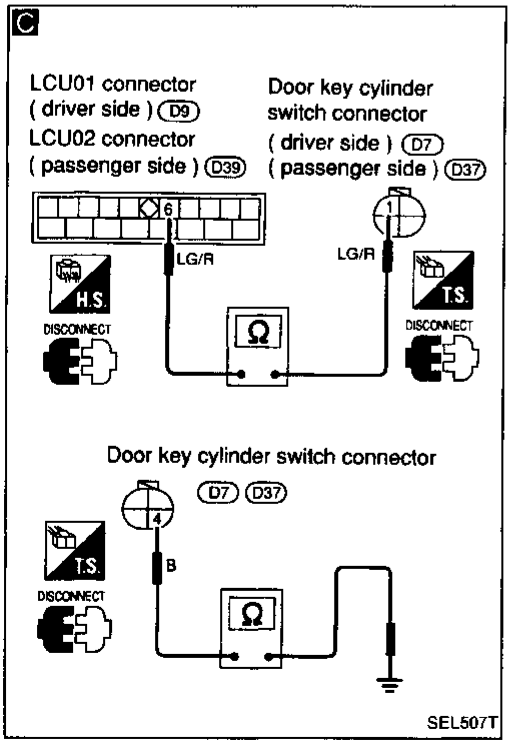
Replace LCU in question.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 4







A

See "KEY CYL LK-DR (AS)" in "Data Monitor" mode for both sides.
When key is turned from Neutral to Lock position, KEY CYL LK-DR (AS) should indicate "ON" for a moment.

— OR —

Perform On-board diagnosis — Mode II (switch monitor) for door key cylinder switch (LOCK) of each front door. Refer to EL-157.

OK → Go to DIAGNOSTIC PROCEDURE 3 (EL-265).

OK → Perform IVMS communication diagnosis again. Refer to EL-148.

OK → Is the symptom still evident?

Yes → Replace BCM.

No → System is OK.

NG

B

DOOR KEY CYLINDER SWITCH INPUT SIGNAL CHECK (LOCK SIGNAL)
Measure voltage between terminals ⑥ and ⑯ of LCU01 and LCU02.

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

OK → Go to DIAGNOSTIC PROCEDURE 3 (EL-265).

OK → Perform IVMS communication diagnosis again. Refer to EL-148.

OK → Is the symptom still evident?

Yes → Replace BCM.

No → System is OK.

NG

Check door key cylinder switch (lock switch). Refer to "Electrical Components Inspection" (EL-272).

NG → Replace key cylinder switch.

OK

C

DOOR KEY CYLINDER SWITCH (LOCK SWITCH) CIRCUIT CHECK

1. Disconnect door key cylinder switch and LCU connectors in question.
2. Check continuity between terminal ⑥ of LCU01 or LCU02 and door key cylinder switch terminal ① on each side.
3. Check continuity between terminal ④ of door key cylinder switch in question and body.
   Continuity should exist.

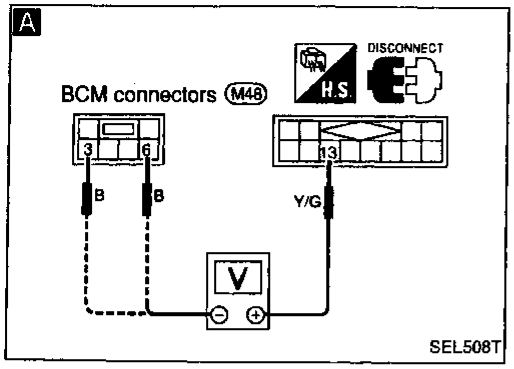
NG → Repair harness or connectors.

OK

Replace LCU in question.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 5



Check theft warning horn relay-1 and -2 and theft warning lamp relay.
- NG → Replace.
- OK ↓

A

ALARM OUTPUT CIRCUIT CHECK
1. Disconnect BCM connectors.
2. Measure voltage between BCM terminals ⑬ and ③ or ⑥.
   Positive battery voltage should exist.

- NG → Check and repair harness.
- OK ↓

Do horn and theft warning horn sound when horn button is pressed?
- Yes → Go to C on next page.
- No ↓

Check horn and theft warning horn.
- NG → Replace.
- OK ↓

B

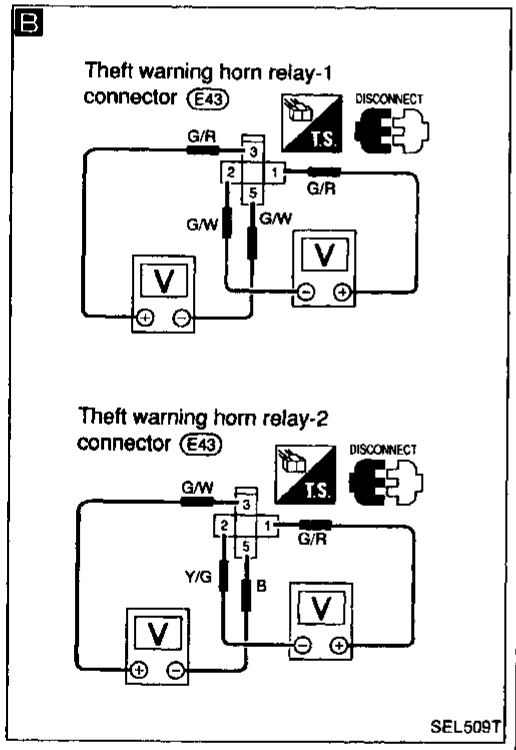
THEFT WARNING HORN CIRCUIT CHECK
1. Disconnect theft warning horn relay-1 connector.
2. Measure voltage between terminals ① and ②.
   Positive battery voltage should exist.
3. Measure voltage between terminals ③ and ⑤.
   Positive battery voltage should exist.
4. Connect theft warning horn relay-1 and disconnect theft warning horn relay-2 connector.
5. Measure voltage between terminals ① and ②.
   Positive battery voltage should exist.
6. Measure voltage between terminals ③ and ⑤.
   Positive battery voltage should exist.

- NG → Check and repair harness.
- OK ↓

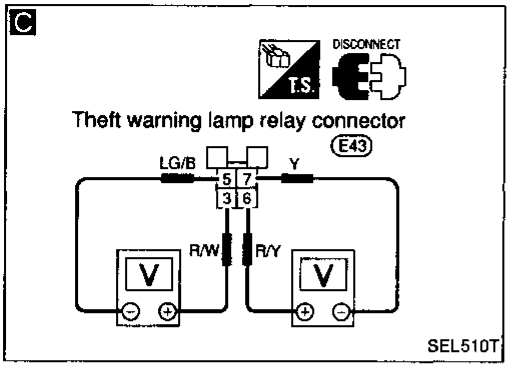
Check theft warning horn relay-2 ground circuit and harness between theft warning horn relay-1 and theft warning horn.
- NG → Repair harness.
- OK ↓

Check horn circuit. Refer to "HORN, CIGARETTE LIGHTER AND CLOCK" (EL-94).
- NG → Repair or replace.
- OK ↓

Ⓐ
(Go to next page)



Trouble Diagnoses (Cont'd)



Ⓐ

C

THEFT WARNING HEADLAMP CIRCUIT CHECK
1. Disconnect theft warning lamp relay connector.
2. Measure voltage between terminals ③ and ⑤.
   Positive battery voltage should exist.
3. Measure voltage between terminals ⑥ and ⑦.
   Positive battery voltage should exist.

NG → Check and repair harness.

OK ↓

Do headlamps (high beam) turn on when lighting switch is turned to "A" or "C" position?

No → Check headlamp system. Refer to "HEADLAMP" (EL-40).

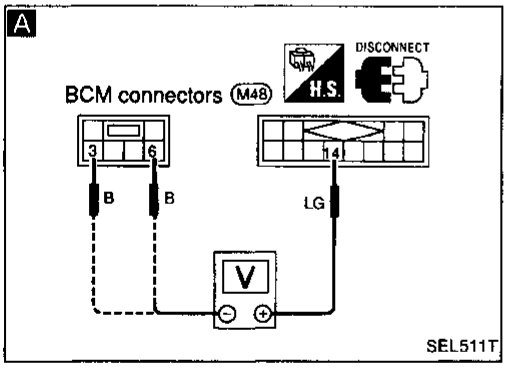
Yes ↓

Check harness between theft warning lamp relay and headlamps.

NG → Repair harness.

OK ↓

Replace BCM.



DIAGNOSTIC PROCEDURE 6

Check theft warning relay.

NG → Replace.

OK ↓

A

STARTER KILL CIRCUIT CHECK
1. Disconnect BCM connectors.
2. Measure voltage between BCM terminals ⑭ and ③ and ⑥.

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

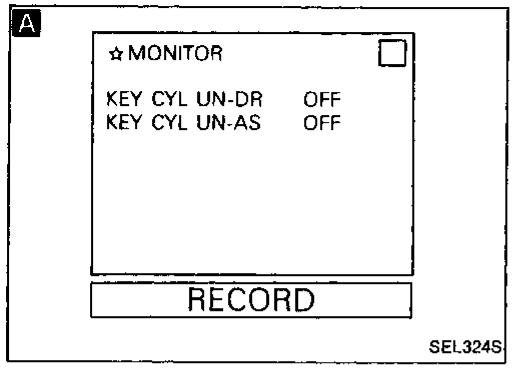
NG → Check and repair harness.

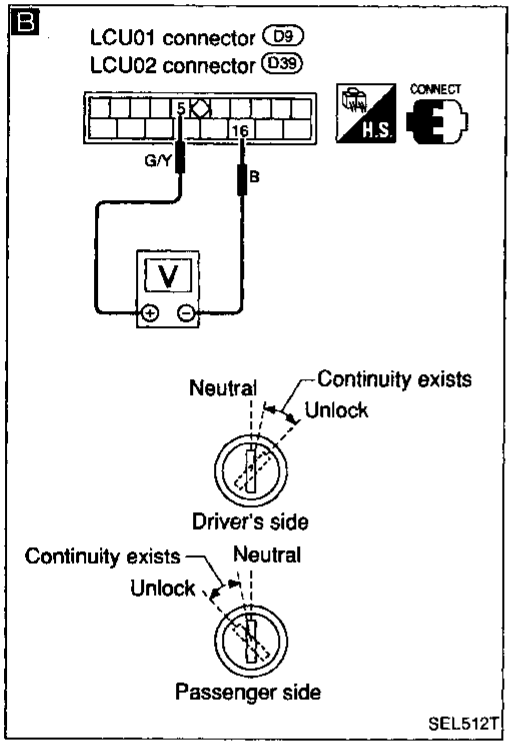
OK ↓

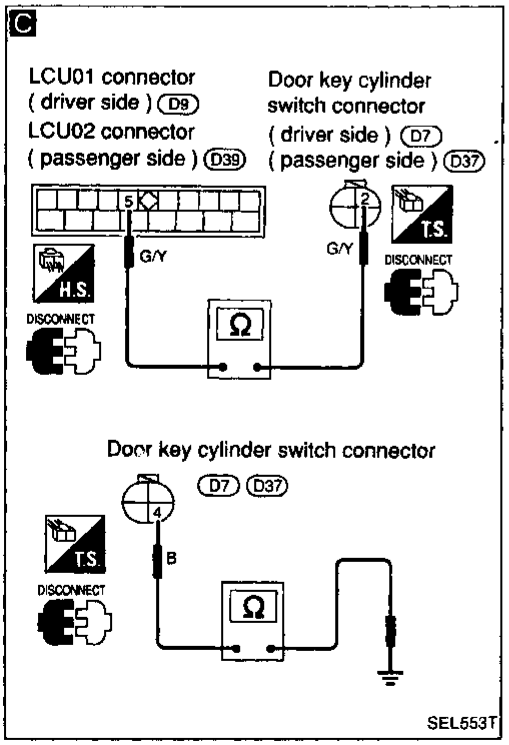
Replace BCM.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 7







A

See "KEY CYL UN-DR (AS)" in "Data Monitor" mode for both sides.
When key in key cylinder is cycled toward "UNLOCK",
KEY CYL UN-DR (AS) ON
When key is returned to "NEUTRAL",
KEY CYL UN-DR (AS) OFF

OR

Perform On-board diagnosis — Mode II (switch monitor) for door key cylinder switch (unlock) of each front door. Refer to EL-157.

OK → Go to DIAGNOSTIC PROCEDURE 8 (EL-270).

OK → Perform IVMS communication diagnosis again. Refer to EL-148.

OK → Is the symptom still evident?

Yes → Replace BCM.

No → System is OK.

NG

B

DOOR KEY CYLINDER SWITCH INPUT SIGNAL CHECK
Measure voltage between terminals ⑤ and ⑯ of LCU01 (driver side) and LCU02 (passenger side).

Key position	Voltage [V]
Unlock	0
Neutral	Approx. 12

OK → Go to DIAGNOSTIC PROCEDURE 8 (EL-270).

OK → Perform IVMS communication diagnosis again. Refer to EL-148.

OK → Is the symptom still evident?

Yes → Replace BCM.

No → System is OK.

NG

Check door key cylinder switch. Refer to "Electrical Components Inspection" (EL-272).

NG → Replace.

OK

C

DOOR KEY CYLINDER SWITCH (UNLOCK SWITCH) CIRCUIT CHECK
1. Disconnect door key cylinder switch and LCU connectors in question.
2. Check continuity between terminal ⑤ of LCU01 or LCU02 and door key cylinder switch terminal ② on each side.
3. Check continuity between terminal ④ of door key cylinder switch in question and body.
Continuity should exist.

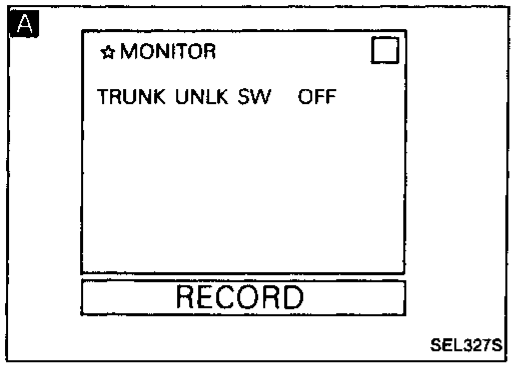
NG → Repair harness or connectors.

OK

Replace LCU in question.

