

# 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".

- Check for any service bulletins before servicing the vehicle.

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## PRECAUTIONS AND PREPARATION

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### Supplemental Restraint System (SRS) "AIR BAG"

The Supplemental Restraint System "AIR BAG", used along with a seat belt, helps to reduce the risk or severity of injury to the driver and front passenger in a frontal collision. The Supplemental Restraint System consists of air bag modules (located in the center of the steering wheel and in the instrument panel on the passenger side), a diagnosis sensor unit, a crash zone sensor, warning lamp, wiring harness and spiral cable. The vehicle is equipped with a passenger air bag deactivation switch. Because no rear seat exists where a rear-facing child restraint can be placed, the switch is designed to turn off the passenger air bag so that a rear-facing child restraint can be used in the front passenger seat. The switch is located in the center of the instrument panel, near the ashtray. When the switch is turned to the ON position, the passenger air bag is enabled and could inflate in a frontal collision. When the switch is turned to the OFF position, the passenger air bag is disabled and will not inflate in a frontal collision. A passenger air bag OFF indicator on the instrument panel lights up when the passenger air bag is switched OFF. The driver air bag always remains enabled and is not affected by the passenger air bag deactivation switch.

Information necessary to service the system is included in the **RS section** of this Service Manual.

#### **WARNING:**

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance should be performed by an authorized NISSAN dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses are covered with yellow insulation either just before the harness connectors or on the complete harness, for easy identification.
- The vehicle is equipped with a passenger air bag deactivation switch which can be operated by the customer. When the passenger air bag is switched OFF, the passenger air bag is disabled and will not inflate in a frontal collision. When the passenger air bag is switched ON, the passenger air bag is enabled and could inflate in a frontal collision. After SRS maintenance or repair, make sure the passenger air bag deactivation switch is in the same position (ON or OFF) as when the vehicle arrived for service.

# HARNESS CONNECTOR

## Description

### HARNESS CONNECTOR (TAB-LOCKING TYPE)

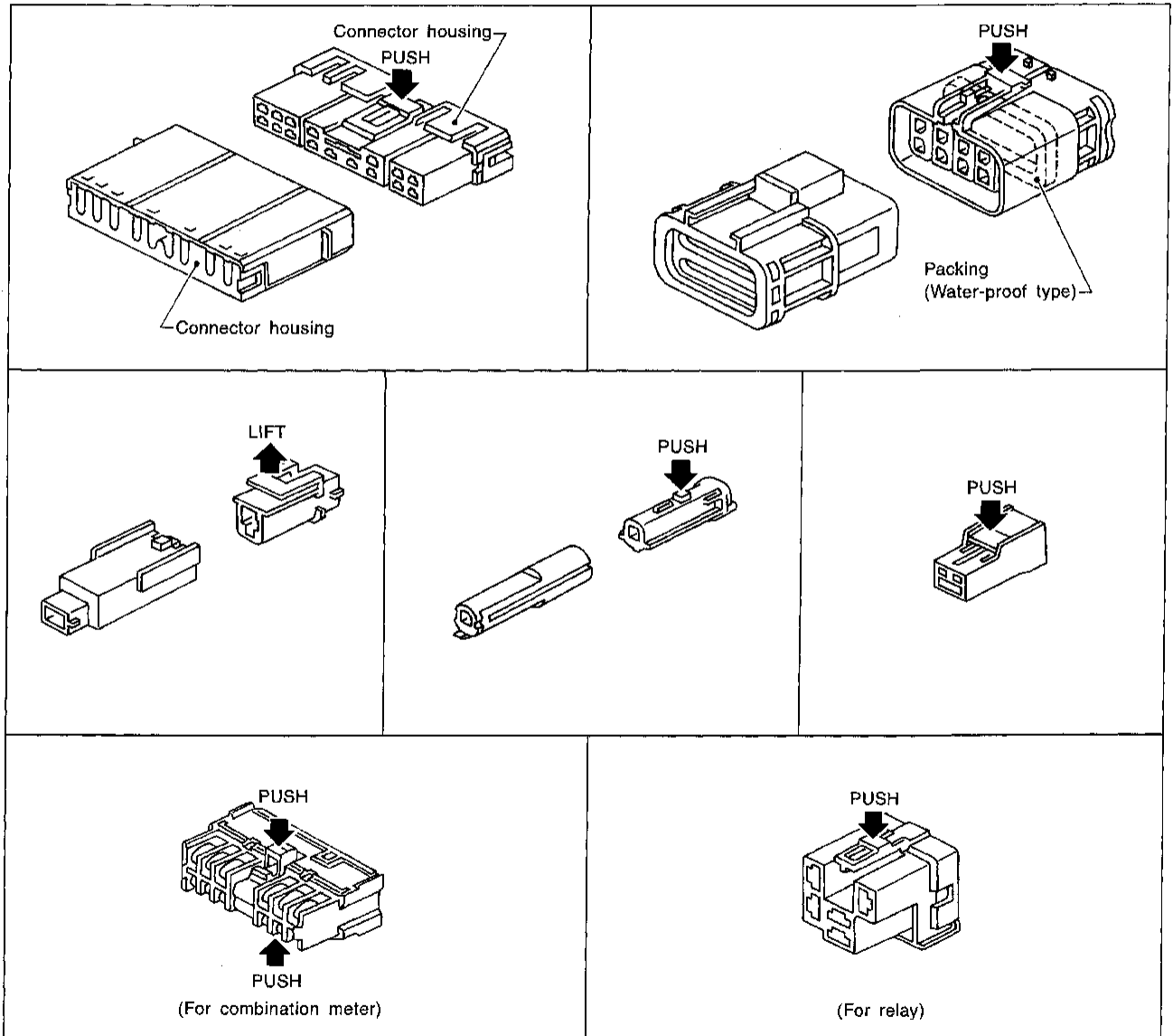
- The tab-locking type connectors help prevent accidental looseness or disconnection.
- The tab-locking type connectors are disconnected by pushing or lifting the locking tab(s). Refer to illustration below.

Refer to EL-4 for description of the slide-locking type connector.

#### CAUTION:

Do not pull the harness when disconnecting the connector.

[Example]



GI

MA

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# HARNESS CONNECTOR

## Description (Cont'd)

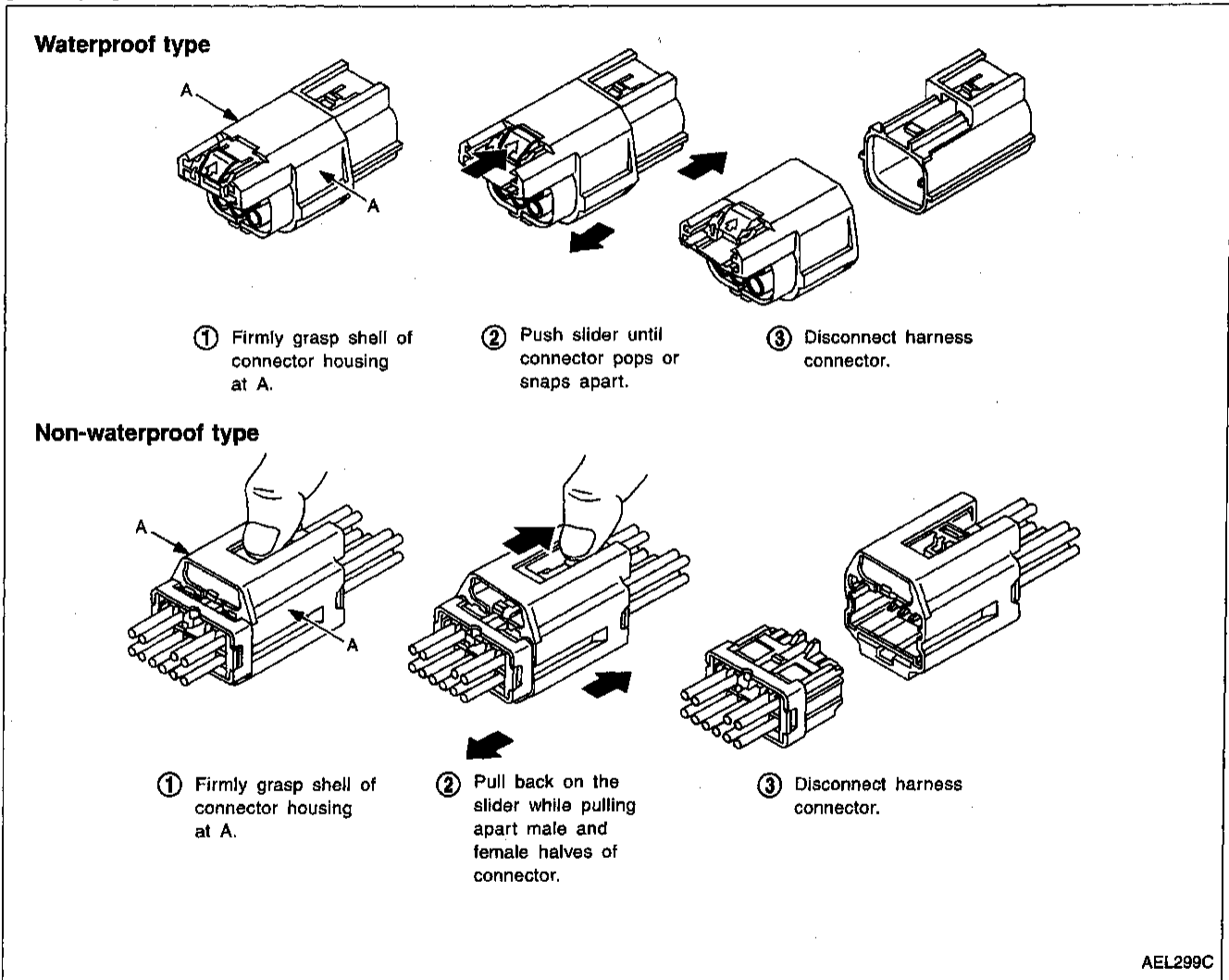
### HARNESS CONNECTOR (SLIDE-LOCKING TYPE)

- A new style slide-locking connector is used on certain systems and components, especially those related to OBD.
- The slide-locking type connectors help prevent incomplete locking and accidental looseness or disconnection.
- The slide-locking type connectors are disconnected by pushing or pulling the slider. Refer to illustration below.

#### CAUTION:

- Do not pull the harness or wires when disconnecting the connector.
- Be careful not to damage the connector support bracket when disconnecting the connector.

[Example]

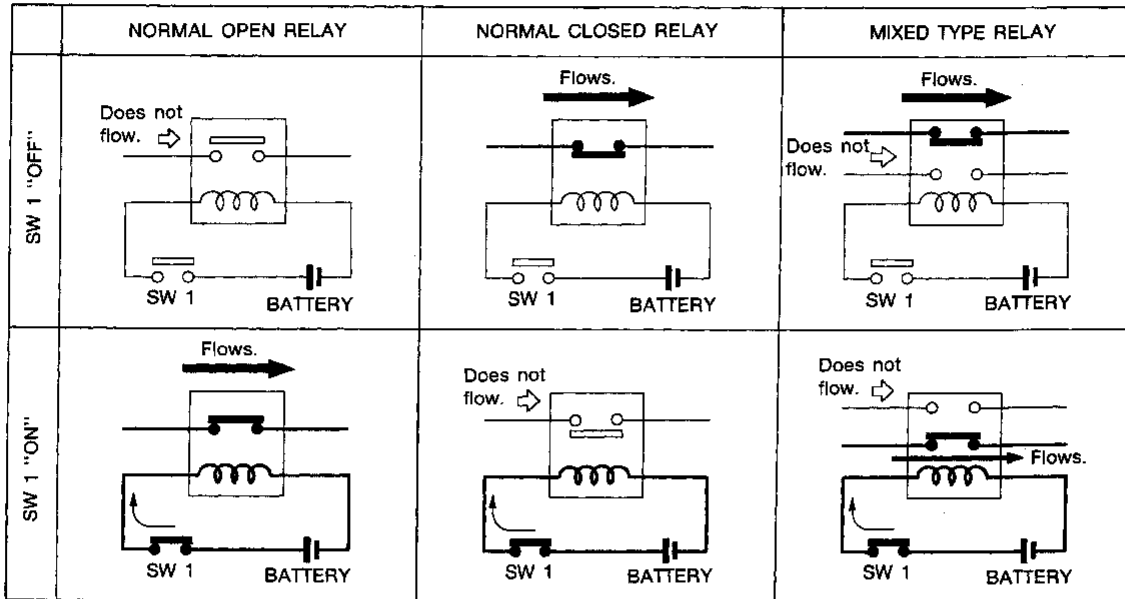


# STANDARDIZED RELAY

## Description

### NORMAL OPEN, NORMAL CLOSED AND MIXED TYPE RELAYS

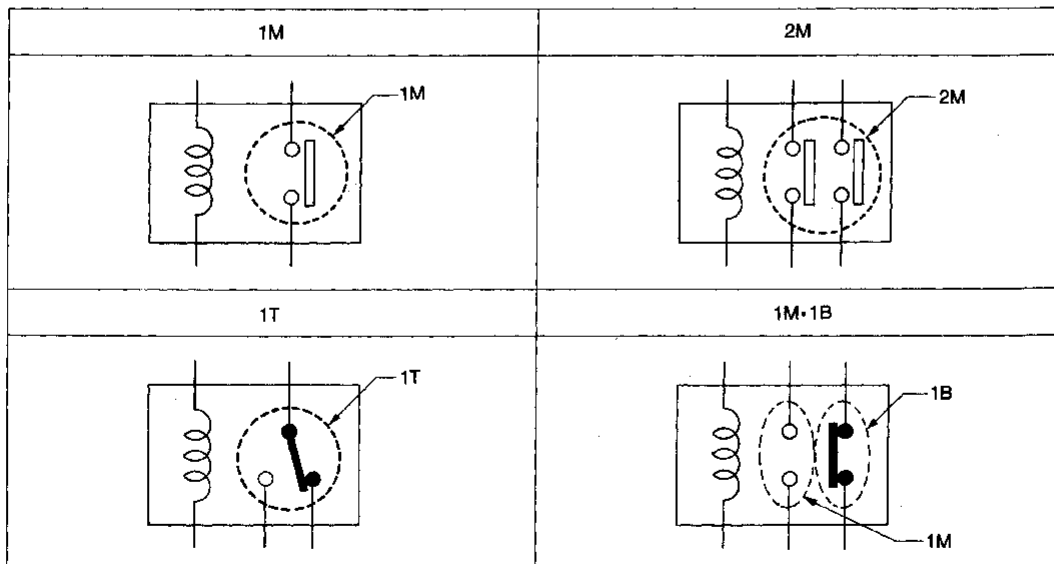
Relays can be divided into three main types: normal open, normal closed and mixed type relays.



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### TYPES OF STANDARDIZED RELAYS

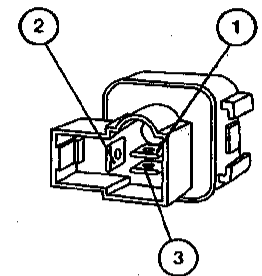
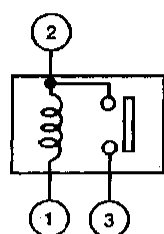
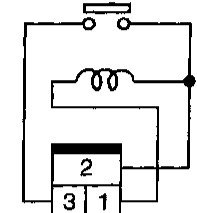
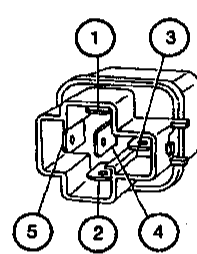
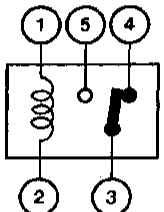
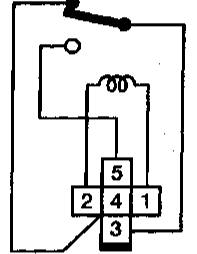
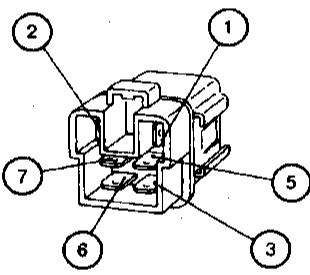
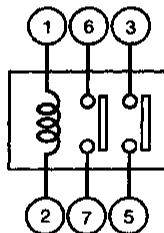
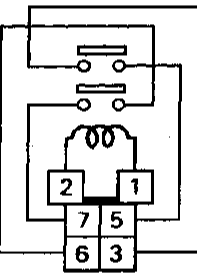
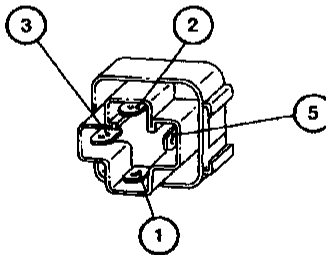
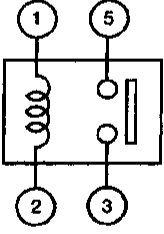
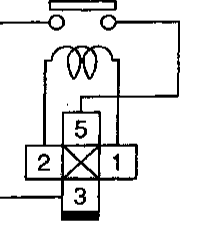
1M ..... 1 Make      2M ..... 2 Make  
 1T ..... 1 Transfer    1M·1B ..... 1 Make 1 Break



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# STANDARDIZED RELAY

## Description (Cont'd)

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

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



# STANDARDIZED RELAY

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NOTES

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FA

RA

BR

ST

RS

BT

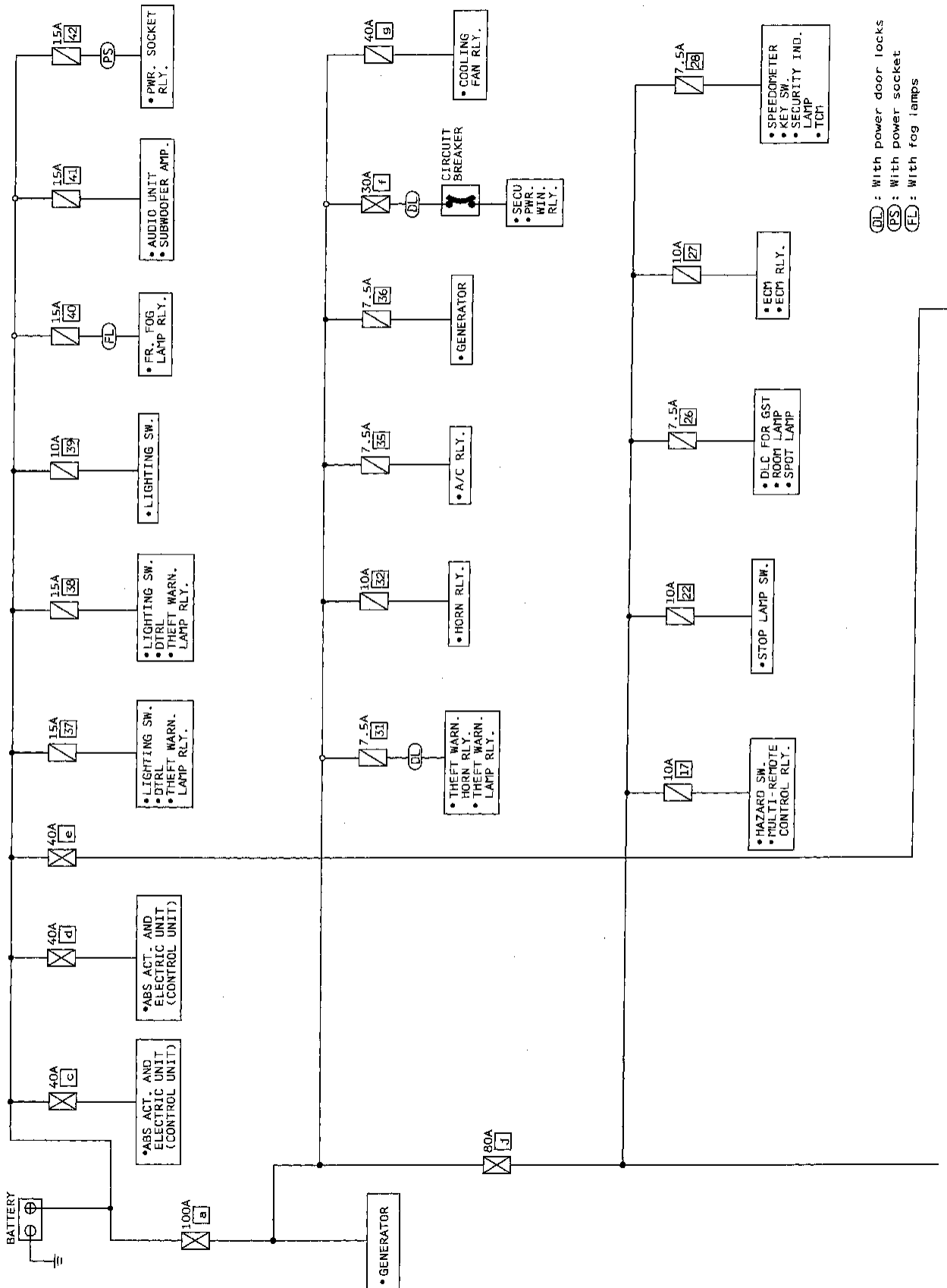
HA

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# POWER SUPPLY ROUTING

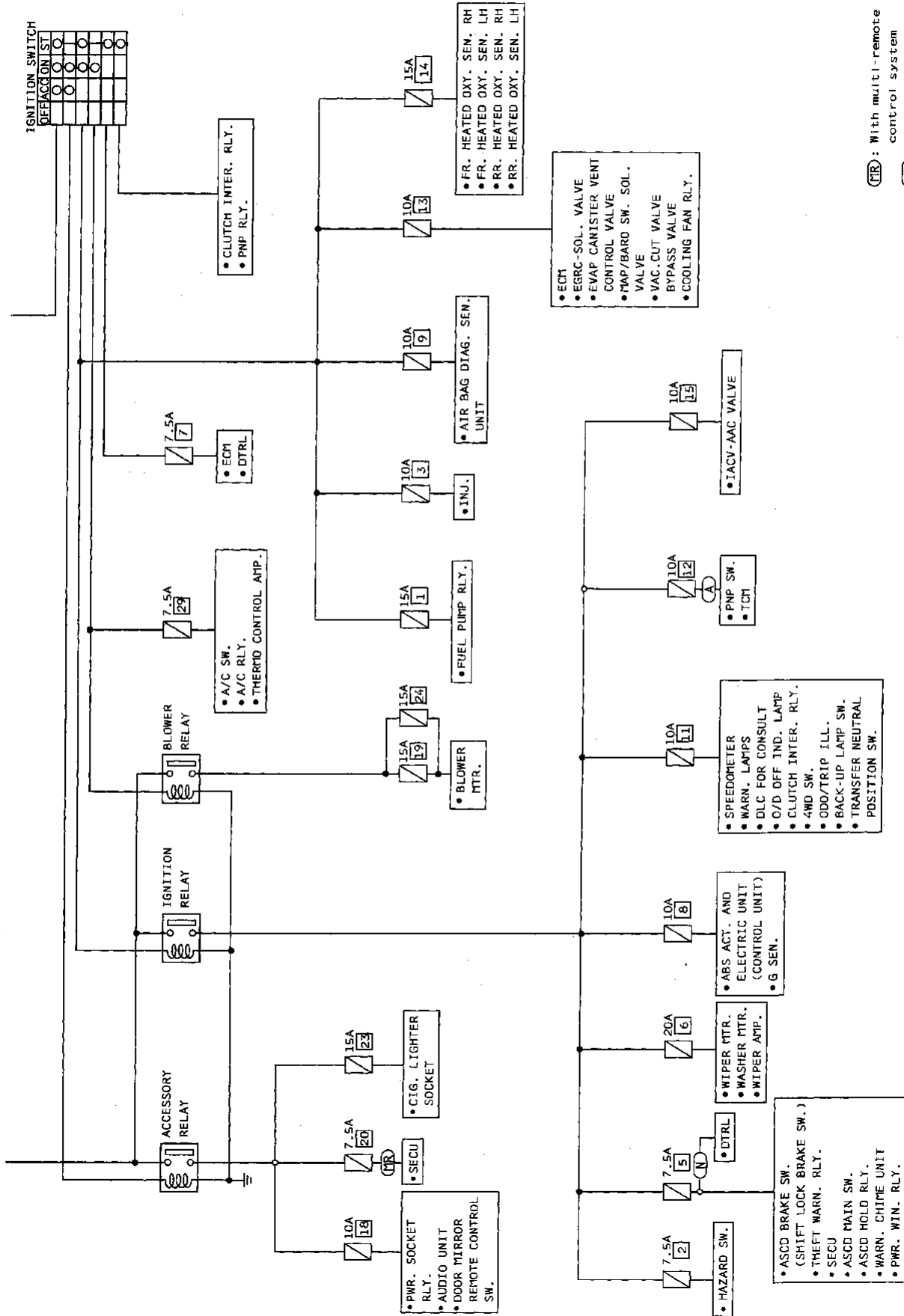
## Schematic



(DL) : With power door locks  
 (PS) : With power socket  
 (FL) : With fog lamps

# POWER SUPPLY ROUTING

## Schematic (Cont'd)



(TE) : With multi-remote control system  
 (N) : For Canada  
 (A) : With A/T

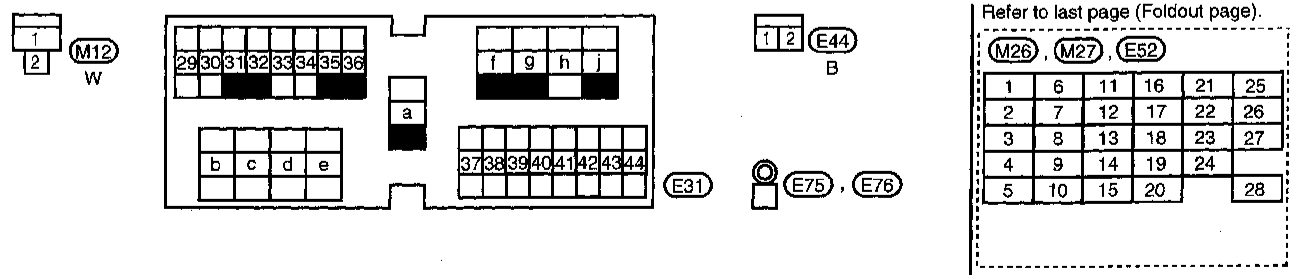
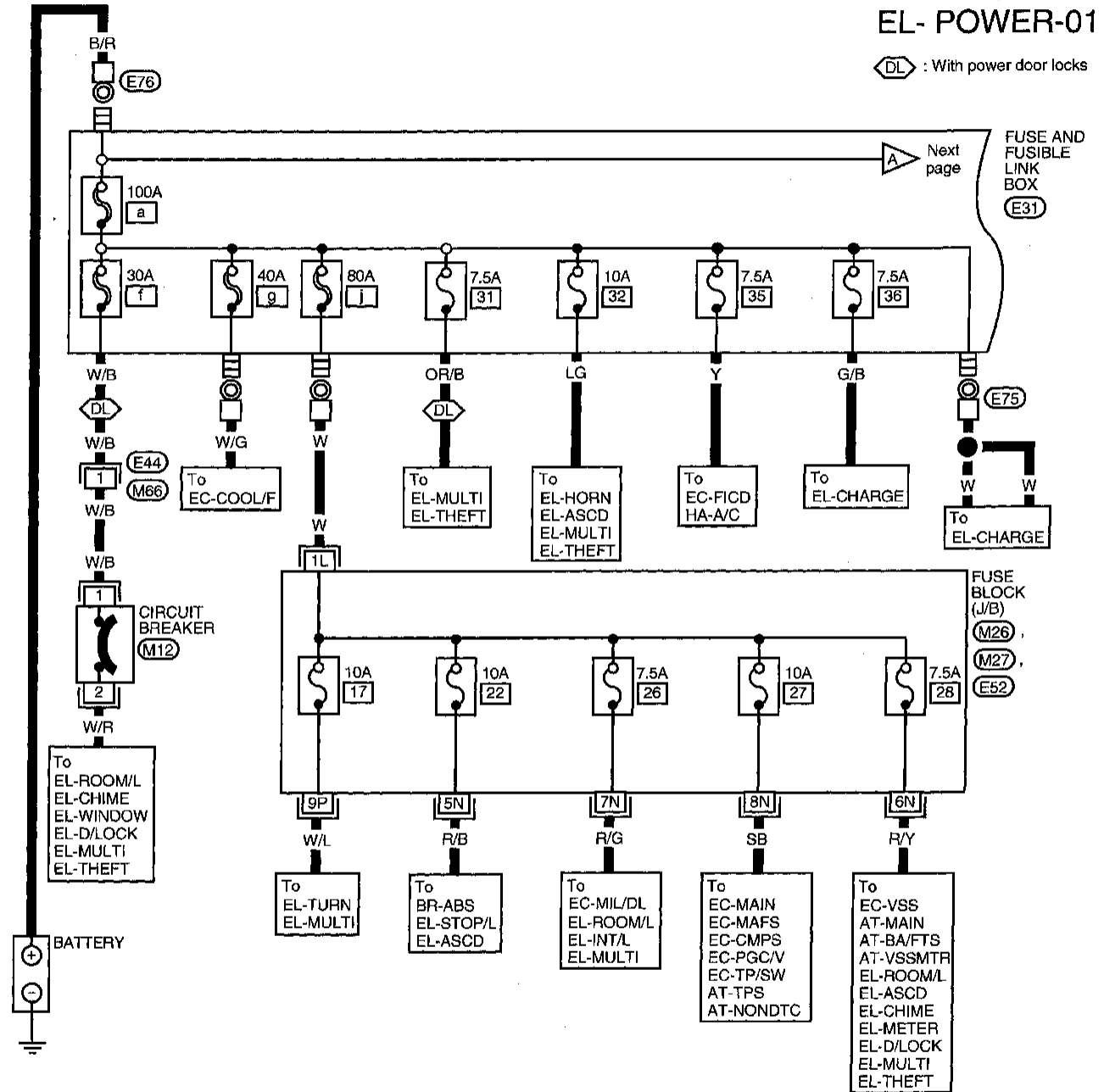
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# POWER SUPPLY ROUTING

## Wiring Diagram — POWER —

### BATTERY POWER SUPPLY – IGNITION SW IN ANY POSITION

NOTE: For detailed ground distribution information, refer to "GROUND DISTRIBUTION", EL-16.

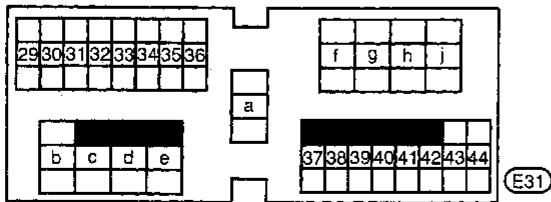
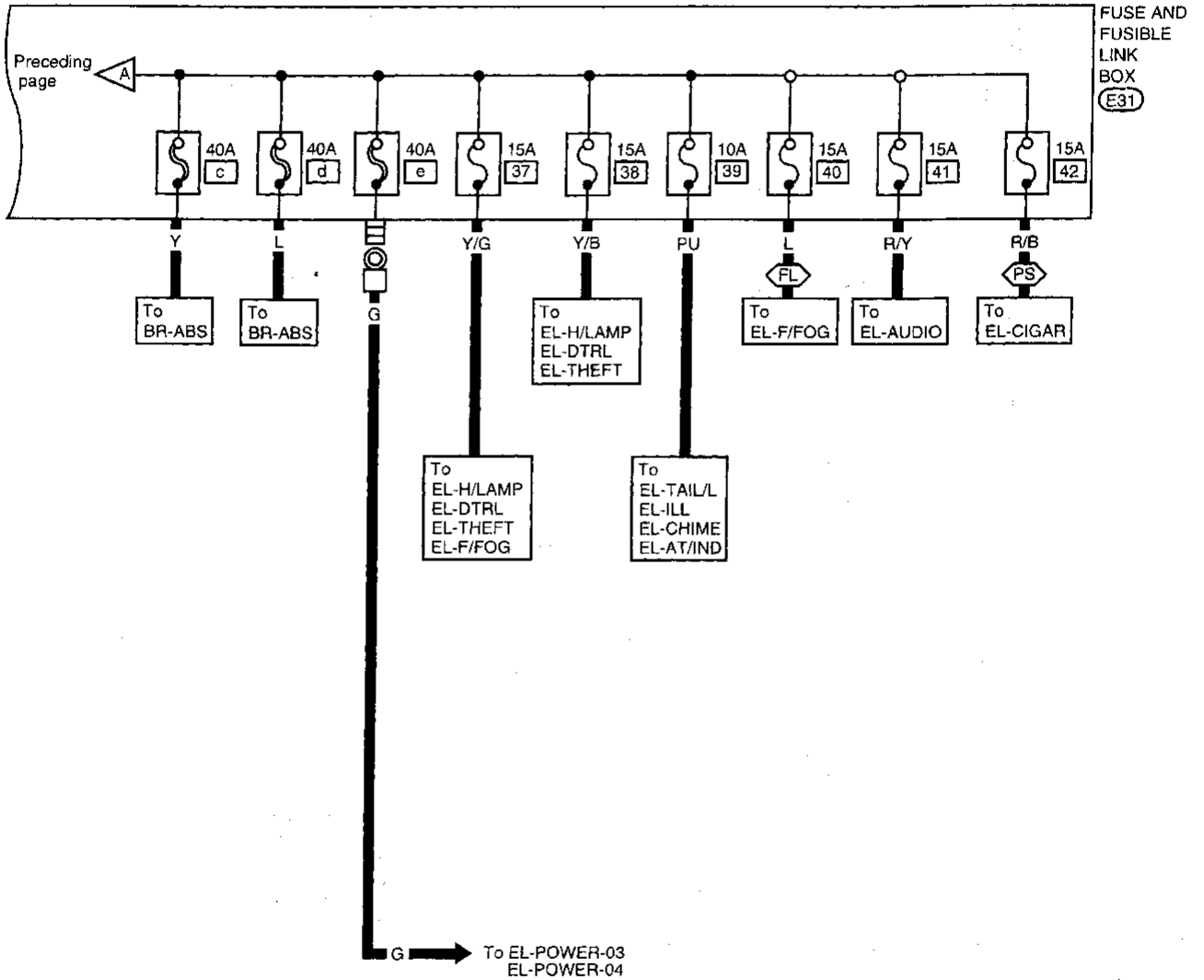


# POWER SUPPLY ROUTING

## Wiring Diagram — POWER — (Cont'd)

### EL- POWER-02

PS : With power socket  
FL : With fog lamps



GI  
 MA  
 EM  
 LC  
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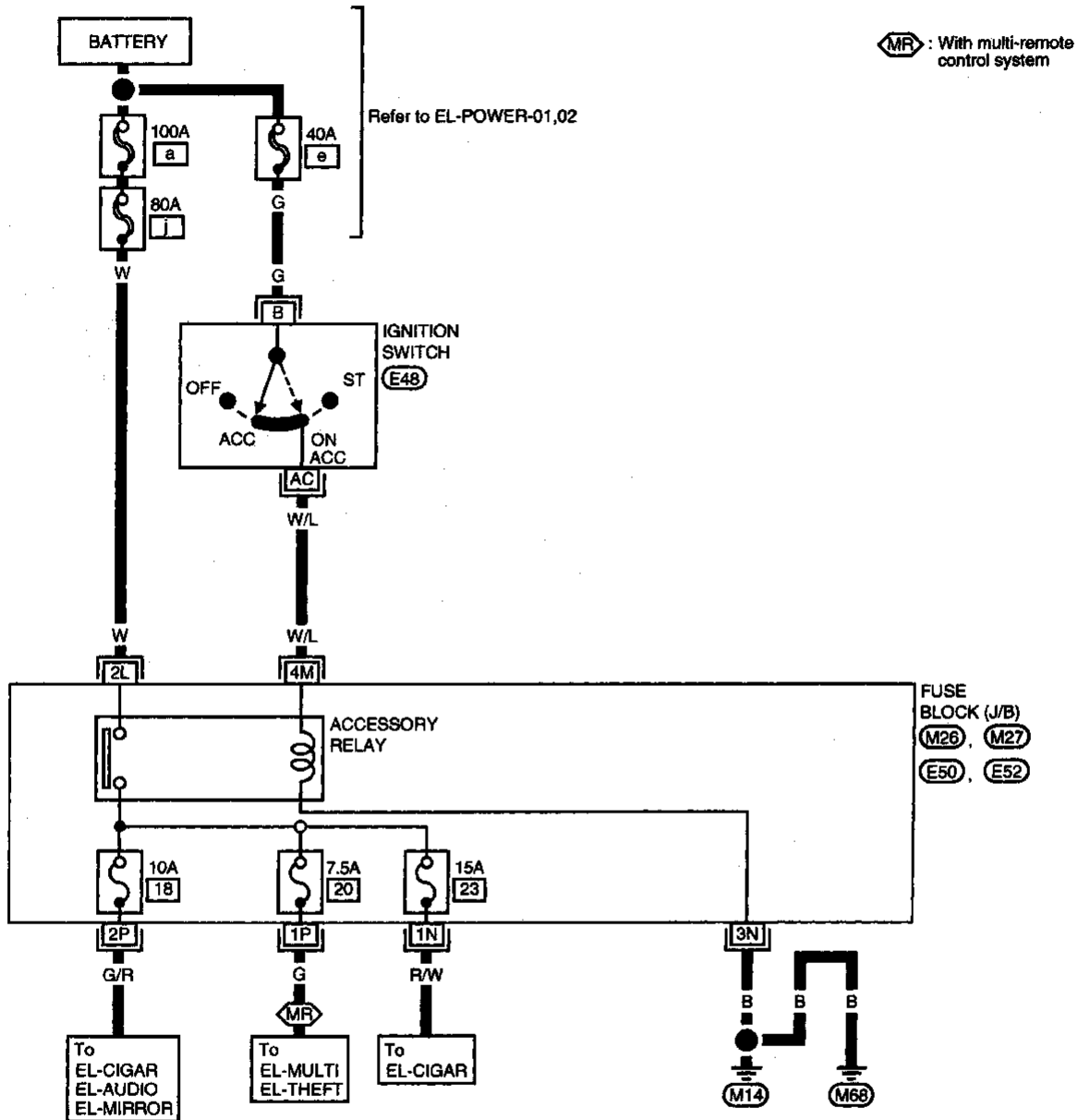
# POWER SUPPLY ROUTING

## Wiring Diagram — POWER — (Cont'd)

### ACCESSORY POWER SUPPLY — IGNITION SW IN "ACC" OR "ON"

NOTE: For detailed ground distribution information, refer to "GROUND DISTRIBUTION", EL-16.

EL- POWER-03



Refer to last page (Foldout page).

M26, M27, E50, E52					
1	6	11	16	21	25
2	7	12	17	22	26
3	8	13	18	23	27
4	9	14	19	24	
5	10	15	20		28

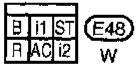
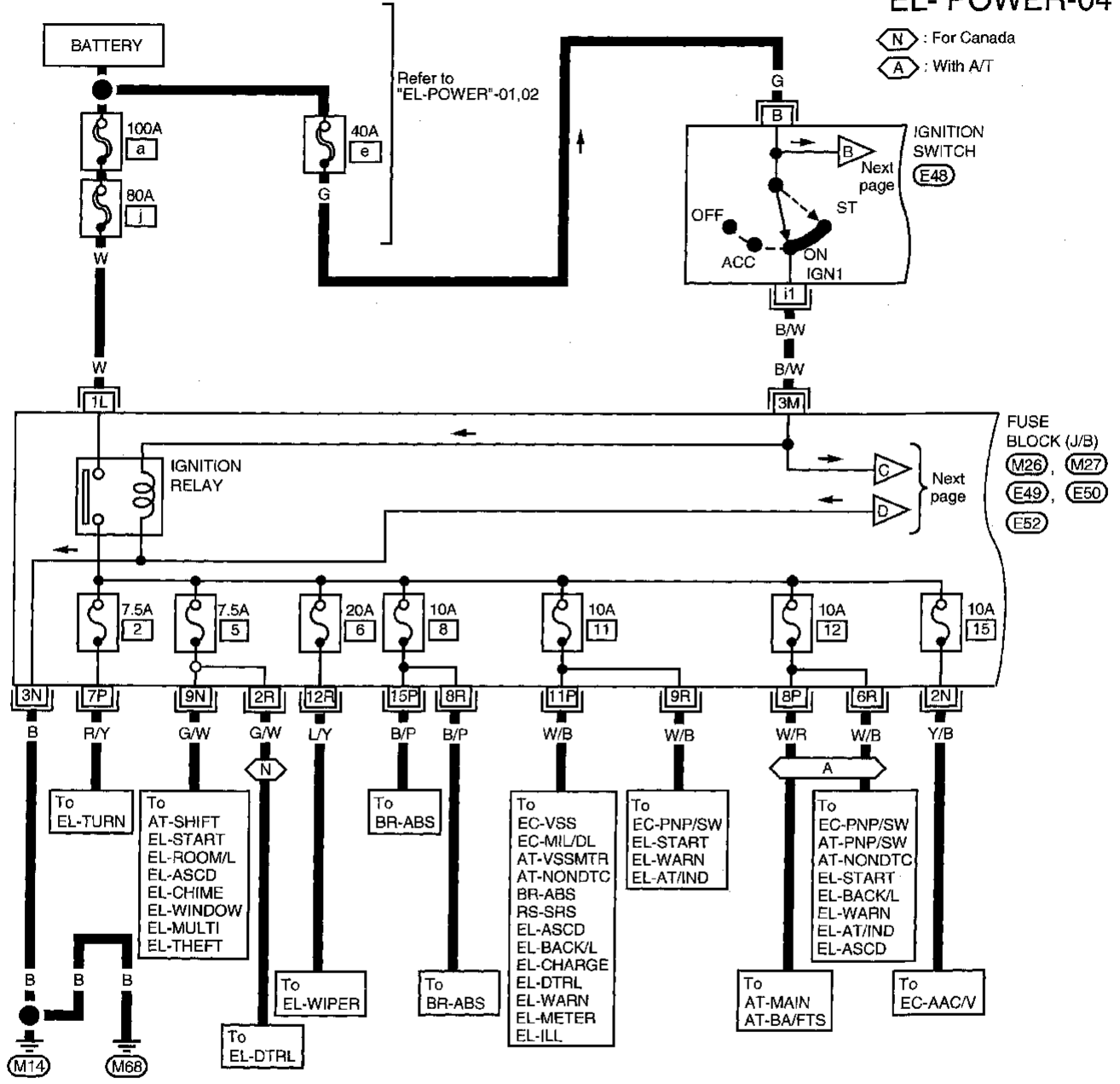
# POWER SUPPLY ROUTING

## Wiring Diagram — POWER — (Cont'd)

### IGNITION POWER SUPPLY - IGNITION SW IN "ON" AND/OR "START"

NOTE: For detailed ground distribution information, refer to "GROUND DISTRIBUTION", EL-16.

#### EL- POWER-04



Refer to last page (Foldout page).

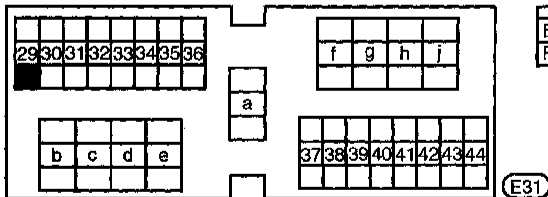
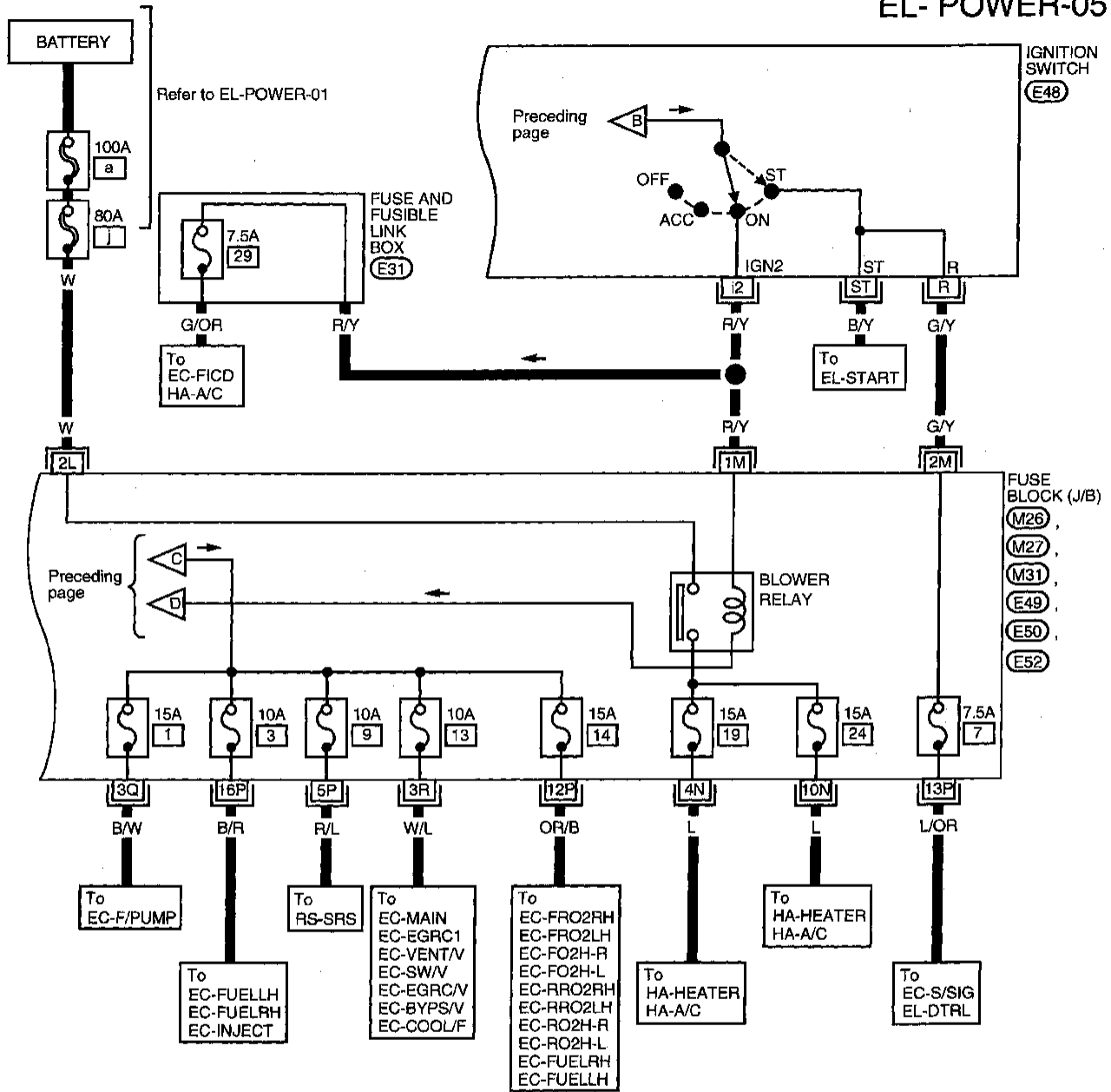
(M26), (M27), (E49), (E50), (E52)

1	6	11	16	21	25
2	7	12	17	22	26
3	8	13	18	23	27
4	9	14	19	24	
5	10	15	20		28

# POWER SUPPLY ROUTING

## Wiring Diagram — POWER — (Cont'd)

EL- POWER-05

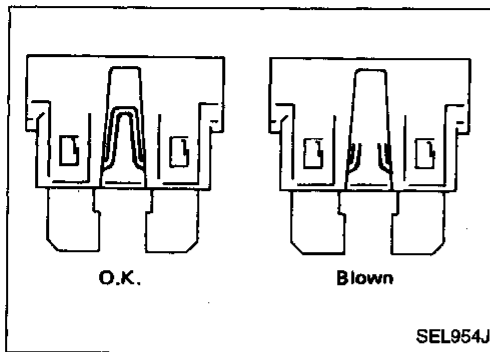


Refer to last page (Foldout page).

M26, M27, M31, E49					
E50, E52					
1	6	11	16	21	25
2	7	12	17	22	26
3	8	13	18	23	27
4	9	14	19	24	
5	10	15	20		28

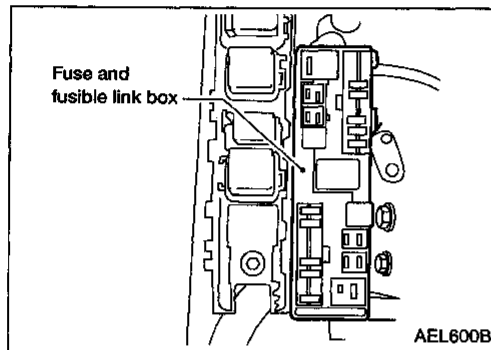


# POWER SUPPLY ROUTING



## Fuse

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

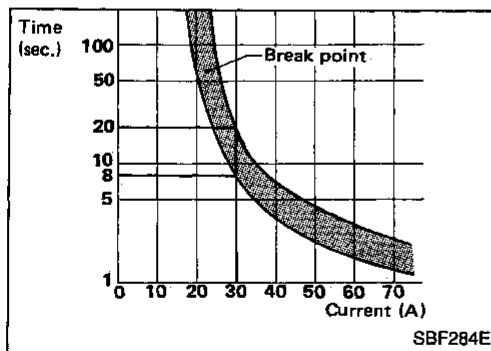


## Fusible Link

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

### CAUTION:

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



## Circuit Breaker Inspection

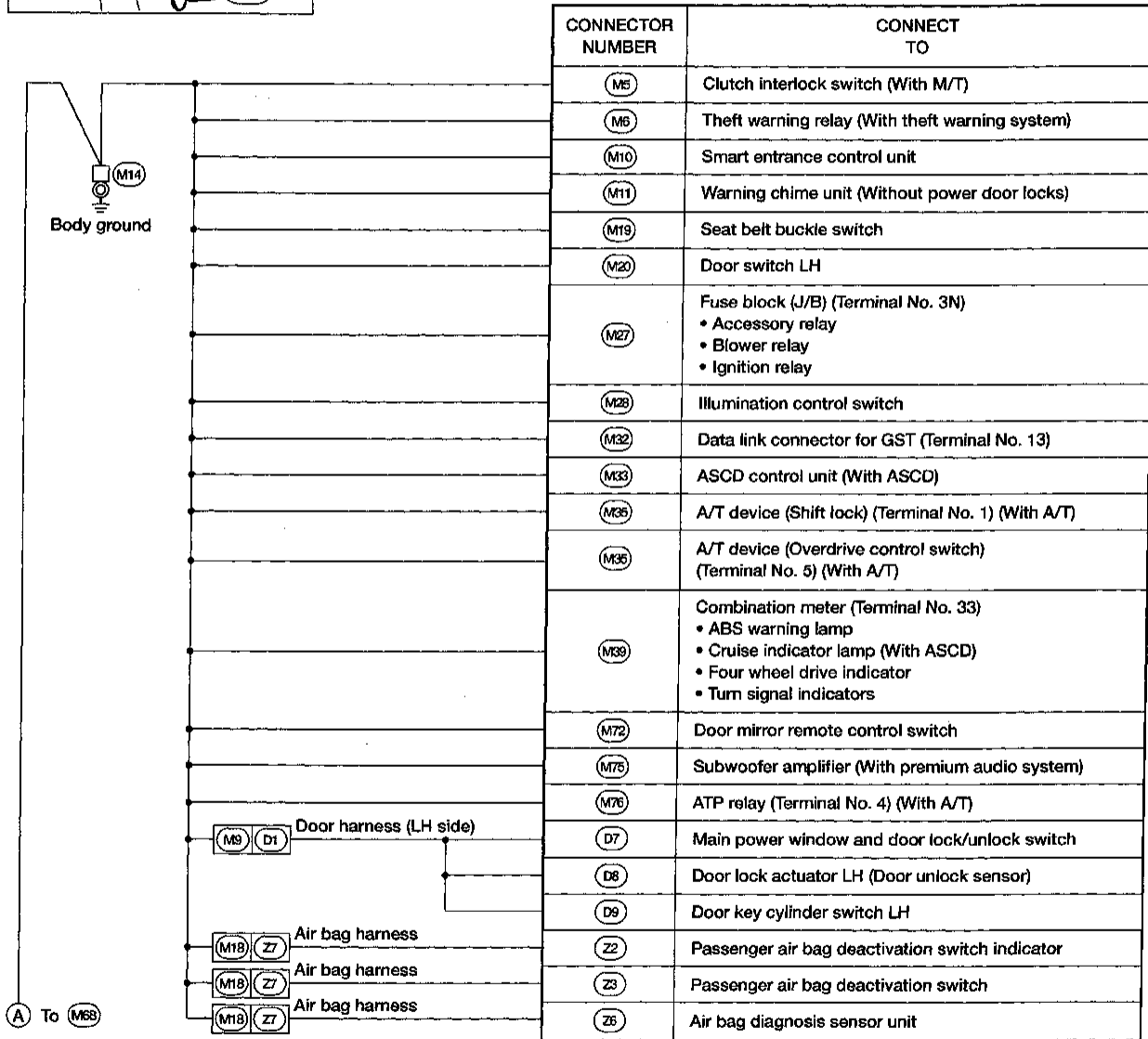
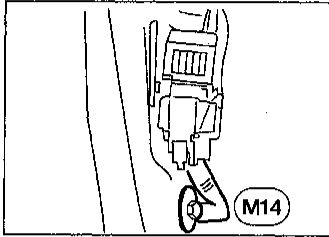
For example, when current is 30A, the circuit is broken within 8 to 20 seconds.

GI  
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# GROUND DISTRIBUTION

## Main Harness

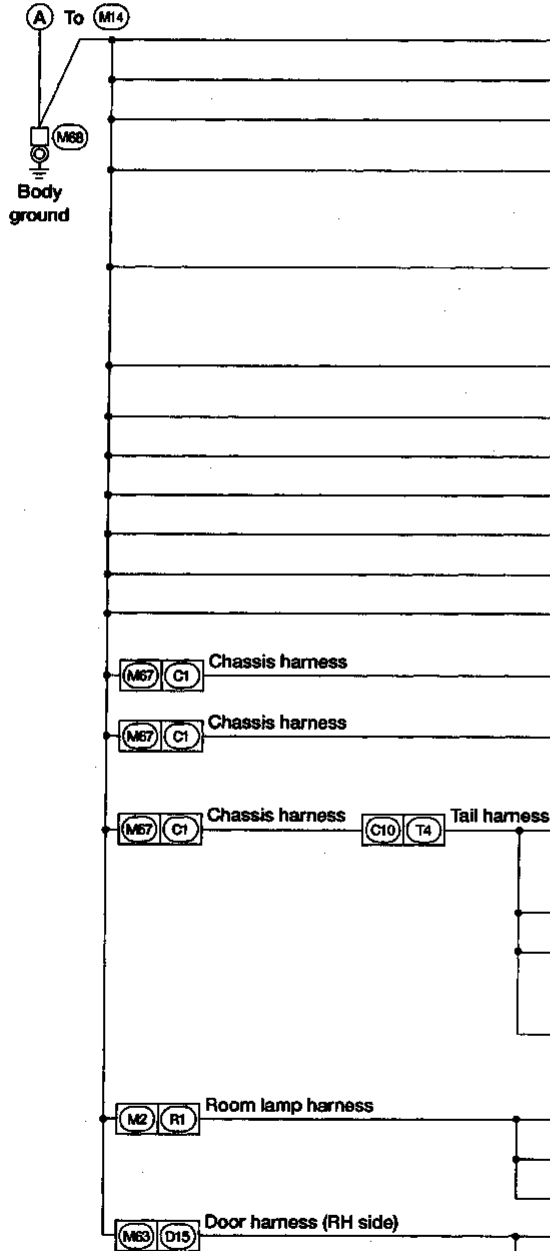
### Body ground



# GROUND DISTRIBUTION

## Main Harness (Cont'd)

Body ground



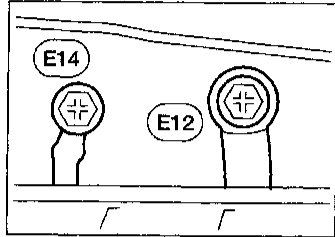
CONNECTOR NUMBER	CONNECT TO
M13	Power window relay
M29	ASCD main switch (With ASCD)
M34	ASCD hold relay (With ASCD)
M38	Combination meter (High beam indicator) (Terminal No. 16)
M38	Combination meter (Terminal No. 26) • Air bag warning lamp • Fuel gauge • Speedometer • Water temperature gauge
M41	Combination meter (A/T indicator) (Terminal No. 43) (With A/T)
M46	Combination flasher unit
M52	Cigarette lighter socket
M54	Power socket (With power socket)
M57	Fan switch
M76	ATP relay (Terminal No. 2) (With A/T)
M60	Power socket relay (With power socket)
C13	Fuel tank gauge unit (Terminal No. E) • Fuel tank gauge unit • Tank fuel temperature sensor
C14	Fuel pump
T1	Rear combination lamp LH (Terminal No. 1) • Back-up lamp • Stop lamp • Tail lamp • Turn signal lamp
T2	License plate lamp LH
T3	License plate lamp RH
T5	Rear combination lamp RH (Terminal No. 1) • Back-up lamp • Stop lamp • Tail lamp • Turn signal lamp
R2	Spot lamp
R3	High-mounted stop lamp
R4	Room lamp
D21	Door lock and unlock switch RH
D23	Door lock actuator RH (Door unlock sensor)
D24	Door key cylinder switch RH

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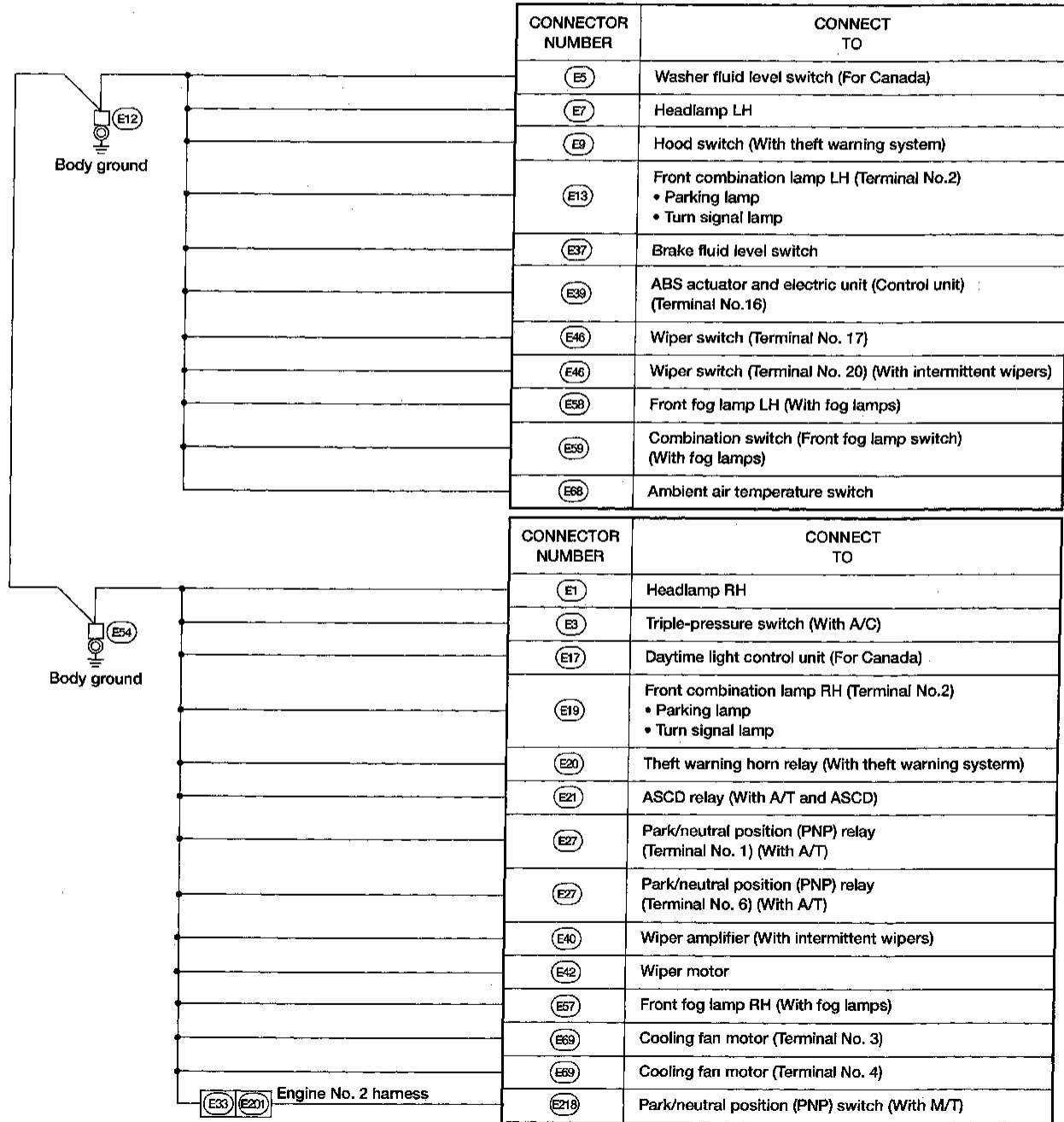
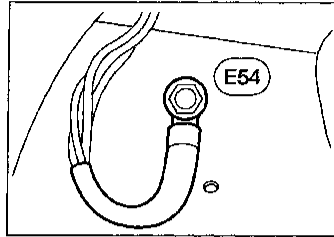
# GROUND DISTRIBUTION

## Engine Room Harness

Body ground



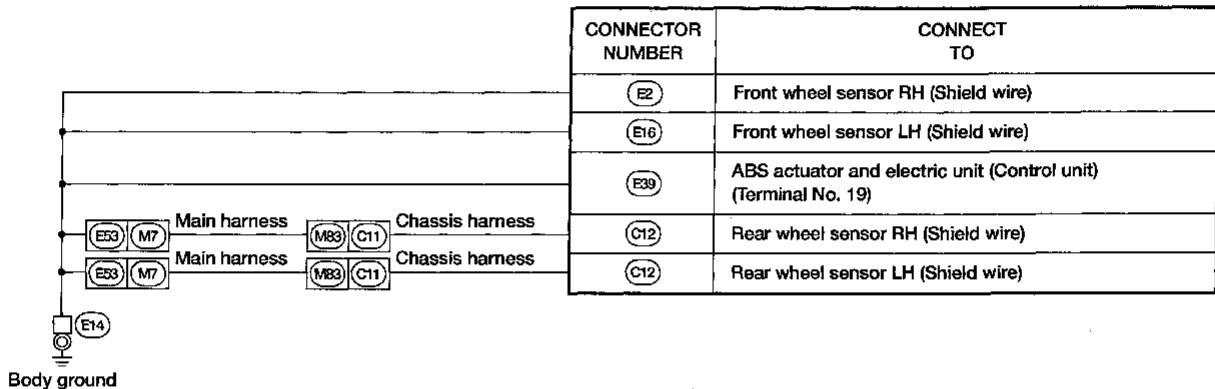
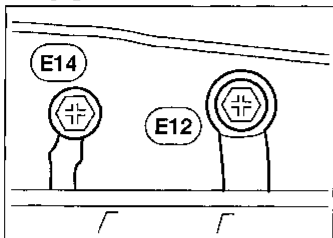
Body ground



# GROUND DISTRIBUTION

## Engine Room Harness (Cont'd)

### Body ground

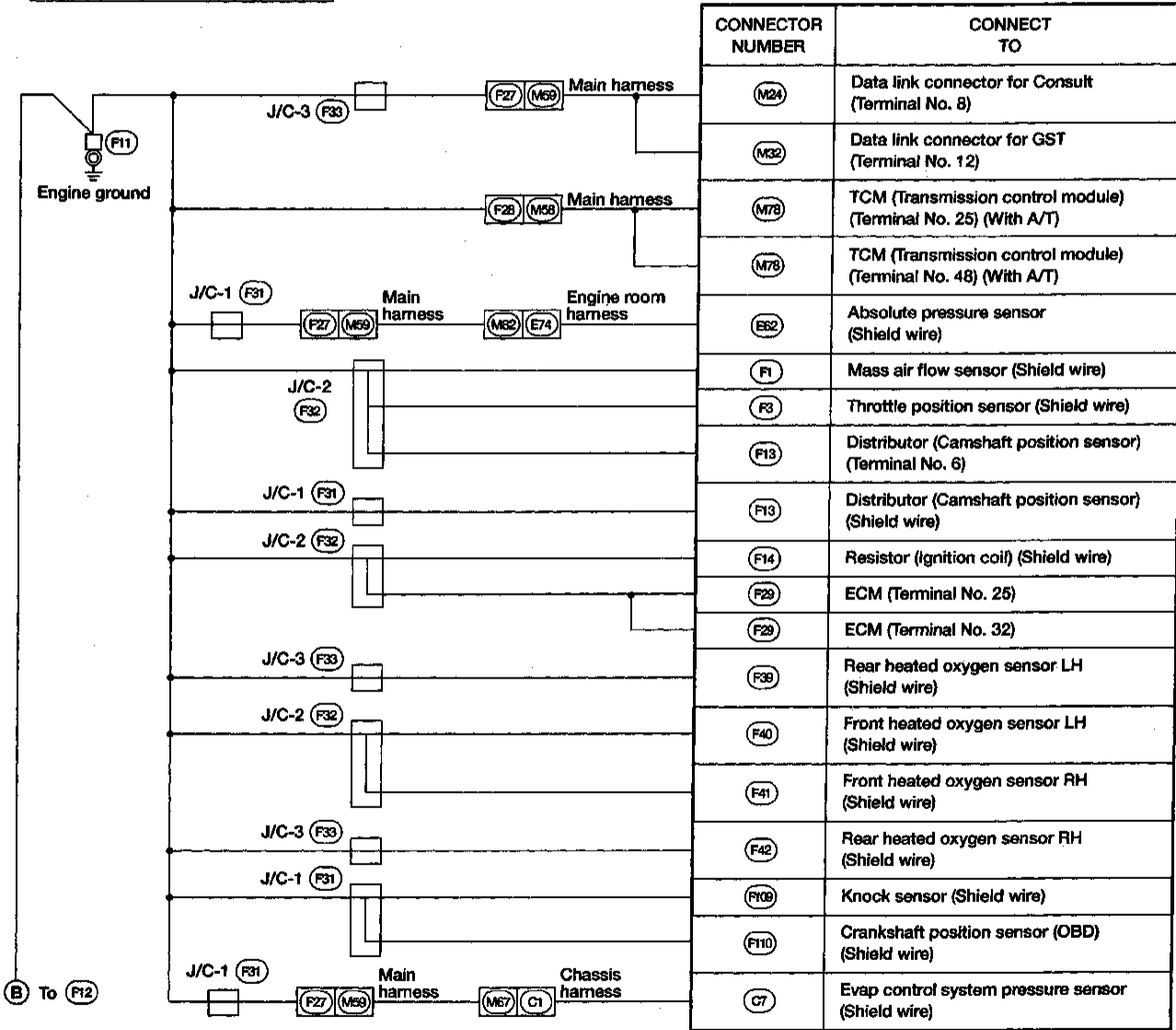
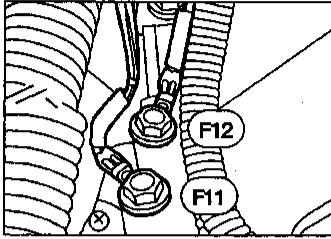


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# GROUND DISTRIBUTION

## Engine Control Harness

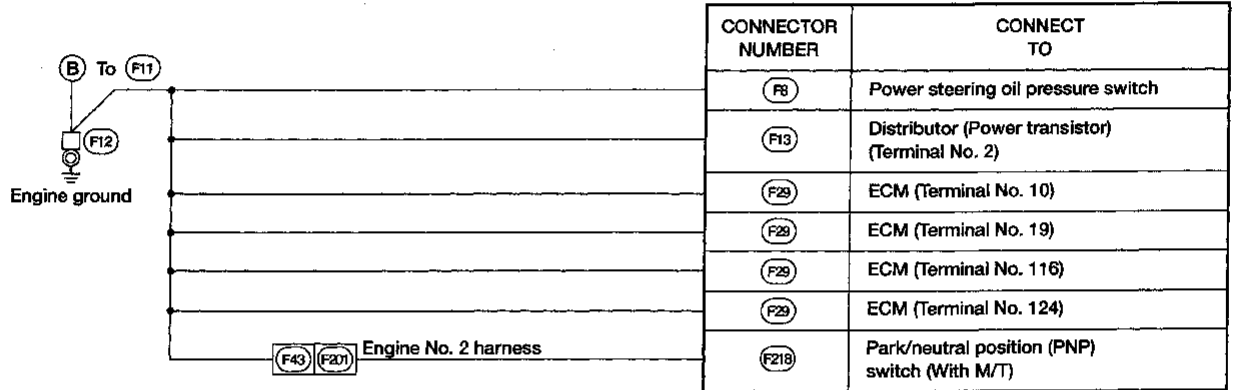
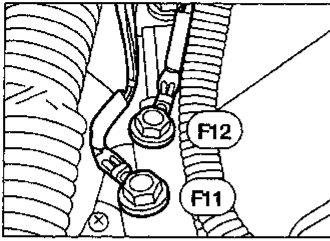
Engine ground



# GROUND DISTRIBUTION

## Engine Control Harness (Cont'd)

Engine ground

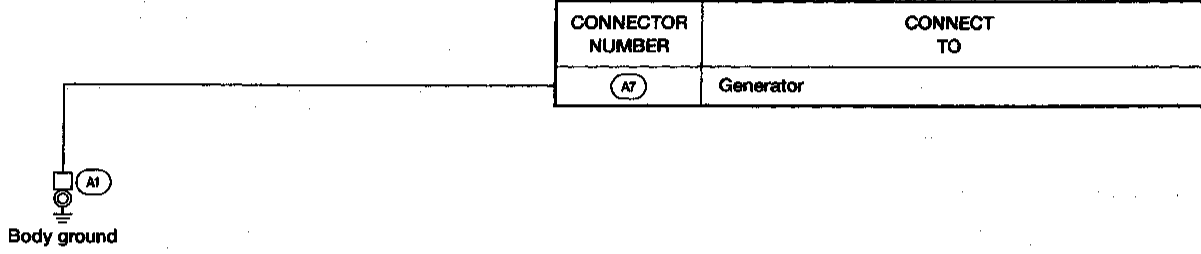
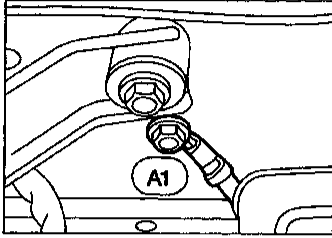


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# GROUND DISTRIBUTION

## Generator Harness

Body ground



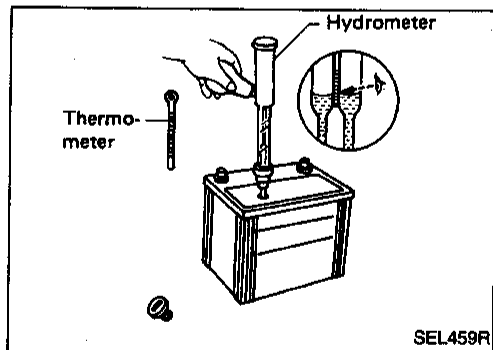
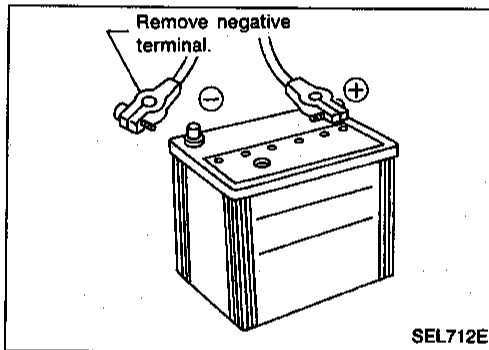
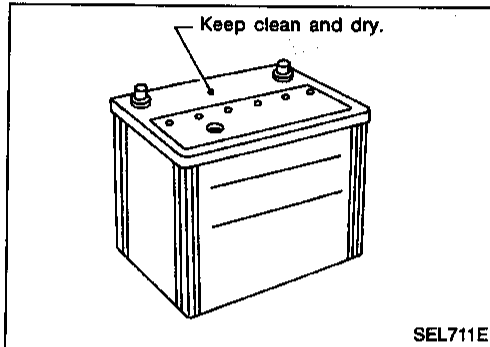


# BATTERY

## CAUTION:

If it becomes necessary to start the engine with a booster battery and jumper cables:

- Use a 12-volt booster battery.
- After connecting battery cables, ensure that they are tightly clamped to battery terminals for good contact.
- Never add distilled water through the hole used to check specific gravity.



## How to Handle Battery

### METHODS OF PREVENTING OVER-DISCHARGE

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

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

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

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

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# BATTERY

## How to Handle Battery (Cont'd)

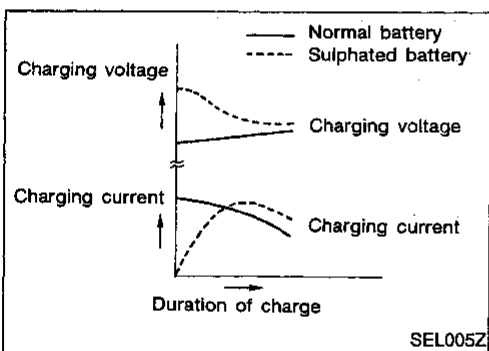
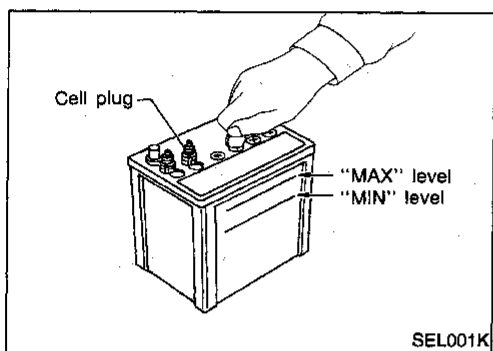
### CHECKING ELECTROLYTE LEVEL

#### WARNING:

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

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

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

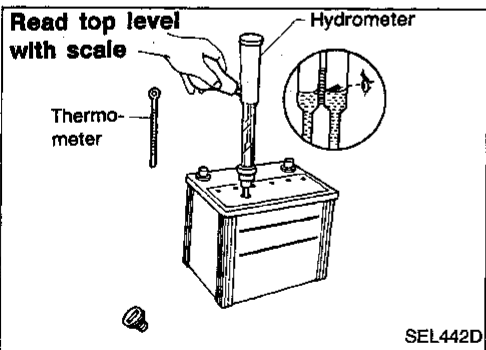


### SULPHATION

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.

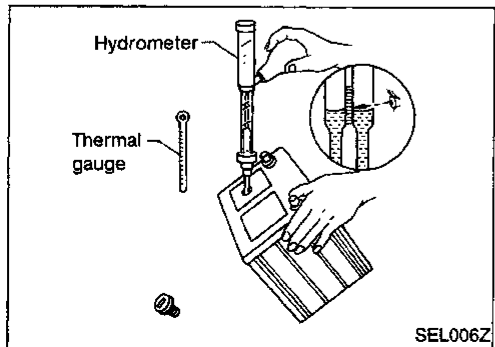
To determine if a battery has been "sulphated", note its voltage and current when charging it. As shown in the figure, less current and higher voltage are observed in the initial stage of charging sulphated batteries.

A sulphated battery may sometimes be brought back into service by means of a long, slow charge, 12 hours or more, followed by a battery capacity test.



### SPECIFIC GRAVITY CHECK

1. Read hydrometer and thermometer indications at eye level.



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

# BATTERY

## How to Handle Battery (Cont'd)

2. 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

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## BATTERY

### How to Handle Battery (Cont'd)

#### CHARGING THE BATTERY

##### CAUTION:

- Do not "quick charge" a fully discharged battery.
- Keep the battery away from open flame while it is being charged.
- When connecting the charger, connect the leads first, then turn on the charger. Do not turn on the charger first, as this may cause a spark.
- If battery electrolyte temperature rises above 60°C (140°F), stop charging. Always charge battery at a temperature below 60°C (140°F).

##### Charging rates

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

Do not charge at more than 50 ampere rate.

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

- If, after charging, the specific gravity of any two cells varies more than .050, the battery should be replaced.
- After the battery is charged, always perform a capacity test to assure that the battery is serviceable.

#### Service Data and Specifications (SDS)

Applied area		USA	Canada
Type		55D23R	65D26R
Capacity	V-AH	12-60	12-65
Cold cranking current (For reference value)	A	356	413

# STARTING SYSTEM

## System Description

### M/T MODELS

Power is supplied at all times:

- through 40A fusible link (letter **e**), located in the fuse and fusible link box)
- to ignition switch terminal **B**.

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

- through terminal **57** of the ignition switch
- to clutch interlock relay terminal **5**.

#### For models with theft warning system

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

- through 7.5A fuse [No. **5**], located in the fuse block (J/B)]
- to theft warning relay terminal **2**.

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

- through 10A fuse [No. **12**], located in the fuse block (J/B)]
- to clutch interlock relay terminal **2**.

If the theft warning system is triggered, terminal **1** of the theft warning relay is grounded through terminal **32** of the smart entrance control unit and ground to the clutch interlock relay is interrupted.

When the theft warning system is not operating and clutch pedal is depressed, ground is supplied:

- from clutch interlock switch terminal **2**
- to theft warning relay terminal **3**
- through theft warning relay terminal **4**
- to clutch interlock relay terminal **1**.

#### For models without theft warning system

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

- through 10A fuse [No. **12**], located in the fuse block (J/B)]
- to clutch interlock relay terminal **2**.

When the clutch pedal is depressed, ground is supplied:

- from clutch interlock switch terminal **2**
- to clutch interlock relay terminal **1**.

Ground is supplied to clutch interlock switch terminal **1** through body grounds **M14** and **M68**.

The clutch interlock relay is energized and power is supplied:

- from terminal **3** 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 engine block. With power and ground supplied, cranking occurs and the engine starts.

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# STARTING SYSTEM

## System Description (Cont'd)

### A/T MODELS

Power is supplied at all times:

- through 40A fusible link (letter **e**), located in the fuse and fusible link box
- to ignition switch terminal **B**.

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

- through terminal **57** of the ignition switch
- to park/neutral position (PNP) relay terminal **5**.

### For models with theft warning system

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

- through 7.5A fuse [No. **5**], located in the fuse block (J/B)
- to theft warning relay terminal **2**.

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

- through 10A fuse [No. **12**], located in the fuse block (J/B)
- to PNP switch terminal **1**.

With the selector lever in the P or N position, power is supplied:

- from PNP switch terminal **2**
- to PNP relay terminal **2**.

If the theft warning system is triggered, terminal **1** of the theft warning relay is grounded through terminal **32** of the smart entrance control unit and ground to the PNP relay is interrupted.

When the theft warning system is not operating, ground is supplied:

- from theft warning relay terminal **3**
- through theft warning relay terminal **4**
- to PNP relay terminal **1**.

### For models without theft warning system

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

- through 10A fuse [No. **12**], located in the fuse block (J/B)
- to PNP switch terminal **1**.

With the selector lever in the P or N position, power is supplied:

- from PNP switch terminal **2**
- to PNP relay terminal **2**.

Ground is supplied to PNP relay terminal **1** through body grounds **E12** and **E54**.

The PNP relay is energized and power is supplied:

- from terminal **3** of the PNP 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 engine block. With power and ground supplied, cranking occurs and the engine starts.

### THEFT WARNING SYSTEM

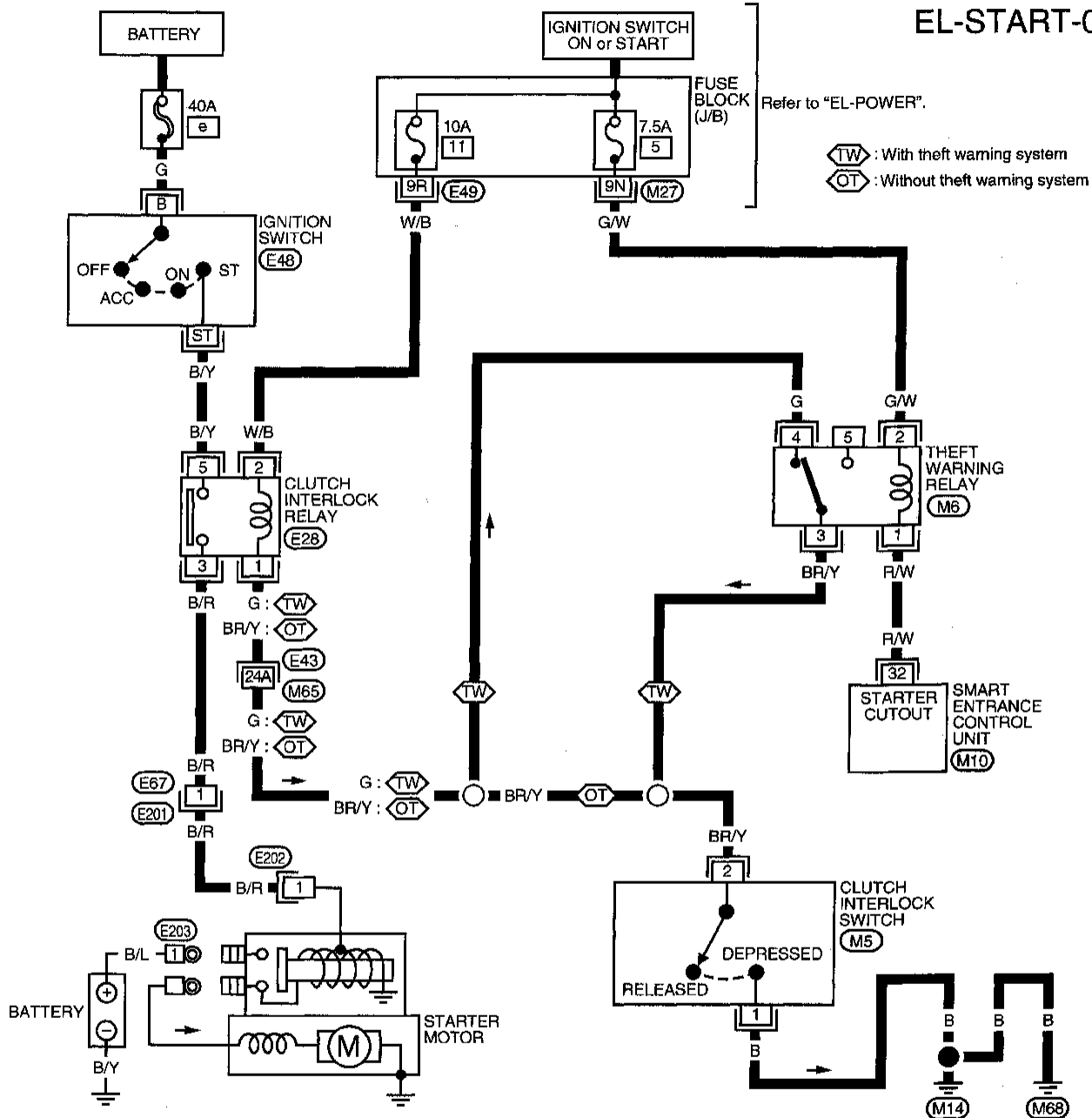
The theft warning system will interrupt ground to clutch interlock relay (M/T models) or PNP relay (A/T models) if the system is triggered. The starter motor will then not crank, and the engine will not start. Refer to "THEFT WARNING SYSTEM" (EL-189).

# STARTING SYSTEM

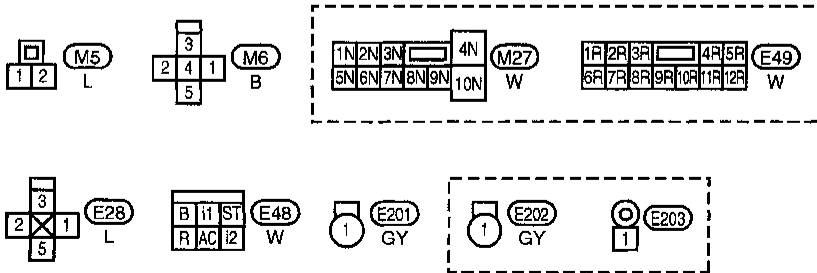
## Wiring Diagram — START —

M/T MODELS

EL-START-01



Refer to last page (Foldout page).



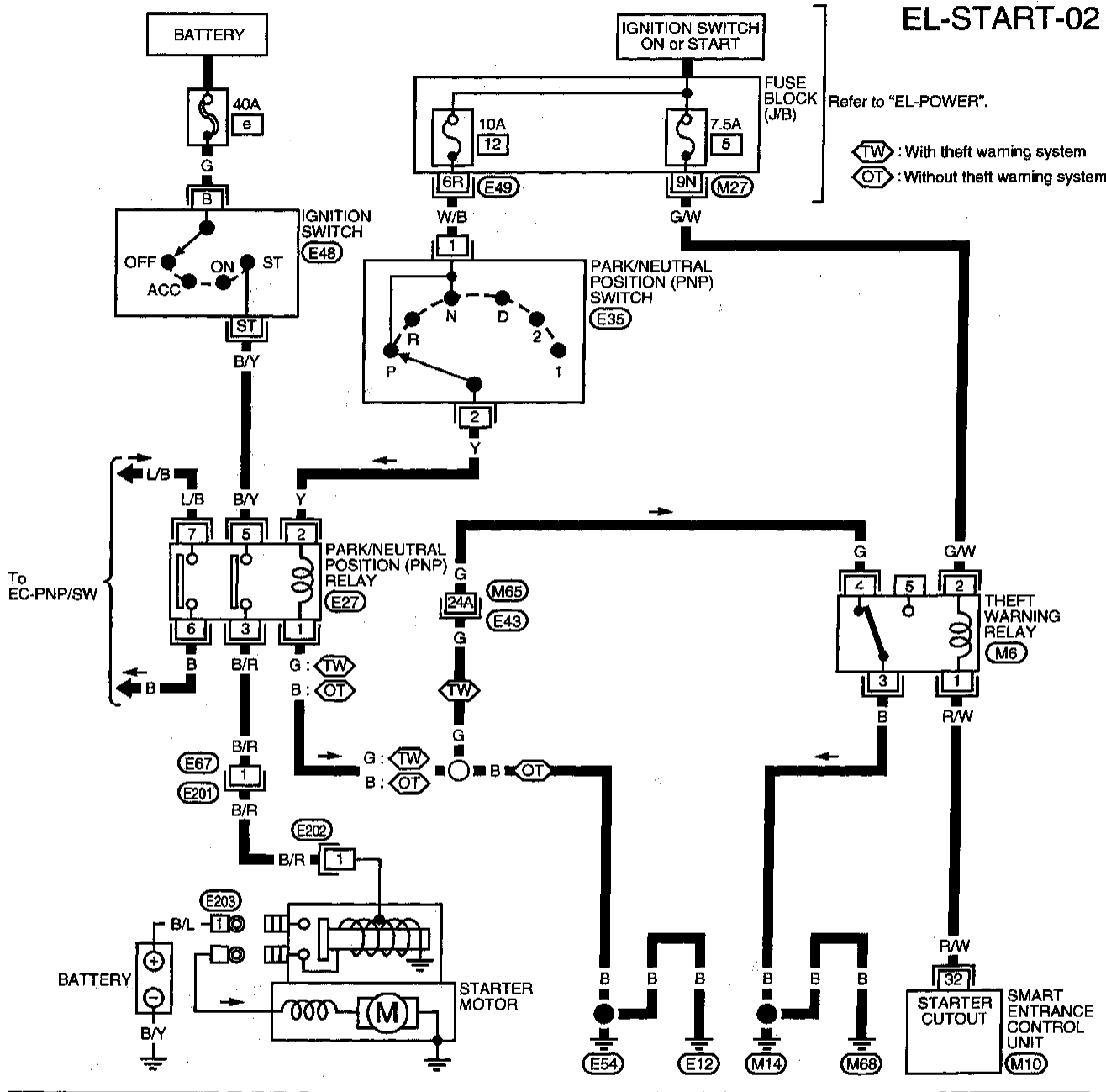
M65, E43, M10

# STARTING SYSTEM

## Wiring Diagram — START — (Cont'd)

AT MODELS

EL-START-02

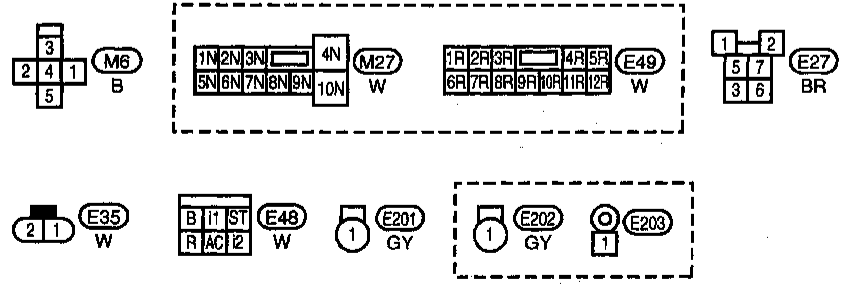


Refer to "EL-POWER".

- : With theft warning system
- : Without theft warning system

To EC-PNP/SW

Refer to last page (Foldout page).



