# ELECTRICAL SYSTEM

# SECTION EL



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**WIRING DIAGRAM REFERENCE CHART**

## 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 on the instrument panel on the passenger side), a diagnosis sensor unit, warning lamp, wiring harness and spiral cable. Information necessary to service the system safely is included in the **RS section** of this Service Manual.

**WARNING:**

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

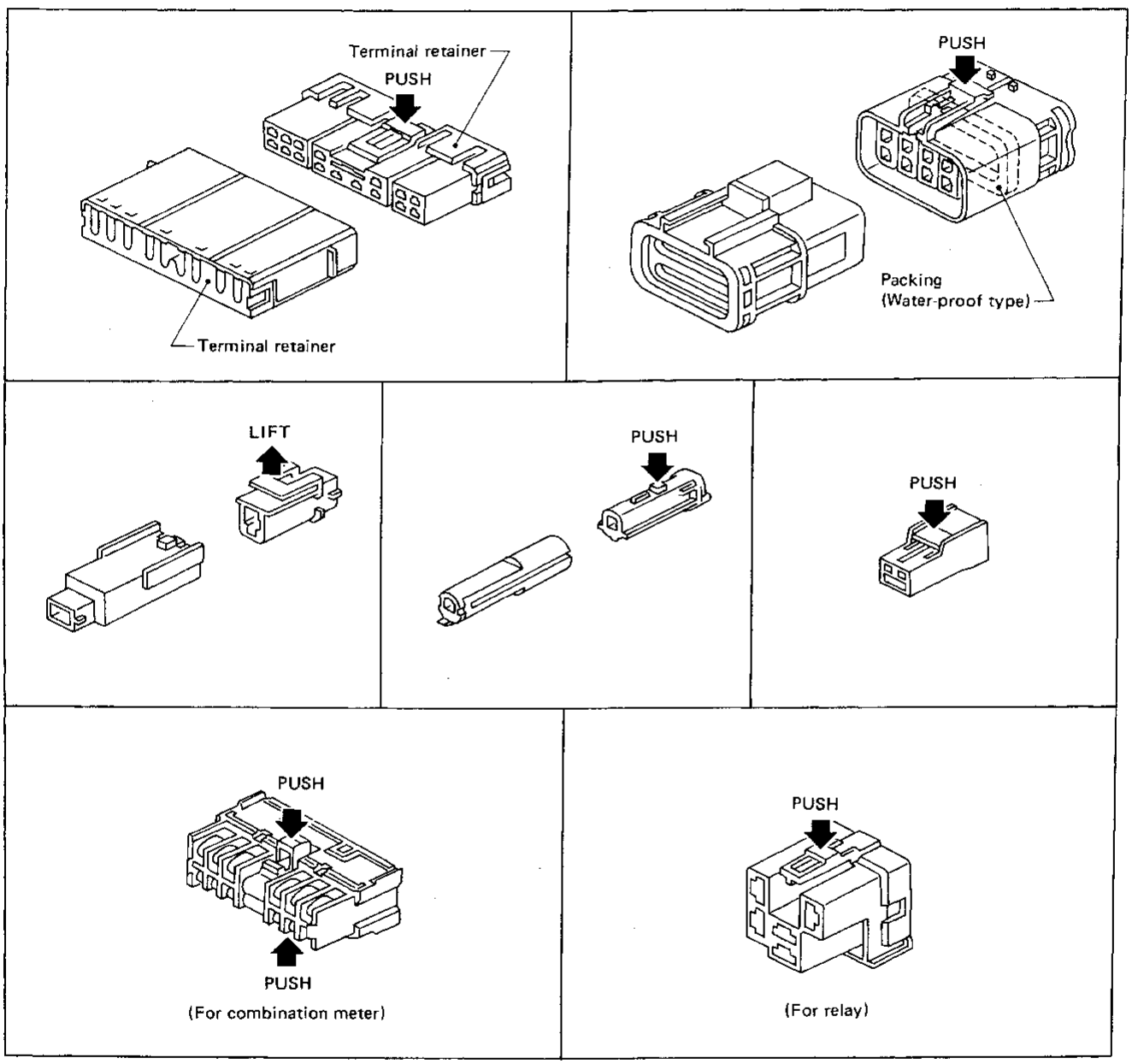
# Description

## HARNESS CONNECTOR

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

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

[Example]



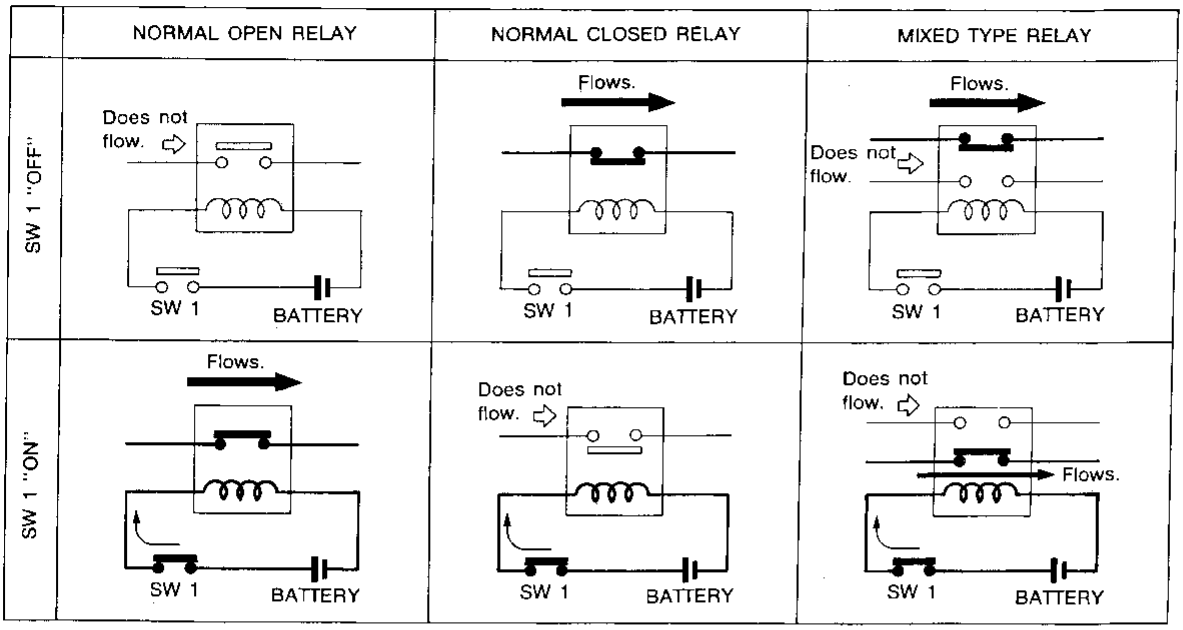



SEL769D

# Description

## NORMAL OPEN, NORMAL CLOSED AND MIXED TYPE RELAYS

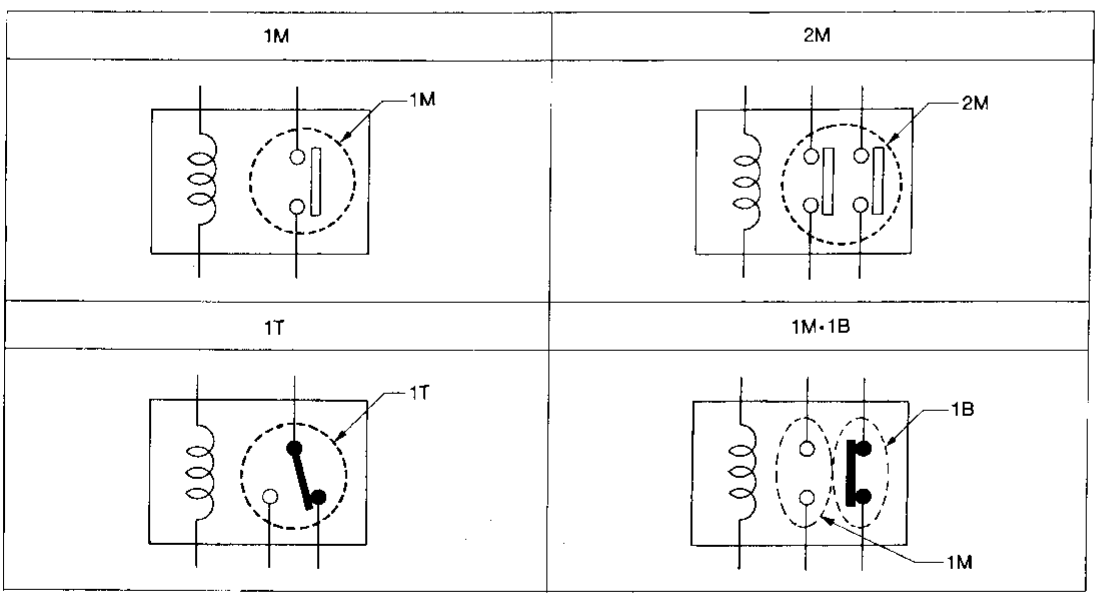
Relays can mainly be divided into three types: normal open, normal closed and mixed type relays.



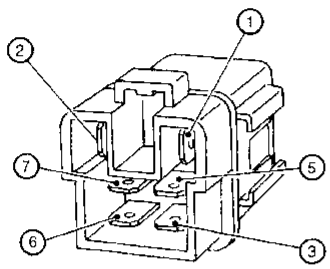
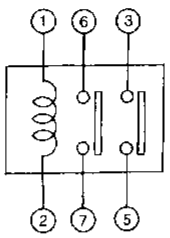
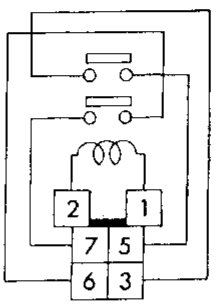
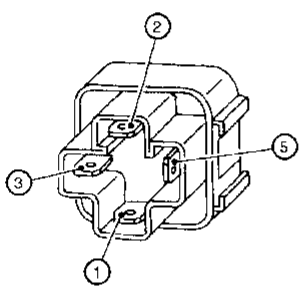
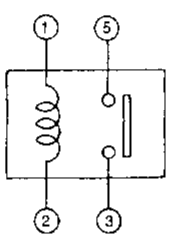
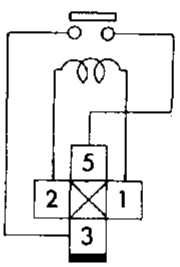
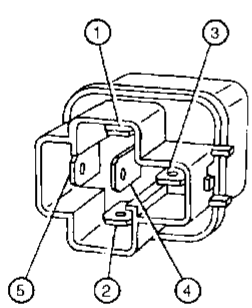
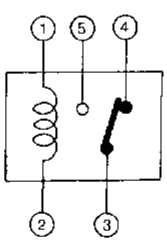
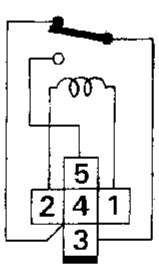

SEL881H

## TYPE OF STANDARDIZED RELAYS

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

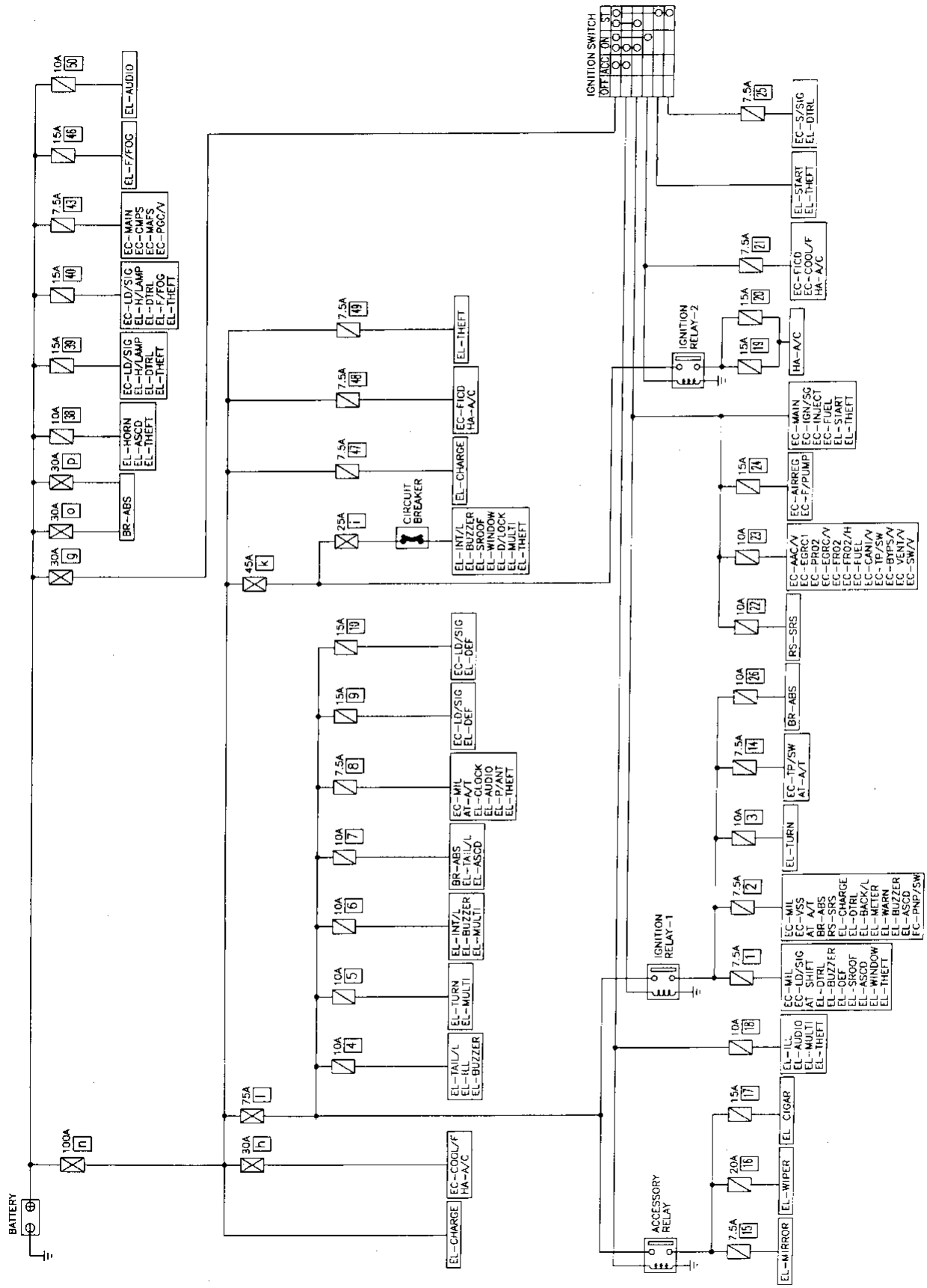



SEL882H

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

MEL386F

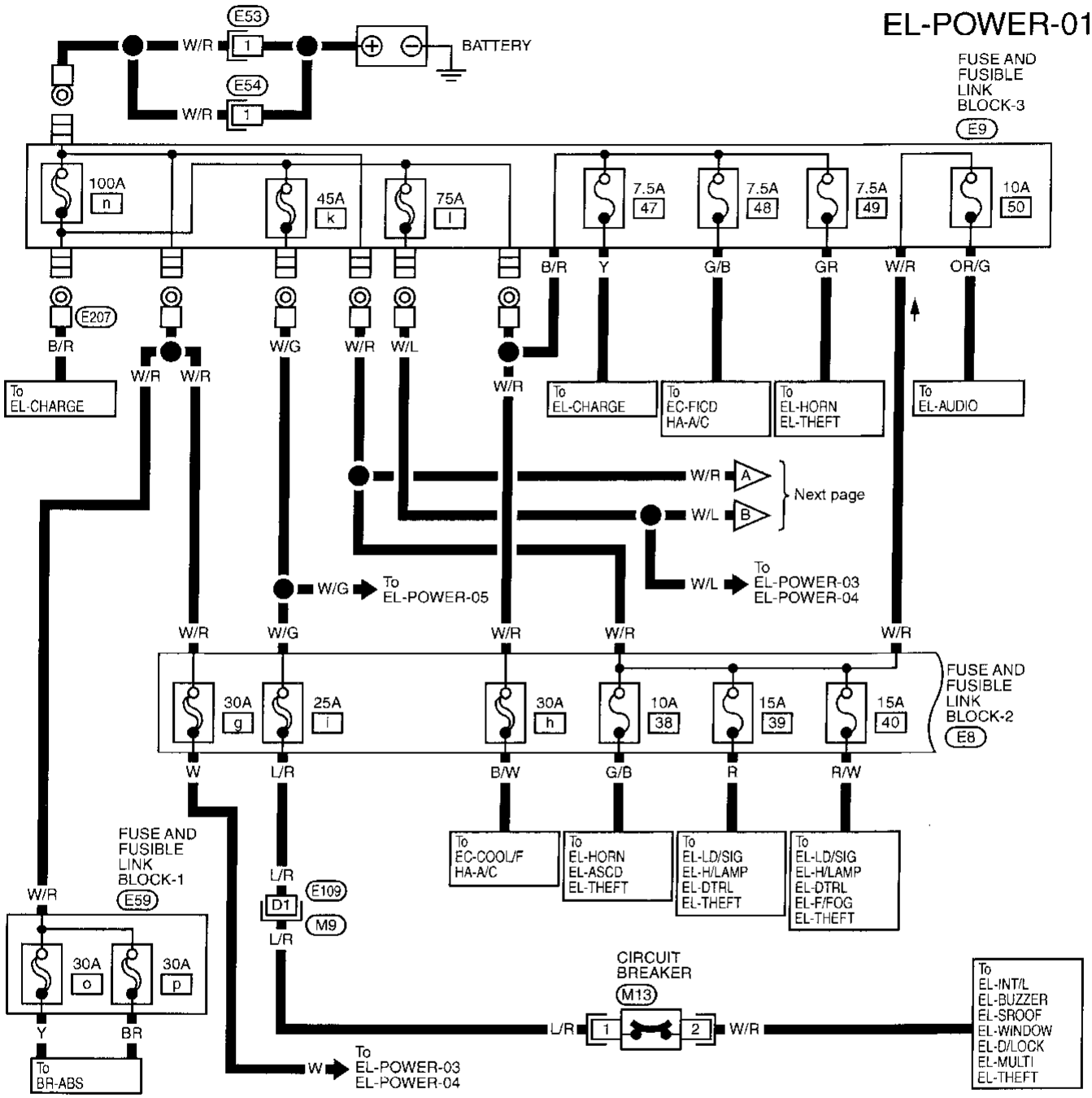
## Schematic

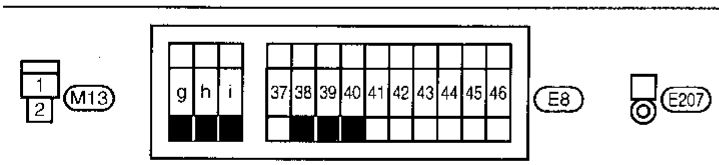


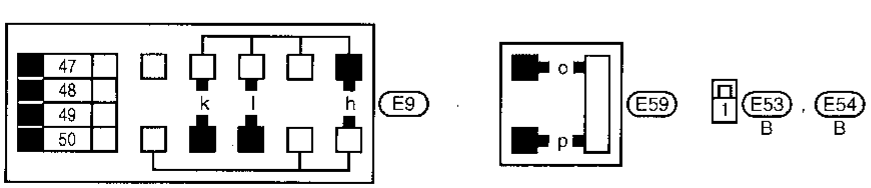

MEL296I

## Wiring Diagram — POWER —

### BATTERY POWER SUPPLY — IGNITION SW. IN ANY POSITION



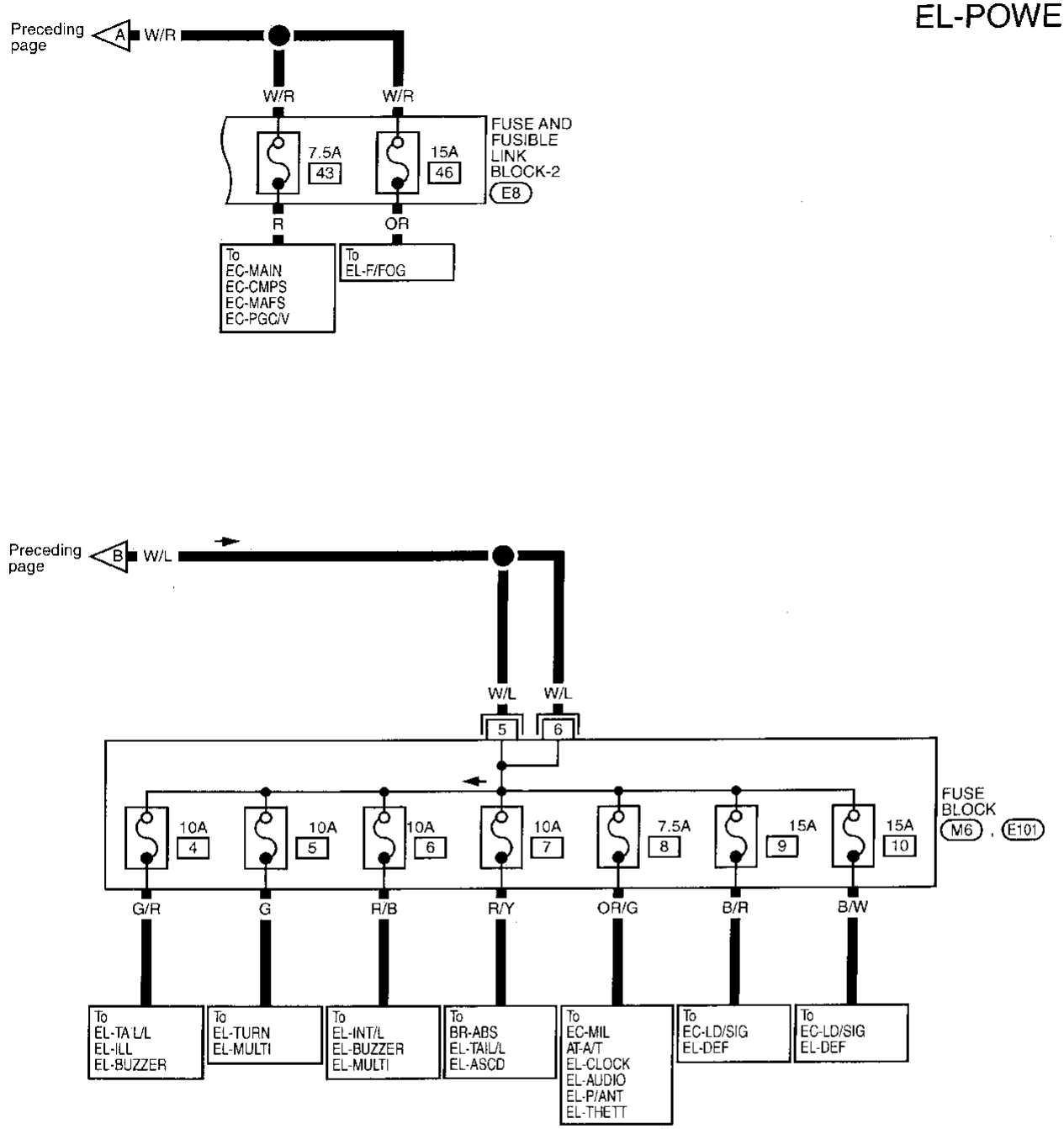




Refer to last page (Foldout page).
M9 , E109

MEL297I

## Wiring Diagram — POWER — (Cont'd)

EL-POWER-02

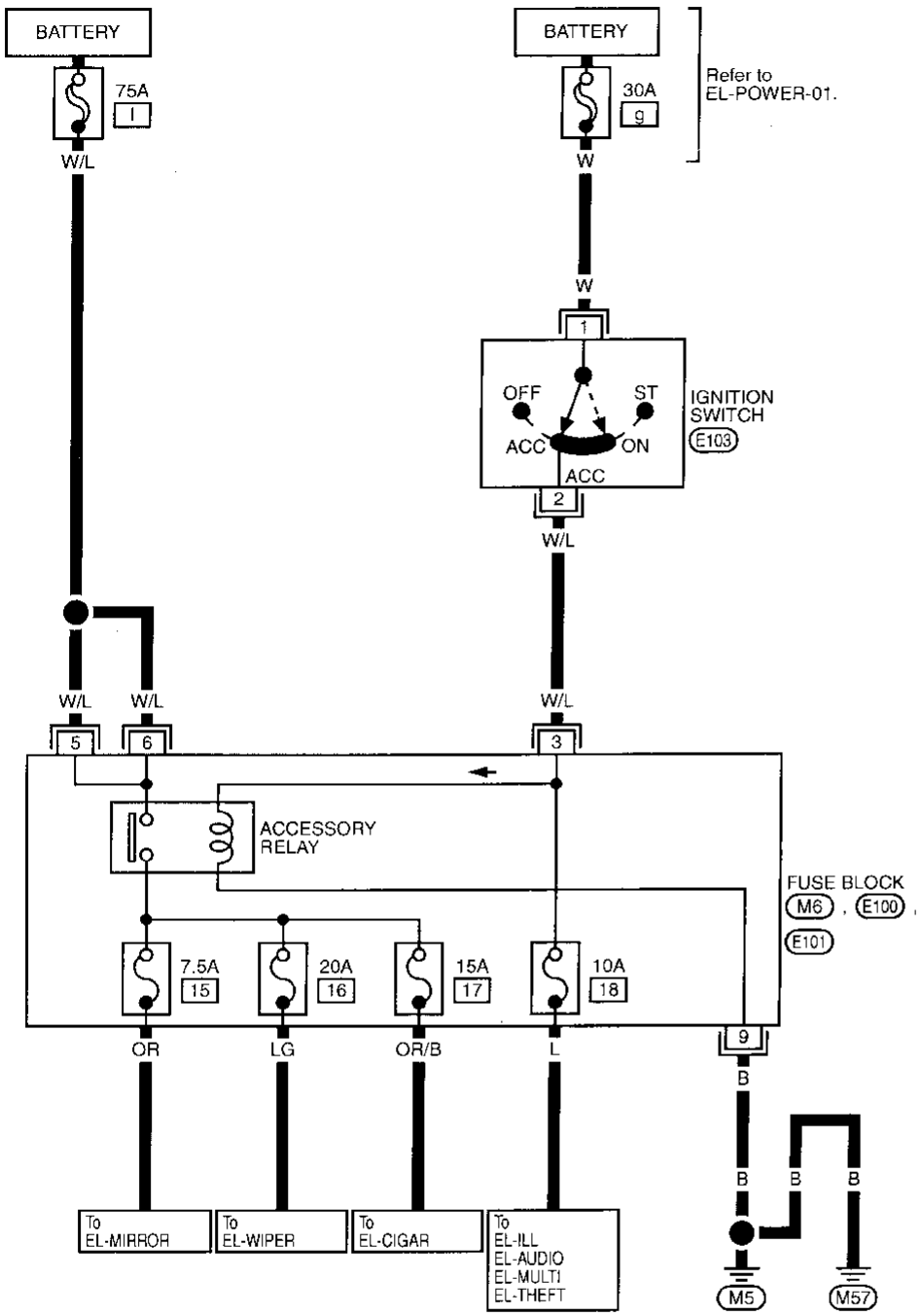


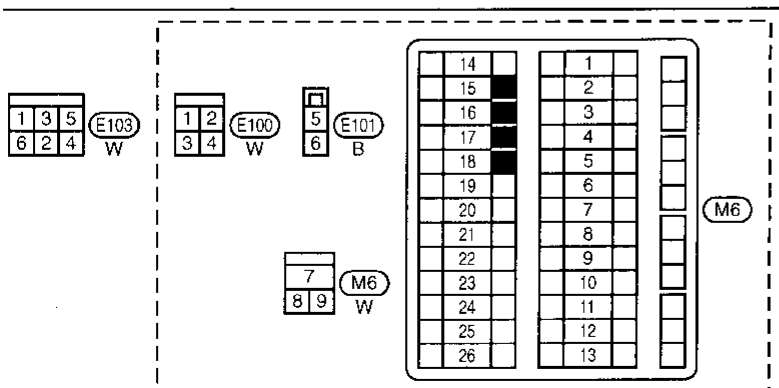

MEL298I

## Wiring Diagram — POWER — (Cont'd)

### ACCESSORY POWER SUPPLY — IGNITION SW. IN "ACC" AND "ON"

EL-POWER-03



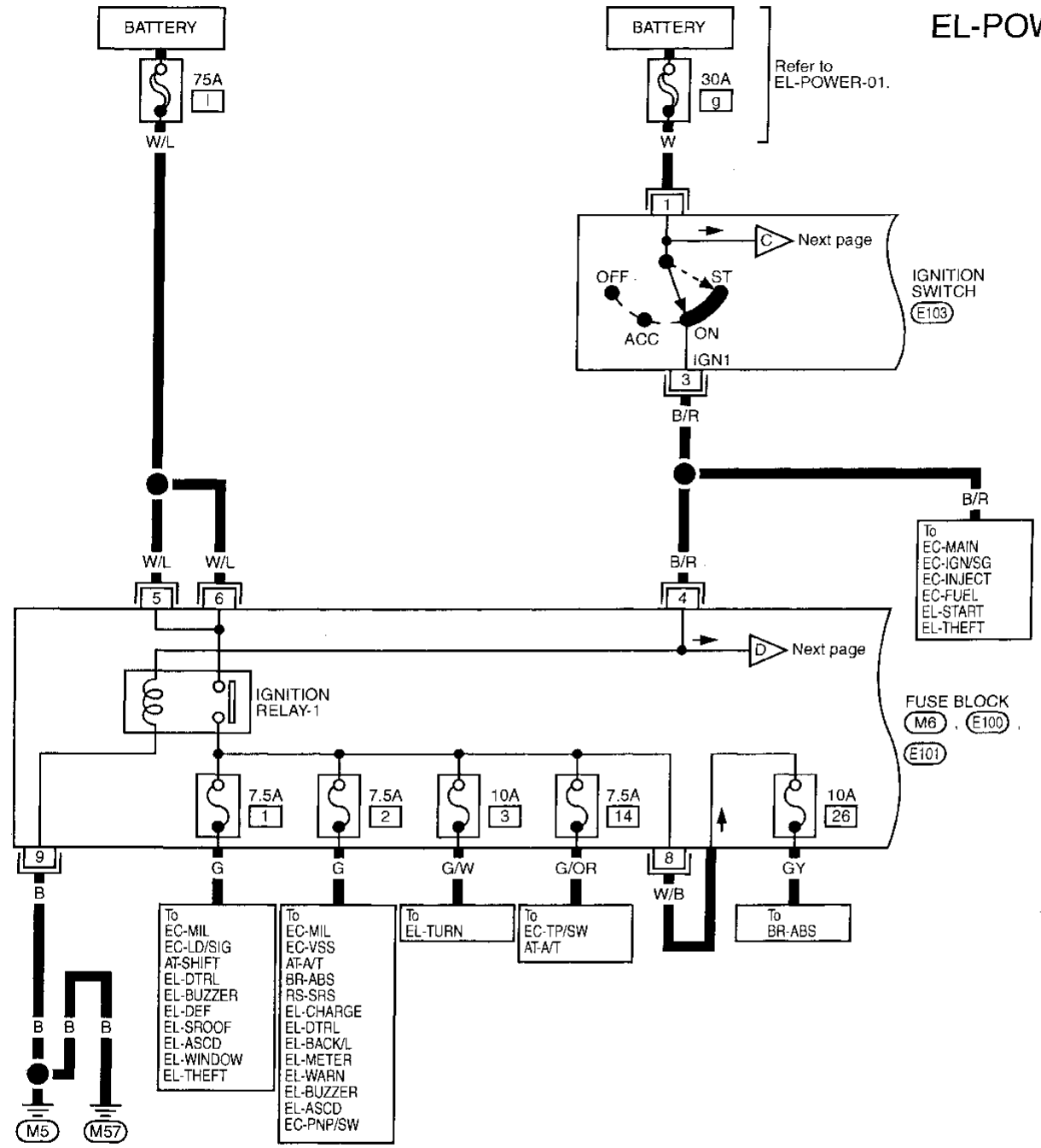



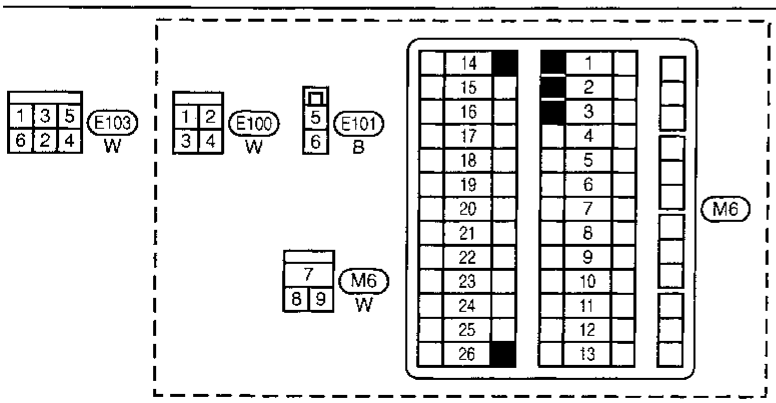

MEL299I

## Wiring Diagram — POWER — (Cont'd)

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

EL-POWER-04

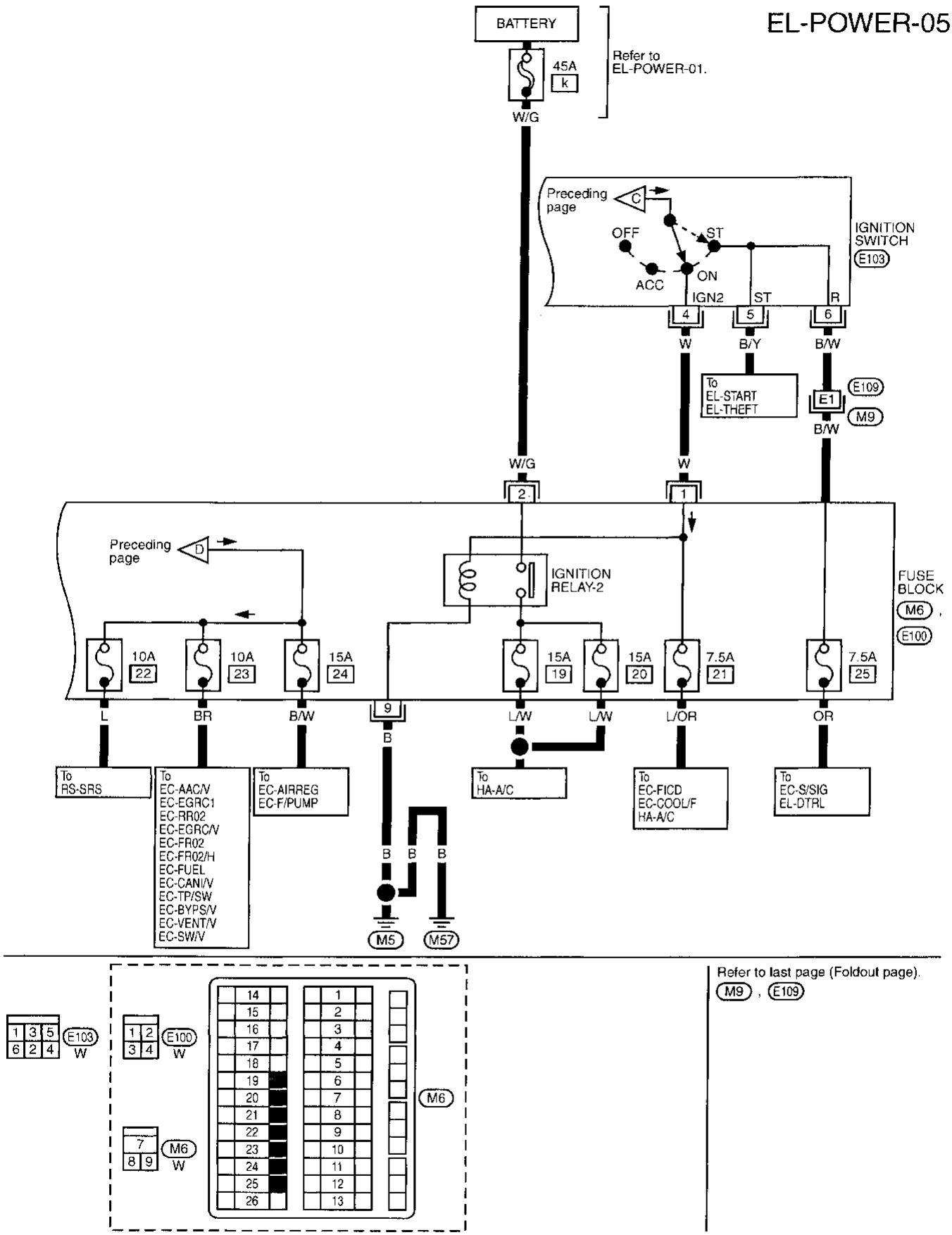


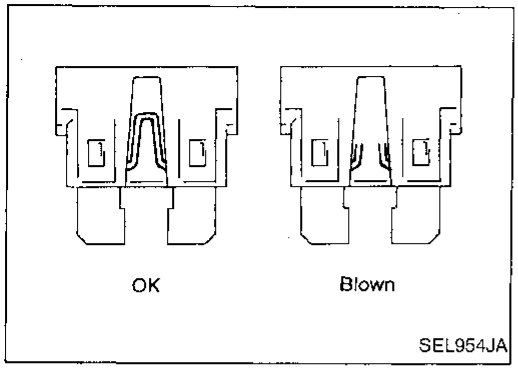

MEL300I

## Wiring Diagram — POWER — (Cont'd)

EL-POWER-05

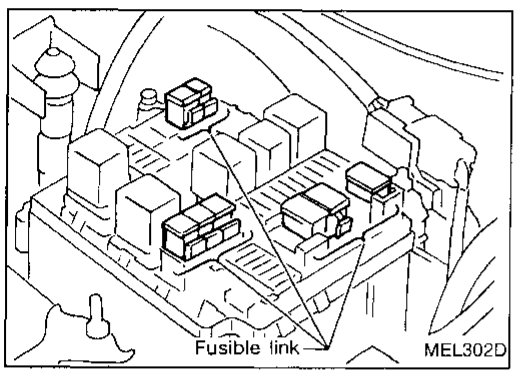



MEL301I




## Fuse

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

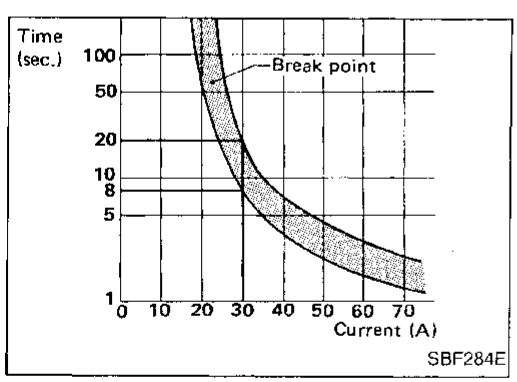



## Fusible Link

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.

Circuit breakers are used in the following systems.

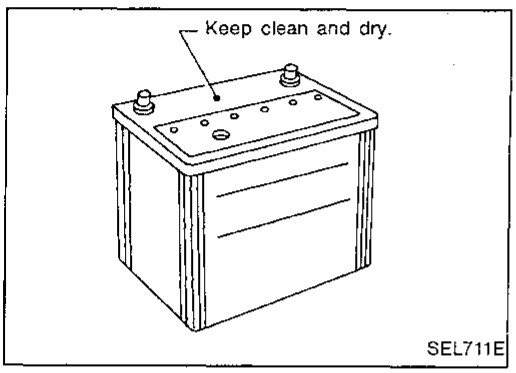
- Power window & power door lock
- Power sunroof
- Multi-remote control system
- Theft warning system

| EARTH | CONNECT TO | CONN. NO. | CELL CODE |
|---|---|---|---|
| M5/M57 | AIR MIX DOOR MOTOR | M33 | HA-A/C |
| | ASCD CONTROL UNIT | M62 | EL-ASCD |
| | ASCD HOLD RELAY | M58: M/T | EL-ASCD |
| | | M79: A/T | |
| | ASCD MAIN SWITCH | M17 | EL-ASCD |
| | CIGARETTE LIGHTER SOCKET | M47 | EL-CIGAR |
| | COMBINATION FLASHER UNIT | M32 | EL-TURN |
| | COMBINATION METER (AIR BAG) | M72 | EL-WARN |
| | COMBINATION METER (CLOCK) | M72 | EL-CLOCK |
| | COMBINATION METER (CRUISE) | M71 | AT-A/T EL-ASCD |
| | COMBINATION METER (HIGH BEAM) | M71 | EL-H/LAMP EL-DTRL |
| | COMBINATION METER (SPEED) | M72 | EL-METER EL-ASCD EC-VSS |
| | COMBINATION METER (TACHO) | M72 | EL-METER |
| | COMBINATION METER (TURN) | M71 | EL-TURN |
| | COMBINATION METER (WATER) | M72 | EL-METER |
| | DATA LINK CONNECTOR FOR CONSULT | M7 | EC-MIL |
| | DATA LINK CONNECTOR FOR GST | M74 | EC-MIL |
| | FAN SWITCH | M35 | HA-A/C |
| | FUSE BLOCK (ACCESSORY RELAY) | M6 | EL-POWER |
| | ILLUMINATION CONTROL SWITCH | M16 | EL-ILL |
| | INTAKE DOOR MOTOR | M51 | HA-A/C |
| | MODE DOOR MOTOR | M34 | HA-A/C |
| | POWER WINDOW RELAY | M1 | EL-SROOF EL-WINDOW |
| | PUSH CONTROL UNIT | M77 | HA-A/C |
| | REAR WINDOW DEFOGGER SWITCH | M39 | EL-DEF |
| | REAR WINDOW DEFOGGER TIMER | M18 | EL-DEF |
| | SMART ENTRANCE CONTROL UNIT | M20 | EL-INT/L EL-BUZZER EL-DEF EL-D/LOCK EL-THEFT |
| | THEFT WARNING HORN RELAY-2 | M80 | EL-THEFT |
| | WARNING BUZZER UNIT | M19 | EL-BUZZER |
| | SHIELD WIRE (ABS CONTROL UNIT) | T32 | BR-ABS |
| | DOOR KEY CYLINDER SWITCH LH | D10 | EL-THEFT |
| | DOOR KEY CYLINDER SWITCH RH | D110 | EL-THEFT |
| | DOOR LOCK ACTUATOR LH | D12 | EL-MULTI EL-THEFT |
| | DOOR LOCK ACTUATOR RH | D111 | EL-MULTI EL-THEFT |
| | DOOR LOCK/UNLOCK SWITCH | D108 | EL-D/LOCK |
| | POWER WINDOW MAIN SWITCH | D8 | EL-WINDOW EL-D/LOCK |
| | SPOT LAMP | R3 | EL-INT/L |
| | AIR BAG DIAGNOSIS SENSOR UNIT | Z1 | RS-SRS |
| | FUSE BLOCK (IGNITION RELAY-1) | M6 | EL-POWER |
| | FUSE BLOCK (IGNITION RELAY-2) | M6 | EL-POWER |
| | COMBINATION METER (FUEL) | M72 | EL-METER |

| EARTH | CONNECT TO | CONN. NO. | CELL CODE |
|---|---|---|---|
| E28/E42 | 5TH POSITION SWITCH | E215 | EC-5TH/P |
| | AMBIENT SWITCH | E36 | EC-FICD HA-A/C |
| | BRAKE FLUID LEVEL SWITCH | E45 | EL-WARN |
| | CLUTCH INTERLOCK SWITCH | E102 | EL-START EL-THEFT |
| | COOLING FAN MOTOR | E30 | HA-A/C EC-COOL/F |
| | DAYTIME LIGHT CONTROL UNIT | E27 | EL-DTRL |
| | FOG LAMP SWITCH | E108 | EL-F/FOG |
| | FRONT FOG LAMP LH | E39 | EL-F/FOG |
| | FRONT FOG LAMP RH | E33 | EL-F/FOG |
| | FRONT SIDE MARKER LAMP LH | E43 | EL-TAIL/L |
| | FRONT SIDE MARKER LAMP RH | E22 | EL-TAIL/L |
| | FRONT TURN SIGNAL LAMP LH | E38 | EL-TURN |
| | FRONT TURN SIGNAL LAMP RH | E34 | EL-TURN |
| | HEADLAMP RH (INSIDE) | E49 | EL-H/LAMP EL-DTRL |
| | HEADLAMP LH (INSIDE) | E50 | EL-H/LAMP |
| | HEADLAMP RH (OUTSIDE) | E32 | EL-H/LAMP EL-DTRL EL-THEFT |
| | HEADLAMP LH (OUTSIDE) | E40 | EL-H/LAMP EL-THEFT |
| | HOOD SWITCH | E21 | EL-THEFT |
| | NEUTRAL POSITION SWITCH | E214 | EC-PNP/SW |
| | PARKING LAMP LH | E41 | EL-TAIL/L |
| | HEADLAMP RELAY | E7 | EL-H/LAMP EL-DTRL |
| | FOG LAMP RELAY-2 | E57 | EL-F/FOG |
| | PARKING LAMP RH | E31 | EL-TAIL/L |
| | PARK/NEUTRAL POSITION RELAY | E51 | EL-ASCD |
| | POWER STEERING OIL PRESSURE SWITCH | E47 | EC-PST/SW |
| | TRIPLE-PRESSURE SWITCH | E29 | EC-FICD HA-A/C |
| | WASHER FLUID LEVEL SWITCH | E25 | EL-WARN |
| | WIPER SWITCH | E104 | EL-WIPER |
| E205 | ALTERNATOR | E220 | EL-CHARGE |
| F15/F57 | REAR HEATED OXYGEN SENSOR | E217 | EC-RRO2 |
| | ABS ACTUATOR | F40 | BR-ABS |
| | DISTRIBUTOR (CAMSHAFT POSITION SENSOR) | F31 | EC-CMPS EC-IGN/SG |
| | ECM (ECCS CONTROL MODULE) | F1 | EC-MAIN AT-A/T |
| | IACV-AIR REGULATOR | F52 | EC-AIRREG |
| | ABSOLUTE PRESSURE SENSOR | F36 | EC-AP/SEN |
| | CRANKSHAFT POSITION SENSOR (OBD) | E231 | EC-CKPS |
| | FRONT HEATED OXYGEN SENSOR | F16 | EC-FRO2 EC-FRO2/H EC-FUEL |
| | KNOCK SENSOR | F62 | EC-KS |
| | MASS AIR FLOW SENSOR | F30 | EC-MAFS |
| | THROTTLE POSITION SENSOR | F22 | EC-TPS |
| | WIPER AMPLIFIER | F9 | EL-WIPER |
| | WIPER MOTOR | F7 | EL-WIPER |
| | EVAP CONTROL SYSTEM PRESSURE SENSOR | T36 | EC-PRE/SE |
| | DATA LINK CONNECTOR FOR GST | M74 | EC-MIL |

| EARTH | CONNECT TO | CONN. NO. | CELL CODE |
|---|---|---|---|
| B4/B13 | DOOR MIRROR REMOTE CONTROL SWITCH | B8 | EL-MIRROR |
| | DOOR SWITCH LH | B10 | EL-BUZZER EL-MULTI EL-THEFT RS-SRS |
| | SEAT BELT BUCKLE SWITCH | B5 | EL-WARN EL-BUZZER |
| | DIODE | B37 | AT-SHIFT |
| | ABS CONTROL UNIT | T33 | BR-ABS |
| | OVERDRIVE CONTROL SWITCH | B7 | AT-A/T |
| | BACK-UP LAMP LH | T9 | EL-BACK/L |
| | BACK-UP LAMP RH | T7 | EL-BACK/L |
| | FUEL PUMP | T30 | EC-F/PUMP |
| | FUEL TANK GAUGE UNIT | T29 | EL-METER EC-TFTS EL-WARN |
| | HIGH-MOUNTED STOP LAMP | T5 | EL-TAIL/L |
| | LICENSE LAMP | T14 | EL-TAIL/L |
| | POWER ANTENNA | T10 | EL-P/ANT |
| | REAR COMBINATION LAMP LH | T13 | EL-TAIL/L EL-TURN |
| | REAR COMBINATION LAMP RH | T19 | EL-TAIL/L EL-TURN |
| | REAR SIDE MARKER LAMP LH | T12 | EL-TAIL/L |
| | REAR SIDE MARKER LAMP RH | T20 | EL-TAIL/L |
| | SHIELD WIRE (ABS CONTROL UNIT) | T32 | BR-ABS |
| | TRUNK LID KEY CYLINDER SWITCH | T6 | EL-THEFT |
| | TRUNK ROOM LAMP SWITCH | T8 | EL-INT/L EL-THEFT |
| T16 | DOOR MIRROR REMOTE CONTROL SWITCH | B8 | EL-MIRROR |
| | DOOR SWITCH LH | B10 | EL-BUZZER EL-MULTI EL-THEFT |
| | OVERDRIVE CONTROL SWITCH | B7 | AT-A/T |
| | SEAT BELT BUCKLE SWITCH | B5 | EL-WARN EL-BUZZER |
| | ABS CONTROL UNIT | T33 | BR-ABS |
| | BACK-UP LAMP LH | T9 | EL-BACK/L |
| | BACK-UP LAMP RH | T7 | EL-BACK/L |
| | FUEL TANK GAUGE UNIT | T29 | EL-METER EL-WARN EC-TFTS |
| | FUEL PUMP | T30 | EC-F/PUMP |
| | HIGH-MOUNTED STOP LAMP | T5 | EL-TAIL/L |
| | LICENSE LAMP | T14 | EL-TAIL/L |
| | POWER ANTENNA | T10 | EL-P/ANT |
| | REAR COMBINATION LAMP LH | T13 | EL-TAIL/L EL-TURN |
| | REAR COMBINATION LAMP RH | T19 | EL-TAIL/L EL-TURN |
| | REAR SIDE MARKER LAMP LH | T12 | EL-TAIL/L |
| | REAR SIDE MARKER LAMP RH | T20 | EL-TAIL/L |
| | SHIELD WIRE (ABS CONTROL UNIT) | T32 | BR-ABS |
| | TRUNK LID KEY CYLINDER SWITCH | T6 | EL-THEFT |
| | TRUNK ROOM LAMP SWITCH | T8 | EL-INT/L EL-THEFT |

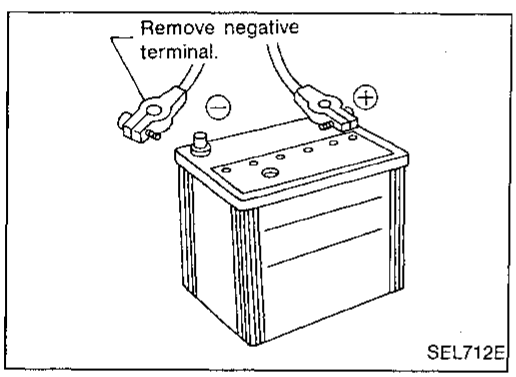
**CAUTION:**
- **If it becomes necessary to start the engine with a booster battery and jumper cables, use a 12-volt booster battery.**
- **After connecting battery cables, ensure that they are tightly clamped to battery terminals for good contact.**
- **Never add distilled water through the hole used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



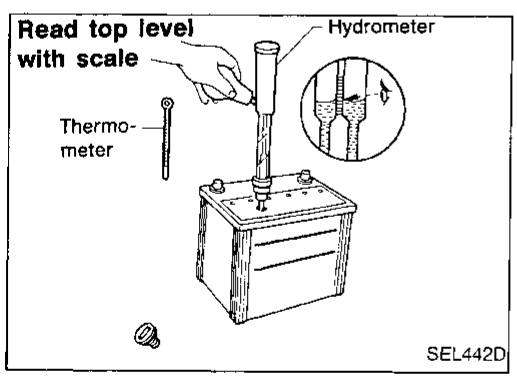

## How to Handle Battery

### 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. This also applies to batteries designated as "low maintenance" and "maintenance-free".




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

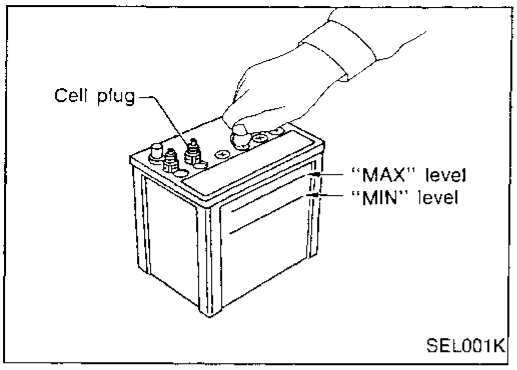



- Check the charge condition of the battery. Periodically check the specific gravity of the electrolyte. Keep a close check on charge condition to prevent over-discharge.

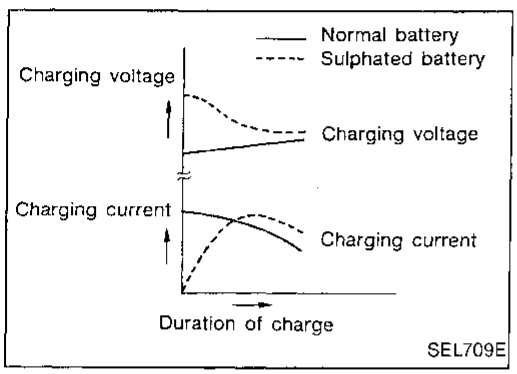
### CHECKING ELECTROLYTE LEVEL

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

## How to Handle Battery (Cont'd)

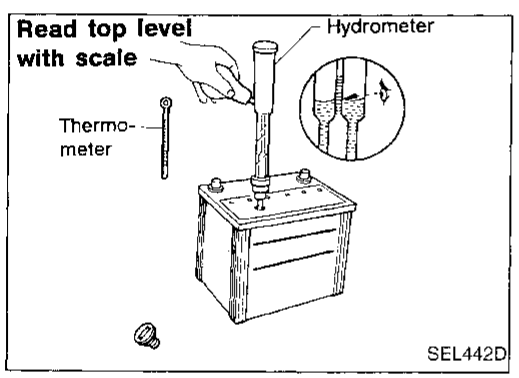



- Remove the cell plug using a suitable tool.
- Add distilled water up to the MAX level.




### SULPHATION

**A battery will be completely discharged if it is left unattended for a long time and the specific gravity will become 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.

## 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 |

### 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 |

## How to Handle Battery (Cont'd)

**Do not charge at more than 50 ampere rate.**

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

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

## 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 |

## System Description

### M/T MODELS

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

With the ignition switch in the START position, power is supplied
- through terminal ⑤ of the ignition switch
- to clutch interlock relay terminal ③ .

**For models with theft warning system**

With the ignition switch in the ON or START position, power is supplied
- through 7.5A fuse (No. [1], located in the fuse block)
- to theft warning relay-2 terminal ① .
- through terminal ③ of the ignition switch
- to theft warning relay-2 terminal ③ .

If the theft warning system is triggered, terminal ② of the theft warning relay-2 is grounded and power to the clutch interlock relay is interrupted.
When the theft warning system is not operating, power is supplied
- through theft warning relay-2 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 terminal ③ of the ignition switch
- to clutch interlock relay terminal ① .

Ground is supplied to clutch interlock relay terminal ② , when the clutch pedal is depressed through the clutch interlock switch and body grounds (E42) and (E28).
The clutch interlock relay is energized and power is supplied
- from terminal ⑤ of the clutch interlock relay
- to terminal ② of the starter motor windings.

The starter motor plunger closes and provides a closed circuit between the battery and the starter motor. The starter motor is grounded to the engine block. With power and ground supplied, cranking occurs and the engine starts.

### A/T MODELS

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

**Models with theft warning system**

With the ignition switch in the ON or START position, power is supplied
- through 7.5A fuse (No. [1], located in the fuse block)
- to theft warning relay-2 terminal ① .

With the ignition switch in the START position, power is supplied
- from ignition switch terminal ⑤
- to theft warning relay-2 terminal ③ .

If the theft warning system is triggered, terminal ② of the theft warning relay-2 is grounded and power to the inhibitor switch is interrupted.
When the theft warning system is not operating, power is supplied
- through theft warning relay-2 terminal ④
- to inhibitor switch terminal ②
- through inhibitor switch terminal ① , with the selector lever in the P or N position
- to terminal ② of the starter motor windings.

## System Description (Cont'd)

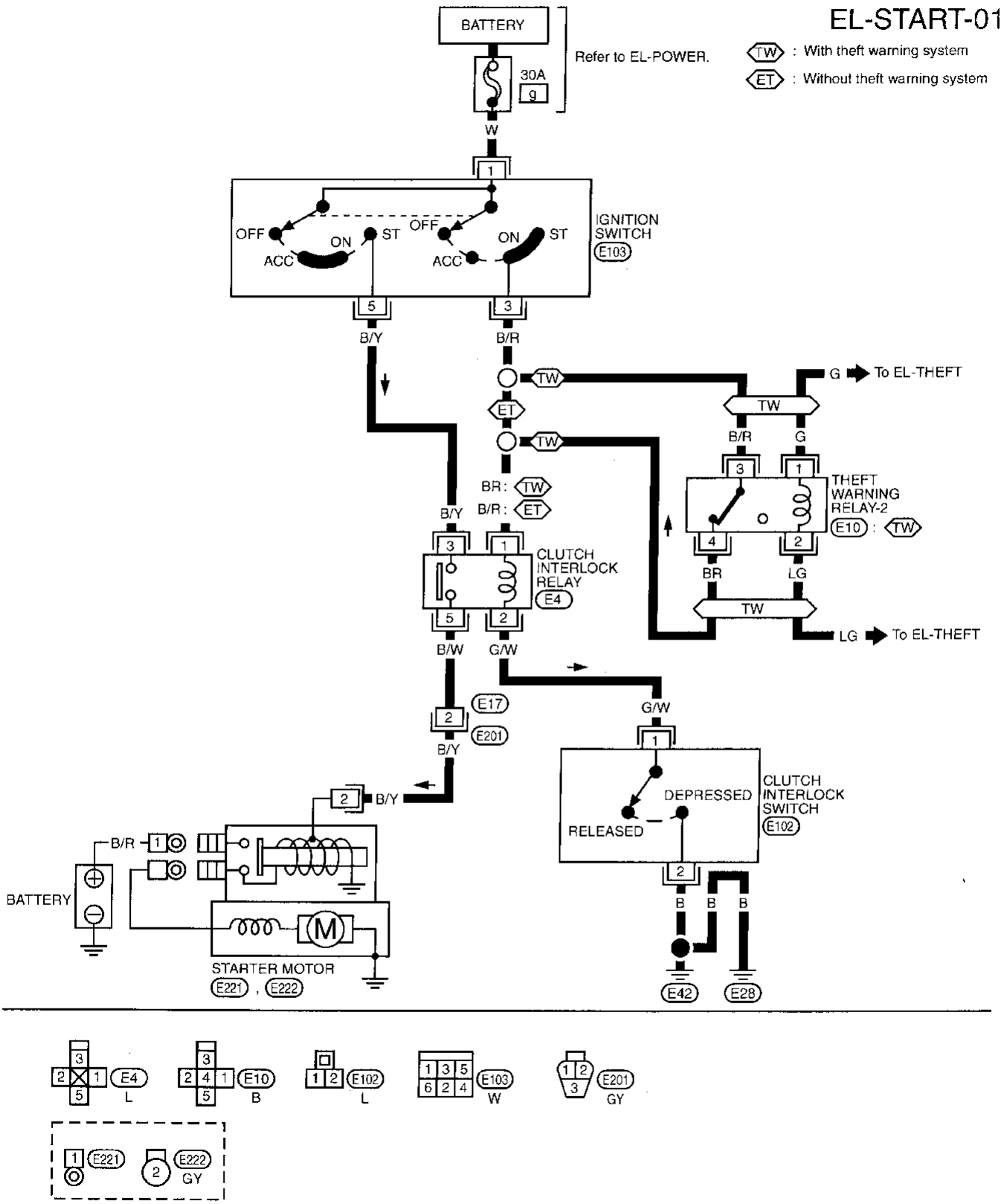
### Models without theft warning system

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

- from ignition switch terminal ⑤
- to inhibitor switch terminal ②
- through inhibitor switch terminal ① , with the selector lever in the P or N position
- to terminal ② of the starter motor windings.

The starter motor plunger closes and provides a closed circuit between the battery and starter motor. The starter motor is grounded to the engine block. With power and ground supplied, cranking occurs and the engine starts.

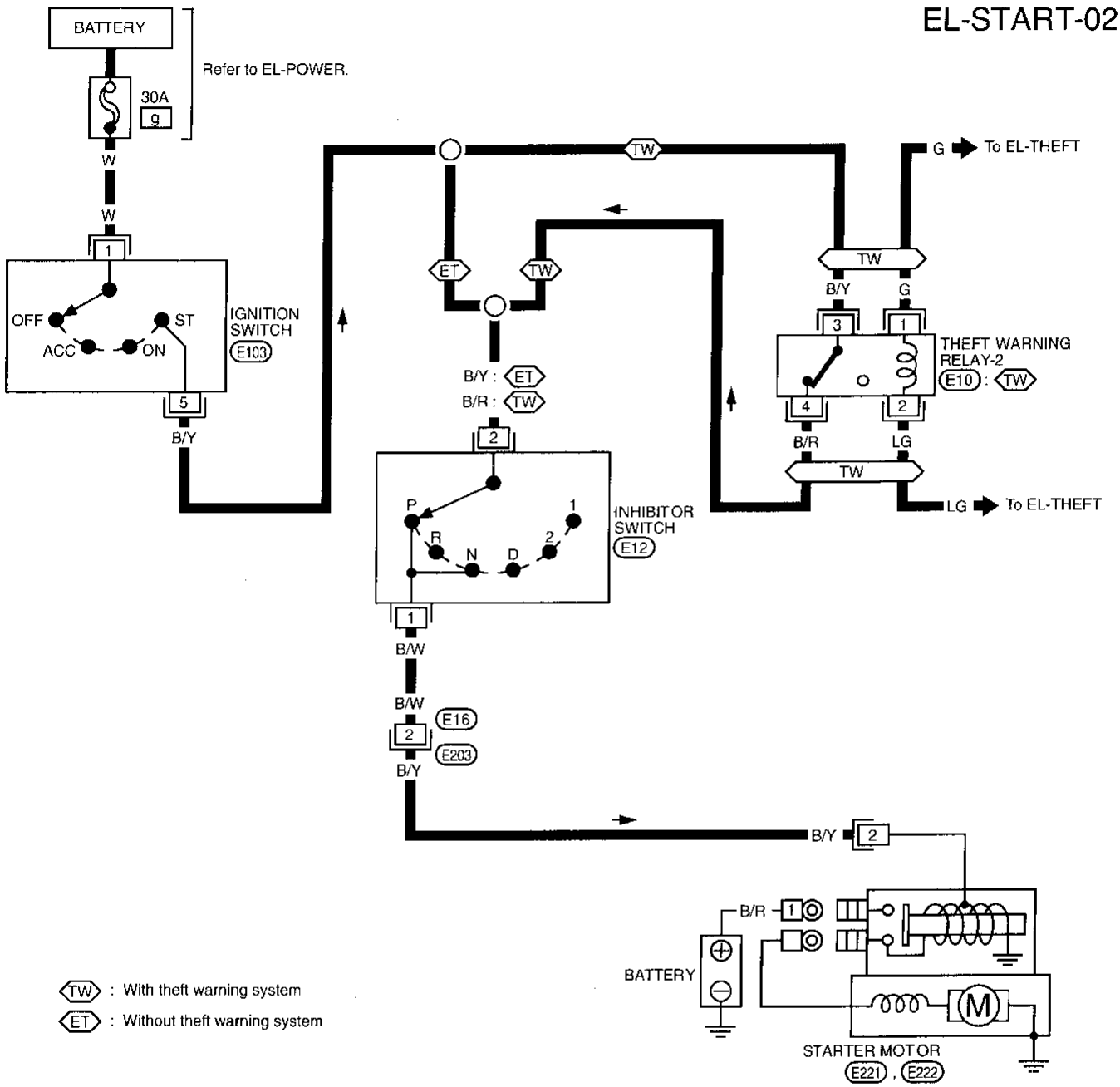
## Wiring Diagram — START —/M/T Models

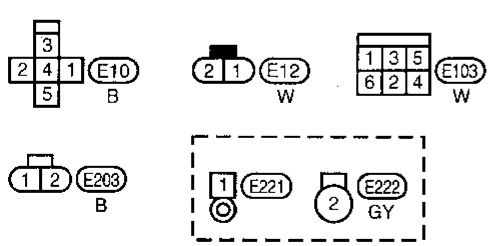



MEL303I

## Wiring Diagram — START —/A/T Models

EL-START-02

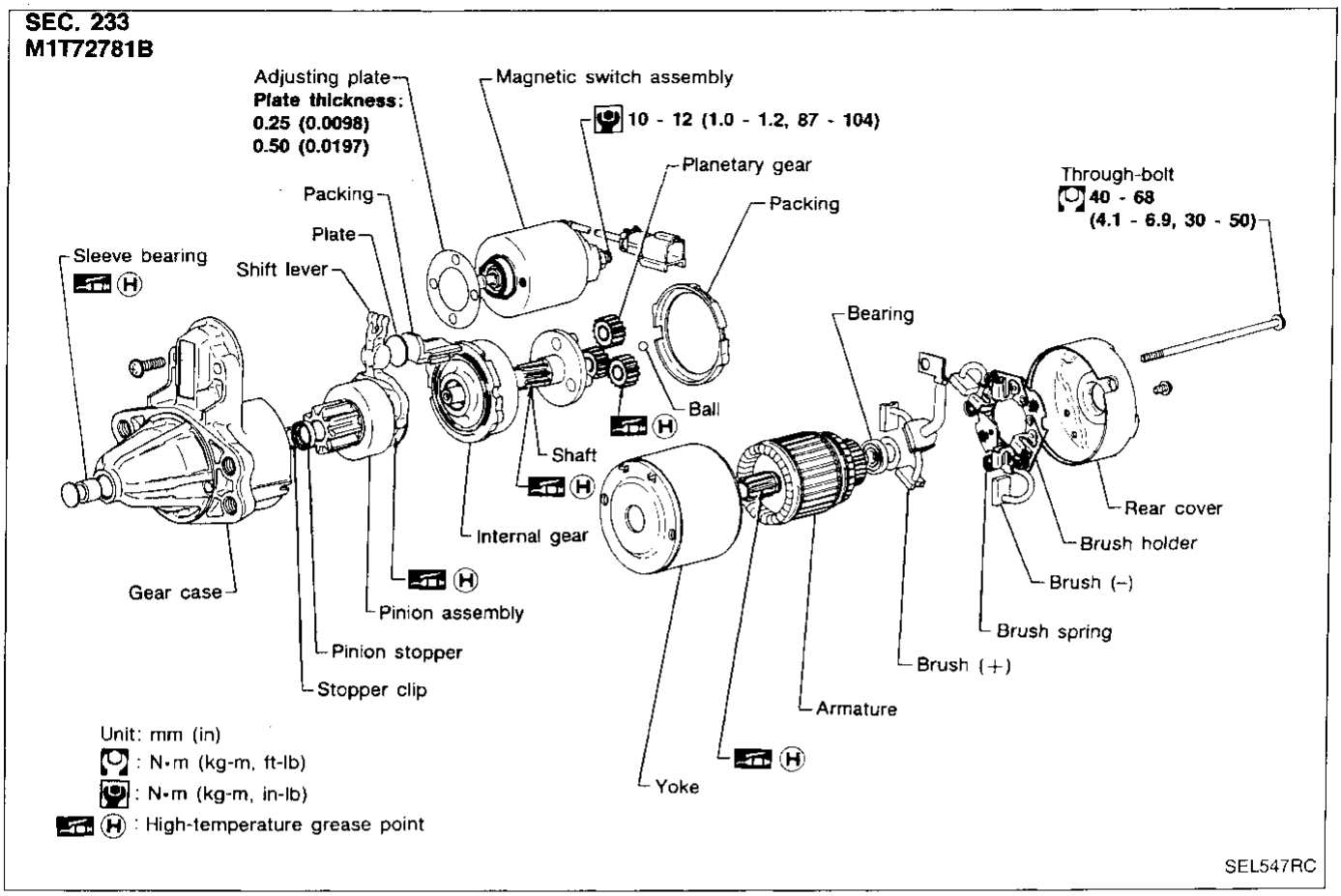


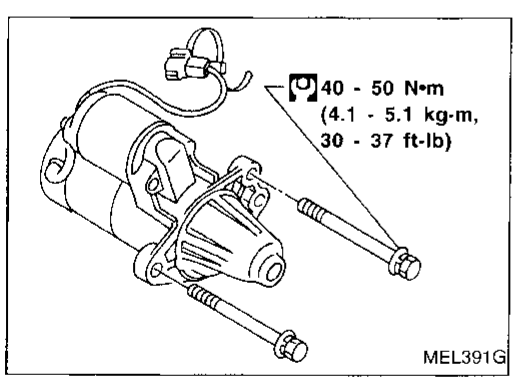






MEL274G

## Construction




## Removal and Installation

### REMOVAL

1. (A/T model only)
   - Support automatic transmission with a jack.
   - Remove rear mounting bracket bolts (4).
   - Slightly lower the transmission to make room.
   - Pull out ATF level gauge pipe.
2. Remove connector bracket from front mount bracket.
3. Remove harness connector.
4. Remove starter.

### INSTALLATION

To install, reverse the removal procedure.

## Pinion/Clutch Check

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

## Service Data and Specifications (SDS)

### STARTER

| Type | | M1T72781B<br>MITSUBISHI make<br>Reduction gear type |
|---|---|---|
| System voltage | V | 12 |
| No-load | | |
| Terminal voltage | V | 11.0 |
| Current | A | 50 - 75 |
| Revolution | rpm | 3,000 - 4,000 |
| Minimum diameter of commutator | mm (in) | 28.8 (1.134) |
| Minimum length of brush | mm (in) | 12.0 (0.472) |
| Brush spring tension | N (kg, lb) | 13.7 - 25.5 (1.4 - 2.6, 3.1 - 5.7) |
| Clearance between pinion front edge and pinion stopper | mm (in) | 0.5 - 2.0 (0.020 - 0.079) |

## System Description

The alternator 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 alternator terminal Ⓢ through:

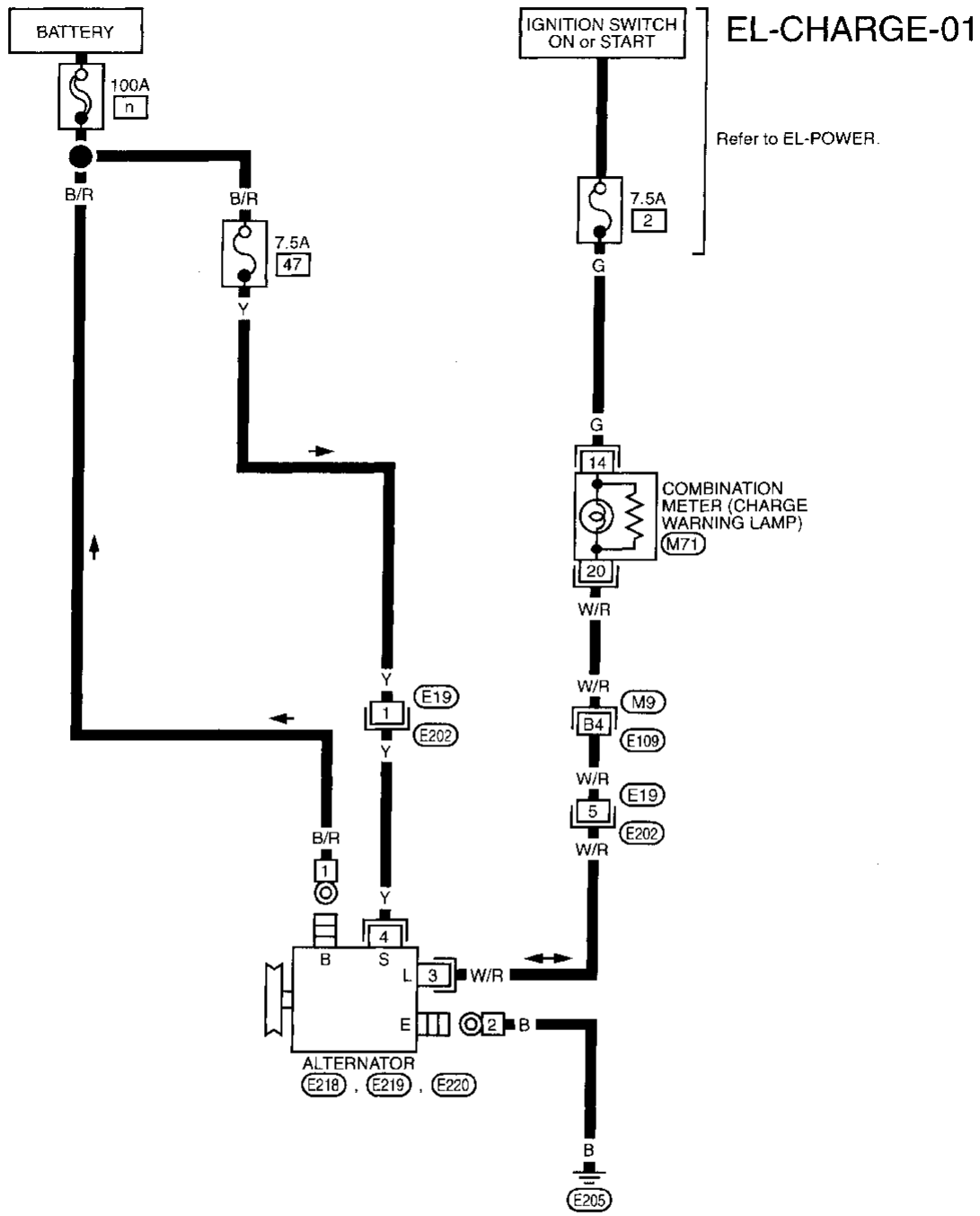
- 100A fusible link (letter [n] , located in the fuse and fusible link box), and
- 7.5A fuse (No. [47], located in the fuse and fusible link box).

Terminal Ⓑ supplies power to charge the battery and operate the vehicle's electrical system. Output voltage is controlled by the IC regulator at terminal Ⓢ detecting the input voltage. The charging circuit is protected by the 100A fusible link.
Terminal Ⓔ of the alternator supplies ground through body ground (E205).
With the ignition switch in the ON or START position, power is supplied

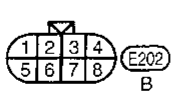
- through 7.5A fuse (No. [2], located in the fuse block)
- to combination meter terminal ⑭ for the charge warning lamp.

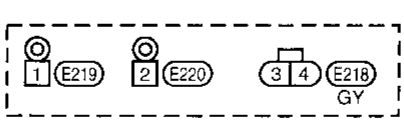
Ground is supplied to terminal ⑳ of the combination meter through terminal Ⓛ of the alternator. With power and ground supplied, the charge warning lamp will illuminate. When the alternator is providing sufficient voltage with the engine running, the ground is opened and the charge warning lamp will go off.
If the charge warning lamp illuminates with the engine running, a fault is indicated.

## Wiring Diagram — CHARGE —





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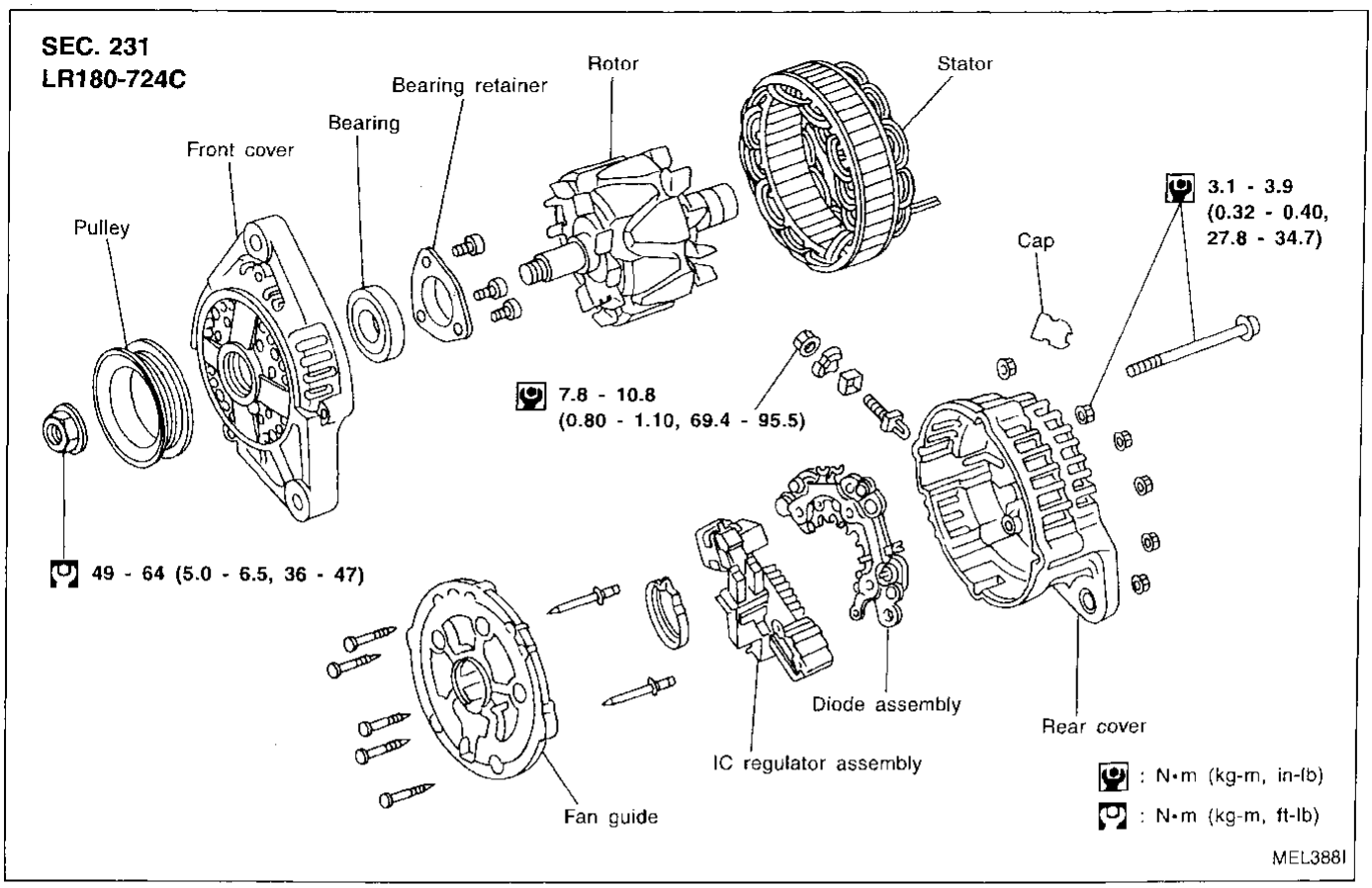
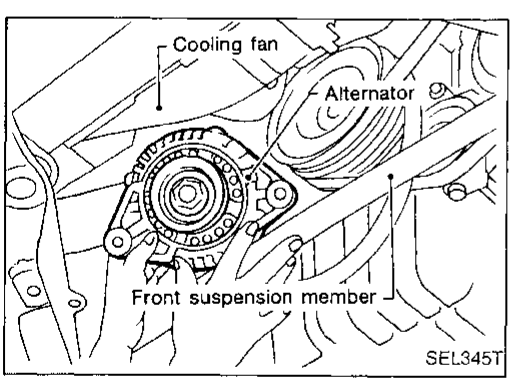
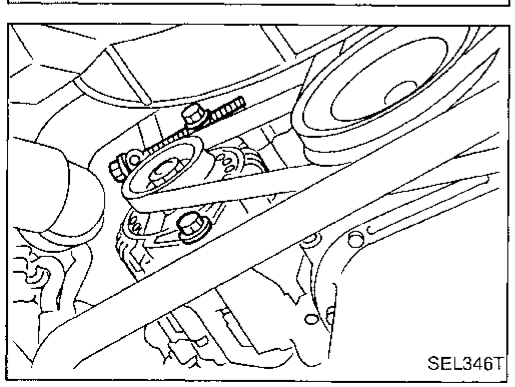
M9 , E109

MEL304I

## Construction




## Removal and Installation

### REMOVAL

1. Remove engine undercover.
2. Remove drive belt from alternator.
3. Disconnect harness connector.
4. Remove cooling fan lower shroud.
5. Remove alternator.

### INSTALLATION

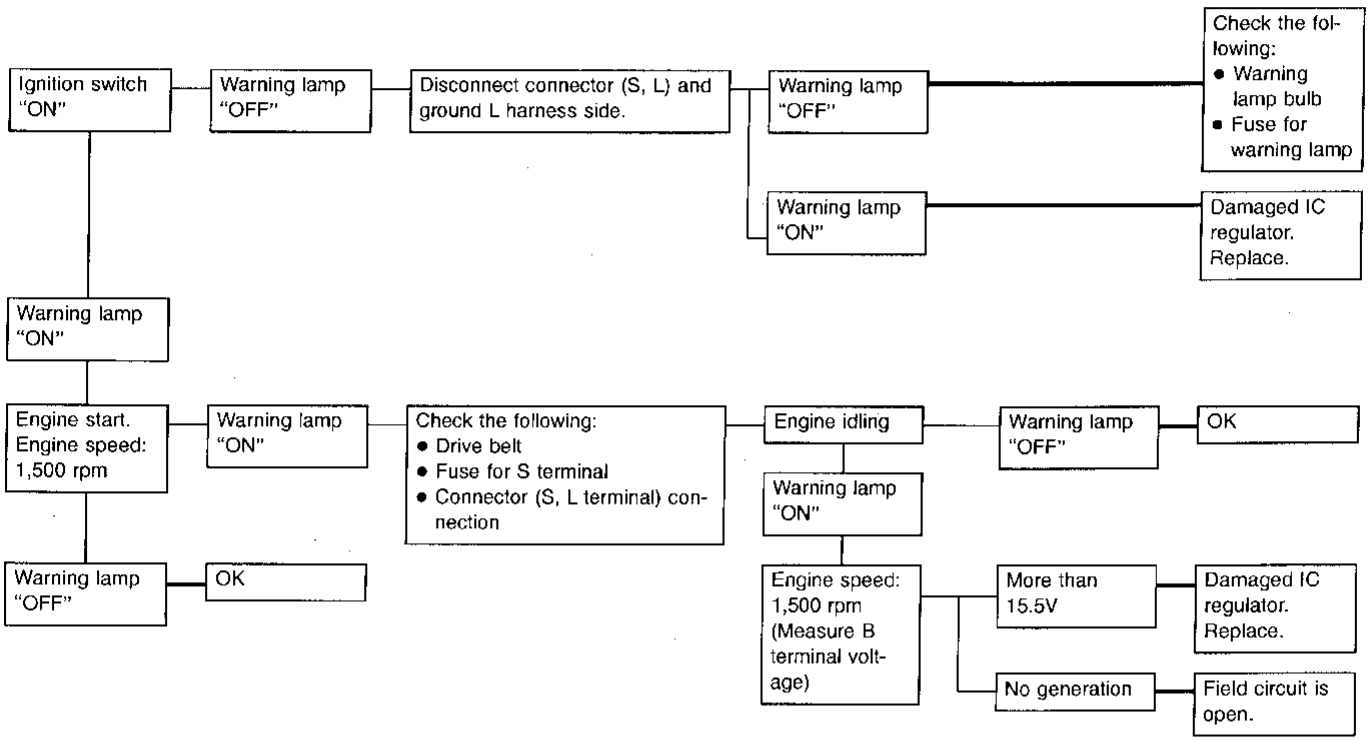
To install, reverse the removal procedure.

## Trouble Diagnoses

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

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

### WITH IC REGULATOR




Warning lamp: "CHARGE" warning lamp in combination meter

**Note:**

- **If the inspection result is OK even though the charging system is malfunctioning, check the B terminal connection. (Check the tightening torque.)**
- **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 alternator is operating:

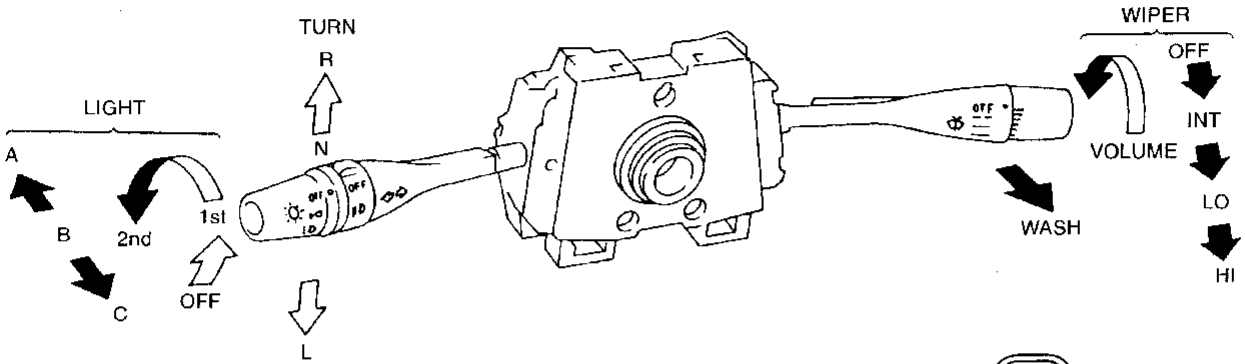
- Excessive voltage is produced.
- No voltage is produced.