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 8



A

See "TRUNK UNLK SW" in "Data Monitor" mode.
When key in key cylinder is at "NEUTRAL" or "UNLOCK" (full stroke) position,
TRUNK UNLK SW OFF
When key is between "NEUTRAL" and "UNLOCK" position,
TRUNK UNLK SW ON

OK → Go to DIAGNOSTIC PROCEDURE 7 (EL-269).

OK → Perform IVMS communication diagnosis again (EL-148).

OK → Is the symptom still evident?

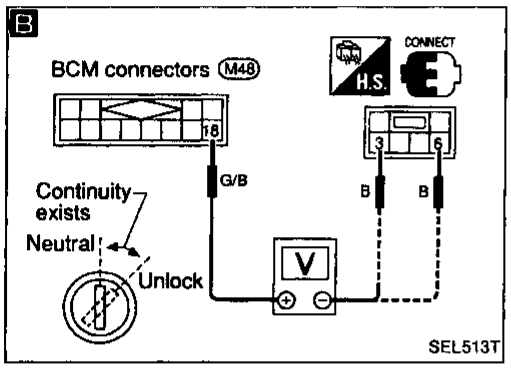
Yes → Replace BCM.

No → System is OK.

OR

Perform On-board diagnosis — Mode II (switch monitor) for trunk lid unlock switch. Refer to EL-157.

NG



B

TRUNK LID KEY CYLINDER SWITCH INPUT SIGNAL CHECK (UNLOCK SIGNAL)
Measure voltage between BCM terminals ⑱ and ③ or ⑥.

Key position	Voltage [V]
Neutral/unlock	Approx. 5
Between neutral and unlock	0

OK → Go to DIAGNOSTIC PROCEDURE 7 (EL-269).

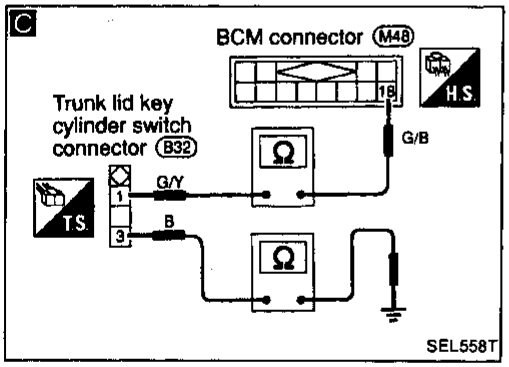
OK → Perform IVMS communication diagnosis again (EL-148).

OK → Is the symptom still evident?

Yes → Replace BCM.

No → System is OK.

NG



Check trunk lid key cylinder switch. Refer to "Electrical Components Inspection" (EL-272).

NG → Replace.

OK

C

TRUNK LID KEY CYLINDER SWITCH (UNLOCK SWITCH) CIRCUIT CHECK

1. Disconnect trunk lid key cylinder switch connector and BCM connectors.
2. Check continuity between terminal ⑱ of BCM and key cylinder switch terminal ①.
3. Check continuity between key cylinder switch terminal ③ and body.
   Continuity should exist.

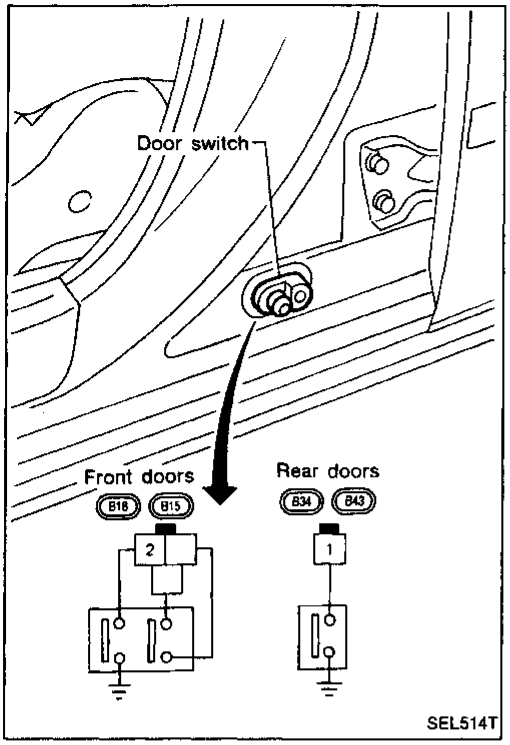
NG → Repair harness or connectors.

OK

Replace BCM.

Trouble Diagnoses (Cont'd)

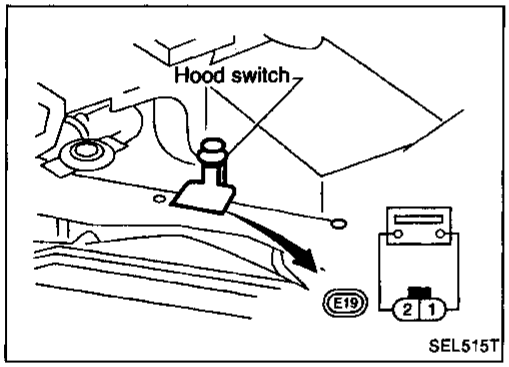
ELECTRICAL COMPONENTS INSPECTION



Door switches

Check continuity between terminal and switch body.

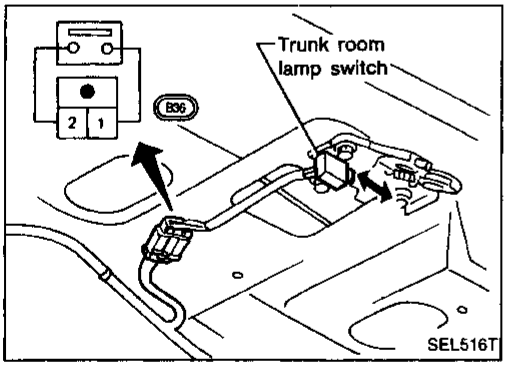
	Terminals	Condition	Continuity
Front door switches	② - switch body	Pressed	No
		Released	Yes
Rear door switches	① - switch body	Pressed	No
		Released	Yes



Hood switch

Check continuity between terminals.

Terminals	Condition	Continuity
① - ②	Pressed	No
	Released	Yes

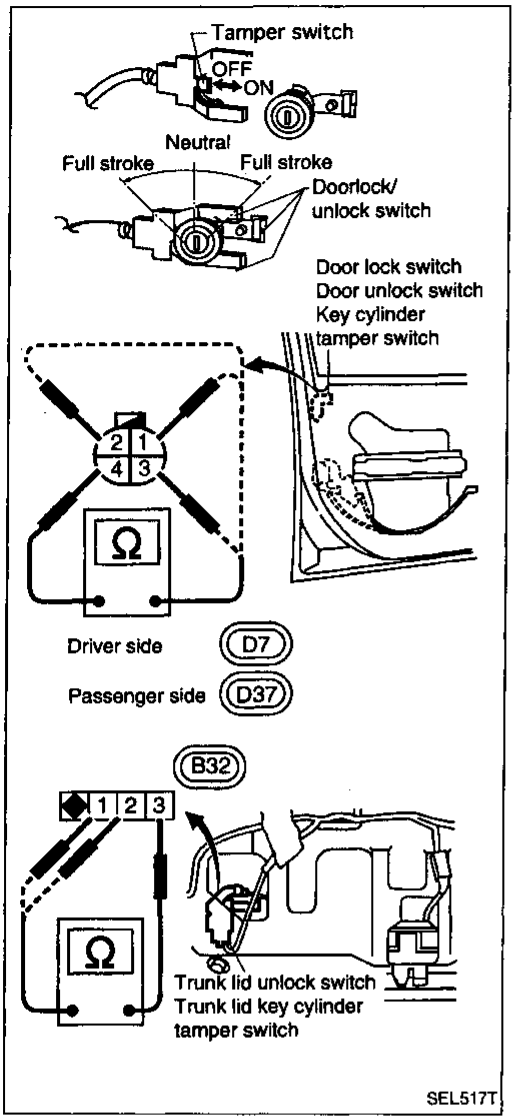


Trunk room lamp switch

Check continuity between terminals.

Terminals	Condition	Continuity
① - ②	Pressed	Yes
	Released	No

Trouble Diagnoses (Cont'd)



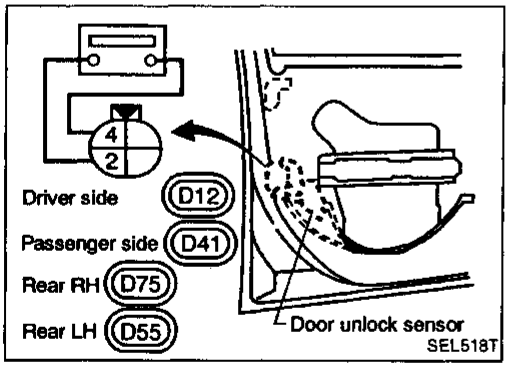
Key cylinder tamper switch, door lock switch and door unlock switch

- **Door**

	Terminals	Condition	Continuity
Tamper switch	③ - ④	Key cylinder installed	No
		Key cylinder removed	Yes
Door lock switch	① - ④	Lock (full stroke)	No
		Between lock and neutral	Yes
		Neutral	No
Door unlock switch	② - ④	Unlock	Yes
		Neutral	No

- **Trunk lid**

	Terminals	Condition	Continuity
Tamper switch	② - ③	Key cylinder installed	No
		Key cylinder removed	Yes
Trunk lid unlock switch	① - ③	Unlock (full stroke)	No
		Between unlock and neutral	Yes
		Neutral	No



Door unlock sensor

Terminals	Condition	Continuity
② - ④	Lock	No
	Unlock	Yes

System Description

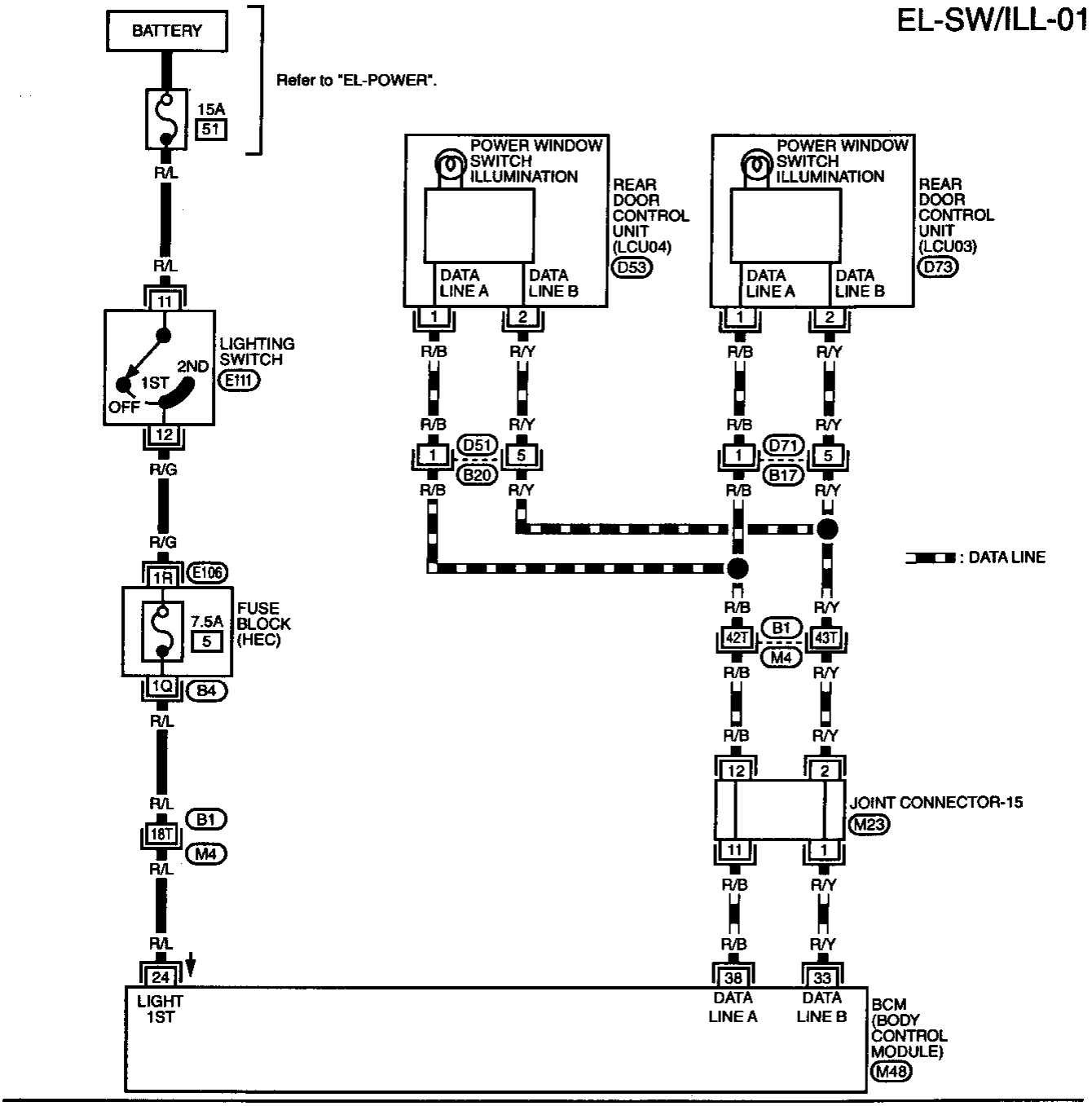
Power is supplied at all times
- to lighting switch terminal ⑪
- through 15A fuse (No. 51, located in the fuse and fusible link box).

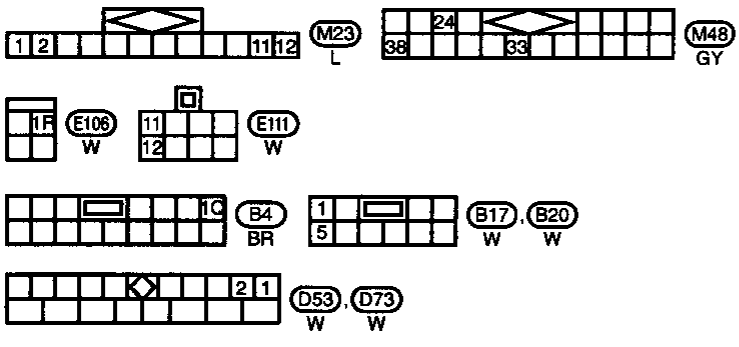
With the lighting switch in the 1ST or 2ND position, power is supplied
- to BCM terminal ㉔
- through lighting switch terminal ⑫ and
- 7.5A fuse (No. 5 , located in the fuse block in the HEC).