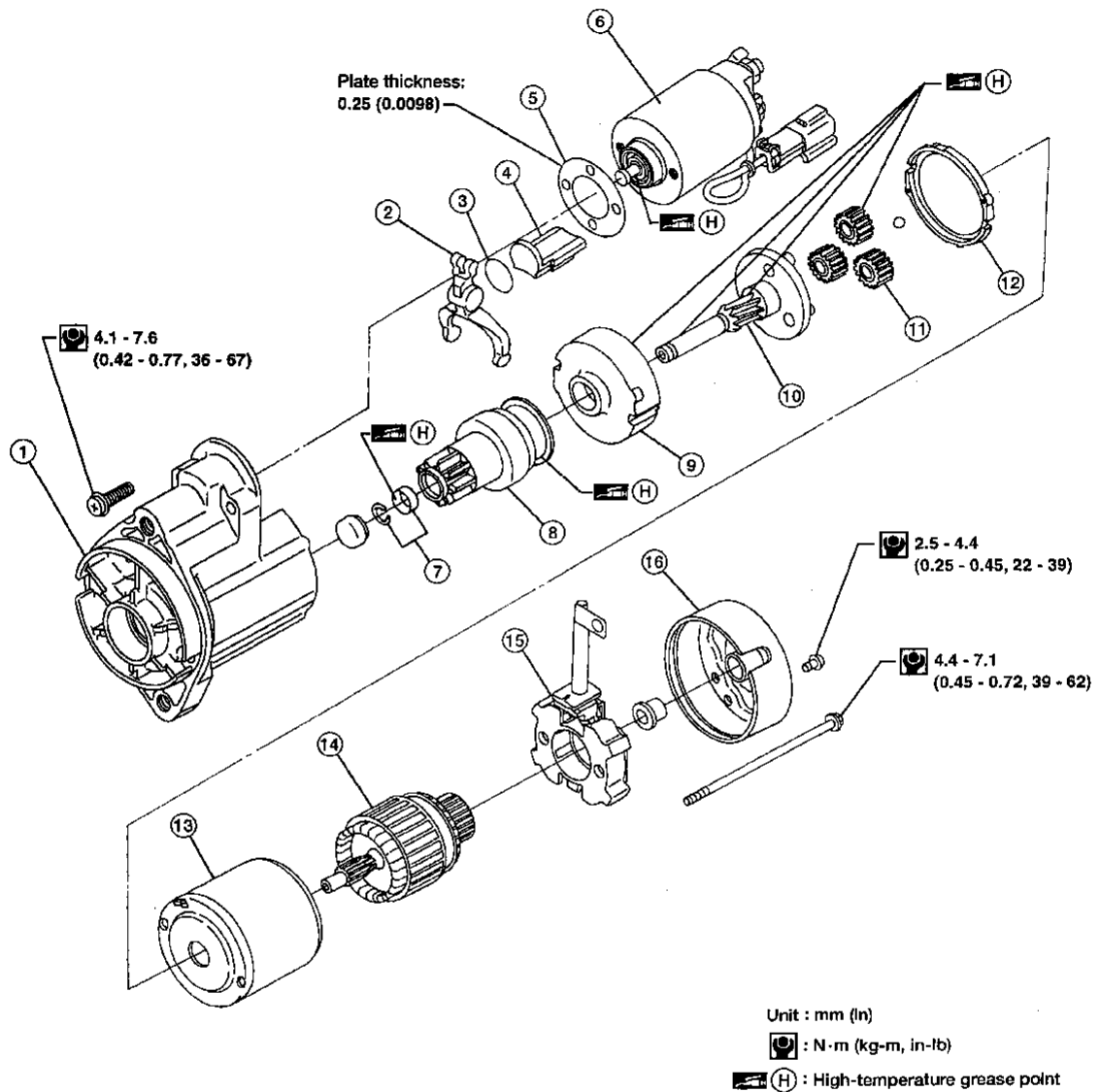
M65, E43  
M10



# STARTING SYSTEM

## Construction

SEC. 233  
M000T60185ZC



- ① Gear case
- ② Shift lever
- ③ Plate
- ④ Packing
- ⑤ Adjusting plate
- ⑥ Magnetic switch assembly

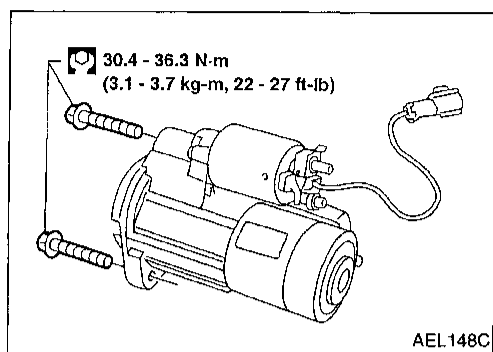
- ⑦ Pinion stopper set
- ⑧ Pinion assembly
- ⑨ Internal gear
- ⑩ Pinion shaft
- ⑪ Planetary gear

- ⑫ Packing
- ⑬ Yoke
- ⑭ Armature
- ⑮ Brush holder assembly
- ⑯ Rear cover

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# STARTING SYSTEM



## Removal and Installation

### REMOVAL

1. Remove engine undercover.
2. Remove two bolts and 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		M000T60185ZC
		MITSUBISHI
		Reduction
System voltage	V	12
No-load		
Terminal voltage	V	11.0
Current	A	90 Max.
Motor revolution	rpm	2,500 Min.
Minimum diameter of commutator	mm (in)	28.8 (1.134)
Minimum length of brush	mm (in)	7.0 (0.276)
Brush spring tension	N (kg, lb)	11.8 - 23.5 (1.20 - 2.40, 2.65 - 5.28)
Clearance of bearing metal and armature shaft	mm (in)	0.2 (0.008)
Clearance between pinion front edge and pinion stopper	mm (in)	0.5 - 2.0 (0.020 - 0.079)

# CHARGING SYSTEM

## System Description

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

Power is supplied at all times to generator terminal ④ through:

- 100A fusible link (letter [a], located in the fuse and fusible link box), and
- 7.5A fuse (No. 36, located in the fuse and fusible link box).

Terminal ① supplies power to charge the battery and operate the vehicle's electrical system. Output voltage is controlled by the IC regulator at terminal ④ detecting the input voltage. The charging circuit is protected by the 100A fusible link.

Terminal ② of the generator supplies ground through body ground (A1).

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

- through 10A fuse [No. 11, located in the fuse block (J/B)]
- to combination meter terminal 29 for the charge warning lamp.

Ground is supplied to terminal 27 of the combination meter through terminal ③ of the generator. With power and ground supplied, the charge warning lamp will illuminate. When the generator is providing sufficient voltage with the engine running, the ground is opened and the charge warning lamp will not illuminate.

If the charge warning lamp illuminates with the engine running, a fault is indicated.

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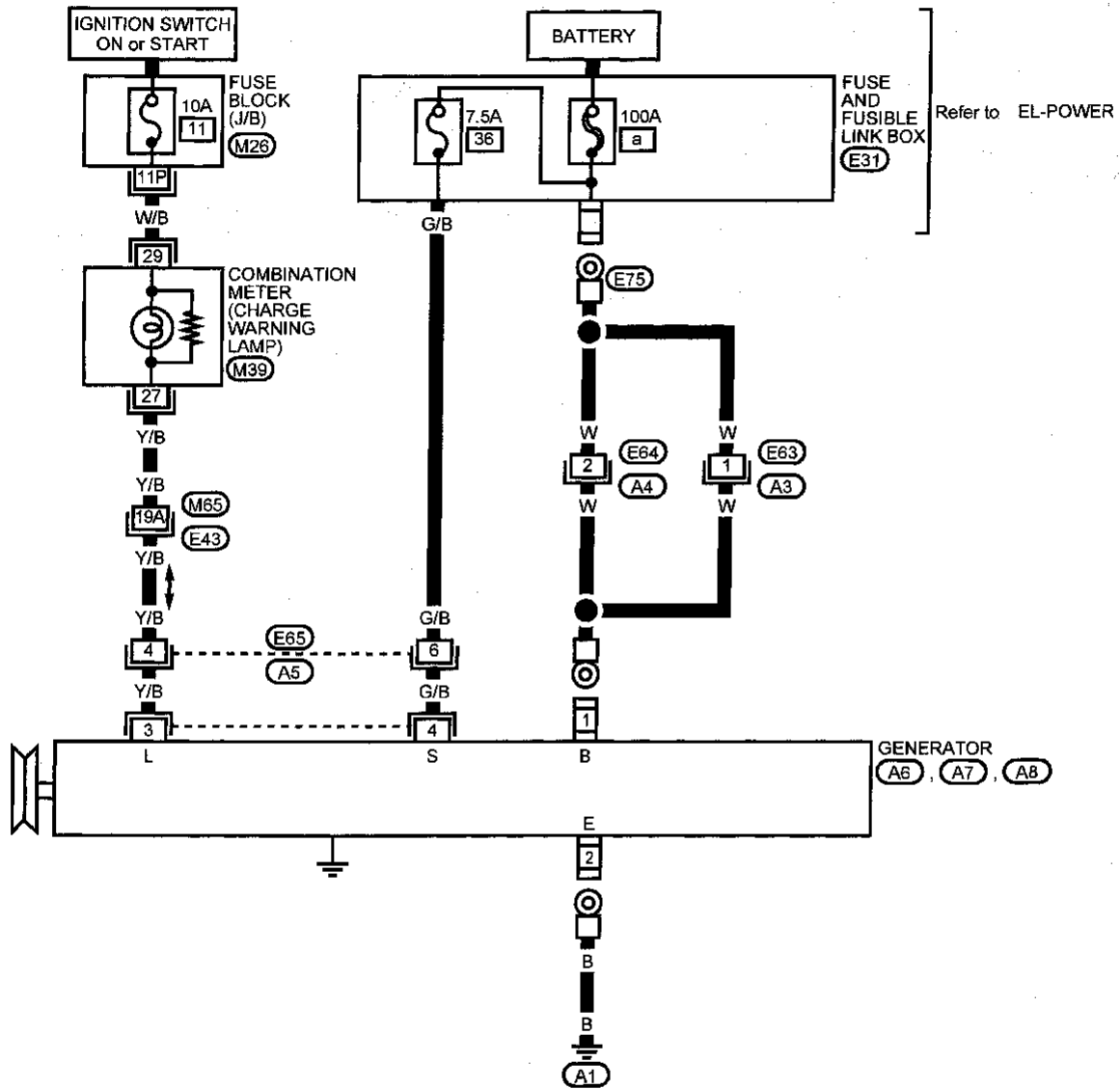
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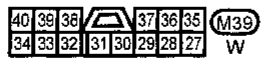
# CHARGING SYSTEM

## Wiring Diagram — CHARGE —

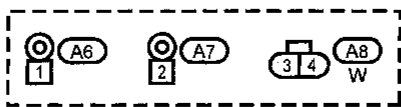
EL-CHARGE-01



Refer to last page (Foldout page).



M65, E43  
E31



AEL270C

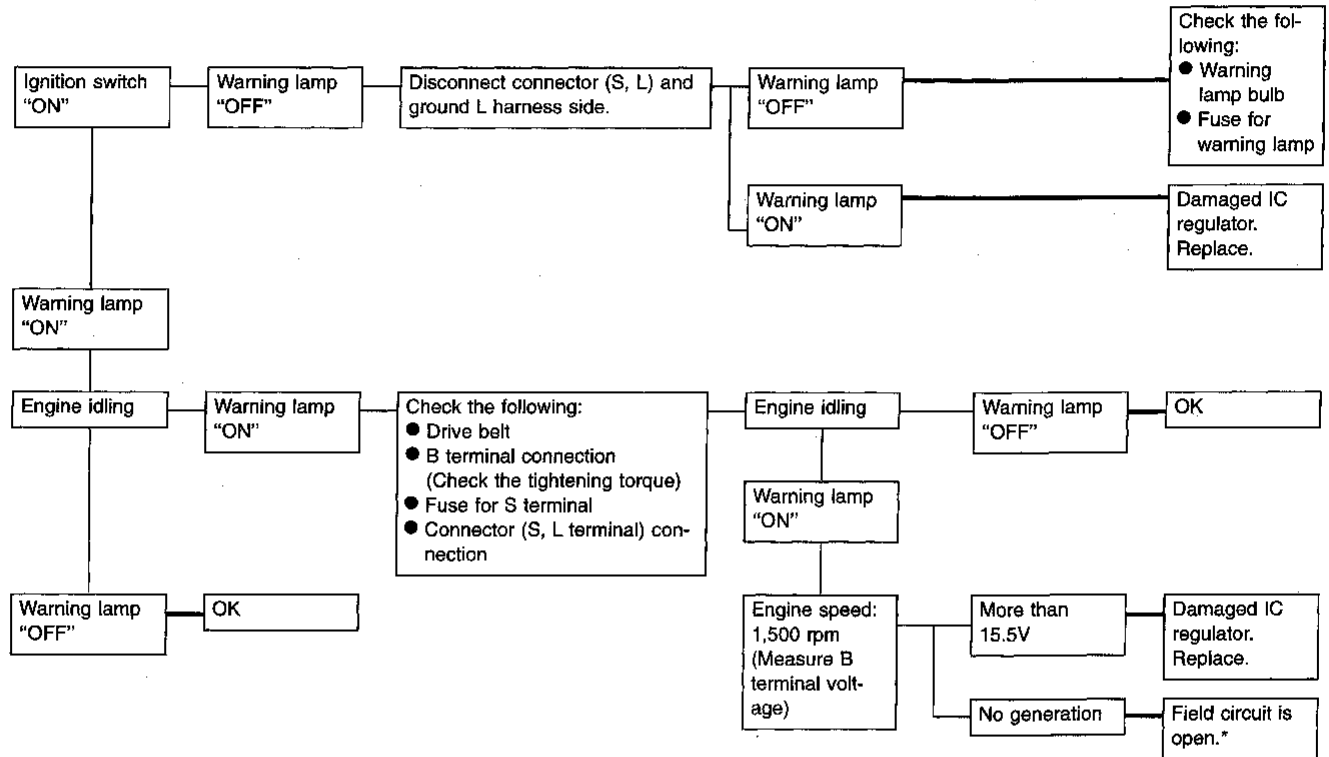
# CHARGING SYSTEM

## Trouble Diagnoses

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

- Before starting, inspect the fusible link.
- Use fully charged battery.

### WITH IC REGULATOR



Warning lamp: "CHARGE" warning lamp in combination meter

#### Note:

★: When field circuit is open, check condition of rotor coil, rotor slip ring and brush. If necessary, replace faulty parts with new ones.

### MALFUNCTION INDICATOR

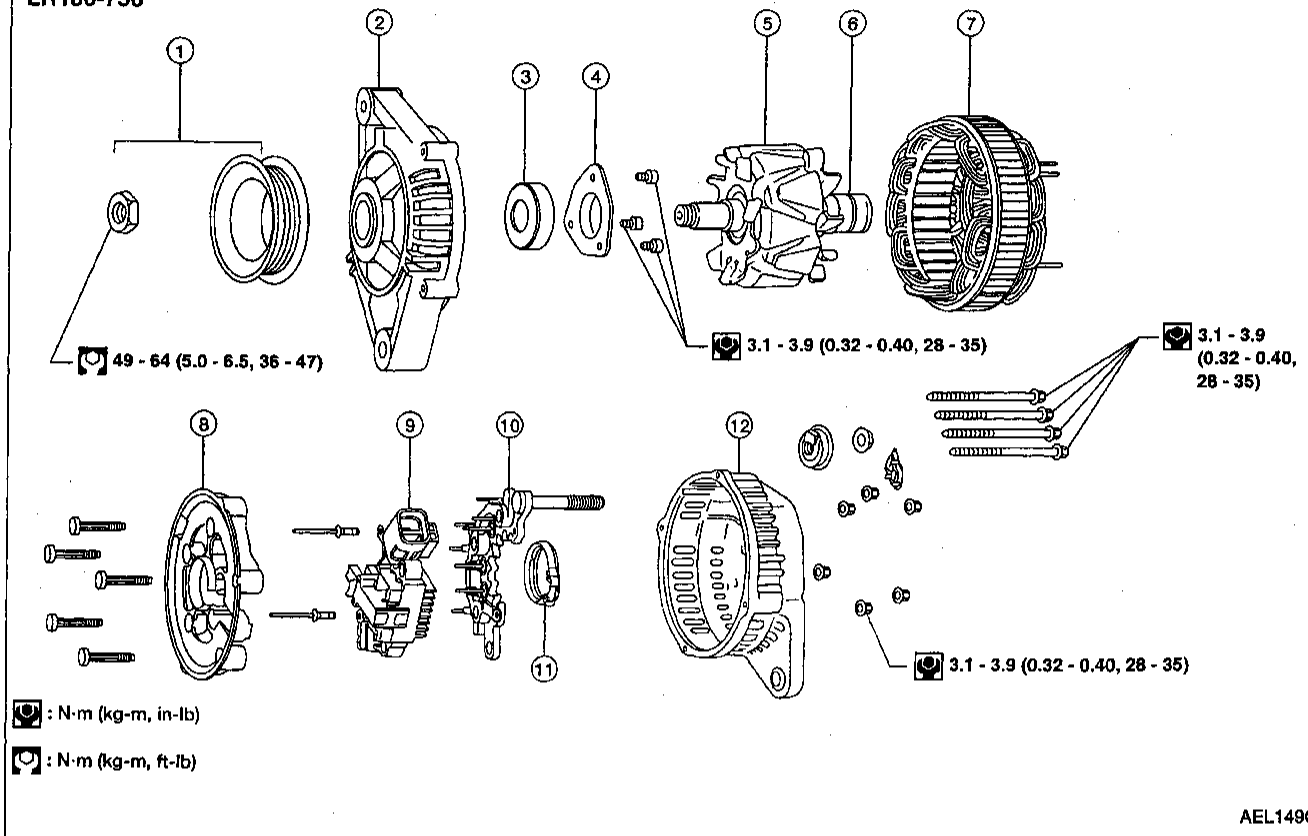
The IC regulator warning function activates to illuminate "CHARGE" warning lamp, if any of the following symptoms occur while generator is operating:

- Excessive voltage is produced.
- No voltage is produced.

# CHARGING SYSTEM

## Construction

SEC. 231  
LR180-756

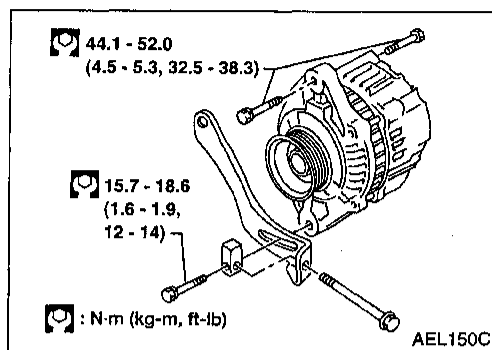


- ① Pulley assembly
- ② Front cover
- ③ Front bearing
- ④ Retainer

- ⑤ Rotor
- ⑥ Slip ring
- ⑦ Stator
- ⑧ Fan guide

- ⑨ IC regulator assembly
- ⑩ Diode assembly
- ⑪ Packing
- ⑫ Rear cover

# CHARGING SYSTEM



## Removal and Installation

### REMOVAL

1. Disconnect harness connectors.
2. Remove engine undercover.
3. Back off adjustment bolt, remove belt.
4. Remove 3 generator bolts and generator.

### INSTALLATION

To install, reverse the removal procedure.

## Service Data and Specifications (SDS)

### GENERATOR

Type		LR180-756
		HAP
Nominal rating	V-A	12-70
Ground polarity		Negative
Minimum revolution under no-load (When 13.5 volts is applied)	rpm	Less than 1,000
Hot output current (When 13.5 volts is applied)	A/rpm	More than 23/1,300 More than 65/2,500 More than 77/5,000
Regulated output voltage	V	14.1 - 14.7
Minimum length of brush	mm (in)	6.00 (0.236)
Brush spring pressure	N (g, oz)	1.000 - 2.452 (102 - 250, 3.60 - 8.82)
Slip ring minimum diameter	mm (in)	26.0 (1.024)
Rotor (field coil) resistance	$\Omega$	2.7

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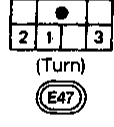
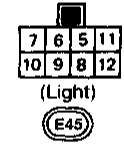
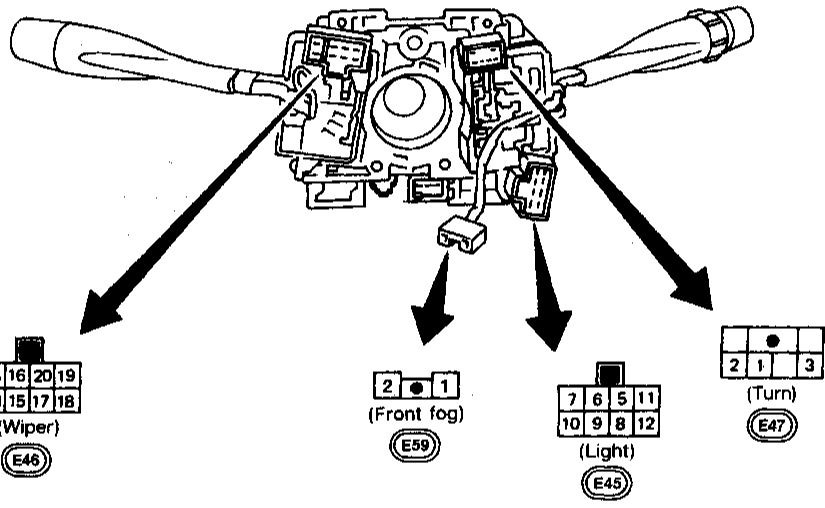
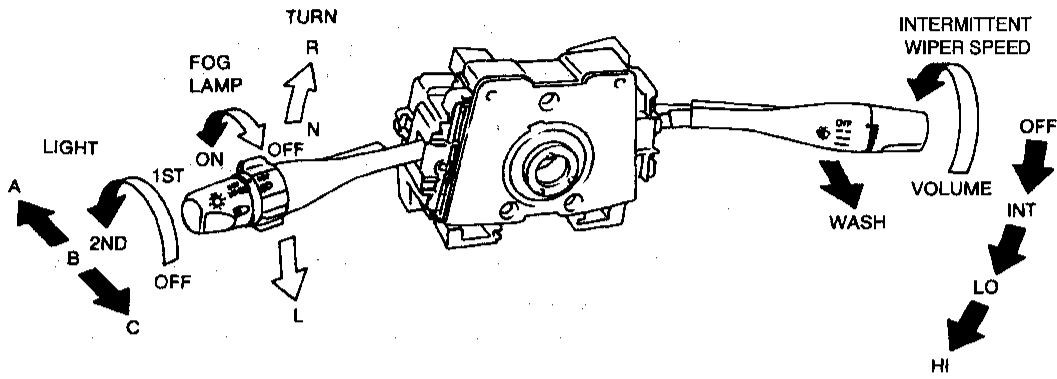
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# COMBINATION SWITCH

## Check

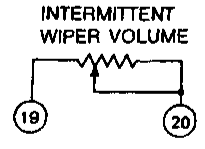


LIGHTING SWITCH

	OFF			1ST			2ND		
	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					



TURN SIGNAL SWITCH

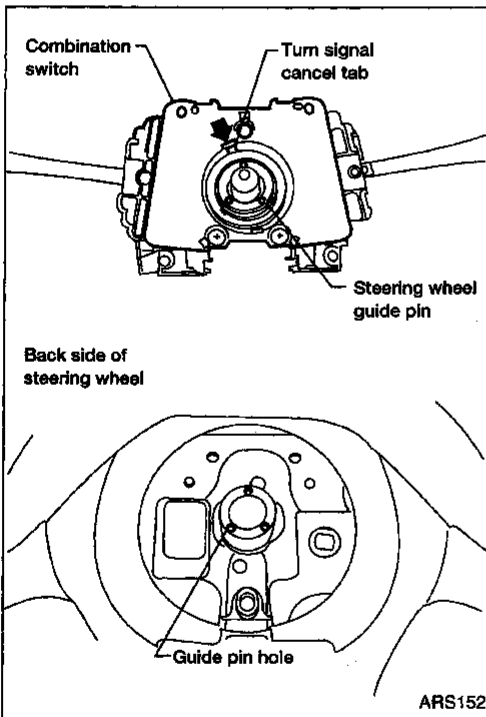
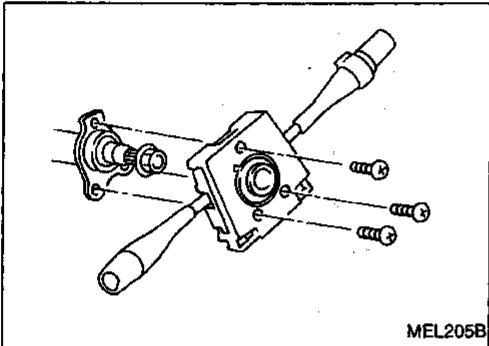
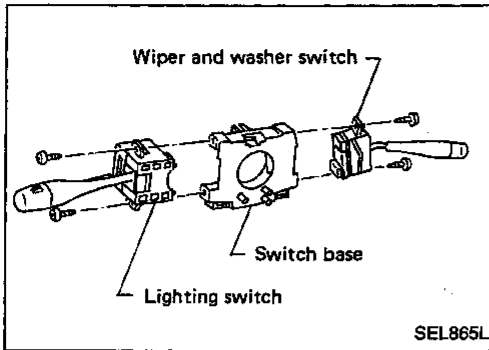
	R	N	L
1			
2			
3			

FRONT FOG LAMP SWITCH

	OFF	ON
1		
2		



# COMBINATION SWITCH



## Replacement

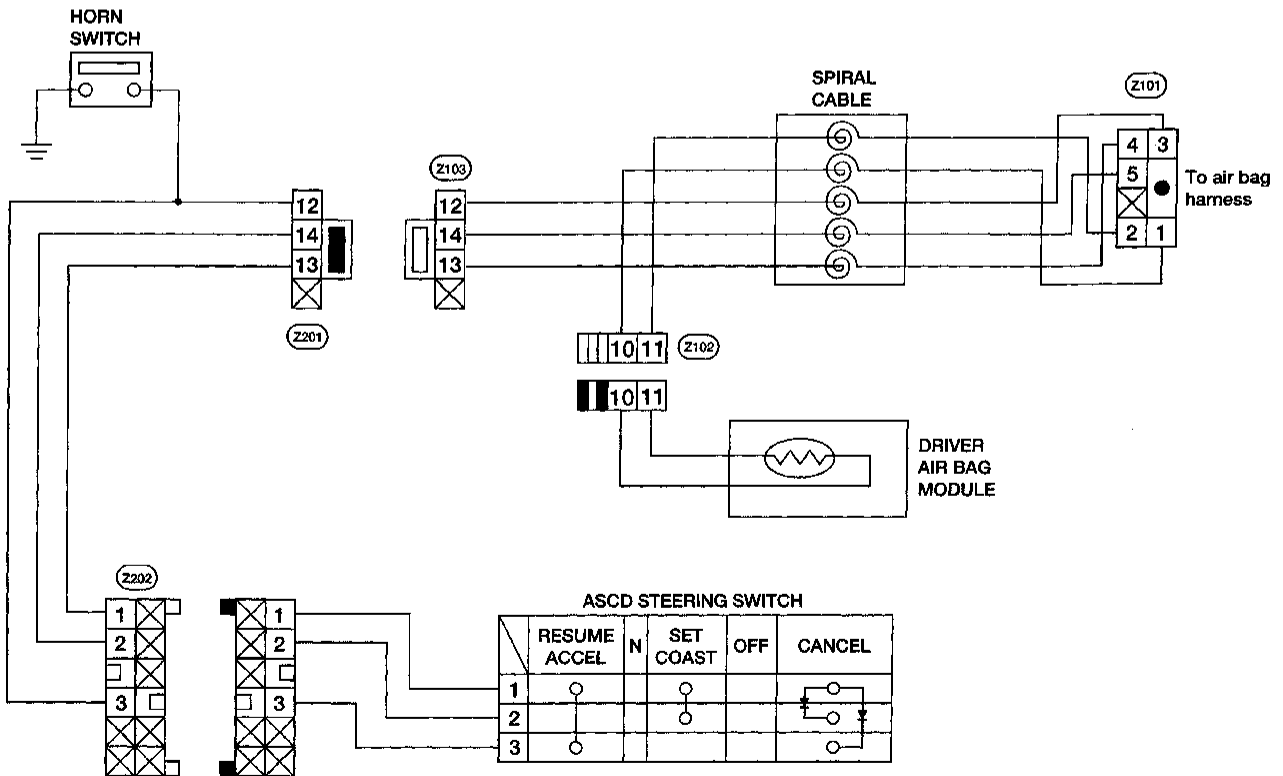
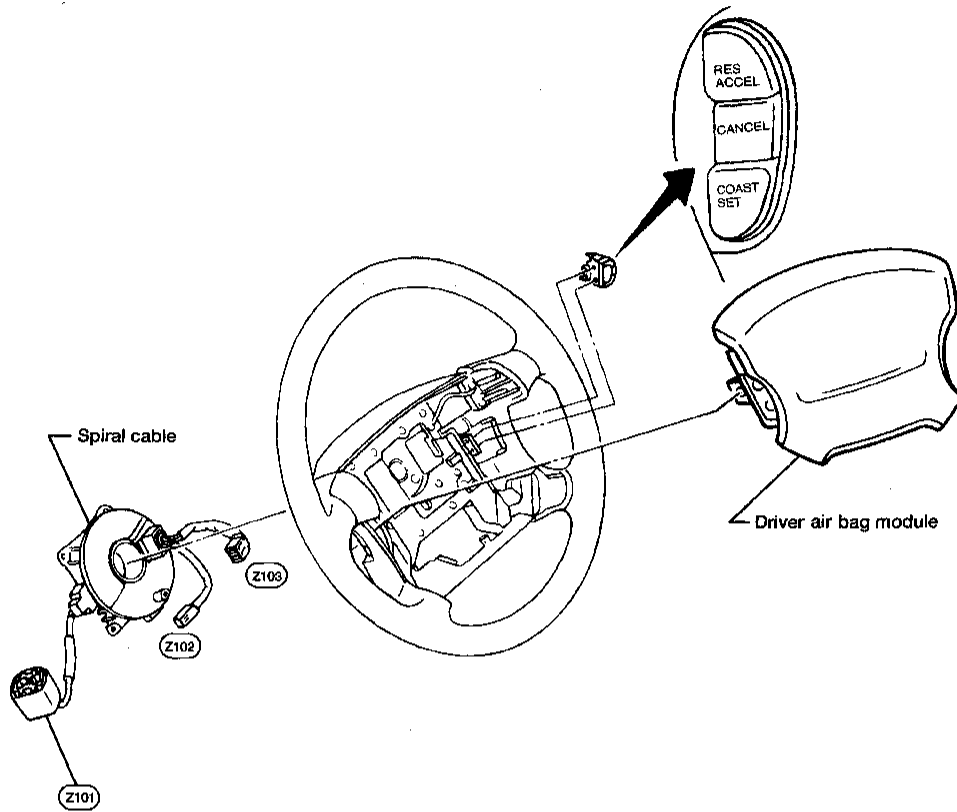
For removal and installation of spiral cable, refer to RS section ["Driver Air Bag Module and Spiral Cable", "SUPPLEMENTAL RESTRAINT SYSTEM (SRS)"].

- Each switch can be replaced without removing combination switch base.
- To remove combination switch base, remove base attaching screws.
- Before installing the steering wheel, align the turn signal cancel tab with the notch of combination switch. Refer to RS section ("INSTALLATION", "Driver Air Bag Module and Spiral Cable").

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# STEERING SWITCH

## Check



# HEADLAMP

## System Description (For USA)

The headlamps are controlled by the lighting switch which is built into the combination switch.

Power is supplied at all times:

- to lighting switch terminal ⑤
- through 15A fuse (No. 37, located in the fuse and fusible link box), and
- to lighting switch terminal ⑧
- through 15A fuse (No. 38, located in the fuse and fusible link box).

### Low beam operation

When the lighting switch is turned to headlamp ON (2ND) position, LOW BEAM (B), power is supplied:

- from lighting switch terminal ⑩
- to terminal ① of the LH headlamp, and
- from lighting switch terminal ⑦
- to terminal ② of the RH headlamp.

Terminal ③ of each headlamp supplies ground through body grounds E12 and E54.

With power and ground supplied, the headlamp(s) will illuminate.

### High beam operation/flash-to-pass operation

When the lighting switch is turned to headlamp ON (2ND) position, HIGH BEAM (A) or FLASH TO PASS (C) position, power is supplied:

- from lighting switch terminal ⑥
- to terminal ④ of RH headlamp, and
- from lighting switch terminal ⑨
- to terminal ③ of LH headlamp, and
- to combination meter terminal ⑰ for the high beam indicator.

Ground is supplied to terminal ⑱ of the combination meter through body grounds M14 and M68.

Terminal ④ of each headlamp supplies ground through body grounds E12 and E54.

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

### Theft warning system

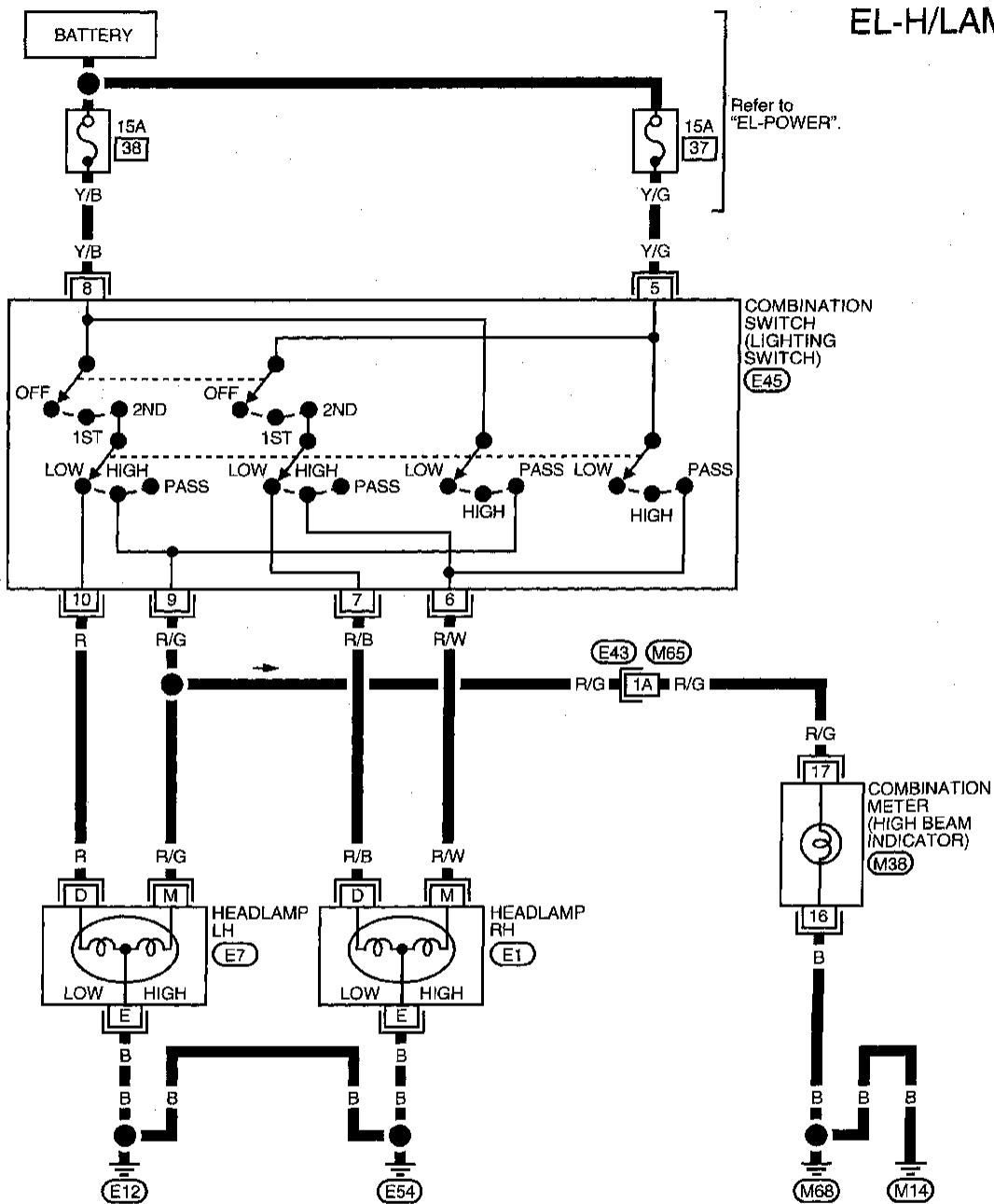
The theft warning system will flash the high beams if the system is triggered. Refer to "THEFT WARNING SYSTEM" (EL-189).

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# HEADLAMP

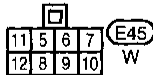
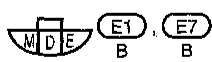
## Wiring Diagram (For USA) — H/LAMP —

EL-H/LAMP-01



Refer to last page (Foldout page).

(M65), (E43)

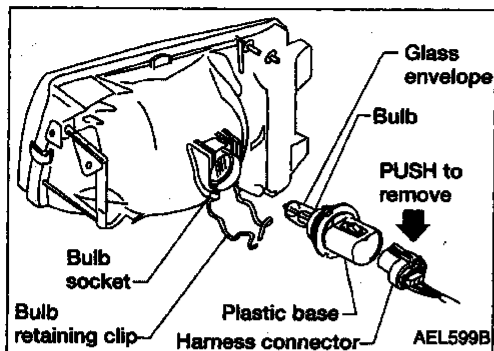


# HEADLAMP

## Trouble Diagnoses

Symptom	Possible cause	Repair order
LH headlamp does not operate.	<ol style="list-style-type: none"> <li>1. Bulb</li> <li>2. Grounds <b>(E12)</b> and <b>(E54)</b></li> <li>3. 15A fuse</li> <li>4. Lighting switch</li> </ol>	<ol style="list-style-type: none"> <li>1. Check bulb.</li> <li>2. Check grounds <b>(E12)</b> and <b>(E54)</b>.</li> <li>3. Check 15A fuse (No. <b>38</b>), located in fuse and fusible link box). Verify battery positive voltage is present at terminal <b>(8)</b> of lighting switch.</li> <li>4. Check lighting switch.</li> </ol>
RH headlamp does not operate.	<ol style="list-style-type: none"> <li>1. Bulb</li> <li>2. Grounds <b>(E12)</b> and <b>(E54)</b></li> <li>3. 15A fuse</li> <li>4. Lighting switch</li> </ol>	<ol style="list-style-type: none"> <li>1. Check bulb.</li> <li>2. Check grounds <b>(E12)</b> and <b>(E54)</b>.</li> <li>3. Check 15A fuse (No. <b>37</b>), located in fuse and fusible link box). Verify battery positive voltage is present at terminal <b>(5)</b> of lighting switch.</li> <li>4. Check lighting switch.</li> </ol>
LH high beam does not operate, but LH low beam operates.	<ol style="list-style-type: none"> <li>1. Bulb</li> <li>2. Open in LH high beam circuit</li> <li>3. Lighting switch</li> </ol>	<ol style="list-style-type: none"> <li>1. Check bulb.</li> <li>2. Check R/G wire between lighting switch and LH headlamp for an open circuit.</li> <li>3. Check lighting switch.</li> </ol>
LH low beam does not operate, but LH high beam operates.	<ol style="list-style-type: none"> <li>1. Bulb</li> <li>2. Open in LH low beam circuit</li> <li>3. Lighting switch</li> </ol>	<ol style="list-style-type: none"> <li>1. Check bulb.</li> <li>2. Check R wire between lighting switch and LH headlamp for an open circuit.</li> <li>3. Check lighting switch.</li> </ol>
RH high beam does not operate, but RH low beam operates.	<ol style="list-style-type: none"> <li>1. Bulb</li> <li>2. Open in RH high beam circuit</li> <li>3. Lighting switch</li> </ol>	<ol style="list-style-type: none"> <li>1. Check bulb.</li> <li>2. Check R/W wire between lighting switch and RH headlamp for an open circuit.</li> <li>3. Check lighting switch.</li> </ol>
RH low beam does not operate, but RH high beam operates.	<ol style="list-style-type: none"> <li>1. Bulb</li> <li>2. Open in RH low beam circuit</li> <li>3. Lighting switch</li> </ol>	<ol style="list-style-type: none"> <li>1. Check bulb.</li> <li>2. Check R/B wire between lighting switch and RH headlamp for an open circuit.</li> <li>3. Check lighting switch.</li> </ol>
High beam indicator does not work.	<ol style="list-style-type: none"> <li>1. Bulb</li> <li>2. Grounds <b>(M14)</b> and <b>(M68)</b></li> <li>3. Open in high beam circuit</li> </ol>	<ol style="list-style-type: none"> <li>1. Check bulb in combination meter.</li> <li>2. Check grounds <b>(M14)</b> and <b>(M68)</b>.</li> <li>3. Check R/G wire between lighting switch and combination meter for an open circuit.</li> </ol>

## HEADLAMP



### Bulb Replacement

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

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

1. Disconnect the battery cable.
2. Disconnect the harness connector from the back side of the bulb.
3. Unclip the bulb retaining clip, and then remove it.
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 headlamp reflector without bulb for a long period of time. Dust, moisture, smoke, etc. entering headlamp body may affect the performance of the headlamp. Remove headlamp bulb from the headlamp reflector just before a replacement bulb is installed.**

### Aiming Adjustment

When performing headlamp aiming adjustment, use an aiming machine, aiming wall screen or headlamp tester. Aimers should be in good repair, calibrated and operated 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).**

# HEADLAMP

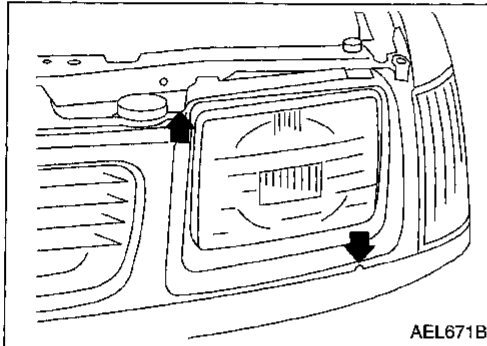
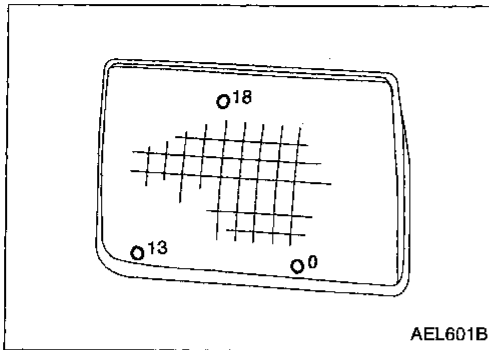
## Aiming Adjustment (Cont'd)

### AIMER ADJUSTMENT MARK

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

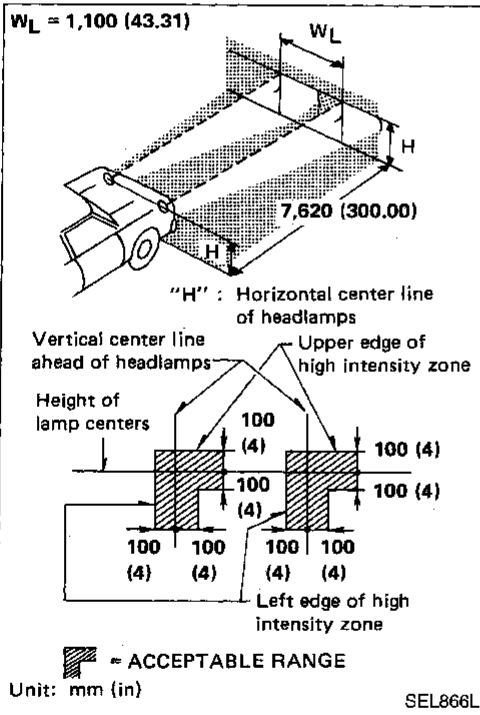
#### Adjustment value for mechanical aimer

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



### LOW BEAM

1. Turn headlamp low beam on.
  2. Use a #2 cross-recessed screwdriver to adjust the aim of the lamp.
- Cover the opposite lamp.



If the vehicle front body has been repaired and/or the headlamp assembly has been replaced, check aiming. Use the aiming chart shown in the figure.

- 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

## System Description (For Canada)

The headlamp system for Canada vehicles contains a daytime light control unit that 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. Thereafter, the daytime lights will continue to operate when the parking brake is applied. If the daytime light control unit receives a ground signal from the generator, the daytime lights will not be illuminated. The daytime lights will illuminate once a battery positive voltage signal is sent to the daytime light control unit from the generator.

Power is supplied at all times:

- through 15A fuse (No. 38), 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. 37, located in the fuse and fusible link box)
- to daytime light control unit terminal ② and
- to lighting switch terminal ⑤.

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

- through 7.5A fuse [No. 5], located in the fuse block (J/B)]
- to daytime light control unit terminal ⑫.

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

- through 7.5A fuse [No. 7], located in the fuse block (J/B)]
- to daytime light control unit terminal ①.

Ground is supplied to daytime light control unit terminal ⑨ through body grounds E12 and E54.

## HEADLAMP OPERATION

### Low beam operation

When the lighting switch is turned to headlamp ON (2ND) position, LOW BEAM (B), power is supplied:

- from lighting switch terminal ⑦
- to RH headlamp terminal D
- to daytime light control unit terminal ④.

Ground is supplied to RH headlamp terminal E through body grounds E12 and E54.

Also, when the lighting switch is turned to headlamp ON (2ND) position, LOW BEAM (B), power is supplied:

- from lighting switch terminal ⑩
- to LH headlamp terminal D.

Ground is supplied:

- to LH headlamp terminal E
- from daytime light control unit terminal ⑦
- through daytime light control unit terminal ⑨
- through body grounds E12 and E54.

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

### High beam operation/flash-to-pass operation

When the lighting switch is turned to headlamp ON (2ND) position, HIGH BEAM (A) or FLASH TO PASS (C) position, power is supplied:

- from lighting switch terminal ⑥
- to terminal M of RH headlamp.

When the lighting switch is turned to headlamp ON (2ND) position, HIGH BEAM (A) or FLASH TO PASS (C) position, power is supplied:

- from lighting switch terminal ⑨
- to daytime light control terminal ⑤
- to combination meter terminal ⑰ for the high beam indicator
- through daytime light control terminal ⑥
- to terminal M of LH headlamp.

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

Ground is supplied to terminal ⑱ of the combination meter through body grounds M14 and M68.

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



# HEADLAMP — Daytime Light System —

## System Description (For Canada) (Cont'd)

### DAYTIME LIGHT OPERATION

With the engine running, the lighting switch in the OFF or parking lamp (1ST) position and parking brake released, power is supplied:

- to daytime light control unit terminal ③
- through daytime light control unit terminal ⑥
- to terminal ④ of LH headlamp
- through terminal ⑤ of LH headlamp
- to daytime light control unit terminal ⑦
- through daytime light control unit terminal ⑧
- to terminal ④ of RH headlamp.

Ground is supplied to terminal ⑤ of RH headlamp through body grounds ①② and ⑤④ .  
Because the high beam headlamps are now wired in series, they operate at half illumination.

### Operation (For Canada)

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

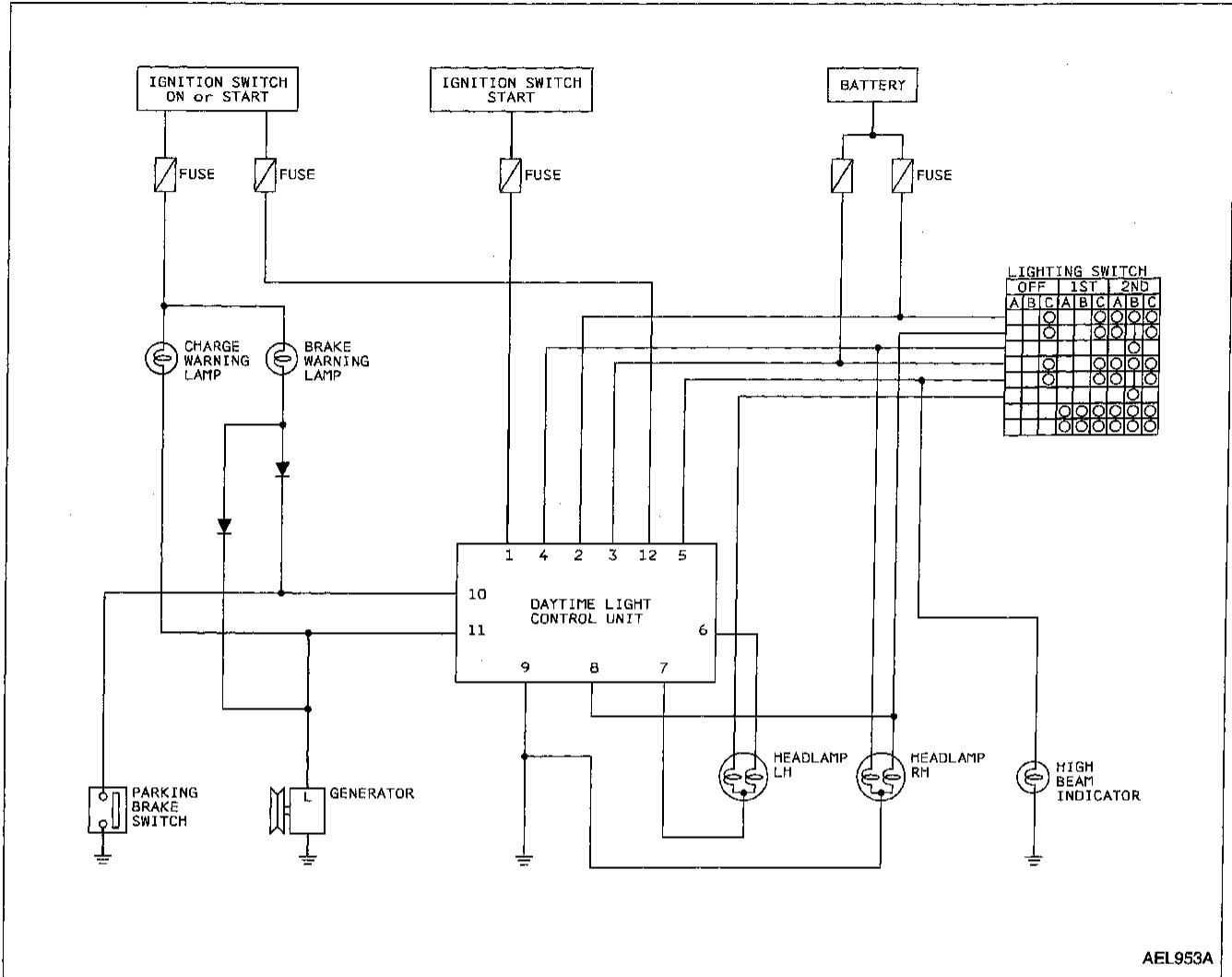
Engine		With engine stopped									With engine running								
		OFF			1ST			2ND			OFF			1ST			2ND		
Lighting switch		A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
Headlamp	High beam	X	X	○	X	X	○	○	X	○	△*	△*	○	△*	△*	○	○	X	○
	Low beam	X	X	X	X	X	X	X	○	X	X	X	X	X	X	X	X	○	X
Parking and tail lamp		X	X	X	○	○	○	○	○	○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

- A : HIGH BEAM position  
 B : LOW BEAM position  
 C : FLASH TO PASS position  
 ○ : Lamp ON  
 X : Lamp OFF  
 △ : Lamp dims.  
 □ : Added functions

\*: When starting the engine with the parking brake released, the daytime light will come ON.  
 When starting the engine with the parking brake pulled, the daytime light won't come ON.

# HEADLAMP — Daytime Light System —

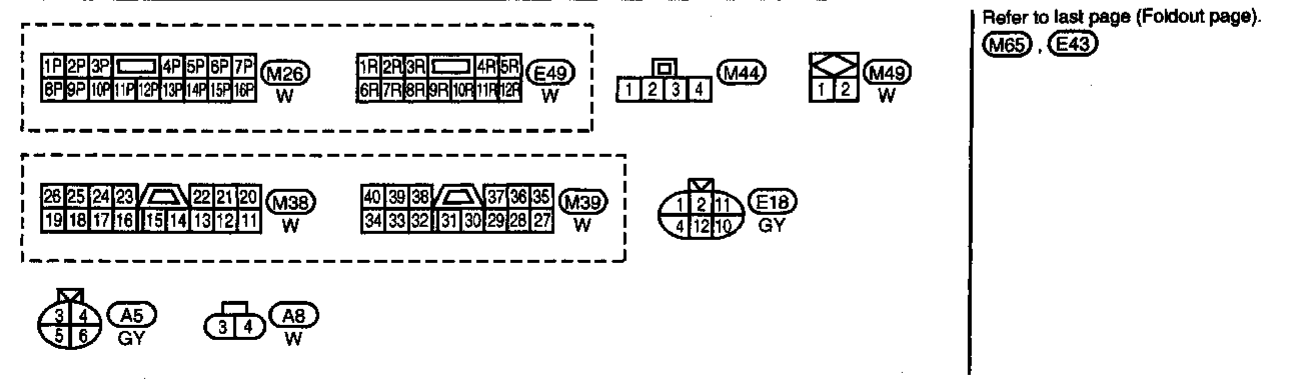
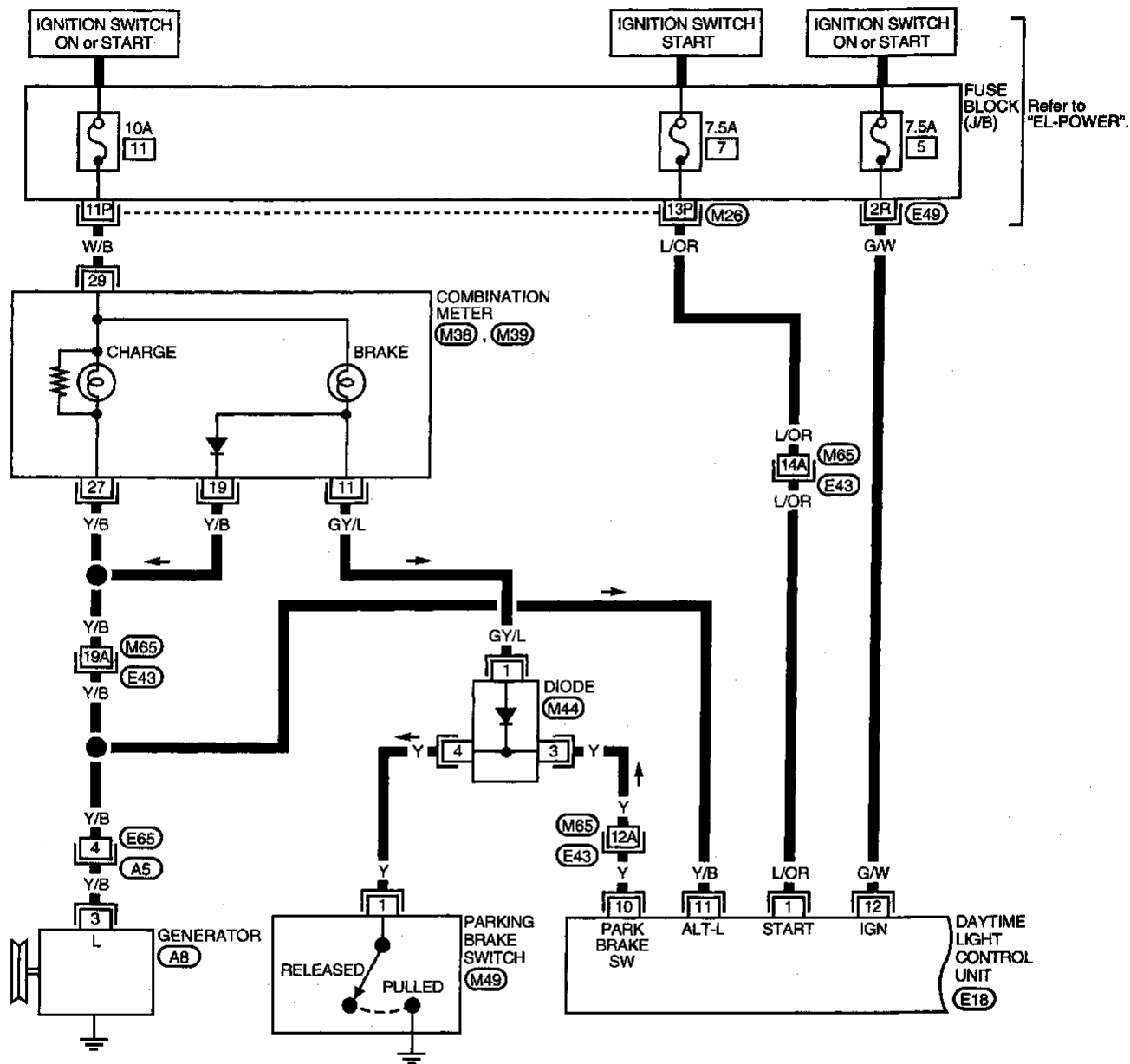
## Schematic (For Canada)



# HEADLAMP — Daytime Light System —

## Wiring Diagram (For Canada) — DTRL —

EL-DTRL-01

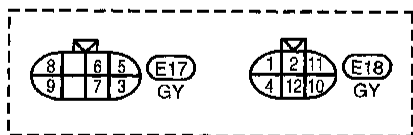
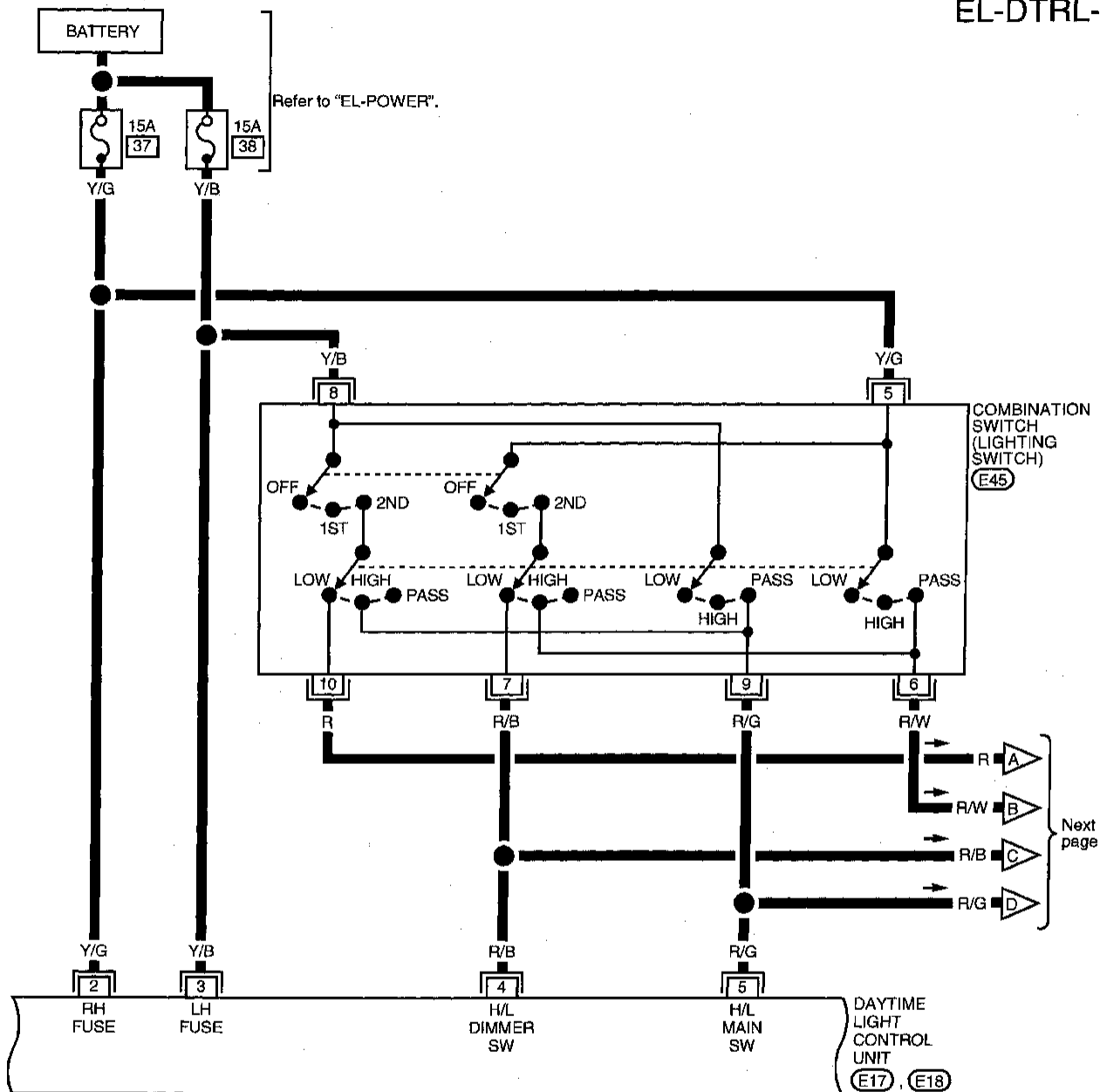


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# HEADLAMP — Daytime Light System —

## Wiring Diagram (For Canada) — DTRL — (Cont'd)

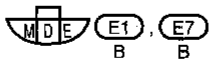
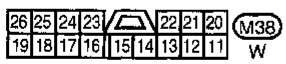
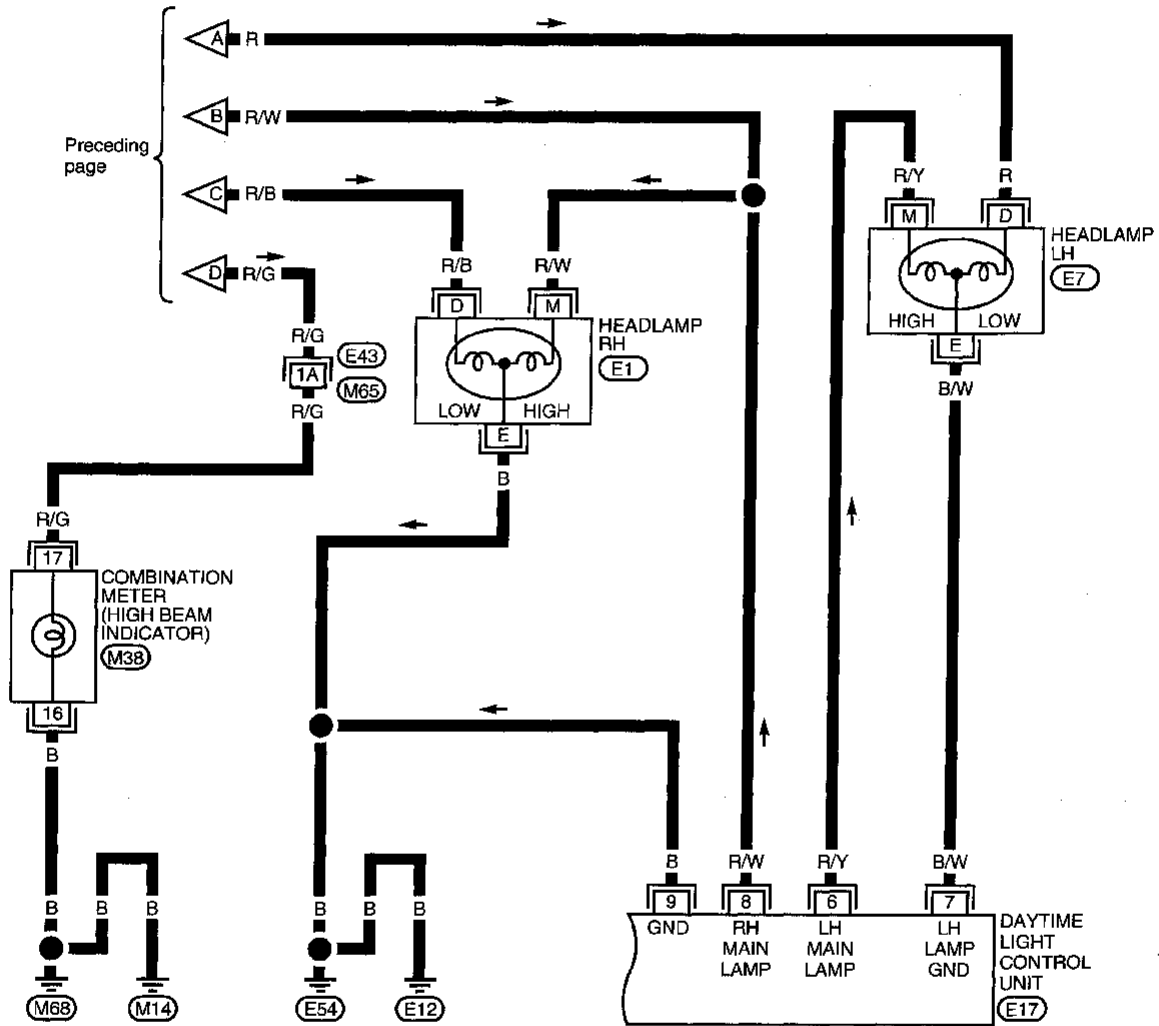
EL-DTRL-02



# HEADLAMP — Daytime Light System —

## Wiring Diagram (For Canada) — DTRL — (Cont'd)

EL-DTRL-03













Refer to last page (Foldout page).  
M65, E43

# HEADLAMP — Daytime Light System —








## Trouble Diagnoses (For Canada)

### DAYTIME LIGHT CONTROL UNIT INSPECTION TABLE

Terminal No.	Wire color	Item	Condition	Voltage (Approximate values)
1	L/OR	Start signal	 When turning ignition switch to ST	Battery voltage
			 When turning ignition switch to ON from ST	Less than 1V
			 When turning ignition switch to OFF	Less than 1V
2	Y/G	Power source	 When turning ignition switch to ON	Battery voltage
			 When turning ignition switch to OFF	Battery voltage
3	Y/B	Power source	 When turning ignition switch to ON	Battery voltage
			 When turning ignition switch to OFF	Battery voltage
4	R/B	Lighting switch (Lo beam)	When turning lighting switch to headlamp ON (2ND) position, LOW BEAM	Battery voltage
5	R/G	Lighting switch (Hi beam)	When turning lighting switch to HI BEAM	Battery voltage
			When turning lighting switch to FLASH TO PASS	Battery voltage
6	R/Y	LH hi beam	When turning lighting switch to HI BEAM	Battery voltage
			 When releasing parking brake with engine running and turning lighting switch to OFF (daytime light operation) <b>CAUTION: Block wheels and ensure selector lever is in N or P position.</b>	Battery voltage
7	B/W	LH headlamp control (ground)	When lighting switch is turned to headlamp ON (2ND) position, LOW BEAM	Less than 1V
			 When releasing parking brake with engine running and turning lighting switch to OFF (daytime light operation) <b>CAUTION: Block wheels and ensure selector lever is in N or P position.</b>	Approx. half battery voltage
8	R/W	RH hi beam	When turning lighting switch to HI BEAM	Battery voltage
			 When releasing parking brake with engine running and turning lighting switch to OFF (daytime light operation) <b>CAUTION: Block wheels and ensure selector lever is in N or P position.</b>	Approx. half battery voltage
9	B	Ground	—	—

# HEADLAMP — Daytime Light System —

## Trouble Diagnoses (For Canada) (Cont'd)

Terminal No.	Wire color	Item	Condition	Voltage (Approximate values)
10	Y	Parking brake switch	 When parking brake is released	Battery voltage
			When parking brake is set	Less than 1.5V
11	Y/B	Generator	 When turning ignition switch to ON	Less than 1V
			 When engine is running	Battery voltage
			 When turning ignition switch to OFF	Less than 1V
12	G/W	Power source	 When turning ignition switch to ON	Battery voltage
			 When turning ignition switch to ST	Battery voltage
			 When turning ignition switch to OFF	Less than 1V

### Bulb Replacement

Refer to "HEADLAMP" (EL-44).

### Aiming Adjustment

Refer to "HEADLAMP" (EL-44).

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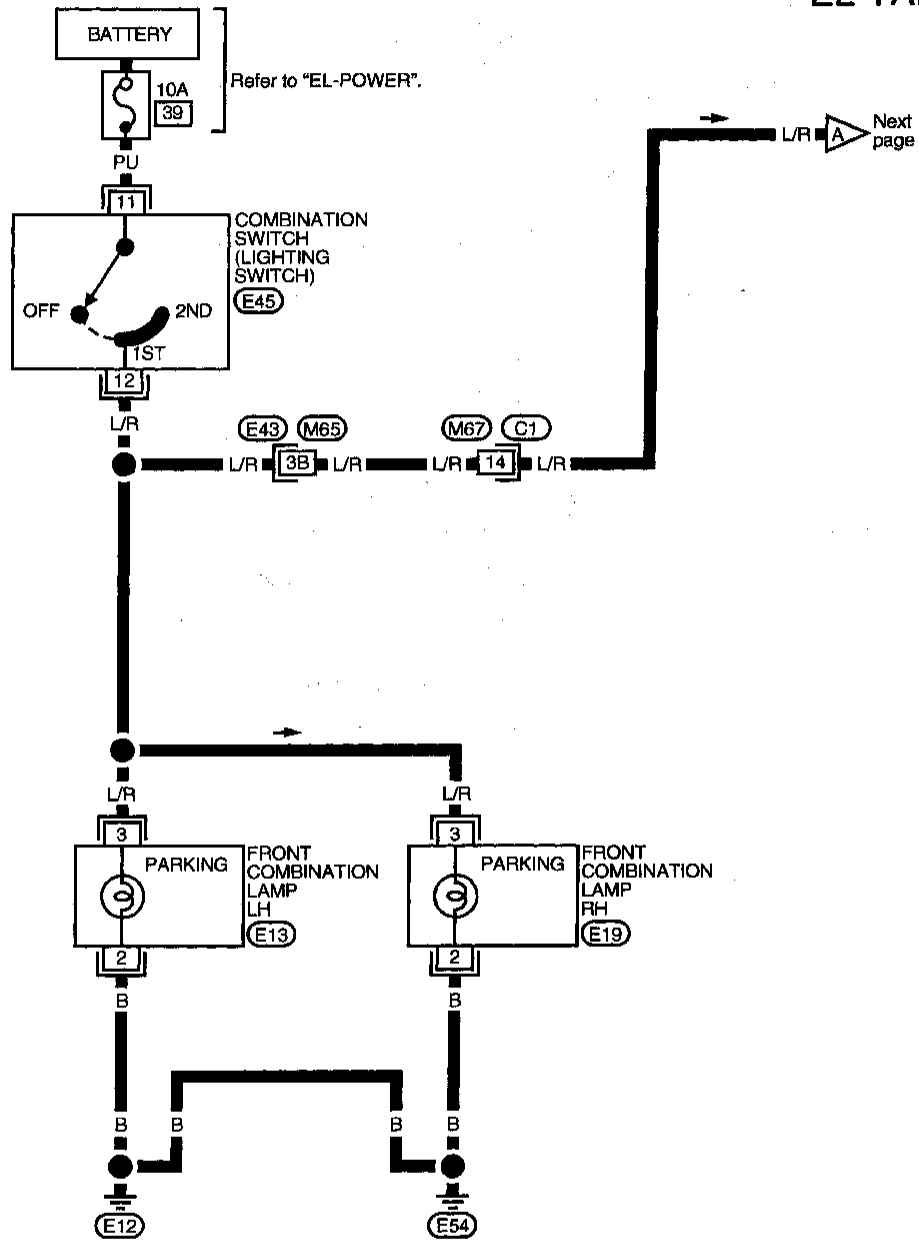
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# PARKING, LICENSE AND TAIL LAMPS

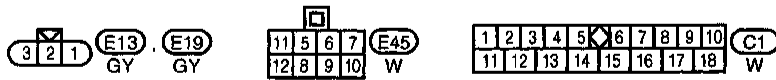
## Wiring Diagram — TAIL/L —

EL-TAIL/L-01



Next page

Refer to last page (Foldout page).

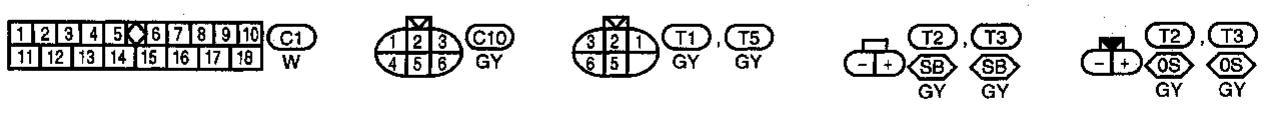
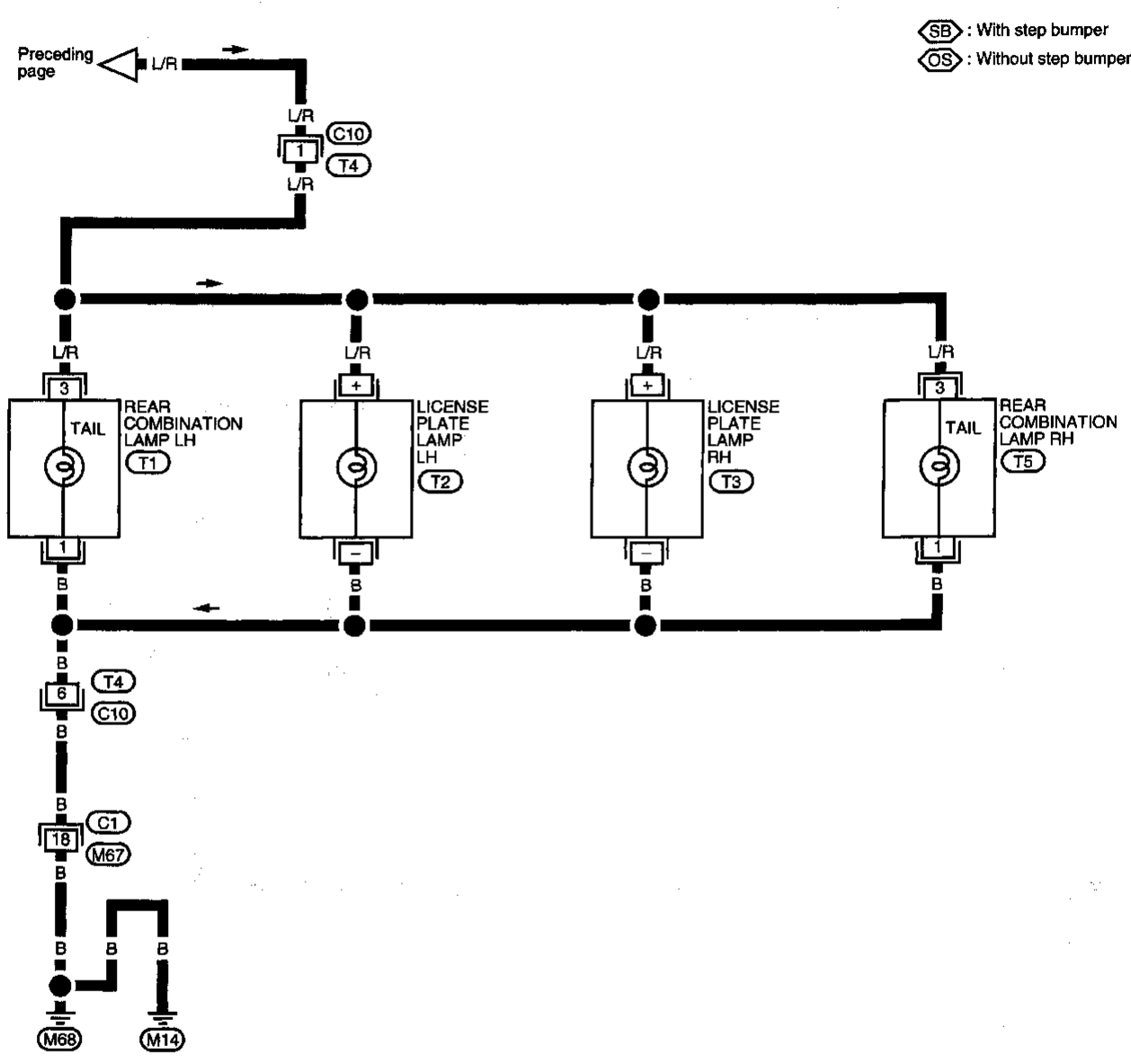


M65, E43



# PARKING, LICENSE AND TAIL LAMPS

## Wiring Diagram — TAIL/L — (Cont'd)

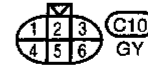
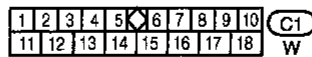
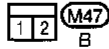
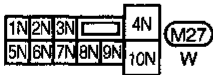
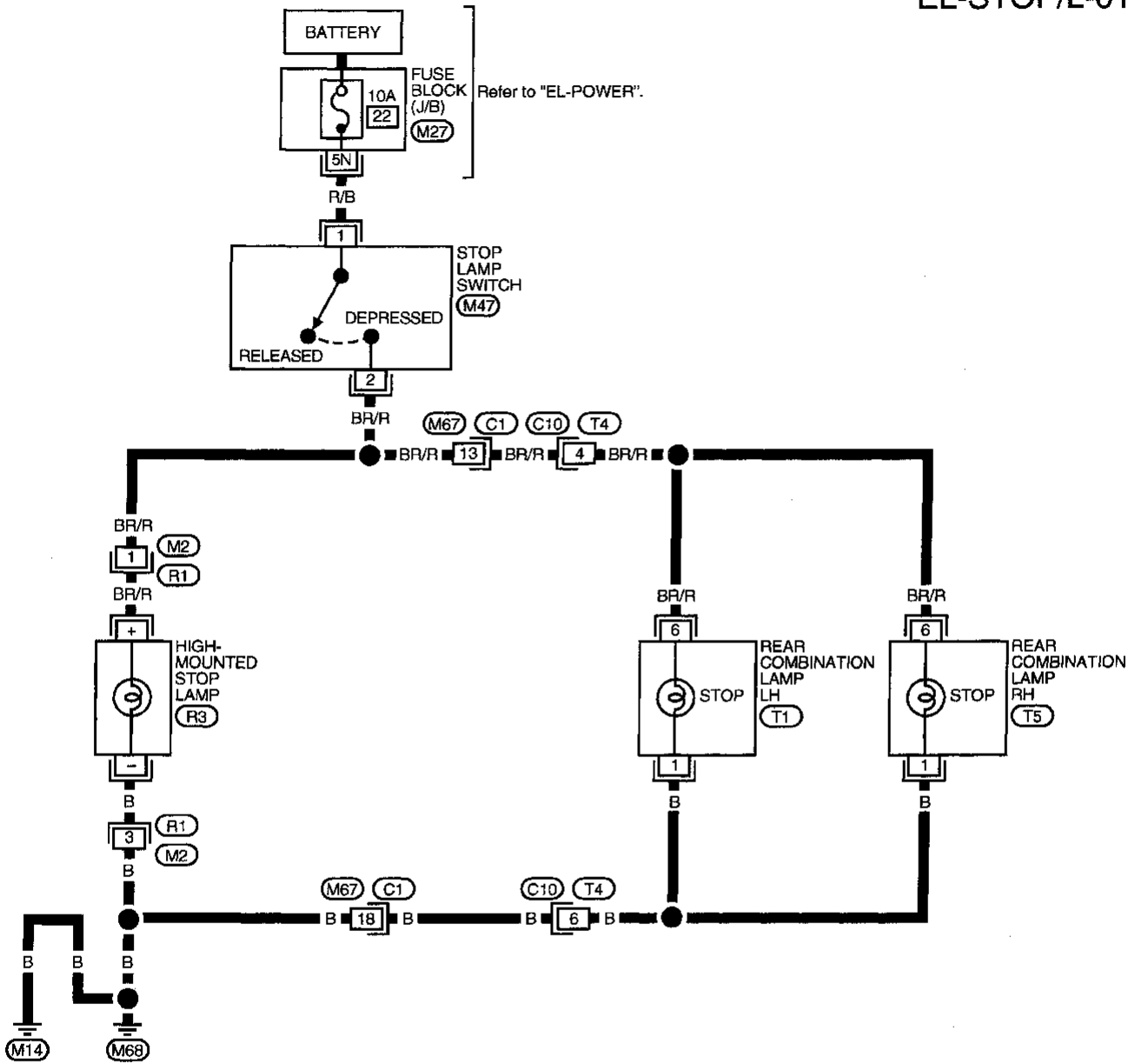


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IDX

# STOP LAMP

## Wiring Diagram — STOP/L —

EL-STOP/L-01



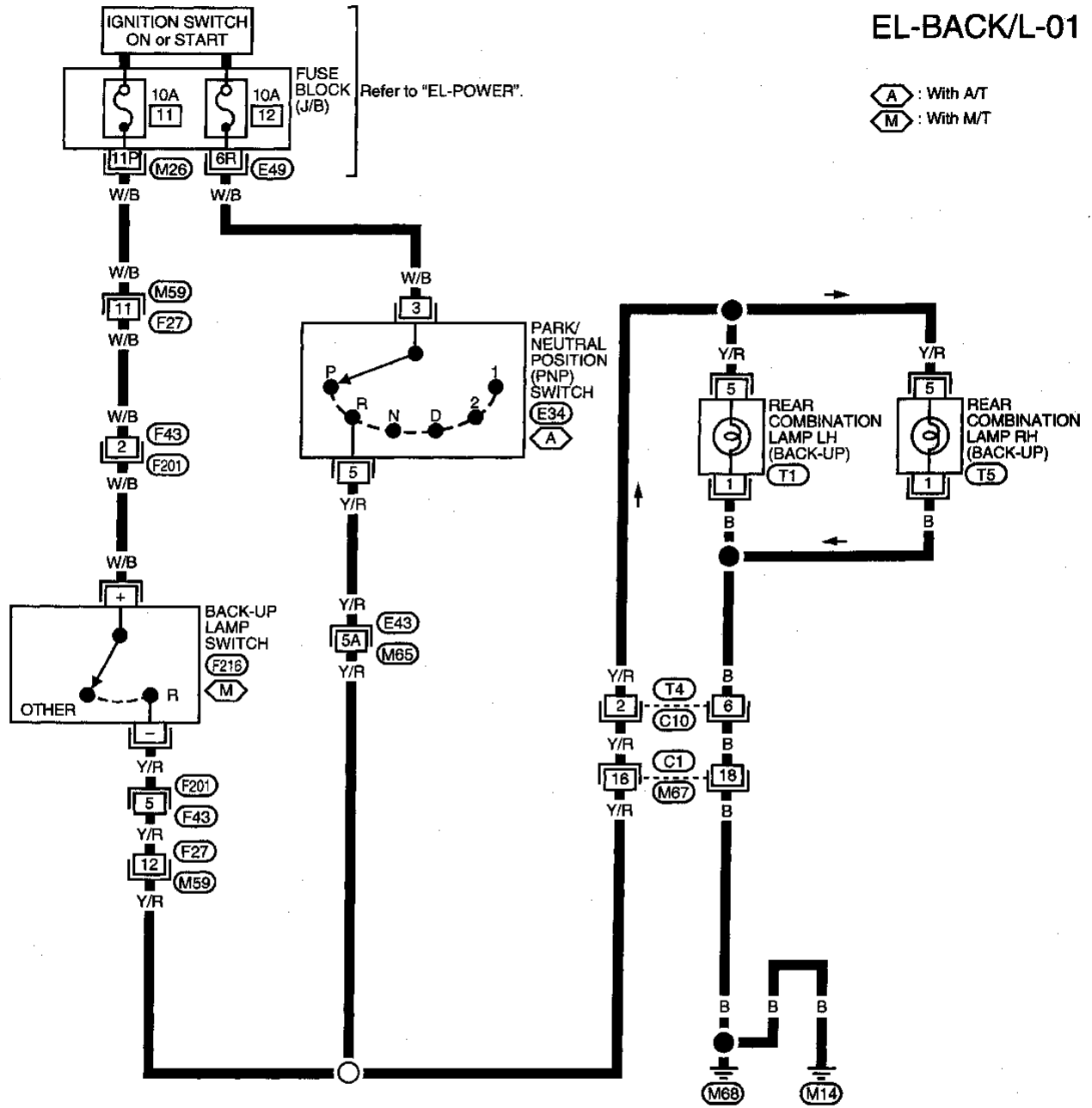
AEL364B

EL-56

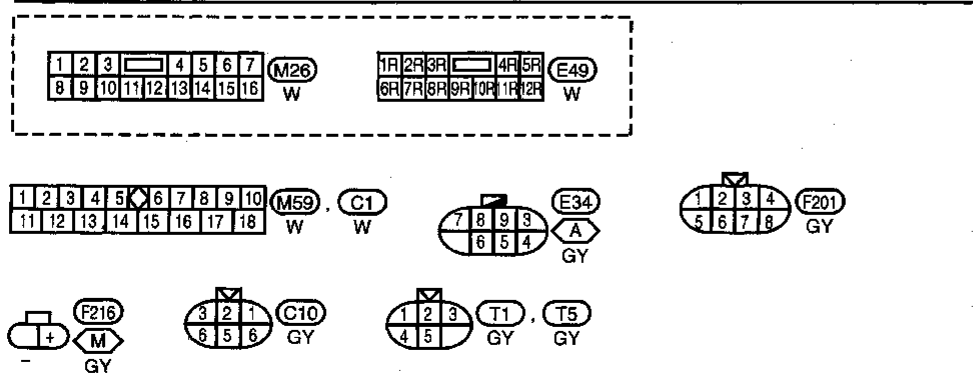
# BACK-UP LAMP

## Wiring Diagram — BACK/L —

EL-BACK/L-01



(A) : With A/T  
(M) : With M/T



Refer to last page (Foldout page).  
M65, E43

# FRONT FOG LAMP

---

## System Description

Power is supplied at all times to front fog lamp relay terminal ⑤ through:

- 15A fuse (No. ④①, located in the fuse and fusible link box).

With the lighting switch in headlamp ON (2ND) position, LOW BEAM (B), power is supplied:

- through 15A fuse (No. ③⑦, located in the fuse and fusible link box)
- to lighting switch terminal ⑤
- through terminal ⑦ of the lighting switch
- to front fog lamp relay terminal ②.

### Fog lamp operation

The fog lamp switch is built into the combination switch. The lighting switch must be in headlamp ON (2ND) position, LOW BEAM (B) for 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 ①② and ①④.

The fog lamp relay is energized and power is supplied:

- from front fog lamp relay terminal ③
- to terminal ① of each front fog lamp.

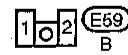
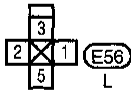
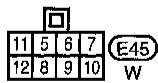
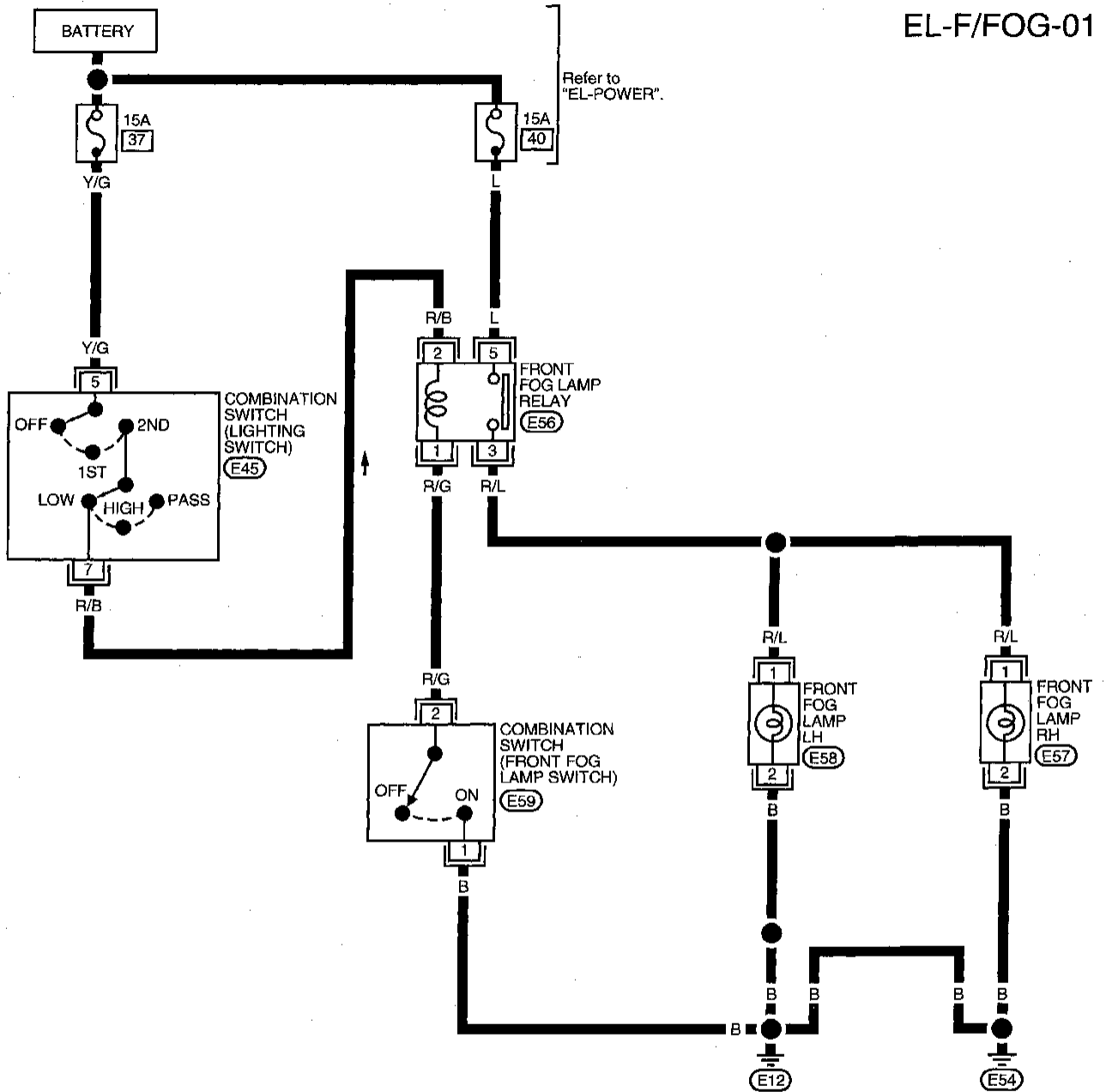
Ground is supplied to terminal ② of each front fog lamp through body grounds ①② and ①④.

With power and ground supplied, the front fog lamps illuminate.

# FRONT FOG LAMP

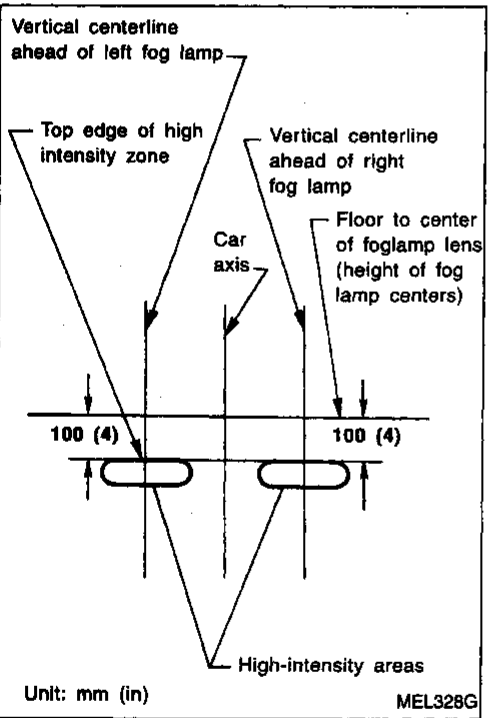
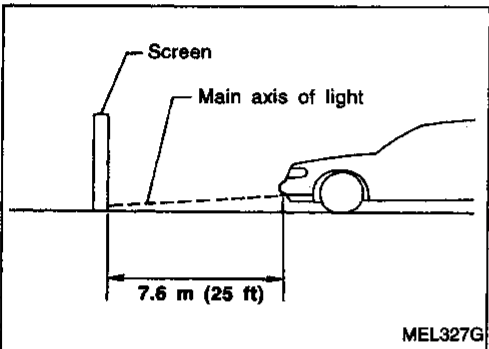
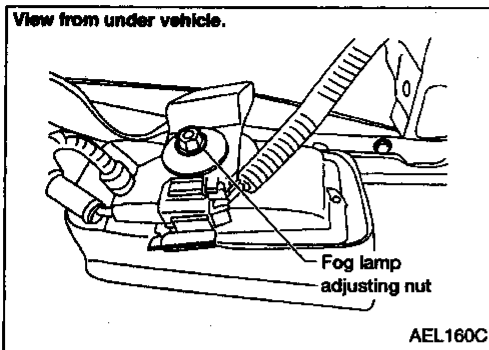
## Wiring Diagram — F/FOG —

EL-F/FOG-01



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# FRONT FOG LAMP



## Aiming Adjustment

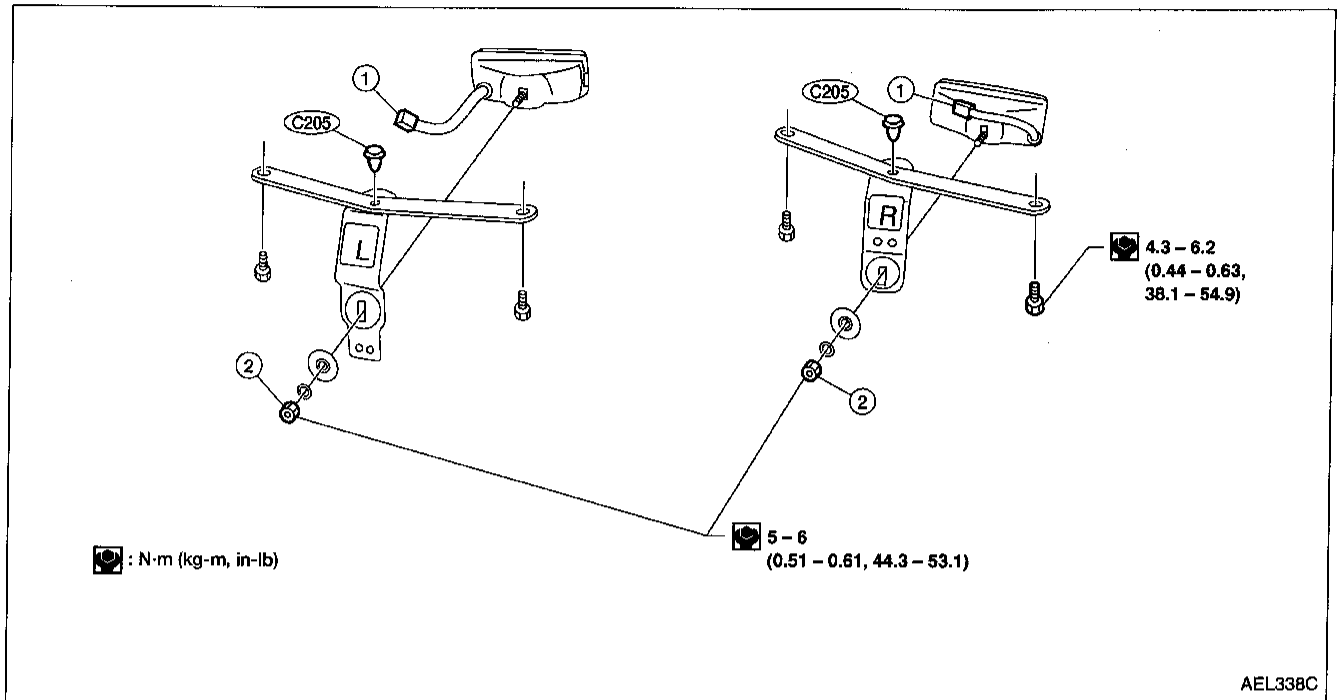
Before performing aiming adjustment, make sure of the following.