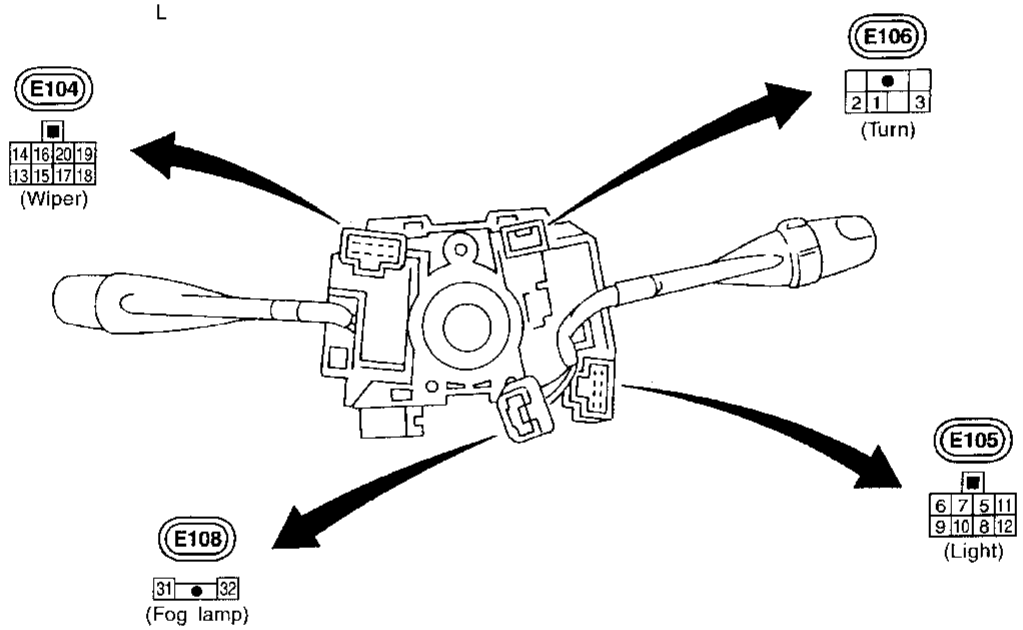
## Service Data and Specifications (SDS)

### ALTERNATOR

| | | |
|---|---|---|
| Type | | LR180-742C<br>HITACHI make |
| Nominal rating | V-A | 12-80 |
| 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<br>More than 65/2,500<br>More than 77/5,000 |
| Regulated output voltage | V | 14.1 - 14.7 |
| Minimum length of brush | mm (in) | 6.0 (0.236) |
| Brush spring pressure | N (g, oz) | 1.000 - 3.432<br>(102 - 350, 3.60 - 12.34) |
| Slip ring minimum outer diameter | mm (in) | 26.0 (1.024) |
| Rotor (field coil) resistance | Ω | 2.67 |

## Check




LIGHTING SWITCH

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

| | L | N | R |
|---|---|---|---|
| 1 | ○ | | ○ |
| 2 | | | ○ |
| 3 | ○ | | |

TURN SIGNAL SWITCH

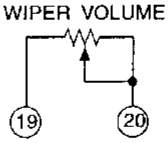
WIPER SWITCH
(With intermittent wiper)

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

WIPER SWITCH
(Without intermittent wiper)

| | OFF | LO | HI | WASH |
|---|---|---|---|---|
| 13 | ○ | | | |
| 14 | ○ | ○ | | |
| 15 | | | | |
| 16 | | | ○ | |
| 17 | | ○ | ○ | ○ |
| 18 | | | | ○ |

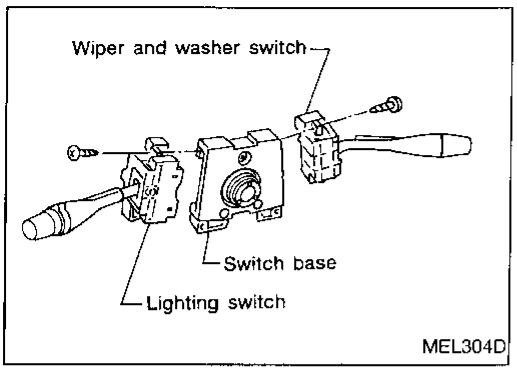
VARIABLE INTERMITTENT WIPER VOLUME




FOG LAMP SWITCH

| | OFF | ON |
|---|---|---|
| 31 | | ○ |
| 32 | | ○ |

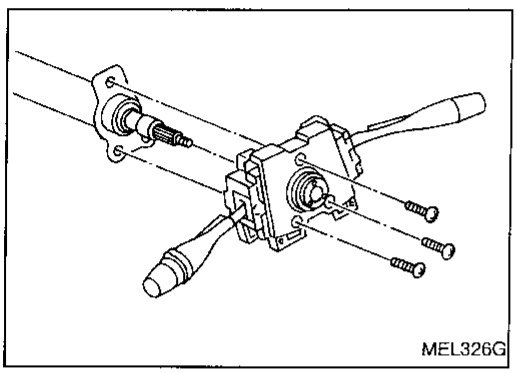
MEL305I



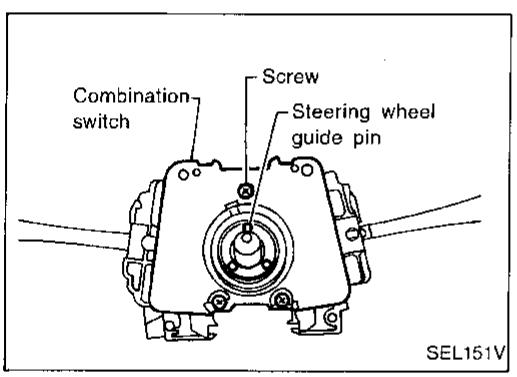

## Replacement

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

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

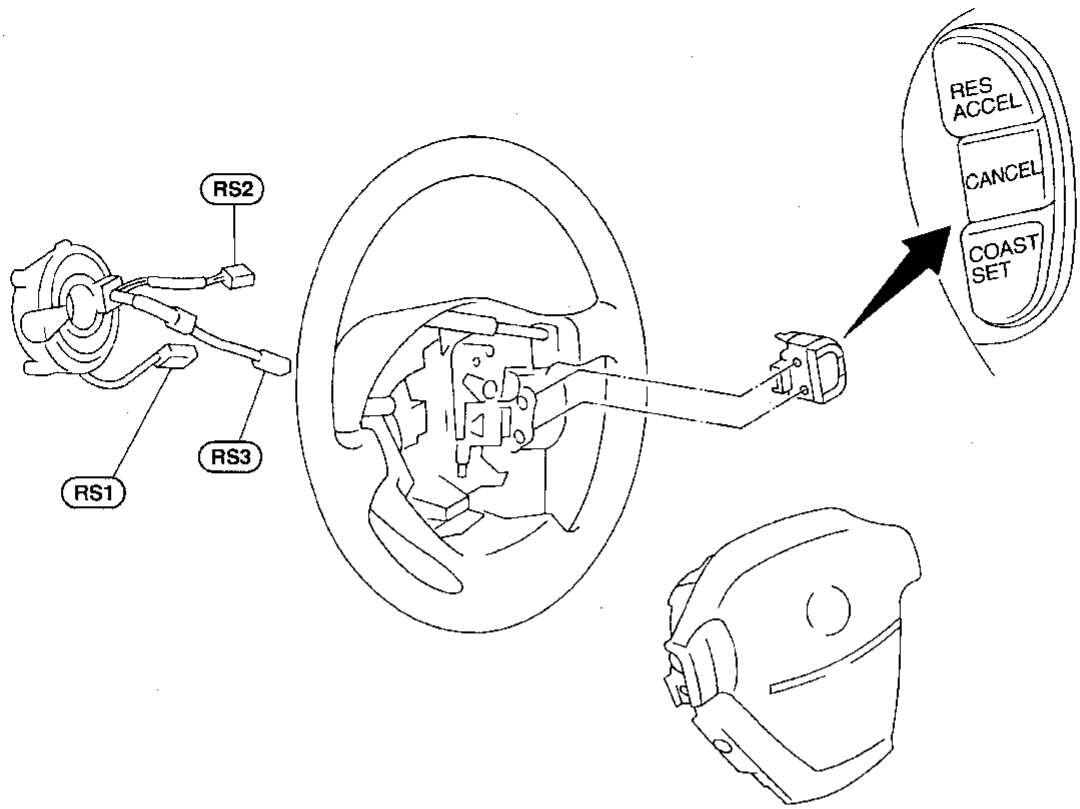


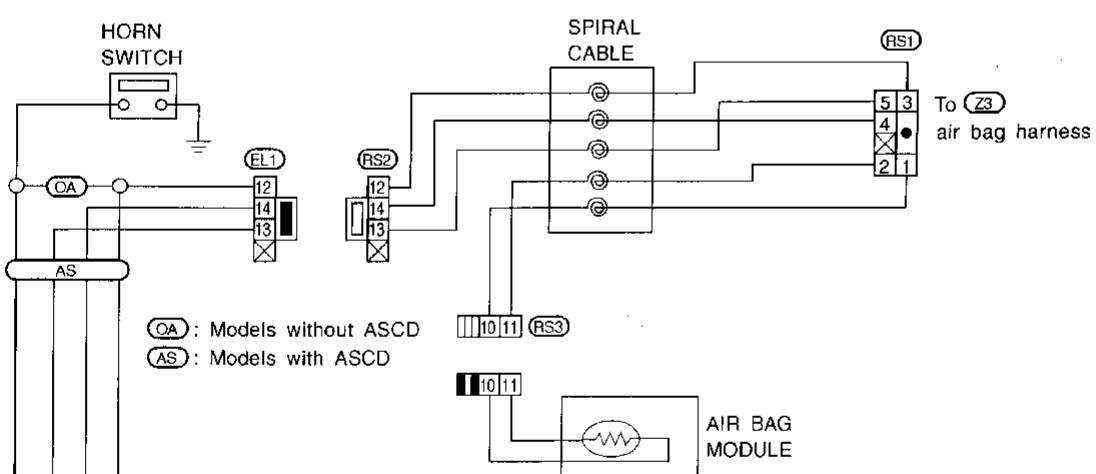

- To remove combination switch base, remove base attaching screw.




- Before installing the steering wheel, align the steering wheel guide pins with the screws which secure the combination switch as shown in the left figure.

## Check




ASCD STEERING SWITCH

| | RESUME ACCEL | N | SET COAST | OFF | CANCEL | HORN |
|---|---|---|---|---|---|---|
| 21 | ○ | | ○ | | ○ | ○ |
| 22 | | | ○ | | ○ | |
| 23 | ○ | | | | ○ | |
| 25 | | | | | | ○ |

MEL329G

## 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 and headlamp relay terminal ③
- through 15A fuse (No. 40, located in the fuse and fusible link box), and
- to lighting switch terminal ⑧ and headlamp relay terminal ⑥
- through 15A fuse (No. 39, located in the fuse and fusible link box).

### Low beam operation

When the lighting switch is turned to the 2ND position and placed in LOW ("B") position, power is supplied
- from lighting switch terminal ⑩
- to terminal ① of the LH headlamp (Low beam), and
- from lighting switch terminal ⑦
- to terminal ① of the RH headlamp (Low beam).

Terminal ② of each headlamp supplies ground through body grounds E28 and E42.
With power and ground supplied, the headlamp(s) will illuminate.

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

When the lighting switch is turned to the 2ND position and placed in HIGH ("A") position or PASS ("C") position, power is supplied
- from lighting switch terminal ⑥
- to terminal ① of the RH headlamp (High beam), and
- from lighting switch terminal ⑨
- to terminal ① of the LH headlamp (High beam).
- to combination meter terminal ㊱ for the high beam indicator, and
- to headlamp relay terminal ①.

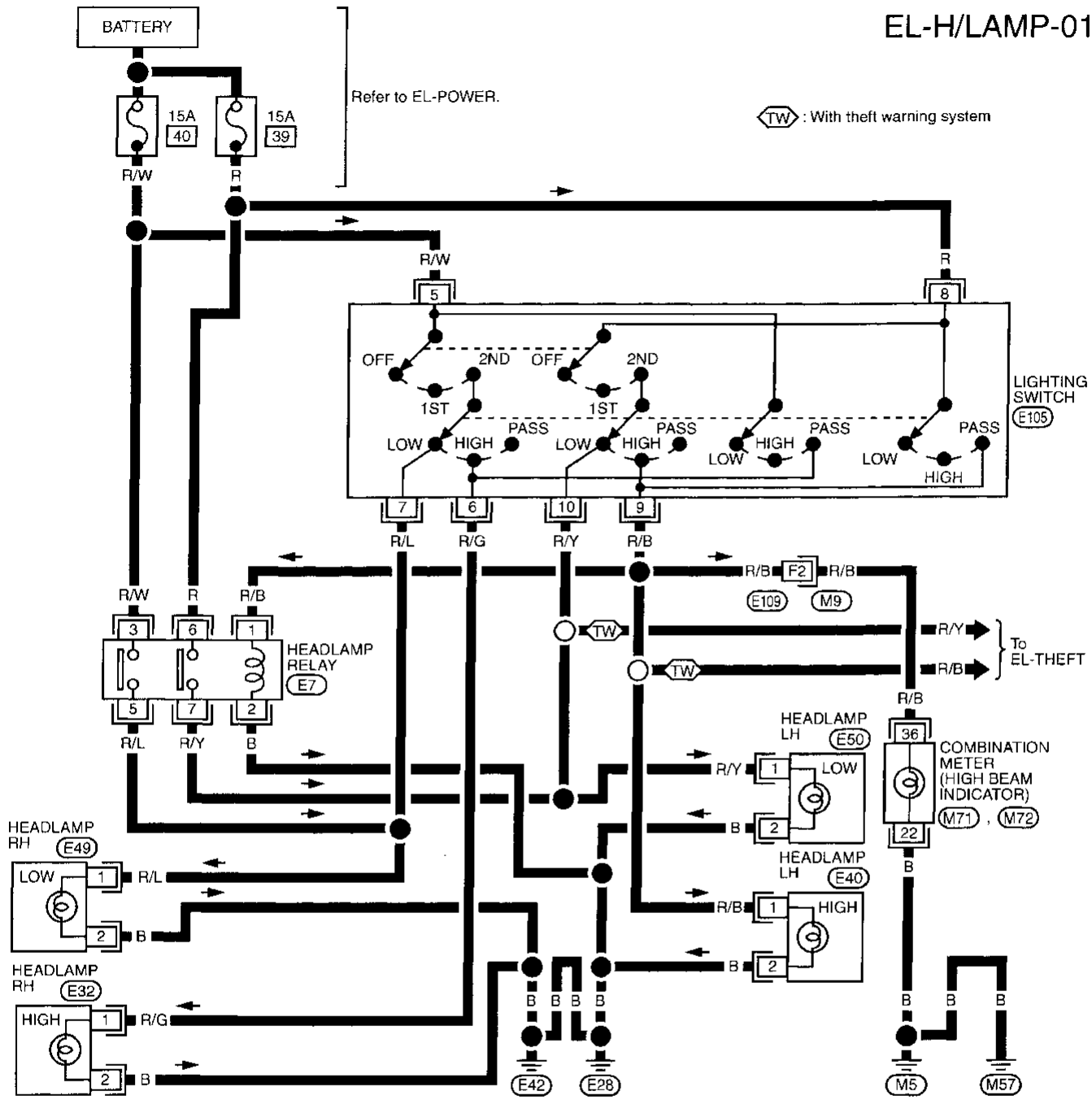
Ground is supplied to headlamp relay terminal ② through body grounds E28 and E42. The headlamp relay is energized and power is supplied
- from headlamp relay terminals ⑤ and ⑦
- to terminal ① of each headlamp (Low beam).

Ground is supplied to terminal ㉒ of the combination meter through body grounds M5 and M57.
Terminal ② of each headlamp supplies ground through body grounds E28 and E42.
With power and ground supplied, all the headlamps (High and Low beams) and the high beam indicator illuminate.

### Theft warning system

The theft warning system will flash all the headlamps (High and Low beams) if the system is triggered. Refer to "THEFT WARNING SYSTEM" (EL-173).

## Wiring Diagram — H/LAMP —

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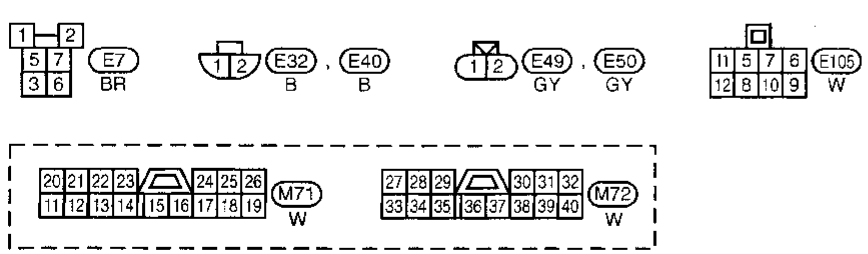
M9 , E109






MEL306I

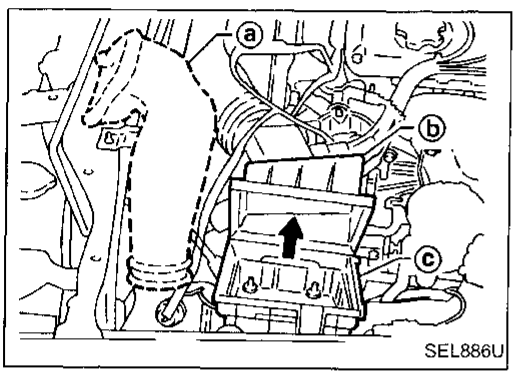
## Trouble Diagnoses

| Symptom | Possible cause | Repair order |
|---|---|---|
| LH headlamps do not operate. | 1. Bulb<br>2. Grounds (E28) and (E42)<br>3. 15A fuse<br><br><br>4. Lighting switch | 1. Check bulb.<br>2. Check grounds (E28) and (E42).<br>3. Check 15A fuse (No. 39, located in fuse and fusible link box). Verify battery positive voltage is present at terminal ⑧ of lighting switch.<br>4. Check lighting switch. |
| RH headlamps do not operate. | 1. Bulb<br>2. Grounds (E28) and (E42)<br>3. 15A fuse<br><br><br>4. Lighting switch | 1. Check bulb.<br>2. Check grounds (E28) and (E42).<br>3. Check 15A fuse (No. 40, located in fuse and fusible link box). Verify battery positive voltage is present at terminal ⑤ of lighting switch.<br>4. Check lighting switch. |
| LH high beams do not operate, but LH low beam operates. | 1. Bulbs<br>2. Open in LH high beams circuit<br><br>3. Lighting switch | 1. Check bulbs.<br>2. Check R/B wire between lighting switch and LH headlamps for an open circuit.<br>3. Check lighting switch. |
| LH low beam does not operate, but LH high beam operates. | 1. Bulb<br>2. Open in LH low beam circuit<br><br>3. Lighting switch | 1. Check bulb.<br>2. Check R/Y wire between lighting switch and LH headlamp for an open circuit.<br>3. Check lighting switch. |
| RH high beams do not operate, but RH low beam operates. | 1. Bulbs<br>2. Open in RH high beams circuit<br><br>3. Lighting switch | 1. Check bulbs.<br>2. Check R/G wire between lighting switch and RH headlamps for an open circuit.<br>3. Check lighting switch. |
| RH low beam does not operate, but RH high beam operates. | 1. Bulb<br>2. Open in RH low beam circuit<br><br>3. Lighting switch | 1. Check bulb.<br>2. Check R/L wire between lighting switch and RH headlamp for an open circuit.<br>3. Check lighting switch. |
| High beam indicator does not work. | 1. Bulb<br>2. Grounds (M5) and (M57)<br>3. Open in high beam circuit | 1. Check bulb in combination meter.<br>2. Check grounds (M5) and (M57).<br>3. Check R/B wire between lighting switch and combination meter for an open circuit. |
| Low beams do not operate in conjunction with high beams. | 1. Headlamp relay<br>2. Grounds (E28) and (E42)<br>3. Open in high beam circuit | 1. Check headlamp relay.<br>2. Check grounds (E28) and (E42).<br>3. Check R/B wire between lighting switch and headlamp relay for an open circuit. |

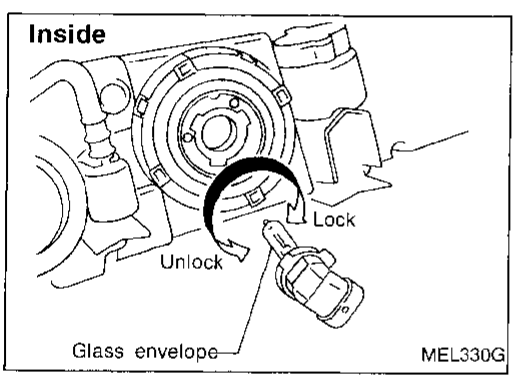
## Bulb Replacement

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.**



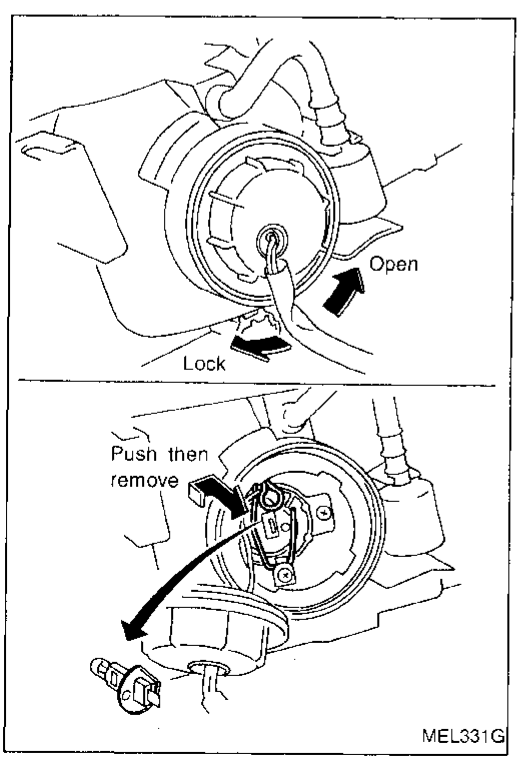

1. Disconnect the battery cable.
2. For RH bulb
   a. Remove the battery.
   For LH bulb
   a. Remove the air intake duct.
   b. Open air cleaner box and remove air cleaner filter.
   c. Remove air cleaner box nuts and bolt, then move air cleaner box in the direction of arrow.
3. Remove the headlamp seal cover.




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

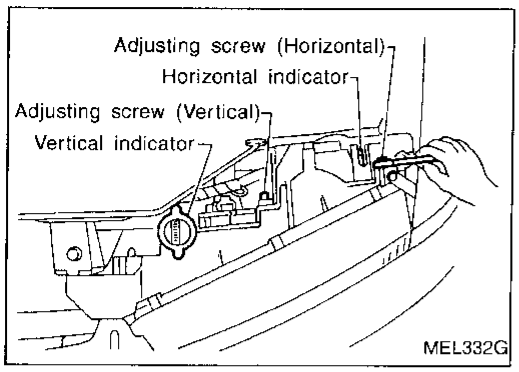
**CAUTION:**

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




**Bulb specifications**

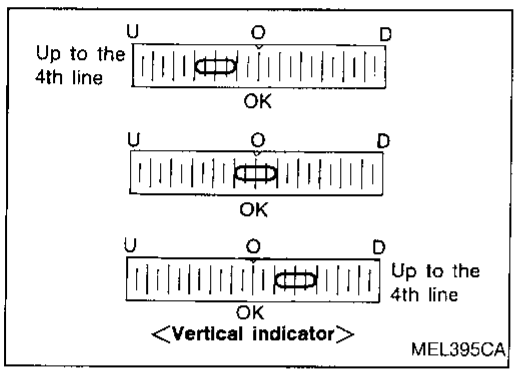
| Item | Wattage (W) |
|---|---|
| Headlamp | |
| Inside | 65 (HB3) |
| Outside | 55 (H1) |




## Aiming Adjustment

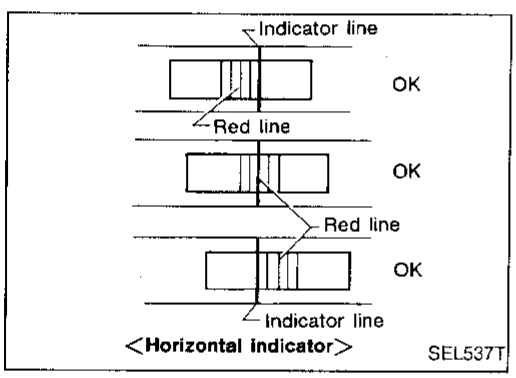
Before performing aiming adjustment, make sure of the following.

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

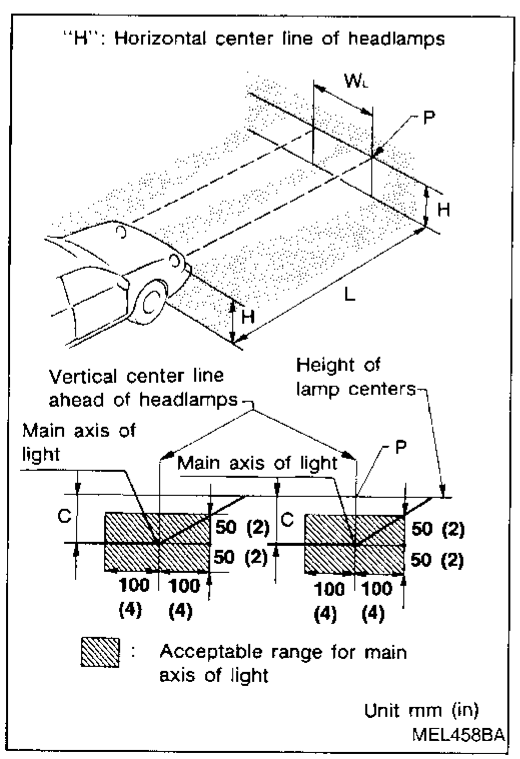



### LOW BEAM

1. Open the hood.
2. Adjust the vertical indicator by turning the adjusting screw (vertical direction).
   The bubble in the gauge should be centered on the "O" mark as shown in the figure.




3. Adjust the horizontal indicator by turning the adjusting screw. (horizontal direction)
   The inner red line should align with the indicator line.




### ADJUSTMENT AFTER HEADLAMP ASSEMBLY REPLACEMENT

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.

**a. Adjust headlamps so that the main axis of light becomes:**
- **parallel to center line of body, and**
- **aligned with point P shown in the figure.**

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

After aiming adjustment using the chart, check the indications to make sure of alignment. Even if the following are observed, it is acceptable while the indications are within the OK ranges.
- Indicator does not align with the indicator line, or
- the bubble is not centered in the vertical indicator.

## 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.

Power is supplied at all times
- through 15A fuse (No. 39, located in the fuse and fusible link box)
- to daytime light control unit terminal ③,
- to headlamp relay terminal ⑥ and
- to lighting switch terminal ⑧.

Power is also supplied at all times
- through 15A fuse (No. 40, located in the fuse and fusible link box)
- to daytime light control unit terminal ②,
- to headlamp relay terminal ③ and
- to lighting switch terminal ⑤.

With the ignition switch in the ON or START position, power is supplied
- through 7.5A fuse (No. 1, located in the fuse block)
- to daytime light control unit terminal ⑫.

With the ignition switch in the START position, power is supplied
- through 7.5A fuse (No. 25, located in the fuse block)
- to daytime light control unit terminal ①.

Ground is supplied to daytime light control unit terminal ⑨ through body grounds E28 and E42.

### HEADLAMP OPERATION

**Low beam operation**

When the lighting switch is turned to the 2ND position and placed in LOW ("B") position, power is supplied
- from lighting switch terminal ⑦
- to RH headlamp terminal ①
- to daytime light control unit terminal ④.

Ground is supplied to RH headlamp terminal ② through body grounds E28 and E42.

Also, when the lighting switch is turned to the 2ND position and placed in LOW ("B") position, power is supplied
- from lighting switch terminal ⑩
- to LH headlamp terminal ①.

Ground is supplied
- to LH headlamp terminal ②
- from daytime light control unit terminal ⑦
- through daytime light control unit terminal ⑨
- through body grounds E28 and E42.

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

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

When the lighting switch is turned to the 2ND position and placed in HIGH ("A") or PASS ("C") position, power is supplied
- from lighting switch terminal ⑥
- to terminal ① of RH headlamp (High beam)
- to daytime light control unit terminal ⑧.

When the lighting switch is turned to the 2ND position and placed in HIGH ("A") or PASS ("C") position, power is supplied
- from lighting switch terminal ⑨
- to daytime light control terminal ⑤
- to combination meter terminal ㊱ for the high beam indicator, and
- to headlamp relay terminal ①
- through daytime light control terminal ⑥
- to terminal ① of LH headlamp (High beam).

Ground is supplied to headlamp relay terminal ② through body grounds E28 and E42.

The headlamp relay is energized and power is supplied
- from headlamp relay terminals ⑤ and ⑦
- to terminal ① of each headlamp (Low beam).

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

Ground is supplied
- to terminal ② of each RH headlamp (High and Low beams)
- through body grounds E28 and E42
- to terminal ② of each LH headlamp (High and Low beams)
- from daytime light control unit terminal ⑦
- through daytime light control unit terminal ⑨
- through body grounds E28 and E42.

Ground is also supplied to terminal ㉒ of the combination meter through body grounds M5 and M57.
With power and ground supplied, all the headlamps (High and Low beams) and the high beam indicator illuminate.

### DAYTIME LIGHT OPERATION

With the engine running and the lighting switch in the OFF position, power is supplied
- to daytime light control unit terminal ③
- through daytime light control unit terminal ⑥
- to terminal ① of LH headlamp (High beam)
- through terminal ② of LH headlamp
- to daytime light control unit terminal ⑦
- through daytime light control unit terminal ⑧
- to terminal ① of RH headlamp (High beam).

Ground is supplied to terminal ② of RH headlamp through body grounds E28 and E42.
Because the high beam headlamps are now wired in series, they operate at half illumination.

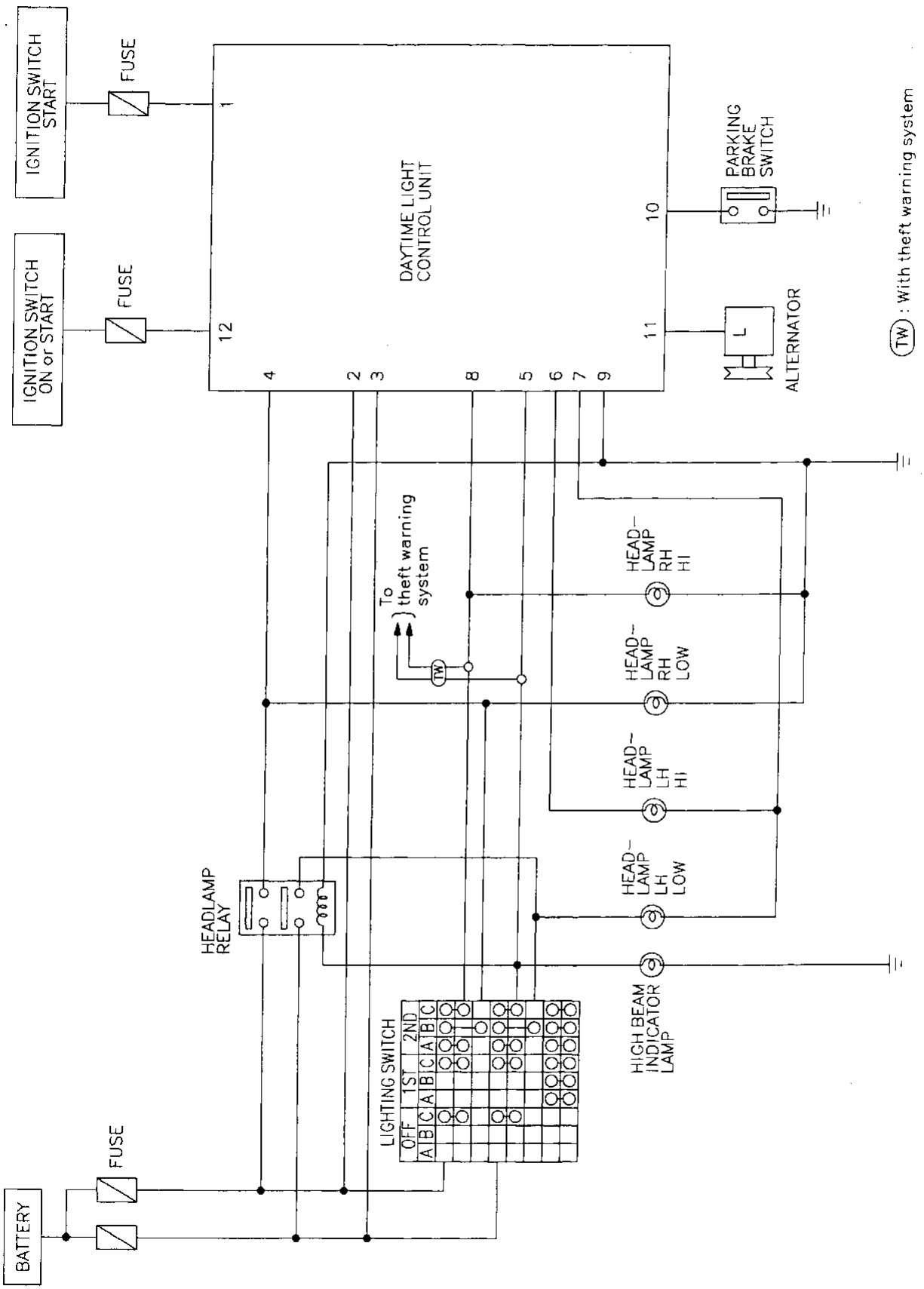
## Operation

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

| Engine | | With engine stopped | | | | | | | | | With engine running | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lighting switch | | OFF | | | 1ST | | | 2ND | | | OFF | | | 1ST | | | 2ND | | |
| | | A | B | C | A | B | C | A | B | C | A | B | C | A | B | C | A | B | C |
| Headlamp | High beam | X | X | ○ | X | X | ○ | ○ | X | ○ | △* | △* | ○ | △* | △* | ○ | ○ | X | ○ |
| | Low beam | X | X | X | X | X | X | X | ○ | X | X | X | X | X | X | X | X | ○ | X |
| Clearance 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 will not come ON.

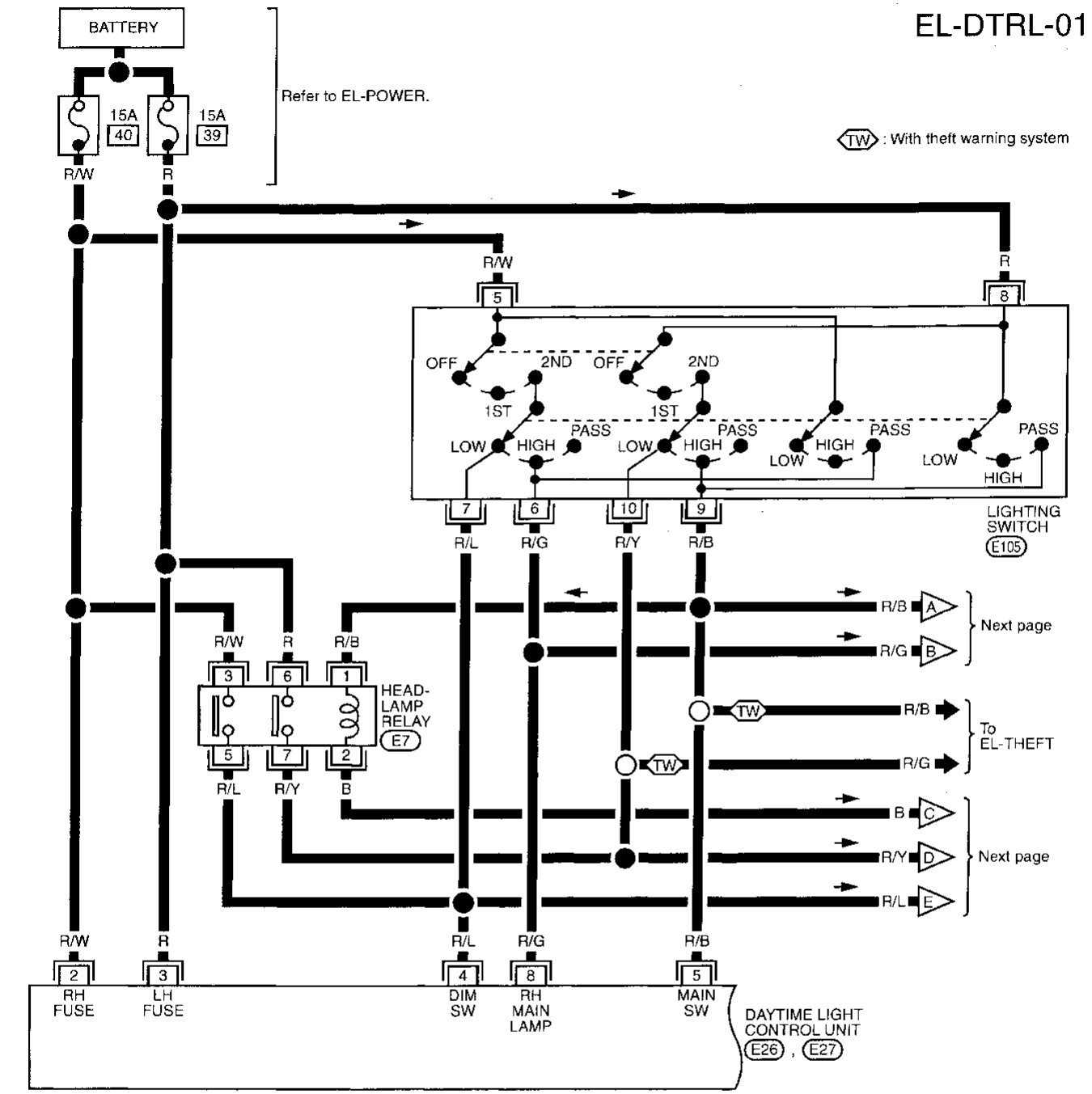
## Schematic






MEL307I

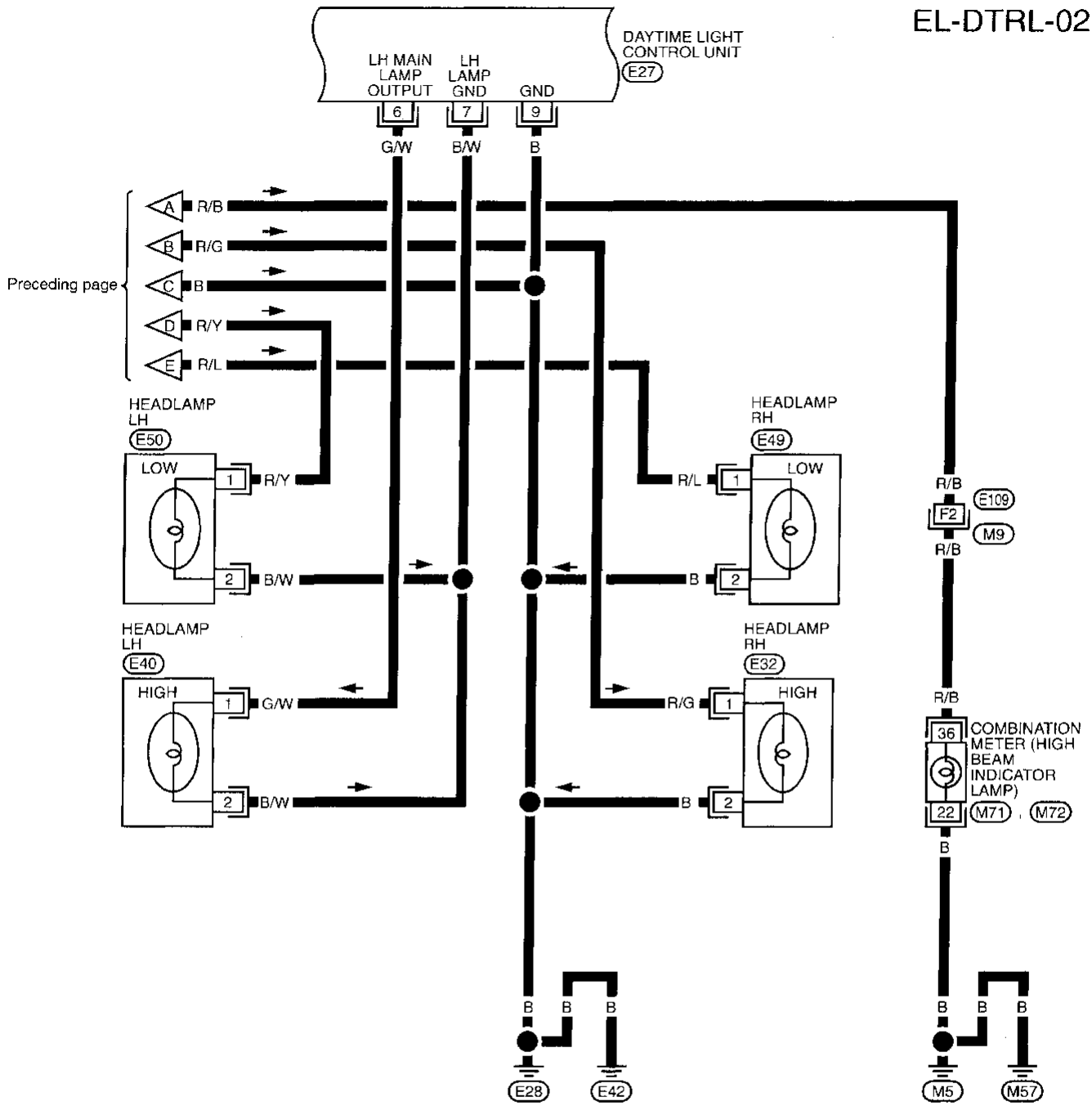
## Wiring Diagram — DTRL —

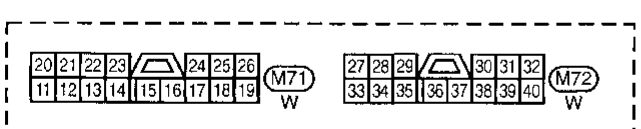


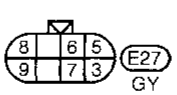

MEL308I

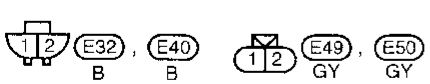
## Wiring Diagram — DTRL — (Cont'd)

EL-DTRL-02

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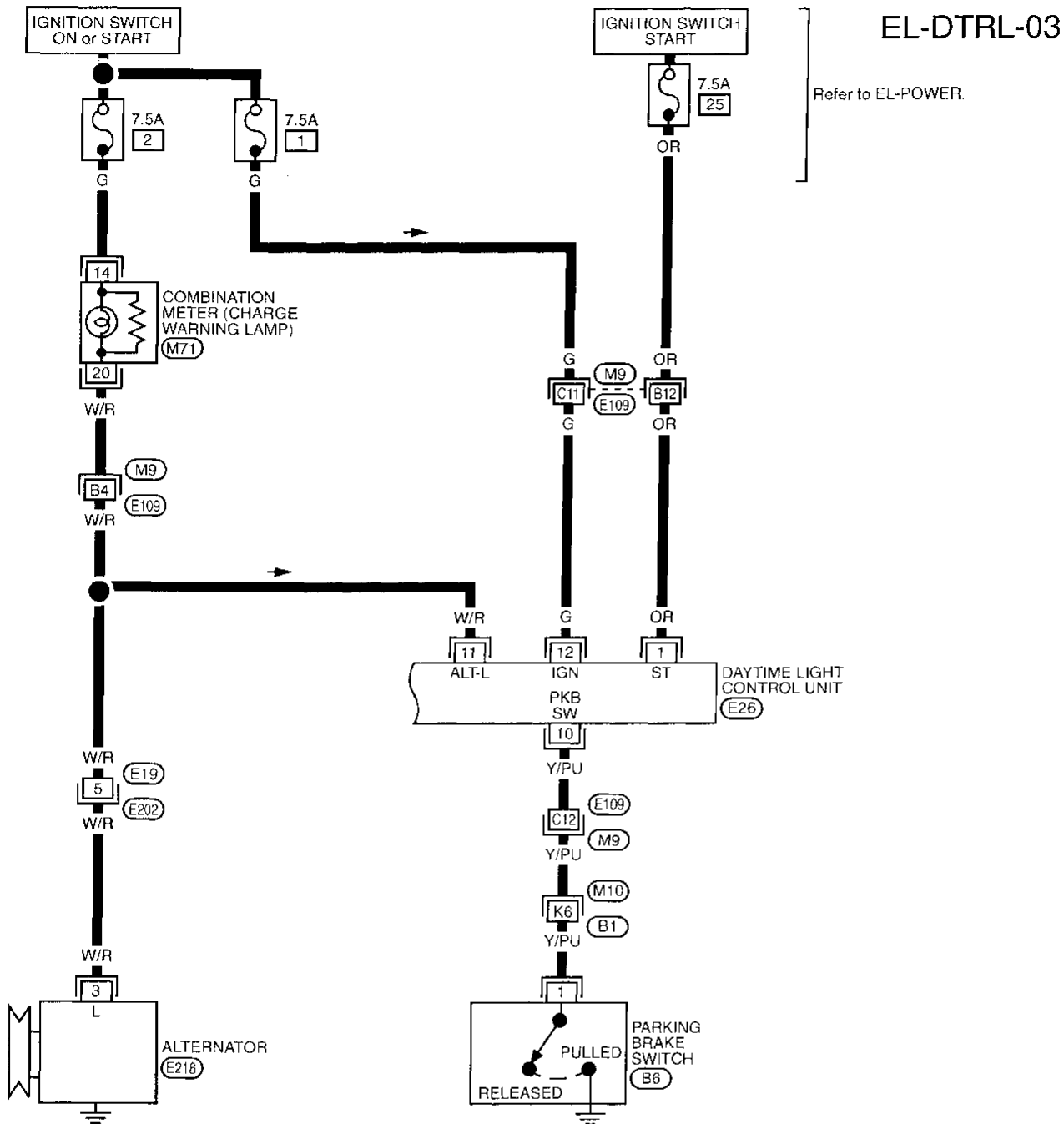
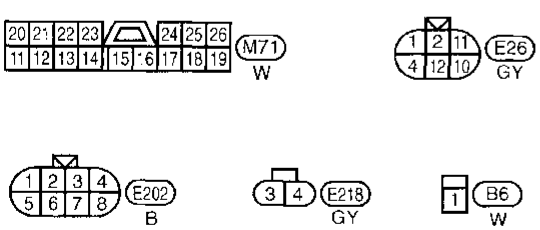
M9 , E109



MEL309I

## Wiring Diagram — DTRL — (Cont'd)

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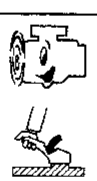
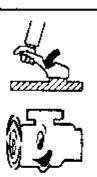
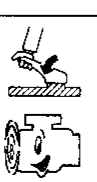
M9 , E109
M10 , B1

MEL310I

## Trouble Diagnoses

### DAYTIME LIGHT CONTROL UNIT INSPECTION TABLE

(Data are reference values.)

| Terminal No. | Item | Condition | | Judgement standard |
|---|---|---|---|---|
| 1 | 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 | Power source |  | When turning ignition switch to "ON" | Battery voltage |
| | |  | When turning ignition switch to "OFF" | Battery voltage |
| 3 | Power source |  | When turning ignition switch to "ON" | Battery voltage |
| | |  | When turning ignition switch to "OFF" | Battery voltage |
| 4 | Lighting switch (Lo beam) | | When turning lighting switch to headlamp "ON" (2ND) position, "LOW BEAM" | Battery voltage |
| 5 | Lighting switch (Hi beam) | | When turning lighting switch to "HIGH" ("A") | Battery voltage |
| | | | When turning lighting switch to "PASS" ("C") | Battery voltage |
| 6 | LH hi beam | | When turning lighting switch to "HIGH" ("C") | Battery voltage |
| | |  | When releasing parking brake with engine running and turning lighting switch to "OFF" (daytime light operation)<br>**CAUTION: Block wheels and ensure selector lever is in N or P position.** | Battery voltage |
| 7 | 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)<br>**CAUTION: Block wheels and ensure selector lever is in N or P position.** | Approx. half battery voltage |
| 8 | RH hi beam | | When turning lighting switch to "HIGH" ("A") | Battery voltage |
| | |  | When releasing parking brake with engine running and turning lighting switch to "OFF" (daytime light operation)<br>**CAUTION: Block wheels and ensure selector lever is in N or P position.** | Approx. half battery voltage |

## Trouble Diagnoses (Cont'd)

| Terminal No. | Item | Condition | | Judgement standard |
|---|---|---|---|---|
| 9 | Ground | | — | — |
| 10 | Parking brake switch |  | When parking brake is released | Battery voltage |
| | | | When parking brake is set | 1.5V or less |
| 11 | Alternator |  | 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 | 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

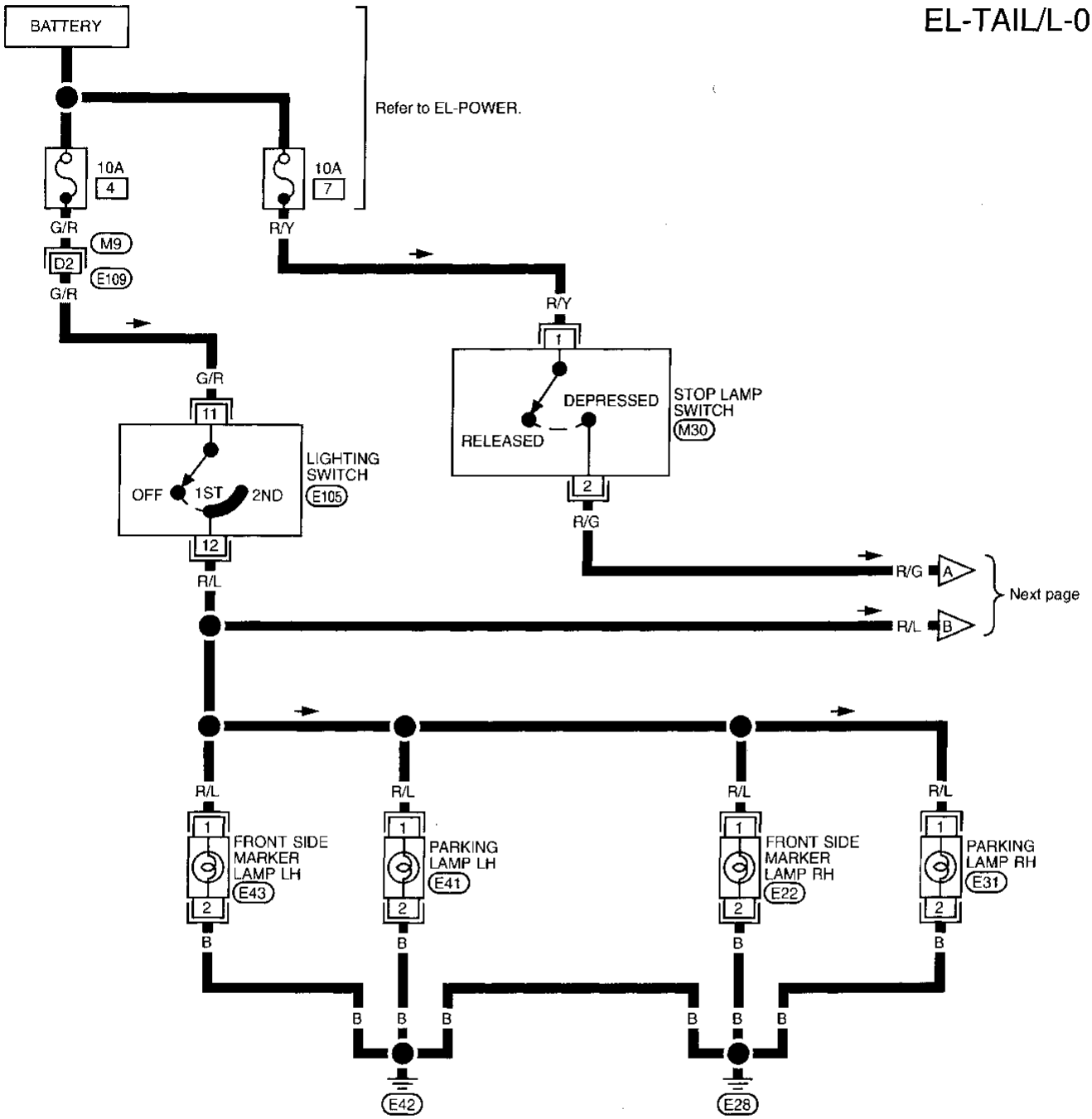
Refer to "HEADLAMP" (EL-37).

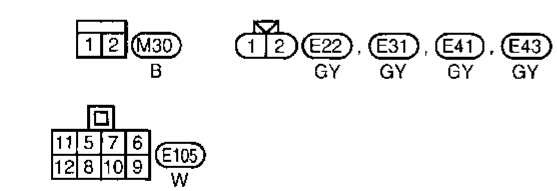
### Aiming Adjustment

Refer to "HEADLAMP" (EL-38).

## Wiring Diagram — TAIL/L —

EL-TAIL/L-01

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M9 , E109

MEL281G



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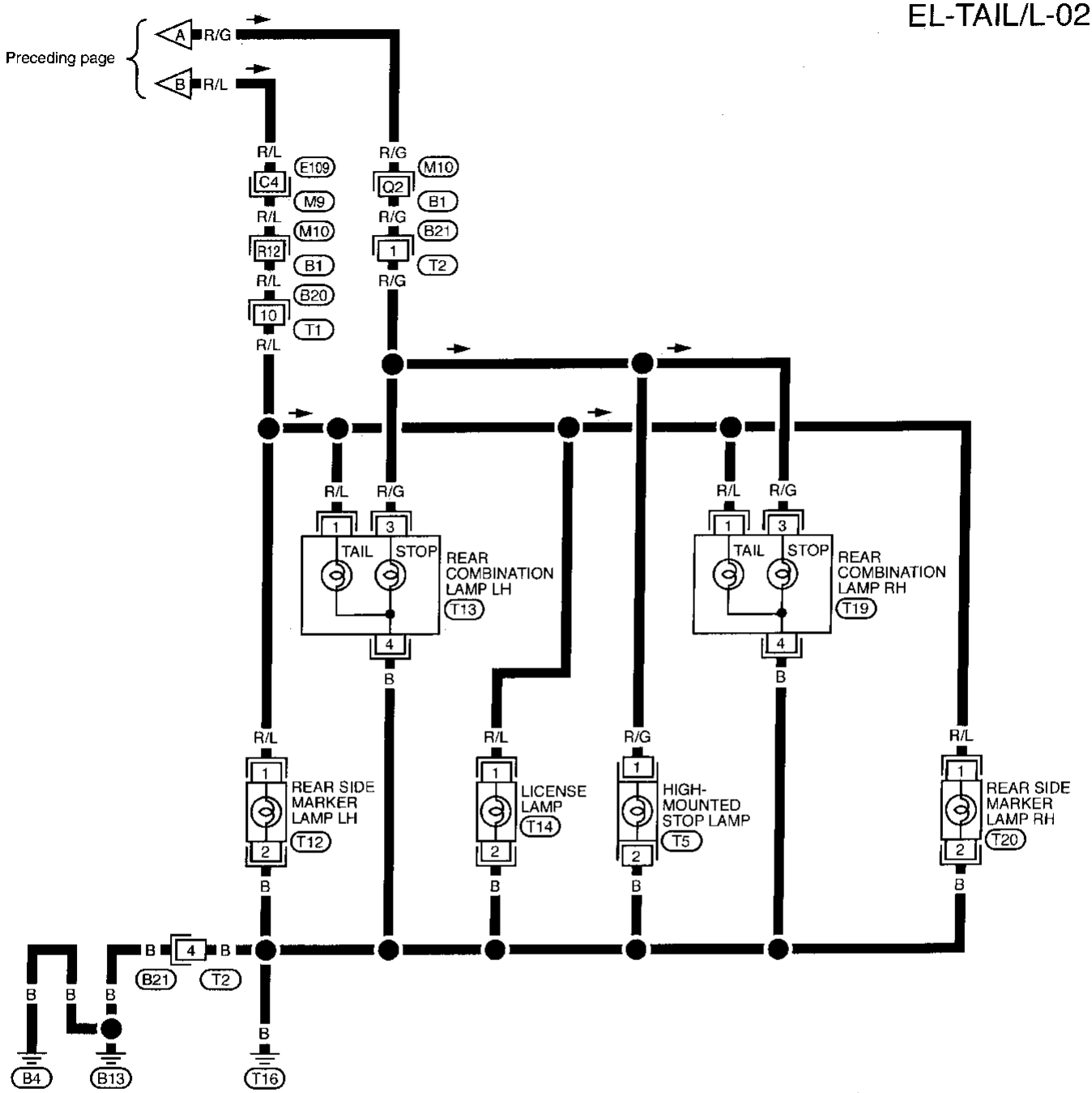
## Wiring Diagram — TAIL/L — (Cont'd)

EL-TAIL/L-02

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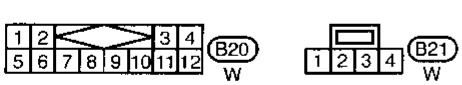
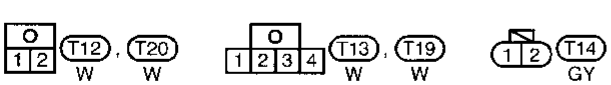
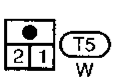
M9 , E109

M10 , B1



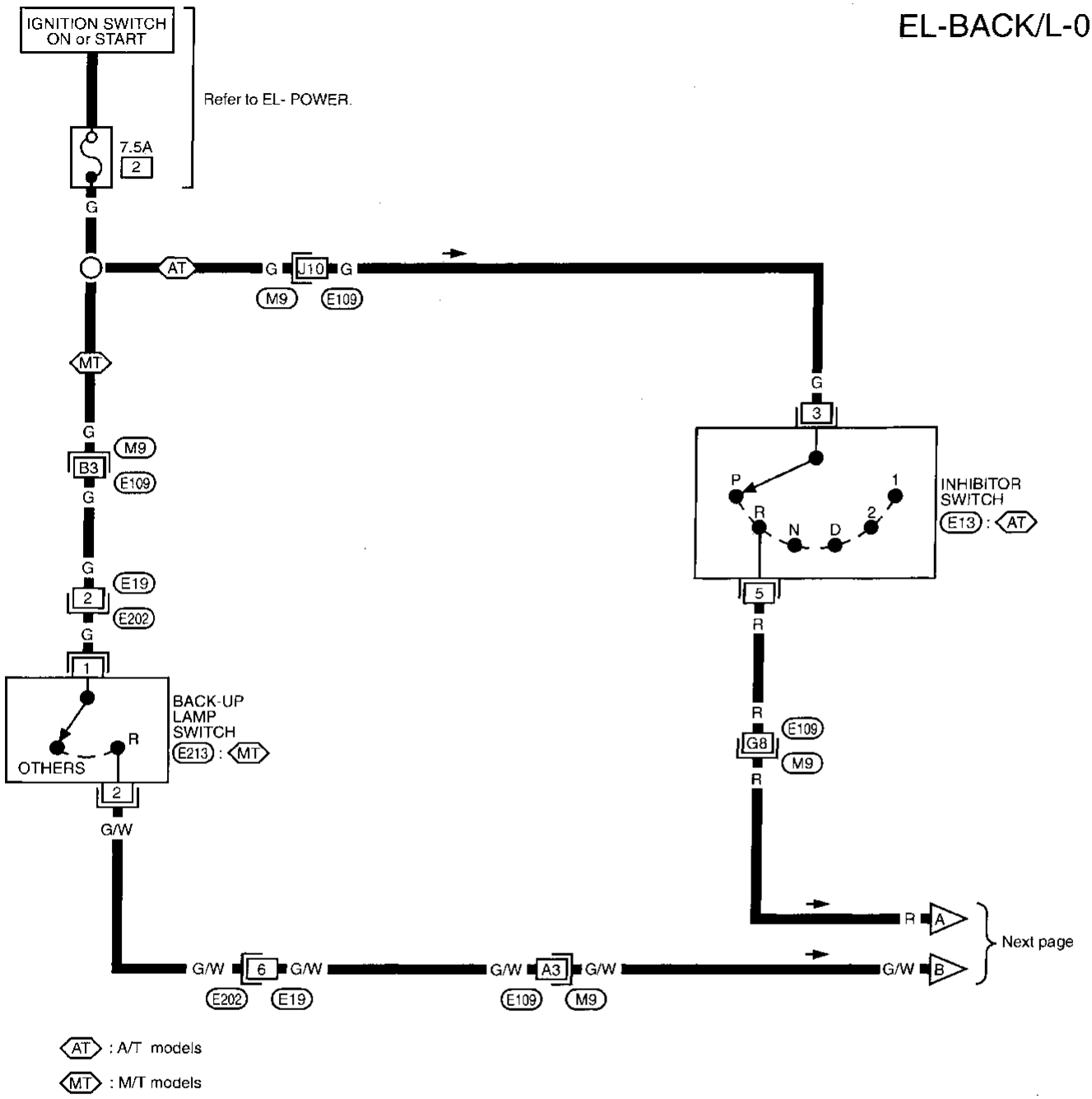



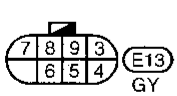



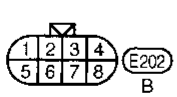

MEL291F

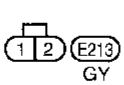
## Wiring Diagram — BACK/L —

EL-BACK/L-01

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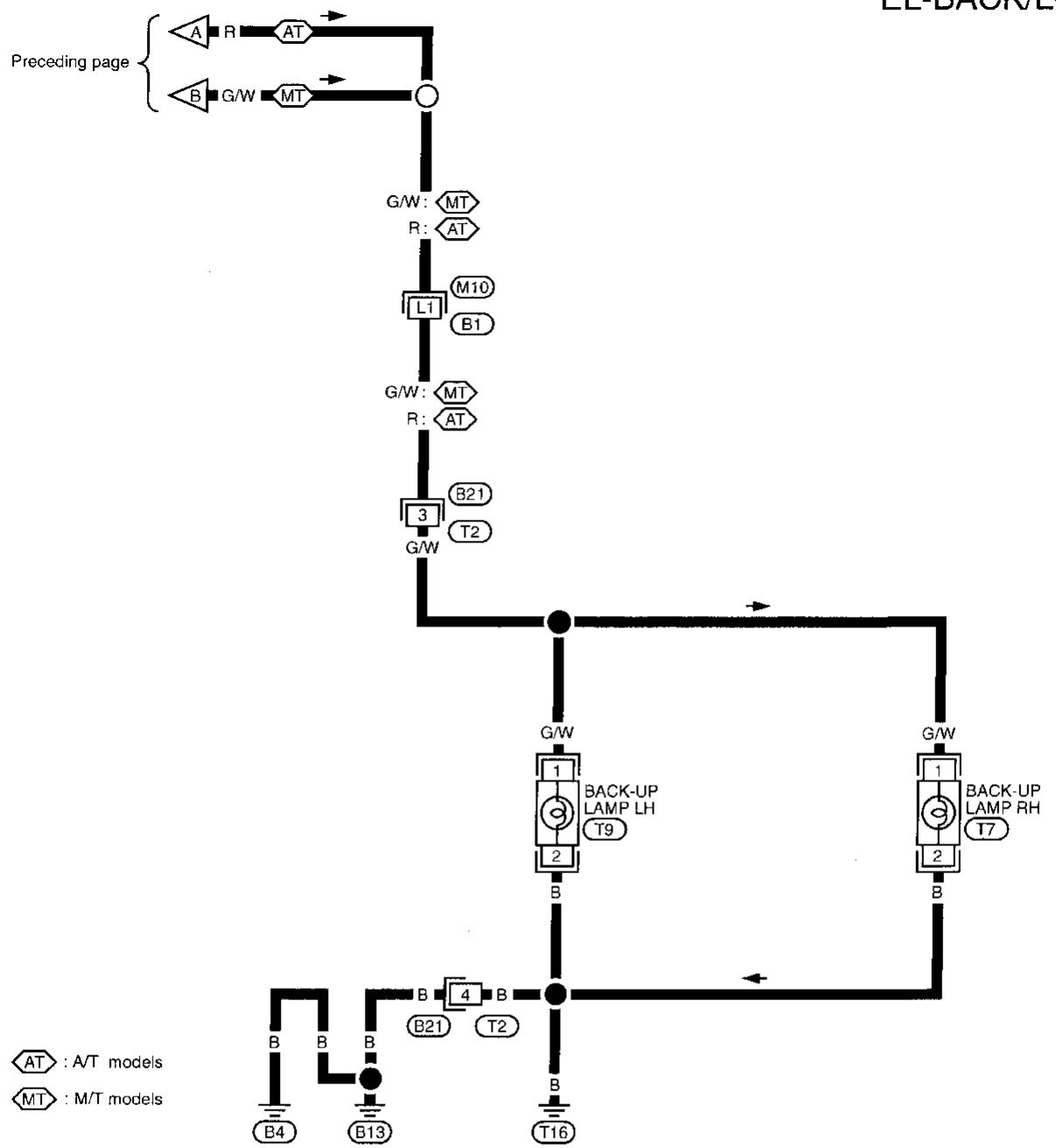
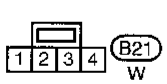
M9 , E109

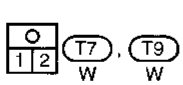
MEL392G

## Wiring Diagram — BACK/L — (Cont'd)

EL-BACK/L-02




Refer to last page (Foldout page).
M10 , B1

MEL293F

## System Description

Power is supplied at all times
- to fog lamp relay terminal ③
- through 15A fuse (No. 46, located in the fusible link and fuse box)
- to lighting switch terminal ⑤
- through 15A fuse (No. 40, located in the fuse and fusible link box).

With the lighting switch in the 2ND position and LOW ("B") position, power is supplied
- from terminal ⑦ of the lighting switch
- to fog lamp relay-2 terminal ④
- through fog lamp relay-2 terminal ③
- to fog lamp relay-1 terminal ①.

### FOG LAMP OPERATION

#### Headlamp (Low beam) operation

The fog lamp switch is built into the combination switch. The lighting switch must be in the 2ND position and LOW ("B") position for fog lamp operation.
With the fog lamp switch in the ON position, ground is supplied
- to fog lamp relay-1 terminal ②
- through the fog lamp switch and body grounds E28 and E42.

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

Ground is supplied to terminal ② of each fog lamp through body grounds E28 and E42.
With power and ground supplied, the fog lamps illuminate.

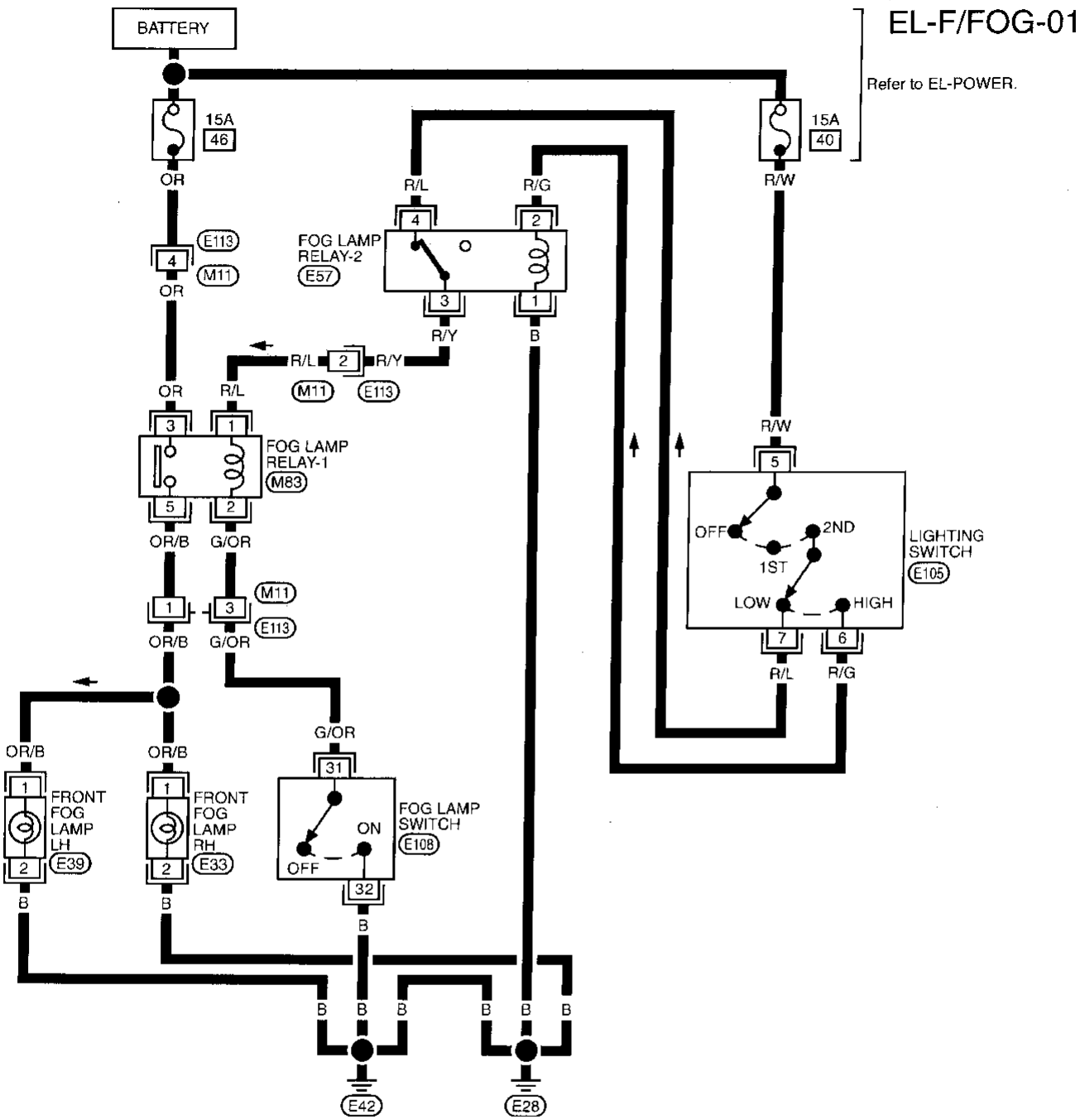
#### Headlamp (High beam/flash-to-pass) operation

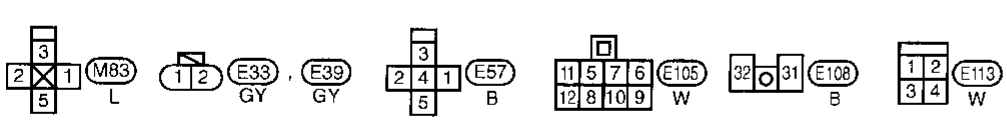
With the lighting switch in the 2ND position and HIGH ("A") position, power is supplied
- through terminal ⑥ of the lighting switch
- to fog lamp relay-2 terminal ②

The fog lamp relay-2 is energized and ground is supplied.
- through terminal ① of the fog lamp relay-2
- to body grounds E28 and E42.

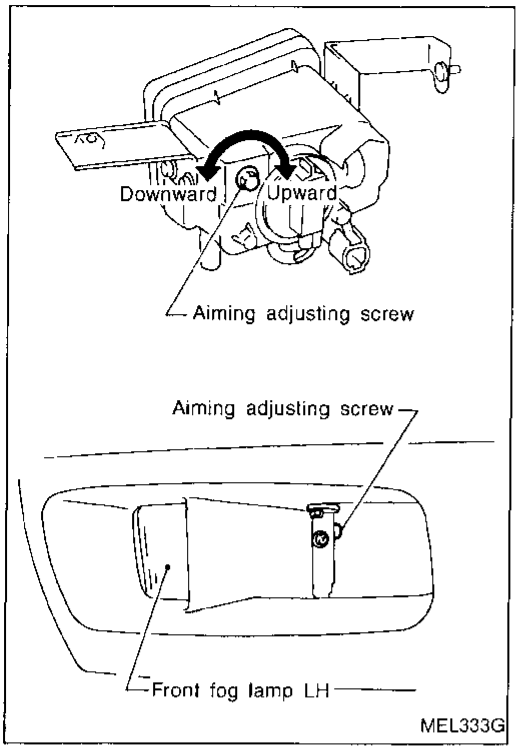
Then, power supply to the fog lamp relay-1 is cut, turning fog lamps off.

## Wiring Diagram — F/FOG —




MEL311I

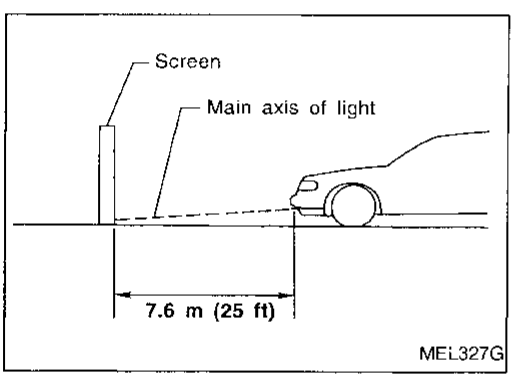



## Aiming Adjustment

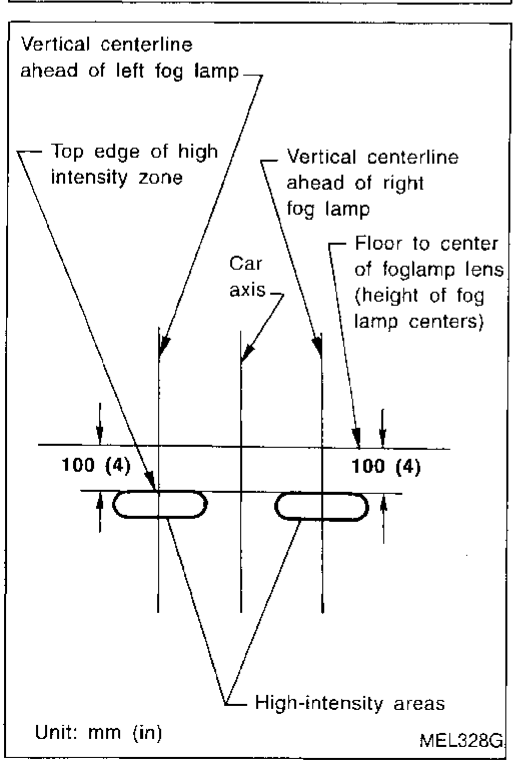
Before performing aiming adjustment, make sure of the following.

a. Keep all tires inflated to correct pressure.
b. Place vehicle on lever ground.
c. 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.

Loosen the front fog lamp bolts and adjust the vertical aiming by moving the front fog lamp assembly.




1. Set the distance between the screen and the center of the fog lamp lens as shown at left.
2. Turn front fog lamps ON.




3. 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.

4. Tighten the front fog lamp bolts.

**Bulb specifications**

| Item | Wattage (W) |
|---|---|
| Front fog lamp | 55 (H3) |

## System Description

### TURN SIGNAL OPERATION

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

- through 10A fuse (No. 3, located in the fuse block)
- to hazard switch terminal ②
- through terminal ① of the hazard switch
- to combination flasher unit terminal ②
- through terminal ③ of the combination flasher unit
- to turn signal switch terminal ①.

Ground is supplied to combination flasher unit terminal ① through body grounds M5 and M57.

**LH turn**

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

- front turn signal lamp LH terminal ①
- rear combination lamp LH terminal ②
- combination meter terminal ㉑.

Ground is supplied to the front turn signal lamp LH terminal ② through body grounds E28 and E42.
Ground is supplied to the rear combination lamp LH terminal ④ through body grounds B4, B13 and T16.
Ground is supplied to combination meter terminal ㉒ through body grounds M5 and M57.
With power and ground supplied, the combination flasher unit controls the flashing of the LH turn signal lamps.

**RH turn**

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

- front turn signal lamp RH terminal ①
- rear combination lamp RH terminal ②
- combination meter terminal ㉓.

Ground is supplied to the front turn signal lamp RH terminal ② through body grounds E28 and E42.
Ground is supplied to the rear combination lamp RH terminal ④ through body grounds B4, B13 and T16.
Ground is supplied to combination meter terminal ㉒ through body grounds M5 and M57.
With power and ground supplied, the combination flasher unit controls the flashing of the RH turn signal lamps.

### HAZARD LAMP OPERATION

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

- 10A fuse (No. 5, located in the fuse block).

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

- through terminal ① of the hazard switch
- to combination flasher unit terminal ②
- through terminal ③ of the combination flasher unit
- to hazard switch terminal ④.

Ground is supplied to combination flasher unit terminal ① through body grounds M5 and M57.
Power is supplied through terminal ⑤ of the hazard switch to

- front turn signal lamp LH terminal ①
- rear combination lamp LH terminal ②
- combination meter terminal ㉑.

Power is supplied through terminal ⑥ of the hazard switch to

- front turn signal lamp RH terminal ①
- rear combination lamp RH terminal ②
- combination meter terminal ㉓.

Ground is supplied to terminal ② of each front turn signal lamp through body grounds E28 and E42.
Ground is supplied to terminal ④ of the rear combination lamps through body grounds B4, B13 and T16.
Ground is supplied to combination meter terminal ㉒ through body grounds M5 and M57.
With power and ground supplied, the combination flasher unit controls the flashing of the hazard warning lamps.

## System Description (Cont'd)

### WITH MULTI-REMOTE CONTROL SYSTEM

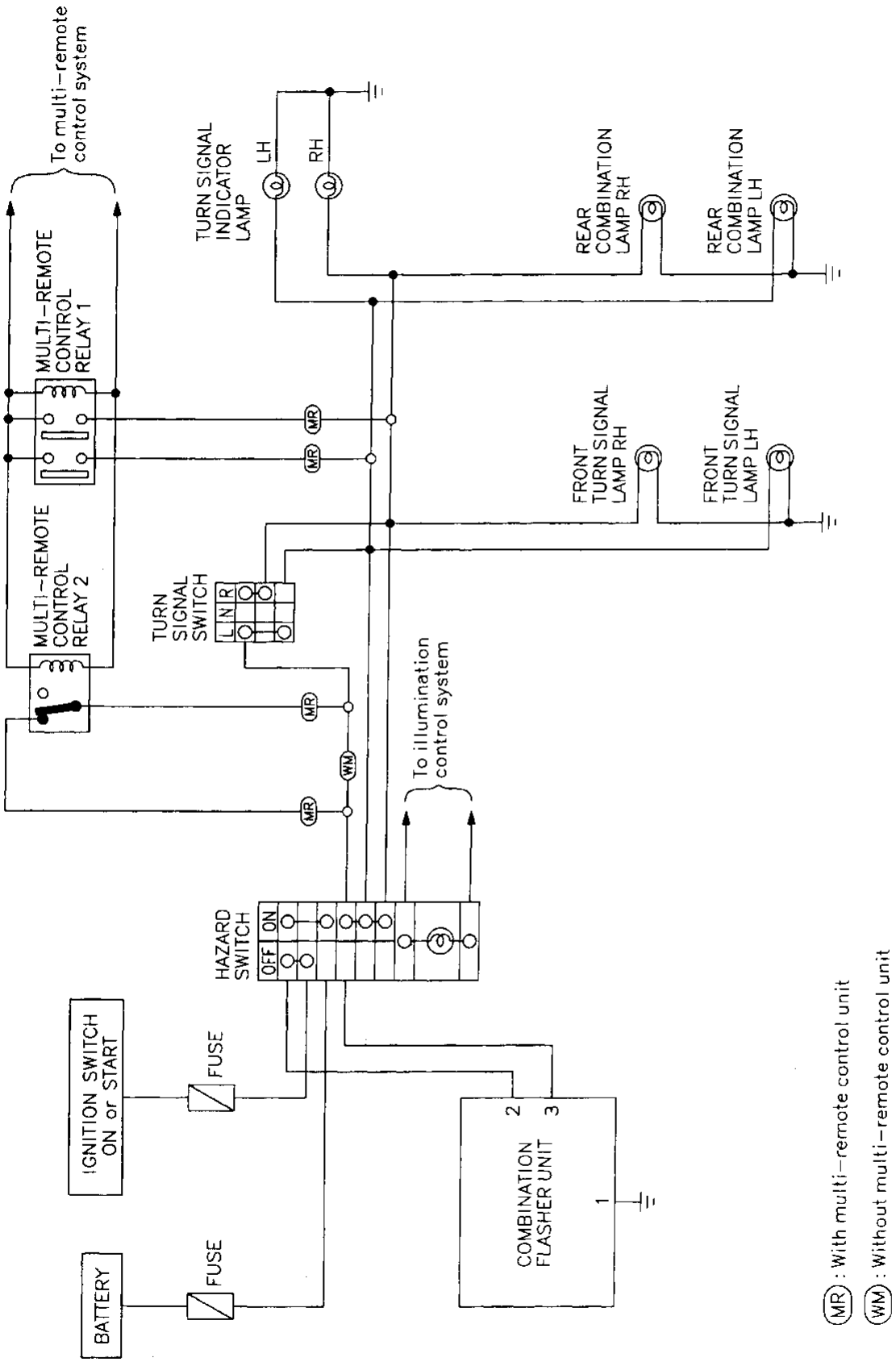
Power is supplied at all times
- through 10A fuse (No. 5, located in the fuse block)
- to multi-remote control relay-1 terminals ①, ⑥ and ③.

Ground is supplied to multi-remote control relay-1 terminal ②, when the multi-remote control system is triggered through the smart entrance control unit.
Refer to "MULTI-REMOTE CONTROL SYSTEM", EL-158.
The multi-remote control relay-1 is energized.
Power is supplied through terminal ⑦ of the multi-remote control relay-1
- to front turn signal lamp LH terminal ①
- to rear combination lamp LH terminal ②
- to combination meter terminal ㉑.

Power is supplied through terminal ⑤ of the multi-remote control relay-1
- to front turn signal lamp RH terminal ①
- to rear combination lamp RH terminal ②
- to combination meter terminal ㉓.

Ground is supplied to terminal ② of each front turn signal lamp through body grounds E28 and E42.
Ground is supplied to terminal ④ of the rear combination lamps through body grounds B4, B13 and T16.
Ground is supplied to combination meter terminal ㉒ through body grounds M5 and M57.
With power and ground supplied, the smart entrance control unit controls the flashing of the hazard warning lamps.