Terminals ① and ② of the power window switch illumination (located in the rear LH and RH door control units) are connected to BCM terminals ㊳ and ㉝ by DATA LINES A and B respectively.
When power is supplied to BCM, BCM sends a signal to rear LH and RH door control units to turn on power window switch illumination. Power and ground are supplied to power window switch illumination, then power window switch illumination turns on.

Wiring Diagram — SW/ILL —

EL-SW/ILL-01





Refer to last page (Foldout page).
M4 , B1
M23

MEL396D

Trouble Diagnoses

Perform "IVMS Communication Diagnoses" (EL-148) and "Power Supply and Ground Circuit Check" (EL-177) before starting with the following chart.

Symptom	Possible cause	Repair order
Power window switch illumination does not illuminate when lighting switch is turned to 1st or 2nd.*	1. 7.5A fuse	1. Check 7.5A fuse (No. 5 , located in fuse block).
	2. Open in lighting switch circuit	2. Check R/L wire between 7.5A fuse and BCM.
	3. LCU	3. Replace LCU.
	4. BCM	4. Replace BCM.

* CONSULT (data monitor and/or active test) may also be used to confirm the cause of malfunction.

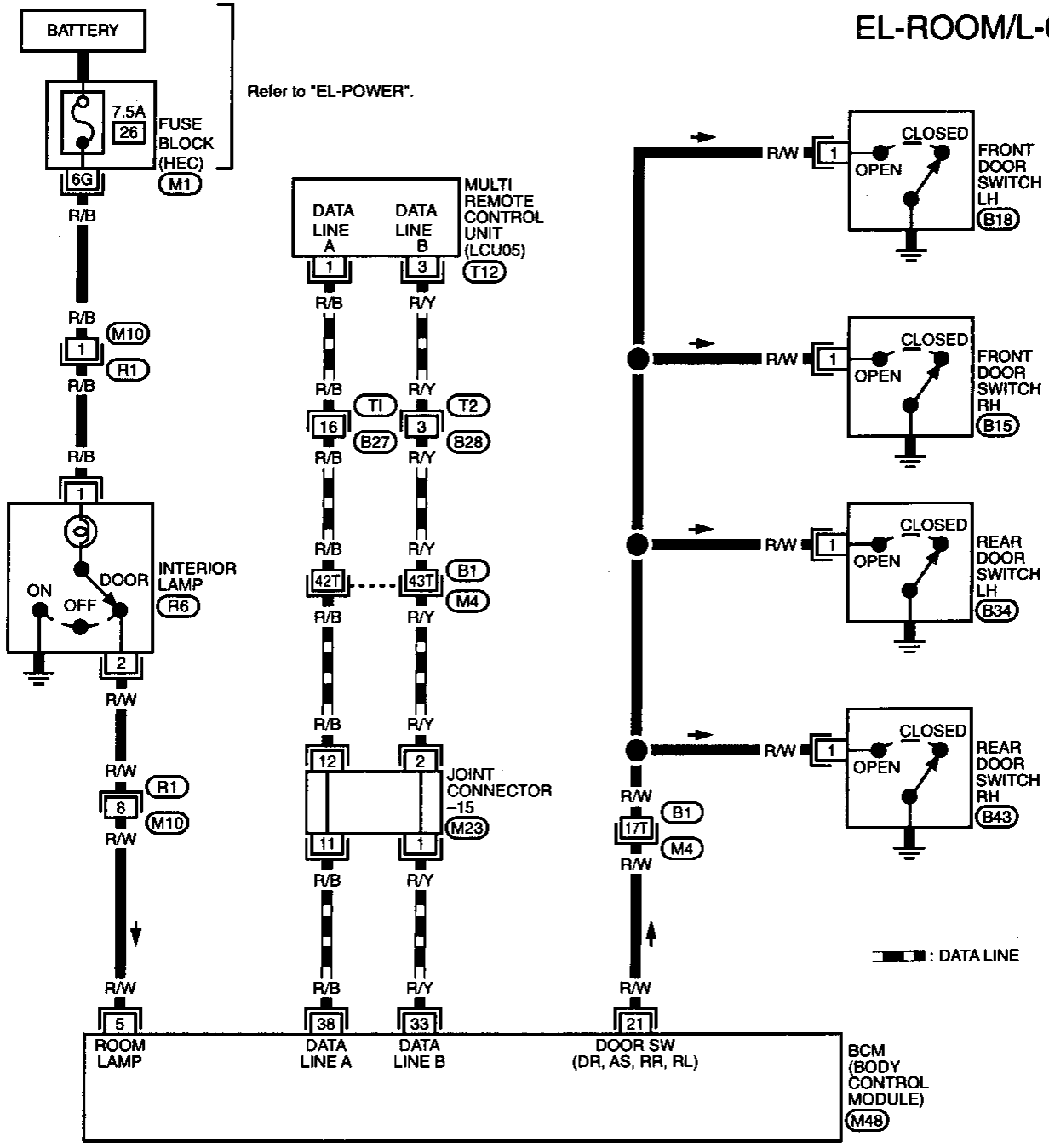
System Description

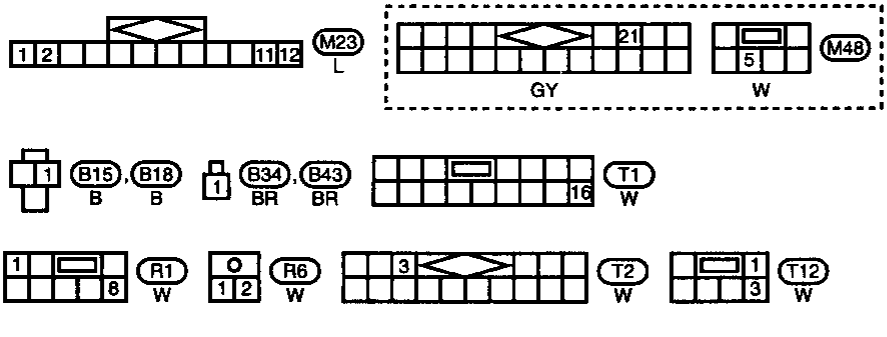
Power is supplied at all times
- through 7.5A fuse (No. 26, located in the fuse block in the HEC)
- to interior lamp terminal ①.

BCM terminal ㉑ is grounded when any door switch is in OPEN position.
When the front RH door switch, rear LH door switch or rear RH door switch is in OPEN position, interior lamp turns on.
Multi-remote control unit (LCU05) terminal ① and BCM terminal ㊳ are connected by DATA LINE A. Multi-remote control unit terminal ③ and BCM terminal ㉝ are connected by DATA LINE B. When multi-remote control unit receives a signal to turn on interior lamp from remote controller, multi-remote controller transmits its signal to BCM. Interior lamp turns on when all door switches are in CLOSED position.

Wiring Diagram — ROOM/L —

EL-ROOM/L-01





Refer to last page (Foldout page).
M4 , B1
M1
M23

MEL397D

1341

Trouble Diagnoses

Perform "IVMS Communication Diagnoses" (EL-148) and "Power Supply and Ground Circuit Check" (EL-177) before starting with the following chart.

Symptom	Possible cause	Repair order
Interior lamp does not illuminate when any door is opened.*	1. Bulb	1. Check bulb.
	2. 7.5A fuse	2. Check 7.5A fuse (No. 26, located in fuse block).
	3. Interior lamp switch	3. Check interior lamp switch.
	4. Open in interior lamp circuit	4. Check R/W wire between interior lamp and BCM.
	5. BCM	5. Replace BCM.
Interior lamp does not illuminate when a certain door is opened. (It illuminates when other doors are opened.)	1. Door switch of the door in question	1. Check door switch in question.
	2. Open in door switch circuit	2. Check R/W wire between BCM and door switch in question.
Interior lamp does not turn off when all doors are closed	1. Short in interior lamp circuit	1. Check R/W wire between interior lamp and BCM.
	2. Door switch	2. Check all door switches.
	3. Short in door switch circuit	3. Check R/W wire between BCM and all door switches.
	4. BCM	4. Replace BCM.

* CONSULT (data monitor and/or active test) may also be used to confirm the cause of malfunction.

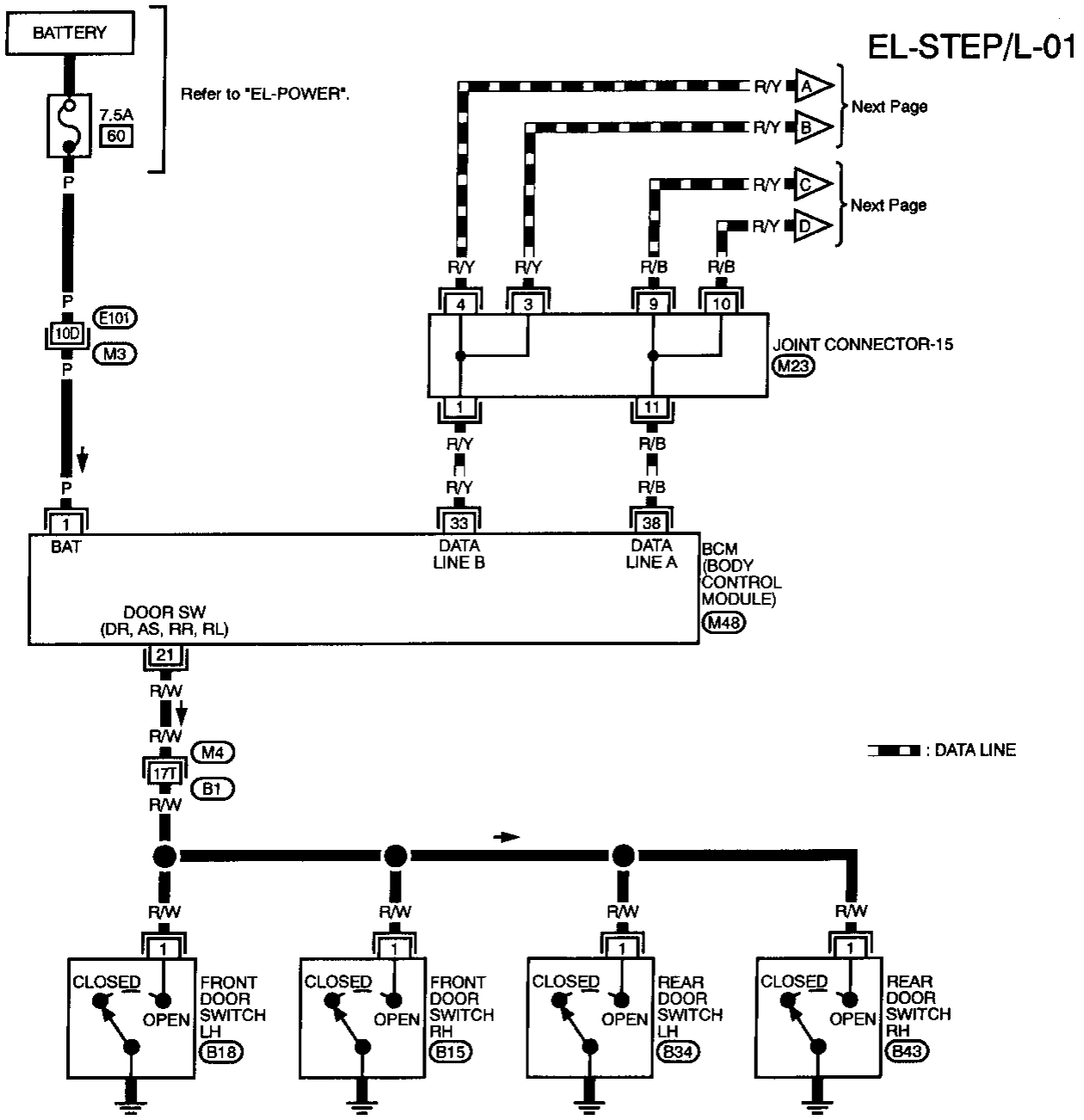
System Description

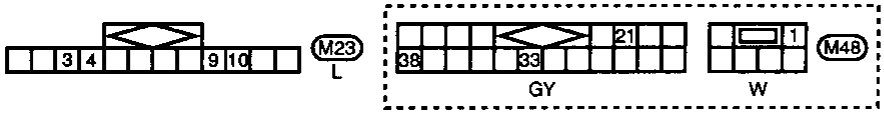
Power is supplied at all times
- to BCM terminal ①
- through 7.5A fuse (No. 60, located in the fuse and fusible link box).

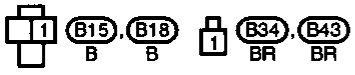
BCM terminal ㉑ is connected to terminal ① of each door switch.
Power is supplied at all times
- to front step lamp LH and RH terminals ①
- through 7.5A fuse (No. 26, located in the fuse block in the HEC).

Ground is supplied to BCM terminal ㉑ when one door switch is in the OPEN position.
Ground is supplied to terminal ⑯ of LCU01 and LCU02 through body grounds (M13) and (M73).
Terminal ① of LCU01 and LCU02 and terminal ㊳ of BCM are connected by DATA LINE A. Terminal ② of LCU01 and LCU02 and terminal ㉝ of BCM are connected by DATA LINE B.
When ground is supplied to BCM terminal ㉑, BCM sends a signal to driver and passenger door control units to turn on front LH and RH step lamps.
With power and ground supplied, front step lamps turn on.

Wiring Diagram — STEP/L —







Refer to last page (Foldout page).