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

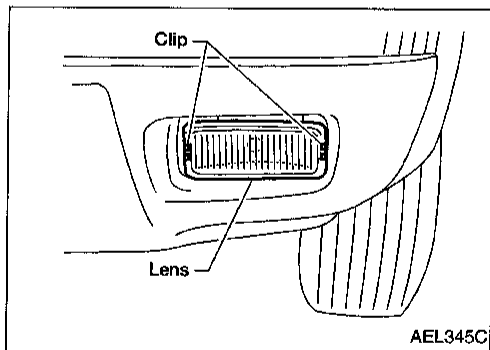
- Set the distance between the screen and the center of the fog lamp lens as shown at left.
- Turn front fog lamps ON.
- Adjust front fog lamps so that the top edge of the high intensity zone is 100 mm (4 in) below the height of the fog lamp centers as shown at left.
  - When performing adjustment, if necessary, cover the headlamps and opposite fog lamp.

# FRONT FOG LAMP

## Removal and Installation

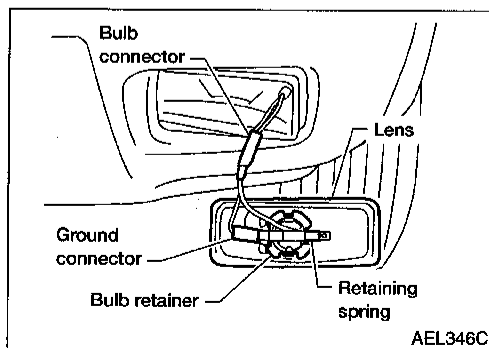


1. Disconnect fog lamp harness connector and separate fog lamp connector from fog lamp bracket.
2. Remove mounting nut and remove lens and housing assembly from fog lamp bracket.
3. Install in reverse order of removal. Ensure top of lens faces up.
4. Tighten mounting nut.  
: 5 - 6 N·m (0.51 - 0.61 kg-m, 44.3 - 53.1 in-lb)



## Bulb and Lens Replacement

1. Remove the two metal clips on sides of fog lamp.
2. Pull out and support fog lamp lens.
3. Disconnect fog lamp bulb connector.
4. Lift retaining spring.
5. Remove fog lamp bulb.
  - Fog lamp bulb cannot be separated from wire and is serviced as an assembly.
6. For lens replacement, disconnect ground connector from bulb retainer and remove lens.
7. Install in reverse order of removal. Ensure top of lens faces up.  
**DO NOT TOUCH BULB.**



# 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. 2], located in the fuse block (J/B)]
- to hazard switch terminal ②
- through terminal ① of the hazard switch
- to combination flasher unit terminal ③
- through terminal ④ of the combination flasher unit
- to turn signal switch terminal ①.

Ground is supplied to combination flasher unit terminal ⑤ through body grounds M14 and M68.

#### LH turn

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

- front combination lamp LH terminal ①
- combination meter terminal 24
- rear combination lamp LH terminal ②.

Ground is supplied to the front combination lamp LH terminal ② through body grounds E12 and E54.

Ground is supplied to the rear combination lamp LH terminal ① through body grounds M14 and M68.

Ground is supplied to combination meter terminal 33 through body grounds M14 and M68.

With power and ground supplied, the combination flasher unit controls the flashing of the LH combination 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 combination lamp RH terminal ①
- combination meter terminal 40
- rear combination lamp RH terminal ②.

Ground is supplied to the front combination lamp RH terminal ② through body grounds E12 and E54.

Ground is supplied to the rear combination lamp RH terminal ① through body grounds M14 and M68.

Ground is supplied to combination meter terminal 33 through body grounds M14 and M68.

With power and ground supplied, the combination flasher unit controls the flashing of the RH combination lamps.

### HAZARD LAMP OPERATION

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

- 10A fuse [No. 17], located in the fuse block (J/B)].

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

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

Ground is supplied to combination flasher unit terminal ⑤ through body grounds M14 and M68.

Power is supplied through terminal ⑤ of the hazard switch to:

- front combination lamp LH terminal ①
- combination meter terminal 24
- rear combination lamp LH terminal ②.

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

- front combination lamp RH terminal ①
- combination meter terminal 40
- rear combination lamp RH terminal ②.

Ground is supplied to terminal ② of each front combination lamp through body grounds E12 and E54.

Ground is supplied to terminal ① of each rear combination lamp through body grounds M14 and M68.

Ground is supplied to combination meter terminal 33 through body grounds M14 and M68.

With power and ground supplied, the combination flasher unit controls the flashing of the hazard warning lamps.



# TURN SIGNAL AND HAZARD WARNING LAMPS

## System Description (Cont'd)

### WITH MULTI-REMOTE CONTROL SYSTEM

Power is supplied at all times:

- through 10A fuse [No. 17, located in the fuse block (J/B)]
- to multi-remote control relay terminals ②, ⑤ and ⑦.

Ground is supplied to multi-remote control relay terminal ①, when the multi-remote control system is triggered through the smart entrance control unit.

Refer to "MULTI-REMOTE CONTROL SYSTEM" (EL-174).

When multi-remote control relay is energized.

Power is supplied through terminal ③ of the multi-remote control relay:

- to front combination lamp LH terminal ①
- to combination meter terminal ②
- to rear combination lamp LH terminal ②.

Power is supplied through terminal ⑥ of the multi-remote control relay:

- to front combination lamp RH terminal ①
- to combination meter terminal ④
- to rear combination lamp RH terminal ②.

Ground is supplied to terminal ② of each front combination lamp through body grounds E12 and E54.

Ground is supplied to terminal ① of each rear combination lamp through body grounds M14 and M68.

Ground is supplied to combination meter terminal ③ through body grounds M14 and M68.

With power and ground supplied, the smart entrance control unit controls the flashing of the hazard warning lamps.

GI

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EM

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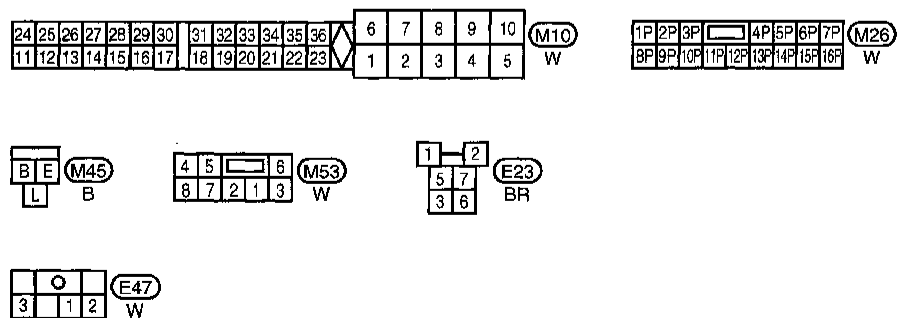
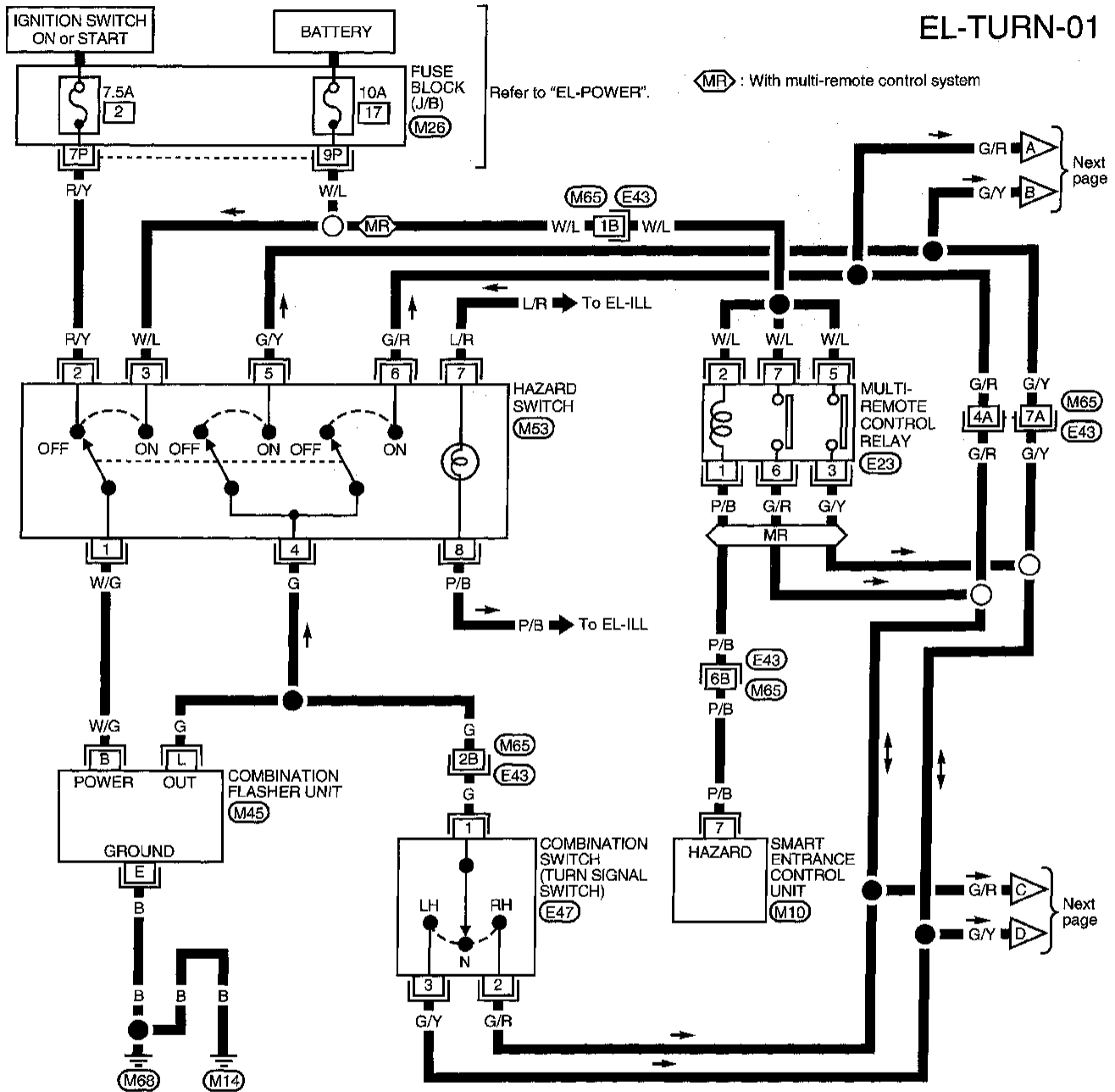
EL

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# TURN SIGNAL AND HAZARD WARNING LAMPS

## Wiring Diagram — TURN —

EL-TURN-01

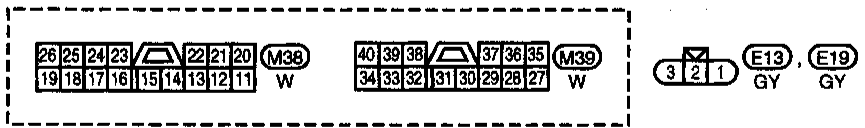
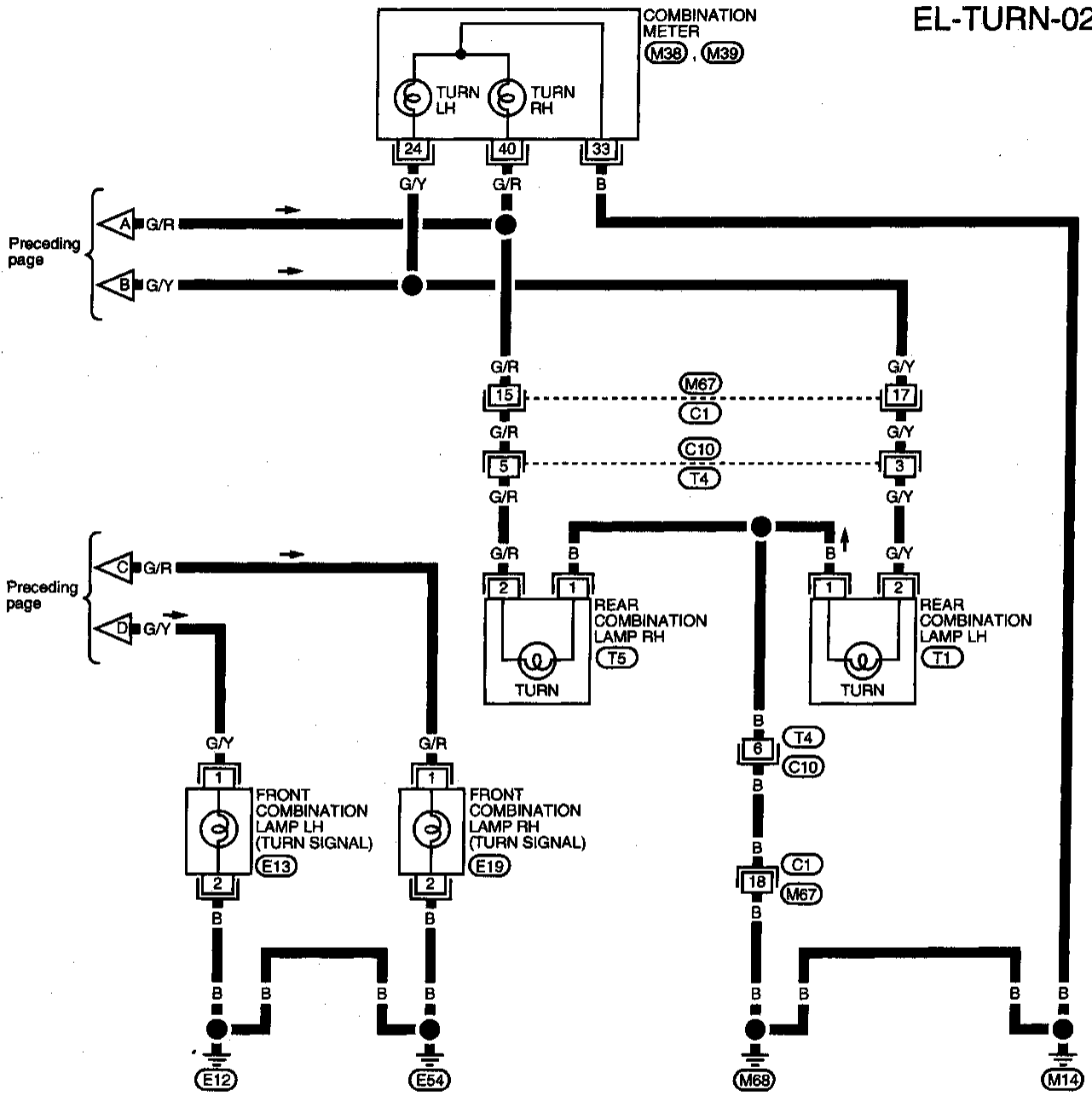


Refer to last page (Foldout page).  
 (M65), (E43)

# TURN SIGNAL AND HAZARD WARNING LAMPS

## Wiring Diagram — TURN — (Cont'd)

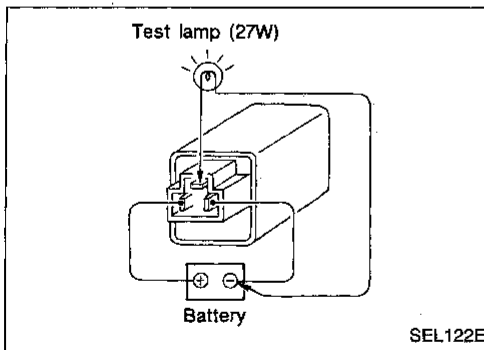
EL-TURN-02



# TURN SIGNAL AND HAZARD WARNING LAMPS

## Trouble Diagnoses

Symptom	Possible cause	Repair order
Turn signal and hazard warning lamps do not operate.	<ol style="list-style-type: none"> <li>1. Hazard switch</li> <li>2. Combination flasher unit</li> <li>3. Open in combination flasher unit circuit</li> </ol>	<ol style="list-style-type: none"> <li>1. Check hazard switch.</li> <li>2. Refer to combination flasher unit check.</li> <li>3. Check wiring to combination flasher unit for open circuit.</li> </ol>
Turn signal lamps do not operate but hazard warning lamps operate.	<ol style="list-style-type: none"> <li>1. 7.5A fuse</li> <li>2. Hazard switch</li> <li>3. Turn signal switch</li> <li>4. Open in turn signal switch circuit</li> </ol>	<ol style="list-style-type: none"> <li>1. Check 7.5A fuse [No. ②], located in fuse block (J/B). Turn ignition switch ON and verify battery positive voltage is present at terminal ② of hazard switch.</li> <li>2. Check hazard switch.</li> <li>3. Check turn signal switch.</li> <li>4. Check G wire between combination flasher unit and turn signal switch for open circuit.</li> </ol>
Hazard warning lamps do not operate but turn signal lamps operate.	<ol style="list-style-type: none"> <li>1. 10A fuse</li> <li>2. Hazard switch</li> <li>3. Open in hazard switch circuit</li> </ol>	<ol style="list-style-type: none"> <li>1. Check 10A fuse [No. ①], located in fuse block (J/B). Verify battery positive voltage is present at terminal ③ of hazard switch.</li> <li>2. Check hazard switch.</li> <li>3. Check G wire between combination flasher unit and hazard switch for open circuit.</li> </ol>
Front turn signal lamp LH or RH does not operate.	<ol style="list-style-type: none"> <li>1. Bulb</li> <li>2. Grounds (E12) and (E54)</li> </ol>	<ol style="list-style-type: none"> <li>1. Check bulb.</li> <li>2. Check grounds (E12) and (E54).</li> </ol>
Rear turn signal lamp LH or RH does not operate.	<ol style="list-style-type: none"> <li>1. Bulb</li> <li>2. Grounds (M14) and (M68)</li> </ol>	<ol style="list-style-type: none"> <li>1. Check bulb.</li> <li>2. Check grounds (M14) and (M68).</li> </ol>
LH and RH turn indicators do not operate.	<ol style="list-style-type: none"> <li>1. Ground</li> </ol>	<ol style="list-style-type: none"> <li>1. Check grounds (M14) and (M68).</li> </ol>
LH or RH turn indicator does not operate.	<ol style="list-style-type: none"> <li>1. Bulb</li> </ol>	<ol style="list-style-type: none"> <li>1. Check bulb in combination meter.</li> </ol>



## Electrical Components Inspection

### 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.

# ILLUMINATION

## System Description

Power is supplied at all times:

- through 10A fuse (No. 39, located in the fuse and fusible link box)
- to lighting switch terminal ①.

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

- through 10A fuse [No. 11, located in the fuse block (J/B)]
- to combination meter terminal 29.

The lighting switch must be in parking lamp (1ST) or headlamp ON (2ND) position for illumination.

The illumination control switch controls the amount of current to the illumination system. As the amount of current increases, the illumination becomes brighter.

The following chart shows the power and ground connector terminals for the components included in the illumination system.

Component	Connector No.	Power terminal	Ground terminal
Illumination control switch	M28	①	⑤
ASCD main switch	M29	⑤	⑥
Main power window and door lock/unlock switch	D7	③	④
Combination meter	M39	29, 39	38
Audio unit	M51	8	7
Hazard switch	M53	7	8
Fan switch	M56	2	1

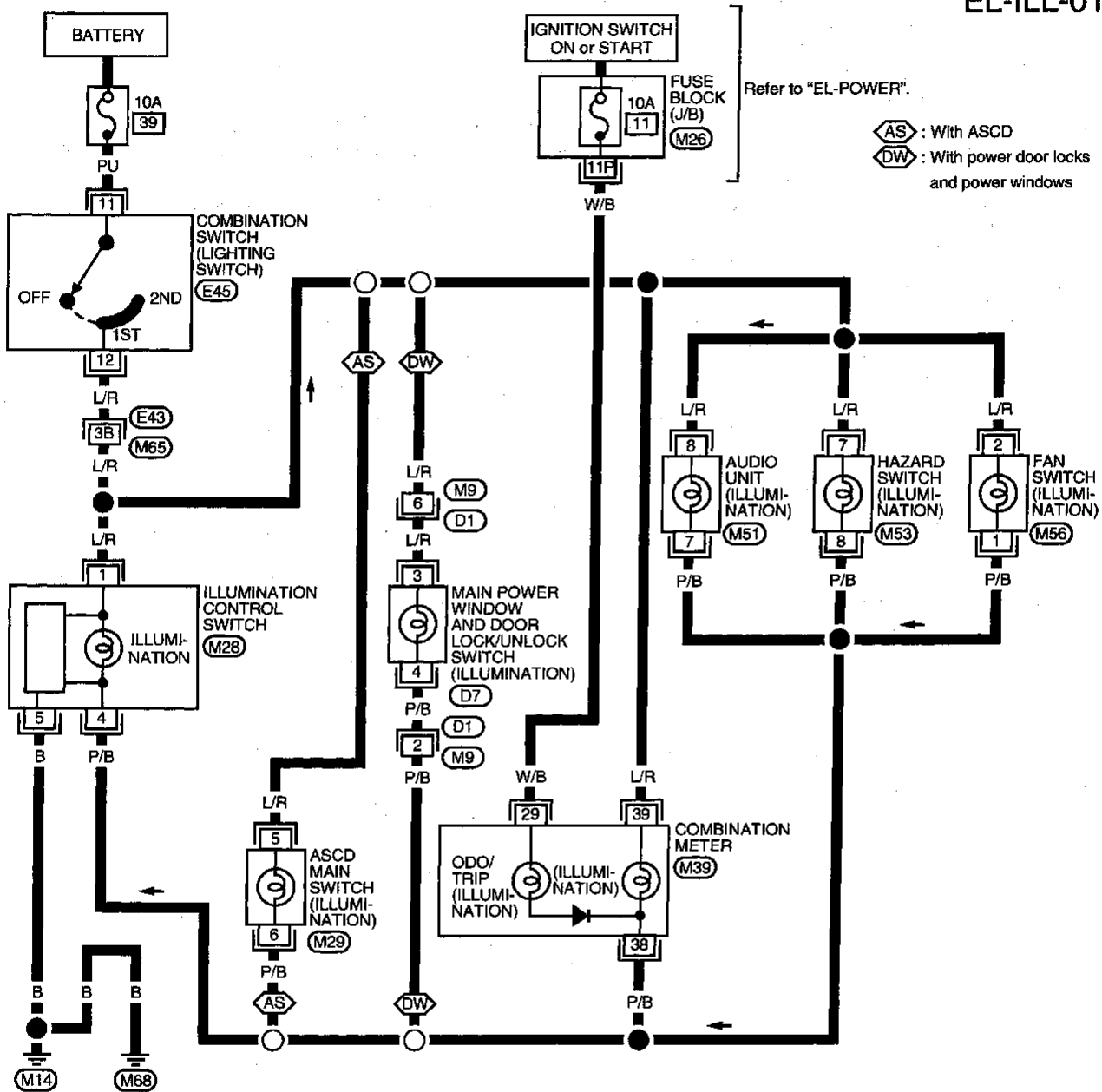
The ground for all of the components is controlled through terminal ④ of the illumination control switch and body grounds M14 and M68.

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# ILLUMINATION

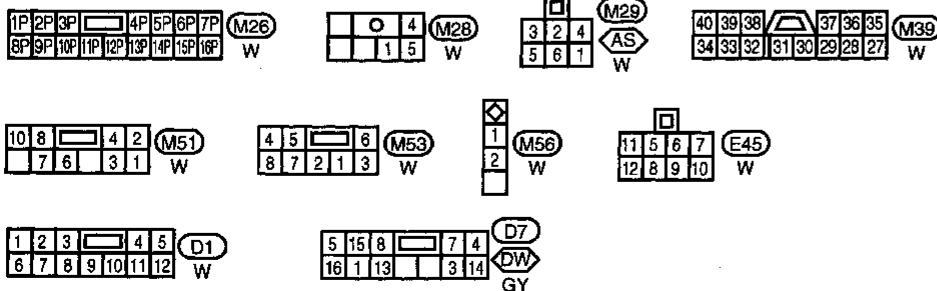
## Wiring Diagram — ILL —

EL-ILL-01



Refer to last page (Foldout page).

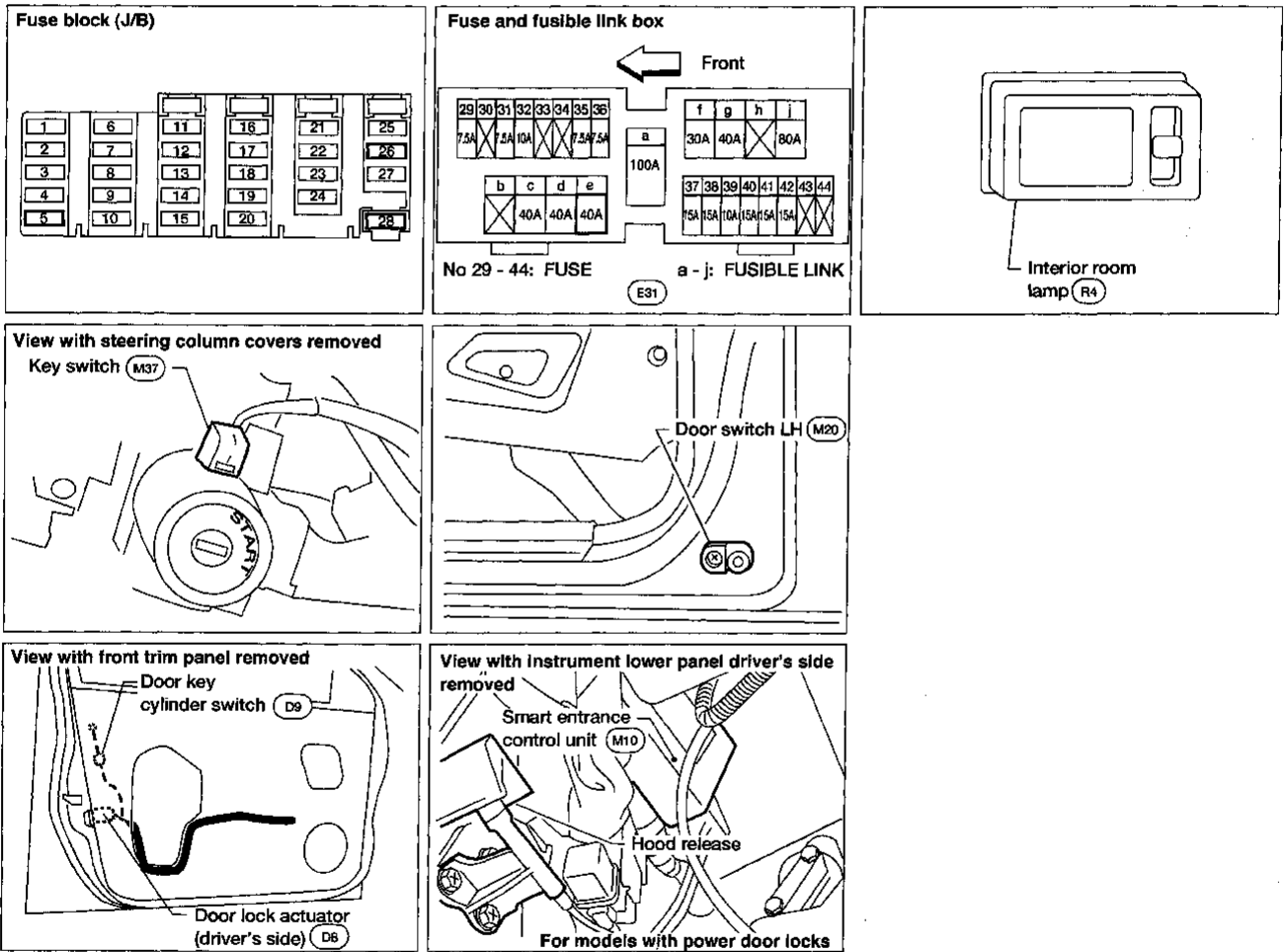
(M65), (E43)



AEL050C

# INTERIOR ROOM LAMP

## Component Parts and Harness Connector Location



GI  
MA  
EM  
LC  
EC  
FE  
CL  
MT  
AT  
TF  
PD  
FA  
RA  
BR  
ST  
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BT  
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EL  
JDX

# INTERIOR ROOM LAMP

## System Description

### MODELS WITH POWER DOOR LOCKS

#### Power supply and ground

Power is supplied at all times:

- through 30A fusible link (Letter **f**, located in the fuse and fusible link box)
- to circuit breaker terminal **①**
- through circuit breaker terminal **②**
- to smart entrance control unit terminal **①**.

Power is supplied at all times:

- through 7.5A fuse [No. **28**], located in the fuse block (J/B)]
- to key switch terminal **①**.

Power is supplied at all times:

- through 7.5A fuse [No. **26**], located in the fuse block (J/B)]
- to room lamp terminal **+**.

When the key is inserted into ignition key cylinder, power is supplied:

- from key switch terminal **②**
- to smart entrance control unit terminal **24**.

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

- through 7.5A fuse [No. **5**], located in the fuse block (J/B)]
- to smart entrance control unit terminal **11**.

Ground is supplied:

- through body grounds **M14** and **M68**
- to smart entrance control unit terminal **10**.

When the LH door is opened, ground is supplied:

- from door switch LH terminal **②**
- to smart entrance control unit terminal **15**.

When the RH door is opened, ground is supplied:

- from door switch RH terminal **①**
- to smart entrance control unit terminal **35**.

When the LH door is unlocked, the smart entrance control unit receives a ground signal:

- through body grounds **M14** and **M68**
- to door unlock sensor terminal **4**
- from door unlock sensor terminal **②**
- to smart entrance control unit terminal **12**.

When a signal, or combination of signals is received by the smart entrance control unit, ground is supplied:

- through smart entrance control unit terminal **9**
- to room lamp terminal **sw**.

With power and ground supplied, the interior room lamp illuminates.

#### Switch operation

When the room lamp switch is ON, ground is supplied:

- through body grounds **M14** and **M68**
- to room lamp terminal **-**.

With power and ground supplied, the room lamp turns ON and remains ON until the room lamp switch is turned to OFF or turned to the DOOR position and the doors are closed.

#### Interior room lamp timer operation

When the room lamp switch is in the DOOR position, the smart entrance control unit keeps the interior room lamp illuminated for about 30 seconds when:

- LH door is unlocked
- key is removed from ignition key cylinder while driver's door is closed
- driver's door is opened and then closed while ignition switch is not in the ON position.

The timer is canceled, and interior room lamp turns off when:

- driver's door is locked with remote controller, or
- ignition switch is turned ON.

The smart entrance control unit will shut off the room lamp if left on for 30 minutes.



## INTERIOR ROOM LAMP

### System Description (Cont'd)

#### ON-OFF control

When the room lamp switch is in the DOOR position, when the driver side door or passenger door is opened the room lamp turns on.

When any door is opened and then closed while the ignition switch is not in the ON position, the room lamp timer operates.

#### MODELS WITHOUT POWER DOOR LOCKS

Power is supplied at all times:

- through 7.5A fuse [No. 26], located in the fuse block (J/B)
- to room lamp terminal (+).

With the room lamp switch ON, ground is supplied:

- through body grounds M14 and M68
- to room lamp terminal (-).

When a door is opened with the room lamp switch in DOOR position, ground is supplied:

- through door switch LH or RH terminal 1
- to room lamp switch terminal SW.

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

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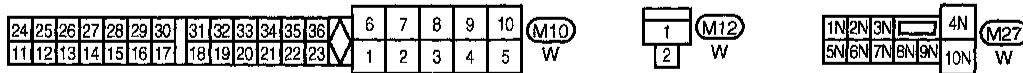
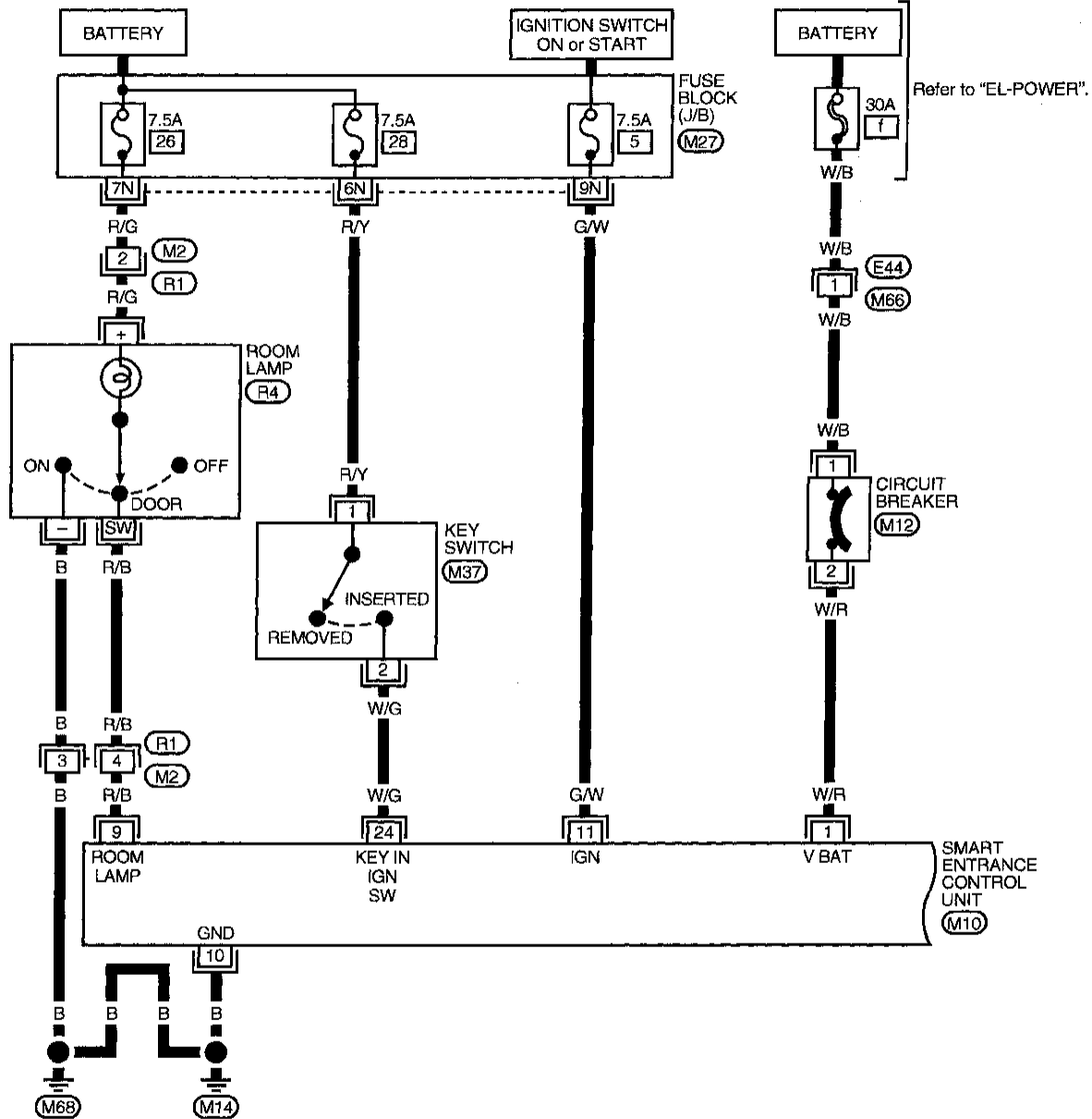
IDX

# INTERIOR ROOM LAMP

## Wiring Diagram — ROOM/L —

MODELS WITH POWER DOOR LOCKS

EL-ROOM/L-01

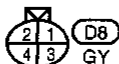
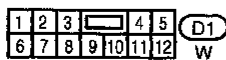
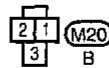
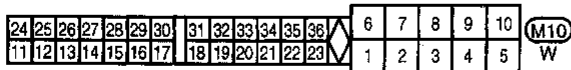
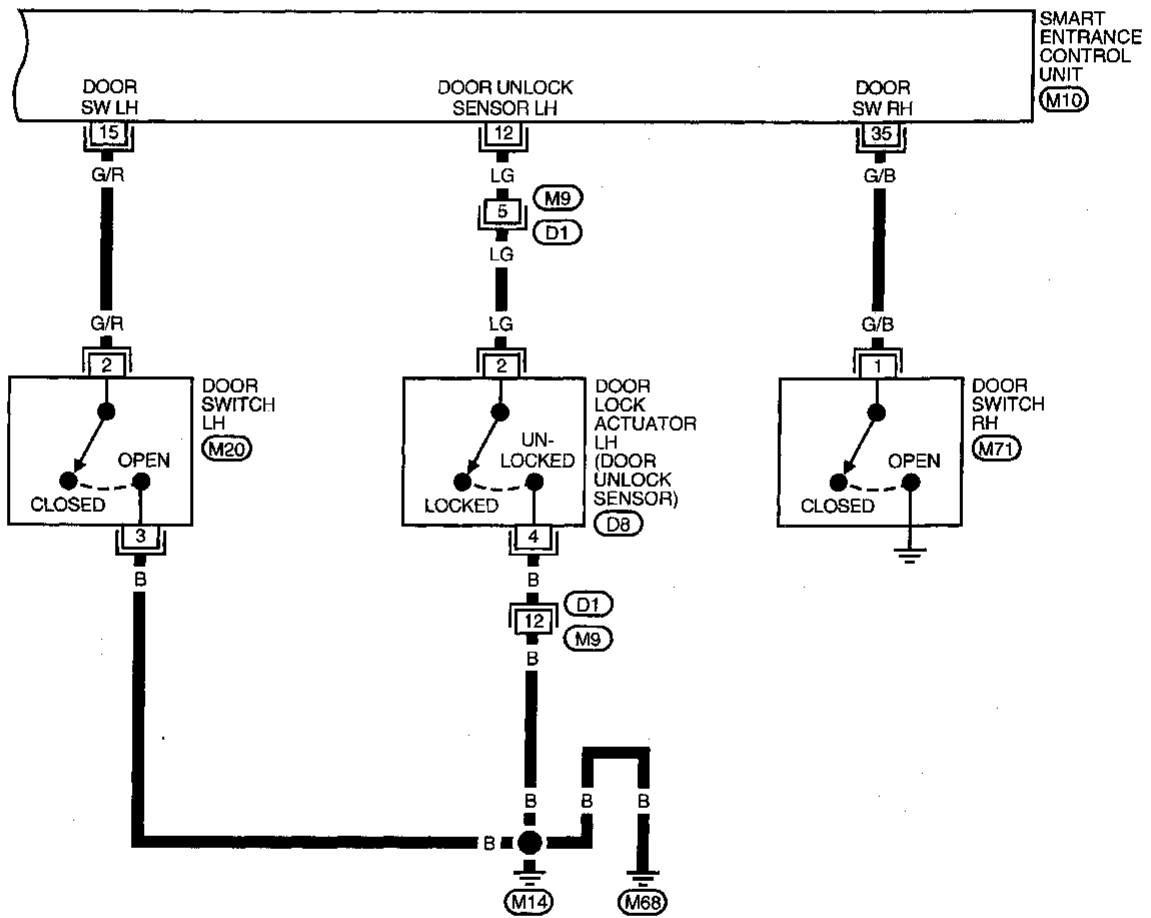


AEL347B

# INTERIOR ROOM LAMP

## Wiring Diagram — ROOM/L — (Cont'd)

EL-ROOM/L-02



EL-73

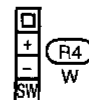
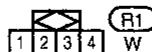
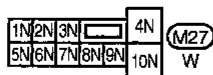
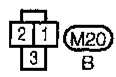
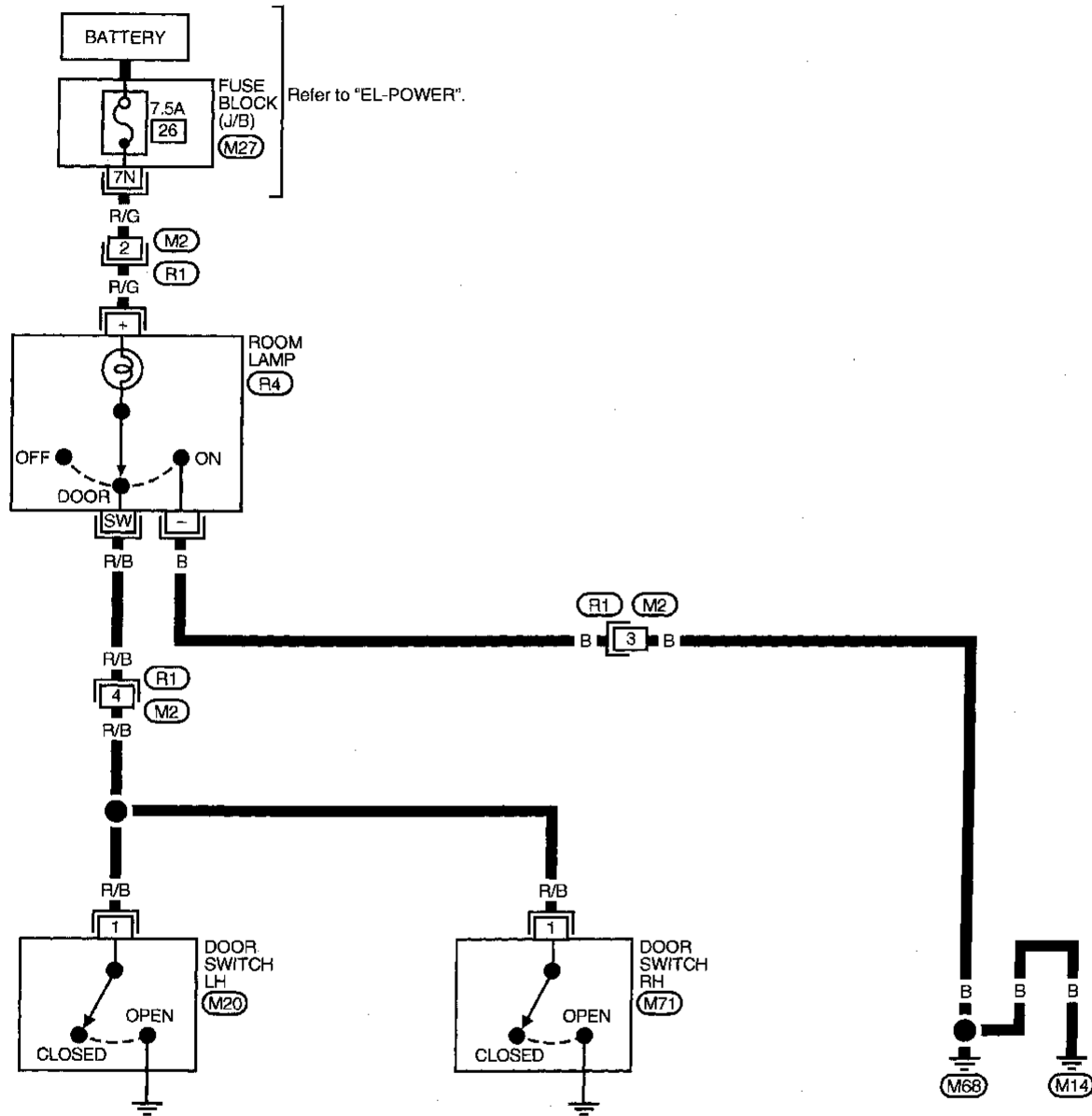
AEL051C

# INTERIOR ROOM LAMP

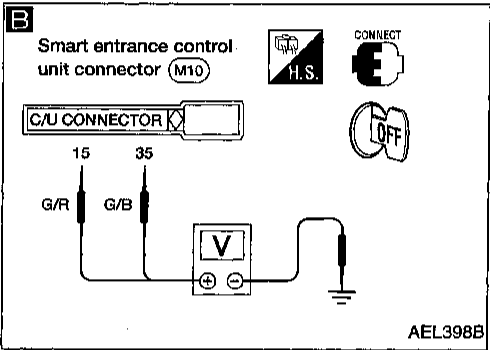
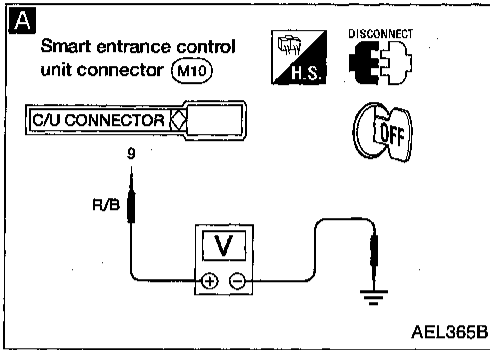
## Wiring Diagram — ROOM/L — (Cont'd)

MODELS WITHOUT POWER DOOR LOCKS

EL-ROOM/L-03



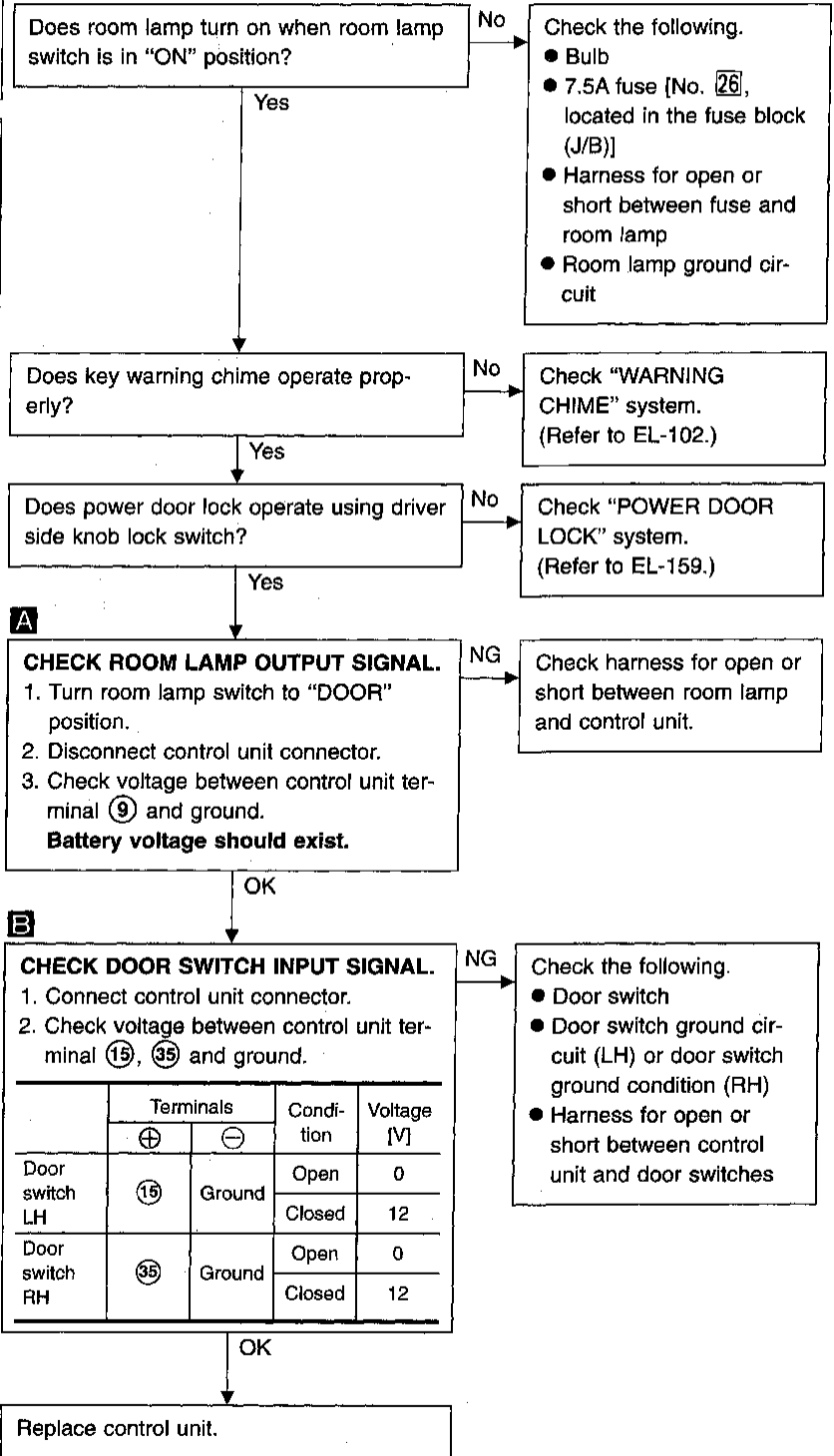
# INTERIOR ROOM LAMP



## Trouble Diagnoses (For models with power door locks)

### DIAGNOSTIC PROCEDURE

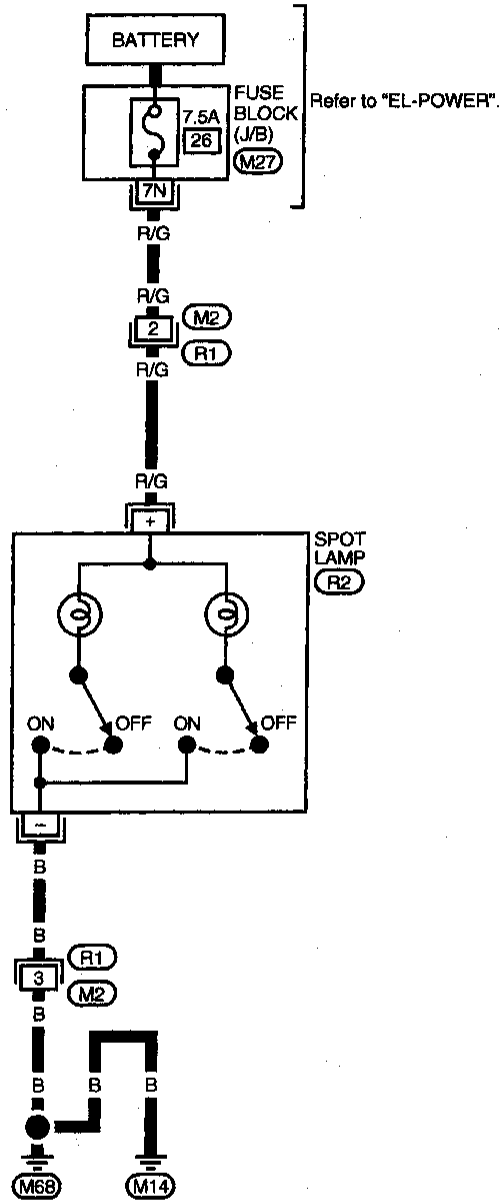
**SYMPTOM:** Room lamp does not turn on when any door is opened, or timer does not operate properly.



# SPOT LAMP

## Wiring Diagram — INT/L —

EL-INT/L-01

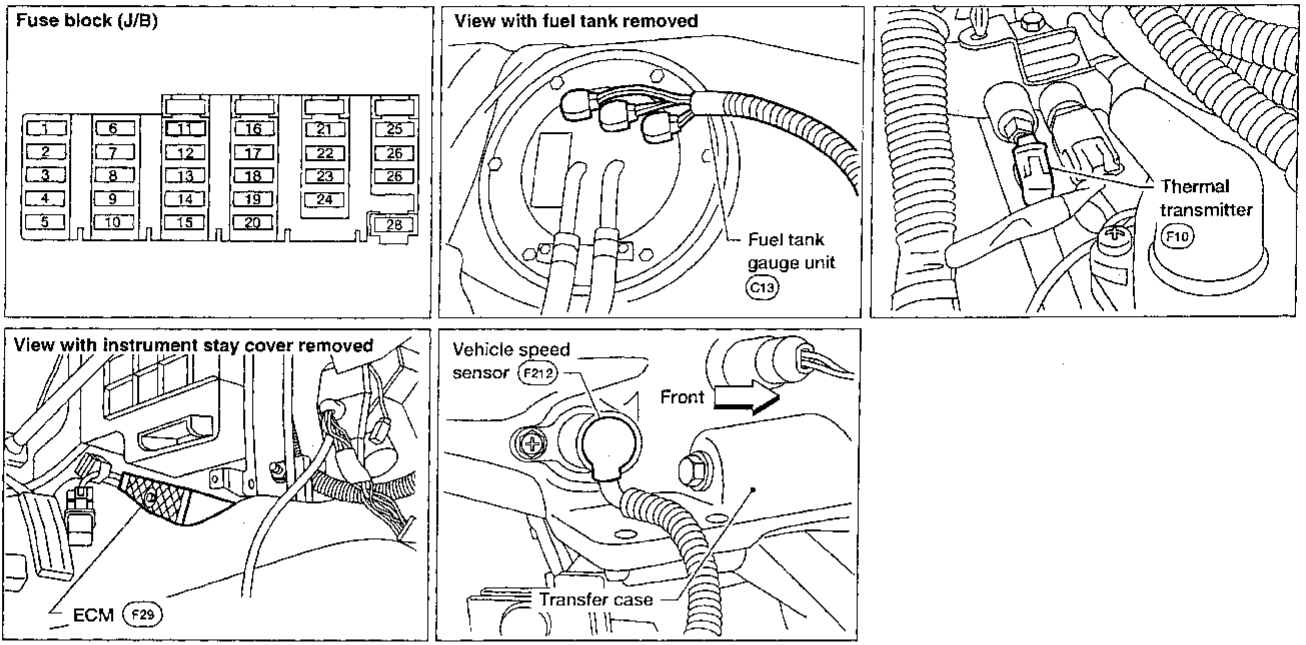


EL-76

AEL350B

# METER AND GAUGES

## Component Parts and Harness Connector Location



GI  
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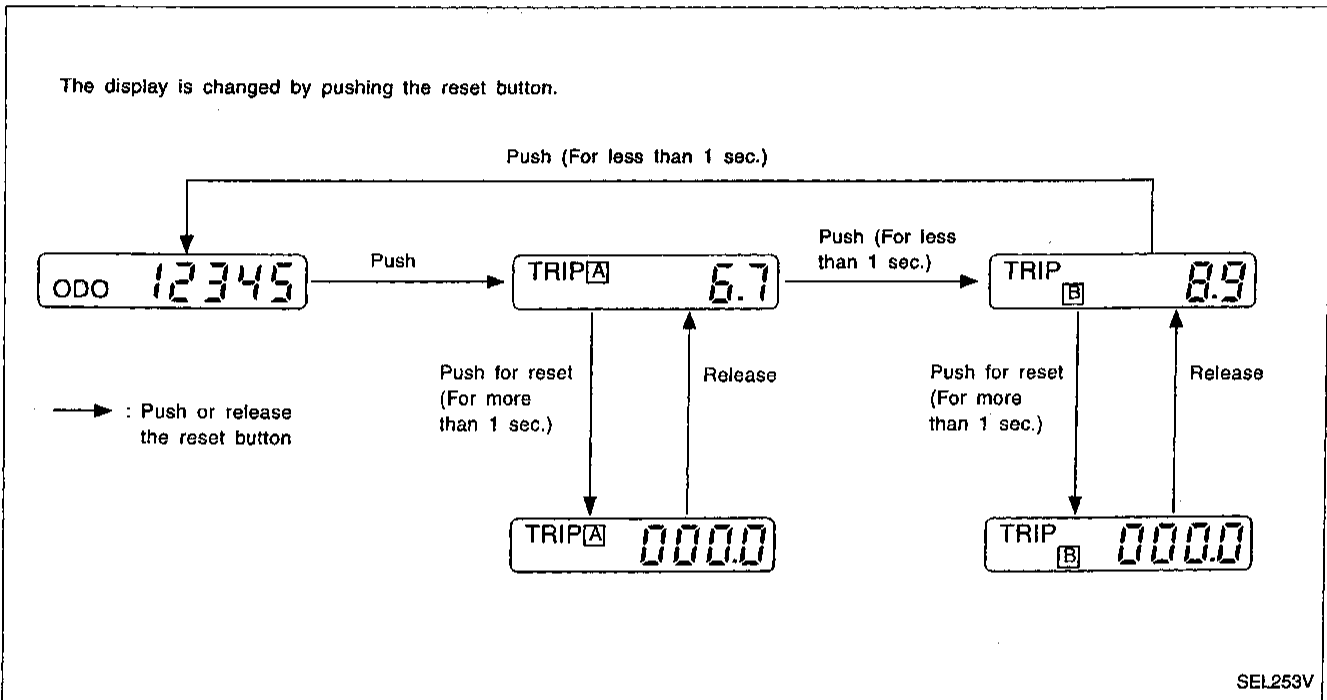
# METER AND GAUGES

## System Description

### UNIFIED CONTROL METER

- Speedometer, odo/trip meter, tachometer, fuel gauge and water temperature gauge are controlled totally by control unit combined with speedometer.
- Digital meter is adopted for odo/trip meter.\*  
\*The record of the odo meter is kept even if the battery cable is disconnected. The record of the trip meter is erased when the battery cable is disconnected.
- Odo/trip meter segment can be checked in diagnosis mode.
- Meter/gauge can be checked in diagnosis mode.

### HOW TO CHANGE THE DISPLAY FOR ODO/TRIP METER



Note: Turn ignition switch to the ON position to operate odo/trip meter.

### POWER SUPPLY AND GROUND CIRCUIT

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

- through 10A fuse [No. 11], located in the fuse block (J/B)
- to combination meter terminal 29.

Ground is supplied:

- to combination meter terminal 26
- through body grounds M14 and M68.

### FUEL GAUGE

The fuel gauge indicates the approximate fuel level in the fuel tank.

The fuel gauge is regulated by a variable ground signal supplied:

- to combination meter terminal 7 for the fuel gauge
- from terminal 2 of the fuel tank gauge unit
- through terminal 4 of the fuel tank gauge unit and
- through body grounds M14 and M68.

### WATER TEMPERATURE GAUGE

The water temperature gauge indicates the engine coolant temperature. The reading on the gauge is based on the resistance of the thermal transmitter.

As the temperature of the coolant increases, the resistance of the thermal transmitter decreases. A variable ground is supplied to terminal 6 of the combination meter for the water temperature gauge. The needle on the gauge moves from "C" to "H".



## METER AND GAUGES

### System Description (Cont'd)

#### TACHOMETER

The tachometer indicates engine speed in revolutions per minute (rpm).

The tachometer is regulated by a signal:

- from terminal ③ of the ECM
- to combination meter terminal ⑨ for the tachometer.

#### SPEEDOMETER

The vehicle speed sensor provides a voltage signal to the combination meter for the speedometer.

The voltage is supplied:

- to combination meter terminals ⑧ and ⑩ for the speedometer
- from terminals ② and ① of the vehicle speed sensor.

The speedometer converts the voltage into the vehicle speed displayed.

GI

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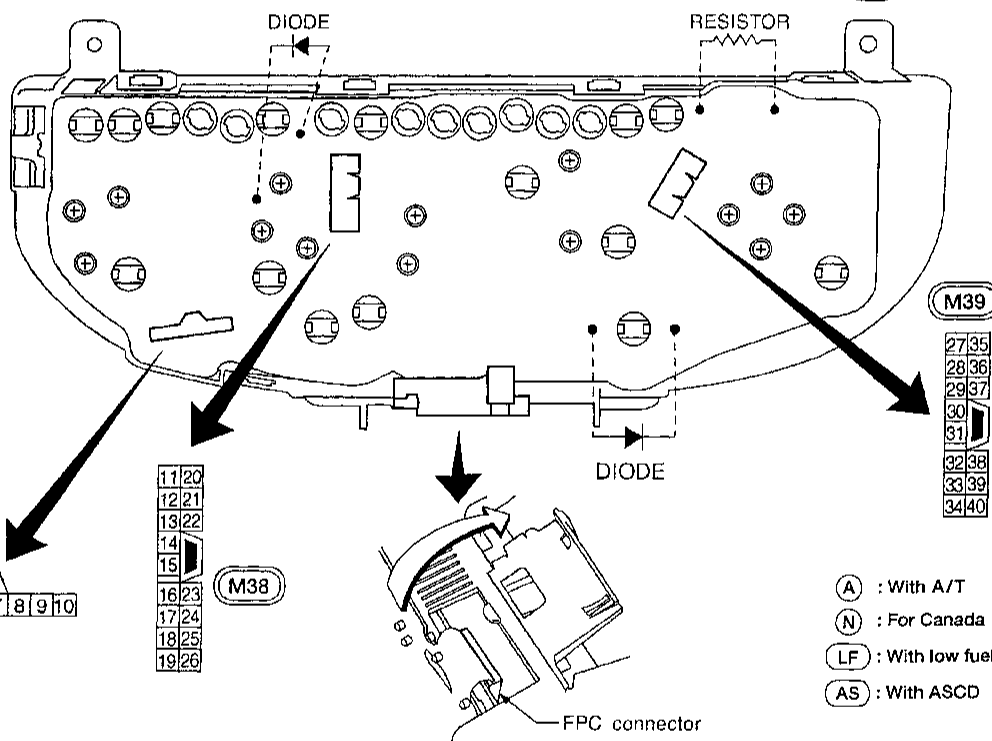
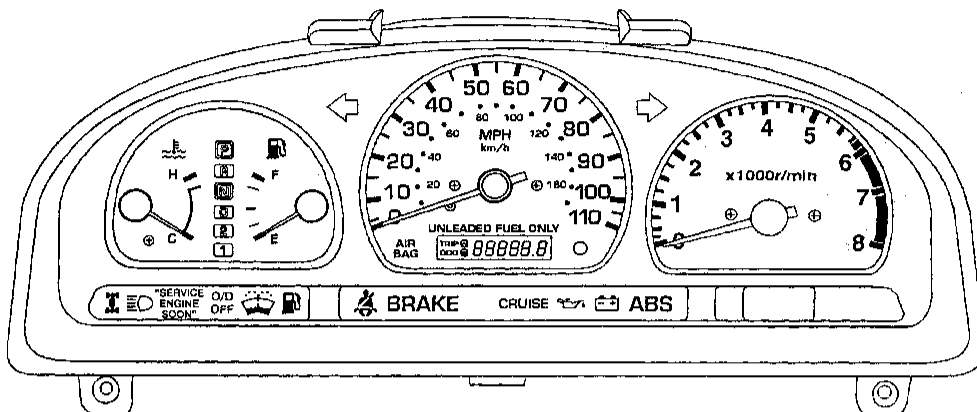
EL

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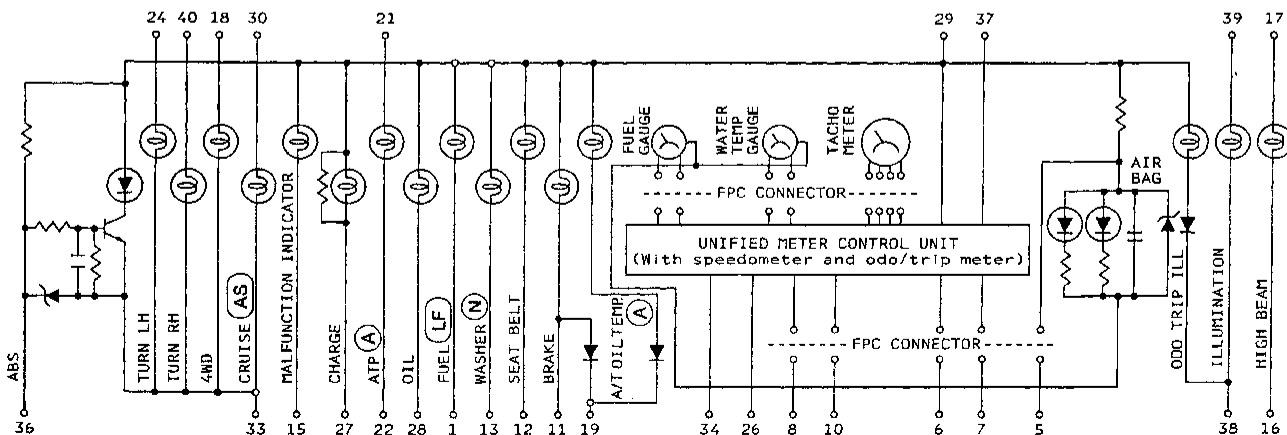
# METER AND GAUGES

## Combination Meter

WITH TACHOMETER



- (A) : With A/T
- (N) : For Canada
- (LF) : With low fuel indication
- (AS) : With ASCD

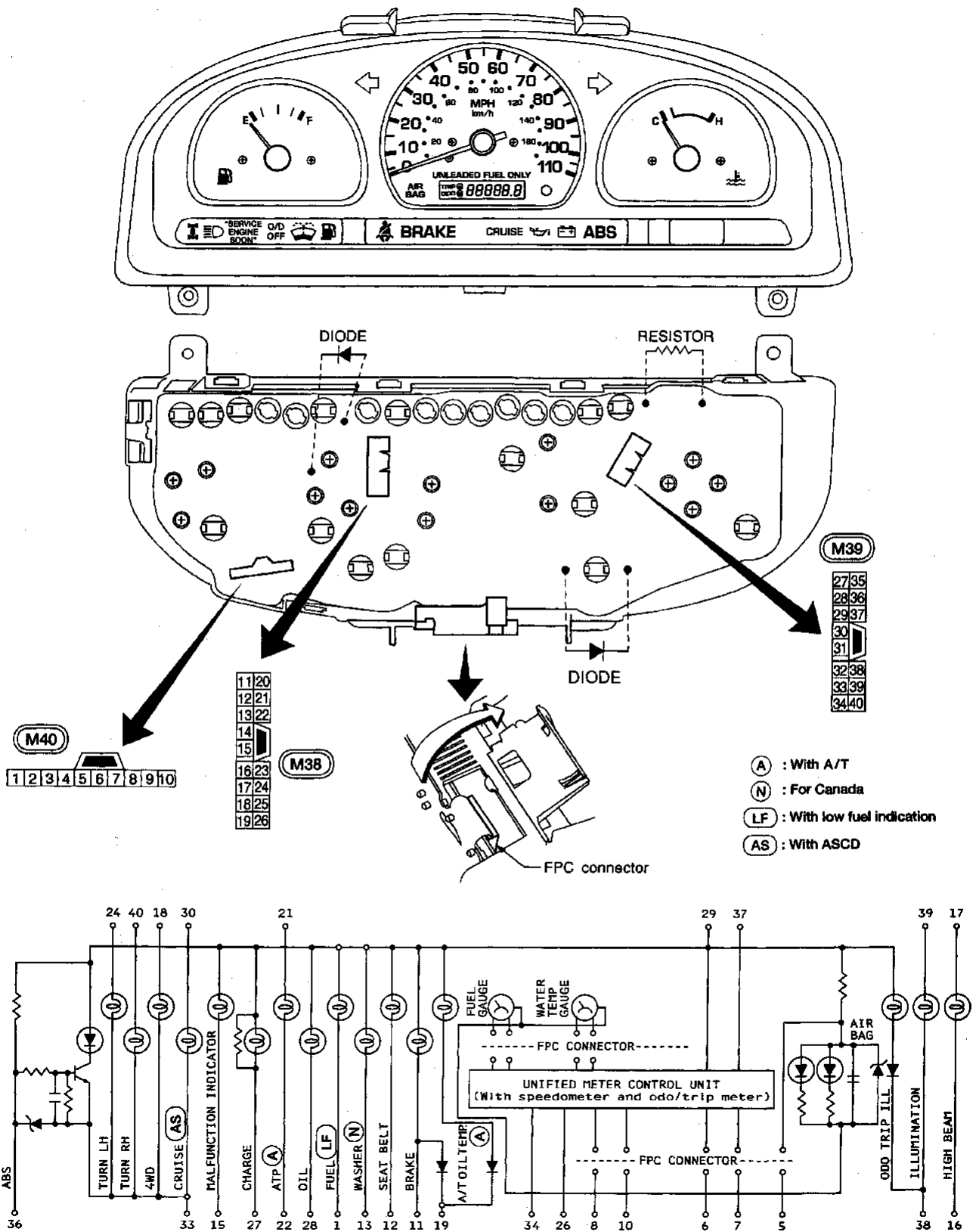


AEL152C

# METER AND GAUGES

## Combination Meter (Cont'd)

WITHOUT TACHOMETER

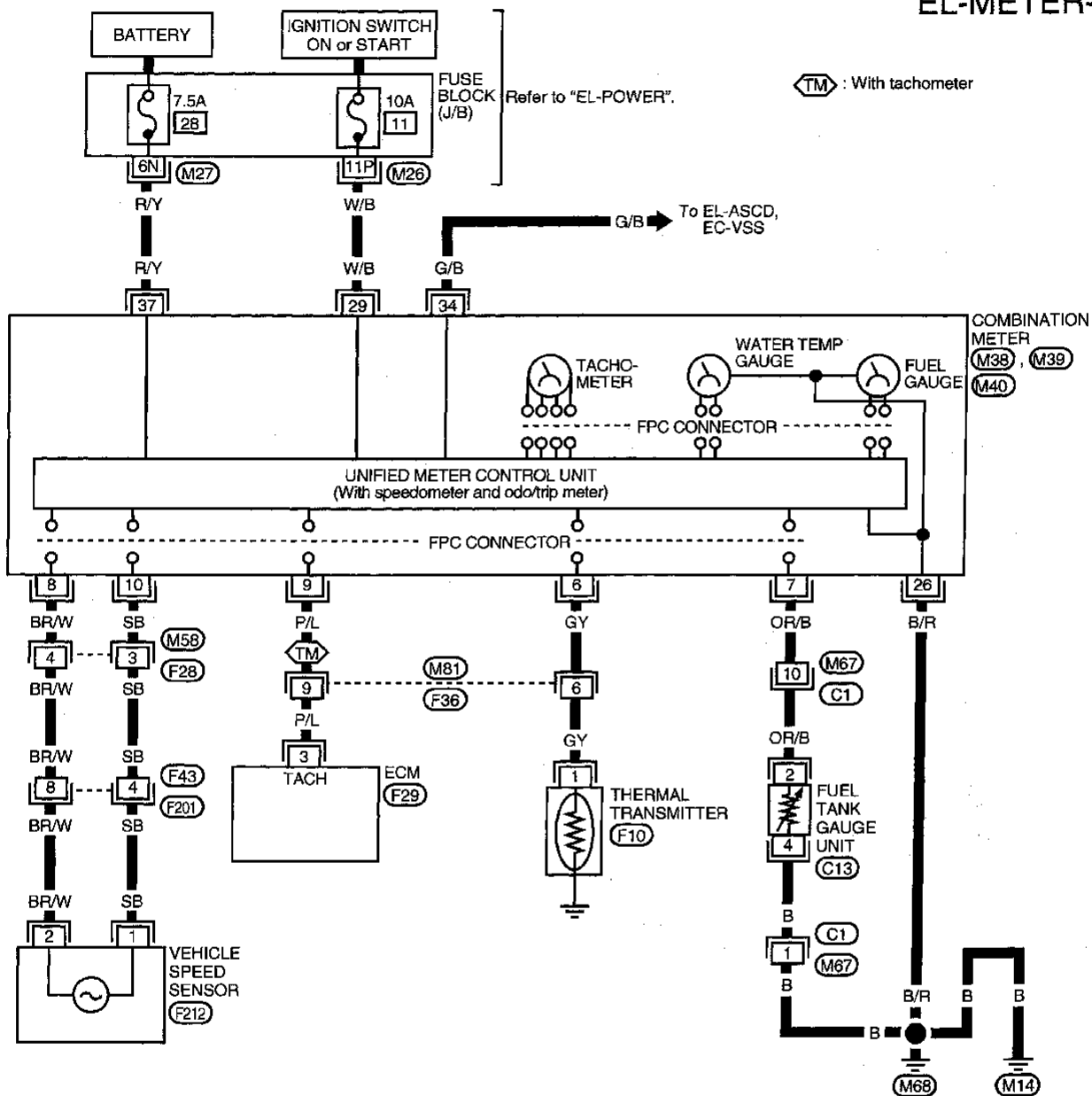


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# METER AND GAUGES

## Wiring Diagram — METER —

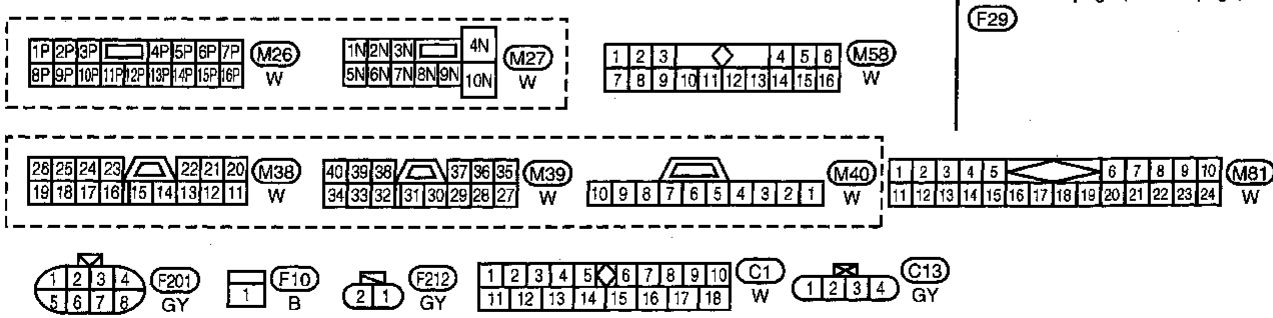
EL-METER-01



TM : With tachometer

Refer to "EL-POWER".

Refer to last page (Foldout page).

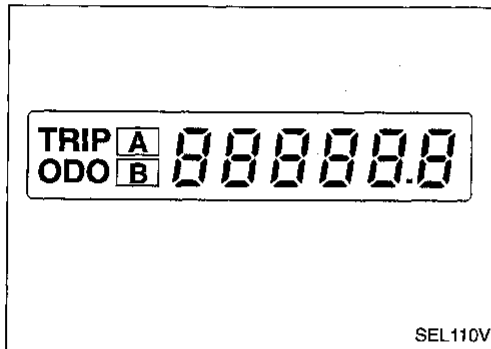


# METER AND GAUGES

## Meter/gauge Operation and Odo/Trip Meter Segment Check in Diagnosis Mode

### DIAGNOSIS FUNCTION

- Odo/trip meter segment can be checked in diagnosis mode.
- Meters/gauges can be checked in diagnosis mode.

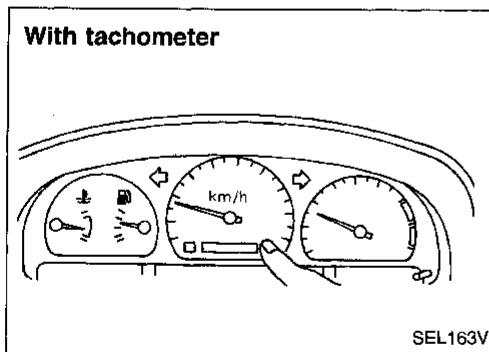


### HOW TO ALTERNATE DIAGNOSIS MODE

1. Turn ignition switch to ON and change odo/trip meter to "TRIP A" or "TRIP B".
2. Turn ignition switch to OFF.
3. Turn ignition switch to ON when pushing odo/trip meter switch.
4. Confirm that trip meter indicates "000.0".
5. Push odo/trip meter switch more than three times within 5 seconds.
6. All odo/trip meter segments should be turned on.

**NOTE: If some segments are not turned on, speedometer (unified meter control unit) with odo/trip meter should be replaced.**

At this point, the unified control meter is turned to diagnosis mode.

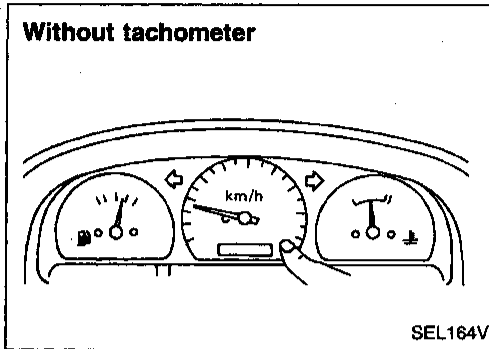


7. Push odo/trip meter switch. Indication of each meter/gauge should be as shown left during pushing odo/trip meter switch if it is not malfunctioning.

**NOTE: It takes about 1 minute for indication of fuel gauge to become stable.**

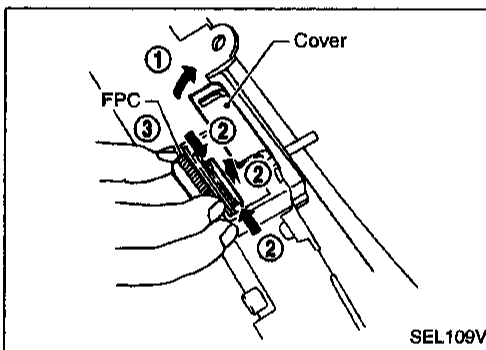
## METER AND GAUGES

### Meter/gauge Operation and Odo/Trip Meter Segment Check in Diagnosis Mode (Cont'd)



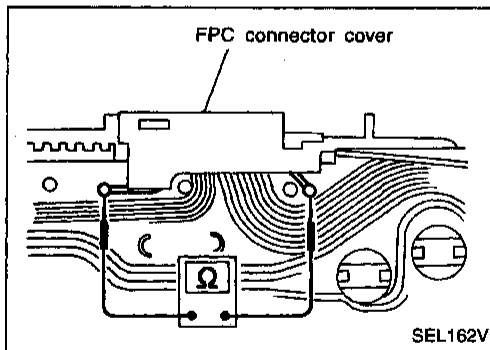
### Flexible Print Circuit (FPC)

Tachometer, fuel gauge and water temperature gauge are connected with unified meter control unit (speedometer) by Flexible Print Circuit (FPC) connector. When replacing or removing and installing unified control unit (speedometer), disconnect and connect FPC connector according to the following steps.



### DISCONNECT

1. Open connector cover.
2. Release connector lock by holding both ends of it and pulling it up.
3. Disconnect FPC by pulling it up.

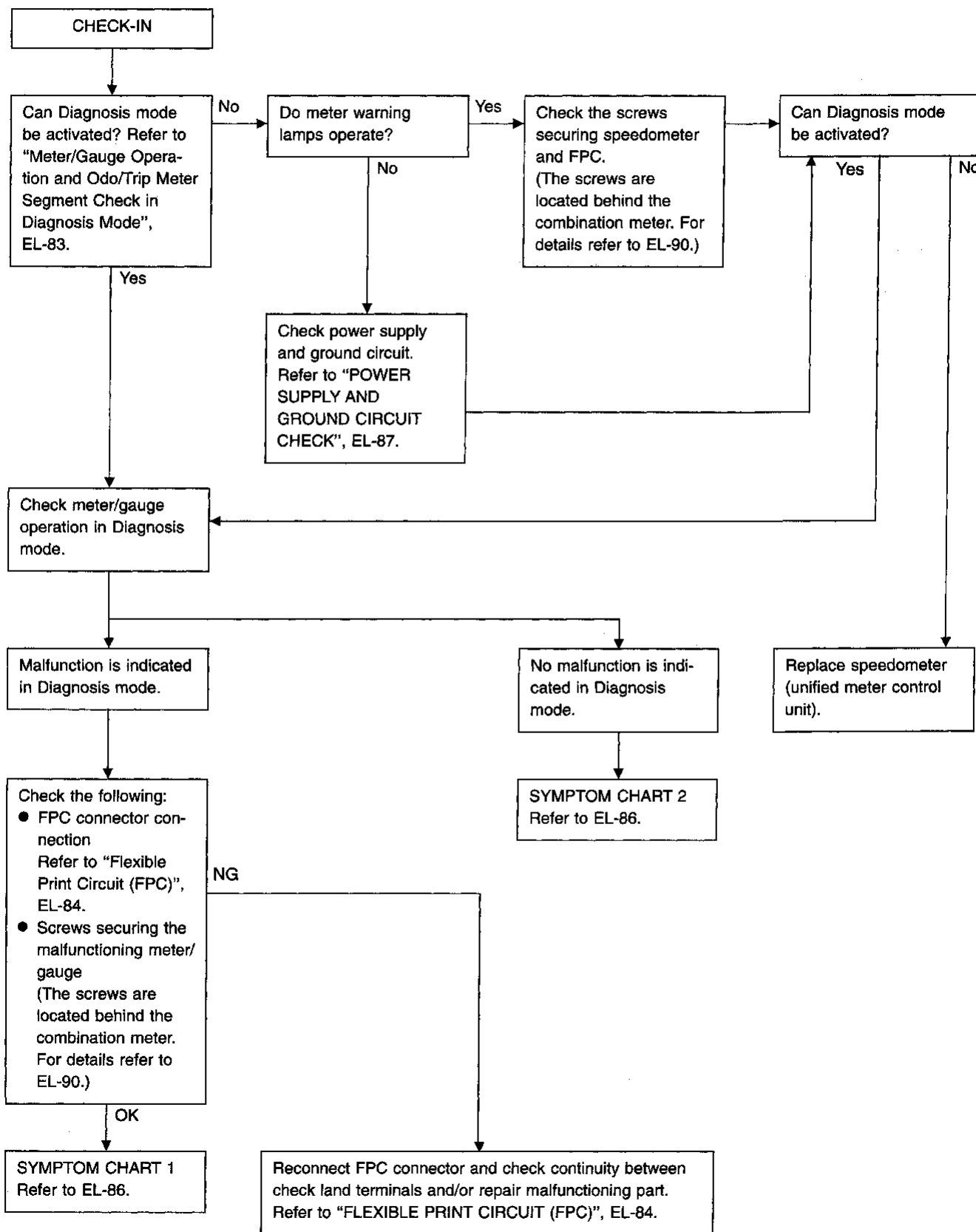


### CONNECT

1. Insert FPC into connector and lock connector pushing FPC downward.
2. Check secure connection of FPC.
3. Check continuity of check land terminals for secure connection of FPC.  
**Resistance: 0Ω**
4. Close connector cover.

## Trouble Diagnoses

### PRELIMINARY CHECK



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## METER AND GAUGES

### Trouble Diagnoses (Cont'd)

#### SYMPTOM CHART 1 (Malfunction is indicated in diagnosis mode)

Symptom	Possible causes	Repair order
Speedometer and/or odo/trip meter indicate(s) malfunction in Diagnosis mode.	<ul style="list-style-type: none"> <li>● Speedometer (Unified meter control unit)</li> </ul>	<ul style="list-style-type: none"> <li>● Replace speedometer (unified meter control unit).</li> </ul>
Multiple meter/gauge indicate malfunction in Diagnosis mode.		
One of tachometer/fuel gauge/water temp. gauge indicates malfunction in Diagnosis mode.	<ul style="list-style-type: none"> <li>● Meter/Gauge</li> <li>● Speedometer (Unified meter control unit)</li> </ul>	<ol style="list-style-type: none"> <li>1. Check resistance of meter/gauge indicating malfunction. If the resistance is NG, replace the meter/gauge. Refer to "METER/GAUGE RESISTANCE CHECK", EL-90.</li> <li>2. If the resistance is OK, replace speedometer (unified meter control unit).</li> </ol>

#### SYMPTOM CHART 2 (No malfunction is indicated in diagnosis mode)

Symptom	Possible causes	Repair order
Speedometer and odo/trip meter are malfunctioning.	<ol style="list-style-type: none"> <li>1. Sensor                             <ul style="list-style-type: none"> <li>- Speedometer, Odo/Trip meter</li> </ul> </li> <li>2. FPC connector</li> <li>3. Speedometer (Unified meter control unit)</li> </ol>	<ol style="list-style-type: none"> <li>1. Check vehicle speed sensor. INSPECTION/VEHICLE SPEED SENSOR (Refer to EL-88.)</li> <li>2. Check FPC connector. Refer to "FLEXIBLE PRINT CIRCUIT (FPC)", EL-84.</li> <li>3. Replace speedometer (unified meter control unit).</li> </ol>
Multiple meter/gauge are malfunctioning. (except speedometer, (odo/trip meter))	<ol style="list-style-type: none"> <li>1. FPC connector</li> <li>2. Speedometer (Unified meter control unit)</li> </ol>	<ol style="list-style-type: none"> <li>1. Check FPC connector. Refer to "FLEXIBLE PRINT CIRCUIT (FPC)", EL-84.</li> <li>2. Replace speedometer (unified meter control unit).</li> </ol>
One of tachometer/fuel gauge/water temp. gauge is malfunctioning.	<ol style="list-style-type: none"> <li>1. Sensor/Engine revolution signal                             <ul style="list-style-type: none"> <li>- Tachometer</li> <li>- Fuel gauge</li> <li>- Water temp. gauge</li> </ul> </li> <li>2. FPC connector</li> <li>3. Speedometer (Unified meter control unit)</li> </ol>	<ol style="list-style-type: none"> <li>1. Check the sensor for malfunctioning meter/gauge. INSPECTION/ENGINE REVOLUTION SIGNAL (Refer to EL-88.) INSPECTION/FUEL TANK GAUGE (Refer to EL-89.) INSPECTION/THERMAL TRANSMITTER (Refer to EL-89.)</li> <li>2. Check FPC connector. Refer to "FLEXIBLE PRINT CIRCUIT (FPC)", EL-84.</li> <li>3. Replace speedometer (unified meter control unit).</li> </ol>

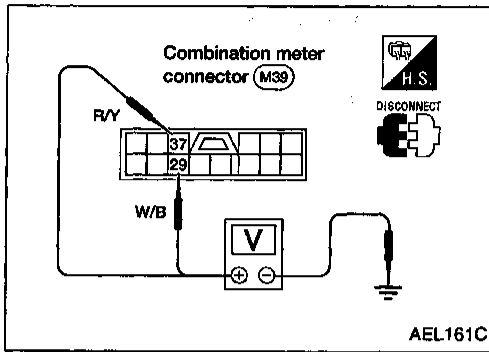
**Before starting trouble diagnoses, perform PRELIMINARY CHECK, EL-85.**



# METER AND GAUGES

## Trouble Diagnoses (Cont'd)

### POWER SUPPLY AND GROUND CIRCUIT CHECK

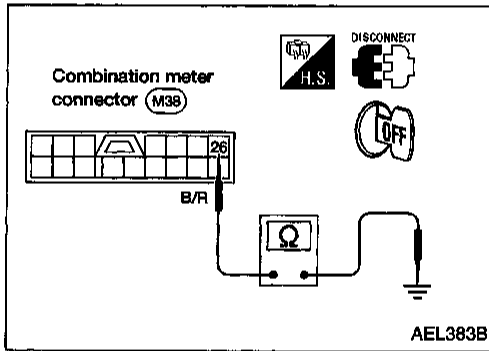


#### Power supply circuit check

Terminals		Ignition switch position		
⊕	⊖	OFF	ACC	ON
37	Ground	Battery voltage	Battery voltage	Battery voltage
29	Ground	0V	0V	Battery voltage

If NG, check the following.

- 7.5A fuse [No. 28], located in fuse block (J/B)]
- 10A fuse [No. 11], located in fuse block (J/B)]
- Harness for open or short between fuse and combination meter



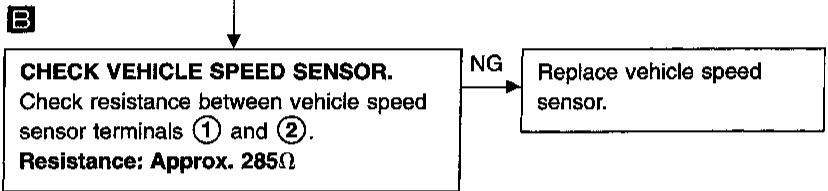
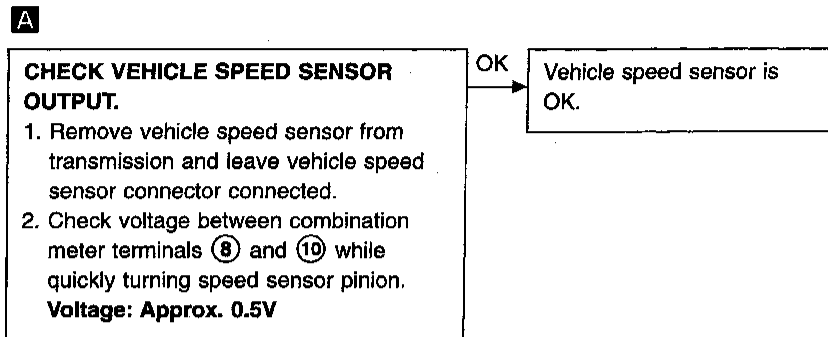
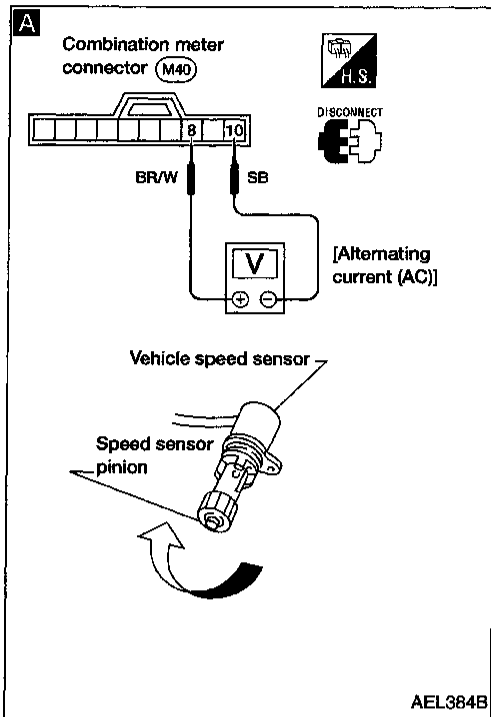
#### Ground circuit check

Terminals	Continuity
26 - Ground	Yes

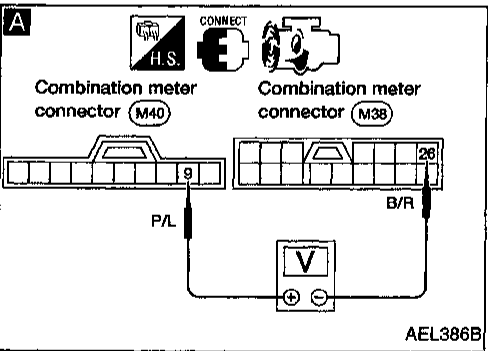
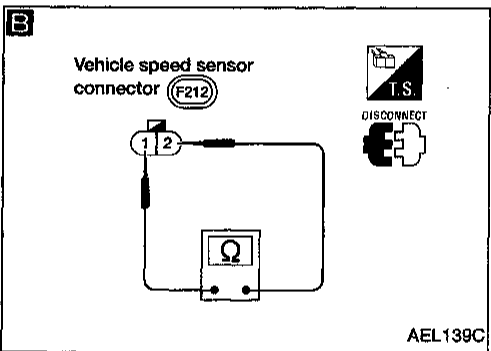
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# METER AND GAUGES

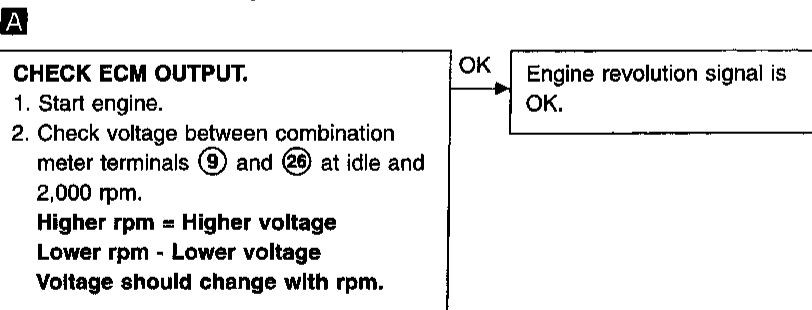
## Trouble Diagnoses (Cont'd) INSPECTION/VEHICLE SPEED SENSOR



Check harness or connector between speedometer and vehicle speed sensor.