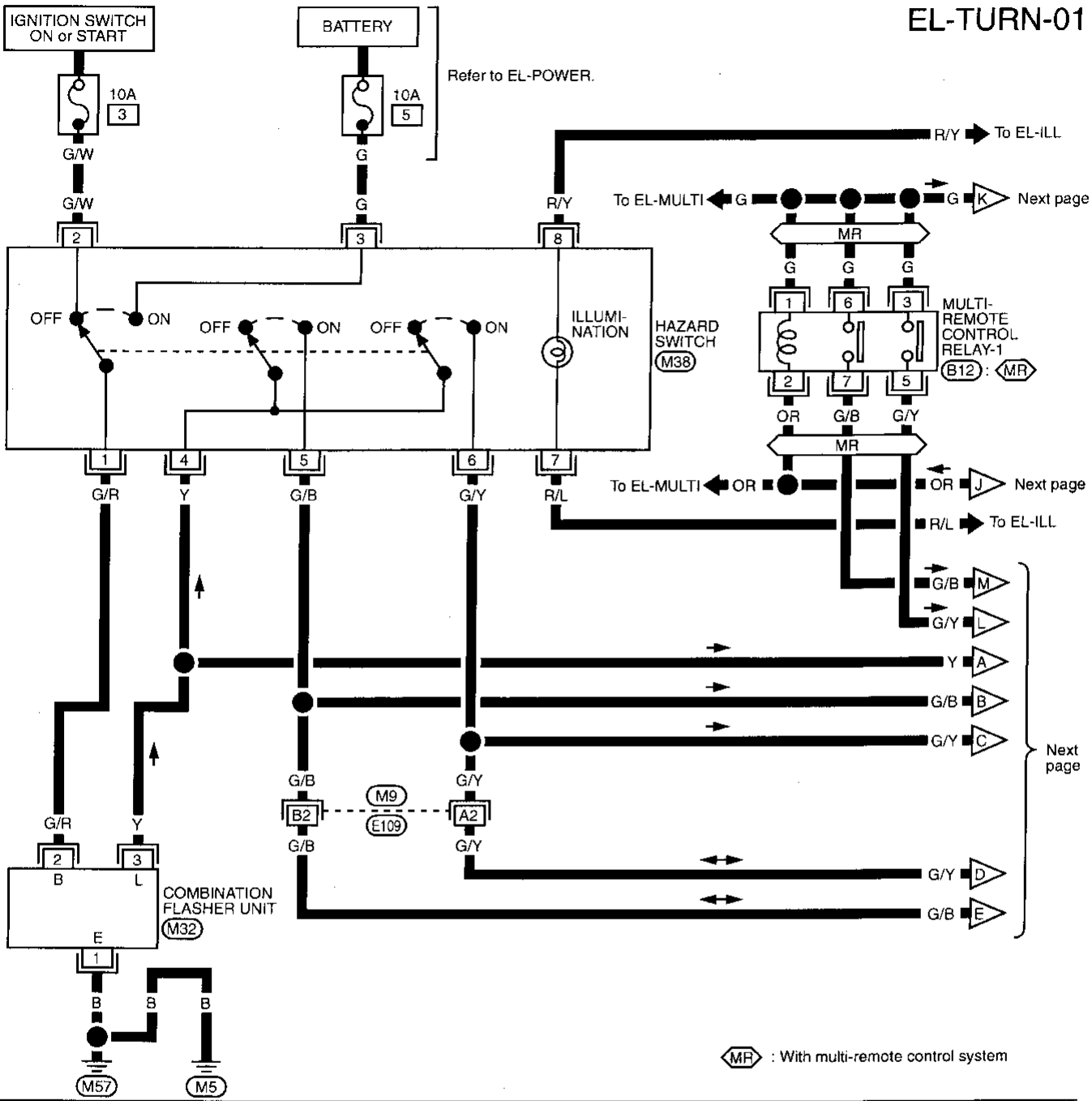
## Schematic

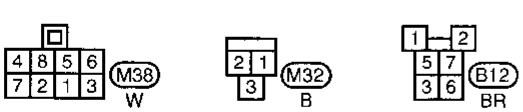



MEL312I

## Wiring Diagram — TURN —

EL-TURN-01



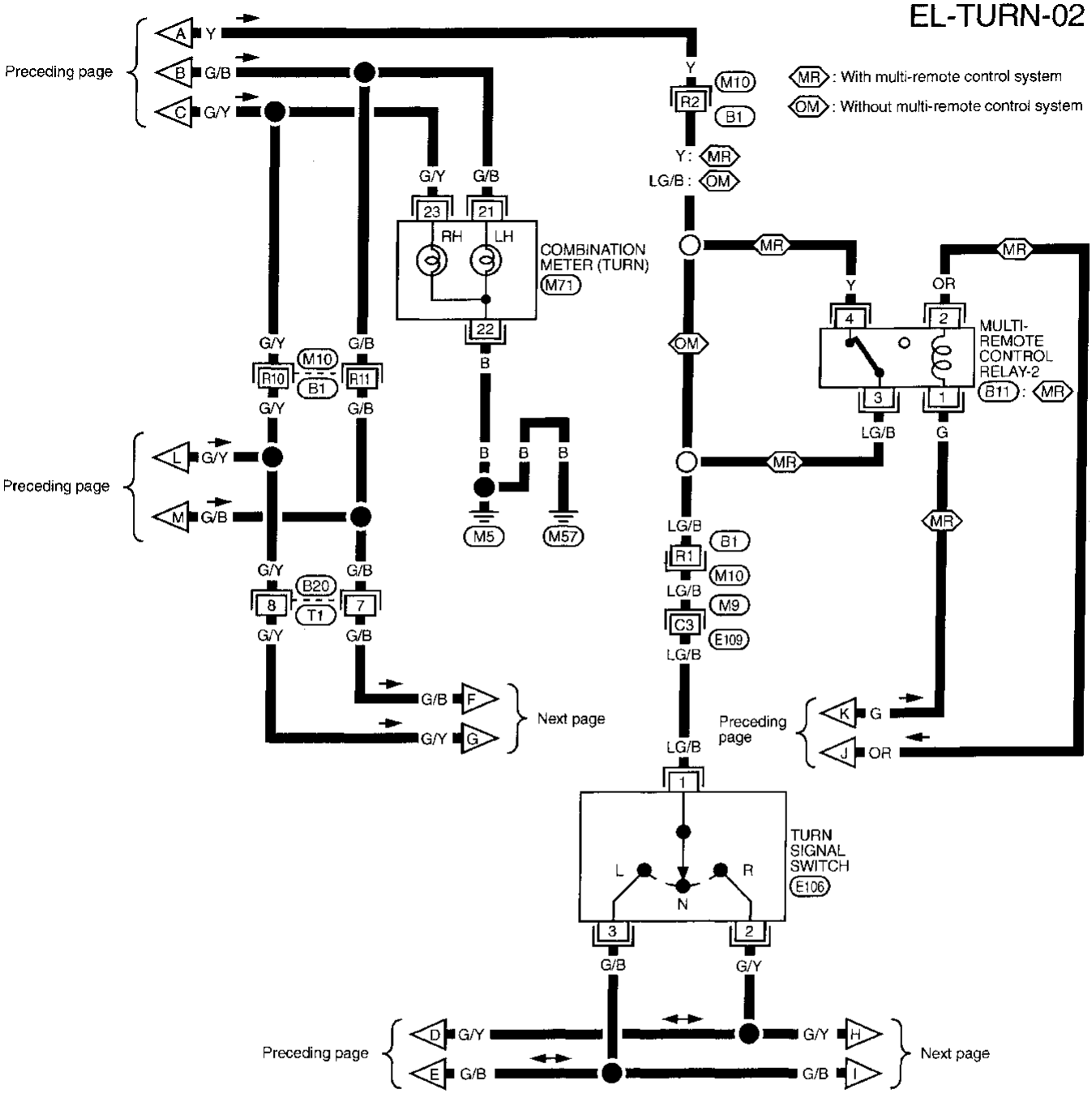



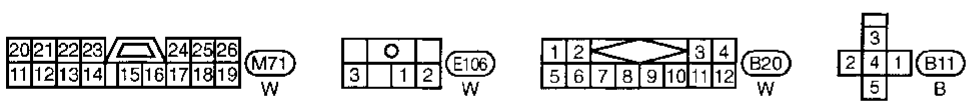

Refer to last page (Foldout page).
M9 , E109

MEL296F

## Wiring Diagram — TURN — (Cont'd)

EL-TURN-02



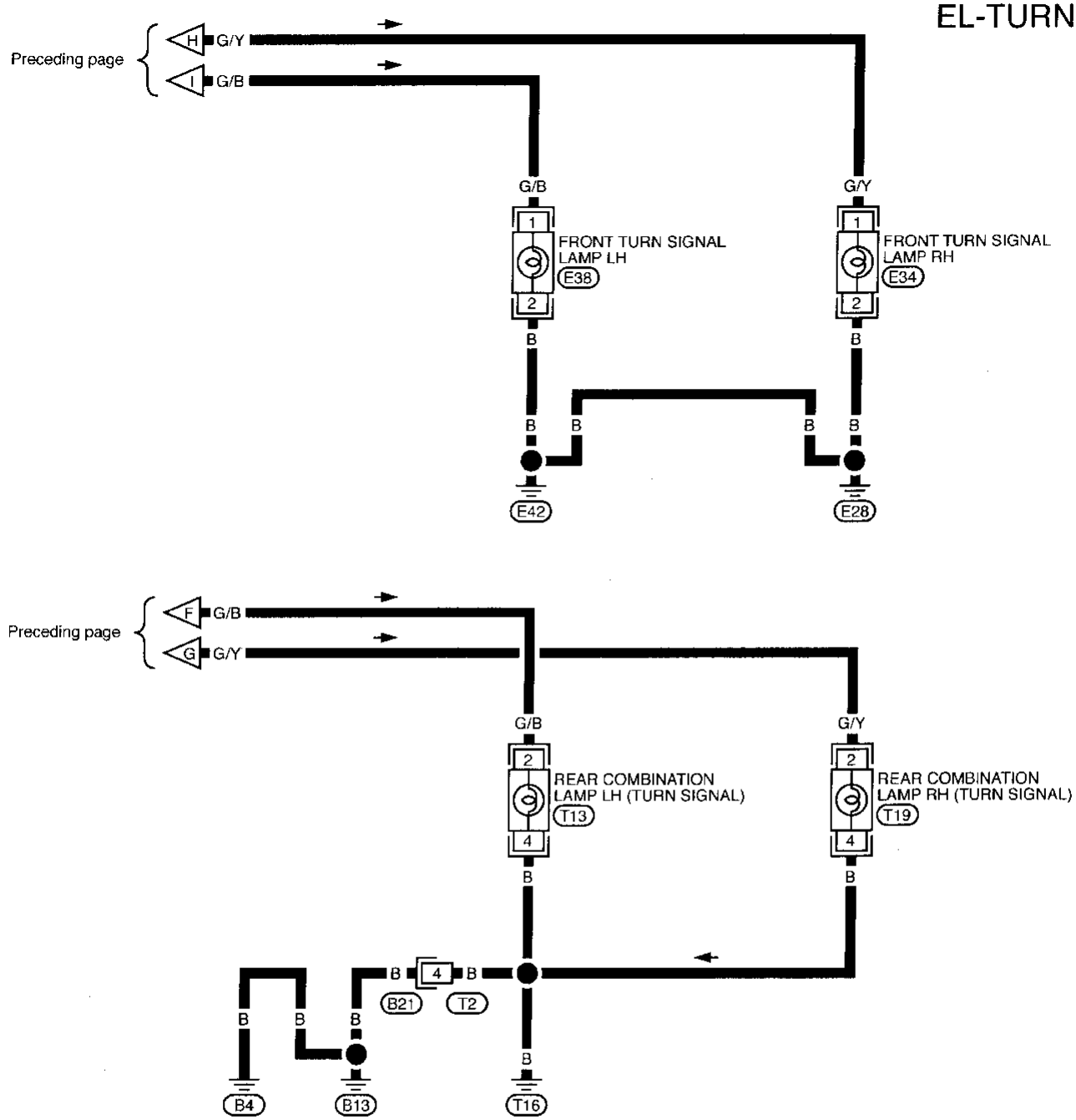



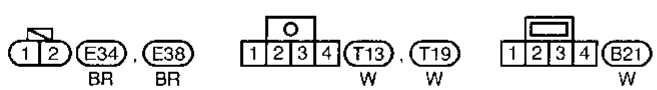

Refer to last page (Foldout page).
M9 , E109
M10 , B1

MEL283G

## Wiring Diagram — TURN — (Cont'd)

EL-TURN-03

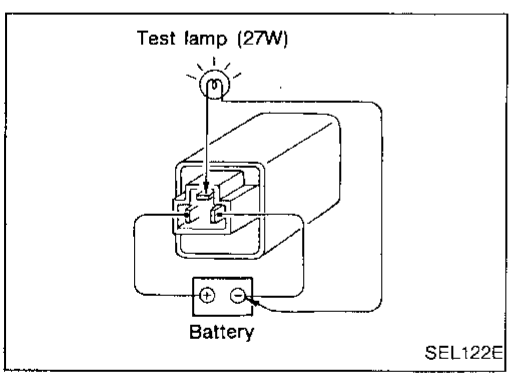



MEL298F

## Trouble Diagnoses

| Symptom | Possible cause | Repair order |
|---|---|---|
| Turn signal and hazard warning lamps do not operate. | 1. Hazard switch<br>2. Combination flasher unit<br>3. Open in combination flasher unit circuit | 1. Check hazard switch.<br>2. Refer to combination flasher unit check. (EL-60)<br>3. Check wiring to combination flasher unit for open circuit. |
| Turn signal lamps do not operate but hazard warning lamps operate. | 1. 10A fuse<br>2. Hazard switch<br>3. Turn signal switch<br>4. Open in turn signal switch circuit | 1. Check 10A fuse (No. 3, located in fuse block). Turn ignition switch ON and verify battery positive voltage is present at terminal ② of hazard switch.<br>2. Check hazard switch.<br>3. Check turn signal switch.<br>4. Check Y wire between combination flasher unit and turn signal switch for open circuit. |
| Hazard warning lamps do not operate but turn signal lamps operate. | 1. 10A fuse<br>2. Hazard switch<br>3. Open in hazard switch circuit | 1. Check 10A fuse (No. 5, located in fuse block). Verify battery positive voltage is present at terminal ③ of hazard switch.<br>2. Check hazard switch.<br>3. Check Y wire between combination flasher unit and hazard switch for open circuit. |
| Front turn signal lamp LH or RH does not operate. | 1. Bulb<br>2. Grounds (E28) and (E42) | 1. Check bulb.<br>2. Check grounds (E28) and (E42). |
| Rear turn signal lamp LH or RH does not operate. | 1. Bulb<br>2. Grounds (B4), (B13) and (T16) | 1. Check bulb.<br>2. Check grounds (B4), (B13) and (T16). |
| LH and RH turn indicators do not operate. | 1. Ground | 1. Check grounds (M5) and (M57). |
| LH or RH turn indicator does not operate. | 1. Bulb | 1. Check bulb in combination meter. |




## 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.

## System Description

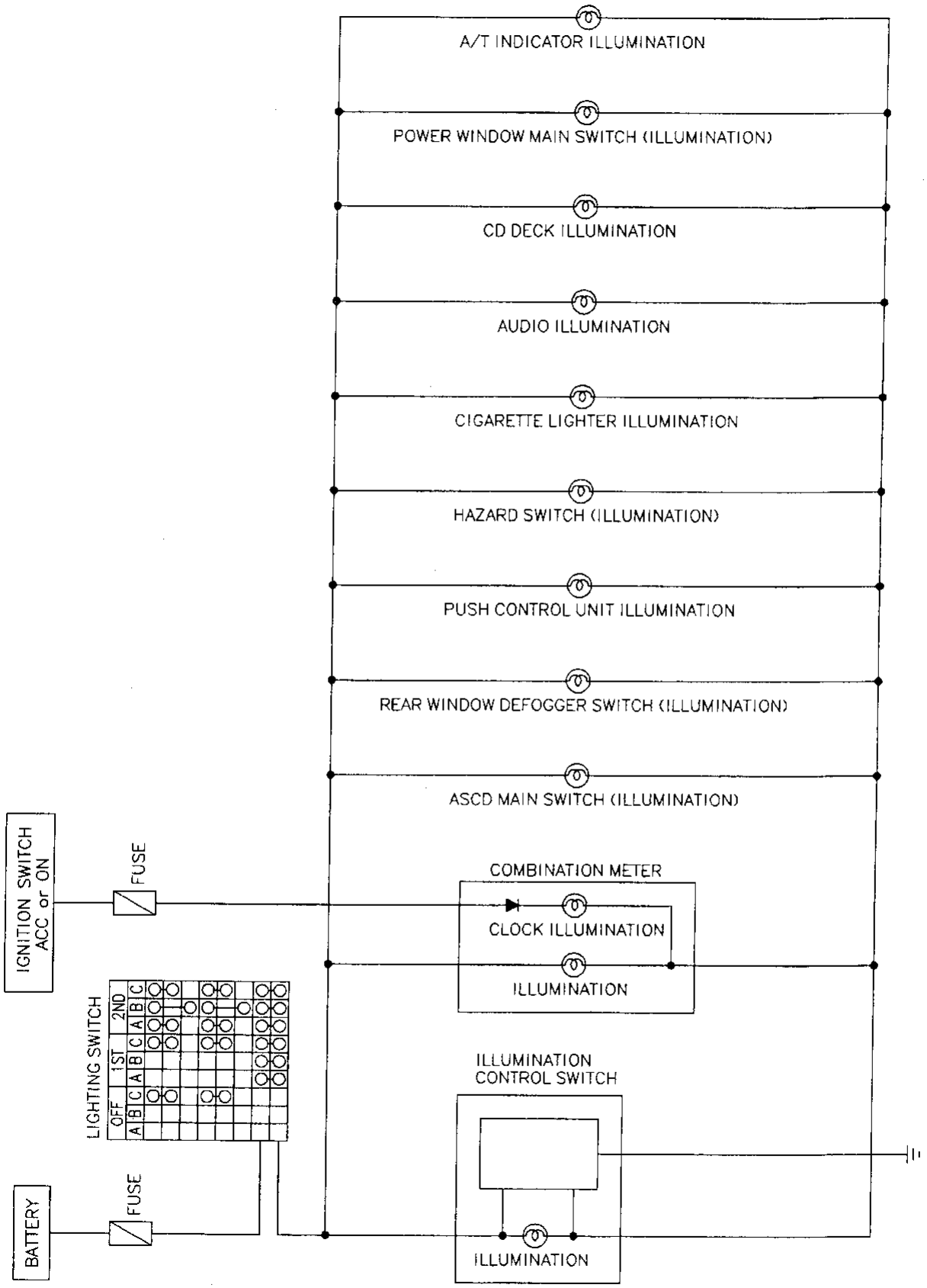
Power is supplied at all times
- through 10A fuse (No. 4, located in the fuse block)
- to lighting switch terminal ⑪.

The lighting switch must be in the 1ST or 2ND position for illumination.
The illumination control switch that 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 | M16 | ① | ③ |
| Combination meter | M72 | ㉜ | ㉛ |
| Clock | M70, M72 | ① | ㉛ |
| ASCD main switch | M17 | ⑤ | ⑥ |
| Rear window defogger switch | M39 | ⑤ | ⑥ |
| Push control unit | M77 | ⑮ | ⑯ |
| Hazard switch | M38 | ⑦ | ⑧ |
| Cigarette lighter | M78 | ③ | ④ |
| Audio | M43 | ⑧ | ⑦ |
| CD deck | M45, M46 | ③ | ⑤ |
| Power window main switch | D8 | ⑩ | ⑨ |
| A/T indicator | B7 | ④ | ③ |

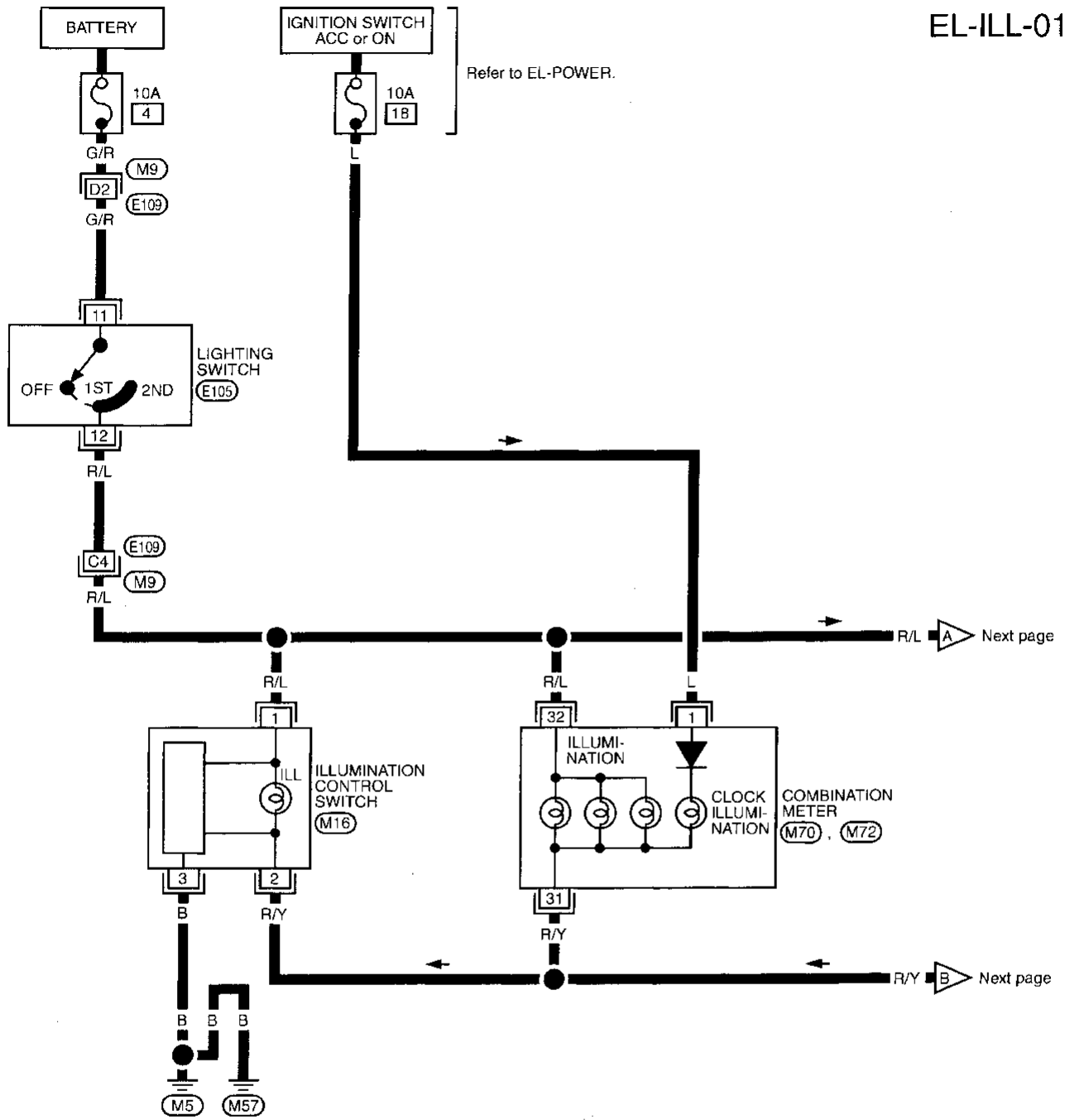
The ground for all of the components are controlled through terminals ② and ③ of the illumination control switch and body grounds (M5) and (M57).

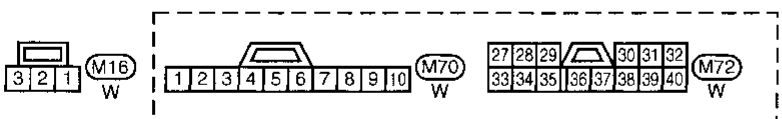
## Schematic

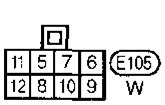



MEL299F

## Wiring Diagram — ILL —



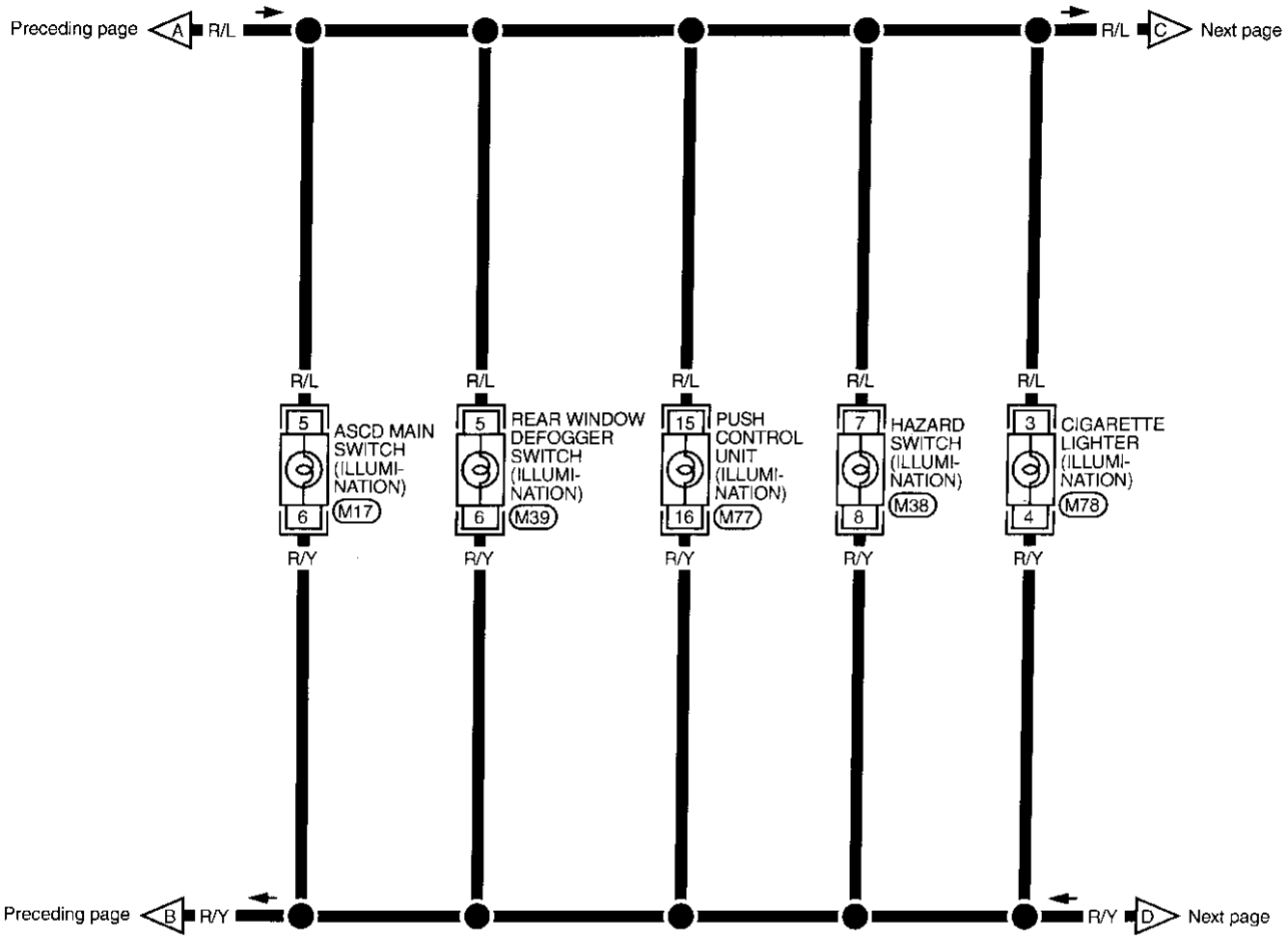



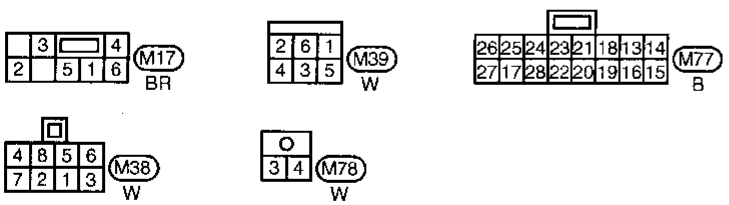

Refer to last page (Foldout page).
M9 , E109

MEL313I

## Wiring Diagram — ILL — (Cont'd)

EL-ILL-02

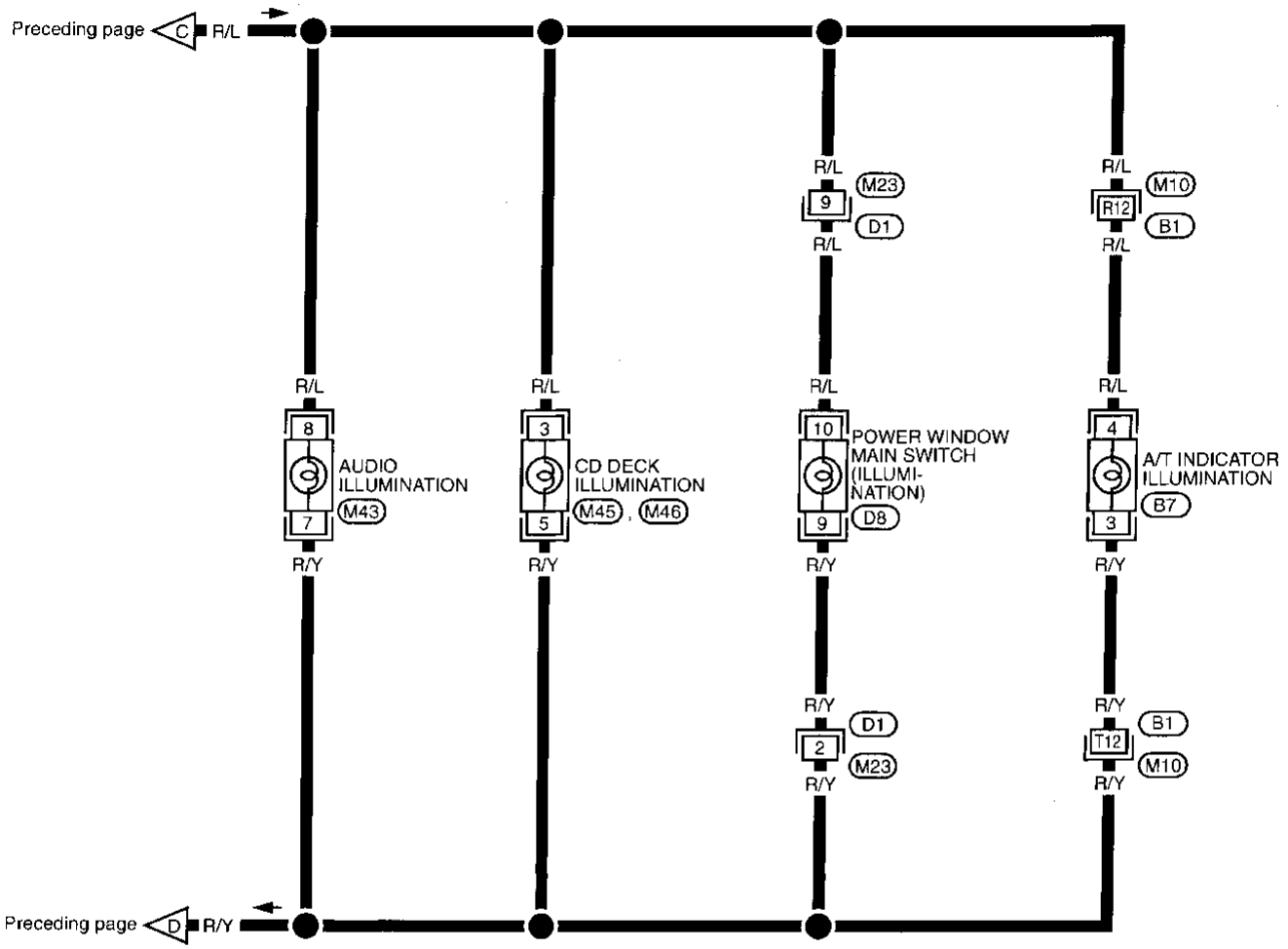


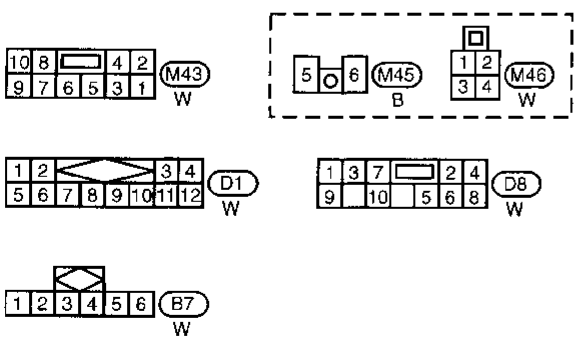




MEL301F

## Wiring Diagram — ILL — (Cont'd)

EL-ILL-03




Refer to last page (Foldout page).
M10 , B1

MEL302F

## System Description

Power is supplied at all times
- through 10A fuse (No. 6, located in the fuse block)
- to interior lamp terminal ①,
- to spot lamp terminal ① and
- to trunk room lamp terminal ①.
- through 25A fusible link (letter i, located in the fuse and fusible link box)
- to circuit breaker
- to smart entrance control unit terminal ① for multi-remote control system.

### INTERIOR LAMP

#### Switch operation

With interior lamp switch ON, ground is supplied to turn interior lamp ON.
When a door switch is opened with interior lamp switch in DOOR, ground is supplied
- to interior lamp terminal ②
- through diode(s) (With theft warning system)
- through door switch RH terminal ① or
- through door switch LH terminal ②,
- through body ground.

#### Interior lamp control by multi-remote control system

Smart entrance control unit receives a signal from multi-remote controller to turn interior lamp ON with interior lamp switch set to DOOR. Ground is then supplied
- to interior lamp terminal ②
- through smart entrance control unit terminal ⑨,
- through smart entrance control unit terminal ⑩ and
- through body grounds (M5) and (M57).

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

### TRUNK ROOM LAMP

When the trunk room lamp switch is set to OPEN, ground is supplied
- to trunk room lamp terminal ②
- through trunk room switch terminal ①,
- through trunk room lamp switch terminal ② and
- through body grounds (B4), (B13) and (T16).

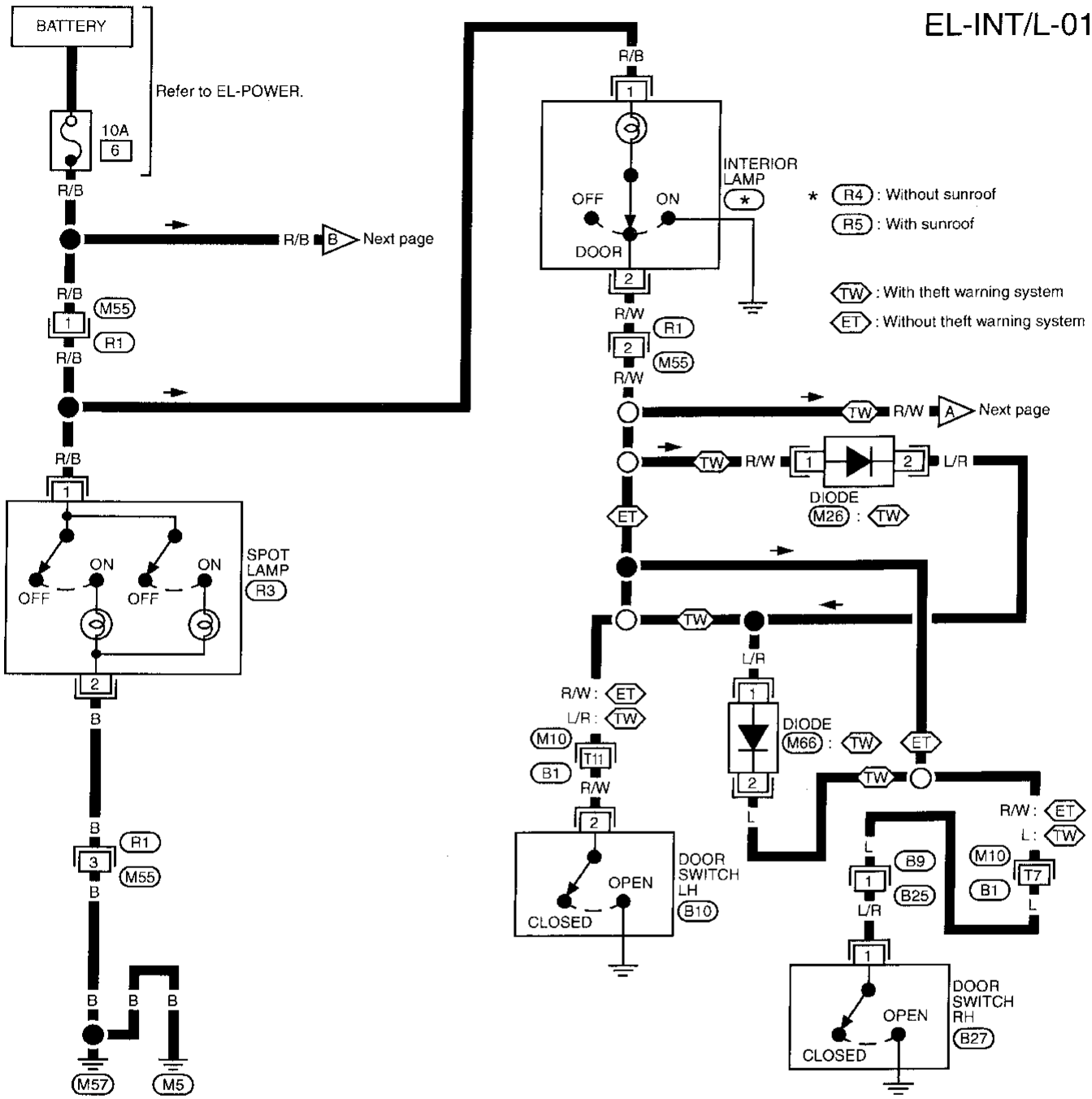
With power and ground supplied, the trunk room lamp turns ON.

### SPOT LAMP

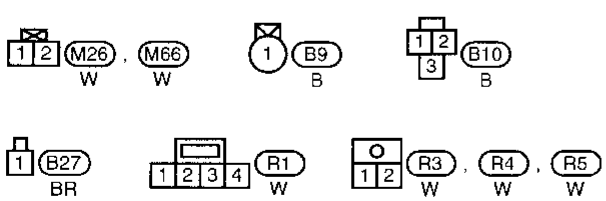
With the spot lamp switch in the ON position, ground is supplied
- to spot lamp terminal ②
- through body grounds (M5) and (M57).

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

## Wiring Diagram — INT/L —




Refer to last page (Foldout page).
M10 , B1



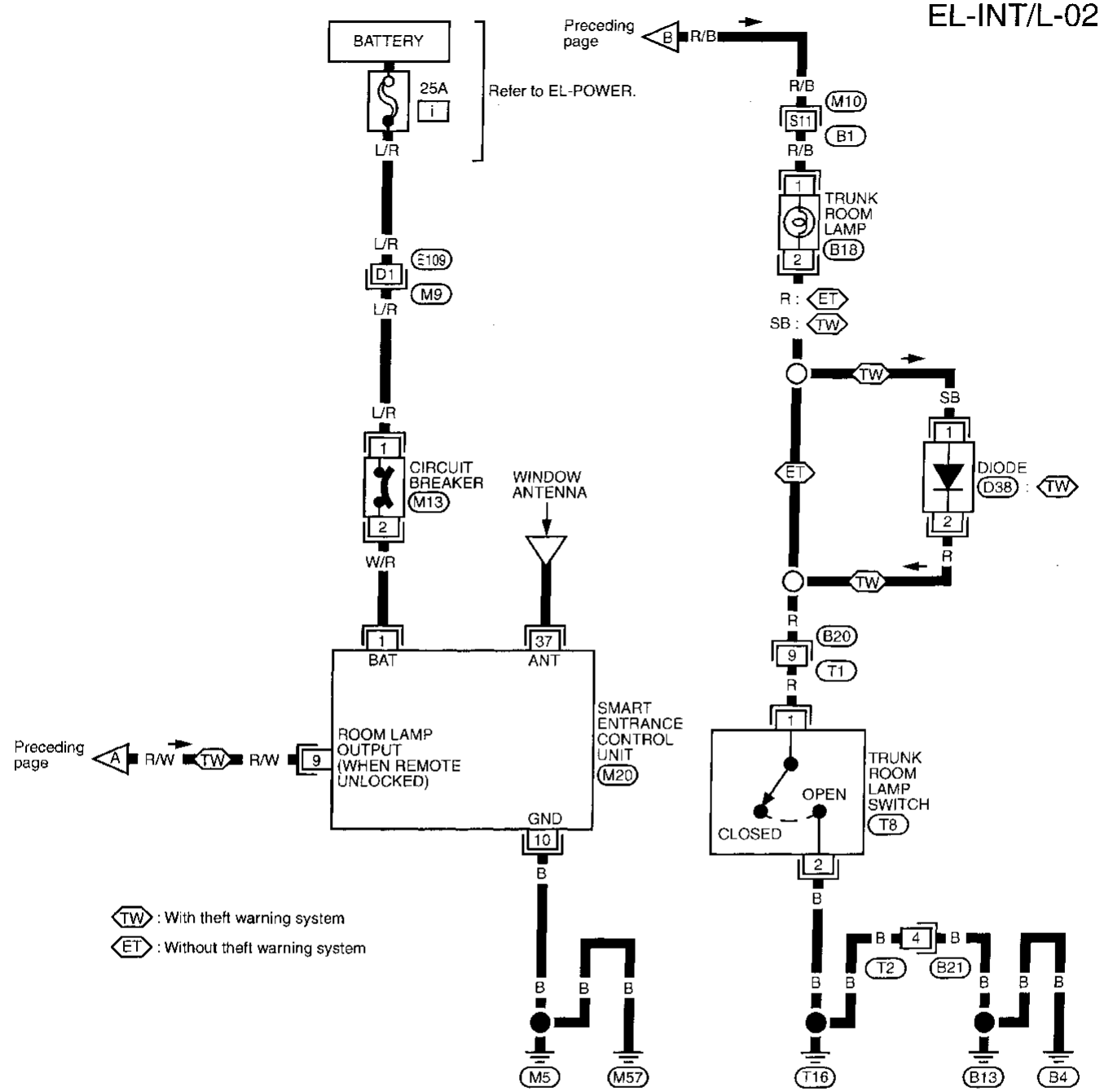

MEL314I

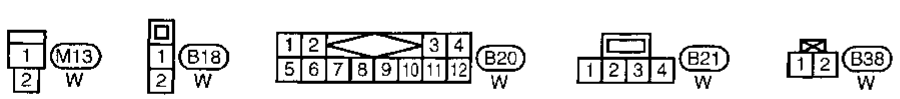


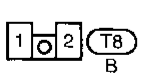
1341

## Wiring Diagram — INT/L — (Cont'd)

EL-INT/L-02




Refer to last page (Foldout page).
M9 , E109
M10 , B1
M20

MEL315I

## System Description

With the ignition switch in the ON or START position, power is supplied
- through 7.5A fuse (No. 2, located in the fuse block)
- to combination meter terminal ⑭.

Ground is supplied
- to combination meter terminal ㊵
- through body grounds (M5) and (M57).

### 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 ㉔ for the fuel gauge
- from terminal ① of the fuel tank gauge unit
- through terminal ④ of the fuel tank gauge unit and
- through body grounds (B4), (B13) and (T16).

### 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".

### TACHOMETER

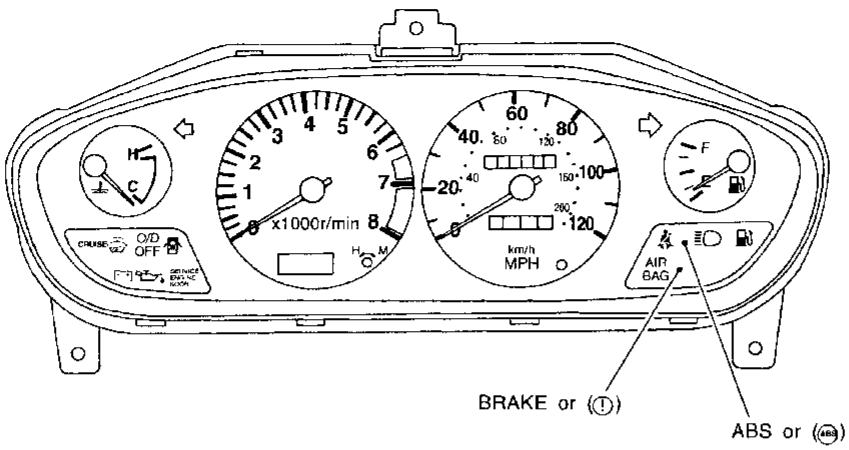
The tachometer indicates engine speed in revolutions per minute (rpm).
The tachometer is regulated by a signal
- from terminal ③ of the ECM (ECCS control module)
- to combination meter terminal ⑰ for the tachometer.

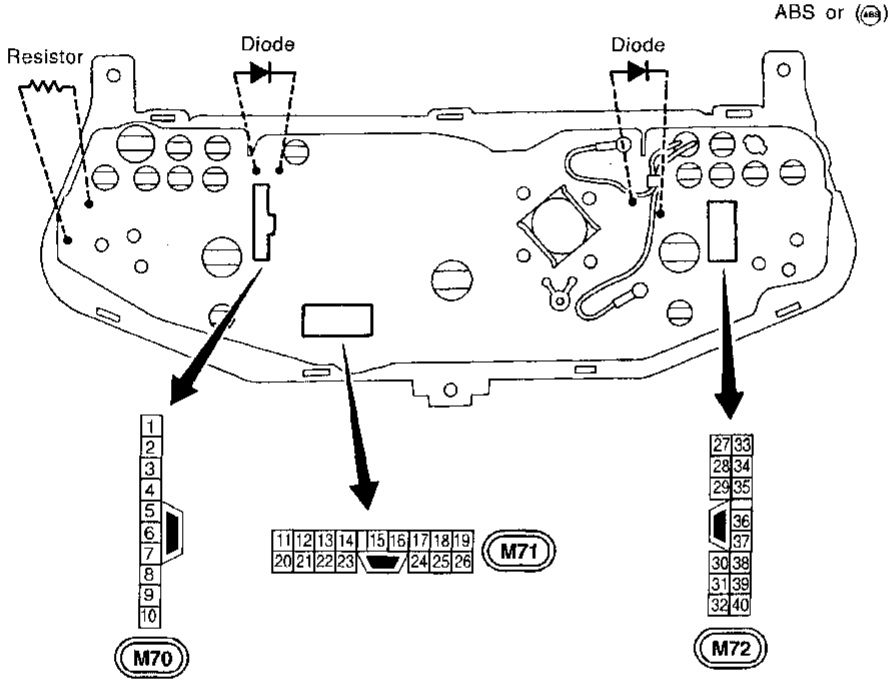
### SPEEDOMETER

The vehicle speed sensor provides a voltage signal to the combination meter for the speedometer.
The voltage is supplied
- to combination meter terminals ㉕ and ㉖ for the speedometer
- from terminals ① and ② of the vehicle speed sensor.

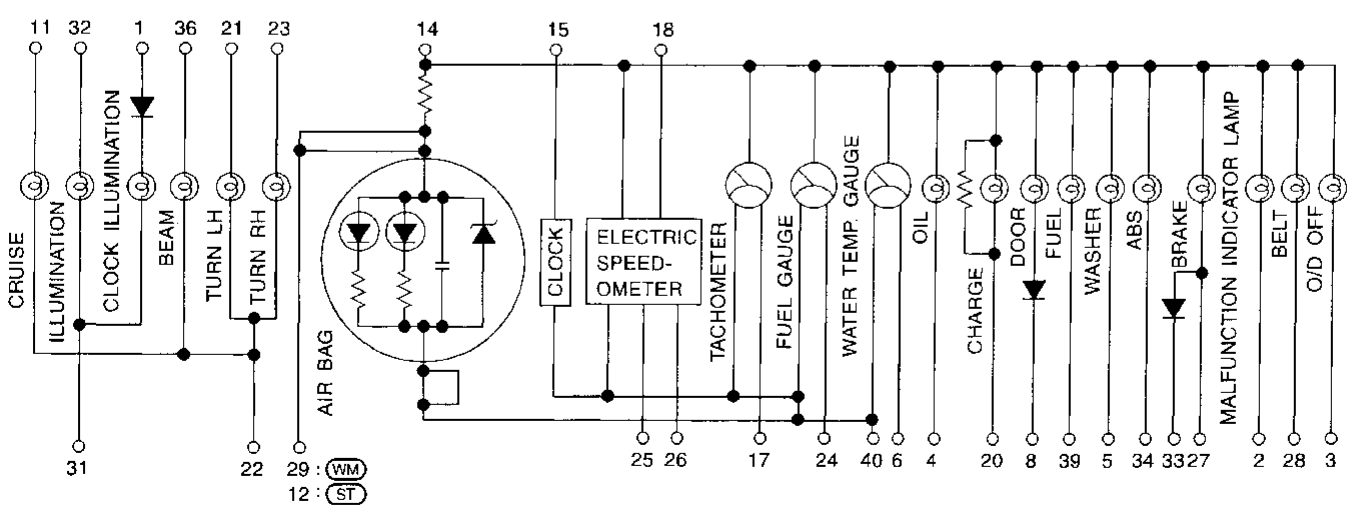
The speedometer converts the voltage into the vehicle speed displayed.

## Combination Meter



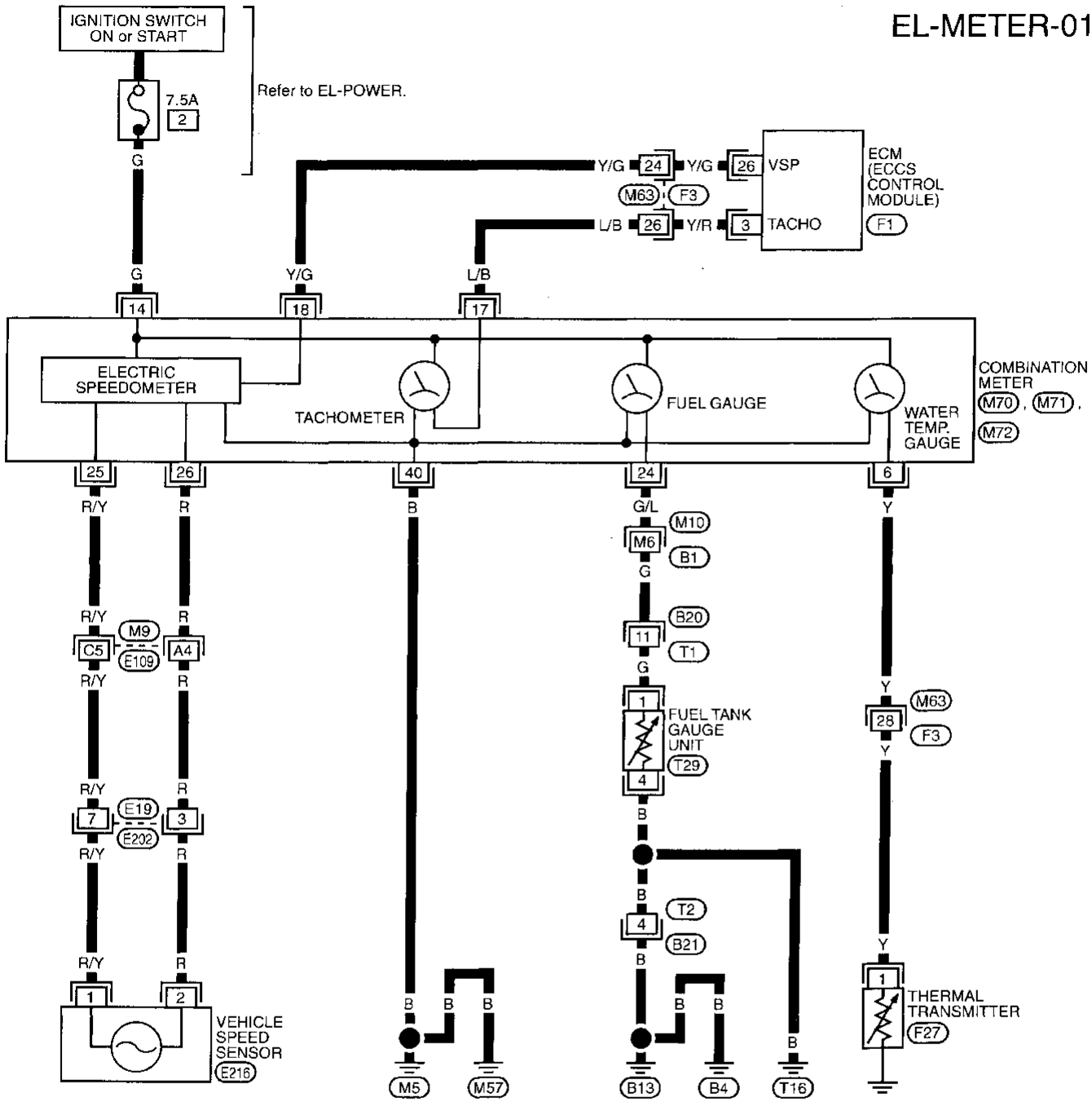



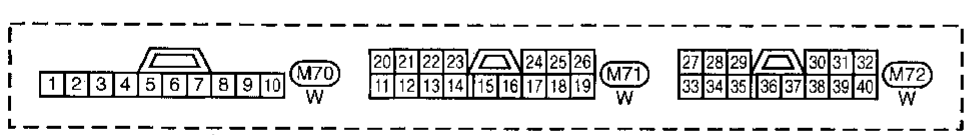

(WM) : Models with white combination meter
(ST) : Models with standard combination meter

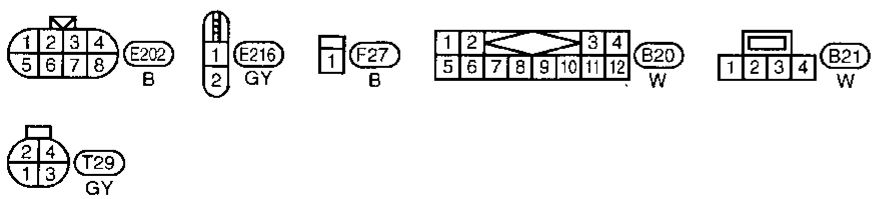



MEL316I

## Wiring Diagram — METER —




Refer to last page (Foldout page).

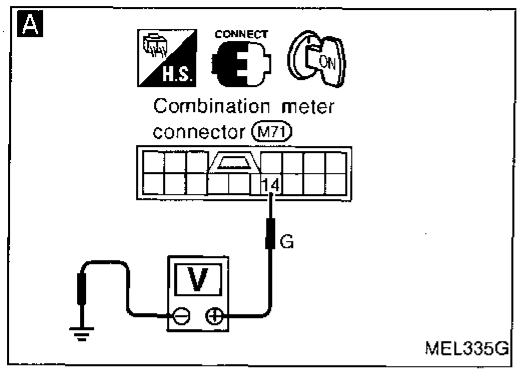
M9, E109
M10, B1
F3, M63
F1

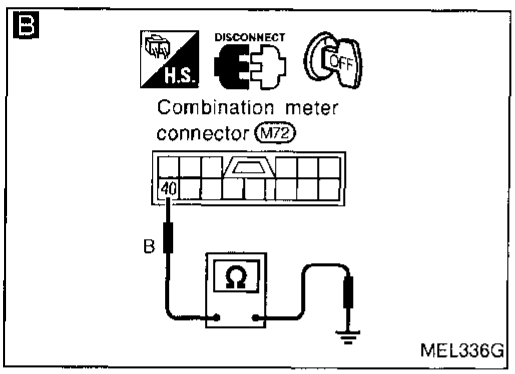


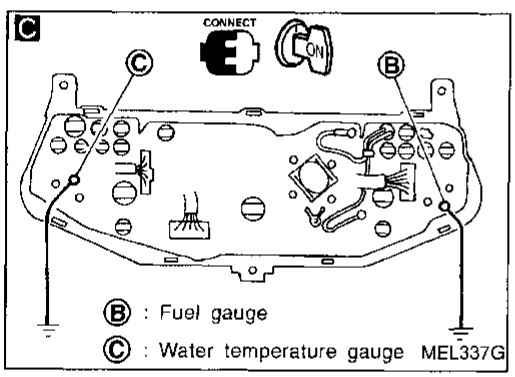
MEL317I

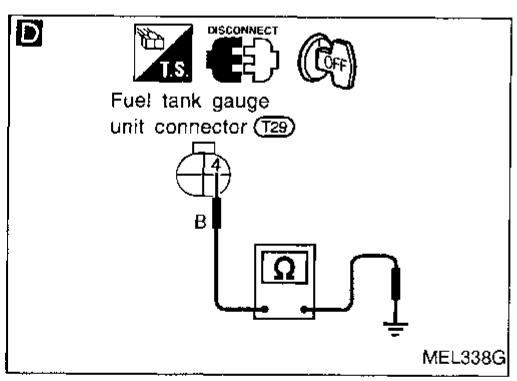
## Trouble Diagnoses

### INSPECTION/FUEL GAUGE AND/OR WATER TEMPERATURE GAUGE




**A**

**CHECK POWER SUPPLY CIRCUIT.**
1. Turn ignition switch "ON".
2. Check voltage between combination meter terminal ⑭ and ground.
   **Battery voltage should exist.**

NG → Check the following.
- 7.5A fuse (No. 2, located in the fuse block)
- Harness for open or short between fuse and combination meter

OK ↓

**B**

**CHECK GROUND CIRCUIT FOR GAUGES.**
Check continuity between combination meter terminal ㊵ and ground.
**Continuity should exist.**

NG → Repair harness or connector.

OK ↓

**C**

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

NG → Repair or replace gauge.

OK ↓

CHECK COMPONENT.
Check gauge units and harness.
**Refer to "FUEL TANK GAUGE UNIT CHECK" (EL-75) or "THERMAL TRANSMITTER CHECK" (EL-75).**

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

OK ↓

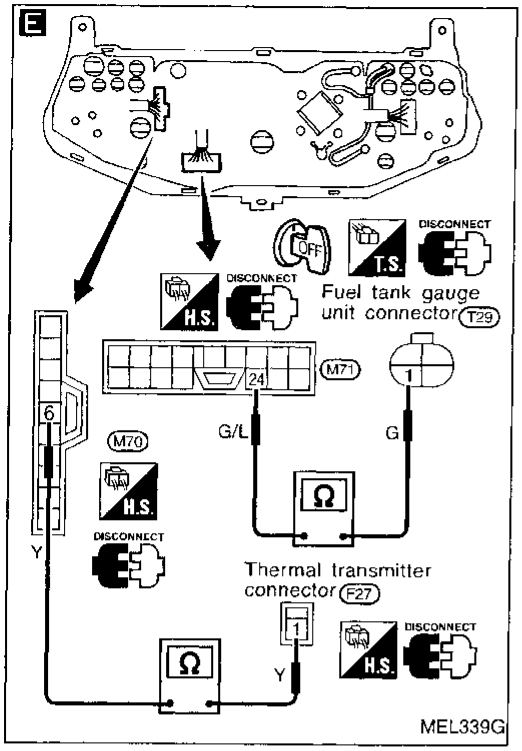
**D**

**CHECK GROUND CIRCUIT FOR FUEL TANK GAUGE UNIT.**
Check harness continuity between fuel tank gauge unit terminal ④ and ground.
**Continuity should exist.**

NG → Repair harness or connector.

OK ↓

(Go to Ⓐ on next page.)

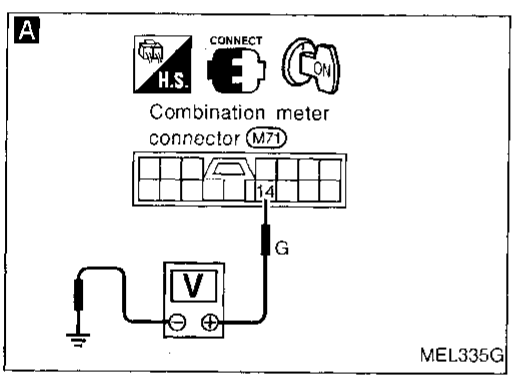



Ⓐ

**E**

**CHECK HARNESS.**
Check harness for open or short between terminals.

| Terminals | |
|---|---|
| Combination meter connector | Component |
| ㉔ | Fuel tank gauge unit connector ① |
| ⑥ | Thermal transmitter connector ① |



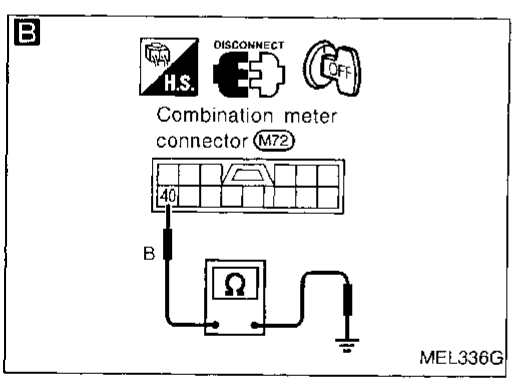

## INSPECTION/TACHOMETER

**A**

**CHECK POWER SUPPLY CIRCUIT.**
1. Turn ignition switch "ON".
2. Check voltage between combination meter terminal ⑭ and ground.
**Battery voltage should exist.**

NG → Check the following.
- 7.5A fuse [No. 2, located in the fuse block]
- Harness for open or short between fuse and combination meter

OK ↓

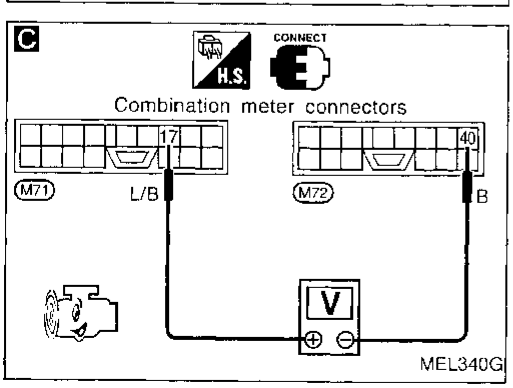



**B**

**CHECK GROUND CIRCUIT FOR TACHOMETER.**
Check continuity between combination meter terminal ㊵ and ground.
**Continuity should exist.**

NG → Repair harness or connector.

OK ↓




**C**

**CHECK ECM OUTPUT.**
1. Start engine.
2. Check voltage between combination meter terminals ⑰ and ㊵ at idle and 2,000 rpm.
**Higher rpm = Higher voltage**
**Lower rpm = Lower voltage**
**Voltage should change with rpm.**

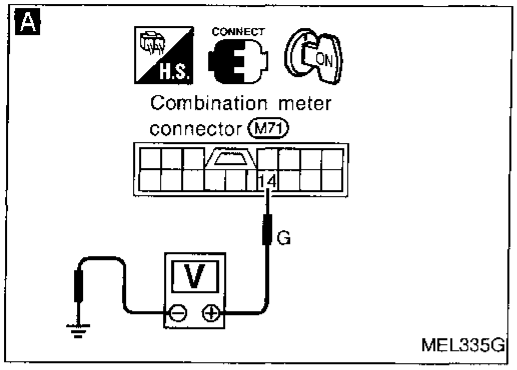
NG → Check harness for open or short between ECM and combination meter.

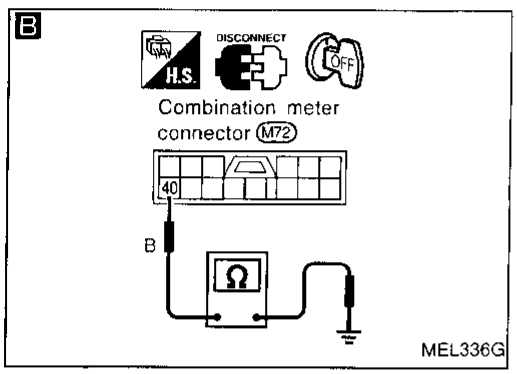
OK ↓

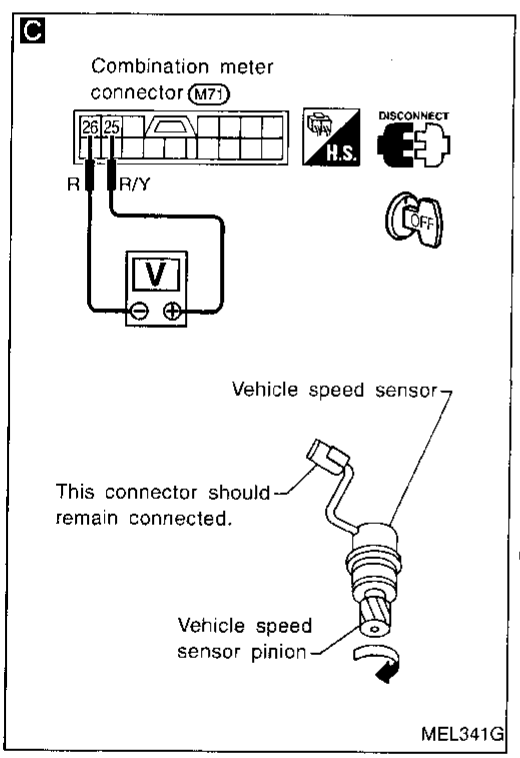
Replace tachometer.

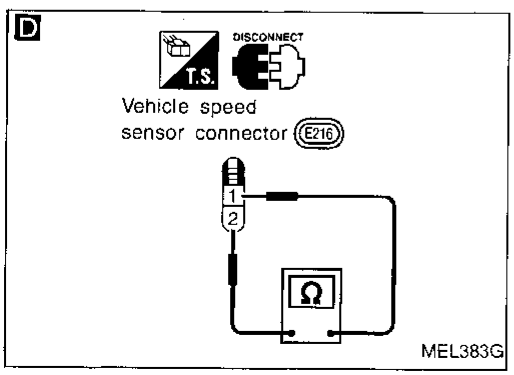
# Trouble Diagnoses (Cont'd)

## INSPECTION/SPEEDOMETER AND VEHICLE SPEED SENSOR




**A**

**CHECK POWER SUPPLY CIRCUIT.**
1. Turn ignition switch "ON".
2. Check voltage between combination meter terminal ⑭ and ground.
   **Battery voltage should exist.**

NG → Check the following.
- 7.5A fuse (No. 2, located in the fuse block)
- Harness for open or short between fuse and combination meter

OK ↓

**B**

**CHECK GROUND CIRCUIT FOR SPEEDOMETER.**
Check continuity between combination meter terminal ㊵ and ground.
**Continuity should exist.**

NG → Repair harness or connector.

OK ↓

**C**

**CHECK VEHICLE SPEED SENSOR OUTPUT.**
1. Remove vehicle speed sensor from transaxle.
2. Check voltage between combination meter terminal ㉕ and ㉖ while quickly turning speed sensor pinion.
   **Voltage: Approx. 0.5V**

OK → Replace speedometer.

NG ↓

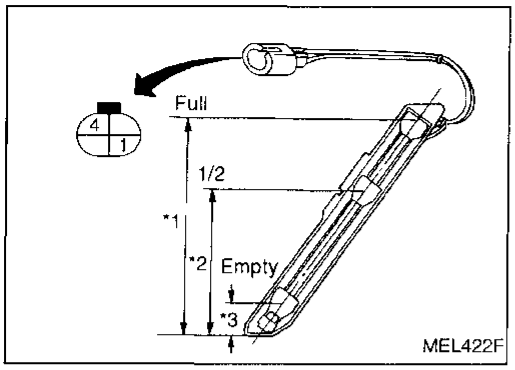
**D**

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

NG → Replace vehicle speed sensor.

OK ↓

Check harness or connector between speedometer and vehicle speed sensor.




## Electrical Components Inspection

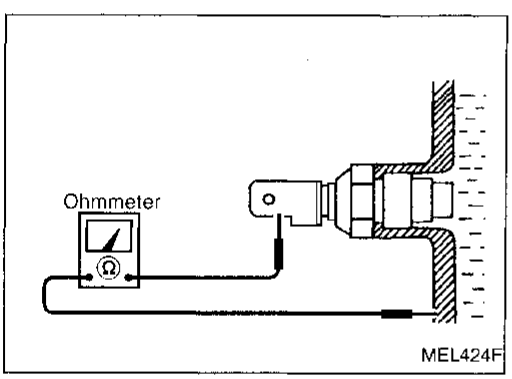
### FUEL TANK GAUGE UNIT CHECK

- For removal, refer to FE section.

Check the resistance between terminals ① and ④.

| Ohmmeter (+) | Ohmmeter (−) | | Float position mm (in) | | Resistance value (Ω) |
|---|---|---|---|---|---|
| ① | ④ | *1 | Full | 356 (14.02) | Approx. 4 - 6 |
| | | *2 | 1/2 | 245 (9.65) | 30 - 35 |
| | | *3 | Empty | 50 (1.97) | 80 - 84 |

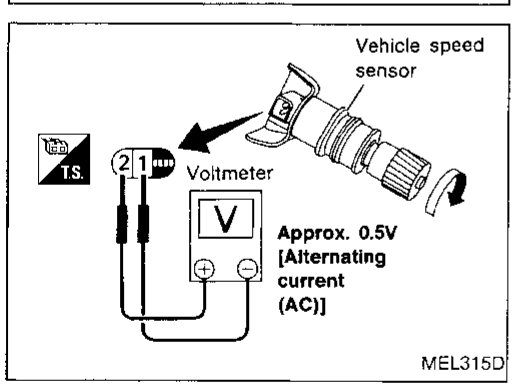
*1 and *3: When float rod is in contact with stopper.




### THERMAL TRANSMITTER CHECK

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

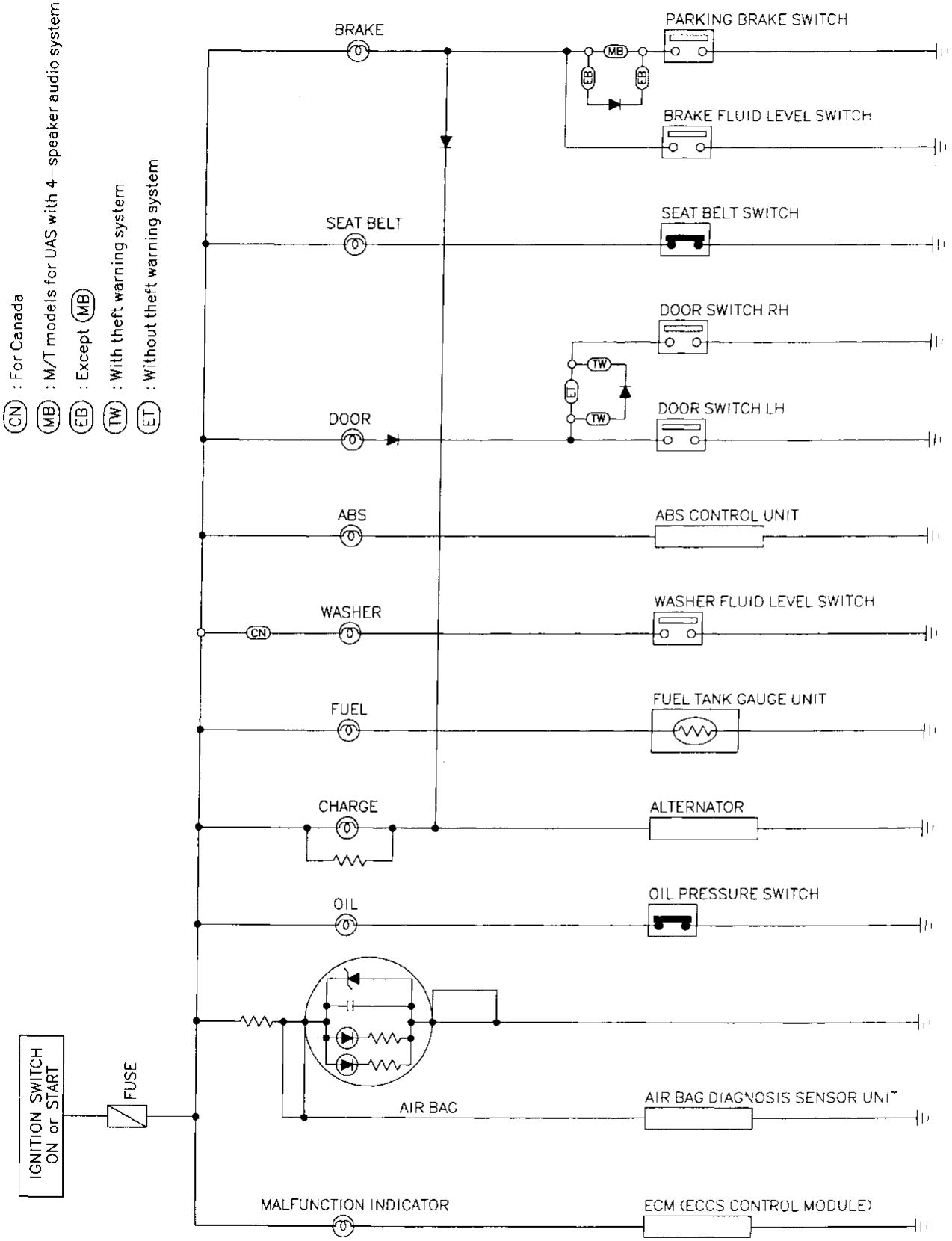
| Water temperature | Resistance |
|---|---|
| 60°C (140°F) | Approx. 70 - 90Ω |
| 100°C (212°F) | Approx. 21 - 24Ω |




### VEHICLE SPEED SENSOR SIGNAL CHECK

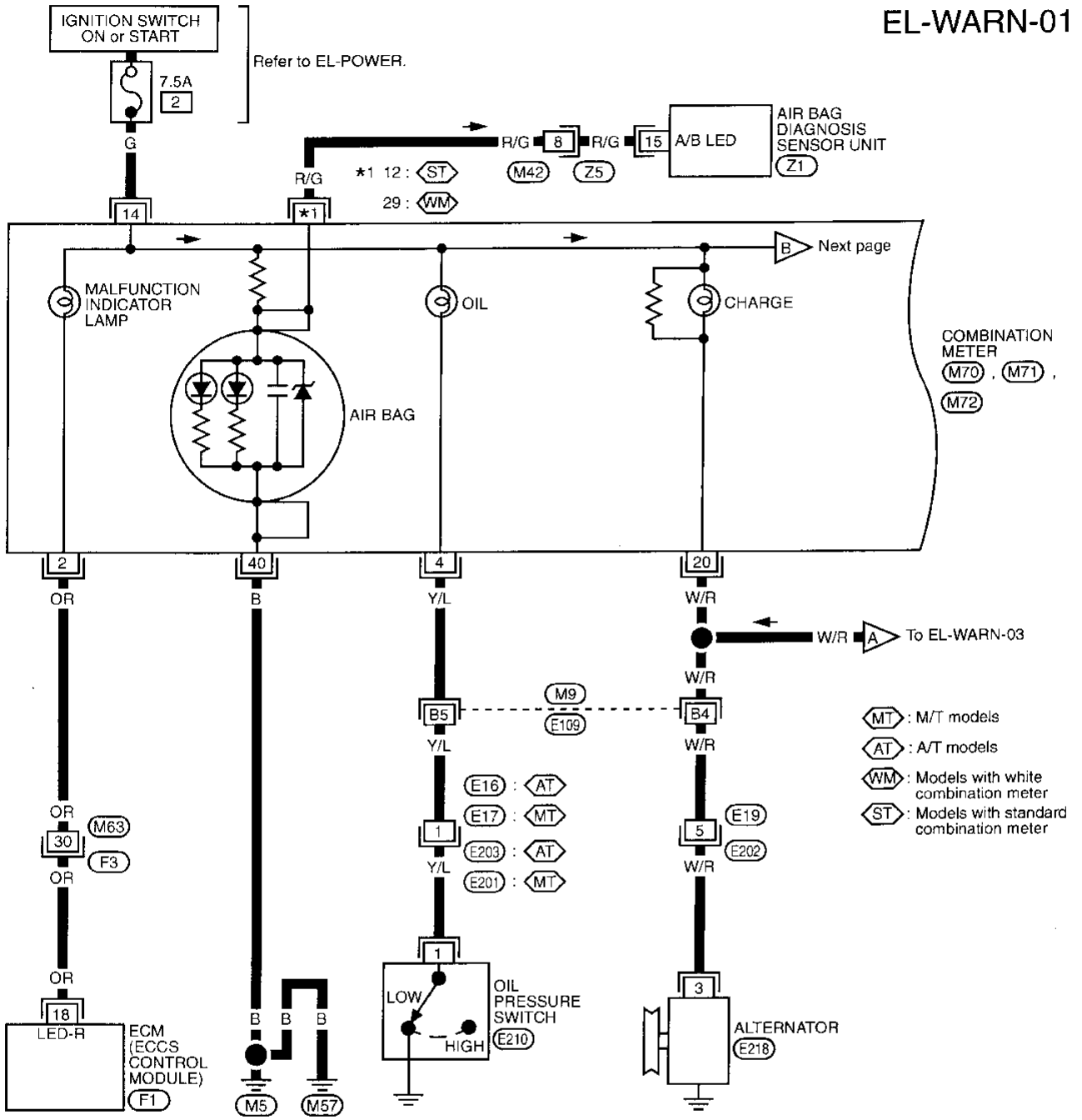
1. Remove vehicle speed sensor from transmission.
2. Turn vehicle speed sensor pinion quickly and measure voltage across ① and ②.

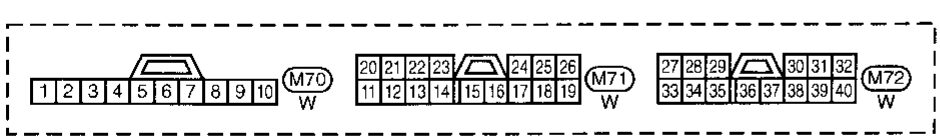
## Schematic

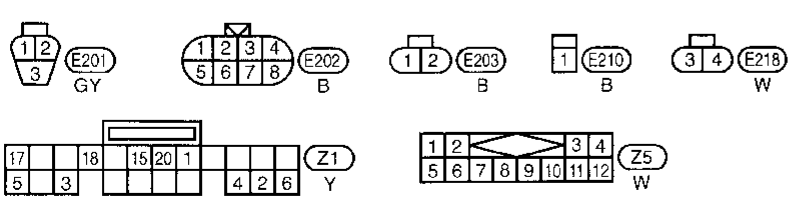



MEL361I

## Wiring Diagram — WARN —



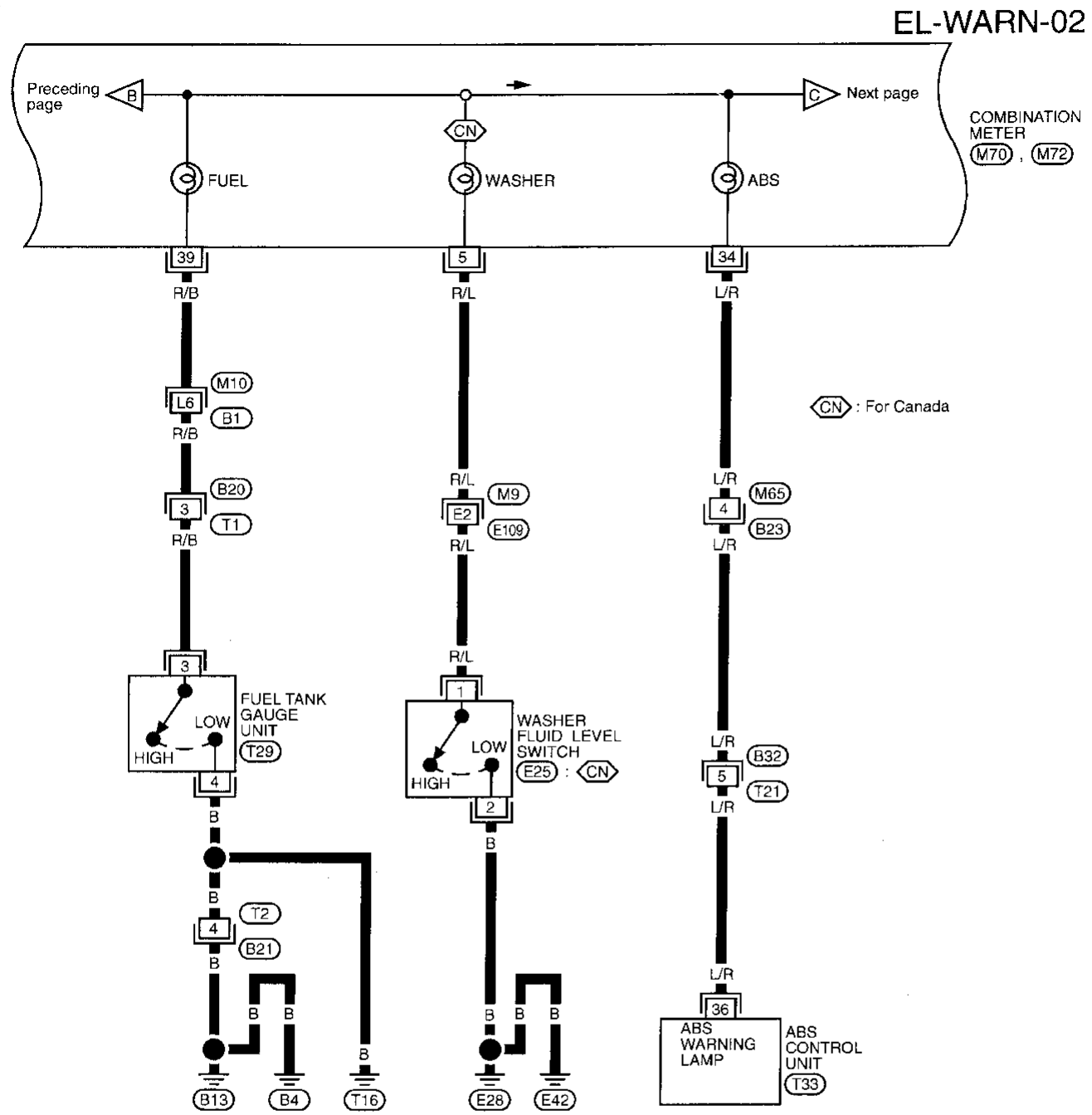



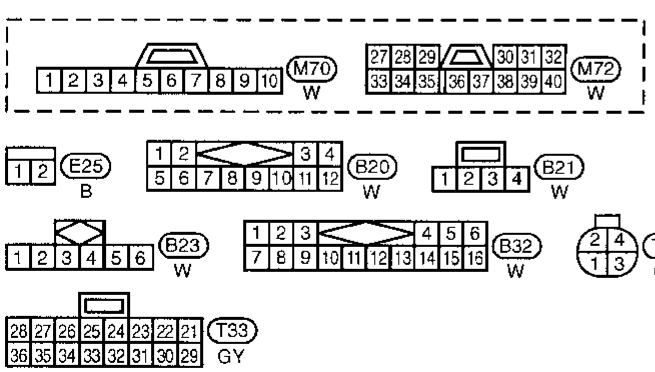

Refer to last page (Foldout page).
M9 , E109
F3 , M63
F1

MEL318I

## Wiring Diagram — WARN — (Cont'd)

EL-WARN-02




Refer to last page (Foldout page).

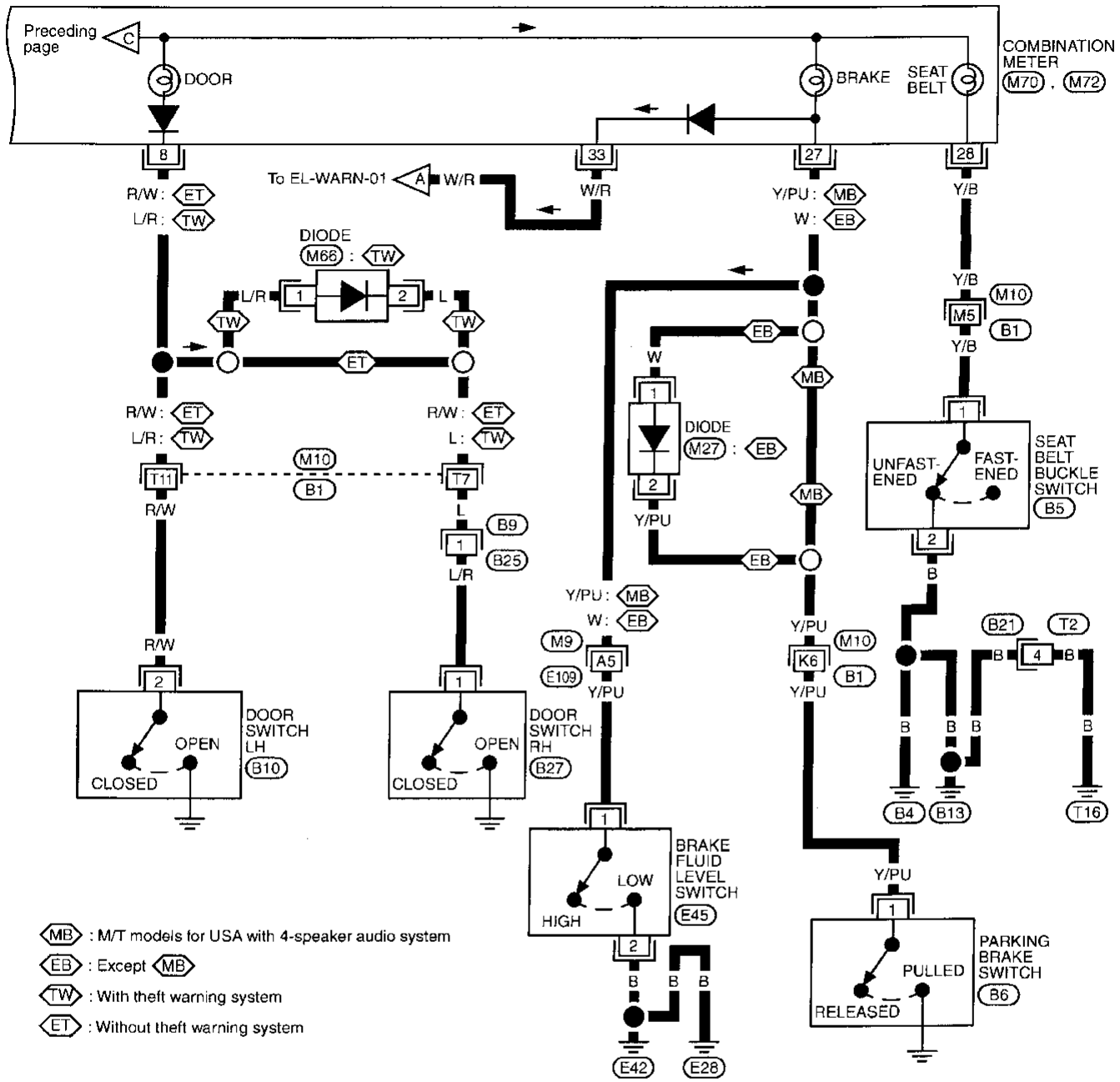
M9 , E109

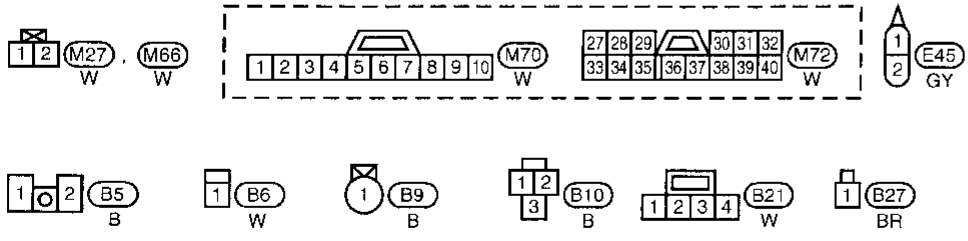
M10 , B1

MEL319I

## Wiring Diagram — WARN — (Cont'd)

EL-WARN-03



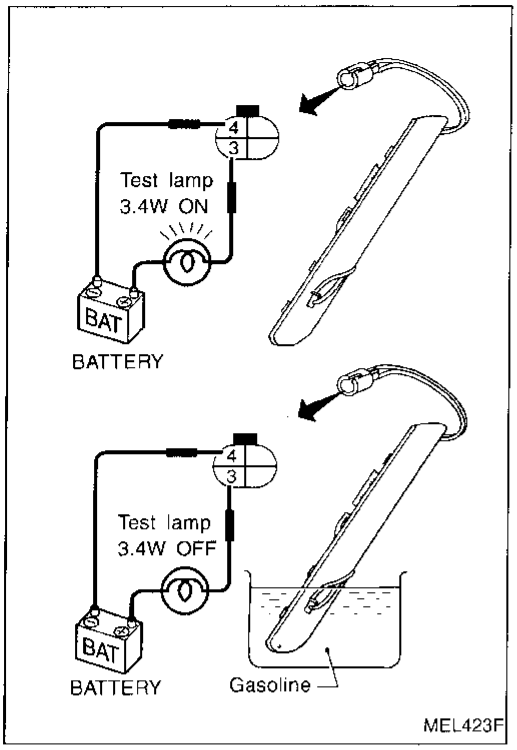

Refer to last page (Foldout page).

M9 , E109

M10 , B1



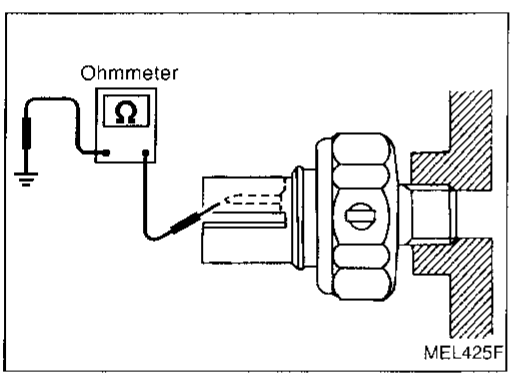
MEL320I




## Electrical Components Inspection

### FUEL WARNING LAMP SENSOR CHECK

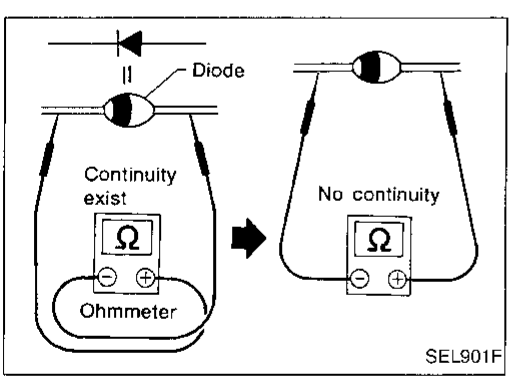
- It will take a short time for the bulb to light.




### OIL PRESSURE SWITCH CHECK

| | Oil pressure kPa (kg/cm$^2$, 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 |

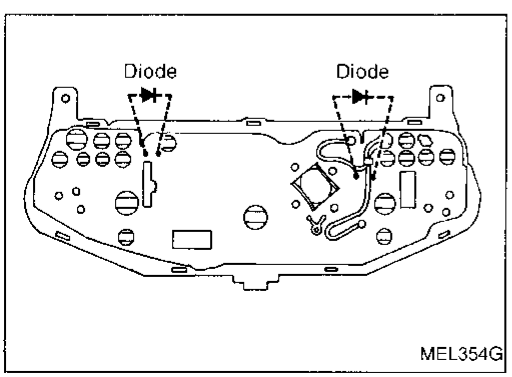
Check the continuity between the terminals of oil pressure switch and body ground.




### 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.

## System Description

### MODELS WITH POWER DOOR LOCKS

The warning buzzer is controlled by the smart entrance control unit.
Power is supplied at all times
- through 10A fuse (No. 6, located in the fuse block)
- to warning buzzer terminal ③
- to key switch terminal ①.

Power is supplied at all times
- through 10A fuse (No. 4, located in the fuse block)
- to lighting switch terminal ⑪.

Power is supplied at all times
- through 25A fusible link (letter i, located in the fuse and fusible link box).
- 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. 1, located in the fuse block)
- to smart entrance control unit terminal ⑪.

Ground is supplied to smart entrance control unit terminal ⑩ through body grounds (M5) and (M57).
When a signal, or combination of signals, is received by the smart entrance control unit, ground is supplied
- through smart entrance control unit terminal ㉓
- to warning buzzer terminal ①.

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

**Ignition key warning buzzer**

With the key in the ignition switch in the OFF position, and the driver's door open, the warning buzzer will sound. A battery positive voltage is supplied
- from key switch terminal ②
- to smart entrance control unit terminal ㉔.

Ground is supplied
- from door switch LH terminal ①
- to smart entrance control unit terminal ⑮.

Door switch LH terminal ③ is grounded through body grounds (B4), (B13) and (T16).

**Light warning buzzer**

With ignition switch OFF, driver's door open, and lighting switch in 1ST or 2ND position, warning buzzer will sound. A battery positive voltage is supplied.
- from lighting switch terminal ⑫
- to smart entrance control unit terminal ㉕.

Ground is supplied
- from door switch LH terminal ①
- to smart entrance control unit terminal ⑮.

Door switch LH terminal ③ is grounded through body grounds (B4), (B13) and (T16).

**Seat belt warning buzzer**

With ignition switch turned ON and seat belt unfastened (seat belt switch ON), warning buzzer will sound for approximately 6 seconds.
Ground is supplied
- from seat belt switch terminal ①
- to smart entrance control unit terminal ㉑.