M3, E101

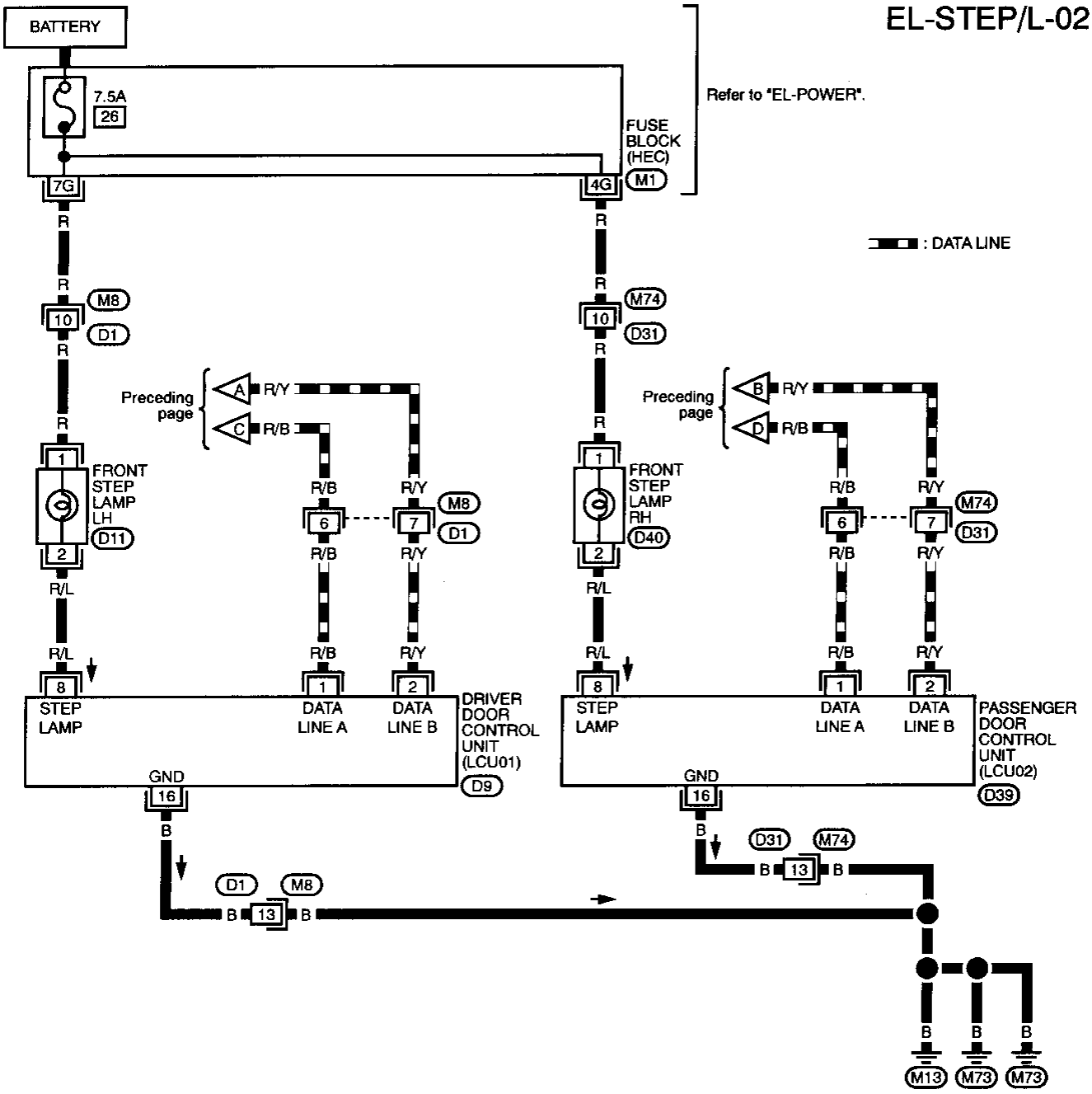
M4, B1

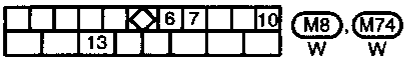
M23

MEL398D

Wiring Diagram — STEP/L — (Cont'd)

EL-STEP/L-02





Refer to last page (Foldout page).
M1

MEL399D

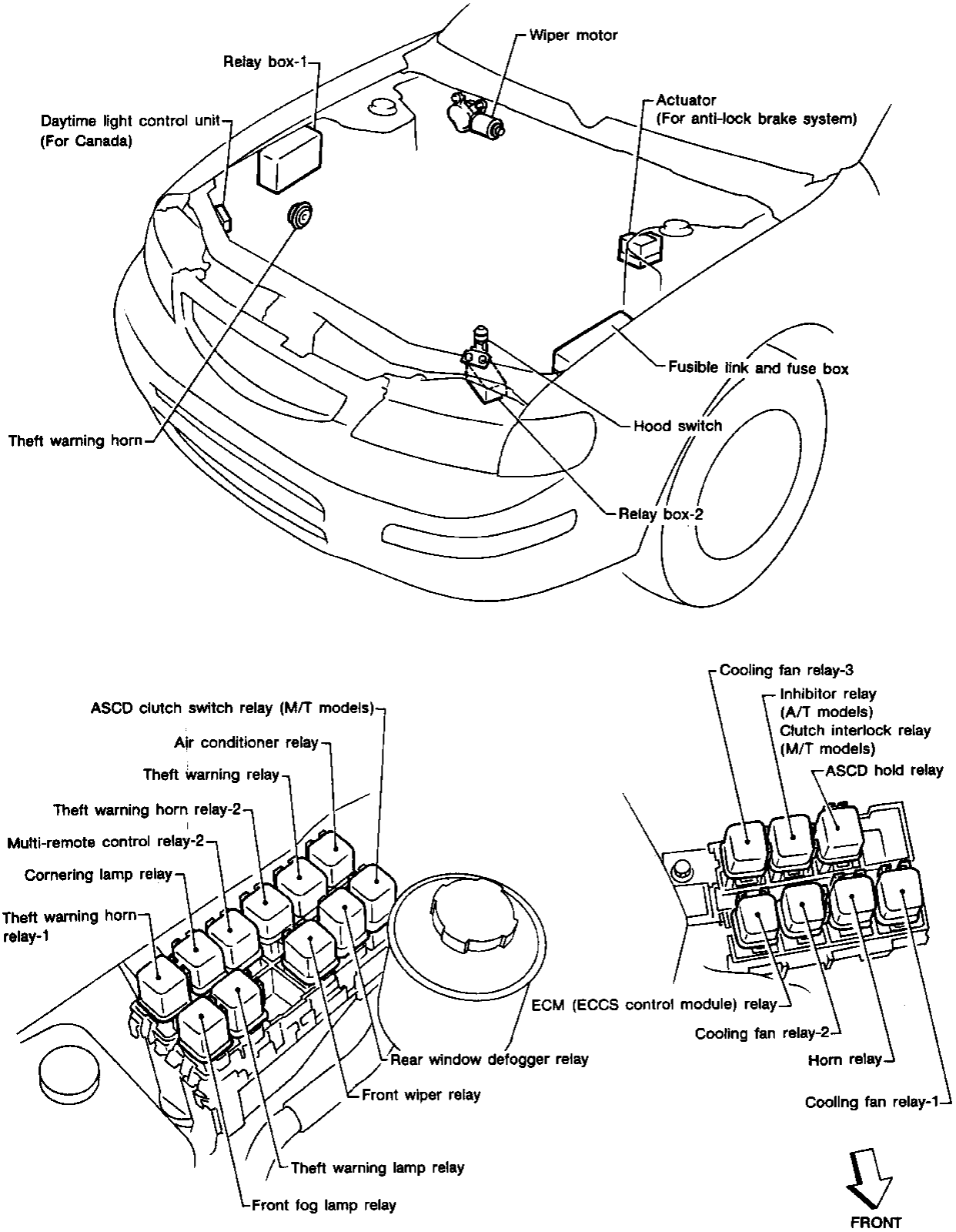
Trouble Diagnoses

Perform "IVMS Communication Diagnoses" (EL-148) and "Power Supply and Ground Circuit Check" (EL-177) before starting with the following chart.

Symptom	Possible cause	Repair order
Step lamps on both sides do not illuminate when any door is opened.*	1. Bulbs	1. Check bulbs.
	2. 7.5A fuse	2. Check 7.5A fuse (No. 26, located in fuse block).
	3. Open in door switch circuit	3. Check R/W wire between BCM and all door switches.
	4. BCM	4. Replace BCM.
Step lamps on both sides do not illuminate when a certain door is opened. (They illuminate when other doors are opened.)	1. Door switch of the door in question	1. Check door switch in question.
	2. Open in door switch circuit	2. Check R/W wire between BCM and door switch in question.
Step lamp on one side does not illuminate.	1. Bulb	1. Check bulb.
	2. Open in step lamp circuit	2. Check R/L wire between step lamp and LCU or R wire between step lamp and fuse.
	3. LCU	3. Replace LCU.
Step lamp on one side does not turn off when all doors are closed.	1. Short in step lamp circuit	1. Check R/L wire between step lamp and LCU.
	2. LCU	2. Replace LCU.
Step lamps on both sides do not turn off when all doors are closed.	1. Door switches	1. Check all door switches.
	2. Short in door switch circuit	2. Check R/W wire between BCM and all door switches.
	3. BCM	3. Replace BCM.

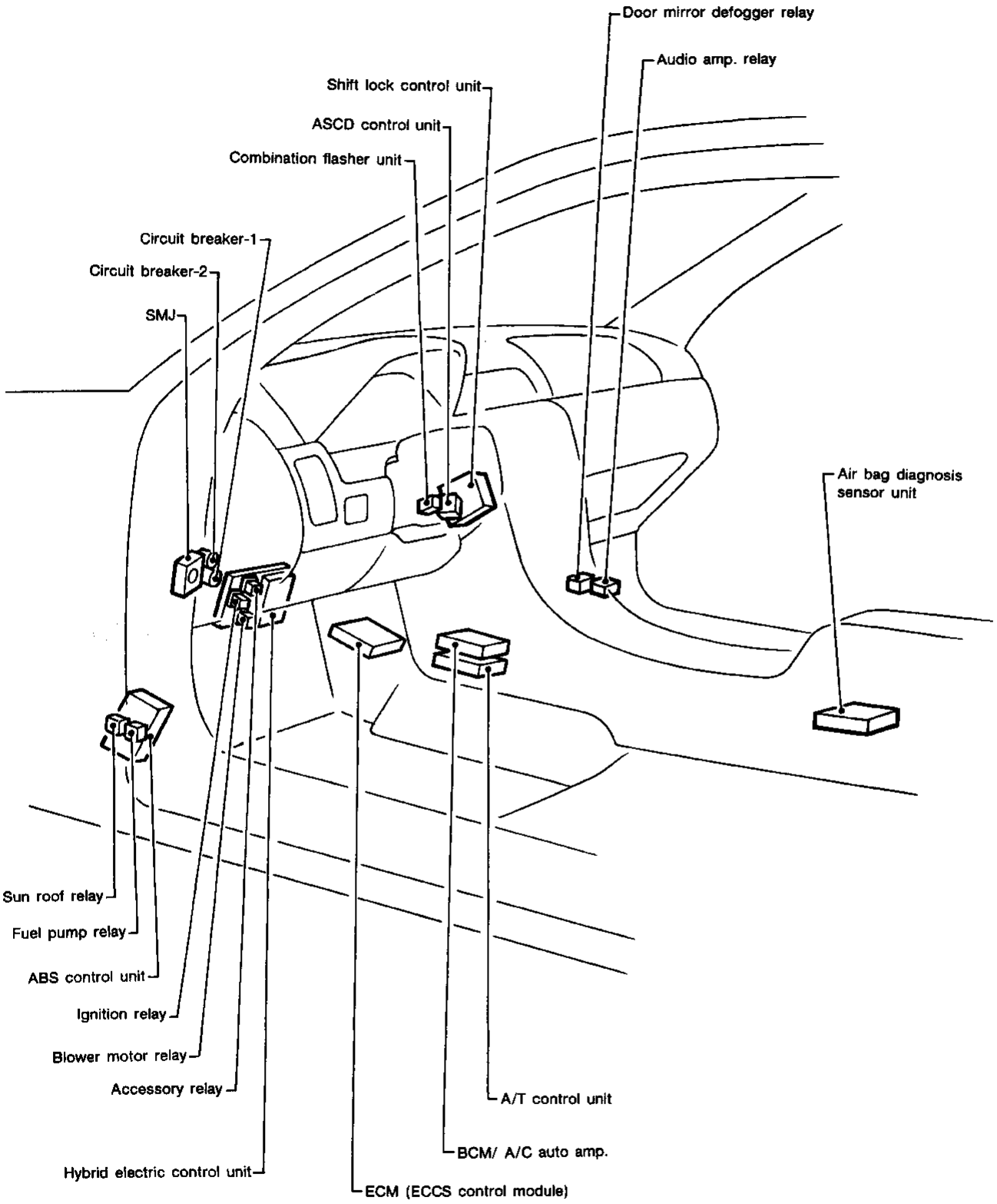
* CONSULT (data monitor and/or active test) may also be used to confirm the cause of malfunction.

