# ELECTRICAL SYSTEM

# SECTION EL

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

**When you perform trouble diagnoses, read GI section, "HOW TO FOLLOW FLOW CHART IN TROUBLE DIAGNOSES" and "HOW TO PERFORM EFFICIENT DIAGNOSIS FOR AN ELECTRICAL INCIDENT".**
- **Check for any service bulletins before servicing the vehicle.**

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## Supplemental Restraint System (SRS) “AIR BAG” and “SEAT BELT PRE-TENSIONER”

The Supplemental Restraint System such as “AIR BAG” and “SEAT BELT PRE-TENSIONER” used along with a seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. The SRS system composition which is available to INFINITI Q45 is as follows:

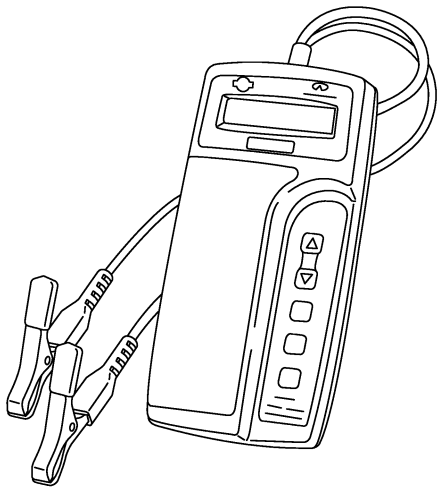
- For a frontal collision
  The Supplemental Restraint System consists of driver air bag module (located in the center of the steering wheel), front passenger air bag module (located on the instrument panel on passenger side), seat belt pre-tensioners, a diagnosis sensor unit, warning lamp, wiring harness and spiral cable.
- For a side collision
  The Supplemental Restraint System consists of front side air bag module (located in the outer side of front seat), satellite sensor, diagnosis sensor unit (one of components of air bags for a frontal collision), wiring harness, warning lamp (one of components of air bags for a frontal collision).

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 should be performed by an authorized INFINITI dealer.**
- **Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the RS section.**
- **Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. Spiral cable and wiring harnesses (except satellite sensor and side air bag module) covered with yellow insulation tape either just before the harness connectors or for the complete harness are related to the SRS.**

## Special Service Tool

| Tool number<br>Tool name | Description |
|---|---|
| J-44373 Model 620<br>Battery/Starting/Charging system tester |  <br>SEL403X |

# Description

## HARNESS CONNECTOR (TAB-LOCKING TYPE)

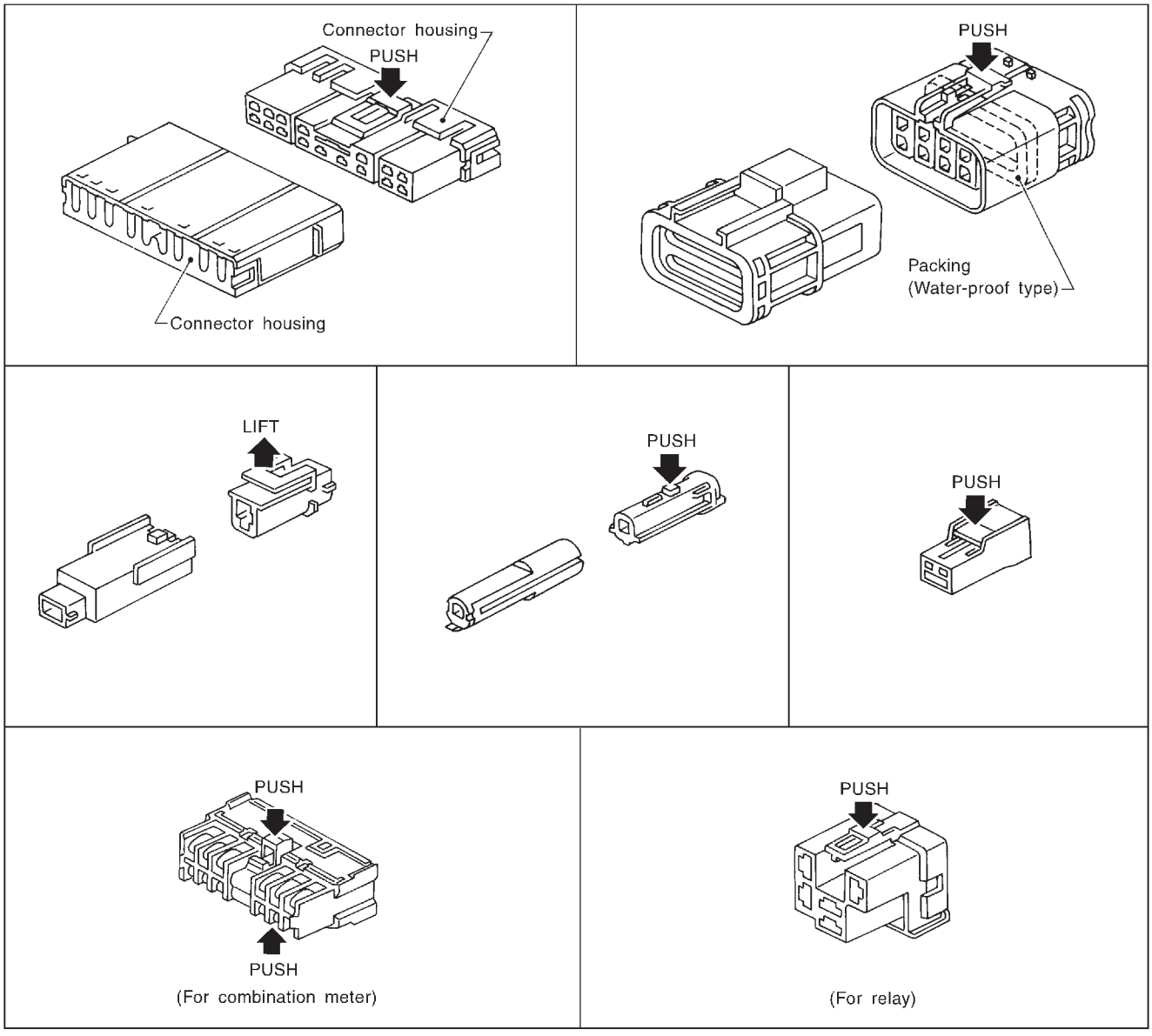
- The tab-locking type connectors help prevent accidental looseness or disconnection.
- The tab-locking type connectors are disconnected by pushing or lifting the locking tab(s). Refer to the illustration below.

**Refer to the next page for description of the slide-locking type connector.**

**CAUTION:**

**Do not pull the harness or wires when disconnecting the connector.**

[Example]




SEL769DA

## Description (Cont'd)

### HARNESS CONNECTOR (SLIDE-LOCKING TYPE)

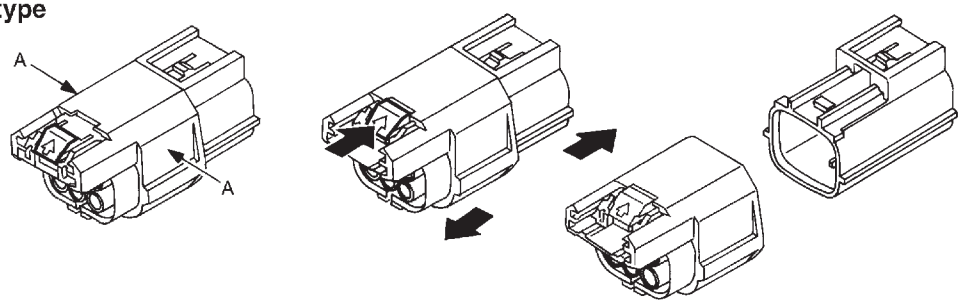
- A new style slide-locking type connector is used on certain systems and components, especially those related to OBD.
- The slide-locking type connectors help prevent incomplete locking and accidental looseness or disconnection.
- The slide-locking type connectors are disconnected by pushing or pulling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

**CAUTION:**

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

[Example]

**Waterproof type**

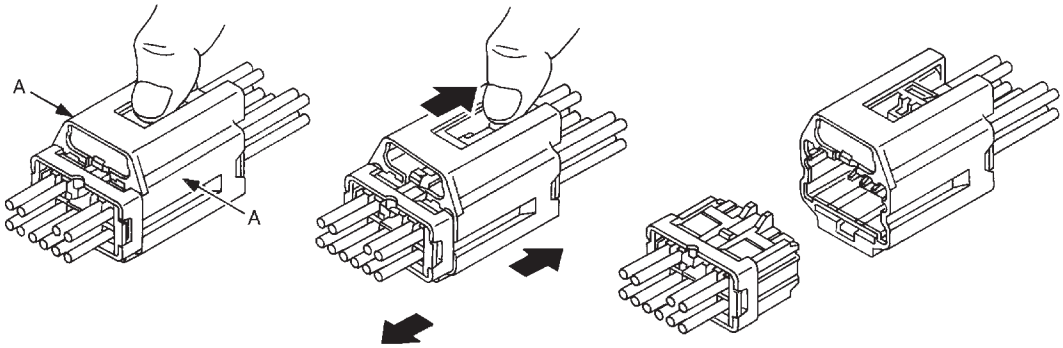



① Firmly grasp shell of connector housing at A.

② Push slider until connector pops or snaps apart.

③ Disconnect harness connector.

**Non-waterproof type**




① Firmly grasp shell of connector housing at A.

② Pull back on the slider while pulling apart male and famale halves of connector.

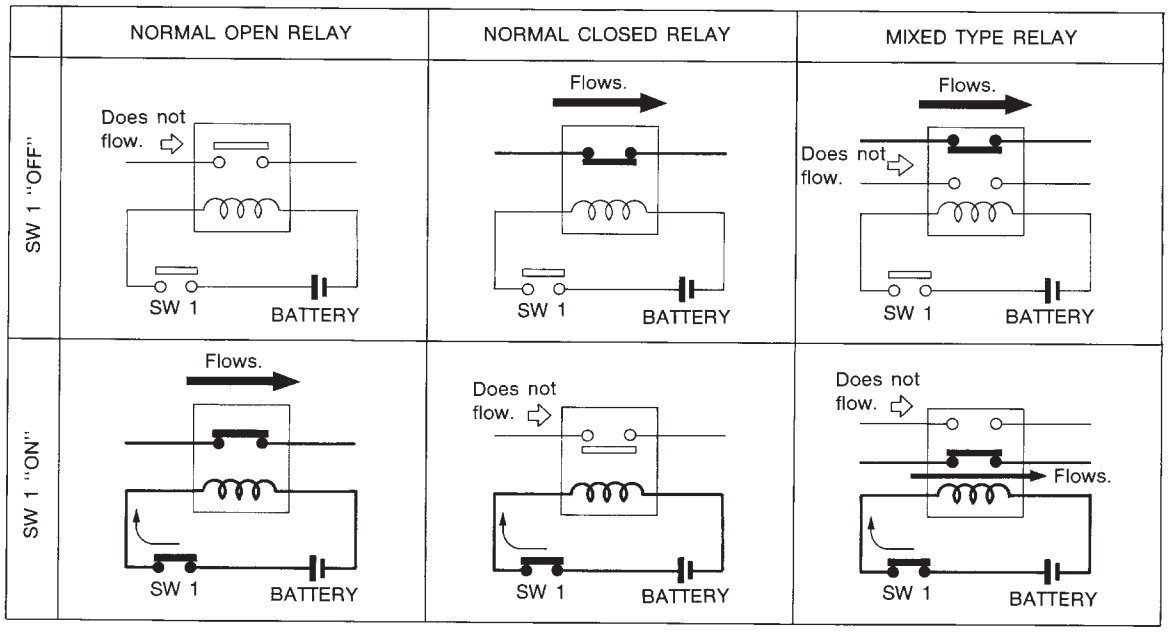
③ Disconnect harness connector.

SEL769V

# Description

## NORMAL OPEN, NORMAL CLOSED AND MIXED TYPE RELAYS

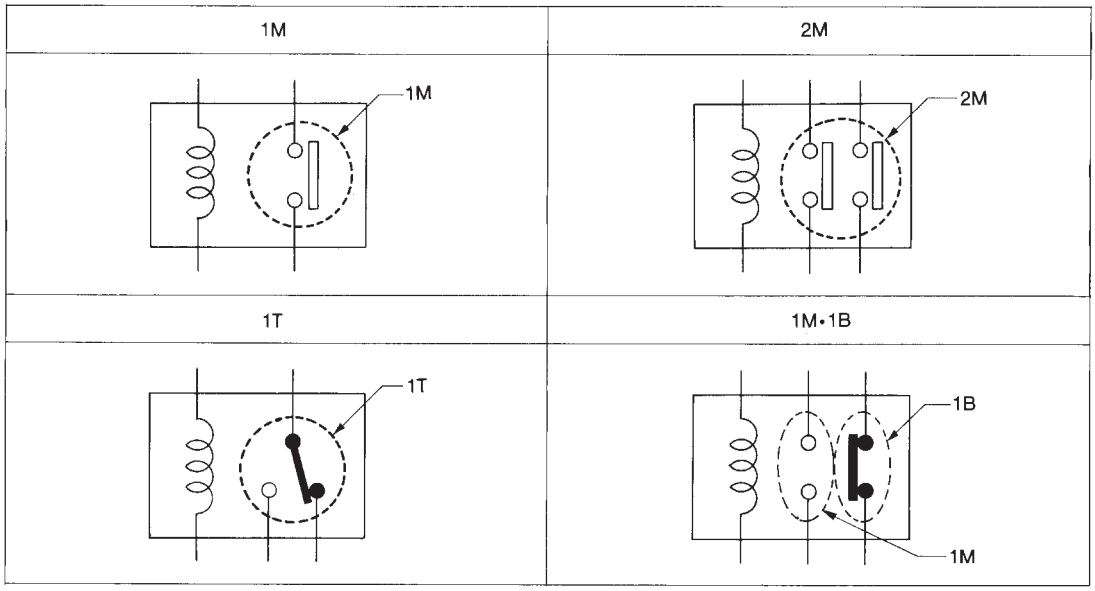
Relays can mainly be divided into three types: normal open, normal closed and mixed type relays.




SEL881H

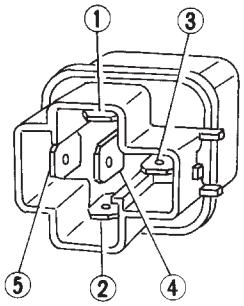
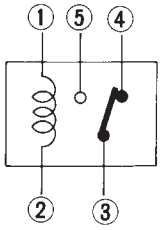
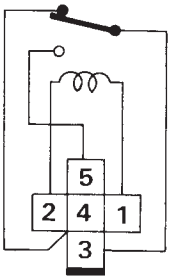
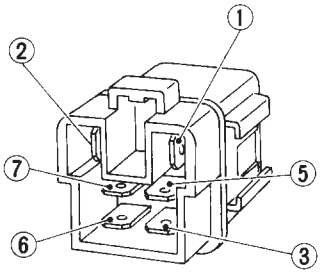
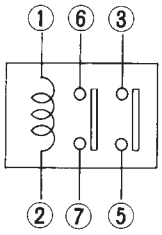
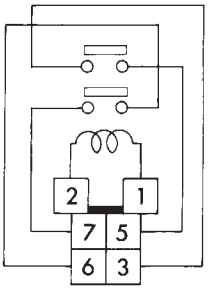
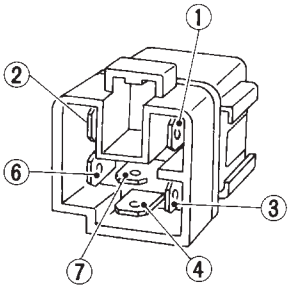
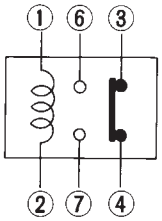
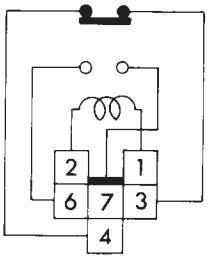
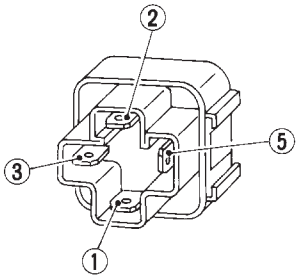
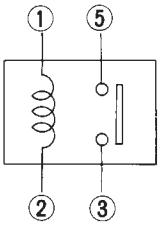
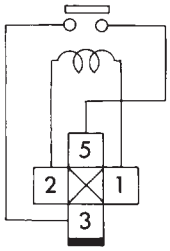
## TYPE OF STANDARDIZED RELAYS

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




SEL882H

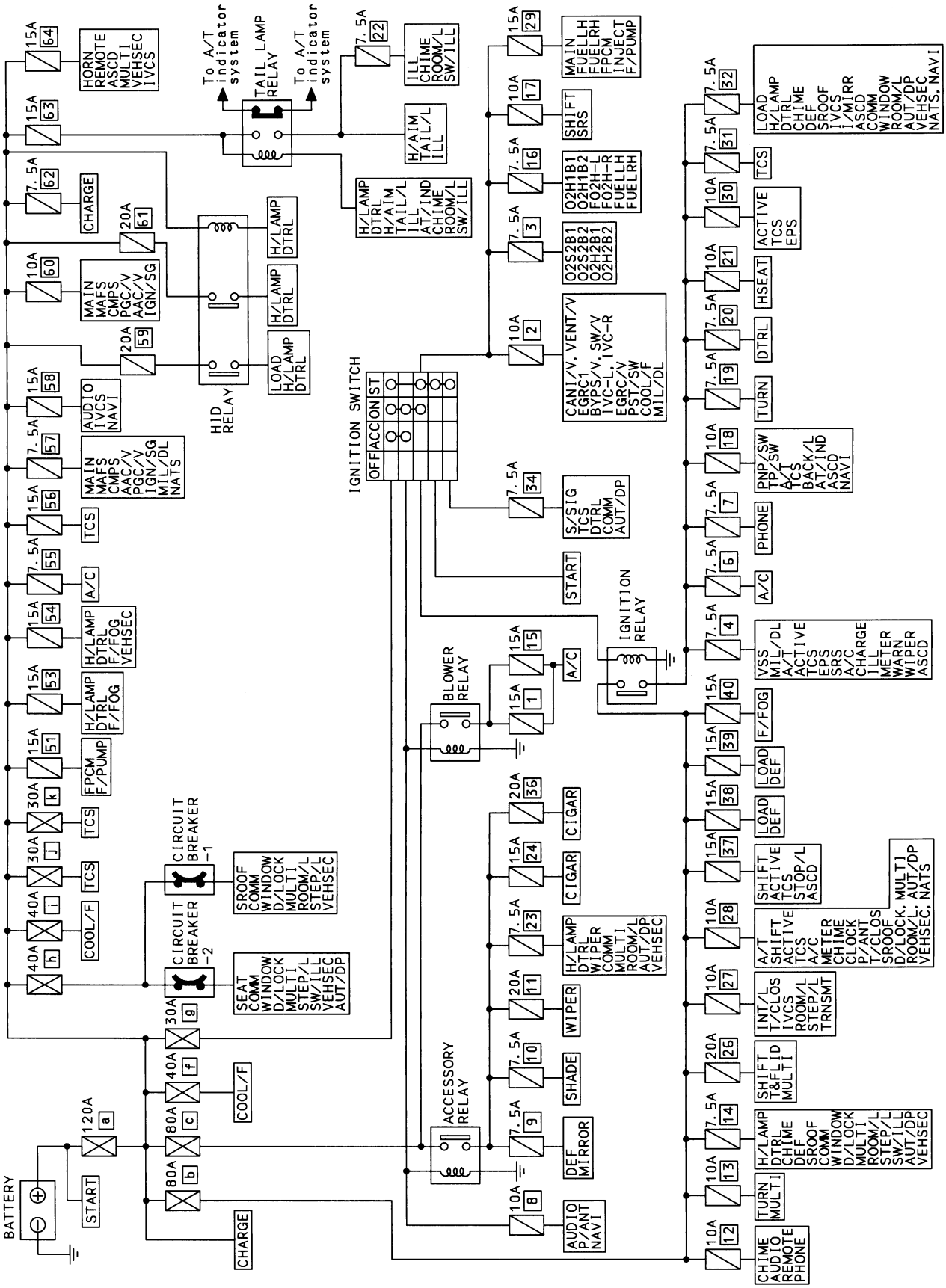
## Description (Cont'd)

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

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

SEL661TA

## Schematic

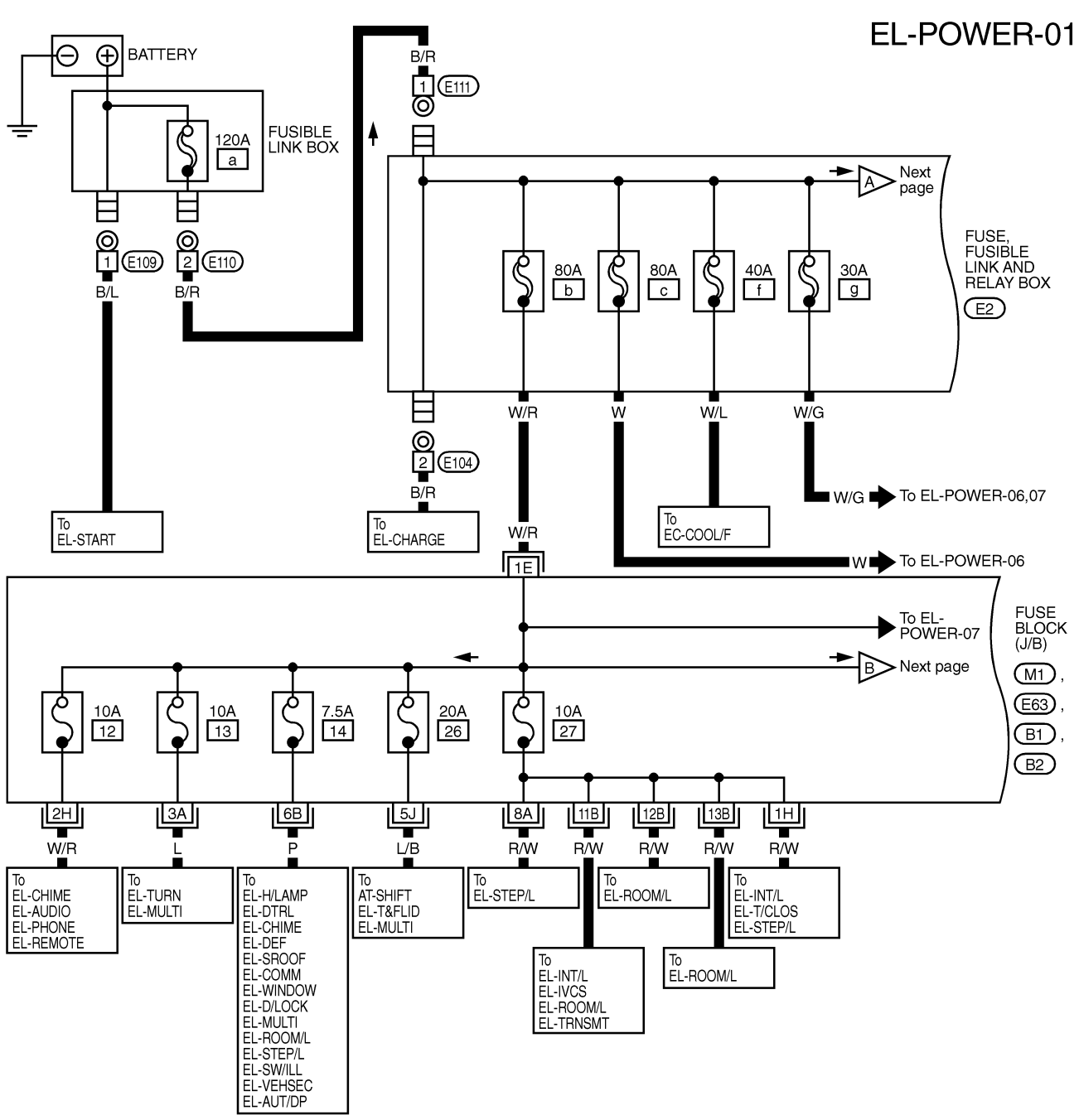


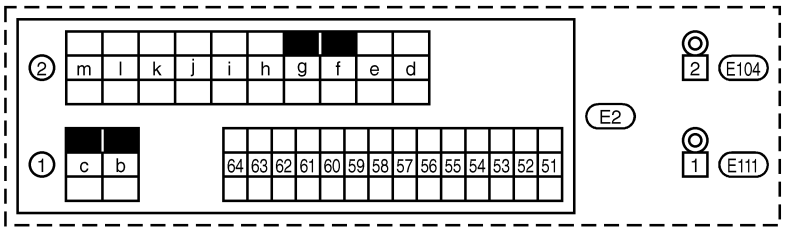

TEL711B

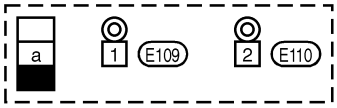
## Wiring Diagram — POWER —

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

**NOTE: For detailed ground distribution information, refer to “GROUND DISTRIBUTION”, EL-23.**




REFER TO THE FOLLOWING.

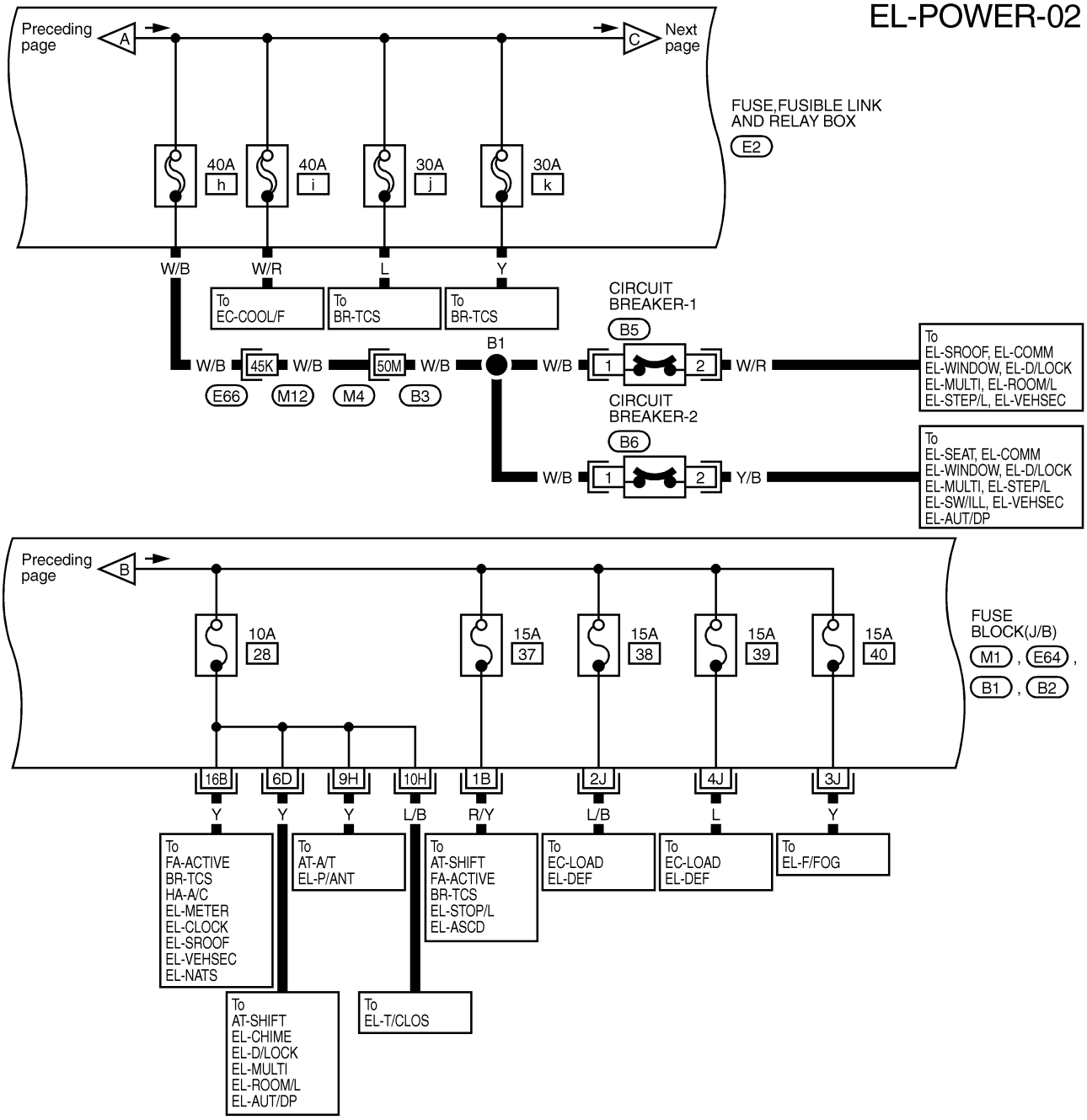
M1, E63, B1, B2 -FUSE BLOCK-JUNCTION BOX (J/B)

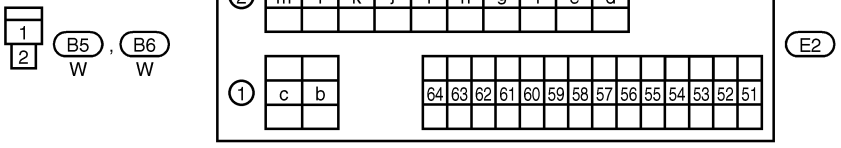
| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
| | | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |

TEL712B

## Wiring Diagram — POWER — (Cont'd)

EL-POWER-02




REFER TO THE FOLLOWING.

M4 , E66 -SUPER MULTIPLE JUNCTION (SMJ)

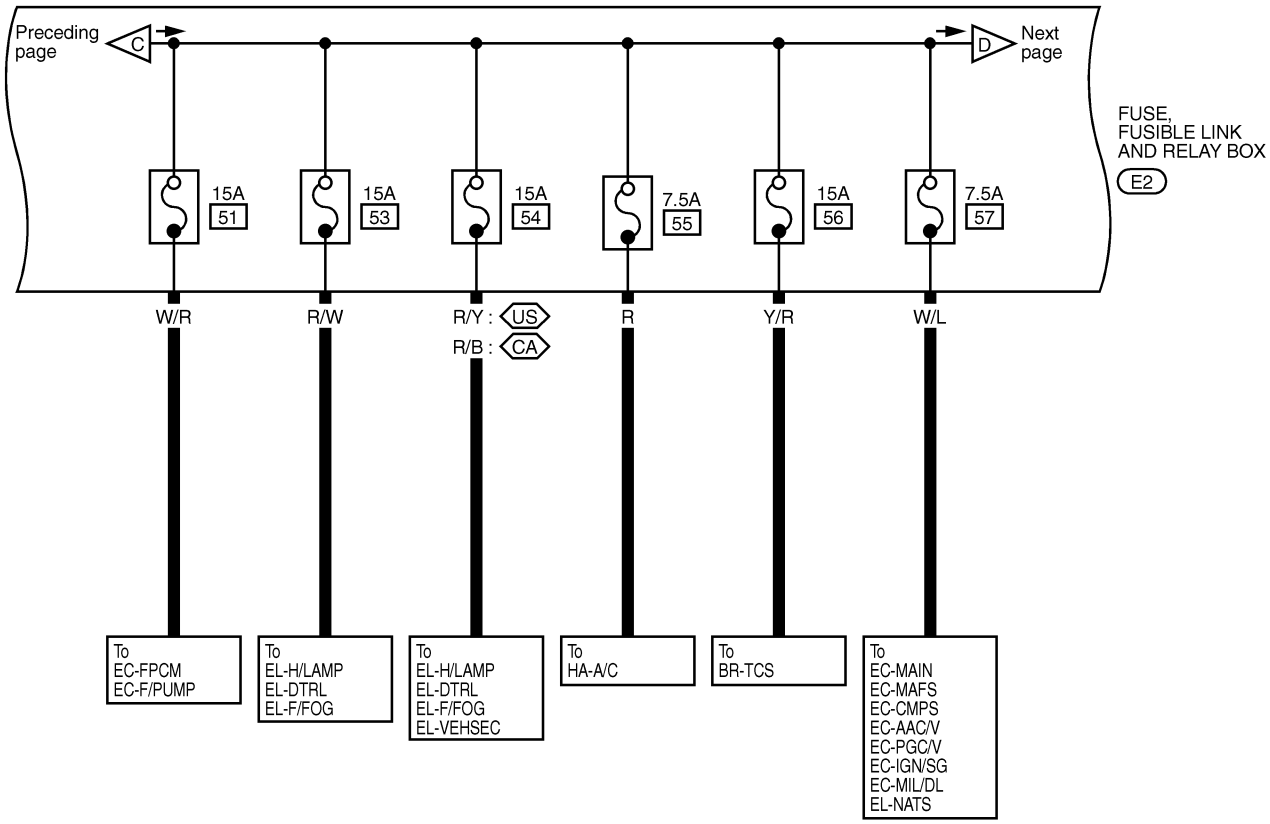
M1 , E64 , B1 , B2 -FUSE BLOCK-JUNCTION BOX (J/B)

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
| | | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |

TEL713B

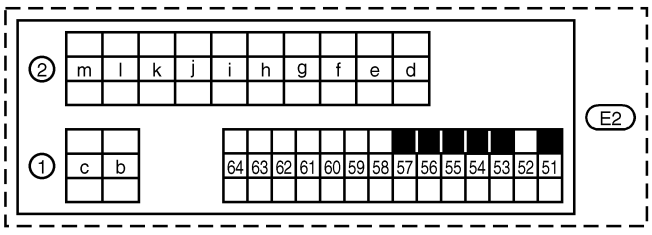
## Wiring Diagram — POWER — (Cont'd)

EL-POWER-03




US : For U.S.A.

CA : For Canada

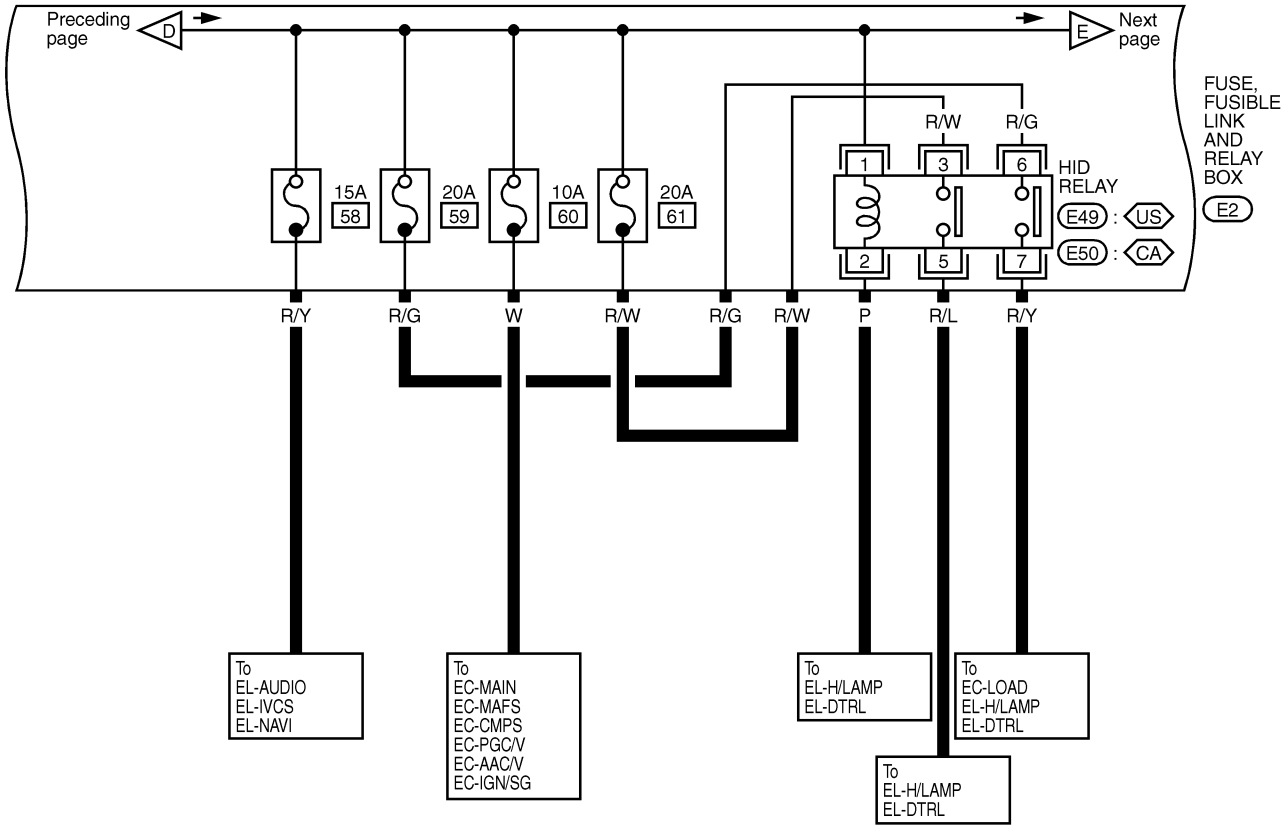


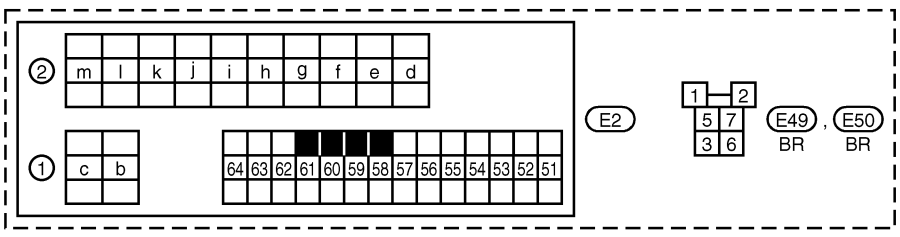

TEL714B

## Wiring Diagram — POWER — (Cont'd)

EL-POWER-04

US : For U.S.A.
CA : For Canada

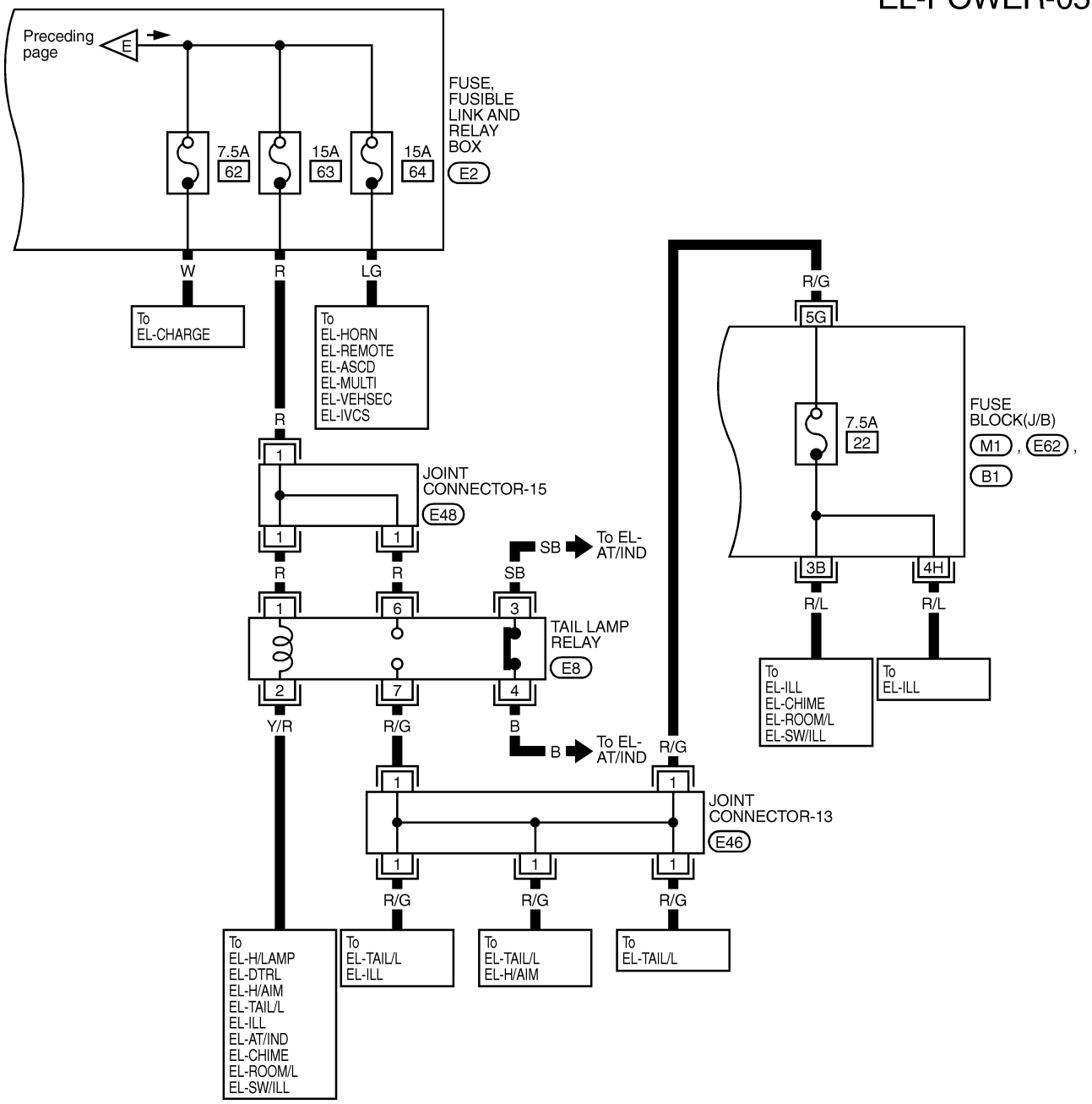


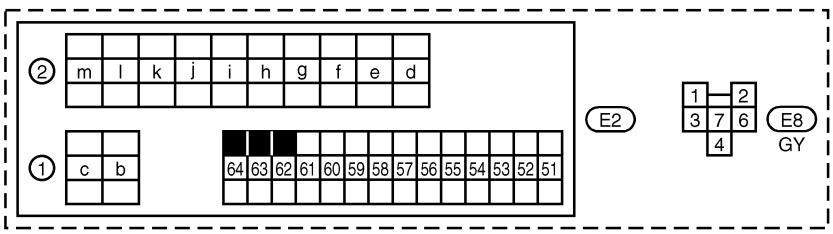



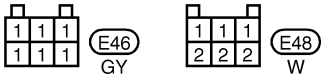

TEL653B

## Wiring Diagram — POWER — (Cont'd)

EL-POWER-05




REFER TO THE FOLLOWING.

M1 , E62 , B1 -FUSE BLOCK- JUNCTION BOX (J/B)

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
| | | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |

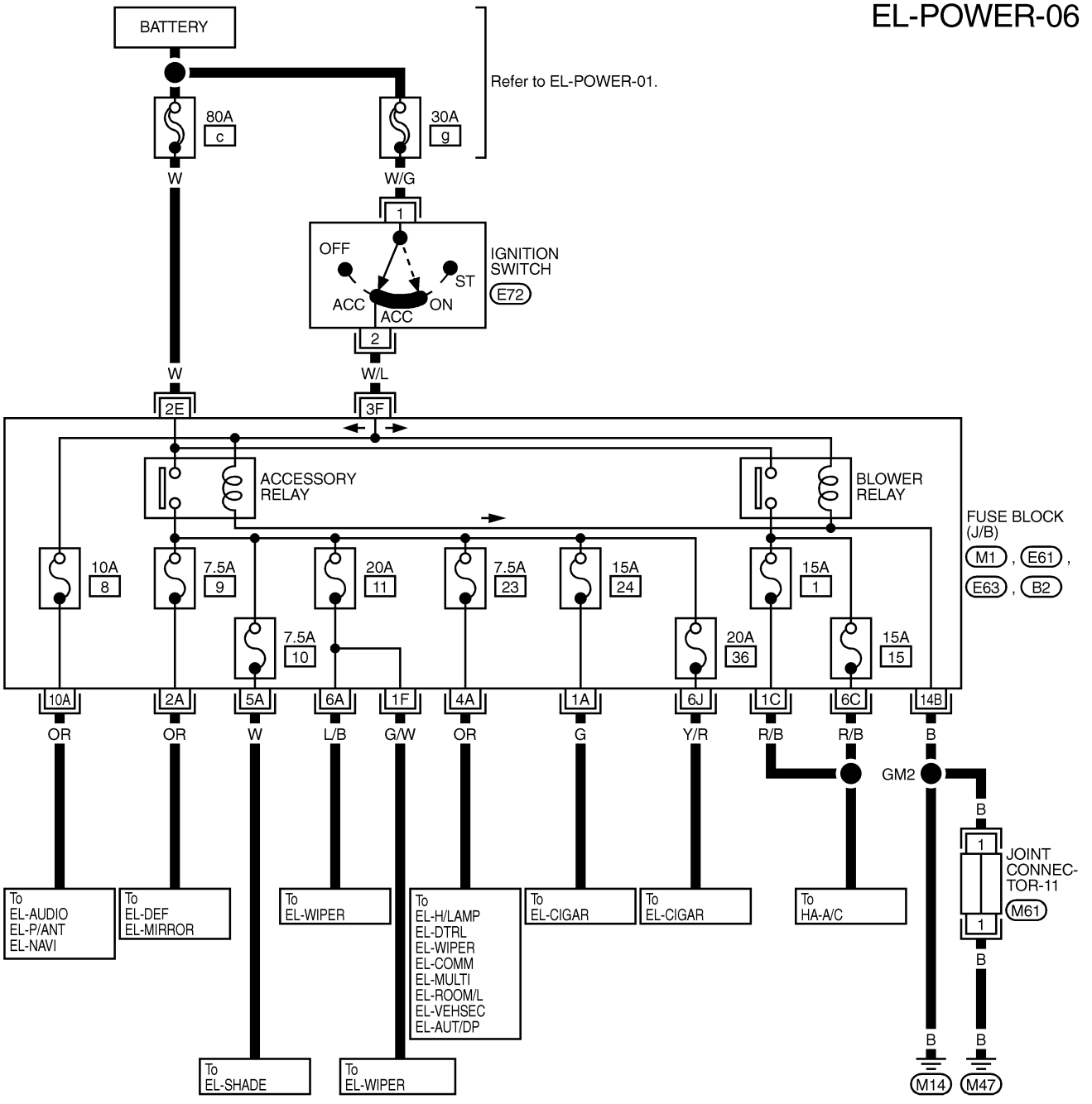
TEL715B

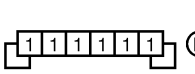
## Wiring Diagram — POWER — (Cont'd)

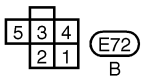
### IGNITION POWER SUPPLY — IGNITION SW. IN "ACC" OR "ON"

**NOTE: For detailed ground distribution information, refer to "GROUND DISTRIBUTION", EL-23.**

EL-POWER-06




REFER TO THE FOLLOWING.

M1 , E61 , E63 , B2 -FUSE BLOCK-JUNCTION BOX (J/B)

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
| | | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |

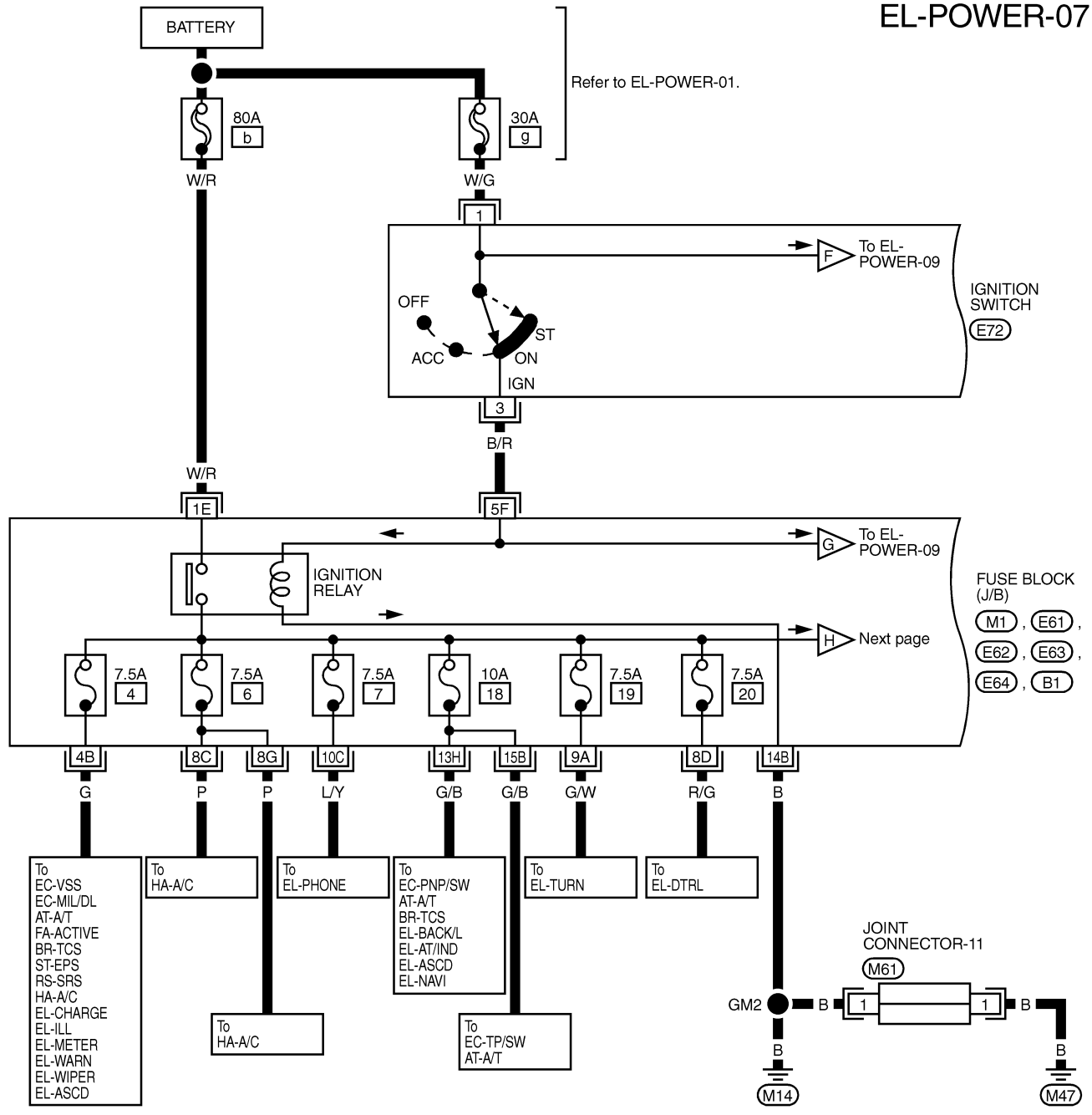
TEL716B

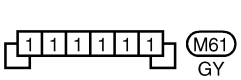
## Wiring Diagram — POWER — (Cont'd)

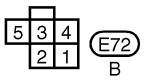
### IGNITION POWER SUPPLY — IGNITION SW. IN "ON" AND/OR "START"

**NOTE: For detailed ground distribution information, refer to "GROUND DISTRIBUTION", EL-23.**

EL-POWER-07




REFER TO THE FOLLOWING.

M1, E61, E62, E63, E64, B1 -FUSE BLOCK-JUNCTION BOX (J/B)

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
| | | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |

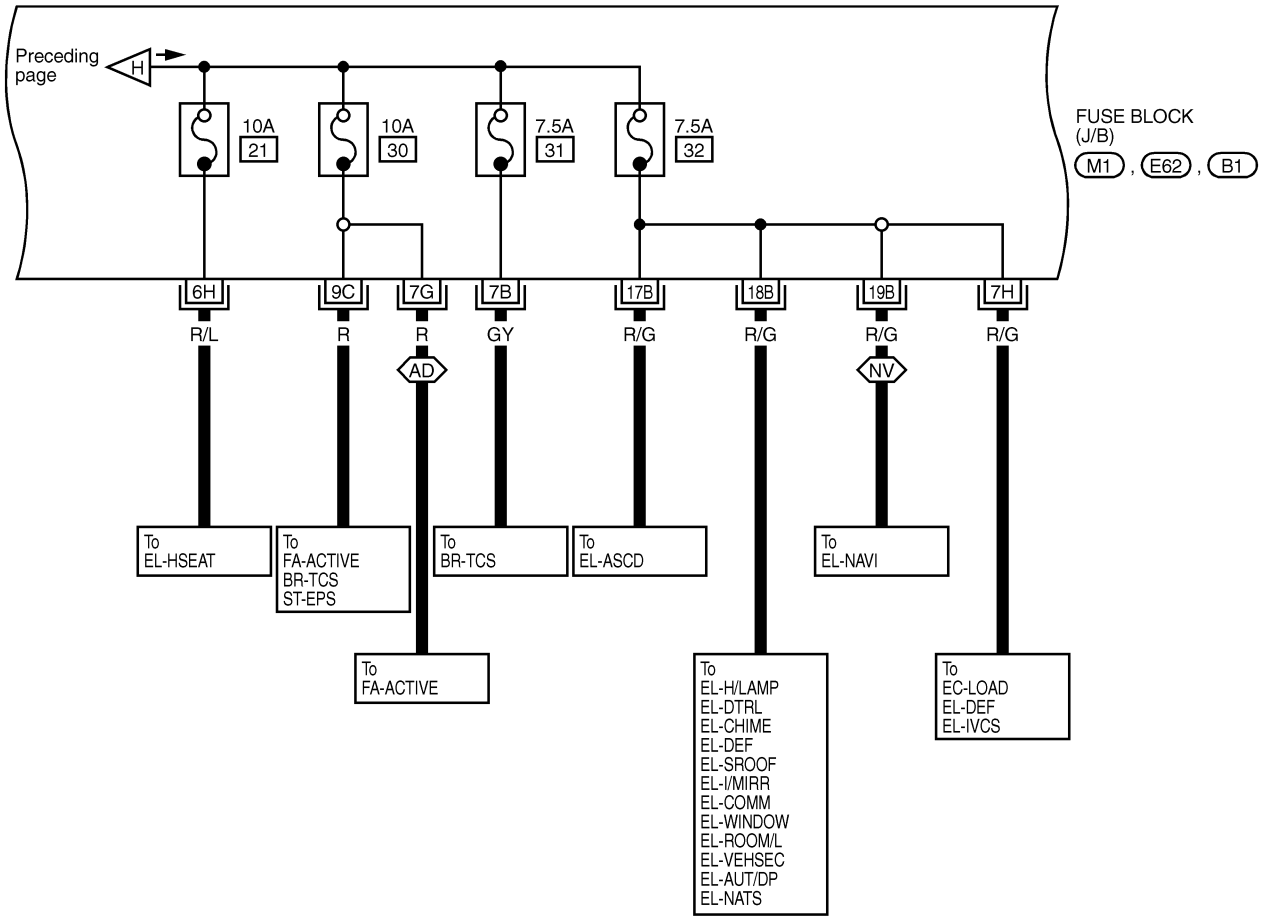
TEL655B

## Wiring Diagram — POWER — (Cont'd)

EL-POWER-08

AD : With active damper suspension

NV : With navigation system




REFER TO THE FOLLOWING.

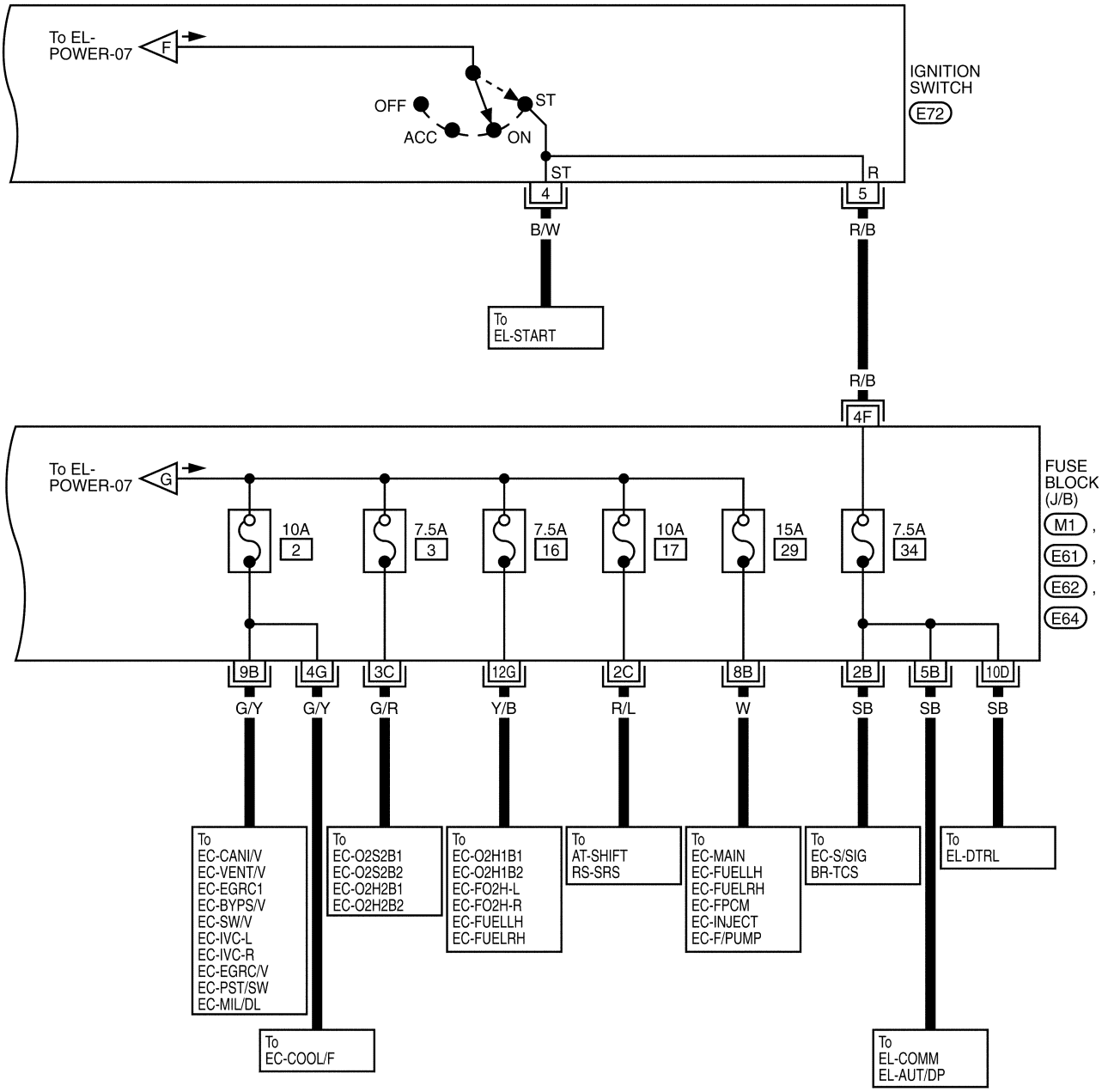
M1 , E62 , B1 -FUSE BLOCK-JUNCTION BOX (J/B)

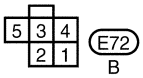
| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
| | | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |

TEL718B

## Wiring Diagram — POWER — (Cont'd)

EL-POWER-09



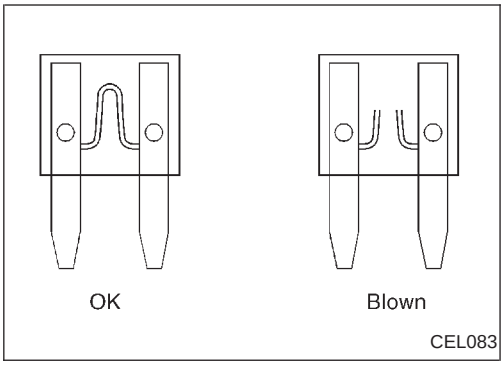




REFER TO THE FOLLOWING.

M1, E61, E62, E64 -FUSE BLOCK-JUNCTION BOX (J/B)

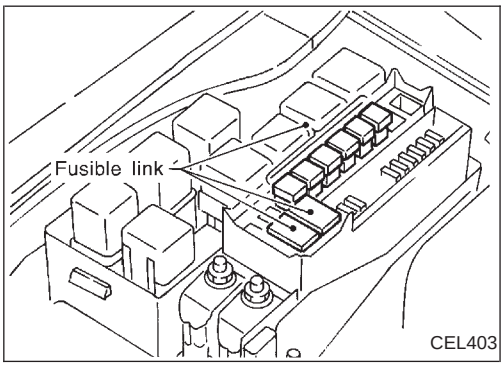
| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
| | | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |

TEL719B




## 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.**

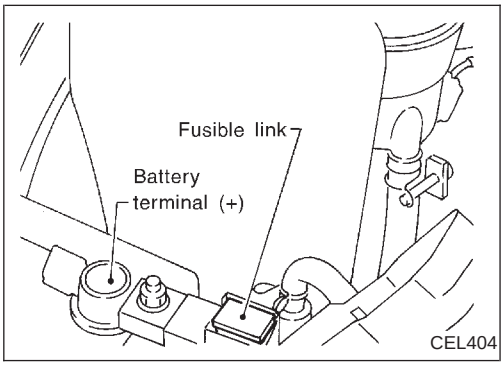


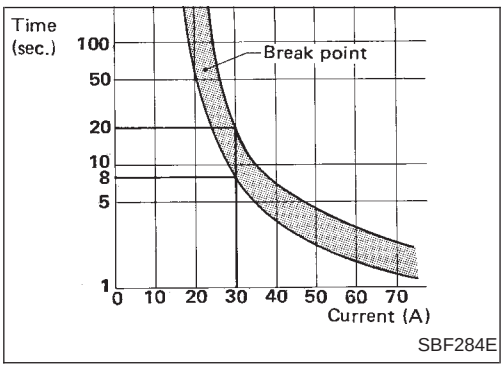

## Fusible Link

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:**

**a. 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.**
**b. Never wrap outside of fusible link with vinyl tape. Important: Never let fusible link touch any other wiring harness, vinyl or rubber parts.**

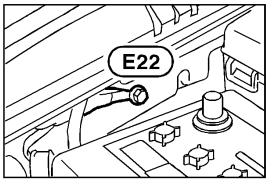


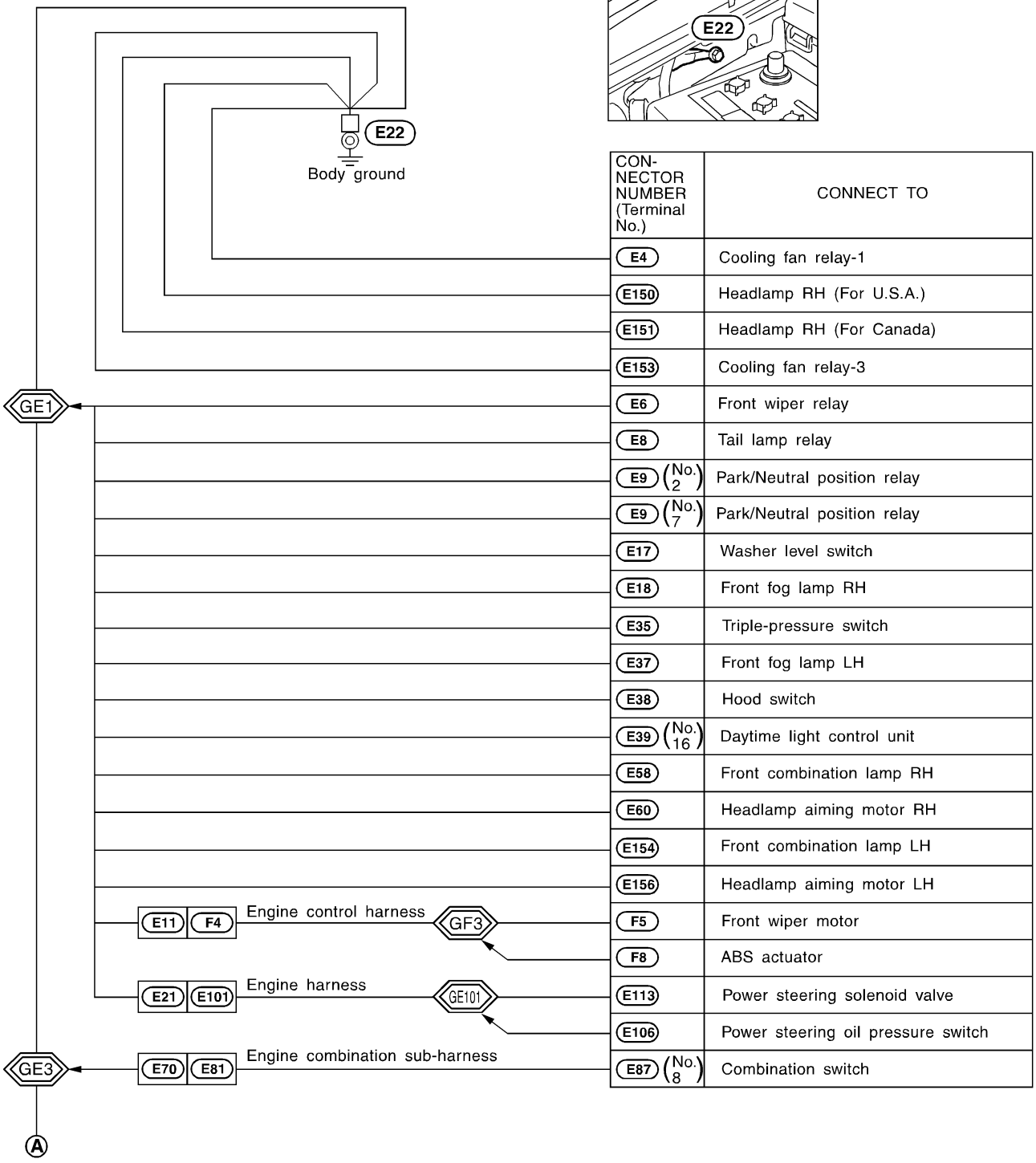




## Circuit Breaker Inspection

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

## Engine Room Harness

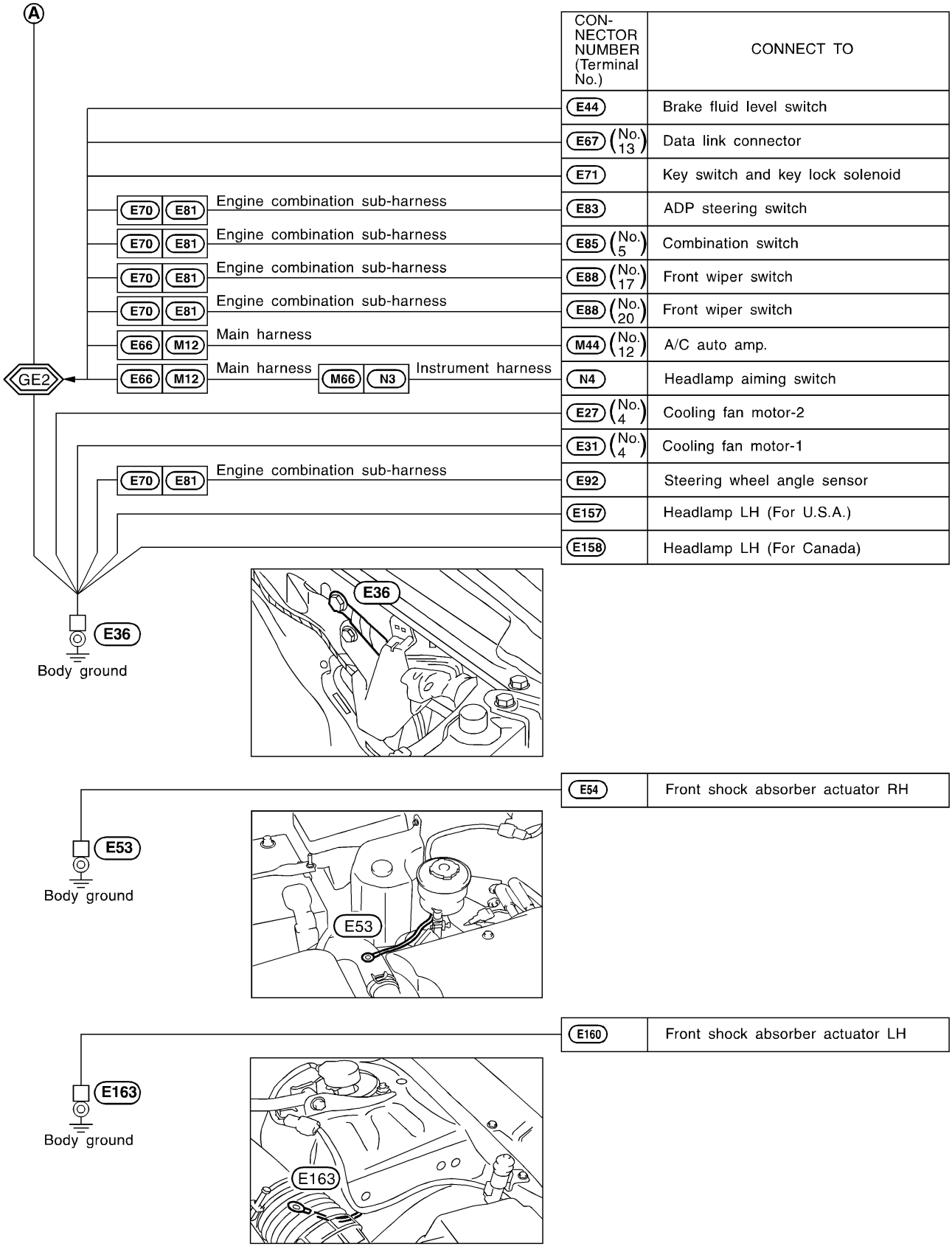



| CONNECTOR NUMBER (Terminal No.) | CONNECT TO |
|---|---|
| E4 | Cooling fan relay-1 |
| E150 | Headlamp RH (For U.S.A.) |
| E151 | Headlamp RH (For Canada) |
| E153 | Cooling fan relay-3 |
| E6 | Front wiper relay |
| E8 | Tail lamp relay |
| E9 (No. 2) | Park/Neutral position relay |
| E9 (No. 7) | Park/Neutral position relay |
| E17 | Washer level switch |
| E18 | Front fog lamp RH |
| E35 | Triple-pressure switch |
| E37 | Front fog lamp LH |
| E38 | Hood switch |
| E39 (No. 16) | Daytime light control unit |
| E58 | Front combination lamp RH |
| E60 | Headlamp aiming motor RH |
| E154 | Front combination lamp LH |
| E156 | Headlamp aiming motor LH |
| F5 | Front wiper motor |
| F8 | ABS actuator |
| E113 | Power steering solenoid valve |
| E106 | Power steering oil pressure switch |
| E87 (No. 8) | Combination switch |

CEL043M

## Engine Room Harness (Cont'd)

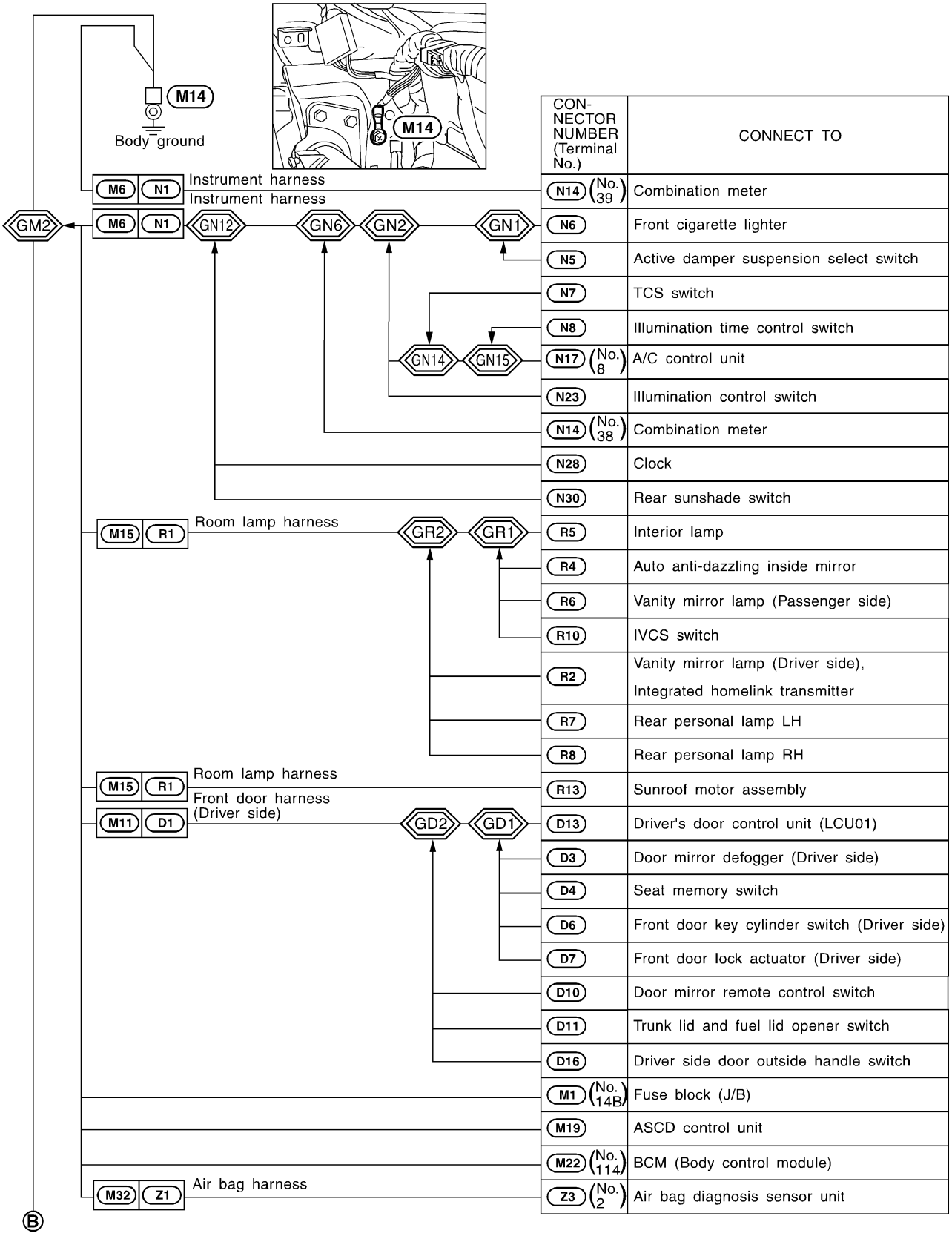



| CONNECTOR NUMBER (Terminal No.) | CONNECT TO |
|---|---|
| E44 | Brake fluid level switch |
| E67 (No. 13) | Data link connector |
| E71 | Key switch and key lock solenoid |
| E83 | ADP steering switch |
| E85 (No. 5) | Combination switch |
| E88 (No. 17) | Front wiper switch |
| E88 (No. 20) | Front wiper switch |
| M44 (No. 12) | A/C auto amp. |
| N4 | Headlamp aiming switch |
| E27 (No. 4) | Cooling fan motor-2 |
| E31 (No. 4) | Cooling fan motor-1 |
| E92 | Steering wheel angle sensor |
| E157 | Headlamp LH (For U.S.A.) |
| E158 | Headlamp LH (For Canada) |
| E54 | Front shock absorber actuator RH |
| E160 | Front shock absorber actuator LH |

CEL044M

## Main Harness

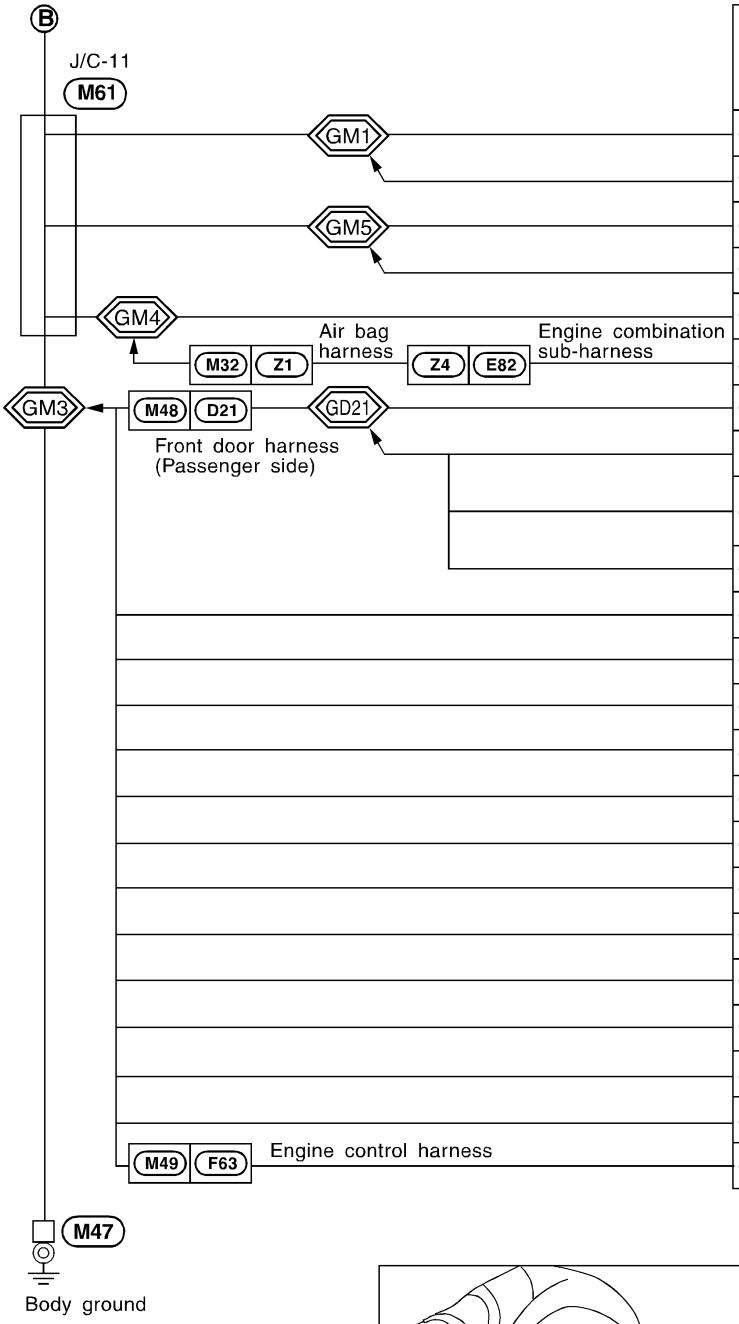
### WITHOUT NAVIGATION SYSTEM




CEL045M

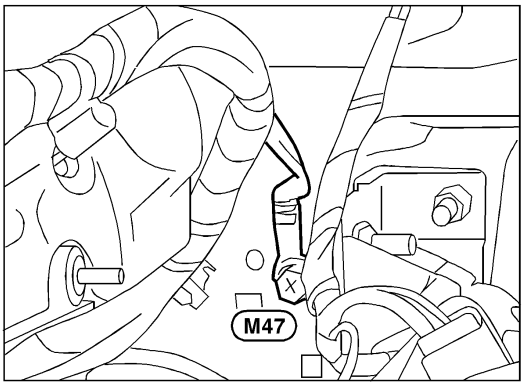
## Main Harness (Cont'd)

### WITHOUT NAVIGATION SYSTEM




| CONNECTOR NUMBER (Terminal No.) | CONNECT TO |
|---|---|
| M18 | Shift lock control unit |
| M36 | A/T device |
| M69 (No. 5) | Vehicle security lamp relay |
| M69 (No. 7) | Vehicle security lamp relay |
| M23 | ASCD hold unit |
| E84 | Spiral cable |
| D29 | Passenger door control unit (LCU02) |
| D23 | Door mirror defogger (Passenger side) |
| D25 | Front door key cylinder switch (Passenger side) |
| D26 | Front door lock actuator (Passenger side) |
| M22 (No. 56) | BCM (Body control module) |
| M22 (No. 113) | BCM (Body control module) |
| M25 | Glove box lamp switch |
| M29 | Fan control amp. |
| M30 | Intake door motor |
| M31 | Bi-level door motor |
| M33 | Power steering control unit |
| M35 | Mode door motor |
| M39 | Combination flasher unit |
| M43 | Air mix door motor |
| M45 (No. 32) | A/C auto amp. |
| M82 | Steering wheel receiver control switch |
| F60 | Fuel pump relay-2 |

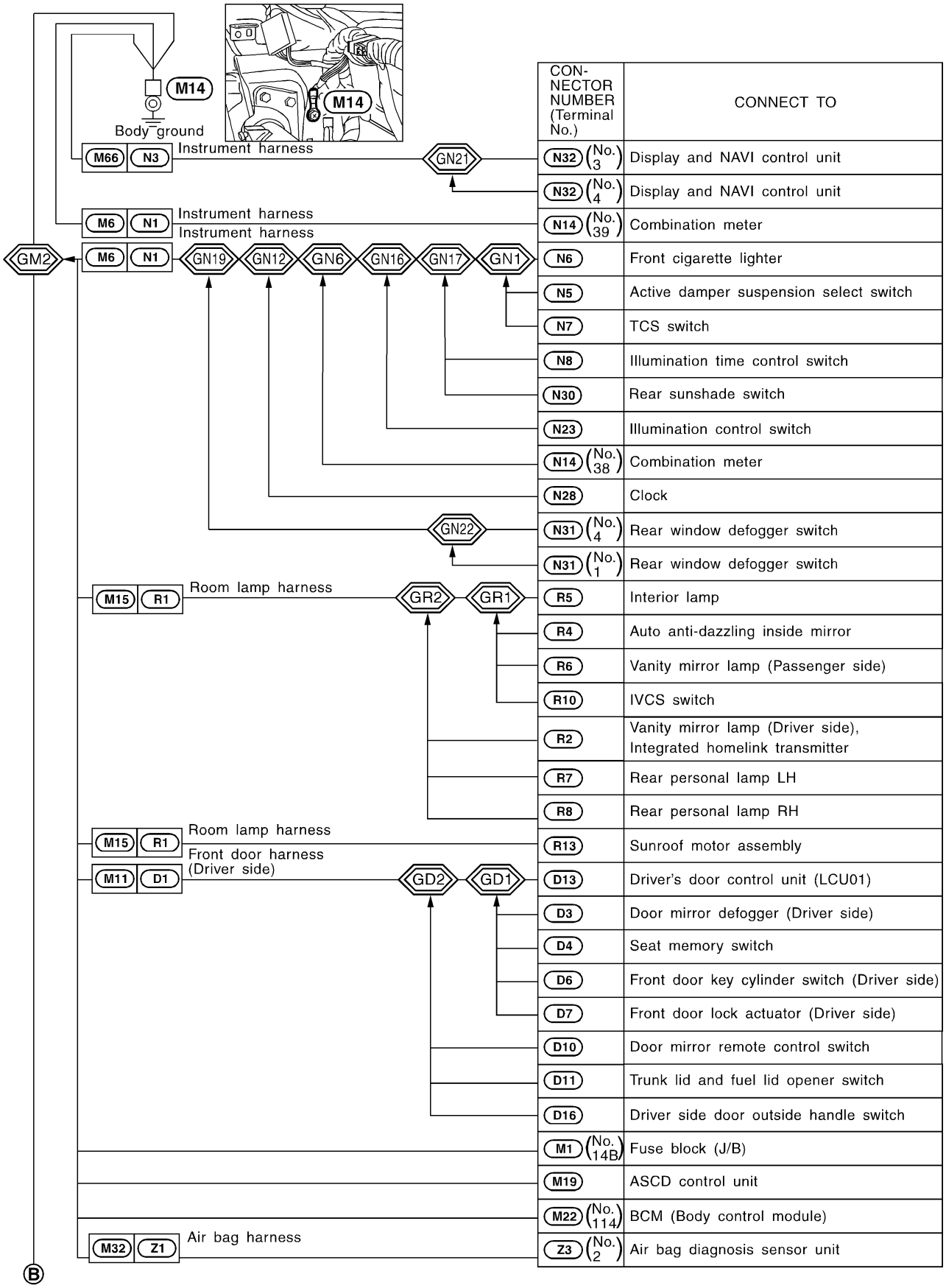
J/C: Joint connector




CEL272A

## Main Harness (Cont'd)

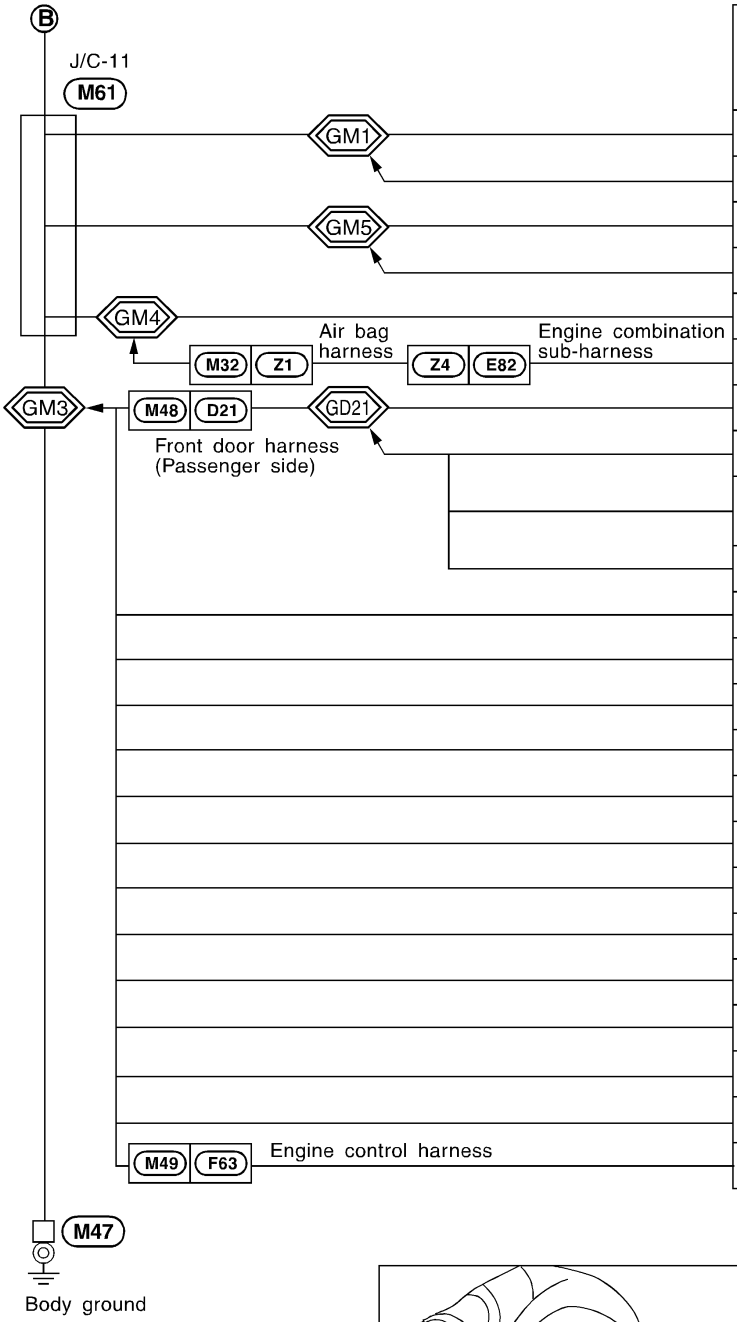
### WITH NAVIGATION SYSTEM




CEL252A

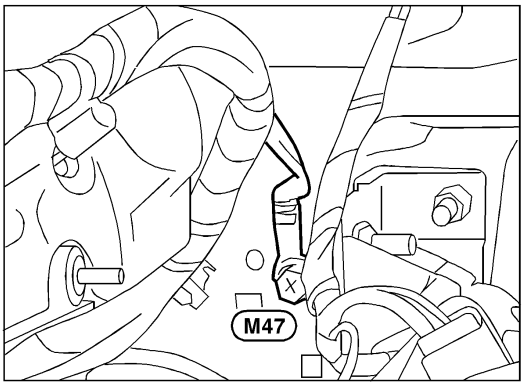
## Main Harness (Cont'd)

### WITH NAVIGATION SYSTEM




| CONNECTOR NUMBER (Terminal No.) | CONNECT TO |
|---|---|
| M18 | Shift lock control unit |
| M36 | A/T device |
| M69 (No. 5) | Vehicle security lamp relay |
| M69 (No. 7) | Vehicle security lamp relay |
| M23 | ASCD hold unit |
| E84 | Spiral cable |
| D29 | Passenger door control unit (LCU02) |
| D23 | Door mirror defogger (Passenger side) |
| D25 | Front door key cylinder switch (Passenger side) |
| D26 | Front door lock actuator (Passenger side) |
| M22 (No. 56) | BCM (Body control module) |
| M22 (No. 113) | BCM (Body control module) |
| M25 | Glove box lamp switch |
| M29 | Fan control amp. |
| M30 | Intake door motor |
| M31 | Bi-level door motor |
| M33 | Power steering control unit |
| M35 | Mode door motor |
| M39 | Combination flasher unit |
| M43 | Air mix door motor |
| M45 (No. 32) | A/C auto amp. |
| M82 | Steering wheel receiver control switch |
| F60 | Fuel pump relay-2 |

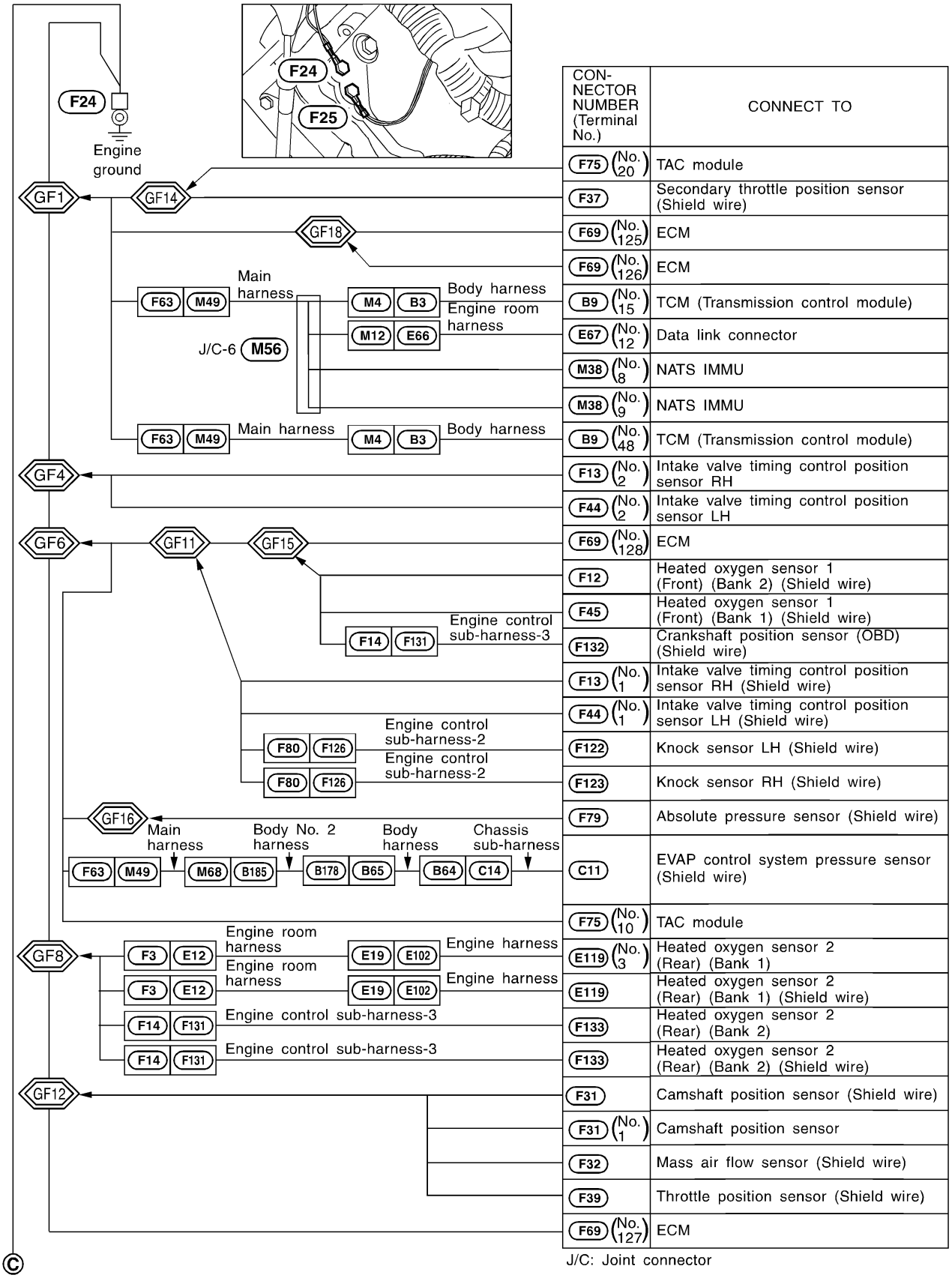
J/C: Joint connector




CEL272A

## Engine Control Harness



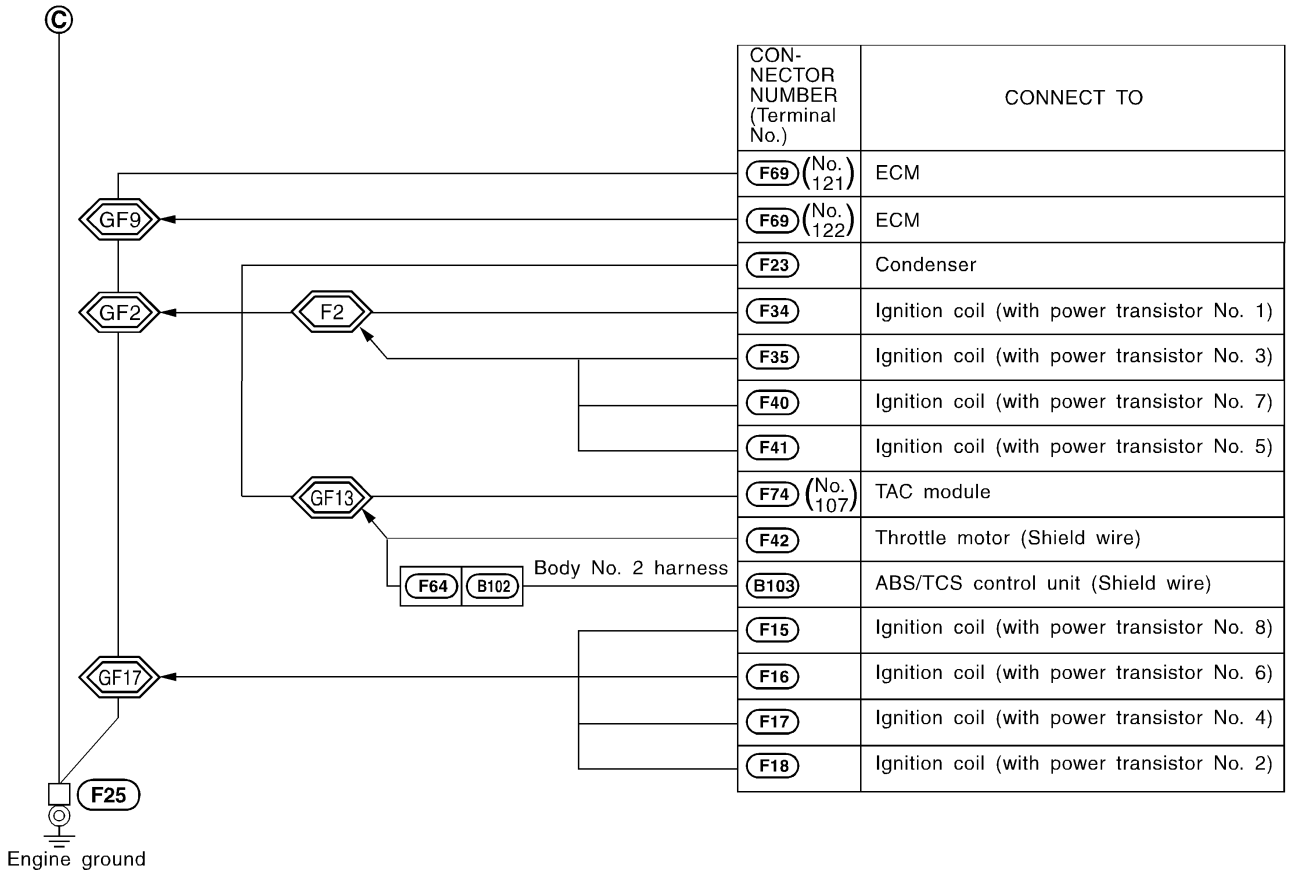




| CONNECTOR NUMBER (Terminal No.) | CONNECT TO |
|---|---|
| F75 (No. 20) | TAC module |
| F37 | Secondary throttle position sensor (Shield wire) |
| F69 (No. 125) | ECM |
| F69 (No. 126) | ECM |
| B9 (No. 15) | TCM (Transmission control module) |
| E67 (No. 12) | Data link connector |
| M38 (No. 8) | NATS IMMU |
| M38 (No. 9) | NATS IMMU |
| B9 (No. 48) | TCM (Transmission control module) |
| F13 (No. 2) | Intake valve timing control position sensor RH |
| F44 (No. 2) | Intake valve timing control position sensor LH |
| F69 (No. 128) | ECM |
| F12 | Heated oxygen sensor 1 (Front) (Bank 2) (Shield wire) |
| F45 | Heated oxygen sensor 1 (Front) (Bank 1) (Shield wire) |
| F132 | Crankshaft position sensor (OBD) (Shield wire) |
| F13 (No. 1) | Intake valve timing control position sensor RH (Shield wire) |
| F44 (No. 1) | Intake valve timing control position sensor LH (Shield wire) |
| F122 | Knock sensor LH (Shield wire) |
| F123 | Knock sensor RH (Shield wire) |
| F79 | Absolute pressure sensor (Shield wire) |
| C11 | EVAP control system pressure sensor (Shield wire) |
| F75 (No. 10) | TAC module |
| E119 (No. 3) | Heated oxygen sensor 2 (Rear) (Bank 1) |
| E119 | Heated oxygen sensor 2 (Rear) (Bank 1) (Shield wire) |
| F133 | Heated oxygen sensor 2 (Rear) (Bank 2) |
| F133 | Heated oxygen sensor 2 (Rear) (Bank 2) (Shield wire) |
| F31 | Camshaft position sensor (Shield wire) |
| F31 (No. 1) | Camshaft position sensor |
| F32 | Mass air flow sensor (Shield wire) |
| F39 | Throttle position sensor (Shield wire) |
| F69 (No. 127) | ECM |

J/C: Joint connector

CEL275A

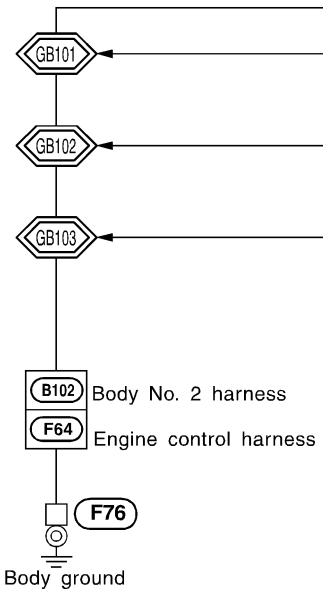
## Engine Control Harness (Cont'd)



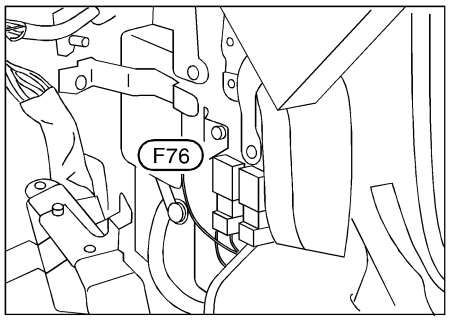

| CONNECTOR NUMBER (Terminal No.) | CONNECT TO |
|---|---|
| F69 (No. 121) | ECM |
| F69 (No. 122) | ECM |
| F23 | Condenser |
| F34 | Ignition coil (with power transistor No. 1) |
| F35 | Ignition coil (with power transistor No. 3) |
| F40 | Ignition coil (with power transistor No. 7) |
| F41 | Ignition coil (with power transistor No. 5) |
| F74 (No. 107) | TAC module |
| F42 | Throttle motor (Shield wire) |
| B103 | ABS/TCS control unit (Shield wire) |
| F15 | Ignition coil (with power transistor No. 8) |
| F16 | Ignition coil (with power transistor No. 6) |
| F17 | Ignition coil (with power transistor No. 4) |
| F18 | Ignition coil (with power transistor No. 2) |

CEL008M

## Engine Control Harness (Cont'd)

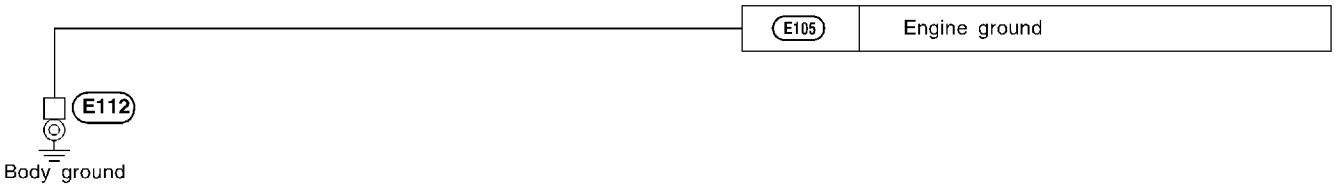


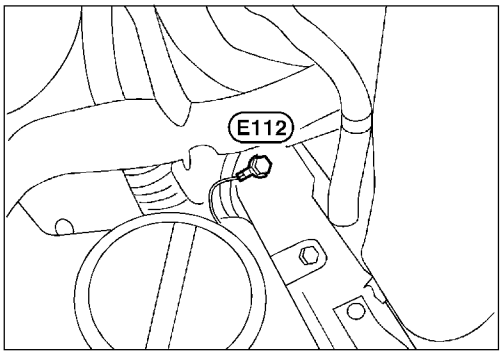

| CONNECTOR NUMBER (Terminal No.) | CONNECT TO |
|---|---|
| B103 (No. 109) | ABS/TCS control unit |
| B103 (No. 110) | ABS/TCS control unit |
| B103 (No. 111) | ABS/TCS control unit |
| B103 (No. 113) | ABS/TCS control unit |
| B103 (No. 114) | ABS/TCS control unit |
| B103 (No. 115) | ABS/TCS control unit |
| B103 (No. 116) | ABS/TCS control unit |

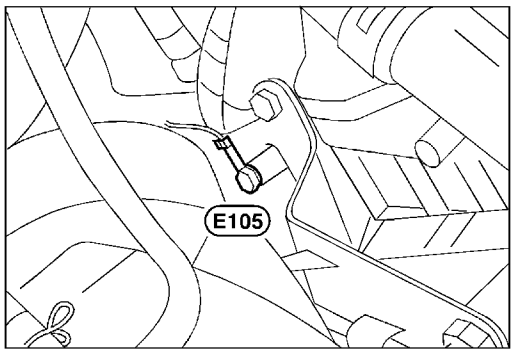



CEL989

## Engine Harness

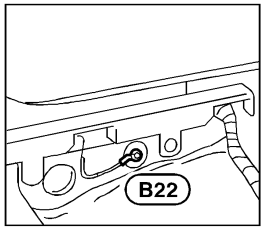


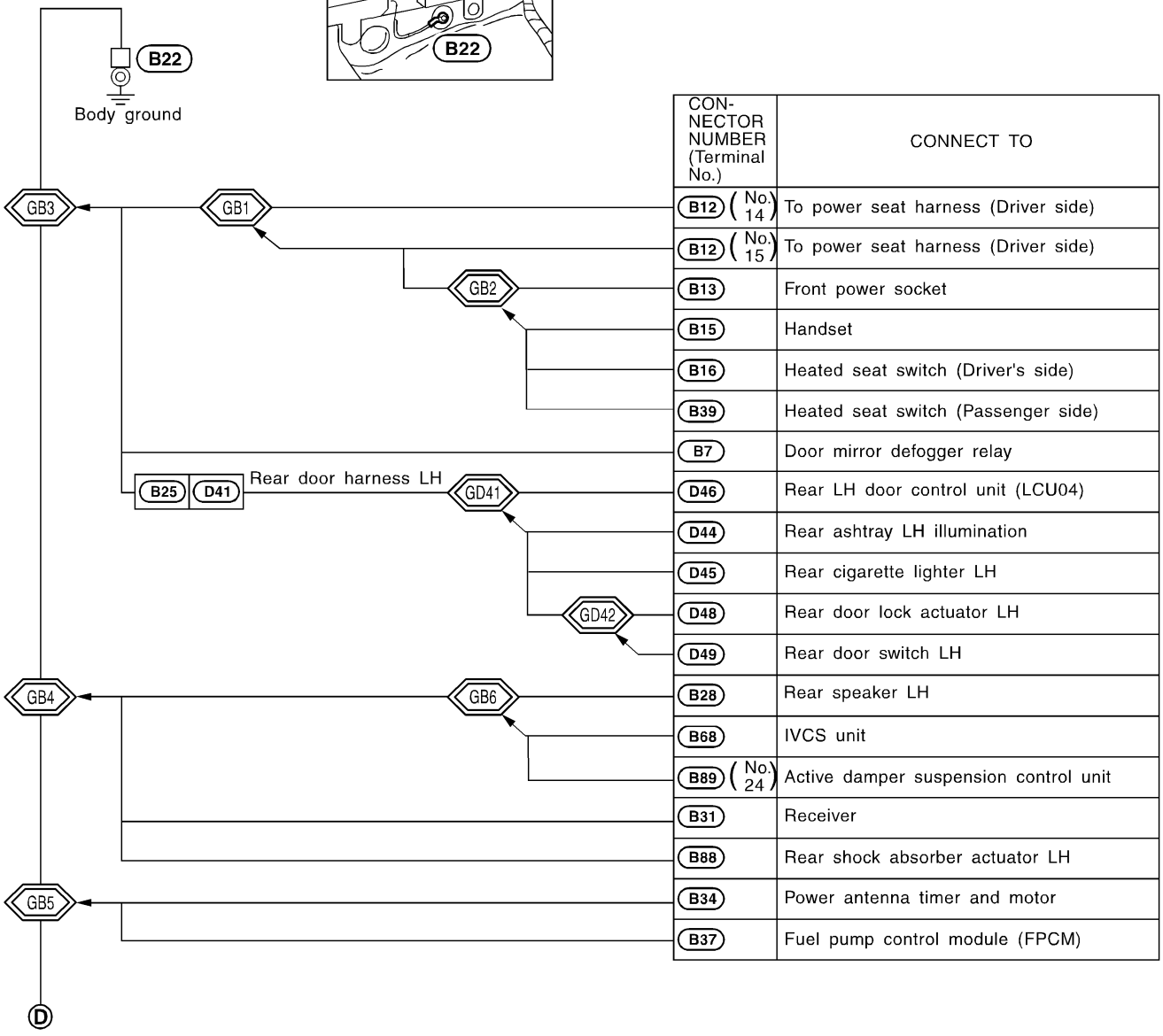




CEL990

## Body Harness

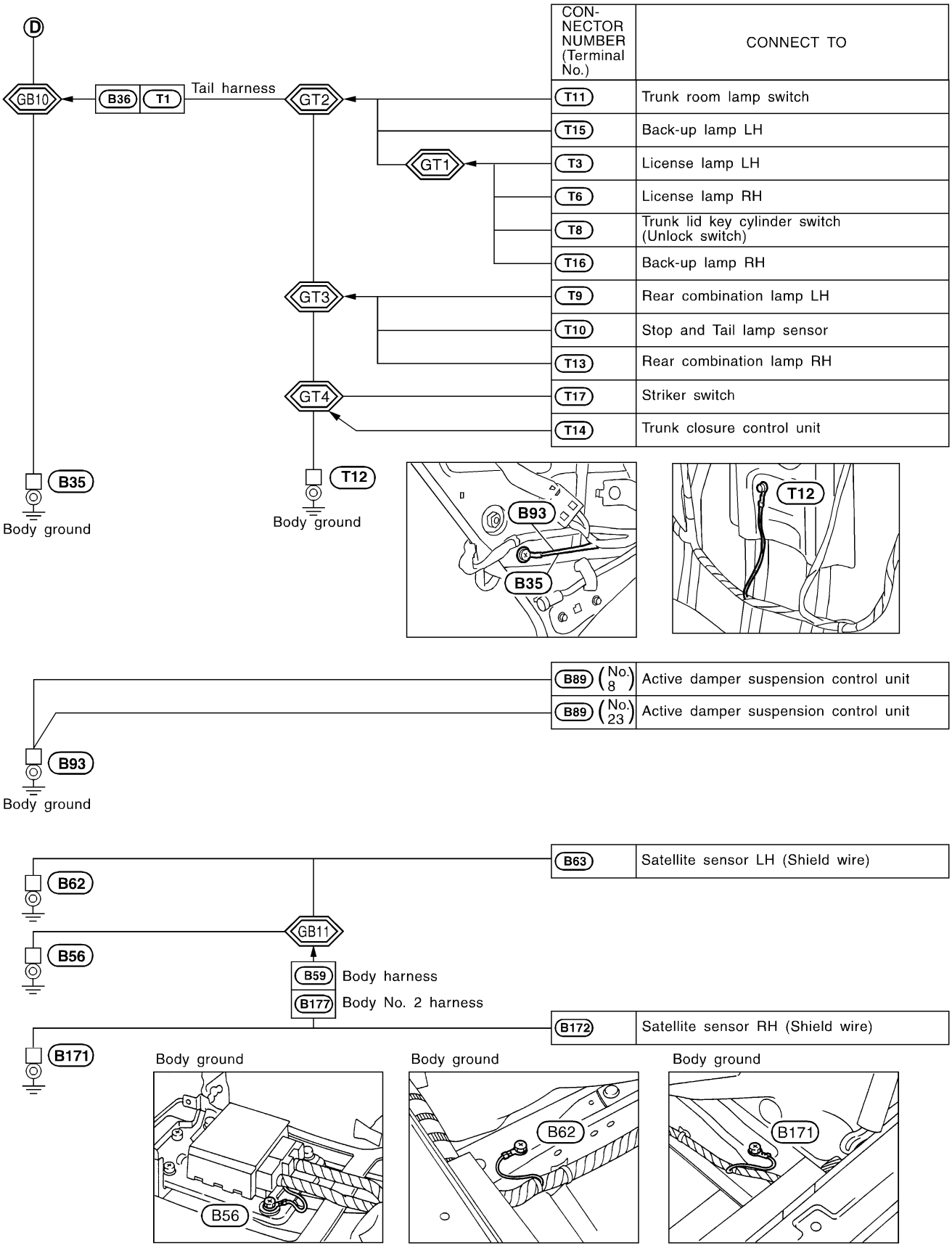



| CONNECTOR NUMBER (Terminal No.) | CONNECT TO |
|---|---|
| B12 (No. 14) | To power seat harness (Driver side) |
| B12 (No. 15) | To power seat harness (Driver side) |
| B13 | Front power socket |
| B15 | Handset |
| B16 | Heated seat switch (Driver's side) |
| B39 | Heated seat switch (Passenger side) |
| B7 | Door mirror defogger relay |
| D46 | Rear LH door control unit (LCU04) |
| D44 | Rear ashtray LH illumination |
| D45 | Rear cigarette lighter LH |
| D48 | Rear door lock actuator LH |
| D49 | Rear door switch LH |
| B28 | Rear speaker LH |
| B68 | IVCS unit |
| B89 (No. 24) | Active damper suspension control unit |
| B31 | Receiver |
| B88 | Rear shock absorber actuator LH |
| B34 | Power antenna timer and motor |
| B37 | Fuel pump control module (FPCM) |

CEL156A

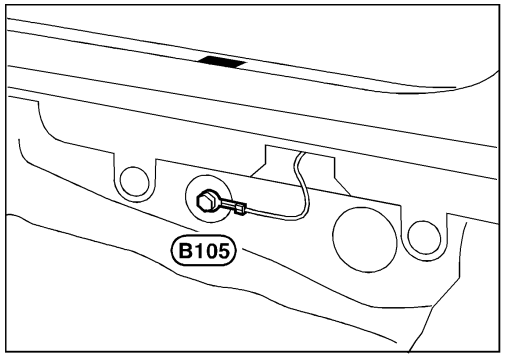
## Body Harness (Cont'd)

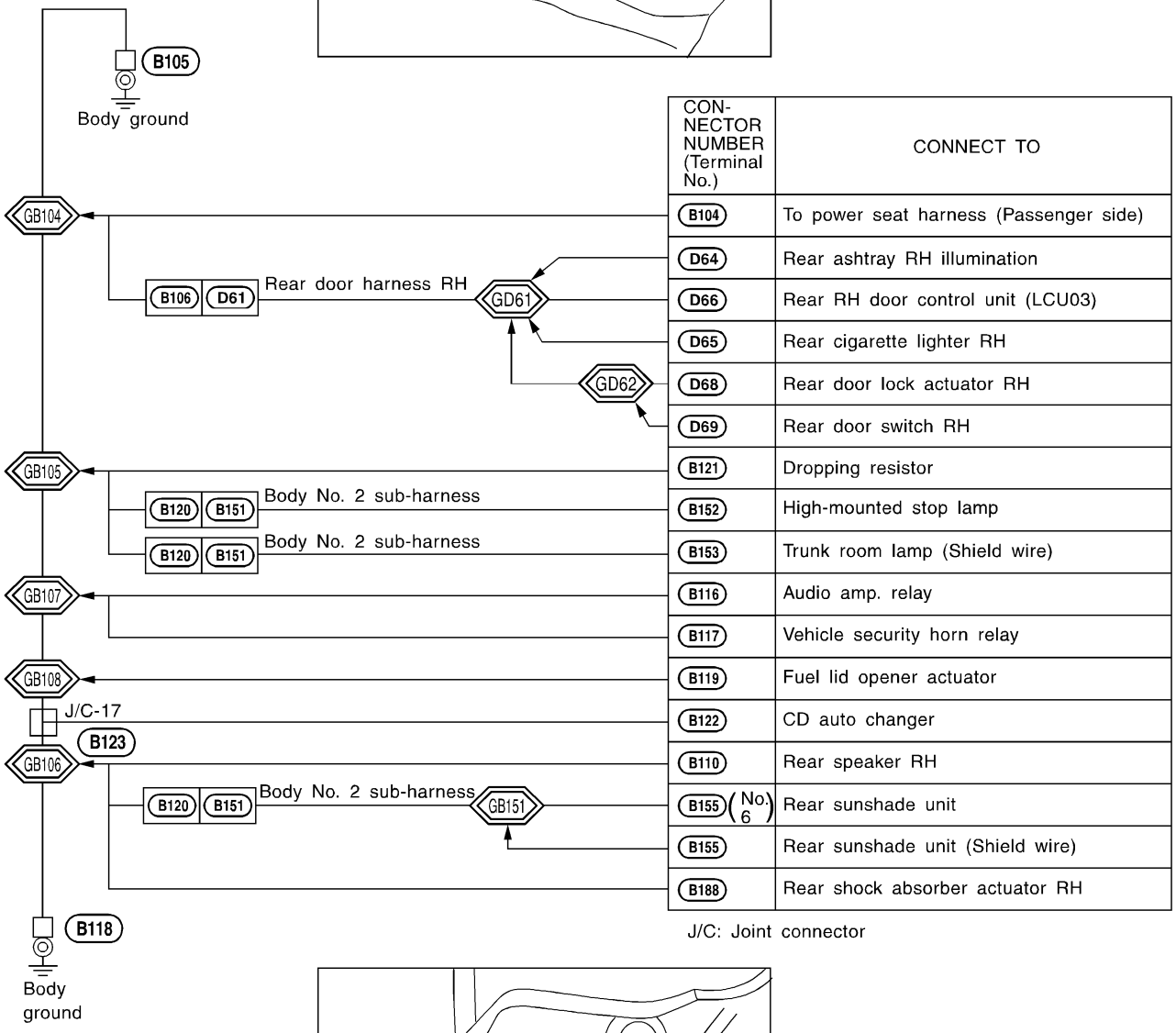



| CONNECTOR NUMBER (Terminal No.) | CONNECT TO |
|---|---|
| T11 | Trunk room lamp switch |
| T15 | Back-up lamp LH |
| T3 | License lamp LH |
| T6 | License lamp RH |
| T8 | Trunk lid key cylinder switch (Unlock switch) |
| T16 | Back-up lamp RH |
| T9 | Rear combination lamp LH |
| T10 | Stop and Tail lamp sensor |
| T13 | Rear combination lamp RH |
| T17 | Striker switch |
| T14 | Trunk closure control unit |
| B89 (No. 8) | Active damper suspension control unit |
| B89 (No. 23) | Active damper suspension control unit |
| B63 | Satellite sensor LH (Shield wire) |
| B172 | Satellite sensor RH (Shield wire) |

CEL157A

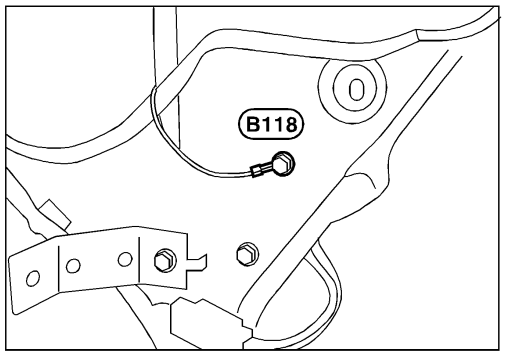
## Body No. 2 Harness




| CONNECTOR NUMBER (Terminal No.) | CONNECT TO |
|---|---|
| B104 | To power seat harness (Passenger side) |
| D64 | Rear ashtray RH illumination |
| D66 | Rear RH door control unit (LCU03) |
| D65 | Rear cigarette lighter RH |
| D68 | Rear door lock actuator RH |
| D69 | Rear door switch RH |
| B121 | Dropping resistor |
| B152 | High-mounted stop lamp |
| B153 | Trunk room lamp (Shield wire) |
| B116 | Audio amp. relay |
| B117 | Vehicle security horn relay |
| B119 | Fuel lid opener actuator |
| B122 | CD auto changer |
| B110 | Rear speaker RH |
| B155 (No. 6) | Rear sunshade unit |
| B155 | Rear sunshade unit (Shield wire) |
| B188 | Rear shock absorber actuator RH |

J/C: Joint connector



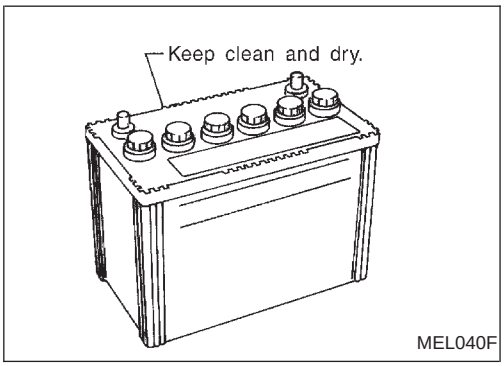

CEL278A

**CAUTION:**

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

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

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

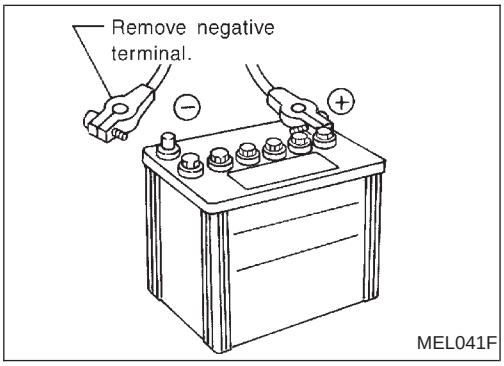



## How to Handle Battery

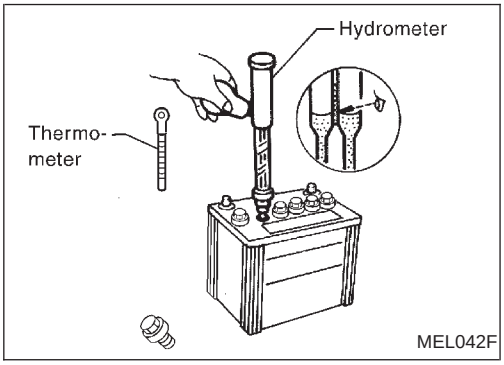
### METHODS OF PREVENTING OVER-DISCHARGE

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

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




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



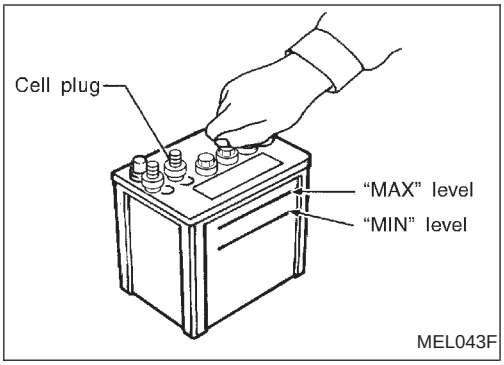

- Check the charge condition of the battery. Periodically check the specific gravity of the electrolyte. Keep a close check on charge condition to prevent over-discharge.

### CHECKING ELECTROLYTE LEVEL

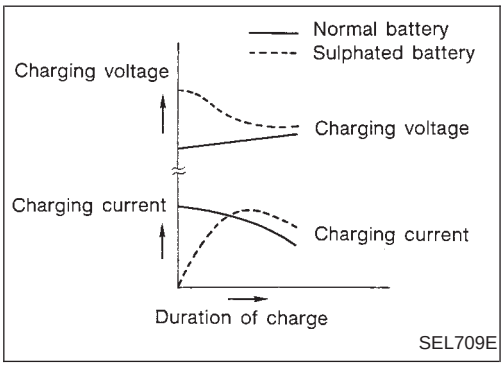
**WARNING:**

**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.

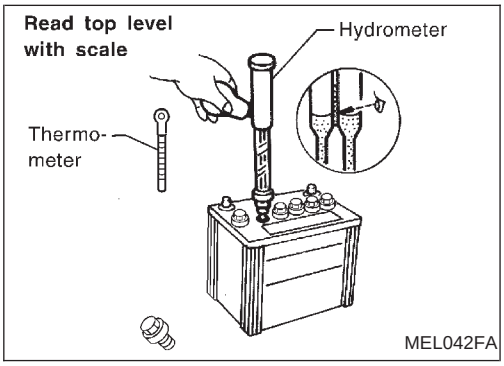



**SULPHATION**

**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.
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 (130) | 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 (40) | −0.016 |
| −1 (30) | −0.020 |
| −7 (20) | −0.024 |
| −12 (10) | −0.028 |
| −18 (0) | −0.032 |

## How to Handle Battery (Cont'd)

| 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 |

**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)

| | | |
|---|---|---|
| Type | | 80D26R |
| Capacity | V-AH | 12-55 |
| Cold cranking current (For reference value) | A | 582 |

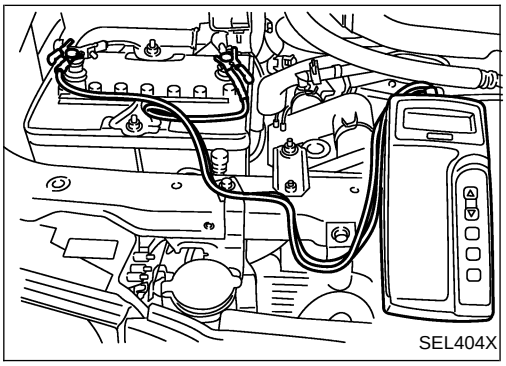
## Trouble Diagnoses with Battery/Starting/Charging System Tester

**CAUTION:**

**When working with batteries, always wear appropriate eye protection.**

**NOTE:**

- **To ensure a complete and thorough diagnosis, the battery, starter and alternator test segments must be done as a set from start to finish.**
- **If battery surface charge is detected while testing, the tester will prompt you to turn on the headlights to remove the surface charge.**
- **If necessary, the tester will prompt you to determine if the battery temperature is above or below 0°C (32°F). Choose the appropriate selection by pressing the up or down arrow button, then press "ENTER" to make the selection.**

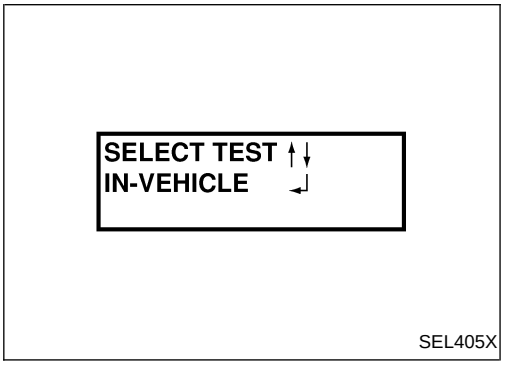

SEL404X

1. Turn off all loads on the vehicle electrical system. Clean or repair as necessary.
2. Visually inspect the battery, battery terminals and cable ends with ignition switch in "OFF" position.

**NOTE:**

**The contact surface between the battery terminals, cable ends and tester leads must be clean for a valid test. A poor connection will prevent testing and a "CHECK CONNECTION" message will appear during the test procedures. If this occurs, clean the battery post and terminals, reconnect them and restart the test.**

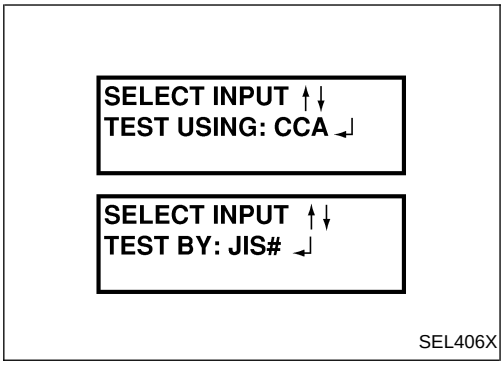
3. Connect the red tester lead clamp to the positive battery terminal, and the black to the negative terminal.



SEL405X

4. The tester will turn on automatically. Using the arrow keys, select "IN VEHICLE" on the tester and then press the "ENTER" key.

## Trouble Diagnoses with Battery/Starting/Charging System Tester (Cont'd)



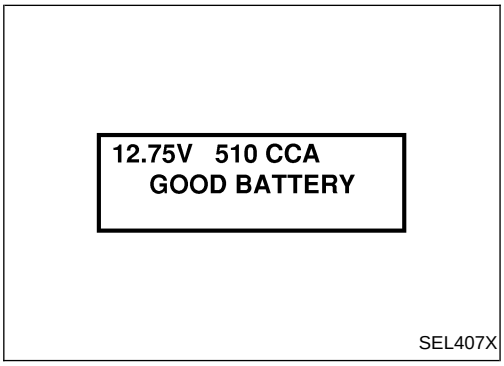

5. Locate the battery type and rating stamped or written on the top case of the battery to be tested.

**NOTE:**
**The battery type and rating will have either of the following.**

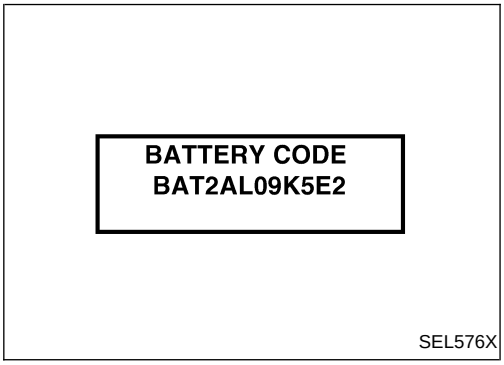
**CCA**: Cold Cranking Amps (490 CCA, 550 CCA, etc.)
**JIS**: Japanese Industrial Standard.
Battery is stamped with a number such as:
80D26L: 80 (rank of output), D (physical size-depth), 26 (width in cm). The last character L (post configuration) is not input into the tester.
The tester requires the rating for the battery be entered exactly as it is written or stamped on the battery. Do not attempt a CCA conversion for JIS stamped batteries. JIS must be input directly.

6. Using the arrow and "ENTER" keys alternately, select the battery type and rating.

**NOTE:**
**The tester lists five choices; CCA, JIS, IEC, DIN, and EN. Only use CCA or JIS.**




7. Press "ENTER" to begin the test. Diagnosis results are displayed on the tester. Refer to "DIAGNOSTIC RESULT ITEM CHART" EL-40.




8. Press "ENTER", then test output code is displayed. Record the test output code on the repair order.
9. Toggle back to the "DIAGNOSTIC SCREEN" for test results.

**NOTE:**

- **If necessary, the tester will ask the user to determine if the battery has just been charged. Choose the appropriate selection by pressing the up or down arrow button and then press the "ENTER" button to make the selection.**
- **When testing a battery installed in a vehicle that has recently been driven, select "BEFORE CHANGE".**
- **If the battery has just been slow charged due to a "CHARGE & RETEST" decision by the tester, and the tester asks the user "BEFORE CHARGE/AFTER CHARGE", select "AFTER CHARGE".**

## Trouble Diagnoses with Battery/Starting/Charging System Tester (Cont'd)

### DIAGNOSTIC RESULT ITEM CHART

| Diagnostic item | Service procedure |
|---|---|
| GOOD BATTERY | Battery is OK, go to "Trouble Diagnoses", "STARTING SYSTEM". Refer to EL-43. |
| REPLACE BATTERY | Replace battery.<br>Before replacing battery, clean the battery cable clamps and battery posts. Perform battery test again with Battery/Starting/Charging system tester. If second test result is "Replace Battery", then do so. Perform battery test again to confirm repair. |
| BAD CELL-REPLACE | Replace the battery. Perform battery test again with Battery/Starting/Charging system tester to confirm repair. |
| GOOD-RECHARGE | Perform the slow battery charging procedure. (Initial rate of charge is 10A for 12 hours.) Perform battery test again with Battery/Starting/Charging system tester. |
| CHARGE & RETEST | Perform the slow battery charging. (Initial rate of charge is 10A for 12 hours.)<br>Perform battery test again with Battery/Starting/Charging system tester to confirm repair.<br>**NOTE:**<br>**If the tester asks the user "BEFORE CHARGE/AFTER CHARGE", select "AFTER CHARGE".** |

## System Description

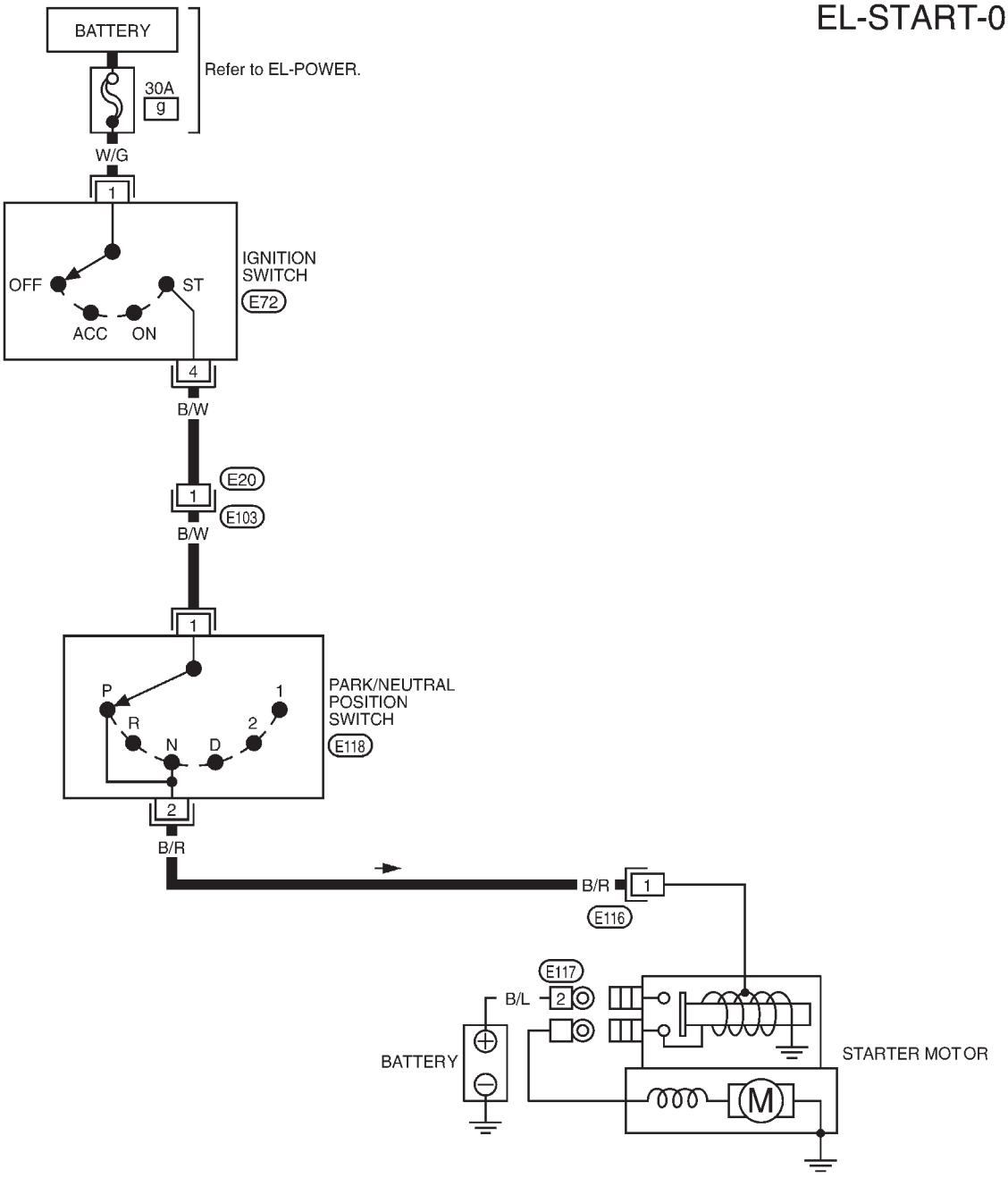
Power is supplied at all times
- to ignition switch terminal ①
- through 30A fusible link (letter g , located in the fuse, fusible link and relay box).

With the ignition switch in the START position, power is supplied
- from ignition switch terminal ④
- to park/neutral position switch terminal ①
- through park/neutral position switch terminal ② , with the selector lever in the P or N position
- to terminal ① 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 —

EL-START-01

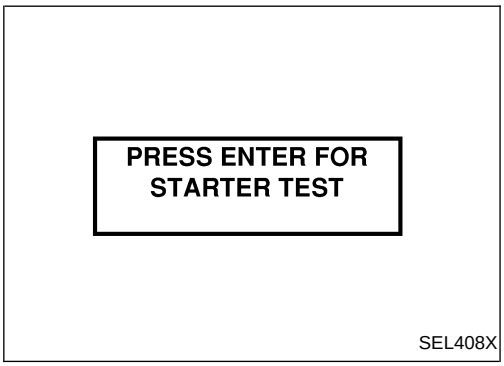




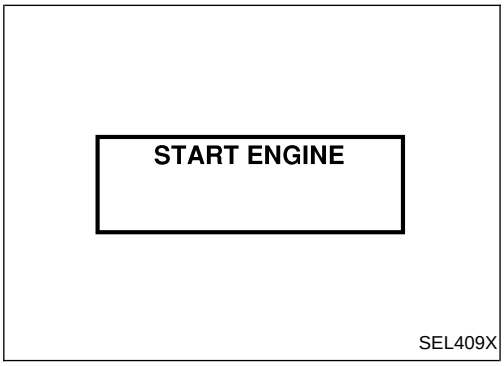
TEL962A

## Trouble Diagnoses with Battery/Starting/Charging System Tester

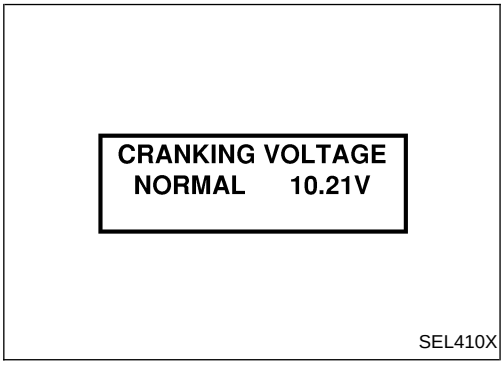
**NOTE:**
**To ensure a complete and thorough diagnosis, the battery, starter and alternator test segments must be done as a set from start to finish.**




1. Turn off all loads on the vehicle electrical system.
2. Perform battery test with Battery/Starting/Charging system tester. Refer to EL-38.
3. Press “ENTER” to begin the starting system test.




4. Start the engine.




5. Diagnosis result is displayed on the tester. Refer to “DIAGNOSTIC RESULT ITEM CHART”, EL-43.

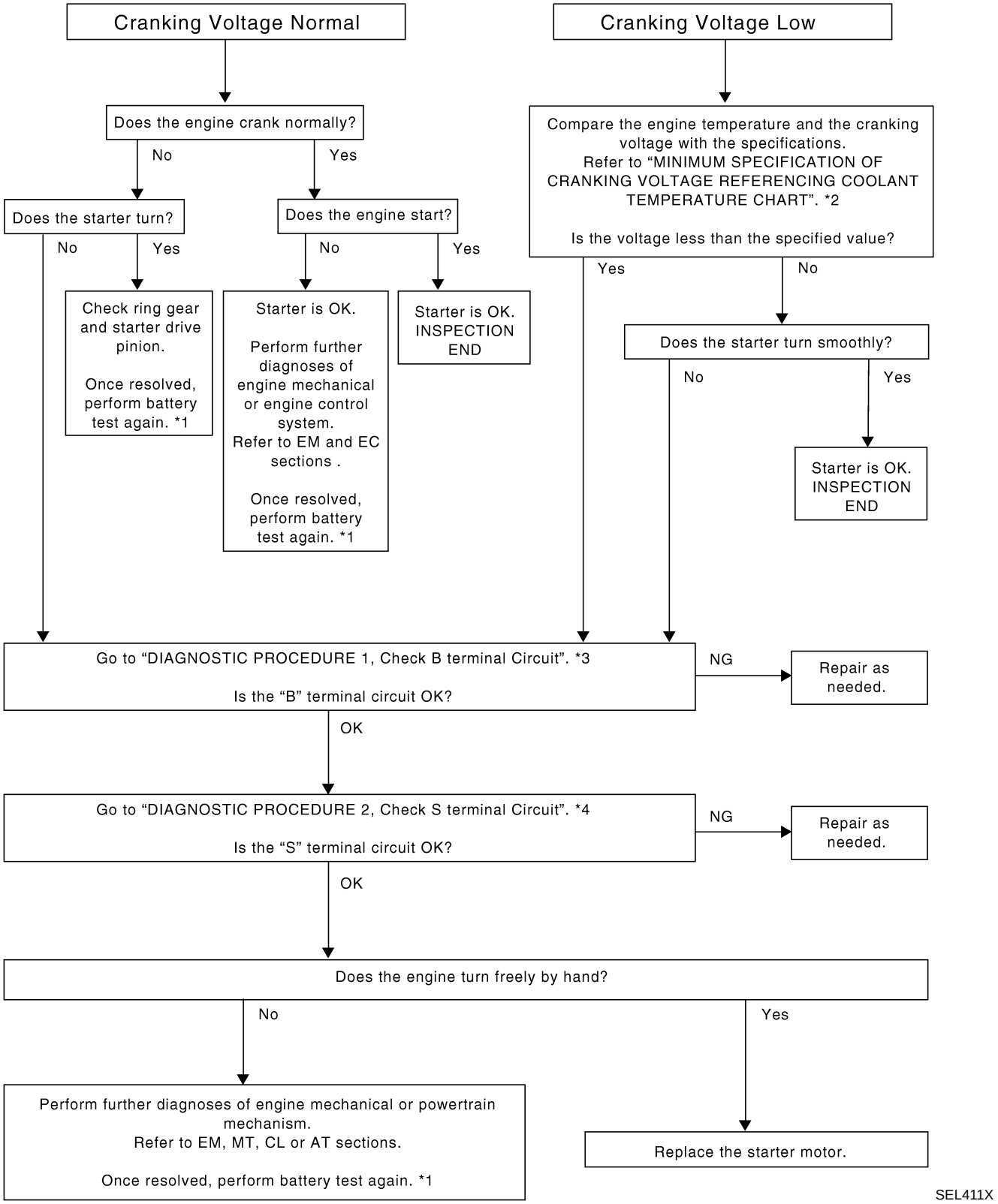
**NOTE:**
- **If the starter performs normally but the engine does not start, perform engine diagnosis.**
- **For intermittent “NO CRANK” or “NO STARTER OPERATION” incidents, go to DIAGNOSTIC PROCEDURE 2.**

### DIAGNOSTIC RESULT ITEM CHART

| Diagnostic item | Service procedure |
|---|---|
| CRANKING VOLTAGE NORMAL | Go to “WORK FLOW”, EL-44. |
| CRANKING VOLTAGE LOW | Go to “WORK FLOW”, EL-44. |
| CHARGE BATTERY | Perform the slow battery charging procedure. (Initial rate of charge is 10A for 12 hours.) Perform battery test again with Battery/Starting/Charging system tester. Refer to EL-38. |
| REPLACE BATTERY | Before replacing battery, clean the battery cable clamps and battery posts. Perform battery test again with Battery/Starting/Charging system tester. Refer to EL-38. If second test result is “REPLACE BATTERY”, then do so. Perform battery test again to confirm repair. |

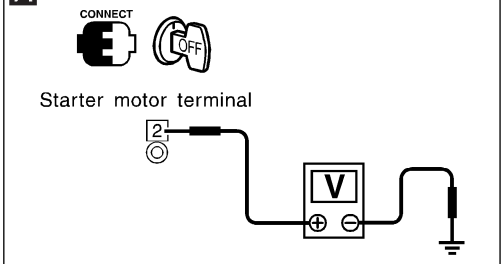
## Trouble Diagnoses with Battery/Starting/Charging System Tester (Cont'd)

### WORK FLOW



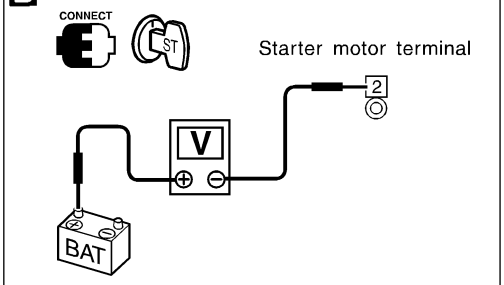

*1 EL-38 *3 EL-45 *4 EL-46
*2 EL-46

A



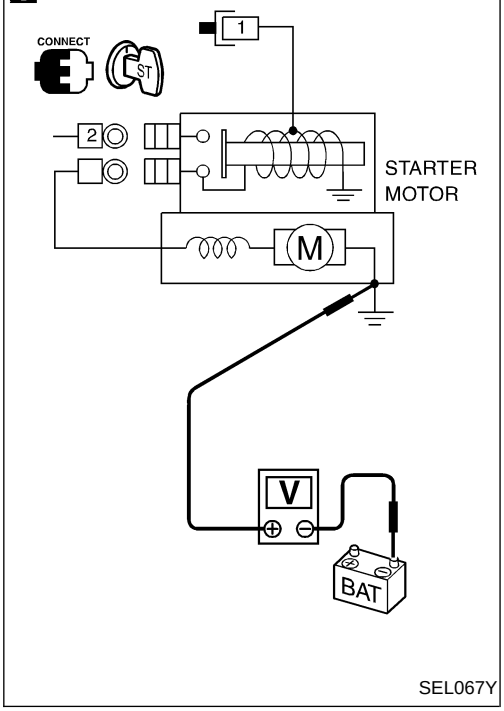

SEL065Y

B




SEL066Y

C




SEL067Y

# Trouble Diagnoses

## DIAGNOSTIC PROCEDURE 1

## (“B” terminal circuit check)

A

**CHECK POWER SUPPLY FOR STARTER MOTOR “B” TERMINAL.**
1. Remove the fuel pump fuse.
2. Crank or start the engine (where possible) until the fuel pressure is released.
3. Turn the ignition switch OFF.
4. Check that the starter motor terminal ② is clean and connected tightly.
5. Check voltage between starter motor harness connector (E117) terminal ② (B/L) and ground using a digital circuit tester.

**Battery voltage should exist.**

NG → Check harness between the battery and starter motor for open circuit.

OK ↓

B

**CHECK BATTERY CABLE CONNECTION QUALITY (VOLTAGE DROP TEST).**
1. Check voltage between starter motor harness connector (E117) terminal ② (B/L) and battery positive terminal using a digital circuit tester.

When the ignition switch is in START position:

**Voltage: Less than 0.5V**

NG → Check harness between the battery and the starter motor for poor continuity.

OK ↓

C

**CHECK STARTER MOTOR GROUND CIRCUIT (VOLTAGE DROP TEST).**
1. Check voltage between starter motor case and battery negative terminal using a circuit tester.

When the ignition switch is in START position:

**Voltage: Less than 0.2V**

NG → Check the starter motor case and ground for poor continuity.

OK ↓

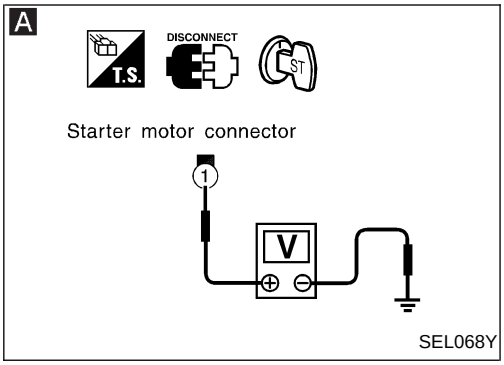
Starter motor “B” terminal circuit is OK.
Further inspection is necessary.
Refer to “WORK FLOW”, EL-44.

## Trouble Diagnoses (Cont'd)

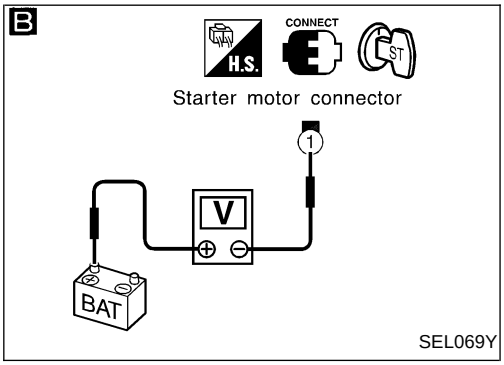
### DIAGNOSTIC PROCEDURE 2

### ("S" terminal circuit check)

A




B




A

**CHECK POWER SUPPLY FOR STARTER MOTOR "S" TERMINAL.**
1. Remove the fuel pump fuse.
2. Crank or start the engine (where possible) until the fuel pressure is released.
3. Turn the ignition switch OFF.
4. Disconnect starter motor connector (E116).
5. Check voltage between starter motor harness connector (E116) terminal ① (B/W) and ground using a digital circuit tester.

When the ignition switch is in START position.
**Battery voltage should exist.**

NG → Check the following.
- 30A fusible link (letter g, located in fuse and fusible link box)
- Park/neutral position relay
- Harness for open or short

OK ↓

B

**CHECK "S" TERMINAL CONNECTION QUALITY (VOLTAGE DROP TEST).**
1. Connect starter motor connector (E116).
2. Check voltage between starter motor harness connector (E116) terminal ① (B/R) and battery position terminal using a digital tester.

When the ignition switch is in START position:
**Voltage: Less than 1V**

NG → Check harness between the battery and the starter motor terminal for poor continuity.

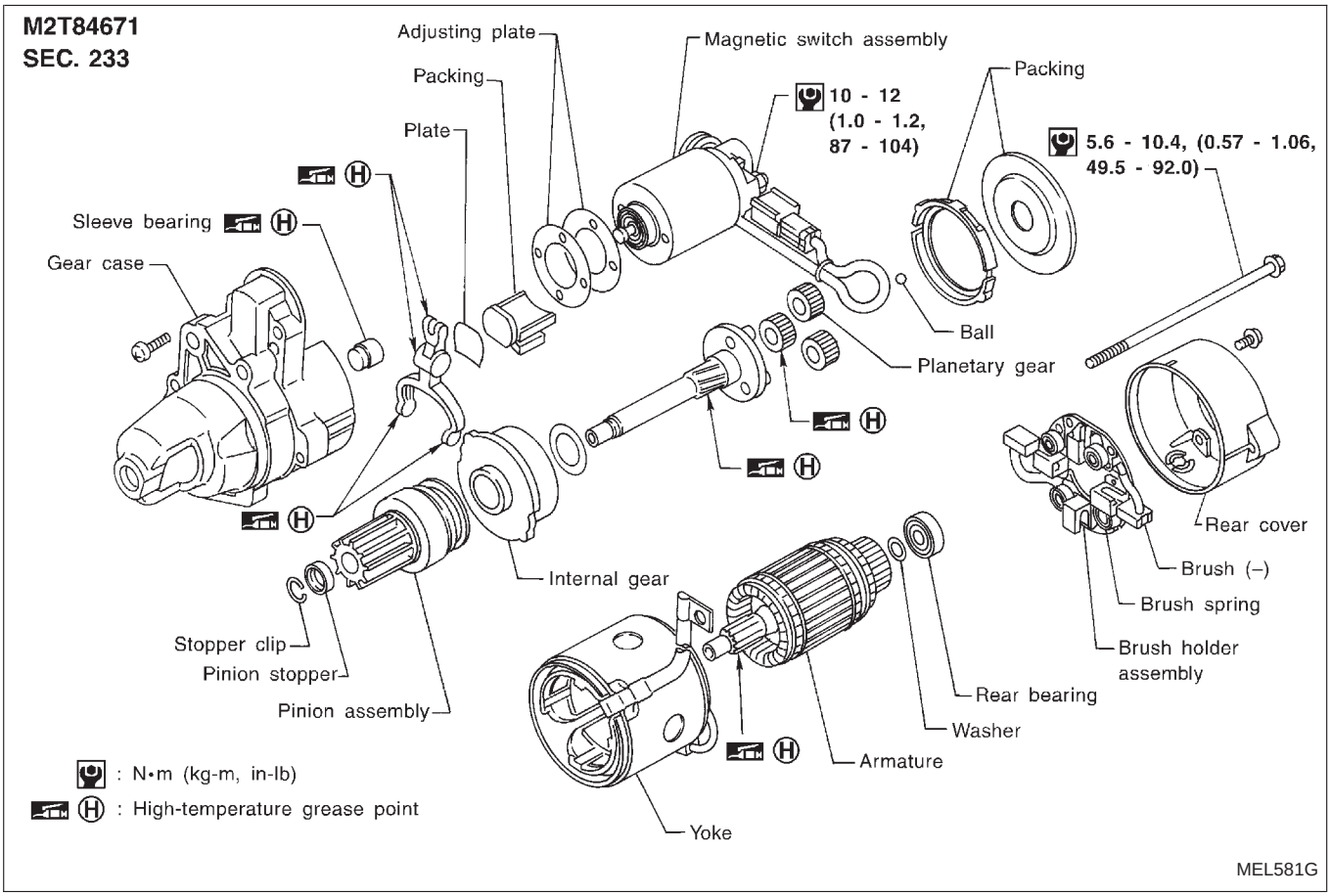
OK ↓

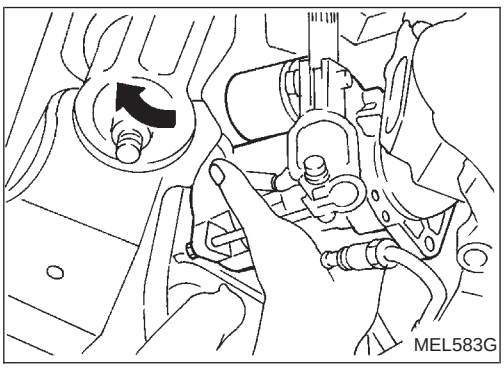
Starter motor "S" terminal circuit is OK.
Further inspection is necessary.
Refer to "WORK FLOW", EL-44.

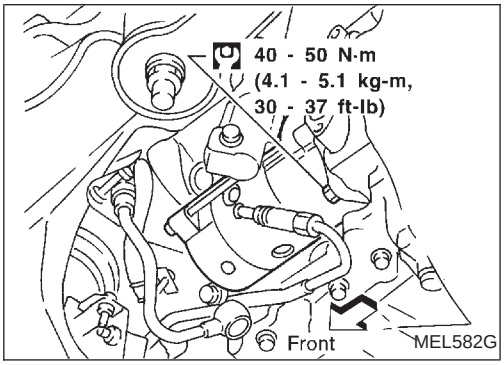
### MINIMUM SPECIFICATION OF CRANKING VOLTAGE REFERENCING COOLANT TEMPERATURE

| Engine coolant temperature | Voltage V |
|---|---|
| −30°C to −20°C (−22°F to −4°F) | 8.6 |
| −19°C to −10°C (−2°F to 14°F) | 9.1 |
| −9°C to 0°C (16°F to 32°F) | 9.5 |
| More than 1°C (More than 34°F) | 9.9 |

## Construction




## Removal and Installation

### REMOVAL

1. Remove steering gear and linkage assembly. (Refer to “ST section”.)
2. Remove harness connector.
3. Remove starter by moving it in the direction of the arrow.

### 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 | | M2T84671<br>MITSUBISHI make<br>Reduction gear type |
| System voltage | V | 12 |
| No-load | | |
| Terminal voltage | V | 11.0 |
| Current | A | Less than 145 |
| Revolution | rpm | More than 3,300 |
| Minimum diameter of commutator | mm (in) | 31.4 (1.236) |
| Minimum length of brush | mm (in) | 11.0 (0.433) |
| Brush spring tension | N (kg, lb) | 30.9 - 37.7<br>(3.15 - 3.85, 6.95 - 8.47) |
| 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:

- 120A fusible link (letter a, located in the fuse, fusible link and relay box), and
- 7.5A fuse (No. 62, located in the fuse, fusible link and relay box).

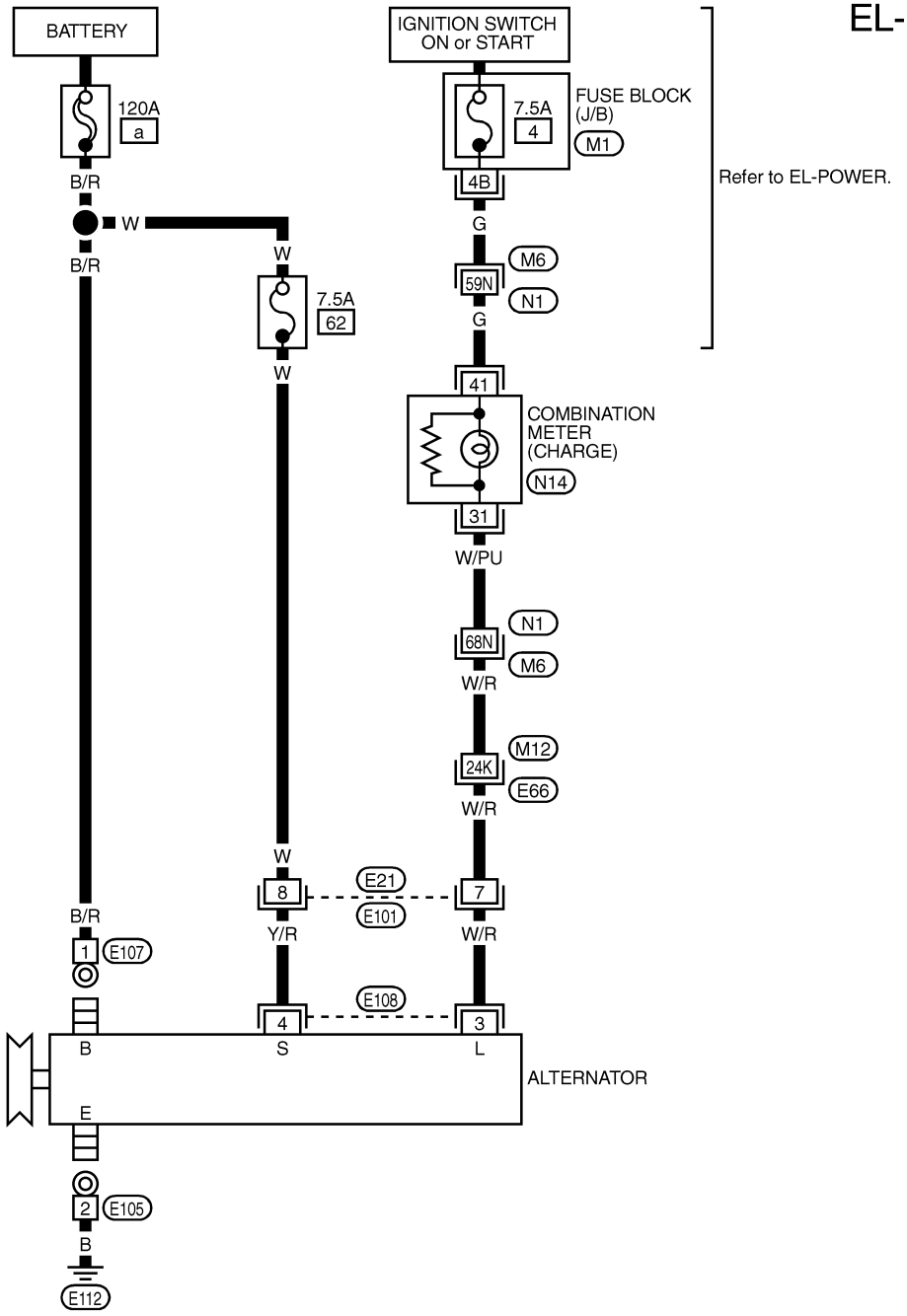
Terminal Ⓑ supplies power to charge the battery and operate the vehicle's electrical system. Output voltage is controlled by the IC regulator at terminal Ⓢ detecting the input voltage. The charging circuit is protected by the 120A fusible link.
Terminal Ⓔ of the alternator supplies ground through body ground (E112).
With the ignition switch in the ON or START position, power is supplied

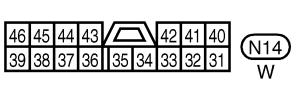
- through 7.5A fuse [No. 4, located in the fuse block (J/B)]
- to combination meter terminal (41) for the charge warning lamp.

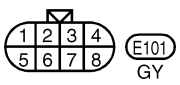
Ground is supplied to terminal (25) of the combination meter through terminal Ⓛ of the alternator. With power and ground supplied, the charge warning lamp will illuminate. When the alternator is providing sufficient voltage with the engine running, the ground is opened and the charge warning lamp will go off.
If the charge warning lamp illuminates with the engine running, a fault is indicated.

## Wiring Diagram — CHARGE —

EL-CHARGE-01





REFER TO THE FOLLOWING.

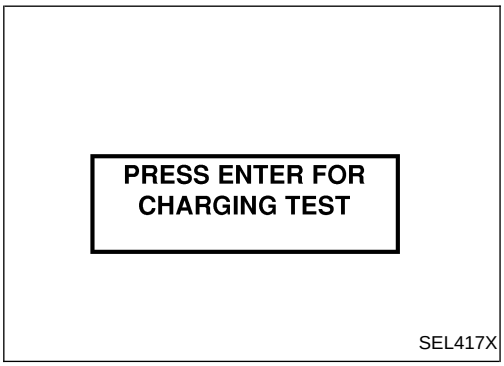
(M6), (E66) -SUPER MULTIPLE JUNCTION (SMJ)

(M1) -FUSE BLOCK-JUNCTION BOX (J/B)

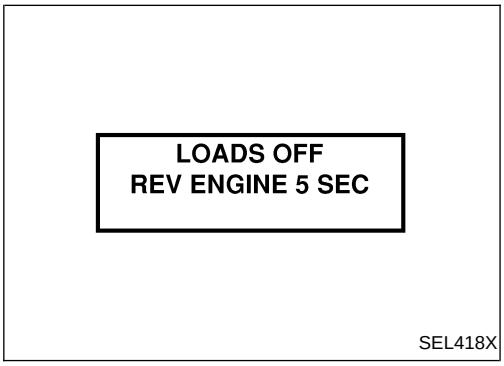
TEL051M

## Trouble Diagnoses with Battery/Starting/Charging System Tester

**NOTE:**
**To ensure a complete and thorough diagnosis, the battery, starter and alternator test segments must be done as a set from start to finish.**

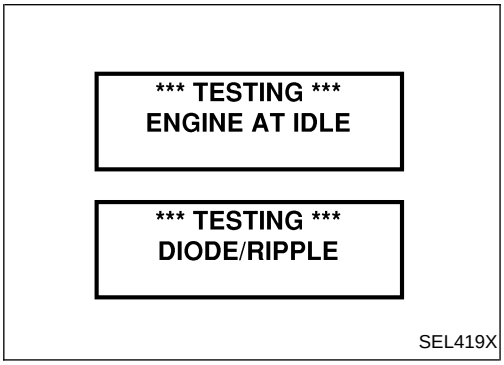



1. Turn off all loads on the vehicle electrical system.
2. Perform battery and starting system test with Battery/Starting/Charging system tester.
3. Press “ENTER” to begin the charging system test.
4. Start engine.




5. Press “ENTER” until “LOADS OFF REV ENGINE 5 SEC” is displayed.
6. Raise and hold the engine speed at 1,500 to 2,000 rpm for about 5 seconds, then return to the engine to idle.
   Once the increase in engine rpm is detected, press “ENTER” to continue.

**NOTE:**
- **If after 30 seconds an increase in engine idle speed is not detected, “RPM NOT DETECTED” will display.**
- **Some engines may have a higher idle initially after starting, particularly when the engine is cold. The tester may detect this without any other action being taken. If this occurs, continue on with the testing process. The final results will not be affected.**

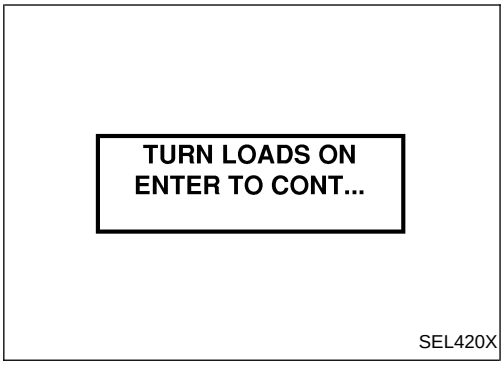



7. The tester now checks the engine at idle and performs the DIODE/RIPPLE check.
8. When complete, the tester will prompt you to turn on the following electrical loads.

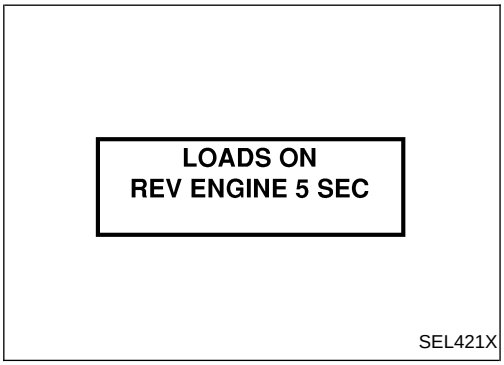
- Heater fun set to highest. Do not run the A/C or windshield defroster.
  Headlamp high beam
- Rear window defogger

**NOTE:**
**Do not run the windshield wipers or any other cyclical loads.**

## Trouble Diagnoses with Battery/Starting/Charging System Tester (Cont'd)

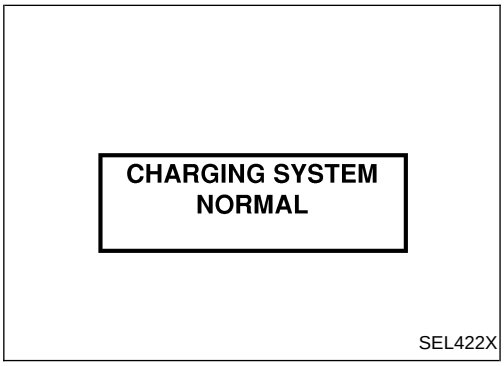



9. Press "ENTER" to continue.

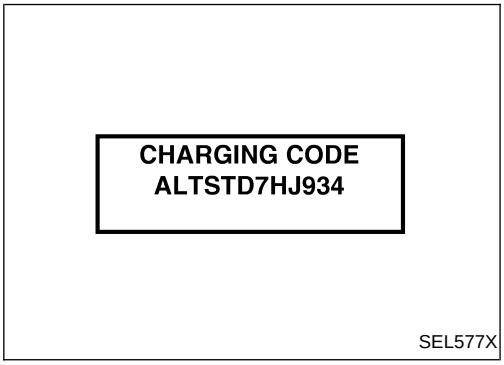



10. Raise and hold the engine speed at 1,500 to 2,000 rpm for about 5 seconds, then return the engine to idle. Once the increase in engine rpm is detected, press "ENTER" to continue.

**NOTE:**
**If after 30 seconds an increase in engine idle speed is not detected, "RPM NOT DETECTED" will be displayed. Press "ENTER" to restart the test.**




11. Diagnostic result is displayed on the tester. Refer to "DIAGNOSTIC RESULT ITEM CHART", EL-53.




12. Press "ENTER" then test output code is displayed. Record the test output code on the repair order.
13. Toggle back to the "DIAGNOSTIC SCREEN" for test results.

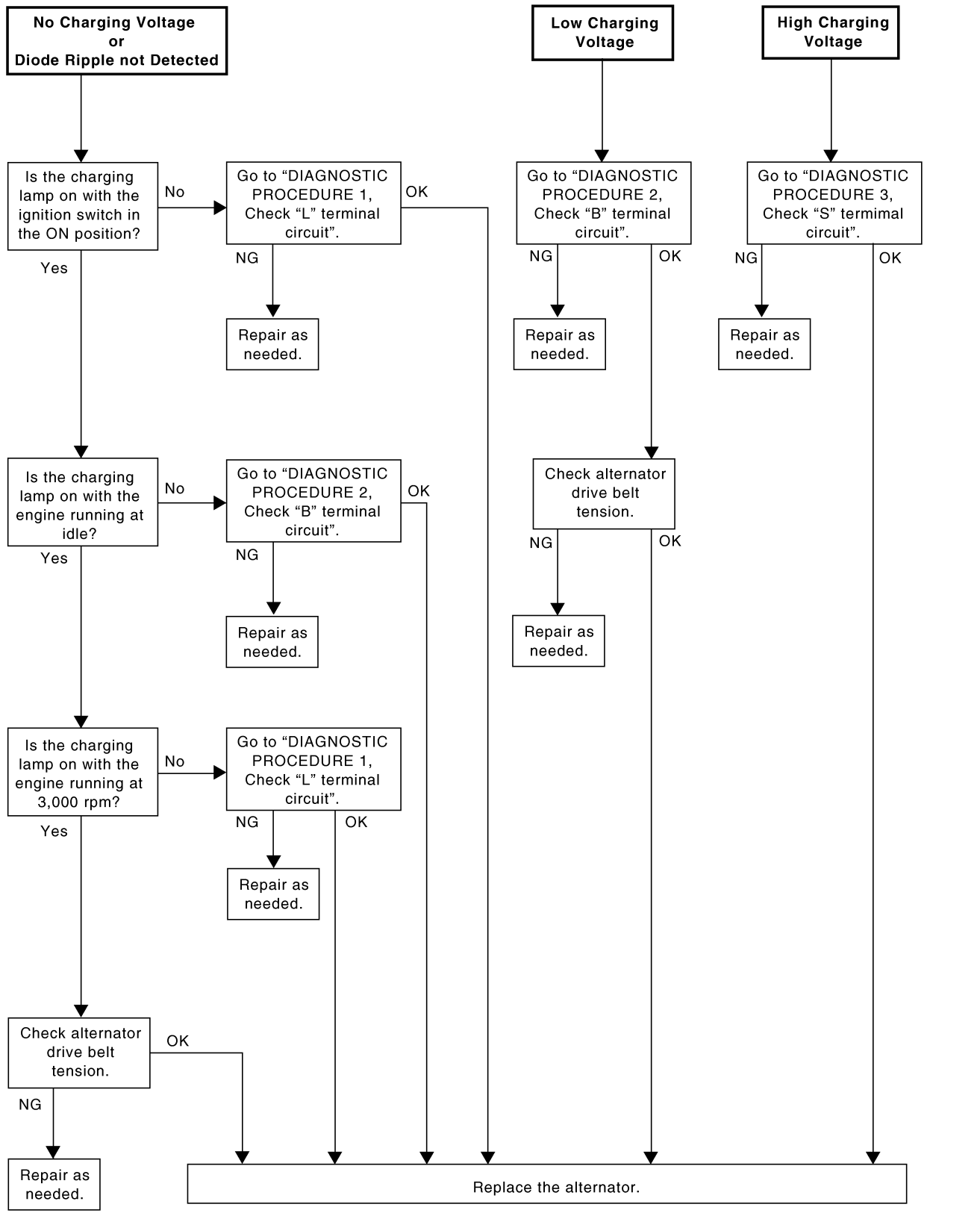
## Trouble Diagnoses with Battery/Starting/Charging System Tester (Cont'd)

### DIAGNOSTIC RESULT ITEM CHART

| Diagnostic item | Service procedure |
|---|---|
| CHARGING SYSTEM NORMAL | Charging system is normal and will also show DIODE RIPPLE test result. |
| NO CHARGING VOLTAGE | Go to "WORK FLOW", EL-44. |
| LOW CHARGING VOLTAGE | Go to "WORK FLOW", EL-44. |
| HIGH CHARGING VOLTAGE | Go to "WORK FLOW", EL-44. |
| DIODE RIPPLE NORMAL | Diode ripple is OK and will also show CHARGING VOLTAGE test result. |
| EXCESS RIPPLE DETECTED | Replace the alternator. Perform "DIODE RIPPLE" test again using Battery/Starting/Charging system tester to confirm repair. |
| DIODE RIPPLE NOT DETECTED | Go to "WORK FLOW", EL-44. |

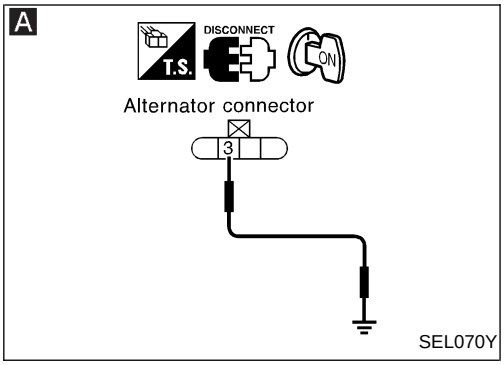
## Trouble Diagnoses with Battery/Starting/Charging System Tester (Cont'd)

### WORK FLOW




SEL423X

## Trouble Diagnoses with Battery/Starting/Charging System Tester (Cont'd)




### DIAGNOSTIC PROCEDURE 1

### ("L" terminal circuit check)

**CHECK "L" TERMINAL CONNECTION.**
Check to see if "L" terminal is clean and tight.

NG → Repair "L" terminal connection. Confirm repair by performing complete Battery/Starting/Charging system test.

OK ↓

A

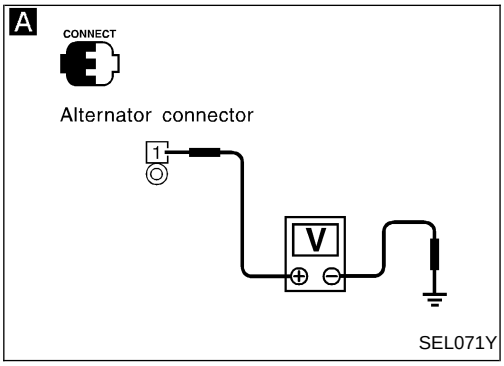
**CHECK "L" TERMINAL CIRCUIT.**
1. Disconnect (E108) connector.
2. Apply ground to harness connector (E108) terminal ③ (W/R) with the ignition switch in the ON position.

CHARGE lamp should light up.

NG → Check the following.
- 7.5A fuse [No. 4, located in fuse block (J/B)]
- CHARGE lamp
- Harness for open or short between combination meter and fuse
- Harness for open or short between combination meter and alternator

OK ↓

Replace the alternator.
Confirm repair by performing complete Battery/Starting/Charging system test.




### DIAGNOSTIC PROCEDURE 2

### ("B" terminal circuit check)

**CHECK "B" TERMINAL CONNECTION.**
Check to see if "B" terminal is clean and connected tightly.

NG → Repair "B" terminal connection.

OK ↓

A

**CHECK ALTERNATOR "B" TERMINAL CIRCUIT.**
Check voltage between alternator harness connector (E107) terminal ① (B/R) and ground using a digital circuit tester.
**Battery voltage should exist.**

NG → Check the following.
- 120A fusible link (letter a, located in fuse and fusible link box)
- Harness for open or short between alternator and fusible link

OK ↓

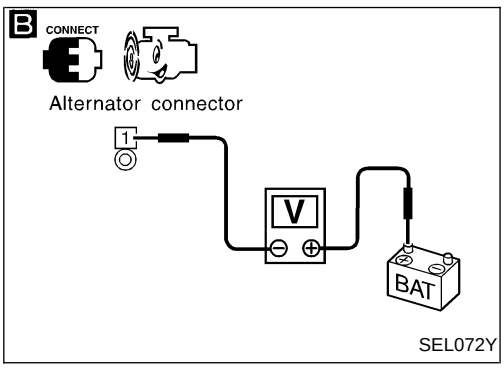
B

**CHECK "B" TERMINAL CONNECTION QUALITY (VOLTAGE DROP TEST).**
Check voltage between alternator harness connector (E107) terminal ① (B/R) and battery positive terminal using a digital tester.
When the engine running at idle and warm:
**Voltage: Less than 0.2V**

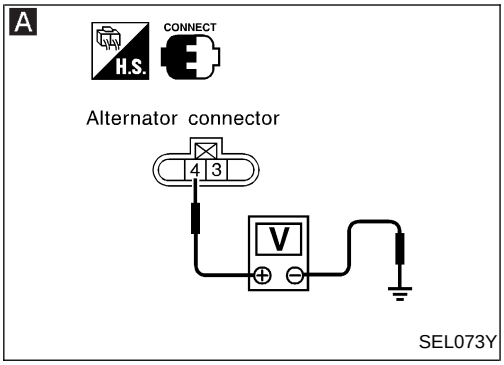
NG → Check harness between the battery and the alternator for poor continuity.

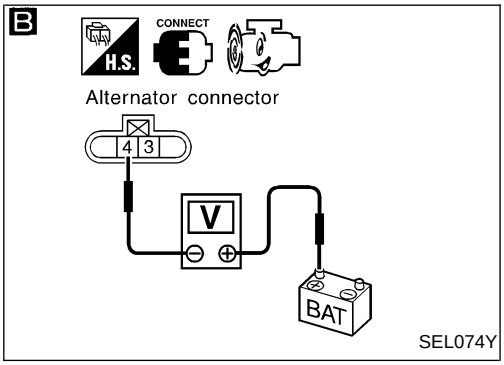
OK ↓

Replace the alternator.
Confirm repair by performing complete Battery/Starting/Charging system test.



## Trouble Diagnoses with Battery/Starting/Charging System Tester (Cont'd)




### DIAGNOSTIC PROCEDURE 3

### ("S" terminal circuit check)

**CHECK "S" TERMINAL CONNECTION.**
Check to see if "S" terminal is clean and tight.

NG → Repair "S" terminal connection.
Confirm repair by performing complete Battery/Starting/Charging system test.

OK ↓

A

**CHECK ALTERNATOR "S" TERMINAL CIRCUIT.**
Check voltage between alternator harness connector (E108) terminal ④ (Y/R) and ground using a digital circuit tester.
**Battery voltage should exist.**

NG → Check the following.
- 7.5A fuse (No. 62, located in fuse and fusible link box)
- Harness for open or short between alternator and fuse

OK ↓

B

**CHECK "S" TERMINAL CONNECTION QUALITY (VOLTAGE DROP TEST).**
Check voltage between alternator harness connector (E108) terminal ④ (Y/R) and battery positive terminal using a digital tester.
When the engine running at idle and warm:
**Voltage: Less than 0.2V**

NG → Check harness between the battery and the alternator for poor continuity.

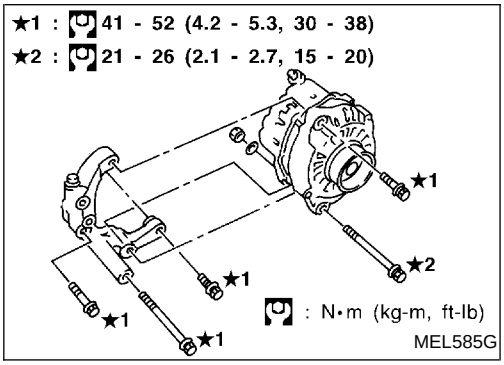
OK ↓

Replace the alternator.
Confirm repair by performing complete Battery/Starting/Charging system test.

### 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.




## Removal and Installation

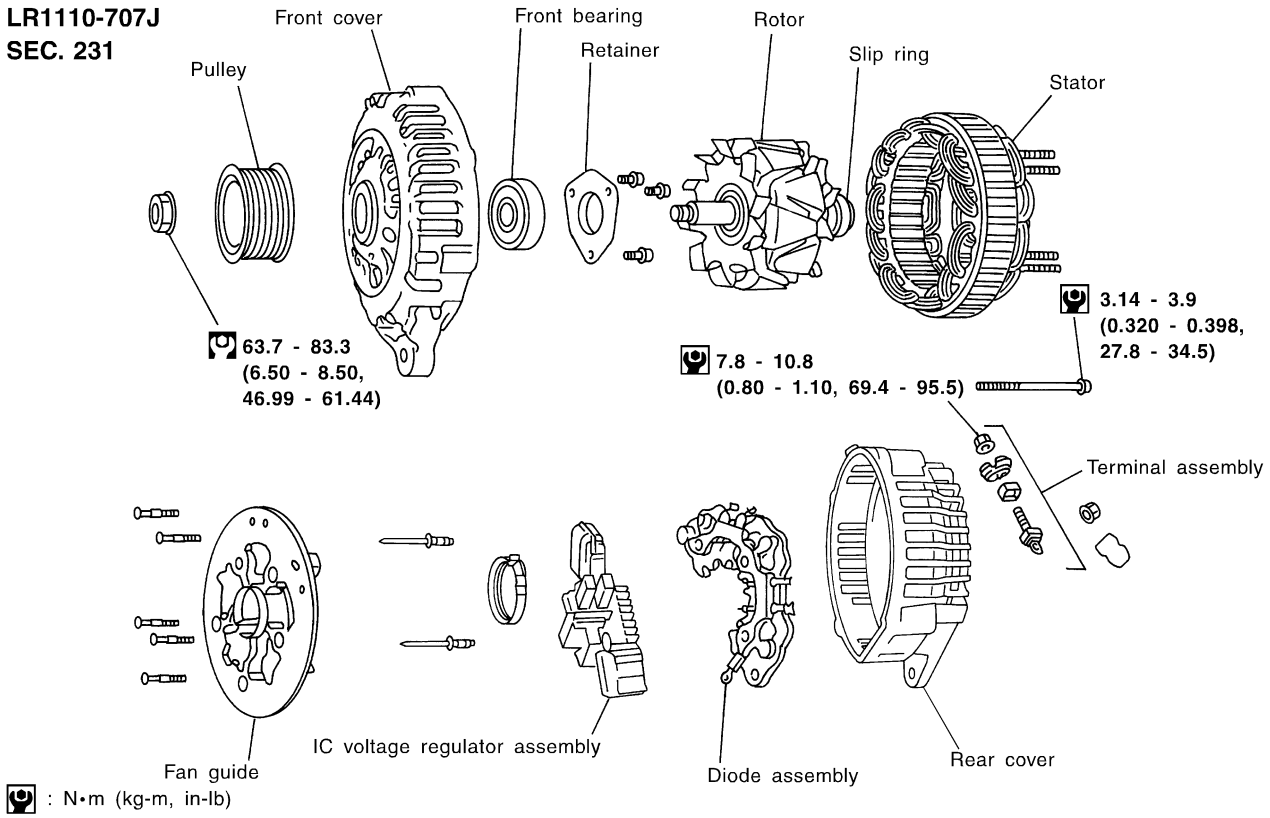
### REMOVAL

1. Remove engine upper cover.
2. Remove drive belt from alternator.
3. Disconnect harness connector.
4. Remove alternator.

### INSTALLATION

To install, reverse the removal procedure.

## Construction

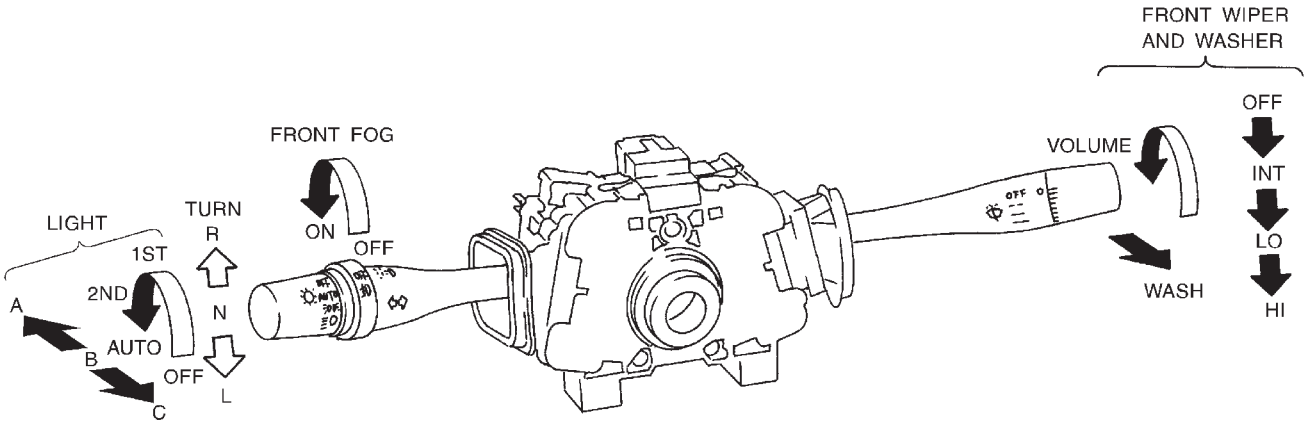


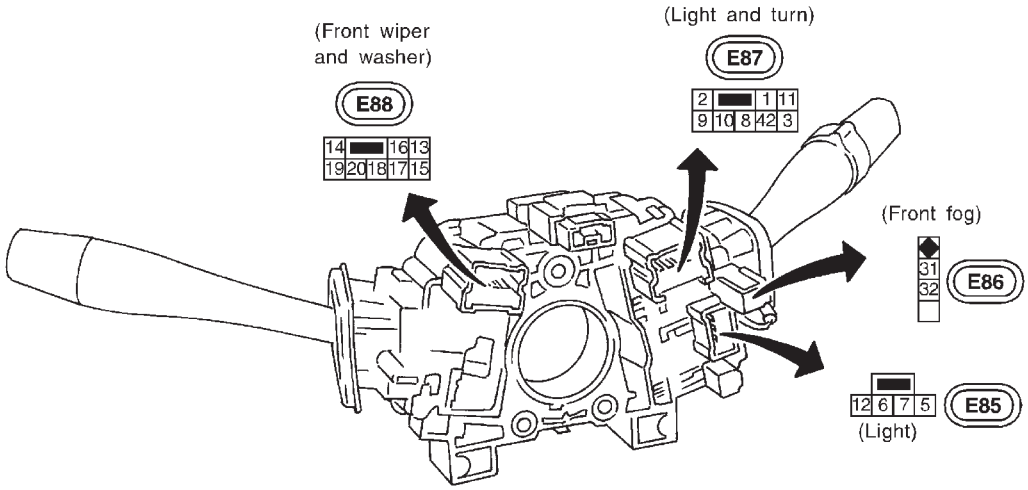

## Service Data and Specifications (SDS)

### ALTERNATOR

| | | |
|---|---|---|
| Type | | LR1110-707J |
| | | HITACHI make |
| Nominal rating | V-A | 12-110 |
| Ground polarity | | Negative |
| Minimum revolution under no-load (When 13.5 volts is applied) | rpm | Less than 950 |
| Hot output current (When 13.5 volts is applied) | A/rpm | More than 34/1,300<br>More than 82/2,500<br>More than 105/5,000 |
| 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 | 2.31 |

## Check

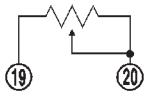



FRONT WIPER SWITCH

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

VARIABLE
INTERMITTENT
WIPER VOLUME




FRONT FOG
LAMP SWITCH

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

TURN SIGNAL SWITCH

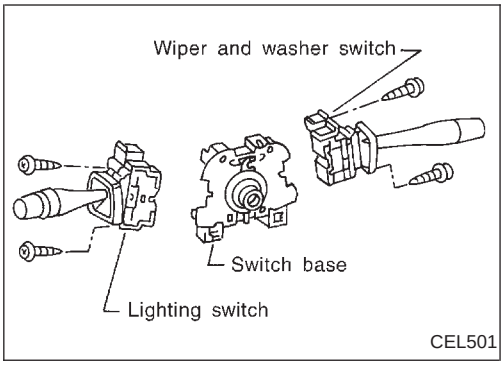
| | L | N | R |
|---|---|---|---|
| 1 | ○ | | ○ |
| 2 | | | ○ |
| 3 | ○ | | |

LIGHTING SWITCH

| | OFF | AUTO | 1ST | 2ND |
|---|---|---|---|---|
| 5 | | | ○ | ○ |
| 11 | | | ○ | ○ |
| 8 | | | | ○ |
| 12 | | | | ○ |
| 42 | | ○ | | |
| (8) | | ○ | | |

| | A | B | C |
|---|---|---|---|
| (5) | ○ | ○ | ○ |
| 7 | | ○ | |
| 6 | ○ | | ○ |
| (8) | ○ | ○ | ○ |
| 10 | | ○ | |
| 9 | ○ | | ○ |
| (12) | | | ○ |

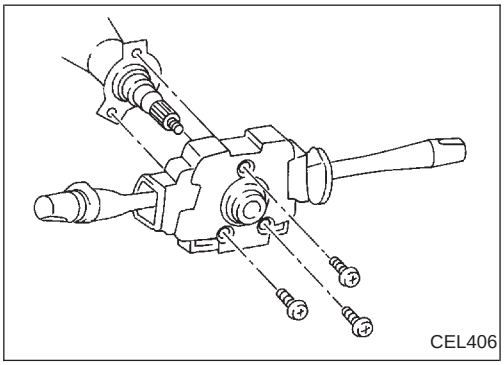
CEL994



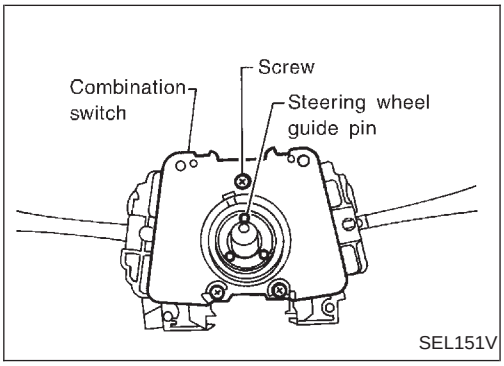

## Replacement

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

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



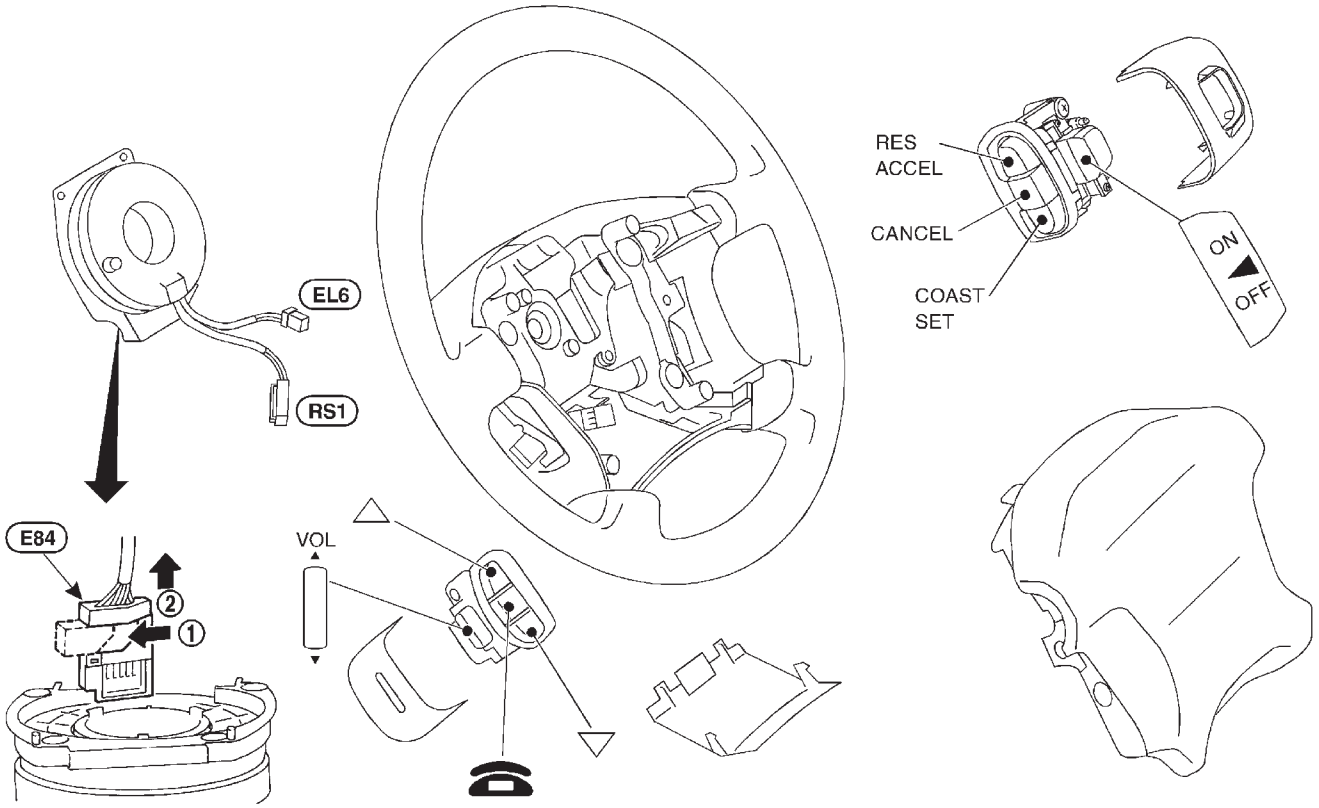

- To remove combination switch base, remove base attaching screw.

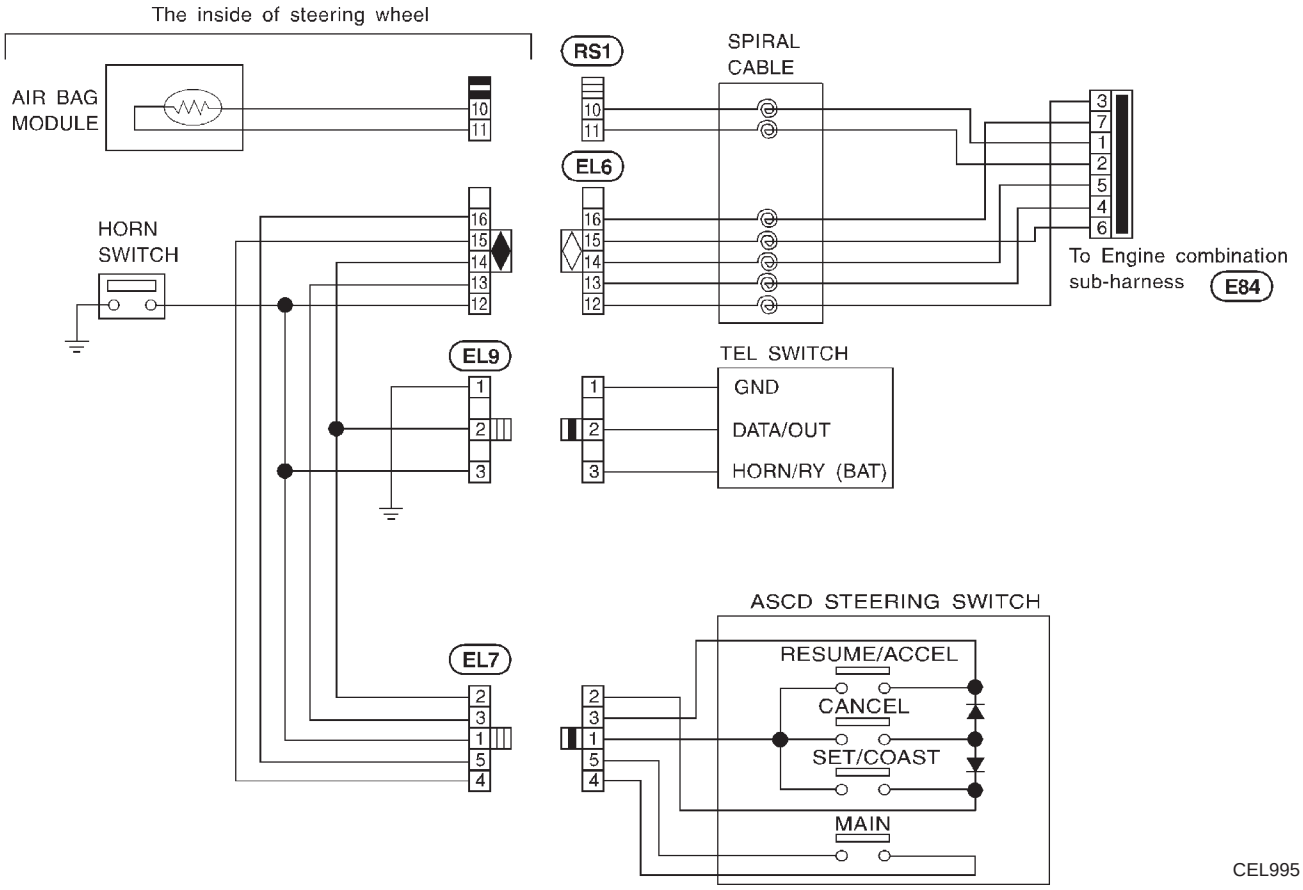



- Before installing steering wheel, align the steering wheel guide pins with the screws which secure the combination switch, as shown in the left figure.

## Check

### WITH INFINITI COMMUNICATOR (IVCS)

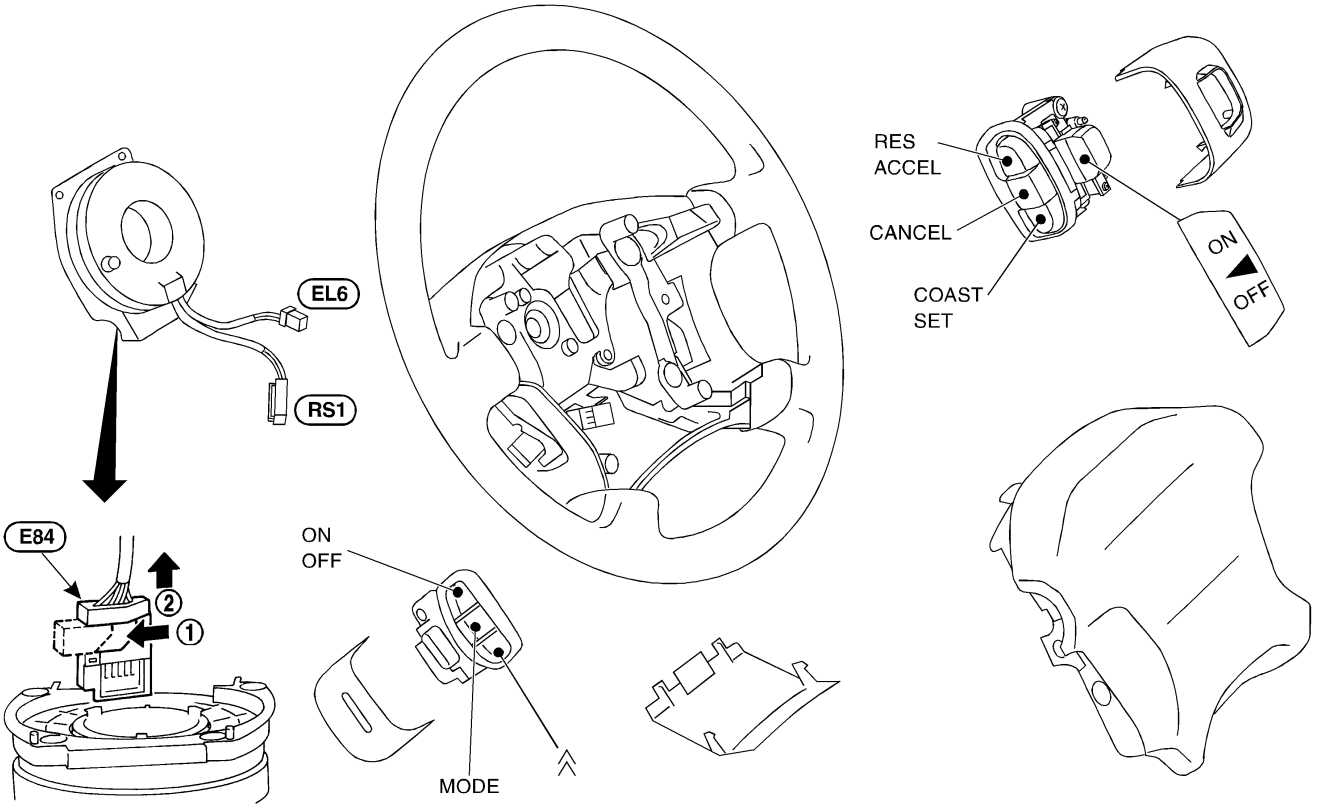


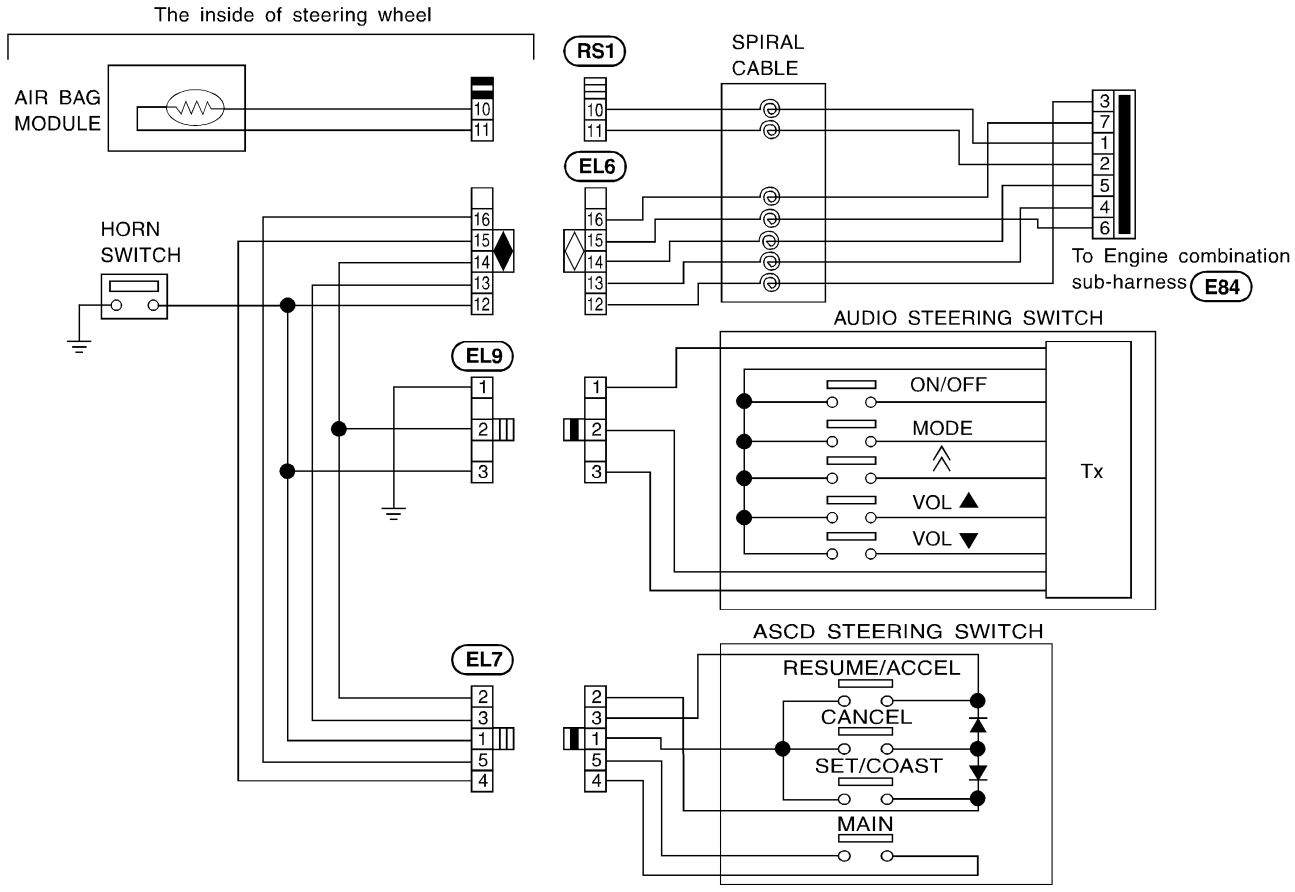




CEL995

## Check (Cont'd)

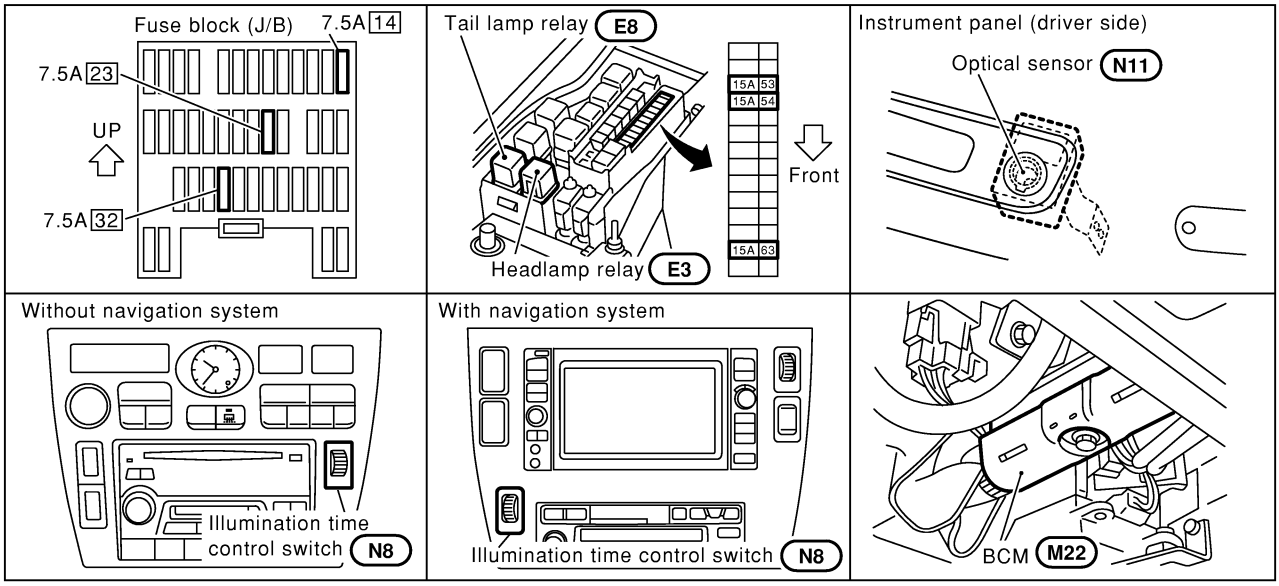
### WITHOUT INFINITI COMMUNICATOR (IVCS)




CEL846

## Component Parts and Harness Connector Location




SEL141Y

## System Description

Power is supplied at all times
- to headlamp relay terminal ①, and
- through 15A fuse [No. 53, located in the fuse, fusible link and relay box]
- to headlamp relay terminal ⑤, and
- through 15A fuse [No. 54, located in the fuse, fusible link and relay box]
- to headlamp relay terminal ⑦, and
- through 7.5A fuse [No. 14, located in the fuse block (J/B)].
- to BCM terminal (105).

When the ignition switch is in the ON or START position, power is supplied
- through 7.5A fuse [No. 32, located in the fuse block (J/B)]
- to BCM terminal (68).

Ground is supplied
- to BCM terminals (56) and (113)
- to illumination time control switch terminal ③
- through body grounds (M14) and (M47), and
- to the lighting switch terminals ⑧ and ⑤
- through body grounds (E22) and (E36).

### HEADLAMP SWITCH OPERATION

#### Low beam operation

When the lighting switch is turned to 2ND and LOW (“B”) positions, ground is supplied
- to headlamp relay terminal ②
- from the lighting switch terminal (12).

Headlamp relay is then energized, and power is supplied
- from the headlamp relay terminal ⑥
- to terminal ② of the LH headlamp, and
- from the headlamp relay terminal ③
- to terminal ② of the RH headlamp.

Ground is supplied
- to terminal ① of the LH headlamp
- from the lighting switch terminal ⑦, and
- to terminal ① of the RH headlamp

## System Description (Cont'd)

- from the lighting switch terminal ⑩.

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

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

When the lighting switch is turned to 2ND and HIGH ("A") or PASS ("C") positions, ground is supplied

- to headlamp relay terminal ②
- from the lighting switch terminal ⑫.

Headlamp relay is then energized, and power is supplied

- from the headlamp relay terminal ⑥
- to terminal ② of the LH headlamp, and
- to combination meter terminal ㉒ for the HIGH BEAM indicator
- from headlamp relay terminal ③
- to terminal ② of the RH headlamp.

Ground is supplied

- to terminal ③ of the LH headlamp, and
- to combination meter terminal ㉓
- from the lighting switch terminal ⑥
- to terminal ③ of the RH headlamp
- from the lighting switch terminal ⑨.

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

### AUTO LIGHT OPERATION

BCM is connected to the optical sensor. The optical sensor sends a signal to BCM according to outside brightness.

When the lighting switch is turned to AUTO position, ground is supplied

- to BCM terminal ⑭
- from the lighting switch terminal ㊷.

When ignition switch is set to ON or START and outside is darker than the prescribed level, ground is supplied

- to headlamp relay terminal ②
- from the BCM terminal ⑤.

Headlamp relay is then energized, and headlamps (Low or High) illuminate according to switch position

Auto light operation allows headlamps to turn off when outside is brighter than the prescribed level.

Or the ignition switch is turned to OFF position. (When shut off delay function is canceled.)

For parking, license and tail lamp auto operation, refer to "PARKING, LICENSE AND TAIL LAMPS".

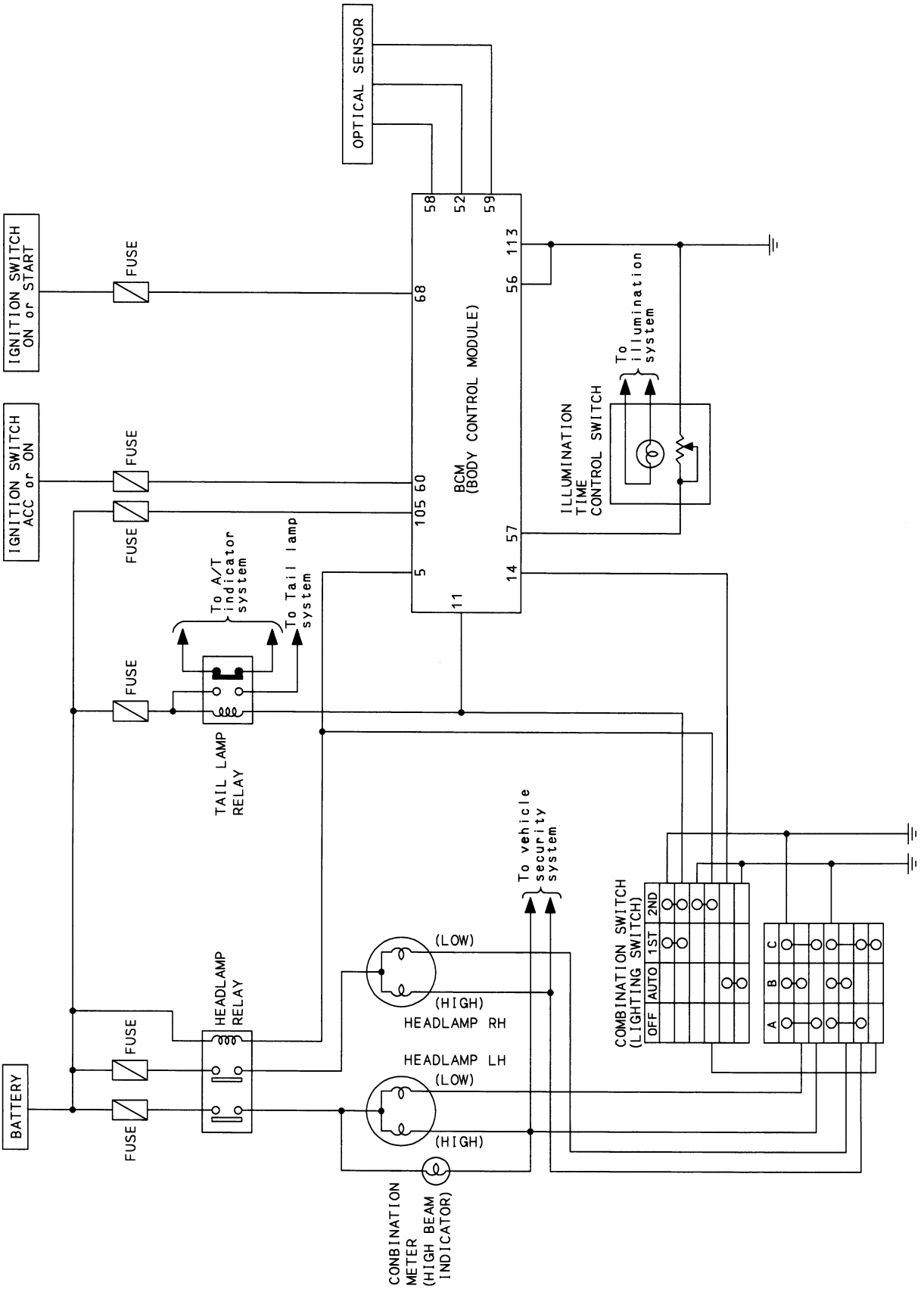
### SHUT OFF DELAY

While the headlamps are lit in the auto-light operation mode, the ignition switch is turned from the "ON" to the "OFF" position. The BCM no longer receives a voltage signal at terminal ㊽. This starts the auto light shut off delay timer. The timer is set based on the resistance value at BCM terminal ㊼. With the timer running, the headlamps remain lit. When the timer reaches the end of its cycle, the headlamps turn off. Headlamp lighting time can be adjusted from about 0 to 3 minutes. (This function is not applicable to the tail lamps.)

### VEHICLE SECURITY SYSTEM

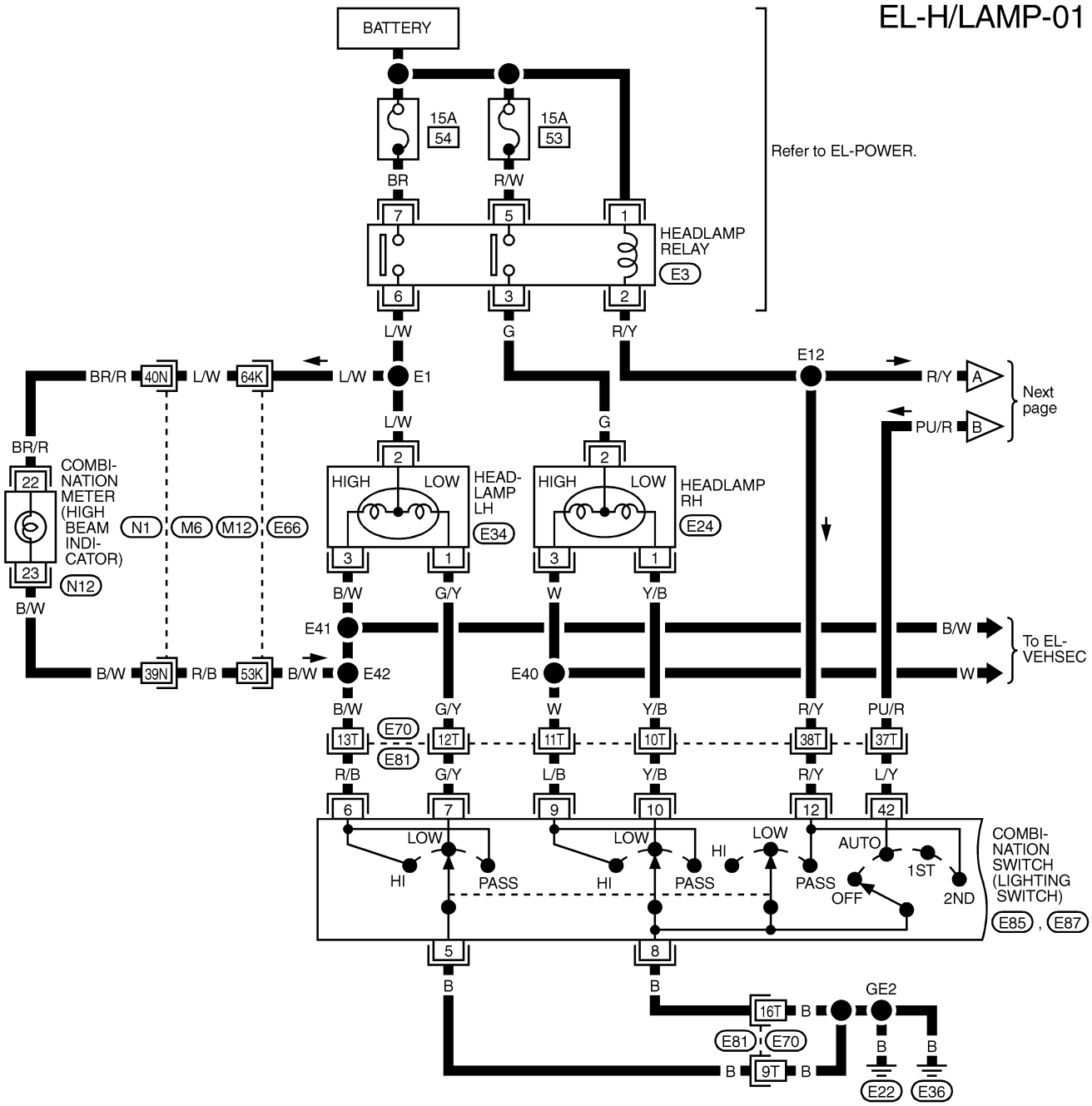
The vehicle security system will flash the high beams if the system is triggered. Refer to "VEHICLE SECURITY (THEFT WARNING) SYSTEM — IVMS", EL-416.

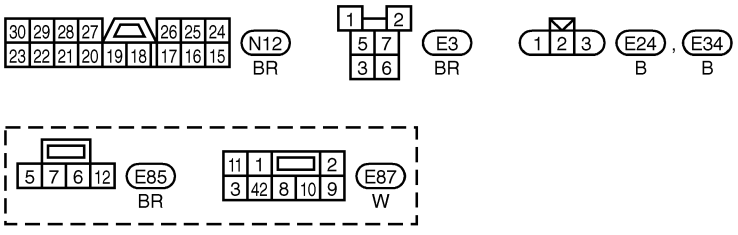
## Schematic




TEL826B

## Wiring Diagram — H/LAMP —



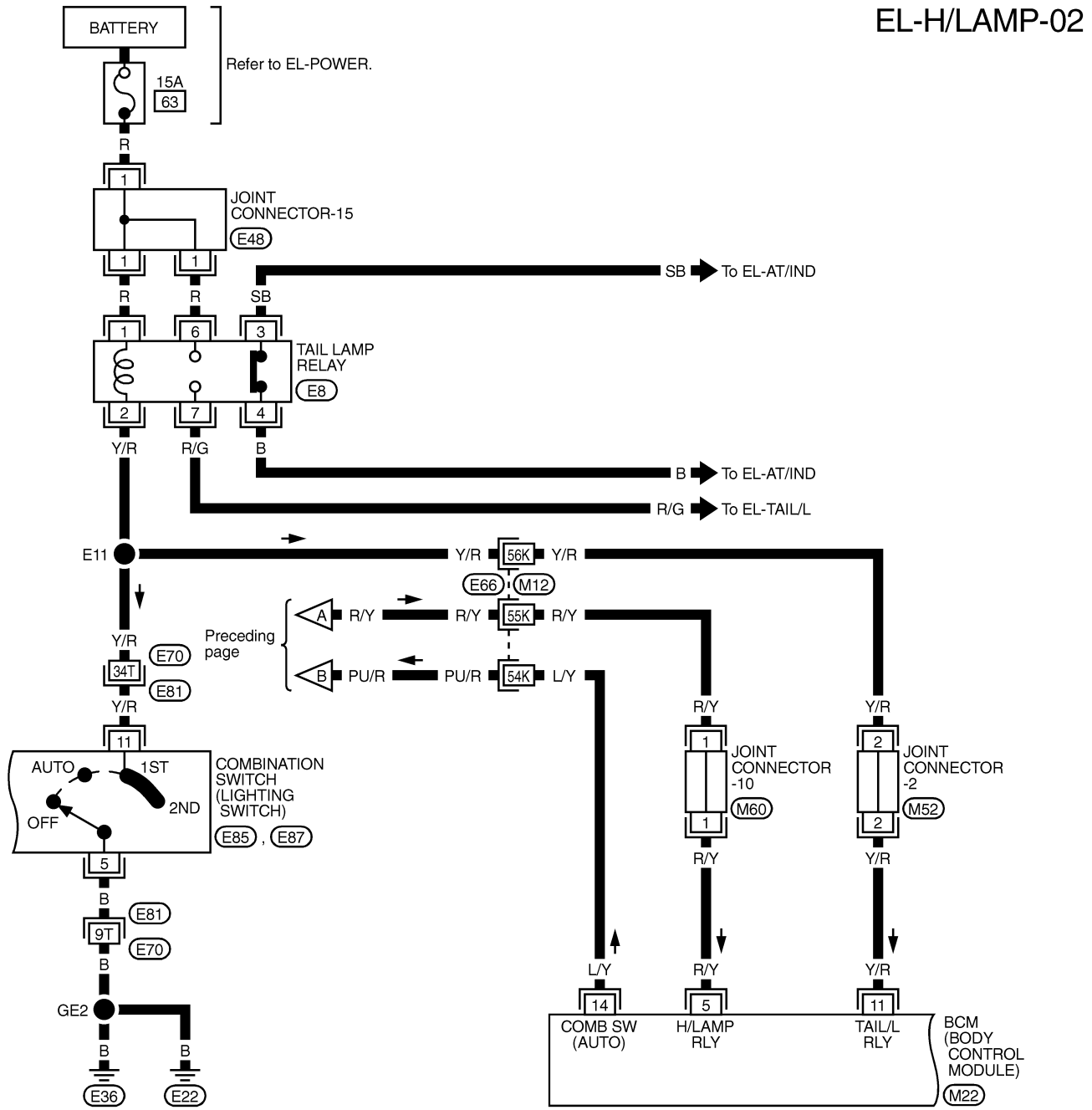



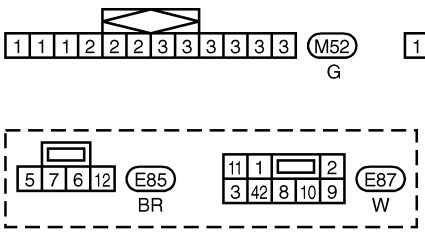

REFER TO THE FOLLOWING.
M6 , E66 , E81 -SUPER MULTIPLE JUNCTION (SMJ)

TEL720B

## Wiring Diagram — H/LAMP — (Cont'd)

EL-H/LAMP-02



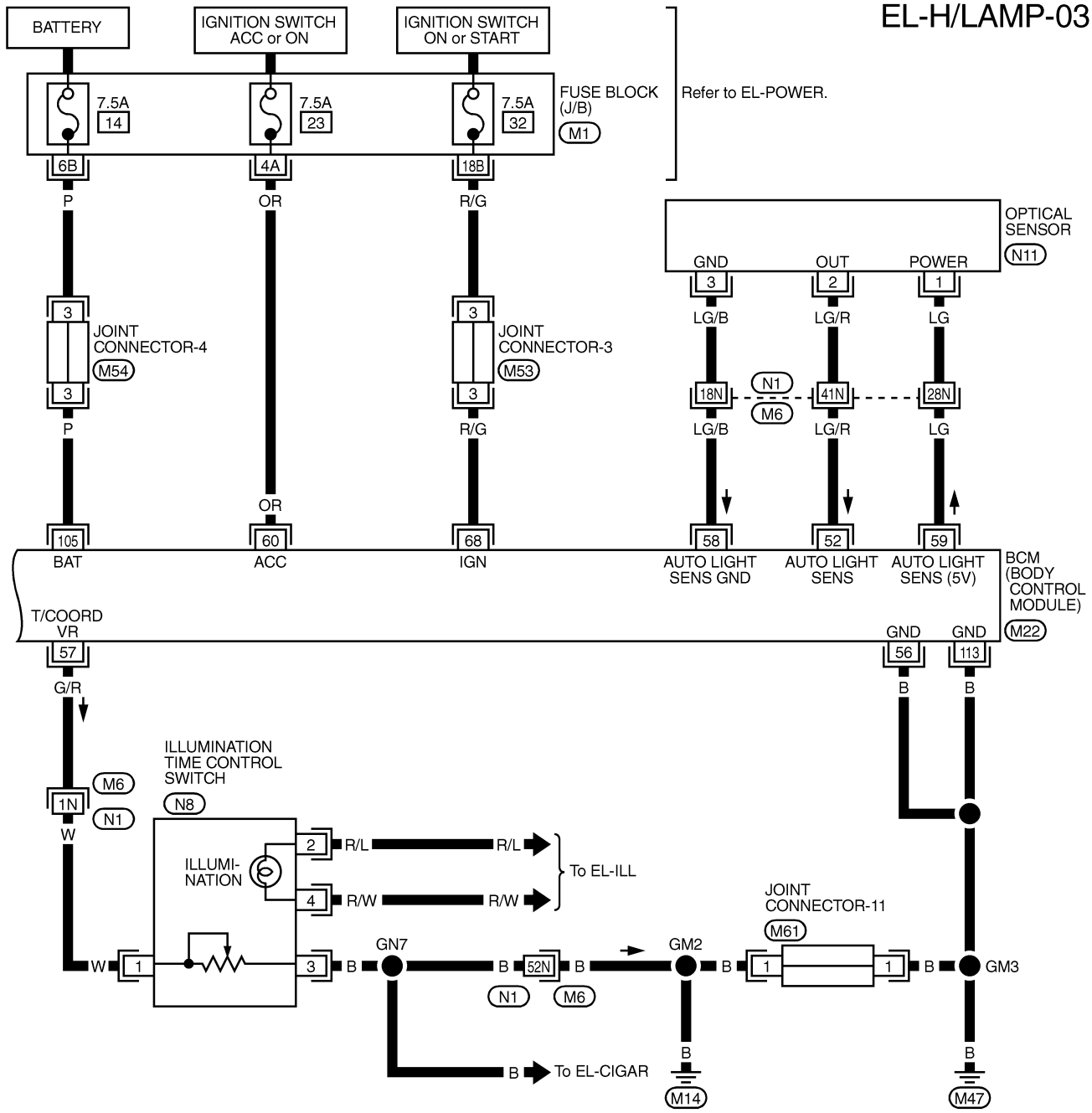



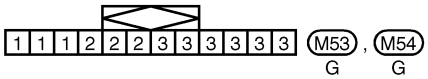

REFER TO THE FOLLOWING.
E66 , E81 -SUPER MULTIPLE JUNCTION (SMJ)
M22 -ELECTRICAL UNITS

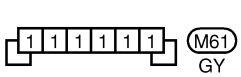
TEL721B

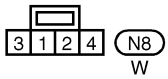
## Wiring Diagram — H/LAMP — (Cont'd)

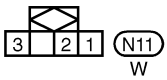
EL-H/LAMP-03



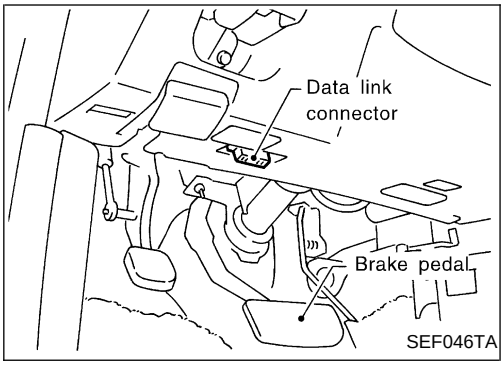




REFER TO THE FOLLOWING.
M6 -SUPER MULTIPLE JUNCTION (SMJ)
M1 -FUSE BLOCK-JUNCTION BOX (J/B)
M22 -ELECTRICAL UNITS

TEL722B

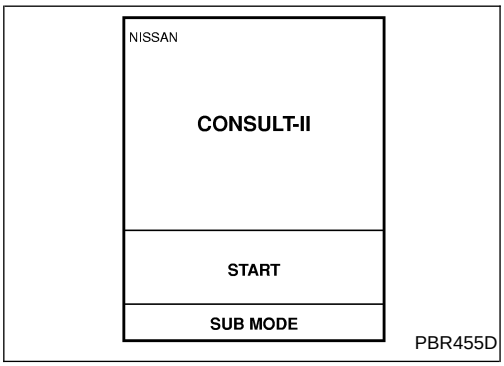


SEF046TA

## CONSULT-II (For auto light operation)

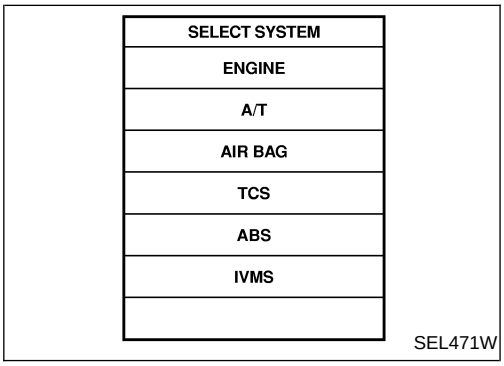
### CONSULT-II INSPECTION PROCEDURE

1. Turn ignition switch “OFF”.
2. Connect “CONSULT-II” to the data link connector.



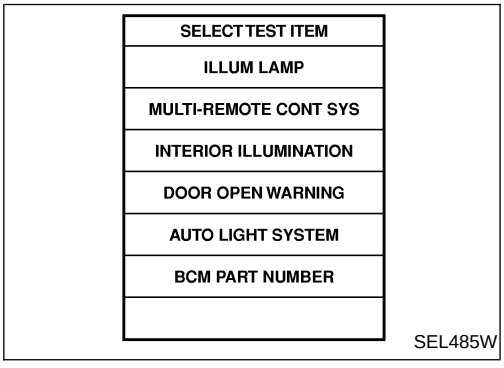
PBR455D

3. Turn ignition switch “ON”.
4. Touch “START”.



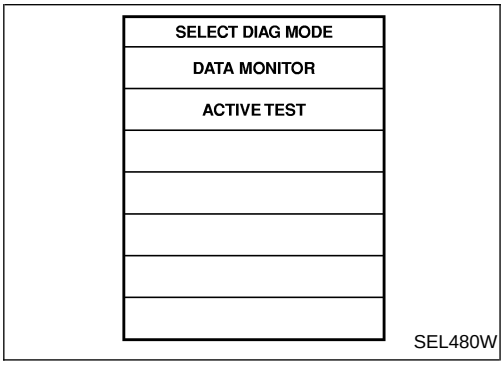
SEL471W

5. Touch “IVMS”.



SEL485W

6. Touch “AUTO LIGHT SYSTEM”.

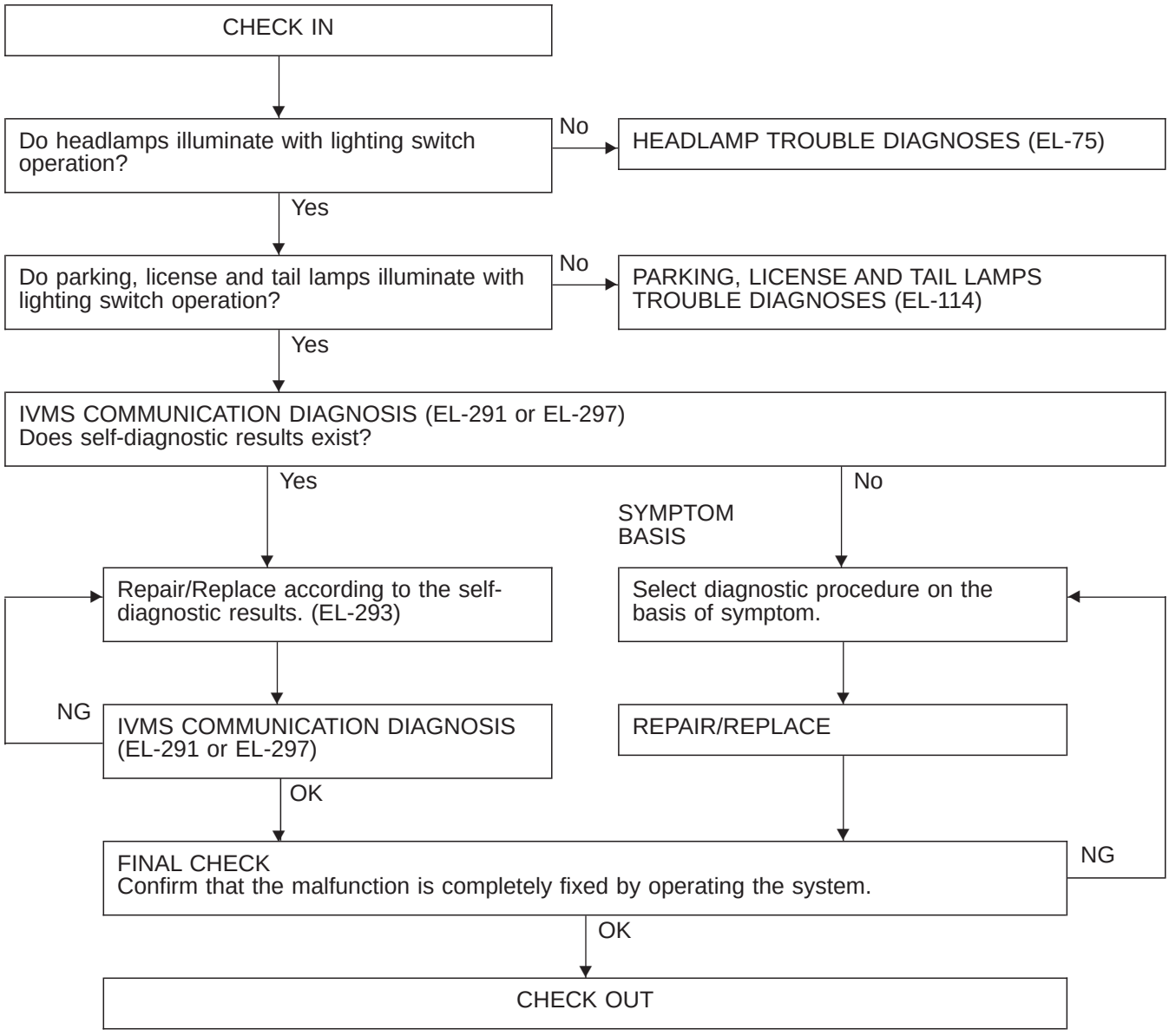


SEL480W

- DATA MONITOR and ACTIVE TEST are available for the auto light.

## Trouble Diagnoses/Auto Light Operation

### WORK FLOW




**NOTICE:**

- **When LCU connectors are disconnected for more than 1 minute such as during trouble diagnoses, the "disconnected" data will be memorized by the BCM. (While BCM memorizes the "disconnected" data, IVMS communication diagnosis of CONSULT-II will display "PAST NO RESPONSE".) Therefore, after reconnecting the LCU connectors, erase the memory.**
- **To erase the memory, perform the procedure below.**
  **Erase the memory with CONSULT-II (Refer to EL-291.) or turn the ignition switch to "OFF" position and remove 7.5A fuse [No. 14 located in the fuse block (J/B)].**

## Trouble Diagnoses/Auto Light Operation (Cont'd)

### SYMPTOM CHART

| PROCEDURE | DIAGNOSTIC PROCEDURE | | | | |
|---|---|---|---|---|---|
| REFERENCE PAGE | EL-71 | EL-71 | EL-72 | EL-73 | EL-74 |
| SYMPTOM | DIAGNOSTIC PROCEDURE 1 (Lighting switch "AUTO" check) | DIAGNOSTIC PROCEDURE 2 (Auto light output check) | DIAGNOSTIC PROCEDURE 3 (Optical sensor check) | DIAGNOSTIC PROCEDURE 4 (IGN input signal check) | DIAGNOSTIC PROCEDURE 5 (Illumination time control switch check) |
| When outside is dark, neither tail lamps nor headlamps turn on by auto light operation. | X | | X | X | |
| When outside is dark, tail lamps turn on but headlamps do not turn on by auto light operation. | | X | | | |
| When outside is dark, headlamps turn on but tail lamps do not turn on by auto light operation. | | X | | | |
| Light does not turn off when ignition key switch is turned to "OFF". (when shut off delay is canceled.) | | | | X | |
| When outside is bright, neither tail lamps nor headlamps turn off by auto light operation. | | | X | | |
| Shut off delay does not work properly. | | | | X | X |

## Trouble Diagnoses/Auto Light Operation (Cont'd)

A

| DATA MONITOR | |
|---|---|
| MONITOR | |
| AUTO LIGHT SW | ON |
| | |
| | RECORD |

SEL852W

### DIAGNOSTIC PROCEDURE 1

### [Lighting switch (AUTO) check]

**CHECK LIGHTING SWITCH (AUTO) INPUT SIGNAL.**

A CONSULT-II

See "AUTO LIGHT SW" in DATA MONITOR mode.
When lighting switch is in AUTO:
**AUTO LIGHT SW ON**
When lighting switch is OFF:
**AUTO LIGHT SW OFF**

OR

ON BOARD

Perform On board diagnosis — Mode II (Switch monitor) for light switch. Refer to EL-299.

Refer to wiring diagram in EL-65.

NG → Check the following.
- Lighting switch
- Harness for open or short between BCM and lighting switch
- Ground circuit for lighting switch

OK ↓

Lighting switch (AUTO) is OK.

A

| ACTIVE TEST | |
|---|---|
| HEADLAMP RELAY | OFF |
| or | |
| TAIL LAMP RELAY | OFF |
| | |
| ON | |

SEL574W

### DIAGNOSTIC PROCEDURE 2

### (Auto light output check)

**CHECK AUTO LIGHT OUTPUT SIGNAL/ CIRCUIT.**

A CONSULT-II

See "HEADLAMP RELAY" and "TAIL LAMP RELAY" in ACTIVE TEST mode, and turn lighting switch to AUTO position.
**Headlamp and tail lamp should turn on.**

OR

B TESTER

1. Turn the ignition switch to ON position or lighting switch to AUTO position.
2. Check voltage between BCM terminal ⑤ or ⑪ and ground.

| Output condition | Voltage V |
|---|---|
| Sensor not struck by light (Determined to be "dark" by sensor) | 0 |
| Sensor struck by light | Approx. 12 |

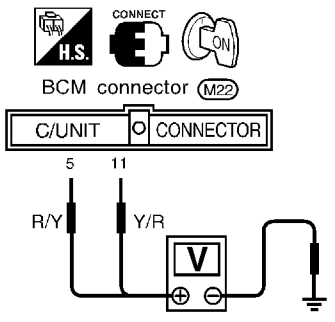
Refer to wiring diagram in EL-66.

NG → Check harness for open or short between BCM and headlamp relay or tail lamp relay.

OK ↓

Auto light output is OK.

B



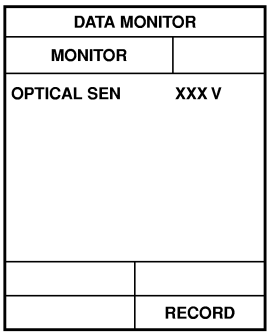

SEL098V

## Trouble Diagnoses/Auto Light Operation (Cont'd)

### DIAGNOSTIC PROCEDURE 3

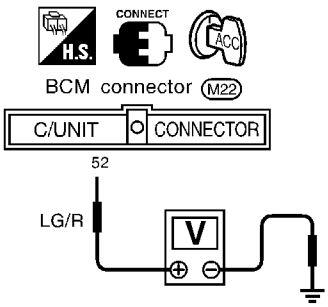
### (Optical sensor check)

A



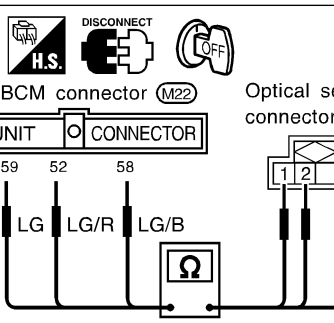

SEL572W

B



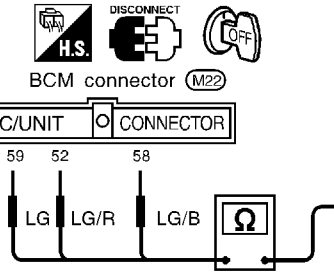

SEL559UA

C




SEL853W

D




SEL017V

**CHECK OPTICAL SENSOR INPUT SIGNAL.**

A CONSULT-II

See "OPTICAL SEN" in DATA MONITOR mode.
When optical sensor is struck by light:
**More than 3V**
When optical sensor is not struck by light:
**Approx. 0.5V**

OR

B TESTER

1. Turn the ignition switch to ACC position.
2. Check voltage between BCM terminal ⑫ and ground.

| Condition of optical sensor | Voltage V |
|---|---|
| Sensor struck by light | More than 3 |
| Sensor not struck by light | Approx. 0.5 |

Refer to wiring diagram in EL-67.

OK → Optical sensor is OK.

NG ↓

C

**CHECK OPTICAL SENSOR OPEN CIRCUIT.**

1. Disconnect BCM connector and optical sensor connector.
2. Check harness continuity between BCM connector and optical sensor connector.

| Terminals | | Continuity |
|---|---|---|
| BCM | Optical sensor | |
| ⑱ | ③ | Yes |
| ⑫ | ② | |
| ⑲ | ① | |

NG → Repair harness.

OK ↓

D

**CHECK OPTICAL SENSOR SHORT CIRCUIT.**

Check harness continuity between BCM connector and body ground.

| Terminals | Continuity |
|---|---|
| ⑱ - ground | No |
| ⑫ - ground | |
| ⑲ - ground | |

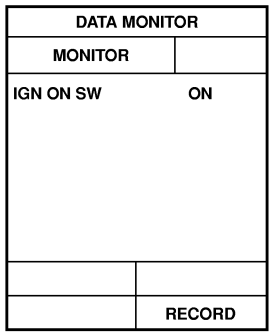
NG → Repair harness.

OK ↓

Replace optical sensor.

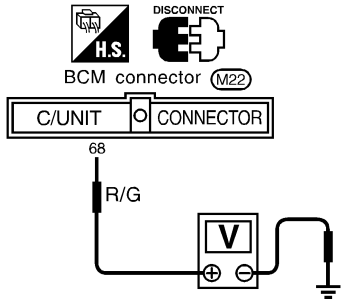
## Trouble Diagnoses/Auto Light Operation (Cont'd)

A




SEL499W

B




SEL855W

### DIAGNOSTIC PROCEDURE 4

### (IGN input signal check)

**CHECK ACC AND IGN INPUT SIGNAL.**

A CONSULT-II

See "IGN ON SW" in DATA MONITOR mode.

When ignition switch is ON:

**IGN ON SW ON**

When ignition switch is OFF:

**IGN ON SW OFF**

NG → Check the following.
- 7.5A fuse [No. 32, located in the fuse block (J/B)]
- Harness for open or short between fuse and BCM

OR

B TESTER

Check voltage between BCM terminal (68) and ground.

| Terminals | Ignition switch position | | | |
|---|---|---|---|---|
| | OFF | ACC | ON | START |
| (68) - Ground | Approx. 0V | | Battery voltage | |

Refer to wiring diagram in EL-67.

OK ↓

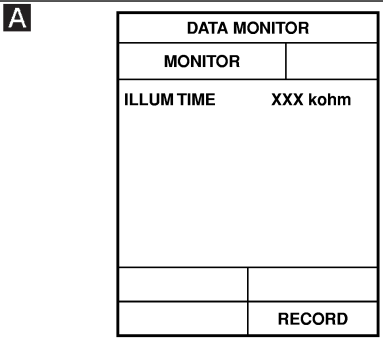
IGN input signal is OK.

## Trouble Diagnoses/Auto Light Operation (Cont'd)

### DIAGNOSTIC PROCEDURE 5

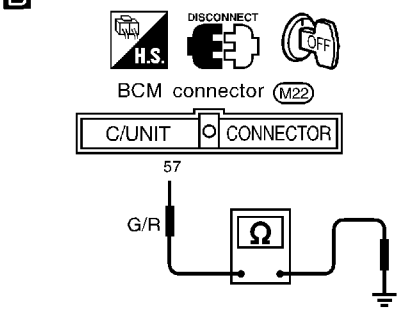
### (Illumination time control switch check)

A



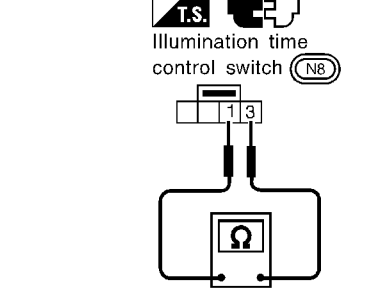

SEL573W

B




SEL019V

C




SEL020V

**CHECK ILLUMINATION TIME CONTROL SWITCH INPUT SIGNAL.**

A CONSULT-II

See "ILLUM TIME" in DATA MONITOR mode.

When time control switch is fully turned to short time

**Approx. 0 kΩ**

When time control switch is fully turned to long time

**Approx. 1 kΩ**

OK → Illumination time control switch is OK.

OR

B TESTER

1. Disconnect BCM connector.
2. Check resistance between BCM terminal ⑤⑦ and ground.

| Time control switch condition | Resistance kΩ |
|---|---|
| Fully short | Approx. 0 |
| Fully long | Approx. 1 |

Refer to wiring diagram in EL-67.

NG ↓

C

**CHECK ILLUMINATION TIME CONTROL SWITCH.**

1. Disconnect illumination time control switch.
2. Check resistance between illumination time control switch terminals ① and ③.

| Time control switch condition | Resistance kΩ |
|---|---|
| Fully short | Approx. 0 |
| Fully long | Approx. 1 |

NG → Replace illumination time control switch.

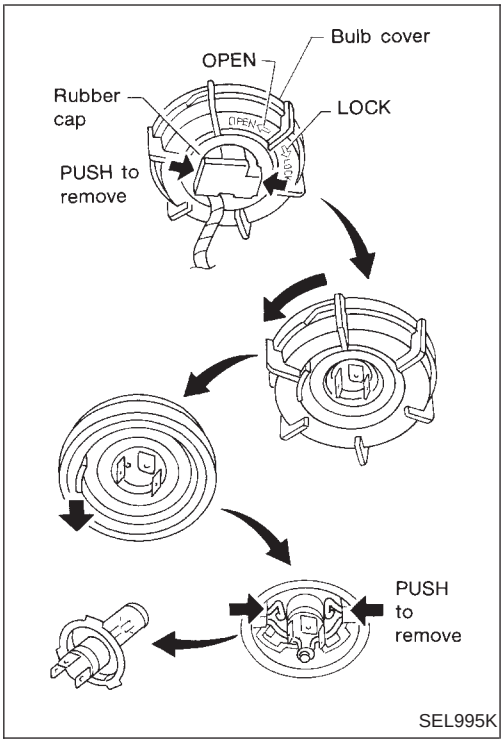
OK ↓

Check the following:

- Illumination time control switch ground circuit
- Harness for open or short between BCM and illumination time control switch

## Trouble Diagnoses/Headlamp (Conventional Type)

| Symptom | Possible cause | Repair order |
|---|---|---|
| LH headlamps do not operate. | 1. Bulb<br>2. 15A fuse<br>3. Lighting switch<br>4. Headlamp relay | 1. Check bulb.<br>2. Check 15A fuse (No. 54, located in fusible link).<br>3. Check lighting switch.<br>4. Check headlamp relay. |
| RH headlamps do not operate. | 1. Bulb<br>2. 15A fuse<br>3. Lighting switch<br>4. Headlamp relay | 1. Check bulb.<br>2. Check 15A fuse (No. 53, located in fusible link).<br>3. Check lighting switch.<br>4. Check headlamp relay. |
| Neither headlamp illuminates. | 1. Headlamp relay<br>2. Lighting switch<br>3. Lighting switch ground circuit<br>4. Open in headlamp relay circuit | 1. Check headlamp relay.<br>2. Check lighting switch.<br>3. Check lighting switch ground circuit.<br>4. Check harness between headlamp relay terminal ② and lighting switch terminal ⑫ for an open circuit. |
| LH high beam does not operate, but LH low beam operates. | 1. Bulb<br>2. Open in LH high beam circuit<br>3. Lighting switch | 1. Check bulb.<br>2. Check harness between lighting switch terminal ⑥ and LH headlamp 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>3. Lighting switch | 1. Check bulb.<br>2. Check harness between lighting switch terminal ⑦ and LH headlamp for an open circuit.<br>3. Check lighting switch. |
| RH high beam does not operate, but RH low beam operates. | 1. Bulb<br>2. Open in RH high beam circuit<br>3. Lighting switch | 1. Check bulb.<br>2. Check harness between lighting switch terminal ⑨ and RH headlamp 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>3. Lighting switch | 1. Check bulb.<br>2. Check harness between lighting switch terminal ⑩ and RH headlamp for an open circuit.<br>3. Check lighting switch. |
| High beam indicator does not work. | 1. Bulb<br>2. Open in high beam circuit | 1. Check bulb in combination meter.<br>2-1. Check harness between lighting switch and combination meter for an open circuit.<br>2-2. Verify battery positive voltage is present at terminal ㉒ of combination meter, when high beam illuminates. |




## Bulb Replacement/Conventional Type

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

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

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

**CAUTION:**

- **Do not leave 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/Conventional Type

| Item | Wattage (W) |
|---|---|
| Semi-sealed beam<br>High/Low | 60/55 |

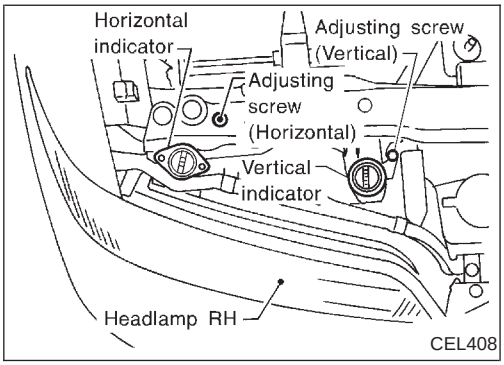
## Aiming Adjustment/Conventional Type

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

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

**For details, refer to the regulations.**

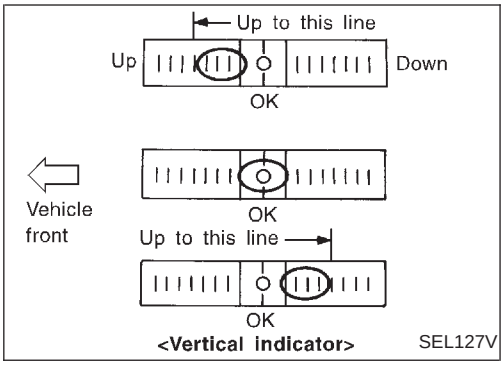
**a. Keep all tires inflated to correct pressures.**
**b. Place vehicle and tester on one and same flat surface.**
**c. See that there is no-load in vehicle (coolant, engine oil filled up to correct level and full fuel tank) other than the driver (or equivalent weight placed in driver's position).**




Before performing aiming adjustment, make sure of the following.