Seat belt switch terminal ② is grounded through body grounds (B4), (B13) and (T16).

### MODELS WITHOUT POWER DOOR LOCKS

The warning buzzer is controlled by the warning buzzer unit.
Power is supplied at all times
- through 10A fuse (No. 6, located in the fuse block)
- to key switch terminal ①.

Power is supplied at all times
- through 10A fuse (No. 4, located in the fuse block)
- to lighting switch terminal ⑪.

With the ignition switch in the ON or START position, power is supplied
- through 7.5A fuse (No. 2, located in the fuse block)
- to warning buzzer unit terminal ①.

## System Description (Cont'd)

Ground is supplied to warning buzzer unit terminal ⑧ through body grounds (M5) and (M57).
When a signal, or combination of signals, is received by the warning buzzer unit.
With power and ground supplied, the warning buzzer will sound.

**Ignition key warning buzzer**

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

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

Ground is supplied

- from door switch LH terminal ①
- to warning buzzer unit terminal ⑦.

Door switch LH terminal ③ is grounded through body grounds (B4), (B13) and (T16).

**Light warning buzzer**

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

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

Ground is supplied

- from door switch LH terminal ①
- to warning buzzer unit terminal ⑦.

Door switch LH terminal ③ is grounded through body grounds (B4), (B13) and (T16).

**Seat belt warning buzzer**

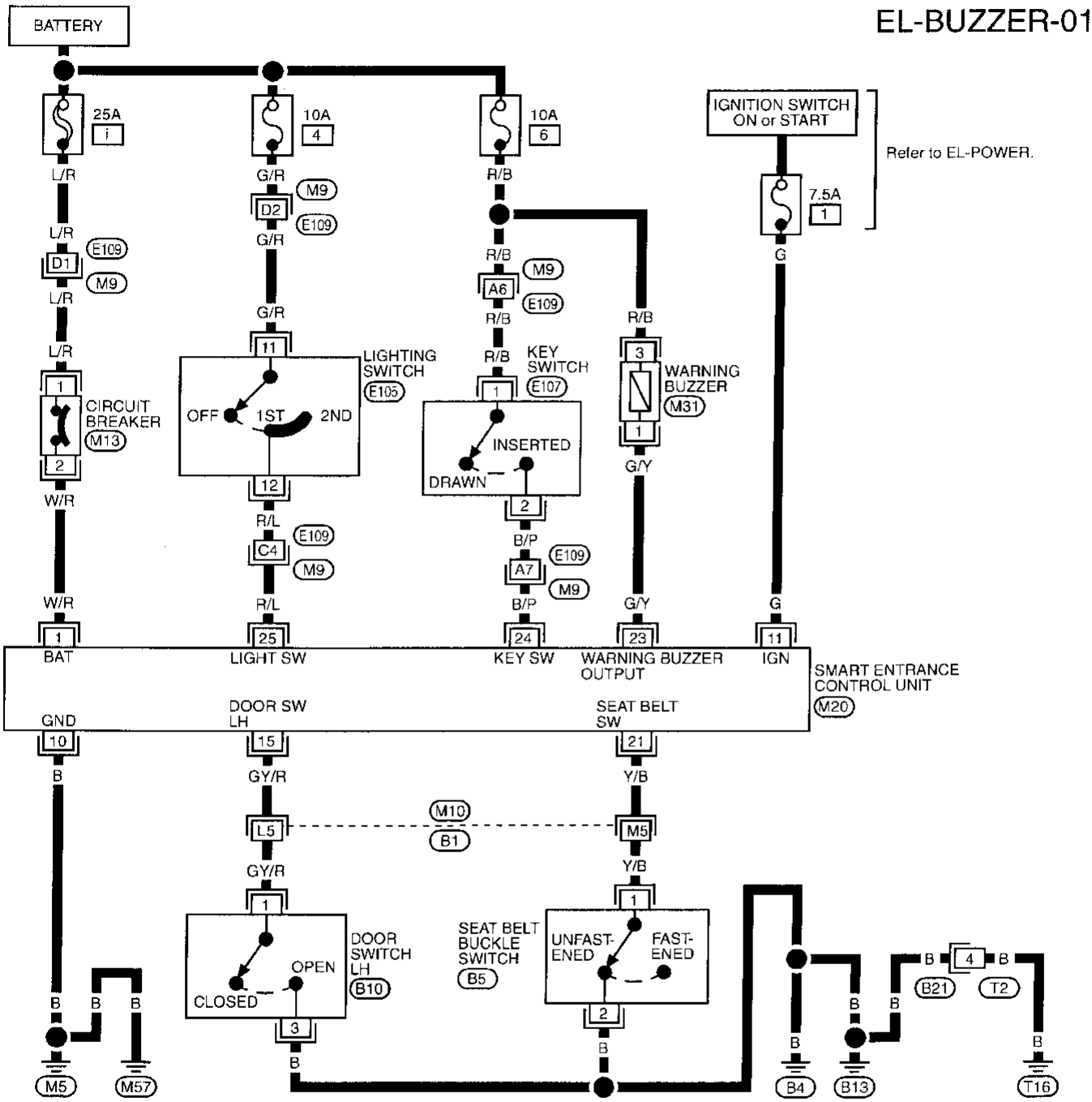
With ignition switch turned ON and seat belt unfastened (seat belt switch ON), warning buzzer will sound for approximately 6 seconds.
Ground is supplied

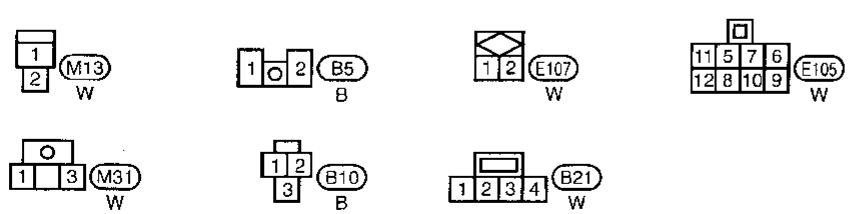
- from seat belt switch terminal ①
- to warning buzzer unit terminal ②.

Seat belt switch terminal ② is grounded through body grounds (B4), (B13) and (T16).

## Wiring Diagram — BUZZER —/Models With Power Door Locks

EL-BUZZER-01




Refer to last page (Foldout page).

M9 , E109

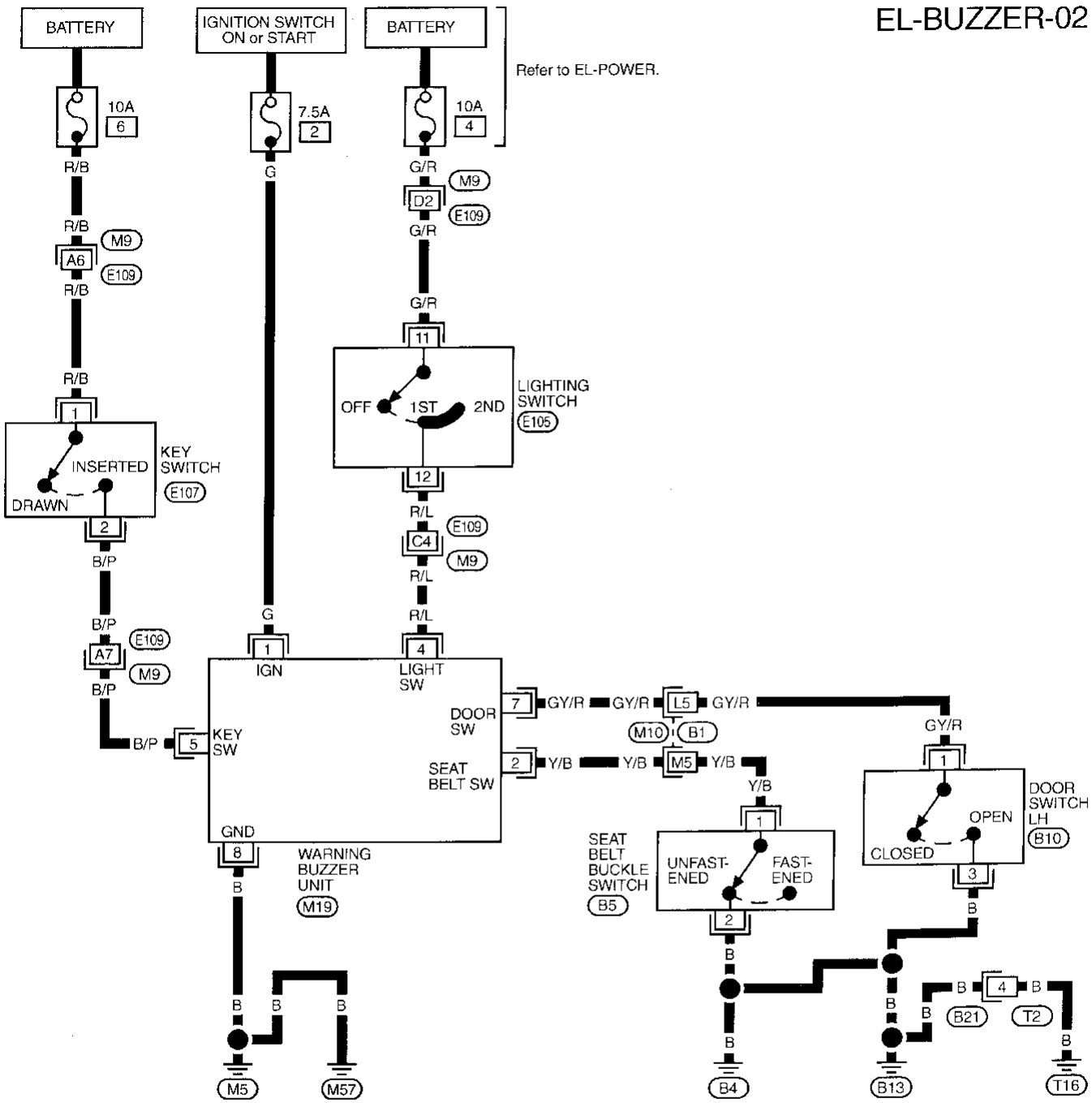
M10 , B1

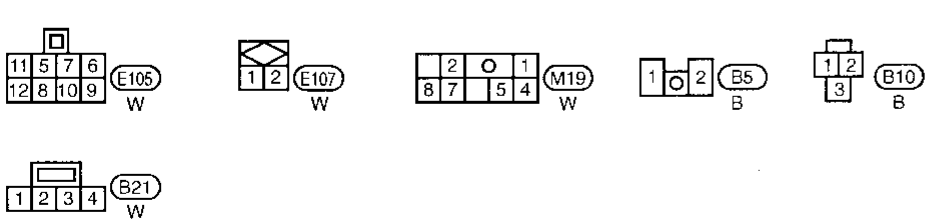
M20

MEL346G

## Wiring Diagram — BUZZER —/Models Without Power Door Locks

EL-BUZZER-02




Refer to last page (Foldout page).

M9 , E109

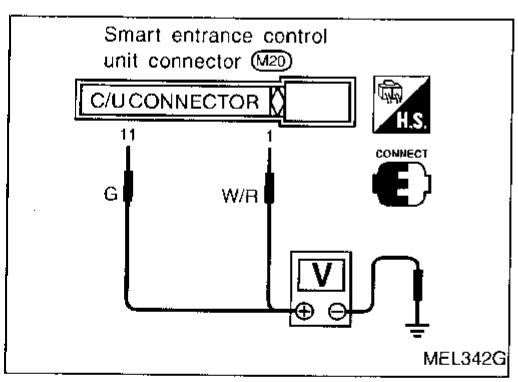
M10 , B1

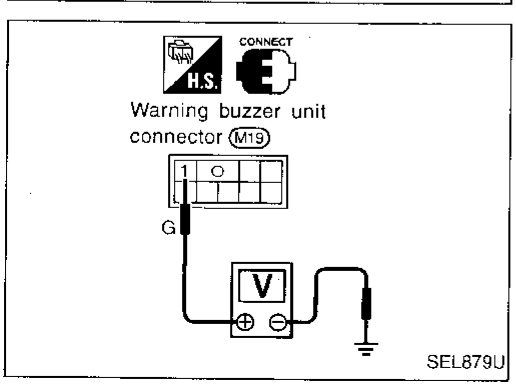
MEL347G

## Trouble Diagnoses

### SYMPTOM CHART

| REFERENCE PAGE | EL-85 | EL-86 | EL-87 | EL-87 | EL-88 |
|---|---|---|---|---|---|
| SYMPTOM | 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 |
| Light warning buzzer does not activate. | X | X | | | X |
| Ignition key warning buzzer does not activate. | X | | X | | X |
| Seat belt warning buzzer does not activate. | X | | | X | X |
| All warning buzzers do not activate. | X | | | | X |




### POWER SUPPLY AND GROUND CIRCUIT CHECK

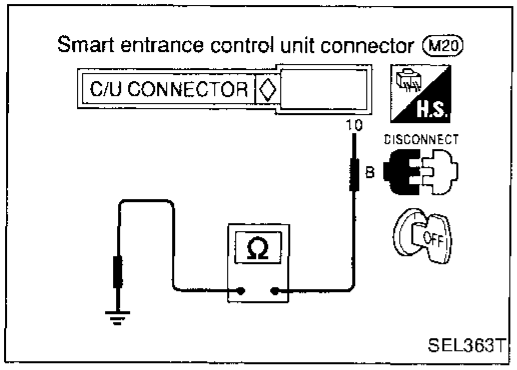
#### Power supply circuit check (Models with power door locks)

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

#### Power supply circuit check (Models without power door locks)

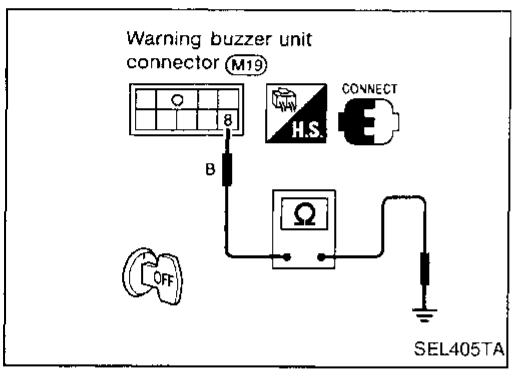
| Terminals | | Ignition switch position | | |
|---|---|---|---|---|
| ⊕ | ⊖ | OFF | ACC | ON |
| ① | Ground | 0V | 0V | Battery voltage |

## Trouble Diagnoses (Cont'd)



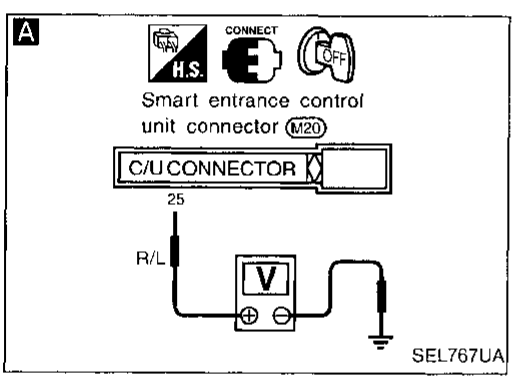

### Ground circuit check (Models with power door locks)

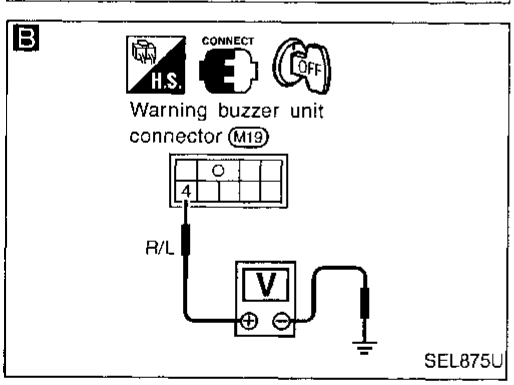
| Terminals | Continuity |
|---|---|
| ⑩ - Ground | Yes |




### Ground circuit check (Models without power door locks)

| Terminals | Continuity |
|---|---|
| ⑧ - Ground | Yes |




### DIAGNOSTIC PROCEDURE 1

### (Lighting switch input signal check)

A B

**CHECK LIGHTING SWITCH INPUT SIGNAL.**

A (Models with power door locks)
Check voltage between control unit terminal ㉕ and ground.

B (Models without power door locks)
Check voltage between buzzer 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. 4, located in the fuse block)
- Harness for open or short between control/buzzer unit and lighting switch

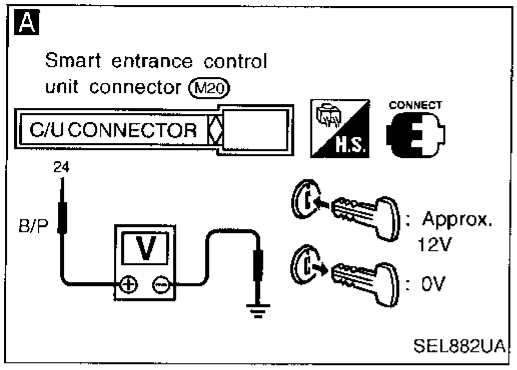
OK ↓

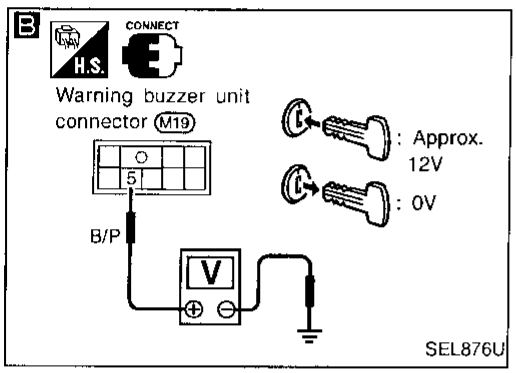
Go to Procedure 4.

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 2

### (Key switch input signal check)




A B

**CHECK KEY SWITCH INPUT SIGNAL.**

A (Models with power door locks)
Check voltage between control unit terminal ㉔ and ground.

B (Models without power door locks)
Check voltage between buzzer unit terminal ⑤ and ground.

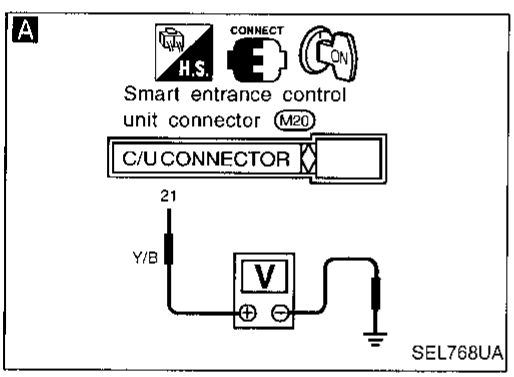
| Condition of key switch | Voltage [V] |
|---|---|
| Key is inserted | Approx. 12 |
| Key is withdrawn | 0 |

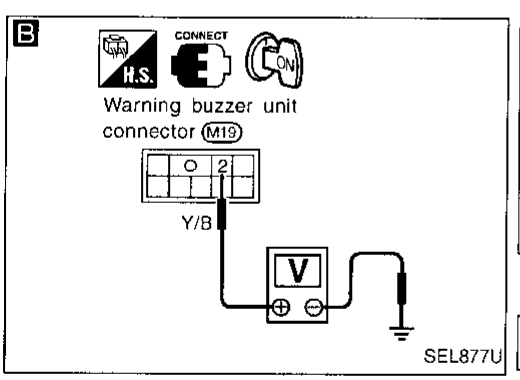
NG → Check the following.
- Key switch
  Refer to "Electrical Components Inspection" (EL-89).
- 10A fuse [No. 6, located in fuse block]
- Harness for open or short between key switch and fuse
- Harness for open or short between control/buzzer unit and key switch

OK → Go to Procedure 4.

### DIAGNOSTIC PROCEDURE 3

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




A B

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

A (Models with power door locks)
1. Turn ignition switch "ON".
2. Check voltage between control unit terminal ㉑ and ground.

B (Models without power door locks)
1. Turn ignition switch "ON".
2. Check voltage between buzzer unit terminal ② and ground.

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

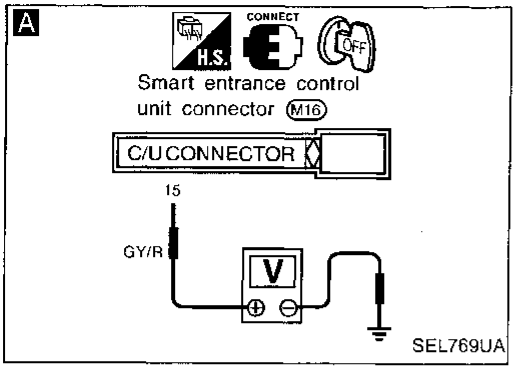
NG → Check the following.
- Seat belt buckle switch
  Refer to "Electrical Components Inspection" (EL-89).
- Seat belt buckle switch ground circuit
- Harness for open or short between control/buzzer unit and seat belt buckle switch

OK → Go to Procedure 4.

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 4-1

### (For models with power door locks)



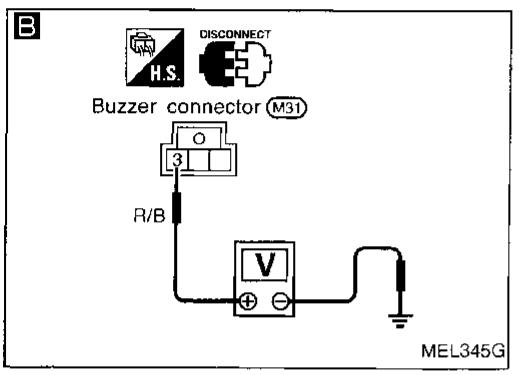

A

**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-89).
- Door switch ground circuit
- Harness for open or short between control unit and door switch

OK ↓

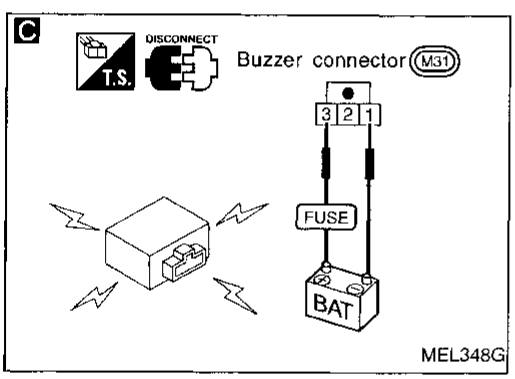



B

**CHECK BUZZER POWER SUPPLY.**
Measure voltage between warning buzzer terminal ③ and ground.
**Battery voltage should exist.**

NG → Check the following.
- 10A fuse (No. 6, located in fuse block)
- Harness for open or short between buzzer and fuse

OK ↓




C

**CHECK WARNING BUZZER.**
1. Disconnect warning buzzer connector.
2. Apply 12V direct current to warning buzzer and check operation.

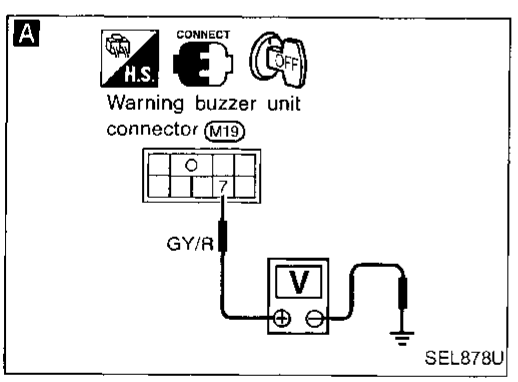
NG → Replace warning buzzer.

OK ↓

Check harness for open or short between control unit and warning buzzer.

### DIAGNOSTIC PROCEDURE 4-2

### (For models without power door locks)




A

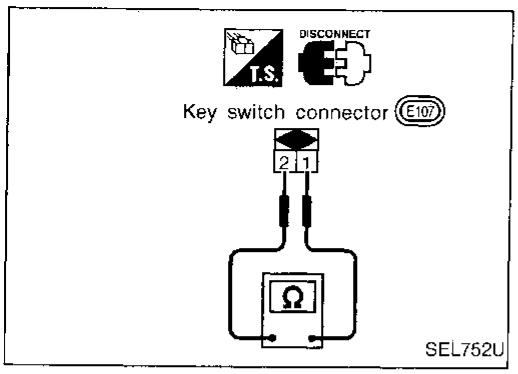
**CHECK DOOR SWITCH INPUT SIGNAL.**
Check voltage between buzzer unit terminals ⑦ and ground.

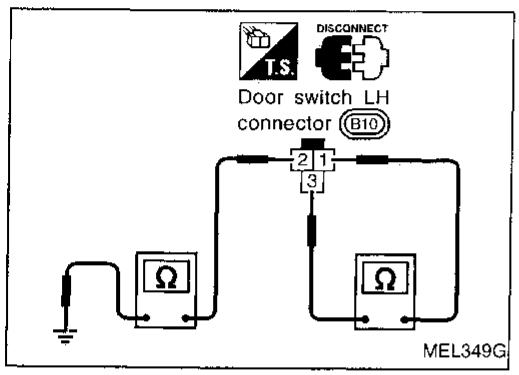
| Condition of driver's door | Voltage [V] |
|---|---|
| Driver side door is closed. | Approx. 12 |
| Driver side door is open. | 0 |

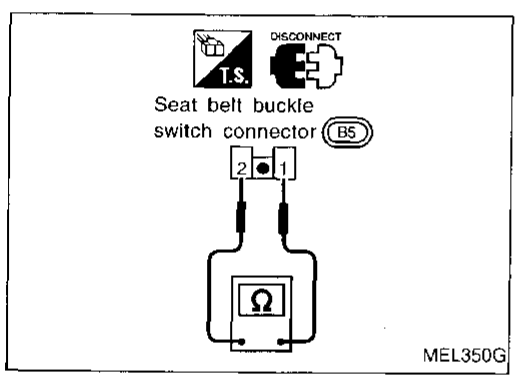
NG → Check the following.
- Driver side door switch Refer to "Electrical Components Inspection" (EL-89).
- Door switch ground circuit
- Harness for open or short between buzzer unit and door switch

OK ↓

Replace warning buzzer unit.




## 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 |
|---|---|---|
| ① - ③, ② - Ground | 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 |

# System Description

## WIPER OPERATION

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

- LO speed
- HI speed
- INT (Intermittent — with intermittent wiper)

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

- through 20A fuse (No. 16, located in the fuse block)
- to wiper motor terminal ②.

### Low and high speed wiper operation

Ground is supplied to wiper switch terminal ⑰ through body grounds E28 and E42.
When the wiper switch is placed in the LO position, ground is supplied

- through terminal ⑭ of the wiper switch
- to wiper motor terminal ④.

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

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

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

### Auto stop operation

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

- from terminal ⑭ of the wiper switch
- to wiper motor terminal ④, 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
- through terminal ⑧ of the wiper amplifier

} (With intermittent wiper)

- to wiper motor terminal ①
- through terminal ⑥ of the wiper motor, and
- through body grounds F15 and F57.

When wiper arms reach base of windshield, wiper motor terminals ① and ② are connected instead of terminals ① and ⑥. 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 an interval as follows. This feature is controlled by the wiper amplifier.

- Once in approximately 7 seconds (Without variable intermittent volume)
- Once in approximately 3 to 13 seconds (With variable intermittent volume)

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 E28 and E42.
- to wiper motor terminal ④
- through the wiper switch terminal ⑭
- to wiper switch terminal ⑬
- through wiper amplifier terminal ④
- to wiper amplifier terminal ⑦
- through body grounds F15 and F57.

For models with variable intermittent volume, the desired interval time is input

- to wiper amplifier terminal ②
- from wiper switch terminal ⑲.

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

## System Description (Cont'd)

### WASHER OPERATION

With the ignition switch in the ACC or ON position, power is supplied
- through 20A fuse (No. 16, located in the fuse block)
- to washer motor terminal ①.

When the lever is pulled to the WASH position, ground is supplied
- to washer motor terminal ②, and
- to wiper amplifier terminal ⑤ (With intermittent wiper)
- from terminal ⑱ of the wiper switch
- through terminal ⑰ of the wiper switch, and
- through body grounds E28 and E42.

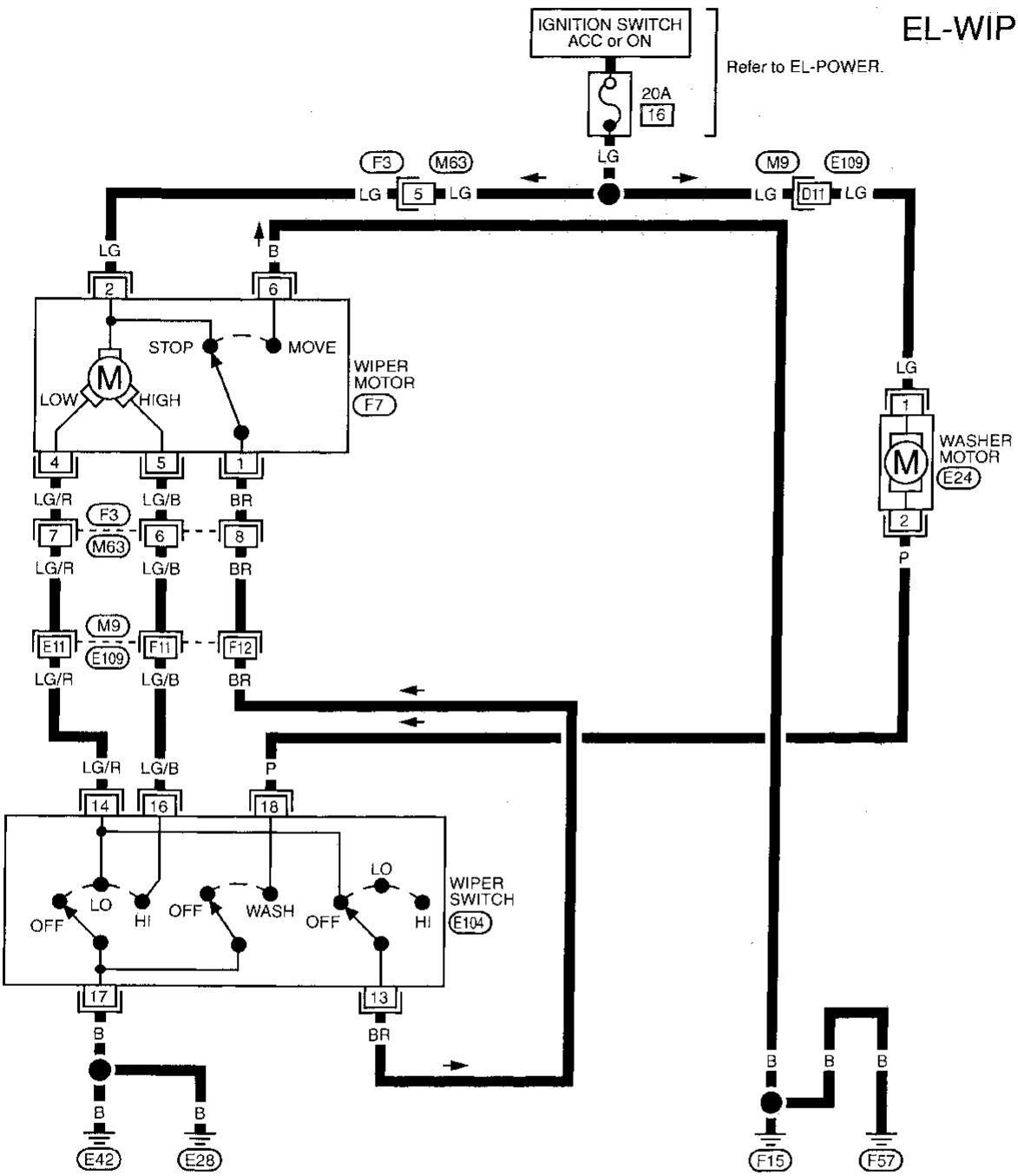
With power and ground supplied, the washer motor operates.

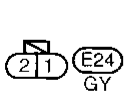
#### With intermittent wiper

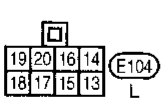
When the lever is pulled to the WASH position for one second or more, the wiper motor operates at low speed for approximately 3 seconds to clean windshield. This feature is controlled by the wiper amplifier in the same manner as the intermittent operation.

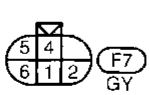
## Wiring Diagram — WIPER —/Without Intermittent Wiper

EL-WIPER-01



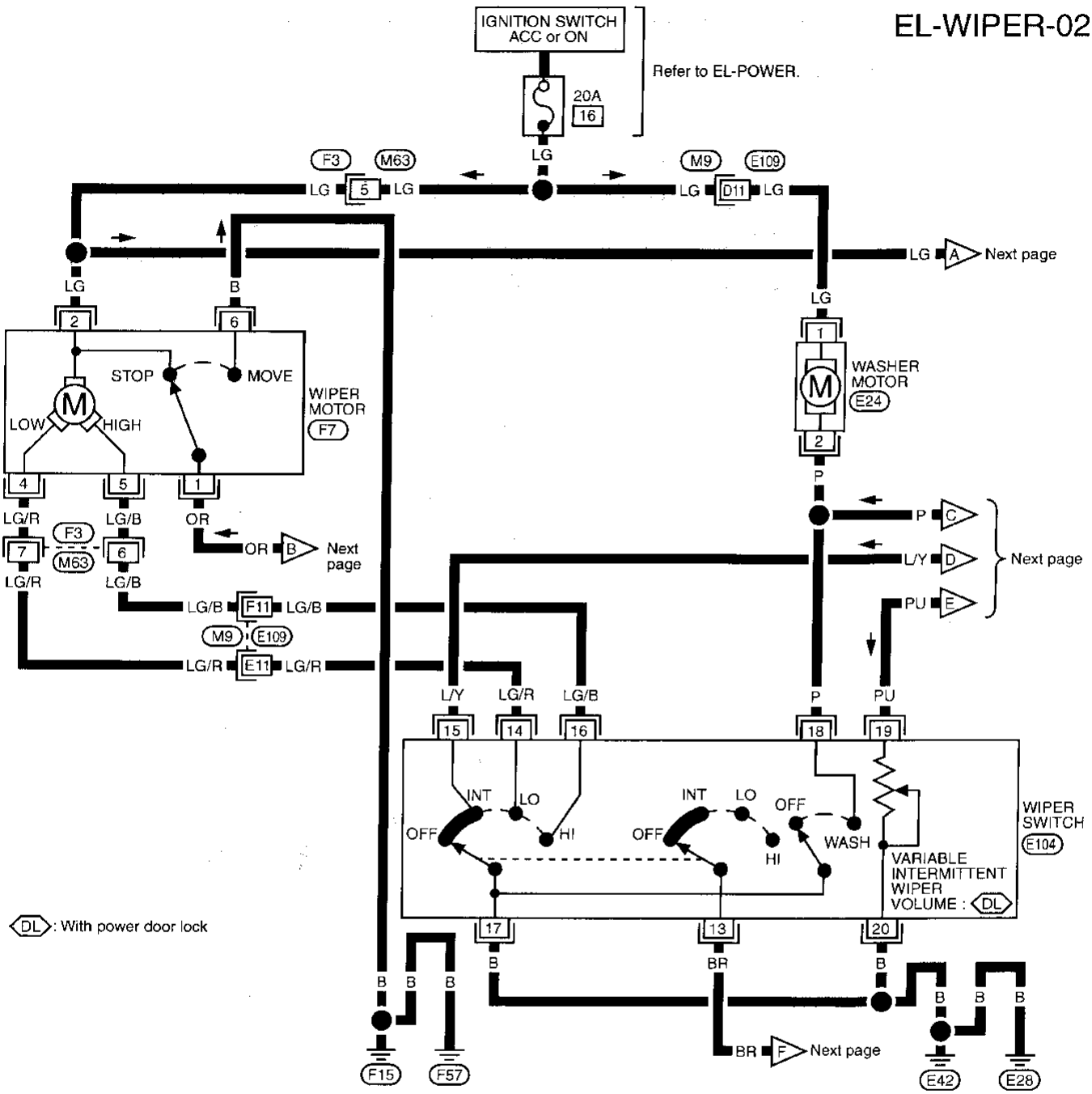




Refer to last page (Foldout page).
M9 , E109
F3 , M63

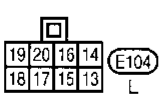
MEL321I

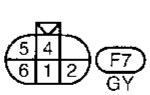
## Wiring Diagram — WIPER —/With Intermittent Wiper

EL-WIPER-02








Refer to last page (Foldout page).
M9 , E109
F3 , M63

MEL322I



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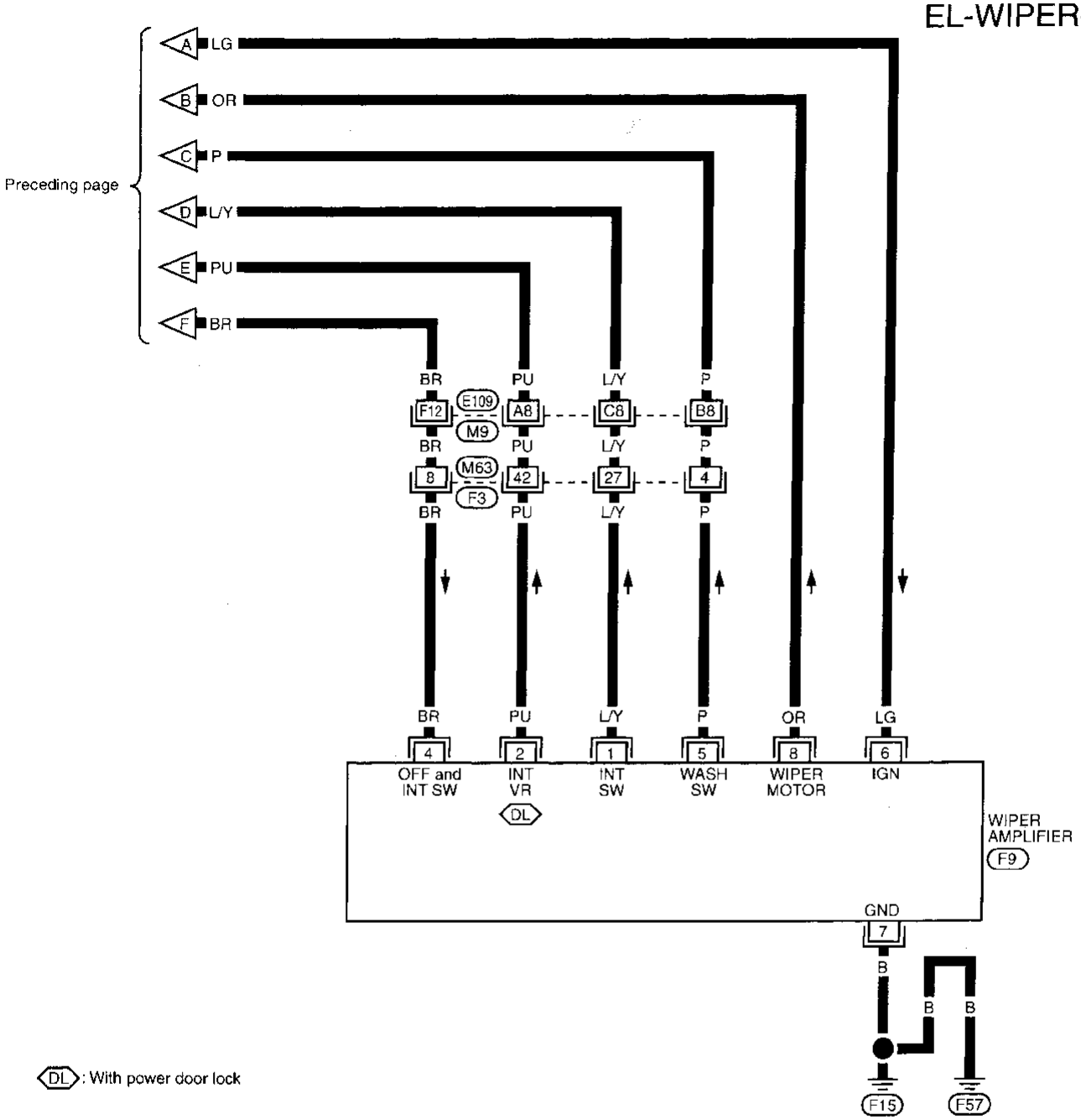
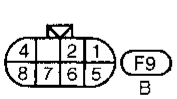
## Wiring Diagram — WIPER —/With Intermittent Wiper (Cont'd)

EL-WIPER-03




DL : With power door lock

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M9 , E109

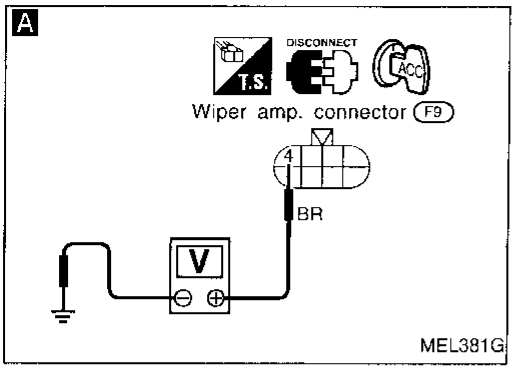
F3 , M63

MEL362I

## Trouble Diagnoses/With Intermittent Wiper

### DIAGNOSTIC PROCEDURE 1

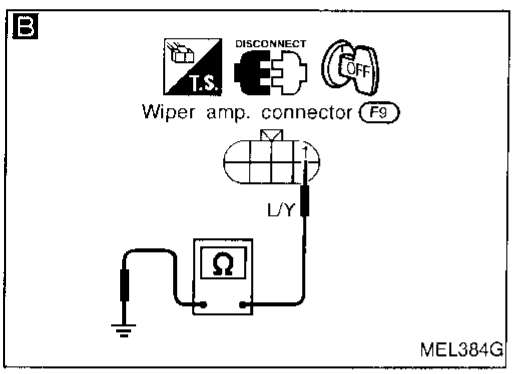
**SYMPTOM: Intermittent wiper does not operate.**




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

NG → Check the following.
- 20A fuse (No. 16, located in fuse block)
- Wiper motor
- Wiper switch
- Harness for open or short.

OK ↓



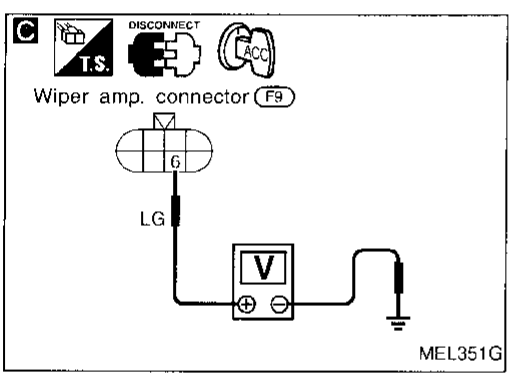

**A**

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

**Battery voltage should exist.**

NG → Check the following.
- Wiper switch
- Wiper motor
- Harness for open or short between wiper amp. terminal ④ and wiper switch harness terminal ⑬

OK ↓




**B**

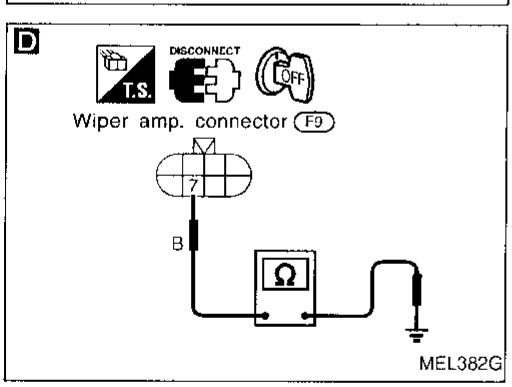
**CHECK INTERMITTENT SWITCH INPUT SIGNAL.**

Check harness continuity between wiper amp. harness terminal ① and body 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 harness terminal ⑮
- Ground circuit for front wiper switch terminal ⑰

OK ↓




**C**

**CHECK WIPER AMP. POWER SUPPLY CIRCUIT.**

Check voltage between wiper amp. terminal ⑥ and ground while ignition switch is "ACC".

**Battery voltage should exist.**

NG → Check the following.
- 20A fuse (No. 16, located in fuse block)
- Harness for open or short between wiper amp. and fuse

OK ↓

**D**

**CHECK WIPER AMP. GROUND CIRCUIT.**

Check harness continuity between wiper amp. harness terminal ⑦ and body ground.

**Continuity should exist.**

NG → Repair harness or connector.

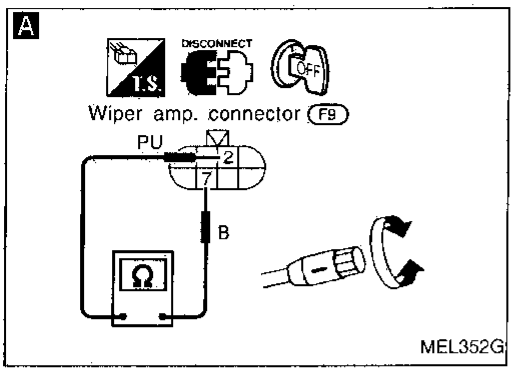
OK ↓

Replace wiper amp.

## Trouble Diagnoses/With Intermittent Wiper (Cont'd)

### DIAGNOSTIC PROCEDURE 2

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




A

**INTERMITTENT WIPER VOLUME INPUT SIGNAL CHECK**

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

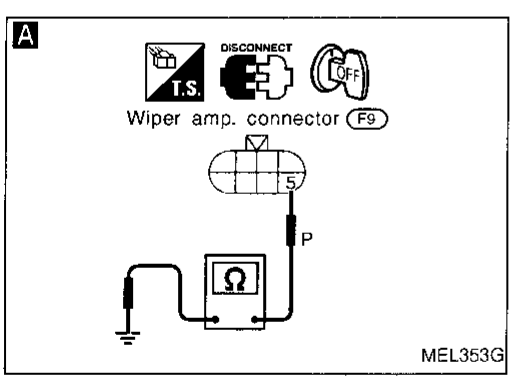
| Position of wiper knob | Resistance [Ω] |
|---|---|
| S | 0 |
| L | Approx. 1 k |

OK → Replace wiper amp.

NG ↓

- Check intermittent wiper volume.
- Check harness continuity between wiper amp. harness terminal ② and wiper switch harness terminal ⑲.

Check harness continuity between wiper switch harness terminal ⑳ and body ground.




### DIAGNOSTIC PROCEDURE 3

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

A

**WASHER SWITCH INPUT SIGNAL CHECK**

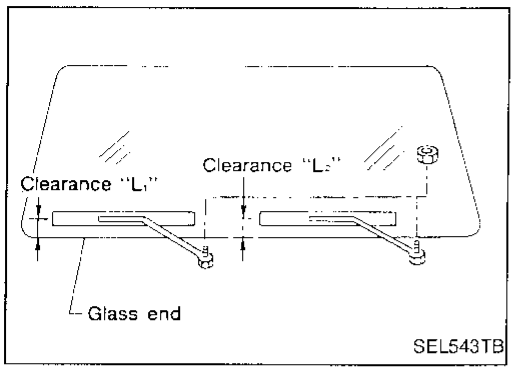
1. Turn ignition switch to "OFF".
2. Disconnect wiper amp. connector.
3. Check harness continuity between wiper amp. harness terminal ⑤ and body ground.

| Condition of washer switch | Continuity |
|---|---|
| OFF | No |
| ON | Yes |

NG → Check harness for open or short between wiper amp. harness terminal ⑤ and wiper switch harness terminal ⑱.

OK ↓

Go to DIAGNOSTIC PROCEDURE 1. → NG → Replace wiper amp.

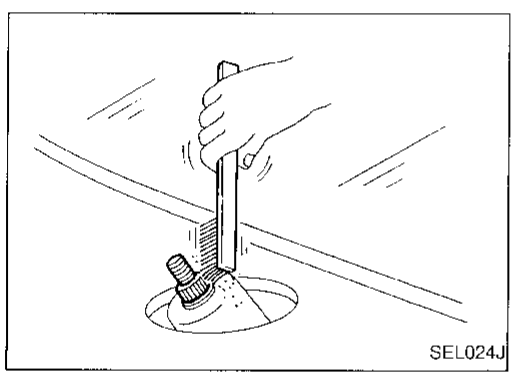



## Removal and Installation

### 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 "$L_1$" & "$L_2$" immediately before tightening nut.
3. Eject washer fluid. Turn on wiper switch to operate wiper motor and then turn it "OFF".
4. Ensure that wiper blades stop within clearance "$L_1$" & "$L_2$".
   **Clearance "$L_1$": 18 - 33 mm (0.71 - 1.30 in)**
   **Clearance "$L_2$": 17 - 32 mm (0.67 - 1.26 in)**

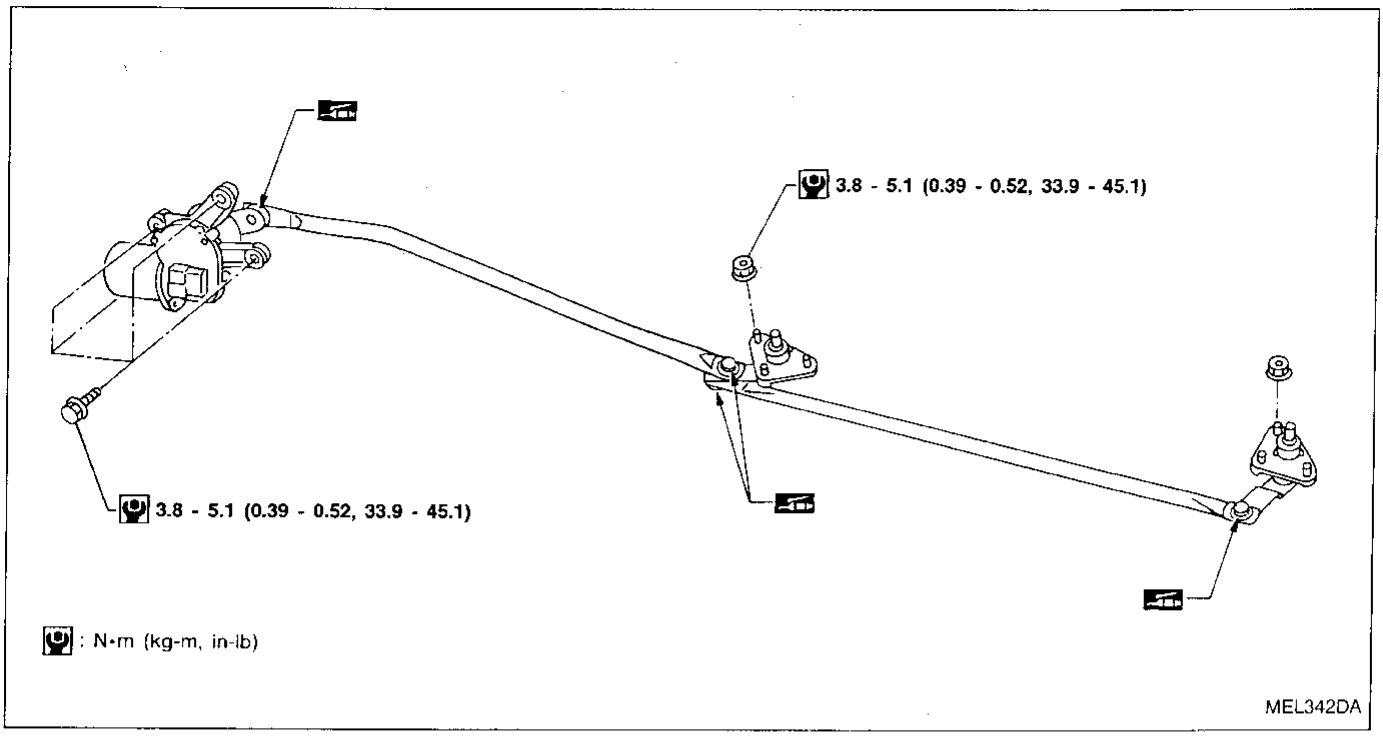
- Tighten wiper arm nuts to specified torque.
  **Front wiper: 17 - 23 N·m (1.7 - 2.3 kg-m, 12 - 17 ft-lb)**




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

## Removal and Installation (Cont'd)

### WIPER LINKAGE




### Removal

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

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

### Installation

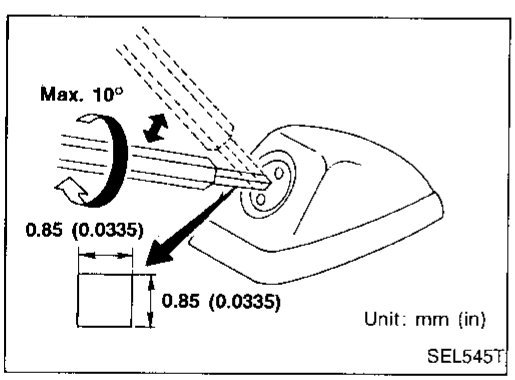
- Grease ball joint portion before installation.

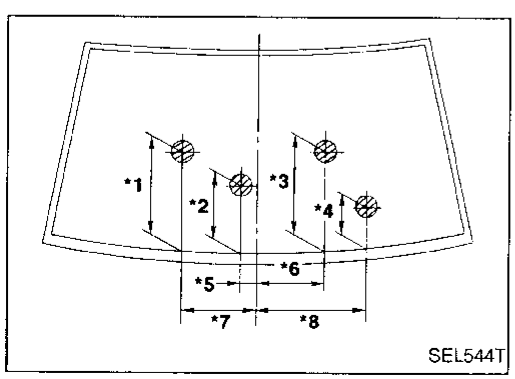
1. Installation is the reverse order of removal.

## Washer Nozzle Adjustment

- Using a suitable tool, adjust windshield washer nozzle to correct its spray pattern.

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



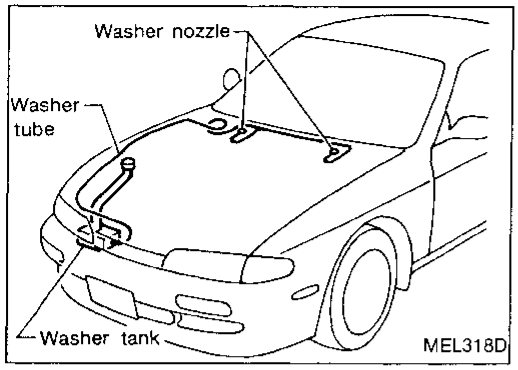




Unit: mm (in)

| | | | |
|---|---|---|---|
| *1 | 358 (14.09) | *5 | 70 (2.76) |
| *2 | 245 (9.65) | *6 | 245 (9.65) |
| *3 | 300 (11.81) | *7 | 378 (14.88) |
| *4 | 203 (7.99) | *8 | 503 (19.80) |

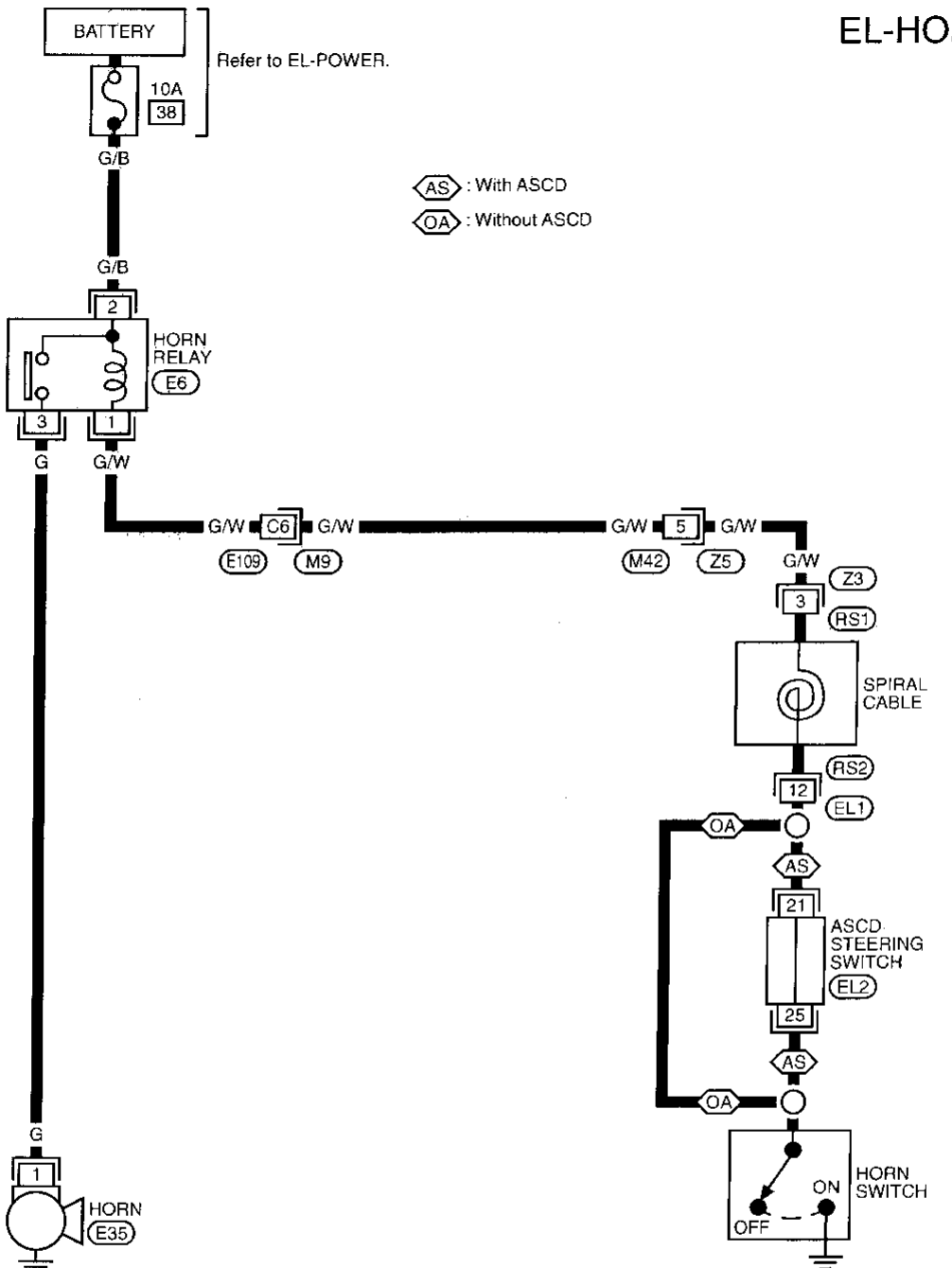
*: The diameters of these circles are less than 80 mm (3.15 in).

## Washer Tube Layout

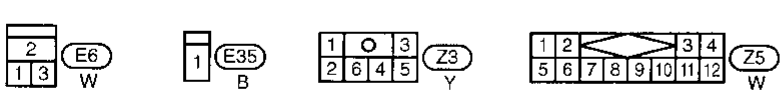


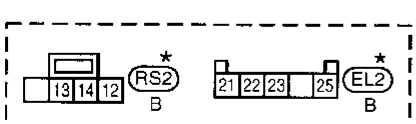
## Wiring Diagram — HORN —

EL-HORN-01




Refer to last page (Foldout page).
M9 , E109



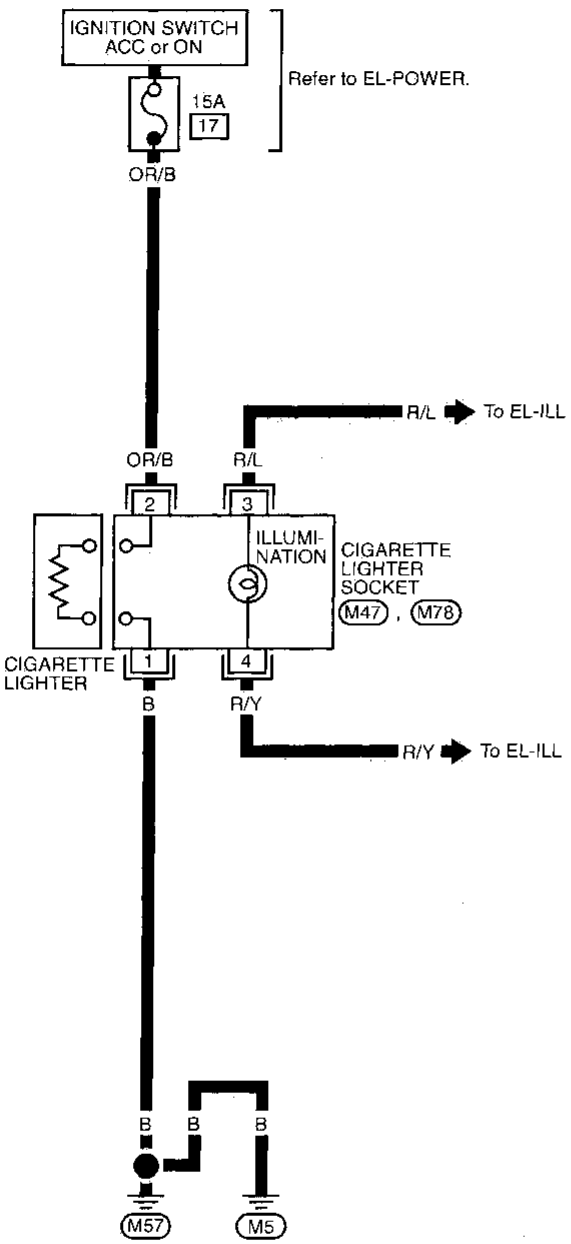



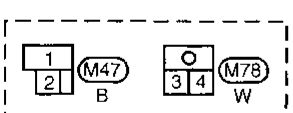

★ : This connector is not shown in "HARNESS LAYOUT". Refer to "COMBINATION SWITCH".

MEL323I

## Wiring Diagram — CIGAR —

EL-CIGAR-01



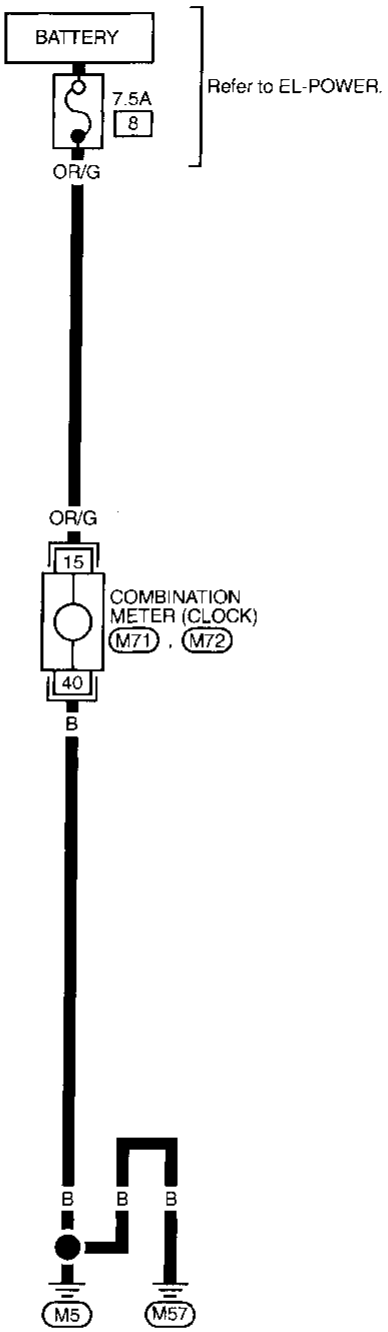



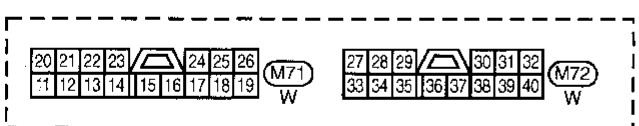



MEL324I

## Wiring Diagram — CLOCK —

EL-CLOCK-01




MEL389I

## System Description

The rear window defogger system is controlled by the smart entrance control unit (Models with power door lock) or rear window defogger timer (Models without power door lock). The rear window defogger operates only for approximately 15 minutes.

Power is supplied at all times
- to rear window defogger relay terminal ③
- through 15A fuse (No. 9, located in the fuse block) and
- to rear window defogger relay terminal ⑥
- through 15A fuse (No. 10, located in the fuse block).

With the ignition switch in the ON or START position, power is supplied
- to the rear window defogger relay terminal ① and
- to smart entrance control unit terminal ⑪ (Models with power door lock), or
- to the rear window defogger timer terminal ① (Models without power door lock).
- through 7.5A fuse (No. 1, located in the fuse block).

Ground is supplied to terminal ② of the rear window defogger switch through body grounds (M5) and (M57).

When the rear window defogger switch is turned ON, ground is supplied
- through terminal ① of the rear window defogger switch
- to smart entrance control unit terminal ⑳ (Models with power door lock) or
- to rear window defogger timer terminal ③ (Models without power door lock).

Terminal ㊱ of the smart entrance control unit (Models with power door lock) or terminal ② of the rear window defogger timer (Models without power door lock) then supplies ground to the rear window defogger relay terminal ②.

With power and ground supplied, the rear window defogger relay is energized.

Power is supplied
- through terminals ⑤ and ⑦ of the rear window defogger relay
- to condenser terminal ①
- through terminal ② of the condenser
- to the rear window defogger.

The rear window defogger has an independent ground.

With power and ground supplied, the rear window defogger filaments heat and defog the rear window.

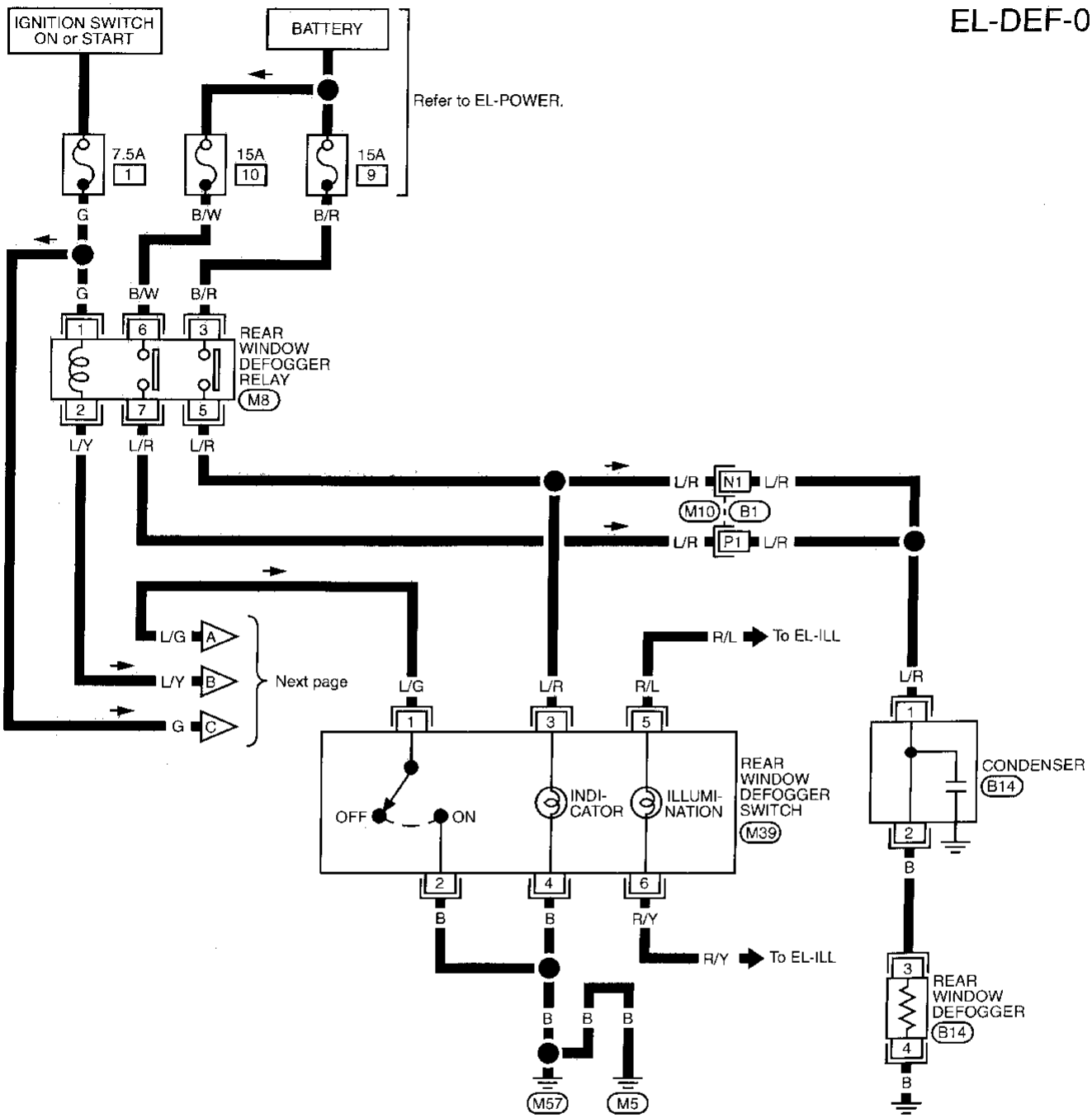
When the system is activated, the rear window defogger indicator illuminates in the rear window defogger switch.

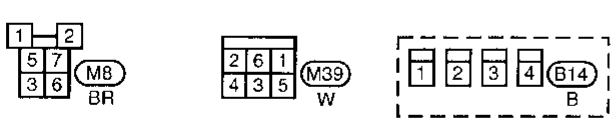
Power is supplied
- to terminal ③ of the rear window defogger switch
- from terminal ⑤ of the rear window defogger relay.

Terminal ④ of the rear window defogger switch is grounded through body grounds (M5) and (M57).

## Wiring Diagram — DEF —

EL-DEF-01



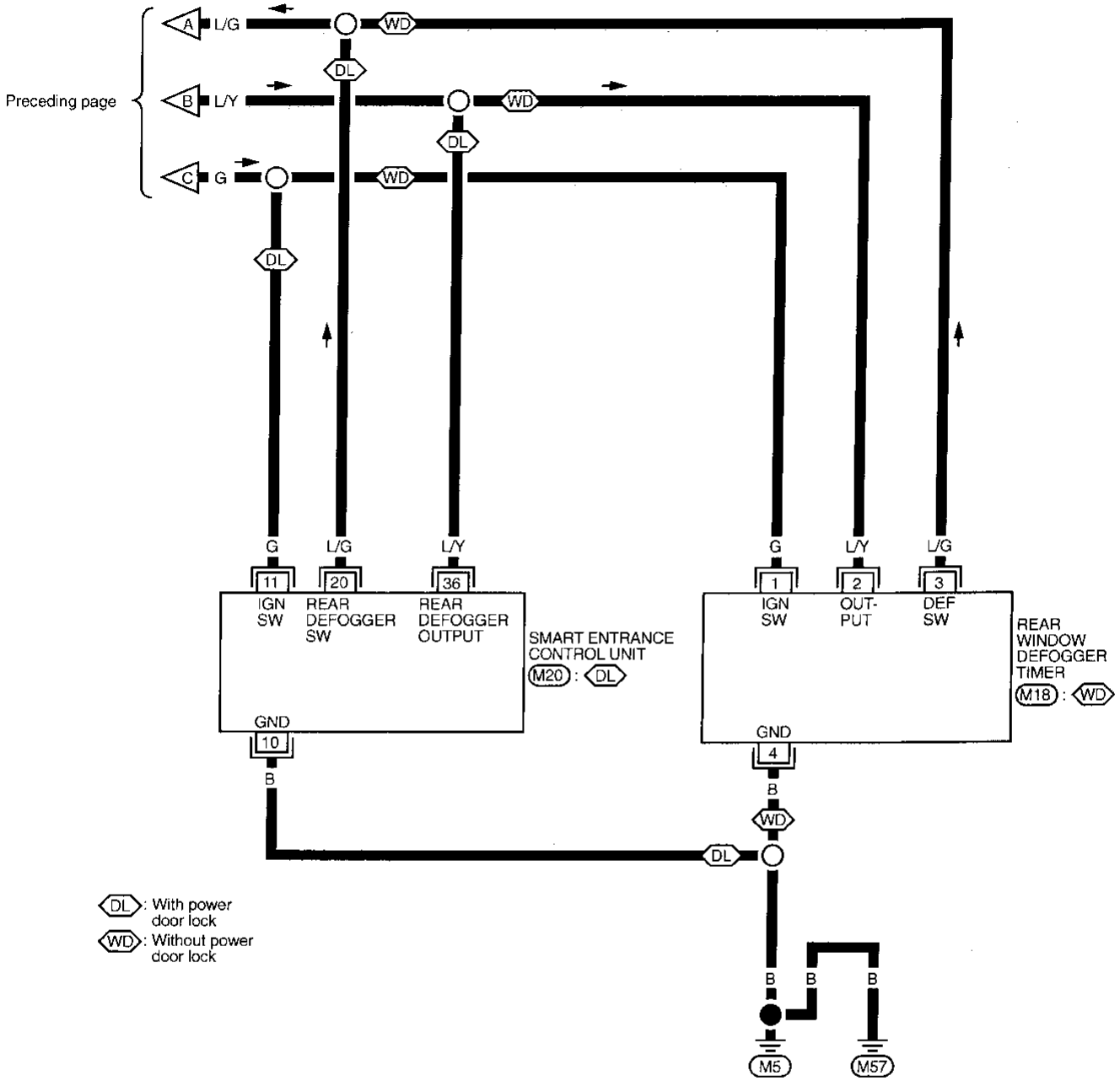



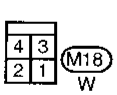

Refer to last page (Foldout page).
M10 , B1

MEL325I

## Wiring Diagram — DEF — (Cont'd)

EL-DEF-02




Refer to last page (Foldout page).
M20



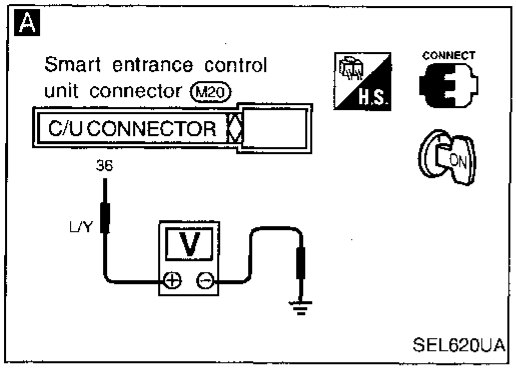
MEL315F

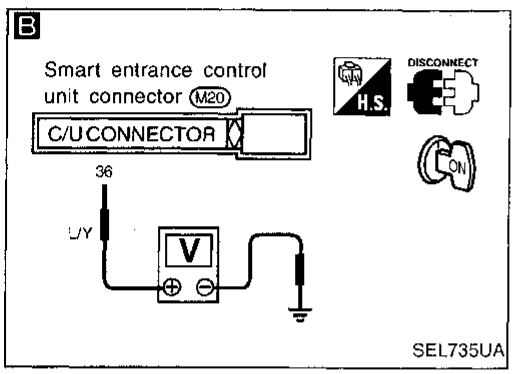
# Trouble Diagnoses

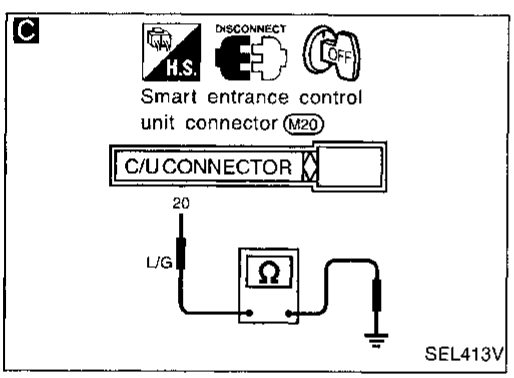
## DIAGNOSTIC PROCEDURE

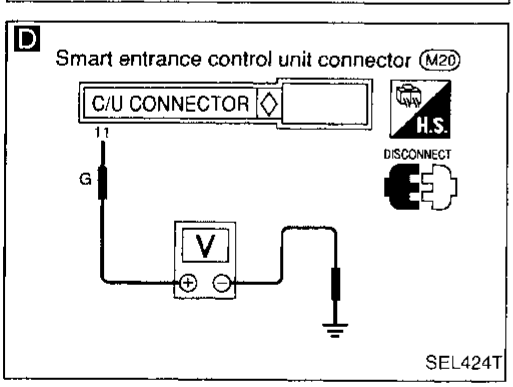
**SYMPTOM: Rear window defogger does not activate, or does not go off after activating.**

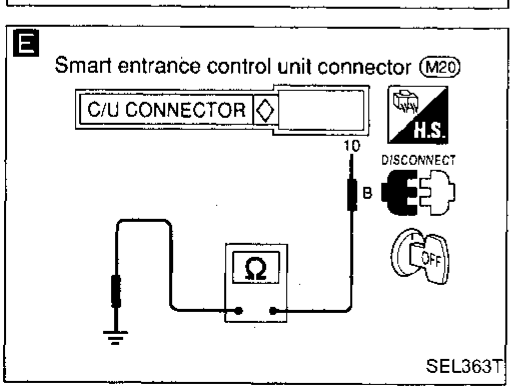
**Models with power door lock**




**A**

**REAR WINDOW DEFOGGER OUTPUT SIGNAL CHECK**

1. Turn ignition switch to ON position.
2. Check voltage between control unit harness terminal ㊱ and ground.

| Condition | Voltage [V] |
|---|---|
| Rear window defogger switch is "OFF". | Approx. 12 |
| Rear window defogger switch is "ON". | 0 |

OK → Check the following.
- Rear window defogger relay (Refer to EL-108.)
- Rear window defogger circuit
- Rear window defogger filament (Refer to EL-108.)

NG ↓

**B**

1. Disconnect control unit connector.
2. Turn ignition switch to ON position.
3. Check voltage between control unit harness terminal ㊱ and ground.

***Battery voltage should exist.***

NG → Check the following.
- 7.5A fuse (No. 1, located in the fuse block)
- Rear window defogger relay
- Harness for open or short between control unit and fuse

OK ↓

**C**

**REAR WINDOW DEFOGGER SWITCH INPUT SIGNAL CHECK**

Check continuity between control unit harness terminal ⑳ and ground.

| Condition of defogger switch | Continuity |
|---|---|
| Rear window defogger switch is pushed. | Yes |
| Rear window defogger switch is released. | No |

NG → Check the following.
- Rear window defogger switch (Refer to EL-108.)
- Harness for open or short between control unit and rear window defogger switch
- Rear window defogger switch harness ground circuit

OK ↓

**D**

**IGNITION INPUT SIGNAL CHECK**

Check voltage between control unit harness terminal ⑪ and ground.

| Condition | Voltage [V] |
|---|---|
| Ignition switch is "ON". | Approx. 12 |
| Ignition switch is "OFF". | 0 |

NG → Check the following.
- 7.5A fuse (No. 1 located in the fuse block)
- Harness for open or short between control unit and fuse

OK ↓

**E**

**CONTROL UNIT GROUND CIRCUIT CHECK**

Check continuity between control unit harness terminal ⑩ and ground.

***Continuity should exist.***

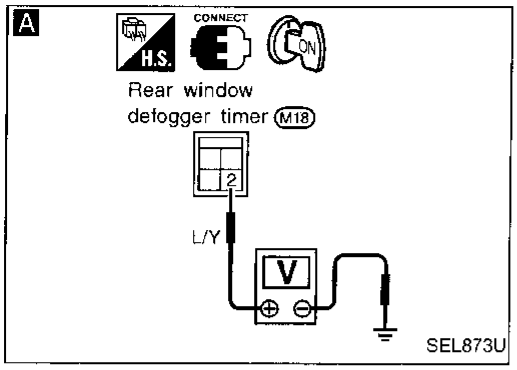
NG → Repair harness or connectors.

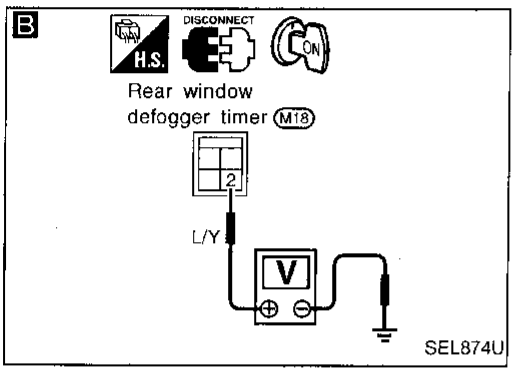
OK ↓

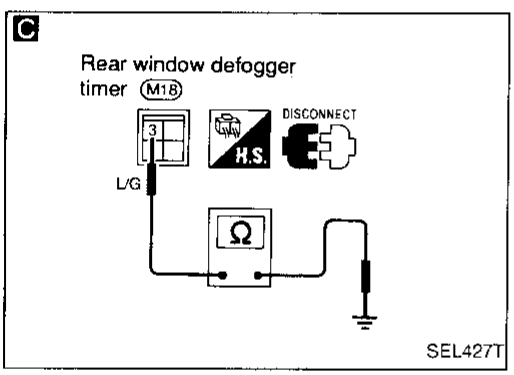
Replace control unit.

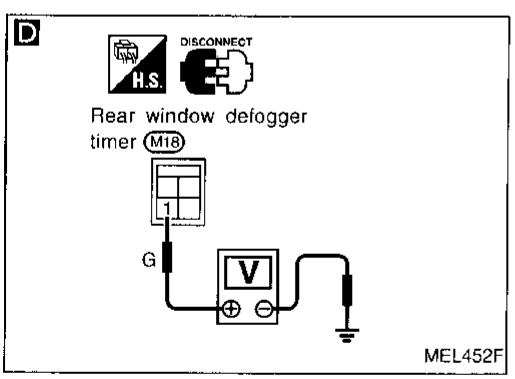
## Trouble Diagnoses (Cont'd)

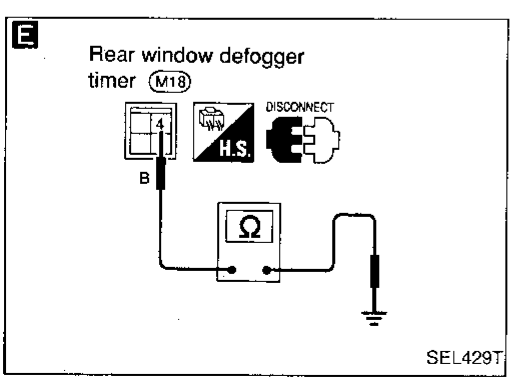
### Models without power door lock




**A**

**CHECK REAR WINDOW DEFOGGER OUTPUT SIGNAL.**

1. Turn ignition switch to ON position.
2. Check voltage between defogger timer harness terminal ② and ground.

| Condition | Voltage [V] |
|---|---|
| Rear window defogger switch is "OFF". | Approx. 12 |
| Rear window defogger switch is "ON". | 0 |

OK → Check the following.
- Rear window defogger relay (Refer to EL-108.)
- Rear window defogger circuit
- Rear window defogger filament (Refer to EL-108.)

NG ↓

**B**

1. Disconnect defogger timer connector.
2. Turn ignition switch to ON position.
3. Check voltage between defogger timer terminal ② and ground.

**Battery voltage should exist.**

NG → Check the following.
- 7.5A fuse (No. 1, located in the fuse block)
- Rear window defogger relay
- Harness for open or short between defogger timer and fuse

OK ↓

**C**

**CHECK REAR WINDOW DEFOGGER SWITCH INPUT SIGNAL.**

Check continuity between defogger timer terminal ③ and ground.

| Condition of defogger switch | Continuity |
|---|---|
| Rear window defogger switch is pushed. | Yes |
| Rear window defogger switch is released. | No |

NG → Check the following.
- Rear window defogger switch (Refer to EL-108.)
- Harness for open or short between defogger timer and rear window defogger switch
- Rear window defogger switch ground circuit

OK ↓

**D**

**CHECK IGNITION INPUT SIGNAL.**

Check voltage between defogger timer terminal ① and ground.

| Condition | Voltage [V] |
|---|---|
| Ignition switch is "ON". | Approx. 12 |
| Ignition switch is "OFF". | 0 |

NG → Check the following.
- 7.5A fuse (No. 1 located in the fuse block)
- Harness for open or short between defogger timer and fuse

OK ↓

**E**

**CHECK DEFOGGER TIMER GROUND CIRCUIT.**

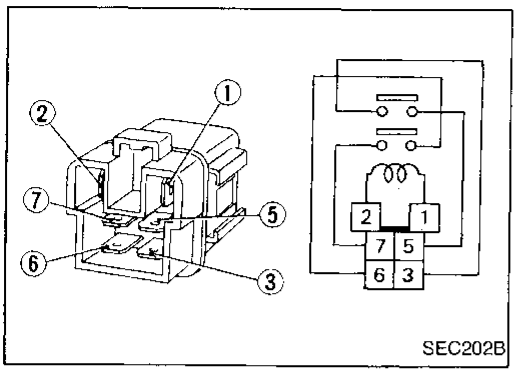
Check continuity between defogger timer terminal ④ and ground.

**Continuity should exist.**

NG → Repair harness or connectors.

OK ↓

Replace defogger timer.



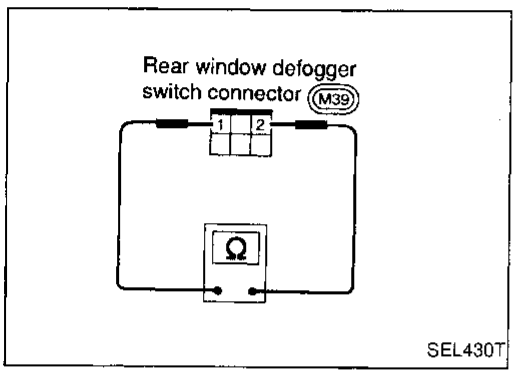
SEC202B

## Electrical Components Inspection

### REAR WINDOW DEFOGGER RELAY

Check continuity between terminals ③ and ⑤, ⑥ and ⑦.

| Condition | Continuity |
|---|---|
| 12V direct current supply between terminals ① and ② | Yes |
| No current supply | No |

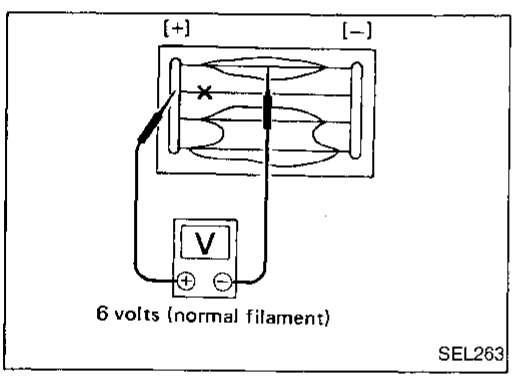


SEL430T

### REAR WINDOW DEFOGGER SWITCH

Check continuity between terminals when rear window defogger switch is pushed and released.