Engine Compartment



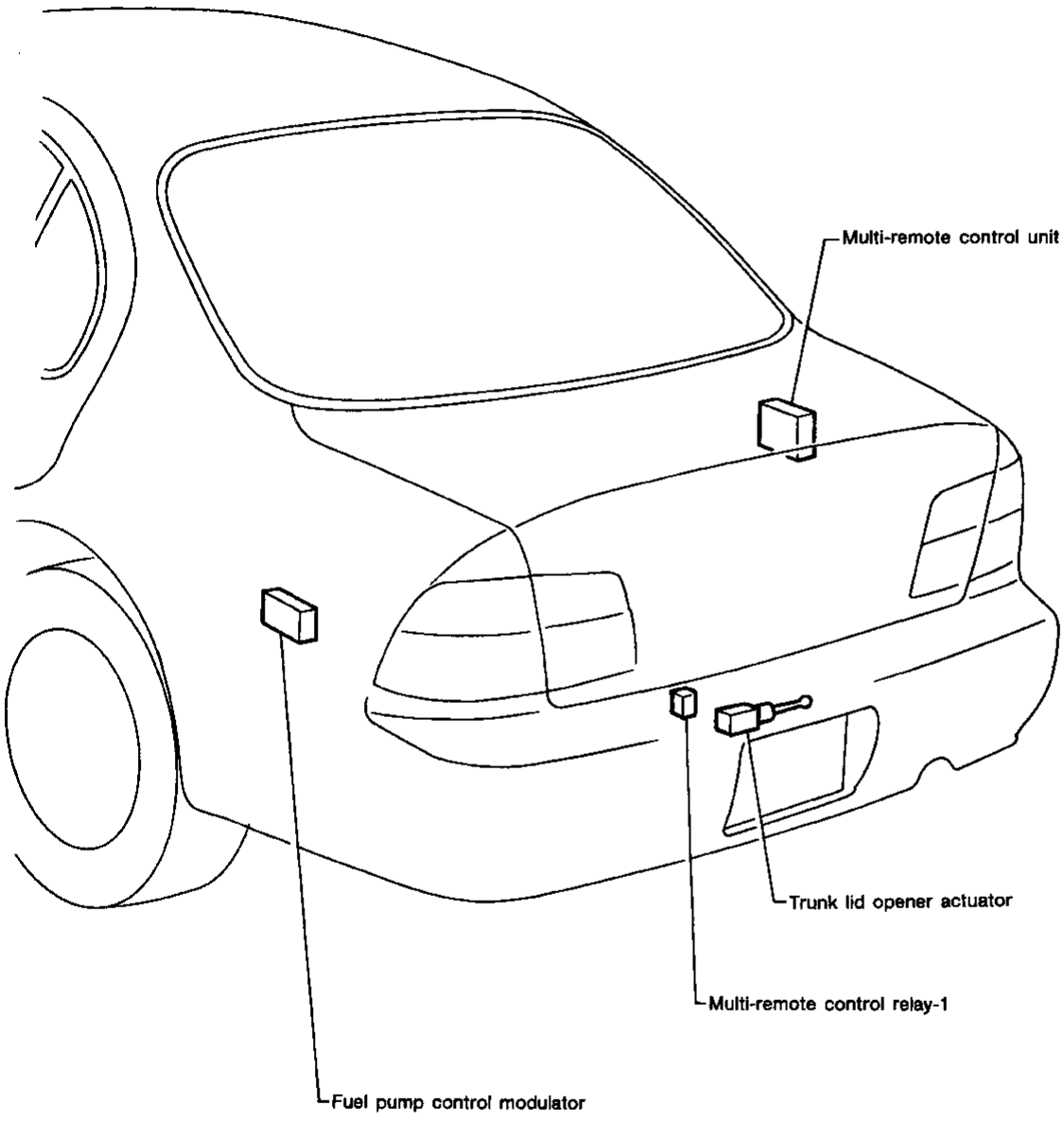
MEL367D

Passenger Compartment



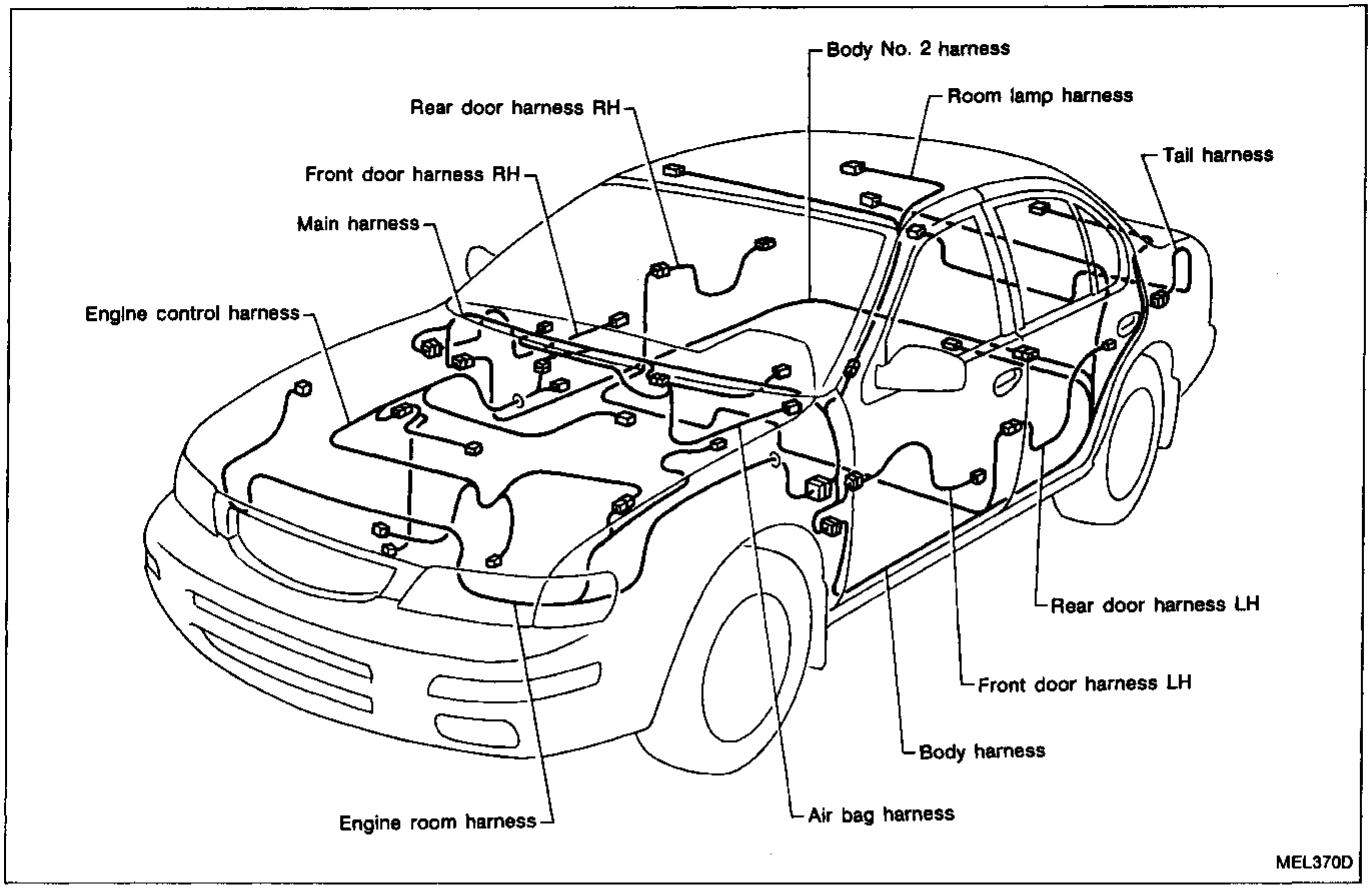
MEL368D

Luggage Compartment



MEL369D

Outline



The following Harness Layouts use a map style grid to help locate connectors on the drawings:

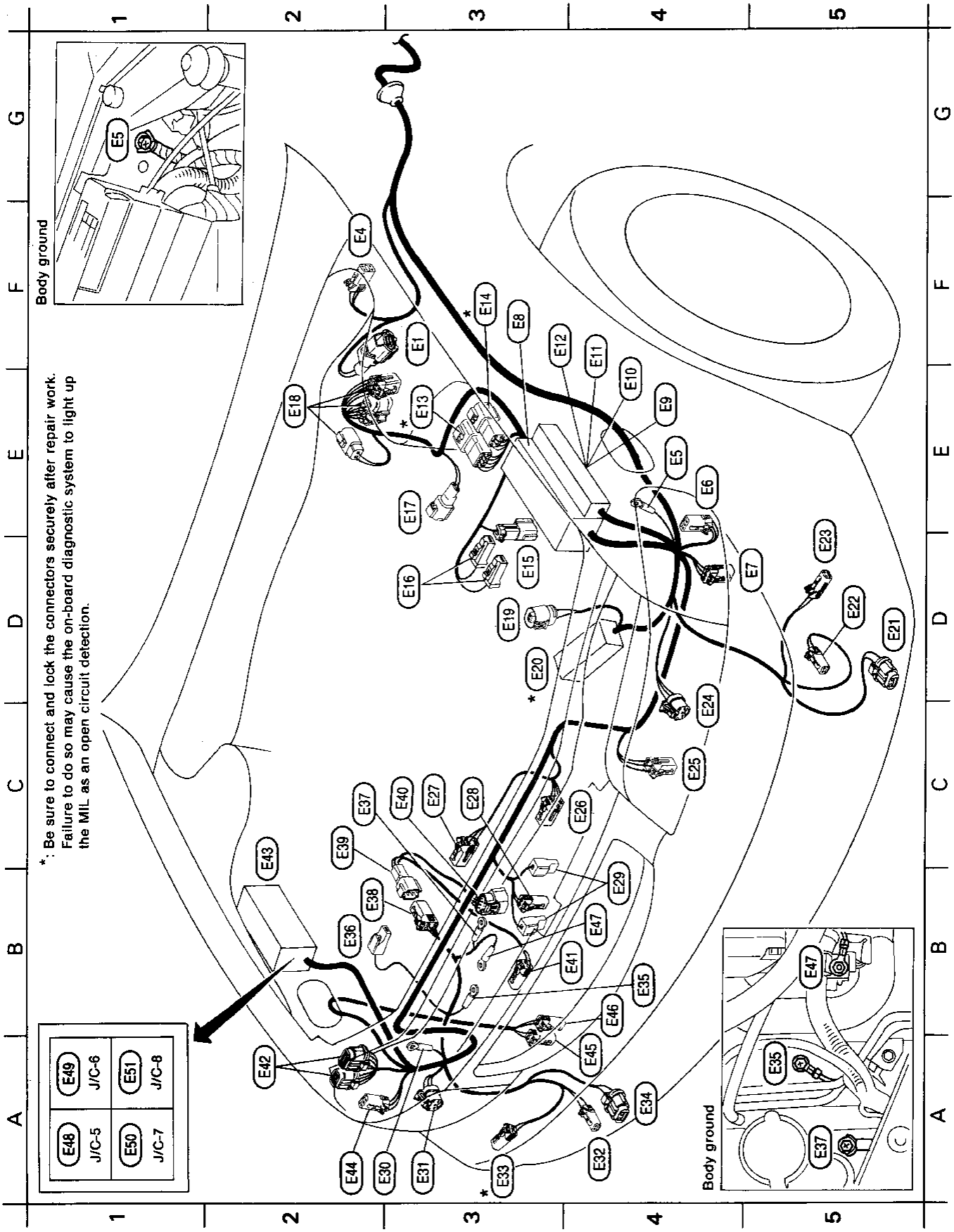
- Engine Room Harness (Engine Compartment)
- Main Harness
- Body Harness

The grid reference is placed on the page where connectors are listed in number order.
To the left of the connector number code there is a grid reference.
Example:
G2 (E1): ASCD actuator
grid reference

To use the grid reference

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

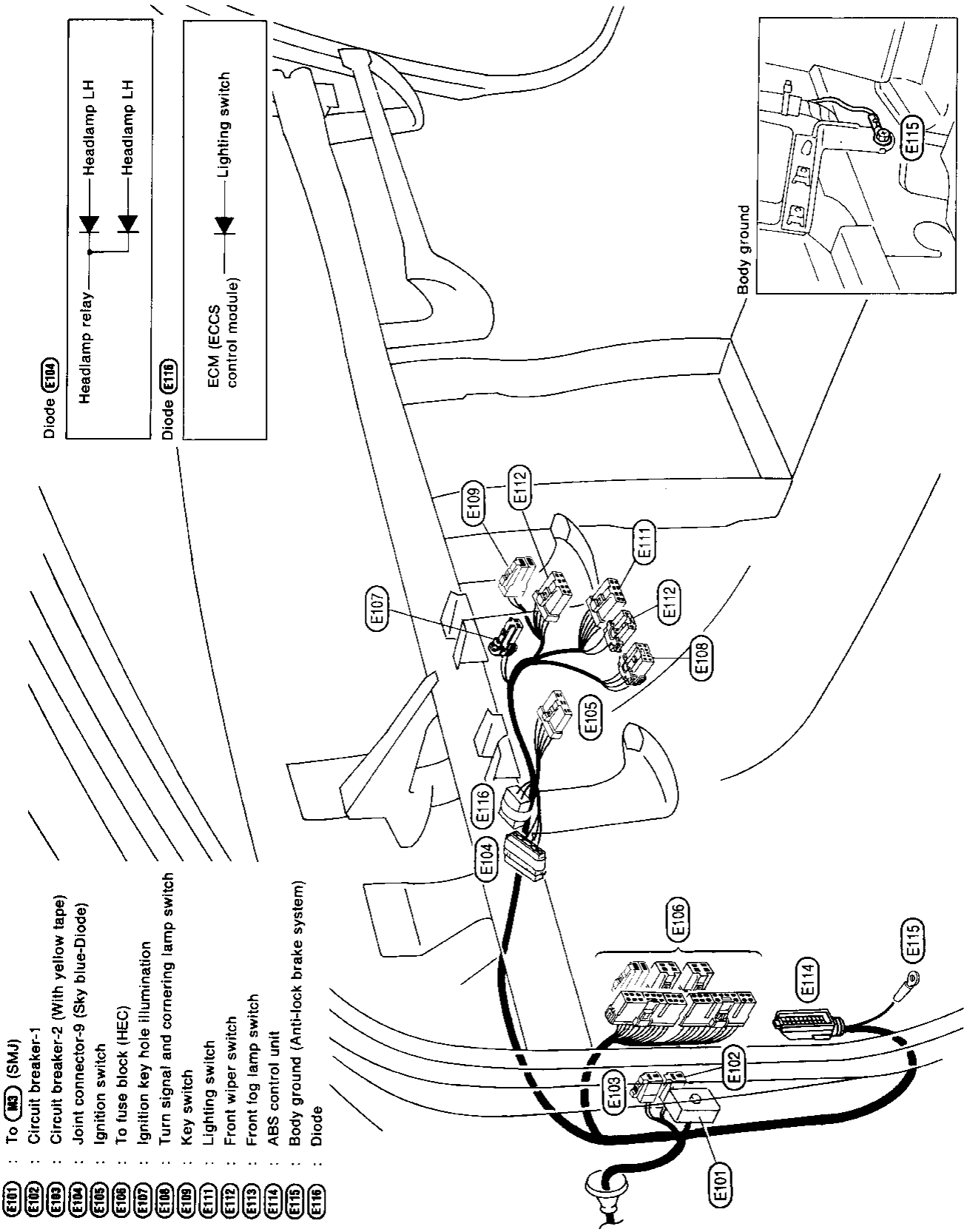
Engine Room Harness



F3 (E1) : Brake fluid level switch
F2 (E4) : ASCD pump
E5 (E5) : Body ground
E5 (E6) : Clearance lamp and cornering lamp LH
D5 (E7) : To front fog lamp harness (For optional)
F3 (E8) : Fuse and fusible link box
E4 (E9) : Joint connector-1 (White)
E4 (E10) : Joint connector-2 (White)
F4 (E11) : Joint connector-3 (Gray)
F3 (E12) : Joint connector-4 (White)
E3 *(E13) : To (F36)
F3 *(E14) : To (F37)
D3 (E15) : Starter motor
D3 (E16) : Battery
E3 (E17) : Front wheel sensor LH (Anti-lock brake system)
E2 (E18) : Actuator (Anti-lock brake system)
D3 (E19) : Hood switch (Theft warning system)
D3 *(E20) : Relay box-1
D5 (E21) : Front fog lamp LH
D5 (E22) : Front turn signal lamp LH
D5 (E23) : Front side marker lamp LH
C4 (E24) : Headlamp LH
C4 (E25) : Triple-pressure switch
C4 (E26) : Cooling fan motor-1
C3 (E27) : Cooling fan motor-2
C3 (E28) : Ambient sensor
B4 (E29) : Horn
A3 (E30) : Body ground
A3 (E31) : Headlamp RH
A4 (E32) : Front turn signal lamp RH
A3 *(E33) : Front side marker lamp RH
A4 (E34) : Front fog lamp RH
B4 (E35) : Body ground
B2 (E36) : Theft warning horn (Theft warning system)
C2 (E37) : Alternator
B2 (E38) : To (E39)
C2 (E39) : To (E38)
C3 (E40) : Alternator
B4 (E41) : Compressor (Air conditioner)
A2 (E42) : Daytime light control unit
C2 (E43) : Relay box-2
A2 (E44) : Clearance lamp and cornering lamp RH
A4 (E45) : Washer level switch
B4 (E46) : Front washer motor
B4 (E47) : Alternator
A1 (E48) : Joint connector-5 (White)
A1 (E49) : Joint connector-6 (White)
A1 (E50) : Joint connector-7 (White)
A1 (E51) : Joint connector-8 (Gray)

*: 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.