## INSPECTION/ENGINE REVOLUTION SIGNAL (Models with tachometer)



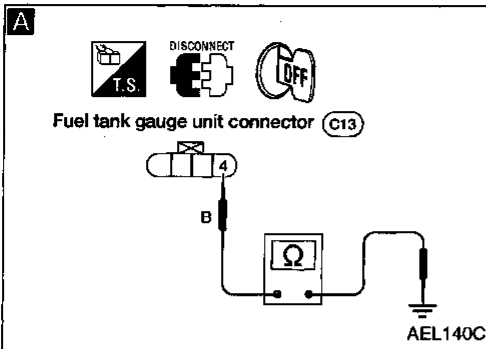
Check the following:

- Harness for open or short between ECM and combination meter.

# METER AND GAUGES

## Trouble Diagnoses (Cont'd)

### INSPECTION/FUEL TANK GAUGE

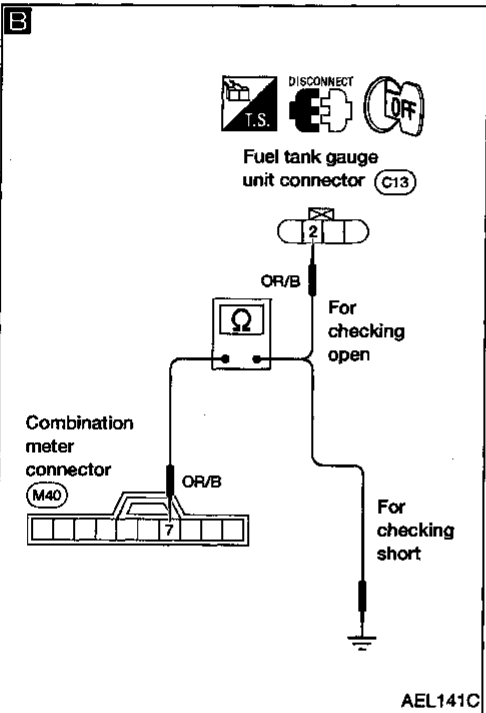


**A**

**CHECK GROUND CIRCUIT FOR FUEL TANK GAUGE UNIT.**  
Check harness continuity between fuel tank gauge unit terminal (E) and ground. **Continuity should exist.**

NG → Repair harness or connector.

OK ↓



**CHECK GAUGE UNITS.**  
Refer to "FUEL TANK GAUGE UNIT CHECK" (EL-90).

NG → Repair or replace. Refer to FE section.

OK ↓

**B**

**CHECK HARNESS.**

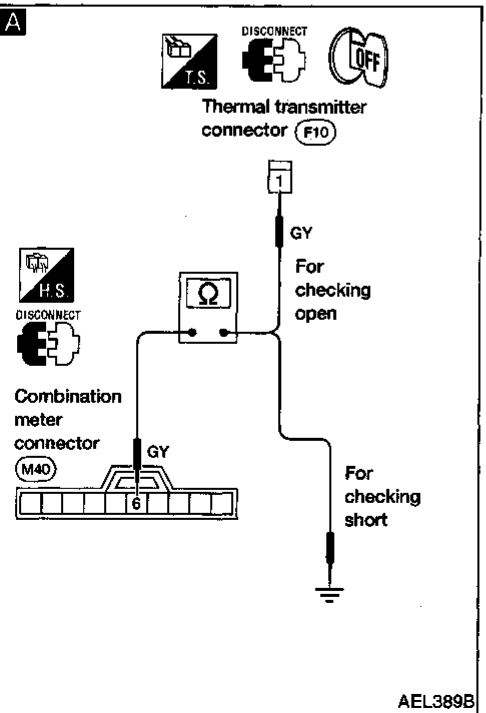
1. Disconnect combination meter connector (M40) and fuel tank gauge unit connector.
2. Check harness continuity between combination meter terminal (7) and fuel tank gauge unit terminal (G). **Continuity should exist.**
3. Check continuity between combination meter terminal (7) and ground. **Continuity should not exist.**

NG → Repair harness or connector.

OK ↓

Fuel tank gauge is OK.

### INSPECTION/THERMAL TRANSMITTER



**CHECK THERMAL TRANSMITTER.**  
Refer to "THERMAL TRANSMITTER CHECK" (EL-91).

NG → Repair or replace.

OK ↓

**A**

**CHECK HARNESS.**

1. Disconnect combination meter connector (M40) and thermal transmitter connector.
2. Check harness for open or short between combination meter terminal (6) and thermal transmitter terminal (1). **Continuity should exist.**
3. Check continuity between combination meter terminal (6) and ground. **Continuity should not exist.**

NG → Repair harness or connector.

OK ↓

Thermal transmitter is OK.

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# METER AND GAUGES

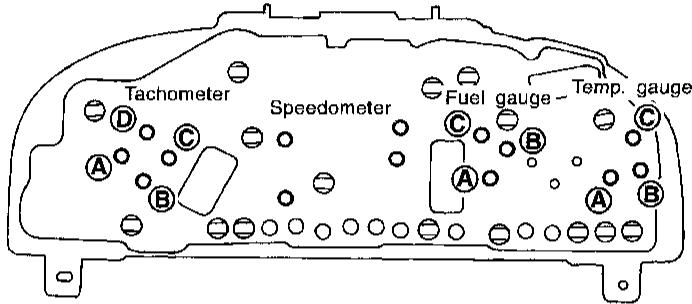
## Electrical Components Inspection

### METER/GAUGE RESISTANCE CHECK

1. Disconnect FPC connector. Refer to EL-84.
2. Check resistance between installation screws of meter/gauge.

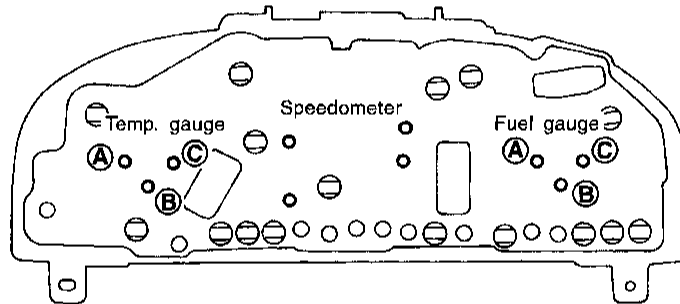
Screws		Resistance $\Omega$
Tachometer	Fuel/Temp. gauge	
A - C	A - C	Approx. 70 - Approx. 140
B - D	B - C	Approx. 90 - Approx. 170

With tachometer

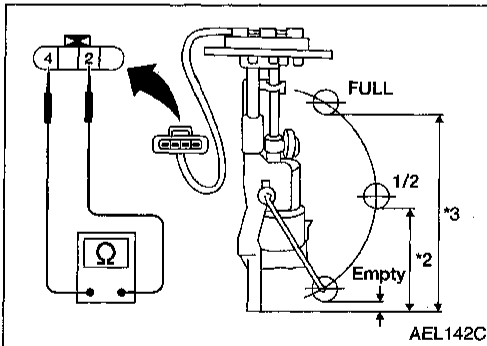


SEL172V

Without tachometer



SEL173V



AEL142C

### FUEL TANK GAUGE UNIT CHECK

- For removal, refer to FE section.
- Check the resistance between terminals **(G)** and **(E)**.

Ohmmeter (+)	Ohmmeter (-)	Float position		mm (in)	Resistance value ( $\Omega$ )
		*1	*2		
<b>(2)</b>	<b>(4)</b>	*1	Empty	8 (0.31)	78 - 85
		*2	1/2	115 (4.53)	27 - 35
		*3	Full	241 (9.49)	Approx. 4 - 6

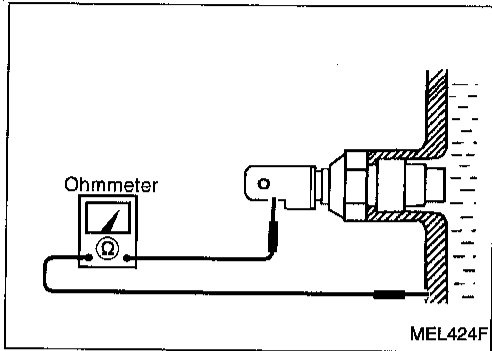
\*1 and \*3: When float rod is in contact with stopper.

# METER AND GAUGES

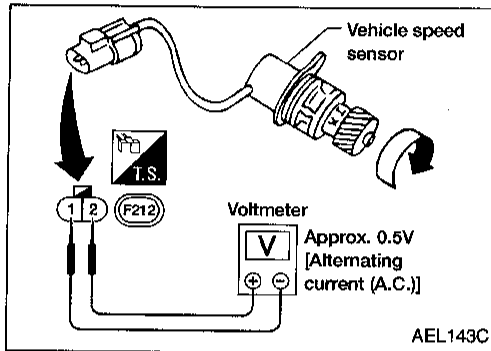
## Electrical Components Inspection (Cont'd)

### THERMAL TRANSMITTER CHECK

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



Water temperature	Resistance
60°C (140°F)	Approx. 167 - 211Ω
100°C (212°F)	Approx. 47 - 53Ω



### VEHICLE SPEED SENSOR SIGNAL CHECK

1. Remove vehicle speed sensor from transmission.
2. Turn vehicle speed sensor pinion quickly and measure voltage between terminals ① and ②.

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## System Description

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

- through 10A fuse (No. 11, located in the fuse block [J/B])
- to combination meter terminal 29 and
- to 4WD switch terminal 1 (with M/T) or
- to transfer neutral position switch terminal 1 (with A/T).

Ground is supplied:

- through body grounds M14 and M68
- to combination meter terminals 26 and 33.

Ground is supplied:

- through body grounds M14 and M68
- to fuel tank gauge unit terminal 4 and
- to seat belt buckle switch terminal 2 and
- to ATP relay terminals 2 and 4.

Ground is supplied:

- through body grounds E12 and E54
- to brake fluid level switch terminal 2 and
- to washer fluid level switch terminal - (for Canada).

### AIR BAG WARNING LAMP

During prove out or when an air bag malfunction occurs, the ground path is interrupted:

- from the air bag diagnosis sensor unit terminal 15
- to combination meter terminal 5.

Ground is supplied:

- through combination meter terminal 26.

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

For further information, refer to RS section ("TROUBLE DIAGNOSES").

### LOW FUEL LEVEL WARNING LAMP

The amount of fuel in the fuel tank is determined by the fuel level sensor in the fuel tank. A signal is sent from fuel tank gauge unit terminal 3 to combination meter terminal 1. The fuel level sensor will illuminate the low fuel level warning lamp when the fuel level is low.

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

### ABS WARNING LAMP

During prove out or when an ABS malfunction occurs, ground is supplied:

- from ABS actuator and electric unit (control unit) terminal 21
- to combination meter terminal 36.

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

For further information, refer to BR section ("Self-diagnosis", "TROUBLE DIAGNOSES").

### CRUISE INDICATOR LAMP

When cruise control is activated, power is supplied:

- from ASCD control unit terminal 13
- to combination meter terminal 30.

Ground is supplied:

- to combination meter terminal 33
- through body grounds M14 and M68.

With power and ground supplied, the cruise indicator lamp illuminates.

### LOW OIL PRESSURE WARNING LAMP

Low oil pressure causes oil pressure switch terminal 1 to provide ground to combination meter terminal 29.

With power and ground supplied, the low oil pressure warning lamp illuminates.

### CHARGE WARNING LAMP

During prove out or when a generator malfunction occurs, ground is supplied:

- from generator terminal 3
- to combination meter terminals 27 and 19.

With power and ground supplied, the charge warning lamp and brake lamp illuminate.

## WARNING LAMPS

### System Description (Cont'd)

#### BRAKE WARNING LAMP

When the parking brake is applied, or the brake fluid level is low, ground is supplied:

- from parking brake switch terminal ① or
- brake fluid level switch terminal ①
- to combination meter terminal ⑪.

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

#### A/T OIL TEMPERATURE WARNING LAMP

High A/T oil temperature causes A/T fluid temperature switch terminal ⑧ to provide ground to combination meter terminal ⑫.

With power and ground supplied, the A/T oil temperature warning lamp illuminates.

#### SEAT BELT WARNING LAMP

When the driver's seat belt is unfastened, ground is supplied:

- from seat belt buckle switch terminal ①
- to combination meter terminal ⑫.

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

#### WASHER WARNING LAMP

When the washer fluid level is low, ground is supplied:

- from washer fluid level switch terminal ⊕
- to combination meter terminal ⑬.

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

#### MALFUNCTION INDICATOR LAMP

During prove out or when an engine control malfunction occurs, ground is supplied:

- from ECM terminal ⑱
- to combination meter terminal ⑮.

With power and ground supplied, the malfunction indicator lamp illuminates.

For further information, refer to EC section ["Malfunction Indicator Lamp (MIL)", "ON BOARD DIAGNOSTIC SYSTEM DESCRIPTION"].

#### ATP WARNING LAMP

With the ignition switch in the ON or START position, the park/neutral position (PNP) switch in the PARK position and the transfer neutral position switch in the N position, power is supplied:

- through 10A fuse (No. ⑫, located in the fuse block [J/B])
- through PNP switch terminal ③
- from PNP switch terminal ④
- to combination meter terminal ⑳.

Ground is supplied:

- through body grounds M14 and M68
- through ATP relay terminals ③ and ④
- to combination meter terminal ㉑.

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

#### 4WD INDICATOR LAMP

When the 4WD switch is in the 4H, N, or 4L position and the transfer neutral position switch is in the 2H, 4H, or 4L position, power is supplied:

- from 4WD switch terminal ① (through transfer neutral position switch) (with A/T) or
- from transfer neutral position switch terminal ① (through 4WD switch) (with M/T)
- to combination meter terminal ⑲.

Ground is supplied:

- through combination meter terminal ㉓.

With power and ground supplied, the 4WD indicator lamp illuminates.

#### O/D OFF INDICATOR LAMP

When the overdrive control switch is set to the ON position, ground is supplied:

- from transmission control module terminal ⑬
- to combination meter terminal ⑭.

With power and ground supplied, the O/D off indicator lamp illuminates.

GI

MA

EM

LC

EC

FE

CL

MT

AT

TF

PD

FA

RA

BR

ST

RS

BT

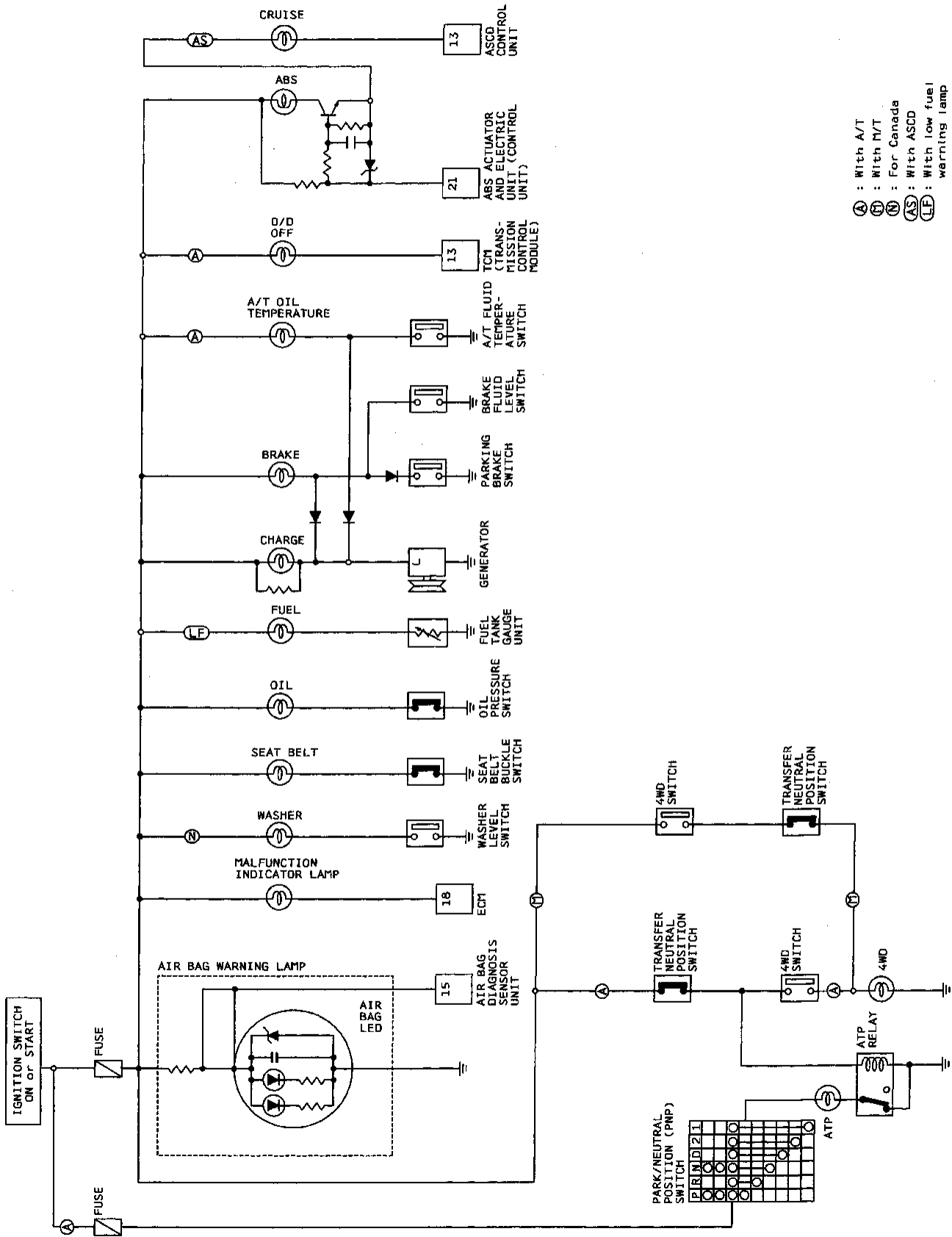
HA

EL

IDX

# WARNING LAMPS

## Schematic



AEL053C

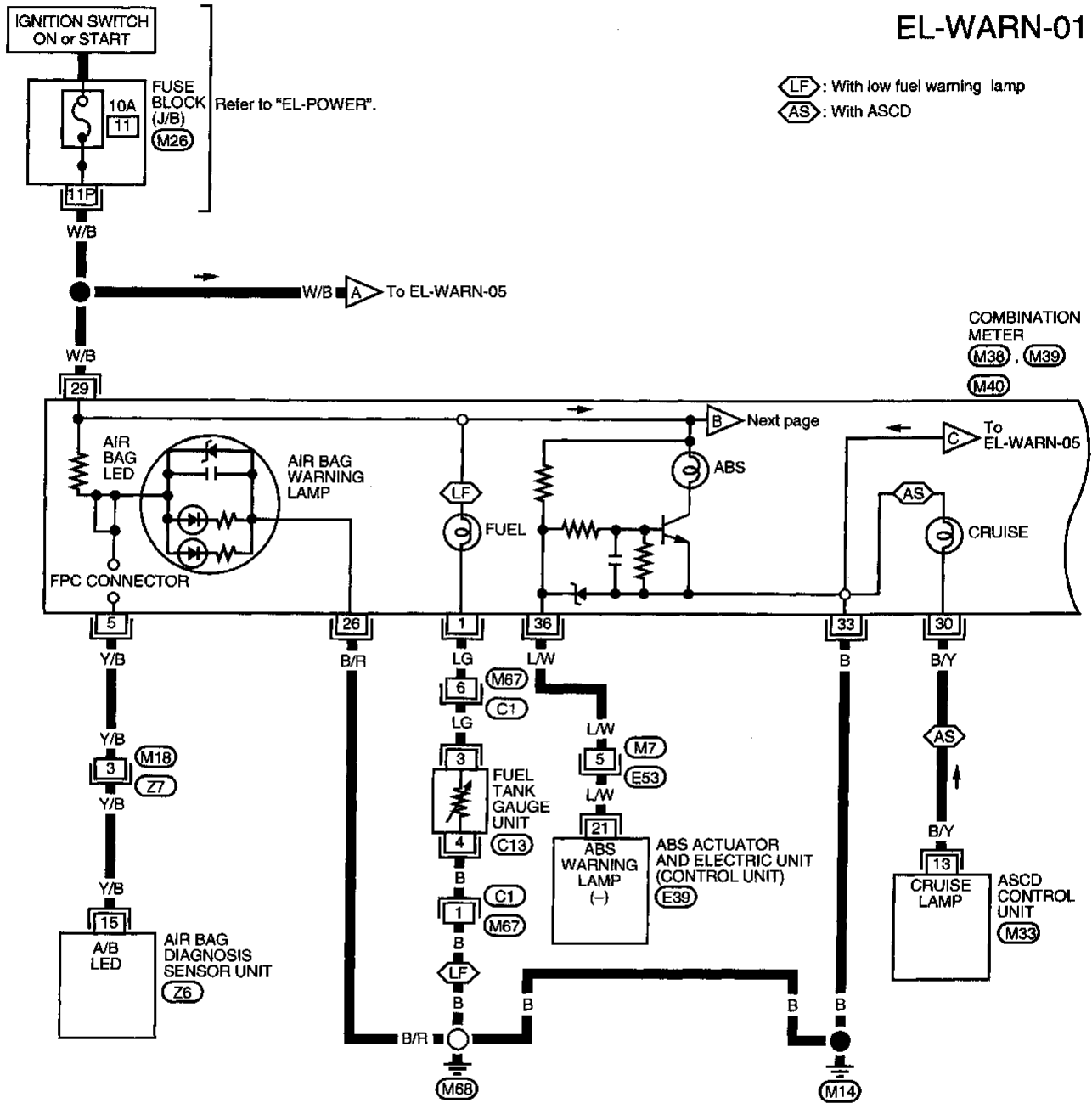
EL-94



# WARNING LAMPS

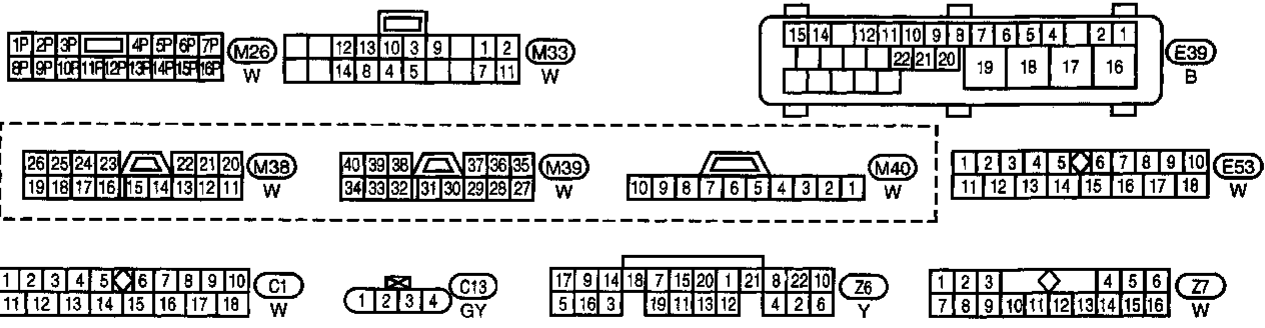
## Wiring Diagram — WARN —

EL-WARN-01



LF : With low fuel warning lamp  
 AS : With ASCD

COMBINATION METER  
 (M38), (M39)  
 (M40)

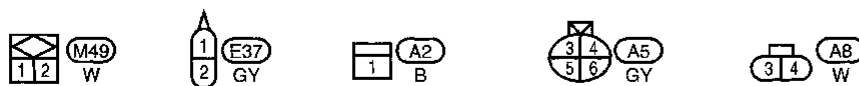
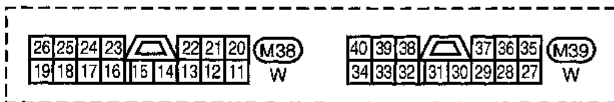
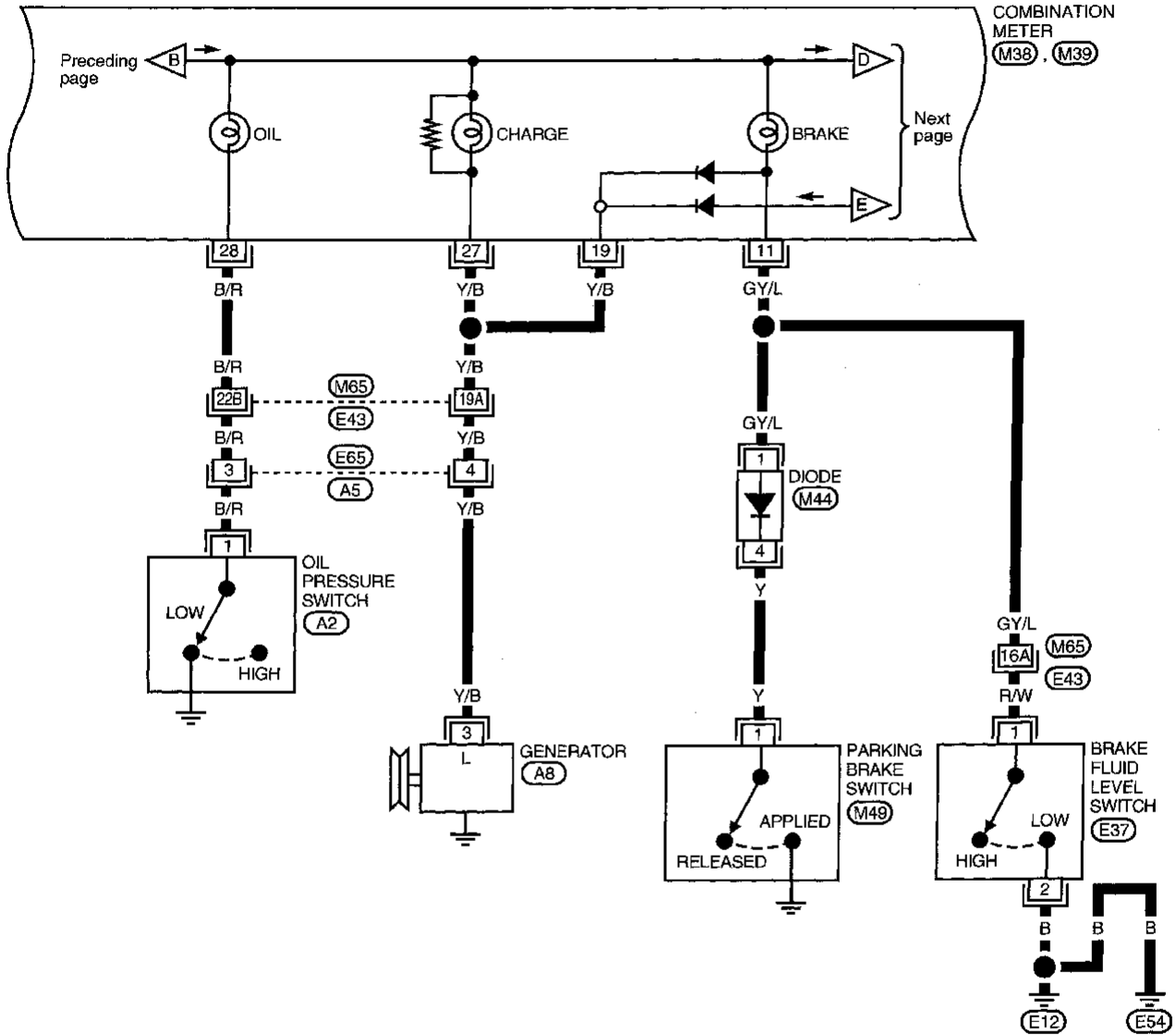


# WARNING LAMPS

## Wiring Diagram — WARN — (Cont'd)

EL-WARN-02

U : For U.S.A.  
N : For Canada



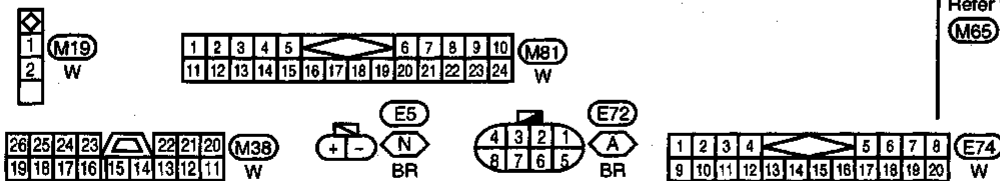
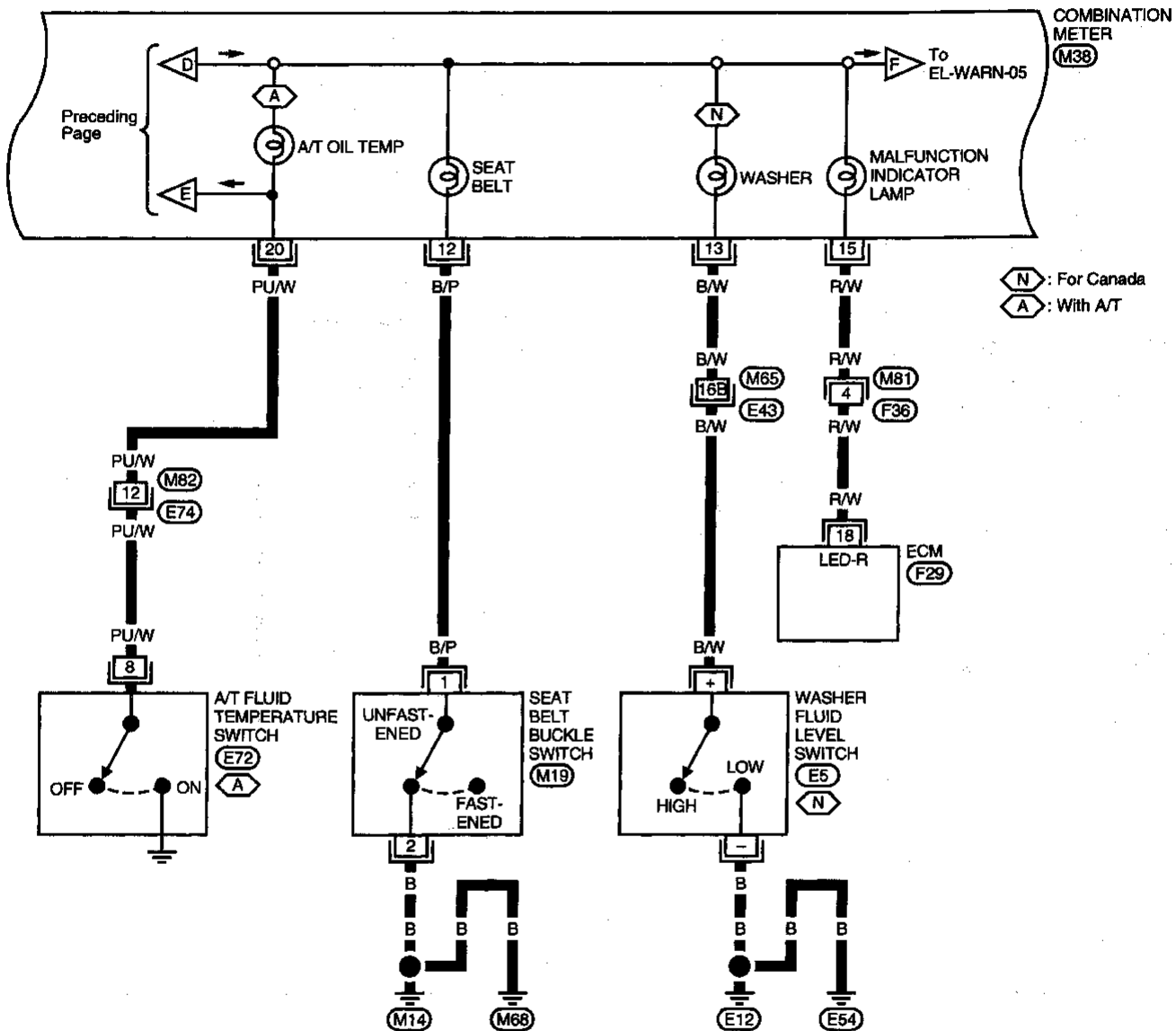
Refer to last page (Foldout page).  
M65, E43

AEL055C

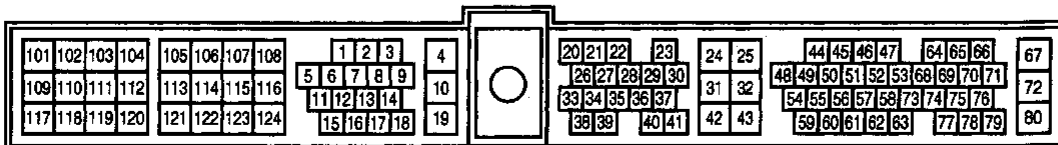
# WARNING LAMPS

## Wiring Diagram — WARN — (Cont'd)

EL-WARN-03



Refer to last page (Foldout page).  
(M65, E43)

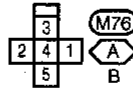
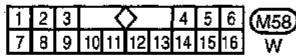
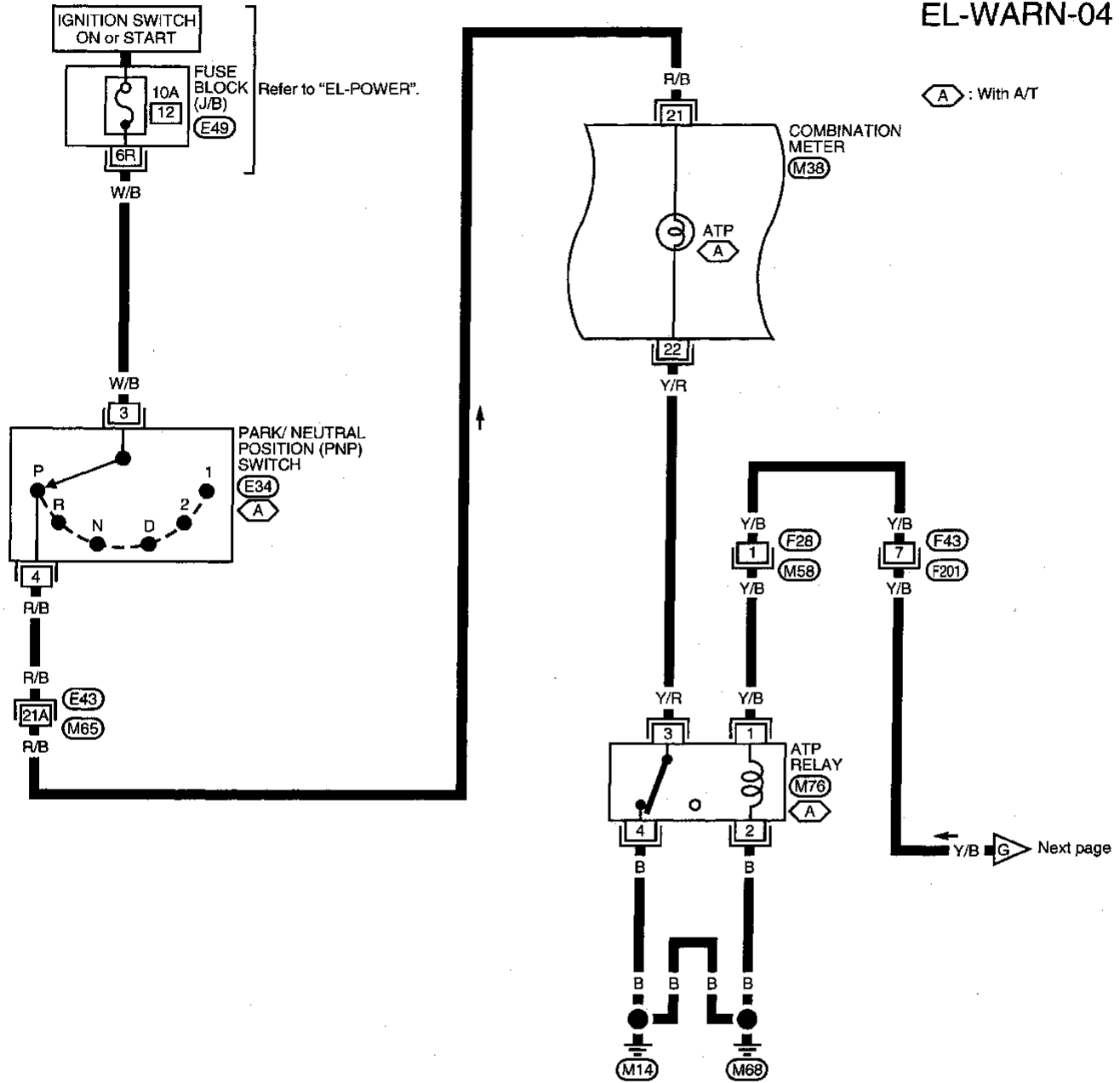


AEL056C

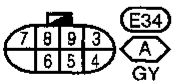
# WARNING LAMPS

## Wiring Diagram — WARN — (Cont'd)

EL-WARN-04

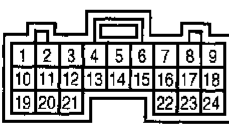
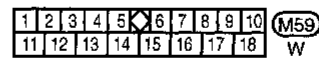
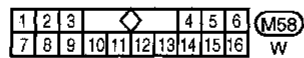
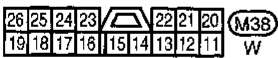
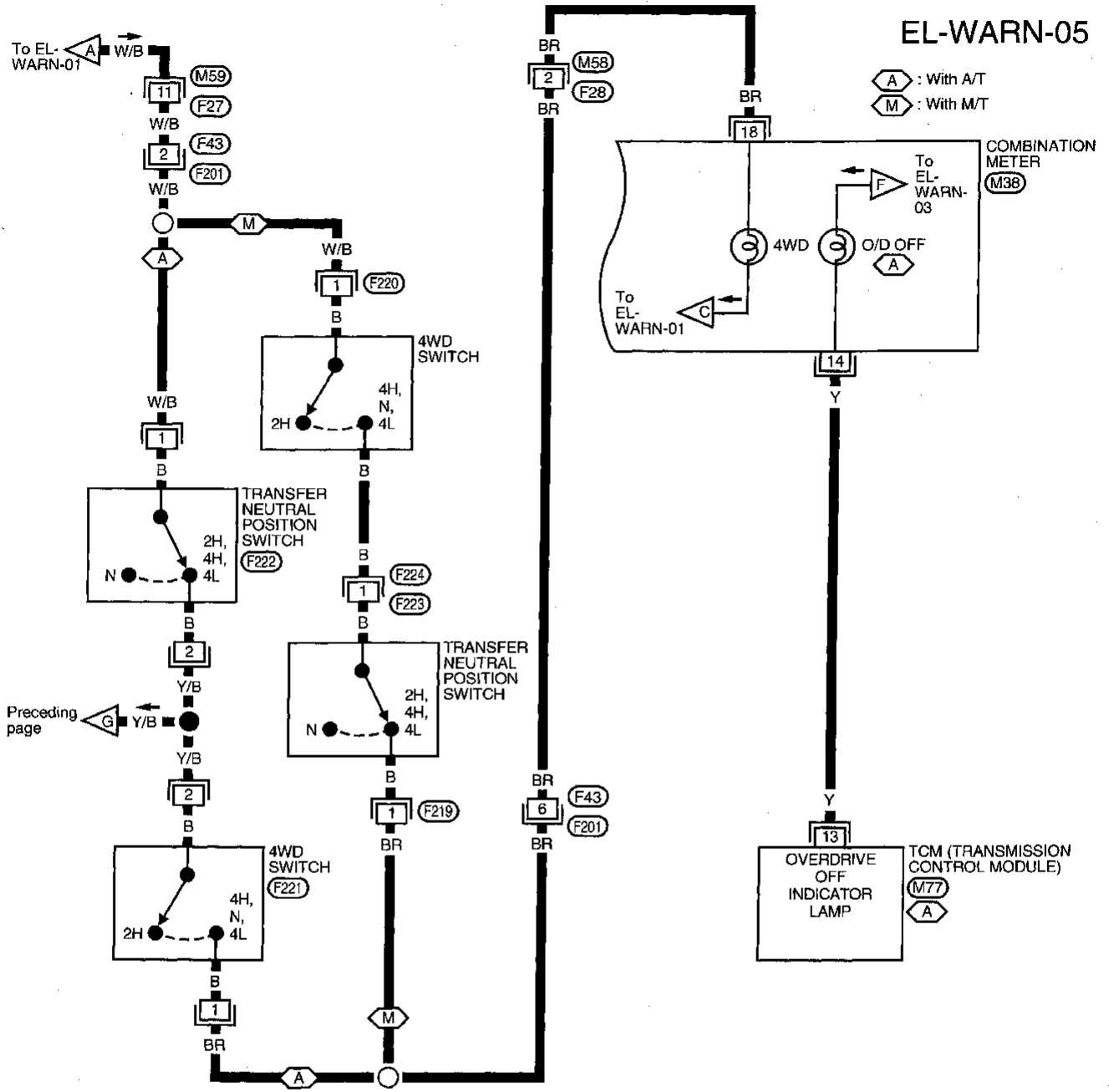


Refer to last page (Foldout page).  
M65, E43



# WARNING LAMPS

## Wiring Diagram — WARN — (Cont'd)



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

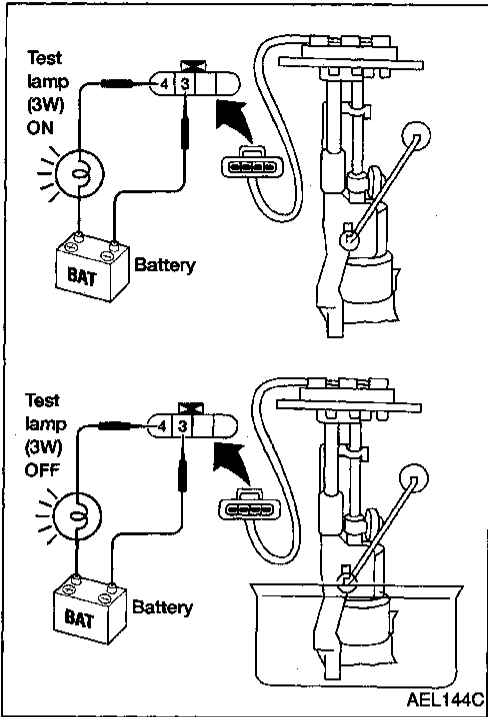
GI  
MA  
EM  
LC  
EC  
FE  
CL  
MT  
AT  
TF  
PD  
FA  
RA  
BR  
ST  
RS  
BT  
HA  
EL  
IDX

# WARNING LAMPS

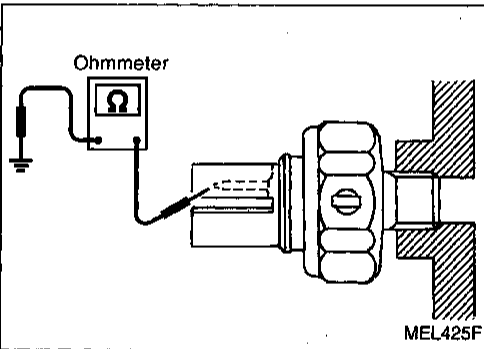
## Electrical Components Inspection

### FUEL WARNING LAMP SENSOR CHECK

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



### OIL PRESSURE SWITCH CHECK



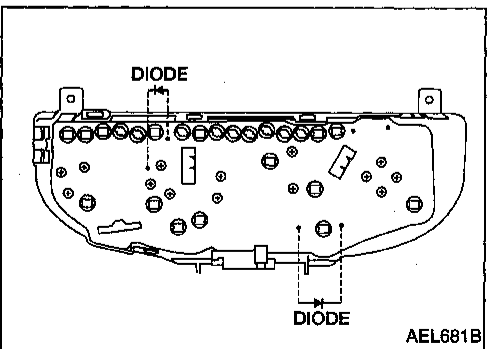
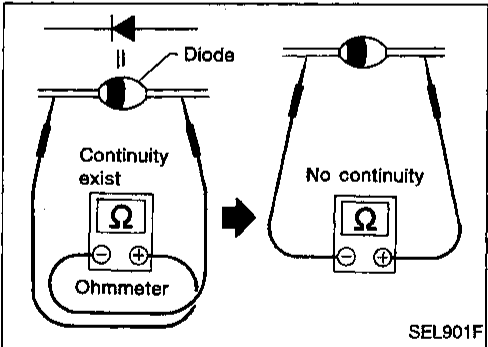
	Oil pressure kPa (kg/cm <sup>2</sup> , psi)	Continuity
Engine start	More than 10 - 20 (0.1 - 0.2, 1 - 3)	NO
Engine stop	Less than 10 - 20 (0.1 - 0.2, 1 - 3)	YES

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

### DIODE CHECK

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

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

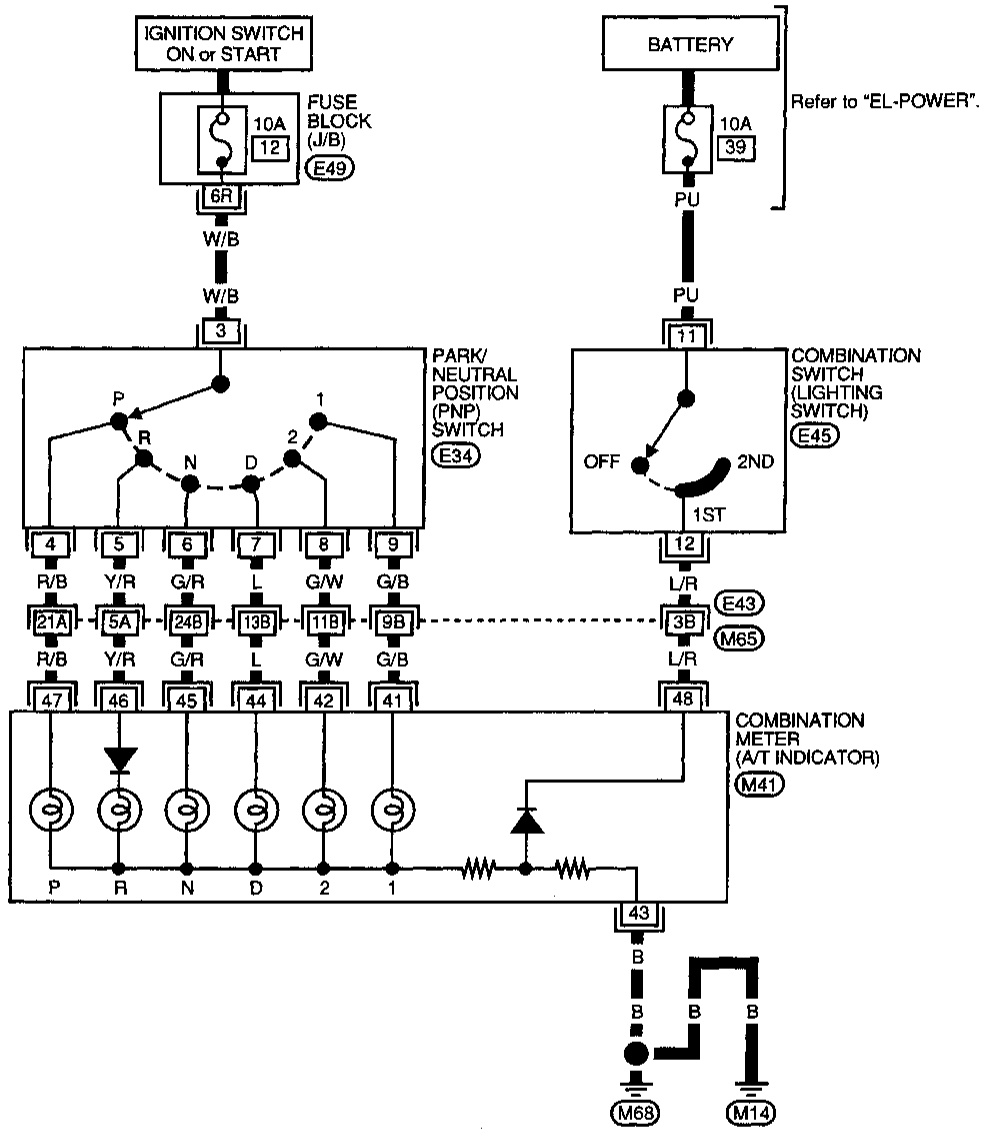


- Diodes for warning lamps are built into the combination meter printed circuit.

# A/T INDICATOR

## Wiring Diagram — AT/IND —

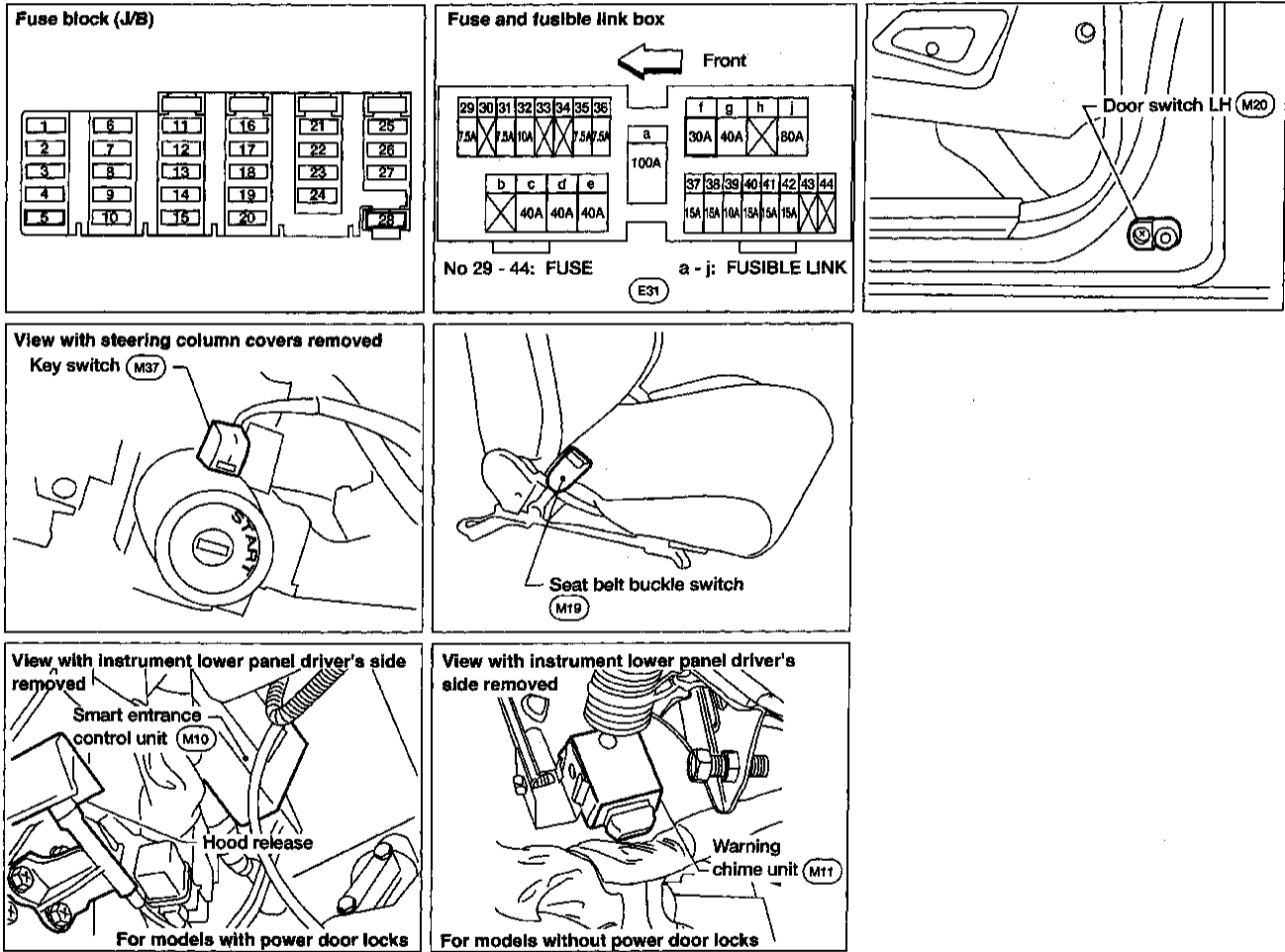
EL-AT/IND-01



Refer to last page (Foldout page).  
(M65), (E43)

# WARNING CHIME

## Component Parts and Harness Connector Location





# WARNING CHIME

## System Description

### MODELS WITH POWER DOOR LOCKS

The warning chime is integral with the smart entrance control unit, which controls its operation.

Power is supplied at all times:

- through 7.5A fuse (No. 28, located in the fuse block (J/B))
- to key switch terminal ①.

Power is supplied at all times:

- through 10A fuse (No. 39, located in the fuse and fusible link box)
- to lighting switch terminal ⑪.

Power is supplied at all times:

- through 30A fusible link (letter F, located in the fuse and fusible link box)
- to circuit breaker terminal ①
- through circuit breaker terminal ②
- to smart entrance control unit terminal ①.

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

- through 7.5A fuse (No. 5, located in the fuse block (J/B))
- to smart entrance control unit terminal ⑪.

Ground is supplied to smart entrance control unit terminal ⑩ through body grounds M14 and M68.

When a signal, or combination of signals, is received by the smart entrance control unit, the warning chime will sound.

### Ignition key warning chime

With the key in the ignition key cylinder, the ignition switch in the OFF or ACC position, and the driver's door open, the warning chime will sound. A battery positive voltage is supplied:

- from key switch terminal ②
- to smart entrance control unit terminal ⑭.

Ground is supplied:

- from door switch LH terminal ②
- to smart entrance control unit terminal ⑮.

Door switch LH terminal ③ is grounded through body grounds M14 and M68.

### Light warning chime

With ignition switch in the OFF or ACC position, driver's door open, and lighting switch in 1ST or 2ND position, the warning chime will sound. A battery positive voltage is supplied:

- from lighting switch terminal ⑫
- to smart entrance control unit terminal ⑲.

Ground is supplied:

- from door switch LH terminal ②
- to smart entrance control unit terminal ⑮.

Door switch LH terminal ③ is grounded through body grounds M14 and M68.

### Seat belt warning chime

The warning chime sounds for about 6 seconds when ignition switch is turned from OFF to ON and seat belt is unfastened.

Ground is supplied:

- from seat belt buckle switch terminal ①
- to smart entrance control unit terminal ⑳.

Seat belt buckle switch terminal ② is grounded through body grounds M14 and M68.

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

## WARNING CHIME

### System Description (Cont'd)

#### MODELS WITHOUT POWER DOOR LOCKS

The warning chime is integral with the warning chime unit, which controls its operation.

Power is supplied at all times:

- through 7.5A fuse [No. 28], located in the fuse block (J/B)]
- to key switch terminal ①.

Power is supplied at all times:

- through 10A fuse (No. 39, located in the fuse and fusible link box)
- to lighting switch terminal ⑪.

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

- through 7.5A fuse [No. 5], located in the fuse block (J/B)]
- to warning chime unit terminal ①.

Ground is supplied to warning chime unit terminal ⑧ through body grounds M14 and M68.

When a signal, or combination of signals, is received by the warning chime unit, the warning chime will sound.

#### Ignition key warning chime

With the key in the ignition key cylinder, the ignition switch in the OFF or ACC position, and the driver's door open, the warning chime will sound. A battery positive voltage is supplied:

- from key switch terminal ②
- to warning chime unit terminal ⑤.

Ground is supplied:

- to warning chime unit terminal ⑦
- from door switch LH terminal ②.

Door switch LH terminal ③ is grounded through body grounds M14 and M68.

#### Light warning chime

With ignition switch OFF or ACC position, driver's door open, and lighting switch in 1ST or 2ND position, the warning chime will sound. A battery positive voltage is supplied:

- from lighting switch terminal ⑫
- to warning chime unit terminal ④.

Ground is supplied:

- to warning chime unit terminal ⑦
- from door switch LH terminal ②.

Door switch LH terminal ③ is grounded through body grounds M14 and M68.

#### Seat belt warning chime.

The warning chime will sound for approximately 6 seconds when ignition switch is turned from OFF to ON and seat belt is unfastened.

Ground is supplied:

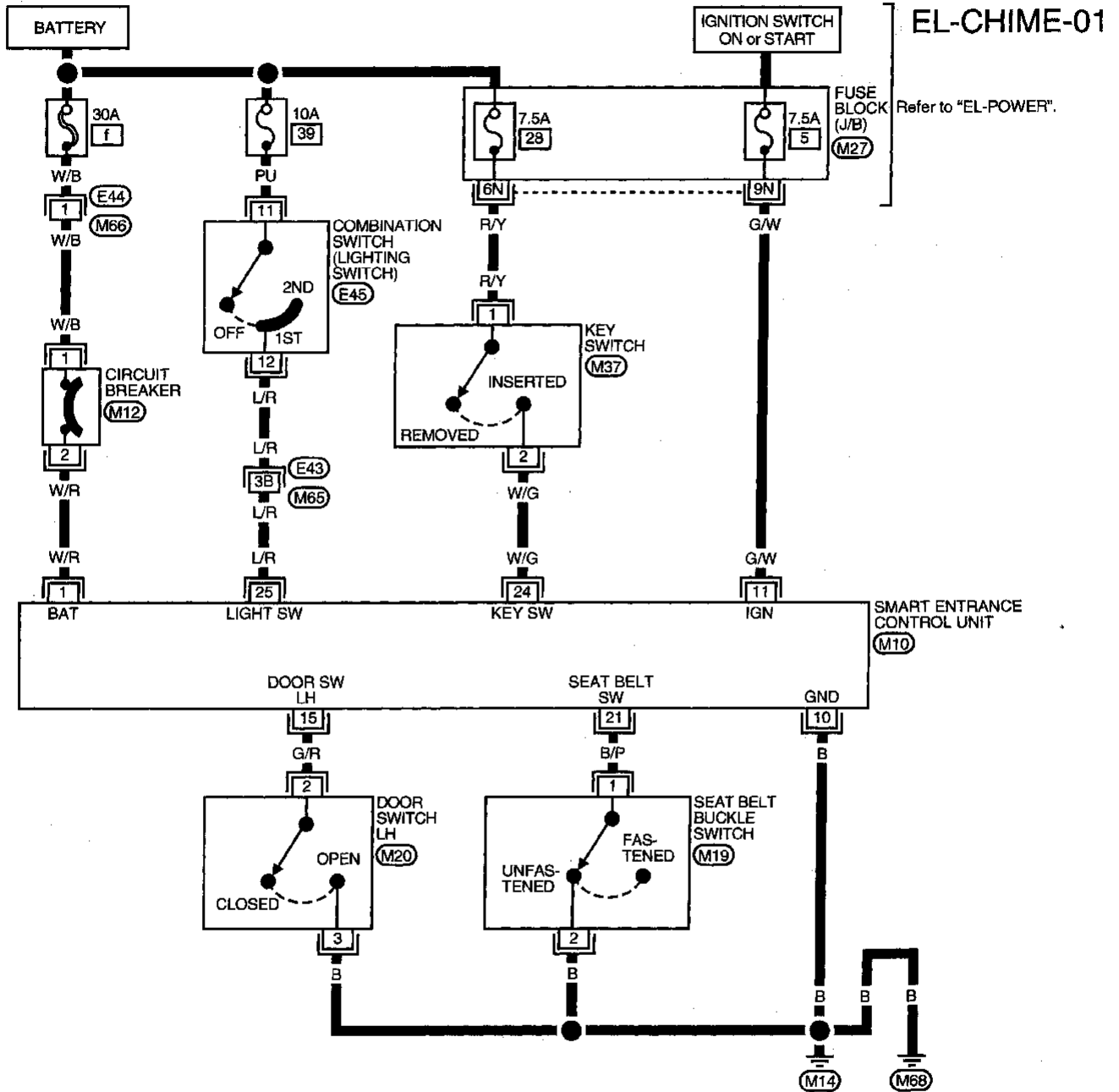
- to warning chime unit terminal ②
- from seat belt buckle switch terminal ①.

Seat belt buckle switch terminal ② is grounded through body grounds M14 and M68.

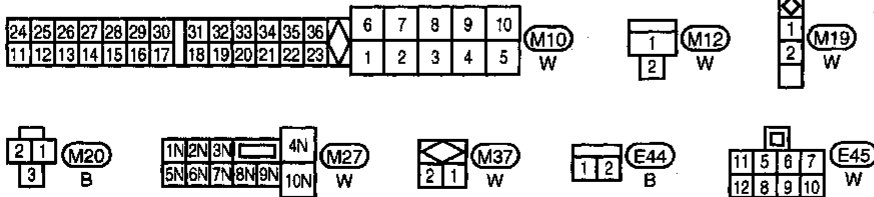
# WARNING CHIME

## Wiring Diagram — CHIME —

### MODELS WITH POWER DOOR LOCKS



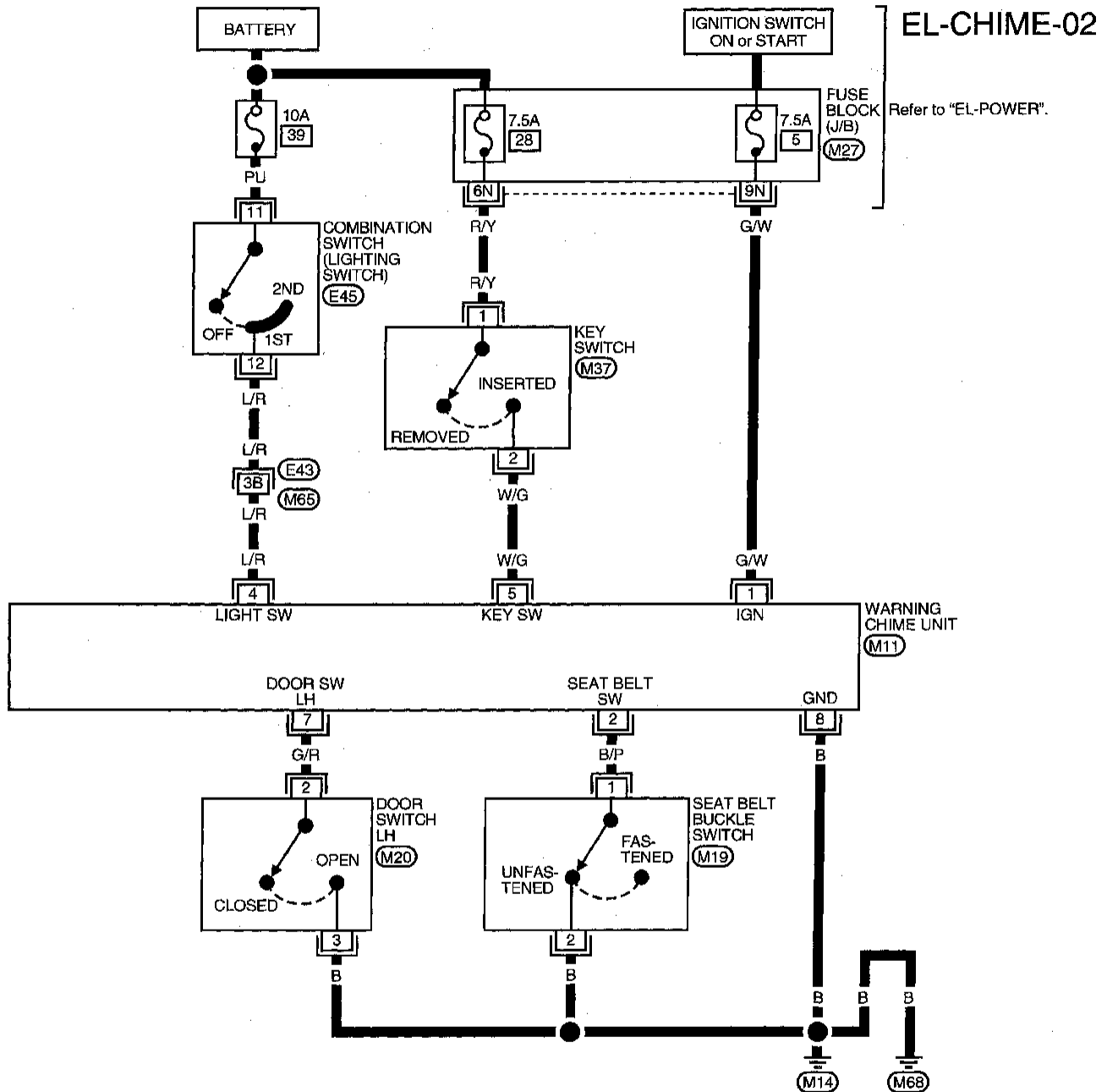
Refer to last page (Foldout page).  
**(M65) (E43)**



# WARNING CHIME

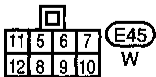
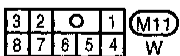
## Wiring Diagram — CHIME — (Cont'd)

MODELS WITHOUT POWER DOOR LOCKS



Refer to last page (Foldout page).

(M65), (E43)



# WARNING CHIME

## Trouble Diagnoses

### SYMPTOM CHART

REFERENCE PAGE	EL-108	EL-109	EL-110	EL-111	EL-112
SYMPTOM	MAIN POWER SUPPLY AND GROUND CIRCUIT CHECK	DIAGNOSTIC PROCEDURE 1 (Lighting switch input signal check)	DIAGNOSTIC PROCEDURE 2 (Key switch input signal check)	DIAGNOSTIC PROCEDURE 3 (Seat belt buckle switch input signal check)	DIAGNOSTIC PROCEDURE 4 (Driver side door switch input signal check)
Light warning chime does not activate.	X	X			X
Ignition key warning chime does not activate.	X		X		X
Seat belt warning chime does not activate.	X			X	
All warning chimes do not activate.	X				

GI

MA

EM

LC

EC

FE

CL

MT

AT

TF

PD

FA

RA

BR

ST

RS

BT

HA

EL

IDX

# WARNING CHIME

## Trouble Diagnoses (Cont'd)

### MAIN POWER SUPPLY AND GROUND CIRCUIT CHECK

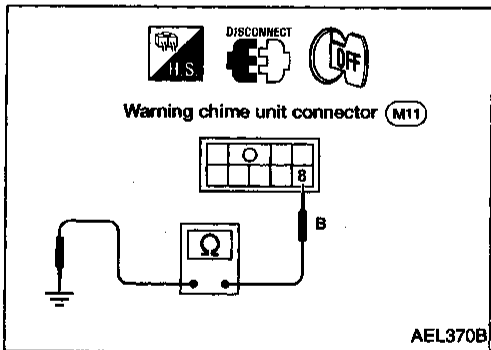
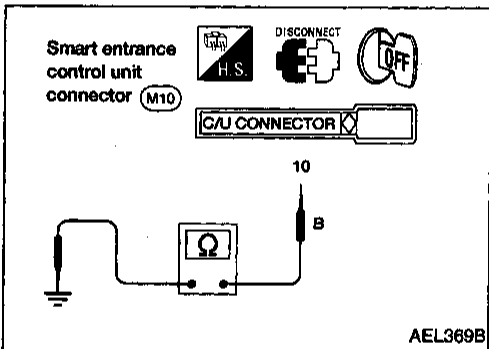
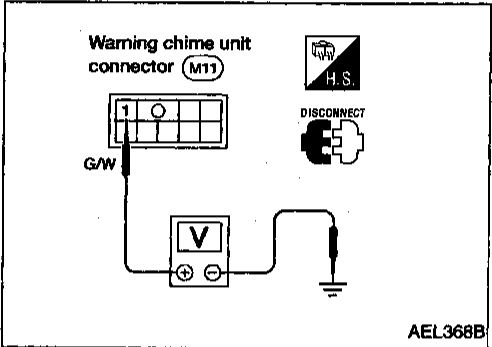
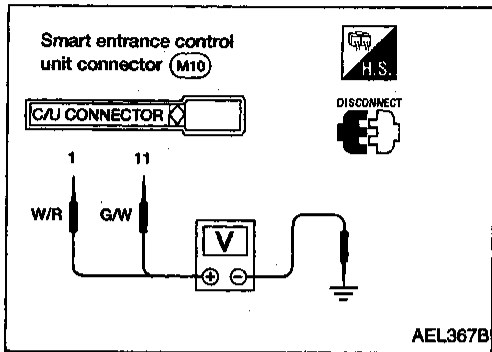
#### Main power supply circuit check

- **Models with power door locks**

Terminals		Ignition switch position		
⊕	⊖	OFF	ACC	ON
①	Ground	Battery voltage	Battery voltage	Battery voltage
⑪	Ground	0V	0V	Battery voltage

- **Models without power door locks**

Terminals		Battery voltage existence condition		
		Ignition switch position		
⊕	⊖	OFF	ACC	ON
①	Ground	0V	0V	Battery voltage



#### Ground circuit check

- **Models with power door locks**

Terminals	Continuity
⑩ - Ground	Yes

- **Models without power door locks**

Terminals	Continuity
⑧ - Ground	Yes

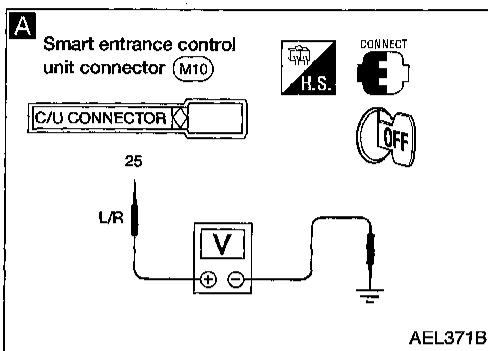
# WARNING CHIME

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 1

#### (Lighting switch input signal check)

#### Models with power door locks



**A**

#### CHECK LIGHTING SWITCH INPUT SIGNAL.

Check voltage between control unit terminal (25) and ground.

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

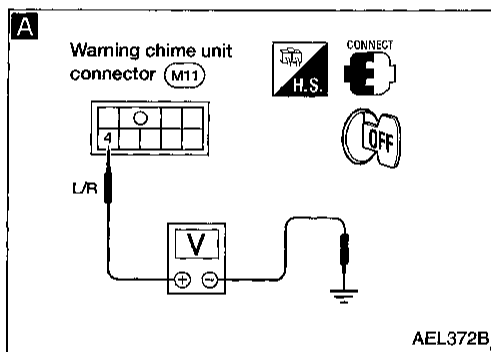
NG

Check the following.

- 10A fuse (No. 39, located in the fuse and fusible link box)
- Harness for open or short between control unit and lighting switch

OK

Go to Diagnostic Procedure 4, EL-112.



#### Models without power door locks

**A**

#### CHECK LIGHTING SWITCH INPUT SIGNAL.

Check voltage between warning chime unit terminal (4) and ground.

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

NG

Check the following.

- 10A fuse (No. 39, located in the fuse and fusible link box)
- Harness for open or short between warning chime unit and lighting switch

OK

Go to Diagnostic Procedure 4, EL-112.

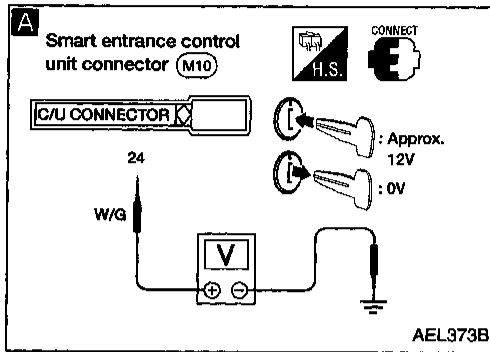
# WARNING CHIME

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 2

#### (Key switch input signal check)

#### Models with power door locks



A

**CHECK KEY SWITCH INPUT SIGNAL.**  
Check voltage between control unit terminal ②④ and ground.

Condition of key switch	Voltage [V]
Key is inserted.	Approx. 12
Key is removed.	0

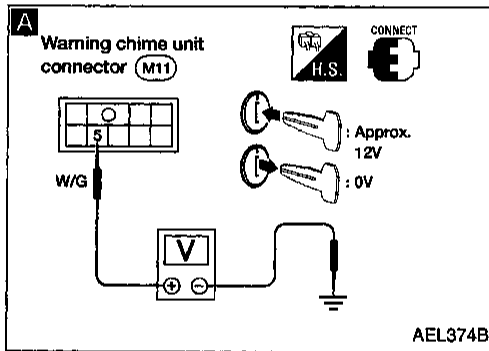
NG

Check the following.

- Key switch  
Refer to "Electrical Components Inspection" (EL-113).
- 7.5A fuse [No. ②⑧], located in fuse block (J/B)]
- Harness for open or short between key switch and fuse
- Harness for open or short between control unit and key switch

OK

Go to Diagnostic Procedure 4, EL-112.



A

#### Models without power door locks

**CHECK KEY SWITCH INPUT SIGNAL.**  
Check voltage between warning chime unit terminal ⑤ and ground.

Condition of key switch	Voltage [V]
Key is inserted.	Approx. 12
Key is removed.	0

NG

Check the following.

- Key switch  
Refer to "Electrical Components Inspection" (EL-113).
- 7.5A fuse [No. ②⑧], located in fuse block (J/B)]
- Harness for open or short between key switch and fuse
- Harness for open or short between warning chime unit and key switch

OK

Go to Diagnostic Procedure 4, EL-112.



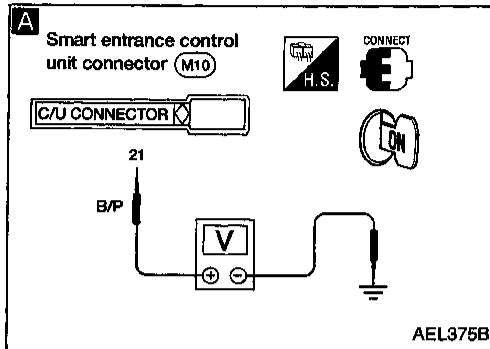
# WARNING CHIME

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 3

#### (Seat belt buckle switch input signal check)

#### Models with power door locks



**A**

#### CHECK SEAT BELT BUCKLE SWITCH INPUT SIGNAL.

1. Turn ignition switch ON.
2. Check voltage between control unit terminal ① and ground.

Condition of seat belt buckle switch	Voltage [V]
Fastened	Approx. 12
Unfastened	0

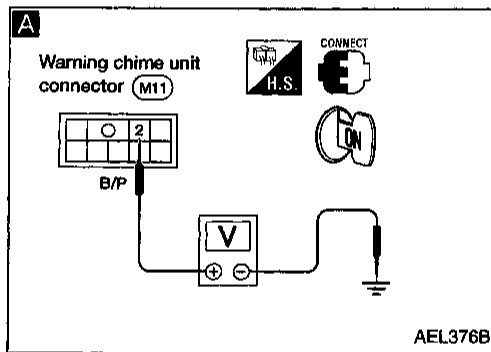
NG

Check the following.

- Seat belt buckle switch  
Refer to "Electrical Components Inspection" (EL-113).
- Seat belt buckle switch ground circuit
- Harness for open or short between control unit and seat belt buckle switch

OK

Replace smart entrance control unit.



**A**

#### Models without power door locks

#### CHECK SEAT BELT BUCKLE SWITCH INPUT SIGNAL.

1. Turn ignition switch ON.
2. Check voltage between warning chime unit terminal ② and ground.

Condition of seat belt buckle switch	Voltage [V]
Fastened	Approx. 12
Unfastened	0

NG

Check the following.

- Seat belt buckle switch  
Refer to "Electrical Components Inspection" (EL-113).
- Seat belt buckle switch ground circuit
- Harness for open or short between warning chime unit and seat belt buckle switch

OK

Replace warning chime unit.

GI  
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EM  
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AT  
TF  
PD  
FA  
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BR  
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HA  
EL  
IDX

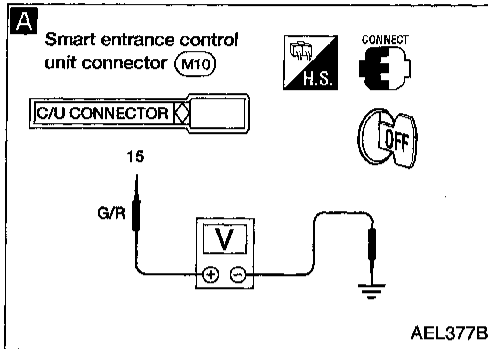
# WARNING CHIME

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 4

#### (Driver side door switch input signal check)

#### Models with power door locks



**A** **CHECK DOOR SWITCH INPUT SIGNAL.**  
Check voltage between control unit terminal ⑮ and ground.

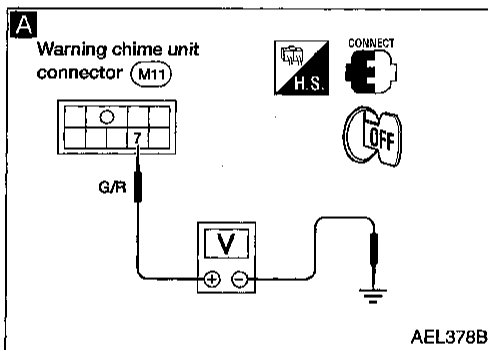
Condition of driver's door	Voltage [V]
Driver side door is closed.	Approx. 12
Driver side door is open.	0

NG

- Check the following.
- Driver side door switch  
Refer to "Electrical Components Inspection" (EL-113).
  - Door switch ground condition
  - Harness for open or short between control unit and door switch

OK

Replace smart entrance control unit.



#### Models without power door locks

**A** **CHECK DOOR SWITCH INPUT SIGNAL.**  
Check voltage between warning chime unit terminal ⑦ and ground.

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

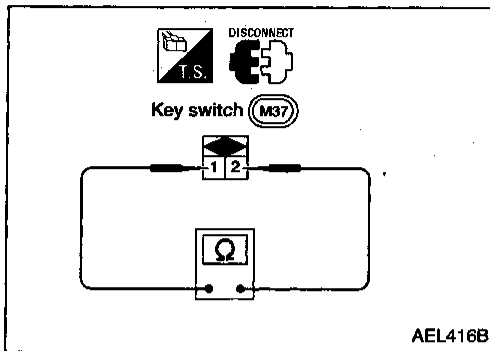
NG

- Check the following.
- Driver side door switch  
Refer to "Electrical Components Inspection" (EL-113).
  - Door switch ground circuit
  - Harness for open or short between warning chime unit and door switch

OK

Replace warning chime unit.

# WARNING CHIME

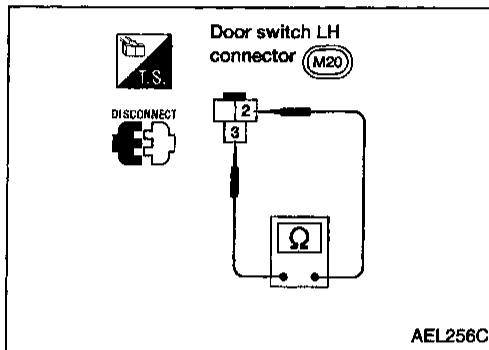


## Electrical Components Inspection

### KEY SWITCH (insert)

Check continuity between terminals when key is inserted in ignition key cylinder and key is removed from ignition key cylinder.

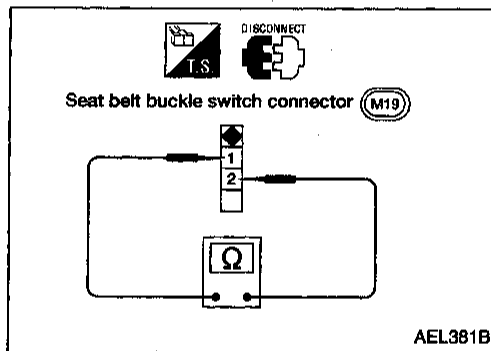
Terminal No.	Condition	Continuity
① - ②	Key is inserted.	Yes
	Key is removed.	No



### DRIVER SIDE DOOR SWITCH

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

Terminal No.	Condition	Continuity
② - ③	Door switch is pushed.	No
	Door switch is released.	Yes



### SEAT BELT BUCKLE SWITCH

Check continuity between terminals when seat belt is fastened and unfastened.

Terminal No.	Condition	Continuity
① - ②	Seat belt is fastened.	No
	Seat belt is unfastened.	Yes

GI  
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HA  
EL  
IDX

## System Description

### WIPER OPERATION

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

- LO speed
- HI speed
- INT (Intermittent) (If equipped).

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

- through 20A fuse [No. 6], located in the fuse block (J/B)]
- to wiper motor terminal (B) and
- to wiper amplifier terminal (6) (with intermittent wipers).

#### Low and high speed wiper operation

Ground is supplied to wiper switch terminal (17) through body grounds (E12) and (E54).

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

- through terminal (14) of the wiper switch
- to wiper motor terminal (L).

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

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

- through terminal (16) of the wiper switch
- to wiper motor terminal (H).

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

#### Auto stop operation

With wiper switch turned OFF, wiper motor will continue to operate until wiper arms reach windshield base.

When wiper arms are not located at base of windshield with wiper switch OFF, ground is supplied:

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

Ground is also supplied:

- through terminal (13) of the wiper switch
- to wiper amplifier terminal (4) (with intermittent wipers)
- through terminal (8) of the wiper amplifier (with intermittent wipers)
- to wiper motor terminal (P)
- through terminal (E) of the wiper motor, and
- through body grounds (E12) and (E54).

When wiper arms reach base of windshield, wiper motor terminals (P) and (B) are connected instead of terminals (P) and (E). Wiper motor will then stop wiper arms at the PARK position.

#### Intermittent operation

The wiper motor operates the wiper arms one time at low speed at a set interval of approximately 3 to 13 seconds. This feature is controlled by the wiper amplifier.

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

- to wiper amplifier terminal (1)
- from wiper switch terminal (15)
- through body grounds (E12) and (E54)
- to wiper motor terminal (L)
- through the wiper switch terminal (14)
- to wiper switch terminal (13)
- through wiper amplifier terminal (4)
- to wiper amplifier terminal (7)
- through body grounds (E12) and (E54).

The desired interval time is input:

- to wiper amplifier terminal (2)
- from wiper switch terminal (19)
- to wiper switch terminal (20)
- through body grounds (E12) and (E54).

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

# FRONT WIPER AND WASHER

## System Description (Cont'd)

### WASHER OPERATION

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

- through 20A fuse [No. 6], located in the fuse block (J/B)
- to washer motor terminal (+).

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

- to washer motor terminal (-), and
- to wiper amplifier terminal (5) (with intermittent wipers)
- from terminal (18) of the wiper switch
- through terminal (17) of the wiper switch, and
- through body grounds (E12) and (E54).

With power and ground supplied, the washer motor operates.

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

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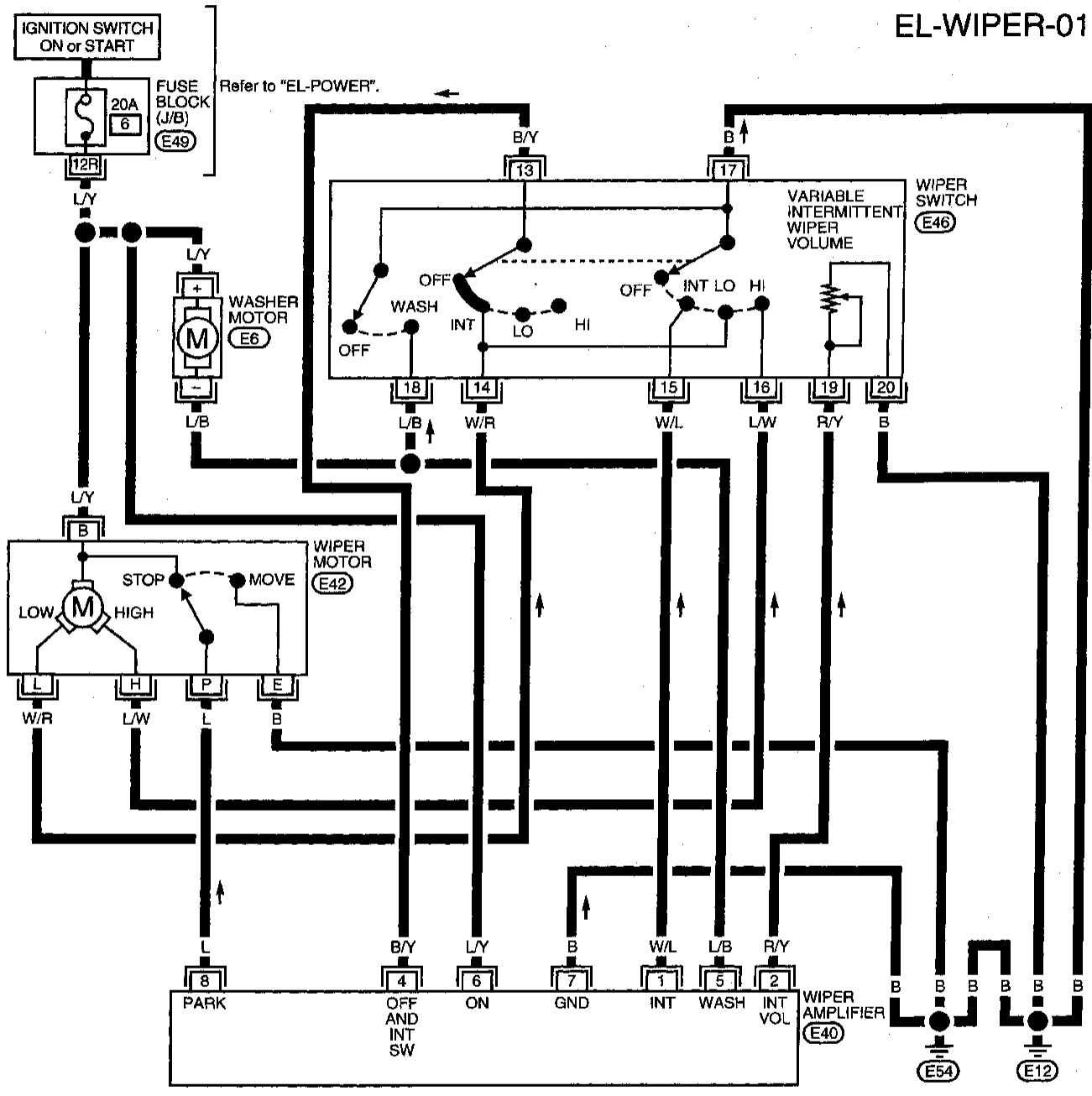
IDX

# FRONT WIPER AND WASHER

## Wiring Diagram — WIPER —

WITH INTERMITTENT WIPERS

EL-WIPER-01



AEL060C

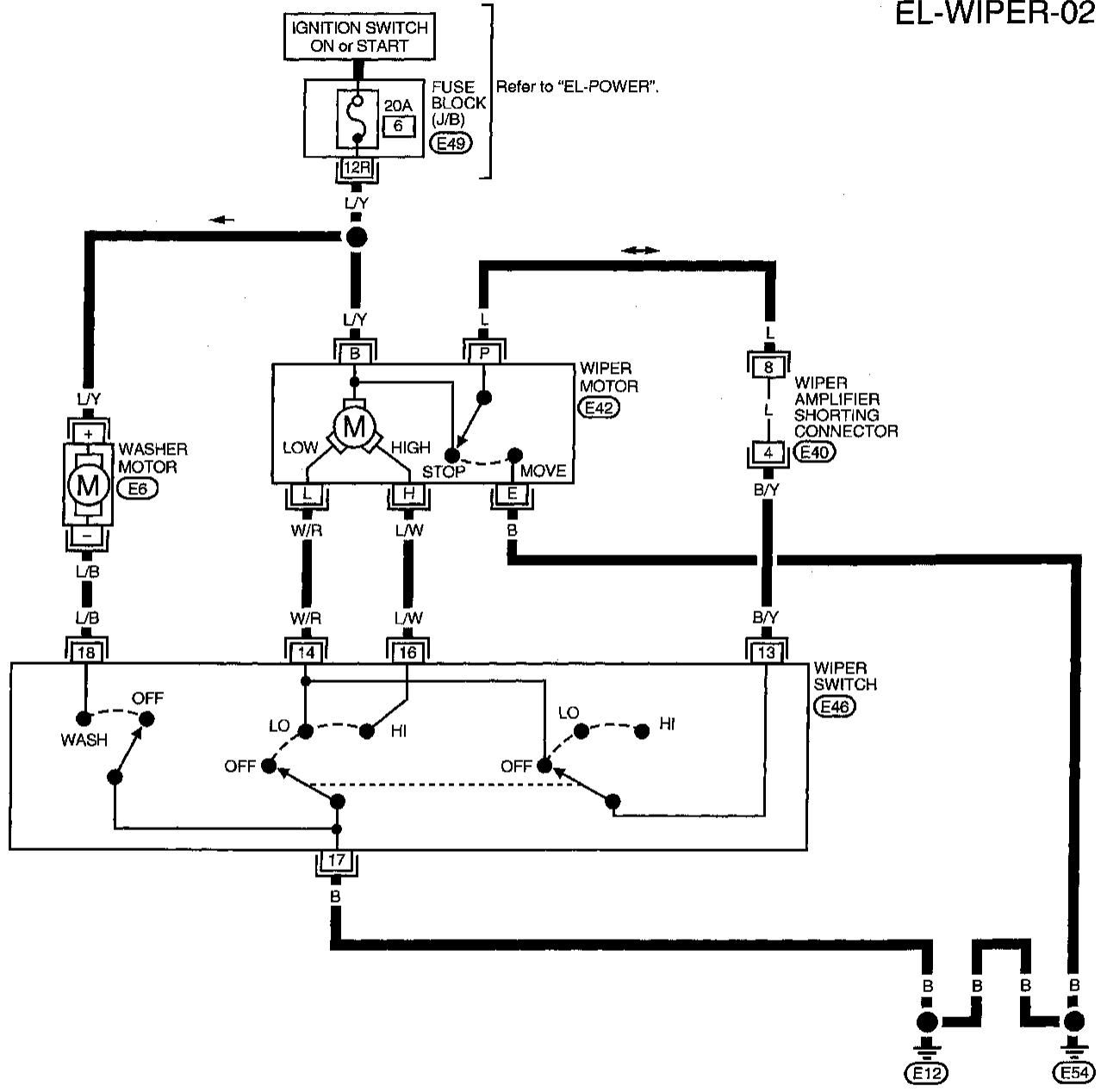
EL-116

# FRONT WIPER AND WASHER

## Wiring Diagram — WIPER — (Cont'd)

WITHOUT INTERMITTENT WIPERS

EL-WIPER-02



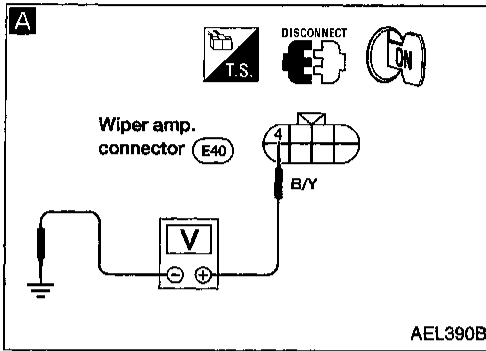
GI  
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RA  
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# FRONT WIPER AND WASHER

## Trouble Diagnoses (With intermittent wipers)

### DIAGNOSTIC PROCEDURE 1

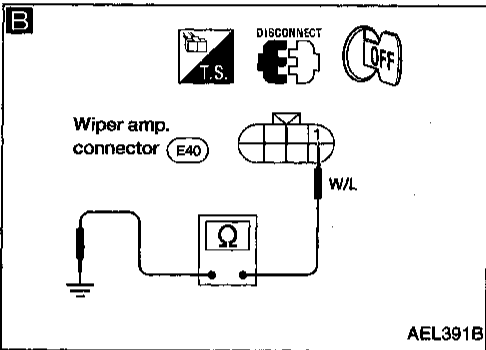
**SYMPTOM: Intermittent wiper does not operate.**



Check whether wiper operates with the wiper switch at LO position.

NG → Check the following.