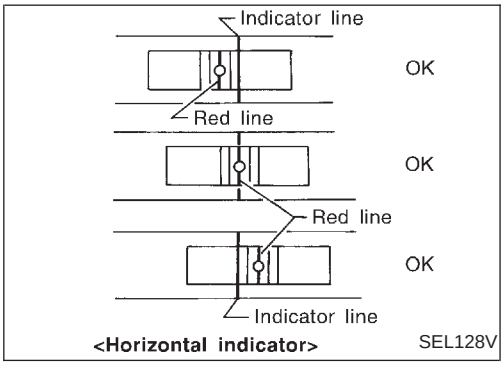
a. Keep all tires inflated to correct pressure.
b. Place vehicle on level ground.
c. See that vehicle is unloaded (except for full levels of coolant, engine oil and fuel, and spare tire, jack, and tools). Have the driver or equivalent weight placed in driver's seat.

## Aiming Adjustment/Conventional Type (Cont'd)

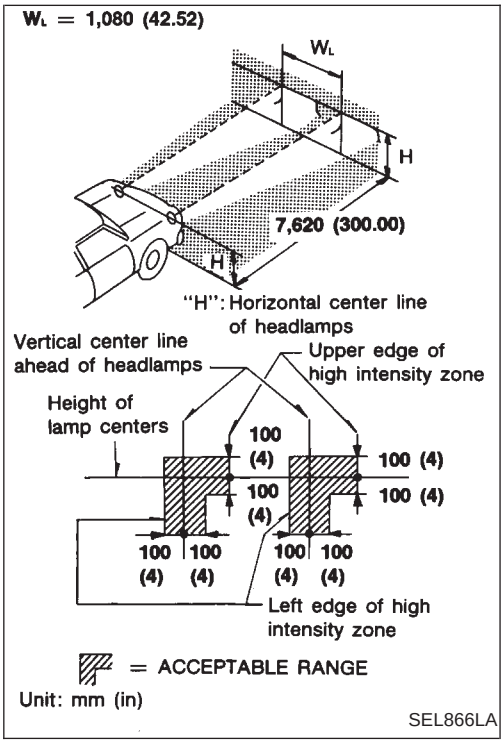



### LOW BEAM

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.

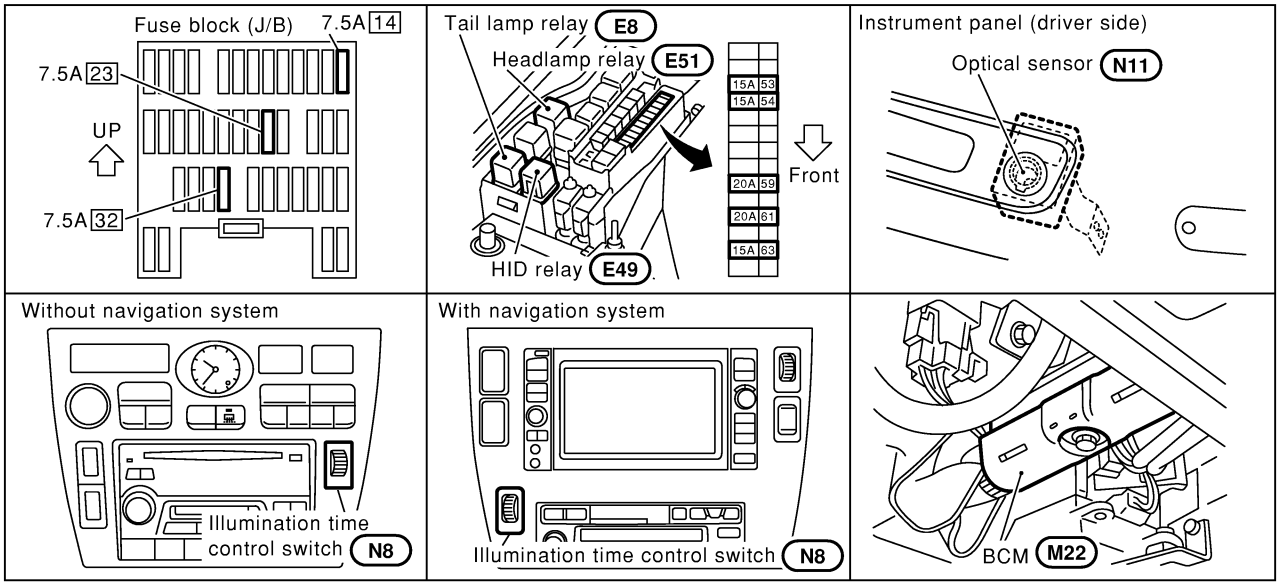



If the vehicle front body has been repaired and/or the headlamp assembly has been replaced, check aiming. Use the aiming chart shown in the figure.

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

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

## Component Parts and Harness Connector Location




SEL139Y

## System Description

Power is supplied at all times
- through 15A fuse [No. 54, located in the fuse, fusible link and relay box]
- to headlamp relay terminal ①
- to headlamp relay terminal ⑦, and
- through 15A fuse [No. 53, located in the fuse, fusible link and relay box]
- to headlamp relay terminal ⑤, and
- through 7.5A fuse [No. 14, located in the fuse block (J/B)].
- to BCM terminal (105).

Power is also supplied at all times
- to HID relay terminal ①, and
- through 20A fuse (No. 61, located in the fuse, fusible link and relay box)
- to HID relay terminal ③, and
- through 20A fuse (No. 59, located in the fuse, fusible link and relay box)
- to HID relay terminal ⑥, and

When the ignition switch is in the ACC or ON position, power is supplied
- through 7.5A fuse [No. 23, located in the fuse block (J/B)]
- to BCM terminal ⑥⓪.

When the ignition switch is in the ON or START position, power is supplied
- through 7.5A fuse [No. 32, located in the fuse block (J/B)]
- to BCM terminal ⑥⑧.

Ground is supplied
- to BCM terminals ⑤⑥ and (113)
- to illumination time control switch terminal ③
- through body grounds (M14) and (M47), and
- to the lighting switch terminals ⑧ and ⑤
- through body grounds (E22) and (E36).

### HEADLAMP SWITCH OPERATION

#### Low beam operation

When the lighting switch is turned to 2ND (LOW or HI) or PASS (“C”) position, ground is supplied
- to HID relay terminal ②
- from the lighting switch terminal ⑫.

## System Description (Cont'd)

HID relay is then energized, and power is supplied.
- from the HID relay terminal ⑤
- to terminal ② LH headlamp

Power is also supplied
- from the HID relay terminal ⑦
- to terminal ② RH headlamp

Ground is supplied at all times.
- to LH headlamp terminal ④ and RH headlamp terminal ④
- through body ground E22 and E36.

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

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

When the lighting switch is turned to 2ND and HIGH ("A") or PASS ("C") position, ground is supplied
- to headlamp relay terminal ②
- from the lighting switch terminal ⑫.

Headlamp relay is then energized, and power is supplied
- from the headlamp relay terminal ⑥
- to terminal ① of the LH headlamp, and
- to combination meter terminal ㉒ for the HIGH BEAM indicator
- from headlamp relay terminal ③
- to terminal ① of the RH headlamp.

Ground is supplied
- to terminal ③ of the LH headlamp, and
- to combination meter terminal ㉓
- from the lighting switch terminal ⑥
- to terminal ③ of the RH headlamp
- from the lighting switch terminal ⑨.

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

### AUTO LIGHT OPERATION

BCM is connected to the optical sensor. The optical sensor sends a signal to BCM according to outside brightness.
When the lighting switch is turned to AUTO position, ground is supplied
- to BCM terminal ⑭
- from the lighting switch terminal ㊷.

When ignition switch is set to ON or START and outside is darker than the prescribed level, ground is supplied
- to HID relay terminal ② and headlamp relay terminal ②
- from the BCM terminal ⑤.

HID relay and headlamp relay are energized.
Then the low beam headlamps illuminate.
And the high beam headlamps illuminate when the lighting switch is turned to HIGH ("A") or PASS ("C") positions.
Auto light operation allows headlamps to turn off when outside is brighter than the prescribed level.
Or the ignition switch is turned to OFF position.
For parking, license and tail lamp auto operation, refer to "PARKING, LICENSE AND TAIL LAMPS" (EL-111).

### SHUT OFF DELAY

For shut off delay, refer to EL-63.

### VEHICLE SECURITY SYSTEM

The vehicle security system will flash the high beams if the system is triggered. Refer to "VEHICLE SECURITY (THEFT WARNING) SYSTEM — IVMS" (EL-415).

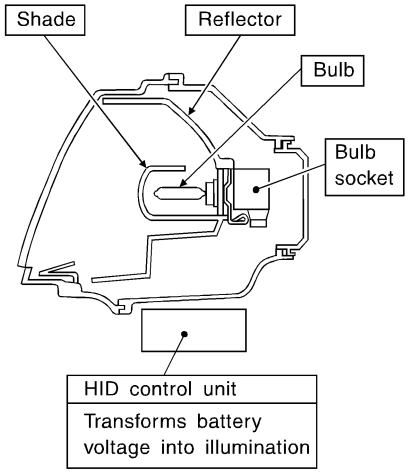
## System Description (Cont'd)

### XENON HEADLAMP

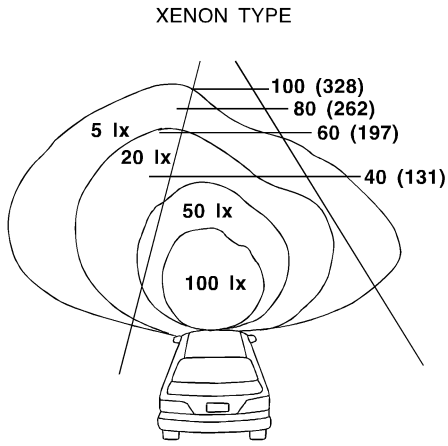
Xenon type headlamp is adopted to the low beam headlamps. Xenon bulbs do not use a filament. Instead, they produce light when a high voltage current is passed between two tungsten electrodes through a mixture of xenon (an inert gas) and certain other metal halides. In addition to added lighting power, electronic control of the power supply gives the headlamps stable quality and tone color.

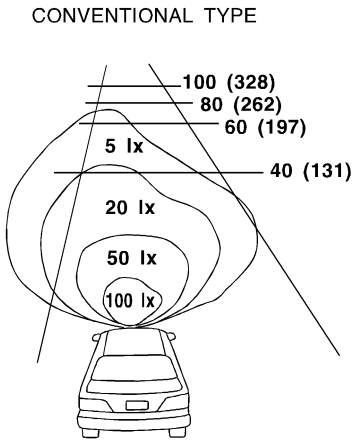
Following are some of the many advantage of the xenon type headlamp.

- The light produced by the headlamps is white color approximating sunlight that is easy on the eyes.
- Light output is nearly double that of halogen headlamps, affording increased area of illumination.
- The light features a high relative spectral distribution at wavelengths to the human eye is most sensitive, which means that even in the rain, more light is reflected back from the road surface toward the vehicle, for added visibility.
- Power consumption is approximately 25 percent less than halogen headlamps, reducing battery load.




Structure of the new xenon headlamp
HID: High Intensity Discharge



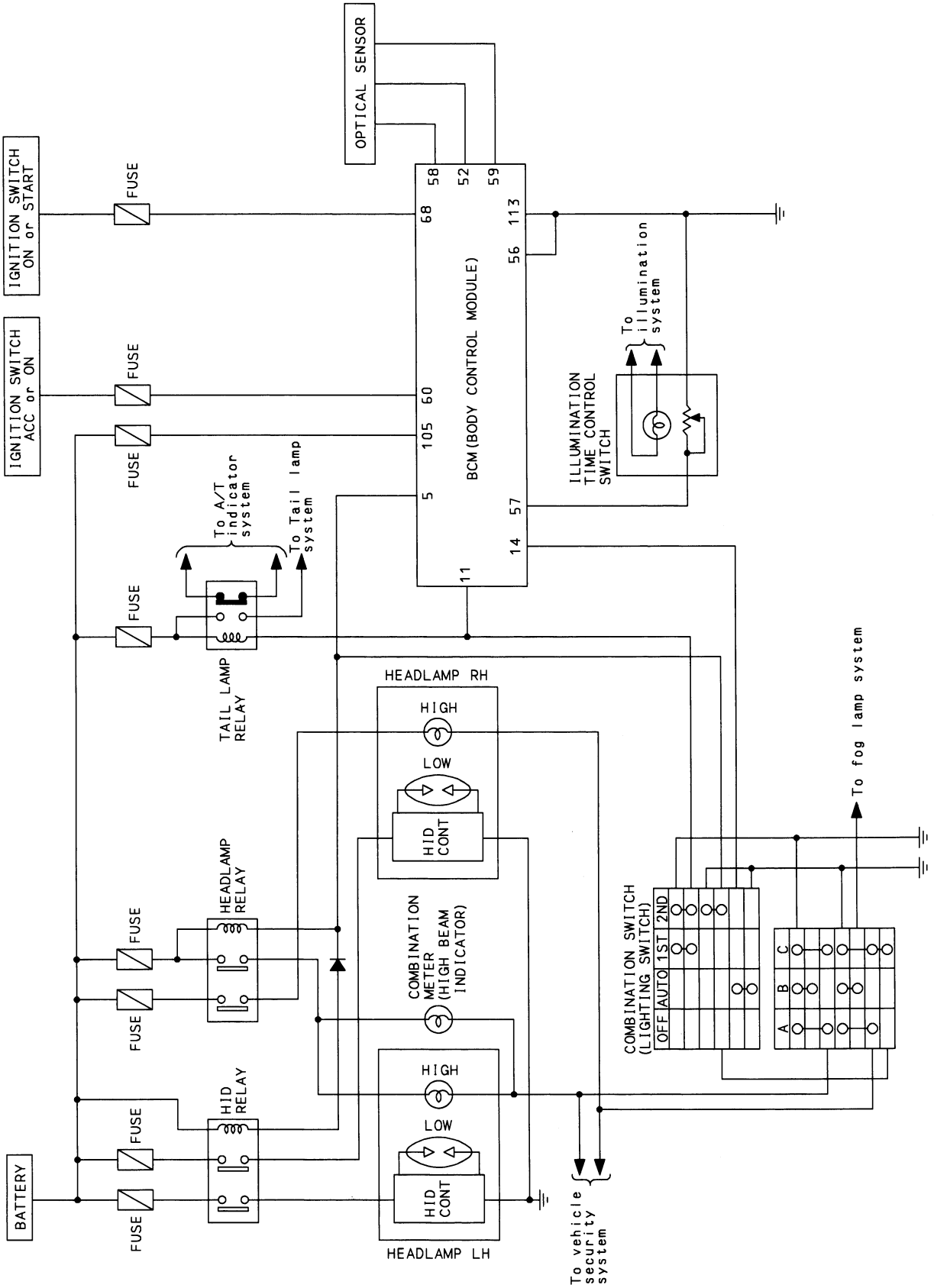




Illuminating Area (Example)

Unit: m (ft)
lx = Lux

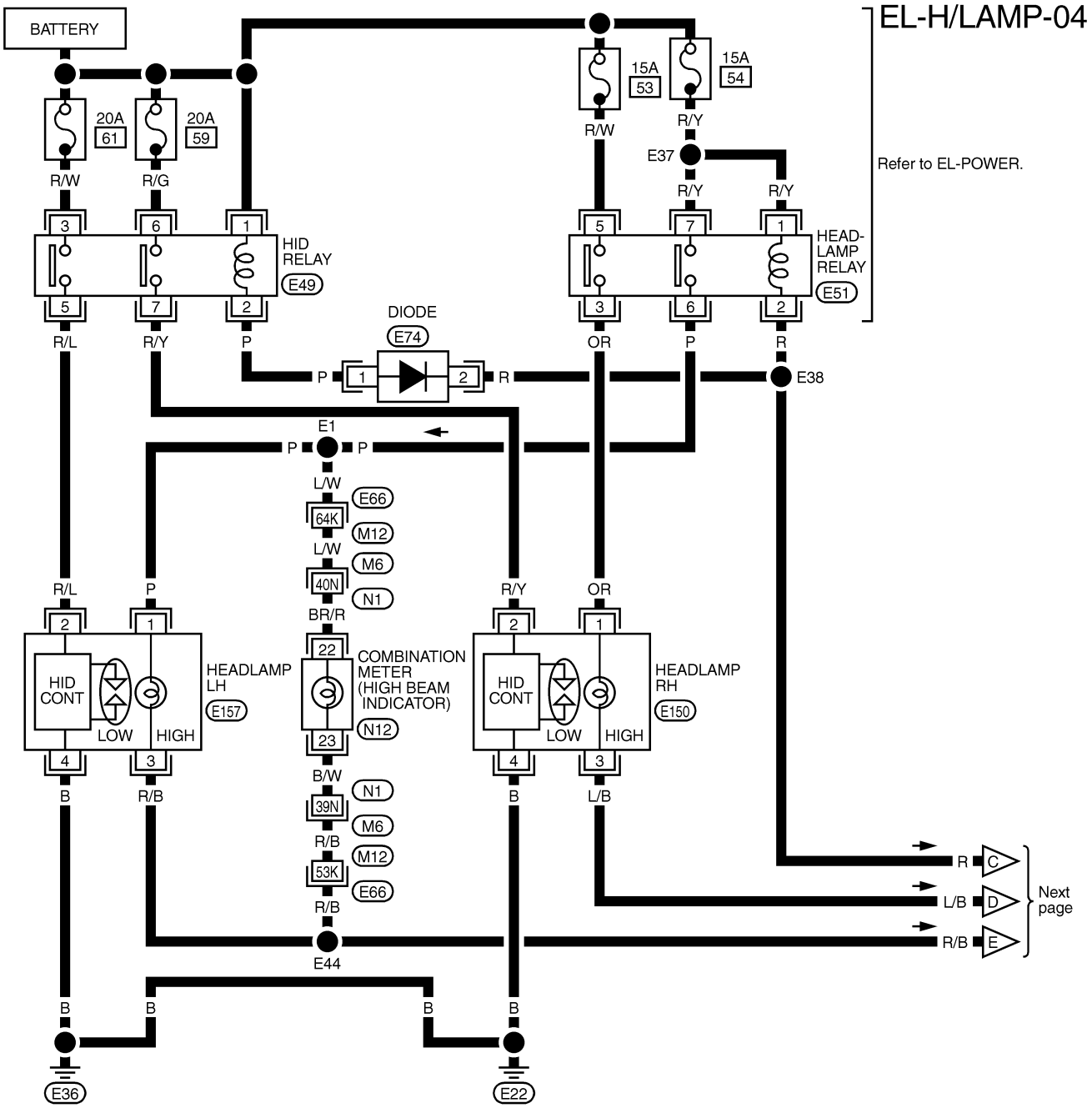
SEL956V

## Schematic




TEL827B

## Wiring Diagram — H/LAMP —



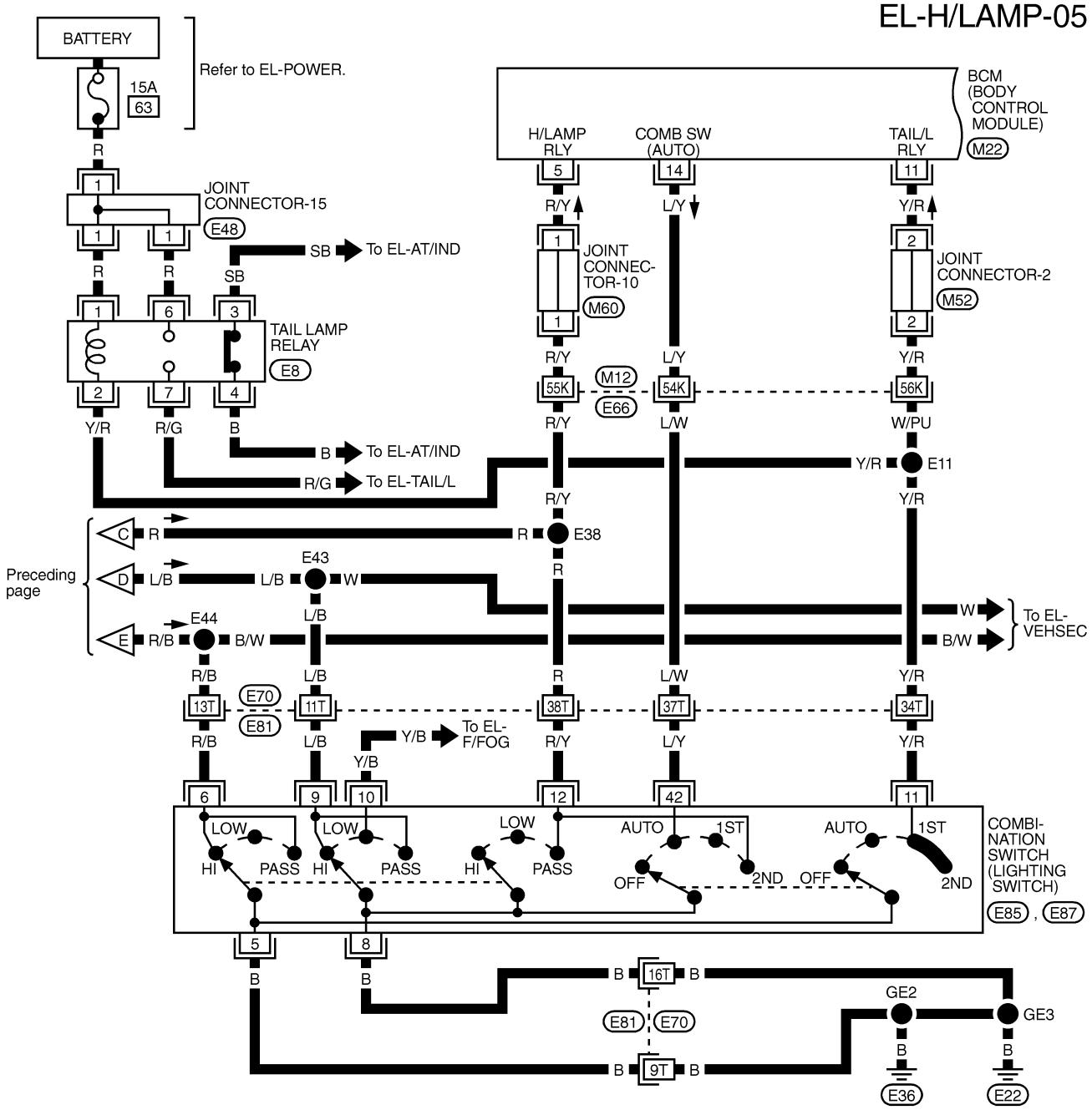

N12 BR | E49 , E51 BR BR | E74 W | E150 , E157 GY GY

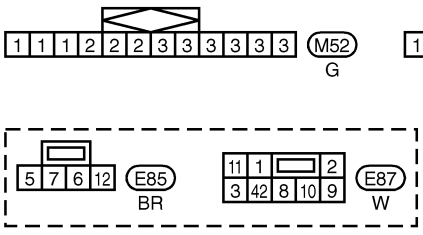
REFER TO THE FOLLOWING.
M6 , E66 -SUPER MULTIPLE JUNCTION (SMJ)

TEL723B

## Wiring Diagram — H/LAMP — (Cont'd)

EL-H/LAMP-05

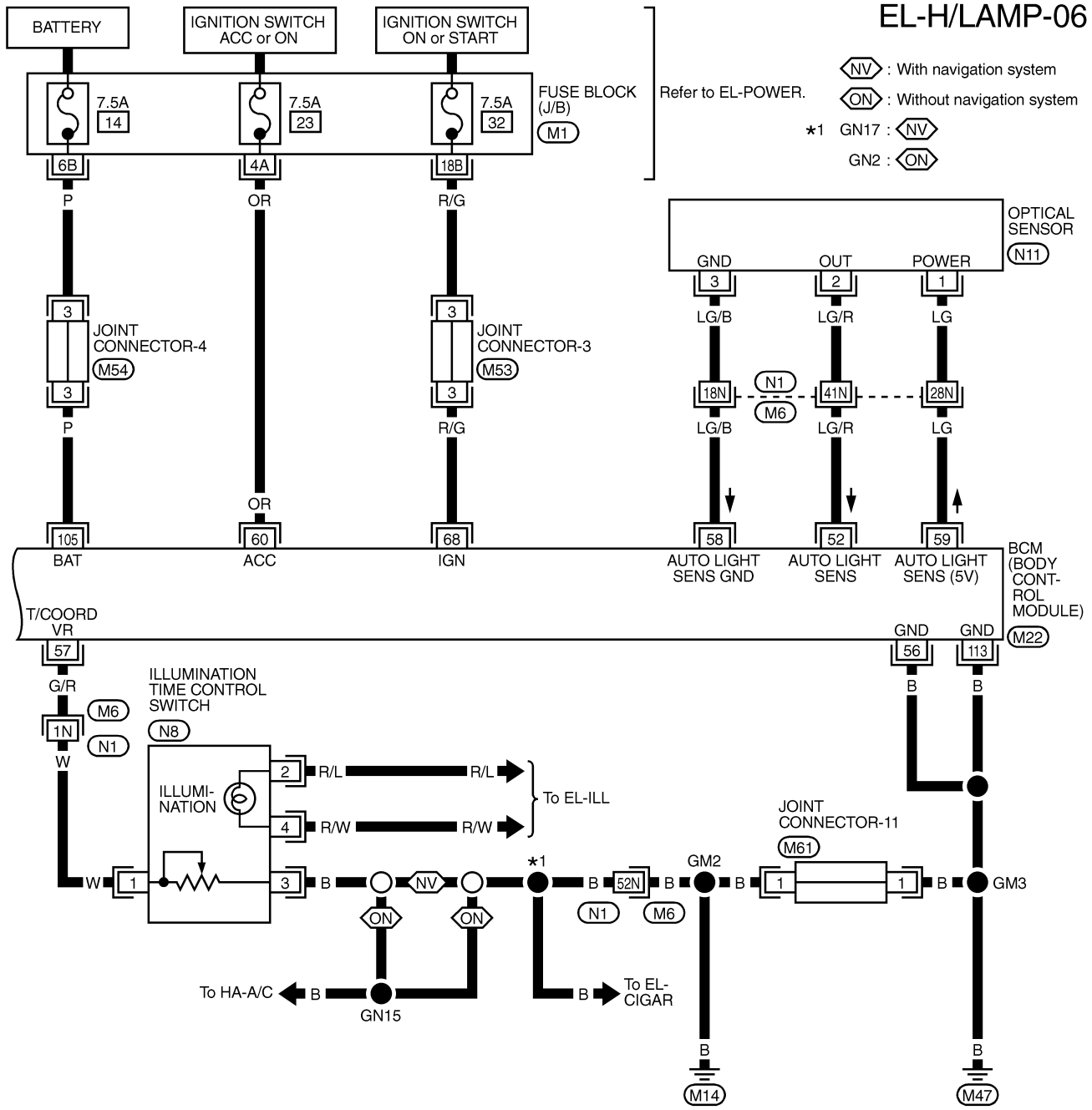


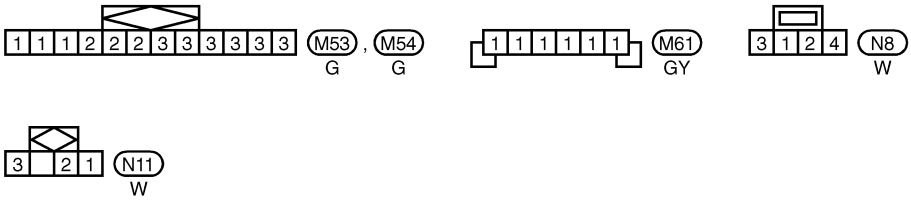




REFER TO THE FOLLOWING.
E66 , E81 -SUPER MULTIPLE JUNCTION (SMJ)
M22 -ELECTRICAL UNITS

TEL724B

## Wiring Diagram — H/LAMP — (Cont'd)







REFER TO THE FOLLOWING.

M6 -SUPER MULTIPLE JUNCTION (SMJ)

M1 -FUSE BLOCK-JUNCTION BOX (J/B)

M22 -ELECTRICAL UNITS

TEL725B

**WARNING:**

- **The xenon headlamp has a high-tension current generating area. Be extremely careful when removing and installing. Be certain to disconnect the battery negative cable prior to removing or installing.**
- **When the xenon headlamp is lit, do not touch the harness (covered with red or amber insulation), bulb itself or the bulb socket with your bare hands.**
- **Never service a xenon headlamp with wet hands.**
- **When checking body side harness with a circuit tester, be certain to disconnect the harness connector from the xenon headlamp.**
- **When the xenon headlamp is lit, the xenon bulb must be installed in the headlamp housing. (Never turn on xenon headlamp, if the bulb is out of the headlamp housing.)**

**CAUTION:**

**Make sure to install the bulb securely; if the xenon bulb is improperly installed in its socket, high-tension current leaks occur. This may lead to a melted bulb and/or bulb socket.**

## Trouble Diagnoses/Headlamp (Xenon Type)

| Symptom | Possible cause | Repair order |
|---|---|---|
| Any beam does not illuminate. | 1. Lighting switch | 1. Check lighting switch. |
| | 2. Lighting switch ground circuit | 2. Check lighting switch ground circuit. |
| | 3. Open in the HID relay and headlamp relay circuits | 3. Check harness between HID relay terminal ② /headlamp relay terminal ② and lighting switch terminal ⑫/BCM terminal ⑤ . |
| Neither high beam illuminates, but low beam operates. | 1. Headlamp relay | 1. Check headlamp relay. |
| | 2. Open in the headlamp relay circuit | 2. Check harness between headlamp relay terminal ② and lighting switch terminal ⑫/BCM terminal ⑤ . |
| Neither low beam illuminates, but high beam operates. | 1. HID relay | 1. Check HID relay. |
| | 2. Open in the HID relay circuit | 2. Check harness between HID relay terminal ② and lighting switch terminal ⑫/BCM terminal ⑤ . |
| LH high beam does not operate, but LH low beam operates. | 1. 15A fuse | 1. Check 15A fuse. (No. 54, located in fuse, fusible link and relay box.) Verify battery positive voltage is present at terminal ⑦ of headlamp relay. |
| | 2. Bulb | 2. Check bulb. |
| | 3. Headlamp relay | 3. Check headlamp relay. |
| | 4. Open in LH high beam circuit | 4-1. Check harness between headlamp relay terminal ⑥ and LH headlamp for open or short circuit.<br>4-2. Check harness between lighting switch terminal ⑥ and LH headlamp for open or short circuit. |
| | 5. Lighting switch | 5. Check lighting switch. |
| LH low beam does not operate, but LH high beam operates. | 1. 20A fuse | 1. Check 20A fuse. (No. 61, located in fuse, fusible link and relay box.) Verify battery positive voltage is present at terminal ③ of HID relay. |
| | 2. HID relay | 2. Check HID relay. |
| | 3. Open in LH low beam circuit | 3. Check harness between HID relay terminal ⑤ and LH headlamp and harness between LH headlamp and ground for open or short circuit. (Before inspecting headlamp terminal, disconnect headlamp connector with ignition switch “OFF” position.) |
| | 4. Xenon bulb | 4. Replace the xenon bulb with the other side bulb or new one. (If headlamps illuminate correctly, replace the bulb.) |
| | 5. HID control unit | 5. Replace the HID control unit with the other side control unit or new one. (If headlamps illuminate correctly, replace the control unit.) |
| | 6. Booster | 6. Replace booster as a headlamp assembly. |

## Trouble Diagnoses/Headlamp (Xenon Type) (Cont'd)

| Symptom | Possible cause | Repair order |
|---|---|---|
| RH high beam does not operate, but RH low beam operates. | 1. 15A fuse | 1. Check 15A fuse. (No. 53, located in fuse, fusible link and relay box.) Verify battery positive voltage is present at terminal ⑤ of headlamp relay. |
| | 2. Bulb | 2. Check bulb. |
| | 3. Headlamp relay | 3. Check headlamp relay. |
| | 4. Open in RH high beam circuit | 4-1. Check harness between headlamp relay terminal ③ and RH headlamp for open or short circuit.<br>4-2. Check harness between lighting switch terminal ⑨ and RH headlamp for open or short circuit. |
| | 5. Lighting switch | 5. Check lighting switch. |
| RH low beam does not operate, but RH high beam operates. | 1. 20A fuse | 1. Check 20A fuse. (No. 59, located in fuse, fusible link and relay box.) Verify battery positive voltage is present at terminal ⑥ of HID relay. |
| | 2. HID relay | 2. Check HID relay. |
| | 3. Open in RH low beam circuit | 3. Check harness between HID relay terminal ⑦ and RH headlamp and harness between RH headlamp and ground for an open circuit. (Before inspecting headlamp terminal, disconnect headlamp connector with ignition switch in "OFF" position.) |
| | 4. Xenon bulb | 4. Replace the xenon bulb with the other side bulb or new one. (If headlamps illuminate correctly, replace the bulb.) |
| | 5. HID control unit | 5. Replace the HID control unit with the other side control unit or new one. (If headlamps illuminate correctly, replace the control unit.) |
| | 6. Booster | 6. Replace booster as a headlamp assembly. |
| High beam indicator does not work. | 1. Bulb | 1. Check bulb in combination meter. |
| | 2. Open in high beam circuit | 2-1. Check harness between lighting switch and combination meter for an open circuit.<br>2-2. Verify battery positive voltage is present at terminal ㉒ of combination meter, when high beam illuminates. |

HID: High Intensity Discharge

## Bulb Replacement/Xenon Type

**CAUTION:**

- **After replacing a new xenon bulb, be sure to make aiming adjustments.**
- **Hold only the plastic base when handling the bulb. Never touch the glass envelope.**
- **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.**

1. Disconnect negative battery cable.
2. Disconnect headlamp connector.
3. Remove headlamp assembly.

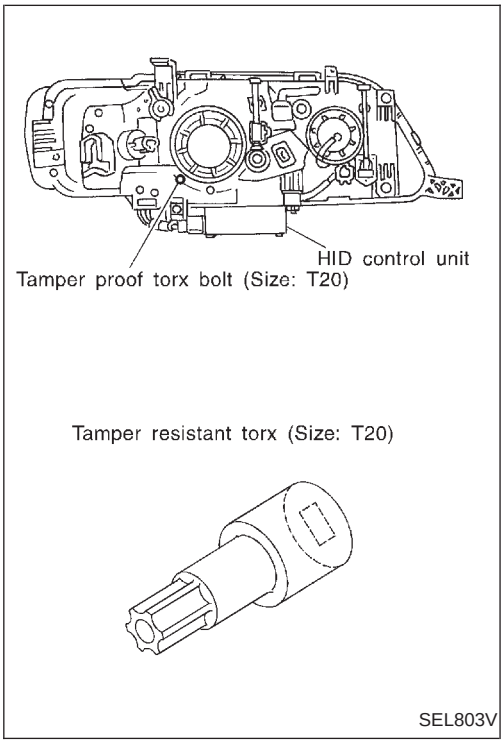
**WARNING:**

**Never service a xenon headlamp with wet hands.**

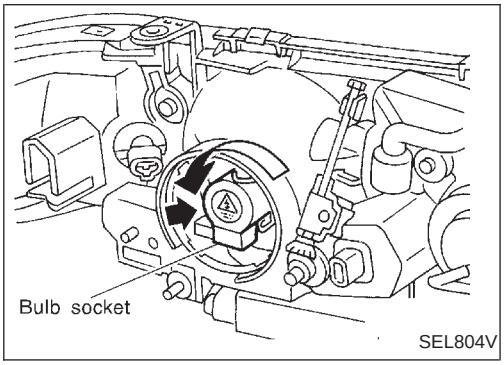


### XENON BULB (LOW BEAM)

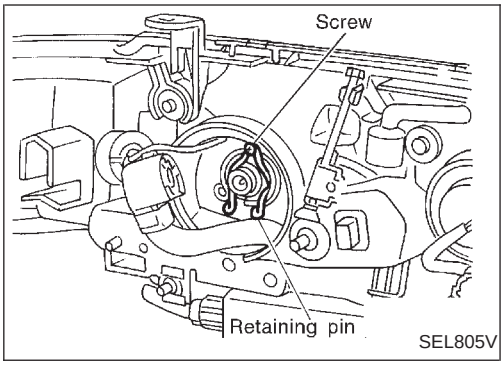
1. Remove tamper proof torx bolt (size: T20), then remove headlamp seal cover.




2. Turn bulb socket counterclockwise with keep pushing, then remove it.



## Bulb Replacement/Xenon Type (Cont'd)

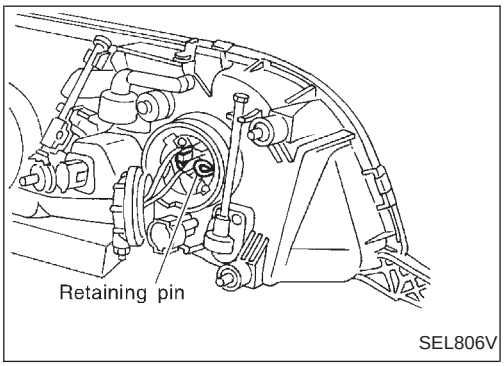



3. Release retaining pin.
4. Remove the xenon bulb.
5. Install in the reverse order of removal.

**CAUTION:**

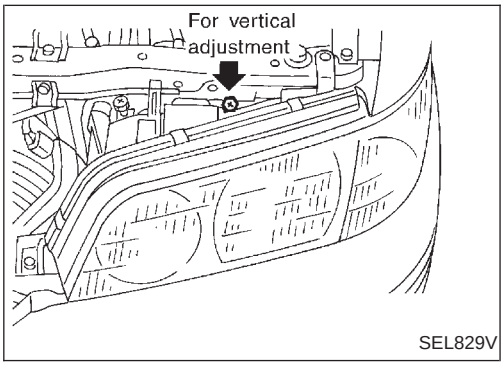
- **When disposing of the xenon bulb, do not break it; always dispose of it as is.**
- **Make sure to install the bulb securely; if the xenon bulb is improperly installed in its socket, high-tension current leaks occur. This may lead to a melted bulb and/or bulb socket.**

### HIGH BEAM




1. Remove headlamp seal cover by turning it counterclockwise.
2. Disconnect bulb connector.
3. Release retaining pin.
4. Remove the bulb.
5. Install in the reverse order of removal.

## Aiming Adjustment/Xenon Type

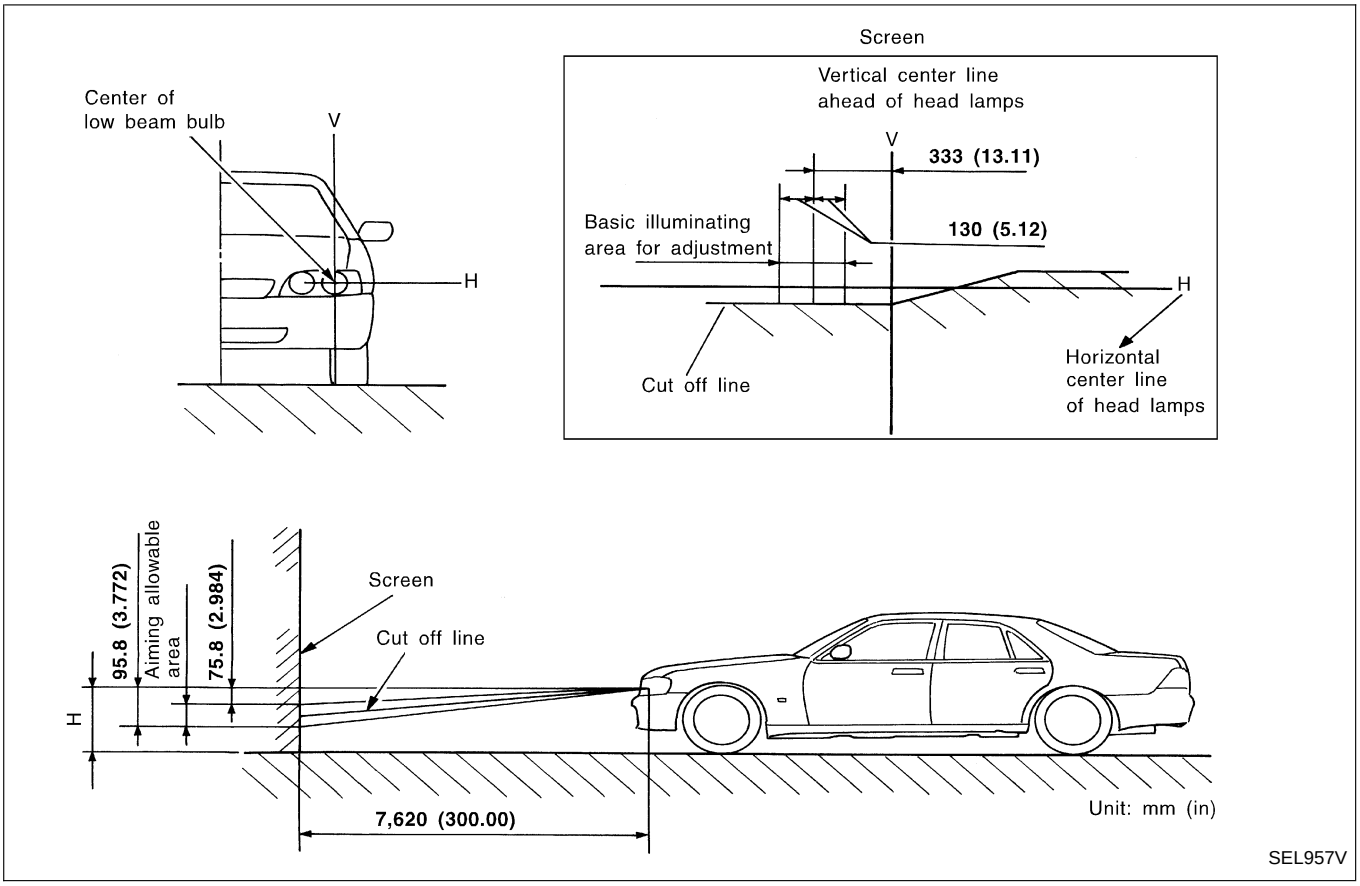


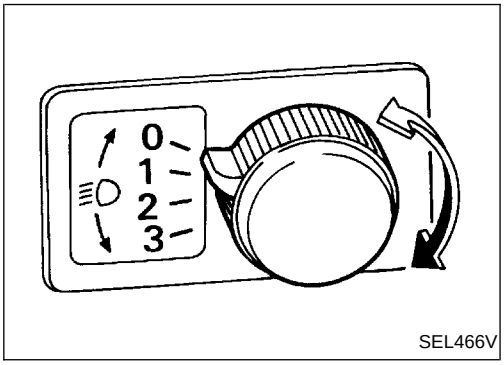

### LOW BEAM

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

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

## Aiming Adjustment/Xenon Type (Cont'd)

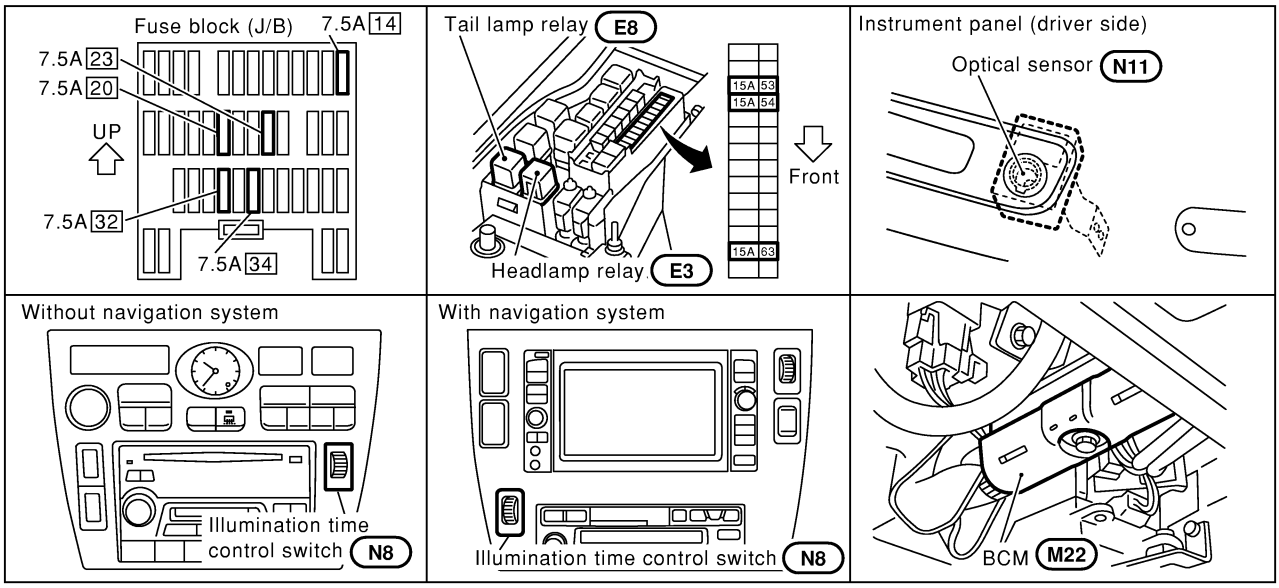



**CAUTION:**

**Be sure aiming switch is set to "0" when performing aiming adjustment.**

## Component Parts and Harness Connector Location




SEL142Y

## Daytime Light System/System Description

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
- to headlamp relay terminal ①, and
- through 15A fuse (No. 53, located in the fuse and fusible link box)
- to headlamp relay terminal ⑤, and
- through 15A fuse (No. 54, located in the fuse and fusible link box)
- to headlamp relay terminal ⑦.

With the ignition switch in the ON or START position, power is supplied
- through 7.5A fuse [No. 20, located in the fuse block (J/B)]
- to daytime light control unit terminal ③.

With the ignition switch in the START position, power is supplied
- through 7.5A fuse [No. 34, located in the fuse block (J/B)]
- to daytime light control unit terminal ②.

Ground is supplied to daytime light control unit terminal ⑯ through body grounds E22 and E36.

### HEADLAMP SWITCH OPERATION

When the lighting switch is turned to 2ND or PASS (“C”) positions, ground is supplied
- to headlamp relay terminal ②
- from the lighting switch terminal ⑫.

Headlamp relay is then energized, and power is supplied
- from the headlamp relay terminal ⑥
- to combination meter terminal ㉒ for the HIGH BEAM indicator and
- through daytime light control unit terminals ⑤ and ⑥
- to terminal ② of the LH headlamp.

Power is also supplied
- from the headlamp relay terminal ③
- through daytime light control unit terminals ④ and ⑦
- to terminal ② of the RH headlamp.

## Daytime Light System/System Description (Cont'd)

### Low beam operation

When the lighting switch is turned to 2ND and LOW ("B") positions, ground is supplied
- to terminal ① of the LH headlamp
- through daytime light control unit terminals ⑪ and ⑫
- through lighting switch terminals ⑩ and ⑧
- through body grounds E22 and E36.

Ground is also supplied
- to terminal ① of the RH headlamp
- through daytime light control unit terminals ⑧ and ⑮
- through lighting switch terminals ⑦ and ⑤
- through body grounds E22 and E36.

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

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

When the lighting switch is turned to 2ND and HIGH ("A") or PASS ("C") positions, ground is supplied
- to terminal ③ of LH headlamp and combination meter terminal ㉓ for the HIGH BEAM indicator
- through daytime light control unit terminals ⑩ and ⑬
- through lighting switch terminals ⑨ and ⑧
- through body grounds E22 and E36.

Ground is also supplied
- to terminal ③ of RH headlamp
- through daytime light control unit terminals ⑨ and ⑭
- through lighting switch terminals ⑥ and ⑤
- through body grounds E22 and E36.

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

### AUTO LIGHT OPERATION

For auto light operation, refer to EL-63.

### DAYTIME LIGHT OPERATION

With the engine running, the lighting switch in the OFF or 1ST position and parking brake released, power is supplied
- through daytime light control unit terminal ⑦
- to terminal ② of RH headlamp
- through terminal ③ of RH headlamp
- to daytime light control unit terminal ⑨
- through daytime light control unit terminal ⑥
- to terminal ② of LH headlamp.

Ground is supplied to terminal ③ of LH headlamp.
- through daytime light control unit terminals ⑩ and ⑯
- through body grounds E22 and E36.

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

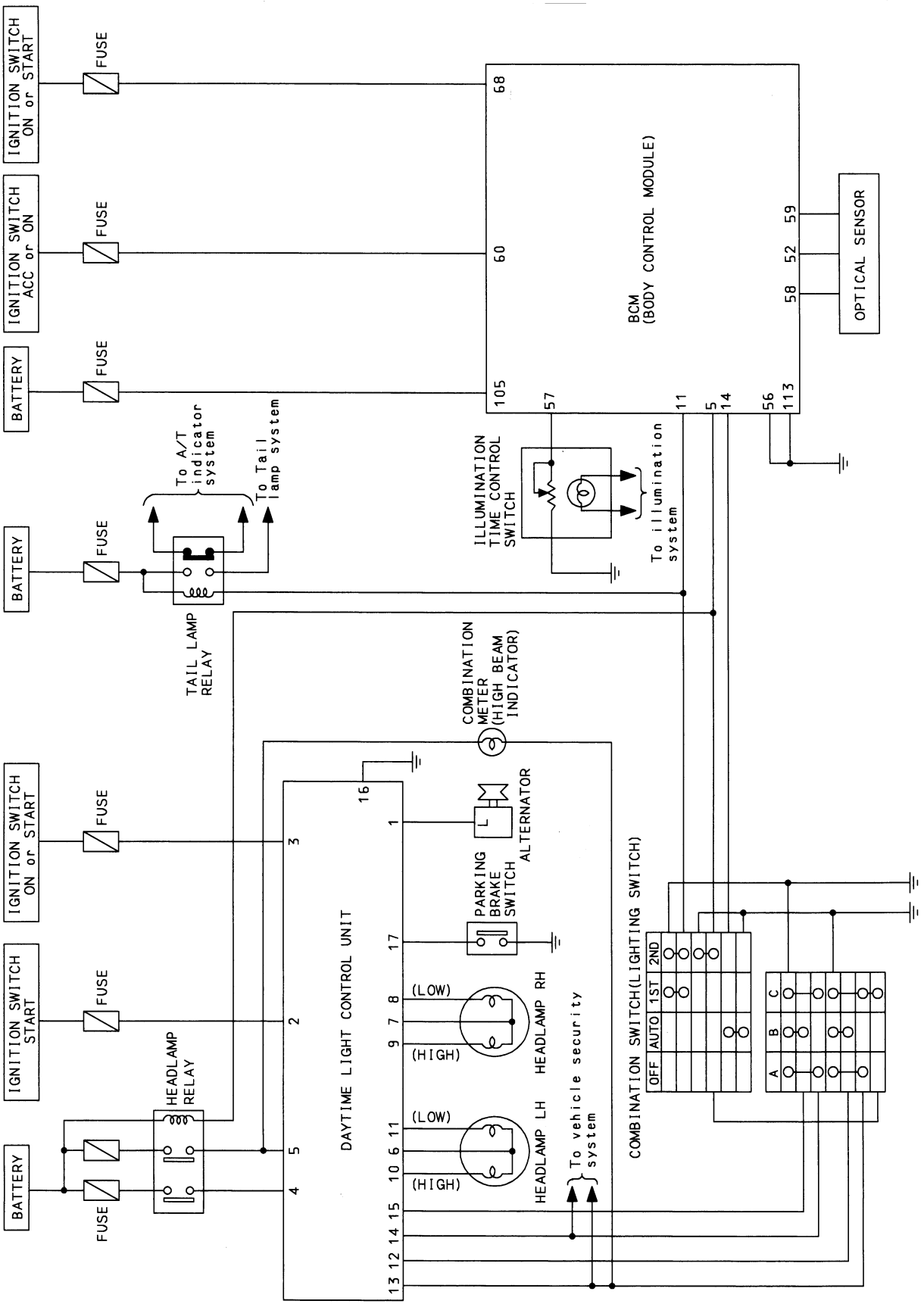
## Operation (Daytime light system with conventional headlamp)

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 |
| Parking and tail lamp | | X | X | X | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | X | X | X | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ |
| License and instrument illumination lamp | | X | X | X | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | X | X | X | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ |

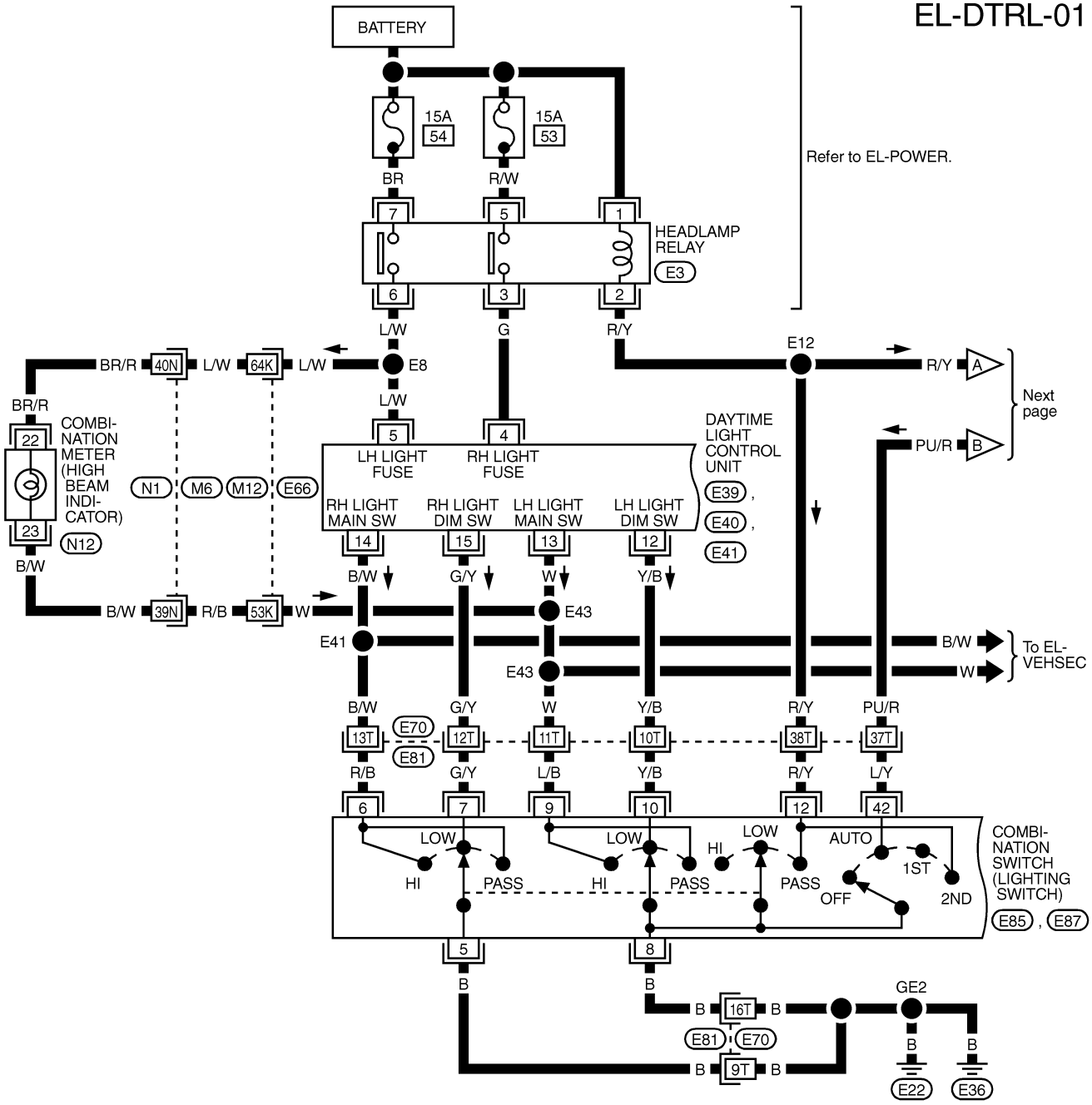
◯ : Lamp “ON”
X : Lamp “OFF”
△ : Lamp dims.
□ : Added functions
*: When starting the engine with the parking brake released, the daytime light will come ON.
When starting the engine with the parking brake pulled, the daytime light won’t come ON.

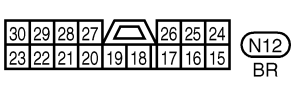
## Schematic

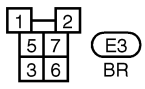



TEL828B

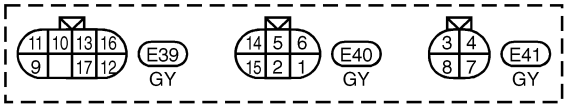
## Wiring Diagram — DTRL —

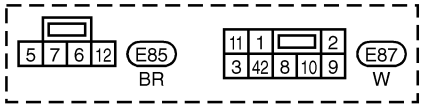



REFER TO THE FOLLOWING.
M6 , E66 , E81 -SUPER MULTIPLE JUNCTION (SMJ)

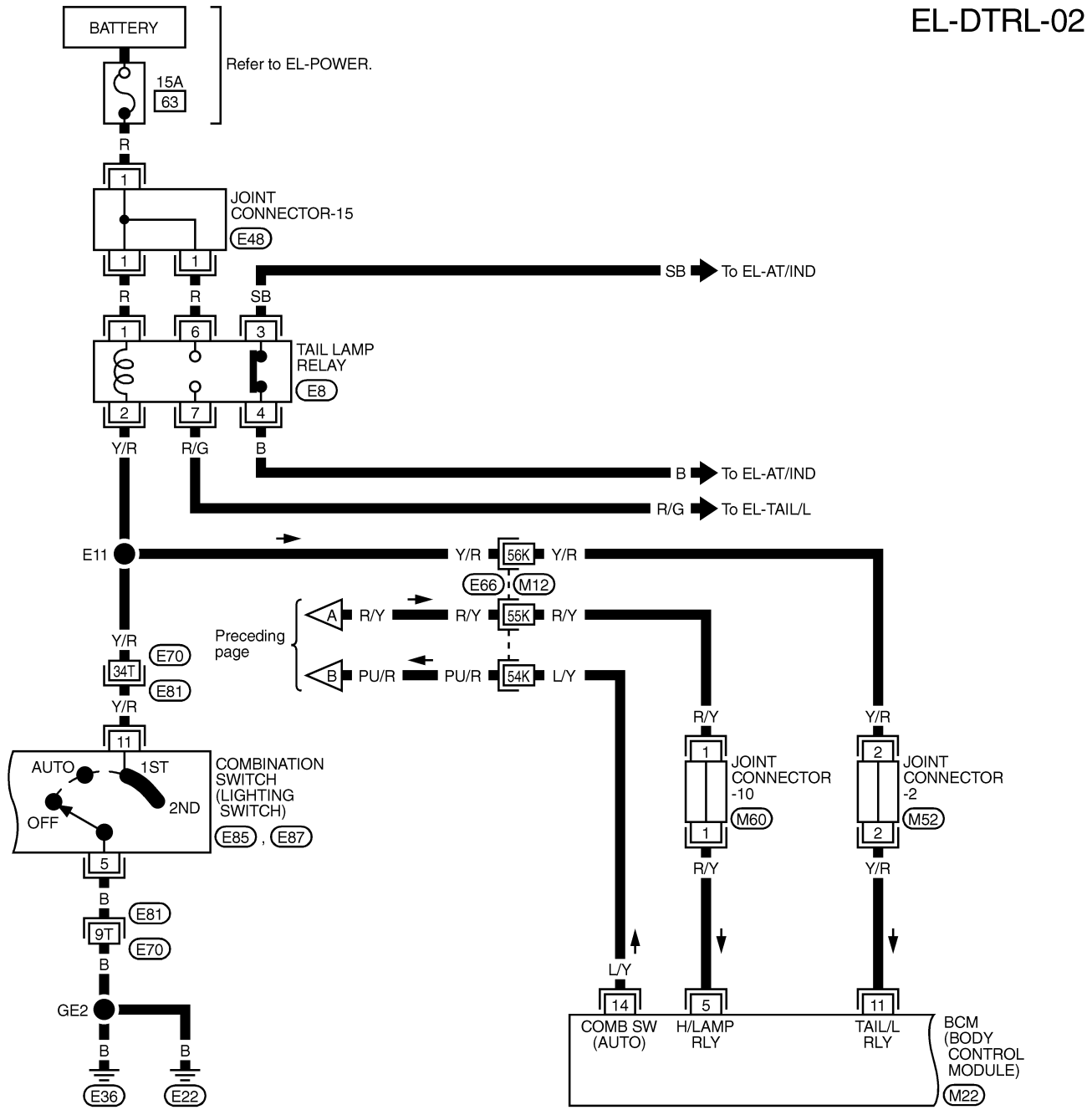


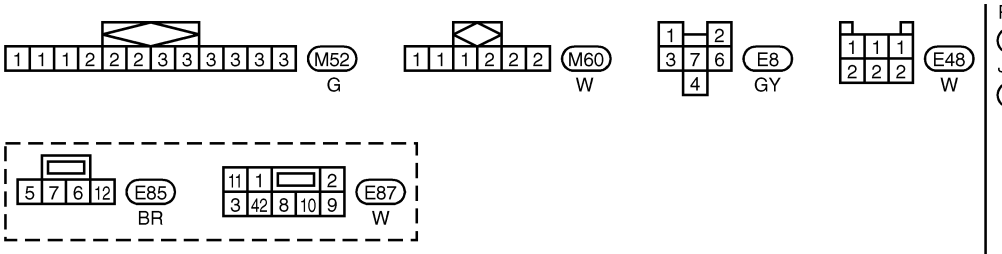




TEL726B

## Wiring Diagram — DTRL — (Cont'd)

EL-DTRL-02



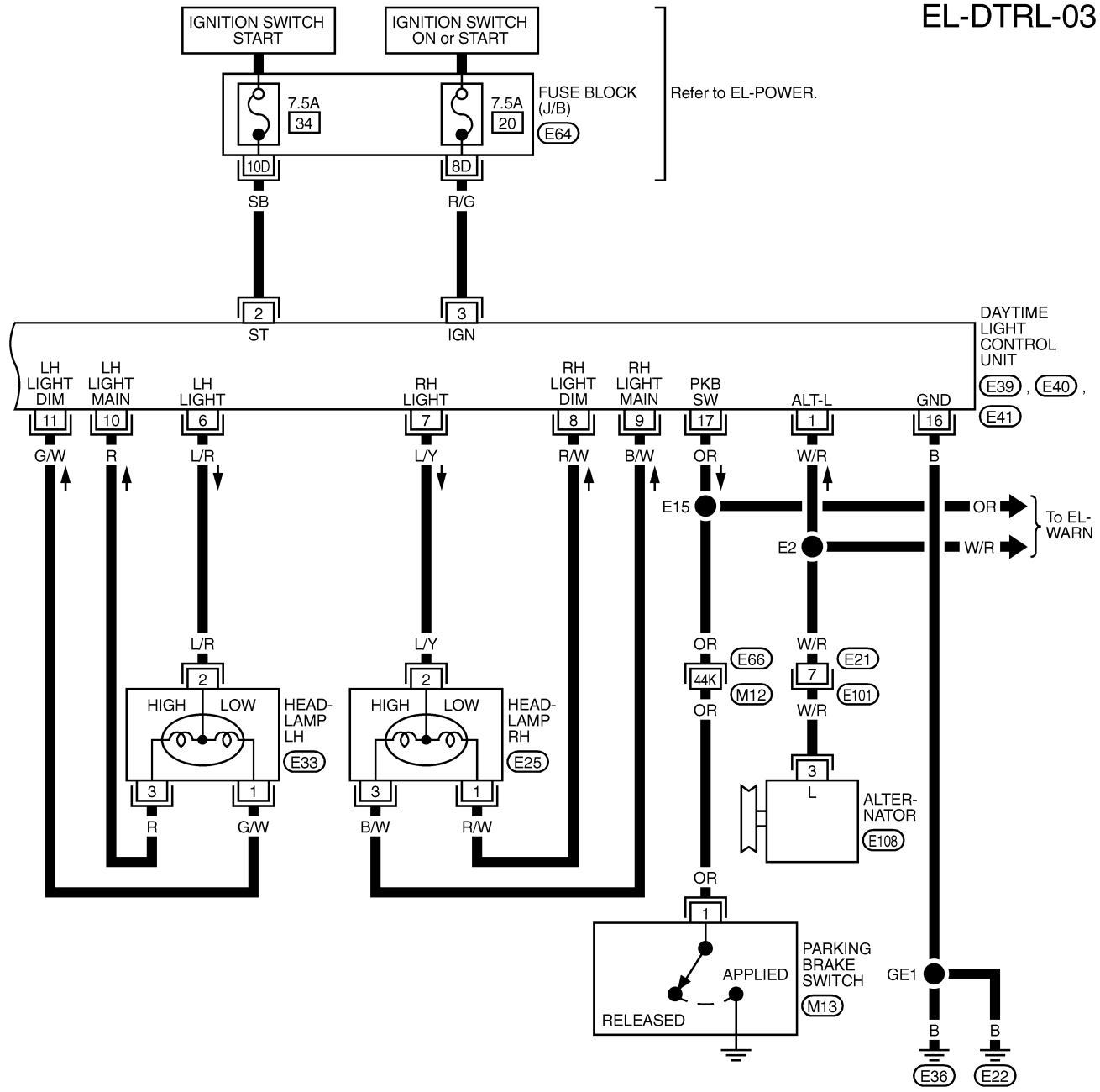



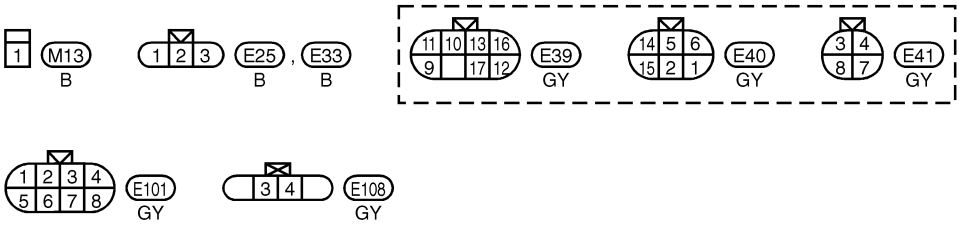

REFER TO THE FOLLOWING.
E66 , E81 -SUPER MULTIPLE JUNCTION (SMJ)
M22 -ELECTRICAL UNITS

TEL727B

## Wiring Diagram — DTRL — (Cont'd)

EL-DTRL-03



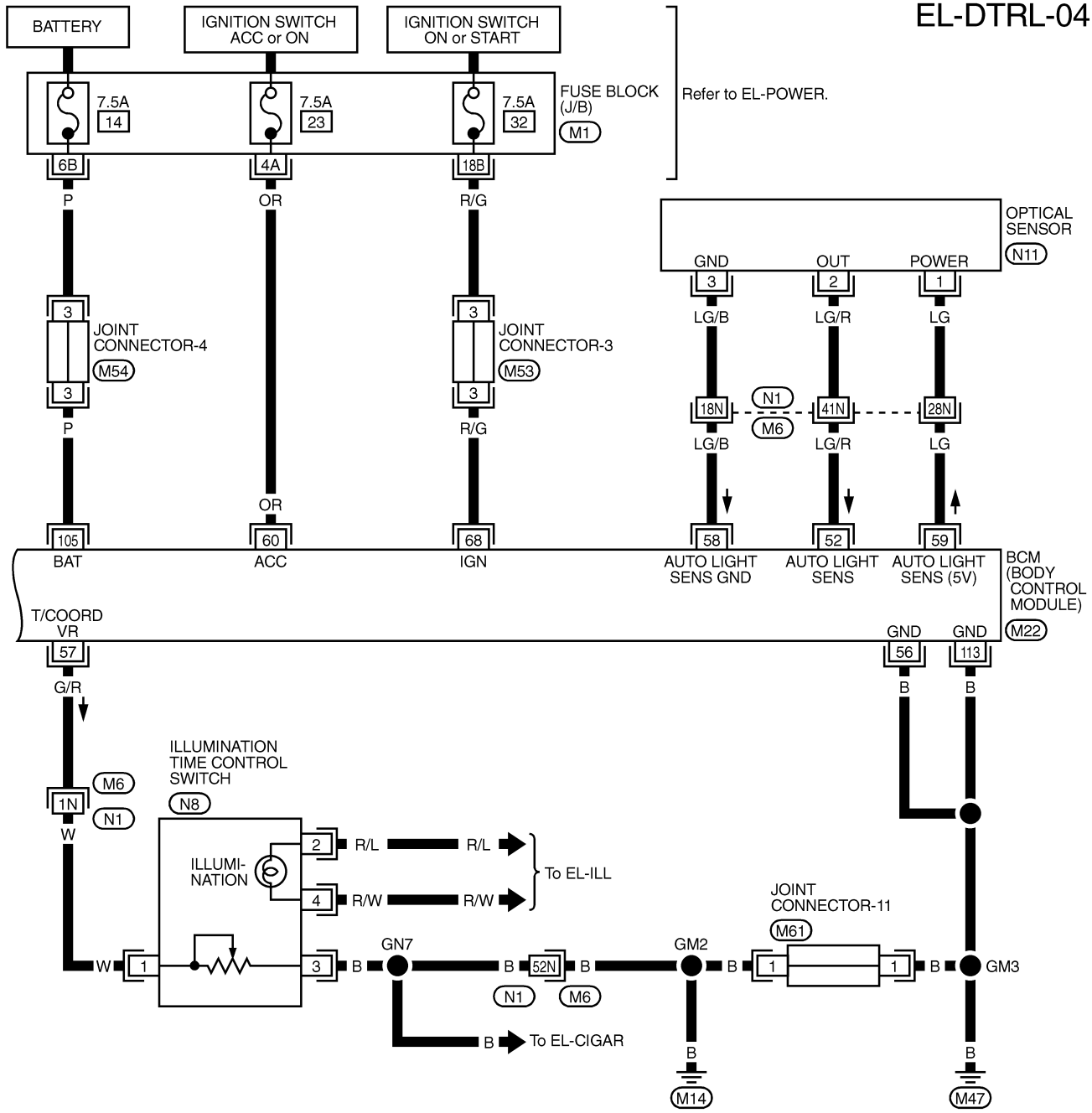



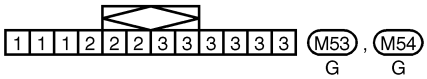

REFER TO THE FOLLOWING.
E66 -SUPER MULTIPLE JUNCTION (SMJ)
E64 -FUSE BLOCK-JUNCTION BOX (J/B)

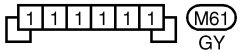
TEL728B

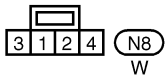
## Wiring Diagram — DTRL — (Cont'd)

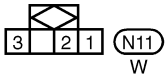
EL-DTRL-04




REFER TO THE FOLLOWING.

M6 -SUPER MULTIPLE JUNCTION (SMJ)

M1 -FUSE BLOCK-JUNCTION BOX (J/B)

M22 -ELECTRICAL UNITS

TEL729B

## Trouble Diagnoses

### DAYTIME LIGHT CONTROL UNIT INSPECTION TABLE

(Data are reference values.)

| Terminal No. | Wire color | Item | Condition | | Judgement standard |
|---|---|---|---|---|---|
| 1 | W/R | 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 |
| 2 | SB | 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 |
| 3 | R/G | 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 |
| 4 | G | Power source | | When lighting switch is turned to “2ND” or PASS (“C”) position | Battery voltage |
| | | | | Except the above | 1V or less |
| 5 | L/W | Power source | | When lighting switch is turned to “2ND” or PASS (“C”) position | Battery voltage |
| | | | | Except the above | Less than 1V |
| 6 | L/R | LH head-lamp control | | When lighting switch is turned to “2ND” or PASS (“C”) position | Battery voltage |
| | | |  | When releasing parking brake with engine running and turning lighting switch to “OFF” (daytime light operation) **CAUTION: Block wheels and ensure selector lever is in N or P position.** | Approx. half battery voltage |
| | | | | Except the above | Less than 1V |
| 7 | L/Y | RH head-lamp control | | When lighting switch is turned to “2ND” or PASS (“C”) position | Battery voltage |
| | | |  | When releasing parking brake with engine running and turning lighting switch to “OFF” (daytime light operation) **CAUTION: Block wheels and ensure selector lever is in N or P position.** | Battery voltage |
| | | | | Except the above | Less than 1V |

## Trouble Diagnoses (Cont'd)

| Terminal No. | Wire color | Item | Condition | | Judgement standard |
|---|---|---|---|---|---|
| 8 | R/W | RH low beam (Ground) | | When turning lighting switch "2ND" and LOW ("B") position | Less than 1V |
| 9 | B/W | RH high beam (Ground) | | When turning lighting switch to "2ND" and HIGH ("A") or PASS ("C") positions | 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 |
| 10 | R | LH high beam (Ground) | | When turning lighting switch to "2ND" and HIGH ("A") or PASS ("C") positions | 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.** | Less than 1V |
| 11 | G/W | LH low beam (Ground) | | When turning lighting switch "2ND" and LOW ("B") position | Less than 1V |
| 12 | Y/B | Lighting switch (LH low beam) | | When turning lighting switch "2ND" and LOW ("B") position | Less than 1V |
| 13 | W | Lighting switch (LH high beam) | | When turning lighting switch "2ND" and HIGH ("A") or PASS ("C") position | Less than 1V |
| 14 | B/W | Lighting switch (RH high beam) | | When turning lighting switch "2ND" and HIGH ("A") or PASS ("C") position | Less than 1V |
| 15 | G/Y | Lighting switch (RH low beam) | | When turning lighting switch "2ND" and LOW ("B") position | Less than 1V |
| 16 | B | Ground | | — | — |
| 17 | OR | Parking brake switch |  | When parking brake is released | Battery voltage |
| | | | | When parking brake is set | Less than 1.5V |

### Bulb Replacement/Conventional Type

For bulb replacement, refer to EL-76.

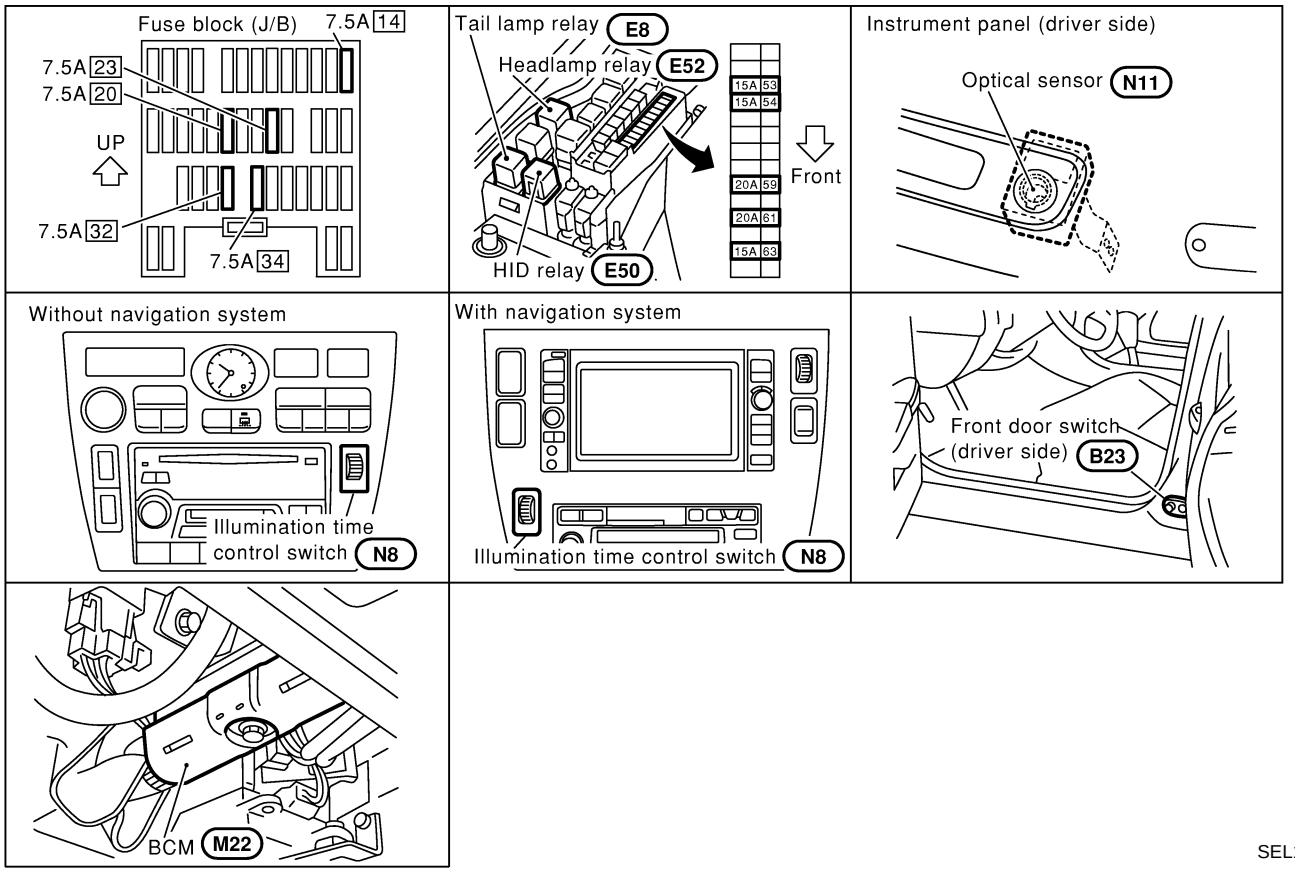
### Bulb Specifications/Conventional Type

For bulb specifications, refer to EL-76.

### Aiming Adjustment/Conventional Type

For aiming adjustment, refer to EL-76.

## Component Parts and Harness Connector Location




SEL140Y

## Daytime Light System/System Description

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. 54 , located in the fuse, fusible link and relay box)
- to headlamp relay terminal ① , and
- to headlamp relay terminal ⑦ , and
- through 15A fuse (No. 53 , located in the fuse, fusible link and relay box)
- to headlamp relay terminal ⑤ .

Power is also supplied at all times

- to HID relay terminal ① , and
- through 20A fuse (No. 61 , located in the fuse, fusible link and relay box)
- to HID relay terminal ③ , and
- through 20A fuse (No. 59 , located in the fuse, fusible link and relay box)
- to HID relay terminal ⑥ , and

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

- through 7.5A fuse [No. 20 , located in the fuse block (J/B)]
- to daytime light control unit terminal ③ .

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

- through 7.5A fuse [No. 34 , located in the fuse block (J/B)]
- to daytime light control unit terminal ② .

Ground is supplied to daytime light control unit terminal ⑯ through body grounds E22 and E36 .

### HEADLAMP SWITCH OPERATION

When the lighting switch is turned to 2ND or PASS (“C”) positions, ground is supplied

## Daytime Light System/System Description (Cont'd)

- to headlamp relay terminal ② and HID relay terminal ②
- from the lighting switch terminal ⑫.

Headlamp relay is then energized, and power is supplied

- from the headlamp relay terminal ⑥
- to combination meter terminal ㉒ for the HIGH BEAM indicator and
- through daytime light control unit terminals ⑤ and ⑥
- to terminal ① of the LH headlamp.

Power is also supplied

- from the headlamp relay terminal ③
- through daytime light control unit terminals ④ and ⑦
- to terminal ① of the RH headlamp.

HID relay is also energized, and power is supplied.

- from the HID relay terminal ⑤
- to terminal ② LH headlamp

Power is also supplied

- from the HID relay terminal ⑦
- to terminal ② RH headlamp

Ground is supplied at all times.

- to LH headlamp terminal ④ and RH headlamp terminal ④
- through body ground (E22) and (E36).

### Low beam operation

When the lighting switch is turned to 2ND (LOW or HI) or PASS ("C") position, the low beam headlamps illuminate.

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

When the lighting switch is turned to 2ND and HIGH ("A") or PASS ("C") position, ground is supplied

- to terminal ③ of LH headlamp and combination meter terminal ㉓ for the HIGH BEAM indicator
- through daytime light control unit terminals ⑩ and ⑬
- through lighting switch terminals ⑨ and ⑧
- through body grounds (E22) and (E36).

Ground is also supplied

- to terminal ③ of RH headlamp
- through daytime light control unit terminals ⑨ and ⑭
- through lighting switch terminals ⑥ and ⑤
- through body grounds (E22) and (E36).

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

### XENON HEADLAMP

For description regarding xenon headlamp, refer to EL-80.

### AUTO LIGHT OPERATION

For auto light operation, refer to EL-79.

### DAYTIME LIGHT OPERATION

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

- through daytime light control unit terminal ⑦
- to terminal ① of RH headlamp
- through terminal ③ of RH headlamp
- to daytime light control unit terminal ⑨
- through daytime light control unit terminal ⑥
- to terminal ① of LH headlamp.

Ground is supplied to terminal ③ of LH headlamp.

- through daytime light control unit terminals ⑩ and ⑯
- through body grounds (E22) and (E36).

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

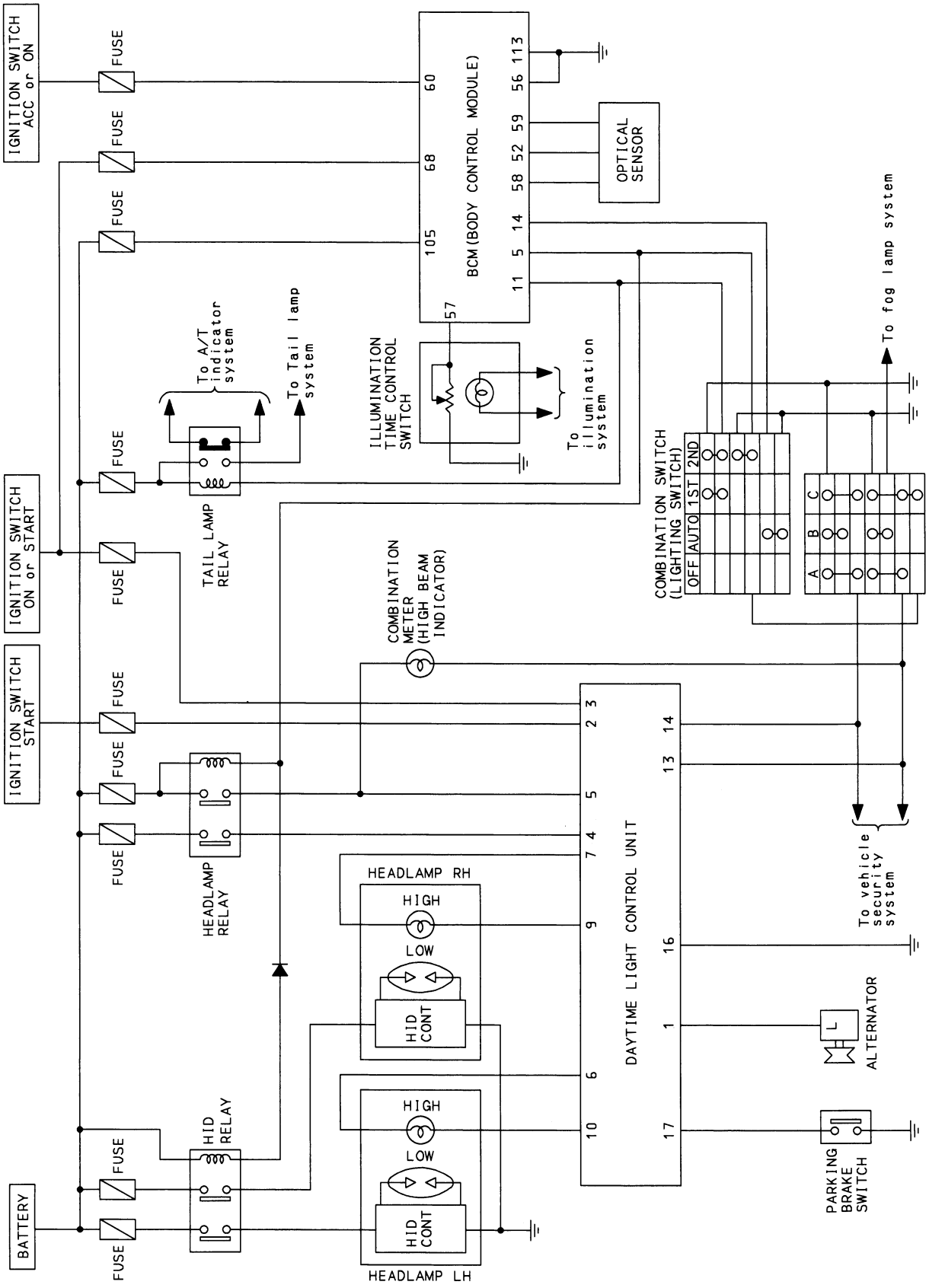
## Operation (Daytime light system with xenon headlamp)

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 | ◯ | ◯ | ◯ |
| Parking and tail lamp | | X | X | X | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | X | X | X | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ |
| License and instrument illumination lamp | | X | X | X | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | X | X | X | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ |

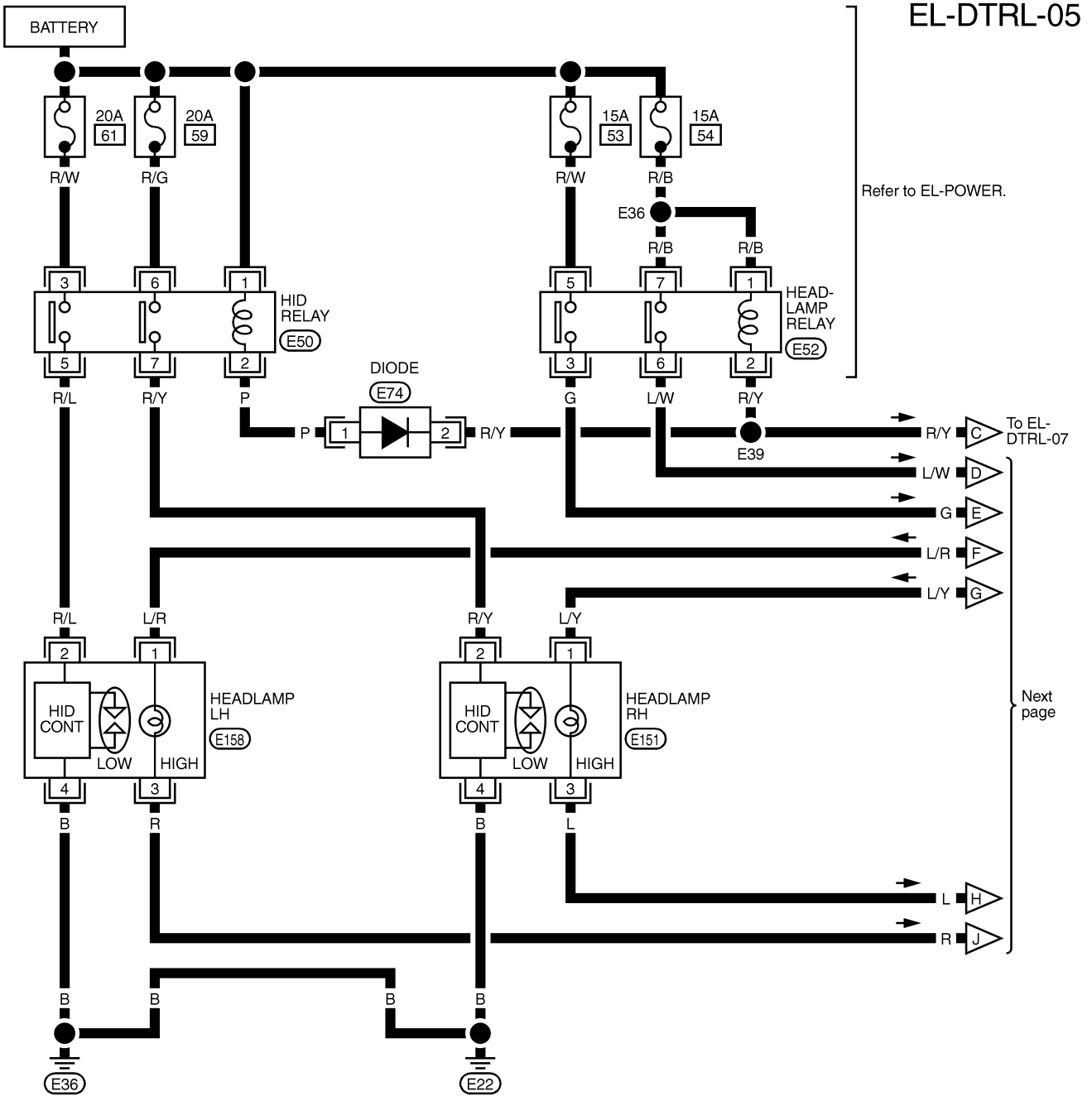
◯ : Lamp “ON”
X : Lamp “OFF”
△ : Lamp dims.
□ : Added functions
*: When starting the engine with the parking brake released, the daytime light will come ON.
When starting the engine with the parking brake pulled, the daytime light won’t come ON.

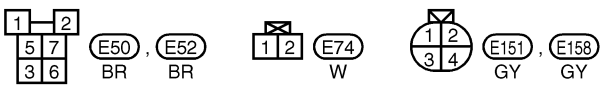
## Schematic




TEL829B

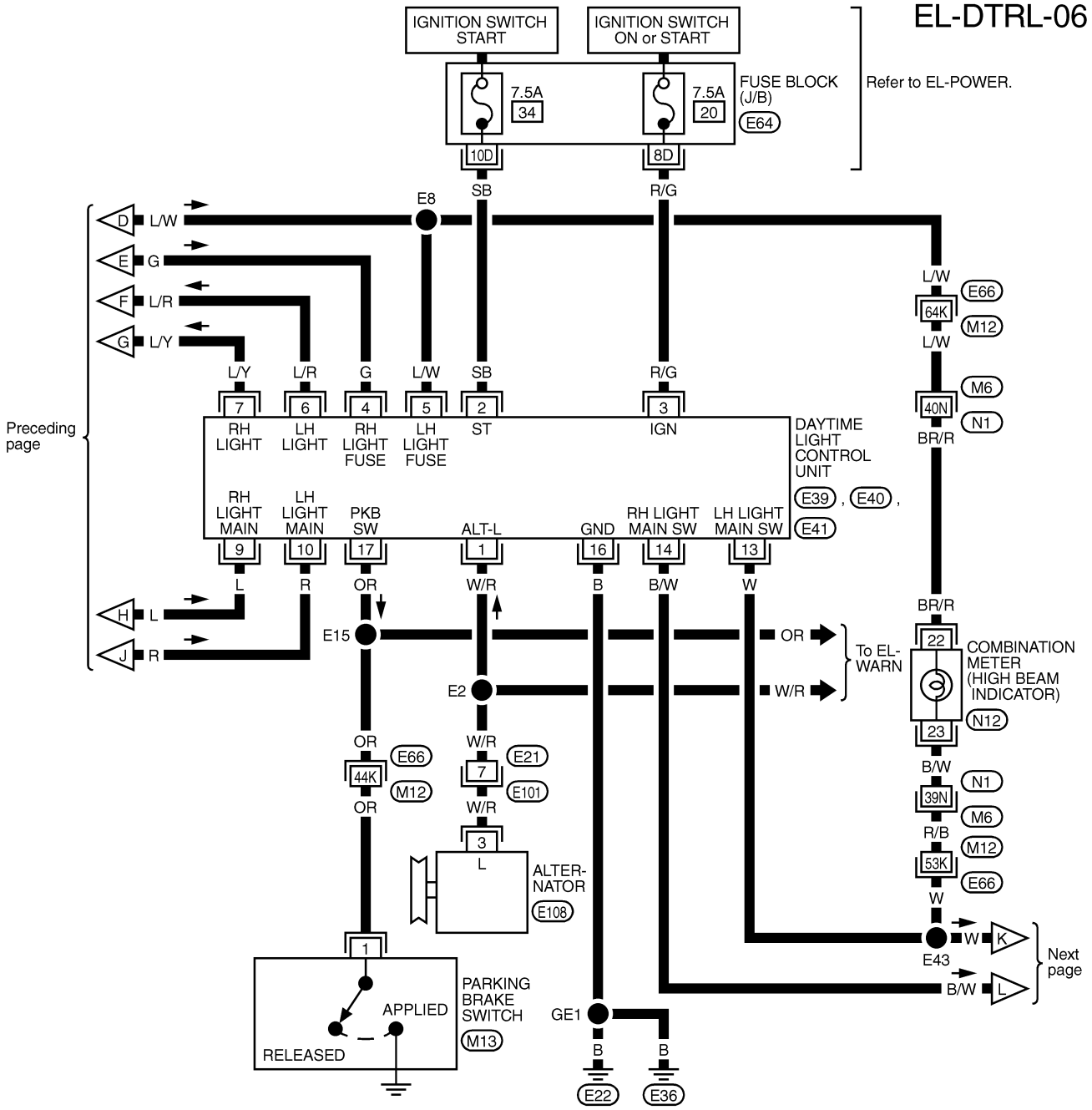
## Wiring Diagram — DTRL —

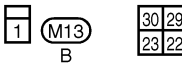


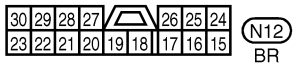



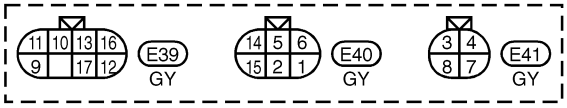

TEL730B

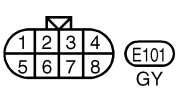
## Wiring Diagram — DTRL — (Cont'd)

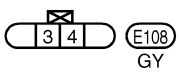


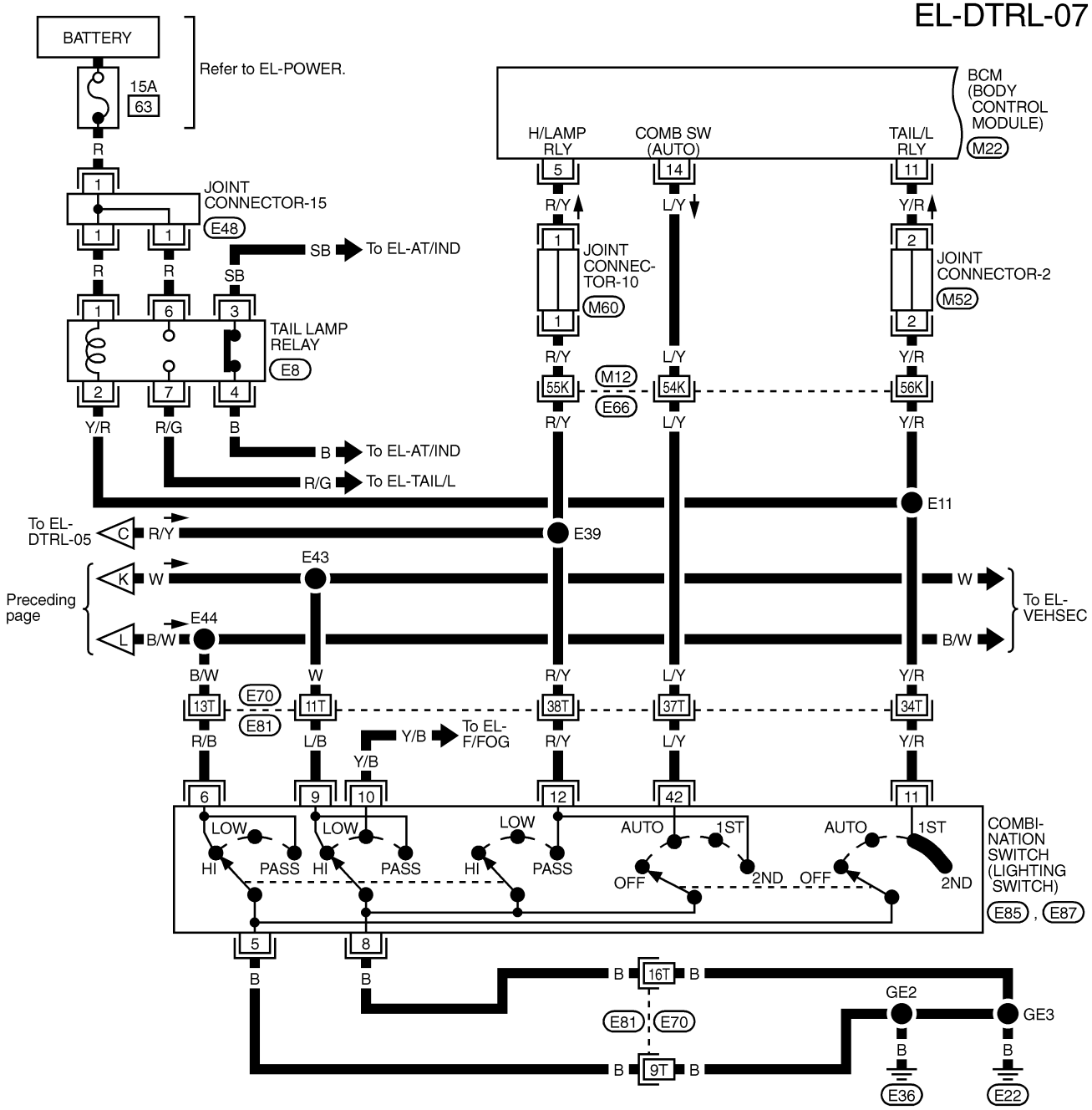



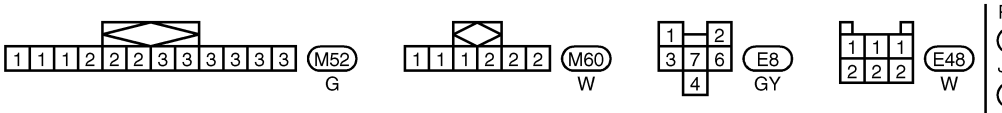

REFER TO THE FOLLOWING.
(M6) , (E66) -SUPER MULTIPLE JUNCTION (SMJ)
(E64) -FUSE BLOCK-JUNCTION BOX (J/B)

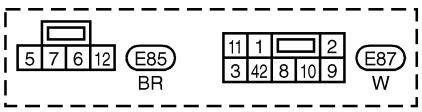
TEL731B

## Wiring Diagram — DTRL — (Cont'd)

EL-DTRL-07



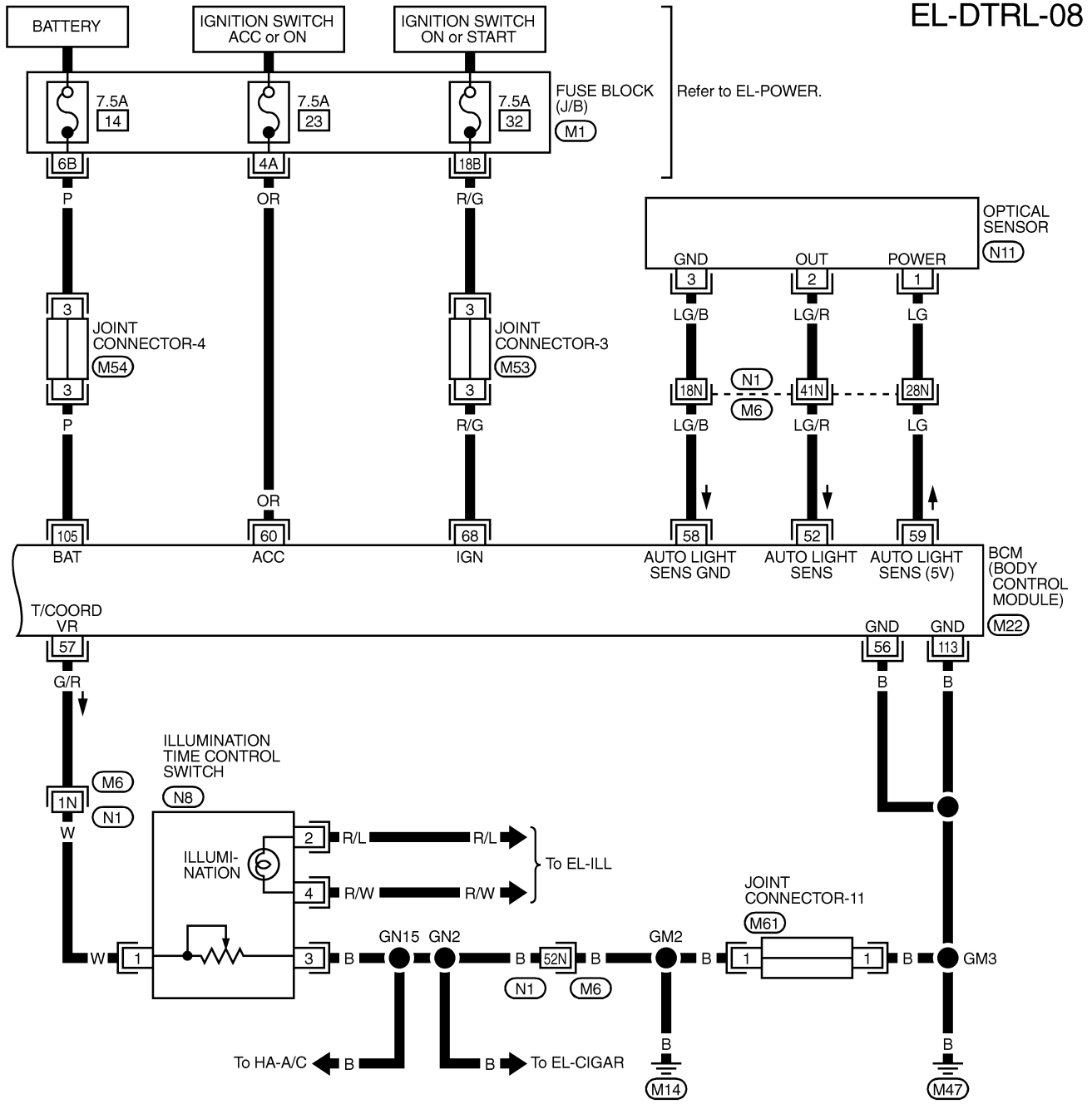



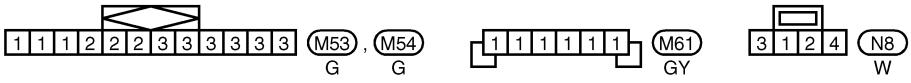

REFER TO THE FOLLOWING.
E66 , E81 -SUPER MULTIPLE JUNCTION (SMJ)
M22 -ELECTRICAL UNITS

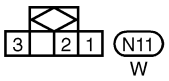
TEL732B

## Wiring Diagram — DTRL — (Cont'd)

EL-DTRL-08




REFER TO THE FOLLOWING.

M6 -SUPER MULTIPLE JUNCTION (SMJ)

M1 -FUSE BLOCK-JUNCTION BOX (J/B)

M22 -ELECTRICAL UNITS

TEL733B

## Trouble Diagnoses

### DAYTIME LIGHT CONTROL UNIT INSPECTION TABLE

(Data are reference values.)

| Terminal No. | Wire color | Item | Condition | | Judgement standard |
|---|---|---|---|---|---|
| 1 | W/R | 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 |
| 2 | SB | 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 |
| 3 | R/G | 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 |
| 4 | G | Power source | | When lighting switch is turned to “2ND” or PASS (“C”) position | Battery voltage |
| | | | | Except the above | 1V or less |
| 5 | L/W | Power source | | When lighting switch is turned to “2ND” or PASS (“C”) position | Battery voltage |
| | | | | Except the above | Less than 1V |
| 6 | L/R | LH head-lamp control | | When lighting switch is turned to “2ND” or PASS (“C”) position | 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 |
| | | | | Except the above | Less than 1V |
| 7 | L/Y | RH head-lamp control | | When lighting switch is turned to “2ND” or PASS (“C”) position | 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 |
| | | | | Except the above | Less than 1V |

## Trouble Diagnoses (Cont'd)

| Terminal No. | Wire color | Item | Condition | | Judgement standard |
|---|---|---|---|---|---|
| 9 | L | RH high beam (Ground) | | When turning lighting switch to "2ND" and HIGH ("A") or PASS ("C") positions | 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 |
| 10 | R | LH high beam (Ground) | | When turning lighting switch to "2ND" and HIGH ("A") or PASS ("C") positions | 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.** | Less than 1V |
| 13 | W | Lighting switch (LH high beam) | | When turning lighting switch HIGH ("A") or PASS ("C") position | Less than 1V |
| 14 | B/W | Lighting switch (RH high beam) | | When turning lighting switch HIGH ("A") or PASS ("C") position | Less than 1V |
| 16 | B | Ground | | — | — |
| 17 | OR | Parking brake switch |  | When parking brake is released | Battery voltage |
| | | | | When parking brake is set | Less than 1.5V |

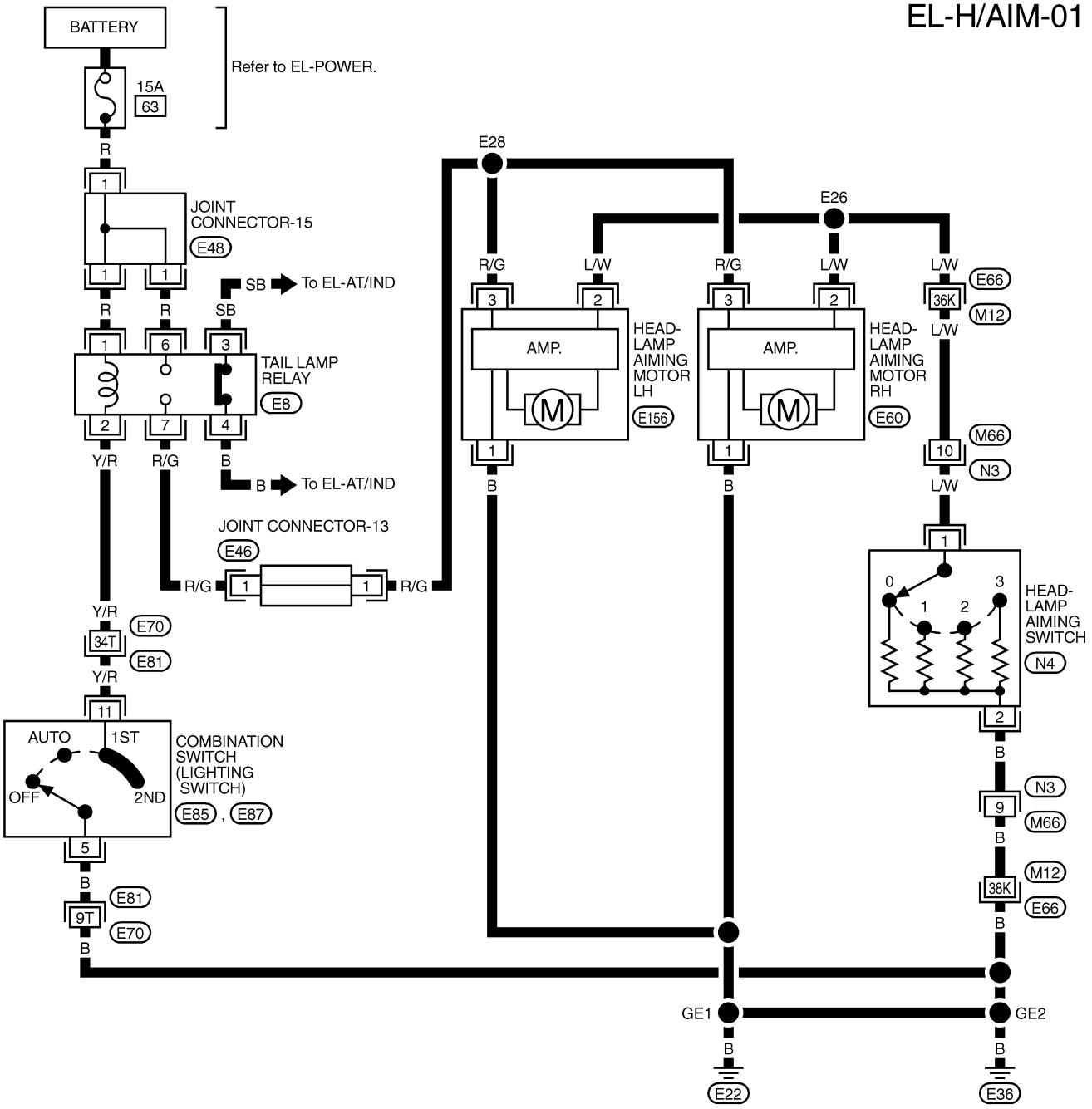
### Bulb Replacement/Xenon Type

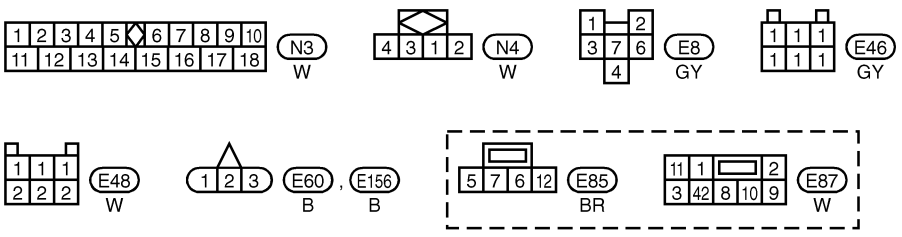
For bulb replacement, refer to EL-87.

### Aiming Adjustment/Xenon Type

For aiming adjustment, refer to EL-88.

## Wiring Diagram — H/AIM —




REFER TO THE FOLLOWING.
E66 , E81 -SUPER MULTIPLE JUNCTION (SMJ)

TEL059M

## System Description

Power is supplied at all times
- to tail lamp relay terminals ① and ⑥
- through 15A fuse [No. 63, located in the fuse, fusible link and relay box].

Ground is supplied
- to the lighting switch terminals ⑤ and ⑧
- through body grounds E22 and E36.

### SWITCH OPERATION

When the lighting switch is turned to 1ST or 2ND position, ground is supplied
- to tail lamp relay terminal ②
- from the lighting switch terminal ⑪.

Tail lamp relay is then energized, and power is supplied
- from tail lamp relay terminal ⑦
- to power terminals of parking, license and tail lamps through stop and tail lamp sensor terminal ⑧.

With power supplied, parking, license and tail lamps illuminate.

### AUTO LIGHT OPERATION

BCM is connected to the optical sensor. The optical sensor sends a signal to BCM according to outside brightness.
When the lighting switch is turned to AUTO position, ground is supplied
- to BCM terminal ⑭
- from the lighting switch terminal ㊷.

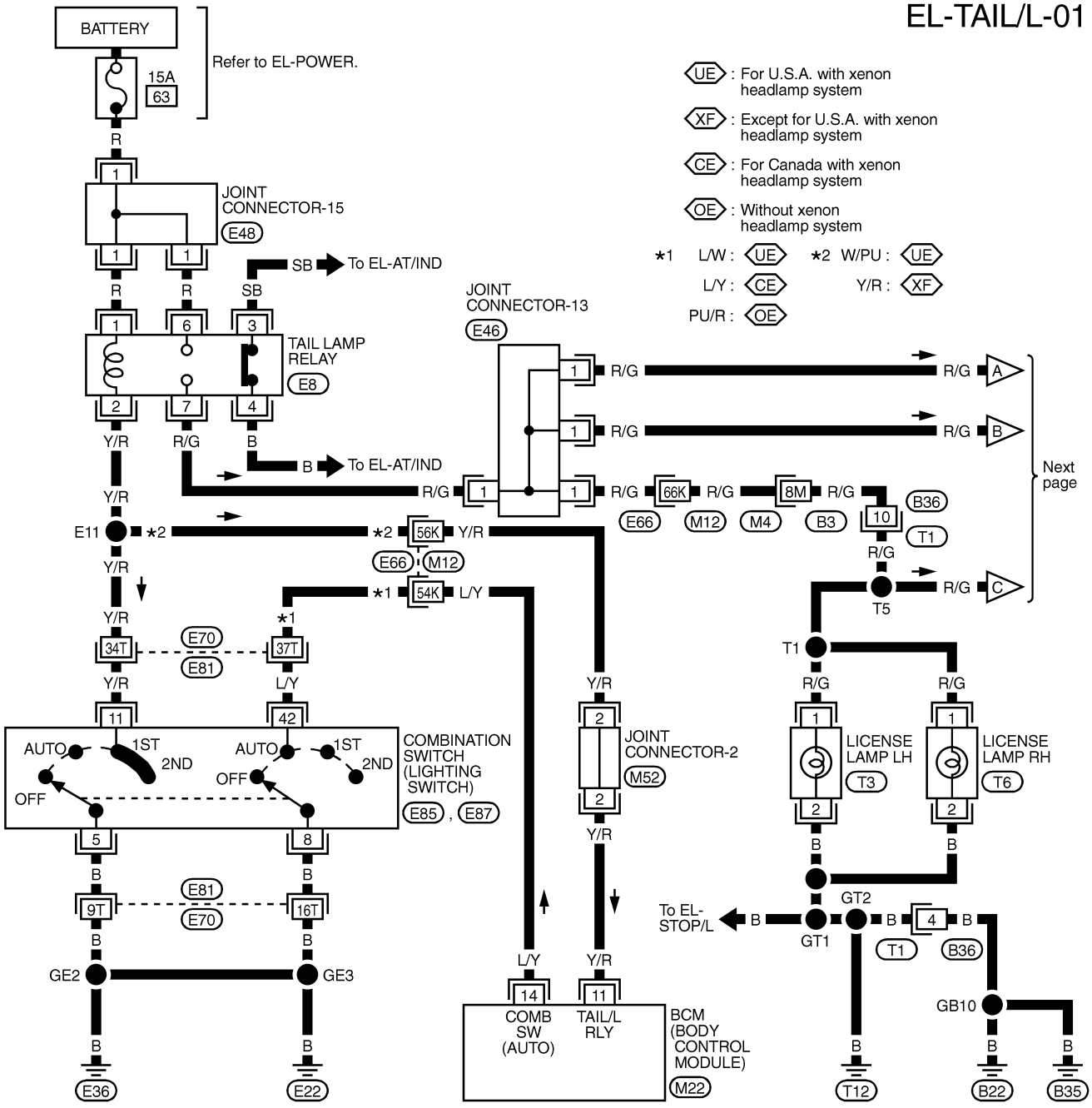
When ignition switch is set to ON or START and outside is darker than the prescribed level, ground is supplied
- to tail lamp relay terminal ②
- from the BCM terminal ⑪.

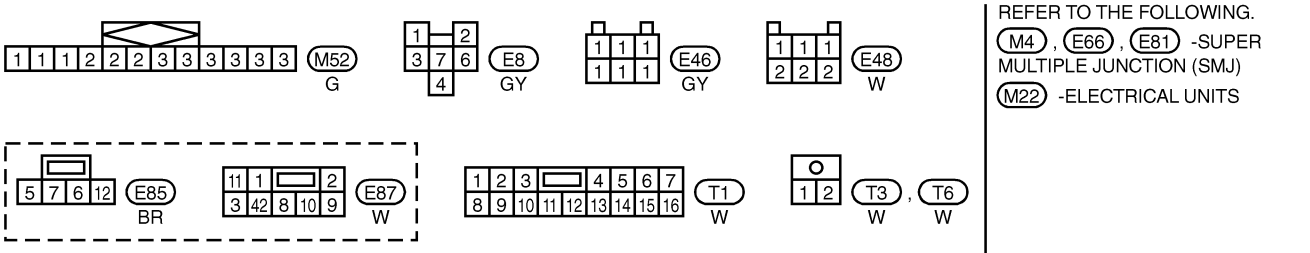
Tail lamp relay is then energized, and parking, license and tail lamps illuminate.
Auto light operation allows these lamps to turn off when outside is brighter than the prescribed level.
Or the ignition switch is turned to the OFF position.
For detailed wiring diagram of auto light, refer to “HEADLAMP” (EL-82).

### TAIL AND STOP WARNING LAMP

When one of the stop lamp bulbs is burned out with the stop lamp switch depressed, or one of the tail bulbs is burned out with the lighting switch in the 1ST or 2ND position, the tail and stop warning lamp illuminate. For details, refer to “WARNING LAMPS” (EL-157).

## Wiring Diagram — TAIL/L —



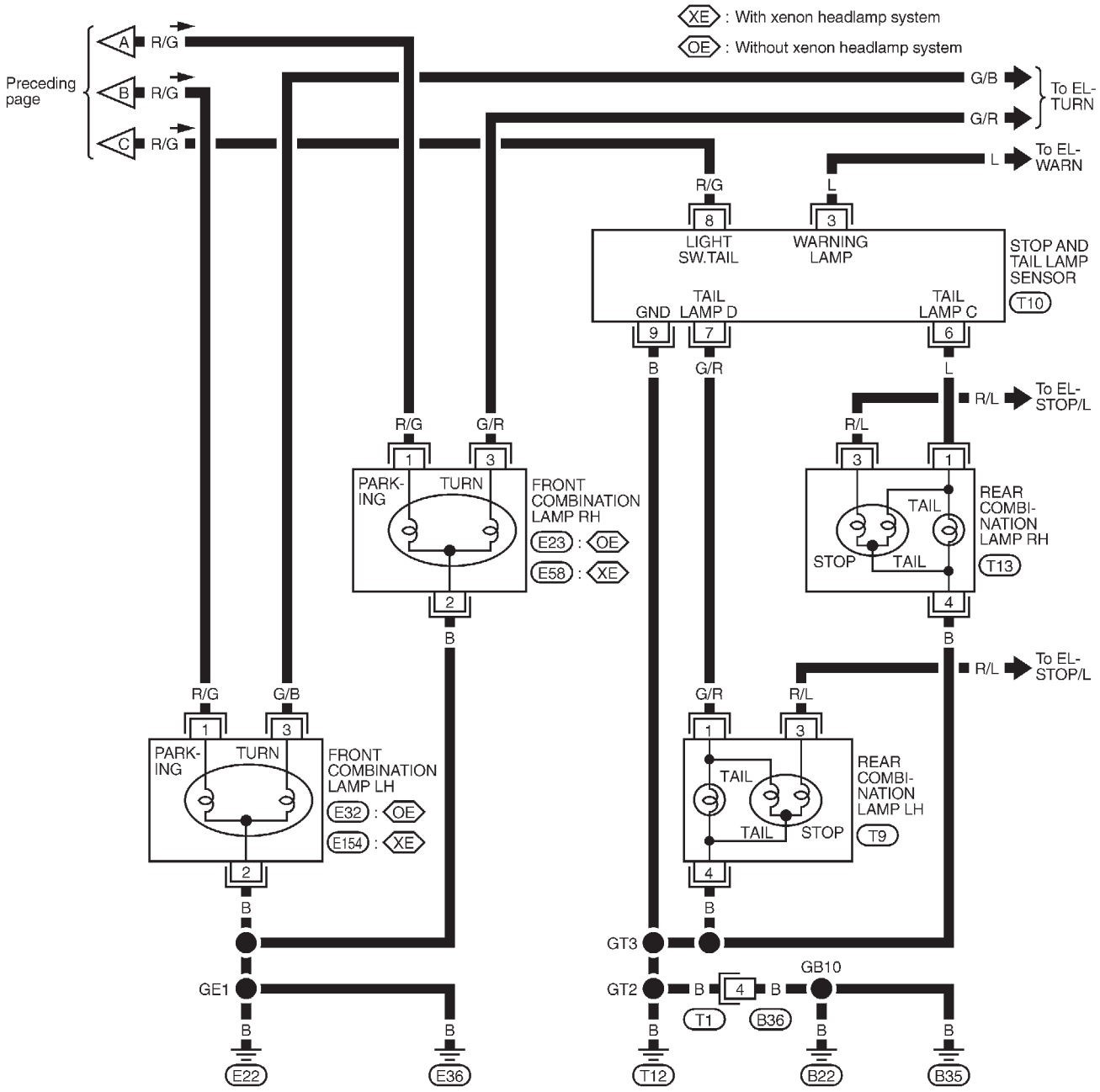



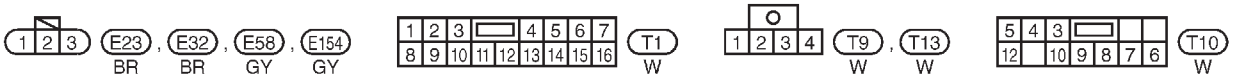

REFER TO THE FOLLOWING.
M4 , E66 , E81 -SUPER MULTIPLE JUNCTION (SMJ)
M22 -ELECTRICAL UNITS

TEL734B

## Wiring Diagram — TAIL/L — (Cont'd)

EL-TAIL/L-02




TEL979A

## Trouble Diagnoses

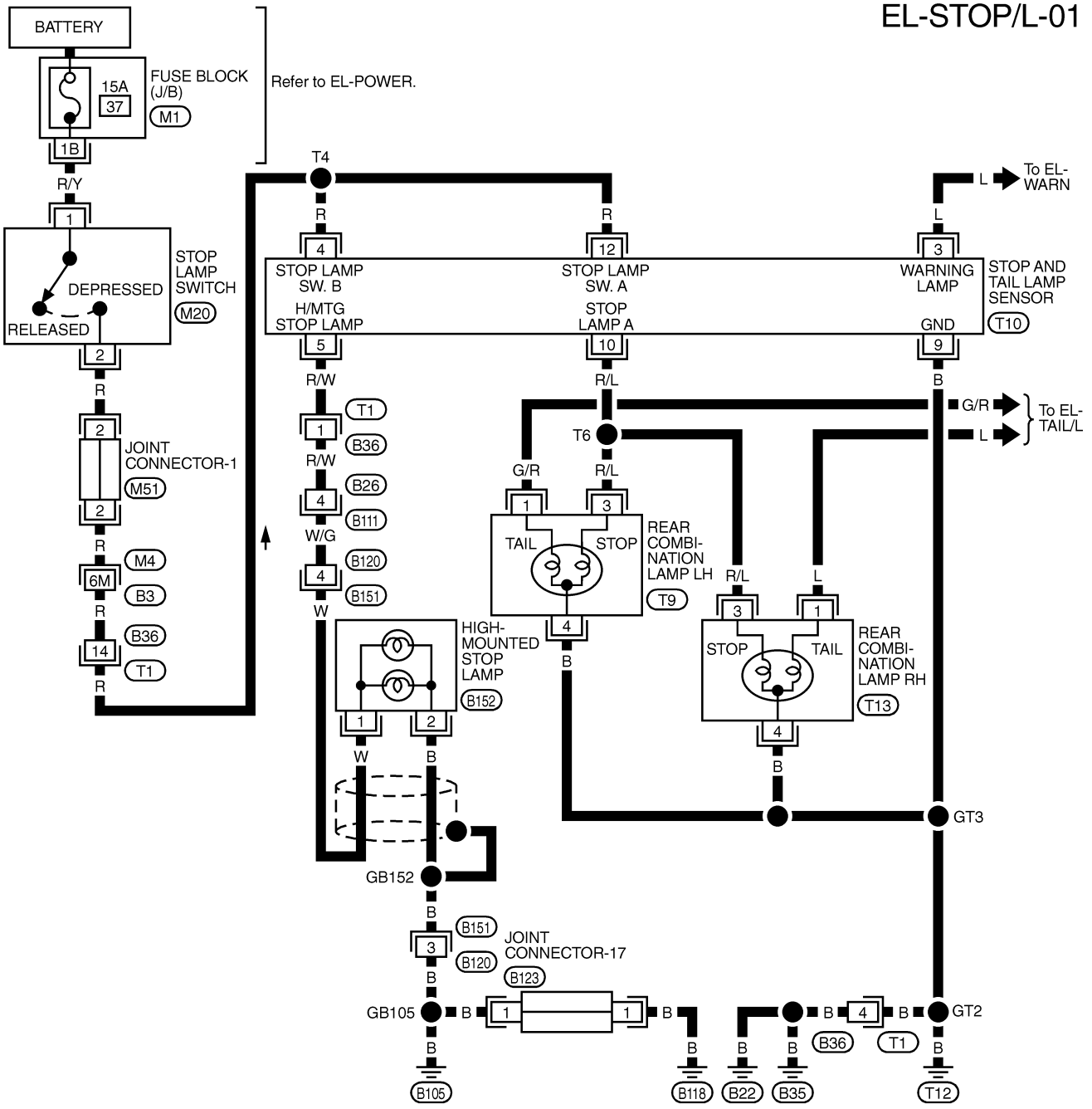
| Symptom | Possible cause | Repair order |
|---|---|---|
| Parking, license and tail lamps do not operate. | 1. 15A fuse | 1. Check 15A fuse (No. 63, located in fuse, fusible link and relay box). |
| | 2. Tail lamp relay | 2. Check tail lamp relay. |
| | 3. Lighting switch | 3. Check lighting switch. |
| | 4. Open in tail lamp relay circuit | 4-1. Check harness between tail lamp relay terminal ② and lighting switch terminal ⑪ for an open circuit.<br>4-2. Check harness between tail lamp relay terminal ⑦ and joint connector-13 for open circuit. |
| | 5. Lighting switch ground circuit | 5. Check lighting switch ground circuit. |
| Individual parking or license lamps do not operate. | 1. Bulb | 1. Check bulb. |
| | 2. Lamp ground | 2. Check lamp ground circuit. |
| | 3. Open circuit | 3. Check harness between power supply terminal of lamp and tail lamp relay terminal ⑦ for an open circuit. |
| Tail lamps do not operate. (See note.) | 1. Bulb | 1. Check bulb. |
| | 2. Lamp ground | 2. Check lamp ground circuit. |
| | 3. Stop and tail lamp sensor - related circuit | 3. Check stop and tail lamp sensor. (Refer to EL-167.) |
| Auto light malfunctioning. | — | Refer to trouble diagnoses in “HEADLAMP” (EL-69). |

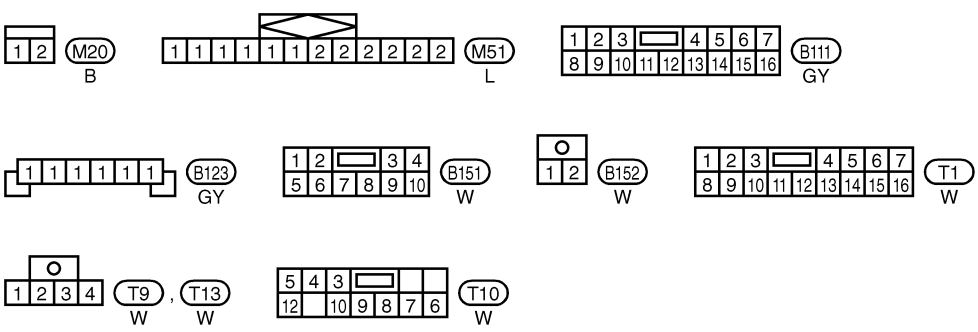
Note: If one of the tail lamp bulbs is burned out or if one of the circuits between the tail lamps and stop and tail lamp sensor is open, tail and stop warning lamp in the combination meter will illuminate with the lighting switch in the 1ST or 2ND position.

## Wiring Diagram — STOP/L —

**NOTE: For “System Description” and “Trouble Diagnoses”, refer to “PARKING, LICENSE AND TAIL LAMPS” (EL-111).**

EL-STOP/L-01




REFER TO THE FOLLOWING.

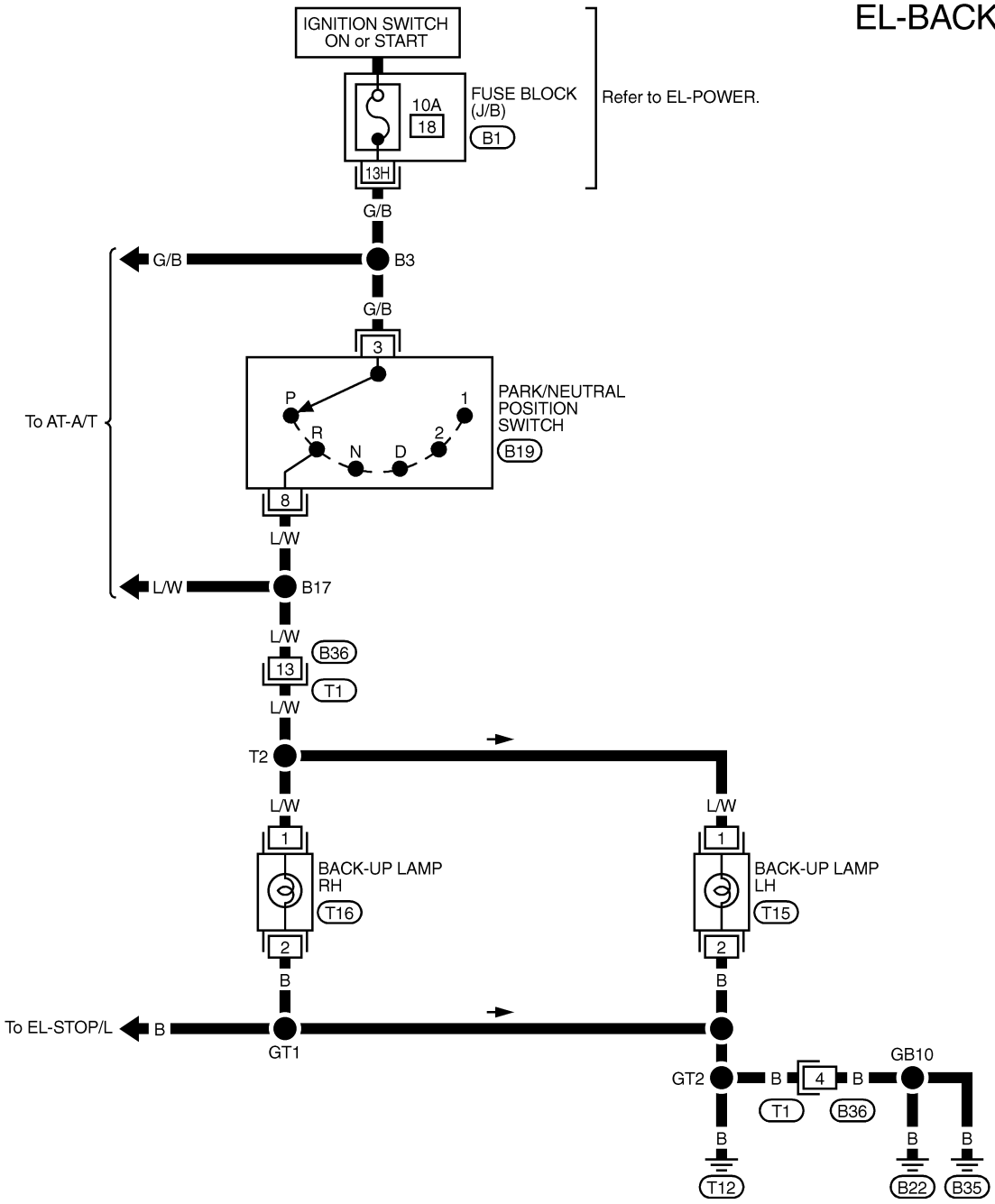
M4 -SUPER MULTIPLE JUNCTION (SMJ)

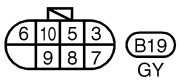
M1 -FUSE BLOCK-JUNCTION BOX (J/B)

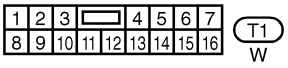
TEL063M

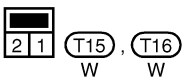
## Wiring Diagram — BACK/L —

EL-BACK/L-01




REFER TO THE FOLLOWING.
B1 -FUSE BLOCK-JUNCTION BOX (J/B)

TEL064M

## System Description

Power is supplied at all times
- to fog lamp relay terminal ③
- through 15A fuse [No. 40, located in the fuse block (J/B)],
- to headlamp relay terminal ⑤
- through 15A fuse (No. 53, located in the fuse, fusible link and relay box) and
- to headlamp relay terminals ① and ⑦
- through 15A fuse (No. 54, located in the fuse, fusible link and relay box) for with xeon headlamp system.

When the lighting switch in the 2ND position, ground is supplied
- to headlamp relay terminal ②
- through lighting switch terminal ⑫
- to lighting switch terminal ⑧
- through body grounds E22 and E36.

The headlamp relay is energized and power is supplied
- to fog lamp relay terminal ②
- from headlamp relay terminal ③.

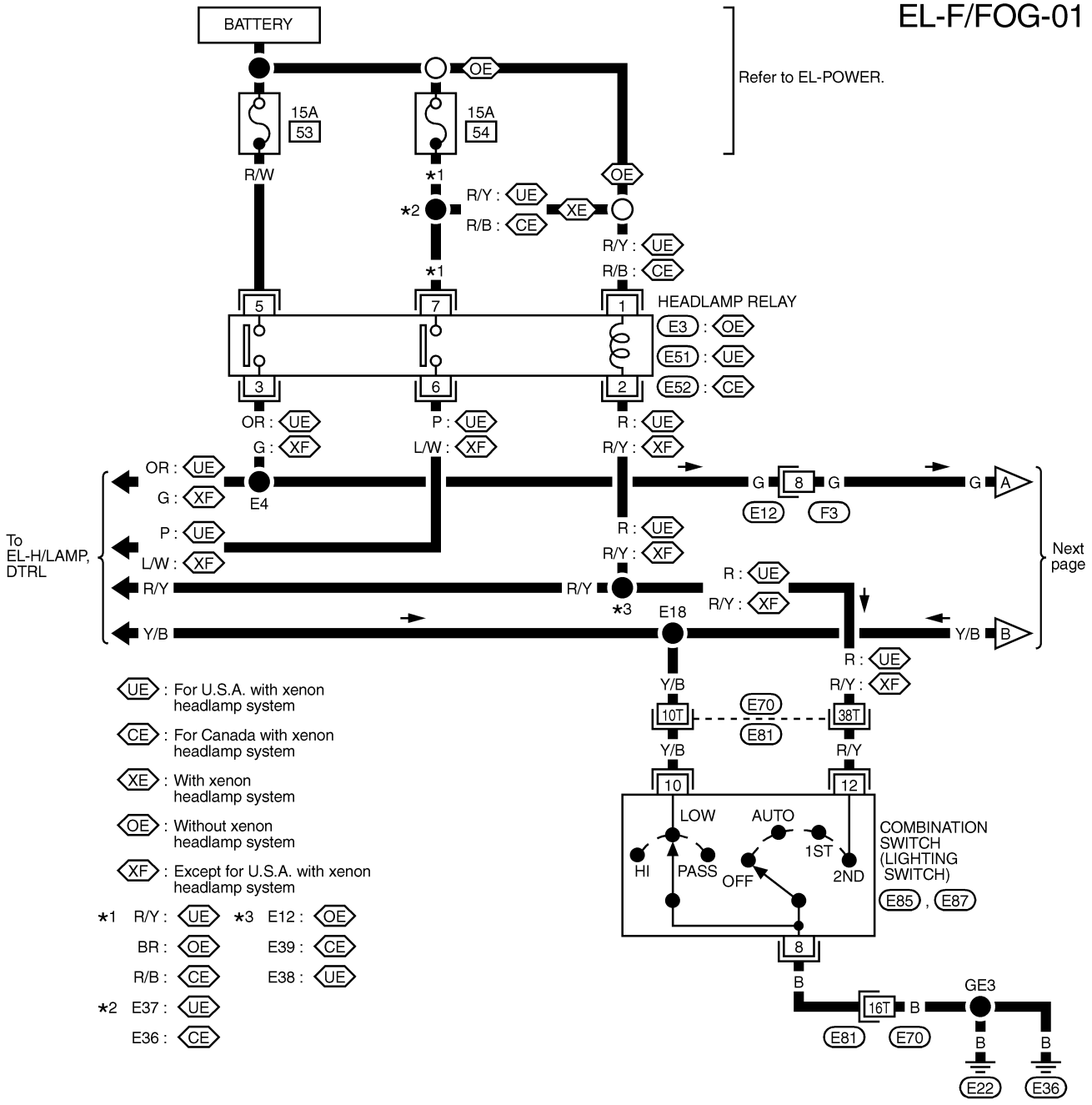
### FOG LAMP OPERATION

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 terminal ①
- through front fog lamp switch terminal ㉛
- to front fog lamp switch terminal ㉜
- through lighting switch terminal ⑩
- to lighting switch terminal ⑧
- through body grounds E22 and E36.

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

Ground is supplied to terminal ② of each fog lamp through body grounds E22 and E36. With power and ground supplied, the fog lamps illuminate.

## Wiring Diagram — F/FOG —




E3 , E51 , E52 BR BR BR

E12 GY

E85 BR

E87 W

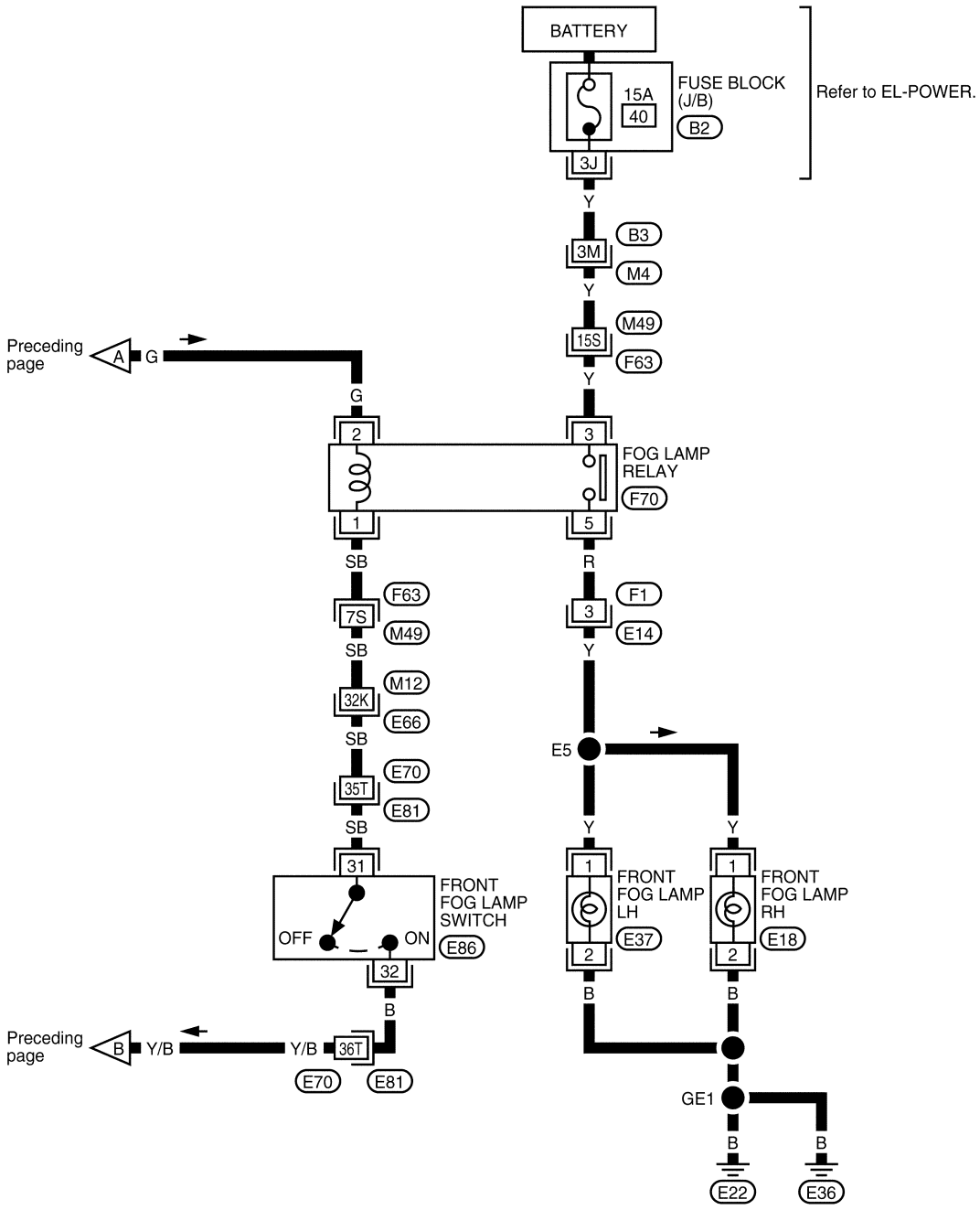
REFER TO THE FOLLOWING.

E81 -SUPER MULTIPLE JUNCTION (SMJ)

TEL735B

## Wiring Diagram — F/FOG — (Cont'd)

EL-F/FOG-02




E14 GY

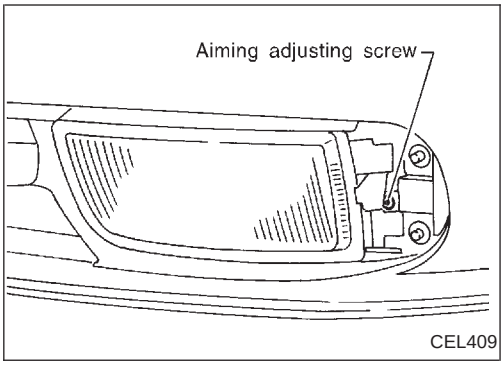
E18 GY, E37 GY

E86 W

F70 L

REFER TO THE FOLLOWING.
M4, E66, E81, F63 -SUPER MULTIPLE JUNCTION (SMJ)
B2 -FUSE BLOCK-JUNCTION BOX (J/B)

TEL066M

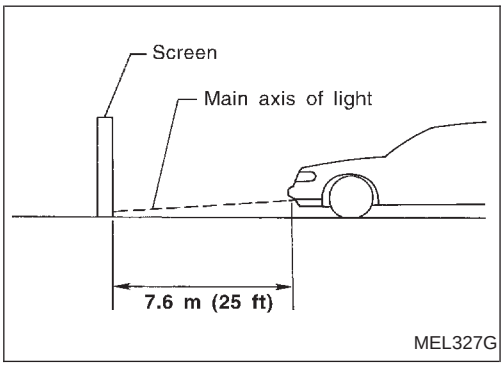



## Aiming Adjustment

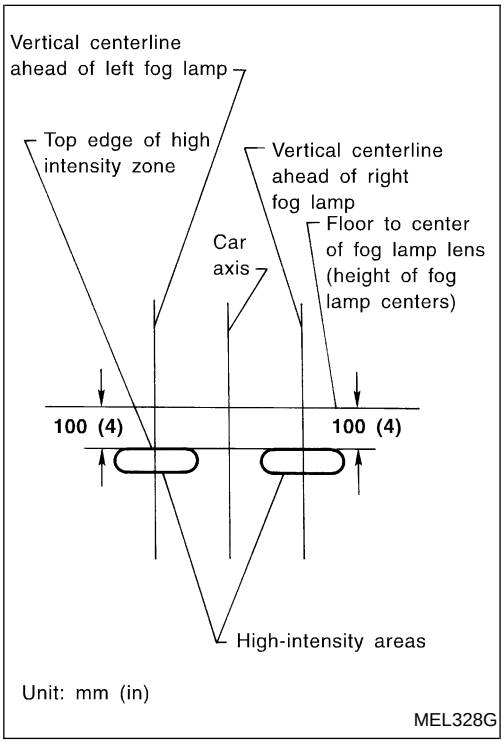
Before performing aiming adjustment, make sure of the following.

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

Adjust aiming in the vertical direction by turning the adjusting screw.




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.

## Bulb Specifications

| Item | Wattage W |
|---|---|
| Front fog lamp | 55 |

## System Description

### TURN SIGNAL OPERATION

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

- through 7.5A fuse [No. 19, located in the fuse block (J/B)]
- to hazard switch terminal ②
- through terminal ① of the hazard switch
- to combination flasher unit terminal ①
- through terminal ③ of the combination flasher unit
- to turn signal switch terminal ①.

Ground is supplied to combination flasher unit terminal ② through body grounds M14 and M47.

**LH turn**

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

- front combination lamp LH terminal ③
- rear combination lamp LH terminal ②
- combination meter terminal ㉑.

Ground is supplied to the front combination lamp LH terminal ② through body grounds E22 and E36.
Ground is supplied to the rear combination lamp LH terminal ④ through body grounds T12, B22 and B35.
Ground is supplied to combination meter terminal ㊳ through body grounds M14 and M47.
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 R position, power is supplied from turn signal switch terminal ② to

- front combination lamp RH terminal ③
- rear combination lamp RH terminal ②
- combination meter terminal ㉚.

Ground is supplied to the front combination lamp RH terminal ② through body grounds E22 and E36.
Ground is supplied to the rear combination lamp RH terminal ④ through body grounds T12, B22 and B35.
Ground is supplied to combination meter terminal ㊳ through body grounds M14 and M47.
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. 13, located in the fuse block (J/B)].

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

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

Ground is supplied to combination flasher unit terminal ② through body grounds M14 and M47.
Power is supplied through terminal ⑤ of the hazard switch to

- front combination lamp LH terminal ③
- rear combination lamp LH terminal ②
- combination meter terminal ㉑.

Power is supplied through terminal ⑥ of the hazard switch to

- front combination lamp RH terminal ③
- rear combination lamp RH terminal ②
- combination meter terminal ㉚.

Ground is supplied to terminal ② of each front combination lamp through body grounds E22 and E36.
Ground is supplied to terminal ④ of each rear combination lamp through body grounds T12, B22 and B35.
Ground is supplied to combination meter terminal ㊳ through body grounds M14 and M47.
With power and ground supplied, the combination flasher unit controls the flashing of the hazard warning lamps.

### WITH MULTI-REMOTE CONTROL SYSTEM

Power is supplied at all times

- through 10A fuse [No. 13, located in the fuse block (J/B)]

## System Description (Cont'd)

- to multi-remote control relay terminals ①, ③ and ⑥.

Ground is supplied to multi-remote control relay terminal ②, when the multi-remote control system is triggered through the BCM (Body Control Module).
Refer to "MULTI-REMOTE CONTROL SYSTEM" (EL-354).
The multi-remote control relay is energized.
Power is supplied through terminal ⑤ of the multi-remote control relay

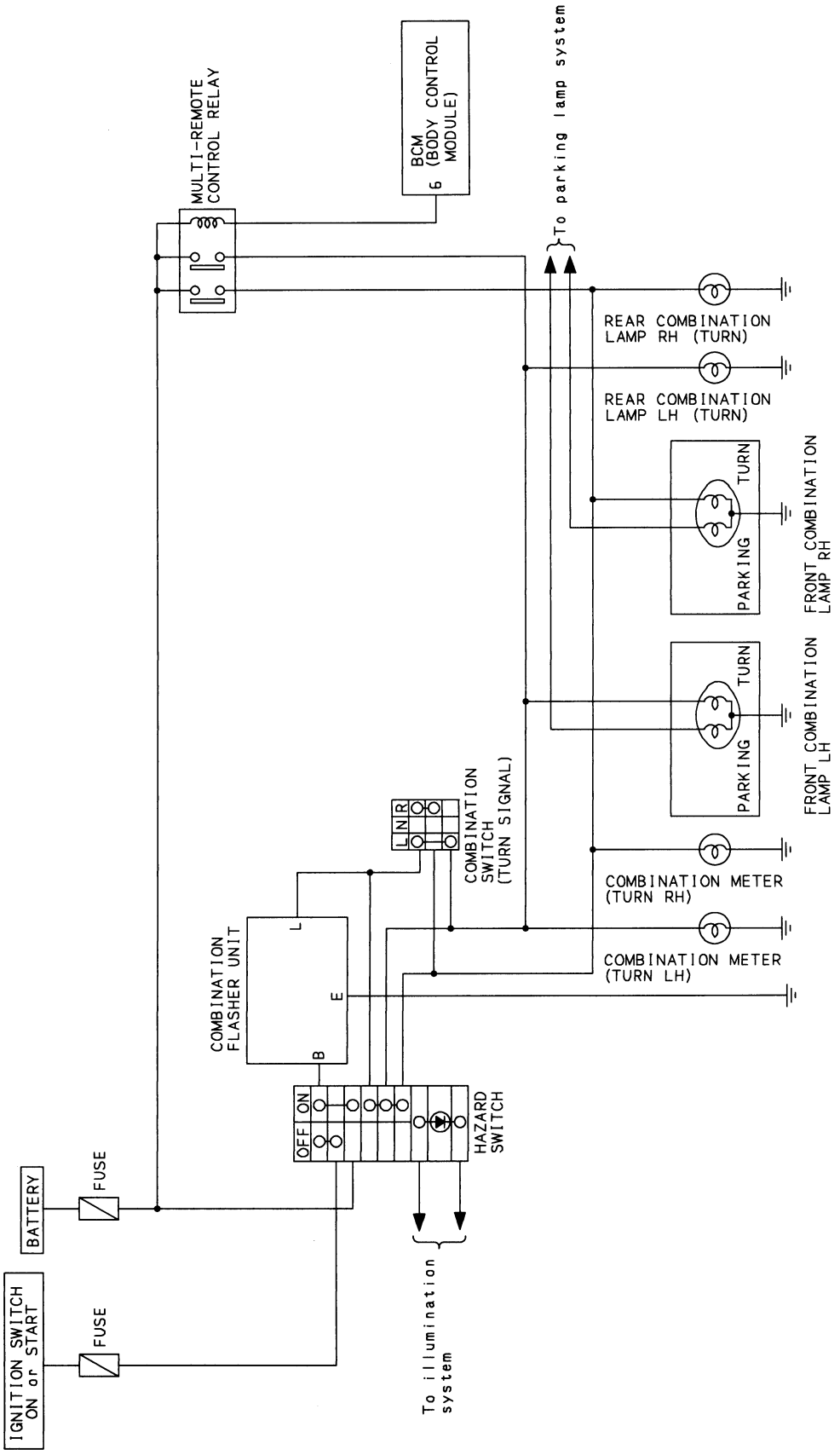
- to front combination lamp LH terminal ③,
- to rear combination lamp LH terminal ② and
- to combination meter terminal ㉑.

Power is supplied through terminal ⑦ of the multi-remote control relay

- to front combination lamp RH terminal ③,
- to rear combination lamp RH terminal ② and
- to combination meter terminal ㉚.

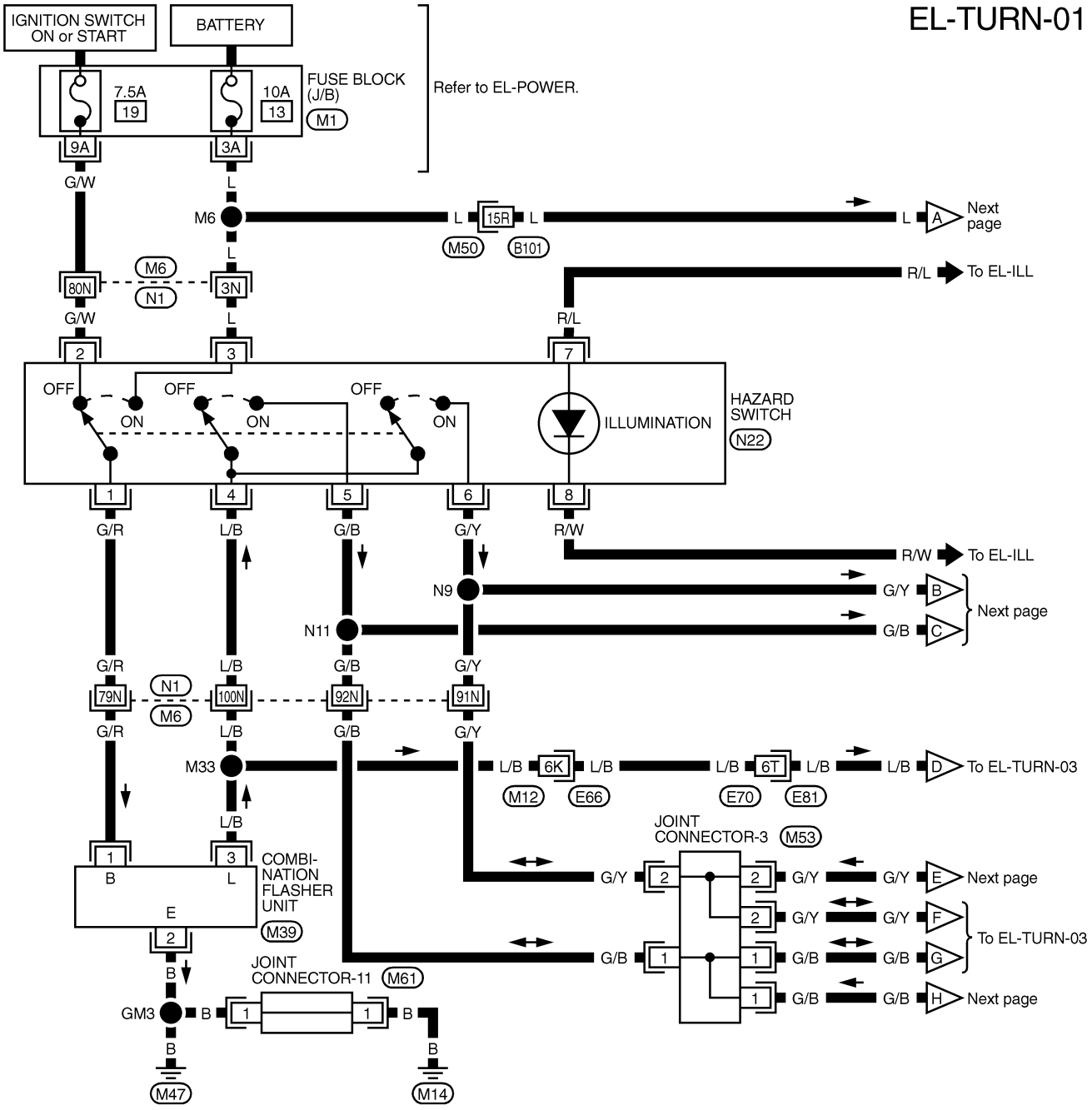
Ground is supplied to terminal ② of each front combination lamp through body grounds E22 and E36.
Ground is supplied to terminal ④ of each rear combination lamp through body grounds T12, B22 and B35.
Ground is supplied to combination meter terminal ㊳ through body grounds M14 and M47.
With power and ground supplied, the BCM controls the flashing of the hazard warning lamps.

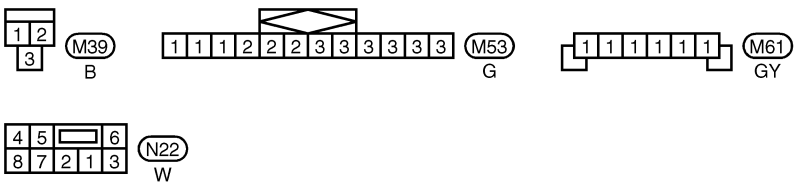
## Schematic




TEL451B

## Wiring Diagram — TURN —





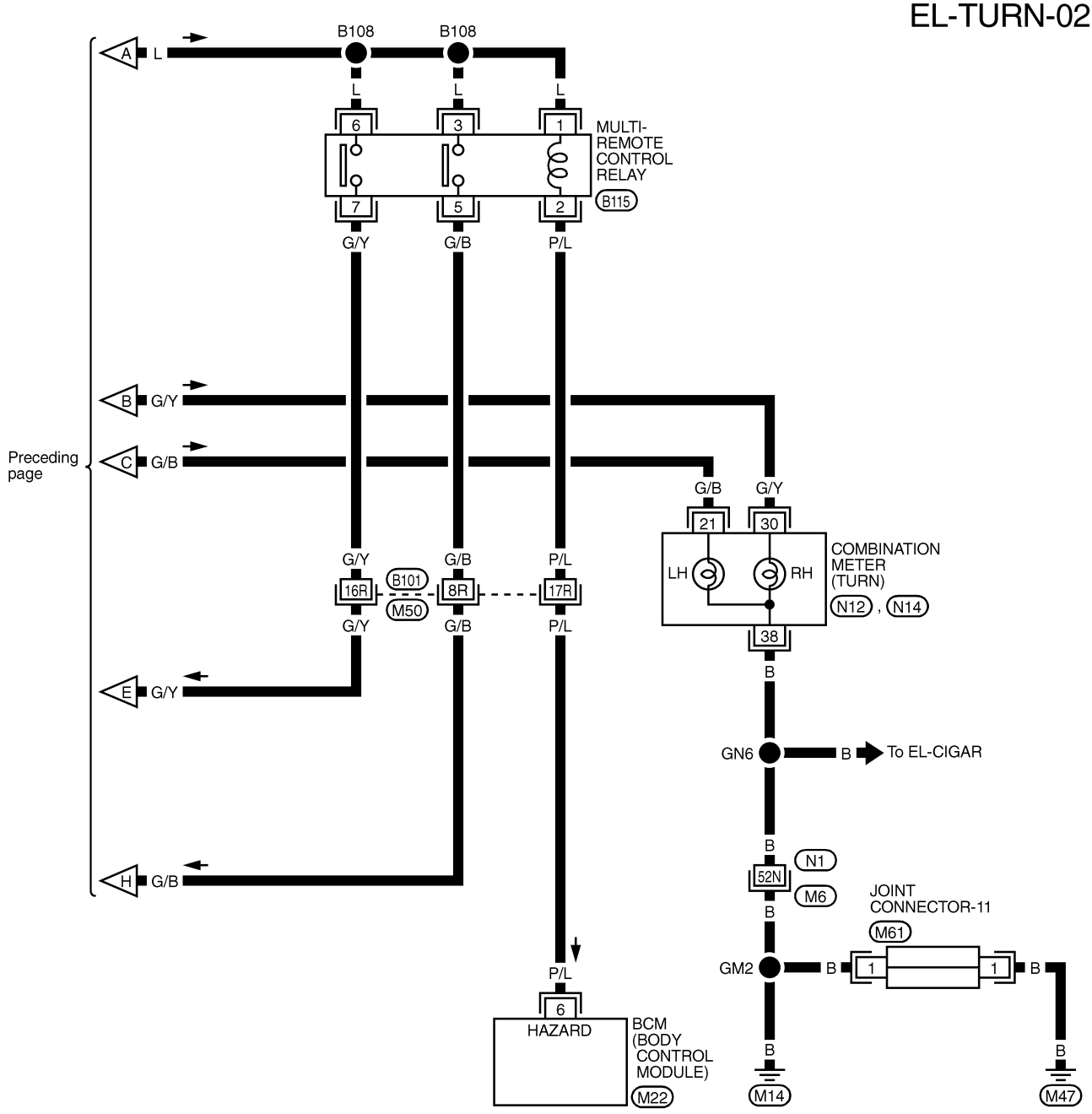


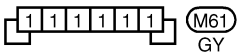
REFER TO THE FOLLOWING.
M6 , M50 , E66 , E81
-SUPER MULTIPLE JUNCTION (SMJ)
M1 -FUSE BLOCK-JUNCTION BOX (J/B)

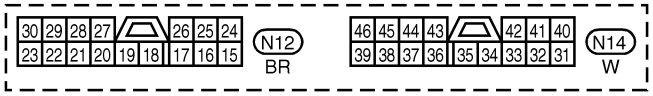
TEL067M

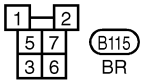
## Wiring Diagram — TURN — (Cont'd)

EL-TURN-02



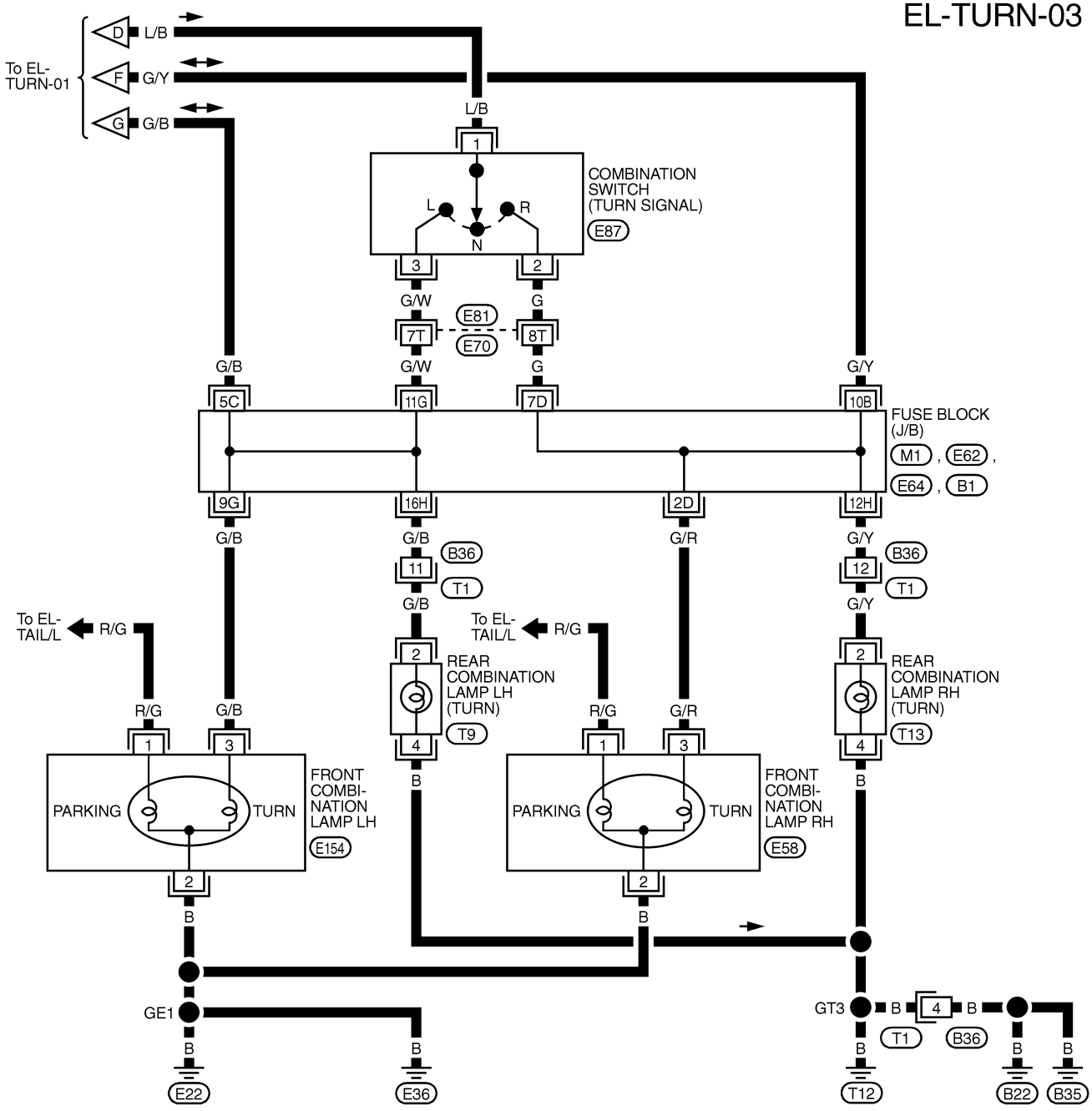




REFER TO THE FOLLOWING.
(M6) , (M50) -SUPER MULTIPLE JUNCTION (SMJ)
(M22) -ELECTRICAL UNITS

TEL068M

## Wiring Diagram — TURN — (Cont'd)

EL-TURN-03




1 2 3 E58 , E154 GY GY

11 1 2 3 42 8 10 9 E87 W

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 T1 W

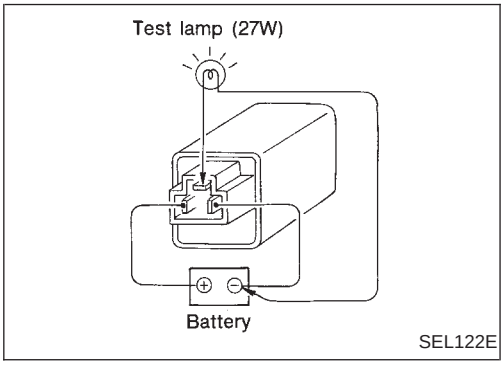
1 2 3 4 T9 , T13 W W

REFER TO THE FOLLOWING.
E81 -SUPER MULTIPLE JUNCTION (SMJ)
M1 , E62 , E64 , B1 -FUSE BLOCK-JUNCTION BOX (J/B)

TEL069M

## 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-127)<br>3. Check wiring to combination flasher unit for open circuit. |
| Turn signal lamps do not operate but hazard warning lamps operate. | 1. 7.5A fuse<br>2. Hazard switch<br>3. Turn signal switch<br>4. Open in turn signal switch circuit | 1. Check 7.5A fuse [No. 19, located in the fuse block (J/B)]. 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 L/B wire between combination flasher unit and turn signal switch for open circuit. |
| Hazard warning lamps do not operate but turn signal lamps operate. | 1. 10A fuse<br>2. Hazard switch<br>3. Open in hazard switch circuit | 1. Check 10A fuse [No. 13, located in the fuse block (J/B)]. Verify battery positive voltage is present at terminal ③ of hazard switch.<br>2. Check hazard switch.<br>3. Check L/B 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 (E22) and (E36)<br>3. Open in front turn signal lamp LH or RH circuit | 1. Check bulb.<br>2. Check grounds (E22) and (E36).<br>3. Check wire between fuse block and front turn signal lamp LH or RH for open circuit. |
| Rear turn signal lamp LH or RH does not operate. | 1. Bulb<br>2. Grounds (T12), (B22) and (B35)<br>3. Open in rear turn signal lamp LH or RH circuit | 1. Check bulb.<br>2. Check grounds (T12), (B22) and (B35).<br>3. Check wire between fuse block and rear turn signal lamp LH or RH for open circuit. |
| LH and RH turn indicators do not operate. | 1. Grounds (M14) and (M47) | 1. Check grounds (M14) and (M47). |
| LH or RH turn indicator does not operate. | 1. Bulb<br>2. Open in turn indicator circuit | 1. Check bulb in combination meter.<br>2. Check wire between hazard switch and combination meter (turn indicator) for open circuit. |




## 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 15A fuse (No. 63, located in the fuse, fusible link and relay box)
- to tail lamp relay terminals ① and ⑥.

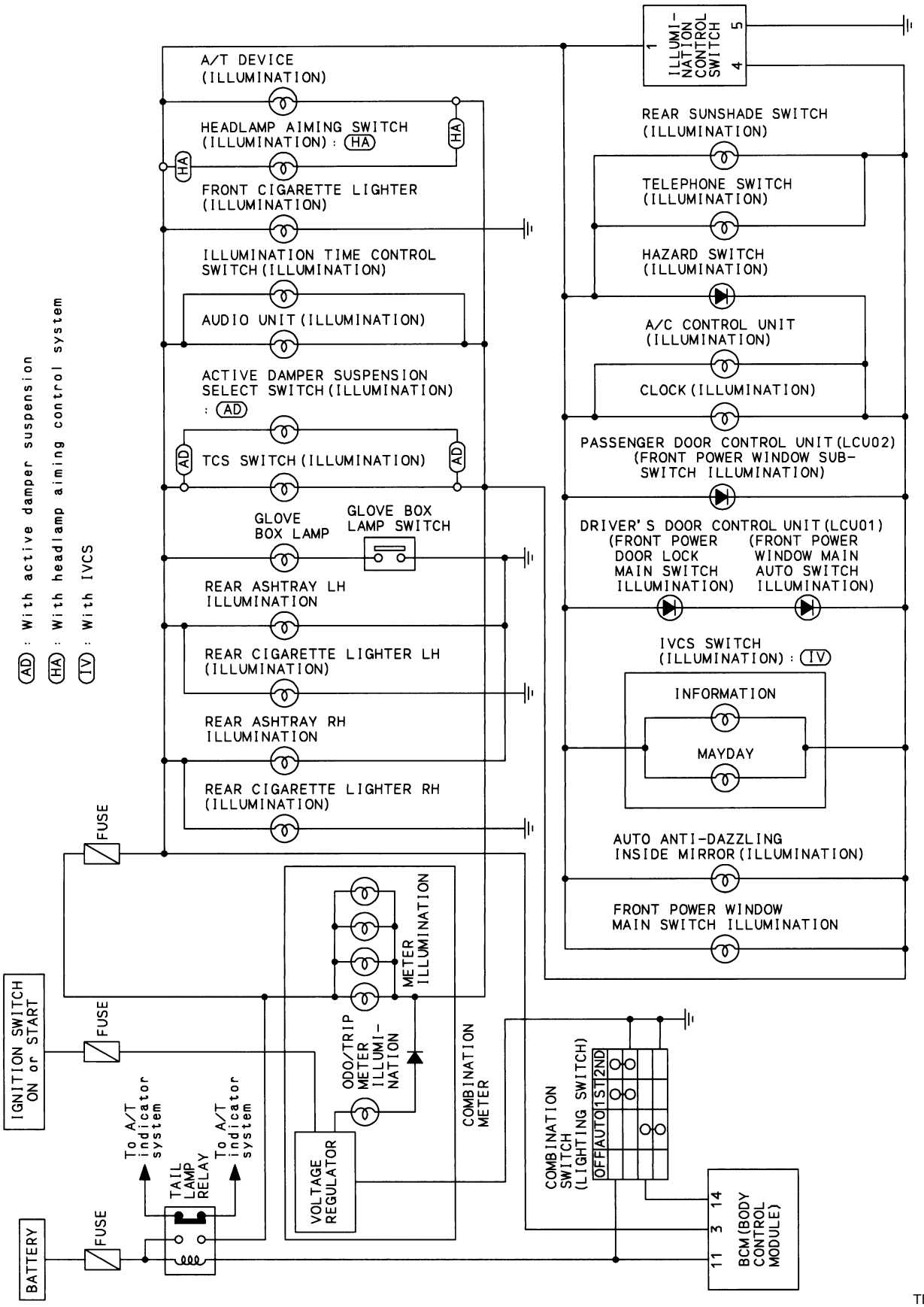
Ground is supplied to tail lamp relay terminal ②, when the lighting switch is moved to the 1ST or 2ND position. The tail lamp relay is energized.
The lighting switch must be in the 1ST or 2ND position for illumination.
The illumination control switch that controls the amount of current to the illumination 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 |
|---|---|---|---|
| Combination meter | N12, N14 | ⑯, ㊶ | ⑰, ㊳ |
| Rear cigarette lighter | D45, D65 | ③ | — (Unit ground) |
| Rear ashtray | D44, D64 | ① | ② |
| Glove box lamp | M26 | ① | ② |
| TCS switch | N7 | ⑤ | ⑥ |
| Active damper suspension select switch | N5 | ⑦ | ⑧ |
| Audio unit | N20 | ⑧ | ⑦ |
| Display and NAVI control unit (With navigation system) | N32, N33 | ⑧ | ㉔ |
| Illumination time control switch | N8 | ② | ④ |
| Front cigarette lighter | N6 | ② | — (Unit ground) |
| Headlamp aiming switch | N4 | ③ | ④ |
| A/T device | M36 | ③ | ④ |
| Front power window main switch | D12 | ② | ① |
| Auto anti-dazzling inside mirror | R4 | ③ | ④ |
| IVCS switch | R10 | ② | ⑫ |
| Driver's door control unit | D13 | ⑨ | ② |
| Passenger door control unit | D29 | ⑨ | ② |
| Clock (Without navigation system) | N28 | ③ | ② |
| A/C control unit (Without navigation system) | N17 | ① | ④ |
| Hazard switch | N22 | ⑦ | ⑧ |
| Telephone switch | N25 | ㉔ | ㉓ |
| Rear sunshade switch | N30 | ④ | ⑤ |
| Illumination control switch | N23 | ① | ⑤ |

The ground for all of the components except for rear ashtray, and rear cigarette lighter, glove box lamp and front cigarette lighter are controlled through terminals ④ and ⑤ of the illumination control switch and body grounds M14 and M47.

## Schematic

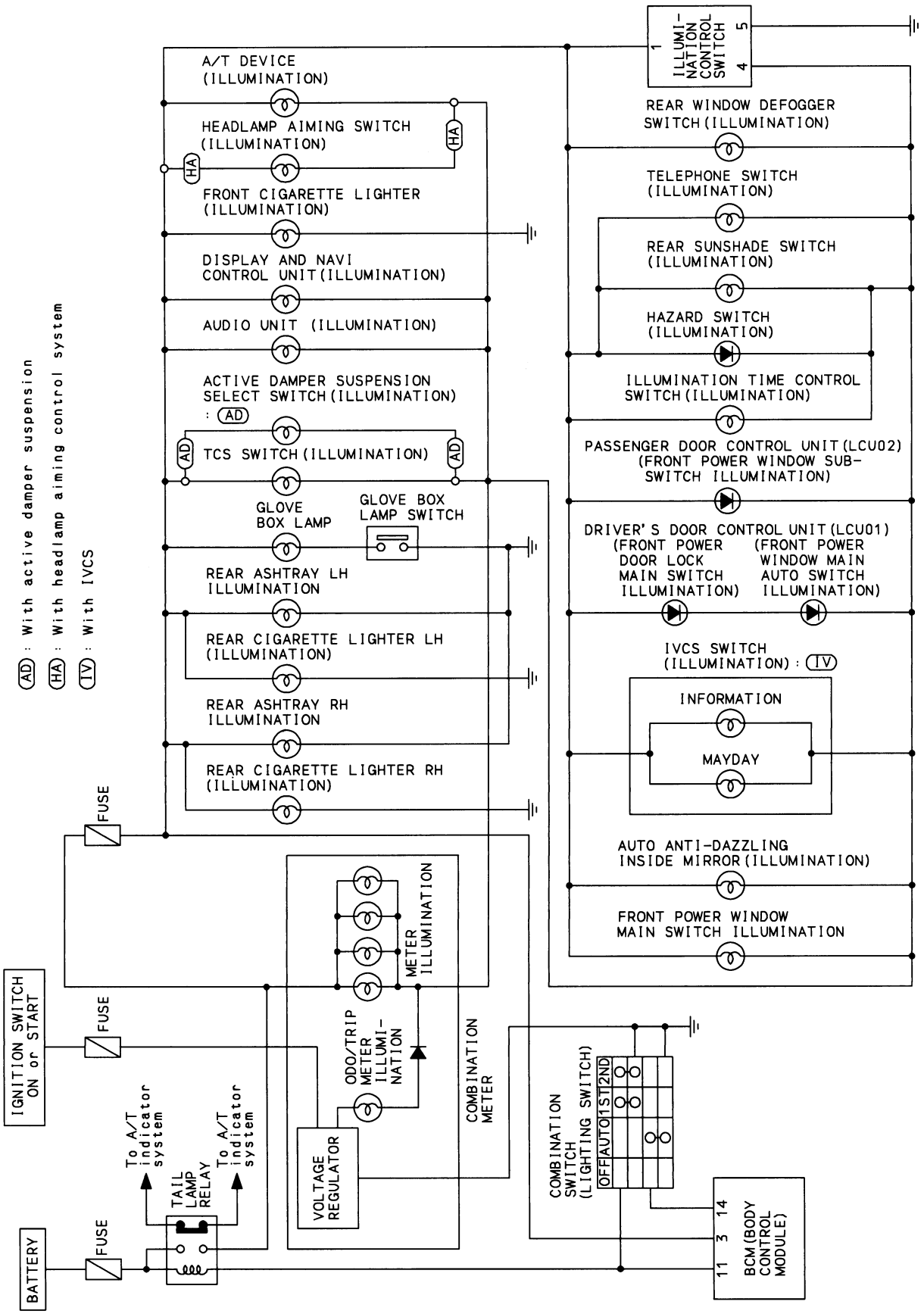
### WITHOUT NAVIGATION SYSTEM




TEL350M

## Schematic (Cont'd)

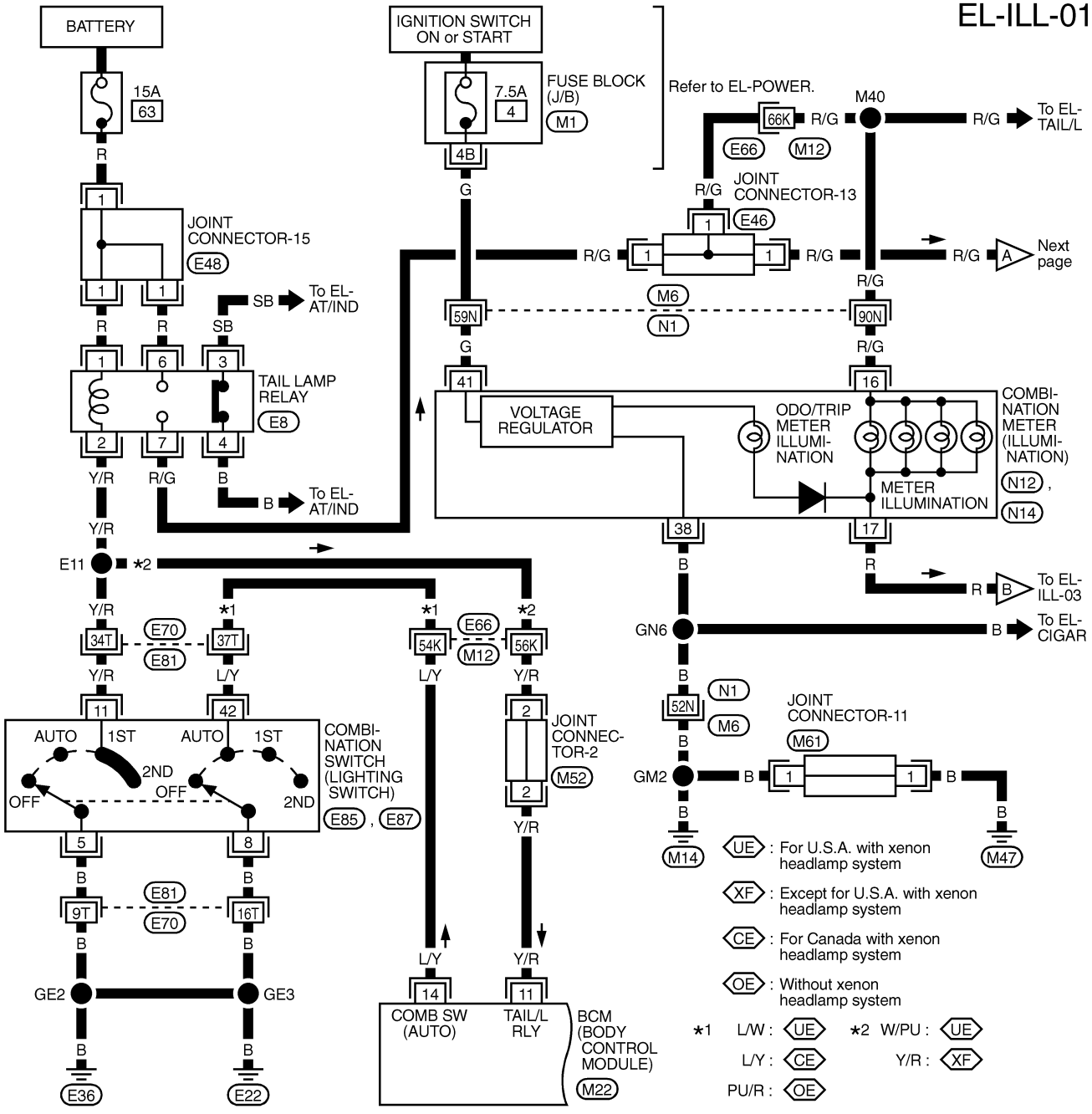
### WITH NAVIGATION SYSTEM

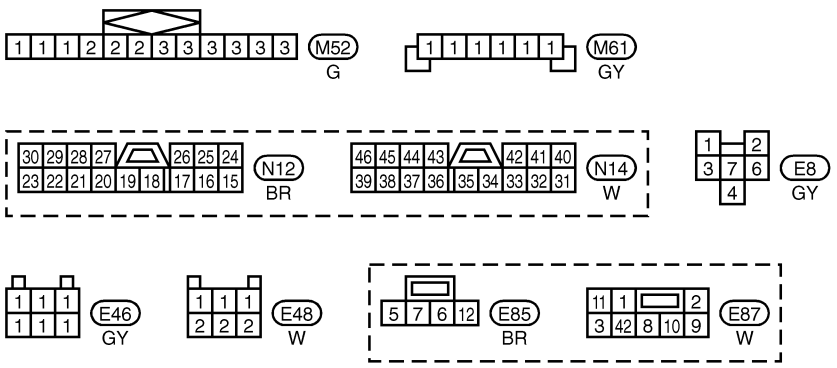



TEL351M

## Wiring Diagram — ILL —

### WITHOUT NAVIGATION SYSTEM



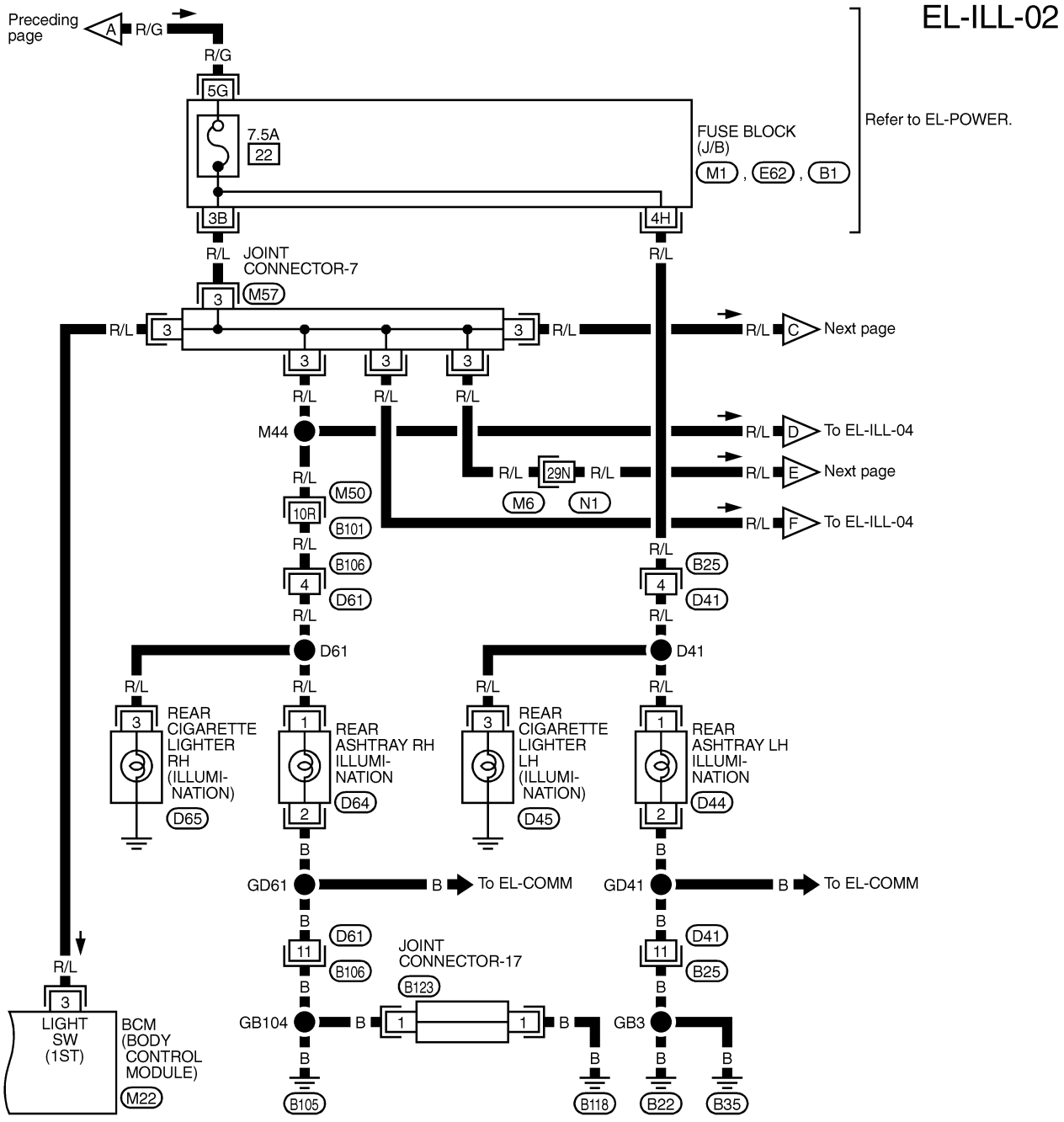



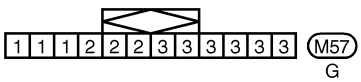

REFER TO THE FOLLOWING.
M6 , E66 , E81 -SUPER MULTIPLE JUNCTION (SMJ)
M1 -FUSE BLOCK-JUNCTION BOX (J/B)
M22 -ELECTRICAL UNITS

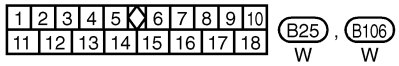
TEL737B

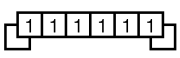
## Wiring Diagram — ILL — (Cont'd)

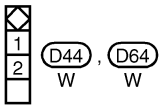
### WITHOUT NAVIGATION SYSTEM

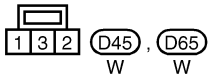



REFER TO THE FOLLOWING.

M6 , M50 -SUPER MULTIPLE JUNCTION (SMJ)

M1 , E62 , B1 -FUSE BLOCK-JUNCTION BOX (J/B)

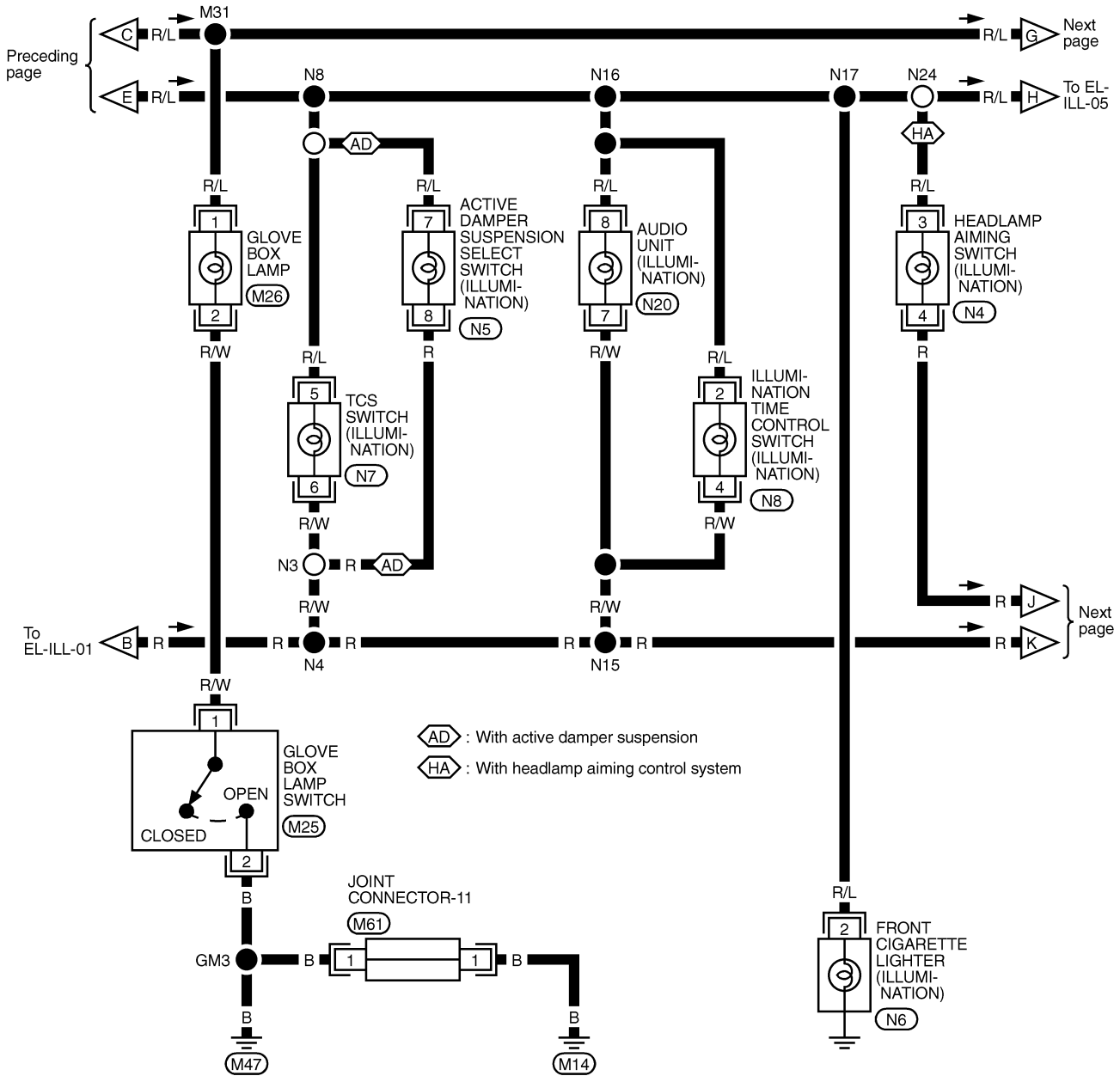
M22 -ELECTRICAL UNITS

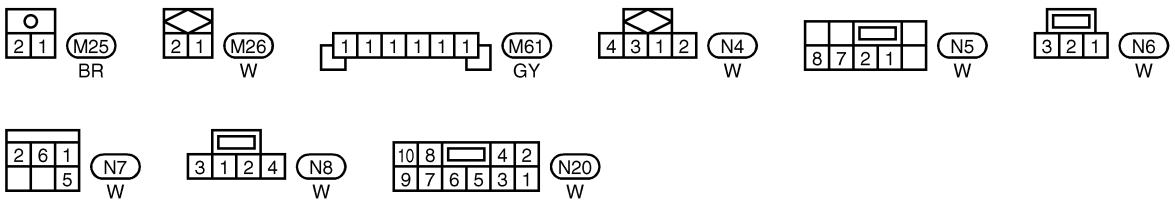
TEL072M

## Wiring Diagram — ILL — (Cont'd)

### WITHOUT NAVIGATION SYSTEM

EL-ILL-03

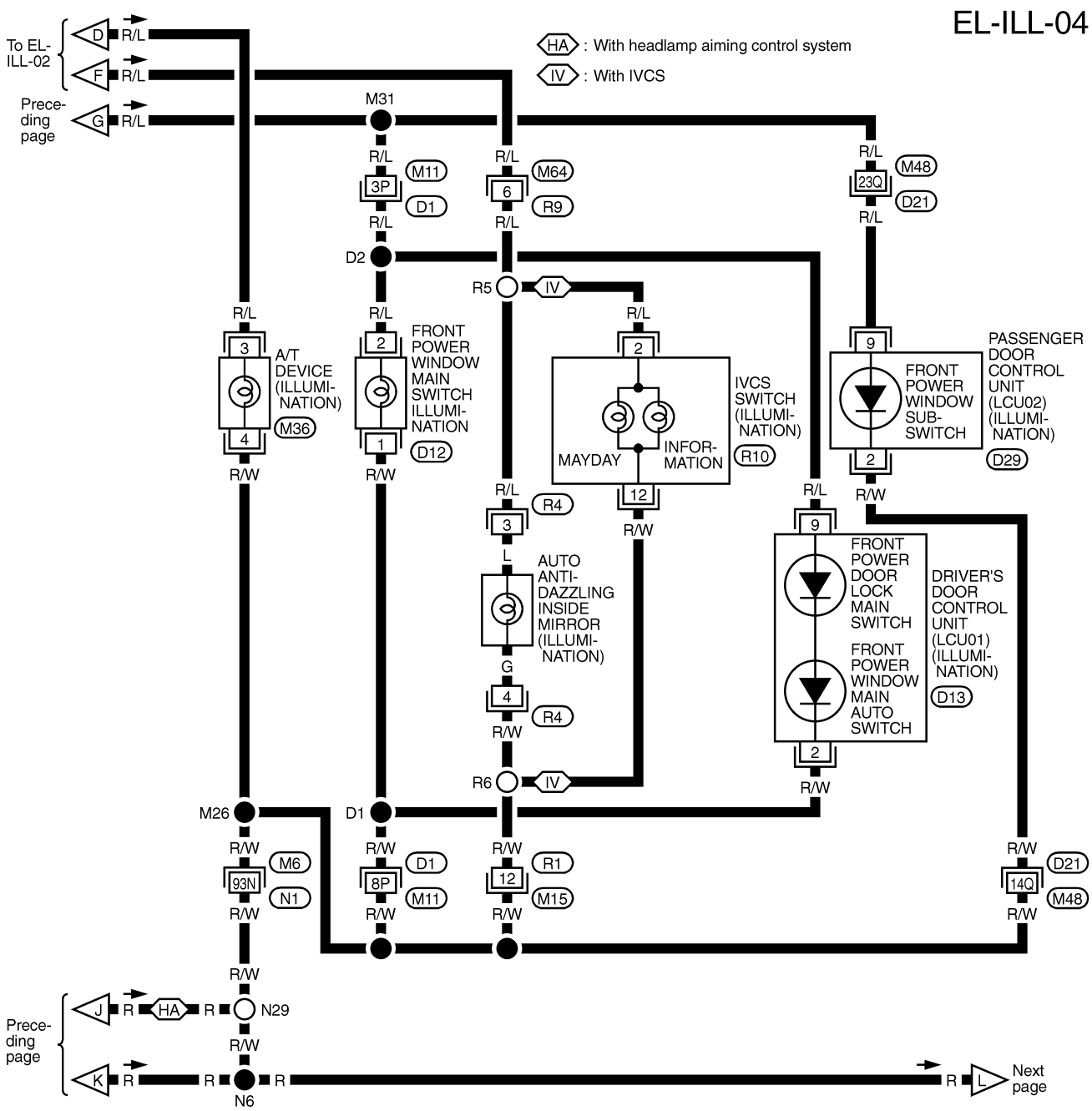


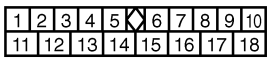



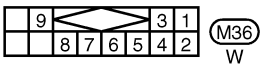

TEL073M

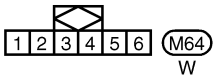
## Wiring Diagram — ILL — (Cont'd)

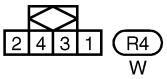
### WITHOUT NAVIGATION SYSTEM

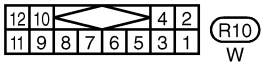




M15 W , D13 W , D29 W


M36 W


M64 W


R4 W


R10 W


D12 W

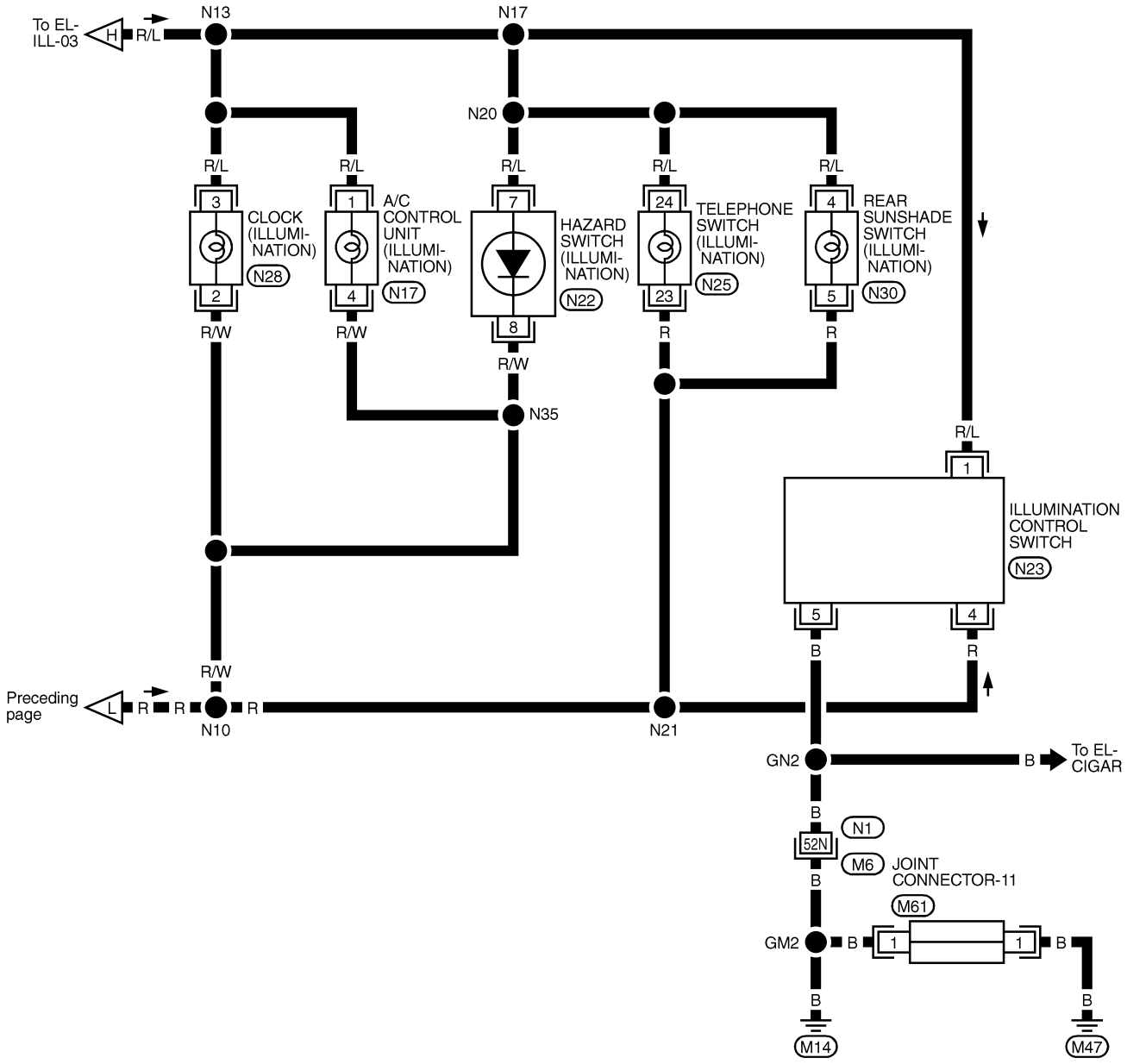
REFER TO THE FOLLOWING.
M6 , D1 , D21 -SUPER MULTIPLE JUNCTION (SMJ)

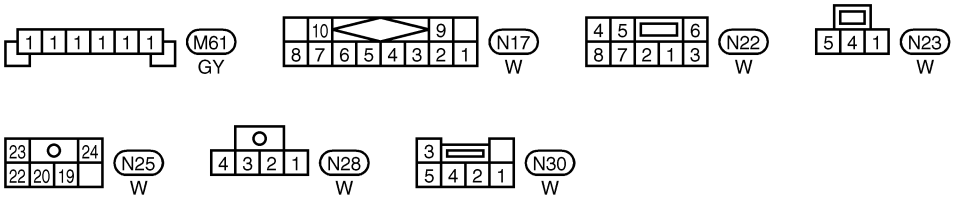
TEL352M

## Wiring Diagram — ILL — (Cont'd)

### WITHOUT NAVIGATION SYSTEM

EL-ILL-05



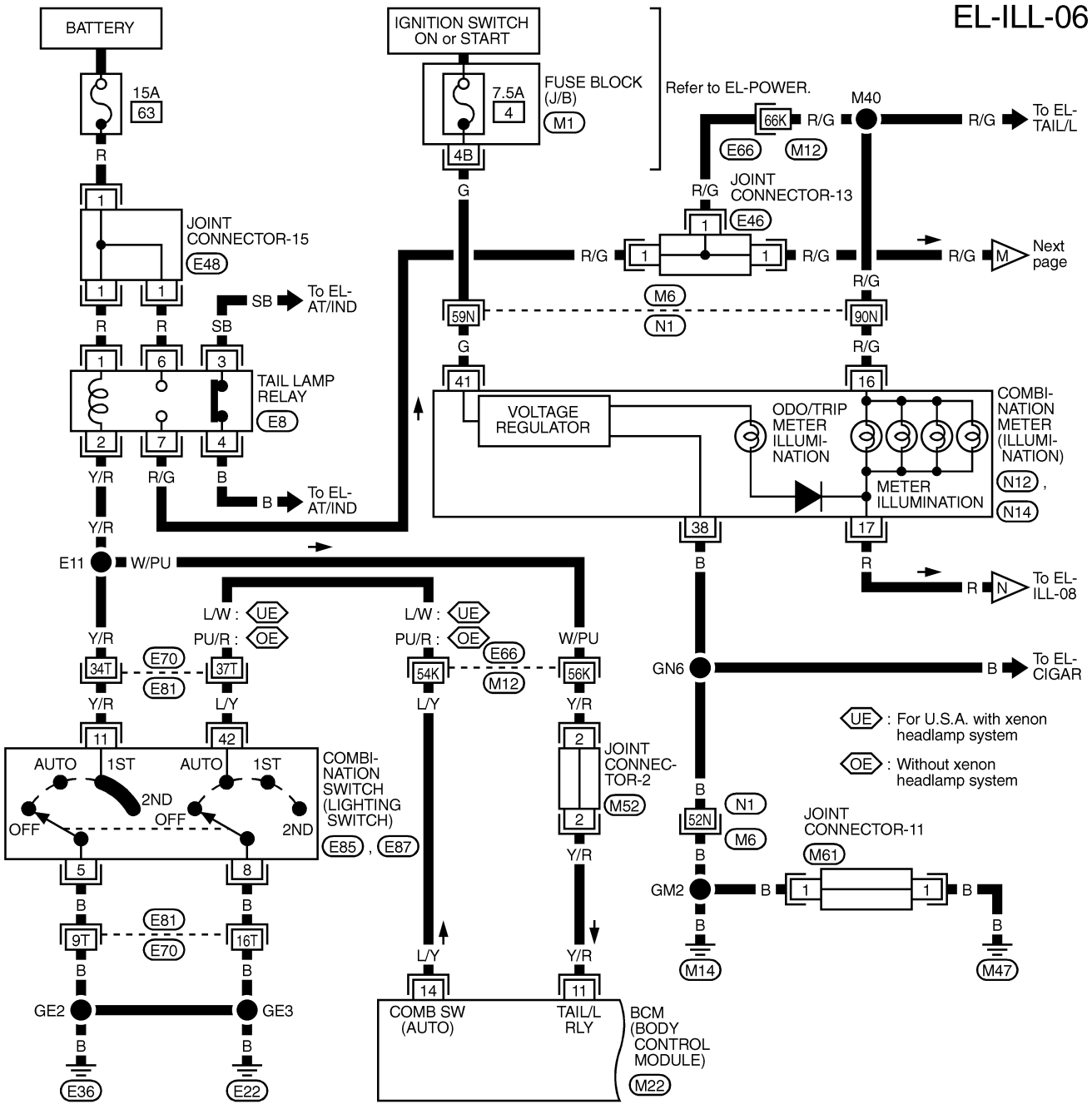



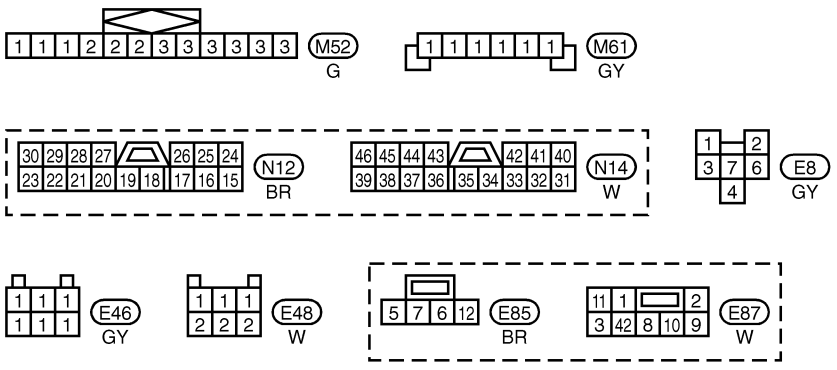

REFER TO THE FOLLOWING.
M6 -SUPER MULTIPLE JUNCTION (SMJ)

TEL075M

## Wiring Diagram — ILL — (Cont'd)

### WITH NAVIGATION SYSTEM




REFER TO THE FOLLOWING.

M6 , E66 , E81 -SUPER MULTIPLE JUNCTION (SMJ)

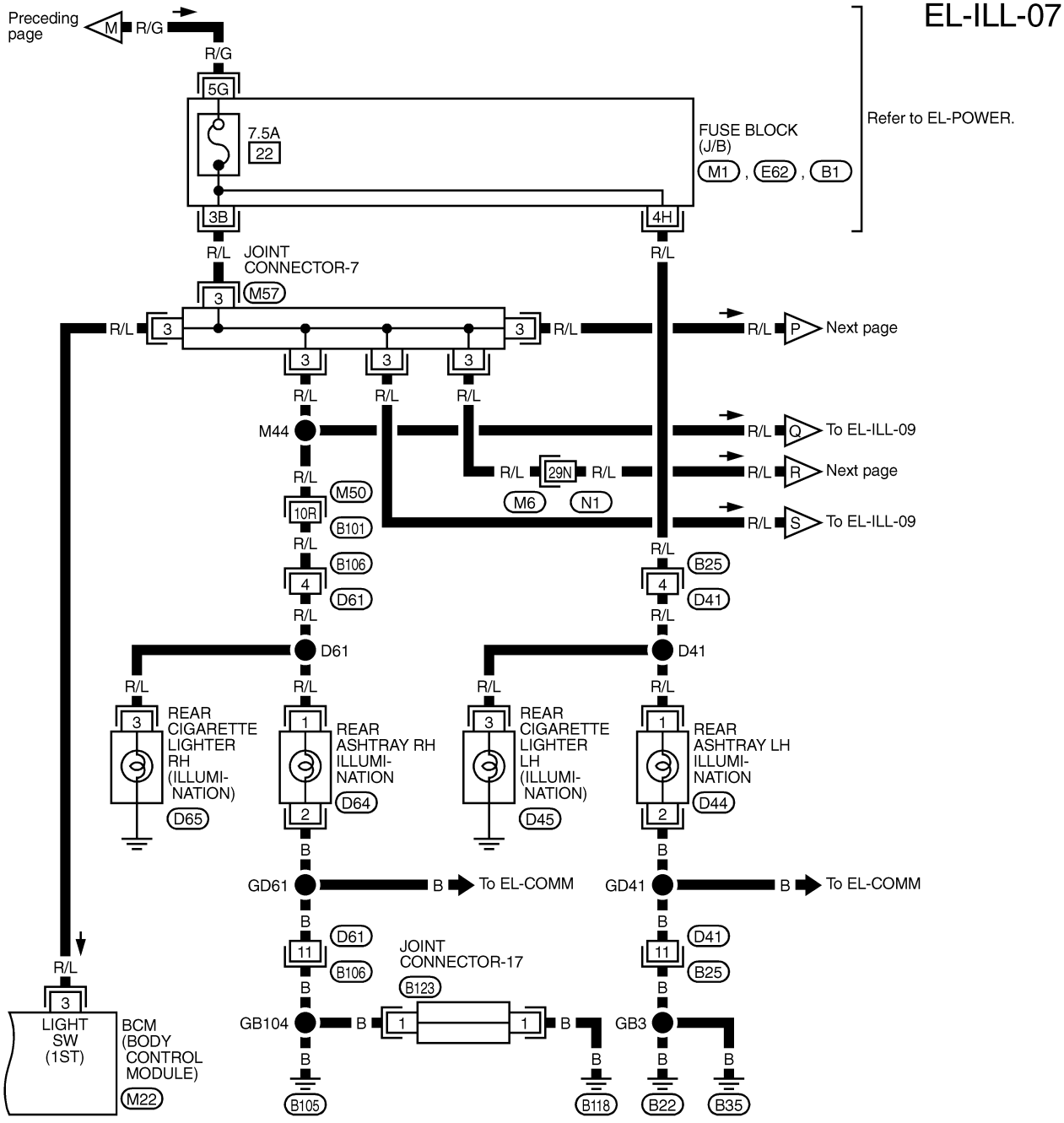
M1 -FUSE BLOCK-JUNCTION BOX (J/B)

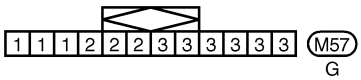
M22 -ELECTRICAL UNITS

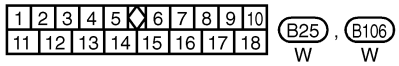
TEL353M

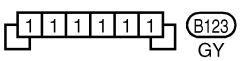
## Wiring Diagram — ILL — (Cont'd)

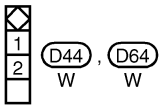
### WITH NAVIGATION SYSTEM

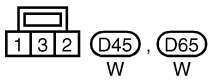


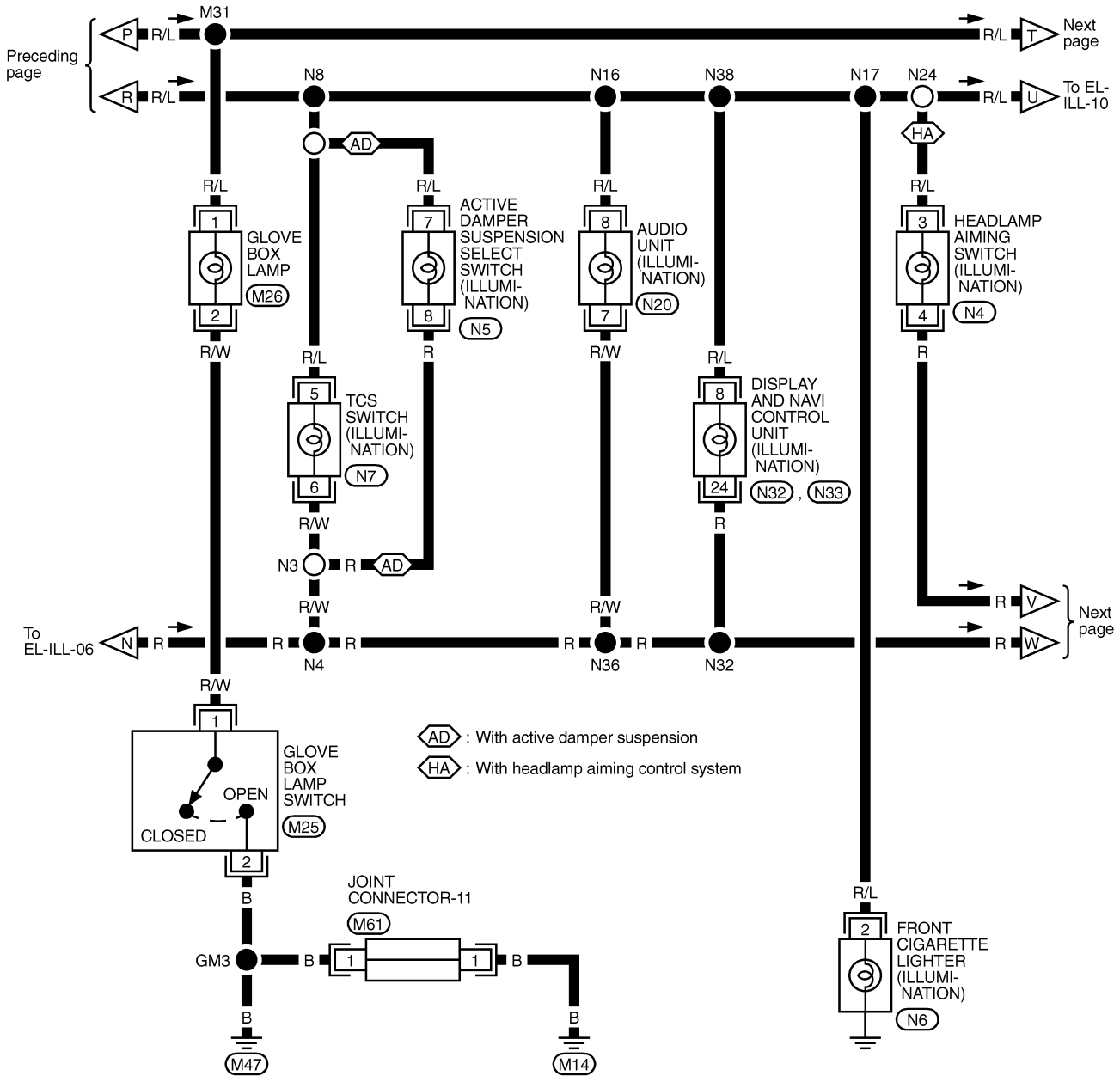

REFER TO THE FOLLOWING.
M6 , M50 -SUPER MULTIPLE JUNCTION (SMJ)
M1 , E62 , B1 -FUSE BLOCK-JUNCTION BOX (J/B)
M22 -ELECTRICAL UNITS

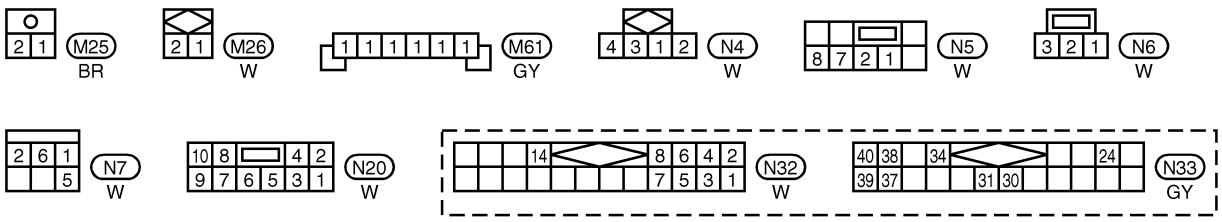
TEL741B

## Wiring Diagram — ILL — (Cont'd)

### WITH NAVIGATION SYSTEM

EL-ILL-08

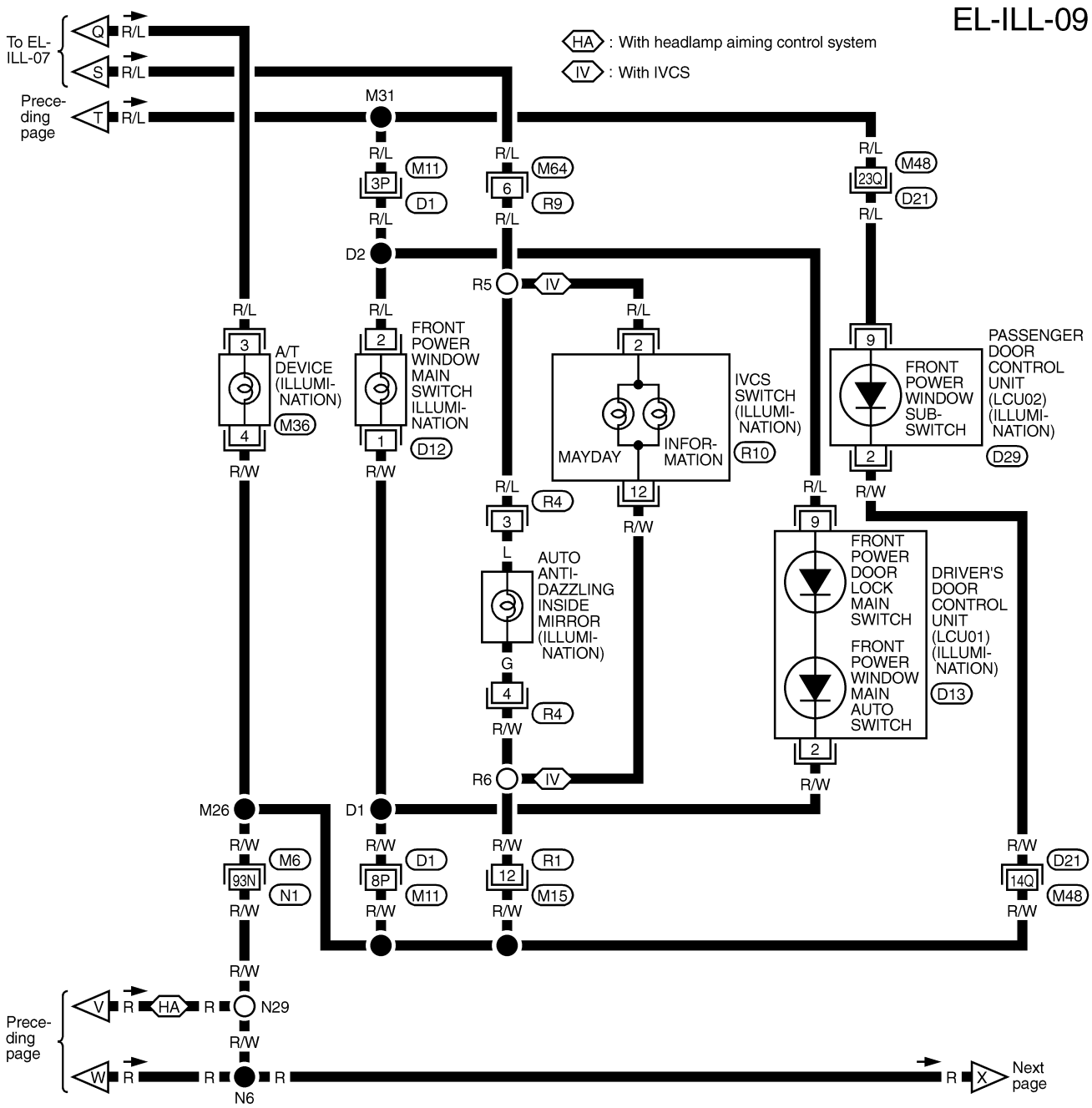


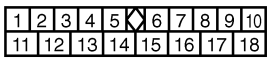




TEL742B

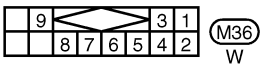
## Wiring Diagram — ILL — (Cont'd)

### WITH NAVIGATION SYSTEM

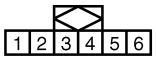


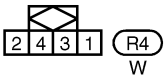
M15 , D13 , D29
W W W



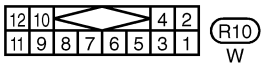
M36
W



M64
W



R4
W



R10
W

D12
W

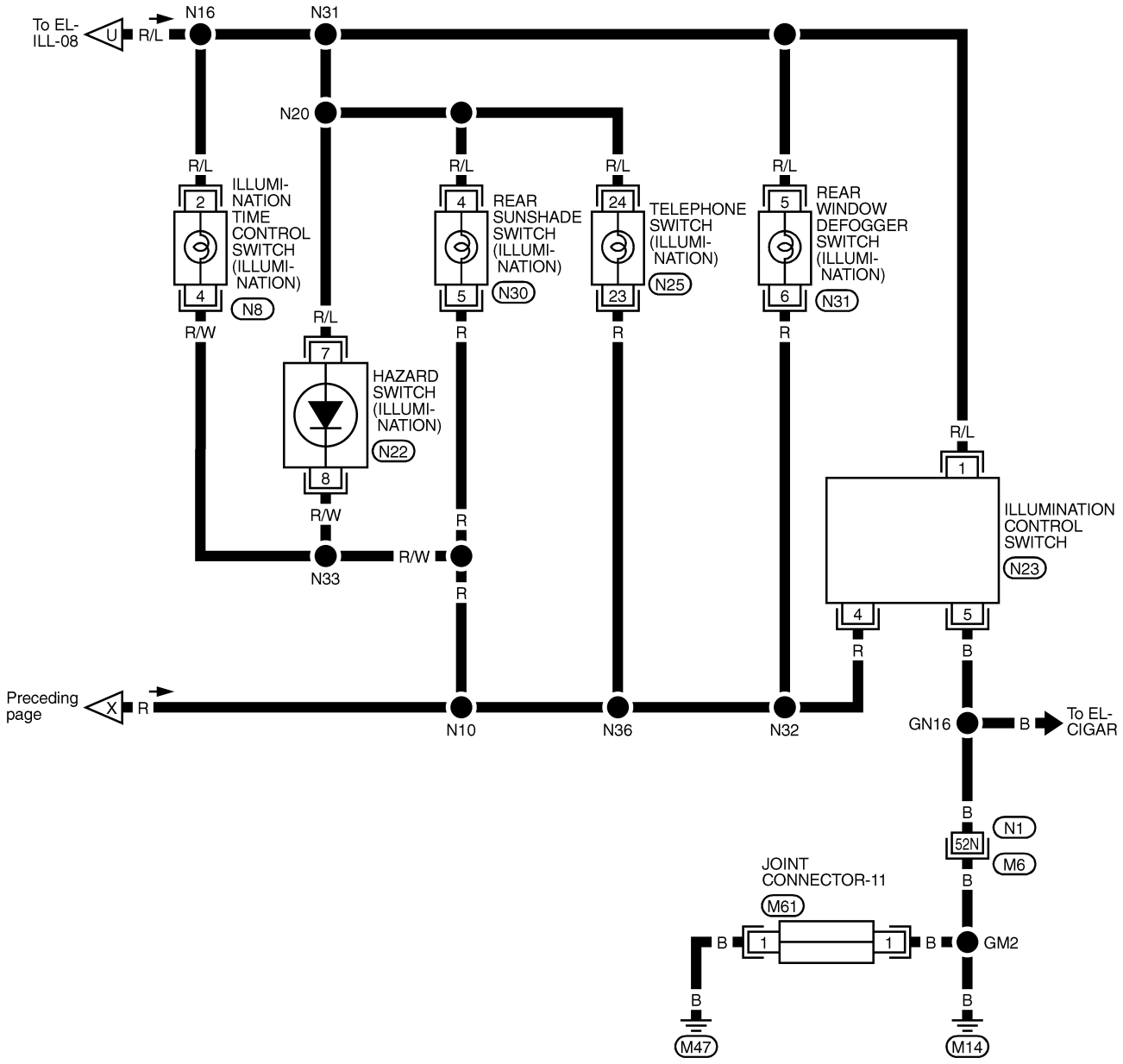
REFER TO THE FOLLOWING.
M6 , D1 , D21 -SUPER MULTIPLE JUNCTION (SMJ)

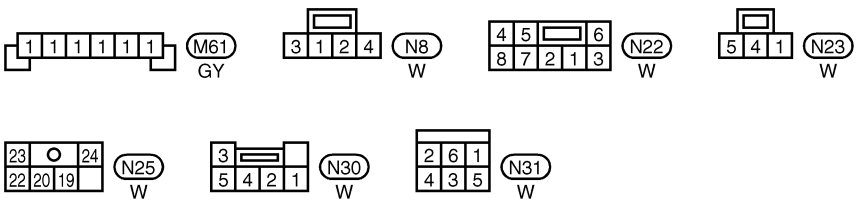
TEL354M

## Wiring Diagram — ILL — (Cont'd)

### WITH NAVIGATION SYSTEM

EL-ILL-10

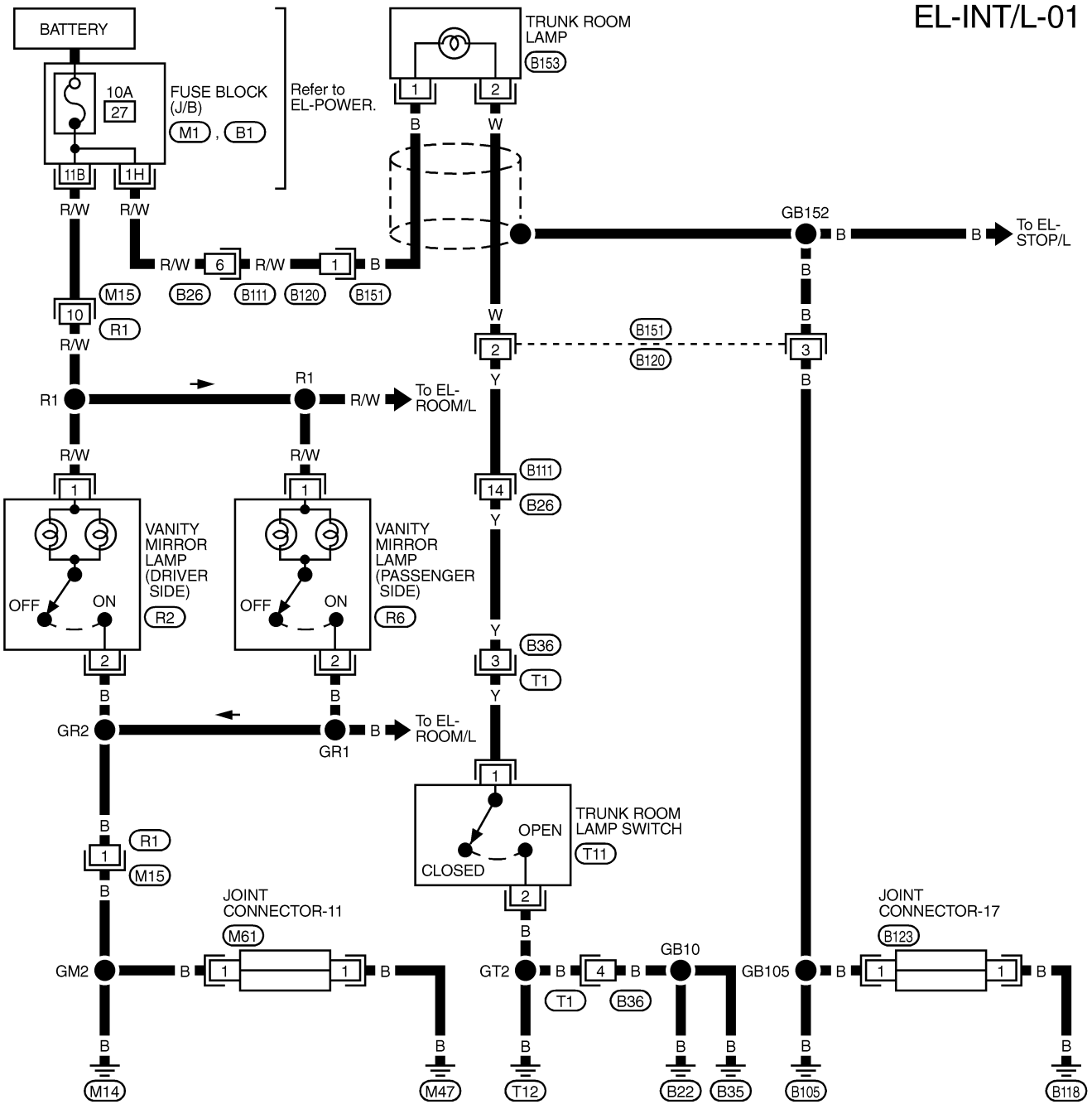


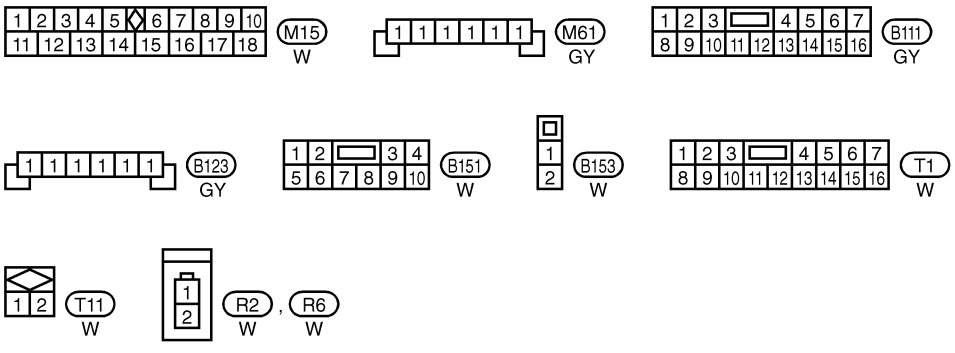




REFER TO THE FOLLOWING.
M6 -SUPER MULTIPLE JUNCTION (SMJ)

TEL744B

## Wiring Diagram — INT/L —

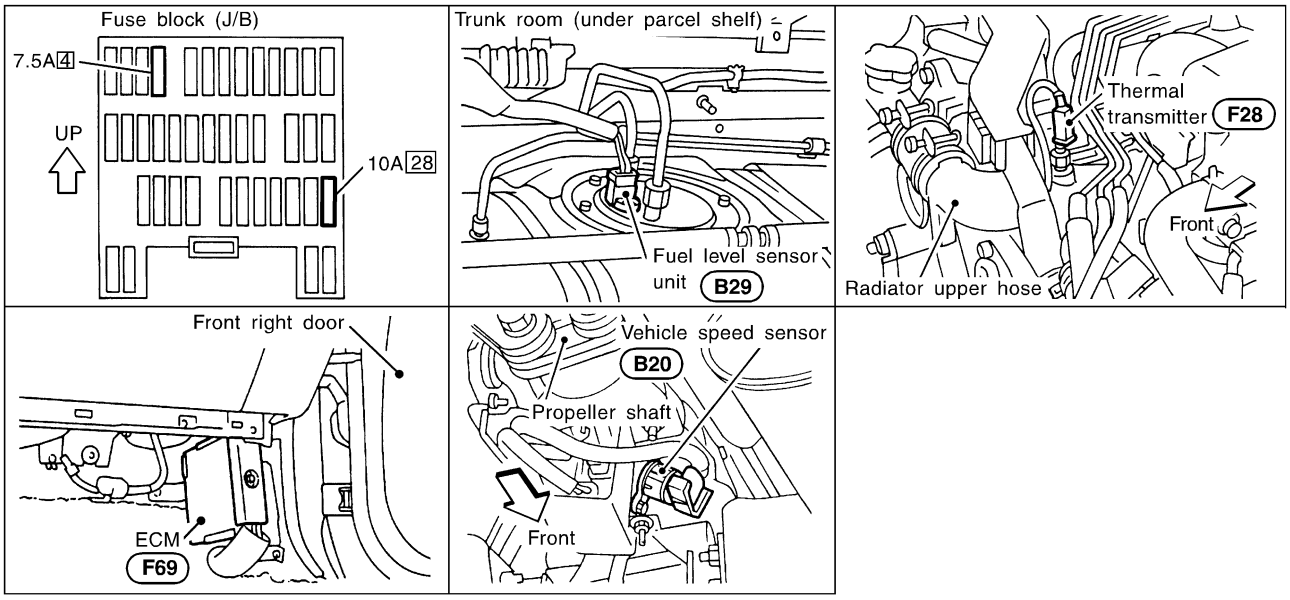



REFER TO THE FOLLOWING.
M1 , B1 -FUSE BLOCK-
JUNCTION BOX (J/B)

TEL082M

## Component Parts and Harness Connector Location



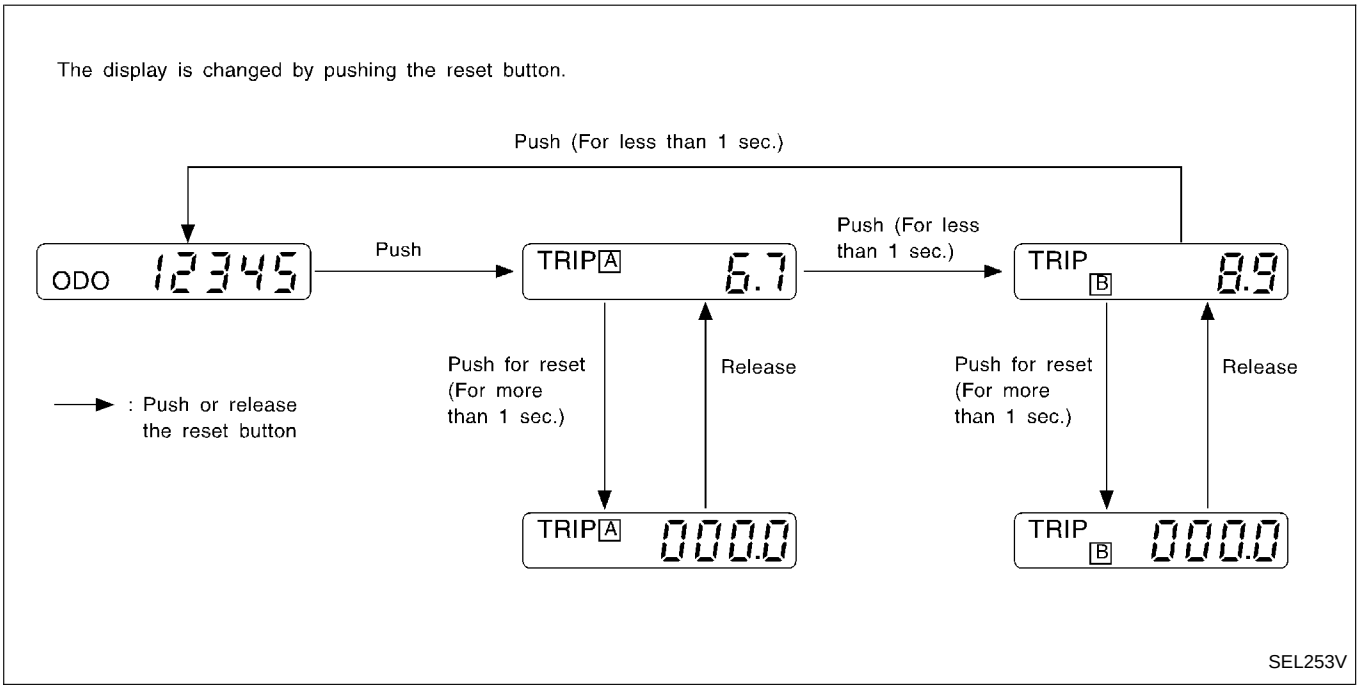

SEL858W

## System Description

### UNIFIED CONTROL METER

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

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




SEL253V

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

## System Description (Cont'd)

With the ignition switch in the ON or START position, power is supplied
- through 7.5A fuse [No. 4 , located in the fuse block (J/B)]
- to combination meter terminal ㊶.

Ground is supplied
- to combination meter terminal ㊴
- through body grounds (M14) and (M47).

### 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 ⑧ for the fuel gauge
- from terminal ⑤ of the fuel level sensor unit
- through terminal ④ of the fuel level sensor unit and
- through ECM terminal (129).

### 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 ⑦ of the combination meter for the water temperature gauge. The needle on the gauge moves from "C" to "H".

### TACHOMETER

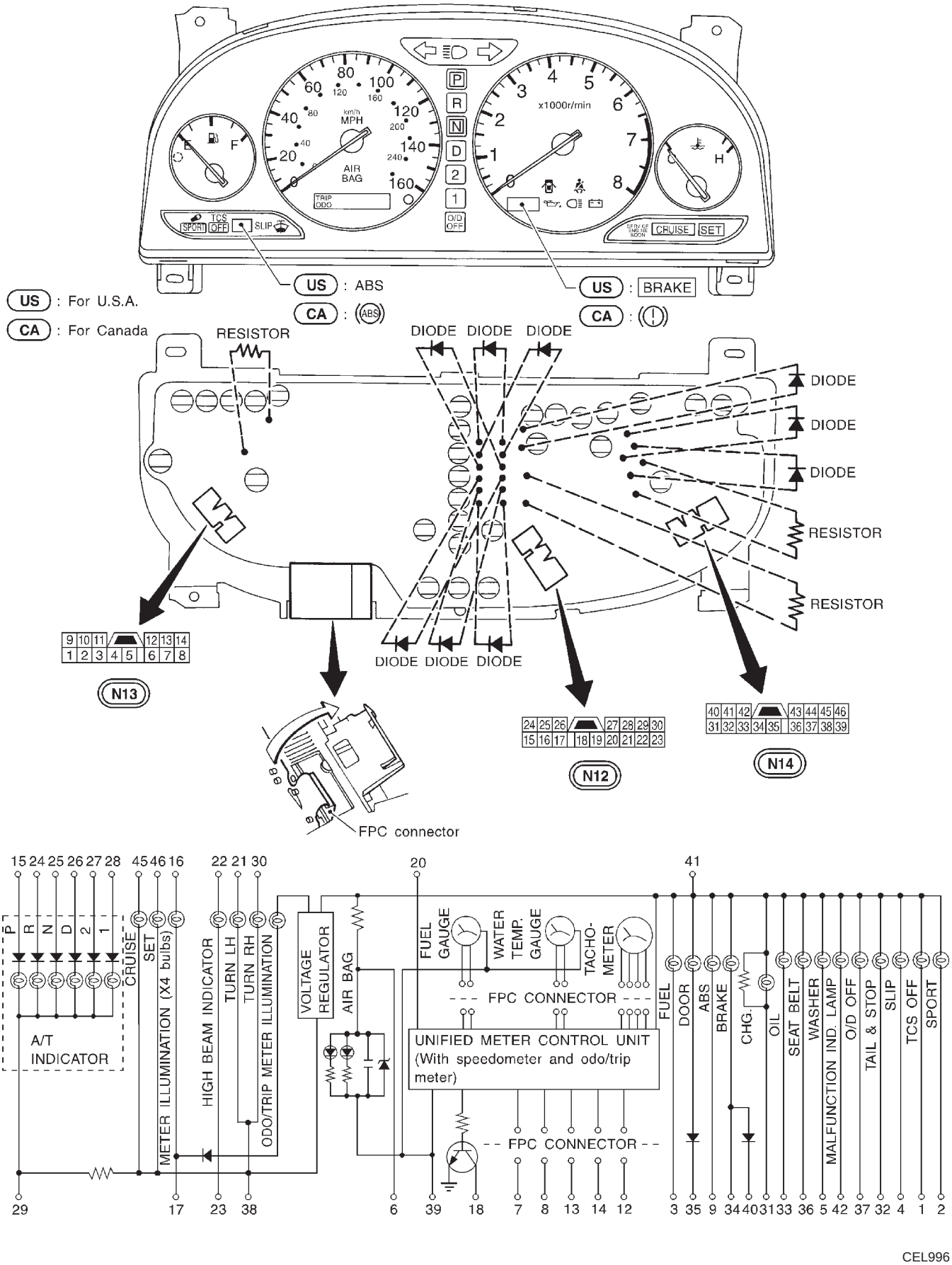
The tachometer indicates engine speed in revolutions per minute (rpm).
The tachometer is regulated by a signal
- from terminal ㊷ of the ECM
- to combination meter terminal ⑬ for the tachometer.

### SPEEDOMETER

The vehicle speed sensor sends a voltage signal to the combination meter for the speedometer.
The voltage signal is sent
- to combination meter terminals ⑫ and ⑭ for the speedometer
- from terminals ① and ② of the vehicle speed sensor.

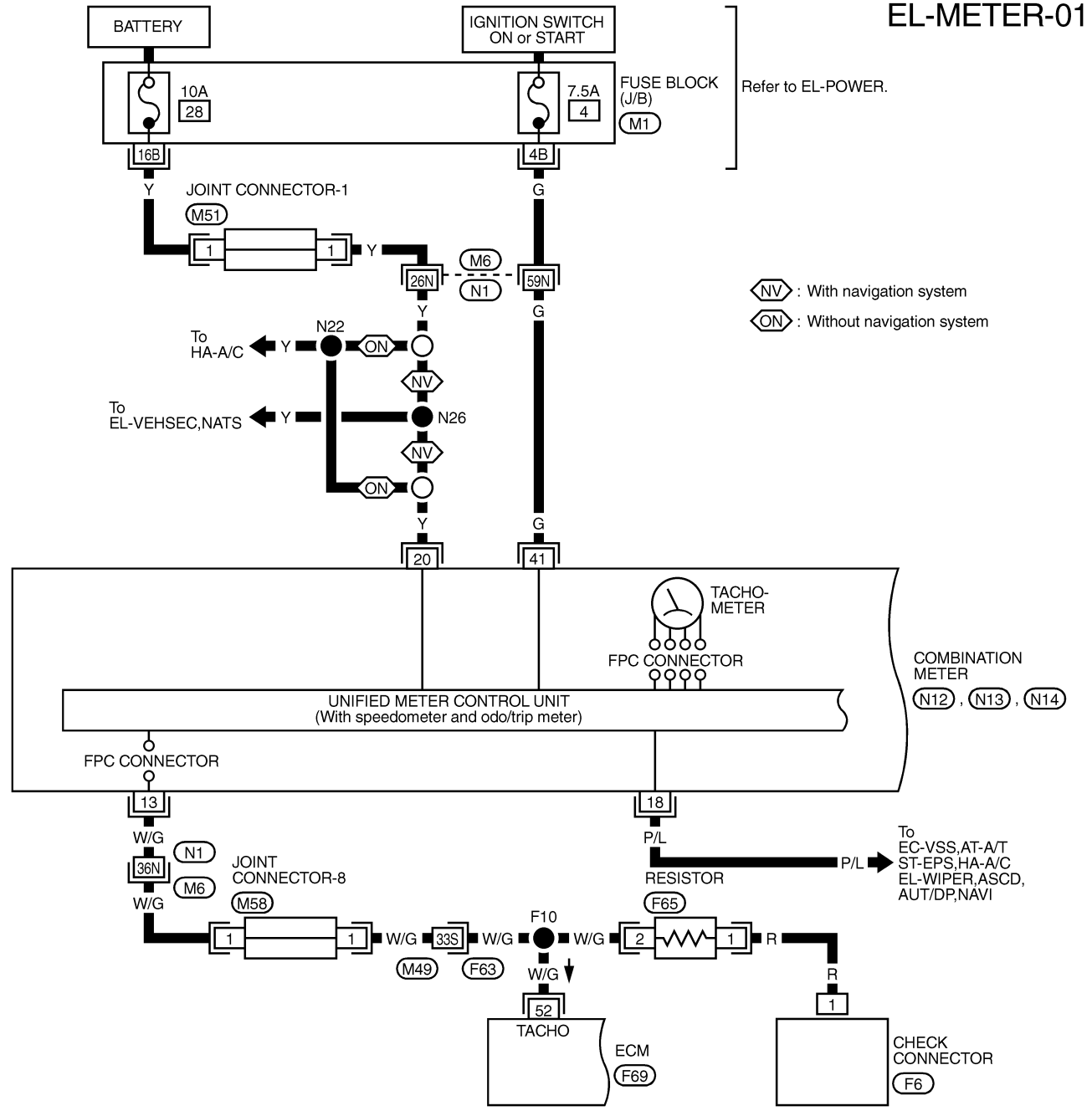
The speedometer converts the voltage into the vehicle speed displayed.