Engine Room Harness (Cont'd)



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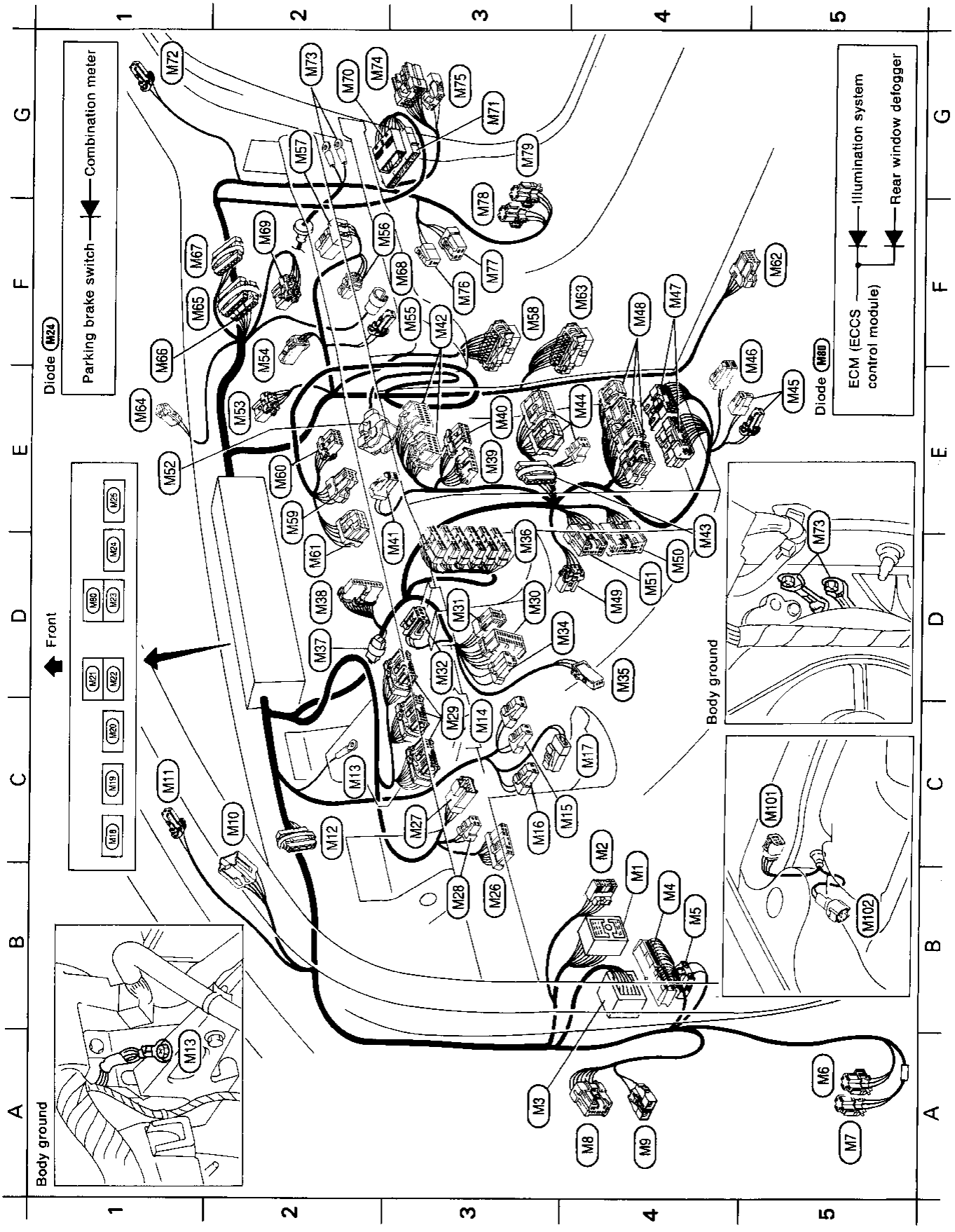
Main Harness



Main Harness (Cont'd)

B4 (M1) : Fuse block (HEC)
C4 (M2) : Data link connector for CONSULT
A3 (M3) : To (E101)
B4 (M4) : To (B1)
B4 (M5) : To (B2)
A5 (M6) : Fuel pump relay
A5 (M7) : Sun roof relay (With red tape)
A4 (M8) : To (D1)
A4 (M9) : To (D2)
C2 (M10) : To (R1)
C1 (M11) : Tweeter LH (BOSE system)
C2 (M12) : Joint connector-23 (Gray)
C2 (M13) : Body ground
C3 (M14) : ASCD cancel switch
C4 (M15) : Stop lamp switch
C3 (M16) : Clutch interlock switch (M/T models for USA)
C4 (M17) : ASCD clutch switch
C1 (M18) : Joint connector-10 (Green)
C1 (M19) : Joint connector-11 (White)
C1 (M20) : Joint connector-12 (White)
D1 (M21) : Joint connector-13 (Gray)
D1 (M22) : Joint connector-14 (White)
D1 (M23) : Joint connector-15 (Blue)
D1 (M24) : Joint connector-16 (Sky blue-Diode)
E1 (M25) : Joint connector-17 (White)
B3 (M26) : Door mirror remote control switch
C3 (M27) : ASCD main switch
B3 (M28) : Security indicator lamp
C3 (M29) : Combination meter
D3 (M30) : ASCD control unit
D3 (M31) : Shift lock control unit
D3 (M32) : Illumination control switch
D3 (M34) : Combination flasher unit
D4 (M35) : Warning buzzer
D3 (M36) : Junction box (Joint connectors)
D2 (M37) : Resistor
D2 (M38) : Mode door motor
E3 (M39) : Fan switch (Manual A/C)
E3 (M40) : Push control unit (Auto A/C)
D3 (M41) : In-vehicle sensor
F3 (M42) : Push control unit (Auto A/C)
E4 (M43) : Joint connector-18 (White)
E4 (M44) : Audio
E5 (M45) : Cigarette lighter
F5 (M46) : Ashtray illumination

F4 (M47) : A/C auto amp. (In BCM)
F4 (M48) : BCM
D4 (M49) : Air mix door motor
D4 (M50) : To (F105)
D4 (M51) : To (F104)
E1 (M52) : To (Z1)
E2 (M53) : Bi-level actuator
F2 (M54) : Intake sensor
F3 (M55) : Glove box lamp switch
F2 (M56) : Thermo control amp.
G2 (M57) : Fan control amp.
F3 (M58) : To (F102)
E2 (M59) : Clock
E2 (M60) : Rear window defogger switch
D2 (M61) : Hazard switch
F5 (M62) : A/T control device
F4 (M63) : Data link connector for GST
E1 (M64) : Sunload sensor
F1 (M65) : Joint connector-19 (Blue)
F1 (M66) : Joint connector-20 (White)
F1 (M67) : Joint connector-21 (White)
F3 (M68) : Glove box lamp
F2 (M69) : Intake door motor
G2 (M70) : To (B101)
G3 (M71) : To (B102)
G1 (M72) : Tweeter RH (BOSE system)
G2 (M73) : Body ground
G2 (M74) : To (D31)
G3 (M75) : To (D32)
F3 (M76) : Blower motor
F3 (M77) : Fan resistor (Manual A/C)
F3 (M78) : Door mirror defogger relay (With blue tape)
G3 (M79) : Audio amp. relay
D1 (M80) : Joint connector-22 (Sky blue-Diode)
C5 (M101) : Front wiper motor
B5 (M102) : Front wheel sensor RH (Anti-lock brake system)

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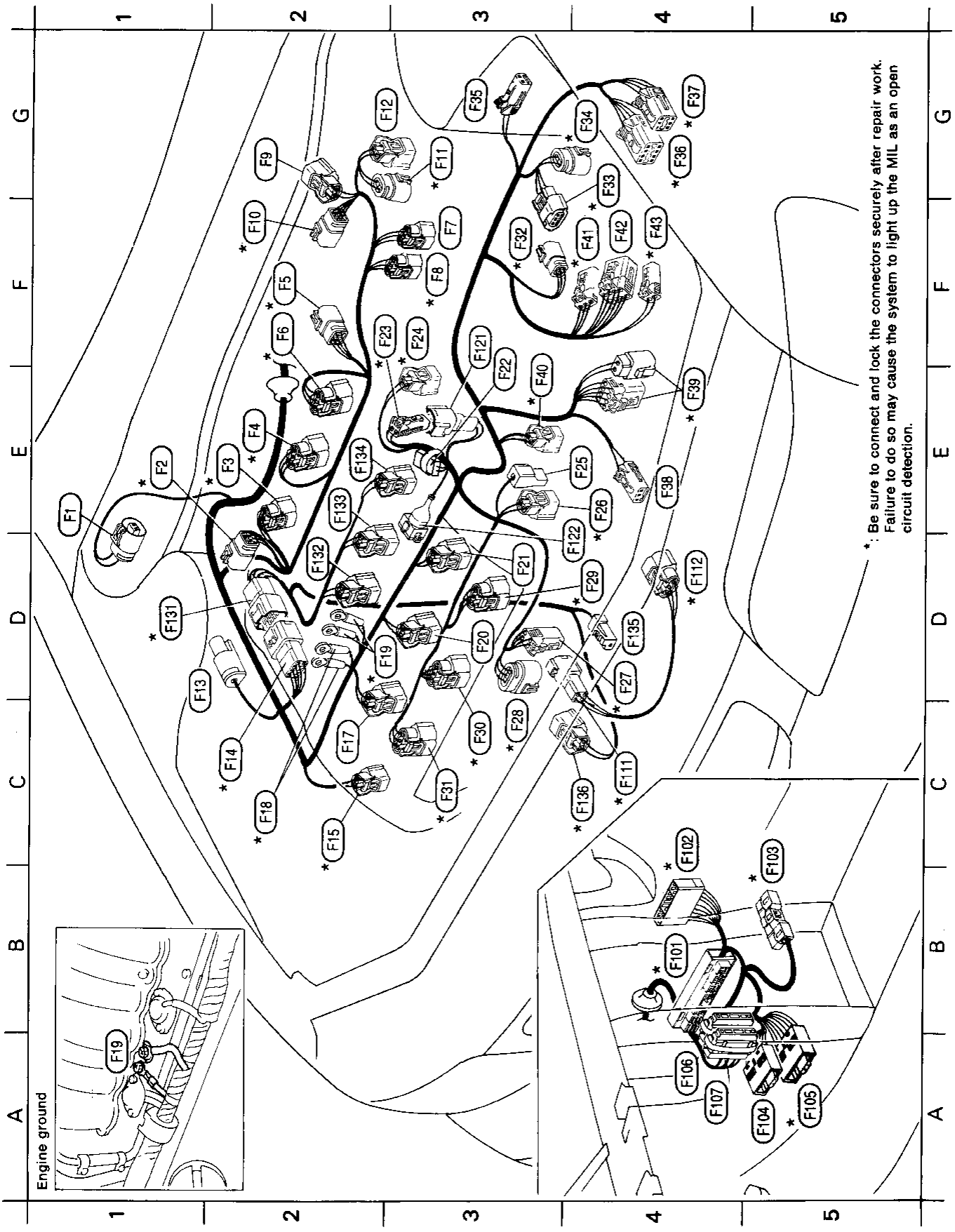
Engine Control Harness



Engine Control Harness (Cont'd)

E1 (F1) : Power steering oil pressure switch
E1 *(F2) : Front heated oxygen sensor (RH)
E2 *(F3) : Ignition coil No. 1
E2 *(F4) : Ignition coil No. 3
F2 *(F5) : Canister purge control valve
F2 *(F6) : Ignition coil No. 5
F3 (F7) : Throttle position switch
F3 *(F8) : Throttle position sensor
G2 (F9) : IACV-FICD solenoid valve-2
F2 *(F10) : IACV-AAC valve (Step motor type)
G3 *(F11) : EGR temperature sensor
G2 (F12) : IACV-FICD solenoid valve-1
D1 (F13) : Check connector
C2 *(F14) : To (F131)
C2 *(F15) : Camshaft position sensor (PHASE)
C2 (F17) : Injector No. 2
C2 *(F18) : Engine ground
D2 *(F19) : Engine ground
D3 (F20) : Injector No. 4
D3 (F21) : Injector No. 6
E3 (F22) : Condenser
F2 *(F23) : To (F121)
F3 *(F24) : EGRC-solenoid valve
E4 (F25) : Thermal transmitter
E4 *(F26) : Engine coolant temperature sensor
D4 *(F27) : To (F111)
C3 *(F28) : Front heated oxygen sensor (LH)
D4 *(F29) : Ignition coil No. 6
C3 *(F30) : Ignition coil No. 4