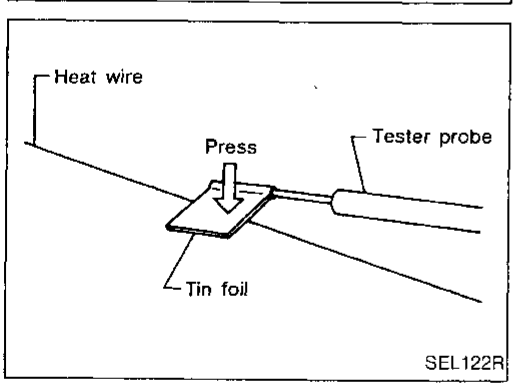
| Terminals | Condition | Continuity |
|---|---|---|
| ① - ② | Rear window defogger switch is pushed | Yes |
| | Rear window defogger switch is released | No |



SEL263

## Filament Check

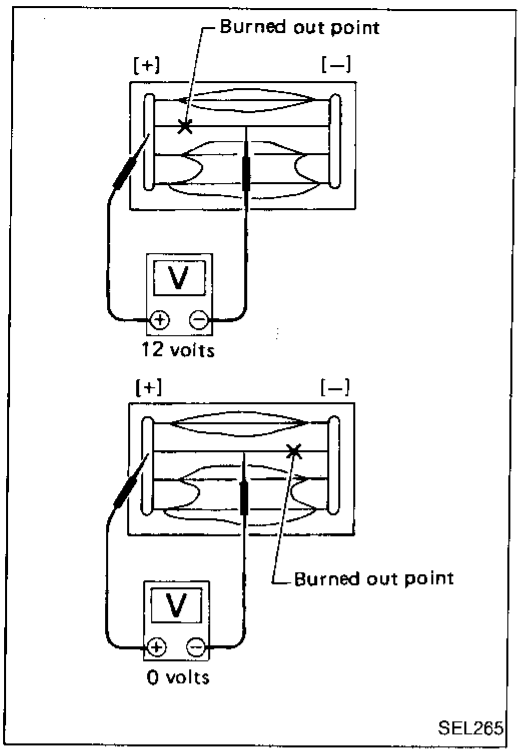
1. Attach probe circuit tester (in volt range) to middle portion of each filament.



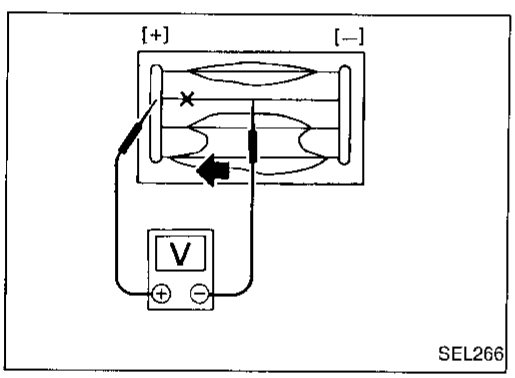
SEL122R

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

## Filament Check (Cont'd)




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

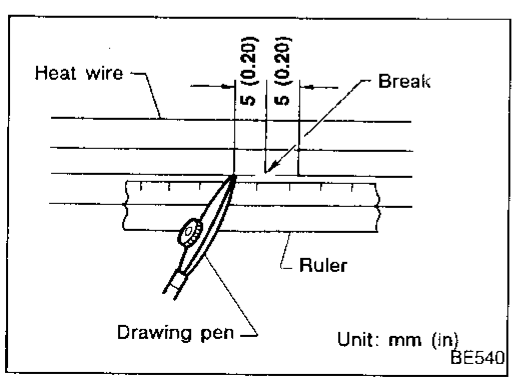



3. To locate burned out point, move probe to left and right along filament. Test needle will swing abruptly when probe passes the point.

## Filament Repair

### REPAIR EQUIPMENT

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



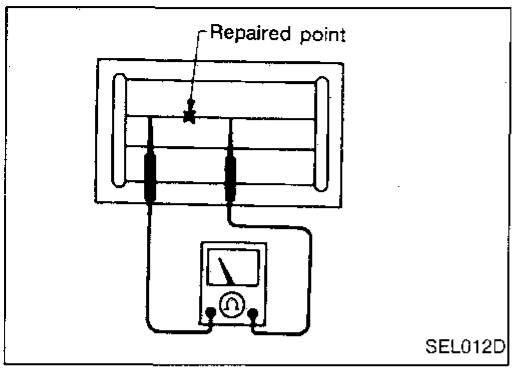

### REPAIRING PROCEDURE

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

**Shake silver composition container before use.**

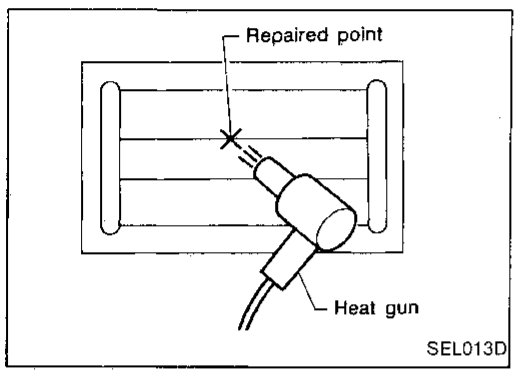
3. Place ruler on glass along broken line. Deposit conductive silver composition on break with drawing pen. Slightly overlap existing heat wire on both sides [preferably 5 mm (0.20 in)] of the break.

## Filament Repair (Cont'd)




4. After repair has been completed, check repaired wire for continuity. This check should be conducted 10 minutes after silver composition is deposited.

**Do not touch repaired area while test is being conducted.**




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

## System Description

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

### 4-SPEAKER MODELS

Power is supplied at all times
- through 10A fuse (No. 50, located in the fuse block)
- to radio 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)
- to radio terminal ⑩.

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

### 6-SPEAKER MODELS

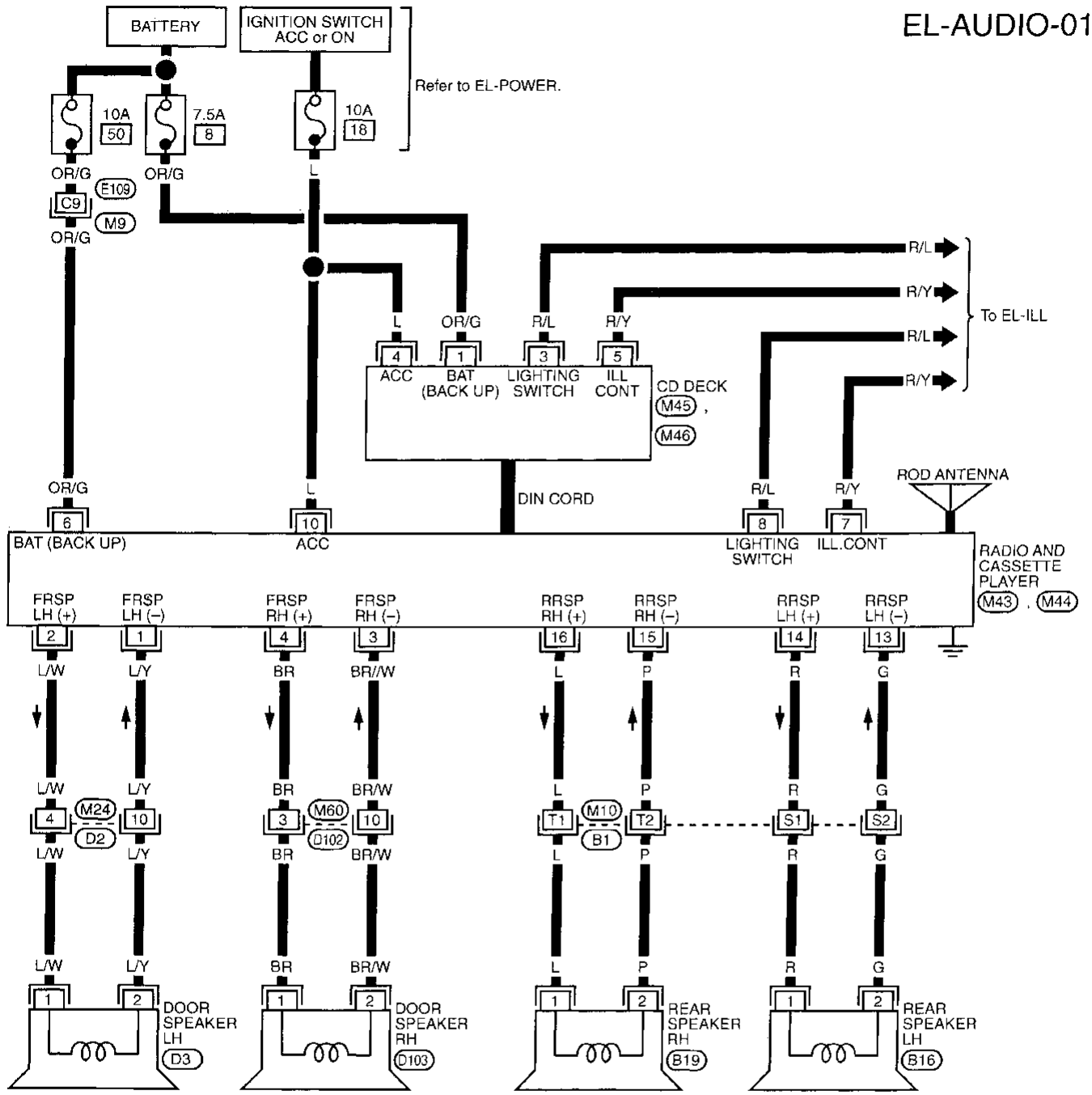
Power is supplied at all times
- through 10A fuse (No. 50, located in the fuse block)
- to radio terminal ⑥.

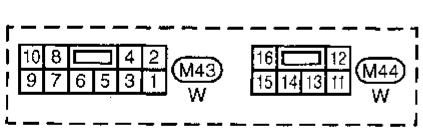
With the ignition switch in the ACC or ON position, power is supplied
- through 10A fuse (No. 18, located in the fuse block)
- to radio terminal ⑩.

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

## Wiring Diagram — AUDIO —/4-speaker

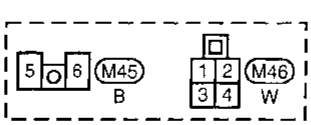
EL-AUDIO-01

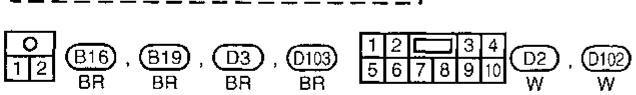








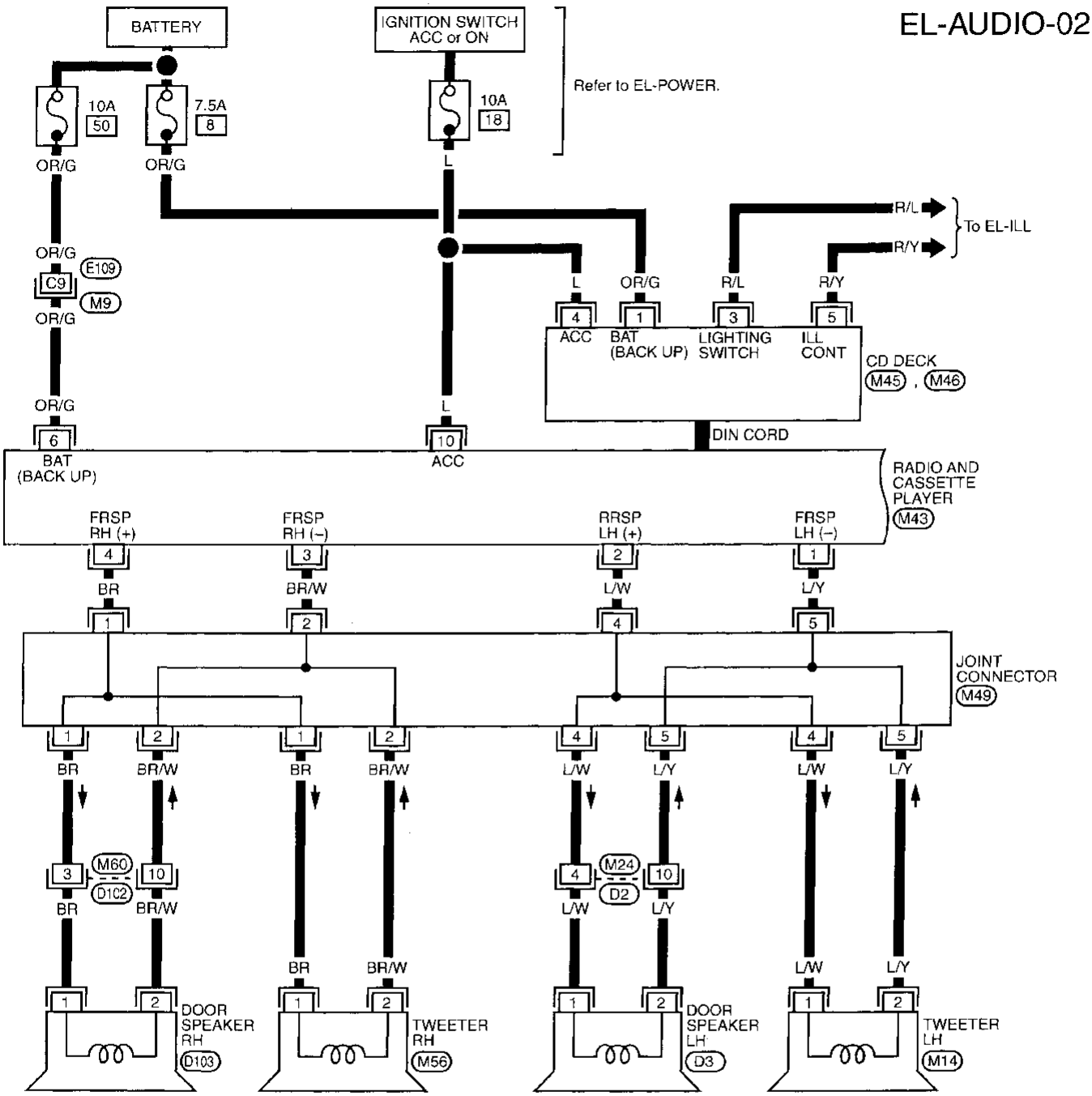



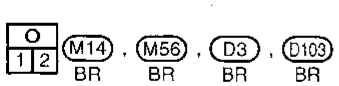

Refer to last page (Foldout page).
M10 , B1
M9 , E109

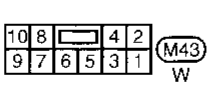
MEL326I

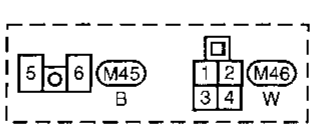
## Wiring Diagram — AUDIO —/6-speaker

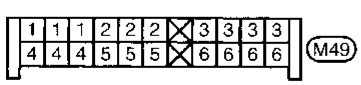
EL-AUDIO-02

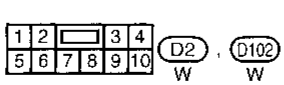
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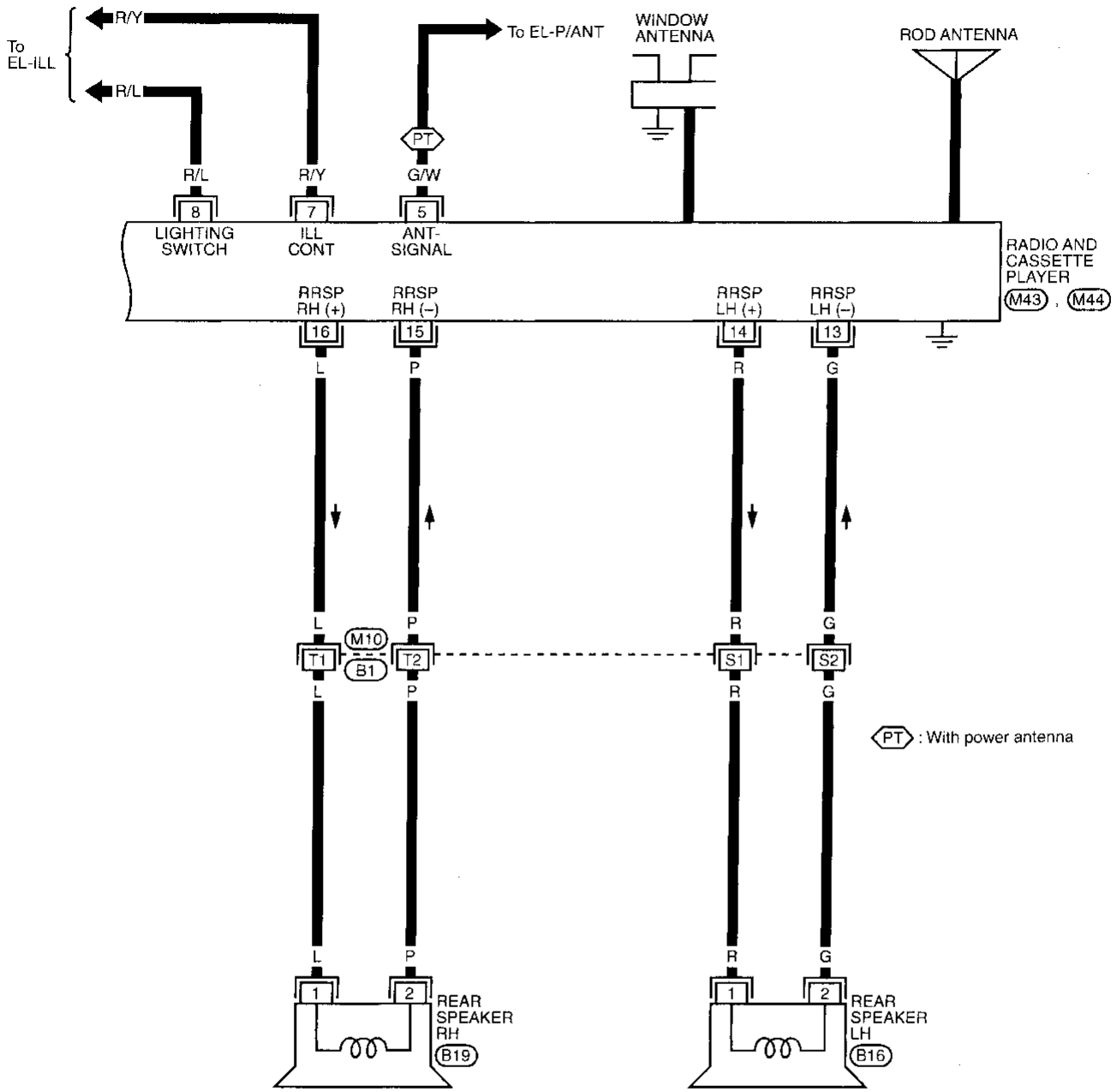
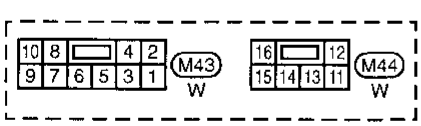
M9, E109

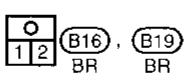
MEL327I

## Wiring Diagram — AUDIO —/6-speaker (Cont'd)

EL-AUDIO-03




Refer to last page (Foldout page).
M10 , B1

MEL328I

## Trouble Diagnoses

| Symptom | Possible causes | Repair order |
|---|---|---|
| Radio inoperative (no digital display and no sound from speakers). | 1. 10A fuse<br>2. Poor radio case ground<br>3. Radio | 1. Check 10A fuse (No. 18, located in fuse block). Turn ignition switch ON and verify that battery positive voltage is present at terminal ⑩ of radio.<br>2. Check radio case ground.<br>3. Remove radio for repair. |
| Radio presets are lost when ignition switch is turned OFF. | 1. 7.5A fuse<br>2. Radio | 1. Check 10A fuse (No. 50, located in fuse block) and verify that battery positive voltage is present at terminal ⑥ of radio.<br>2. Remove radio for repair. |
| Individual speaker is noisy or inoperative. | 1. Speaker<br>2. Radio output<br>3. Speaker circuit<br>4. Radio | 1. Check speaker.<br>2. Check radio output voltage.<br>3. Check wires for open or short between radio and speaker.<br>4. Remove radio for repair. |
| AM stations are weak or noisy (FM stations OK). | 1. Antenna<br>2. Poor radio ground<br>3. Radio | 1. Check antenna.<br>2. Check radio ground.<br>3. Remove radio for repair. |
| FM stations are weak or noisy (AM stations OK). | 1. Window antenna<br>2. Radio | 1. Check window antenna.<br>2. Remove radio for repair. |
| Radio generates noise in AM and FM modes with engine running. | 1. Poor radio ground<br>2. Loose or missing ground bonding straps<br>3. Ignition condenser or rear window defogger noise suppressor condenser<br>4. Alternator<br>5. Ignition coil or secondary wiring<br>6. Radio | 1. Check radio ground.<br>2. Check ground bonding straps.<br>3. Replace ignition condenser or rear window defogger noise suppressor condenser.<br>4. Check alternator.<br>5. Check ignition coil and secondary wiring.<br>6. Remove radio for repair. |
| Radio generates noise in AM and FM modes with accessories on (switch pops and motor noise). | 1. Poor radio ground<br>2. Antenna<br>3. Accessory ground<br>4. Faulty accessory | 1. Check radio ground.<br>2. Check antenna.<br>3. Check accessory ground.<br>4. Replace accessory. |

### SPEAKER INSPECTION

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

### ANTENNA INSPECTION

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

### RADIO INSPECTION

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

## System Description

Power is supplied at all times
- through 7.5A fuse (No. 8, located in the fuse block)
- to power antenna terminal ③.

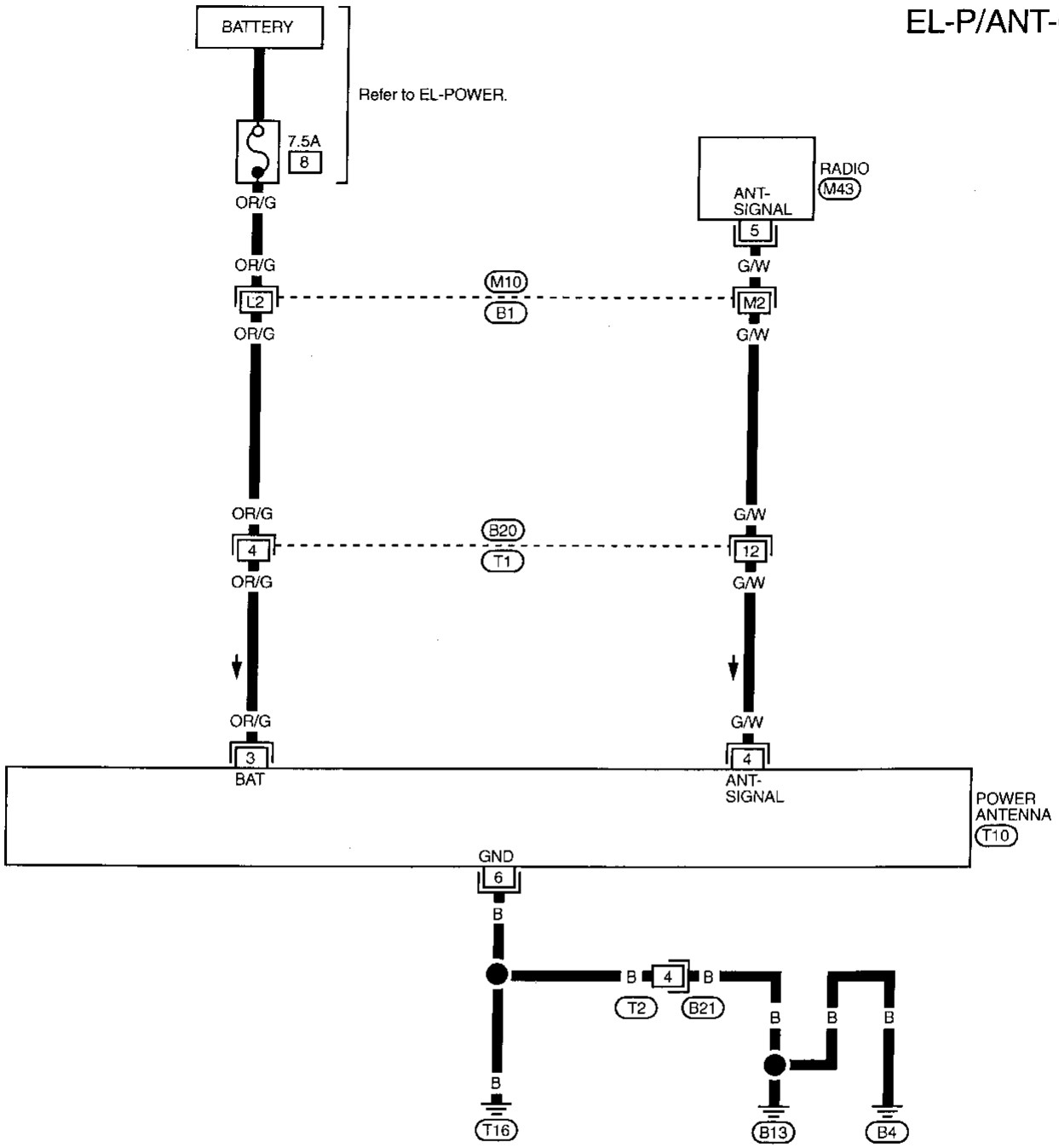
Ground is supplied to the power antenna terminal ⑥ through body grounds B4, B13 and T16.
When the radio is turned to the ON position, battery positive voltage is supplied
- through radio terminal ⑤
- to power antenna terminal ④.

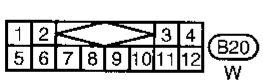
The antenna raises and is held in the extended position.
When the radio is turned to the OFF position, battery positive voltage is interrupted
- from radio terminal ⑤
- to power antenna terminal ④.

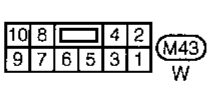
The antenna retracts.

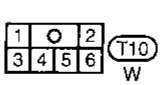
## Wiring Diagram — P/ANT —

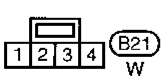
EL-P/ANT-01



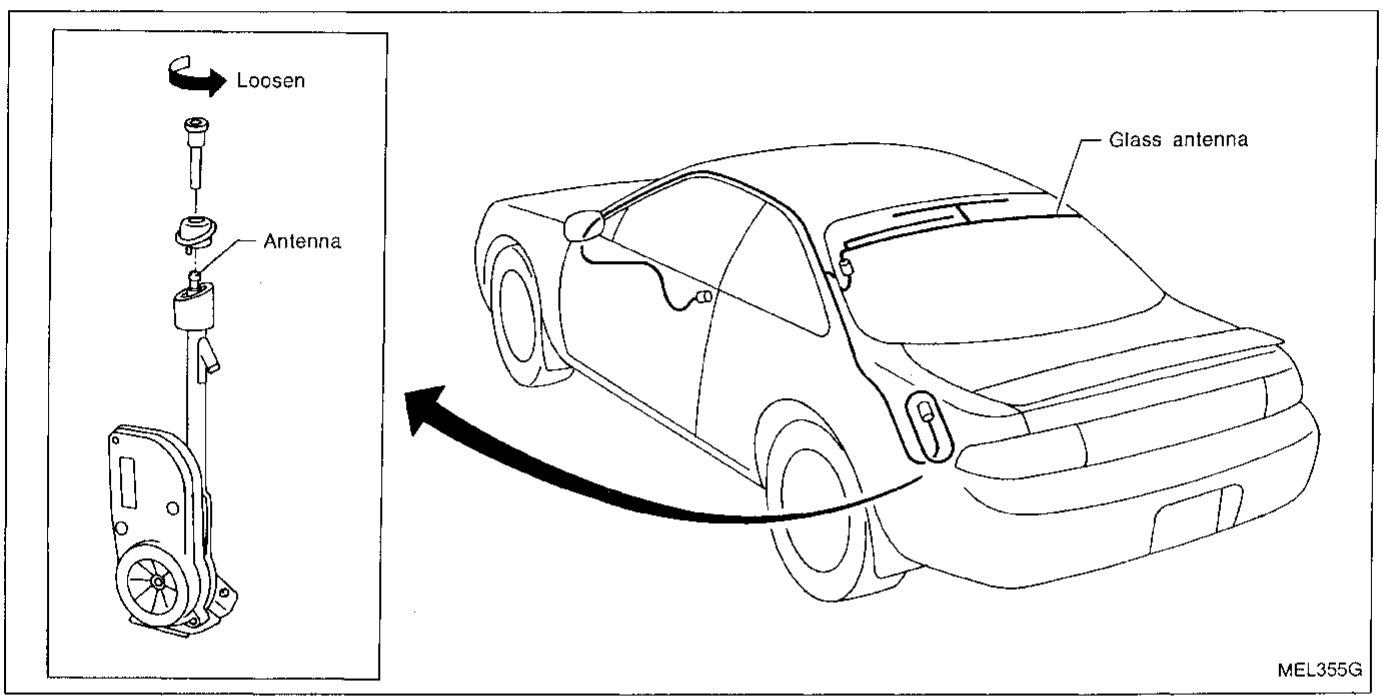

Refer to last page (Foldout page).
M10 , B1

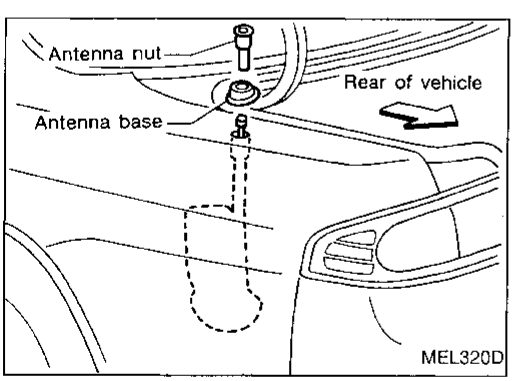
MEL300G

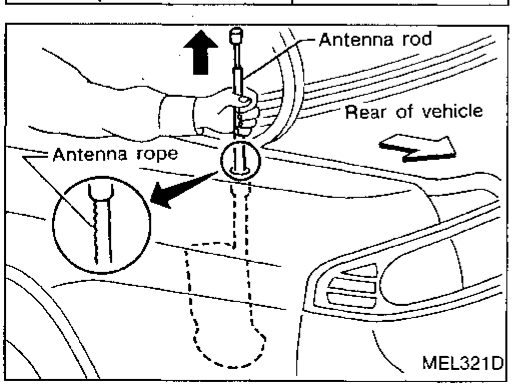
## Trouble Diagnoses

| Symptom | Possible causes | Repair order |
|---|---|---|
| Power antenna does not operate. | 1. 7.5A fuse | 1. Check 7.5A fuse (No. 8, located in fuse block). Verify that battery positive voltage is present at terminal ③ of power antenna. |
| | 2. Radio signal | 2. Turn ignition switch and radio ON. Verify that battery positive voltage is present at terminal ④ of power antenna. |
| | 3. Grounds (B4), (B13) and (T16) | 3. Check grounds (B4), (B13) and (T16). |

## Location of Antenna



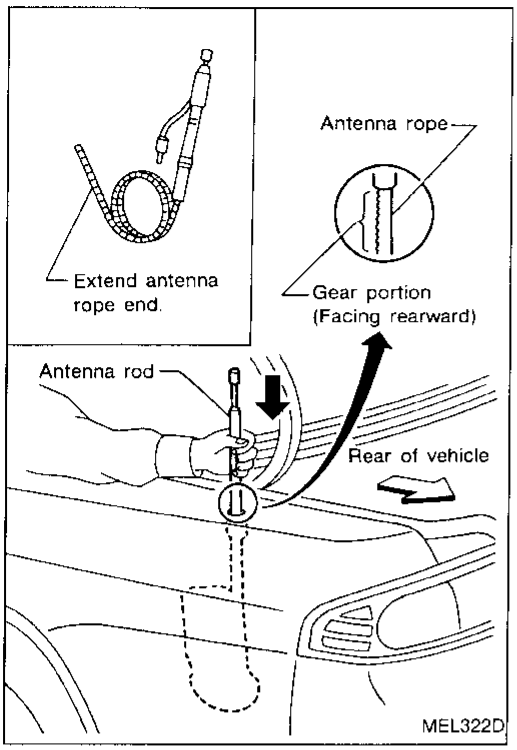




## Antenna Rod Replacement

### REMOVAL

1. Remove antenna nut and antenna base.
2. Withdraw antenna rod while raising it by operating antenna motor.

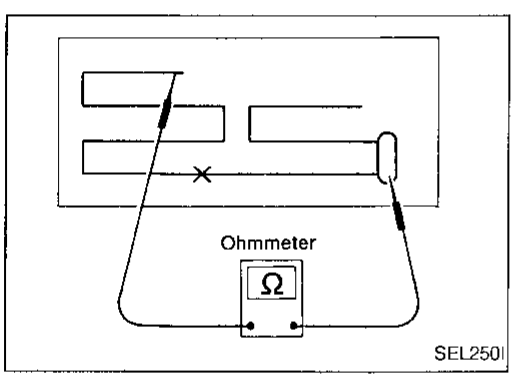
## Antenna Rod Replacement (Cont'd)




### INSTALLATION

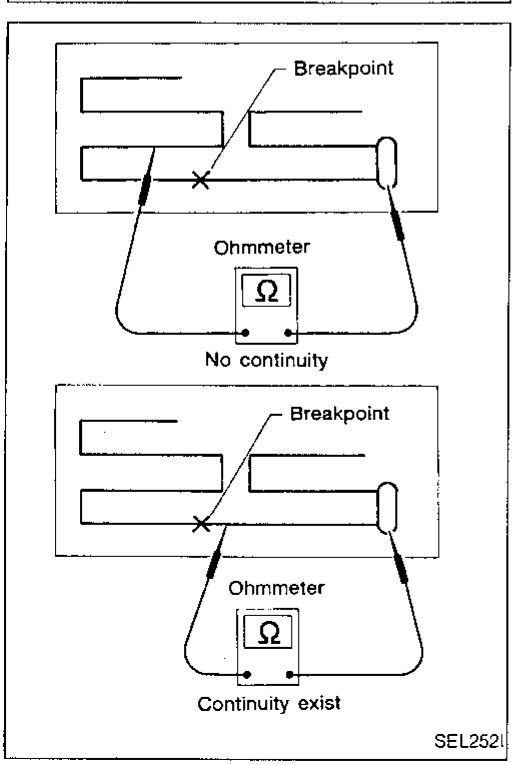
1. Lower antenna rod by operating antenna motor.
2. Insert gear section of antenna rope into place with it facing toward antenna motor.
3. As soon as antenna rope is wound on antenna motor, stop antenna motor. Insert antenna rod lower end into antenna motor pipe.
4. Retract antenna rod completely by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

## Window Antenna Repair



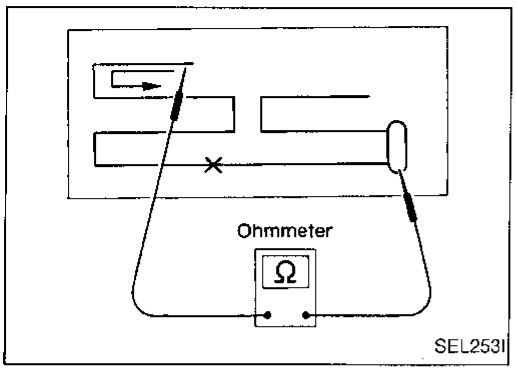

### ELEMENT CHECK

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




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

## Window Antenna Repair (Cont'd)

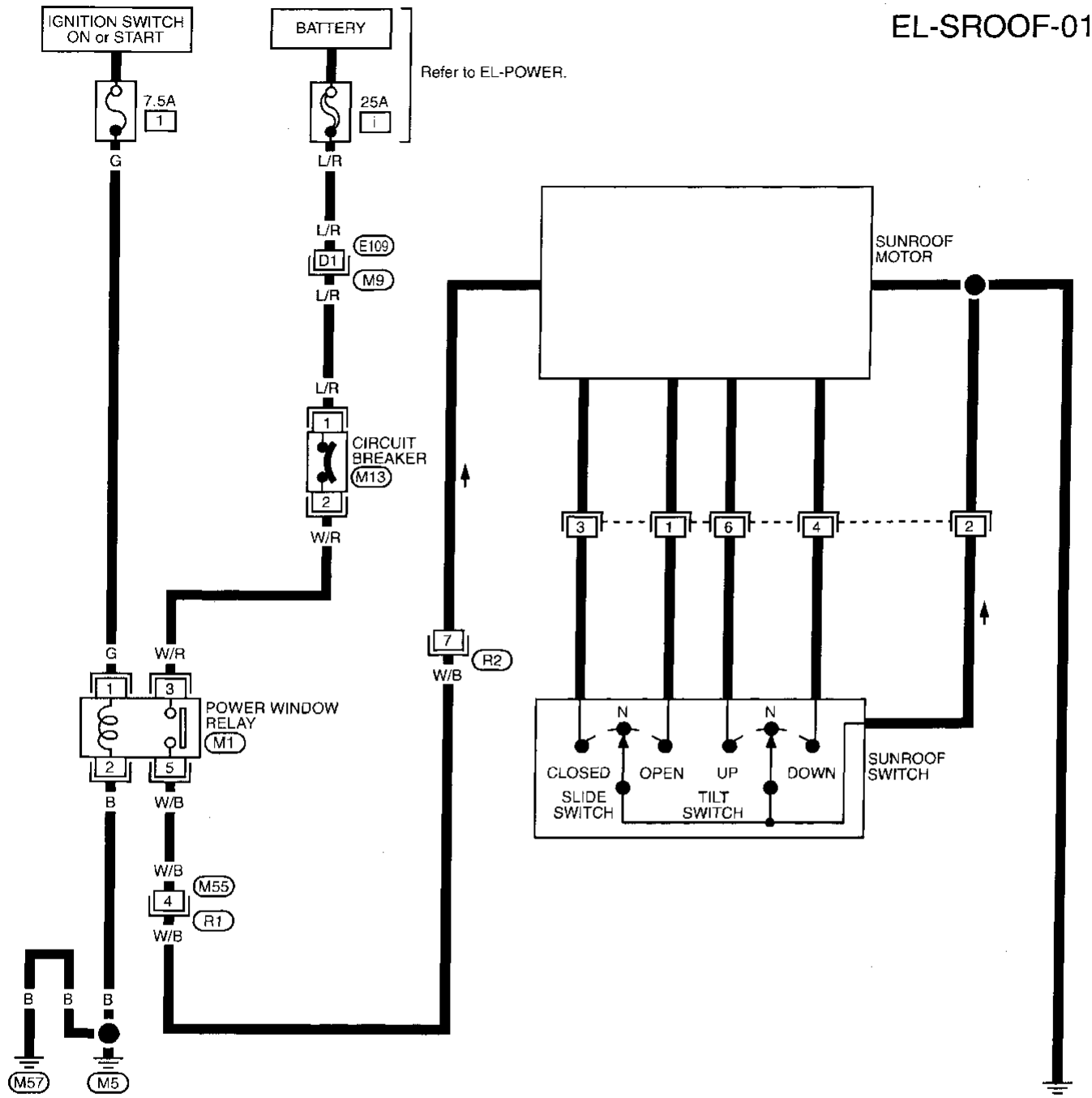



3. To locate broken point, move probe to left and right along element. Tester needle will swing abruptly when probe passes the point.

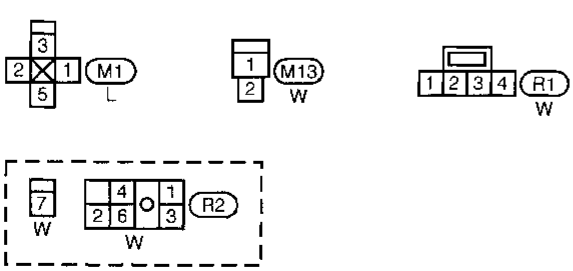
- **Refer to REAR WINDOW DEFOGGER "Filament Repair" for Element Repair.**

## Wiring Diagram — SROOF —

EL-SROOF-01



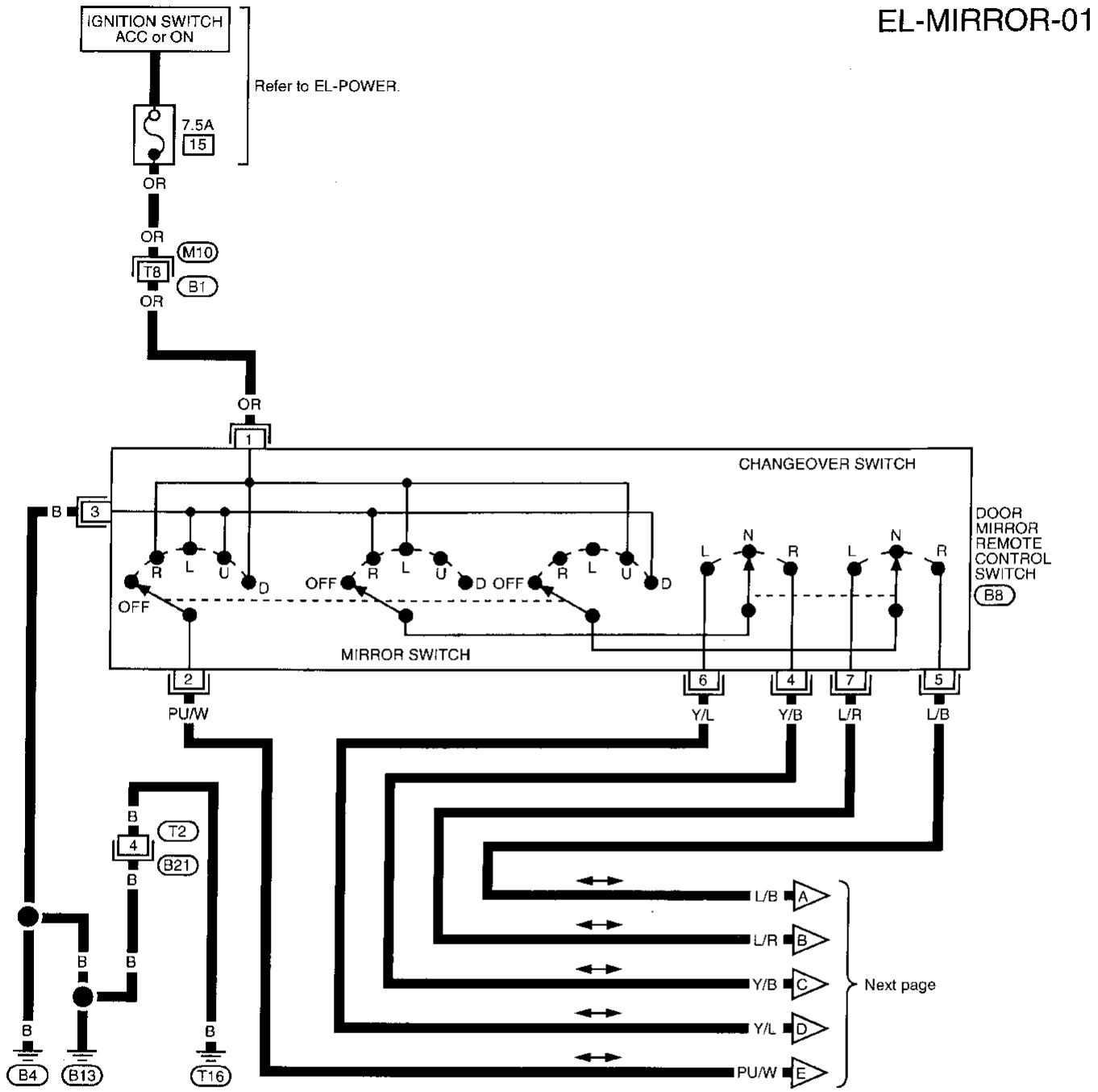

Refer to last page (Foldout page).
M9 , E109

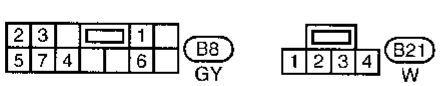



MEL324F

## Wiring Diagram — MIRROR —

EL-MIRROR-01

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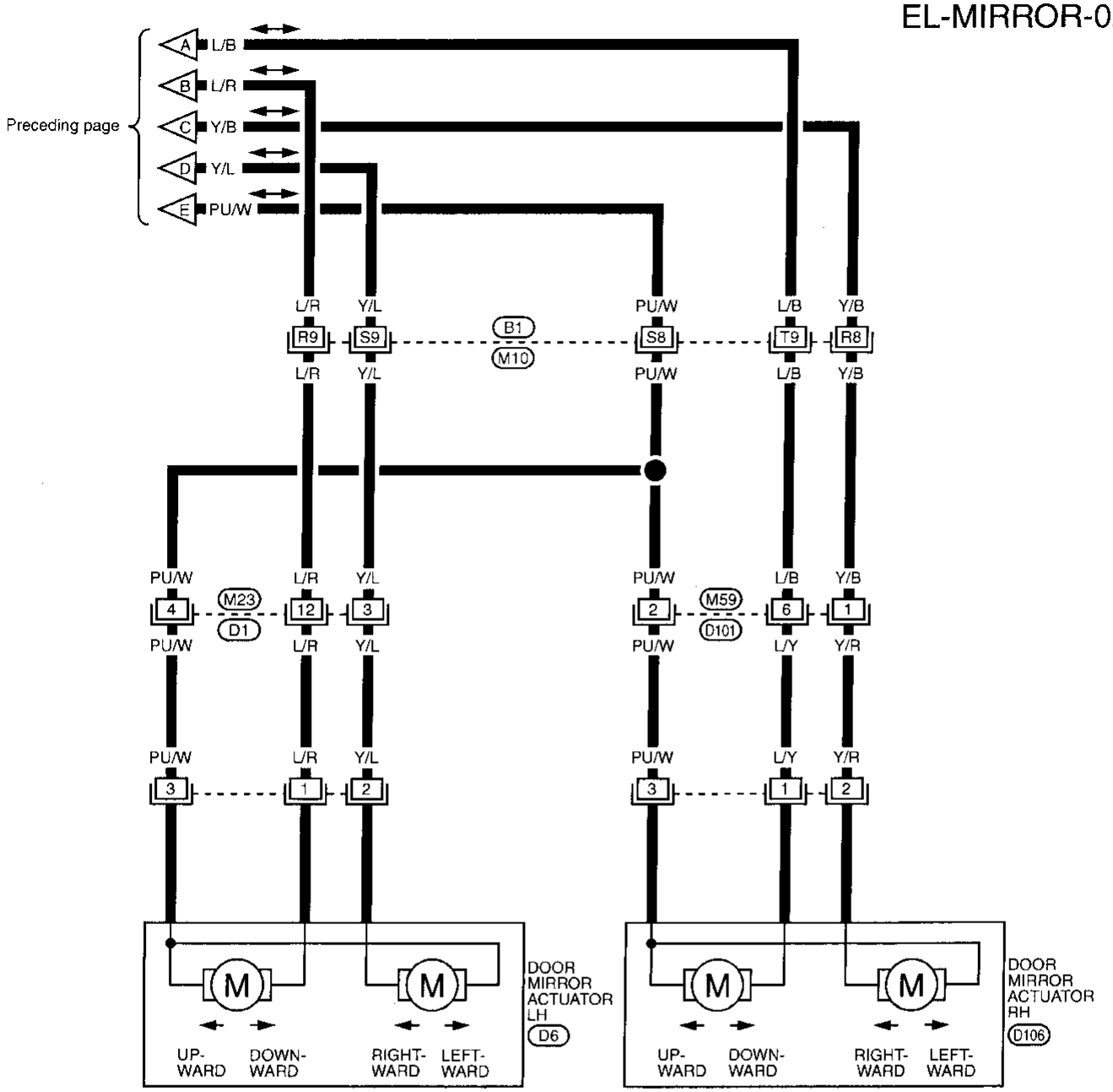
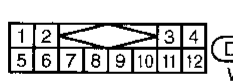
M10 , B1

MEL325F

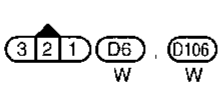
## Wiring Diagram — MIRROR — (Cont'd)

EL-MIRROR-02




D1 W , D101 W




D6 W , D106 W

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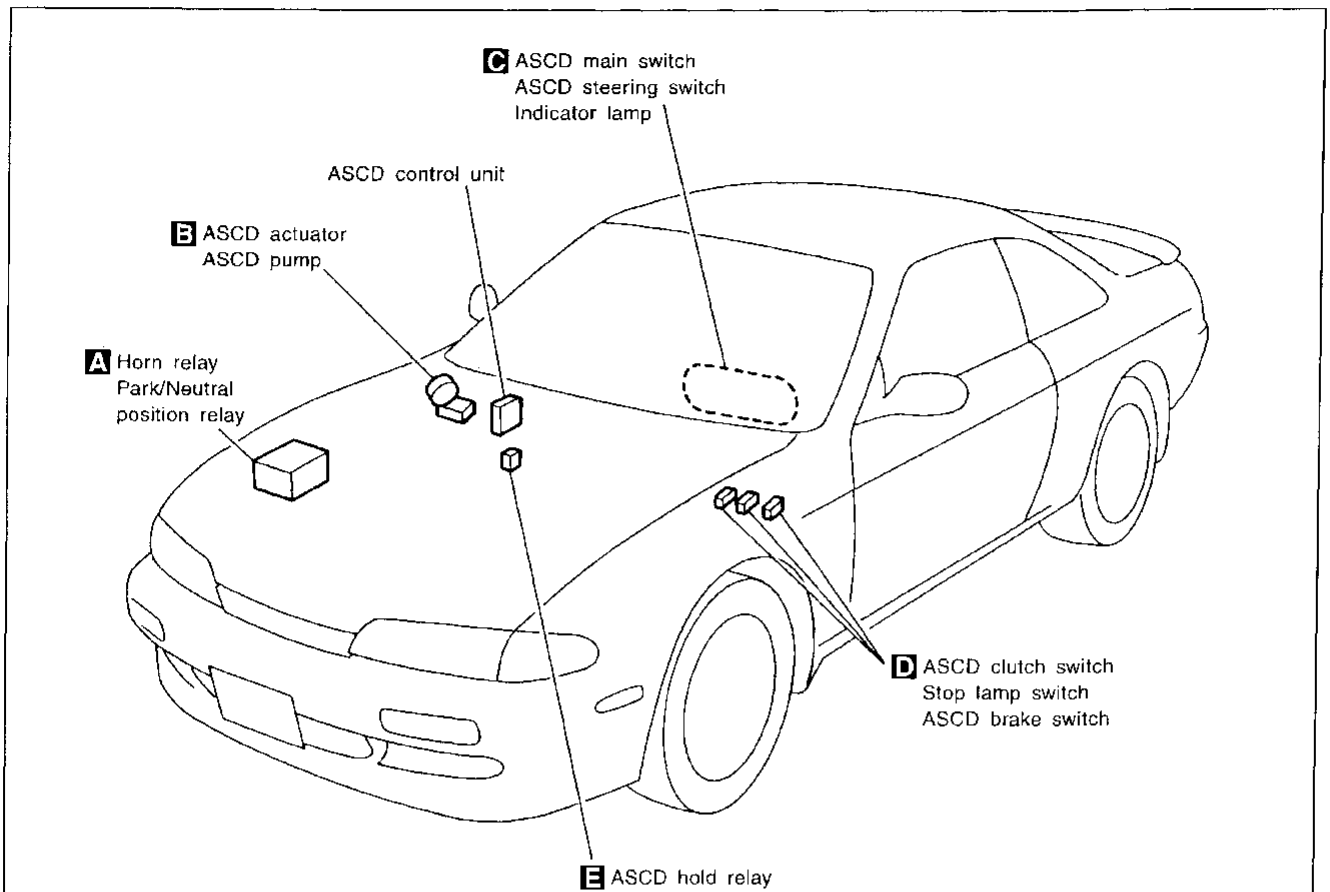
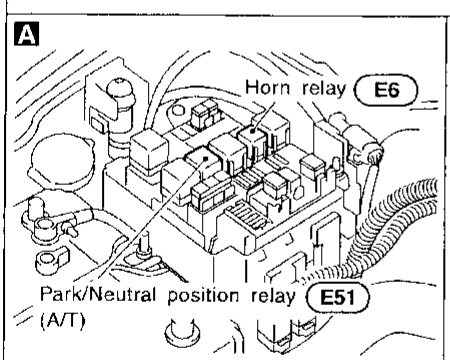
M10 , B1

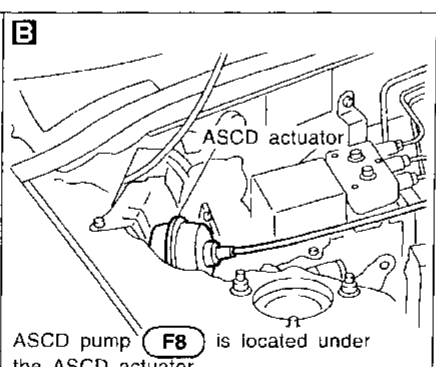


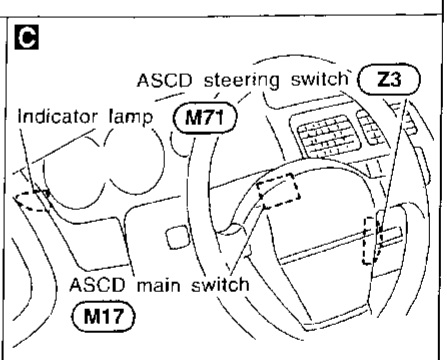
MEL330I

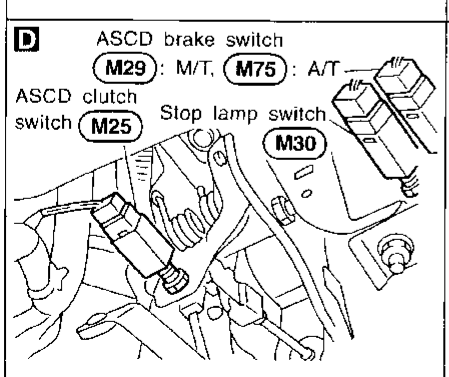
## Component Parts and Harness Connector Location

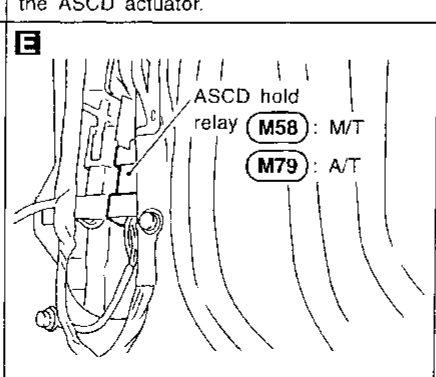



MEL323DC

## System Description

Refer to Owner's Manual for ASCD operating instructions.

**POWER SUPPLY AND GROUND**

When ignition switch is in the ON or START position, power is supplied
- through 7.5A fuse (No. 1, located in the fuse block)
- to ASCD hold relay terminal ⑤ and
- to ASCD main switch terminal ①.

When ASCD main switch is in ON position, power is supplied
- from ASCD main switch terminal ③
- to ASCD hold relay terminal ①.

Ground is supplied
- to ASCD hold relay terminal ②
- through body grounds M5 and M57.

With power and ground is 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 terminals ② and 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 turned to OFF position.

During ASCD hold relay is energized power is also supplied to ASCD control unit terminal ⑤
- through ASCD clutch switch and ASCD brake switch (M/T models) or
- through ASCD brake switch, ASCD hold relay and park/neutral position relay (A/T models).

**Inputs**

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

A vehicle speed input is supplied
- to ASCD control unit terminal ⑦
- from terminal ⑱ of the combination meter.

Power is supplied at all times
- to stop lamp switch terminal ①
- through 10A fuse (No. 7, located in the fuse block).

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

Power is supplied at all times
- through 10A fuse (No. 38, 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 ㉑.

When the SET/COAST switch is depressed, power is supplied
- from terminal ㉒ of the ASCD steering switch
- to ASCD control unit terminal ②.

When the RESUME/ACCEL switch is depressed, power is supplied
- from terminal ㉓ of the ASCD steering switch
- to ASCD control unit terminal ①.

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

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

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

## System Description (Cont'd)

**Outputs**

The ASCD actuator controls the throttle drum via the ASCD wire based on inputs from the ASCD control unit.
The ASCD 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 ④.

Ground is supplied to the air valve

- from terminal ⑩ of the ASCD control unit
- to ASCD pump terminal ②.

Ground is supplied to the release valve

- from terminal ⑭ of the ASCD control unit
- to ASCD pump terminal ③.

When the system is activated, power is supplied

- from terminal ⑬ of the ASCD control unit
- to combination meter terminal ⑪ and
- to TCM (transmission control module) terminal ㊲ (A/T models).

Ground is supplied

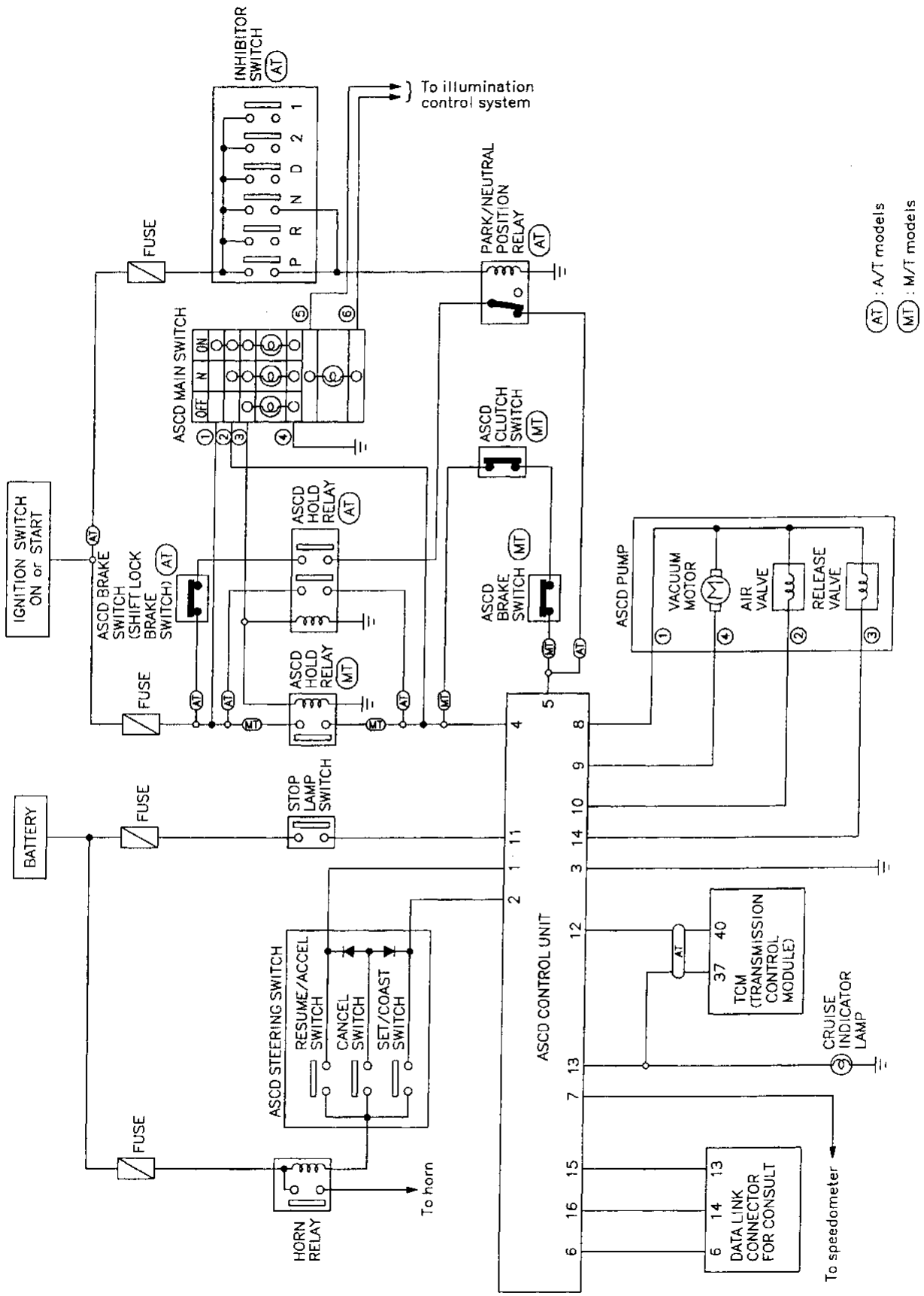
- to combination meter terminal ㉒
- through body grounds (M5) and (M57).

With power and ground supplied, the CRUISE indicator illuminates.
When vehicle speed is approximately 8 km/h (5 MPH) below set speed on A/T models, a signal is sent

- from terminal ⑫ of the ASCD control unit
- to TCM (transmission control module) terminal ㊵.

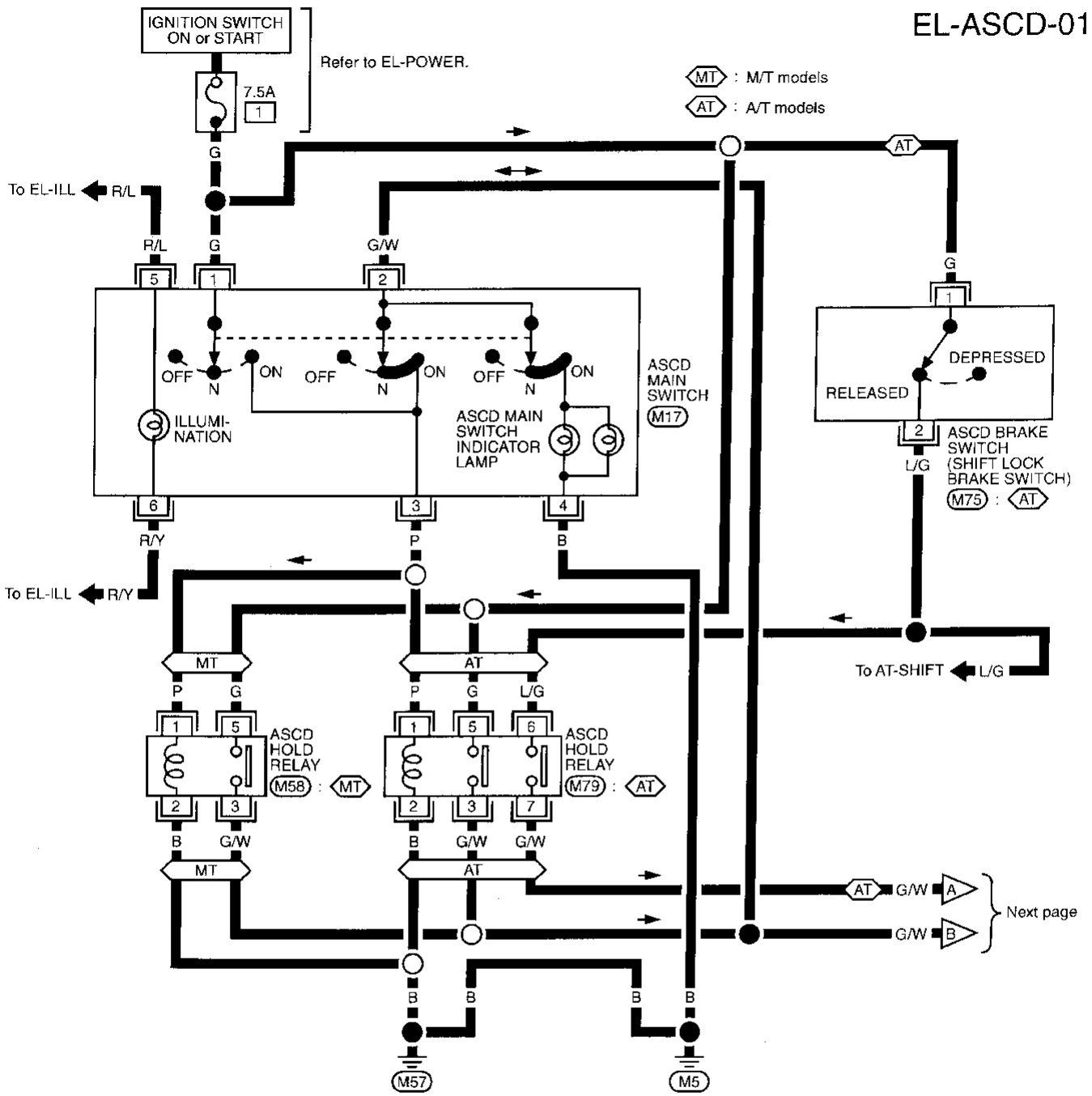
When this occurs, the TCM (transmission control module) cancels overdrive.
After vehicle speed is approximately 3 km/h (2 MPH) above set speed, overdrive is reactivated.

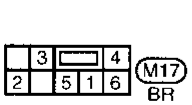
## Schematic

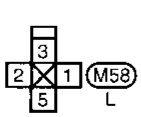


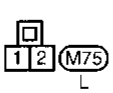

MEL331I

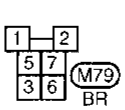
## Wiring Diagram — ASCD —



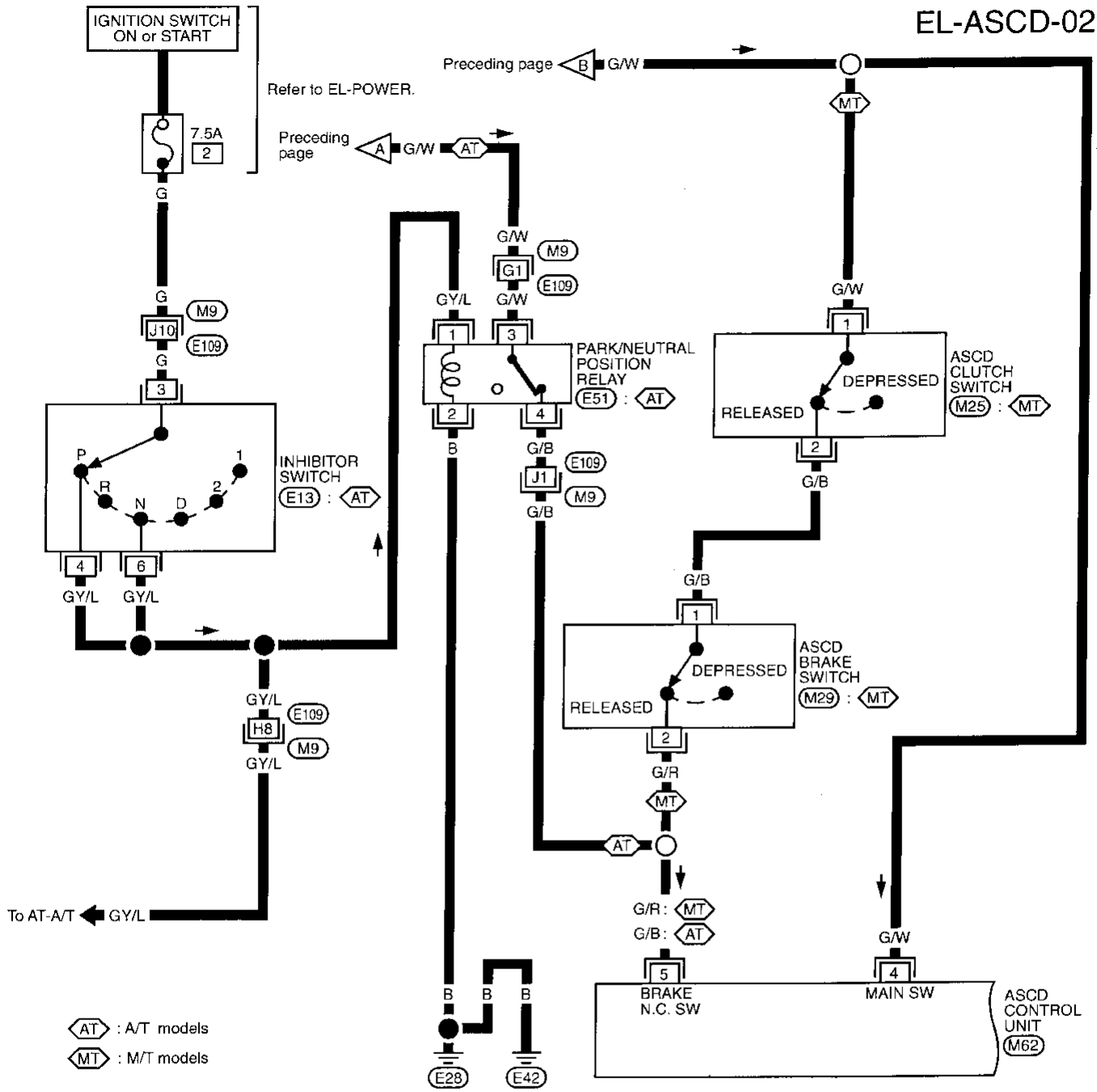



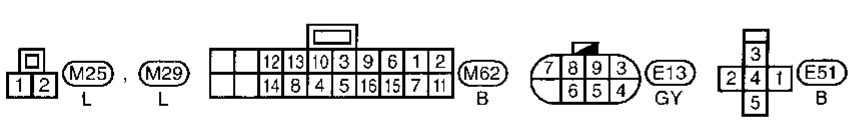




MEL332I

## Wiring Diagram — ASCD — (Cont'd)

EL-ASCD-02



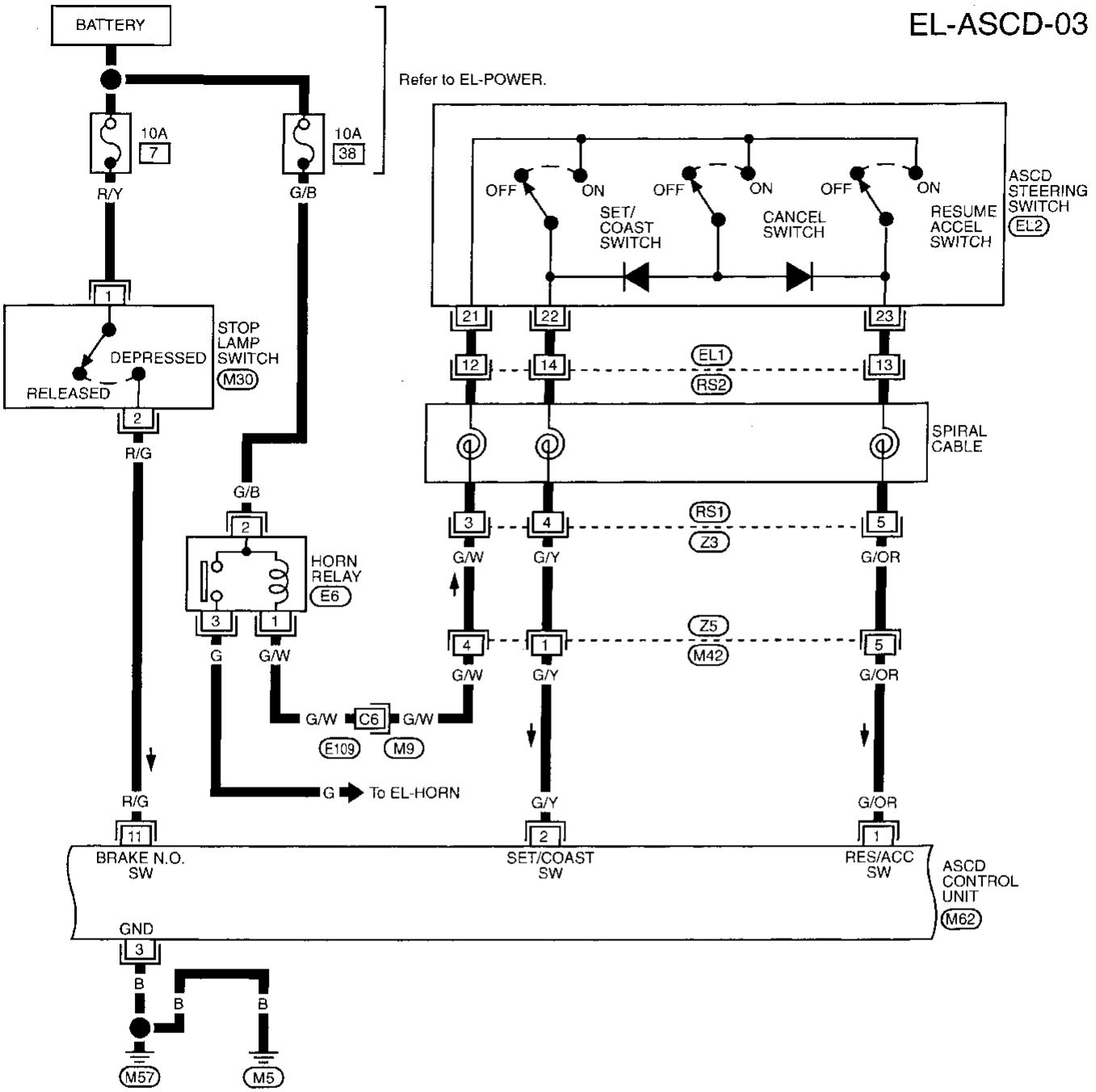

Refer to last page (Foldout page).
M9 , E109

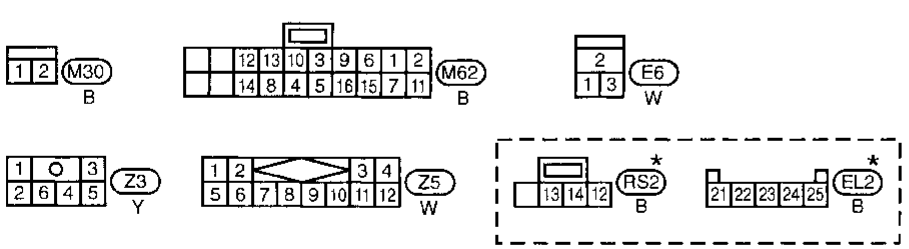


MEL333I

## Wiring Diagram — ASCD — (Cont'd)

EL-ASCD-03



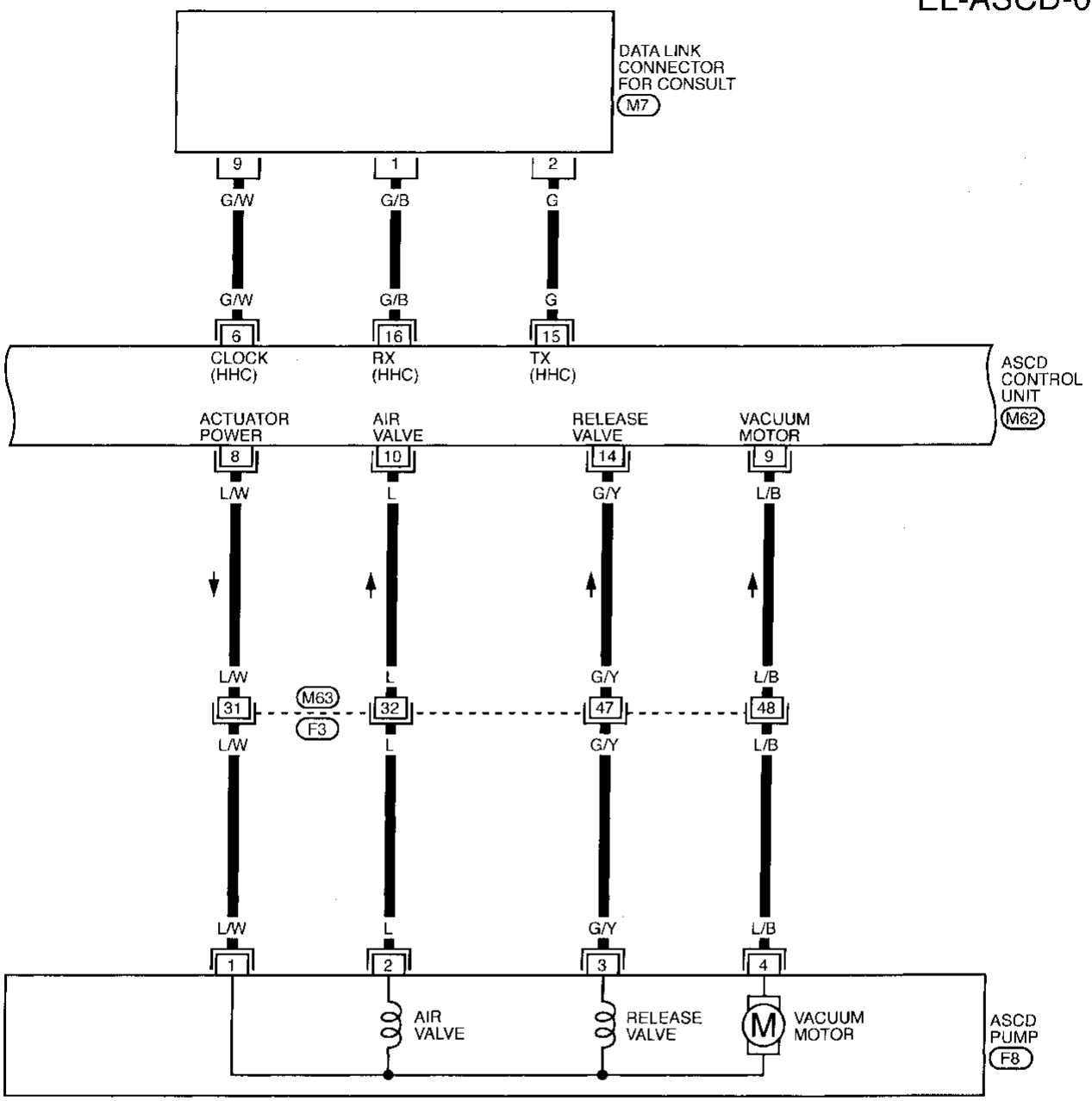

★ : This connector is not shown in "HARNESS LAYOUT". Refer to "COMBINATION SWITCH".

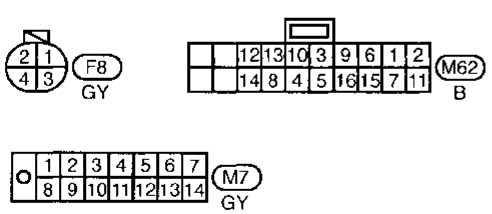
Refer to last page (Foldout page).
M9 , E109

MEL334I

## Wiring Diagram — ASCD — (Cont'd)

EL-ASCD-04



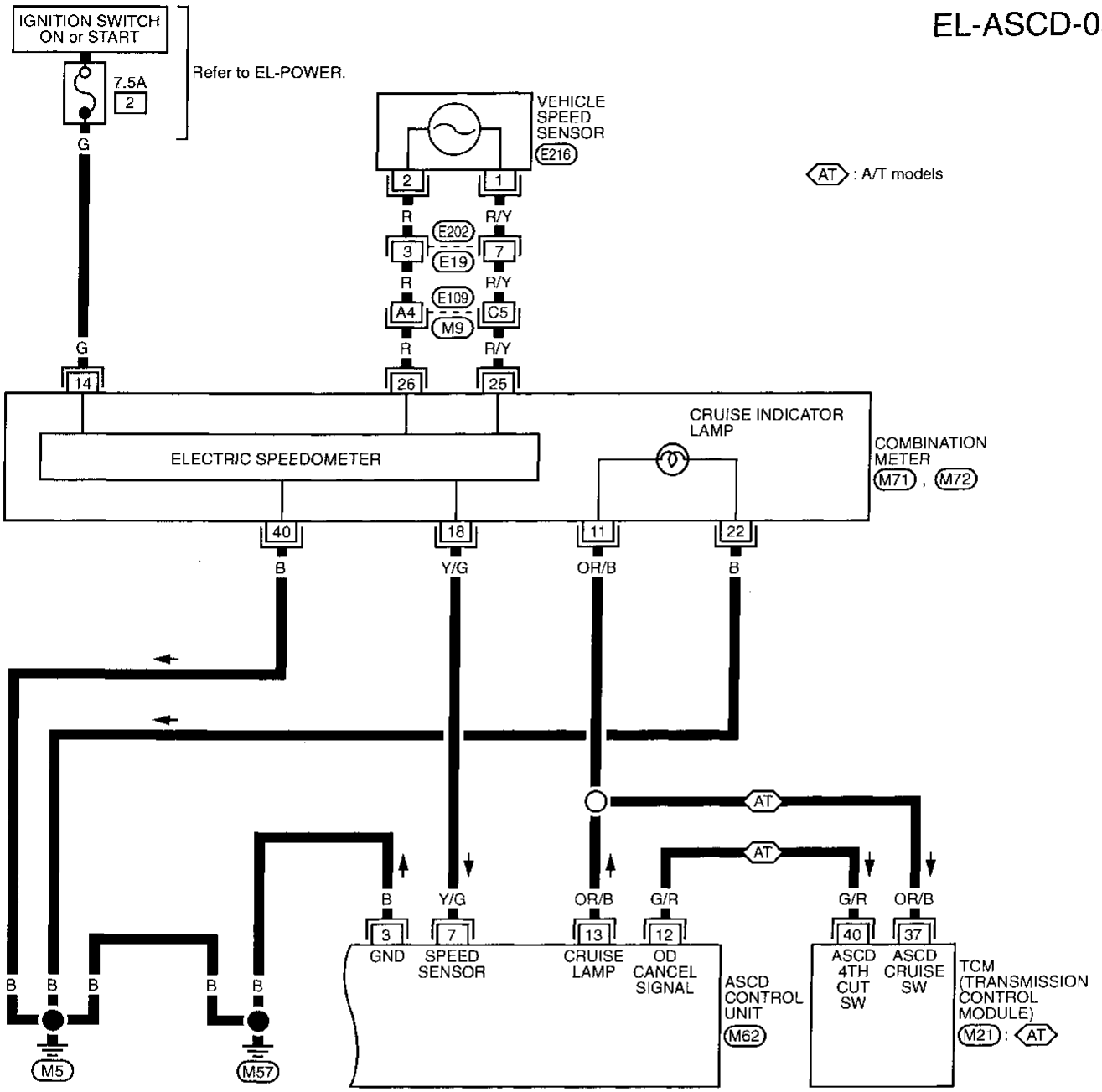



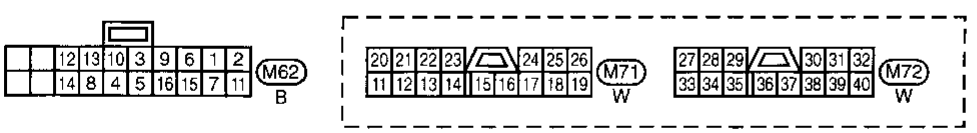

Refer to last page (Foldout page).
F3 , M63

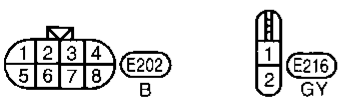
MEL331F

## Wiring Diagram — ASCD — (Cont'd)

EL-ASCD-05

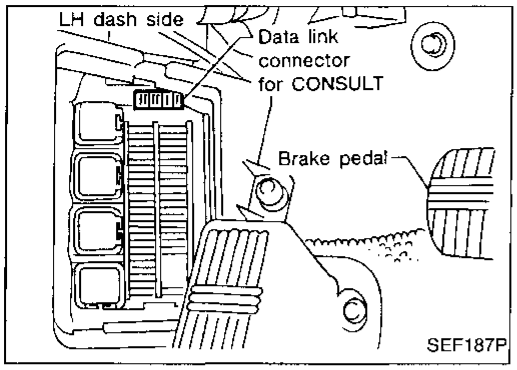


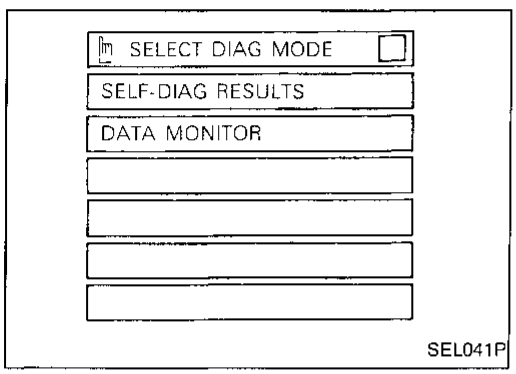

Refer to last page (Foldout page).
M9 , E109
M21

MEL335I

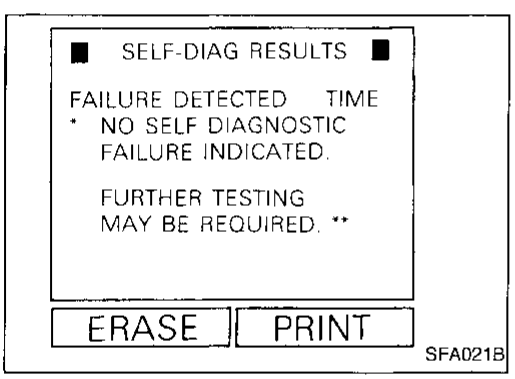



## CONSULT

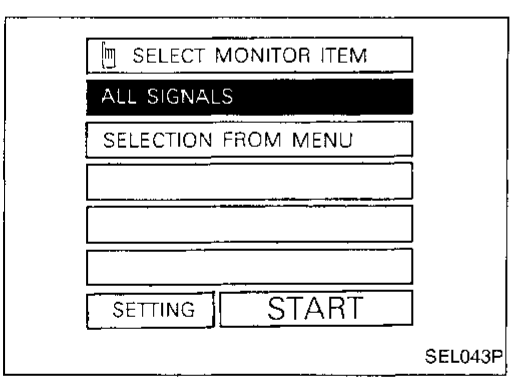
1. Turn off ignition switch.
2. Connect "CONSULT" to data link connector for CONSULT.



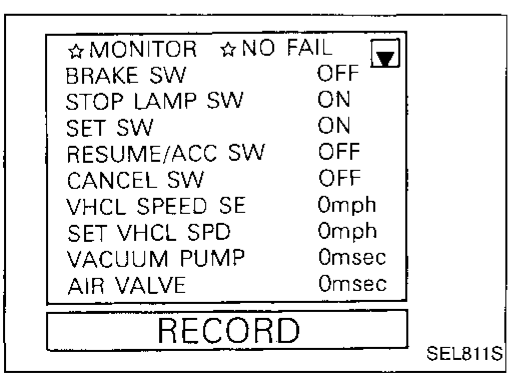

3. Turn on ignition switch.
4. Turn on ASCD main switch.
5. Touch START (on CONSULT display).
6. Touch ASCD.
7. Touch SELF-DIAG RESULTS.