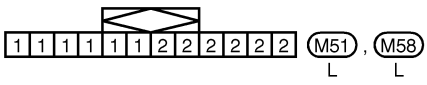
## Combination Meter

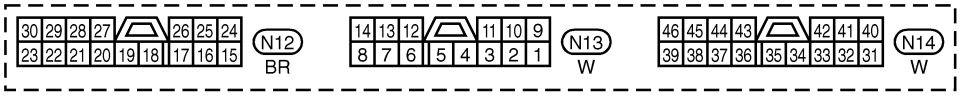


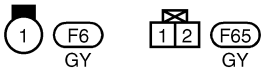

CEL996

## Wiring Diagram — METER —



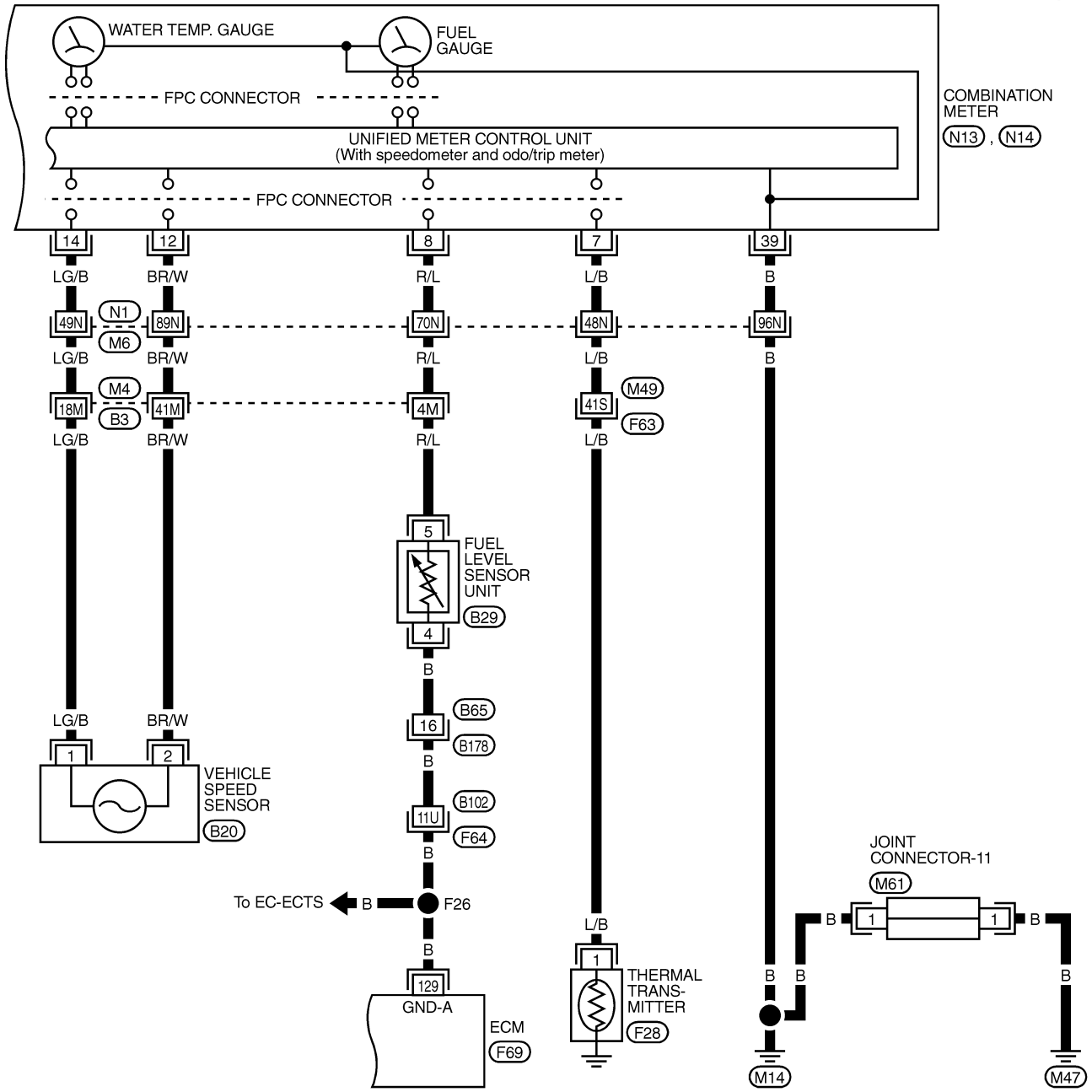



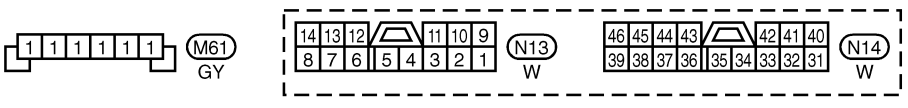

REFER TO THE FOLLOWING.
M6 , F63 -SUPER MULTIPLE JUNCTION (SMJ)
M1 -FUSE BLOCK-JUNCTION BOX (J/B)
F69 -ELECTRICAL UNITS

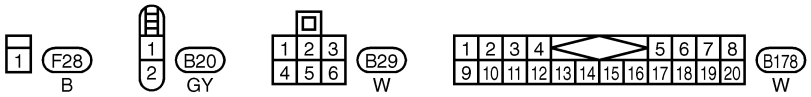
TEL745B

## Wiring Diagram — METER — (Cont'd)

EL-METER-02




REFER TO THE FOLLOWING.
M4 , M6 , F63 , F64
-SUPER MULTIPLE JUNCTION (SMJ)
F69 -ELECTRICAL UNITS

TEL084M

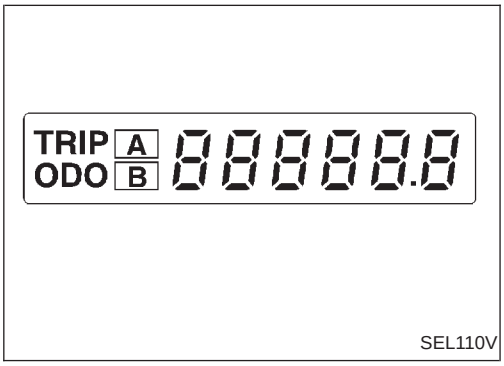
## Meter/Gauge Operation and Odo/Trip Meter Segment Check in Diagnosis Mode

### DIAGNOSIS FUNCTION

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

### HOW TO ALTERNATE DIAGNOSIS MODE

1. Turn ignition switch to ON and change odo/trip meter to “TRIP A” or “TRIP B”.
2. Turn ignition switch to OFF.
3. Turn ignition switch to ON when pushing odo/trip meter switch.
4. Confirm that trip meter indicates “000.0”.
5. Push odo/trip meter switch more than three times within 5 seconds.

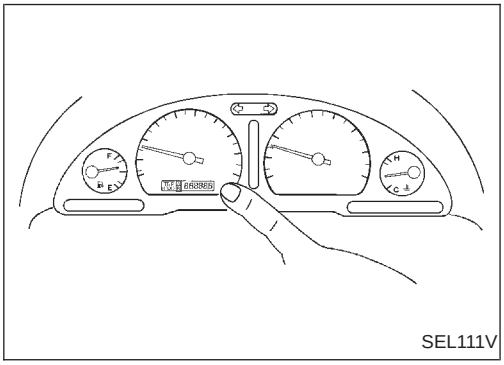


SEL110V

6. All odo/trip meter segments should be turned on.

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

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

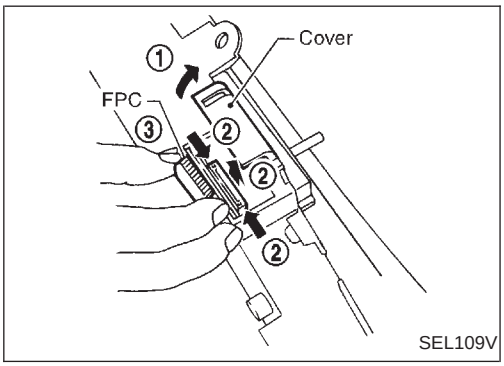

SEL111V

7. Push odo/trip meter switch. Indication of each meter/gauge should be as shown left during pushing odo/trip meter switch if it is no malfunctioning.

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

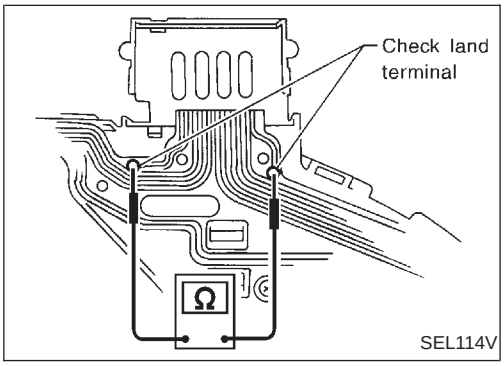
## Flexible Print Circuit (FPC)

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




### DISCONNECT

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

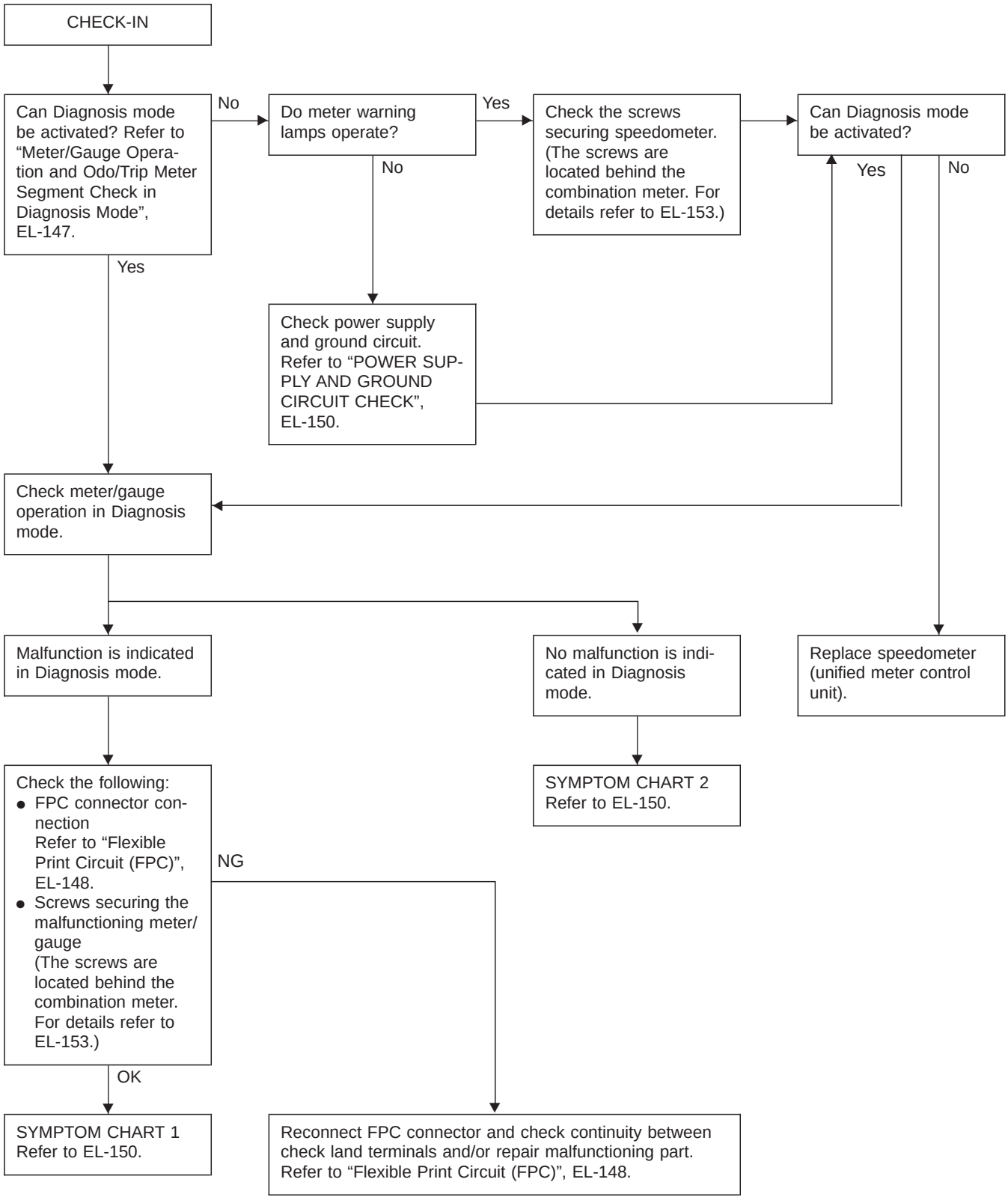



### CONNECT

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

# Trouble Diagnoses

## PRELIMINARY CHECK



## Trouble Diagnoses (Cont'd)

### SYMPTOM CHART

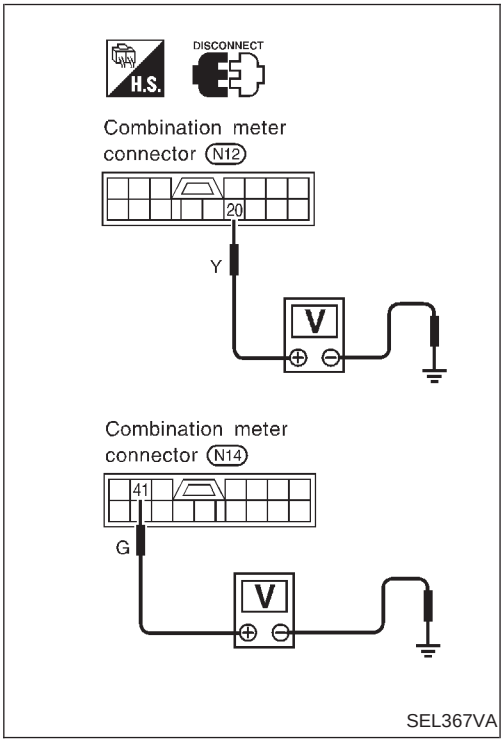
#### Symptom chart 1 (Malfunction is indicated in Diagnosis mode)

| Symptom | Possible causes | Repair order |
|---|---|---|
| Speedometer and/or odo/trip meter indicate(s) malfunction in Diagnosis mode. | • Speedometer (Unified meter control unit) | • Replace speedometer (unified meter control unit). |
| Multiple meter/gauge indicate malfunction in Diagnosis mode. | | |
| One of tachometer/fuel gauge/ water temp. gauge indicates malfunction in Diagnosis mode. | • Meter/Gauge<br>• Speedometer (Unified meter control unit) | 1. Check resistance of meter/gauge indicating malfunction. If the resistance is NG, replace the meter/gauge. Refer to "METER/GAUGE RESISTANCE CHECK", EL-153.<br>2. If the resistance is OK, replace speedometer (unified meter control unit). |

#### Symptom chart 2 (No malfunction is indicated in Diagnosis mode)

| Symptom | Possible causes | Repair order |
|---|---|---|
| Speedometer and odo/trip meter are malfunctioning. | 1. Sensor<br>- Speedometer, Odo/Trip meter<br>2. FPC connector<br>3. Speedometer (Unified meter control unit) | 1. Check vehicle speed sensor.<br>INSPECTION/VEHICLE SPEED SENSOR (Refer to EL-151.)<br>2. Check FPC connector. Refer to "Flexible Print Circuit (FPC)", EL-148.<br>3. Replace speedometer (unified meter control unit). |
| Multiple meter/gauge are malfunctioning. (except speedometer, odo/trip meter) | 1. FPC connector<br>2. Speedometer (Unified meter control unit) | 1. Check FPC connector. Refer to "Flexible Print Circuit (FPC)", EL-148.<br>2. Replace speedometer (unified meter control unit). |
| One of tachometer/fuel gauge/ water temp. gauge is malfunctioning. | 1. Sensor/Engine revolution signal<br>- Tachometer<br>- Fuel gauge<br>- Water temp. gauge<br>2. FPC connector<br>3. Speedometer (Unified meter control unit) | 1. Check the sensor for malfunctioning meter/gauge.<br>INSPECTION/ENGINE REVOLUTION SIGNAL (Refer to EL-152.)<br>INSPECTION/FUEL LEVEL SENSOR UNIT (Refer to EL-152.)<br>INSPECTION/THERMAL TRANSMITTER (Refer to EL-153.)<br>2. Check FPC connector. Refer to "Flexible Print Circuit (FPC)", EL-148.<br>3. Replace speedometer (unified meter control unit). |

**Before starting trouble diagnoses above, perform PRELIMINARY CHECK, EL-149.**




### POWER SUPPLY AND GROUND CIRCUIT CHECK

#### Power supply circuit check

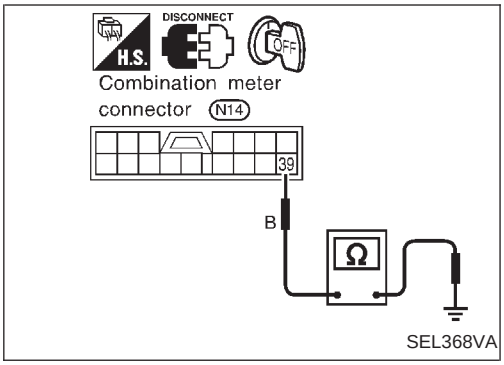
| Terminals | | Ignition switch position | | |
|---|---|---|---|---|
| ⊕ | ⊖ | OFF | ACC | ON |
| ⑳ | Ground | Battery voltage | Battery voltage | Battery voltage |
| ㊶ | Ground | 0V | 0V | Battery voltage |

If NG, check the following.

- 7.5A fuse [No. 4, located in fuse block (J/B)]
- 10A fuse [No. 28, located in fuse block (J/B)]
- Harness for open or short between fuse and combination meter

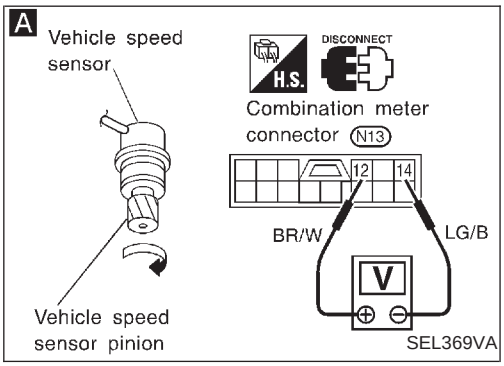
# Trouble Diagnoses (Cont'd)

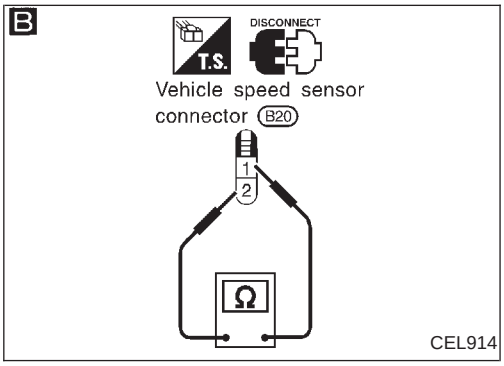
## Ground circuit check




| Terminals | Continuity |
|---|---|
| ㊴ - Ground | Yes |

## INSPECTION/VEHICLE SPEED SENSOR




A

**CHECK VEHICLE SPEED SENSOR OUTPUT.**
1. Remove vehicle speed sensor from transmission.
2. Check voltage between combination meter terminals ⑫ and ⑭ while quickly turning speed sensor pinion.
   **Voltage: Approx. 0.5V**

OK → Vehicle speed sensor is OK.

NG ↓

B

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

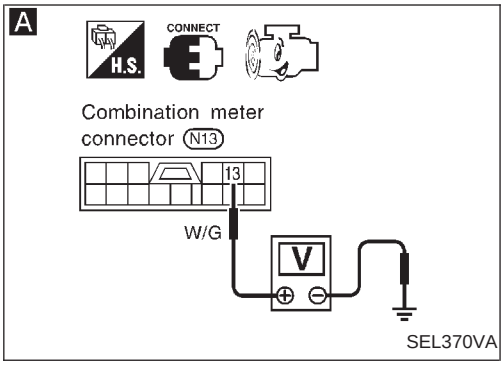
NG → Replace vehicle speed sensor.

OK ↓

Check harness for open or short between speedometer and vehicle speed sensor.

# Trouble Diagnoses (Cont'd)

## INSPECTION/ENGINE REVOLUTION SIGNAL




A

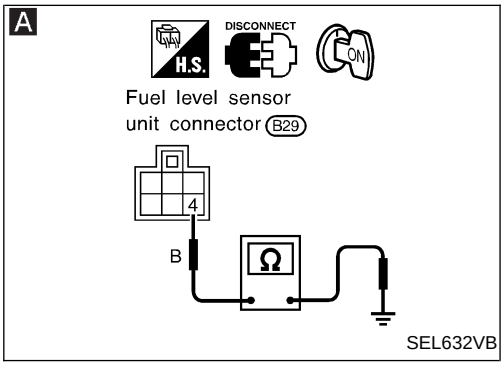
**CHECK ECM OUTPUT.**
1. Start engine.
2. Check voltage between combination meter terminal ⑬ and ground at idle and 2,000 rpm.
   **Higher rpm = Higher voltage**
   **Lower rpm = Lower voltage**
   **Voltage should change with rpm.**

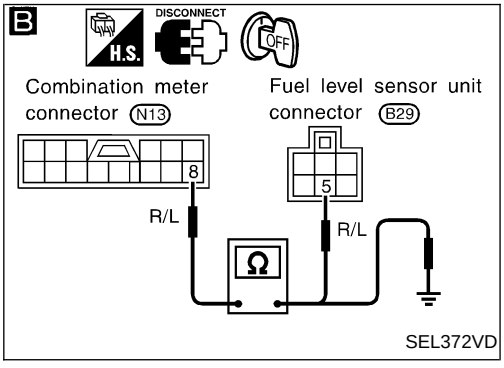
OK → Engine revolution signal is OK.

NG ↓

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

## INSPECTION/FUEL LEVEL SENSOR UNIT




A

**CHECK GROUND CIRCUIT FOR FUEL LEVEL SENSOR UNIT.**
Check harness continuity between fuel level sensor unit terminal ④ and ground.
**Continuity should exist.**

NG → Check harness for open or short between ECM and fuel level sensor unit.

OK ↓

CHECK FUEL LEVEL SENSOR UNIT.
Refer to "FUEL LEVEL SENSOR UNIT CHECK" (EL-154).

NG → Repair or replace.
Refer to FE section.
("FUEL SYSTEM")

OK ↓

B

**CHECK HARNESS FOR OPEN OR SHORT.**
1. Disconnect combination meter connector and fuel level sensor unit connector.
2. Check continuity between combination meter terminal ⑧ and fuel level sensor unit terminal ⑤ .
**Continuity should exist.**
3. Check continuity between combination meter terminal ⑧ and ground.
**Continuity should not exist.**

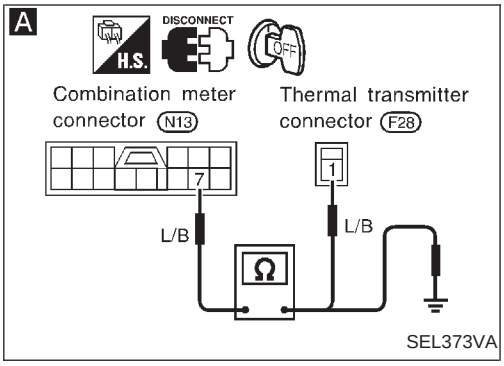
NG → Repair harness or connector.

OK ↓

Fuel level sensor unit is OK.

## Trouble Diagnoses (Cont'd)

### INSPECTION/THERMAL TRANSMITTER




CHECK THERMAL TRANSMITTER.
Refer to "THERMAL TRANSMITTER CHECK" (EL-154).

NG → Repair or replace.

OK ↓

A

**CHECK HARNESS FOR OPEN OR SHORT.**

1. Disconnect combination meter connector and thermal transmitter connector.
2. Check continuity between combination meter terminal ⑦ and thermal transmitter terminal ① .

**Continuity should exist.**

3. Check continuity between combination meter terminal ⑦ and ground.

**Continuity should not exist.**

NG → Repair harness or connector.

OK ↓

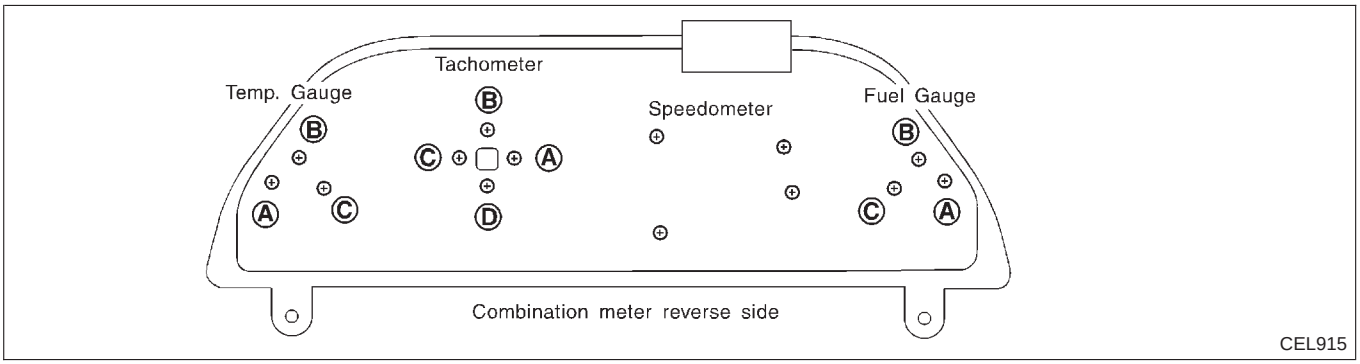
Thermal transmitter is OK.

## Electrical Components Inspection

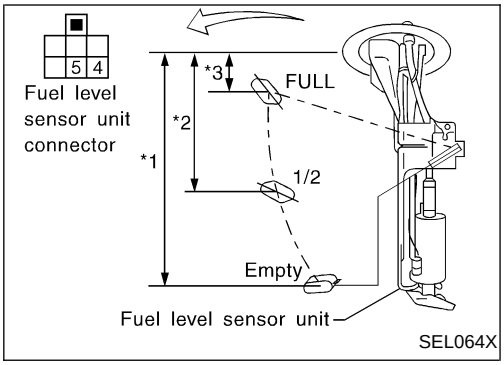
### METER/GAUGE RESISTANCE CHECK

1. Disconnect FPC connector. Refer to "Flexible Print Circuit (FPC)" (EL-148).
2. Check resistance between installation screws of meter/gauge after removing meter/gauge.

| Screws | | Resistance |
|---|---|---|
| Tachometer | Fuel/Temp. gauge | Ω |
| A - C | A - C | Approx. 70 - Approx. 140 |
| B - D | B - C | Approx. 90 - Approx. 170 |



## Electrical Components Inspection (Cont'd)



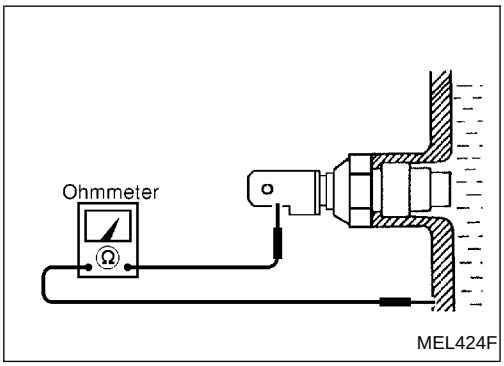

### FUEL LEVEL SENSOR UNIT CHECK

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

Check the resistance between terminals ⑤ and ④.

| Ohmmeter (+) | Ohmmeter (−) | | Float position mm (in) | | Resistance value Ω |
|---|---|---|---|---|---|
| ⑤ | ④ | *3 | Full | 70 (2.76) | Approx. 4 - 6 |
| | | *2 | 1/2 | 189 (7.44) | 31 - 34 |
| | | *1 | Empty | 308 (12.13) | 80 - 83 |

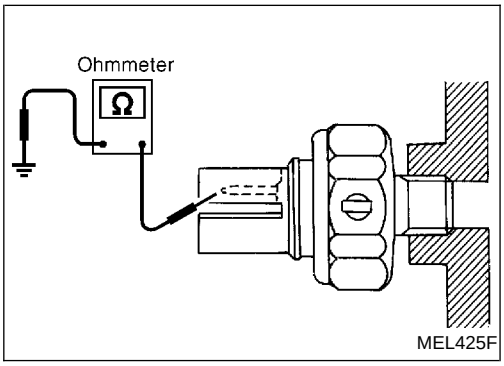
*1 and *3: When float rod is in contact with stopper.




### THERMAL TRANSMITTER CHECK

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

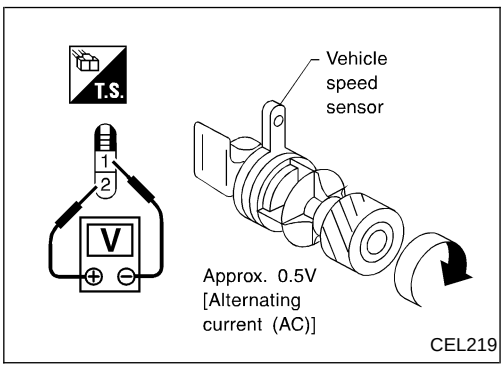
| Water temperature | Resistance |
|---|---|
| 60°C (140°F) | Approx. 170 - 210Ω |
| 100°C (212°F) | Approx. 47 - 53Ω |




### OIL PRESSURE SWITCH CHECK

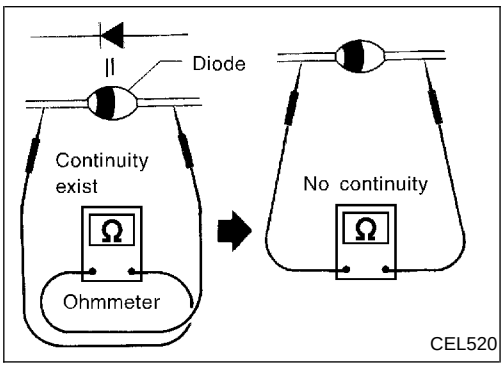
| | Oil pressure kPa (kg/cm$^2$, psi) | Continuity |
|---|---|---|
| Engine start | More than 20 - 29 (0.2 - 0.3, 3 - 4) | NO |
| Engine stop | Less than 20 - 29 (0.2 - 0.3, 3 - 4) | YES |

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




### VEHICLE SPEED SENSOR SIGNAL CHECK

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

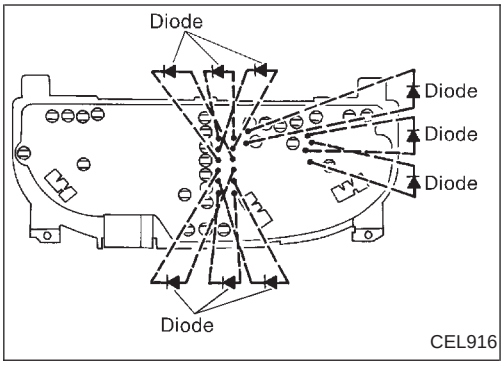



### DIODE CHECK

- 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.**

## Electrical Components Inspection (Cont'd)




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

## System Description

With the ignition switch in the ON or START position, power is supplied
- through 7.5A fuse [No. 4 , located in the fuse block (J/B)]
- to combination meter terminal ㊶ .

Ground is supplied
- to combination meter terminal ㊴ and
- A/T device (OD control switch) terminal ②
- through body grounds (M14) and (M47).

Ground is supplied
- to fuel level sensor unit terminal ④
- through ECM terminal (129).

Ground is supplied
- seat belt buckle switch terminal ⑭
- through body grounds (B22) and (B35).

Ground is supplied
- to brake fluid level switch terminal ② and
- washer level switch terminal ②
- through body grounds (E22) and (E36).

### AIR BAG WARNING LAMP

During prove out or when an air bag malfunction occurs, the ground path is interrupted
- from the air bag diagnosis sensor unit terminal ⑮
- to combination meter terminal ⑥ .

Ground is supplied
- through combination meter terminal ㊴ .

With power and ground supplied, the air bag warning lamp (LEDs) illuminate.
For further information, refer to RS section (“TROUBLE DIAGNOSES”).

### DOOR WARNING LAMP

Door warning lamp is controlled by BCM.
When one of the passenger door is opened, ground is supplied to the BCM terminals ㉘ , ㉜ , ㉝ or ㊲ .
And then ground is supplied
- to combination meter terminal ㉟
- from BCM terminal (111).

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

### ACTIVE DAMPER INDICATOR LAMP (SPORT)

When an active damper suspension system malfunction occurs, or “SPORT” mode is selected by active damper suspension select switch, ground is supplied
- to combination meter terminal ②
- from active damper suspension control unit terminal ⑯ .

With power and ground supplied, the active damper indicator lamp (SPORT) blinks or illuminates.
For further information, refer to FA section (“TROUBLE DIAGNOSES FOR ACTIVE DAMPER SUSPENSION”).

### LOW OIL PRESSURE WARNING LAMP

Low oil pressure causes oil pressure switch terminal ① to provide ground to combination meter terminal ㉝ .
With power and ground supplied, the low oil pressure warning lamp illuminates.

### CHARGE WARNING LAMP

During prove out or when a alternator malfunction occurs, ground is supplied
- to combination meter terminals ㉛ and ㊵
- from alternator terminal ③ .

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

## System Description (Cont'd)

### LOW WASHER LEVEL WARNING LAMP

When the washer fluid level is low, ground is supplied
- to combination meter terminal ⑤
- from washer fluid level switch terminal ① .

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

### OD OFF WARNING LAMP

When an A/T system malfunction occurs, or OD control switch is in OFF position, ground is supplied
- to combination meter terminal ㊲
- from TCM (transmission control module) terminal ③ .

With power and ground supplied, the OD warning lamp blinks or illuminates.
For further information, refer to AT section ("TROUBLE DIAGNOSES").

### LOW FUEL LEVEL WARNING LAMP

The amount of fuel in the fuel tank is determined by the fuel level sensor in the fuel tank. A signal is sent from fuel level sensor unit terminal ⑥ to combination meter terminal ③ . The fuel level sensor will illuminate the low fuel level warning lamp when the fuel level is low.
With power and ground supplied, the low fuel level warning lamp illuminates.

### ABS WARNING LAMP

When an ABS malfunction occurs, ground is supplied
- to combination meter terminal ⑨
- from ABS/TCS control unit terminal ㉒ .

With power and ground supplied, the ABS warning lamp illuminates.
For further information, refer to BR section ("TROUBLE DIAGNOSES").

### TCS OFF WARNING LAMP

When TCS off switch is in OFF position, or an ABS/TCS malfunction occurs, ground is supplied
- to combination meter terminal ①
- from ABS/TCS control unit terminal ⑪ .

With power and ground supplied, the TCS off warning lamp illuminates.
For further information, refer to BR section ("TROUBLE DIAGNOSES").

### SLIP WARNING LAMP

When TCS is in operation, or a TCS malfunction occurs, ground is supplied
- to combination meter terminal ④
- from ABS/TCS control unit terminal ⑩ .

With power and ground supplied, the slip warning lamp illuminates.
For further information, refer to BR section ("TROUBLE DIAGNOSES").

### SEAT BELT WARNING LAMP

When the driver's seat belt is unfastened, ground is supplied
- to air bag diagnoses sensor unit terminal ㉒
- from seat belt buckle switch terminal ㊶ .

And then ground is supplied
- to combination meter terminal ㊱
- from air bag diagnoses sensor unit terminal ⑯ .

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

### BRAKE WARNING LAMP

When the parking brake is applied, or the brake fluid level is low, ground is supplied
- to combination meter terminal ㉞
- from parking brake switch terminal ① , or
- brake fluid level switch terminal ① .

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

### TAIL AND STOP WARNING LAMP

When one of the stop lamp bulbs is burned out with the stop lamp switch depressed, or one of the tail lamp bulbs is burned out with the lighting switch in the 1ST or 2ND position, ground is supplied.
- to combination meter terminal ㉜
- from stop and tail lamp sensor terminal ③ .

With power and ground is supplied, the tail and stop lamp warning lamp illuminates.

## System Description (Cont'd)

### MALFUNCTION INDICATOR LAMP

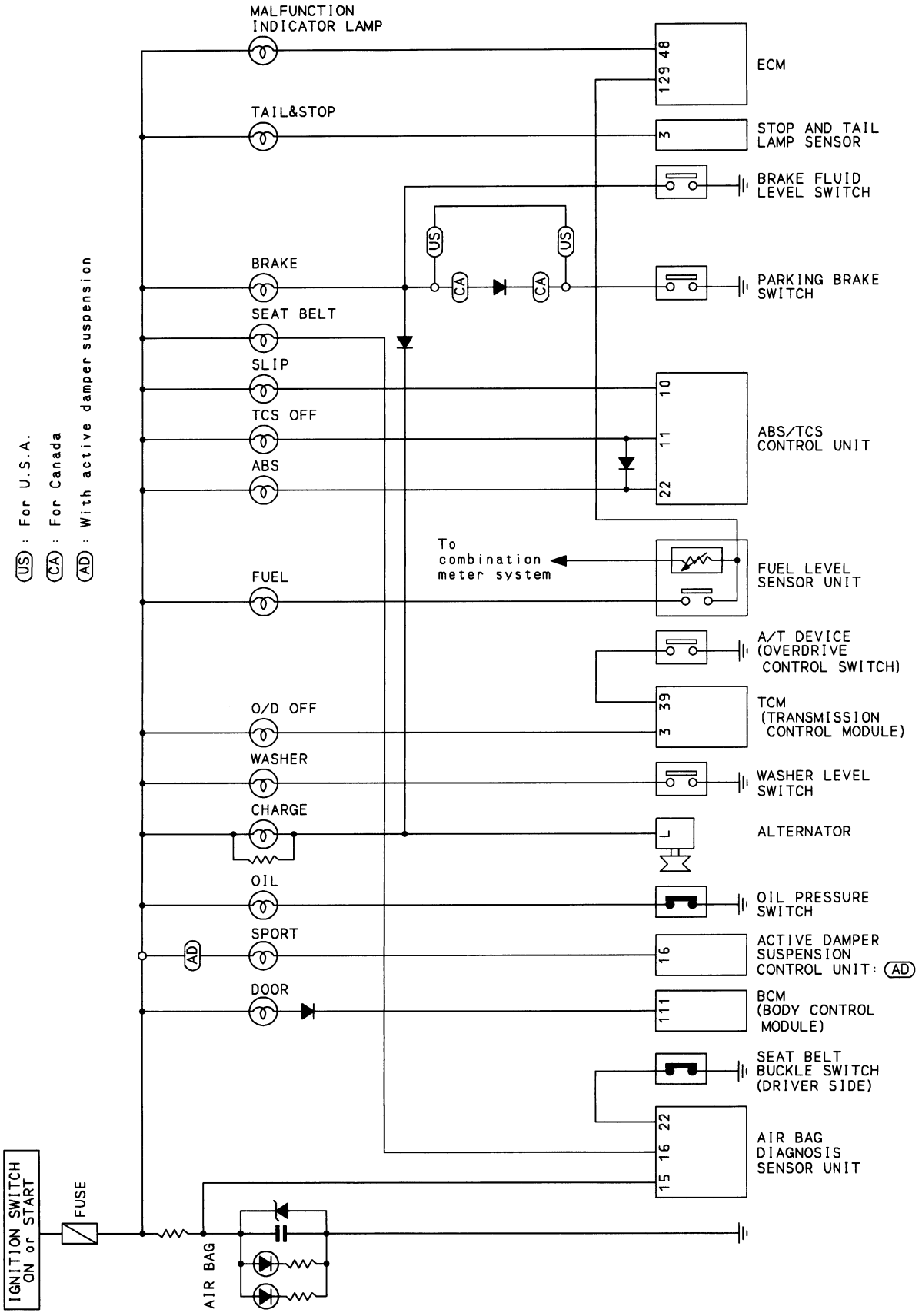
During prove out or when an engine control malfunction occurs, ground is supplied

- to combination meter terminal ㊷
- from ECM terminal ㊽.

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

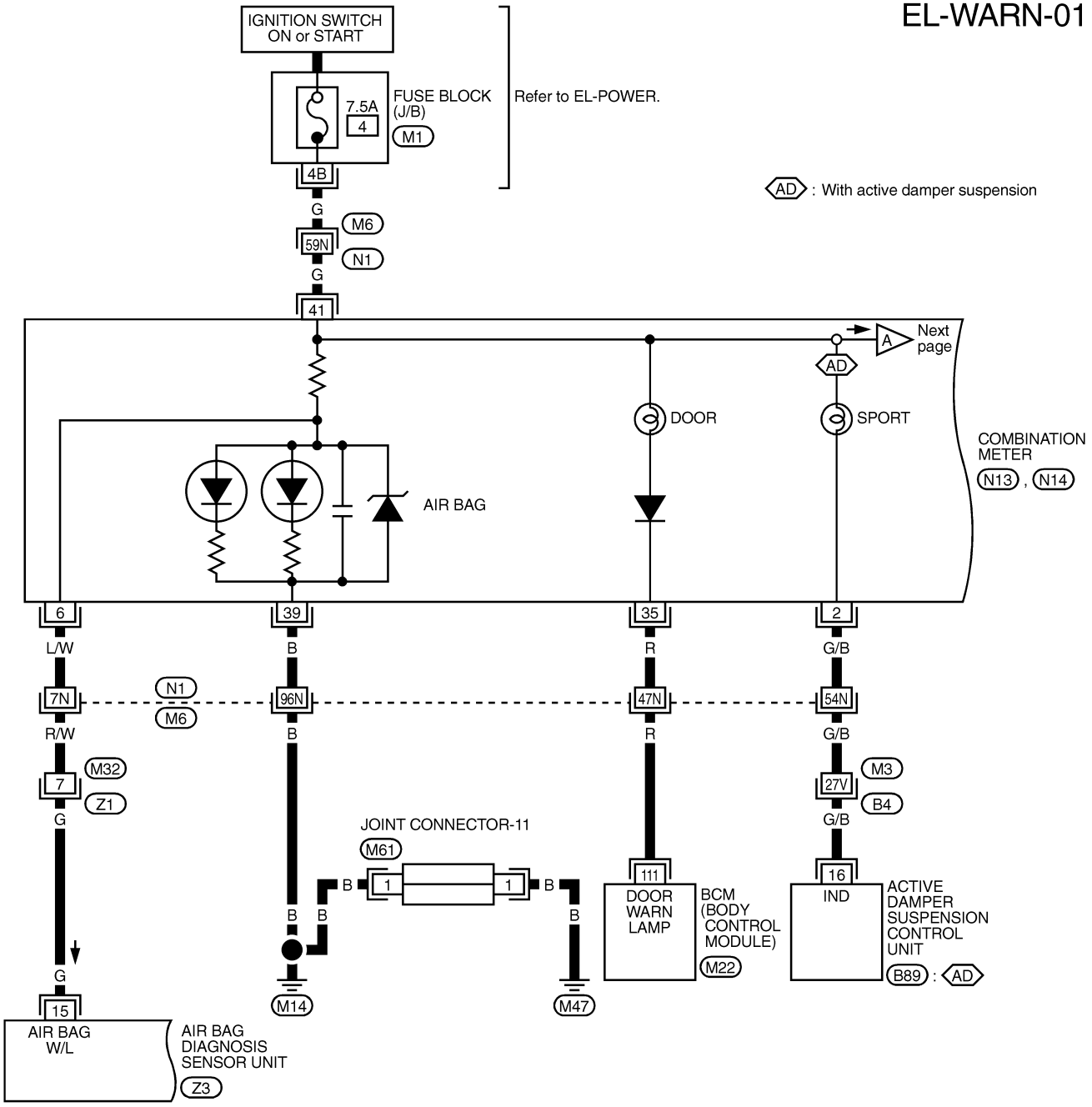
For further information, refer to EC section ["Malfunction Indicator Lamp (MIL)", "ON BOARD DIAGNOSTIC SYSTEM DESCRIPTION"].

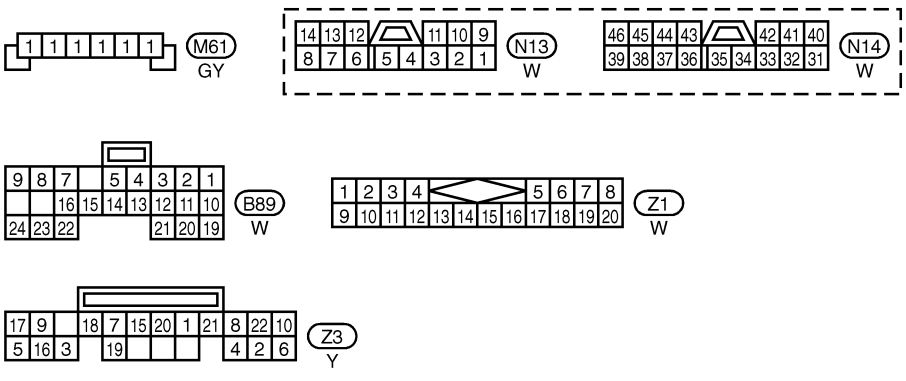
## Schematic




TEL085M

## Wiring Diagram — WARN —




REFER TO THE FOLLOWING.

M6 , B4 -SUPER MULTIPLE JUNCTION (SMJ)

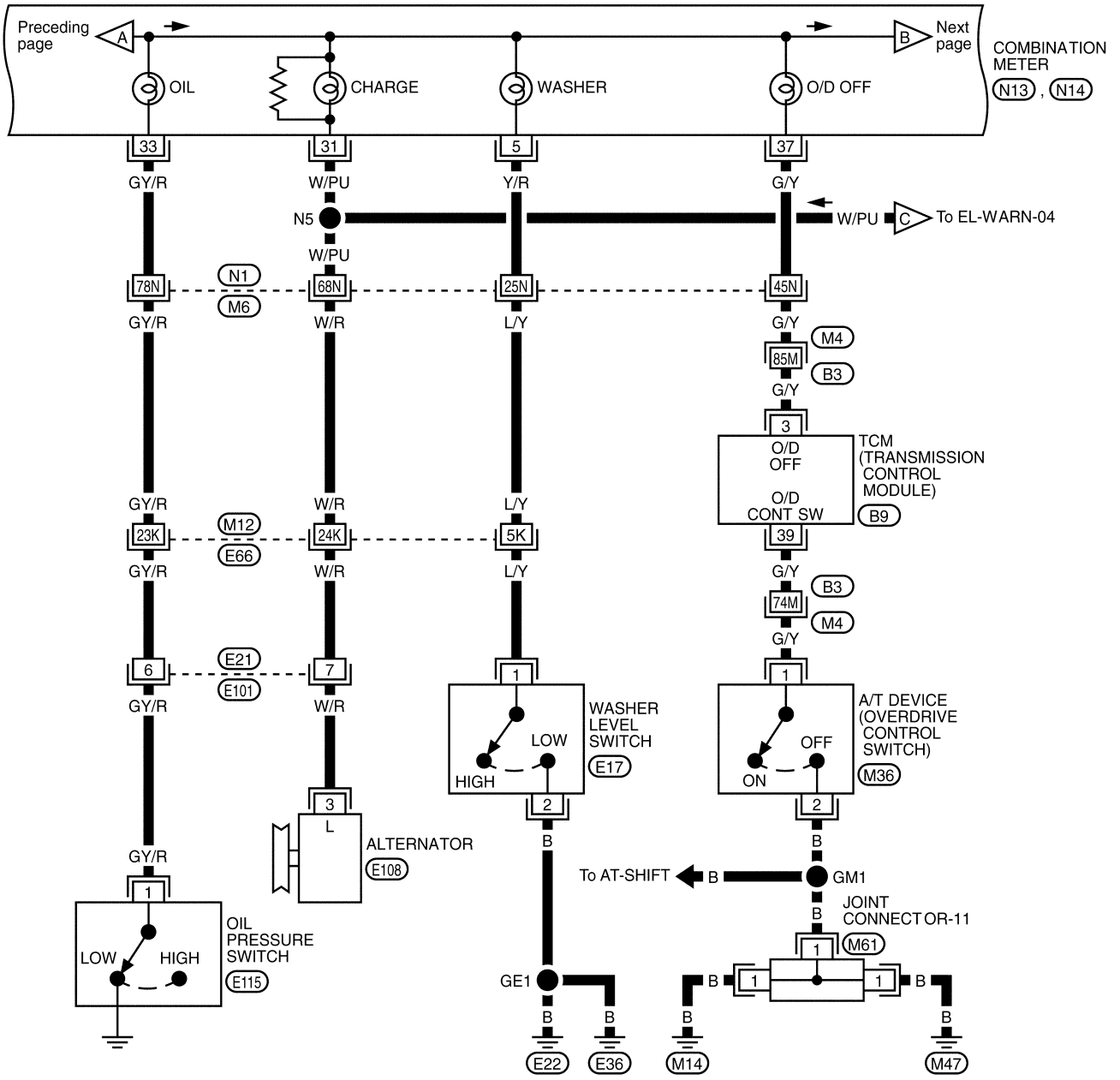
M1 -FUSE BLOCK-JUNCTION BOX (J/B)

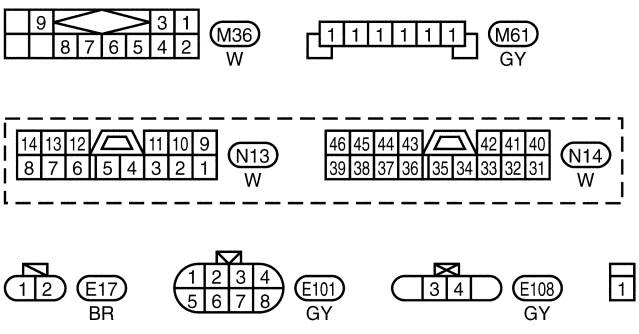
M22 -ELECTRICAL UNITS

TEL747B

## Wiring Diagram — WARN — (Cont'd)

EL-WARN-02



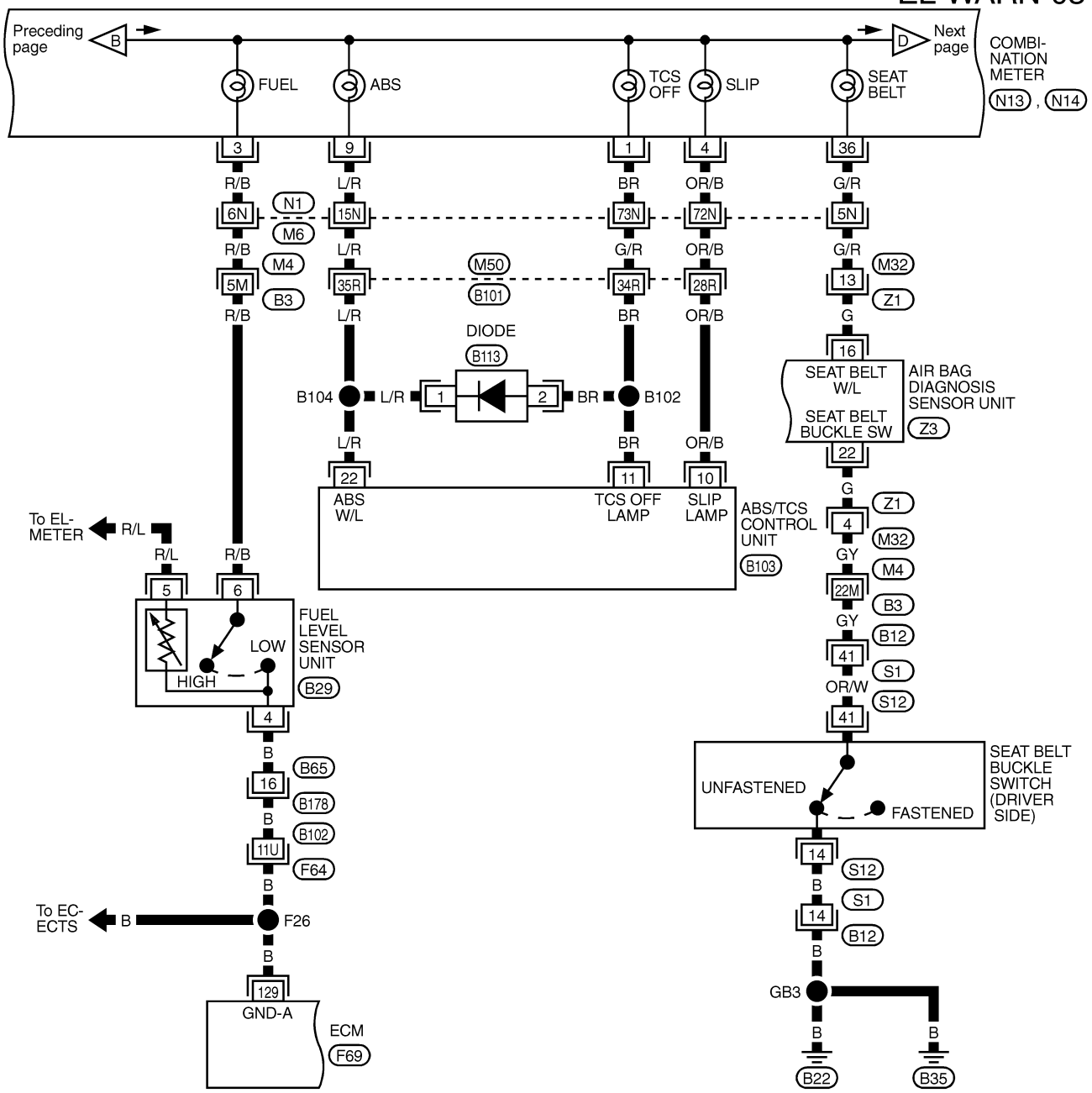



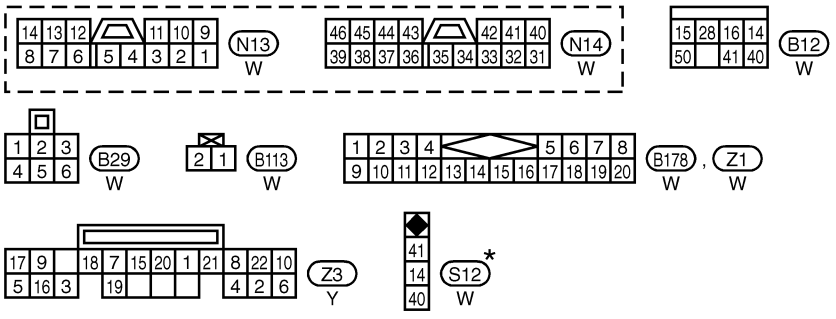

REFER TO THE FOLLOWING.
M4 , M6 , E66 -SUPER MULTIPLE JUNCTION (SMJ)
B9 -ELECTRICAL UNITS

TEL087M

## Wiring Diagram — WARN — (Cont'd)

EL-WARN-03



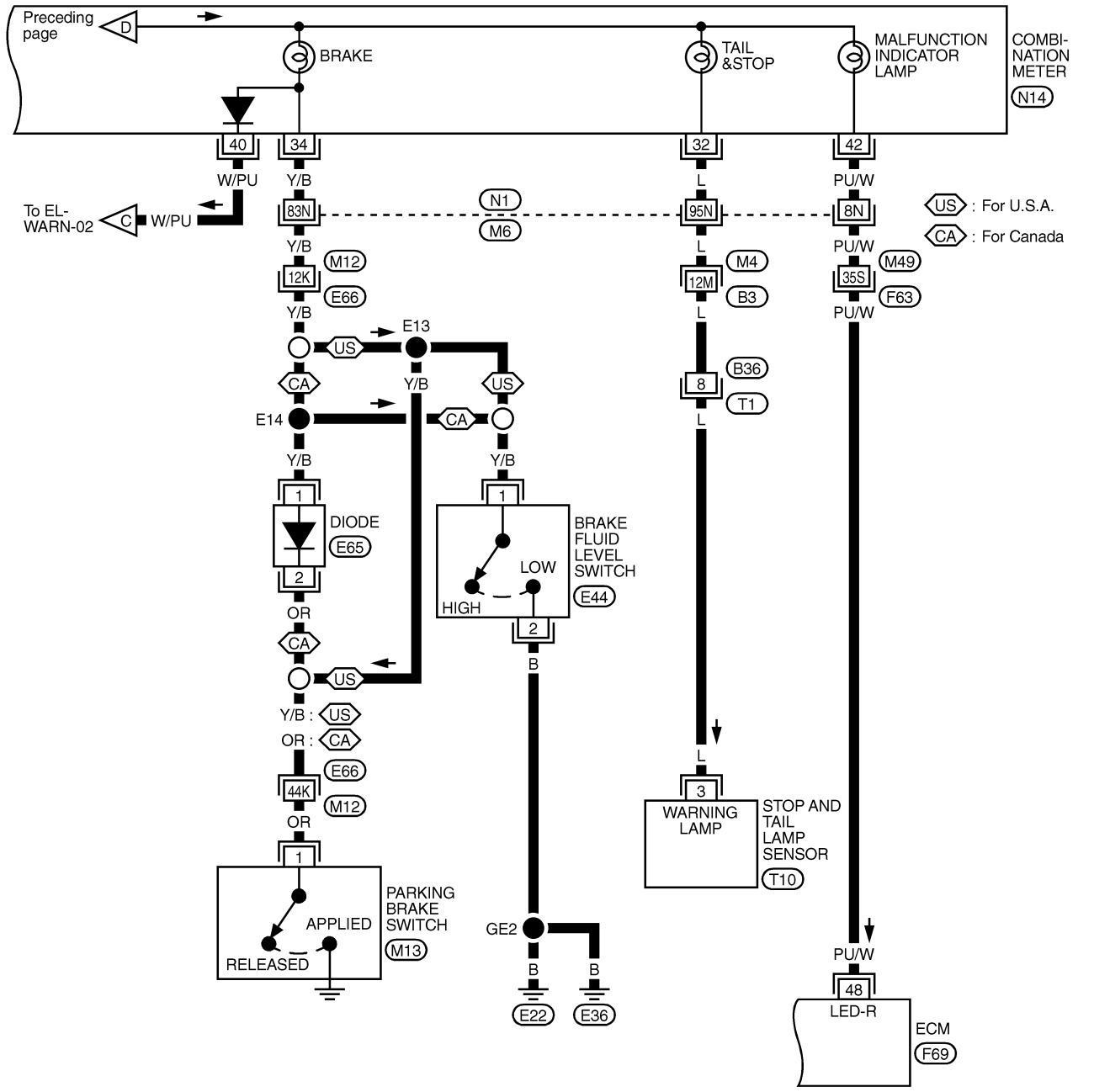

*: This connector is not shown in "HARNESS LAYOUT", EL section.

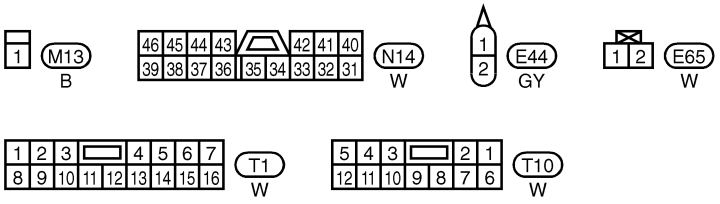
REFER TO THE FOLLOWING.
M4 , M6 , M50 , F64 -SUPER MULTIPLE JUNCTION (SMJ)
F69 , B103 -ELECTRICAL UNITS

TEL088M

## Wiring Diagram — WARN — (Cont'd)

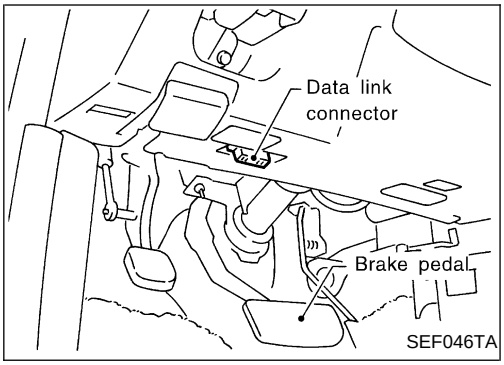
EL-WARN-04




REFER TO THE FOLLOWING.
M4 , M6 , E66 , F63
-SUPER MULTIPLE JUNCTION (SMJ)
F69 -ELECTRICAL UNITS

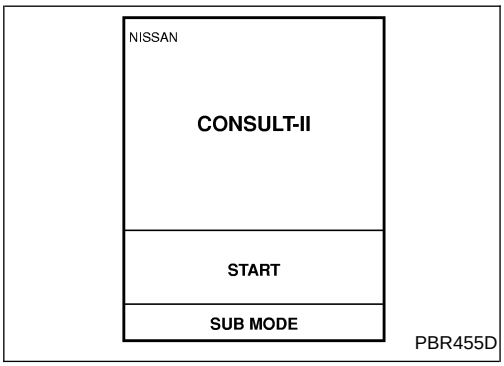
TEL089M



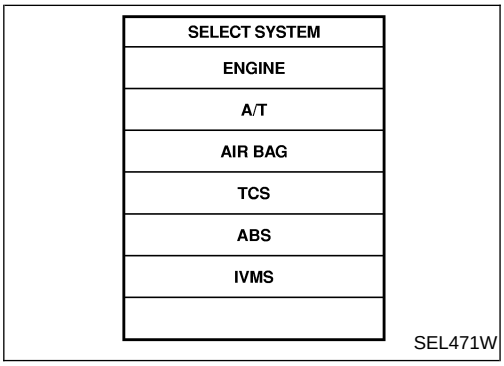

## CONSULT-II (For door warning lamp)

### CONSULT-II INSPECTION PROCEDURE

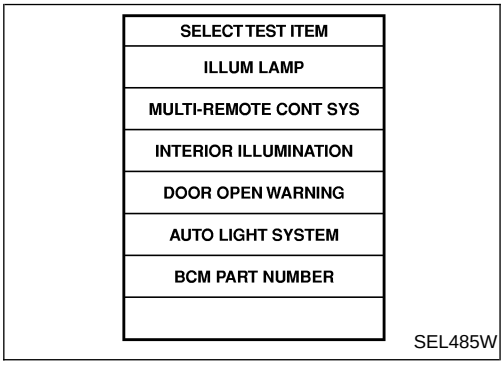
1. Turn ignition switch “OFF”.
2. Connect “CONSULT-II” to the data link connector.



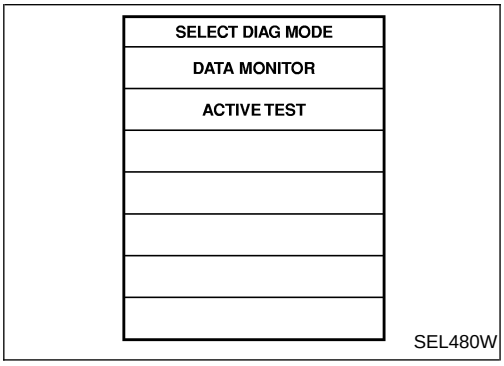

3. Turn ignition switch “ON”.
4. Touch “START”.




5. Touch “IVMS”.



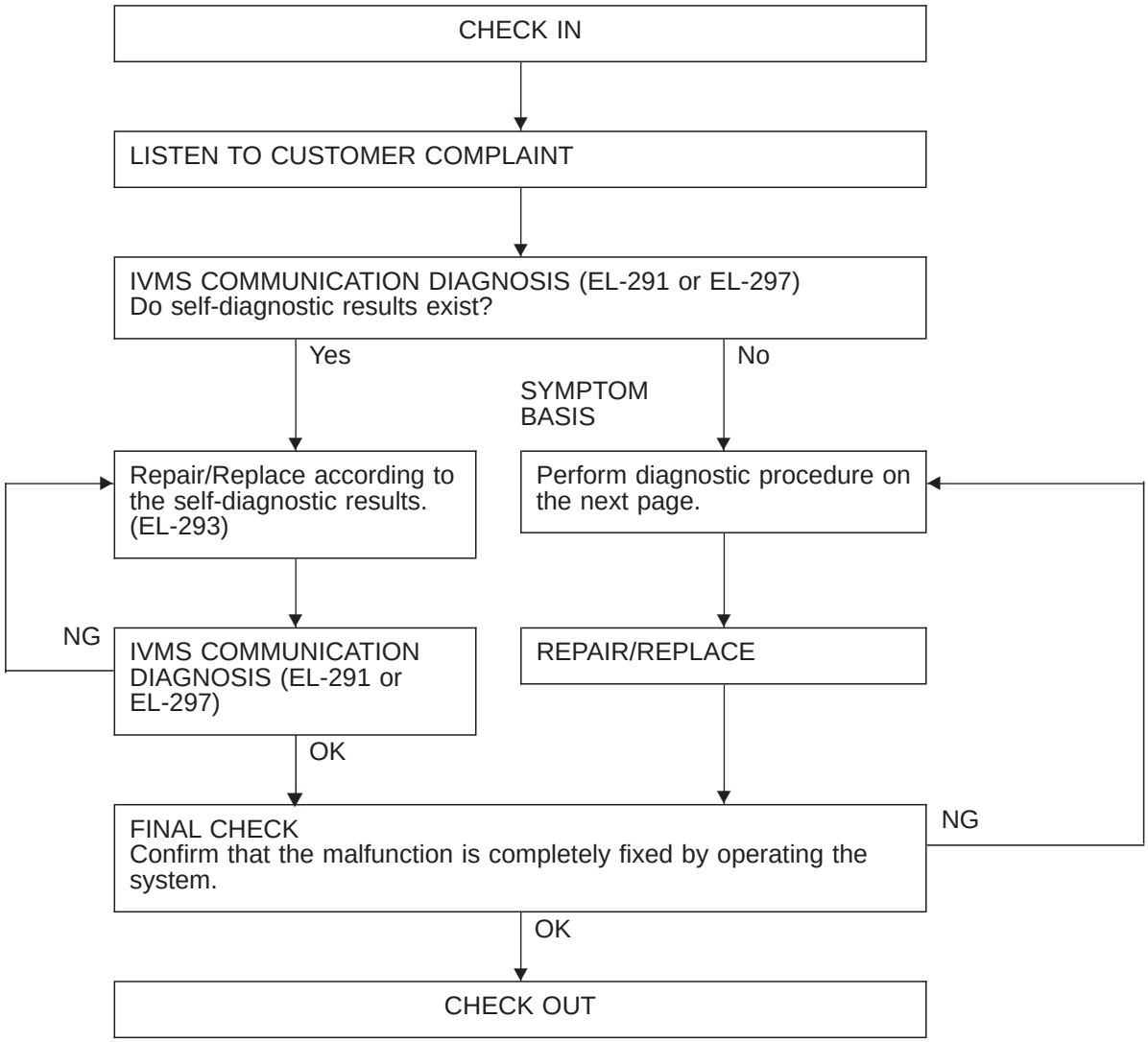

6. Touch “DOOR OPEN WARNING”.




- DATA MONITOR and ACTIVE TEST are available for door open warning lamp.

## Trouble Diagnoses/Door Warning Lamp

**WORK FLOW**




**NOTICE:**

- **When LCU connectors are disconnected for more than 1 minute such as during trouble diagnoses, the "disconnected" data will be memorized by the BCM. (While BCM memorizes the "disconnected" data, IVMS communication diagnosis of CONSULT-II will display "PAST NO RESPONSE".) Therefore, after reconnecting the LCU connectors, erase the memory.**
- **To erase the memory, perform the procedure below.**
  **Erase the memory with CONSULT-II (Refer to EL-291.) or turn the ignition switch to "OFF" position and remove 7.5A fuse [No. 14 located in the fuse block (J/B)].**

# Trouble Diagnoses/Door Warning Lamp (Cont'd)

## DIAGNOSTIC PROCEDURE

**SYMPTOM: Door warning lamp is not operating correctly.**

**CHECK WARNING LAMP OPERATION.**

A CONSULT-II

Perform "DR OPN WARN LAMP" in ACTIVE TEST mode.
Check warning lamp operation.
**Warning lamp should illuminate.**

NG → Check the following.
- Bulb
- Power supply circuit for warning lamp
- Harness for open or short between BCM and warning lamp

OR

B

1. Disconnect BCM connector.
2. Turn ignition switch to "ON" position.
3. Apply ground to BCM terminal (111).

**Warning lamp should illuminate.**

OK ↓

**CHECK DOOR SWITCH INPUT SIGNAL.**

C CONSULT-II

See "DOOR SW" in DATA MONITOR mode.
When door is open:
**DOOR SW ON**
When door is closed:
**DOOR SW OFF**

NG → Check the following.
- Door switch
- Door switch ground condition (Front door) or door switch ground circuit (Rear door)
- Harness for open or short between door switch and BCM

OR

ON BOARD

Check all doors switches in Switch monitor (Mode II) mode.
(Refer to On board Diagnosis, EL-299.)

OK ↓

**CHECK IGNITION SWITCH ON SIGNAL.**

D CONSULT-II

See "IGN ON SW" in DATA MONITOR mode.
When ignition switch is ON:
**IGN ON SW ON**
When ignition switch is ACC or OFF:
**IGN ON SW OFF**

NG → Check the following.
- 7.5A fuse [No. 32, located in the fuse block (J/B)]
- Harness for open or short between fuse and BCM

OR

E ON BOARD

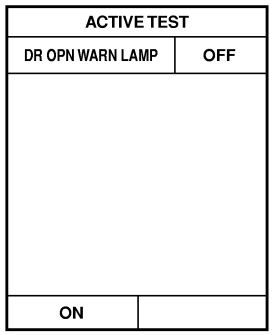
Check voltage between BCM terminal (68) and ground.

| Condition of ignition switch | Voltage V |
|---|---|
| ON | Approx. 12 |
| ACC or OFF | 0 |

OK ↓

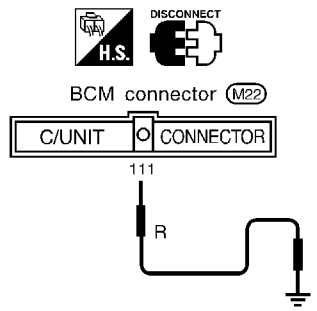
Replace BCM.

A



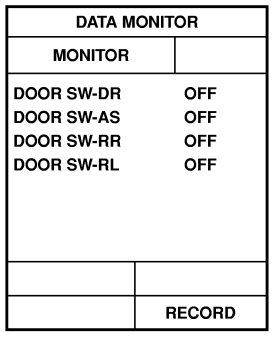

SEL497W

B



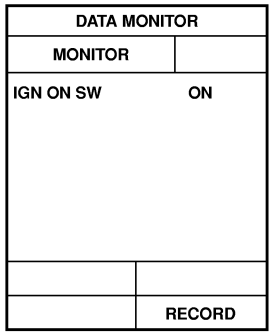

SEL677UA

C



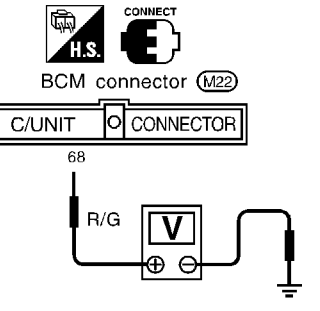

SEL498W

D



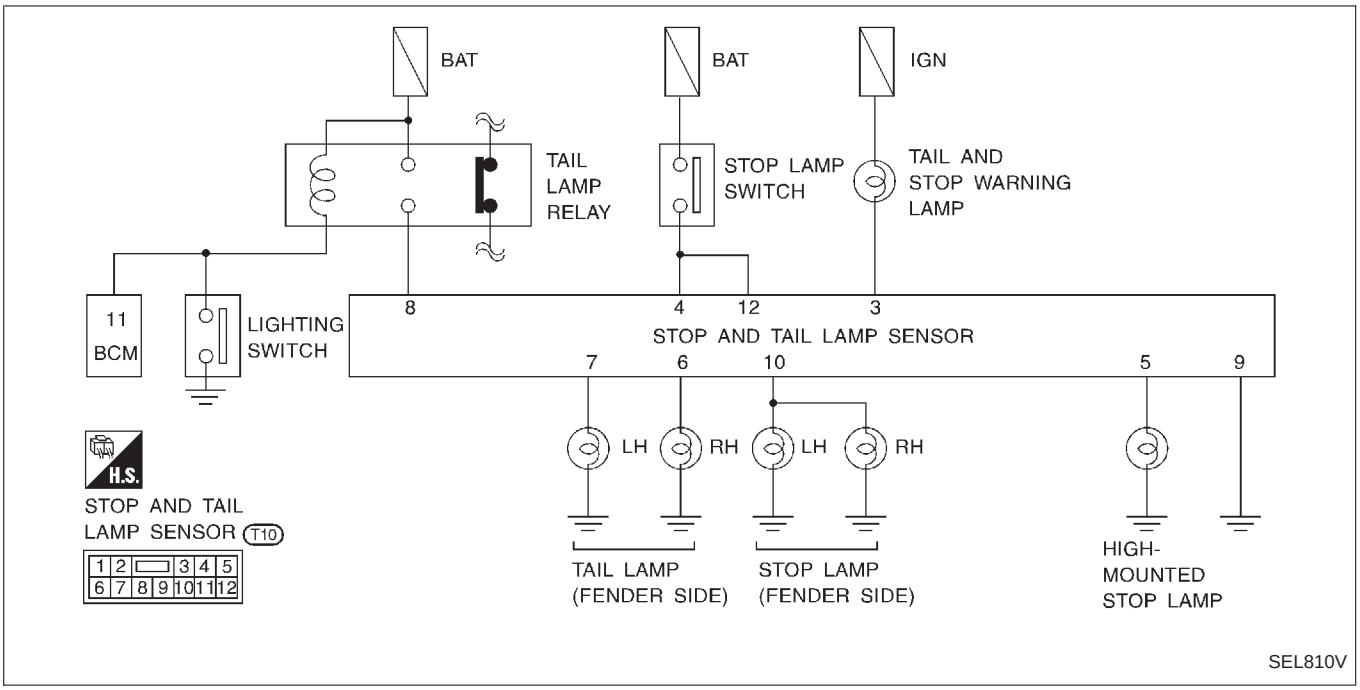

SEL499W

E




SEL556UB

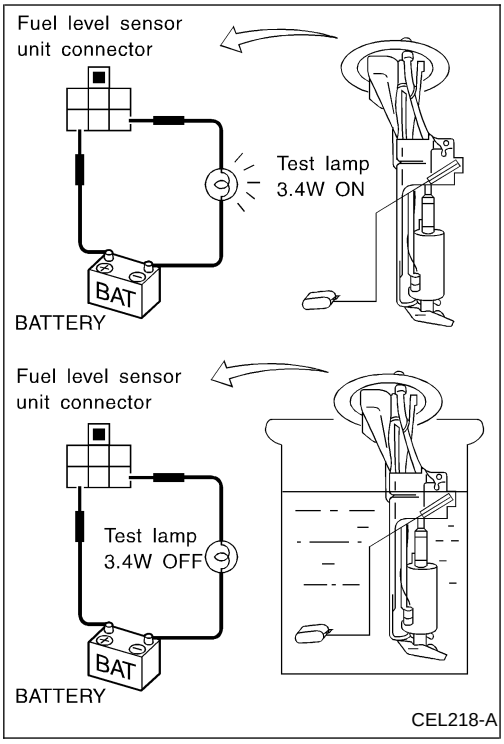
## Trouble Diagnoses/Stop and Tail Lamp Sensor




### STOP AND TAIL LAMP SENSOR INSPECTION TABLE

| Terminal No. | Wire color | Connections | Operated condition | | Voltage (Approximate values) |
|---|---|---|---|---|---|
| 3 | L | Stop and tail warning lamp |  | When sensing one of the bulbs burned out (See note.) | Less than 1.5V |
| | | | | Other than above condition | 12V |
| 4 | R | Stop lamp switch | Depressed | | 12V |
| | | | Released | | 0V |
| 5 | R/W | High-mounted stop lamp | Stop lamp switch | Depressed | 11V |
| | | | | Released | 0V |
| 6 | L | Tail lamp RH (Fender side) | Lighting switch or auto lamp | Turned ON | 11V |
| 7 | G/R | Tail lamp LH (Fender side) | | Turned OFF | 0V |
| 8 | R/G | Tail lamp relay | Lighting switch or auto lamp | Turned ON | 11V |
| | | | | Turned OFF | 0V |
| 9 | B | Ground | — | | — |
| 10 | R/L | Stop lamp LH and RH (Fender side) | Stop lamp switch | Depressed | 11V |
| | | | | Released | 0V |
| 12 | R | Stop lamp switch | Depressed | | 12V |
| | | | Released | | 0V |

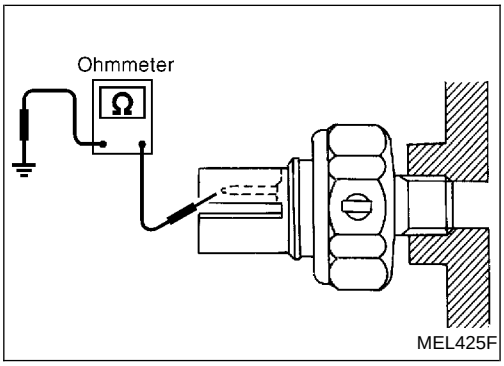
Note: The system senses bulb burnout only when the stop lamp switch is depressed for stop lamps or tail lamp relay is energized for tail lamps.




## Electrical Components Inspection

### FUEL WARNING LAMP SENSOR CHECK

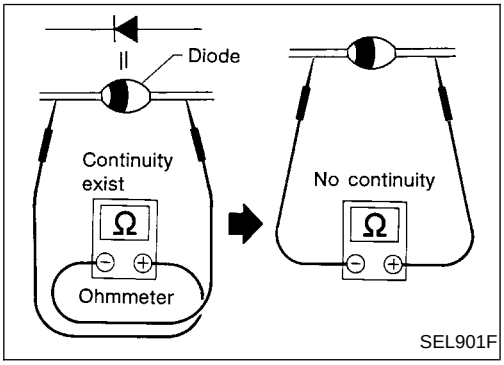
- It will take a short time for the bulb to light.




### OIL PRESSURE SWITCH CHECK

| | Oil pressure kPa (kg/cm$^2$, psi) | Continuity |
|---|---|---|
| Engine start | More than 20 - 29 (0.2 - 0.3, 3 - 4) | NO |
| Engine stop | Less than 20 - 29 (0.2 - 0.3, 3 - 4) | YES |

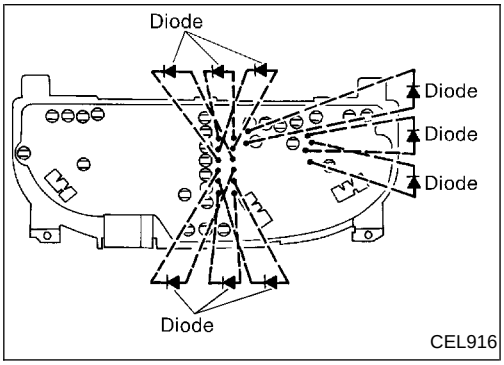
Check the continuity between the terminals of oil pressure switch and body ground.




### DIODE CHECK

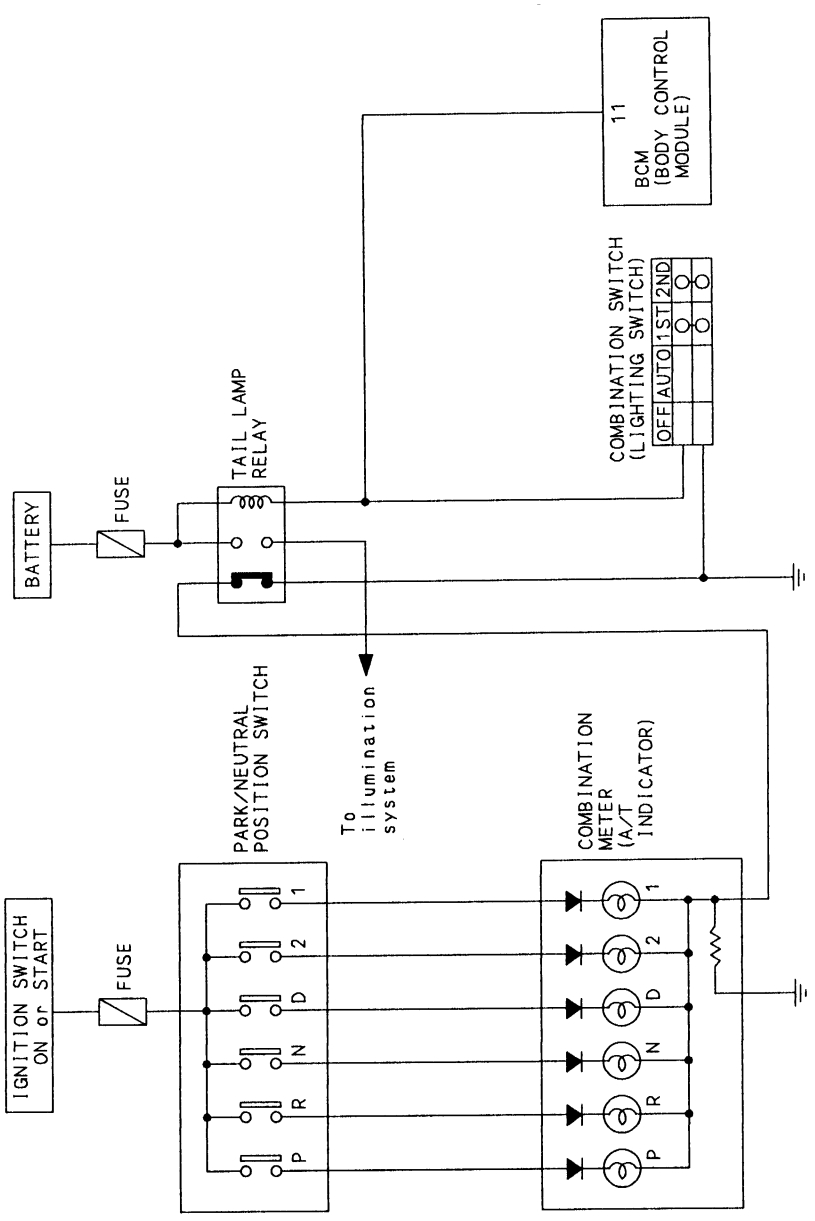
- Check continuity using an ohmmeter.
- Diode is functioning properly if test results are as shown in the figure at left.

**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.**



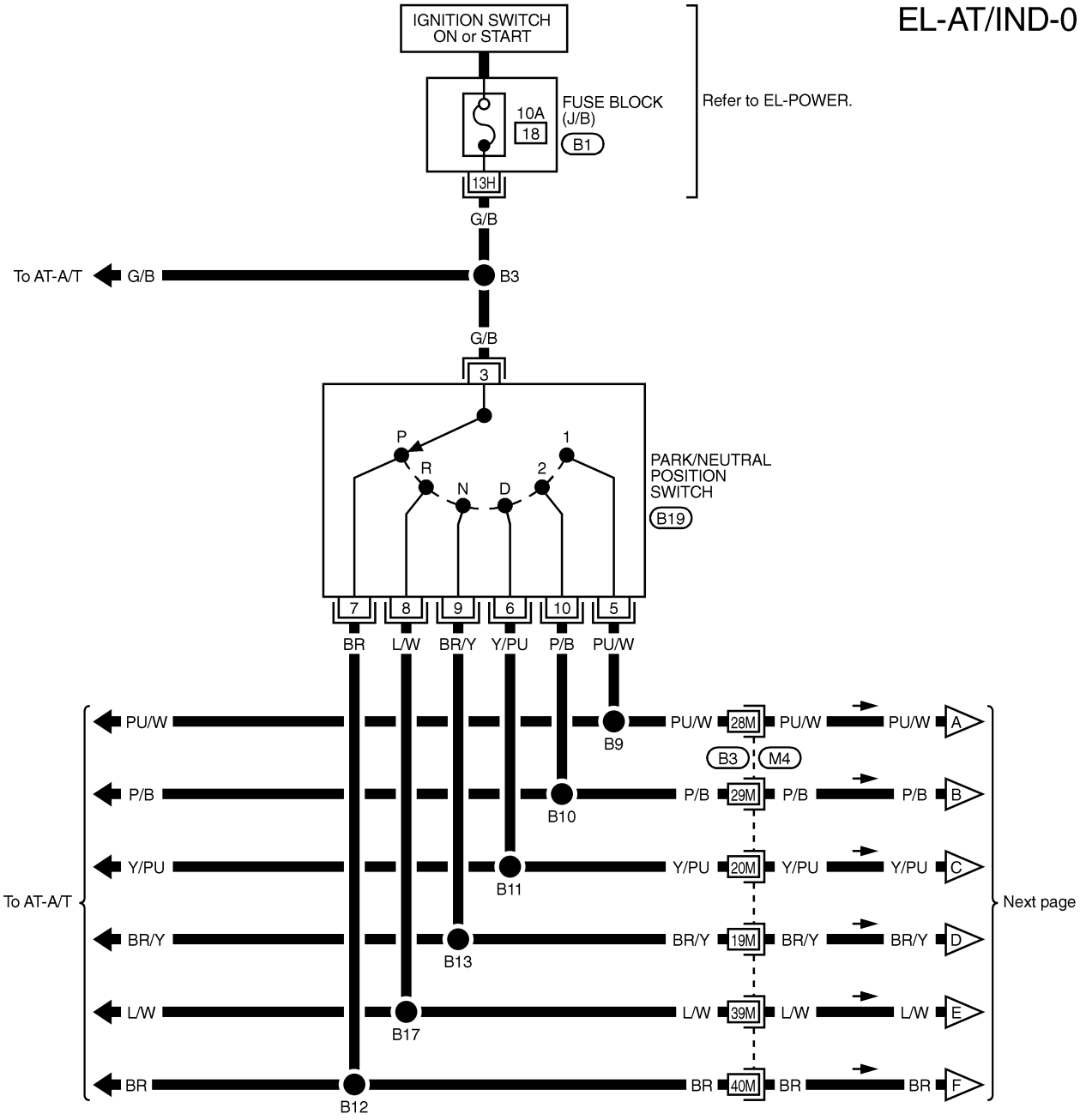

- Diodes for warning lamps are built into the combination meter printed circuit.

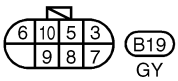
## Schematic




TEL382B

## Wiring Diagram — AT/IND —



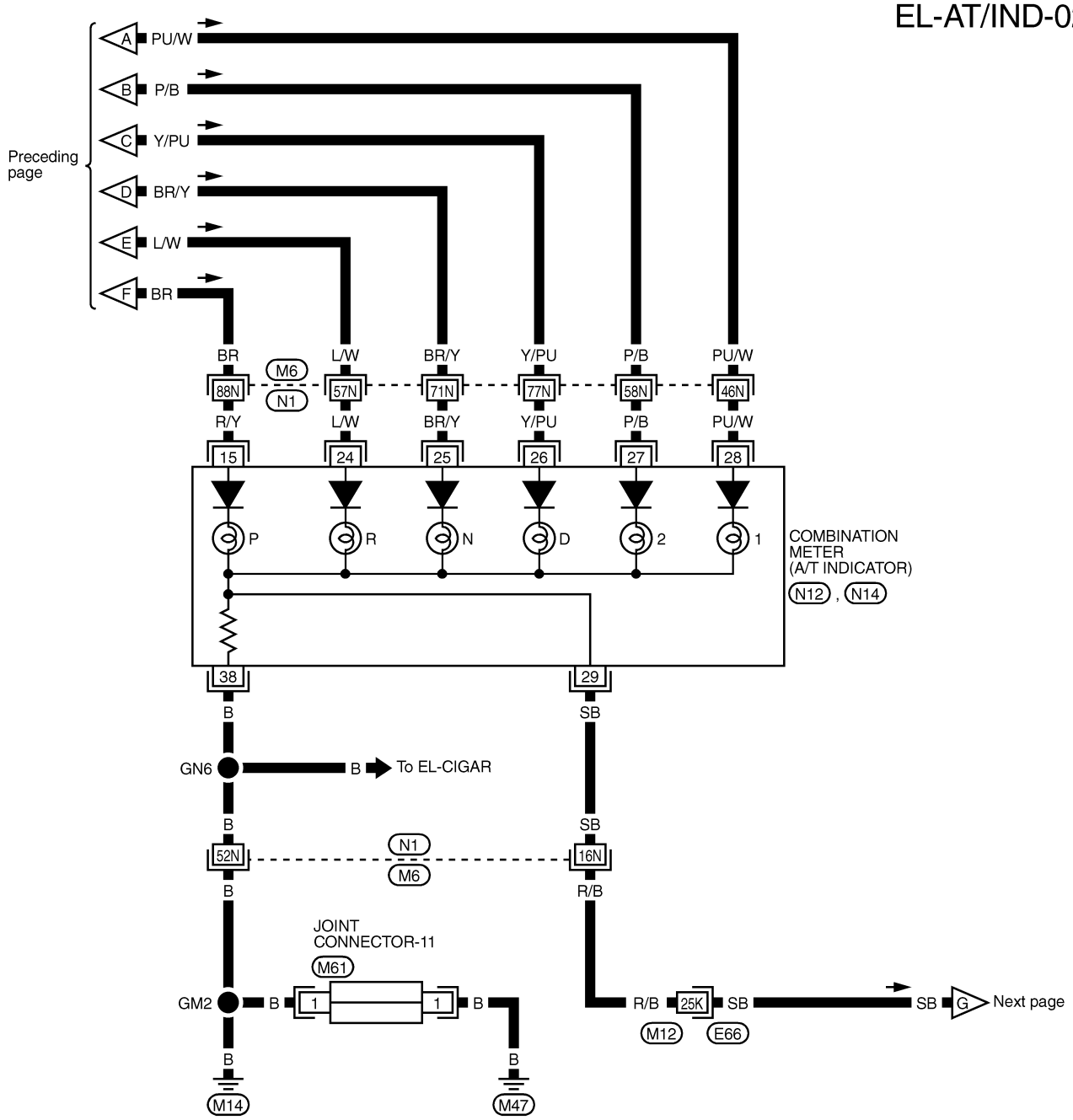



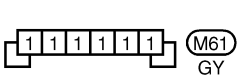

REFER TO THE FOLLOWING.
M4 -SUPER MULTIPLE JUNCTION (SMJ)
B1 -FUSE BLOCK-JUNCTION BOX (J/B)

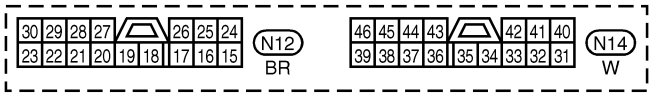
TEL090M

## Wiring Diagram — AT/IND — (Cont'd)

EL-AT/IND-02



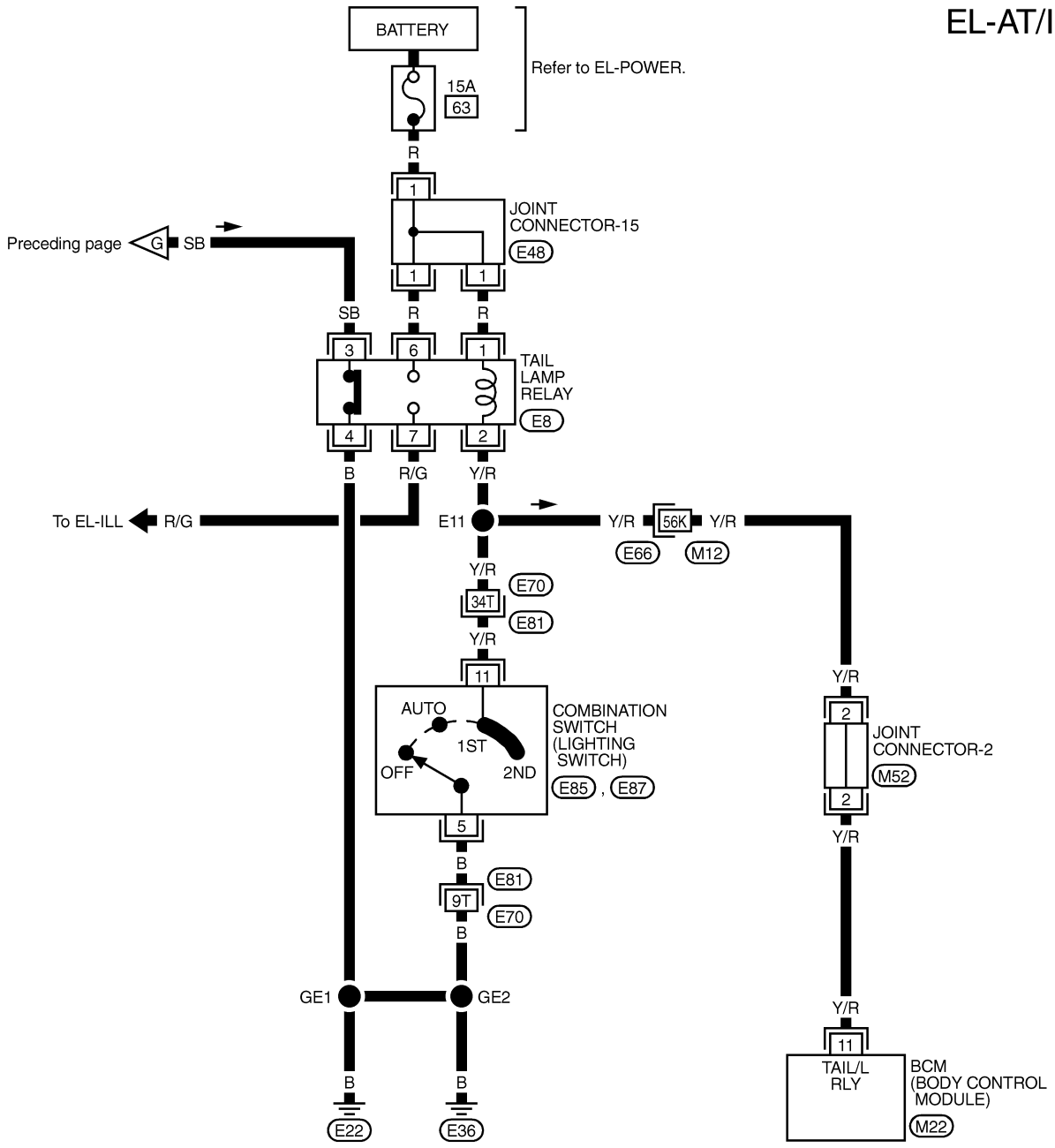



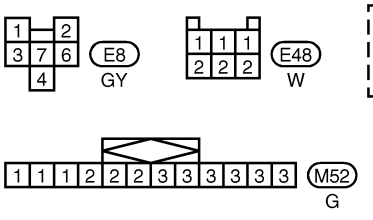

REFER TO THE FOLLOWING.
M6 , E66 -SUPER MULTIPLE JUNCTION (SMJ)

TEL091M

## Wiring Diagram — AT/IND — (Cont'd)

EL-AT/IND-03



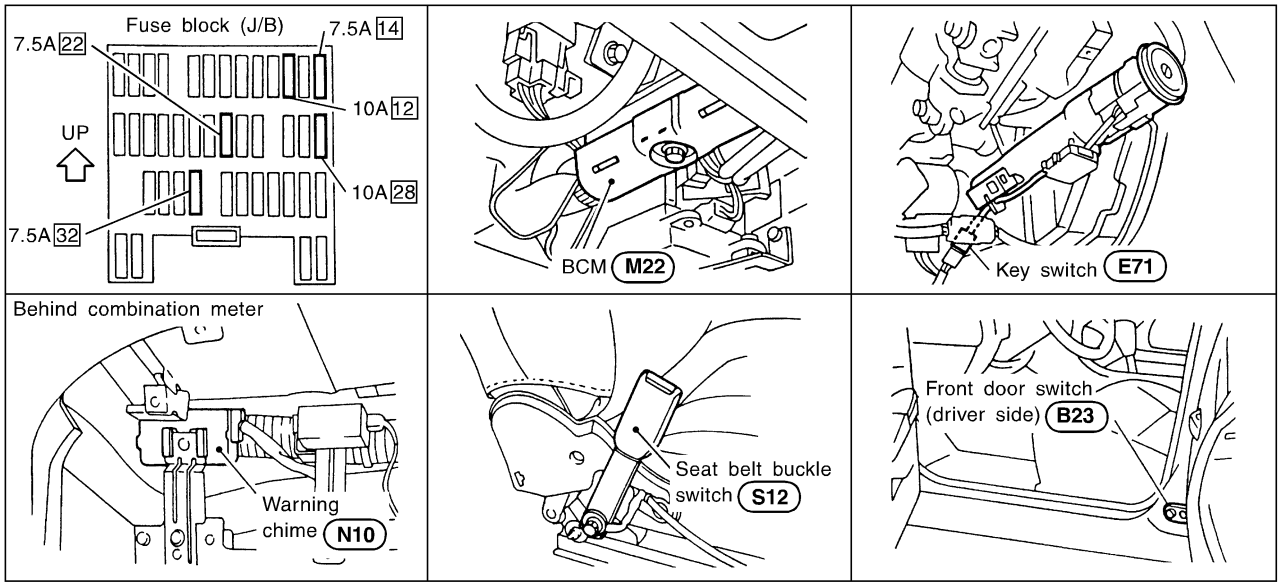

REFER TO THE FOLLOWING.

E66 , E81 -SUPER MULTIPLE JUNCTION (SMJ)

M22 -ELECTRICAL UNITS

TEL092M

## Component Parts and Harness Connector Location




SEL859W

## System Description

### FUNCTION

- The following warning chime functions are controlled by BCM.

| Item | Details of control |
|---|---|
| Ignition key warning chime | Sounds warning chime when driver's door is opened with key in ignition key cylinder and ignition switch "OFF" or "ACC" position. |
| Light warning chime | Sounds warning chime when driver's door is opened with light switch in the 1st or 2nd position and ignition switch "OFF" or "ACC" position. |
| Seat belt warning chime | Sounds warning chime for about 6 seconds if ignition switch is turned "ON" when driver's seat belt is unfastened |

### IGNITION KEY WARNING CHIME

Power is supplied at all times
- through 10A fuse [No. 28, located in the fuse block (J/B)]
- to key switch terminal ③.
- through 10A fuse [No. 12, located in the fuse block (J/B)]
- to warning chime terminal ①.

With the ignition switch in the ON or START position, power is supplied
- through 7.5A fuse [No. 32, located in the fuse block (J/B)]
- to BCM terminal ㊽.

Ground is supplied to BCM terminal ㉜ through driver side door switch terminal ① when driver side switch is in OPEN position.
With the key in the ignition key cylinder, the ignition switch in the ACC or OFF position, and the driver's door open, ground is supplied to warning chime terminal ③ from BCM terminal ⑫. The warning chime will then sound.

### LIGHT WARNING CHIME

Power is supplied at all times
- through 10A fuse [No. 12, located in the fuse block (J/B)]
- to warning chime terminal ①.
- Through 15A fuse [No. 63, located in the fuse, fusible link and relay box]
- to tail lamp relay terminals ① and ⑥.

## System Description (Cont'd)

With the ignition switch in the ON or START position, power is supplied
- through 7.5A fuse [No. 32, located in the fuse block (J/B)]
- to BCM terminal 68.

When the lighting switch is in the 1ST or 2ND position, ground is supplied
- to tail lamp relay terminal 2
- from body grounds E22 and E36
- through lighting switch terminals 11 and 5.

Tail lamp relay is then energized, and power is supplied
- to BCM terminal 3
- from tail lamp relay terminal 7
- through 7.5A fuse [No. 22, located in the fuse block (J/B)].

With the lighting switch in the 1ST, 2ND position, the ignition switch in ACC or OFF position, and the driver's door OPEN, the warning chime will sound in the same manner as ignition key warning chime.

### SEAT BELT WARNING CHIME

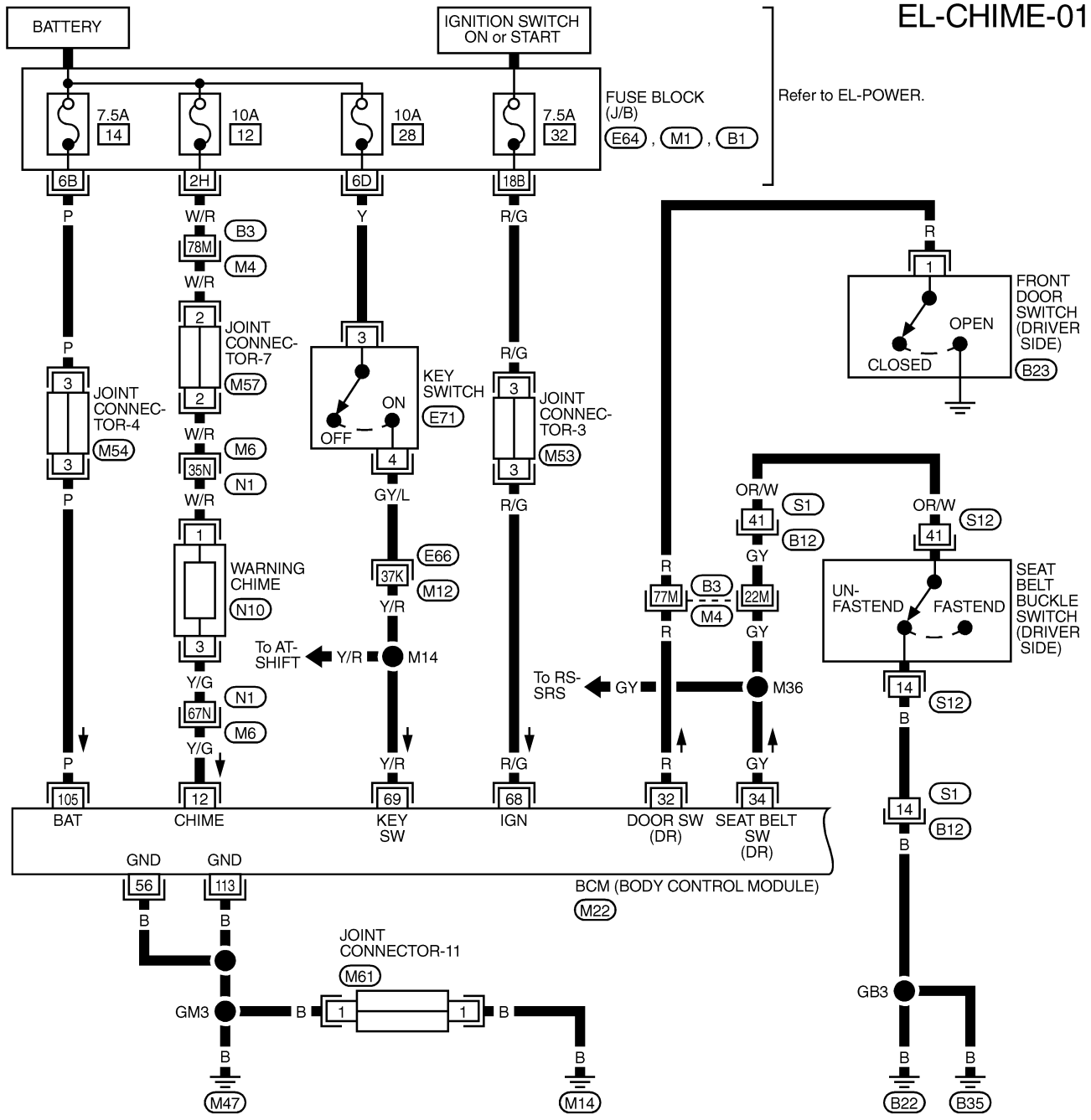
Power is supplied at all times
- through 10A fuse [No. 12, located in the fuse block (J/B)]
- to warning chime terminal 1.

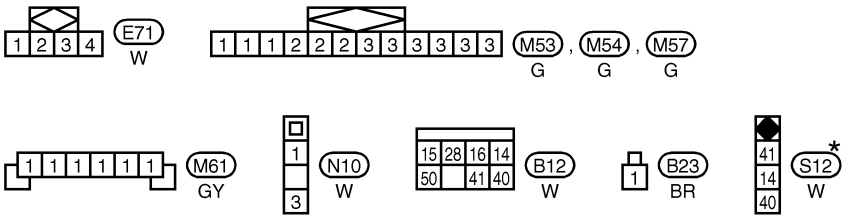
With the ignition switch in the ON or START position, power is supplied
- through 7.5A fuse [No. 32, located in the fuse block (J/B)]
- to BCM terminal 68.

Ground is supplied to BCM terminal 34 through seat belt buckle switch terminals 41 and 14, when seat belt buckle switch is in UNFASTENED position, and body grounds B22 and B35.

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

## Wiring Diagram — CHIME —



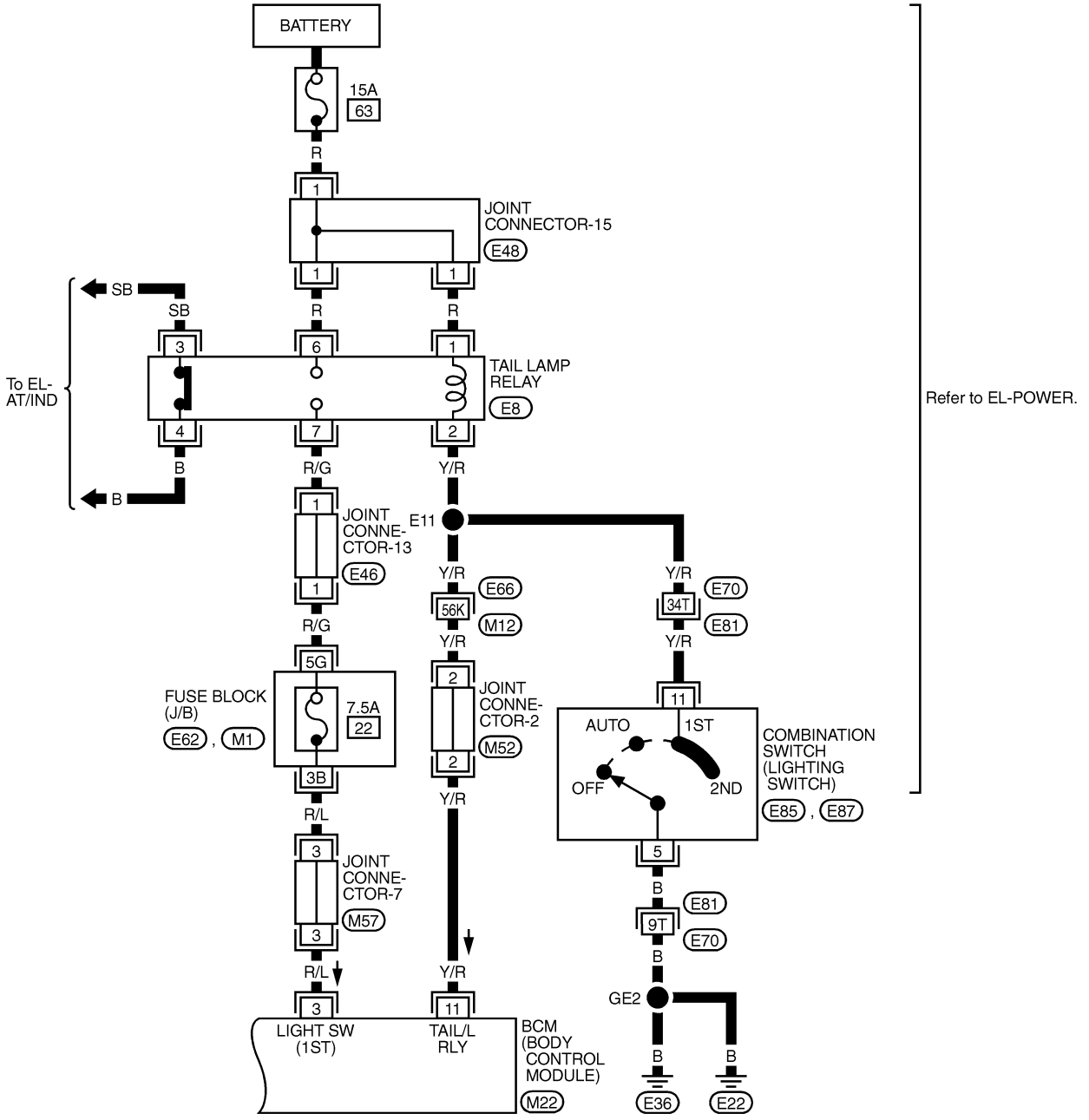

*: This connector is not shown in "HARNESS LAYOUT", EL section.

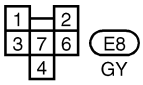
REFER TO THE FOLLOWING.
M4 , M6 , E66 -SUPER MULTIPLE JUNCTION (SMJ)
M1 , E64 , B1 -FUSE BLOCK-JUNCTION BOX (J/B)
M22 -ELECTRICAL UNITS

TEL093M

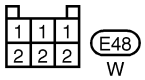
## Wiring Diagram — CHIME — (Cont'd)

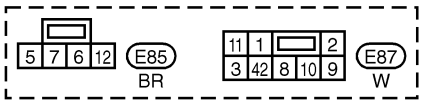
EL-CHIME-02

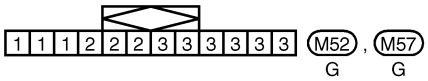






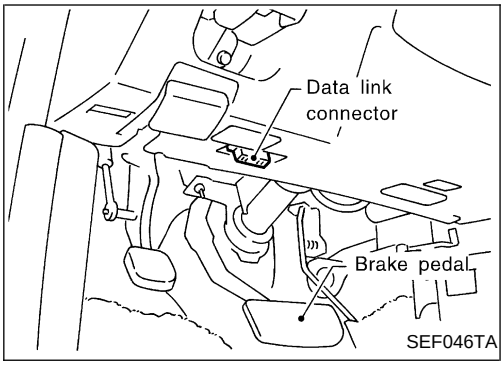

REFER TO THE FOLLOWING.

E66 , E81 -SUPER MULTIPLE JUNCTION (SMJ)

M1 , E62 -FUSE BLOCK-JUNCTION BOX (J/B)

M22 -ELECTRICAL UNITS

TEL094M

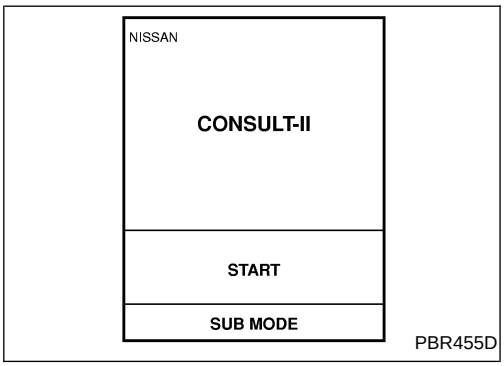


SEF046TA

## CONSULT-II

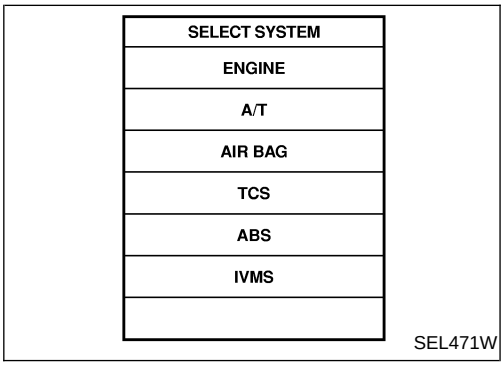
### CONSULT-II INSPECTION PROCEDURE

1. Turn ignition switch “OFF”.
2. Connect “CONSULT-II” to the data link connector.



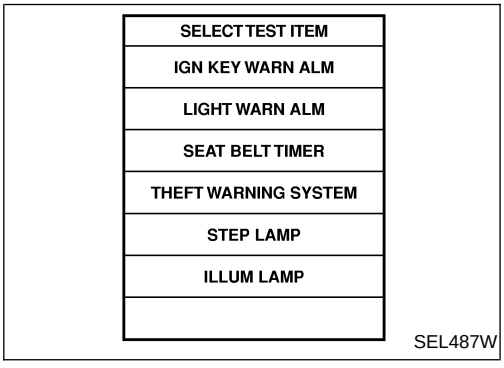
PBR455D

3. Turn ignition switch “ON”.
4. Touch “START”.



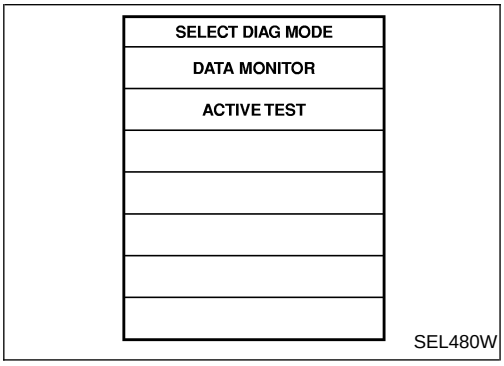
SEL471W

5. Touch “IVMS”.



SEL487W

6. Touch “IGN KEY WARN ALM”, “LIGHT WARN ALM” or “SEAT BELT TIMER”.

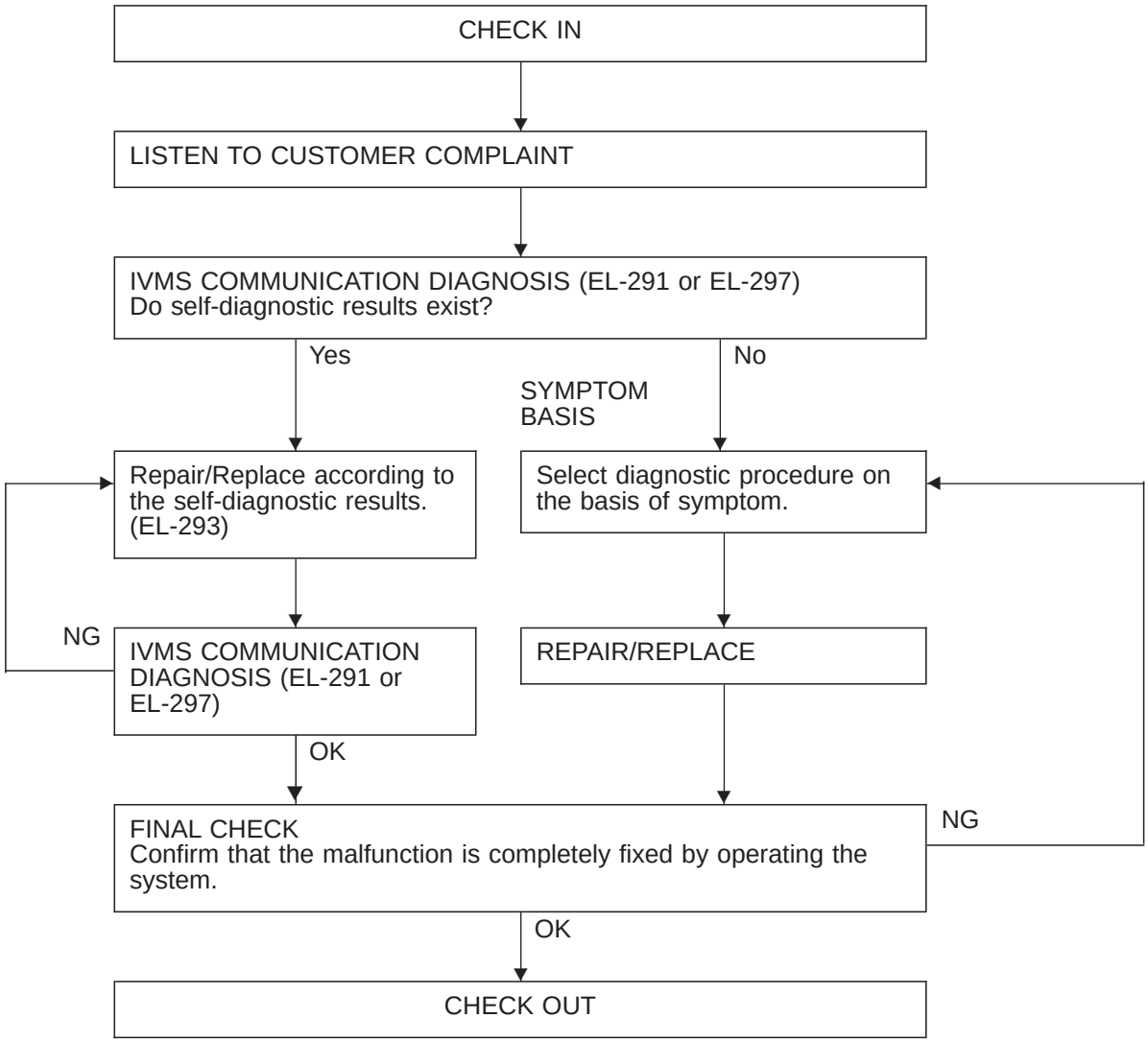


SEL480W

- DATA MONITOR and ACTIVE TEST are available for the warning chime.

## Trouble Diagnoses

### WORK FLOW




**NOTICE:**

- **When LCU connectors are disconnected for more than 1 minute such as during trouble diagnoses, the "disconnected" data will be memorized by the BCM. (While BCM memorizes the "disconnected" data, IVMS communication diagnosis of CONSULT-II will display "PAST NO RESPONSE".) Therefore, after reconnecting the LCU connectors, erase the memory.**
- **To erase the memory, perform the procedure below.**
  **Erase the memory with CONSULT-II (Refer to EL-291.) or turn the ignition switch to "OFF" position and remove 7.5A fuse [No. 14 located in the fuse block (J/B)].**

## Trouble Diagnoses (Cont'd)

### SYMPTOM CHART

| REFERENCE PAGE | EL-179 | EL-180 | EL-180 | EL-181 |
|---|---|---|---|---|
| SYMPTOM | 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 chime does not activate. | X | | | X |
| Ignition key warning chime does not activate. | | X | | X |
| Seat belt warning chime does not activate. | | | X | X |
| All warning chimes do not activate. | | | | X |



A

| DATA MONITOR | |
|---|---|
| MONITOR | |
| HD/LMP 1ST SW | ON |
| | |
| | |
| | RECORD |

SEL500W

### DIAGNOSTIC PROCEDURE 1

### (Lighting switch input signal check)

**CHECK LIGHTING SWITCH INPUT SIGNAL.**

A CONSULT-II

See "HD/LMP 1ST SW" in DATA MONITOR mode.
When lighting switch is in 1ST or 2ND:
**HD/LMP 1ST SW ON**
When lighting switch is OFF:
**HD/LMP 1ST SW OFF**

NG → Check the following.
- 7.5A fuse [No. 22, located in the fuse block (J/B)]
- Harness for open or short between fuse and BCM

OR

ON BOARD

Check lighting switch in Switch monitor (Mode II) mode. (Refer to On board Diagnosis, EL-299.)

OK ↓

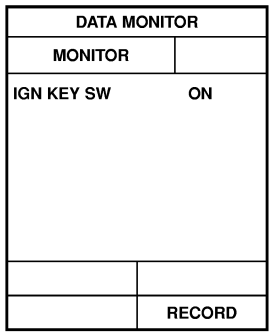
Go to Procedure 4.

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 2

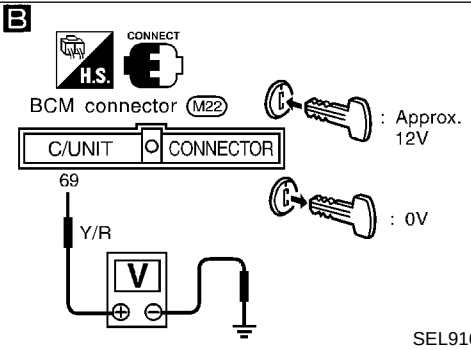
### (Key switch input signal check)

A




SEL532W

B




SEL916V

**CHECK KEY SWITCH INPUT SIGNAL.**

A CONSULT-II

See "IGN KEY SW" in DATA MONITOR mode.
When key is inserted in ignition key cylinder:
**IGN KEY SW ON**
When key is removed from ignition key cylinder:
**IGN KEY SW OFF**

OR

B TESTER

Check voltage between BCM terminal 69 and ground.

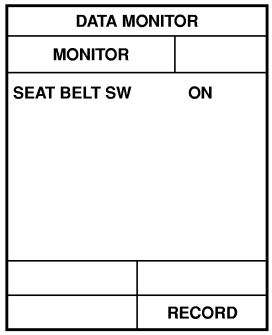
| Condition of key switch | Voltage V |
|---|---|
| Key is inserted | Approx. 12 |
| Key is removed | 0 |

NG → Check the following.
- Key switch
  Refer to "Electrical Components Inspection" (EL-182).
- 10A fuse [No. 28, located in the fuse block (J/B)]
- Harness for open or short between key switch and fuse
- Harness for open or short between BCM and key switch

OK ↓

Go to Procedure 4.

A




SEL501W

### DIAGNOSTIC PROCEDURE 3

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

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

A CONSULT-II

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

OR

ON BOARD

Check seat belt buckle switch in Switch monitor (Mode II) mode. (Refer to On board Diagnosis, EL-299.)

NG → Check the following.
- Seat belt buckle switch
  Refer to "Electrical Components Inspection" (EL-182).
- Seat belt buckle switch ground circuit
- Harness for open or short between BCM and seat belt buckle switch

OK ↓

Go to procedure 4.

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 4

A

| DATA MONITOR | |
|---|---|
| MONITOR | |
| DOOR SW-DR | OFF |
| | |
| | RECORD |

SEL502W

**CHECK DOOR SWITCH INPUT SIGNAL.**

A CONSULT-II

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

OR

ON BOARD

Check driver side door switch in Switch monitor (Mode II) mode. (Refer to On board Diagnosis, EL-299.)

NG → Check the following.
- Driver door switch
  Refer to "Electrical Components Inspection" (EL-182).
- Driver door switch ground condition
- Harness for open or short between driver door switch and BCM

OK ↓

B

| DATA MONITOR | |
|---|---|
| MONITOR | |
| IGN ON SW | ON |
| | |
| | RECORD |

SEL499W

**CHECK IGNITION SWITCH ON SIGNAL.**

B CONSULT-II

See "IGN ON SW" in DATA MONITOR mode.
When ignition switch is ON:
**IGN ON SW ON**
When ignition switch is ACC or OFF:
**IGN ON SW OFF**

OR

C TESTER

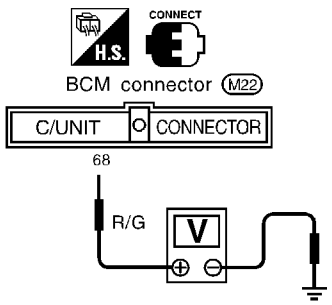
Check voltage between BCM terminal (68) and ground.

| Condition of ignition switch | Voltage V |
|---|---|
| ON | Approx. 12 |
| ACC or OFF | 0 |

NG → Check the following.
- 7.5A fuse [No. 32, located in the fuse block (J/B)]
- Harness for open or short between fuse and BCM

OK ↓

C




SEL556UB

D

| ACTIVE TEST | |
|---|---|
| IGN KEY WARN ALM | OFF |
| or | |
| LIGHT WARN ALM | OFF |
| or | |
| SEAT BELT WRN | OFF |
| | |
| ON | |

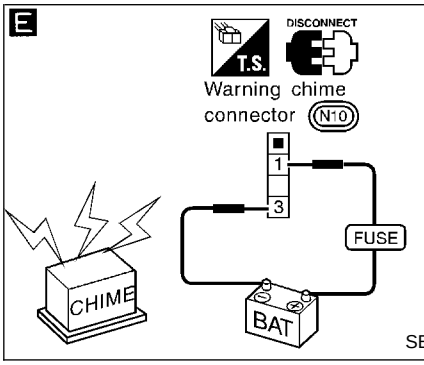
SEL495W

Perform "WARN ALM" in ACTIVE TEST mode.
Check chime operation.
**If CONSULT-II is not available, skip this procedure and go to the next procedure below.**

OK → System is OK.

NG ↓

E



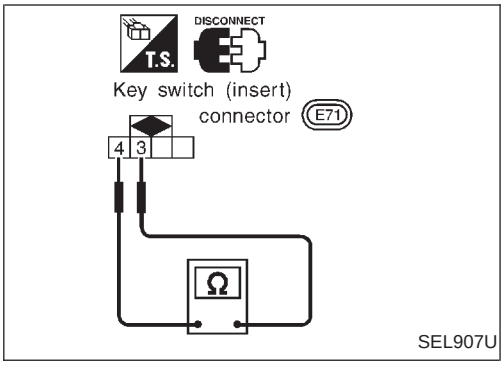

SEL564UB

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

NG → Replace chime.

OK ↓

Check the following.
- 10A fuse [No. 12 located in the fuse block (J/B)]
- Harness for open or short between fuse and chime
- Harness for open or short between chime and BCM

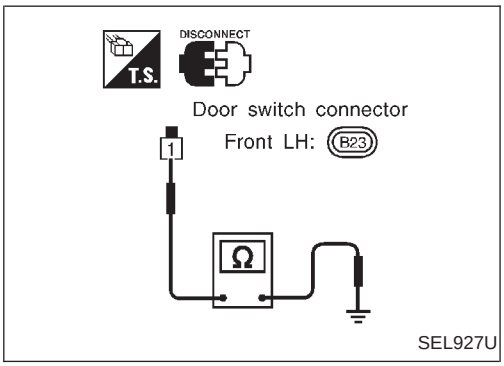



## Electrical Components Inspection

### KEY SWITCH (Insert)

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

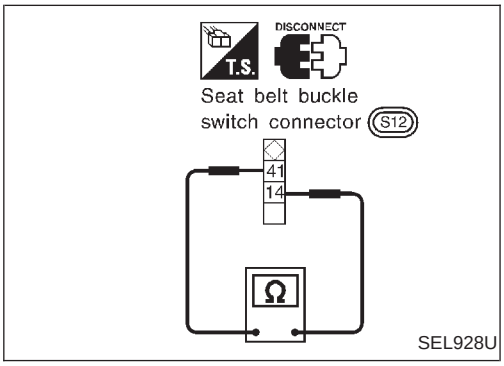
| Terminal No. | Condition | Continuity |
|---|---|---|
| ③ - ④ | Key is inserted | Yes |
| | Key is removed | No |




### DRIVER SIDE DOOR SWITCH

Check continuity between terminal and switch body ground when door switch is pushed and released.

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

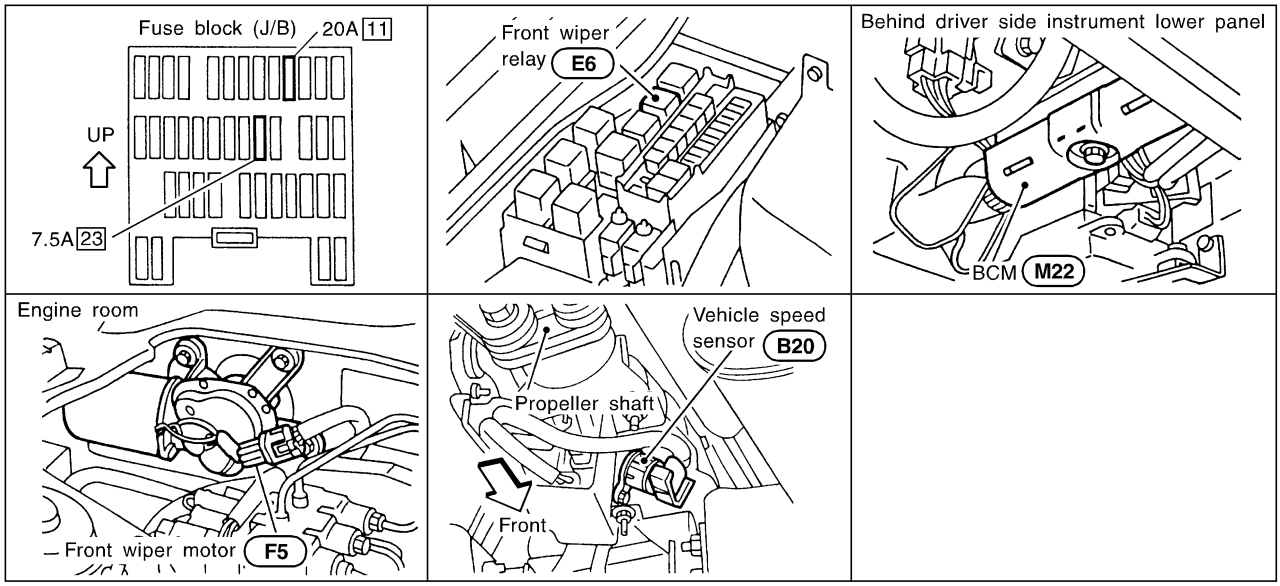



### SEAT BELT BUCKLE SWITCH

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

| Terminal No. | Condition | Continuity |
|---|---|---|
| ⑭ - ㊶ | Seat belt is fastened. | No |
| | Seat belt is unfastened. | Yes |

## Component Parts and Harness Connector Location




SEL854W

## System Description

### WIPER OPERATION

With the ignition switch in the ACC or ON position, power is supplied
- through 20A fuse [No. 11, located in the fuse block (J/B)]
- to front wiper motor terminal ③ .

Ground is supplied to front wiper switch terminals ⑰ and ⑳ through body grounds E22 and E36.

**Low and high speed wiper operation**

When the front wiper switch is placed in the LO position, ground is supplied
- through terminal ⑭ of the front wiper switch
- to front wiper motor terminal ⑤ .

With power and ground supplied, the front wiper motor operates at low speed.
When the front wiper switch is placed in the HI position, ground is supplied
- through terminal ⑯ of the front wiper switch
- to front wiper motor terminal ④ .

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

**Auto stop operation**

When the front wiper switch is placed in the OFF position, the front wiper motor will continue to operate until the wiper arms reach the base of the windshield (Auto stop).
When the front wiper switch is placed in the OFF position, ground is supplied
- from terminal ⑭ of the front wiper switch
- to front wiper motor terminal ⑤ , in order to continue front wiper motor operation at low speed.

Ground is also supplied until the wiper arms reaches the base of the windshield
- through terminal ⑬ of the front wiper switch
- to wiper relay terminal ③
- through terminal ④ of the wiper relay
- to front wiper motor terminal ②
- through terminal ① of the front wiper motor, and
- through body grounds E22 and E36.

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

**Intermittent operation**

Intermittent operation is controlled by the BCM.
When the front wiper switch is placed in the INT position, ground is supplied

## System Description (Cont'd)

- to BCM terminal ⑨
- from front wiper switch terminal ⑮
- through body grounds E22 and E36.

The desired interval time is input

- to BCM terminal ㊽
- from front wiper switch terminal ⑲ and
- to BCM terminal ㊾
- from combination meter terminal ⑱ (vehicle speed pulse).

Based on these three inputs, an intermittent ground is supplied

- to front wiper relay terminal ②
- from BCM terminal ⑦ .

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

- to front wiper motor terminal ⑤
- through the front wiper switch terminal ⑭
- to front wiper switch terminal ⑬
- through front wiper relay terminal ③
- to front wiper relay terminal ⑤
- through body grounds E22 and E36.

Front wiper motor operates at desired interval with BCM terminal ⑨ grounded.
Intermittent operation can be adjusted from:
Approx. 4 - 19 sec.: (when vehicle is stopped)
Approx. 0.4 - 12 sec.: (when vehicle is moving)
Judgement on vehicle stopped or moving:
Stopped → Moving: More than 4 km/h (2 MPH)
Moving → Stopped: Less than 2 km/h (1 MPH)

### WASHER OPERATION

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

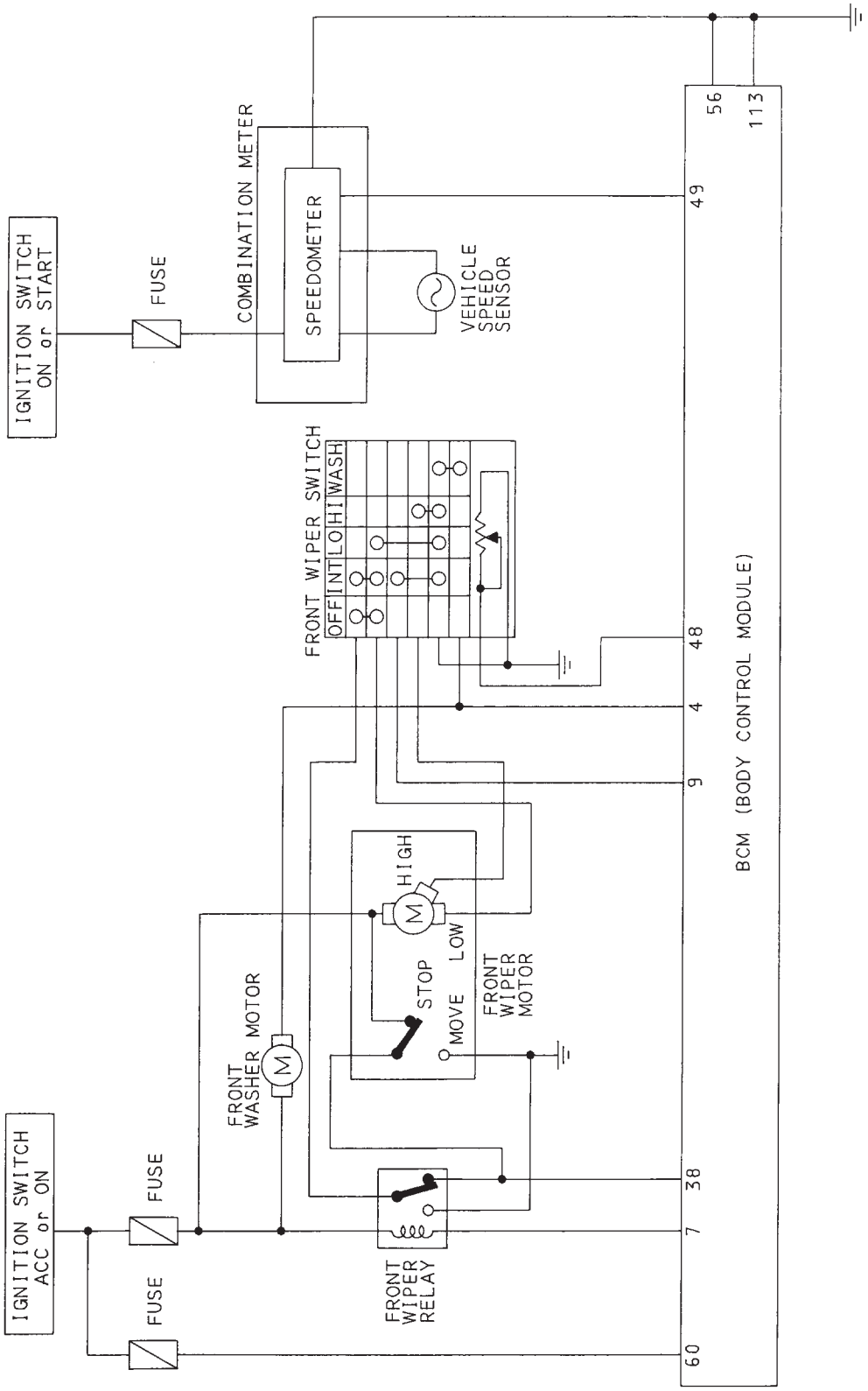
- through 20A fuse [No. 11, located in the fuse block (J/B)]
- to front washer motor terminal ② .

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

- to washer motor terminal ① , and
- to BCM terminal ④
- from terminal ⑱ of the front wiper switch
- through terminal ⑰ of the front wiper switch, and
- through body grounds E22 and E36.

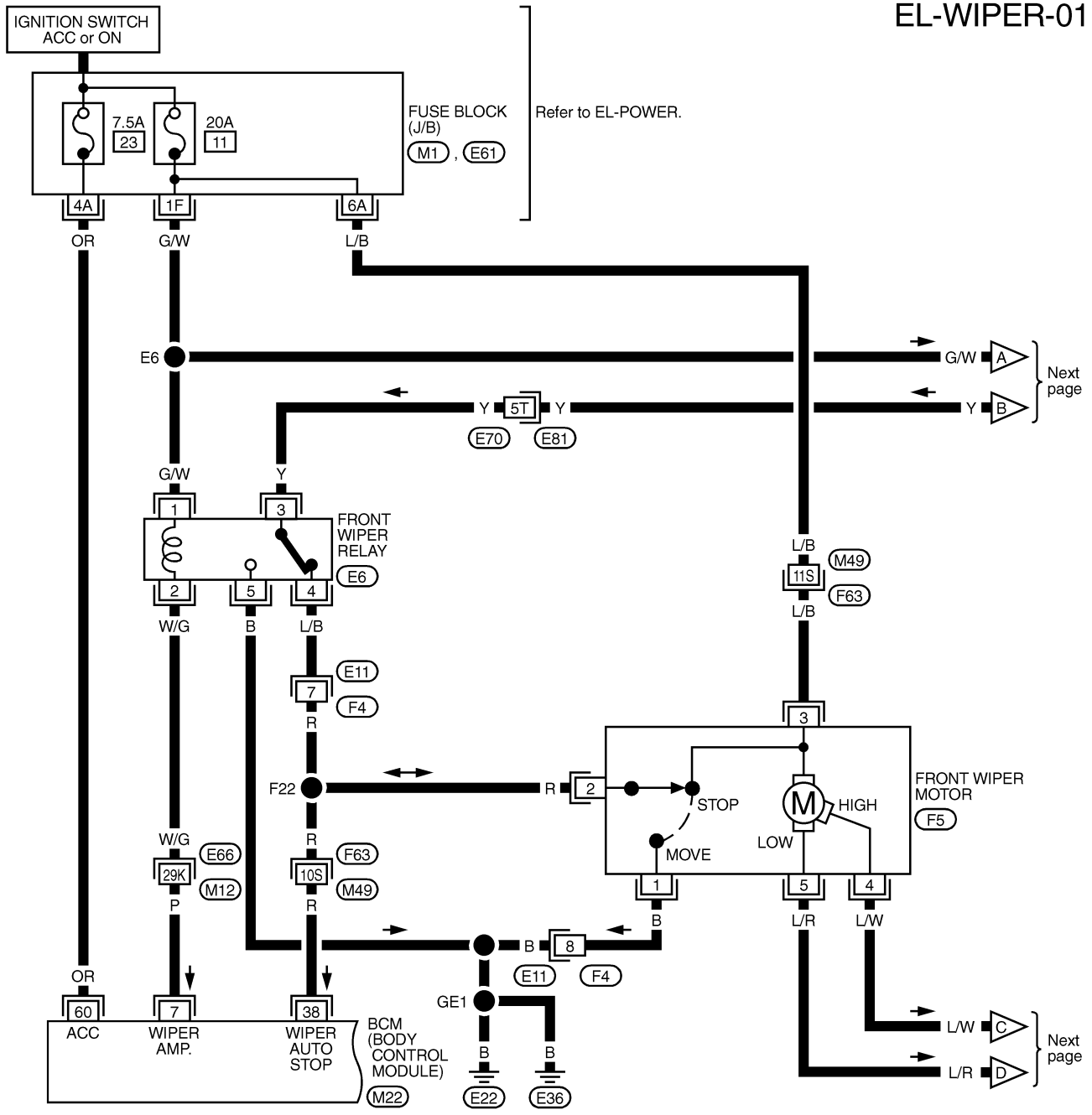
With power and ground supplied, the washer motor operates.
The front wiper motor operates at low speed for about 3 seconds. This feature is controlled by the BCM in the same manner as the intermittent operation.

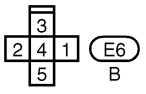
## Schematic

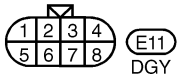


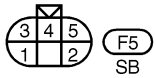

TEL777

## Wiring Diagram — WIPER —



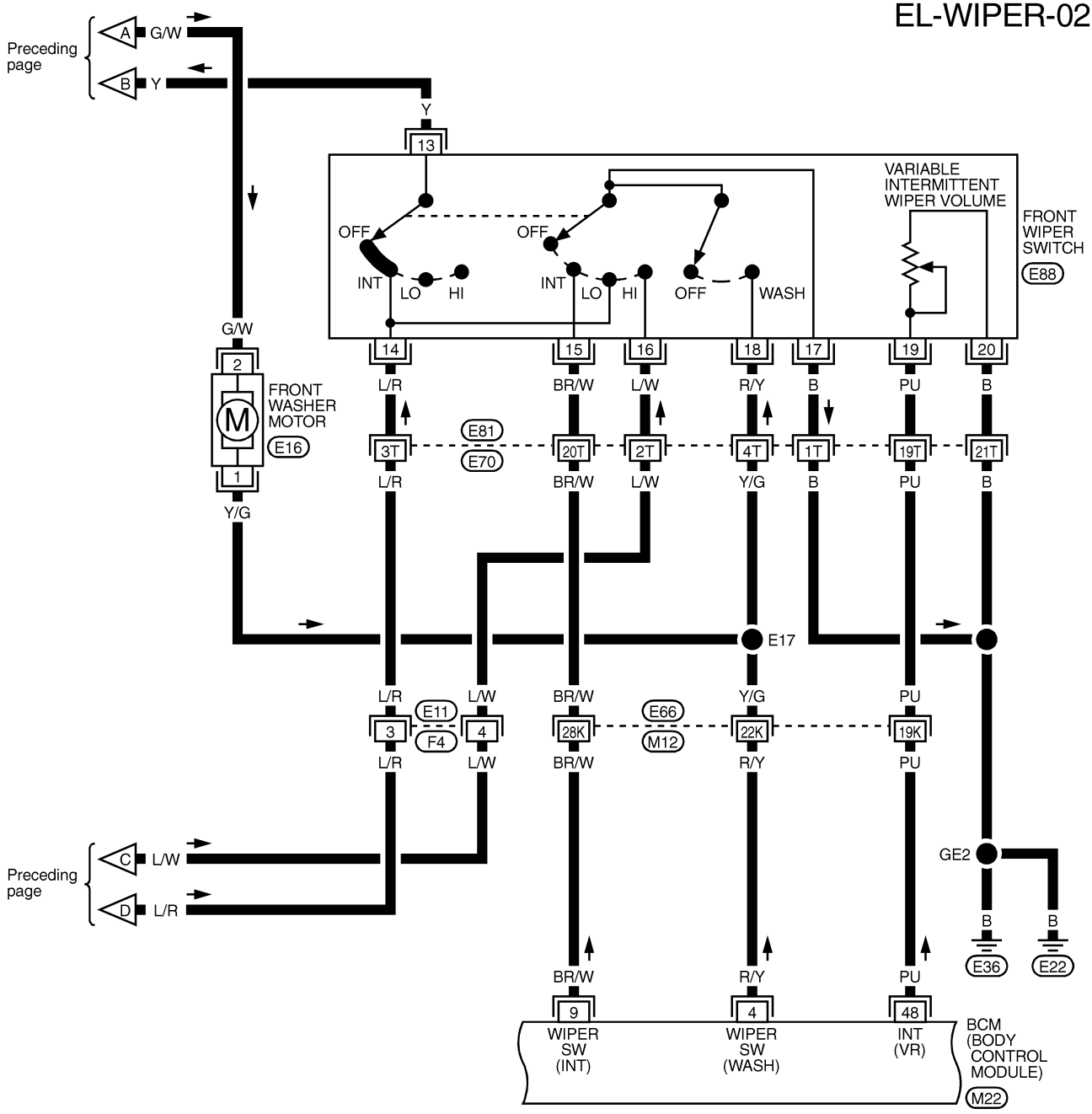



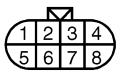

REFER TO THE FOLLOWING.
E66 , E81 , F63 -SUPER MULTIPLE JUNCTION (SMJ)
M1 , E61 -FUSE BLOCK-JUNCTION BOX (J/B)
M22 -ELECTRICAL UNITS

TEL095M

## Wiring Diagram — WIPER — (Cont'd)

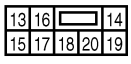
EL-WIPER-02




E11
DGY


E16
GY



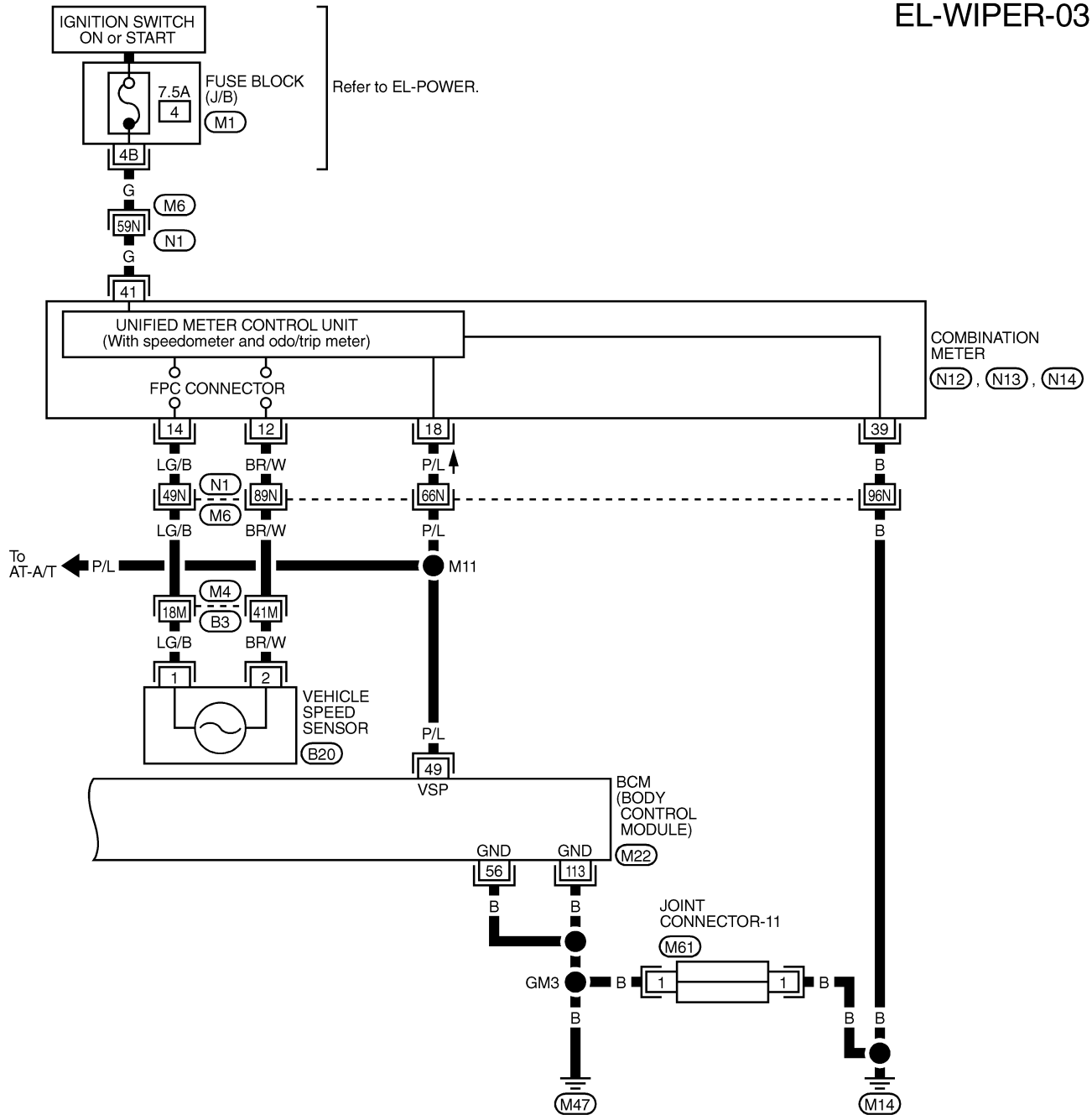

E88
GY

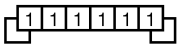
REFER TO THE FOLLOWING.
E66 , E81 -SUPER MULTIPLE JUNCTION (SMJ)
M22 -ELECTRICAL UNITS

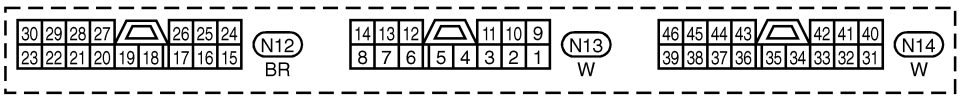
TEL096M

## Wiring Diagram — WIPER — (Cont'd)

EL-WIPER-03





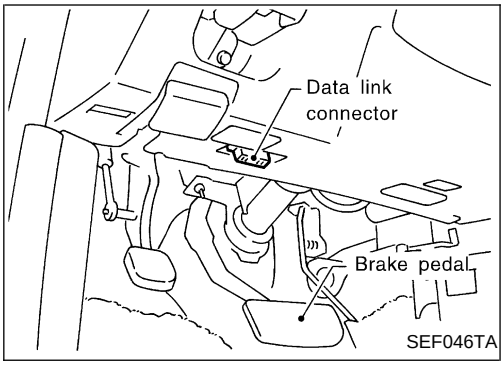
REFER TO THE FOLLOWING.

M4 , M6 -SUPER MULTIPLE JUNCTION (SMJ)

M1 -FUSE BLOCK-JUNCTION BOX (J/B)

M22 -ELECTRICAL UNITS

TEL097M

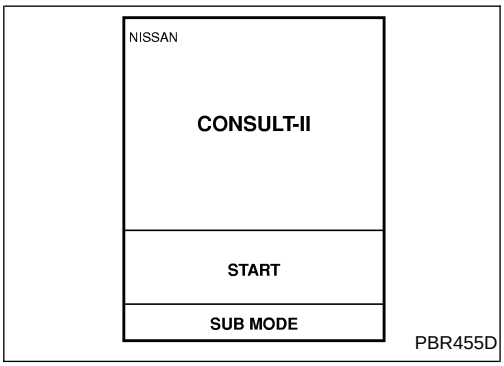


SEF046TA

# CONSULT-II

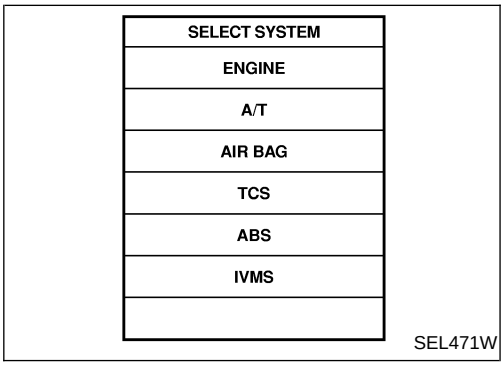
## CONSULT-II INSPECTION PROCEDURE

1. Turn ignition switch “OFF”.
2. Connect “CONSULT-II” to the data link connector.



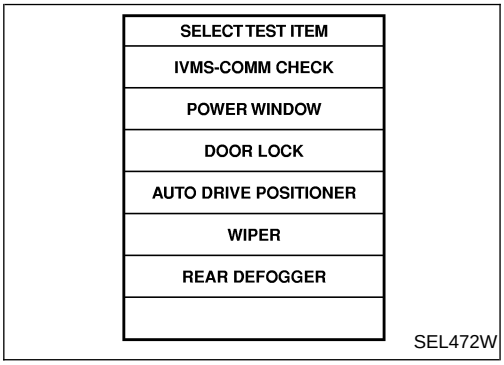
PBR455D

3. Turn ignition switch “ON”.
4. Touch “START”.



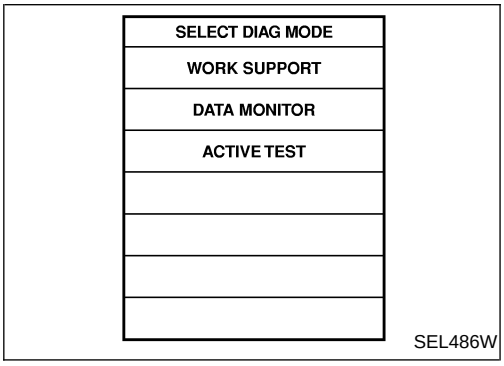
SEL471W

5. Touch “IVMS”.



SEL472W

6. Touch “WIPER”.

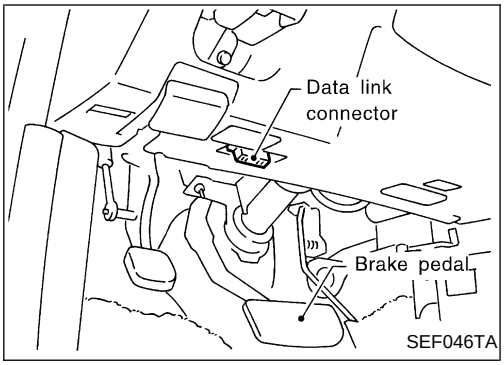


SEL486W

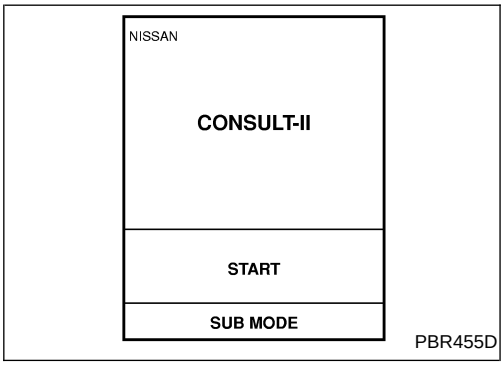
- WORK SUPPORT, DATA MONITOR and ACTIVE TEST are available for the wiper and washer.

## CONSULT-II (Cont'd)

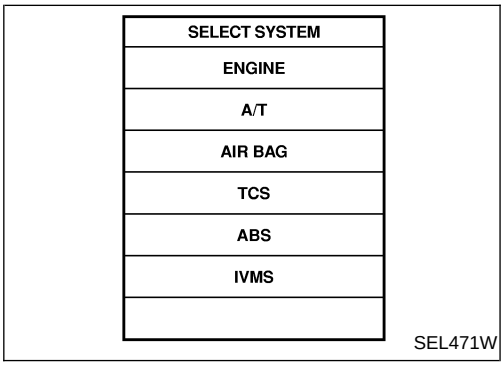
### CONSULT-II CUSTOMIZING PROCEDURE



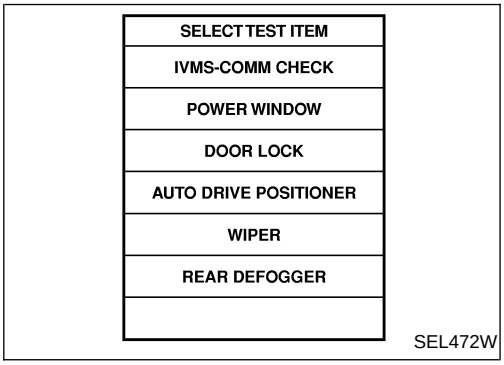

1. Turn ignition switch "OFF".
2. Connect "CONSULT-II" to the data link connector.



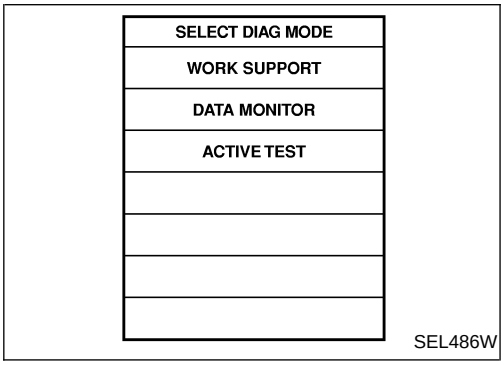

3. Turn ignition switch "ON".
4. Touch "START".




5. Touch "IVMS".

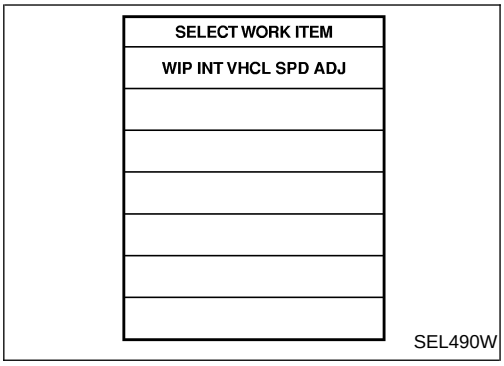



6. Touch "WIPER".



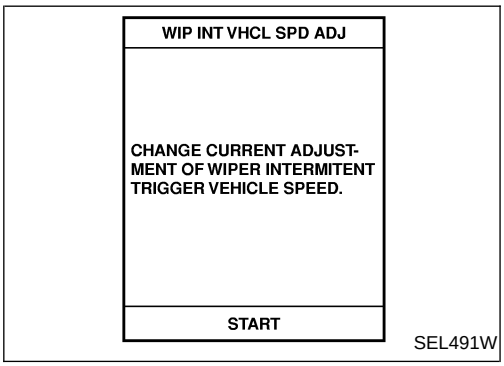

7. Touch "WORK SUPPORT".

## CONSULT-II (Cont'd)



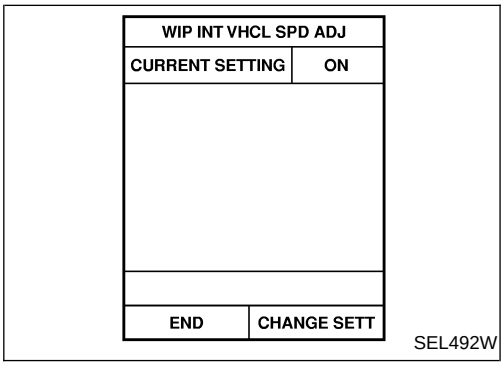
SEL490W

8. Touch "WIP INT VHCL SPD ADJ".



SEL491W

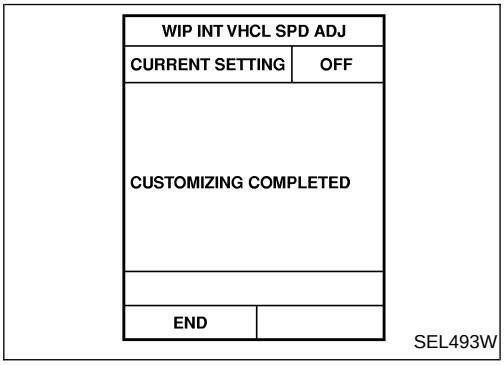
9. Touch "START".
- Wiper intermittent speed control by vehicle speed can be canceled or resumed.



SEL492W

10. Touch "CHANGE SETT" for changing "CURRENT SETTING". For no changing "CURRENT SETTING", touch "END".

| "CURRENT SETTING" | Wiper intermittent speed control |
|---|---|
| "ON" | Activated |
| "OFF" | Disactivated |

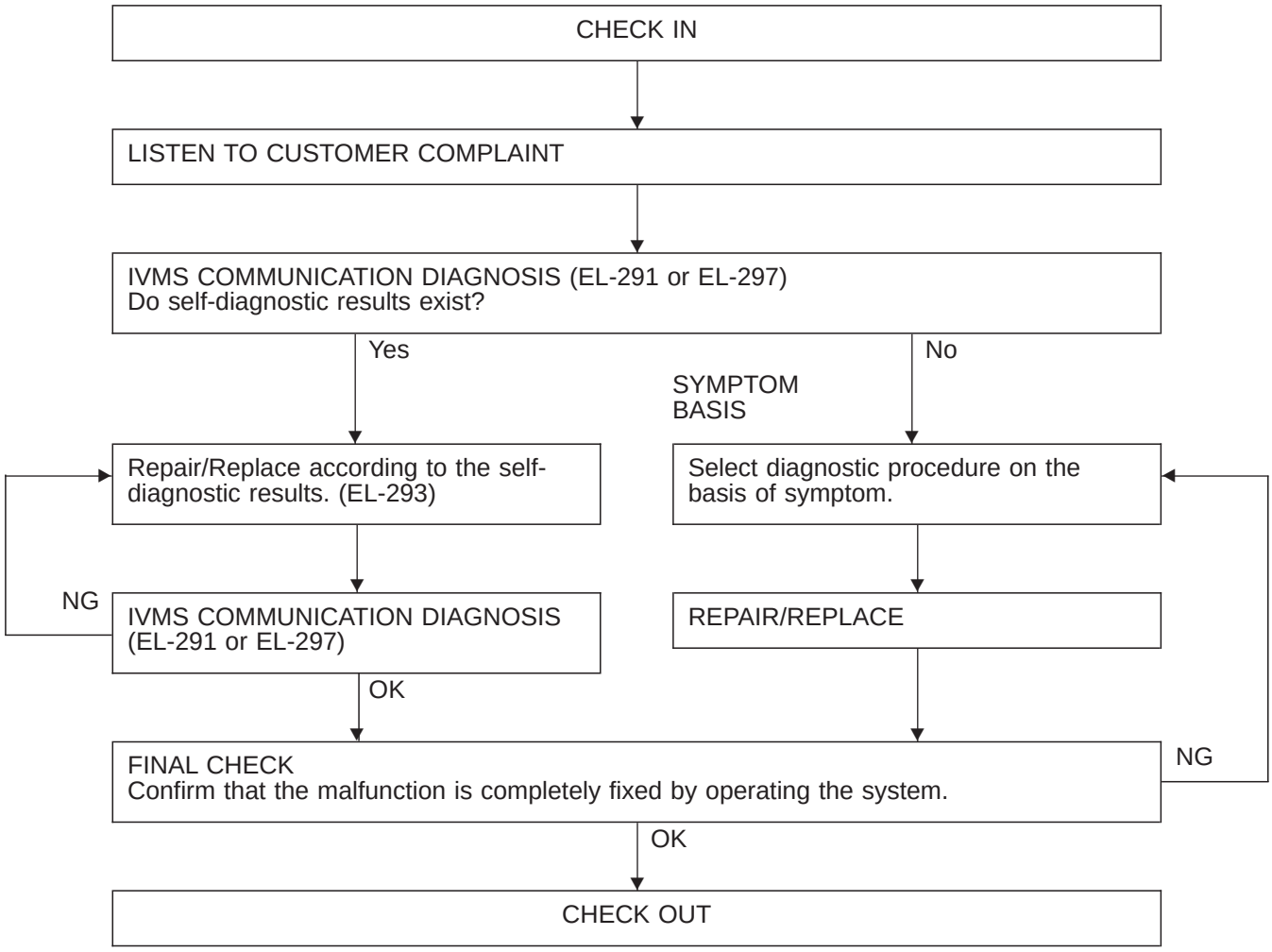


SEL493W

11. Touch "END" after customizing is completed.

## Trouble Diagnoses

### WORK FLOW




**NOTICE:**

- **When LCU connectors are disconnected for more than 1 minute such as during trouble diagnoses, the "disconnected" data will be memorized by the BCM. (While BCM memorizes the "disconnected" data, IVMS communication diagnosis of CONSULT-II will display "PAST NO RESPONSE".) Therefore, after reconnecting the LCU connectors, erase the memory.**
- **To erase the memory, perform the procedure below.**
  **Erase the memory with CONSULT-II (Refer to EL-291.) or turn the ignition switch to "OFF" position and remove 7.5A fuse [No. 14 located in the fuse block (J/B)].**

# Trouble Diagnoses (Cont'd)

## DIAGNOSTIC PROCEDURE 1

### SYMPTOM: Intermittent wiper does not operate.

A

| DATA MONITOR | |
|---|---|
| MONITOR | |
| INT SW | OFF |
| | |
| | RECORD |

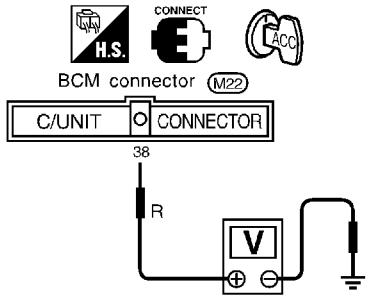
SEL503W

B

| DATA MONITOR | |
|---|---|
| MONITOR | |
| WIPR AUTO STP | ACC |
| | |
| | RECORD |

SEL504W

C




SEL648UB

**CHECK INTERMITTENT WIPER SWITCH INPUT SIGNAL.**

A CONSULT-II

See "INT SW" in DATA MONITOR mode.
When wiper switch is in INT position:
**INT SW ON**
When wiper switch is in OFF position:
**INT SW OFF**

OR

ON BOARD

Check wiper switch (INT) in Switch monitor (Mode II) mode. (Refer to On board Diagnosis, EL-299.)

Refer to wiring diagram in EL-187.

NG → Check the following.
- Front wiper switch
- Harness for open or short between BCM and wiper switch
- Front wiper switch ground circuit.

Note: When "Data monitor" is operating, intermittent wiper do not operate.

OK ↓

**CHECK WIPER AUTO STOP SIGNAL.**

B CONSULT-II

See "WIP AUTO STOP" in DATA MONITOR mode, and turn wiper switch to LO or HI position.
When wiper switch is in INT or OFF:
**WIP AUTO STOP ACC**
When wiper switch is in LO or HI:
**WIP AUTO STOP GND**

OR

C TESTER

1. Turn ignition switch to ACC.
2. Turn wiper switch to LO or HI position.
3. Check voltage between BCM connector terminal ㊳ and ground.

| Wiper condition | Voltage V |
|---|---|
| Moving | 0 |
| Stop | Approx. 12 |

Refer to wiring diagram in EL-186.

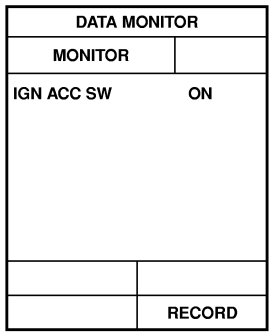
NG → Check the following.
- Wiper motor
- Wiper ground circuit
- Harness for open or short between BCM and wiper motor

OK ↓

Ⓐ

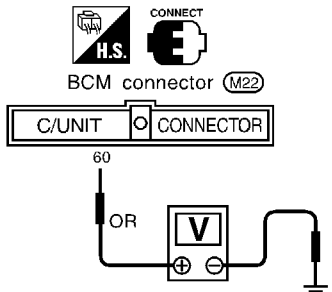
## Trouble Diagnoses (Cont'd)

D



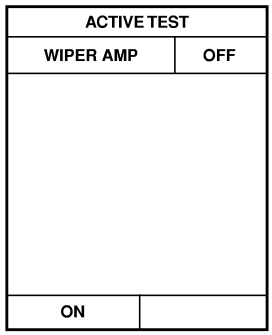

SEL505W

E




SEL682UA

F




SEL494W

Ⓐ

**CHECK IGNITION SWITCH ACC SIGNAL.**

D CONSULT-II

See "IGN ACC SW" in DATA MONITOR mode.
When ignition switch is ACC or ON
**IGN ACC SW ON**
When ignition switch is OFF
**IGN ACC SW OFF**

NG → Check the following.
- 7.5A fuse [No. 23, located in the fuse block (J/B)]
- Harness for open or short between fuse and BCM

OR

E TESTER

Check voltage between BCM terminal 60 and ground.

| Condition of ignition switch | Voltage V |
|---|---|
| ACC or ON | Approx. 12 |
| OFF | 0 |

Refer to wiring diagram in EL-186.

OK ↓

F

**CHECK WIPER OPERATION.**

CONSULT-II

See "WIPER AMP" in ACTIVE TEST mode.
Perform operation shown on display.
**Wiper motor should operate.**
**Note:**
**If CONSULT-II is not available, skip this procedure and go to procedure 5.**

OK → Replace BCM.

NG ↓

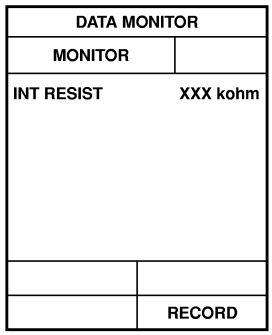
Go to procedure 5.

# Trouble Diagnoses (Cont'd)

## DIAGNOSTIC PROCEDURE 2

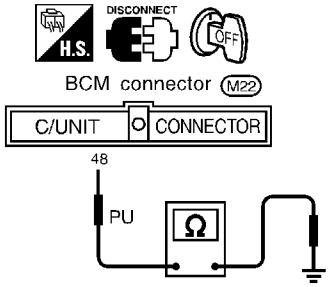
**SYMPTOM: Intermittent time of wiper cannot be adjusted.**

A




SEL506W

B




SEL566UA

**CHECK INTERMITTENT WIPER VOLUME INPUT SIGNAL.**

A CONSULT-II

See "INT RESIST" in DATA MONITOR mode while turning intermittent wiper volume.

| Position of wiper knob | Resistance kΩ |
|---|---|
| Short interval | Approx. 0 |
| Long interval | Approx. 1 |

OR

B TESTER

Measure resistance between BCM terminal ㊽ and ground while turning intermittent wiper volume.

| Position of wiper knob | Resistance kΩ |
|---|---|
| Short interval | Approx. 0 |
| Long interval | Approx. 1 |

Refer to wiring diagram in EL-187.

OK → Replace BCM.

NG ↓

Check front wiper switch.

NG → Replace intermittent wiper volume.

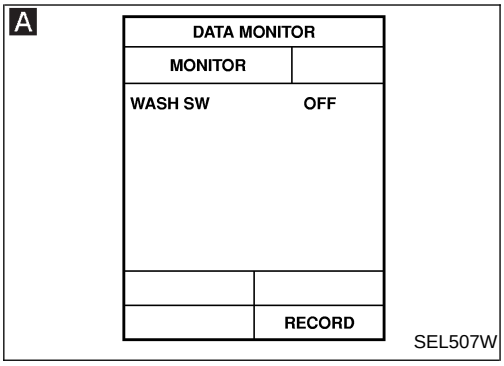
OK ↓

Check the following.
- Harness for open or short between BCM and intermittent wiper volume
- Intermittent wiper volume ground circuit

# Trouble Diagnoses (Cont'd)

## DIAGNOSTIC PROCEDURE 3

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




**CHECK WASHER SWITCH INPUT SIGNAL.**

A CONSULT-II

See "WASH SW" in DATA MONITOR mode.
When washer switch is ON:
**WASH SW ON**
When washer switch is OFF:
**WASH SW OFF**

NG → Check the following.
- Harness for open or short between BCM and wiper switch

OR

ON BOARD

Check wiper switch (WASH) in Switch monitor (Mode II) mode. (Refer to On board Diagnosis, EL-299).

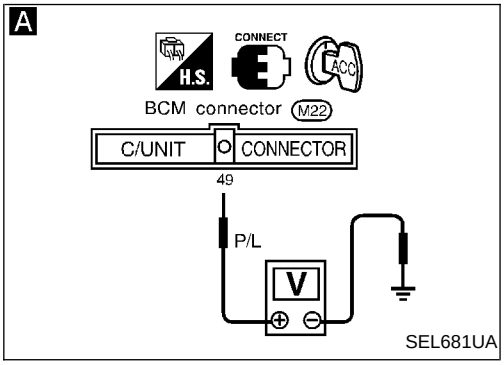
Refer to wiring diagram in EL-187.

OK ↓

Replace BCM.

## DIAGNOSTIC PROCEDURE 4

**SYMPTOM: Intermittent wiper operates, but there is no change in intermittent time between when vehicle is stopped and moving.**




Does speedometer operate normally?

No → Check vehicle speed sensor circuit. Refer to EL-151.

Yes ↓

A

**CHECK VEHICLE SPEED SENSOR PULL UP VOLTAGE.**
1. Turn ignition switch to ACC.
2. Check voltage between BCM terminal ㊾ and ground.
**Approx. 5V should exist.**

Refer to wiring diagram in EL-188.

NG → Replace BCM.

OK ↓

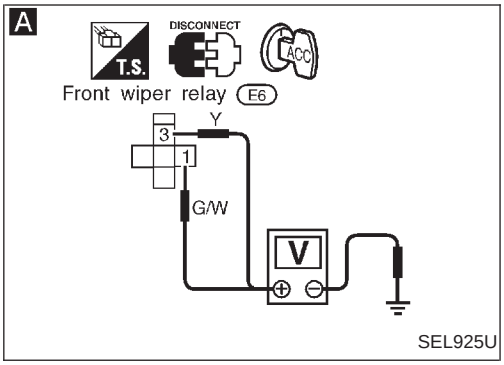
Check harness for open or short between BCM terminal ㊾ and combination meter terminal ⑱.

# Trouble Diagnoses (Cont'd)

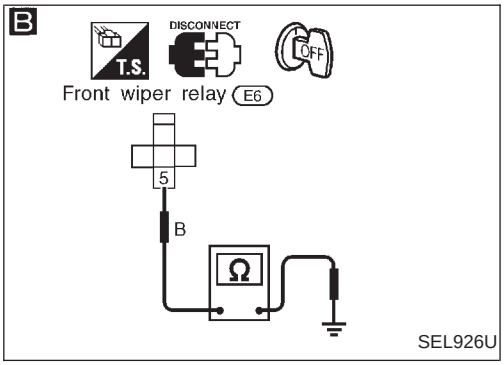
## DIAGNOSTIC PROCEDURE 5

**SYMPTOM: Wiper and washer activate individually but intermittent wiper and washer combination does not operate.**

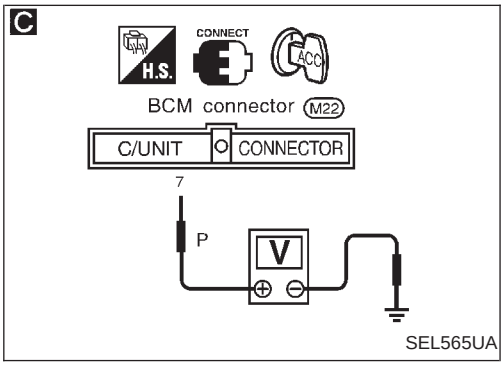
A




B




C




A

**CHECK POWER SUPPLY CIRCUIT FOR FRONT WIPER RELAY.**
1. Disconnect front wiper relay.
2. Turn wiper switch to OFF or INT position.
3. Turn ignition switch to ACC position.
4. Check voltage between front wiper relay connector terminal ① or ③ and ground.
   **Battery voltage should exist.**

Refer to wiring diagram in EL-186.

NG → Check the following.
- 20A fuse [No. 11, located in the fuse block (J/B)]
- Harness for open or short

OK ↓

B

**CHECK GROUND CIRCUIT FOR FRONT WIPER RELAY.**
Check continuity between front wiper connector terminal ⑤ and ground.
**Continuity should exist.**

NG → Repair harness.

OK ↓

Check front wiper relay.

NG → Replace relay.

OK ↓

C

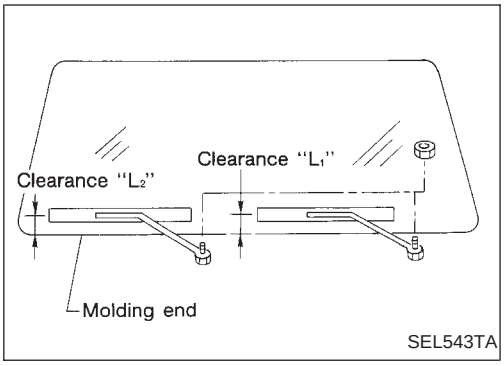
**CHECK BCM OUTPUT SIGNAL.**
1. Connect front wiper relay.
2. Turn ignition switch to ACC.
3. Check voltage between BCM connector terminal ⑦ and ground.

| Wiper switch condition | Voltage V |
|---|---|
| Wash | 0 (for 0.7 sec.) |
| OFF | Approx. 12 |

OK → Check harness for open or short between front wiper relay and BCM.

NG ↓

Replace BCM.

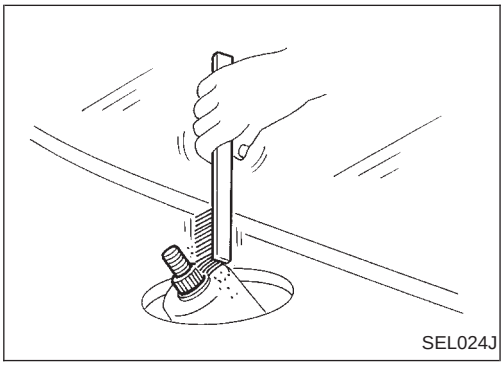



## Removal and Installation

### 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 "$L_1$": 20 - 34 mm (0.79 - 1.34 in)**
   **Clearance "$L_2$": 23 - 37 mm (0.91 - 1.46 in)**

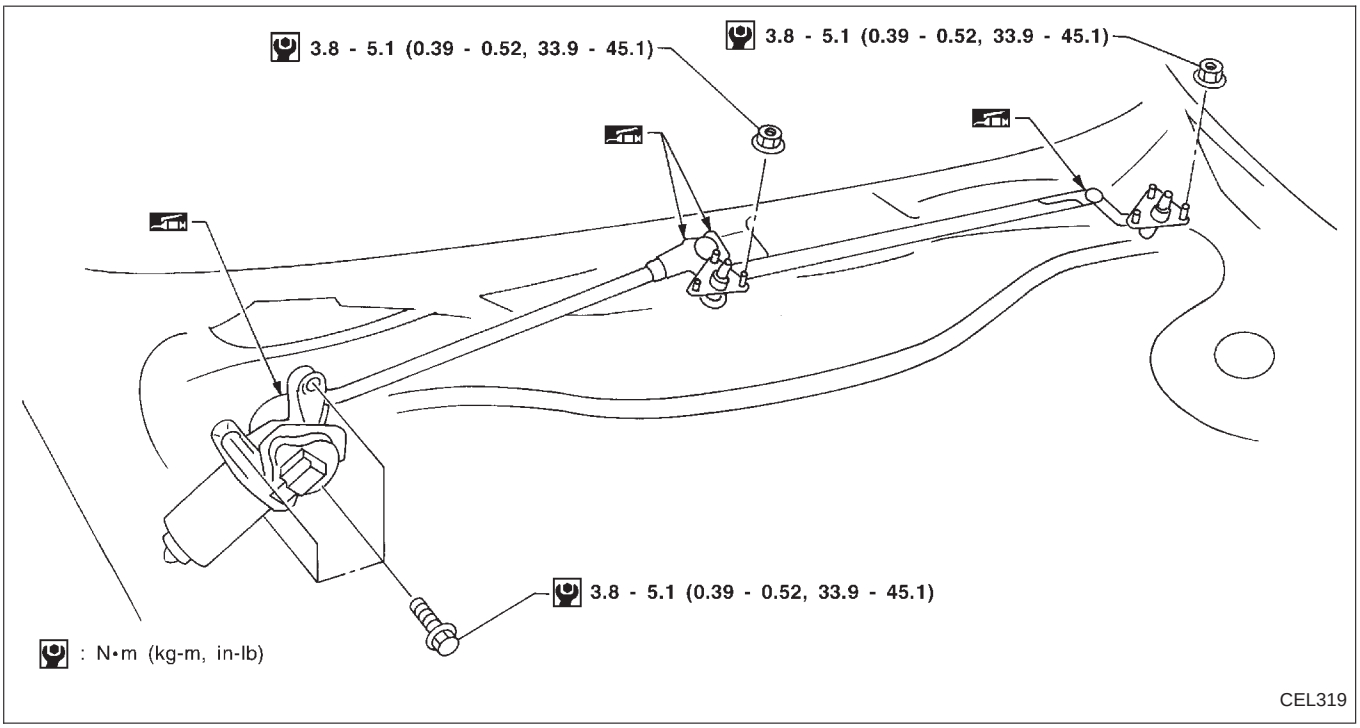
- Tighten wiper arm nuts to specified torque.
  **Front wiper: 21 - 26 N·m (2.1 - 2.7 kg-m, 15 - 20 ft-lb)**




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

## 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

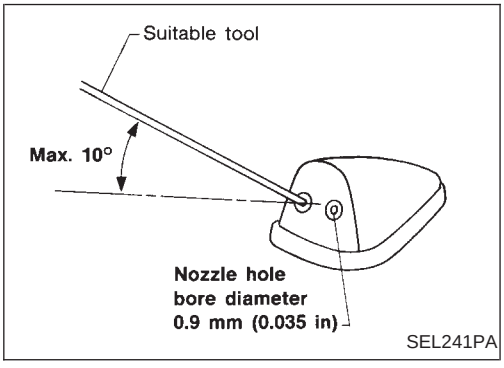
- Grease ball joint portion before installation.

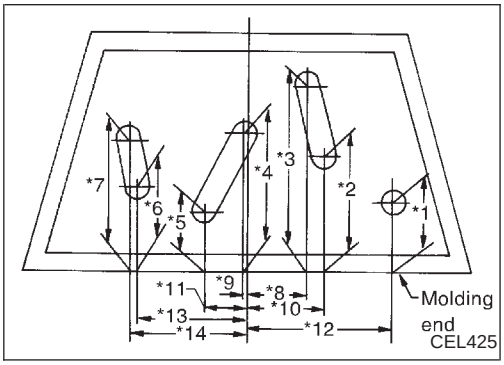
1. Installation is the reverse order of removal.

## Washer Nozzle Adjustment

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

  **Adjustable range: ±10°**

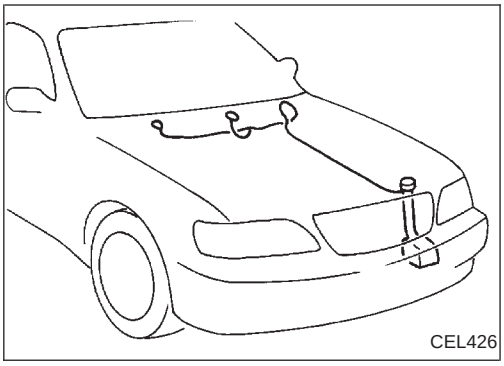



Unit: mm (in)

| | | | |
|---|---|---|---|
| *1 | 236 (9.29) | *8 | 136 (5.35) |
| *2 | 337 (13.27) | *9 | 8 (0.31) |
| *3 | 606 (23.86) | *10 | 216 (8.50) |
| *4 | 422 (16.61) | *11 | 149 (5.87) |
| *5 | 198 (7.80) | *12 | 482 (18.98) |
| *6 | 286 (11.26) | *13 | 376 (14.80) |
| *7 | 436 (17.17) | *14 | 385 (15.16) |

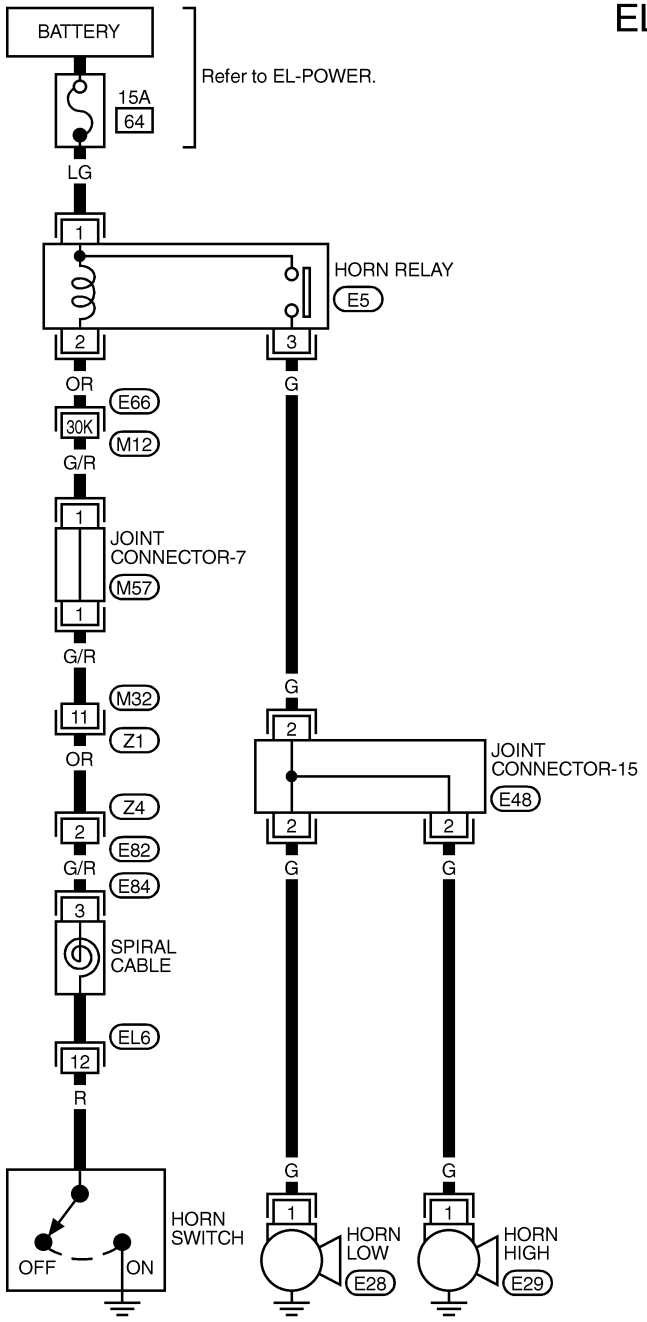
*1: The diameter of a circle is less than 80 mm (3.15 in).
*2 - 7: The radius of the arc across the end of these areas is less than 40 mm (1.57 in).

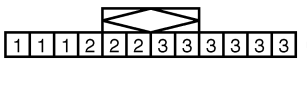


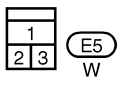

## Washer Tube Layout

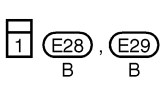
## Wiring Diagram — HORN —

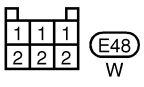
EL-HORN-01

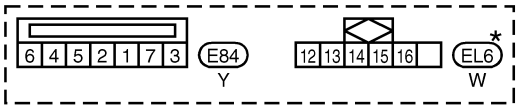


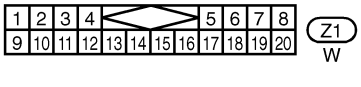



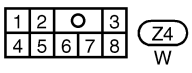



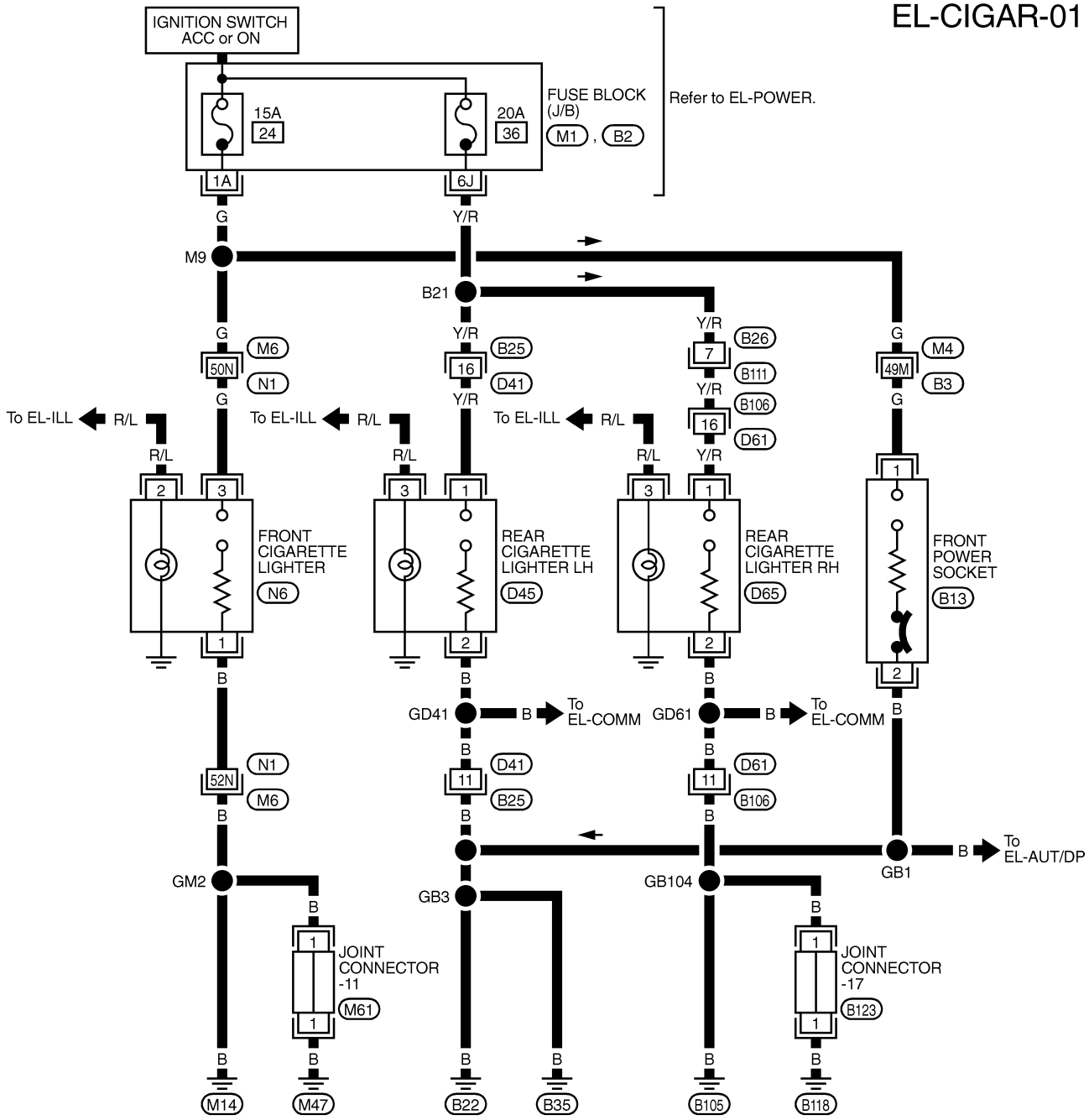



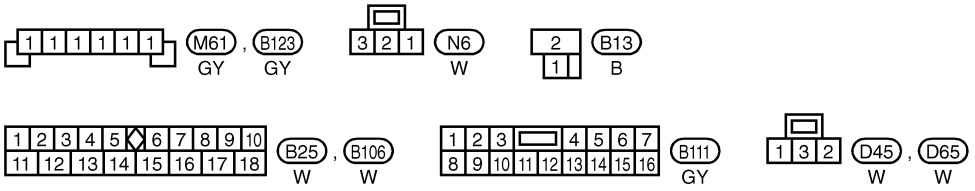

*: This connector is not shown in "HARNESS LAYOUT", EL section.

REFER TO THE FOLLOWING.
E66 -SUPER MULTIPLE JUNCTION (SMJ)

TEL098M

## Wiring Diagram — CIGAR —



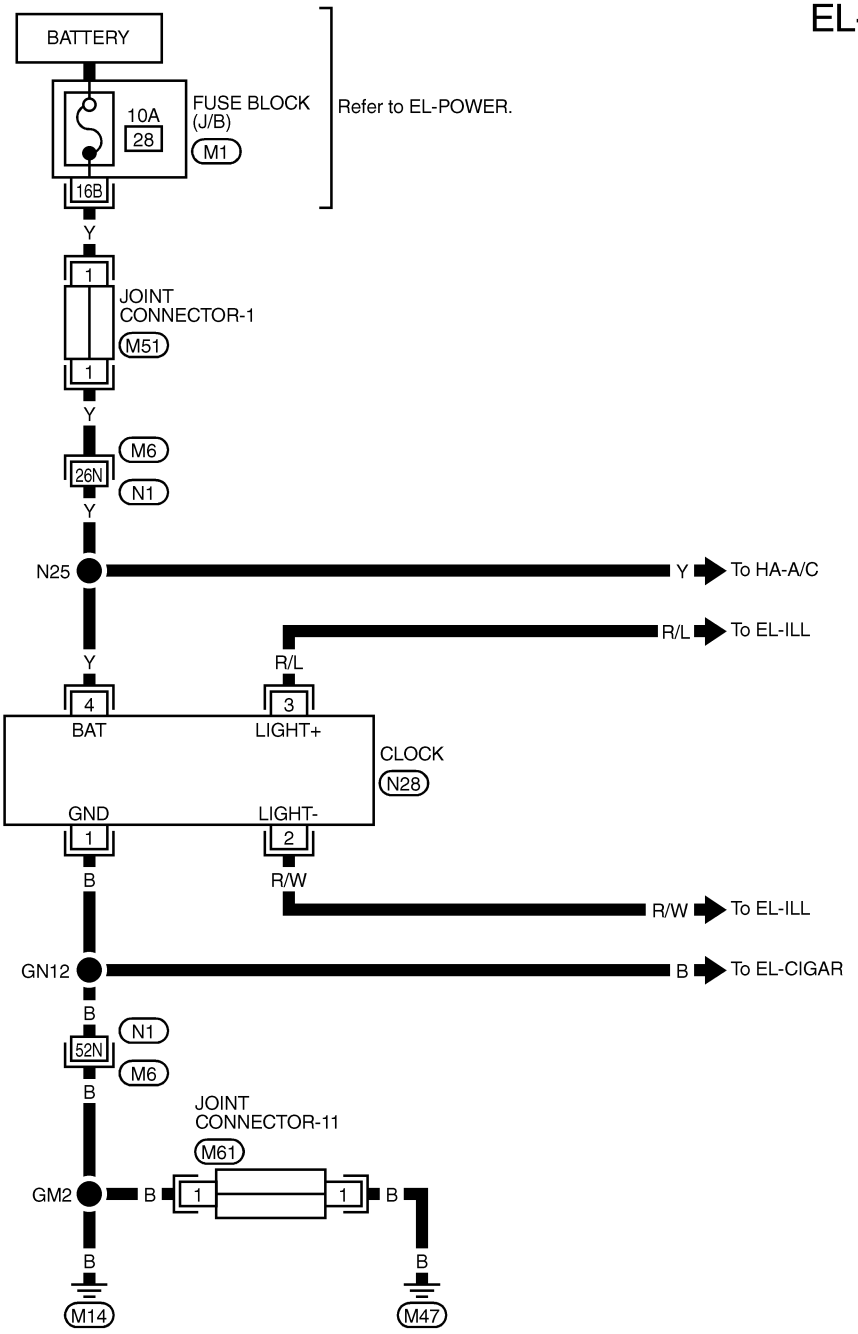



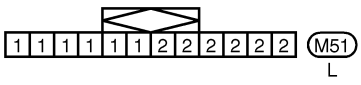

REFER TO THE FOLLOWING.
M4, M6 -SUPER MULTIPLE JUNCTION (SMJ)
M1, B2 -FUSE BLOCK-JUNCTION BOX (J/B)

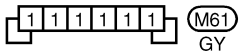
TEL099M

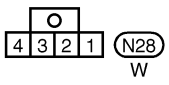
## Wiring Diagram — CLOCK —

EL-CLOCK-01



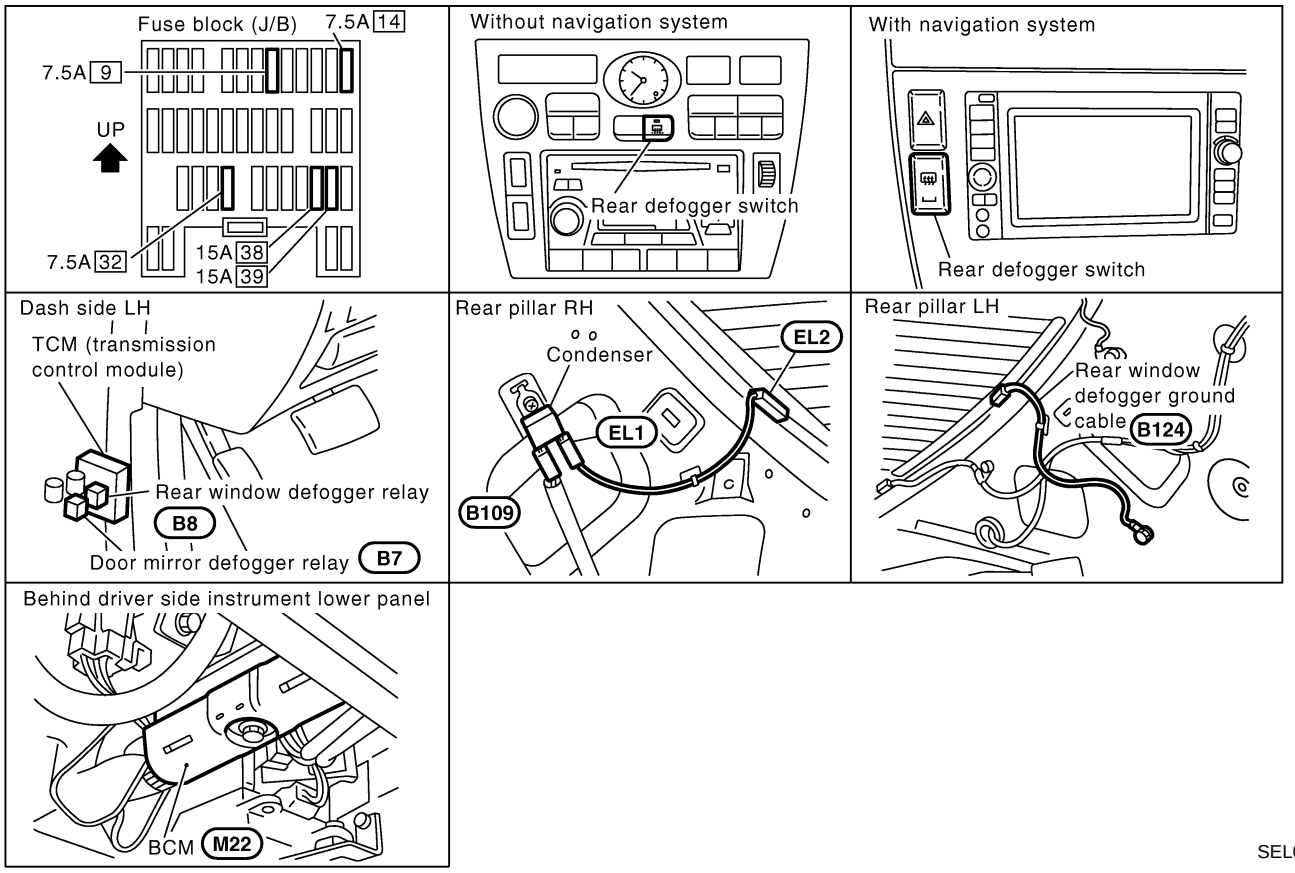




REFER TO THE FOLLOWING.
M6 -SUPER MULTIPLE JUNCTION (SMJ)
M1 -FUSE BLOCK-JUNCTION BOX (J/B)

TEL100M

## Component Parts and Harness Connector Location




SEL090Y

## System Description

### FUNCTION

- The following time control function is controlled by BCM.

| Item | Details of control |
|---|---|
| Rear window defogger timer | Turn off rear window defogger about 15 minutes after the rear window defogger switch is turned “ON”. |

### REAR WINDOW DEFOGGER TIMER

The rear window defogger system is controlled by the BCM.
Power is supplied at all times

- through 15A fuse [No. 38, located in the fuse block (J/B)]
- to the rear window defogger relay terminal ⑥, and
- through 15A fuse [No. 39, located in the fuse block (J/B)]
- to the rear window defogger relay terminal ③.

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

- to the rear window defogger relay terminal ①, and,
- to BCM terminal 68
- through 7.5A fuse [No. 32, located in the fuse block (J/B)].

When the rear window defogger switch is ON, ground is supplied

- through terminal ② of the rear window defogger switch
- to BCM terminal ⑩.

Terminal ① of the BCM then supplies ground to the rear window defogger relay terminal ②.
With power and ground supplied, the rear window defogger relay is energized to operate rear window defogger for about 15 minutes.
When the system is activated, the rear window defogger indicator in the rear window defogger switch illuminates.

## System Description (Cont'd)

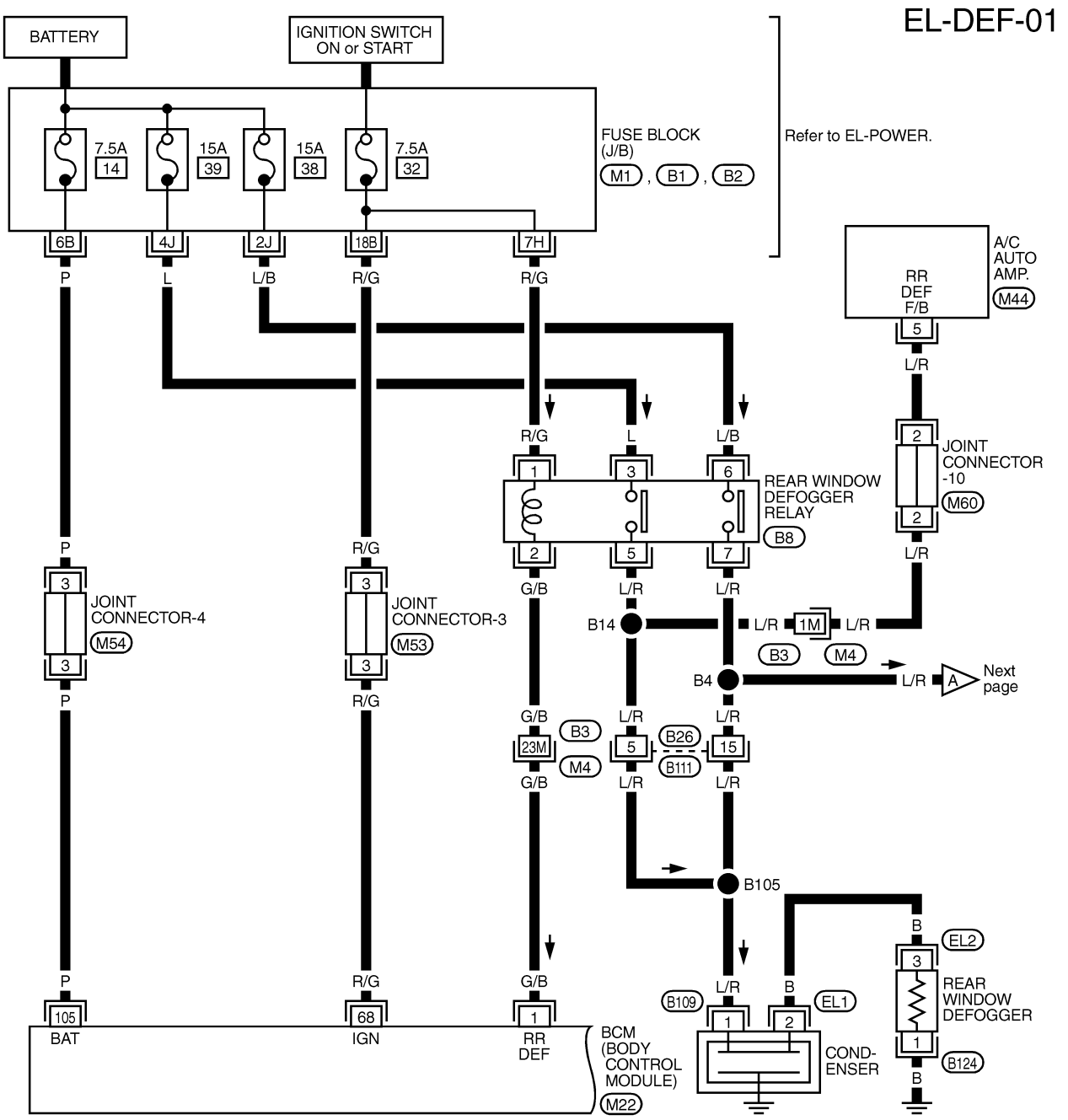
Power is supplied

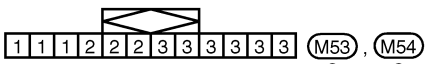
- from rear window defogger relay terminal ⑤
- to A/C auto amp. terminal ⑤ (without navigation system) or to the rear window defogger switch terminal ③ (with navigation system).

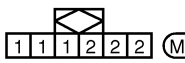
Then A/C auto amp. sends an indicator signal to A/C control unit combined with rear window defogger switch (without navigation system) or terminal ④ of the rear window defogger switch is grounded through body grounds (M14) and (M47) (with navigation system).

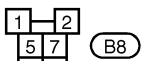
## Wiring Diagram — DEF —

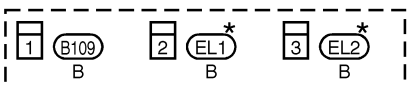
### WITHOUT NAVIGATION SYSTEM

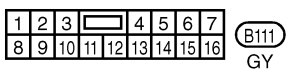


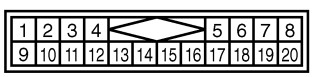







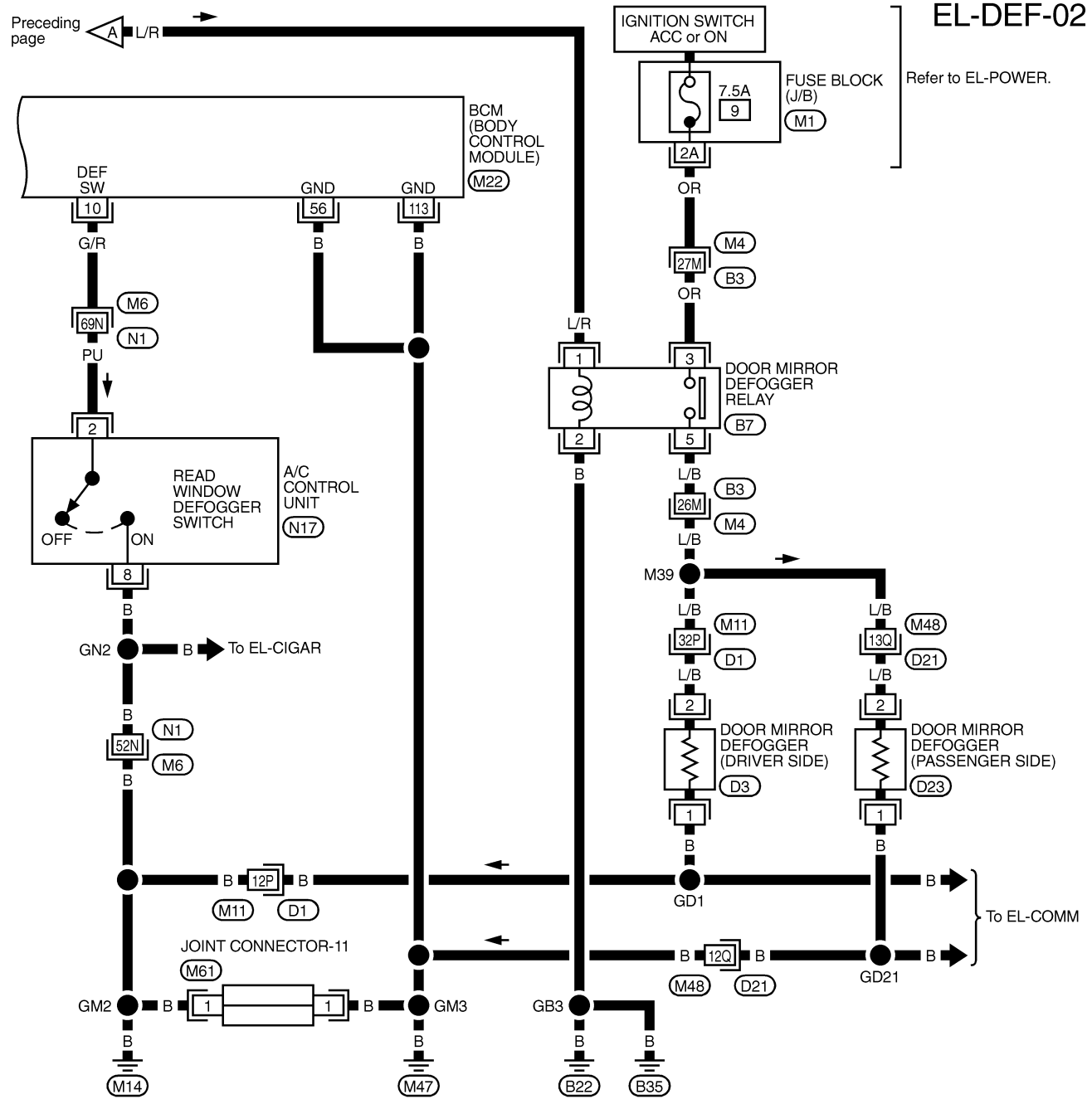

∗: This connector is not shown in "HARNESS LAYOUT", EL section.

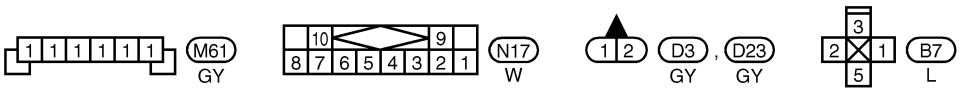
REFER TO THE FOLLOWING.
M4 -SUPER MULTIPLE JUNCTION (SMJ)
M1, B1, B2 -FUSE BLOCK-JUNCTION BOX (J/B)
M22 -ELECTRICAL UNITS

TEL101M

## Wiring Diagram — DEF — (Cont'd)

### WITHOUT NAVIGATION SYSTEM



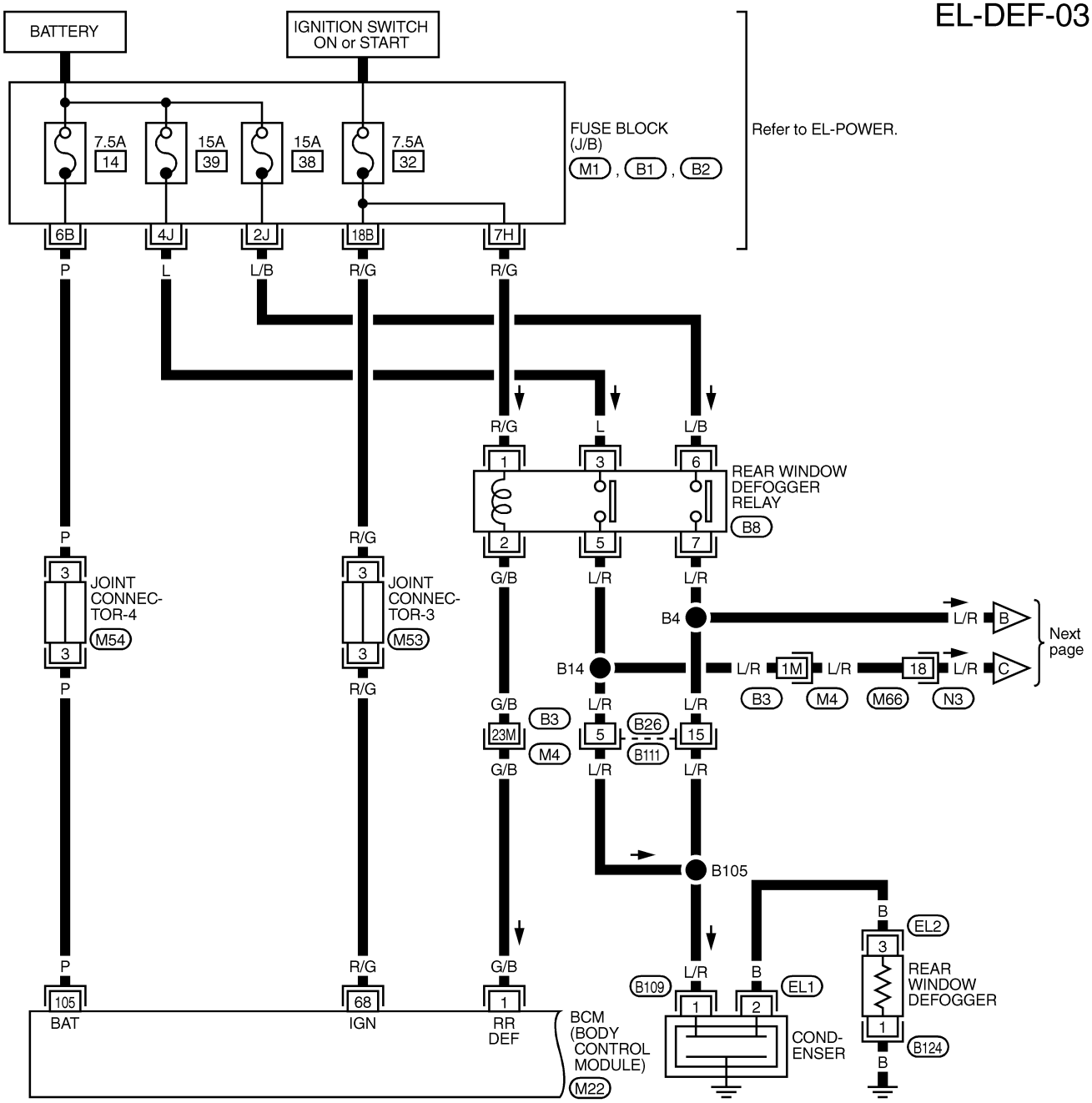

REFER TO THE FOLLOWING.
M4 , M6 , D1 , D21
-SUPER MULTIPLE JUNCTION (SMJ)
M1 -FUSE BLOCK-JUNCTION BOX (J/B)
M22 -ELECTRICAL UNITS

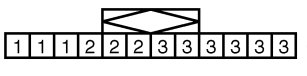
TEL102M

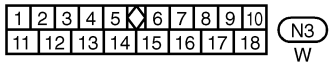
## Wiring Diagram — DEF — (Cont'd)

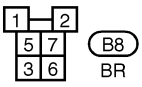
### WITH NAVIGATION SYSTEM

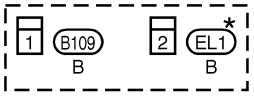
EL-DEF-03

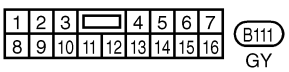


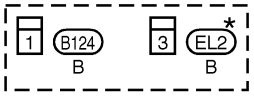



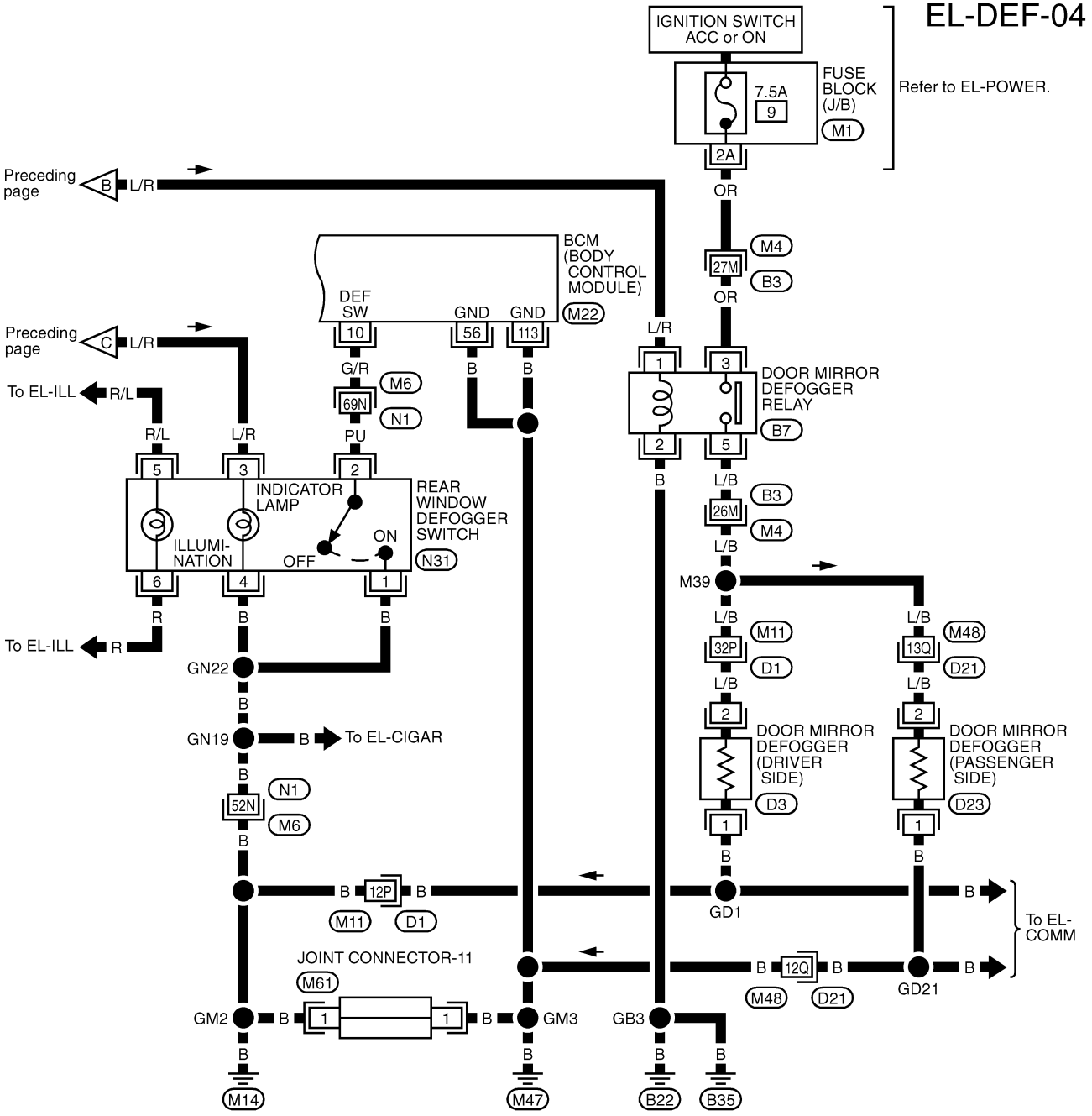

REFER TO THE FOLLOWING.
M4 -SUPER MULTIPLE JUNCTION (SMJ)
M1, B1, B2 -FUSE BLOCK-JUNCTION BOX (J/B)
M22 -ELECTRICAL UNITS

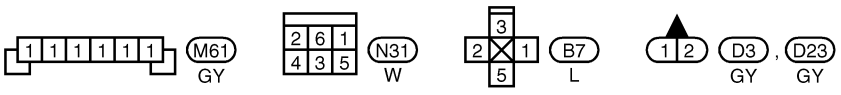
★: This connector is not shown in "HARNESS LAYOUT", EL section.

TEL748B

## Wiring Diagram — DEF — (Cont'd)

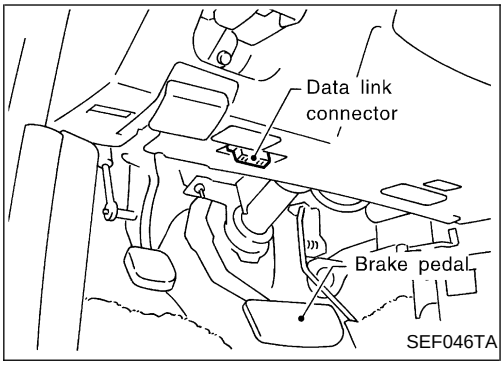
### WITH NAVIGATION SYSTEM




REFER TO THE FOLLOWING.
M4 , M6 , D1 , D21 -SUPER MULTIPLE JUNCTION (SMJ)
M1 -FUSE BLOCK-JUNCTION BOX (J/B)
M22 -ELECTRICAL UNITS

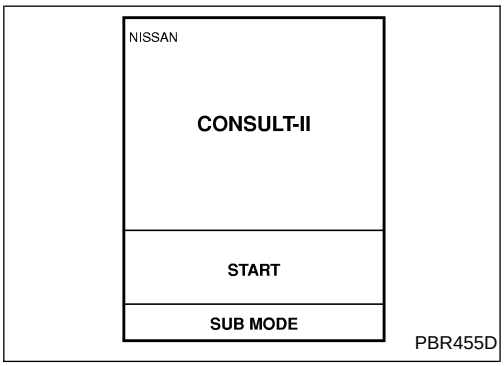
TEL749B



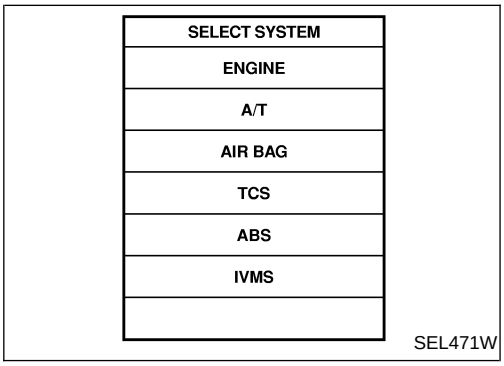

## CONSULT-II

### CONSULT-II INSPECTION PROCEDURE

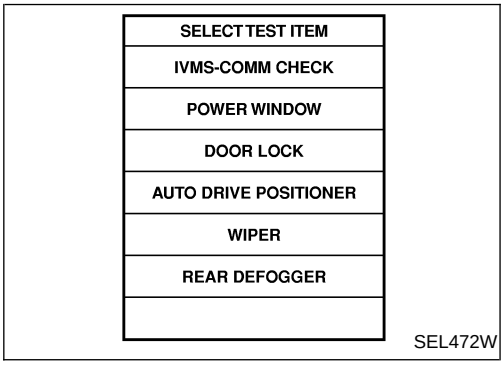
1. Turn ignition switch “OFF”.
2. Connect “CONSULT-II” to the data link connector.



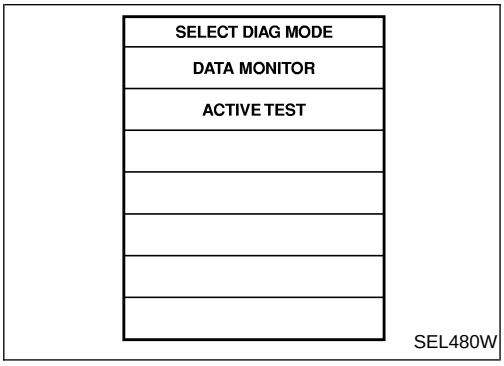

3. Turn ignition switch “ON”.
4. Touch “START”.




5. Touch “IVMS”.



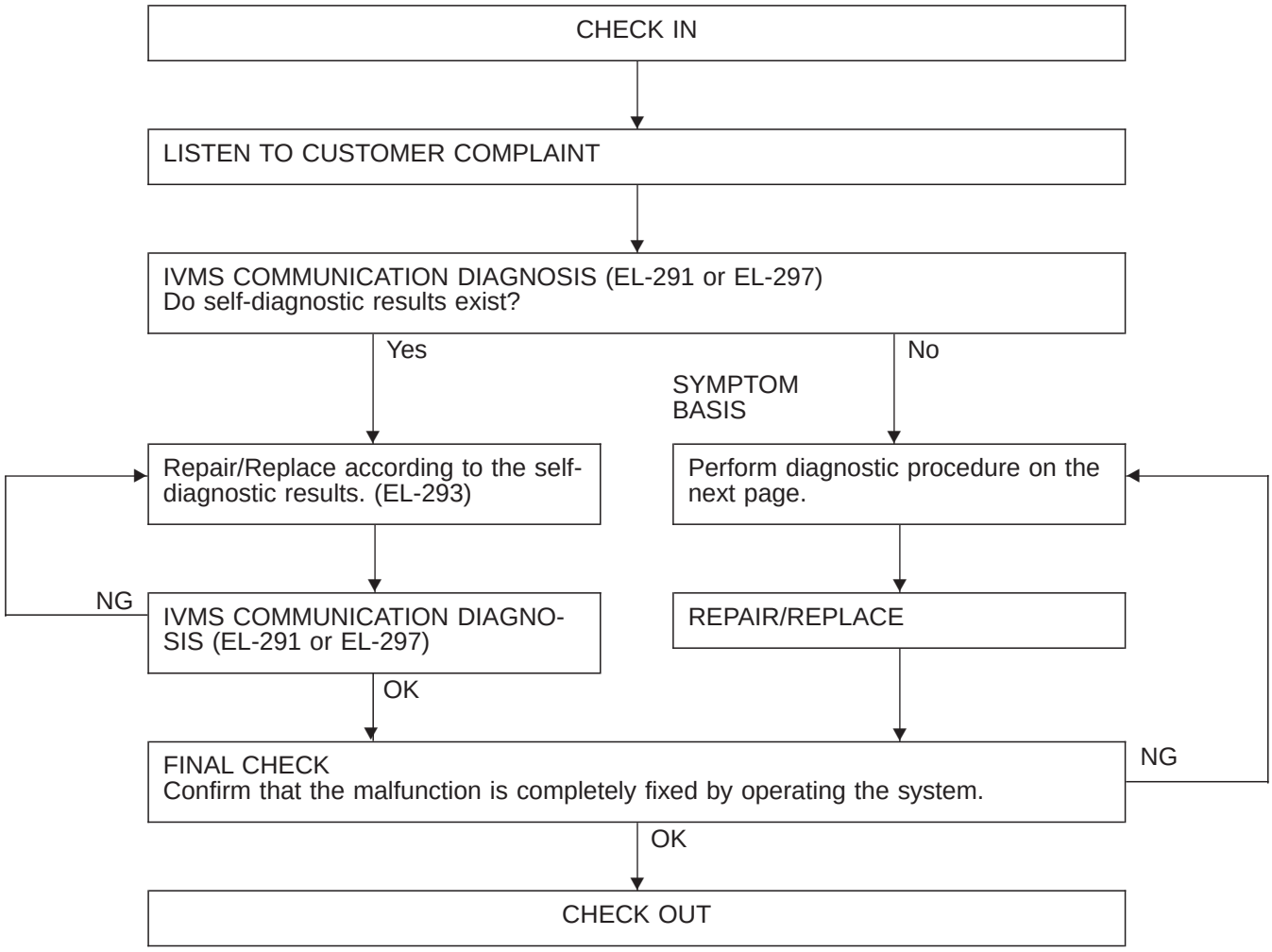

6. Touch “REAR DEFOGGER”.




- DATA MONITOR and ACTIVE TEST are available for the rear window defogger.

## Trouble Diagnoses

### WORK FLOW




**NOTICE:**

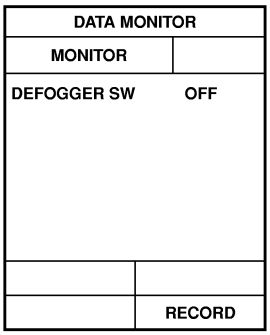
- **When LCU connectors are disconnected for more than 1 minute such as during trouble diagnoses, the "disconnected" data will be memorized by the BCM. (While BCM memorizes the "disconnected" data, IVMS communication diagnosis of CONSULT-II will display "PAST NO RESPONSE".) Therefore, after reconnecting the LCU connectors, erase the memory.**
- **To erase the memory, perform the procedure below.**
  **Erase the memory with CONSULT-II (Refer to EL-291.) or turn the ignition switch to "OFF" position and remove 7.5A fuse [No. 14 located in the fuse block (J/B)].**

# Trouble Diagnoses (Cont'd)

## DIAGNOSTIC PROCEDURE

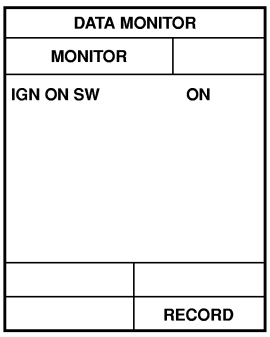
**SYMPTOM: Rear window defogger does not activate or does not turn off after activating.**

A



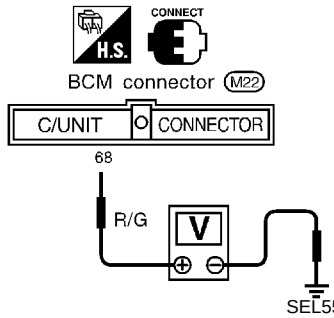

SEL508W

B



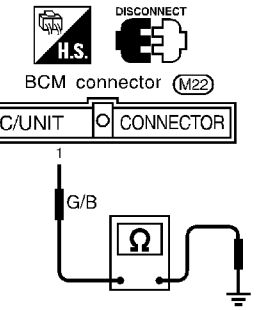

SEL499W

C




SEL556UA

D




SEL655UA

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

A CONSULT-II

See "DEFOGGER SW" in DATA MONITOR mode.
When defogger switch is pushed (turned ON):
**DEFOGGER SW ON**
When defogger switch is pushed again (turned OFF):
**DEFOGGER SW OFF**

OR

ON BOARD

Check rear window defogger switch in Switch monitor (Mode II) mode. (Refer to On board Diagnosis, EL-299.)

NG → Check harness for open or short between BCM and rear window defogger switch.

OK → Replace rear window defogger switch.

NG → Repair harness.

OK ↓

**CHECK IGNITION SWITCH ON SIGNAL.**

B CONSULT-II

See "IGN ON SW" in DATA MONITOR mode.
When ignition switch is ON:
**IGN ON SW ON**
When ignition switch is ACC or OFF:
**IGN ON SW OFF**

OR

C TESTER

Check voltage between BCM terminal 68 and ground.

| Condition of ignition switch | Voltage V |
|---|---|
| ON | Approx. 12 |
| ACC or OFF | 0 |

NG → Check the following.
- 7.5A fuse [No. 32, located in the fuse block (J/B)]
- Harness for open or short between fuse and BCM

OK ↓

D

**CHECK REAR WINDOW DEFOGGER OUTPUT SIGNAL.**

1. Disconnect BCM connector.
2. Check voltage between BCM terminal ① and ground.

| Condition of ignition switch | Voltage V |
|---|---|
| ON | Approx. 12 |
| OFF | 0 |

NG → Check rear window defogger relay.

OK → Check the following.
- 7.5A fuse [No. 32, located in the fuse block (J/B)]
- Harness for open or short between fuse and rear window defogger relay
- Harness for open or short between rear window defogger relay and BCM

NG → Replace relay.

OK ↓

Connect BCM connector.

Ⓐ

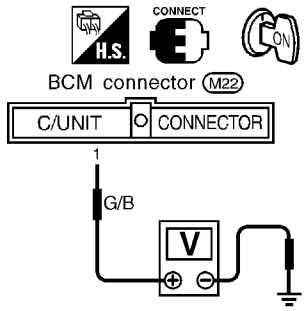
## Trouble Diagnoses (Cont'd)

E

| ACTIVE TEST | |
|---|---|
| RR DEFOGGER RLY | OFF |
| | |
| ON | |

SEL489W

F




SEL924U

Ⓐ

**REAR WINDOW DEFOGGER ACTIVE TEST.**

E CONSULT-II

Perform "RR DEFOGGER RLY" in ACTIVE TEST mode. Check rear defogger relay operation.

NG → Replace BCM.

OR

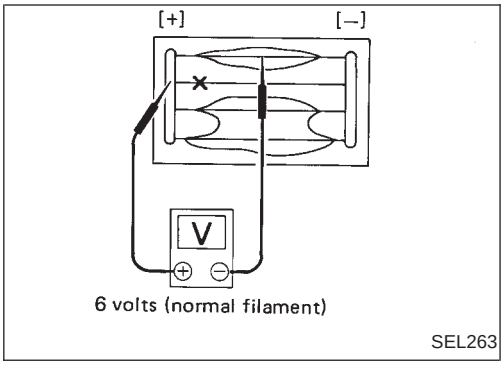
F TESTER

1. Turn ignition switch to ON.
2. Check voltage between BCM terminal ① and ground.

| Condition of rear defogger switch | Voltage V |
|---|---|
| ON | 0 |
| OFF | Approx. 12 |

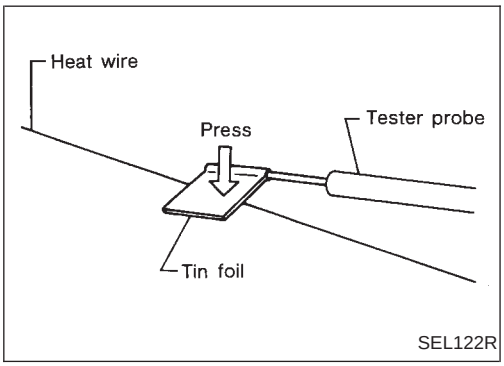
OK ↓

Check rear window defogger circuit.

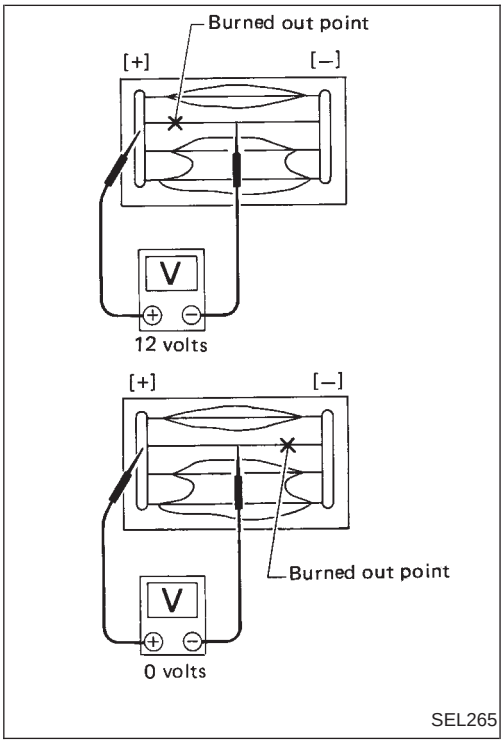



## Filament Check

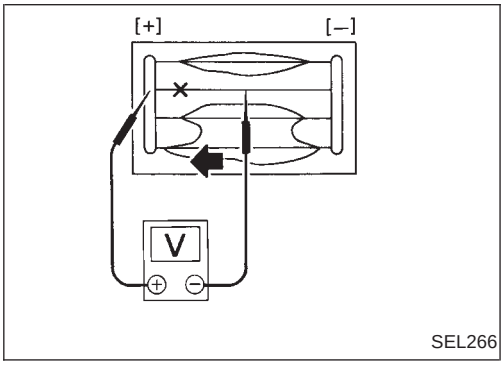
1. Attach probe circuit tester (in volt range) to middle portion of each filament.




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




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

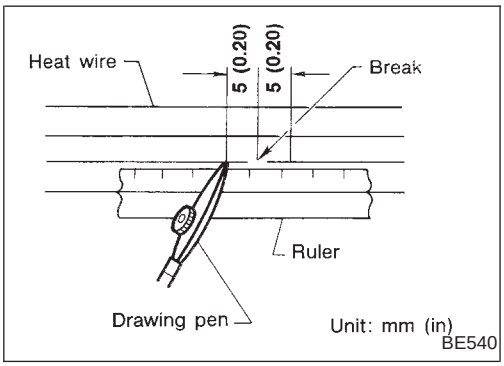



3. To locate burned out point, move probe along filament. Tester needle will swing abruptly when probe passes the point.

## Filament Repair

### REPAIR EQUIPMENT

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



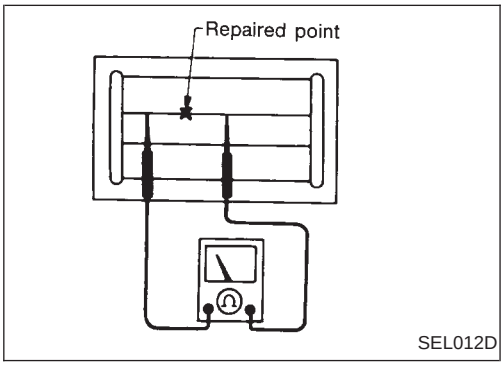

### REPAIRING PROCEDURE

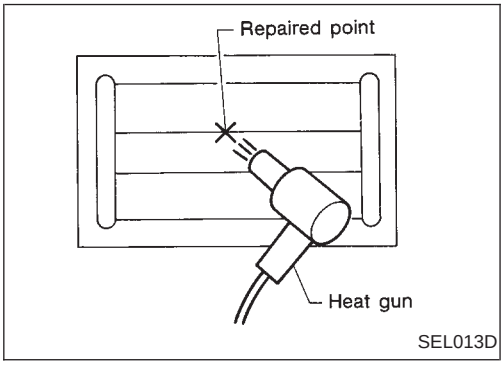
1. Wipe broken heat wire and its surrounding area clean with a cloth dampened in alcohol.
2. Apply a small amount of conductive silver composition to tip of drawing pen.

**Shake silver composition container before use.**

3. Place ruler on glass along broken line. Deposit conductive silver composition on break with drawing pen. Slightly overlap existing heat wire on both sides [preferably 5 mm (0.20 in)] of the break.
4. After repair has been completed, check repaired wire for continuity. This check should be conducted 10 minutes after silver composition is deposited.

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




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

## System Description

### BOSE SYSTEM

Refer to Owner's Manual for audio system operating instructions.
Power is supplied at all times
- through 15A fuse (No. 58, located in the fuse, fusible link and relay box)
- to audio unit terminal ⑥.
- to BOSE speaker amp. terminal ㉗ and
- to audio amp. relay terminal ③.
- through 10A fuse [No. 12, located in the fuse block (J/B)]
- to CD auto changer terminal ㊷.

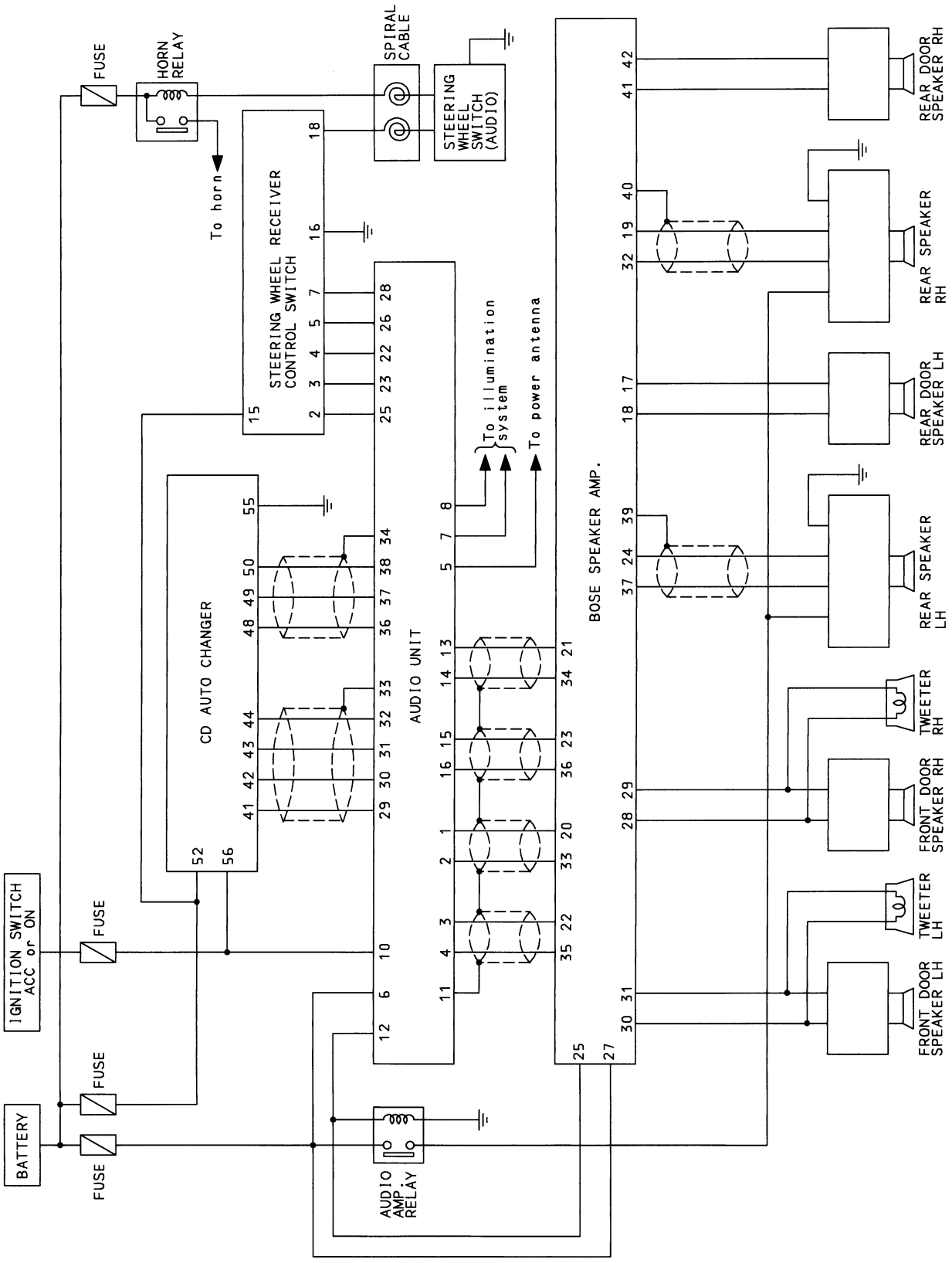
With the ignition switch in the ACC or ON position, power is supplied
- through 10A fuse [No. 8, located in the fuse block (J/B)]
- to audio unit terminal ⑩ and
- to CD auto changer terminal ㊻.

Ground is supplied through the case of the audio unit and BOSE speaker amp.
Ground is also supplied to CD auto changer terminal ㊺ through body grounds B105 and B118.
When the audio unit is turned to the ON position, power is supplied
- through audio unit terminal ⑫
- to BOSE speaker amp. terminal ㉕, and
- to audio amp. relay terminal ①.

The audio amp. relay is energized, power is supplied
- through audio amp. relay terminal ⑤
- to LH and RH rear speaker terminal ③.

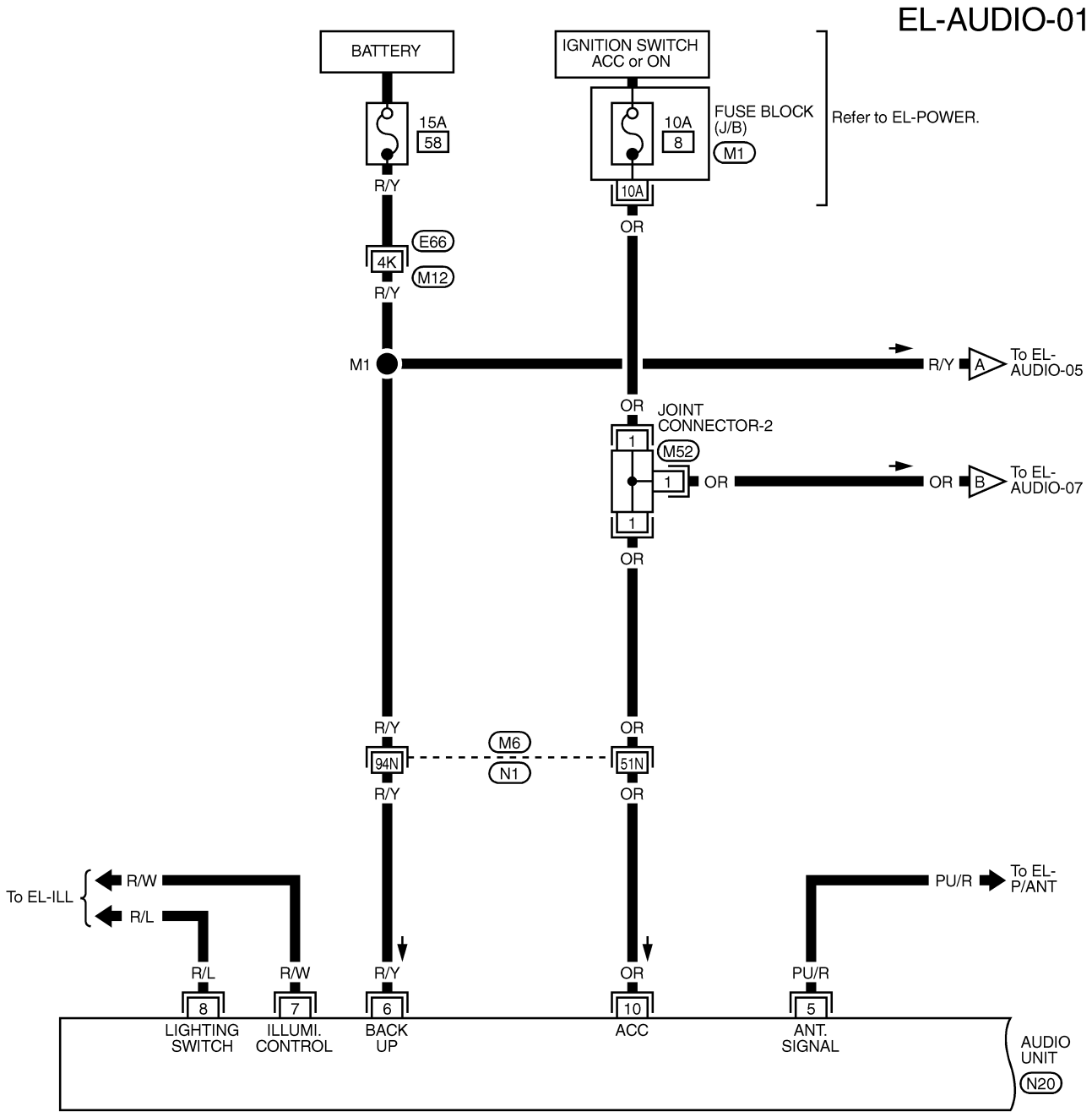
When the audio unit is turned to the ON position, audio signals are supplied
- through terminals ⑬, ⑭, ⑮, ⑯, ①, ②, ③ and ④ of audio unit
- to terminals ㉑, ㉞, ㉓, ㊱, ⑳, ㉝, ㉒ and ㉟ of the BOSE speaker amp.
- through terminals ㉚, ㉛, ㉘, ㉙, ㊲, ㉔, ⑱, ⑰, ㉜, ⑲, ㊶ and ㊷ of the BOSE speaker amp.
- to tweeters and the front and rear door speakers and rear speakers terminals ① and ②.

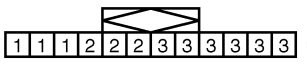
## Schematic

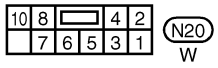



TEL200M

## Wiring Diagram — AUDIO —




REFER TO THE FOLLOWING.