C3 *(F31) : Ignition coil No. 2
F3 *(F32) : Neutral and reverse position switch
G4 *(F33) : Mass air flow sensor
G4 *(F34) : Intake air temperature sensor
G3 (F35) : Dropping resistor
G4 *(F36) : To (E13)
G4 *(F37) : To (E14)
E4 (F38) : Front engine mounting
E4 *(F39) : Inhibitor switch (A/T models)
E3 *(F40) : Canister control solenoid valve
F4 *(F41) : Revolution sensor (A/T models)
F4 (F42) : Terminal cord assembly (A/T models)
F4 *(F43) : Vehicle speed sensor
B4 *(F101) : ECM (ECCS control module)
C4 *(F102) : To (M58)
B5 *(F103) : A/T control unit (A/T models)
A5 (F104) : To (M51)
A5 *(F105) : To (M50)
A4 (F106) : Joint connector-24 (Gray)
A4 (F107) : Joint connector-25 (Blue)
C4 *(F111) : To (F27)
D4 *(F112) : Crankshaft position sensor (POS)
F3 *(F121) : To (F23)
D4 *(F122) : Knock sensor
D2 *(F131) : To (F131)
D2 (F132) : Injector No. 1
E2 (F133) : Injector No. 3
E2 (F134) : Injector No. 5
D4 (F135) : Oil pressure switch
C4 *(F136) : Crankshaft position sensor (REF)

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

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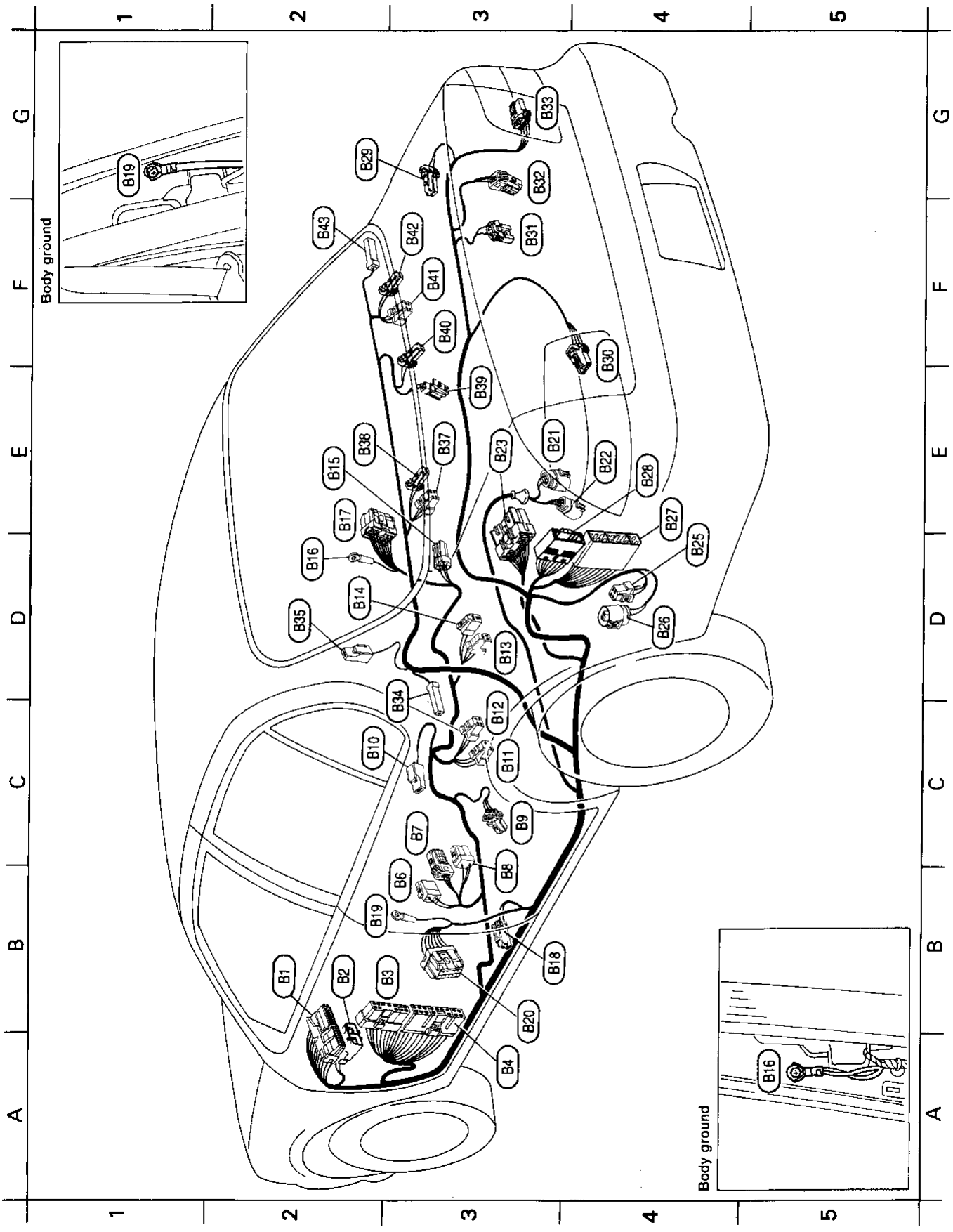
Body Harness



Body Harness (Cont'd)

B2 (B1) : To (M4)
B2 (B2) : To (M5)
B3 (B3) : Fuse block (HEC)
A3 (B4) : Fuse block (HEC)
B3 (B6) : To power seat harness LH
C3 (B7) : Seat belt buckle switch
B3 (B8) : Heated seat LH
C3 (B9) : Rear heated oxygen sensor
C2 (B10) : Parking brake switch
C3 (B11) : Heated seat switch LH
C3 (B12) : Heated seat switch RH
D3 (B13) : Heated seat RH
D2 (B14) : To power seat harness
E2 (B15) : Front door switch RH
D2 (B16) : Body ground
E2 (B17) : To (D71)
B3 (B18) : Front door switch LH
B2 (B19) : Body ground
B3 (B20) : To (D51)
E3 (B21) : Fuel pump
E4 (B22) : Fuel tank gauge unit
E3 (B23) : To (B110)
D4 (B25) : Fuel pump control modulator (For California models)
D4 (B26) : Dropping resistor
E4 (B27) : To (T1)
E4 (B28) : To (T2)
C2 (B29) : To high-mounted stop lamp sub-harness (Models equipped with rear air spoiler)
F4 (B30) : Trunk lid combination lamp LH
F3 (B31) : Trunk room lamp switch
G3 (B32) : Trunk lid key cylinder switch and tamper switch
G3 (B33) : Trunk lid combination lamp RH
D3 (B34) : Rear door switch LH
D2 (B35) : Rear window defogger
E3 (B37) : Rear speaker LH (BOSE system)
E2 (B38) : Rear speaker LH (Except for BOSE system)
E3 (B39) : Trunk room lamp
F3 (B40) : High-mounted stop lamp (Models without rear air spoiler)
F3 (B41) : Rear speaker RH (BOSE system)
F3 (B42) : Rear speaker RH (Except for BOSE system)
F2 (B43) : Rear door switch RH

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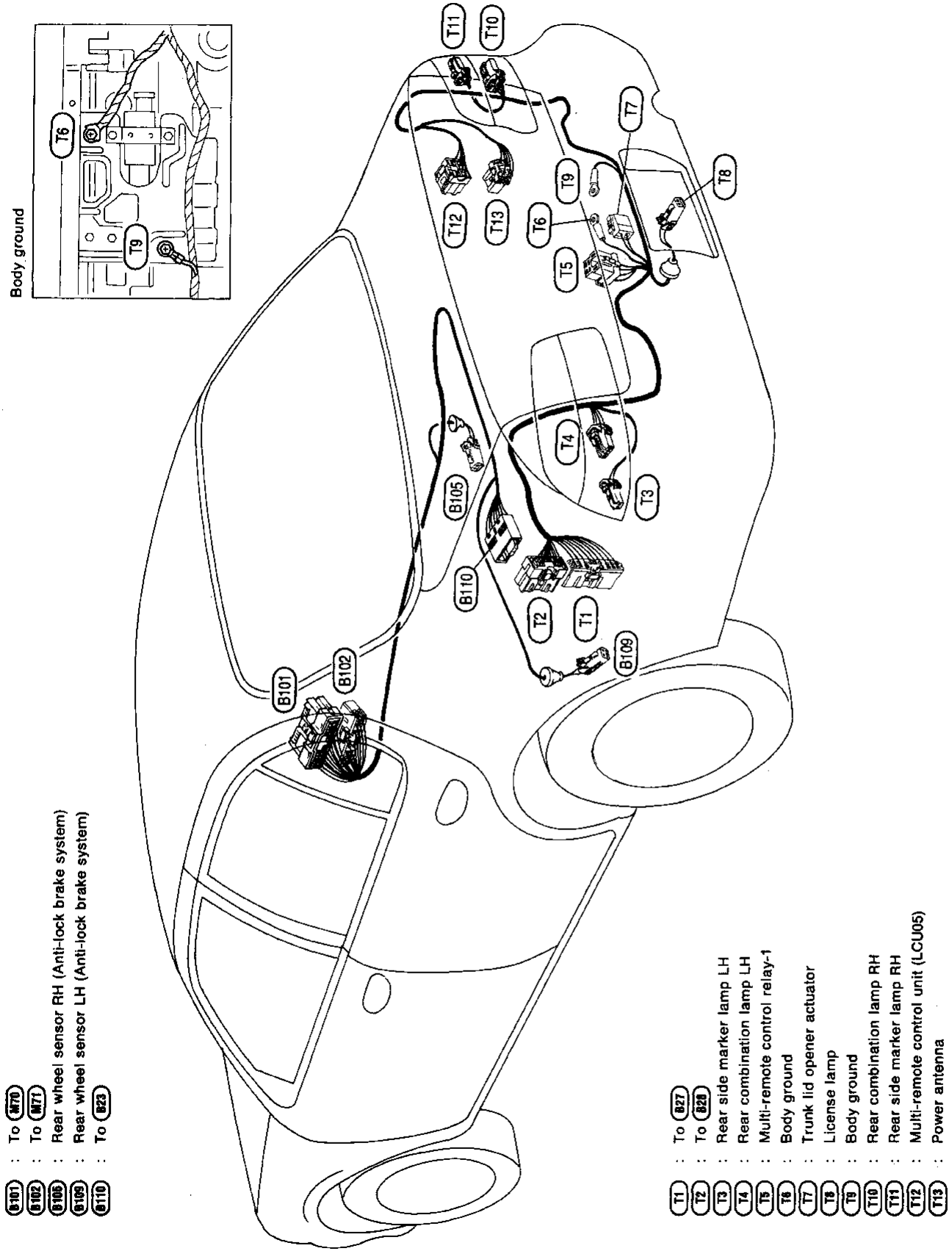
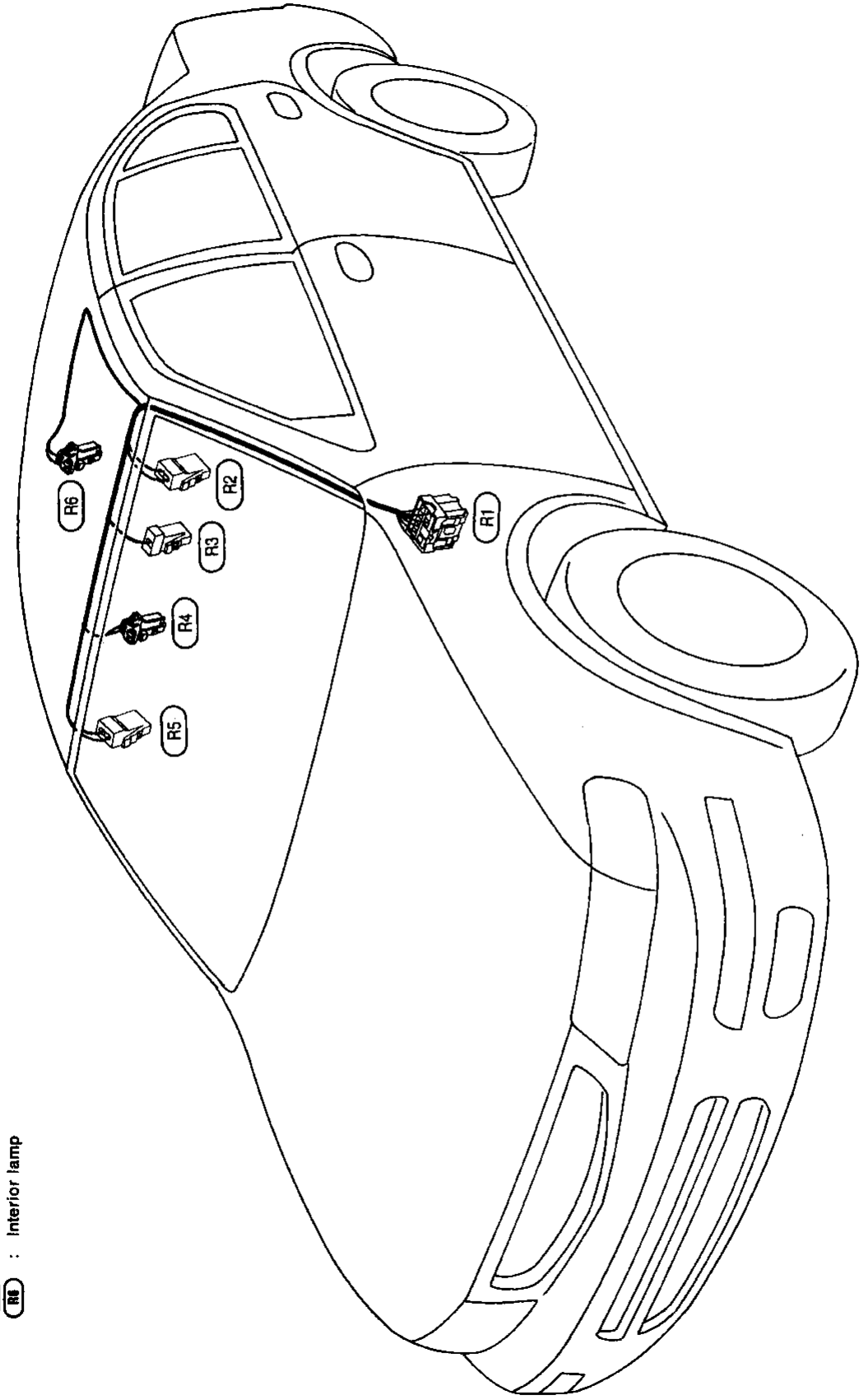
Body No. 2 Harness and Tail Harness