- 20A fuse [No. 6], located in fuse block (J/B)
- Wiper motor
- Wiper switch
- Harness for open or short



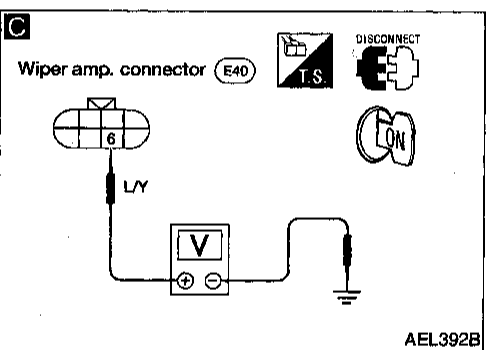
**A**

1. Turn front wiper switch to OFF.
2. Disconnect wiper amp. connector.
3. Check voltage between wiper amp. terminal ④ and ground.

**Battery voltage should exist.**

NG → Check the following.

- Wiper switch
- Harness for open or short between wiper amp. terminal ④ and wiper switch terminal ⑬



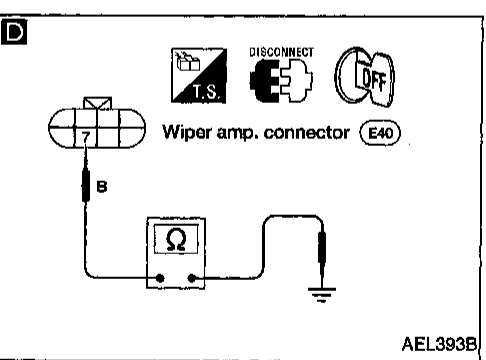
**B**

**CHECK INTERMITTENT SWITCH INPUT SIGNAL.**  
Check harness continuity between wiper amp. terminal ① and ground.

Condition of wiper switch	Continuity
OFF	No
INT	Yes

NG → Check the following.

- Wiper switch
- Harness for open or short between wiper amp. terminal ① and wiper switch terminal ⑮
- Ground circuit for front wiper switch terminal ⑰



**C**

**CHECK WIPER AMP. POWER SUPPLY CIRCUIT.**  
Check voltage between wiper amp. terminal ⑥ and ground while Ignition switch is ON.

**Battery voltage should exist.**

NG → Check the following.

- Harness for open or short between wiper amp. and fuse

**D**

**CHECK WIPER AMP. GROUND CIRCUIT.**  
Check harness continuity between wiper amp. terminal ⑦ and body ground.

**Continuity should exist.**

NG → Repair harness or connector.

OK → Replace wiper amp.

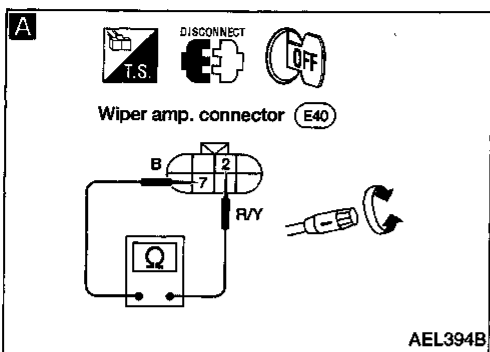


# FRONT WIPER AND WASHER

## Trouble Diagnoses (With intermittent wipers) (Cont'd)

### DIAGNOSTIC PROCEDURE 2

**SYMPTOM:** Intermittent time of wiper cannot be adjusted.



**A**

#### CHECK INTERMITTENT WIPER VOLUME INPUT SIGNAL.

1. Disconnect wiper amp. connector.
2. Measure resistance between wiper amp. terminals (2) and (7) while turning intermittent wiper volume.

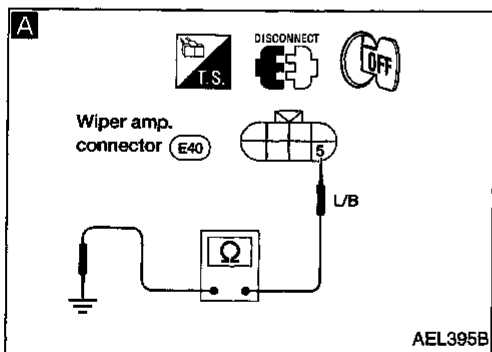
Position of wiper knob	Resistance [Ω]
S	0
L	Approx. 1 k

OK → Replace wiper amp.

NG

Check the following.

- Intermittent wiper volume
- Harness for open or short between wiper amp. terminal (2) and wiper switch terminal (19)
- Ground circuit for front wiper switch terminal (20)



### DIAGNOSTIC PROCEDURE 3

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

**A**

#### CHECK WASHER SWITCH INPUT SIGNAL.

1. Turn ignition switch and wiper switch OFF.
2. Disconnect wiper amp. connector.
3. Check harness continuity between wiper amp. terminal (5) and ground.

Condition of washer switch	Continuity
OFF	No
ON	Yes

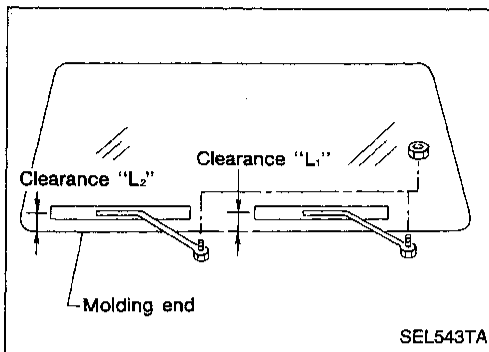
NG → Check harness for open or short between wiper amp. terminal (5) and wiper switch terminal (19).

OK

Go to DIAGNOSTIC PROCEDURE 1.

NG → Replace wiper amp.

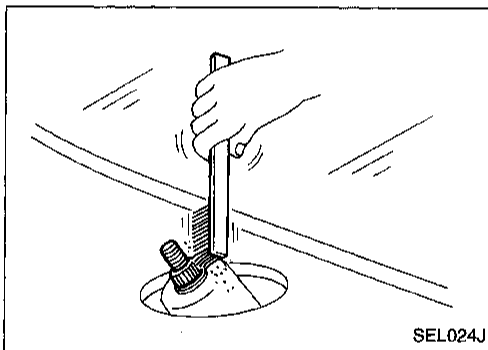
# FRONT WIPER AND WASHER



## Removal and Installation

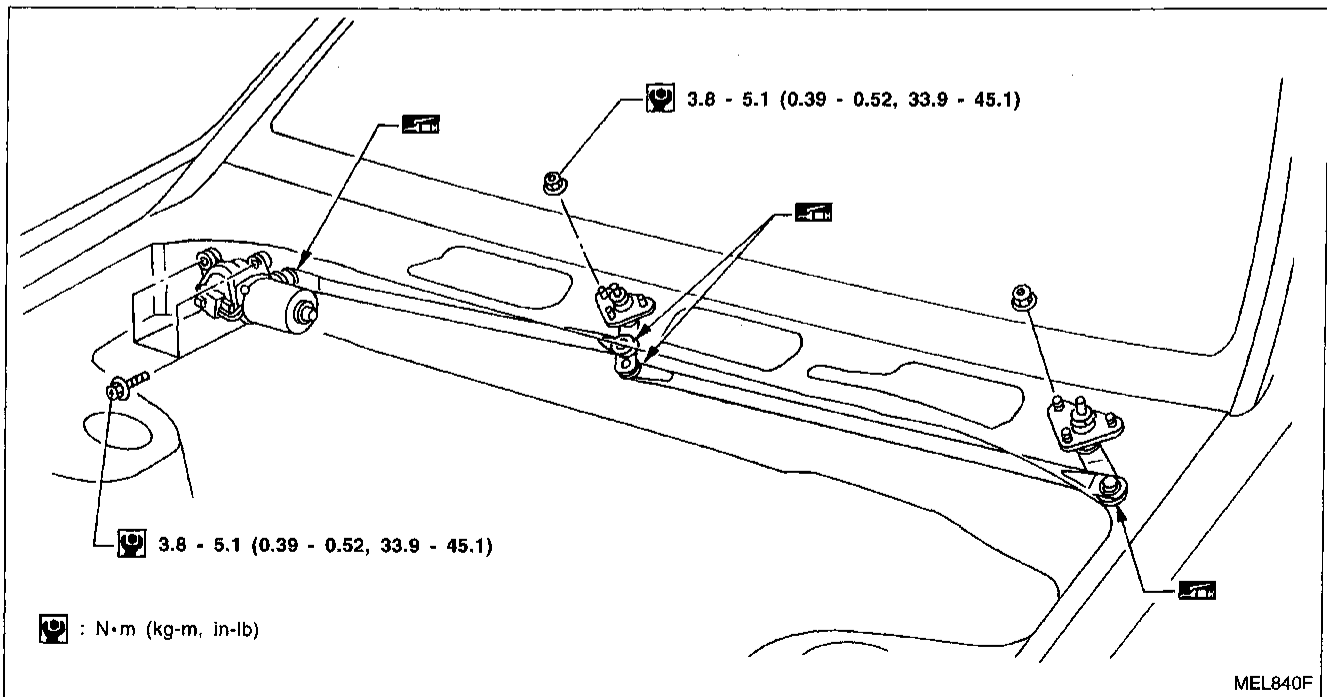
### WIPER ARMS

1. Prior to wiper arm installation, turn on wiper switch to operate wiper motor and then turn it OFF (Auto Stop).
  2. Lift the blade up and then set it down onto glass surface to set the blade center to clearance "L<sub>1</sub>" & "L<sub>2</sub>" 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<sub>1</sub>" & "L<sub>2</sub>".
    - Clearance "L<sub>1</sub>": 25 mm (.98 in)
    - Clearance "L<sub>2</sub>": 25 mm (.98 in)
- Tighten wiper arm nuts to specified torque.
    - Front wiper: 13 - 18 N·m (1.3 - 1.8 kg·m, 9 - 13 ft·lb)



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

### WIPER LINKAGE



# FRONT WIPER AND WASHER

## Removal and Installation (Cont'd)

### Removal

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

**Be careful not to break ball joint rubber boot.**

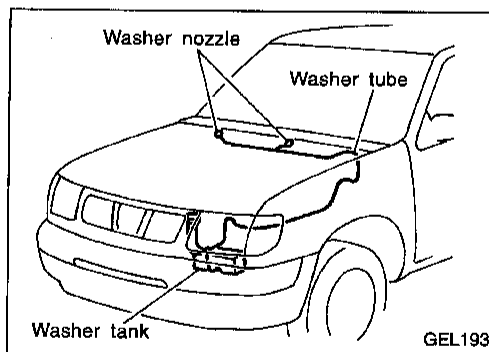
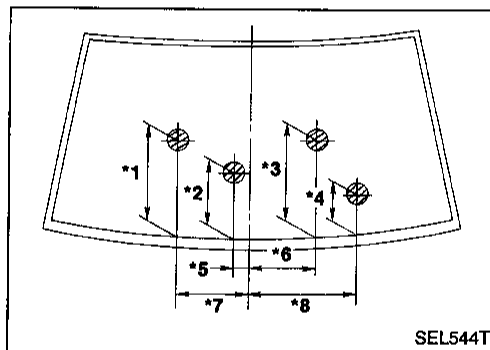
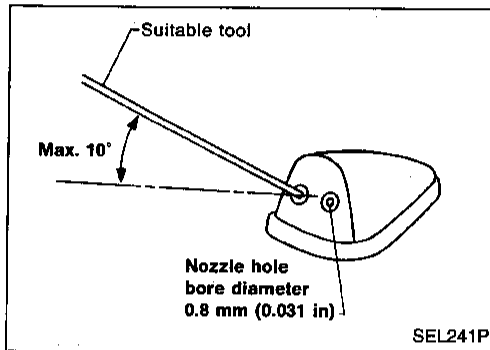
### Installation

- Grease ball joint portion before installation.
1. Installation is the reverse order of removal.

### Washer Nozzle Adjustment

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

**Adjustable range:  $\pm 10^\circ$**



### Washer Tube Layout

\*: The diameters of these circles are less than 80 mm (3.15 in).

Unit: mm (in)			
*1	365 (14.37)	*5	60 (2.36)
*2	215 (8.46)	*6	225 (8.86)
*3	380 (14.96)	*7	210 (8.27)
*4	180 (7.09)	*8	460 (18.11)

GI

MA

EM

LC

EC

FE

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MT

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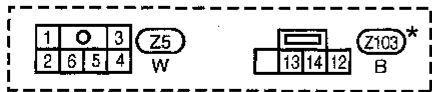
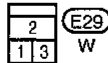
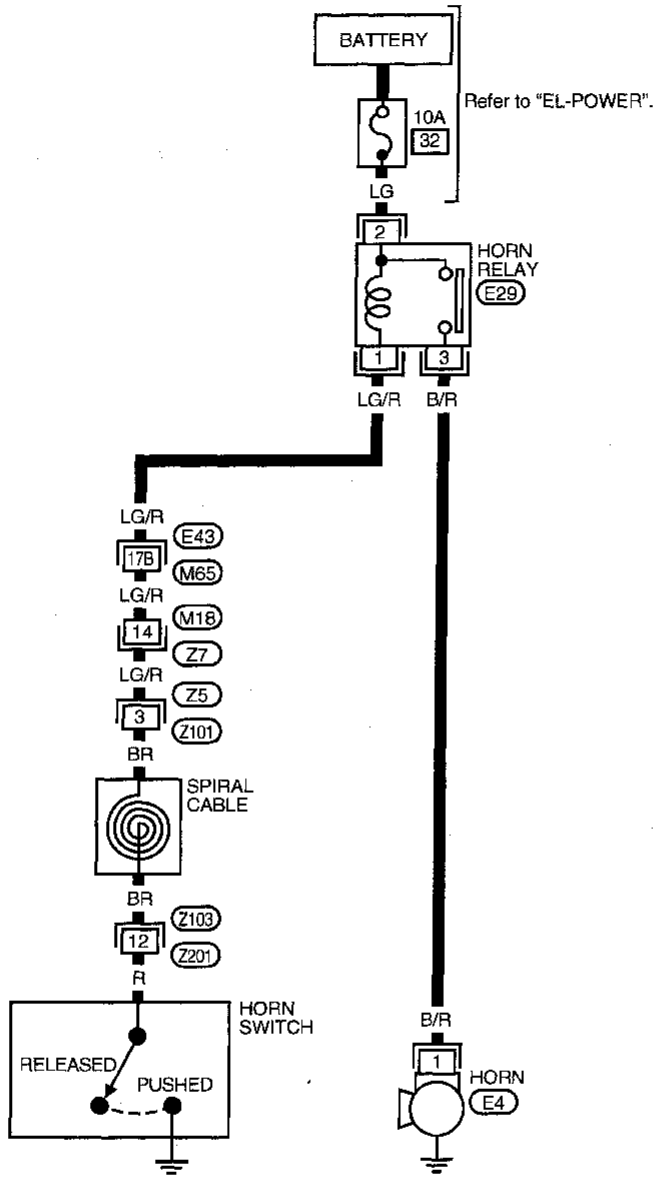
EL

IDX

# HORN

## Wiring Diagram — HORN —

EL-HORN-01



Refer to last page (Foldout page).

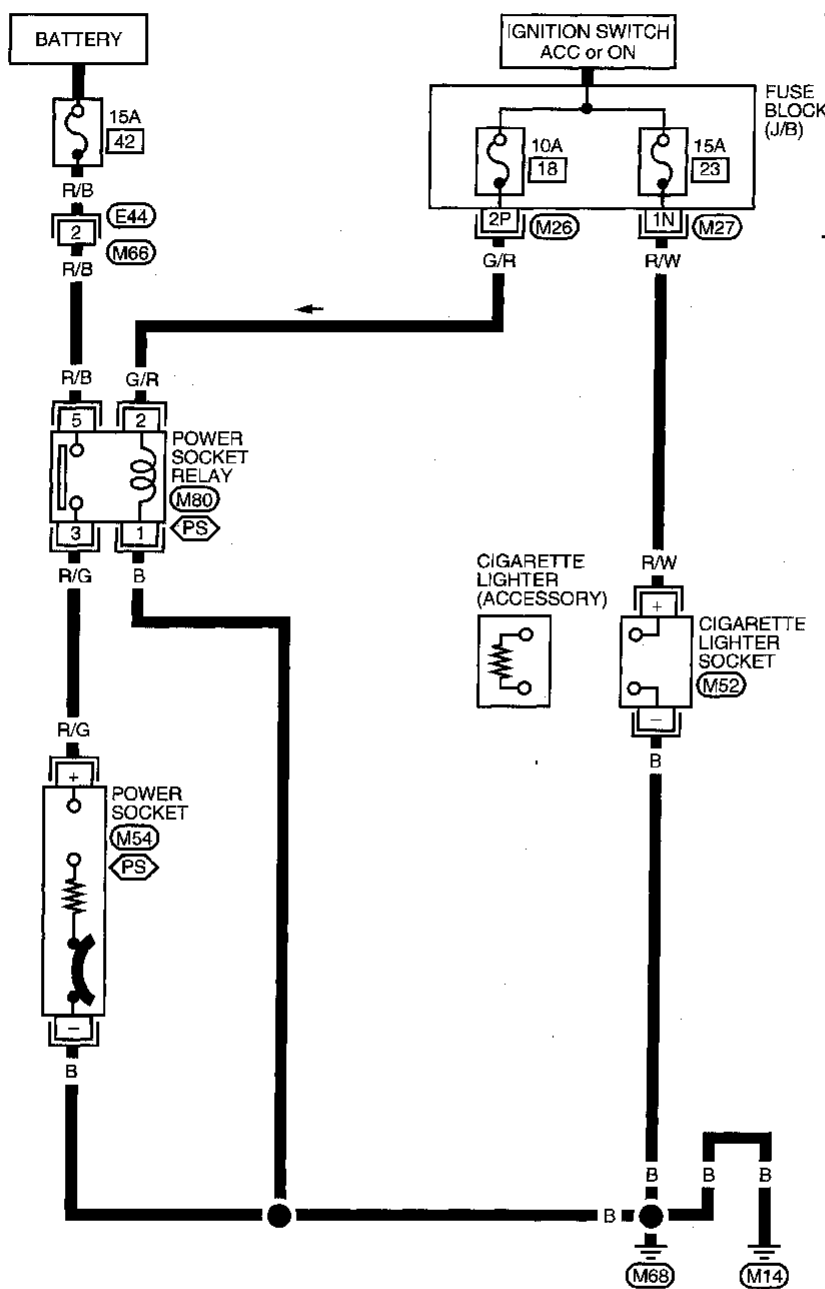
M65, E43

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

AEL351B

# CIGARETTE LIGHTER

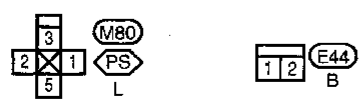
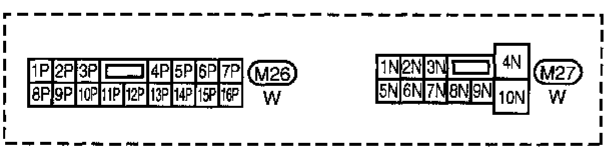
## Wiring Diagram — CIGAR —



EL-CIGAR-01

Refer to "EL-POWER".

PS : With power socket



GI  
MA  
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# AUDIO

## System Description

Refer to Owners Manual for audio system operating instructions.

### BASE AUDIO SYSTEM

Power is supplied at all times:

- through 15A fuse (No. 41), located in the fuse and fusible link box)
- to audio unit terminal 6.

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

- through 10A fuse [No. 18], located in the fuse block (J/B)]
- to audio unit terminal 10.

Ground is supplied through the case of the audio unit.

When the audio unit power knob is pushed to the ON position, audio signals are supplied:

- through audio unit terminals 1, 2, 3, 4, 13, 14, 15, and 16
- to the door speakers and tweeters.

### PREMIUM AUDIO SYSTEM

Power is supplied at all times:

- through 15A fuse (No. 41), located in the fuse and fusible link box)
- to audio unit terminal 6 and
- to subwoofer amplifier terminal 8.

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

- through 10A fuse [No. 18], located in the fuse block (J/B)]
- to audio unit terminal 10.

Ground is supplied through the case of the audio unit.

Ground is supplied to subwoofer amplifier terminal 7 through body grounds M14 and M68.

When the system is ON, an amplifier ON signal is sent:

- through audio unit terminal 12
- to subwoofer amplifier terminal 6

and audio signals are supplied

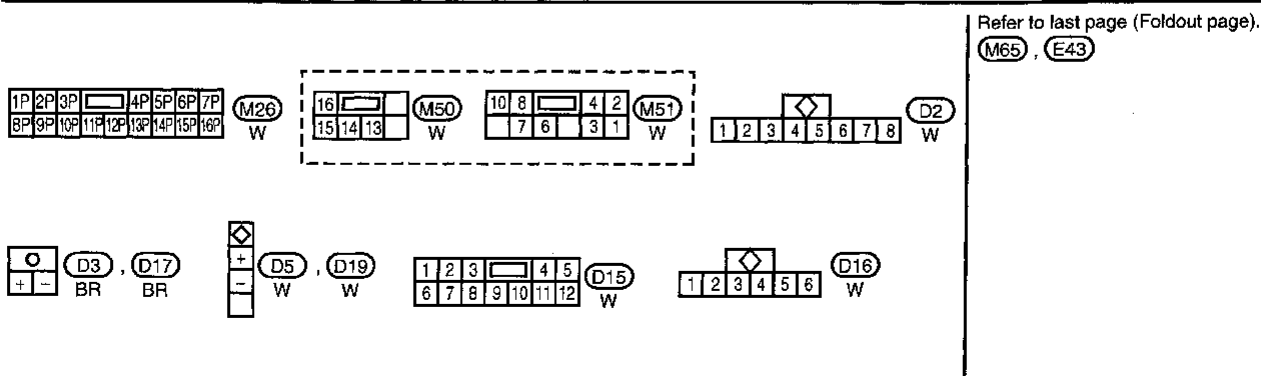
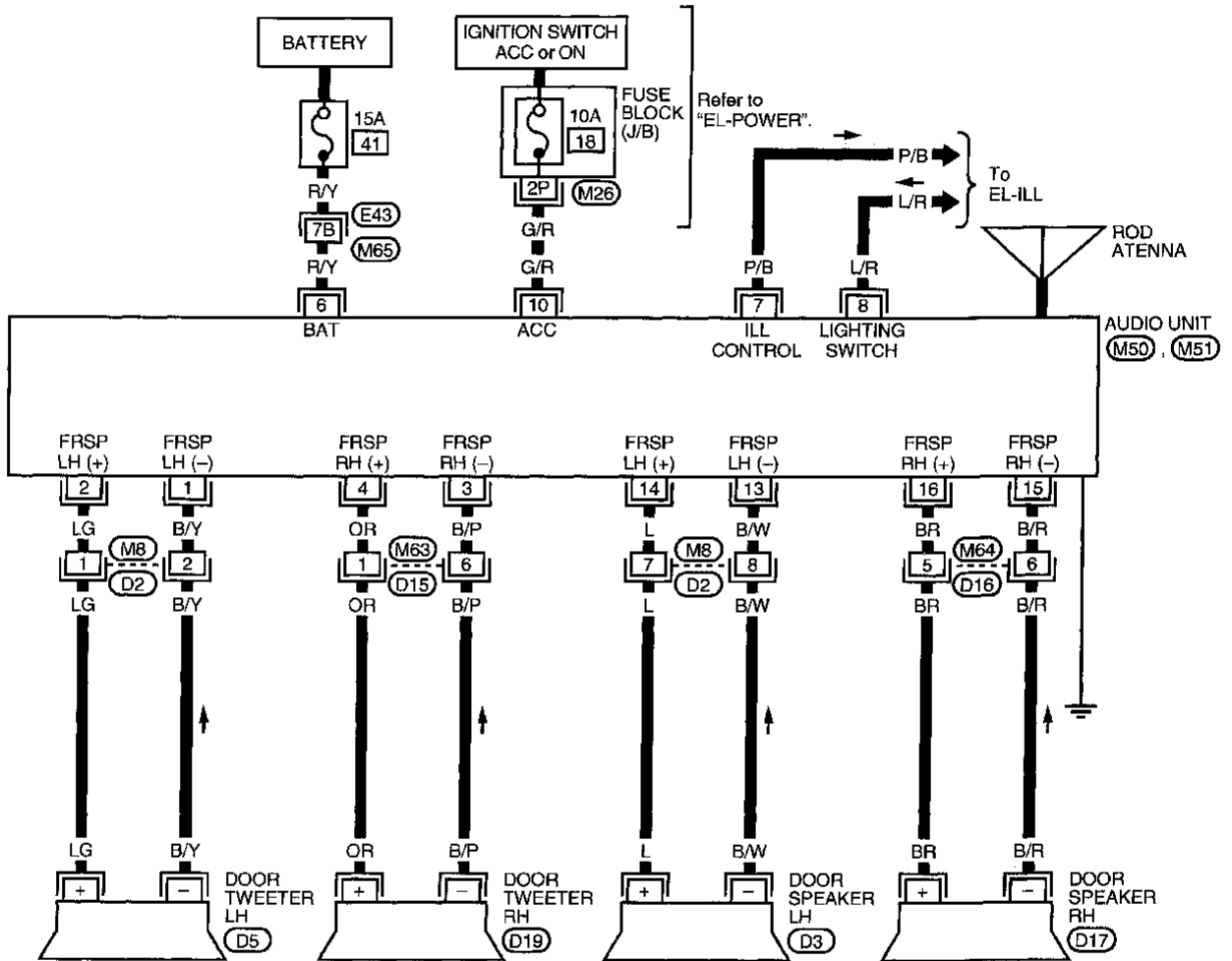
- through audio unit terminals 1, 2, 3, 4, 13, 14, 15, and 16
- to the door speakers, tweeters, and subwoofer amplifier.

# AUDIO

## Wiring Diagram — AUDIO —

MODELS WITH BASE AUDIO SYSTEM

EL-AUDIO-01

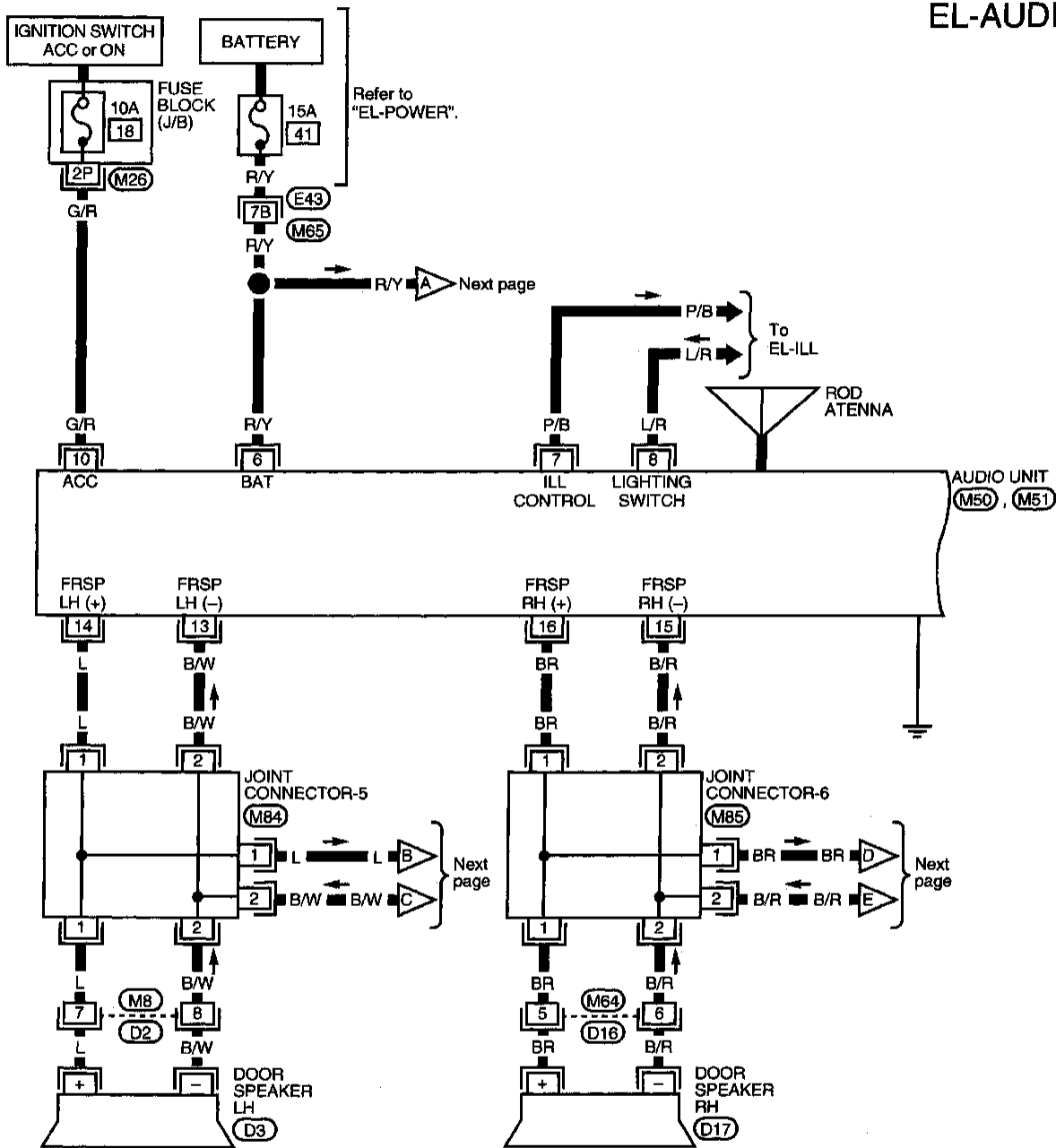


# AUDIO

## Wiring Diagram — AUDIO — (Cont'd)

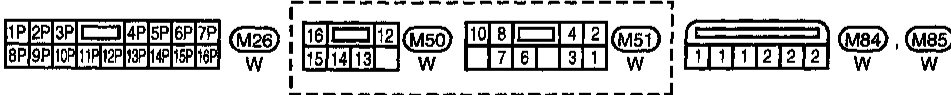
MODELS WITH PREMIUM AUDIO SYSTEM

EL-AUDIO-02



Refer to last page (Foldout page).

(M65), (E43)

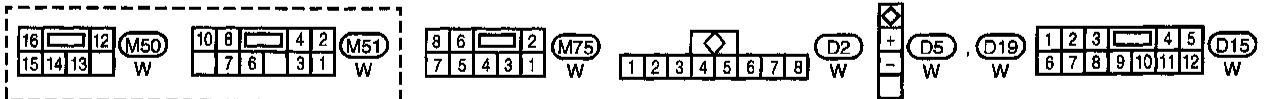
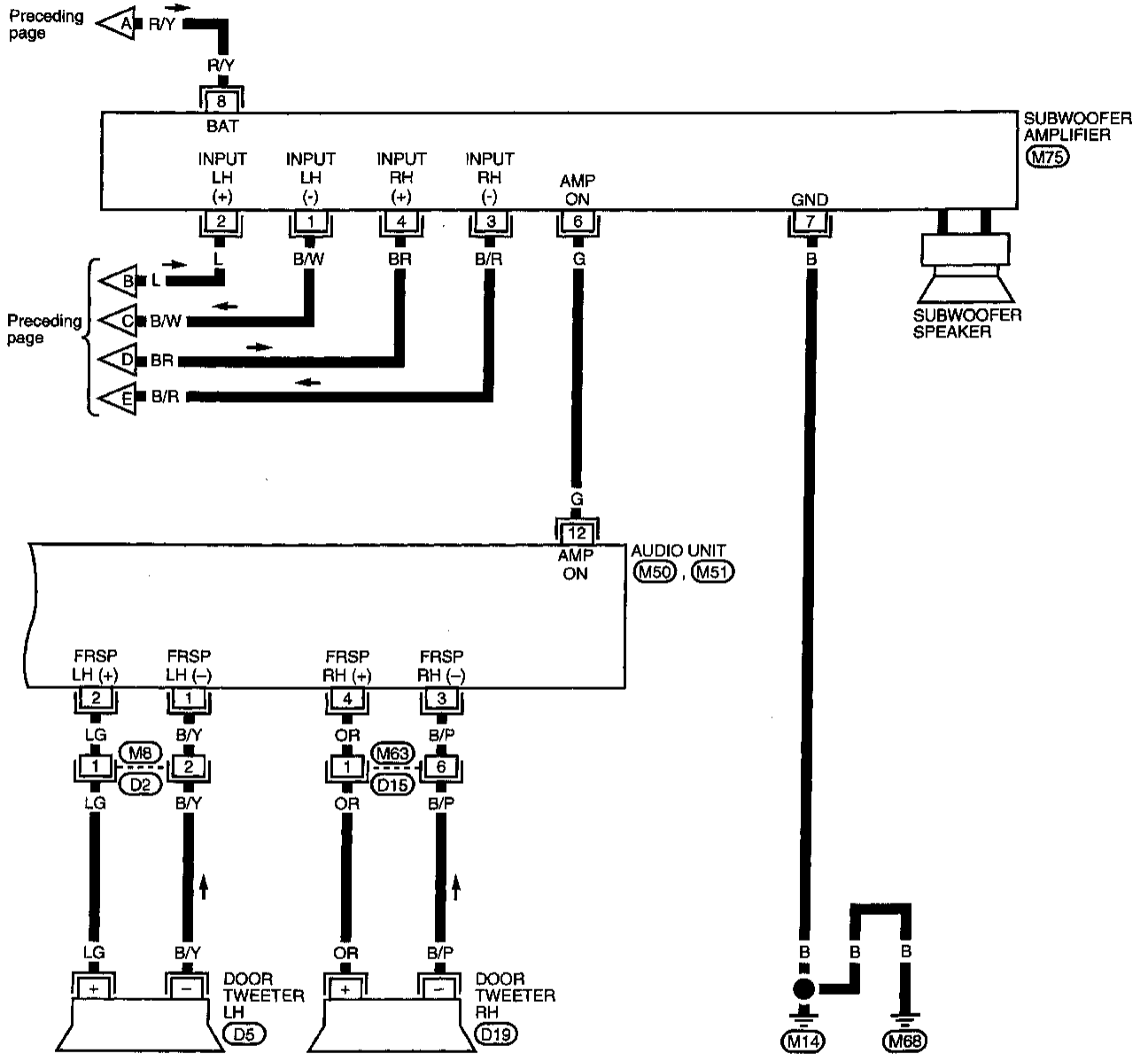




# AUDIO

## Wiring Diagram — AUDIO — (Cont'd)

EL-AUDIO-03



# AUDIO

## Trouble Diagnoses

### AUDIO UNIT

Symptom	Possible causes	Repair order
Audio unit inoperative (no digital display and no sound from speakers).	<ol style="list-style-type: none"> <li>1. 10A fuse</li> <li>2. Poor audio unit case ground</li> <li>3. Audio unit</li> </ol>	<ol style="list-style-type: none"> <li>1. Check 10A fuse [No. 18], located in fuse block (J/B)]. Turn ignition switch ON and verify that battery positive voltage is present at terminal 10 of audio unit.</li> <li>2. Check audio unit case ground.</li> <li>3. Remove audio unit for repair.</li> </ol>
Audio unit controls are operational, but no sound is heard from any speaker.	<ol style="list-style-type: none"> <li>1. Audio unit output</li> <li>2. Audio unit</li> </ol>	<ol style="list-style-type: none"> <li>1. Check audio unit output voltages.</li> <li>2. Remove audio unit for repair.</li> </ol>
Audio unit presets are lost when ignition switch is turned OFF.	<ol style="list-style-type: none"> <li>1. 15A fuse</li> <li>2. Audio unit</li> </ol>	<ol style="list-style-type: none"> <li>1. Check 15A fuse (No. 41), located in fuse and fusible link box) and verify that battery positive voltage is present at terminal 6 of audio unit.</li> <li>2. Remove audio unit for repair.</li> </ol>
Individual speaker is noisy or inoperative.	<ol style="list-style-type: none"> <li>1. Speaker</li> <li>2. Audio unit output</li> <li>3. Speaker circuit</li> <li>4. Audio unit</li> </ol>	<ol style="list-style-type: none"> <li>1. Check speaker.</li> <li>2. Check audio unit output voltages.</li> <li>3. Check wires for open or short between audio unit and speaker.</li> <li>4. Remove audio unit for repair.</li> </ol>
Subwoofer speaker is noisy or inoperative (premium system).	<ol style="list-style-type: none"> <li>1. Speaker</li> <li>2. Subwoofer amplifier output</li> <li>3. Poor subwoofer amplifier ground</li> <li>4. Audio unit "amplifier ON" signal</li> <li>5. Audio unit "amplifier ON" circuit</li> </ol>	<ol style="list-style-type: none"> <li>1. Check speaker.</li> <li>2. Verify that battery positive voltage is present at terminal 8 of subwoofer amplifier.</li> <li>3. Check subwoofer amplifier ground.</li> <li>4. Turn the audio unit ON and verify that approx. 10.5 volts is present at terminal 12 of audio unit.</li> <li>5. Check wire for open or short between audio unit and subwoofer amplifier.</li> </ol>
Audio unit stations are weak or noisy.	<ol style="list-style-type: none"> <li>1. Antenna</li> <li>2. Poor audio unit ground</li> <li>3. Audio unit</li> </ol>	<ol style="list-style-type: none"> <li>1. Check antenna.</li> <li>2. Check audio unit ground.</li> <li>3. Remove audio unit for repair.</li> </ol>
Audio unit generates noise in AM and FM modes with engine running.	<ol style="list-style-type: none"> <li>1. Poor audio unit ground</li> <li>2. Loose or missing ground bonding straps</li> <li>3. Ignition condenser</li> <li>4. Generator</li> <li>5. Ignition coil or secondary wiring</li> <li>6. Audio unit</li> </ol>	<ol style="list-style-type: none"> <li>1. Check audio unit ground.</li> <li>2. Check ground bonding straps.</li> <li>3. Replace ignition condenser.</li> <li>4. Check generator.</li> <li>5. Check ignition coil and secondary wiring.</li> <li>6. Remove audio unit for repair.</li> </ol>
Audio unit generates noise in AM and FM modes with accessories on (switch pops and motor noise).	<ol style="list-style-type: none"> <li>1. Poor audio unit ground</li> <li>2. Antenna</li> <li>3. Accessory ground</li> <li>4. Faulty accessory</li> </ol>	<ol style="list-style-type: none"> <li>1. Check audio unit ground.</li> <li>2. Check antenna.</li> <li>3. Check accessory ground.</li> <li>4. Replace accessory.</li> </ol>

# AUDIO

## Inspection

### SPEAKER

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

### ANTENNA

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.

### AUDIO UNIT

All voltage inspections are made with:

- Ignition switch ON or ACC
- Audio unit ON
- Audio unit connected (If removed for inspection, supply a ground to the case using a jumper wire).

### AUDIO UNIT VOLTAGES

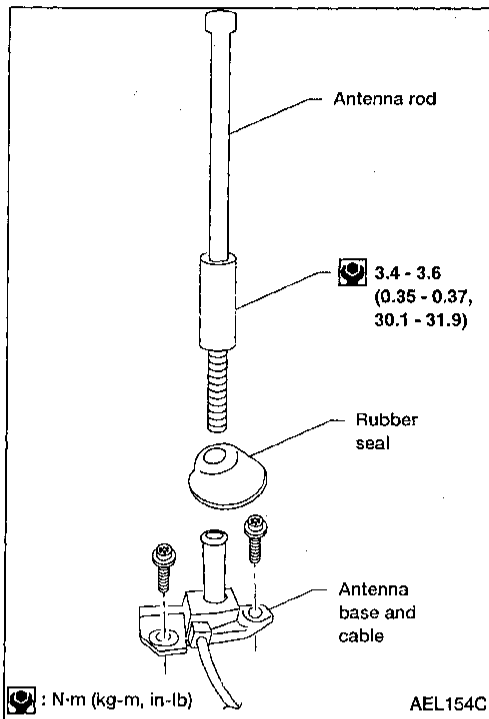
Terminal	Voltage (V)	
	Base Audio System	Premium Audio System
1	5 - 7.5	5 - 7.5
2	5 - 7.5	5 - 7.5
3	5 - 7.5	5 - 7.5
4	5 - 7.5	5 - 7.5
5	—	—
6	10.8 - 15.6	10.8 - 15.6
7	—	—
8	—	—
9	—	—
10	10.8 - 15.6	10.8 - 15.6
11	—	—
12	—	Approx. 10.5
13	5 - 7.5	5 - 7.5
14	5 - 7.5	5 - 7.5
15	5 - 7.5	5 - 7.5
16	5 - 7.5	5 - 7.5

**AUDIO**  
**Inspection (Cont'd)**

**SUBWOOFER AMPLIFIER VOLTAGES**

Terminal	Voltage (V)
1	5 - 7.5
2	5 - 7.5
3	5 - 7.5
4	5 - 7.5
5	—
6	Approx. 10.5
7	Body ground
8	10.8 - 15.6

# AUDIO ANTENNA



## Fixed Antenna Rod Replacement

### REMOVAL

1. Remove antenna rod.
2. Remove rubber seal.
3. Remove cowl screen top seal.
4. Remove right wiper arm.
5. Remove right cowl top grille.
6. Remove antenna base bolts.
7. Remove right fender splash shield.
8. Remove audio unit.
9. Disconnect antenna cable from audio unit.
10. Remove attachment clip from fender apron.
11. Remove antenna base and cable.

### INSTALLATION

Install in reverse order of removal.

#### CAUTION:

**Always properly tighten the antenna rod during installation or the antenna rod may bend or break during vehicle operation.**

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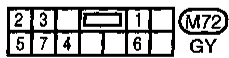
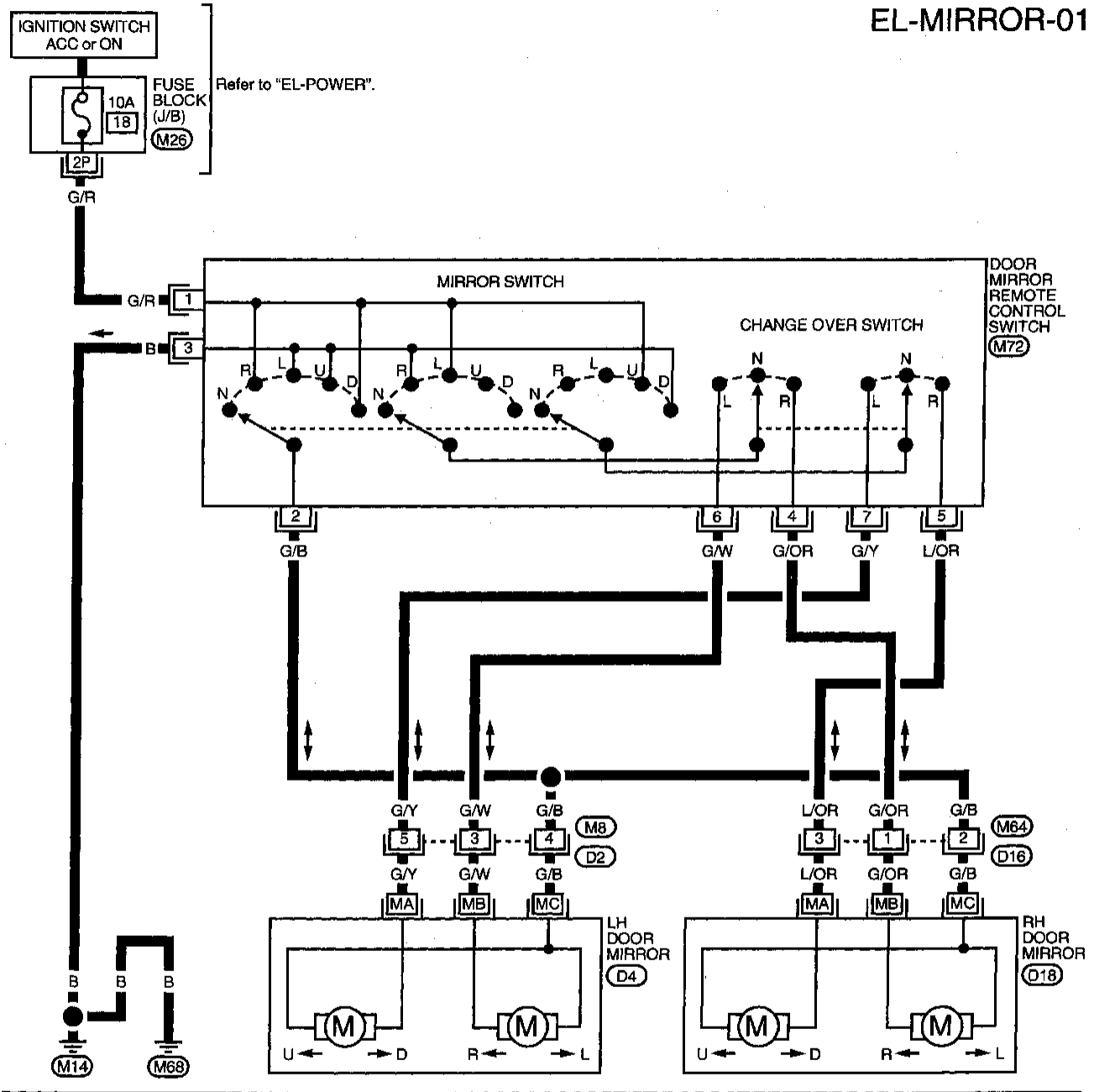
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# POWER DOOR MIRROR

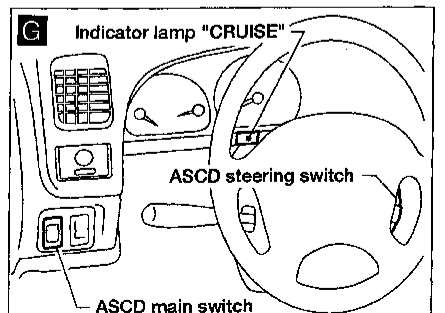
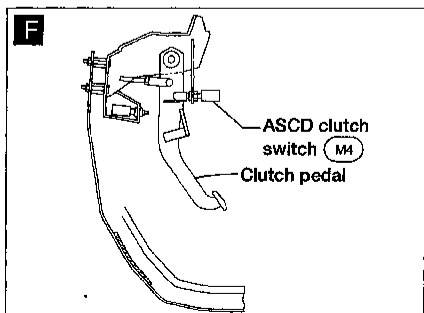
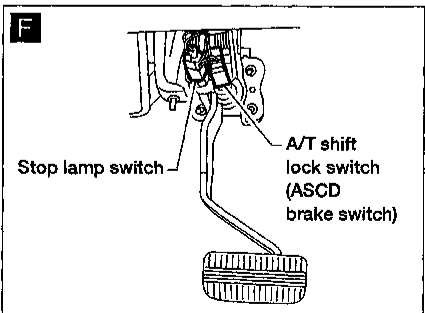
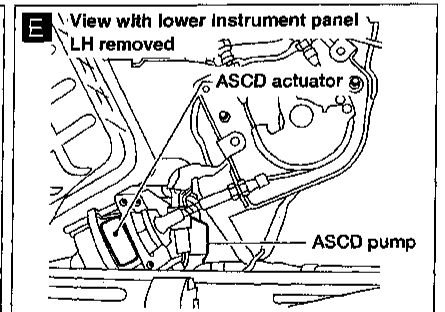
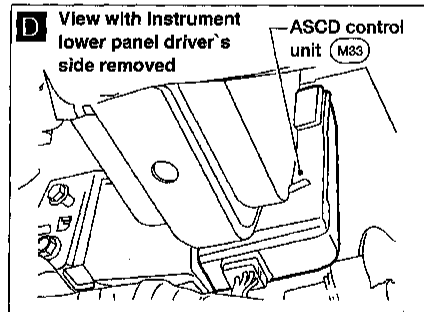
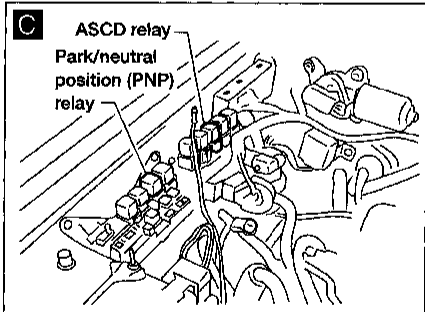
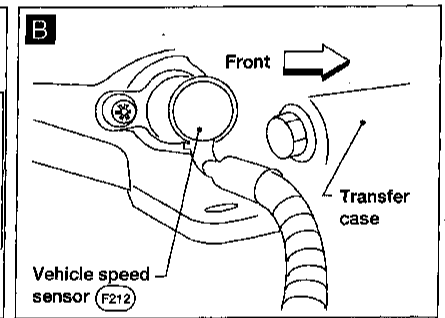
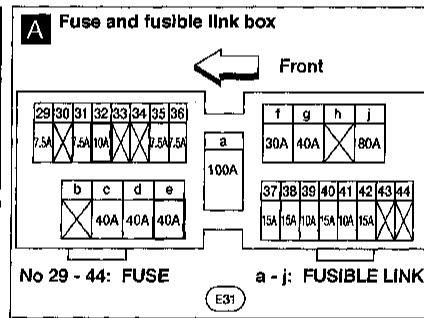
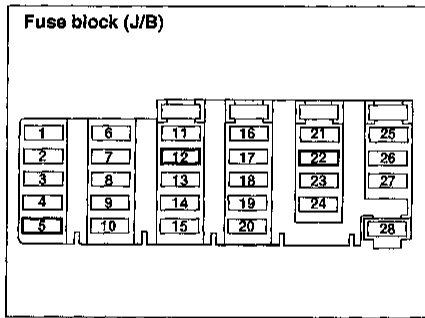
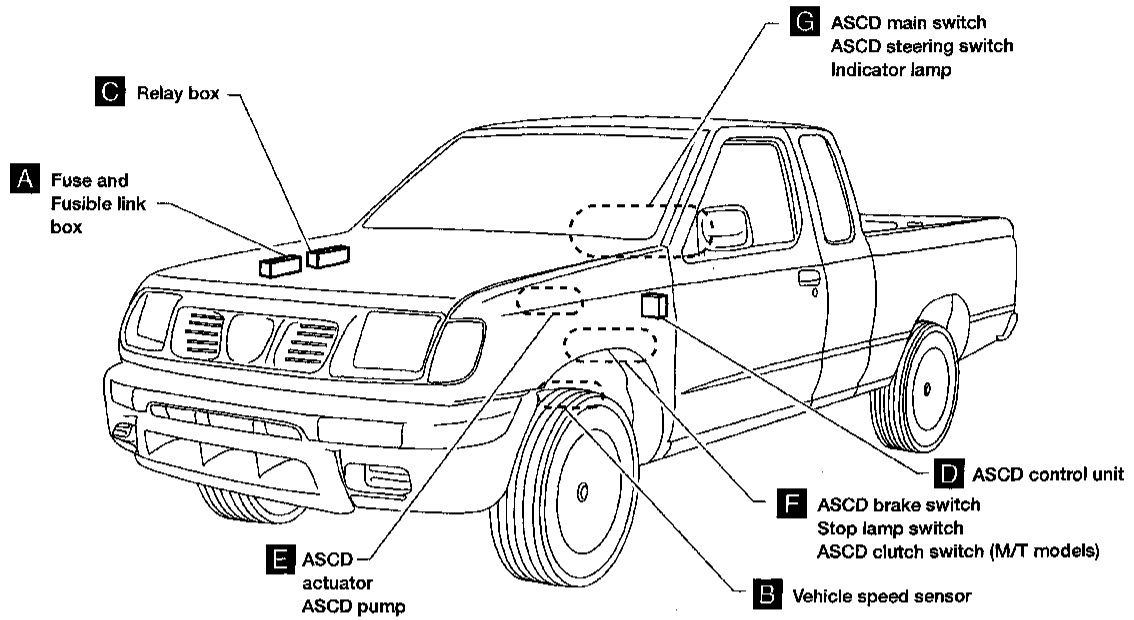
## Wiring Diagram — MIRROR —

EL-MIRROR-01



# AUTOMATIC SPEED CONTROL DEVICE (ASCD)

## Component Parts and Harness Connector Location



AEL155C

# AUTOMATIC SPEED CONTROL DEVICE (ASCD)

## 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. 5], located in the fuse block (J/B)
- to ASCD main switch terminal ①
- to ASCD hold relay terminal ⑤
- to ASCD brake switch terminal ①
- through ASCD brake switch terminal ②
- to ASCD hold relay terminal ⑦.

When ASCD main switch is in the ON position, power is supplied:

- from ASCD main switch terminal ③
- to ASCD hold relay terminal ②.

Ground is supplied:

- to ASCD hold relay terminal ①
- through body grounds M14 and M68.

With power and ground supplied, ASCD hold relay is energized, and then power is supplied:

- from ASCD hold relay terminal ③
- to ASCD control unit terminal ④ and
- to ASCD main switch terminal ②.

After the ASCD main switch is released, power remains supplied:

- to the coil circuit of ASCD hold relay
- through ASCD main switch terminal ③.

This power supply is kept until one of following conditions exists:

- Ignition switch is returned to the ACC or OFF position
- ASCD main switch is pushed to OFF position.

When ASCD hold relay is energized, power is also supplied to ASCD control unit terminal ⑤:

- through ASCD brake switch and
- ASCD clutch switch (with M/T) or
- ASCD relay (with A/T).

Ground is supplied:

- to ASCD control unit terminal ③
- through body grounds M14 and M68.

## INPUTS

At this point, the system is ready to activate or deactivate, based on inputs from the following:

- speedometer in the combination meter
- stop lamp switch
- ASCD steering switch
- ASCD clutch switch (with M/T) or
- ASCD relay (with A/T)
- ASCD brake switch.

A vehicle speed input is supplied:

- to ASCD control unit terminal ⑦
- from terminal ③4 of the combination meter.

Power is supplied at all times:

- to stop lamp switch terminal ①
- through 10A fuse [No. 22], located in the fuse block (J/B)].

When the brake pedal is depressed, power is supplied:

- from terminal ② of the stop lamp switch
- to ASCD control unit terminal ⑩.

Power is supplied at all times:

- through 10A fuse [No. 32], 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 ③.

When the SET/COAST switch is depressed, power is supplied:

- from terminal ② of the ASCD steering switch
- to ASCD control unit terminal ②.



# AUTOMATIC SPEED CONTROL DEVICE (ASCD)

## System Description (Cont'd)

When the RESUME/ACCEL switch is depressed, power is supplied:

- from terminal ① 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:

- from ASCD clutch switch terminal ② (with M/T) or
- from ASCD relay terminal ④ (with A/T)
- to ASCD control unit terminal ⑤.

Power is interrupted when:

- the ASCD main switch is turned to OFF
- the ASCD clutch switch is depressed (with M/T)
- the A/T selector lever is placed in P or N (with A/T) or
- the ASCD brake switch is depressed.

## OUTPUTS

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

The ASCD pump consists of a vacuum motor, an air valve, and a release valve.

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 ②.

Ground is supplied to the air valve:

- from terminal ⑩ of the ASCD control unit
- to ASCD pump terminal ③.

Ground is supplied to the release valve:

- from terminal ⑭ of the ASCD control unit
- to ASCD pump terminal ④.

When the system is activated, power is supplied:

- from terminal ⑬ of the ASCD control unit
- to combination meter terminal ③①.

Ground is supplied:

- to combination meter terminal ③③
- through body grounds M14 and M68.

With power and ground supplied, the CRUISE indicator illuminates.

When vehicle speed is approximately 8 km/h (5 MPH) below set speed on A/T models, ground is supplied:

- from terminal ⑫ of the ASCD control unit
- to transmission control module terminal ②④.

When this occurs, the transmission control module cancels overdrive.

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

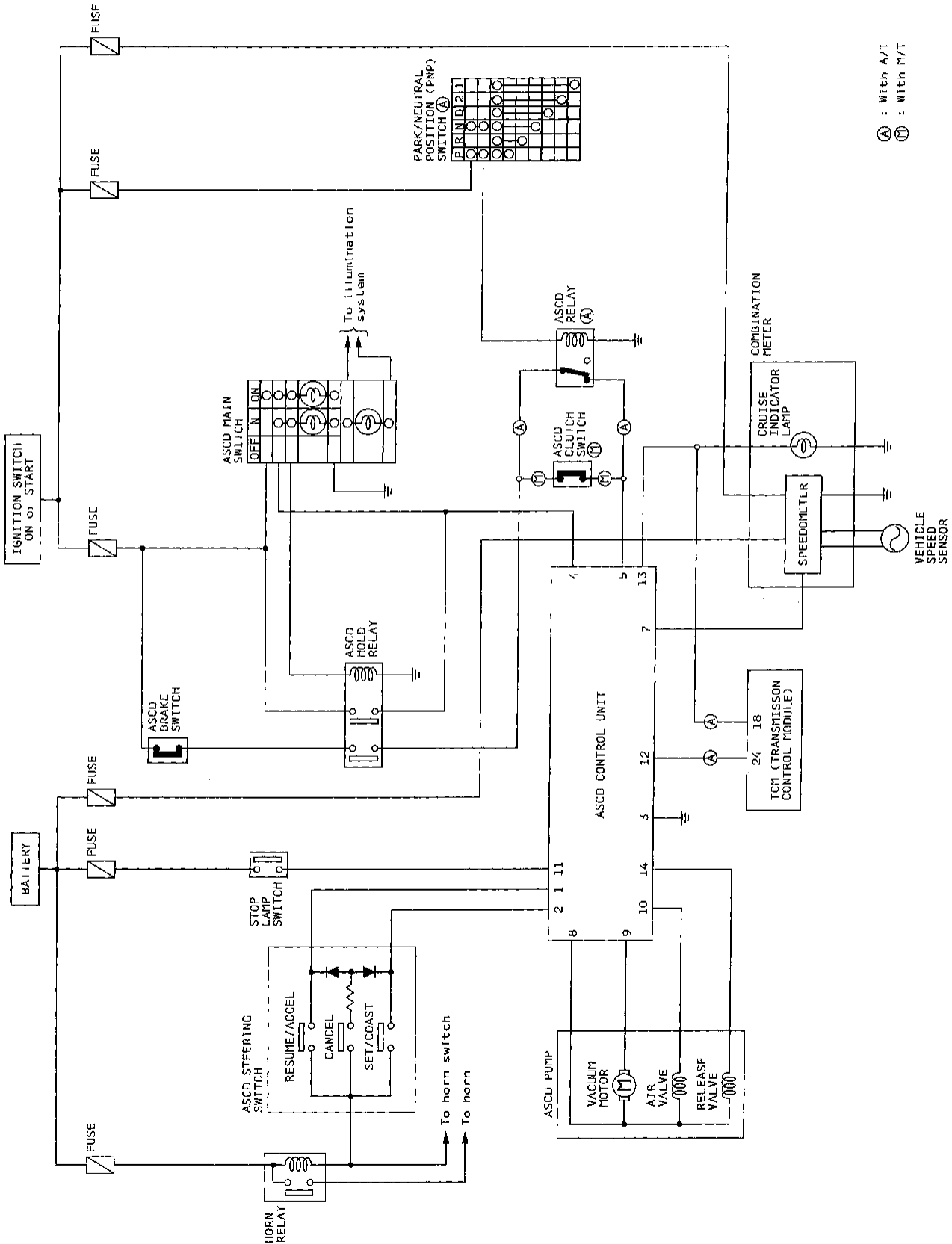
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# AUTOMATIC SPEED CONTROL DEVICE (ASCD)

## Schematic



# AUTOMATIC SPEED CONTROL DEVICE (ASCD)

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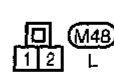
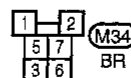
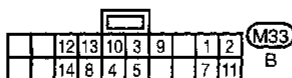
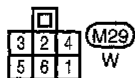
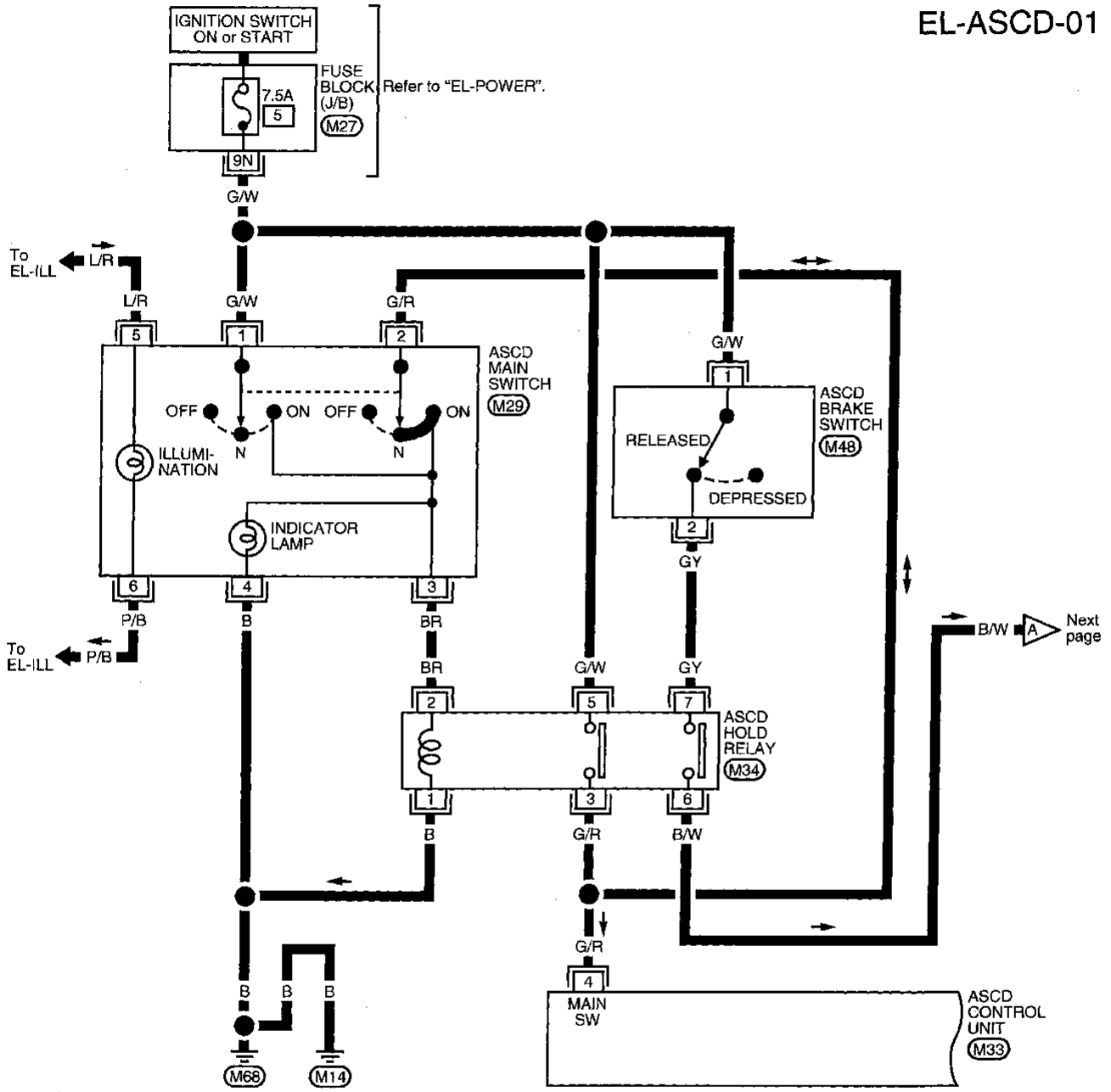
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# AUTOMATIC SPEED CONTROL DEVICE (ASCD)

## Wiring Diagram — ASCD —

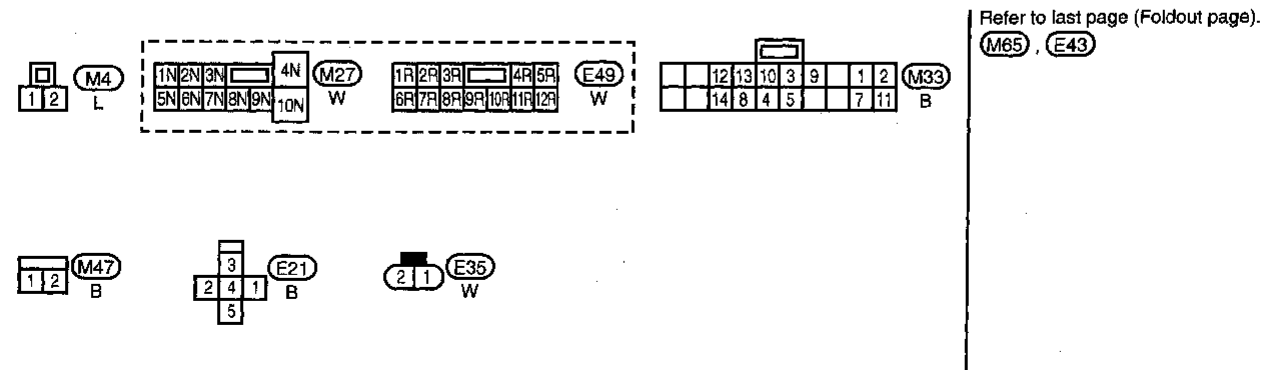
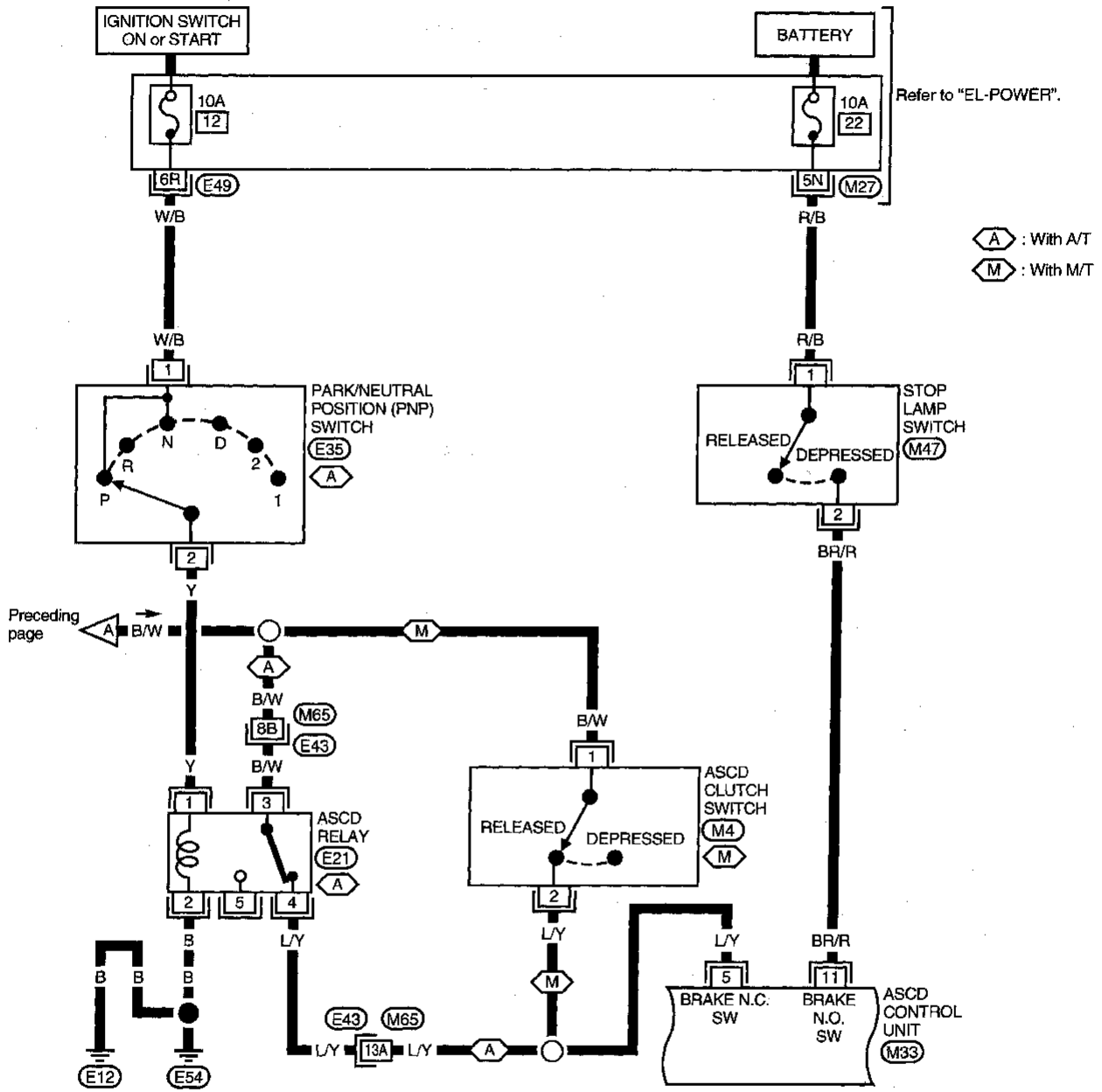
EL-ASCD-01



# AUTOMATIC SPEED CONTROL DEVICE (ASCD)

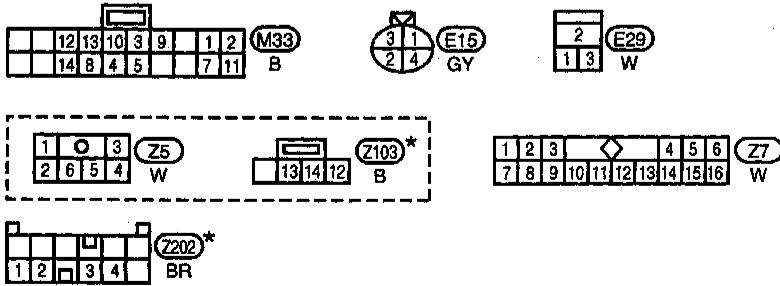
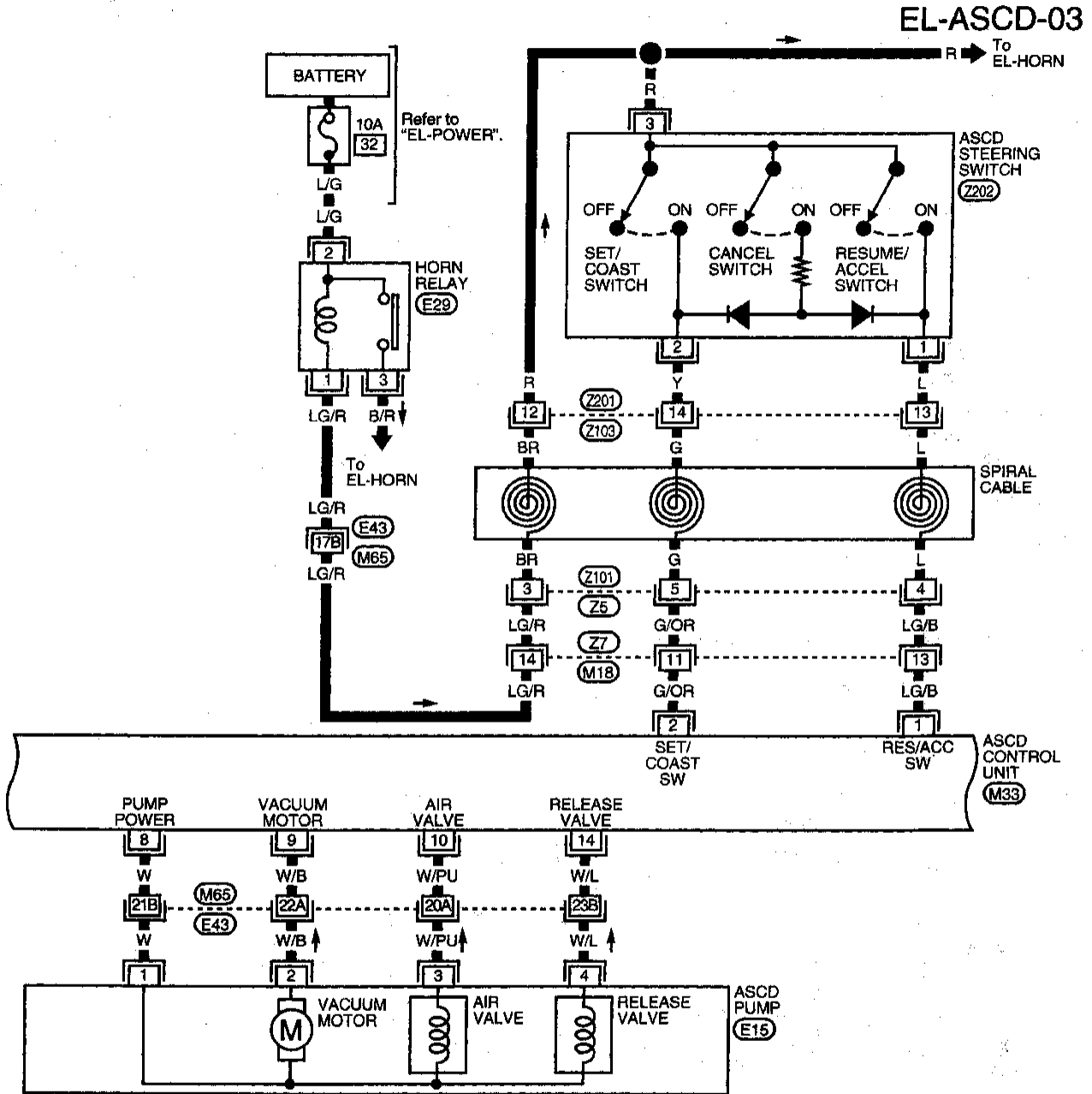
## Wiring Diagram — ASCD — (Cont'd)

EL-ASCD-02



# AUTOMATIC SPEED CONTROL DEVICE (ASCD)

## Wiring Diagram — ASCD — (Cont'd)

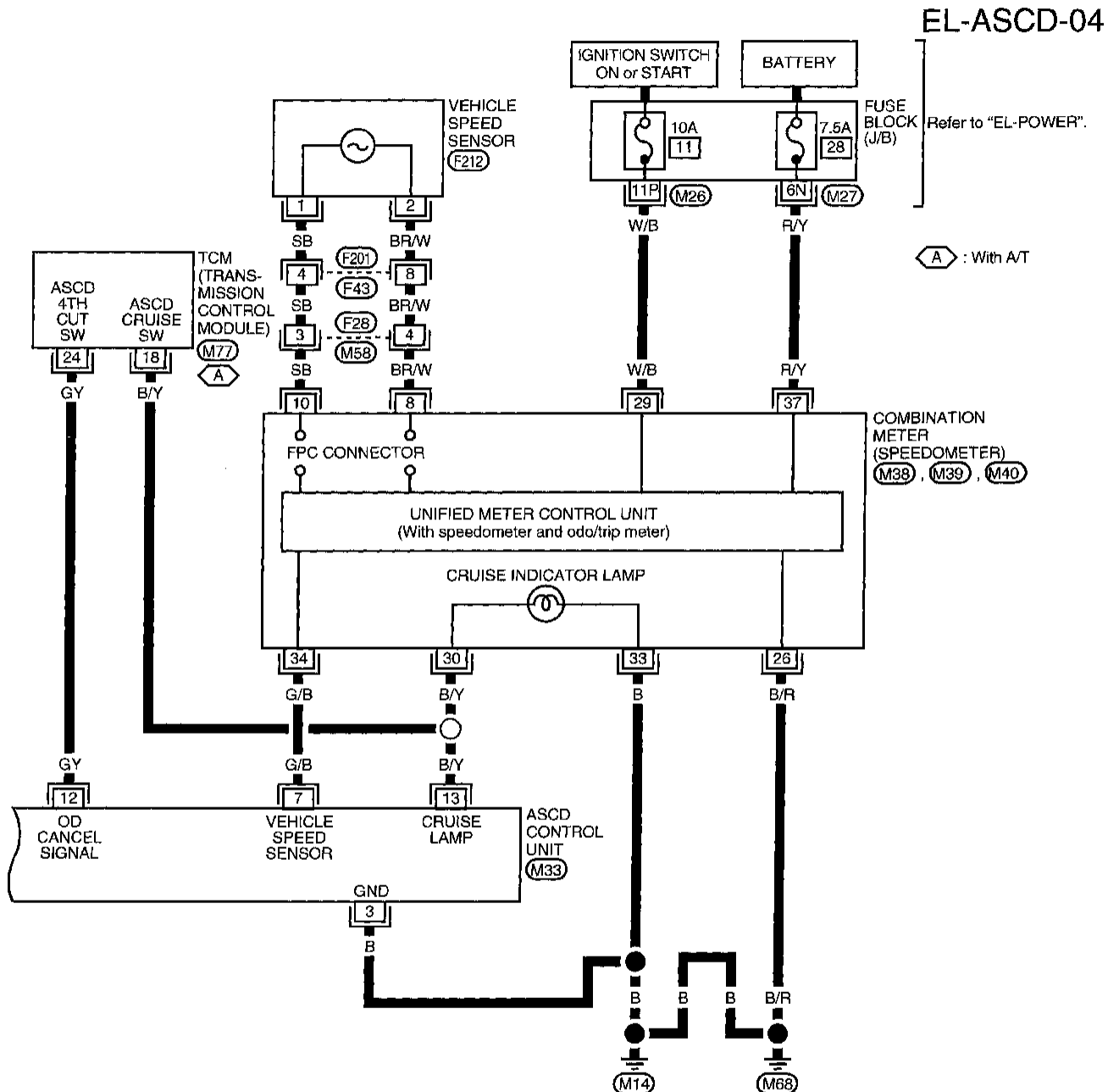


Refer to last page (Foldout page).  
 (M65, E43)

\* : This connector is not shown in "HARNES LAYOUT" of EL section.

# AUTOMATIC SPEED CONTROL DEVICE (ASCD)

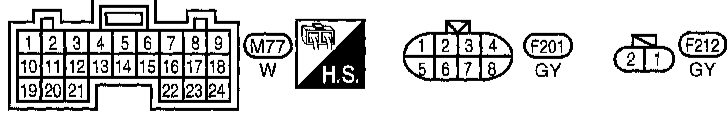
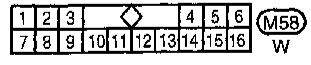
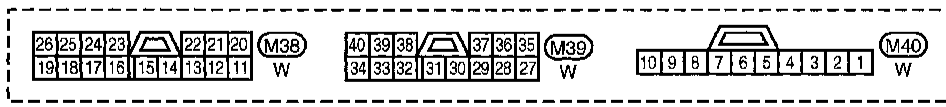
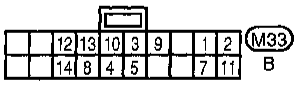
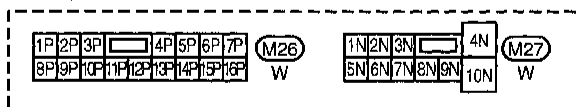
## Wiring Diagram — ASCD — (Cont'd)



EL-ASCD-04

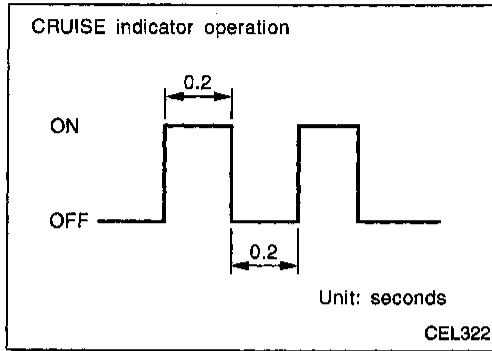
Refer to "EL-POWER".

⬡ : With A/T



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# AUTOMATIC SPEED CONTROL DEVICE (ASCD)



## Fail-Safe System Description

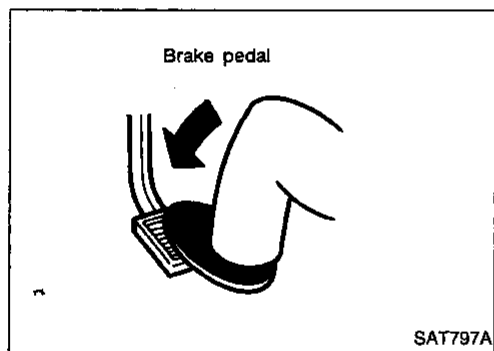
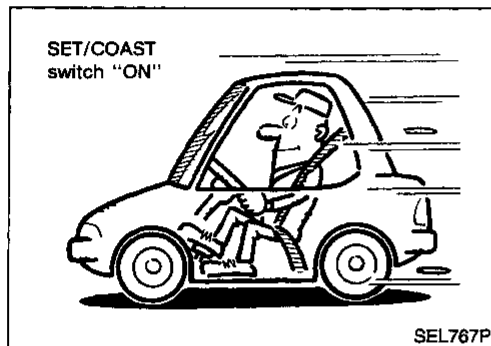
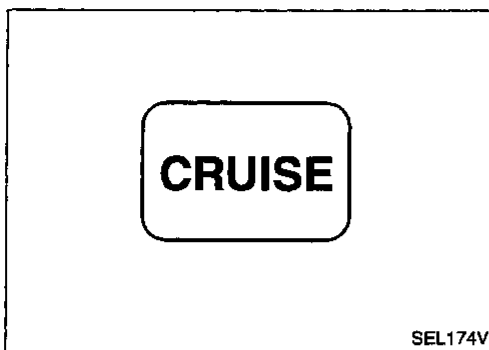
When the fail-safe system senses a malfunction, it deactivates ASCD operation. The CRUISE indicator in the combination meter will then flash.

## MALFUNCTION DETECTION CONDITIONS

Detection conditions	ASCD operation during malfunction detection
<ul style="list-style-type: none"> <li>● ASCD steering (RESUME/ACCEL, CANCEL, SET/COAST) switch is stuck.</li> <li>● Vacuum motor ground circuit or power circuit is open or shorted.</li> <li>● Air valve ground circuit or power circuit is open or shorted.</li> <li>● Release valve ground circuit or power circuit is open or shorted.</li> <li>● Vehicle speed sensor is faulty.</li> <li>● ASCD control unit internal circuit is malfunctioning.</li> </ul>	<ul style="list-style-type: none"> <li>● ASCD is deactivated.</li> <li>● Vehicle speed memory is canceled.</li> </ul>
<ul style="list-style-type: none"> <li>● ASCD brake switch or stop lamp switch is faulty.</li> </ul>	<ul style="list-style-type: none"> <li>● ASCD is deactivated.</li> <li>● Vehicle speed memory is not canceled.</li> </ul>



## AUTOMATIC SPEED CONTROL DEVICE (ASCD)



### Fail-Safe System Check

1. Turn ignition switch ON.
2. Turn ASCD main switch to ON position and check if the "cruise indicator" blinks.

**If the indicator lamp blinks, check the following:**

- ASCD steering switch. Refer to "DIAGNOSTIC PROCEDURE 5" (EL-148).

3. Drive the vehicle at more than 48 km/h (30 MPH) and push SET/COAST switch.

**If the indicator lamp blinks, check the following:**

- Vehicle speed sensor. Refer to "DIAGNOSTIC PROCEDURE 6" (EL-149).
- ASCD pump circuit. Refer to "DIAGNOSTIC PROCEDURE 7" (EL-150).
- Replace control unit.

4. Depress brake pedal slowly (brake pedal should be depressed more than 5 seconds).

**If the indicator lamp blinks, check the following:**

- ASCD brake/stop lamp switch. Refer to "DIAGNOSTIC PROCEDURE 4" (EL-147).

5. END. (System is OK.)

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# AUTOMATIC SPEED CONTROL DEVICE (ASCD)

## Trouble Diagnoses

### SYMPTOM CHART

PROCEDURE	Diagnostic procedure								
REFERENCE PAGE	EL-143	EL-145	EL-145	EL-146	EL-147	EL-148	EL-149	EL-150	EL-151
SYMPTOM	Fail-safe system check	DIAGNOSTIC PROCEDURE 1 (POWER SUPPLY AND GROUND CIRCUIT CHECK)	DIAGNOSTIC PROCEDURE 2 (ASCD MAIN SWITCH CHECK)	DIAGNOSTIC PROCEDURE 3 (ASCD HOLD RELAY CHECK)	DIAGNOSTIC PROCEDURE 4 (ASCD BRAKE/STOP LAMP SWITCH CHECK)	DIAGNOSTIC PROCEDURE 5 (ASCD STEERING SWITCH CHECK)	DIAGNOSTIC PROCEDURE 6 (VEHICLE SPEED SENSOR CHECK)	DIAGNOSTIC PROCEDURE 7 (ASCD PUMP CIRCUIT CHECK)	DIAGNOSTIC PROCEDURE 8 (ASCD ACTUATOR/PUMP CHECK)
ASCD cannot be set. ("CRUISE" indicator lamp does not blink.)		X	X	X		X	X		
ASCD cannot be set. ("CRUISE" indicator lamp blinks.★1)	X				X	X	X	X	
Vehicle speed does not decrease after SET/COAST switch has been pressed.						X			X
Vehicle speed does not return to the set speed after RESUME/ACCEL switch has been pressed.★2						X			X
Vehicle speed does not increase after RESUME/ACCEL switch has been pressed.						X			X
System is not released after CANCEL switch (steering) has been pressed.						X			X
Large difference between set speed and actual vehicle speed.									X
Deceleration is greatest immediately after ASCD has been set.									X

X: Applicable

★1: If indicates that system is in fail-safe. After completing diagnostic procedures, perform "Fail-Safe System Check" (EL-143) to verify repairs.

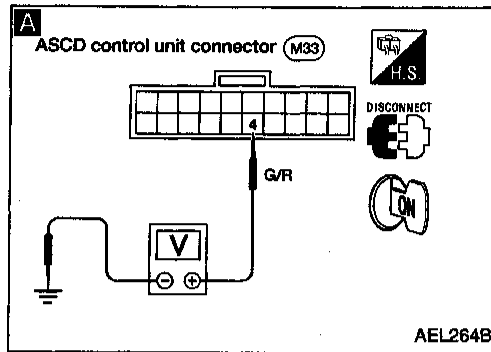
★2: If vehicle speed is greater than 48 km/h (30 MPH) after system has been released, pressing RESUME/ACCEL switch returns vehicle speed to the set speed previously achieved. However, doing so when the ASCD main switch is turned to "OFF", vehicle speed will not return to the set speed since the memory is canceled.

# AUTOMATIC SPEED CONTROL DEVICE (ASCD)

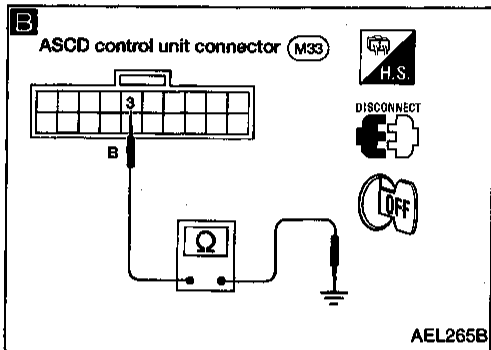
## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 1

#### (POWER SUPPLY AND GROUND CIRCUIT CHECK)



AEL264B



AEL265B

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

NG → Go to DIAGNOSTIC PROCEDURE 2 (ASCD MAIN SWITCH CHECK).

OK

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

NG → Go to DIAGNOSTIC PROCEDURE 3 (ASCD HOLD RELAY CHECK). Refer to EL-146.

Refer to wiring diagram in EL-138.

OK

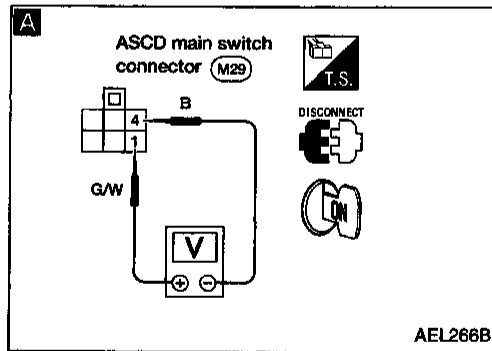
**B**  
**CHECK GROUND CIRCUIT FOR ASCD CONTROL UNIT.**  
Check continuity between ASCD control unit harness terminal ③ and body ground.

NG → Repair harness.

Refer to wiring diagram in EL-141.

OK

Power supply and ground circuit is ok.



AEL266B

### DIAGNOSTIC PROCEDURE 2

#### (ASCD MAIN SWITCH CHECK)

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

NG → Check the following.  

- 7.5A fuse [No. ⑤], located in the fuse block (J/B)]
- Harness for open or short between fuse and ASCD main switch
- Ground circuit for ASCD main switch

Refer to wiring diagram in EL-138.

OK

**CHECK ASCD MAIN SWITCH.**  
Refer to "Electrical Components Inspection", EL-153.

NG → Replace ASCD main switch.

OK

Go to DIAGNOSTIC PROCEDURE 3 (ASCD HOLD RELAY CHECK), Refer to EL-146.

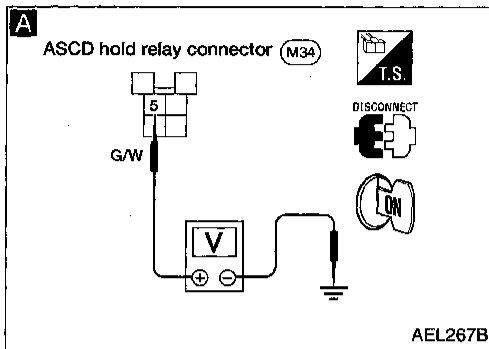
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# AUTOMATIC SPEED CONTROL DEVICE (ASCD)

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 3

#### (ASCD HOLD RELAY CHECK)



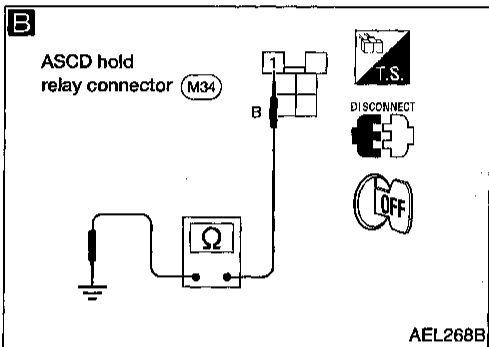
**A** **CHECK POWER SUPPLY CIRCUIT FOR ASCD HOLD RELAY.**

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

Refer to wiring diagram in EL-138.

No → Check the following.

- 7.5A fuse [No. ⑤], located in the fuse block (J/B)]
- Harness for open or short between fuse and ASCD hold relay



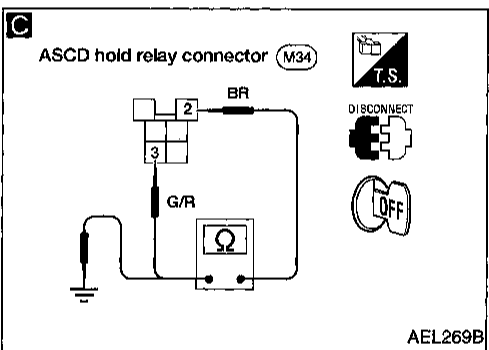
**B** **CHECK GROUND CIRCUIT FOR ASCD HOLD RELAY.**

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

No → Repair harness.

**CHECK ASCD MAIN SWITCH.**  
Refer to "Electrical Components Inspection", EL-153.

NG → Replace ASCD main switch.



**C** **CHECK ASCD HOLD RELAY CIRCUIT.**

1. Check continuity between ASCD hold relay terminals ② and ③.  
**Continuity should exist.**
2. Check continuity between ASCD hold relay terminal ② and ground.  
**Continuity should not exist.**

NG → Repair harness.

**CHECK ASCD HOLD RELAY.**

NG → Replace ASCD hold relay.

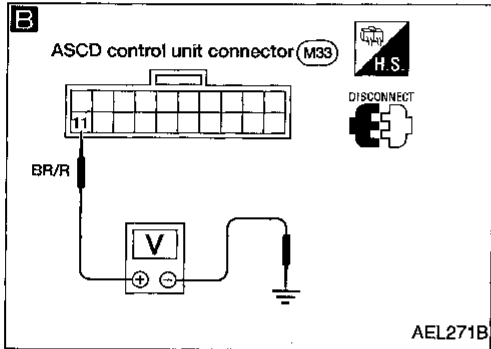
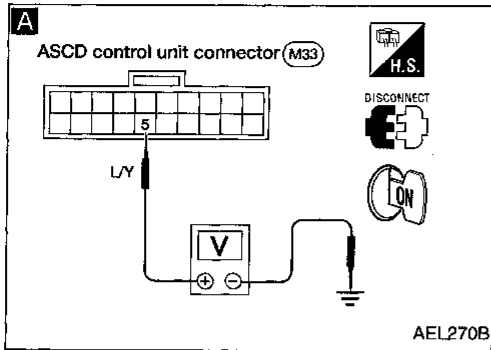
OK → ASCD hold relay circuit is OK.