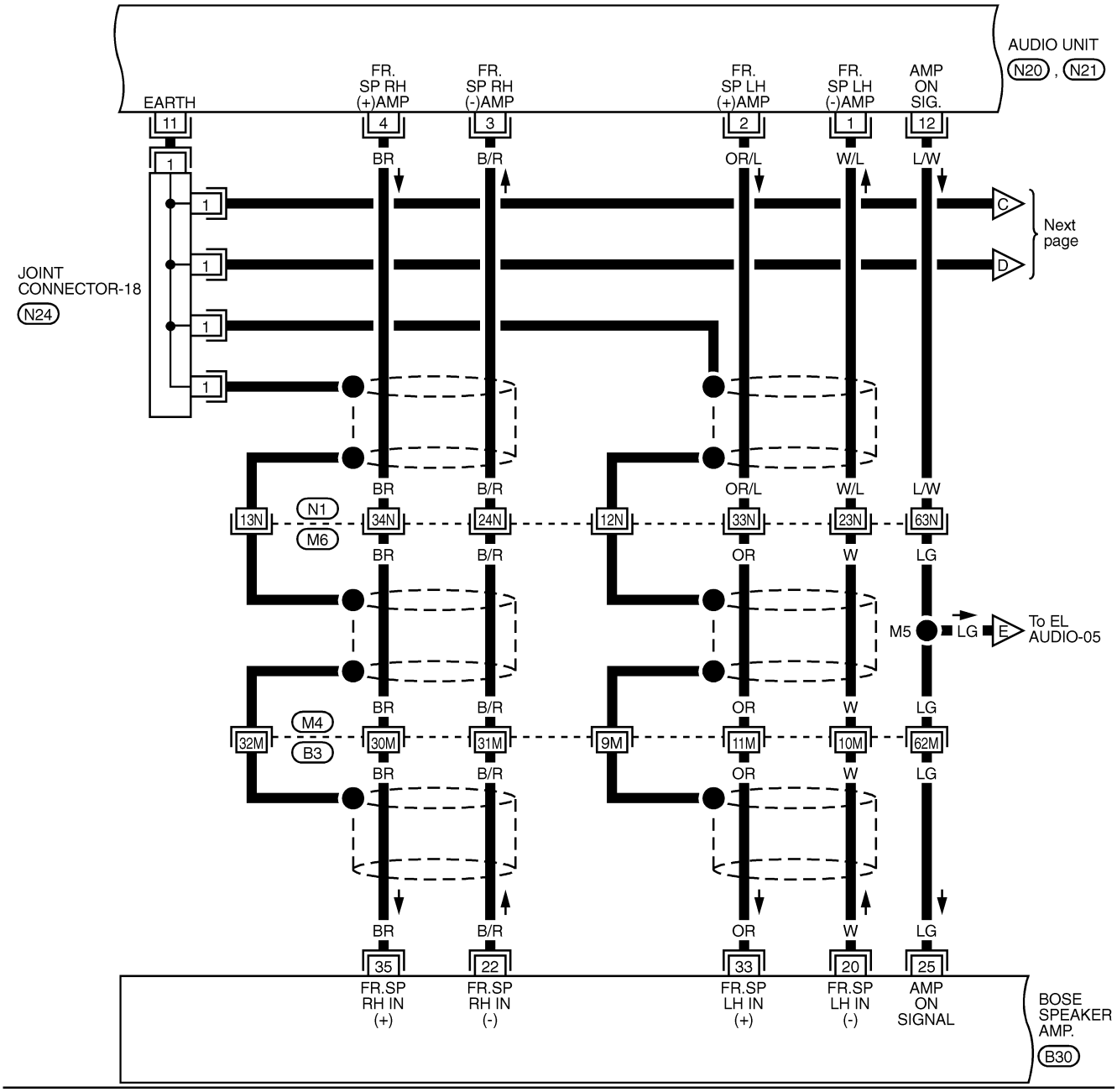
(M6), (E66) -SUPER MULTIPLE JUNCTION (SMJ)

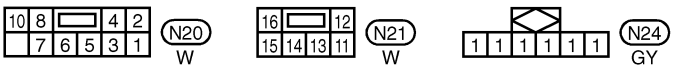
(M1) -FUSE BLOCK-JUNCTION BOX (J/B)

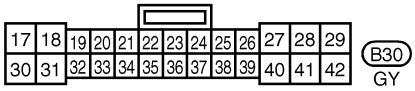
TEL105M

## Wiring Diagram — AUDIO — (Cont'd)

EL-AUDIO-02



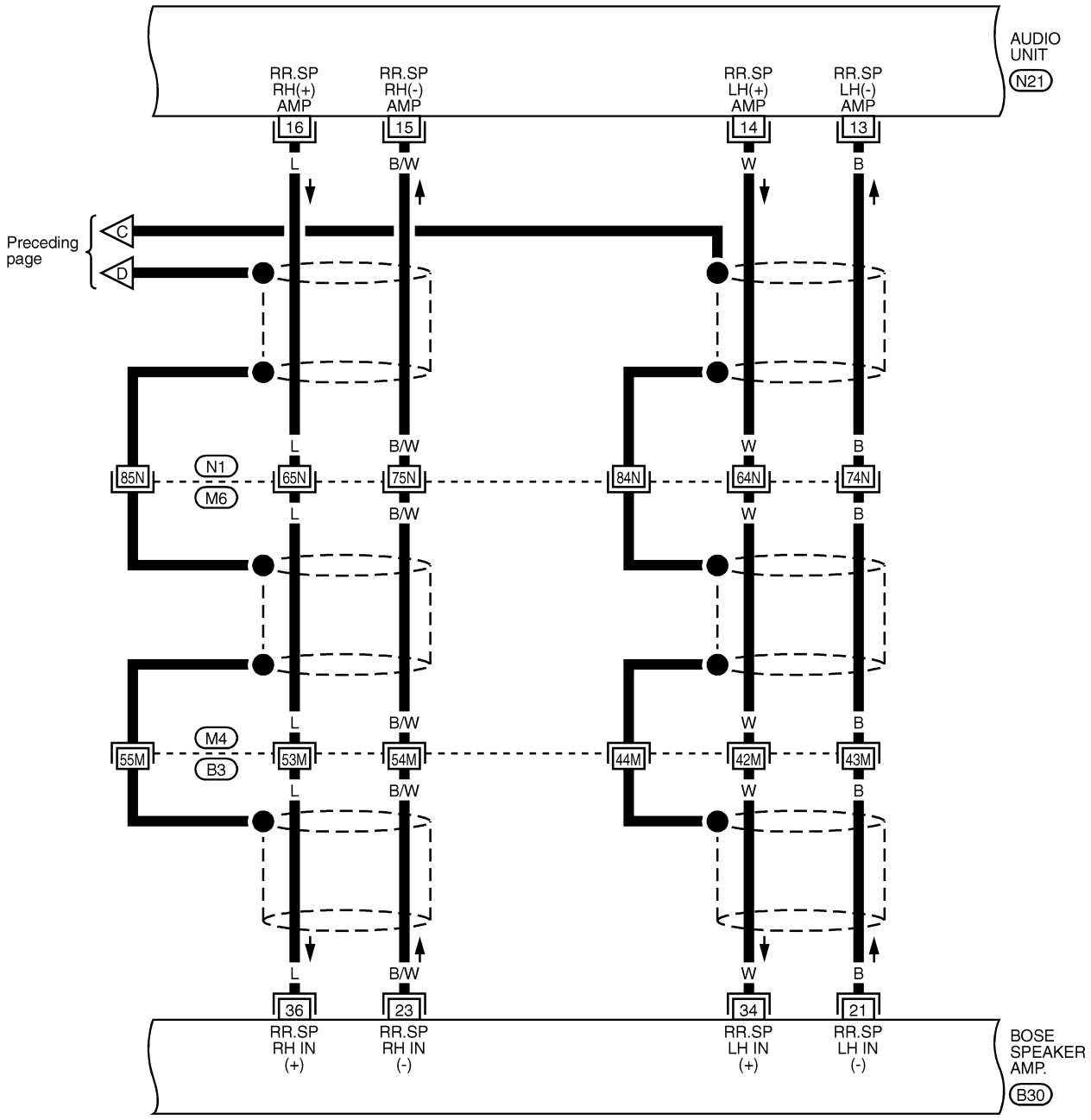



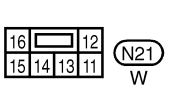

REFER TO THE FOLLOWING.
M4 , M6 -SUPER MULTIPLE JUNCTION (SMJ)

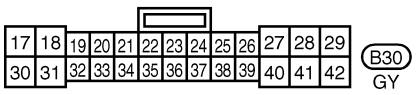
TEL106M

## Wiring Diagram — AUDIO — (Cont'd)

EL-AUDIO-03



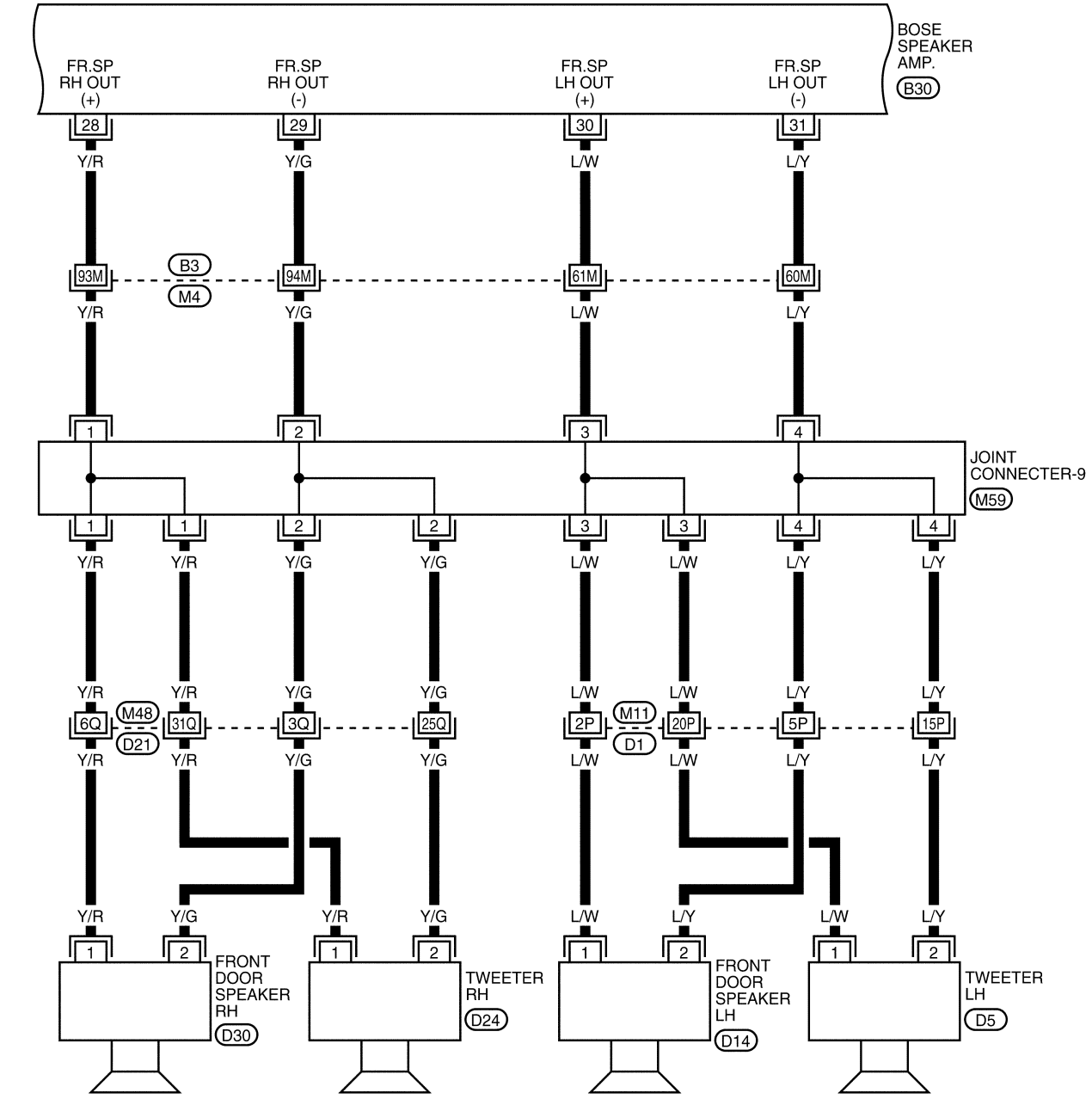



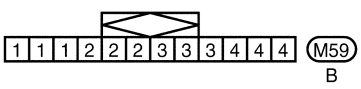

REFER TO THE FOLLOWING.
M4 , M6 -SUPER MULTIPLE JUNCTION (SMJ)

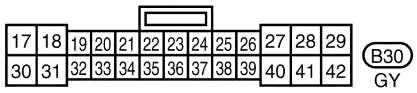
TEL107M

## Wiring Diagram — AUDIO — (Cont'd)

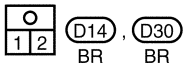
EL-AUDIO-04





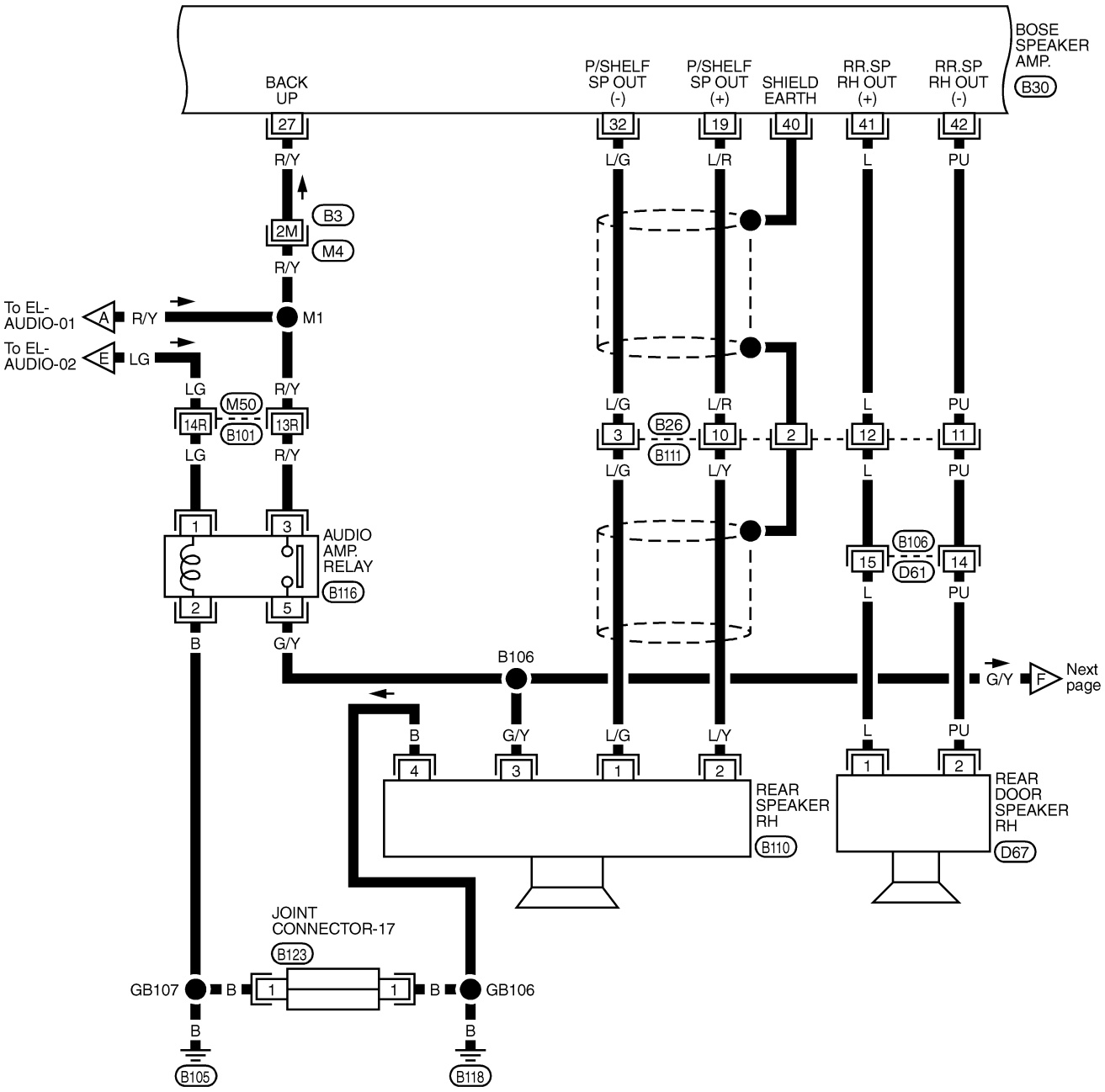


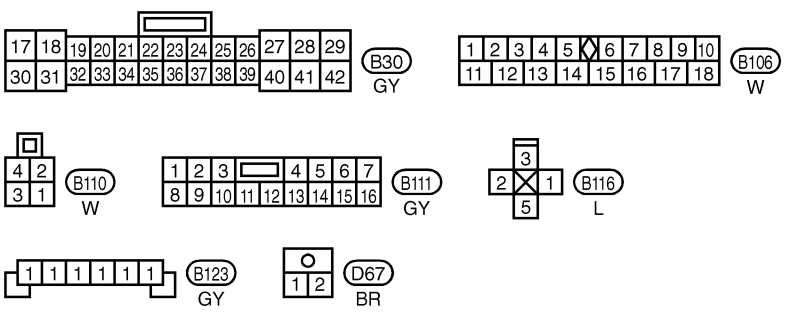

REFER TO THE FOLLOWING.
M4 , D1 , D21 -SUPER MULTIPLE JUNCTION (SMJ)

TEL108M

## Wiring Diagram — AUDIO — (Cont'd)

EL-AUDIO-05



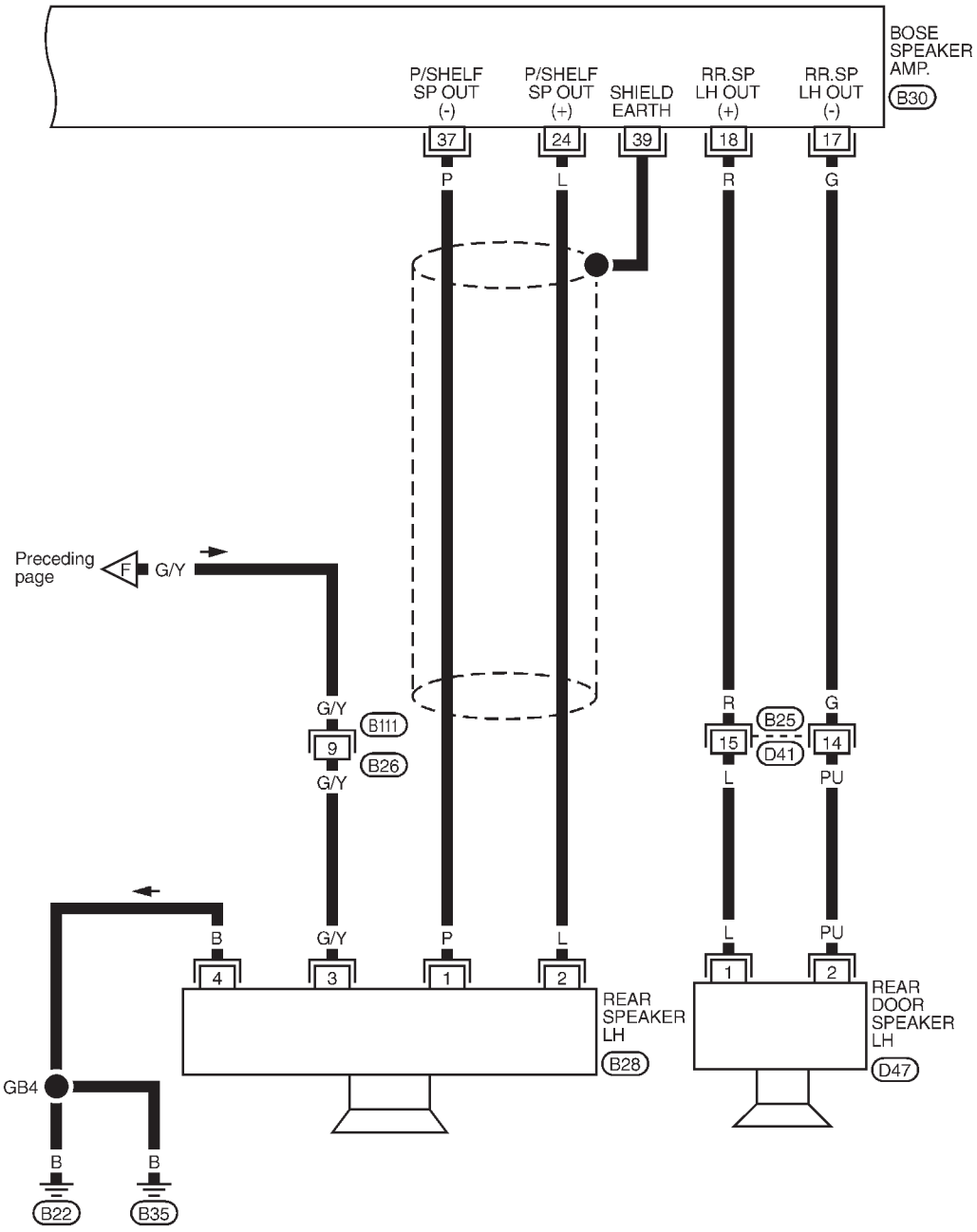



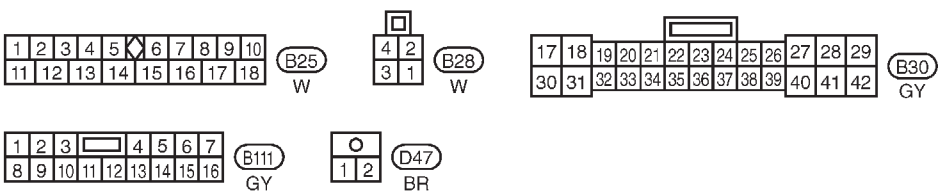

REFER TO THE FOLLOWING.
M4 , M50 -SUPER MULTIPLE JUNCTION (SMJ)

TEL109M

## Wiring Diagram — AUDIO — (Cont'd)

EL-AUDIO-06

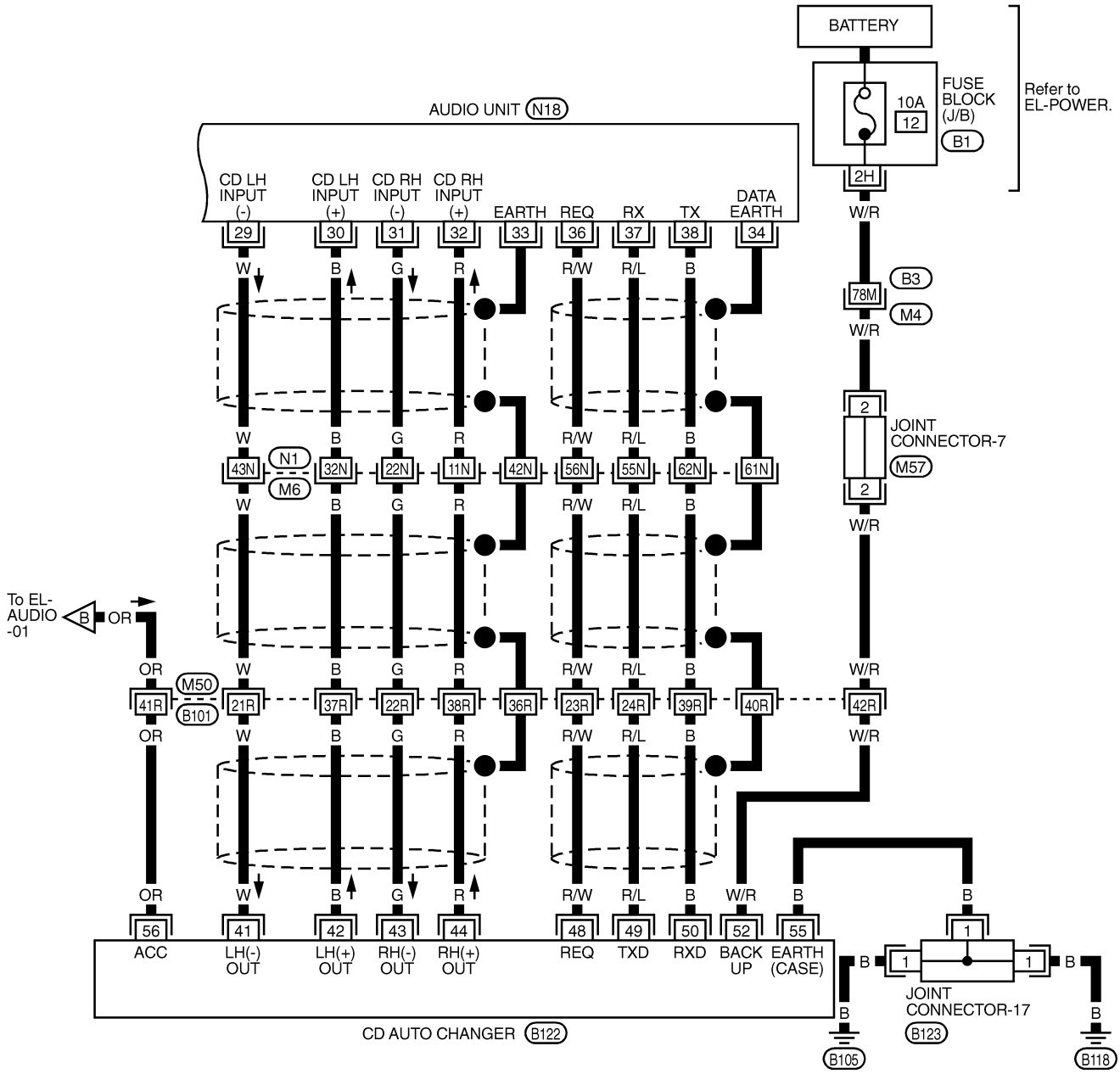


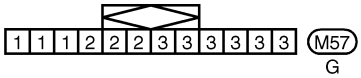



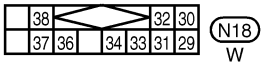

TEL209A

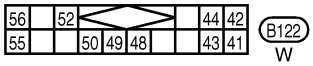
## Wiring Diagram — AUDIO — (Cont'd)

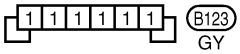
EL-AUDIO-07




REFER TO THE FOLLOWING.

M4 , M6 , M50 -SUPER MULTIPLE JUNCTION (SMJ)

B1 -FUSE BLOCK-JUNCTION BOX (J/B)

TEL110M

# Trouble Diagnoses

## AUDIO UNIT (BOSE SYSTEM)

| Symptom | Possible causes | Repair order |
|---|---|---|
| Audio unit inoperative (no digital display and no sound from speakers). | 1. 10A fuse<br>2. Poor audio unit case ground<br>3. Audio unit | 1. Check 10A fuse [No. 8 , located in the fuse block (J/B)]. Turn ignition switch ACC or ON and verify that battery positive voltage is present at terminal ⑩ of audio unit.<br>2. Check audio unit case ground.<br>3. Remove audio unit for repair. |
| Audio unit controls are operational, but no sound is heard from any speaker. | 1. AMP ON signal<br>2. Audio amp. relay<br>3. Audio amp. relay ground<br>4. Poor speaker amp. case ground<br>5. Speaker amp. output<br>6. Speaker amp. | 1. Turn ignition switch ACC and radio ON. Verify battery positive voltage is present from audio unit terminal ⑫ to BOSE speaker amp. terminal ㉕ and audio amp. relay terminal ①.<br>2. Check audio amp. relay.<br>3. Check audio amp. relay ground (Terminal ②).<br>4. Check speaker amp. case ground.<br>5. Check speaker amp. output voltage.<br>6. Remove speaker amp. for repair. |
| Audio unit presets are lost when ignition switch is turned OFF. | 1. 15A fuse<br>2. Audio unit | 1. Check 15A fuse [No. 58, located in the fuse, fusible link and relay box] and verify that battery positive voltage is present at terminal ⑥ of audio unit.<br>2. Remove audio unit for repair. |
| Individual speaker is noisy or inoperative. | 1. Speaker<br>2. Speaker ground<br>3. Power supply<br>4. Audio unit/speaker amp. output<br>5. Speaker circuit<br>6. Audio unit/speaker amp.<br>7. Speaker | 1. Check speaker.<br>2. Check speaker ground (Terminal ④ : RR LH, ④ : RR RH).<br>3. Check power supply for speaker (Terminal ③ : RR LH, ③ : RR RH).<br>4. Check radio/speaker amp. output voltage.<br>5. Check wires for open or short between audio unit, amp. and speaker.<br>6. Remove audio unit or speaker amp. for repair.<br>7. Replace speaker. |
| AM stations are weak or noisy (FM stations OK). | 1. Antenna<br>2. Poor audio unit ground<br>3. Audio unit | 1. Check antenna.<br>2. Check audio unit ground.<br>3. Remove audio unit for repair. |
| FM stations are weak or noisy (AM stations OK). | 1. Window antenna<br>2. Audio unit | 1. Check window antenna.<br>2. Remove audio unit for repair. |
| Radio generates noise in AM and FM modes with engine running. | 1. Poor audio unit 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. Audio unit | 1. Check audio unit 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 audio unit for repair. |
| Radio generates noise in AM and FM modes with accessories on (switch pops and motor noise). | 1. Poor audio unit ground<br>2. Antenna<br>3. Accessory ground<br>4. Faulty accessory | 1. Check audio unit ground.<br>2. Check antenna.<br>3. Check accessory ground.<br>4. Replace accessory. |

## Trouble Diagnoses (Cont'd)

### CD AUTOCHANGER

| Symptom | Possible causes | Repair order |
|---|---|---|
| No play of the CD after CD play button is pushed. | | |
| There is no error code shown on the audio unit. | 1. Audio unit (The audio unit is not working.)<br>2. Harness connection (Magazine does not eject.)<br>3. Changer | 1. Remove the audio unit for repair.<br>2. Check harness connection.<br>3. Remove the changer for repair. |
| Error code [CD Err] is shown on the audio unit. | 1. Discs<br>2. Magazine does not eject or a disc remains in CD player.<br>3. Changer | 1. Inspect discs. (Refer to testing magazines and discs.)<br>2. Reset the changer. (Disconnect harness connector at the changer and reconnect after 30 sec.)<br>3. Remove the changer for repair. |
| CD skipping. | 1. Rough road driving<br>2. Discs<br>3. Bracket<br>4. Changer | 1. System is not malfunctioning.<br>2. Inspect discs. (Refer to testing magazines and discs.)<br>3. Check and repair bracket and installation of changer.<br>4. Remove the changer for repair. |
| Error code [CD no disk] is shown on the audio unit after CD play button is pressed. | 1. Magazine setting<br>2. Magazine<br>3. Changer | 1. Confirm the magazine is pushed completely.<br>2. Inspect magazine. (Refer to testing magazines and discs.)<br>3. Remove the changer for repair. |
| Error code [CD HHHH] is shown on the audio unit after CD play button is pressed. | 1. Overheat<br>2. Reset the Error code<br>3. Audio unit or changer | 1. Turn the radio off. Open the trunk lid to lower the trunk room and changer temperature.<br>2. Reset the audio unit or changer. (Disconnect harness connector at the audio unit or changer and reconnect.)<br>3. Remove the audio unit or changer for repair. |

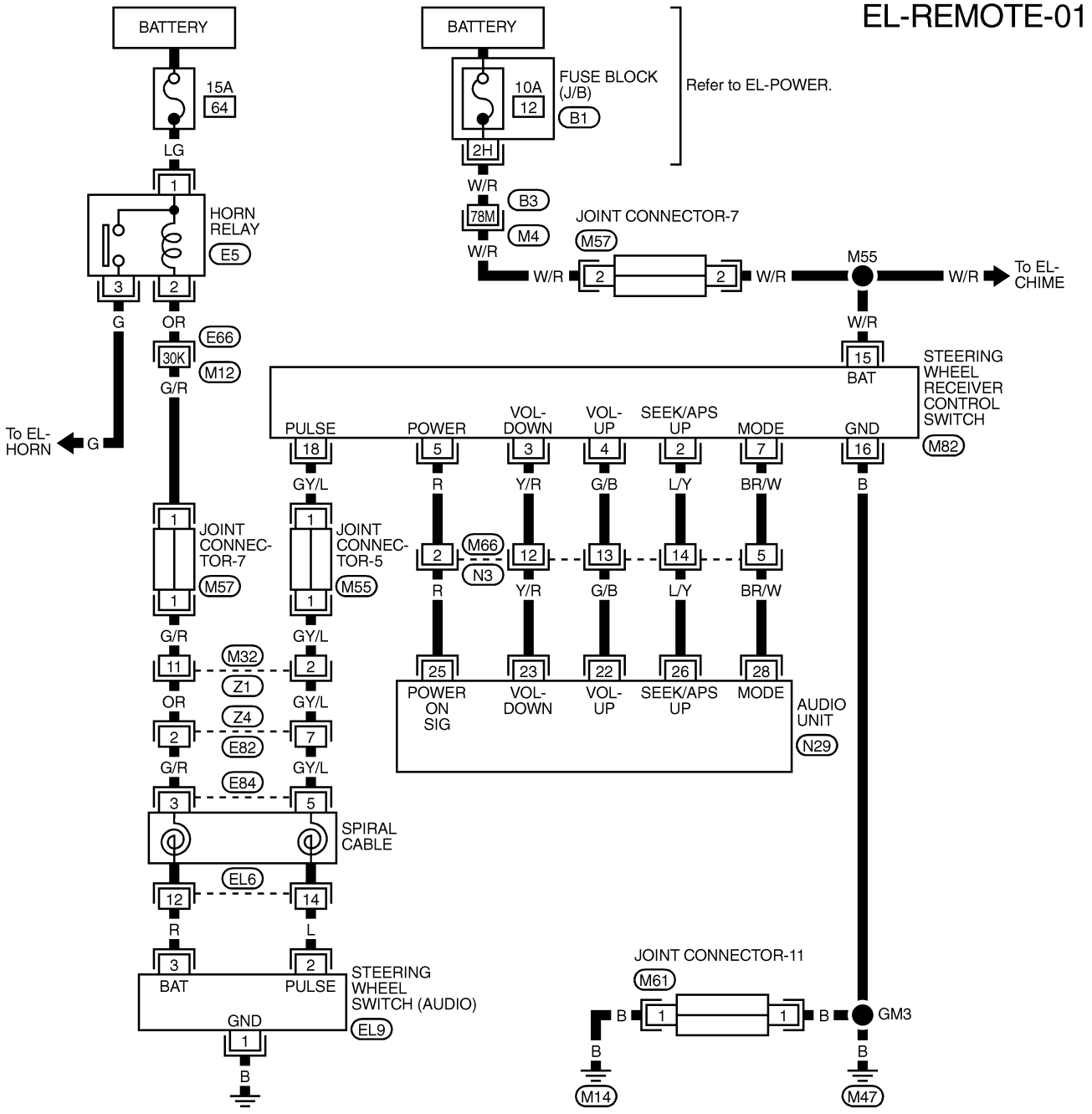
### Testing magazines and discs

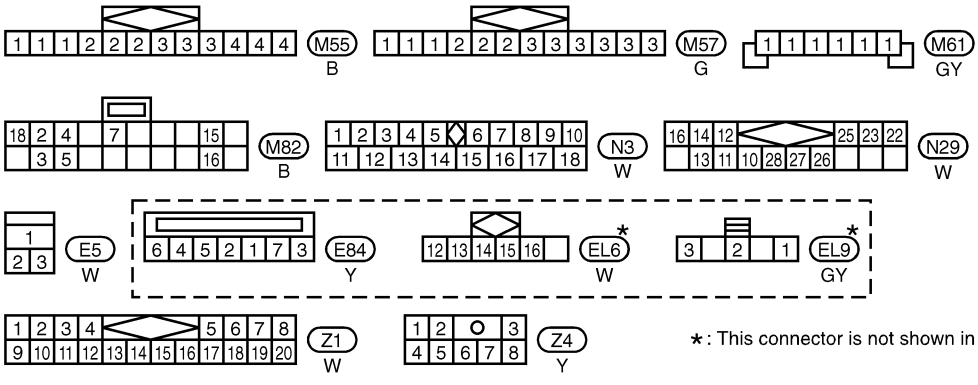
1. Confirm discs are installed correctly into the magazine (not upside down).
2. Visually inspect/compare the customer's discs with each other and other discs.
   Identify any of the following conditions:
   - Discs with a large outside diameter. [Normal size is 120 mm (4.72 in).]
   - Discs with rough or lipped edges.
   - Discs with excessive thickness [Normal size is 1.2 mm (0.047 in).]
   - Discs with scratches, abrasions, or pits on the surface.
   - Discs with grease/oil, fingerprints, foreign material.
   - Discs are warped due to excessive heat exposure.
3. Slide/place the discs in and out of the various magazine positions.
   Identify any discs and/or positions that require additional force for placement/ejection. If interference (sticking, excessive tensions) is found, replace the magazine or the discs.

**Note**

- **Discs which are marginally out of specification (ex. dirty, scratched and so on) may play correctly on a home stereo.**
  **However, when used in the automotive environment skipping may occur due to the added vehicle movement and/or vibration due to road conditions. Autochangers should not be replaced when discs are at fault.**
- **Use a soft damp cloth to wipe the discs starting from the center outward in radial direction. Never use chemical cleaning solutions to clean the discs.**

## Wiring Diagram — REMOTE —




REFER TO THE FOLLOWING.

M4 , E66 -SUPER MULTIPLE JUNCTION (SMJ)

B1 -FUSE BLOCK-JUNCTION BOX (J/B)

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

TEL750B

## System Description

Power is supplied at all times
- through 10A fuse [No. 28, located in the fuse block (J/B)]
- to power antenna timer and motor terminal ⑥ .

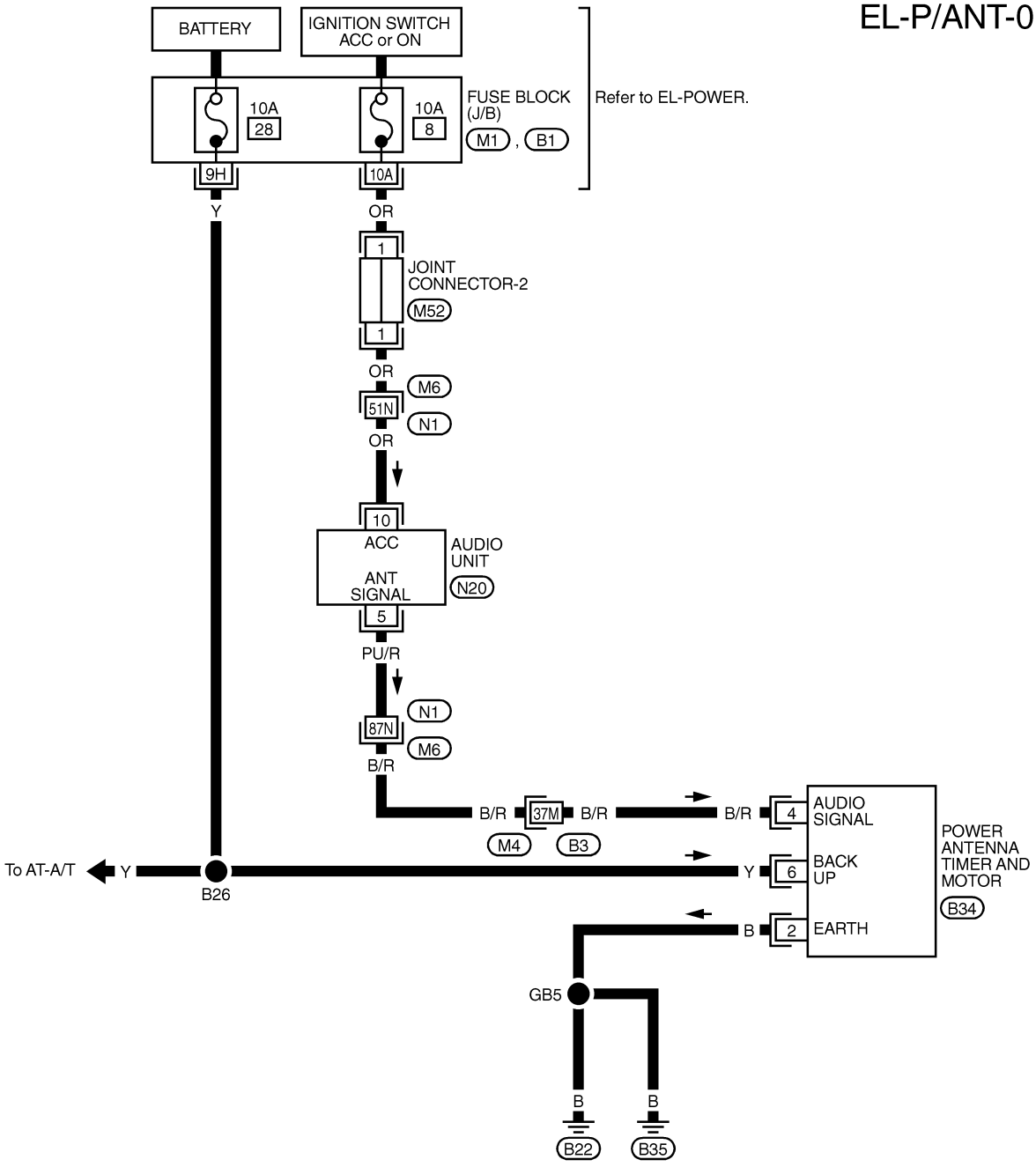
With the ignition switch in the ACC or ON position, power is supplied
- through 10A fuse [No. 8, located in the fuse block (J/B)]
- to audio unit terminal ⑩ .

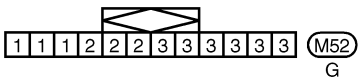
Ground is supplied to the power antenna timer and motor terminal ② through body grounds B22 and B35.
When the audio unit is turned to the ON position, battery positive voltage is supplied
- through audio unit terminal ⑤
- to power antenna timer and motor terminal ④ .

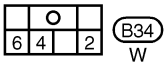
The antenna raises and is held in the extended position.
When the audio unit is turned to the OFF position, battery positive voltage is interrupted
- from audio unit terminal ⑤
- to power antenna timer and motor terminal ④ .

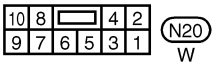
The antenna retracts.

## Wiring Diagram — P/ANT —




REFER TO THE FOLLOWING.
M4 , M6 -SUPER MULTIPLE JUNCTION (SMJ)
M1 , B1 -FUSE BLOCK-JUNCTION BOX (J/B)

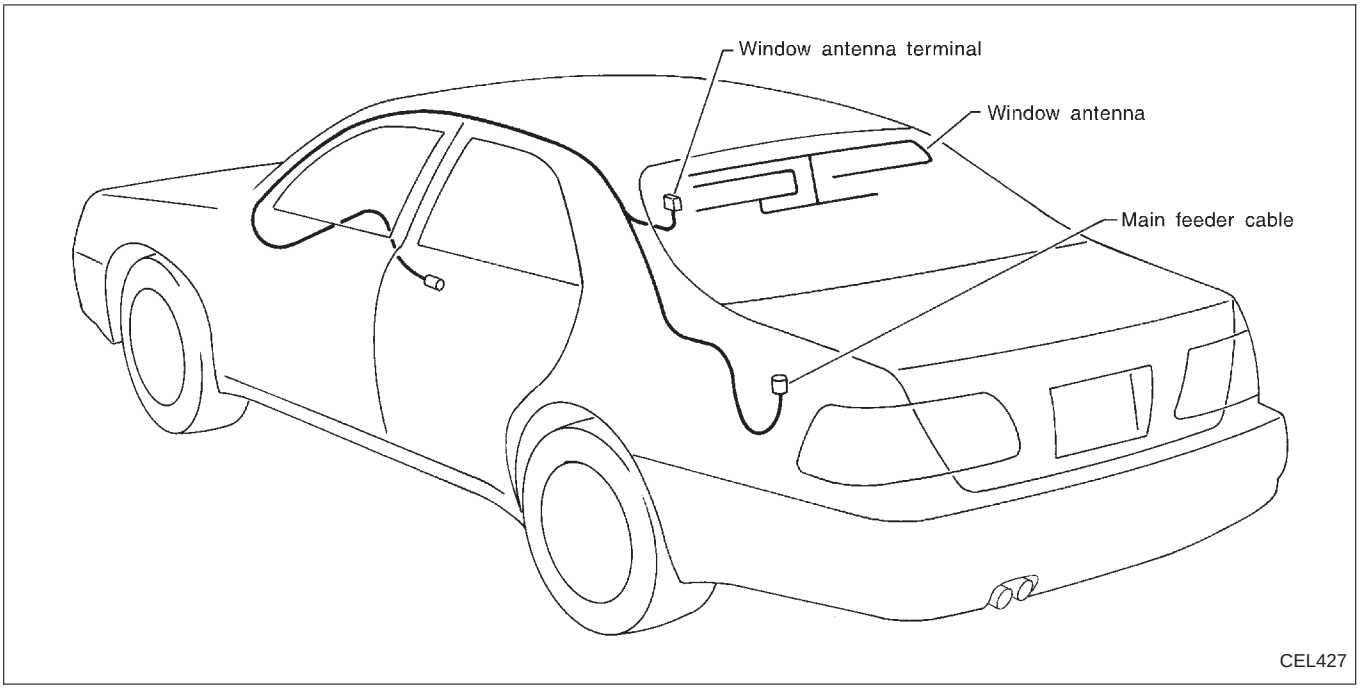
TEL112M

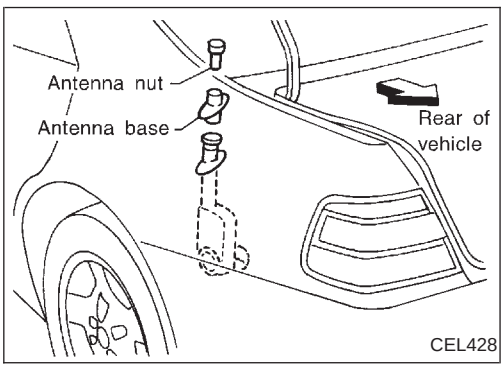
## Trouble Diagnoses

### POWER ANTENNA

| Symptom | Possible causes | Repair order |
|---|---|---|
| Power antenna does not operate. | 1. 10A fuse | 1. Check 10A fuse [No. 28, located in the fuse block (J/B)]. Verify that battery positive voltage is present at terminal ⑥ of power antenna timer and motor. |
| | 2. Audio signal | 2. Turn ignition switch to ACC or ON and radio ON. Verify that battery positive voltage is present at terminal ④ of power antenna timer and motor. |
| | 3. Grounds (B22) and (B35) | 3. Check grounds (B22) and (B35). |
| | 4. Power antenna timer and motor | 4. Check power antenna timer and motor. |

## Location of Antenna

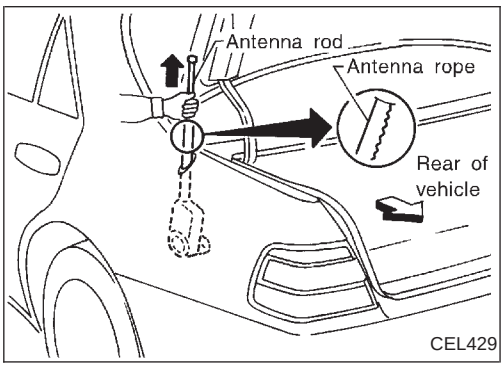



## Antenna Rod Replacement

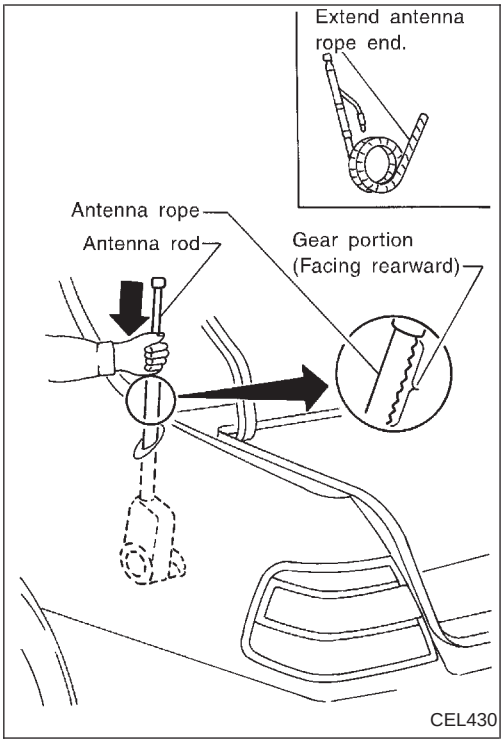
### REMOVAL

1. Remove antenna nut and antenna base.



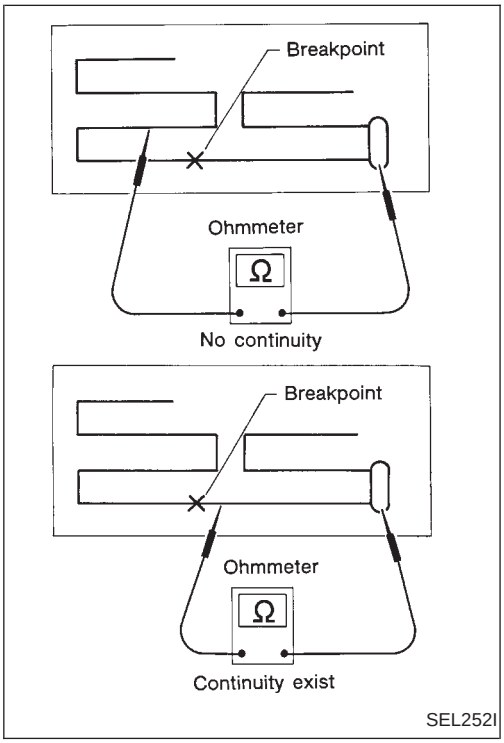

2. Withdraw antenna rod while raising it by operating antenna motor.

## 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

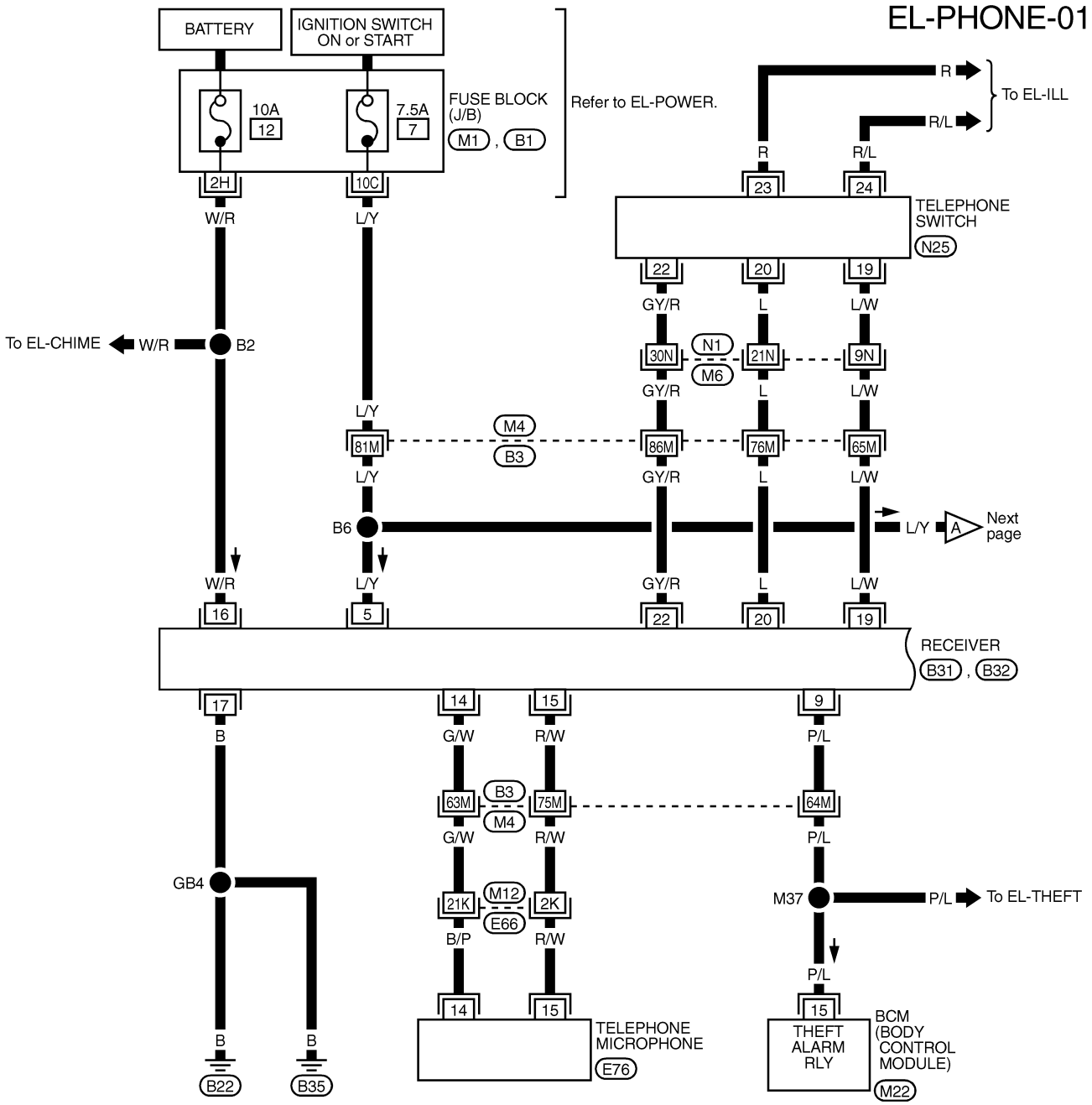
### ELEMENT CHECK

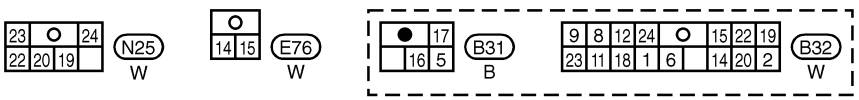
1. Attach probe circuit tester (in ohm range) to antenna terminal on each side.
2. If an element is broken, no continuity will exist.
3. To locate broken point, move probe along element. Tester needle will swing abruptly when probe passes the point.

### ELEMENT REPAIR

Refer to REAR WINDOW DEFOGGER "Filament Repair" (EL-215).

## Wiring Diagram — PHONE —



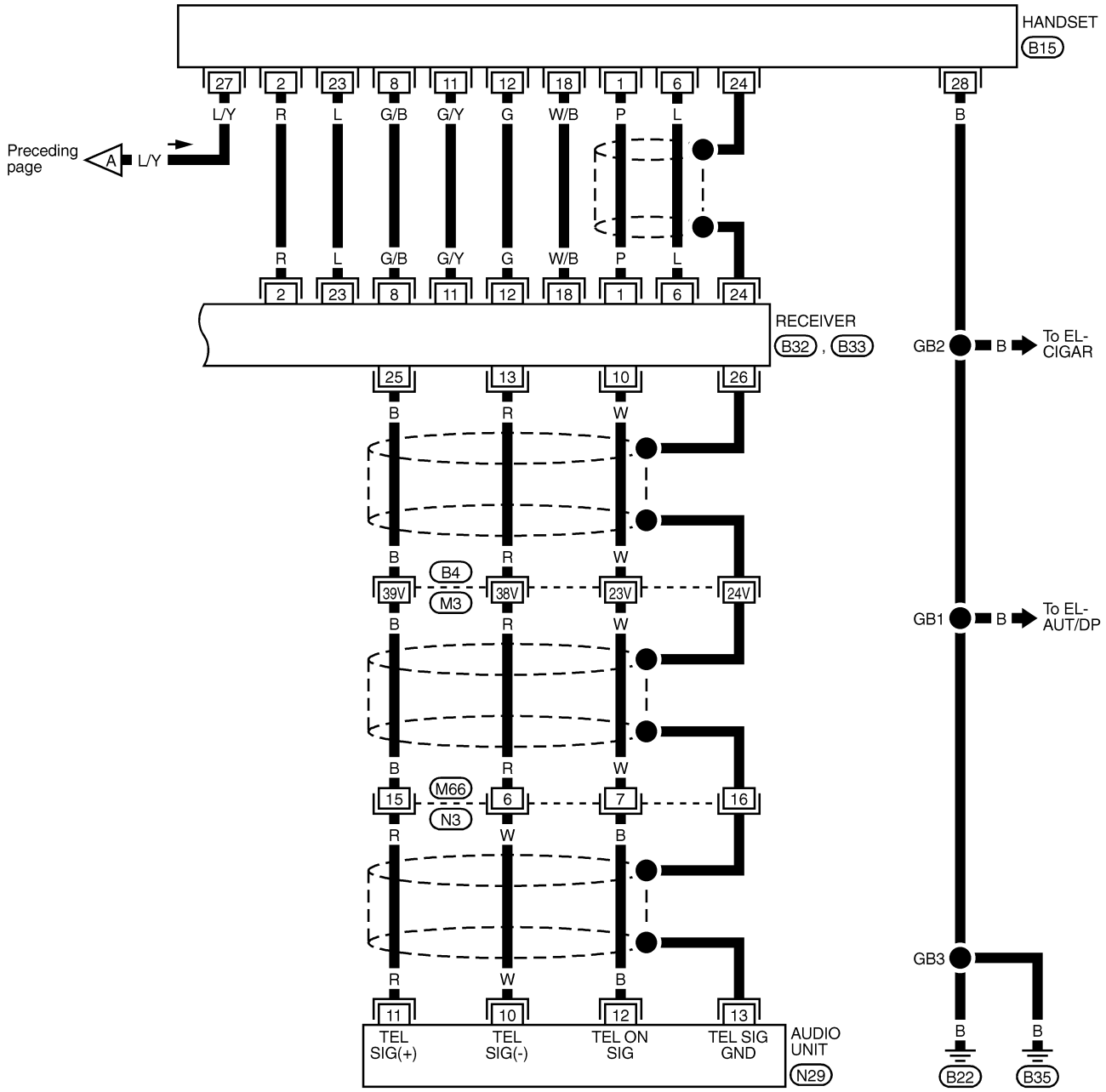



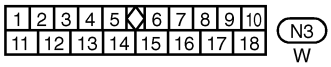

REFER TO THE FOLLOWING.
M4, M6, E66 -SUPER MULTIPLE JUNCTION (SMJ)
M1, B1 -FUSE BLOCK-JUNCTION BOX (J/B)
M22 -ELECTRICAL UNITS

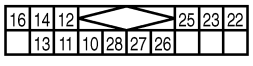
TEL113M

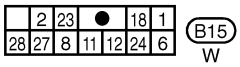
## Wiring Diagram — PHONE — (Cont'd)

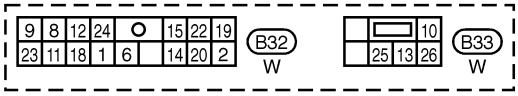
EL-PHONE-02



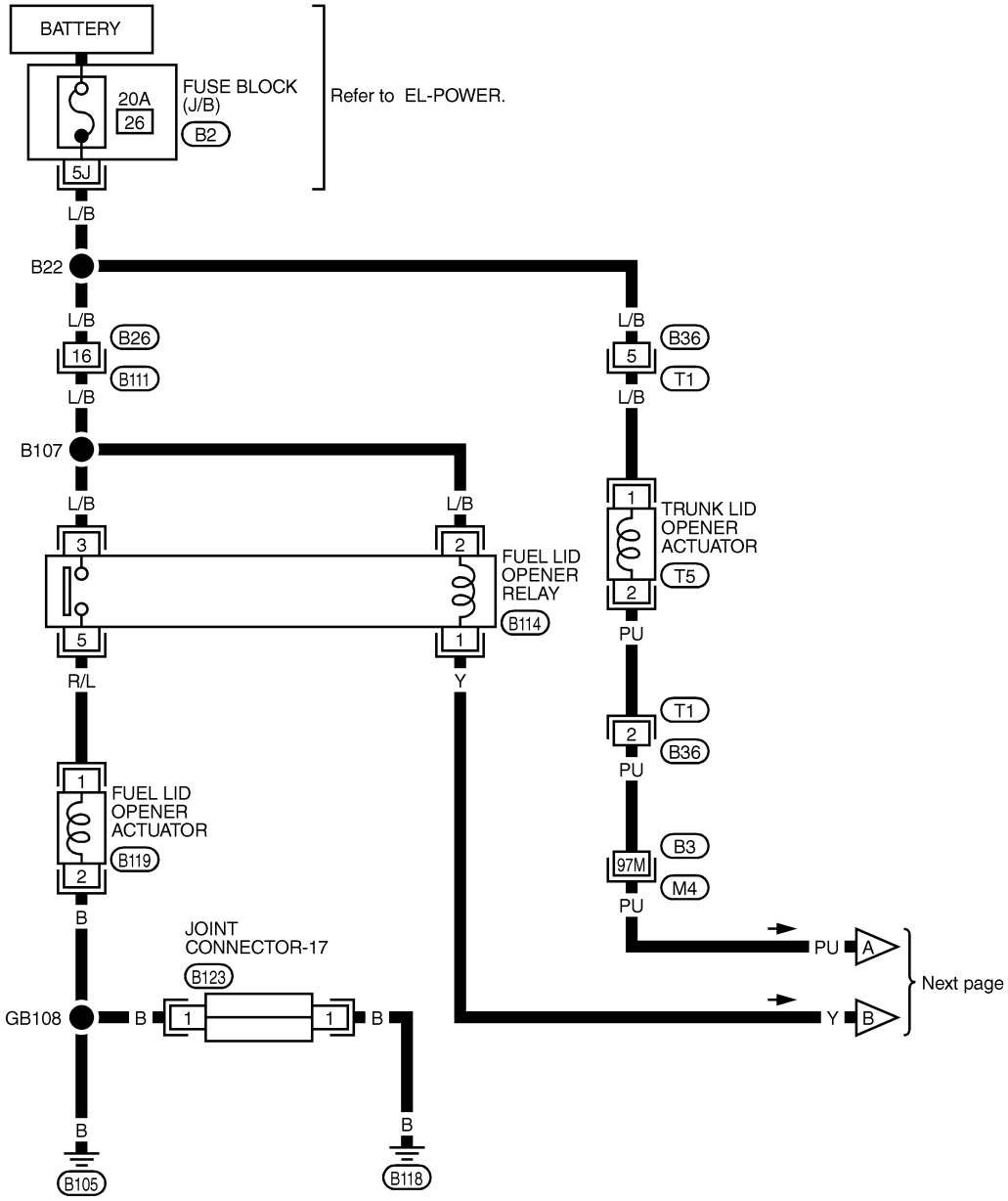



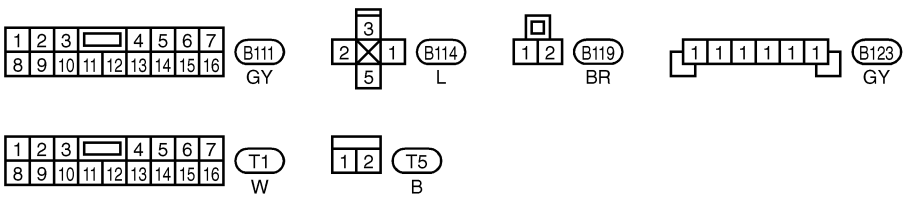

REFER TO THE FOLLOWING.
B4 -SUPER MULTIPLE JUNCTION (SMJ)

TEL114M

## Wiring Diagram — T&FLID —

EL-T&FLID-01




REFER TO THE FOLLOWING.

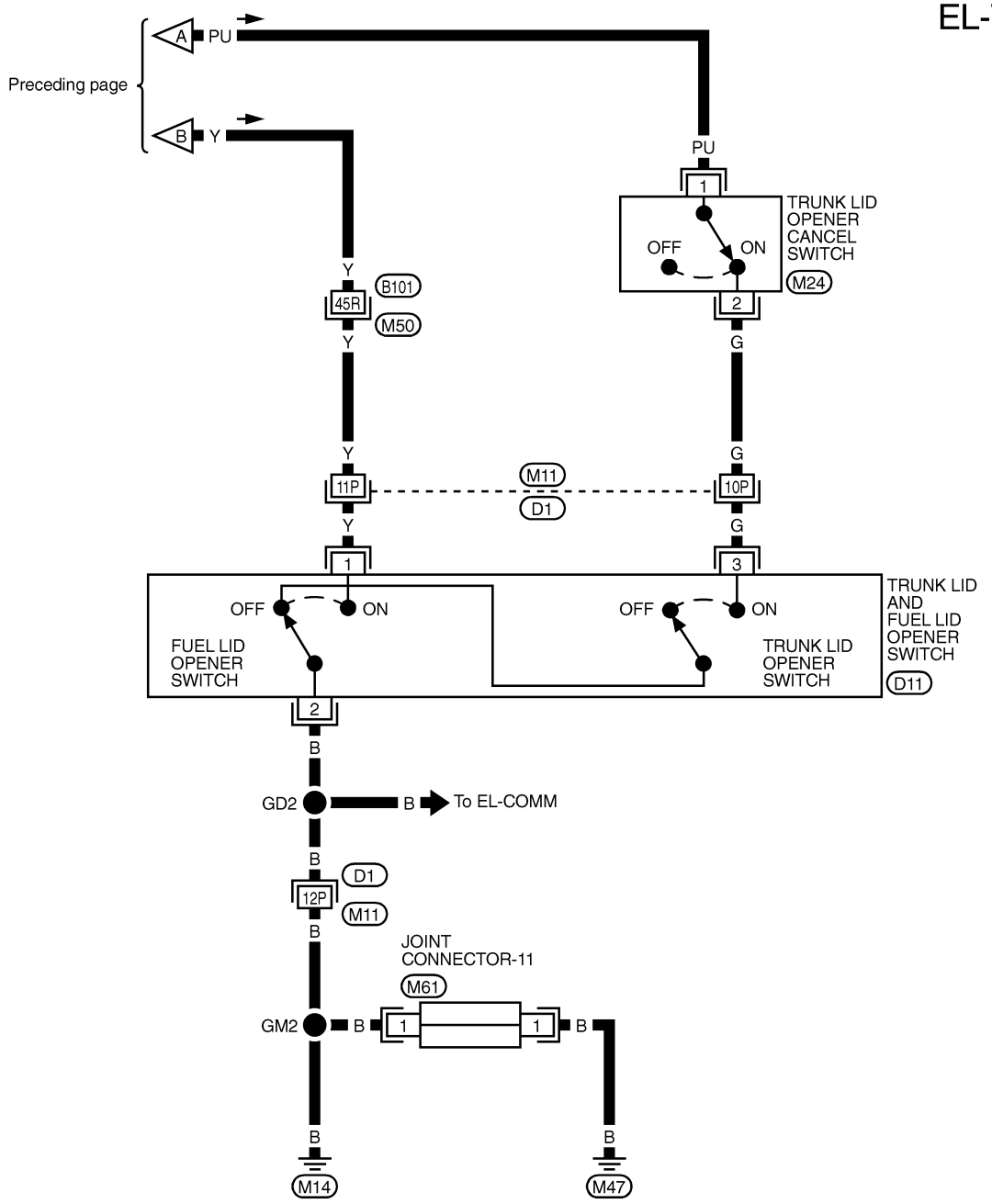
M4 -SUPER MULTIPLE JUNCTION (SMJ)

B2 -FUSE BLOCK-JUNCTION BOX (J/B)

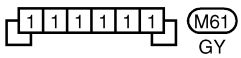
TEL115M

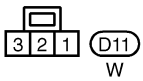
## Wiring Diagram — T&FLID — (Cont'd)

EL-T&FLID-02





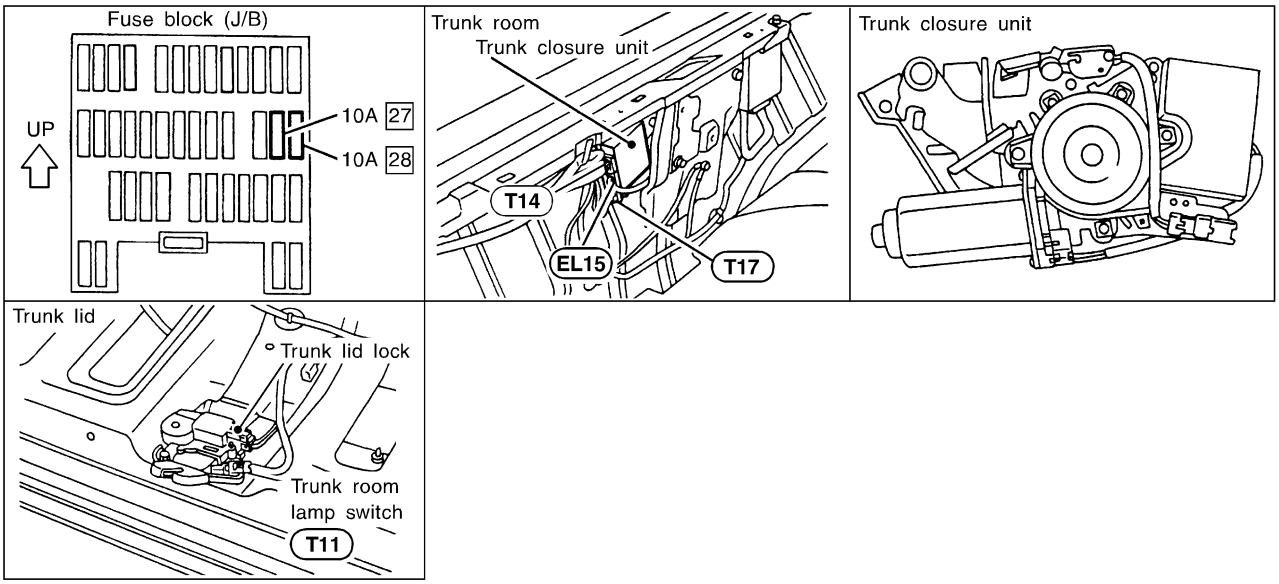



REFER TO THE FOLLOWING.
M50 , D1 -SUPER MULTIPLE JUNCTION (SMJ)

TEL116M

## Component Parts and Harness Connector Location




SEL861W

## System Description

Power is supplied at all times
- through 10A fuse [No. 28, located in the fuse block (J/B)]
- to trunk closure control unit terminal ② .

Ground is supplied at all times
- to trunk closure control unit terminal ④
- through body ground (T12).

Power is supplied at all times
- through 10A fuse [No. 27, located in the fuse block (J/B)] and trunk room lamp
- to trunk room lamp switch (lock switch).

### OPERATION

#### When trunk is closed

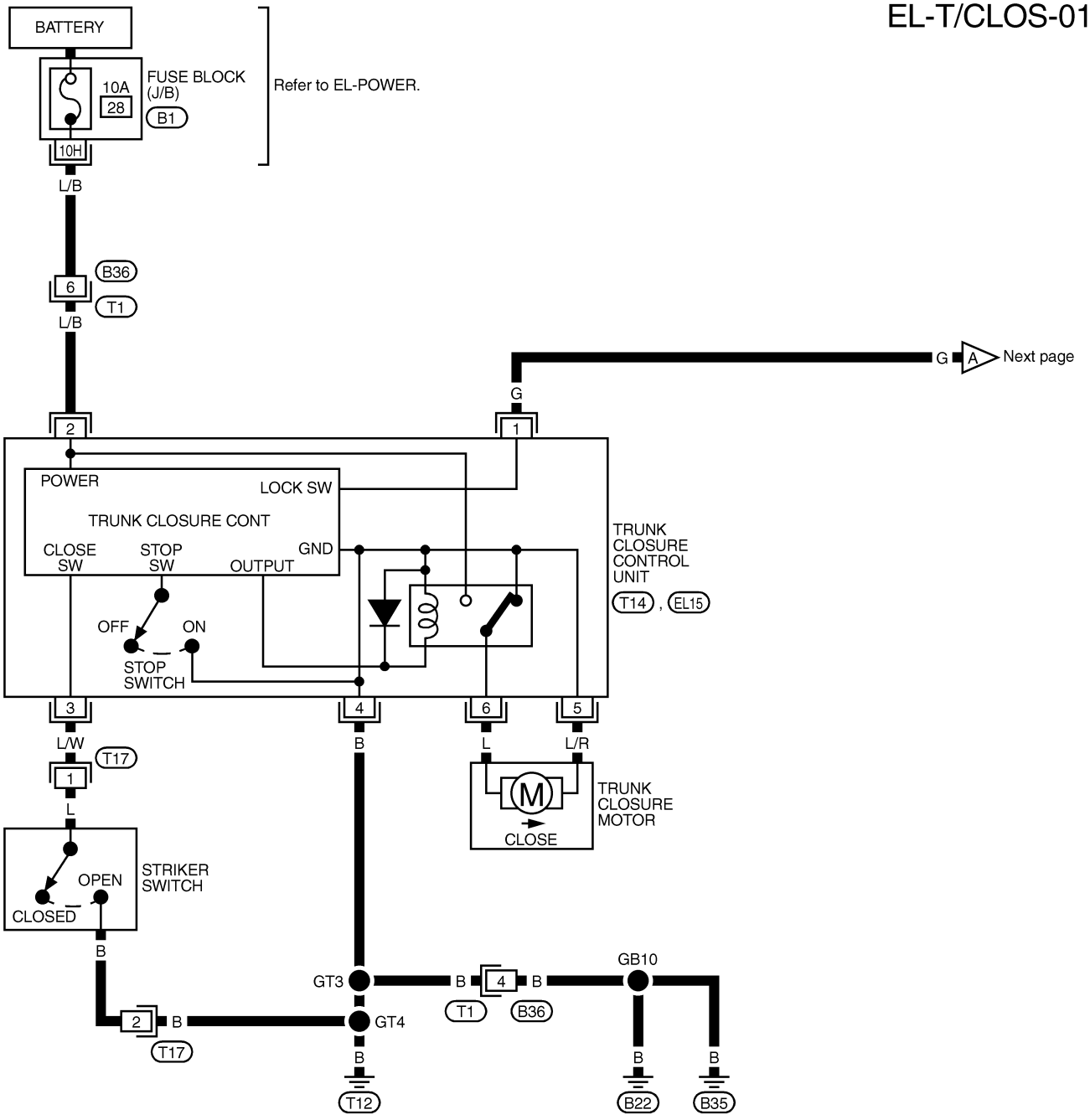
1. CLOSED (LOCK) signal is supplied from trunk room lamp switch (lock switch) to trunk closure control unit terminal ① (Battery voltage is supplied to trunk closure control unit terminal ① when trunk room lamp switch is turned to CLOSED (LOCK)).
2. When trunk closure control unit receive CLOSED (LOCK) signal from trunk room lamp switch, power is supplied to trunk closure motor from trunk closure control unit within 40 msec.
3. When stop switch in trunk closure control unit is turned to OFF during closing operation, trunk closure motor stops within 40 msec.

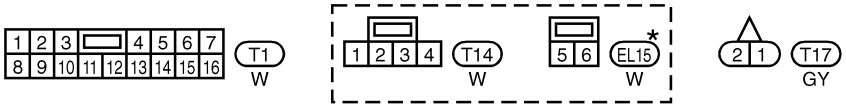
#### When trunk is opened

1. OPEN (UNLOCK) signal is supplied from trunk room lamp switch (lock switch) to trunk closure control unit terminal ① (Battery voltage to trunk closure control unit terminal ① is cut off when trunk room lamp switch is turned to OPEN (UNLOCK)).
2. OPEN signal is supplied to trunk closure control unit terminal ③ from striker switch.
3. When trunk closure control unit receives OPEN signal from striker switch, power is supplied to trunk closure motor from trunk closure control unit within 40 msec.
4. When stop switch in trunk closure control unit is turned to ON during opening operation, trunk closure motor stops within 40 msec.

## Wiring Diagram — T/CLOS —

EL-T/CLOS-01



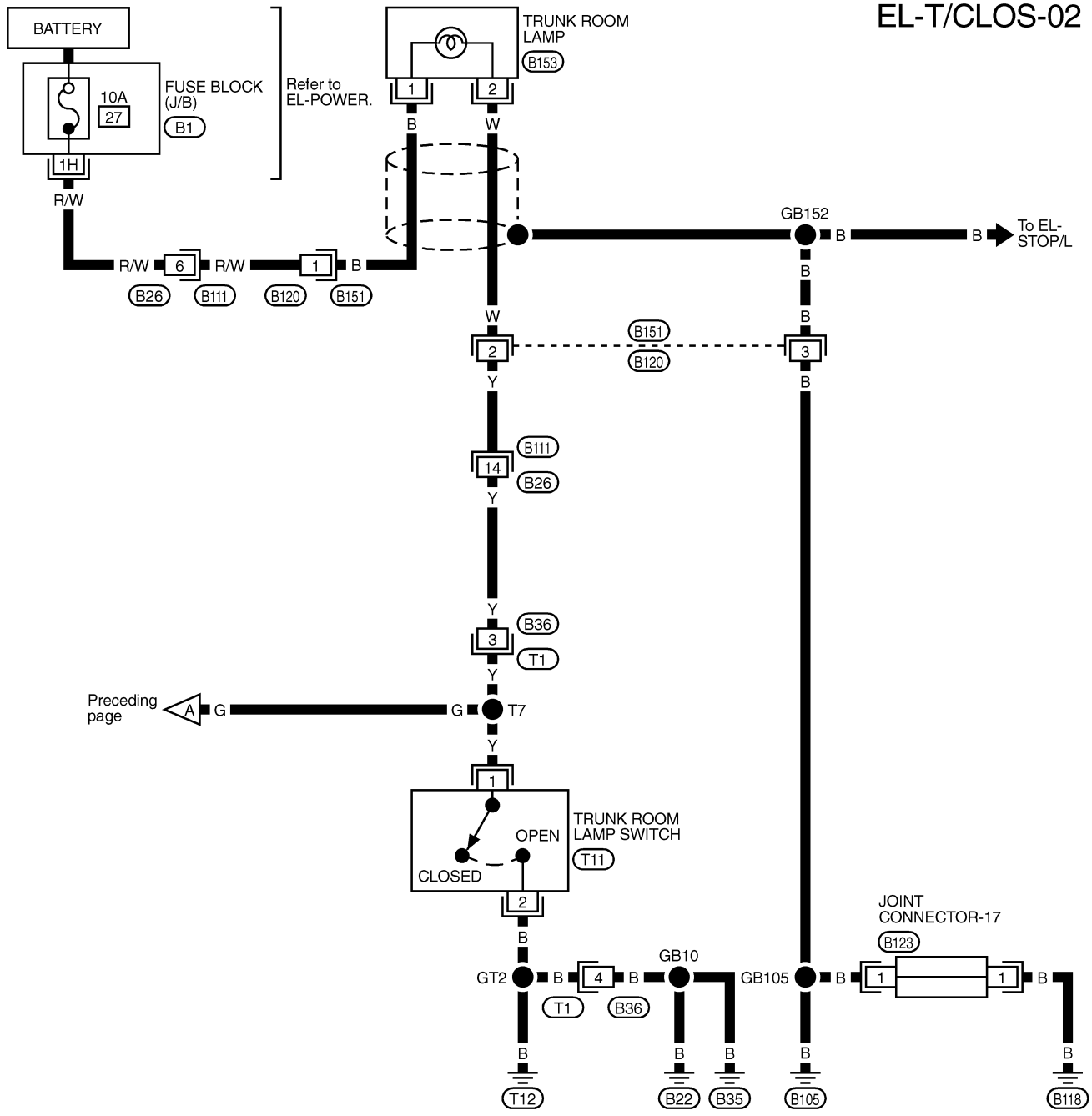

∗: This connector is not shown in "HARNESS LAYOUT", EL section.

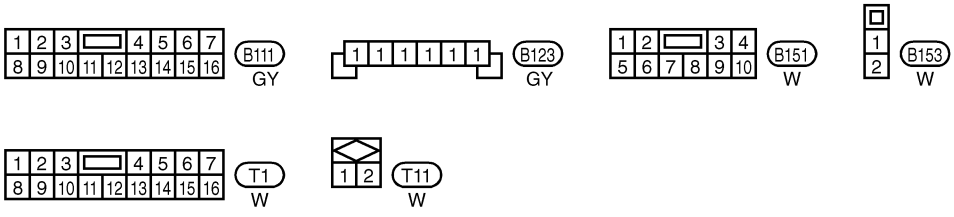
REFER TO THE FOLLOWING.
B1 -FUSE BLOCK-JUNCTION BOX (J/B)

TEL117M

## Wiring Diagram — T/CLOS — (Cont'd)

EL-T/CLOS-02




REFER TO THE FOLLOWING.

B1 -FUSE BLOCK-JUNCTION BOX (J/B)

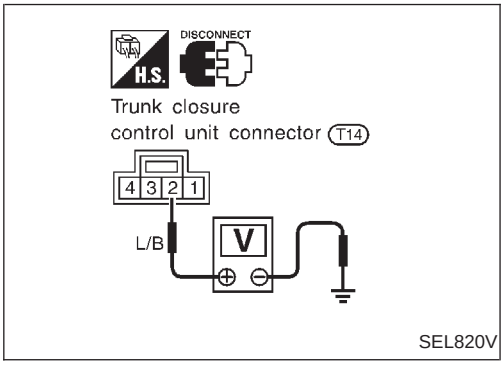
TEL118M

# Trouble Diagnosis

## SYMPTOM CHART

| REFERENCE PAGE | EL-239 | EL-240 | — |
|---|---|---|---|
| SYMPTOM | MAIN POWER SUPPLY AND GROUND CIRCUIT CHECK | DIAGNOSTIC PROCEDURE 1 | Replace Trunk Closure Unit |
| Trunk closure does not operate for closing and opening trunk lid. | X | X | |
| Trunk closure operation does not stop. | | | X |
| Trunk closure operation stops in an unstable trunk lid position. | | | X |

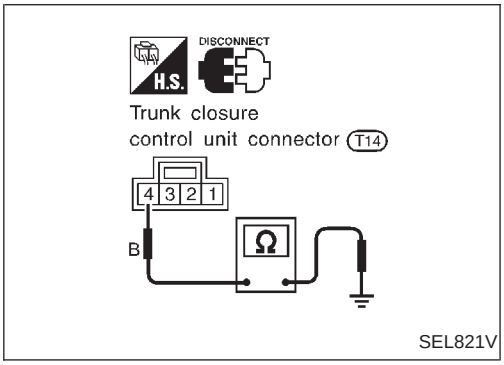





## POWER SUPPLY AND GROUND CIRCUIT CHECK

### Power supply circuit check

| Terminal | | Ignition switch | | |
|---|---|---|---|---|
| ⊕ | ⊖ | OFF | ACC | ON |
| ② | Ground | Battery voltage | Battery voltage | Battery voltage |



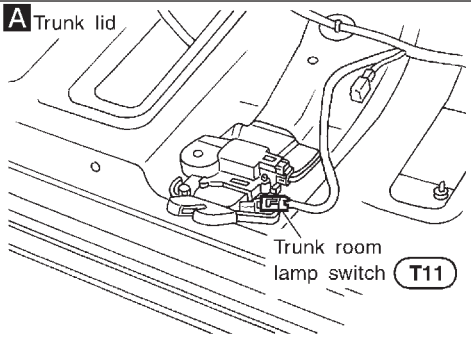

### Ground circuit check

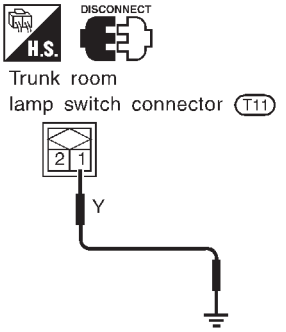
| Terminals | Continuity |
|---|---|
| ④ - Ground | Yes |

## Trouble Diagnosis (Cont'd)

### DIAGNOSTIC PROCEDURE 1

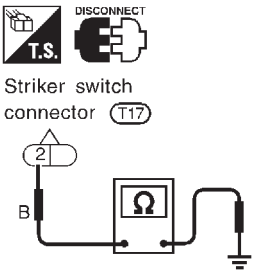
A Trunk lid



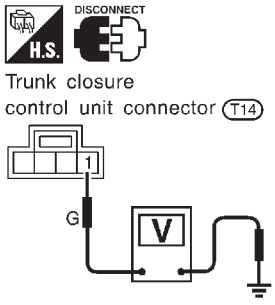

SEL948V

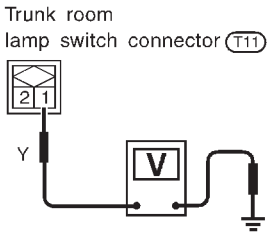
B




SEL949V

C




SEL823V

**A**

**CHECK TRUNK CLOSURE MOTOR OPERATION.**

1. Open trunk lid and remove the trunk room trim.
2. Disconnect trunk room lamp switch connector and check the operation of trunk closure motor.
3. Apply ground to trunk room lamp switch harness connector terminal ① .
4. Check the operation of trunk closure motor.
   Does trunk closure motor operate when trunk room lamp switch connector is disconnected or ground is applied to trunk room lamp switch harness connector terminal ① ?
   **Trunk closure motor should operate.**

OK → Ⓐ

NG ↓

**B**

**CHECK GROUND CIRCUIT FOR STRIKER SWITCH.**

1. Disconnect striker switch harness connector.
2. Check harness continuity between striker switch harness connector terminal ② and ground.
   **Continuity should exist.**

NG → Check harness for open or short between striker switch and ground.

OK ↓

**C**

**CHECK POWER SUPPLY TO TRUNK ROOM LAMP SWITCH.**

1. Disconnect trunk room lamp switch harness connector and trunk closure control unit connector T14.
2. Check voltage between trunk closure control unit and trunk room lamp switch harness connectors terminal ① and ground respectively.
   **Battery voltage should exist.**

**OK or NG**

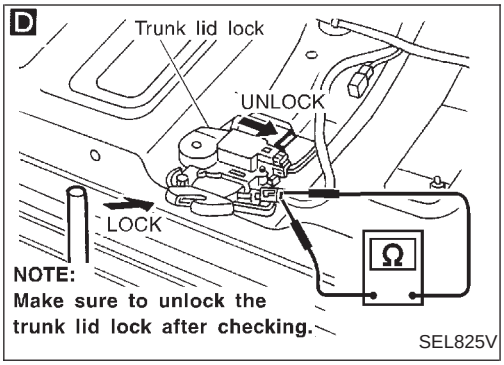
NG → Check power supply circuit to trunk closure control unit harness connector terminal ① and trunk room lamp switch harness connector terminal ① for open or short.

OK ↓

Replace trunk closure units.

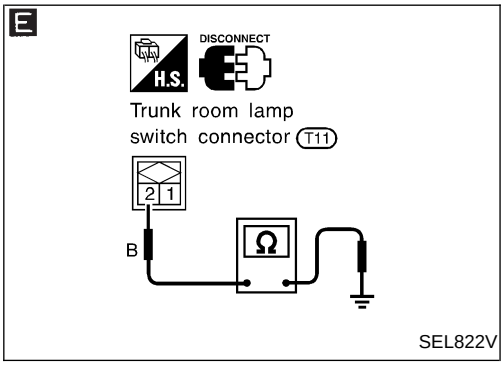
## Trouble Diagnosis (Cont'd)

D




SEL825V

E




SEL822V

Ⓐ

D

**CHECK TRUNK ROOM LAMP SWITCH.**
Disconnect trunk room lamp switch harness connector.
Check continuity between the trunk room lamp switch harness connector terminal ① and ② .
When lock the trunk room lid lock
**Continuity should not exist.**
When unlock the trunk room lid lock
**Continuity should exist.**
**OK or NG**

NG → Replace trunk lid lock which has trunk room lamp switch.

OK ↓

E

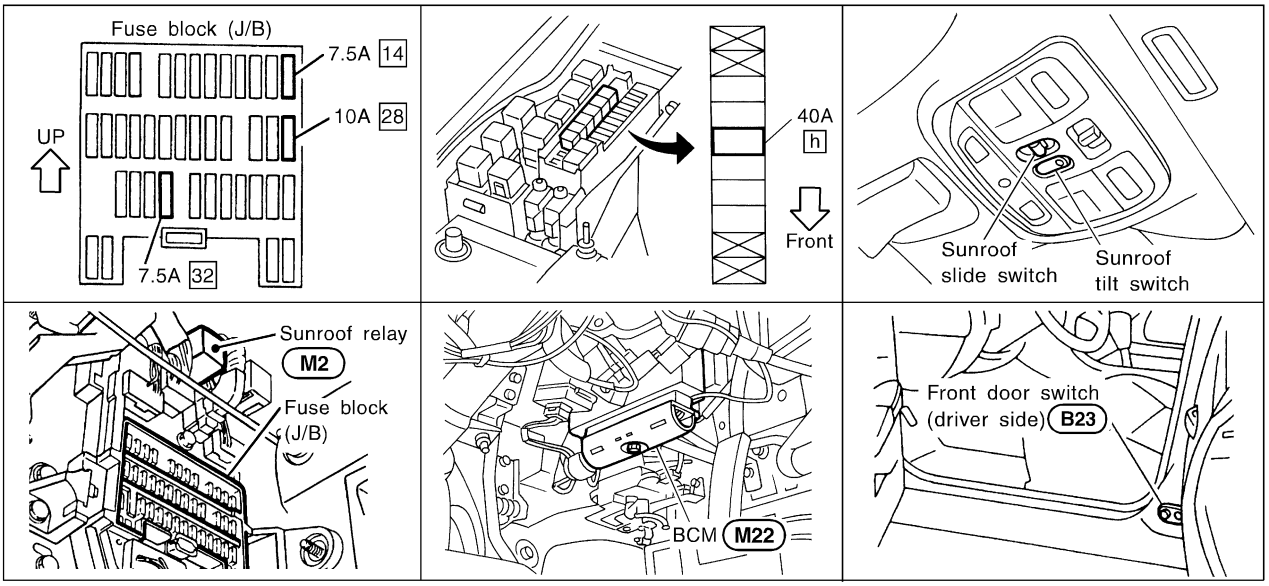
**CHECK GROUND CIRCUIT.**
1. Disconnect trunk room lamp switch harness connector.
2. Check the harness continuity between trunk room lamp switch harness connector and ground.
   **Continuity should exist.**
   **OK or NG**

NG → Check harness for open or short between trunk room lamp switch and ground.

OK ↓

Trunk closure electric system is OK.
Check mechanical malfunction.

## Component Parts and Harness Connector Location




SEL943W

## System Description

### OUTLINE

Electric sunroof system consists of
- Sunroof switch
- Sunroof motor assembly
- Sunroof relay
- BCM (Body Control Module)

BCM controls the operation of sunroof relay. Power is supplied to sunroof motor assembly through sunroof relay. Sunroof will be operated depending on sunroof switch condition.

### OPERATION

- Sunroof can be opened or closed and tilted up or down with sunroof switch.

#### Auto operation

The power sunroof AUTO feature makes it possible to open and close the sunroof without holding the sunroof switch in the down or up position.

#### Delayed power operation

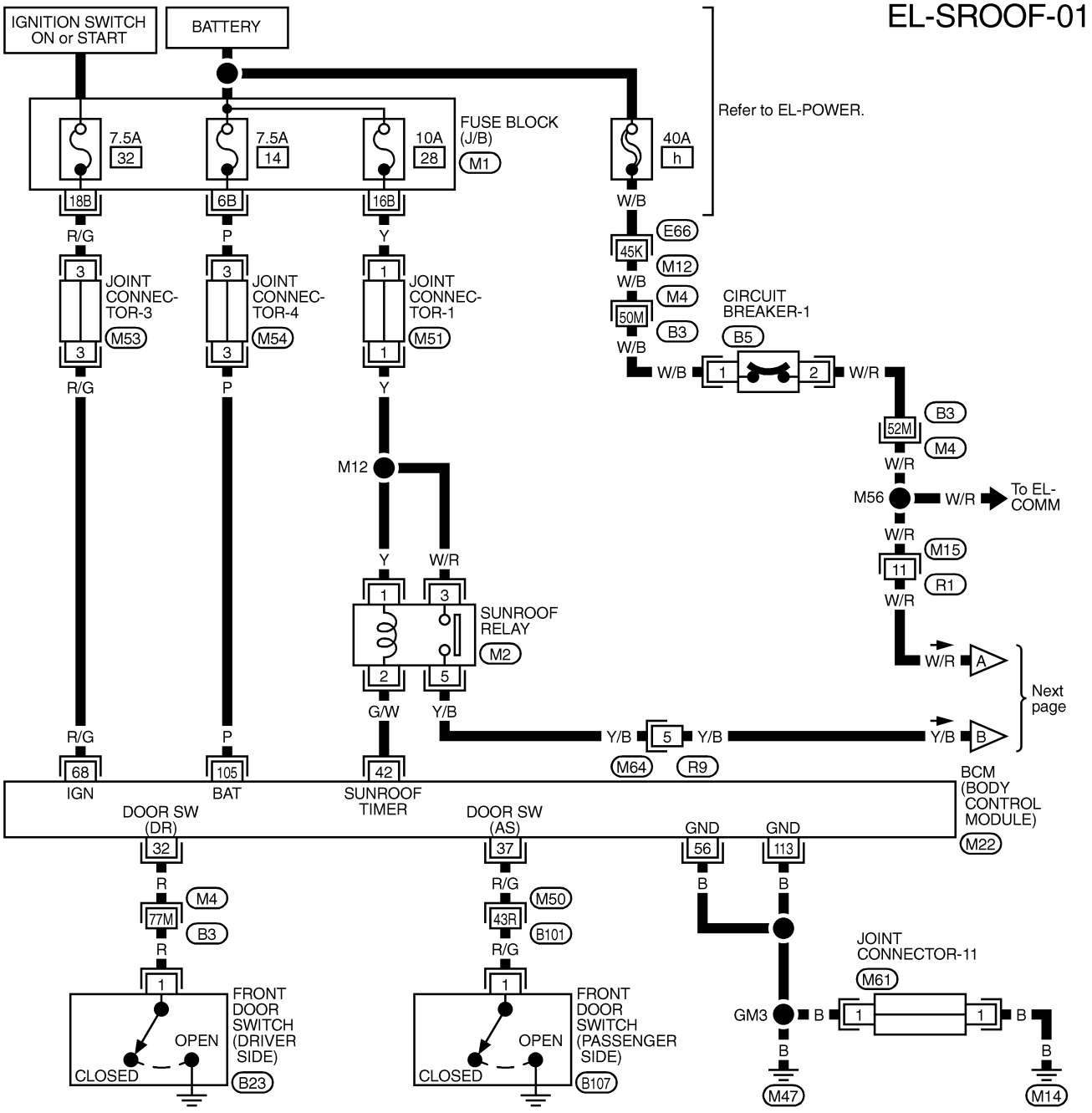
When the ignition switch is turned to the “OFF” position, the sunroof will still operate for up to approximately 45 seconds unless driver’s side or passenger side door is opened.

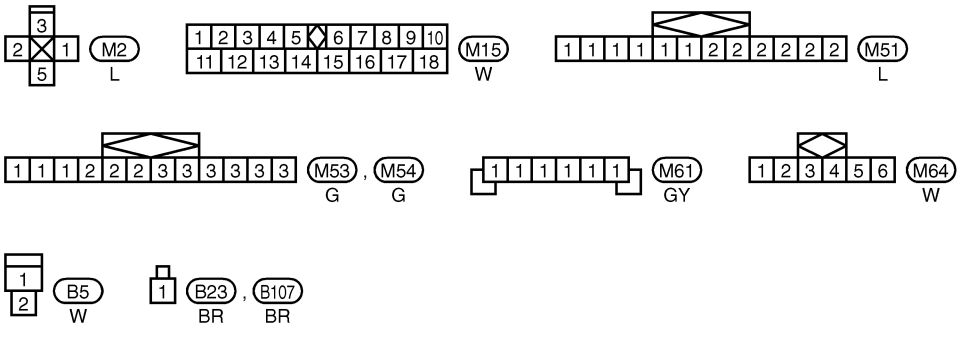
#### Interruption detection function

The CPU of sunroof motor monitors the sunroof motor operation and the sunroof position (full closed or other) for sunroof by the signals from sunroof motor.
When sunroof motor detects interruption during the following close operation,
- automatic close operation when ignition switch is in the “ON” position
- automatic close operation during retained power operation

sunroof switch controls the motor for open and the sunroof will operate about 150 mm (5.91 in).

## Wiring Diagram — SROOF —



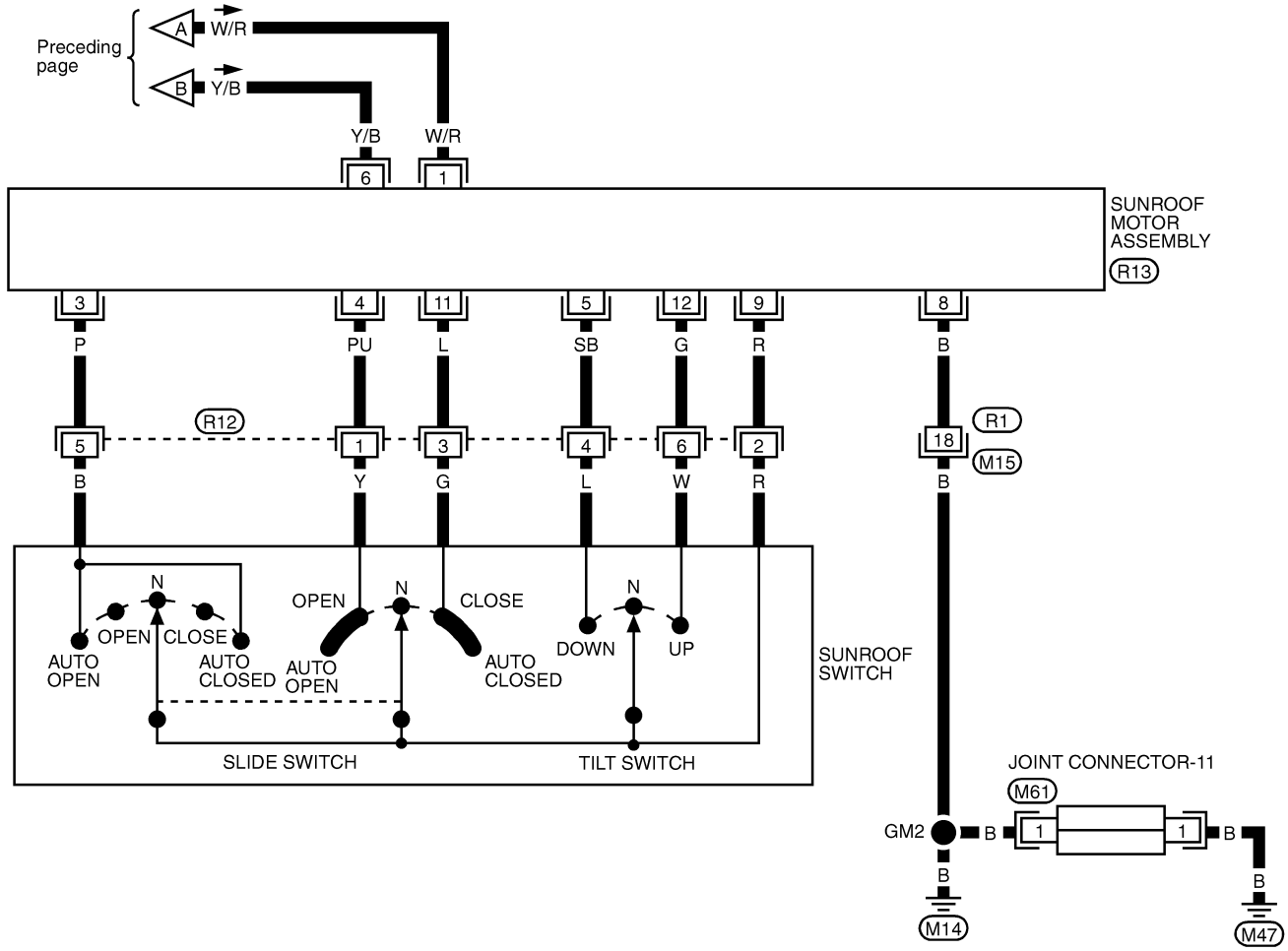



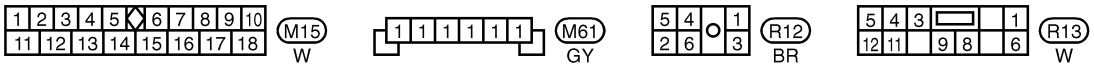

REFER TO THE FOLLOWING.
M4 , M50 , E66 -SUPER MULTIPLE JUNCTION (SMJ)
M1 -FUSE BLOCK-JUNCTION BOX (J/B)
M22 -ELECTRICAL UNITS

TEL119M

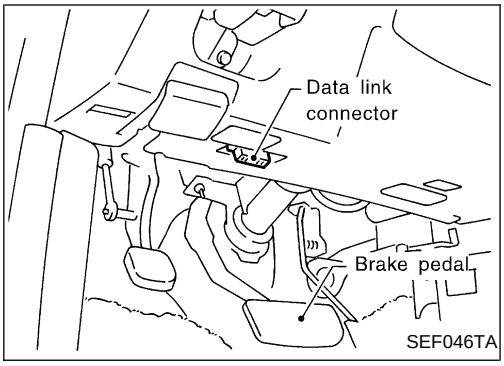
## Wiring Diagram — SROOF — (Cont'd)

EL-SROOF-02




TEL120M

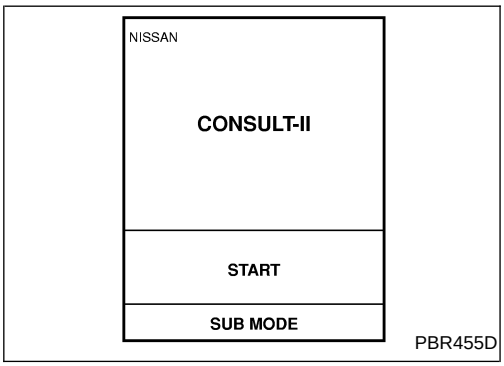


SEF046TA

# CONSULT-II

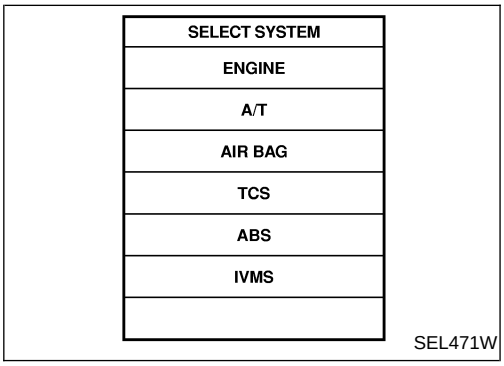
## CONSULT-II INSPECTION PROCEDURE

1. Turn ignition switch “OFF”.
2. Connect “CONSULT-II” to the data link connector.



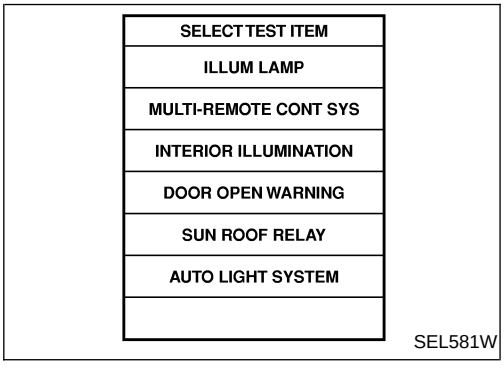
PBR455D

3. Turn ignition switch “ON”.
4. Touch “START”.



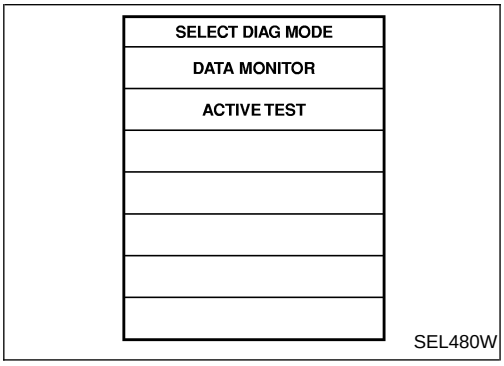
SEL471W

5. Touch “IVMS”.



SEL581W

6. Touch “SUN ROOF RELAY”.



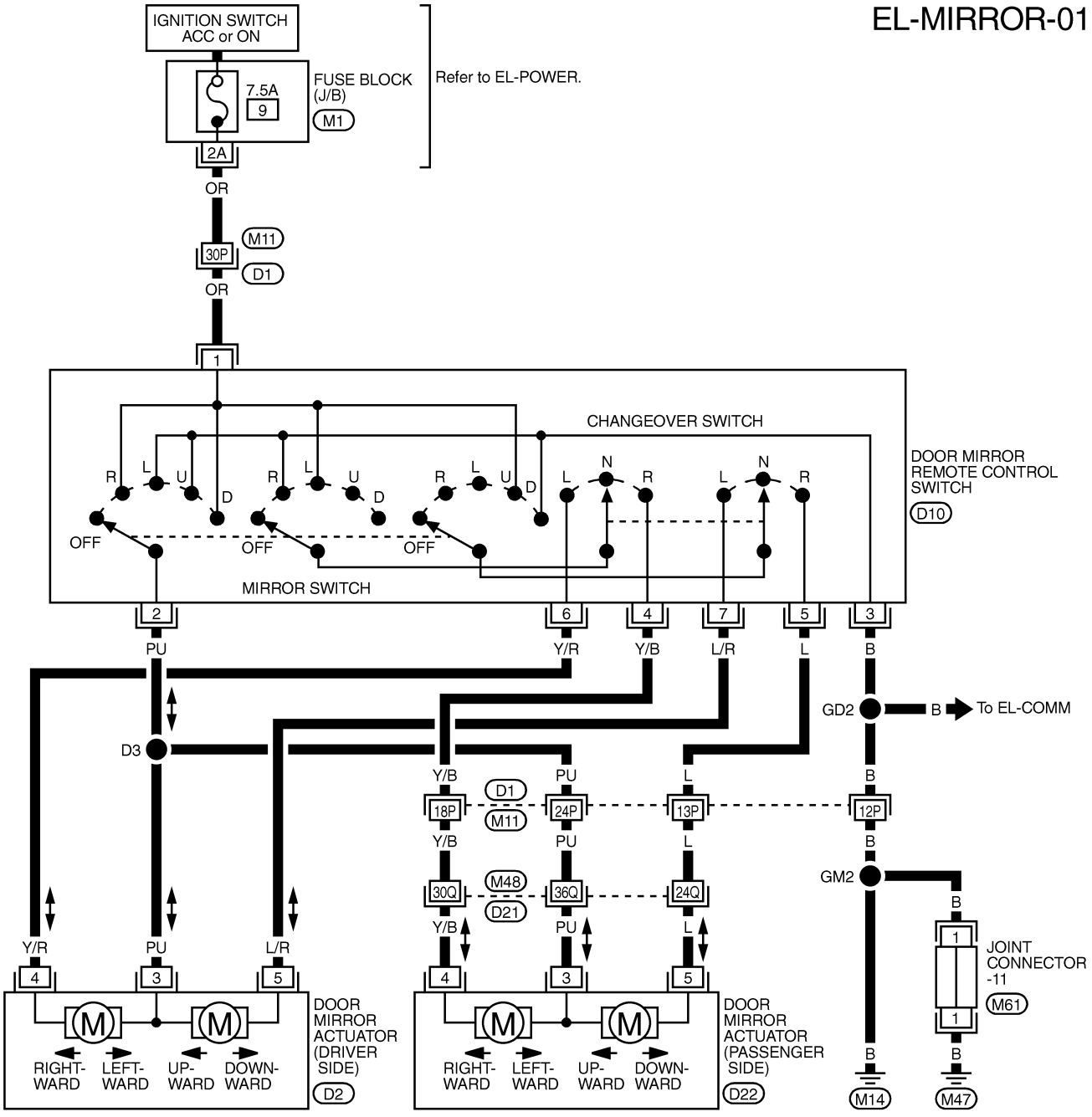
SEL480W

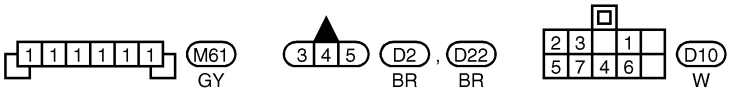
- DATA MONITOR and ACTIVE TEST are available for the sunroof relay.

## Trouble Diagnoses

| Symptom | Possible cause | Repair order |
|---|---|---|
| Power sunroof cannot be operated using any switch. | 1. 10A fuse, 40A fusible link and B5 circuit breaker | 1. Check 10A fuse [No. 28, located in fuse block (J/B)], 40A fusible link (letter h, located in fuse, fusible link and relay box) and B5 circuit breaker. Turn ignition switch "ON" and verify battery positive voltage is present at terminals ① and ⑥ of sunroof motor. |
| | 2. Sunroof relay | 2. Check sunroof relay |
| | 3. Grounds M14 and M47 | 3. Check grounds (M14), (M47). |
| | 4. Sunroof switch | 4. Check sunroof switch. |
| | 5. Sunroof switch circuit | 5. Check harness between sunroof switch and sunroof motor. |
| | 6. Sunroof motor | 6. Check sunroof motor. |
| Power sunroof cannot be operated using one of the sunroof switches. | 1. Sunroof switch | 1. Check sunroof switch. |
| | 2. Sunroof switch circuit | 2. Check the harness between sunroof motor and sunroof switch. |
| Power sunroof auto function cannot be operated properly. | 1. Sunroof slide mechanism | 1-1. Check obstacles in sunroof, etc.<br>1-2. Check worn or deformed sunroof.<br>1-3. Check sunroof sash tilted too far inward or outward. |
| | 2. Sunroof switch | 2. Check sunroof switch. |
| | 3. Sunroof switch circuit | 3. Check harness between sunroof motor and sunroof switch. |
| | 4. Sunroof motor | 4. Replace sunroof motor. |
| Delyaed power operation does not operate properly. | 1. Driver or passenger side door switch circuit | 1-1. Check harness between smart entrance control unit and driver or passenger side door switch for short circuit.<br>1-2. Check driver or passenger side door switch ground circuit.<br>1-3. Check driver or passenger side door switch. |
| | 2. BCM | 2. Check BCM |

## Wiring Diagram — MIRROR —



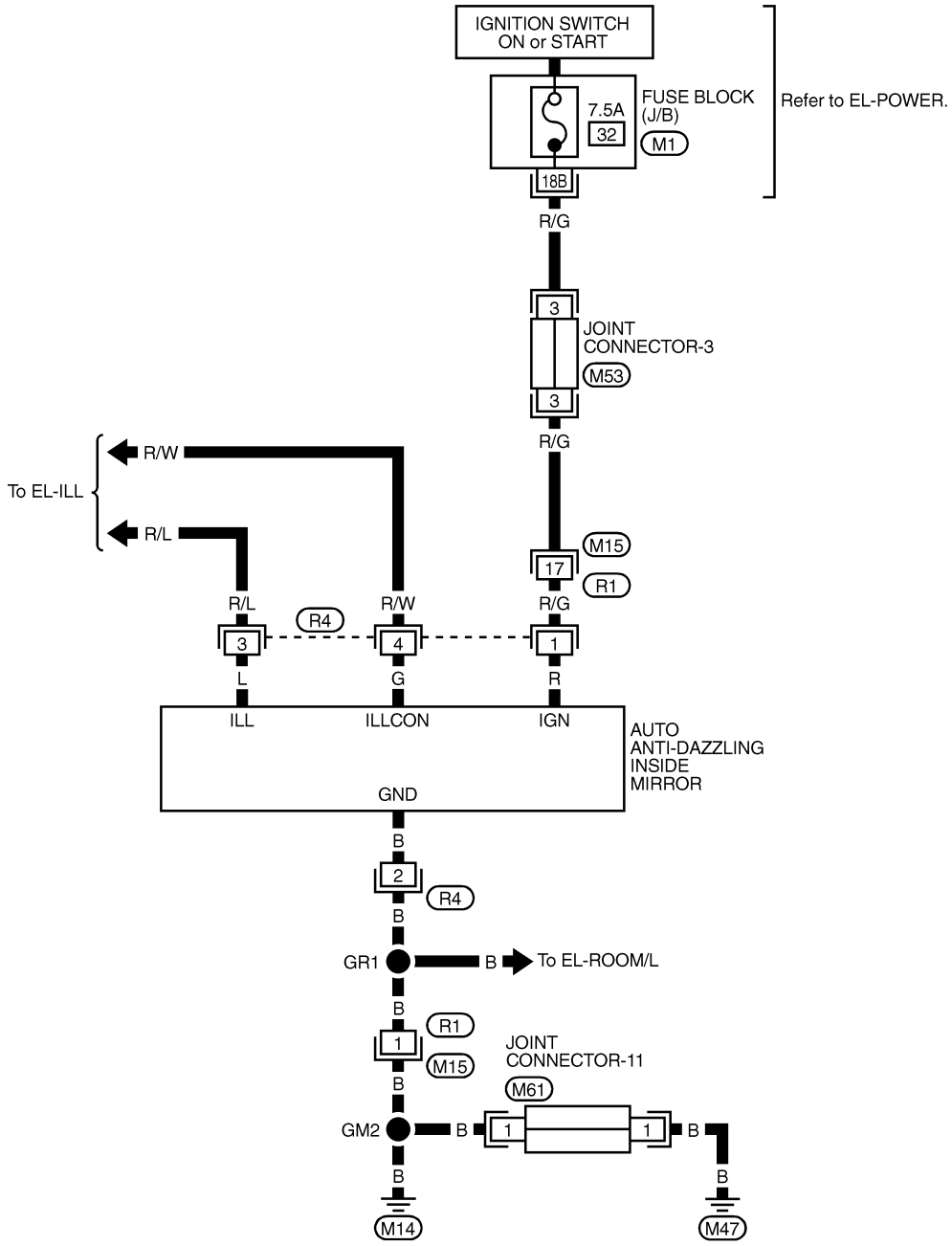



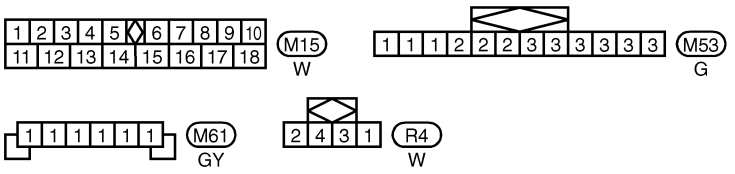

REFER TO THE FOLLOWING.
D1 , D21 -SUPER MULTIPLE JUNCTION (SMJ)
M1 -FUSE BLOCK-JUNCTION BOX (J/B)

TEL121M

## Wiring Diagram — I/MIRR —

EL-I/MIRR-01

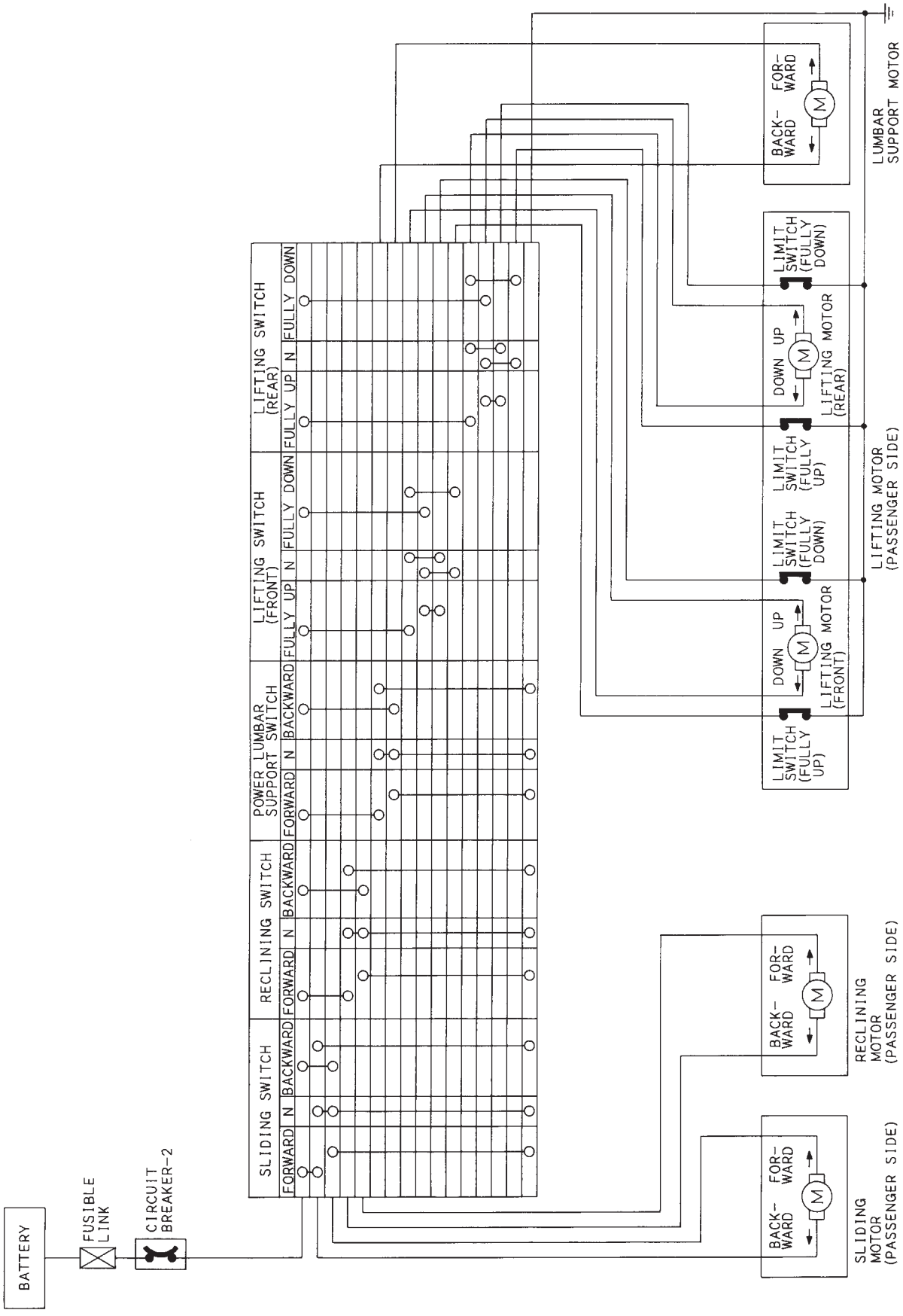



REFER TO THE FOLLOWING.
M1 -FUSE BLOCK-JUNCTION BOX (J/B)

TEL122M

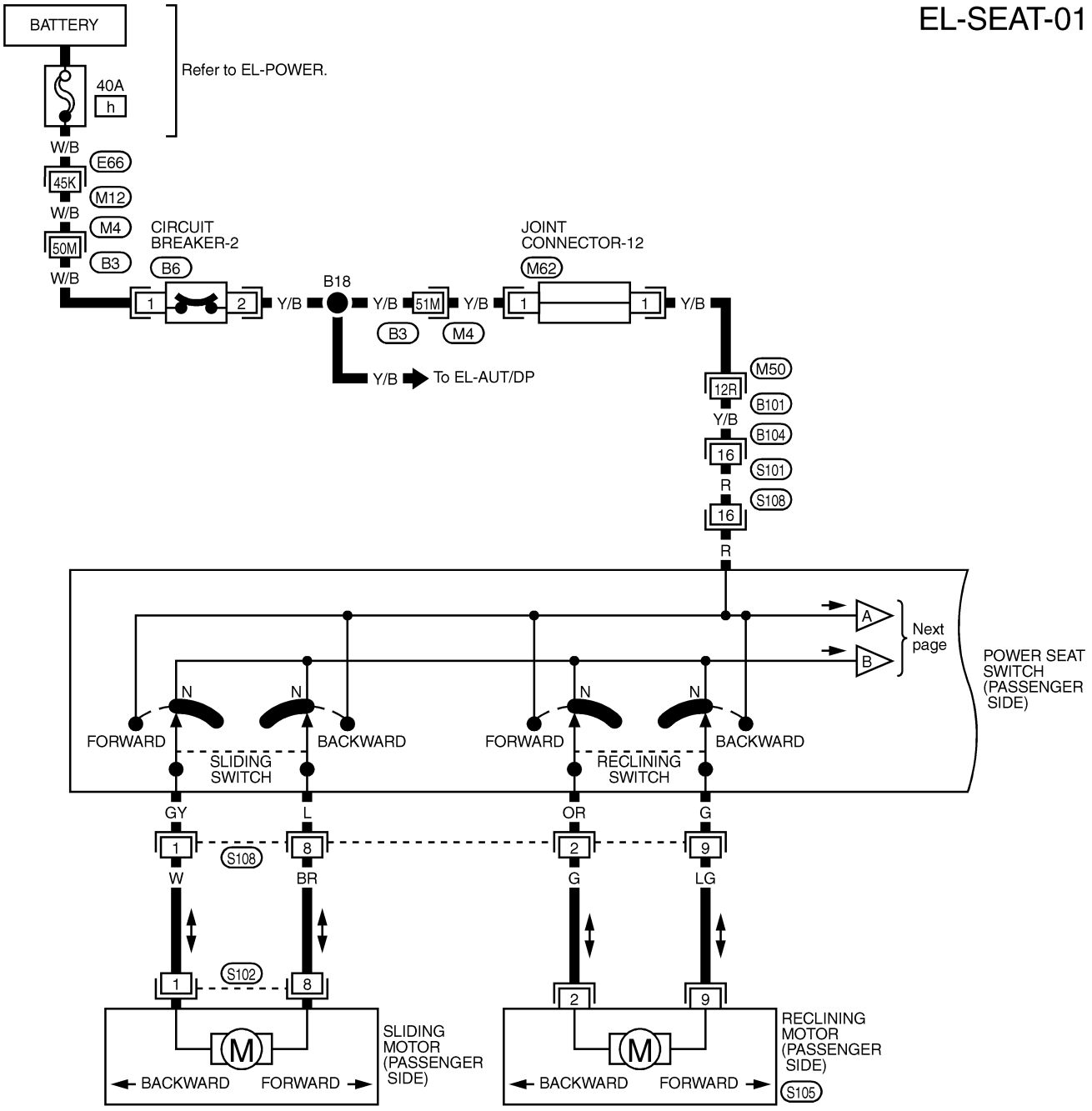
## Schematic

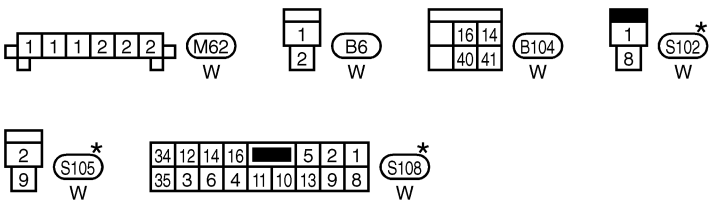



TEL809

## Wiring Diagram — SEAT —

EL-SEAT-01



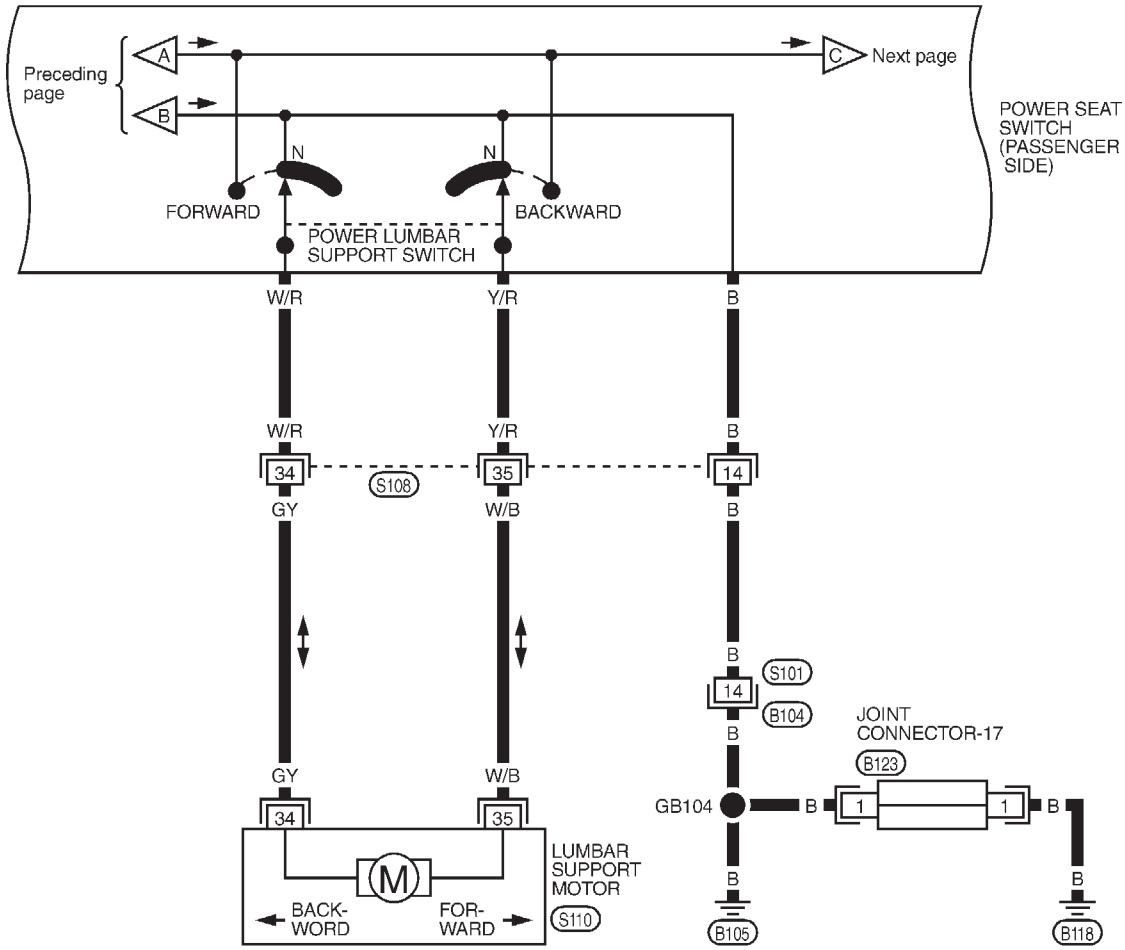

REFER TO THE FOLLOWING.
M4 , M50 , E66 -SUPER MULTIPLE JUNCTION (SMJ)

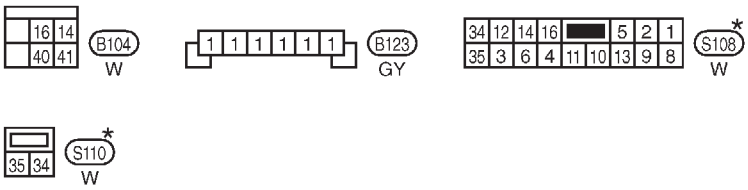
★ : This connector is not shown in "HARNESS LAYOUT", EL section.

TEL123M

## Wiring Diagram — SEAT — (Cont'd)

EL-SEAT-02



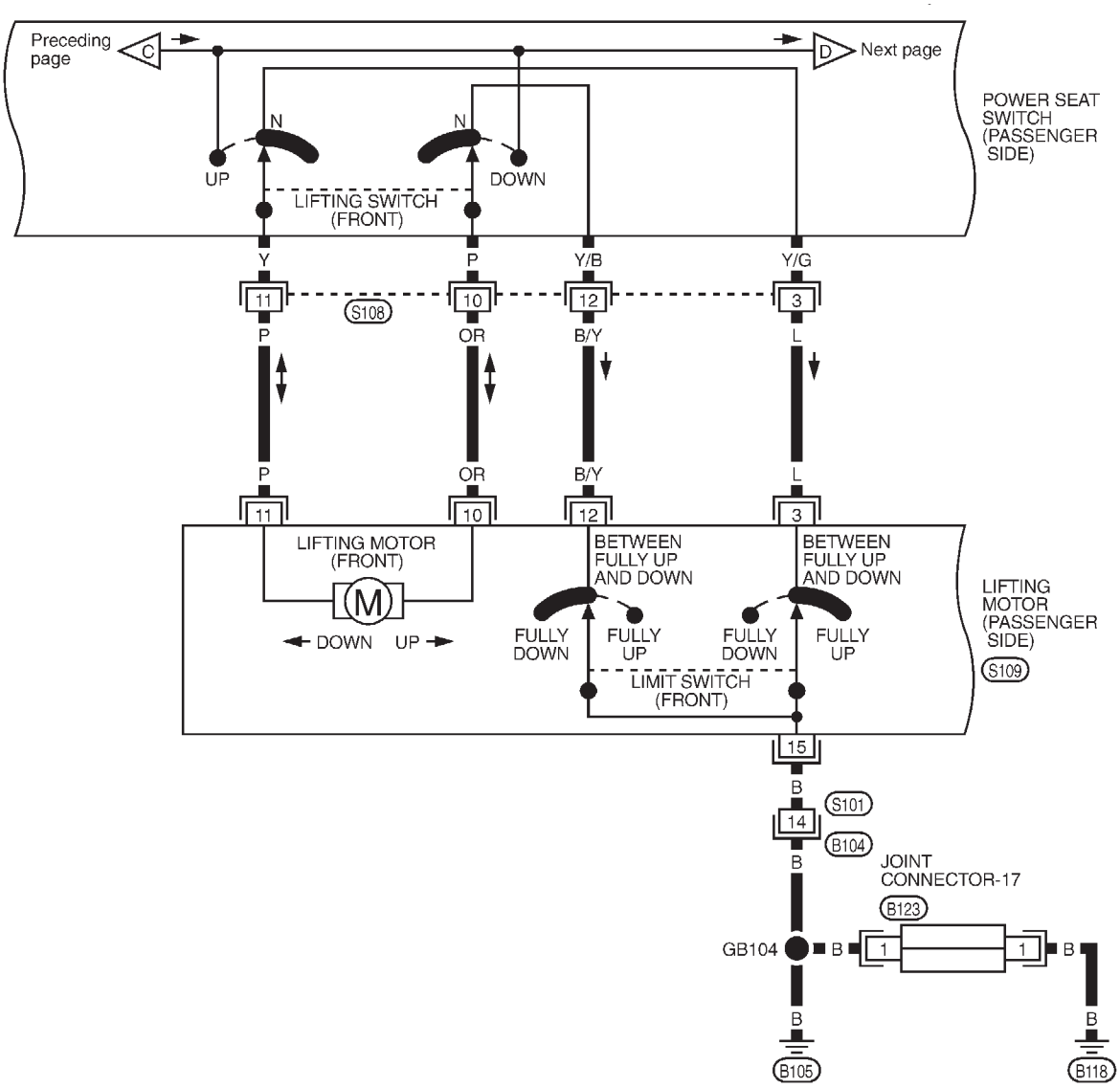



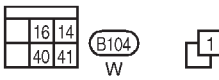

* : This connector is not shown in "HARNESS LAYOUT", EL section.

TEL811

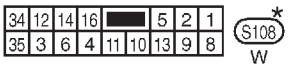
## Wiring Diagram — SEAT — (Cont'd)

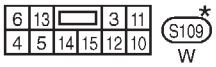
EL-SEAT-03







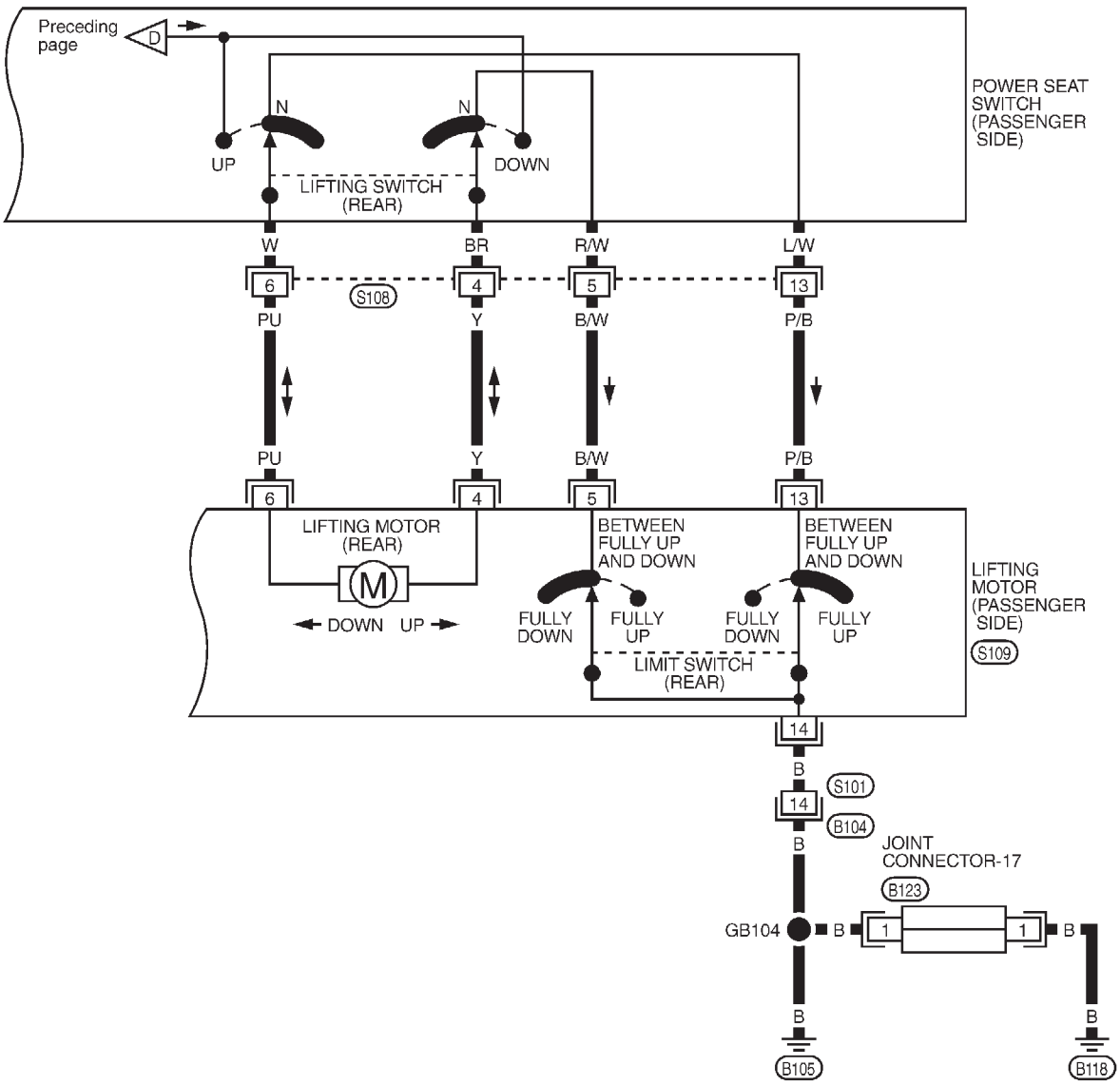



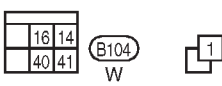

∗ : This connector is not shown in "HARNESS LAYOUT", EL section.

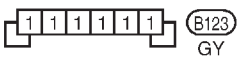
TEL812

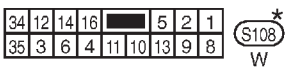
## Wiring Diagram — SEAT — (Cont'd)

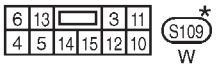
EL-SEAT-04



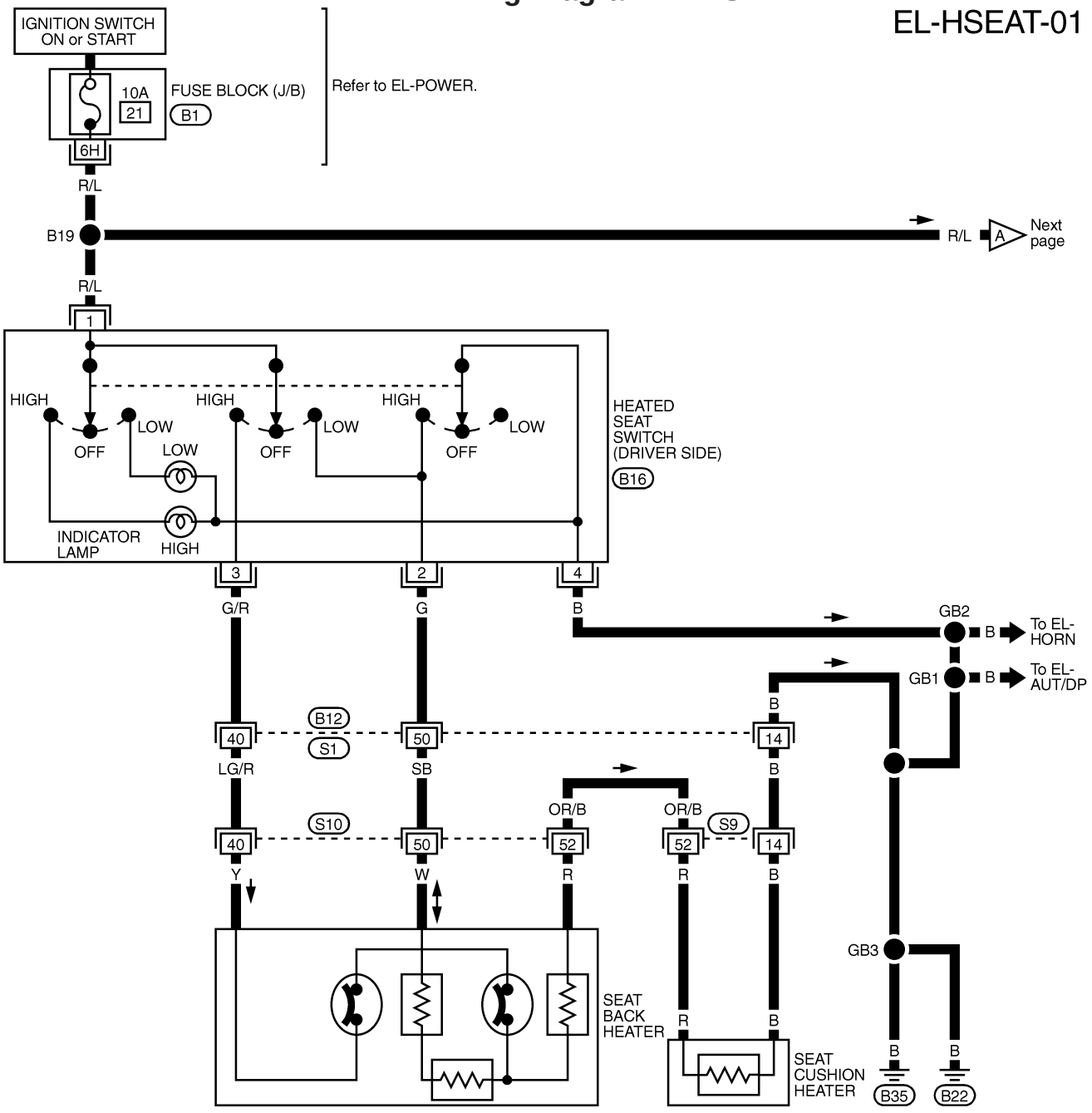



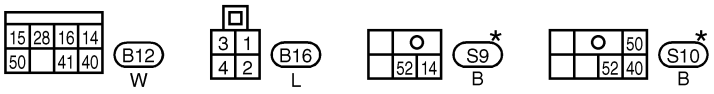

∗: This connector is not shown in "HARNESS LAYOUT", EL section.

TEL213A

## Wiring Diagram — HSEAT —

EL-HSEAT-01




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

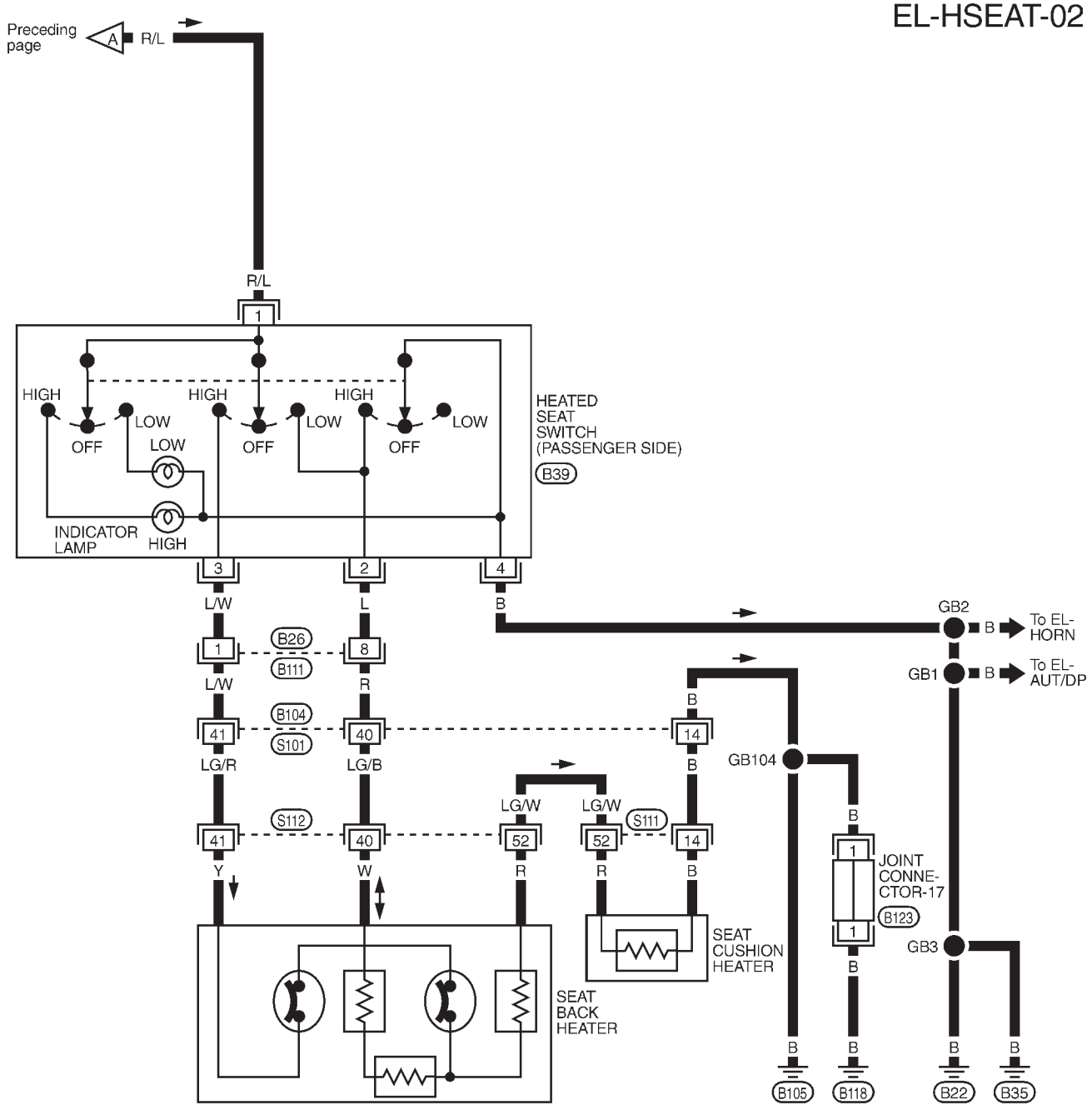
REFER TO THE FOLLOWING.

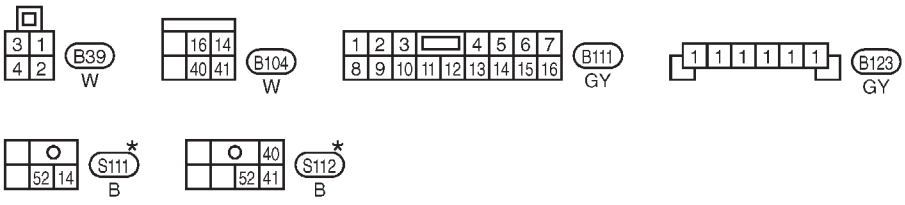
B1 -FUSE BLOCK-JUNCTION BOX (J/B)

TEL124M

## Wiring Diagram — HSEAT — (Cont'd)

EL-HSEAT-02



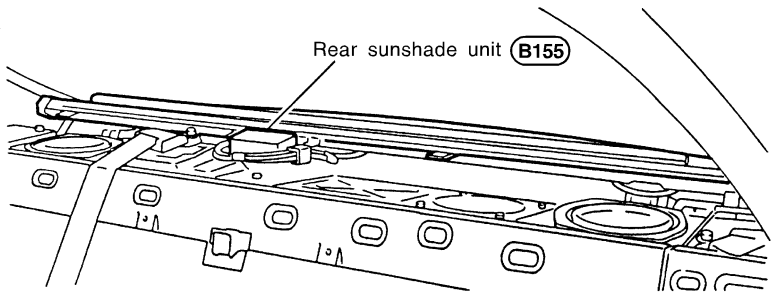




* : This connector is not shown in "HARNESS LAYOUT", EL section.

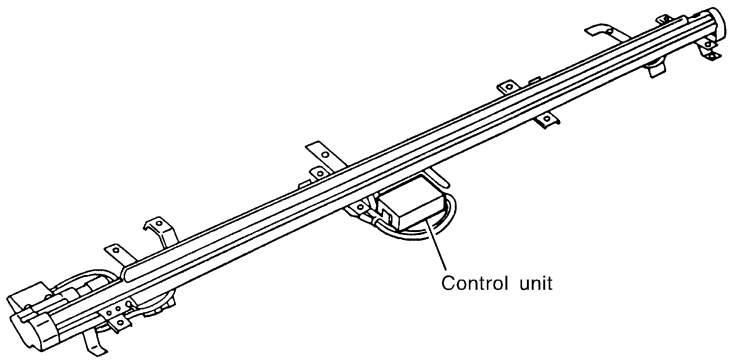
TEL815

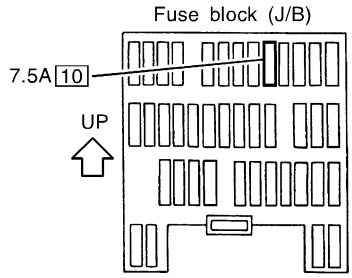
## Component Parts and Harness Connector Location

Under rear parcel shelf

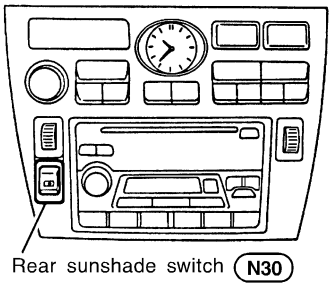



Rear sunshade unit

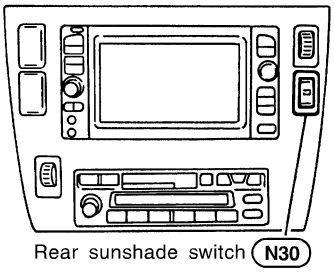



Without navigation system




With navigation system




SEL143Y

## System Description

Power is supplied at all times.
- through 7.5A fuse [No. 10, located in the fuse block (J/B)]
- to rear sunshade unit terminal ⑤ .

Ground is supplied at all times
- to rear sunshade unit terminal ⑥
- through body ground (B105) and (B118).

### OPEN OPERATION

When rear sunshade switch is turned to “OPEN”, the ground is supplied to rear sunshade unit terminal ① . Based on the ground signal to control unit terminal ⑥ through rear sunshade unit terminal ① , power is supplied
- to motor terminal ②
- from control unit terminal ⑨

and ground is supplied
- to motor terminal ①
- from control unit terminal ⑧ .

When sunshade is fully opened, control unit stops to supply power to motor based on the signal from UP/DOWN limit switch.

### CLOSE OPERATION

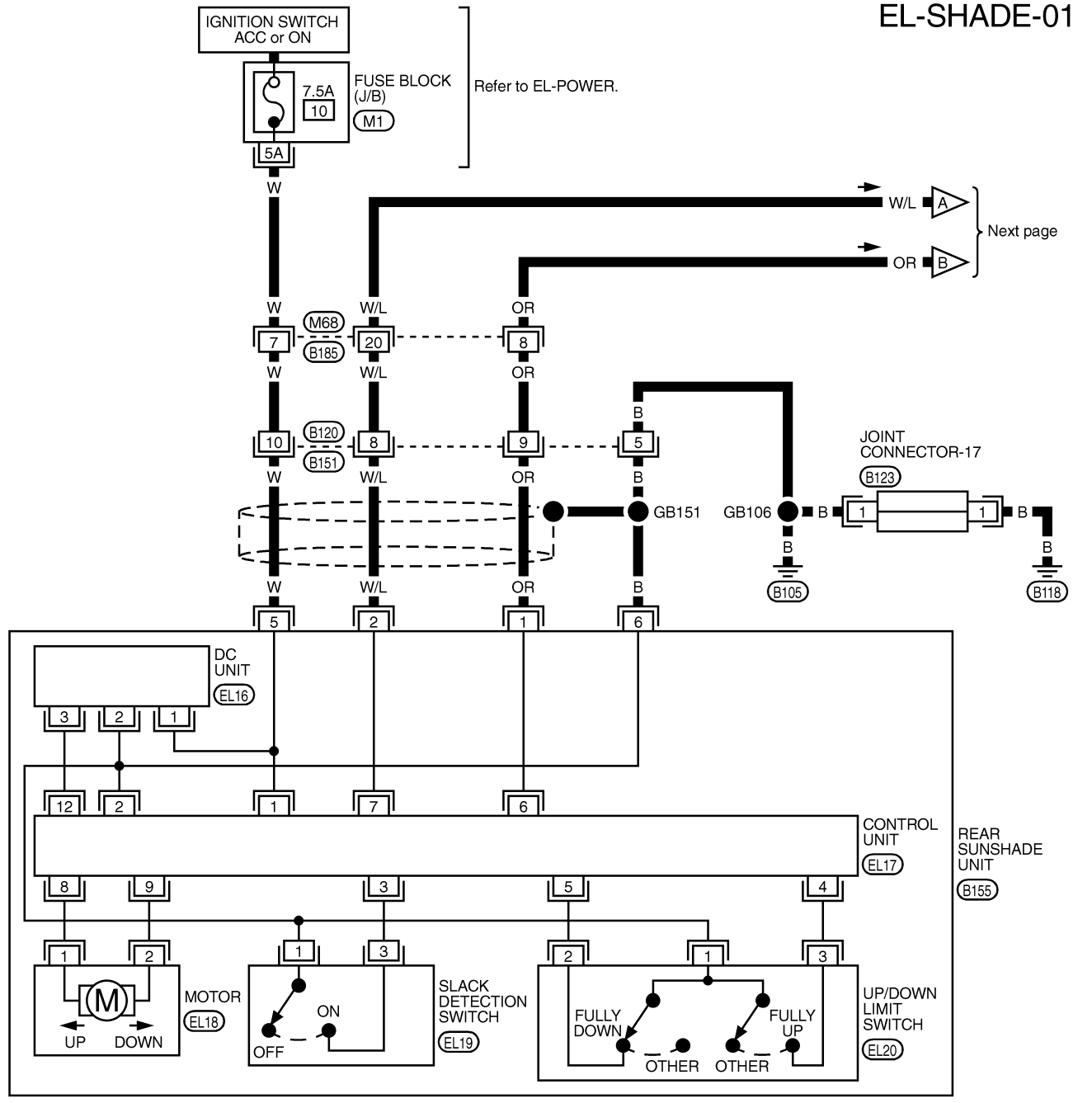
When rear sunshade switch is turned to “CLOSE”, ground is supplied to rear sunshade unit terminal ② . Based on the ground signal to control unit terminal ⑦ through rear sunshade unit terminal ② , power is supplied
- to motor terminal ①
- from control unit terminal ⑧

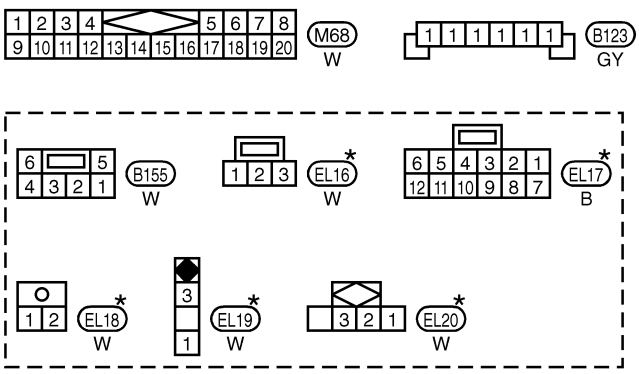
and ground is supplied
- to motor terminal ②
- from control unit terminal ⑨ .

When sunshade is fully closed, control unit stops to supply power to motor based on the signal from UP/DOWN limit switch.

Once the sunshade switch is pushed, the open or close operation will be continued until the control unit detects full open or full close based on the signal from UP/DOWN limit switch. During open or close operation of sunshade, the input signal from sunshade switch is ignored.
When control unit detects the slack of sunshade based on the signal from slack detection switch, the motor will be stopped. When control unit detects no slack of sunshade based on the signal from slack detection switch, power is supplied again to motor after 1 sec. after no slack is detected.

## Wiring Diagram — SHADE —



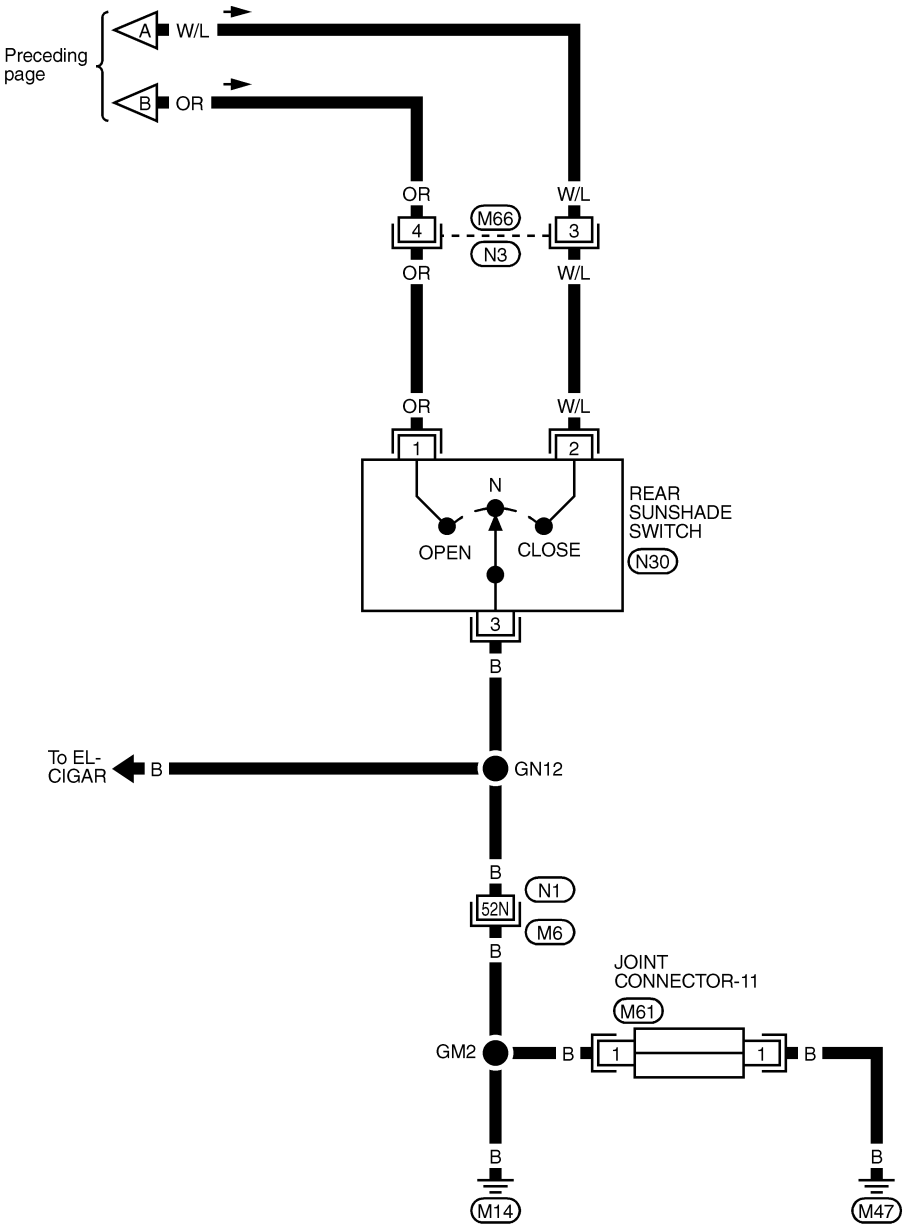

REFER TO THE FOLLOWING.
M1 -FUSE BLOCK-JUNCTION BOX (J/B)

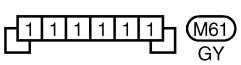
*: This connector is not shown in "HARNESS LAYOUT", EL section.

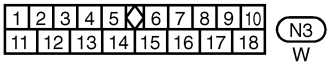
TEL125M

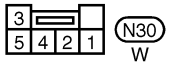
## Wiring Diagram — SHADE — (Cont'd)

EL-SHADE-02



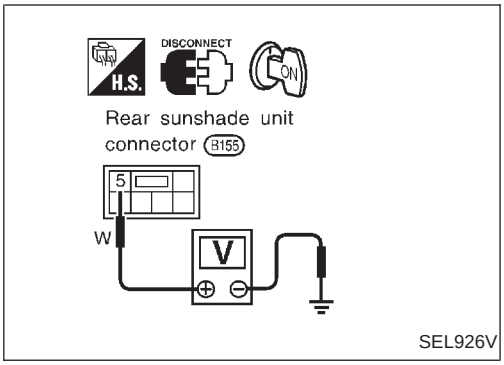




REFER TO THE FOLLOWING.
M6 -SUPER MULTIPLE JUNCTION (SMJ)

TEL126M




## Trouble Diagnoses

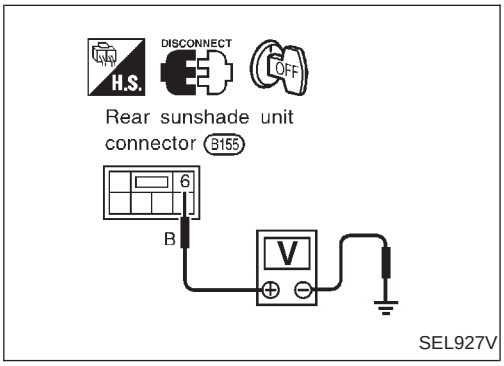
### POWER SUPPLY CIRCUIT CHECK

Check voltage between rear sunshade unit terminal ⑤ and ground.

| Terminals | Ignition switch position | | | |
|---|---|---|---|---|
| | OFF | ACC | ON | START |
| ⑤ - Ground | 0V | Battery voltage | | |

If NG, check the following.

- 7.5A fuse [No. 10, located in fuse block (J/B)]
- Harness for open or short between 7.5A fuse [No. 10, located in fuse block (J/B)] and rear sunshade unit.

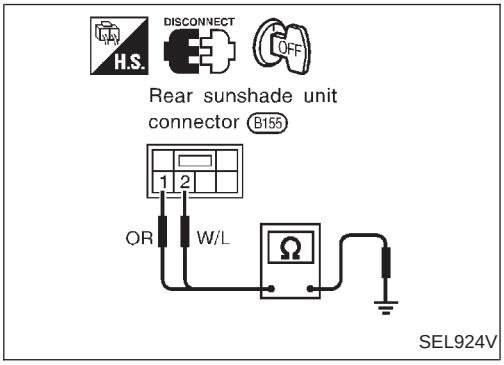



### GROUND CIRCUIT CHECK

Check continuity between rear sunshade unit terminal ⑥ and ground.

| Terminals | Continuity |
|---|---|
| ⑥ - Ground | Yes |

If NG, check harness for open between rear sunshade unit terminal ⑥ and body ground B105 and B118.




### REAR SUNSHADE SIGNAL CIRCUIT CHECK

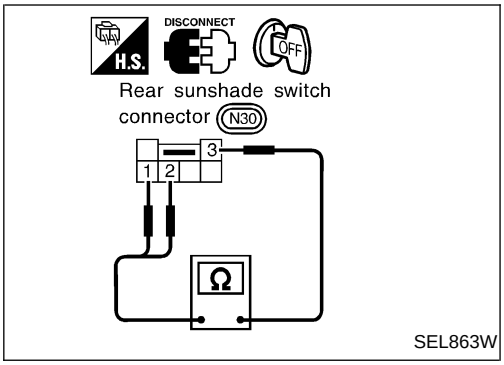
1. Disconnect rear sunshade unit connector.
2. Check the following continuity.

| Terminals | Switch position | Continuity |
|---|---|---|
| ① - Ground | Open | Yes |
| | Neutral | No |
| | Close | No |
| ② - Ground | Open | No |
| | Neutral | No |
| | Close | Yes |

If NG, check the following.

- Harness for open or short between rear sunshade unit and rear sunshade switch
- Harness for open or short between rear sunshade switch and ground
- Rear sunshade switch

## Trouble Diagnoses (Cont'd)



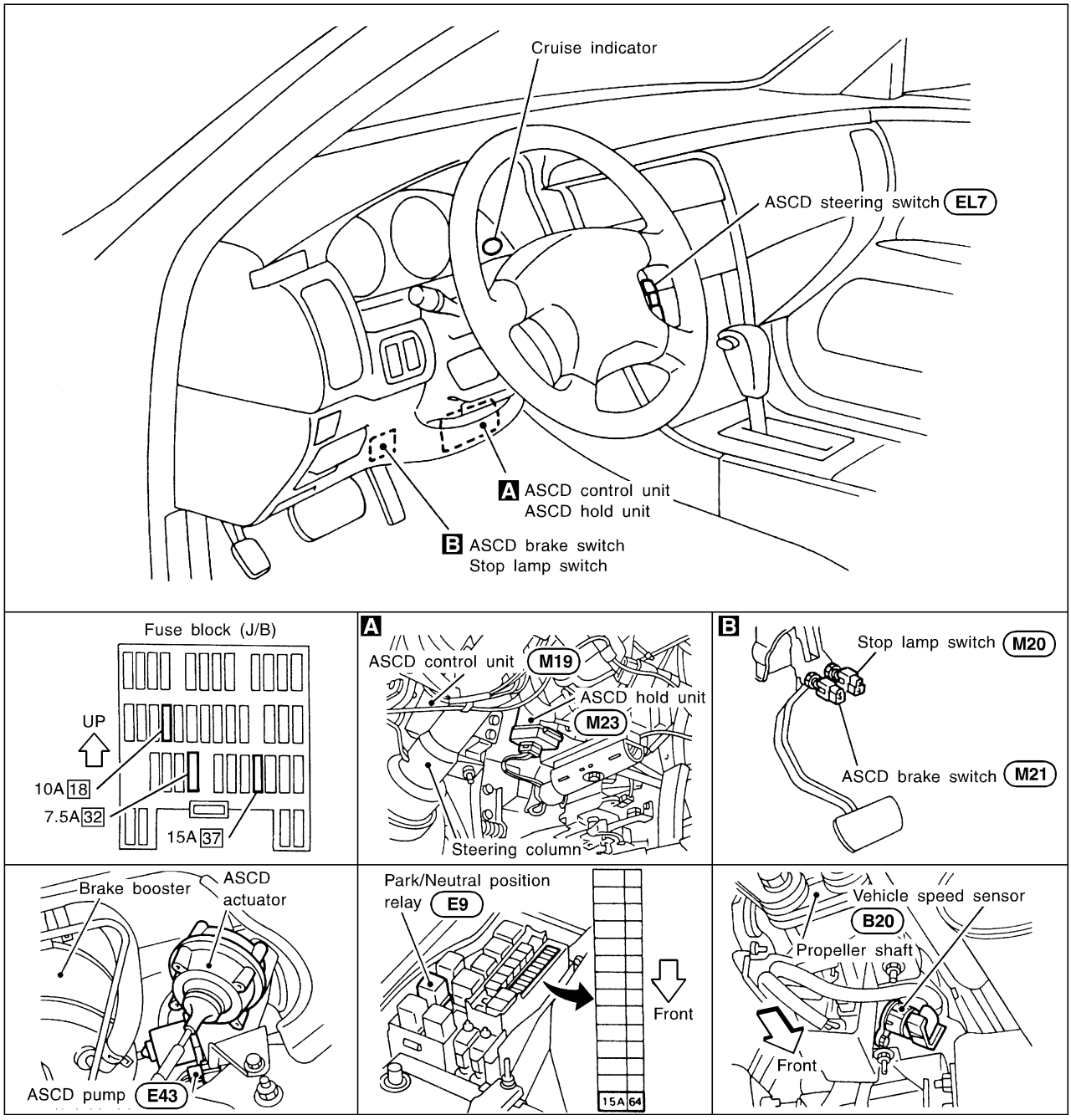

### REAR SUNSHADE SWITCH CHECK

1. Disconnect rear sunshade switch.
2. Check continuity between rear sunshade switch terminals.

| Terminals | Switch position | Continuity |
|---|---|---|
| ① - ③ | Open | Yes |
| | Neutral | No |
| | Close | No |
| ② - ③ | Open | No |
| | Neutral | No |
| | Close | Yes |

If NG, replace rear sunshade switch.

## Component Parts and Harness Connector Location




SEL864W

## System Description

### POWER SUPPLY AND GROUND

When ignition switch is in the ON or START position, power is supplied
- through 7.5A fuse [No. 32, located in the fuse block (J/B)]
- to ASCD hold unit terminal ①.

When MAIN switch is depressed, ground is supplied
- to ASCD hold unit terminal ②
- through ASCD steering switch terminal ④.

If those two signals are input, ASCD hold unit supplies power
- to ASCD control unit terminal ④,
- to ASCD control unit terminal ⑤ (through ASCD brake switch and park/neutral position relay) and
- to combination meter terminal ㊺ to illuminate CRUISE indicator.

ASCD hold unit keeps power supply until any of following condition exists.
- Ignition switch is returned to the ACC or OFF position.
- MAIN switch is depressed again.

Ground is supplied
- to ASCD hold unit terminal ④ and
- to ASCD control unit terminal ③
- through body grounds (M14) and (M47).

### OPERATION

#### Set operation

To activate the ASCD, all of following conditions must exist.
- Power supply to ASCD control unit terminal ④
- Power supply to ASCD control unit terminal ⑤ (Brake pedal is released and A/T selector lever is in other than P and N position.)
- Vehicle speed is between 48 km/h (30 MPH) and 144 km/h (89 MPH). (Signal from combination meter)

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

And then ASCD pump is activated to control throttle wire and ASCD control unit supply power
- to combination meter terminal ㊻ to illuminate SET indicator.

#### A/T overdrive control during cruise control driving

When the vehicle speed is approximately 8 km/h (5 MPH) below set speed, a signal is sent
- from ASCD control unit terminal ⑫
- 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.

#### Coast operation

When the SET/COAST switch is depressed during cruise control driving, ASCD actuator returns the throttle cable to decrease vehicle set speed until the switch is released. And then ASCD will keep the new set speed.

#### Accel operation

When the RESUME/ACCEL switch is depressed, power is supplied
- from ASCD steering switch terminal ③
- to ASCD control unit terminal ①.

If the RESUME/ACCEL switch is depressed during cruise control driving, ASCD actuator pulls the throttle cable to increase the vehicle speed until the switch is released or vehicle speed is reached to maximum controlled speed by the system. And then ASCD will keep the new set speed.

#### Cancel operation

When any of following condition exists, cruise operation will be canceled. (CRUISE indicator will continue to illuminate.)
- CANCEL switch is depressed. (Power supply to ASCD control unit terminals ① and ②)
- Brake pedal is depressed. (Power supply to ASCD control unit terminal ⑪ from stop lamp switch)
- Brake pedal is depressed or A/T selector lever is shifted to P or N position. (Power supply to ASCD control unit terminal ⑤ is interrupted.)

If MAIN switch is depressed during ASCD is activated, all of ASCD operation will be canceled and vehicle speed memory will be erased.

## System Description (Cont'd)

### Resume operation

When the RESUME/ACCEL switch is depressed after cancel operation other than depressing MAIN switch is performed, vehicle speed will return to last set speed. To resume vehicle set speed, vehicle condition must meet following conditions.

- Brake pedal is released.
- A/T selector lever is in other than P and N position.
- Vehicle speed is between 48 km/h (30 MPH) and 144 km/h (89 MPH).

### ASCD PUMP OPERATION

The ASCD pump consists of a vacuum motor, an air valve and a release valve. When the ASCD activates, power is supplied

- from terminal ⑧ of ASCD control unit
- to ASCD pump terminal ① .

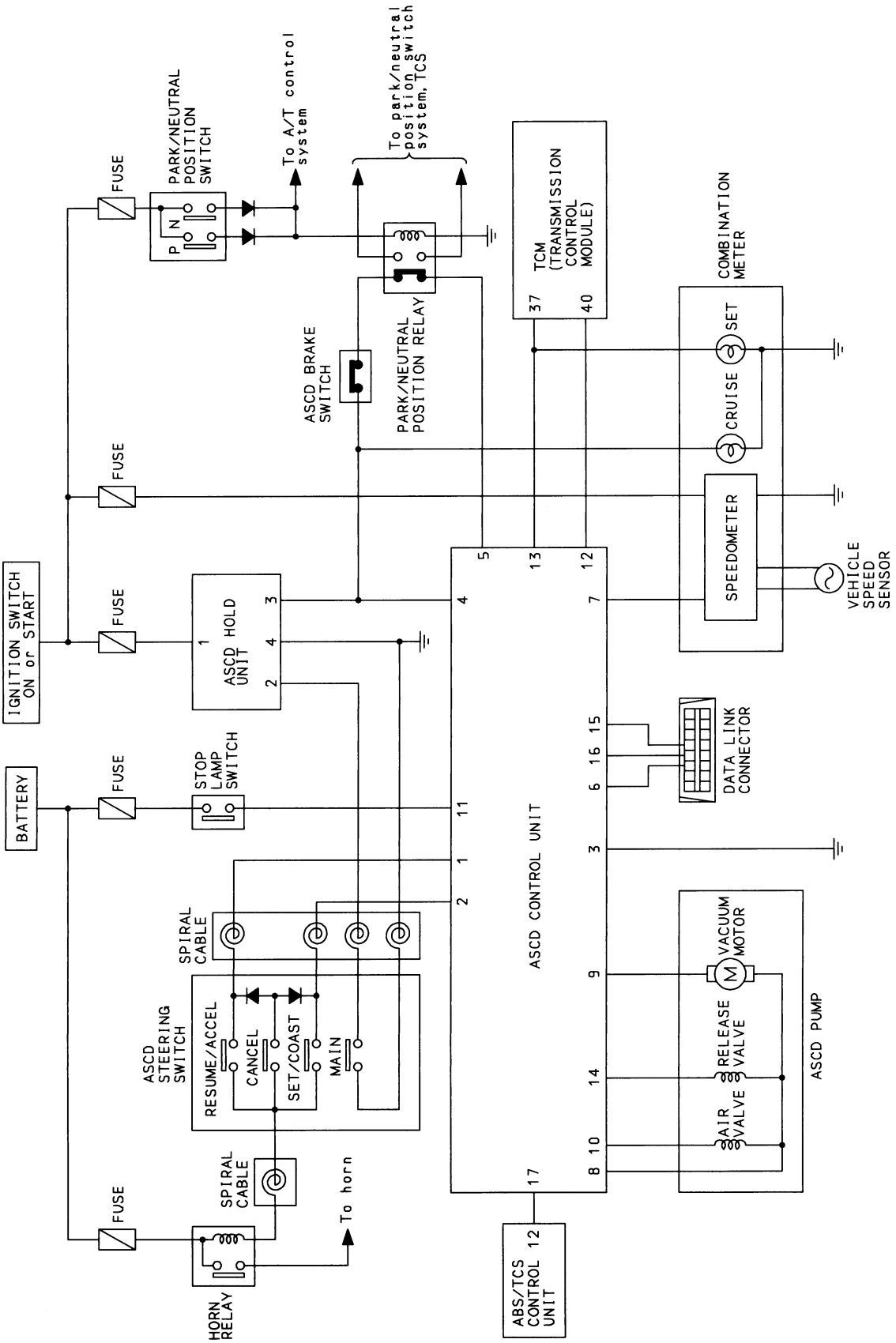
Ground is supplied to vacuum motor, air valve and release valve from ASCD control unit depending on the operated condition as shown in the below table.

The pump is connected to ASCD actuator by vacuum hose. When the ASCD pump is activated, the ASCD pump vacuum the diaphragm of ASCD actuator to control throttle cable.

| | | Air valve* | Release valve* | Vacuum motor | Actuator inner pressure |
|---|---|---|---|---|---|
| ASCD not operating | | Open | Open | Stopped | Atmosphere |
| ASCD operating | Releasing throttle cable | Open | Closed | Stopped | Vacuum (decrease) |
| | Holding throttle position | Closed | Closed | Stopped | Vacuum (hold) |
| | Pulling throttle cable | Closed | Closed | Operated | Vacuum (increase) |

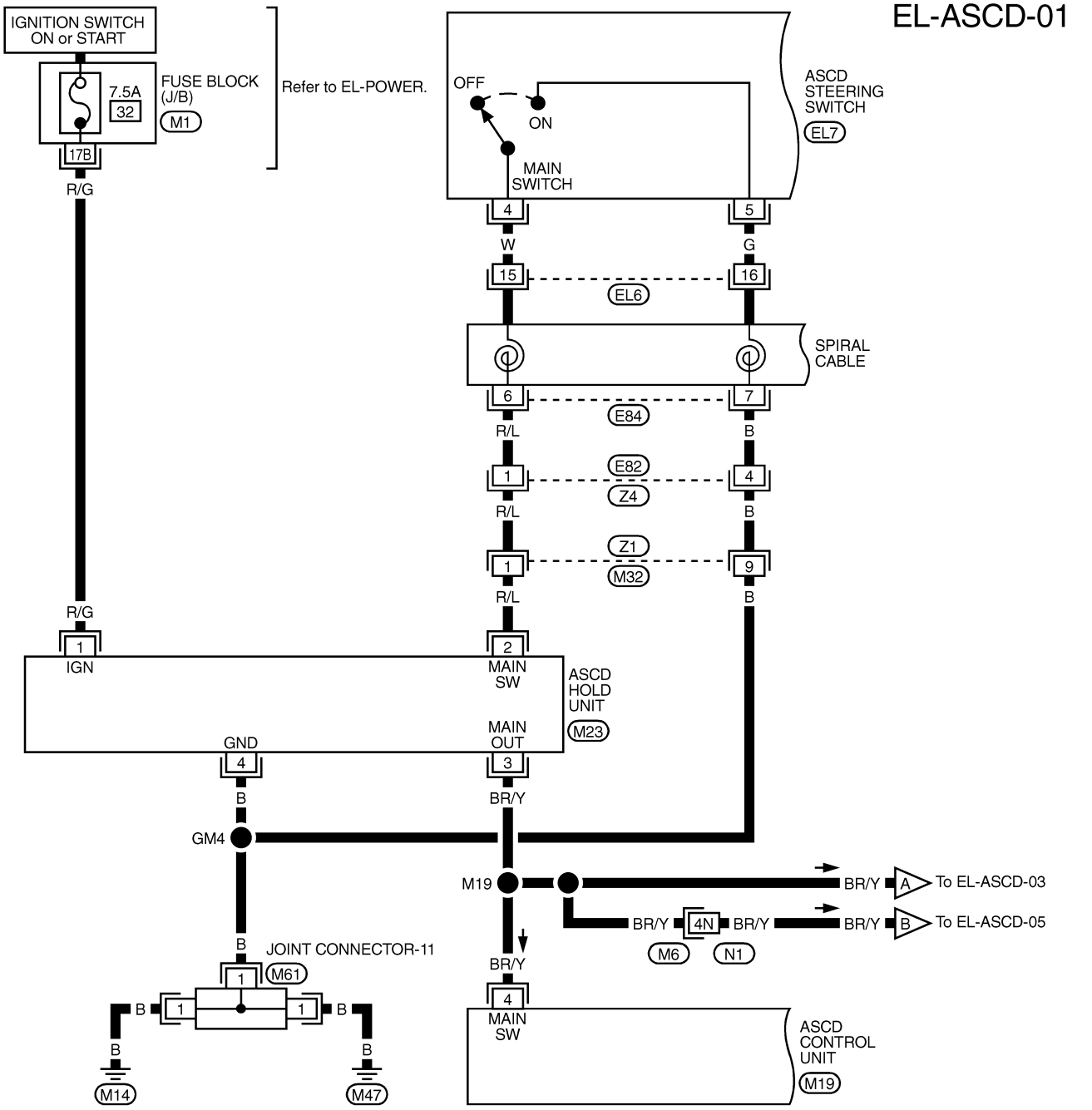
*: When power and ground is supplied, valve is closed.

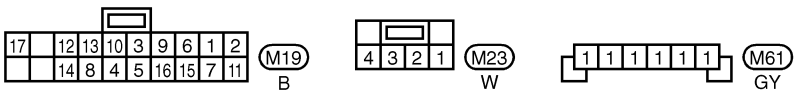
## Schematic

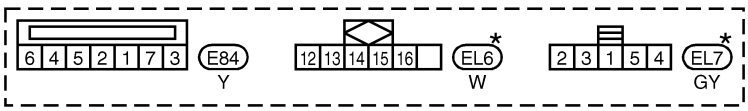


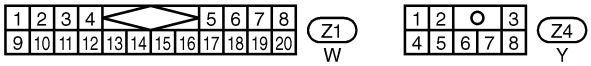

TEL028M

## Wiring Diagram — ASCD —




REFER TO THE FOLLOWING.

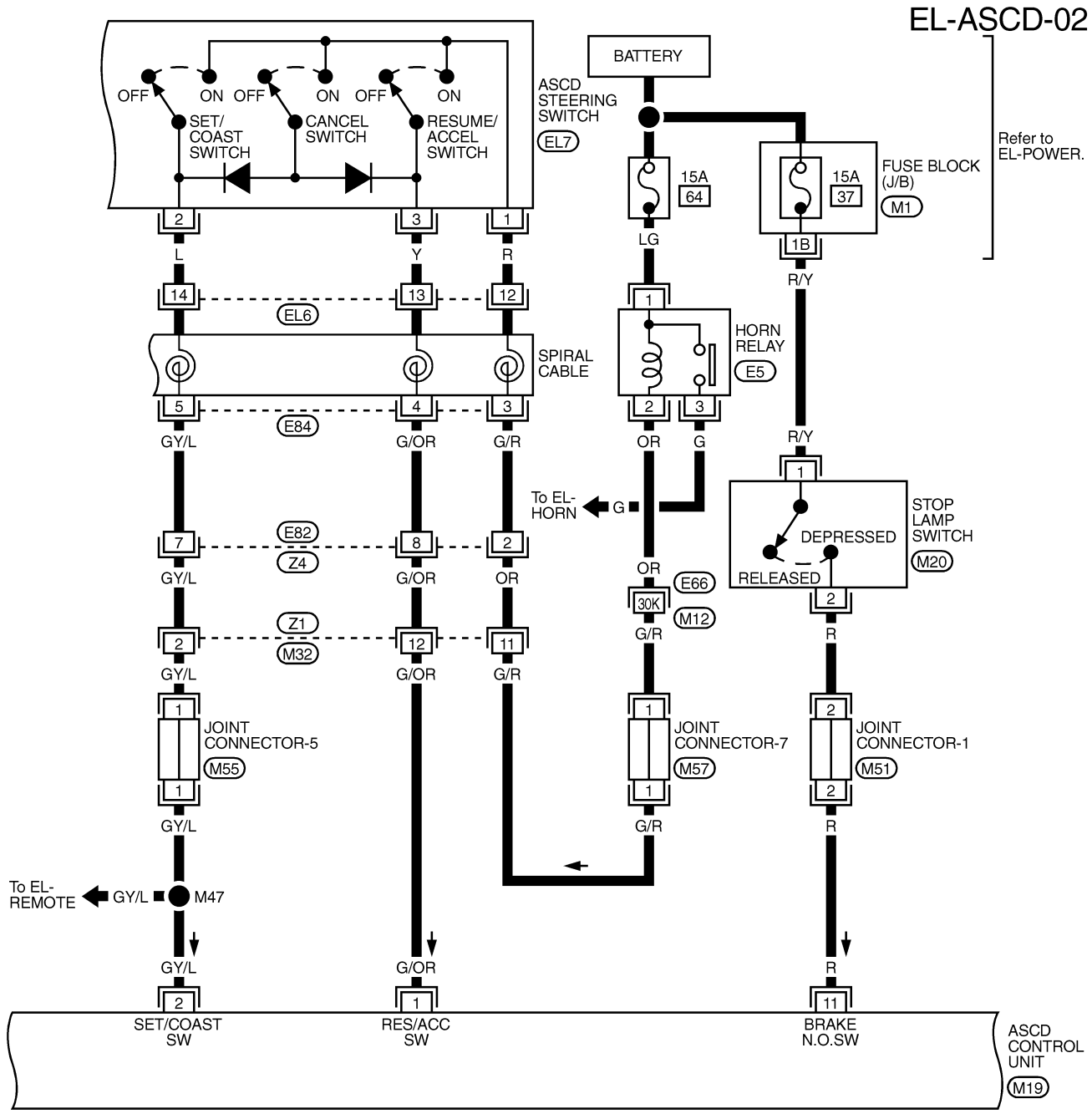
M6 -SUPER MULTIPLE JUNCTION (SMJ)

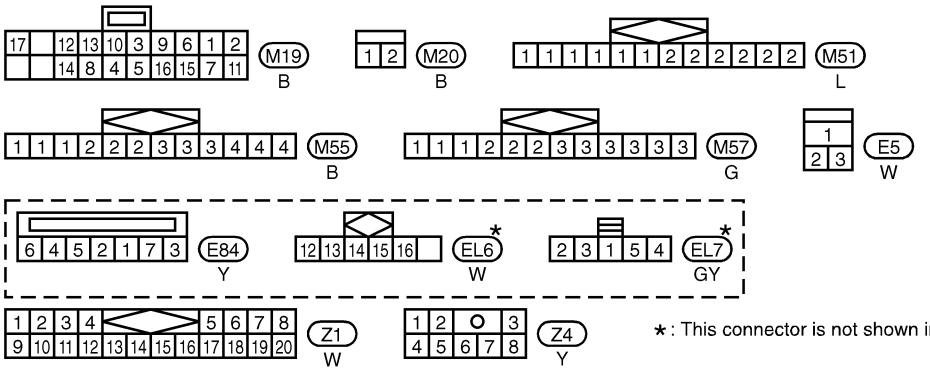
M1 -FUSE BLOCK-JUNCTION BOX (J/B)

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

TEL127M

## Wiring Diagram — ASCD — (Cont'd)




REFER TO THE FOLLOWING.

E66 -SUPER MULTIPLE JUNCTION (SMJ)

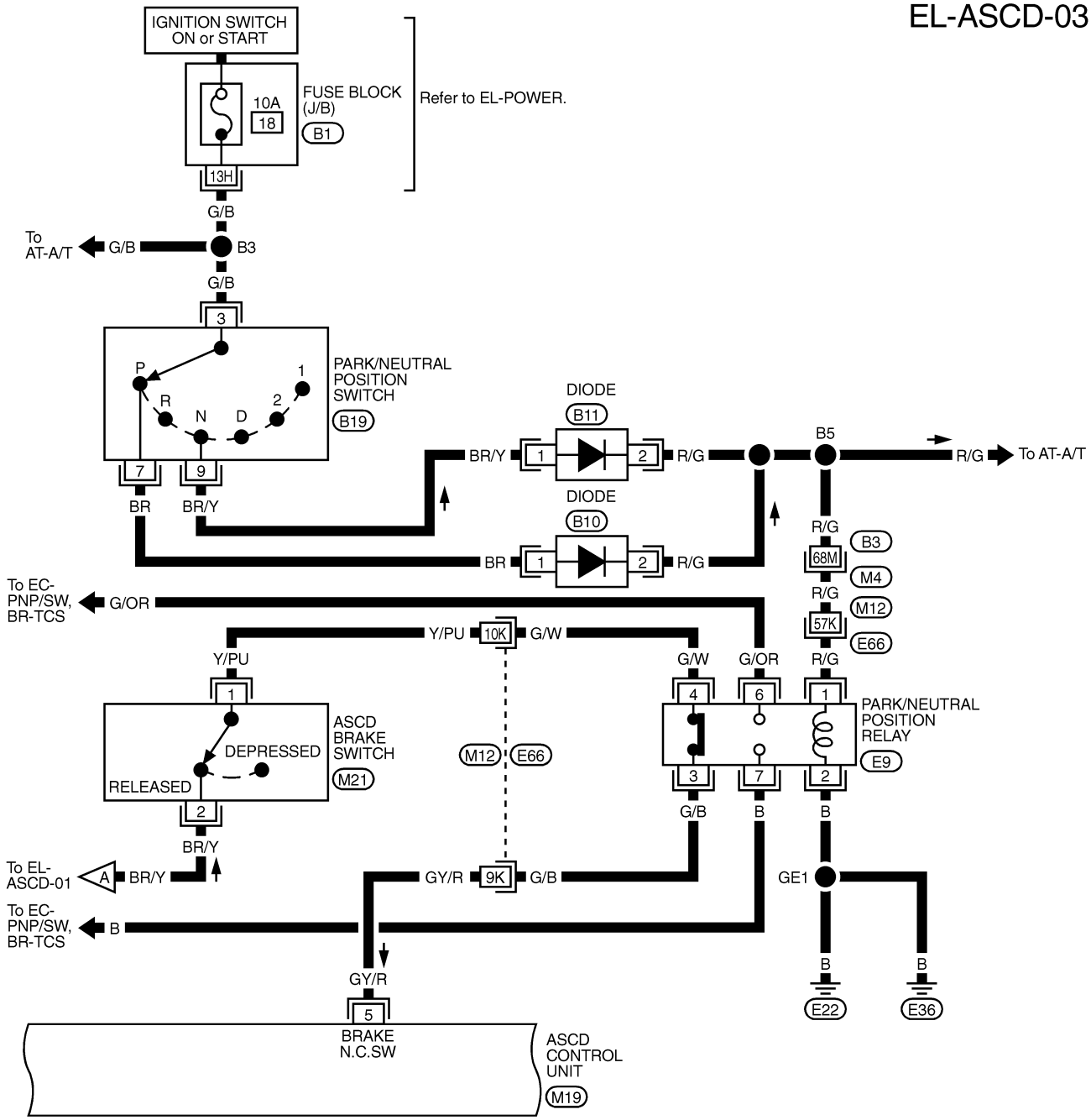
M1 -FUSE BLOCK-JUNCTION BOX (J/B)

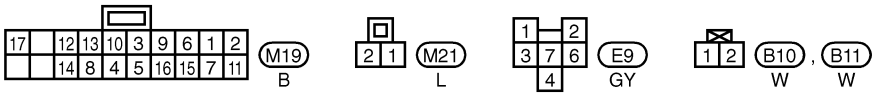
★: This connector is not shown in "HARNESS LAYOUT", EL section.

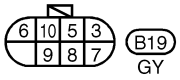
TEL128M

## Wiring Diagram — ASCD — (Cont'd)

EL-ASCD-03




REFER TO THE FOLLOWING.

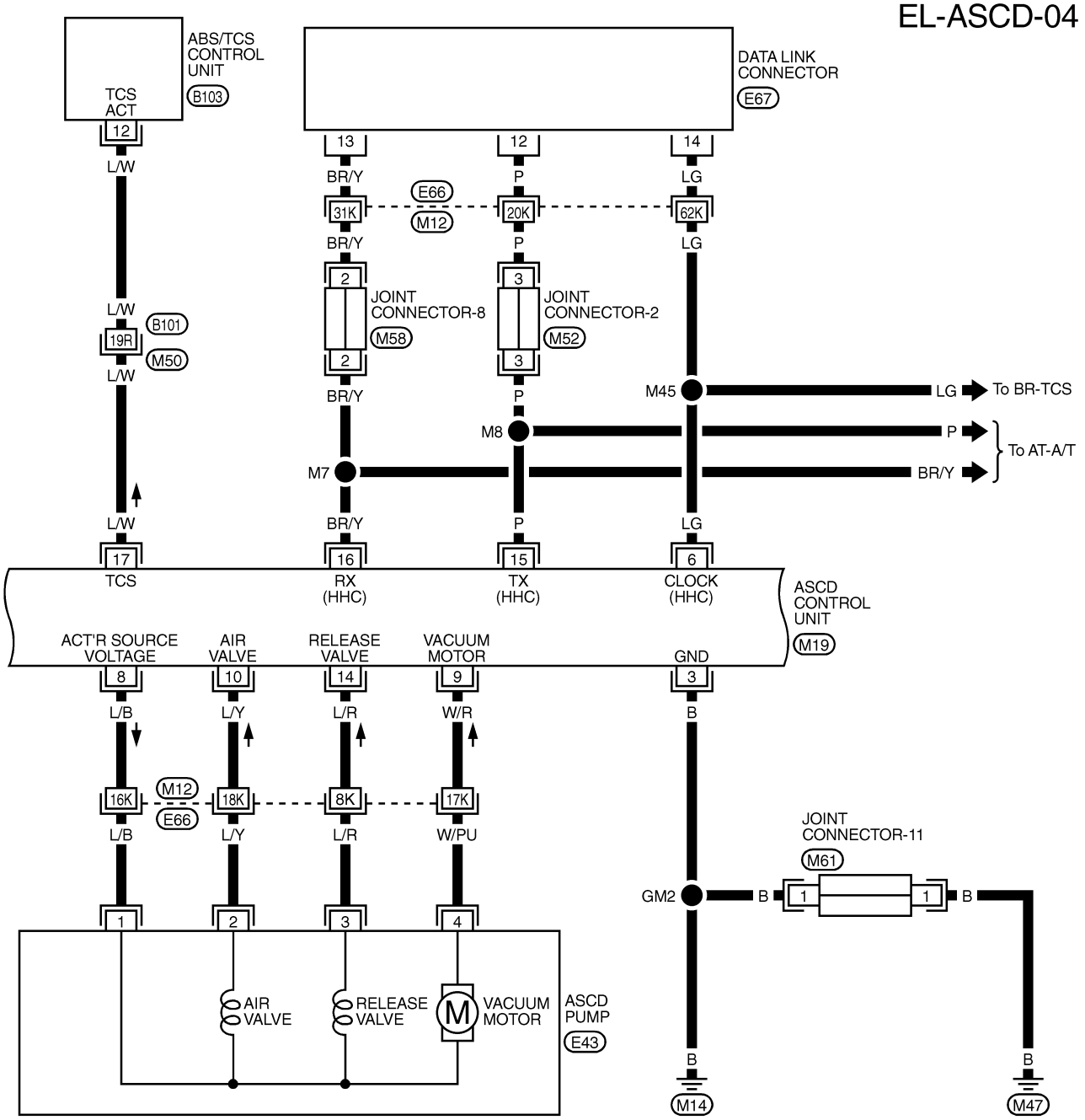
M4 , E66 -SUPER MULTIPLE JUNCTION (SMJ)

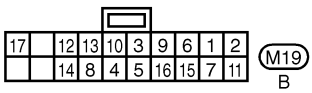
B1 -FUSE BLOCK-JUNCTION BOX (J/B)

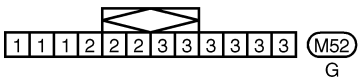
TEL129M

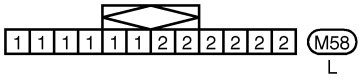
## Wiring Diagram — ASCD — (Cont'd)

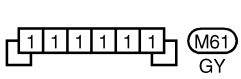
EL-ASCD-04



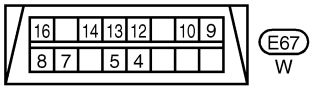





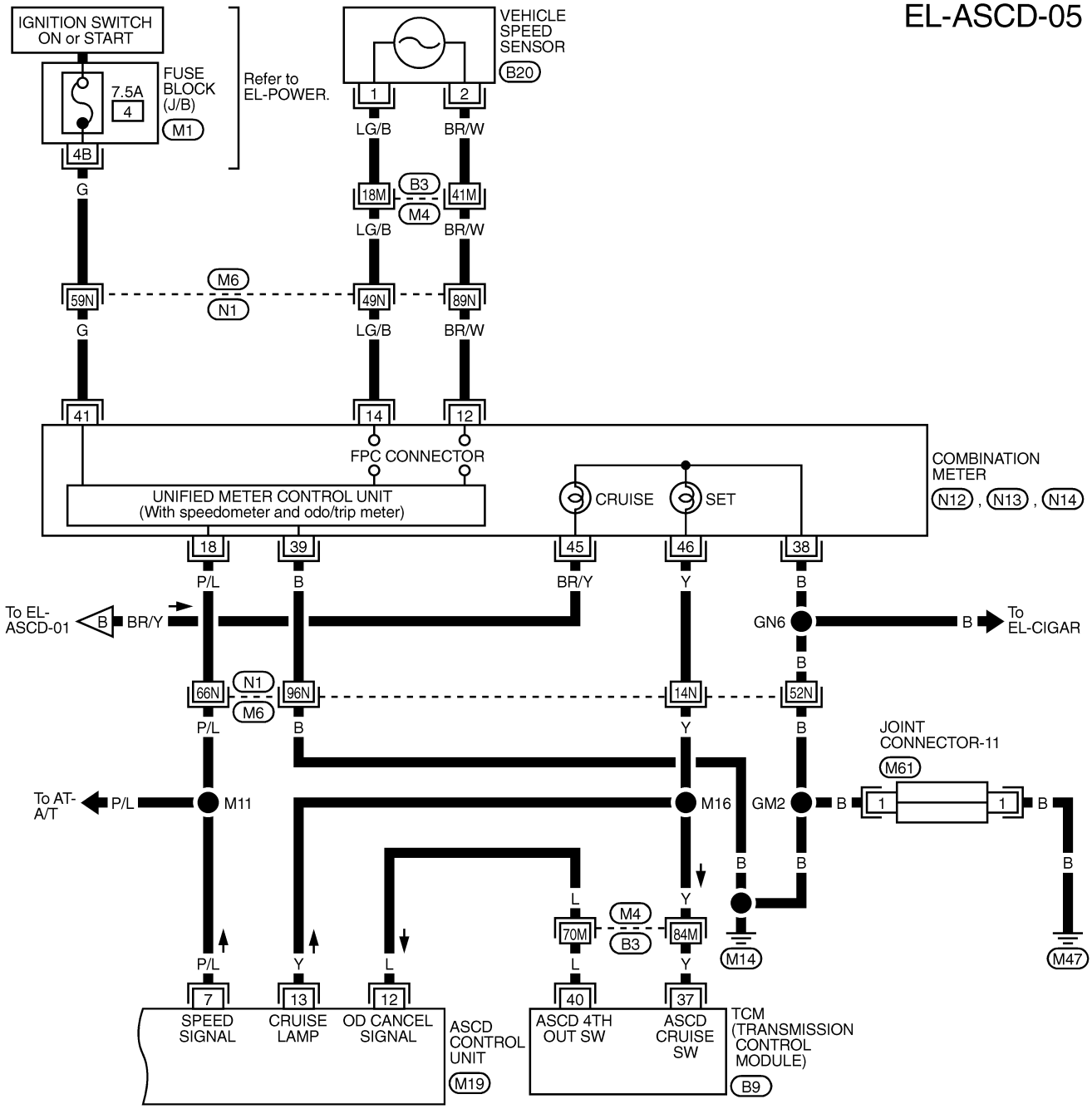


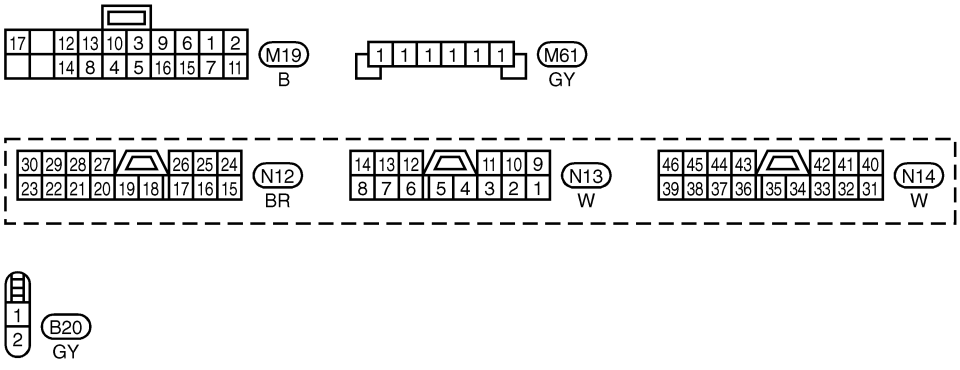

REFER TO THE FOLLOWING.
(M50), (E66) -SUPER MULTIPLE JUNCTION (SMJ)
(B103) -ELECTRICAL UNITS

TEL130M

## Wiring Diagram — ASCD — (Cont'd)

EL-ASCD-05



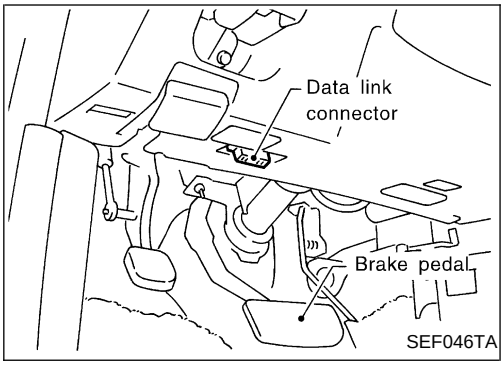

REFER TO THE FOLLOWING.

M4 , M6 -SUPER MULTIPLE JUNCTION (SMJ)

M1 -FUSE BLOCK-JUNCTION BOX (J/B)

B9 -ELECTRICAL UNITS

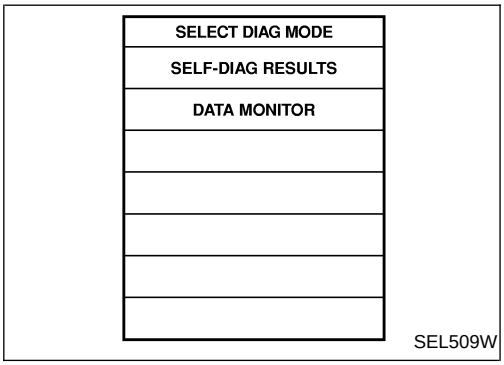
TEL131M



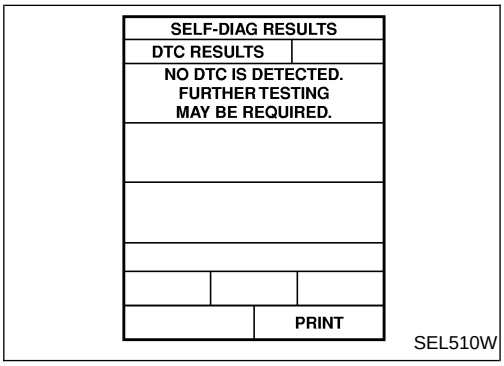

## CONSULT-II

### CONSULT-II INSPECTION PROCEDURE

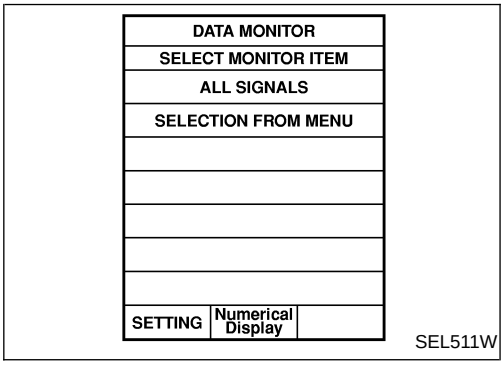
1. Turn ignition switch OFF.
2. Connect “CONSULT-II” to data link connector.



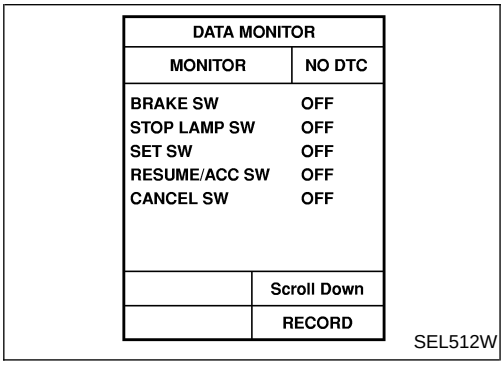

3. Turn ignition switch ON.
4. Turn ASCD main switch ON.
5. Touch START (on CONSULT-II display).
6. Touch ASCD.
7. Touch SELF-DIAG RESULTS.




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




8. Touch DATA MONITOR.
   The items on the next page are available as data monitor items.




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

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

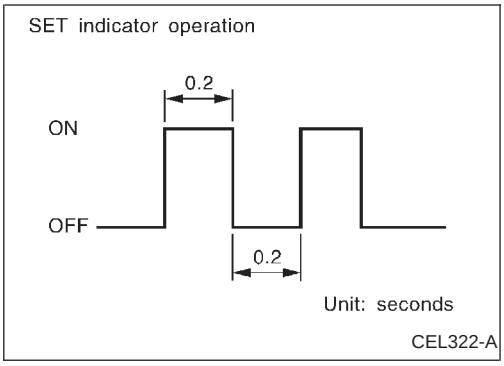
## CONSULT-II (Cont'd)

### SELF-DIAGNOSTIC RESULTS

| Diagnostic item | Description | Repair/Check order |
|---|---|---|
| NO DTC IS DETECTED. FURTHER TESTING MAY BE REQUIRED. | • Even if no self diagnostic code is indicated, further testing may be required as far as the customer complains. | — |
| POWER SUPPLY-VALVE | • The power supply circuit for the ASCD pump is open. (An abnormally high voltage is entered.) | Diagnostic procedure 6 (EL-281) |
| VACUUM PUMP | • The vacuum pump circuit is open or shorted. (An abnormally high or low voltage is entered.) | Diagnostic procedure 6 (EL-281) |
| AIR VALVE | • The air valve circuit is open or shorted. (An abnormally high or low voltage is entered.) | Diagnostic procedure 6 (EL-281) |
| RELEASE VALVE | • The release valve circuit is open or shorted. (An abnormally high or low voltage is entered.) | Diagnostic procedure 6 (EL-281) |
| VHCL SP-S/FAILSAFE | • The vehicle speed sensor or the fail-safe circuit is malfunctioning. | Diagnostic procedure 5 (EL-280) |
| 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 3 (EL-278) |

### 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. |
| AT OD MONITOR | • Indicates [ON/OFF] condition of over drive. |
| FAIL SAFE-LOW | • The fail-safe (LOW) circuit function is displayed. |
| FAIL SAFE-SPD | • The fail-safe (SPEED) circuit function is displayed. |
| TCS MONITOR | • Indicates [ON/OFF] condition of traction control system. |

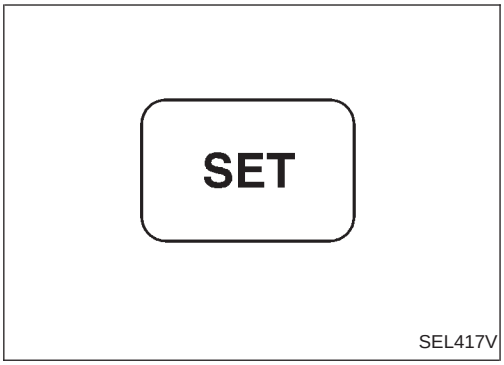



## Fail-safe System Description

When the fail-safe system senses a malfunction, it deactivates ASCD operation. The SET 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. |



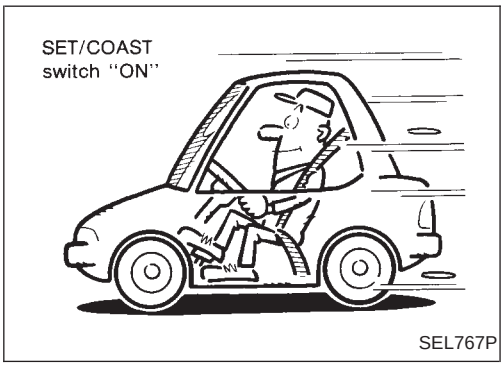
SEL417V

## Fail-safe System Check

1. Turn ignition switch to ON position.
2. Turn ASCD main switch to ON and check if the “SET indicator” blinks.

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

- ASCD steering switch. Refer to “DIAGNOSTIC PROCEDURE 4” (EL-279).

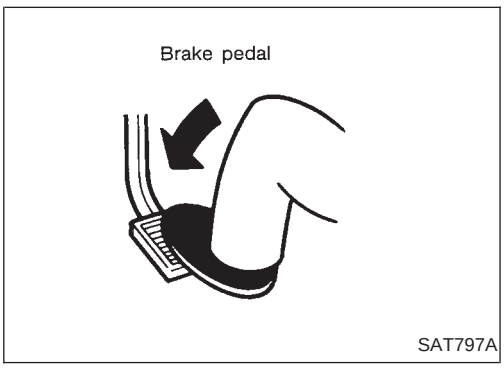


SEL767P

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 5” (EL-280).
- ASCD pump circuit. Refer to “DIAGNOSTIC PROCEDURE 6” (EL-281).
- Replace control unit.



SAT797A

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 3” (EL-278).

5. END. (System is OK.)

## Trouble Diagnoses

### SYMPTOM CHART

| PROCEDURE | — | | Diagnostic procedure | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| REFERENCE PAGE | EL-271 | EL-274 | EL-276 | EL-277 | EL-278 | EL-279 | EL-280 | EL-281 | EL-282 |
| SYMPTOM | Self-diagnosis in CONSULT-II | Fail-safe system check | DIAGNOSTIC PROCEDURE 1 (POWER SUPPLY AND GROUND CIRCUIT CHECK) | DIAGNOSTIC PROCEDURE 2 (ASCD HOLD UNIT CHECK) | DIAGNOSTIC PROCEDURE 3 (ASCD BRAKE/STOP LAMP SWITCH CHECK) | DIAGNOSTIC PROCEDURE 4 (ASCD STEERING SWITCH CHECK) | DIAGNOSTIC PROCEDURE 5 (VEHICLE SPEED SIGNAL CHECK) | DIAGNOSTIC PROCEDURE 6 (ASCD PUMP CIRCUIT CHECK) | DIAGNOSTIC PROCEDURE 7 (ASCD ACTUATOR/PUMP CHECK) |
| ASCD cannot be set. (“SET” indicator lamp does not blink.) | X | | X | X | | X | X | | |
| ASCD cannot be set. (“SET” 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 | X | X |
| Deceleration is greatest immediately after ASCD has been set. | X | | | | | | X | X | X |

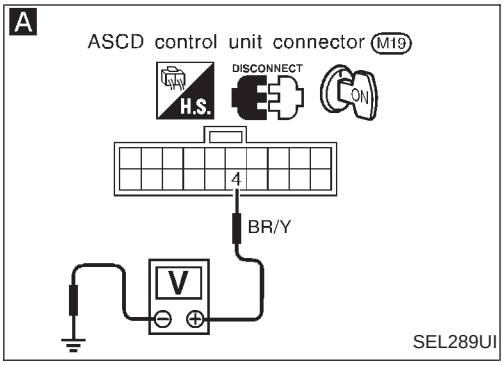
★1: It indicates that system is in fail-safe. After completing diagnostic procedures, perform “Fail-safe System Check” (EL-274) to verify repairs.

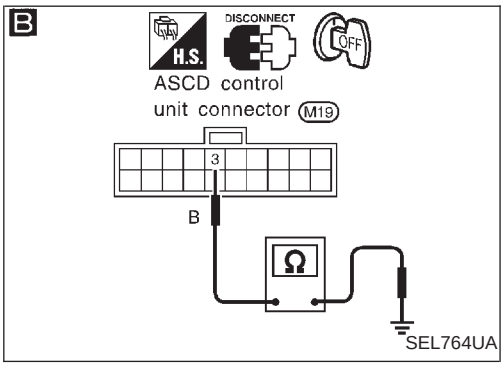
★2: If vehicle speed is greater than 48 km/h (30 MPH) after system has been released, pressing RESUME/ACCEL switch returns vehicle speed to the set speed previously achieved. However, doing so when the ASCD main switch is turned to “OFF”, vehicle speed will not return to the set speed since the memory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

No → Check the following.
- ASCD hold unit. Go to DIAGNOSTIC PROCEDURE 2 (ASCD HOLD UNIT CHECK).
- Harness for open or short between ASCD hold unit and combination meter
- "CRUISE" indicator ground circuit

Yes ↓

A

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

   Refer to wiring diagram in EL-266.

No → Check harness for open or short between ASCD control unit and ASCD hold unit.

Yes ↓

B

**CHECK GROUND CIRCUIT FOR ASCD CONTROL UNIT.**
Check continuity between ASCD control unit harness terminal ③ and ground.
**Does continuity exist?**

Refer to wiring diagram in EL-269.

No → Repair harness.

Yes ↓

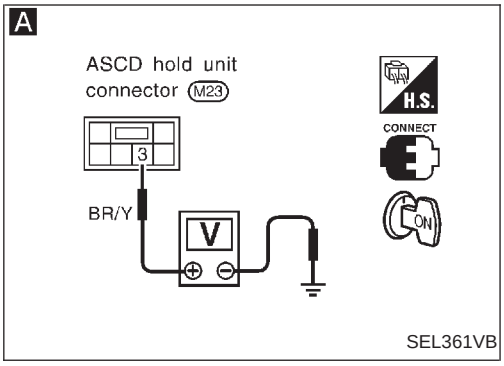
Power supply and ground circuit is OK.

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 2

### (ASCD HOLD UNIT CHECK)

A



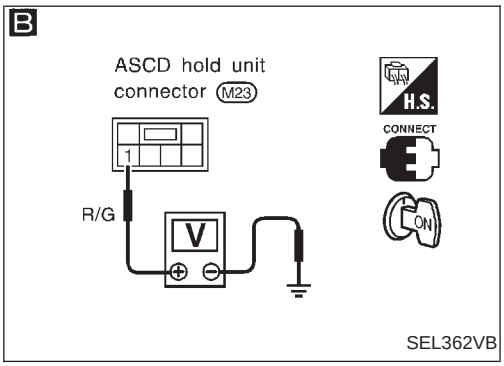

**CHECK HOLD UNIT OUTPUT.**
1. Turn ignition switch ON.
2. Depress ASCD main switch.
3. Check voltage between hold unit terminal ③ and ground.
   **Does battery voltage exist?**

Refer to wiring diagram in EL-266.

Yes → ASCD hold unit is OK.

No ↓

B

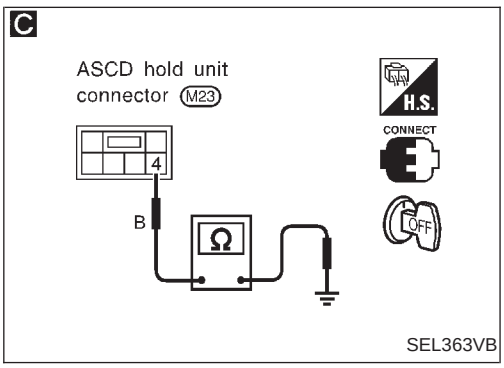



**CHECK POWER SUPPLY CIRCUIT FOR HOLD UNIT.**
1. Turn ignition switch ON.
2. Check voltage between hold unit terminal ① and ground.
   **Does battery voltage exist?**

No → Check the following.
- 7.5A fuse [No. 32, located in the fuse block (J/B)]
- Harness for open or short between fuse and hold unit

Yes ↓

C

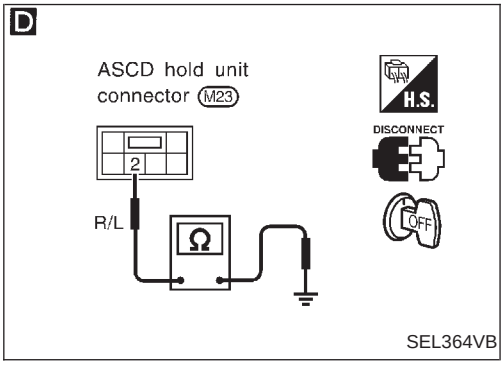



**CHECK GROUND CIRCUIT FOR HOLD UNIT.**
Check continuity between hold unit terminal ④ and ground.
**Does continuity exist?**

No → Repair harness.

Yes ↓

D




**CHECK MAIN SWITCH INPUT.**
1. Disconnect hold unit connector.
2. Check continuity between hold unit connector terminal ② and ground.

| Condition of main switch | Continuity |
|---|---|
| Pressed | Yes |
| Released | No |

NG → Check the following.
- ASCD steering switch Refer to "Electrical Components Inspection" (EL-283).
- Harness for open or short between ASCD hold unit and ASCD steering switch
- ASCD steering switch ground circuit

OK ↓

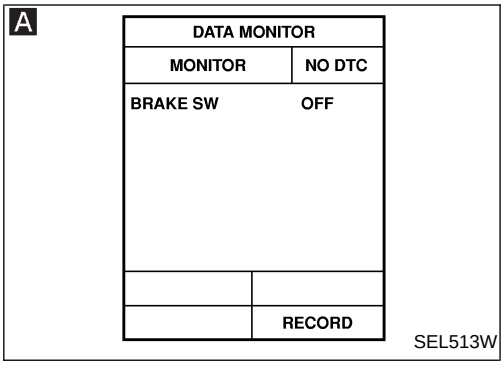
Replace ASCD hold unit.

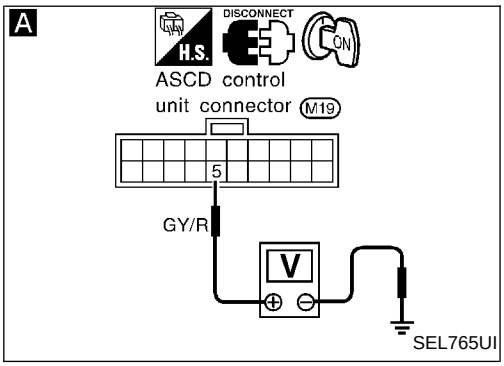
# Trouble Diagnoses (Cont'd)

## DIAGNOSTIC PROCEDURE 3

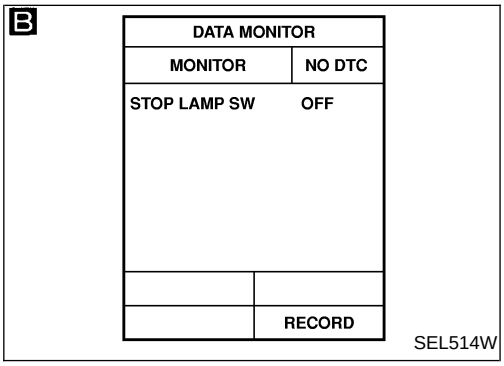
## (ASCD BRAKE/STOP LAMP SWITCH CHECK)

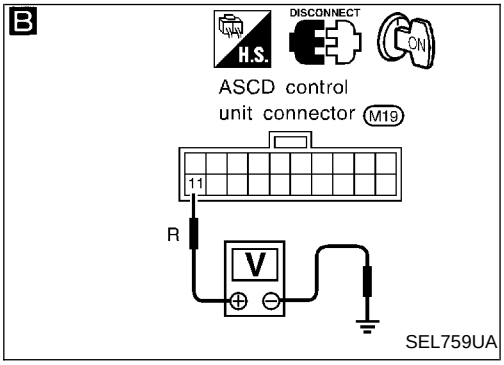
A




B




A

**CHECK ASCD BRAKE SWITCH INPUT.**

See "BRAKE SW" in "Data monitor" mode.
When brake pedal is depressed or A/T selector lever is in "N" or "P" range:
**BRAKE SW OFF**
When brake pedal is released and A/T selector lever is not in "N" or "P" range:
**BRAKE SW ON**

NG → Check the following.
- ASCD brake switch
  Refer to "Electrical Components Inspection" (EL-283).
- Park/Neutral position switch
  Refer to "Electrical Components Inspection" (EL-283).
- Park/Neutral position relay
- Diode
  Refer to "Electrical Components Inspection" (EL-283).
- Harness for open or short

OR

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 ⑤ and ground.
   When brake pedal is depressed or A/T selector lever is in "N" or "P" range:
   **Approx. 0V**
   When brake pedal is released and A/T selector lever is not in "N" or "P" range:
   **Battery voltage should exist.**

Refer to wiring diagram in EL-268.

OK ↓

B

**CHECK STOP LAMP SWITCH INPUT.**

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

NG → Check the following.
- 15A fuse [No. 37, located in the fuse block (J/B)]
- Stop lamp switch
  Refer to "Electrical Components Inspection" (EL-283).
- Harness for open or short.

OR

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

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

Refer to wiring diagram in EL-267.

OK ↓

ASCD brake/stop lamp switch is OK.

# Trouble Diagnoses (Cont'd)

## DIAGNOSTIC PROCEDURE 4

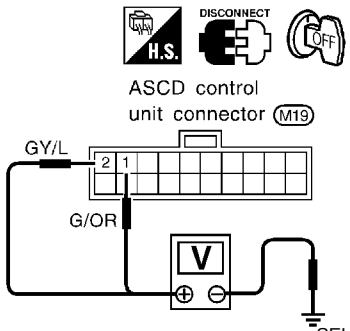
## (ASCD STEERING SWITCH CHECK)

A

| DATA MONITOR | |
|---|---|
| MONITOR | NO DTC |
| SET SW | OFF |
| RESUME/ACC SW | OFF |
| CANCEL SW | OFF |
| | |
| | RECORD |

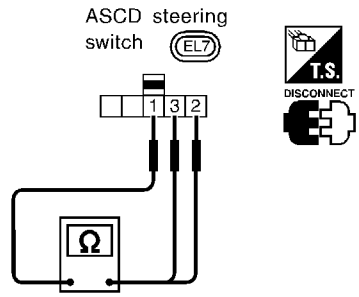
SEL515W

A




SEL760UA

B




SEL365V

A

**CHECK ASCD STEERING SWITCH INPUT.**

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**

OR

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

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

Refer to wiring diagram in EL-267.

OK → ASCD steering switch is OK.

NG ↓

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

NG → Check the following.
- 15A fuse (No. 64, located in the fuse, fusible link and relay box)
- Horn relay
- Harness for open or short between horn relay and fuse

OK ↓

B

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

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

NG → Replace ASCD steering switch.

OK ↓

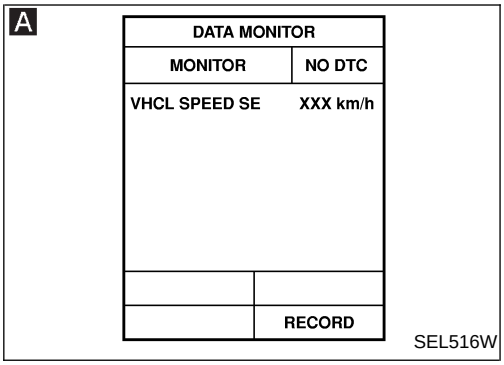
Check the following.
- Harness for open or short between ASCD steering switch and ASCD control unit
- Harness for open or short between ASCD steering switch and spiral cable

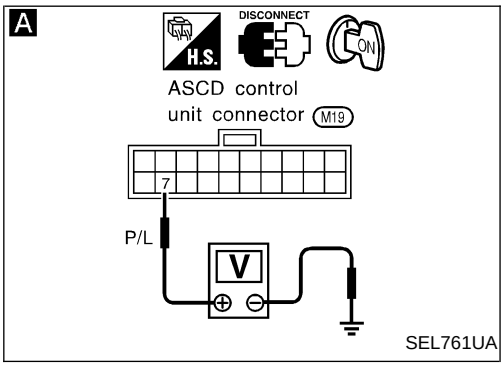
## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 5

### (VEHICLE SPEED SIGNAL CHECK)

A




**CHECK VEHICLE SPEED SIGNAL.**

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

OK → Vehicle speed sensor is OK.

OR

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

Refer to wiring diagram in EL-270.

NG

CHECK SPEEDOMETER OPERATION.
Does speedometer operate normally?

No → Check speedometer and vehicle speed sensor circuit. Refer to EL-149.

Yes

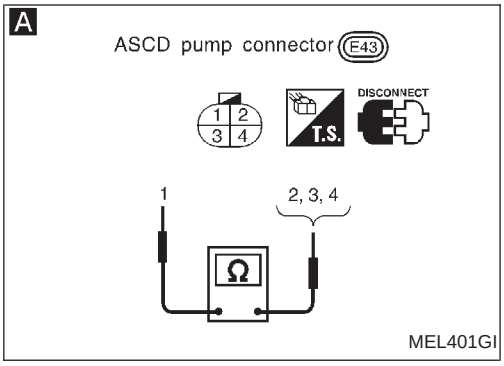
Check harness for open or short between ASCD control unit terminal ⑦ and combination meter terminal ⑱.

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 6

### (ASCD PUMP CIRCUIT CHECK)

A




A

**CHECK ASCD PUMP.**

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

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

Refer to wiring diagram in EL-269.

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.

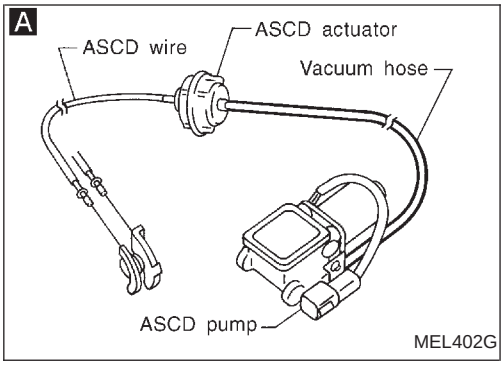
| CONSULT-II self-diagnostic result | Check circuit | |
|---|---|---|
| | ASCD control unit terminal | ASCD pump terminal |
| POWER SUPPLY-VALVE | ⑧ | ① |
| VACUUM PUMP | ⑨ | ④ |
| AIR VALVE | ⑩ | ② |
| RELEASE VALVE | ⑭ | ③ |

## Trouble Diagnoses (Cont'd)

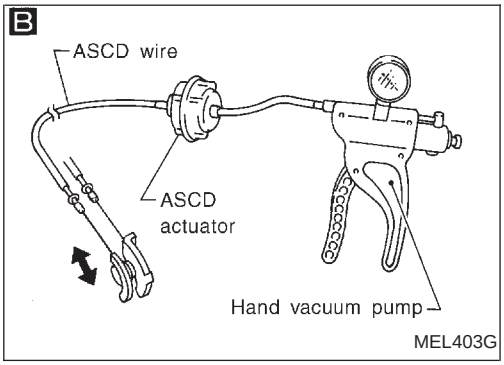
### DIAGNOSTIC PROCEDURE 7

### (ASCD ACTUATOR/PUMP CHECK)

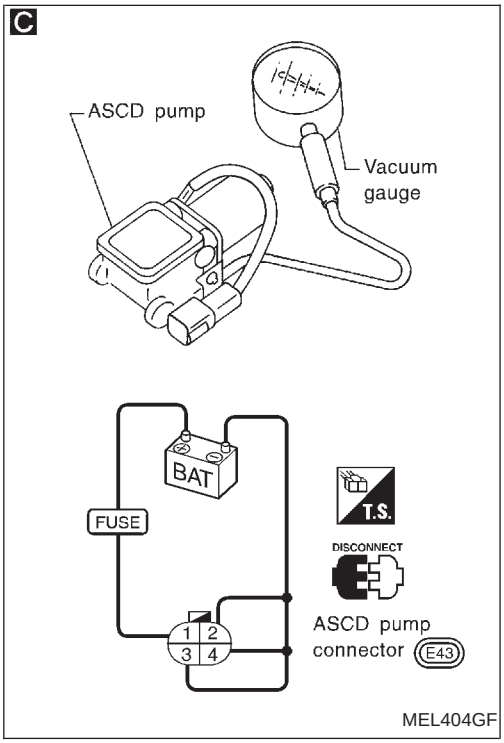
A




B




C




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-284).

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.

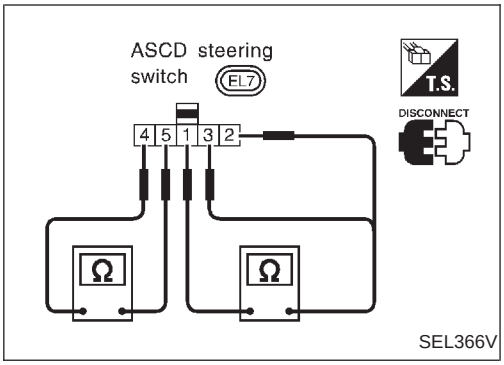
| | 12V direct current supply terminals | | Operation |
|---|---|---|---|
| | ⊕ | ⊖ | |
| Air valve | ① | ② | Close |
| Release valve | | ③ | Close |
| Vacuum motor | | ④ | Operate |

**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 is OK.

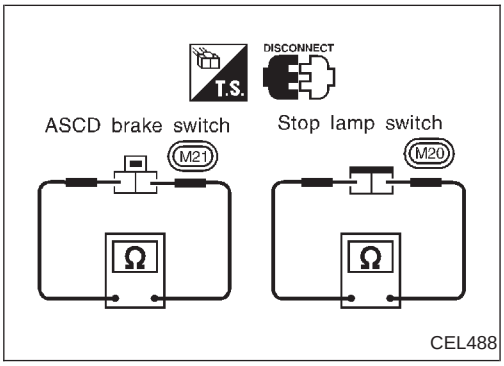



## Electrical Components Inspection

### ASCD STEERING SWITCH

Check continuity between terminals by pushing each button.

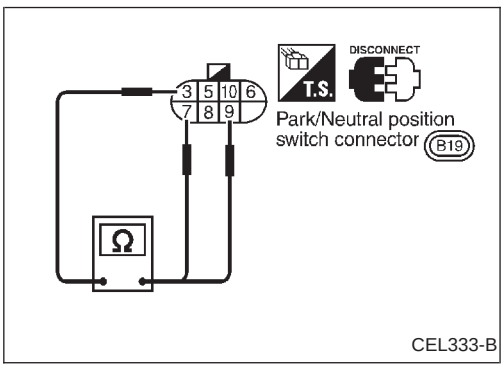
| Button | Terminal | | | | |
|---|---|---|---|---|---|
| | ① | ③ | ② | ④ | ⑤ |
| SET/COAST | ○ | | ○ | | |
| RESUME/ACCEL | ○ | ○ | | | |
| CANCEL | ○ | ▶ ○ | | | |
| | ○ | ▶ | ○ | | |
| MAIN | | | | ○ | ○ |




### 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 |

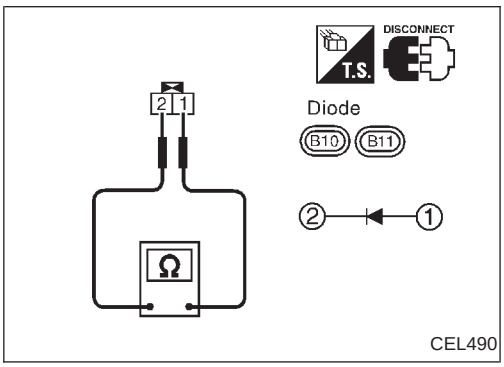
**Check each switch after adjusting brake pedal — refer to BR section, “BRAKE PEDAL AND BRACKET”.**




### PARK/NEUTRAL POSITION SWITCH

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

| Selector lever position | Terminal | | |
|---|---|---|---|
| | ③ | ⑦ | ⑨ |
| “N” | ○ | | ○ |
| “P” | ○ | ○ | |
| Others | | | |



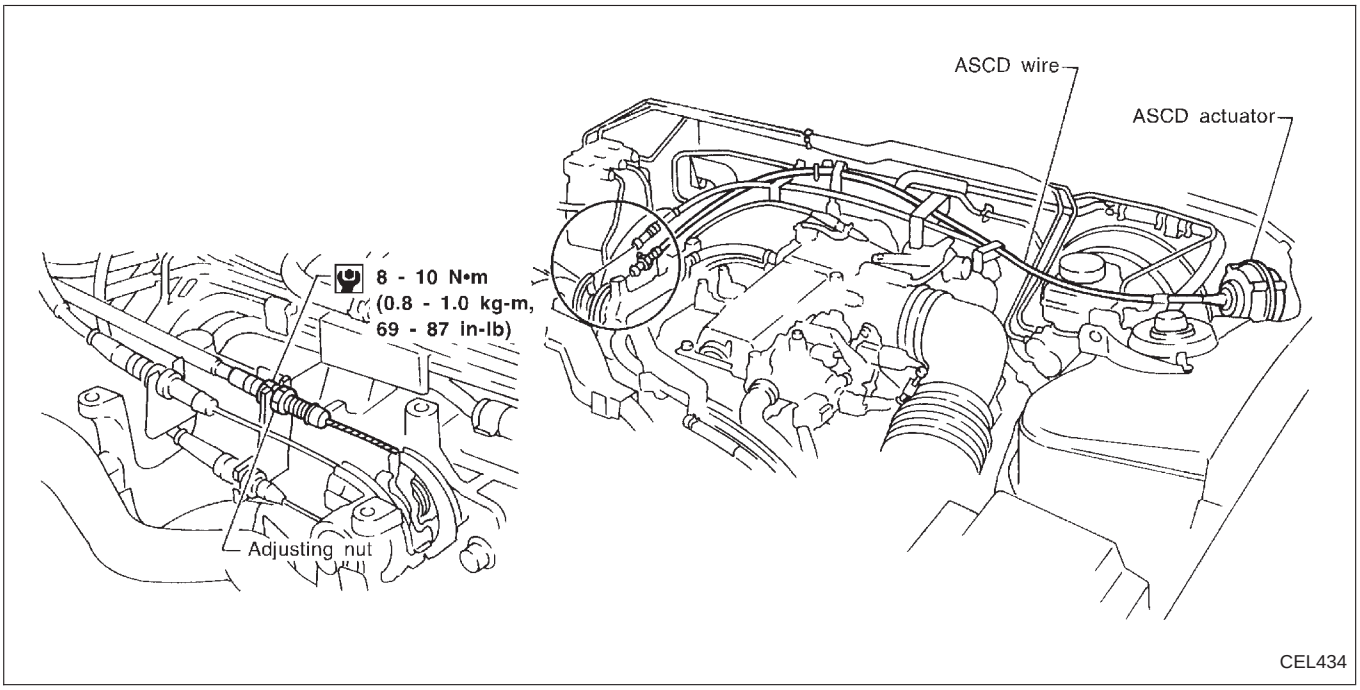

### DIODE

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

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

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

# Overall Description

## OUTLINE

The In-Vehicle Multiplexing System, IVMS (LAN system), consists of a BCM (Body Control Module) and five LCUs (Local Control Units). Some switches and electrical loads are connected to each LCU. Some electrical systems are directly connected to the BCM. Control of each LCU, (which is provided by a switch and electrical load), is accomplished by the BCM, via multiplex data lines (A-1, A-2 or A-3) connected between them.

## BCM (Body Control Module)

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

## LCU (Local Control Unit)

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

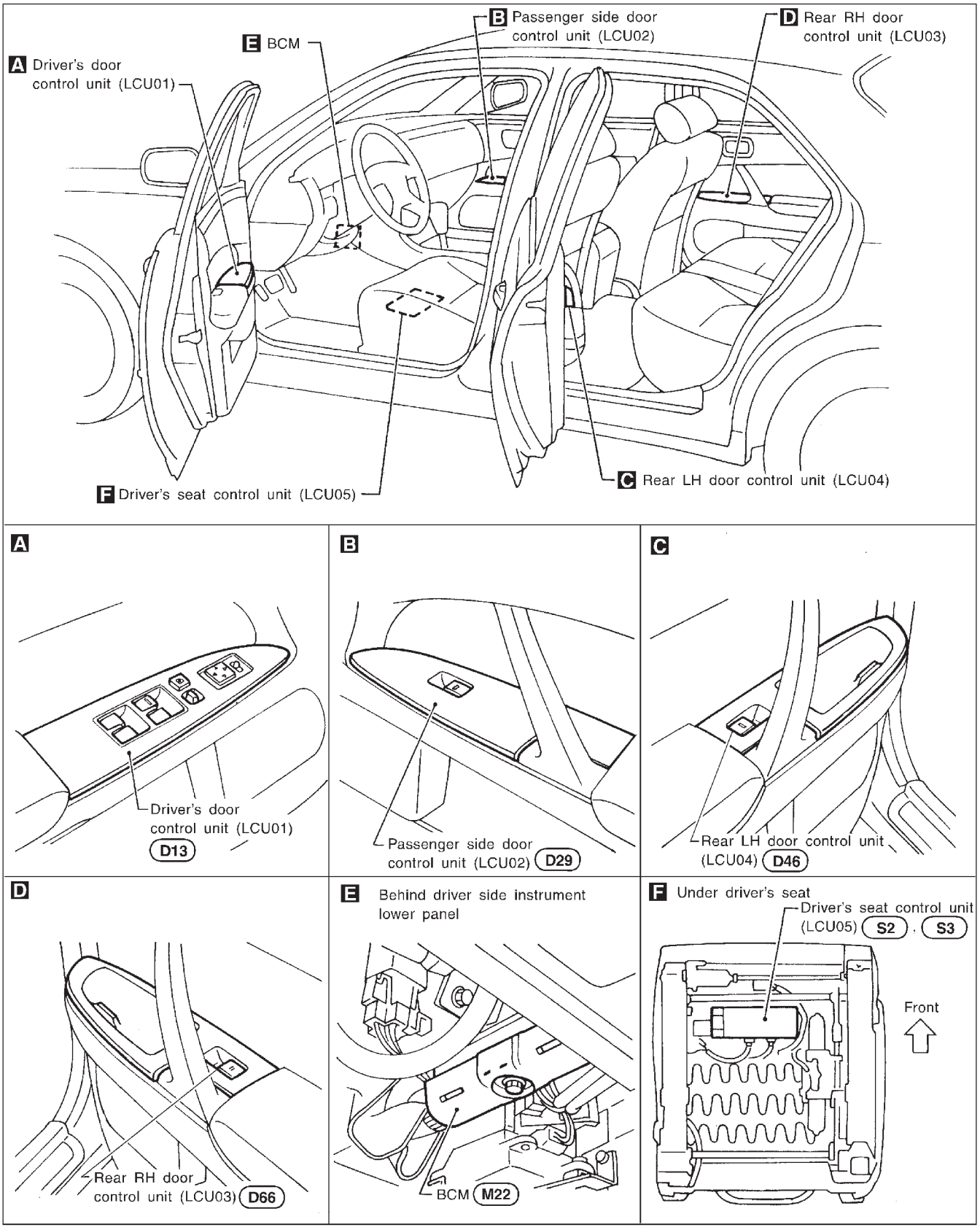
## CONTROLLED SYSTEMS

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

- Power window
- Power door lock
- Multi-remote control system
- Vehicle security system
- Interior illumination control system
- Step lamp
- Illumination (Power window switch illumination)
- Auto drive positioner
- Auto light (Refer to “HEADLAMP”, EL-79.)
- Door open warning (Refer to “WARNING LAMPS”, EL-156.)
- Ignition key warning (Refer to “WARNING CHIME”, EL-173.)
- Light warning (Refer to “WARNING CHIME”, EL-173.)
- Seat belt warning (Refer to “WARNING CHIME”, EL-174.)
- Wiper amp. (Refer to “WIPER AND WASHER”, EL-183.)
- Rear window defogger timer (Refer to “REAR WINDOW DEFOGGER”, EL-204.)
- Trouble-diagnosing system
  — with CONSULT-II
  — ON BOARD

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

## Component Parts Location

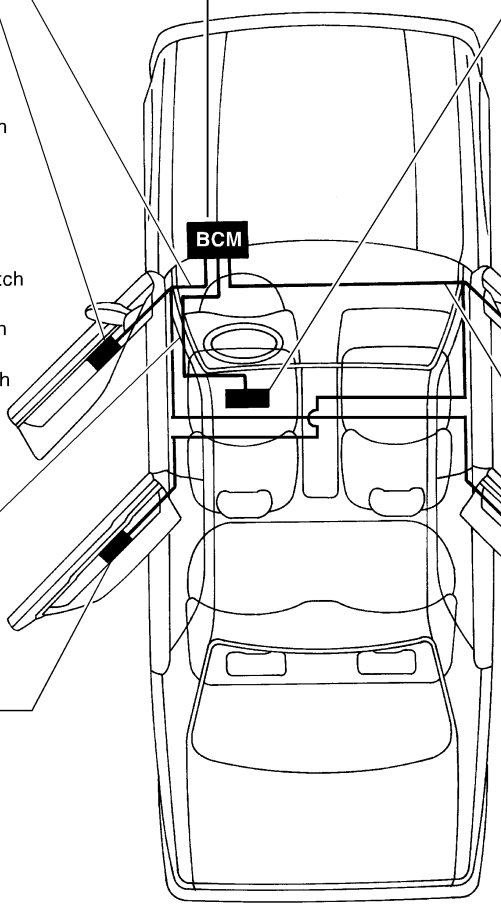



SEL934U

## System Diagram

● : Output
○ : Input

- ● Telescopic motor
- ● Tilt motor
- ● Seat memory indicator-1
- ● Seat memory indicator-2
- ● Trunk lid opener actuator
- ● Ignition key hole illumination
- ● Door warning lamp
- ● Rear window defogger relay
- ● Console lamp
- ● Map lamp LH
- ● Map lamp RH
- ● Footwell lamp
- ● Rear personal lamp LH
- ● Rear personal lamp RH
- ● Front wiper relay
- ● Headlamp relay
- ● Tail lamp relay
- ● Horn relay
- ● Sunroof relay
- ● Multi-remote control relay
- ● Security indicator
- ● Vehicle security horn relay
- ● Vehicle security lamp relay
- ● Warning chime
- ○ Trunk room lamp switch
- ○ Hood switch
- ○ Trunk lid key cylinder switch (Unlock)
- ○ Seat belt buckle switch (Driver side)
- ○ Front door key cylinder switch (Driver side) (Unlock)
- ○ Door key cylinder switch (Passenger side) (Unlock)
- ○ Illumination time control switch
- ○ Telescopic switch (Forward)
- ○ Telescopic switch (Backward)
- ○ Tilt switch (Up)
- ○ Tilt switch (Down)
- ○ ADP cancel switch
- ○ Tilt sensor
- ○ Telescopic sensor
- ○ Seat memory switch-1
- ○ Seat memory switch-2
- ○ Seat set switch
- ○ Driver side door switch
- ○ Passenger side door switch
- ○ Rear door switch LH
- ○ Rear door switch RH
- ○ Ignition switch (START)
- ○ Ignition switch (ON)
- ○ Ignition switch (ACC)
- ○ Key switch (Insert)
- ○ Interior lamp switch (ON)
- ○ Interior lamp switch (OFF)
- ○ Rear personal lamp switch (Full)
- ○ Lighting switch (1st)
- ○ Lighting switch (Auto)
- ○ Front wiper switch (INT)
- ○ Front wiper switch (WASH)
- ○ Front wiper volume switch
- ○ Front wiper relay (Auto stop)
- ○ Vehicle speed sensor
- ○ Rear window defogger switch
- ○ Antenna for multi-remote control
- ○ Optical sensor




Data line A-1

Driver door control unit (LCU01)
- ● Door lock actuator
- ● Power window regulator
- ● Step lamp
- ● P/W switch illumination
- ○ Door lock & unlock switch
- ○ Door unlock sensor
- ○ Limit switch
- ○ Encoder
- ○ Driver P/W main switch (Up/Down/Auto)
- ○ Passenger P/W main switch (Up/Down/Auto)
- ○ Rear LH P/W main switch (Up/Down)
- ○ Rear RH P/W main switch (Up/Down)
- ○ P/W lock switch
- ○ Door key cylinder switch (Lock)

Data line A-3

Rear LH door control unit (LCU04)
- ● Door lock actuator
- ● Power window regulator
- ● Step lamp
- ● P/W switch illumination
- ● IVCS unit (Alarm)
- ○ Door unlock sensor
- ○ P/W sub-switch (Up/Down)
- ○ IVCS unit (Unlock)

Driver seat control unit (LCU05)
- ● Sliding motor
- ● Reclining motor
- ● Lifting motor (Front)
- ● Lifting motor (Rear)
- ○ Sliding switch (Forward)
- ○ Sliding switch (Backward)
- ○ Reclining switch (Forward)
- ○ Reclining switch (Backward)
- ○ Lifting switch (Front, Up)
- ○ Lifting switch (Front, Down)
- ○ Lifting switch (Rear, Up)
- ○ Lifting switch (Rear, Down)
- ○ Sliding sensor (Sliding)
- ○ Sliding sensor (Reclining)
- ○ Sliding sensor (Lifting, Front)
- ○ Sliding sensor (Lifting, Rear)
- ○ Lifting limit switch (Front)
- ○ Lifting limit switch (Rear)

Passenger door control unit (LCU02)
- ● Door lock actuator
- ● Power window regulator
- ● Step lamp
- ● P/W switch illumination
- ○ Door unlock sensor
- ○ Limit switch
- ○ Encoder
- ○ P/W sub-switch (Up/Down/Auto)
- ○ Door key cylinder switch (Lock)

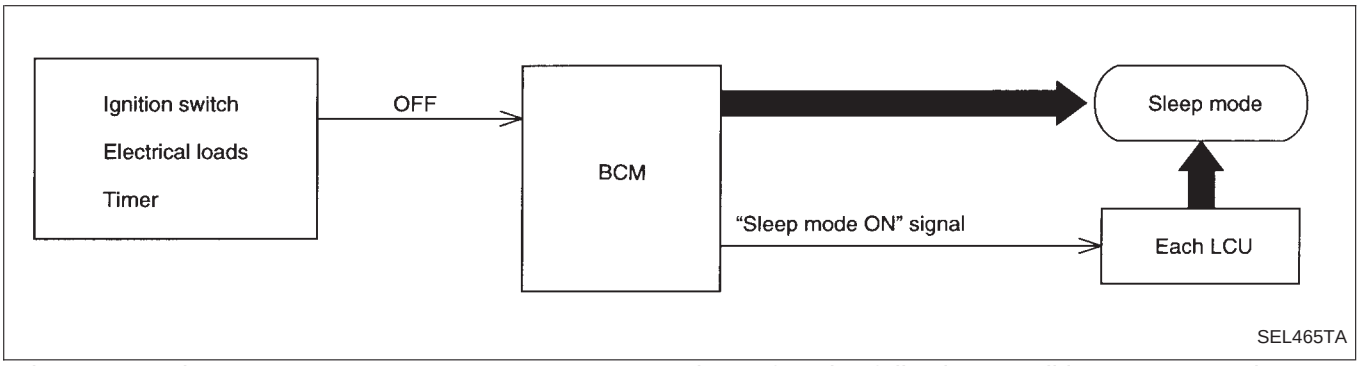
Data line A-2

Rear RH door control unit (LCU03)
- ● Door lock actuator
- ● Power window regulator
- ● Step lamp
- ● P/W switch illumination
- ○ Door unlock sensor
- ○ P/W sub-switch (Up/Down)

SEL865WA

## Sleep/Wake-up Control

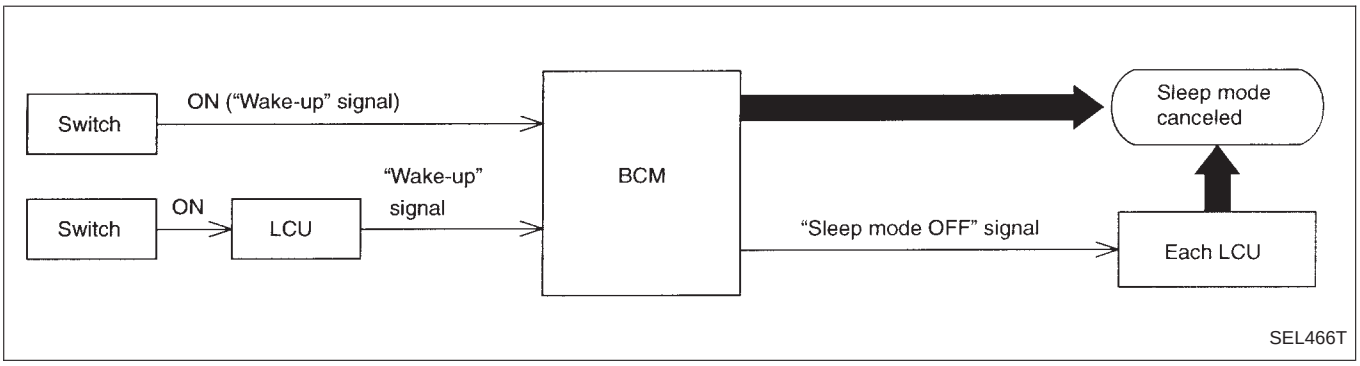
### SLEEP CONTROL




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

- Ignition switch "OFF"
- All electrical loads (in the IVMS) "OFF"
- Timer "OFF"

### WAKE-UP CONTROL




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

- Ignition key switch (Insert)*
- Ignition switch "ACC" or "ON"
- Lighting switch (1st)
- Interior lamp switch
- Rear personal lamp switch
- Door switches (all doors)
- Multi-remote controller
- Trunk room lamp switch
- Hood switch
- Driver's side door key cylinder switch (Unlock)
- Passenger side door key cylinder switch (Unlock)
- Trunk lid key cylinder switch (Unlock)
- Steering tilt switch
- Steering telescopic switch
- All switches combined or connected with LCU

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

## Fail-safe System

Fail-safe system operates when the signal from LCU is judged to be malfunctioning by BCM. If LCU sends no signal or an abnormal signal to BCM a certain number of times in succession, the IVMS is set in a fail-safe condition. In the fail-safe condition, the electrical loads controlled by the switch on the questionable LCU will be operated at fail-safe side.

# CONSULT-II

## DIAGNOSTIC ITEMS APPLICATION

| Test item | Diagnosed system | MODE | | | | | |
|---|---|---|---|---|---|---|---|
| | | IVMS COMM DIAGNO-SIS | WAKE-UP DIAGNO-SIS | SELF-DI-AGNOSTIC RESULTS | DATA MONITOR | ACTIVE TEST | WORK SUPPORT |
| IVMS-COMM CHECK | IVMS communication and wake-up function | X | X | | | | |
| POWER WINDOW | Power window | | | | X | X | |
| DOOR LOCK | Power door lock | | | X | X | X | |
| AUTO DRIVE POSI-TIONER | Automatic drive positioner | | | X | X | X | |
| WIPER | Wiper and washer | | | | X | X | X |
| REAR DEFOGGER | Rear window defogger | | | | X | X | |
| IGN KEY WARN ALM | Warning chime | | | | X | X | |
| LIGHT WARN ALM | Warning chime | | | | X | X | |
| SEAT BELT TIMER | Warning chime | | | | X | X | |
| THEFT WARNING SYSTEM | Vehicle security system | | | | X | X | |
| STEP LAMP | Step lamps | | | | X | X | |
| ILLUM LAMP | Illumination | | | | X | X | |
| MULTI-REMOTE CONT SYS | Multi-remote control | | | | X | X | X |
| INTERIOR ILLUMINA-TION | Interior illumination control system | | | | X | X | |
| SUNROOF RELAY | Sunroof | | | | X | X | |
| DOOR OPEN WARN-ING | Warning lamps | | | | X | X | |
| AUTO LIGHT SYSTEM | Headlamp | | | | X | X | |

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

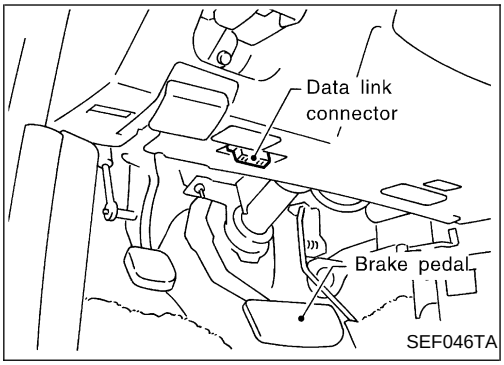
## DIAGNOSTIC ITEMS DESCRIPTION

| MODE | Description |
|---|---|
| IVMS COMM DIAGNOSIS | Diagnosis of continuity in the communication line(s), and of the function of the communication interface between the body control module and the local control units, accomplished by transmitting a signal from the body control module to the local control units. |
| WAKE-UP DIAGNOSIS | Diagnosis of the “wake-up” function of local control units by having a technician input the switch data into the local control unit that is in the temporary “sleep” condition. |
| SELF-DIAGNOSTIC RESULTS | — |
| DATA MONITOR | Displays data relative to the body control module (BCM) input signals and various control related data for each system. |
| ACTIVE TEST | Turns on/off actuators, relay and lamps according to the commands transmitted by the CONSULT-II unit. |
| WORK SUPPORT for WIPER | Wiper intermittent speed control by vehicle speed can be canceled or resumed. |
| WORK SUPPORT for MULT-REMOTE CONT SYS | ID code of multi-remote controller can be registered and erased. |

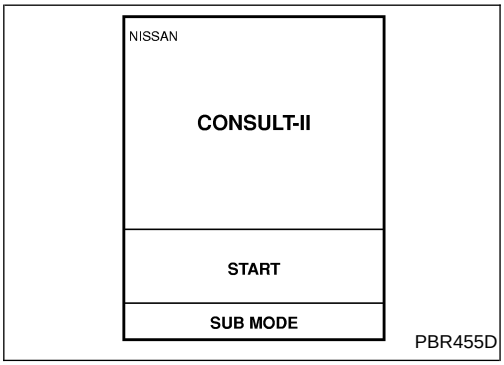
**NOTE: When CONSULT-II diagnosis is operating, some systems under IVMS control do not operate.**

## CONSULT-II (Cont'd)

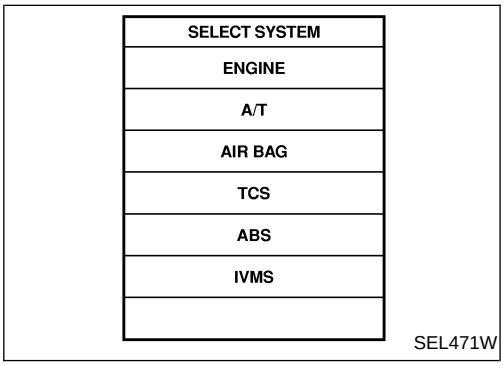
### CONSULT-II INSPECTION PROCEDURE



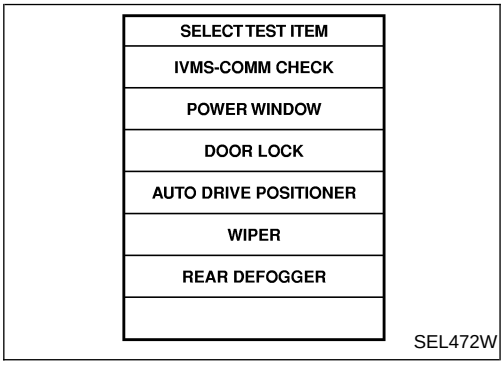

1. Turn ignition switch "OFF".
2. Connect "CONSULT-II" to the data link connector.




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




5. Touch "IVMS".

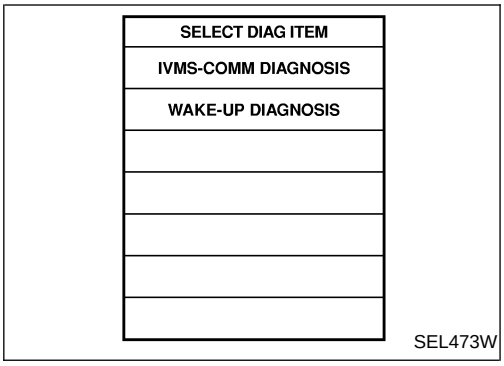



6. Perform each diagnostic item according to the item application chart as follows:

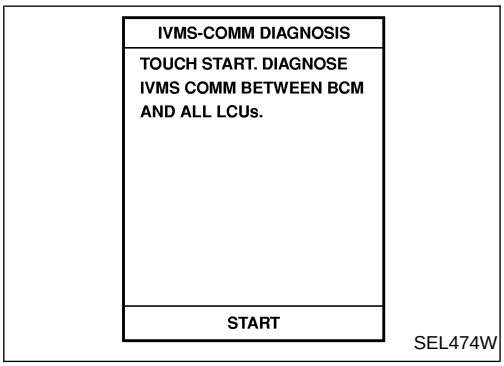
**For further information, read the CONSULT-II Operation Manual.**

## CONSULT-II (Cont'd)

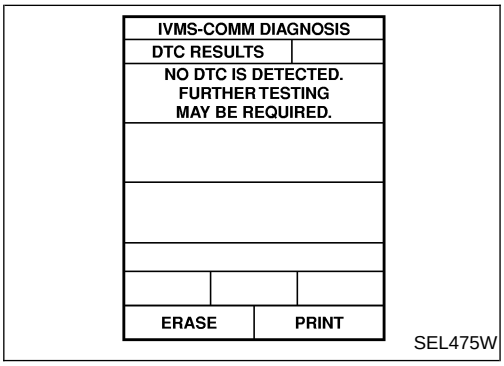
### IVMS COMMUNICATION DIAGNOSIS



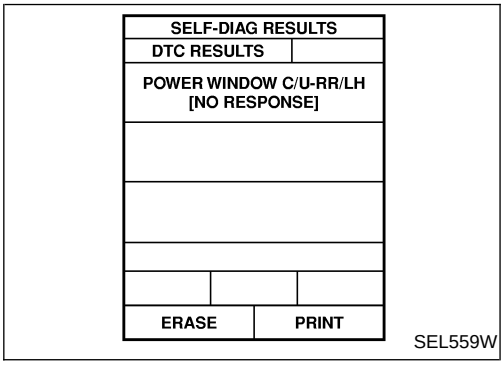

1. Touch "IVMS-COMM DIAGNOSIS" in "IVMS-COMM CHECK".




2. Touch "START".




3. If no DTC is detected, inspection is end.

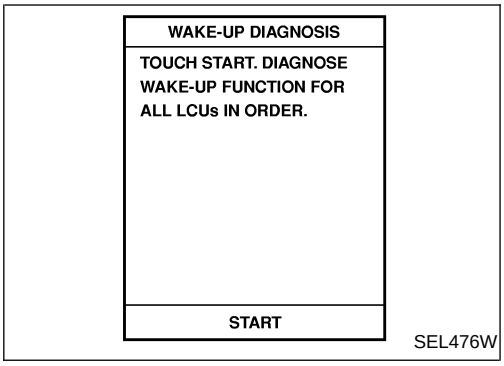



If any problem code is displayed, repair/replace the system according to the IVMS communication diagnosis results. (Refer to EL-293.)