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




8. Touch DATA MONITOR.




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

**For further information, read the CONSULT Operation Manual.**

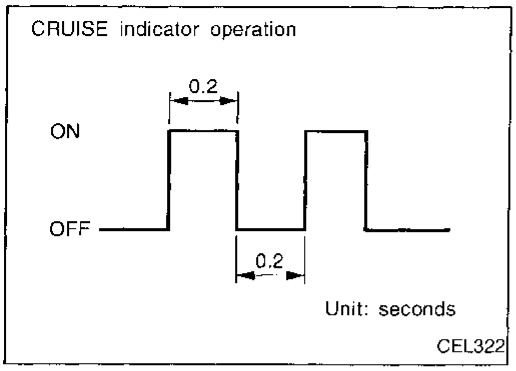
## CONSULT (Cont'd)

### SELF-DIAGNOSTIC RESULTS

| Diagnostic item | Description | Repair/Check order |
|---|---|---|
| * NO SELF DIAGNOSTIC FAILURE INDICATED. FURTHER TESTING MAY BE REQUIRED.** | • Even if no self diagnostic failure is indicated, further testing may be required as far as the customer complains. | — |
| POWER SUPPLY-VALVE | • The power supply circuit for the pump is open. (An abnormally high voltage is entered.) | Diagnostic procedure 7 (EL-143) |
| VACUUM PUMP | • The vacuum pump circuit is open or shorted. (An abnormally high or low voltage is entered.) | Diagnostic procedure 7 (EL-143) |
| AIR VALVE | • The air valve circuit is open or shorted. (An abnormally high or low voltage is entered.) | Diagnostic procedure 7 (EL-143) |
| RELEASE VALVE | • The release valve circuit is open or shorted. (An abnormally high or low voltage is entered.) | Diagnostic procedure 7 (EL-143) |
| VHCL SP-S/FAILSAFE | • The vehicle speed sensor or the fail-safe circuit is malfunctioning. | Diagnostic procedure 6 (EL-142) |
| CONTROL UNIT | • The ASCD control unit is malfunctioning. | Replace ASCD control unit. |
| BRAKE SW/STOP/L SW | • The brake switch or stop lamp switch is malfunctioning. | Diagnostic procedure 4 (EL-140) |

### DATA MONITOR

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

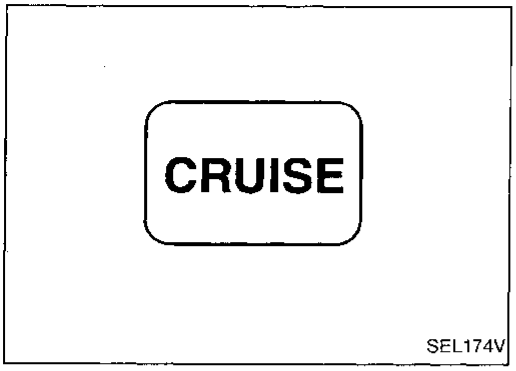



## Fail-safe System Description

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 |
|---|---|
| • ASCD steering (RESUME/ACCEL, CANCEL, SET/COAST) switch is stuck.<br>• Vacuum motor ground circuit or power circuit is open or shorted.<br>• Air valve ground circuit or power circuit is open or shorted.<br>• Release valve ground circuit or power circuit is open or shorted.<br>• Vehicle speed sensor is faulty.<br>• ASCD control unit internal circuit is malfunctioning. | • ASCD is deactivated.<br>• Vehicle speed memory is canceled. |
| • ASCD brake switch or stop lamp switch is faulty. | • ASCD is deactivated.<br>• Vehicle speed memory is not canceled. |

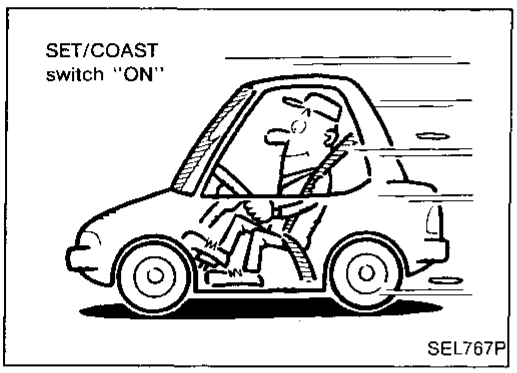



## Fail-safe System Check

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

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

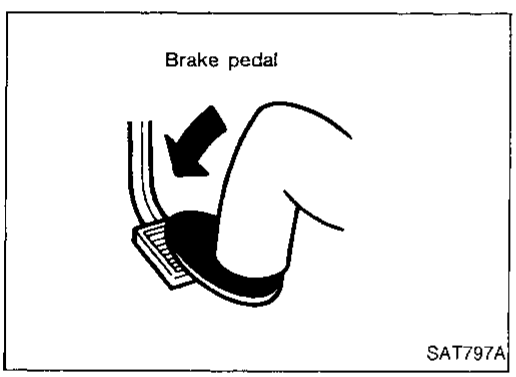
- ASCD steering switch. Refer to "DIAGNOSTIC PROCEDURE 5" (EL-141).




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-142).
- ASCD pump circuit. Refer to "DIAGNOSTIC PROCEDURE 7" (EL-143).
- 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-140).

5. END. (System is OK.)

## Trouble Diagnoses

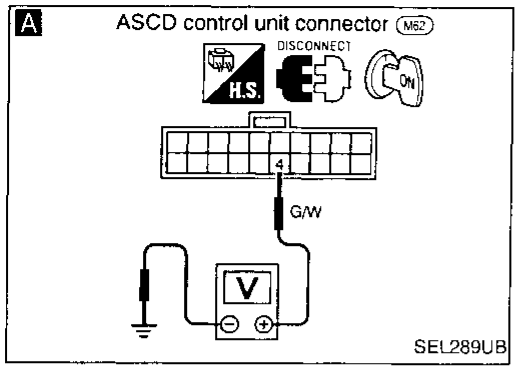
### SYMPTOM CHART

| PROCEDURE | — | | Diagnostic procedure | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| REFERENCE PAGE | EL-134 | EL-136 | EL-138 | EL-138 | EL-139 | EL-140 | EL-141 | EL-142 | EL-143 | EL-144 |
| SYMPTOM | Self-diagnosis in CONSULT | 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 CIRCUIT 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 | X | | |
| ASCD cannot be set. ("CRUISE" indicator lamp blinks.★1) | X | X | | | | X | X | X | X | |
| Vehicle speed does not decrease after SET/COAST switch has been pressed. | X | | | | | | X | | | X |
| Vehicle speed does not return to the set speed after RESUME/ACCEL switch has been pressed.★2 | X | | | | | | X | | | X |
| Vehicle speed does not increase after RESUME/ACCEL switch has been pressed. | X | | | | | | X | | | X |
| System is not released after CANCEL switch (steering) has been pressed. | X | | | | | | X | | | X |
| Large difference between set speed and actual vehicle speed. | X | | | | | | | | | X |
| Deceleration is greatest immediately after ASCD has been set. | X | | | | | | | | | X |

★1: It indicates that system is in fail-safe. After completing diagnostic procedures, perform "Fail-safe System Check" (EL-136) 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.

## Trouble Diagnoses (Cont'd)




### DIAGNOSTIC PROCEDURE 1

### (POWER SUPPLY AND GROUND CIRCUIT CHECK)

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). Refer to EL-138.

OK ↓

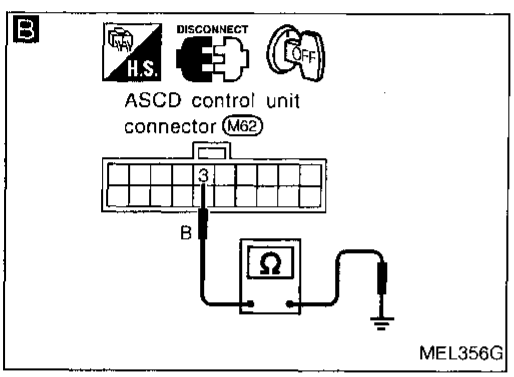
A

**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 body ground.
   **Battery voltage should exist.**
   Refer to wiring diagram in EL-129.

NG → Go to DIAGNOSTIC PROCEDURE 3 (ASCD HOLD RELAY CIRCUIT CHECK). Refer to EL-139.

OK ↓




B

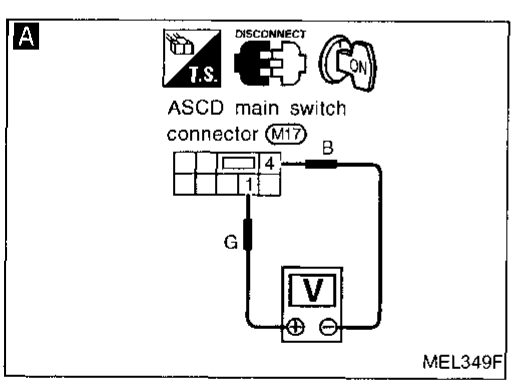
**CHECK GROUND CIRCUIT FOR ASCD CONTROL UNIT.**

Check continuity between ASCD control unit harness terminal ③ and body ground.
Refer to wiring diagram in EL-130.

NG → Repair harness.

OK ↓

Power supply and ground circuits are OK.




### DIAGNOSTIC PROCEDURE 2

### (ASCD MAIN SWITCH CHECK)

A

**CHECK POWER SUPPLY FOR ASCD MAIN SWITCH.**

1. Disconnect main switch connector.
2. Measure voltage between main switch terminals ① and ④.
   **Battery voltage should exist.**
   Refer to wiring diagram in EL-128.

NG → Check the following.
- 7.5A fuse (No. 1, located in the fuse block)
- Harness for open or short between fuse and ASCD main switch.
- Ground circuit for ASCD main switch

OK ↓

Check ASCD main switch. Refer to "Electrical Components Inspection" (EL-145).

NG → Replace ASCD main switch.

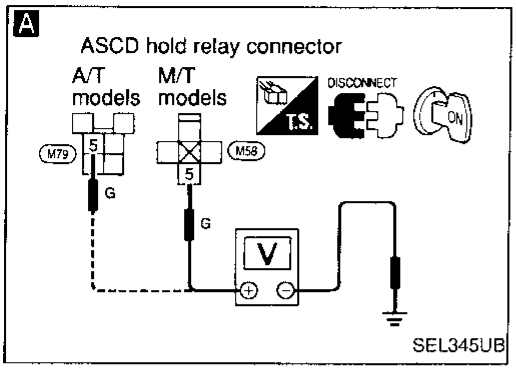
OK ↓

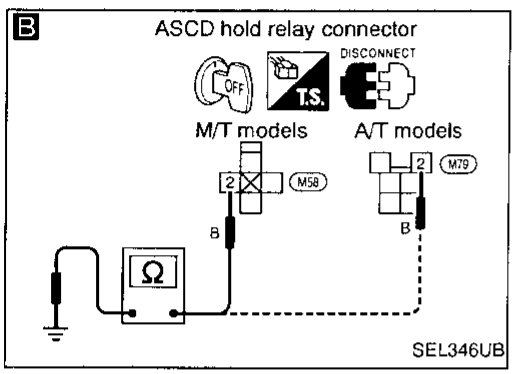
Go to DIAGNOSTIC PROCEDURE 3 (ASCD HOLD RELAY CIRCUIT CHECK). Refer to EL-139.

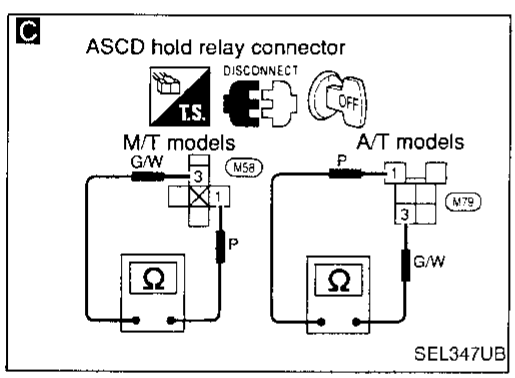
## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 3

### (ASCD HOLD RELAY CIRCUIT 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 harness terminal ⑤ and body ground?
   Refer to wiring diagram in EL-128.

No → Check the following.
- 7.5A fuse (No. 1, located in the fuse block)
- Harness for open or short between fuse and ASCD hold relay

Yes ↓

B

**CHECK GROUND CIRCUIT FOR ASCD HOLD RELAY.**
Does continuity exist between ASCD hold relay harness terminal ② and body ground?

No → Repair harness.

Yes ↓

C

**CHECK ASCD HOLD RELAY CIRCUIT.**
Does continuity exist between ASCD hold relay harness terminals ③ and ① ?

Yes → Check ASCD hold relay.

No ↓

CHECK ASCD MAIN SWITCH.
Refer to "Electrical Components Inspection" (EL-145).

NG → Replace ASCD main switch.

OK ↓

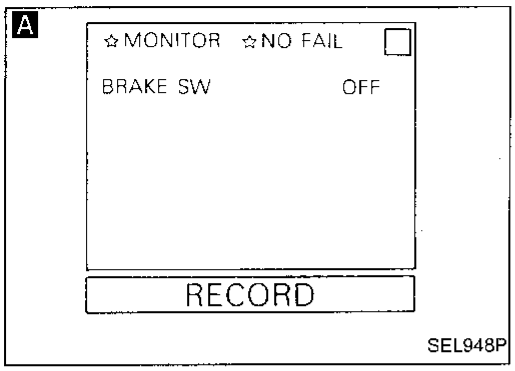
ASCD hold relay circuit is OK.

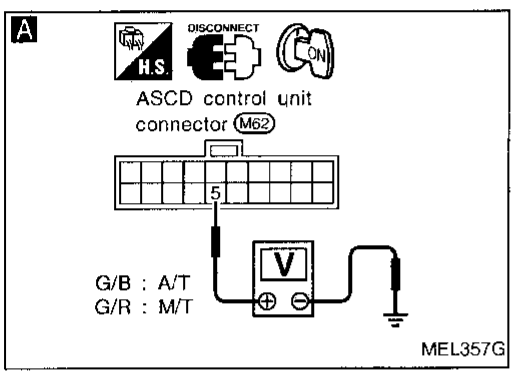
## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 4

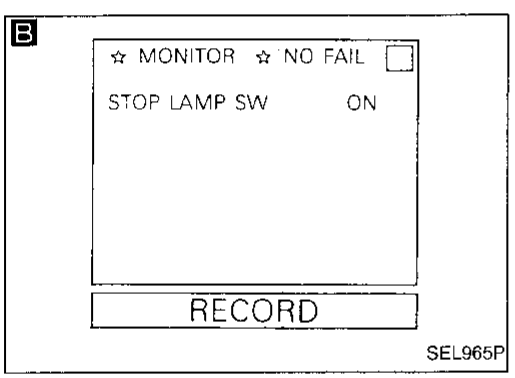
### (ASCD BRAKE/STOP LAMP SWITCH CHECK)

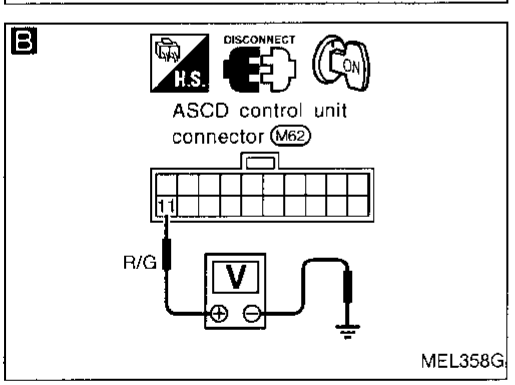
A




B




A

**CHECK BRAKE SWITCH CIRCUIT.**

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

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

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

NG → Check the following.
- ASCD brake switch
  Refer to "Electrical Components Inspection" (EL-145).
- ASCD clutch switch (M/T model)
  Refer to "Electrical Components Inspection" (EL-146).
- Inhibitor switch (A/T model)
  Refer to "Electrical Components Inspection" (EL-145).
- ASCD hold relay (A/T model)
- Harness for open or short

OR

1. Disconnect control unit connector.
2. Turn ignition switch ON.
3. Turn ASCD main switch "ON".
4. Measure voltage between control unit connector terminals ⑤ and ground. When brake pedal or clutch pedal (M/T) is depressed or A/T shift lever (A/T) is in "N" or "P" range:
   **Approx. 0V**
   When both brake pedal and clutch pedal (M/T) are released and A/T shift lever (A/T) is not in "N" or "P" range:
   **Battery voltage should exist.**
   Refer to wiring diagram in EL-129.

OK ↓

B

**CHECK STOP LAMP SWITCH CIRCUIT.**

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

**STOP LAMP SW**

When brake pedal is released:
OFF

When brake pedal is depressed:
ON

NG → Check the following.
- Harness for open or short between ASCD control unit and stop lamp switch
- 10A fuse (No. 7, located in the fuse block)
- Stop lamp switch
  Refer to "Electrical Components Inspection" (EL-145).

OR

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

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

Refer to wiring diagram in EL-130.

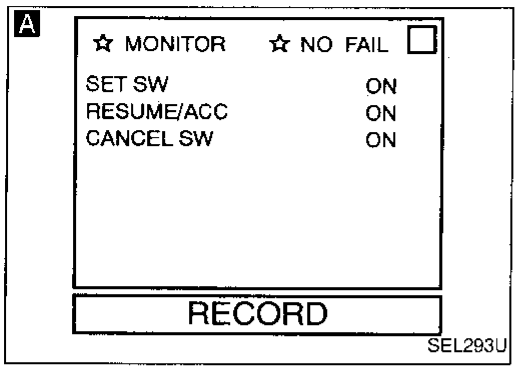
OK ↓

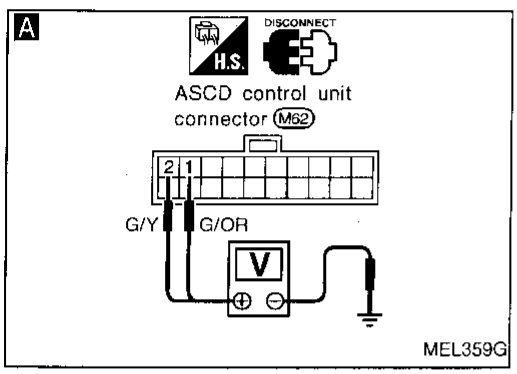
ASCD brake/stop lamp switch is OK.

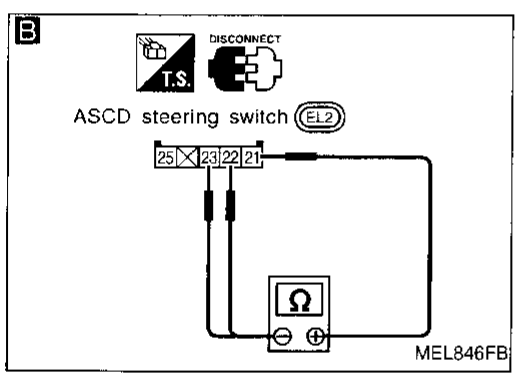
## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 5

### (ASCD STEERING SWITCH CHECK)




A

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

See "SET SW", "RESUME/ACC SW" and "CANCEL SW" in "Data monitor" mode.

**SET SW, RESUME/ACC SW and CANCEL SW**
**When switch is pressed: ON**
**When switch is released: OFF**

OK → ASCD steering switch is OK.

OR

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

| | Terminal No. | | Switch condition | |
|---|---|---|---|---|
| | ⊕ | ⊖ | Pressed | Released |
| SET/ COAST SW | ② | Ground | 12V | 0V |
| RESUME/ ACC SW | ① | Ground | 12V | 0V |
| CANCEL SW | ② | Ground | 6V | 0V |
| | ① | Ground | 6V | 0V |

Refer to wiring diagram in EL-130.

NG ↓

CHECK POWER SUPPLY FOR ASCD STEERING SWITCH.
Does horn work?

NG → Check the following.
- 10A fuse (No. 38, located in the relay box)
- Horn relay
- Harness for open or short

OK ↓

B

**CHECK ASCD STEERING SWITCH.**
Check continuity between terminals by pushing each button.

NG → Replace ASCD steering switch.

| Switch | Terminal | | |
|---|---|---|---|
| | ㉑ | ㉓ | ㉒ |
| SET/ COAST | ○ | | ○ |
| RESUME/ ACCEL | ○ | ○ | |
| CANCEL | ○ | ▶ ○ | |
| | ○ | ▶ | ○ |

OK ↓

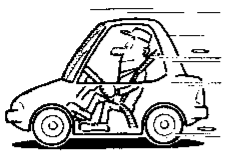
Check harness for open or short between ASCD steering switch and ASCD control unit.

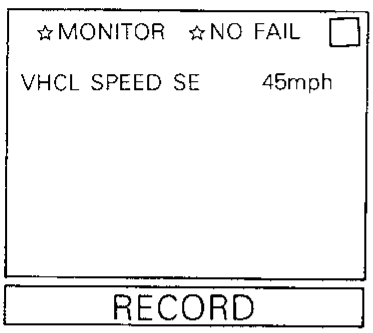
## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 6

### (VEHICLE SPEED SENSOR CHECK)

A

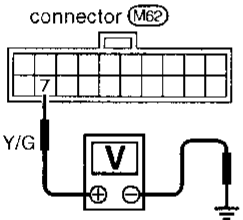





SEL084T

A


ASCD control unit connector M62




MEL360G

A

**CHECK VEHICLE SPEED SENSOR CIRCUIT.**

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

OR

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

Refer to wiring diagram in EL-132.

OK → Vehicle speed sensor is OK.

NG ↓

Does speedometer operate normally?

No → Check speedometer and vehicle speed sensor circuit. Refer to EL-74.

Yes ↓

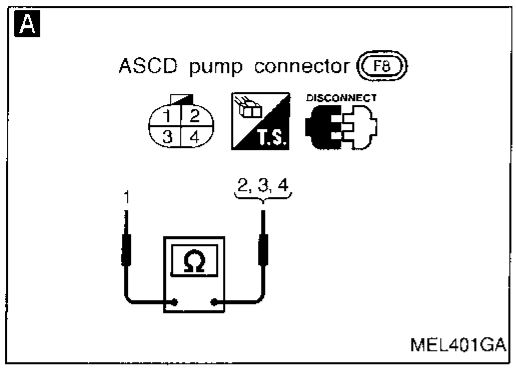
Check harness for open or short between ASCD control unit terminal ⑦ and combination meter terminal ⑱.

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 7

### (ASCD PUMP CIRCUIT CHECK)

A




A

**CHECK ASCD PUMP.**

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

| Terminals | | Resistance [Ω] |
|---|---|---|
| ① | ④ | Approx. 3 |
| | ② | Approx. 65 |
| | ③ | Approx. 65 |

Refer to wiring diagram in EL-131.

NG → Replace ASCD pump.

OK ↓

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

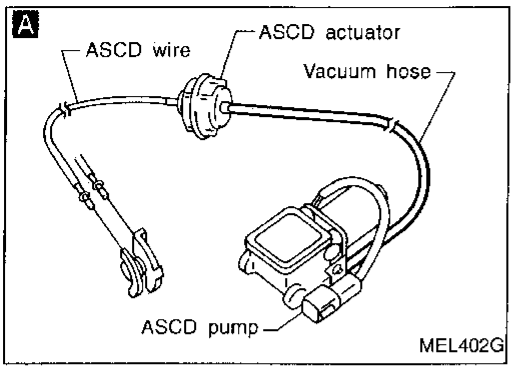
If a self-diagnostic result has already been accomplished, check using the following table.

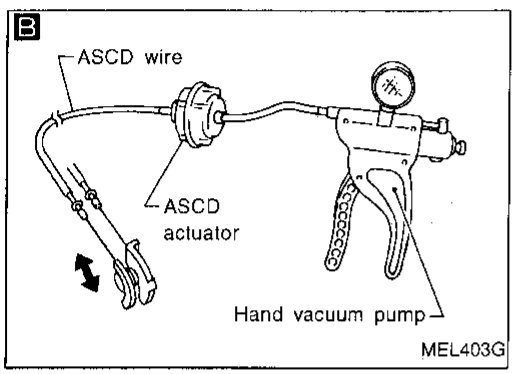
| CONSULT self-diagnostic result | Check circuit | |
|---|---|---|
| | ASCD control unit terminal | ASCD pump terminal |
| POWER SUPPLY-VALVE | ⑧ | ① |
| VACUUM PUMP | ⑨ | ④ |
| AIR VALVE | ⑩ | ② |
| RELEASE VALVE | ⑭ | ③ |

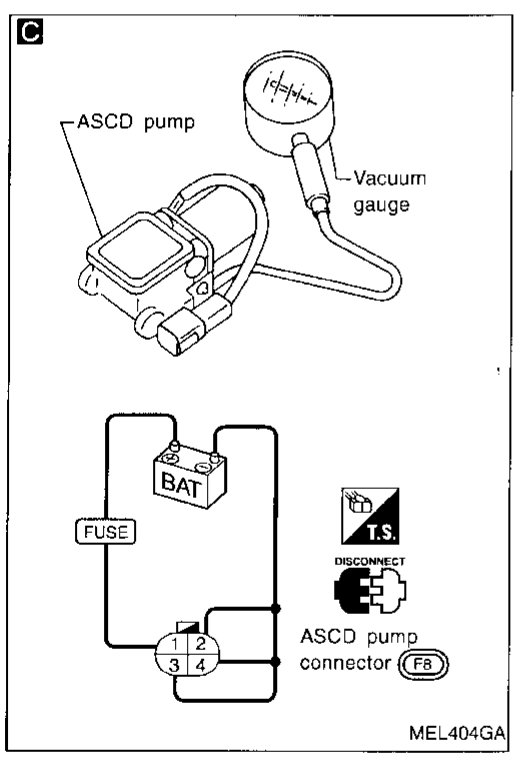
## Trouble Diagnoses (Cont'd)

### 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-146).

OK ↓

**B**

**CHECK ASCD ACTUATOR.**
1. Disconnect vacuum hose from ASCD actuator.
2. Apply –40 kPa (–0.41 kg/cm$^2$, –5.8 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 kPa (0.028 kg/cm$^2$, 0.39 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.

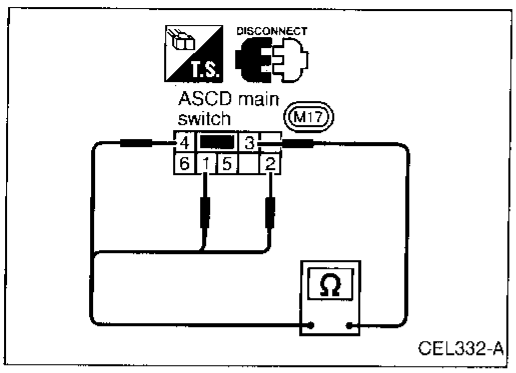
| | 12V direct current supply terminals | | Operation |
|---|---|---|---|
| | ⊕ | ⊖ | |
| Air valve | ① | ② | Close |
| Release valve | | ③ | Close |
| Vacuum motor | | ④ | Operate |

**A vacuum pressure of at least –35 kPa (–0.36 kg/cm$^2$, –5.1 psi) should be generated.**

NG → Replace ASCD pump.

OK ↓

ASCD actuator/pump are OK.

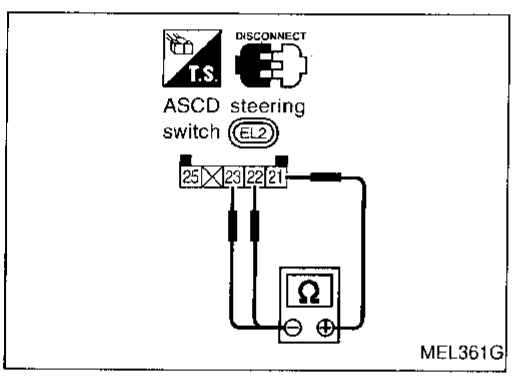



## Electrical Components Inspection

### ASCD MAIN SWITCH

Check continuity between terminals by pushing switch to each position.

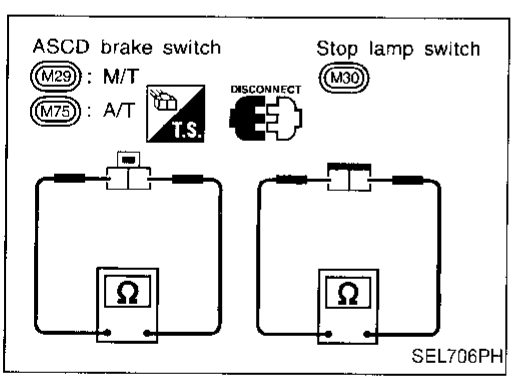
| Switch position | Terminals | | | | | |
|---|---|---|---|---|---|---|
| | ① | ② | ③ | ④ | ⑤ | ⑥ |
| ON | ○ | ○ | ○ | ○ | ILL. | |
| N | | ○ | ○ | ○ | ○ | |
| OFF | | | | | | |




### ASCD STEERING SWITCH

Check continuity between terminals by pushing each button.

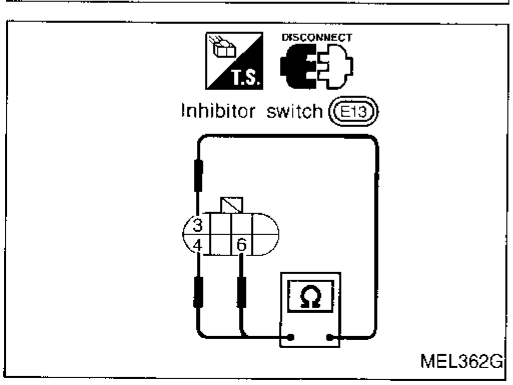
| Button | Terminal | | |
|---|---|---|---|
| | ㉑ | ㉓ | ㉒ |
| SET/COAST | ○ | | ○ |
| RESUME/ACCEL | ○ | | |
| CANCEL | ○ | ▶ | ○ |
| | ○ | ▶ | ○ |




### 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.**



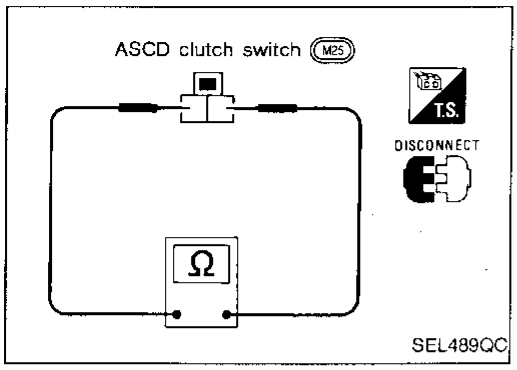

### INHIBITOR SWITCH (For A/T models)

Check continuity between terminals by setting shift lever to each position.

| Shift lever position | Terminal | | |
|---|---|---|---|
| | ③ | ④ | ⑥ |
| "N" | ○ | | ○ |
| "P" | ○ | ○ | |
| Others | | | |

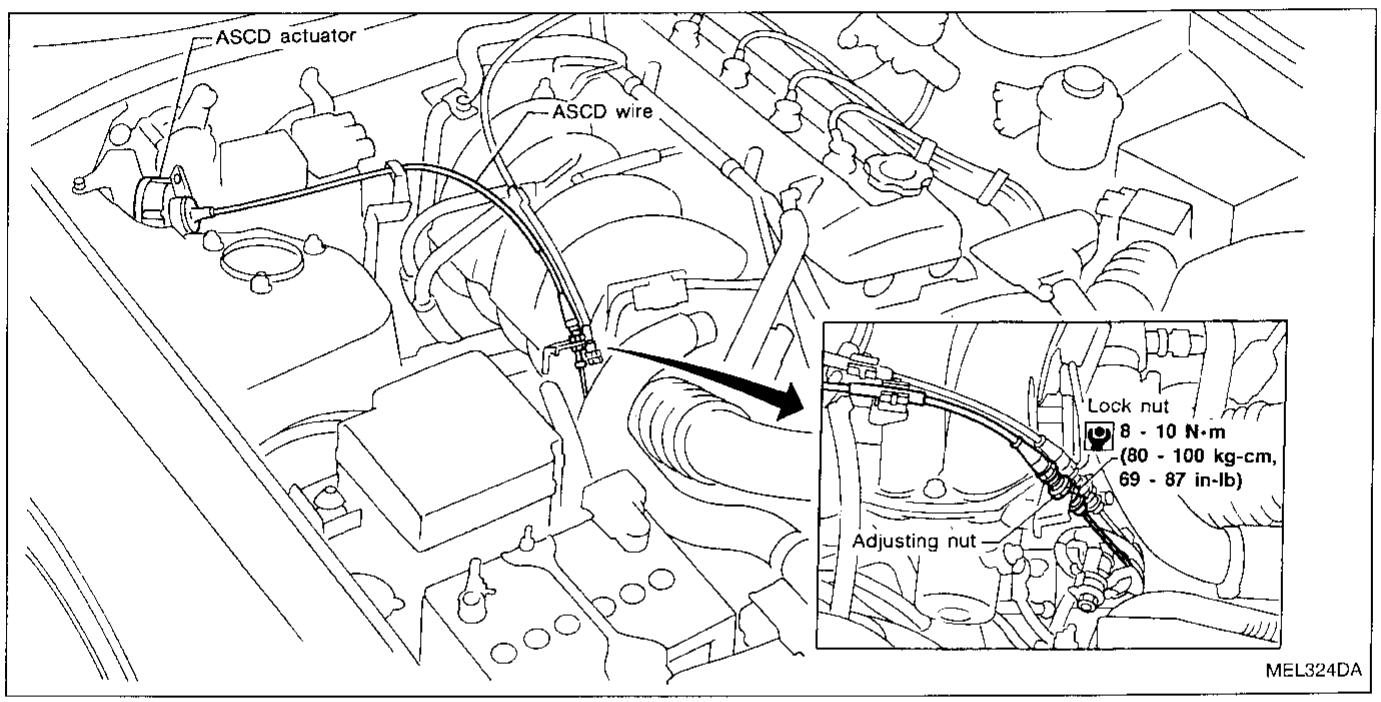
## Electrical Components Inspection (Cont'd)

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




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

## 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.

## System Description

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

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

Ground is supplied
- to power window relay terminal ②
- through body grounds (M5) and (M57).

The power window relay is energized and power is supplied
- through power window relay terminal ⑤
- to power window main switch terminal ①,
- to power window sub switch terminal ④.

### MANUAL OPERATION

#### Door LH

Ground is supplied
- to power window main switch terminal ②
- through body grounds (M5) and (M57).

WINDOW UP
When the LH switch in the power window main switch is pressed in the up position, power is supplied
- to power window regulator LH terminal ①
- through power window main switch terminal ③.

Ground is supplied
- to power window regulator LH terminal ②
- through power window main switch terminal ④.

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

WINDOW DOWN
When the LH switch in the power window main switch is pressed in the down position, power is supplied
- to power window regulator LH terminal ②
- through power window main switch terminal ④.

Ground is supplied
- to power window regulator LH terminal ①
- through power window main switch terminal ③.

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

#### Door RH

Ground is supplied
- to power window main switch terminal ②
- through body grounds (M5) and (M57).

## System Description (Cont'd)

NOTE:
Numbers in parentheses are terminal numbers, when power window switch is pressed in the UP and DOWN positions respectively.
Main switch operation
Power is supplied
- through power window main switch (⑤ , ⑥ )
- to power window sub-switch (① , ⑤ ).

The subsequent operation is the same as the sub-switch operation.
Sub-switch operation
Power is supplied
- through power window sub-switch (② , ③ )
- to power window regulator RH (① , ② ).

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

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

### AUTO OPERATION

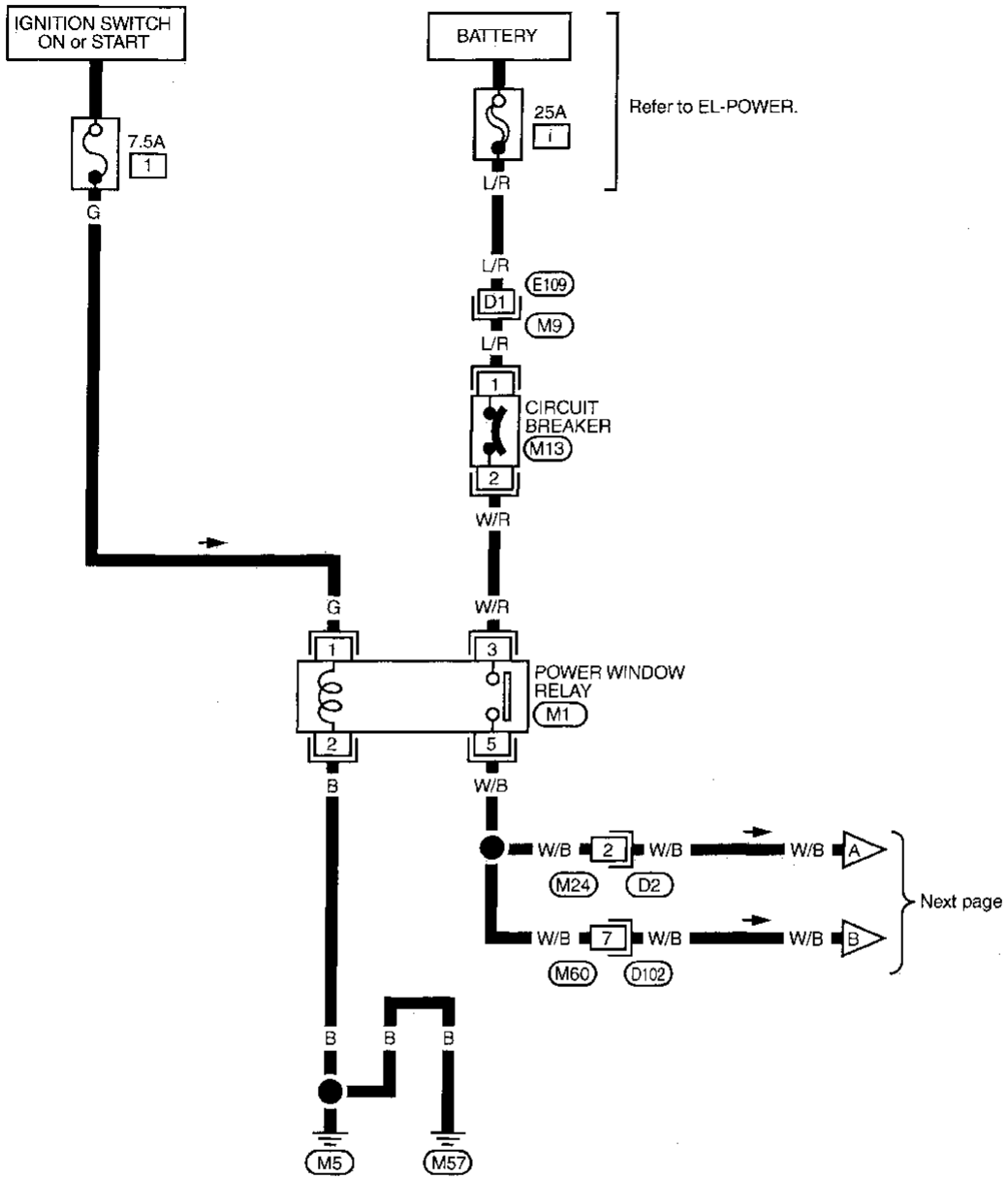
The power window AUTO feature enables the driver to lower the driver's window without holding the window switch in the down position.
The AUTO feature only operates on the driver's window downward movement.

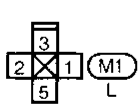
### POWER WINDOW LOCK

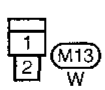
The power window lock is designed to lock window operation to door RH window.
When the lock switch is pressed to lock position, ground of the RH switch in the power window main switch is disconnected. This prevents the power window motors from operating.

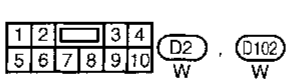
## Wiring Diagram — WINDOW —

EL-WINDOW-01

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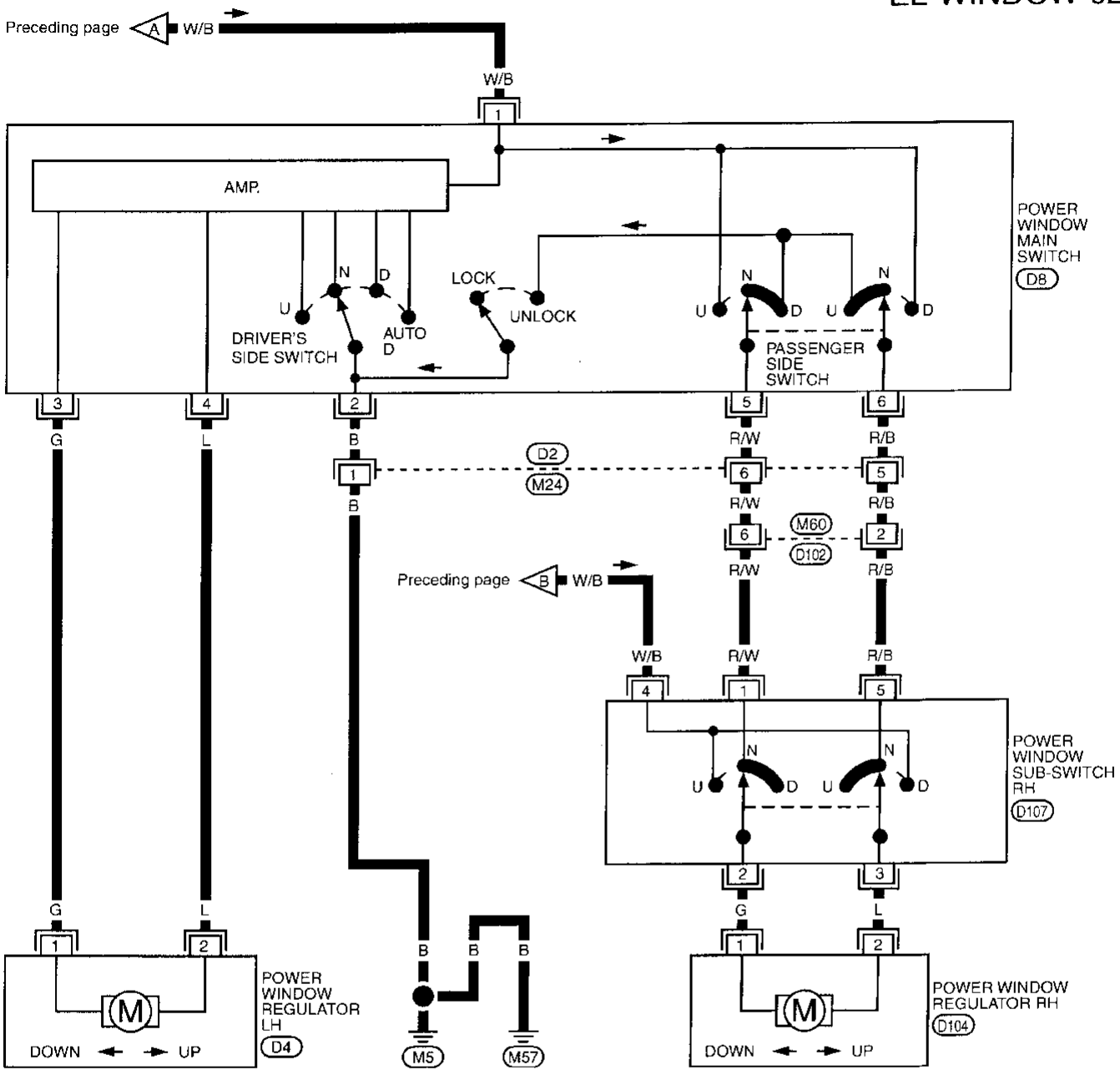
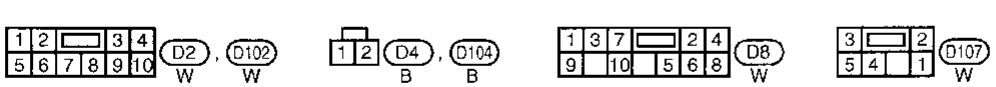
M9 , E109

MEL333F

## Wiring Diagram — WINDOW — (Cont'd)

EL-WINDOW-02




MEL334F

## Trouble Diagnoses

| Symptom | Possible cause | Repair order |
|---|---|---|
| None of the power windows can be operated using any switch. | 1. 7.5A fuse, 25A fusible link and (M13) circuit breaker | 1. Check 7.5A fuse (No. 1, located in fuse block), 25A fusible link (letter i, located in fuse and fusible link box) and (M13) circuit breaker. Turn ignition switch "ON" and verify battery positive voltage is present at terminal ① of power window main switch and terminal ④ of sub-switch. |
| | 2. Grounds (M5) and (M57) | 2. Check grounds (M5) and (M57). |
| | 3. Power window relay | 3. Check power window relay. |
| | 4. Open/short in power window main switch circuit | 4. Check W/B wire between power window relay and power window main switch for open/short circuit. |
| Driver's side power window cannot be operated but other windows can be operated. | 1. Driver's side power window regulator circuit | 1. Check driver's side power window regulator circuit. |
| | 2. Driver's side power window regulator | 2. Check driver's side power window regulator. |
| Passenger power window cannot be operated. | 1. Power window sub-switches | 1. Check power window sub-switch. |
| | 2. Passenger side power window regulators | 2. Check passenger's side power window regulator. |
| | 3. Power window main switch | 3. Check power window main switch. |
| | 4. Power window circuit | 4-1. Check harnesses between power window main switch and power window sub-switch for open/short circuit. |
| | | 4-2. Check harnesses between power window sub-switch and power window regulator for open/short circuit. |
| Passenger power window cannot be operated using power window main switch but can be operated by power window sub-switch. | 1. Power window main switch | 1. Check power window main switch. |
| Driver's side power window auto function cannot be operated using power window main switch. | 1. Power window main switch | 1. Check power window main switch. |

## System Description

Power is supplied at all times
- through 25A fusible link (letter [i], 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 .

Ground is supplied to smart entrance control unit terminal ⑩ through body grounds (M5) and (M57).

### INPUT

When the door lock & unlock switch LH is in LOCKED position, ground signal is supplied
- to smart entrance control unit terminal ⑱
- through door lock & unlock switch LH terminal ⑦
- to door lock & unlock switch LH terminal ②
- through body grounds (M5) and (M57).

When the door lock & unlock switch RH is in LOCKED position, ground signal is supplied
- to smart entrance control unit terminal ⑱
- through door lock & unlock switch RH terminal ③
- to door lock & unlock switch RH terminal ②
- through body grounds (M5) and (M57).

When the door lock & unlock switch LH is in UNLOCKED position, ground signal is supplied
- to smart entrance control unit terminal ⑲
- through door lock & unlock switch LH terminal ⑧
- to door lock & unlock switch LH terminal ②
- through body grounds (M5) and (M57).

When the door lock & unlock switch RH is in UNLOCKED position, ground signal is supplied
- to smart entrance control unit terminal ⑲
- through door lock & unlock switch RH terminal ①
- to door lock & unlock switch RH terminal ②
- through body grounds (M5) and (M57).

### OUTPUT

#### Unlock

Ground is supplied
- to door lock actuator LH terminal ③
- to door lock actuator RH terminal ③
- through smart entrance control unit terminal ④ .

DOOR LH

Power is supplied
- to door lock actuator LH terminal ①
- through smart entrance control unit terminal ③ .

DOOR RH

Power is supplied
- to door lock actuator RH terminal ① ,
- through smart entrance control unit terminal ② .

Then, the door is unlocked.

#### Lock

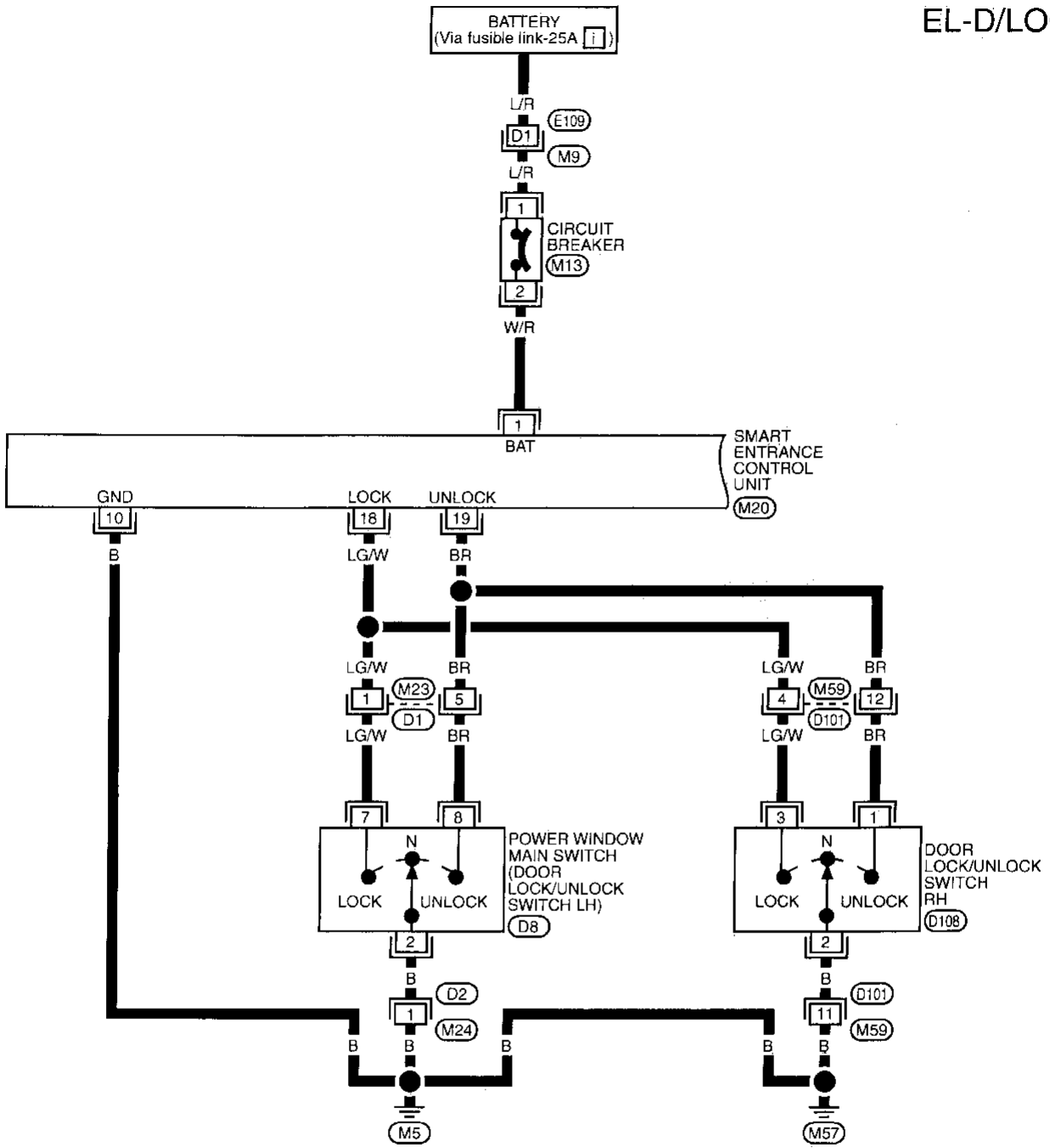
Ground is supplied
- to door lock actuator LH terminal ①
- through smart entrance control unit terminal ③ , and
- to door lock actuator RH terminal ①
- through smart entrance control unit terminal ② .

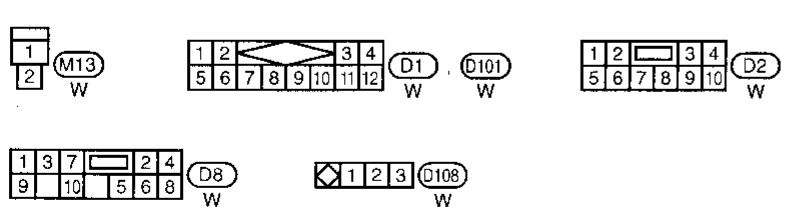
Power is supplied
- to door lock actuator LH terminal ③ ,
- to door lock actuator RH terminal ③ ,
- through terminal ④ .

Then, the door is locked.

## Wiring Diagram — D/LOCK —

EL-D/LOCK-01

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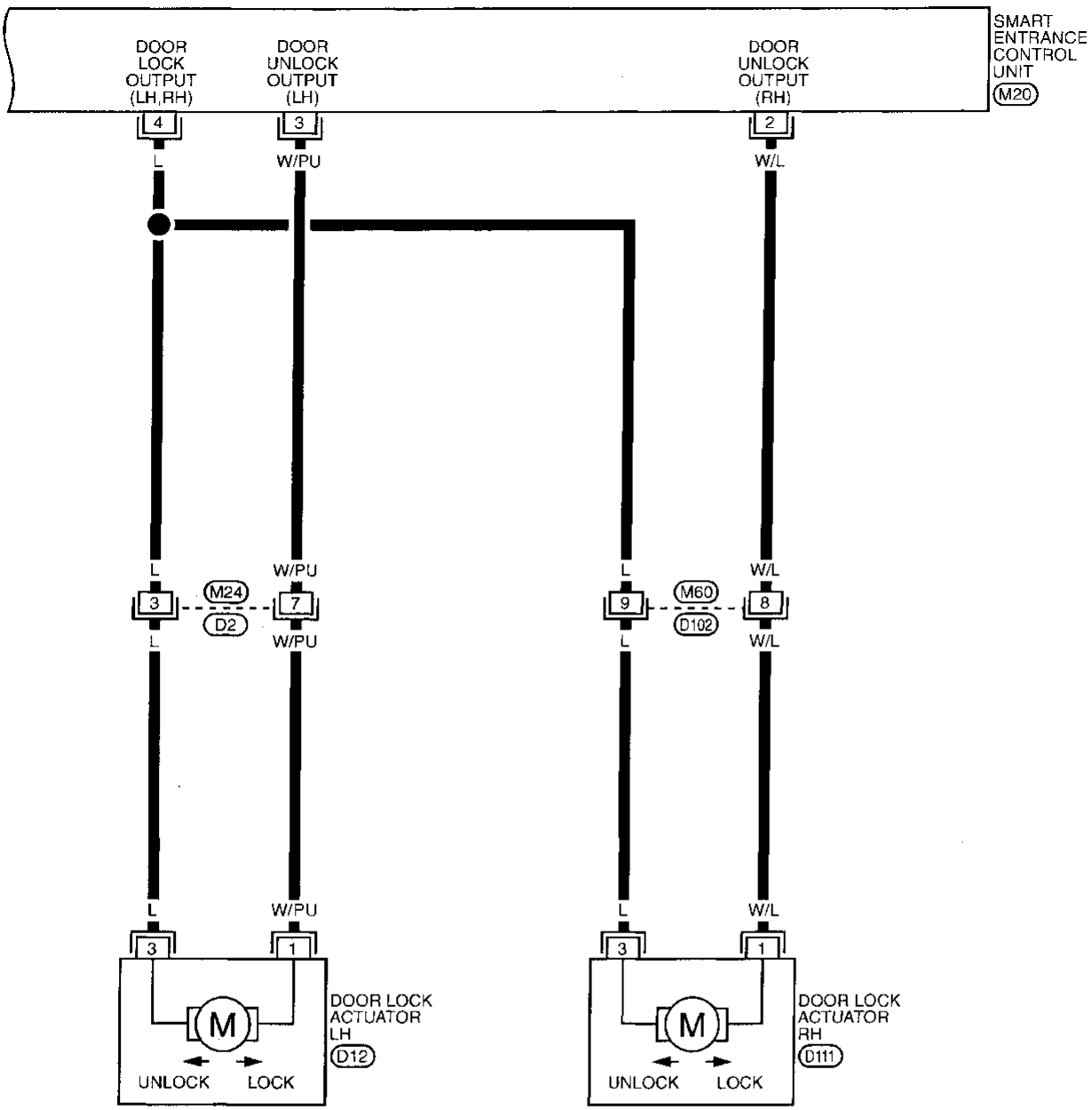
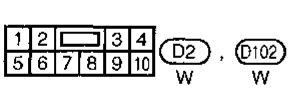
M9 , E109
M20

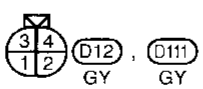
MEL336I

## Wiring Diagram — D/LOCK — (Cont'd)

EL-D/LOCK-02



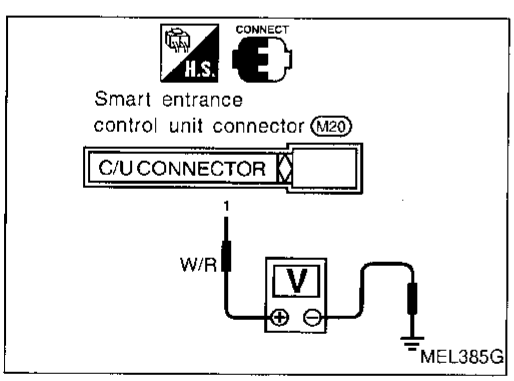

Refer to last page (Foldout page).
M20

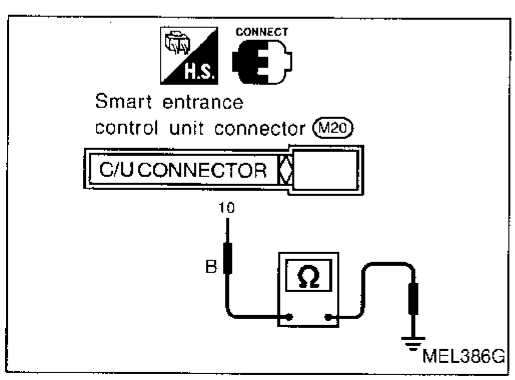
MEL337I

## Trouble Diagnoses

### SYMPTOM CHART

| REFERENCE PAGE | EL-155 | EL-156 | EL-157 |
|---|---|---|---|
| SYMPTOM | POWER SUPPLY AND GROUND CIRCUIT CHECK | DIAGNOSTIC PROCEDURE 1 (DOOR LOCK/UNLOCK SWITCH CHECK) | DIAGNOSTIC PROCEDURE 2 (DOOR LOCK ACTUATOR CHECK) |
| None of the doors lock/unlock when operating both door lock/unlock switch. | X | | X |
| One or more doors are not locked and/or unlocked. | | | X |
| LH or RH lock/unlock switch does not operate. | | X | |




### POWER SUPPLY AND GROUND CIRCUIT CHECK

#### Power supply circuit check

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

#### Ground circuit check

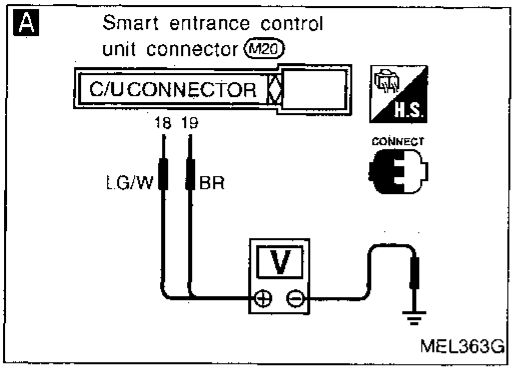
| Terminals | Continuity |
|---|---|
| ⑩ - Ground | Yes |

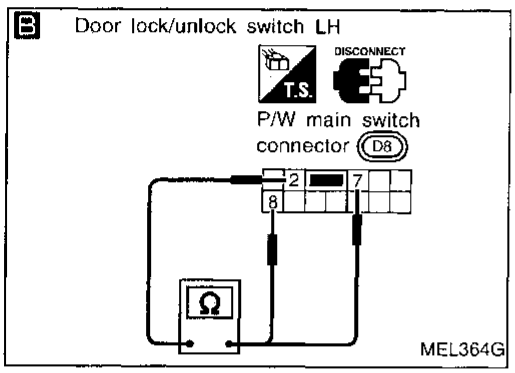
## Trouble Diagnoses (Cont'd)

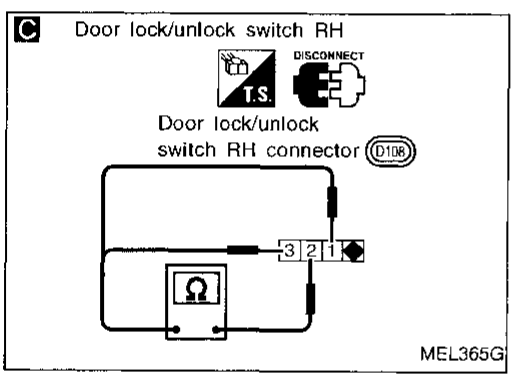
### DIAGNOSTIC PROCEDURE 1

### (Door lock/unlock switch check)

A




**CHECK SIGNAL OF DOOR LOCK/ UNLOCK SWITCH.**

Check voltage between control unit terminal ⑱ or ⑲ and ground.

| Terminals | Door lock/ unlock switch (LH or RH) operation | Voltage (V) |
|---|---|---|
| ⑱ - Ground | Lock | 0 |
| | N and Unlock | Approx. 12 |
| ⑲ - Ground | Unlock | 0 |
| | N and Lock | Approx. 12 |

Refer to wiring diagram in EL-153.

OK → Door lock/unlock switch is OK.

NG ↓

B C

**CHECK DOOR LOCK/UNLOCK SWITCH.**

1. Disconnect door lock/unlock switch connector.
2. Check continuity between each door lock/unlock switch terminal.

B Power window main switch (Door lock/unlock switch)

| Condition | Terminals | | |
|---|---|---|---|
| | 2 | 7 | 8 |
| Lock | ○ | ○ | |
| N | No continuity | | |
| Unlock | ○ | | ○ |

C Door lock/unlock switch RH

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

NG → Replace door lock/unlock switch.

OK ↓

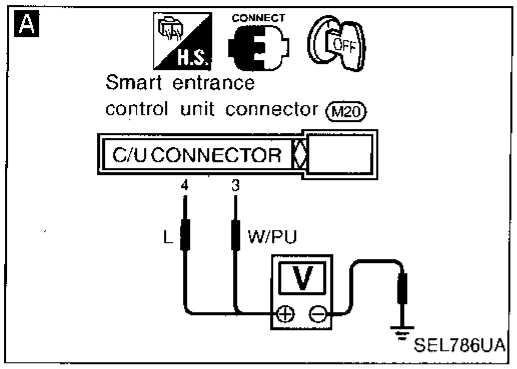
Check the following.

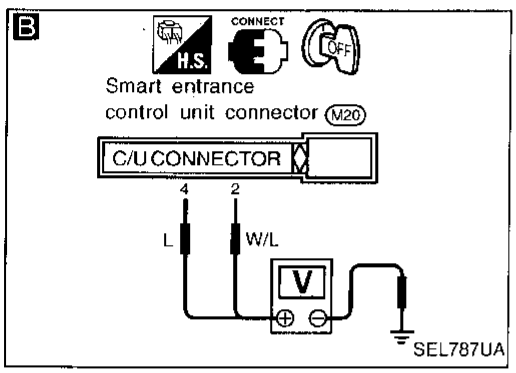
- Ground circuit for door lock/unlock switch
- Harness for open or short between door lock/unlock switch and control unit connector

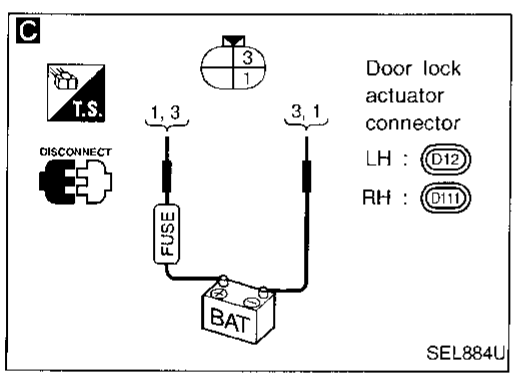
## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 2

### (Door lock actuator check)




A B

**CHECK DOOR LOCK ACTUATOR CIRCUIT.**

Check voltage for door lock actuator.

A Door lock actuator LH

| Door lock/ unlock switch operation | Terminals ⊕ | Terminals ⊖ | Voltage (V) |
|---|---|---|---|
| Lock | ④ | Ground | Approx. 12 |
| Unlock | ③ | Ground | |

B Door lock actuator RH

| Door lock/ unlock switch operation | Terminals ⊕ | Terminals ⊖ | Voltage (V) |
|---|---|---|---|
| Lock | ④ | Ground | Approx. 12 |
| Unlock | ② | Ground | |

Refer to wiring diagram in EL-154.

NG → Replace smart entrance control unit. (Before replacing control unit, perform Diagnostic procedure 1.)

OK ↓

C

**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 ⊕ | 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.

## System Description

### INPUTS

Power is supplied at all times
- through 10A fuse (No. 6, located in the fuse block)
- to key switch terminal ①.

When the key switch is ON (key is inserted in ignition 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 ①
- to door switch LH terminal ③
- through body grounds (B4), (B13) and (T16).

When the door switch RH is OPEN, ground is supplied
- to smart entrance control unit terminal ⑯
- through door switch RH 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 ④
- to door lock actuator LH (door unlock sensor) terminal ②
- through body grounds (M5) and (M57).

When the door lock actuator RH (door unlock sensor) is UNLOCKED, ground is supplied
- to smart entrance control unit terminal ⑬
- through door lock actuator RH (door unlock sensor) terminal ④
- to door lock actuator RH (door unlock sensor) terminal ②
- through body grounds (M5) and (M57).

Remote controller signal input
- through window antenna
- to smart entrance control unit terminal ㊲.

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

### OPERATED PROCEDURE

#### Power door lock operation

When the following input signals are both supplied:
- key switch OFF (when key is not inserted in ignition key cylinder);
- door switch CLOSED (when all the doors are closed);

smart entrance control unit locks all the doors with input of LOCK signal from remote controller.
Smart entrance control unit unlocks the doors with input of UNLOCK signal from remote controller.
Refer to "POWER DOOR LOCK" (EL-152).

#### Hazard reminder

Power is supplied at all times
- through 10A fuse (No. 5, located in the fuse block)
- to multi-remote control relays-1 and 2 terminal ①.

When smart entrance control unit receives a LOCK signal, ground is supplied
- to multi-remote control relays-1 and 2 terminal ②
- through smart entrance control unit terminal ⑦.

Multi-remote control relays are now energized and door lock actuators lock all the doors. (Hazard warning lamps flash twice as a reminder.)

## System Description (Cont'd)

### Interior lamp operation

When the following input signals are both supplied:

- key switch OFF (when key is not inserted in ignition 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.

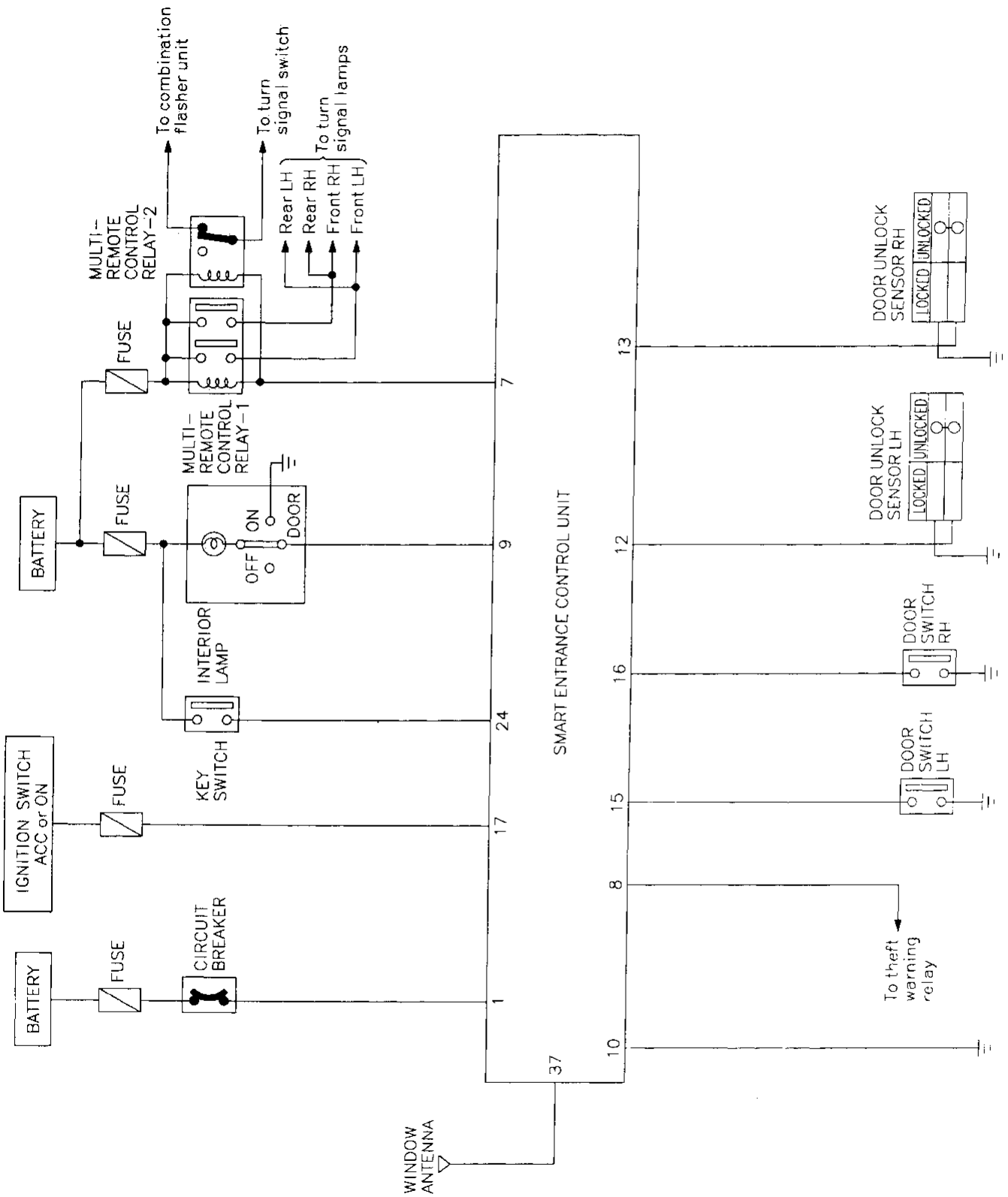
For detailed description, refer to "INTERIOR, SPOT AND TRUNK ROOM LAMPS" (EL-66).

### Panic alarm operation

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

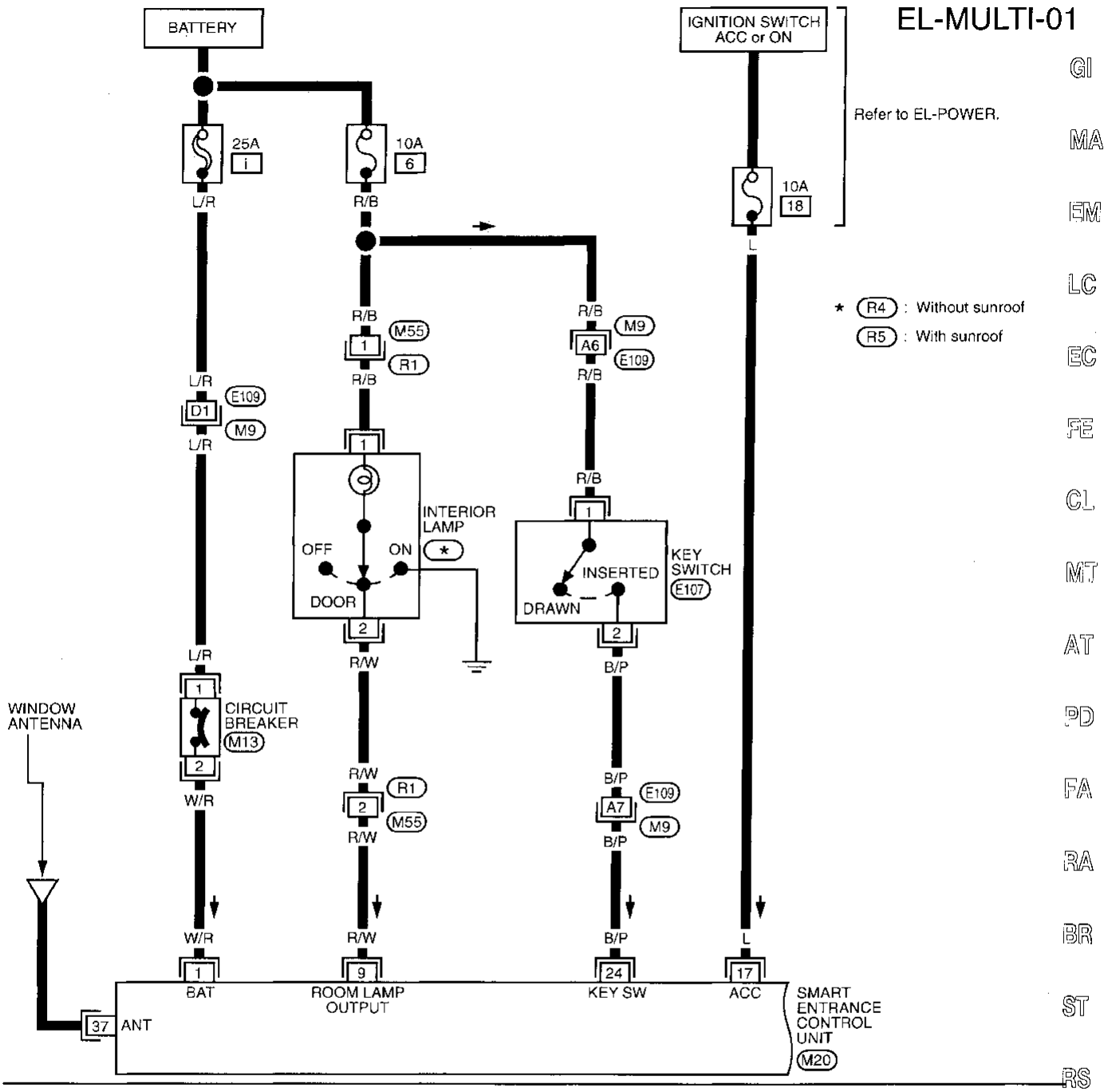
For detailed description, refer to "THEFT WARNING SYSTEM" (EL-173).

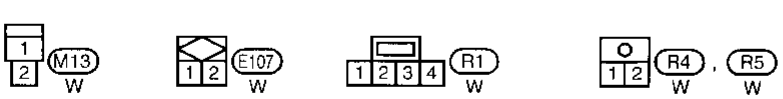
## Schematic




MEL338I

## Wiring Diagram — MULTI —




Refer to last page (Foldout page).
M9 , E109
M20



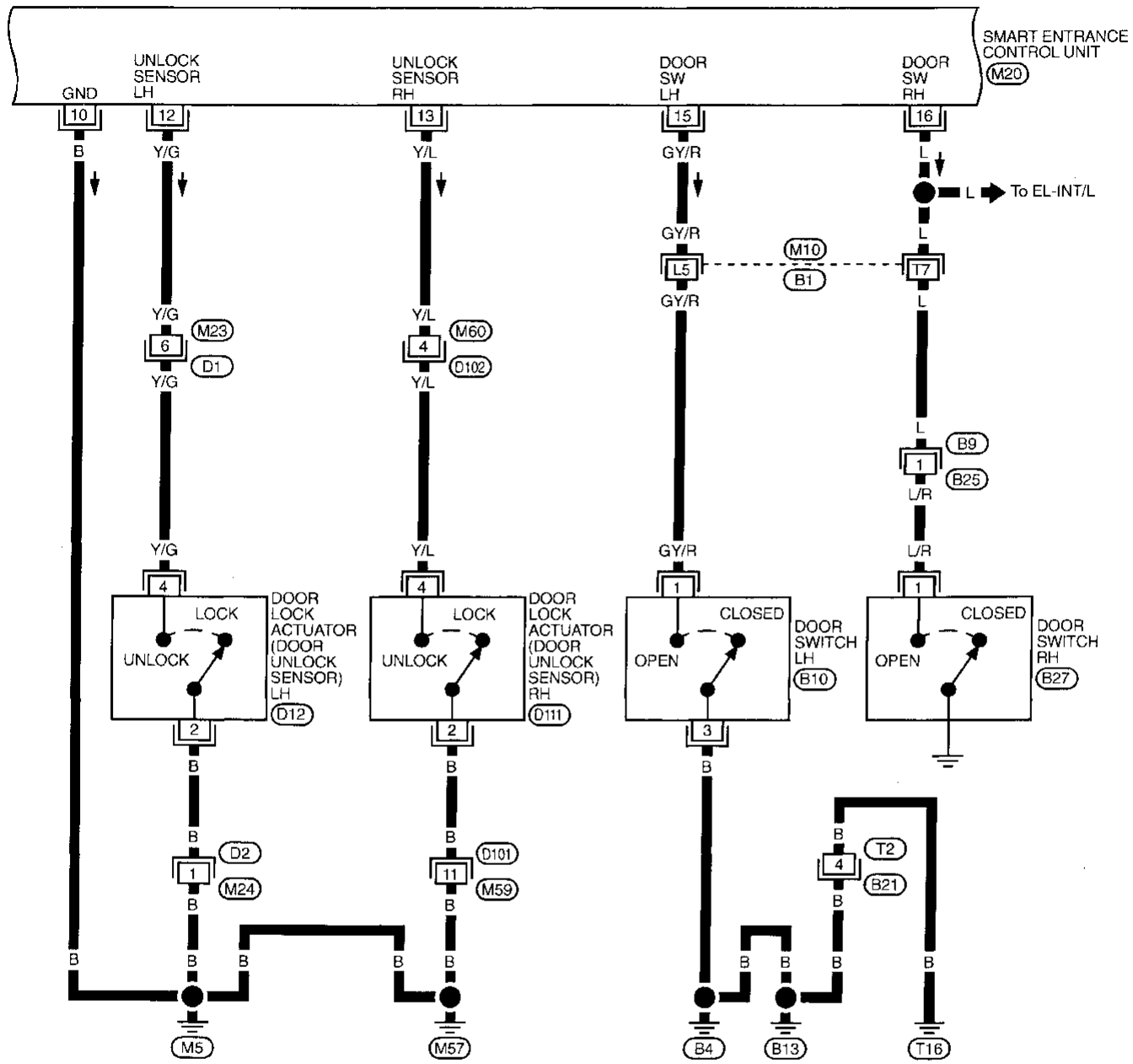
MEL339I

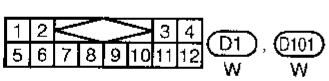


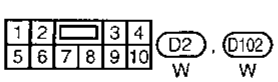
1435

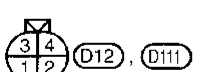
## Wiring Diagram — MULTI — (Cont'd)

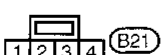
EL-MULTI-02

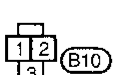


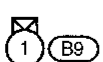



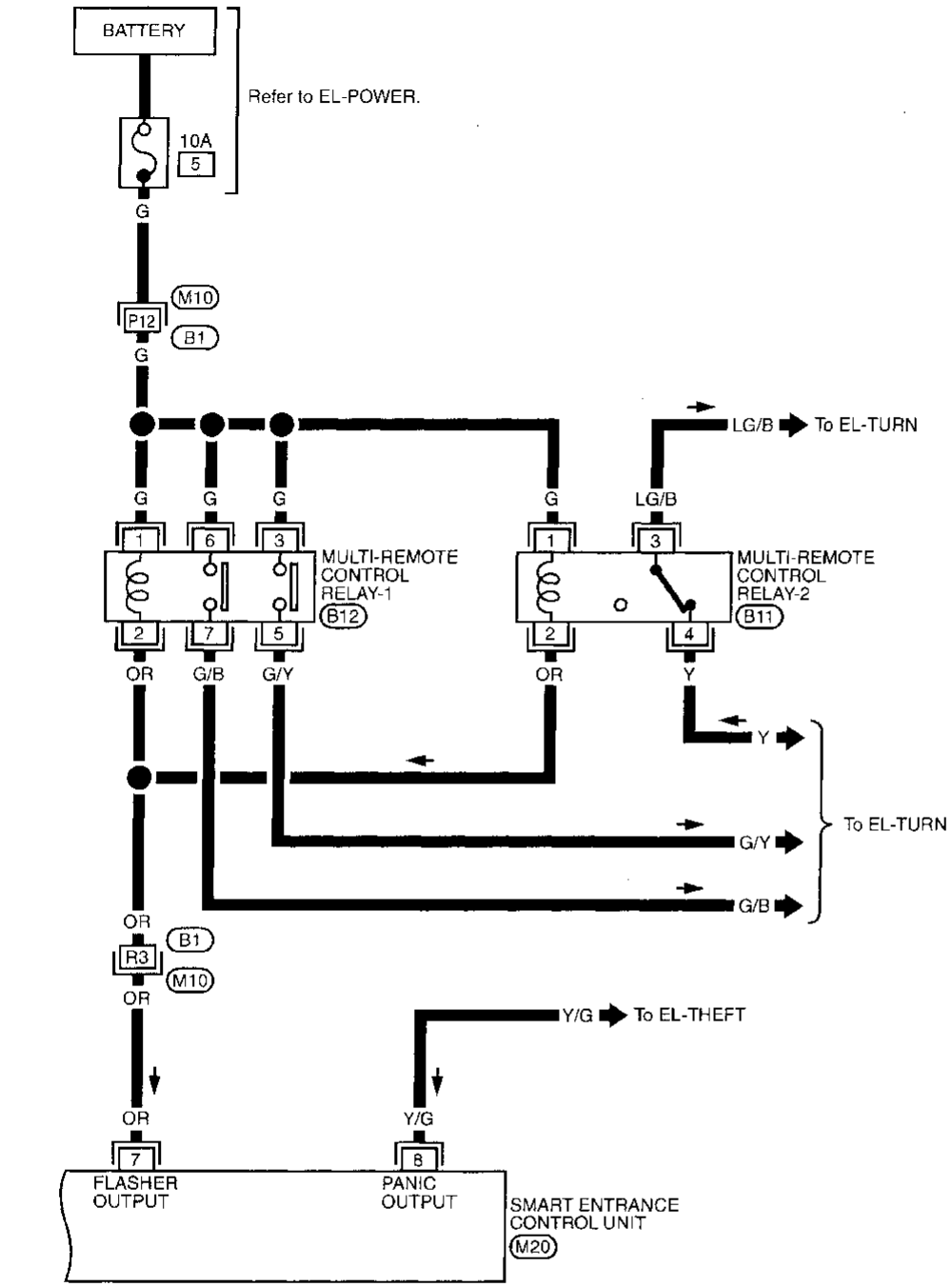


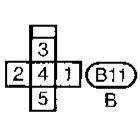
Refer to last page (Foldout page).
M10 , B1
M20

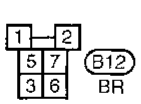
MEL306G

## Wiring Diagram — MULTI — (Cont'd)

EL-MULTI-03




Refer to last page (Foldout page).
M10 , B1
M20



MEL340I

## Trouble Diagnoses

### TROUBLE SYMPTOM

- All functions of remote control system do not operate.

CHECK REMOTE CONTROLLER BATTERY.
Refer to DIAGNOSTIC PROCEDURE 1, EL-165.
→ NG → Replace battery.
↓ OK

Enter the Identity (ID) code of different or new remote controller. Refer to EL-171.
↓ OK

Can the new ID code be entered?
→ No → Go to DIAGNOSTIC PROCEDURE 2, EL-165 and DIAGNOSTIC PROCEDURE 3, EL-166.
↓ Yes

Replace with the originally used multi-remote controller.

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

① DOOR LOCK OR UNLOCK DOES NOT FUNCTION.
(Pressing lock or unlock button of remote controller normally locks or unlocks all doors.)
- Check if power door lock system functions with door lock & unlock switch.

→ No → Check "POWER DOOR LOCK" system.

OR

② INTERIOR LAMP DOES NOT TURN ON FOR 30 SECONDS WHEN PRESSING UNLOCK BUTTON OF REMOTE CONTROLLER.
- Check if the interior lamp switch is in the "door" position, the lamp illuminates when a door is open.

If check is OK, Go to DIAGNOSTIC PROCEDURE 4, EL-168.

→ No → Check "Interior lamp" circuit.

OR

③ HAZARD INDICATOR DOES NOT FLASH TWICE WHEN PRESSING LOCK BUTTON OF REMOTE CONTROLLER.
- Check if hazard indicator flashes with hazard switch.

If check is OK, Go to DIAGNOSTIC PROCEDURE 5, EL-169.

→ No → Check "Hazard indicator lamp" circuit.

OR

④ PANIC ALARM (HORN AND HEADLAMP) DOES NOT ACTIVATE WHEN PANIC ALARM BUTTON IS CONTINUOUSLY PRESSED FOR MORE THAN 1.5 SECONDS.
- Check if horn and headlamps activate when test is conducted as follows:
  1. Open the driver's window.
  2. Close all doors, hood and trunk lid.
  3. Lock doors with the key.
  4. Wait for about 30 seconds to make sure that the lighted "SECURITY" warning lamp begins to blink.
  5. Manually unlock with driver's door lock knob, then panic alarm should activate. (The alarm will stop when door is unlocked with the key.)

→ No → Check "THEFT WARNING" system.

↓ Yes

Enter the identity (ID) code of different or new remote controller and recheck operation to see if the same trouble as indicated above occurs.
→ Yes → Check multi-remote controller operation again.
If necessary, replace Smart Entrance Control Unit.
↓ No

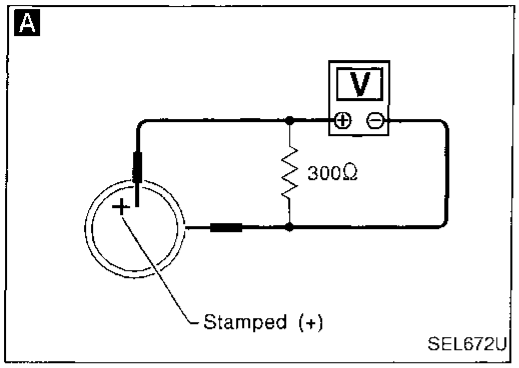
Replace the multi-remote controller.

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

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 1

A




A

**CHECK REMOTE CONTROLLER BATTERY.**

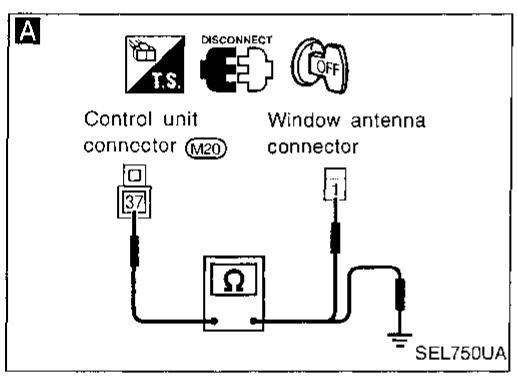
Remove battery and measure voltage across battery positive and negative terminals, ⊕ and ⊖.

| Measuring terminal | | Standard value |
|---|---|---|
| ⊕ | ⊖ | |
| Battery positive terminal ⊕ | Battery negative terminal ⊖ | 2.5 - 3.0V |

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

### DIAGNOSTIC PROCEDURE 2

A




A

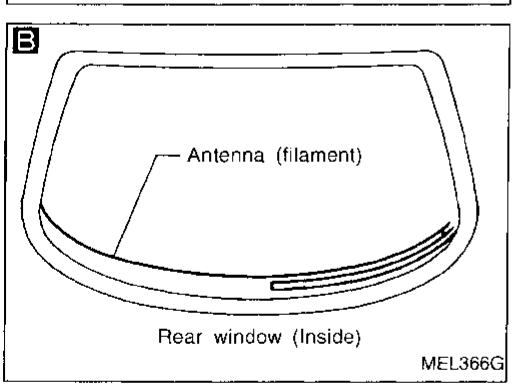
**CHECK ANTENNA FEEDER CABLE.**
1. Disconnect feeder cable connector from control unit.
2. Remove rear pillar garnish and disconnect feeder cable connector from rear window glass antenna. (Feeder cable connector is the one at bottom left.)
3. Check continuity between the feeder cable connectors.
   **Continuity should exist.**
4. Check continuity between the feeder cable connector terminal and ground.
   **Continuity should not exist.**

Refer to wiring diagram in EL-161.

NG → Replace feeder cable.

OK ↓

B




B

**CHECK REAR WINDOW GLASS ANTENNA.**
1. Remove rear pillar garnish and disconnect feeder cable connector from rear window glass antenna.
2. Check continuity between glass antenna terminal and end of glass antenna.