# AUTOMATIC SPEED CONTROL DEVICE (ASCD)

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 4

#### (ASCD BRAKE/STOP LAMP SWITCH CHECK)



**A**

**CHECK ASCD BRAKE SWITCH CIRCUIT.**

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

Refer to wiring diagram in EL-139.

NG

Check the following.

- ASCD brake switch  
Refer to "Electrical Components Inspection", EL-153.
- ASCD clutch switch (with M/T)  
Refer to "Electrical Components Inspection", EL-153.
- Park/neutral position (PNP) switch (with A/T)  
Refer to "Electrical Components Inspection", EL-153.
- ASCD hold relay
- Harness for open or short

**B**

**CHECK STOP LAMP SWITCH CIRCUIT.**

1. Disconnect control unit connector.
2. Check voltage between control unit terminal (11) and ground.

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

Refer to wiring diagram in EL-139.

NG

Check the following.

- 10A fuse [No. 22, located in the fuse block (J/B)]
- Harness for open or short between ASCD control unit and stop lamp switch
- Stop lamp switch  
Refer to "Electrical Components Inspection", EL-153.

OK

ASCD brake/stop lamp switch circuit switch is OK.

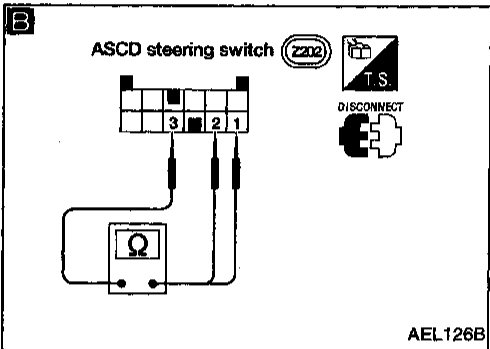
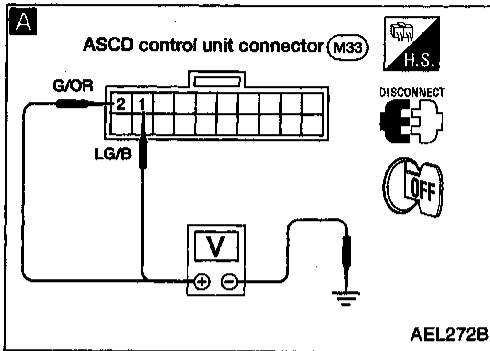
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# AUTOMATIC SPEED CONTROL DEVICE (ASCD)

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 5

#### (ASCD STEERING SWITCH CHECK)



**A**

#### CHECK ASCD STEERING SWITCH CIRCUIT FOR ASCD CONTROL UNIT.

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

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

Refer to wiring diagram in EL-140.

OK → ASCD steering switch is OK.

NG

**B**

#### CHECK POWER SUPPLY FOR ASCD STEERING SWITCH.

Does horn work?

- NG → Check the following.
- 10A fuse (No. 32, located in the fuse and fusible link box)
  - Horn relay
  - Harness for open or short between horn and fuse

- OK
- B**
- #### CHECK ASCD STEERING SWITCH.
1. Disconnect ASCD steering switch.
  2. Check continuity between terminals by pushing each switch.

Switch	Terminal		
	③	②	①
RESUME/ACCEL	○	○	○
SET/COAST	○	○	○
CANCEL	○	→	○
	○	→	○

NG → Replace ASCD steering switch.

OK

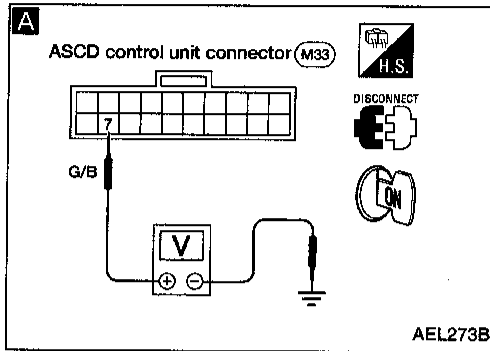
Check harness for open or short between ASCD steering switch and ASCD control unit.

# AUTOMATIC SPEED CONTROL DEVICE (ASCD)

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 6

#### (VEHICLE SPEED SENSOR CHECK)



**A**

#### CHECK VEHICLE SPEED SENSOR CIRCUIT.

1. Apply wheel chocks and jack up drive wheel.
2. Disconnect control unit connector.
3. Connect voltmeter between control unit terminal ⑦ and ground.
4. Slowly turn drive wheel.
5. Check deflection of voltmeter pointer.

Refer to wiring diagram in EL-141.

OK

Vehicle speed sensor is OK.

NG

Does speedometer operate normally?

No

Check speedometer and vehicle speed sensor circuit. Refer to EL-83.

Yes

Check harness for open or short between ASCD control unit terminal ⑦ and combination meter terminal ③④.

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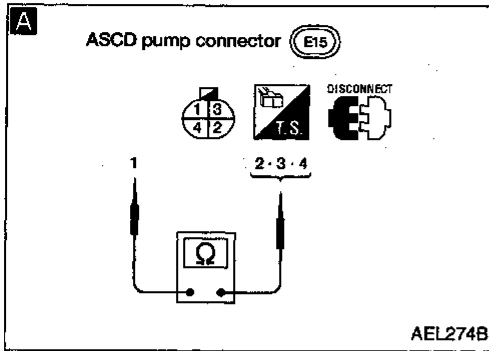
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# AUTOMATIC SPEED CONTROL DEVICE (ASCD)

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 7

#### (ASCD PUMP CIRCUIT CHECK)



**A**

#### CHECK ASCD PUMP.

1. Disconnect ASCD pump connector.
2. Measure resistance between ASCD pump terminals ① and ②, ③, ④.

Terminals	Resistance [Ω]
①	② Approx. 18.2
	③ Approx. 65.5
	④ Approx. 65.5

Refer to wiring diagram in EL-140.

NG → Replace ASCD pump.

OK ↓

Check harness for open or short between ASCD pump and ASCD control unit.

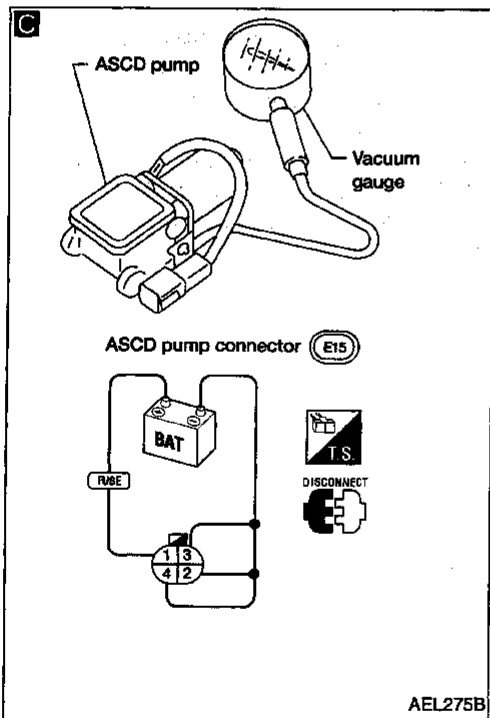
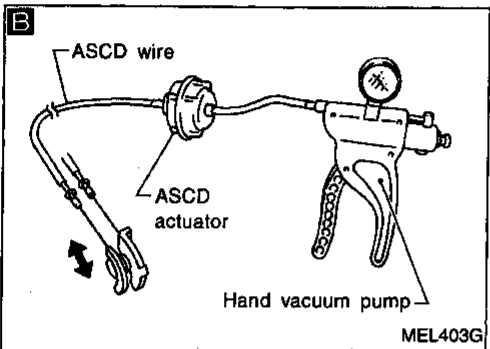
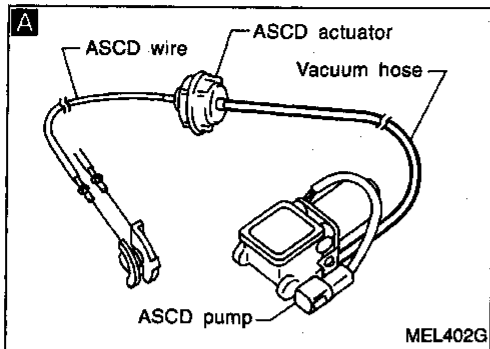


# AUTOMATIC SPEED CONTROL DEVICE (ASCD)

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 8

#### (ASCD ACTUATOR/PUMP CHECK)



**A**

**CHECK VACUUM HOSE.**  
Check vacuum hose (between ASCD actuator and ASCD pump) for breakage, cracks or fracture.

NG → Repair or replace hose.

OK ↓

**CHECK ASCD WIRE.**  
Check wire for improper installation, rust formation or breaks.

NG → Repair or replace wire. Refer to "ASCD Wire Adjustment", EL-152.

OK ↓

**B**

**CHECK ASCD ACTUATOR.**

1. Disconnect vacuum hose from ASCD actuator.
2. Apply  $-40 \text{ kPa}$  ( $-0.400 \text{ bar}$ ,  $-0.41 \text{ kg/cm}^2$ ,  $-5.8 \text{ psi}$ ) vacuum to ASCD actuator with hand vacuum pump. **ASCD wire should move to pull throttle drum.**
3. Wait 10 seconds and check for decrease in vacuum pressure.

**Vacuum pressure decrease:**  
**Less than  $2.7 \text{ kPa}$  ( $0.0270 \text{ bar}$ ,  $0.028 \text{ kg/cm}^2$ ,  $0.39 \text{ psi}$ )**

NG → Replace ASCD actuator.

OK ↓

**C**

**CHECK ASCD PUMP.**

1. Disconnect vacuum hose from ASCD pump and ASCD pump connector.
2. If necessary remove ASCD pump.
3. Connect vacuum gauge to ASCD pump.
4. Apply 12V direct current to ASCD pump and check operation.

	12V direct current supply terminals		Operation
	⊕	⊖	
Vacuum motor	①	②	Operate
Release valve		③	Close
Air valve		④	Close

**A vacuum pressure of at least  $-35 \text{ kPa}$  ( $-0.350 \text{ bar}$ ,  $-0.36 \text{ kg/cm}^2$ ,  $-5.1 \text{ psi}$ ) should be generated.**

NG → Replace ASCD pump.

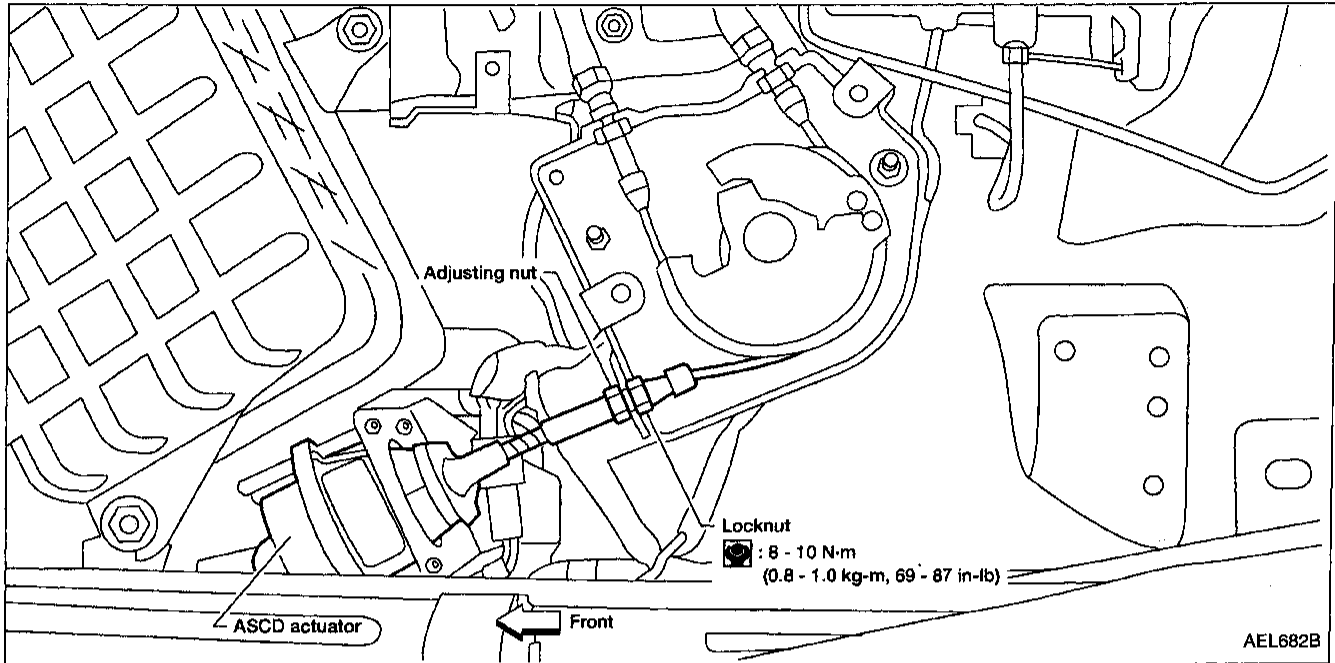
OK ↓

ASCD actuator/pump is OK.

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# AUTOMATIC SPEED CONTROL DEVICE (ASCD)

## ASCD Wire Adjustment



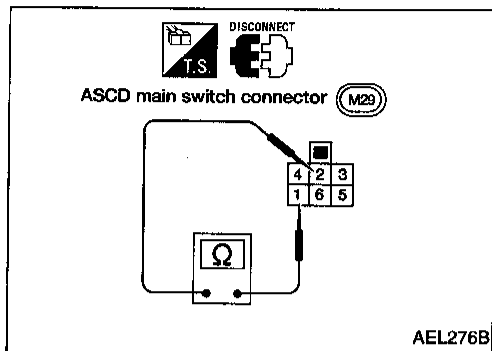
### CAUTION:

- 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 just until throttle drum starts to move.
- (4) Loosen adjusting nut again 1/2 to 1 turn.
- (5) Tighten lock nut.

# AUTOMATIC SPEED CONTROL DEVICE (ASCD)

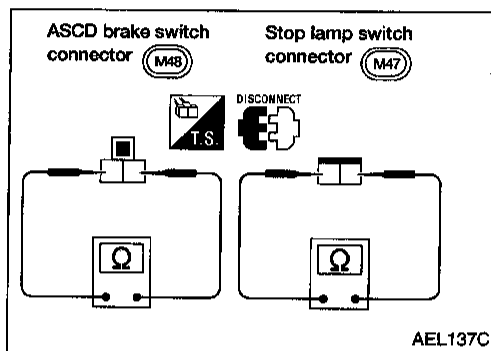


## Electrical Components Inspection

### ASCD MAIN SWITCH

Check continuity between terminals by pushing switch to each position.

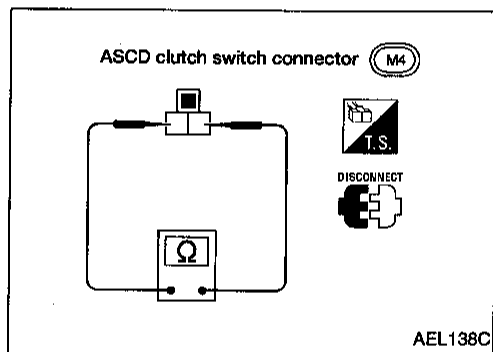
Switch position	Terminals					
	1	2	3	4	5	6
ON	○	○	○	⊕	○	
N		○	○	⊕	○	
OFF					○	⊕



### ASCD BRAKE SWITCH AND STOP LAMP SWITCH

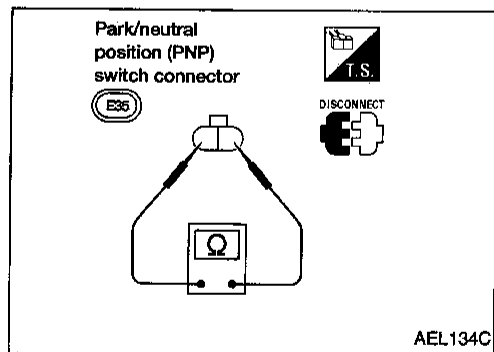
Condition	Continuity	
	ASCD brake switch	Stop lamp switch
When brake pedal is depressed	No	Yes
When brake pedal is released	Yes	No

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



### ASCD CLUTCH SWITCH (For M/T models)

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



### PARK/NEUTRAL POSITION (PNP) SWITCH (For A/T models)

A/T selector lever position	Continuity
	Between terminals
P	Yes
N	Yes
Except P and N	No

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# POWER WINDOW

## System Description

Power is supplied at all times:

- from 30A fusible link (Letter **F**), located in the fuse and fusible link box)
- to circuit breaker terminal **①**
- through circuit breaker terminal **②**
- to power window relay terminal **⑤**.

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

- through 7.5A fuse [No. **5**] located in the fuse block (J/B)]
- to power window relay terminal **②**.

Ground is supplied to power window relay terminal **①**:

- through body grounds **M68** and **M14**.

The power window relay is energized and power is supplied:

- through power window relay terminal **③**
- to main power window and door lock/unlock switch terminal **①**,
- to power window switch RH terminal **④**.

## MANUAL OPERATION

### Door LH

Ground is supplied:

- through body grounds **M14** and **M68**
- to main power window and door lock/unlock switch terminal **⑤**.

### WINDOW UP

When the LH switch in the main power window and door lock/unlock switch is pressed in the UP position, power is supplied:

- through main power window and door lock/unlock switch terminal **⑩**
- to power window motor LH terminal **⑩**.

Ground is supplied:

- through main power window and door lock/unlock switch terminal **⑩**
- to power window motor LH terminal **⑩**.

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

### WINDOW DOWN

When the LH switch in the main power window and door lock/unlock switch is pressed in the DOWN position, power is supplied:

- through main power window and door lock/unlock switch terminal **⑩**
- to power window motor LH terminal **⑩**.

Ground is supplied:

- through main power window and door lock/unlock switch terminal **⑩**
- to power window motor LH terminal **⑩**.

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

### Door RH

Ground is supplied:

- through body grounds **M14** and **M68**
- to main power window and door lock/unlock switch terminal **⑤**.

### NOTE:

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

### MAIN SWITCH OPERATION

Power is supplied:

- through main power window and door lock/unlock switch terminal **(⑩, ⑩)**
- to power window switch RH terminal **(⑤, ②)**.

The subsequent operation is the same as the power window switch operation.

# POWER WINDOW

## System Description (Cont'd)

### POWER WINDOW SWITCH OPERATION

Power is supplied:

- to power window switch RH terminal (4)
- through power window switch RH terminal (6, 3)
- to power window motor RH terminal (UP, DN).

Ground is supplied:

- to power window motor RH terminal (DN, UP)
- through power window switch RH terminal (3, 6)
- through power window switch RH terminal (2, 5)
- through main power window and door lock/unlock switch terminal (13, 14).

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

### AUTO OPERATION

The power window AUTO feature enables the driver to lower the driver's window without holding the window switch in the DOWN position.

The AUTO feature only operates on the driver's window downward movement.

### POWER WINDOW LOCK

The power window lock is designed to lock operation of the RH door window.

When the lock switch is pressed to LOCK position, ground of the power window switch RH in the main power window and door lock/unlock switch is disconnected. This prevents the power window motor RH from operating.

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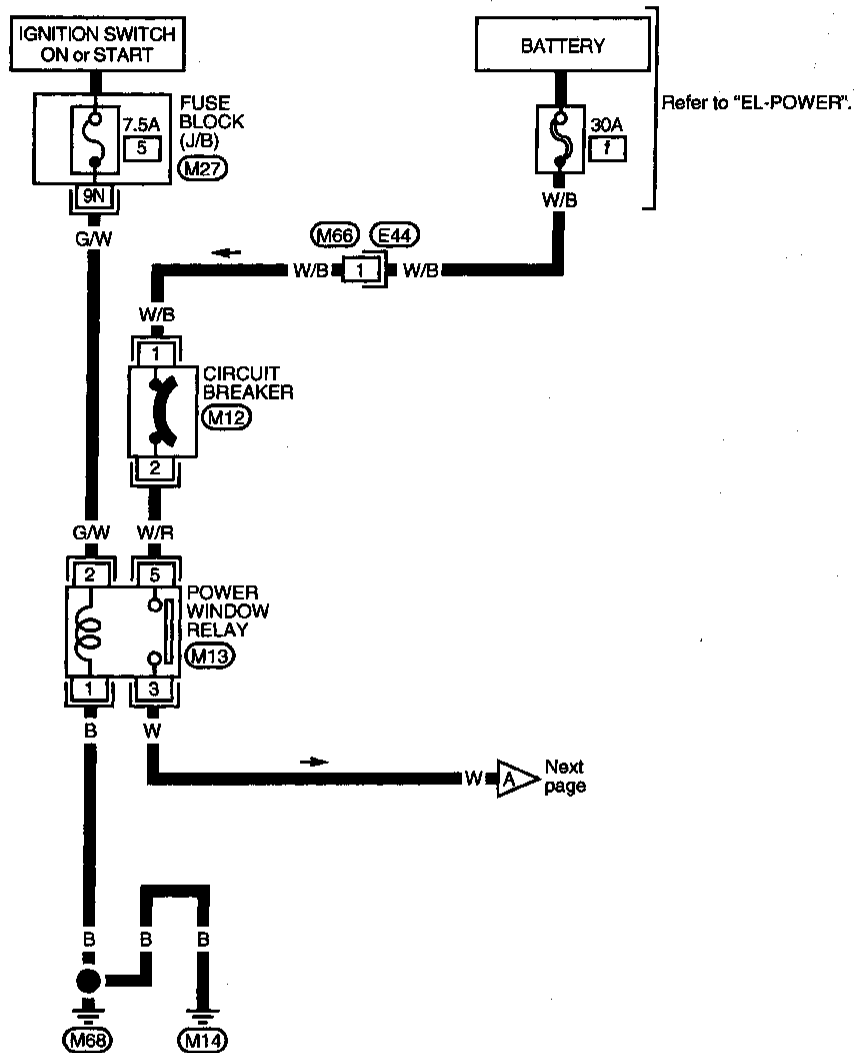
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# POWER WINDOW

## Wiring Diagram — WINDOW —

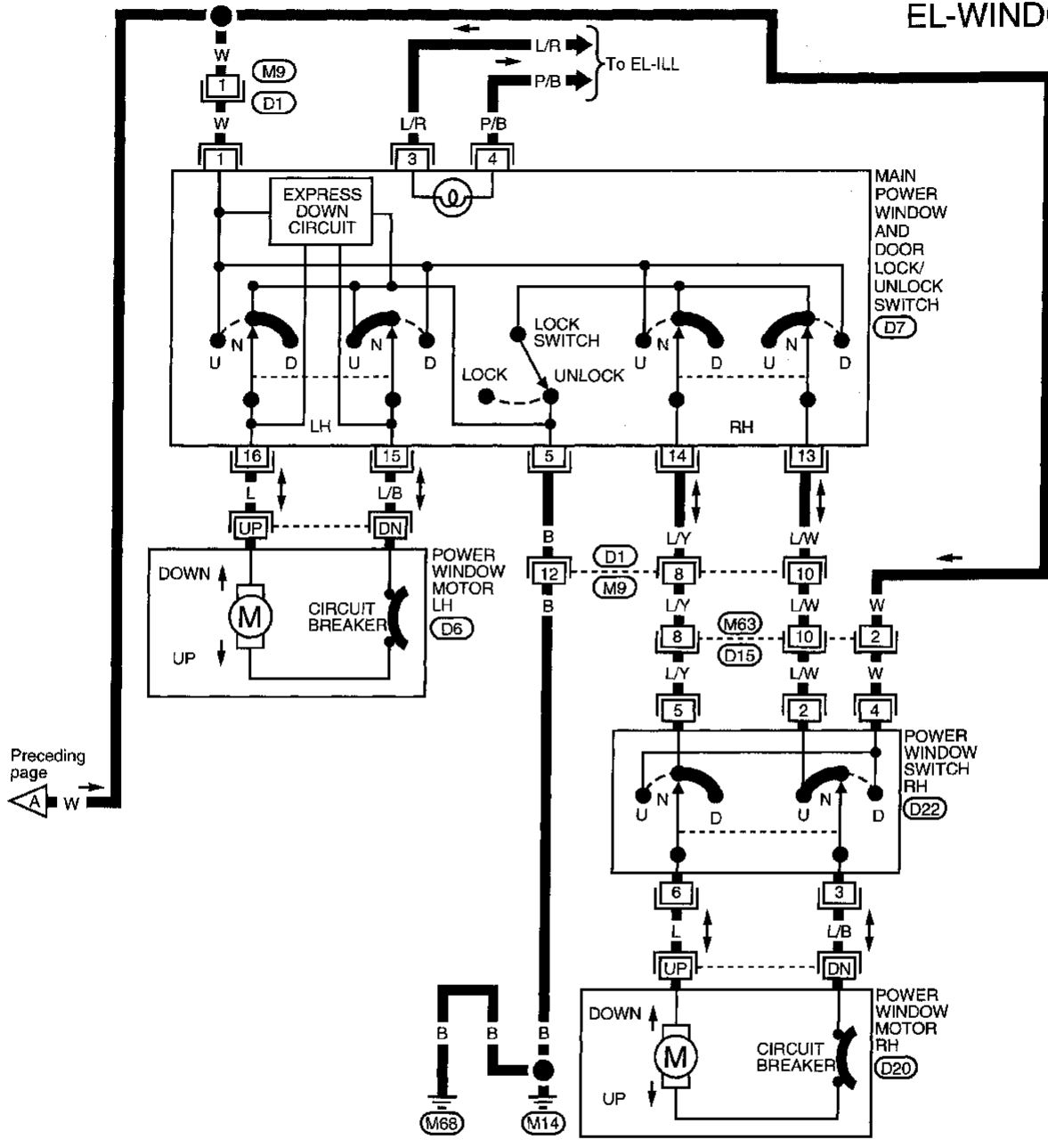
EL-WINDOW-01



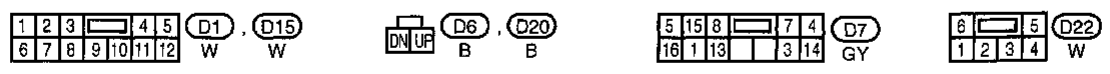
# POWER WINDOW

## Wiring Diagram — WINDOW — (Cont'd)

EL-WINDOW-02



Preceding page  
A W



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# POWER WINDOW

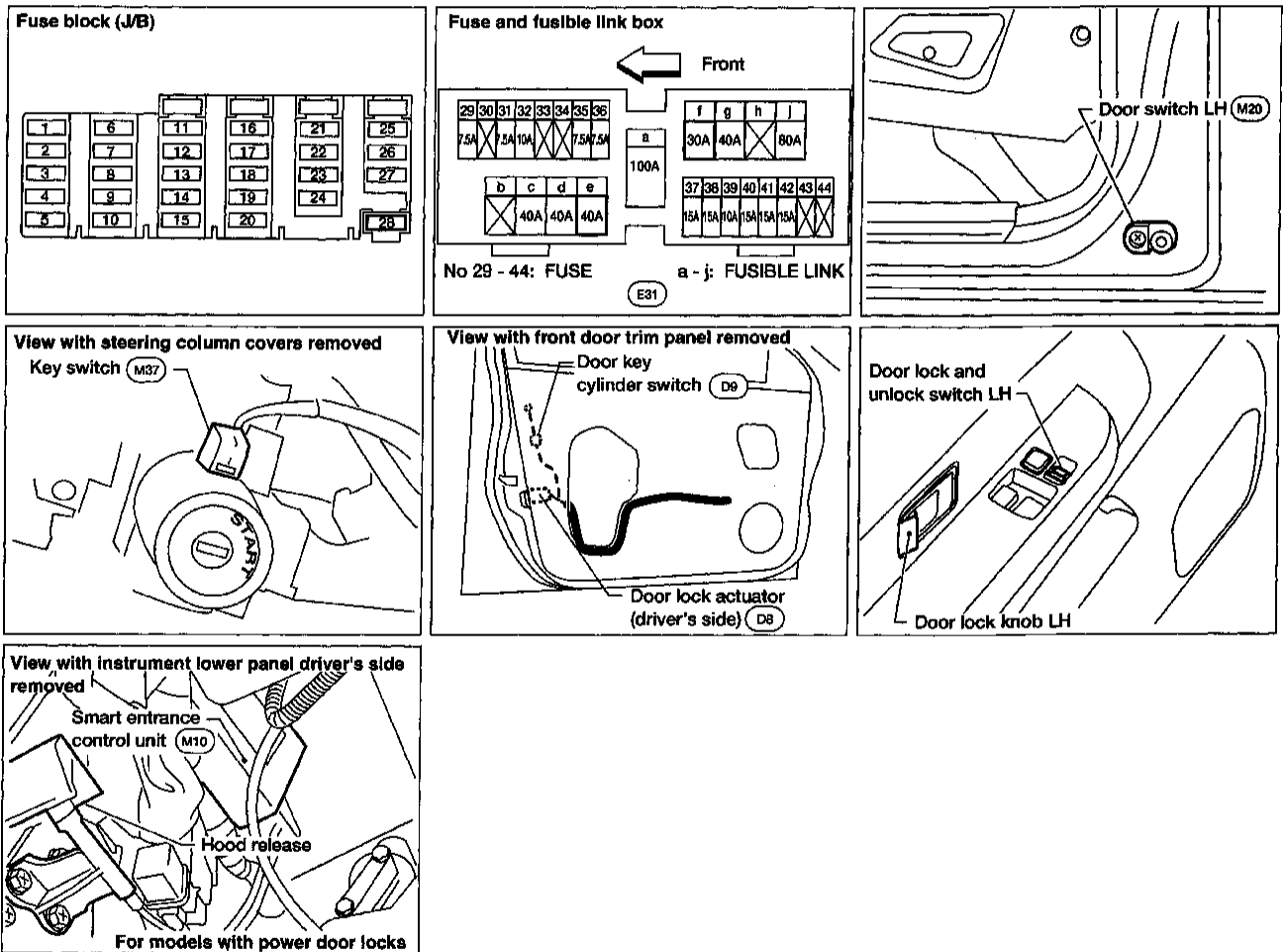
## Trouble Diagnoses

Symptom	Possible cause	Repair order
None of the power windows can be operated using any switch.	<ol style="list-style-type: none"> <li>1. 7.5A fuse, 30A fusible link and <b>M12</b> circuit breaker</li> <li>2. Grounds <b>M14</b> and <b>M68</b></li> <li>3. Power window relay</li> <li>4. Open/short in main power window switch circuit</li> </ol>	<ol style="list-style-type: none"> <li>1. Check 7.5A fuse (No. <b>5</b>), located in fuse block [J/B]), 30A fusible link (letter <b>f</b>, located in fuse and fusible link box) and <b>M12</b> circuit breaker. Turn ignition switch ON and verify battery positive voltage is present at terminal <b>1</b> of main power window switch and terminal <b>4</b> of passenger switch.</li> <li>2. Check grounds <b>M14</b> and <b>M68</b>.</li> <li>3. Check power window relay.</li> <li>4. Check W wire between power window relay and main power window switch for open/short circuit.</li> </ol>
Driver side power window cannot be operated but passenger window can be operated.	<ol style="list-style-type: none"> <li>1. Driver side power window motor circuit</li> <li>2. Driver side power window motor</li> </ol>	<ol style="list-style-type: none"> <li>1. Check harness between main power window switch and power window motor LH for open or short circuit.</li> <li>2. Check power window motor LH.</li> </ol>
Passenger power window cannot be operated.	<ol style="list-style-type: none"> <li>1. Passenger power window switch</li> <li>2. Passenger power window motor</li> <li>3. Main power window switch</li> <li>4. Power window circuit</li> </ol>	<ol style="list-style-type: none"> <li>1. Check passenger power window switch.</li> <li>2. Check passenger power window motor.</li> <li>3. Check main power window switch.</li> <li>4-1. Check harnesses between main power window switch and passenger power window switch for open/short circuit.</li> <li>4-2. Check harnesses between passenger power window switch and passenger power window motor for open/short circuit.</li> </ol>
Passenger power window cannot be operated using main power window switch but can be operated by passenger power window switch.	<ol style="list-style-type: none"> <li>1. Main power window switch</li> </ol>	<ol style="list-style-type: none"> <li>1. Check main power window switch.</li> </ol>
Driver side power window auto function cannot be operated using main power window switch.	<ol style="list-style-type: none"> <li>1. Main power window switch</li> </ol>	<ol style="list-style-type: none"> <li>1. Check main power window switch.</li> </ol>



# POWER DOOR LOCK

## Component Parts and Harness Connector Location



GI  
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# POWER DOOR LOCK

## System Description

Power is supplied at all times:

- through 30A fusible link (Letter **f**, located in the fuse and fusible link box)
- to circuit breaker terminal **①**
- through circuit breaker terminal **②**
- to smart entrance control unit terminal **①**.

Power is supplied at all times:

- through 7.5A fuse [No. **28**, located in the fuse block (J/B)]
- to key switch terminal **①**.

Ground is supplied:

- through body grounds **M14** and **M68**
- to smart entrance control unit terminal **⑩**.

### INPUT

Power is supplied through key switch terminal **②** to smart entrance control unit terminal **24** when the ignition key is inserted in the key switch.

Ground is supplied:

- through RH door switch terminal **①** when RH door is open
- to smart entrance control unit terminal **35**.

Ground is supplied:

- through body grounds **M14** and **M68**
- to LH door switch terminal **③**
- through LH door switch terminal **②** when LH door is open
- to smart entrance control unit terminal **19**.

Ground is supplied:

- through body grounds **M14** and **M68**
- through LH or RH door key cylinder switch terminal **②** when door key cylinder is BETWEEN FULL STROKE AND N (to UNLOCK position)
- from LH door key cylinder switch terminal **③** or RH door key cylinder switch terminal **①**
- to smart entrance control unit terminal **31**.

Ground is supplied:

- through body grounds **M14** and **M68**
- through LH or RH door key cylinder switch terminal **②** when door key cylinder is BETWEEN FULL STROKE AND N (to LOCK position)
- from LH door key cylinder switch terminal **①** or RH door key cylinder switch terminal **③**
- to smart entrance control unit terminal **30**.

Ground is supplied:

- through body grounds **M14** and **M68**
- from door unlock sensor (in the LH or RH door lock actuator) terminal **④** when door lock is in UNLOCKED position
- through door unlock sensor (in the LH or RH door lock actuator) terminal **②**
- to smart entrance control unit terminal **12** or **13**.

Ground is supplied:

- through body grounds **M14** and **M68**
- through main power window and door lock/unlock switch terminal **⑤** (when switch is pressed in LOCK or UNLOCK position)
- from main power window and door lock/unlock switch terminal **⑦** or **⑧**
- to smart entrance control unit terminal **18** or **19**.

Ground is also supplied from door lock/unlock switch RH in the same manner as main power window and door lock/unlock switch.

# POWER DOOR LOCK

## System Description (Cont'd)

### OUTPUT

#### Unlock

Power is supplied:

- from smart entrance control unit terminal ③
- to LH door lock actuator terminal ①.

Power is supplied:

- from smart entrance control unit terminal ②
- to RH door lock actuator terminal ①.

Ground is supplied:

- from smart entrance control unit terminal ④
- to LH and RH door lock actuator terminals ③.

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

#### Lock

Power is supplied:

- from smart entrance control unit terminal ④
- to LH and RH door lock actuator terminals ③.

Ground is supplied:

- from smart entrance control unit terminal ③
- to LH door lock actuator terminal ①.

Ground is supplied:

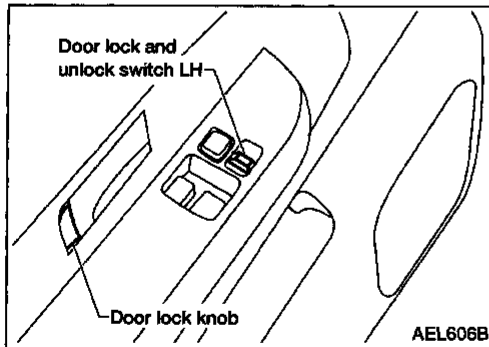
- from smart entrance control unit terminal ②
- to RH door lock actuator terminal ①.

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

### OPERATION

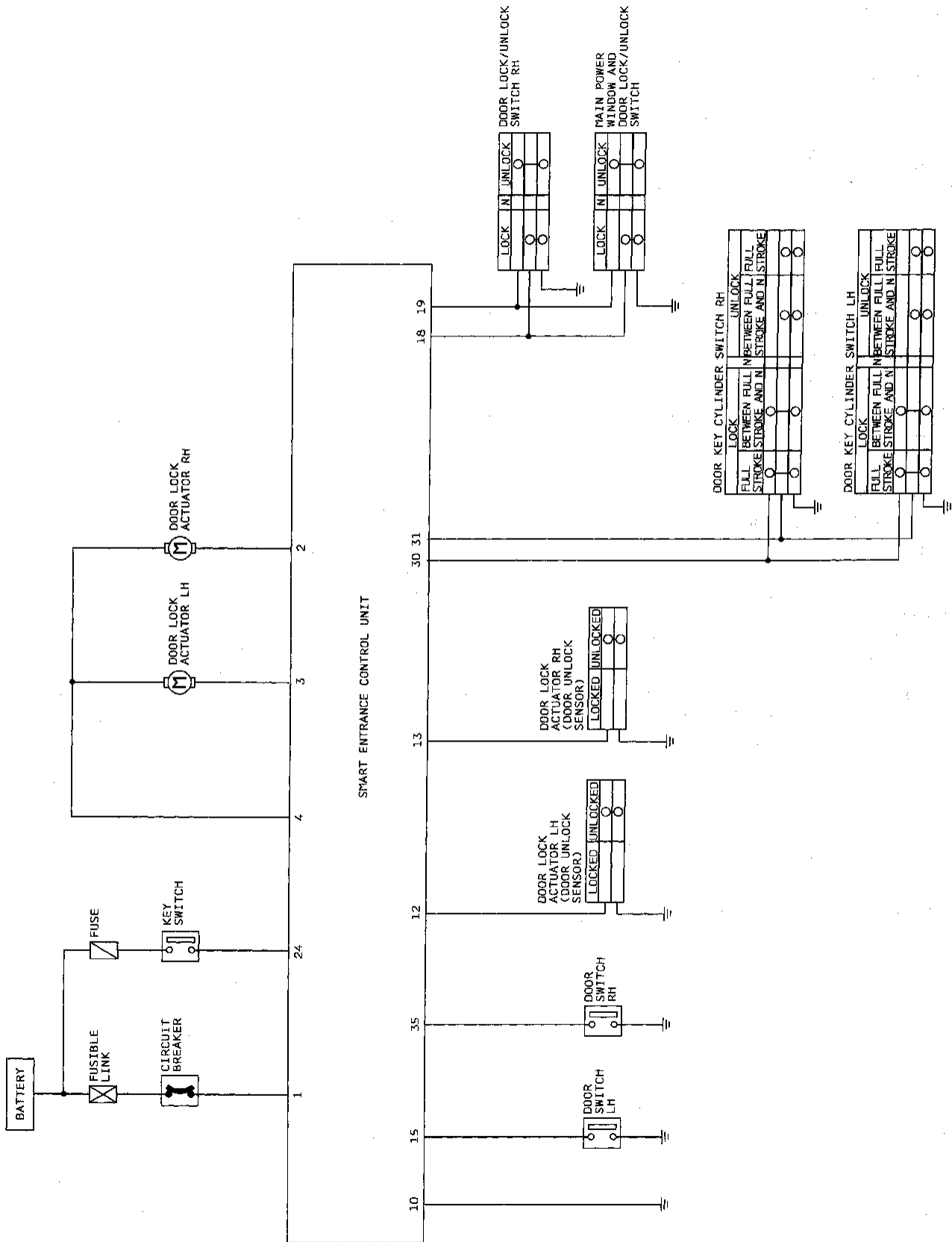
- The lock and unlock switch on driver's door trim can lock and unlock both doors.
- With the lock knob on LH or RH door set to LOCKED, all doors are locked (signal from door unlock sensor).
- With the door key inserted in the key cylinder on LH or RH door, turning it to LOCK will lock both doors; turning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

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



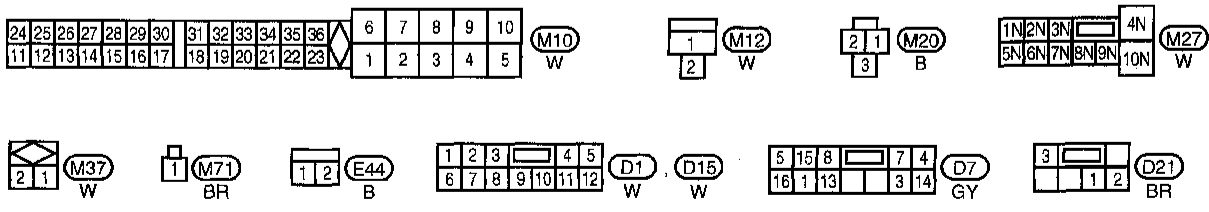
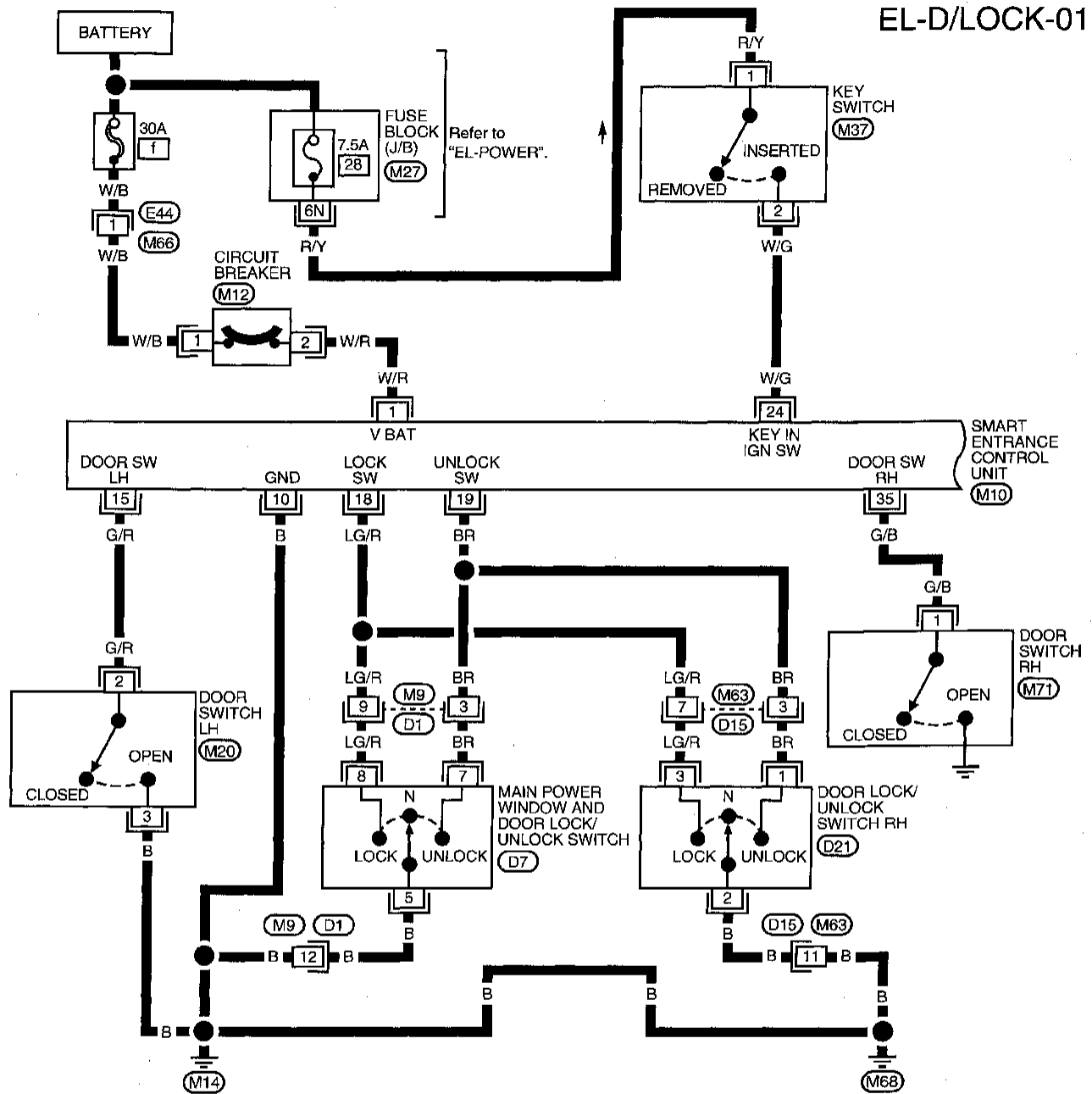
# POWER DOOR LOCK

## Schematic



# POWER DOOR LOCK

## Wiring Diagram — D/LOCK —

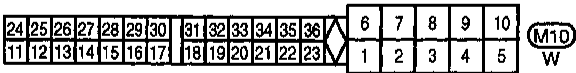
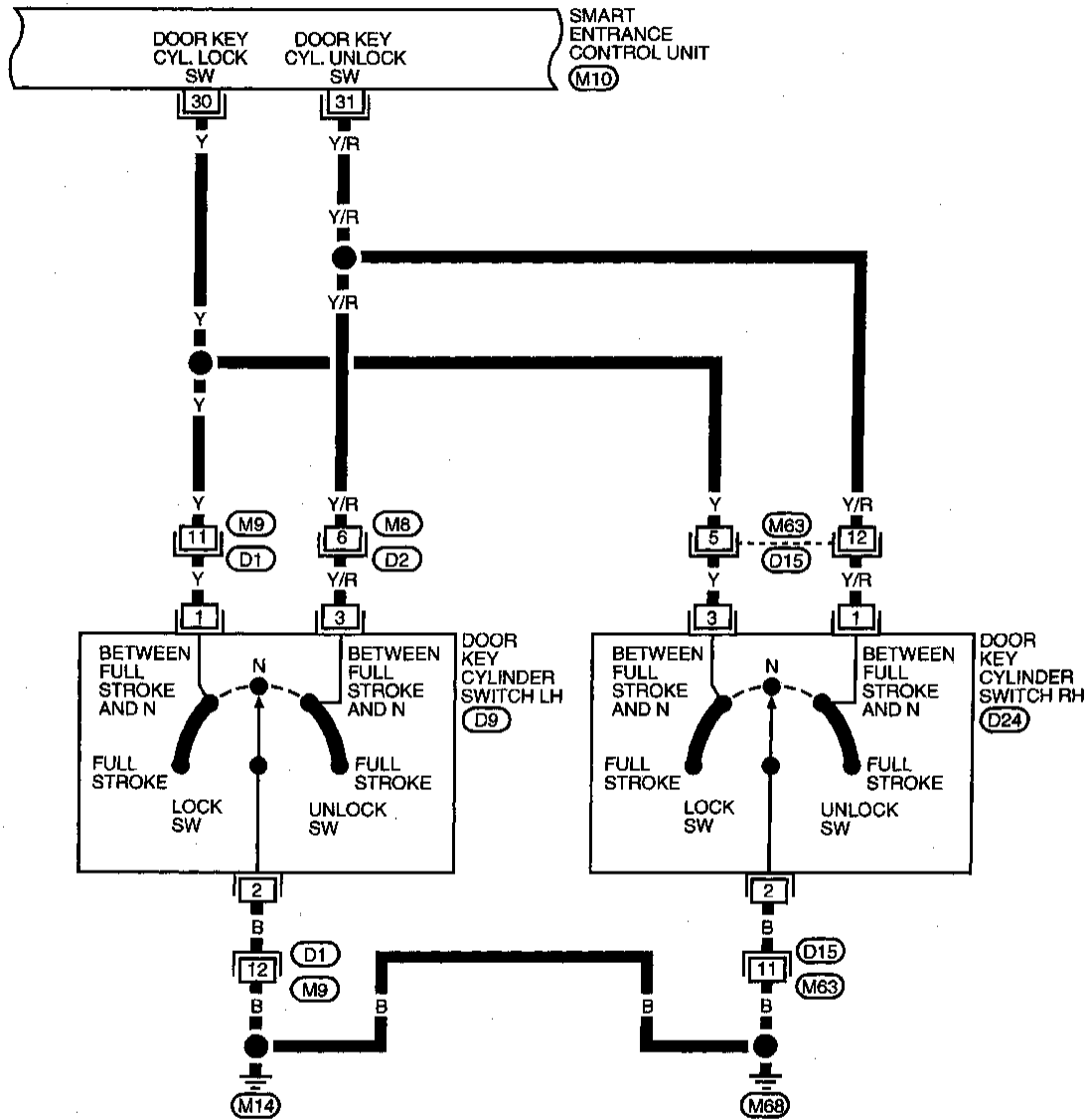


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# POWER DOOR LOCK

## Wiring Diagram — D/LOCK — (Cont'd)

EL-D/LOCK-02

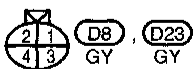
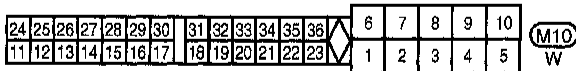
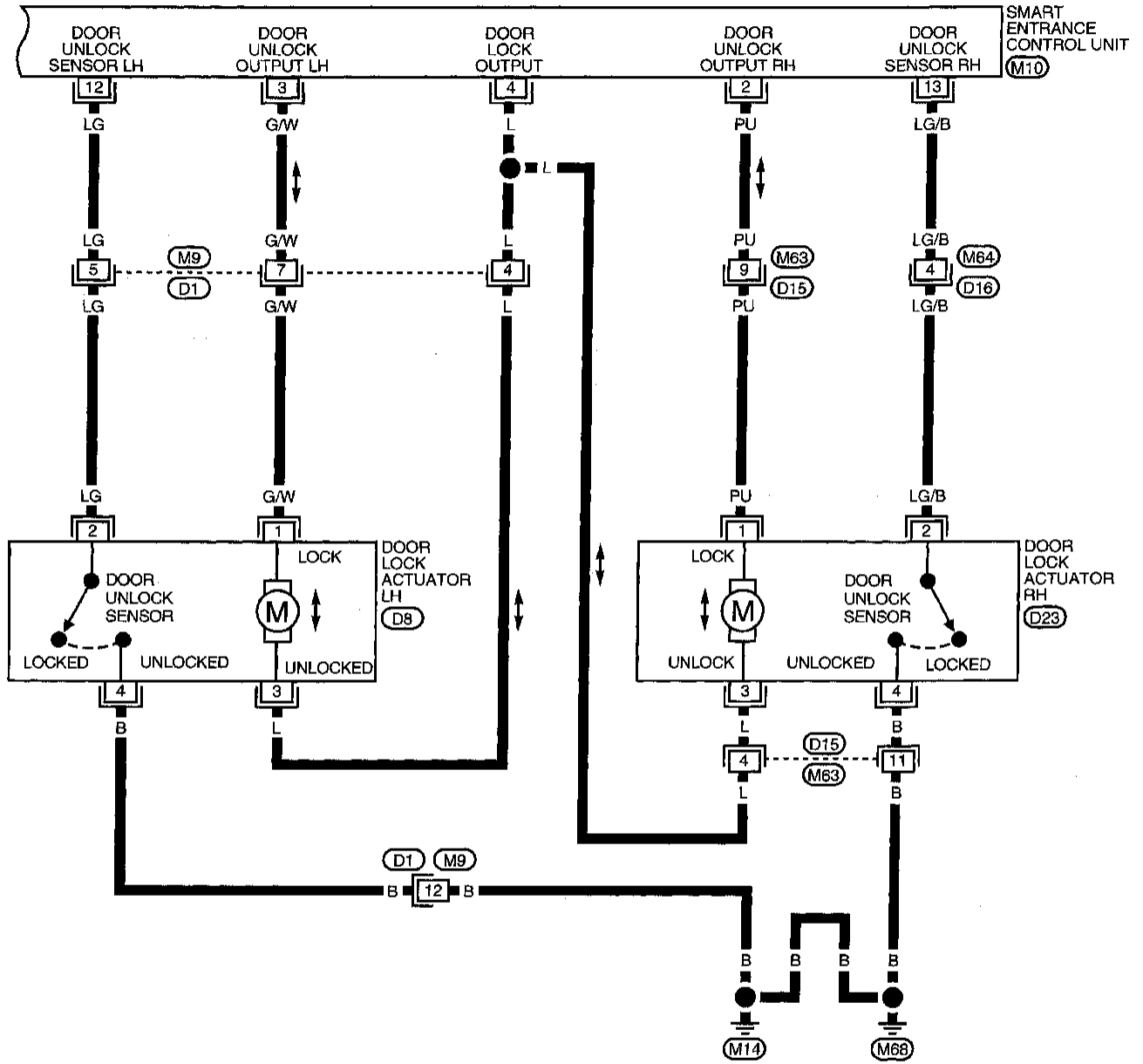


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# POWER DOOR LOCK

## Wiring Diagram — D/LOCK — (Cont'd)

EL-D/LOCK-03



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# POWER DOOR LOCK

## Trouble Diagnoses

### SYMPTOM CHART

PROCEDURE	Main power supply and ground circuit check		Diagnostic procedure					
	EL-167	EL-167	EL-168	EL-169	EL-170	EL-171	EL-172	EL-173
SYMPTOM	Main power supply circuit check	Ground circuit check	Procedure 1 (Door switch check)	Procedure 2 [Key switch (insert) check]	Procedure 3 (Door lock/unlock switch check)	Procedure 4 (Door key cylinder switch check)	Procedure 5 (Door unlock sensor check)	Procedure 6 (Door lock actuator check)
Key reminder door system does not operate properly.	X	X	X	X			X	X
One or more doors are not locked and/or unlocked.	X	X					X	X
Lock & unlock switch does not operate.	X	X			X			
None of the doors lock/unlock when operating door key cylinder switch.	X	X				X		
None of the doors lock when operating door knob lock switch.	X	X					X	

X: Applicable

Perform "Main Power Supply and Ground Circuit Check" before starting with power door lock diagnostic procedure.



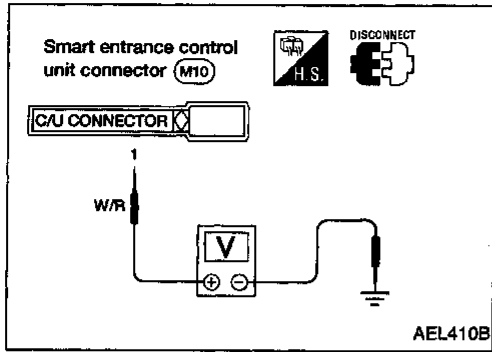
# POWER DOOR LOCK

## Trouble Diagnoses (Cont'd)

### MAIN POWER SUPPLY AND GROUND CIRCUIT CHECK

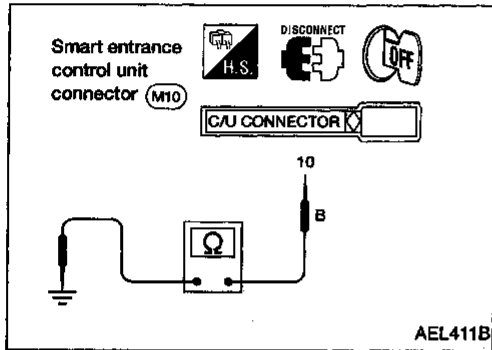
#### Main power supply circuit check

Terminal		Ignition switch		
⊕	⊖	OFF	ACC	ON
①	Ground	Battery voltage	Battery voltage	Battery voltage



#### Ground circuit check

Terminals	Continuity
⑩ - Ground	Yes



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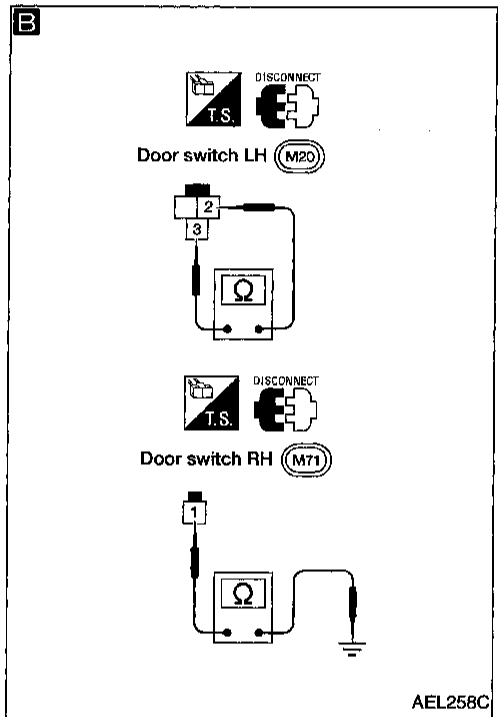
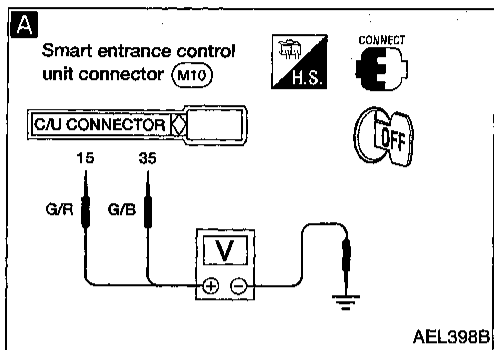
EL

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# POWER DOOR LOCK

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 1 (Door switch check)



**A**

#### CHECK DOOR SWITCH INPUT SIGNAL.

Check voltage between control unit terminals (15) or (35) and ground.

	Terminals		Condition	Voltage [V]
	⊕	⊖		
Door switch LH	(15)	Ground	Open	0
			Closed	Approx. 12
Door switch RH	(35)	Ground	Open	0
			Closed	Approx. 12

Refer to wiring diagram in EL-163.

OK → Door switch is OK.

NG

**B**

#### CHECK DOOR SWITCH.

1. Disconnect door switch connector.
2. Check continuity between door switch terminals.

	Terminals	Condition	Continuity
Door switch LH	(2) - (3)	Closed	No
		Open	Yes
Door switch RH	(1) - Ground	Closed	No
		Open	Yes

NG → Replace door switch.

OK

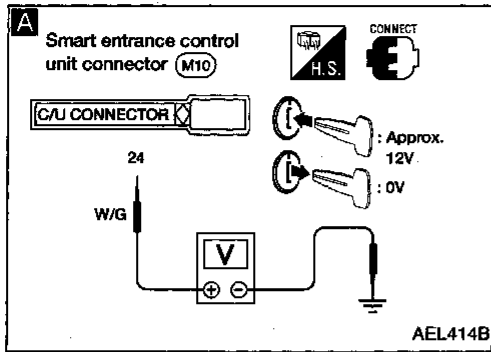
Check the following.

- Door switch ground circuit (LH) or door switch ground condition
- Harness for open or short between control unit and door switch

# POWER DOOR LOCK

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 2 [Key switch (insert) check]



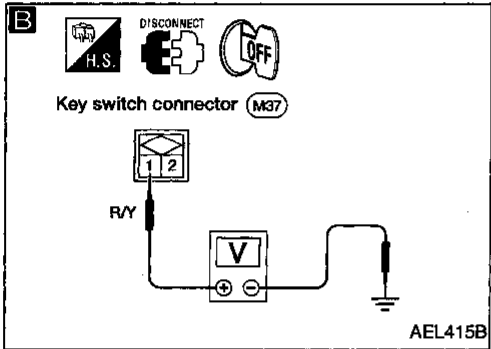
**A**

**CHECK KEY SWITCH INPUT SIGNAL.**  
Check voltage between control unit terminal (24) and ground.

Condition of key switch	Voltage [V]
Key is inserted.	Approx. 12
Key is withdrawn.	0

Refer to wiring diagram in EL-163.

OK → Key switch (insert) is ok.

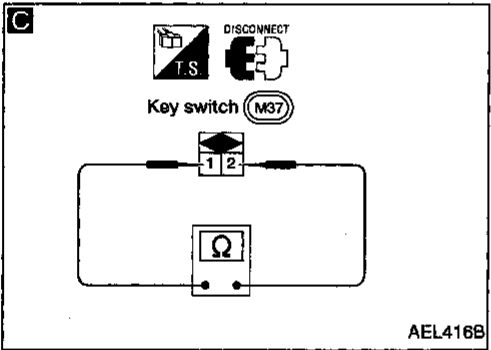


**B**

**CHECK KEY SWITCH POWER SUPPLY.**  
1. Disconnect key switch connector.  
2. Check voltage between key switch harness terminal (1) and ground.  
**Battery voltage should exist.**

NG → Check the following.

- 7.5A fuse [No. 28, located in fuse block (J/B)]
- Harness for open or short between key switch and fuse



**C**

**CHECK KEY SWITCH.**  
Check continuity between key switch terminals.

Terminals	Condition	Continuity
① - ②	Key is inserted.	Yes
	Key is withdrawn.	No

NG → Replace key switch.

OK → Check harness for open or short between control unit and key switch.

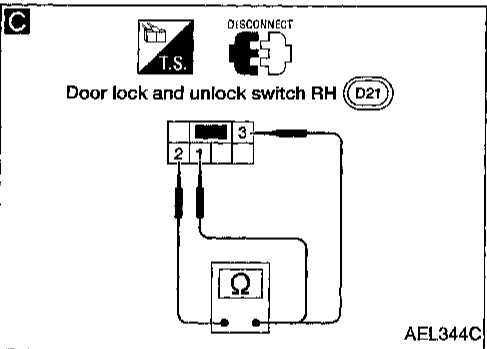
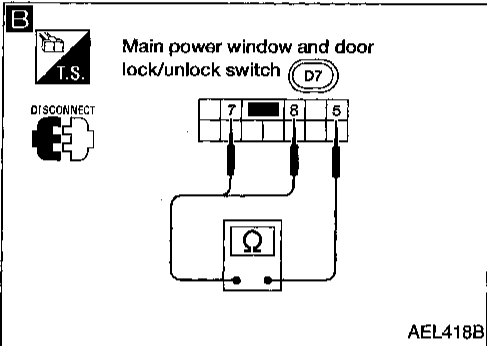
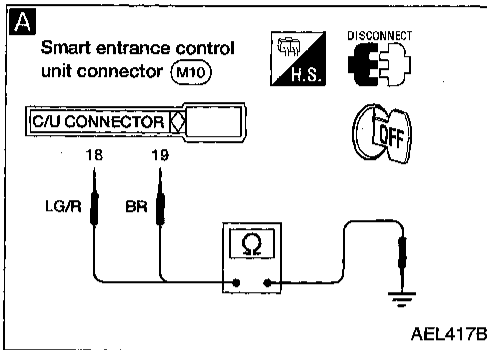
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# POWER DOOR LOCK

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 3

#### (Door lock/unlock switch check)



**A** CHECK DOOR LOCK/UNLOCK SWITCH (LH and RH) INPUT SIGNAL.

1. Disconnect control unit connector.
2. Check continuity between control unit terminal (18) or (19) and ground.

Terminals	Door lock/unlock switch (LH or RH) condition	Continuity
(18) - Ground	Lock	Yes
	N and Unlock	No
(19) - Ground	Unlock	Yes
	N and Lock	No

Refer to wiring diagram in EL-163.

OK → Door lock/unlock switch is OK.

NG ↓

**B C** CHECK LH OR RH DOOR LOCK/UNLOCK SWITCH.

1. Disconnect main power window and door lock/unlock switch connector.
2. Check continuity between main power window and door lock/unlock switch terminals.

**B** Driver side

Condition	Terminals		
	5	7	8
Lock	○	○	○
N	No continuity		
Unlock	○	○	○

3. Disconnect door lock and unlock switch RH connector.
4. Check continuity between door lock and unlock switch RH terminals.

**C** Passenger side

Condition	Terminals		
	1	2	3
Lock	○	○	○
N	No continuity		
Unlock	○	○	○

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

OK ↓

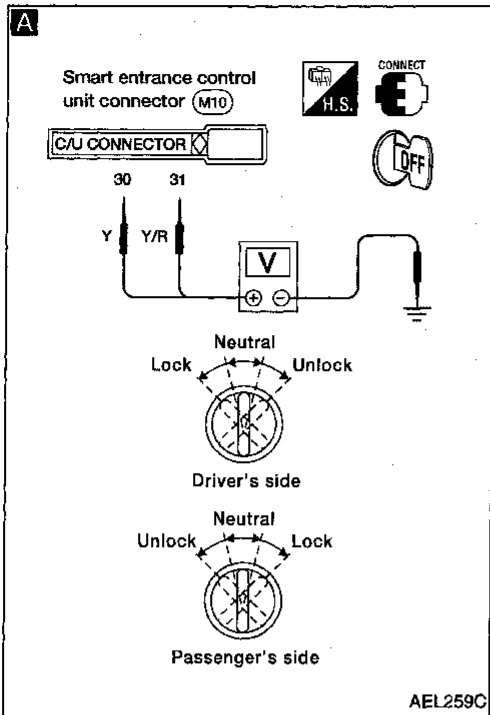
Check the following.

- Ground circuit for door lock/unlock switch
- Harness for open or short between door lock/unlock switch and control unit connector

# POWER DOOR LOCK

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 4 (Door key cylinder switch check)



**A**

#### CHECK DOOR KEY CYLINDER SWITCH (LH and RH) INPUT SIGNAL (LOCK/UNLOCK SIGNAL).

Check voltage between control unit terminals ③⑩ or ③⑪ and ground.

Terminals		Key position	Voltage [V]
⊕	⊖		
③⑩	Ground	Neutral	Approx. 12
		Lock	0
③⑪	Ground	Neutral	Approx. 12
		Unlock	0

Refer to wiring diagram in EL-164.

OK → Door key cylinder switch is OK.

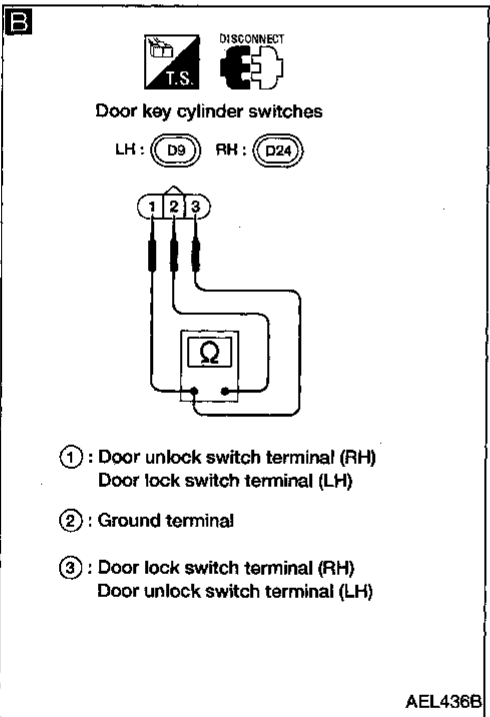
**B**

#### CHECK DOOR KEY CYLINDER SWITCH.

1. Disconnect door key cylinder switch connector.
2. Check continuity between door key cylinder switch terminals.

Terminals	Key position	Continuity
LH: ① - ②	Neutral	No
RH: ③ - ②	Lock	Yes
LH: ③ - ②	Neutral	No
RH: ① - ②	Unlock	Yes

NG → Replace door key cylinder switch.



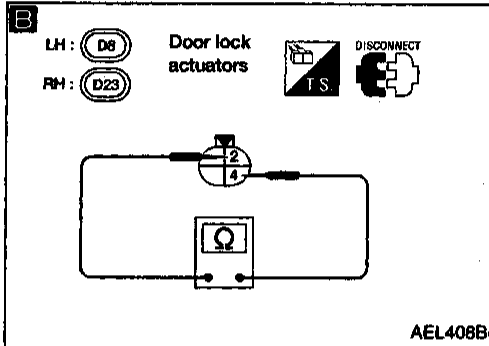
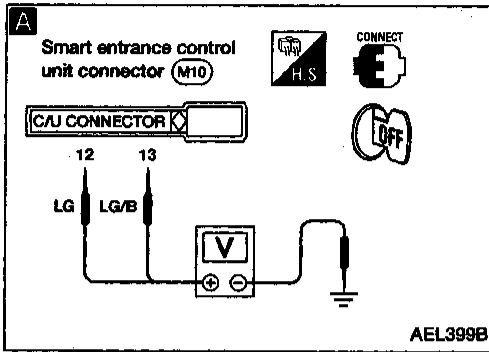
- OK →
- Check the following.
- Door key cylinder switch ground circuit
  - Harness for open or short between control unit and door key cylinder switch

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# POWER DOOR LOCK

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 5 (Door unlock sensor check)



**A**

**CHECK DOOR UNLOCK SENSOR INPUT SIGNAL.**

Check voltage between control unit terminals (12), (13) and ground.

	Terminals		Condition	Voltage [V]
	⊕	⊖		
LH door	(12)	Ground	Locked	Approx. 12
			Unlocked	0
RH door	(13)	Ground	Locked	Approx. 12
			Unlocked	0

Refer to wiring diagram in EL-165.

OK → Door unlock sensor is OK.

NG

**B**

**CHECK DOOR UNLOCK SENSOR.**

1. Disconnect door unlock sensor connector.
2. Check continuity between door unlock sensor terminals.

Terminals	Condition	Continuity
④ - ②	Locked	No
	Unlocked	Yes

NG → Replace door unlock sensor.

OK

Check the following.

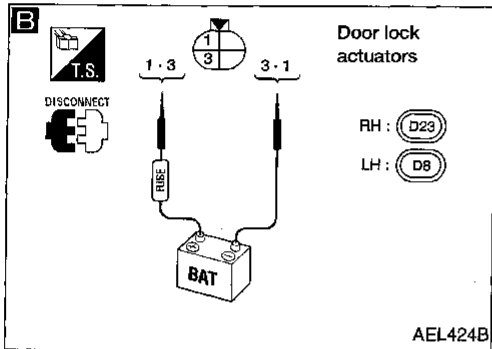
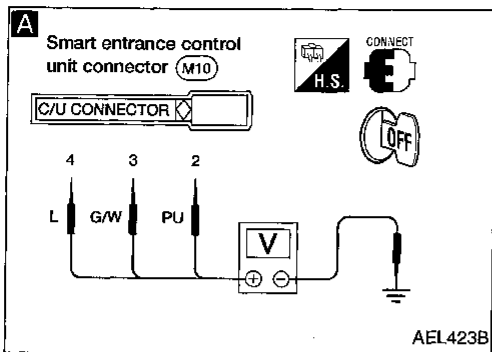
- Door unlock sensor ground circuit
- Harness for open or short between control unit and door unlock sensor

# POWER DOOR LOCK

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 6

#### (Door lock actuator check)



**A** CHECK DOOR LOCK ACTUATOR OUTPUT.  
Check voltage for door lock actuator.

Door lock/unlock switch condition	Terminals		Voltage (V)
	⊕	⊖	
Lock	④	Ground	Battery voltage
Unlock	③, ②	Ground	

Refer to wiring diagram in EL-165.

NG → Replace smart entrance control unit. (Before replacing control unit, perform other procedures following SYMPTOM CHART.)

OK

**B** CHECK DOOR LOCK ACTUATOR.  
1. Disconnect door lock actuator connector.

2. Apply 12V direct current to door lock actuator and check operation.

Door lock actuator operation	Terminals	
	⊕	⊖
Unlocked → Locked	③	①
Locked → Unlocked	①	③

NG → Replace door lock actuator.

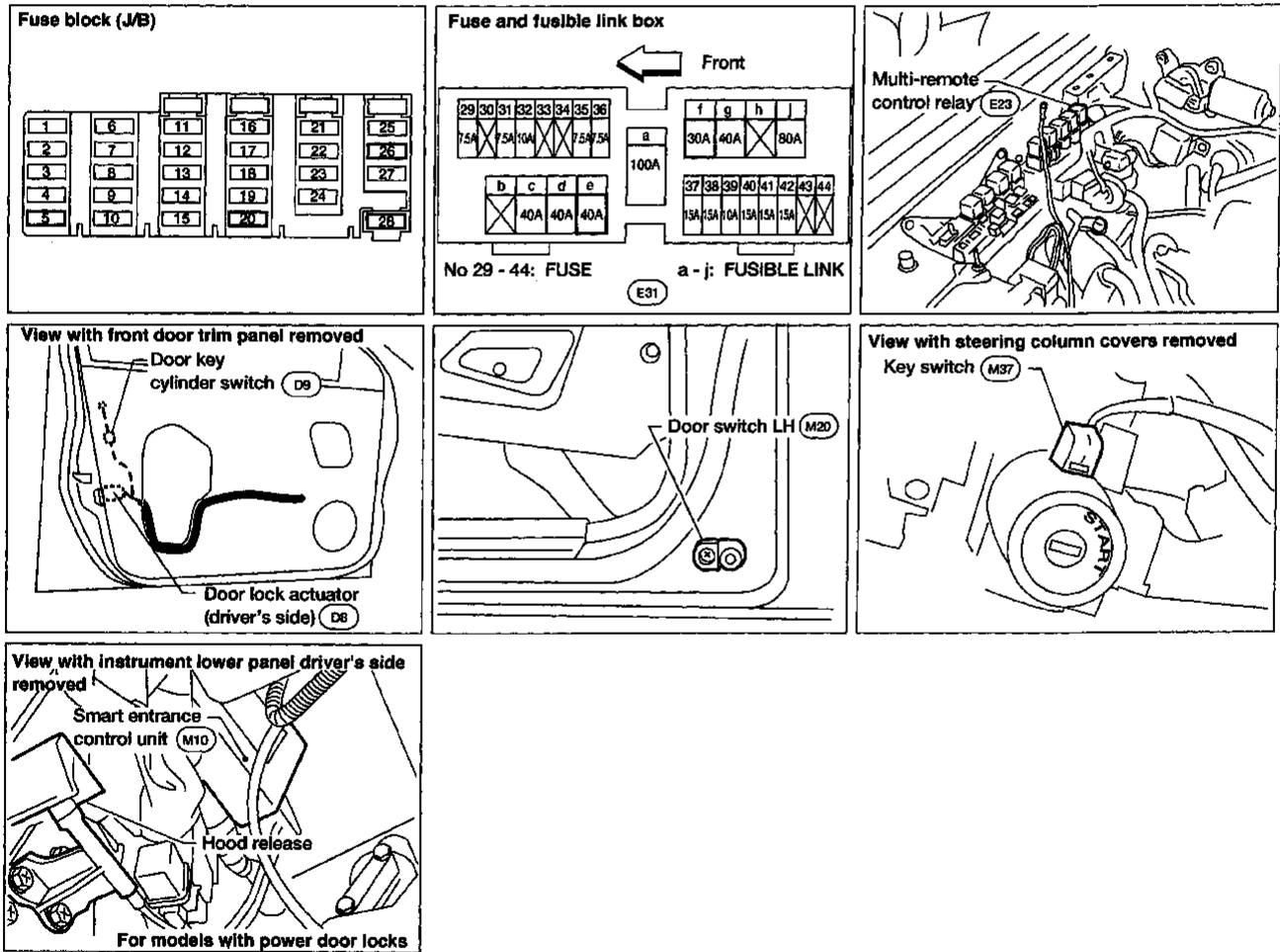
OK

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

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# MULTI-REMOTE CONTROL SYSTEM

## Component Parts and Harness Connector Location





# MULTI-REMOTE CONTROL SYSTEM

## System Description

### POWER SUPPLY AND GROUND

Power is supplied at all times:

- through 30A fusible link (letter **f**, located in the fuse and fusible link box)
- to circuit breaker terminal ①
- through circuit breaker terminal ②
- to smart entrance control unit terminal ①.

Power is supplied at all times:

- through 7.5A fuse [No. 26, located in the fuse block (J/B)]
- to interior lamp terminal +

Power is supplied at all times:

- through 7.5A fuse [No. 29, located in the fuse block (J/B)]
- to key switch terminal ①.

Power is supplied at all times:

- through 10A fuse [No. 17, located in the fuse block (J/B)]
- to multi-remote control relay terminals ②, ⑤ and ⑦.

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

- through 7.5A fuse [No. 5, located in the fuse block (J/B)]
- to smart entrance control unit terminal ⑪.

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

- through 7.5A fuse [No. 20, located in the fuse block (J/B)]
- to smart entrance control unit terminal ⑰.

Ground is supplied:

- to smart entrance control unit terminal ⑩
- through body grounds M14 and M68.

### INPUTS

When the key switch is ON (ignition key is inserted in key cylinder), power is supplied:

- through key switch terminal ②
- to smart entrance control unit terminal 24.

When the door switch LH is OPEN, ground is supplied:

- to smart entrance control unit terminal 15
- through door switch LH terminal ②
- from door switch LH terminal ③
- through body grounds M14 and M68.

When the door switch RH is OPEN, ground is supplied:

- to smart entrance control unit terminal 35
- through door switch RH terminal ①
- through door switch body ground.

When the door lock actuator LH (door unlock sensor) is UNLOCKED, ground is supplied:

- to smart entrance control unit terminal 12
- through door lock actuator LH (door unlock sensor) terminal ②
- to door lock actuator LH (door unlock sensor) terminal ④
- through body grounds M14 and M68.

When the door lock actuator RH (door unlock sensor) is UNLOCKED, ground is supplied to smart entrance control unit terminal 13 in the same manner as door lock actuator LH.

Remote controller signal input:

- through internal antenna.

The multi-remote control system controls operation of the

- power door lock
- interior lamp
- panic alarm
- hazard reminder.

### OPERATION PROCEDURE

#### Power door lock operation

When the following input signals are both supplied:

- key switch REMOVED (when ignition key is not inserted in key cylinder);
- door switch CLOSED (when all the doors are closed).

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## MULTI-REMOTE CONTROL SYSTEM

### System Description (Cont'd)

The above two signals are already input into the smart entrance control unit. At this point, smart entrance control unit receives a LOCK signal from the remote controller. The smart entrance control unit locks all doors with input of the LOCK signal from the remote controller.

And then ground is supplied:

- to multi-remote control relay terminal ①
- through smart entrance control unit terminal ⑦.

Multi-remote control relay is now energized, and the hazard warning lamps flash twice as a reminder—**HAZARD REMINDER**. For detailed description, refer to "TURN SIGNAL AND HAZARD WARNING LAMPS", EL-62.

When an UNLOCK signal is sent from the remote controller once, the driver's door will be unlocked.

Then, if an UNLOCK signal is sent from the remote controller again within 5 seconds, the passenger door will be unlocked.

To deactivate the horn chirp when using the remote controller, press both unlock and lock buttons for two seconds. With the horn deactivated, the exterior lights do not flash when the unlock button is pressed. To activate the horn chirp, press both unlock and lock buttons for two seconds.

#### Interior lamp operation

When the following input signals are both supplied:

- key switch REMOVED (when ignition key is not inserted in key cylinder);
- door switch CLOSED (when all the doors are closed);

multi-remote control system turns on interior lamp (for 30 seconds) with input of UNLOCK signal from remote controller.

For detailed description, refer to "INTERIOR ROOM LAMP", EL-70.

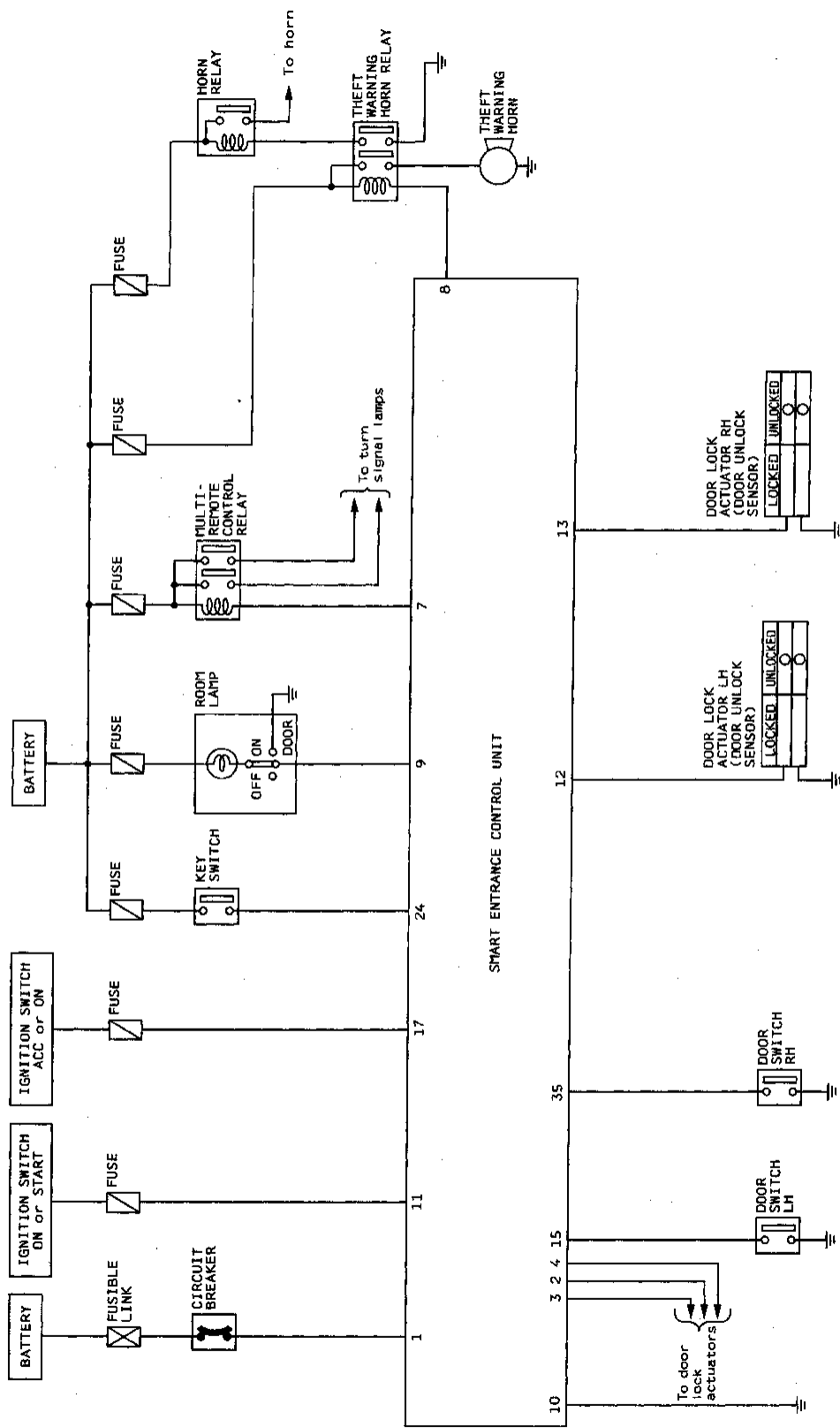
#### Panic alarm operation

When key switch is OFF (when ignition key is not inserted in key cylinder), multi-remote control system turns on and off horn and headlamps intermittently with input of PANIC ALARM signal from remote controller.

For detailed description, refer to "THEFT WARNING SYSTEM", EL-191.

# MULTI-REMOTE CONTROL SYSTEM

## Schematic

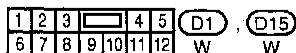
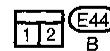
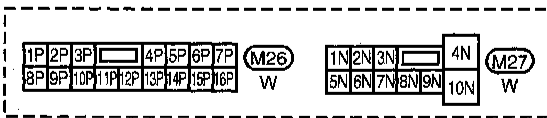
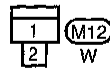
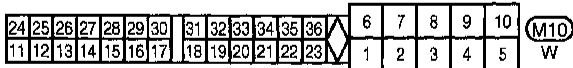
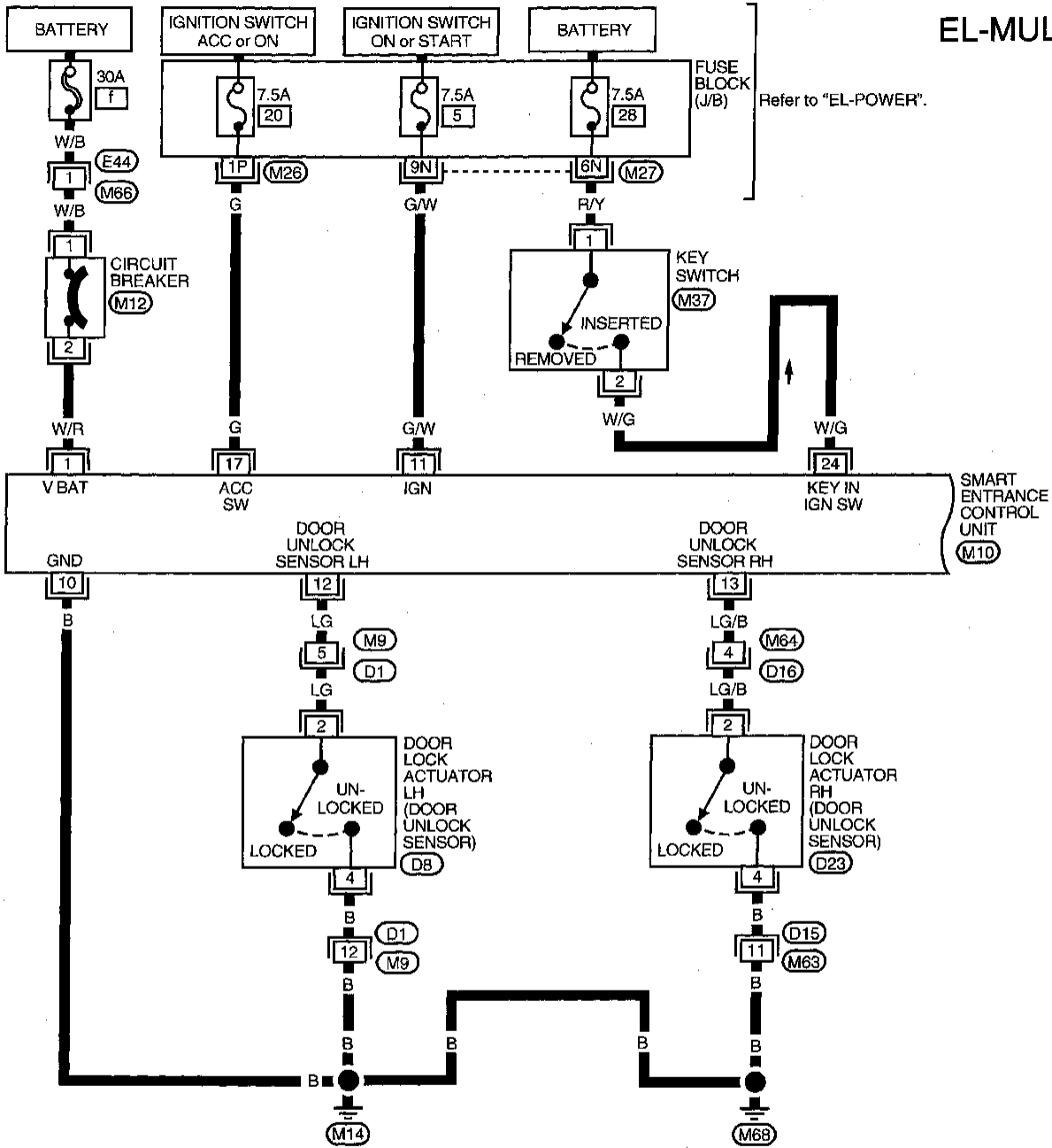


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# MULTI-REMOTE CONTROL SYSTEM

## Wiring Diagram — MULTI —

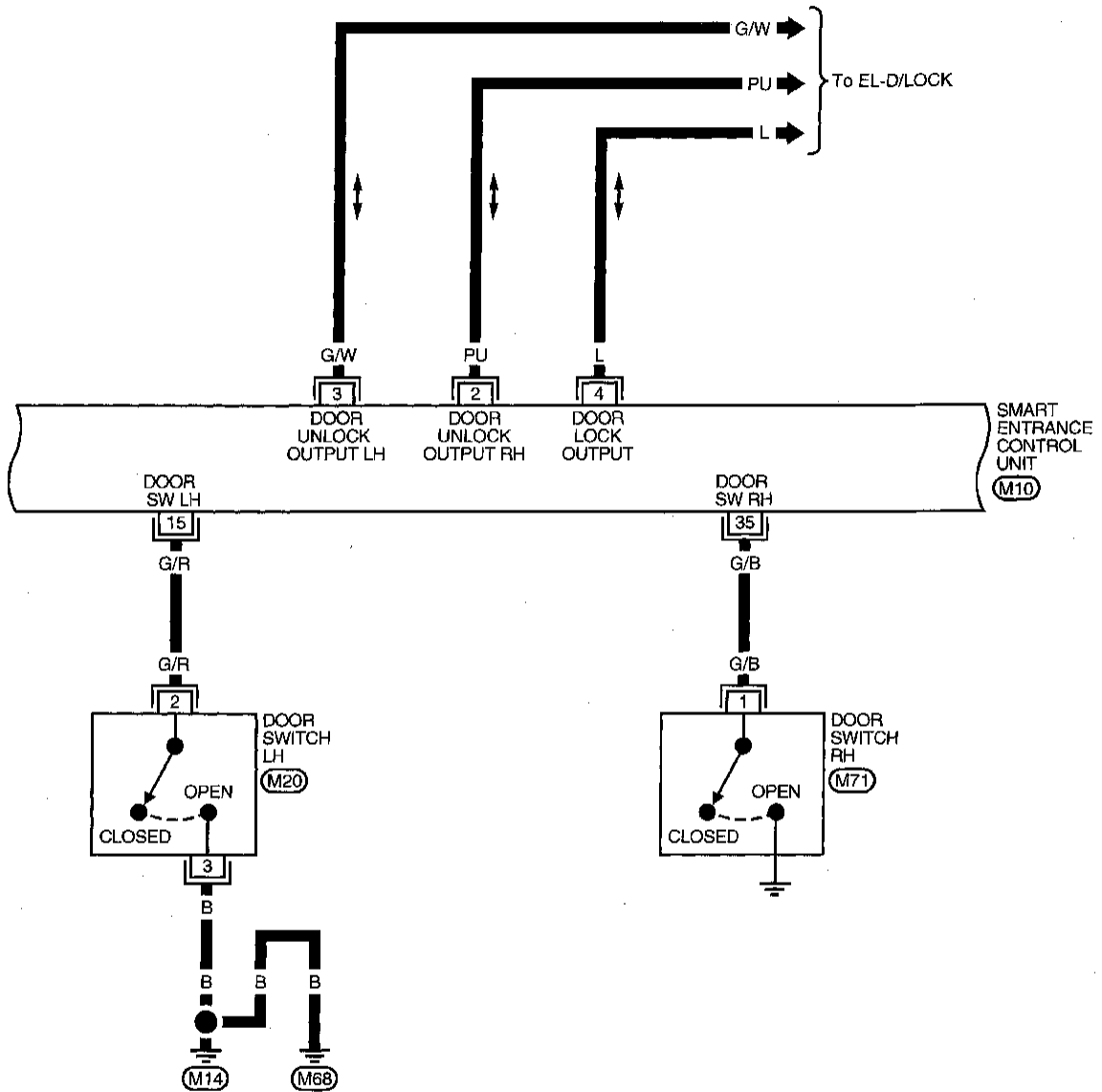
EL-MULTI-01



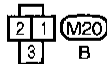
# MULTI-REMOTE CONTROL SYSTEM

## Wiring Diagram — MULTI — (Cont'd)

EL-MULTI-02



24	25	26	27	28	29	30	31	32	33	34	35	36	6	7	8	9	10	(M10)
11	12	13	14	15	16	17	18	19	20	21	22	23	1	2	3	4	5	W

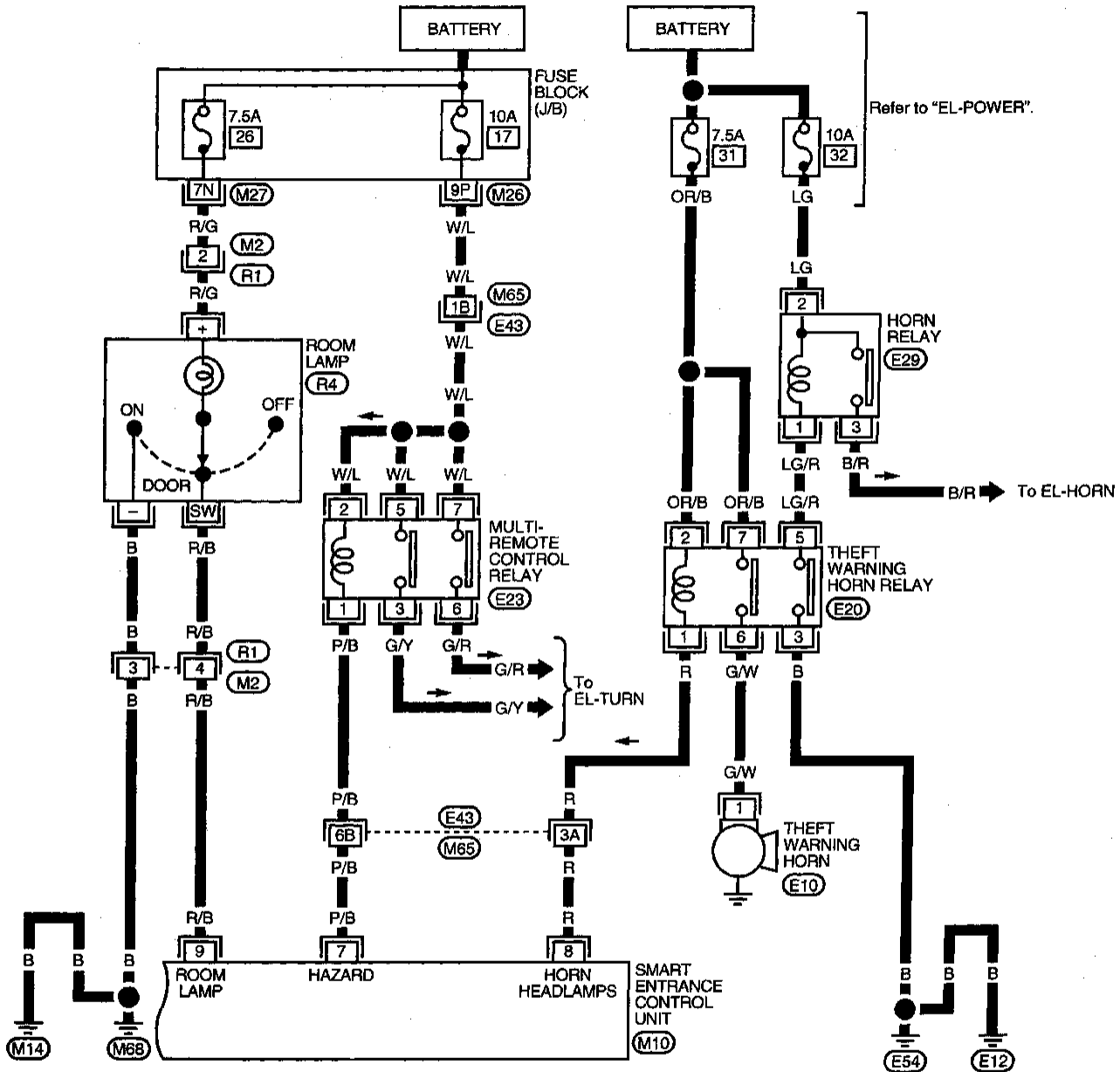


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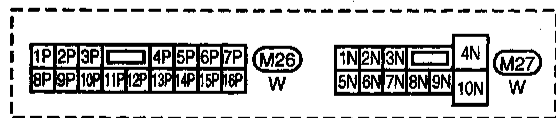
# MULTI-REMOTE CONTROL SYSTEM

## Wiring Diagram — MULTI — (Cont'd)

EL-MULTI-03



24	25	26	27	28	29	30	31	32	33	34	35	36	6	7	8	9	10	M10 W
11	12	13	14	15	16	17	18	19	20	21	22	23	1	2	3	4	5	



Refer to last page (Foldout page).