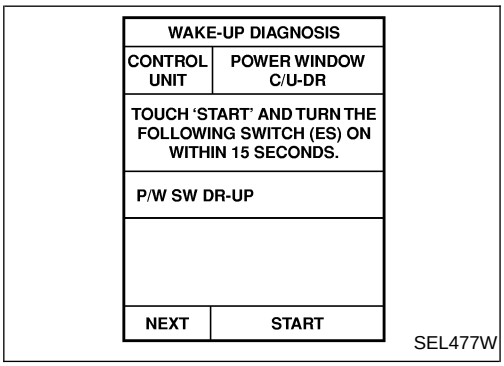
4. Erase the diagnostic results memory.
a. Turn ignition switch "ON".
b. Touch "IVMS".
c. Touch "IVMS-COMM DIAGNOSIS" in "IVMS-COMM CHECK".
d. Touch "START" for "IVMS-COMM DIAGNOSIS".
e. Touch "ERASE".

## CONSULT-II (Cont'd)

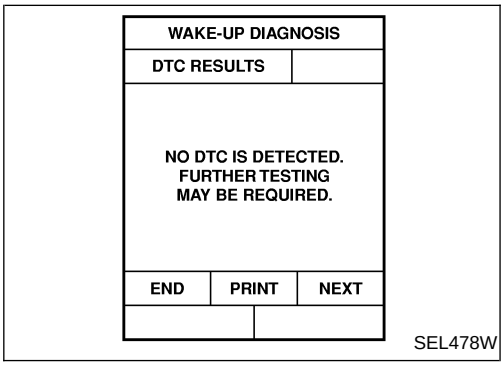
### WAKE-UP DIAGNOSIS



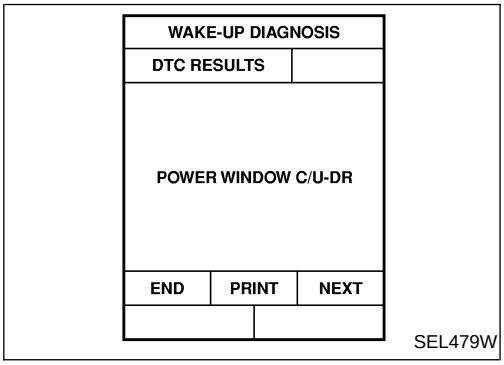

1. Touch "WAKE-UP DIAGNOSIS" in "IVMS-COMM CHECK".
2. Touch "START" for "WAKE-UP DIAGNOSIS".



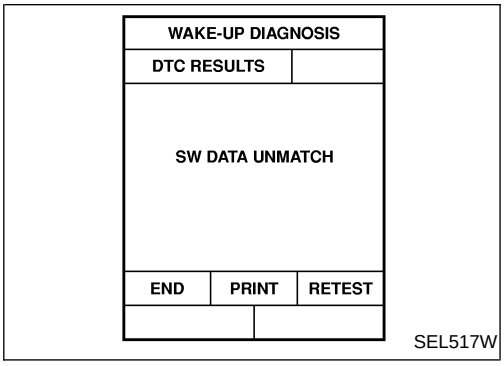

3. After touching "START", turn ON switch designated on CONSULT-II display within 15 seconds.




4. If no DTC is detected, touch "NEXT" and perform wake-up diagnosis for next LCU or touch "END". (INSPECTION END)




If any problem is displayed, replace the LCU.




If "SW DATA UNMATCH" is displayed, touch "RETEST" and perform wake-up diagnosis again.

## CONSULT-II (Cont'd)

### IVMS COMMUNICATION DIAGNOSES RESULTS LIST — 1

| Diagnostic item | Number of malfunctioning LCU | CONSULT-II diagnosis result | On board diagnosis (Mode 1) code No. | Expected cause | Service procedure |
|---|---|---|---|---|---|
| IVMS system is in good order | — | NO FAILURE | 11 | — | — |
| Communication malfunctioning | One | POWER WINDOW C/U-DR [COMM FAIL] | 24 | 1. Malfunctioning LCU | 1. Replace LCU.* |
| | | POWER WINDOW C/U-AS [COMM FAIL] | 34 | | |
| | | POWER WINDOW C/U-RR [COMM FAIL] | 41 | | |
| | | POWER WINDOW C/U-RL [COMM FAIL] | 44 | | |
| | | POWER SEAT C/U-DR [COMM FAIL] | 47 | | |
| | Two or more | Combination of POWER WINDOW C/U-DR [COMM FAIL] POWER WINDOW C/U-AS [COMM FAIL] POWER WINDOW C/U-RR [COMM FAIL] POWER WINDOW C/U-RL [COMM FAIL] POWER SEAT C/U-DR [COMM FAIL] | Combination of 24 34 41 44 47 | 1. Malfunctioning LCU | 1. Replace LCU.* |
| | All | BCM [COMM FAIL] | 24, 34, 41, 44 and 47 | 1. Malfunctioning BCM 2. Malfunctioning all LCUs | 1. Replace BCM.* 2. Replace all LCUs.* |
| | | BCM [COMM FAIL 2] | | | |

*: Before replacing BCM/LCU, clear the memory of diagnoses result and perform communication diagnoses again. If the diagnoses result is still NG, replace BCM/LCU.

NOTE: When CONSULT-II indicates [PAST COMM FAIL] or [PAST NO RESPONSE], erase the memory and perform communication diagnoses again.
To erase the memory, perform the procedure below.
Erase the memory by CONSULT-II or turn the ignition to "OFF" position and remove 7.5A fuse [No. 14, located in the fuse block (J/B)].

## CONSULT-II (Cont'd)

### IVMS COMMUNICATION DIAGNOSES RESULTS LIST — 2

| Diagnostic item | Number of malfunctioning LCU | CONSULT-II diagnosis result | On board diagnosis (Mode 1) code No. | Expected cause | Service procedure (Reference page) |
|---|---|---|---|---|---|
| Communication via data line not responded | One | POWER WINDOW C/U-DR [NO RESPONSE] | 25 | 1. Power supply circuit for LCU<br>2. Poor connection at LCU connector<br>3. Ground circuit of the LCU<br>4. Open circuit in the data line<br>5. Malfunctioning LCU | 1. Check power supply circuit of the LCU in question. (EL-308)<br>2. Check connector connection of LCU in question.<br>3. Check ground circuit of the LCU in question. (EL-307)<br>4. Check open circuit in the data line between BCM and LCU in question. (EL-309)<br>5. Replace LCU.* |
| | | POWER WINDOW C/U-AS [NO RESPONSE] | 35 | | |
| | | POWER WINDOW C/U-RR [NO RESPONSE] | 42 | | |
| | | POWER WINDOW C/U-RL [NO RESPONSE] | 45 | | |
| | | POWER SEAT C/U-DR [NO RESPONSE] | 48 | | |
| | Two or more | Combination of POWER WINDOW C/U-DR [NO RESPONSE] POWER WINDOW C/U-AS [NO RESPONSE] POWER WINDOW C/U-RR [NO RESPONSE] POWER WINDOW C/U-RL [NO RESPONSE] POWER SEAT C/U-DR [NO RESPONSE] | Combination of 25 35 42 45 48 | Combination of causes below<br>1. Power supply circuit for LCU<br>2. Poor connection at LCU connector<br>3. Open circuit in the data line | 1. Check power supply circuit of the LCU in question. (EL-308)<br>2. Check connector connection of LCU in question.<br>3. Check open circuit in the data line between BCM and LCU in question. (EL-309) |
| | All | BCM/HARNESS [COMM LINE] | 25, 35, 42, 45, 48 and 62 | 1. Short circuit in the data line<br>2. Poor connection at BCM connector<br>3. Open circuit in the data line between BCM and all LCUs.<br>4. Malfunctioning BCM<br>5. Short circuit in the data line of LCU internal circuit | 1. Short circuit in the data line between BCM and any LCU. (EL-309)<br>2. Check connector connection of BCM.<br>3. Check open circuit in the data line between BCM and all LCUs. (EL-309)<br>4. Replace BCM.*<br>5. Disconnect each LCUs one by one to check whether the other LCUs operate properly. |

*: Before replacing BCM/LCU, clear the memory of diagnoses result and perform communication diagnoses again. If the diagnoses result is still NG, replace BCM/LCU.

NOTE: When CONSULT-II indicates [PAST COMM FAIL] or [PAST NO RESPONSE], erase the memory and perform communication diagnoses again.
To erase the memory, perform the procedure below.
Erase the memory by CONSULT-II or turn the ignition to "OFF" position and remove 7.5A fuse [No. 14, located in the fuse block (J/B)].

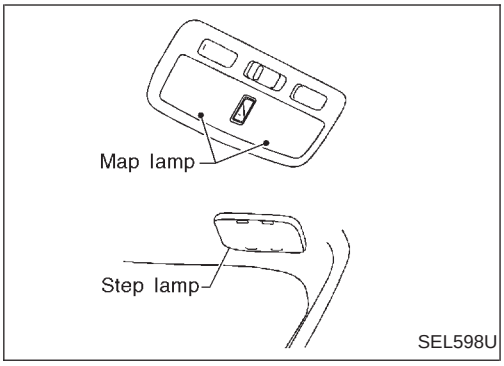
## CONSULT-II (Cont'd)

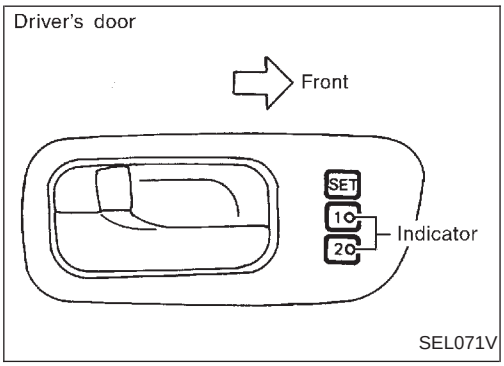
### IVMS COMMUNICATION DIAGNOSES RESULTS LIST — 3

| Diagnostic item | Number of malfunctioning LCU | CONSULT-II diagnosis result | On board diagnosis (Mode 1) code No. | Expected cause | Service procedure |
|---|---|---|---|---|---|
| Sleep control of LCU is malfunctioning | One | POWER WINDOW C/U-DR [SLEEP]<br>POWER WINDOW C/U-AS [SLEEP]<br>POWER WINDOW C/U-RR [SLEEP]<br>POWER WINDOW C/U-RL [SLEEP]<br>POWER SEAT C/U-DR [SLEEP] | — | 1. Malfunctioning LCU | 1. Replace LCU.* |
| | Two or more | Combination of above results | — | 1. Malfunctioning LCU | 1. Replace LCU.* |
| | | All of above results | — | 1. Malfunctioning BCM<br>2. Malfunctioning all LCUs | 1. Replace BCM.*<br>2. Replace all LCUs.* |

*: Before replacing BCM/LCU, clear the memory of diagnoses result and perform communication diagnoses again. If the diagnoses result is still NG, replace BCM/LCU.

NOTE: When CONSULT-II indicates [PAST COMM FAIL] or [PAST NO RESPONSE], erase the memory and perform communication diagnoses again.
To erase the memory, perform the procedure below.
Erase the memory by CONSULT-II or turn the ignition to "OFF" position and remove 7.5A fuse [No. 14, located in the fuse block (J/B)].




## On board Diagnosis

### ON BOARD DIAGNOSTIC RESULTS INDICATOR LAMP

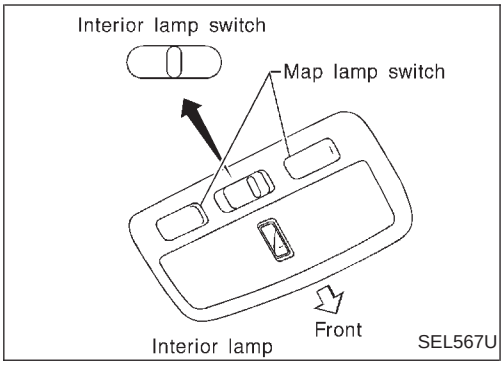
Front map lamps and step lamps (all seats) act as the indicators for the on board diagnosis Mode I, II and III. Seat memory indicator-1 and 2 act as the indicators for the on board diagnosis Mode IV. These lamps blink simultaneously in response to diagnostic results.

### ON BOARD DIAGNOSTIC FUNCTION

| Mode | Function | | Self-diagnostic results indicator lamp | | | Reference page |
|---|---|---|---|---|---|---|
| | | | Interior lamp | Step lamps (all seats) | Automatic drive positioner indicator lamps | |
| Mode I | IVMS communication diagnosis | Diagnosing any abnormality or inability of communication between BCM and LCUs (DATA LINES A-1, A-2 and A-3). | X | X | — | EL-297 |
| Mode II | Switch monitor | Monitoring conditions of switches connected to BCM and LCUs. | X | X | — | EL-299 |
| Mode III | Power door lock self-diagnosis | — | X | X | — | EL-342 |
| Mode IV | Automatic drive positioner self-diagnosis | — | — | — | X | EL-458 |

X: Applicable
—: Not applicable

NOTE:
- When on board diagnosis Mode I, II or III is operating, all systems under IVMS control do not operate.
- When on board diagnosis Mode IV is operating, automatic drive positioner does not operate.
- The step lamp of malfunctioning LCU does not blink.




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

### HOW TO PERFORM MODE I

Condition
- Ignition switch: OFF
- **Lighting switch: OFF**
- Rear window defogger switch: OFF
- Doors: Closed
- Interior lamp switch: AUTO
- Driver side map lamp switch: OFF
- Passenger side map lamp switch: OFF
- Selector lever: “P” range

↓

Turn ignition switch “ON”.

↓

Return ignition switch to “ACC” and press rear window defogger switch more than 10 times during 10 seconds.

↓

Self-diagnostic results indicator lamps should turn on.

↓

**Rear window defogger switch holds OFF.**

↓

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

↓

Indicator lamp turn off.

↓ After a second

Mode I is performed.

↓

Turn ignition switch “OFF”.
or
Drive the vehicle more than 7 km/h (4 MPH).

↓

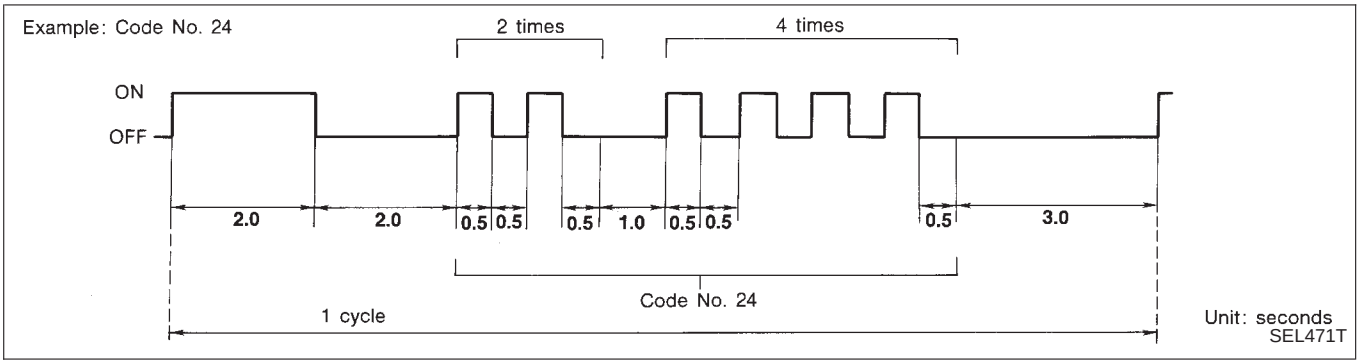
DIAGNOSIS END*

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

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

### DESCRIPTION

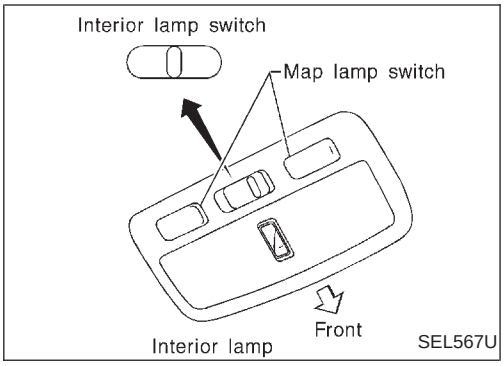
In this mode, a malfunction code is indicated by the number of flashes from the front map lamps and step lamps as shown below:




After indicator lamp turns on for 2 seconds then off for 2 seconds, it flashes [cycling ON (0.5 sec.)/OFF (0.5 sec.)] to indicate a malfunction code of the first digit. Then, 1 second after indicator lamp turns off, it again flashes [cycling ON (0.5 sec.)/OFF (0.5 sec.)] to indicate a malfunction code of the second digit.
For example, the indicator lamp goes on and off for 0.5 seconds twice and after 1.0 seconds, it goes on and off for 0.5 seconds four times. This indicates malfunction code "24".

### MALFUNCTION CODE TABLE

| Code No. | Malfunctioning LCU | Detected items | Diagnostic procedure |
|---|---|---|---|
| 24 | Driver door control unit (LCU01) | Malfunctioning communication | Refer to CONSULT-II DIAGNOSTIC CHART, "COMM FAIL" (EL-293). |
| 25 | | No response from data line A-1 | Refer to CONSULT-II DIAGNOSTIC CHART, "NO RESPONSE" (EL-294). |
| 34 | Passenger door control unit (LCU02) | Malfunctioning communication | Refer to CONSULT-II DIAGNOSTIC CHART, "COMM FAIL" (EL-293). |
| 35 | | No response from data line A-2 | Refer to CONSULT-II DIAGNOSTIC CHART, "NO RESPONSE" (EL-294). |
| 41 | Rear RH door control unit (LCU03) | Malfunctioning communication | Refer to CONSULT-II DIAGNOSTIC CHART, "COMM FAIL" (EL-293). |
| 42 | | No response from data line A-1 | Refer to CONSULT-II DIAGNOSTIC CHART, "NO RESPONSE" (EL-294). |
| 44 | Rear LH door control unit (LCU04) | Malfunctioning communication | Refer to CONSULT-II DIAGNOSTIC CHART, "COMM FAIL" (EL-293). |
| 45 | | No response from data line A-2 | Refer to CONSULT-II DIAGNOSTIC CHART, "NO RESPONSE" (EL-294). |
| 47 | Driver's seat control unit (LCU05) | Malfunctioning communication | Refer to CONSULT-II DIAGNOSTIC CHART, "COMM FAIL" (EL-293). |
| 48 | | No response from data line A-3 | Refer to CONSULT-II DIAGNOSTIC CHART, "NO RESPONSE" (EL-294). |
| 11 | No malfunction | | — |




## On board Diagnosis — Mode II (Switch monitor)

### HOW TO PERFORM MODE II

Condition
- Ignition switch: OFF
- **Lighting switch: OFF**
- Rear window defogger switch: OFF
- Doors: Closed
- Interior lamp switch: AUTO
- Driver side map lamp switch: OFF
- Passenger side map lamp switch: OFF
- Selector lever: “P” range

↓

Turn ignition switch “ON”.

↓

Return ignition switch to “ACC” and press rear window defogger switch more than 10 times during 10 seconds.

↓

Self-diagnostic results indicator lamps should turn on.

↓

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

↓

Indicator lamps turn ON.

↓

Mode II can be performed.

↓

Turn each switch ON and OFF. Note that the indicator lamp and/or buzzer goes on or off in response to switch position.

↓

Turn ignition switch “OFF”.
or
Drive the vehicle more than 7 km/h (4 MPH).

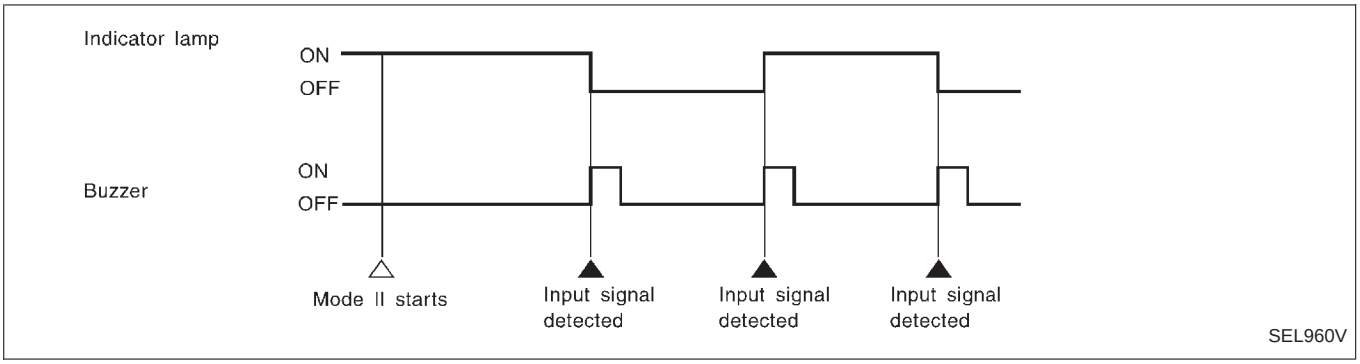
↓

DIAGNOSIS END

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

## DESCRIPTION

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



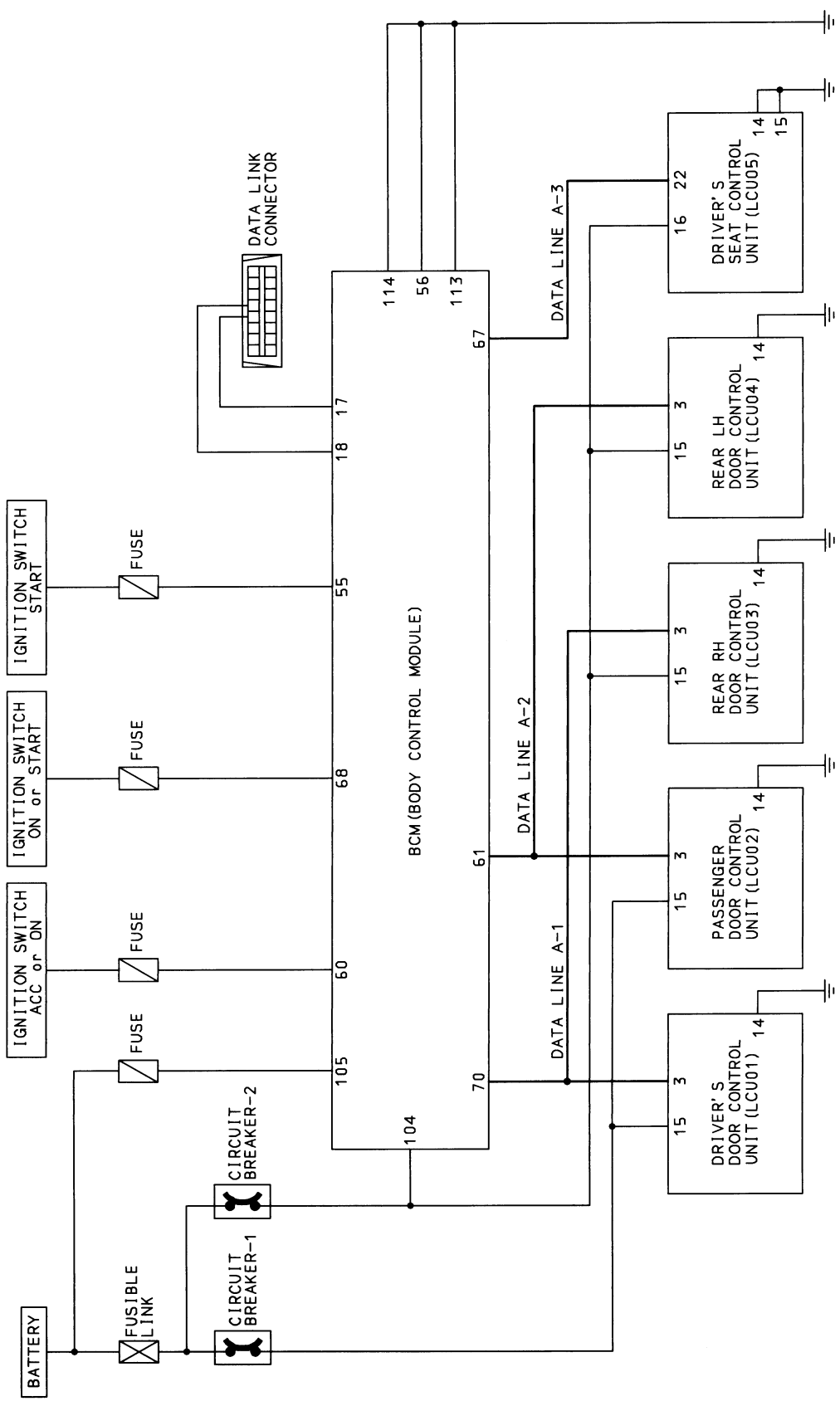

## SWITCH MONITOR ITEM

| | |
|---|---|
| BCM | ● Lighting switch (1st)<br>● Lighting switch (AUTO)<br>● Wiper switch (INT)<br>● Wiper switch (WASH)<br>● Door switch (driver's side)<br>● Door switch (passenger side)<br>● Door switch (Rear LH)<br>● Door switch (Rear RH)<br>● Rear window defogger switch<br>● Detention switch<br>● Driver's side seat belt buckle switch<br>● Trunk room lamp switch<br>● Hood switch<br>● Trunk lid key cylinder switch (UNLOCK)<br>● Steering tilt switch (UP/DOWN)<br>● Steering telescopic switch (FORWARD/ BACKWARD)<br>● Auto drive positioner cancel switch<br>● Seat memory switch-1<br>● Seat memory switch-2<br>● Seat set switch<br>● Multi remote controller switch |
| LCU 01 | ● Power window lock switch<br>● Power window main switches (UP/DOWN)<br>● Power window automatic switch<br>● Door lock & unlock switch (LOCK/ UNLOCK)<br>● Door unlock sensor |

| | | |
|---|---|---|
| LCU 02 | ● Door unlock sensor<br>● Passenger power window sub-switch (UP/ DOWN) | |
| LCU 03 | ● Door unlock sensor<br>● Power window sub-switch (Rear RH) (UP/ DOWN) | |
| LCU 04 | ● Door unlock sensor<br>● Power window sub-switch (Rear LH) (UP/ DOWN) | |
| LCU 05 | Power seat switch (Driver's side) | ● Slide switch (FR/ RR)<br>● Reclining switch (FR/RR)<br>● Front lifter switch (UP/DOWN)<br>● Rear lifter switch (UP/DOWN) |

## Schematic

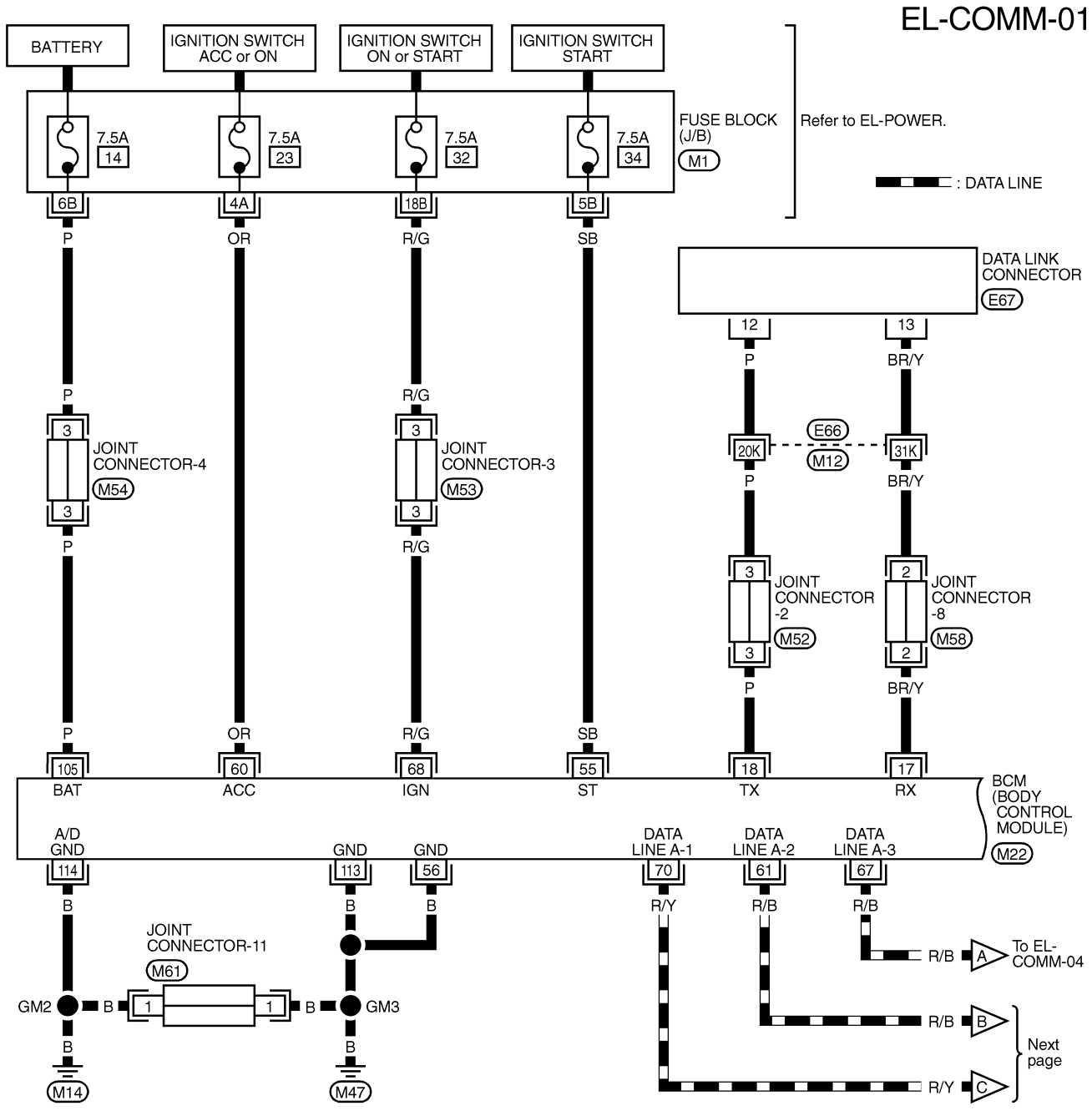
### POWER SUPPLY, GROUND AND COMMUNICATION CIRCUITS

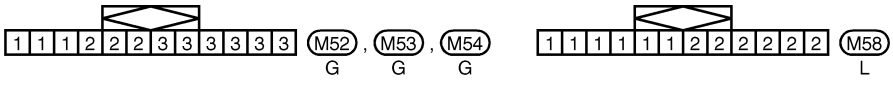


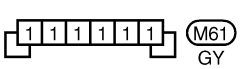

TEL030M

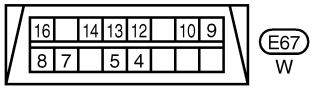
## Wiring Diagram — COMM —

### POWER SUPPLY, GROUND AND COMMUNICATION CIRCUITS



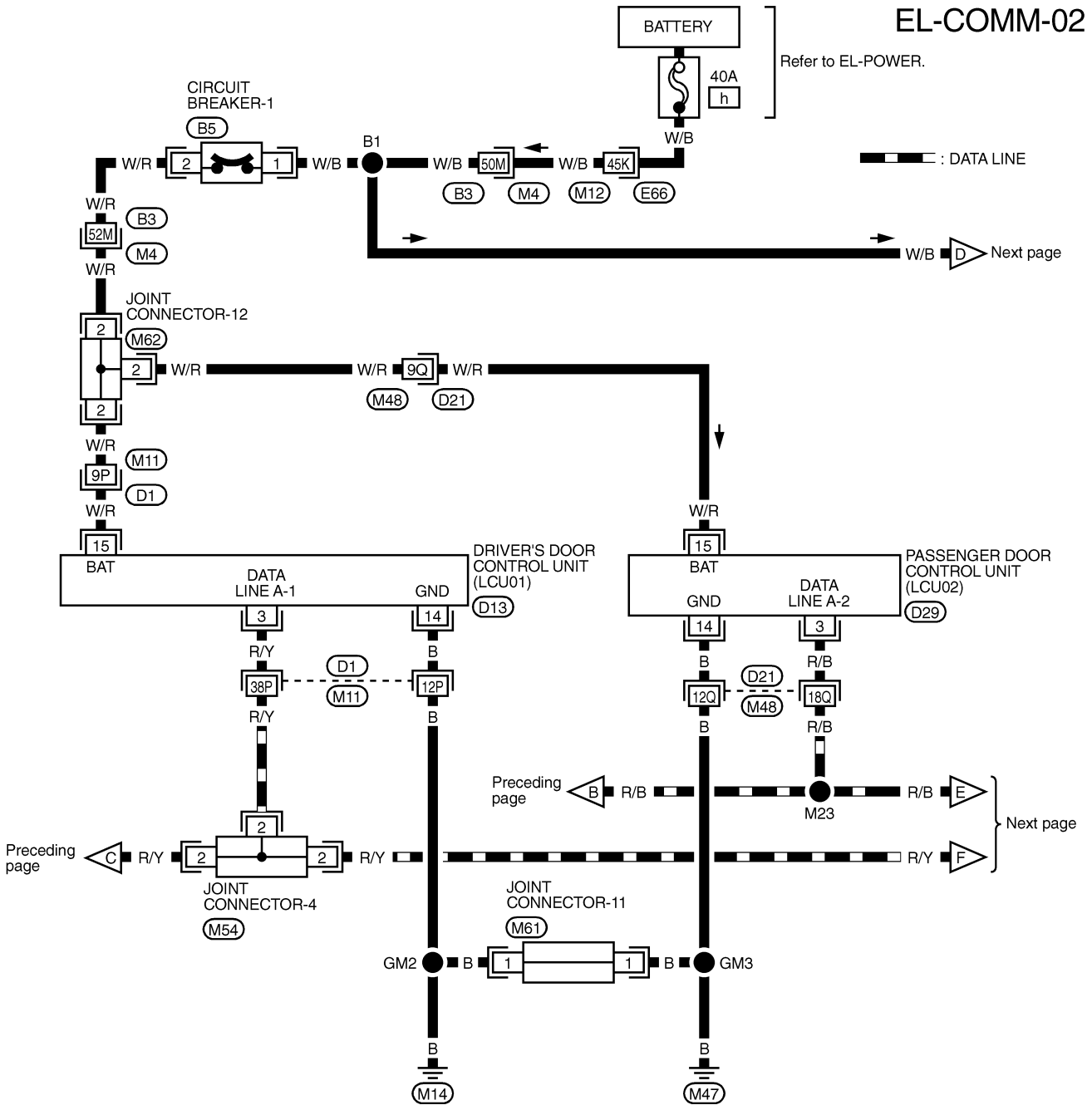



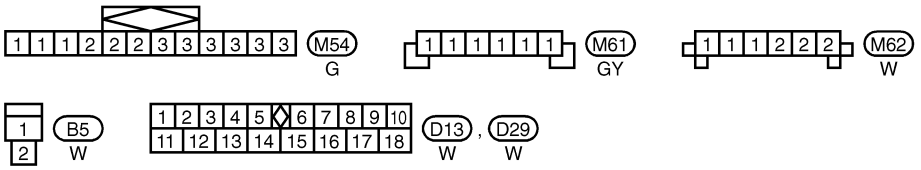




REFER TO THE FOLLOWING.
E66 -SUPER MULTIPLE JUNCTION (SMJ)
M1 -FUSE BLOCK-JUNCTION BOX (J/B)
M22 -ELECTRICAL UNITS

TEL132M

## Wiring Diagram — COMM — (Cont'd)



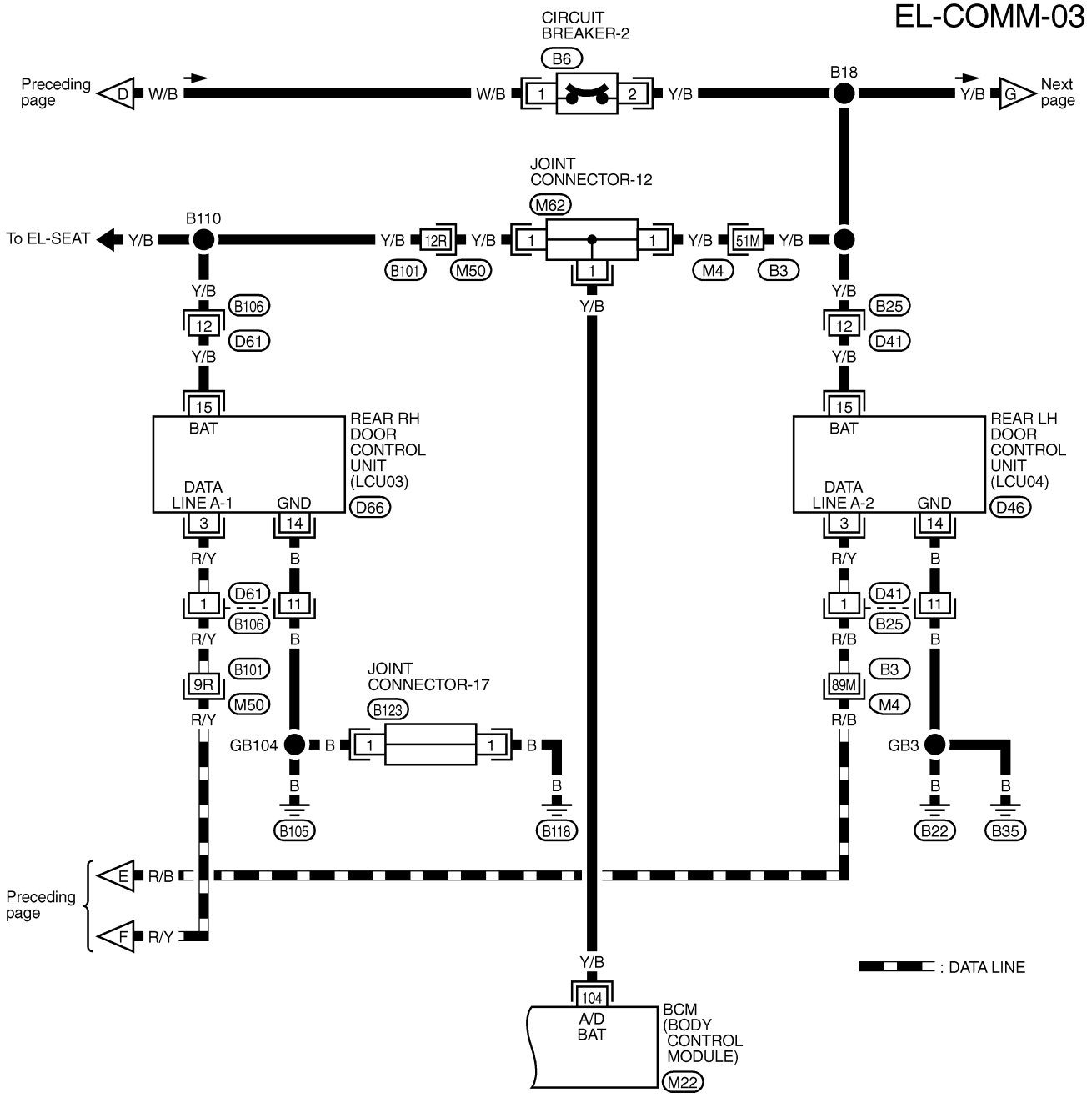



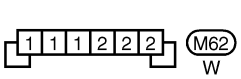

REFER TO THE FOLLOWING.
M4 , E66 , D1 , D21
-SUPER MULTIPLE JUNCTION (SMJ)

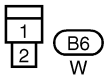
TEL133M

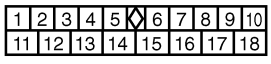
## Wiring Diagram — COMM — (Cont'd)

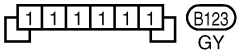
EL-COMM-03




REFER TO THE FOLLOWING.

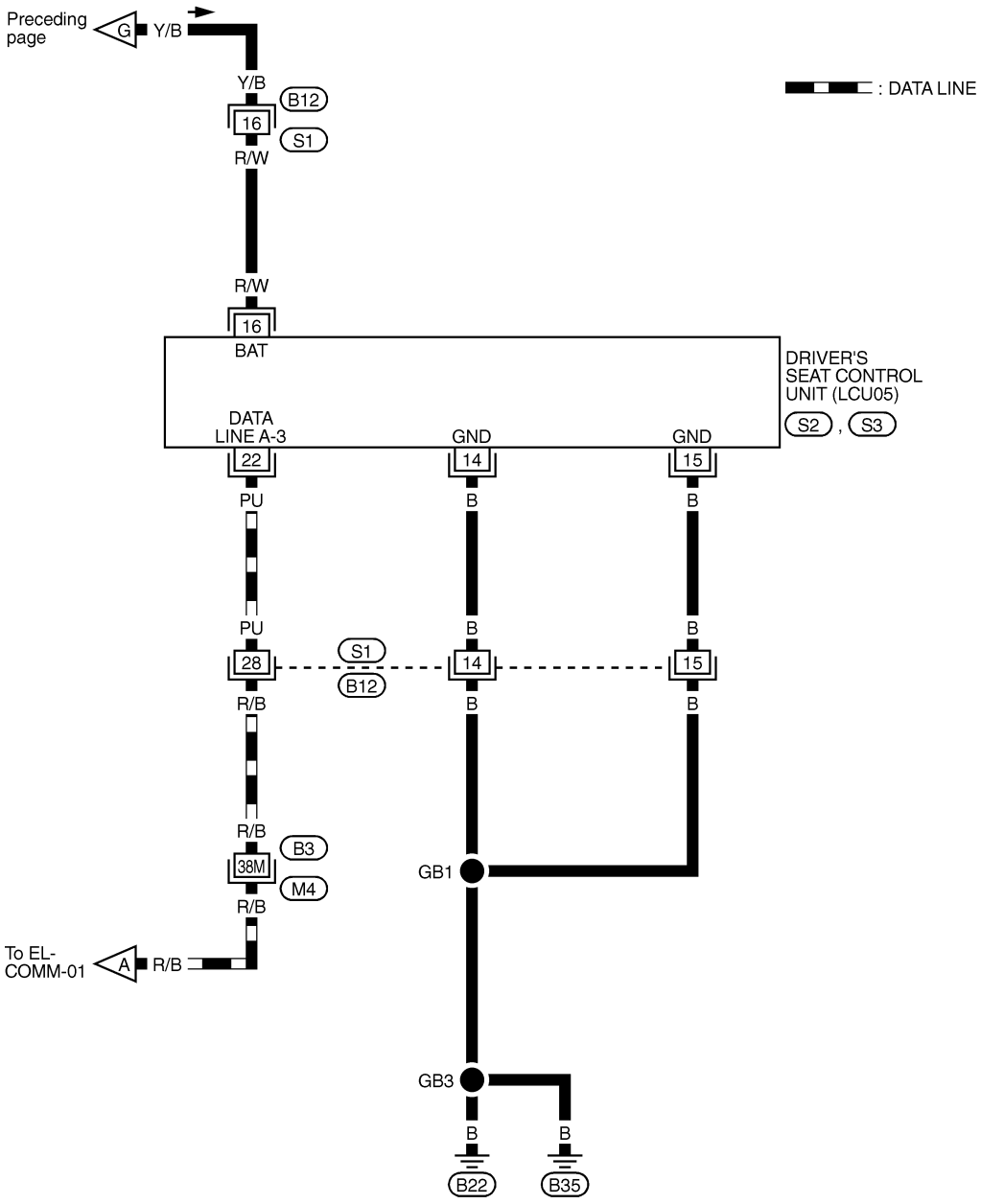
M4 , M50 -SUPER MULTIPLE JUNCTION (SMJ)

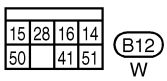
M22 -ELECTRICAL UNITS

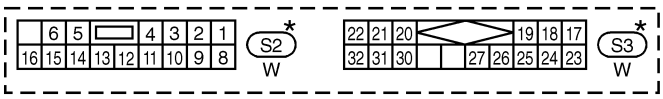
TEL134M

## Wiring Diagram — COMM — (Cont'd)

EL-COMM-04



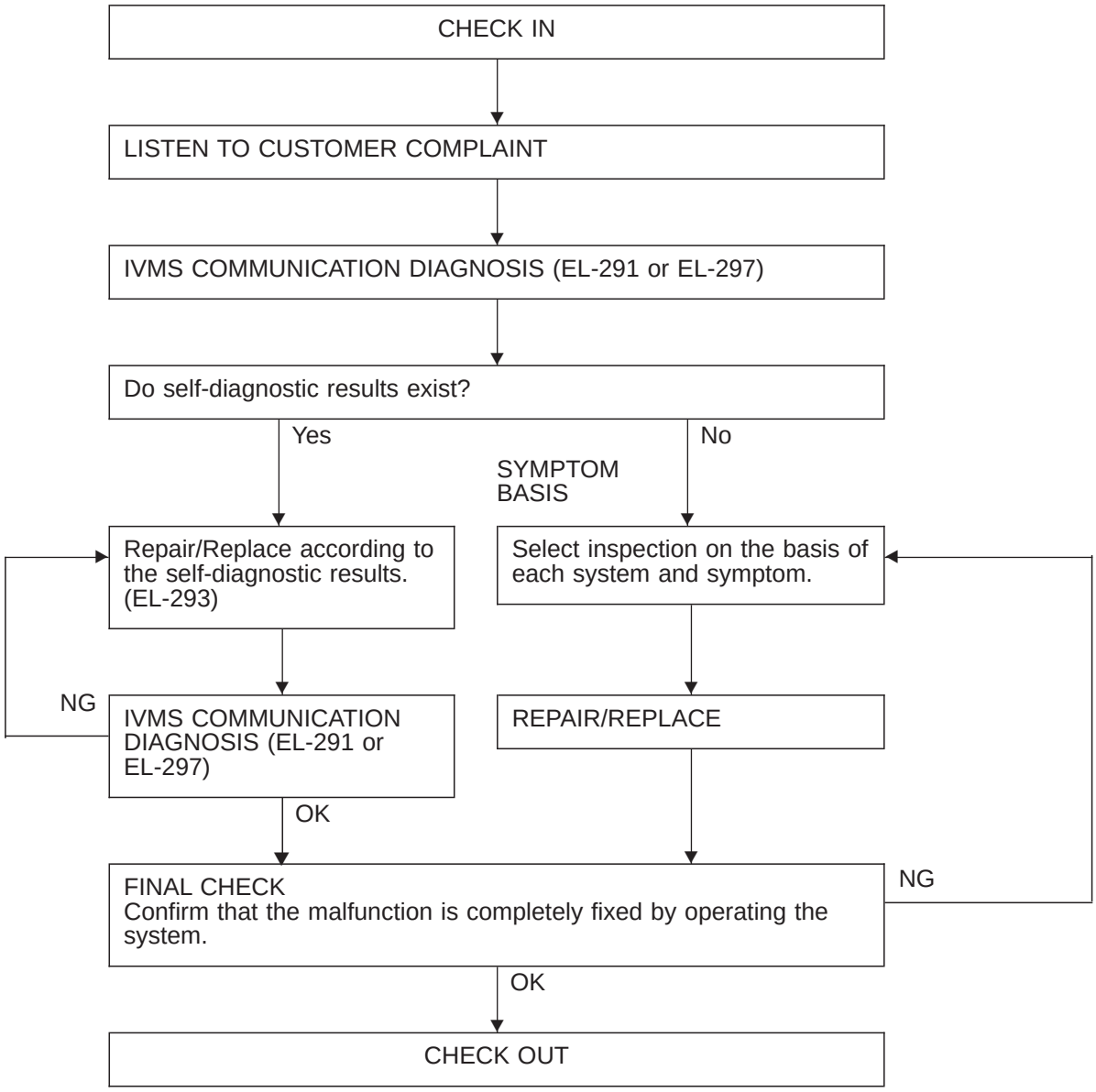

REFER TO THE FOLLOWING.
M4 -SUPER MULTIPLE JUNCTION (SMJ)

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

TEL135M

## Trouble Diagnoses

**WORK FLOW**

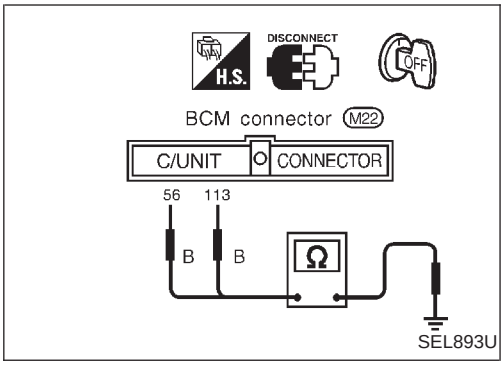


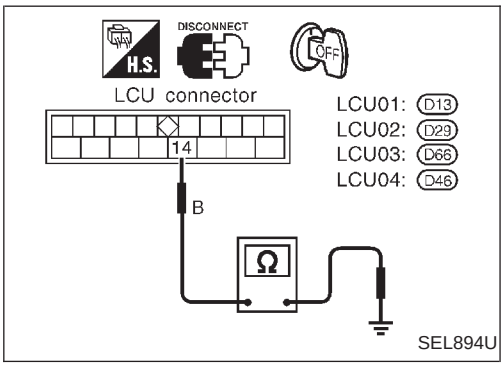

**NOTICE:**

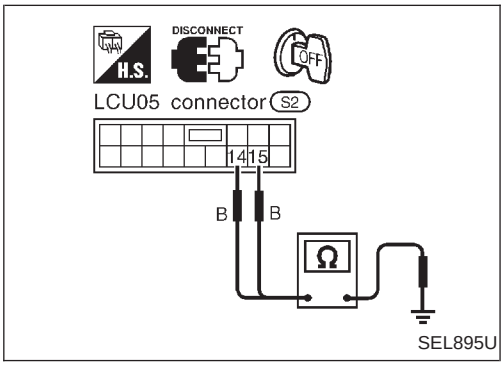
- **When LCU connectors are disconnected for more than 1 minute such as during trouble diagnoses, the “disconnected” data will be memorized by the BCM. (While BCM memorizes the “disconnected” data, IVMS communication diagnosis of CONSULT-II will display “PAST NO RESPONSE”.) Therefore, after reconnecting the LCU connectors, erase the memory.**
- **To erase the memory, perform the procedure below.**
  **Erase the memory with CONSULT-II (Refer to EL-291.) or turn the ignition switch to “OFF” position and remove 7.5A fuse [No. 14 located in the fuse block (J/B)].**

## Trouble Diagnoses (Cont'd)

### GROUND CIRCUIT CHECK



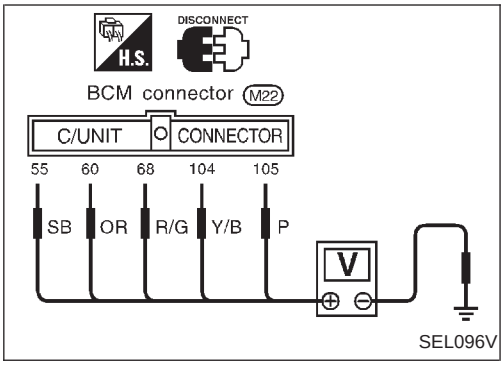



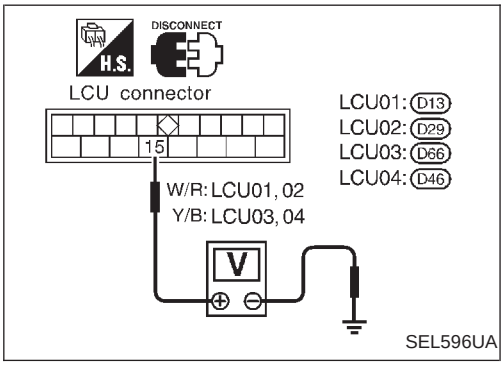



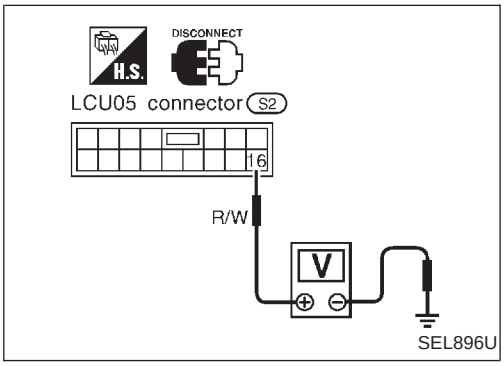

| Control unit | Terminals | Continuity |
|---|---|---|
| BCM | 56 - Ground | Yes |
| | 113 - Ground | |
| LCU01, LCU02, LCU03 and LCU04 | 14 - Ground | |
| LCU05 | 14 - Ground | |
| | 15 - Ground | |

# Trouble Diagnoses (Cont'd)

## POWER SUPPLY CIRCUIT CHECK



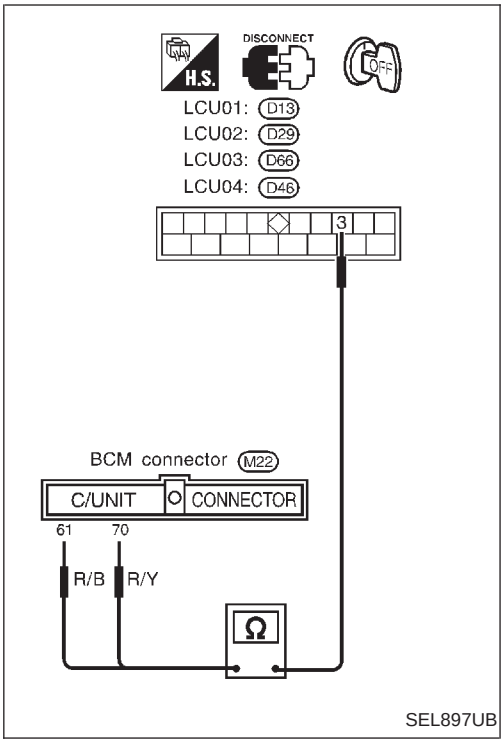




| Control unit | Terminals | Ignition switch position | | | |
|---|---|---|---|---|---|
| | | OFF | ACC | ON | START |
| BCM | 104 - Ground | Battery voltage | | | |
| | 105 - Ground | | | | |
| | 60 - Ground | Approx. 0V | Battery voltage | | Approx. 0V |
| | 68 - Ground | Approx. 0V | | Battery voltage | |
| | 55 - Ground | Approx. 0V | | | Battery voltage |
| LCU01, LCU02, LCU03 and LCU04 | 15 - Ground | Battery voltage | | | |
| LCU05 | 16 - Ground | Battery voltage | | | |

Note:
CONSULT-II (data monitor) may be used to check for the ignition switch input (ACC, ON, START).

# Trouble Diagnoses (Cont'd)

## DATA LINES CIRCUIT CHECK



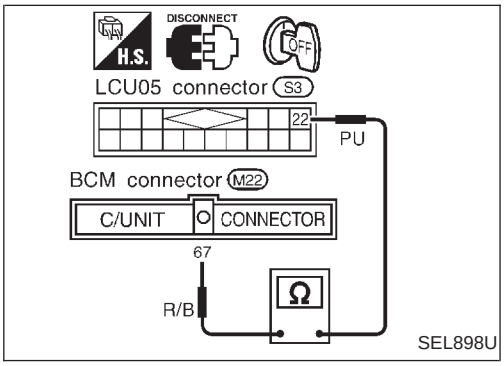
SEL897UB

### Data lines open circuit check

NOTE: When checking data line circuit, disconnect BCM and all LCU connectors.

1. Disconnect BCM and LCU connectors.
2. Check continuity between BCM and LCU terminals.

| Control unit | Terminals | | Continuity |
|---|---|---|---|
| | LCU | BCM | |
| LCU01 | ③ | ⑦⓪ | Yes |
| LCU02 | ③ | ⑥① | |
| LCU03 | ③ | ⑦⓪ | |
| LCU04 | ③ | ⑥① | |
| LCU05 | ㉒ | ⑥⑦ | |

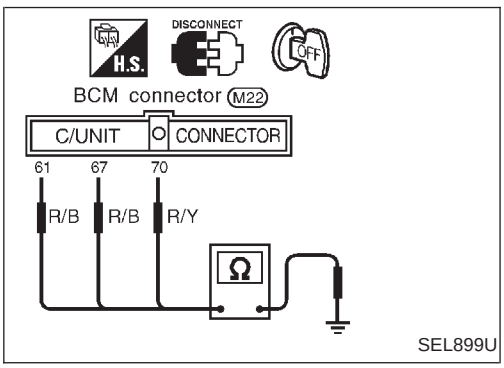


SEL898U

### Data lines short circuit check

1. Disconnect BCM and all LCU connectors.
2. Check continuity between BCM terminal and body ground.

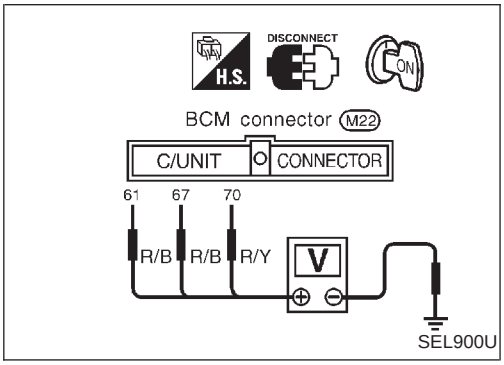
| Terminals | Continuity |
|---|---|
| ⑥① - Ground | No |
| ⑥⑦ - Ground | |
| ⑦⓪ - Ground | |



SEL899U

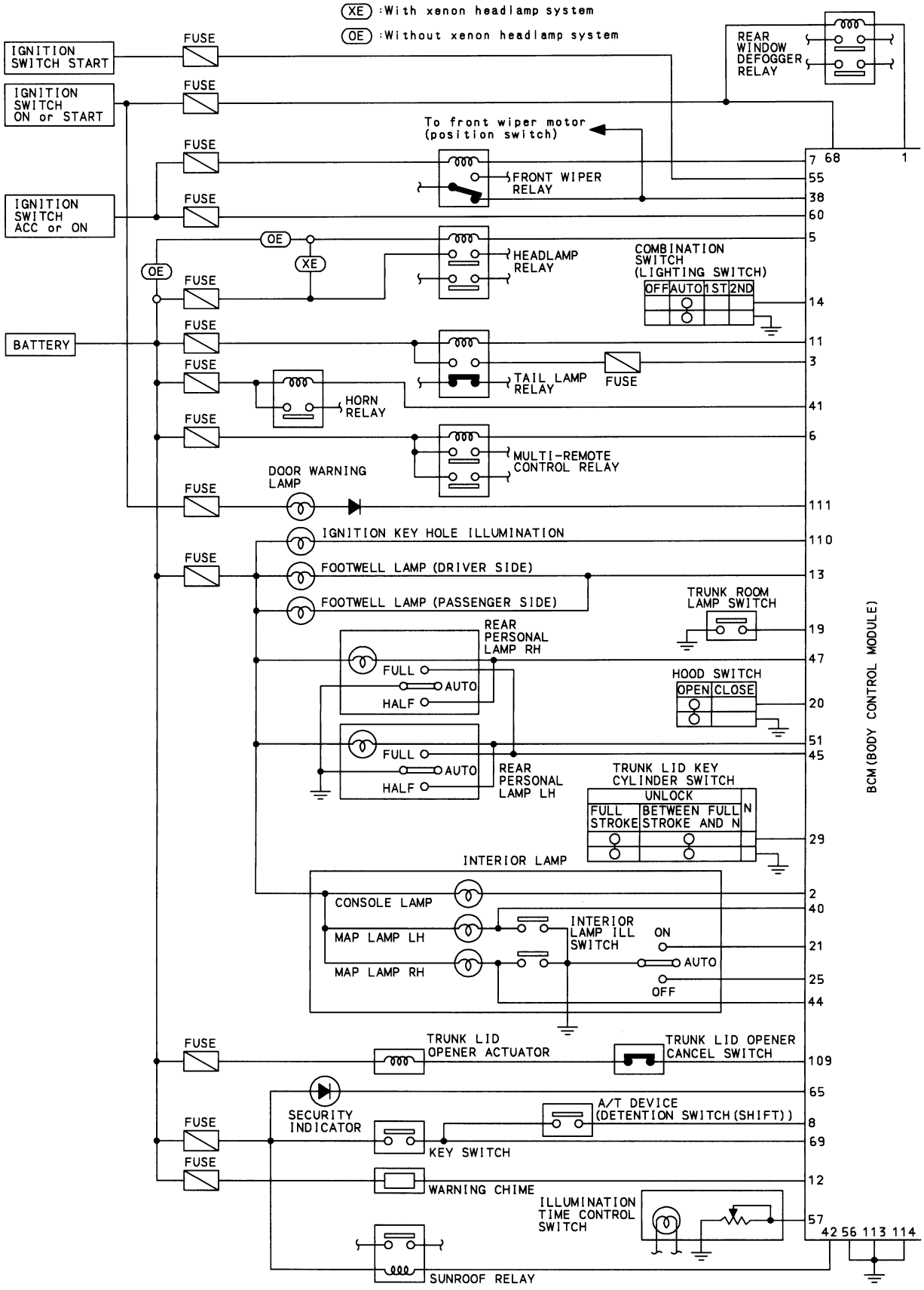
3. Check voltage between BCM terminal and body ground.

| Terminals | Voltage [V] |
|---|---|
| ⑥① - Ground | 0 |
| ⑥⑦ - Ground | |
| ⑦⓪ - Ground | |

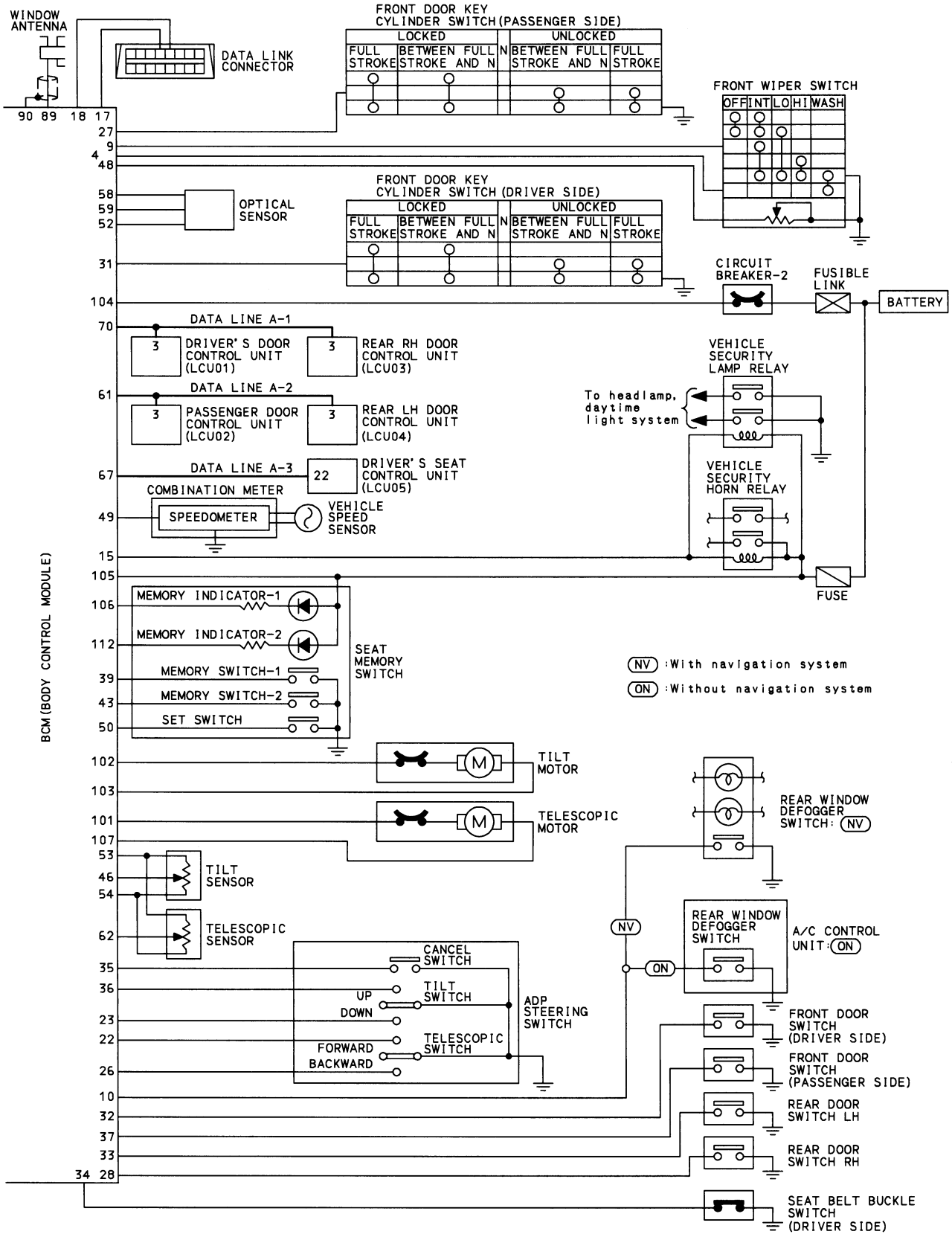


SEL900U

## Schematic



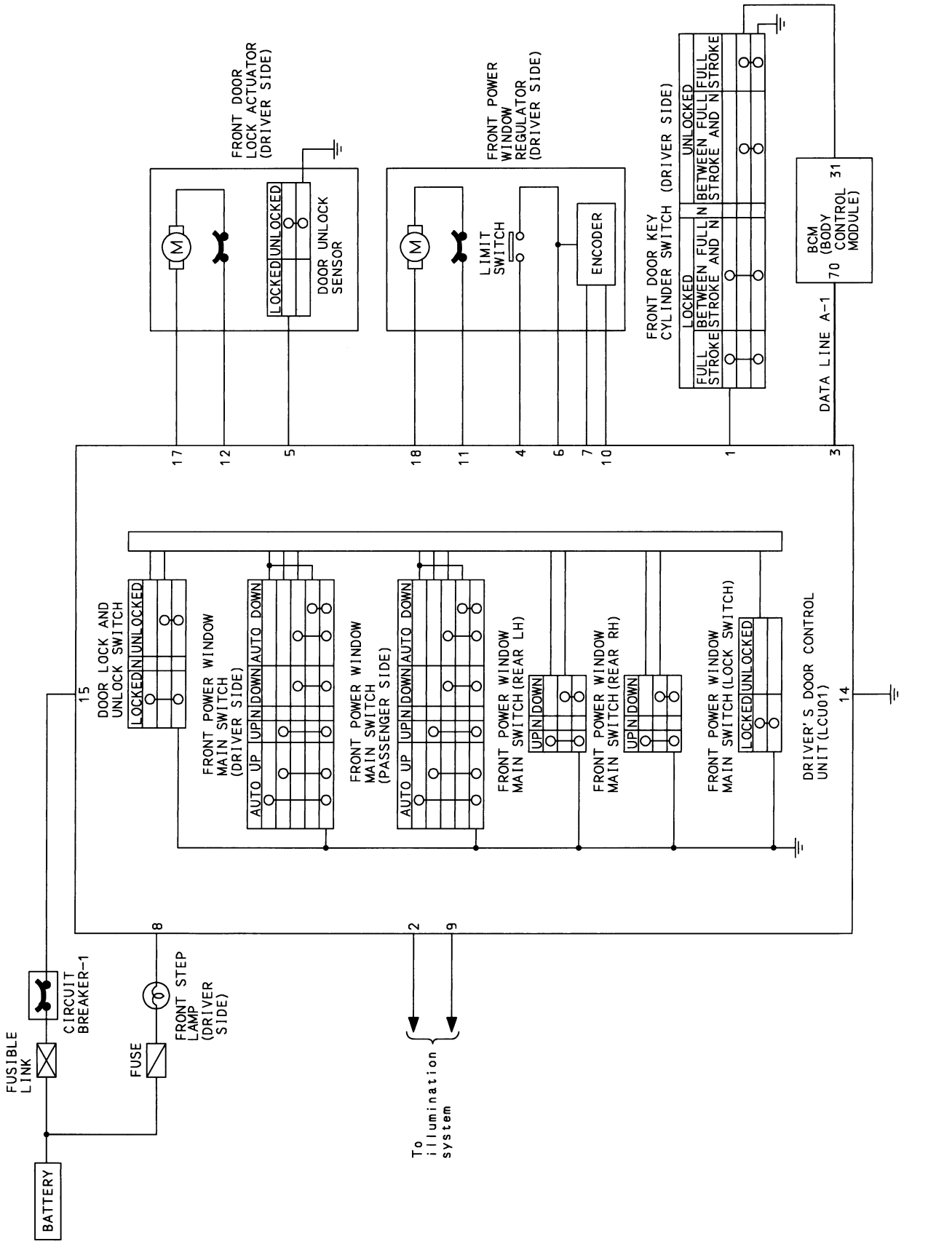

TEL751B


WINDOW ANTENNA
DATA LINK CONNECTOR
90 89 18 17
FRONT DOOR KEY CYLINDER SWITCH (PASSENGER SIDE)
LOCKED
UNLOCKED
FULL STROKE
BETWEEN FULL STROKE AND N
FRONT WIPER SWITCH
OFF INT LO HI WASH
OPTICAL SENSOR
FRONT DOOR KEY CYLINDER SWITCH (DRIVER SIDE)
CIRCUIT BREAKER-2
FUSIBLE LINK
BATTERY
DATA LINE A-1
DRIVER'S DOOR CONTROL UNIT (LCU01)
REAR RH DOOR CONTROL UNIT (LCU03)
DATA LINE A-2
PASSENGER DOOR CONTROL UNIT (LCU02)
REAR LH DOOR CONTROL UNIT (LCU04)
DATA LINE A-3
DRIVER'S SEAT CONTROL UNIT (LCU05)
COMBINATION METER
SPEEDOMETER
VEHICLE SPEED SENSOR
VEHICLE SECURITY LAMP RELAY
To headlamp, daytime light system
VEHICLE SECURITY HORN RELAY
FUSE
BCM (BODY CONTROL MODULE)
MEMORY INDICATOR-1
MEMORY INDICATOR-2
MEMORY SWITCH-1
MEMORY SWITCH-2
SET SWITCH
SEAT MEMORY SWITCH
NV :With navigation system
ON :Without navigation system
TILT MOTOR
TELESCOPIC MOTOR
REAR WINDOW DEFOGGER SWITCH: NV
TILT SENSOR
TELESCOPIC SENSOR
REAR WINDOW DEFOGGER SWITCH
A/C CONTROL UNIT: ON
CANCEL SWITCH
UP
DOWN
TILT SWITCH
FORWARD
BACKWARD
TELESCOPIC SWITCH
ADP STEERING SWITCH
FRONT DOOR SWITCH (DRIVER SIDE)
FRONT DOOR SWITCH (PASSENGER SIDE)
REAR DOOR SWITCH LH
REAR DOOR SWITCH RH
SEAT BELT BUCKLE SWITCH (DRIVER SIDE)

TEL779B

## Schematic

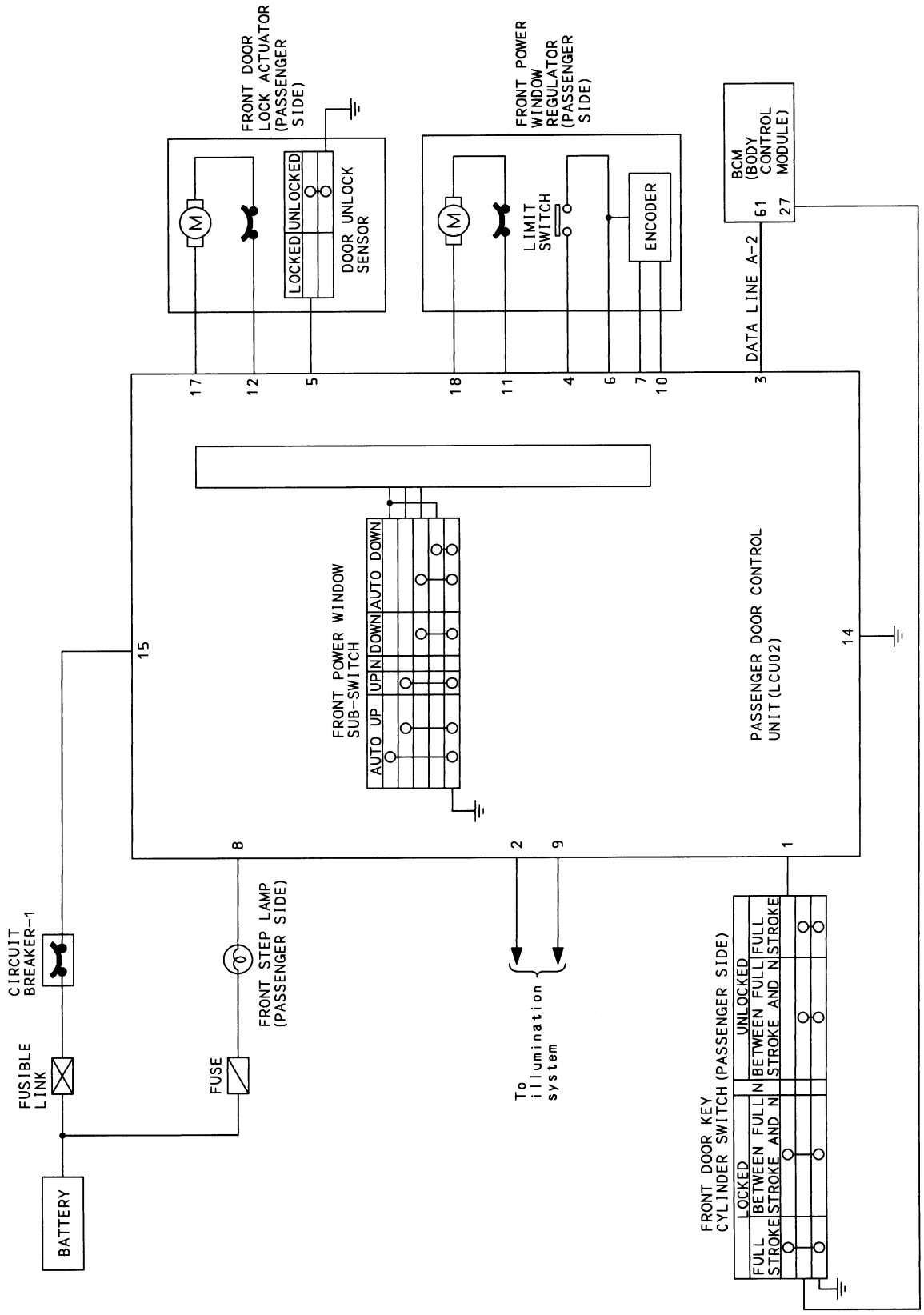
### DRIVER'S DOOR CONTROL UNIT (LCU01)




TEL138M

## Schematic (Cont'd)

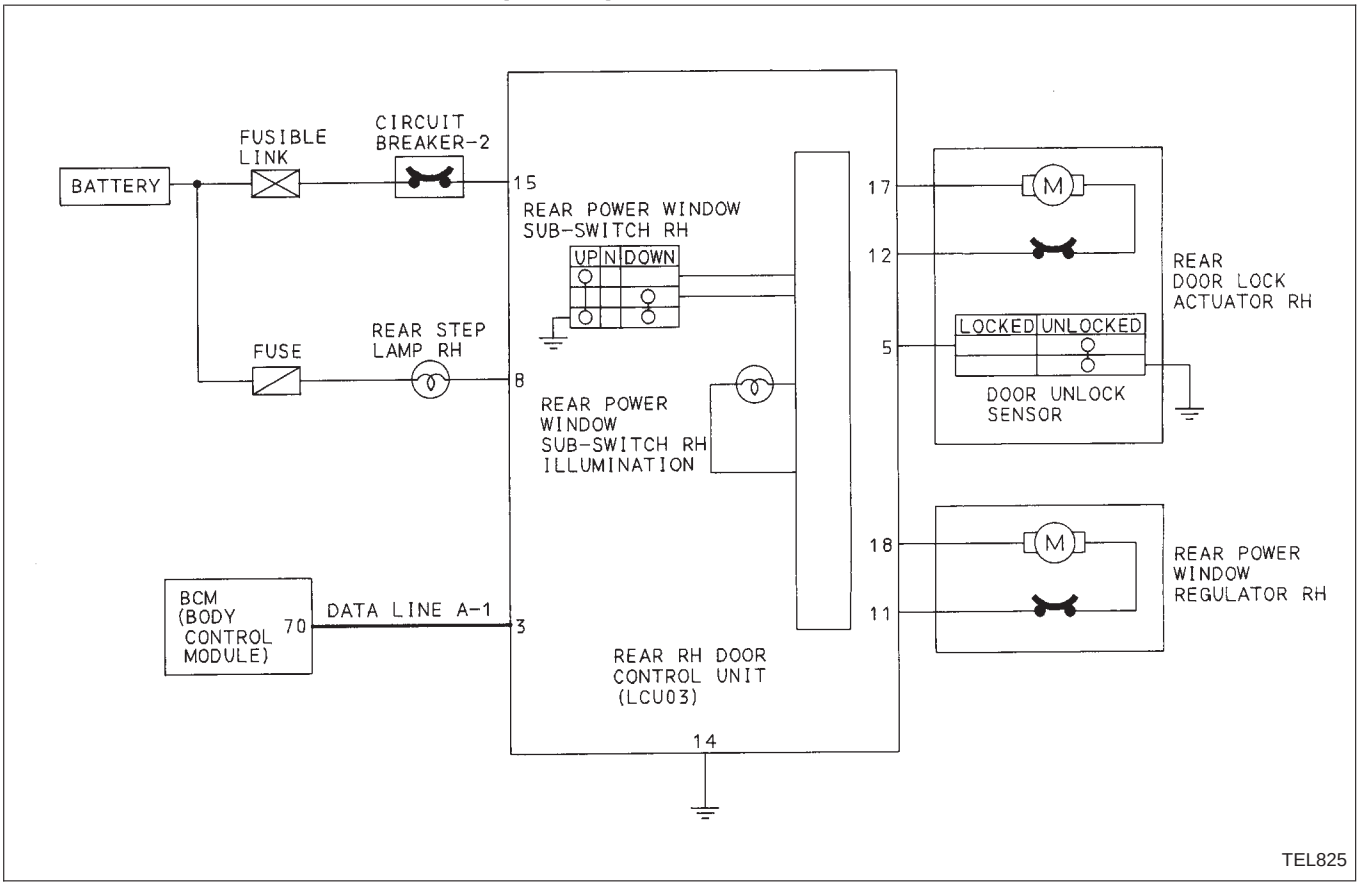
### PASSENGER DOOR CONTROL UNIT (LCU02)



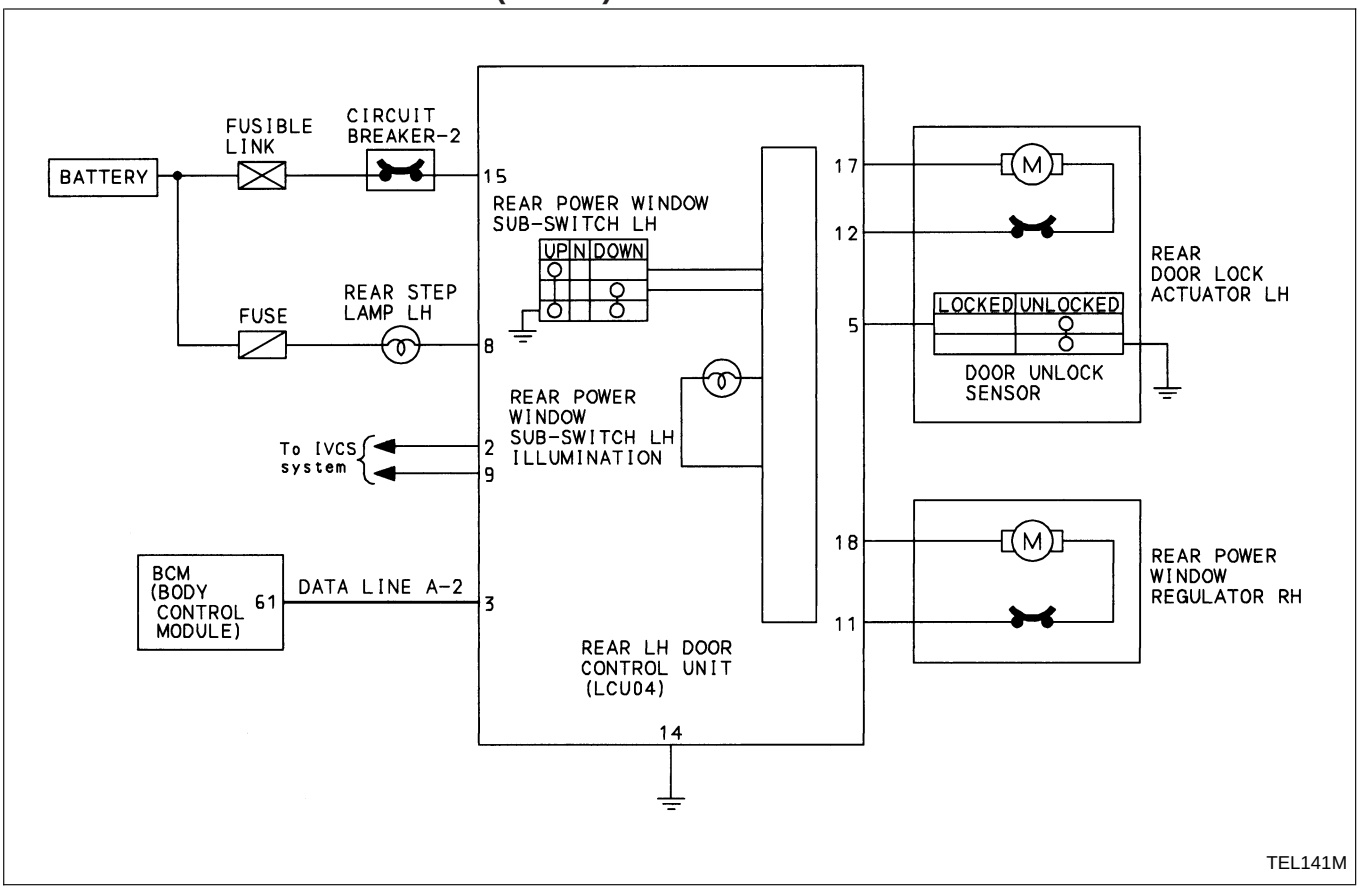

TEL139M

## Schematic (Cont'd)

### REAR RH DOOR CONTROL UNIT (LCU03)

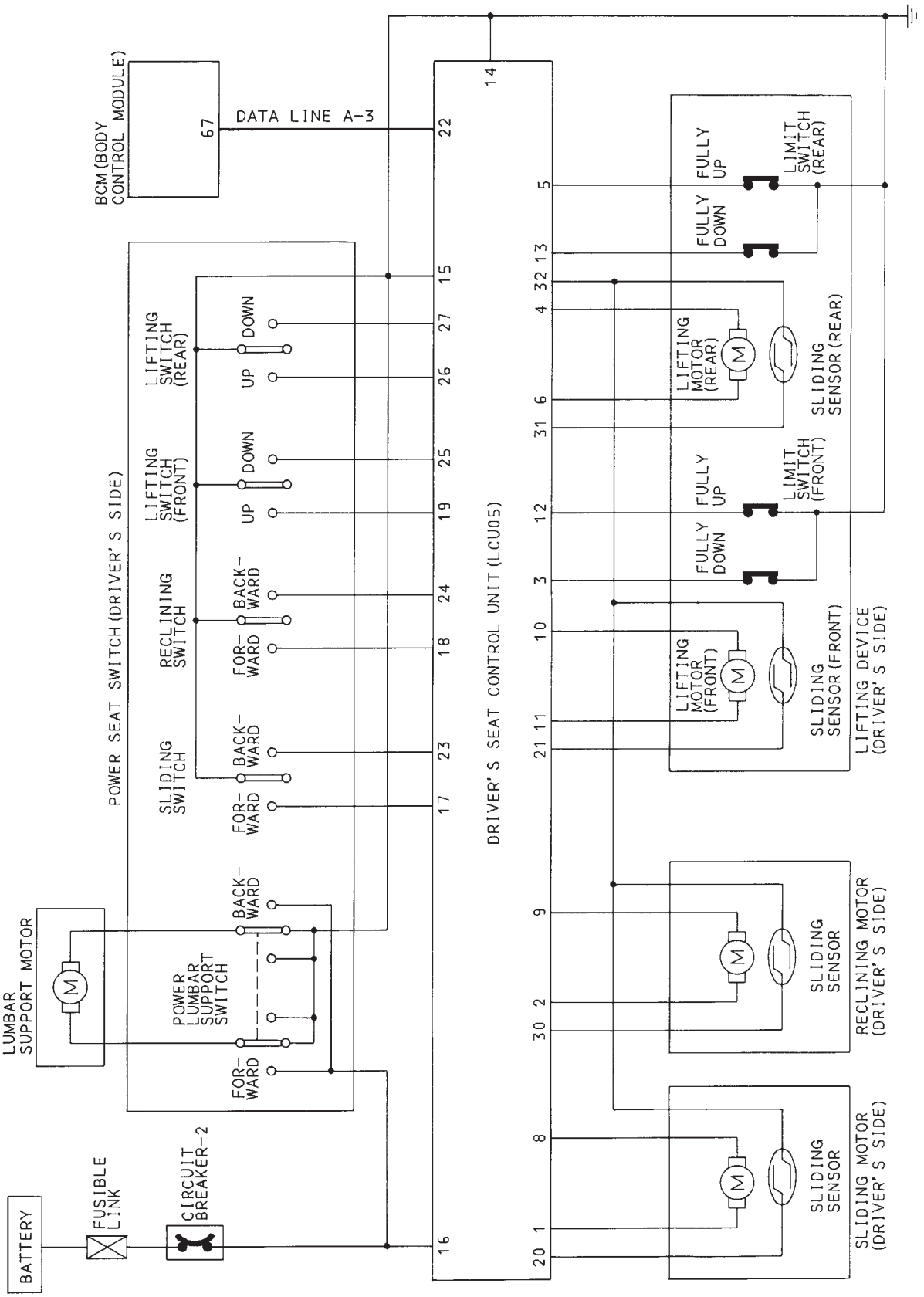



### REAR LH DOOR CONTROL UNIT (LCU04)



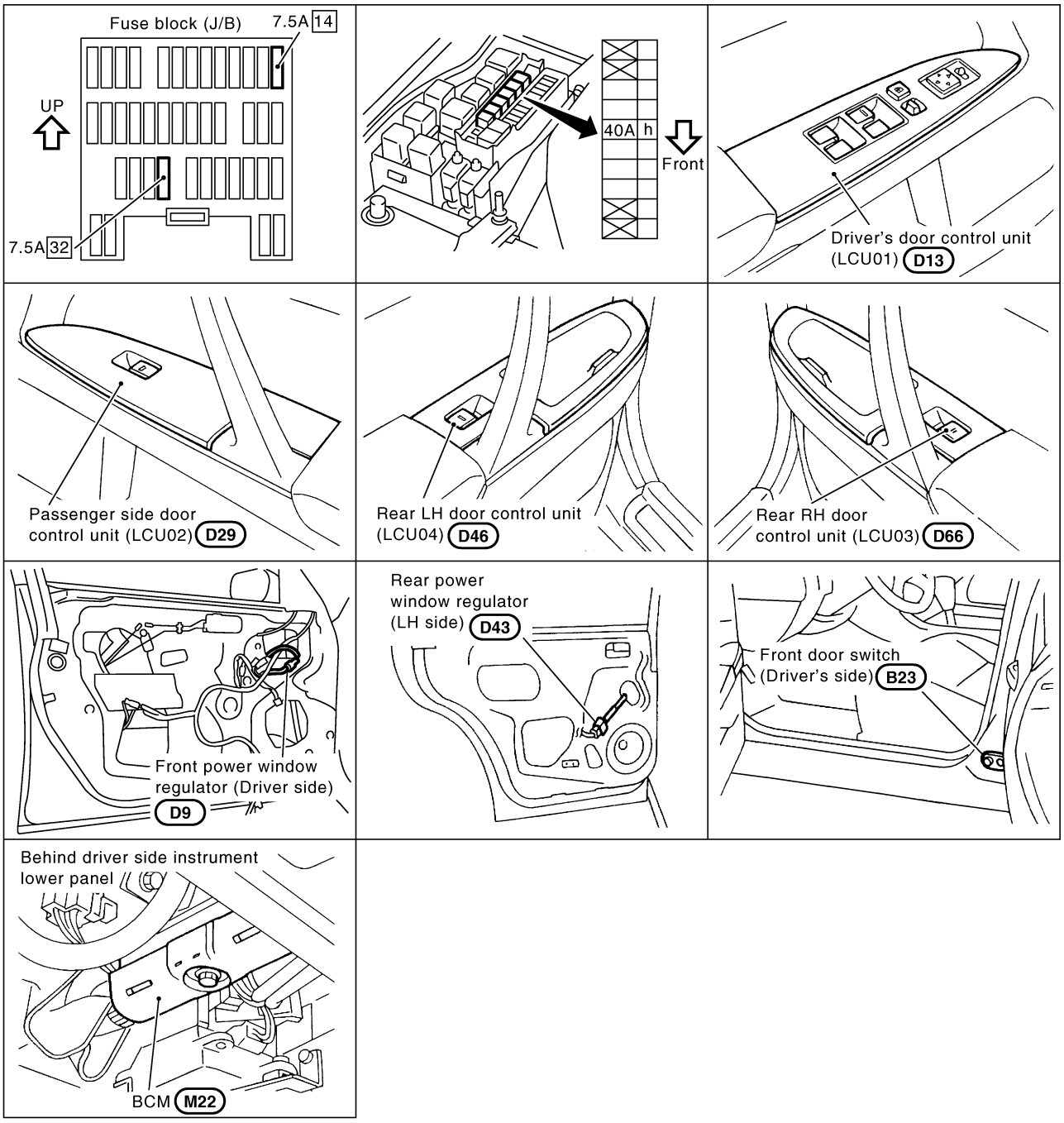
## Schematic (Cont'd)

### DRIVER'S SEAT CONTROL UNIT (LCU05)




TEL827

## Component Parts and Harness Connector Location




SEL866W

# System Description

## OUTLINE

Power window system consists of
- a BCM (Body Control Module)
- four LCUs (Local Control Module)
- four power window regulators

BCM is connected to each LCU via DATA LINE A-1 or A-2 and LCUs supply power and ground to each power window regulator.
When ignition switch is in the “ON” position, power window will be operated depending on power window sub/main switch (which is combined with each LCU) condition.

## OPERATIVE CONDITION

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

### Delayed power operation

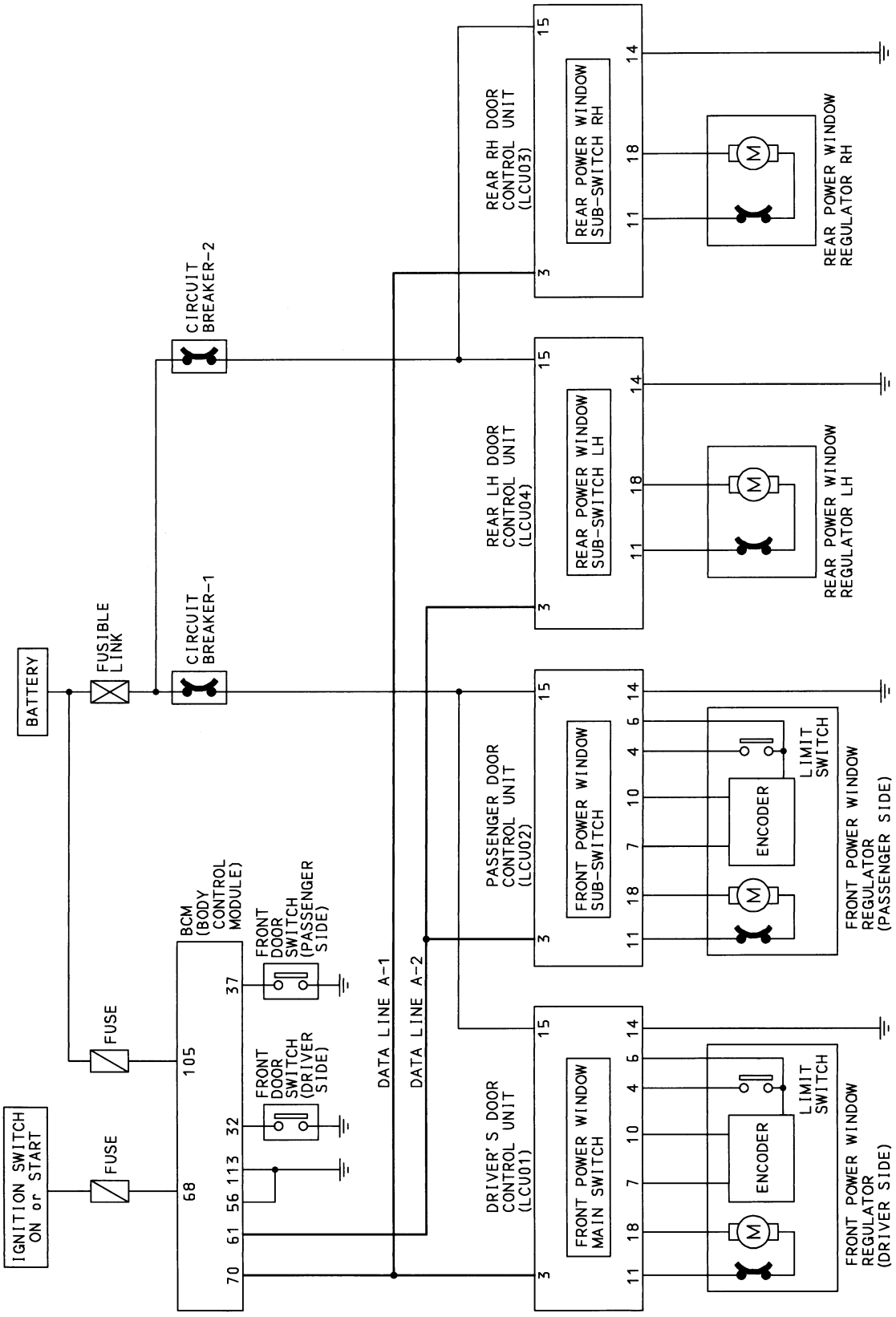
When the ignition switch is turned to the “OFF” position, the power window will still operate for up to approximately 45 seconds unless the driver side or passenger side door is opened.
(Power window timer)

### Interruption detection function

Driver’s door control unit (LCU01)/passenger door control unit (LCU02) monitor the power window regulator motor operation and the power window position (full closed or other) for front power window by the signals from encoder and limit switch in front power window regulator (driver’s side/passenger side).
When driver’s door control unit (LCU01)/passenger door control unit (LCU02) detect interruption during the following close operation in the each door,
- automatic close operation when ignition switch is in the “ON” position
- automatic close operation during power window timer operation

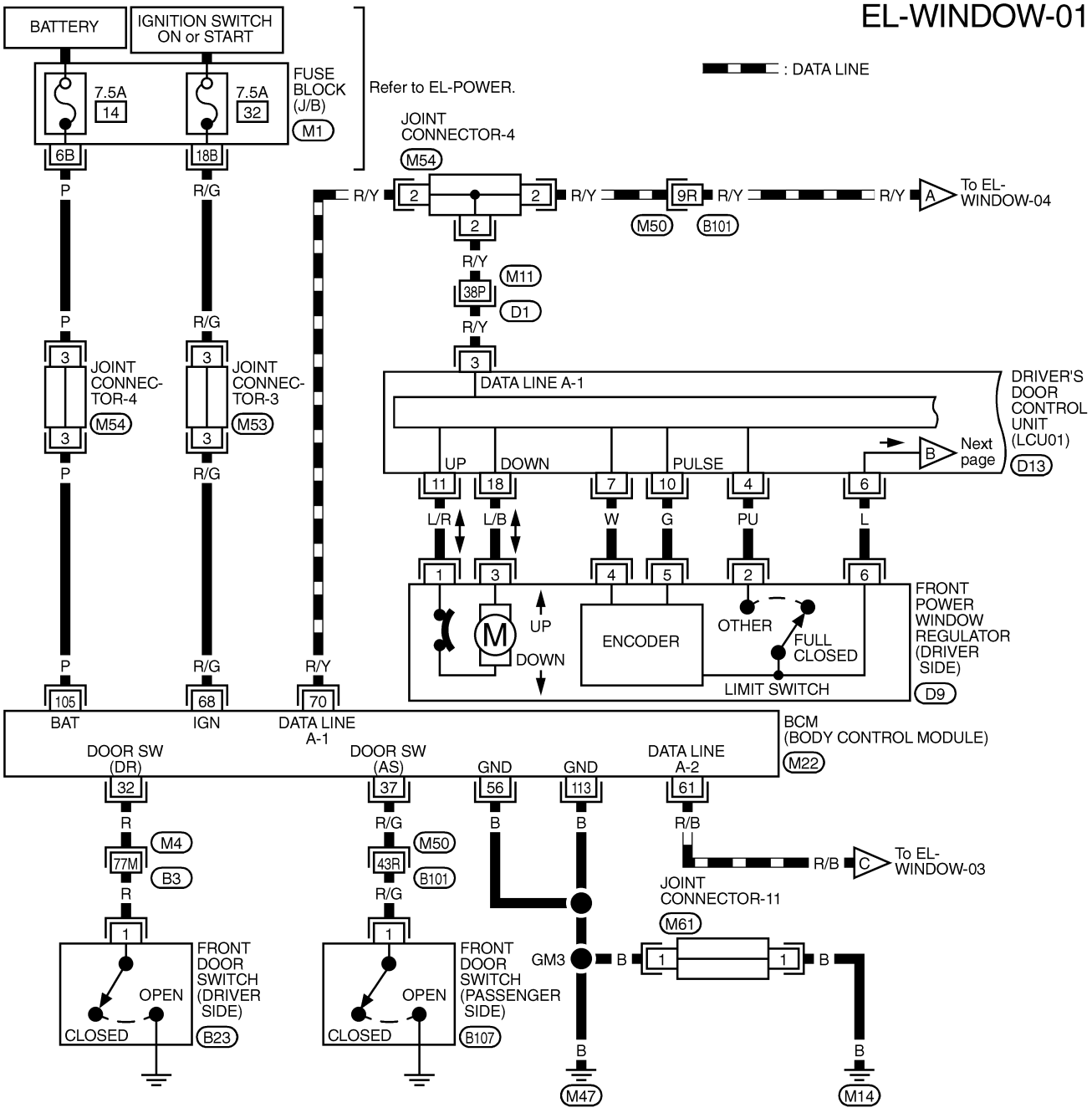
driver’s door control unit (LCU01)/passenger door control unit (LCU02) control each power window regulator motor for open and the power window will be lowered about 150 mm (5.91 in).

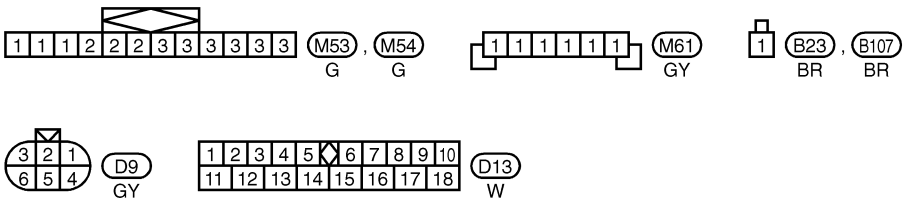
## Schematic




TEL142M

## Wiring Diagram — WINDOW —



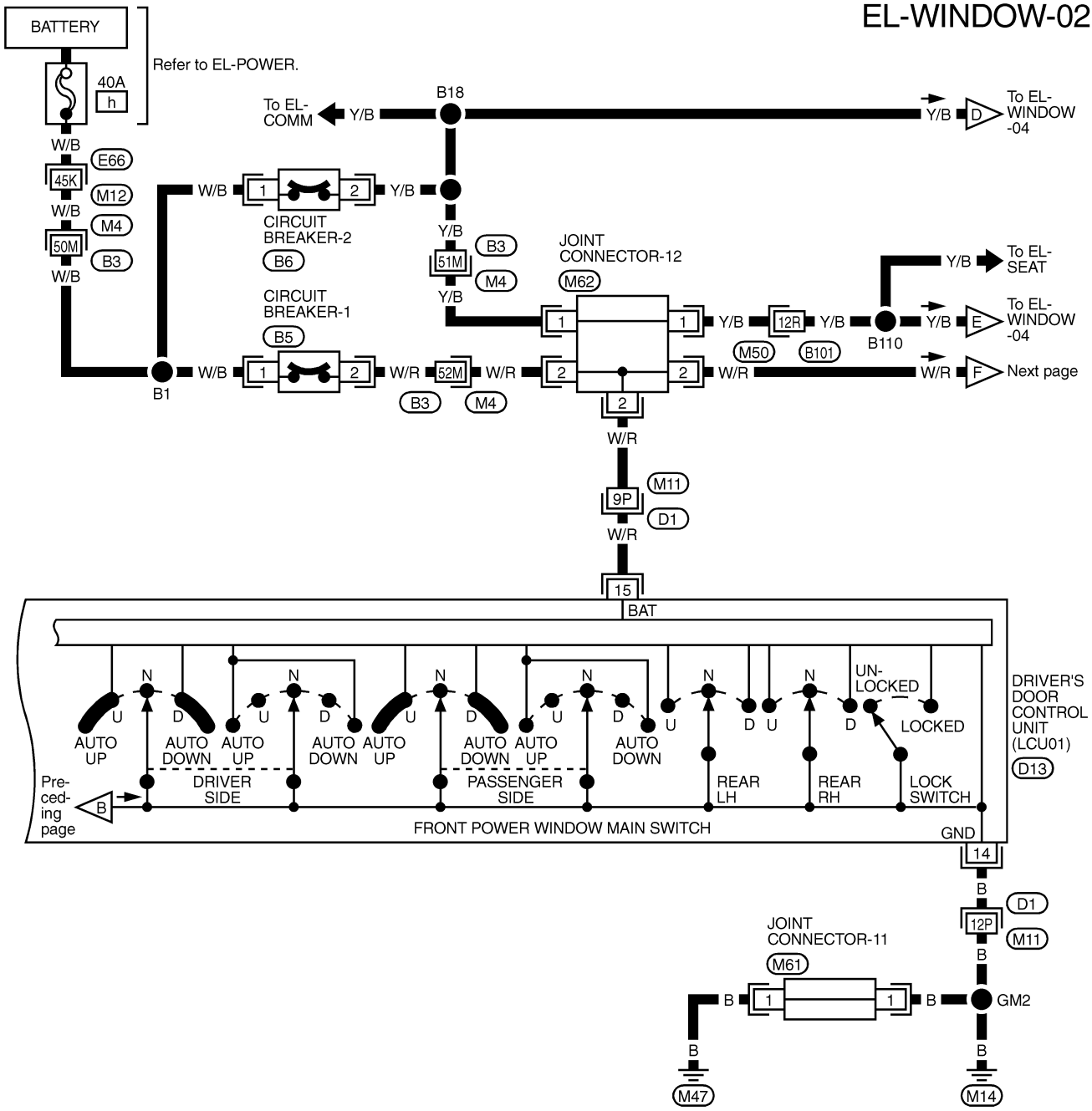



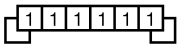

REFER TO THE FOLLOWING.
M4 , M50 , D1 -SUPER MULTIPLE JUNCTION (SMJ)
M1 -FUSE BLOCK-JUNCTION BOX (J/B)
M22 -ELECTRICAL UNITS

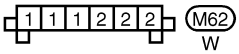
TEL143M

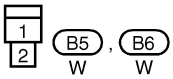
## Wiring Diagram — WINDOW — (Cont'd)

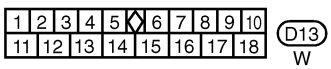
EL-WINDOW-02



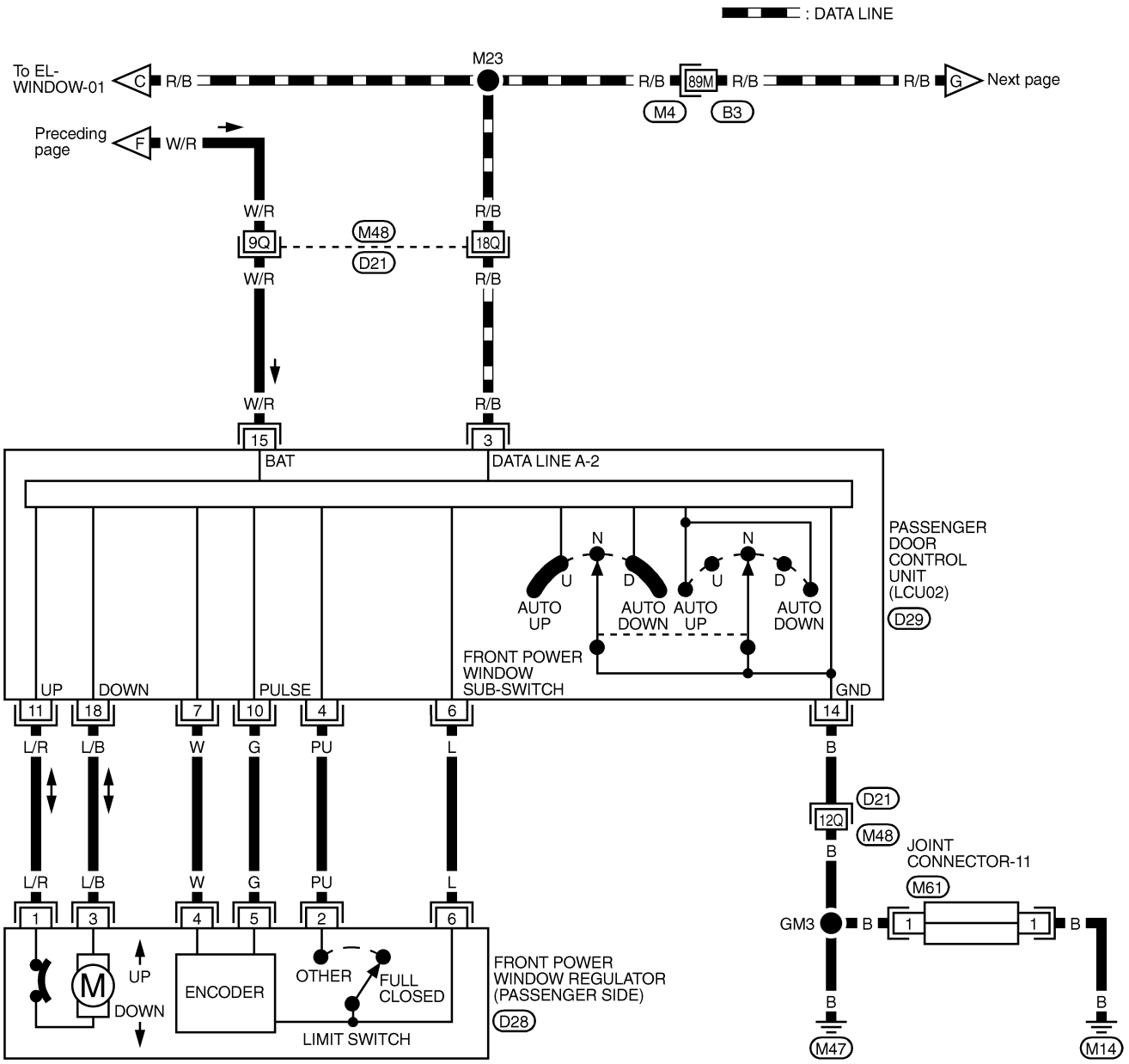



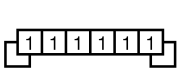

REFER TO THE FOLLOWING.
M4 , M50 , E66 , D1
-SUPER MULTIPLE JUNCTION (SMJ)

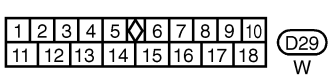
TEL144M

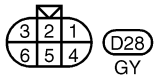
## Wiring Diagram — WINDOW — (Cont'd)

EL-WINDOW-03



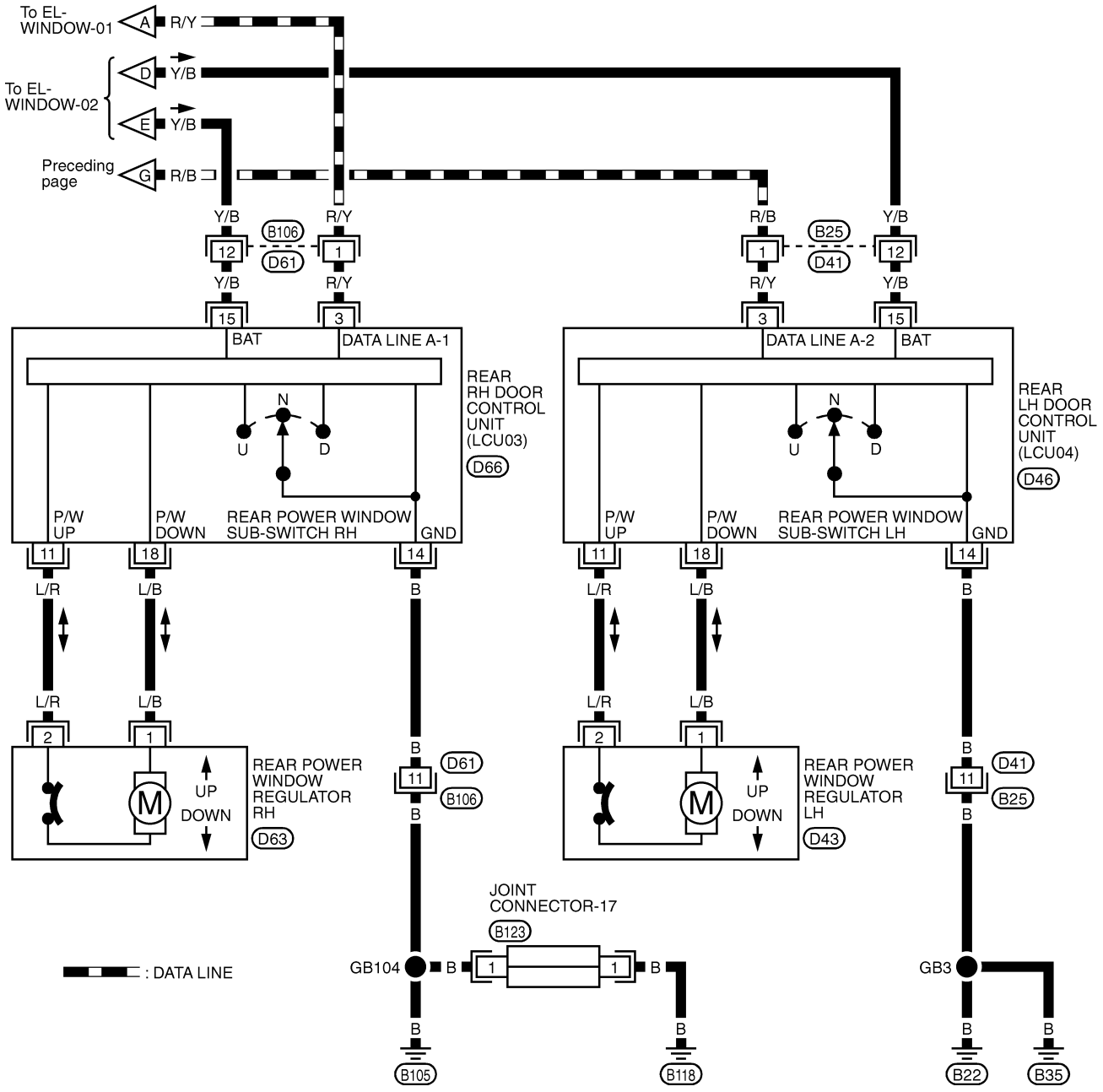



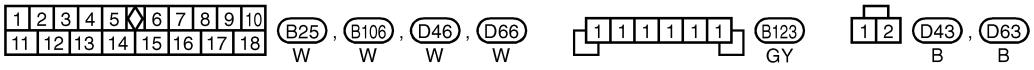

REFER TO THE FOLLOWING.
M4 , D21 -SUPER MULTIPLE JUNCTION (SMJ)

TEL145M

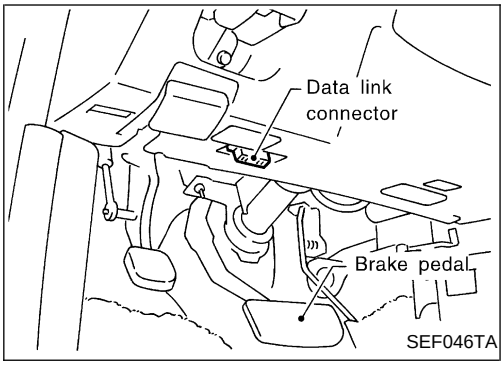
## Wiring Diagram — WINDOW — (Cont'd)

EL-WINDOW-04




TEL146M

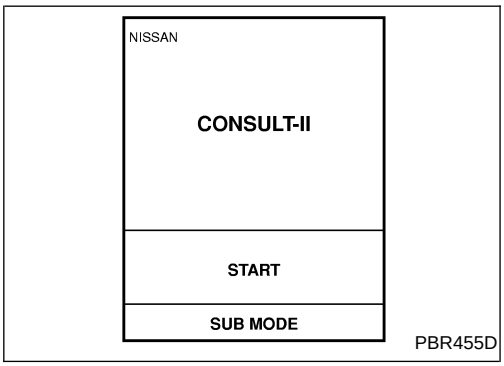


SEF046TA

## CONSULT-II

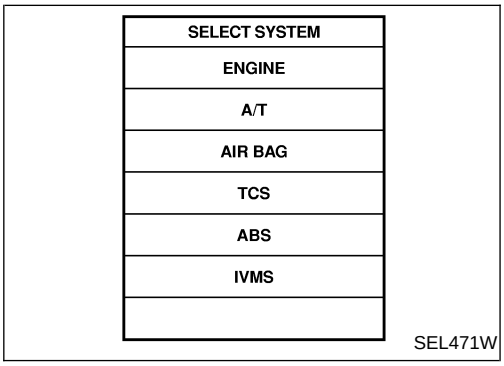
### CONSULT-II INSPECTION PROCEDURE

1. Turn ignition switch “OFF”.
2. Connect “CONSULT-II” to the data link connector.



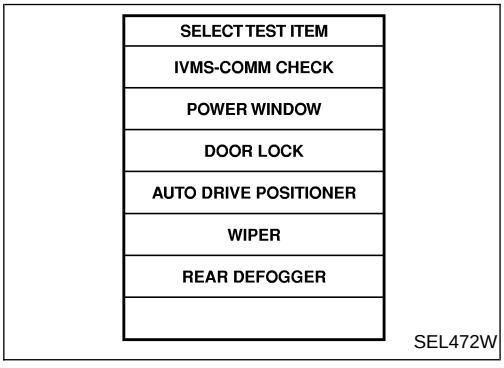
PBR455D

3. Turn ignition switch “ON”.
4. Touch “START”.



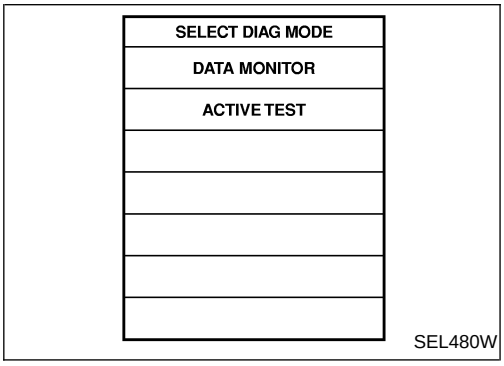
SEL471W

5. Touch “IVMS”.



SEL472W

6. Touch “POWER WINDOW”.

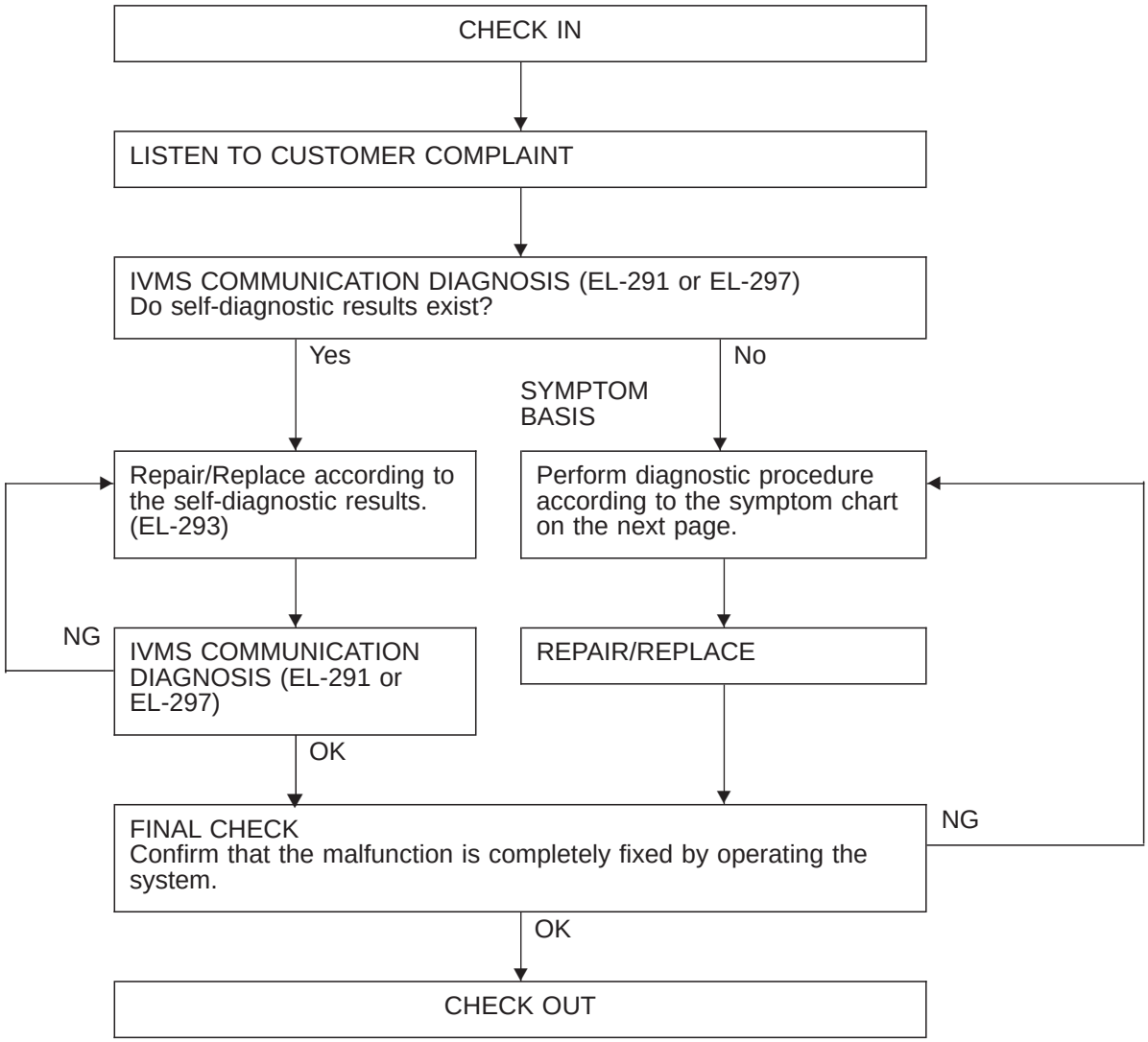


SEL480W

- DATA MONITOR and ACTIVE TEST are available for the power window.

## Trouble Diagnoses

### WORK FLOW

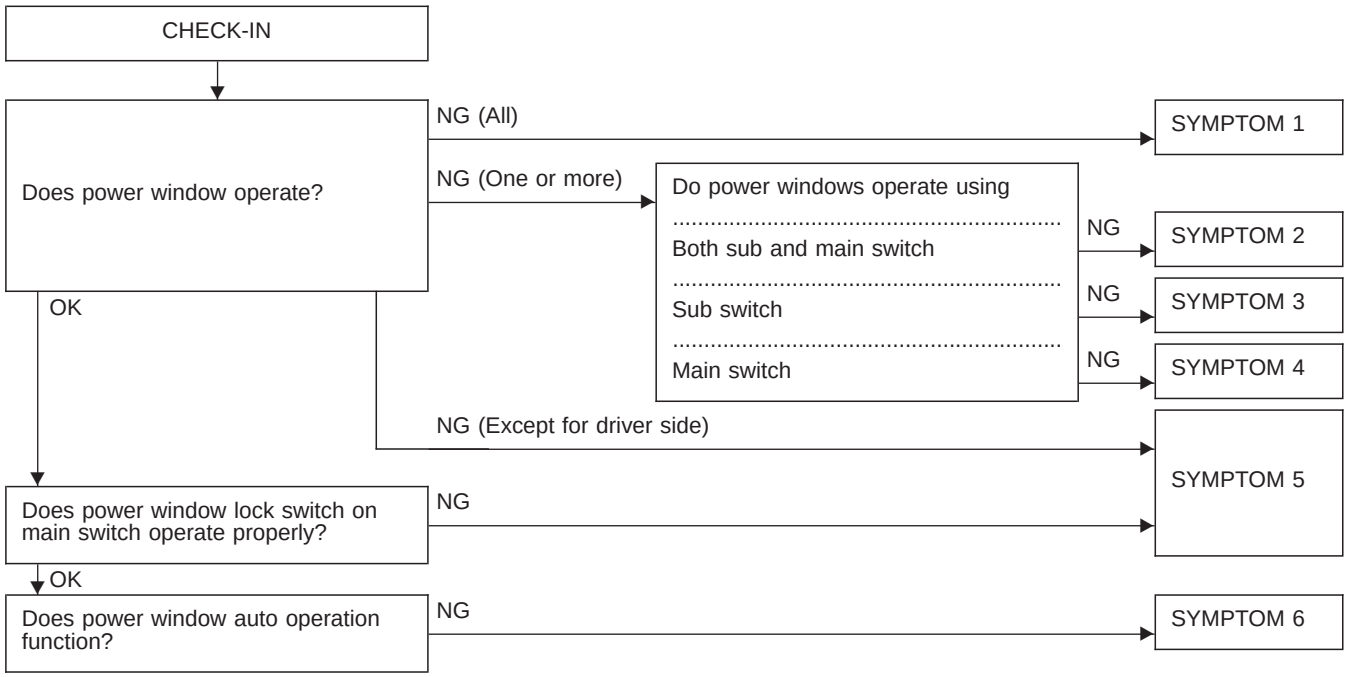



**NOTICE:**

- **When LCU connectors are disconnected for more than 1 minute such as during trouble diagnoses, the “disconnected” data will be memorized by the BCM. (While BCM memorizes the “disconnected” data, IVMS communication diagnosis of CONSULT-II will display “PAST NO RESPONSE”.) Therefore, after reconnecting the LCU connectors, erase the memory.**
- **To erase the memory, perform the procedure below.**
  **Erase the memory with CONSULT-II (Refer to EL-291.) or turn the ignition switch to “OFF” position and remove 7.5A fuse [No. 14 located in the fuse block (J/B)].**

## Trouble Diagnoses (Cont'd)

### PRELIMINARY CHECK




### SYMPTOM CHART

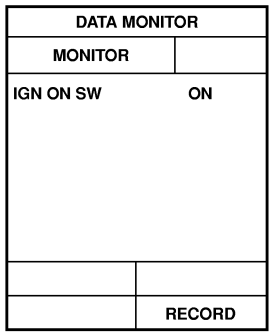
| PROCEDURE | | Diagnostic procedure | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| REFERENCE PAGE | | EL-326 | EL-326 | EL-327 | EL-327 | EL-328 | EL-329 | EL-330 | EL-331 |
| SYMPTOM | | Procedure 1 (Ignition switch ON signal check) | Procedure 2 (Power window lock switch check) | Procedure 3 (Power window main switch check) | Procedure 4 (Power window sub-switch check) | Procedure 5 (Power window regulator check) | Procedure 6 (Power window automatic switch check) | Procedure 7 (Front door switch check) | Procedure 8 (Encoder and limit switch check) |
| 1 | All power window do not operate. | X | | | | | | | |
| 2 | One or more of the power windows do not operate by turning either sub or main switch. | | | | | X | | | |
| 3 | One or more of the sub-switches do not function. | | | | X | | | | |
| 4 | One or more of the main switches on driver's door trim do not function. | | | X | | | | | |
| 5 | Power window lock switch on main switch does not operate properly. | | X | | | | | | |
| 6 | Driver power window automatic operation does not function. | | | | | | X | | X |
| — | Delayed power timer does not operate properly. | X | | | | | | X | |

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 1

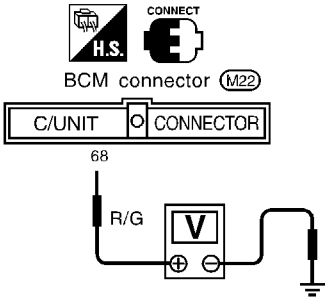
**(Ignition switch ON signal check)**

A




SEL499W

B




SEL556UB

**CHECK IGNITION SWITCH ON SIGNAL.**

A CONSULT-II

See "IGN ON SW" in DATA MONITOR mode.

When ignition switch is ON:

**IGN ON SW ON**

When ignition switch is ACC or OFF:

**IGN ON SW OFF**

NG → Check the following.
- 7.5A fuse [No. 32, located in the fuse block (J/B)]
- Harness for open or short between fuse and BCM

OR

B TESTER

Check voltage between BCM terminal 68 and ground.

| Condition of ignition switch | Voltage V |
|---|---|
| ON | Approx. 12 |
| ACC or OFF | 0 |

Refer to wiring diagram in EL-319.

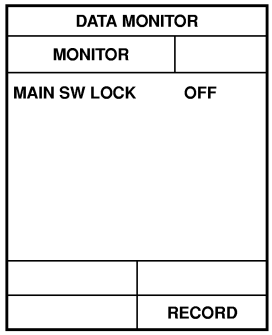
OK ↓

Ignition switch ON signal is OK.

### DIAGNOSTIC PROCEDURE 2

**(Power window lock switch check)**

A




SEL518W

**CHECK POWER WINDOW LOCK SWITCH INPUT SIGNAL.**

A CONSULT-II

See "MAIN SW LOCK" in DATA MONITOR mode.

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

NG → Replace LCU01.

OR

ON BOARD

Check power window lock switch operation in Switch monitor (Mode II) mode. (Refer to On board Diagnosis, EL-299.)

OK ↓

Power window lock switch is OK.

# Trouble Diagnoses (Cont'd)

## DIAGNOSTIC PROCEDURE 3

**[Power window main switch (Driver side, Passenger side, Rear LH, RH) check]**

A

| DATA MONITOR | |
|---|---|
| MONITOR | |
| MAIN SW AS-UP | OFF |
| MAIN/S AS-DWN | OFF |
| MAIN SW RR-UP | OFF |
| MAIN/S RR-DWN | OFF |
| MAIN SW RL-UP | OFF |
| MAIN/S RL-DWN | OFF |
| P/W SW DR-UP | OFF |
| P/W SW DR-DWN | OFF |
| P/W SW DR-AUT | OFF |
| | Scroll Down |
| | RECORD |

SEL519W

**CHECK DRIVER'S DOOR TRIM POWER WINDOW MAIN SWITCH INPUT SIGNAL.**

A CONSULT-II

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

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

NG → Replace LCU01.

OR

ON BOARD

Check power window main switch operation in Switch monitor (Mode II) mode. (Refer to On board Diagnosis, EL-299.)

OK ↓

Power window main switch is OK.

## DIAGNOSTIC PROCEDURE 4

**[Power window sub-switch (Passenger side, Rear LH, RH) check]**

A

| DATA MONITOR | |
|---|---|
| MONITOR | |
| P/W SW AS-UP | OFF |
| P/W SW AS-DWN | OFF |
| PW SW RR-UP | OFF |
| P/W SW RR-DWN | OFF |
| P/W SW RL-UP | OFF |
| P/W SW RL-DWN | OFF |
| | Scroll Down |
| | RECORD |

SEL520W

**CHECK POWER WINDOW SUB-SWITCH INPUT SIGNAL.**

A CONSULT-II

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

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

NG → Replace LCU for malfunctioning portion.

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

OR

ON BOARD

Check power window sub-switch operation in Switch monitor (Mode II) mode. (Refer to On board Diagnosis, EL-299.)

OK ↓

Power window sub-switch is OK.

# Trouble Diagnoses (Cont'd)

## DIAGNOSTIC PROCEDURE 5

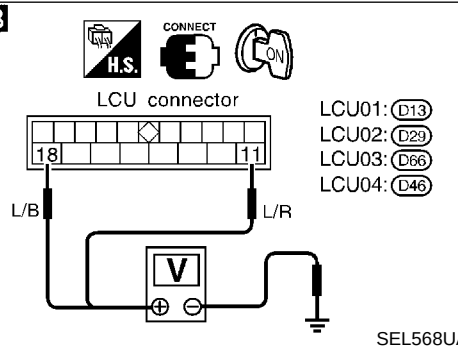
### (Power window regulator check)

A

| ACTIVE TEST | |
|---|---|
| P/W MOTOR-DRIVER | OFF |
| OR | |
| P/W MOTOR-ASSIST | OFF |
| P/W MOTOR-RR-RH | OFF |
| P/W MOTOR-RR-LH | OFF |
| | |
| | |
| | |
| UP | DOWN |

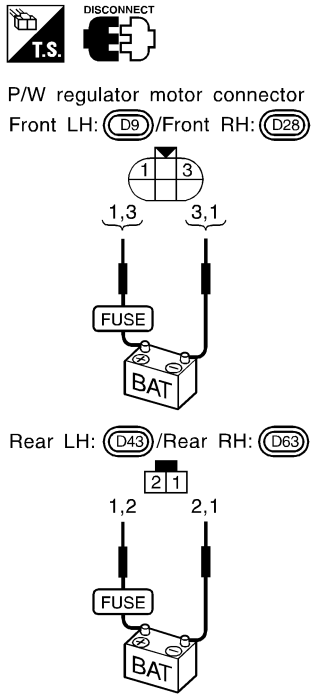
SEL521W

B




SEL568UA

C




SEL867W

**A**

**POWER WINDOW REGULATOR ACTIVE TEST.**

CONSULT-II

See "P/W MOTOR" in ACTIVE TEST mode.
Perform operation shown on display.
**Power window motor should operate.**
**NOTE: If CONSULT-II is not available, start with diagnostic procedure B .**

OK → Power window regulator is OK.

NG ↓

**B**

**CHECK LCU OUTPUT SIGNAL TO POWER WINDOW REGULATOR.**

Check voltage between LCU connector terminals ⑪ or ⑱ and ground.

| Operation | Terminals | | Voltage |
|---|---|---|---|
| | ⊕ | ⊖ | |
| Up | ⑪ | Ground | Battery voltage |
| Down | ⑱ | Ground | |

Refer to wiring diagram in EL-319, 321 or 322.

NG → Replace LCU for malfunctioning portion.

OK ↓

**C**

**CHECK POWER WINDOW REGULATOR MOTOR.**

1. Disconnect power window regulator motor connector.
2. Apply 12V DC direct current to motor and check operation.

| | Terminals | | Operation |
|---|---|---|---|
| | ⊕ | ⊖ | |
| Front | ① | ③ | Upward |
| | ③ | ① | Downward |
| Rear | ① | ② | Downward |
| | ② | ① | Upward |

NG → Replace power window regulator motor.

OK ↓

Check harness for open or short between power window switch and power window regulator motor.

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 6

**(Power window automatic switch check)**

A

| DATA MONITOR | |
|---|---|
| MONITOR | |
| P/W SW DR-AUT | OFF |
| P/W SW AS-AUT | OFF |
| MAIN SW AS-AUT | OFF |
| | |
| | RECORD |

SEL949W

**CHECK POWER WINDOW AUTO SWITCH INPUT SIGNAL.**

A CONSULT-II

See "P/W SW DR-AUT/AS-AUT" and "MAIN SW AS-AUT" in DATA MONITOR mode.

**"P/W SW DR-AUT/AS-AUT" and "MAIN SW AS-AUT" should change from "ON" to "OFF" when completely pushing in or pulling out each power window switch.**

NG → Replace LCU for malfunctioning portion.
- Driver: LCU01
- Passenger: LCU02

OR

ON BOARD

Check power window switch auto operation in switch monitor (Mode II) mode. (Refer to On board Diagnosis, EL-299.)

OK ↓

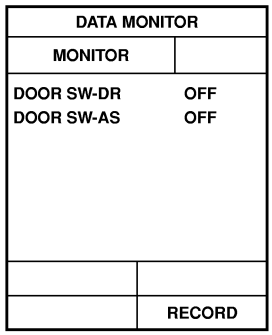
Check encoder and limit switch. (Refer to EL-331.)

# Trouble Diagnoses (Cont'd)

## DIAGNOSTIC PROCEDURE 7

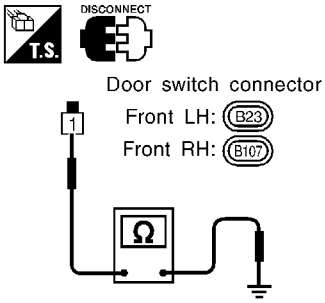
### (Front door switch check)

A




SEL524W

B




SEL914U

**CHECK FRONT DOOR SWITCH INPUT SIGNAL.**

A CONSULT-II

See "DOOR SW" in DATA MONITOR mode.
When door is open:
**DOOR SW ON**
When door is closed:
**DOOR SW OFF**

OR

ON BOARD

Check front door switches in Switch monitor (Mode II) mode.
(Refer to On board Diagnosis, EL-299.)

Refer to wiring diagram in EL-319.

OK → Door switch is OK.

NG ↓

B

**CHECK DOOR SWITCH.**

1. Disconnect door switch connector.
2. Check continuity between terminal and switch body ground.

| | Terminals | Condition | Continuity |
|---|---|---|---|
| Front door switch | ① - Ground | Pressed | No |
| | | Released | Yes |

NG → Replace door switch.

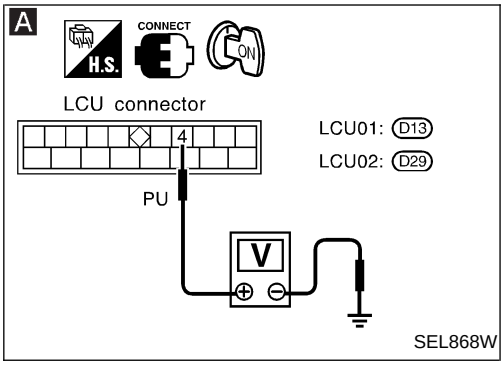
OK ↓

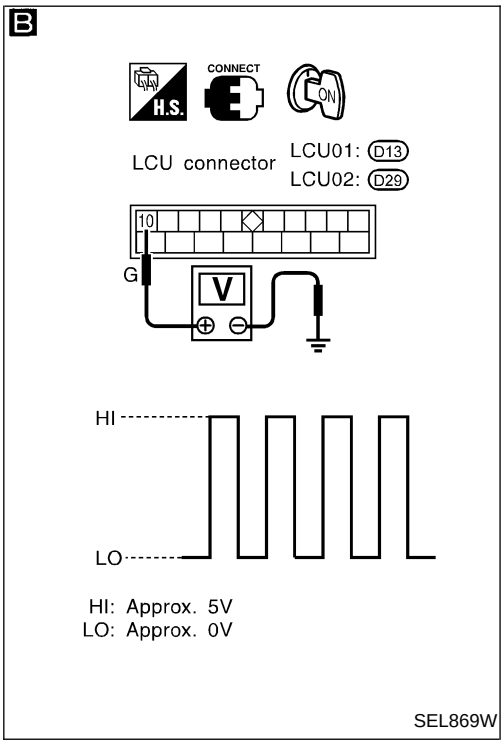
Check the following.
- Door switch ground condition
- Harness for open or short between door switch and BCM

# Trouble Diagnoses (Cont'd)

## DIAGNOSTIC PROCEDURE 8

### (Encoder and limit switch check)




**CHECK DOOR WINDOW SLIDE MECHANISM**
Check the following.
- Obstacles in window, glass molding, etc.
- Worn or deformed glass molding
- Door sash tilted too far inward or outward
- Door window regulator

NG → Remove obstacles or repair door window slide mechanism.

OK ↓

A

**CHECK POWER SUPPLY TO LIMIT SWITCH**
1. Disconnect driver side/front passenger side power window regulator connectors.
2. Turn ignition switch ON.
3. Check voltage between LCU01/LCU02 connectors terminal ④ and ground.
**Approx. 5V should exist.**

NG → Replace LCU for malfunctioning portion.

OK ↓

**CHECK LIMIT SWITCH OPERATION**
1. Turn ignition switch OFF.
2. Connect driver side/front passenger side power window regulator connectors.
3. Turn ignition switch ON.
4. Check voltage between LCU01/LCU02 connectors terminal ④ and ground during power window closing operation.

| Terminal No. | Condition | Voltage (DCV) |
|---|---|---|
| ④ | Approx. 15 mm (0.59 in) below the full closed position to full closed position | Approx. 5 |
| | Other positions | Approx. 0 |

OK → B

**CHECK ENCODER**
Measure voltage between LCU01/LCU02 connectors terminal ⑩ and ground with oscilloscope when power window is in automatic closing operation.
If check result is NG, replace power window regulator for malfunctioning portion.
If check result is OK, replace LCU for malfunctioning portion.

NG ↓

**RESET LIMIT SWITCH**
Reset limit switch. Refer to BT section.
Then check voltage between LCU01/LCU02 connectors terminal ④ and ground during power window closing operation at least ten times.

| Terminal No. | Condition | Voltage (DCV) |
|---|---|---|
| ④ | Approx. 15 mm (0.59 in) below the full closed position to full closed position | Approx. 5 |
| | Other positions | Approx. 0 |

NG → Replace power window regulator for malfunctioning portion.

OK ↓

B

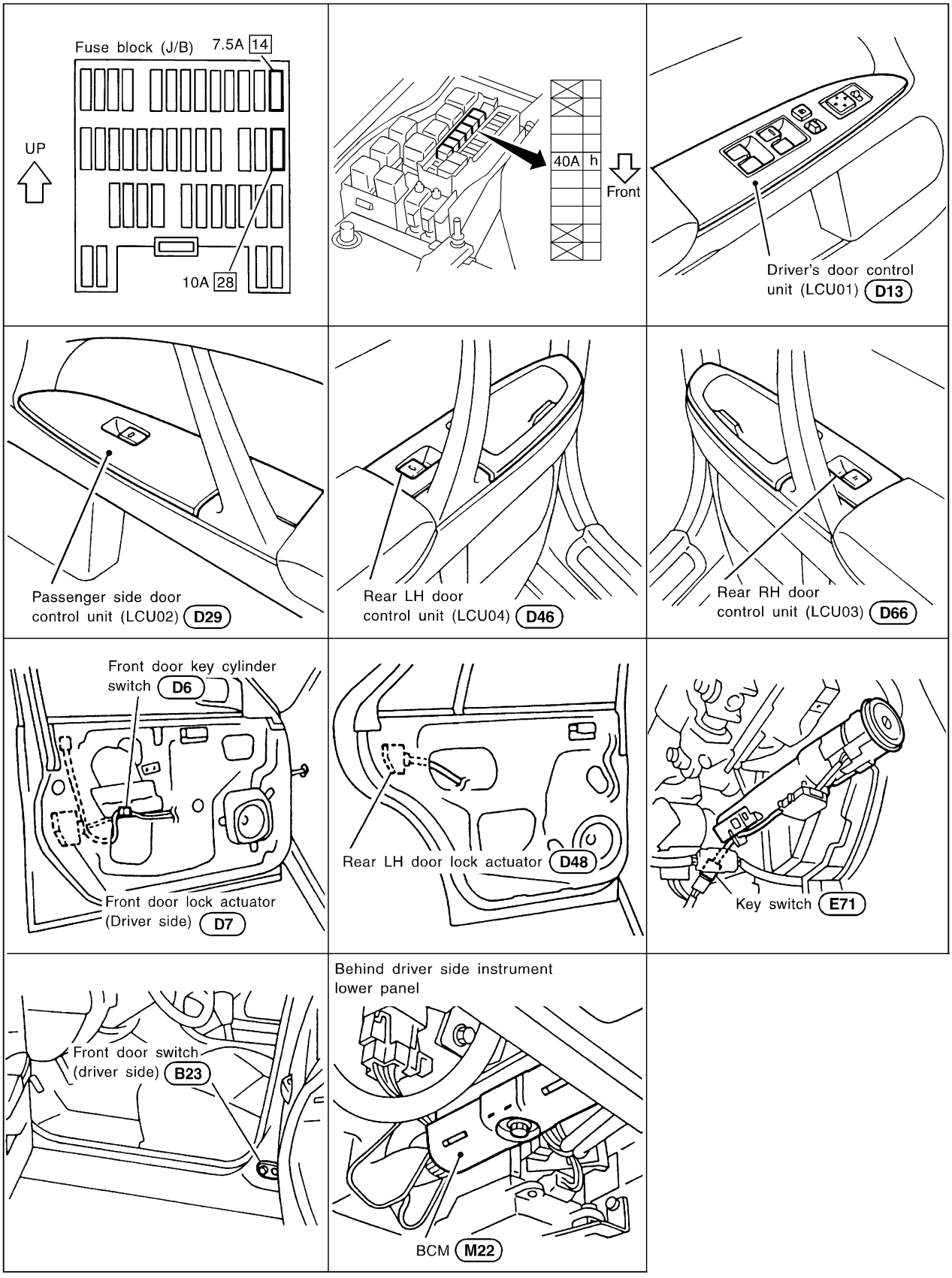
**CHECK ENCODER**
Measure voltage between LCU01/LCU02 connectors terminal ⑩ and ground with oscilloscope when power window is in automatic closing operation.

NG → Replace power window regulator for malfunctioning portion.

OK ↓

Replace LCU for malfunctioning portion.

## Component Parts and Harness Connector Location




SEL870W

## System Description

### POWER SUPPLY AND GROUND

Power is supplied at all times
- through 10A fuse [No. 28, located in the fuse block (J/B)]
- to key switch terminal ③ .

Power is supplied to BCM terminal ㊾ through key switch terminal ④ when key switch is in ON position (key is inserted in the ignition key cylinder).
BCM is connected to LCU01, LCU02, LCU03 and LCU04 as DATA LINE A-1 or A-2.
When door switch is in OPEN position, ground is supplied
- to BCM terminal ㉜ or ㊲
- through front LH or RH door switch terminal ① .

When door is unlocked, ground is supplied
- to each door LCU terminal ⑤
- from terminal ② of each door unlock sensor.

When the door is locked with the key, ground is supplied
- to LCU01 or LCU02 terminal ①
- from terminal ③ of the key cylinder switch LH or
- from terminal ① of the key cylinder switch RH
- through body grounds (M14) and (M47).

When the door is unlocked with the key, ground is supplied
- to BCM terminal ㉛ or ㉗
- from terminal ① of the key cylinder switch LH or
- from terminal ③ of the key cylinder switch RH
- through body grounds (M14) and (M47).

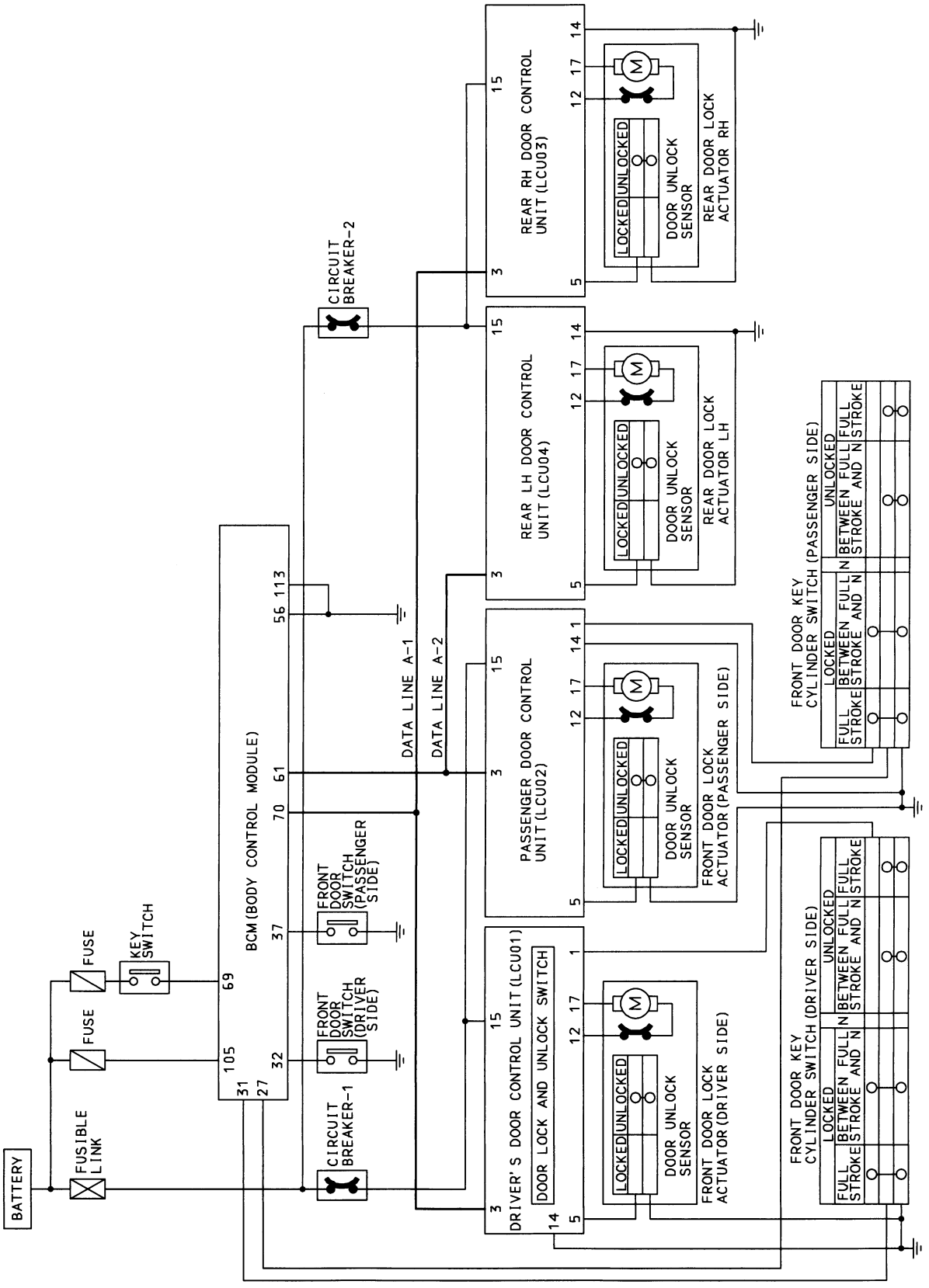
When lock/unlock signal is sent to BCM or LCU, BCM sends a lock/unlock signal to LCUs via DATA LINE A-1 or A-2. LCUs then supply power and ground to each door lock actuator.

### OPERATION

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

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

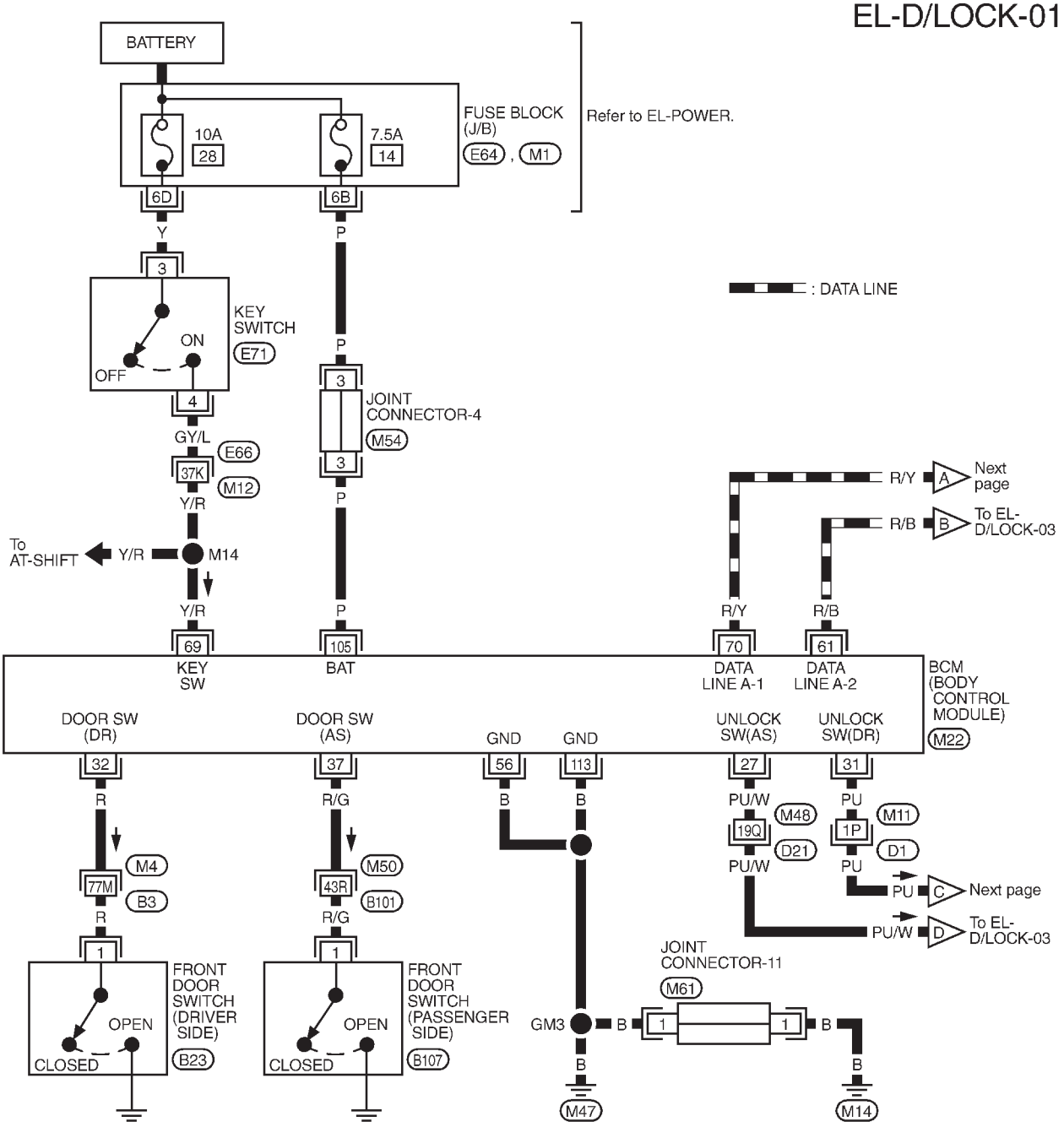
## Schematic

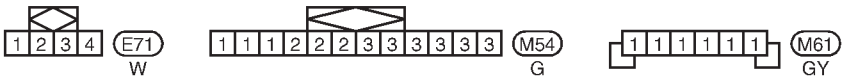


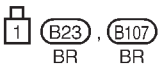

TEL148M

## Wiring Diagram — D/LOCK —

EL-D/LOCK-01



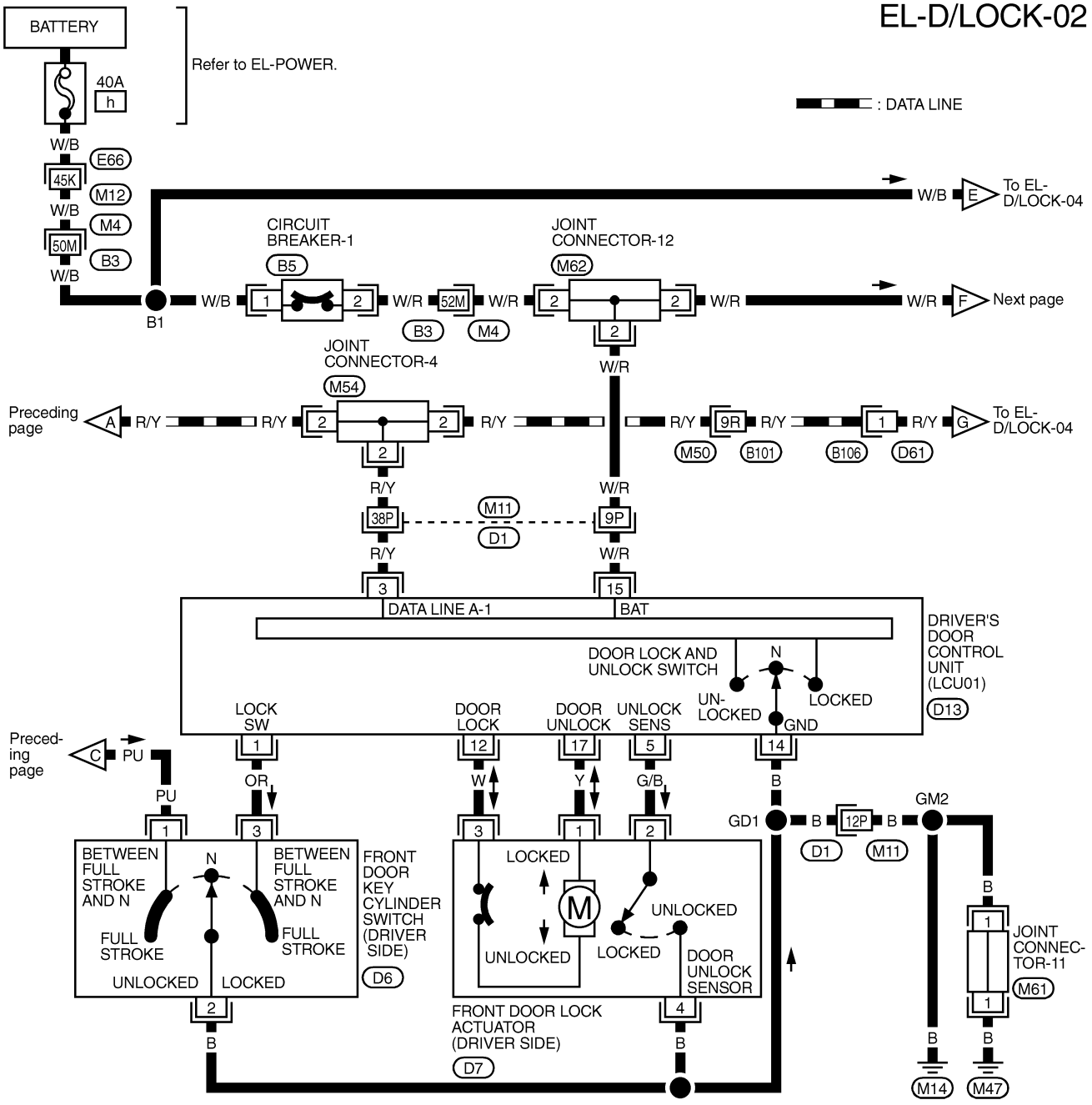



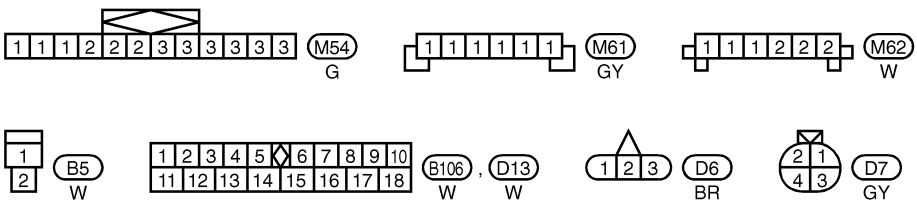

REFER TO THE FOLLOWING.
M4, M50, E66, D1,
D21 -SUPER MULTIPLE JUNCTION (SMJ)
M1, E64 -FUSE BLOCK-JUNCTION BOX (J/B)
M22 -ELECTRICAL UNITS

TEL149M

## Wiring Diagram — D/LOCK — (Cont'd)

EL-D/LOCK-02



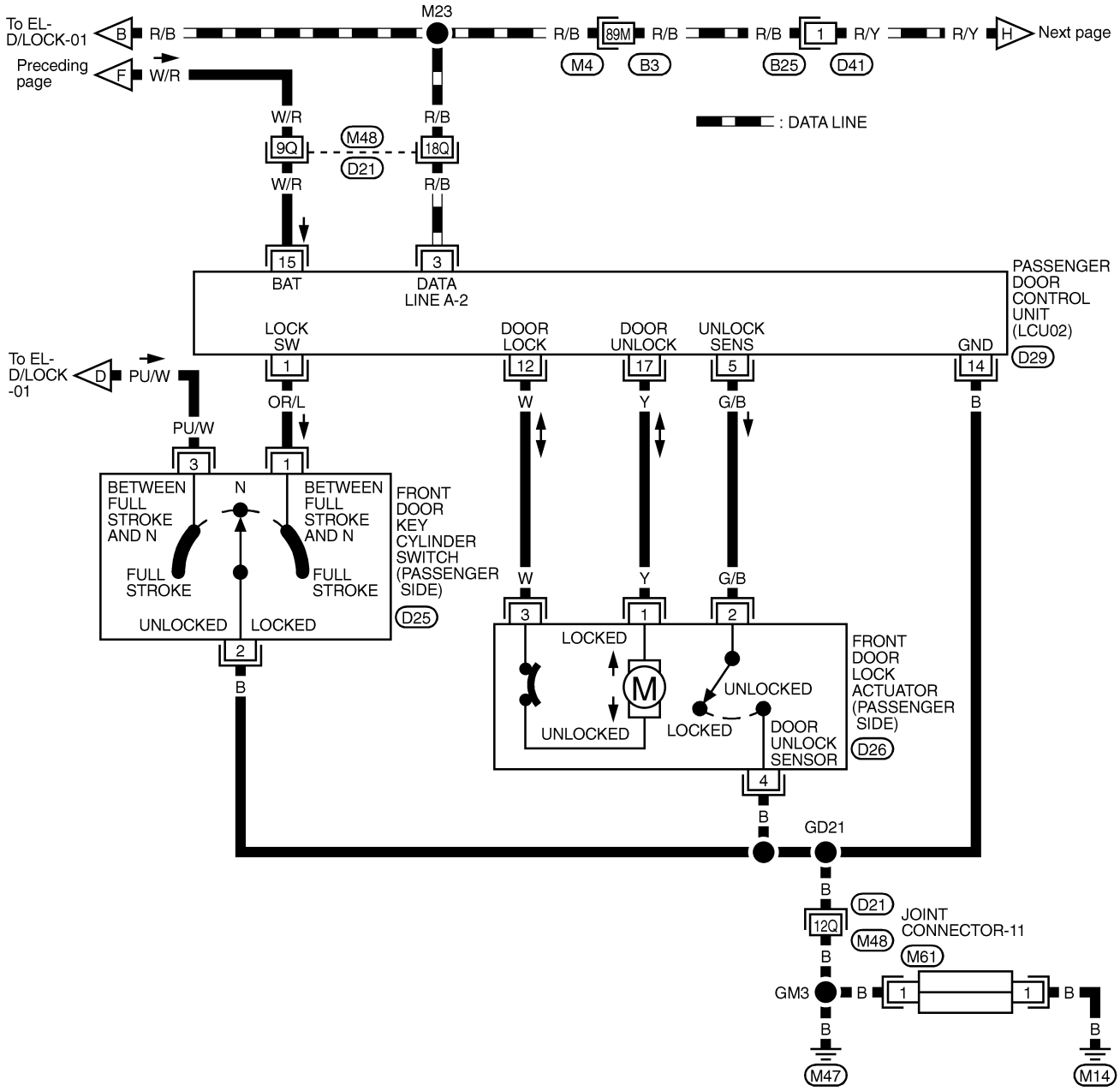



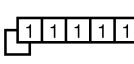

REFER TO THE FOLLOWING.
M4 , M50 , E66 , D1
-SUPER MULTIPLE JUNCTION (SMJ)

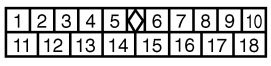
TEL150M

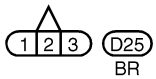
## Wiring Diagram — D/LOCK — (Cont'd)

EL-D/LOCK-03



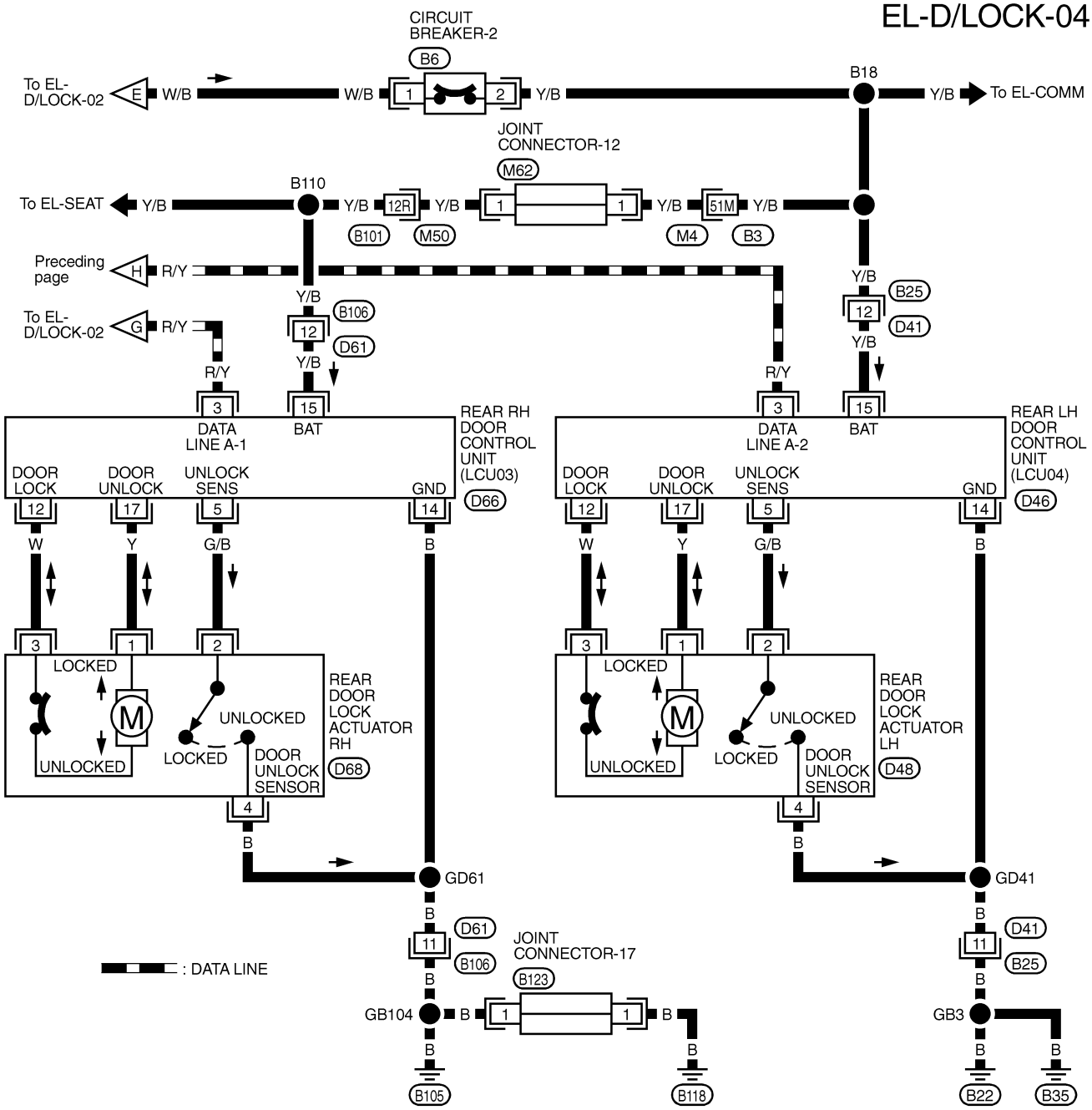


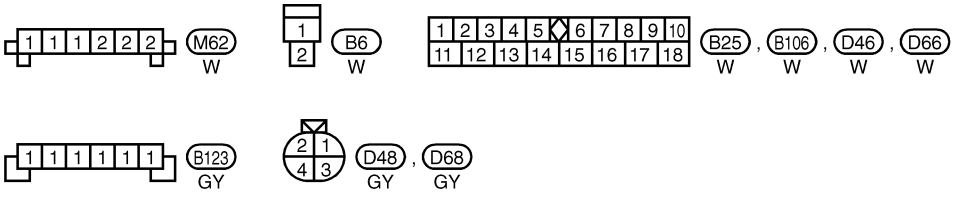
REFER TO THE FOLLOWING.
M4 , D21 -SUPER MULTIPLE JUNCTION (SMJ)

TEL151M

## Wiring Diagram — D/LOCK — (Cont'd)

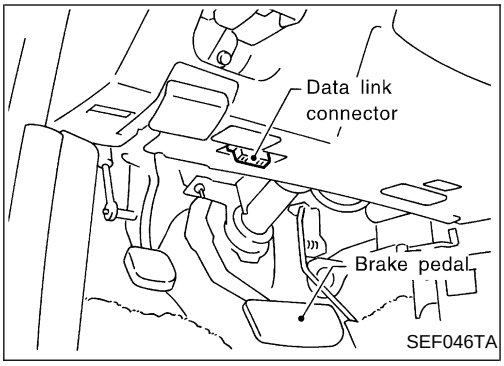
EL-D/LOCK-04




REFER TO THE FOLLOWING.
M4 , M50 -SUPER MULTIPLE JUNCTION (SMJ)

TEL152M

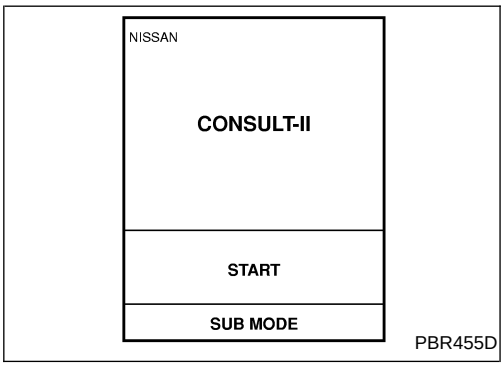


SEF046TA

# CONSULT-II

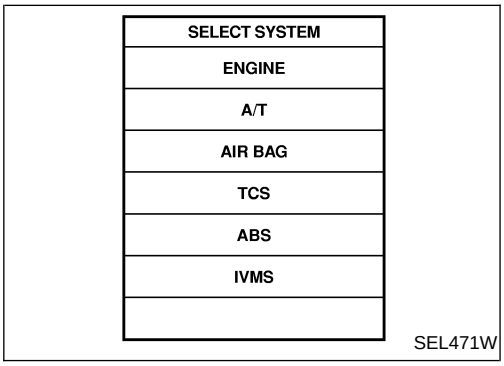
## CONSULT-II INSPECTION PROCEDURE

1. Turn ignition switch “OFF”.
2. Connect “CONSULT-II” to Data link connector.



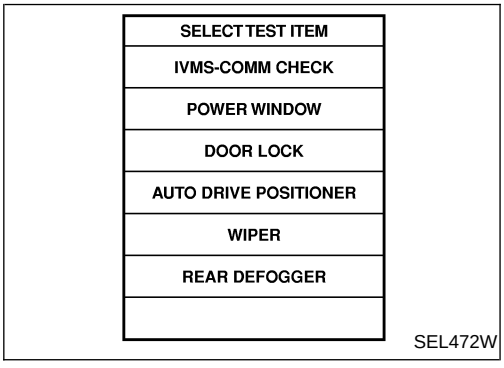
PBR455D

3. Turn ignition switch “ON”.
4. Touch “START”.



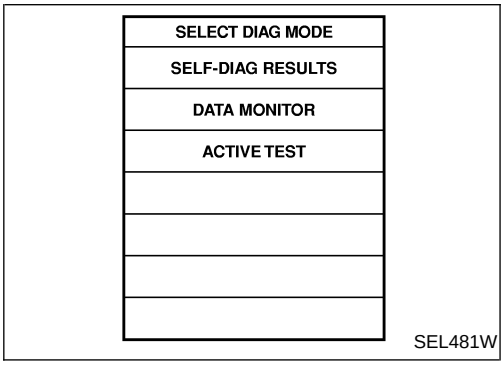
SEL471W

5. Touch “IVMS”.



SEL472W

6. Touch “DOOR LOCK”.

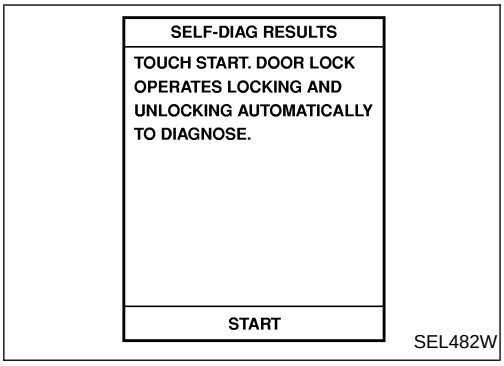


SEL481W

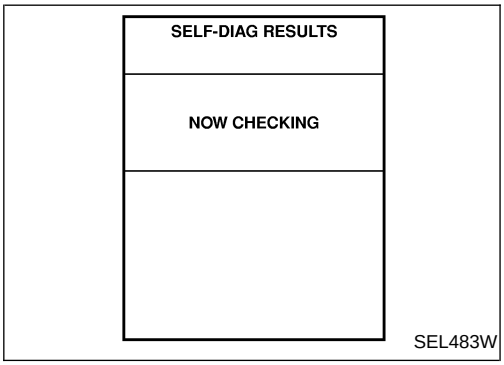
- DATA MONITOR, ACTIVE TEST, and SELF-DIAGNOSIS are available for the power door lock.

## CONSULT-II (Cont'd)

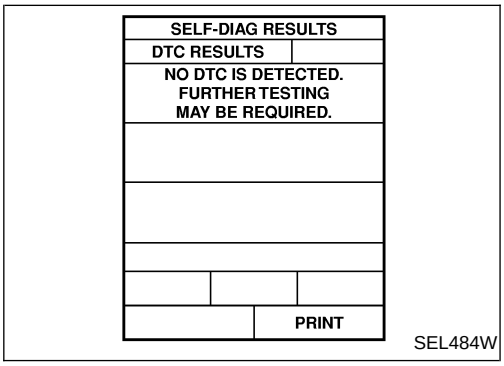
### HOW TO PERFORM SELF-DIAGNOSIS



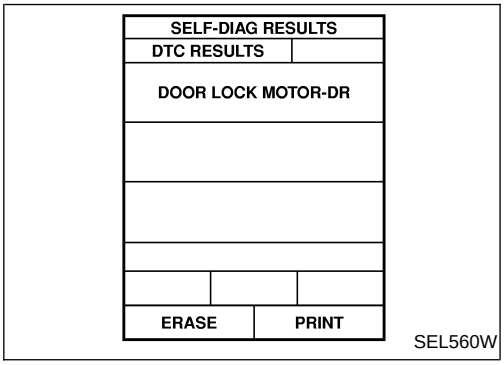

1. Choose "DOOR LOCK" in SELECT TEST ITEM.
2. Touch "SELF-DIAG RESULTS" of SELECT DIAG MODE.
3. Touch "START".




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




- When no malfunction is detected.

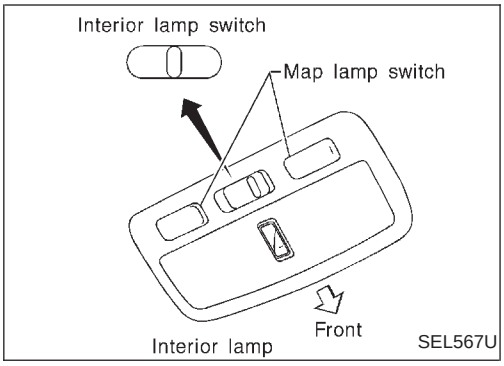



- When malfunction is detected.
  A summary of diagnostic results is given in the following chart.

## CONSULT-II (Cont'd)

### SELF DIAGNOSTIC RESULT LIST

| Diagnostic result | Explanation | Diagnostic procedure | Reference page |
|---|---|---|---|
| DOOR LOCK MOTOR-DR | The circuit for the driver side door lock actuator/unlock sensor is malfunctioning. | Procedure 5 (Door unlock sensor check) | EL-351 |
| DOOR LOCK MOTOR-AS | The circuit for the passenger side door lock actuator/unlock sensor is malfunctioning. | | |
| DOOR LOCK MOTOR-RR/RH | The circuit for the rear RH side door lock actuator/unlock sensor is malfunctioning. | Procedure 6 (Door lock actuator check) | EL-352 |
| DOOR LOCK MOTOR-RR/LH | The circuit for the rear LH side door lock actuator/unlock sensor is malfunctioning. | | |
| NO DTC IS DETECTED/ FURTHER TESTING MAY BE REQUIRED. | No malfunction in the above items | — | — |




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

### HOW TO PERFORM MODE III

Condition
- Ignition switch: OFF
- **Lighting switch: 1st**
- Rear window defogger switch: OFF
- Doors: Closed
- Interior lamp switch: AUTO
- Driver side map lamp switch: OFF
- Passenger side map lamp switch: OFF
- Selector lever: “P” range

↓

Turn ignition switch “ON”.

↓

Return ignition switch to “ACC” and press rear window defogger switch more than 10 times during 10 seconds.

↓

Self-diagnostic results indicator lamps should turn on.

↓

**Rear window defogger switch holds off**.

↓

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

↓

Indicator lamps turn off.

↓ After a second

Mode III is performed.

↓

Turn ignition switch “OFF”.

↓

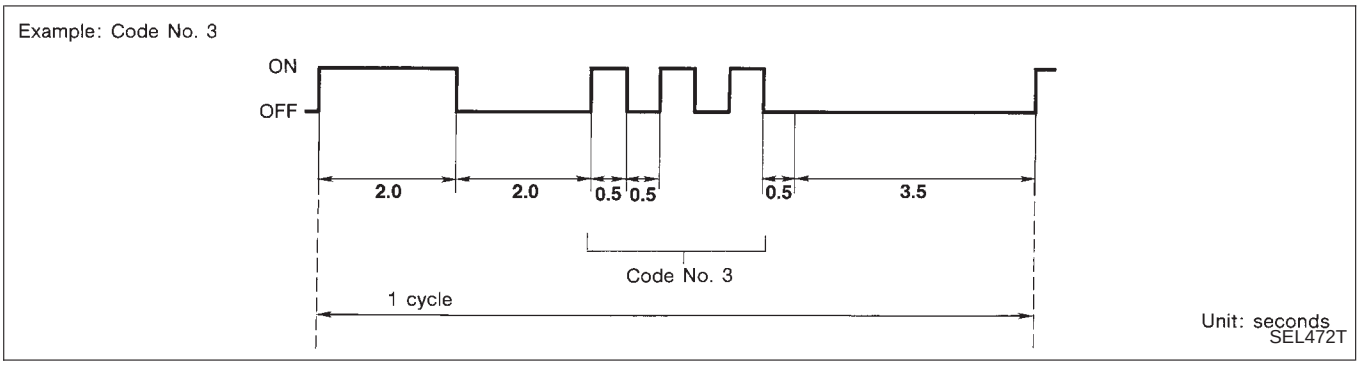
DIAGNOSIS END*1 (**Be sure to turn off the lighting switch.**)

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

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

### DESCRIPTION

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



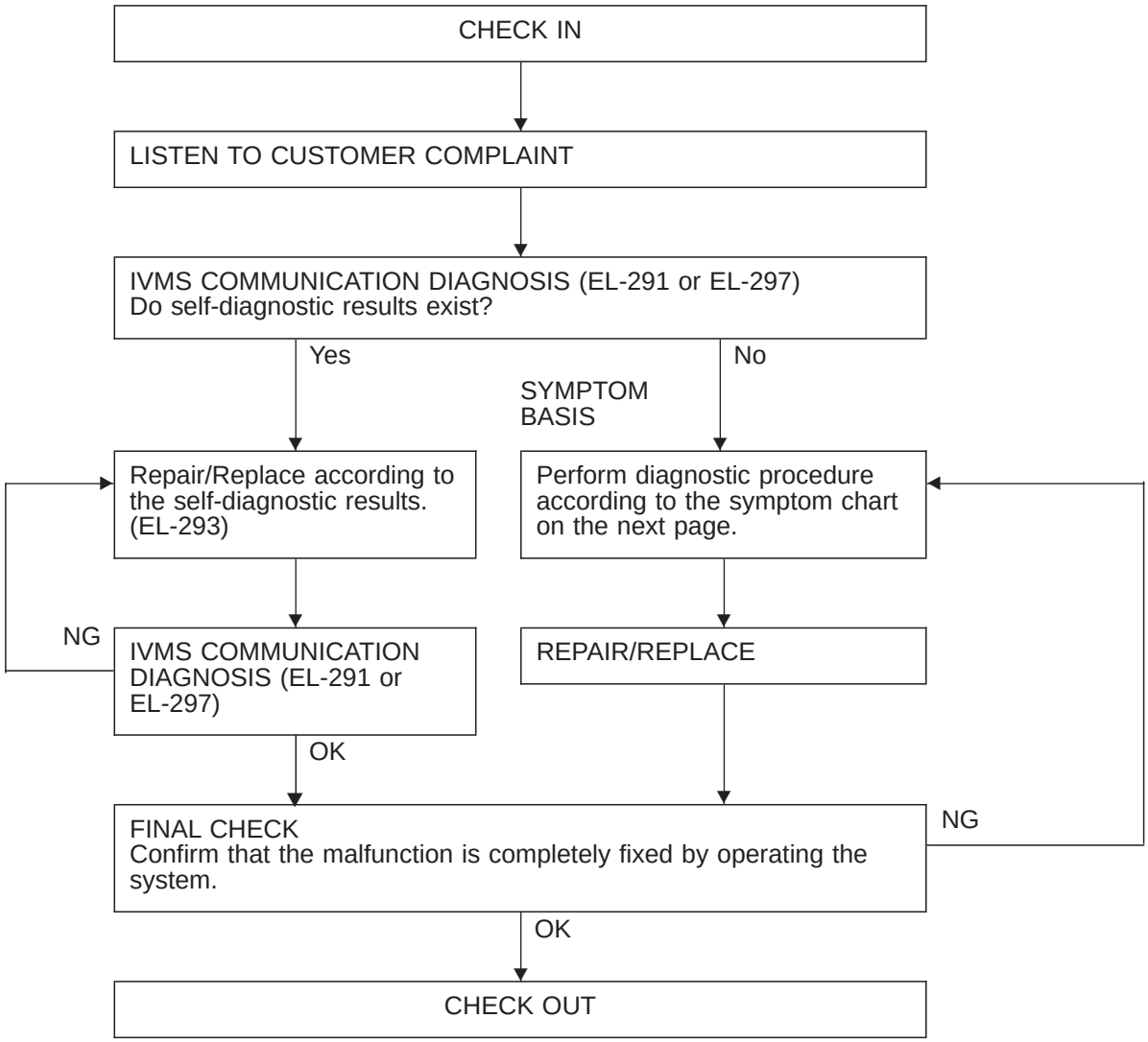

After indicator lamp turns ON for 2 seconds and then turns OFF, it flashes to indicate a malfunction code. For example, the indicator lamp goes on and off for 0.5 seconds three times. This indicates malfunction code "3".

### MALFUNCTION CODE TABLE

| Code No. | Detected items | Diagnostic procedure | Reference page |
|---|---|---|---|
| 1 | Driver door lock actuator/unlock sensor | Procedure 5 (Door unlock sensor check) | EL-351 |
| 2 | Passenger door lock actuator/unlock sensor | | |
| 3 | Rear RH door lock actuator/unlock sensor | Procedure 6 (Door lock actuator check) | EL-352 |
| 4 | Rear LH door lock actuator/unlock sensor | | |
| 9 | No malfunction in the above items | — | — |

## Trouble Diagnoses

### WORK FLOW




**NOTICE:**

- **When LCU connectors are disconnected for more than 1 minute such as during trouble diagnoses, the "disconnected" data will be memorized by the BCM. (While BCM memorizes the "disconnected" data, IVMS communication diagnosis of CONSULT-II will display "PAST NO RESPONSE".) Therefore, after reconnecting the LCU connectors, erase the memory.**
- **To erase the memory, perform the procedure below.**
  **Erase the memory with CONSULT-II (Refer to EL-291.) or turn the ignition switch to "OFF" position and remove 7.5A fuse [No. 14 located in the fuse block (J/B)].**

## Trouble Diagnoses (Cont'd)

### SYMPTOM CHART

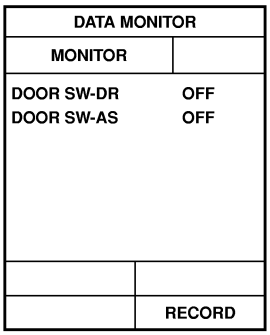
| PROCEDURE | Self-diagnosis | | Diagnostic procedure | | | | | | — |
|---|---|---|---|---|---|---|---|---|---|
| REFERENCE PAGE | EL-340 | EL-342 | EL-346 | EL-347 | EL-348 | EL-349 | EL-351 | EL-352 | EL-292 |
| SYMPTOM | CONSULT-II | On board diagnosis (Mode III) | Procedure 1 (Door switch check) | Procedure 2 (Key switch check) | Procedure 3 (Lock & unlock switch check) | Procedure 4 (Door key cylinder switch check) | Procedure 5 (Door unlock sensor check) | Procedure 6 (Door lock actuator check) | Wake-up diagnosis |
| Key reminder door system does not operate properly. | X | X | X | X | | | X | X | |
| Specific door lock actuator does not operate. | X | X | | | | | X | X | |
| Power door lock does not operate with door lock & unlock switch on power window main switch. | X | X | | | X | | | | X (LCU01) |
| Power door lock does not operate with front door key cylinder operation. | X | X | | | | X | | | X (LCU01, LCU02) |
| Power door lock does not operate with front door lock knob switch. | X | X | | | | | X | | X (LCU01, LCU02) |

# Trouble Diagnoses (Cont'd)

## DIAGNOSTIC PROCEDURE 1

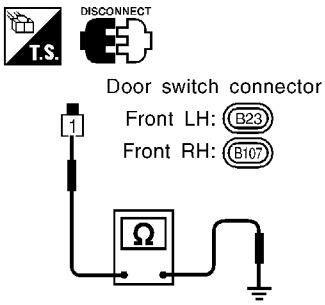
### (Front door switch check)

A




SEL524W

B




SEL914U

**CHECK FRONT DOOR SWITCH INPUT SIGNAL.**

A CONSULT-II

See "DOOR SW" in DATA MONITOR mode.
When door is open:
**DOOR SW ON**
When door is closed:
**DOOR SW OFF**

OR

ON BOARD

Check front door switches in Switch monitor (Mode II) mode.
(Refer to On board Diagnosis, EL-299.)

Refer to wiring diagram in EL-335.

OK → Door switch is OK.

NG ↓

B

**CHECK DOOR SWITCH.**

1. Disconnect door switch connector.
2. Check continuity between terminal and switch body ground.

| | Terminals | Condition | Continuity |
|---|---|---|---|
| Front door switch | ① - Ground | Pressed | No |
| | | Released | Yes |

NG → Replace door switch.

OK ↓

Check the following.
- Door switch ground condition
- Harness for open or short between door switch and BCM

# Trouble Diagnoses (Cont'd)

## DIAGNOSTIC PROCEDURE 2

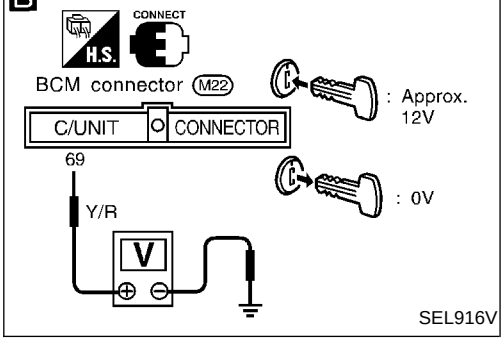
### [Key switch (Insert) check]

A

| DATA MONITOR | |
|---|---|
| MONITOR | |
| IGN KEY SW | ON |
| | |
| | RECORD |

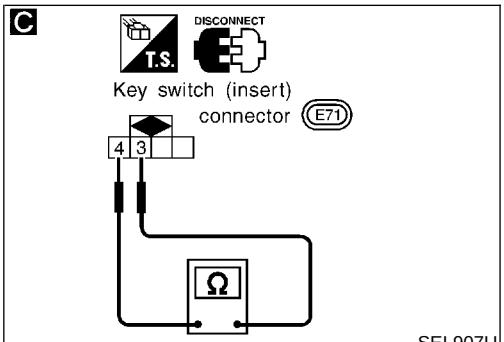
SEL532W

B




SEL916V

C




SEL907U

**CHECK KEY SWITCH INPUT SIGNAL.**

A CONSULT-II

See "IGN KEY SW" in DATA MONITOR mode.

When key is inserted in ignition key cylinder:

**IGN KEY SW ON**

When key is removed from ignition key cylinder:

**IGN KEY SW OFF**

OK → Ignition key switch is OK.

OR

B TESTER

Check voltage between BCM terminal 69 and ground.

| Condition of key switch | Voltage V |
|---|---|
| Key is inserted. | Approx. 12 |
| Key is removed. | 0 |

Refer to wiring diagram in EL-335.

NG ↓

C

**CHECK KEY SWITCH.**

1. Disconnect key switch connector.
2. Check continuity between key switch (insert) terminals ③ and ④ when key is inserted in ignition key cylinder and key is removed from ignition key cylinder.

| Condition | Continuity |
|---|---|
| Key is inserted. | Yes |
| Key is removed. | No |

NG → Replace key switch (insert).

OK ↓

Check the following.

- 10A fuse [No. 28, located in fuse block (J/B)]
- Harness for open or short between key switch and fuse
- Harness for open or short between BCM and key switch

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 3

**(Lock & unlock switch check)**

A

| DATA MONITOR | |
|---|---|
| MONITOR | |
| DOOR LK SW-LK | OFF |
| DOOR LK SW-UN | OFF |
| | |
| | RECORD |

SEL561W

**CHECK DOOR LOCK & UNLOCK SWITCH INPUT SIGNAL.**

A CONSULT-II

See "DOOR LK SW-LK or UN" in DATA MONITOR mode.
When lock & unlock switch is turned to lock:
**DOOR LK SW-LK ON**
When lock & unlock switch is turned to unlock:
**DOOR LK SW-UN ON**

OK → Lock & unlock switch is OK.

OR

ON BOARD

Check door lock & unlock switch operation in Switch monitor (Mode II) mode. (Refer to On board Diagnosis, EL-299.)

NG → Replace driver door control unit (LCU01).

# Trouble Diagnoses (Cont'd)

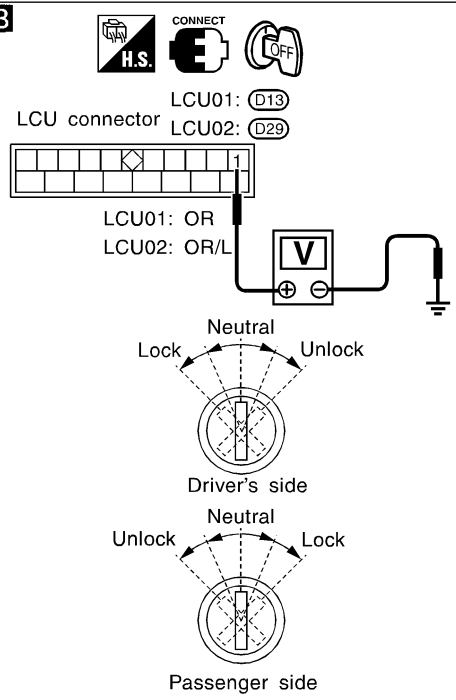
## DIAGNOSTIC PROCEDURE 4-(1)
## (Door key cylinder lock switch check)

A

| DATA MONITOR | |
|---|---|
| MONITOR | |
| KEY CYL LK-DR | OFF |
| KEY CYL LK-AS | OFF |
| | |
| | RECORD |

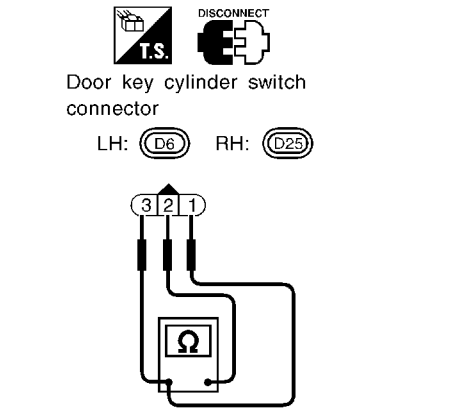
SEL537W

B




SEL871W

C




① : Door lock switch terminal (RH)

② : Ground terminal

③ : Door lock switch terminal (LH)

SEL909U

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

A CONSULT-II

See "KEY CYL LK" in DATA MONITOR mode.

**"KEY CYL LK" should be "ON" when key inserted in door key cylinder was turned to lock.**

OR

B TESTER

Check voltage between LCU01/02 terminal ① and ground.

| Key position | Voltage V |
|---|---|
| Neutral/Unlock | Approx. 5 |
| Lock | 0 |

Refer to wiring diagram in EL-336 or 337.

OK → Door key cylinder switch (lock) is OK.

NG ↓

C

**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: ③ - ②<br>RH: ① - ② | Neutral/Unlock | No |
| | Lock | Yes |

NG → Replace door key cylinder switch.

OK ↓

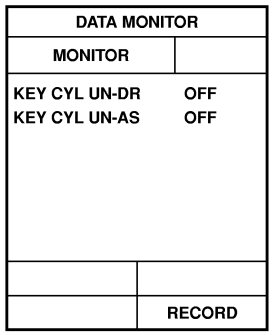
Check the following.

- Door key cylinder switch ground circuit
- Harness for open or short between LCU and door key cylinder switch

# Trouble Diagnoses (Cont'd)

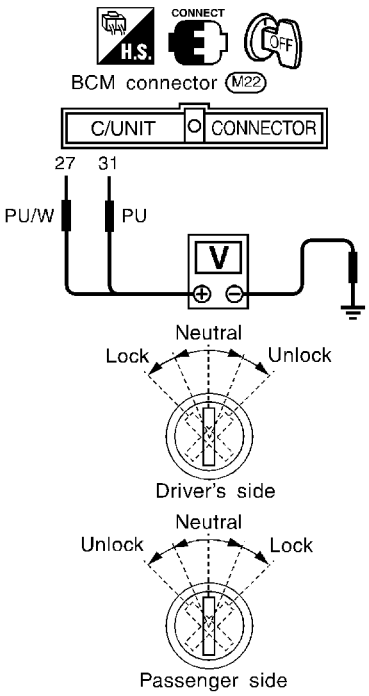
## DIAGNOSTIC PROCEDURE 4-(2)
## (Door key cylinder unlock switch check)

A



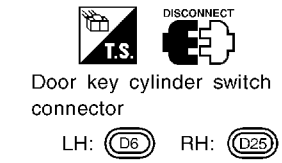

SEL538W

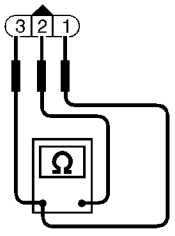
B




SEL952V

C




① : Door unlock switch terminal (LH)

② : Ground terminal

③ : Door unlock switch terminal (RH)

SEL913U

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

A CONSULT-II

See "KEY CYL UN" in DATA MONITOR mode.

**"KEY CYL UN" should be "ON" when key inserted in door key cylinder was turned to unlock.**

OK → Door key cylinder switch (unlock) is OK.

OR

B TESTER

Check voltage between BCM terminals ㉗ or ㉛ and ground.

| | Terminals ⊕ | Terminals ⊖ | Key position | Voltage V |
|---|---|---|---|---|
| LH | ㉛ | Ground | Neutral/Lock | Approx. 12 |
| | | | Unlock | 0 |
| RH | ㉗ | Ground | Neutral/Lock | Approx. 12 |
| | | | Unlock | 0 |

Refer to wiring diagram in EL-335.

NG ↓

C

**CHECK DOOR KEY CYLINDER SWITCH.**

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

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

NG → Replace door key cylinder switch.

OK ↓

Check the following.

- Door key cylinder switch ground circuit
- Harness for open or short between BCM and door key cylinder switch

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 5

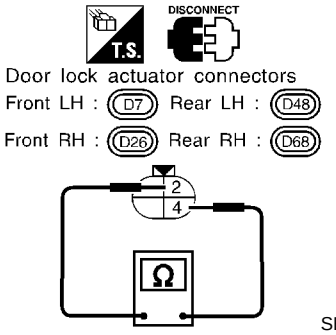
### (Door unlock sensor check)

A

| DATA MONITOR | |
|---|---|
| MONITOR | |
| LOCK SIG-DR | UNLK |
| LOCK SIG-AS | UNLK |
| LOCK SG-RR/RH | UNLK |
| LOCK SG-RR/LH | UNLK |
| | |
| | RECORD |

SEL525W

B




SEL025V

**CHECK DOOR UNLOCK SENSOR INPUT SIGNAL.**

A CONSULT-II

See "LOCK SIG" in DATA MONITOR mode.
When door is locked:
**LOCK SIG LOCK**
When door is unlocked:
**LOCK SIG UNLK**

OK → Door unlock sensor is OK.

OR

ON BOARD

Check door lock knob operation in Switch monitor (Mode II) mode.
(Refer to On board Diagnosis, EL-299.)

Refer to wiring diagram in EL-336, 337 or 338.

NG ↓

B

**CHECK DOOR UNLOCK SENSOR.**

1. Disconnect door lock actuator connector.
2. Check continuity between door lock actuator (door unlock sensor) terminals ② and ④.

| Condition | Continuity |
|---|---|
| Locked | No |
| Unlocked | Yes |

NG → Replace door lock actuator.

OK ↓

Check the following.
- Harness for open or short between LCU and door unlock sensor
- Ground circuit for door unlock sensor

# Trouble Diagnoses (Cont'd)

## DIAGNOSTIC PROCEDURE 6

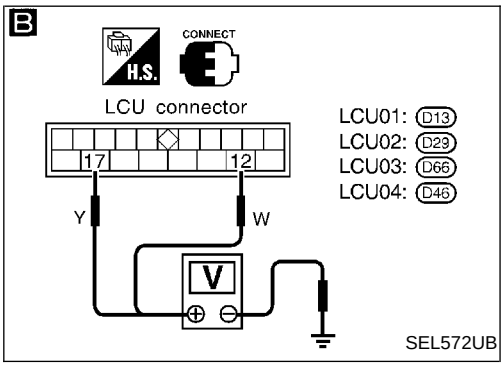
## (Door lock actuator check)

A

| ACTIVE TEST | |
|---|---|
| DR LOCK MTR-DRVR | OFF |
| OR | |
| DR LOCK MTR-ASST | OFF |
| DR LOCK MTR-R/RH | OFF |
| DR LOCK MTR-R/LH | OFF |
| | |
| | |
| | |
| LOCK | UNLOCK |

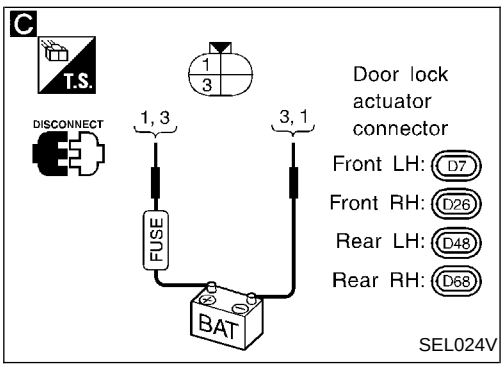
SEL526W

B




SEL572UB

C




SEL024V

**CHECK DOOR LOCK MOTOR OPERATION.**

A CONSULT-II

See "DR LOCK MTR" in ACTIVE TEST mode.
Perform operation shown on display.
**Door lock motor should operate.**

OR

ON BOARD

Perform On board Diagnosis Mode III. (Refer to EL-342.)
**Door lock motor should operate.**

OK → Door lock actuator is OK.

NG ↓

B

Check voltage between LCU connector terminals ⑰ or ⑫ and body ground.

| Door lock operation | Terminals ⊕ | Terminals ⊖ | Voltage |
|---|---|---|---|
| Lock | ⑫ | Ground | Battery voltage |
| Unlock | ⑰ | Ground | |

Refer to wiring diagram in EL-336, 337 or 338.

NG → Replace LCU for malfunctioning portion.

OK ↓

C

**CHECK DOOR LOCK ACTUATOR.**

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

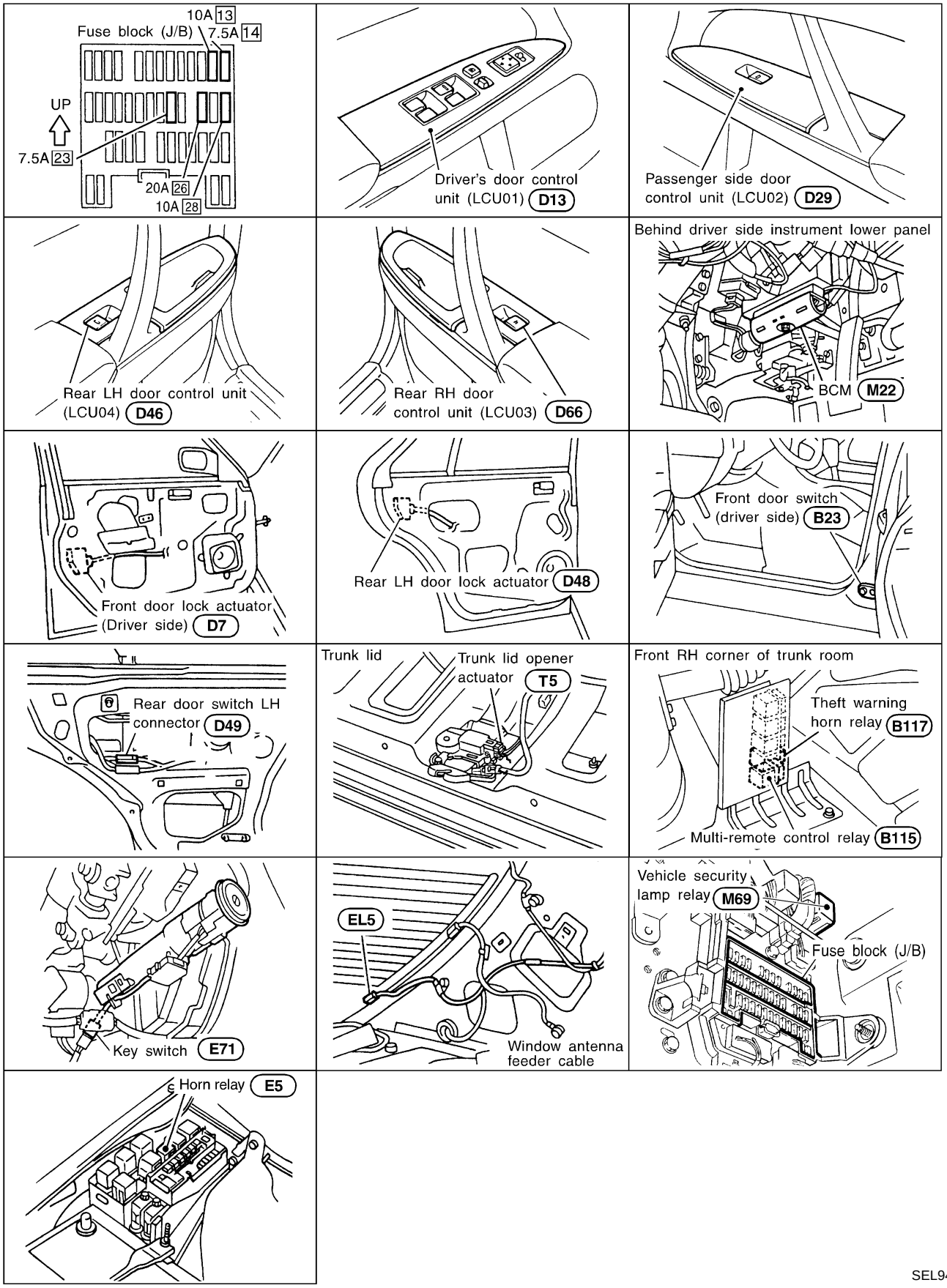
| Door lock operation | Terminals ⊕ | Terminals ⊖ |
|---|---|---|
| Lock | ③ | ① |
| Unlock | ① | ③ |

NG → Replace door lock actuator.

OK ↓

Check harness for open or short between door lock actuator and LCU.

## Component Parts and Harness Connector Location




SEL944WA

## System Description

### POWER SUPPLY AND GROUND

BCM is connected to LCU01, LCU02, LCU03 and LCU04 as DATA LINE A-1 or A-2.
Power is supplied at all times
- through 10A fuse [No. 28, located in the fuse block (J/B)]
- to key switch terminal ③.

When the key switch is in ON position (key is inserted in ignition key cylinder), power is supplied
- through key switch terminal ④
- to BCM terminal ⑲.

When any of the four door switches is in OPEN position, ground is supplied
- to BCM terminal ㉜ (㊲, ㉝, ㉘)
- through door switches body grounds.

When a door is unlocked, each door LCU terminal ⑤ receives a ground signal from terminal ② of each door unlock sensor.
Remote controller signal input
- through window antenna
- to BCM terminal ㊾.

The multi-remote control system controls operation of the
- power door lock
- trunk lid opener
- panic alarm
- hazard and horn reminder

### OPERATING PROCEDURE

BCM can receive signals from remote controller when key switch is in OFF position (key is not in cylinder). It then sends the signals to LCUs as DATA LINE A-1 or A-2.

### Power door lock operation

When BCM receives a LOCK signal from remote controller, BCM will then send a LOCK signal
- from its terminals ⑳ and ㊶ (DATA LINES A-1 and A-2)
- to each door control unit (LCU) terminal ③.

When an UNLOCK signal is sent from remote controller once, driver's door will be unlocked.
Then, if an UNLOCK signal is sent from remote controller again within 3 seconds, all other doors will be unlocked. For detailed description, refer to "POWER DOOR LOCK — IVMS" (EL-333).

### Hazard and horn reminder

Power is supplied at all times
- through 10A fuse [No. 13, located in the fuse block (J/B)]
- to multi-remote control relay terminals ①, ③ and ⑥ and
- through 15A fuse (No. 64, located in the fusible link and fuse box)
- to horn relay terminal ①.

When BCM receives a LOCK or UNLOCK signal from remote controller, ground is supplied
- to multi-remote control relay terminal ②
- through BCM terminal ⑥ and
- to horn relay terminal ②
- through BCM terminal ㊶.

Multi-remote control relay and horn relay are now energized, and hazard warning lamps flash and horn sounds as a reminder.)

Hazard and horn reminder has a horn chirp mode and a non-horn chirp mode.

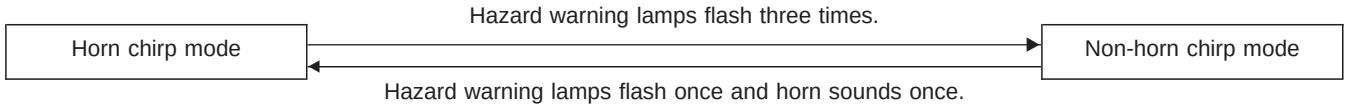
**Operating function of hazard and horn reminder**

| | Horn chirp mode | | Non-horn chirp mode | |
|---|---|---|---|---|
| | Hazard warning lamps | Horn | Hazard warning lamps | Horn |
| LOCK | Twice | Once | Twice | — |
| UNLOCK | Once | — | — | — |

## System Description (Cont'd)

### How to change hazard and horn reminder

Horn chirp mode of hazard and horn reminder can be activated or deactivated by pressing LOCK and UNLOCK buttons of remote controller for more than 2 seconds at the same time. At this time, hazard warning lamps and horn turn on and off as follows.




### Trunk lid opener operation

Power is supplied at all times
- through 20A fuse [No. 26, located in the fuse block (J/B)]
- to trunk lid opener actuator terminal ①.

When a TRUNK OPEN signal is sent from remote controller without the ignition key inserted in the ignition key cylinder, if the trunk lid opener cancel switch is in the ON position, ground is supplied
- to trunk lid opener actuator terminal ②
- through trunk lid cancel switch terminals ① and ②, and
- through BCM terminal (109).

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

### Panic alarm operation

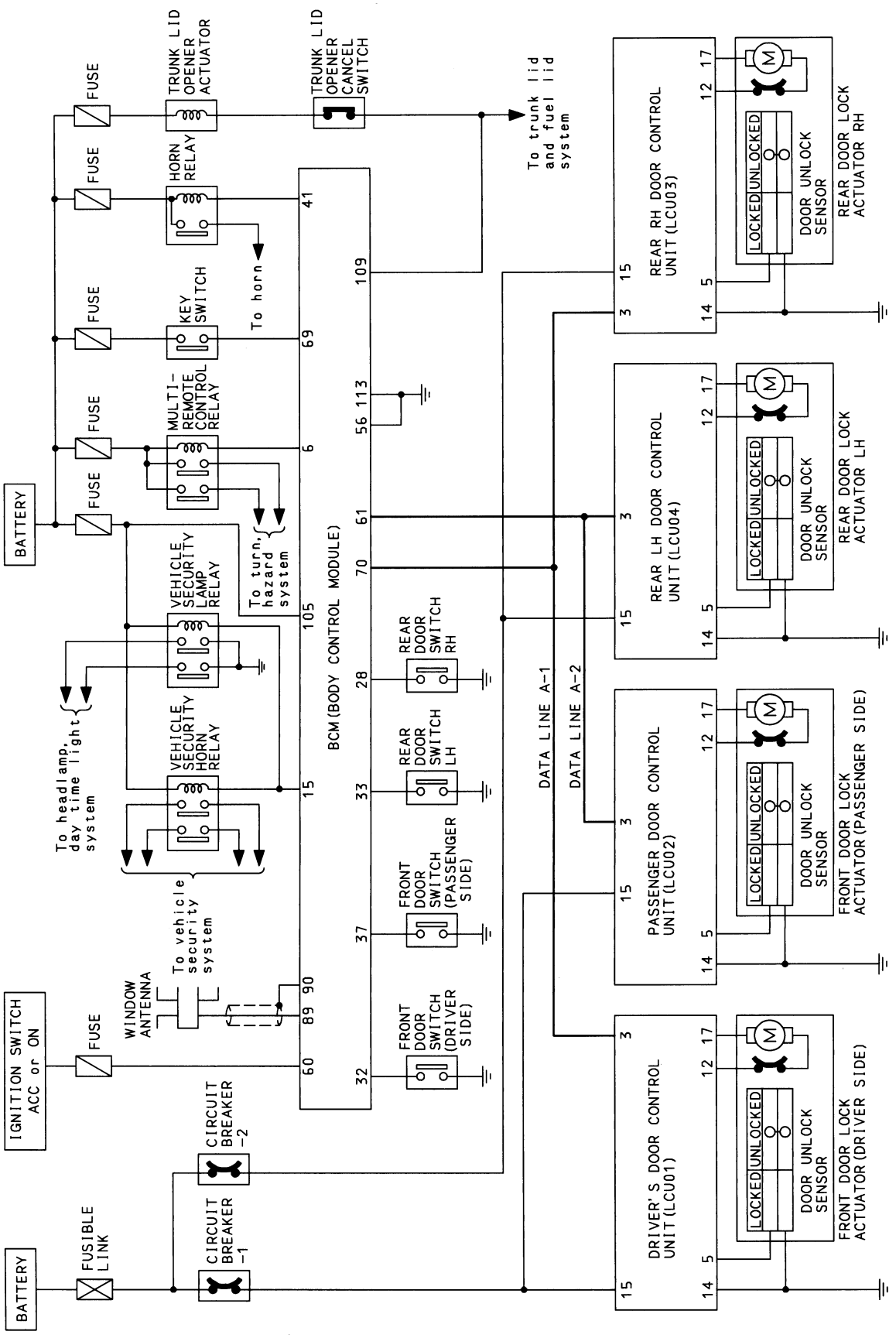
Power is supplied at all times
- through 7.5A fuse [No. 14, located in the fuse block (J/B)]
- to vehicle security horn relay terminal ① and vehicle security lamp relay terminal ①.

Vehicle security horn relay terminal ② and vehicle security lamp relay terminal ② are connected to BCM terminal ⑮.

Multi-remote control system activates horn and headlamps intermittently when an ALARM signal is sent from remote controller to multi-remote control system without the ignition key inserted in the ignition key cylinder.

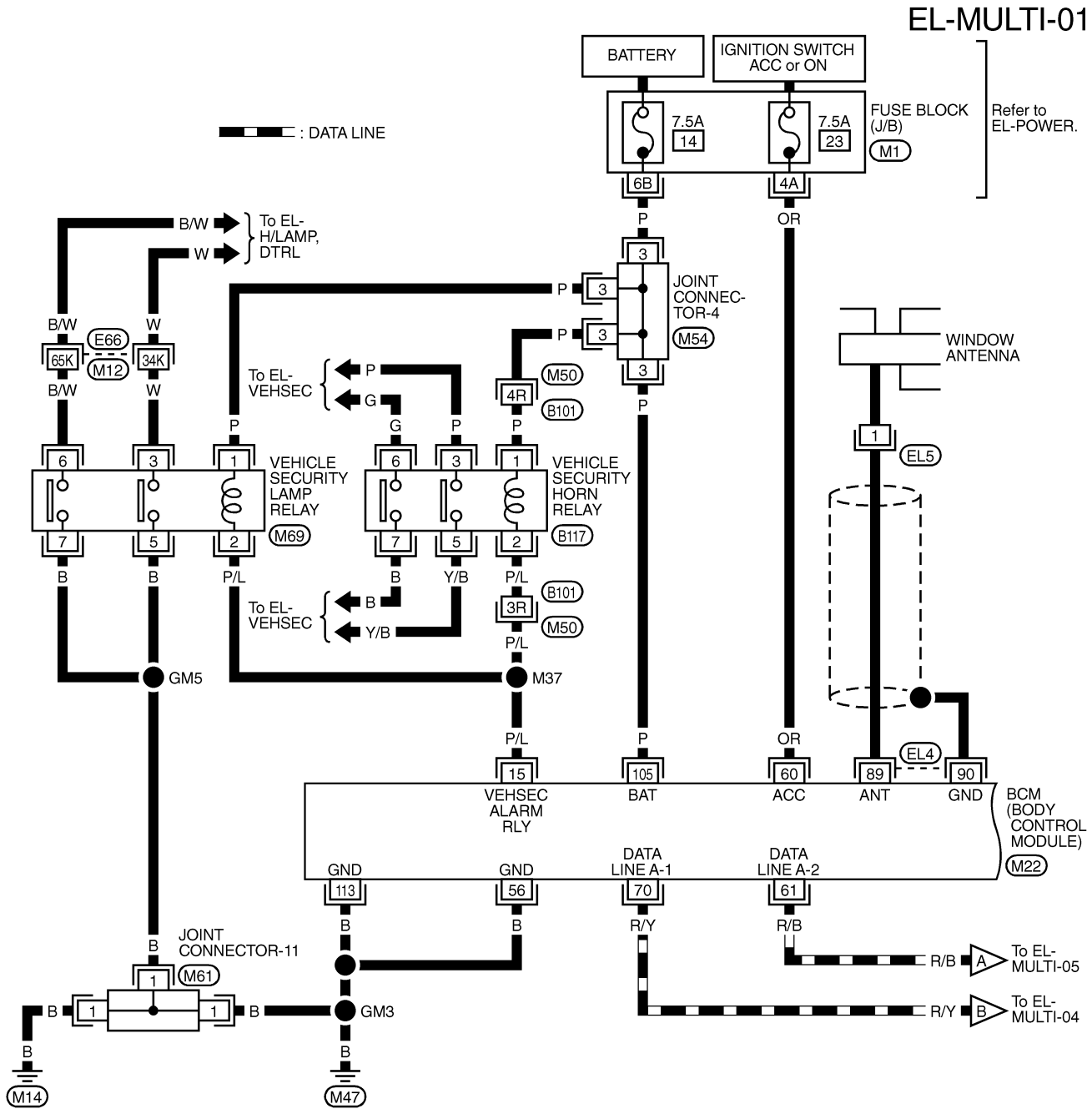
For detailed description, refer to "VEHICLE SECURITY SYSTEM — IVMS" (EL-416).

## Schematic




TEL752B

## Wiring Diagram — MULTI —




M54 G

M61 GY

M69 , B117 BR BR

EL4 * GY

EL5 * B

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

REFER TO THE FOLLOWING.

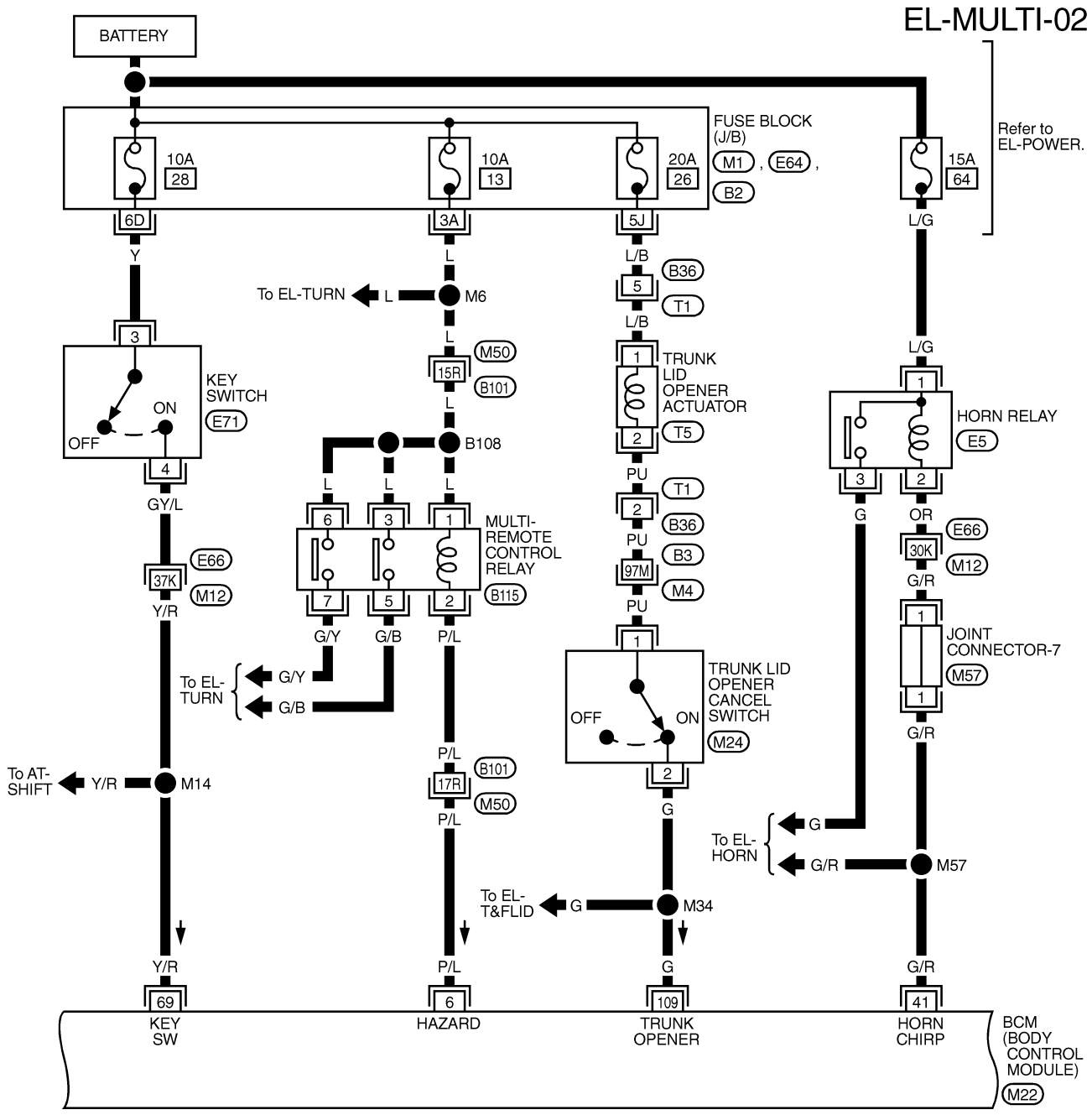
M50 , E66 -SUPER MULTIPLE JUNCTION (SMJ)

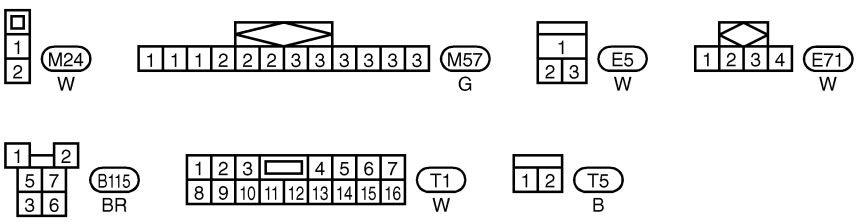
M1 -FUSE BLOCK-JUNCTION BOX (J/B)

M22 -ELECTRICAL UNITS

TEL753B

## Wiring Diagram — MULTI — (Cont'd)



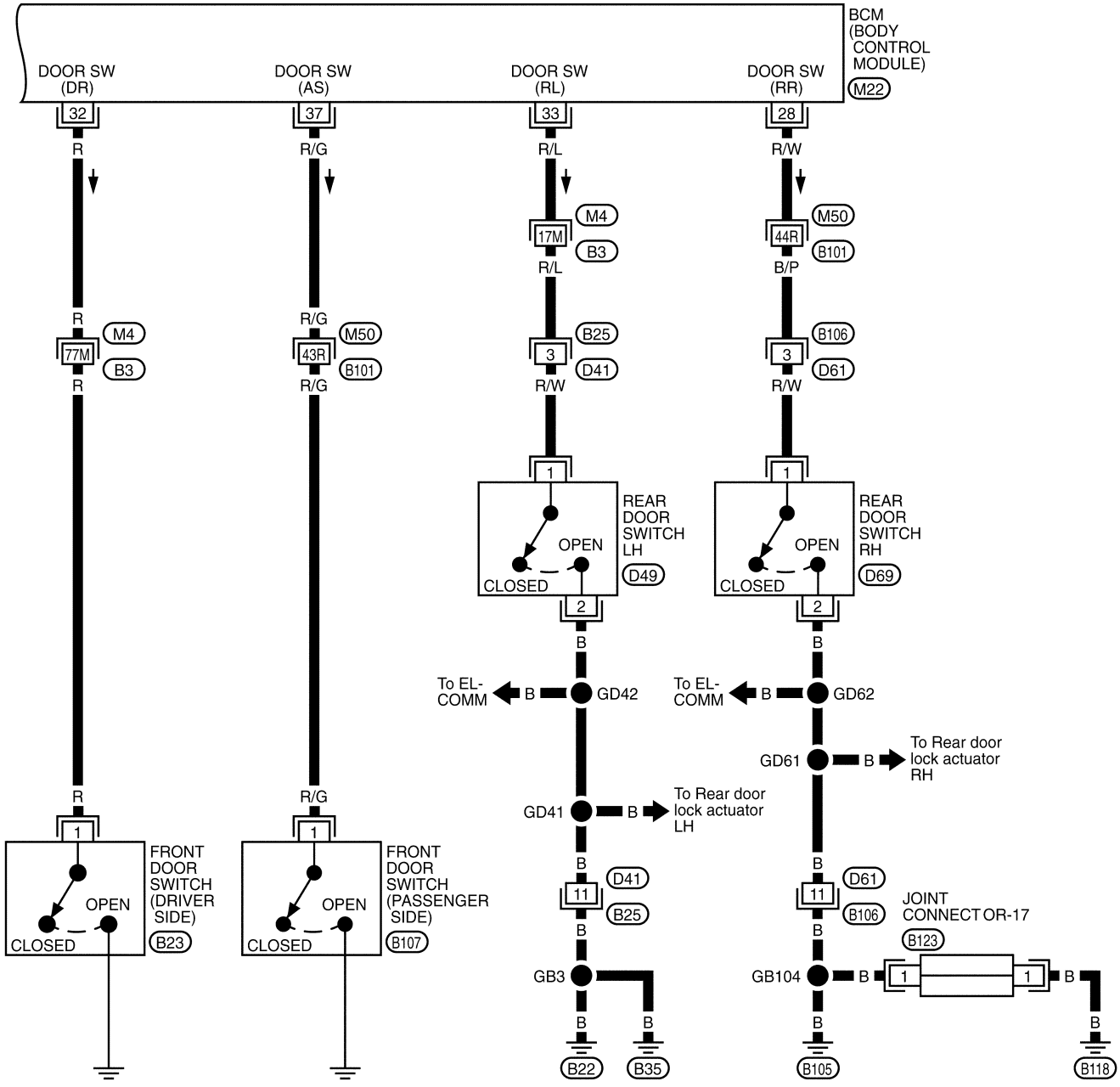



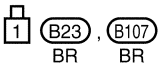

REFER TO THE FOLLOWING.
M4, E66, M50 -SUPER MULTIPLE JUNCTION (SMJ)
M1, E64, B2 -FUSE BLOCK-JUNCTION BOX (J/B)
M22 -ELECTRICAL UNITS

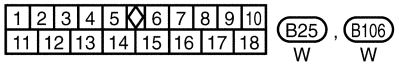
TEL155M

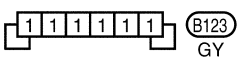
## Wiring Diagram — MULTI — (Cont'd)

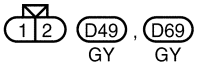
EL-MULTI-03



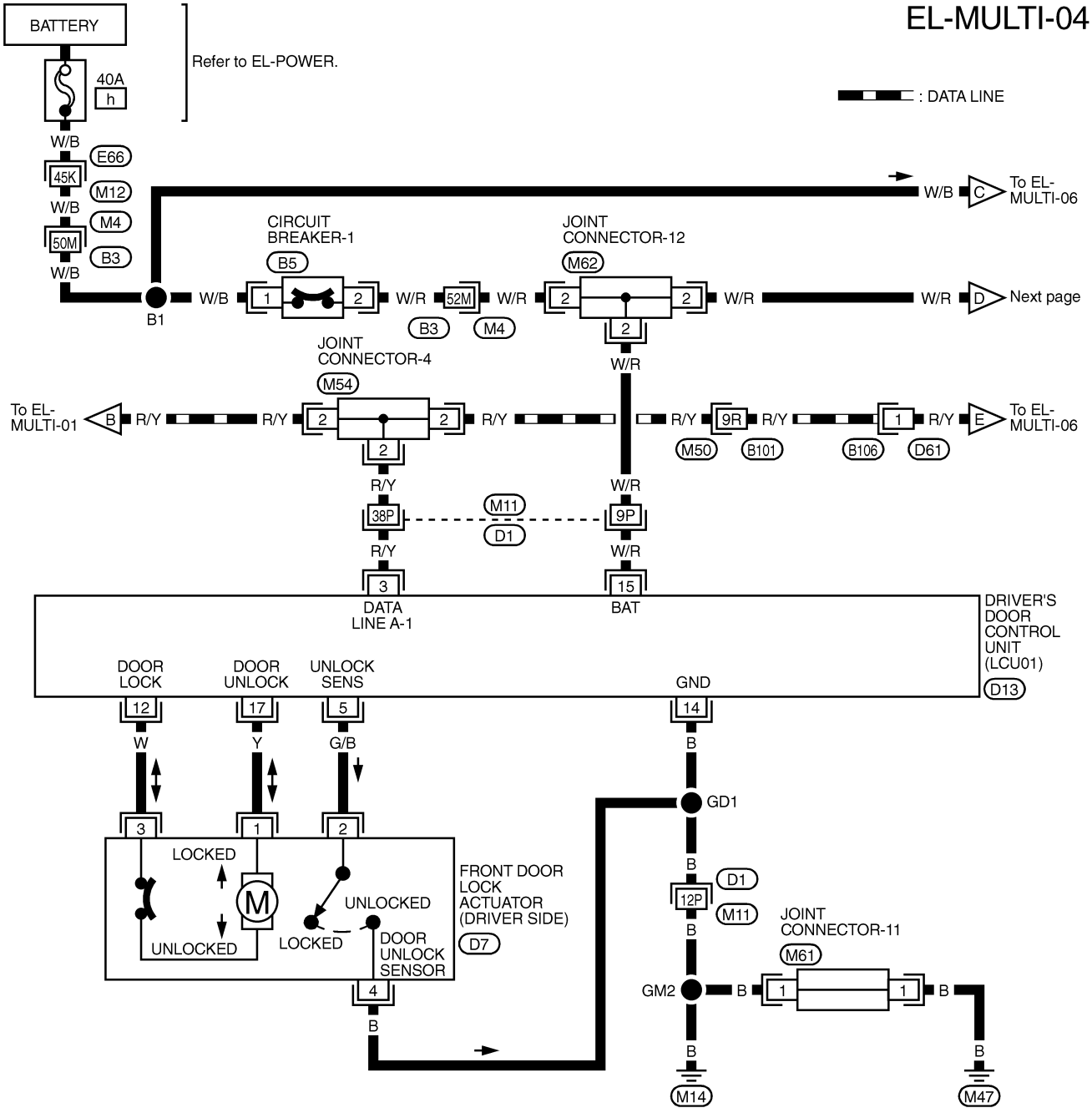



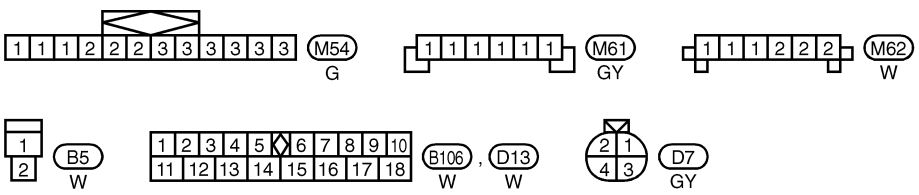

REFER TO THE FOLLOWING.
M4 , M50 -SUPER MULTIPLE JUNCTION (SMJ)
M22 -ELECTRICAL UNITS

TEL156M

## Wiring Diagram — MULTI — (Cont'd)

EL-MULTI-04



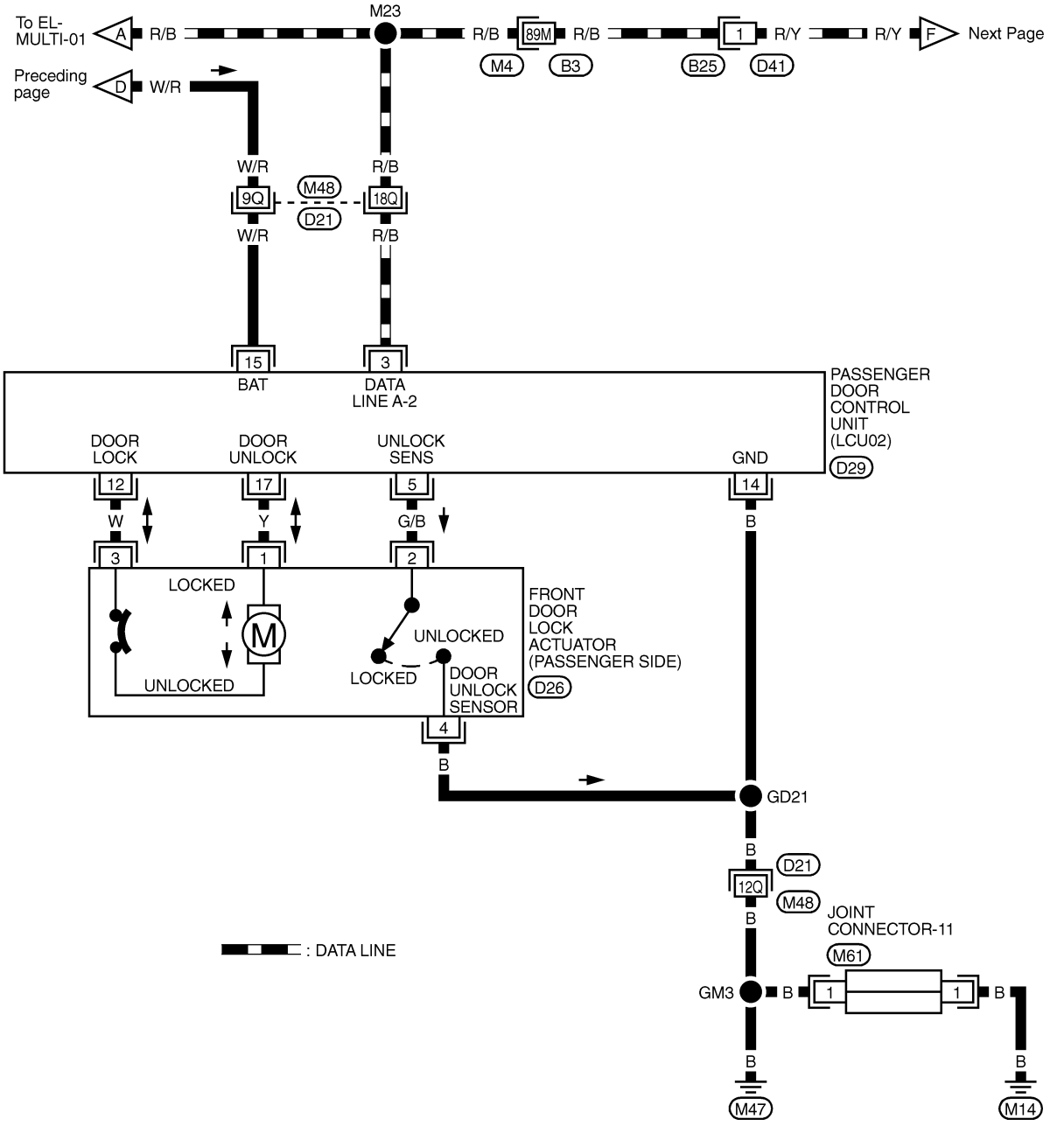



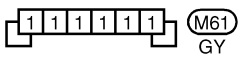

REFER TO THE FOLLOWING.
M4 , M50 , E66 , D1
-SUPER MULTIPLE JUNCTION (SMJ)

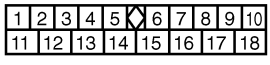
TEL157M

## Wiring Diagram — MULTI — (Cont'd)

EL-MULTI-05



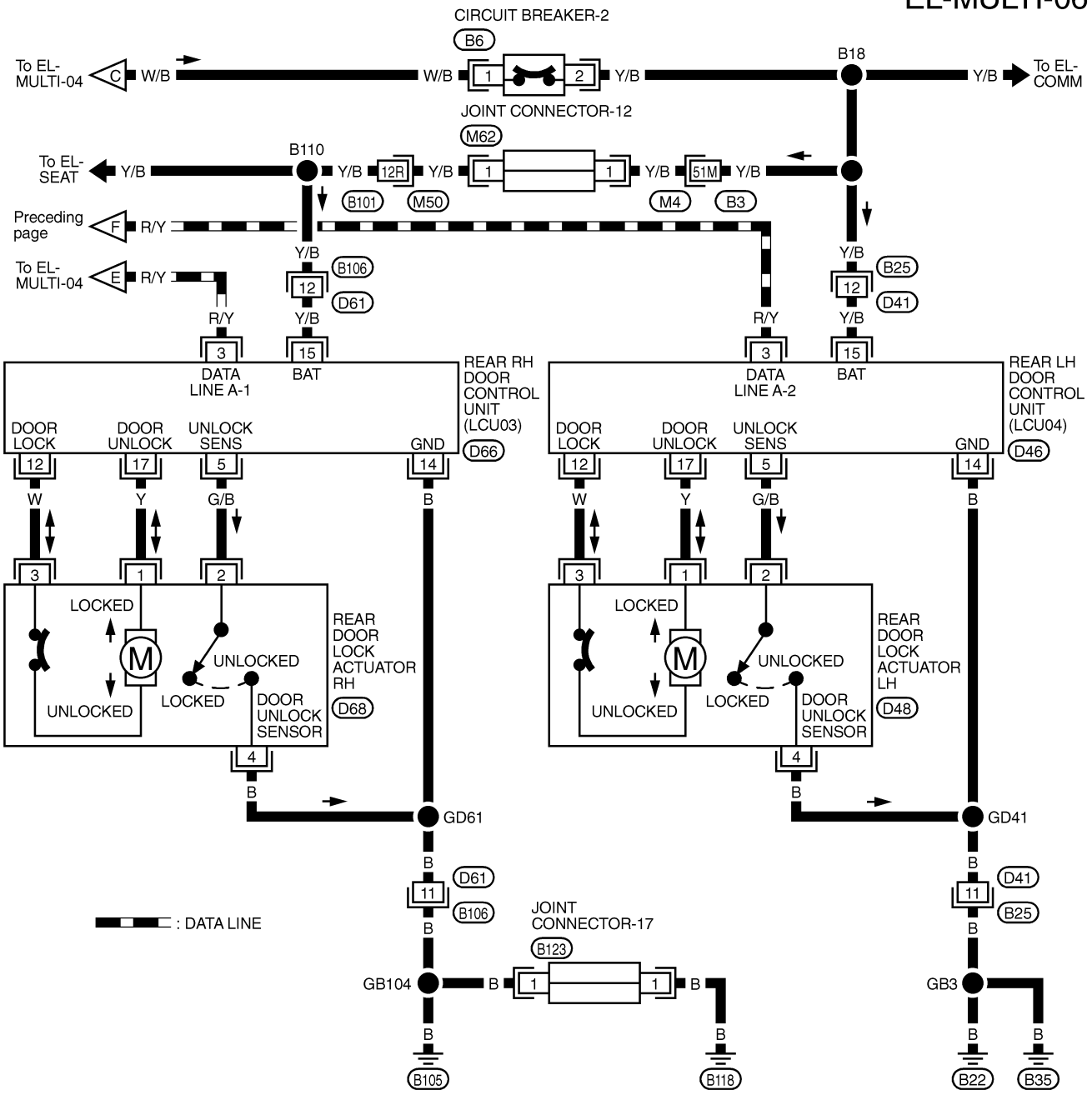


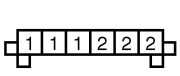
REFER TO THE FOLLOWING.
(M4) , (D21) -SUPER MULTIPLE JUNCTION (SMJ)

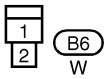
TEL158M

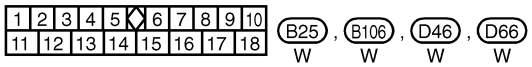
## Wiring Diagram — MULTI — (Cont'd)

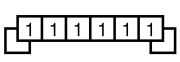
EL-MULTI-06

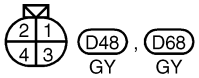


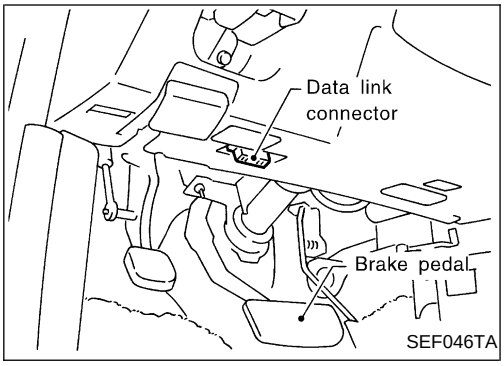




REFER TO THE FOLLOWING.
M4 , M50 -SUPER MULTIPLE JUNCTION (SMJ)

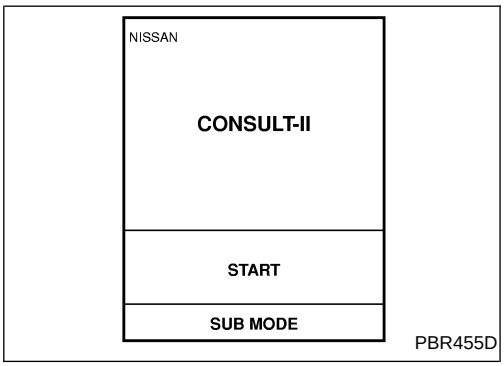
TEL159M



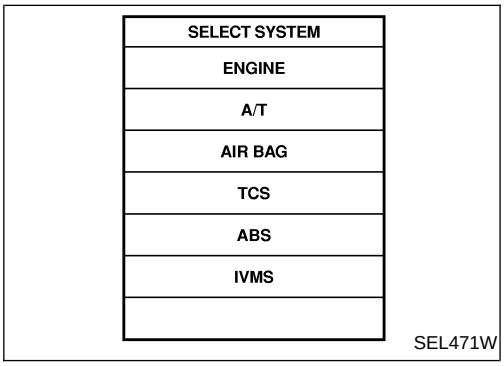

## CONSULT-II

### CONSULT-II INSPECTION PROCEDURE

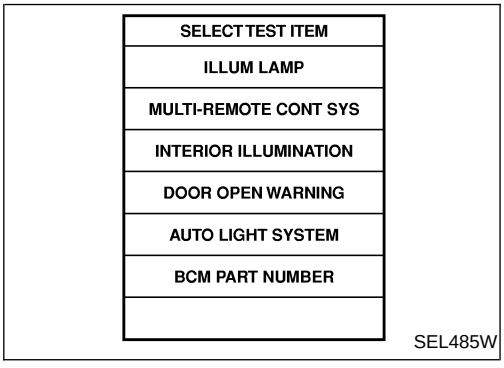
1. Turn ignition switch “OFF”.
2. Connect “CONSULT-II” to the data link connector.



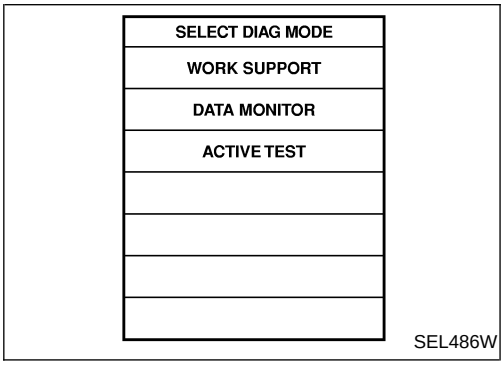

3. Turn ignition switch “ON”.
4. Touch “START”.




5. Touch “IVMS”.



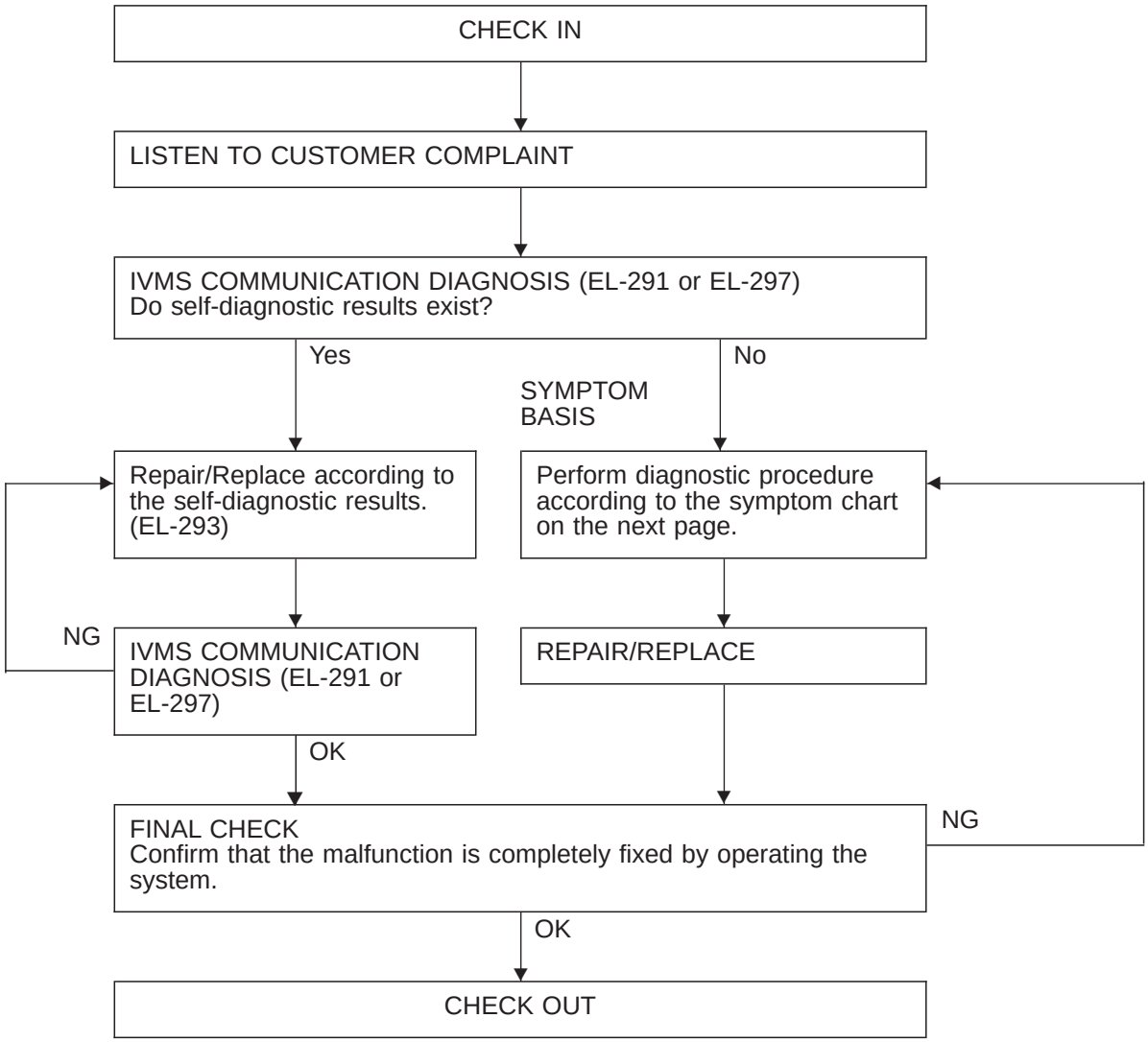

6. Touch “MULTI-REMOTE CONT SYS”.




- WORK SUPPORT, DATA MONITOR and ACTIVE TEST are available for the multi-remote control system.