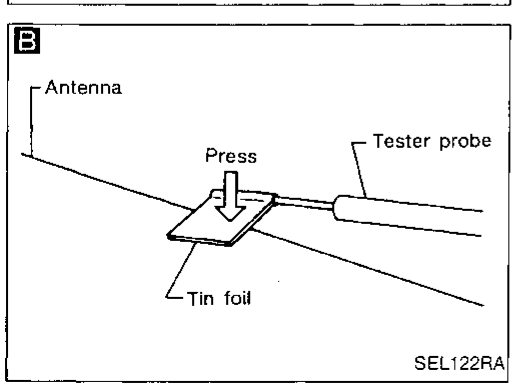
**Continuity should exist.**
Note: When checking continuity, wrap tin foil around top of the probe. Then press the foil against the wire with your finger.

NG → Repair glass window antenna. Refer to REAR WINDOW DEFOGGER "Filament Repair".

OK ↓

Antenna of multi-remote control is OK.

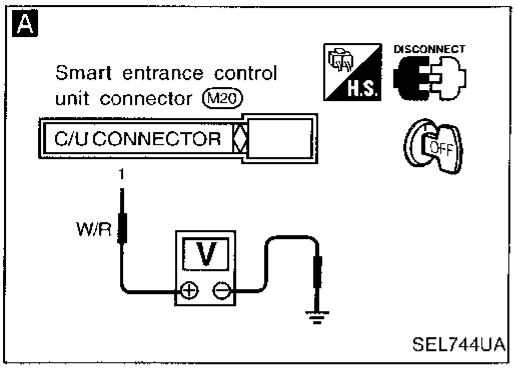
B

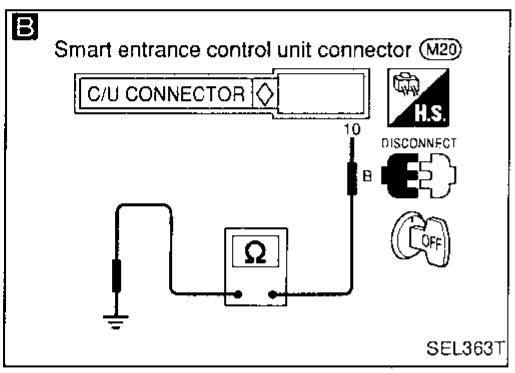


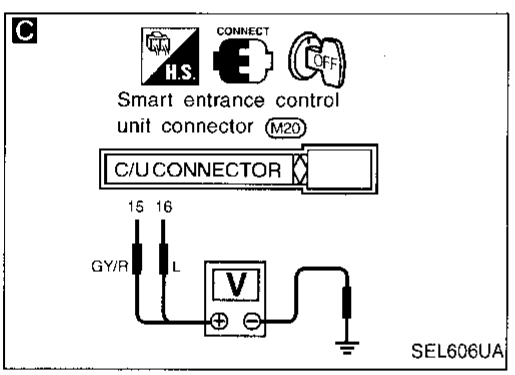
# Trouble Diagnoses (Cont'd)

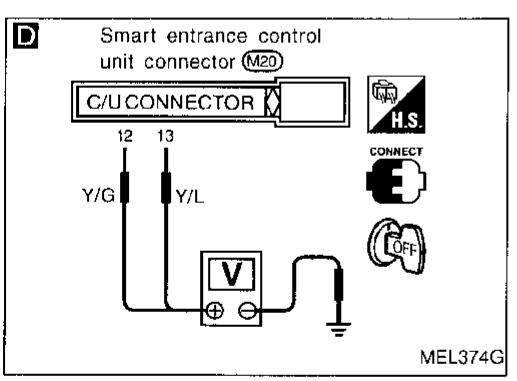
## DIAGNOSTIC PROCEDURE 3

**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-161.

NG → Check the following.
- 25A fusible link (Letter [I], located in fuse and fusible link box)
- M13 circuit breaker
- Harness for open or short

OK ↓

**B**

**CHECK GROUND CIRCUIT FOR CONTROL UNIT.**

Check continuity between terminal ⑩ and ground.
**Continuity should exist.**

Refer to wiring diagram in EL-162.

NG → Check ground harness.

OK ↓

**C**

**CHECK DOOR SWITCH CIRCUIT.**

Check voltage between control unit terminal ⑮ and ground, ⑯ and ground.

| | Terminals ⊕ | Terminals ⊖ | Condition | Voltage [V] |
|---|---|---|---|---|
| LH door switch | ⑮ | Ground | Open | 0 |
| | | | Close | Approx. 12 |
| RH door switches | ⑯ | Ground | Open | 0 |
| | | | Close | Approx. 12 |

Refer to wiring diagram in EL-162.

NG → Check the following.
- Door switch
  Refer to "Electrical Components Inspection" (EL-170).
- Door switch ground circuit (Driver side) or door switch ground condition (Passenger side)
- Harness for open or short between control unit and door switch

OK ↓

**D**

**CHECK UNLOCK SENSOR CIRCUIT.**

Check voltage between control unit terminal ⑫ and ground, ⑬ and ground.

| | Terminals ⊕ | Terminals ⊖ | Condition | Voltage [V] |
|---|---|---|---|---|
| Front LH door | ⑫ | Ground | Unlock | 0 |
| | | | Lock | Approx. 12 |
| Front RH door | ⑬ | Ground | Unlock | 0 |
| | | | Lock | Approx. 12 |

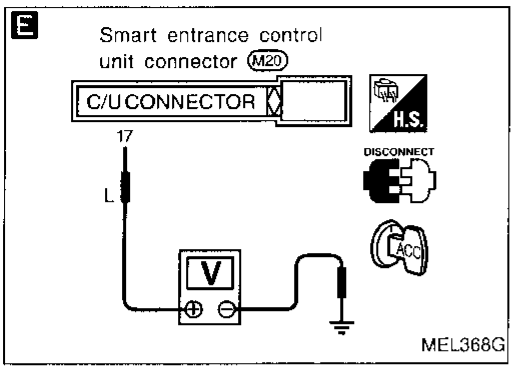
Refer to wiring diagram in EL-162.

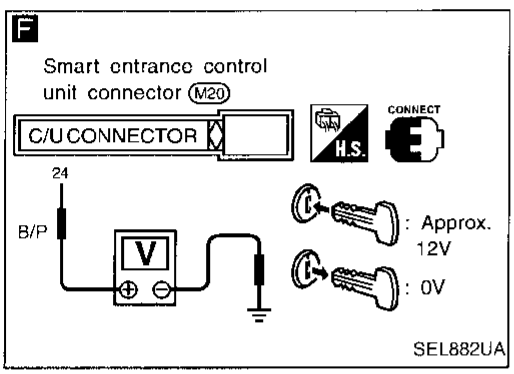
No → Check the following.
- Door unlock sensor
  Refer to "Electrical Components Inspection" (EL-170).
- Door unlock sensor ground circuit
- Harness for open or short between control unit and unlock sensor

Ⓐ

(Go to next page.)

## Trouble Diagnoses (Cont'd)




Ⓐ

**E**

**CHECK IGNITION SWITCH "ACC" CIRCUIT.**

1. Disconnect control unit connector.
2. Check voltage between control unit terminal ⑰ and ground while ignition switch is "ACC".
   **Battery voltage should exist.**

Refer to wiring diagram in EL-161.

NG → Check the following.
- 10A fuse (No. 18, located in fuse block)
- Harness for open or short between control unit and fuse

OK ↓

**F**

**CHECK KEY SWITCH INPUT SIGNAL.**

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-161.

NG → Check the following.
- 10A fuse (No. 6, located in fuse block)
- Key switch
  Refer to "Electrical Components Inspection" (EL-170).
- Harness for open or short between key switch and fuse
- Harness for open or short between control unit and key switch

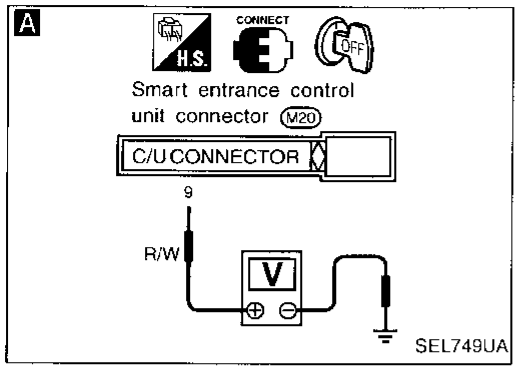
OK ↓

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

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 4

**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 "DOOR" position, check voltage across control unit terminal ⑨ and ground.
**Does battery voltage exist?**

Refer to wiring diagram in EL-161.

No → Repair harness between control unit and interior lamp.

Yes ↓

A

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

| Condition of multi-remote controller button | Voltage (V) |
|---|---|
| Unlock button is pushed. | 0 |
| Unlock button is not pushed. | Battery voltage |

No → Replace smart entrance control unit.

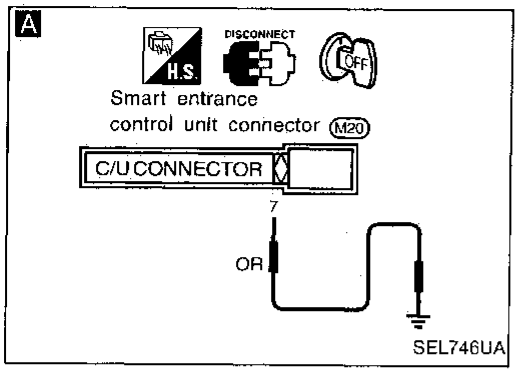
Yes ↓

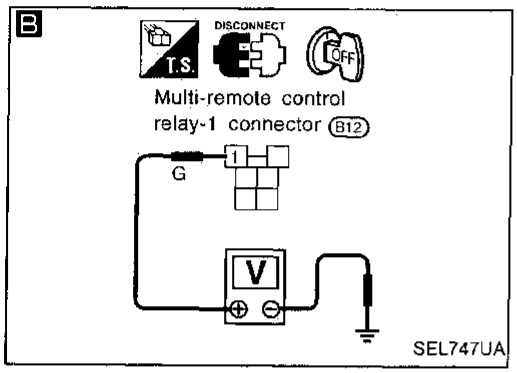
Check system again.

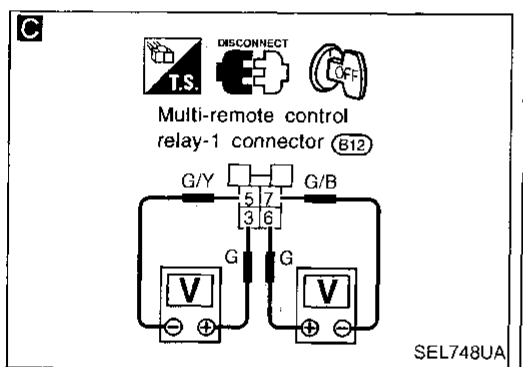
## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 5

**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-163.

Yes → Replace smart entrance control unit.

No ↓

Check multi-remote control relay-1. → NG → Replace.

OK ↓

B

**CHECK POWER SUPPLY FOR MULTI-REMOTE CONTROL RELAY-1.**
1. Disconnect multi-remote control relay-1 connector.
2. Check voltage between terminal ① and ground.

**Battery voltage should exist.**

NG → Check the following.
- 10A fuse (No. 5, located in fuse block)
- Harness for open or short between multi-remote control relay-1 and fuse

OK ↓

C

**CHECK MULTI-REMOTE CONTROL RELAY-1 CIRCUIT.**
1. Disconnect multi-remote control relay-1 connector.
2. Check voltage between terminals ③ and ⑤.

**Battery voltage should exist.**

3. Check voltage between terminals ⑥ and ⑦.

**Battery voltage should exist.**

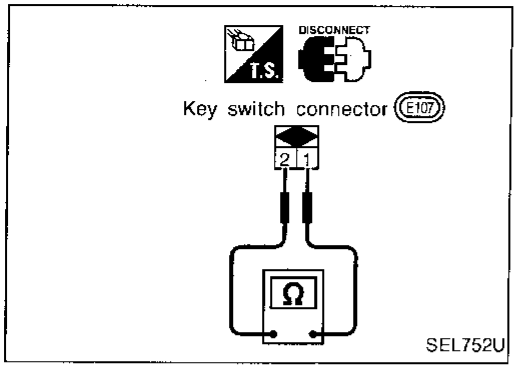
NG → Check harness for open or short.

OK ↓

Check multi-remote control relay-2. → NG → Replace.

OK ↓

Check harness for open or short.

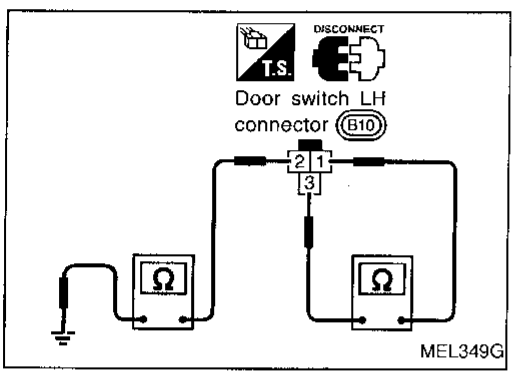



## Electrical Components Inspection

### KEY SWITCH (Insert)

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

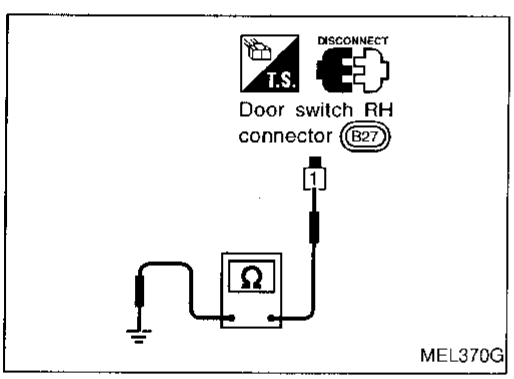
| Terminal No. | Condition | Continuity |
|---|---|---|
| ① - ② | Key is inserted. | Yes |
| | Key is removed. | No |




### DRIVER SIDE DOOR SWITCH

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

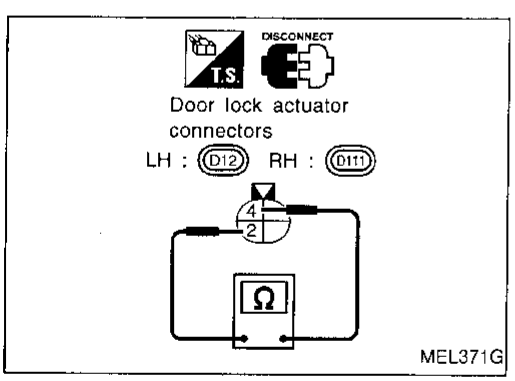
| Terminal No. | Condition | Continuity |
|---|---|---|
| ① - ③, ② - Ground | Door switch is pushed. | No |
| | Door switch is released. | Yes |




### PASSENGER SIDE DOOR SWITCH

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

| Terminal No. | Condition | Continuity |
|---|---|---|
| ① - Ground | Door switch is pushed. | No |
| | Door switch is released. | Yes |




### DOOR UNLOCK SENSOR

Check continuity between terminals when door lock actuator is locked and unlocked.

| Terminal No. | Condition | Continuity |
|---|---|---|
| ④ - ② | Locked | No |
| | Unlocked | Yes |

## ID Code Entry Procedure

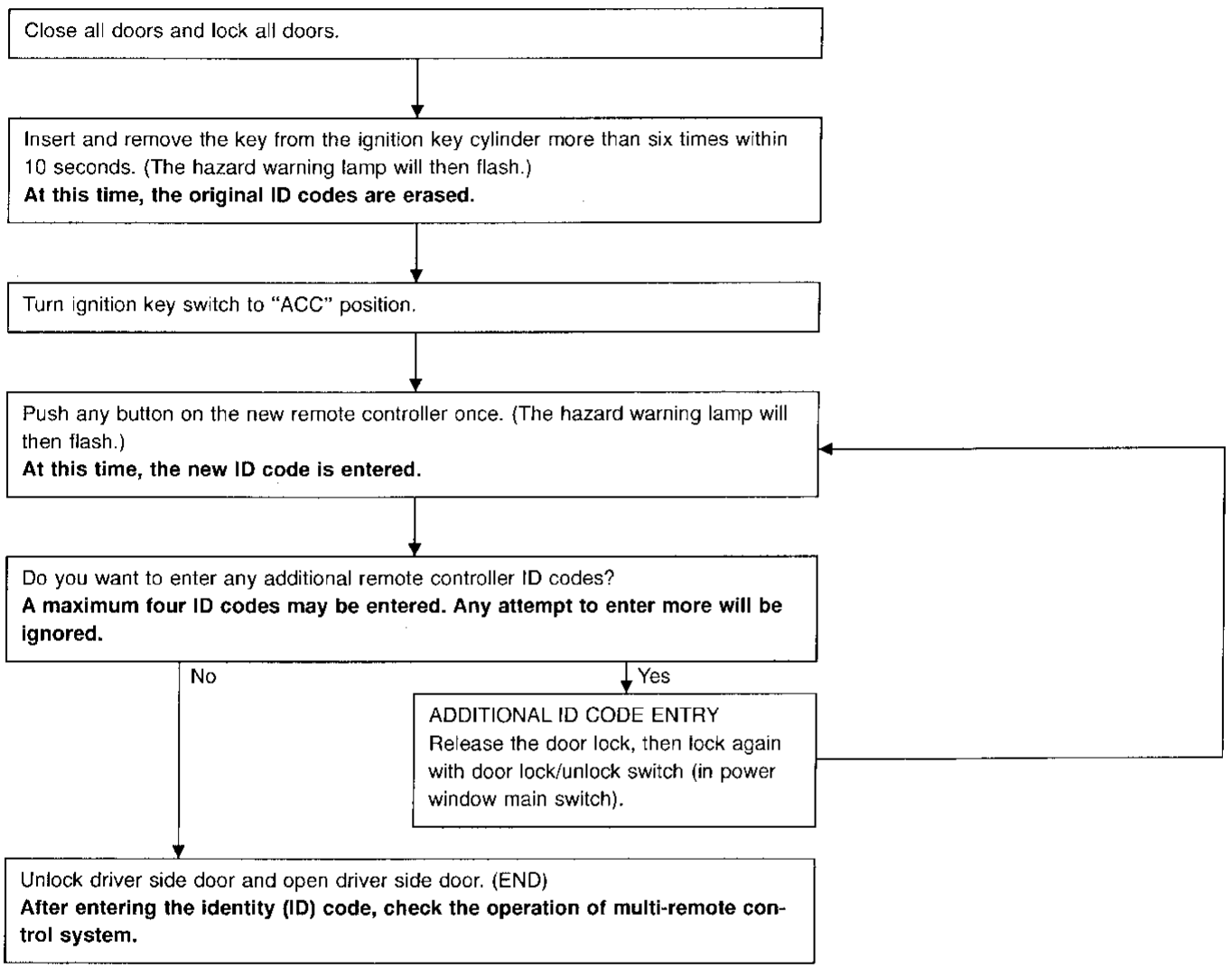
**Enter the identity (ID) code manually when:**

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

**ID Code Entry Procedure**

To enter the ID code, follow the procedures below.

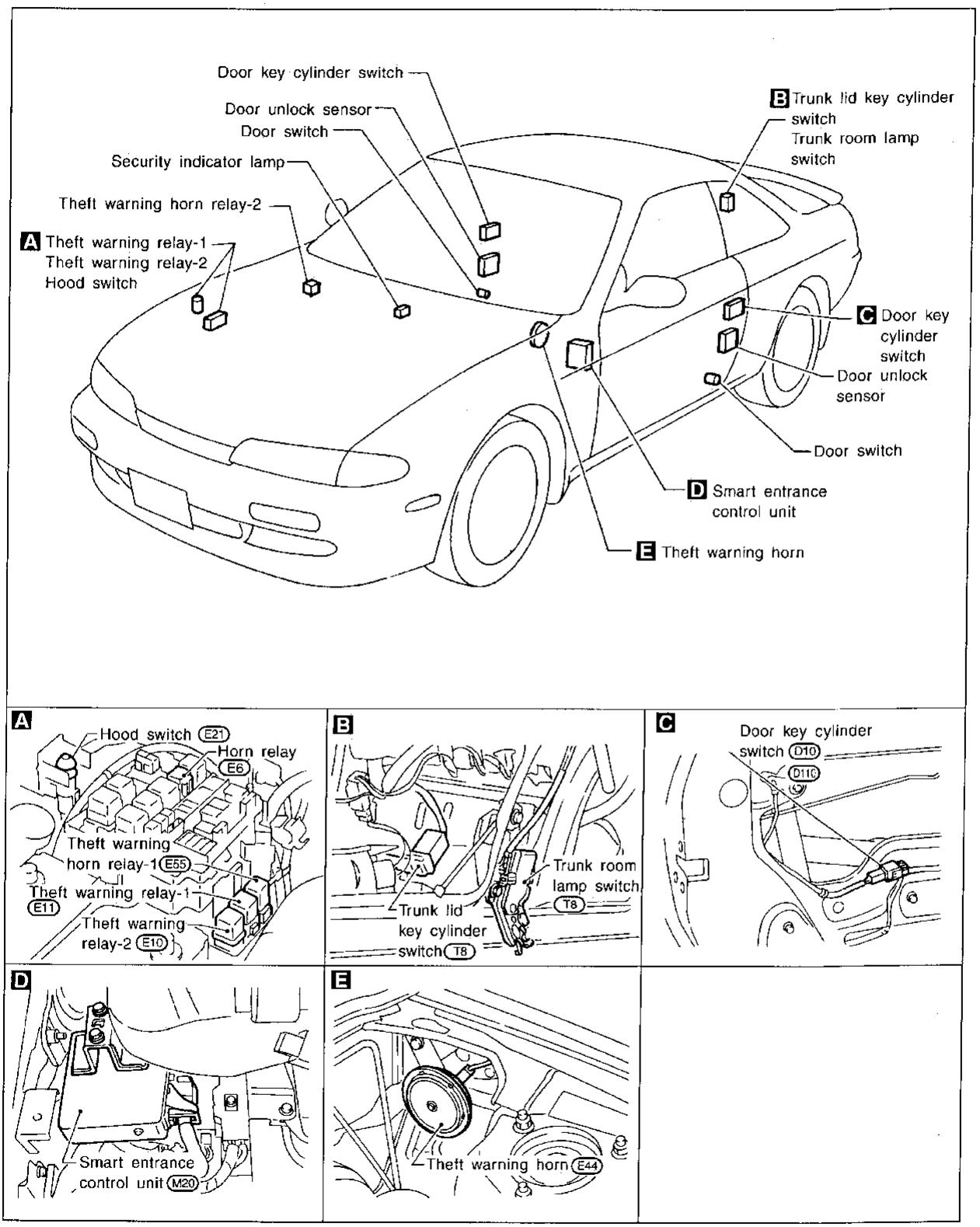
**PROCEDURE**




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 maximum four ID codes is allowed and any attempt to enter more will be ignored.**
- **Any ID codes entered after termination of the "setting mode" will not be accepted. Additionally remote control signals will be inhibited when an ID code has not been entered during the "setting" mode.**

## Component Parts and Harness Connector Location

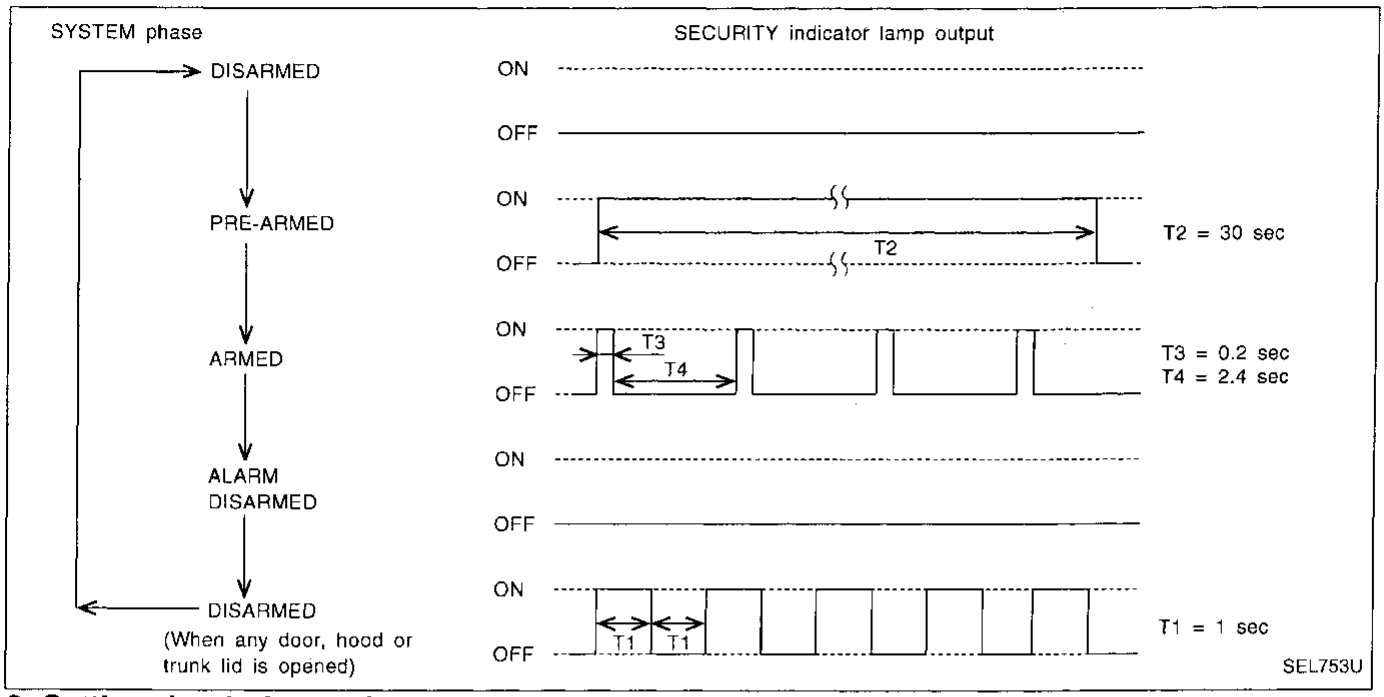



MEL380G

# System Description

## DESCRIPTION

### 1. Operation flow




### 2. Setting the theft warning system

**Initial condition**

(1) Close all doors.
(2) Close hood and trunk lid.

**Disarmed phase**

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

**Pre-armed phase and armed phase**

The theft warning system turns into the "pre-armed" phase when hood, trunk lid and all doors are closed and locked by key or 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 2.4 seconds.)

### 3. Canceling the set theft warning system

When the following (a) or (b) operation is performed, the armed phase is canceled.
(a) Unlock the doors with the key or multi-remote controller.
(b) Open the trunk lid with the key. When the trunk lid is closed after opening the trunk lid with the key, the system returns to the armed phase.

### 4. Activating the alarm operation of the theft warning system

Make sure the system is in the armed phase. (The security indicator lamp blinks every 2.4 seconds.)
When the following operation (a) or (b) is performed, the system sounds the horns and flashes the headlamps for about 2.5 minutes. (At the same time, the system disconnects the starting system circuit.)
(a) Engine hood, trunk lid 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.

## System Description (Cont'd)

Refer to Owner's Manual for theft warning system operating instructions.
Power is supplied at all times
- through 7.5A fuse (No. 8, located in the fuse block)
- to security indicator lamp terminal ②.

Power is supplied at all times
- through 25A fusible link (letter i, located in the fuse and fusible link box)
- to smart entrance control unit terminal ①.

With the ignition switch in the ACC or ON position, power is supplied
- through 10A fuse (No. 18, located in the fuse block)
- to smart entrance control unit terminal ⑰.

Ground is supplied
- to smart entrance control unit terminal ⑩
- through body grounds (M5) and (M57).

### INITIAL CONDITION TO ACTIVATE THE SYSTEM

The operation of the theft warning system is controlled by the doors, hood and trunk lid.
To activate the theft warning system, the smart entrance control unit must receive signals indicating the doors, hood and trunk lid are closed and the doors are locked.
When a door is open, smart entrance control unit terminal ⑮ or ⑯ receives a ground signal from each door switch.
When a door is unlocked, smart entrance control unit terminal ⑫ or ⑬ receives a ground signal from terminal ④ of each door unlock sensor.
When the hood is open, smart entrance control unit terminal ㉙ receives a ground signal
- from terminal ② of the hood switch
- through body grounds (E28) and (E42).

When the trunk lid is open, smart entrance control unit terminal ㉖ receives a ground signal
- from terminal ① of the trunk room lamp switch
- through body grounds (B4), (B13) and (T16).

When the doors are locked with key or multi-remote controller and none of the described conditions exist, the theft warning system will automatically shift to armed phase.

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

If the key is used to lock doors, terminal ㉚ receives a ground signal
- from terminal ① of the key cylinder switch LH
- from terminal ② of the door key cylinder switch RH
- through body grounds (M5) and (M57).

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 ① of the security indicator lamp.
The security lamp will illuminate for approximately 30 seconds and then blink.
Now the theft warning system is in armed phase.

## System Description (Cont'd)

### THEFT WARNING SYSTEM ALARM OPERATION

The theft warning system is triggered by
- opening a door
- opening the trunk lid
- opening the hood
- unlocking door without using key or multi-remote controller.

Once the theft warning system is in armed phase, if the smart entrance control unit receives a ground signal at terminal ⑫, ⑬ (door unlock sensor), ⑮, ⑯ (door switch), ㉖ (trunk room lamp switch) or ㉙ (hood switch), the theft warning system will be triggered. The headlamps flash and the horn sounds 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. 1, located in the fuse block).
- to theft warning relay-2 terminal ①.

If the theft warning system is triggered, ground is supplied
- from terminal ㉜ of the smart entrance control unit
- to theft warning relay-2 terminal ②.

With power and ground supplied, power to the clutch interlock relay (M/T models) or inhibitor switch (A/T models) is interrupted. The starter motor will not crank and the engine will not start.

Power is supplied at all times
- through 7.5A fuse (No. 49, located in fuse and fusible link box)
- to theft warning relay-1 terminal ①,
- to theft warning horn relay-1 terminal ② and theft warning horn relay-2 terminal ②.
- through 10A fuse (No. 38, located in the fuse and fusible link box)
- to horn relay terminal ②.

When the theft warning system is triggered, ground is supplied intermittently
- from terminal ⑧ of the smart entrance control unit
- to theft warning relay-1 terminal ② and
- to theft warning horn relay-2 terminal ①.

The headlamps flash and the horn sounds 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 or the trunk lid must be unlocked with the key or remote controller.

When the key is used to unlock a door, smart entrance control unit terminal ㉛ receives a ground signal
- from terminal ② of the LH key cylinder switch
- from terminal ① of the RH key cylinder switch.

When the key is used to unlock the trunk lid, smart entrance control unit terminal ㉗ receives a ground signal from terminal ① of the trunk lid key cylinder switch.

When the smart entrance control unit receives either one of these signals or unlock signal from remote controller, the theft warning system is deactivated. (Disarmed phase)

### PANIC ALARM OPERATION

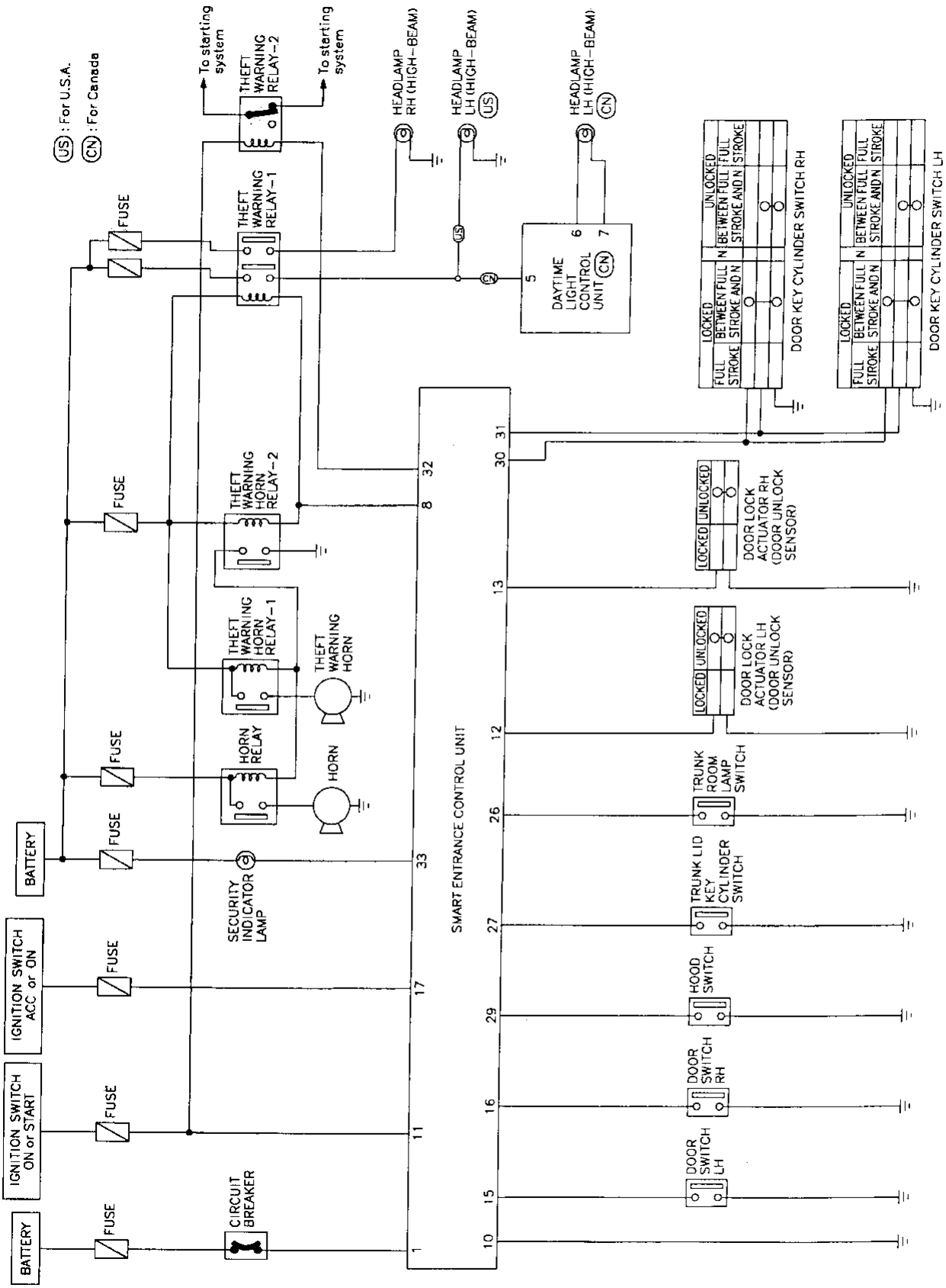
Multi-remote control system may or may not operate theft warning system (horn and headlamps) as required.

When the multi-remote control system is triggered, ground is supplied intermittently.
- from smart entrance control unit terminal ⑧
- to theft warning relay-1 terminal ② and
- to theft warning horn relay-2 terminal ②.

The headlamp flashes and the horn sounds intermittently.

The alarm automatically turns off after 30 seconds or when smart entrance control unit receives any signal from multi-remote controller.

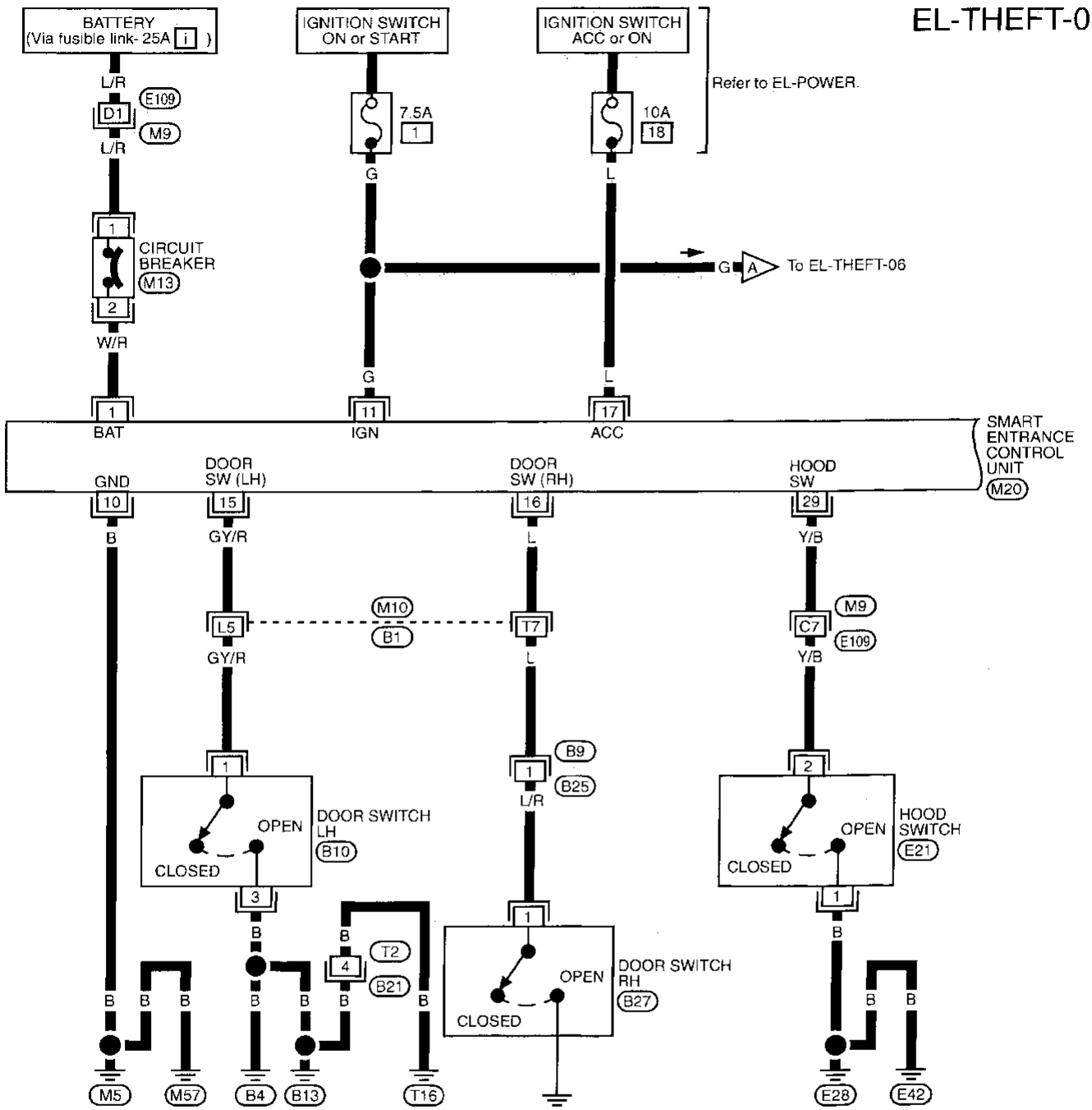
## Schematic

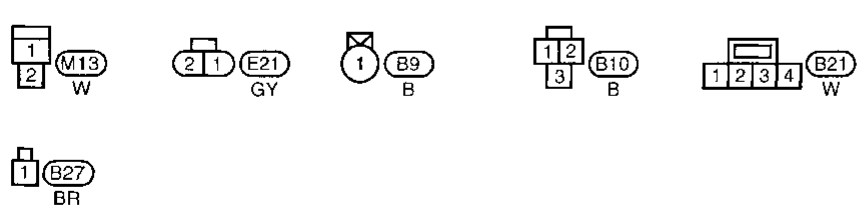



MEL308G

## Wiring Diagram — THEFT —

EL-THEFT-01




Refer to last page (Foldout page).

M9 , E109

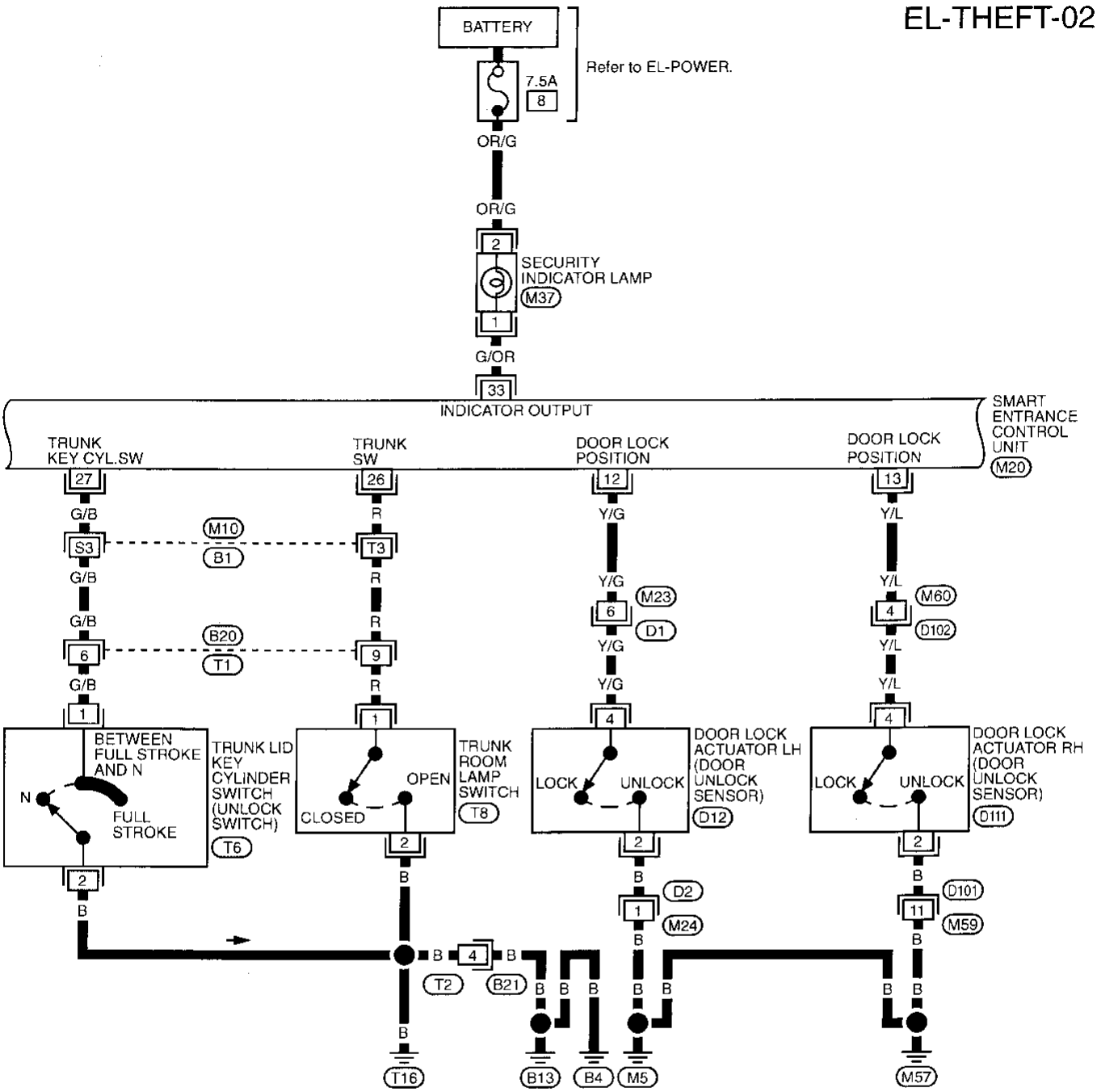
M10 , B1

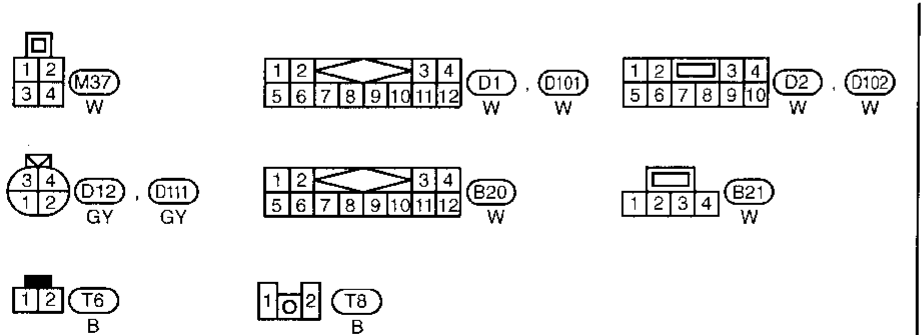
M20

MEL342I

## Wiring Diagram — THEFT — (Cont'd)

EL-THEFT-02



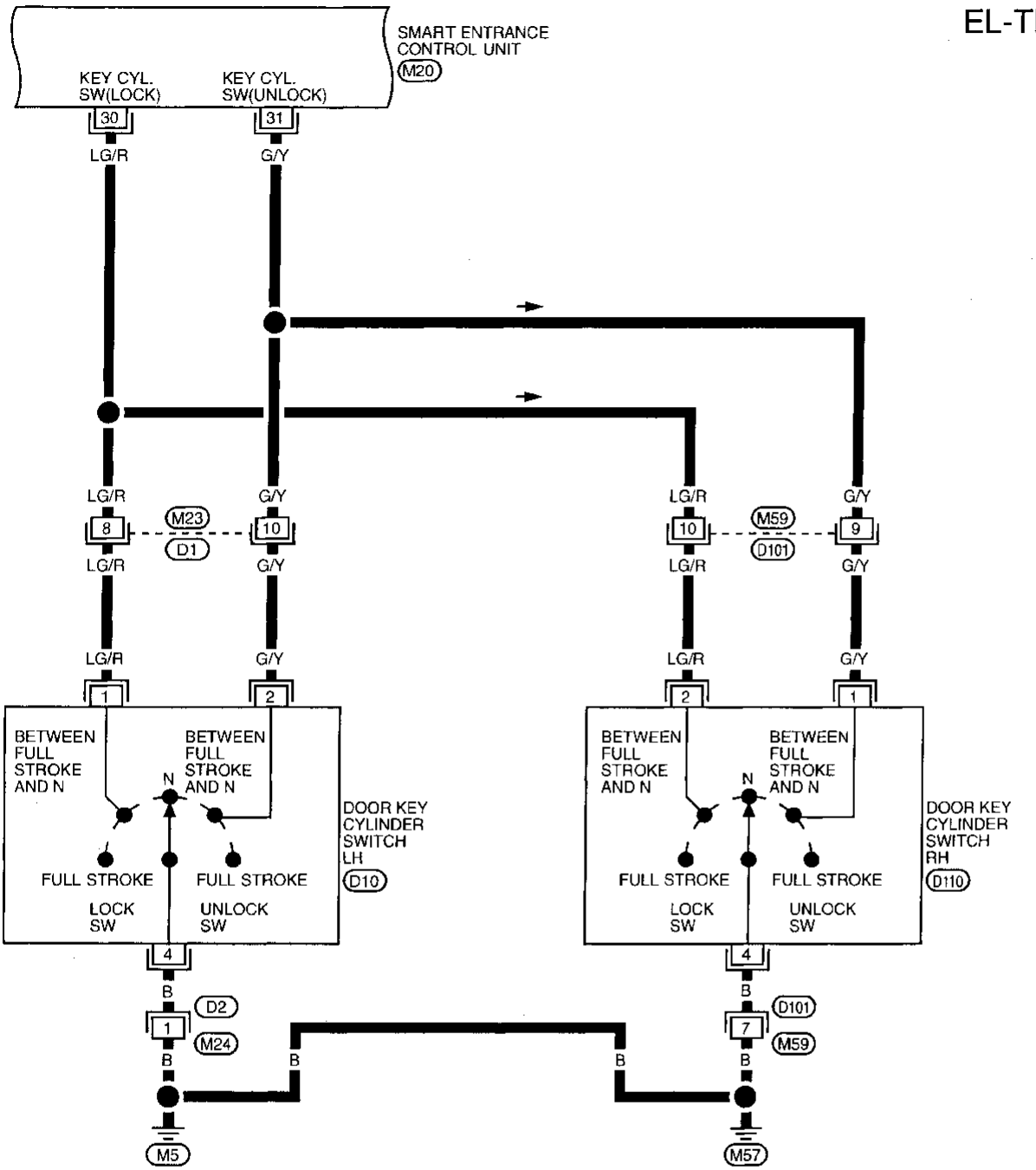



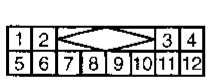

Refer to last page (Foldout page).
M10 , B1
M20

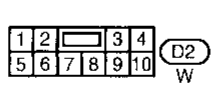
MEL342F

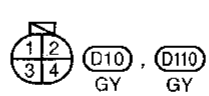
## Wiring Diagram — THEFT — (Cont'd)

EL-THEFT-03





D1, D101
W W

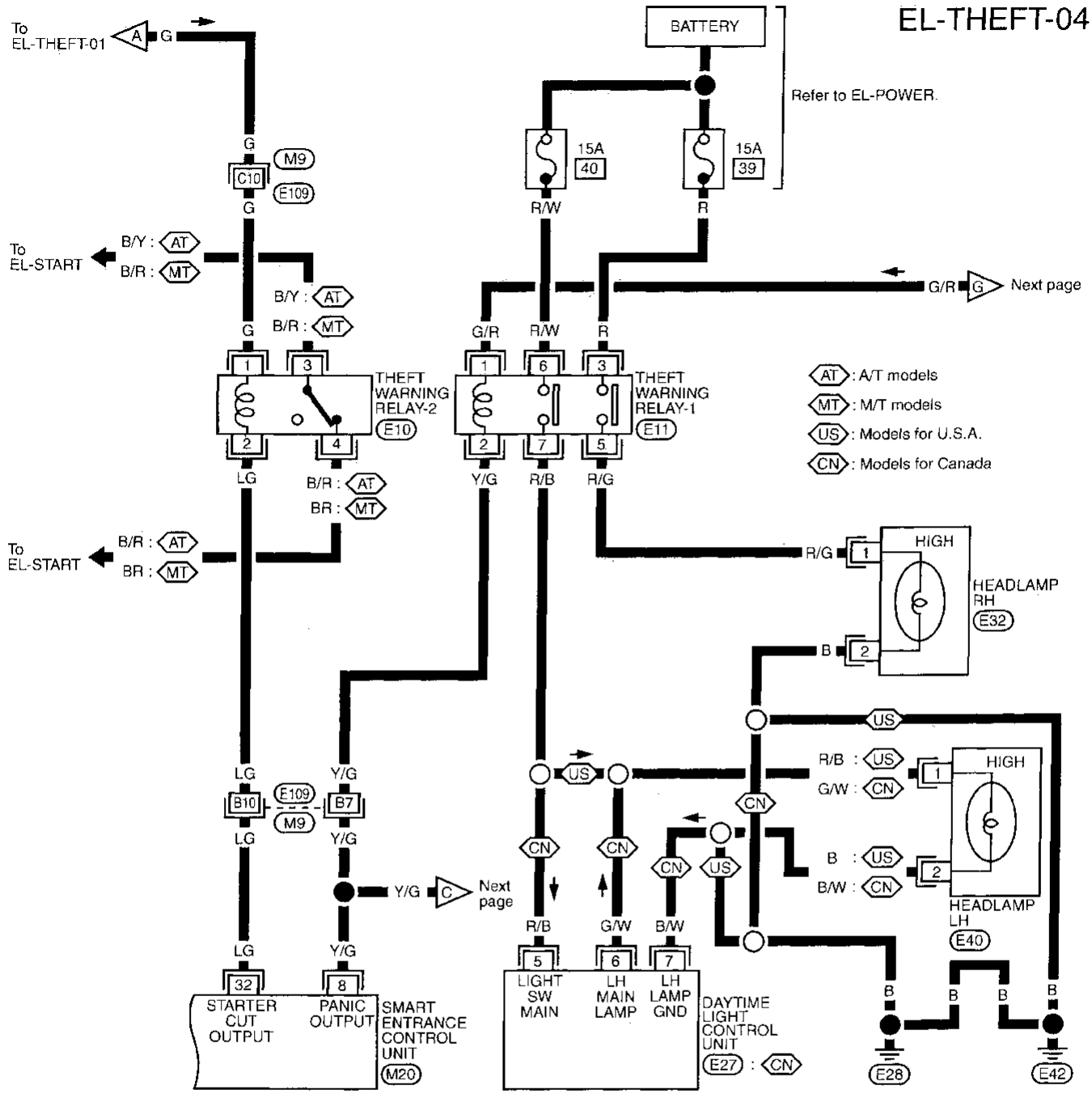

D2
W


D10, D110
GY GY

Refer to last page (Foldout page).
M20

MEL388G

## Wiring Diagram — THEFT — (Cont'd)




E10 B

E11 BR

E27 GY

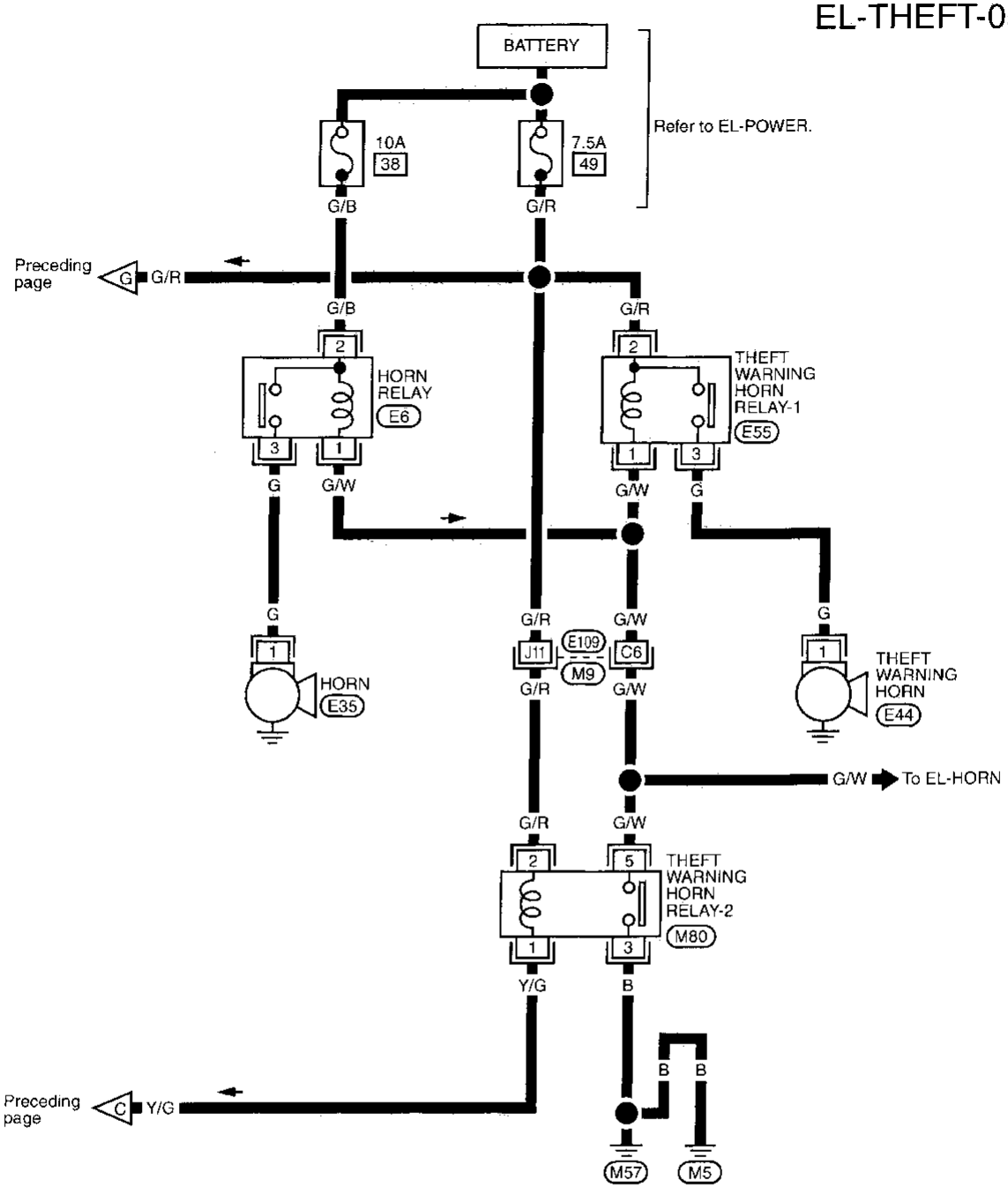
E32 B , E40 B

Refer to last page (Foldout page).
M9 , E109
M20

MEL344I

## Wiring Diagram — THEFT — (Cont'd)

EL-THEFT-05




M80 L

E6 W , E55 W

E35 B , E44 B

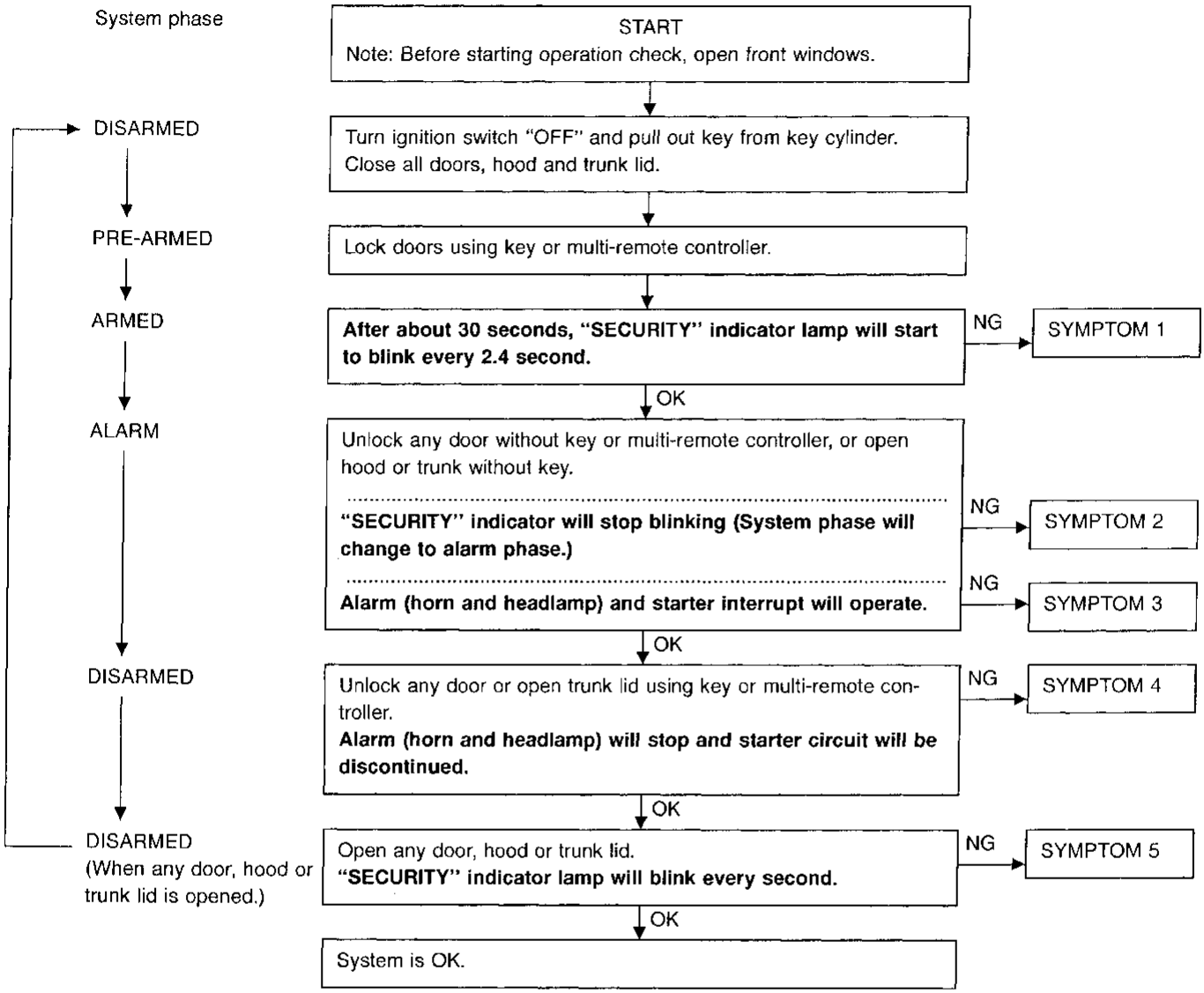
Refer to last page (Foldout page).
M9 , E109

MEL345I

## 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 the corresponding diagnostic procedure(s) indicated in the symptom chart.**

## Trouble Diagnoses (Cont'd)

**Before starting trouble diagnoses below, perform preliminary check.**
**Symptom numbers in the symptom chart correspond with those of Preliminary check.**

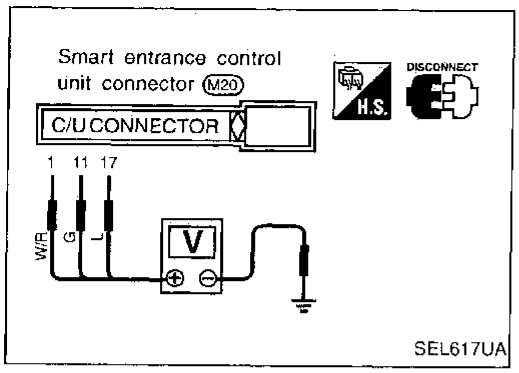
### SYMPTOM CHART

| PROCEDURE | | | — | Power supply and ground circuit check | | Diagnostic procedure | | | | | | | | — |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| REFERENCE PAGE | | | EL-182 | EL-184 | EL-184 | EL-185 | EL-188 | EL-189 | EL-190 | EL-191 | EL-192 | EL-193 | EL-194 | EL-158 |
| SYMPTOM | | | Preliminary check | Power supply circuit check | Ground circuit check | Diagnostic Procedure 1 (Door, hood and trunk room lamp 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 (Trunk lid key cylinder switch check) | Diagnostic Procedure 6 (Theft warning horn alarm check) | Diagnostic Procedure 7 (Theft warning headlamp alarm check) | Diagnostic Procedure 8 (Starter interrupt system check) | Check "MULTI-REMOTE CONTROL" system. |
| 1 | Theft warning system cannot be set by .... | All items | X | X | X | X | | X | | | | | | |
| | | Door outside key | X | X | X | | | | X | | | | | |
| | | Multi-remote control | X | X | X | | | | | | | | | X |
| 2 | *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 | | | | | | |
| 3 | Theft warning alarm 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 | |
| 4 | Theft warning system cannot be canceled by .... | Door outside key | X | X | X | | | | X | | | | | |
| | | Trunk lid key | | | | | | | | X | | | | |
| | | Multi-remote control | X | X | X | | | | | | | | | X |
| 5 | Theft warning indicator does not turn "ON" or blinking. | | X | X | X | | X | | | | | | | |

X : Applicable
*1: Make sure the system is in the armed phase.

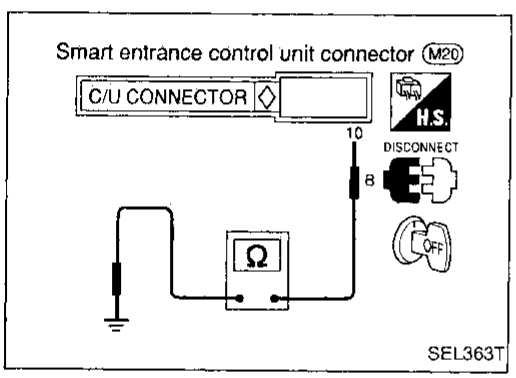
## Trouble Diagnoses (Cont'd)

### 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 |

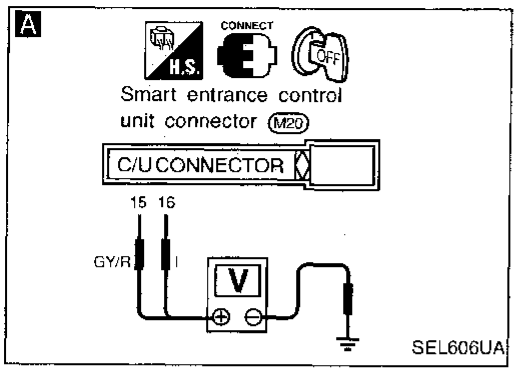



#### Ground circuit check

| Terminals | Continuity |
|---|---|
| ⑩ - Ground | Yes |

## Trouble Diagnoses (Cont'd)

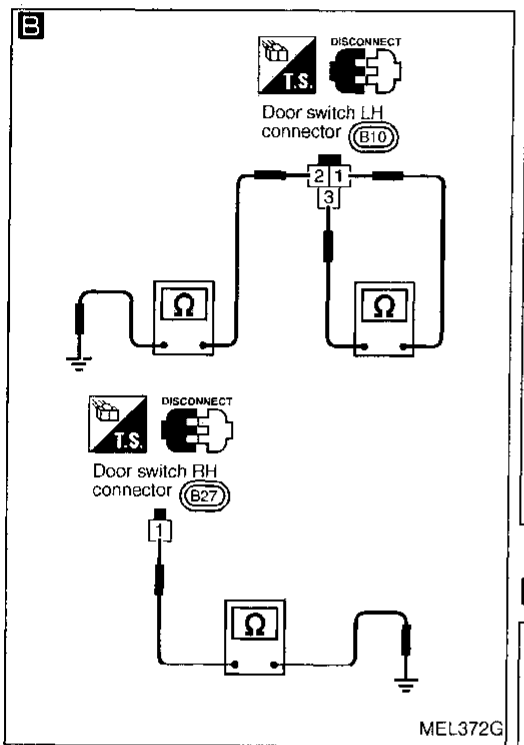
### DIAGNOSTIC PROCEDURE 1-(1)
### (Door switch check)




1. Turn ignition switch "OFF" and remove key from key cylinder.
2. Close all doors, hood and trunk lid.
   **"SECURITY" indicator lamp should turn off.**
3. Open LH/RH door.
   **"SECURITY" indicator lamp should blink every second.**

OK → Door switch is OK.

NG ↓




A

**CHECK DOOR SWITCH INPUT SIGNAL.**
Check voltage between control unit terminals ⑮ or ⑯ and ground.

| | Terminals ⊕ | Terminals ⊖ | Condition | Voltage [V] |
|---|---|---|---|---|
| LH door switch | ⑮ | Ground | Open | 0 |
| | | | Closed | Approx. 12 |
| RH door switch | ⑯ | Ground | Open | 0 |
| | | | Closed | Approx. 12 |

Refer to wiring diagram in EL-177.

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 |
|---|---|---|---|
| LH door switch | ① - ③, ② - Ground | Closed | No |
| | | Open | Yes |
| RH door switch | ① - Ground | Closed | No |
| | | Open | Yes |

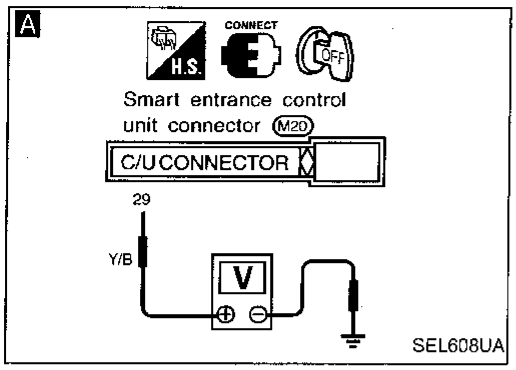
NG → Replace door switch.

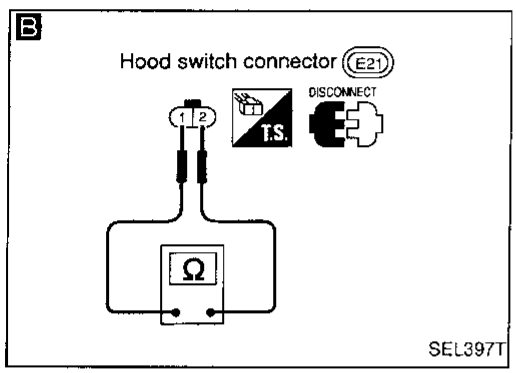
OK ↓

Check the following.
- Door switch ground circuit (Front LH) or door switch ground condition
- Harness for open or short between control unit and door switch

## 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, hood and trunk lid.
   **"SECURITY" indicator lamp should turn off.**
3. Open hood.
   **"SECURITY" indicator lamp should blink every second.**

OK → Hood switch is OK.

NG

Check hood switch and hood fitting condition.

NG → Adjust installation of hood switch or hood.

OK

A

**CHECK HOOD SWITCH INPUT SIGNAL.**
Check voltage between control unit terminal ㉙ and ground.

| Condition | Voltage [V] |
|---|---|
| Hood is open. | 0 |
| Hood is closed. | Approx. 5 |

Refer to wiring diagram in EL-177.

OK → Hood switch is OK.

NG

B

**CHECK HOOD SWITCH.**
1. Disconnect hood switch connector.
2. Check continuity between hood switch terminals.

| Terminals | Condition | Continuity |
|---|---|---|
| ① - ② | Pushed | No |
| | Released | Yes |

NG → Replace hood switch.

OK

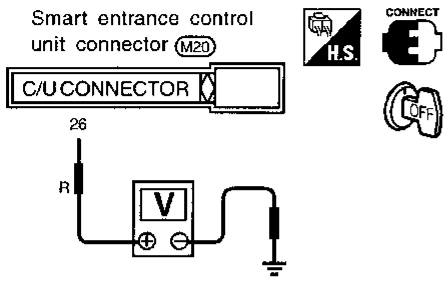
Check the following.
- Hood switch ground circuit
- Harness for open or short between control unit and hood switch

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 1-(3)
### (Trunk room lamp switch check)

A

Smart entrance control unit connector (M20)




SEL622UA

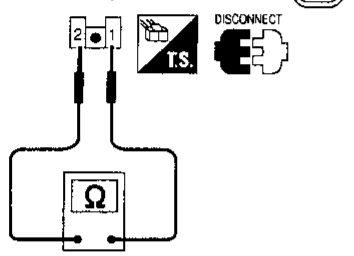
1. Turn ignition switch "OFF" and remove key from key cylinder.
2. Close all doors, hood and trunk lid.
   **"SECURITY" indicator lamp should turn off.**
3. Open trunk lid.
   **"SECURITY" indicator lamp should blink every second.**

OK → Trunk room lamp switch is OK.

NG ↓

B

Trunk room lamp switch connector (T8)




SEL398T

A

**CHECK TRUNK ROOM LAMP SWITCH INPUT SIGNAL.**

Check voltage between control unit terminal ㉖ and ground.

| Condition | Voltage [V] |
|---|---|
| Trunk lid is open. | Approx. 0 |
| Trunk lid is closed. | Approx. 12 |

Refer to wiring diagram in EL-178.

OK → Trunk room lamp switch is OK.

NG ↓

B

**CHECK TRUNK ROOM LAMP SWITCH.**

1. Disconnect trunk room lamp switch connector.
2. Check continuity between trunk room lamp switch terminals.

| Terminals | Condition | Continuity |
|---|---|---|
| ① - ② | Closed | No |
| | Open | Yes |

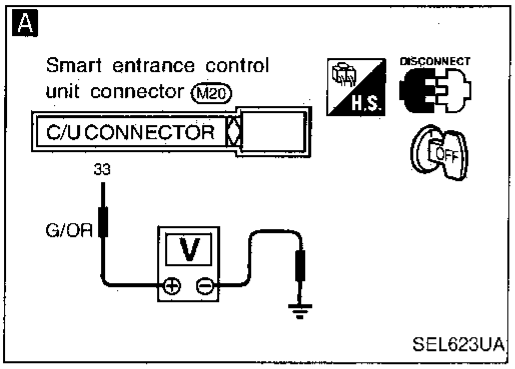
NG → Replace trunk room lamp switch.

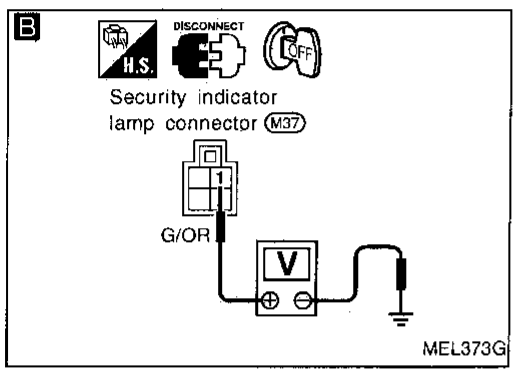
OK ↓

Check the following.
- Trunk room lamp switch ground circuit
- Harness for open or short between control unit and trunk room lamp switch

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 2
### (Security indicator lamp check)




A

**CHECK INDICATOR LAMP OUTPUT SIGNAL.**
1. Disconnect control unit connector.
2. Check voltage between control unit terminal 33 and ground.
   **Battery voltage should exist.**

   Refer to wiring diagram in EL-178.

OK → Security indicator lamp is OK.

NG ↓

CHECK INDICATOR LAMP. NG → Replace indicator lamp.

OK ↓

B

**CHECK POWER SUPPLY CIRCUIT FOR INDICATOR LAMP.**
1. Disconnect security lamp connector.
2. Check voltage between indicator lamp terminal 1 and ground.
   **Battery voltage should exist.**

NG → Check the following.
- 7.5A fuse (No. 8, located in fuse block)
- Harness for open or short between security indicator lamp and fuse

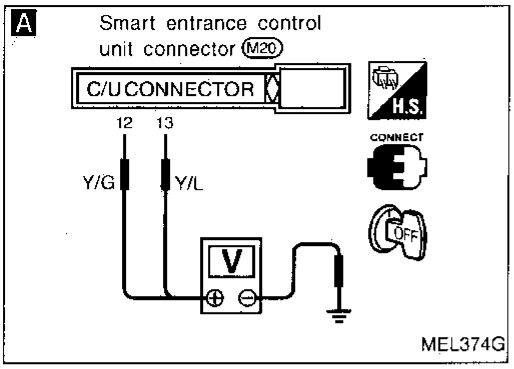
OK ↓

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

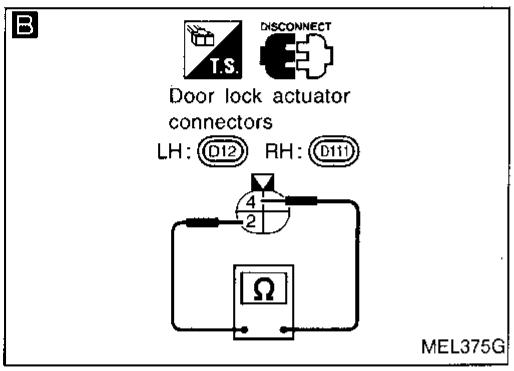
## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 3
### (Door unlock sensor check)

A




B




A

**CHECK DOOR UNLOCK SENSOR INPUT SIGNAL.**

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

| | Terminals ⊕ | 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-178.

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.

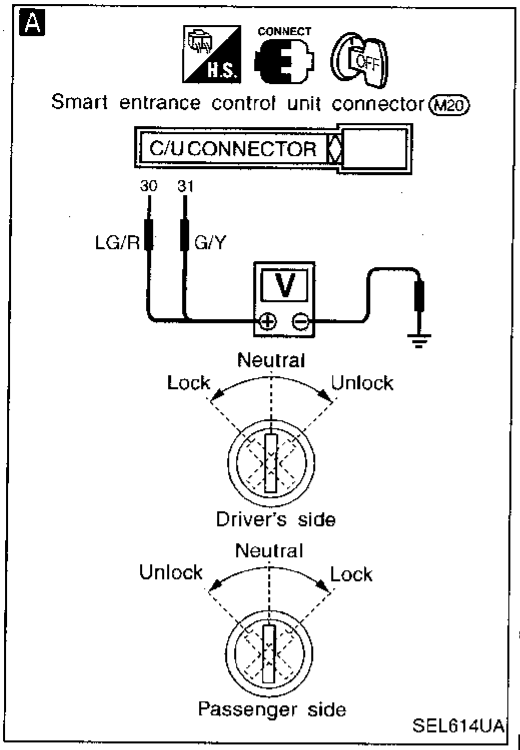
OK ↓

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

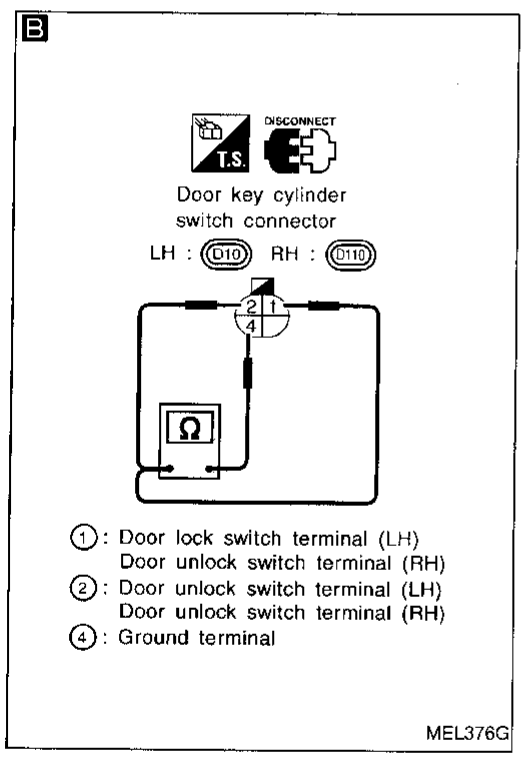
## Trouble Diagnoses (Cont'd)

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

A




B




A

**CHECK DOOR KEY CYLINDER SWITCH INPUT SIGNAL (LOCK/UNLOCK SIGNAL).**

Check voltage between control unit terminals ㉚ or ㉛ and ground.

| Terminals ⊕ | Terminals ⊖ | Key position | Voltage [V] |
|---|---|---|---|
| ㉚ | Ground | Neutral | Approx. 5 |
| | | Lock | 0 |
| ㉛ | Ground | Neutral | Approx. 5 |
| | | Unlock | 0 |

Refer to wiring diagram in EL-179.

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 - ④ | Neutral | No |
| RH: ② - ④ | Lock | Yes |
| LH: ② - ④ | Neutral | No |
| RH: ① - ④ | Unlock | Yes |

NG → Replace door key cylinder switch.

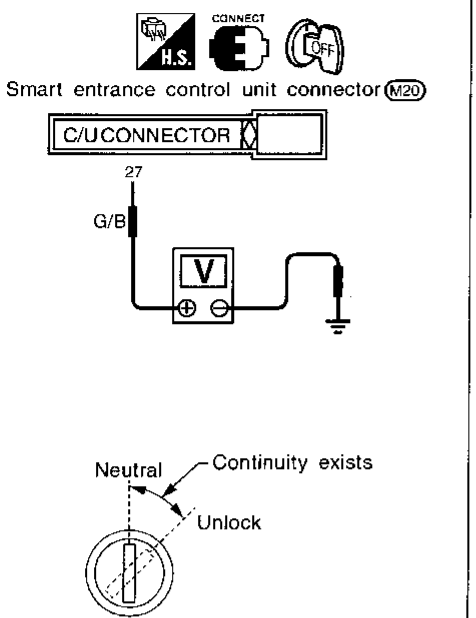
OK ↓

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

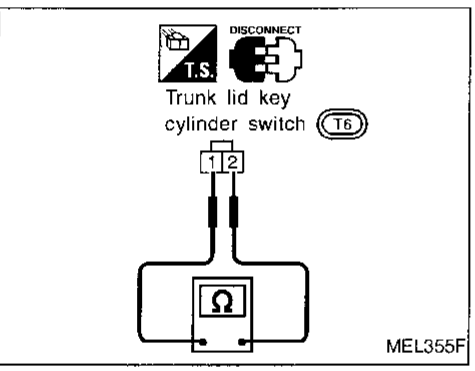
## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 5
### (Trunk lid key cylinder switch check)

A




B




A

**CHECK TRUNK LID KEY CYLINDER SWITCH INPUT SIGNAL (LOCK/ UNLOCK SIGNAL).**

Check voltage between control unit terminal ㉗ and ground.

| Key position | Voltage [V] |
|---|---|
| Neutral | Approx. 5 |
| Between neutral and unlock | 0 |

Refer to wiring diagram in EL-178.

OK → Trunk lid key cylinder switch is OK.

NG ↓

B

**CHECK TRUNK LID KEY CYLINDER SWITCH.**

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

| Key position | Continuity |
|---|---|
| Neutral and lock | No |
| Between neutral and unlock | Yes |

NG → Replace trunk lid key cylinder switch.

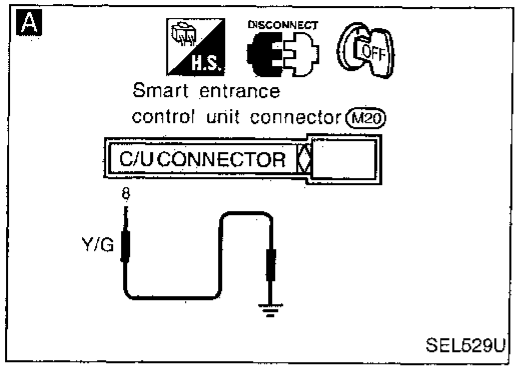
OK ↓

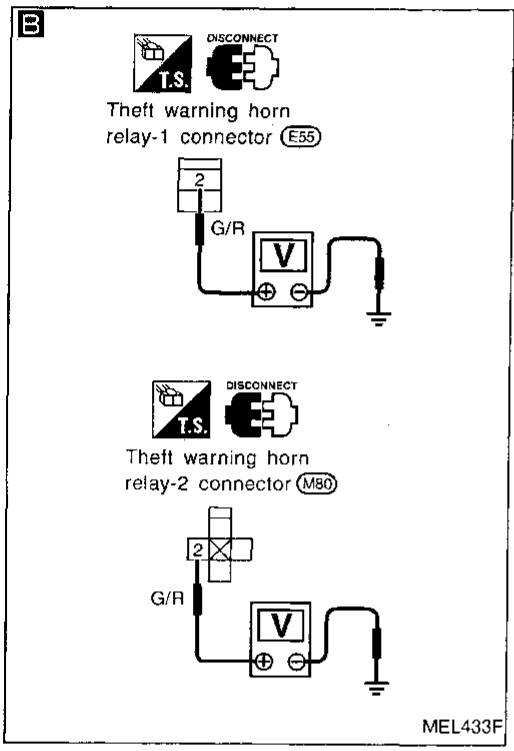
Check the following.

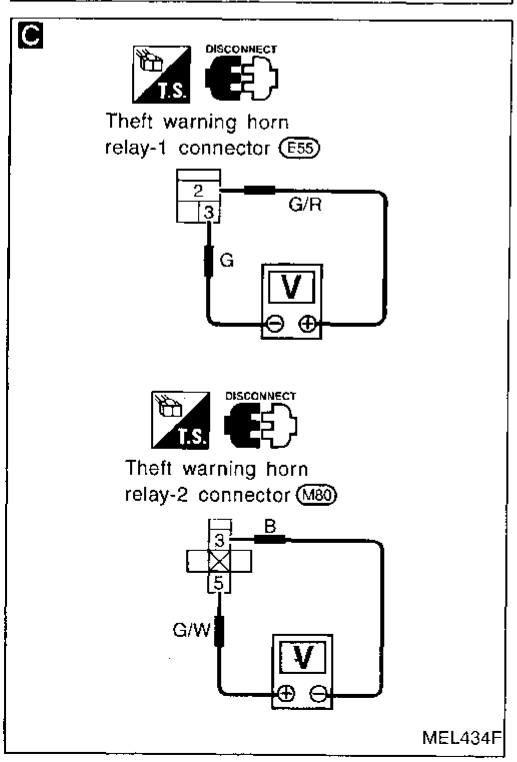
- Trunk lid key cylinder switch ground circuit
- Harness for open or short between control unit and trunk lid key cylinder switch

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 6
### (Theft warning horn alarm check)




A

**CHECK THEFT WARNING HORN ALARM OPERATION.**
1. Disconnect control unit connector.
2. Apply ground to control unit terminal ⑧.
   **Does horn alarm activate?**

   Refer to wiring diagram in EL-180.

Yes → Horn alarm is OK.

No ↓

Check theft warning horn relays-1, 2. — NG → Replace.

OK ↓

B

**CHECK POWER SUPPLY FOR THEFT WARNING HORN RELAYS-1, 2.**
1. Disconnect theft warning lamp relay connectors.
2. Check voltage between terminal ② and ground.
   **Positive battery voltage should exist.**

NG → Check the following.
- 7.5A fuse (No. 49, located in the fuse and fusible link box)
- Harness for open or short between theft warning horn relays-1, 2 and fuse

OK ↓

C

**CHECK THEFT WARNING HORN RELAY CIRCUIT.**
1. Disconnect theft warning horn relay connectors.
2. Check voltage between theft warning horn relay-1 terminals ② and ③.
3. Check voltage between theft warning relay-2 terminals ③ and ⑤.
   **Positive battery voltage should exist.**

NG → Check the following.
- Harness for open or short between theft warning horn relays-1 and 2
- Theft warning horn relay-2 ground circuit
- Harness for open or short between theft warning horn relay-1 and horn
- Theft warning horn ground condition

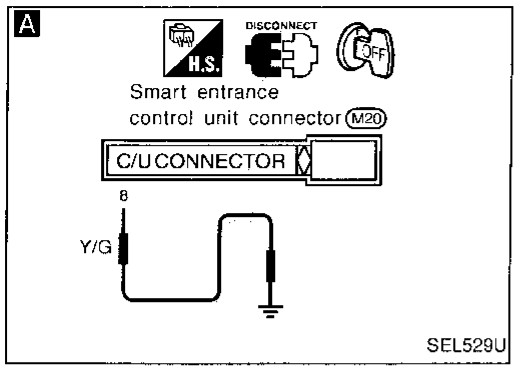
OK ↓

Check harness for open or short between theft warning horn relay-2 and control unit.

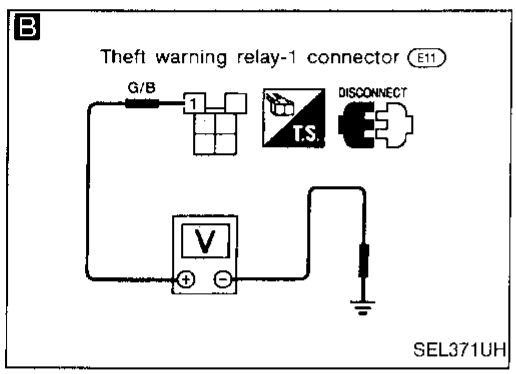
## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 7
### (Theft warning headlamp alarm check)

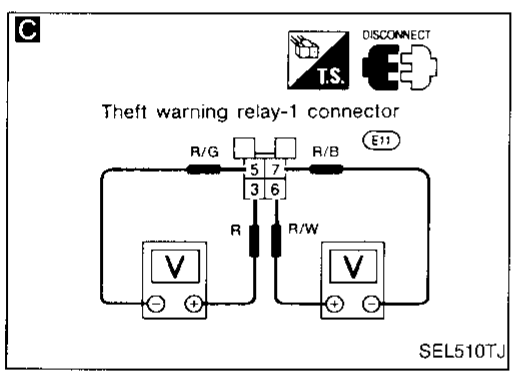
A




B




C




A

**CHECK THEFT WARNING HEADLAMP ALARM OPERATION.**
1. Disconnect control unit connector.
2. Apply ground to control unit terminal ⑧.
   **Does headlamp alarm activate?**

   Refer to wiring diagram in EL-180.

Yes → Headlamp alarm is OK.

No ↓

Does headlamp come on when turning lighting switch "ON"?

No → Check headlamp system. Refer to "HEADLAMP" (EL-34).

Yes ↓

Check theft warning relay-1.