M65, E43

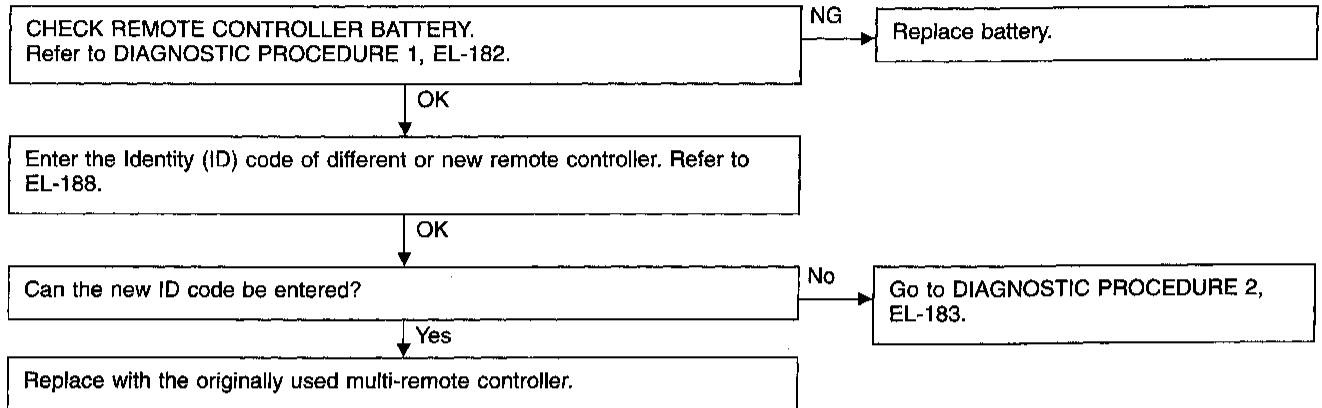
AEL287C

# MULTI-REMOTE CONTROL SYSTEM

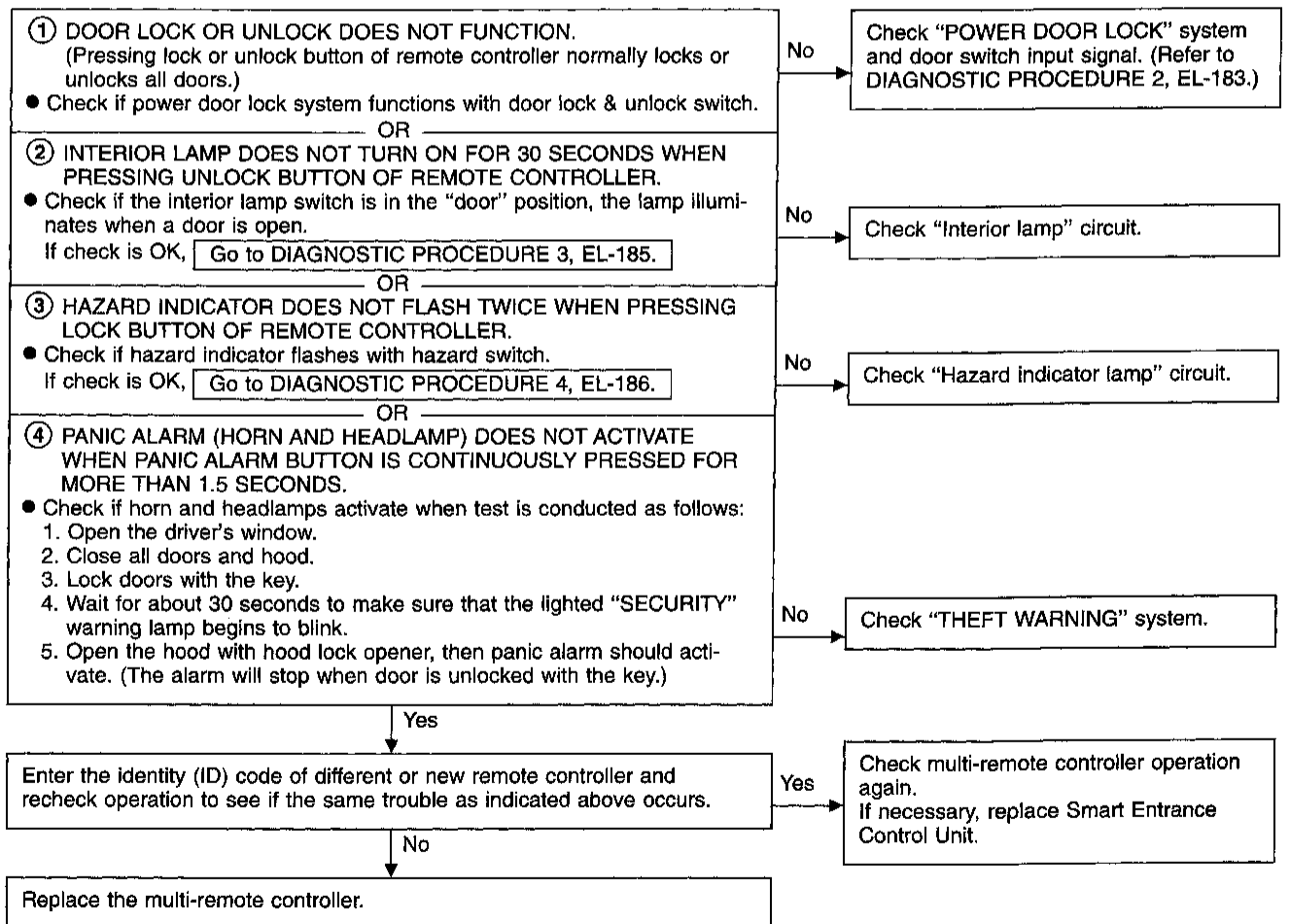
## Trouble Diagnoses

### TROUBLE SYMPTOM

- All functions of remote control system do not operate.



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



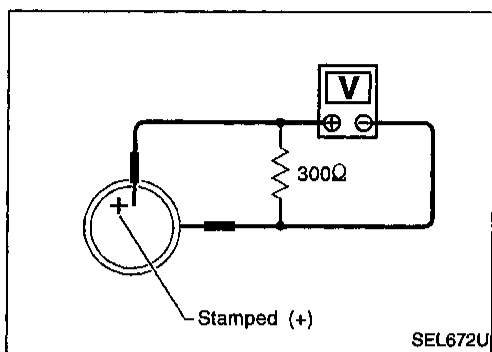
- Note:**
- The unlock and panic alarm operation of the multi-remote control system does not activate with the ignition key inserted in the ignition key cylinder.
  - The lock operation of the multi-remote control system does not activate with the key inserted in the ignition key cylinder or if one of the doors is opened.

# MULTI-REMOTE CONTROL SYSTEM

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 1

Check remote controller battery.



#### 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 ⊖	2.5 - 3.0V

#### Note:

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

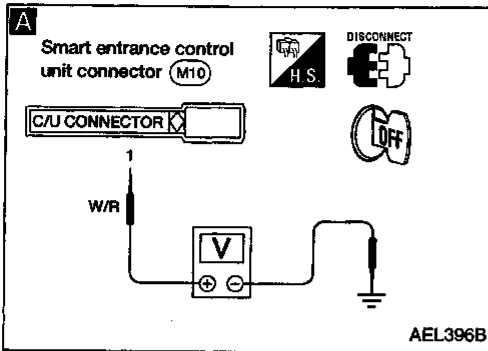


# MULTI-REMOTE CONTROL SYSTEM

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 2

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



**A**

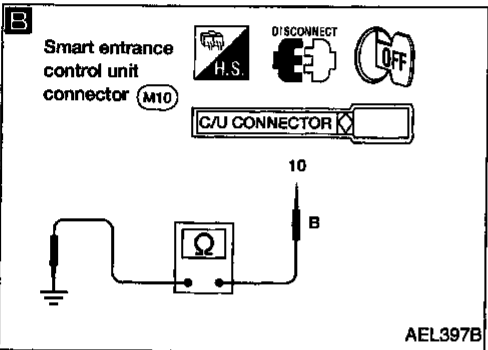
#### CHECK MAIN POWER SUPPLY CIRCUIT FOR CONTROL UNIT.

1. Disconnect connector from control unit.
2. Check voltage between control unit terminal ① and ground.

Battery voltage should exist.

Refer to wiring diagram in EL-178.

- NG
- Check the following:
- 30A fusible link (Letter **f**, located in fuse and fusible link box)
  - **M12** circuit breaker
  - Harness for open or short between control unit and fusible link



**B**

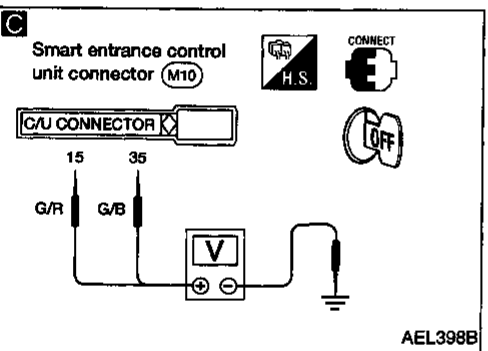
#### CHECK GROUND CIRCUIT FOR CONTROL UNIT.

- Check continuity between terminal ⑩ and ground.

Continuity should exist.

Refer to wiring diagram in EL-178.

- NG
- Check ground harness.



**C**

#### CHECK DOOR SWITCH CIRCUIT.

1. Connect control unit connector.
2. Check voltage between control unit terminal ⑮ and ground and ⑳ and ground.

	Terminals		Condi- tion	Voltage [V]
	⊕	⊖		
Driver side door switch	⑮	Ground	Open	0
			Close	Approx. 12
Pas-senger door switch	⑳	Ground	Open	0
			Close	Approx. 12

Refer to wiring diagram in EL-179.

- NG
- Check the following.
- Door switch  
Refer to "Electrical Components Inspection" (EL-187).
  - Door switch ground condition
  - Harness for open or short between control unit and door switch

OK

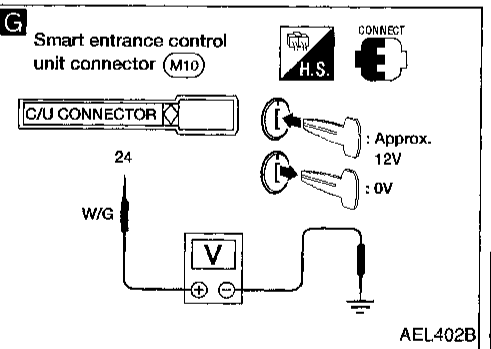
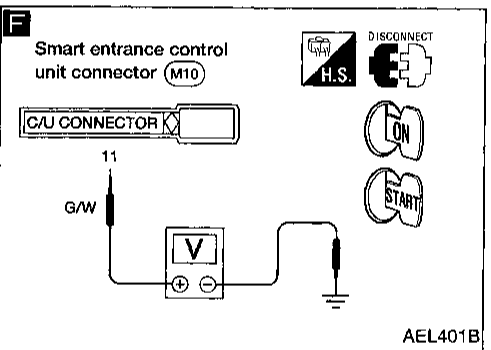
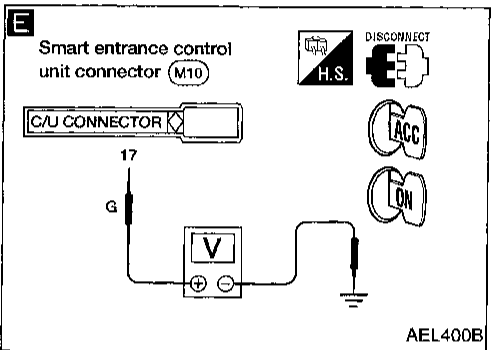
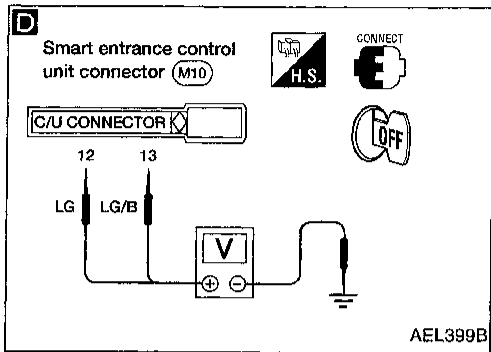
➡

**A**

(Go to next page.)

# MULTI-REMOTE CONTROL SYSTEM

## Trouble Diagnoses (Cont'd)



**A**

**D**

**CHECK UNLOCK SENSOR CIRCUIT.**  
Check voltage between control unit terminal (12) and ground and (13) and ground.

	Terminals		Condition	Voltage [V]
	⊕	⊖		
LH door	(12)	Ground	Unlock	0
			Lock	Approx. 12
RH door	(13)	Ground	Unlock	0
			Lock	Approx. 12

Refer to wiring diagram in EL-178.

NG → Check the following:

- Door unlock sensor  
Refer to "Electrical Components Inspection", EL-187.
- Door unlock sensor ground circuit
- Harness for open or short between control unit and unlock sensor

OK

**E**

**CHECK IGNITION SWITCH ACC OR ON CIRCUIT.**

1. Disconnect control unit connector.
2. Check voltage between control unit terminal (17) and ground while ignition switch is in ACC or ON position. **Battery voltage should exist.**

Refer to wiring diagram in EL-178.

NG → Check the following:

- 7.5A fuse [No. 20], located in fuse block (J/B)]
- Harness for open or short between control unit and fuse

OK

**F**

**CHECK IGNITION SWITCH ON OR START CIRCUIT.**  
Check voltage between control unit terminal (11) and ground while ignition switch is in ON or START position. **Battery voltage should exist.**

Refer to wiring diagram in EL-178.

NG → Check the following:

- 7.5A fuse [No. 5], located in fuse block (J/B)]
- Harness for open or short between control unit and fuse

OK

**G**

**CHECK KEY SWITCH INPUT SIGNAL.**

1. Connect control unit connector.
2. Check voltage between control unit terminal (24) and ground.

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

Refer to wiring diagram in EL-178.

NG → Check the following:

- 7.5A fuse [No. 28], located in fuse block (J/B)]
- Key switch  
Refer to "Electrical Components Inspection", EL-187.
- Harness for open or short between key switch and fuse
- Harness for open or short between control unit and key switch

OK

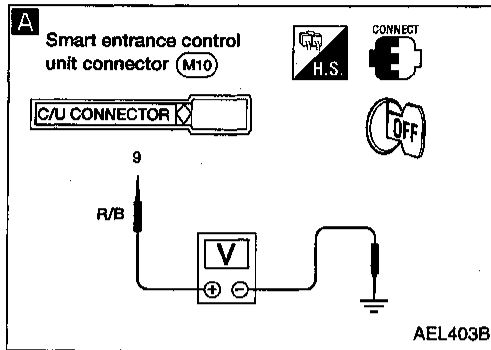
Check operation parts in multi-remote control system for function.

# MULTI-REMOTE CONTROL SYSTEM

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 3

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



**A**

**CHECK INTERIOR LAMP CIRCUIT.**  
When interior lamp switch is in DOOR position, check voltage between control unit terminal ⑨ and ground.  
**Does battery voltage exist?**

Refer to wiring diagram in EL-180.

No

Repair harness between control unit and interior lamp.

Yes

**A**

Push unlock button of remote controller and check voltage between control unit terminal ⑨ and ground.

No

Check harness for open or short between interior lamp and control unit.

Multi-remote controller button condition	Voltage (V)
Unlock button is pushed.	0
Unlock button is not pushed.	Battery voltage

Yes

Check system again.

GI

MA

EM

LC

EC

FE

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FA

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BR

ST

RS

BT

HA

EL

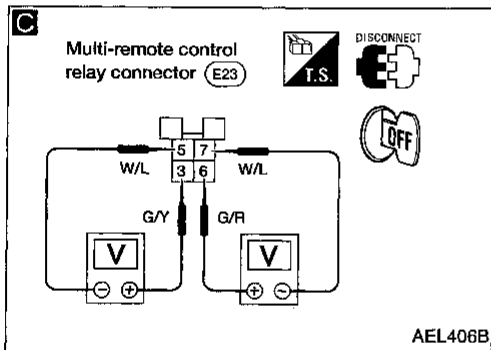
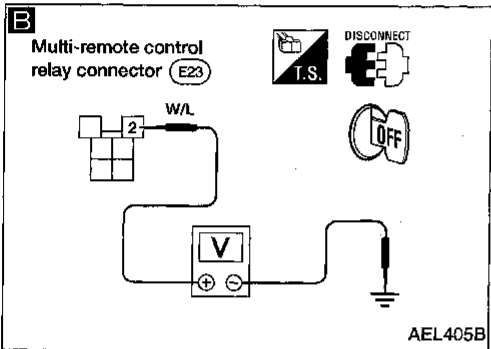
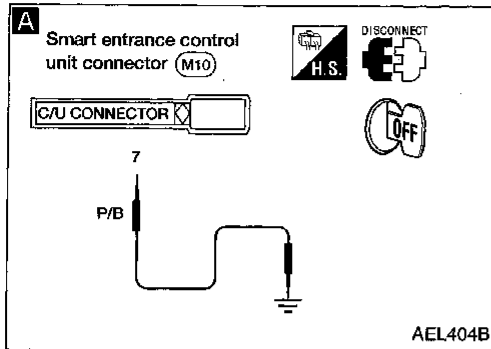
IDX

# MULTI-REMOTE CONTROL SYSTEM

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 4

**Hazard indicator does not flash twice when pressing lock button of remote controller. Everything else functions.**



**A**

#### CHECK HAZARD INDICATOR OPERATION.

1. Disconnect control unit connector.
2. Apply ground to control unit terminal ⑦.

**Does hazard indicator illuminate?**

Refer to wiring diagram in EL-180.

Yes

Check harness connector, if OK, replace smart entrance control unit.

No

Check multi-remote control relay.

NG

Replace.

OK

**B**

#### CHECK POWER SUPPLY FOR MULTI-REMOTE CONTROL RELAY.

1. Disconnect multi-remote control relay connector.
2. Check voltage between terminal ② and ground.

**Battery voltage should exist.**

NG

Check the following.

- 10A fuse [No. ⑰, located in fuse block (J/B)]
- Harness for open or short between multi-remote control relay and fuse

OK

**C**

#### CHECK MULTI-REMOTE CONTROL RELAY CIRCUIT.

1. Check voltage between terminals ③ and ⑤.
2. Check voltage between terminals ⑥ and ⑦.

**Battery voltage should exist.**

**Battery voltage should exist.**

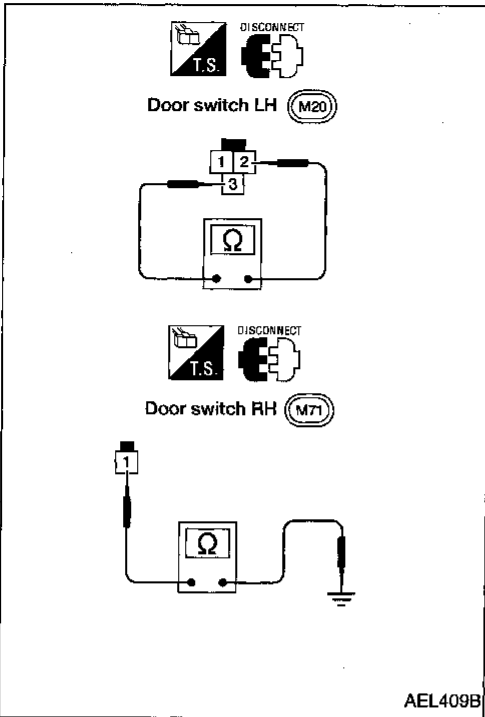
NG

Check harness for open or short.

OK

Check harness for open or short between control unit and multi-remote control relay.

# MULTI-REMOTE CONTROL SYSTEM

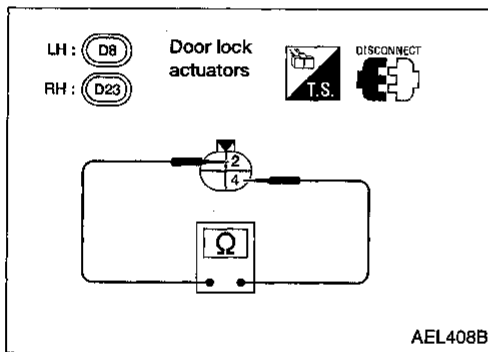


## Electrical Components Inspection

### DOOR SWITCHES

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

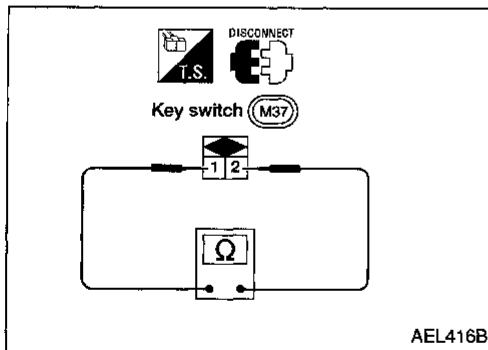
	Terminal No.	Condition	Continuity
Door switch LH	② - ③	Door switch is pushed.	No
		Door switch is released.	Yes
Door switch RH	① - Ground	Door switch is pushed.	No
		Door switch is released.	Yes



### DOOR LOCK ACTUATOR (Door unlock sensor)

Check continuity between terminals when door is locked and unlocked.

Terminal No.	Condition	Continuity
④ - ②	Door is locked.	No
	Door is unlocked.	Yes



### KEY SWITCH (insert)

Check continuity between terminals when key is inserted in ignition key cylinder and key is removed from ignition key cylinder.

Terminal No.	Condition	Continuity
① - ②	Key is inserted.	Yes
	Key is removed.	No

# MULTI-REMOTE CONTROL SYSTEM

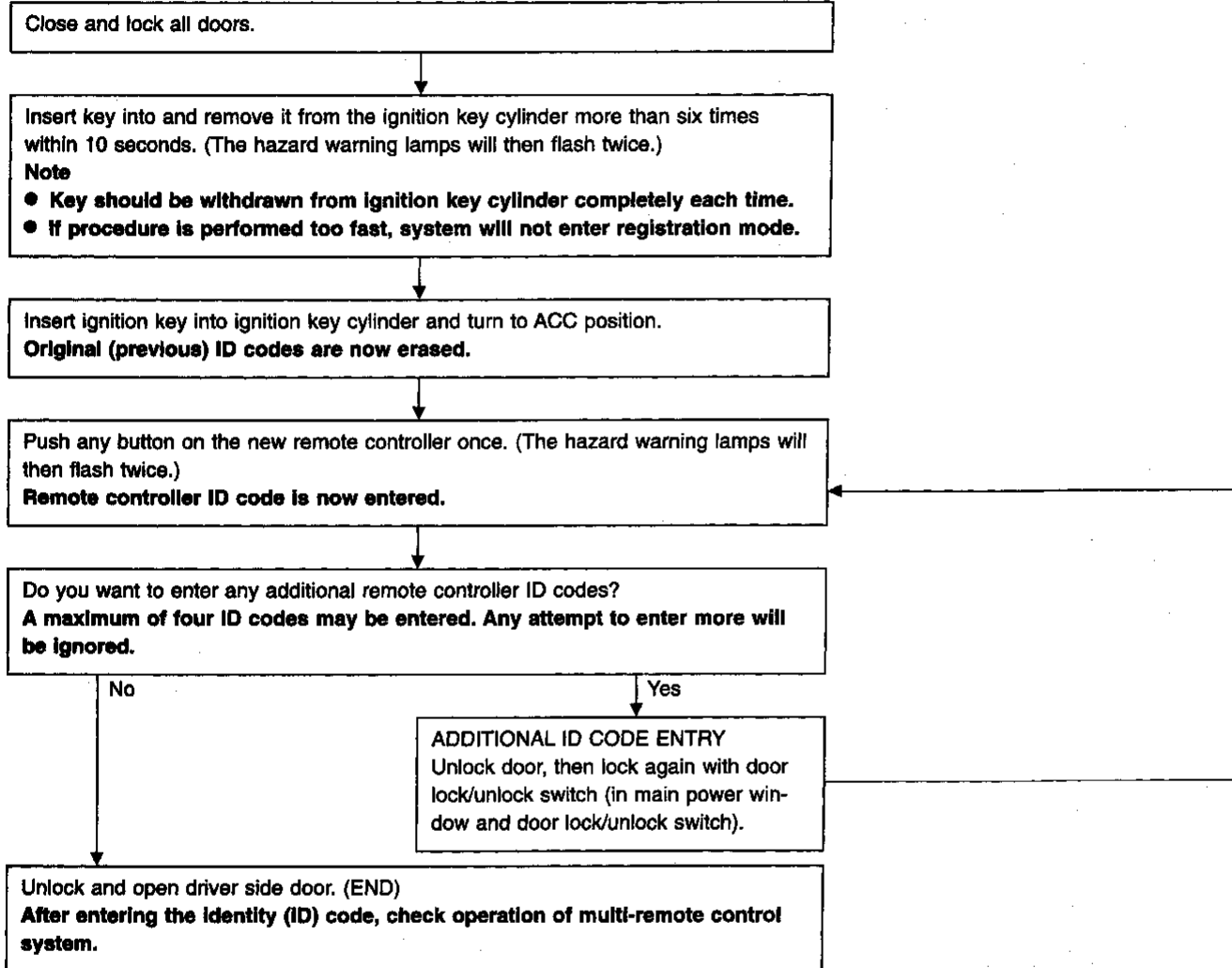
## ID Code Entry Procedure

Enter the Identity (ID) code manually when:

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

To enter the ID code, follow the procedure below.

### PROCEDURE

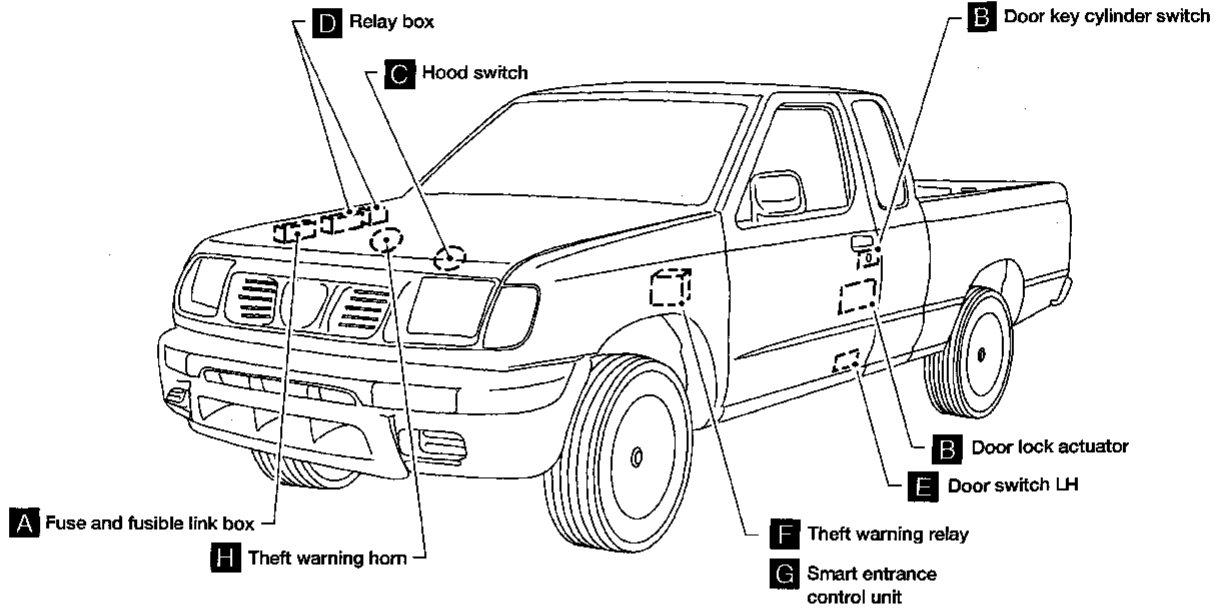


### NOTE:

- 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 entry will be ignored.
- Entry of four ID codes maximum 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. Additional remote control signals will be inhibited if not entered during the "setting" mode.

# THEFT WARNING SYSTEM

## Component Parts and Harness Connector Location



GI

MA

EM

LC

EC

FE

CL

MT

AT

TF

PD

FA

RA

BR

ST

RS

BT

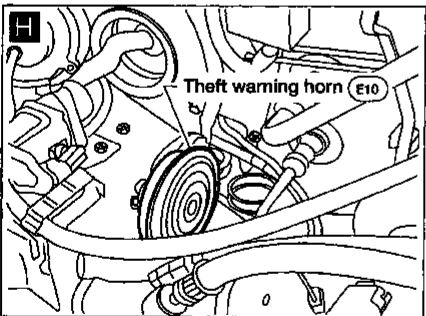
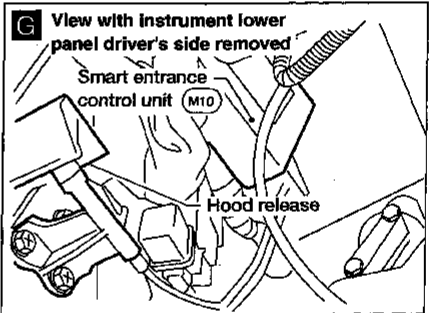
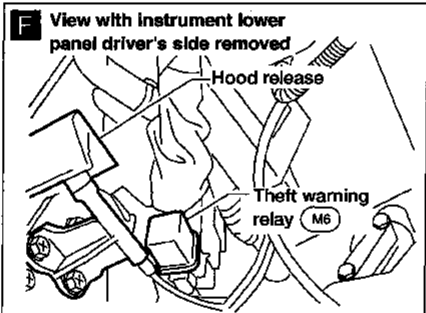
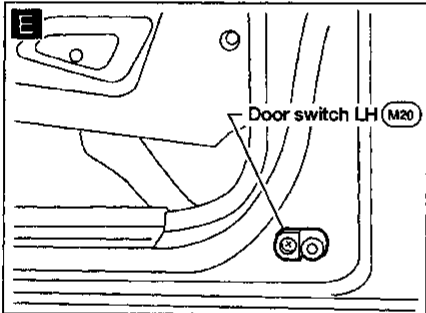
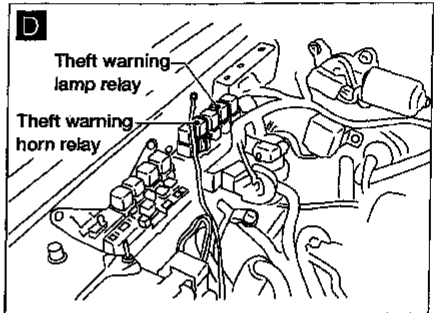
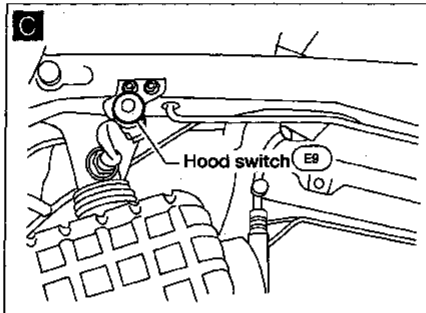
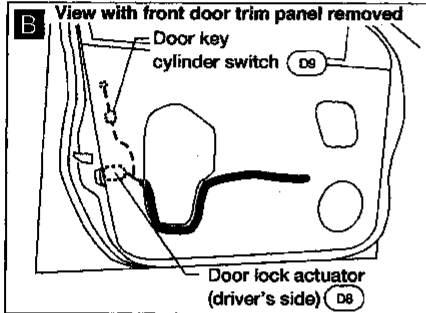
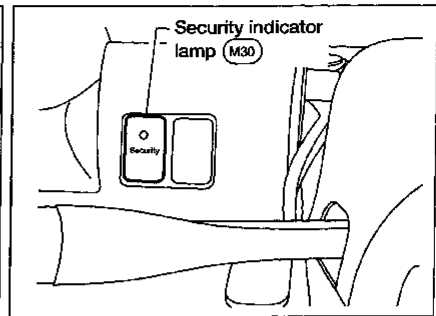
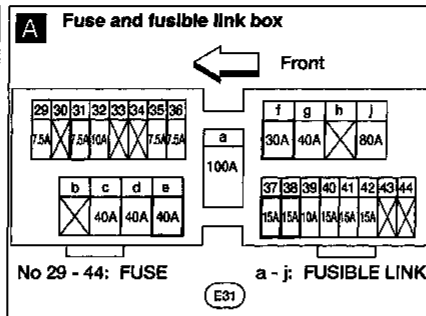
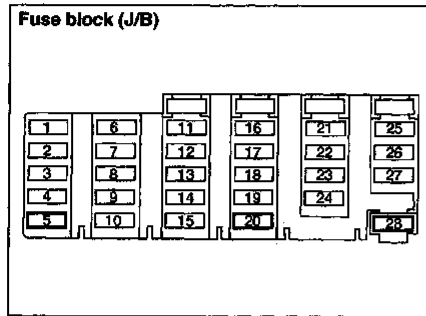
HA

**EL**

IDX

# THEFT WARNING SYSTEM

## Component Parts and Harness Connector Location (Cont'd)

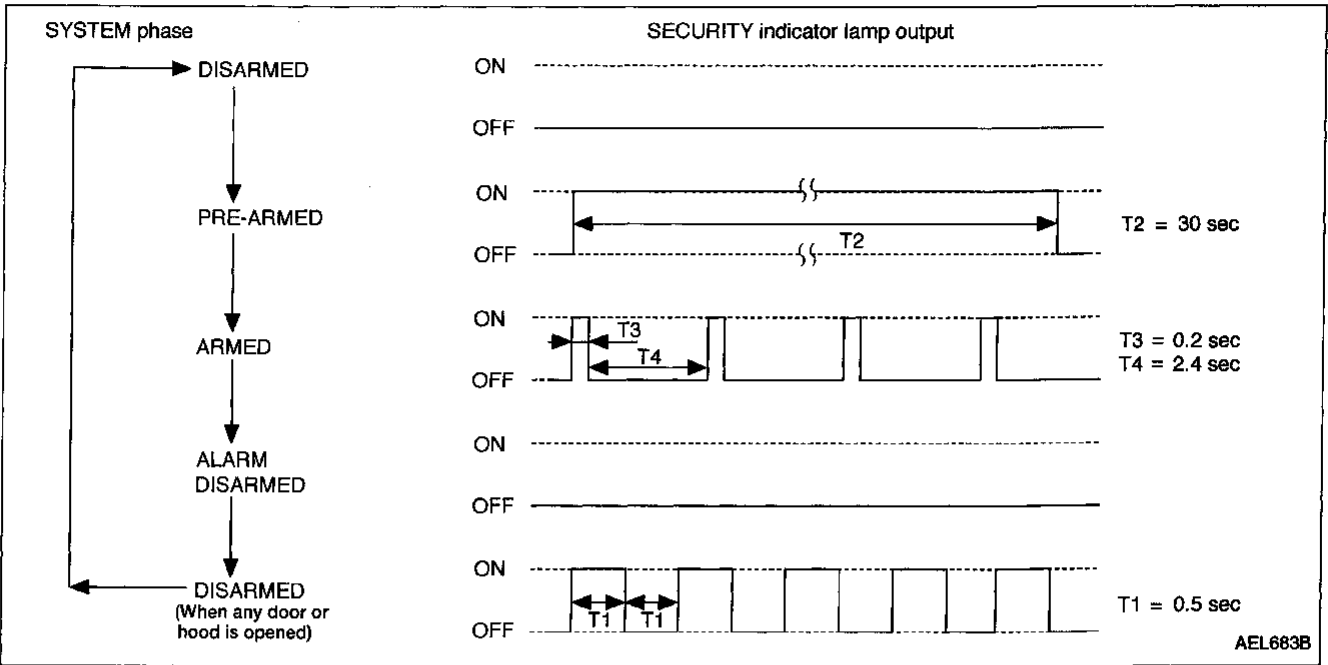




# THEFT WARNING SYSTEM

## System Description

### OPERATION FLOW



### SETTING THE THEFT WARNING SYSTEM

#### Initial condition

- (1) Close all doors.
- (2) Close hood.

#### Disarmed phase

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

#### Pre-armed phase and armed phase

The theft warning system turns into the "pre-armed" phase when hood and all doors are closed and locked by key or multi-remote controller. (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 2.6 seconds.)

### CANCELING THE SET THEFT WARNING SYSTEM

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

### ACTIVATING THE ALARM OPERATION OF THE THEFT WARNING SYSTEM

Make sure the system is in the armed phase. (The security indicator lamp blinks every 2.6 seconds.)

When the following operation (a) or (b) is performed, the system sounds the horn and flashes the headlamps for about 2.5 minutes. (At the same time, the system disconnects the starting system circuit.)

- (a) Engine hood or any door is opened before unlocking door with key or multi remote controller.
- (b) Door is unlocked without using key or multi-remote controller.

# THEFT WARNING SYSTEM

## System Description (Cont'd)

### POWER SUPPLY AND GROUND CIRCUIT

Power is supplied at all times:

- through 7.5A fuse [No. 28], located in the fuse block (J/B)]
- to security indicator lamp terminal ① and
- to key switch terminal ①.

When the key switch is INSERTED (ignition key is inserted in key cylinder), power is supplied:

- through key switch terminal ②
- to smart entrance control unit terminal 24.

Power is supplied at all times:

- through 30A fusible link (letter f), located in the fuse and fusible link box)
- to circuit breaker terminal ①
- through circuit breaker terminal ②
- to smart entrance control unit terminal ①.

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

- through 7.5A fuse [No. 20], located in the fuse block (J/B)]
- to smart entrance control unit terminal 17.

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

- through 7.5A fuse [No. 5], located in the fuse block (J/B)]
- to smart entrance control unit terminal 11.

Ground is supplied:

- through body grounds M14 and M68
- to smart entrance control unit terminal 10.

### INITIAL CONDITION TO ACTIVATE THE SYSTEM

The operation of the theft warning system is controlled by the doors and hood.

To activate the theft warning system, the smart entrance control unit must receive signals indicating the doors and hood are closed and the doors are locked.

When a door is open, smart entrance control unit terminals 15 or 35 receives a ground signal from each door switch.

When a door is unlocked, smart entrance control unit terminals 12 or 13 receives a ground signal:

- from terminal ② of each door unlock sensor
- through terminal ④ of each door unlock sensor
- through body grounds M14 and M68 for the door unlock sensors LH or RH.

When the hood is open, smart entrance control unit terminal 29 receives a ground signal:

- from terminal + of the hood switch
- through terminal - of the hood switch
- through body grounds E12 and E54 .

When the doors are locked using the key or multi-remote controller and none of the described conditions exist, the theft warning system will automatically shift to the armed phase.

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

If the key is used to lock doors, smart entrance control unit terminal 30 receives a ground signal:

- from terminal ① of the door key cylinder switch LH
- from terminal ③ of the door key cylinder switch RH
- through terminal ② of the front door key cylinder switch LH or RH
- through body grounds M14 and M68 .

If this signal or lock signal from remote controller is received by the smart entrance control unit, the theft warning system will activate automatically.

Once the theft warning system has been activated, smart entrance control unit terminal 33 supplies ground to terminal ② of the security indicator lamp.

The security lamp will illuminate for approximately 30 seconds and then blink every 2.6 seconds.

Now the theft warning system is in armed phase.

### THEFT WARNING SYSTEM ALARM OPERATION

The theft warning system is triggered by:

- opening a door
- opening the hood
- unlocking door without using the key or multi-remote controller.

Once the theft warning system is in armed phase, if the smart entrance control unit receives a ground signal

# THEFT WARNING SYSTEM

## System Description (Cont'd)

at terminal ⑫, ⑬ (door unlock sensor), ⑮, ⑳ (door switch) or ㉑ (hood switch), the theft warning system will be triggered. The headlamps flash and the horns sound intermittently, and the starting system is interrupted.

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

- through 7.5A fuse [No. ⑤], located in the fuse block (J/B)
- to theft warning relay terminal ②.

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

- from terminal ㉒ of the smart entrance control unit
- to theft warning relay terminal ①.

With power and ground supplied, ground to the clutch interlock relay (M/T models) or park/neutral position (PNP) relay (A/T models) is interrupted. The starter motor will not crank and the engine will not start, refer to EL-START (EL-26).

Power is supplied at all times:

- through 7.5A fuse (No. ③), located in fuse and fusible link box
- to theft warning lamp relay terminal ② and
- to theft warning horn relay terminals ② and ⑦.

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

- from terminal ⑧ of the smart entrance control unit
- to theft warning lamp relay terminal ① and
- to theft warning horn relay terminal ①.

The headlamps flash and the horns sound intermittently.

The alarm automatically turns off after 2 or 3 minutes but will reactivate if the vehicle is tampered with again.

## THEFT WARNING SYSTEM DEACTIVATION

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

When the key is used to unlock a door, smart entrance control unit terminal ㉓ receives a ground signal:

- from terminal ③ of the door key cylinder switch LH
- from terminal ① of the door key cylinder switch RH
- through terminal ② of the front door key cylinder switch LH or RH
- through body grounds M14 and M68.

When the smart entrance control unit receives this signal or unlock signal from remote controller, the theft warning system is deactivated. (Disarmed phase)

## PANIC ALARM OPERATION

Multi-remote control system may or may not operate theft warning system (horn and headlamps) as required.

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

- from smart entrance control unit terminal ⑧
- to theft warning lamp relay terminal ① and
- to theft warning horn relay terminal ①.

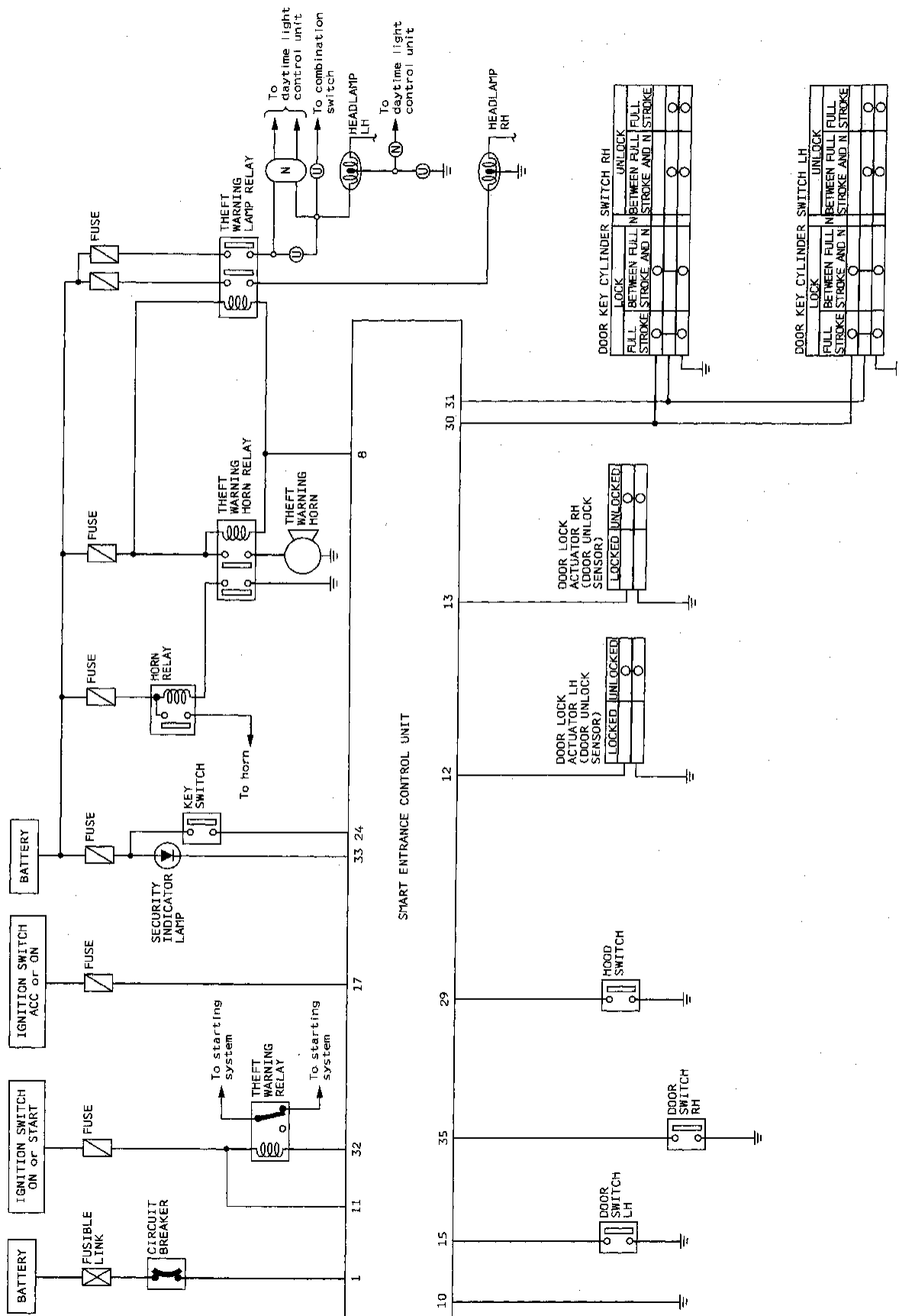
The headlamps flash and the horns sound intermittently.

The alarm automatically turns off after 30 seconds or when smart entrance control unit receives any signal from multi-remote controller.

GI  
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IDX

# THEFT WARNING SYSTEM

## Schematic



Ⓢ : For USA  
 Ⓝ : For Canada

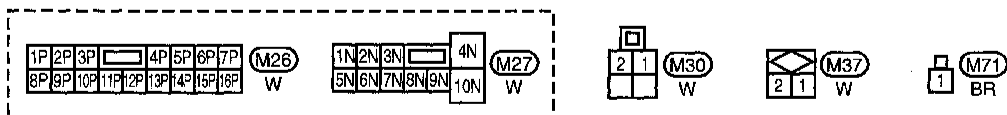
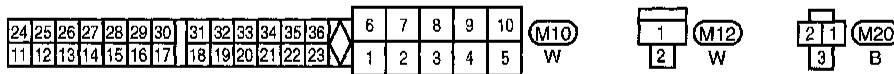
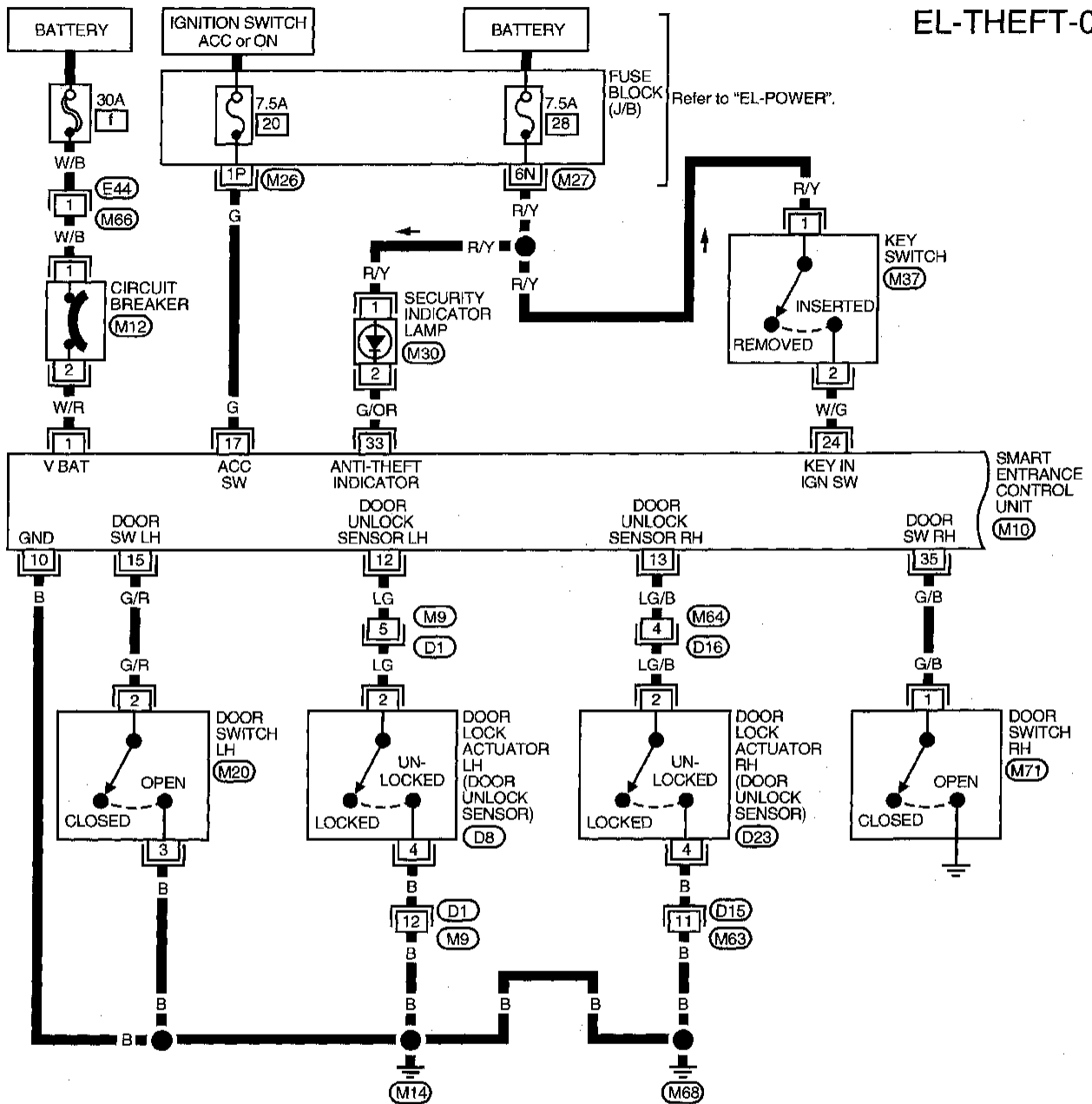
AEL288C

EL-194

# THEFT WARNING SYSTEM

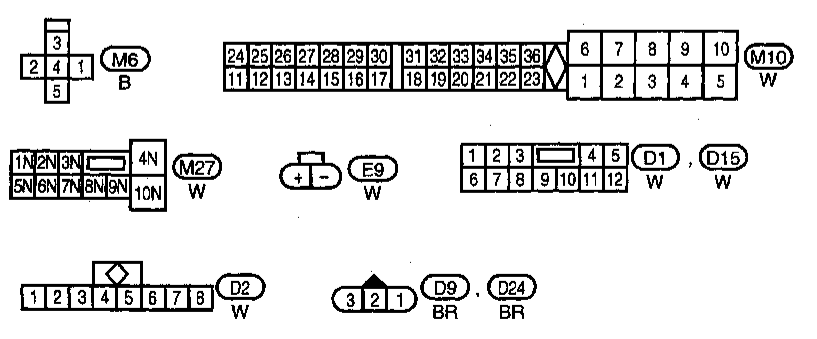
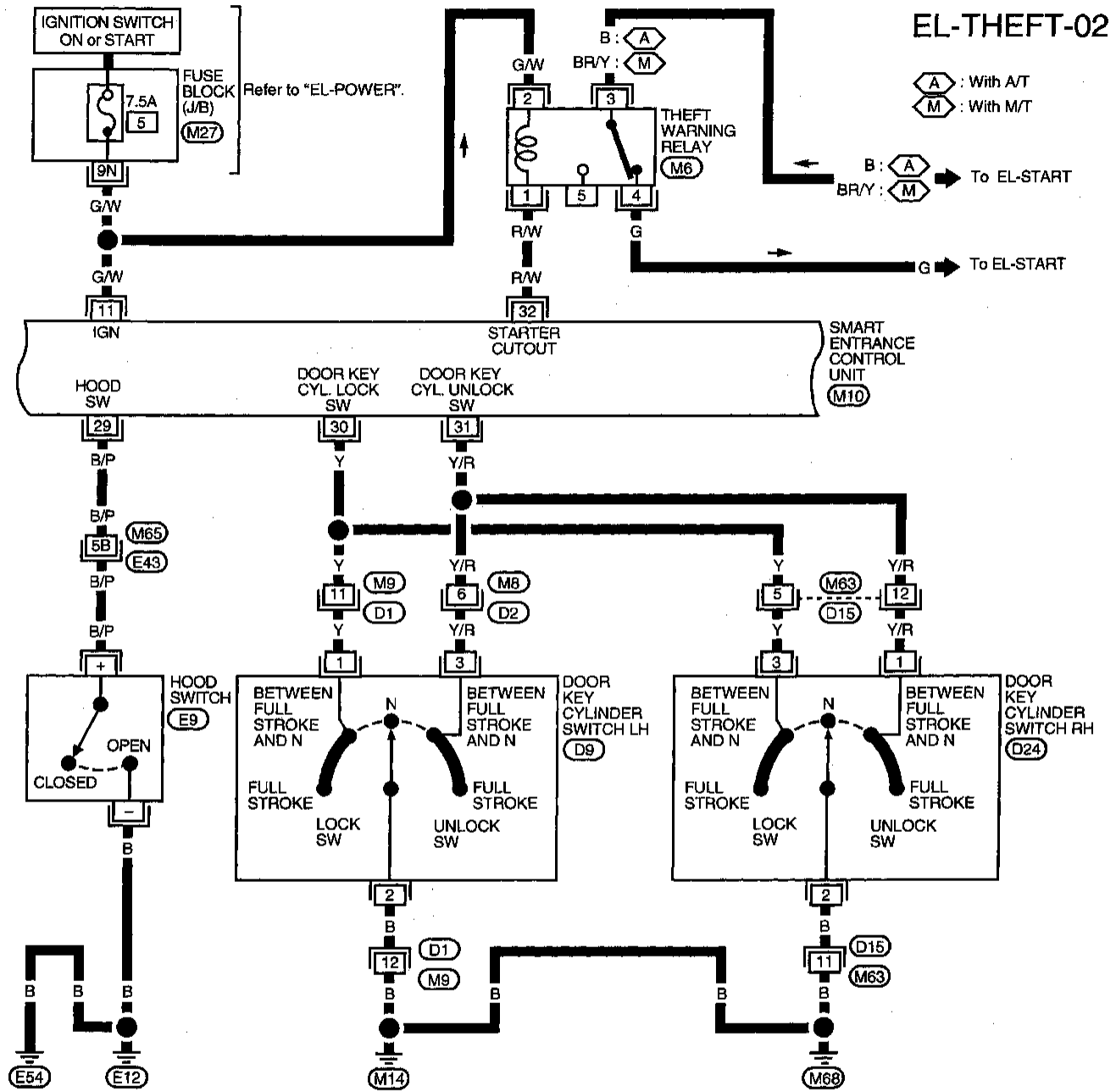
## Wiring Diagram — THEFT —

EL-THEFT-01



# THEFT WARNING SYSTEM

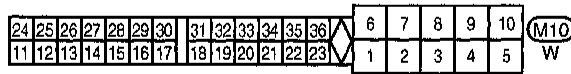
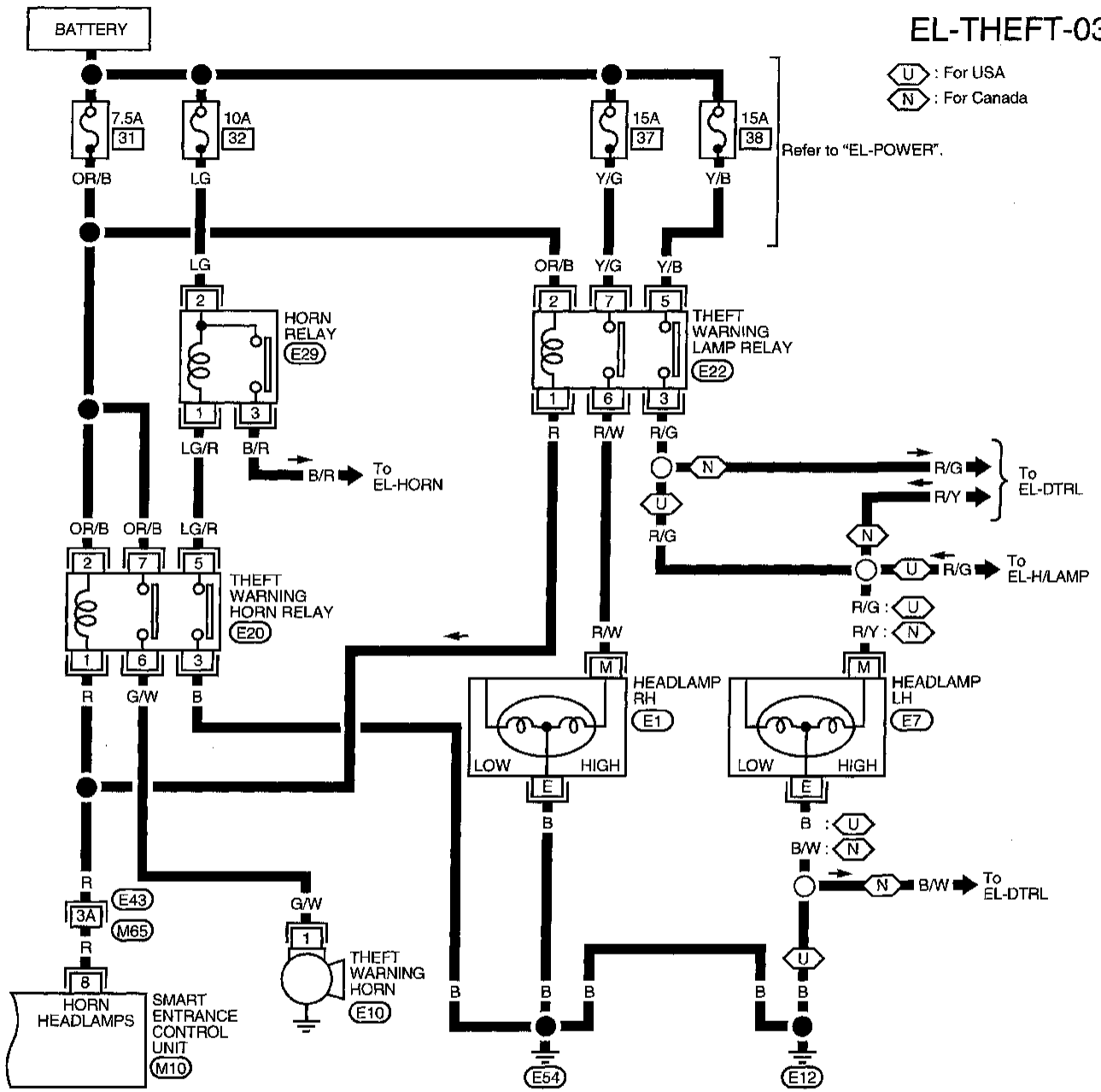
## Wiring Diagram — THEFT — (Cont'd)



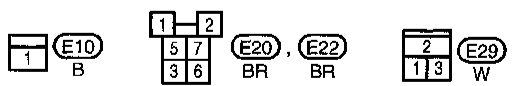
Refer to last page (Foldout page).  
 (M65) (E43)

# THEFT WARNING SYSTEM

## Wiring Diagram — THEFT — (Cont'd)



Refer to last page (Foldout page).  
M65, E43



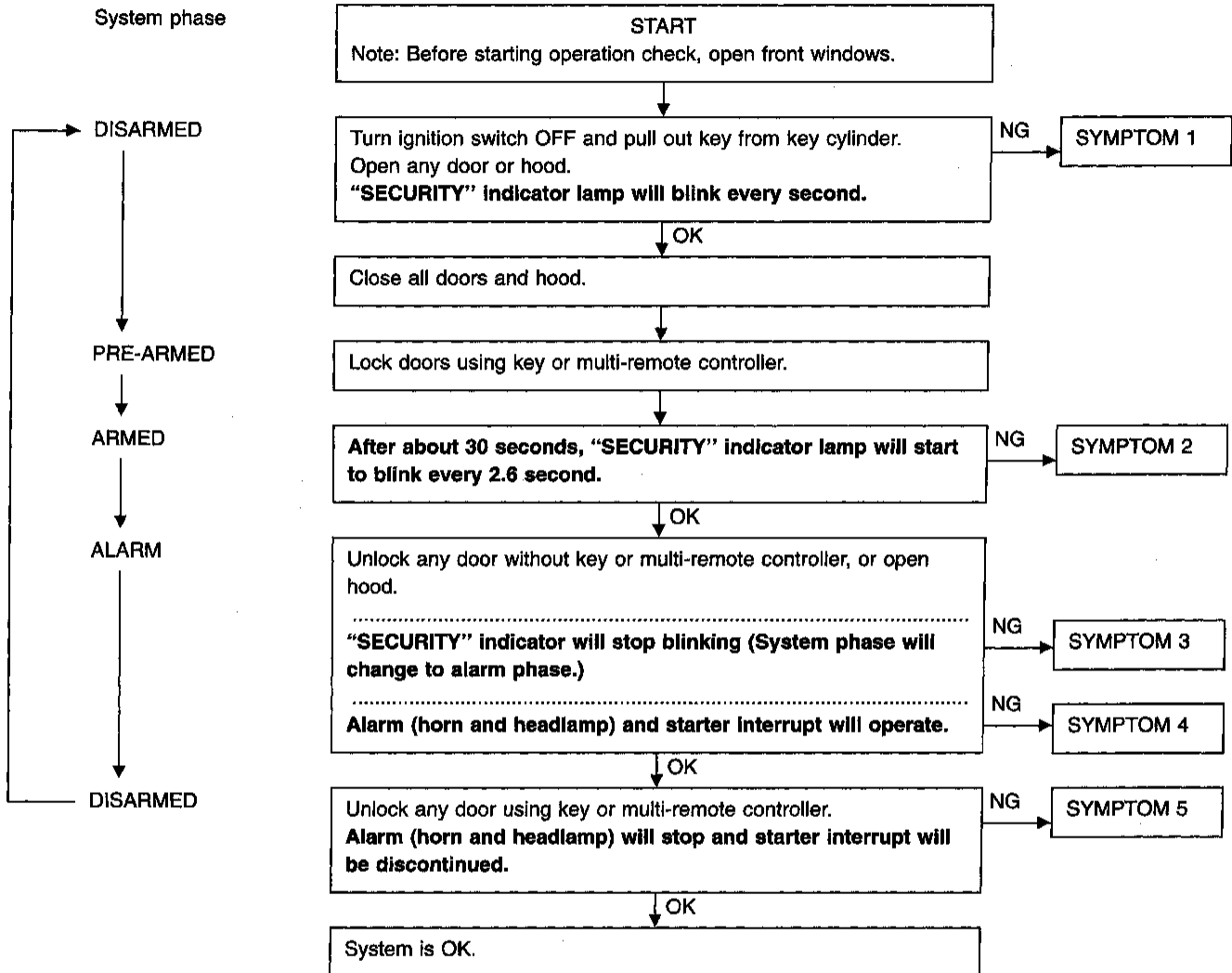
GI  
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HA  
EL  
IDX

# THEFT WARNING SYSTEM

## Trouble Diagnoses

### PRELIMINARY CHECK

The system operation is canceled by turning ignition switch to ACC at any step between START and ARMED in the following flow chart.



After performing preliminary check, go to symptom chart on next page.



# THEFT WARNING SYSTEM

## Trouble Diagnoses (Cont'd)

Before starting trouble diagnoses below, perform preliminary check, EL-198.

Symptom numbers in the symptom chart correspond with those of preliminary check.

### SYMPTOM CHART

PROCEDURE		—	Power supply and ground circuit check		Diagnostic procedure						—	
REFERENCE PAGE		EL-198	EL-200	EL-200	EL-201	EL-203	EL-204	EL-205	EL-206	EL-207	EL-208	EL-181
SYMPTOM		Preliminary check	Power supply circuit check	Ground circuit check	Diagnostic Procedure 1 (Door and hood switch check)	Diagnostic Procedure 2 (Security indicator lamp check)	Diagnostic Procedure 3 (Door unlock sensor check)	Diagnostic Procedure 4 (Door key cylinder switch check)	Diagnostic Procedure 5 (Theft warning horn alarm check)	Diagnostic Procedure 6 (Theft warning headlamp alarm check)	Diagnostic Procedure 7 (Starter interrupt system check)	Check "MULTI-REMOTE CONTROL" system.
1	Theft warning indicator does not turn "ON" or blinking.	X	X	X		X						
2	Theft warning system cannot be set by ...	All items	X	X	X	X		X				
		Door out side key	X	X	X				X			
		Multi-remote control	X	X	X							
3	*1 Theft warning system does not alarm when ...	Any door is opened.	X	X	X	X						
		Any door is unlocked without using key or multi-remote controller	X	X	X			X				
4	Theft warning system does not activate.	All function	X	X	X	X		X				
		Horn alarm	X	X	X					X		
		Headlamp alarm	X	X	X						X	
		Starter interrupt	X	X	X							X
5	Theft warning system cannot be canceled by ...	Door out side key	X	X	X							
		Multi-remote control	X	X	X							

X : Applicable

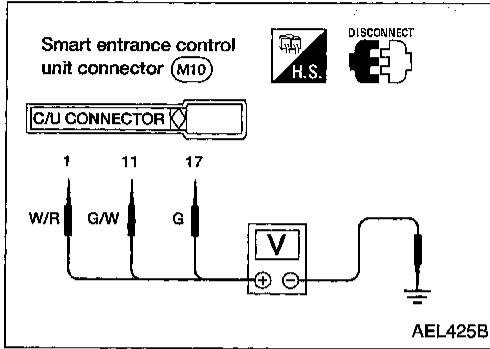
\*1: Make sure the system is in the armed phase.

# THEFT WARNING SYSTEM

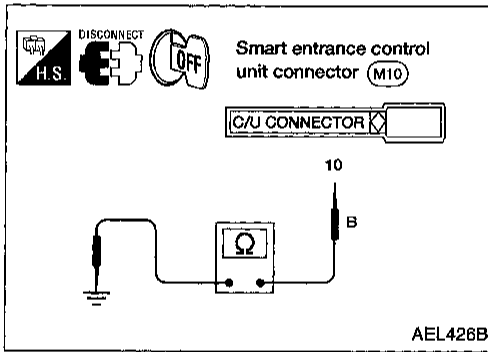
## Trouble Diagnoses (Cont'd)

### POWER SUPPLY AND GROUND CIRCUIT CHECK

#### Power supply circuit check



Terminals		Ignition switch position		
⊕	⊖	OFF	ACC	ON
①	Ground	Battery voltage	Battery voltage	Battery voltage
⑪	Ground	0V	0V	Battery voltage
⑰	Ground	0V	Battery voltage	Battery voltage

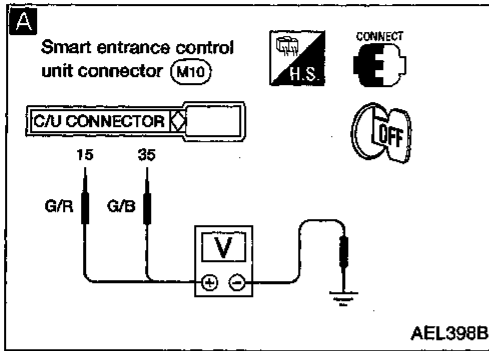


#### Ground circuit check

Terminal	Continuity
⑩ - Ground	Yes

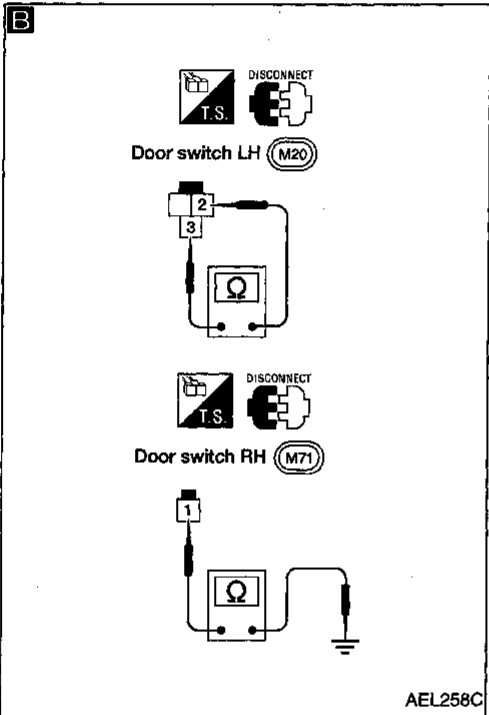
# THEFT WARNING SYSTEM

## Trouble Diagnoses (Cont'd) DIAGNOSTIC PROCEDURE 1-(1) (Door switch check)



1. Turn ignition switch OFF and remove key from key cylinder.
2. Close all doors and hood.  
"SECURITY" indicator lamp should turn off.
3. Open any door.  
"SECURITY" indicator lamp should blink every second.

OK → Door switch is OK.



- A**
- CHECK DOOR SWITCH INPUT SIGNAL.**  
Check voltage between control unit terminals (15) or (35) and ground.

	Terminals		Condition	Voltage [V]
	⊕	⊖		
Door switch LH	(15)	Ground	Open	0
			Closed	Approx. 12
Door switch RH	(35)	Ground	Open	0
			Closed	Approx. 12

Refer to wiring diagram in EL-195.

OK → Door switch is OK.

- B**
- CHECK DOOR SWITCH.**  
1. Disconnect door switch connector.  
2. Check continuity between door switch terminals.

	Terminals	Condition	Continuity
Door switch LH	(2) - (3)	Closed	No
		Open	Yes
Door switch RH	(1) - Ground	Closed	No
		Open	Yes

NG → Replace door switch.

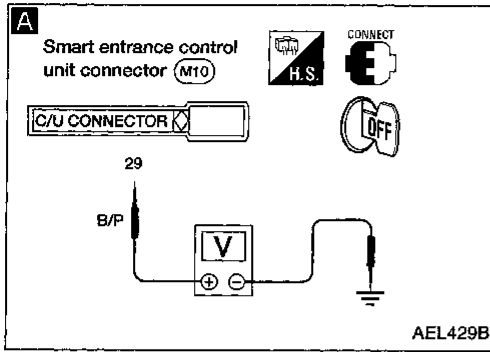
- OK →
- Check the following.
- Door switch ground circuit (LH) or door switch ground condition
  - Harness for open or short between control unit and door switch

GI  
MA  
EM  
LC  
EC  
FE  
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MT  
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# THEFT WARNING SYSTEM

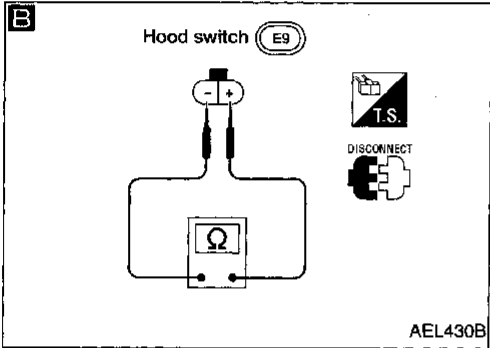
## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 1-(2) (Hood switch check)



1. Turn ignition switch OFF and remove key from key cylinder.
2. Close all doors and hood.  
"SECURITY" indicator lamp should turn off.
3. Open hood.  
"SECURITY" indicator lamp should blink every second.

OK → Hood switch is OK.



Check hood switch and hood fitting condition.

NG → Adjust installation of hood switch or hood.

**A**

**CHECK HOOD SWITCH INPUT SIGNAL.**  
Check voltage between control unit terminal 29 and ground.

OK → Hood switch is OK.

Condition	Voltage [V]
Hood is open.	0
Hood is closed.	Approx. 12

Refer to wiring diagram in EL-196.

NG

**B**

**CHECK HOOD SWITCH.**  
1. Disconnect hood switch connector.  
2. Check continuity between hood switch terminals.

NG → Replace hood switch.

Terminals	Condition	Continuity
⊖ - ⊕	Pushed	No
	Released	Yes

OK

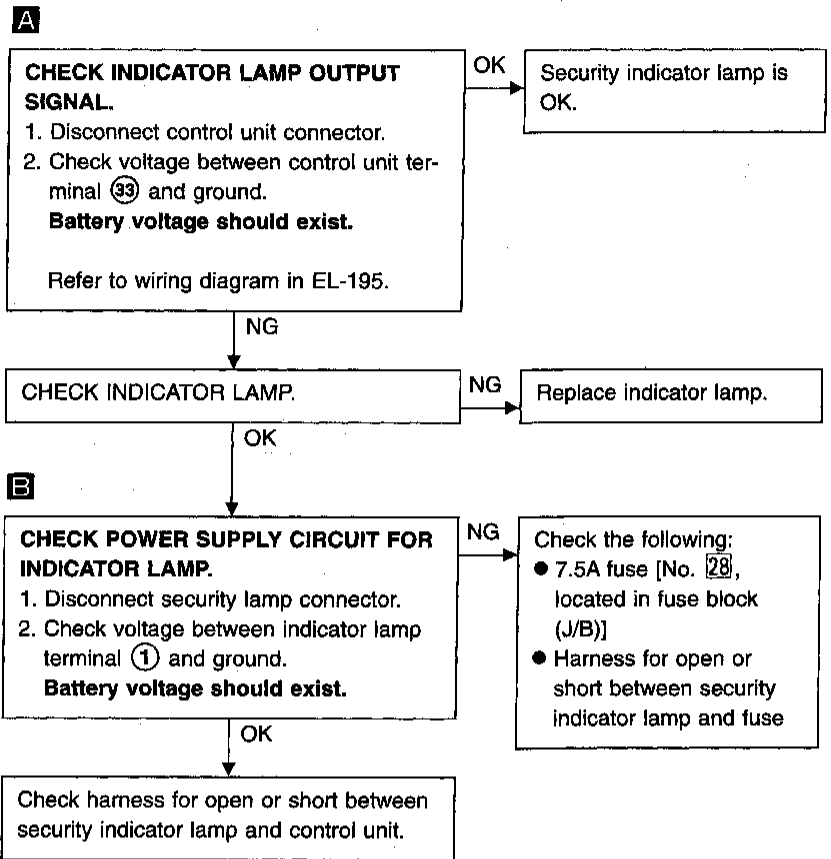
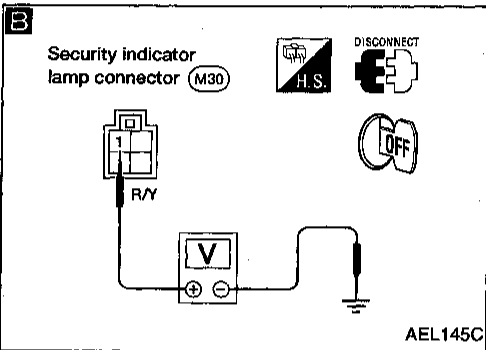
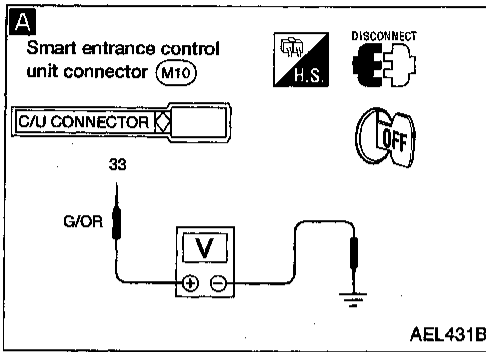
Check the following.

- Hood switch ground circuit
- Harness for open or short between control unit and hood switch

# THEFT WARNING SYSTEM

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 2 (Security indicator lamp check)

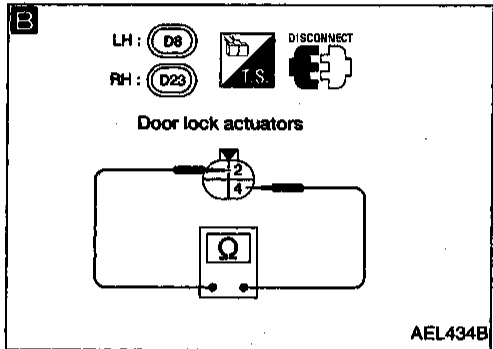
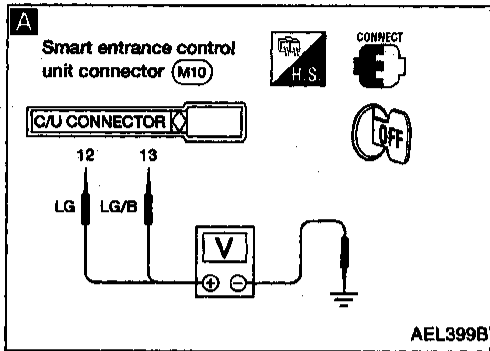


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# THEFT WARNING SYSTEM

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 3 (Door unlock sensor check)



**A**

**CHECK DOOR UNLOCK SENSOR INPUT SIGNAL.**

Check voltage between control unit terminals ⑫ or ⑬ and ground.

	Terminals		Condition	Voltage [V]
	⊕	⊖		
Door LH	⑫	Ground	Locked	Approx. 12
			Unlocked	0
Door RH	⑬	Ground	Locked	Approx. 12
			Unlocked	0

Refer to wiring diagram in EL-195.

OK → Door unlock sensor is OK.

**B**

**CHECK DOOR UNLOCK SENSOR.**

1. Disconnect door unlock sensor connector.
2. Check continuity between door unlock sensor terminals.

Terminals	Condition	Continuity
④ - ②	Locked	No
	Unlocked	Yes

NG → Replace door unlock sensor.

OK

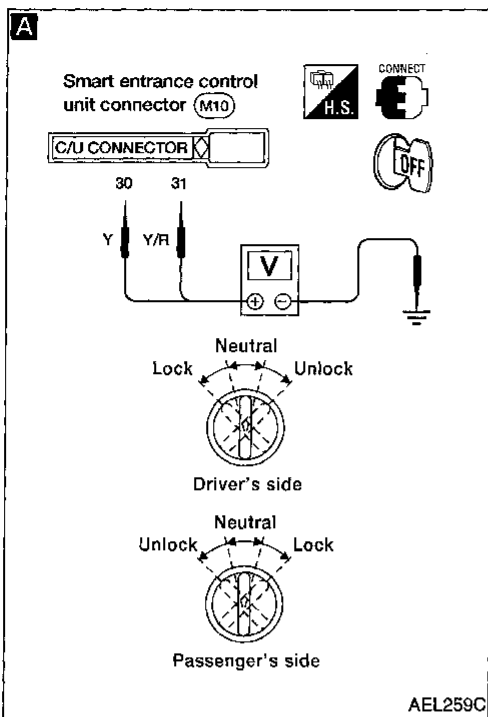
Check the following.

- Door unlock sensor ground circuit
- Harness for open or short between control unit and door unlock sensor

# THEFT WARNING SYSTEM

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 4 (Door key cylinder switch check)



**A**

#### CHECK DOOR KEY CYLINDER SWITCH (LH and RH) INPUT SIGNAL (LOCK/UNLOCK SIGNAL).

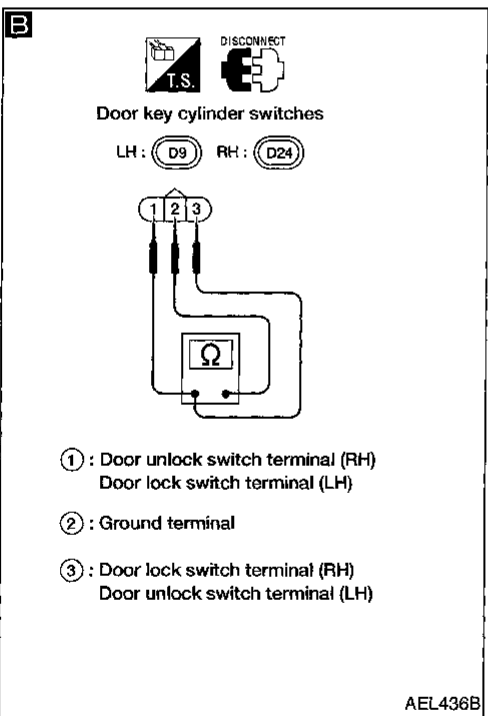
Check voltage between control unit terminals ③⑩ or ③⑪ and ground.

Terminals	Key position	Voltage [V]
③⑩	Neutral	Approx. 12
	Lock	0
③⑪	Neutral	Approx. 12
	Unlock	0

Refer to wiring diagram in EL-196.

OK → Door key cylinder switch is OK.

NG



**B**

#### CHECK DOOR KEY CYLINDER SWITCH.

1. Disconnect door key cylinder switch connector.
2. Check continuity between door key cylinder switch terminals.

Terminals	Key position	Continuity
LH: ① - ②	Neutral	No
RH: ③ - ②	Lock	Yes
LH: ③ - ②	Neutral	No
RH: ① - ②	Unlock	Yes

NG → Replace door key cylinder switch.

OK

Check the following:

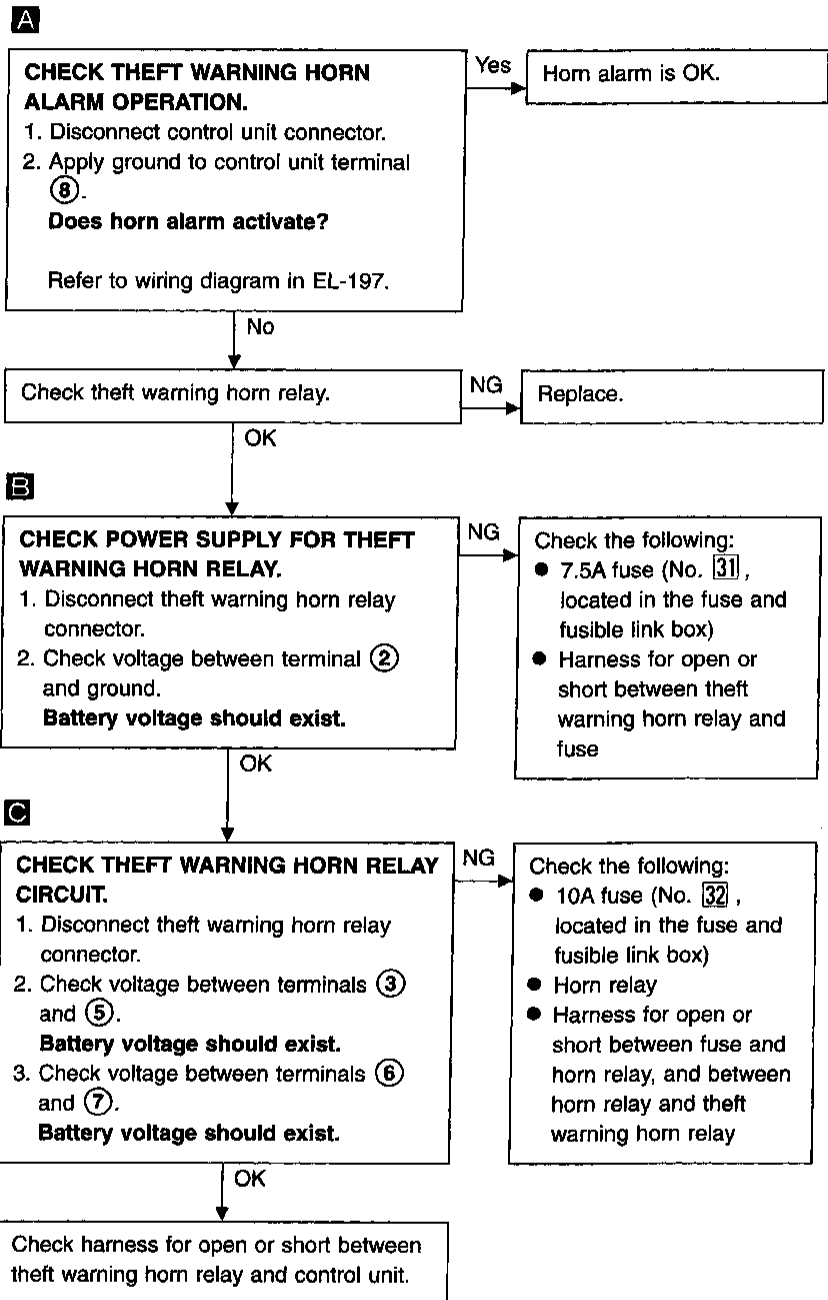
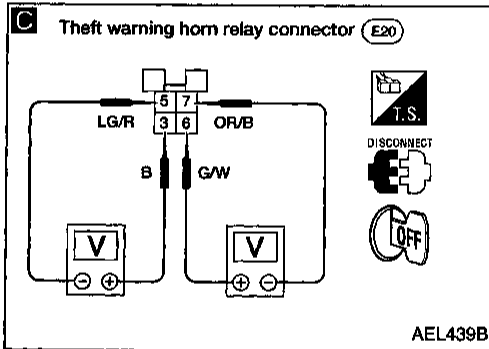
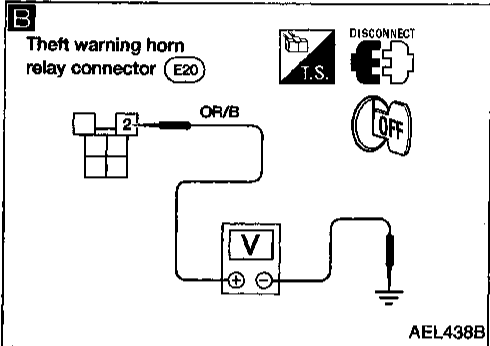
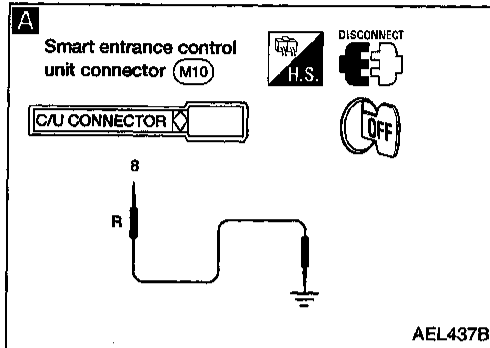
- Door key cylinder switch ground circuit
- Harness for open or short between control unit and door key cylinder switch

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# THEFT WARNING SYSTEM

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 5 (Theft warning horn alarm check)



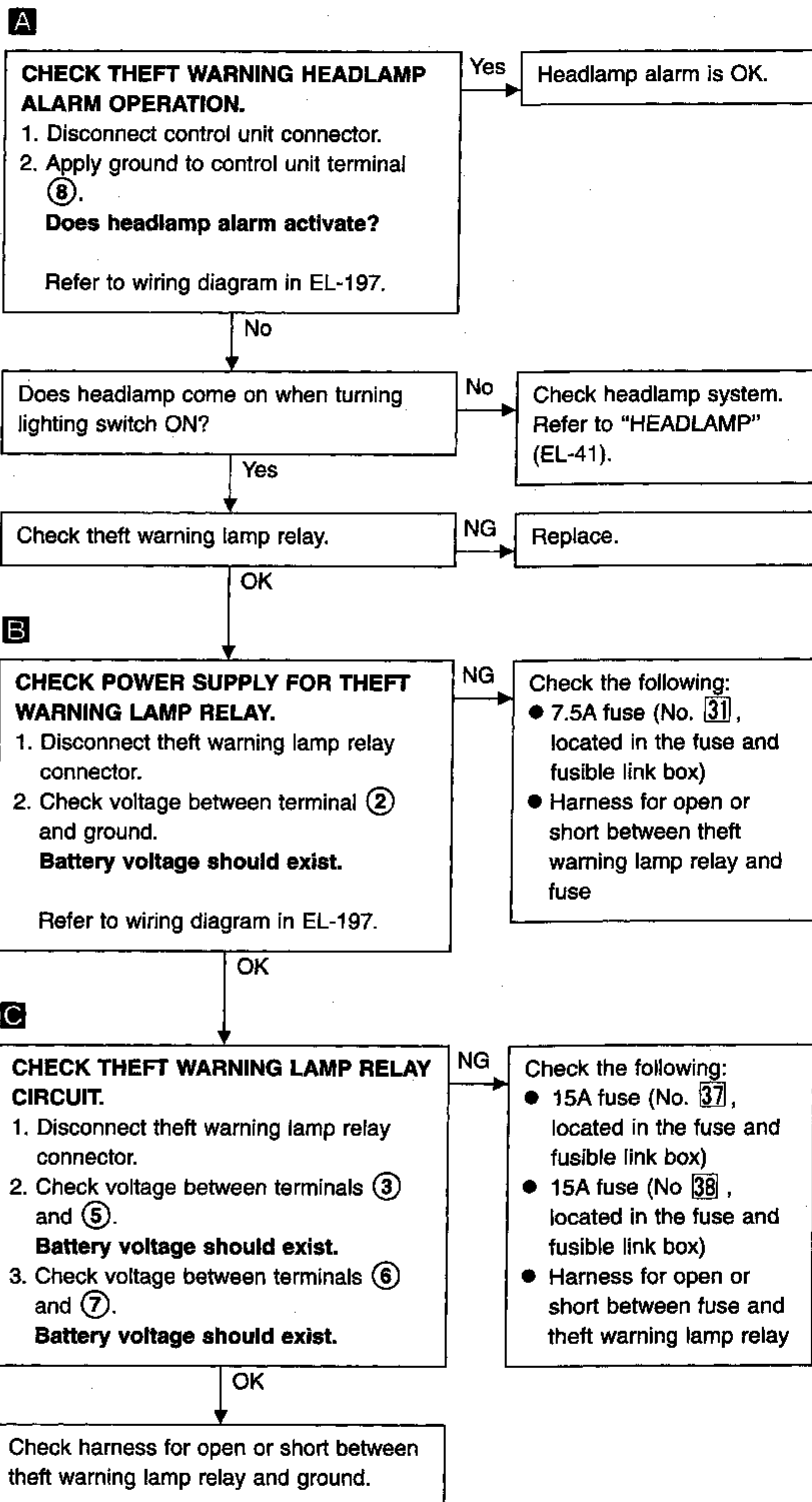
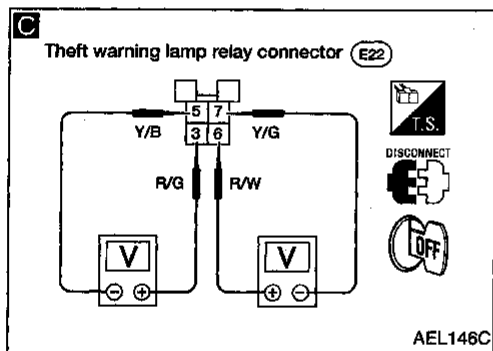
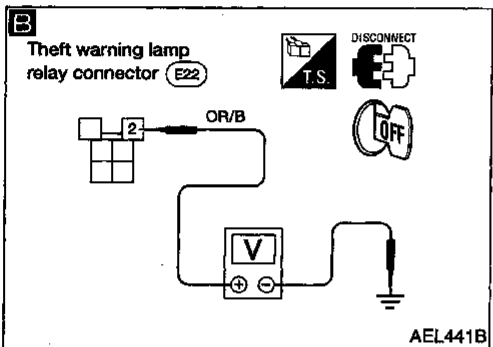
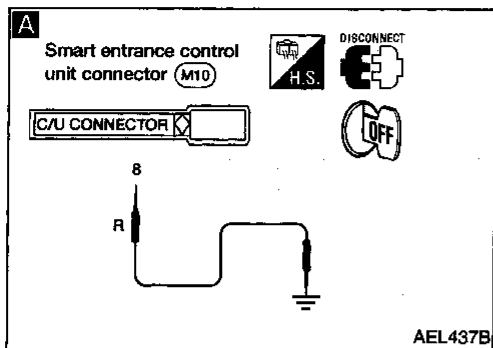


# THEFT WARNING SYSTEM

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 6

#### (Theft warning headlamp alarm check)



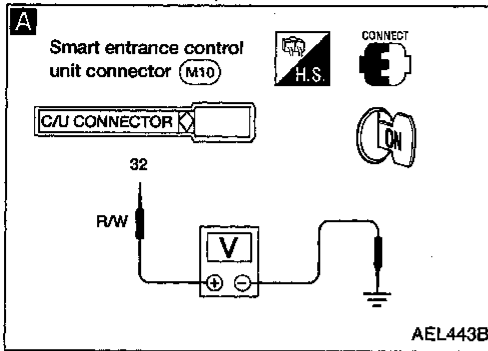
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# THEFT WARNING SYSTEM

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 7

#### (Starter interrupt system check)



**A**

#### CHECK STARTER MOTOR INTERRUPT SIGNAL.

1. Turn ignition switch ON.
2. Check voltage between control unit terminal ③② and ground.

Condition	Voltage [V]
Except starter interrupted phase	Approx. 12
Starter interrupted phase	0

Refer to wiring diagram in EL-196.