## Trouble Diagnoses

### WORK FLOW




**NOTICE:**

- **When LCU connectors are disconnected for more than 1 minute such as during trouble diagnoses, the "disconnected" data will be memorized by the BCM. (While BCM memorizes the "disconnected" data, IVMS communication diagnosis of CONSULT-II will display "PAST NO RESPONSE".) Therefore, after reconnecting the LCU connectors, erase the memory.**
- **To erase the memory, perform the procedure below.**
  **Erase the memory with CONSULT-II (Refer to EL-291.) or turn the ignition switch to "OFF" position and remove 7.5A fuse [No. 14 located in the fuse block (J/B)].**

## Trouble Diagnoses (Cont'd)

Note: ● Always check remote controller battery before replacing remote controller.
● The panic alarm operation and trunk open operation of multi-remote control system does not activate with the ignition key inserted in the ignition key cylinder.

### TROUBLE SYMPTOM

- All functions of remote control system do not function.

CHECK REMOTE CONTROLLER BATTERY.
● Refer to DIAGNOSTIC PROCEDURE 1 (EL-366).
NG → Replace battery.
OK ↓
Enter the identity (ID) code of a different or new remote controller. (Refer to ID Code Entry Procedure, EL-374.)
Without CONSULT-II → Go to Ⓐ below.
With CONSULT-II ↓
Can the new ID code be entered?
No → Go to DIAGNOSTIC PROCEDURE 2 (EL-366).
Yes ↓
Replace with the originally used multi-remote controller.

Ⓐ ↓
Can the new ID code be entered?
No → Go to DIAGNOSTIC PROCEDURE 2 (EL-366) and DIAGNOSTIC PROCEDURE 3 (EL-367).
Yes ↓
Replace with the originally used multi-remote controller.

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

CHECK REMOTE CONTROLLER INPUT SIGNAL.
● Check remote controller input signal using CONSULT-II (DATA MONITOR) or On-board diagnosis (Mode II, refer to EL-299).
NG → Replace the multi-remote controller.
OK ↓

① DOOR LOCK OR UNLOCK DOES NOT FUNCTION. (Pressing Unlock button once normally unlocks front LH door; pressing it twice then unlocks all of the other doors.)
● Check if power door lock system functions with door lock & unlock switch or door lock knob switch.
No → Check "**POWER DOOR LOCK**" system.

② 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 4, EL-369.
No → Check "Hazard indicator lamp" circuit.

③ HORN CHIRP DOES NOT ACTIVATE WHEN PRESSING LOCK BUTTON OF REMOTE CONTROLLER. (With horn chirp mode)
● Check if horn sounds with horn switch.
If check is OK, Go to DIAGNOSTIC PROCEDURE 5, EL-370.
No → Check "Horn" circuit.

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" indicator begins to blink.
5. Open the hood with hood lock opener, then panic alarm should activate. (The alarm will stop when door is unlocked with the key.)

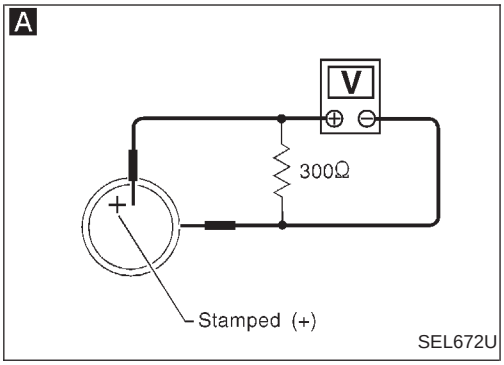
No → Check "VEHICLE SECURITY" system.
Yes → Go to DIAGNOSTIC PROCEDURE 6 (EL-371).

⑤ TRUNK LID DOES NOT OPEN WHEN TRUNK OPENER BUTTON IS PRESSED.
● Check if trunk lid opens with trunk lid opener switch.
No → Go to DIAGNOSTIC PROCEDURE 7 (EL-372).

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 1

A




A

**CHECK REMOTE CONTROLLER BATTERY.**

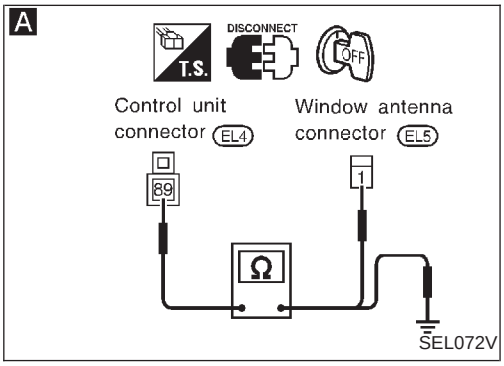
Remove battery and measure voltage across battery positive and negative terminals, ⊕ and ⊖.

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

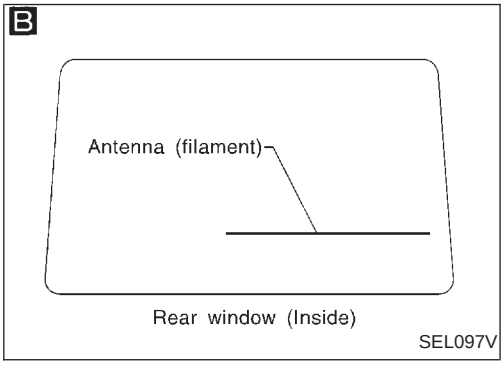
**Note:**
**Remote controller does not function if battery is not set correctly.**

### DIAGNOSTIC PROCEDURE 2

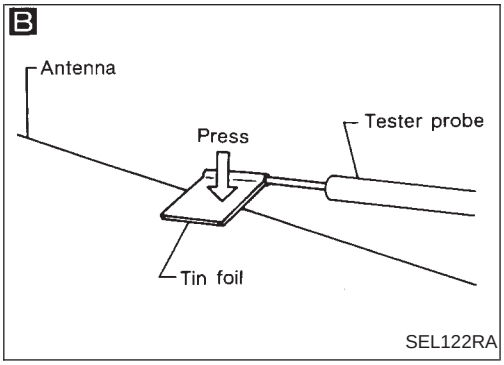
A




B




B




A

**CHECK ANTENNA FEEDER CABLE.**

1. Disconnect feeder cable connector from BCM.
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.**

NG → Replace feeder cable.

OK ↓

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.

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 3

A

| DATA MONITOR | |
|---|---|
| MONITOR | |
| DOOR SW-DR | OFF |
| DOOR SW-AS | OFF |
| DOOR SW-RR | OFF |
| DOOR SW-RL | OFF |
| | |
| | RECORD |

SEL527W

B

| DATA MONITOR | |
|---|---|
| MONITOR | |
| LOCK SIG-DR | UNLK |
| LOCK SIG-AS | UNLK |
| LOCK SG-RR/RH | UNLK |
| LOCK SG-RR/LH | UNLK |
| | |
| | RECORD |

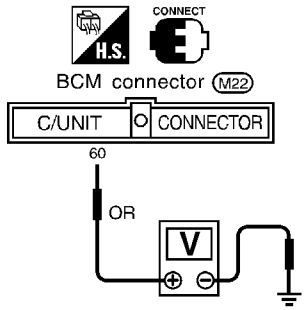
SEL525W

C

| DATA MONITOR | |
|---|---|
| MONITOR | |
| IGN ACC SW | ON |
| | |
| | RECORD |

SEL505W

D




SEL257V

**CHECK DOOR SWITCH INPUT SIGNAL.**

A CONSULT-II

See "DOOR SW" in DATA MONITOR mode.
When door is open:
**DOOR SW ON**
When door is closed:
**DOOR SW OFF**

OR

ON BOARD

Check all doors switches in Switch monitor (Mode II) mode.
(Refer to On board Diagnosis, EL-299.)

Refer to wiring diagram in EL-359.

NG → Check the following.
- Door switch
  Refer to "Electrical Components Inspection" (EL-373).
- Door switch ground condition (Front door) or door switch ground circuit (Rear door)
- Harness for open or short between BCM and door switch

OK ↓

**CHECK DOOR UNLOCK SENSOR INPUT SIGNAL.**

B CONSULT-II

See "LOCK SIG" in DATA MONITOR mode.
When door is locked:
**LOCK SIG LOCK**
When door is unlocked:
**LOCK SIG UNLK**

OR

ON BOARD

Check door lock knob operation in Switch monitor (Mode II) mode.
(Refer to On board Diagnosis, EL-299.)

Refer to wiring diagram in EL-360, 361 or 362.

NG → Check the following.
- Door unlock sensor
  Refer to "Electrical Components Inspection" (EL-373).
- Door unlock sensor ground circuit
- Harness for open or short between LCU and unlock sensor

OK ↓

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

C CONSULT-II

See "IGN ACC SW" in DATA MONITOR mode.
When ignition switch is ACC or ON:
**IGN ACC SW ON**
When ignition switch is OFF:
**IGN ACC SW OFF**

OR

D TESTER

Check voltage between BCM terminal ⑥⓪ and ground.

| Condition of ignition switch | Voltage V |
|---|---|
| ACC or ON | Approx. 12 |
| OFF | 0 |

Refer to wiring diagram in EL-357.

NG → Check the following.
- 7.5A fuse [No. 23, located in fuse block (J/B)]
- Harness for open or short between BCM and fuse

OK ↓

Ⓐ

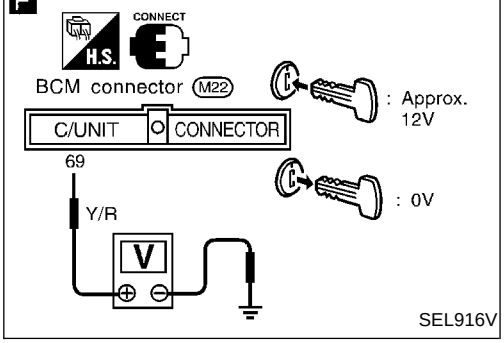
## Trouble Diagnoses (Cont'd)

E

| DATA MONITOR | |
|---|---|
| MONITOR | |
| IGN KEY SW | ON |
| | |
| | RECORD |

SEL532W

F




SEL916V

Ⓐ

**CHECK KEY SWITCH INPUT SIGNAL.**

E CONSULT-II

See "IGN KEY SW" in DATA MONITOR mode.

When key is inserted in ignition key cylinder:

**IGN KEY SW ON**

When key is removed from ignition key cylinder:

**IGN KEY SW OFF**

OR

F TESTER

Check voltage between BCM terminals ⑥⑨ and ground.

| Condition | Voltage V |
|---|---|
| Key is inserted | Approx. 12 |
| Key is removed | 0 |

Refer to wiring diagram in EL-358.

NG →

Check the following.

- 10A fuse [No. 28, located in fuse block (J/B)]
- Key switch
  Refer to "Electrical Components Inspection" (EL-373).
- Harness for open or short between key switch and fuse
- Harness for open or short between BCM and key switch

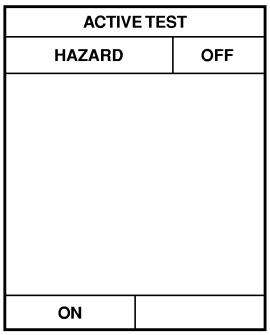
OK ↓

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

## Trouble Diagnoses (Cont'd)

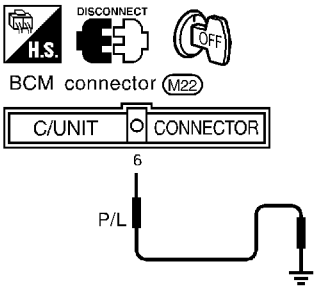
### DIAGNOSTIC PROCEDURE 4

A



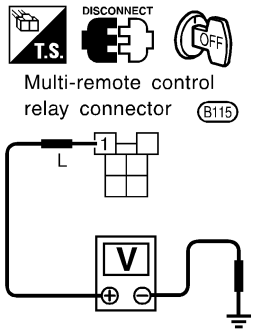

SEL528W

B



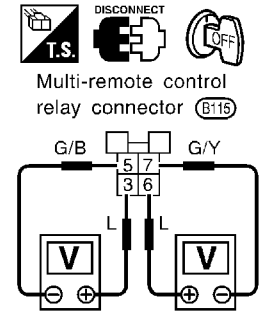

SEL258V

C




SEL747UC

D




SEL748UB

**CHECK HAZARD INDICATOR OPERATION.**

A CONSULT-II

See "HAZARD" in ACTIVE TEST mode.
Perform operation shown on display.
**Hazard warning lamp should illuminate.**

Yes → Hazard indicator is OK.

OR

B

1. Disconnect control unit connector.
2. Apply ground to BCM terminal ⑥ .
   **Does hazard indicator illuminate?**

   Refer to wiring diagram in EL-358.

No ↓

Check multi-remote control relay.

NG → Replace.

OK ↓

C

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

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

NG → Check the following.
- 10A fuse [No. 13, located in fuse block (J/B)]
- Harness for open or short between multi-remote control relay and fuse

OK ↓

D

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

1. Disconnect multi-remote control relay 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.

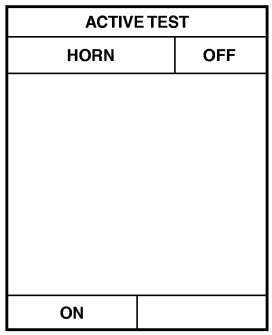
OK ↓

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

## Trouble Diagnoses (Cont'd)

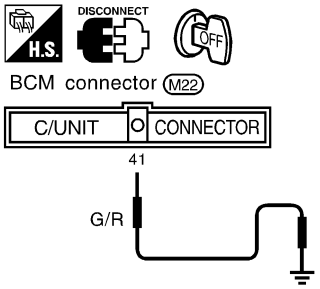
### DIAGNOSTIC PROCEDURE 5

A




SEL945W

B




SEL258VB

**CHECK HORN CHIRP OPERATION.**

A CONSULT-II

See "HORN" in ACTIVE TEST mode. Perform operation shown on display.

**Horn should sound.**

Yes → Horn chirp operation is OK.

OR

B

1. Disconnect control unit connector.
2. Apply ground to BCM terminal ㊶.

**Does horn sound?**

Refer to wiring diagram in EL-358.

No ↓

Check harness for open or short between BCM and horn relay.

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 6

A

| DATA MONITOR | |
|---|---|
| MONITOR | |
| TRUNK BTN-CON | OFF |
| | |
| | RECORD |

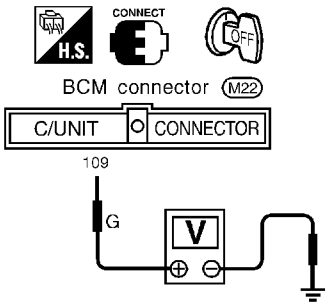
SEL530W

B

| ACTIVE TEST | |
|---|---|
| TRUNK OPEN S/V | OFF |
| | |
| ON | |

SEL529W

C




SEL917U

**CHECK MULTI-REMOTE CONTROLLER OPERATION.**

A CONSULT-II

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

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

NG → Replace multi-remote controller.

OR

ON BOARD

Check trunk open signal from multi-remote controller in Switch monitor (Mode II) mode.
(Refer to On board Diagnosis, EL-299).

OK ↓

**CHECK TRUNK LID OPENER CIRCUIT.**

B CONSULT-II

See "TRUNK OPEN S/V" in ACTIVE TEST mode.
Perform operation shown on display.
**Trunk lid opener should operate.**

OK → Trunk opener operation is OK.

OR

C TESTER

Check voltage between BCM connector terminal (109) and ground.
**Battery voltage should exist.**

Refer to wiring diagram in EL-358.

NG ↓

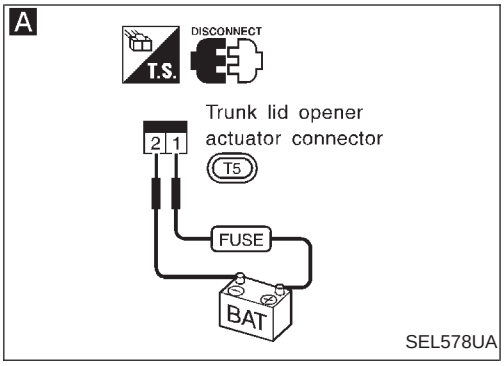
Check harness for open or short between BCM and trunk lid opener cancel switch.

Note:
Trunk lid opener cancel switch should be in ON (activate) position to perform DIAGNOSTIC PROCEDURE 6.

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 7

A




A

**CHECK TRUNK LID OPENER ACTUATOR.**

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

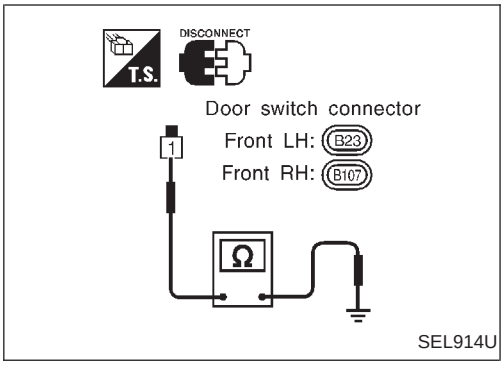
   Refer to wiring diagram in EL-358.

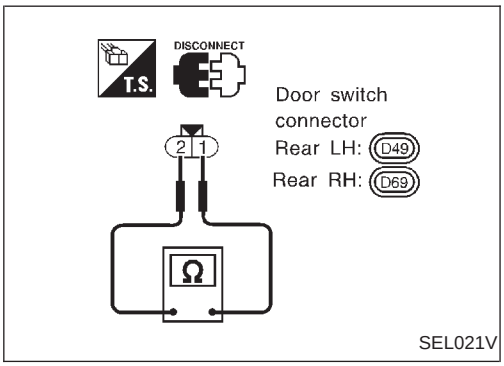
NG → Replace trunk lid opener actuator.

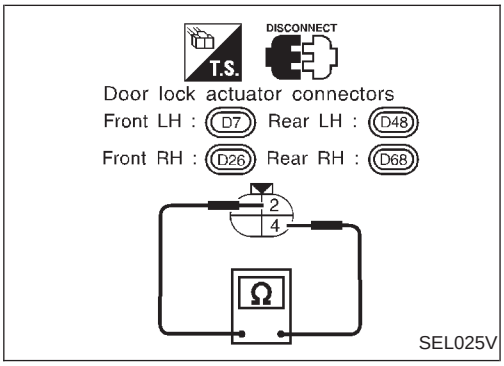
OK ↓

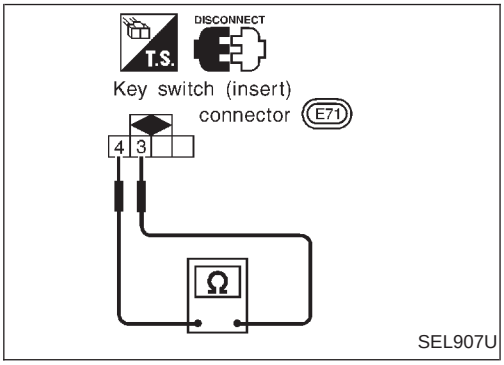
Check the following.

- 7.5A fuse [No. 26, located in fuse block (J/B)]
- Trunk lid opener cancel switch
- Harness for open or short between fuse and trunk lid opener actuator
- Harness for open or short between trunk lid opener actuator and cancel switch
- Harness for open or short between trunk lid opener cancel switch and BCM




# Electrical Components Inspection

## DOOR SWITCHES

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

| | Terminal No. | Condition | Continuity |
|---|---|---|---|
| Front door switch | ① - Ground | Door switch is pushed. | No |
| | | Door switch is released. | Yes |
| Rear door switches | ① - ② | Door switch is pushed. | No |
| | | Door switch is released. | Yes |

## DOOR LOCK ACTUATOR (Door unlock sensor)

Check continuity between terminals when door is locked and unlocked.

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

## KEY SWITCH (Insert)

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

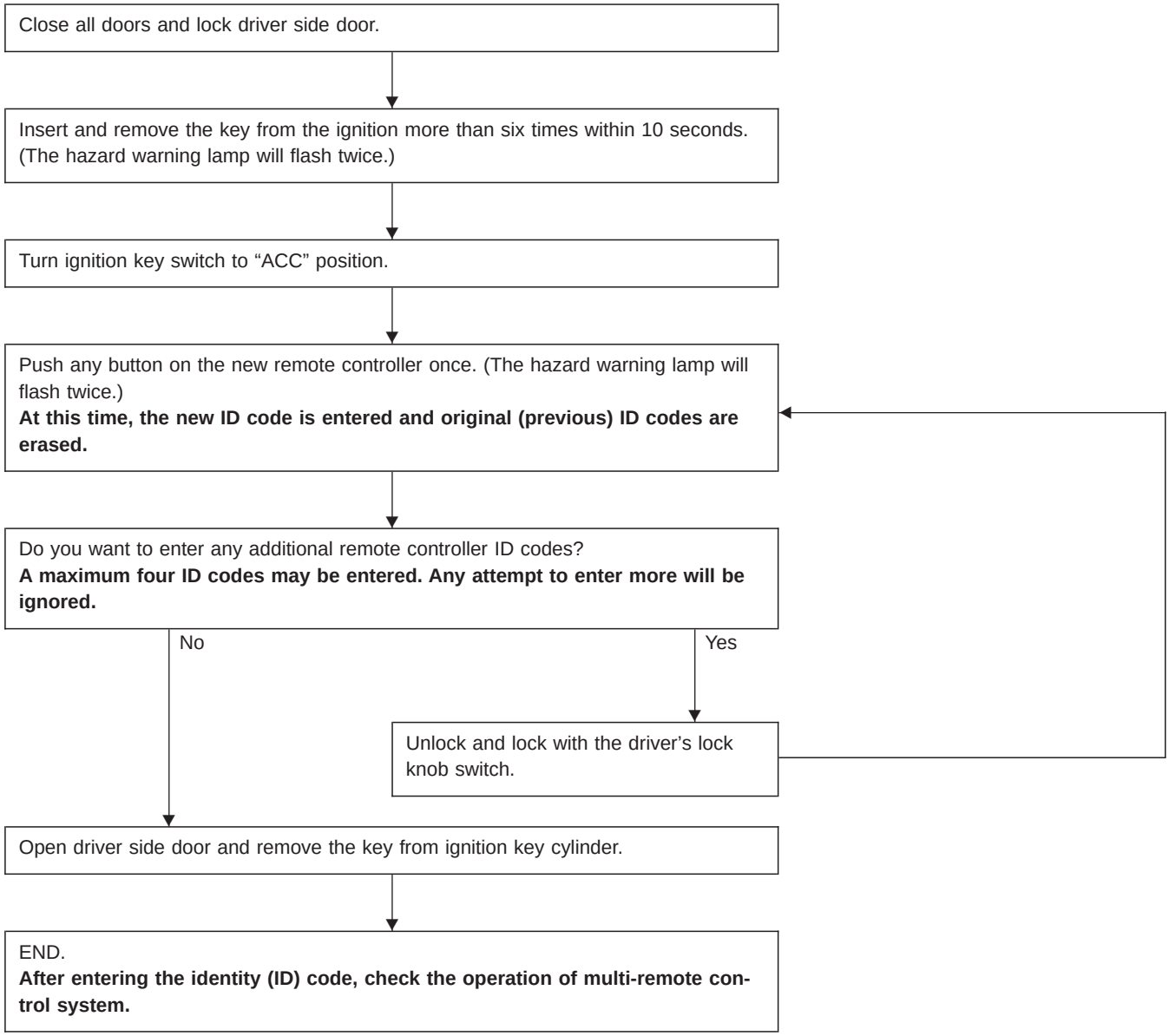
| Terminal No. | Condition | Continuity |
|---|---|---|
| ③ - ④ | Key is inserted. | Yes |
| | Key is removed. | No |

## ID Code Entry Procedure

### PROCEDURE 1 (Without CONSULT-II)

**NOTE:**

- **If a remote controller is lost, the ID code of the lost remote controller must be erased to prevent unauthorized use. A specific ID code can be erased with CONSULT-II. However, when the ID code of a lost remote controller is not known, all controller ID codes should be erased. After all ID codes are erased, the ID codes of all remaining and/or new remote controllers must be re-registered.**
  **To erase all ID codes in memory, register one ID code (remote controller) four times. After all ID codes are erased, the ID codes of all remaining and/or new remote controllers must be re-registered.**
- **When registering an additional remote controller, the existing ID codes in memory may or may not be erased. If four ID codes are stored in memory, when an additional code is registered, only the oldest code is erased. If less than four ID codes are stored in memory, when an additional ID code is registered, the new ID code is added and no ID codes are erased.**



## ID Code Entry Procedure (Cont'd)

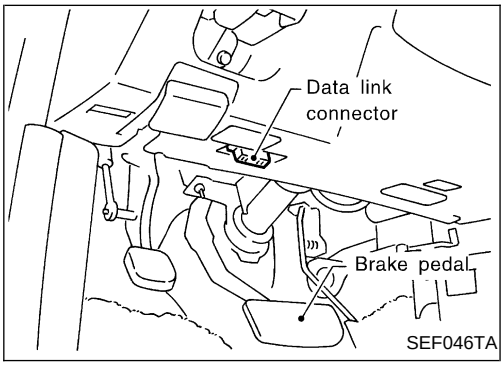
**NOTE**

- **If you need to activate more than two additional new remote controllers, repeat the procedure "Additional ID code entry" for each new remote controller.**
- **Entry of maximum four ID codes is allowed. When more than four ID codes are entered, the oldest ID code will be erased.**
- **Even if the ID code that is already in the memory is input, the same ID code can be entered. The code is counted as an additional code.**

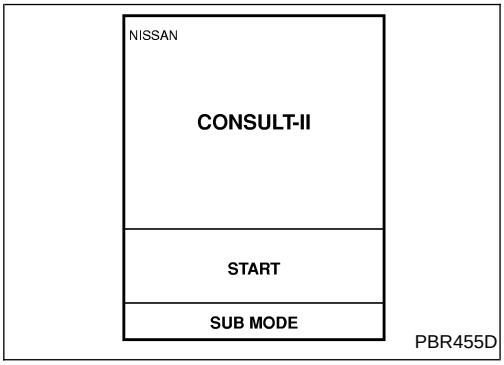


### PROCEDURE 2 (With CONSULT-II)

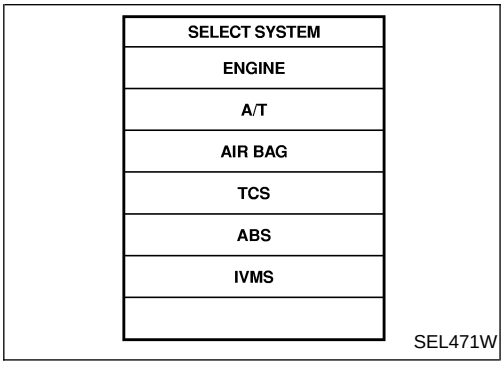
**NOTE:**
**If a remote controller is lost, the ID code of the lost remote controller must be erased to prevent unauthorized use. When the ID code of a lost remote controller is not known, all controller ID codes should be erased. After all ID codes are erased, the ID codes of all remaining and/or new remote controllers must be re-registered.**




1. Turn ignition switch "OFF".
2. Connect "CONSULT-II" to Data link connector.

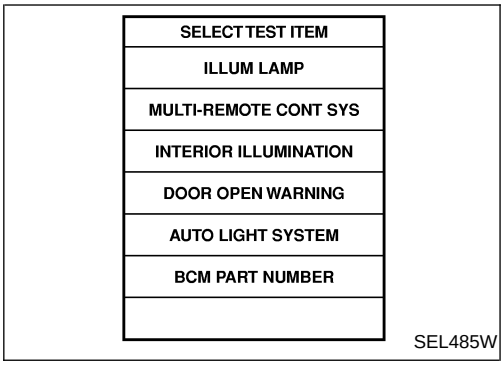



3. Turn ignition switch "ON".
4. Touch "START".

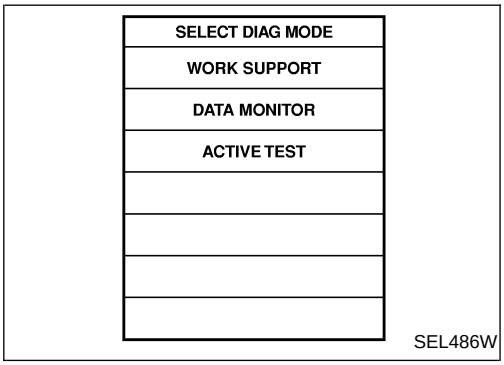



5. Touch "IVMS".

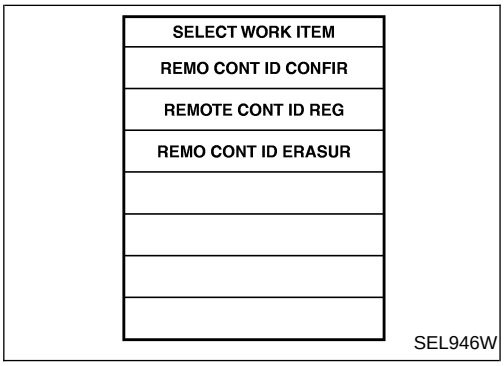
## ID Code Entry Procedure (Cont'd)




6. Touch "MULTI-REMOTE CONT SYS".




7. Touch "WORK SUPPORT".




8. The items are shown on the figure at left can be set up.

- "REMO CONT ID CONFIR"
- Use this mode to confirm if a remote controller ID code is registered or not.
- "REMOTE CONT ID REG"
  Use this mode to register a remote controller ID code.

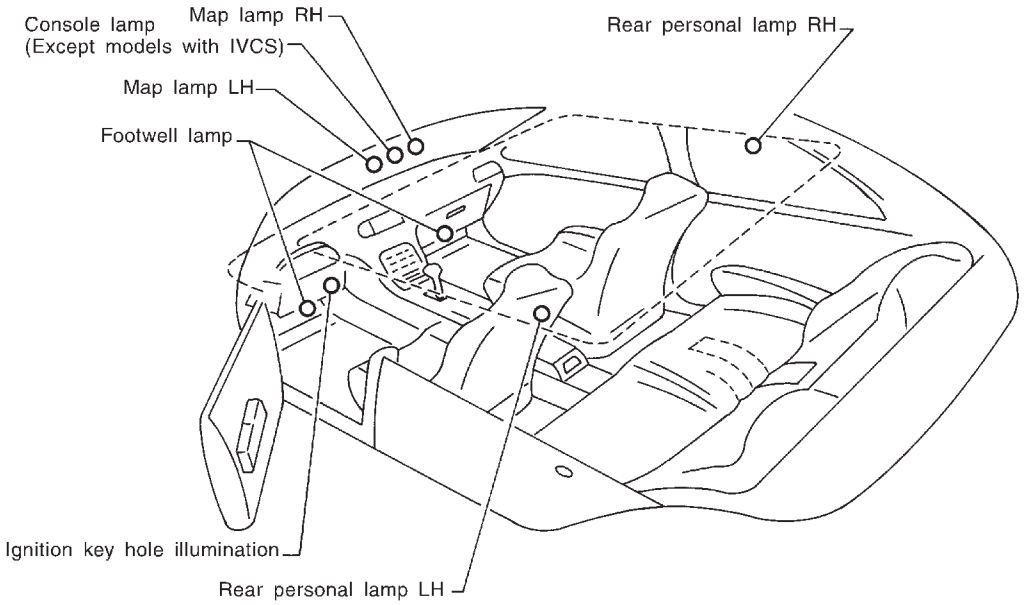
**NOTE:**
**Register the ID code when remote controller or smart entrance control unit is replaced, or when additional remote controller is required.**

- "REMO CONT ID ERASUR"
  Use this mode to erase a remote controller ID code.

## System Description

### OUTLINE

Interior illumination system turns interior illumination lamps on and off while operating the timer. The system operates by means of key switch, lighting switch, each door switch, driver side door unlock sensor, and switches of each lamp. This system is controlled by BCM.




### TIMER OPERATION

The timer controls the lighting time of the interior illumination lamps via operation of the driver side door switch, key switch, driver side unlock sensor, and ignition key switch.

| Switch | Operation |
|---|---|
| Driver side door unlock sensor | With driver side door closed and key removed from ignition key cylinder, the timer operates when driver side door unlock signal is received. The timer cancels itself when driver side door lock signal is received. |
| Driver side door switch | The timer operates when driver side door is opened and then closed. |
| Ignition key switch | The timer cancels itself when ignition key is in ACC or ON position while it is operating. |
| Key switch (Insert) | With driver side door closed, when key is removed from ignition key cylinder, the timer operates. |

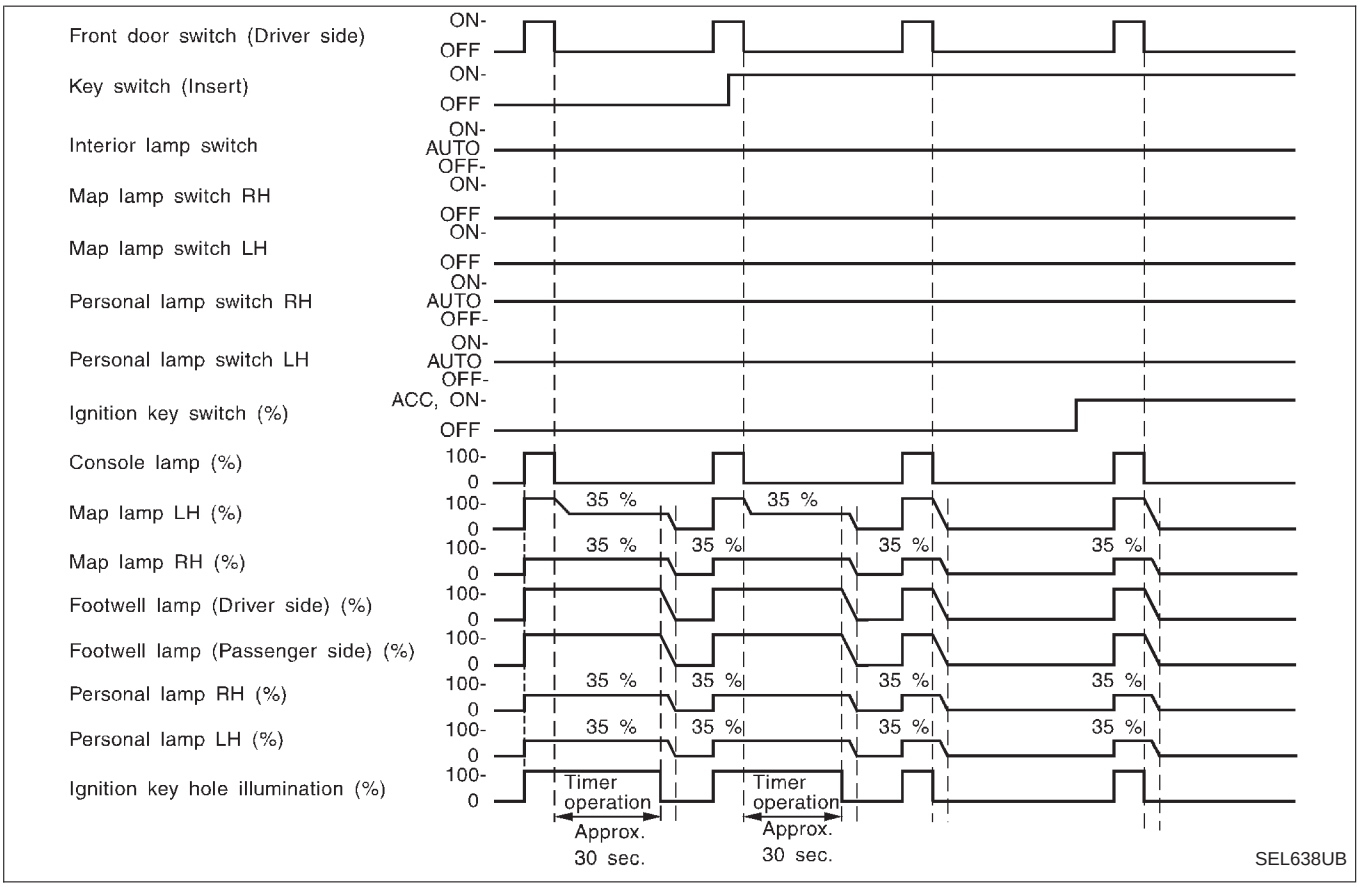
- For details of turning on/off function of each of the lamps, see the following charts.

### BATTERY SAVER

When the main illumination switch and personal lamp switch are in AUTO position with ignition key in OFF or ACC position, if interior illumination lamps are turned on by door switch open signal and remain lit for more than 30 minutes, the lamps turn off automatically.

## System Description (Cont'd)

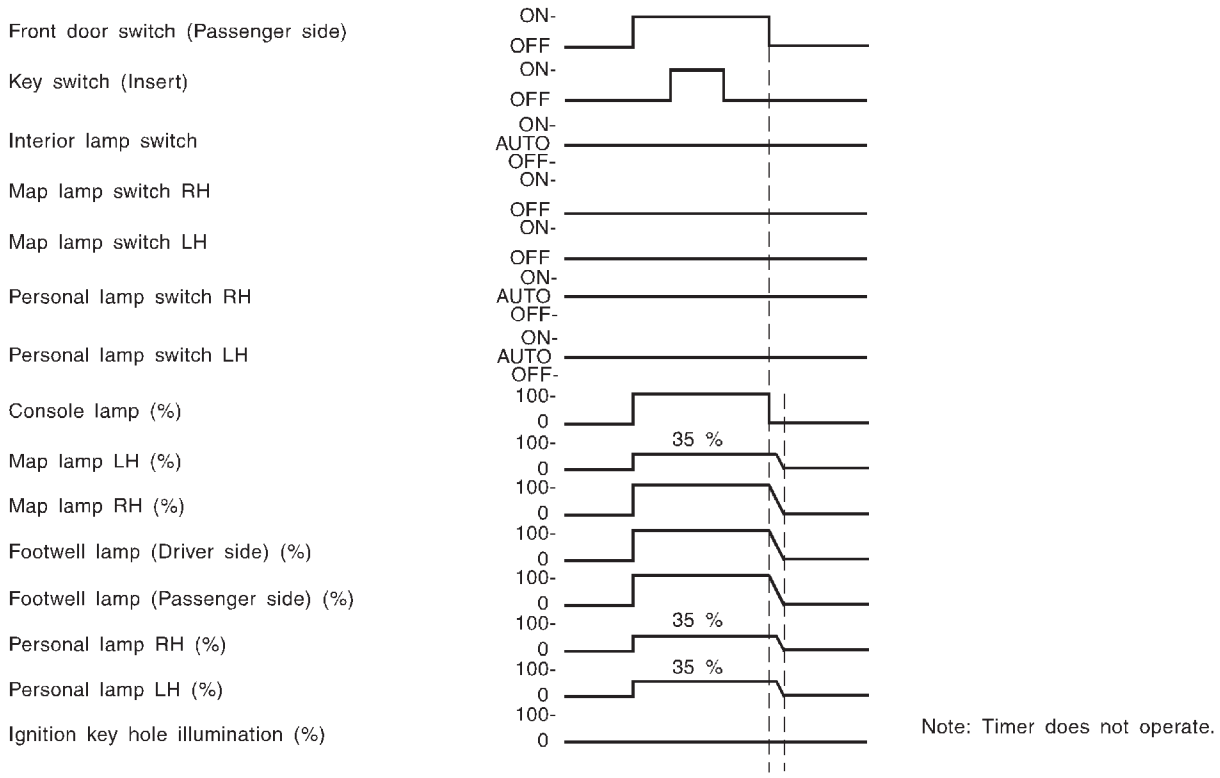
### TURN ON/OFF MODE OF DRIVER SIDE DOOR OPEN/CLOSE



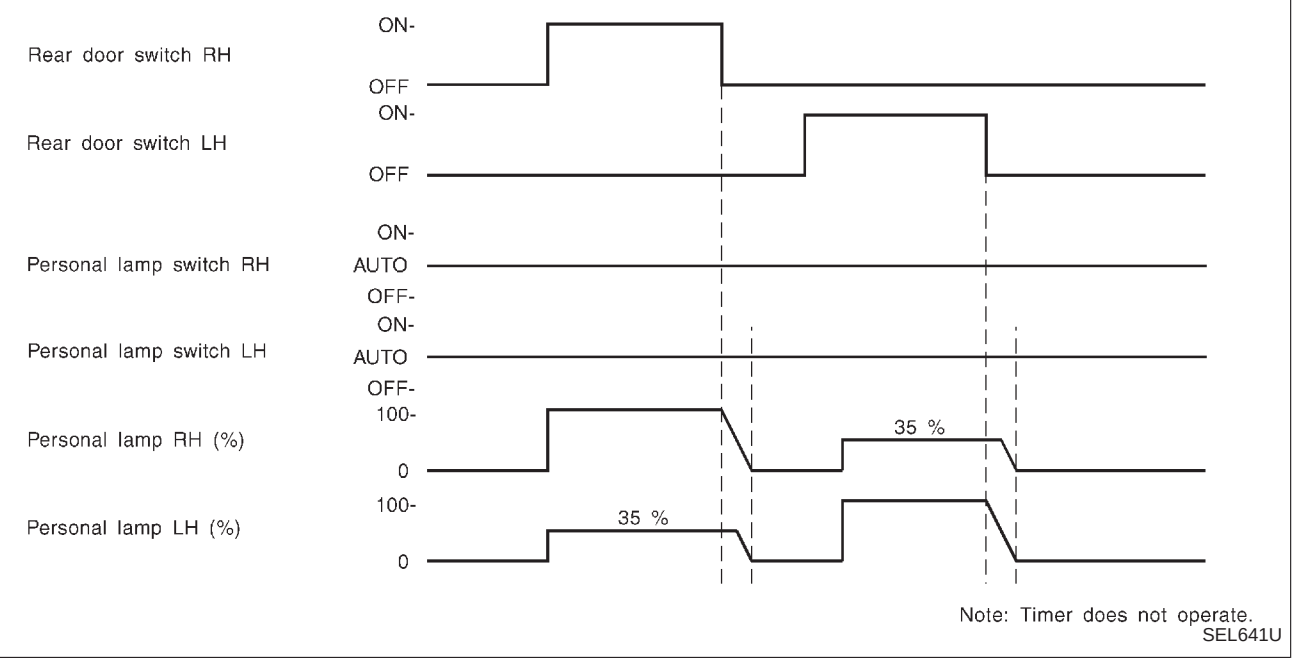

Note: Illumination lamp lighting is available in both 100% and 35% luminosity modes.

## System Description (Cont'd)

### TURN ON/OFF MODE OF PASSENGER SIDE DOOR OPEN/CLOSE



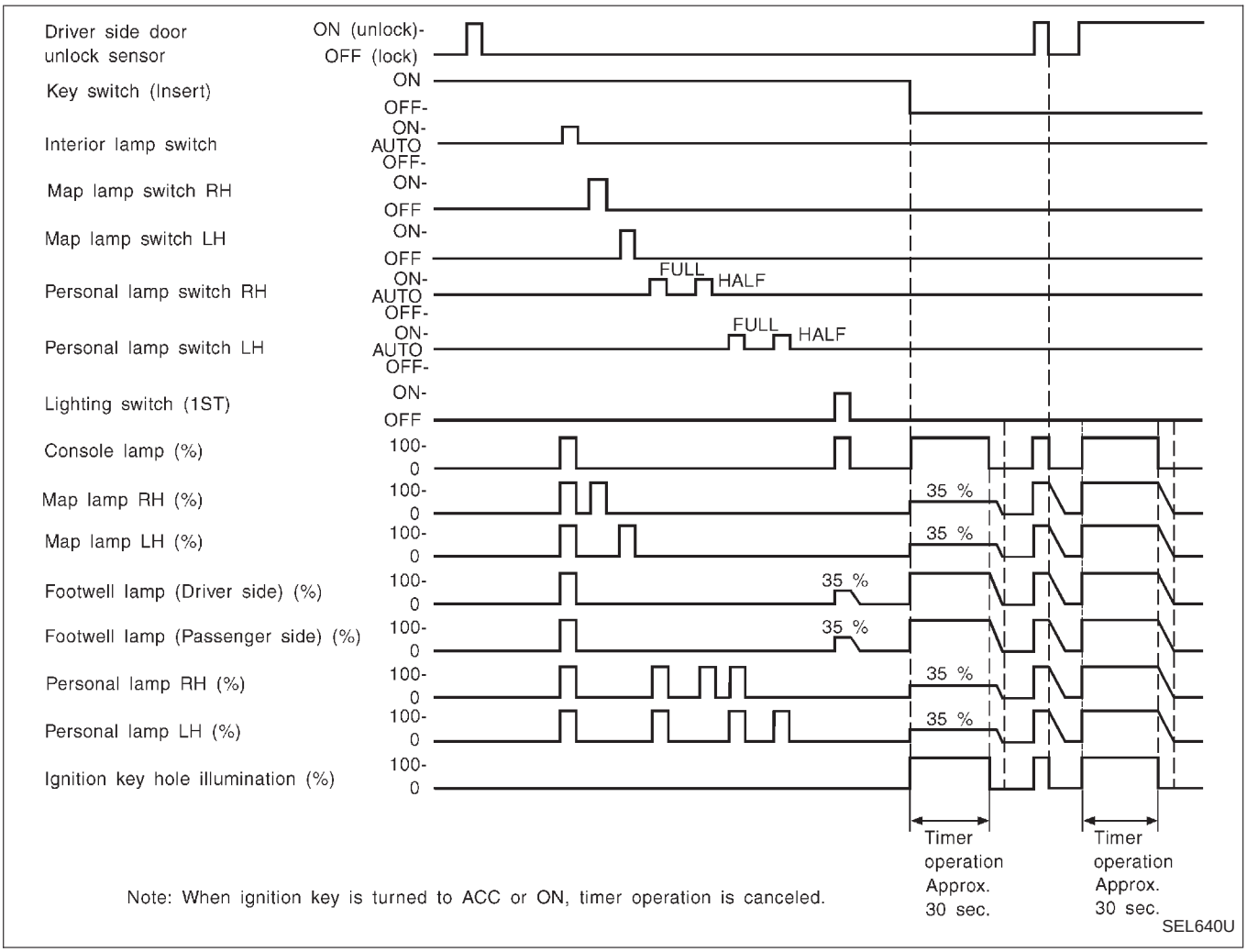

### TURN ON/OFF MODE OF REAR DOOR OPEN/CLOSE




Note: Illumination lamp lighting is available in both 100% and 35% luminosity modes.

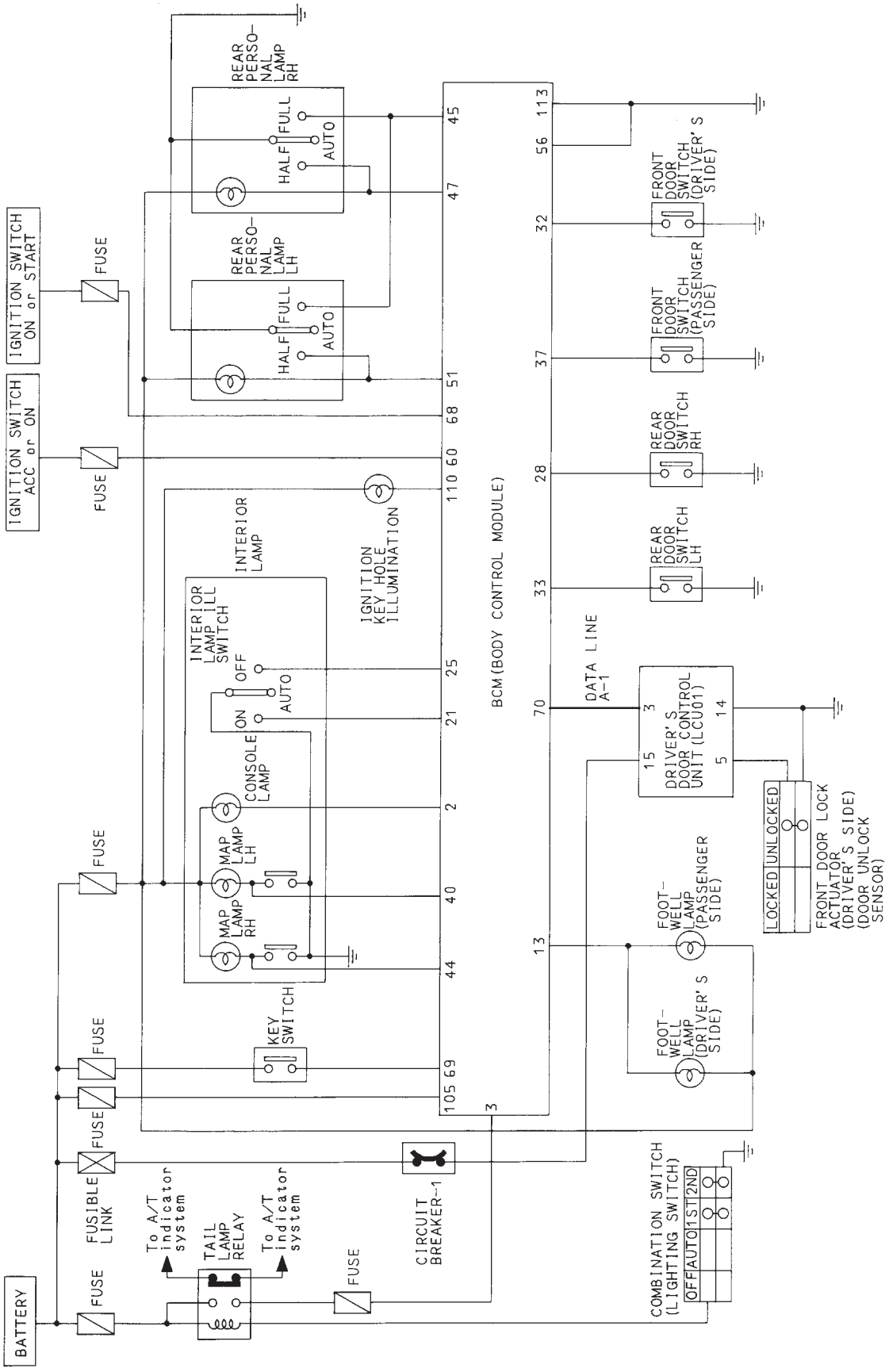
## System Description (Cont'd)

### TURN ON/OFF MODE OF EACH SWITCH CONDITION



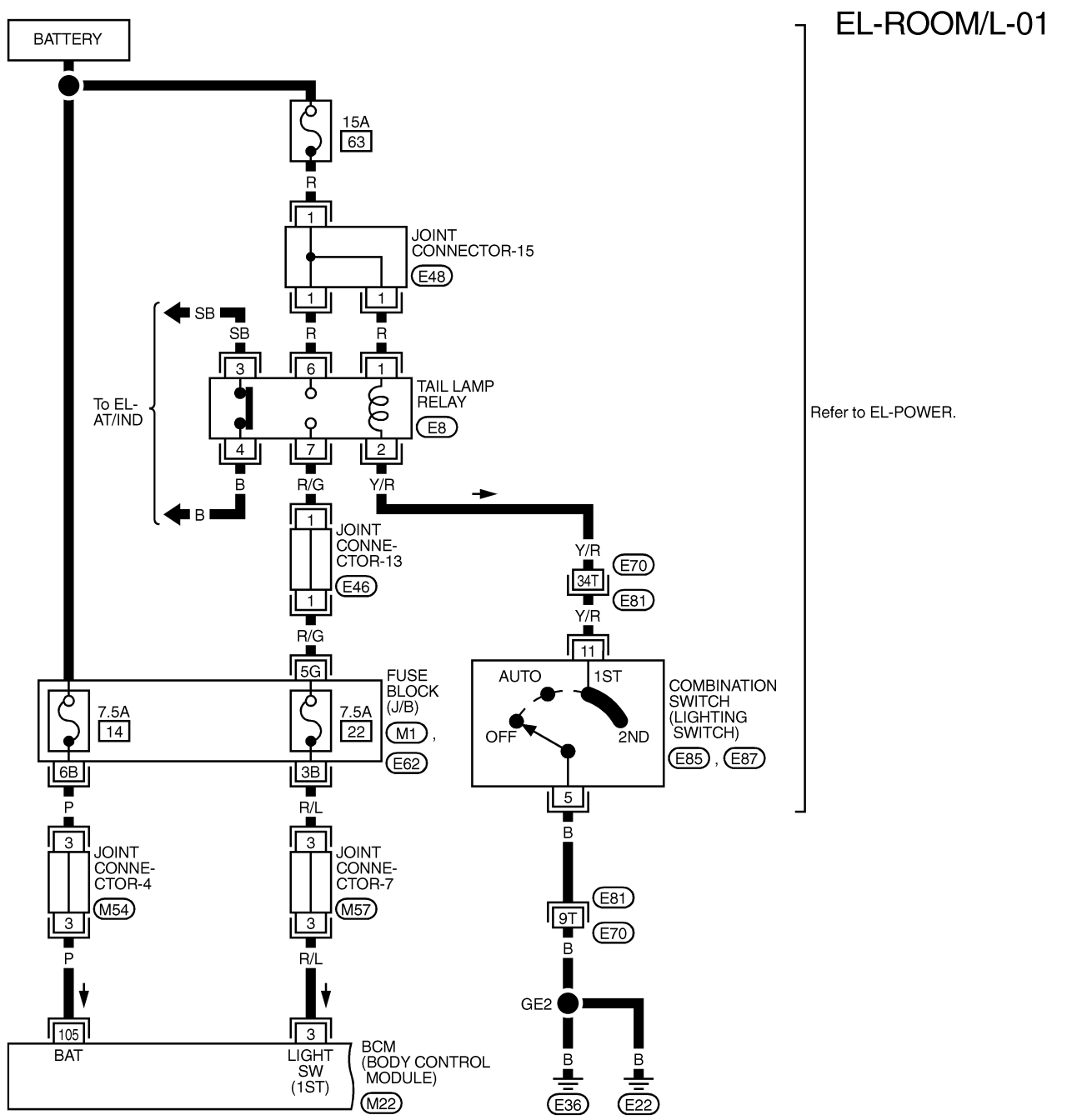

Note: Illumination lamp lighting is available in both 100% and 35% luminosity modes.

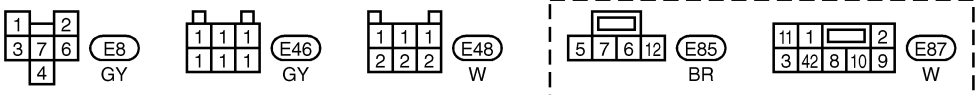
## Schematic

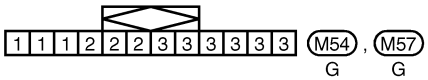



TEL850

## Wiring Diagram — ROOM/L —



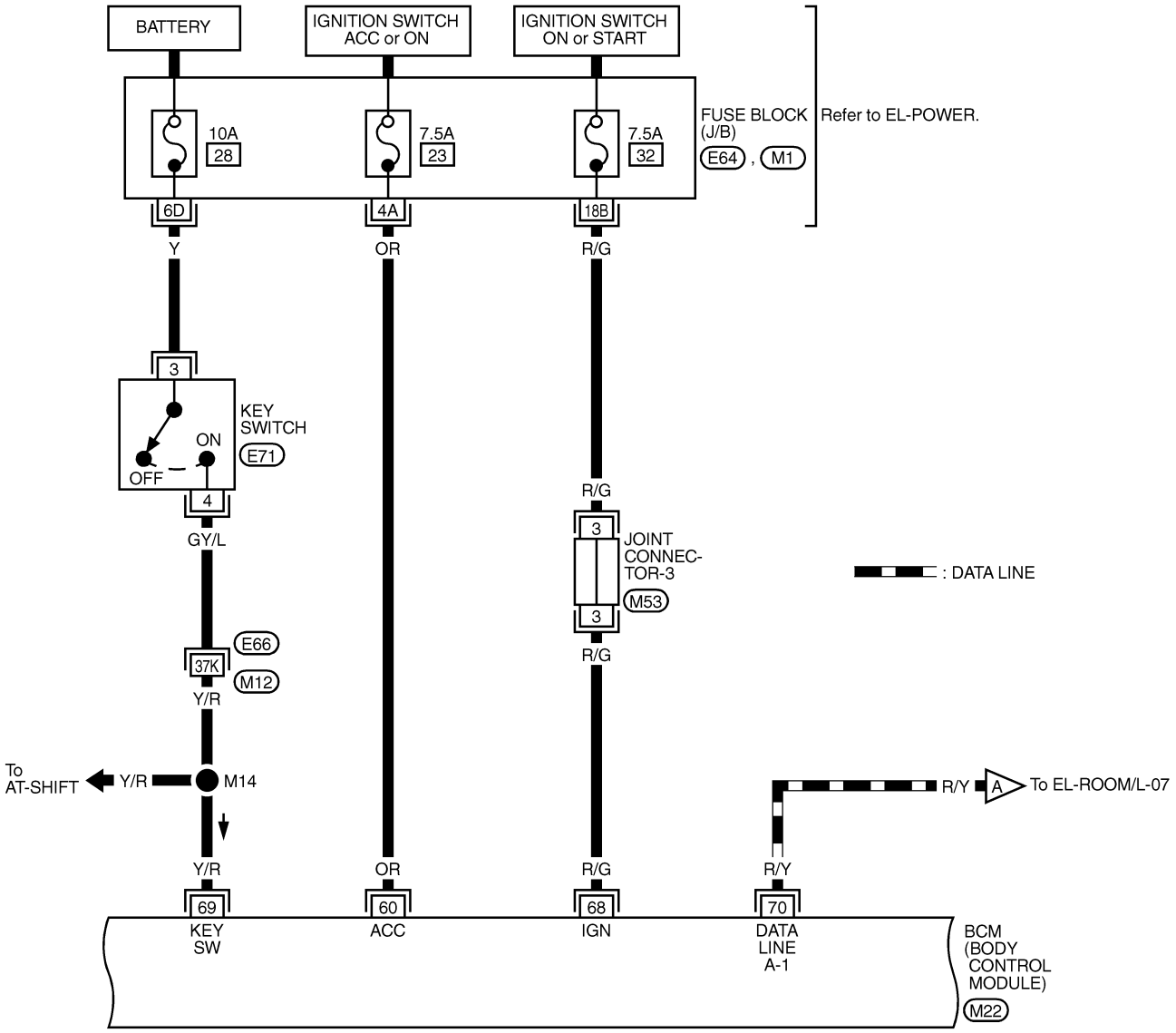



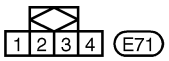

REFER TO THE FOLLOWING.
E81 -SUPER MULTIPLE JUNCTION (SMJ)
M1 , E62 -FUSE BLOCK-JUNCTION BOX (J/B)
M22 -ELECTRICAL UNITS

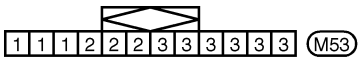
TEL160M

## Wiring Diagram — ROOM/L — (Cont'd)

EL-ROOM/L-02



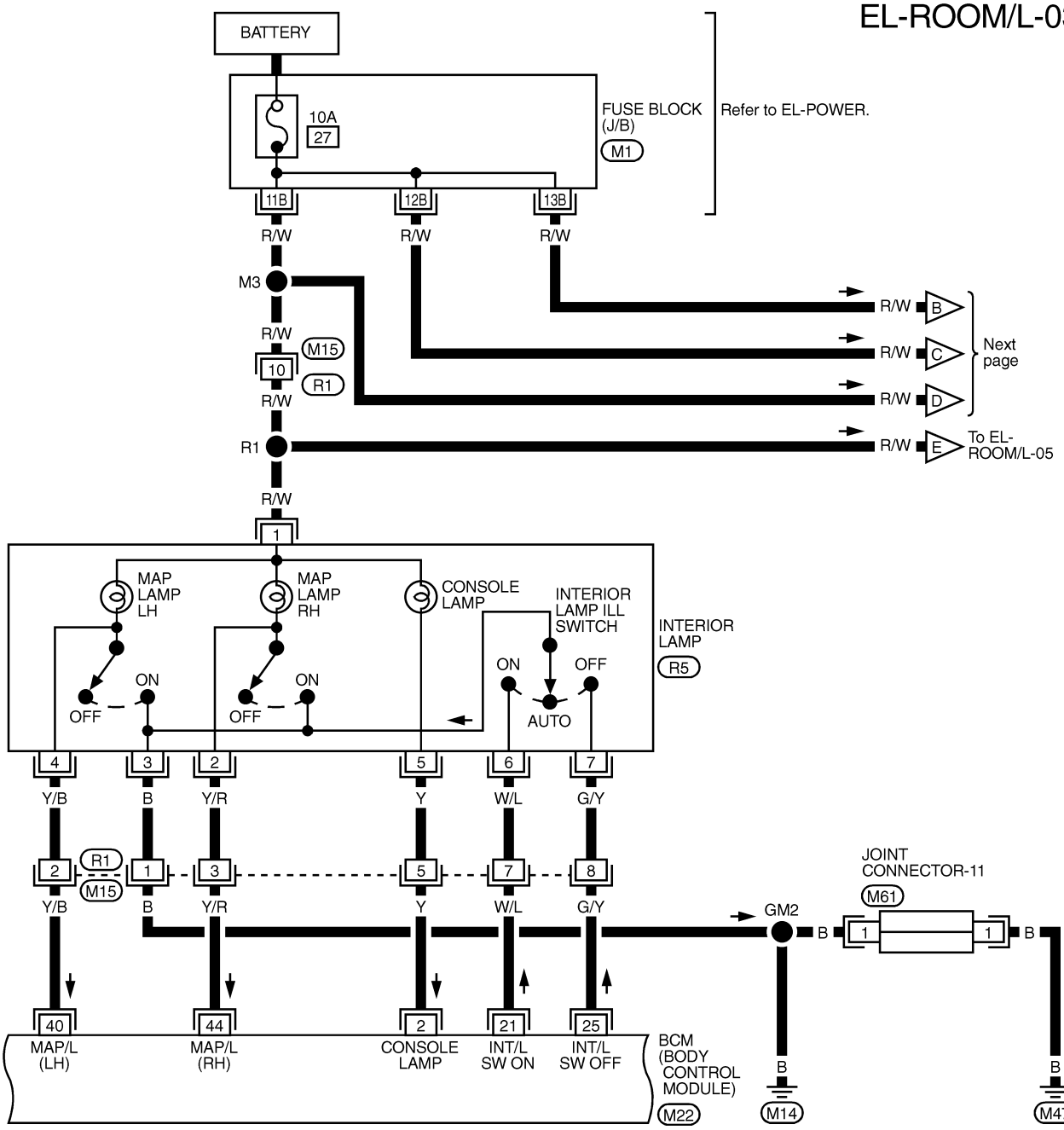



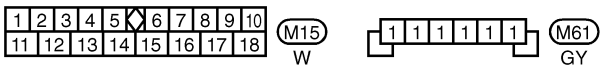

REFER TO THE FOLLOWING.
E66 -SUPER MULTIPLE JUNCTION (SMJ)
M1 , E64 -FUSE BLOCK-JUNCTION BOX (J/B)
M22 -ELECTRICAL UNITS

TEL161M

## Wiring Diagram — ROOM/L — (Cont'd)

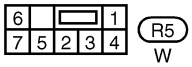
EL-ROOM/L-03










REFER TO THE FOLLOWING.

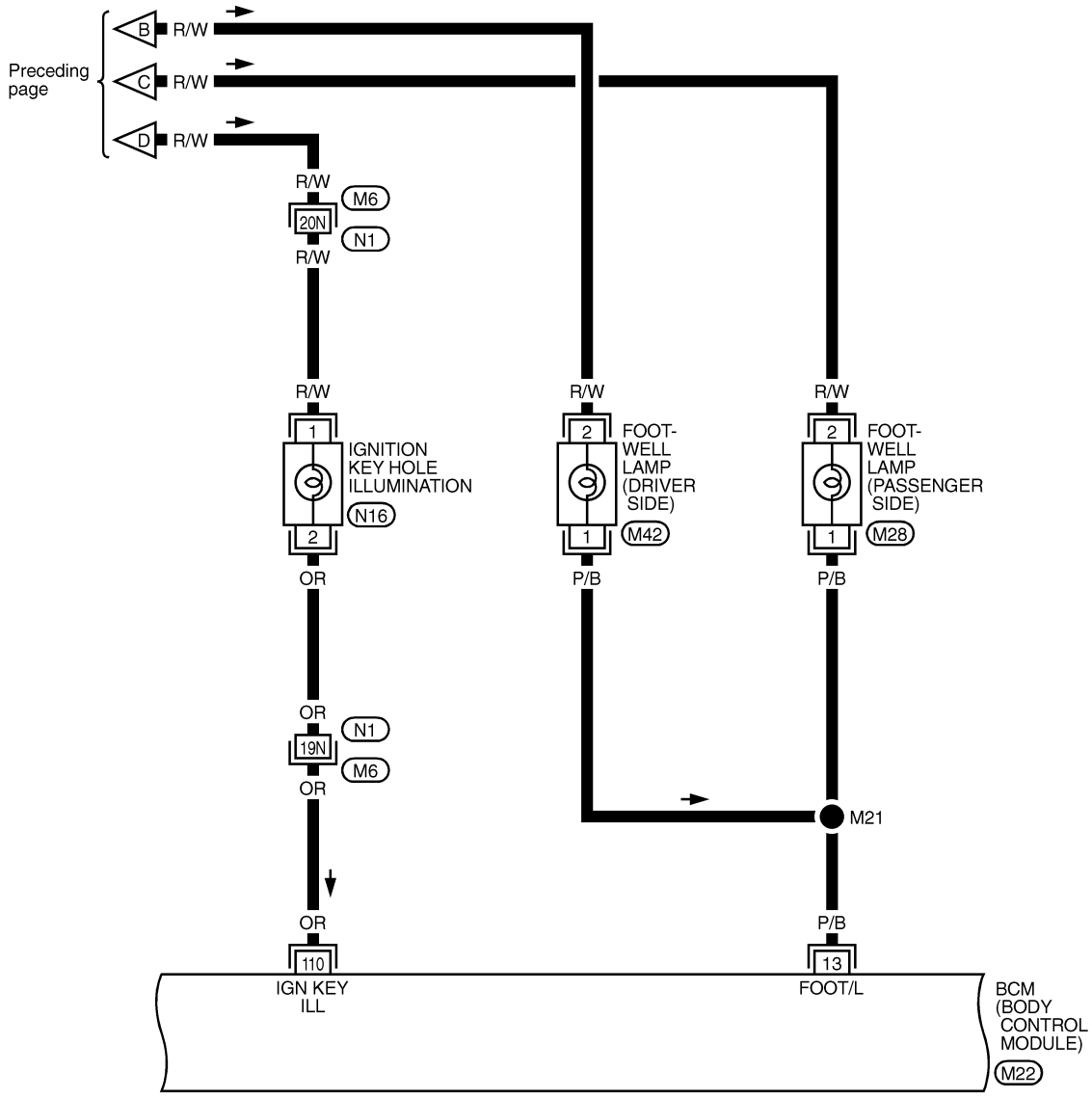
M1 -FUSE BLOCK-JUNCTION BOX (J/B)

M22 -ELECTRICAL UNITS

TEL162M

## Wiring Diagram — ROOM/L — (Cont'd)

EL-ROOM/L-04




M28, M42 W W

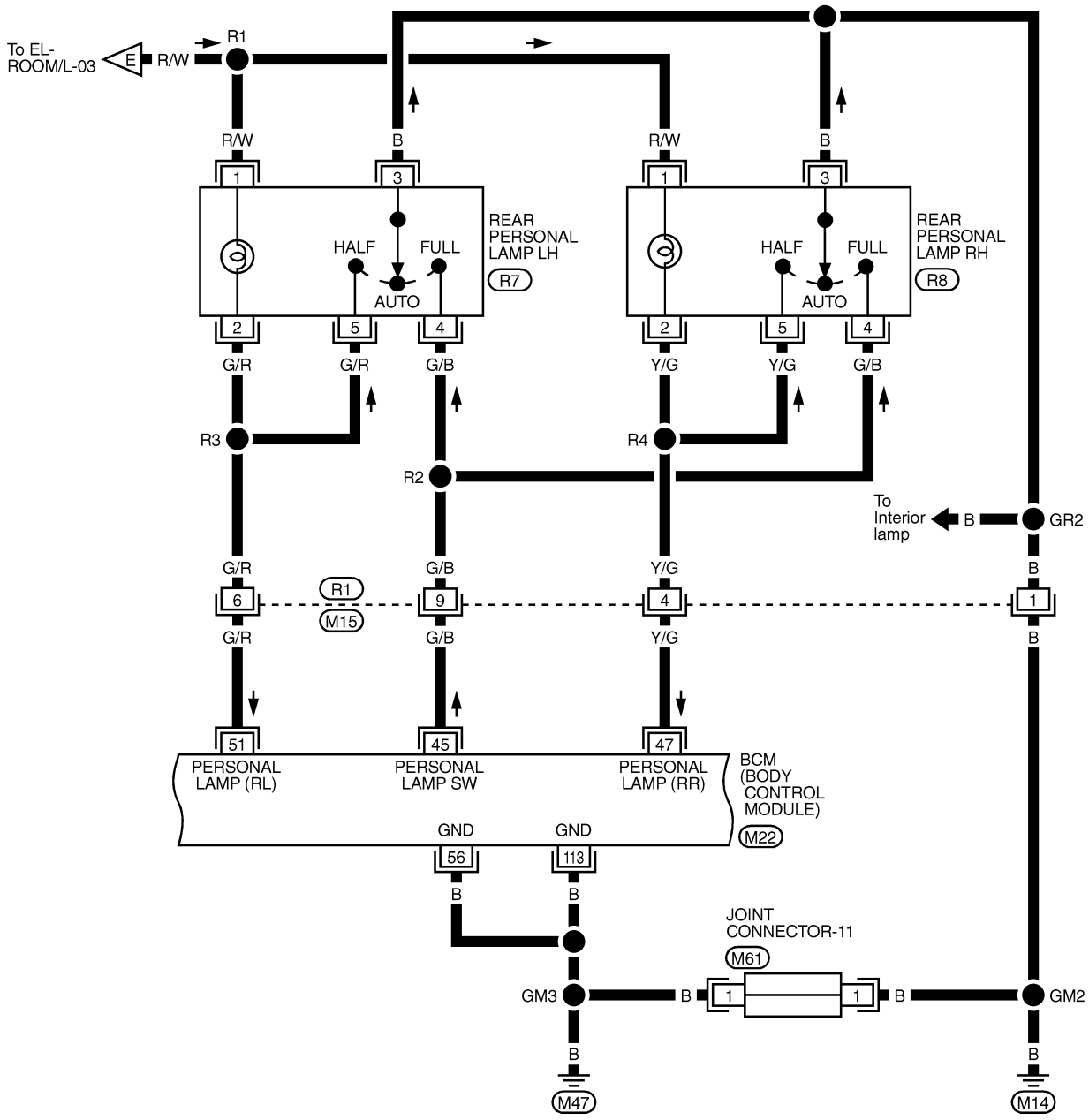
N16 W

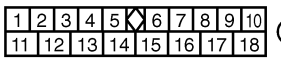
REFER TO THE FOLLOWING.
M6 -SUPER MULTIPLE JUNCTION (SMJ)
M22 -ELECTRICAL UNITS

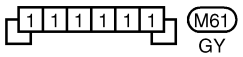
TEL163M

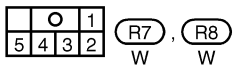
## Wiring Diagram — ROOM/L — (Cont'd)

EL-ROOM/L-05



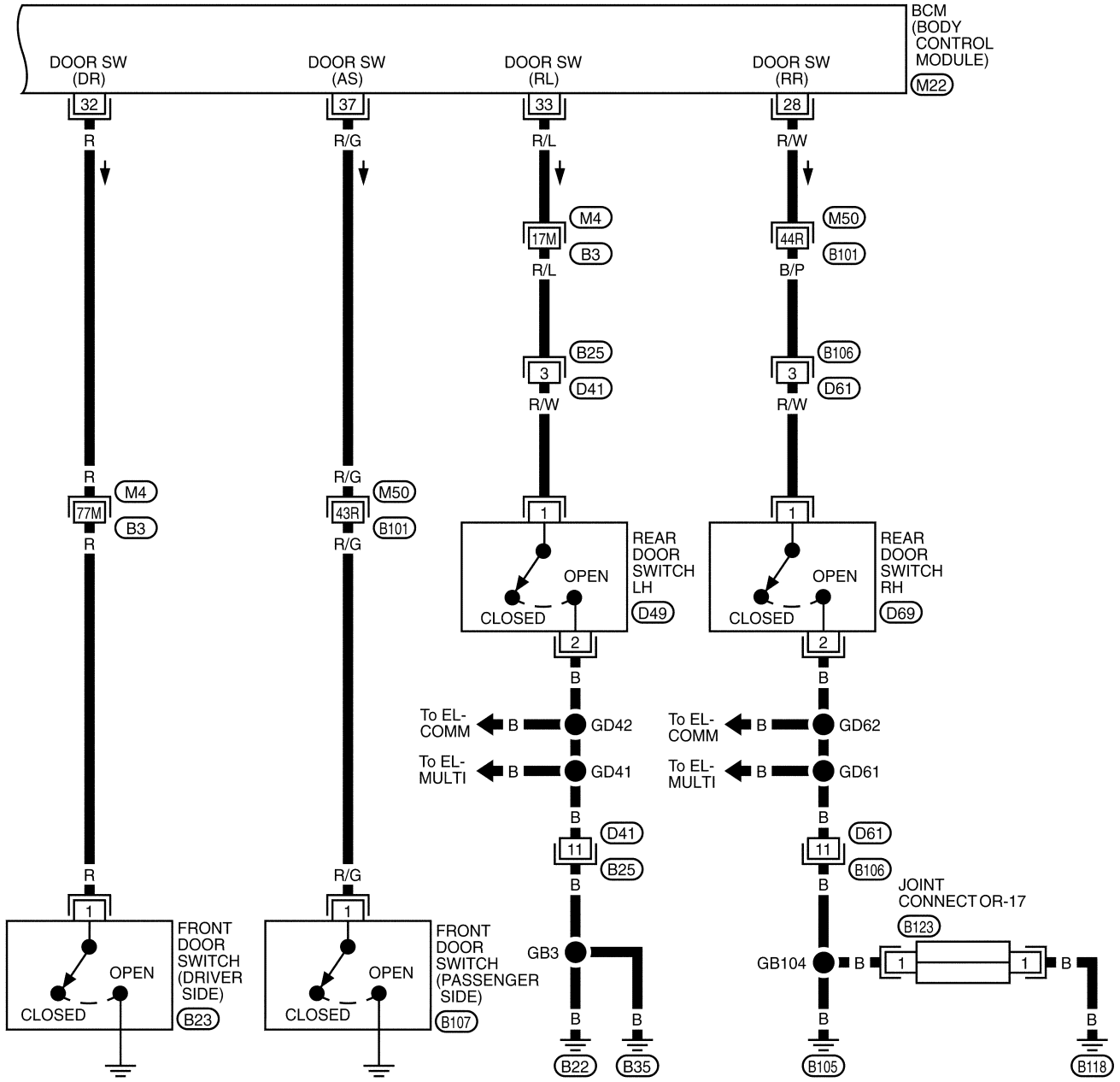



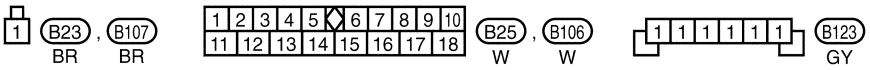

REFER TO THE FOLLOWING.
M22 -ELECTRICAL UNITS

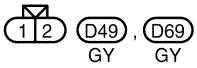
TEL164M

## Wiring Diagram — ROOM/L — (Cont'd)

EL-ROOM/L-06



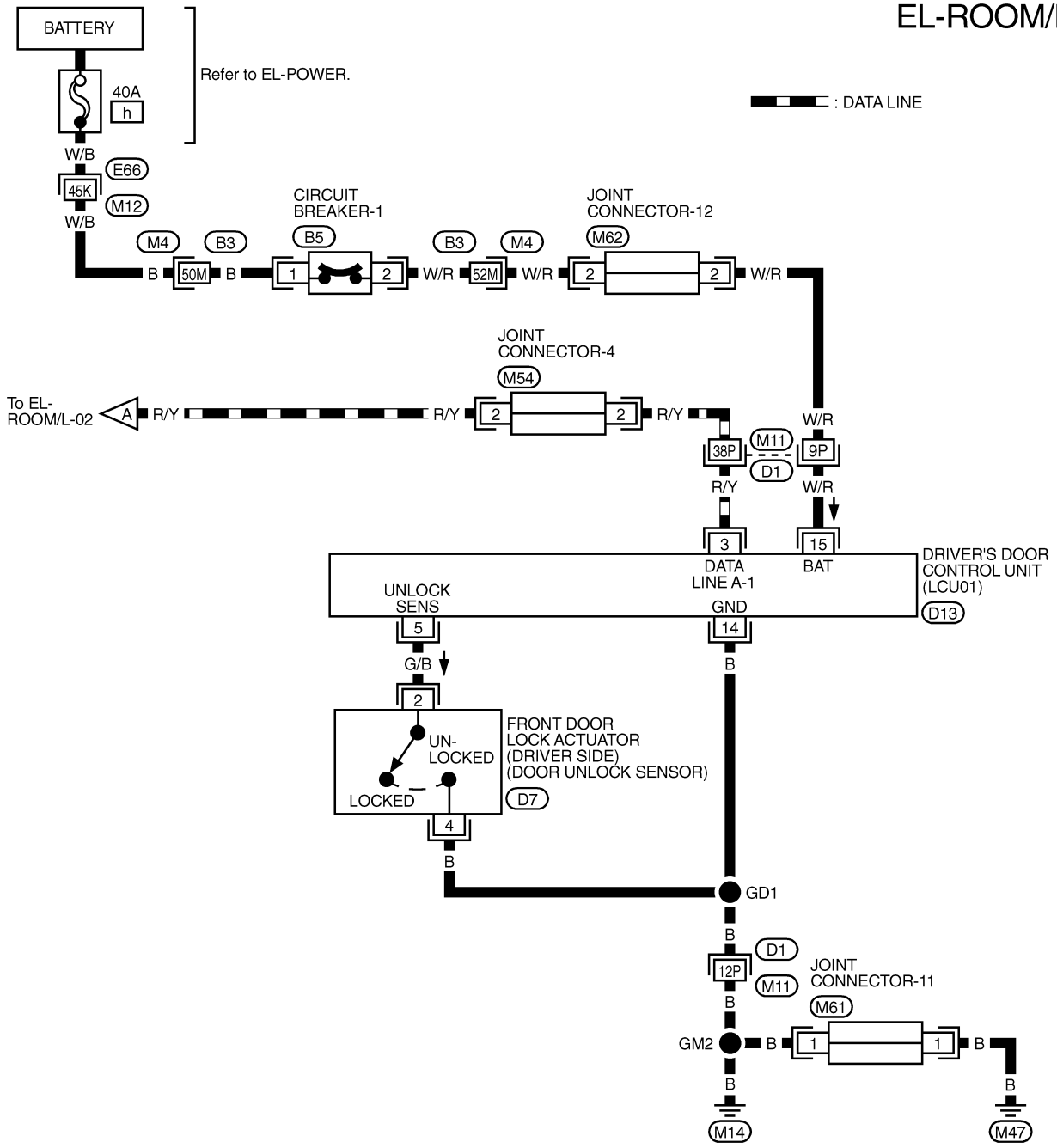



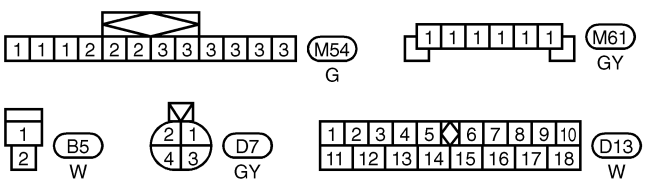

REFER TO THE FOLLOWING.
M4 , M50 -SUPER MULTIPLE JUNCTION (SMJ)
M22 -ELECTRICAL UNITS

TEL165M

## Wiring Diagram — ROOM/L — (Cont'd)

EL-ROOM/L-07



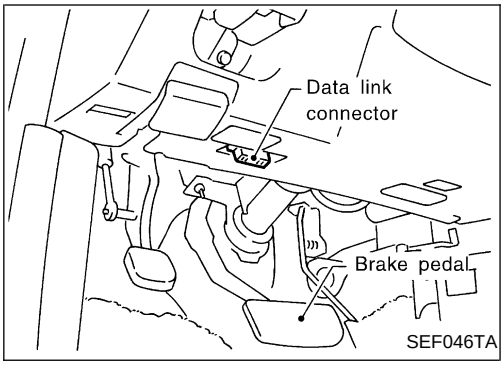







REFER TO THE FOLLOWING.
M4 , E66 , D1 -SUPER MULTIPLE JUNCTION (SMJ)

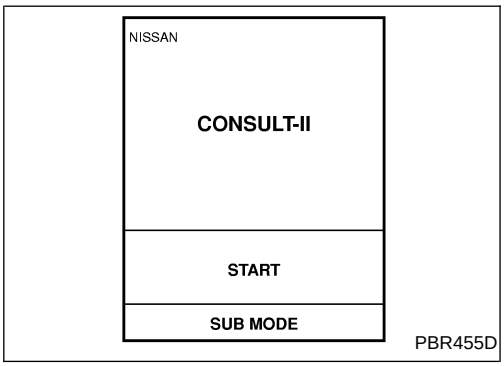
TEL166M



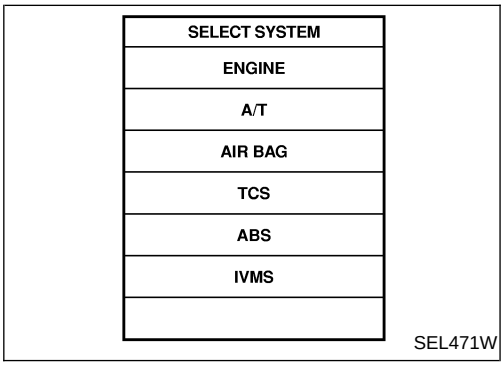

## CONSULT-II

### CONSULT-II INSPECTION PROCEDURE

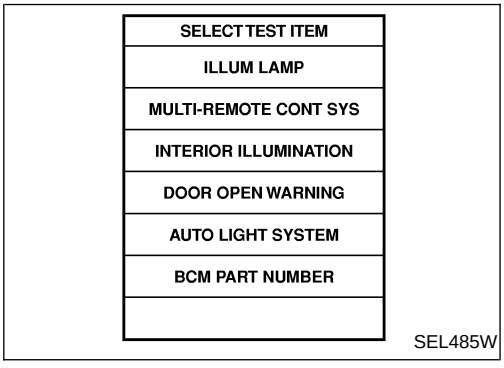
1. Turn ignition switch “OFF”.
2. Connect “CONSULT-II” to the data link connector.



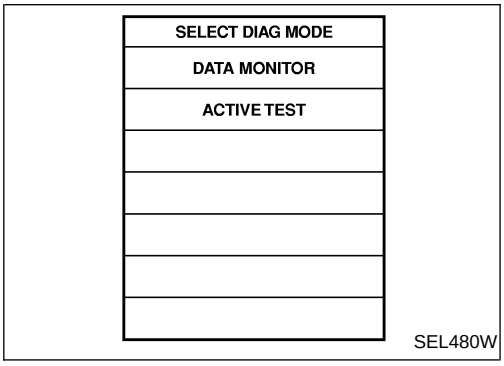

3. Turn ignition switch “ON”.
4. Touch “START”.




5. Touch “IVMS”.



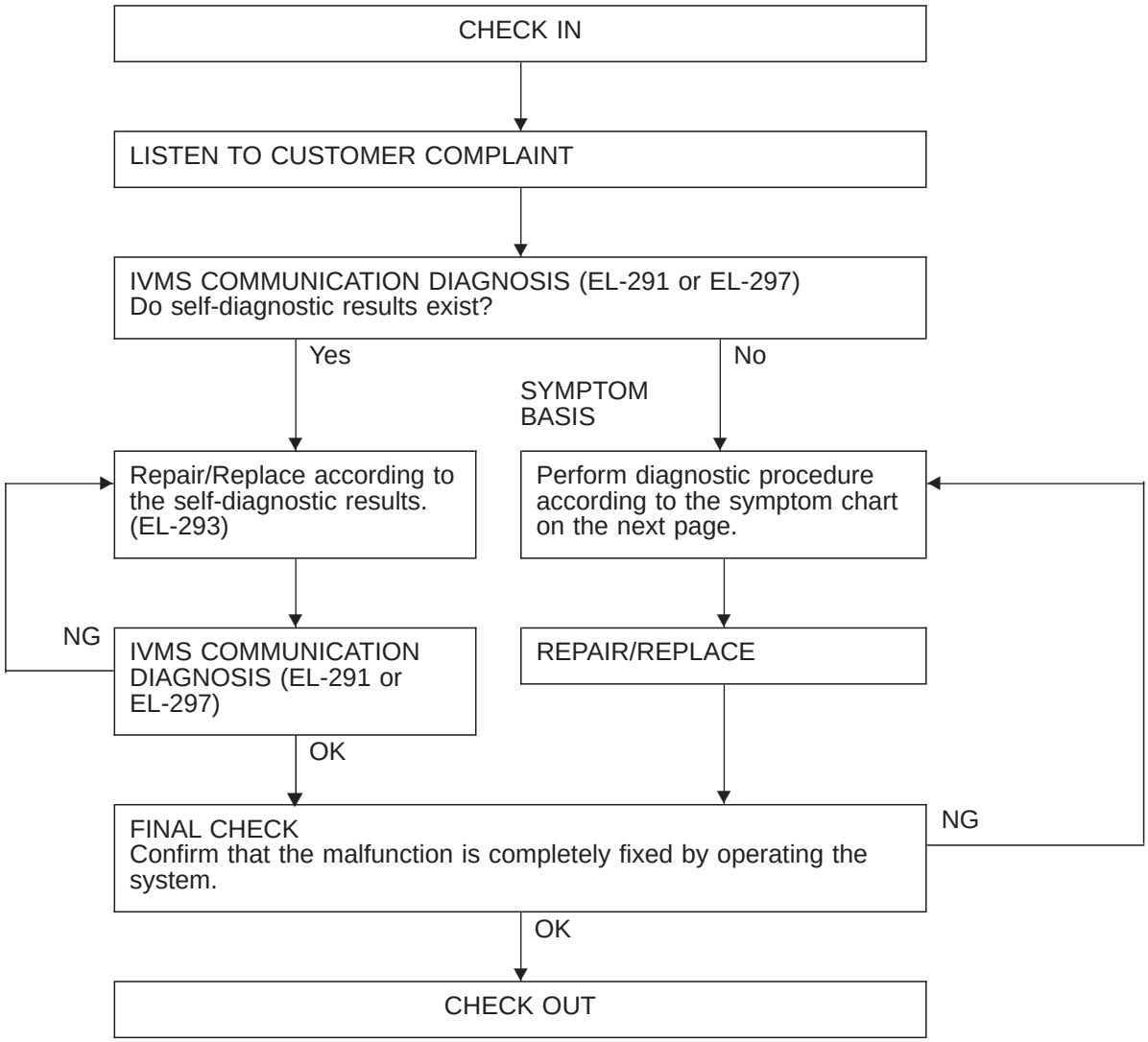

6. Touch “INTERIOR ILLUMINATION”.




- DATA MONITOR and ACTIVE TEST are available for the interior illumination.

## Trouble Diagnoses

### WORK FLOW

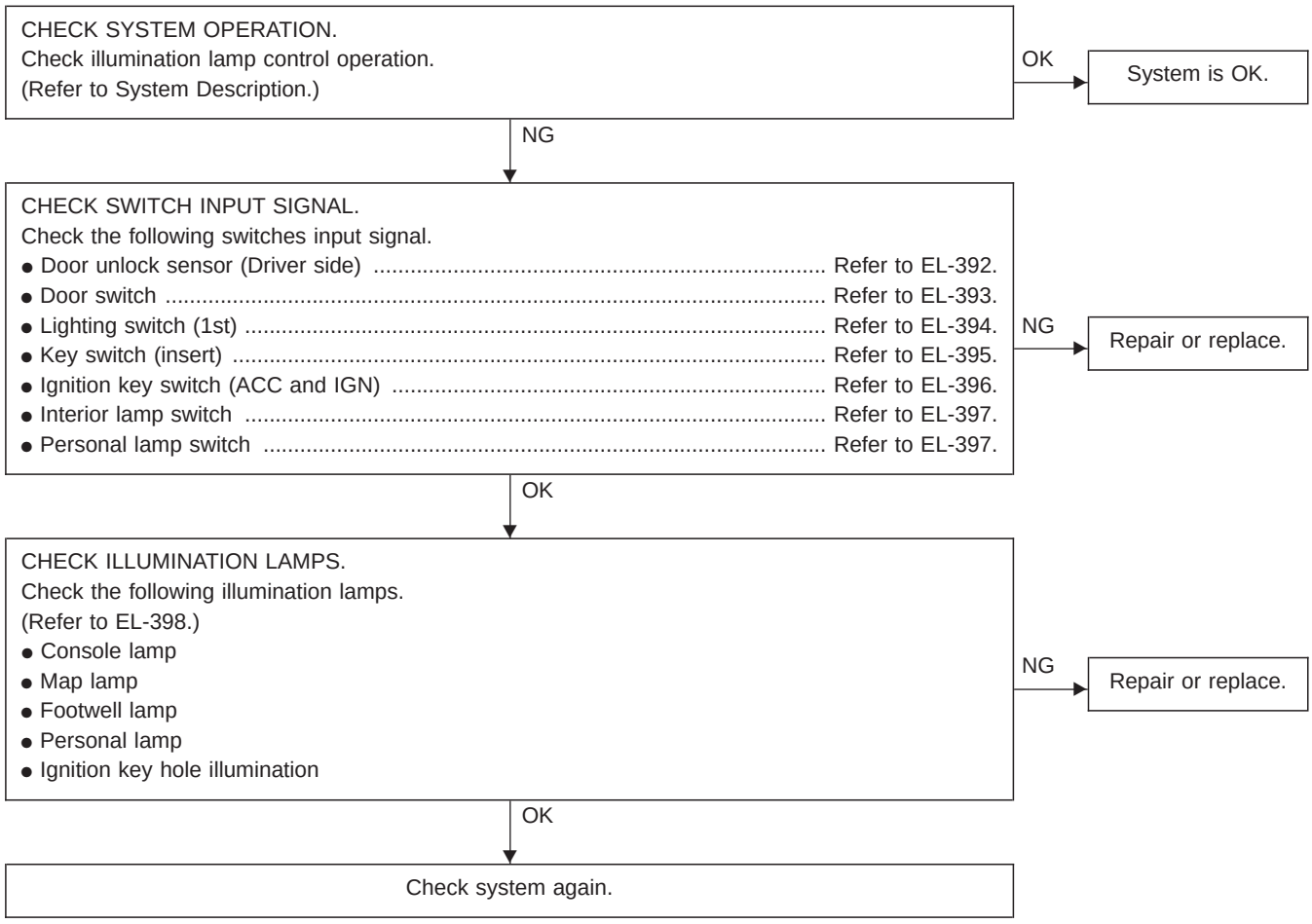



**NOTICE:**

- **When LCU connectors are disconnected for more than 1 minute such as during trouble diagnoses, the "disconnected" data will be memorized by the BCM. (While BCM memorizes the "disconnected" data, IVMS communication diagnosis of CONSULT-II will display "PAST NO RESPONSE".) Therefore, after reconnecting the LCU connectors, erase the memory.**
- **To erase the memory, perform the procedure below.**
  **Erase the memory with CONSULT-II (Refer to EL-291.) or turn the ignition switch to "OFF" position and remove 7.5A fuse [No. 14 located in the fuse block (J/B)].**

## Trouble Diagnoses (Cont'd)

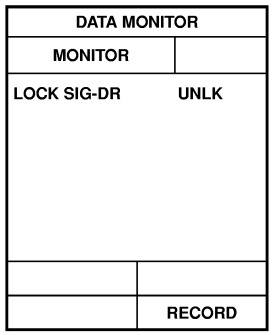
### WORK FLOW



# Trouble Diagnoses (Cont'd)

## DOOR UNLOCK SENSOR CHECK (DRIVER SIDE)

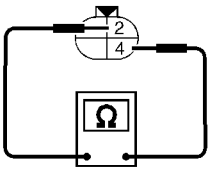
A




SEL531W

B


Door lock actuator connectors
Front LH : D7




SEL026V

**CHECK DOOR UNLOCK SENSOR INPUT SIGNAL. (DRIVER SIDE)**

A CONSULT-II

See "LOCK SIG-DR" in DATA MONITOR mode.

**"LOCK SIG-DR" should be "LOCK" when lock knob was locked.**

OR

ON BOARD

Check driver's side door lock knob operation in Switch monitor (Mode II) mode. (Refer to On board Diagnosis, EL-299.)

Refer to wiring diagram in EL-388.

OK → Door unlock sensor is OK.

NG ↓

B

**CHECK DOOR UNLOCK SENSOR.**

1. Disconnect door lock actuator connector.
2. Check continuity between door lock actuator (door unlock sensor) terminals ② and ④.

| Condition | Continuity |
|---|---|
| Locked | No |
| Unlocked | Yes |

NG → Replace door lock actuator.

OK ↓

Check the following.

- Harness for open or short between LCU and door unlock sensor
- Ground circuit for door unlock sensor

# Trouble Diagnoses (Cont'd)

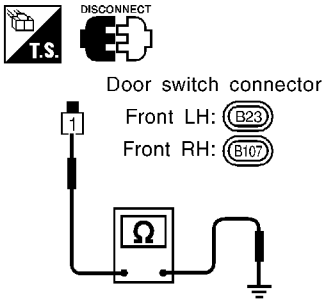
## DOOR SWITCH CHECK

A

| DATA MONITOR | |
|---|---|
| MONITOR | |
| DOOR SW-DR | OFF |
| DOOR SW-AS | OFF |
| DOOR SW-RR | OFF |
| DOOR SW-RL | OFF |
| | |
| | RECORD |

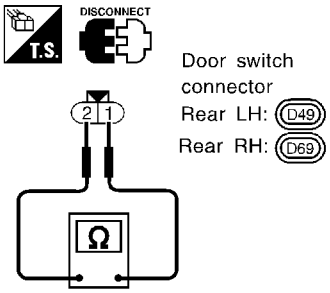
SEL527W

B




SEL914U

B




SEL021V

**CHECK DOOR SWITCH INPUT SIGNAL.**

A CONSULT-II

See "DOOR SW" in DATA MONITOR mode.
When door is open:
**DOOR SW ON**
When door is closed:
**DOOR SW OFF**

OK → Door switch is OK.

OR

ON BOARD

Check all doors switches in Switch monitor (Mode II) mode.
(Refer to On board Diagnosis, EL-299.)

Refer to wiring diagram in EL-387.

NG ↓

B

**CHECK DOOR SWITCH.**

1. Disconnect door switch connector.
2. Check continuity between terminals or switch body ground.

| | Terminals | Condition | Continuity |
|---|---|---|---|
| Front door switch | ① - Ground | Pressed | No |
| | | Released | Yes |
| Rear door switch | ① - ② | Pressed | No |
| | | Released | Yes |

NG → Replace door switch.

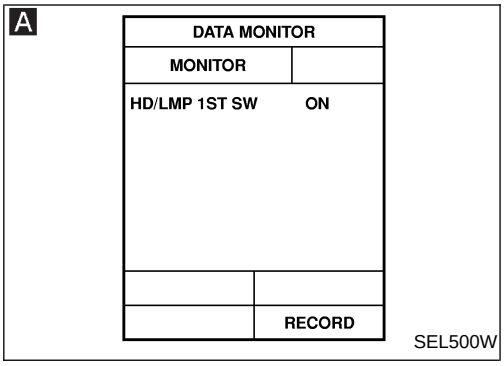
OK ↓

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

# Trouble Diagnoses (Cont'd)

## LIGHTING SWITCH (1ST) CHECK

A




A

**CHECK LIGHTING SWITCH INPUT SIGNAL.**

CONSULT-II

See "HD/LMP 1ST SW" in DATA MONITOR mode.
When lighting switch is in 1ST or 2ND:
**HD/LMP 1ST SW ON**
When lighting switch is OFF:
**HD/LMP 1ST SW OFF**

NG →

Check the following.
- 7.5A fuse [No. 22, located in the fuse block (J/B)]
- Tail lamp relay
- Harness for open or short between fuse and BCM
- Harness for open or short between tail lamp relay and fuse

OR

ON BOARD

Check lighting switch in Switch monitor (Mode II) mode.
(Refer to On board Diagnosis, EL-299.)

Refer to wiring diagram in EL-382.

OK ↓

Lighting switch (1st) is OK.

## Trouble Diagnoses (Cont'd)

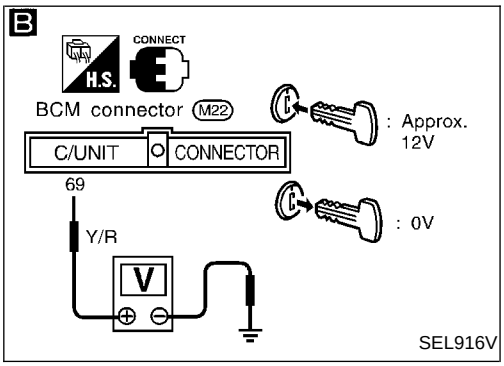
### KEY SWITCH (INSERT) CHECK

A

| DATA MONITOR | |
|---|---|
| MONITOR | |
| IGN KEY SW | ON |
| | |
| | RECORD |

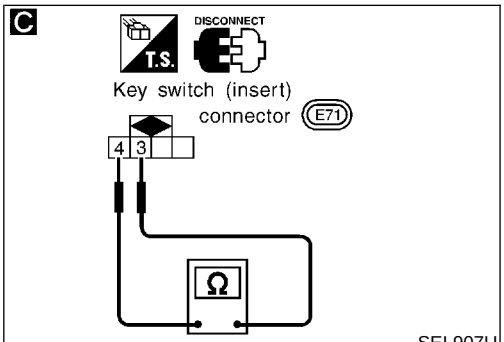
SEL532W

B




SEL916V

C




SEL907U

**CHECK KEY SWITCH INPUT SIGNAL.**

A CONSULT-II

See "IGN KEY SW" in DATA MONITOR mode.

When key is inserted in ignition key cylinder:

**IGN KEY SW ON**

When key is removed from ignition key cylinder:

**IGN KEY SW OFF**

OK → Key switch is OK.

OR

B TESTER

Check voltage between BCM terminals ⑥⑨ and ground.

| Condition of key switch | Voltage V |
|---|---|
| Key is inserted | Approx. 12 |
| Key is removed | 0 |

Refer to wiring diagram in EL-383.

NG ↓

C

**CHECK KEY SWITCH.**

1. Disconnect key switch connector.
2. Check continuity between key switch (insert) terminals ③ and ④ when key is inserted in ignition key cylinder and key is removed from ignition key cylinder.

NG → Replace key switch (insert).

| Condition | Continuity |
|---|---|
| Key is inserted | Yes |
| Key is removed | No |

OK ↓

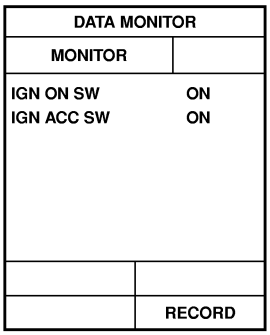
Check the following.

- 10A fuse [No. 28, located in fuse block (J/B)]
- Harness for open or short between key switch and fuse
- Harness for open or short between BCM and key switch

## Trouble Diagnoses (Cont'd)

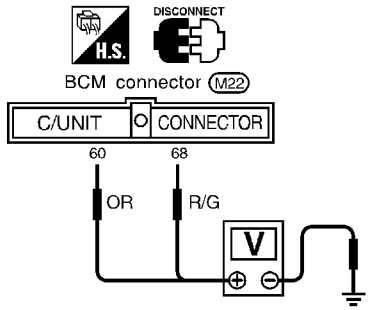
### IGNITION KEY SWITCH (ACC AND IGN) INPUT SIGNAL CHECK

A




SEL533W

B




SEL642UA

**CHECK ACC AND IGN INPUT SIGNAL.**

A CONSULT-II

See "IGN ON SW" and "IGN ACC SW" in DATA MONITOR mode.

When ignition switch is ON:

**IGN ON SW ON**

**IGN ACC SW ON**

When ignition switch is ACC:

**IGN ON SW OFF**

**IGN ACC SW ON**

When ignition switch is OFF:

**IGN ON SW OFF**

**IGN ACC SW OFF**

NG →

Check the following.

- 7.5A fuse [No. 23, located in the fuse block (J/B)]
- 7.5A fuse [No. 32, located in the fuse block (J/B)]
- Harness for open or short between fuse and BCM

OR

B TESTER

Check voltage between BCM terminal ⑥⓪ or ⑥⑧ and ground.

| Terminals | Ignition switch position | | | |
|---|---|---|---|---|
| | OFF | ACC | ON | START |
| ⑥⓪ - Ground | Approx. 0V | Battery voltage | | Approx. 0V |
| ⑥⑧ - Ground | Approx. 0V | | Battery voltage | |

Refer to wiring diagram in EL-383.

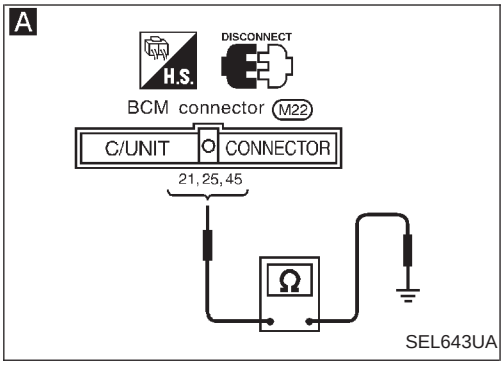
OK ↓

ACC and IGN input signal is OK.

## Trouble Diagnoses (Cont'd)

### INTERIOR LAMP AND PERSONAL LAMP SWITCH CHECK

A




**CHECK LAMP SWITCHES INPUT SIGNAL.**

1. Disconnect BCM connector.
2. Check continuity between BCM terminals and ground.

Note: To perform this procedure, turn both map lamp switches to OFF.

| Switch | Terminals | Condition | Continuity |
|---|---|---|---|
| Interior lamp | ㉑ - Ground | ON | Yes |
| | | AUTO/ OFF | No |
| | ㉕ - Ground | OFF | Yes |
| | | AUTO/ ON | No |
| Rear personal lamp LH/RH | ㊺ - Ground | FULL | Yes |
| | | HALF/ AUTO | No |

Refer to wiring diagram in EL-384 or 386.

NG → Check the following.
- Lamp switch
- Lamp switch ground circuit
- Harness for open or short between BCM and lamp switch

OK ↓

Lamp switches are OK.

# Trouble Diagnoses (Cont'd)

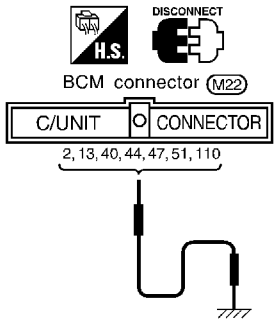
## ILLUMINATION LAMP CHECK

A

| ACTIVE TEST | |
|---|---|
| FR PERSONAL LUMP | OFF |
| OR | |
| FOOT LAMP | OFF |
| CONSOLE LAMP | OFF |
| RR PERSONAL LAMP | OFF |
| KEY RING ILLUM | OFF |
| | |
| | |
| ON | |

SEL534W

B




SEL644UA

Check illumination lamp bulb.

NG → Replace bulb.

OK ↓

Check 10A fuse [No. 27 located in the fuse block (J/B)].

NG → Replace fuse.

OK ↓

**CHECK ILLUMINATION LAMP OPERATION.**

1. Turn each lamp switch to the following conditions.
   Map lamp LH/RH switch: OFF
   Interior lamp switch: AUTO
   Rear personal lamp LH/RH switch: OFF

A CONSULT-II

See "FR PERSONAL LAMP (Front map lamp)", "FOOT LAMP (Footwell lamp)", "CONSOLE LAMP", "RR PERSONAL LAMP" or "KEY RING ILLUM" in ACTIVE TEST mode.
Perform operation shown on display.
**Illumination lamp should illuminate.**

NG → Check the following.
- Harness for open or short between fuse and illumination lamp
- Harness for open or short between illumination lamp and BCM

OR

B

2. Disconnect BCM connector.
3. Apply ground to each terminal of BCM connector.
   **Does illumination lamp turn on?**

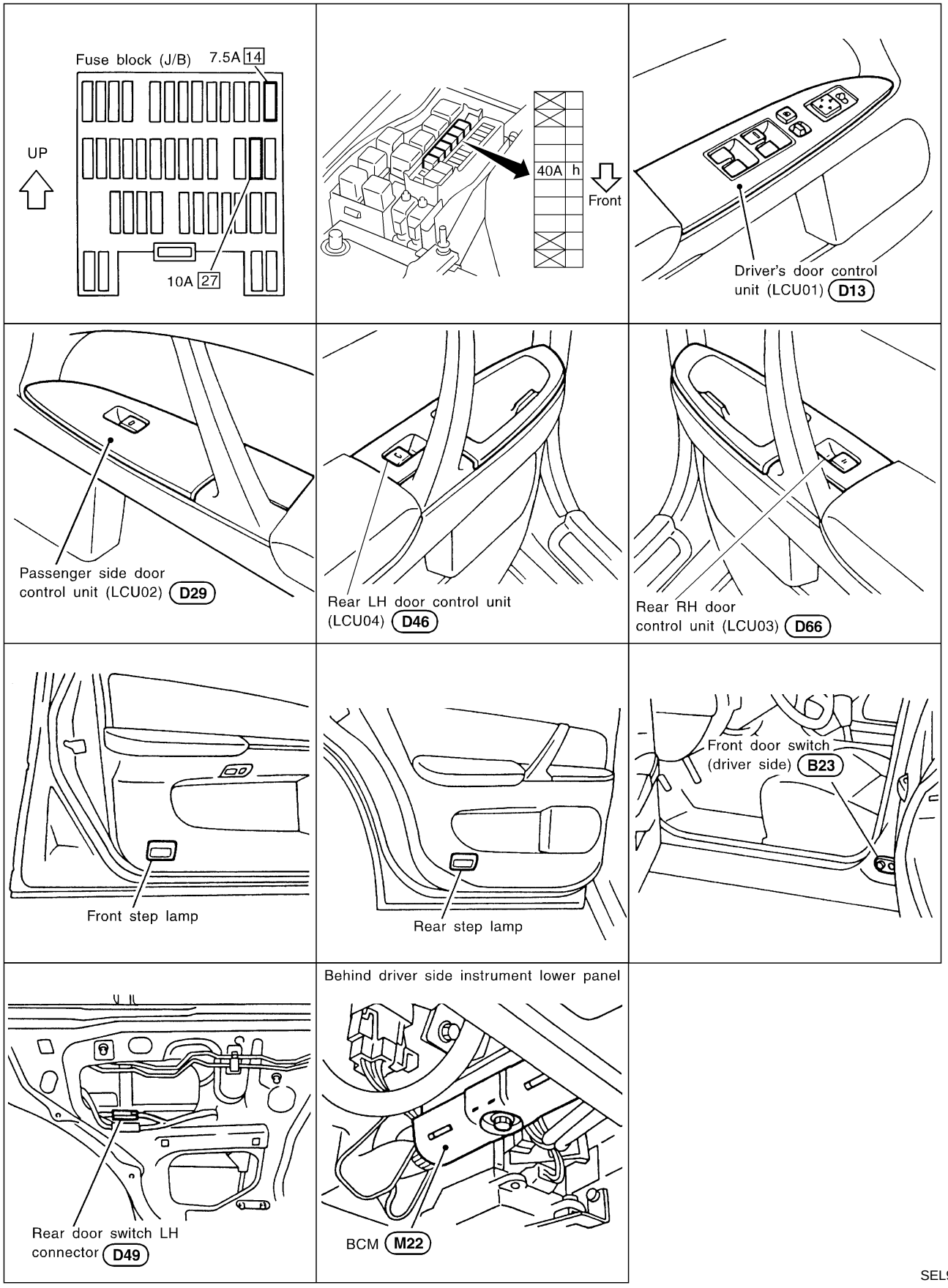
| Illumination lamp | Terminals |
|---|---|
| Console lamp | ② |
| Footwell lamp | ⑬ |
| Front map lamp LH | ⑩ |
| Front map lamp RH | ㊹ |
| Rear personal lamp RH | ㊼ |
| Rear personal lamp LH | ㊶ |
| Ignition key hole illumination | 110 |

Refer to wiring diagram in EL-384, 385 or 386.

OK ↓

Illumination lamps and circuit is OK.

## Component Parts and Harness Connector Locations




SEL942W

## System Description

### POWER SUPPLY AND GROUND

Power is supplied at all times
- to BCM terminal (105)
- through 7.5A fuse [No. 14, located in the fuse block (J/B)].

Power is supplied at all times
- to all step lamps terminal ①
- through 10A fuse [No. 27, located in the fuse block (J/B)].

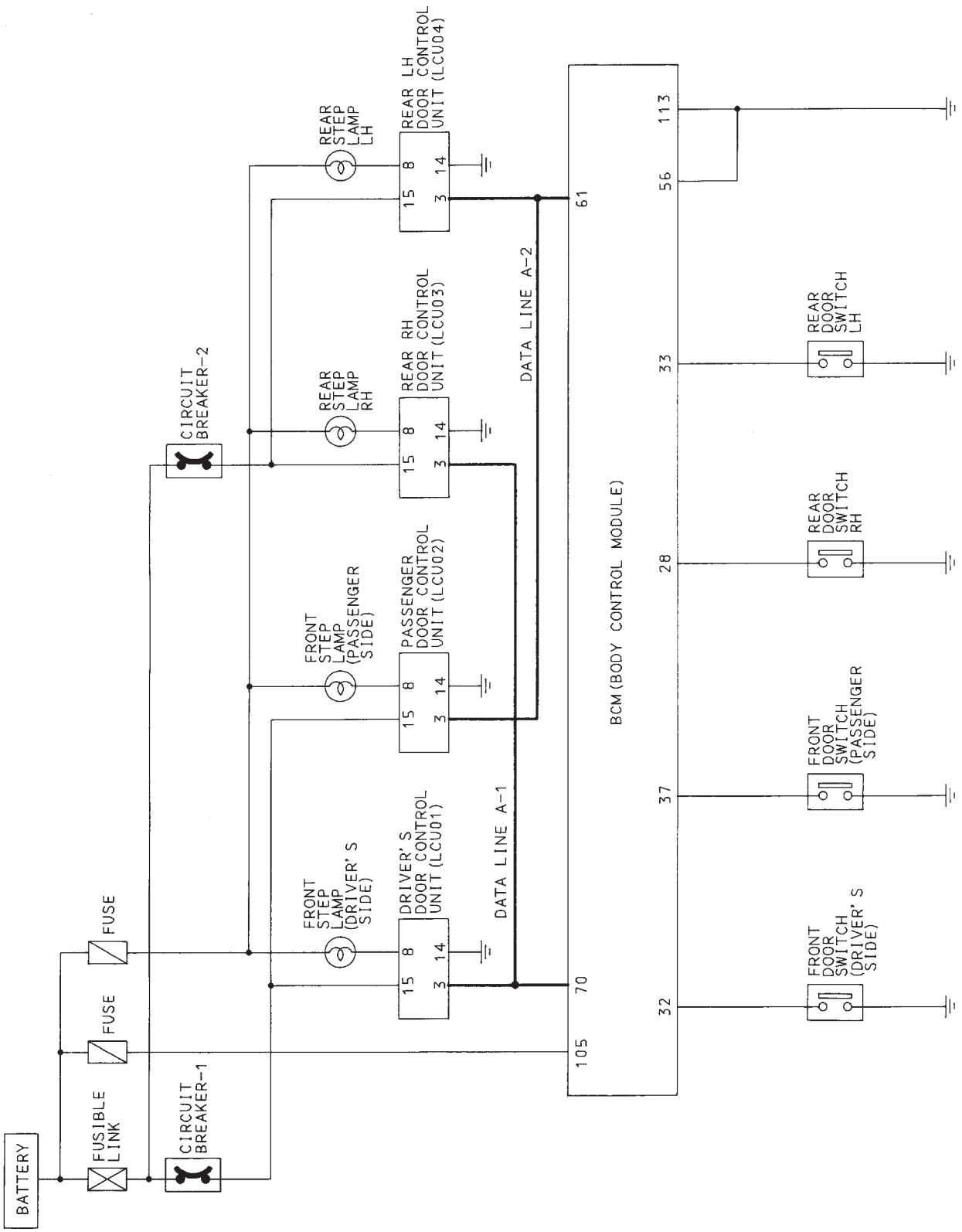
Ground is supplied to terminal ⑭ of LCU01 and LCU02 through body grounds (M14) and (M47).
Ground is also supplied to terminal ⑭ of LCU03 and LCU04 through body grounds (B105) and (B118) or (B22) and (B35).

### OPERATING PROCEDURE

BCM is connected to LCU01, LCU02, LCU03 and LCU04 as DATA LINE A-1 or A-2.
When any door switch is in OPEN position, ground is supplied
- to BCM terminal ㉜, ㊲, ㉝, or ㉘
- through driver side, passenger side, rear LH or RH door switch.

Then BCM sends a signal to the LCU to turn on step lamp. With ground supplied, step lamp turns on.

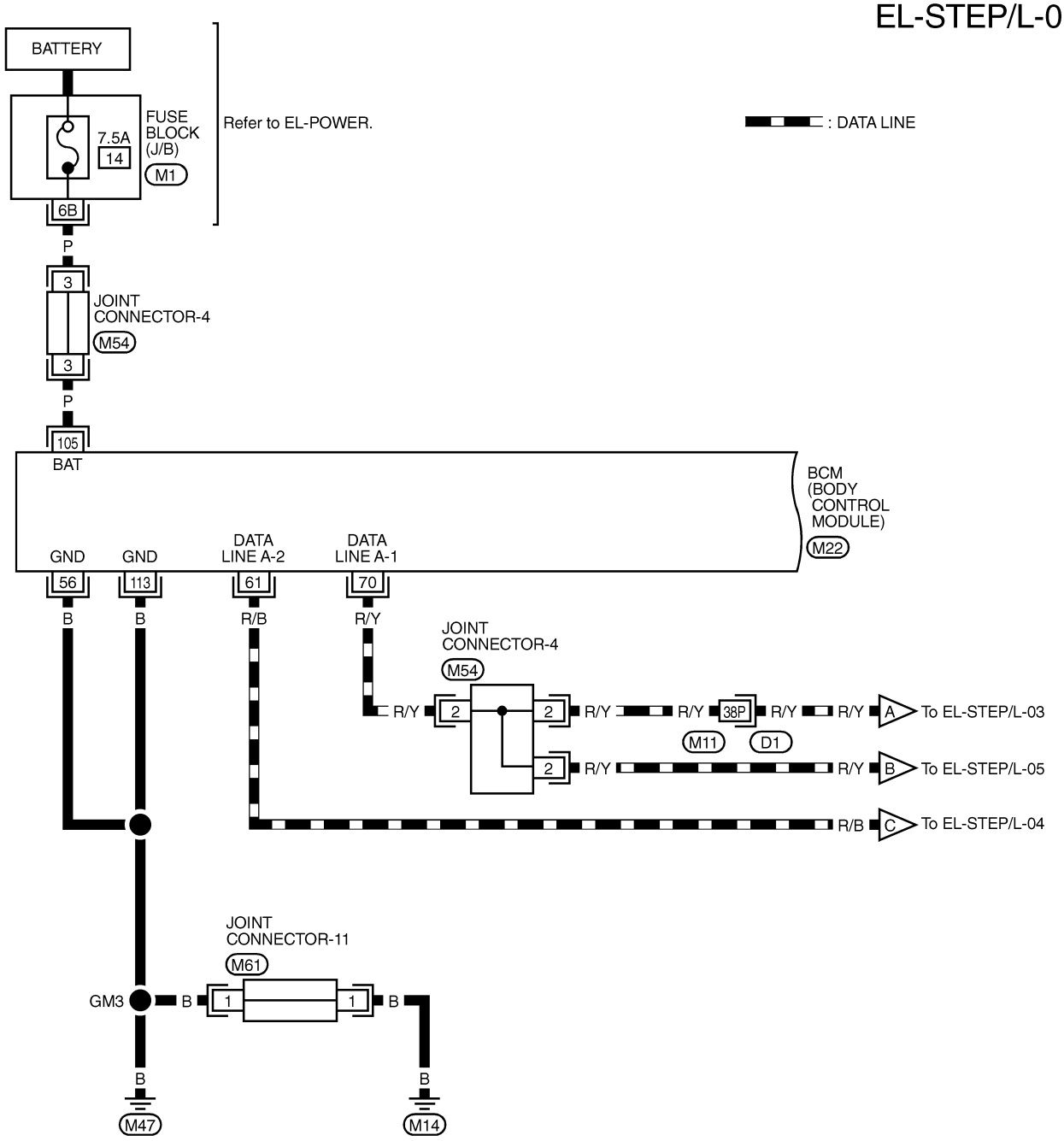
## Schematic

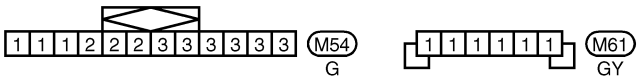



TEL858

## Wiring Diagram — STEP/L —

EL-STEP/L-01




REFER TO THE FOLLOWING.

(D1) -SUPER MULTIPLE JUNCTION (SMJ)

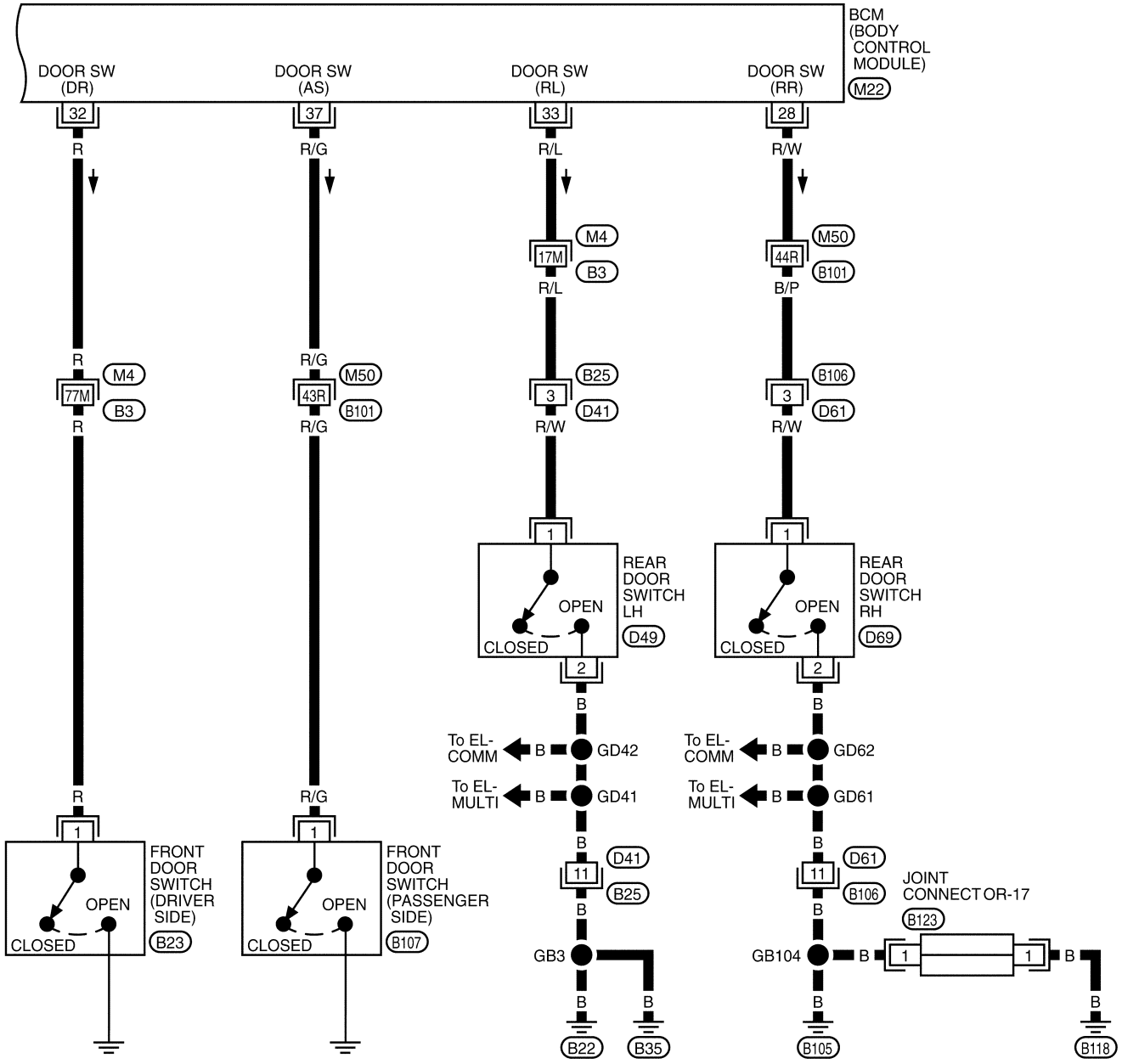
(M1) -FUSE BLOCK-JUNCTION BOX (J/B)

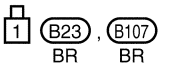
(M22) -ELECTRICAL UNITS

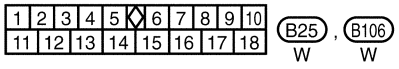
TEL167M

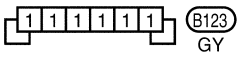
## Wiring Diagram — STEP/L — (Cont'd)

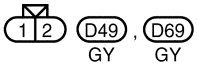
EL-STEP/L-02



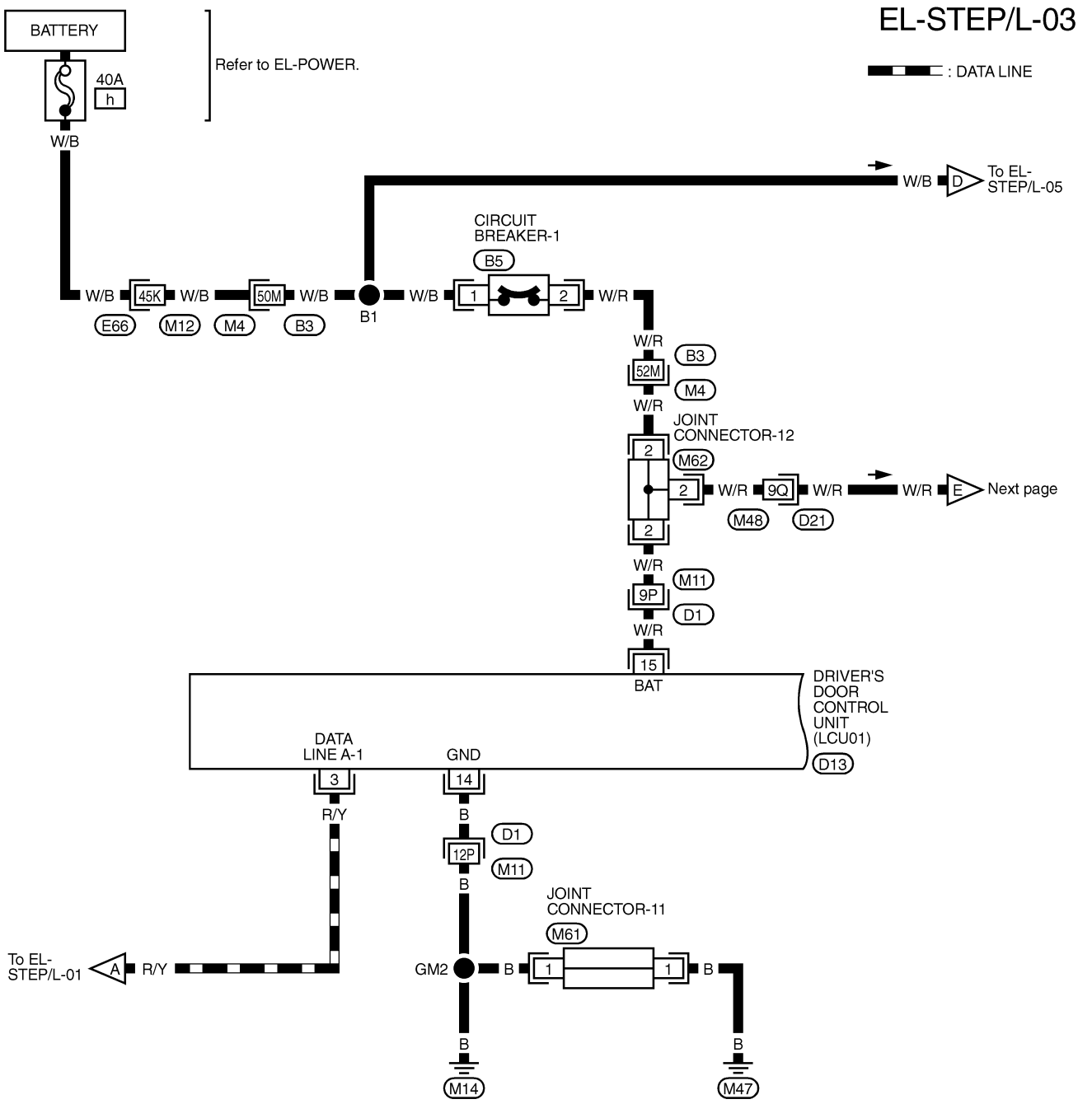



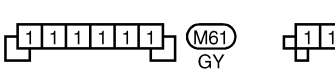



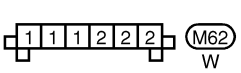

REFER TO THE FOLLOWING.
M4 , M50 -SUPER MULTIPLE JUNCTION (SMJ)
M22 -ELECTRICAL UNITS

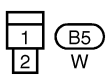
TEL168M

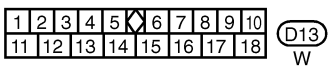
## Wiring Diagram — STEP/L — (Cont'd)



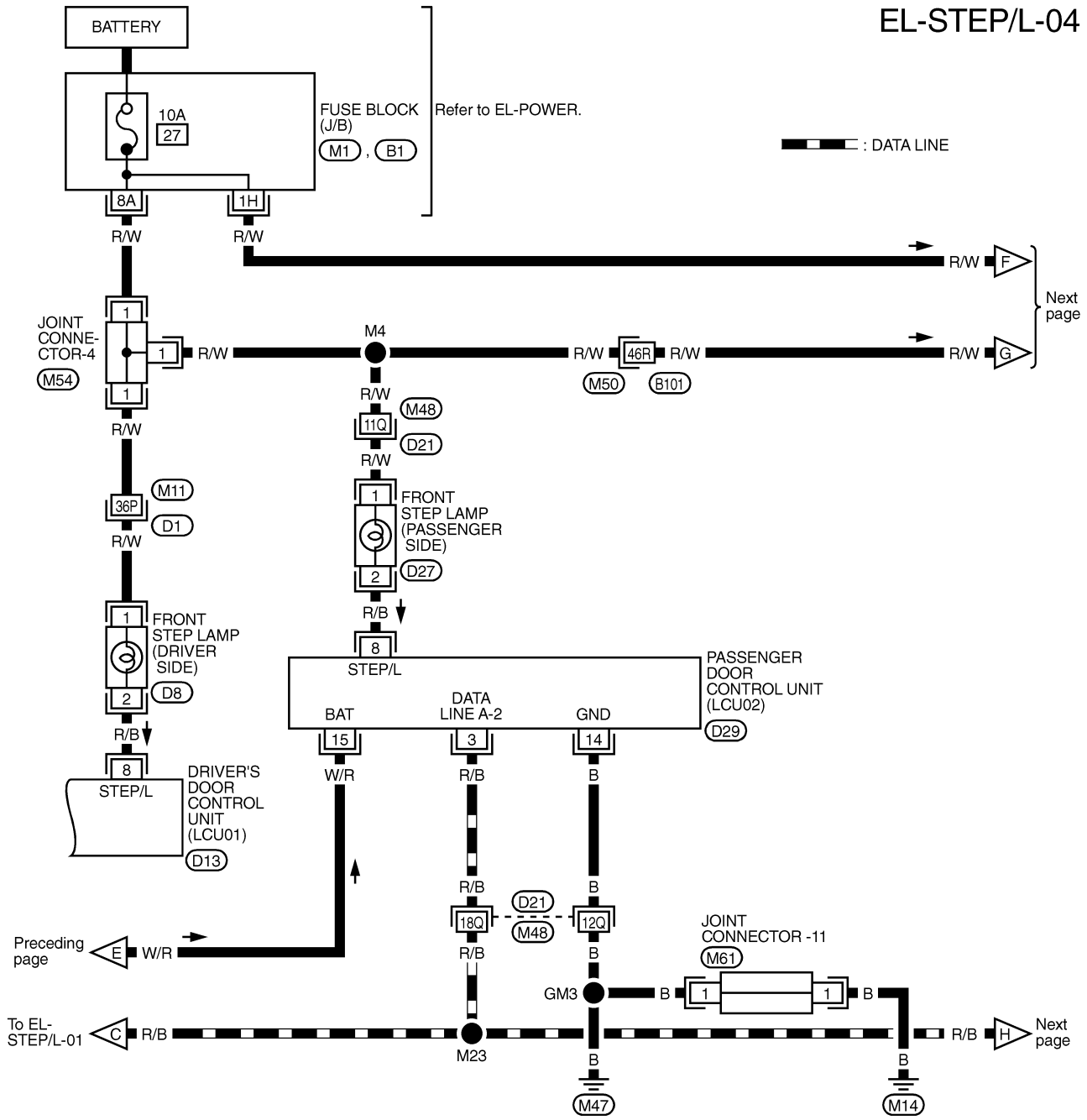



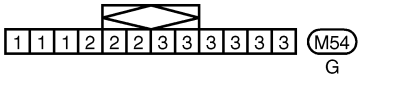



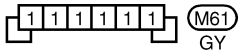

REFER TO THE FOLLOWING.
M4 , E66 , D1 , D21
-SUPER MULTIPLE JUNCTION (SMJ)

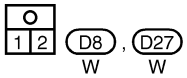
TEL169M

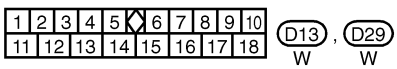
## Wiring Diagram — STEP/L — (Cont'd)



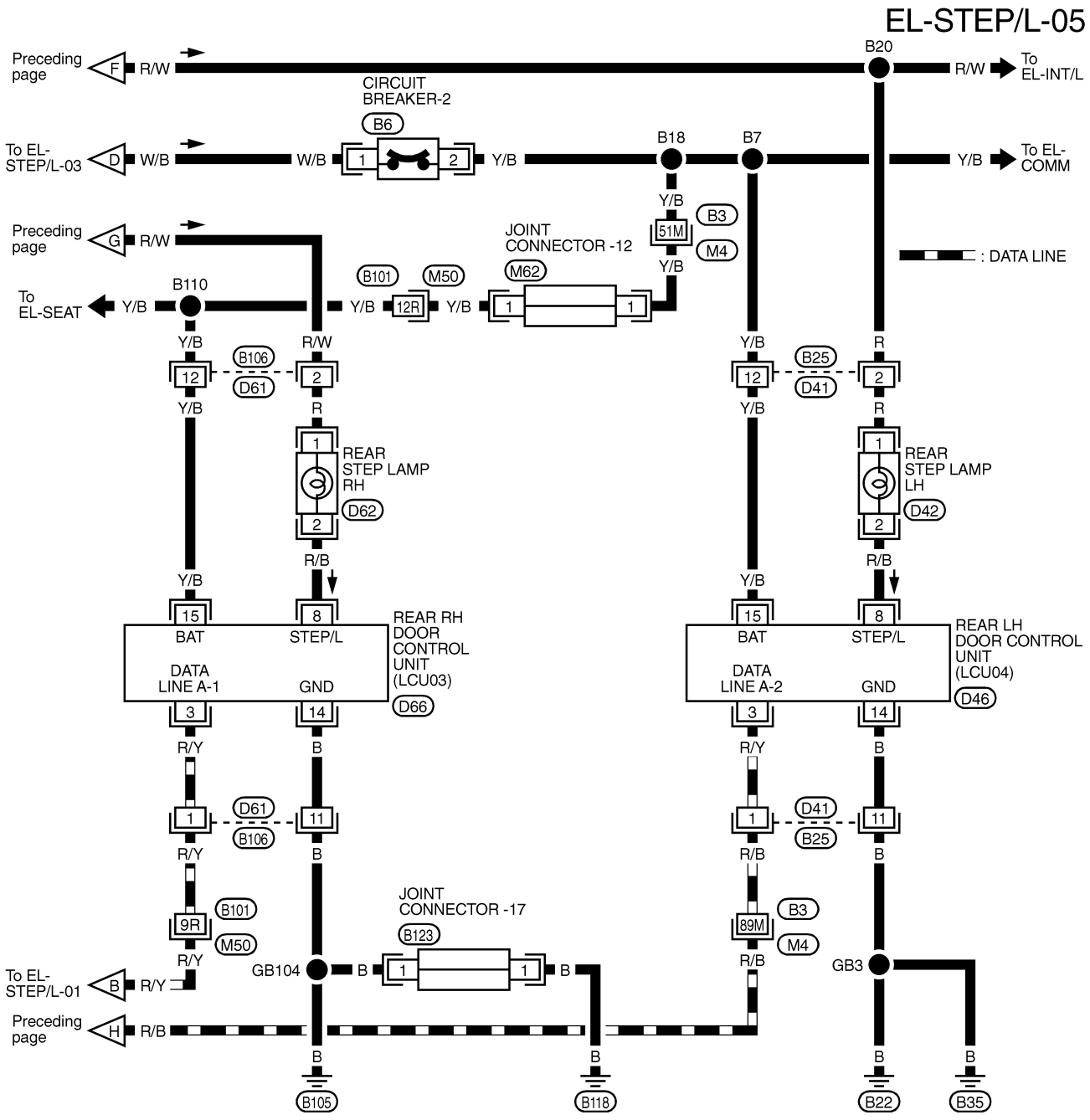



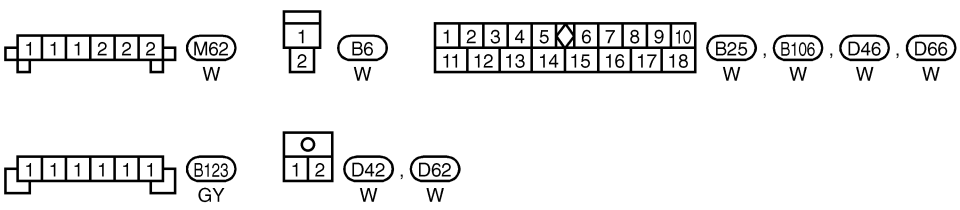




REFER TO THE FOLLOWING.
M50 , D1 , D21 -SUPER MULTIPLE JUNCTION (SMJ)
M1 , B1 -FUSE BLOCK-JUNCTION BOX (J/B)

TEL170M

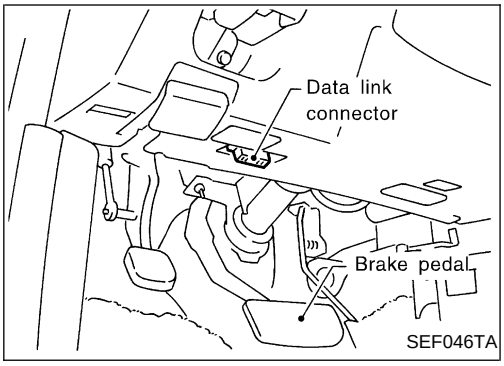
## Wiring Diagram — STEP/L — (Cont'd)




REFER TO THE FOLLOWING.
M4 , M50 -SUPER MULTIPLE JUNCTION (SMJ)

TEL171M

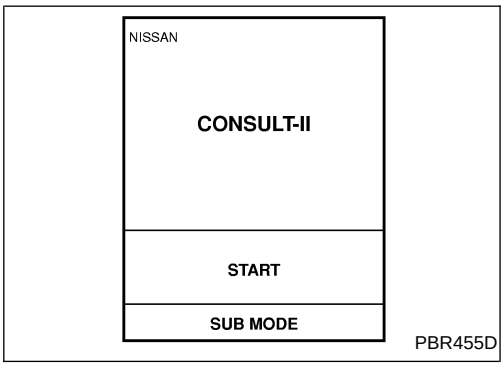


SEF046TA

## CONSULT-II

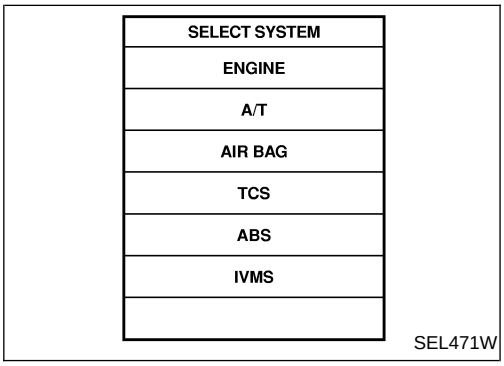
### CONSULT-II INSPECTION PROCEDURE

1. Turn ignition switch “OFF”.
2. Connect “CONSULT-II” to the data link connector.



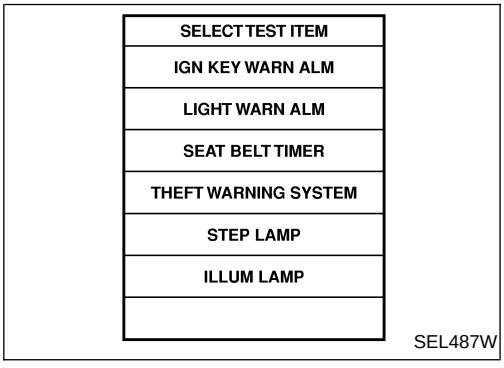
PBR455D

3. Turn ignition switch “ON”.
4. Touch “START”.



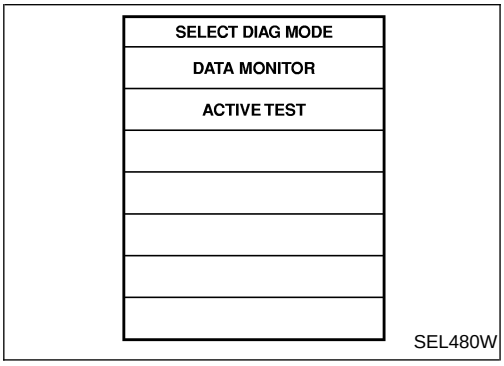
SEL471W

5. Touch “IVMS”.



SEL487W

6. Touch “STEP LAMP”.

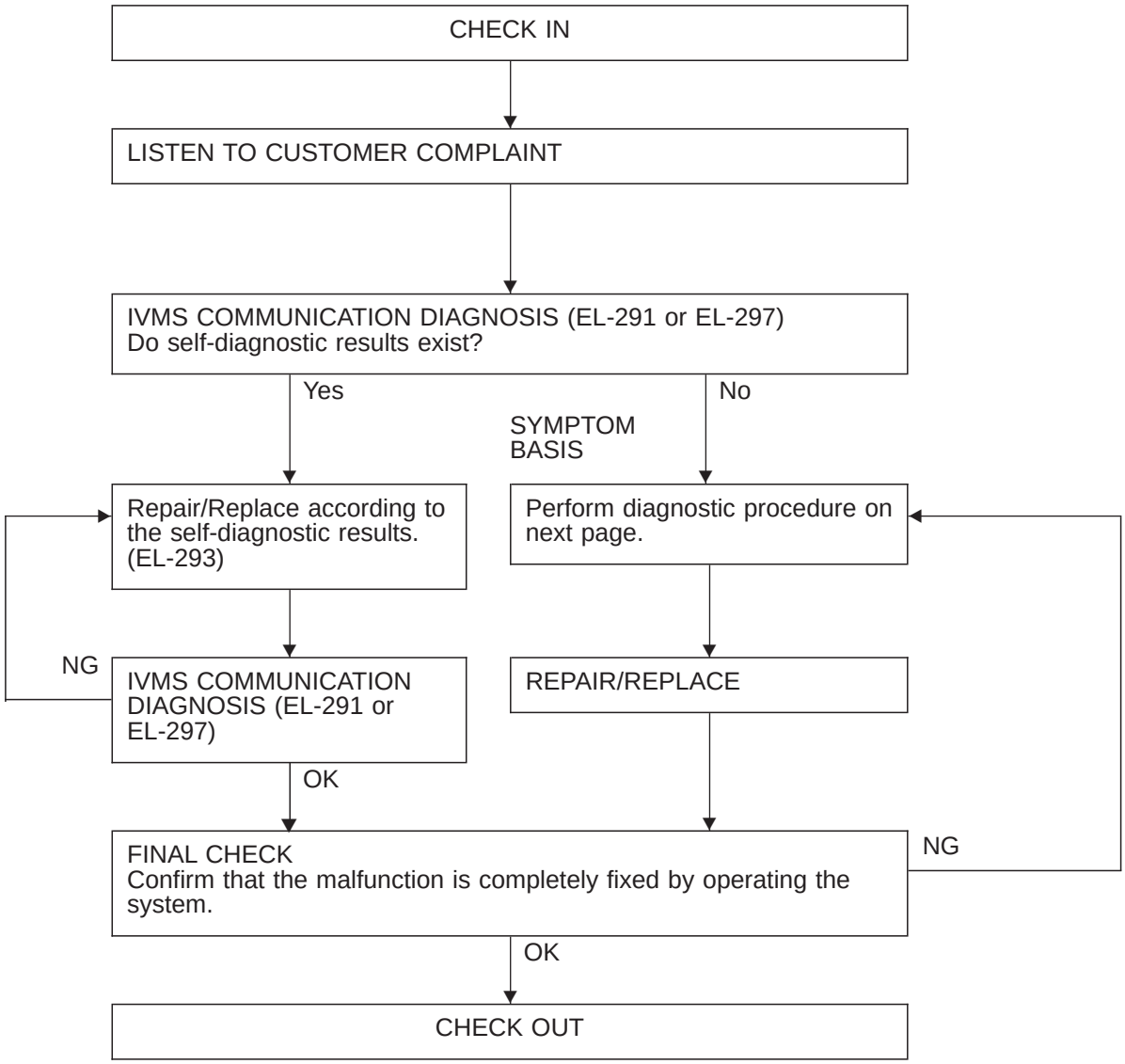


SEL480W

- DATA MONITOR and ACTIVE TEST are available for the step lamp.

## Trouble Diagnoses

### WORK FLOW




**NOTICE:**

- **When LCU connectors are disconnected for more than 1 minute such as during trouble diagnoses, the “disconnected” data will be memorized by the BCM. (While BCM memorizes the “disconnected” data, IVMS communication diagnosis of CONSULT-II will display “PAST NO RESPONSE”.) Therefore, after reconnecting the LCU connectors, erase the memory.**
- **To erase the memory, perform the procedure below.**
  **Erase the memory with CONSULT-II (Refer to EL-291.) or turn the ignition switch to “OFF” position and remove 7.5A fuse [No. 14 located in the fuse block (J/B)].**

# Trouble Diagnoses (Cont'd)

## DIAGNOSTIC PROCEDURE

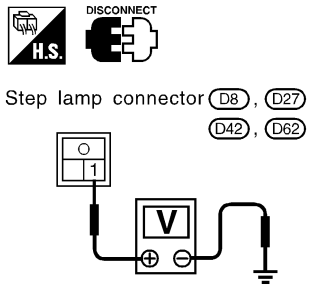
**SYMPTOM: Step lamp does not illuminate/does not go off when door is opened/closed.**

A

| DATA MONITOR | |
|---|---|
| MONITOR | |
| DOOR SW-DR | OFF |
| DOOR SW-AS | OFF |
| DOOR SW-RR | OFF |
| DOOR SW-RL | OFF |
| | |
| | RECORD |

SEL527W

B




SEL673UD

**CHECK DOOR SWITCH INPUT SIGNAL.**

A CONSULT-II

See "DOOR SW" in DATA MONITOR mode.
When door is open:
**DOOR SW ON**
When door is closed:
**DOOR SW OFF**

NG → Check the following.
- Door switch
- Door switch ground condition (Front door) or door switch ground circuit (Rear door)
- Harness for open or short between door switch and BCM

OR

ON BOARD

Check all doors switches in Switch monitor (Mode II) mode.
(Refer to On board Diagnosis, EL-299.)

Refer to wiring diagram in EL-403.

OK ↓

Check step lamp bulb.

NG → Replace bulb.

OK ↓

B

**CHECK POWER SUPPLY CIRCUIT.**
1. Disconnect step lamp connector.
2. Check voltage between step lamp terminal ① and ground.
   **Battery voltage should exist.**

Refer to wiring diagram in EL-405 or 406.

NG → Check the following.
- 10A fuse [No. 27, located in the fuse block (J/B)]
- Harness for open or short between fuse and step lamp

OK ↓

Check harness for open or short between step lamp and LCU.

## System Description

### REAR POWER WINDOW SWITCH ILLUMINATION

Power is supplied at all times
- to tail lamp relay terminals ① and ⑥
- through 15A fuse [No. 63, located in the fuse, fusible link and relay box].

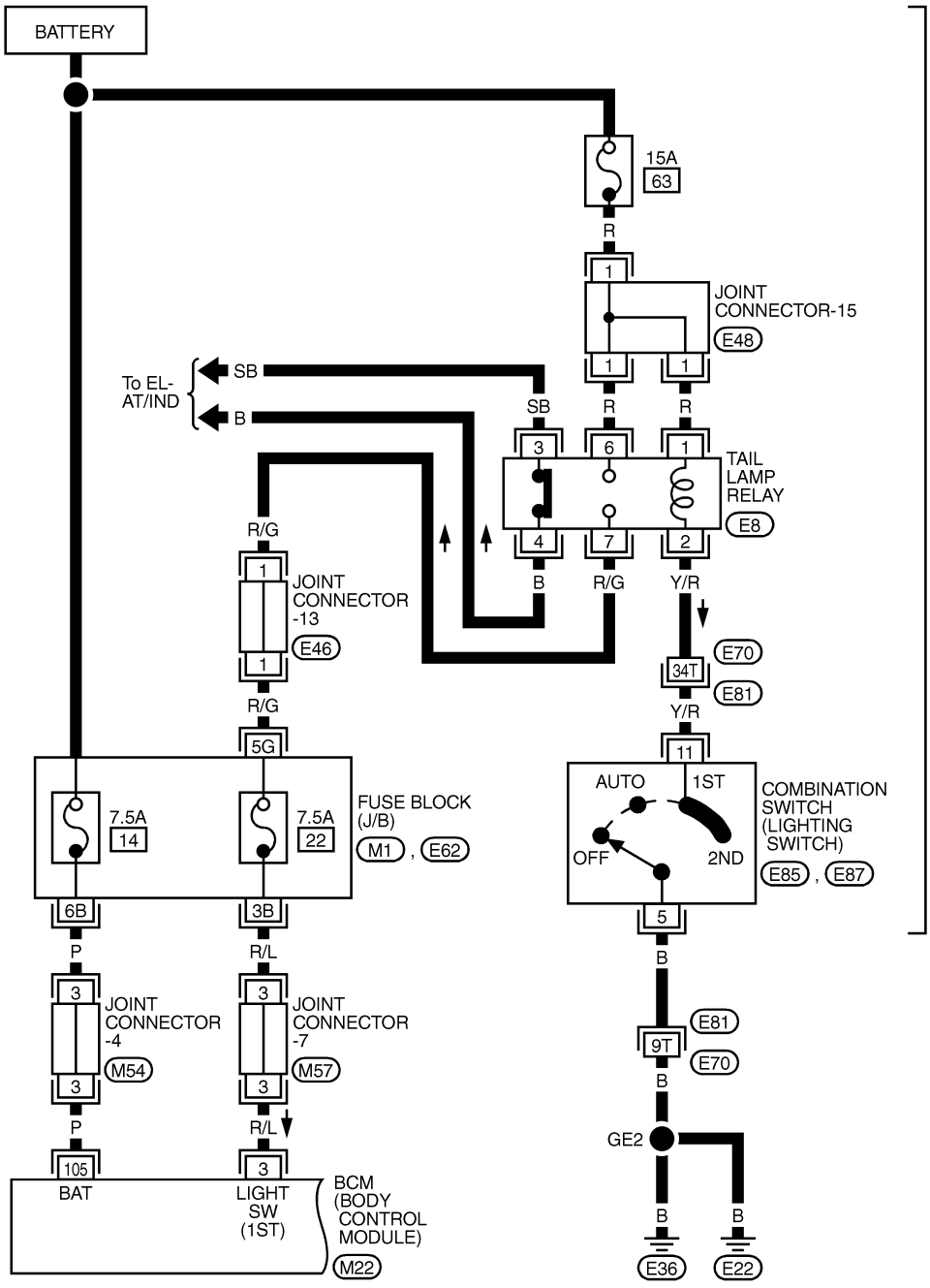
Ground is supplied
- to the lighting switch terminal ⑤
- through body grounds E22 and E36.

When the lighting switch is turned to 1ST or 2ND position, ground is supplied
- to tail lamp relay terminal ②
- from the lighting switch terminal ⑪.

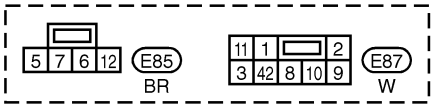
Tail lamp relay is then energized, and power is supplied
- from tail lamp relay terminal ⑦
- through 7.5A fuse [No. 22, located in the fuse block (J/B)].
- to BCM terminal ③.

BCM is connected to LCU03 and LCU04 as DATA LINE A-1 or A-2.
Rear power window switch illuminations are combined with LCUs.
When lighting switch is turned to 1ST or 2ND position, BCM sends a signal to turn on rear power window switch illuminations.

## Wiring Diagram — SW/ILL —



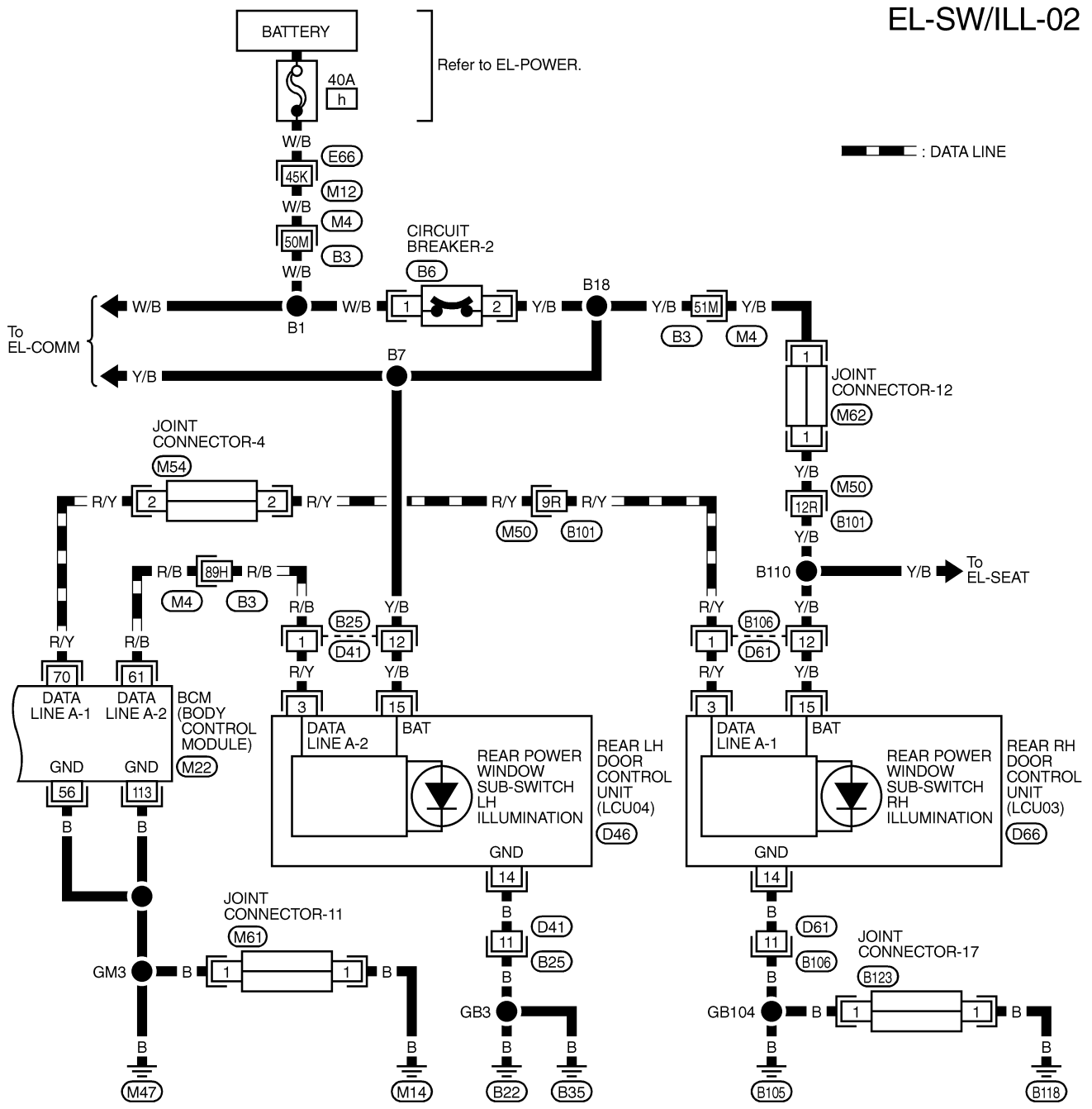


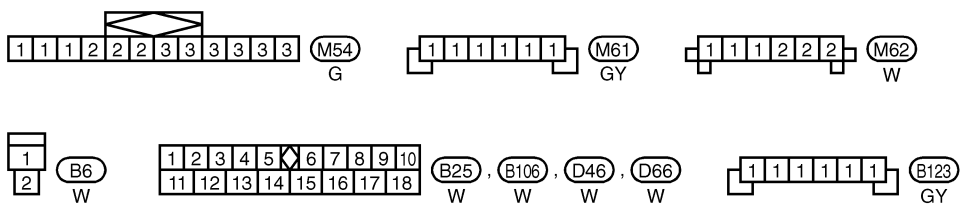



REFER TO THE FOLLOWING.
E81 -SUPER MULTIPLE JUNCTION (SMJ)
M1 , E62 -FUSE BLOCK-JUNCTION BOX (J/B)
M22 -ELECTRICAL UNITS

TEL172M

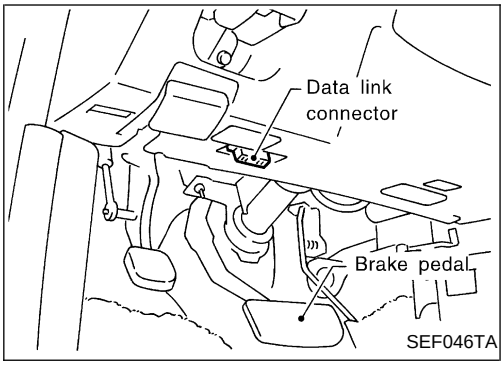
## Wiring Diagram — SW/ILL — (Cont'd)




REFER TO THE FOLLOWING.
M4 , M50 , E66 -SUPER MULTIPLE JUNCTION (SMJ)
M22 -ELECTRICAL UNITS

TEL173M

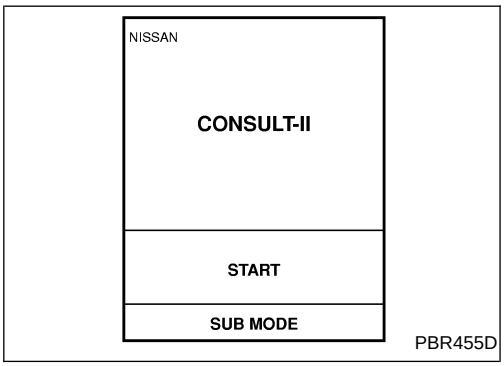


SEF046TA

## CONSULT-II

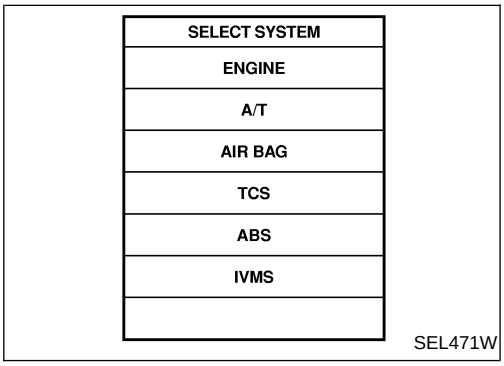
### CONSULT-II INSPECTION PROCEDURE

1. Turn ignition switch “OFF”.
2. Connect “CONSULT-II” to the data link connector.



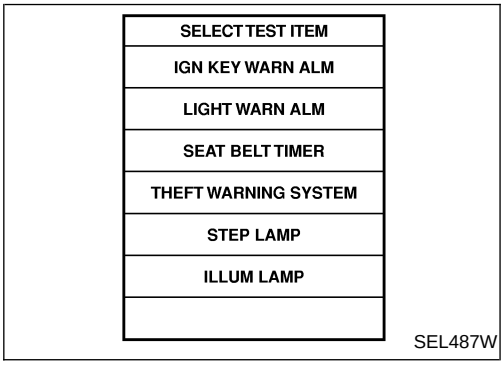
PBR455D

3. Turn ignition switch “ON”.
4. Touch “START”.



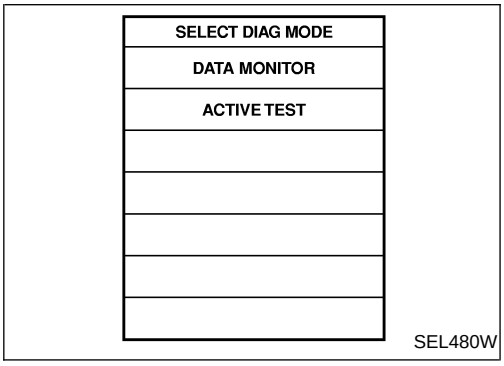
SEL471W

5. Touch “IVMS”.



SEL487W

6. Touch “ILLUM LAMP”.

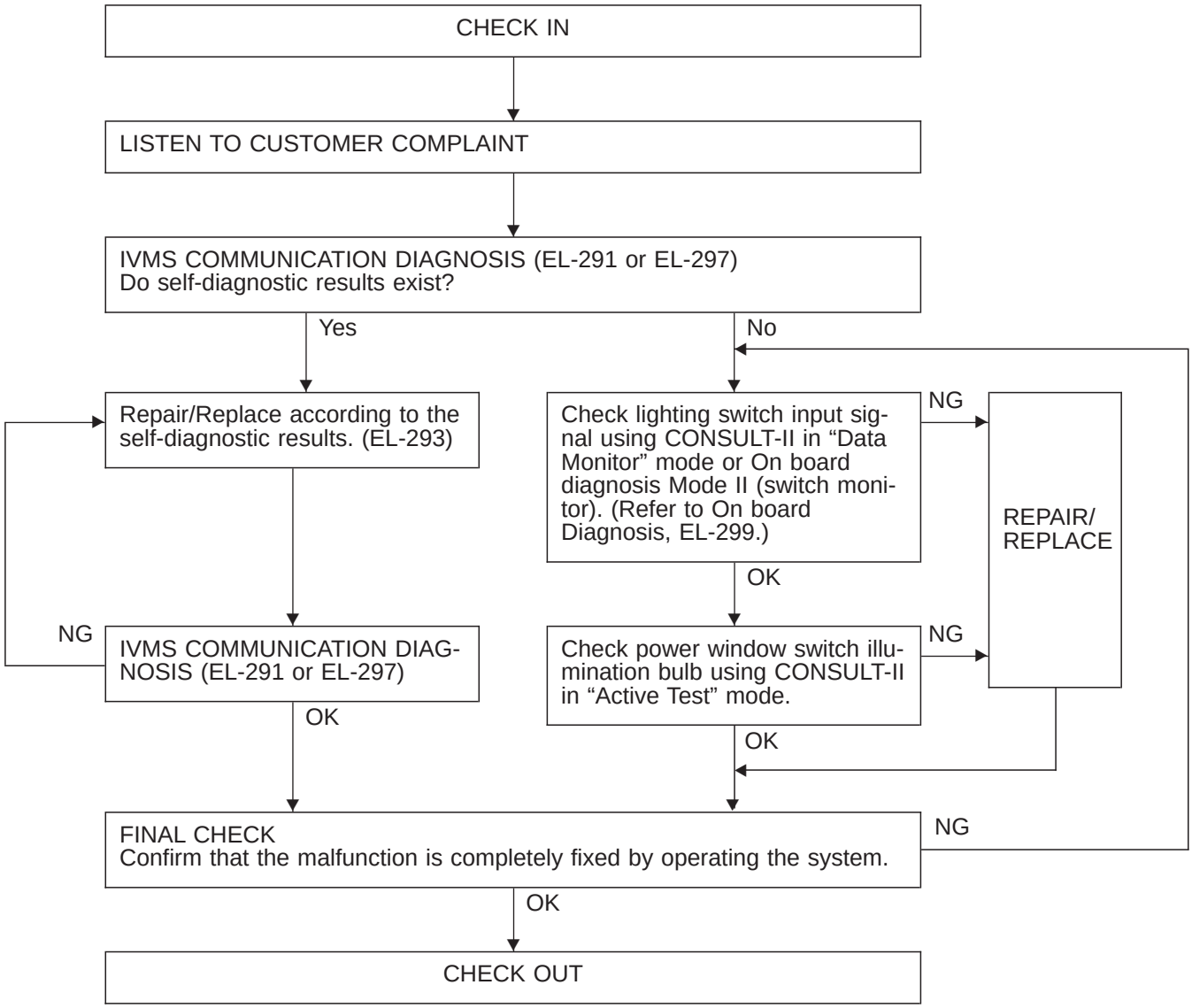


SEL480W

- DATA MONITOR and ACTIVE TEST are available for the rear power window switch illumination.

## Trouble Diagnoses

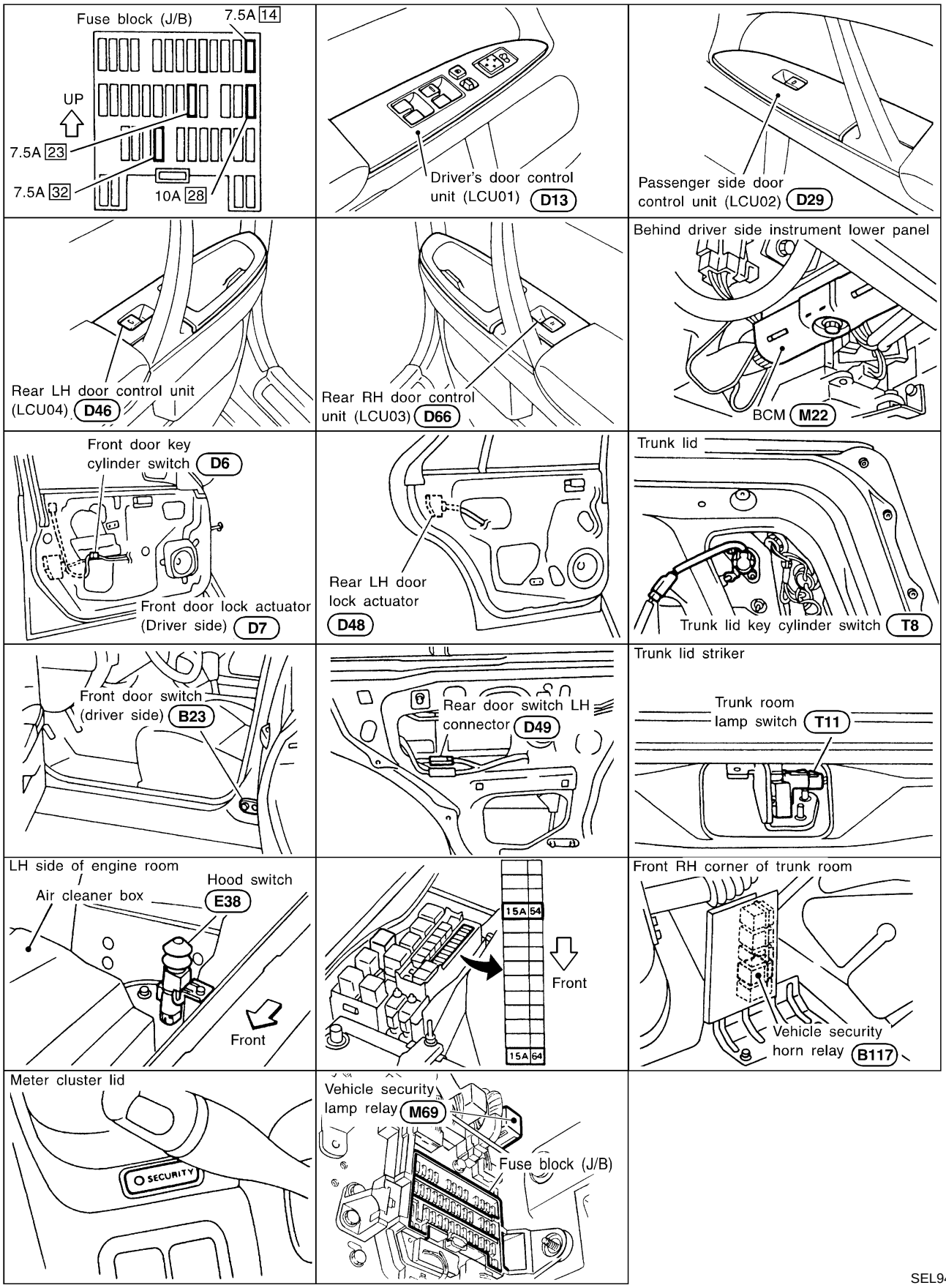
### WORK FLOW




**NOTICE:**

- **When LCU connectors are disconnected for more than 1 minute such as during trouble diagnoses, the "disconnected" data will be memorized by the BCM. (While BCM memorizes the "disconnected" data, IVMS communication diagnosis of CONSULT-II will display "PAST NO RESPONSE".) Therefore, after reconnecting the LCU connectors, erase the memory.**
- **To erase the memory, perform the procedure below.**
  **Erase the memory with CONSULT-II (Refer to EL-291.) or turn the ignition switch to "OFF" position and remove 7.5A fuse [No. 14 located in the fuse block (J/B)].**

## Component Parts Harness Connector Location




SEL948WA

# System Description

## DESCRIPTION

### 1. Setting the theft warning system

**Disarmed phase**

When the vehicle is being driven or when doors or trunk lid is open, the vehicle security system is set in the disarmed phase on the assumption that the owner is inside or near the vehicle.

**Pre-armed phase and armed phase**

The vehicle security 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 for 30 seconds.)
After about 30 seconds, the system automatically shifts into the “armed” phase (the system is set).

### 2. 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 or multi-remote controller. When the trunk lid is closed after opening the trunk lid with the key or multi-remote controller, the system returns to the armed phase.

### 3. Activating the alarm operation of the vehicle security system

Make sure the system is in the armed phase.
When the following operation (a), (b) or (c) is performed, the system sounds the horns and flashes the headlamps for about 50 seconds.
(a) Engine hood or any door is opened before unlocking door with key or multi-remote controller.
(b) Door is unlocked without using key or multi-remote controller.
(c) Trunk lid is opened without using key or multi-remote controller.

## POWER SUPPLY

Power is supplied at all times
- through 10A fuse [No. 28, located in the fuse block (J/B)]
- to security indicator lamp terminal ①.

Power is supplied at all times
- through 7.5A fuse [No. 14, located in the fuse block (J/B)]
- to BCM terminal (105).

With the ignition switch in the ACC or ON position, power is supplied
- through 7.5A fuse [No. 23, located in the fuse block (J/B)]
- to BCM terminal ⑥⓪.

With the ignition switch in the ON position, power is supplied
- through 7.5A fuse [No. 32, located in the fuse block (J/B)]
- to BCM terminal ⑥⑧.

BCM is connected to LCU01, LCU02, LCU03 and LCU04 as DATA LINE A-1 or A-2.

## INITIAL CONDITION TO ACTIVATE THE SYSTEM

The operation of the vehicle security system is controlled by the doors, hood and trunk lid.
To activate the vehicle security system, BCM must receive signals indicating the doors, hood and trunk lid are closed and the doors are locked.
When a door is open, BCM terminal ㉘, ㉜, ㉝ or ㊲ receives a ground signal from each door switch.
When a door is unlocked, each door LCU terminal ⑤ receives a ground signal from terminal ② of each door unlock sensor.
When the hood is open, BCM terminal ⑳ receives a ground signal
- from terminal ① of the hood switch
- through body grounds (E22) and (E36).

When the trunk lid is open, BCM terminal ⑲ receives a ground signal
- from terminal ① of the trunk room lamp switch
- through body grounds (T12), (B22) and (B35).

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

## System Description (Cont'd)

### VEHICLE SECURITY SYSTEM ACTIVATION (With key or remote controller used to lock doors)

If the key is used to lock doors, LCU01 or LCU02 terminal ① receives a ground signal
- from terminal ③ of the front door key cylinder switch (Driver side) or
- from terminal ① of the front door key cylinder switch (Passenger side)
- through body grounds (M14) and (M47)

If this signal or lock signal from remote controller is received by BCM, the vehicle security system will activate automatically.
Once the vehicle security system has been activated, BCM terminal ㊺ supplies ground to terminal ② of the security indicator lamp.
The security lamp will illuminate for approximately 30 seconds and then blink.
Now the vehicle security system is in armed phase.

### VEHICLE SECURITY SYSTEM ALARM OPERATION

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

Once the vehicle security system is in armed phase, if BCM receives a ground signal at terminal ㉘, ㉜, ㉝, ㊲ (door switch), ⑲ (trunk room lamp switch) or ⑳ (hood switch), or LCU receives a ground signal at terminal ⑤ (door unlock sensor) the vehicle security system will be triggered. The headlamps flash and the horn sounds intermittently.
Power is supplied at all times
- through 7.5A fuse (No. 14 , located in fuse and fusible link box)
- to vehicle security lamp relay terminal ① and
- to vehicle security horn relay terminal ① .

When the vehicle security system is triggered, ground is supplied intermittently
- from terminal ⑮ of BCM
- to vehicle security lamp relay terminal ② and
- to vehicle security horn relay terminal ② .

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.

### VEHICLE SECURITY SYSTEM DEACTIVATION

To deactivate the vehicle security 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, BCM terminal ㉛ or ㉗ receives a ground signal
- from terminal ① of the front door key cylinder switch (Driver side) or
- from terminal ③ of the front door key cylinder switch (Passenger side).

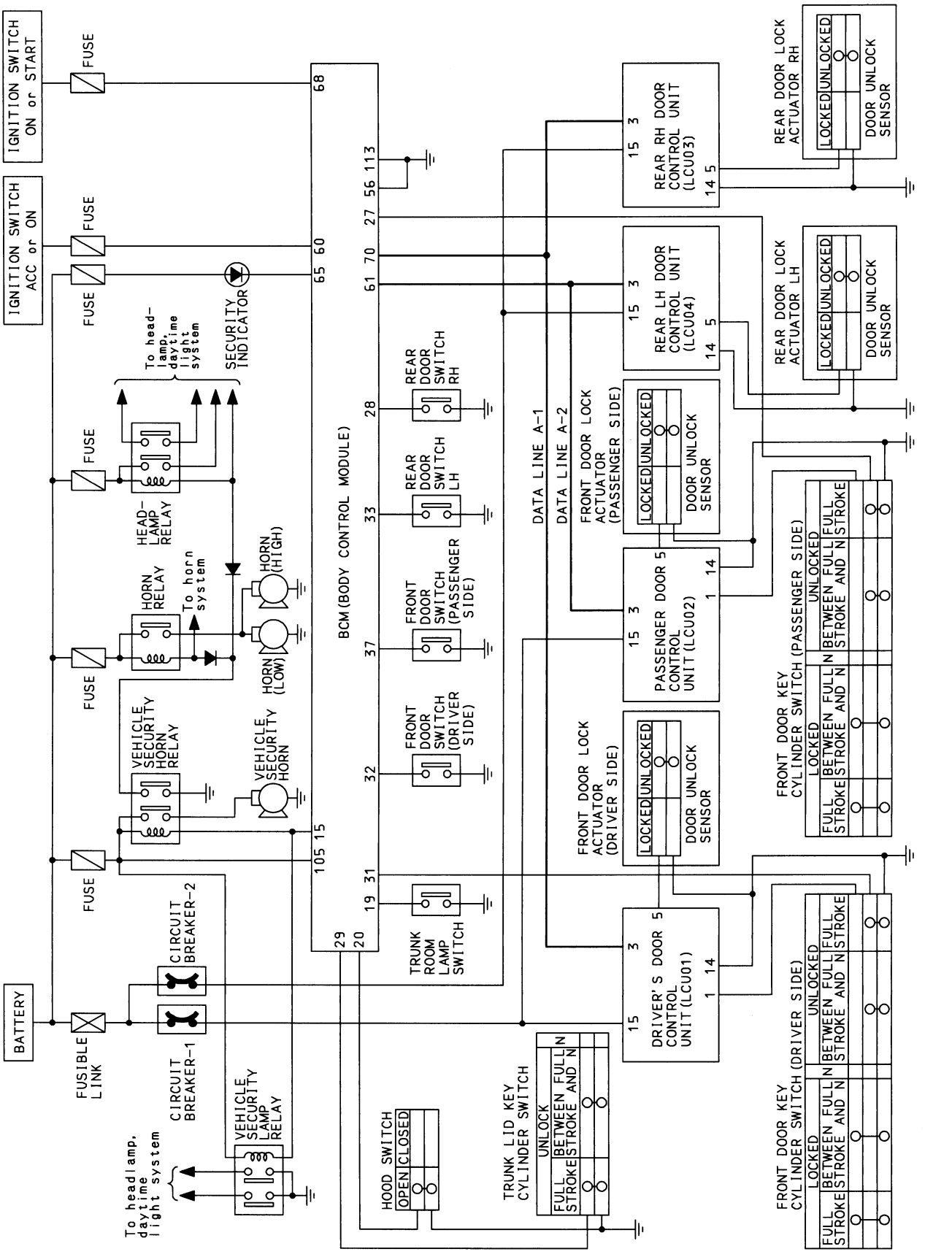
When the key is used to unlock the trunk lid, BCM terminal ㉙ receives a ground signal from terminal ① of the trunk lid key cylinder switch.
When the BCM receives either one of these signals or unlock signal from remote controller, the vehicle security system is deactivated. (Disarmed phase)

### PANIC ALARM OPERATION

Multi-remote control system may or may not operate vehicle security system (horn and headlamps) as required.
When the multi-remote control system is triggered, ground is supplied intermittently.
- from BCM terminal ⑮
- to vehicle security lamp relay terminal ② and
- to vehicle security horn relay terminal ② .

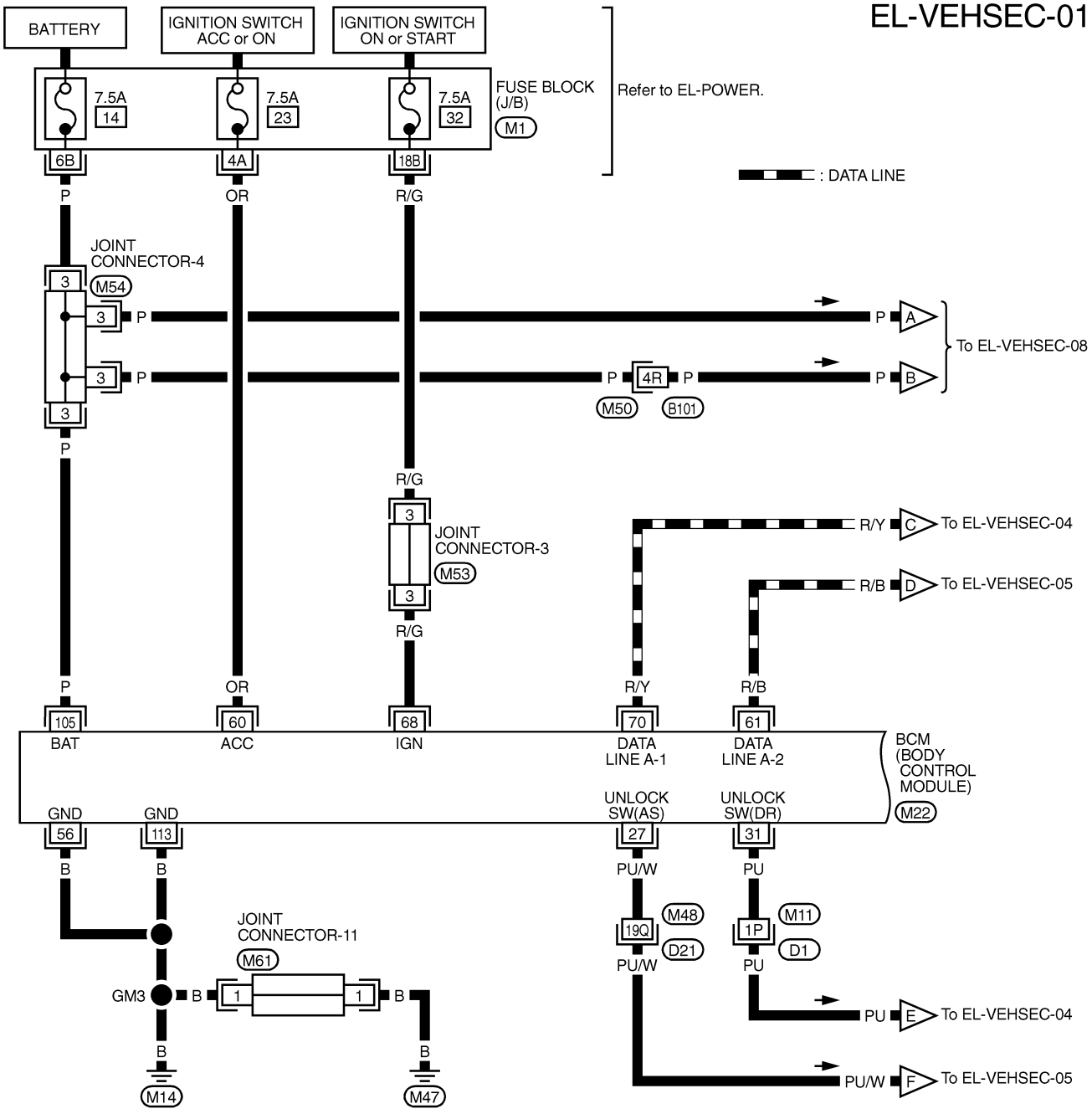
The headlamp flashes and the horn sounds intermittently.
The alarm automatically turns off after 30 seconds or when smart entrance control unit receives any signal from multi-remote controller.

## Schematic




TEL754B

## Wiring Diagram — VEHSEC —



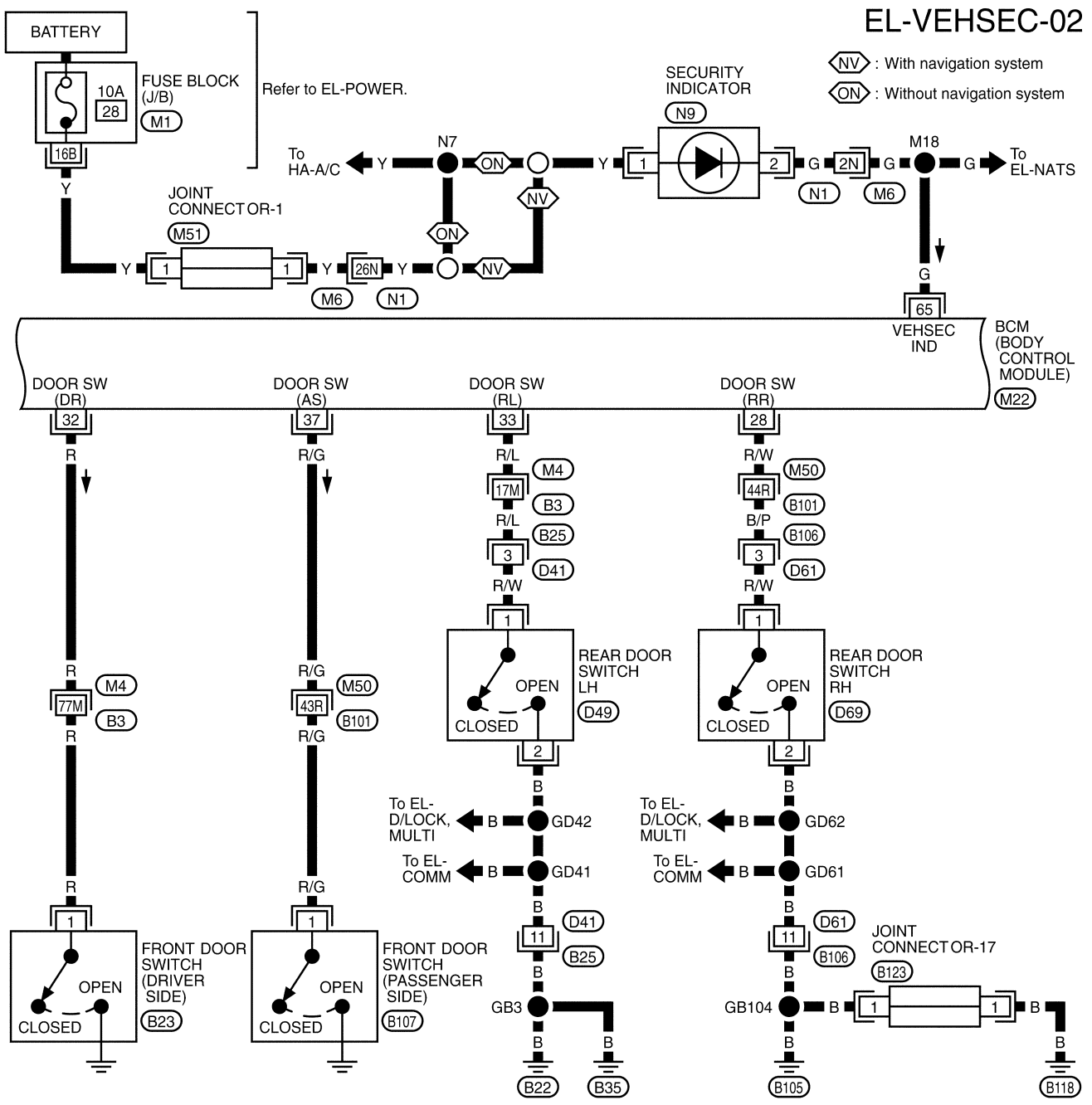

M53 , M54 G G

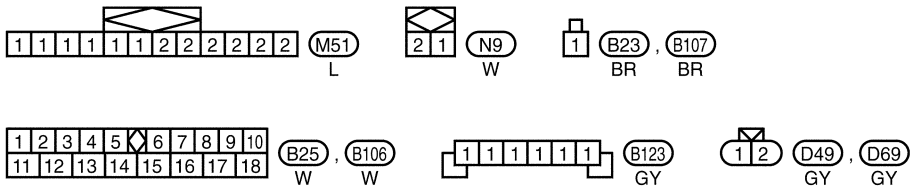
M61 GY

REFER TO THE FOLLOWING.
M50 , D1 , D21 -SUPER MULTIPLE JUNCTION (SMJ)
M1 -FUSE BLOCK-JUNCTION BOX (J/B)
M22 -ELECTRICAL UNITS

TEL755B

## Wiring Diagram — VEHSEC — (Cont'd)




REFER TO THE FOLLOWING.

M4 , M6 , M50 -SUPER MULTIPLE JUNCTION (SMJ)

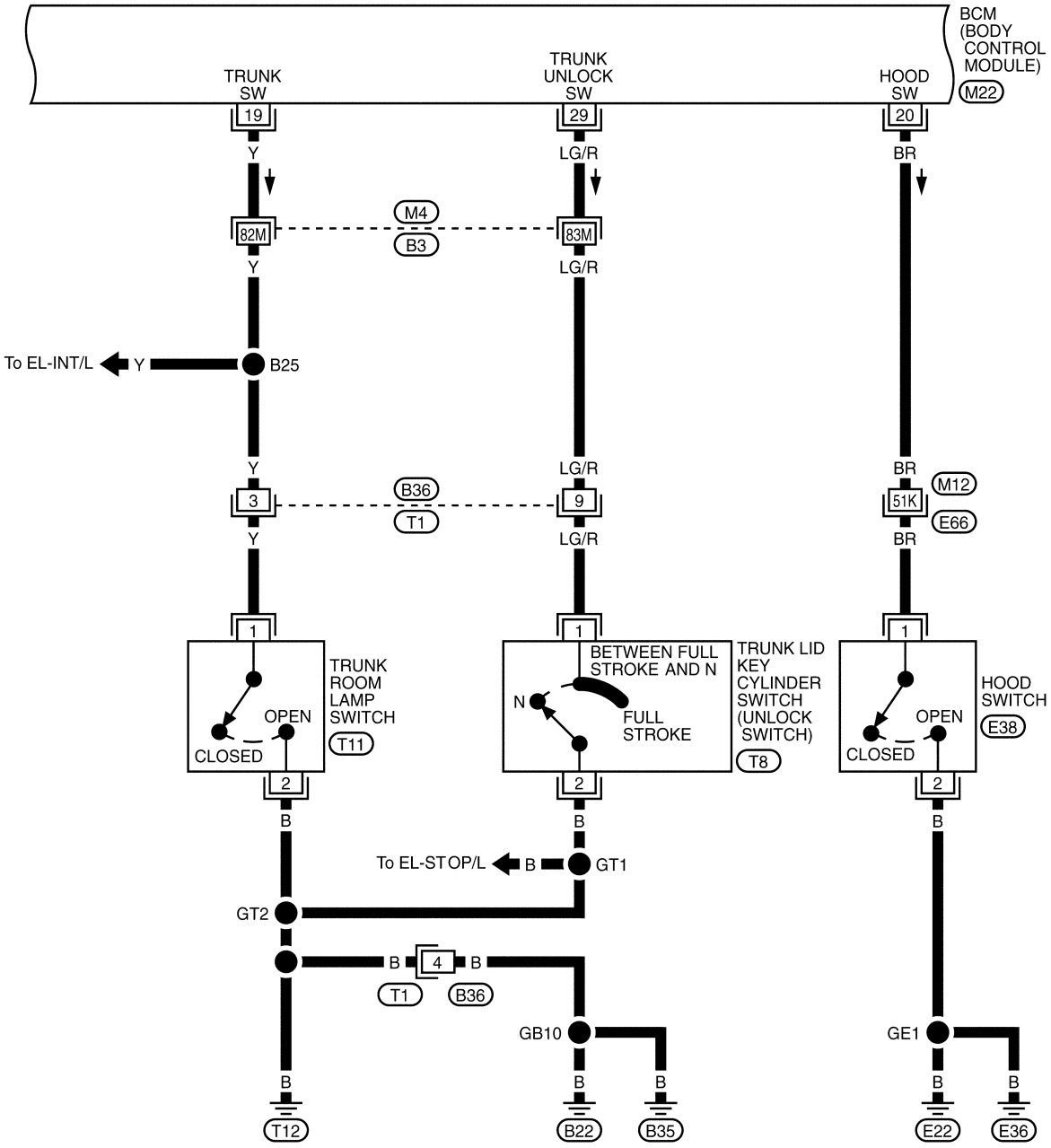
M1 -FUSE BLOCK-JUNCTION BOX (J/B)

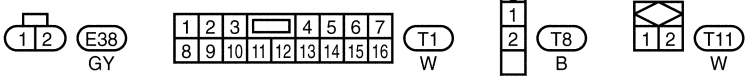
M22 -ELECTRICAL UNITS

TEL756B

## Wiring Diagram — VEHSEC — (Cont'd)

EL-VEHSEC-03

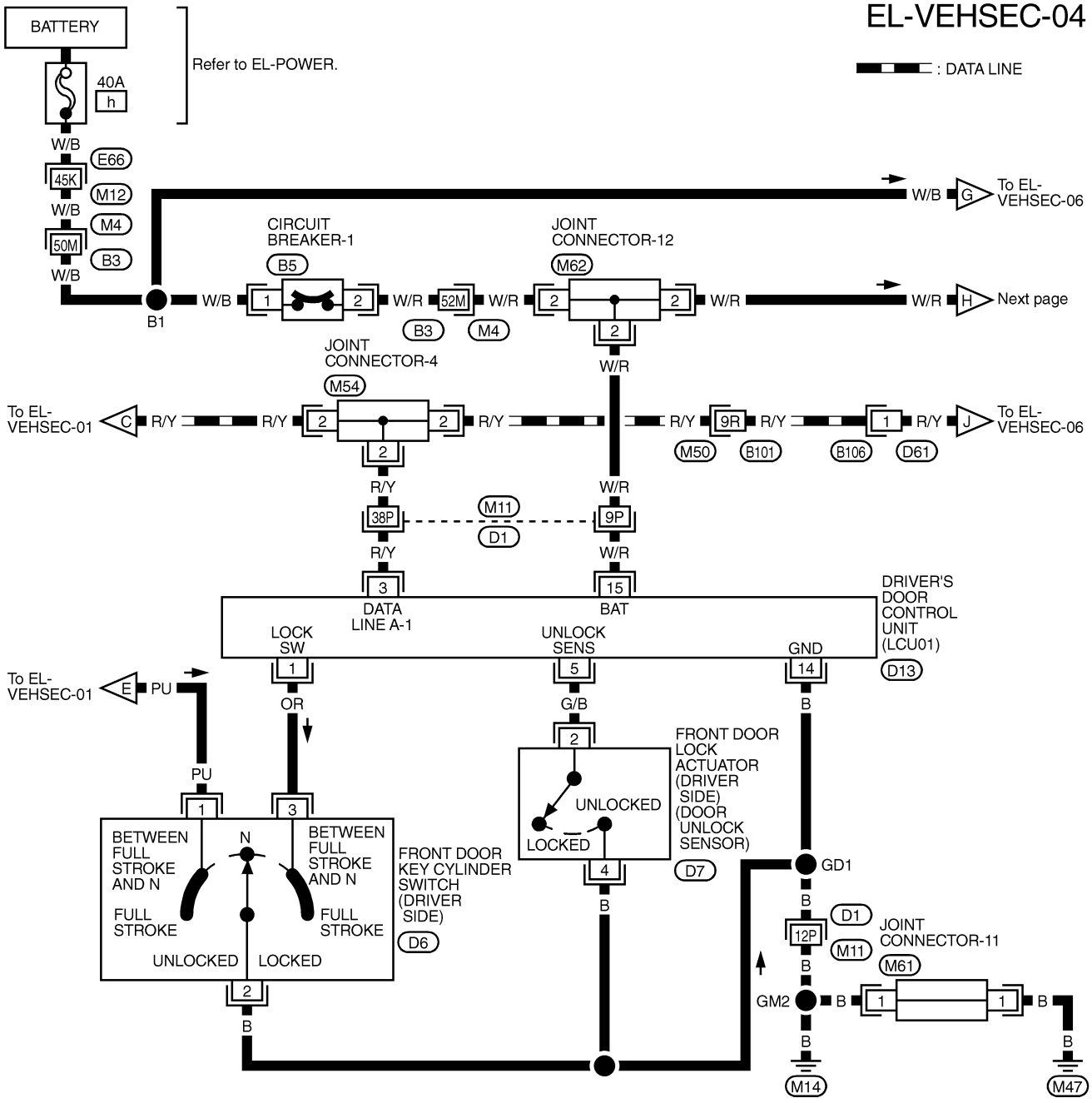


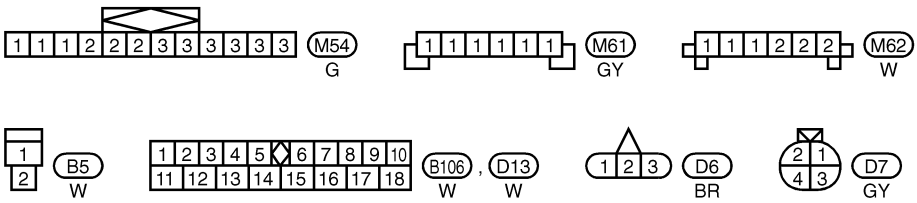




REFER TO THE FOLLOWING.
M4 , E66 -SUPER MULTIPLE JUNCTION (SMJ)
M22 -ELECTRICAL UNITS

TEL757B

## Wiring Diagram — VEHSEC — (Cont'd)



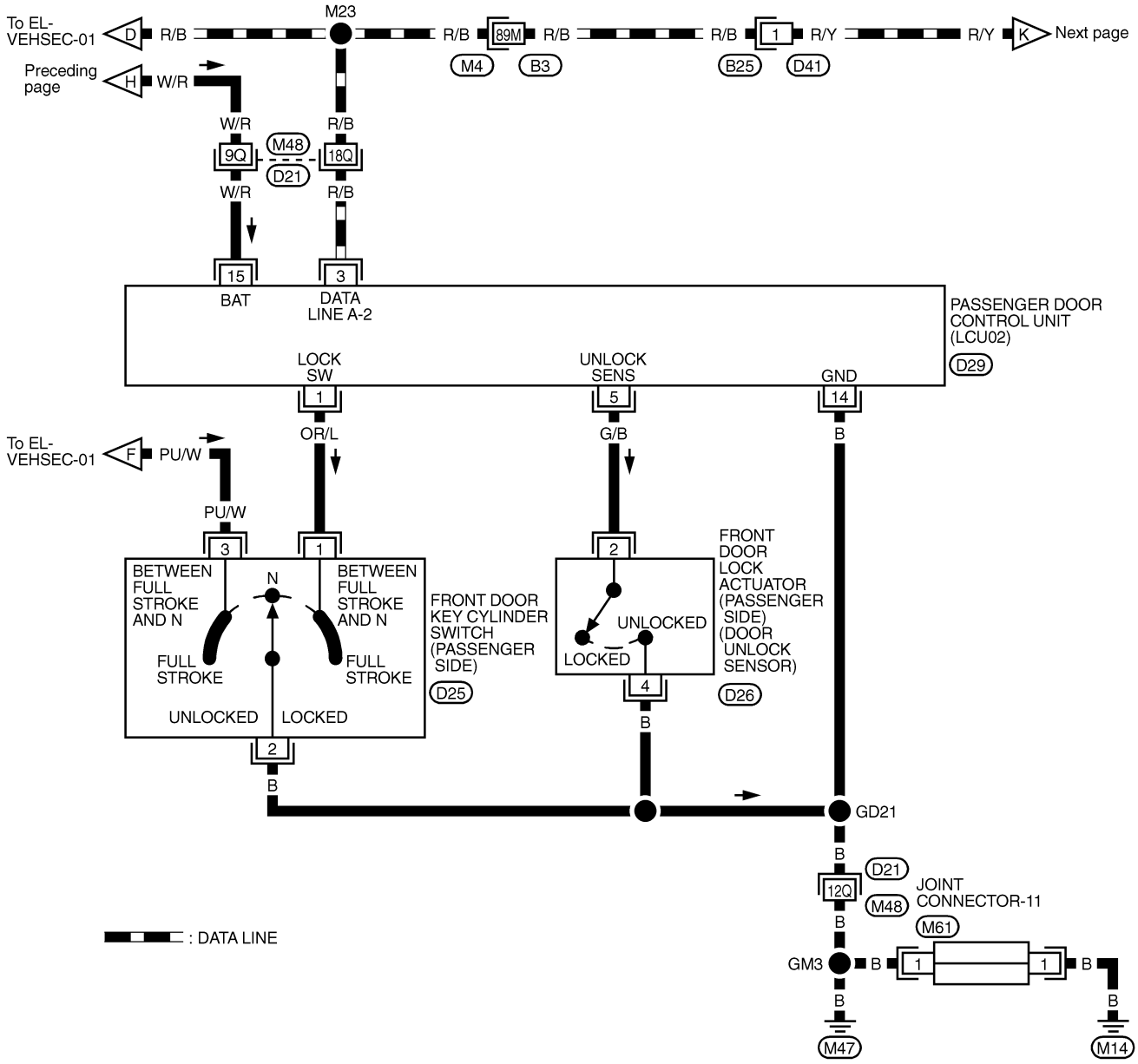



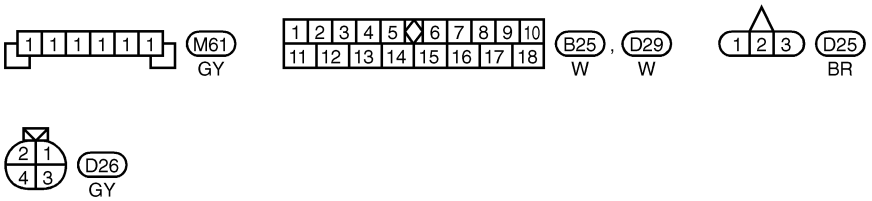

REFER TO THE FOLLOWING.
M4 , M50 , E66 , D1
-SUPER MULTIPLE JUNCTION (SMJ)

TEL758B

## Wiring Diagram — VEHSEC — (Cont'd)

EL-VEHSEC-05



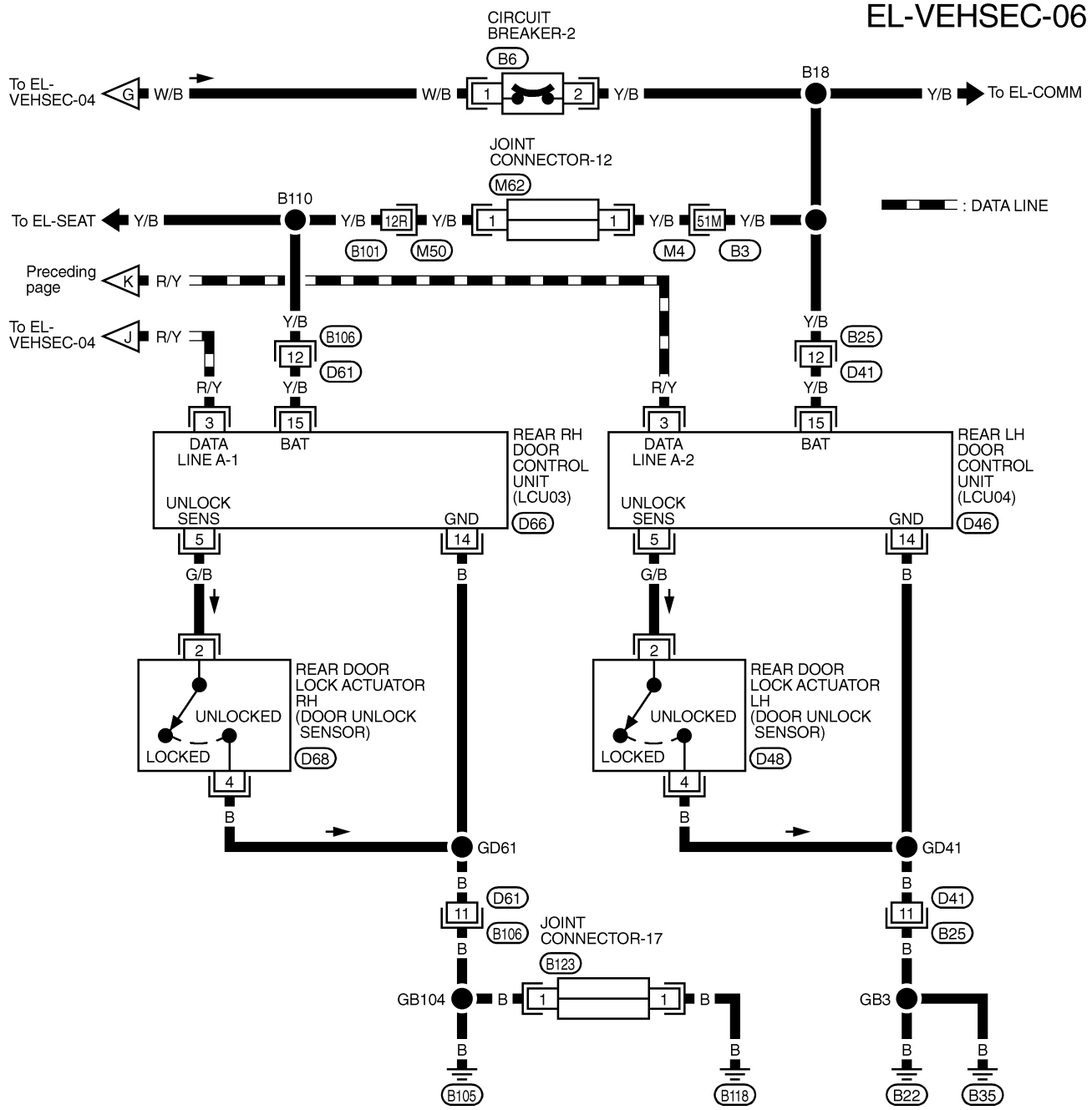



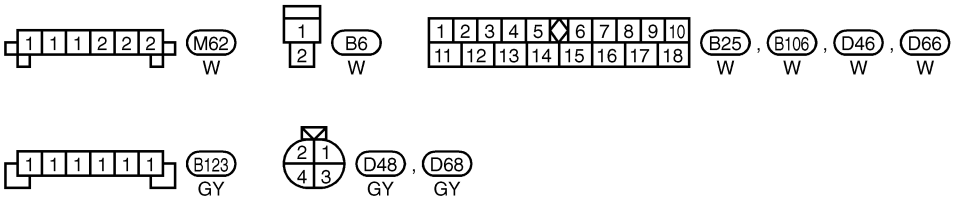

REFER TO THE FOLLOWING.
M4 , D21 -SUPER MULTIPLE JUNCTION (SMJ)

TEL759B

## Wiring Diagram — VEHSEC — (Cont'd)

EL-VEHSEC-06



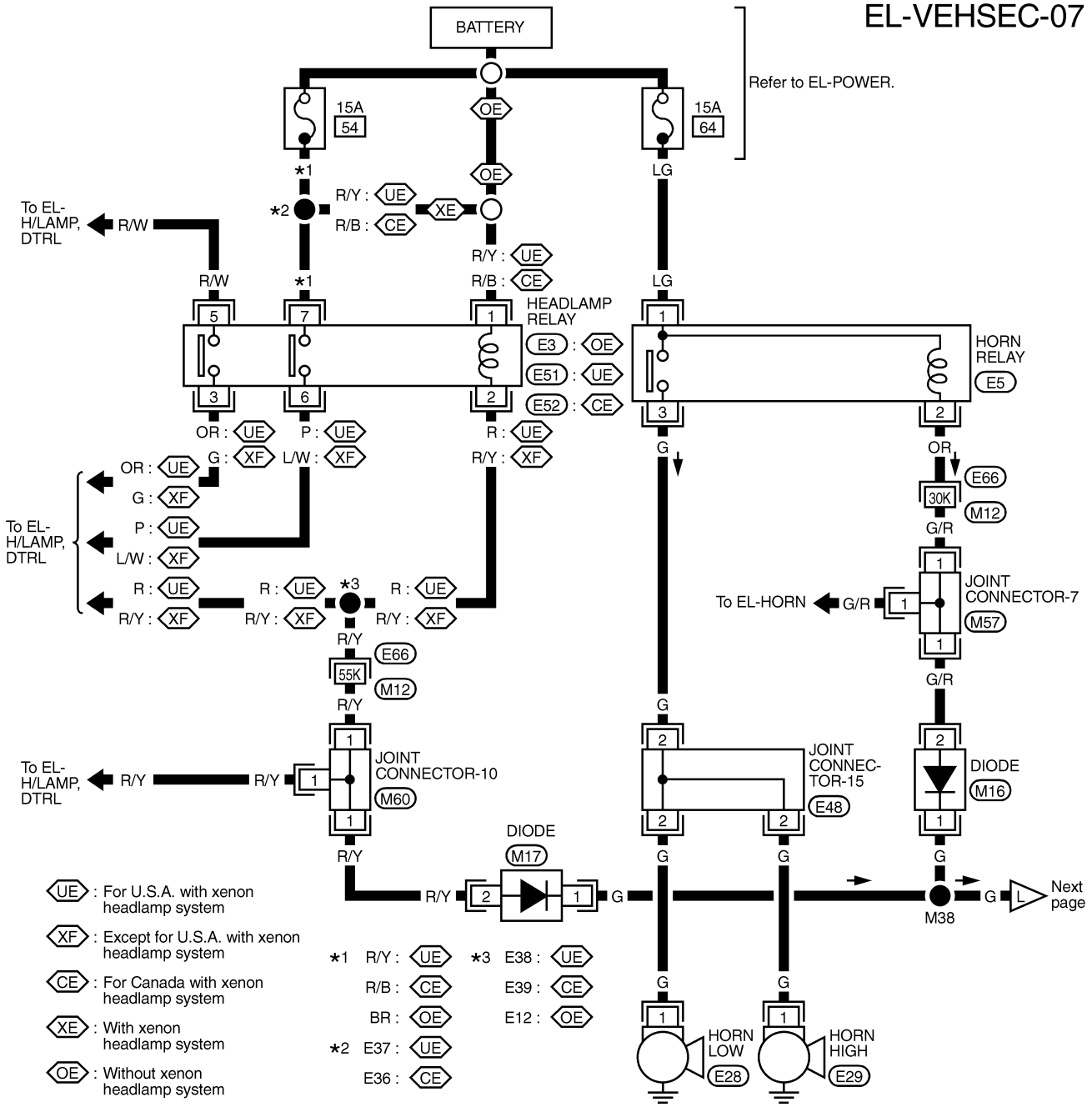



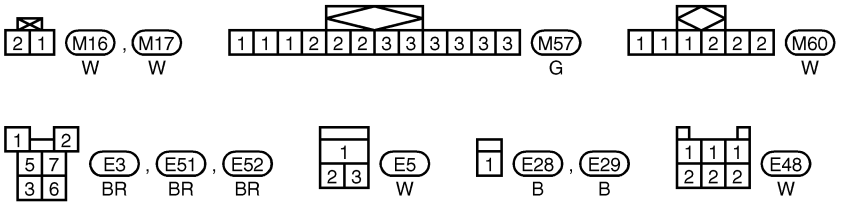

REFER TO THE FOLLOWING.
M4 , M50 -SUPER MULTIPLE JUNCTION (SMJ)

TEL760B

## Wiring Diagram — VEHSEC — (Cont'd)

EL-VEHSEC-07



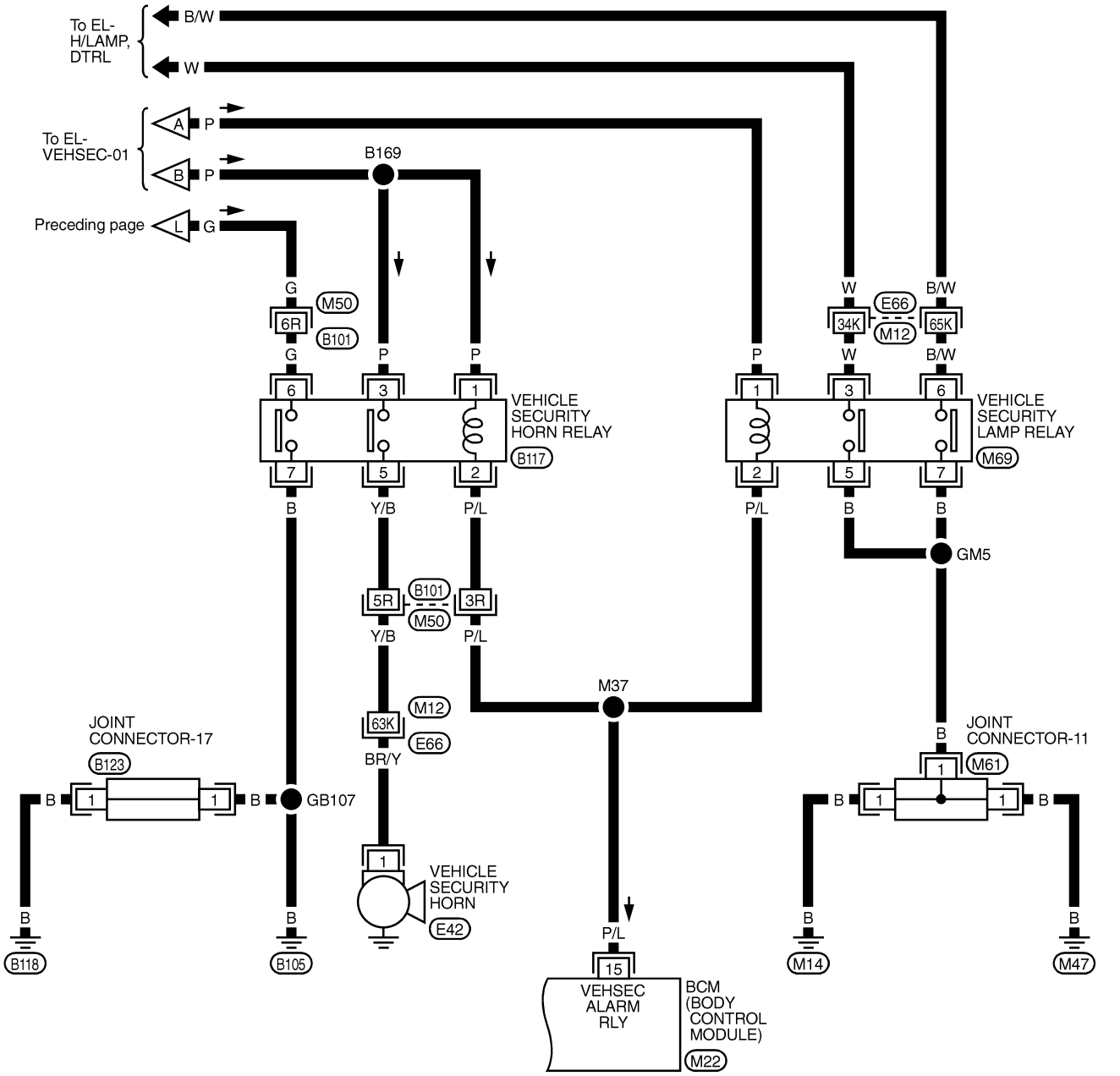




REFER TO THE FOLLOWING.
E66 -SUPER MULTIPLE JUNCTION (SMJ)

TEL761B

## Wiring Diagram — VEHSEC — (Cont'd)

EL-VEHSEC-08




M61 , B123 — GY GY

M69 , B117 — BR BR

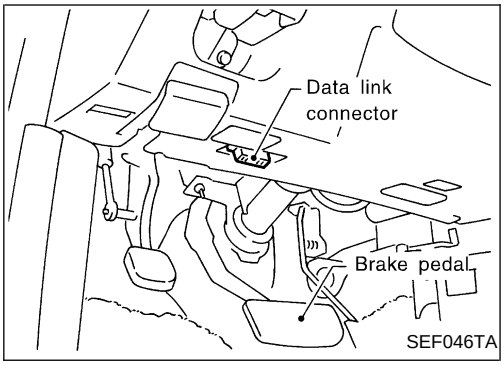
E42 — B

REFER TO THE FOLLOWING.

M50 , E66 -SUPER MULTIPLE JUNCTION (SMJ)

M22 -ELECTRICAL UNITS

TEL762B

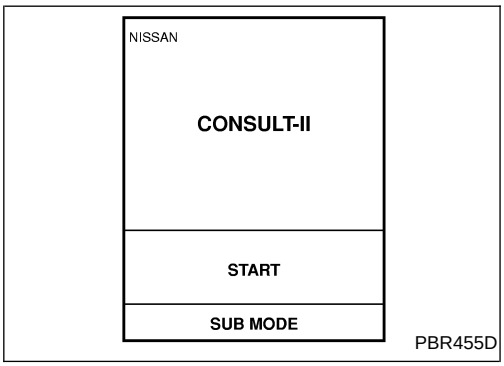


SEF046TA

## CONSULT-II

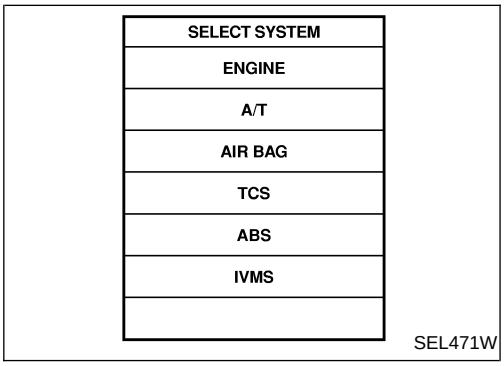
### CONSULT-II INSPECTION PROCEDURE

1. Turn ignition switch “OFF”.
2. Connect “CONSULT-II” to the data link connector.



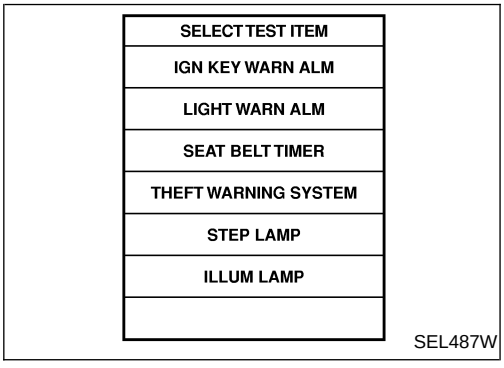
PBR455D

3. Turn ignition switch “ON”.
4. Touch “START”.



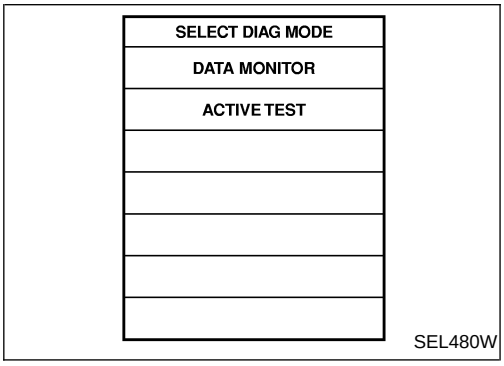
SEL471W

5. Touch “IVMS”.



SEL487W

6. Touch “THEFT WARNING SYSTEM”.

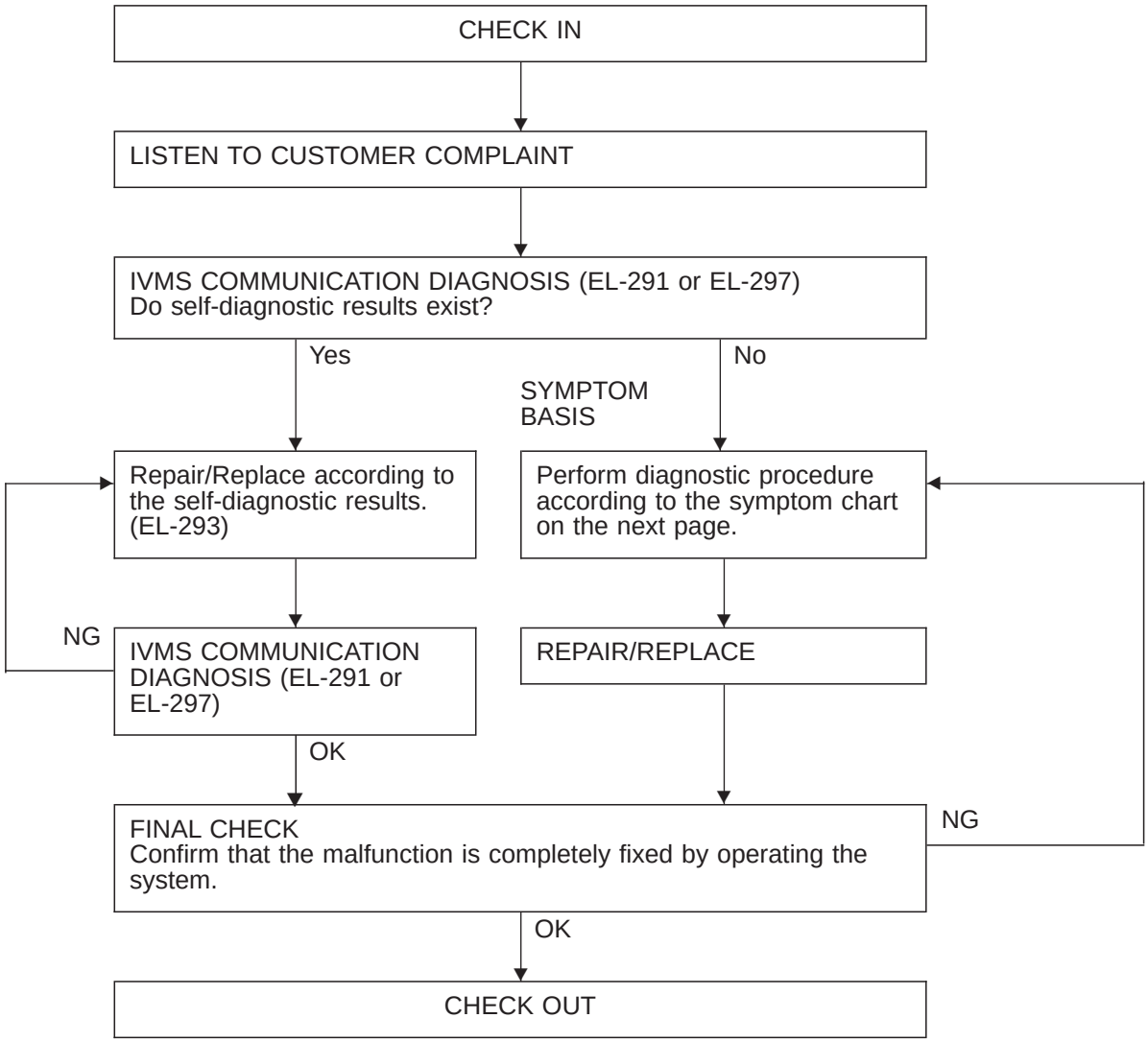


SEL480W

- DATA MONITOR and ACTIVE TEST are available for the vehicle security system.

## Trouble Diagnoses

### WORK FLOW




**NOTICE:**

- **When LCU connectors are disconnected for more than 1 minute such as during trouble diagnoses, the "disconnected" data will be memorized by the BCM. (While BCM memorizes the "disconnected" data, IVMS communication diagnosis of CONSULT-II will display "PAST NO RESPONSE".) Therefore, after reconnecting the LCU connectors, erase the memory.**
- **To erase the memory, perform the procedure below.**
  **Erase the memory with CONSULT-II (Refer to EL-291.) or turn the ignition switch to "OFF" position and remove 7.5A fuse [No. 14 located in the fuse block (J/B)].**

## Trouble Diagnoses (Cont'd)

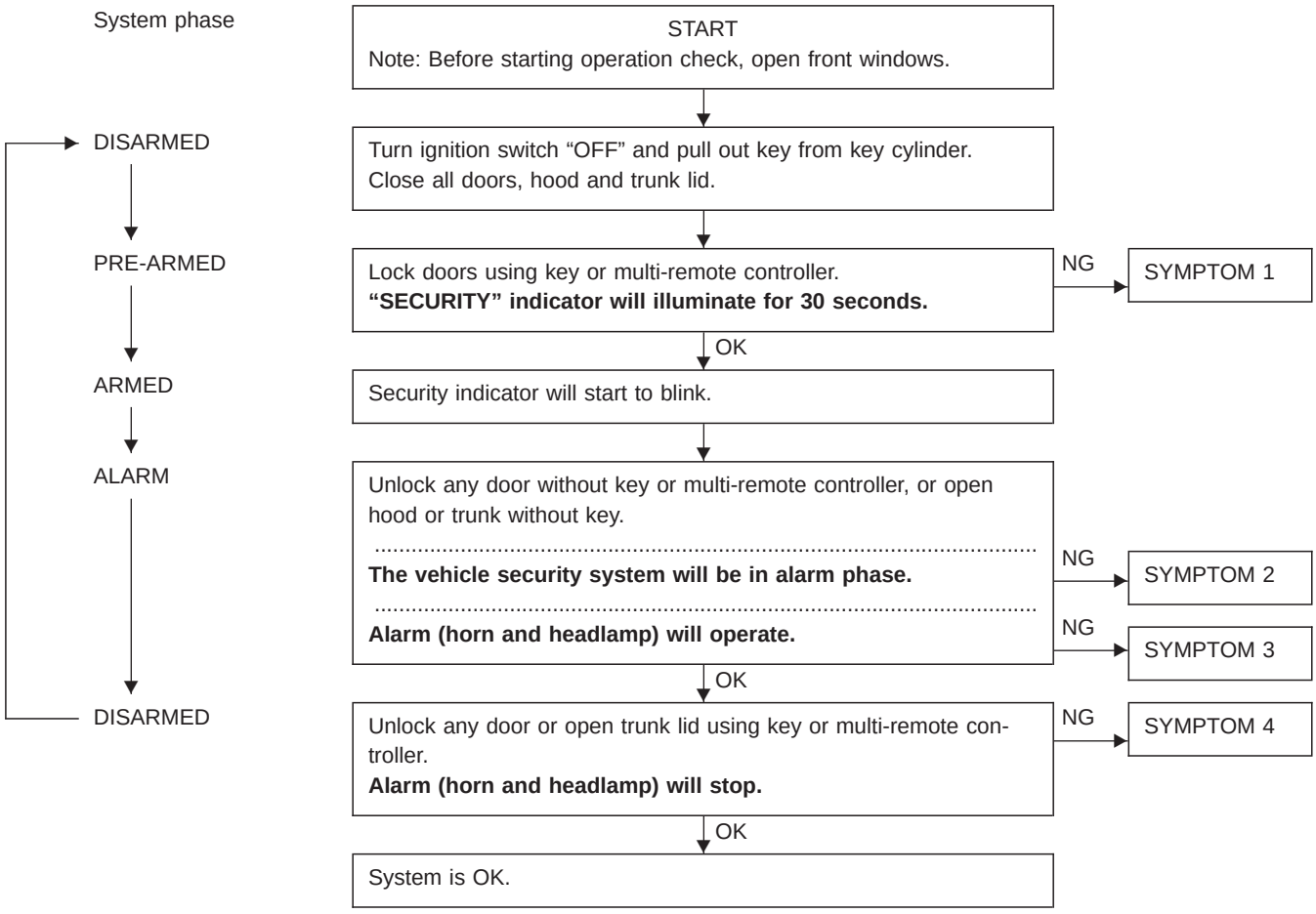
### PRECAUTIONS FOR INFINITI COMMUNICATOR (IVCS)

The purpose of INFINITI Communicator is to increase security for the vehicle owner by providing a convenient way to contact the most appropriate emergency assistance provider during an emergency.
Improper operation of the system may result in a police response.
The theft warning system also activates INFINITI Communicator. For details, refer to INFINITI Communicator (IVCS), EL-506.

### 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.

**NOTE: Before performing PRELIMINARY CHECK, disconnect IVCS unit connectors not to operate INFINITI communicator.**




**After performing preliminary check, go to symptom chart on next page.**

## Trouble Diagnoses (Cont'd)

**Before starting trouble diagnoses below, perform preliminary check, EL-429.**

Symptom numbers in the symptom chart correspond with those of preliminary check.

### SYMPTOM CHART

| PROCEDURE | | | — | | Diagnostic procedure | | | | | | | — | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| REFERENCE PAGE | | | EL-429 | EL-308 | EL-431 | EL-434 | EL-435 | EL-436 | EL-438 | EL-439 | EL-440 | EL-365 | EL-292 |
| SYMPTOM | | | Preliminary check | Power supply circuit check for BCM | 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 (Vehicle security horn alarm check) | Diagnostic Procedure 7 (Headlamp alarm check) | Check "MULTI-REMOTE CONTROL" system. | WAKE-UP DIAGNOSES |
| 1 | Vehicle security system cannot be set by .... | All items | X | X | X | | X | | | | | | |
| | | Door outside key | X | | | | | X | | | | | X (LCU01, LCU02) |
| | | Multi-remote control | X | | | | | | | | | X | |
| | Security indicator does not turn "ON". | | X | X | | X | | | | | | | |
| 2 | *1 Vehicle security system does not alarm when ... | Any door is opened. | X | | X | | | | | | | | |
| | | Any door is unlocked without using key or multi-remote controller | X | | | | X | | | | | | X (LCU01, 02, 03, 04) |
| 3 | Vehicle security alarm does not activate. | Horn alarm | X | | | | | | | X | | | |
| | | Headlamp alarm | X | | | | | | | | X | | |
| 4 | Vehicle security system cannot be canceled by .... | Door outside key | X | | | | | X | | | | | X (LCU01, LCU02) |
| | | Trunk lid key | X | | | | | | X | | | | |
| | | Multi-remote control | X | | | | | | | | | X | |

X : Applicable

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

# Trouble Diagnoses (Cont'd)

## DIAGNOSTIC PROCEDURE 1-(1)

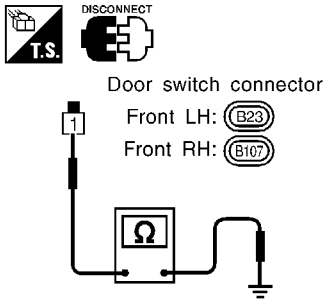
### (Door switch check)

A

| DATA MONITOR | |
|---|---|
| MONITOR | |
| DOOR SW-DR | OFF |
| DOOR SW-AS | OFF |
| DOOR SW-RR | OFF |
| DOOR SW-RL | OFF |
| | |
| | RECORD |

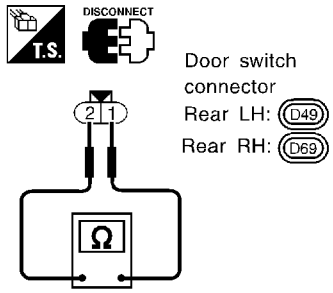
SEL527W

B




SEL914U

B




SEL021V

**CHECK DOOR SWITCH INPUT SIGNAL.**

A CONSULT-II

See "DOOR SW" in DATA MONITOR mode.
When door is open:
**DOOR SW ON**
When door is closed:
**DOOR SW OFF**

OR

ON BOARD

Check all door switches in Switch monitor (Mode II) mode.
(Refer to On board Diagnosis, EL-299.)

Refer to wiring diagram in EL-420.

OK → Door switch is OK, go to hood switch check.

NG ↓

B

**CHECK DOOR SWITCH.**

1. Disconnect door switch connector.
2. Check continuity between terminals or switch body ground.

| | Terminals | Condition | Continuity |
|---|---|---|---|
| Front door switch | ① - Ground | Pressed | No |
| | | Released | Yes |
| Rear door switch | ① - ② | Pressed | No |
| | | Released | Yes |

NG → Replace door switch.

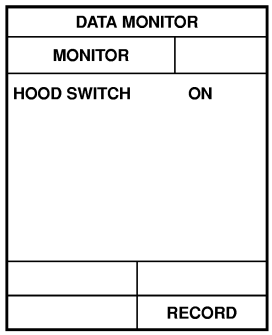
OK ↓

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

## Trouble Diagnoses (Cont'd)

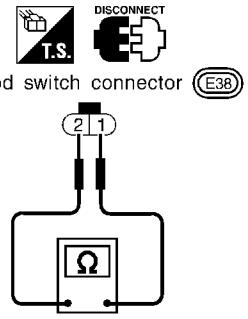
### DIAGNOSTIC PROCEDURE 1-(2)
### (Hood switch check)

A




SEL535W

B




SEL929U

**CHECK HOOD SWITCH INPUT SIGNAL.**

A CONSULT-II

See "HOOD SWITCH" in DATA MONITOR mode.
When hood is open:
**HOOD SWITCH ON**
When hood is closed:
**HOOD SWITCH OFF**

OK → Hood switch is OK, go to trunk room lamp switch check.

OR

ON BOARD

Check hood switch in Switch monitor (Mode II) mode. (Refer to On board Diagnosis, EL-299.)

Refer to wiring diagram in EL-421.

NG

Check hood switch and hood fitting condition.

NG → Adjust installation of hood switch or hood.

OK

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.

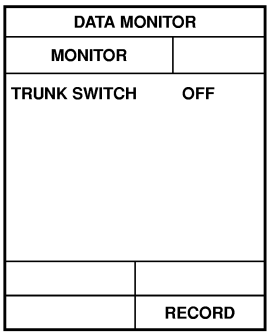
OK

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

## Trouble Diagnoses (Cont'd)

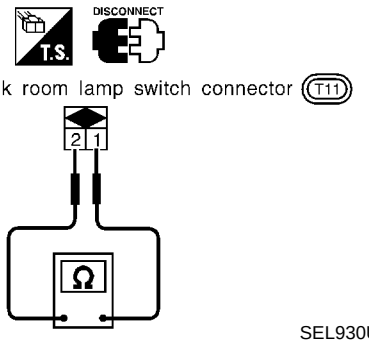
### DIAGNOSTIC PROCEDURE 1-(3)
### (Trunk room lamp switch check)

A




SEL536W

B




SEL930U

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

A CONSULT-II

See "TRUNK SWITCH" in DATA MONITOR mode.

When trunk lid is open:

**TRUNK SWITCH ON**

When trunk lid is closed:

**TRUNK SWITCH OFF**

OR

ON BOARD

Check trunk room lamp switch in Switch monitor (Mode II) mode. (Refer to On board Diagnosis, EL-299.)

Refer to wiring diagram in EL-421.

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

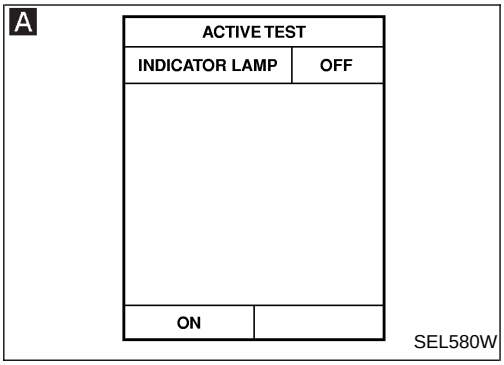
Check the following.

- Trunk room lamp switch ground circuit
- Harness for open or short between BCM and trunk room lamp switch

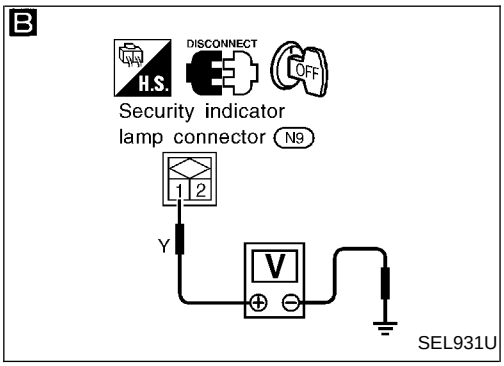
## Trouble Diagnoses (Cont'd)

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

A




B




A

**INDICATOR LAMP ACTIVE TEST**

CONSULT-II

See "INDICATOR LAMP" in ACTIVE TEST mode.

**Perform operation shown on display.**
**Indicator lamp should illuminate.**

Note: If CONSULT-II is not available, skip this procedure and go to the next procedure.

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.**

   Refer to wiring diagram in EL-420.

NG → Check the following.
- 10A fuse [No. 28, located in fuse block (J/B)]
- Harness for open or short between security indicator lamp and fuse

OK ↓

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

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 3

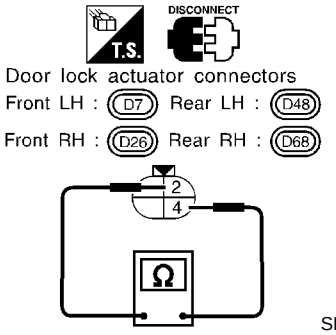
### (Door unlock sensor check)

A

| DATA MONITOR | |
|---|---|
| MONITOR | |
| LOCK SIG-DR | UNLK |
| LOCK SIG-AS | UNLK |
| LOCK SG-RR/RH | UNLK |
| LOCK SG-RR/LH | UNLK |
| | |
| | RECORD |

SEL525W

B




SEL025V

**CHECK DOOR UNLOCK SENSOR INPUT SIGNAL.**

A CONSULT-II

See "LOCK SIG" in DATA MONITOR mode.
When door is locked:
**LOCK SIG LOCK**
When door is unlocked:
**LOCK SIG UNLK**

OK → Door unlock sensor is OK.

OR

ON BOARD

Check door lock knob operation in Switch monitor (Mode II) mode.
(Refer to On board Diagnoses, EL-299.)

Refer to wiring diagram in EL-422, 423 or 424.

NG ↓

B

**CHECK DOOR UNLOCK SENSOR.**

1. Disconnect door lock actuator connector.
2. Check continuity between door lock actuator (door unlock sensor) terminals ② and ④.

| Condition | Continuity |
|---|---|
| Locked | No |
| Unlocked | Yes |

NG → Replace door lock actuator.

OK ↓

Check the following.
- Harness for open or short between LCU and door unlock sensor
- Ground circuit for door unlock sensor

# Trouble Diagnoses (Cont'd)

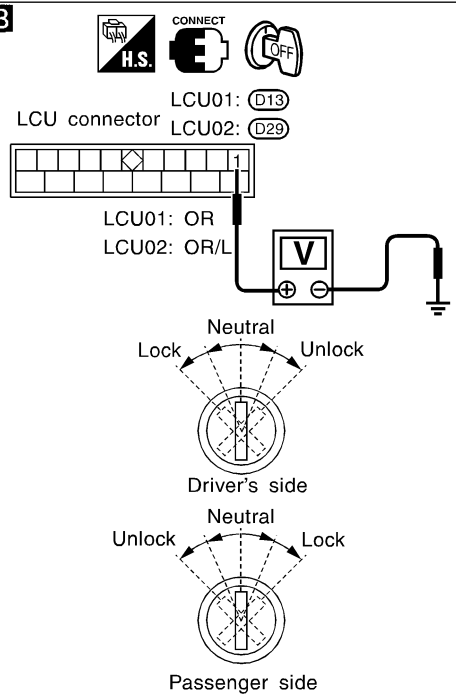
## DIAGNOSTIC PROCEDURE 4-(1)
## (Door key cylinder lock switch check)

A

| DATA MONITOR | |
|---|---|
| MONITOR | |
| KEY CYL LK-DR | OFF |
| KEY CYL LK-AS | OFF |
| | |
| | RECORD |

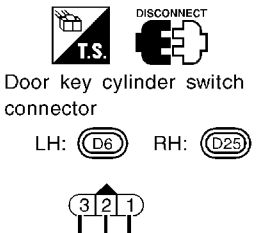
SEL537W

B




SEL871W

C




① : Door lock switch terminal (RH)

② : Ground terminal

③ : Door lock switch terminal (LH)

SEL909U

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

A CONSULT-II

See "KEY CYL LK" in DATA MONITOR mode.

**"KEY CYL LK" should be "ON" when key inserted in door key cylinder was turned to lock.**

OR

B TESTER

Check voltage between LCU01/02 terminal ① and ground.

| Key position | Voltage V |
|---|---|
| Neutral/Unlock | Approx. 5 |
| Lock | 0 |

Refer to wiring diagram in EL-422 or 423.

OK → Door key cylinder switch (lock) is OK.

NG ↓

C

**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: ③ - ②<br>RH: ① - ② | Neutral/Unlock | No |
| | Lock | Yes |

NG → Replace door key cylinder switch.

OK ↓

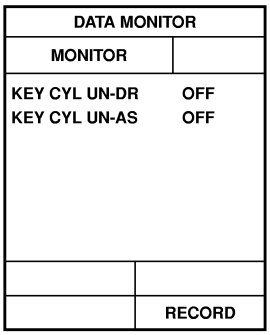
Check the following.

- Door key cylinder switch ground circuit
- Harness for open or short between LCU and door key cylinder switch

# Trouble Diagnoses (Cont'd)

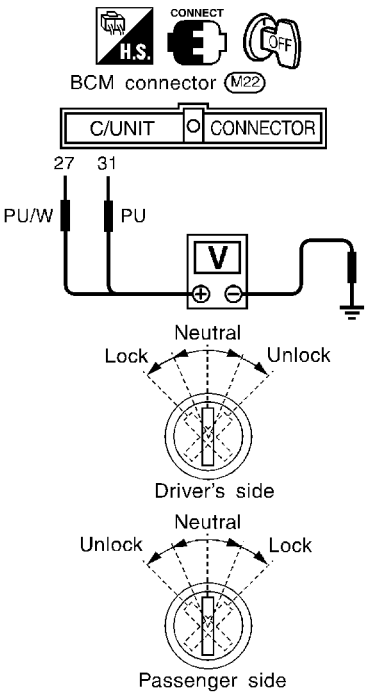
## DIAGNOSTIC PROCEDURE 4-(2)
## (Door key cylinder unlock switch check)

A



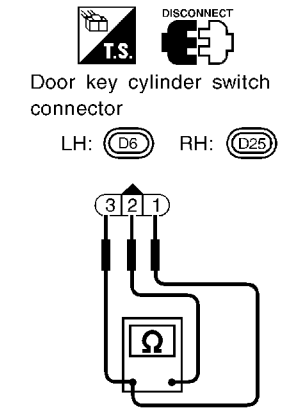

SEL538W

B




SEL952V

C




① : Door unlock switch terminal (LH)

② : Ground terminal

③ : Door unlock switch terminal (RH)

SEL913U

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

A CONSULT-II

See "KEY CYL UN" in DATA MONITOR mode.

**"KEY CYL UN" should be "ON" when key inserted in door key cylinder was turned to unlock.**

OR

B TESTER

Check voltage between BCM terminals ㉗ or ㉛ and ground.

| | Terminals ⊕ | Terminals ⊖ | Key position | Voltage V |
|---|---|---|---|---|
| LH | ㉛ | Ground | Neutral/Lock | Approx. 12 |
| | | | Unlock | 0 |
| RH | ㉗ | Ground | Neutral/Lock | Approx. 12 |
| | | | Unlock | 0 |

Refer to wiring diagram in EL-419.

OK → Door key cylinder switch (unlock) is OK.

NG ↓

C

**CHECK DOOR KEY CYLINDER SWITCH.**

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

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

NG → Replace door key cylinder switch.

OK ↓

Check the following.

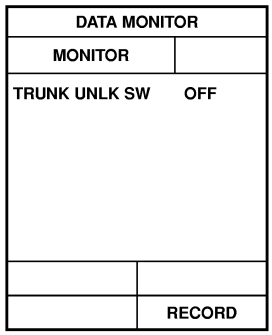
- Door key cylinder switch ground circuit
- Harness for open or short between BCM and door key cylinder switch

# Trouble Diagnoses (Cont'd)

## DIAGNOSTIC PROCEDURE 5

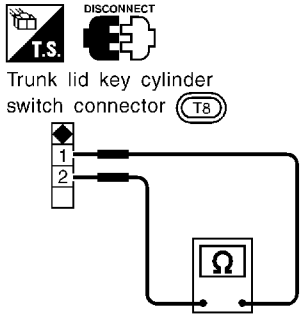
### (Trunk lid key unlock signal check)

A




SEL539W

B




SEL932U

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

A CONSULT-II

See "TRUNK UNLK SW" in DATA MONITOR mode.
When key in key cylinder is at "NEUTRAL" position,
**TRUNK UNLK SW OFF**
When key is "UNLOCK" position,
**TRUNK UNLK SW ON**

OR

ON BOARD

Check trunk lid key cylinder switch in Switch monitor (Mode II) mode. (Refer to On board Diagnosis, EL-299.)

Refer to wiring diagram in EL-421.

OK → Trunk lid key unlock switch is OK.

NG ↓

B

**CHECK TRUNK LID KEY CYLINDER SWITCH (UNLOCK SWITCH).**

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

| Terminals | Condition | Continuity |
|---|---|---|
| ① - ② | Neutral | No |
| | Unlocked | Yes |

NG → Replace trunk lid key cylinder switch.

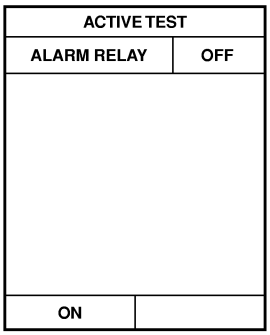
OK ↓

Check the following.
- Trunk lid key cylinder switch ground circuit
- Harness for open or short between trunk lid key cylinder switch and BCM

## Trouble Diagnoses (Cont'd)

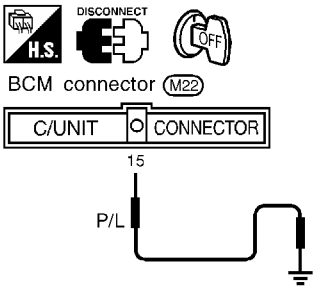
### DIAGNOSTIC PROCEDURE 6
### (Vehicle security horn alarm check)

A



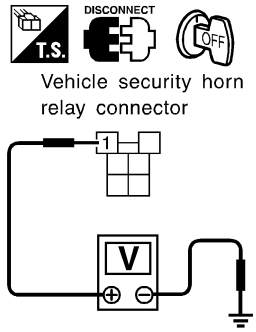

SEL540W

B



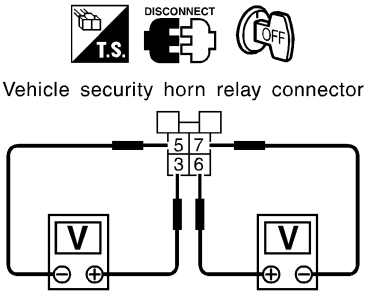

SEL933U

C




SEL755UG

D




SEL756UE

**CHECK VEHICLE SECURITY HORN ALARM OPERATION.**

A CONSULT-II

See "ALARM RELAY" in ACTIVE TEST mode.
Perform operation shown on display.
**Vehicle security horn alarm should operate.**

Yes → Horn alarm is OK.

OR

B

1. Disconnect BCM connector.
2. Apply ground to BCM terminal ⑮.
   **Does horn alarm activate?**

   Refer to wiring diagram in EL-426.

No ↓

Check vehicle security horn relay. → NG → Replace.

OK ↓

C

**CHECK POWER SUPPLY FOR VEHICLE SECURITY HORN RELAY.**

1. Disconnect vehicle security horn relay connector (B117).
2. Check voltage between terminal ① (B117, P) and ground.
   **Battery voltage should exist.**

NG → Check the following.
- 7.5A fuse [No. 14, located in the fuse block (J/B)]
- Harness for open or short between vehicle security horn relay and fuse

OK ↓

D

**CHECK VEHICLE SECURITY HORN RELAY CIRCUIT.**

1. Disconnect vehicle security horn relay connector (B117).
2. Check voltage between terminals ③ (B117, P) and ⑤ (B117, Y/B).
   **Battery voltage should exist.**
3. Check voltage between terminals ⑥ (B117, G) and ⑦ (B117, B).
   **Battery voltage should exist.**

NG → Check harness for open or short.

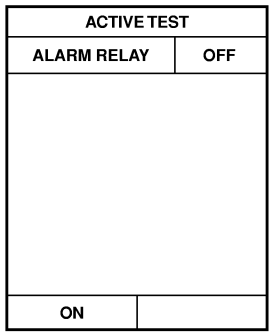
OK ↓

Check harness for open or short between vehicle security horn relay and BCM.

## Trouble Diagnoses (Cont'd)

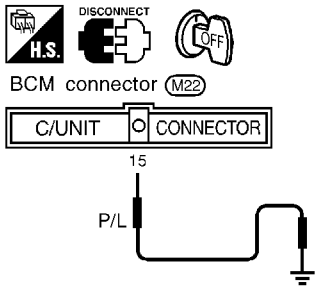
### DIAGNOSTIC PROCEDURE 7
### (Vehicle security headlamp alarm check)

A



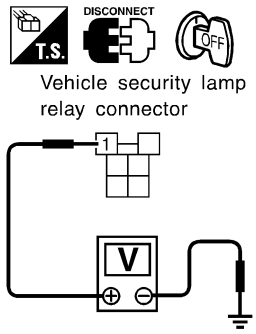

SEL540W

B



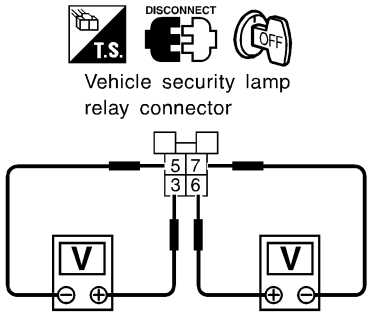

SEL933U

C




SEL757UG

D




SEL758UI

**CHECK VEHICLE SECURITY HEADLAMP ALARM OPERATION.**

A CONSULT-II

See "ALARM RELAY" in ACTIVE TEST mode.
Perform operation shown on display.
**Vehicle security headlamp alarm should operate.**

Yes → Headlamp alarm is OK.

OR

B

1. Disconnect BCM connector.
2. Apply ground to BCM terminal ⑮.
   **Does headlamp alarm activate?**

   Refer to wiring diagram in EL-426.

No ↓

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

No → Check headlamp system. Refer to "HEADLAMP".

Yes ↓

Check vehicle security lamp relay.

NG → Replace.