NG → Replace.

OK ↓

B

**CHECK POWER SUPPLY FOR THEFT WARNING RELAY-1.**
1. Disconnect theft warning relay-1 connector.
2. Check voltage between terminal ① and ground.
   **Positive battery voltage should exist.**

   Refer to wiring diagram in EL-180.

NG → Check the following.
- 7.5A fuse (No. 49, located in the fuse and fusible link box)
- Harness for open or short between theft warning relay-1 and fuse

OK ↓

C

**CHECK THEFT WARNING RELAY-1 CIRCUIT.**
1. Disconnect theft warning relay-1 connector.
2. Check voltage between terminals ③ and ⑤.
   **Positive battery voltage should exist.**
3. Check voltage between terminals ⑥ and ⑦.
   **Positive battery voltage should exist.**

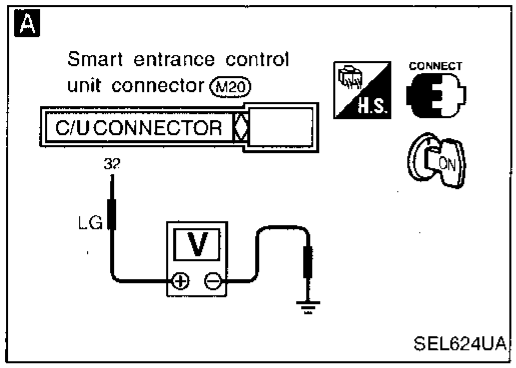
NG → Check harness for open or short.

OK ↓

Check harness for open or short between theft warning relay-1 and control unit.

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 8
### (Starter interrupt system check)




A

**CHECK STARTER MOTOR CUT OUTPUT SIGNAL.**

1. Turn ignition switch "ON".
2. Check voltage between control unit terminal ㉜ and ground.

| Condition | Voltage [V] |
|---|---|
| Except starter killed phase | Approx. 12 |
| Starter killed phase | 0 |

Refer to wiring diagram in EL-180.

NG → Check the following.
- 7.5A fuse (No. 1, located in fuse block)
- Harness for open or short between theft warning relay-2 and fuse
- Harness for open or short between control unit and theft warning relay-2

OK ↓

Check theft warning relay-2. → NG → Replace relay.

OK ↓

Check system again.

NOTE

## Description

The following systems are controlled by the smart entrance control unit.

- Warning buzzer
- Rear window defogger timer
- Power door lock
- Multi-remote control system
- Theft warning system

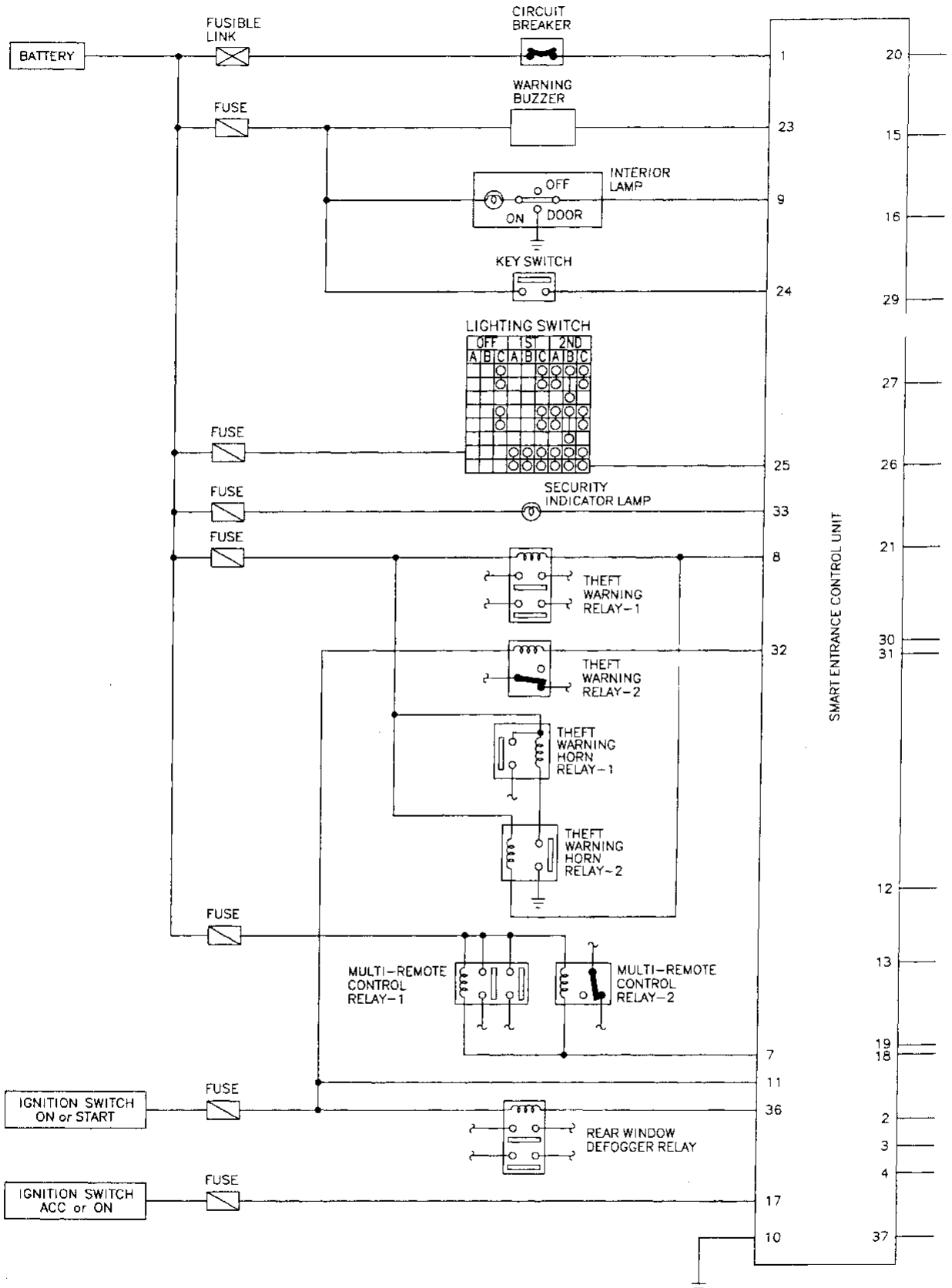
For detailed description and wiring diagrams, refer to the relevant pages for the each system.
The control unit receives data from the switches and sensors to control their corresponding system relays and actuators.

| System | Input | Output |
|---|---|---|
| Power door lock | Door lock and unlock switch | Door lock actuator |
| Multi-remote control | Key switch (Insert)<br>Ignition switch (ACC)<br>Door switch<br>Door unlock sensor<br>Antenna (remote controller signal) | Theft warning horn relay-1 and 2<br>Theft warning relay-1 (headlamp)<br>Interior lamp<br>Multi-remote control relay-1 and 2<br>Door lock actuator |
| Warning buzzer | Key switch (Insert)<br>Ignition switch (ON)<br>Lighting switch (1st)<br>Seat belt buckle switch<br>Front door switch LH | Warning buzzer |
| Rear window defogger timer | Ignition switch (ON)<br>Rear window defogger switch | Rear window defogger relay |
| Theft warning | Ignition switch (ACC, ON)<br>Door switch<br>Hood switch<br>Trunk room lamp switch<br>Door key cylinder switch (lock/unlock)<br>Trunk lid key cylinder switch (unlock)<br>Door unlock sensor | Theft warning horn relay-1 and 2<br>Theft warning relay-1 (headlamp)<br>Theft warning relay-2 (Starter interrupt)<br>Security indicator |

## Smart Entrance Control Unit Inspection Table

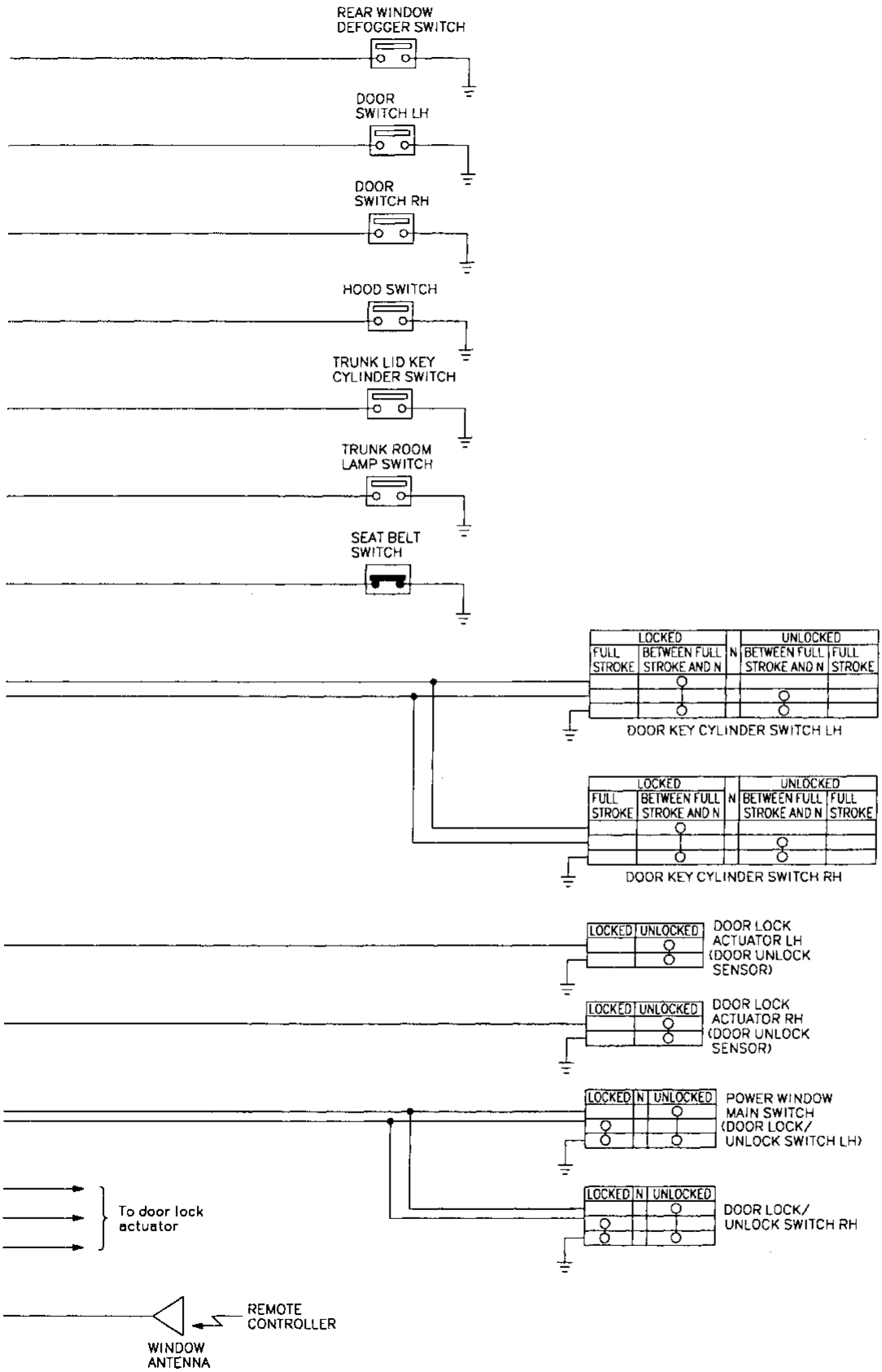
| Terminal No. | Connections | Operated condition | | Voltage (Approximate values) |
|---|---|---|---|---|
| 1 | Power source (C/B) | — | | 12V |
| 2 | Passenger door lock actuator | Door lock & unlock switch | Unlocked | 12V |
| 3 | Driver door lock actuator | | Free | 0V |
| 4 | Driver and passenger door lock actuators | Door lock & unlock switch | Locked | 12V |
| | | | Free | 0V |
| 7 | Multi-remote control relays -1 and 2 | When doors are locked using remote controller | | 12V → 0V |
| 8 | Theft warning relay-1 (Headlamp) | When panic alarm is operated using remote controller | | 12V → 0V |
| 9 | Interior lamp | When interior lamp is operated using remote controller. (Lamp switch in "DOOR" position) | | 12V → 0V |
| 10 | Ground | — | | — |
| 11 | Ignition switch (ON) | "ON" position | | 12V |
| 12 | Driver door unlock sensor | Driver door: Locked → Unlocked | | 12V → 0V |
| 13 | Passenger door unlock sensor | Passenger door: Locked → Unlocked | | 12V → 0V |
| 15 | Driver door switch | OFF (Closed) → ON (Open) | | 12V → 0V |
| 16 | Passenger door switch | OFF (Closed) → ON (Open) | | 12V → 0V |
| 17 | Ignition switch (ACC) | "ACC" position | | 12V |
| 18 | Door lock & unlock switches | Neutral → Locks | | 12V → 0V |
| 19 | Door lock & unlock switches | Neutral → Unlocks | | 12V → 0V |
| 20 | Rear window defogger switch | OFF → ON | | 12V → 0V |
| 21 | Seat belt buckle switch | Unfasten → Fasten (Ignition key is in "ON" position) | | 0V → 12V |
| 23 | Warning buzzer | OFF → ON | | 12V → 0V |
| 24 | Ignition key switch (Insert) | Key inserted → Key removed from IGN key cylinder | | 12V → 0V |
| 25 | Lighting switch (1ST) | 1ST, 2ND positions: ON → OFF | | 12V → 0V |
| 26 | Trunk room lamp switch | ON (Open) → OFF (Closed) | | 0V → 12V |
| 27 | Trunk key unlock switch | OFF (Neutral) → ON (Unlocked) | | 5V → 0V |
| 29 | Hood switch | ON (Open) → OFF (Closed) | | 0V → 5V |
| 30 | Door key cylinder lock switch | OFF (Neutral) → ON (Locked) | | 5V → 0V |
| 31 | Door key cylinder lock switch | OFF (Neutral) → ON (Unlocked) | | 5V → 0V |
| 32 | Theft warning relay-2 (Starter cut) | OFF → ON | | 12V → 0V |
| 33 | Security indicator | Goes off → Illuminates | | 12V → 0V |
| 36 | Rear window defogger relay | OFF → ON | | 12V → 0V |
| 37 | Multi-remote antenna | — | | — |

## Schematic




MEL346I

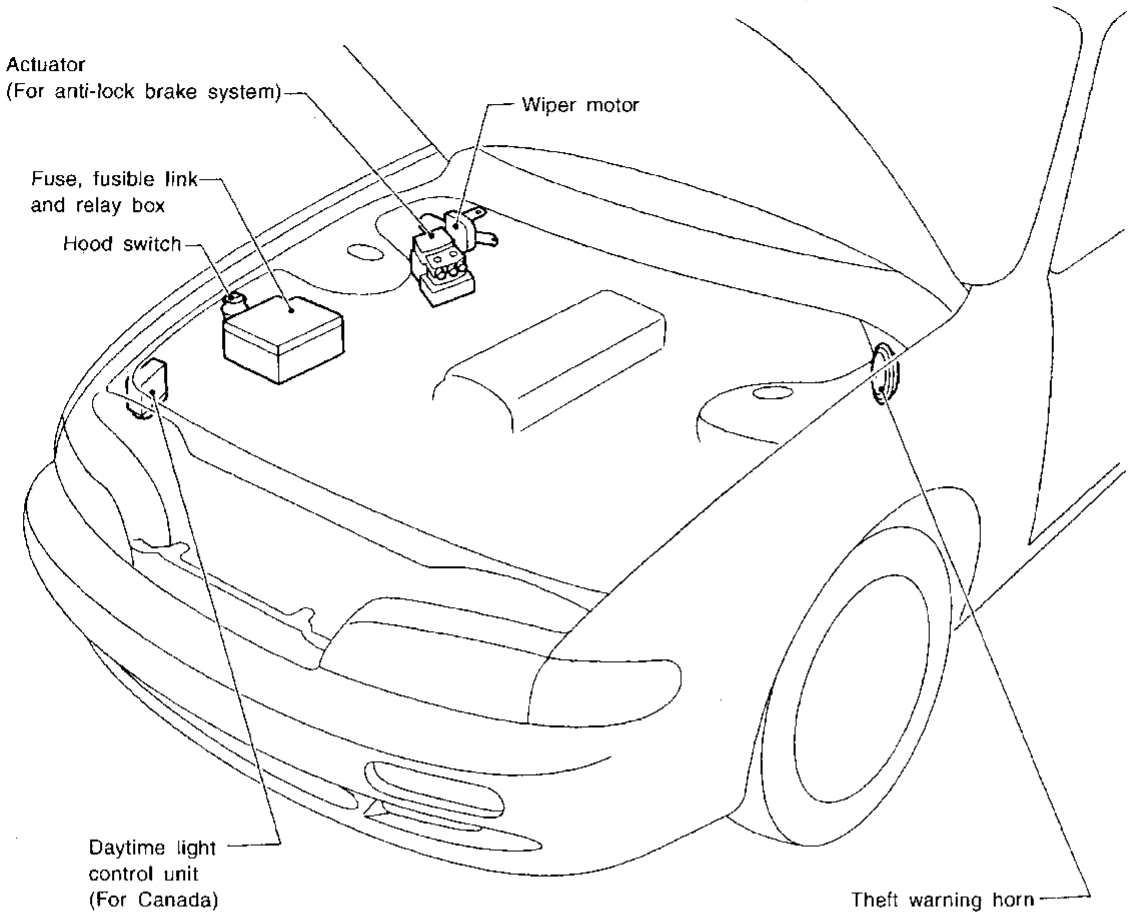
## Schematic (Cont'd)

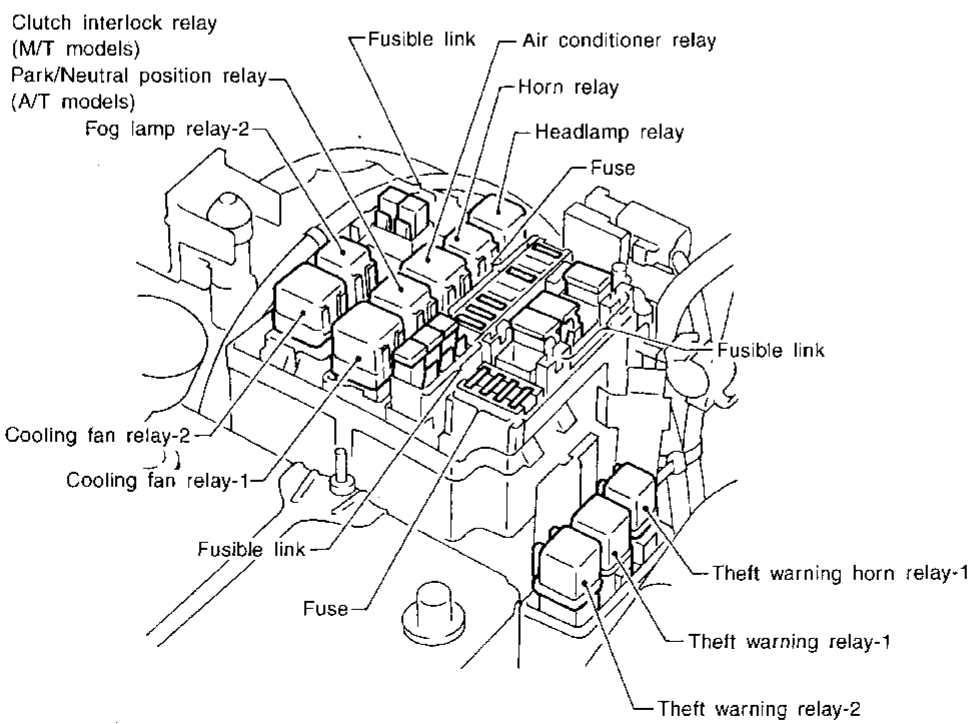





MEL315G

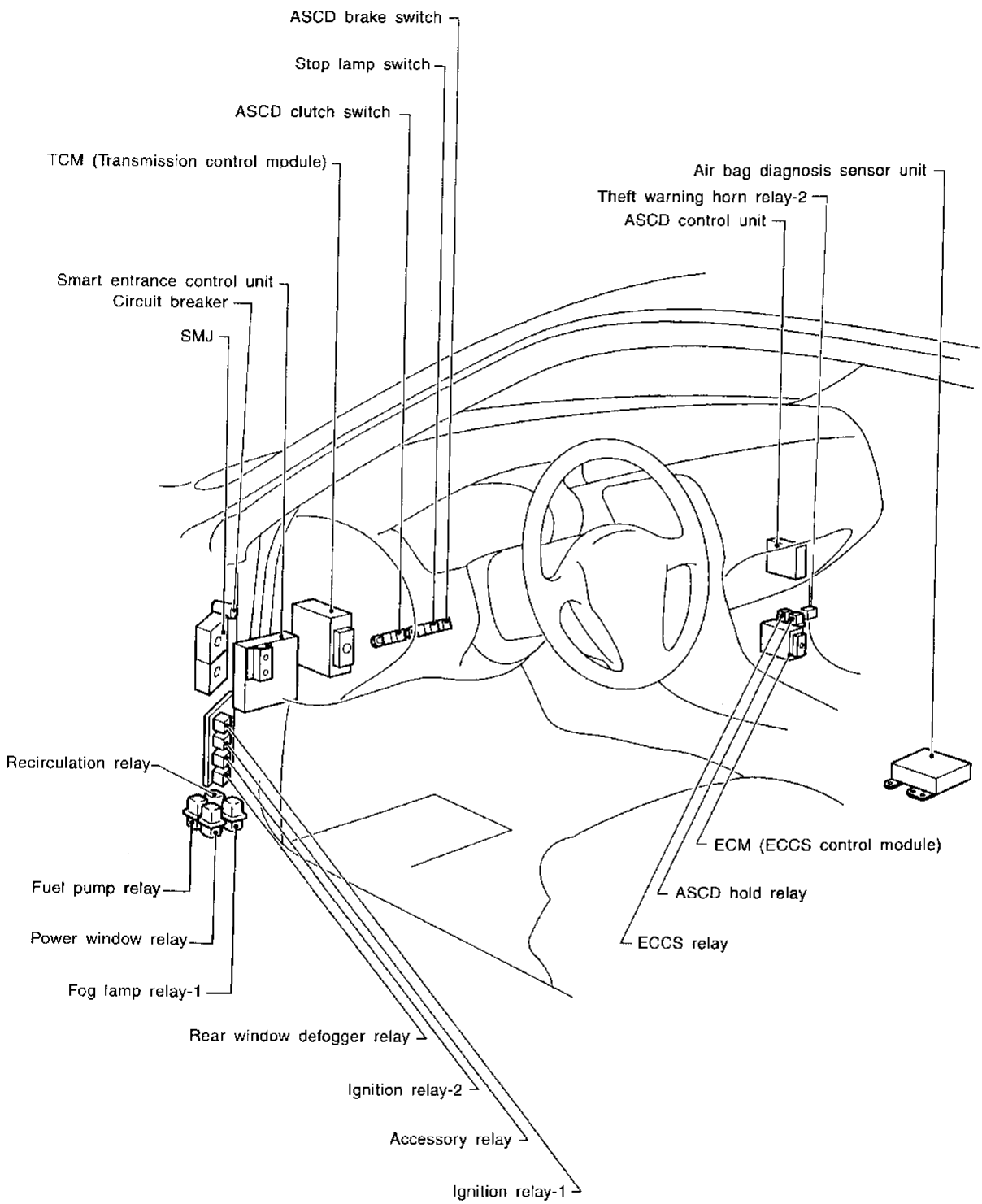
## Engine Compartment




MEL378G

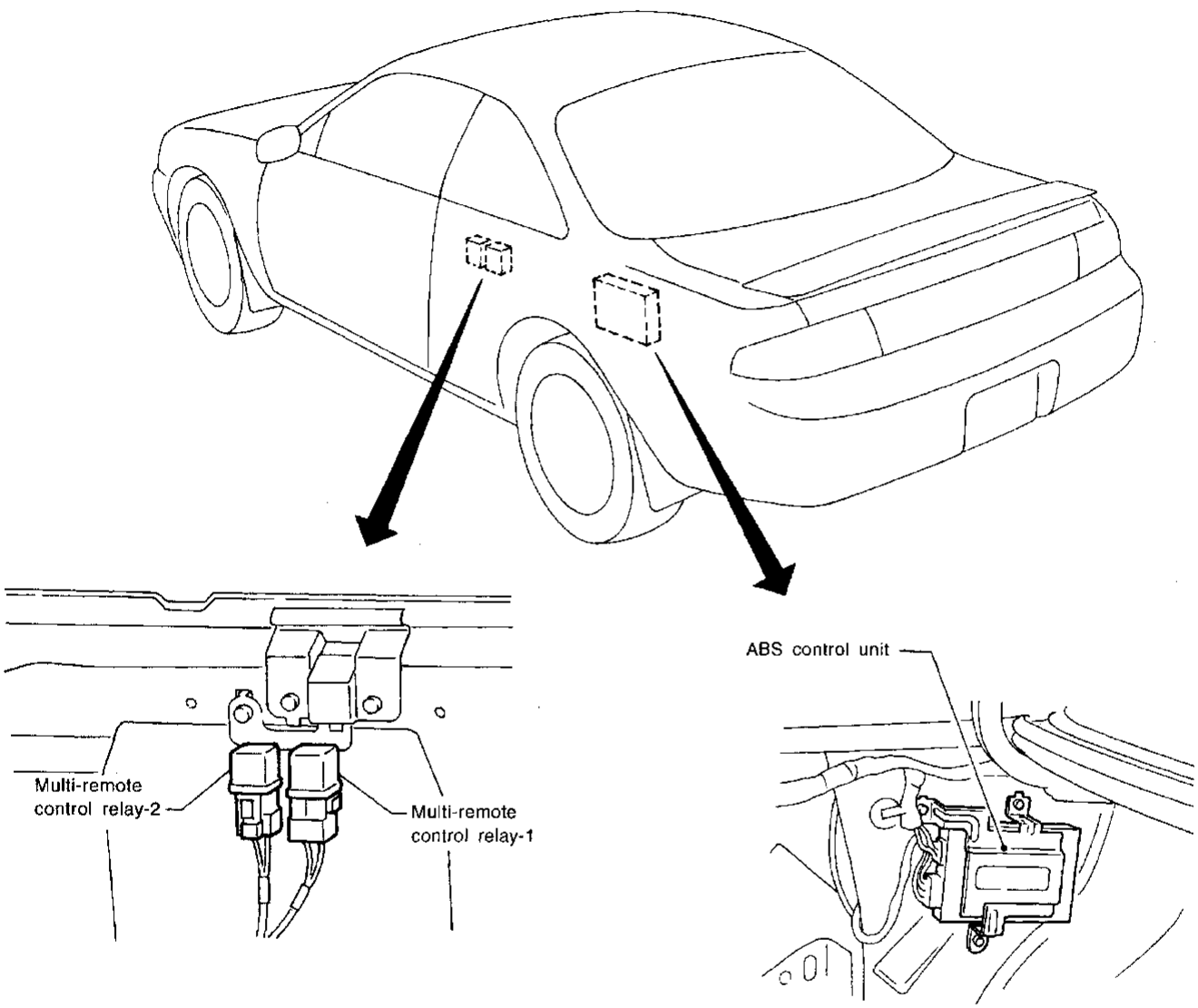
## Passenger Compartment





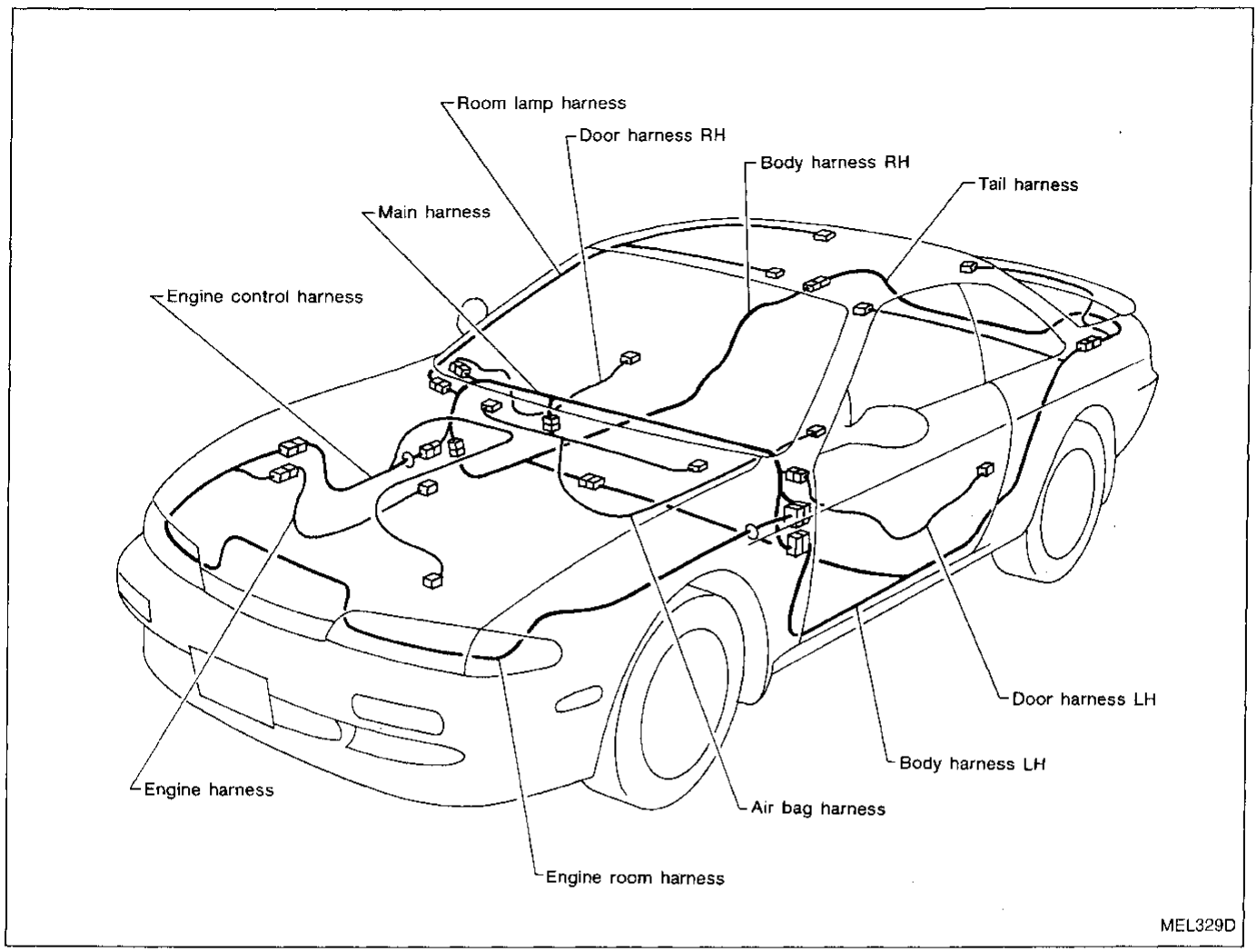

MEL379GA

## Passenger Compartment (Cont'd)

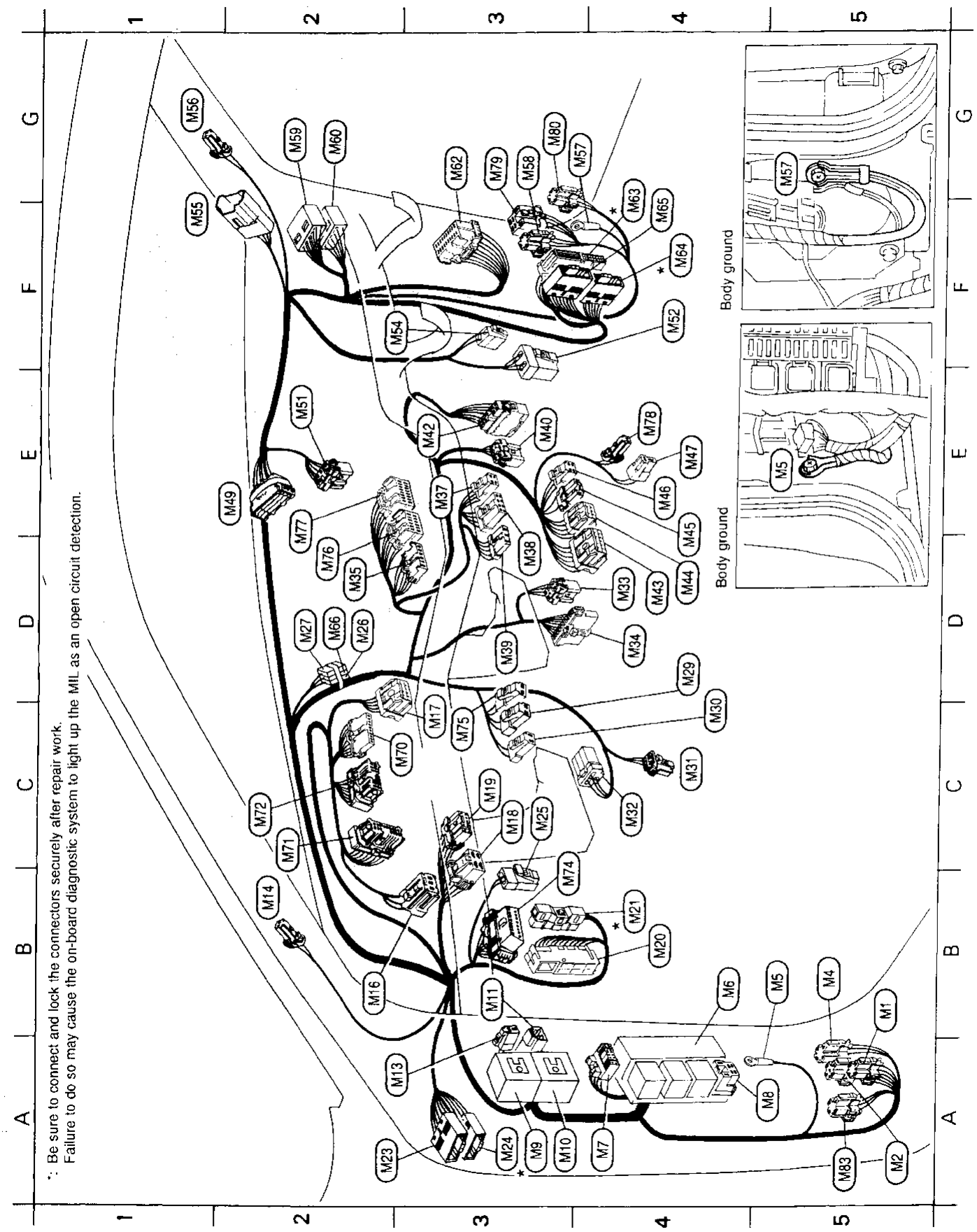



MEL357F

## Outline


Room lamp harness
Door harness RH
Body harness RH
Tail harness
Main harness
Engine control harness
Door harness LH
Body harness LH
Engine harness
Air bag harness
Engine room harness
MEL329D

## Main Harness



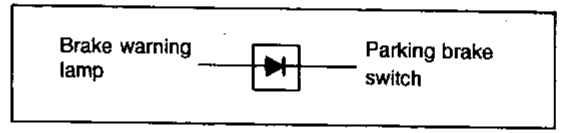

MEL348I

B5 (M1) : Power window relay
A5 (M2) : Recirculation relay
B5 (M4) : Fuel pump relay
B5 (M5) : Body ground
B4 (M6) : Fuse block
A4 (M7) : Data link connector for CONSULT
A5 (M8) : Rear window defogger relay
A3 * (M9) : To (E109) (SMJ)
A3 (M10) : To (B1) (SMJ)
B3 (M11) : To (E113)
A2 (M13) : Circuit breaker
B2 (M14) : Tweeter LH (Models with 6-speaker audio system)
B2 (M16) : Illumination control switch
C3 (M17) : ASCD main switch
C3 (M18) : Rear window defogger timer (Models without power door locks)
C3 (M19) : Warning buzzer unit (Models without power door locks)
B4 (M20) : Smart entrance control unit (Models with power door locks)
B4 * (M21) : TCM (Transmission control module) (A/T models)
A2 (M23) : To (D1)
A3 (M24) : To (D2)
C3 (M25) : ASCD clutch switch (M/T models)
D2 (M26) : Diode (Models with theft warning system)
D2 (M27) : Diode (Models with 6-speaker system)
D4 (M29) : ASCD brake switch (M/T models)
C4 (M30) : Stop lamp switch
C4 (M31) : Warning buzzer (Models with power door locks)
C4 (M32) : Combination flasher unit
D4 (M33) : Air mix door motor
D4 (M34) : Mode door motor
D2 (M35) : Fan switch
E3 (M37) : Security indicator lamp (Models with theft warning system)
D3 (M38) : Hazard switch
D3 (M39) : Rear window defogger switch
E3 (M40) : Bi-level door motor
E3 (M42) : To (Z5)
D4 (M43) : Audio
D4 (M44) : Audio
E4 (M45) : CD deck illumination
E4 (M46) : CD deck
E4 (M47) : Cigarette lighter

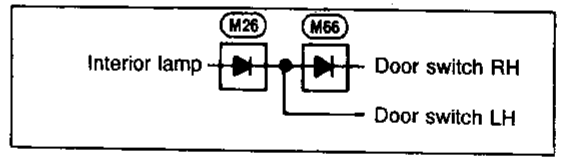
E2 (M49) : Joint connector (Models with 6-speaker audio system)
E2 (M51) : Intake door motor
F4 (M52) : Fan resistor
F2 (M54) : Blower motor
F1 (M55) : To (R1)
G1 (M56) : Tweeter RH (Models with 6-speaker audio system)
G3 (M57) : Body ground
G3 (M58) : ASCD hold relay (M/T models)
G2 (M59) : To (D101)
G2 (M60) : To (D102)
G3 (M62) : ASCD control unit
F4 * (M63) : To (F3)
F4 * (M64) : To (F4)
F4 (M65) : To (B23) (Models with ABS)

D2 (M66) : Diode (Models with theft warning system)
C3 (M70) : Combination meter
C2 (M71) : Combination meter
C2 (M72) : Combination meter
B3 (M74) : Data link connector for GST
C3 (M75) : ASCD brake switch (Shift lock brake switch) (A/T models)
D2 (M76) : Push control unit
D2 (M77) : Push control unit
E4 (M78) : Cigarette lighter illumination
G3 (M79) : ASCD hold relay (A/T models)
G3 (M80) : Theft warning horn relay-2
A5 (M83) : Fog lamp relay-1

Diode (M27)

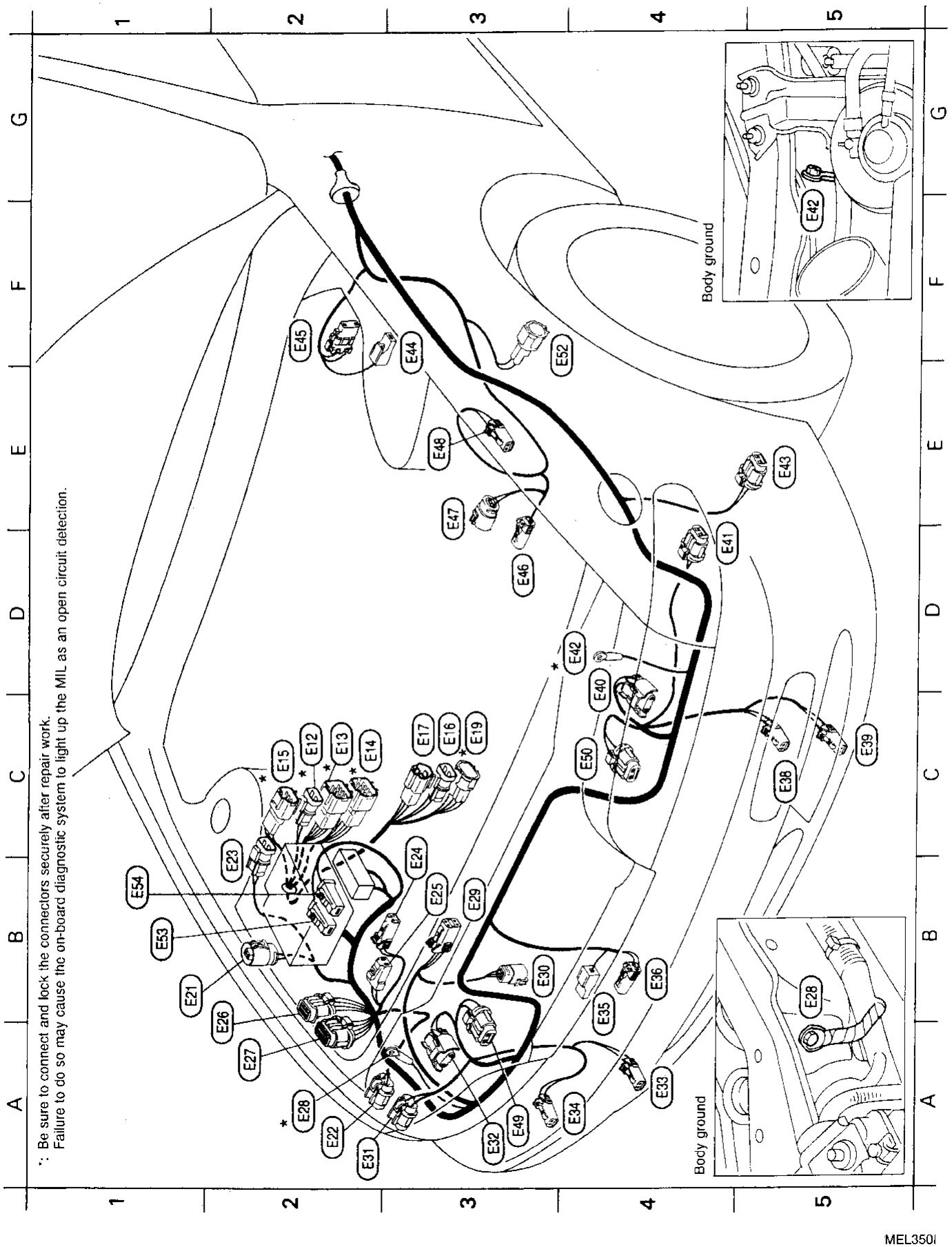



Diode (M26), (M66)




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

## Engine Room Harness




MEL350I

## Engine Room Harness (Cont'd)

| | | | | | |
|---|---|---|---|---|---|
| E3 | : Cooling fan relay-1 | | C5 | E39 | : Fog lamp LH |
| E4 | : Clutch interlock relay (M/T models) | | D4 | E40 | : Headlamp LH |
| E5 | : Air conditioner relay | Fuse and fusible link box | D4 | E41 | : Parking lamp LH |
| E6 | : Horn relay | | D4 * | E42 | : Body ground |
| E7 | : Headlamp relay | | E5 | E43 | : Front side marker lamp LH |
| E8 | : Fuse and fusible link block-2 | | F3 | E44 | : Theft warning horn |
| E9 | : Fuse and fusible link block-3 | | F2 | E45 | : Brake fluid level switch |
| E10 | : Theft warning relay-2 (Models with theft warning system) | | D3 | E46 | : Compressor |
| E11 | : Theft warning relay-1 (Models with theft warning system) | Relay box | E3 | E47 | : Power steering oil pressure switch |
| C2 * E12 | : Inhibitor switch (A/T models) | | E3 | E48 | : Dropping resistor (A/T models) |
| C2 * E13 | : Inhibitor switch (A/T models) | | A3 | E49 | : Headlamp RH |
| C2 * E14 | : A/T solenoid valve (A/T models) | | C4 | E50 | : Headlamp LH |
| C2 * E15 | : Revolution sensor (A/T models) | | | E51 | : Park/Neutral position relay (A/T models with ASCD) Fuse and fusible link box |
| C3 E16 | : To E203 (A/T models) | | F3 | E52 | : Front wheel sensor LH (Models with ABS) |
| C3 E17 | : To E201 (M/T models) | | B1 | E53 | : Battery |
| C3 * E19 | : To E202 | | B1 | E54 | : Battery |
| B1 E21 | : Hood switch (Models with theft warning system) | | | E55 | : Theft warning horn relay-1 |
| A2 E22 | : Front side marker lamp RH | | | E56 | : Cooling fan relay-2 |
| B2 E23 | : To F13 | | | E57 | : Fog lamp relay-2 |
| B3 E24 | : Washer motor | | | E59 | : Fuse and fusible link box |
| B3 E25 | : Washer fluid level switch | | | | |
| A2 E26 | : Daytime light control unit (For Canada) | | | | |
| A2 E27 | : Daytime light control unit (For Canada) | | | | |
| A2 * E28 | : Body ground | | | | |
| B3 E29 | : Triple-pressure switch | | | | |
| B3 E30 | : Cooling fan motor | | | | |
| A2 E31 | : Parking lamp RH | | | | |
| A3 E32 | : Headlamp RH | | | | |
| A4 E33 | : Fog lamp RH | | | | |
| A4 E34 | : Front turn signal lamp RH | | | | |
| B4 E35 | : Horn | | | | |
| B4 E36 | : Ambient temperature switch | | | | |
| C5 E36 | : Front turn signal lamp LH | | | | |



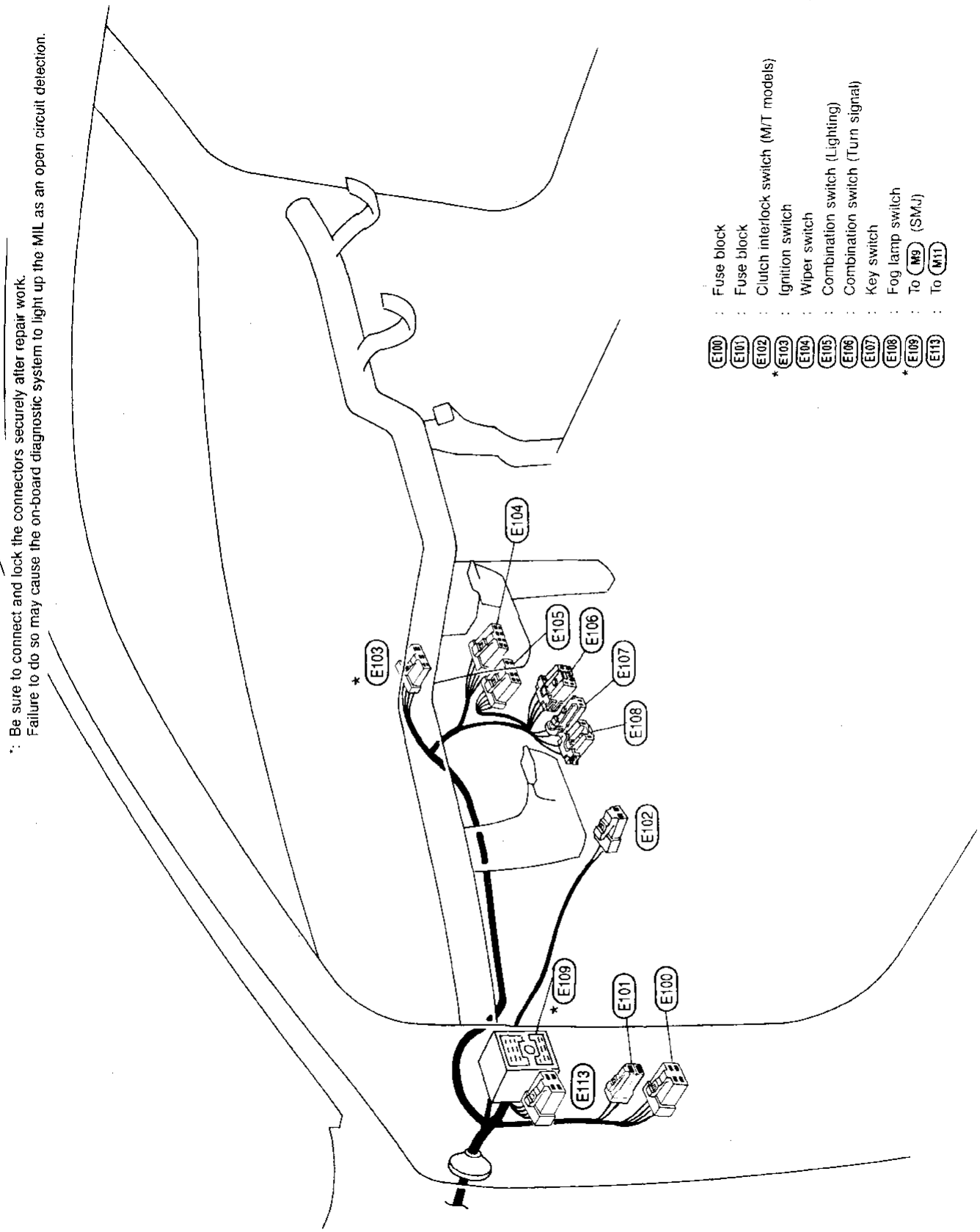

*: Be sure to connect and lock the connectors securely after repair work.
Failure to do so may cause the on-board diagnostic system to light up the MIL as an open circuit detection.



MEL351I

## Engine Room Harness (Cont'd)

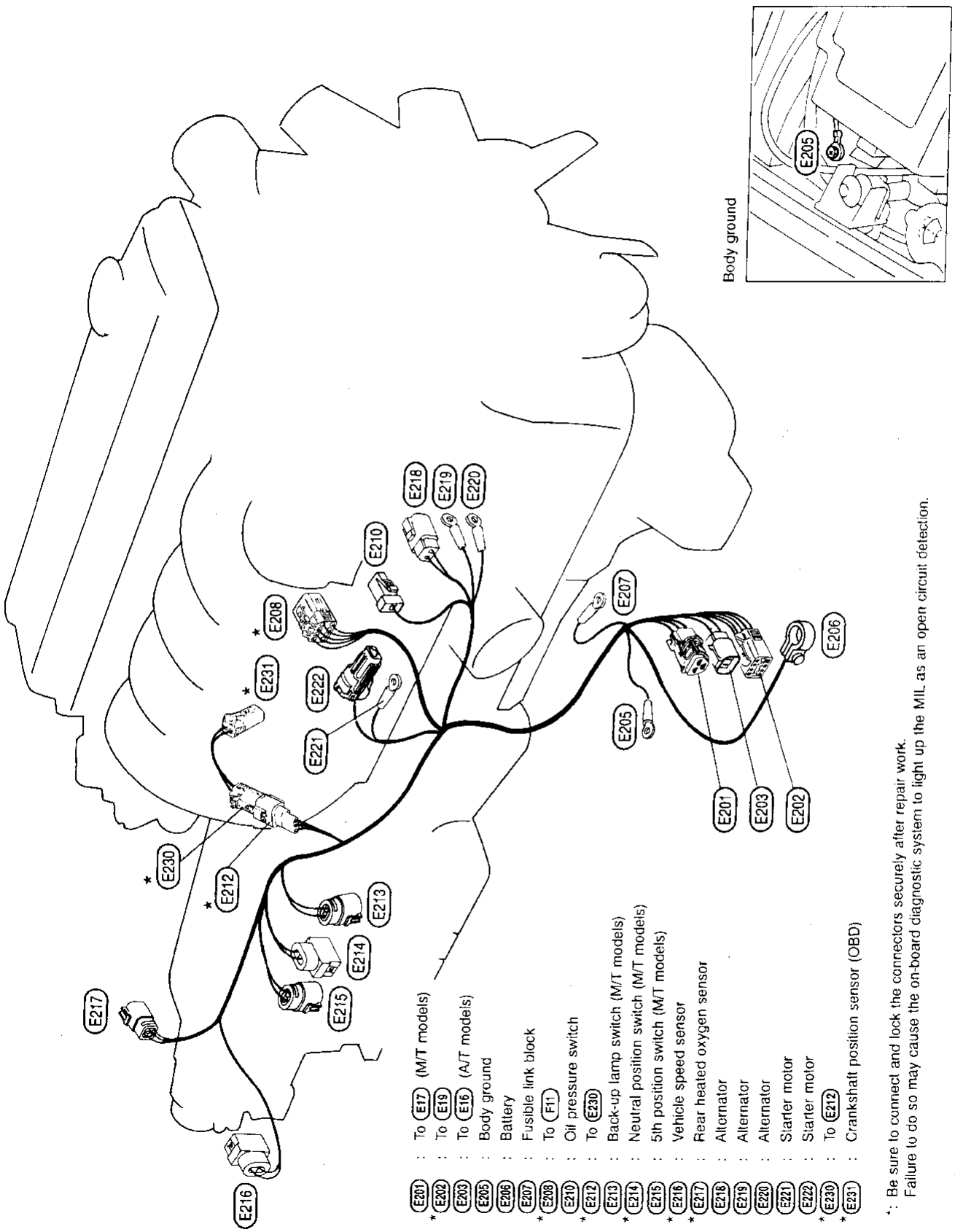
*: Be sure to connect and lock the connectors securely after repair work.
Failure to do so may cause the on-board diagnostic system to light up the MIL as an open circuit detection.




E100 : Fuse block
E101 : Fuse block
E102 : Clutch interlock switch (M/T models)
*E103 : Ignition switch
E104 : Wiper switch
E105 : Combination switch (Lighting)
E106 : Combination switch (Turn signal)
E107 : Key switch
E108 : Fog lamp switch
*E109 : To (M9) (SMJ)
E113 : To (M11)

MEL352I

## Engine Harness



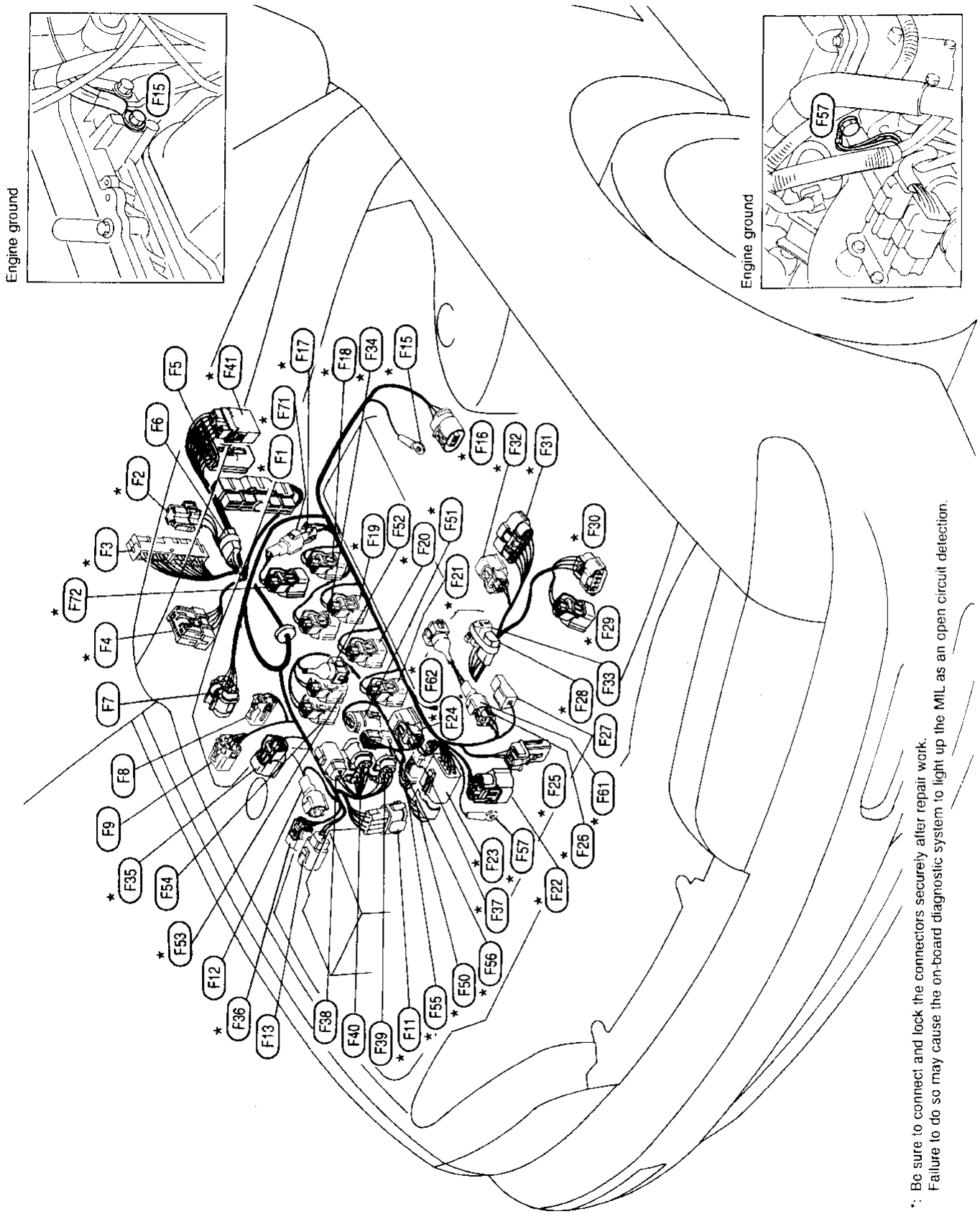

E201 : To E17 (M/T models)
* E202 : To E19
E203 : To E16 (A/T models)
E205 : Body ground
E206 : Battery
E207 : Fusible link block
* E208 : To F11
E210 : Oil pressure switch
* E212 : To E230
E213 : Back-up lamp switch (M/T models)
* E214 : Neutral position switch (M/T models)
E215 : 5th position switch (M/T models)
* E216 : Vehicle speed sensor
* E217 : Rear heated oxygen sensor
E218 : Alternator
E219 : Alternator
E220 : Alternator
E221 : Starter motor
E222 : Starter motor
* E230 : To E212
* E231 : Crankshaft position sensor (OBD)

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

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

MEL353I

## Engine Control Harness




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

MEL354I

* F1 : ECM (ECCS control module)
* F2 : ECCS relay
* F3 : To M63
* F4 : To M64
F5 : To B24
F6 : Diode
* F7 : Wiper motor
F8 : ASCD pump
F9 : Wiper amplifier
* F11 : To E208
F12 : Front wheel sensor RH
F13 : To E23
* F15 : Engine ground
* F16 : Front heated oxygen sensor
* F17 : To F71
* F18 : Injector No. 4
* F19 : Injector No. 3
* F20 : Injector No. 2
* F21 : Injector No. 1
* F22 : Throttle position sensor
* F23 : To F50
* F24 : Engine coolant temperature sensor
* F25 : Throttle position switch
* F26 : To F61
* F27 : Thermal transmitter
* F28 : Resistor
* F29 : Intake air temperature sensor
* F30 : Mass air flow sensor
* F31 : Distributor (Camshaft position sensor is built-in.)
* F32 : Ignition coil
F33 : Condenser
* F34 : EVAP canister purge control solenoid valve
* F35 : MAP/BARO switch solenoid valve
* F36 : Absolute pressure sensor
* F37 : To F55
F38 : ABS relay unit
F39 : ABS actuator
F40 : ABS relay unit
* F41 : To B35
* F50 : To F23
* F51 : EGR temperature sensor
F52 : IACV-air regulator
* F53 : IACV-AAC valve
F54 : IACV-FICD solenoid valve
* F55 : To F37
* F56 : EVAP canister purge volume control valve
* F57 : Engine ground
* F61 : To F26
* F62 : Knock sensor
* F71 : To F17
* F72 : EGRC-solenoid valve

Diode F6

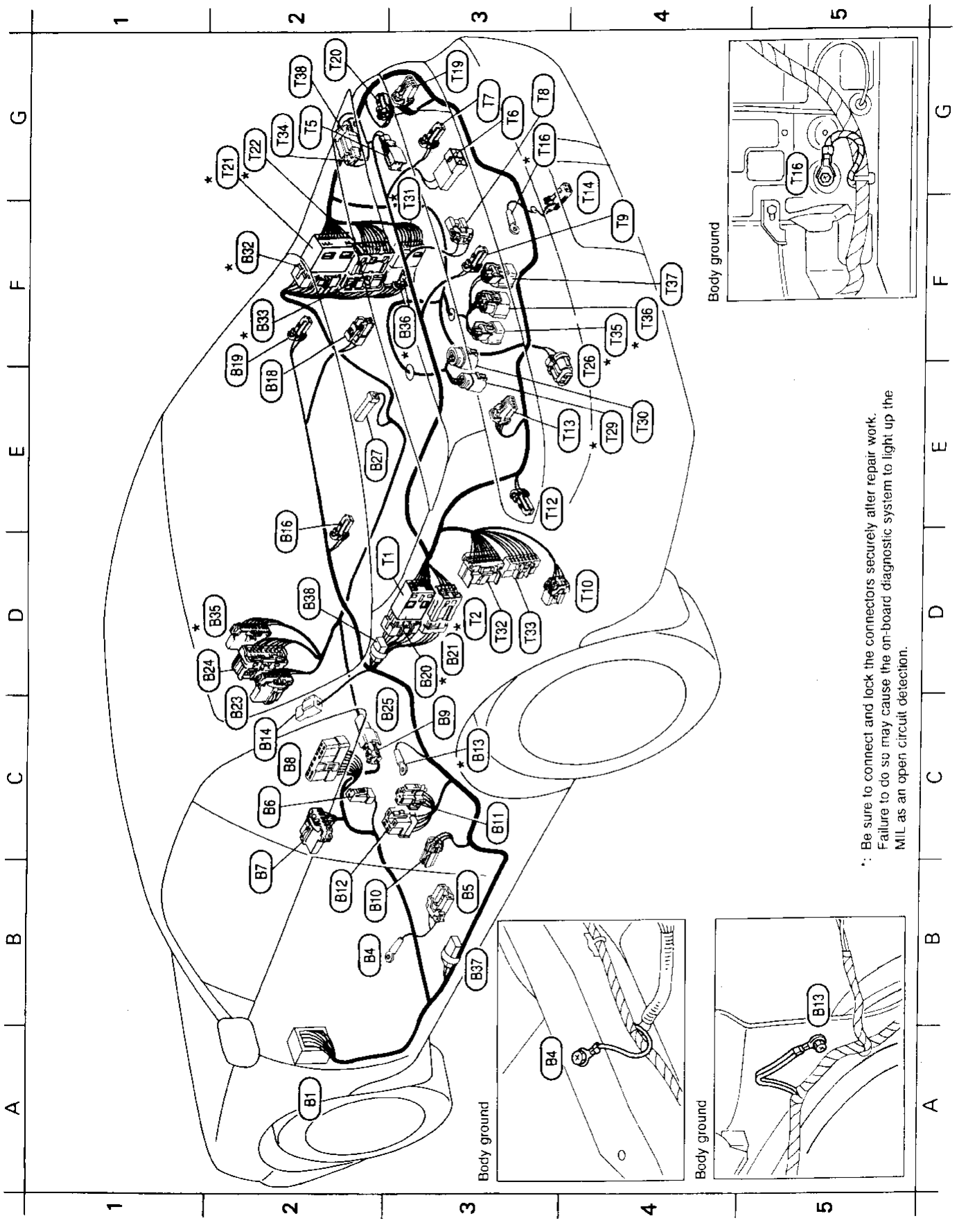



*: Be sure to connect and lock the connectors securely after repair work.
Failure to do so may cause the on-board diagnostic system to light up the MIL as an open circuit detection.



MEL363I

## Body Harness and Tail Harness




MEL355I

## Body harness

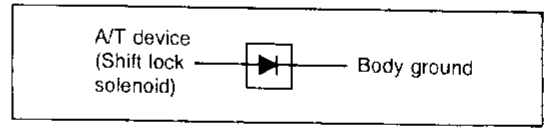
| | | | |
|---|---|---|---|
| A2 | B1 | : | To M10 (SMJ) |
| B2 * | B4 | : | Body ground |
| B3 | B5 | : | Seat belt buckle switch |
| C2 | B6 | : | Parking brake switch |
| B2 | B7 | : | A/T device |
| C2 | B8 | : | Door mirror remote control switch |
| C3 | B9 | : | To B25 |
| B2 | B10 | : | Door switch LH |
| C3 | B11 | : | Multi-remote control relay-2 (Models with theft warning system) |
| B2 | B12 | : | Multi-remote control relay-1 (Models with theft warning system) |
| C3 * | B13 | : | Body ground |
| C2 | B14 | : | Rear window defogger |
| D2 | B16 | : | Rear speaker LH |
| E2 | B18 | : | Trunk room lamp |
| E2 | B19 | : | Rear speaker RH |
| D3 | B20 | : | To T1 |
| D3 * | B21 | : | To T2 |
| C2 | B23 | : | To M65 (Models with ABS) |
| D2 | B24 | : | To F5 (Models with ABS) |
| C3 | B25 | : | To B9 |
| E2 | B27 | : | Door switch RH |
| F2 * | B32 | : | To T21 (Models with ABS) |
| F2 * | B33 | : | To T22 (Models with ABS) |
| D2 * | B35 | : | To F41 |
| F3 * | B36 | : | To T31 (Models without ABS) |
| B3 | B37 | : | Diode (A/T models) |
| D2 | B38 | : | Diode (Models with theft warning system) |

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

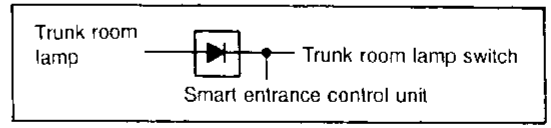
## Tail harness

| | | | |
|---|---|---|---|
| D3 | T1 | : | To B20 |
| D3 * | T2 | : | To B21 |
| G2 | T5 | : | High-mounted stop lamp |
| G3 | T6 | : | Trunk lid key cylinder switch (Models with theft warning system) |
| G3 | T7 | : | Back-up lamp RH |
| G3 | T8 | : | Trunk room lamp switch |
| F4 | T9 | : | Back-up lamp LH |
| D4 | T10 | : | Power antenna |
| E3 | T12 | : | Rear side marker lamp LH |
| E4 | T13 | : | Rear combination lamp LH |
| G4 | T14 | : | License plate lamp |
| G3 * | T16 | : | Body ground |
| G3 | T19 | : | Rear combination lamp RH |
| G2 | T20 | : | Rear side marker lamp RH |
| G2 * | T21 | : | To B32 (Models with ABS) |
| G2 * | T22 | : | To B33 (Models with ABS) |
| E4 | T26 | : | Rear wheel sensor (Models with ABS) |
| E4 * | T29 | : | Fuel tank gauge unit |
| E4 | T30 | : | Fuel pump |
| G3 * | T31 | : | To B36 (Models without ABS) |
| D3 | T32 | : | ABS control unit |
| D3 | T33 | : | ABS control unit |
| G2 | T34 | : | Check connector |
| F4 * | T35 | : | EVAP canister vent control valve |
| F4 * | T36 | : | EVAP control system pressure sensor |
| F4 | T37 | : | Vacuum cut valve bypass valve |
| G2 | T38 | : | Check connector |

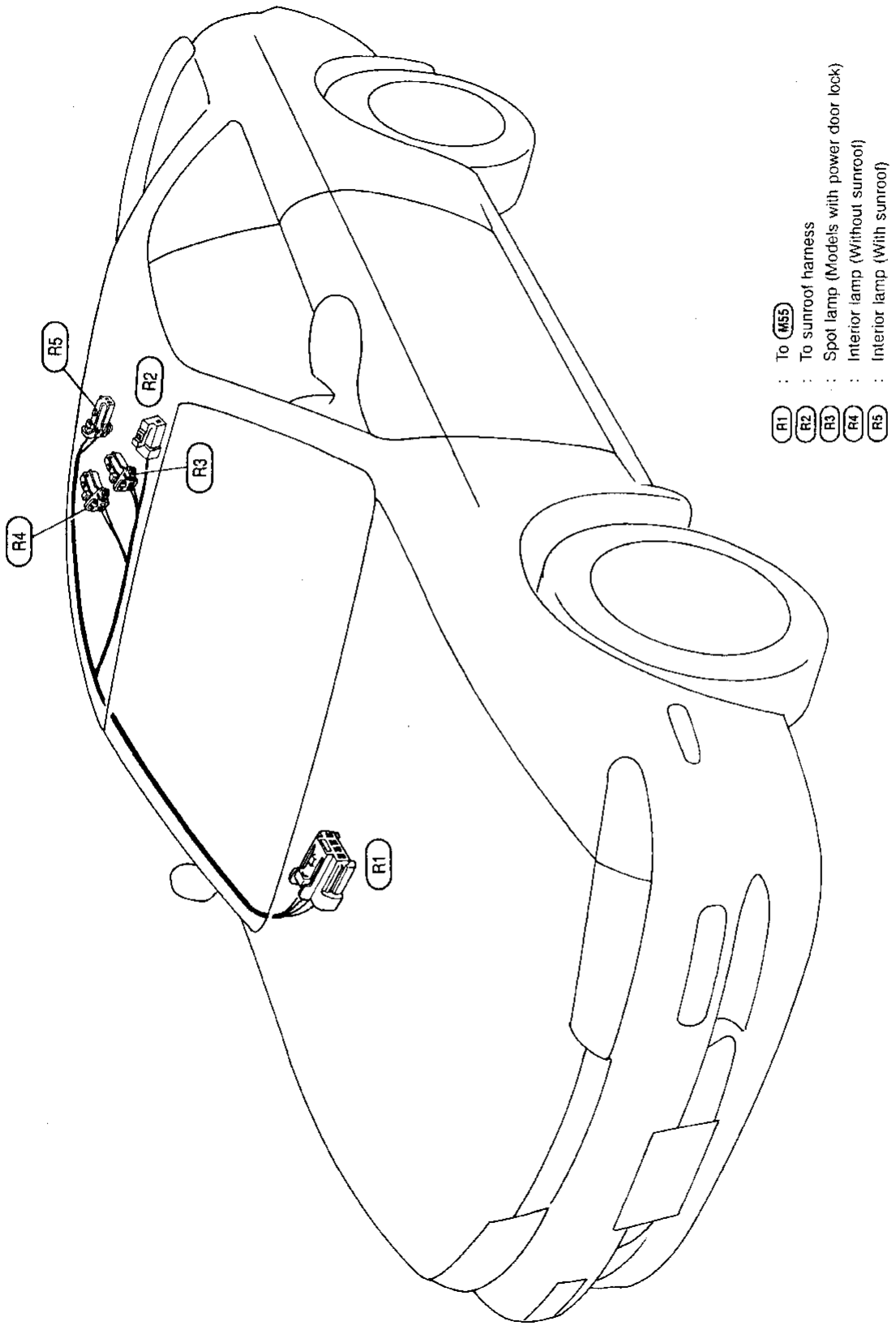
Diode B37




Diode B38

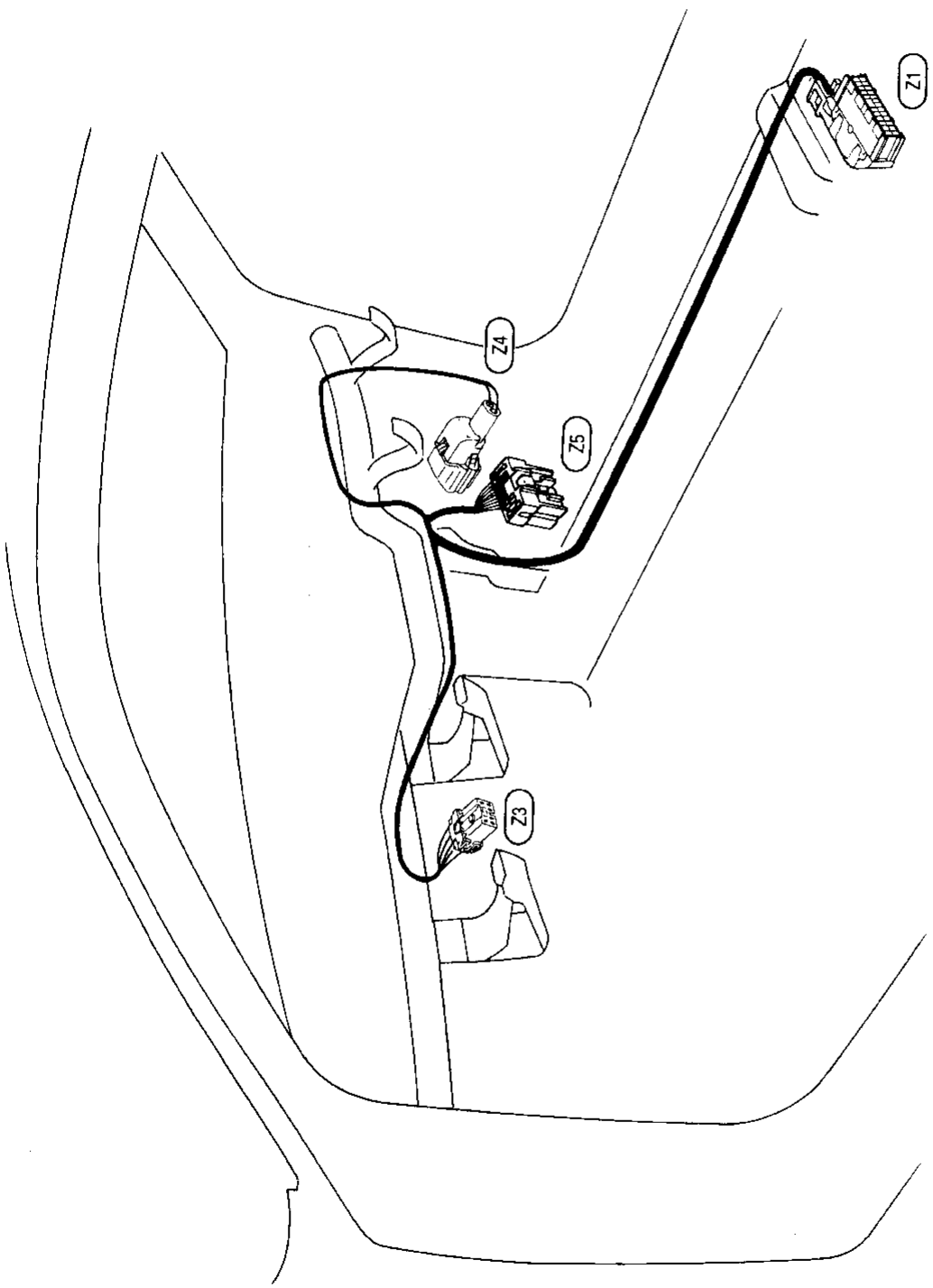


## Room Lamp Harness




MEL357I

## Air Bag Harness

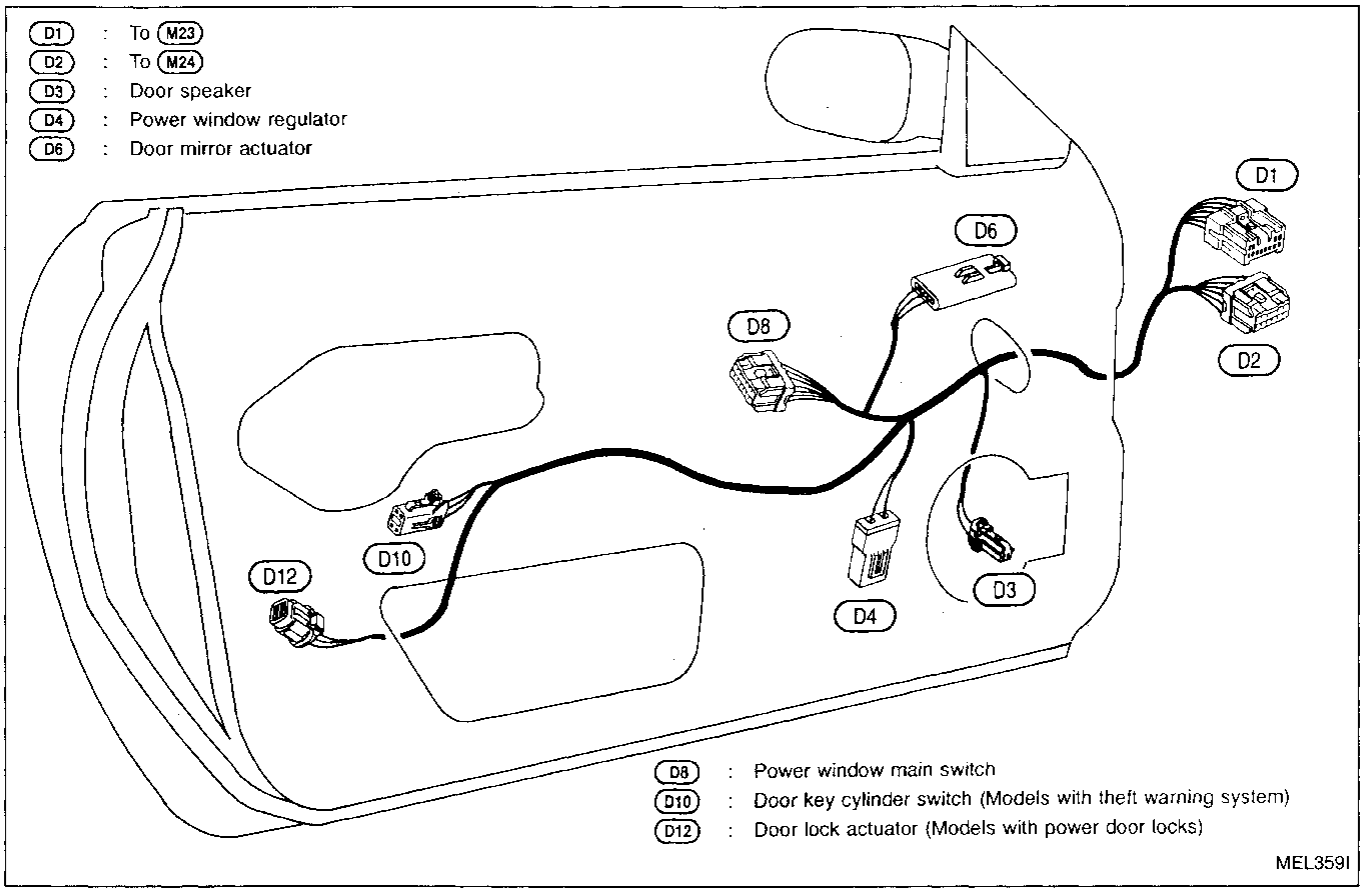



Z1 : Air bag diagnosis sensor unit
Z3 : To air bag module (Driver side), ASCD steering switch and horn switch via spiral cable
Z4 : Air bag module (Passenger side)
Z5 : To (M42)



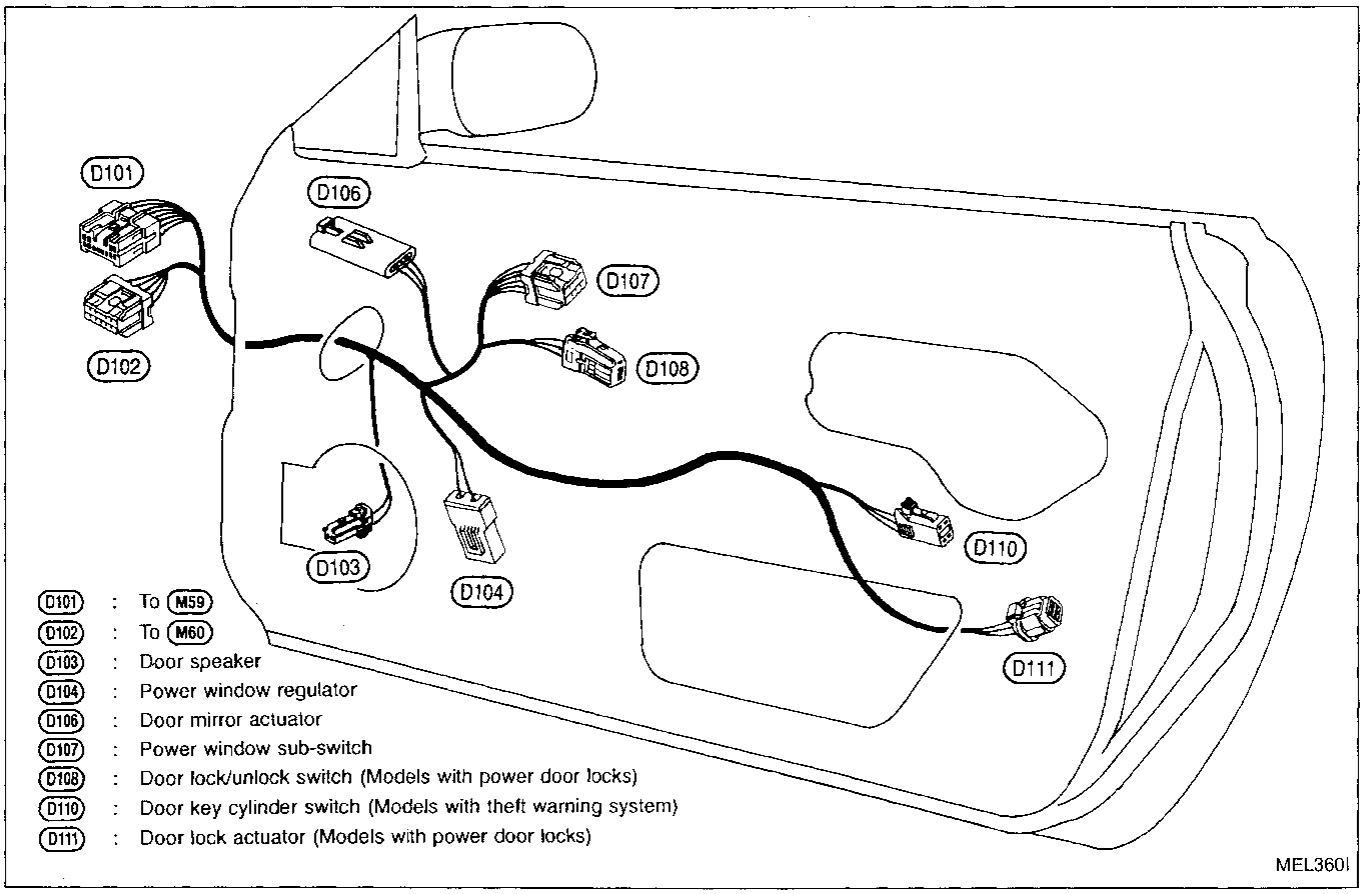
MEL358I

## Door Harness LH




MEL359I

## Door Harness RH




MEL360I

## Headlamp

| Item | | Wattage (W) |
|---|---|---|
| High/Low (Semi-sealed beam) | Inside | 65 (HB3) |
| | Outside | 55 (H1) |

## Exterior Lamp

| Item | | Wattage (W) |
|---|---|---|
| Front fog lamp | | 55 (H3) |
| Front turn signal lamp | | 27 |
| Parking lamp | | 8 |
| Front side marker lamp | | 3.8 |
| Rear side marker lamp | | 3.8 |
| Rear combination lamp | Turn signal lamp | 27 |
| | Stop/Tail lamp | 27/8 |
| Back-up lamp | | 27 |
| License plate lamp | | 5 |
| High-mounted stop lamp (BULB/LED) | | 5 |

## Interior Lamp

| Item | Wattage (W) |
|---|---|
| Interior lamp | 10 |
| Spot lamp | 10 |
| Trunk room lamp | 3.4 |

# WIRING DIAGRAM CODES (Cell codes)

Use the chart below to find out what each wiring diagram code stands for.
Refer to the wiring diagram code in the alphabetical index to find the location (page number) of each wiring diagram.

| Code | Section | Wiring Diagram Name |
|---|---|---|
| 5TH/P | EC | 5th Position Switch |
| AAC/V | EC | IACV-AAC Valve |
| ABS | BR | Anti-lock Brake System |
| A/C | HA | Air Conditioner |
| AIRREG | EC | IACV-Air Regulator |
| AP/SEN | EC | Absolute Pressure Sensor |
| ASCD | EL | Automatic Speed Control Device (ASCD) |
| A/T | AT | A/T |
| AT/C | EC | A/T Control |
| ATDIAG | EC | A/T Diagnosis Communication Line |
| AUDIO | EL | Audio |
| BACK/L | EL | Back-up Lamp |
| BUZZER | EL | Warning Buzzer |
| BYPS/V | EC | Vacuum Cut Valve Bypass Valve |
| CANI/V | EC | EVAP Canister Purge Control Valve/ Solenoid Valve |
| CHARGE | EL | Charging System |
| CIGAR | EL | Cigarette Lighter |
| CKPS | EC | Crankshaft Position Sensor |
| CLOCK | EL | Clock |
| CMPS | EC | Camshaft Position Sensor |
| COOL/F | EC | Cooling Fan Control |
| DEF | EL | Rear Window Defogger |
| D/LOCK | EL | Power Door Lock |
| DTRL | EL | Headlamp - With Daytime Light System |
| ECTS | EC | Engine Coolant Temperature Sensor |
| EGRC | EC | EGR Function |
| EGRC/V | EC | EGR and Canister Control Solenoid Valve |
| EGR/TS | EC | EGR Temperature Sensor |
| F/FOG | EL | Front Fog Lamp |
| FICD | EC | IACV-FICD Solenoid Valve |
| F/PUMP | EC | Fuel Pump Control |
| FRO2 | EC | Front Heated Oxygen Sensor |
| FRO2/H | EC | Front Heated Oxygen Sensor Heater |
| FUEL | EC | Fuel Injection System Function |
| H/LAMP | EL | Headlamp |
| HORN | EL | Horn |
| IATS | EC | Intake Air Temperature Sensor |
| IGN/SG | EC | Ignition Signal |
| ILL | EL | Illumination |
| INJECT | EC | Injector |
| INT/L | EL | Spot and Trunk Room Lamps |
| KS | EC | Knock Sensor |
| LD/SIG | EC | Electrical Load Signal |
| MAFS | EC | Mass Air Flow Sensor |
| MAIN | EC | Main Power Supply and Ground Circuit |
| METER | EL | Speedometer, Tachometer, Temp., Oil and Fuel Gauges |
| MIL | EC | MIL, Data Link Connector For CONSULT, GST |
| MIRROR | EL | Door Mirror |
| MULTI | EL | Multi-remote Control System |
| P/ANT | EL | Power Antenna |
| PGC/V | EC | EVAP Canister Purge Volume Control Valve |
| PNP/SW | EC | Park/Neutral Position Switch |
| POWER | EL | Power Supply Routing |
| PRE/SE | EC | EVAP Control System Pressure Sensor |
| PST/SW | EC | Power Steering Oil Pressure Switch |
| RRO2 | EC | Rear Heated Oxygen Sensor |
| SHIFT | AT | A/T Shift Lock System |
| SROOF | EL | Sunroof |
| SRS | RS | Supplemental Restraint System |
| S/SIG | EC | Start Signal |
| START | EL | Starting System |
| SW/V | EC | MAP/BARO Switch Solenoid Valve |
| TAIL/L | EL | Parking, License, Tail and Stop Lamps |
| TFTS | EC | Tank Fuel Temperature Sensor |
| THEFT | EL | Theft Warning System |
| TPS | EC | Throttle Position Sensor |
| TP/SW | EC | Throttle Position Switch |
| TURN | EL | Turn Signal and Hazard Warning Lamps |
| VENT/V | EC | EVAP Canister Vent Control Valve |
| VSS | EC | Vehicle Speed Sensor |
| WARN | EL | Warning Lamps |
| WINDOW | EL | Power Window |
| WIPER | EL | Front Wiper and Washer |