OK

Check theft warning relay.

NG

Replace relay.

OK

Check starting system. Refer to "STARTING SYSTEM" (EL-27).

NG

Check the following:

- 7.5A fuse [No. ⑤], located in fuse block (J/B)
- Harness for open or short between theft warning relay and fuse
- Harness for open or short between control unit and theft warning relay

# SMART ENTRANCE CONTROL UNIT

## Description

The following systems are controlled by the smart entrance control unit.

- Warning chime
- Power door lock
- Multi-remote control system
- Theft warning system.

For detailed description and wiring diagrams, refer to the relevant pages for the each system.

The control unit receives data from the switches and sensors to control their corresponding system relays and actuators.

System	Input	Output
Warning chime	Key switch (Insert) Ignition switch (ON) Lighting switch (1st) Seat belt buckle switch Door switch LH	Warning chime
Power door lock	Door lock and unlock switches Key switch (Insert) Door switches Door unlock sensors Door key cylinder switches (lock/unlock)	Door lock actuators
Multi-remote control	Key switch (Insert) Ignition switch (ACC) Door switches Door unlock sensors Antenna (remote controller signal)	Theft warning horn relay Theft warning lamp relay Interior lamp Multi-remote control relay Door lock actuators
Theft warning	Ignition switch (ACC, ON) Door switches Hood switch Door key cylinder switches (lock/unlock) Door unlock sensors	Theft warning horn relay Theft warning lamp relay Theft warning relay (Starter interrupt) Security indicator

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## SMART ENTRANCE CONTROL UNIT

### Input/Output Operation Signal

Terminal No.	Wire Color	Connections	Operated condition	Voltage (V) (Approximate values)
1	W/R	Power source (C/B)	—	12V
2	PU	Passenger door lock actuator	Door lock & unlock switch	Unlocked
3	G/W	Driver door lock actuator		Free
4	L	Driver and passenger door lock actuators	Door lock & unlock switch	Locked
				Free
7	P/B	Multi-remote control relay	When doors are locked using remote controller	12V → 0V
8	R	Theft warning horn relay Theft warning lamp relay	When panic alarm is operated using remote controller	12V → 0V
9	R/B	Room lamp	When interior lamp is operated using remote controller. (Lamp switch in DOOR position)	12V → 0V
10	B	Ground	—	—
11	G/W	Ignition switch (ON)	Ignition key is in ON position	12V
12	LG	Driver door unlock sensor	Driver door: Locked → Unlocked	12V → 0V
13	LG/B	Passenger door unlock sensor	Passenger door: Locked → Unlocked	12V → 0V
15	G/R	Driver door switch	OFF (Closed) → ON (Open)	12V → 0V
17	G	Ignition switch (ACC)	ACC position	12V
18	LG/R	Door lock/unlock switches (lock)	Neutral → Locks	12V → 0V
19	BR	Door lock/unlock switches (unlock)	Neutral → Unlocks	12V → 0V
21	B/P	Seat belt buckle switch	Unfasten → Fasten (Ignition key is in ON position)	0V → 12V
24	W/G	Ignition key switch (Insert)	IGN key inserted → IGN key removed from IGN key cylinder	12V → 0V
25	L/R	Lighting switch (1ST)	1ST, 2ND positions: ON → OFF	12V → 0V
29	B/P	Hood switch	ON (Open) → OFF (Closed)	0V → 12V
30	Y	Door key cylinder lock switch	OFF (Neutral) → ON (Locked)	12V → 0V
31	Y/R	Door key cylinder unlock switch	OFF (Neutral) → ON (Unlocked)	12V → 0V
32	R/W	Theft warning relay (Starter cut)	OFF → ON (Ignition key is in ON position)	12V → 0V
33	G/OR	Theft warning indicator	Goes off → Illuminates	12V → 0V
35	G/B	Passenger door switch	OFF (Closed) → ON (Open)	12V → 0V

# SMART ENTRANCE CONTROL UNIT

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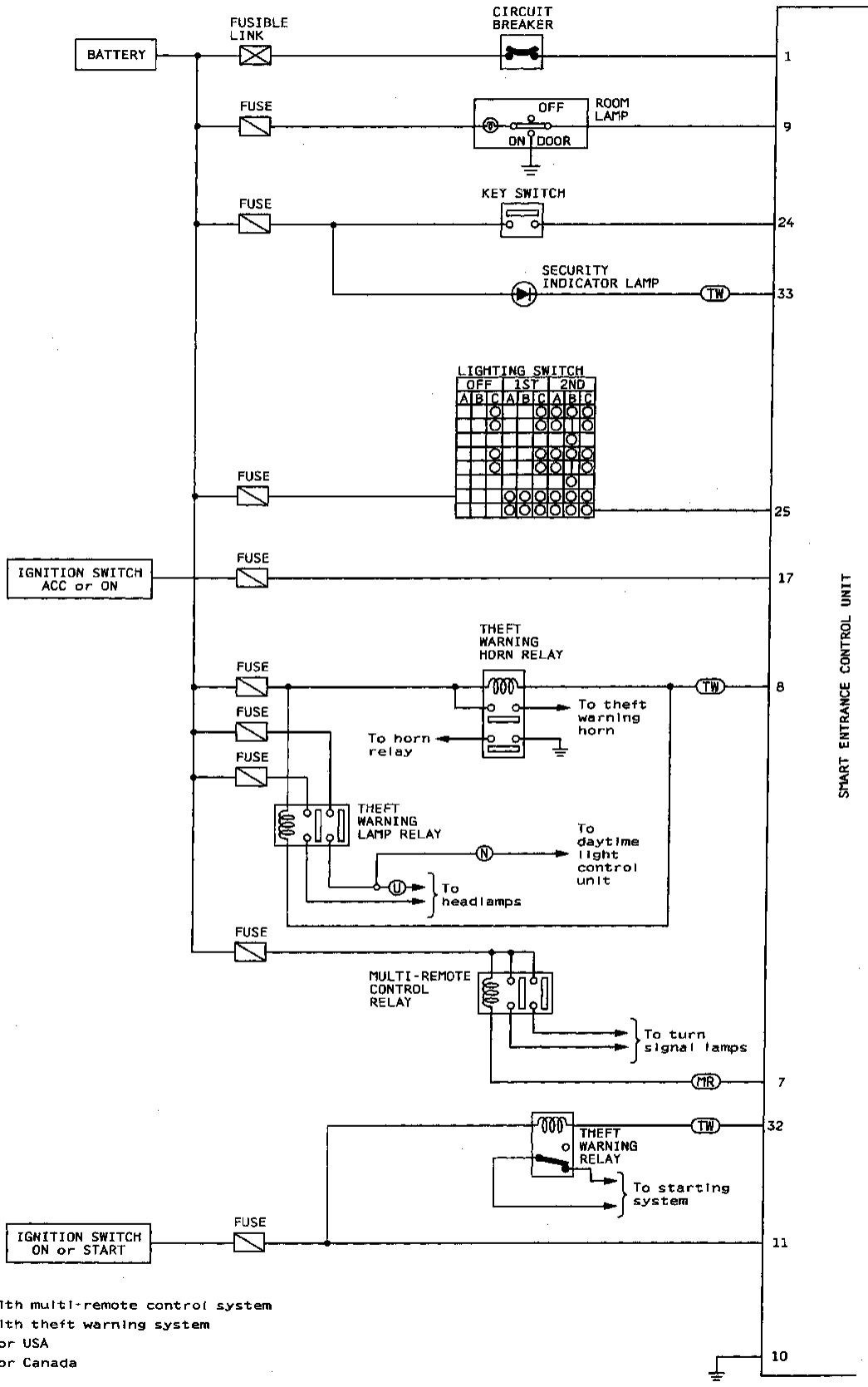
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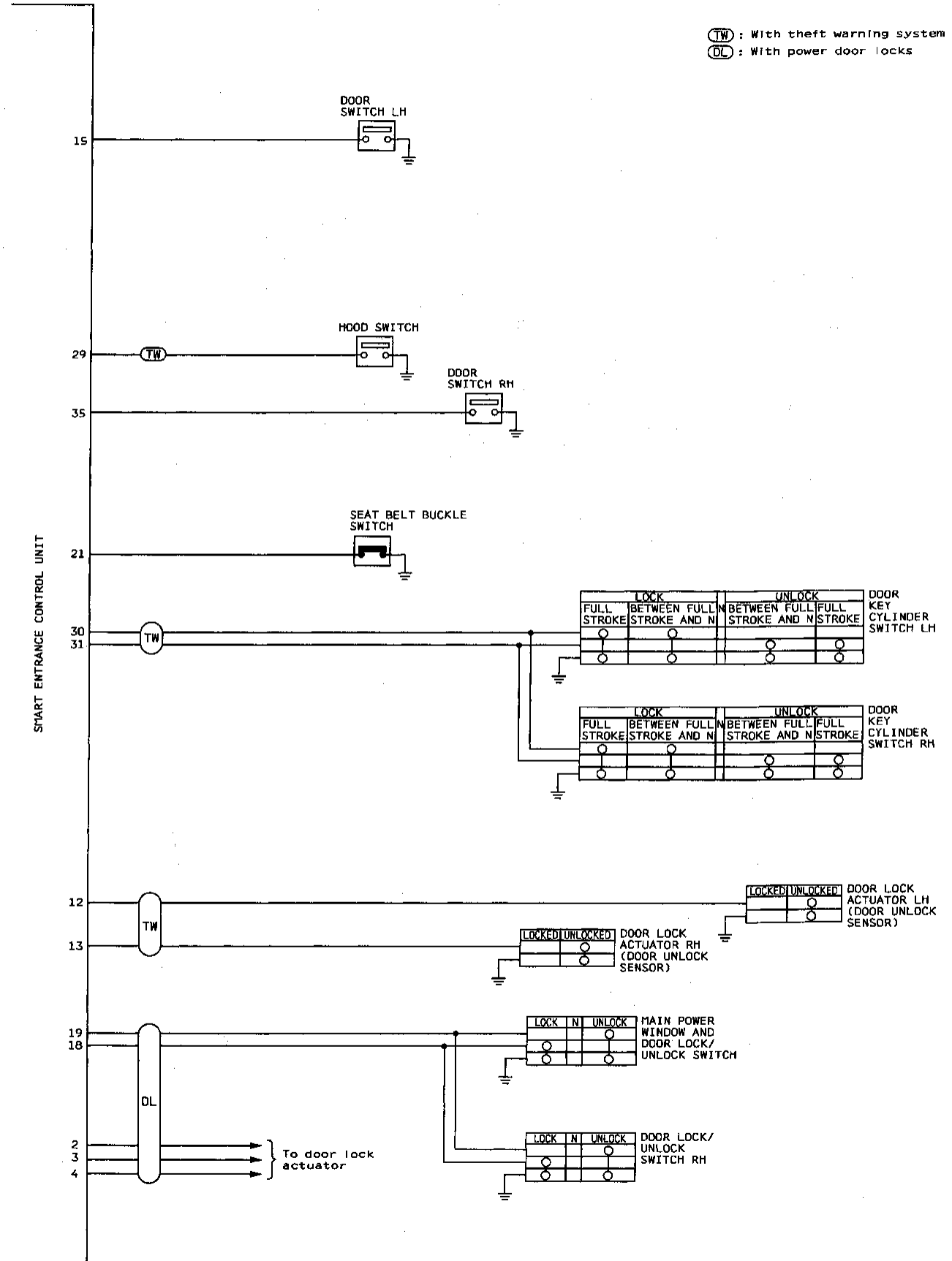
# SMART ENTRANCE CONTROL UNIT

## Schematic



# SMART ENTRANCE CONTROL UNIT

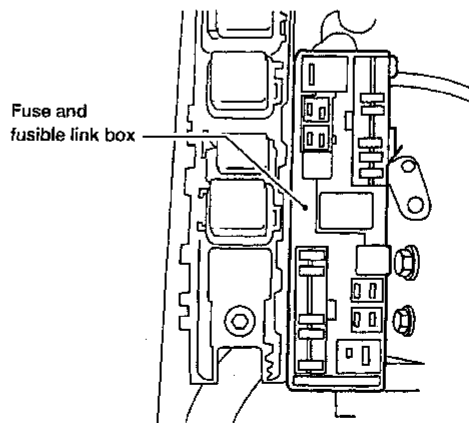
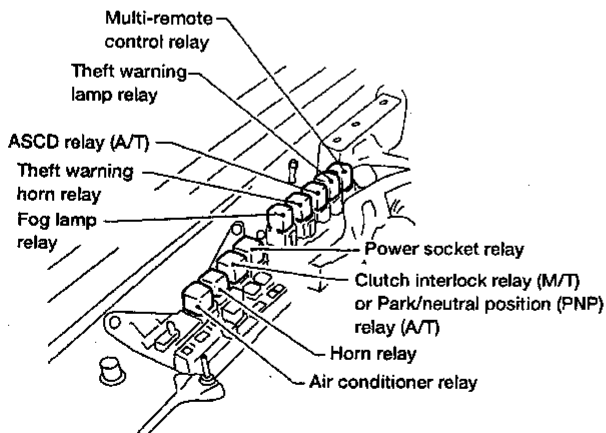
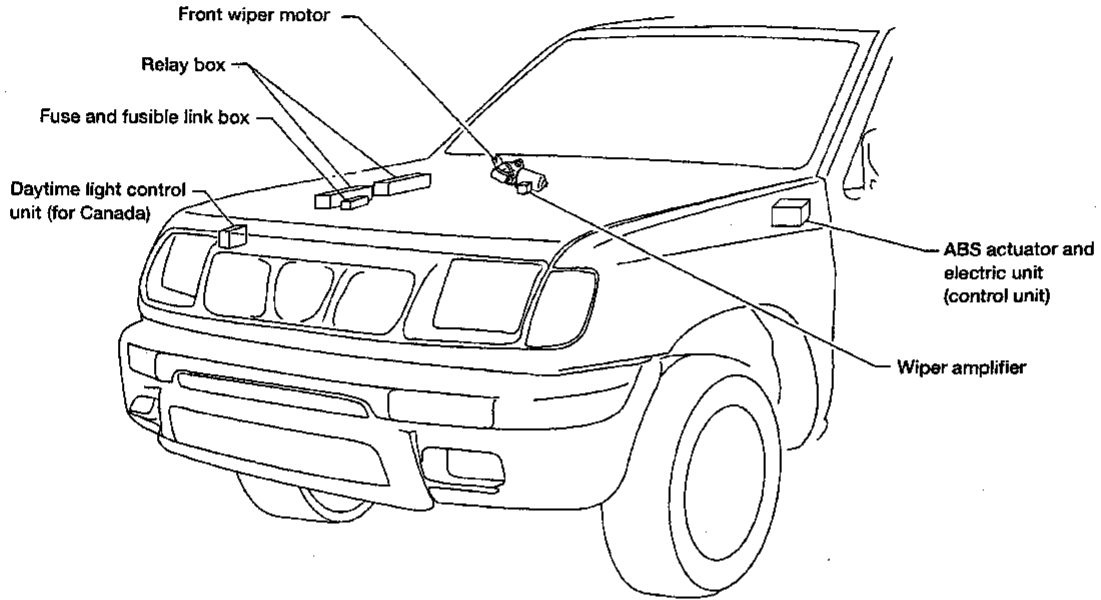
## Schematic (Cont'd)



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# LOCATION OF ELECTRICAL UNITS

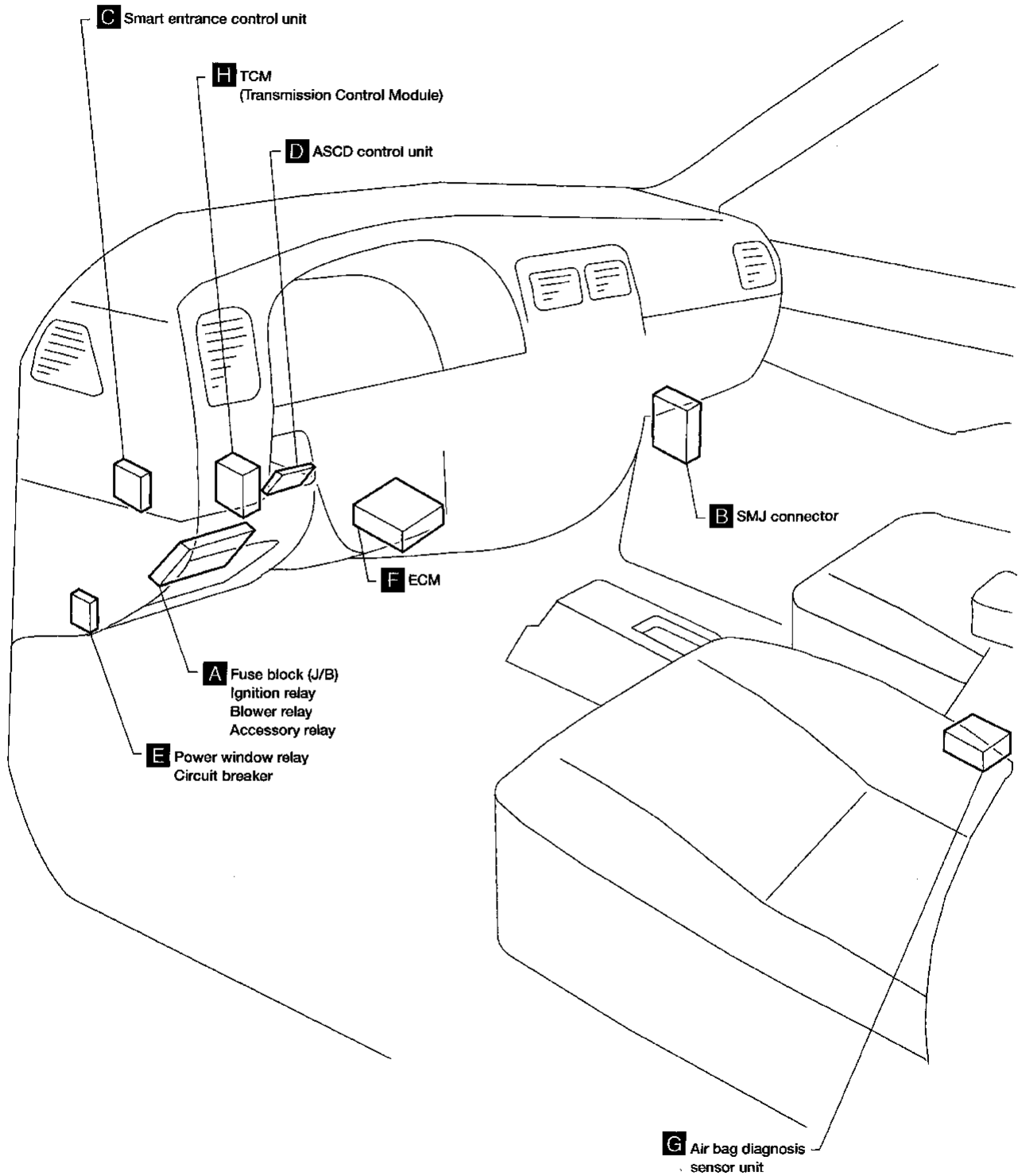
## Engine Compartment





# LOCATION OF ELECTRICAL UNITS

## Passenger Compartment



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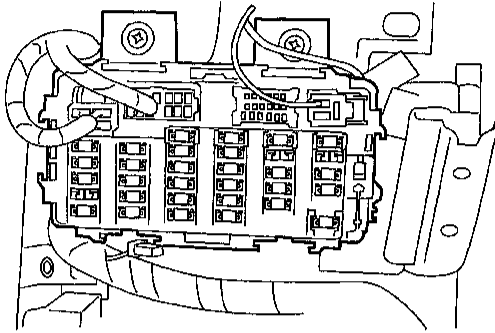
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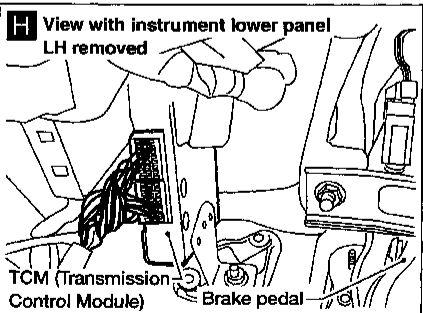
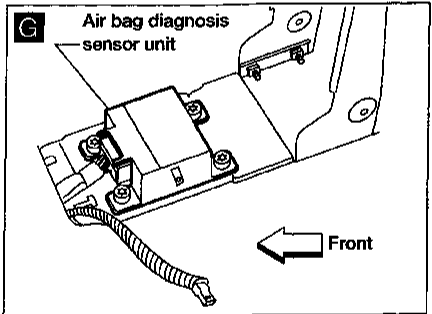
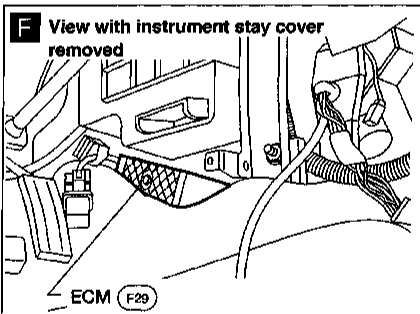
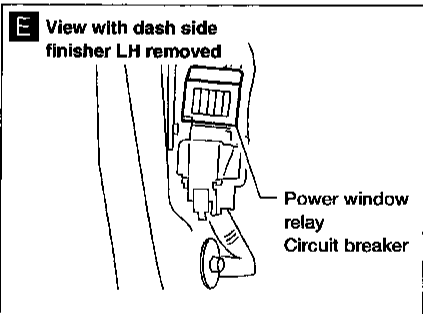
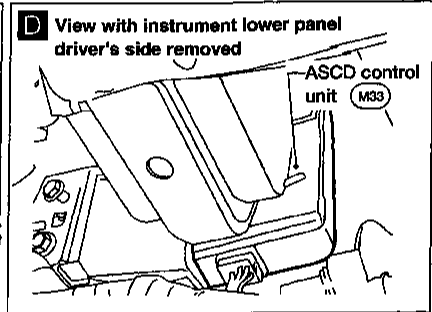
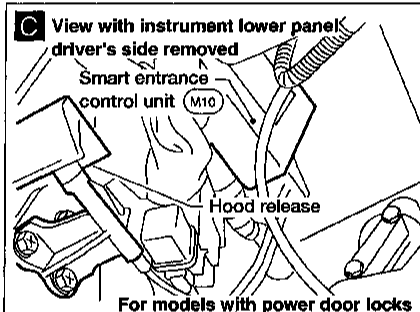
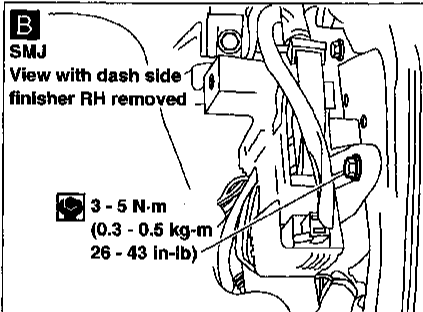
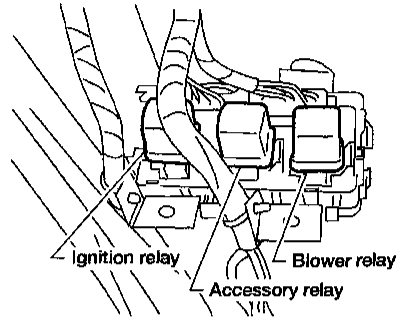
# LOCATION OF ELECTRICAL UNITS

## Passenger Compartment (Cont'd)

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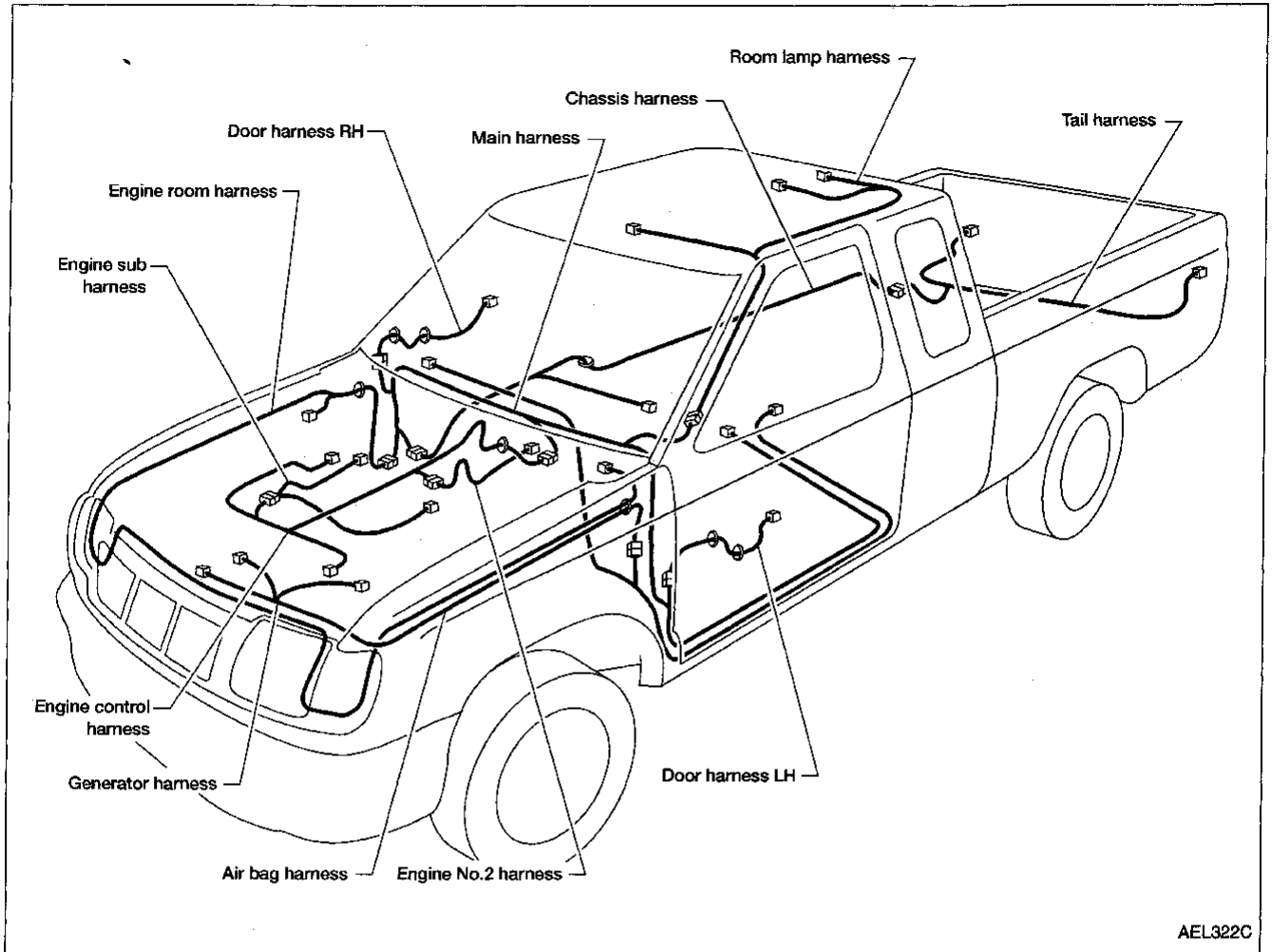


View of rear of fuse block (J/B)



# HARNES LAYOUT

## Outline



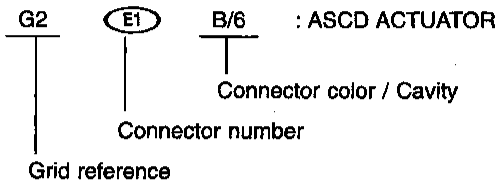
NOTE: For detailed ground distribution information, refer to "GROUND DISTRIBUTION", EL-16.

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# HARNES LAYOUT

## How to Read Harness Layout

Example:



The following Harness Layouts use a map style grid to help locate connectors on the drawings:

- Main Harness
- Engine Room Harness (Engine Compartment)
- Engine Control Harness

### To use the grid reference

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

### CONNECTOR SYMBOL

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

Connector type	Water proof type		Standard type	
	Male	Female	Male	Female
<ul style="list-style-type: none"> <li>● Cavity: Less than 4</li> <li>● Relay connector</li> </ul>				
<ul style="list-style-type: none"> <li>● Cavity: From 5 to 8</li> </ul>				
<ul style="list-style-type: none"> <li>● Cavity: More than 9</li> </ul>				
<ul style="list-style-type: none"> <li>● Ground terminal etc.</li> </ul>	—			

# HARNES LAYOUT

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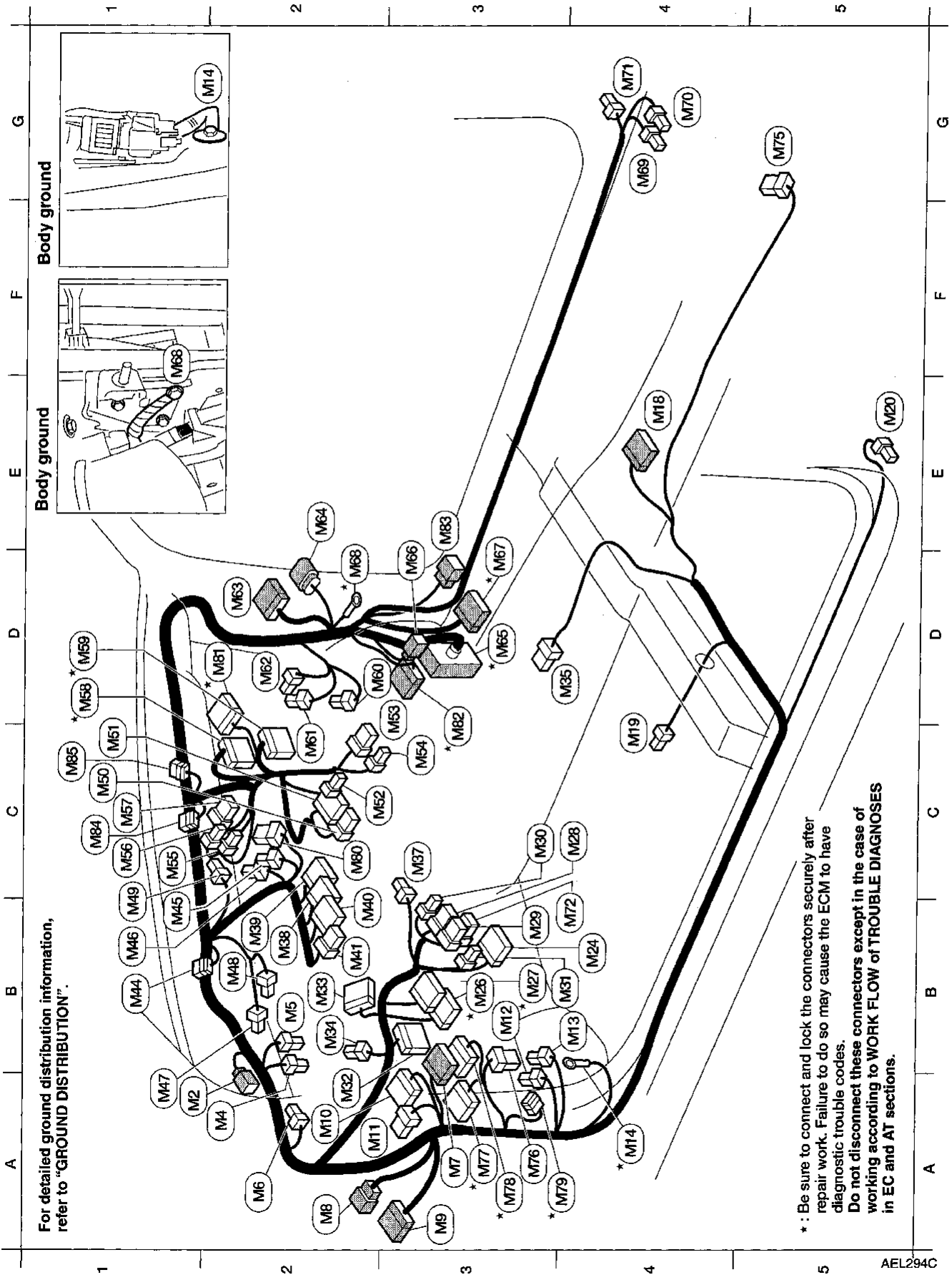
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EL-219

# HARNESS LAYOUT

## Main Harness



For detailed ground distribution information, refer to "GROUND DISTRIBUTION".

\*: Be sure to connect and lock the connectors securely after repair work. Failure to do so may cause the ECM to have diagnostic trouble codes. Do not disconnect these connectors except in the case of working according to WORK FLOW of TROUBLE DIAGNOSES in EC and AT sections.

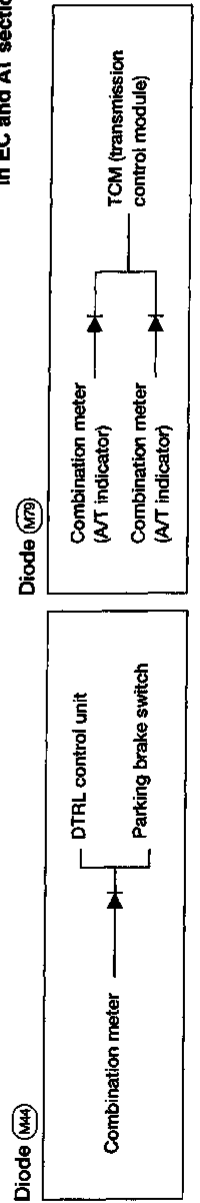
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# HARNES LAYOUT

## Main Harness (Cont'd)

- |  |  |  |
|--|--|--|
| <p>A1 (M2) W/4 : To (E1)</p> <p>A2 (M4) L/2 : ASCD clutch switch (with M/T)</p> <p>B2 (M5) L/2 : Clutch interlock switch (with M/T)</p> <p>A2 (M6) B/5 : Theft warning relay</p> <p>A3 (M7) W/18 : To (E3)</p> <p>A2 (M8) W/8 : To (D2)</p> <p>A3 (M9) W/12 : To (D1)</p> <p>A3 (M10) W/36 : Smart entrance control unit (with power door locks)</p> <p>A2 (M11) W/8 : Warning chime unit (without power door locks)</p> <p>B4 (M12) W/2 : Circuit breaker</p> <p>A4 (M13) L/4 : Power window relay</p> <p>A3* (M14) — : Body ground</p> <p>E4 (M15) W/16 : To (Z1)</p> <p>C4 (M16) W/3 : Seat belt buckle switch</p> <p>E5 (M20) B/3 : Door switch LH</p> <p>B4 (M24) GY/14 : Data link connector for CONSULT</p> <p>B3* (M28) W/16 : Fuse block (J/B)</p> <p>B3* (M27) W/10 : Fuse block (J/B)</p> <p>C4 (M28) W/6 : Illumination control switch</p> <p>B3 (M29) W/6 : ASCD main switch</p> <p>C3 (M30) W/4 : Security indicator lamp</p> <p>B4 (M31) W/3 : Fuse block (J/B)</p> <p>B3 (M32) W/16 : Data link connector for GST</p> <p>B2 (M33) B/20 : ASCD control unit</p> | <p>B2 (M39) BR/6 : ASCD hold relay</p> <p>D3 (M35) W/6 : A/T device (with A/T)</p> <p>C3 (M27) W/2 : Key switch</p> <p>B2 (M39) W/16 : Combination meter</p> <p>B2 (M40) W/14 : Combination meter</p> <p>C2 (M40) W/10 : Combination meter</p> <p>B2 (M41) W/8 : Combination meter (A/T indicator)</p> <p>B1 (M44) SB/4 : Diode</p> <p>B1 (M45) B/3 : Combination flasher unit</p> <p>B1 (M46) L/4 : Fuel pump relay</p> <p>A1 (M47) B/2 : Stop lamp switch</p> <p>B2 (M49) L/2 : ASCD brake switch (A/T shift lock brake switch)</p> <p>C1 (M48) W/2 : Parking brake switch</p> <p>C1 (M49) W/6 : Audio unit</p> <p>C1 (M51) W/10 : Audio unit</p> <p>C2 (M52) B/2 : Cigarette lighter socket</p> <p>D3 (M53) W/8 : Hazard switch</p> <p>C3 (M54) B/2 : Power socket</p> <p>C1 (M55) W/3 : Air conditioner switch</p> <p>C1 (M56) W/3 : Fan switch illumination</p> <p>C1 (M57) W/6 : Fan switch</p> <p>D1* (M58) W/16 : To (F8)</p> <p>D1* (M59) W/18 : To (F2)</p> <p>D2 (M60) W/3 : Thermo control amplifier</p> | <p>C2 (M61) BR/4 : Fan resistor</p> <p>D2 (M62) W/2 : Blower motor</p> <p>D2 (M63) W/12 : To (D15)</p> <p>E2 (M64) W/6 : To (D16)</p> <p>D3* (M65) SMJ : To (E4)</p> <p>D3 (M66) B/2 : To (E4)</p> <p>D3* (M67) W/18 : To (C1)</p> <p>D2* (M68) — : Body ground</p> <p>G4 (M69) GY/2 : G-sensor</p> <p>G4 (M70) GY/2 : G-sensor</p> <p>G4 (M71) BR/1 : Door switch RH</p> <p>B4 (M72) GY/12 : Door mirror remote control switch</p> <p>G5 (M76) W/8 : Subwoofer amplifier</p> <p>B3 (M78) B/5 : ATP relay</p> <p>A3* (M77) W/24 : TCM (transmission control module)</p> <p>B3* (M78) GY/24 : TCM (transmission control module)</p> <p>A3* (M79) SB/6 : Diode</p> <p>C2 (M80) L/5 : Power socket relay</p> <p>D2* (M81) W/24 : To (F36)</p> <p>D3* (M82) W/20 : To (E7)</p> <p>D3 (M83) W/6 : To (C1)</p> <p>C1 (M84) W/6 : Joint connector-5</p> <p>C1 (M85) W/6 : Joint connector-6</p> |
|--|--|--|

\* : Be sure to connect and lock the connectors securely after repair work. Failure to do so may cause the ECM to have diagnostic trouble codes.  
 Do not disconnect these connectors except in the case of working according to WORK FLOW of TROUBLE DIAGNOSES in EC and AT sections.

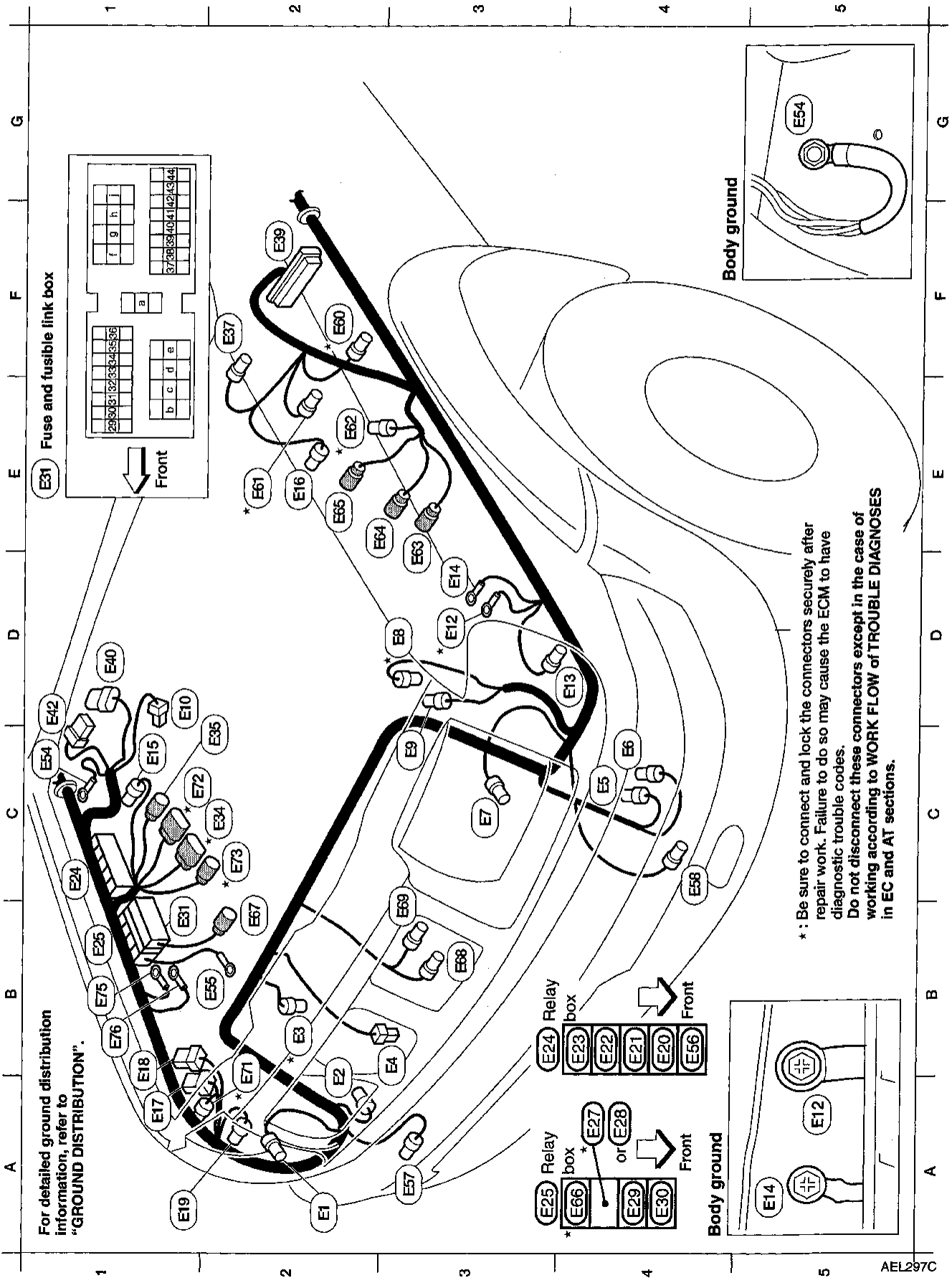


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# HARNESS LAYOUT

## Engine Room Harness

### ENGINE COMPARTMENT





# HARNES LAYOUT

## Engine Room Harness (Cont'd)

A2	(E1) B/3	: Head lamp RH			
B3	(E2) GY/2	: Front wheel sensor RH			
B2	(E3) B/4	: Triple-pressure sensor			
B2	(E4) B/1	: Horn			
C4	(E5) BR/2	: Washer fluid level switch (for Canada)			
C4	(E6) GY/2	: Washer motor			
C3	(E7) B/3	: Headlamp LH			
D3	(E8) B/2	: Intake air temperature sensor			
C3	(E9) GY/2	: Hood switch			
C3	(E10) B/1	: Theft warning horn			
D3	(E12) —	: Body ground			
D4	(E13) GY/3	: Front combination lamp LH			
E3	(E14) —	: Body ground			
E3	(E15) GY/4	: ASCD pump (with ASCD)			
E3	(E16) BR/2	: Front wheel sensor LH			
A1	(E17) GY/8	: Daytime light control unit (with DTRL)			
B1	(E18) GY/6	: Daytime light control unit (with DTRL)			
A1	(E19) GY/3	: Front combination lamp RH			
B4	(E20) BR/6	: Theft warning horn relay			} Relay box
B4	(E21) B/5	: ASCD relay			
B4	(E22) BR/6	: Theft warning lamp relay			
B4	(E23) BR/6	: Multi-remote control relay			
B1	(E24) —	: Relay box			

C1	(E25) —	: Relay box			
A4	(E27) BR/6	: Park/neutral position (PNP) relay (with A/T)	} Relay box		
A4	(E28) L/4	: Clutch interlock relay (with M/T)			
A4	(E29) W/3	: Horn relay			
A4	(E30) L/4	: Air conditioner relay			
B1	(E31) —	: Fuse and fusible link box			
C1	(E34) GY/8	: Park/neutral position (PNP) switch (with A/T)			
C1	(E35) GY/2	: Park/neutral position (PNP) switch (with A/T)			
E2	(E37) GY/2	: Brake fluid level switch			
F2	(E38) B/31	: ABS actuator and electric unit (control unit)			
D1	(E40) B/8	: Wiper amplifier			
D1	(E42) W/6	: Wiper motor			
C1	(E24) —	: Body ground			
B4	(E35) —	: Battery			
B4	(E36) L/4	: Front fog lamp relay (Relay box)			

A3	(E27) B/2	: Front fog lamp RH			
C4	(E38) B/2	: Front fog lamp LH			
F2	(E30) B/2	: MAP/BARO switch solenoid valve			
E2	(E31) L/2	: EVAP canister purge volume control solenoid valve			
E2	(E32) GY/3	: Absolute pressure sensor			
E3	(E33) GY/1	: To (A3)			
E3	(E34) GY/1	: To (A4)			
E2	(E35) GY/4	: To (A5)			
A4	(E36) L/4	: Cooling fan relay (Relay box)			
B2	(E37) GY/1	: To (E20)			
B3	(E38) GY/2	: Ambient air temperature switch			
B3	(E39) GY/4	: Cooling fan motor			
A1	(E21) GY/2	: Dropping resistor			
C1	(E22) BR/8	: A/T solenoid valve			
C2	(E23) GY/3	: Revolution sensor			
B1	(E25) —	: To (E31)			
B1	(E26) —	: To (E31)			

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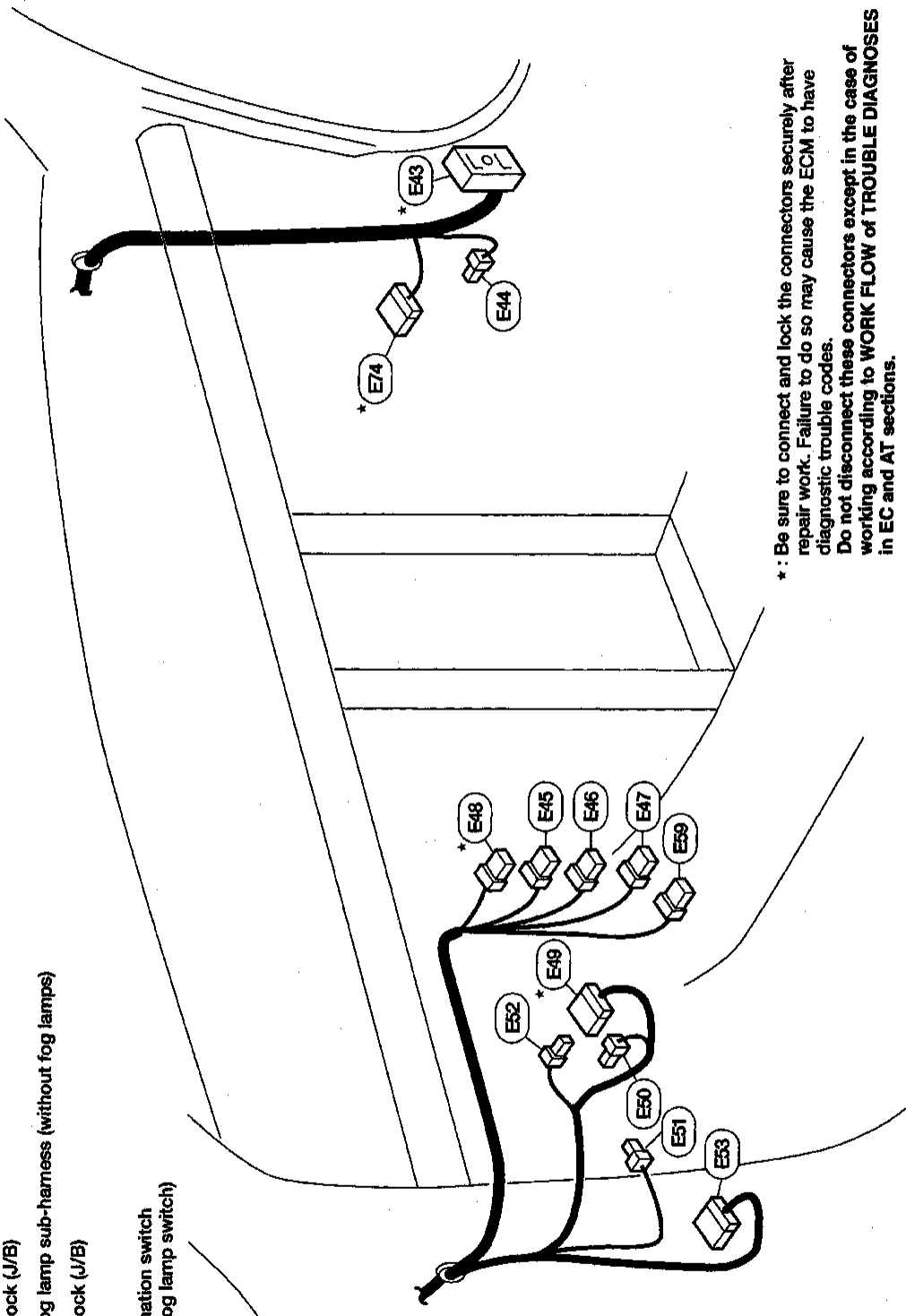
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# HARNESS LAYOUT

## Engine Room Harness (Cont'd)

### PASSENGER COMPARTMENT

- \* (E43) W/48 : To (M65)
- (E44) B/2 : To (M36)
- (E46) W/8 : Combination switch (Lighting switch)
- (E46) L/8 : Wiper switch
- (E47) W/6 : Combination switch (Turn signal switch)
- \* (E48) W/6 : Ignition switch
- \* (E49) W/12 : Fuse block (J/B)
- (E50) W/4 : Fuse block (J/B)
- (E51) W/2 : Front fog lamp sub-harness (without fog lamps)
- (E52) B/2 : Fuse block (J/B)
- (E53) W/18 : To (M7)
- (E59) B/2 : Combination switch  
(Front fog lamp switch)
- \* (E74) W/20 : To (M2)



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# HARNESS LAYOUT

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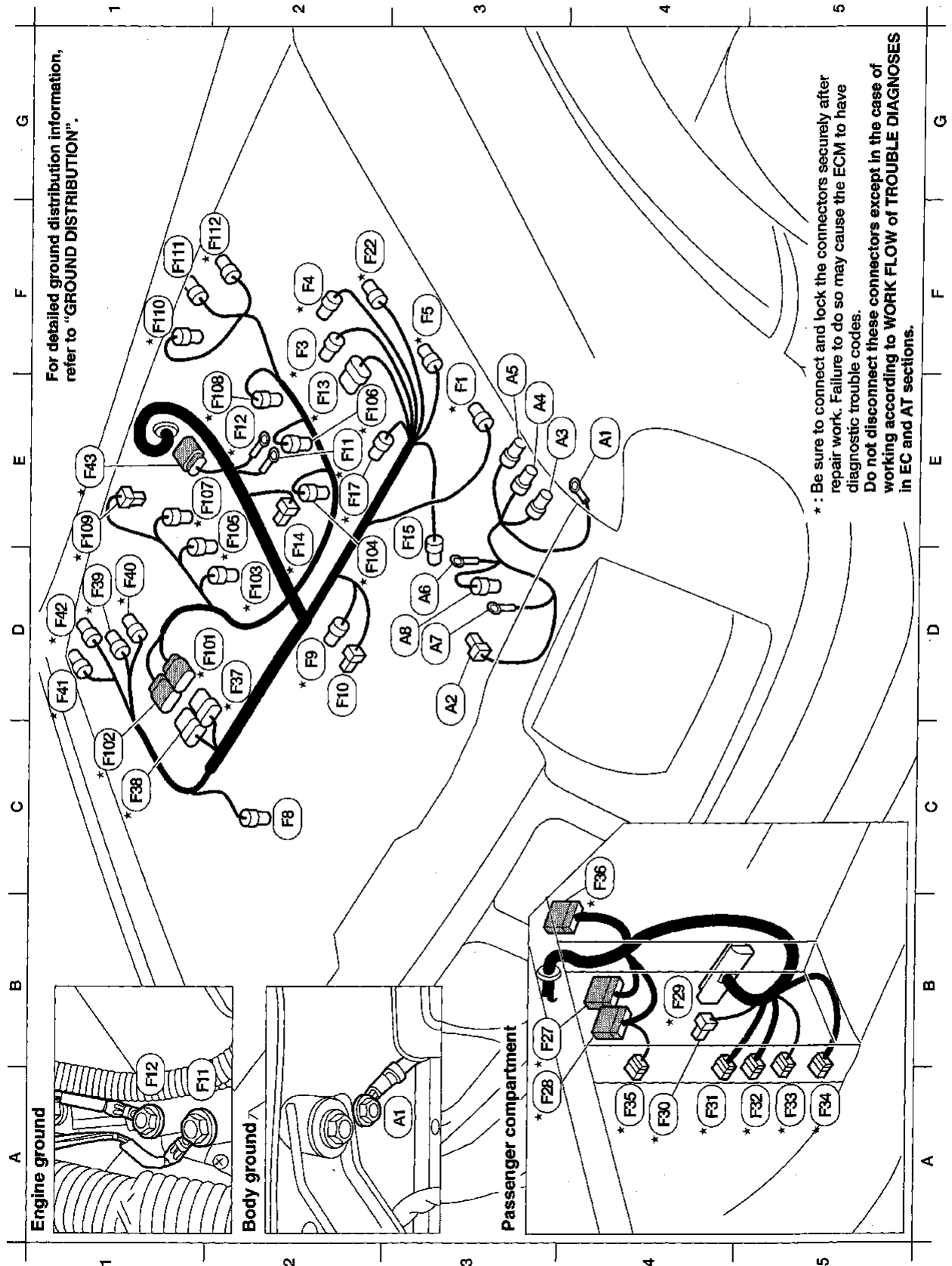
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# HARNES LAYOUT

## Engine Control Harness



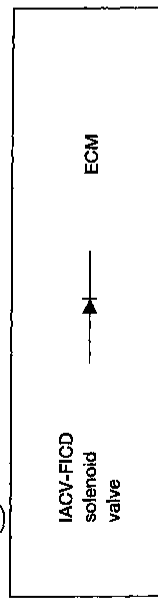
# HARNESS LAYOUT

## Engine Control Harness (Cont'd)

### Engine control harness

- E3 \* (F1) BR/4 : Mass air flow sensor
- F2 \* (F2) BR/3 : Throttle position sensor
- F2 \* (F4) GY/3 : Throttle position switch (closed throttle position switch and wide open throttle position switch)
- F3 \* (F5) GY/2 : EGR temperature sensor
- C2 (R) B/2 : Power steering oil pressure switch
- D2 \* (F9) GY/2 : Engine coolant temperature sensor
- D2 (F10) B/1 : Thermal transmitter
- E2 \* (F11) — : Engine ground
- E2 \* (F12) — : Engine ground
- E2 \* (F13) GY/6 : Distributor (camshaft position sensor)
- E2 \* (F14) GY/2 : Resistor
- E3 (F15) B/1 : A/C compressor
- E3 \* (F17) GY/2 : Distributor (ignition coil)
- F2 \* (F22) B/2 : EGRC solenoid valve
- B4 \* (F27) W/18 : To (N65)
- B4 \* (F28) W/16 : To (N59)
- B4 \* (F29) GY/104 : ECM
- B4 \* (F30) L/4 : ECM relay
- B4 \* (F31) GY/6 : Joint connector-1
- B5 \* (F32) GY/6 : Joint connector-2
- B5 \* (F33) GY/6 : Joint connector-3
- B5 \* (F34) L/12 : Joint connector-4
- B4 \* (F35) SB/4 : Diode
- B4 \* (F36) W/24 : To (N81)
- D2 \* (F37) B/8 : To (F10)
- D2 \* (F38) GY/8 : To (F102)
- D1 \* (F39) GY/4 : Rear heated oxygen sensor LH
- D1 \* (F40) GY/3 : Front heated oxygen sensor LH

Diode (F35)



### Engine control harness (continued)

- D1 \* (F41) GY/3 : Front heated oxygen sensor RH
- D1 \* (F42) GY/4 : Rear heated oxygen sensor RH
- E2 \* (F43) GY/8 : To (F20)

### Engine sub harness

- D2 \* (F101) B/8 : To (F37)
- D2 \* (F102) GY/8 : To (F38)
- D2 \* (F103) B/2 : Injector No. 1
- E2 \* (F104) B/2 : Injector No. 2
- E2 \* (F105) B/2 : Injector No. 3
- E2 \* (F106) B/2 : Injector No. 4
- E2 \* (F107) B/2 : Injector No. 5
- E2 \* (F108) B/2 : Injector No. 6
- E1 \* (F109) GY/2 : Knock sensor
- F2 \* (F110) GY/2 : Crankshaft position sensor (OBD)
- F2 (F111) GY/2 : IACV-FICD solenoid valve
- F2 \* (F112) BR/2 : IACV-AAC valve

### Generator harness

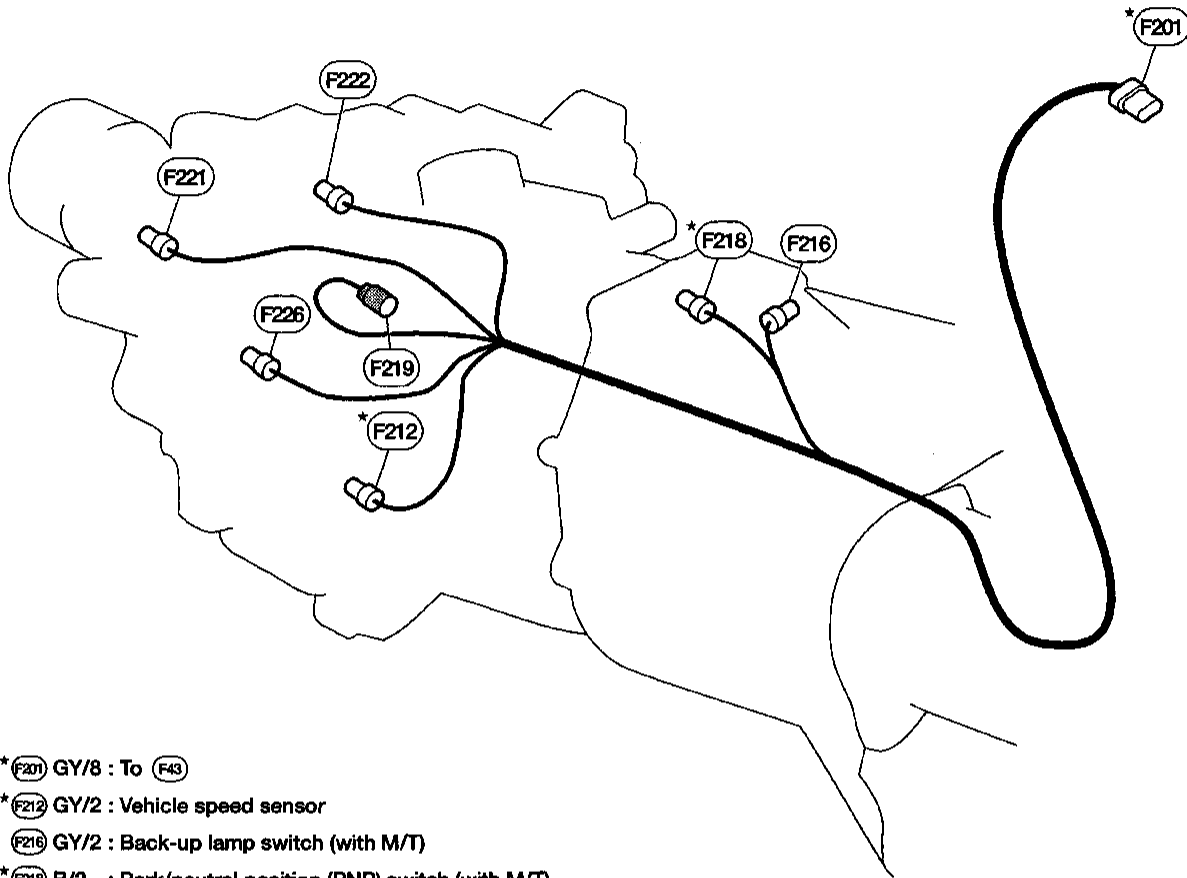
- E4 (A1) — : Body ground
- D3 (A2) B/1 : Oil pressure switch
- E4 (A3) GY/1 : To (B83)
- E3 (A4) GY/1 : To (B84)
- E3 (A5) GY/4 : To (E66)
- D3 (A6) — : Generator
- D3 (A7) — : Generator
- D3 (A8) GY/2 : Generator

\* : Be sure to connect and lock the connectors securely after repair work. Failure diagnostic trouble codes. Do not disconnect these connectors except in the case of working according to WORK FLOW of TROUBLE DIAGNOSES in EC and AT sections.

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# HARNES LAYOUT

## Engine No. 2 Harness



\* F201 GY/8 : To F43

\* F212 GY/2 : Vehicle speed sensor

F216 GY/2 : Back-up lamp switch (with M/T)

\* F218 B/2 : Park/neutral position (PNP) switch (with M/T)

F219 GY/1 : Transfer neutral position switch (with M/T)

F220 GY/1 : 4WD switch (with M/T)

F221 GY/2 : 4WD switch (with A/T)

F222 B/2 : Transfer neutral position switch (with A/T)

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HARNES LAYOUT

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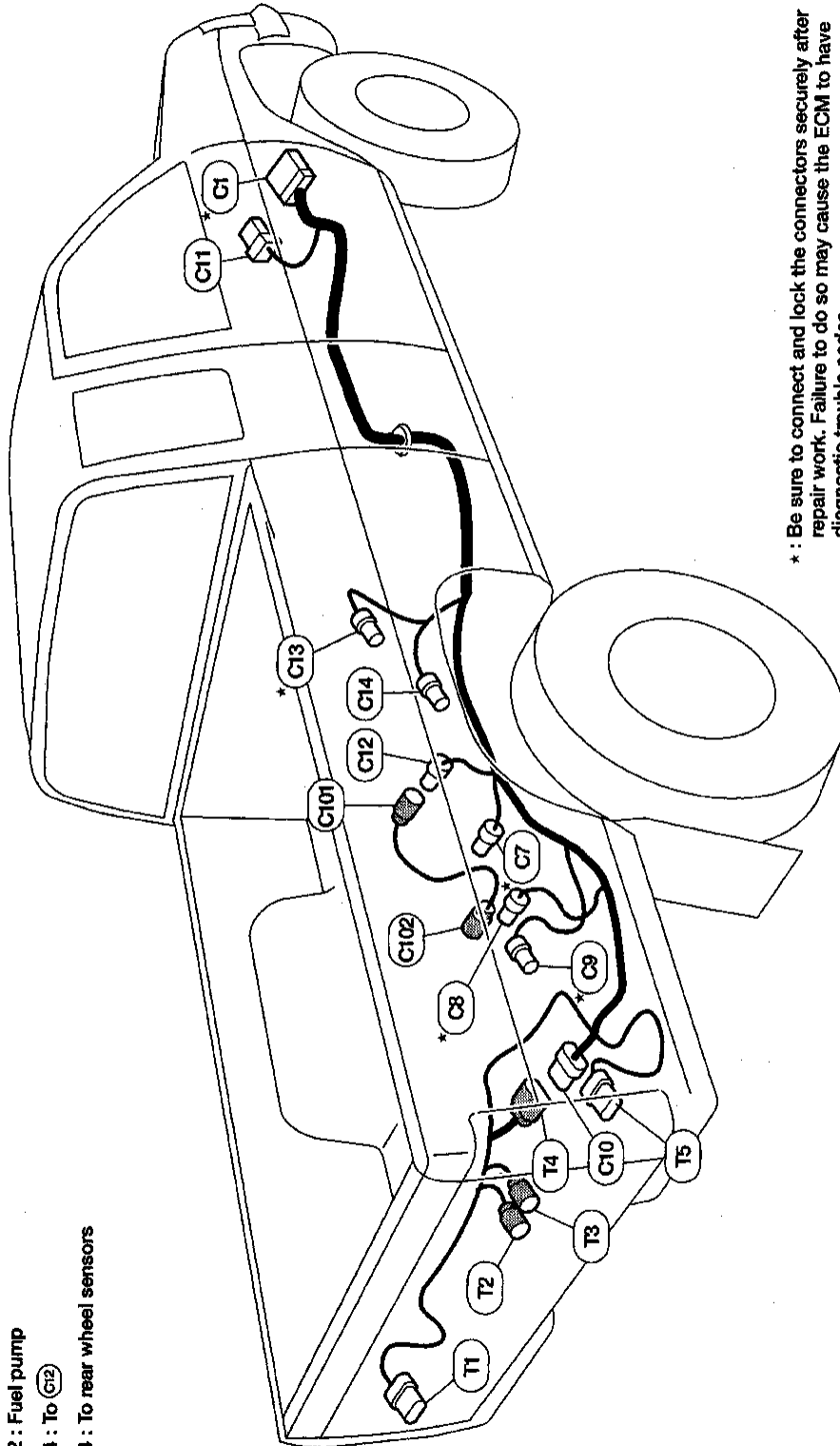
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# HARNESS LAYOUT

## Chassis and Tail Harness

- Chassis harness**
- \* C1 W/18 : To (M2)
  - \* C7 GY/3 : EVAP control system pressure sensor
  - \* C8 B/2 : EVAP canister vent control valve
  - \* C9 G/2 : Vacuum cut valve bypass valve
  - C10 GY/6 : To T4
  - C11 W/6 : To (M2)
  - C12 GY/4 : To C10
  - \* C13 GY/4 : Fuel tank gauge unit
  - C14 GY/2 : Fuel pump
  - C100 GY/4 : To C12
  - C102 GY/4 : To rear wheel sensors
- Tail harness**
- C1 GY/6 : Rear combination lamp LH
  - C2 GY/2 : License plate lamp LH
  - C3 GY/2 : License plate lamp RH
  - C4 GY/6 : To C10
  - C5 GY/6 : Rear combination lamp RH

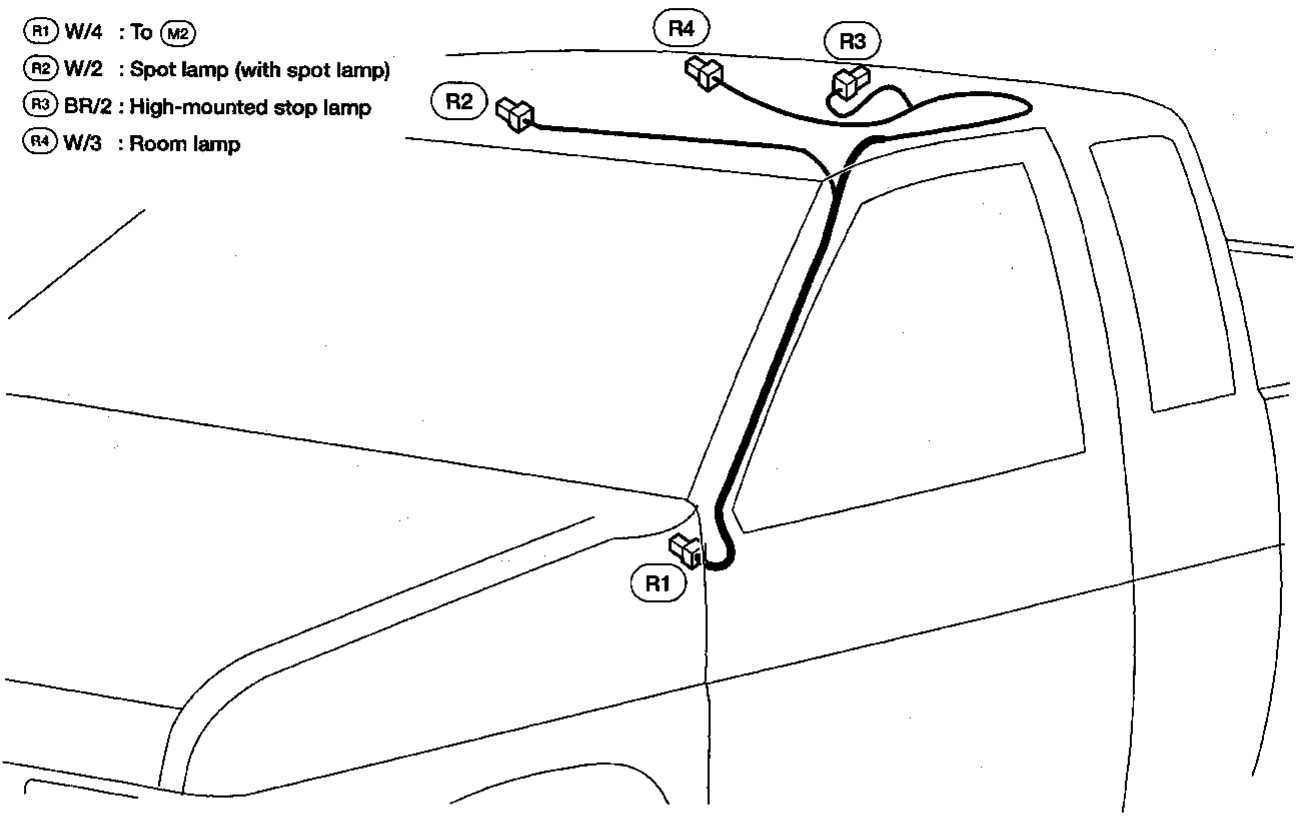


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# HARNES LAYOUT

## Room Lamp Harness

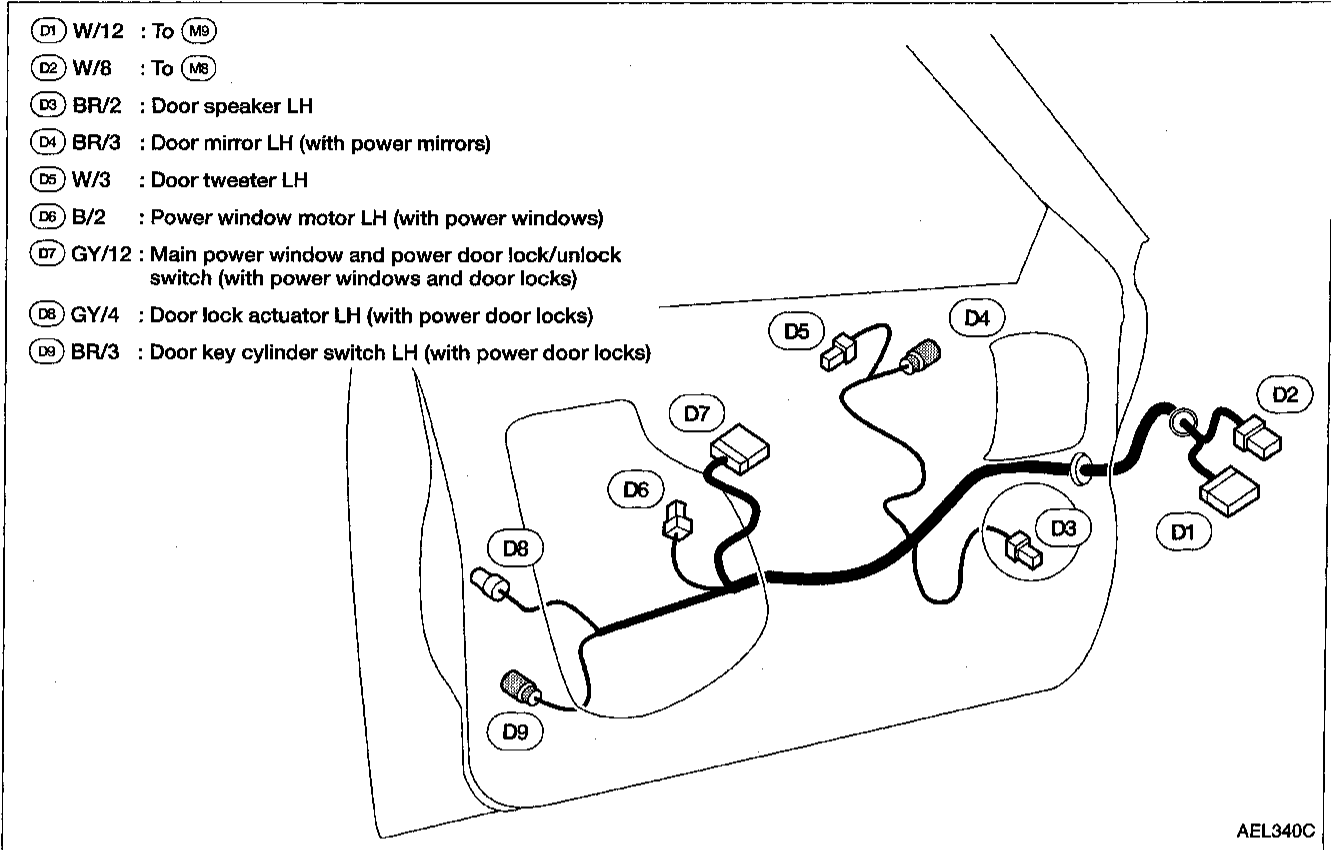


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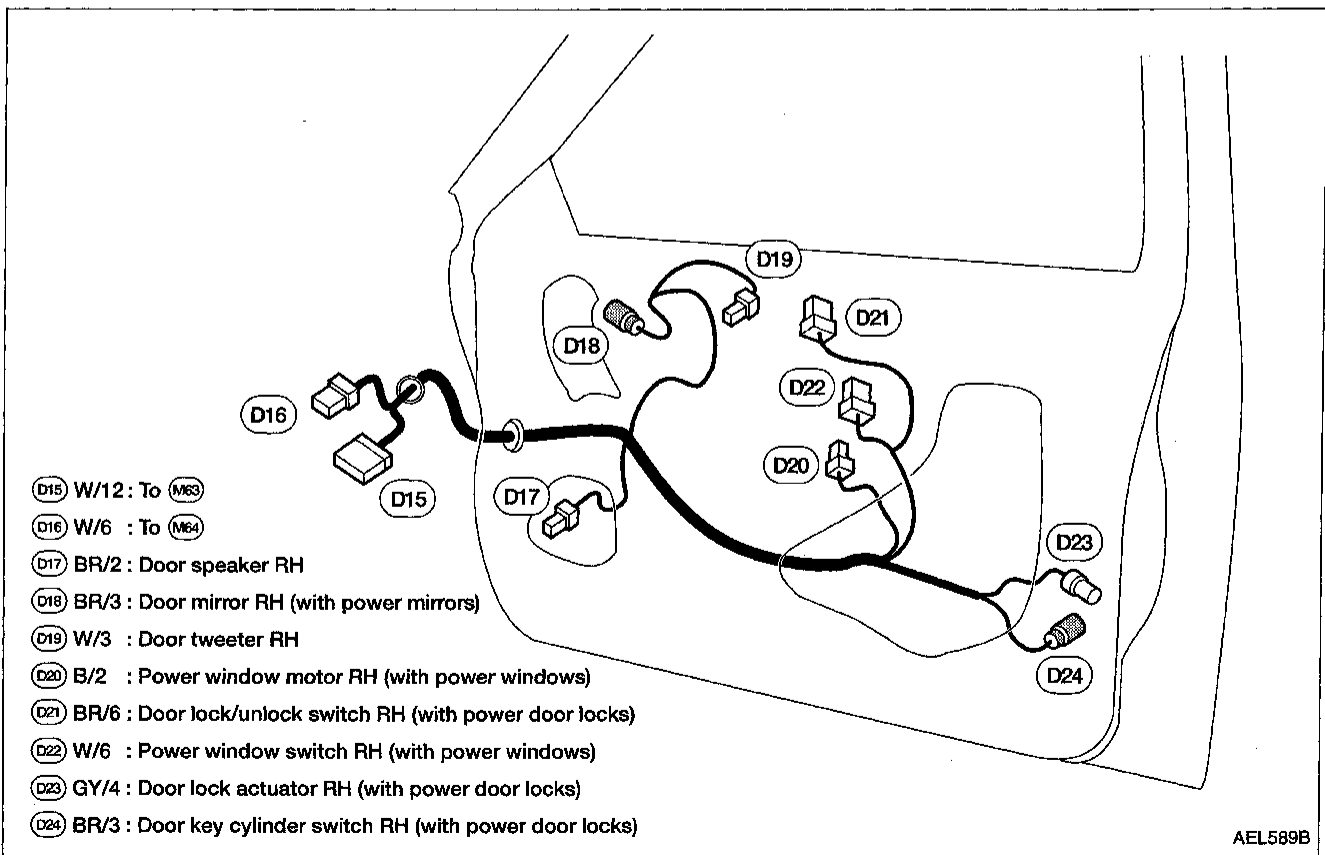
# HARNESS LAYOUT

## Door Harness

### LH side



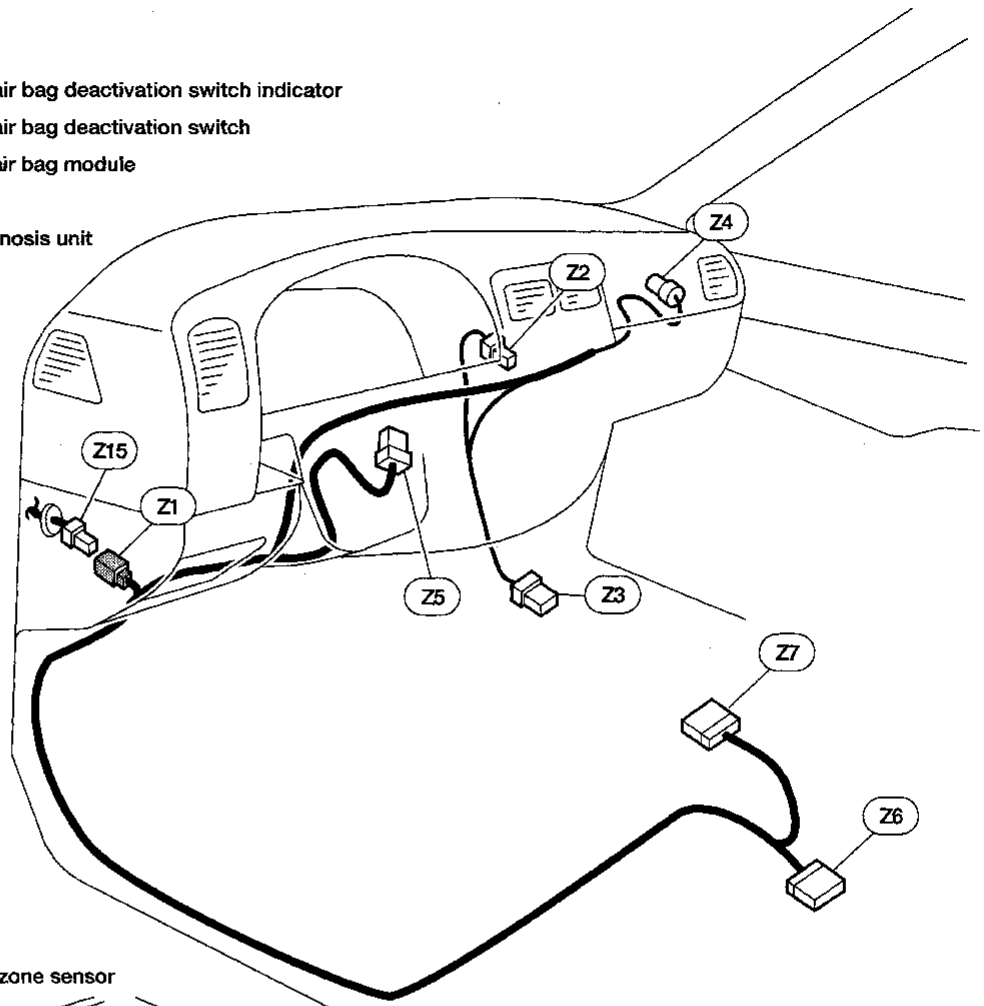
### RH side



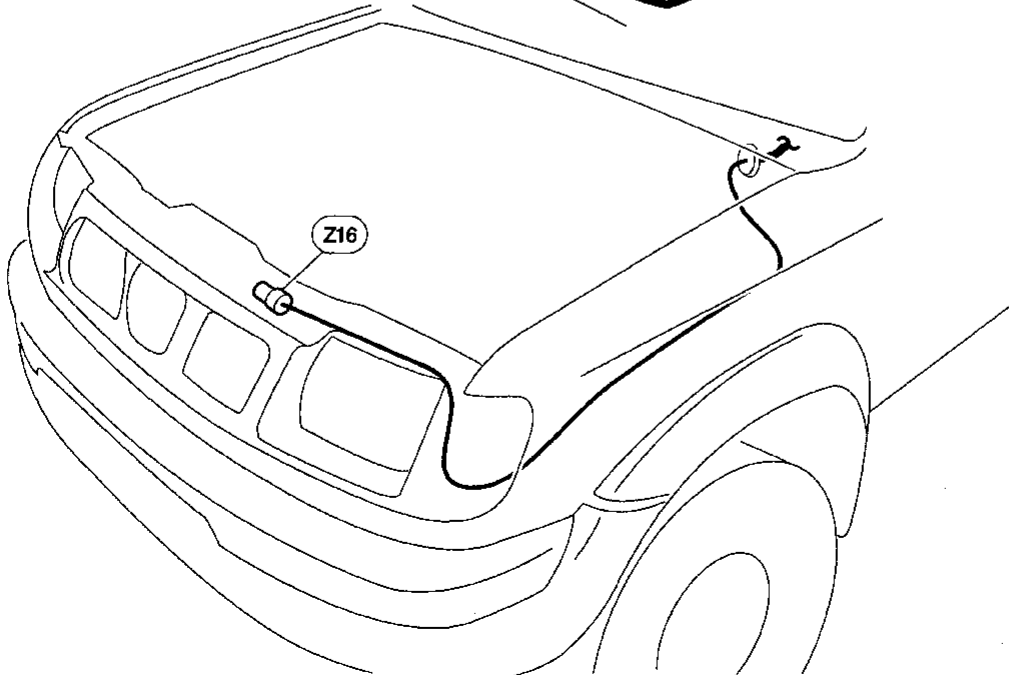
# HARNESS LAYOUT

## Air Bag Harness

- (Z1) W/4 : To (Z15)
- (Z2) W/2 : Passenger air bag deactivation switch indicator
- (Z3) W/6 : Passenger air bag deactivation switch
- (Z4) B/2 : Passenger air bag module
- (Z5) W/6 : Spiral cable
- (Z6) Y/22 : Air bag diagnosis unit
- (Z7) W/16 : To (M18)
- (Z15) W/4 : To (Z1)



- (Z16) GY/2 : Crash zone sensor



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## BULB SPECIFICATIONS

### Headlamps

	Wattage (W)
High/low	65/45 (HB1)

### Exterior Lamps

		Wattage (W)
Front combination lamp	Turn signal	27
Front fog lamp		35 (H3)
Rear combination lamp	Parking light	3.8
	Turn signal	27
	Stop/Tail	27/7
	Back-up	27
License plate lamp type A (with step bumper)		3.8
License plate lamp type B (without step bumper)		5
High mounted stop lamp		2.3

### Interior Lamps

	Wattage (W)
Room lamp (Dome lamp)	10
Spot lamp (Map lamp)	8

## WIRING DIAGRAM CODES (CELL CODES)

Use the chart below to find out what each wiring diagram code stands for.

Code	Section	Wiring Diagram Name
1STSIG	AT	A/T 1ST Signal
2NDSIG	AT	A/T 2ND Signal
3RDSIG	AT	A/T 3RD Signal
4THSIG	AT	A/T 4TH Signal
A/C	HA	Air Conditioner
AAC/V	EC	IACV-AAC Valve
ABS	BR	Anti-Lock Brake System
AP/SEN	EC	Absolute Pressure Sensor
ASCD	EL	Automatic Speed Control Device
AT/C	EC	A/T Control
ATDIAG	EC	A/T Diagnosis Communication Line
AT/IND	EL	A/T Indicator Lamp
AUDIO	EL	Audio
BA/FTS	AT	A/T Fluid Temperature Sensor Circuit
BACK/L	EL	Back-up Lamp
BYPS/V	EC	Vacuum Cut Valve Bypass Valve
CHARGE	EL	Charging System
CHIME	EL	Warning Chime
CIGAR	EL	Cigarette Lighter
CKPS	EC	Crankshaft Position Sensor (OBD)
CMPS	EC	Camshaft Position Sensor
COOL/F	EC	Cooling Fan Control
D/LOCK	EL	Power Door Lock
DTRL	EL	Headlamp-With Daytime Light System
ECTS	EC	Engine Coolant Temperature Sensor
EGR/TS	EC	EGR Temperature Sensor
EGRC/V	EC	EGRC-Solenoid Valve
EGRC1	EC	EGR Function
ENGSS	AT	Engine Speed Signal
F/FOG	EL	Front Fog Lamp
F/PUMP	EC	Fuel Pump
FICD	EC	IACV-FICD Valve
FO2H-L	EC	Front Heated Oxygen Sensor Heater (Left Bank)
FO2H-R	EC	Front Heated Oxygen Sensor Heater (Right Bank)
FRO2LH	EC	Front Heated Oxygen Sensor (Left Bank)
FRO2RH	EC	Front Heated Oxygen Sensor (Right Bank)
FTS	AT	A/T Fluid Temperature Sensor

Code	Section	Wiring Diagram Name
FUELLH	EC	Fuel Injection System Function (Left Bank)
FUELRH	EC	Fuel Injection System Function (Right Bank)
H/LAMP	EL	Headlamp
HEATER	HA	Heater System
HORN	EL	Horn
IATS	EC	Intake Air Temperature Sensor
IGN/SG	EC	Ignition Signal
ILL	EL	Illumination
INJECT	EC	Injector
INT/L	EL	Spot Lamp
KS	EC	Knock Sensor
LPSV	AT	Line Pressure Solenoid Valve
MAFS	EC	Mass Air Flow Sensor
MAIN	AT	Main Power Supply and Ground Circuit
MAIN	EC	Main Power Supply and Ground Circuit
METER	EL	Speedometer, Tachometer, Temp. and Fuel Gauges
MIL/DL	EC	MIL and Data Link Connectors
MIRROR	EL	Door Mirror
MULTI	EL	Multi-Remote Control System
NONDTC	AT	Non-detectable Items
OVRCSV	AT	Overrun Clutch Solenoid Valve
PGC/V	EC	EVAP Canister Purge Volume Control Solenoid Valve
PNP/SW	EC	Park/Neutral Position (PNP) Switch
PNP/SW	AT	Park/Neutral Position (PNP) Switch
POWER	EL	Power Supply Routing
PRE/SE	EC	Evap Control System Pressure Sensor
PST/SW	EC	Power Steering Oil Pressure Switch
RO2H-L	EC	Rear Heated Oxygen Sensor Heater (Left Bank)
RO2H-R	EC	Rear Heated Oxygen Sensor Heater (Right Bank)
ROOM/L	EL	Interior Room Lamp
RRO2LH	EC	Rear Heated Oxygen Sensor (Left Bank)
RRO2RH	EC	Rear Heated Oxygen Sensor (Right Bank)
S/SIG	EC	Start Signal

## WIRING DIAGRAM CODES (CELL CODES)

Code	Section	Wiring Diagram Name
SHIFT	AT	A/T Shift Lock System
SRS	RS	Supplemental Restraint System
SSV/A	AT	Shift Solenoid Valve A
SSV/B	AT	Shift Solenoid Valve B
START	EL	Starting System
STOP/L	EL	Stop Lamp
SW/V	EC	MAP/BARO Switch Solenoid Valve
TAIL/L	EL	Parking, License and Tail Lamps
TCCSIG	AT	A/T TCC Signal (Lock up)
TCV	AT	Torque Converter Clutch Solenoid Valve
TFTS	EC	Tank Fuel Temperature Sensor
THEFT	EL	Theft Warning System

Code	Section	Wiring Diagram Name
TP/SW	EC	Throttle Position Switch
TPS	AT	Throttle Position Sensor
TPS	EC	Throttle Position Sensor
TURN	EL	Turn Signal and Hazard Warning Lamps
VENT/V	EC	Evap Canister Vent Control Valve
VSS	EC	Vehicle Speed Sensor
VSSAT	AT	Vehicle Speed Sensor A/T (Revolution Sensor)
VSSMTR	AT	Vehicle Speed Sensor MTR
WARN	EL	Warning Lamps
WINDOW	EL	Power Window
WIPER	EL	Wiper and Washer