OK ↓

C

**CHECK POWER SUPPLY FOR VEHICLE SECURITY LAMP RELAY.**

1. Disconnect vehicle security lamp relay connector (M69).
2. Check voltage between terminal ① ((M69), P) and ground.
   **Battery voltage should exist.**

NG → Check the following.
- 7.5A fuse [No. 14, located in the fuse block (J/B)]
- Harness for open or short between vehicle security lamp relay and fuse

OK ↓

D

**CHECK VEHICLE SECURITY LAMP RELAY CIRCUIT.**

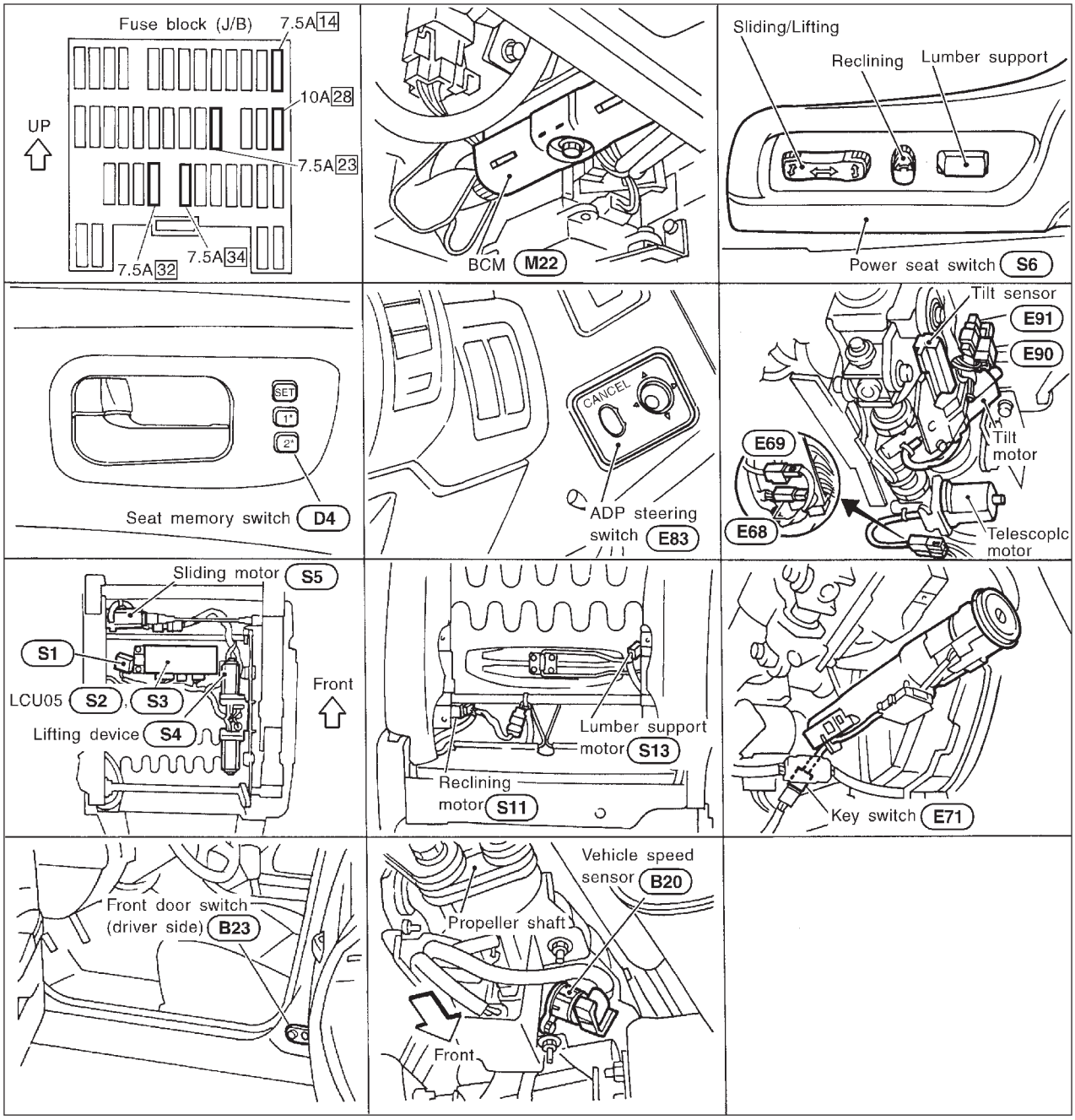
1. Disconnect vehicle security lamp relay connector (M69).
2. Turn lighting switch to 2nd position.
3. Check voltage between terminals ③ ((M69), W) and ⑤ ((M69), B).
   **Battery voltage should exist.**
4. Check voltage between terminals ⑥ ((M69), B/W) and ⑦ ((M69), B).
   **Battery voltage should exist.**

NG → Check harness for open or short.

OK ↓

Check harness for open or short between vehicle security lamp relay and BCM.

## Component Parts and Harness Connector Location




SEL065X

# System Description

## OPERATIVE CONDITION

The drive position and mirror can be set in 2 ways, manually and automatically.

### Manual operation

The driver's seat can be adjusted for sliding, reclining, front cushion height, rear cushion height, and lumbar support with the LH power seat switches. The steering column can be adjusted for tilt and reach (telescopic) with the steering switch. The manual operation can be adjusted with the IGN key in any position.

### Automatic operation

The driver's seat and steering column are adjusted to the proper positions for the driver automatically, in 3 different ways: MEMORY AUTOMATIC SET, AUTOMATIC EXITING SETTING and AUTOMATIC SET RETURN. (Automatic Drive Positioner = ADP)

## CONDITIONS INHIBITING AUTOMATIC OPERATION

Automatic memory setting procedures are suspended under any of the following conditions:

(a) When vehicle speed is more than 7 km/h (4 MPH).
(b) When driver's side power seat switch, tilt or telescopic steering switch is turned on.
(c) When any two of the switches (set switch and memory switches 1 and 2) are turned ON.
(d) When cancel switch is turned on.
(e) When selector lever is in any position other than "P".
(f) When ignition switch is turned to "START" position.
(Operation resumes when ignition switch is returned to "ON".)
(g) When any of the following malfunctions are detected:

- Steering tilt lock detection
(Steering tilt lock is sensed when tilt sensor signal value does not change for a certain period of time.)
- Steering tilt/telescopic sensor failure detection
(Sensor failure is sensed when sensor output is less than 0.1 volts or greater than 4.9 volts.)
- Detention switch abnormality detection
[Detention switch failure is sensed when detention switch remains off for at least 2 seconds at a vehicle speed of greater than 7 km/h (4 MPH).]

## FAIL-SAFE SYSTEM

### Output failure

When the ignition switch is in the ON position, if any of the parts (indicated in the following chart) move more than the specified amount within a period "T2" when no "ON" input is sent from any of the switches (indicated in the following chart), or an output from the automatic drive positioner is not produced, an output failure is sensed. Motor operation will be suspended automatically, and all automatic operations will be ineffective. (In this case, the motor will not operate manually.)

| OPERATED PORTION | T2 | Allowable measurement |
|---|---|---|
| Seat sliding | Approx. 2.5 sec. | Within 6 mm (0.24 in) |
| Seat reclining | Same as above | Change angle within 1° |
| Steering tilt | Same as above | Change angle within 1° |

### Absolving

- When moving selector lever back to "P" position after having moved it to any position except "P", fail-safe operation will be canceled.
- If self-diagnosis is performed using CONSULT-II, fail-safe operation will be canceled.

## System Description (Cont'd)

### INITIALIZATION

After reconnecting battery cable, perform initialization procedure A or B. If initialization has not been performed, automatic drive positioner will not operate.

PROCEDURE A

(1) Insert key in the ignition key cylinder. (Ignition switch is in "OFF" position.)
(2) Open → close → open driver side door. (Do not perform with the door switch operation.)
(3) End

PROCEDURE B

(1) Drive the vehicle at more than 30 km/h (19 MPH).
(2) End

### MEMORY AUTOMATIC SET

Two drive positions can be retained in the memory. Press memory switch to set driver's seat to preset position.

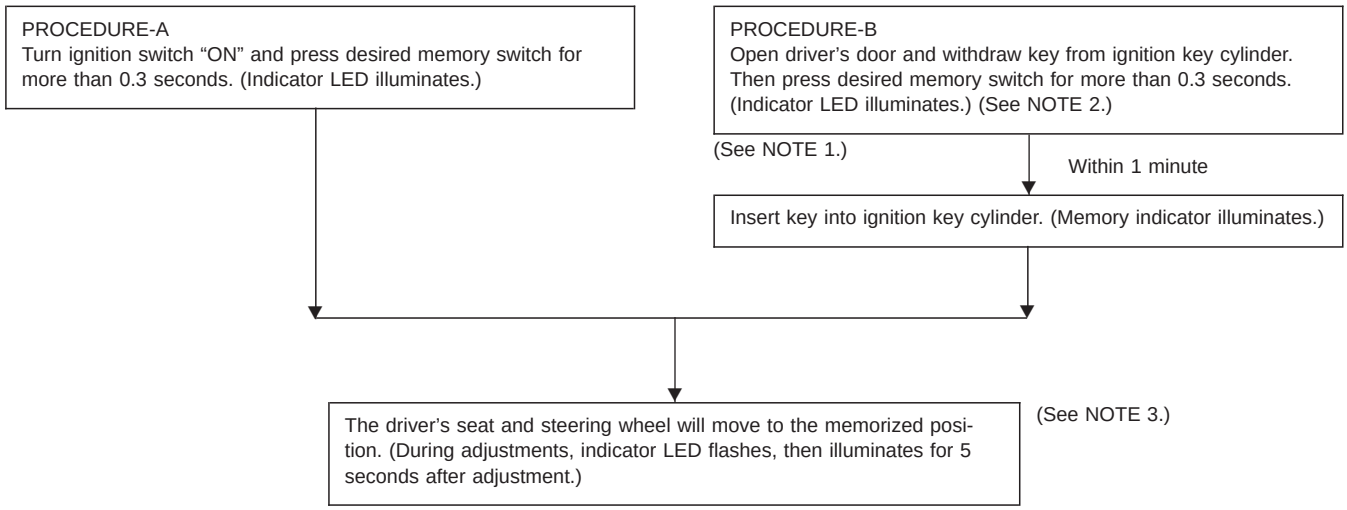
(1) PROCEDURE FOR STORING MEMORY

| Adjust the position of driver's seat, steering column with manual set operations. | |
|---|---|
| ↓ Ignition switch "ON". | |
| Touch set switch. | Indicator LEDs<br>(1) Indicator LED for which driver's seat positions are already retained in memory illuminates for 5 seconds.<br>(2) Indicator LED for which driver's seat positions are not entered in memory illuminates for 0.5 seconds. |
| ↓ Within 5 seconds. | |
| Press memory switch for which driver's seat positions are to be entered in memory for more than 0.5 seconds. (2 driver's seat positions can be memorized.) | Indicator LEDs<br>(1) To modify driver's seat positions, press memory switch. Indicator LED will then go out for 0.5 seconds and then illuminate for 5 seconds.<br>(2) To enter driver's seat positions in blank memory, indicator LED illuminates for 5 seconds after memory switch is pressed. |
| ↓ | |
| END OF MEMORY SETTING | |

NOTE: (1) When memory switch for which driver's seat positions are already retained in memory is pressed, new seat positions will be retained in memory in place of the previously set positions.
(2) Drive position is erased from the memory when battery cable is disconnected. After connecting battery cable, perform initialization procedures.

## System Description (Cont'd)

(2) SELECTING THE MEMORIZED POSITION



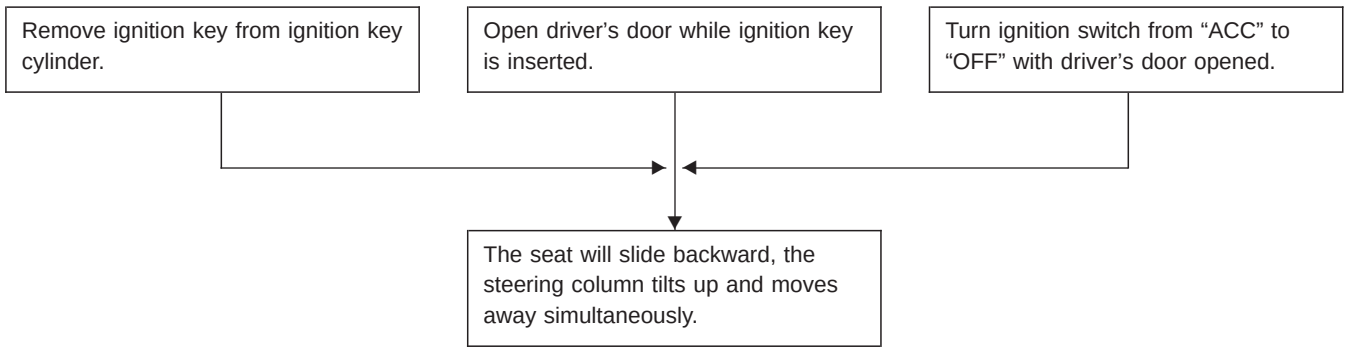

NOTES: (1) Do not keep cancel switch pressed as it will not operate.
(2) Automatic exiting setting will be performed.
(3) The driver's seat position and steering adjustment (see the following Table) operate simultaneously in the order of priority.

| The order of priority | Operated portion |
|---|---|
| 1 | Seat sliding |
| 2 | Steering telescopic |
| 3 | Steering tilt |
| 4 | Seat reclining |
| 5 | Seat front lifting |
| 6 | Seat rear lifting |

## System Description (Cont'd)

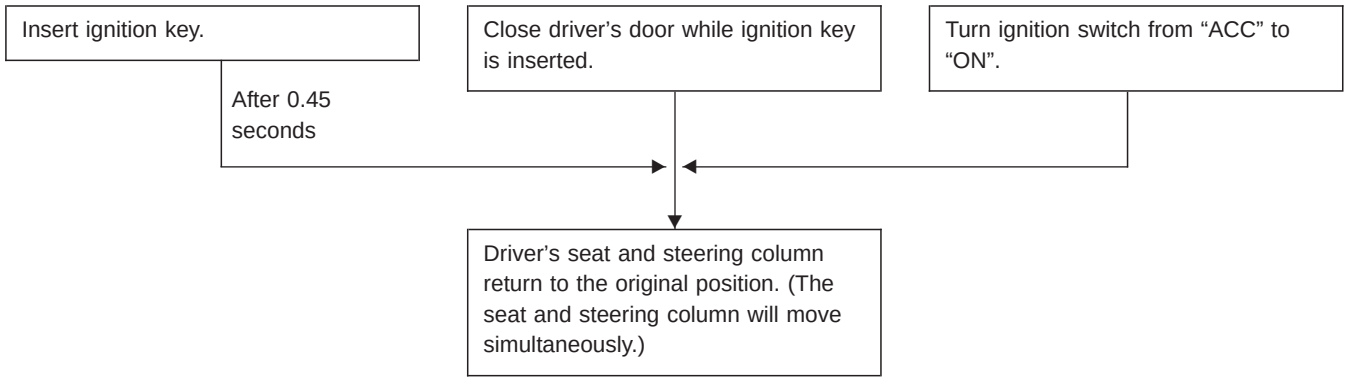
### AUTOMATIC EXITING SETTING

For ease of entry and exit, move driver's seat to "exiting" position.
"Exiting" positions:
Driver's seat ... Slides about 40 mm (1.57 in) rear from normal sitting position.

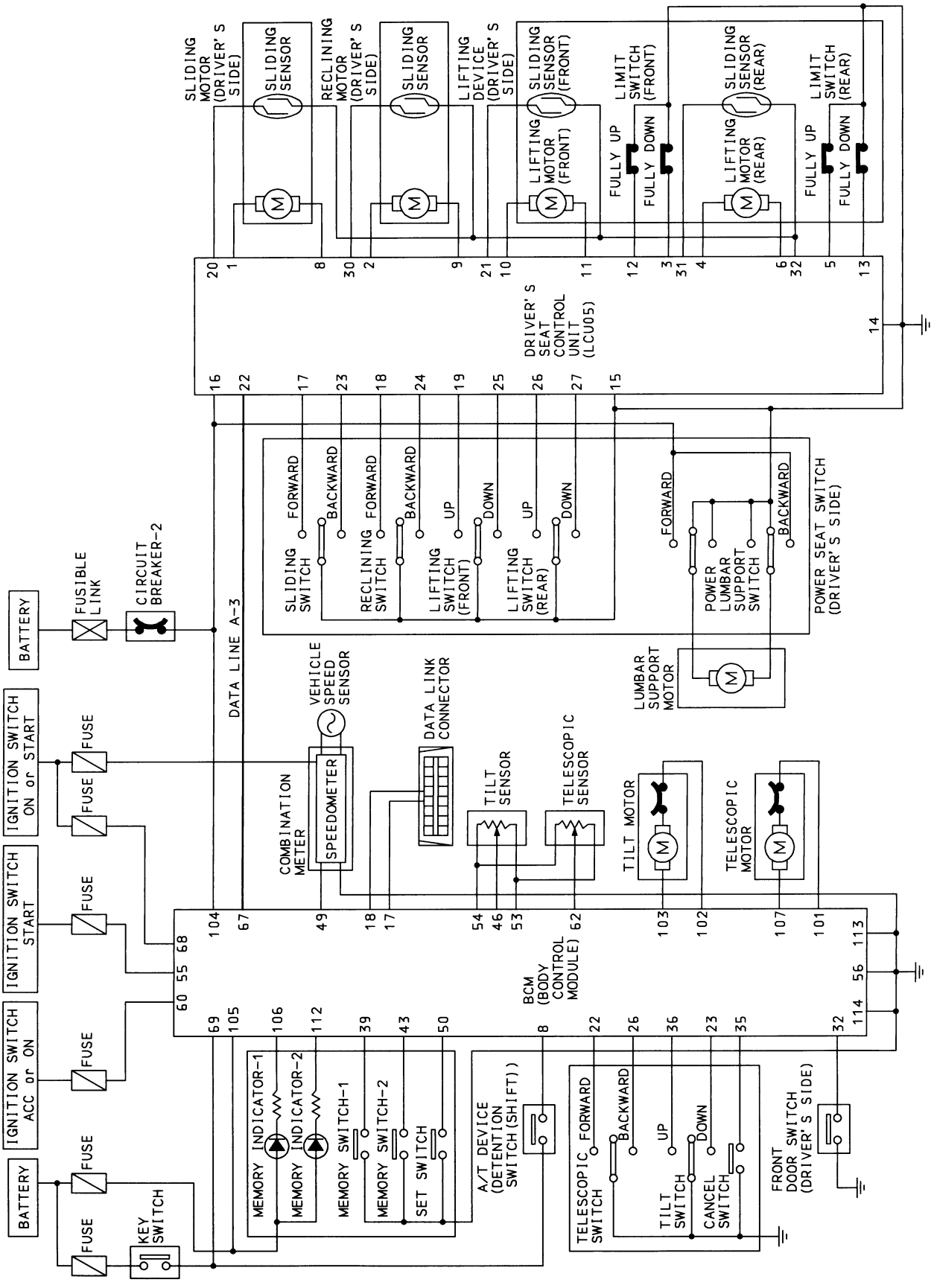



### AUTOMATIC SET RETURN

With driver's seat set to the "exiting" position, operating one of the following procedures moves it to the position previously retained in memory.

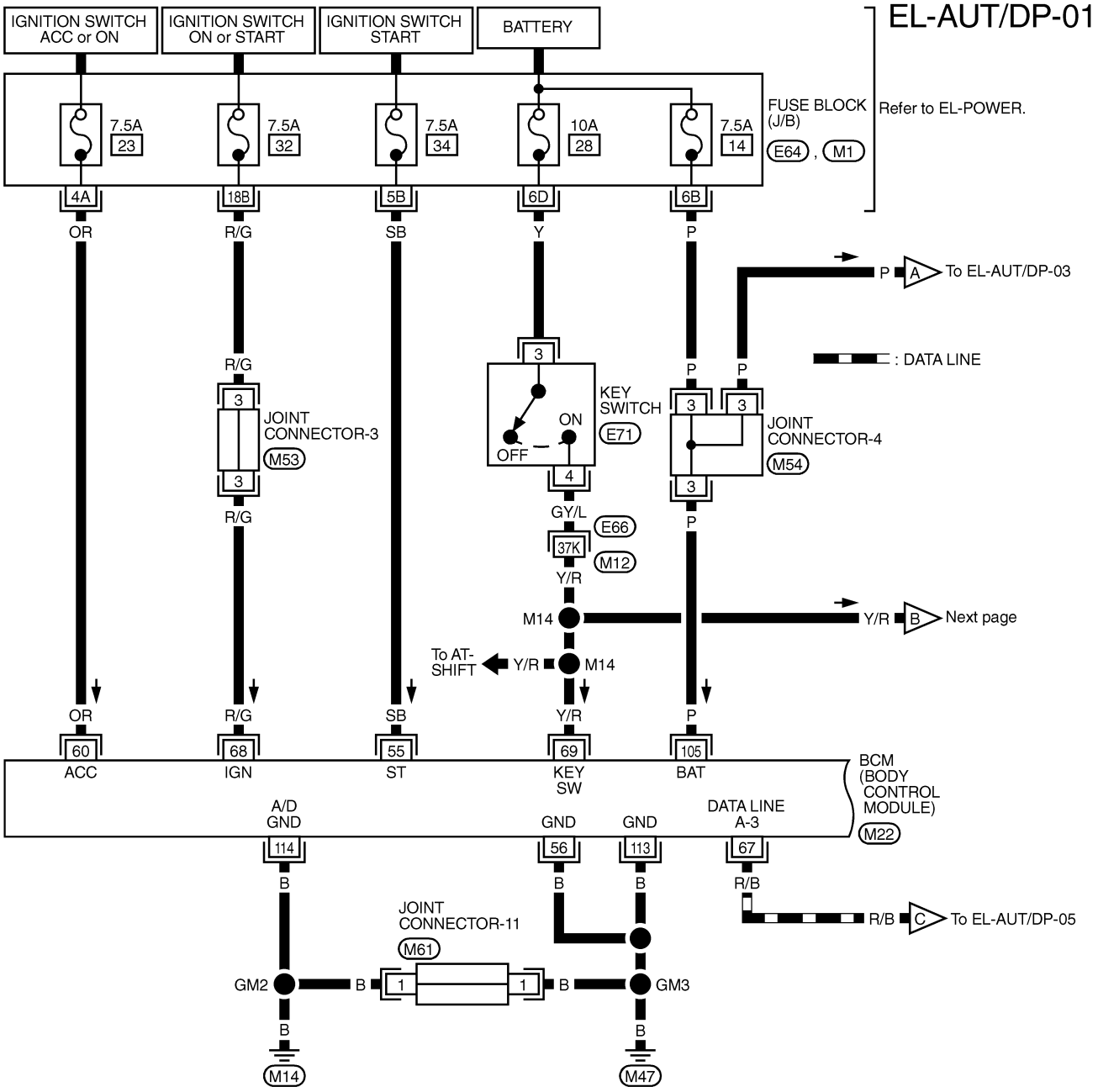


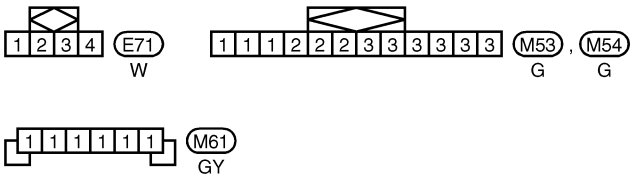
## Schematic




TEL033M

## Wiring Diagram — AUT/DP —

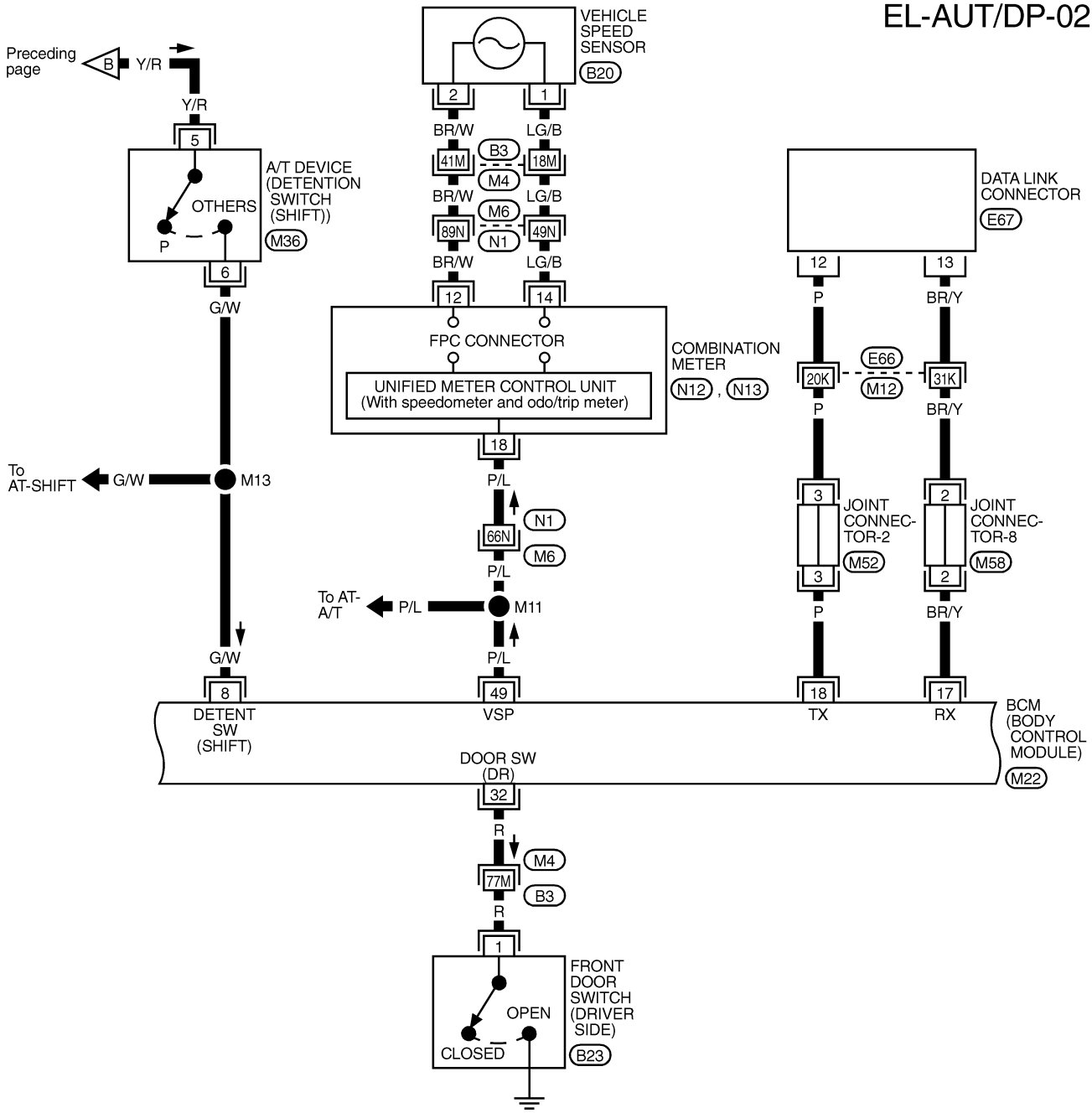


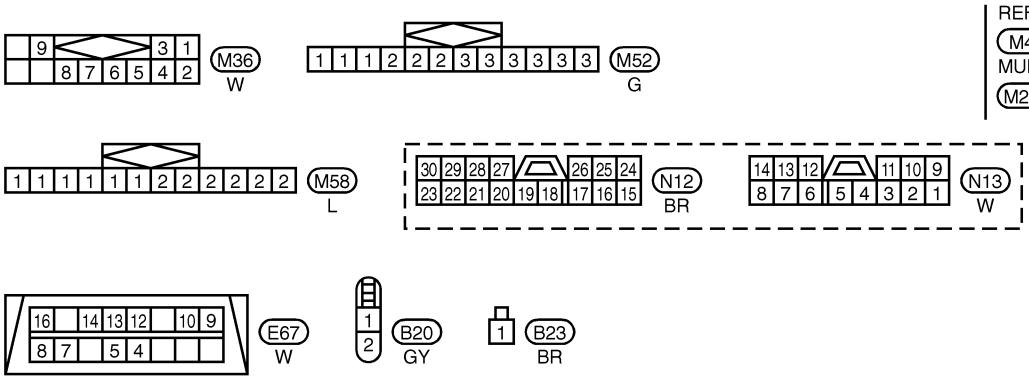




REFER TO THE FOLLOWING.
E66 -SUPER MULTIPLE JUNCTION (SMJ)
M1 , E64 -FUSE BLOCK-JUNCTION BOX (J/B)
M22 -ELECTRICAL UNITS

TEL183M

## Wiring Diagram — AUT/DP — (Cont'd)



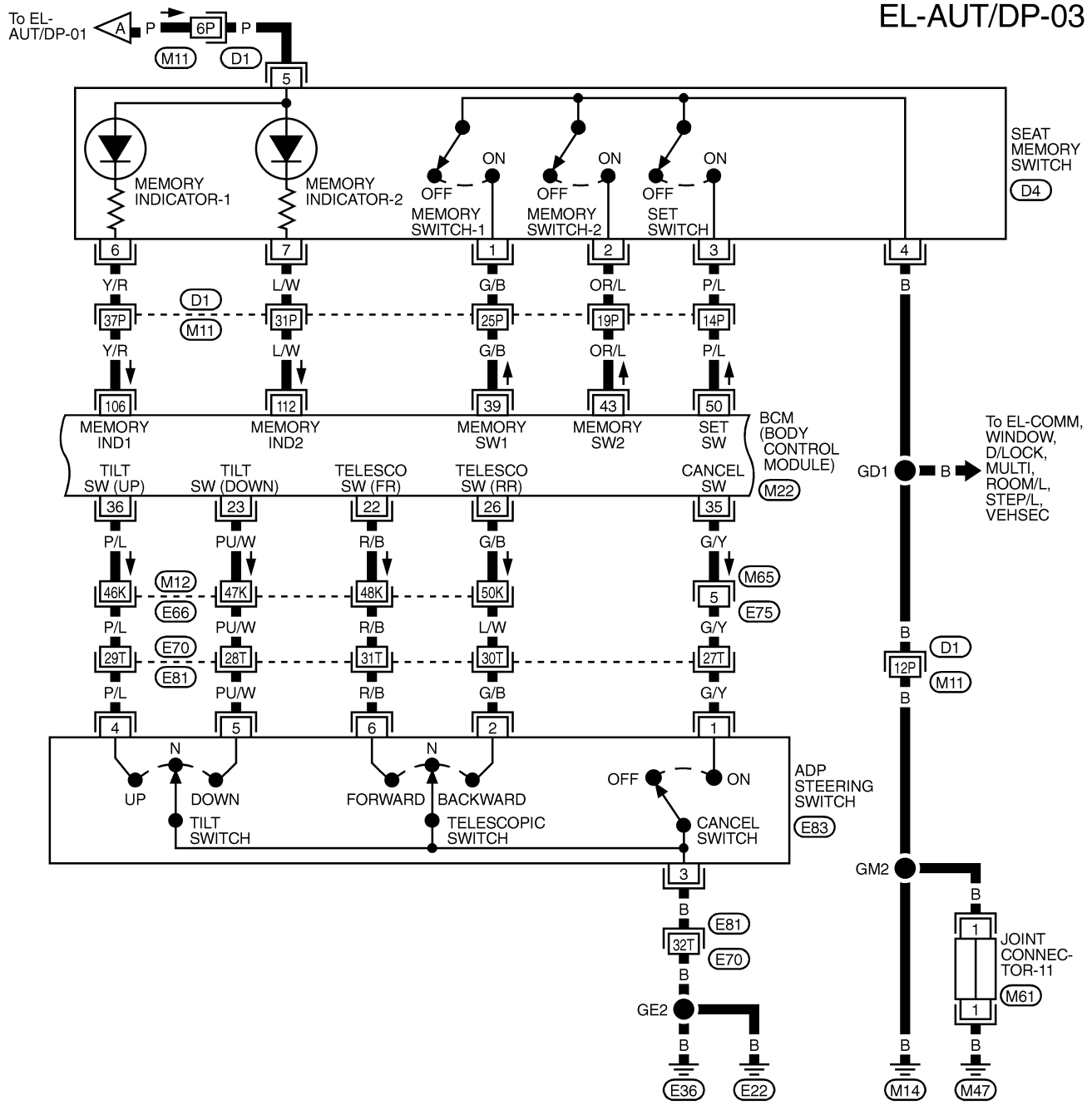



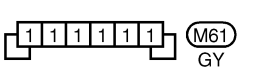

REFER TO THE FOLLOWING.
M4 , M6 , E66 -SUPER MULTIPLE JUNCTION (SMJ)
M22 -ELECTRICAL UNITS

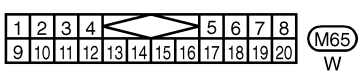
TEL184M

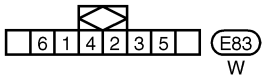
## Wiring Diagram — AUT/DP — (Cont'd)

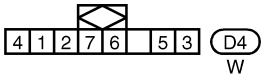
EL-AUT/DP-03



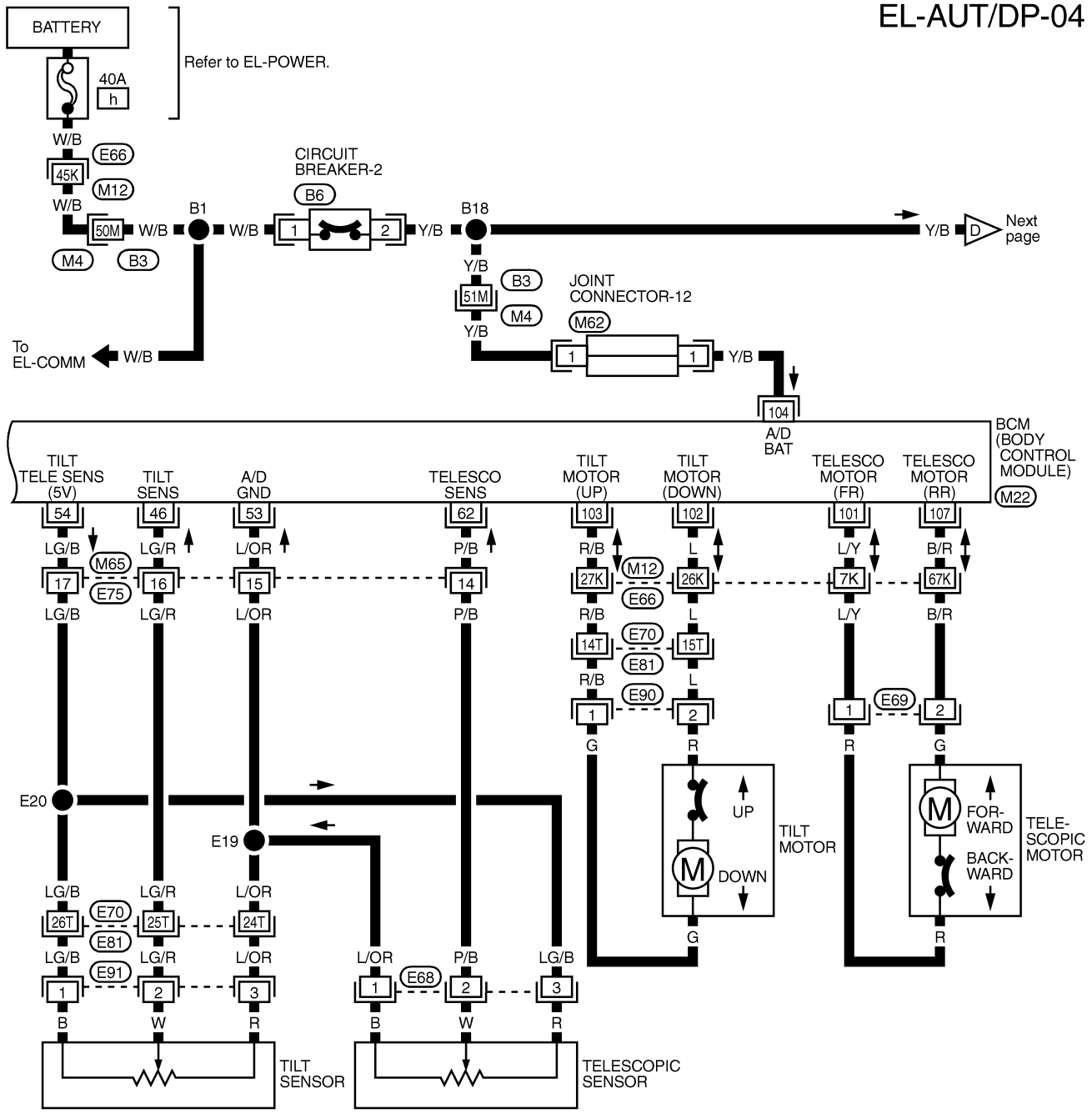



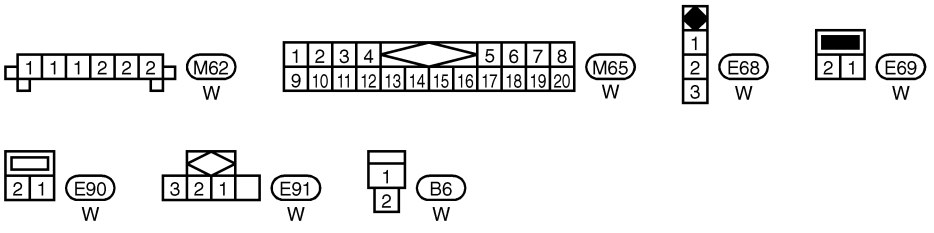

REFER TO THE FOLLOWING.
E66 , E81 , D1 -SUPER MULTIPLE JUNCTION (SMJ)
M22 -ELECTRICAL UNITS

TEL763B

## Wiring Diagram — AUT/DP — (Cont'd)

EL-AUT/DP-04



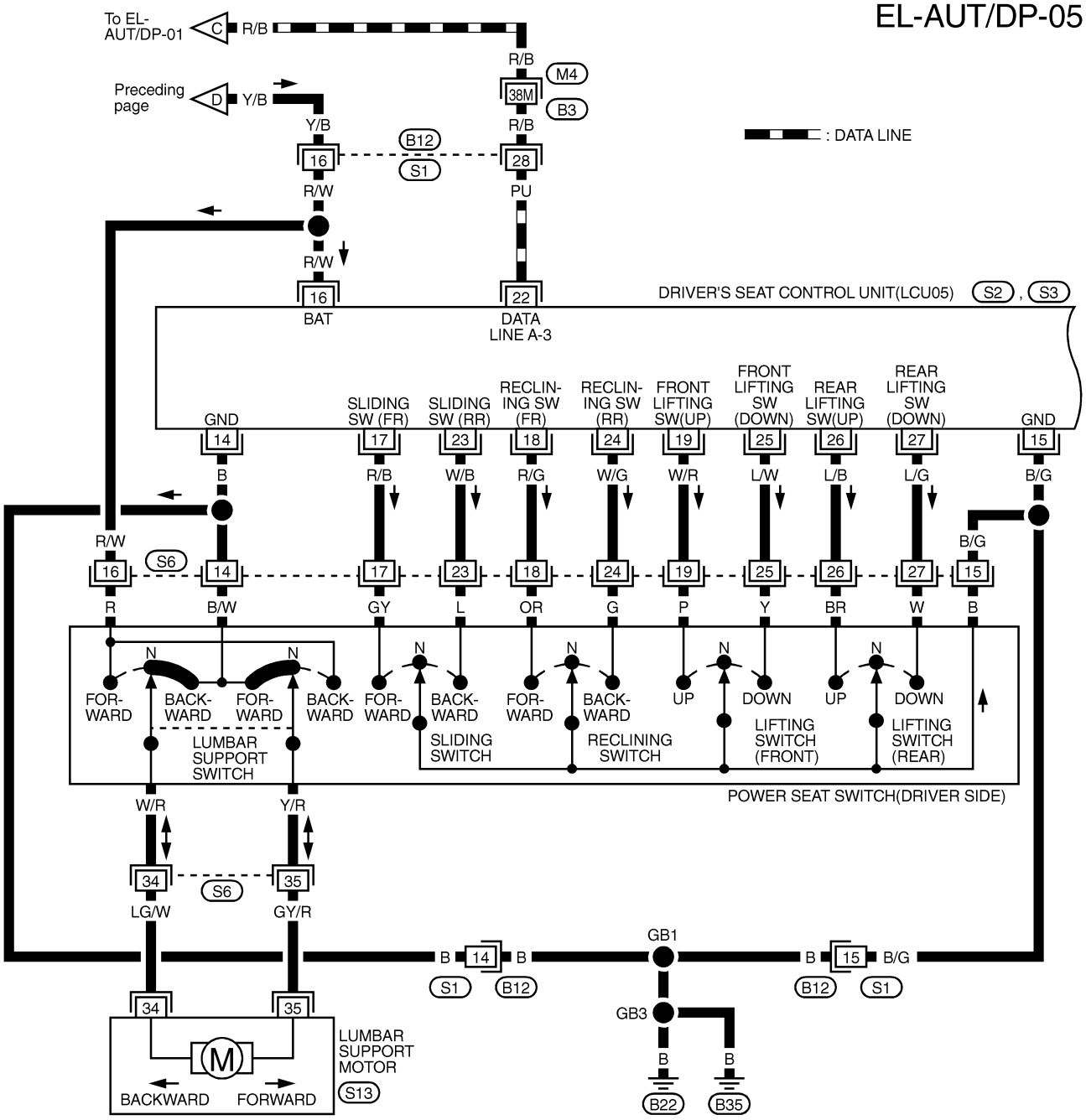



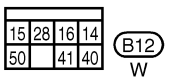

REFER TO THE FOLLOWING.
M4 , E66 , E81 -SUPER MULTIPLE JUNCTION (SMJ)
M22 -ELECTRICAL UNITS

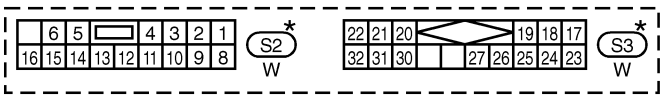
TEL186M

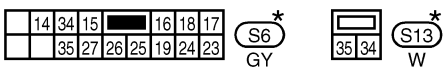
## Wiring Diagram — AUT/DP — (Cont'd)

EL-AUT/DP-05



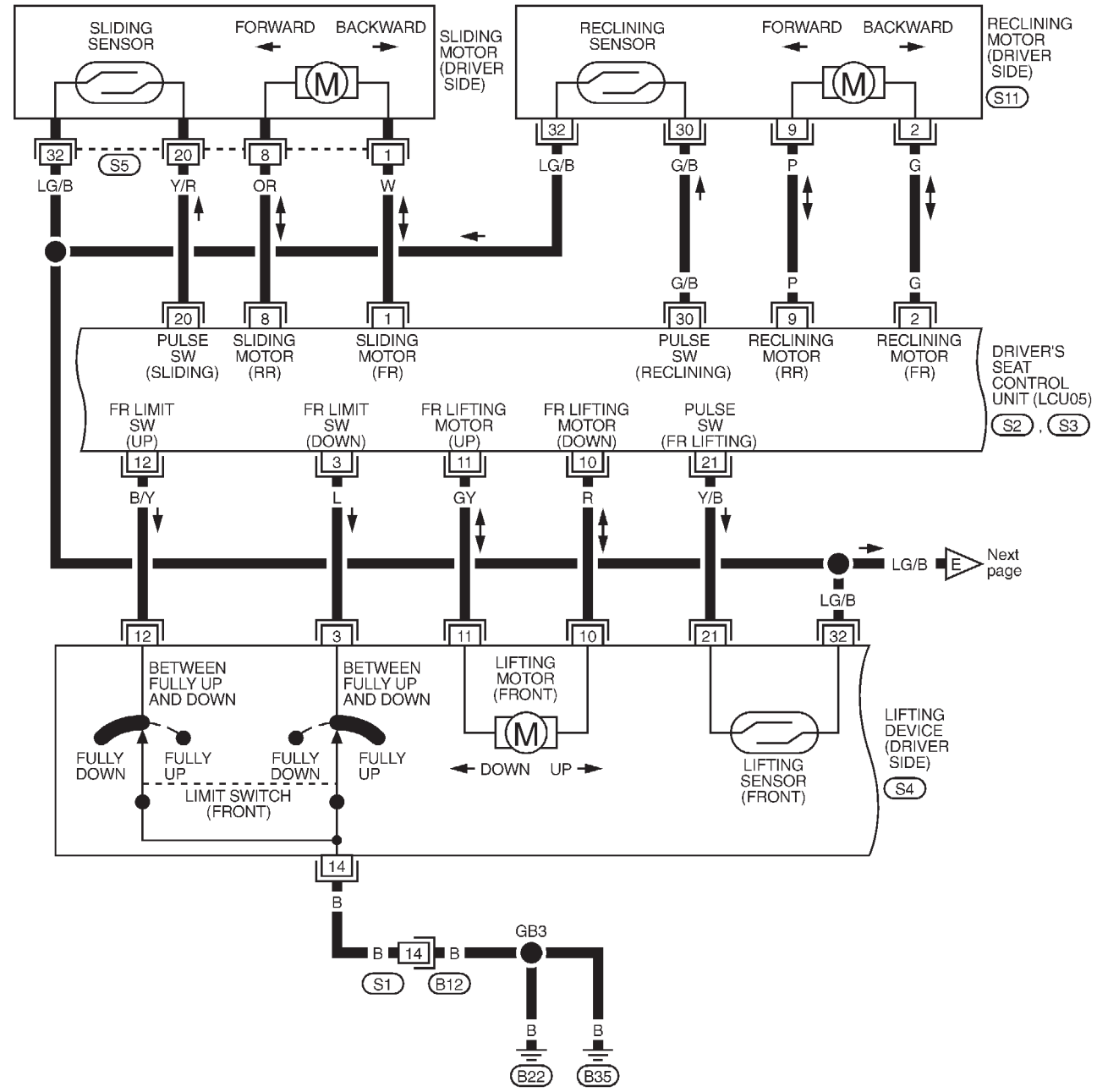

REFER TO THE FOLLOWING.
M4 -SUPER MULTIPLE JUNCTION (SMJ)

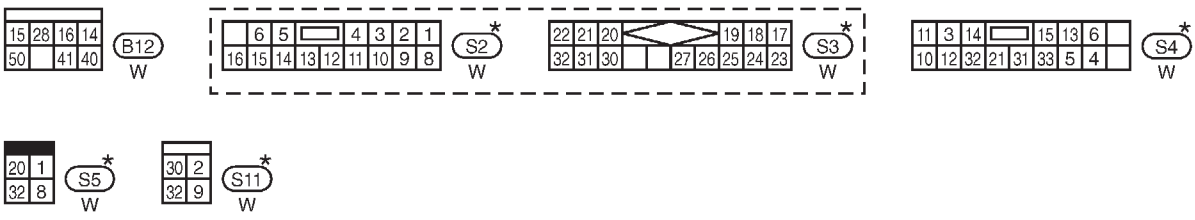
*: This connector is not shown in "HARNESS LAYOUT", EL section.

TEL187M

## Wiring Diagram — AUT/DP — (Cont'd)

EL-AUT/DP-06



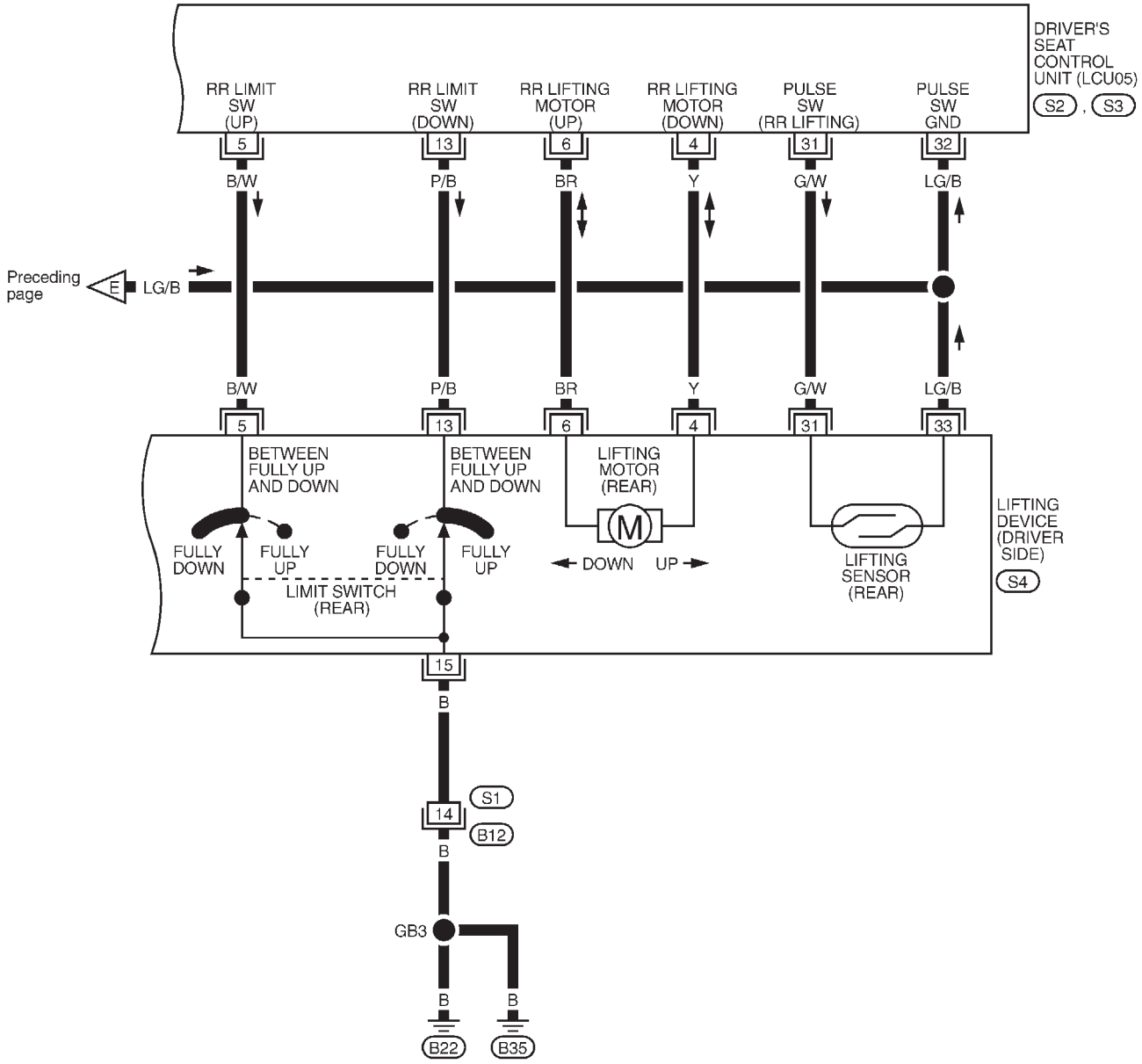



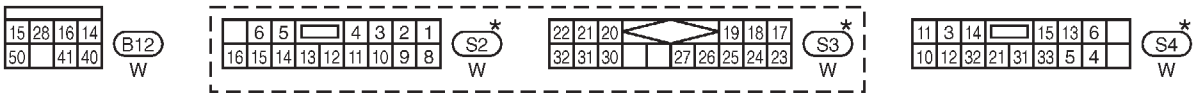

*: This connector is not shown in "HARNESS LAYOUT", EL section.

TEL025B

## Wiring Diagram — AUT/DP — (Cont'd)

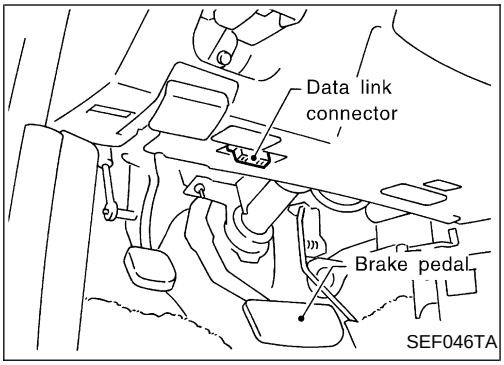
EL-AUT/DP-07




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

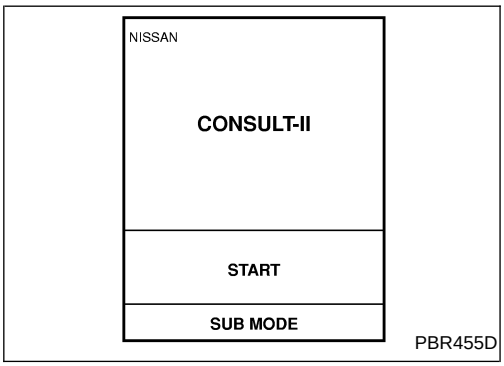
TEL026B



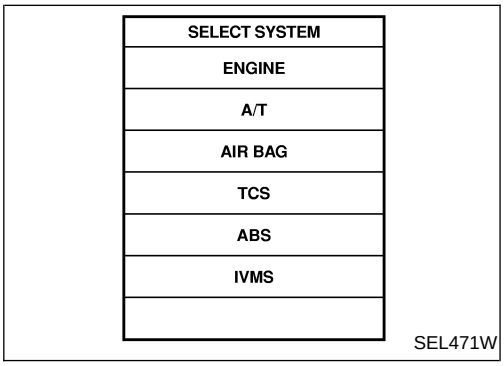

## CONSULT-II

### CONSULT-II INSPECTION PROCEDURE

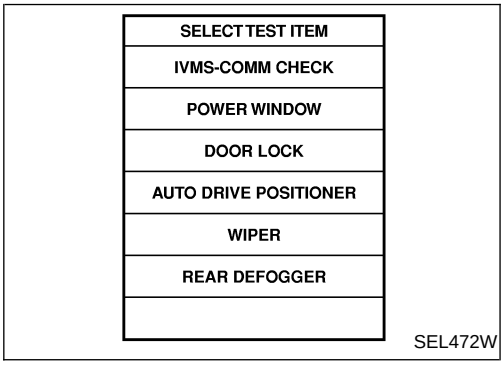
1. Turn ignition switch “OFF”.
2. Connect “CONSULT-II” to the data link connector.



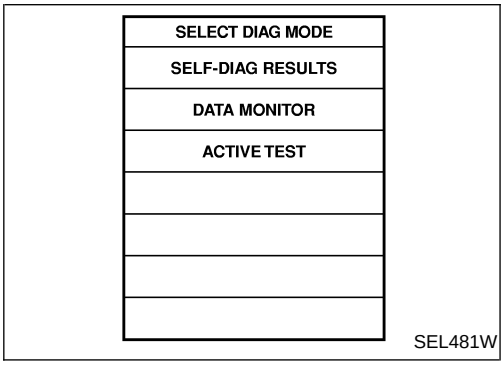

3. Turn ignition switch “ON”.
4. Touch “START”.




5. Touch “IVMS”.



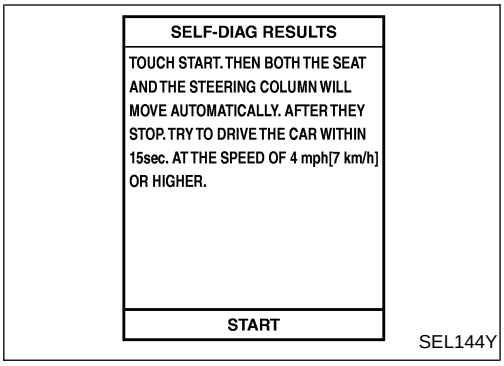

6. Touch “AUTO DRIVE POSITIONER”.




- DATA MONITOR, ACTIVE TEST, and SELF-DIAGNOSIS are available for the automatic drive positioner.

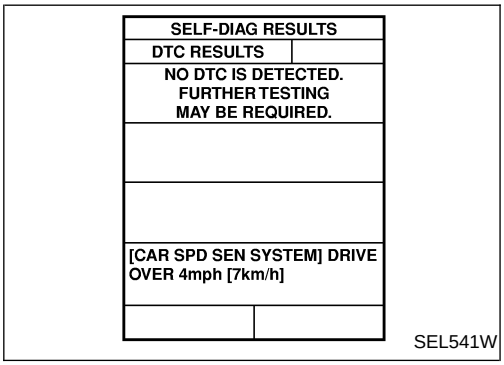
## CONSULT-II (Cont'd)

### HOW TO PERFORM SELF-DIAGNOSIS



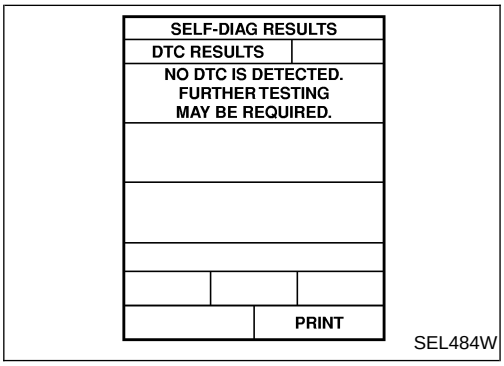
SEL144Y

1. Choose "AUTO DRIVE POSITIONER" in SELECT TEST ITEM.
2. Touch "SELF-DIAG RESULTS" of SELECT DIAG MODE.
3. Touch "START".



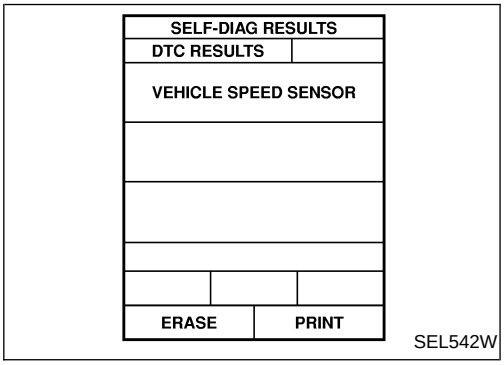
SEL541W

4. Seats and steering automatically move, and self-diagnosis will start.
5. Within 15 seconds after seat and steering come to a stop, drive the vehicle at speeds greater than 7 km/h (4 MPH) to diagnose the vehicle speed sensor.
6. After completing self-diagnosis, diagnostic results appear on the display.



SEL484W

- When no malfunction is detected.



SEL542W

- When malfunction is detected.
  A summary of diagnostic results is given in the following chart.

7. Erase the diagnostic results memory.

a. Turn ignition switch "ON".
b. Touch "IVMS".
c. Touch "AUTO DRIVE POSITIONER".
d. Touch "SELF-DIAG RESULTS".
e. Touch "START".
f. Touch "ERASE".

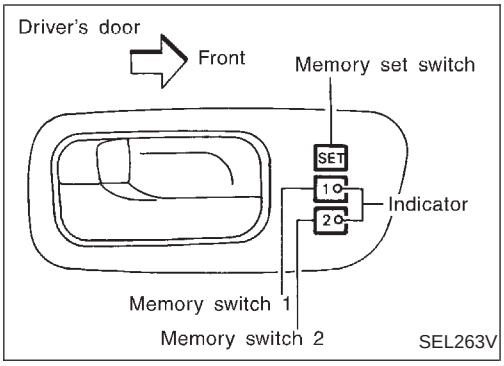
## CONSULT-II (Cont'd)

### SELF DIAGNOSTIC RESULT LIST

| Diagnostic item | Explanation | Diagnostic procedure | Reference page |
|---|---|---|---|
| NO DTC IS DETECTED/FURTHER TESTING MAY BE REQUIRED. | Normal<br>The automatic drive positioner system is in good order. | — | — |
| SEAT SLIDE | Condition: While the seat slide is moving backward for 2.5 seconds, then forward for 2.5 seconds.<br>If the number of seat slide sensor pulses changes 2 times or less, the seat slide is determined to be malfunctioning. | PROCEDURE 5<br>(Sliding sensor check)<br>PROCEDURE 11<br>(Sliding motor check) | EL-468<br>EL-474 |
| SEAT RECLINING | Condition: While the seat is reclining forward for 2.5 seconds, then backward for 2.5 seconds.<br>If the number of seat reclining sensor pulses changes 2 times or less, the seat reclining device is determined to be malfunctioning. | PROCEDURE 6<br>(Reclining sensor check)<br>PROCEDURE 12<br>(Reclining motor check) | EL-469<br>EL-475 |
| SEAT LIFTER-FR | Condition: While the lifter's front section is moving down for 2.5 seconds, then up for 2.5 seconds.<br>If the number of sensor pulses (located in the front section of the seat lifter) changes 2 times or less, the front seat lifter is determined to be malfunctioning. | PROCEDURE 7<br>[Lifting sensor (front) check]<br>PROCEDURE 13<br>[Lifting motor (front) check] | EL-470<br>EL-476 |
| SEAT LIFTER-RR | Condition: While the lifter's rear section is moving down for 2.5 seconds, then up for 2.5 seconds.<br>If the number of sensor pulses (located in the rear section of the seat lifter) changes 2 times or less, the rear seat lifter is determined to be malfunctioning. | PROCEDURE 8<br>[Lifting sensor (rear) check]<br>PROCEDURE 14<br>[Lifting motor (rear) check] | EL-471<br>EL-477 |
| STEERING TELESCO | Condition: While steering telesco is moving forward for 1 second, then backward for 1 second.<br>If telesco sensor output changes 0.2 volts or less, the steering telesco section is determined to be malfunctioning. | PROCEDURE 4<br>(Telescopic sensor check)<br>PROCEDURE 10<br>(Telescopic motor check) | EL-467<br>EL-473 |
| STEERING TILT | Condition: While the steering wheel is tilting up for 1 second, then down for 1 second.<br>If tilt sensor output changes 0.2 volts or less, the steering tilt device is determined to be malfunctioning. | PROCEDURE 3<br>(Tilt sensor check)<br>PROCEDURE 9<br>(Tilt motor check) | EL-466<br>EL-472 |
| VEHICLE SPEED SENSOR | If the vehicle speed sensor output of less than 7 km/h (4 MPH) is detected within 15 seconds after completing self-diagnosis on the seat and steering systems, the vehicle speed sensor is determined to be malfunctioning. | PROCEDURE 19<br>(Vehicle speed sensor check) | EL-482 |
| DETENT SW<br>[PAST INPUT FAIL] | If a vehicle speed of greater than 7 km/h (4 MPH) is detected while the A/T selector lever is set to "P", the detent switch input system is determined to be malfunctioning. | PROCEDURE 19<br>(Detent switch check) | EL-482 |

## CONSULT-II (Cont'd)

| Diagnostic item | Explanation | Diagnostic procedure | Reference page |
|---|---|---|---|
| SEAT SLIDE<br>[PAST OUTPUT FAIL] | When neither manual input nor ADP output signal is produced, if the seat slides greater than 6 mm (0.24 in) within 2.5 seconds after the seat slide sensor receives an input signal, the seat slide output system is determined to be malfunctioning. | — | — |
| SEAT RECLINING<br>[PAST OUTPUT FAIL] | When neither manual input nor ADP output signal is produced, if the seat reclines greater than 1° within 2.5 seconds after the seat reclining sensor receives an input signal, the seat reclining output system is determined to be malfunctioning. | — | — |
| STEERING TILT<br>[PAST OUTPUT FAIL] | When neither manual input signal nor ADP output signal is produced, if the steering wheel tilts greater than 1° within 2.5 seconds after the steering tilt sensor receives an input signal, the steering tilt output system is determined to be malfunctioning. | — | — |
| TELESCO SEN<br>[PAST] | If a voltage greater than 4.9 volts (in relation to the sensor power source of 5 volts) or less than 0.1 volts is detected across the telesco sensor, the telesco sensor system is determined to be malfunctioning. | PROCEDURE 4<br>(Telescopic sensor check) | EL-467 |
| TILT SEN<br>[PAST] | If a voltage greater than 4.9 volts (in relation to the sensor power source of 5 volts) or less than 0.1 volts is detected across the steering tilt sensor, the tilt sensor system is determined to be malfunctioning. | PROCEDURE 3<br>(Tilt sensor check) | EL-466 |




## On board Diagnosis — Mode IV (Automatic drive positioner operation)

### HOW TO PERFORM MODE IV

Condition
- Ignition switch: OFF
- Selector lever: "P" range

↓

Turn ignition switch "ON".

↓ Within 5 seconds

Push memory set switch and two memory switches at the same time for more than 2 seconds.

↓

Mode V should be performed.
— Two indicator lamps should go on. (At the same time, driver's seat and steering column move automatically.)

↓

As soon as the indicator lamps go on and off by turns, start engine.

↓ Within 15 seconds

Drive the vehicle more than 7 km/h (4 MPH) and stop.
**Do not stop engine.**

↓

If a circuit malfunctions, a malfunction code should be indicated.*1

↓

Turn ignition switch "OFF".
or
Touch front driver's side power seat switch or ADP steering switch.

↓

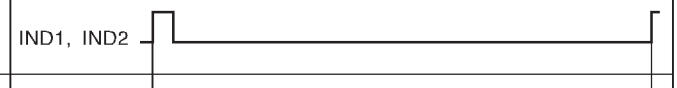
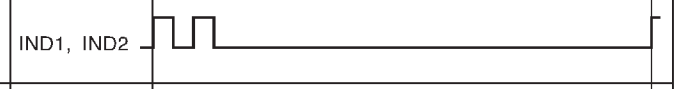
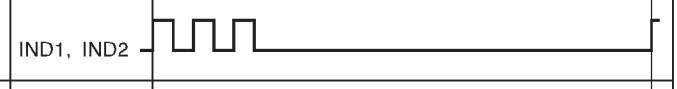
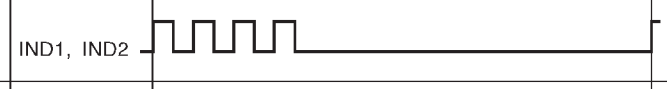
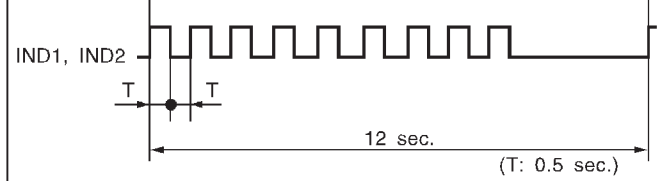
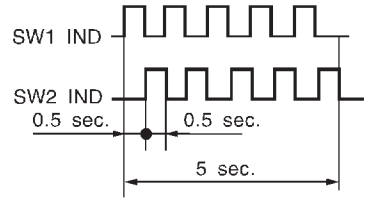
DIAGNOSIS END*2

*1: If no malfunction is indicated, Mode IV will end after the vehicle speed sensor diagnosis is performed.
*2: Diagnosis ends after self-diagnostic results have been indicated for 10 minutes if left unattended.

## On board Diagnosis — Mode IV (Automatic drive positioner operation) (Cont'd)

### MALFUNCTION CODE TABLE

In this mode, a malfunction code is indicated by the number of flashes from the automatic drive positioner indicator lamps (indicator lamp 1, indicator lamp 2) as shown below.

| Code No. | Detected items | Indication of seat memory switches 1 and 2 | Explanation |
|---|---|---|---|
| 1 | Seat sliding |  | While the seat motors are moving for 2.5 seconds, if the number of seat sliding/reclining/lifting sensor pulses changes 2 times or less, the seat device is determined to be malfunctioning. |
| 2 | Seat reclining |  | |
| 3 | Seat lifting front |  | |
| 4 | Seat lifting rear |  | |
| 7 | Steering telescopic |  | While the steering motors are moving, if the steering sensor output changes 0.2 volts or less, the steering device is determined to be malfunctioning. |
| 8 | Steering tilt |  | |
| 9 | Vehicle speed sensor circuit |  | If the vehicle speed sensor output of less than 7 km/h (4 MPH) is detected, the vehicle speed sensor is determined to be malfunctioning. |
| – | No malfunction in the above items |  | — |

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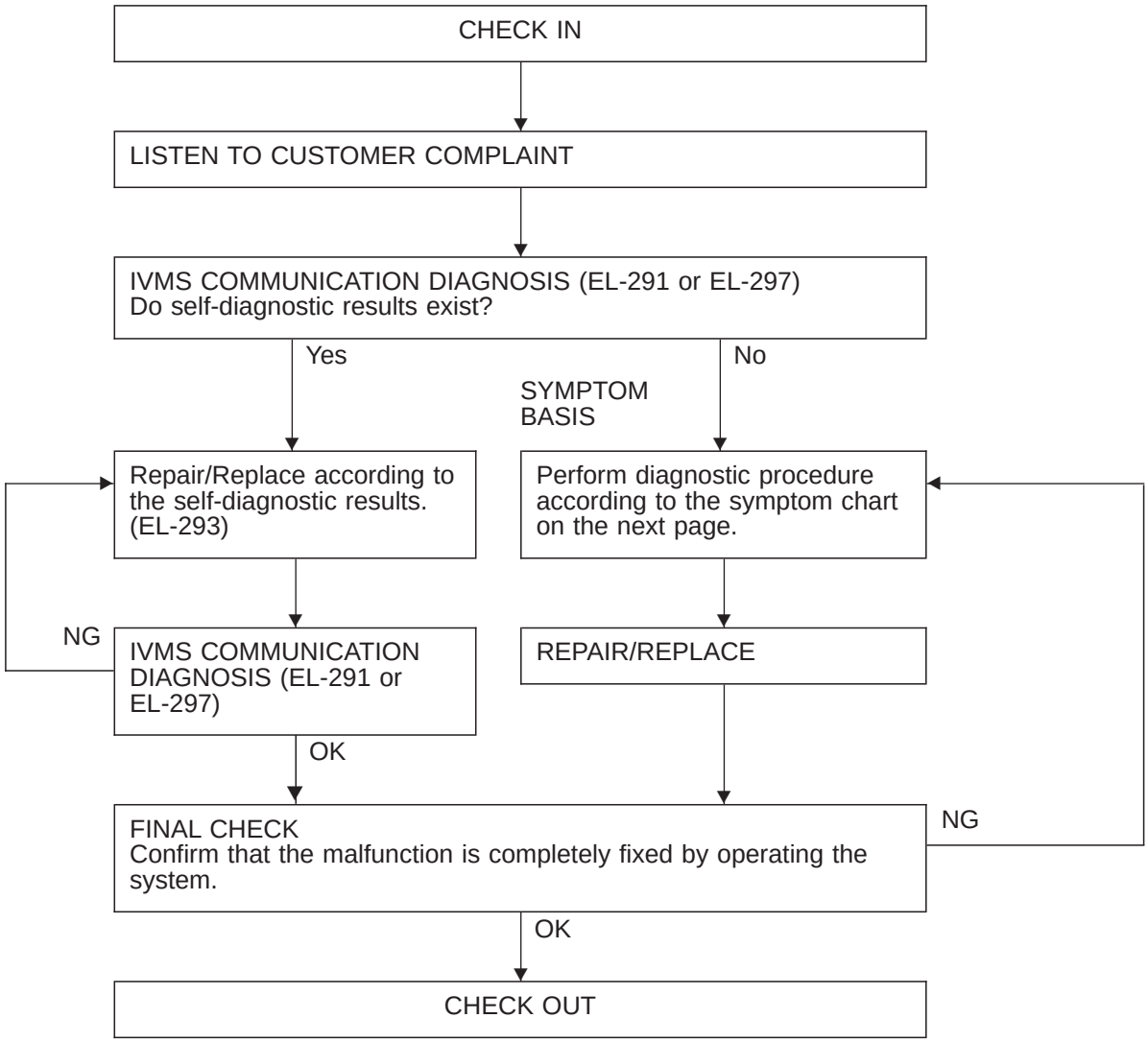
| Code No. | Detected items | Diagnostic procedure | Reference page | Code No. | Detected items | Diagnostic procedure | Reference page |
|---|---|---|---|---|---|---|---|
| 1 | Seat sliding | PROCEDURE 5 (Sliding sensor check) PROCEDURE 11 (Sliding motor check) | EL-468 EL-474 | 7 | Steering telescopic | PROCEDURE 4 (Telescopic sensor check) PROCEDURE 10 (Telescopic motor check) | EL-467 EL-473 |
| 2 | Seat reclining | PROCEDURE 6 (Reclining sensor check) PROCEDURE 12 (Reclining motor check) | EL-469 EL-475 | 8 | Steering tilt | PROCEDURE 3 (Tilt sensor check) PROCEDURE 9 (Tilt motor check) | EL-466 EL-472 |
| 3 | Seat lifting front | PROCEDURE 7 [Lifting sensor (front) check] PROCEDURE 13 [Lifting motor (front) check] | EL-470 EL-476 | 9 | Vehicle speed sensor | PROCEDURE 19 (Vehicle speed sensor check) | EL-482 |
| 4 | Seat lifting rear | PROCEDURE 8 [Lifting sensor (rear) check] PROCEDURE 14 [Lifting motor (rear) check] | EL-471 EL-477 | | | | |

## Trouble Diagnoses

### WORK FLOW

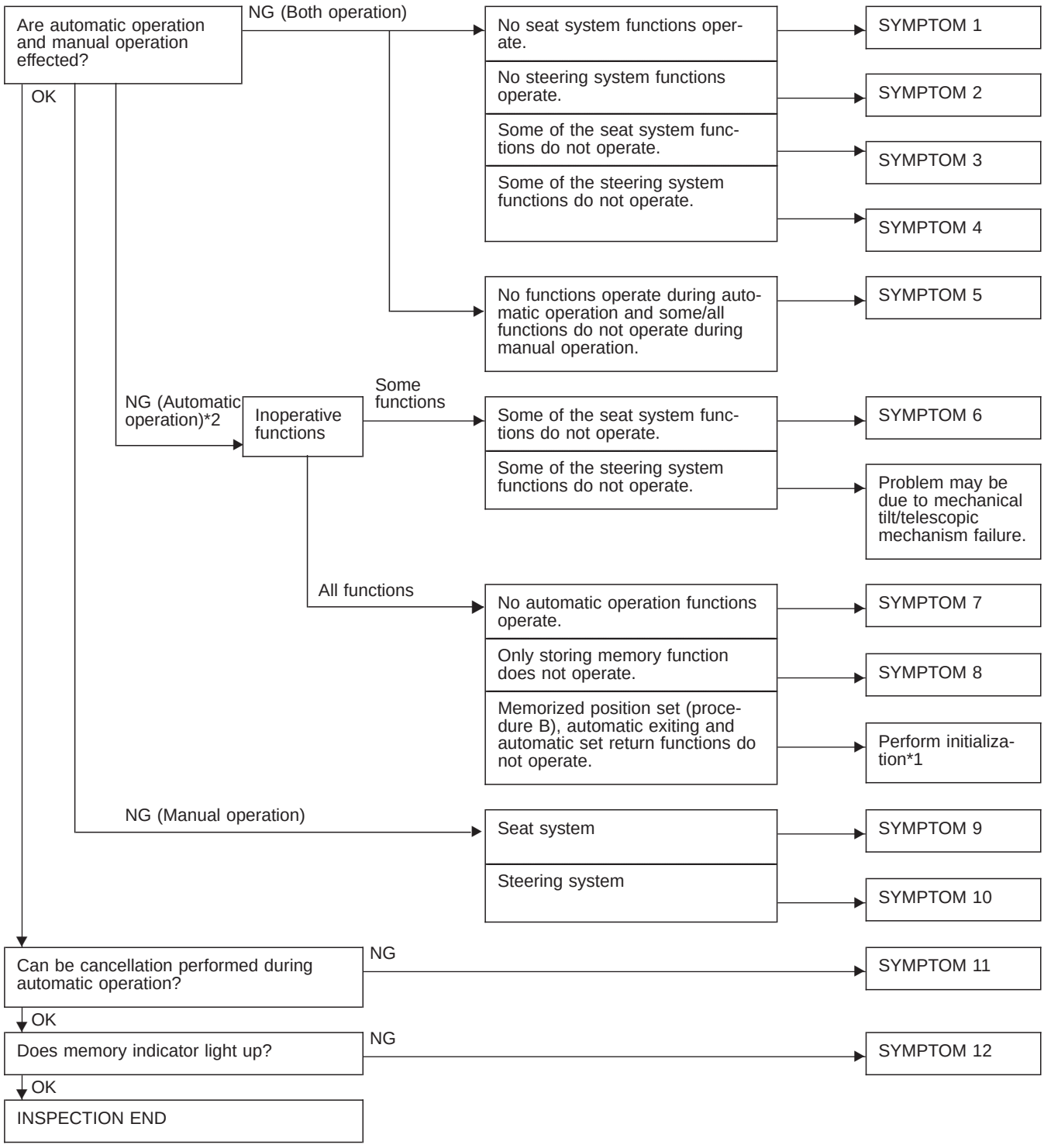



**NOTICE:**

- **When LCU connectors are disconnected for more than 1 minute such as during trouble diagnoses, the "disconnected" data will be memorized by the BCM. (While BCM memorizes the "disconnected" data, IVMS communication diagnosis of CONSULT-II will display "PAST NO RESPONSE".) Therefore, after reconnecting the LCU connectors, erase the memory.**
- **To erase the memory, perform the procedure below.**
  **Erase the memory with CONSULT-II (Refer to EL-291.) or turn the ignition switch to "OFF" position and remove 7.5A fuse [No. 14 located in the fuse block (J/B)].**

## Trouble Diagnoses (Cont'd)

### PRELIMINARY CHECK




*1: After reconnecting battery cable, perform initialization procedure A or B.
If initialization has not been performed, automatic drive positioner will not operate.

PROCEDURE A

(1) Insert key in the ignition key cylinder. (Ignition switch is in "OFF" position.)
(2) Open → close → open driver side door. (Do not perform with the door switch operation.)
(3) End

PROCEDURE B

(1) Drive the vehicle at more than 30 km/h (19 MPH).
(2) End

*2: If only seat slide operates during automatic exit setting, the problem may be due to mechanical tilt mechanism failure. (In this case, all other automatic operation items do not operate.)

**After performing preliminary check, go to symptom chart on next page.**

## Trouble Diagnoses (Cont'd)

**Before starting trouble diagnoses below, perform preliminary check, EL-461. Symptom numbers in the symptom chart correspond with those of preliminary check.**

### SYMPTOM CHART

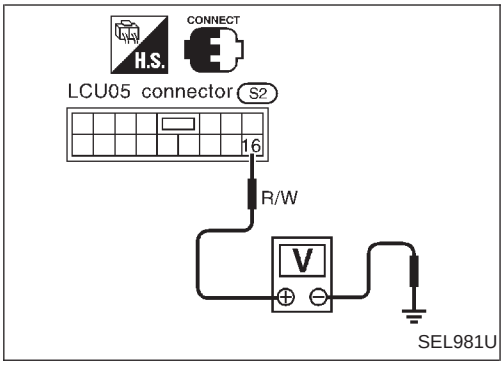
| PROCEDURE | | | | Self-diagnosis | | Diagnostic procedure | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| REFERENCE PAGE | | | | EL-455 | EL-458 | EL-464 | EL-465 | EL-466 | EL-467 | EL-468 | EL-469 | EL-470 | EL-471 | EL-472 | EL-473 |
| SYMPTOM | | | | CONSULT-II | On board diagnosis (Mode V) | DIAGNOSTIC PROCEDURE 1 (Power supply and ground circuit for LCU05) | DIAGNOSTIC PROCEDURE 2 (Power supply and ground circuit for tilt/telescopic motor) | DIAGNOSTIC PROCEDURE 3 (Tilt sensor check) | DIAGNOSTIC PROCEDURE 4 (Telescopic sensor check) | DIAGNOSTIC PROCEDURE 5 (Sliding sensor check) | DIAGNOSTIC PROCEDURE 6 (Reclining sensor check) | DIAGNOSTIC PROCEDURE 7 [Lifting sensor (front) check] | DIAGNOSTIC PROCEDURE 8 [Lifting sensor (rear) check] | DIAGNOSTIC PROCEDURE 9 (Tilt motor check) | DIAGNOSTIC PROCEDURE 10 (Telescopic motor check) |
| 1 | No seat system functions operate. | | | | | X | | | | | | | | | |
| 2 | No steering system functions operate. | | | X | X | | X | X | X | | | | | | |
| 3 | Some of the seat system functions do not operate during automatic/manual operation. | | Sliding | X | X | | | | | | | | | | |
| | | | Reclining | X | X | | | | | | | | | | |
| | | | Lifting (Front) | X | X | | | | | | | | | | |
| | | | Lifting (Rear) | X | X | | | | | | | | | | |
| 4 | Some of the steering system functions do not operate during automatic/manual operation. | | Tilt | X | X | | | | | | | | | X | |
| | | | Telescopic | X | X | | | | | | | | | | X |
| 5 | No functions operate during automatic operation, and some/all functions do not operate during manual operation. | | | | | | | | | | | | | | |
| 6 | Some of the seat system functions do not operate during automatic operation. | | Sliding | X | X | | | | | X | | | | | |
| | | | Reclining | X | X | | | | | | X | | | | |
| | | | Lifting (Front) | X | X | | | | | | | X | | | |
| | | | Lifting (Rear) | X | X | | | | | | | | X | | |
| 7 | No automatic operation functions operate. | | | X | X | | | X | X | | | | | | |
| 8 | Drive position cannot be retained in the memory. | | | | | | | | | | | | | | |
| 9 | Does not operate during manual operation. (Operates during automatic operation.) | Seat | Sliding | | | | | | | | | | | | |
| | | | Reclining | | | | | | | | | | | | |
| | | | Lifting (Front) | | | | | | | | | | | | |
| | | | Lifting (Rear) | | | | | | | | | | | | |
| | | | Lumber support | | | | | | | | | | | | |
| 10 | | Steering | Tilt | | | | | | | | | | | | |
| | | | Telescopic | | | | | | | | | | | | |
| 11 | Automatic operation cannot be canceled. | | | | | | | | | | | | | | |
| 12 | Memory indicator does not light up. | | | | | | | | | | | | | | |

X: Applicable

## Trouble Diagnoses (Cont'd)

| Diagnostic procedure | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DIAGNOSTIC PROCEDURE 11 (Sliding motor check) | DIAGNOSTIC PROCEDURE 12 (Reclining motor check) | DIAGNOSTIC PROCEDURE 13 [Lifting motor (front) check] | DIAGNOSTIC PROCEDURE 14 [Lifting motor (rear) check] | DIAGNOSTIC PROCEDURE 15 (Lifting limit switch check) | DIAGNOSTIC PROCEDURE 16 (Tilt/telescopic switch check) | DIAGNOSTIC PROCEDURE 17 (Power seat switch check) | DIAGNOSTIC PROCEDURE 18 (Cancel switch check) | DIAGNOSTIC PROCEDURE 19 (Key, detention, door switch and vehicle speed sensor check) | DIAGNOSTIC PROCEDURE 20 (Seat memory switch check) | DIAGNOSTIC PROCEDURE 21 (Memory indicator check) | DIAGNOSTIC PROCEDURE 22 (Lumber support check) | Wake-up Diagnosis for LCU05 |
| EL-474 | EL-475 | EL-476 | EL-477 | EL-478 | EL-479 | EL-480 | EL-481 | EL-482 | EL-484 | EL-485 | EL-485 | EL-292 |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| X | | | | | | | | | | | | |
| | X | | | | | | | | | | | |
| | | X | | X | | | | | | | | |
| | | | X | X | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | X | | X (ACC, ON START signal) | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | X | X | | | | |
| | | | | | | | | X (IGN ON signal) | X | | | |
| | | | | | | X | | | | | | X |
| | | | | | | X | | | | | | X |
| | | | | | | X | | | | | | X |
| | | | | | | X | | | | | | X |
| | | | | | | | | | | | X | |
| | | | | | X | | | | | | | |
| | | | | | X | | | | | | | |
| | | | | | | | X | | | | | |
| | | | | | | | | | | X | | |

## Trouble Diagnoses (Cont'd)




### DIAGNOSTIC PROCEDURE 1
### (Power supply and ground circuit for LCU05)

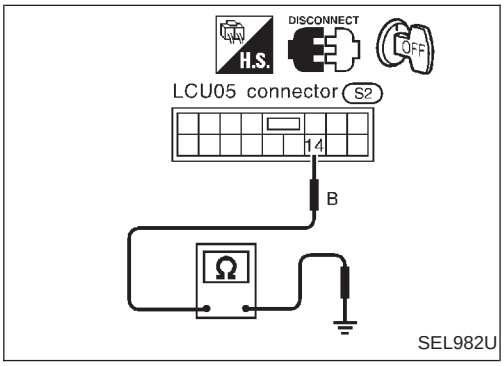
#### Power supply circuit check

Check voltage between LCU05 terminal ⑯ and ground.
(Refer to wiring diagram in EL-451.)

| Terminals | Ignition switch position | | | |
|---|---|---|---|---|
| | OFF | ACC | ON | START |
| ⑯ - Ground | Battery voltage | | | |

If NG, check the following.

- 40A fusible link (letter h, located in the fuse, fusible and relay box)
- Circuit breaker-2
- Harness for open or short between circuit breaker-2 and LCU05
- Harness for open or short between fuse and circuit breaker-2

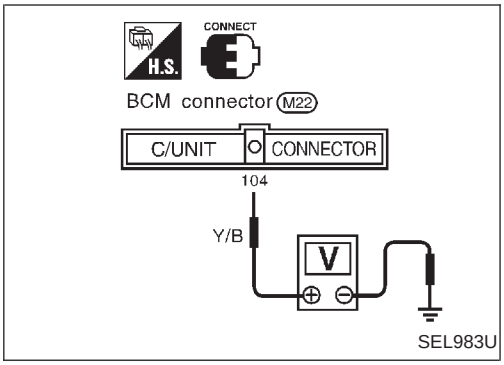



#### Ground circuit check

Check continuity between LCU05 terminal ⑭ and ground.
(Refer to wiring diagram in EL-451.)

| Terminals | Continuity |
|---|---|
| ⑭ - Ground | Yes |

## Trouble Diagnoses (Cont'd)




### DIAGNOSTIC PROCEDURE 2
### (Power supply and ground circuit for tilt/telescopic motor)

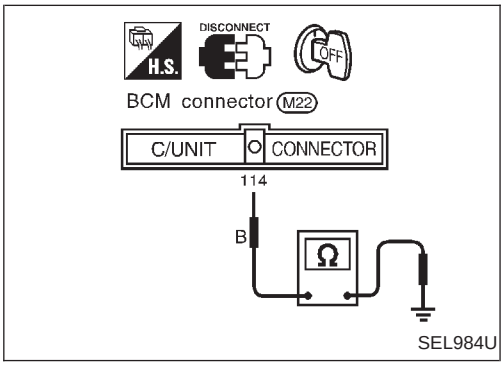
#### Power supply circuit check

Check voltage between BCM terminal (104) and ground.
(Refer to wiring diagram in EL-450.)

| Terminals | Ignition switch position | | | |
|---|---|---|---|---|
| | OFF | ACC | ON | START |
| (104) - Ground | Battery voltage | | | |

If NG, check the following.

- 40A fusible link (letter h, located in the fuse, fusible and relay box)
- Circuit breaker-2
- Harness for open or short between circuit breaker-2 and BCM
- Harness for open or short between fuse and circuit braker-2




#### Ground circuit check

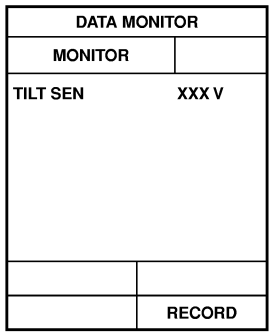
Check continuity between BCM terminal (114) and ground.
(Refer to wiring diagram in EL-447.)

| Terminals | Continuity |
|---|---|
| (114) - Ground | Yes |

# Trouble Diagnoses (Cont'd)

## DIAGNOSTIC PROCEDURE 3
## (Tilt sensor check)

A

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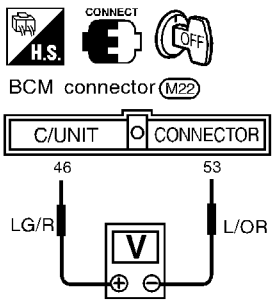
B

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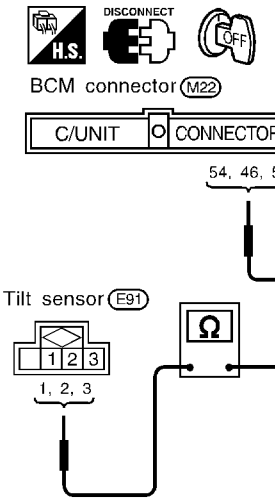
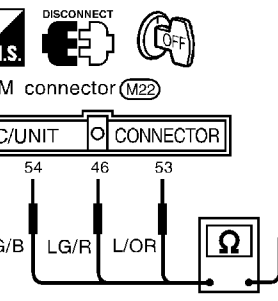
C




SEL987U

D




SEL988U

**CHECK TILT SENSOR INPUT SIGNAL.**

A CONSULT-II

See "TILT SEN" in DATA MONITOR mode.
Steering column in the uppermost position:
**Approx. 2V**
Steering column in the lowermost position:
**Approx. 4V**

OR

B TESTER

Check voltage between BCM terminals ㊻ and ㊸.

| Steering column position | Voltage V |
|---|---|
| Uppermost | Approx. 2 |
| Lowermost | Approx. 4 |

Refer to wiring diagram in EL-450.

OK → Tilt sensor is OK.

NG ↓

C

**CHECK TILT SENSOR OPEN CIRCUIT.**

1. Disconnect BCM connector and tilt sensor connector.
2. Check harness continuity between BCM connector and tilt sensor connector.

| Terminals | | Continuity |
|---|---|---|
| BCM | Tilt sensor | |
| ㊹ | ① | Yes |
| ㊻ | ② | |
| ㊸ | ③ | |

NG → Repair harness.

OK ↓

D

**CHECK TILT SENSOR SHORT CIRCUIT.**

Check harness continuity between BCM connector terminals and ground.

| Terminals | Continuity |
|---|---|
| ㊹ - ground | No |
| ㊻ - ground | |
| ㊸ - ground | |

NG → Repair harness.

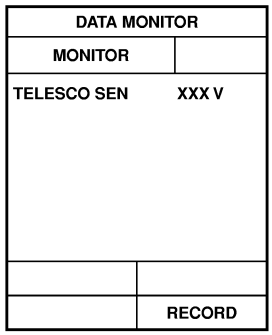
OK ↓

Replace tilt sensor.

# Trouble Diagnoses (Cont'd)

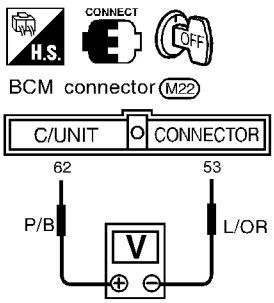
## DIAGNOSTIC PROCEDURE 4 (Telescopic sensor check)

A



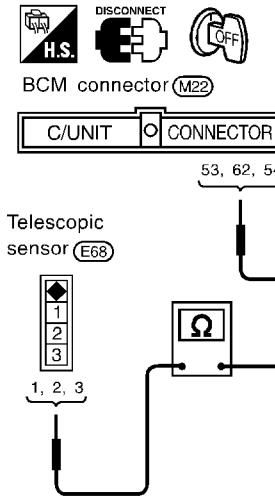

SEL544W

B



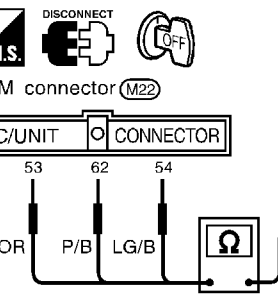

SEL990U

C




SEL991U

D




SEL992U

**CHECK TELESCOPIC SENSOR INPUT SIGNAL.**

A CONSULT-II

See "TELESCO SEN" in DATA MONITOR mode.
Steering column in the extreme front end position:
**Approx. 4.5V**
Steering column in the extreme rear end position:
**Approx. 0.5V**

OR

B TESTER

Check voltage between BCM terminals ⑤③ and ⑥②.

| Steering column position | Voltage |
|---|---|
| Extreme front end | Approx. 4.5V |
| Extreme rear end | Approx. 0.5V |

Refer to wiring diagram in EL-450.

OK → Telescopic sensor is OK.

NG ↓

C

**CHECK TELESCOPIC SENSOR OPEN CIRCUIT.**

1. Disconnect BCM connector and telescopic sensor connector.
2. Check harness continuity between BCM connector and telescopic sensor connector.

| Terminals | | Continuity |
|---|---|---|
| BCM | Telescopic sensor | |
| ⑤③ | ① | Yes |
| ⑥② | ② | |
| ⑤④ | ③ | |

NG → Repair harness.

OK ↓

D

**CHECK TELESCOPIC SENSOR SHORT CIRCUIT.**

Check harness continuity between BCM connector terminals and ground.

| Terminals | Continuity |
|---|---|
| ⑤③ - ground | No |
| ⑥② - ground | |
| ⑤④ - ground | |

NG → Repair harness.

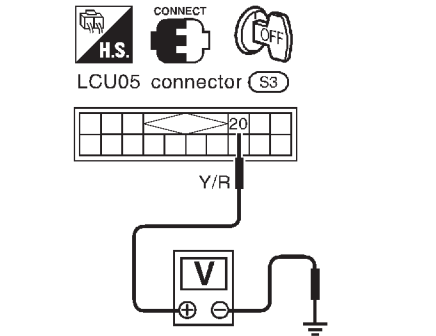
OK ↓

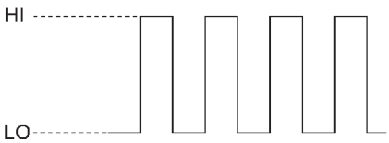
Replace telescopic sensor.

# Trouble Diagnoses (Cont'd)

## DIAGNOSTIC PROCEDURE 5 (Sliding sensor check)

A

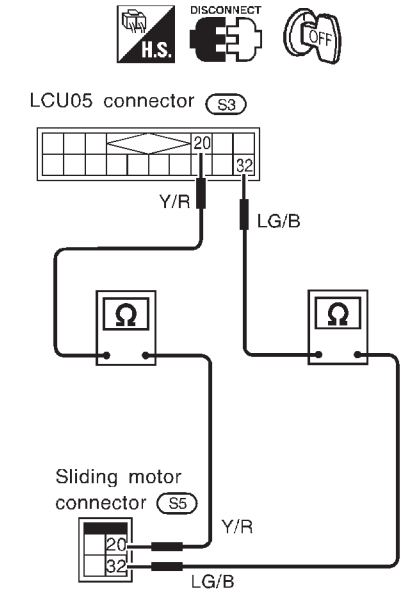



HI: Approx. 5V
LO: Approx. 0V

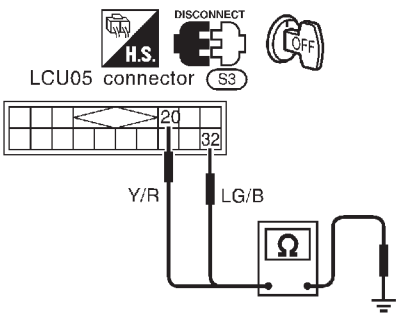
SEL993U

B




SEL994U

C




SEL995U

A

**CHECK SLIDING SENSOR INPUT SIGNAL.**
Measure voltage between LCU05 terminal ⑳ and ground with oscilloscope when power seat slide is operated.

Refer to wiring diagram in EL-452.

OK → Sliding sensor is OK.

NG ↓

B

**CHECK SLIDING SENSOR OPEN CIRCUIT.**
1. Disconnect LCU05 connector and sliding motor connector.
2. Check harness continuity between LCU05 connector and sliding motor connector.

| Terminals | | Continuity |
|---|---|---|
| LCU05 | Slide motor (Sliding sensor) | |
| ⑳ | ⑳ | Yes |
| ㉜ | ㉜ | |

NG → Repair harness.

OK ↓

C

**CHECK SLIDING SENSOR SHORT CIRCUIT.**
Check harness continuity between LCU05 connector and ground.

| Terminals | Continuity |
|---|---|
| ⑳ - ground | No |
| ㉜ - ground | |

NG → Repair harness.

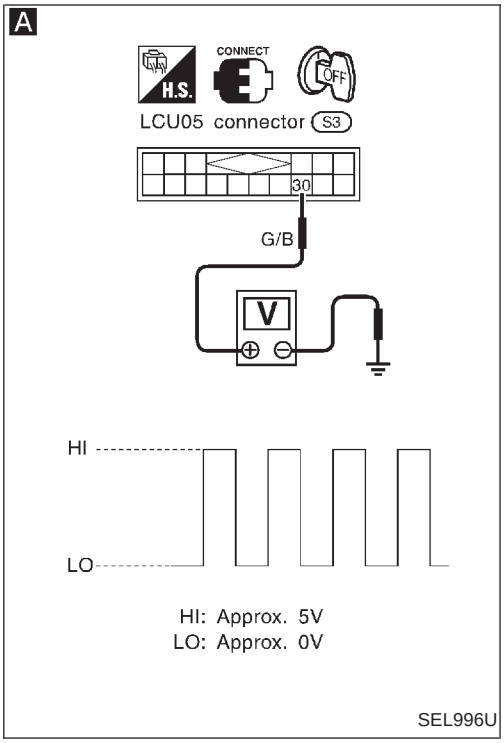
OK ↓

Replace sliding sensor.

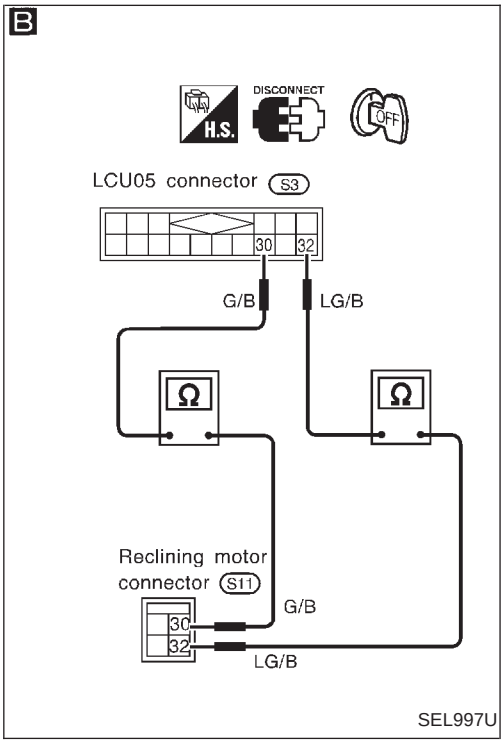
# Trouble Diagnoses (Cont'd)

## DIAGNOSTIC PROCEDURE 6
## (Reclining sensor check)

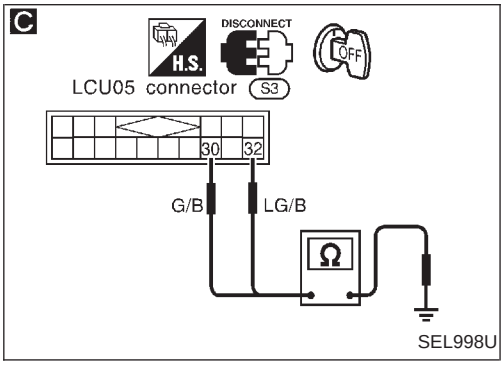
A




B




C




A

**CHECK RECLINING SENSOR INPUT SIGNAL.**
Measure voltage between LCU05 terminal ㉚ and ground with oscilloscope when power seat reclining is operated.

Refer to wiring diagram in EL-452.

OK → Reclining sensor is OK.

NG ↓

B

**CHECK RECLINING SENSOR OPEN CIRCUIT.**
1. Disconnect LCU05 connector and reclining motor connector.
2. Check harness continuity between LCU05 connector and reclining motor connector.

| Terminals | | Continuity |
|---|---|---|
| LCU05 | Reclining motor (Sliding sensor) | |
| ㉚ | ㉚ | Yes |
| ㉜ | ㉜ | |

NG → Repair harness.

OK ↓

C

**CHECK RECLINING SENSOR SHORT CIRCUIT.**
Check harness continuity between LCU05 connector and ground.

| Terminals | Continuity |
|---|---|
| ㉚ - ground | No |
| ㉜ - ground | |

NG → Repair harness.

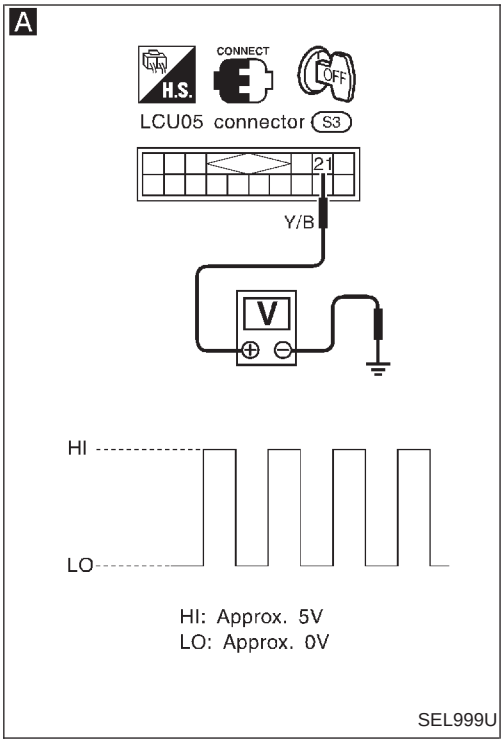
OK ↓

Replace reclining sensor.

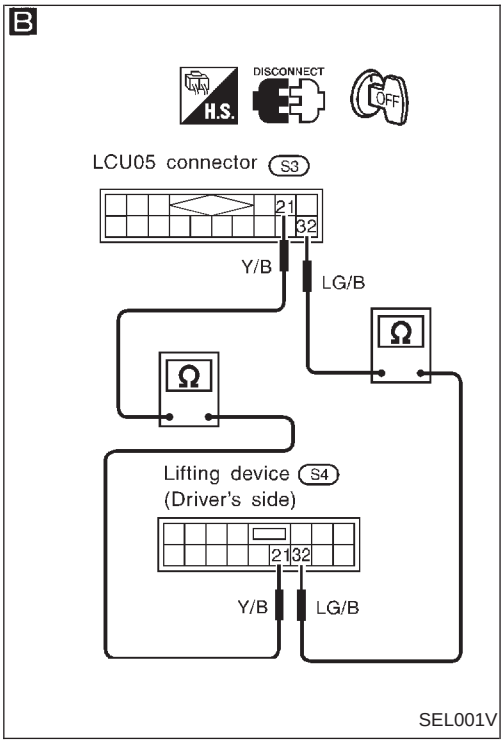
# Trouble Diagnoses (Cont'd)

## DIAGNOSTIC PROCEDURE 7
## [Lifting sensor (front) check]

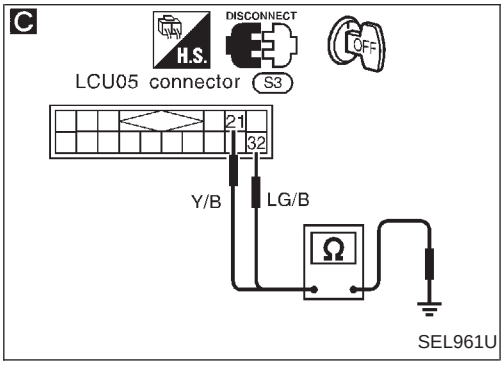
A




B




C




A

**CHECK LIFTING SENSOR (FRONT) INPUT SIGNAL.**
Measure voltage between LCU05 terminal ㉑ and ground with oscilloscope when power seat lifting (front) is operated.

Refer to wiring diagram in EL-452.

OK → Lifting sensor (front) is OK.

NG ↓

B

**CHECK LIFTING SENSOR (FRONT) OPEN CIRCUIT.**
1. Disconnect LCU05 connector and lifting device connector.
2. Check harness continuity between LCU05 connector and lifting device connector.

| Terminals | | Continuity |
|---|---|---|
| LCU05 | Lifting device (Sliding sensor) | |
| ㉑ | ㉑ | Yes |
| ㉜ | ㉜ | |

NG → Repair harness.

OK ↓

C

**CHECK LIFTING SENSOR (FRONT) SHORT CIRCUIT.**
Check harness continuity between LCU05 connector and ground.

| Terminals | Continuity |
|---|---|
| ㉑ - ground | No |
| ㉜ - ground | |

NG → Repair harness.

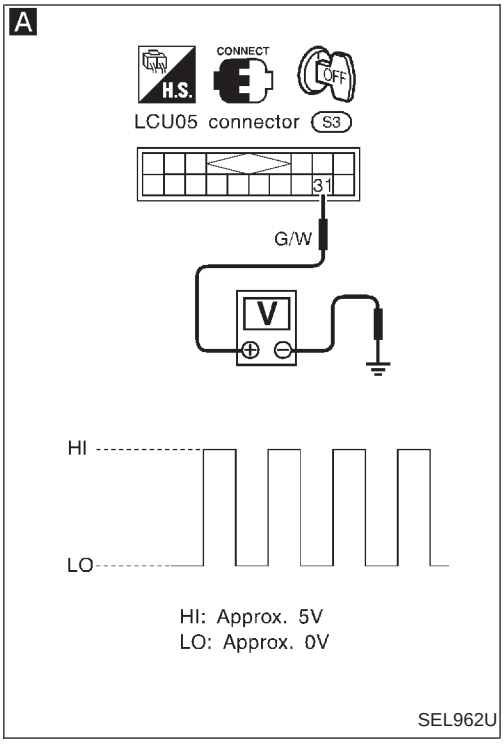
OK ↓

Replace lifting sensor (front).

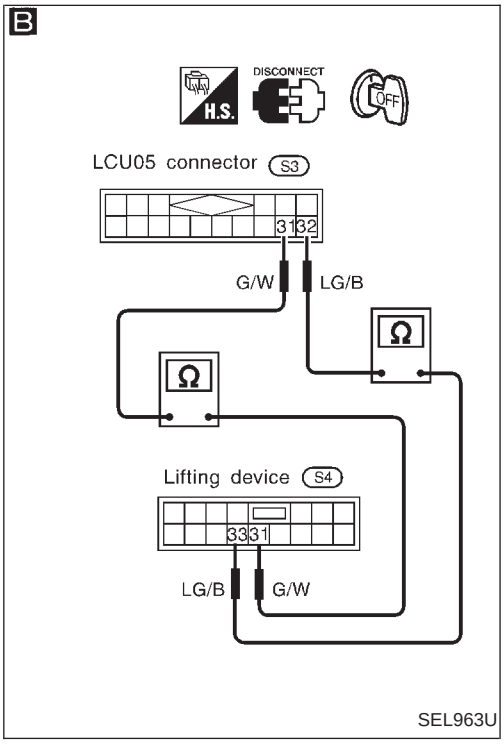
# Trouble Diagnoses (Cont'd)

## DIAGNOSTIC PROCEDURE 8
## [Lifting sensor (rear) check]

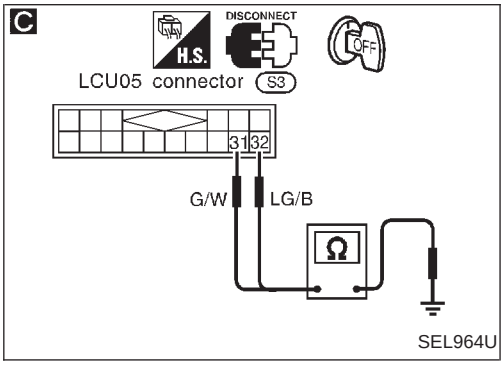
A




B




C




A

**CHECK LIFTING SENSOR (REAR) INPUT SIGNAL.**
Measure voltage between LCU05 terminal ㉛ and ground with oscilloscope when power seat lifting (rear) is operated.

Refer to wiring diagram in EL-453.

OK → Lifting sensor (rear) is OK.

NG ↓

B

**CHECK LIFTING SENSOR (REAR) OPEN CIRCUIT.**
1. Disconnect LCU05 connector and lifting device connector.
2. Check harness continuity between LCU05 connector and lifting device connector.

| Terminals | | Continuity |
|---|---|---|
| LCU05 | Lifting device (Sliding sensor) | |
| ㉛ | ㉛ | Yes |
| ㉜ | ㉝ | |

NG → Repair harness.

OK ↓

C

**CHECK LIFTING SENSOR (REAR) SHORT CIRCUIT.**
Check harness continuity between LCU05 connector and ground.

| Terminals | Continuity |
|---|---|
| ㉛ - Ground | No |
| ㉜ - Ground | |

NG → Repair harness.

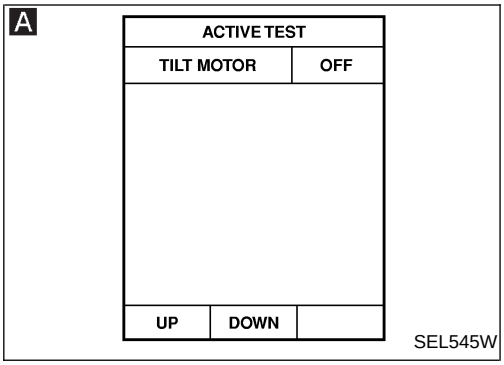
OK ↓

Replace lifting sensor (rear).

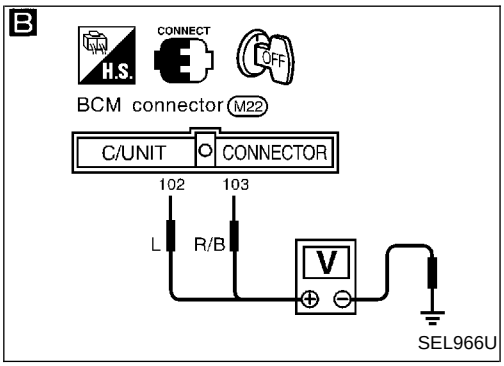
# Trouble Diagnoses (Cont'd)

## DIAGNOSTIC PROCEDURE 9
## (Tilt motor check)

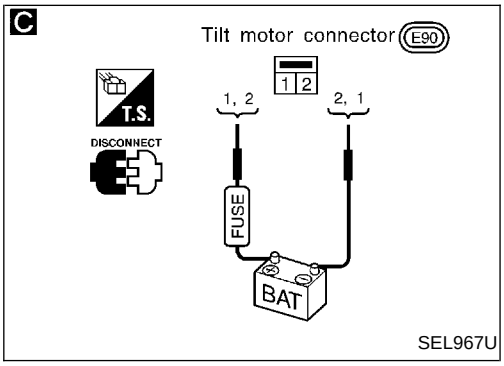
A




B




C




A

**TILT MOTOR ACTIVE TEST**

CONSULT-II

See "TILT MOTOR" in ACTIVE TEST mode.
Perform operation shown on display.
**Tilt motor should operate.**
**Note: If CONSULT-II is not available, start with diagnostic procedure B .**

OK → Tilt motor is OK.

NG ↓

B

**CHECK OUTPUT SIGNAL TO TILT MOTOR.**

Check voltage between BCM connector terminals 102 or 103 and ground.

| Condition of tilt switch | Terminals ⊕ | Terminals ⊖ | Voltage V |
|---|---|---|---|
| Up | 103 | Ground | Approx. 12 |
| Down | 102 | Ground | Approx. 12 |

Refer to wiring diagram in EL-450.

NG → Replace BCM.

OK ↓

C

**CHECK TILT MOTOR.**

1. Disconnect tilt motor connector.
2. Apply 12V DC direct current to motor and check operation.

| Terminals ⊕ | Terminals ⊖ | Operation |
|---|---|---|
| ① | ② | Up |
| ② | ① | Down |

NG → Replace tilt motor.

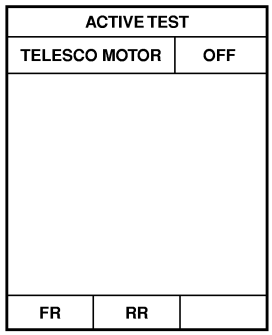
OK ↓

Check harness for operation between BCM and tilt motor.

# Trouble Diagnoses (Cont'd)

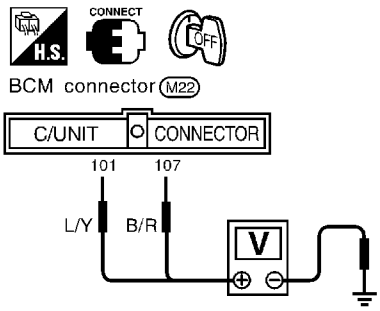
## DIAGNOSTIC PROCEDURE 10
## (Telescopic motor check)

A



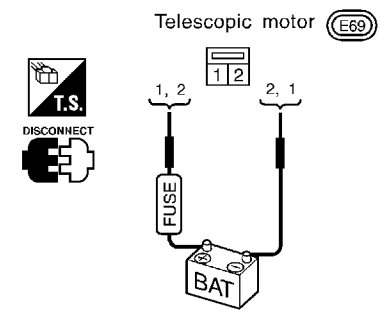

SEL546W

B




SEL969U

C




SEL970U

A

**TELESCOPIC MOTOR ACTIVE TEST**

CONSULT-II

See "TELESCO MOTOR" in ACTIVE TEST mode.
Perform operation shown on display.
**Telescopic motor should operate.**
**Note: If CONSULT-II is not available, start with diagnostic procedure B .**

OK → Telescopic motor is OK.

NG ↓

B

**CHECK OUTPUT SIGNAL TO TELESCOPIC MOTOR.**

Check voltage between BCM connector terminals (101) or (107) and ground.

| Condition of telescopic switch | Terminals ⊕ | Terminals ⊖ | Voltage V |
|---|---|---|---|
| Forward | (101) | Ground | Approx. 12 |
| Backward | (107) | Ground | Approx. 12 |

Refer to wiring diagram in EL-450.

NG → Replace BCM.

OK ↓

C

**CHECK TELESCOPIC MOTOR.**

1. Disconnect telescopic motor connector.
2. Apply 12V DC direct current to motor and check operation.

| Terminals ⊕ | Terminals ⊖ | Operation |
|---|---|---|
| ① | ② | Forward |
| ② | ① | Upward |

NG → Replace telescopic motor.

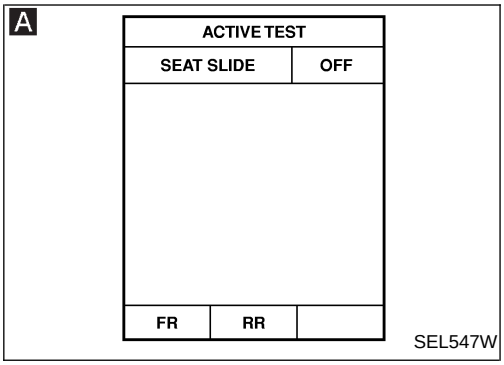
OK ↓

Check harness for operation between BCM and telescopic motor.

# Trouble Diagnoses (Cont'd)

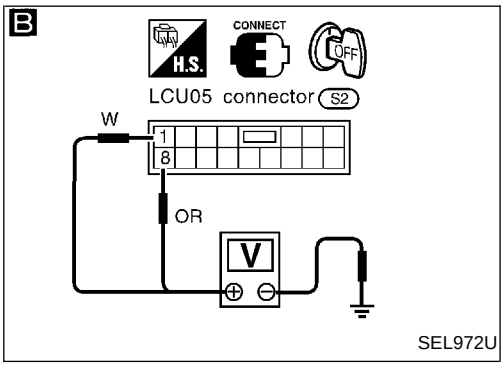
## DIAGNOSTIC PROCEDURE 11 (Sliding motor check)

A



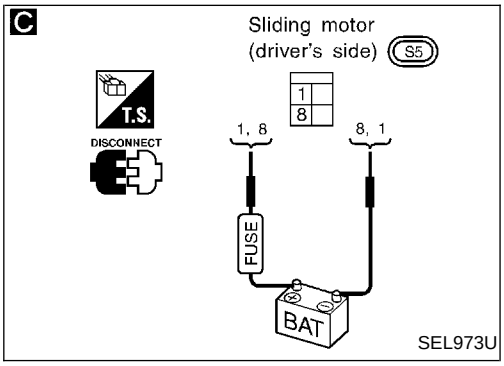
SEL547W

B



SEL972U

C



SEL973U

A

**SLIDING SLIDE ACTIVE TEST**

CONSULT-II

See "SEAT SLIDE" in ACTIVE TEST mode.
Perform operation shown on display.
**Sliding motor should operate.**
**Note: If CONSULT-II is not available, start with diagnostic procedure B .**

OK → Sliding motor is OK.

NG ↓

B

**CHECK OUTPUT SIGNAL TO SLIDING MOTOR.**

Check voltage between LCU05 connector terminals ① or ⑧ and ground.

| Condition of sliding switch | Terminals ⊕ | Terminals ⊖ | Voltage V |
|---|---|---|---|
| Forward | ① | Ground | Approx. 12 |
| Backward | ⑧ | Ground | Approx. 12 |

Refer to wiring diagram in EL-452.

NG → Replace LCU05.

OK ↓

C

**CHECK SLIDING MOTOR.**

1. Disconnect sliding motor connector.
2. Apply 12V DC direct current to motor and check operation.

| Terminals ⊕ | Terminals ⊖ | Operation |
|---|---|---|
| ① | ⑧ | Forward |
| ⑧ | ① | Backward |

NG → Replace sliding motor.

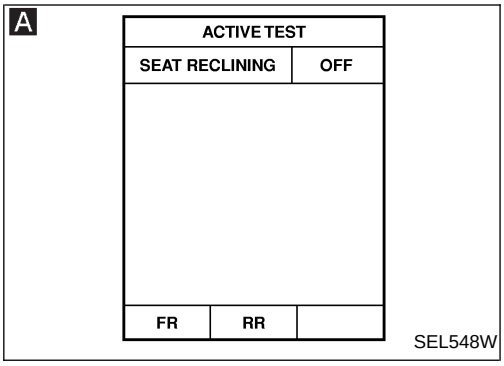
OK ↓

Check harness for operation between LCU05 and sliding motor.

# Trouble Diagnoses (Cont'd)

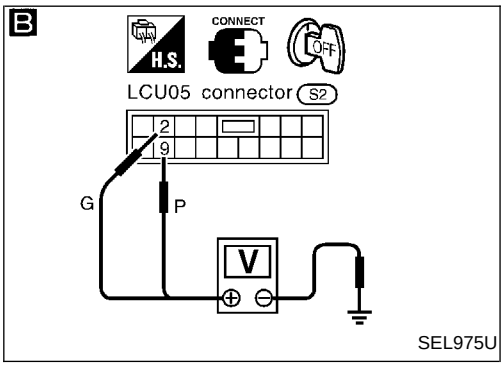
## DIAGNOSTIC PROCEDURE 12
## (Reclining motor check)

A



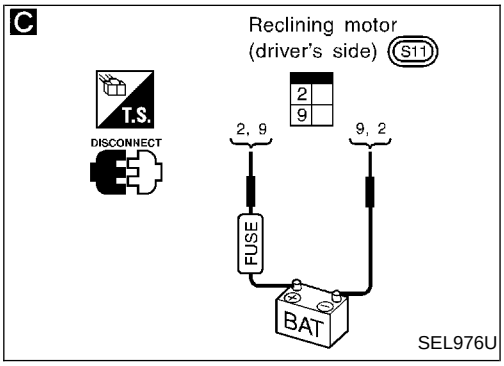
SEL548W

B



SEL975U

C



SEL976U

A

**RECLINING MOTOR ACTIVE TEST**

CONSULT-II

See "SEAT RECLINING" in ACTIVE TEST mode.
Perform operation shown on display.
**Reclining motor should operate.**
**Note: If CONSULT-II is not available, start with diagnostic procedure B .**

OK → Reclining motor is OK.

NG ↓

B

**CHECK OUTPUT SIGNAL TO RECLINING MOTOR.**

Check voltage between LCU05 connector terminals ② or ⑨ and ground.

| Condition of reclining switch | Terminals ⊕ | Terminals ⊖ | Voltage V |
|---|---|---|---|
| Forward | ② | Ground | Approx. 12 |
| Backward | ⑨ | Ground | Approx. 12 |

Refer to wiring diagram in EL-452.

NG → Replace LCU05.

OK ↓

C

**CHECK RECLINING MOTOR.**

1. Disconnect reclining motor connector.
2. Apply 12V DC direct current to motor and check operation.

| Terminals ⊕ | Terminals ⊖ | Operation |
|---|---|---|
| ② | ⑨ | Forward |
| ⑨ | ② | Backward |

NG → Replace reclining motor.

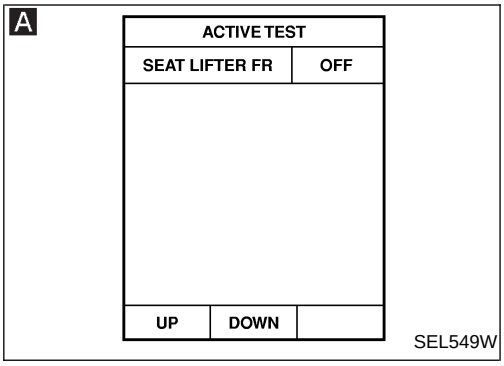
OK ↓

Check harness for operation between LCU05 and reclining motor.

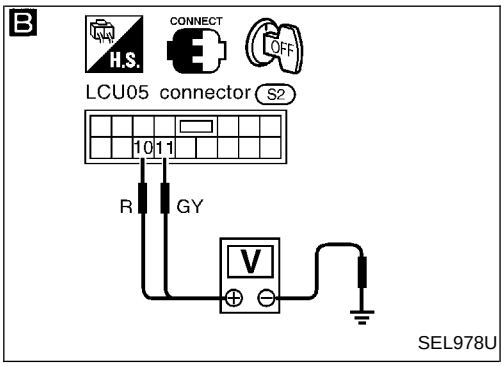
# Trouble Diagnoses (Cont'd)

## DIAGNOSTIC PROCEDURE 13
## [Lifting motor (Front) check]

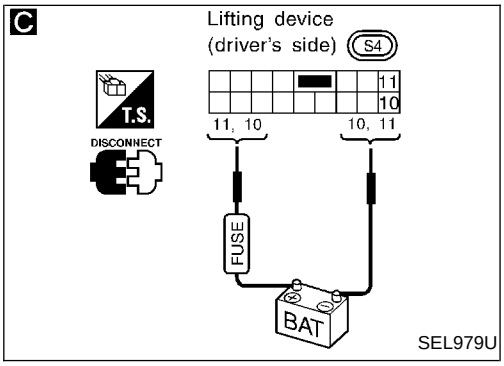
A




B




C




A

**LIFTING MOTOR (FRONT) ACTIVE TEST**

CONSULT-II

See "SEAT LIFTER FR" in ACTIVE TEST mode.

Perform operation shown on display.

**Lifting motor (front) should operate.**

**Note: If CONSULT-II is not available, start with diagnostic procedure B .**

OK → Lifting motor (front) is OK.

NG ↓

B

**CHECK OUTPUT SIGNAL TO LIFTING MOTOR (FRONT).**

Check voltage between LCU05 connector terminals ⑪ or ⑩ and ground.

| Condition of lifting switch (front) | Terminals ⊕ | Terminals ⊖ | Voltage V |
|---|---|---|---|
| Up | ⑪ | Ground | Approx. 12 |
| Down | ⑩ | Ground | Approx. 12 |

Refer to wiring diagram in EL-452.

NG → Replace LCU05.

OK ↓

C

**CHECK LIFTING MOTOR (FRONT).**

1. Disconnect lifting device connector.
2. Apply 12V DC direct current to motor and check operation.

| Terminals ⊕ | Terminals ⊖ | Operation |
|---|---|---|
| ⑪ | ⑩ | Up |
| ⑩ | ⑪ | Down |

NG → Replace lifting motor (front).

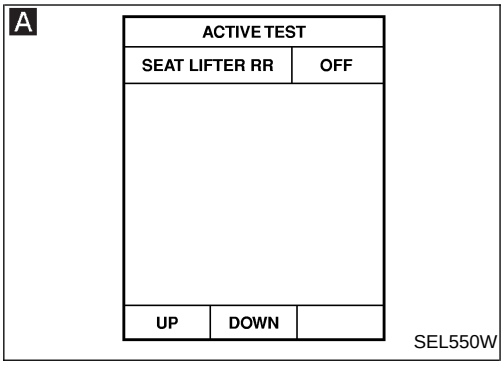
OK ↓

Check harness for operation between LCU05 and lifting motor (front).

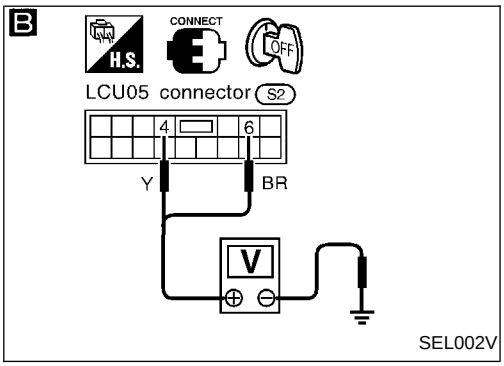
# Trouble Diagnoses (Cont'd)

## DIAGNOSTIC PROCEDURE 14
## [Lifting motor (Rear) check]

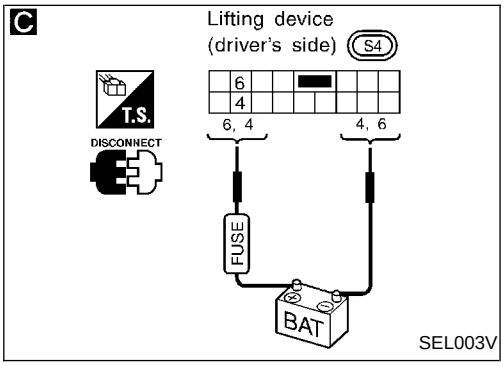
A




B




C




A

**LIFTING MOTOR (REAR) ACTIVE TEST**

CONSULT-II

See "SEAT LIFTER RR" in ACTIVE TEST mode.
Perform operation shown on display.
**Lifting motor (rear) should operate.**
**Note: If CONSULT-II is not available, start with diagnostic procedure B .**

OK → Lifting motor (rear) is OK.

NG ↓

B

**CHECK OUTPUT SIGNAL TO LIFTING MOTOR (REAR).**

Check voltage between LCU05 connector terminals ⑥ or ④ and ground.

| Condition of lifting switch (rear) | Terminals ⊕ | Terminals ⊖ | Voltage V |
|---|---|---|---|
| Up | ⑥ | Ground | Approx. 12 |
| Down | ④ | Ground | Approx. 12 |

Refer to wiring diagram in EL-453.

NG → Replace LCU05.

OK ↓

C

**CHECK LIFTING MOTOR (REAR).**

1. Disconnect lifting device connector.
2. Apply 12V DC direct current to motor and check operation.

| Terminals ⊕ | Terminals ⊖ | Operation |
|---|---|---|
| ⑥ | ④ | Up |
| ④ | ⑥ | Down |

NG → Replace lifting motor (rear).

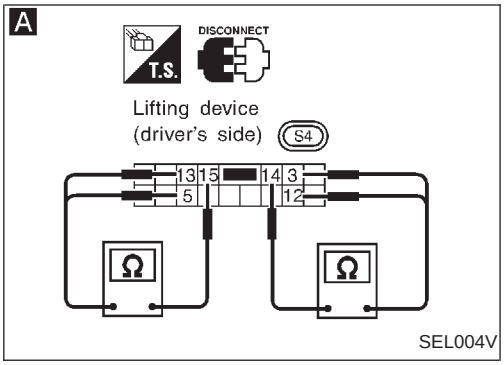
OK ↓

Check harness for operation between LCU05 and lifting motor (rear).

# Trouble Diagnoses (Cont'd)

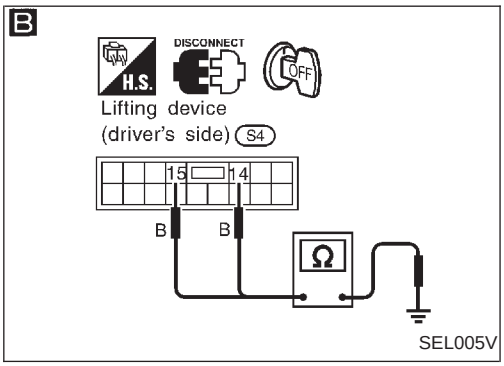
## DIAGNOSTIC PROCEDURE 15
## (Lifting limit switch check)

A




SEL004V

B




SEL005V

A

**CHECK LIMIT SWITCH.**

1. Disconnect lifting device connector.
2. Check continuity between lifting device (limit switch) terminals.

| | Terminals | Condition of seat lifting | Continuity |
|---|---|---|---|
| Front | ⑫ - ⑭ | Fully up | No |
| | | Except the above | Yes |
| | ③ - ⑭ | Fully down | No |
| | | Except the above | Yes |
| Rear | ⑤ - ⑮ | Fully up | No |
| | | Except the above | Yes |
| | ⑬ - ⑮ | Fully down | No |
| | | Except the above | Yes |

Refer to wiring diagram in EL-452 or 453.

NG → Replace limit switch.

OK ↓

B

**CHECK GROUND CIRCUIT FOR LIMIT SWITCH.**

Check continuity between lifting device terminal ⑭ (for limit switch front) or ⑮ (for limit switch rear) and ground.

**Continuity should exist.**

NG → Repair harness.

OK ↓

Check harness for open or short between LCU05 and limit switch.

# Trouble Diagnoses (Cont'd)

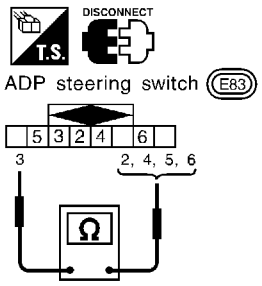
## DIAGNOSTIC PROCEDURE 16 (Tilt/telescopic switch check)

A

| DATA MONITOR | |
|---|---|
| MONITOR | |
| TELESCO SW-FR | OFF |
| TELESCO SW-RR | OFF |
| TILT SW-UP | OFF |
| TILT SW-DOWN | OFF |
| | |
| | RECORD |

SEL551W

B




SEL007V

**CHECK TILT/TELESCOPIC SWITCH INPUT SIGNAL.**

A CONSULT-II

See "TELESCO SW - FR/RR, TILT SW - UP/DOWN" in DATA MONITOR mode.
**These switches should change from "OFF" to "ON" when switch is operated.**

OR

ON BOARD

Check tilt/telescopic switch operation is switch monitor (Mode II) mode.
(Refer to On board diagnosis EL-299.)

Refer to wiring diagram in EL-449.

OK → Tilt/telescopic switch is OK.

NG ↓

B

**CHECK TILT/TELESCOPIC SWITCH.**

1. Disconnect ADP steering switch connector.
2. Check continuity between ADP steering switch terminals.

| Switch | Condition | Terminal ② | ③ | ④ | ⑤ | ⑥ |
|---|---|---|---|---|---|---|
| Tilt | Up | | ○ | ○ | | |
| | Down | | ○ | | ○ | |
| Telescopic | Forward | | ○ | | | ○ |
| | Backward | ○ | ○ | | | |

NG → Replace ADP steering switch.

OK ↓

Check the following.
- Ground circuit for ADP steering switch
- Harness for open or short between BCM and ADP steering switch

# Trouble Diagnoses (Cont'd)

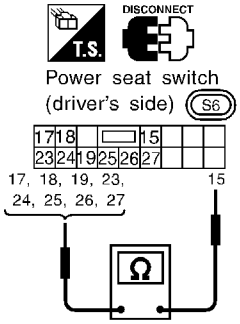
## DIAGNOSTIC PROCEDURE 17
## (Power seat switch check)

A

| DATA MONITOR | |
|---|---|
| MONITOR | |
| SLIDE SW-FR | OFF |
| SLIDE SW-RR | OFF |
| RECLN SW-FR | OFF |
| RECLN SW-RR | OFF |
| LIFT FR SW-UP | OFF |
| LIFT FR SW-DN | OFF |
| LIFT RR SW-UP | OFF |
| LIFT RR SW-DN | OFF |
| | Scroll Down |
| | RECORD |

SEL552W

B




SEL008V

**CHECK POWER SEAT SWITCH INPUT SIGNAL.**

A CONSULT-II

See "SLIDE SW, RECLN SW, LIFT FR, RR SW" in DATA MONITOR mode.
**These switches should change from "OFF" to "ON" when switch is operated.**

OR

ON BOARD

Check each power seat switch operation in switch monitor (Mode II) mode.
(Refer to On board diagnosis EL-299.)

Refer to wiring diagram in EL-451.

OK → Power seat switch is OK.

NG ↓

B

**CHECK POWER SEAT SWITCH.**

1. Disconnect power seat switch connector.
2. Check continuity between power seat switch terminals.

| Switch | Condition | Terminals ⑮ | ⑰ | ⑱ | ⑲ | ㉓ | ㉔ | ㉕ | ㉖ | ㉗ |
|---|---|---|---|---|---|---|---|---|---|---|
| Sliding | Forward | ○ | ○ | | | | | | | |
| | Backward | ○ | | | | ○ | | | | |
| Reclining | Forward | ○ | | ○ | | | | | | |
| | Backward | ○ | | | | | ○ | | | |
| Lifting (Front) | Up | ○ | | | ○ | | | | | |
| | Down | ○ | | | | | | ○ | | |
| Lifting (Rear) | Up | ○ | | | | | | | ○ | |
| | Down | ○ | | | | | | | | ○ |

NG → Replace power seat switch.

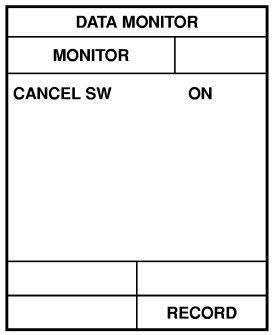
OK ↓

Check the following.
- Ground circuit for power seat switch
- Harness for open or short between LCU05 and power seat switch

# Trouble Diagnoses (Cont'd)

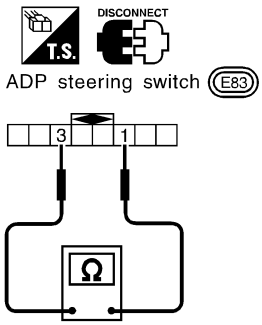
## DIAGNOSTIC PROCEDURE 18 (Cancel switch check)

A




SEL553W

B




SEL066X

**CHECK CANCEL SWITCH INPUT SIGNAL.**

A CONSULT-II

See "CANCEL SW" in DATA MONITOR mode.
When cancel switch is ON:
**CANCEL SW ON**
When cancel switch is OFF:
**CANCEL SW OFF**

OR

ON BOARD

Check cancel switch in switch monitor (Mode II) mode.
(Refer to On board Diagnosis EL-299.)

Refer to wiring diagram in EL-449.

OK → Cancel switch is OK.

NG ↓

B

**CHECK CANCEL SWITCH.**

1. Disconnect ADP steering switch connector.
2. Check continuity between ADP steering switch terminals.

| Terminals | Cancel switch condition | Continuity |
|---|---|---|
| ① - ③ | ON | Yes |
| | OFF | No |

NG → Replace ADP steering switch.

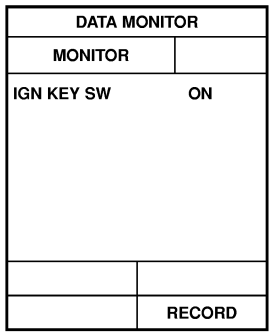
OK ↓

Check the following.
- Ground circuit for ADP steering switch
- Harness for open or short between BCM and ADP steering switch

# Trouble Diagnoses (Cont'd)

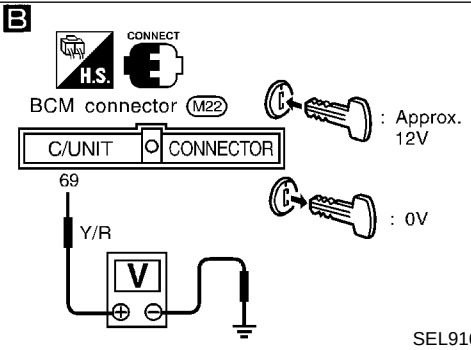
## DIAGNOSTIC PROCEDURE 19
## (Key, detention, door switch and vehicle speed sensor check)

A



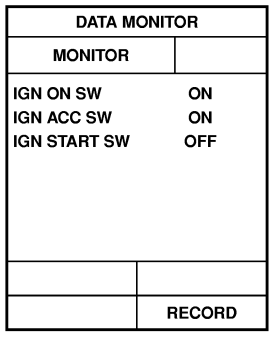

SEL532W

B



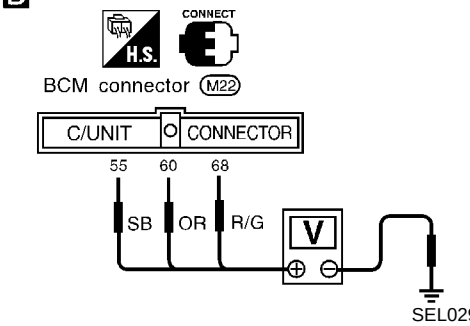

SEL916V

C




SEL555W

D




SEL029V

**CHECK KEY SWITCH INPUT SIGNAL.**

A CONSULT-II

See "IGN KEY SW" in DATA MONITOR mode.

When key is inserted in ignition key cylinder:

**IGN KEY SW ON**

When key is removed from ignition key cylinder:

**IGN KEY SW OFF**

NG → Check the following.
- 10A fuse [No. 28, located in fuse block (J/B)]
- Key switch
- Harness for open or short between key switch and fuse
- Harness for open or short between BCM and key switch

OR

B TESTER

Check voltage between BCM terminals ⑥⑨ and ground.

| Condition | Voltage V |
|---|---|
| Key is inserted. | Approx. 12 |
| Key is removed. | 0 |

Refer to wiring diagram in EL-447.

OK ↓

**CHECK IGNITION SWITCH INPUT SIGNAL (ACC, ON AND START).**

C CONSULT-II

See "IGN ACC SW, IGN ON SW, IGN START SW" in DATA MONITOR mode.

**These switches should change from "OFF" to "ON" when ignition key switch is turned to each position.**

NG → Check the following.
- 7.5A fuse [No. 23 located in the fuse block (J/B)]
- 7.5A fuse [No. 32 located in the fuse block (J/B)]
- 7.5A fuse [No. 34 located in the fuse block (J/B)]
- Harness for open or short between BCM and fuse

OR

D TESTER

Check voltage between BCM terminals and ground.

| Terminals | | Ignition key switch position | | | |
|---|---|---|---|---|---|
| ⊕ | ⊖ | OFF | ACC | ON | START |
| ⑥⓪ | Ground | Approx. 0V | Battery voltage | | Approx. 0V |
| ⑥⑧ | Ground | Approx. 0V | | Battery voltage | |
| ⑤⑤ | Ground | Approx. 0V | | | Battery voltage |

Refer to wiring diagram in EL-447.

OK ↓

Ⓐ

(Go to next page.)

## Trouble Diagnoses (Cont'd)

E

| DATA MONITOR | |
|---|---|
| MONITOR | |
| DETENT SW | ON |
| | |
| | RECORD |

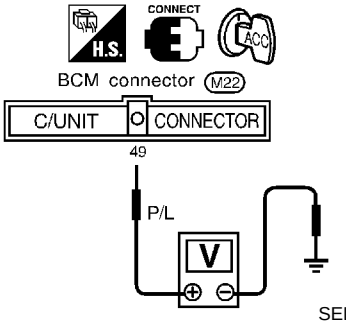
SEL554W

F

| DATA MONITOR | |
|---|---|
| MONITOR | |
| DOOR SW-DR | OFF |
| | |
| | RECORD |

SEL556W

G




SEL681UA

Ⓐ

**CHECK DETENTION SWITCH INPUT SIGNAL.**

E CONSULT-II

See "DETENT SW" in DATA MONITOR mode.
**"DETENT SW" should be "ON" when setting A/T selector lever in "P" position.**

NG → Check the following.
- Detention switch
- Harness for open or short

OR

ON BOARD

Check detention switch operation in switch monitor (Mode II) mode.
(Refer to On board Diagnoses, EL-299.)

Refer to wiring diagram in EL-448.

OK ↓

**CHECK DRIVER DOOR SWITCH INPUT SIGNAL.**

F CONSULT-II

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

NG → Check the following.
- Driver door switch
- Driver door switch ground condition
- Harness for open or short between driver door switch and BCM

OR

ON BOARD

Check driver's door switch operation in Switch monitor (Mode II) mode.
(Refer to On board Diagnoses EL-299.)

Refer to wiring diagram in EL-448.

OK ↓

CHECK VEHICLE SPEED SENSOR.
Does speedometer operate normally?

No → Check speedometer and vehicle speed sensor circuit.
Refer to EL-149.

Yes ↓

G

**CHECK VEHICLE SPEED SENSOR PULL UP VOLTAGE.**
1. Turn ignition switch to ACC.
2. Check voltage between BCM terminal ㊾ and ground.
   **Approx. 5V should exist.**

   Refer to wiring diagram in EL-448.

NG → Replace BCM.

OK ↓

Check harness for open or short between BCM terminal ㊾ and combination meter terminal ⑯.

NG → Repair harness.

OK ↓

INSPECTION END

# Trouble Diagnoses (Cont'd)

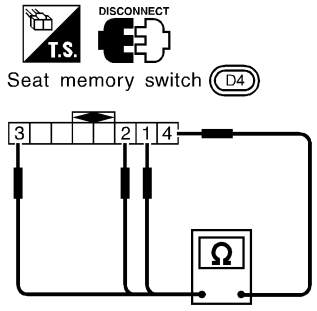
## DIAGNOSTIC PROCEDURE 20
## (Seat memory switch check)

A

| DATA MONITOR | |
|---|---|
| MONITOR | |
| SET SW | OFF |
| MEMORY SW 1 | OFF |
| MEMORY SW 2 | OFF |
| | |
| | RECORD |

SEL557W

B




SEL067X

**CHECK SEAT MEMORY SWITCH INPUT SIGNAL.**

A CONSULT-II

See "SET SW, MEMORY SW-1, 2" in DATA MONITOR mode.

**These switches should change from "OFF" to "ON" when switch is operated.**

OR

ON BOARD

Check each seat memory switch operation in Switch monitor (Mode II) mode.
(Refer to On board diagnosis EL-299.)

Refer to wiring diagram in EL-449.

OK → Seat memory switch is OK.

NG ↓

B

**CHECK SEAT MEMORY SWITCH.**

1. Disconnect seat memory switch connector.
2. Check continuity between seat memory switch terminals.

| Switch | Terminals | | | |
|---|---|---|---|---|
| | ① | ② | ③ | ④ |
| Memory-1 | ○ | | | ○ |
| Memory-2 | | ○ | | ○ |
| Set | | | ○ | ○ |

NG → Replace seat memory switch.

OK ↓

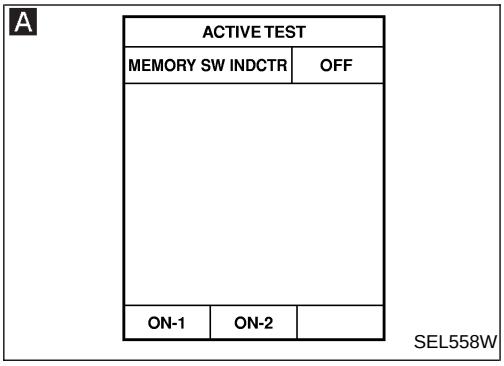
Check the following.

- Ground circuit for seat memory switch
- Harness for open or short between BCM and seat memory switch

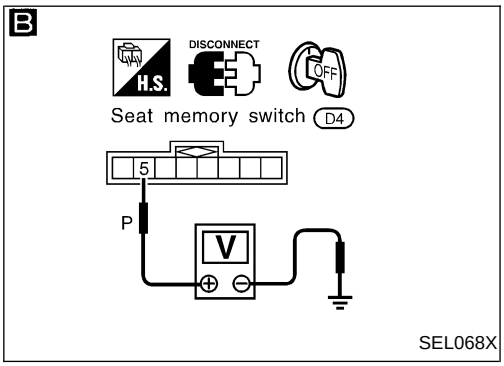
## Trouble Diagnoses (Cont'd)

### DIAGNOSES PROCEDURE 21
### (Memory indicator check)

A




B




A

**INDICATOR ACTIVE TEST**

CONSULT-II

See "MEMORY SW INDCTR" in ACTIVE TEST mode.
Perform operation shown on display.
**Indicator lamp should illuminate.**
**Note: If CONSULT-II is not available, skip this procedure and go to the next procedure.**

OK → Indicator lamp is OK.

NG ↓

CHECK INDICATOR LAMP.

NG → Replace seat memory switch (indicator lamp).

OK ↓

B

**CHECK POWER SUPPLY CIRCUIT FOR INDICATOR LAMP.**

1. Disconnect seat memory switch connector.
2. Check voltage between seat memory switch terminal ⑤ and ground.
   **Battery voltage should exist.**

   Refer to wiring diagram in EL-449.

NG → Check the following.
- 7.5A fuse [No. 14 located in the fuse block (J/B)]
- Harness for open or short between fuse and indicator lamp

OK ↓

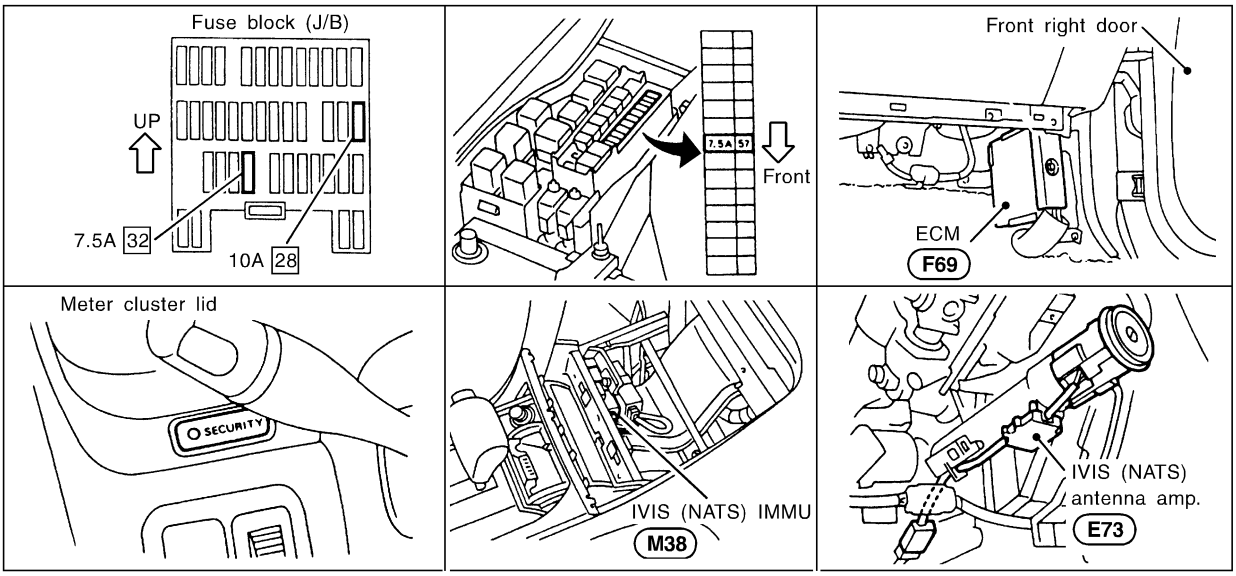
Check harness for open or short between BCM and seat memory switch.

### DIAGNOSTIC PROCEDURE 22
### (Lumbar support check)

| Symptom | Possible cause | Repair order |
|---|---|---|
| Power lumbar support moves neither forward nor backward. | 1. Power supply circuit for power lumbar support switch<br>2. Ground circuit<br>3. Lumbar support motor<br>4. Lumbar support motor circuit | 1. Verify battery voltage is present at terminal ⑯ of power seat switch.<br>2. Check ground circuit for power seat switch terminal ⑭.<br>3. Check lumbar support motor.<br>4. Check harness for open or short between lumbar support motor and power seat switch. |
| Power lumbar support does not move forward or backward. | 1. Lumbar support switch | 1. Check power seat switch. |

Refer to wiring diagram in EL-451.

## Component Parts and Harness Connector Location




SEL950W

**NOTE:**
**If customer reports a “No Start” condition, request ALL KEYS to be brought to the Dealer is case of a NATS malfunction.**

## System Description

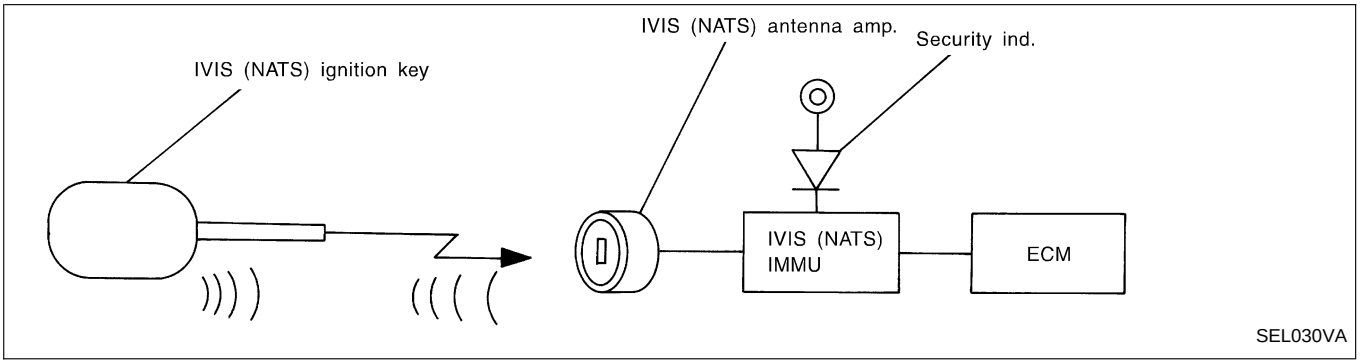
IVIS (Infiniti Vehicle Immobilizer System — NATS) has the following immobilizer functions:

- Since only IVIS (NATS) ignition keys, whose ID nos. have been registered into the ECM and IMMU of IVIS (NATS), allow the engine to run, operation of a stolen vehicle without a IVIS (NATS) registered key is prevented by IVIS (NATS).
  That is to say, IVIS (NATS) will immobilize the engine if someone tries to start it without the registered key of IVIS (NATS).
- All of the originally supplied ignition key IDs (except for card plate key) have been IVIS (NATS) registered. If requested by the vehicle owner, a maximum of five key IDs can be registered into the IVIS (NATS) components.
- The security indicator blinks when the ignition switch is in “OFF” or “ACC” position. Therefore, IVIS (NATS) warns outsiders that the vehicle is equipped with the anti-theft system.
- When IVIS (NATS) detects trouble, the security indicator lamp lights up while ignition key is in the “ON” position.
- IVIS (NATS) trouble diagnoses, system initialization and additional registration of other IVIS (NATS) ignition key IDs must be carried out using CONSULT-II hardware and CONSULT-II IVIS (NATS) software.
  When IVIS (NATS) initialization has been completed, the ID of the inserted ignition key is automatically IVIS (NATS) registered. Then, if necessary, additional registration of other IVIS (NATS) ignition key IDs can be carried out.
  Regarding the procedures of IVIS (NATS) initialization and IVIS (NATS) ignition key ID registration, refer to CONSULT-II operation manual, IVIS/NVIS.
- **When servicing a malfunction of the IVIS (NATS) (indicated by lighting up of Security Indicator Lamp) or registering another IVIS (NATS) ignition key ID no., it is necessary to re-register original key identification. Therefore, be sure to receive ALL KEYS from vehicle owner.**

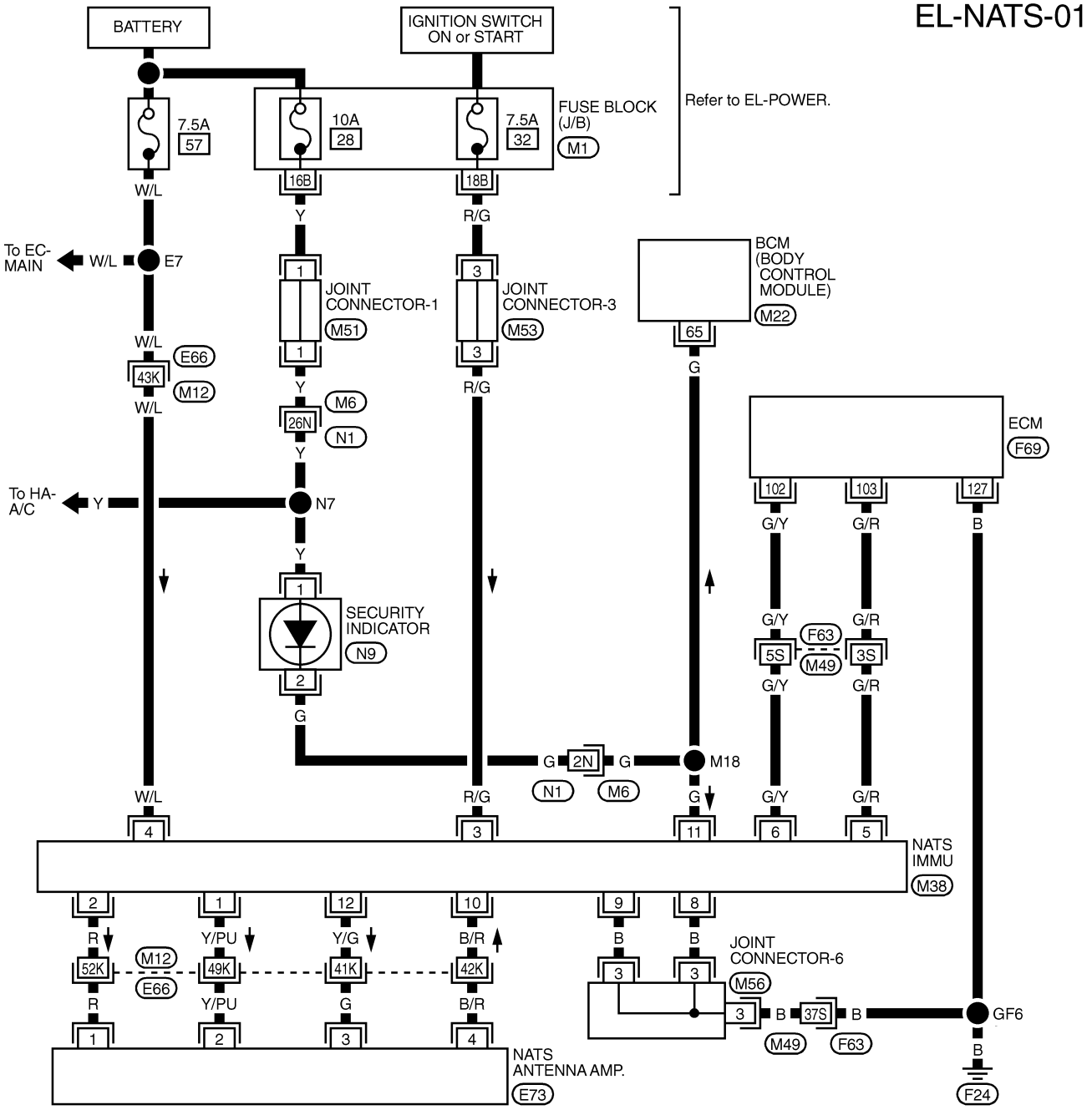
## System Composition

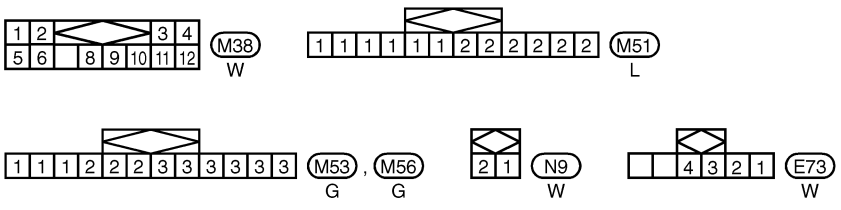
The immobilizer function of the IVIS (NATS) consists of the following:

- IVIS (NATS) ignition key
- IVIS (NATS) antenna amp. located in the ignition key cylinder
- IVIS (NATS) immobilizer control unit (IMMU)
- Engine control module (ECM)
- Security indicator



## Wiring Diagram — NATS —



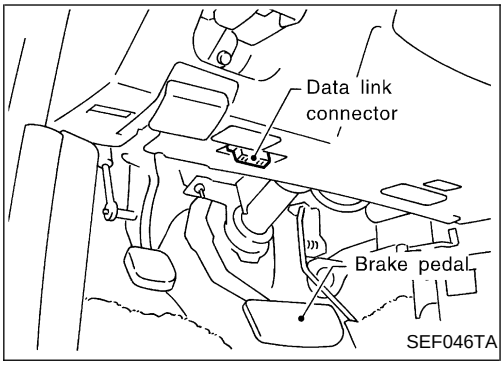

REFER TO THE FOLLOWING.

M6 , E66 , F63 -SUPER MULTIPLE JUNCTION (SMJ)

M1 -FUSE BLOCK-JUNCTION BOX (J/B)

M22 , F69 -ELECTRICAL UNITS

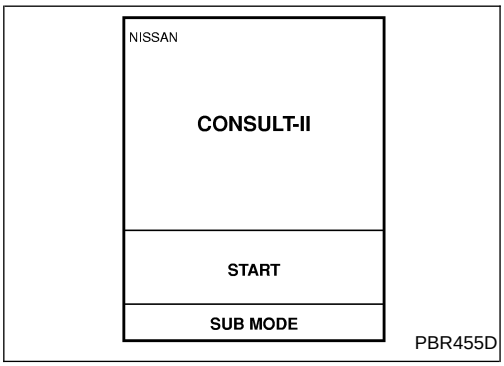
TEL188M




## CONSULT-II

### CONSULT-II INSPECTION PROCEDURE

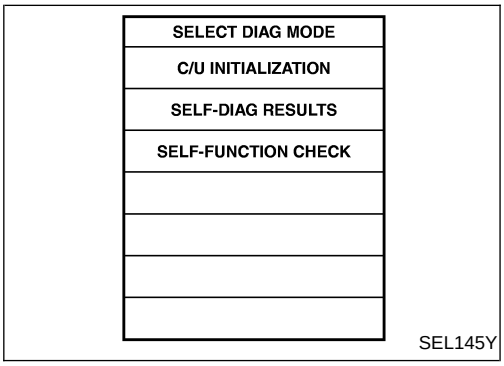
1. Turn ignition switch OFF.
2. Connect “CONSULT-II” to Data link connector for CONSULT-II.




3. Insert IVIS (NATS) program card into CONSULT-II.

**⇐: Program card**
**IVIS (NATS)**

4. Turn ignition switch ON.
5. Touch “START”.




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

**For further information, see the CONSULT-II Operation Manual, IVIS/NVIS.**

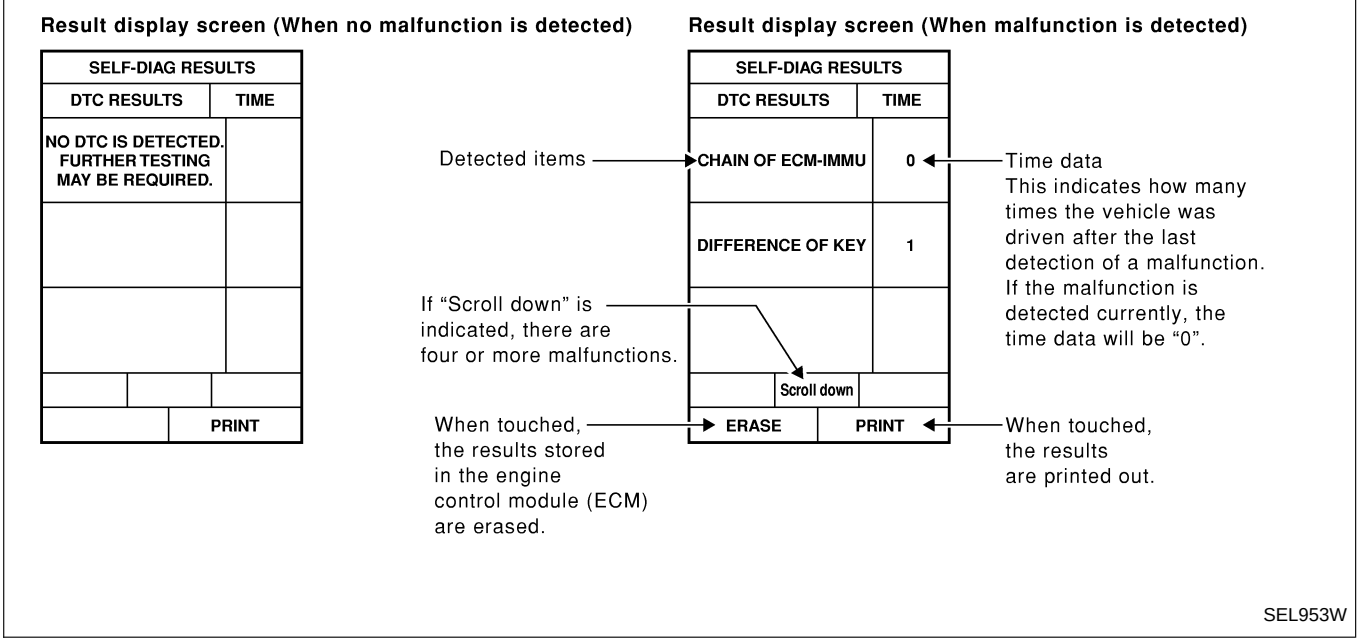
## CONSULT-II (Cont'd)

### CONSULT-II DIAGNOSTIC TEST MODE FUNCTION

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

**NOTE:**
**When any initialization is performed, all ID numbers previously registered will be erased and all IVIS (NATS) ignition keys must be registered again. The engine cannot be started with an unregistered key. The system will show "DIFFERENCE OF KEY" or "LOCK MODE" as a self-diagnostic result on the CONSULT-II screen.**

### HOW TO READ SELF-DIAGNOSTIC RESULTS



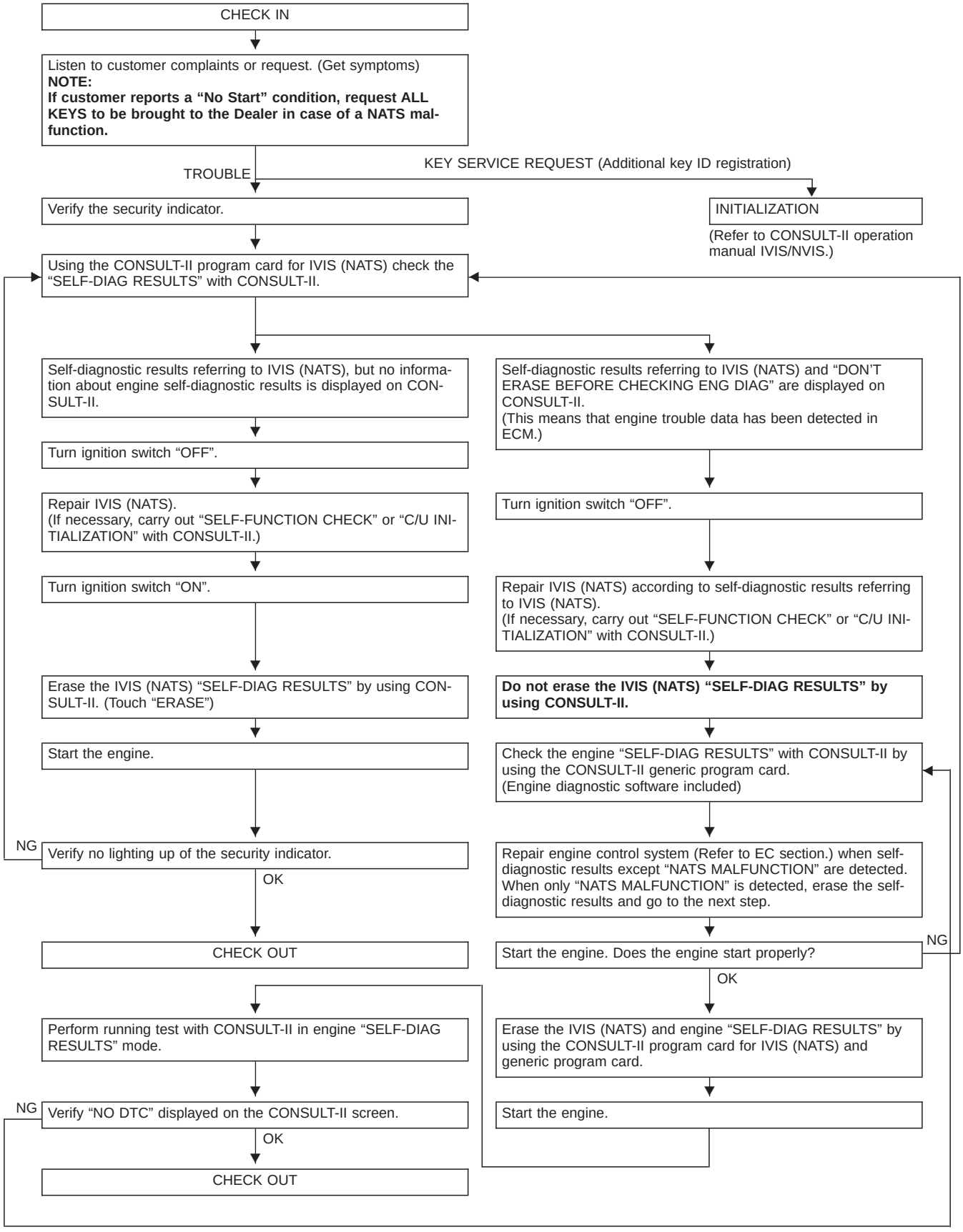

SEL953W

### SELF-DIAGNOSTIC RESULTS ITEM CHART

| Detected items (Screen terms) | Description | Reference page |
|---|---|---|
| IMMU | ECM received the signal from IMMU that IMMU is malfunctioning. | EL-494 |
| ECM | ECM is malfunctioning. | EL-494 |
| CHAIN OF ECM-IMMU | Communication impossible between ECM and IMMU. | EL-495 |
| DIFFERENCE OF KEY | IMMU can receive the key ID signal but the result of ID verification between key ID and IMMU is NG. | EL-497 |
| CHAIN OF IMMU-KEY | IMMU cannot receive the key ID signal. | EL-498 |
| ID DISCORD, IMM-ECM | The result of ID verification between IMMU and ECM is NG. System initialization is required. | EL-499 |
| ELECTRONIC/MINGLE NOISE | Noise (interference) interfered into IVIS (NATS) communication lines during communicating. | EL-500 |
| DON'T ERASE BEFORE CHECKING ENG DIAG | Engine trouble data and IVIS (NATS) trouble data have been detected in ECM. | EL-491 |
| LOCK MODE | When the starting operation is carried out 5 or more times consecutively under the following conditions, IVIS (NATS) will shift the mode to one which prevents the engine from being started.<br>● unregistered ignition key is used<br>● IMMU or ECM malfunctioning | EL-502 |

# Trouble Diagnoses

## WORK FLOW



## Trouble Diagnoses (Cont'd)

### SYMPTOM MATRIX CHART 1 (Self-diagnosis related item)

| SYMPTOM | Displayed "SELF-DIAG RESULTS" on CONSULT-II screen. | DIAGNOSTIC PROCEDURE (Reference page) | SYSTEM (Malfunctioning part or mode) | REFERENCE PART NO. OF ILLUSTRATION ON NEXT PAGE |
|---|---|---|---|---|
| • Security indicator lighting up*<br>• Engine will start. | IMMU | PROCEDURE 1 (EL-494) | IMMU | A |
| | ECM | PROCEDURE 2 (EL-494) | ECM | B |
| • Security indicator lighting up*<br>• Engine hard to start | CHAIN OF ECM-IMMU | PROCEDURE 3 (EL-495) | Open circuit in battery voltage line of IMMU circuit | C1 |
| | | | Open circuit in ignition line of IMMU circuit | C2 |
| | | | Open circuit in ground line of IMMU circuit | C3 |
| | | | Open circuit in communication line between IMMU and ECM | C4 |
| | | | Short circuit between IMMU and ECM communication line and battery voltage line | C4 |
| | | | Short circuit between IMMU and ECM communication line and ground line | C4 |
| | | | Open circuit in power source line of ANT/AMP circuit | E3 |
| | | | ECM | B |
| | | | IMMU | A |
| | DIFFERENCE OF KEY | PROCEDURE 4 (EL-497) | Unregistered key | D |
| | | | IMMU | A |
| | CHAIN OF IMMU-KEY | PROCEDURE 5 (EL-498) | Communication line between ANT/AMP and IMMU:<br>Open circuit or short circuit of battery voltage line or short circuit of ground line | E1 |
| | | | | E2 |
| | | | Open circuit in power source line of ANT/AMP circuit | E3 |
| | | | Open circuit in ground line of ANT/AMP circuit | E4 |
| | | | Malfunction of key ID chip | E5 |
| | | | IMMU | A |
| | | | Antenna amp. | E6 |

*: When IVIS (NATS) detects trouble, the security indicator lights up while ignition key is in the "ON" position.

## Trouble Diagnoses (Cont'd)

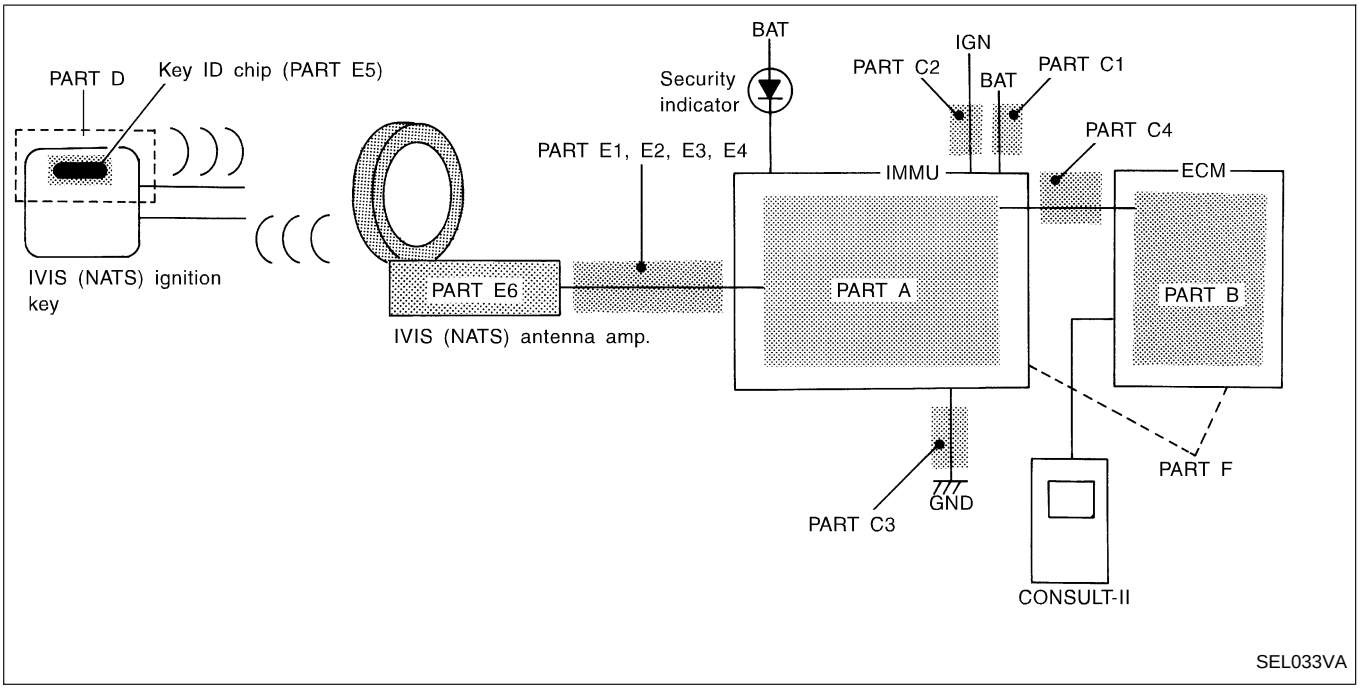
| SYMPTOM | Displayed "SELF-DIAG RESULTS" on CONSULT-II screen. | DIAGNOSTIC PROCEDURE (Reference page) | SYSTEM (Malfunctioning part or mode) | REFERENCE PART NO. OF ILLUSTRATION ON NEXT PAGE |
|---|---|---|---|---|
| • Security indicator lighting up*<br>• Engine hard to start | ID DISCORD, IMM-ECM | PROCEDURE 6 (EL-499) | System initialisation has not yet been completed. | F |
| | | | ECM | F |
| | ELECTRONIC/MINGLE NOISE | PROCEDURE 7 (EL-500) | Noise interference in communication line | — |
| | LOCK MODE | PROCEDURE 9 (EL-502) | LOCK MODE | D |
| • MIL staying ON<br>• Security indicator lighting up* | DON'T ERASE BEFORE CHECKING ENG DIAG | WORK FLOW (EL-491) | Engine trouble data and IVIS (NATS) trouble data have been detected in ECM | — |

*: When IVIS (NATS) detects trouble, the security indicator lights up while ignition key is in the "ON" position.

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

| SYMPTOM | DIAGNOSTIC PROCEDURE (Reference page) | SYSTEM (Malfunctioning part or mode) |
|---|---|---|
| Security ind. does not light up. | PROCEDURE 8 (EL-501) | Security ind. |
| | | Open circuit between Fuse and IVIS (NATS) IMMU |
| | | Continuation of initialization mode |
| | | IVIS (NATS) IMMU |

### DIAGNOSTIC SYSTEM DIAGRAM



# Trouble Diagnoses (Cont'd)

## DIAGNOSTIC PROCEDURE 1

A

| SELF-DIAG RESULTS | |
|---|---|
| DTC RESULTS | TIME |
| IMMU | 0 |
| | |
| | |

SEL951W

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

A

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

Yes

Replace IMMU.

Perform initialisation with CONSULT-II.
For the operation of initialization, refer to "CONSULT-II operation manual IVIS/NVIS".

* Ref. part No.: reference part No. of Diagnostic System Diagram on EL-493.

## DIAGNOSTIC PROCEDURE 2

A

| SELF-DIAG RESULTS | |
|---|---|
| DTC RESULTS | TIME |
| ECM | 0 |
| | |
| | |

SEL952W

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

A

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

Replace ECM.

Perform initialization with CONSULT-II.
For the operation of initialization, refer to "CONSULT-II operation manual IVIS/NVIS".

# Trouble Diagnoses (Cont'd)

## DIAGNOSTIC PROCEDURE 3

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

A

| SELF-DIAG RESULTS | |
|---|---|
| DTC RESULTS | TIME |
| CHAIN OF ECM-IMMU | 0 |
| | |
| | |

SEL954W

A

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

OK

B

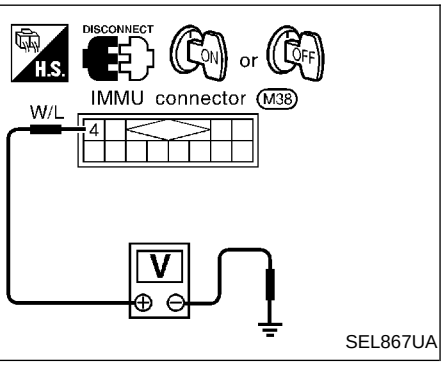
Check voltage between terminal ④ of IMMU and ground with CONSULT-II or tester.
**Voltage: Battery voltage**

NG → Check the following:
- 7.5A fuse (No. 57, located in the fuse, fusible link and relay box)
- Harness for open or short between fuse and IMMU connector

**Ref. part No. C1**

OK

B




SEL867UA

C

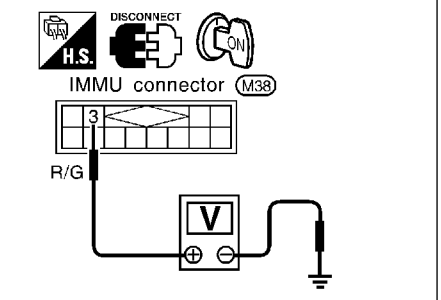
Check voltage between terminal ③ of IMMU and ground with CONSULT-II or tester.
**Voltage: Battery voltage**

NG → Check the following:
- 7.5A fuse [No. 32, located in the fuse block (J/B)]
- Harness for open or short between fuse and IMMU connector

**Ref. part No. C2**

OK

C




SEL868UA

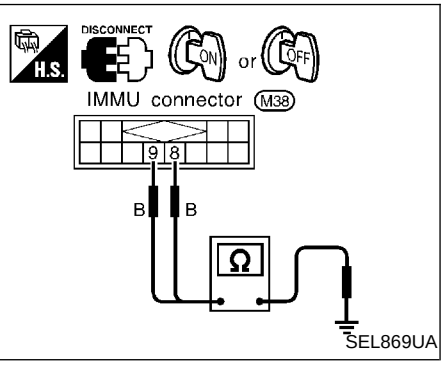
D

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

NG → Repair harness.
**Ref. part No. C3**

OK

D




SEL869UA

E

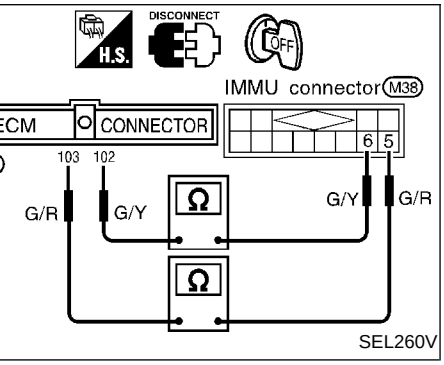
Check harness continuity between the following ECM terminals and IMMU terminals.
ECM (102) and IMMU ⑥
ECM (103) and IMMU ⑤
**Continuity should exist.**

NG → Communication line is open circuit.
Repair harness or connectors.
**Ref. part No. C4**

OK

Ⓐ

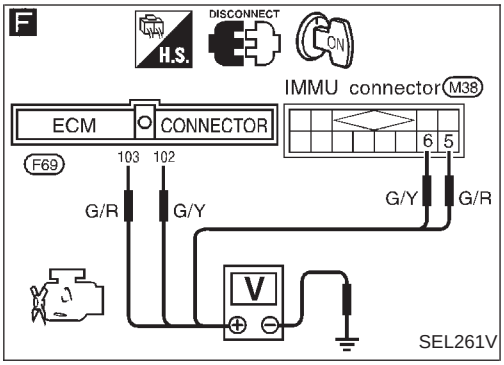
E




SEL260V

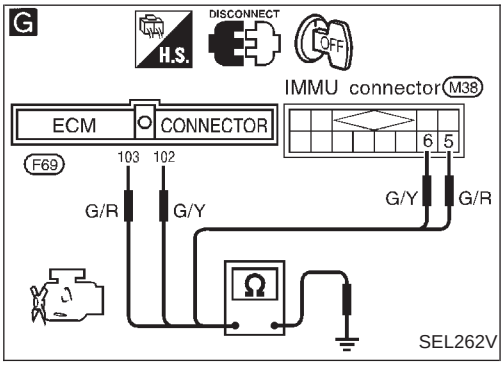
## Trouble Diagnoses (Cont'd)

F



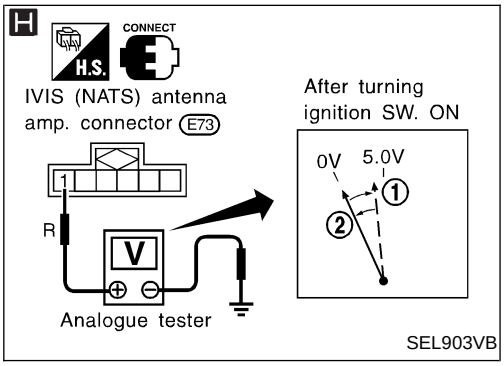
SEL261V

G



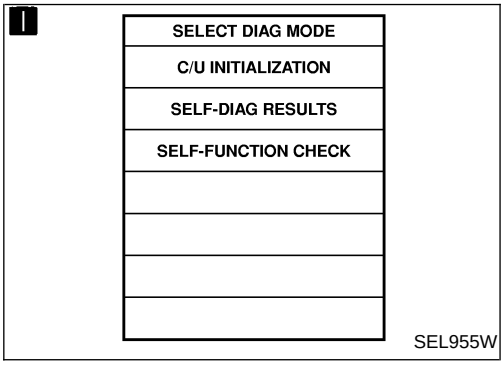
SEL262V

H



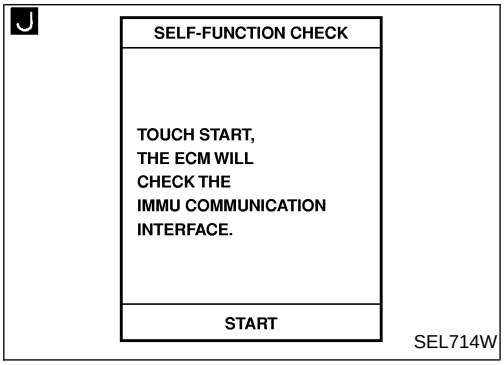
SEL903VB

I



SEL955W

J



SEL714W

Ⓐ

F

**CHECK COMMUNICATION LINE CIRCUIT.**
1. Disconnect ECM connector and IMMU connector.
2. Check voltage between the following terminals and ground.
   ECM (102), ECM (103), IMMU ⑤ and IMMU ⑥
   **Voltage: 0V**

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

OK ↓

G

Check continuity between the following terminals and ground.
ECM (102), ECM (103), IMMU ⑤ and IMMU ⑥
**Continuity should not exist.**

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

OK ↓

H

**CHECK POWER SUPPLY FOR IVIS (NATS) ANTENNA AMP.**
1. Connect IMMU connector and IVIS (NATS) antenna amp. connector.
2. Check voltage between IVIS (NATS) antenna amp. terminal ① and ground (Power supply from IVIS (NATS) IMMU terminal ② ) with analogue tester.
   Before turning ignition switch "ON"
   **Voltage: 0V**
   Just after turning ignition switch "ON"
   **Pointer of tester should move.**

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

OK ↓

I

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

J

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

NG → ECM is malfunctioning.
Replace ECM.
**Ref. part No. B**

Perform initialisation with CONSULT-II.
For the operation of initialization, refer to "CONSULT-II operation manual IVIS/NVIS".

OK ↓

Ⓑ

(See next page.)

## Trouble Diagnoses (Cont'd)

Ⓑ

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

Perform initialization with CONSULT-II.
For the operation of initialization, refer to "CONSULT-II operation manual IVIS/NVIS".

A

| SELF-DIAG RESULTS | |
|---|---|
| DTC RESULTS | TIME |
| DIFFERENCE OF KEY | 0 |
| | |
| | |

SEL956W

B

| IMMU INITIALIZATION |
|---|
| INITIALIZATION FAIL |
| THEN IGN KEY SW 'OFF' AND 'ON', AFTER CONFIRMING SELF-DIAG AND PASSWORD, PERFORM C/U INITIALIZATION AGAIN. |

SEL566W

### DIAGNOSTIC PROCEDURE 4

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

A

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

OK

Perform initialization with CONSULT-II.
Re-register all NATS ignition key IDs.
For the operation of initialization, refer to "CONSULT-II operation manual IVIS/NVIS".

Initialization with CONSULT-II incomplete or failed → B

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

Perform initialization with CONSULT-II.
For the operation of initialization, refer to "CONSULT-II operation manual IVIS/NVIS".

Initialization completed

Start engine.

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

# Trouble Diagnoses (Cont'd)

## DIAGNOSTIC PROCEDURE 5

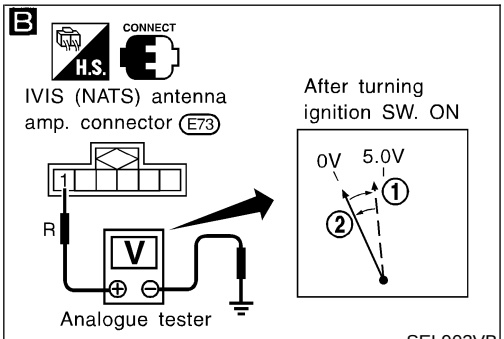
**Self-diagnostic results:**
**"CHAIN OF IMMU-KEY" displayed on CONSULT-II screen**

A

| SELF-DIAG RESULTS | |
|---|---|
| DTC RESULTS | TIME |
| CHAIN OF IMMU-KEY | 0 |
| | |
| | |

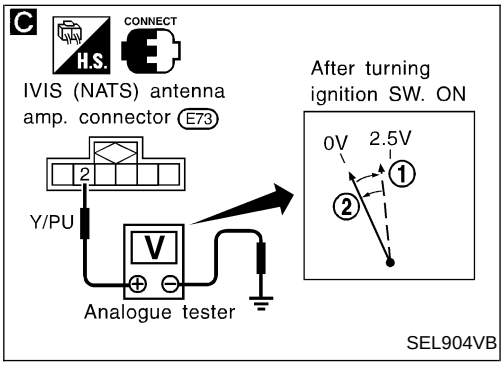
SEL957W

B



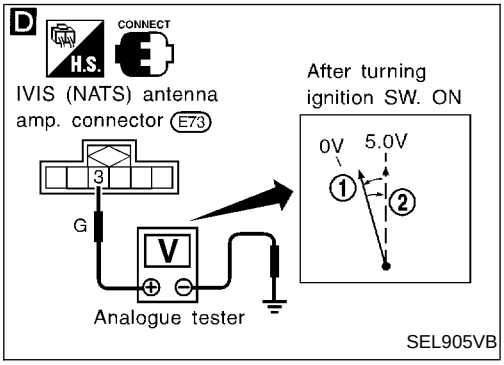

SEL903VB

C




SEL904VB

D




SEL905VB

A

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

OK ↓

CHECK IVIS (NATS) IGNITION KEY ID CHIP.
Start engine with another registered IVIS (NATS) ignition key.

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

Start NG ↓

CHECK IVIS (NATS) ANTENNA AMP. INSTALLATION.
Refer to "How to Replace IVIS (NATS) Antenna Amp." in EL-503.

NG → Reinstall IVIS (NATS) antenna amp. correctly.

OK ↓

B

**CHECK POWER SUPPLY FOR IVIS (NATS) ANTENNA AMP.**
1. Connect IMMU connector and IVIS (NATS) antenna amp. connector.
2. Check voltage between IVIS (NATS) antenna amp. terminal ① and ground (Power supply from IVIS (NATS) IMMU terminal ② ) with analogue tester.
   Before turning ignition switch "ON"
   **Voltage: 0V**
   Just after turning ignition switch "ON"
   **Pointer of tester should move.**

NG → Check harness for open or short between for open or short between IMMU and IVIS (NATS) antenna amp. If harness is OK, replace IMMU, perform initialisation with CONSULT-II. For the initialisation procedure, refer to "CONSULT-II operation manual IVIS/NVIS".

OK ↓

C

**CHECK SIGNAL LINE 1 BETWEEN IMMU AND IVIS (NATS) ANTENNA AMP.**
Check voltage between IVIS (NATS) antenna amp. terminal ② and ground with analogue tester. Before turning ignition switch "ON"
**Voltage: 0V**
Just after turning ignition switch "ON"
**Pointer of tester should move.**

NG → (Check harness for open or short between for open or short between IMMU and IVIS (NATS) antenna amp. If harness is OK, replace IMMU, perform initialisation with CONSULT-II. For the initialisation procedure, refer to "CONSULT-II operation manual IVIS/NVIS".)

OK ↓

D

**CHECK SIGNAL LINE 2 BETWEEN IMMU AND IVIS (NATS) ANTENNA AMP.**
Check voltage between IVIS (NATS) antenna amp. terminal ③ and ground with analogue tester. Before turning ignition switch "ON"
**Voltage: 4.5 - 5V**
Just after turning ignition switch "ON"
**Pointer of tester should move.**

NG → (Check harness for open or short between for open or short between IMMU and IVIS (NATS) antenna amp. If harness is OK, replace IMMU, perform initialisation with CONSULT-II. For the initialisation procedure, refer to "CONSULT-II operation manual IVIS/NVIS".)

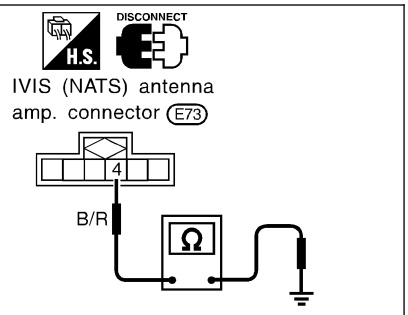
OK ↓

Perform initialization with CONSULT-II. For the operation of initialization, refer to "CONSULT-II operation manual IVIS/NVIS".

Ⓐ

## Trouble Diagnoses (Cont'd)

E




SEL906VB

Ⓐ

E

**CHECK ANTENNA AMP. GROUND LINE CIRCUIT.**
1. Turn ignition switch "OFF".
2. Check continuity between IVIS (NATS) antenna amp. terminal ④ and ground. (Signal from IVIS (NATS) IMMU terminal ⑩)
   **Continuity should exist.**

NG → Check harness for open or short between IMMU and IVIS (NATS) antenna amp. If harness is OK, replace IMMU.
After replacing IMMU, perform initialization with CONSULT-II. For the initialization procedure, refer to "CONSULT-II operation manual IVIS/NVIS".

OK →

IVIS (NATS) antenna amp. is malfunctioning.
When replacing the amp. hold on to amp. body. Take care not to pull on amp. harness.

A

| SELF-DIAG RESULTS | |
|---|---|
| DTC RESULTS | TIME |
| ID DISCORD, IMM-ECM | 0 |
| | |
| | |

SEL958W

B

| IMMU INITIALIZATION |
|---|
| INITIALIZATION FAIL |
| THEN IGN KEY SW 'OFF' AND 'ON', AFTER CONFIRMING SELF-DIAG AND PASSWORD, PERFORM C/U INITIALIZATION AGAIN. |

SEL566W

### DIAGNOSTIC PROCEDURE 6

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

A

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

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

Perform initialization with CONSULT-II.
Re-register all IVIS (NATS) ignition key IDs.
For the operation of initialization, refer to "CONSULT-II operation manual IVIS/NVIS".

Initialization with CONSULT-II incomplete or failed → B

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

Initialization completed →

Start engine.

END
**Ref. part No. F**

Perform initialization with CONSULT-II.
For the operation of initialization, refer to "CONSULT-II operation manual IVIS/NVIS".

# Trouble Diagnoses (Cont'd)

## DIAGNOSTIC PROCEDURE 7

**Self-diagnostic results:**
**"ELECTRONIC/MINGLE NOISE" displayed on CONSULT-II screen**

A

| SELF-DIAG RESULTS | |
|---|---|
| DTC RESULTS | TIME |
| ELECTRONIC/MINGLE NOISE | 0 |
| | |
| | |

SEL959W

A

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

↓

Turn off or remove any possible noise sources.

↓

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

↓

Start engine. — NG → (back to Confirm SELF-DIAGNOSTIC RESULTS "ELECTRONIC/MINGLE NOISE" displayed on CONSULT-II screen.)

↓ OK

END

# Trouble Diagnoses (Cont'd)

## DIAGNOSTIC PROCEDURE 8

### "SECURITY IND. DOES NOT LIGHT UP"

Check 10A fuse [No. 28, located in the fuse block (J/B)].
NG → Replace fuse.

OK ↓

IVIS (NATS) INITIALIZATION
1) Install the 10A fuse.
2) Perform initialization with CONSULT-II.
For the operation of initialization, refer to "CONSULT-II operation manual IVIS/NVIS".

↓

Turn ignition switch "OFF".

↓

Start engine and turn ignition switch "OFF".

↓

Check the security ind. lighting.
OK → END

NG ↓

A

Check voltage between security ind. connector terminal ① and ground.
**Voltage: Battery voltage**
NG → Check harness for open or short between fuse and security ind.

OK ↓

CHECK INDICATOR LAMP.
NG → Repair harness.

OK ↓

B

**CHECK IVIS (NATS) IMMU FUNCTION.**
1. Connect IVIS (NATS) IMMU connector.
2. Disconnect security ind. connector.
3. Check continuity between IVIS (NATS) IMMU terminal ⑪ and ground.
**Continuity should exist intermittently.**

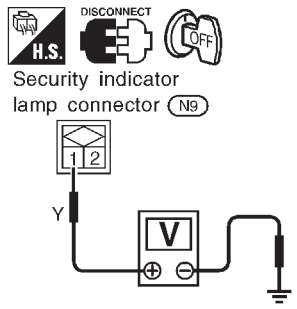
NG → IVIS (NATS) IMMU is malfunctioning. Replace IVIS (NATS) IMMU.

Perform initialization with CONSULT-II.
For the operation of initialization, refer to "CONSULT-II operation manual IVIS/NVIS".

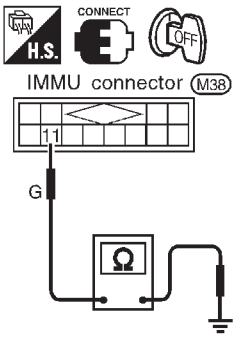
OK ↓

Check harness for open or short between security indicator and IVIS (NATS) IMMU.

A




B



# Trouble Diagnoses (Cont'd)

## DIAGNOSTIC PROCEDURE 9

**Self-diagnostic results:**
**"LOCK MODE" displayed on CONSULT-II screen**

A

| SELF-DIAG RESULTS | |
|---|---|
| DTC RESULTS | TIME |
| LOCK MODE | 0 |
| | |
| | |

SEL960W

B

| IMMU INITIALIZATION |
|---|
| INITIALIZATION FAIL |
| THEN IGN KEY SW 'OFF' AND 'ON', AFTER CONFIRMING SELF-DIAG AND PASSWORD, PERFORM C/U INITIALIZATION AGAIN. |

SEL566W

A

Confirm SELF-DIAGNOSTIC RESULTS "LOCK MODE" is displayed on CONSULT-II screen.

1. Turn the ignition switch to OFF position.
2. Turn the ignition key switch to ON position with a registered key. (Do not start engine.) Wait for 5 seconds.
3. Return the key to the OFF position.
4. Repeat steps 2 and 3 twice (total of three cycles).
5. Start the engine.
   **Can the engine start?**

Yes → System is OK. (Now the system is escaped from "LOCK MODE".)

No

CHECK IVIS (NATS) ANTENNA AMP. INSTALLATION.
Refer to "How to Replace IVIS (NATS) Antenna Amp." in EL-503.

NG → Reinstall IVIS (NATS) antenna amp. correctly.

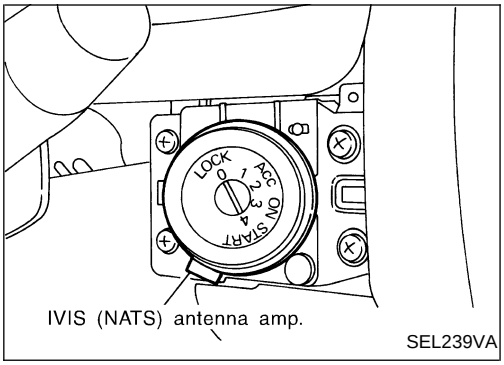
OK

PERFORM INITIALISATION
Perform initialisation with CONSULT-II. For the initialisation procedure, refer to "CONSULT-II operation manual IVIS/NVIS".
**Can the system be initialized?**
Note: If the initialisation is incompleted or failed, CONSULT-II shows B message on the screen.

Yes → System is OK.

No

Go to DIAGNOSTIC PROCEDURE 5, EL-498 to check "CHAIN OF IMMU-KEY".

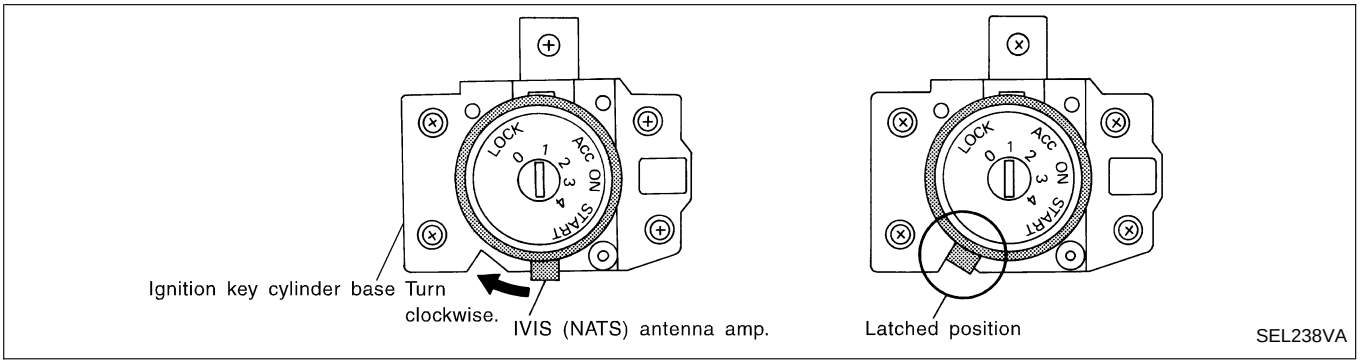



## How to Replace IVIS (NATS) Antenna Amp.

**NOTE:**

- **If IVIS (NATS) antenna amp. is not installed correctly, IVIS (NATS) system will not operate properly and SELF-DIAG RESULTS on CONSULT-II screen will show "LOCK MODE" or "CHAIN OF IMMU-KEY".**
- **Initialization is not necessary only when IVIS (NATS) antenna amp. is replaced with a new one.**

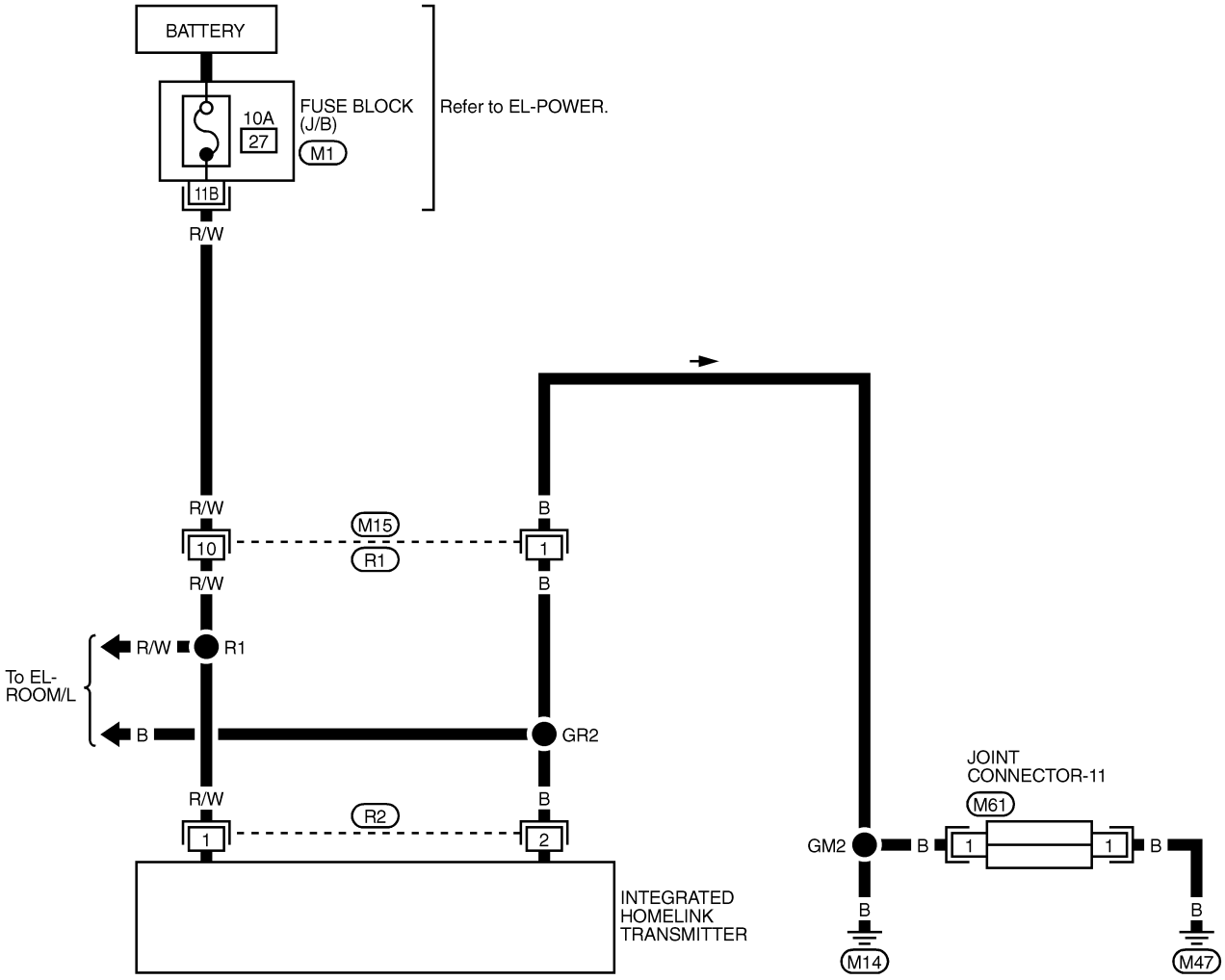
### INSTALLATION

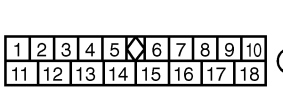


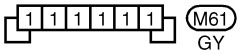

- After inserting the IVIS (NATS) antenna amp. into the ignition key cylinder, check if the IVIS (NATS) antenna amp. is set in the latched position as shown in the above illustration.

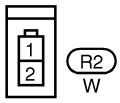
## Wiring Diagram — TRNSMT —

EL-TRNSMT-01



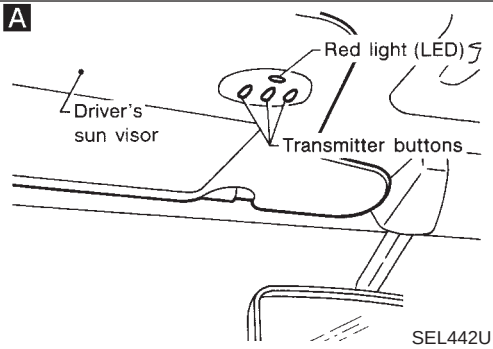



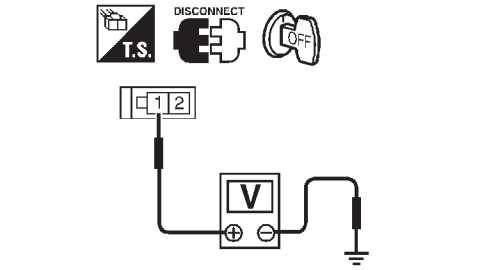

REFER TO THE FOLLOWING.
M1 -FUSE BLOCK-JUNCTION BOX (J/B)

TEL189M

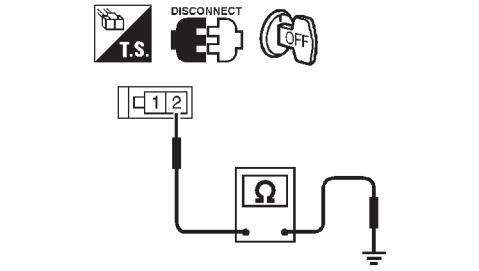
A




B




C




## Trouble Diagnoses

### DIAGNOSTIC PROCEDURE

**SYMPTOM: Transmitter does not activate receiver.**

Before conducting the procedure given below, make sure that system receiver (garage door opener, etc.) operates with original, hand-held transmitter. If NG, receiver or hand-held transmitter is at fault, not vehicle related.

A

1. Turn ignition switch “OFF”.
2. Does red light (LED) of transmitter illuminate when any button is pressed?

OK → Check transmitter with Tool*.

Check transmitter with Tool*.
- OK → Receiver or hand-held transmitter fault, not vehicle related.
- NG → Replace transmitter with sunvisor assembly.

NG →

B

**POWER SUPPLY CHECK.**
1. Disconnect transmitter connector.
2. Turn ignition switch “OFF”.
3. Check voltage between terminal ① and body ground.
   **Voltage: Battery voltage**

NG → Check the following.
- 10A fuse [No. 27, located in the fuse block (J/B)]
- Harness for open or short between fuse and transmitter

OK →

C

**GROUND CIRCUIT CHECK.**
Check continuity between terminal ② and body ground.
**Continuity should exist.**

NG → Repair harness.

OK →

Replace transmitter with sunvisor assembly.

*For details, refer to Technical Service Bulletin.

## Precaution

**CAUTION:**

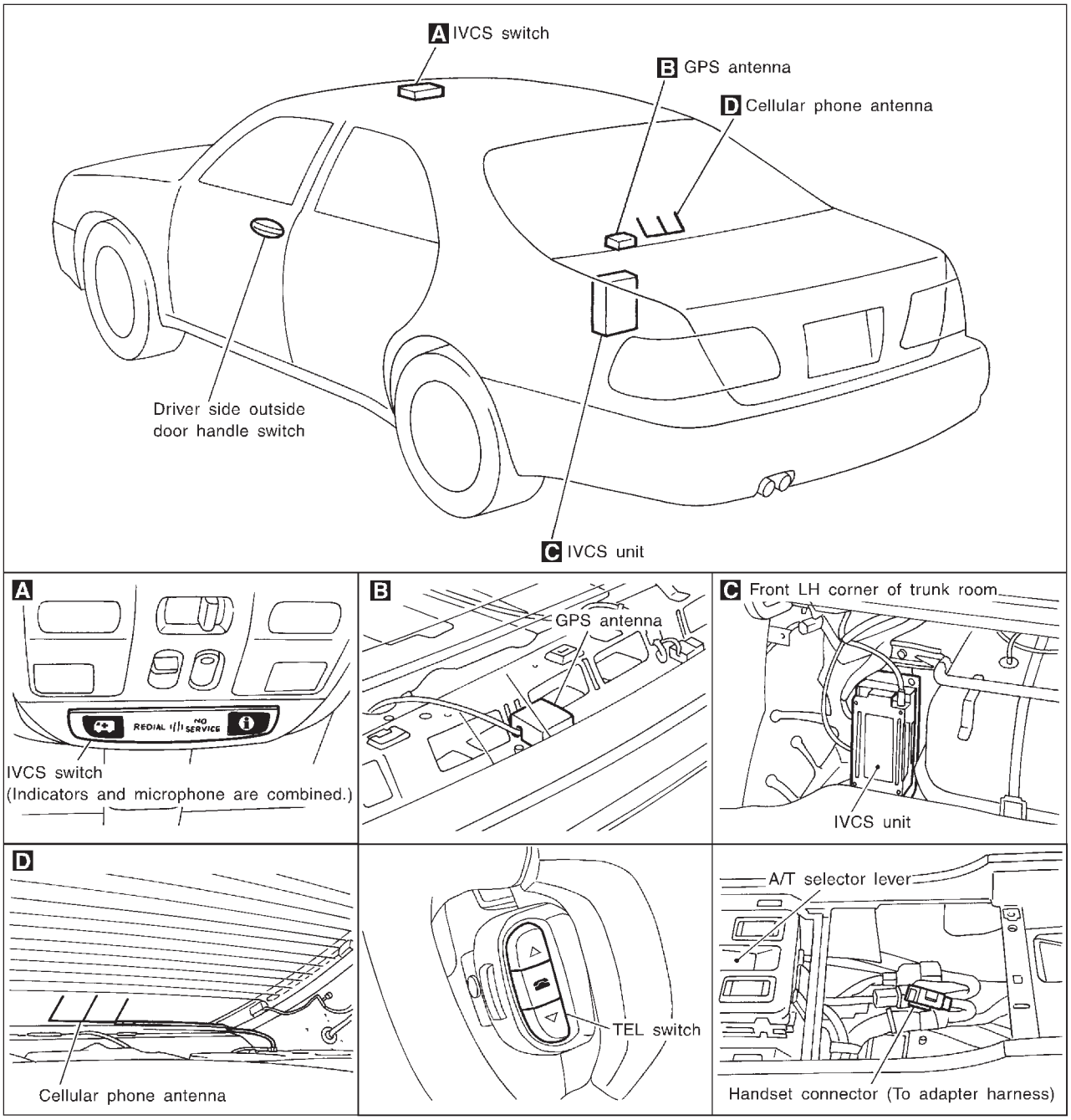
- **Use CONSULT-II to set the system "Demonstration mode" if INFINITI Communicator needs to be activated during service procedures. (For details of the demonstration mode, refer to EL-534.)**
- **Make sure to turn the demonstration mode OFF before returning the vehicle to the owner.**
- **In the demonstration mode, no service from the Communicator Response Center is available. Therefore, even if the customer encounters an emergency, no service will be dispatched.**
- **If the vehicle security system is activated for more than 7 seconds, INFINITI Communicator will dial to the Communicator Response Center automatically. The operator will contact the customer to confirm whether the vehicle has been stolen or not.**
- **When "Mayday" emergency dialing is activated (if the system is not in the demonstration mode), the Communicator Response Center operator will come online. If there is no emergency, the operator will ask the occupant for the user password (option). Failure to provide the correct password results in a police response.**
- **IVCS unit memory includes VIN (Vehicle Identification Number) and other such vehicle specific data. Therefore, the IVCS unit cannot be transferred to another vehicle. When the IVCS unit is replaced, the new unit must be set up and programmed. The INFINITI Communicator system automatically contacts the Communicator Response Center the first time the vehicle is started after a phone number has been changed or a module (IVCS unit) is replaced. The VIN will be written in the memory of the new unit by transmitting data from the Communicator Response Center. For details, refer to "System Setting", EL-536.**
- **Before servicing the vehicle, confirm that the VIN memorized by the IVCS unit is the same as the VIN on the vehicle's identification plate.**

## Communicator Response Center Telephone Number for Technicians

The Communicator Response Center telephone number for technicians is **1-888-427-4812**.
Whenever an INFINITI dealer technician dials the above number, the following information will be required by the Communicator Response Center operator.

- Customer name
- Unit ID number of old IVCS unit (For details, refer to EL-522.)
- Unit ID number of new IVCS unit
- VIN
- Dealer name and code (For security purposes)
- Dealer contact person (technician)
- Dealer phone and fax numbers

## Component Parts and Harness Connector Location




SEL647V

# System Description

## OUTLINE

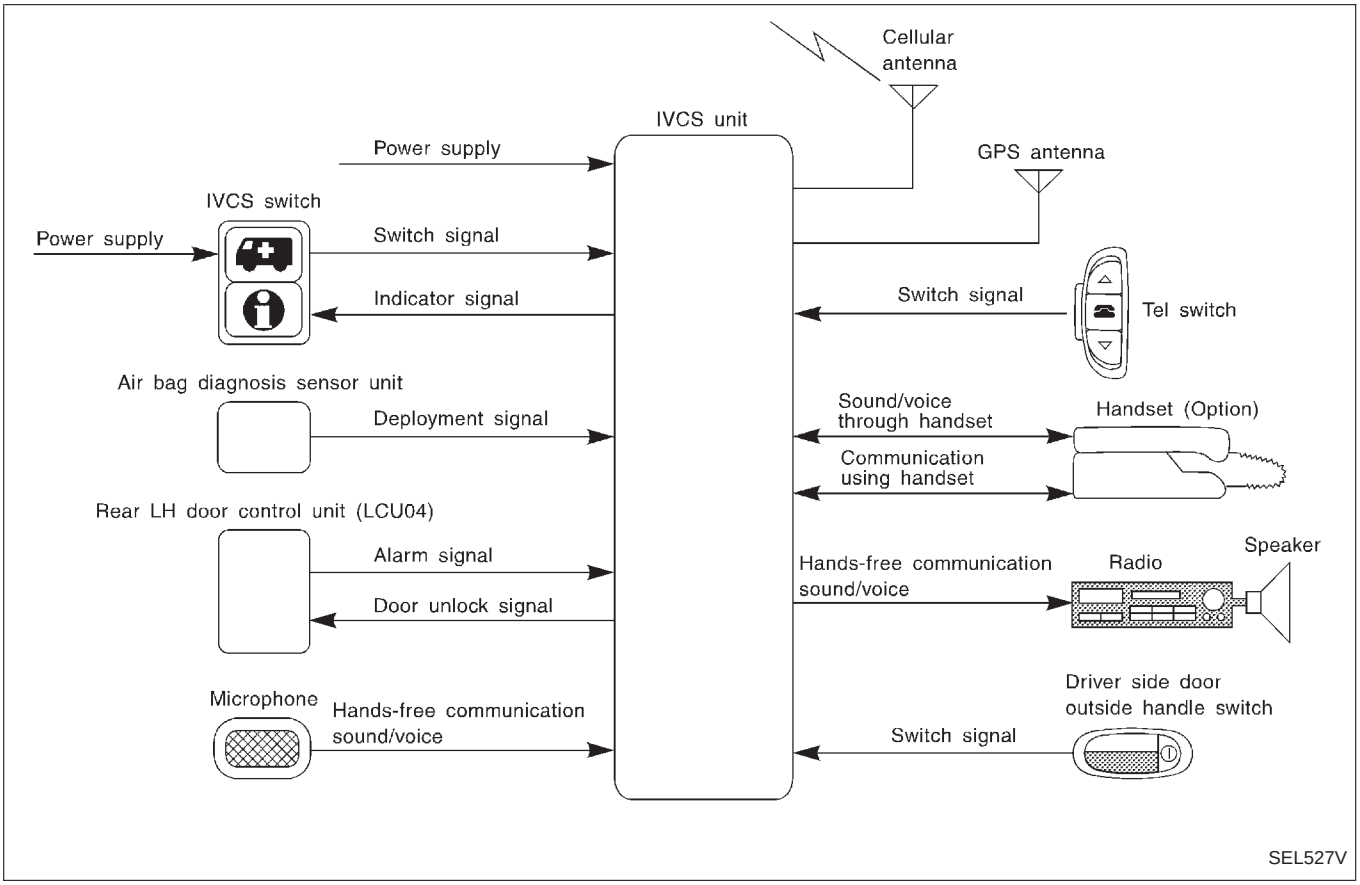
INFINITI Communicator system uses the Global Positioning System (GPS), cellular phone technology and the Communicator Response Center to provide the following functions.

- One touch “Information” dialing
- One touch “Mayday” emergency dialing
- Automatic air bag inflation notification
- Stolen vehicle tracking
- Alarm notification
- Remote door unlock

There are limitations to the INFINITI Communicator system. To understand the system, read SYSTEM LIMITATIONS (EL-509) thoroughly.

## SYSTEM COMPOSITION

- The INFINITI Communicator system is controlled by the IVCS (In Vehicle Communication System) unit. System status (“Mayday”-emergency dialing, or re-dialing, etc.) is displayed by the indicators in the IVCS switch.
- The INFINITI Communicator system can only make calls to the Communicator Response Center and receive calls from the center, unless the customer chooses to have the optional handset install.



## System Description (Cont'd)

### SYSTEM LIMITATIONS

#### Service area

Depending on the cellular provider chosen, service is provided in the 48 contiguous states. Service is not available in Alaska, Hawaii, Canada, or Mexico. The Communicator Response Center will not be able to locate the customer's vehicle outside of the continental United States.

#### Inoperative if cellular phone is inactive or inoperative

INFINITI Communicator will be inoperative if the customer does not have an active account with cellular provider, since INFINITI Communicator relies on the cellular network. When the INFINITI Communicator system is outside of cellular service, the "NO SERVICE" indicator will illuminate. If you try to activate INFINITI Communicator, the REQUEST will be cancelled. Cellular phone transmission may become temporarily disabled, or interrupted by environmental factors like tunnels, bridges, or tall buildings. In such cases, INFINITI Communicator will re-dial up to four times. After several failed attempts, the system will quit dialing and return to normal mode.

#### Inoperative if the system is in the demonstration mode

The INFINITI Communicator system remains in the demonstration mode until the setup procedures are completed. If the system is activated in this mode, the Communicator Response Center will recognize this operation as a demonstration and will not provide any service. The system can be changed to the demonstration mode by using CONSULT-II to check the system operation. Do not forget to turn off the demonstration mode after confirmation.

#### Battery

Since INFINITI Communicator is powered by the vehicle's battery, if the battery is removed, damaged or discharged, the system will not work.

#### Inoperative if cellular system is busy

When INFINITI Communicator tries to contact the Communicator Response Center, but the cellular network is busy, the system attempts to re-dial for up to two hours. This time varies greatly depending on the cellular network and cellular signal strength. The system resets to ready when the system completes the re-dialing attempts.

#### Roaming

If the customer's cellular provider does not have a roaming agreement with the provider where the vehicle locates, it may not be possible to use the lines of a different cellular provider. Therefore, it is impossible that INFINITI Communicator will contact the Communicator Response Center.

#### Special cellular features

Some cellular carriers offer custom phone numbers that are assigned a Personal Identification Number (PIN). The cellular phone user is required to enter the PIN anytime a phone call is made. The INFINITI Communicator system is not compatible with the PIN feature. A PIN requirement on the cellular phone will cause the INFINITI Communicator system to be inoperative.

Other special features such as call waiting, voice mail, call forwarding, etc. can interfere with INFINITI Communicator system operation.

#### Cellular airwave interference

At times someone other than the Communicator Response Center operator may be heard. This is caused by Cellular Airwave Interference and is not caused by an INFINITI Communicator system malfunction.

#### Possibility of positioning capability degraded

Vehicle positioning is accomplished using the GPS (Global Positioning System). If the signal from the GPS satellite is obstructed by a tunnel or building, positioning capability may be degraded or lost. In this case, the last valid position obtained before the obstruction is transmitted to the Communicator Response Center. The precision is also influenced by the location of GPS satellites.

Once the battery cable is disconnected, it will take about 5 minutes to determine the vehicle location. This is because the memory related to GPS is lost when the battery cable is disconnected.

### OPERATION

#### One touch "Information" dialing

- If the vehicle becomes disabled due to problems such as engine trouble, press the "Information" switch to connect to the Communicator Response Center and receive the desired service.
- When the indicator lamp on the switch lights up, it means that the system has started to contact the Communicator Response Center. (Voice communication with Communicator Response Center operator is not available while DATA is being transmitted even if the indicator lamp is lit.)
- When the indicator lamp blinks, it means that the system is preparing for cellular connection or attempting to re-dial.

## System Description (Cont'd)

### One touch "Mayday" emergency dialing

- When an emergency occurs, press the "Mayday" emergency switch to connect to the Communicator Response Center. With this report, the Communicator Response Center recognizes that an emergency has occurred and provides necessary service.
- The operator will request a password (if the customer chooses to establish a password). If the wrong password or if no password is provided, the Communicator Response Center will assume the customer is in a duress situation and dispatch police.
- When no voice reply is heard from the vehicle or the sound heard indicates an emergency situation, the Communicator Response Center will have the police rush to the scene.
- Other operations are the same as service dialing.

### Automatic air bag inflation notification

- When an air bag inflates, the air bag diagnosis sensor unit sends the air bag inflation signal to the IVCS unit, and the system automatically dials the Communicator Response Center to report the occurrence of an accident.

### Stolen vehicle tracking

- When a vehicle is stolen, the owner can contact the Communicator Response Center to attempt to locate the stolen vehicle. The Communicator Response Center will activate the stolen vehicle tracking to locate the vehicle. If the Communicator Response Center successfully locates the vehicle, they will contact the police to provide the location.
- The vehicle location data is calculated using GPS.
- The vehicle ignition switch must be turned to the ON position to obtain the vehicle location. (This is because the system is in the sleep mode when the ignition switch is OFF.)
- Once this function starts up, regardless of the ignition switch position, the system keeps transmitting the vehicle location until the cancel signal is transmitted from the Communicator Response Center.
- While this function is operating, the operator can covertly monitor what is happening inside the vehicle through the hands-free microphone.

### Alarm notification

- When vehicle security system sounds an alarm for more than 7 seconds because of improper access, the alarm signal is transmitted from the rear LH passenger door control unit (LCU04) to the IVCS unit, and the system executes automatic dialing to the Communicator Response Center.
  If the alarm is reset before 7 seconds has elapsed, the INFINITI Communicator will not place a call to the Communicator Response Center.
- This function operates regardless of ignition switch position.
- While this function is operating, the operator can covertly monitor what is happening inside the vehicle through the hands-free microphone.

### Remote door unlock

- When the door is locked with the key inside the vehicle, the door can be unlocked by contacting the Communicator Response Center (Proof that the person calling is the owner must be received by the Communicator Response Center.)
- When the ignition key is in the "OFF" position, the system is in the sleep mode. Therefore, driver's outside handle must be pulled to wake up the system.
- To perform remote door unlock, call the Communicator Response Center and follow the operator's instructions.

**NOTE:**

- **When the system contacts the Communicator Response Center, data including the vehicle location is transmitted to the Communicator Response Center.**
- **Communication with the Communicator Response Center is not completed until the completion signal is transmitted from the Communicator Response Center. (Any calls to the Communicator Response Center can only be terminated by Communicator Response Center.)**
- **Functions other than alarm notification and remote door unlock operate while the ignition switch is ON and only for three minutes after the switch is turned OFF.**
- **Once a call to the Communicator Response Center is made, the communication continues regardless of the ignition key switch position.**
- **All the voice communication with the Communicator Response Center is made through the hands-free telephone.**
- **When the INFINITI Communicator system is activated, the handset does not function.**

## System Description (Cont'd)

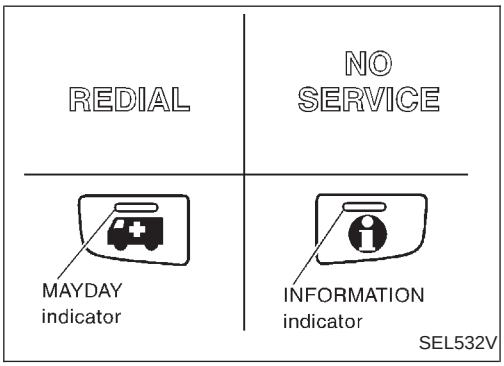
### DATA TRANSMITTING

When contact to the Communicator Response Center is made, vehicle sends electrical data including type of activation (i.e., emergency call or alarm notification), vehicle location, time, etc.

### SLEEP/WAKE UP CONTROL

3 minutes after the ignition switch is turned OFF, the system goes into the SLEEP MODE to save battery power supply. Communication with Communicator Response Center is not available in the SLEEP MODE.
To wake up the system, perform either of the following operations.

- Turn Ignition switch ON.
- Pull driver side outside door handle for more than 10 seconds. (Operation for door unlock function)




### INDICATOR LAMPS OPERATION

The system status is displayed as below by the indicator lamps.

| Indicator | Condition | Description |
|---|---|---|
| MAYDAY | Blinks. | System is trying to acquire an available cellular channel by "Mayday" switch operation. |
| | Lights up. (See NOTE.) | System is connected to a cellular channel and is communicating information to the Communicator Response Center. |
| INFORMATION | Blinks. | System is trying to acquire an available cellular channel by "Information" switch operation. |
| | Lights up. (See NOTE.) | System is connected to a cellular channel and is communicating information to the Communicator Response Center. |
| REDIAL | Lights up. | Re-dialing |
| | Blinks. | Waiting for re-dial |
| NO SERVICE | Lights up. | Out of CELLULAR PHONE service area or signal is too weak. |

**NOTE:**

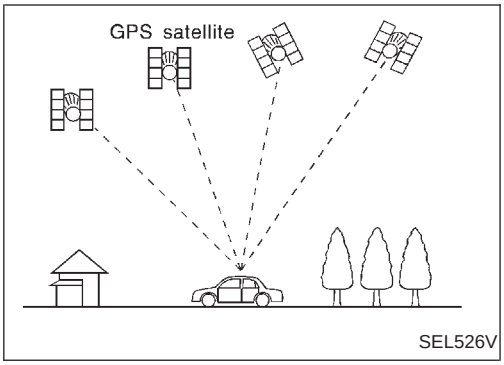
- **When connection to Communicator Response Center by re-dial ends in failure, all the indicators are turned off.**
- **All indicators illuminate for up to 30 seconds or more when ignition switch is turned from OFF to ON and the system performs a self check.**
- **If both of MAYDAY and INFORMATION indicators do not turn off 30 seconds or more after the ignition switch is turned to ON, the system is malfunctioning.**

### AUTOMATIC RE-DIAL/AUTO RESET TO READY

- When INFINITI Communicator tries to contact the Communicator Response Center, but the cellular network is busy, the system attempts to dial for up to 2 hours. This time varies greatly depending on the cellular network and cellular signal strength. The system resets to ready when the system completes the dialing attempts. The vehicle owner can press the button again if he or she still needs to contact the Communicator Response Center.
- INFINITI Communicator automatically redials if communication between the vehicle owner and Communicator Response Center is lost for some reason.
- The only way for a transmission to be officially terminated is for the Communicator Response Center to send an end transmission signal, which turns off the indicator in the switch. (Communication with Communicator Response Center can not be terminated by the occupant.)
- If the vehicle owner start the engine during a call, the conversation may be interrupted. When this happens the system may try to resume transmission once after the engine has been started.

## System Description (Cont'd)

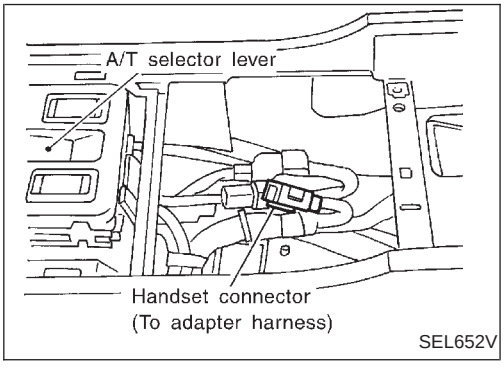
### GPS (Global Positioning System)




GPS is the global positioning system developed and operated by the US Department of Defense. GPS satellites (NAVSTAR) transmit radio waves and orbit around the earth at an altitude of approximately 21,000 km (13,000 miles).
GPS receiver calculates the three-dimensional position of the vehicle (latitude, longitude, and altitude from the sea level) by the time difference of the radio wave arriving from more than four GPS satellites (three-dimensional positioning).
When the radio wave is received from only three GPS satellites, the two-dimensional position (latitude and longitude) is calculated, using the altitude from the sea level data calculated by using four GPS satellites (two-dimensional positioning).

Positioning capability is degraded in the following cases.

- In two-dimensional positioning, when the vehicle's altitude from the sea level changes, the precision becomes lower.
- The location detection performance can have an error of about 100 m (300 ft) even in three-dimensional positioning with high precision. Because the precision is influenced by the location of GPS satellites used for positioning, the location detection performance may drop depending on the location of GPS satellites.
- When the radio wave from GPS satellites cannot be received, for example, when the vehicle is in a tunnel, in a parking lot inside building, under an elevated superhighway or near strong power lines, the location may not be detected. Turbulent/ electric weather conditions may also affect positioning performance. If something is placed on the antenna, the radio wave from GPS satellites may not be received.

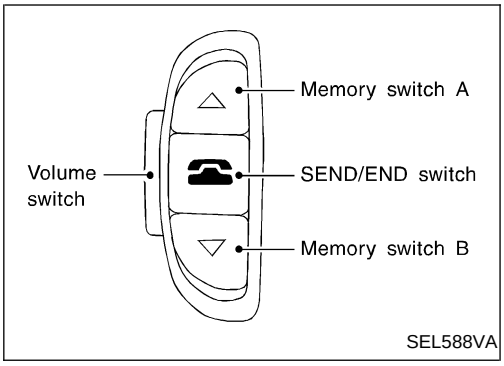



### HANDSET (OPTION)

**NOTE:**

- If an optional handset is installed, INFINITI Communicator can be used as a normal cellular phone.
- If INFINITI Communicator is activated when INFINITI Communicator system's cellular phone is in use, the current phone transmission will be cut and INFINITI Communicator will dial the Communicator Response Center. The cellular handset will be disabled, and communication with the Communicator Response Center operator will be carried out through the hands-free microphone.
- After communication with Communicator Response Center is finished, the handset last number memory will be erased.
- While INFINITI Communicator is activated, the handset becomes inoperative and all communication with the operator is accomplished via the hands-free phone. When an activation is terminated, the handset will be unlocked.

## System Description (Cont'd)




### TEL SWITCH

When any of the TEL switches is pressed, the TEL switch which is combined with the multiplex transmitting unit sends operational commands to the IVCS unit. TEL switch has following three functions.

- Volume adjust
- Placing re-dial call
- Placing memorized call (The telephone numbers are stored in the handset. A maximum of 6 memories are operative.)

### SEND/END switch operation

- When a call is received, press SEND/END switch to permit conversation.
- At the completion of the conversation, press the SEND/END switch to terminate the call.
- To re-dial the last phone number, press SEND/END switch.

### MEMORY switch operation

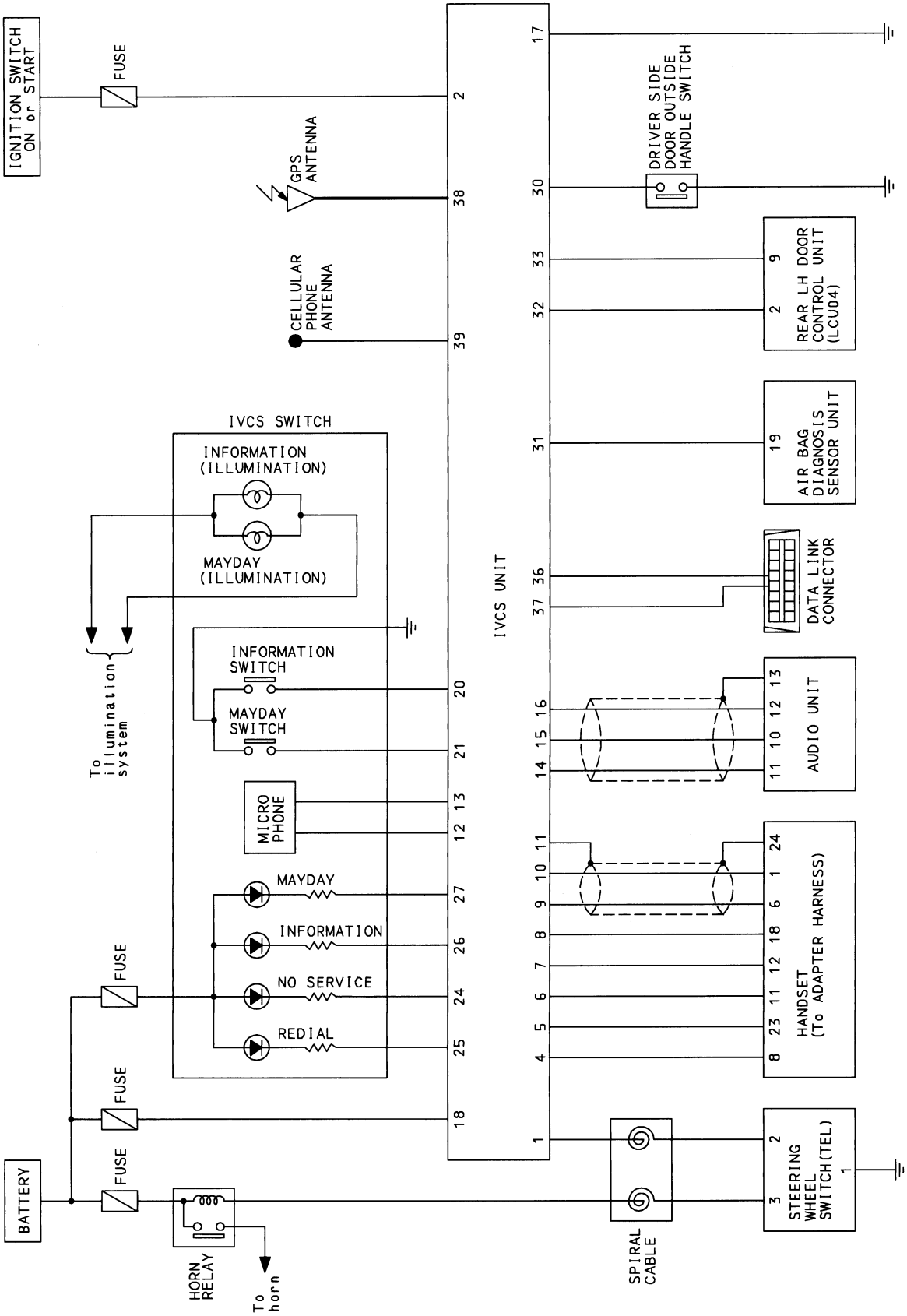
- A maximum of 6 telephone numbers which stored in the memory of the handset can be dialed by MEMORY switch operation.
- The last phone number is erased if the ignition switch is turned off or if the INFINITI Communicator system has been activated.
- For the procedure to input telephone numbers, refer to the handset operation manual.
- To select memory 1 to 6, push MEMORY switch A or B. Every push on the switch changes the memory as follows.
  SWITCH A: Memory 1 → 2 → 3 → OFF
  SWITCH B: Memory 4 → 5 → 6 → OFF
  After selecting memory, push SEND/END switch to make a call.

### VOLUME switch

Voice volume from the front RH speaker can be adjusted by using the VOLUME switch.

**NOTE:**
**Memory switches are not functional unless handset is installed.**

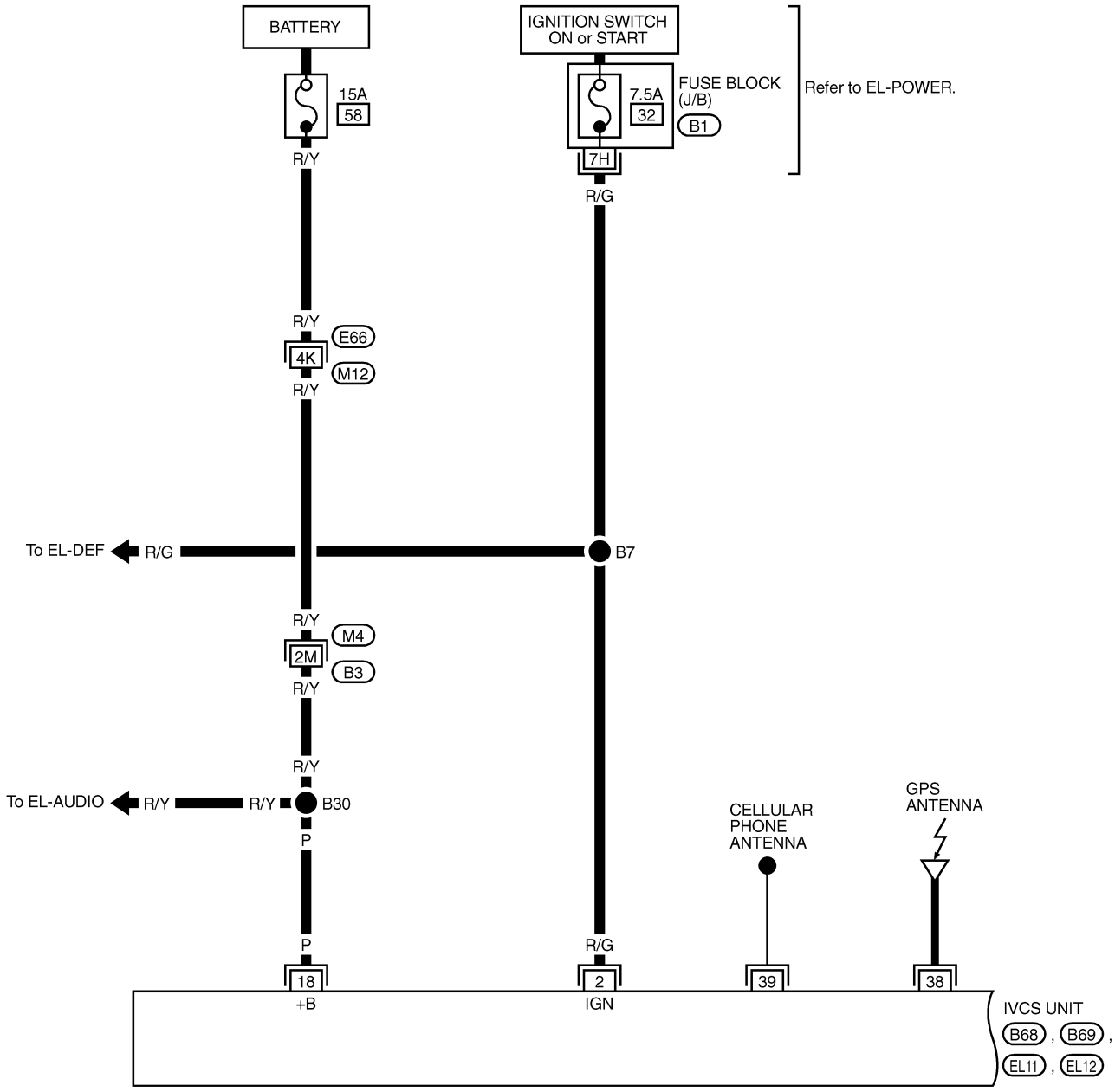
## Schematic

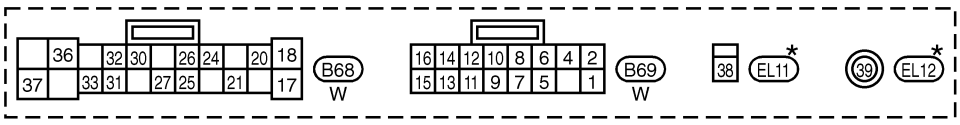



TEL147M

## Wiring Diagram — IVCS —

EL-IVCS-01



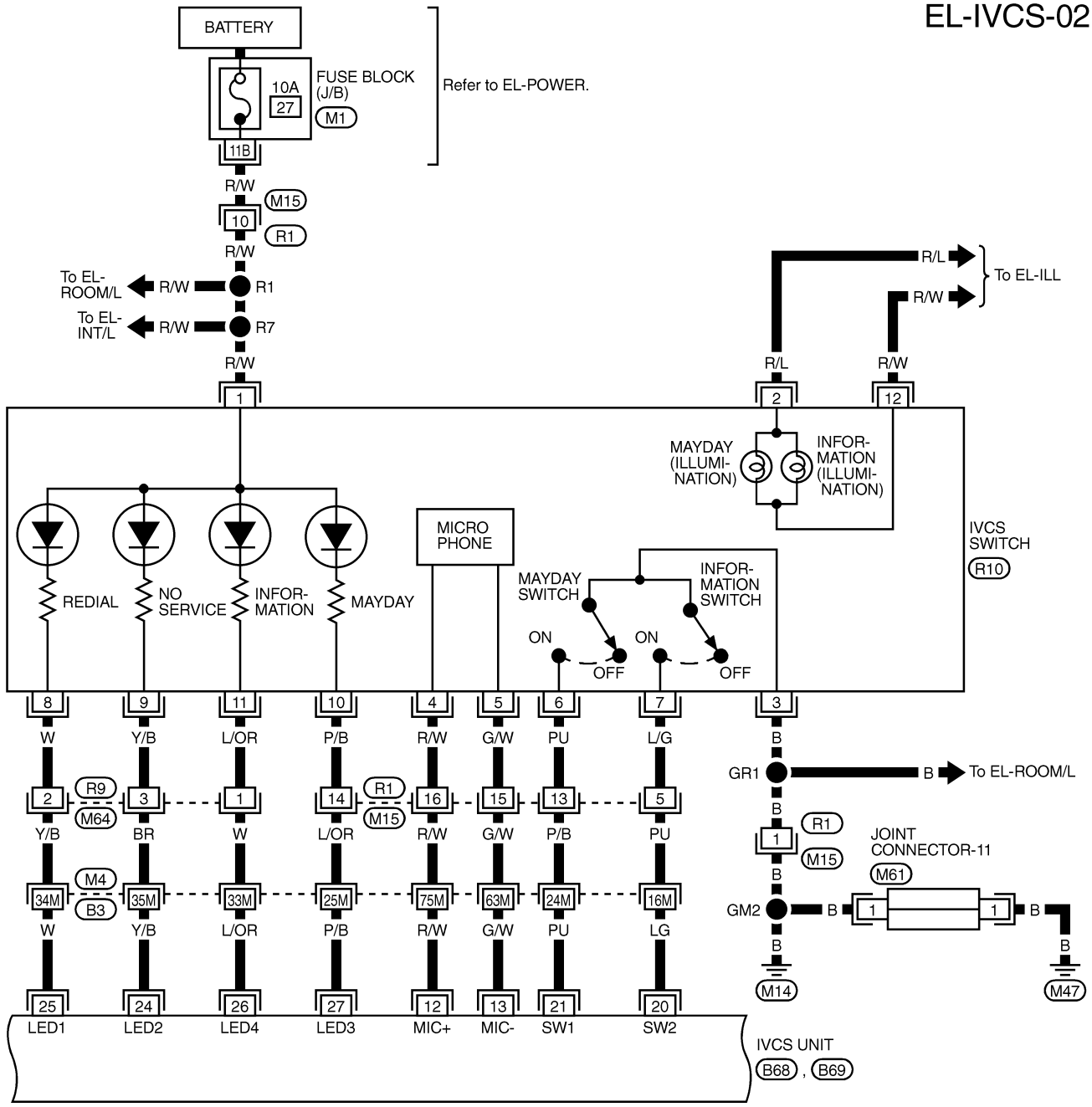

*: This connector is not shown in "HARNESS LAYOUT", EL section.

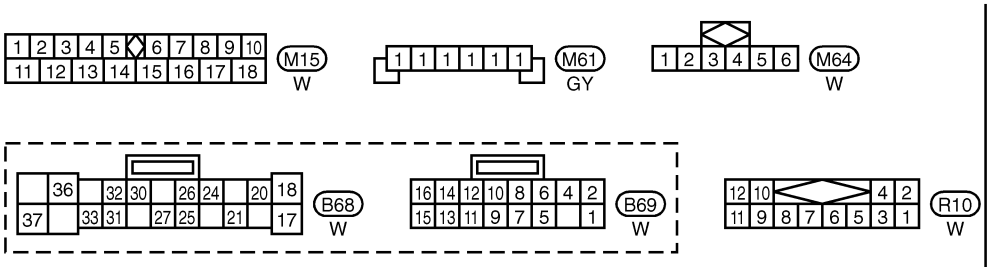
REFER TO THE FOLLOWING.
M4 , E66 -SUPER MULTIPLE JUNCTION (SMJ)
B1 -FUSE BLOCK-JUNCTION BOX (J/B)

TEL190M

## Wiring Diagram — IVCS — (Cont'd)

EL-IVCS-02




REFER TO THE FOLLOWING.