MEL375D

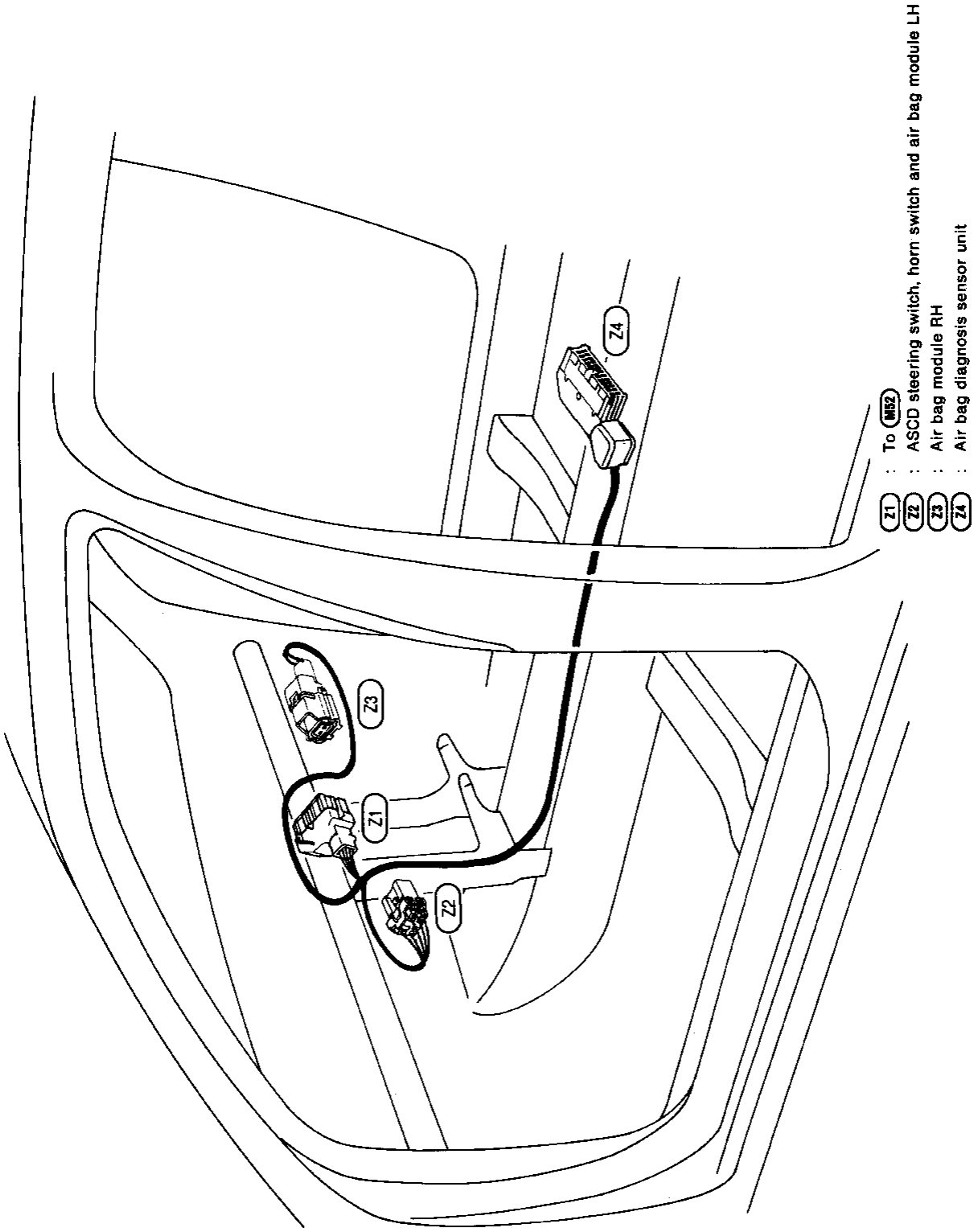
Room Lamp Harness



R1 : To (M10)
R2 : Vanity mirror illumination LH
R3 : Sun roof motor
R4 : Spot lamp
R5 : Vanity mirror illumination RH
R6 : Interior lamp

MEL376D

Air Bag Harness



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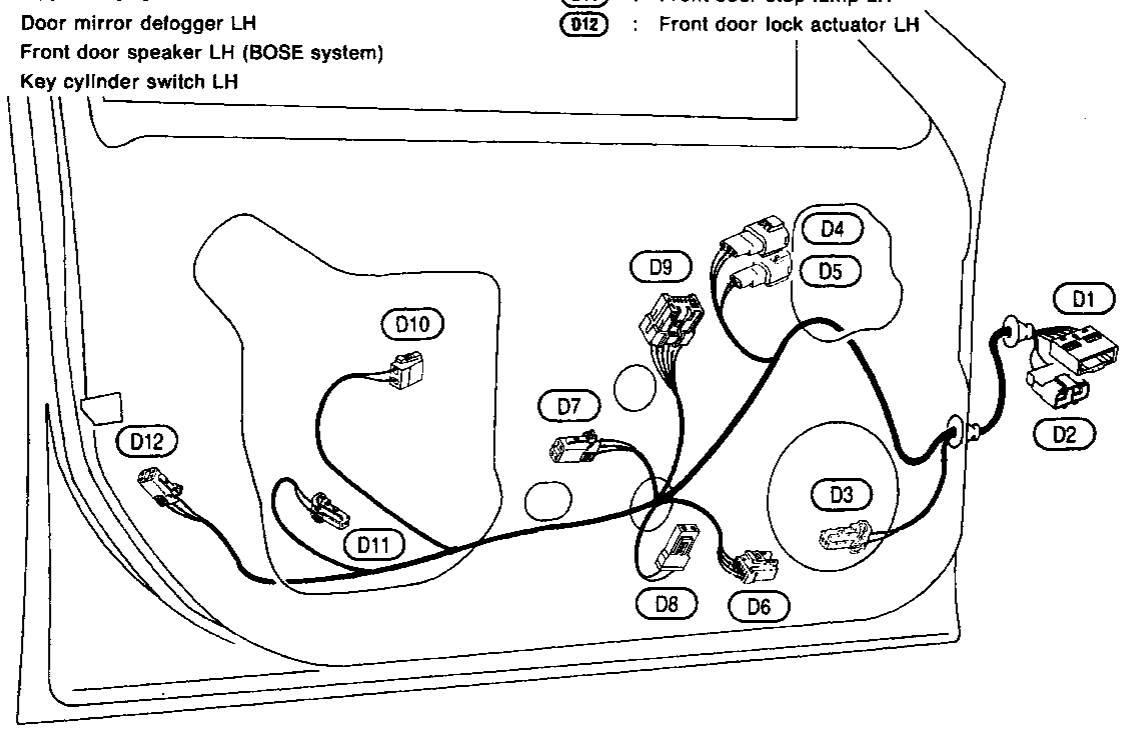
Door Harness (LH side)

FRONT

D1 : To M8
D2 : To M9
D3 : Front door speaker LH (Except for BOSE system)
D4 : Door mirror LH
D5 : Door mirror defogger LH
D6 : Front door speaker LH (BOSE system)
D7 : Key cylinder switch LH
D8 : Power window regulator
D9 : Driver door control unit (LCU01)
D10 : Trunk lid opener switch
D11 : Front door step lamp LH
D12 : Front door lock actuator LH



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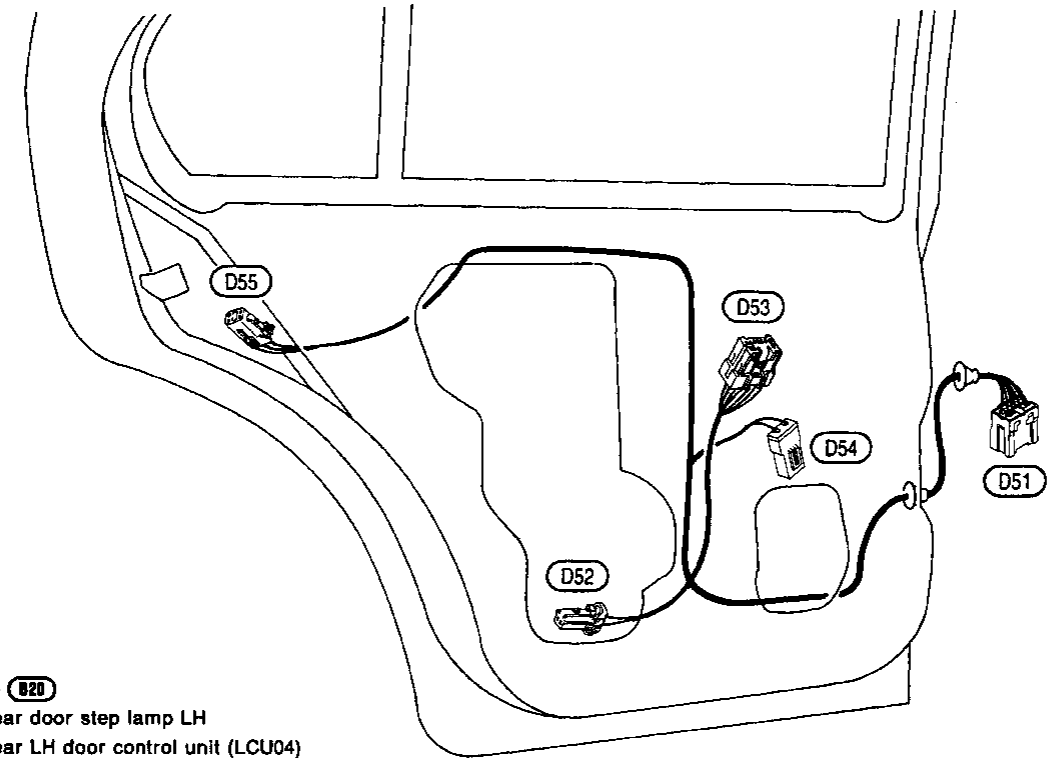
REAR

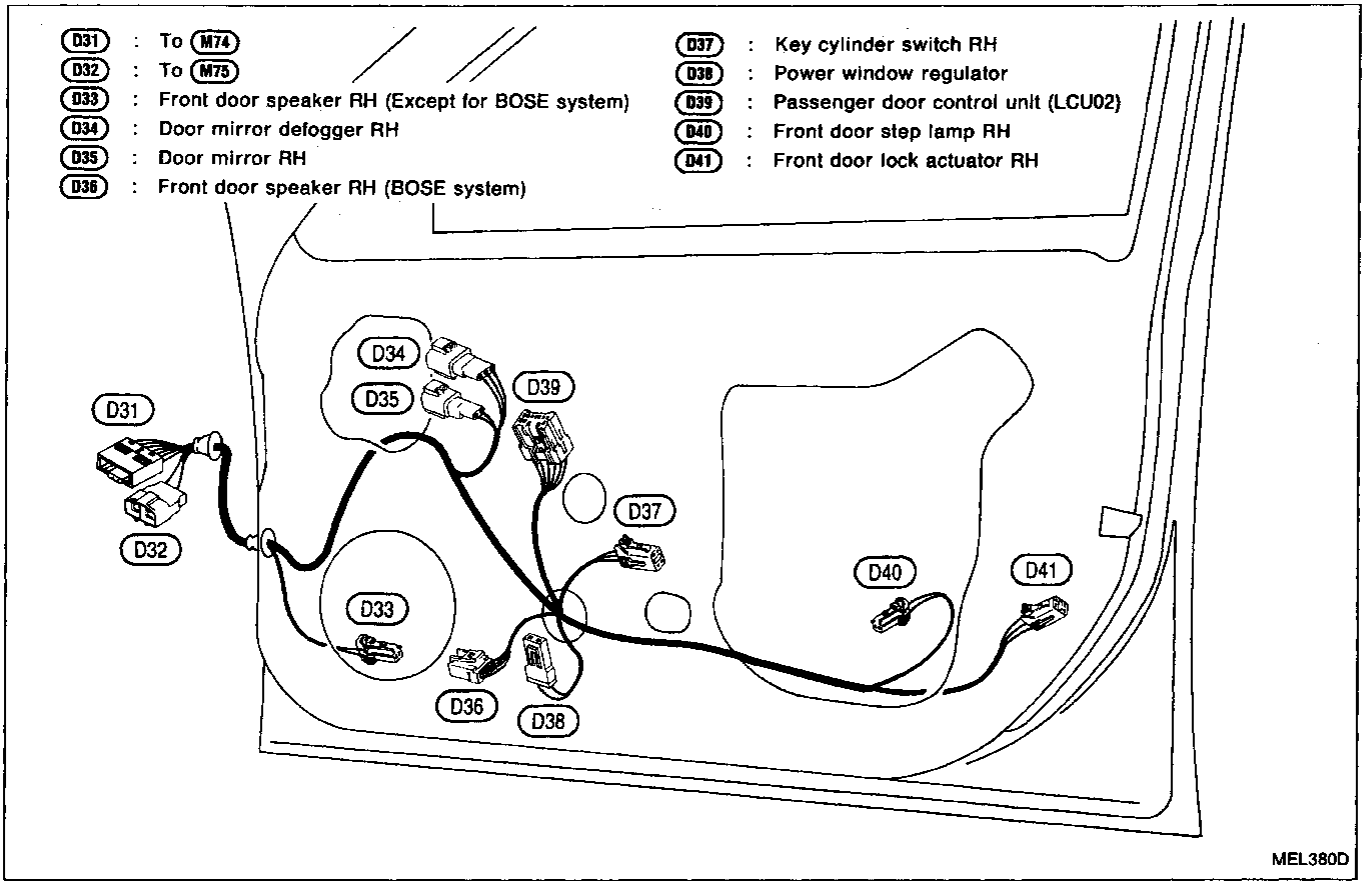


D51 : To B20
D52 : Rear door step lamp LH
D53 : Rear LH door control unit (LCU04)
D54 : Rear door power window regulator LH
D55 : Rear door lock actuator LH

MEL379D

FRONT

Door Harness (RH side)



REAR