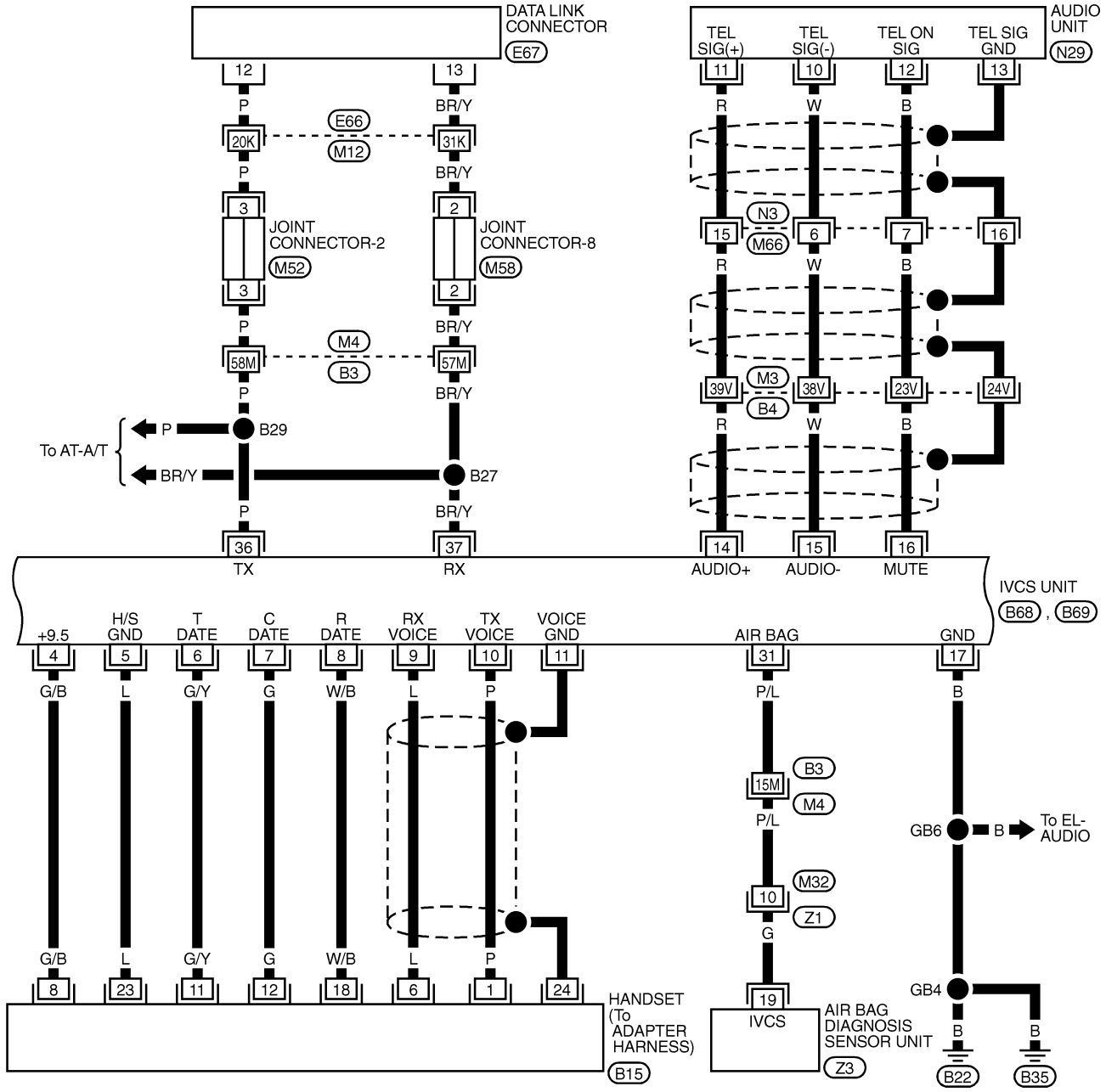
M4 -SUPER MULTIPLE JUNCTION (SMJ)

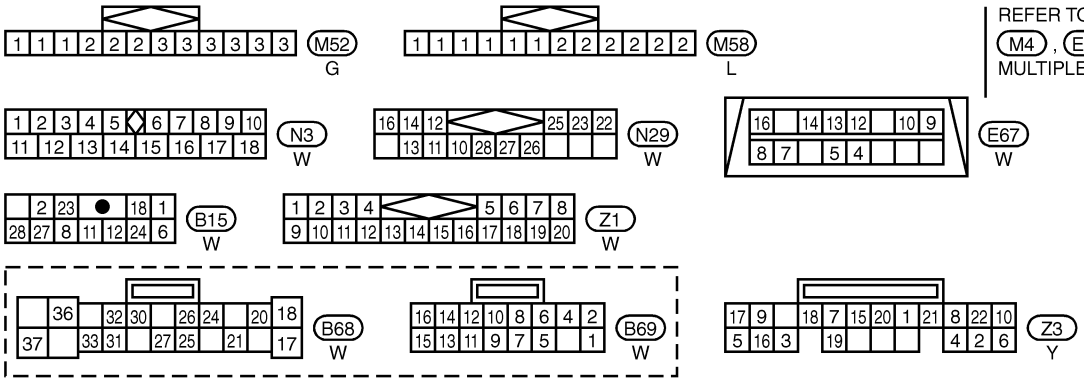
M1 -FUSE BLOCK-JUNCTION BOX (J/B)

TEL191M

## Wiring Diagram — IVCS — (Cont'd)

EL-IVCS-03

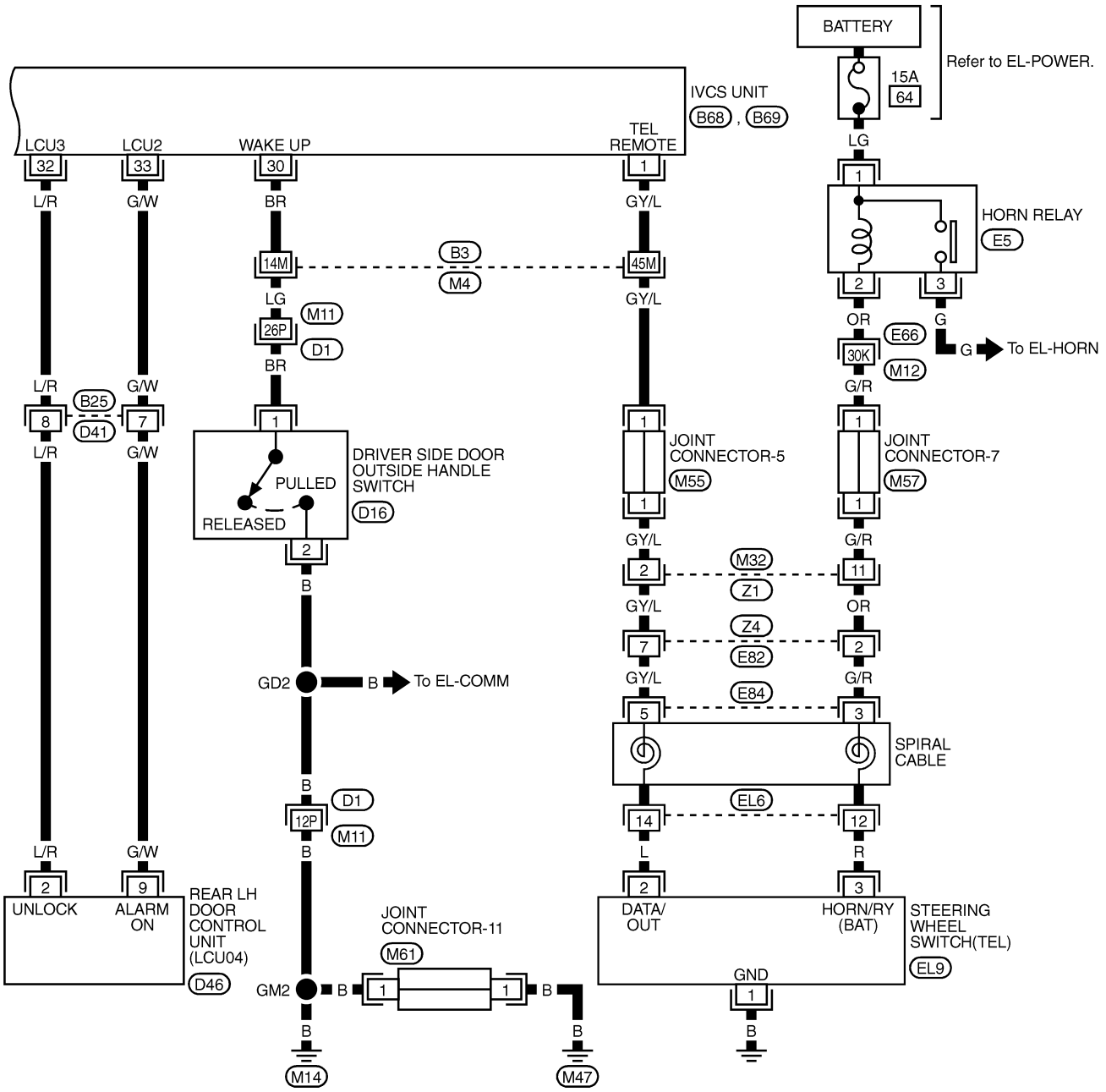


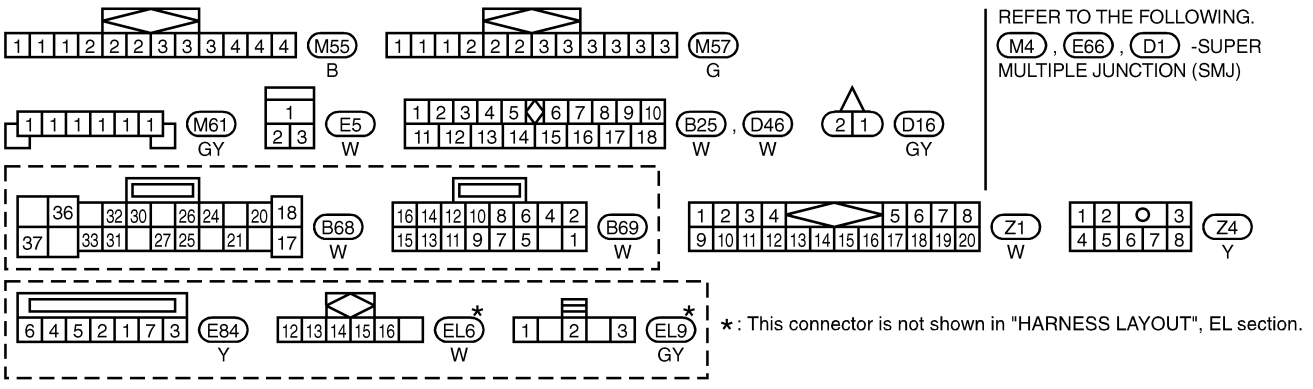




TEL192M

## Wiring Diagram — IVCS — (Cont'd)

EL-IVCS-04

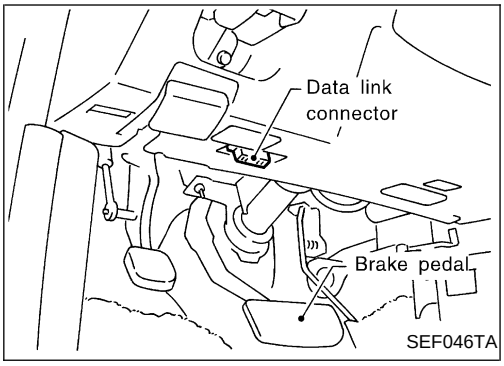



REFER TO THE FOLLOWING.
M4 , E66 , D1 -SUPER MULTIPLE JUNCTION (SMJ)

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

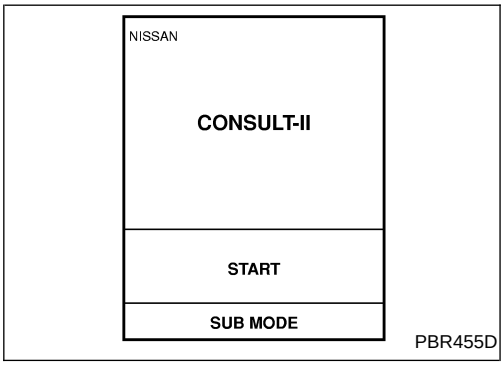
TEL193M



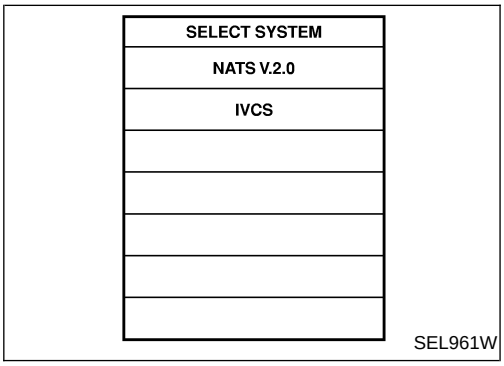

## CONSULT-II

### CONSULT-II INSPECTION PROCEDURE

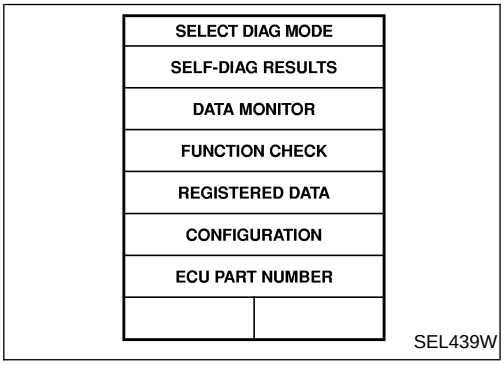
1. Turn ignition switch “OFF”.
2. Connect “CONSULT-II” to the data link connector.




3. Insert UEN99A program card into CONSULT-II.
4. Turn ignition switch “ON”.
5. Touch “START”.




6. Touch “IVCS”.




7. Perform each diagnostic item according to the item application chart as follows:

8. When CONSULT-II inspection is terminated, follow the procedure shown below.

a. Touch “BACK” key of CONSULT-II until “SELECT SYSTEM” appears, then turn ignition switch to the OFF position.
b. Turn off CONSULT-II.
c. Disconnect CONSULT-II DDL connector.

**NOTE: If the DDL connector is disconnected before turning ignition switch to “OFF” position, INFINITI communicator may not operate properly.**

## CONSULT-II (Cont'd)

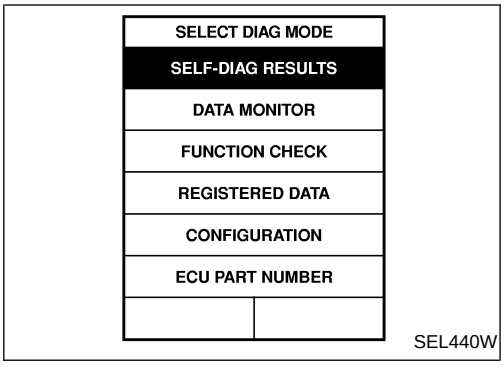
### APPLICATION ITEMS

| Mode | Description | Reference page |
|---|---|---|
| SELF-DIAG RESULTS | Displays the result of self-diagnosis. | EL-521 |
| DATA MONITOR | Two modes, "GPS MONITOR" and "SWITCH MONITOR" can be selected in this mode.<br>● Displays current data related to GPS in "GPS MONITOR" mode.<br>● Displays IVCS switch and outside door handle switch condition in "SWITCH MONITOR" mode. | EL-522 |
| FUNCTION CHECK | In this mode, "Remote door unlock function" can be checked using CONSULT-II. Door can be unlocked according to the commands to the door LCU by the IVCS unit. This check verifies communication circuit between LCU and IVCS unit. | EL-530 |
| REGISTERED DATA | Displays the following data registered in the IVCS unit. In this mode the data cannot be re-written.<br>● Unit ID<br>● Cellular phone number<br>● VIN (Vehicle Identification Number) | EL-522 |
| CONFIGURATION (See Note.) | In this mode, the system can be set up in the demonstration mode to confirm system operation. | EL-534 |
| | Various data related to both the Communicator Response Center contract and cellular provider can be written/updated in this mode.<br>● Phone number<br>● NAM (Number Assignment Module)<br>● Stolen vehicle tracking setting (Default should always be on.)<br>● Alarm notification setting (Default should always be on.) | EL-536 |
| ECU PART NUMBER | Displays the part number of the IVCS unit. | — |

**Note: Data must not be rewritten without prior approval from the customer.**

## CONSULT-II (Cont'd)

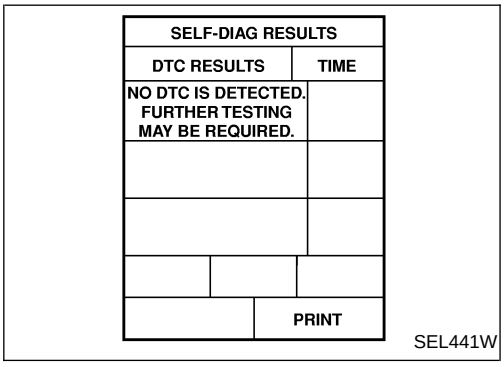
### "SELF-DIAG RESULTS" MODE



SEL440W

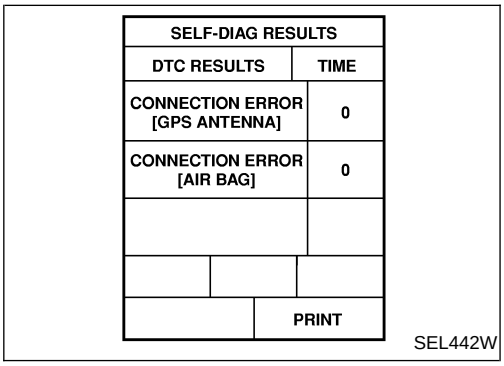
### How to perform self-diagnosis

1. Touch "SELF-DIAG RESULTS".
2. Touch "START".



SEL441W

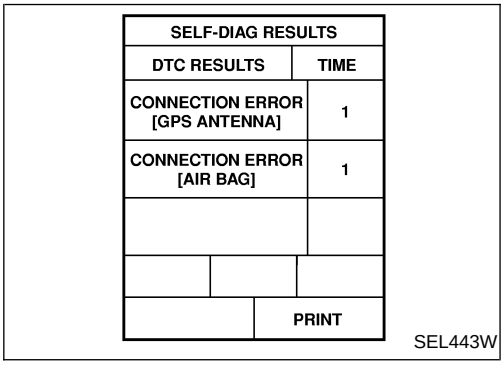
3. If no failure is detected, CONSULT-II will show "NO FAILURE".



SEL442W

- If trouble codes are displayed with "TIME = 0", repair/replace the system according to "SYMPTOM CHART 1 (SELF-DIAGNOSIS ITEM)", EL-524.
- In this case, both "MAYDAY" and "INFORMATION" indicator lamps illuminate for more than 30 seconds while the ignition switch is in the ON position.

**Note:**
**The time data in CONSULT-II "SELF-DIAG RESULTS" mode displays the number of ignition switch cycles without the same malfunctioning occurring.**



SEL443W

- If trouble codes are displayed with "TIME = 1 or greater", it means that the trouble code is historical data. So no further diagnosis is required.

**Note:**
**If trouble codes are displayed with "TIME = 1 or greater" even though the INFINITI Communicator has never been serviced. Intermittent incidents may occur. Check the system, refer to "Trouble Diagnoses for Intermittent Incident", EL-533.**

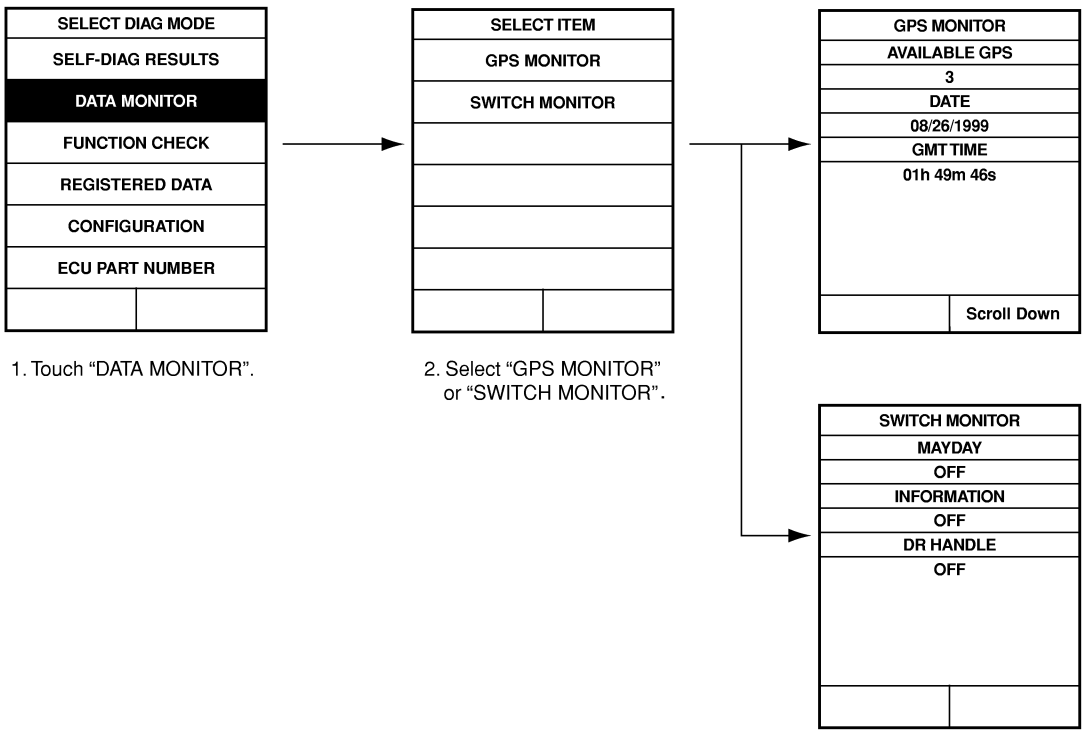
- If the system does not detect any trouble, the IVCS indicators will turn off after bulb check (self-diagnosis) is completed while the ignition switch is in the ON position.

**Note:**
- **The trouble codes cannot be erased by CONSULT-II.**
- **After 50 ignition cycles, the trouble codes are no longer displayed in the CONSULT-II "SELF-DIAG RESULTS" mode.**
- **The IVCS unit does not count the ignition switch cycles unless the ignition switch is OFF for more than 3 minutes between each ignition switch cycle.**

# CONSULT-II (Cont'd)

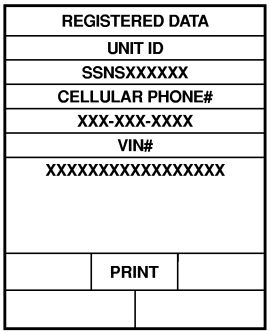
## "DATA MONITOR" MODE

### How to perform data monitor




### Data monitor item chart

| Mode | Monitor item | Description |
|---|---|---|
| GPS MONITOR | AVAILABLE GPS | The number of GPS satellites captured by GPS antenna |
| | DATE | Date of Greenwich mean time |
| | GMT TIME | Greenwich mean time (Different from local time) |
| | LAT. | Latitude |
| | LONG. | Longitude |
| | DOP | Index of precision (an index of location status of GPS satellites. The smaller the value is, the higher the positioning precision is.) |
| SWITCH MONITOR | MAYDAY | "MAYDAY" emergency switch condition |
| | INFORMATION | "INFORMATION" switch condition |
| | DR HANDLE | Driver side outside door handle switch condition |



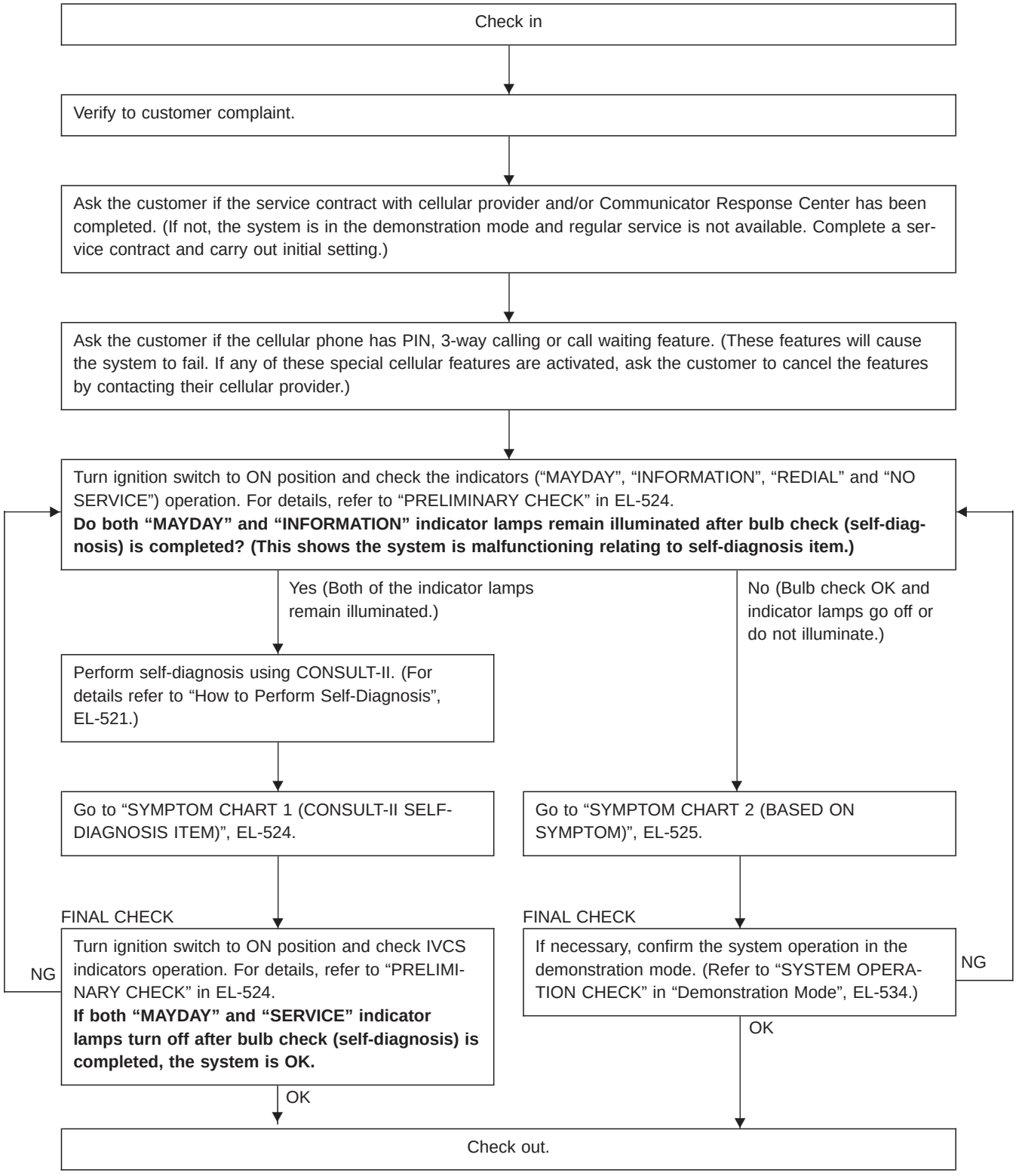

## "REGISTERED DATA" MODE

| Item | Description |
|---|---|
| UNIT ID | ID number of the IVCS unit. ID number is unique to each unit and differs for each unit. |
| CELLULAR PHONE # | — |
| VIN # | Vehicle Identification Number. When the IVCS unit is replaced, VIN # is written in the memory of the replaced unit by transmitting data from the Communicator Response Center. |

**Note: No data can be changed in this CONSULT-II mode.**

## Trouble Diagnoses

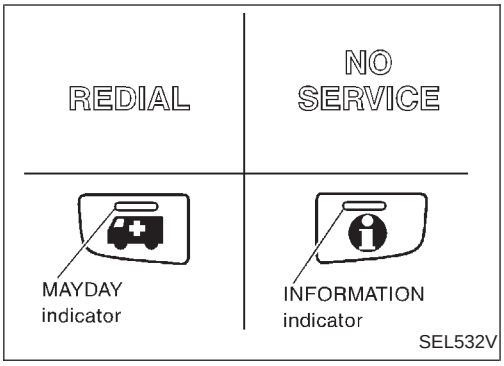
### WORK FLOW




**WARNING:**

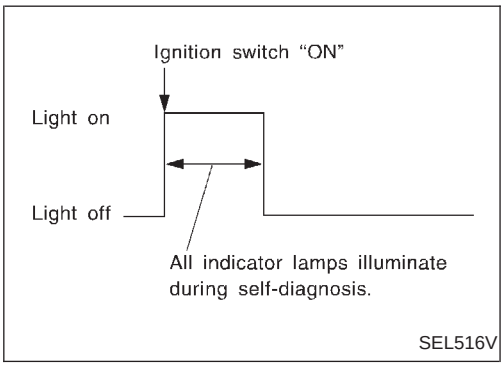
- **Whenever possible, set the system to “Demonstration mode” if INFINITI Communicator system needs to be activated during service procedures. (For details of the demonstration mode, refer to EL-534.)**
- **If you activate the INFINITI Communicator system (when the system is not in the demonstration mode), the Communicator Response Center operator may dispatch police.**

## Trouble Diagnoses (Cont'd)




### PRELIMINARY CHECK

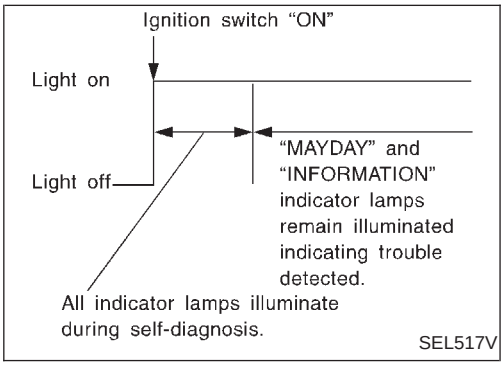
1. Turn ignition switch ON.
2. Check "MAYDAY", "INFORMATION", "REDIAL" and "NO SERVICE" indicator lamps operation.




- If no failure is detected, indicator lamps will turn off after the bulb check (self-diagnosis) is terminated for about 30 seconds or more.

**NOTE:**

- Bulb check (self-diagnosis) is not performed unless the ignition switch has been turned off for at least 3 minutes.
- Bulb check is not performed during contact with Communicator Response Center.




- If the system detects problems, both "MAYDAY" and "INFORMATION" indicator lamps remain illuminated. Perform self-diagnosis using CONSULT-II and repair or replace the system. Refer to "How to Perform Self-diagnosis", EL-521.

**NOTE:**
**For details of indicator lamps operation, refer to "INDICATOR LAMPS OPERATION", EL-511.**

### SYMPTOM CHART 1 (CONSULT-II SELF-DIAGNOSIS ITEM)

| Detected items (Screen items) | Description | Service procedure |
|---|---|---|
| CONNECTION ERROR [GPS ANTENNA] | Connection error between GPS antenna and IVCS unit. | Go to GPS ANTENNA CHECK, EL-531. |
| CELLULAR PHONE [TWB ERROR] | Communication error between CPU in the IVCS unit and transceiver | Replace IVCS unit. |
| MEMORY ERROR | Inner memory error of the IVCS unit | Replace IVCS unit. |
| CONNECTION ERROR [AIR BAG] | Connection error between air bag diagnosis sensor unit and IVCS unit. | Go to AIR BAG DIAGNOSIS SENSOR COMMUNICATION CHECK, EL-531. |
| CONNECTION ERROR [IVMS or S/ENT] | Connection error between door switch control unit (LCU04) and IVCS unit. If this error occurs, alarm notification and auto door unlock may not operate. | Go to IVMS (LAN) COMMUNICATION CHECK, EL-532. |

**NOTE: After replacing IVCS unit, set up the replaced IVCS unit. Refer to "System Setting (When IVCS Unit is Replaced.)" in EL-536.**

## Trouble Diagnoses (Cont'd)

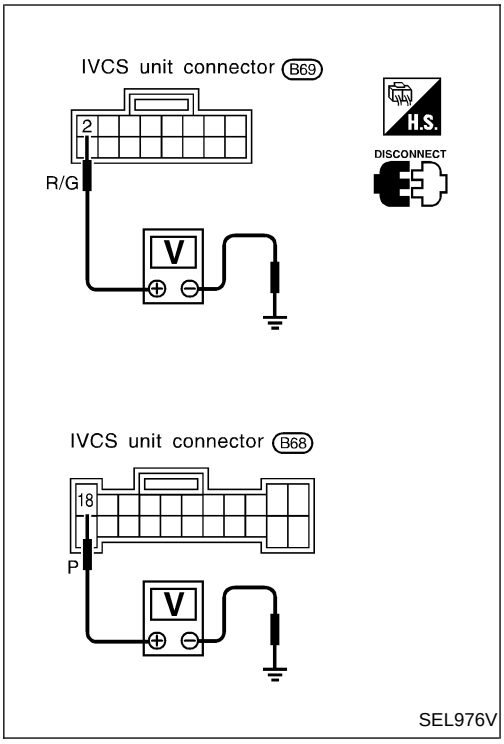
### SYMPTOM CHART 2 (BASED ON SYMPTOM)

Before referencing this chart, confirm the operation of the indicator lamps. Refer to "PRELIMINARY CHECK" in EL-524. If the indicators show the system is malfunctioning, perform the self-diagnosis using CONSULT-II.

| Symptom | Diagnoses/service procedure | Reference page |
|---|---|---|
| "MAYDAY", "INFORMATION", "RE-DIAL", "NO SERVICE" indicator lamps do not illuminate when ignition switch is turned to ON position. (Bulb check is NG.) | 1. Power supply and ground circuit for IVCS unit check | EL-526 |
| | 2. Indicator lamps check | EL-527 |
| Mayday/Information call does not operate. | 1. IVCS switch check | EL-528 |
| | 2. INFINITI Communicator operation check in demonstration mode | EL-534 |
| Remote door unlocking function does not operate. | 1. Driver's outside door handle switch check | EL-529 |
| | 2. Remote door unlock function check | EL-530 |
| | 3. INFINITI Communicator operation check in demonstration mode | EL-534 |
| Stolen vehicle tracking function does not operate. | 1. Stolen vehicle tracking setting check (Check whether the function is disabled or not.) | EL-530 |
| | 2. INFINITI Communicator operation check in demonstration mode | EL-534 |
| Alarm notification function does not operate. | 1. Alarm notification setting check (Check whether the function is disabled or not.) | EL-530 |
| | 2. INFINITI Communicator operation check in demonstration mode | EL-534 |
| Hands free telephone cannot be operated by using steering switch. (Cellular phone operates properly by using optional handset.) | 1. Telephone steering switch check | EL-532 |
| No sounds related to the telephone are heard from Front RH speaker. (If the audio does not operate properly, check the audio system.) | 1. Check harness for open or short between IVCS unit and radio. | — |
| The "NO SERVICE" indicator lamp is not turned off. (Even if a contract with telephone carrier has not been made, the indicator lamp remains illuminated.) | 1. Make sure the vehicle is in an area with cellular service. | — |
| | 2. Check cellular phone antenna feeder cable connection. | — |
| Cellular phone does not operate properly. | 1. Check hand set connector connection. | — |
| | 2. Check hand set. | — |
| No sound is transmitted to the other party by hands free telephone. | 1. Check harness for open or short between IVCS unit and microphone. | — |
| | 2. Replace microphone. (IVCS switch assembly) | — |

# Trouble Diagnoses (Cont'd)

## POWER SUPPLY AND GROUND CIRCUIT FOR IVCS UNIT CHECK

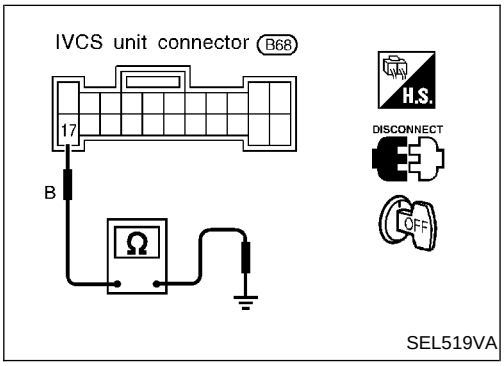



### Main power supply circuit check

| Terminal | | Ignition switch | | |
|---|---|---|---|---|
| (+) | (−) | OFF | ACC | ON |
| ⑱ | Ground | Battery voltage | Battery voltage | Battery voltage |
| ② | Ground | 0V | 0V | Battery voltage |

If NG, check the following:

- 15A fuse [No. 58, located in fuse and fusible link box]
- 7.5A fuse [No. 32, located in fuse block (J/B)]
- Harness for open or short between fuse and IVCS unit



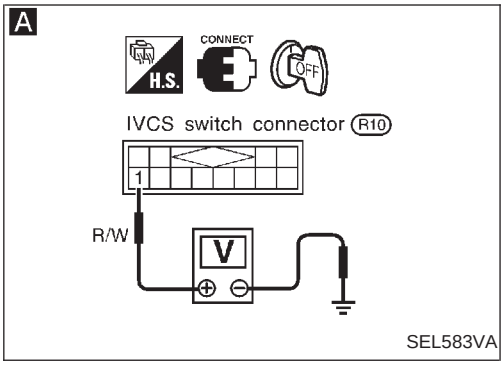

### Ground circuit check

| Terminals | Continuity |
|---|---|
| ⑰ - Ground | Yes |

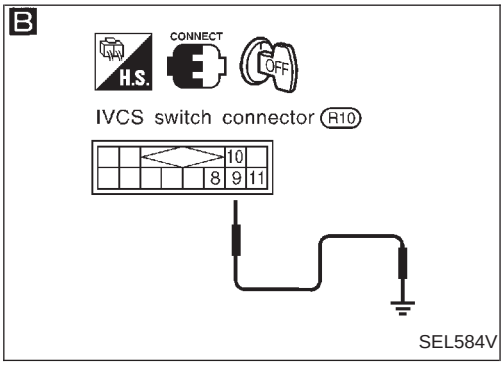
# Trouble Diagnoses (Cont'd)

## INDICATOR LAMPS CHECK

A




B




A

**CHECK POWER SUPPLY FOR INDICATOR LAMPS.**
Check voltage between IVCS switch terminal ① and ground.
**Does battery voltage exist?**

No → Check the following.
- 10A fuse [No. 27, located in fuse block (J/B)]
- Harness for open or short between fuse and IVCS switch

Yes ↓

B

**CHECK INDICATOR LAMPS.**
1. Disconnect IVCS unit connector (Control unit connector).
2. Apply ground to IVCS switch each terminal and check illumination.

| Indicator | Terminal |
|---|---|
| Redial | ⑧ |
| No service | ⑨ |
| Mayday | ⑩ |
| Information | ⑪ |

NG → Replace IVCS switch assembly.

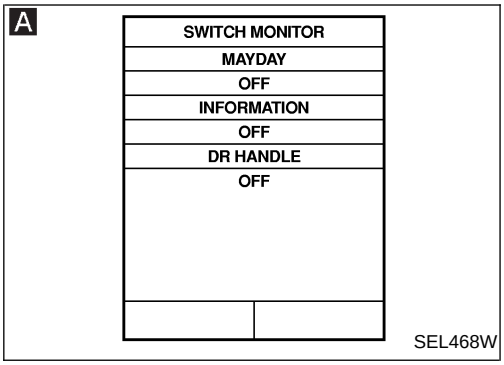
OK ↓

Check harness for open or short between indicators and IVCS unit.

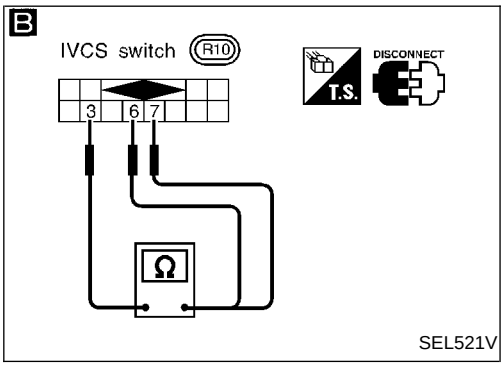
## Trouble Diagnoses (Cont'd)

### IVCS SWITCH CHECK

A




B




A

**CHECK IVCS SWITCH INPUT SIGNAL.**

1. Turn ignition switch "ON".
2. Select "SWITCH MONITOR" in "DATA MONITOR" mode.
3. Check each switch signal.
   When MAYDAY/INFORMATION switch is pushed:
   **MAYDAY/INFORMATION ON**
   When MAYDAY/INFORMATION switch is released:
   **MAYDAY/INFORMATION OFF**

**NOTE:**
**When CONSULT-II "Data mode" is operating, INFINITI Communicator does not dial to Communicator Response Center when the switches are operated.**

OK → IVCS switch is OK.

NG ↓

B

**CHECK IVCS SWITCH.**

1. Disconnect IVCS switch.
2. Check continuity between IVCS switch terminals.

| Terminals | Condition | Continuity |
|---|---|---|
| ⑥ - ③ | Mayday switch is turned ON. | Yes |
| | Mayday switch is OFF. | No |
| ⑦ - ③ | Information switch is turned ON. | Yes |
| | Information switch is OFF. | No |

OK → Check the following:
- IVCS switch ground circuit
- Harness for open or short between IVCS switch and IVCS unit.

NG ↓

Replace IVCS switch assembly.

# Trouble Diagnoses (Cont'd)

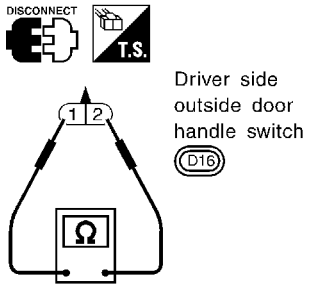
## DRIVER'S OUTSIDE DOOR HANDLE SWITCH CHECK

A

| SWITCH MONITOR |
|---|
| MAYDAY |
| OFF |
| INFORMATION |
| OFF |
| DR HANDLE |
| OFF |

SEL468W

B




SEL653V

A

**CHECK OUTSIDE DOOR HANDLE SWITCH INPUT SIGNAL.**

1. Turn ignition switch "ON".
2. Select "SWITCH MONITOR" in "DATA MONITOR" mode.
3. Check the switch operation.
   When driver side outside door handle is pulled:
   **DR HANDLE ON**
   When driver side outside door handle is released:
   **DR HANDLE OFF**

**NOTE:**
**When CONSULT-II "Data mode" is operating, INFINITI Communicator do not dial to Communicator Response Center when the switches are operated.**

OK → Driver's door outside handle switch is OK.

NG ↓

B

**CHECK OUTSIDE DOOR HANDLE SWITCH.**

1. Disconnect driver side door key cylinder switch connector. (outside door handle switch connector is combined with the key cylinder switch.)
2. Check continuity between the door key cylinder switch terminal ① and ② .

| Outside door handle switch condition | Continuity |
|---|---|
| Pulled | Yes |
| Released | No |

OK → Check the following.
- Outside door handle switch ground circuit
- Harness for open or short between outside door handle switch and IVCS unit.

NG ↓

Replace outside door handle switch.

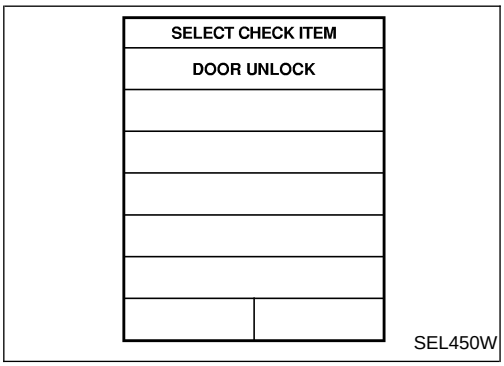
## Trouble Diagnoses (Cont'd)

### REMOTE DOOR UNLOCK FUNCTION CHECK (CONSULT-II "FUNCTION CHECK" MODE)

#### Description

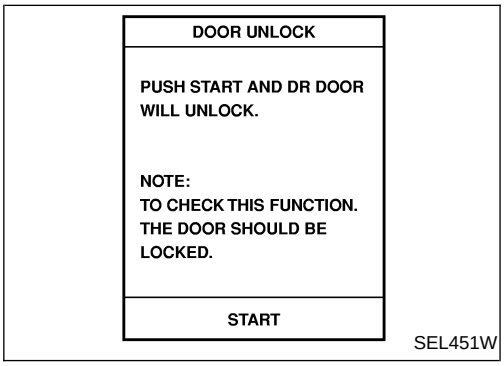
"Remote door unlock function" can be checked using CONSULT-II. Driver side door can be unlocked according to the commands to the door LCU by the IVCS unit.

**Note:**
**Before performing the function check, confirm that power door lock system operates properly.**



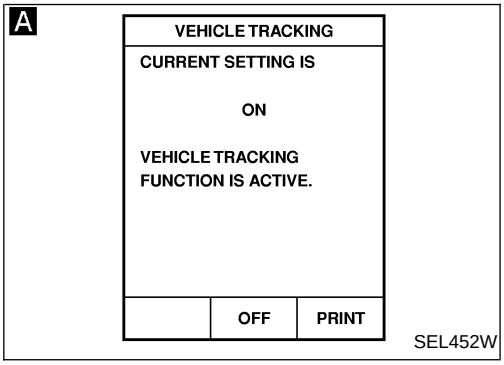

#### How to perform function check.

1. Lock the doors with door lock/unlock switch on driver's door trim.
2. Touch "FUNCTION CHECK".
3. Touch "DOOR UNLOCK".




4. Touch "START". Then driver side door will be unlocked.

- If the door cannot be unlocked using CONSULT-II, check harness for open or short between rear LH door control unit (LCU04) terminal ② and IVCS unit terminal ㉜.




### STOLEN VEHICLE TRACKING/ALARM NOTIFICATION SETTING CHECK (CONSULT-II "CONFIGURATION" MODE)

A

**CHECK SYSTEM SETTING.**

1. Turn ignition switch "ON".
2. Select "VHCL TRACKING" or "ALARM NOTIFICATION" in "CONFIGURATION" mode.
3. Check the function setting.

- "ON" shows the function is activated.
- "OFF" shows the function is deactivated.

**Does the system setting comply with the customer's contract?**

**NOTE:**
**Setting of "VEHICLE TRACKING" must be ON at any time.**

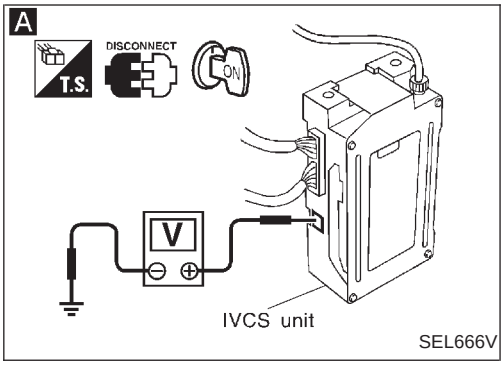
NG → If either setting is "OFF", contact the Communicator Response Center at 1-888-427-4812 to verify the system setting.
**NOTE:**
**Whenever dialing the above number, some information about the vehicle is required by the operator. For details, refer to EL-506.**

OK ↓

System setting is OK.

## Trouble Diagnoses (Cont'd)

### GPS ANTENNA CHECK




A

**CHECK VOLTAGE FOR GPS ANTENNA.**
1. Disconnect GPS feeder cable connector from IVCS unit.
2. Turn ignition switch ON.
3. Check voltage at IVCS unit GPS feeder cable terminal.

**Does approx. 5V exist?**

No → Replace IVCS unit.

Yes ↓

Replace GPS antenna.

### AIR BAG DIAGNOSES SENSOR UNIT COMMUNICATION CHECK


A

**AIR BAG OPERATION CHECK**

Turn ignition switch ON and check air bag warning lamp operation. (For details, refer to RS section.)

**Does air bag warning lamp operate properly?**

No → Check supplemental restraint system. Refer to RS section in the Service manual.

Yes ↓

Check harness connector connection between air bag diagnosis sensor unit and IVCS unit.

## Trouble Diagnoses (Cont'd)

### IVMS (LAN) COMMUNICATION CHECK

CHECK IVMS OPERATION.
Check the system related rear LH door control unit (LCU04) operation (e.g.: power door lock, power window).
**Do the systems operate properly?**

No → Check IVMS (LAN), refer to "IVMS (LAN)" in the Service manual.

Yes ↓

Check harness for open or short between rear LH door control unit (LCU04) terminal ⑨ and IVCS unit terminal ㉝.

### TELEPHONE STEERING SWITCH CHECK

CHECK POWER SUPPLY FOR STEERING SWITCH.
Does horn work?

No → Check the following.
- 10A fuse (No. 64, located in fuse and fusible link box)
- Horn relay
- Harness for open or short

Yes ↓

CHECK STEERING SWITCH SUB HARNESS.
1. Remove driver's air bag module. For removal procedure, refer to RS section.
2. Check steering switch sub-harness for open or short and ground screw.
   For details of the harness circuit, refer to "STEERING SWITCH", EL-60.

NG → Replace or repair the harness.

OK ↓

Check harness for open or short between telephone steering switch and IVCS unit.
If the circuit is OK, replace telephone steering switch.

## Trouble Diagnoses for Intermittent Incident

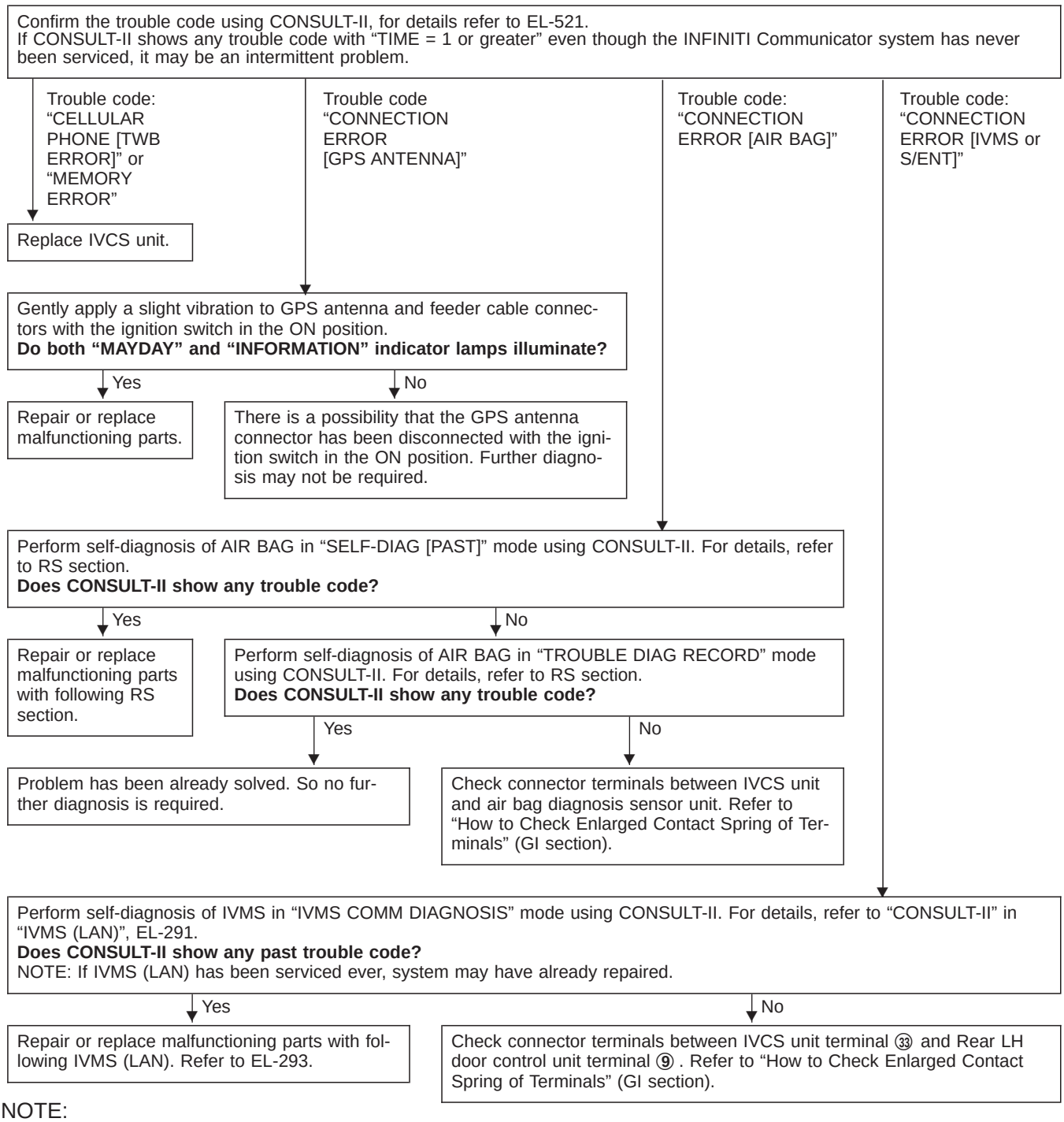
### DESCRIPTION

An intermittent incident may be occurring if all of the following conditions exist.

- Both “MAYDAY” emergency and “INFORMATION” indicators have shown that the system is malfunctioning.
- CONSULT-II self-diagnosis result screen indicates a trouble code with “TIME = 1 or greater”.
- The INFINITI Communicator system has not been previously serviced.

To find out the cause of a problem, follow the procedures shown below.

### DIAGNOSTIC PROCEDURE



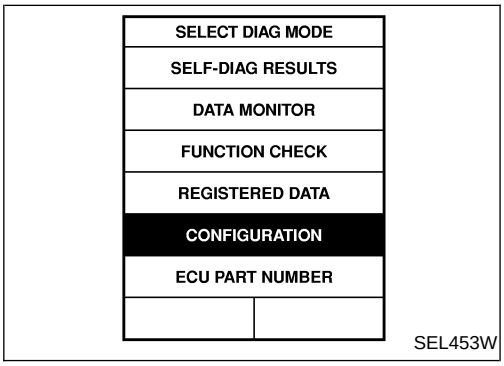

NOTE:
Enlarged spring contact of terminals may be cause of intermittent problem for “CONNECTION ERROR [AIR BAG]/[IVMS or S/ENT]”. When you inspect terminals for enlarged contact, refer to “How to Check Enlarged Contact Spring of Terminals” in GI section.

## Demonstration Mode

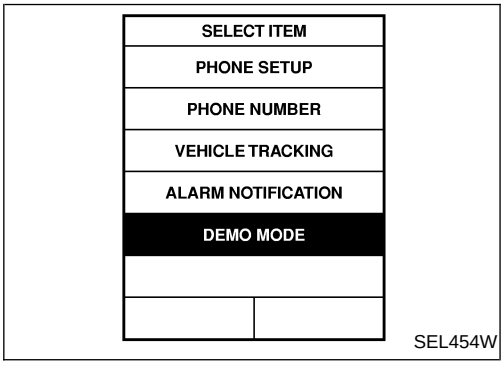
### DESCRIPTION

By setting up the system in the demonstration mode, automatic dialing operation can be confirmed by “MAYDAY” emergency and “INFORMATION” switch operation.
Automatic dialing in this mode is connected to the demonstration center of Communicator Response Center, and is different from the normal service.
When the contract with Communicator Response Center is not concluded, all the INFINITI Communicator operations are connected to the demonstration center.
Connection to Communicator Response Center in this mode will not be charged by Communicator Response Center nor will the call be handled as an emergency.

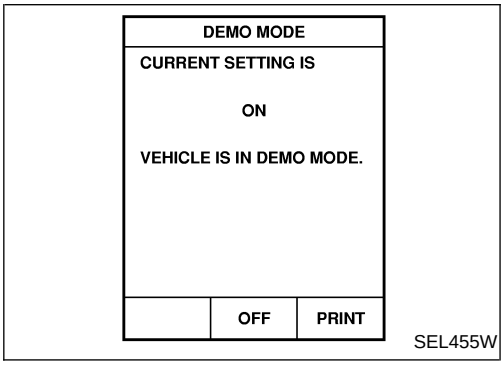
### SYSTEM OPERATION CHECK




1. Touch “CONFIGURATION”.

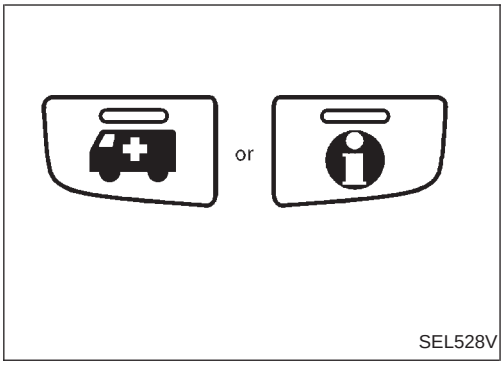



2. Touch “DEMO MODE”.



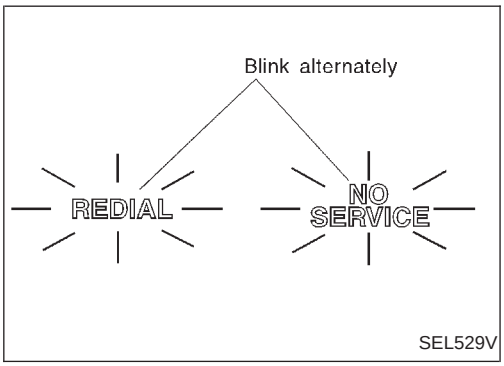

3. Touch “ON”. Now, the system is in demonstration mode. (To return to normal mode, touch “OFF”.)

## Demonstration Mode (Cont'd)



SEL528V

4. Touch "BACK" key of CONSULT-II until "SELECT SYSTEM" appears, then turn off CONSULT-II.
5. Turn ignition switch to the OFF position.
6. Disconnect CONSULT-II DDL connector.
7. Start the engine.
8. Touch the "MAYDAY" or "INFORMATION" switches. Then the system will call the demonstration center.

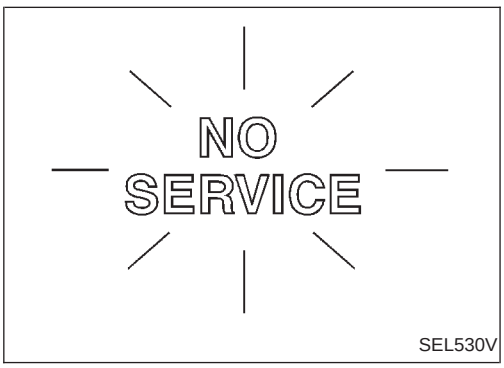


SEL529V

9. Check INFINITI Communicator operation.

- If contact with Communicator Response Center is successful, system is OK.

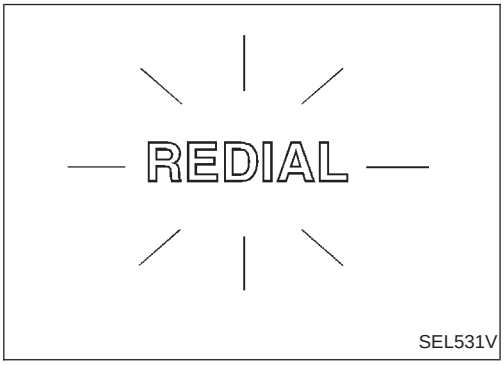
**NOTE:**
**During the system contact to Communicator Response Center in demonstration mode, "REDIAL" and "NO SERVICE" indicators blink alternately.**



SEL530V

- If "NO SERVICE" indicator illuminates and the contact to Communicator Response Center is unsuccessful, retry from other location where the cellular connection seems good. (e.g.; move the vehicle outside of the workshop and retry.)

**NOTE:**
**If "NO SERVICE" indicator frequently illuminates from a location where the cellular connection seems good, check the connection of the feeder cable for the cellular phone antenna.**



SEL531V

- If "REDIAL" indicator lamp illuminates and the contact to Communicator Response Center is unsuccessful, the cellular network is busy or there are no open cellular channels. The system will redial automatically.

**NOTE:**
**If redial fails several times, confirm whether the roaming agreement of customer's cellular provider at the vehicle location is available or not.**

**Warning:**

- **Make sure to turn the demonstration mode OFF before returning the vehicle to the owner.**
- **In the demonstration mode, any service from Communicator Response Center is not available. Therefore, even if the customer encounters an emergency, no service will be dispatched.**

## System Setting (When IVCS unit is replaced)

### DESCRIPTION

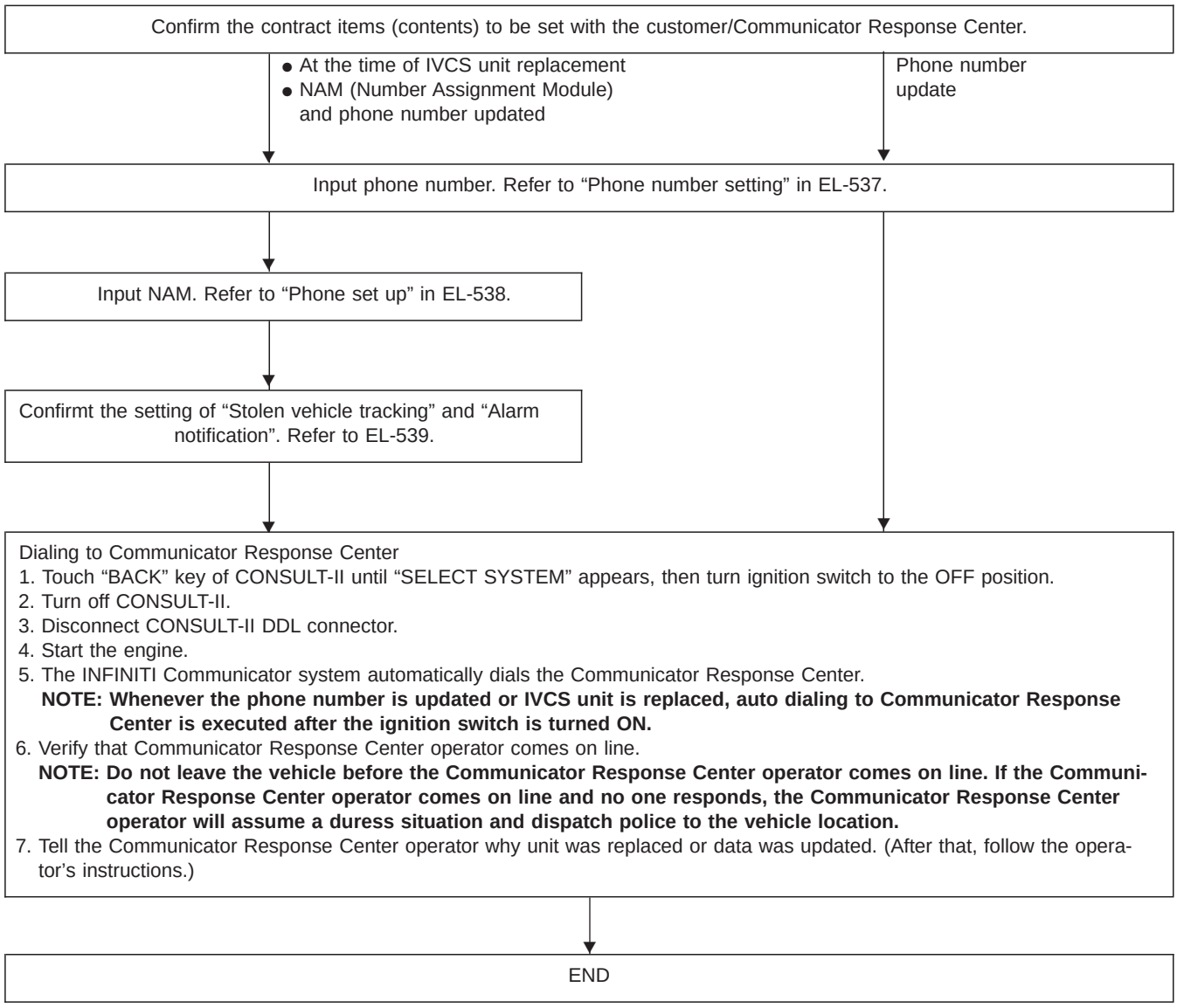
When the IVCS unit is replaced, carry out the following data settings.

- Phone setup — Data setting regarding NAM (Number Assignment Module)
- Phone number — Phone number setting

**NOTE:**

- **Data must not be updated without prior approval from the customer.**
- **NAM and phone number can be programmed by using optional handset. For details, refer to the handset operation manual.**
- **The IVCS unit does not permit updating of NAM more than 15 times.**

### WORK FLOW



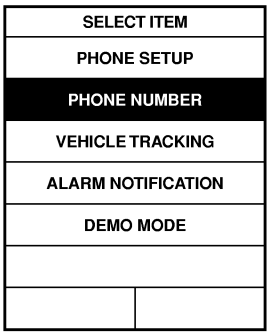

**NOTE:**

- **If a Communicator Response Center operator does not come on line even though the system activates, the system may not be properly configured. Call the Communicator Response Center at 1-888-427-4812 to verify the configuration information.**
- **Whenever dialing the above number, information about the vehicle is required by the operator. For details, refer to EL-506.**
- **Never release the vehicle to the customer unless INFINITI Communicator system operation is verified by a Communicator Response Center operator coming on line.**

## System Setting (When IVCS unit is replaced) (Cont'd)

### PHONE NUMBER SETTING

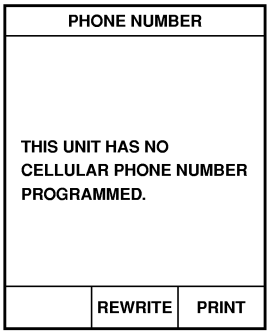
1. Touch "CONFIGURATION".
2. Touch "PHONE NUMBER".



SEL456W

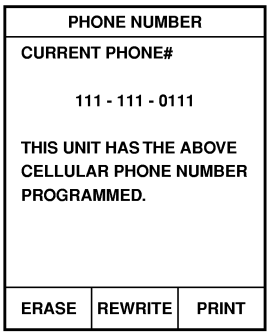
3. Touch "WRITE" or "REWRITE".

- If no phone number is previously memorized, the display shows "This unit has no cellular phone number programmed".



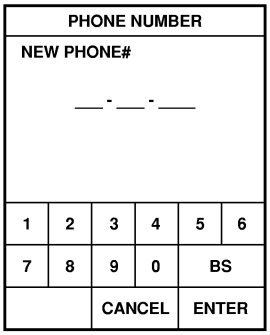
SEL715W

- If the phone number is previously memorized, the display shows the current phone number.
- To erase the phone number, touch "ERASE".



SEL458W

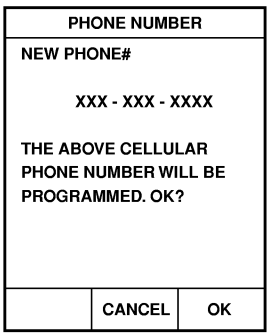
4. Input new phone number.
5. Touch "ENTER".



SEL459W

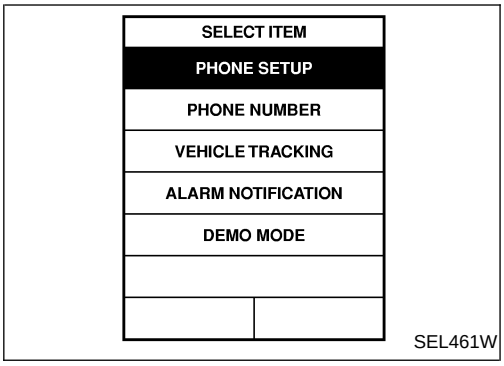
6. Touch "OK".
7. Carry out the next system setting or contact Communicator Response Center and information them that data has been updated or the IVCS unit has been replaced. For details, refer to EL-536.

**NOTE: Whenever the phone number is updated or the IVCS unit is replaced, the INFINITI Communicator system automatically contacts the Communicator Response Center the first time the vehicle is started.**



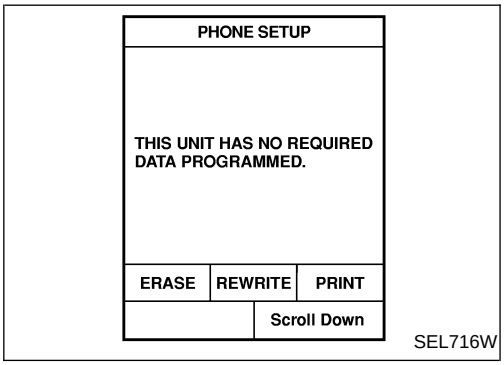
SEL460W

## System Setting (When IVCS unit is replaced) (Cont'd)



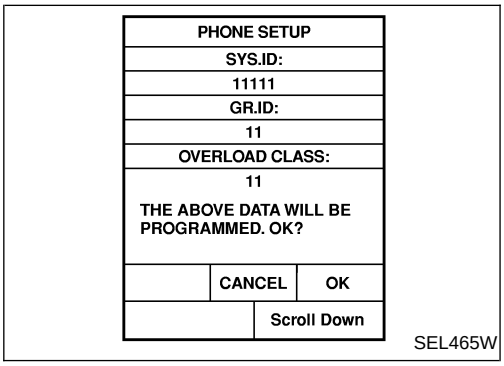

### PHONE SET UP

1. Touch "CONFIGURATION".
2. Touch "PHONE SET UP".

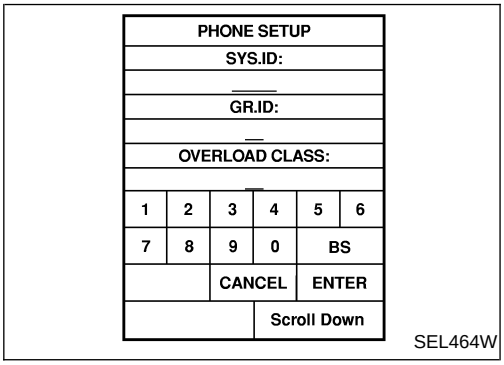



3. Touch "WRITE" or "REWRITE".

- If no data is previously memorized, the display shows "This unit has no required data programmed".




- If NAM (Number Assignment Module) data is previously memorized, the display shows the current NAM data.
- To erase the NAM, touch "ERASE".



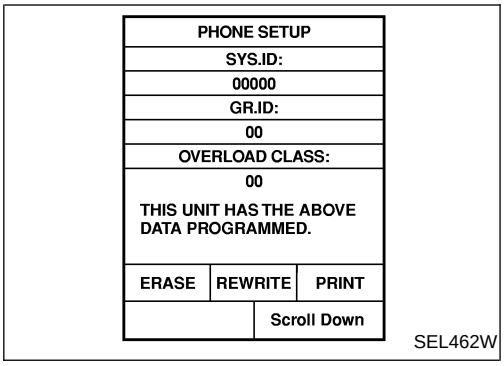

4. Input new NAM data.

- SYS ID (Carrier system ID number) — Available number: 0 to 32765
- GR ID (Group ID mark) — Available number: 0 to 15
- OVERLOAD CLASS (Access overload class) — Available number: 0 to 15
- SECURITY CODE (User security code)
- UNLOCK CODE
- INIT PAGE CH (Initial paging channel)

**NOTE: If an unavailable number is input as "SYS ID", "GR ID" or "OVERLOAD CLASS", CONSULT-II may be locked. In such cases, disconnect the vehicle battery cable once and then setup the system again.**

5. Touch "ENTER".

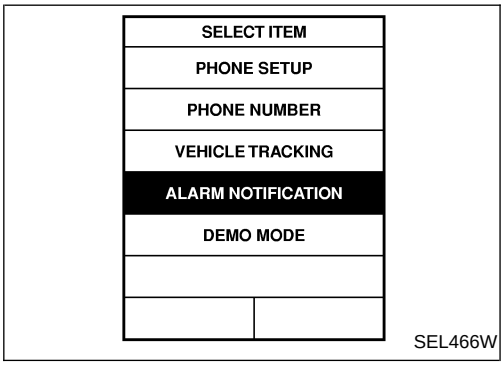
## System Setting (When IVCS unit is replaced) (Cont'd)



SEL462W

6. Touch "OK".
7. Carry out the next system setting or contact Communicator Response Center and inform them that data has been updated or IVCS unit has been replaced. For details, refer to EL-536.

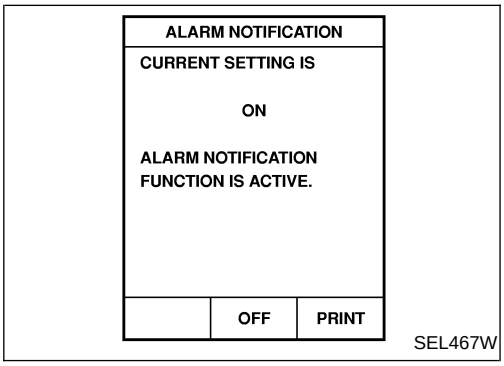
**NOTE: Whenever the phone number is updated or the IVCS unit is replaced, the INFINITI Communicator system automatically contacts the Communicator Response Center the first time the vehicle is stared.**



SEL466W

### STOLEN VEHICLE TRACKING/ALARM NOTIFICATION SETTING CHECK

1. Touch "CONFIGURATION".
2. Touch "VEHICLE TRACKING" or "ALARM NOTIFICATION".



SEL467W

3. This function should always be "ON" (function activate.)

**NOTE:**

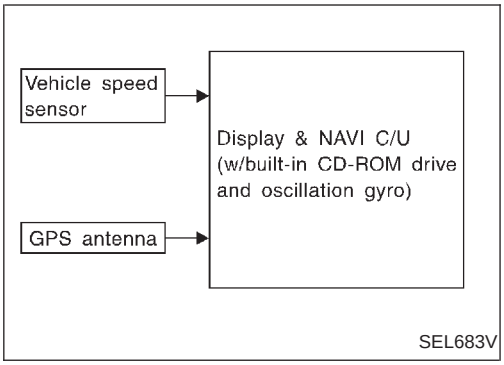
- **If either setting is "OFF", contact the Communicator Response Center at 1-888-427-4812 to verify the system setting.**
- **Whenever dialing the above number, information about the vehicle is required by the operator. For details, refer to EL-506.**

## Precautions

**WARNING:**
**Do not attempt to disassemble the monitor. Parts of the monitor have high voltages that can result in severe and dangerous electric shock.**

**CAUTION:**
- **Do not reverse battery connections.**
- **Do not attach unauthorized parts.**
- **Protect the unit from severe impact.**

**NOTE:**
**Before beginning repair, determine whether or not the unit is defective. Refer to “This Condition Is Not Abnormal” (EL-578).**




## System Description

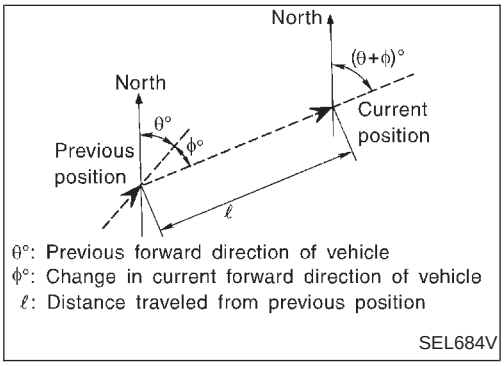
### OUTLINE

The Navigation System (Multi-AV System) relies upon three sensing devices in order to determine vehicle location at regular time intervals.

1. Vehicle speed sensor: Determines the distance the vehicle has traveled.
2. Gyro (Angular velocity sensor): Determines vehicle steering angle and directional change.
3. GPS antenna (GPS data): Determines vehicle forward movement and direction.

The data provided by the three sensing functions together with a comparison of the mapping information read from the CD-ROM drive permit accurate determination of the vehicle's current location and subsequent course (map matching). The information appears on a liquid crystal display.

This comparison of GPS data (vehicle position sensing) and map matching permits precise determination of vehicle location.



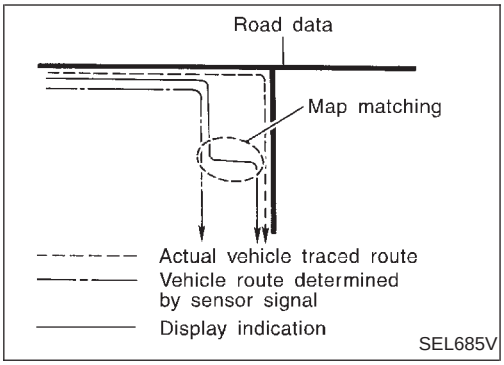

### Position sensor operating principles

The sensor determines current vehicle location by calculating the previously sensed position, the distance traveled from this position, and the directional changes occurring during this travel.

1. Distance traveled
   The distance traveled is calculated using signals received from the vehicle speed sensor. The sensor automatically compensates for the slightly reduced wheel and tire diameter resulting from tire wear.
2. Forward movement (Direction)
   Changes in the direction of forward movement are calculated by the gyro (angular velocity sensor) and the GPS antenna (GPS data). Each of these functions has its advantage and disadvantages. Depending upon conditions, one function takes precedence over the other to accurately determine the direction of forward movement.

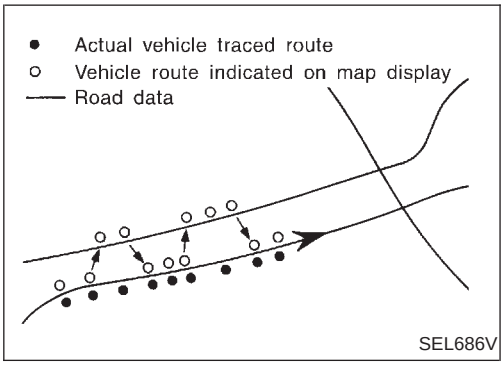
| Function type | Advantage | Disadvantage |
|---|---|---|
| Gyro (Angular velocity sensor) | ● Able to accurately detect minute changes in steering angle and direction. | ● Calculation errors may accumulate over a long period of continuous vehicle travel. |
| GPS antenna (GPS data) | ● Able to sense vehicle travel in four general directions (North, South, East, and West) | ● Unable to detect direction of vehicle travel at low vehicle speeds. |

## System Description (Cont'd)

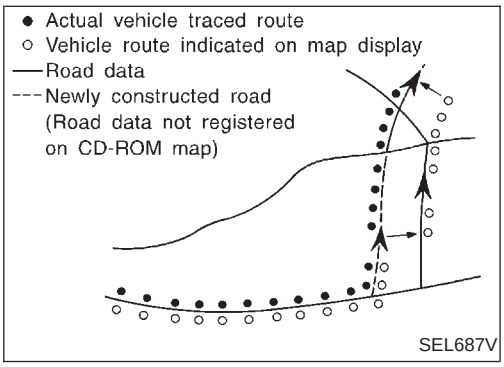



### Map matching

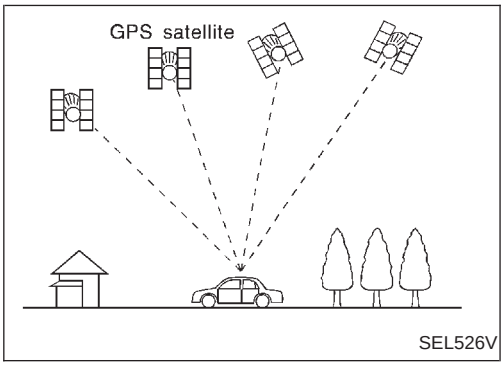
Map matching allows the driver to compare the sensed vehicle location data with the road map contained in the CD-ROM drive. Vehicle position is marked on the CD-ROM map. This permits the driver to accurately determine his/her present position on the highway and to make appropriate course decisions.
When GPS data reception is poor during travel, the vehicle position is not amended. At this time, manual manipulation of the CD-ROM map position marker is required.




Map matching permits the driver to make priority judgments about possible appropriate roads other than the one currently being traveled.
If there is an error in the distance or direction of travel, there will also be an error in the relative position of other routes. When two routes are closely parallel to one another, the indicated position for both routes will be nearly the same priority. This is so that, slight changes in the steering direction may cause the marker to indicate both routes alternately.




Newly constructed roads may not appear on the CD-ROM map. In this case, map matching is not possible. Changes in the course of a road will also prevent accurate map matching.
When driving on a road not shown on the CD-ROM map, the position marker used for map matching may indicate a different route. Even after returning to a route shown on the map, the position marker may jump to the position currently detected.




### GPS (Global Positioning System)

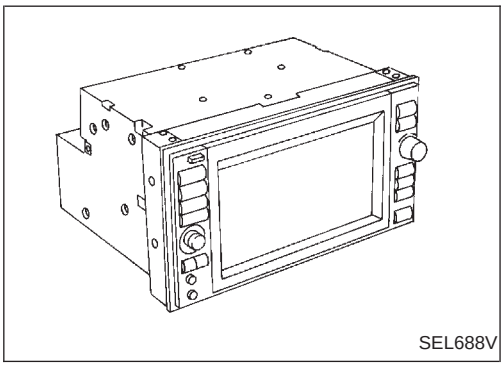
GPS is the global positioning system developed and operated by the US Department of Defense. GPS satellites (NAVSTAR) transmit radio waves and orbit around the earth at an altitude of approximately 21,000 km (13,000 miles).
GPS receiver calculates the three-dimensional position of the vehicle (latitude, longitude, and altitude from the sea level) by the time difference of the radio wave arriving from more than four GPS satellites (three-dimensional positioning).
When the radio wave is received from only three GPS satellites, the two-dimensional position (latitude and longitude) is calculated, using the altitude from the sea level data calculated by using four GPS satellites (two-dimensional positioning).

Positioning capability is degraded in the following cases.

- In two-dimensional positioning, when the vehicle's altitude from the sea level changes, the precision becomes lower.
- The location detection performance can have an error of about 100 m (300 ft) even in three-dimensional positioning with high precision. Because the precision is influenced by the location of GPS satellites used for positioning, the location detection performance may drop depending on the location of GPS satellites.

## System Description (Cont'd)

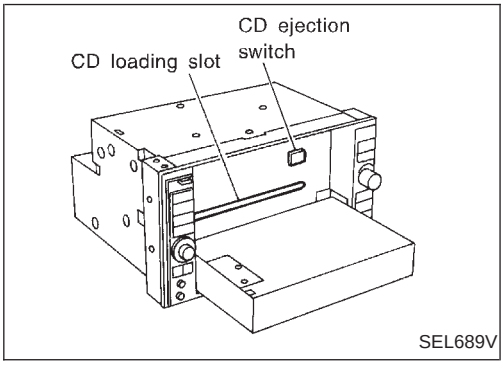
- When the radio wave from GPS satellites cannot be received, for example, when the vehicle is in a tunnel, in a parking lot inside building, under an elevated superhighway or near strong power lines, the location may not be detected. Turbulent/ electric weather conditions may also affect positioning performance. If something is placed on the antenna, the radio wave from GPS satellites may not be received.


SEL688V

### COMPONENT DESCRIPTION

#### Display & NAVI control unit

- The gyro (angular speed sensor) and the CD-ROM drive are built-in units that control the navigation functions.
- Signals are received from the gyro, the vehicle speed sensor, and the GPS antenna. Vehicle location is determined by combining this data with the data contained in the CD-ROM map. Locational information is shown on liquid crystal display panel.
- Finger-operated touch switches are positioned on the liquid crystal display panel for easy operation.
- The touch switches used to control the equipment are beneath a glass sheet and two resistance membranes at the top of the liquid crystal display panel. The switches are sensitive to resistance value where touched with your finger to detect operating status.



SEL689V

#### CD-ROM driver

Maps, traffic control regulations, and other pertinent information can be easily red from the CD-ROM disc.
Note:

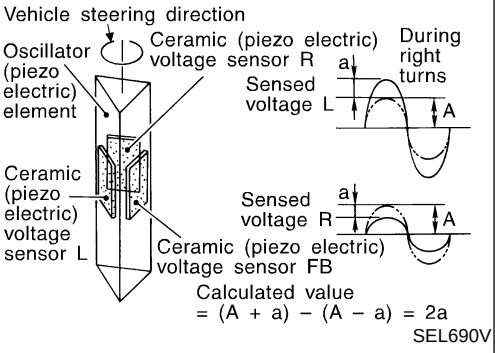
- When removing the CD-ROM, allow it to remain open until the liquid crystal display locks.
- The liquid crystal display must be closed when the vehicle is running.
- Do not place cups, cans or other containers containing liquids on top of the liquid crystal display.

#### Map CD-ROM

- The map CD-ROM has maps, traffic control regulations, and other pertinent information.
- To improve CD-ROM map matching and route determination functions, the CD-ROM uses an exclusive Nissan format. Therefore, the use of a CD-ROM provided by other manufacturers cannot be used.

## System Description (Cont'd)

### Gyro (Angular speed sensor)

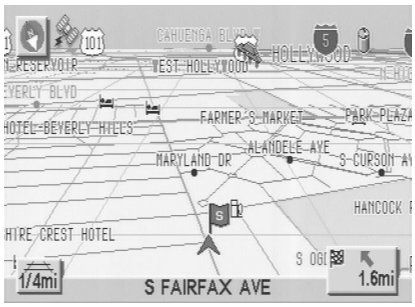



- The oscillator gyro sensor is used to detect changes in vehicle steering angle.
- The oscillator gyro periodically senses oscillatory variation at the oscillation terminals. This variation is caused by changes in the vehicle angular velocity. Voltage variations are sensed by ceramic voltage sensors at the left and right sides of the terminals. Vehicle angular velocity corresponds directly with these changes in voltage.
- The gyro is built into the display & navigation (NAVI) control unit.

### BIRDVIEW®

The BIRDVIEW® provides a detailed and easily seen display of road conditions covering the vehicle's immediate to distant area.

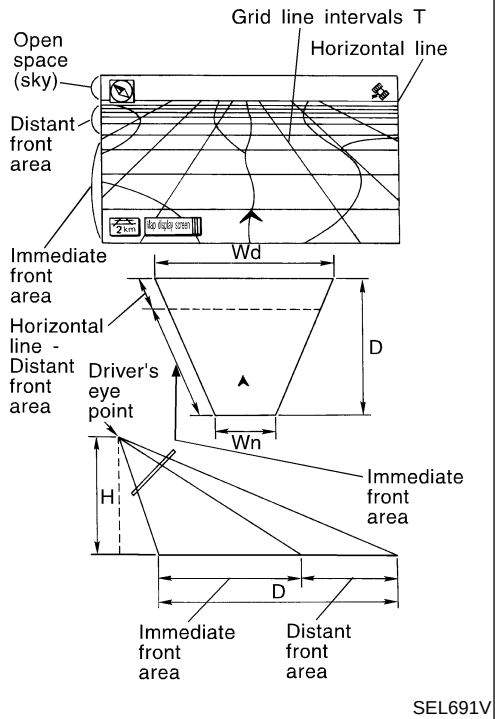

MAP DISPLAY




BIRDVIEW®

SEL636X

### Description

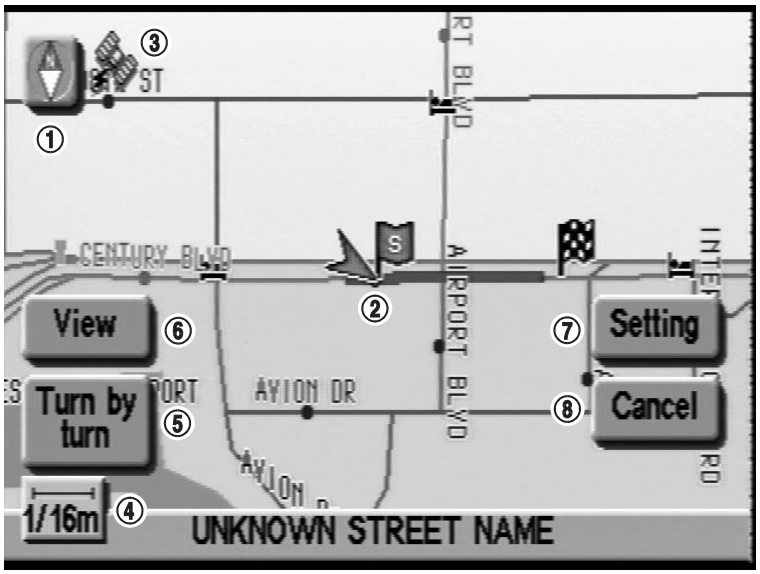



- Display area: Trapezoidal representation showing approximate distances (Wn, D, and Wd).
- Ten horizontal grid lines indicate display width while six vertical grid lines indicate display depth and direction.
- Drawing line area shows open space, depth, and immediate front area. Each area is to a scale of approximately 5:6:25.
- When the "ZM−" button is pushed, the view point height is increased. Pushing the "ZM+" button decreases the height. Pushing the "ZM−" button or the "ZM+" button during operation indicates the scale change and the view point height at the left-hand side of the screen.

## System Description (Cont'd)

### FUNCTION OF TOUCH SWITCH (Summary)

**Display with pushed "MAP" switch**




SEL580X

The function of each touch switch is as follows:

① Azimuth indication

② Position marker
The tip of the arrow shows the current position. The shaft of the arrow indicates the direction in which the vehicle is traveling.

③ GPS reception signal (indicates current reception conditions)

④ Distance display (shows the distance in a reduced scale)

⑤ Current location voice information
(this information is available when the route guide is being activated and the designated route is being traveled.)

⑥ Switch display from map screen to BIRDVIEW® screen (change to map screen on display when the BIRDVIEW® is being used.)

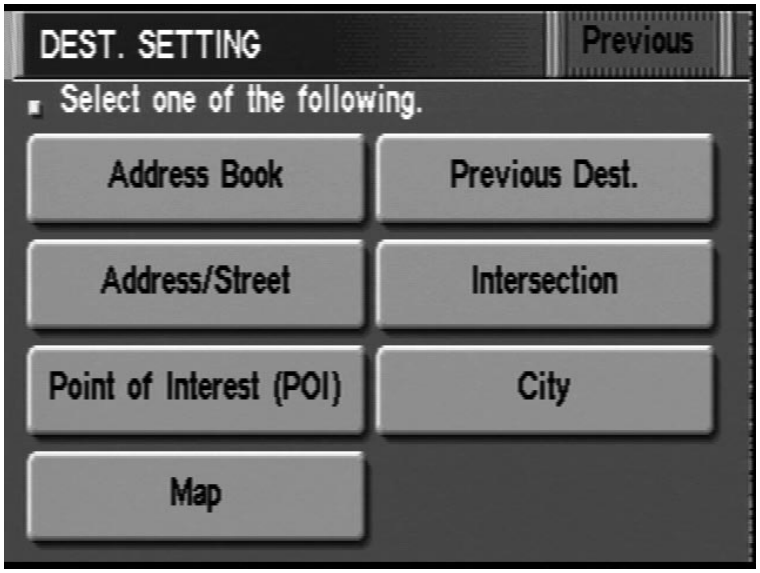
⑦ The following items can be set.

- Save Current Location
- Edit Address Book
- Guide Volume
- System Setting

⑧ The route guide operation can be canceled.

## System Description (Cont'd)

### Display with pushed "DEST" switch



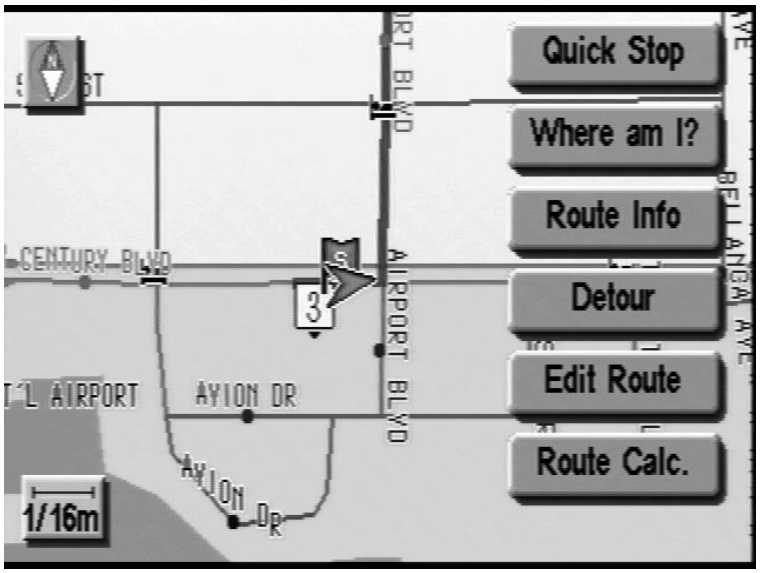

SEL581X

The function of each touch switch is as follows:

| Icon | Description |
|---|---|
| Address Book | Favorite place can be saved to memory.<br>The destination can be selected from the memory. |
| Address/Street | The destination can be searched from the address. |
| Point of Interest (POI) | The destination of favorite facility can be searched. |
| Previous Dest. | The previous ten destinations stored in memory are displayed. |
| Intersection | The destination from the intersection name can be retrieved. |
| City | The destination can be searched from city name. |
| Map | The destination can be searched from the map. |

## System Description (Cont'd)

### Display with touched screen



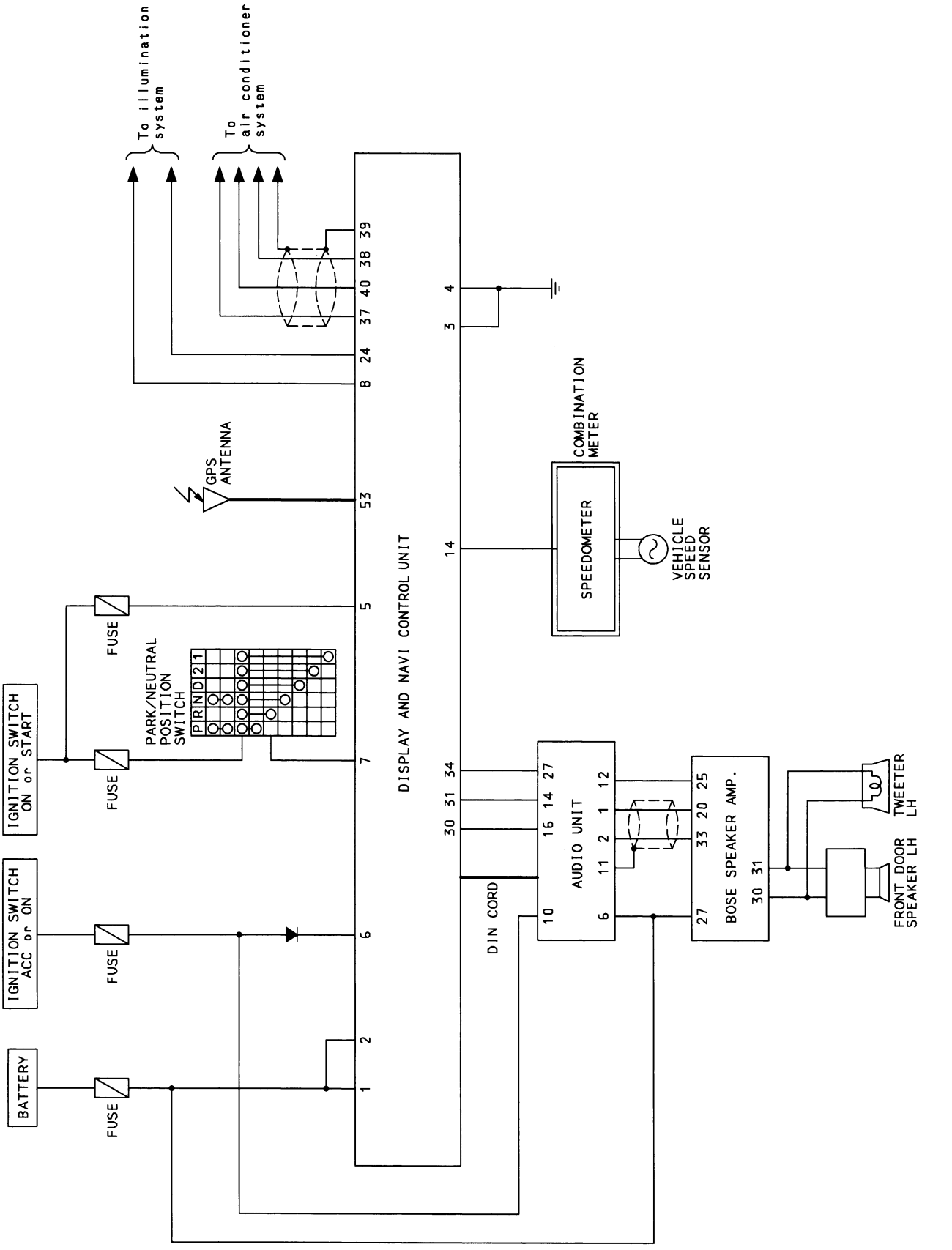

SEL582X

The function of each touch switch is as follows:

| Icon | Description |
|---|---|
| Quick Stop | The selected facility is set as the destination or waypoint.<br>(Route guidance has been turned OFF or the destination has been reached.) |
| Where am I? | Next, current and previous street names can be displayed. |
| Route Info.* | The following items can be set.<br>● Complete Route<br>● Turn List<br>● Route Simulation<br>(Displayed only when the destination area has been set.) |
| Detour* | Based on the selected distance, an alternative route is searched.<br>[Displayed only when the recommended route (not its reverse) is followed.] |
| Edit Route* | Change the destination or add the transit points of the route set in the route guide. (Displayed only when the automatic reroute function has been turned OFF and the recommended route is not followed.) |
| Route Calc. | Search for a recommended route between the vehicle's current location and the destination area. (Displayed only when the destination area has been set.) |

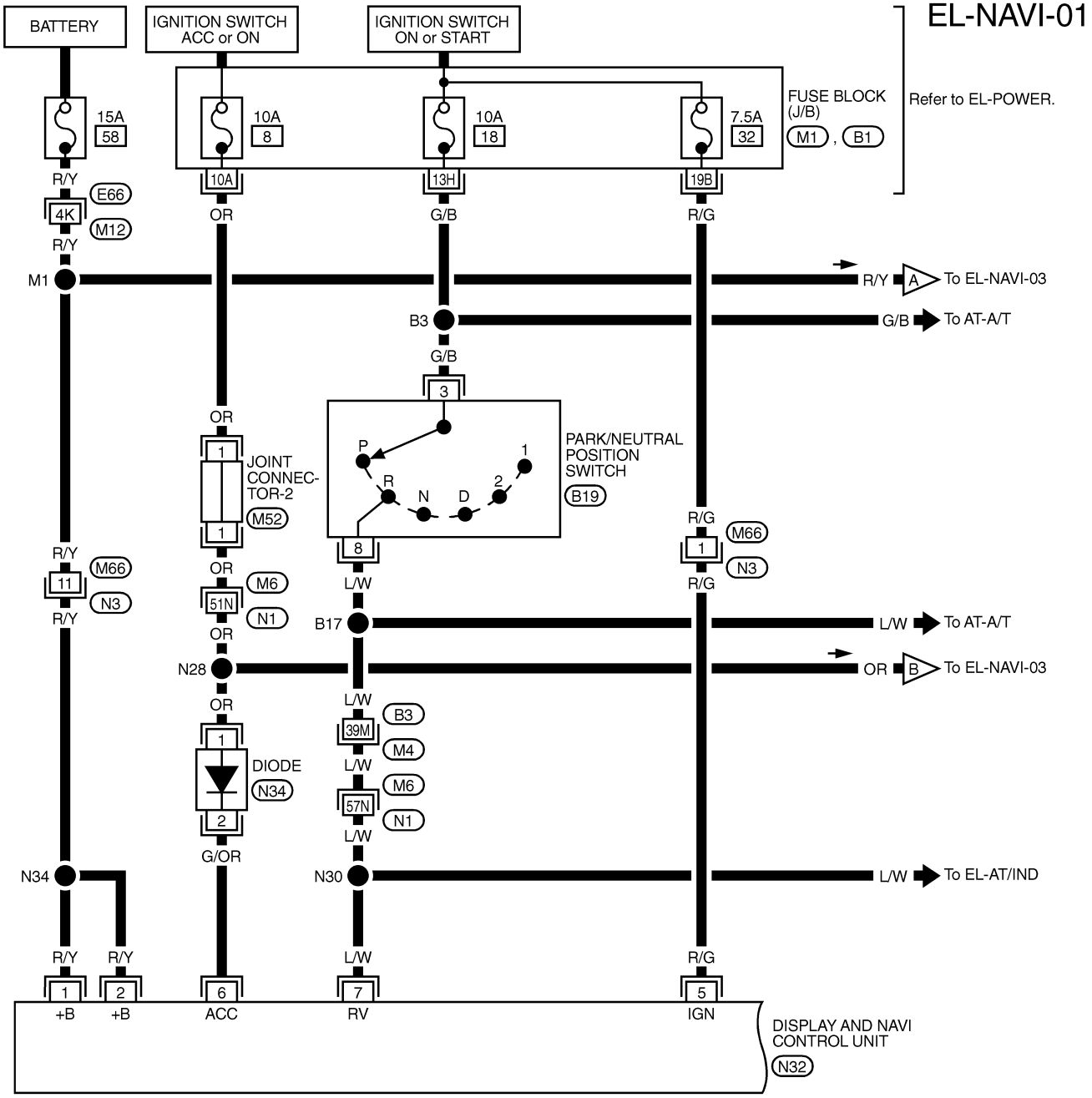
*: When destinations have been entered, route guidance has been turned OFF or destination has been reached, "Route Info.", "Detour", "Edit Route" and "Route Calc." are not displayed.

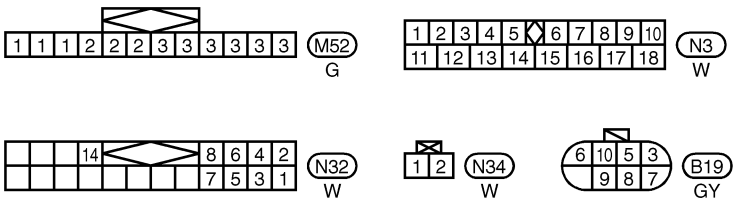
## Schematic




TEL669B

## Wiring Diagram — NAVI —



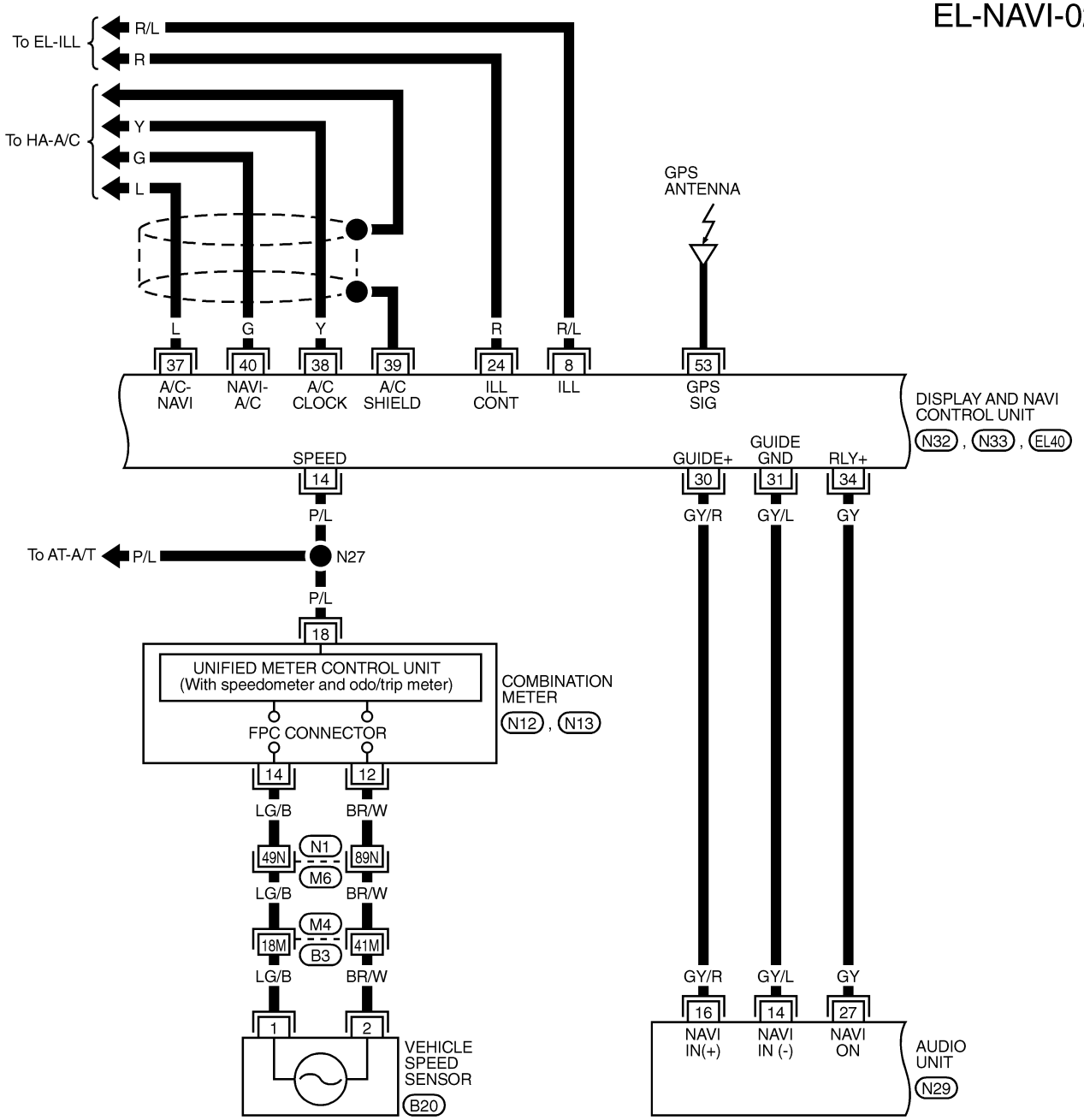



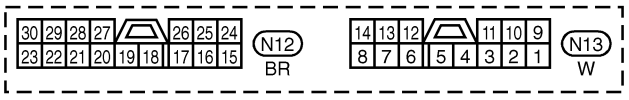

REFER TO THE FOLLOWING.
M4 , M6 , E66 -SUPER MULTIPLE JUNCTION (SMJ)
M1 , B1 -FUSE BLOCK-JUNCTION BOX (J/B)

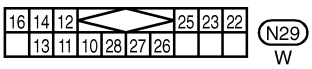
TEL670B

## Wiring Diagram — NAVI — (Cont'd)

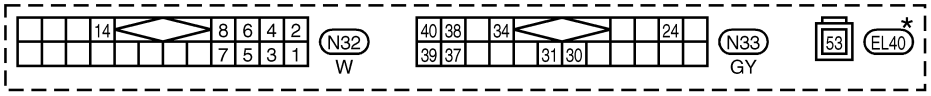
EL-NAVI-02




REFER TO THE FOLLOWING.
M4 , M6 -SUPER MULTIPLE JUNCTION (SMJ)



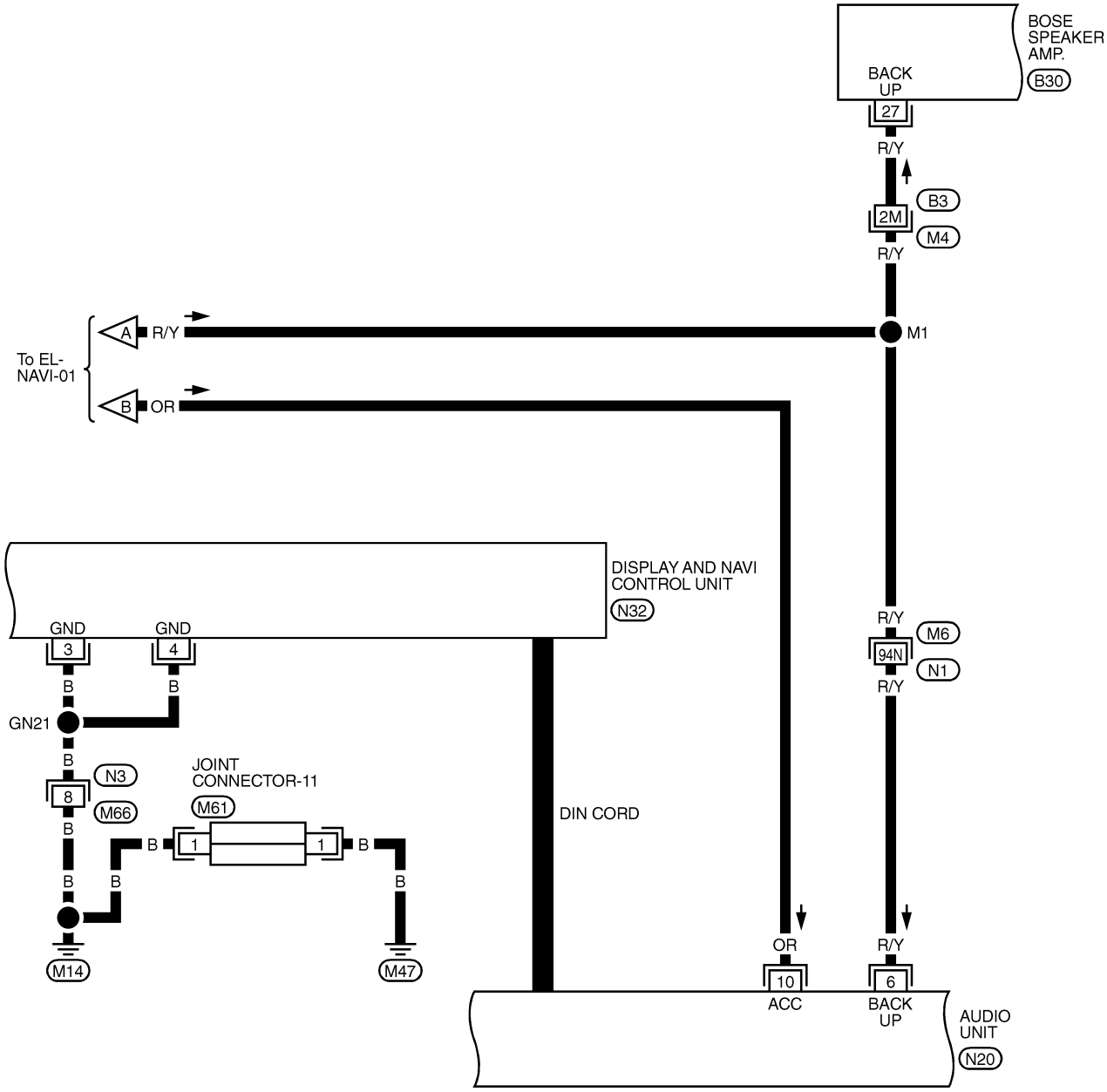


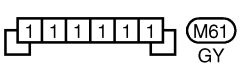
*: This connector is not shown in "HARNESS LAYOUT", EL section.

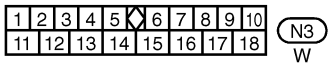
TEL671B

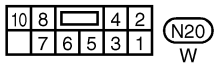
## Wiring Diagram — NAVI — (Cont'd)

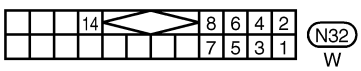
EL-NAVI-03

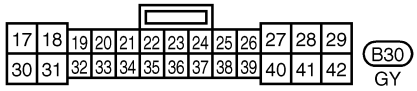


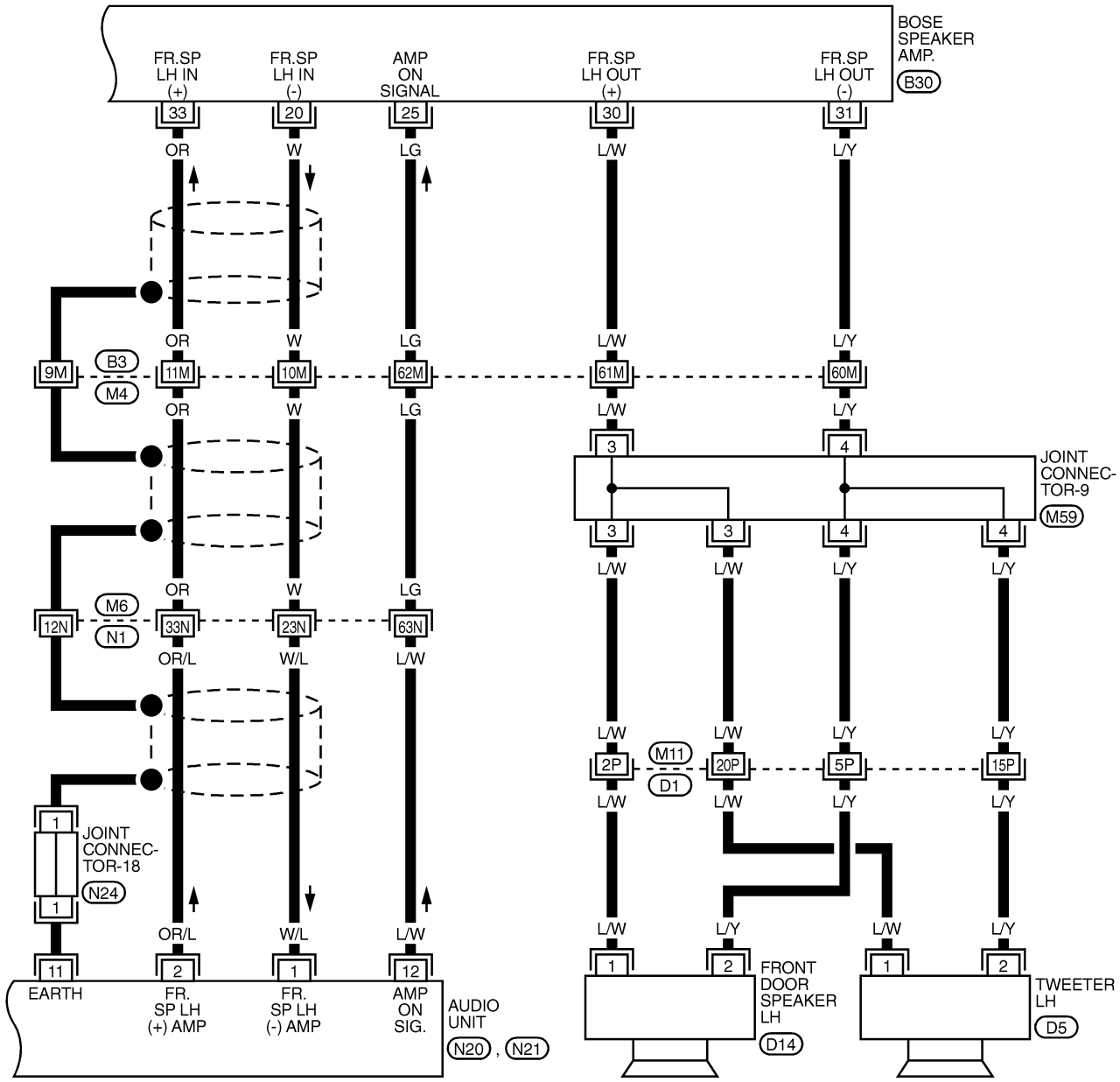



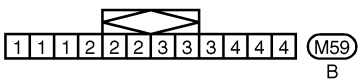

REFER TO THE FOLLOWING.
M4 , M6 -SUPER MULTIPLE JUNCTION (SMJ)

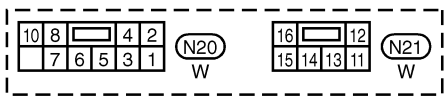
TEL672B

## Wiring Diagram — NAVI — (Cont'd)

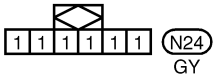
EL-NAVI-04

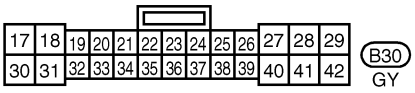


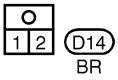




REFER TO THE FOLLOWING.
M4 , M6 , D1 -SUPER MULTIPLE JUNCTION (SMJ)





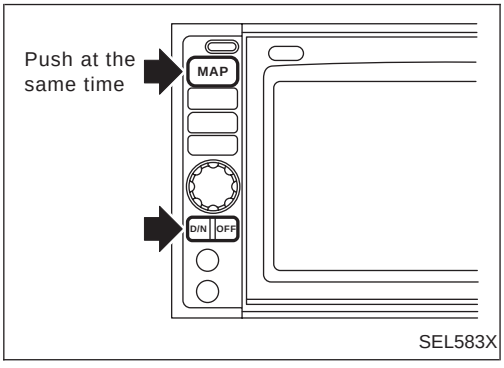



TEL673B

# Self-diagnosis Mode

## APPLICATION ITEMS

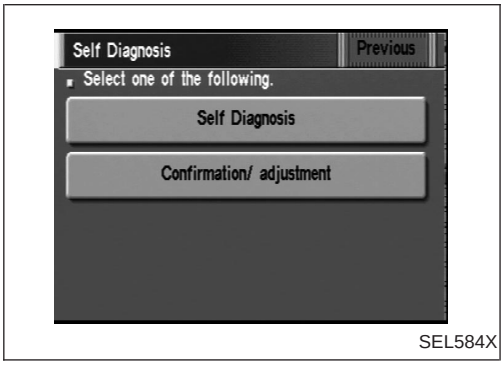
| Mode | | | Description | Reference page |
|---|---|---|---|---|
| Self Diagnosis | | | Self-diagnosis for display & NAVI control unit, CD-ROM and GPS antenna connection. | EL-554 |
| Confirmation/ adjustment | Display Diagnosis | | Color and gray gradation of display can be checked in this mode. | EL-561 |
| | Diagnosis Signals from the Car | | Several input signals to display & NAVI control unit, can be monitored in this mode. | EL-559 |
| | Navigation | Check the map CD-ROM version | The version (parts number) of inserted CD-ROM can be checked in this model. | EL-560 |
| | | Error history | Diagnosis results previously stored in the memory (before turning ignition switch ON) are displayed in this mode. Time and location when/where the errors occurred are also displayed. | EL-556 |
| | | Longitude & Latitude | Display the map. Use the joystick to adjust position. Longitude and latitude will be displayed. | EL-562 |
| | | Adjust the angle | Turning angle of the vehicle on the display can be adjusted in this mode. | EL-563 |
| | | Speed Calibration | Under ordinary conditions, the navigation system distance measuring function will automatically compensate for minute decreases in wheel and tire diameter caused by tire wear or low pressure. Speed calibration immediately restores system accuracy in cases such as when distance calibration is needed because of the use of tire chains in inclement weather. | EL-564 |
| | Initialize Location | | This mode is for initializing the current location. Use when the vehicle is transferred a long distance on a trailer, etc. | EL-587 |



SEL583X

### HOW TO PERFORM SELF-DIAGNOSIS MODE

1. Start the engine.
2. Push both of “MAP” and “D/N” switches at the same time for more than 5 seconds.



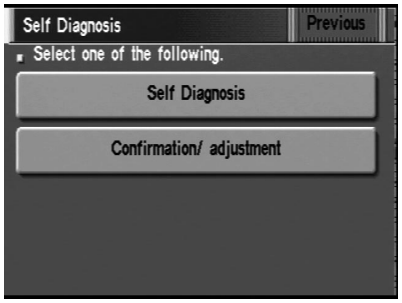
SEL584X

3. Touch “Self Diagnosis” or “Confirmation/ adjustment”.

- For further procedure, refer to the following pages which describe each application item of the self-diagnosis mode.

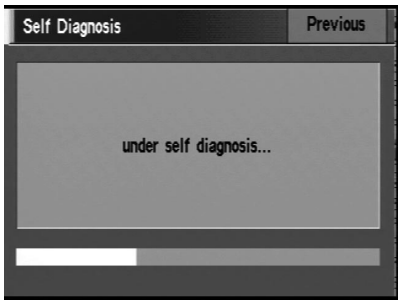
## Self-diagnosis Mode (Cont'd)

### "Self Diagnosis"



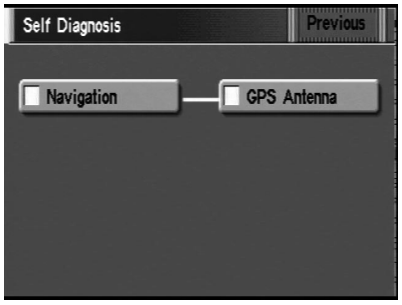
SEL584X

1. Start the engine.
2. Push both "MAP" and "D/N" switches at the same time for more than 5 seconds.
3. Touch "Self Diagnosis".



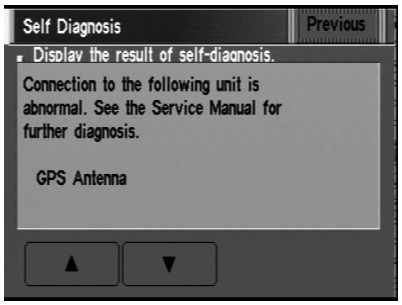
SEL585X

4. Self-diagnosis will be performed.



SEL586X

5. Diagnosis results will be displayed. Diagnosis results are indicated by display color. For details refer to "SELF-DIAGNOSIS RESULTS".



SEL587X

To obtain detailed diagnosis results on the screen, touch "Navigation" or "GPS Antenna".

## Self-diagnosis Mode (Cont'd)

### SELF-DIAGNOSIS RESULTS

| Diagnosed item | Displayed color | Detailed result | Description | Diagnoses/service procedure **Recheck system at each check or replacement (When malfunction is eliminated, further repair work is not required.)** |
|---|---|---|---|---|
| "GPS Antenna" (GPS antenna connection) | Green | — | GPS antenna is connected to display & NAVI control unit correctly. | — |
| | Yellow | Connection to the following unit is abnormal. See the Service Manual for further diagnosis. | GPS antenna connection error is detected. | 1. Check GPS antenna feeder cable connection at display & NAVI control unit.<br>2. Visually check GPS antenna feeder cable. If NG, replace GPS antenna assembly.<br>3. Replace GPS antenna. |
| "Navigation" (Display & NAVI control unit) | Green | — | No failure is detected. | — |
| | Red | [*** is abnormal.] | Display & NAVI control unit is malfunctioning. | Replace display & NAVI control unit. |
| | Gray | Self-diagnosis for CD-ROM DRIVER of DISP & NAVI was not conducted due to no insertion of CD-ROM. | Any CD-ROM is not inserted or display & NAVI control unit is malfunctioning. | 1. Confirm that map CD-ROM is not inserted into display & NAVI control unit.<br>2. Replace display & NAVI control unit. |
| | Yellow | CD-ROM or CD-ROM DRIVER of DISP & NAVI is abnormal. See the Service Manual for further diagnosis. | Display & NAVI control unit judges that inserted CD-ROM is malfunctioning.<br>Map CD-ROM or CD-ROM driver of the unit is malfunctioning. | 1. Confirm the disk is installed correctly (not up side down.)<br>2. Perform "Check the map CD-ROM version" in EL-560 to confirm whether correct CD-ROM is inserted or not.<br>3. Check the disk surface. Are there any scratches, abrasions or pits on the surface?<br>4. Replace the CD-ROM.<br>5. Replace display & NAVI control unit. |
| | | CD-ROM is abnormal. Please check the disc. | Inserted map CD-ROM can not be read.<br>Map CD-ROM or CD-ROM driver of the unit is malfunctioning. | |
| | | Connection to the following unit is abnormal. See the Service Manual for further diagnosis. | GPS antenna connection error is detected. | 1. Check GPS antenna feeder cable connection at display & NAVI control unit.<br>2. Visually check GPS antenna feeder cable. If NG, replace GPS antenna assembly.<br>3. Replace GPS antenna. |

## Self-diagnosis Mode (Cont'd)

### "Error history" MODE

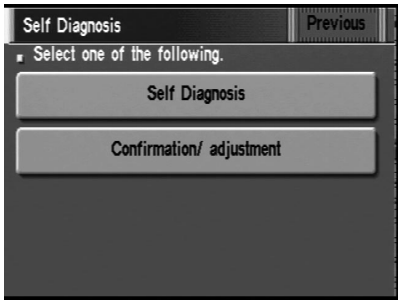
### Description

In this mode, historical errors of the system are displayed with the following data.

- How many times the error was detected
- The last time data when the error was detected
- The last place where the error was detected

**NOTE:**

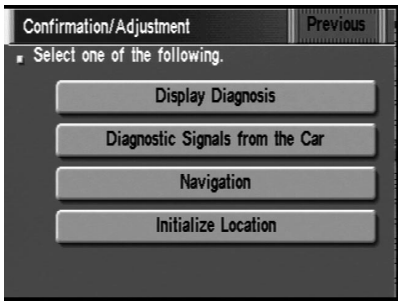
- **The number of errors can be counted up to 50 times. More than 51 times will be indicated as 50 times.**
- **Malfunction of the GPS board (inside the display & NAVI control unit) will result in the display of incorrect time data.**
- **When an error occurs, an incorrect position marker appears on the display. The accuracy of the display data (position marker) will be affected.**




SEL584X

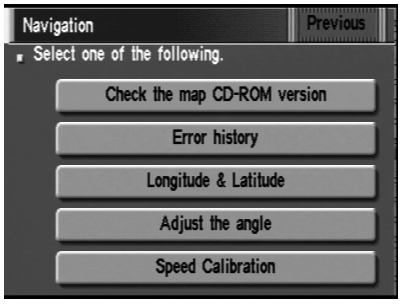
### How to perform

1. Start the engine.
2. Push both "MAP" and "D/N" switch at the same time for more than 5 seconds.
3. Touch "Confirmation/ adjustment".




SEL588X

4. Touch "Navigation".




SEL589X

5. Touch "Error history".

## Self-diagnosis Mode (Cont'd)

SEL590X

6. If trouble items are displayed with time count, repair/replace the system according to "Error history" TABLE, EL-558.
7. If necessary, touch error item to display the time when the error was detected and the place where the error was detected.
8. After repairing the system, erase the diagnosis memory.

**NOTE:**
**When the display & NAVI control unit must be replaced, do not erase the diagnosis memory for further inspection of malfunctions.**

a. Start the engine.
b. Push both "Map" and "D/N" switches at the same time for more than 5 seconds.
c. Touch "Confirmation/ adjustment".
d. Touch "Navigation".
e. Touch "Error history".
f. Touch "Delete".
g. Touch "Yes".

## Self-diagnosis Mode (Cont'd)

### "Error history" TABLE

| Detected items | Description | Diagnosis/service procedure | Reference page |
|---|---|---|---|
| Gyro sensor disconnected | Communications malfunction between display & NAVI control unit and internal gyro | Perform self-diagnosis to confirm whether the display & NAVI control unit is malfunctioning or not. If no failure is detected, a momentary and/or temporary malfunction may have been caused by strong electromagnetic wave interference. | EL-553 |
| Connection problem of speed sensor | Input malfunction of display & NAVI control unit and speed sensor | Check vehicle speed sensor signal in "Diagnosis for signals from the car" mode. If the input signal is not detected correctly, check harness for open or short between combination meter and display & NAVI control unit. | EL-559 |
| GPS disconnected | Communications malfunction between display & NAVI control unit and GPS board | Perform self-diagnosis to confirm whether the display & NAVI control unit is malfunctioning or not. If no failure is detected, a momentary and/or temporary malfunction may have been caused by strong electromagnetic wave interference. | EL-553 |
| GPS transmission cable malfunction | | | |
| GPS input line connection error | | | |
| GPS TCXO over | The transmission circuit of the GPS board frequency synchronization oscillator (inside the display & NAVI control unit) is sending an oscillation frequency that is greater or less than the set value. | A location error occurs. Strong electromagnetic wave interference may have occurred. The GPS antenna may be in a very hot or very cold environment. This is usually a temporary malfunction. | — |
| GPS TCXO under | | | |
| GPS ROM malfunction | Internal malfunction of GPS board RAM or ROM inside the display & NAVI control unit. | Perform self-diagnosis to confirm whether the display & NAVI control unit is malfunctioning or not. If no failure is detected, a momentary and/or temporary malfunction may have been caused by strong electromagnetic wave interference. | EL-553 |
| GPS RAM malfunction | | | |
| GPS RTC malfunction | Malfunction of GPS board clock IC inside the display & NAVI control unit. | | |
| GPS antenna disconnected | — | Perform self-diagnosis to confirm GPS antenna connection. If no failure is detected, a momentary and/or temporary malfunction may have been caused by a strong impact. | EL-553 |
| Low voltage of GPS | Power supply voltage for GPS board inside the display & NAVI control unit is low. | 1. Check power supply circuits for display & NAVI control unit. | EL-576 |
| | | 2. Perform self-diagnosis to confirm GPS antenna connection. | EL-553 |
| | | 3. If above diagnosis results are OK, a momentary and/or temporary malfunction may have been caused by a strong impact. | — |
| CD-ROM communication error | CD-ROM driver malfunction (inside the display & NAVI control unit) | Perform self-diagnosis to confirm whether the display & NAVI control unit is malfunctioning or not. If no failure is detected, a momentary and/or temporary malfunction may have been caused by strong electromagnetic wave interference. | EL-553 |
| Loading mechanism malfunction | — | Check that whether the disc can be inserted and ejected correctly. If the loading function does not operate correctly, replace NAVI & display control unit. | — |
| CD-ROM reading error | It is confirmed that the appropriate CD-ROM disc is positioned in the CD-ROM loader. However, no data can be read. | Perform self-diagnosis to confirm whether the inserted disc is malfunctioning or not. | EL-553 |
| Malfunctioning of error correction for CD-ROM | Erroneous data is read from the CD-ROM. The errors cannot be corrected. | | |
| CD-ROM focus error | CD-ROM data reading beam is out of focus. | Rough road driving might create CD skipping like music CD audio unit. | — |
| CD-ROM malfunction | — | Perform self-diagnosis to confirm whether the inserted disc is malfunctioning or not. | EL-553 |

## Self-diagnosis Mode (Cont'd)

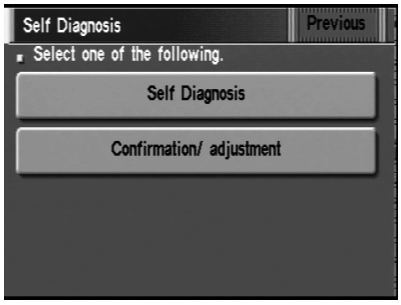
### "Diagnostic Signals From the Car" MODE

### Description

In "Diagnostic Signals From the Car" mode, following input signals to the display & NAVI control unit can be checked on the display.

| Item | Indication | Vehicle condition |
|---|---|---|
| Vehicle Speed* | ON | Vehicle speed is greater than 0 km/h (0 MPH). |
| | OFF | Vehicle speed is 0 km/h (0 MPH). |
| Light | ON | Lighting switch is in 1st or 2nd position. |
| | OFF | Lighting switch is in "OFF" position. |
| IGN | ON | Ignition switch is in "ON" position. |
| | OFF | Ignition switch is in "ACC" position. |
| REVERSE* | ON | Selector/shift lever is in "Reverse" position. |
| | OFF | Selector/shift lever is in other than "Reverse" position. |

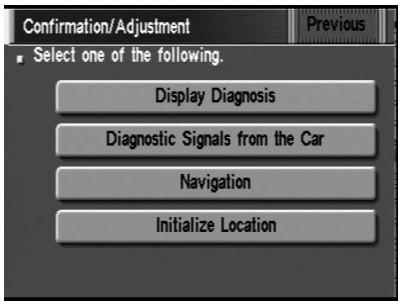
*: When ignition switch is in "ACC" position, indication will be changed to "-".




SEL584X

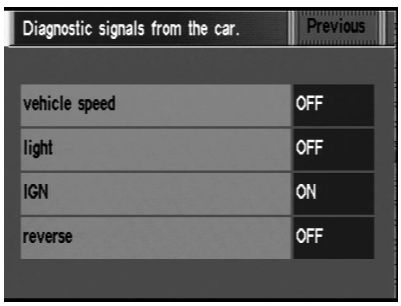
### How to perform

1. Start the engine.
2. Push both "MAP" and "D/N" switches at the same time for more than 5 seconds.
3. Touch "Confirmation/ adjustment".




SEL588X

4. Touch "Diagnostic Signals from the Car".

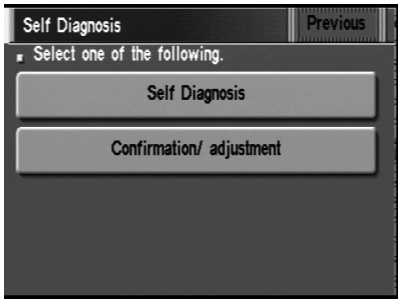



SEL591X

5. Then "Diagnostic Signals from the Car" mode is performed.

## Self-diagnosis Mode (Cont'd)

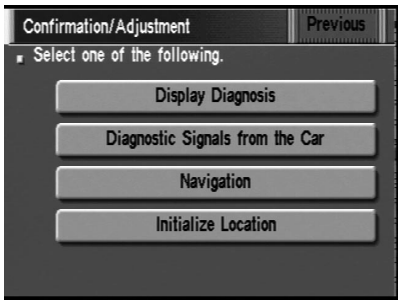
### "Check the map CD-ROM version" MODE



SEL584X

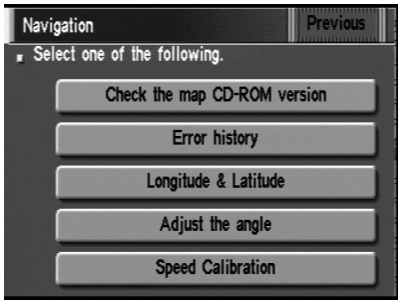
### How to perform

1. Start the engine.
2. Push both "MAP" and "D/N" switches at the same time for more than 5 seconds.
3. Touch "Confirmation/ adjustment".



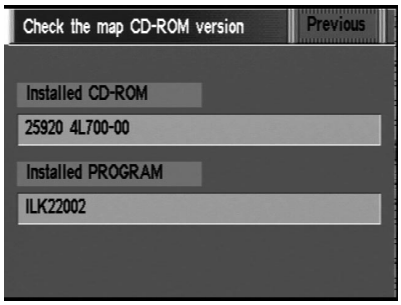
SEL588X

4. Touch "Navigation".



SEL589X

5. Touch "Check the map CD-ROM version".



SEL592X

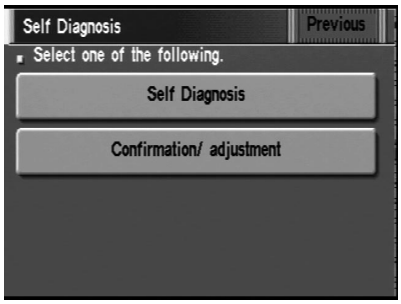
6. The version (parts number) of CD-ROM loaded to the display and NAVI control unit will be displayed.

## Self-diagnosis Mode (Cont'd)

### "Display Diagnosis" MODE

### Description

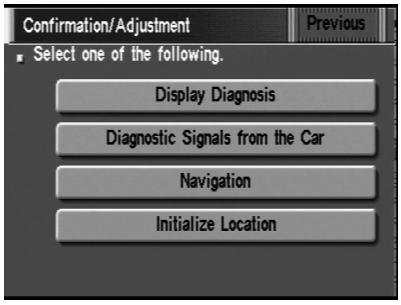
Use the "Diagnosis Display" mode to check the display color brightness and shading. The display & NAVI control unit must be replaced if the color brightness and shading are abnormal.




SEL584X

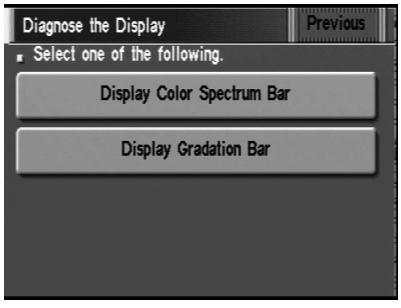
### How to perform

1. Start the engine.
2. Push both "MAP" and "D/N" switches at the same time for more than 5 seconds.
3. Touch "Confirmation/ adjustment".



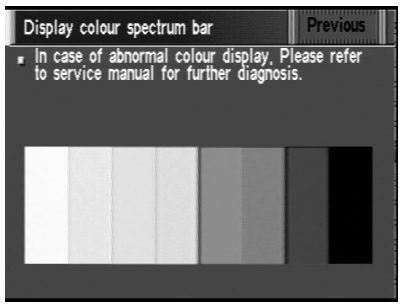

SEL588X

4. Touch "Display Diagnosis".




SEL593X

5. Touch "Display color spectrum bar" or "Display gradation bar".
6. Then color bar/gray scale will be displayed.





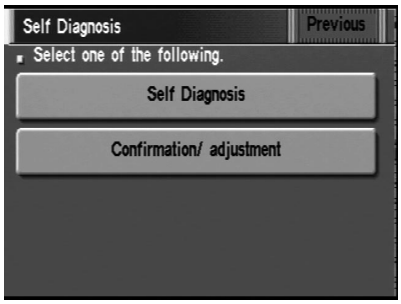
SEL594X

## Self-diagnosis Mode (Cont'd)

### "Longitude & Latitude" MODE

### Description

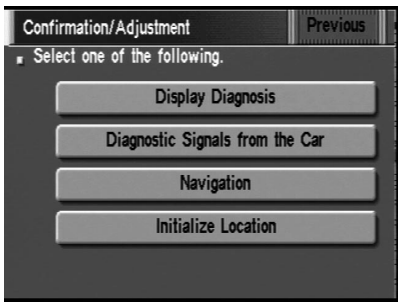
The "Longitude & Latitude" is used to confirm the longitude and latitude of some optional area point.




SEL584X

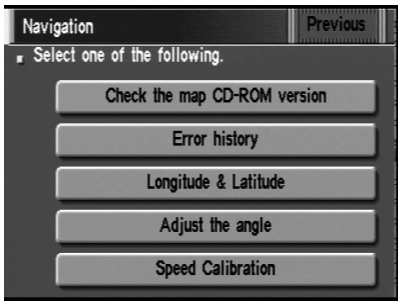
### How to perform

1. Start the engine.
2. Push both "MAP" and "D/N" switches at the same time for more than 5 seconds.
3. Touch "Confirmation/ adjustment".



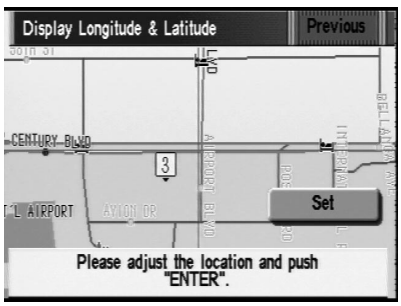

SEL588X

4. Touch "Navigation".




SEL589X

5. Touch "Longitude & Latitude".




SEL595X

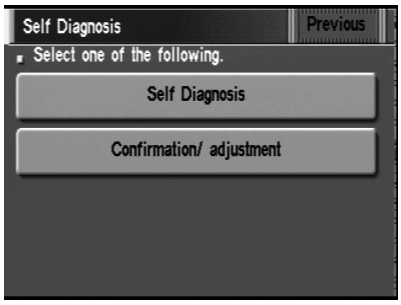
6. Adjust the pointer with using the joystick and touch "Set".
7. The longitude and latitude are displayed.

## Self-diagnosis Mode (Cont'd)

### "Adjust the angle" MODE

### Description

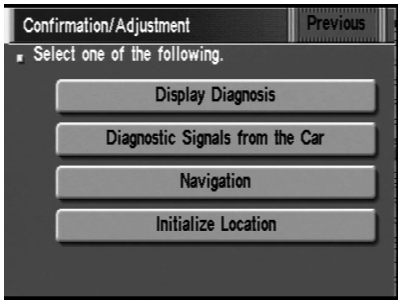
If the display indicates a larger or smaller turning angle than the actual turning angle, the gyro (angular speed sensor) sensing values must be checked.
In case that the vehicle on the display makes larger angle turn than reality, touch "−". In case that the vehicle on the display makes smaller angle turn than reality, touch "+".



SEL584X

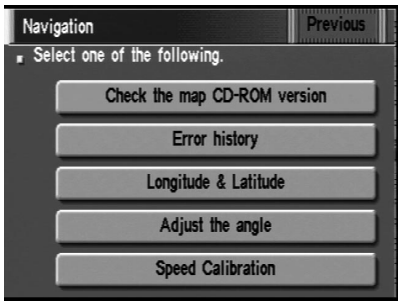
### How to perform

1. Start the engine.
2. Push both "MAP" and "D/N" switches at the same time for more than 5 seconds.
3. Touch "Confirmation/ adjustment".



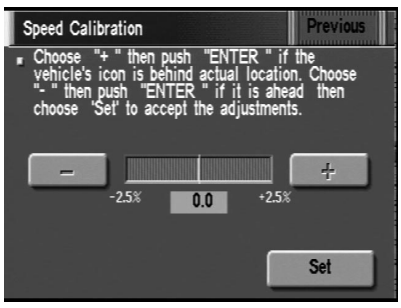
SEL588X

4. Touch "Navigation".



SEL589X

5. Touch "Adjust the angle".

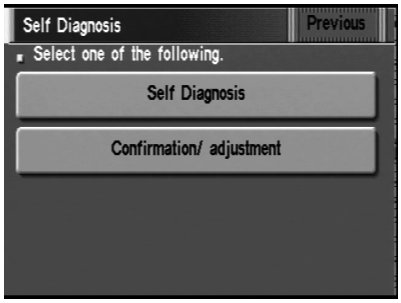


SEL596X

6. Touch "Left Turn" to adjust the angle to the left. Touch "Right Turn" to adjust the angle to the right.
7. Touch "+" to increase the angle change coefficient or "−" to reduce the angle change coefficient.
8. Touch "Set" to save the changed values in memory.
9. Then the vehicle turning angle on the display has adjusted.

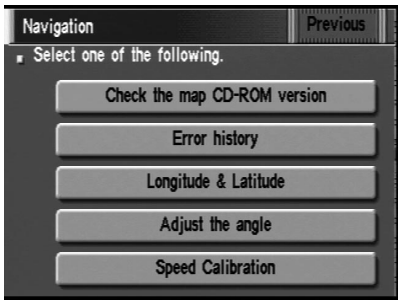
## Self-diagnosis Mode (Cont'd)

### SPEED CALIBRATION



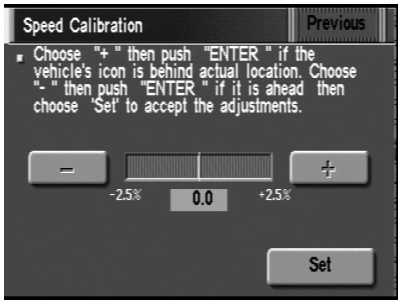

SEL584X

1. Start the engine.
2. Push both "MAP" and "D/N" switches at the same time for more than 5 seconds.
3. Touch "Confirmation/ adjustment".
4. Touch "Navigation".




SEL589X

5. Touch "Speed Calibration".



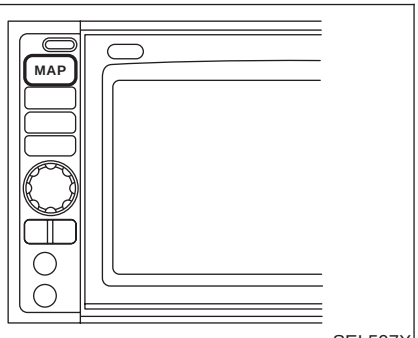

SEL596X

6. Touch "+" or "−" to adjust the distance change coefficient.
   - To make the distance change coefficient smaller, touch "–".
   - To make the distance change coefficient larger, touch "+".
7. Touch "Set".

# Setting Mode

## APPLICATION ITEMS

| Mode | Description | Reference page |
|---|---|---|
| GPS Information | The GPS includes longtitude, latitude and altitude (distance above sea level) of the present vehicle position, and current date and time for the area in which the vehicle is being driven.<br>Also indicated are the GPS reception conditions and the GPS satellite position. | EL-565 |
| Quick Stop Customer Setting | One facility of your selection can be added to your Quick Stop. | EL-568 |
| Route Priorities | Priorities of search request and automatic re-searching can be set for route search. | EL-569 |
| Tracking | Tracking to the present vehicle position can be displayed. | EL-569 |
| Display Setting | The following display settings can be customized.<br>● Display color (Day mode or Night mode)<br>● Brightness of display | EL-567 |
| Heading | Heading of the map display can be customized for either north heading or the actual driving direction of the vehicle. | EL-570 |
| Nearby Display Icons | Icons of facilities can be displayed.<br>Facilities to be displayed can be selected from the variety of selections. | EL-571 |
| Adjust Current Location | Current location of position marker can be set. Direction of position marker also can be calibrated when heading direction of the vehicle on the display is not matched with the actual direction. | EL-566 |
| Avoid Area Setting | Set the display to the avoid area.<br>This allows you to check alternate routes from your present location. | — |
| Beep On/Off | Beep sounds which correspond to the system operation can be activated/deactivated. | EL-567 |
| Clear Memory | Customized map data can be deleted. | EL-571 |

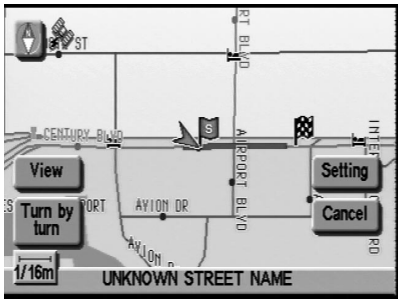


SEL597X

### HOW TO PERFORM CONTROL PANEL MODE

1. Start the engine.
2. Push “MAP” switch.

● For further procedures, refer to the following pages which describe each application item of the control panel mode.

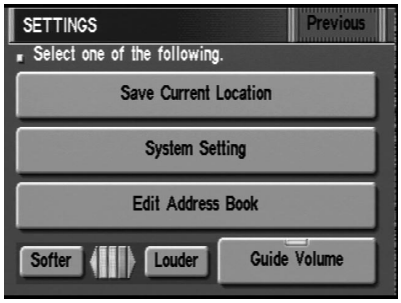


SEL598X

### “GPS Information” SETTING

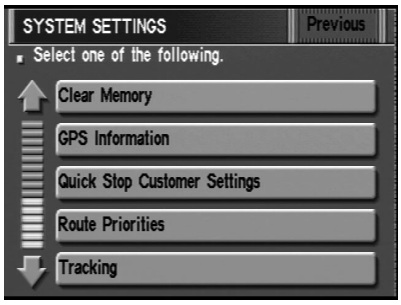
1. Start the engine.
2. Push “MAP” switch.
3. Touch “Setting”.

## Setting Mode (Cont'd)



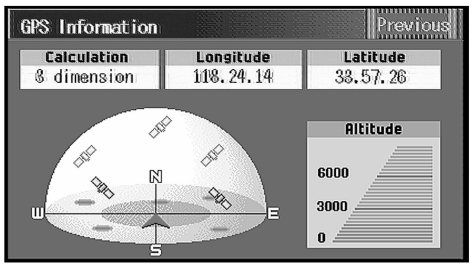

SEL599X

4. Touch "System Setting".




SEL600X

5. Touch "GPS Information".

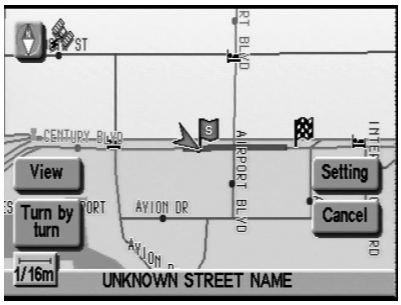



SEL146W

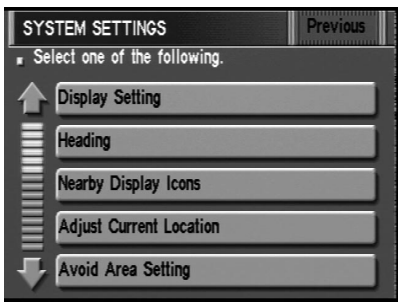
6. Then GPS information will be displayed.

### "Adjust Current Location" SETTING

1. Start the engine.
2. Push "MAP" switch.
3. Touch "Setting".
4. Touch "System Setting".



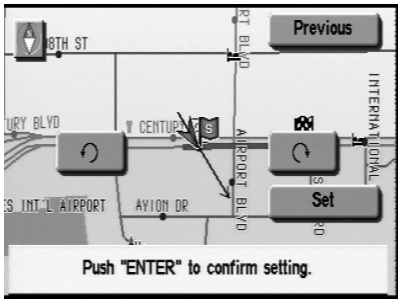

SEL598X




SEL601X

5. Touch "Adjust Current Location".

## Setting Mode (Cont'd)

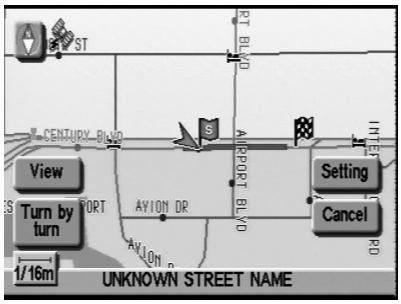



SEL602X

6. Touch "↶" or "↷" to calibrate the heading direction. (Arrow marks will rotate corresponding to the calibration key.)
7. Touch "Set". Then the vehicle mark will be matched to the arrow mark.
8. Display will show "Heading direction has been calibrated" and then go back to the current location map.

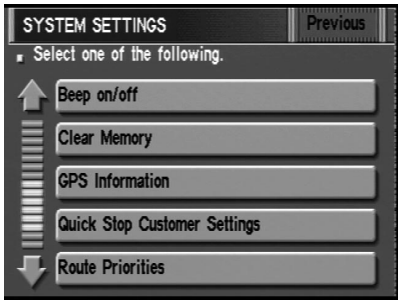
### BEEP ON/OFF SETTING

1. Start the engine.
2. Push "MAP" switch.
3. Touch "Setting".
4. Touch "System Setting".




SEL598X

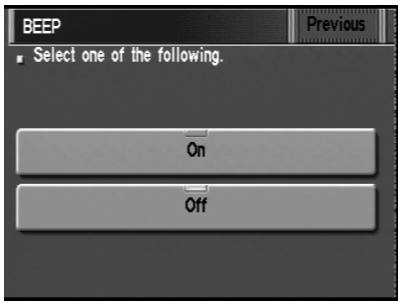
5. Touch "Beep on/off".




SEL603X

6. Touch "On" or "Off" icon.
- If you want the beep sound, select "ON".
- If you do not want the beep sound, select "OFF".

7. Push "MAP" switch, then the display will go back to the current location map.

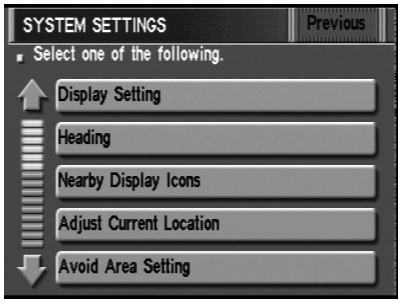



SEL604X

### DISPLAY SETTING

#### Display color setting

1. Start the engine.
2. Push "MAP" switch.
3. Touch "Setting".
4. Touch "System Setting".
5. Touch "Display Setting".




SEL601X

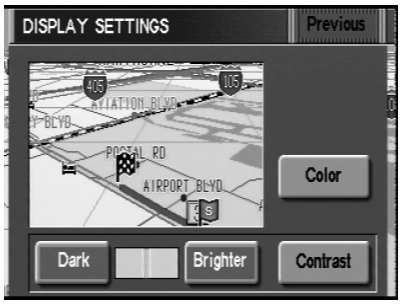
## Setting Mode (Cont'd)


SEL605X

6. Touch "Color". Display color will change to Day mode/Night mode.
7. Touch "Previous".

**NOTE:**

- **Display color can be changed independently when lighting switch is turned on and off.**
- **Initial setting of the color is as follows:**
  **When lighting switch is turned off: Day mode**
  **When lighting switch is turned on: Night mode**
  **Day mode: White background**
  **Night mode: Black background**



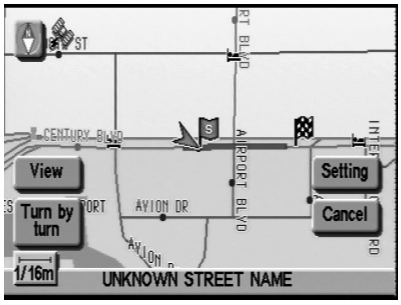

SEL605X

### Brightness setting

1. Start the engine.
2. Push "MAP" switch.
3. Touch "Setting".
4. Touch "System Setting".
5. Touch "Display Setting".
6. Touch "Bright" or "Dark" to adjust the brightness of display.
7. Touch "Previous".

**NOTE:**

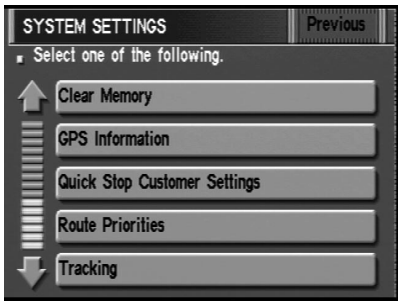
**Display brightness can be adjusted independently when lighting switch is turned on and off.**




SEL598X

### "Quick Stop Customer Setting" MODE

1. Start the engine.
2. Push the "MAP" switch.
3. Touch "Setting".
4. Touch "System Setting".




SEL600X

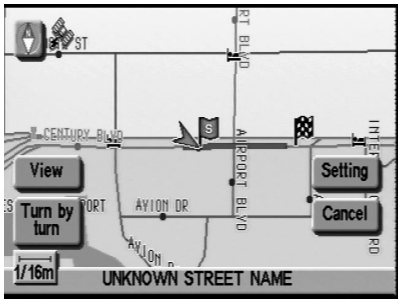
5. Touch "Quick Stop Customer Setting".


SEL606X

6. Select from the itemized list.

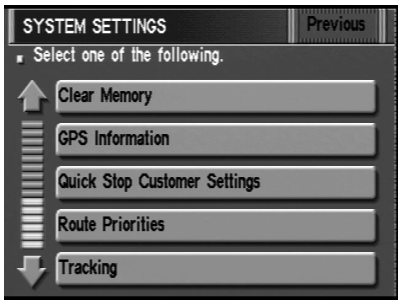
## Setting Mode (Cont'd)

### "Route Priorities" MODE




SEL598X

1. Start the engine.
2. Push the "MAP" switch.
3. Touch "Setting".
4. Touch "System Setting".




SEL600X

5. Touch "Route Priorities".

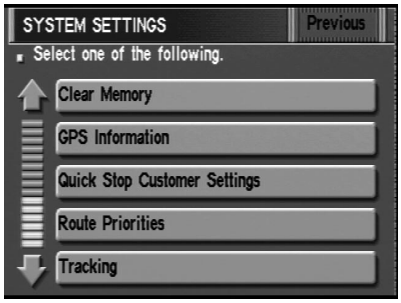

SEL607X

6. Select from the itemized list.

### "Tracking" MODE


SEL598X

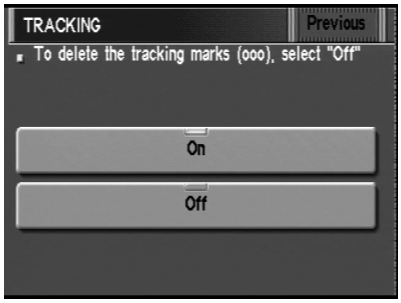
1. Start the engine.
2. Push the "MAP" switch.
3. Touch "Setting".
4. Touch "System Setting".




SEL600X

5. Touch "Tracking".

## Setting Mode (Cont'd)



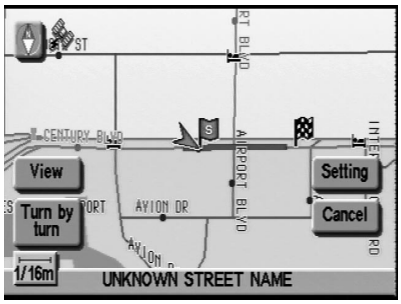

SEL608X

6. Touch the "On" or "Off" icon.
- If you don't need a trail on the map, select "Off".
- If you need a trail on the map, select "On".

7. Push the "MAP" switch to return the display to the current location map.

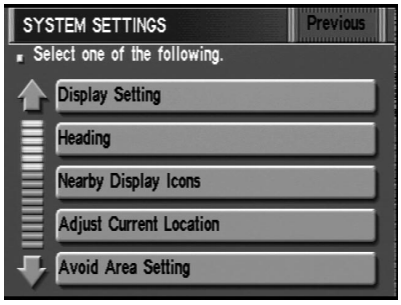
**NOTE:**
**When a trail display is turned OFF, trail data is erased from the memory.**

### "Heading" MODE



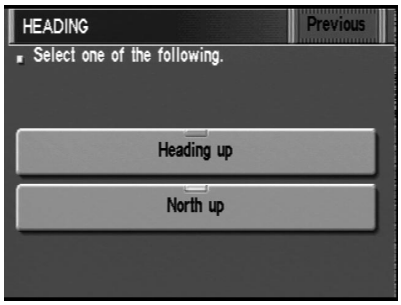

SEL598X

1. Start the engine.
2. Push the "MAP" switch.
3. Touch "Setting".
4. Touch "System Setting".




SEL601X

5. Touch "Heading".



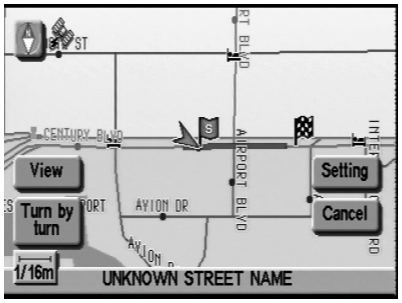

SEL609X

6. Touch the "Heading up" or "North up" icon.
- To display North up, select "North up".
- To display the car heading up, select "Heading up".

7. Push the "MAP" switch, then the display will go back to the current location map.

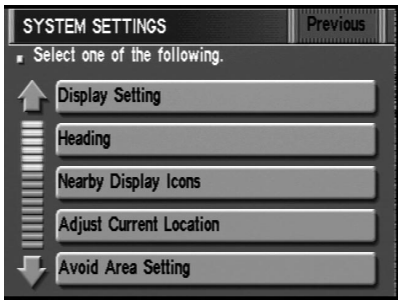
## Setting Mode (Cont'd)

### "Nearby Display Icons" MODE




SEL598X

1. Start the engine.
2. Push the "MAP" switch.
3. Touch "Setting".
4. Touch "System Setting".




SEL601X

5. Touch "Nearby Display Icons".

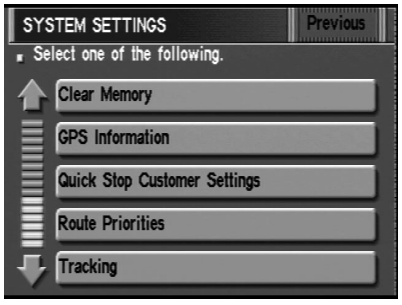

SEL610X

6. Select and touch the itemized list.
7. Push the "MAP" switch to return the display to the current location map.

### "Clear Memory" MODE


SEL598X

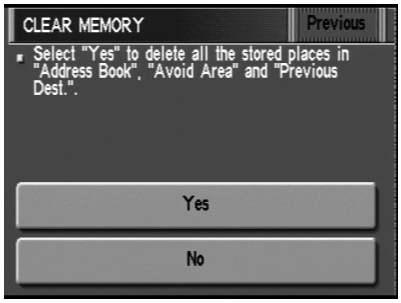
1. Start the engine.
2. Push the "MAP" switch.
3. Touch "Setting".
4. Touch "System Setting".




SEL600X

5. Touch "Clear Memory".

## Setting Mode (Cont'd)




SEL611X

6. To delete all the stored places in the "Address Book", "Avoid Area" and "Previous Dest", select "Yes".

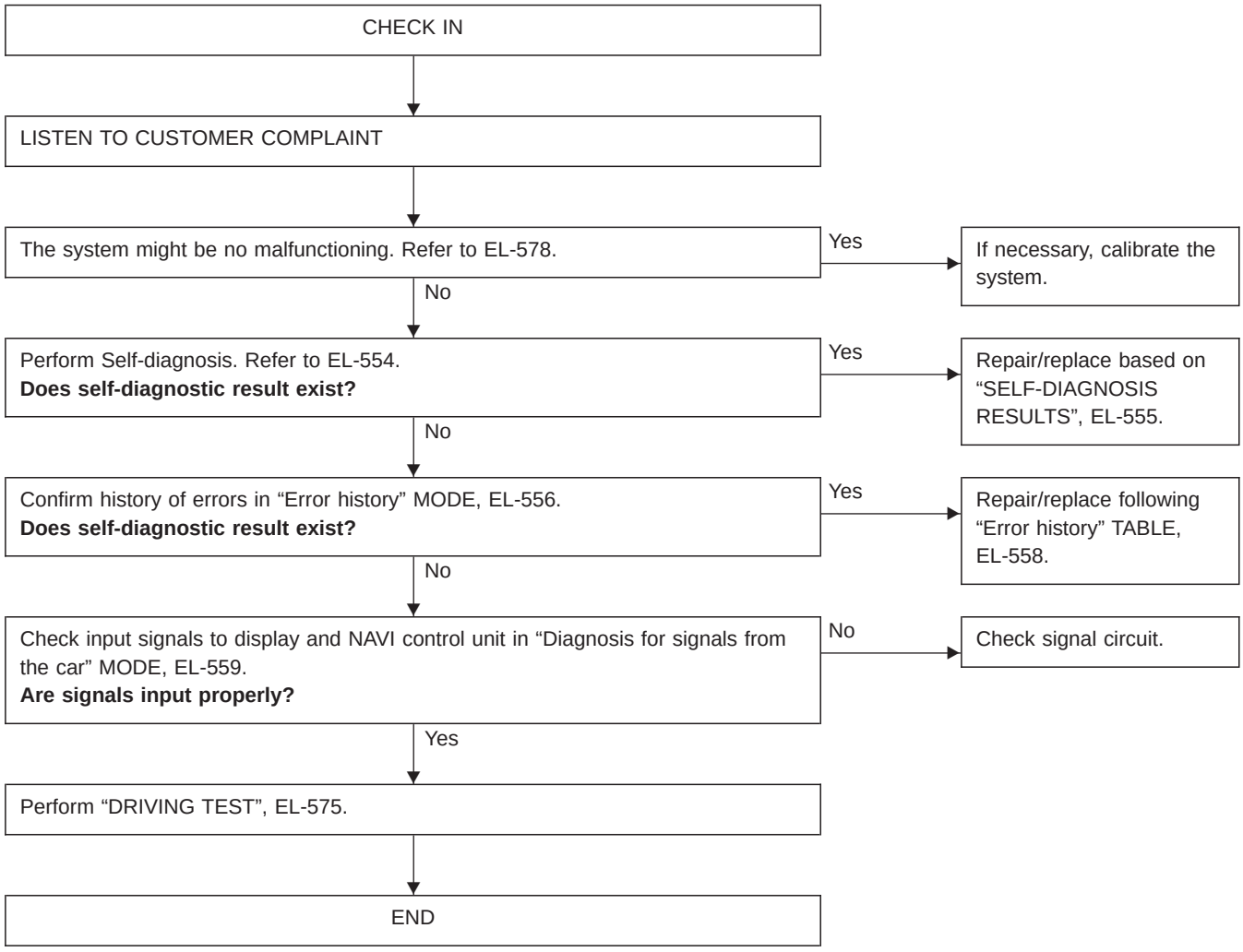
# Trouble Diagnoses

## SYMPTOM CHART

| Symptom | Diagnoses/service procedure | Reference page |
|---|---|---|
| Any function of the system does not operate. | Check power supply and ground circuit for display & NAVI control unit. | EL-576 |
| Strange screen color or unusual screen brightness. | 1. Check “DISPLAY SETTING”. | EL-567 |
| | 2. Check display in “Display Diagnosis” MODE. | EL-561 |
| The display is not dimmed when turning lighting switch to ON. | 1. Check “DISPLAY SETTING”. | EL-567 |
| | 2. Check lighting switch signal input to display & NAVI control unit correctly in “Diagnosis for the signals from the car” MODE. | EL-559 |
| No navigation guide voice are heard from both front speakers. | 1. Check “Voice Guidance Setting”. | — |
| | 2. Check voice guide operation. | EL-577 |
| Beep does not sound when the system guides route. | Check “BEEP ON/OFF SETTING”. | EL-567 |
| Position marker does not trace along the route being traveled. | Go to “WORK FLOW FOR NAVIGATION INSPECTION”. | EL-574 |
| Position marker does not indicate forward or backward movement. | Check reverse signal input to display & NAVI control unit correctly by “Diagnosis for the signals from the car” MODE. | EL-559 |
| Radio wave of GPS cannot be received. (GPS marker on the display does not become green color.) | 1. Is there anything obstructing the GPS antenna on the rear parcel finisher? (GPS antenna located under the rear parcel finisher.) | — |
| | 2. Check GPS radio wave receive condition in “GPS Information SETTING”. | EL-565 |
| | 3. Check GPS antenna in “Self Diagnosis”. | EL-554 |
| Heading direction of position marker does not match vehicle direction. | 1. Perform “Adjust Current Location” SETTING. | EL-566 |
| | 2. Go to “WORK FLOW FOR NAVIGATION INSPECTION”. | EL-574 |
| Stored location in the address book and other memory functions are lost when battery is disconnected or becomes discharged. | Stored location in the address book and other memory functions may be lost if the battery is disconnected or becomes discharged. If this should occur, charge or replace the battery as necessary and re-enter the information. | — |
| Map appears grey and cannot be scrolled. | The current location in the memory is out of the map data area.<br>Perform “Initialize Location”. | EL-587 |

## Trouble Diagnoses (Cont'd)

### WORK FLOW FOR NAVIGATION INSPECTION



## Trouble Diagnoses (Cont'd)

### DRIVING TEST

During the driving test, diagnose the system by checking the difference of symptoms with each sensor ON or OFF.

#### Test pattern 1

Test method in which current position adjustment is not made according to GPS data.

- Remove the GPS antenna connector from the display & NAVI control unit. Drive the vehicle.
  Before driving the vehicle, perform "Adjust Current Location" (EL-566).

#### Test pattern 2

Test procedure in which map matching is not used.

- Before driving the vehicle, perform "Adjust Current Location" (EL-566). With the ignition switch OFF and the map CD-ROM removed from the display & NAVI control unit, drive the vehicle. After driving the vehicle, reinstall the map CD-ROM. Compare the saved driving tracks for the vehicle's current location with roads on the map.

#### Example

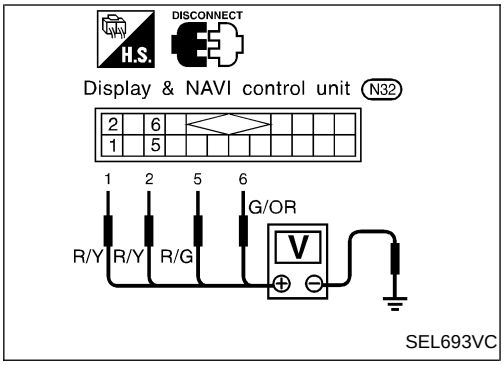
<The position marker consistently indicates the wrong position when driving in the same area. Determine if this is the result of the map matching function or the GPS function.>
→ Perform test pattern 1.
<To verify the accuracy of the road configuration shown on the display>
→ Perform test patterns 1 and 2.

- Compare the map and the saved driving tracks. The precision of the saved driving tracks is within several hundred meters.

<To make distance calibration and adjustments>
→ Perform test patterns 1 and 2.

- Make adjustments by driving the vehicle over a known course (highway or other road where distances are clearly marked). Calibrate the distance against the known distance. Use the formula below.
  Calibration value = $\frac{\text{Screen display distance}}{\text{Actual distance}}$

## Trouble Diagnoses (Cont'd)



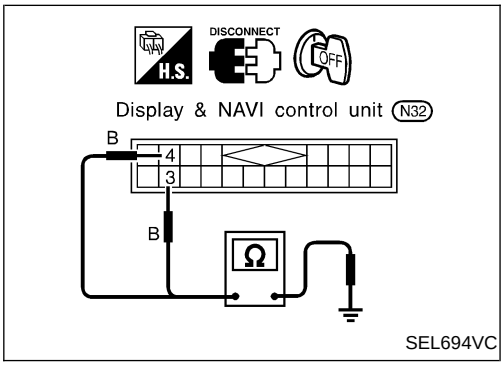

### POWER SUPPLY AND GROUND CIRCUIT CHECK FOR DISPLAY & NAVI CONTROL UNIT

#### Power supply circuit check

| Terminal | | Ignition switch | | |
|---|---|---|---|---|
| (+) | (−) | OFF | ACC | ON |
| ① | Ground | Battery voltage | Battery voltage | Battery voltage |
| ② | Ground | Battery voltage | Battery voltage | Battery voltage |
| ⑤ | Ground | 0V | 0V | Battery voltage |
| ⑥ | Ground | 0V | Battery voltage | Battery voltage |

If NG, check the following.

- 7.5A fuse [No. 32, located in the fuse block (J/B)]
- 10A fuse [No. 8, located in the fuse block (J/B)]
- 15A fuse [No. 58, located in the fuse block (J/B)]
- Harness for open or short between fuse and display & NAVI control unit



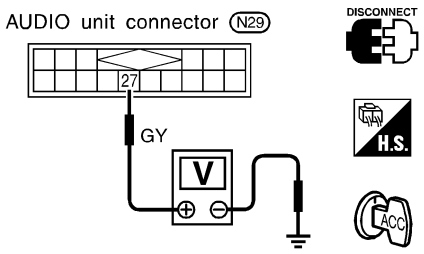

#### Ground circuit check

| Terminals | Continuity |
|---|---|
| ③ - Ground | Yes |
| ④ - Ground | Yes |

# Trouble Diagnoses (Cont'd)

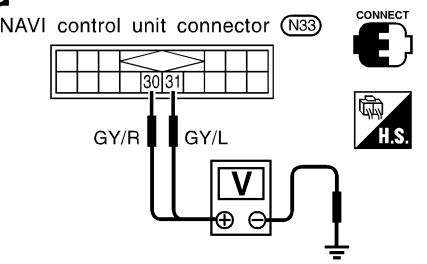
## VOICE GUIDE OPERATION CHECK

A



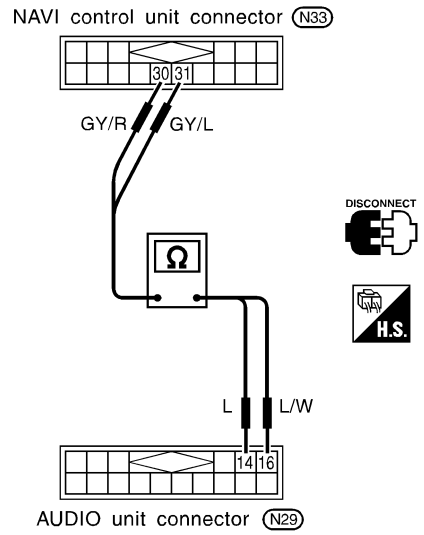

SEL650X

B




SEL651X

C




SEL652X

**PRELIMINARY CHECK**
1. Turn ignition switch to ACC position.
2. Insert the music CD into the radio and CD player.
3. Try to play the music CD.

**Is sound emitted from all speakers?**

No → Repair or replace audio system. Refer to "Audio" in EL section of Service Manual (SM0E-1F33U2).

Yes ↓

A

**CHECK NAVI OPERATION ON SIGNAL.**
1. Disconnect audio unit connector.
2. Push VOICE button.
3. Check voltage between terminal 27 and ground.

| Condition of VOICE button | Voltage (V) |
|---|---|
| Push. | Approx. more than 0 - 10 |
| Do not push. | 0 |

NG → Repair or replace harness or NAVI control unit.

OK ↓

B

**CHECK VOICE SIGNAL.**
1. Push VOICE button.
2. Check voltage between NAVI control unit terminal 30 or 31 and ground.

| Condition of VOICE button | Voltage (V) |
|---|---|
| Push. | Approx. 5 |
| Do not push. | 0 |

NG → Repair or replace NAVI control unit.

OK ↓

C

**CHECK VOICE SIGNAL CIRCUIT.**
1. Turn ignition switch OFF.
2. Disconnect NAVI control unit connector and audio unit connector.
3. Check continuity between NAVI control unit terminal 30 and AUDIO unit terminal 16.
4. Check continuity between NAVI control unit terminal 31 and AUDIO unit terminal 14.

**Does continuity exist?**

NG → Repair or replace harness or connector.

OK ↓

Repair or replace audio unit. Refer to "AUDIO" in EL section of Service Manual (SM0E-1F33U2).

## This Condition Is Not Abnormal

### EXAMPLE OF BASIC OPERATIONAL ERRORS

| Symptom | Possible cause | Repair order |
|---|---|---|
| No image is displayed. | Monitor brightness control is set to full dark. | Readjust monitor brightness. |
| Map does not appear on display. | Map CD is not inserted or inserted upside down. | Insert the map CD with the label facing up. |
| | Map mode is turned OFF. | Press the “MAP” button. |
| No guide tone is heard. | Voice guide adjustment OFF/Volume is set to the lowest or highest level. | Adjust the voice guide level. |
| Voice guide volume is too high or too low. | | |
| Dark display/Slow image movement | Low vehicle interior temperature | Wait until vehicle interior temperature rises to appropriate level. |
| Small black or white dots appear on the screen. | Unique liquid crystal display phenomena | No problem |
| “Unable to read CD” message appears only during specified operation. | Map CD surface is tainted/CD surface is partially scratched. | Check map CD surface. If dirty, wipe clean with a soft cloth. |
| | | If map CD surface is damaged, replace the CD. |

**Area place names are not displayed.**

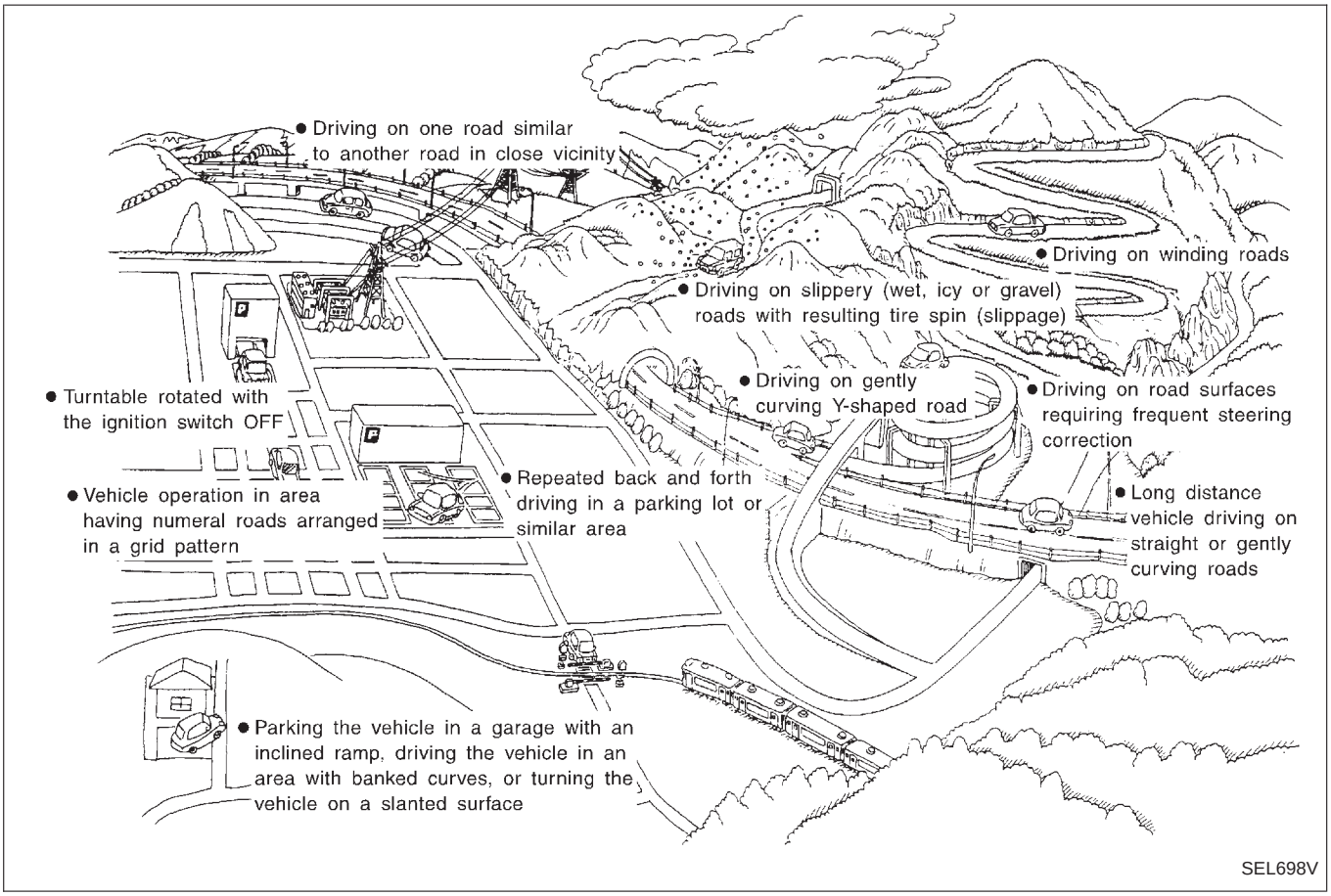
If area place names do not appear on the map display, these names may not be available. Use the BIRDVIEW® flat surface map display function. Display output may differ. Note the items related to BIRDVIEW® below.

- Priority is given to the display of place names in the direction of vehicle travel.
- Extended display of vehicle travel distance for both surfaces and steering angle (flat directional changes). This phenomenon disappears after the display image has been replaced by another one.
- The names of route and area might vary between the immediate front area and distance front area.
- Alphanumeric display characters are limited to maintain display simplicity and clarity. Display details may differ with time and place.
- Identical place and road names may appear on the display at more than one location.

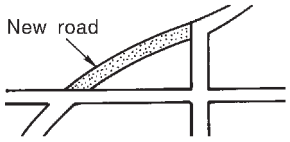
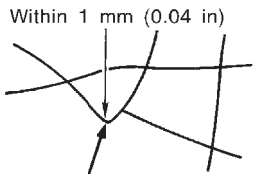
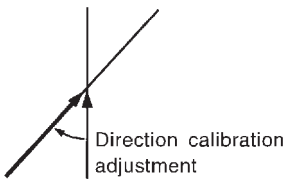
## This Condition Is Not Abnormal (Cont'd)

### EXAMPLE OF CURRENT VEHICLE POSITION MARKER ERROR

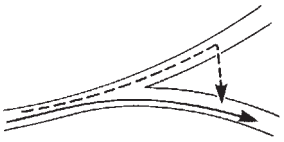
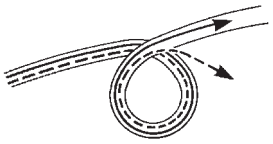
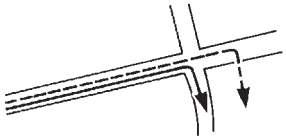
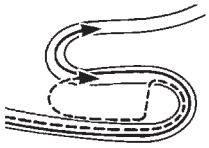
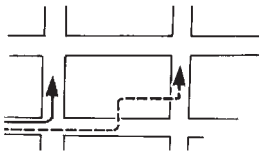
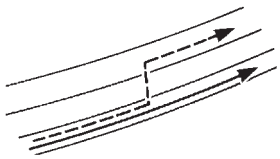
The navigation system reads the vehicle distance and steering angle data. Because the vehicle is moving, there will be an error in the current position indication. After the error appears, drive the vehicle for a short distance. Stop the vehicle. If the position marker does not return to its original position, perform "Adjust Current Location" (EL-566).



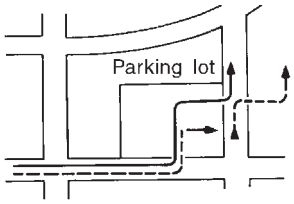
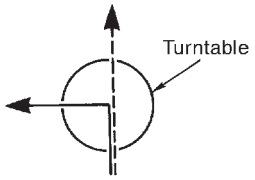
## This Condition Is Not Abnormal (Cont'd)

| Possible cause | | Drive condition | Service procedure |
|---|---|---|---|
| Area | Slippery road surface | On wet, icy, or gravel road where frequent wheel slippage occurs, distance calculations may be erroneous. The position marker may show the vehicle to be in inaccurate position. | If the position marker does not move to the correct position even after the vehicle has been driven approximately 10 km (6 miles), perform "Adjust Current Location" (EL-566). If necessary, perform "SPEED CALIBRATION" (EL-564). |
| | Slanted area | Hilly areas where the road has banked curves. When the vehicle enters these banked curves, there may be an error in steering angle measurement. The position marker may show the vehicle to be in inaccurate position. | |
| Map data | Map display for a given road does not appear.<br>  <br><br>SEL699V | When the vehicle is driven on a newly constructed road that does not appear on the existing map. Map marking and calibration are not possible. The position marker may indicate inaccurate position in close proximity to the actual position. Subsequently, when the vehicle is driven on a road which is available as map data, the position marker may still indicate an inaccurate position. | |
| | The vehicle is driven on a road whose course has been altered (usually to improve the road or to eliminate some hazard).<br>  <br>SEL700V | When the map data shown on the display and the actual conditions are different. Map matching will not be possible. The position marker may indicate inaccurate position in close proximity to the actual position. If the vehicle is driven on the indicated road, further errors may occur. | |
| Vehicle | Use of tire chains (Stormy weather) | Tire chains will affect distance sensing. The position marker may indicate inaccurate position. | If the position marker does not move to the correct position even after the vehicle has been driven approximately 10 km (6 miles), perform "SPEED CALIBRATION" (EL-564). After removing the tire chains, sensing accuracy may recover by itself. |
| Operation | Driving immediately after starting engine. | The gyro (angular velocity sensor) needs about 15 seconds after the engine is started to precisely sense the angular velocity. Directional sensing errors will occur if the vehicle is moved immediately after starting the engine. The position marker may indicate inaccurate position. | Wait a few moments between starting the engine and actually driving the vehicle. |
| | Continuous driving for long distances (non-stop) | When the vehicle is driven continuously without stopping over a long distance, errors in directional sensing may occur. The position marker may indicate inaccurate position. | Stop the vehicle. Perform "SPEED CALIBRATION" (EL-564). |
| | Rough or violent driving | Wheel spinning (peeling out) or similar rough driving techniques can adversely affect sensing accuracy. The position marker may indicate inaccurate position. | If the position marker does not move to the correct position even after the vehicle has been driven approximately 10 km (6 miles), perform "Adjust Current Location" (EL-566). |
| Positional calibration procedures | Positional calibration precision<br>  <br><br>SEL701V | If current vehicle location is roughly set, the system may be unable to locate the road that the vehicle is traveling on. (This is especially true in an area where there are many roads.) | Perform "Adjust Current Location" (EL-566) within a precision standard of 1 mm (0.04 in) on the display.<br>Note:<br>During calibration, use the most detailed map possible. |
| | Position calibration direction<br>  <br><br>SEL702V | When calibrating the position, check the vehicle direction. If the vehicle direction is not correct, subsequent precision of current location will be affected. | Perform "Adjust Current Location", refer to EL-566. |

## This Condition Is Not Abnormal (Cont'd)

| Possible cause (—: Vehicle running, ---: Indication) | | Drive condition | Service procedure |
|---|---|---|---|
| Road shapes | Y-intersection  SEL703V | In Y-intersections with a very gradual change in course, a directional sensing may be inaccurate. This may result in the position marker giving the wrong road indication. | If the position marker does not move to the correct position even after the vehicle has been driven approximately 10 km (6 miles), perform "Store place". If required, also perform "Adjust Current Location" (EL-566). |
| | Spiral road  SEL704V | On loop bridges and similar structures which result in a large and continuous turn, turning angle may be sensed inaccurately. As a result, the position marker may separate from the route on the map. | |
| | Straight road  SEL705V | In long distance driving on a straight road or road with very gradual curves, map marking inaccuracies may occur. In such cases, the position marker may stray from the route being traveled during subsequent turns due to inaccurate distance calculation. | |
| | Winding road  SEL706V | Directional sensing precision errors may occur when traveling on winding roads. During map matching, the position marker may stray to an adjacent road having a similar shape. Subsequent position marker error may occur. | |
| | Grid-like road shape  SEL707V | Directional sensing and distance sensing, precision errors may occur because of many roads having a similar shape in the immediate area. During map matching, the position marker may stray to an adjacent road having a similar shape. Subsequent position marker error may occur. | |
| | Parallel roads  SEL708V | When driving on a parallel road, map matching errors may occur. Subsequent position marker error may also occur. | |

## This Condition Is Not Abnormal (Cont'd)

| Possible cause —: Vehicle running ---: Indication | | Drive condition | Service procedure |
|---|---|---|---|
| Location | Parking lot or similar area<br>  <br><br>SEL709V | When the vehicle is driven in a parking lot or similar area, such as in an area not normally marked as a road on map, during map matching, the system may select nearby roads. This error may continue after the vehicle exits the parking area and begins to run on ordinary roads. Vehicle operation in a parking area may involve frequent turns and up and/or down operation. Directional sensing errors may occur leading to subsequent route and position mistakes. | |
| | Turntable<br>  <br><br>SEL710V | When the ignition switch is OFF (the usual situation when the vehicle is on a turntable), the navigation system receives no data from the gyro (angular velocity sensor). When the turntable rotates, no directional change is sensed. During subsequent vehicle operation, directional and route errors may occur. | |

### Position marker displays a completely different location

In circumstances such as those described below, GPS signal reception conditions may result in an erroneous position of the position marker. Perform "Adjust Current Location" (EL-566).
NOTE:

- When GPS satellite signal reception conditions are poor, the position of position marker may be erroneous. If correction is not made immediately, the position marker error will be compounded and a completely different location will be indicated. In an area where GPS satellite signal reception conditions are good, the system can be returned to normal operation.
- The vehicle is driven aboard a car ferry or is towed for some distance with the ignition switch OFF. Vehicle movement is not sensed. Current location calculations do not occur and current location data does not appear on the display screen. Use GPS to accurately determine actual vehicle position. The system can be returned to normal operation when the GPS satellite signal reception conditions are good.

### Position marker jumps

In circumstances such as those described below, the position marker may jump as a result of automatic current location corrections made by the system.
During map matching

- During map matching, the position marker may jump from one spot to another. In this case, it may be corrected to a wrong road or to an area where no road exist.

GPS location correcting

- Vehicle current location is sensed using the GPS data. Positional calibration is performed. The position marker continues to be in the wrong position. It may jump about from one area of the screen to another. In this case, it may be corrected to a wrong road or to an area where no road exist.

### Position marker indicates that the vehicle is in the middle of an ocean or large river

The navigation system does not distinguish between land and water surfaces. In some cases, a position marker error may cause the display to show the vehicle above a water surface.

### Position of position marker varies when the vehicle is repeatedly operated on the same road

Driving lane and steering wheel movement results in a variety of different positions of the position mark when traveling on the same road based on sensing results by the GPS antenna and gyro (angular velocity sensor).
Slow locational correction using map matching

- The map matching function requires verification of local data. To make the map matching function, some distance needs to be driven.
- The map matching function may not provide accurate performance in an area where there are numerous parallel roads. Until the system judges the road characteristics, an incorrect position may be shown.

## This Condition Is Not Abnormal (Cont'd)

**GPS signal reception conditions are good. However, the position mark does not return to its proper position.**

- The system senses the vehicle location with an error of approximately 100 m (328 ft). Due to the limitation of precision, the position marker may be inaccurate even if the GPS signal reception condition is good.
- The navigation system uses GPS data to determine vehicle location. GPS data is compared with other locational sensing data during the map matching process. The system decides which data is more precise and uses that data.
- When the vehicle is stationary, GPS data cannot be used to make system corrections.

**Area designations on the map display and the BIRDVIEW® display differ.**

To prevent the display from becoming congested, alphanumeric information is abridged.
[No problem]

**Correct position of your vehicle is not displayed.**

Vehicle position changed after ignition key was turned to the OFF position (Vehicle is transported on car ferry, car train, or by some other means).
[Operate vehicle for short time under GPS receiving conditions.]

**The display does not change to night-time mode even though the light switch has been turned ON.**

Lights have been turned on. In "DISPLAY CHANGE" mode, night-time mode on display has been switched to day-time mode and still is.
[Turn lights on again. Set the display to night-time mode. Refer to EL-567.]

**Map does not scroll even though the position of your vehicle is changed.**

Present area does not appear on the display.
[Press the "MAP" switch.]

**Vehicle position marker does not appear.**

Present area does not appear on the display.
[Press the "MAP" switch.]

**The map surface precision display (GPS satellite marker) still remains gray.**

Vehicle is parked inside a building or in the shadow of a large building. This intercepts the GPS signal.
[Move the vehicle to a more open position.]
GPS signal is not received because objects are placed on the rear parcel shelf.
[Remove objects from the rear parcel shelf.]
GPS satellite position is bad.
[Wait until GPS satellite position improves.]

**Vehicle position precision is bad.**

The map surface precision display (GPS satellite marker) still remains gray.
[Refer to "The map surface precision display (GPS satellite marker) still remains gray" item (Symptoms)]
Vehicle speed and elapsed distance is calculated from the vehicle speed pulse. This pulse is dependent upon tire size. If tire chains are used on the vehicle, accuracy will be affected (pulse rate will be too fast or too slow). The same is true if the system installed to your vehicle is removed and installed on another vehicle.
[Drive the vehicle at a speed higher than 30 km/h (19 MPH) for approximately 30 minutes. Automatic readjustment should occur. If it does not (remains too fast or too slow), distance calibration is required. Or, drive the vehicle for a short distance. Perform "SPEED CALIBRATION" (EL-564). After removing the tire chains, sensing accuracy may recover by itself.]
Bad map data or system defect (same error consistently occurs in the same area)

### ROUTE SEARCH/ROUTE GUIDE

- If the present location or the destination location is displayed in the avoid area, it is not possible to search routes.
- If the avoid area is set to wide range area, it may not be possible to find appropriate routes or search for alternate routes.
- The automatic re-route calculates a return to the original route. Because of this, it may not be possible to search appropriate new routes. If you deviate from the original route and wish to select an appropriate new route, touch "Route Calculation".
- The automatic re-route function may sometimes require considerable time.
- Displayed route number and directional information at a highway junction may differ from the information posted on the actual road signs.
- Displayed street name information at a highway exit may differ from the information posted on the actual road signs.

## This Condition Is Not Abnormal (Cont'd)

- Street name information displayed on the enlarged intersection map may differ from the information posted on the actual road signs.
- The enlarged intersection map may display an "Unknown street" message at some street intersections.
- Because of road configuration, etc. the guide may finish early. If this occurs, follow the marker to reach your destination.
- Destination area side information (left side and right side) may differ from actual conditions because of data error.

### Unable to set destination, way point, and/or menu items

| Symptom | Possible cause | Repair order |
|---|---|---|
| Unable to search way points in re-search mode | A way point already crossed or determined to have been crossed. | If you desire to pass through a way point for a second time, reperform route edit. |
| Turn list is not displayed. | Route search does not occur. | Set designation areas and perform route search. |
| | Car marker does not appear on recommended route. | Drive on the recommended route. |
| | Route guide is canceled. | Turn the route guide ON. (Push "VOICE" switch.) |
| Automatic search does not function. | Vehicle is not running on search object route (road indicated by orange, brown or red line). | Drive the vehicle on the search object route or perform a manual route search. Note that all routes will be re-searched at this time. |
| Unable to select detour route. | Vehicle is not running on recommended route. | Use the "RE-ROUTE" mode to search again or return to the recommended route. |
| Detour route search results are identical to previous search. | All possible conditions were considered, but results are the same. | This is not abnormal. |
| Unable to set a way point. | More than five way points have been previously set (and not cleared). | More than five way points cannot be specified at the same time. Break down into smaller segments and perform search. |
| Unable to select starting point during route edit. | Starting point will normally be your present location during route edit. | This is not abnormal. |
| Cannot select certain menu items. | While vehicle is running. | Park the vehicle in a safe area and perform operation. |

### Voice guide information

| Symptom | Possible cause | Repair order |
|---|---|---|
| Voice guide does not function. | Voice guide is only available at certain intersections (marked with ⚲). In some cases, the guide is not available even when the vehicle makes a turn. | This is not abnormal. |
| | Vehicle is not running on recommended route. | Return to recommended route or reperform route search. |
| | Voice guide is OFF. | Set voice guide to the ON position. |
| | Route guide is canceled. | Turn the route guide ON. (Push "VOICE" switch.) |
| The guide content does not correspond to actual conditions. | The content of the voice guide may vary depending on the type of junction. | Operate vehicle following the traffic rules and regulation. |

## This Condition Is Not Abnormal (Cont'd)

### Route search information

| Symptom | Possible cause | Repair order |
|---|---|---|
| Proceeding in desired direction. However, route search in desired direction does not function. | Unable to find appropriate route in the desired direction. | This is not abnormal. |
| No route is displayed. | No object route is searched near destination area. | Adjust position to wide road (brown) near destination area. In an area where traffic direction is displayed separately, pay close attention to the direction of travel. Set the destination area and the way point over the road. |
| | Starting point and destination areas are very near. | Move destination areas away from starting point on the screen. |
| Recommended route which has been passed disappears from the display. | The recommended route is divided into individual control segments. When way point 1 is passed, the data from the starting point to the way point 1 is erased. | This is not abnormal. |
| Search recommends roundabout route. | There may be special conditions for roads near the starting point and destination area (one-way traffic, etc.). A roundabout route may be displayed. | Slightly change starting point and destination area settings. |
| Landmark display does not show actual conditions. | Mistaken or missing map data may result in erroneous display. | Change map CD. |
| Recommended route drawn slightly away from starting point, way points, and destination area. | Course search data may not exist for closely positioned starting point, way points, and destination area shown on the map. Route guide starting point, way point, and destination point may be separated. | Set the destination area to the general route (indicated by a thick brown line). However, even if the selected route is a major one, appropriate route search data may not be available. |

### LOCATION OF CAR MARKER

- If the vehicle has been parked in a multi-level parking facility or underground parking facility, the car marker position may be inaccurate immediately after exiting the parking facility.
- The GPS accuracy is within ±100 m (300 ft). Even when receiving conditions are excellent, further positional correction may not occur.

### STREET INDICATION

- Street names displayed on the map may differ from the actual street names.
- An "Unknown Street" message may appear on the map in place of street name information.

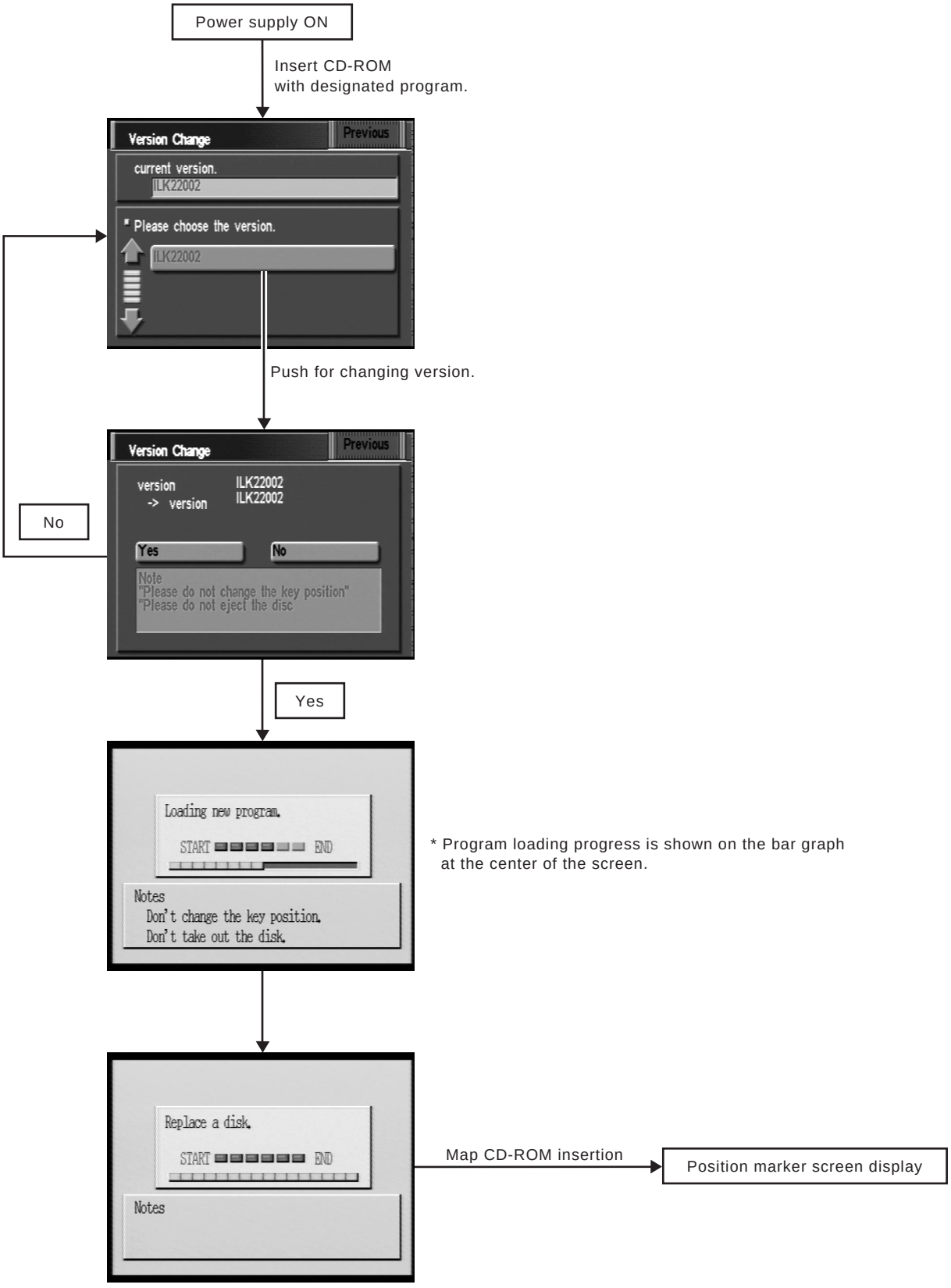
### RESEARCH

- Position may be searched by house number. However, the displayed position and street may differ from the actual position and street.
- When position is searched using POI, the displayed position may differ from the actual position.
- Some data may not be available for new buildings and other structures in a map.

### GPS ANTENNA

- Do not place metal objects above the GPS antenna mounted on the rear parcel shelf. This will cause interference with signal reception.
- Do not place mobile telephones or vehicle radio transceivers in close proximity to the GPS antenna mounted on the rear parcel shelf. This may cause interference with signal reception.

# Program Loading




Note: Load the program only after the engine has been started.

SEL612X

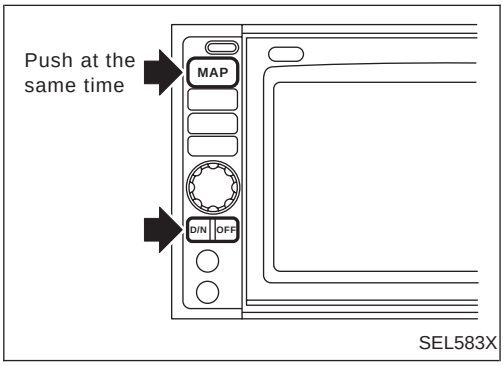
## Initialize Location

This procedure is for initializing the current location. Perform “Initialize Location” when the vehicle is transported a long distance on a trailer, etc.
Map with grey background appears and the vehicle location can not be adjusted by scrolling the memory is out of the area of the inserted map data.
Perform “Initialize Location” when this occurs.

**NOTE:**

- **Only initialize the system when the display & NAVI control unit is replaced. If the system is initialized in other cases, it may cause inaccurate positioning of the position marker for a while.**
- **Initialize the system outside for receiving the radio wave from the GPS satellite.**

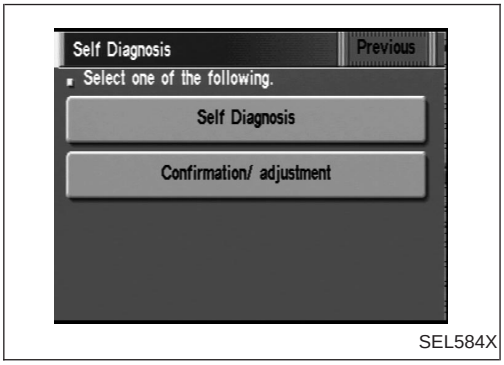




SEL583X

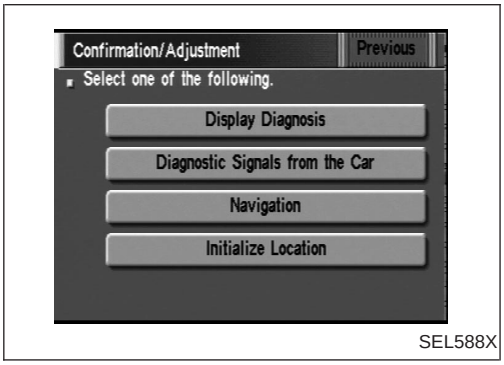
### HOW TO PERFORM

1. Switch the navigation system mode to self-diagnosis by pushing both “MAP” and “D/N” switches at the same time for more than 5 seconds.



SEL584X

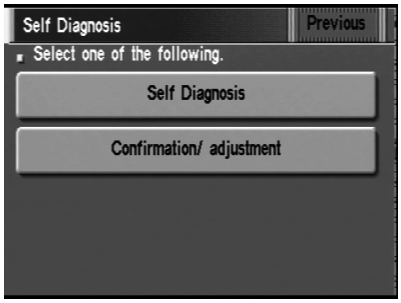
2. Touch “Confirmation/ adjustment”.



SEL588X

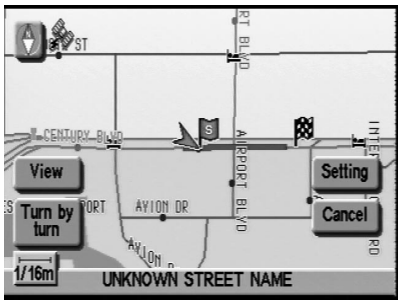
3. Touch “Initialize Location”. Then the previous screen is displayed.

## Initialize Location (Cont'd)



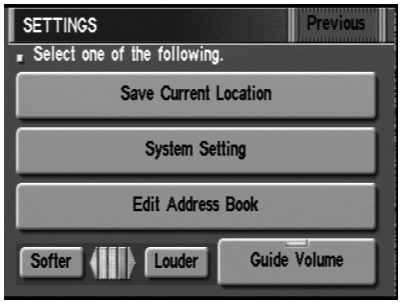

SEL584X

4. Push "Previous" switch.



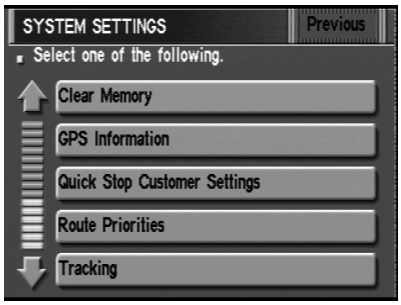

SEL598X

5. Push the "MAP" switch.
6. Touch "Setting".



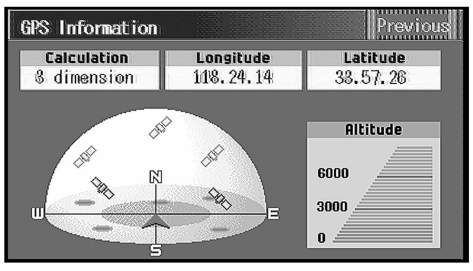

SEL599X

7. Touch "System Setting".




SEL600X

8. Touch "GPS Information".

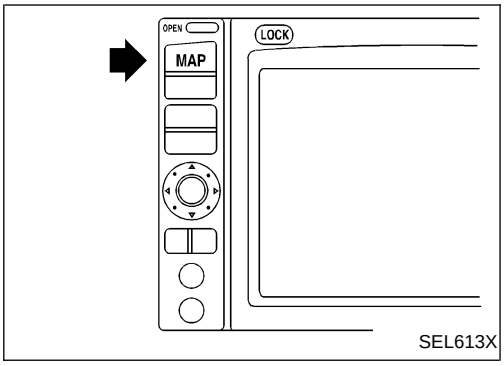



SEL146W

9. More than one GPS satellite icon turns green. (It may take 1 to 15 minutes.)

**NOTE:**
**Drive the vehicle for a while* in order to change the receiving condition of the radio wave from the GPS satellite if the GPS icon does not turn green.**
*** The driving distance which is necessary depends on the receiving condition of the radio wave from the GPS satellite.**

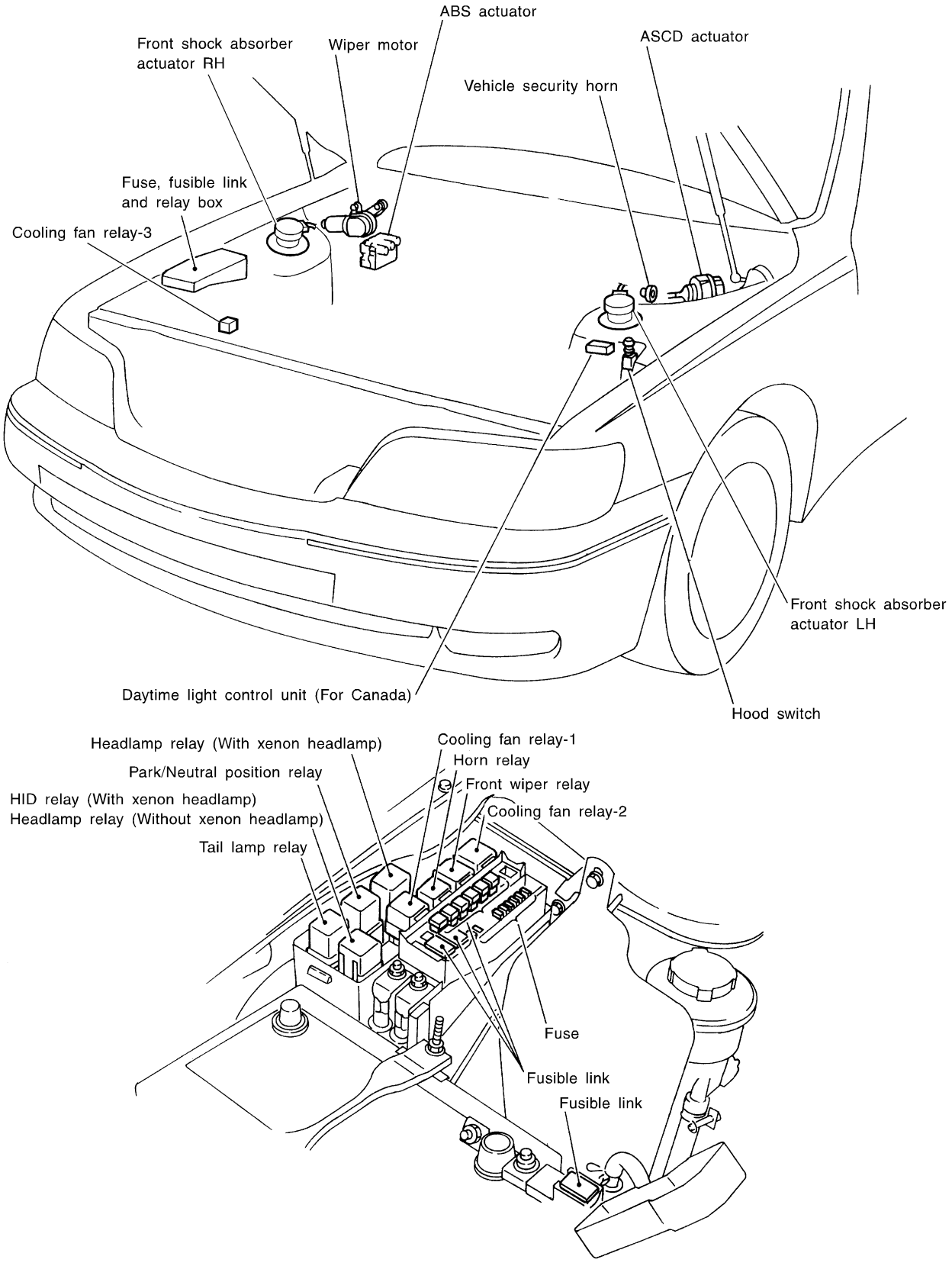
## Initialize Location (Cont'd)




10. Push "MAP" switch and check the following.
- Confirm that the GPS icon on the map turns green.
- Then the position marker should show the current location.
- Position marker rotates corresponding to the movement of the vehicle.

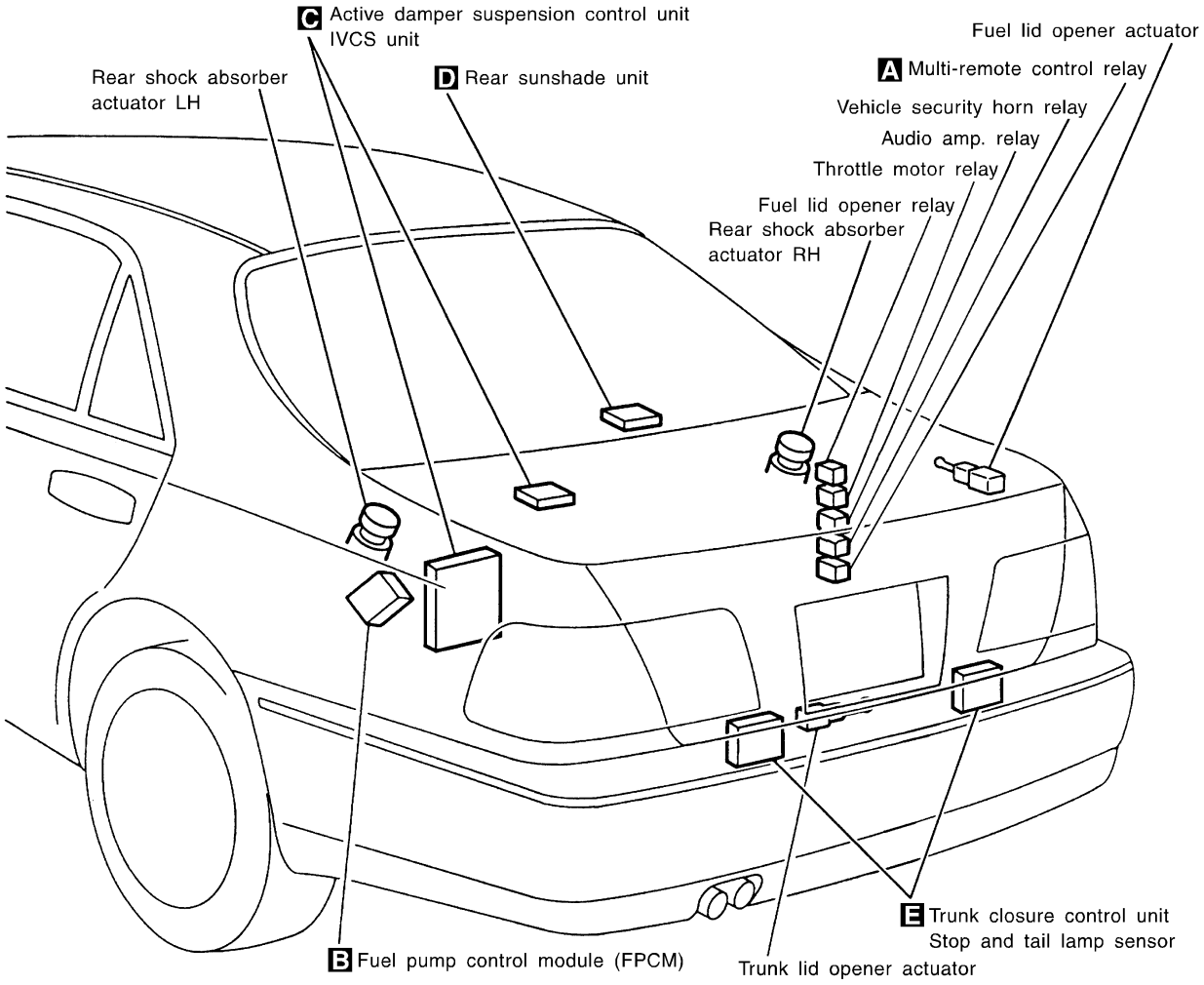
11. Initialization is completed.

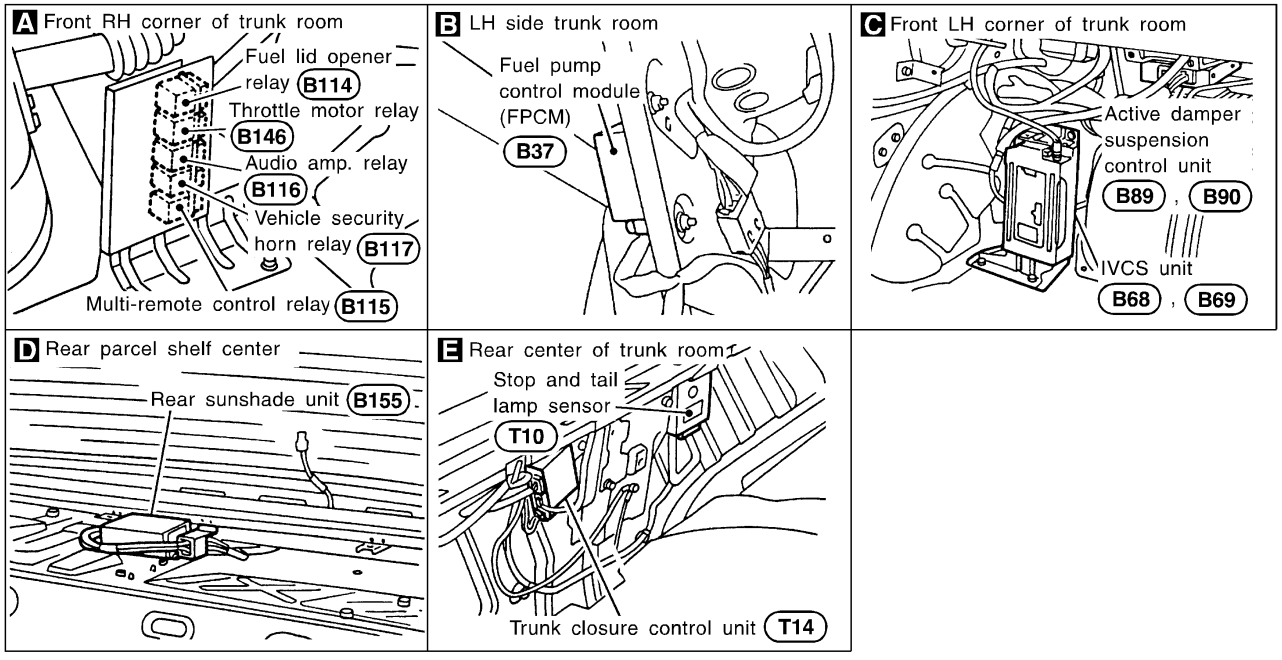
## Engine Compartment




CEL280A

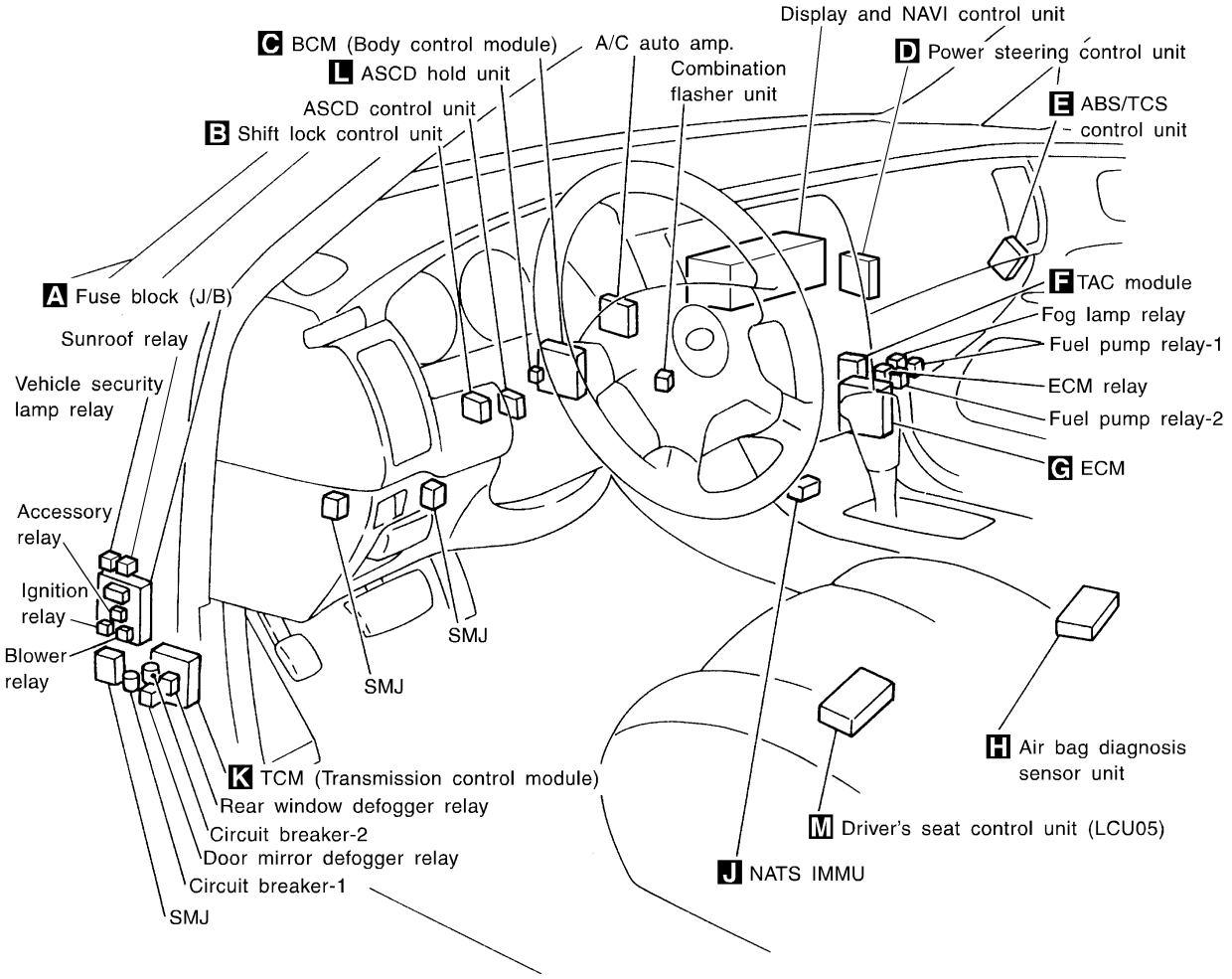
## Luggage Compartment



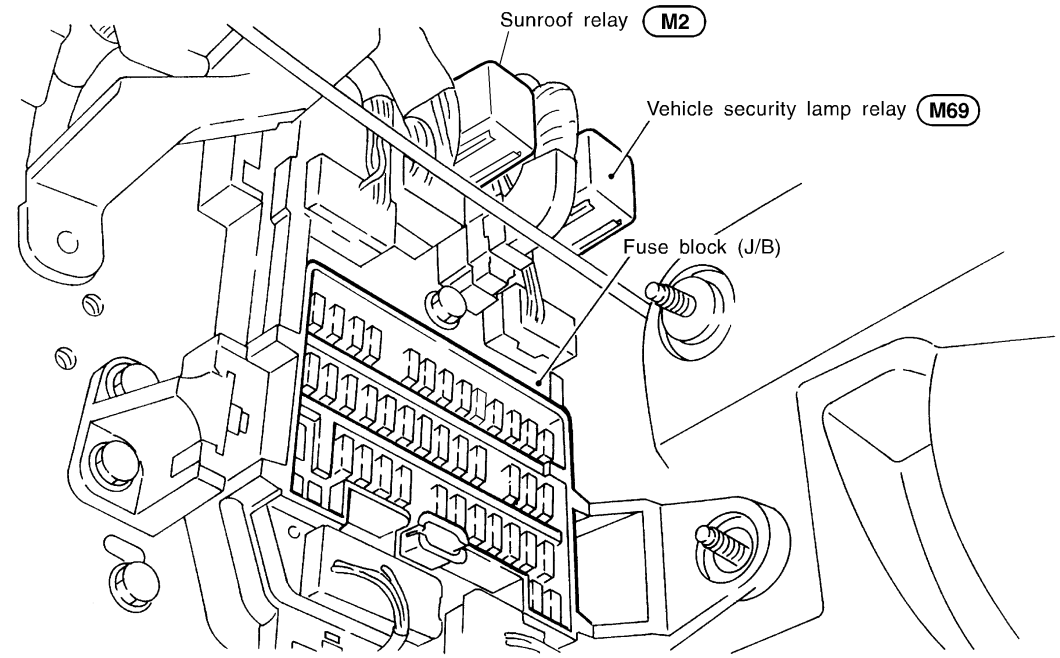




CEL281A

## Passenger Compartment

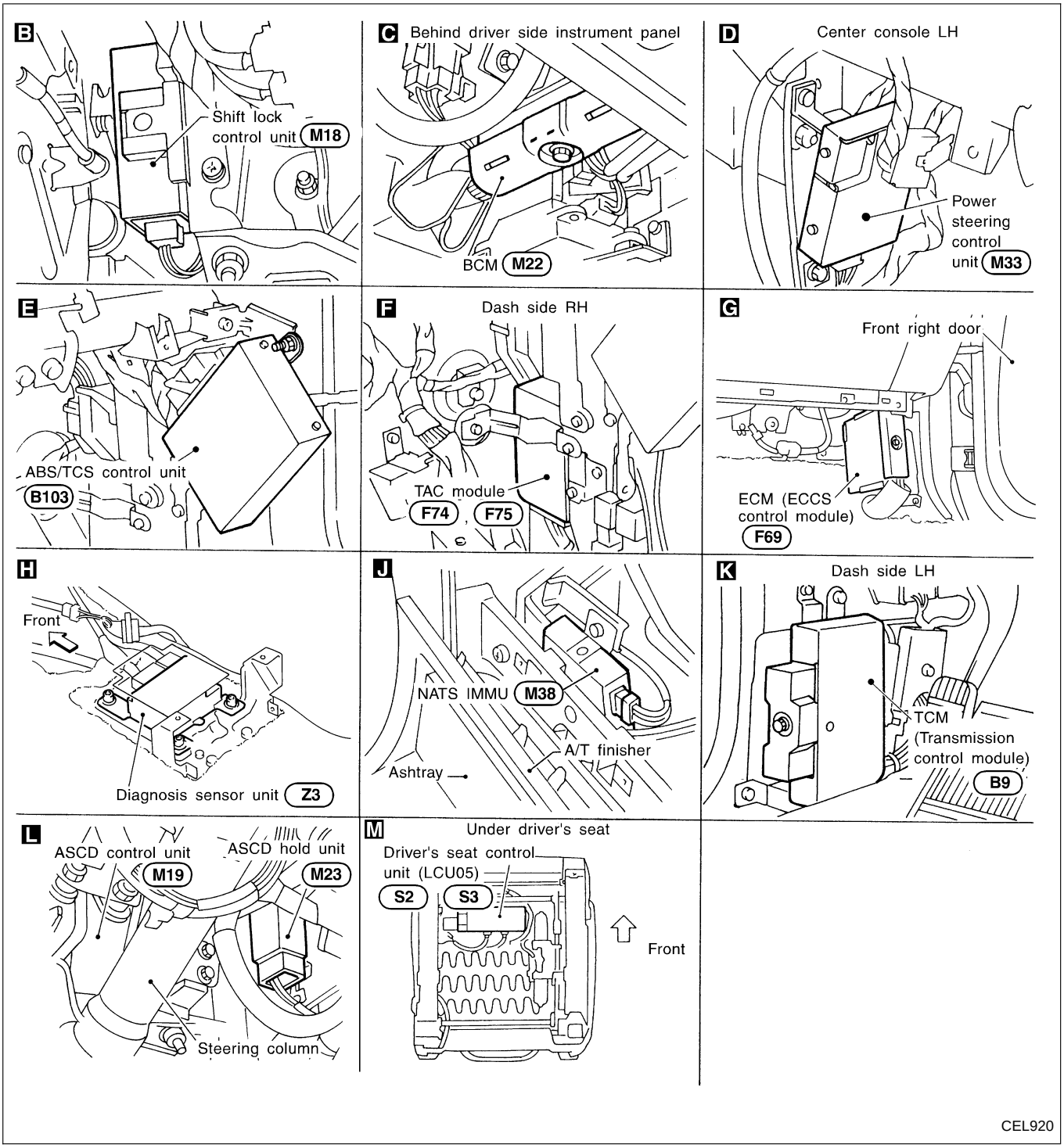



A Instrument panel LH side

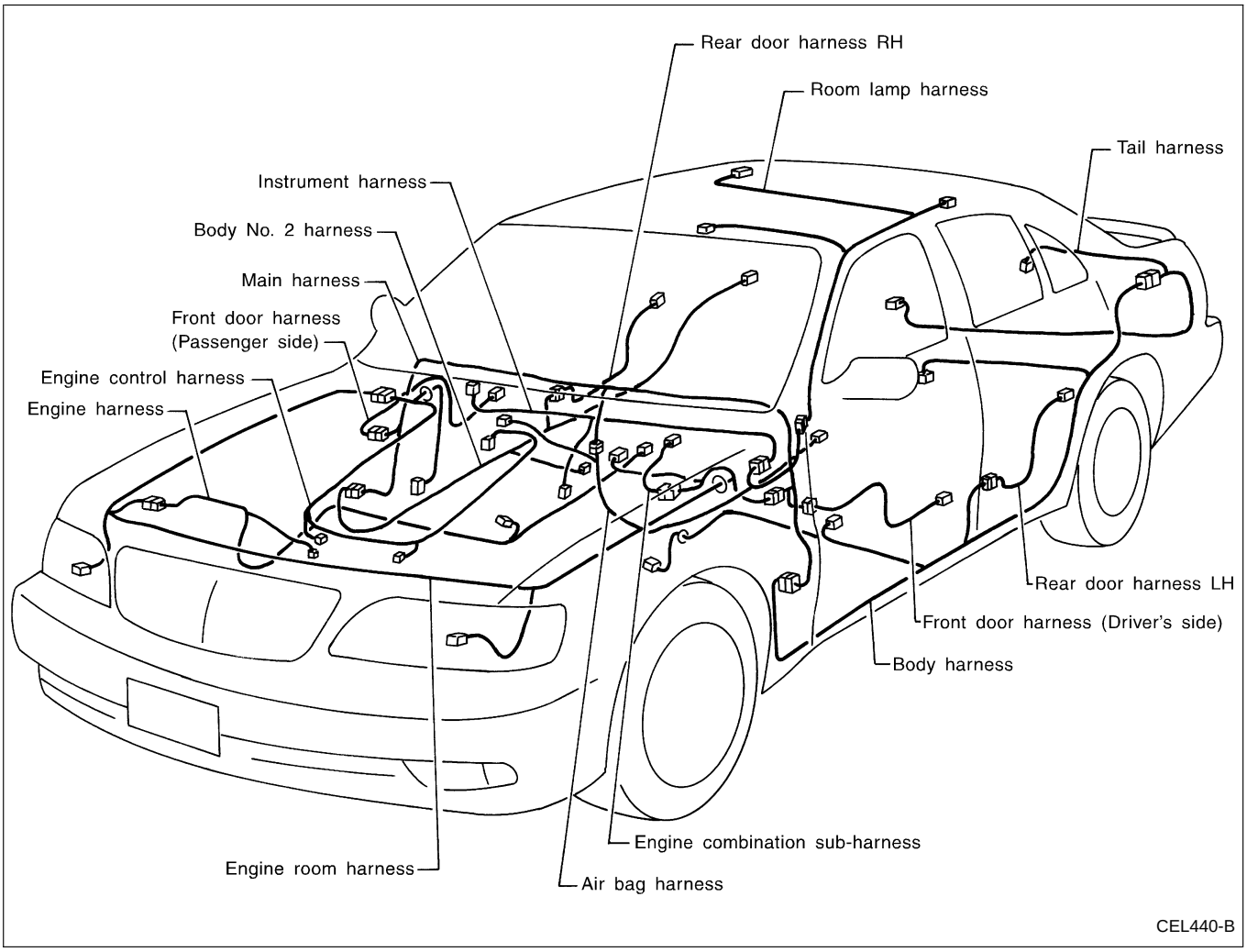



CEL282A

## Passenger Compartment (Cont'd)



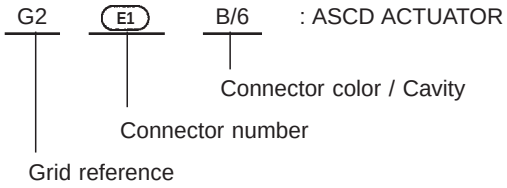
## Outline




**NOTE: For detailed ground distribution information, refer to "GROUND DISTRIBUTION", EL-23.**

## How to Read Harness Layout

Example:




The following Harness Layouts use a map style grid to help locate connectors on the drawings:
- Main Harness
- Engine Room Harness (Engine Compartment)
- Body Harness and Tail Harness
- Body No. 2 Harness

**To use the grid reference**

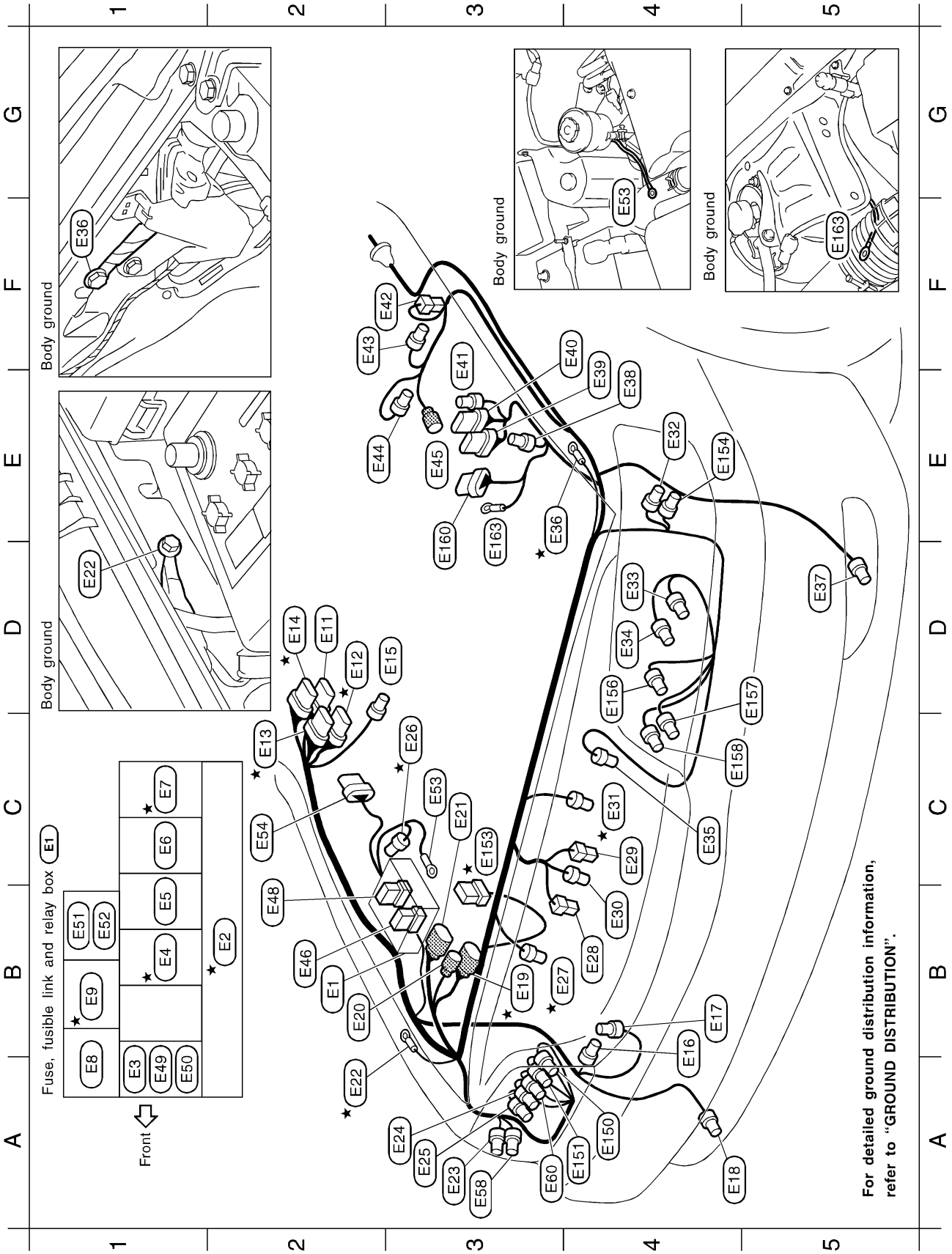
1) Find the desired connector number on the connector list.
2) Find the grid reference.
3) On the drawing, find the crossing of the grid reference letter column and number row.
4) Find the connector number in the crossing zone.
5) Follow the line (if used) to the connector.

**CONNECTOR SYMBOL**

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

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

## Engine Room Harness




CEL283A

## Engine Room Harness (Cont'd)

B2 (E1) – : Fuse, fusible link and relay box
B1★(E2) – : Fuse, fusible link and relay box
(E3) BR/6 : Headlamp relay
B1★(E4) BR/6 : Cooling fan relay-1
B1 (E5) W/3 : Horn relay
C1 (E6) B/5 : Front wiper relay
C1★(E7) BR/6 : Cooling fan relay-2
B1 (E8) GY/6 : Tail lamp relay
B1★(E9) GY/6 : Park/Neutral position relay
D2 (E11) DGY/8 : To (F4)
D2★(E12) SB/8 : To (F3)
C2★(E13) GY/8 : To (F2)
D2★(E14) GY/6 : To (F1)
D3 (E15) B/2 : ABS actuator
A4 (E16) GY/2 : Front washer motor
B4 (E17) BR/2 : Washer level switch
A4 (E18) GY/2 : Front fog lamp RH
B3★(E19) B/6 : To (E102)
B2 (E20) GY/1 : To (E103)
C3 (E21) SB/8 : To (E101)
A2★(E22) – : Body ground
(E23) BR/3 : Front combination lamp RH (Without xenon headlamp)
(E24) B/3 : Headlamp RH (For U.S.A. without xenon headlamp)
(E25) B/3 : Headlamp RH (For Canada without xenon headlamp)
C3★(E26) GY/2 : Dropping resistor
B3★(E27) DGY/4 : Cooling fan motor-2
B4 (E28) B/1 : Horn low
C4 (E29) B/1 : Horn high
B4 (E30) B/2 : Ambient sensor
C4★(E31) DGY/4 : Cooling fan motor-1
(E32) BR/3 : Front combination lamp LH (Without xenon headlamp)
(E33) B/3 : Headlamp LH (For Canada without xenon headlamp)
(E34) B/3 : Headlamp LH (For U.S.A. without xenon headlamp)
C4 (E35) B/4 : Triple-pressure switch
E3★(E36) – : Body ground
D5 (E37) GY/2 : Front fog lamp LH
E4 (E38) GY/2 : Hood switch
E4 (E39) GY/8 : Daytime light control unit (For Canada)
F4 (E40) GY/6 : Daytime light control unit (For Canada)
F3 (E41) GY/4 : Daytime light control unit (For Canada)
F3 (E42) B/1 : Vehicle security horn
F2 (E43) GY/4 : ASCD pump
E2 (E44) GY/2 : Brake fluid level switch
E3 (E45) GY/2 : Front wheel sensor LH
B2 (E46) GY/6 : Joint connector-13
B2 (E48) W/6 : Joint connector-15
A1 (E49) BR/6 : HID Relay (For U.S.A. with xenon headlamp)
A1 (E50) BR/6 : HID Relay (For Canada with xenon headlamp)
B1 (E51) BR/6 : Headlamp relay (For U.S.A. with xenon headlamp)
B1 (E52) BR/6 : Headlamp relay (For Canada with xenon headlamp)
C3 (E53) – : Body ground (With active damper suspension)
C2 (E54) DGY/6 : Front shock absorber actuator RH (With active damper suspension)
A3 (E58) GY/3 : Front combination lamp RH
A3 (E60) B/3 : Headlamp aiming motor RH (With headlamp aiming system)
A4 (E150) GY/4 : Headlamp RH (For U.S.A. with xenon headlamp)
A4 (E151) GY/4 : Headlamp RH (For Canada with xenon headlamp)
C3★(E153) BR/6 : Cooling fan relay-3
E4 (E154) GY/3 : Front combination lamp LH
D4 (E156) B/3 : Headlamp aiming motor LH (With headlamp aiming system)
D4 (E157) GY/4 : Headlamp LH (For U.S.A. with xenon headlamp)
C4 (E158) GY/4 : Headlamp LH (For Canada with xenon headlamp)
D3 (E160) SB/6 : Front shock absorber actuator LH (With active damper suspension)
D3 (E163) – : Body ground (With active damper suspension system)

★ : Be sure to connect and lock the connectors securely after repair work. Failure to do so may cause the ECM to have diagnostic trouble codes. **Do not disconnect these connectors except in the case of working according to WORK FLOW of TROUBLE DIAGNOSES in EC and AT sections.**

CEL284A

## Engine Room Harness (Cont'd)




**Engine room harness**

| | | |
|---|---|---|
| E61 | W/6 | : Fuse block (J/B) |
| ★ E62 | W/12 | : Fuse block (J/B) |
| E63 | B/2 | : Fuse block (J/B) |
| E64 | W/10 | : Fuse block (J/B) |
| E65 | W/2 | : Diode (For Canada) |
| ★ E66 | SMJ | : To M12 |
| E67 | W/16 | : Data link connector |
| E68 | W/3 | : Telescopic sensor |
| E69 | W/2 | : Telescopic motor |
| E70 | W/48 | : To E81 |
| E71 | W/4 | : Key switch and key lock solenoid |
| E72 | B/5 | : Ignition switch |
| E73 | W/6 | : NATS antenna amp. |
| E74 | W/2 | : Diode |
| E75 | W/20 | : To M65 |
| E76 | W/2 | : Telephone microphone |

**Engine combination sub-harness**

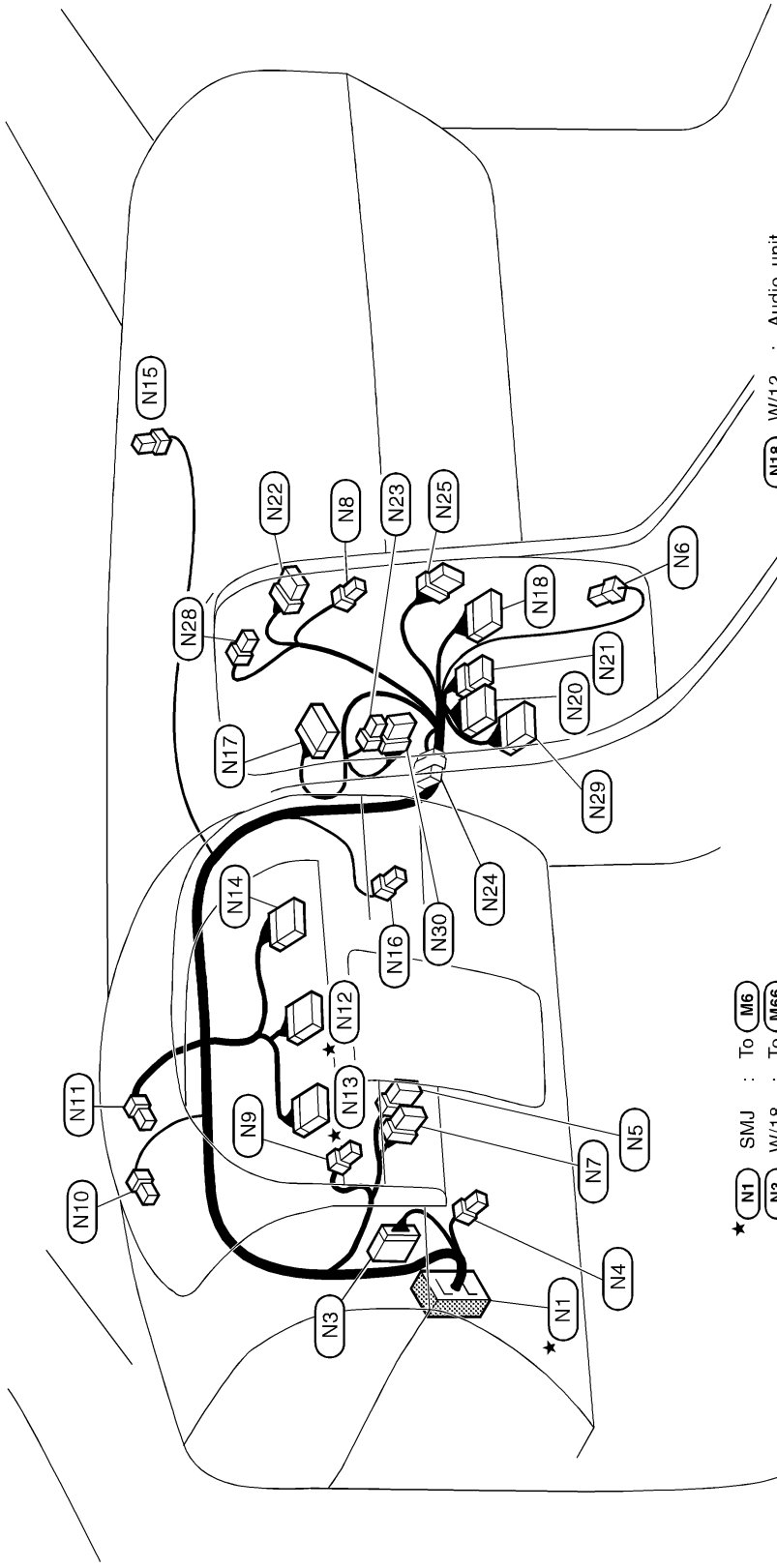
| | | |
|---|---|---|
| E81 | W/48 | : To E70 |
| E82 | Y/8 | : To Z4 |
| E83 | W/8 | : ADP steering switch |
| E84 | Y/7 | : Spiral cable |
| E85 | BR/4 | : Combination switch |
| E86 | W/3 | : Front fog lamp switch |
| E87 | W/8 | : Combination switch |
| E88 | GY/8 | : Front wiper switch |
| E90 | W/2 | : Tilt motor |
| E91 | W/4 | : Tilt sensor |
| E92 | W/6 | : Steering wheel angle sensor (With active damper suspention) |

★ : Be sure to connect and lock the connectors securely after repair work. Failure to do so may cause the ECM to have diagnostic trouble codes. **Do not disconnect these connectors except in the case of working according to WORK FLOW of TROUBLE DIAGNOSES in EC and AT sections.**

CEL055M

## Instrument Harness

### WITHOUT NAVIGATION SYSTEM



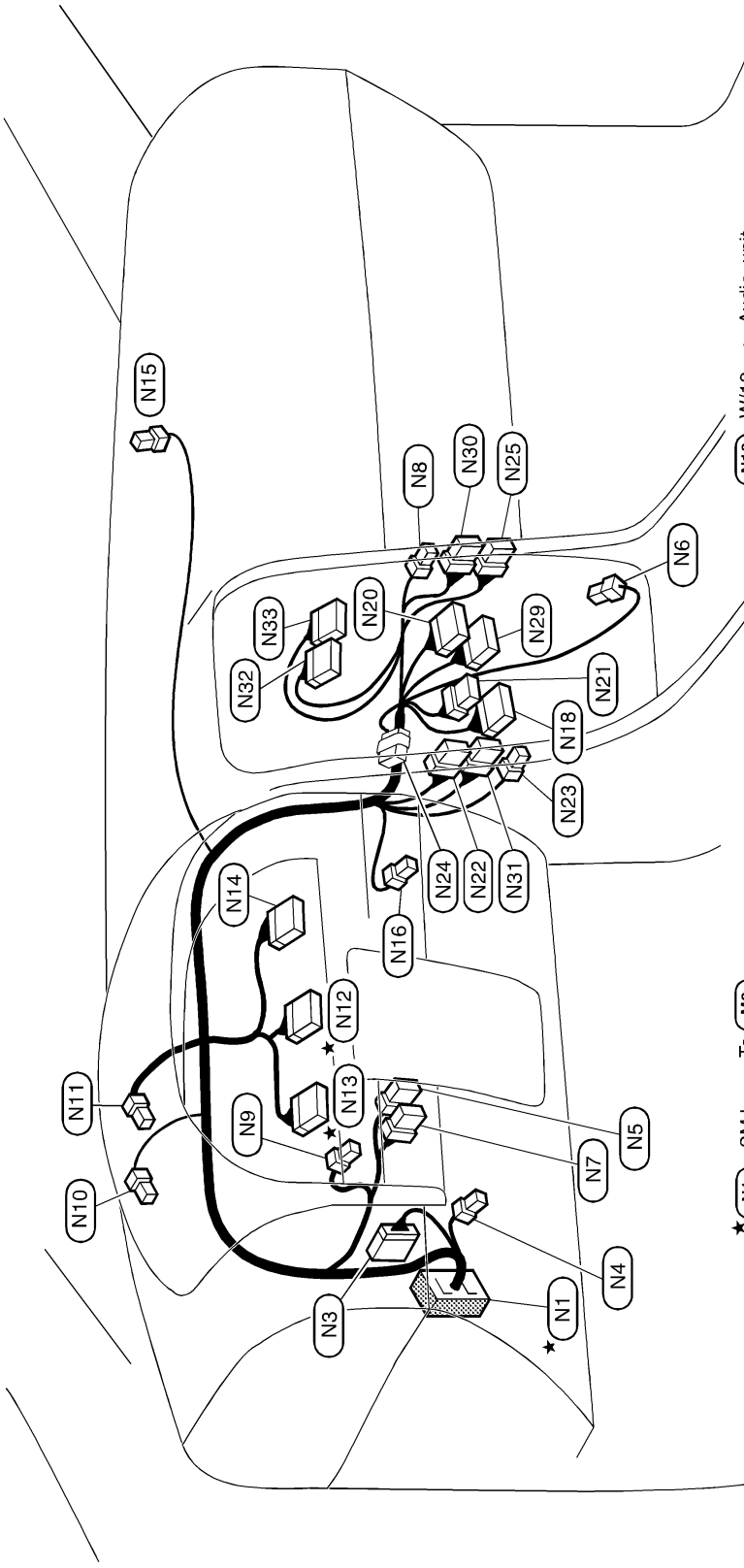

★ N1 SMJ : To M6
N3 W/18 : To M66
N4 W/4 : Headlamp aiming switch (With headlamp aiming system)
N5 W/8 : Active damper suspension select switch (With Active damper suspension)
N6 W/3 : Front cigarette lighter
N7 W/6 : TCS switch
N8 W/4 : Illumination time control switch
N9 W/2 : Security indicator
N10 W/3 : Warning chime
N11 W/4 : Optical sensor
★ N12 BR/16 : Combination meter
★ N13 W/14 : Combination meter
N14 W/16 : Combination meter
N15 B/2 : Sunload sensor
N16 W/2 : Ignition key hole illumination
N17 W/12 : A/C control unit
N18 W/12 : Audio unit
N20 W/10 : Audio unit
N21 W/6 : Audio unit
N22 W/8 : Hazard switch
N23 W/3 : Illumination control switch
N24 GY/6 : Joint connector-18
N25 W/6 : Telephone switch
N28 W/4 : Clock
N29 W/16 : Audio unit
N30 W/6 : Rear sunshade switch

★ : Be sure to connect and lock the connectors securely after repair work. Failure to do so may cause the ECM to have diagnostic trouble codes. **Do not disconnect these connectors except in the case of working according to WORK FLOW of TROUBLE DIAGNOSES in EC and AT sections.**

CEL056M

## Instrument Harness (Cont'd)

### WITH NAVIGATION SYSTEM



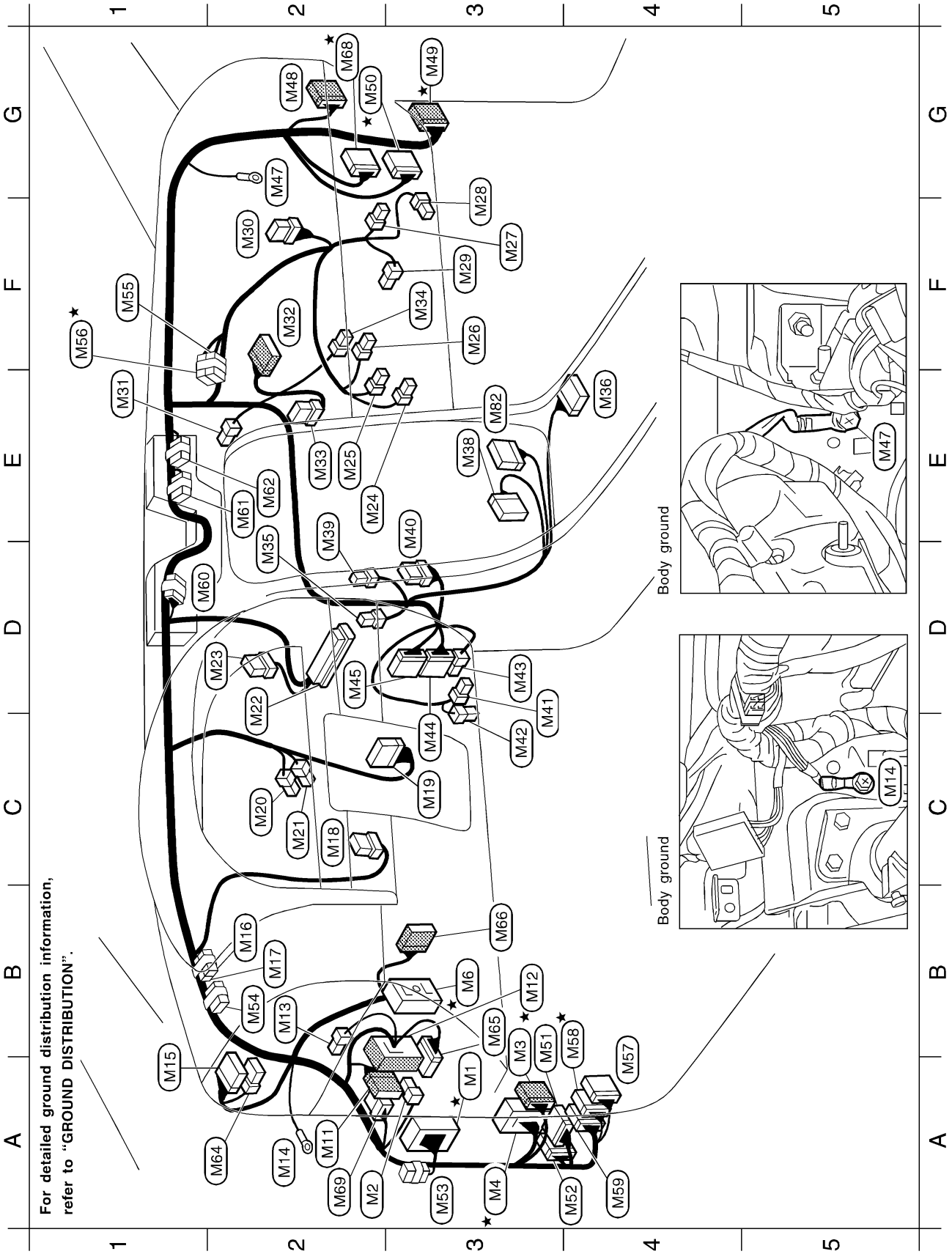

| | | | |
|---|---|---|---|
| ★ N1 | SMJ | : To M6 | |
| N3 | W/18 | : To M66 | |
| N4 | W/4 | : Headlamp aiming switch (With headlamp aiming system) | |
| N5 | W/8 | : Active damper suspension select switch (With Active damper suspension) | |
| N6 | W/3 | : Front cigarette lighter | |
| N7 | W/6 | : TCS switch | |
| N8 | W/4 | : Illumination time control switch | |
| N9 | W/2 | : Security indicator | |
| N10 | W/3 | : Warning chime | |
| N11 | W/4 | : Optical sensor | |
| ★ N12 | BR/16 | : Combination meter | |
| ★ N13 | W/14 | : Combination meter | |
| N14 | W/16 | : Combination meter | |
| N15 | B/2 | : Sunload sensor | |
| N16 | W/2 | : Ignition key hole illumination | |
| N18 | W/12 | : Audio unit | |
| N20 | W/10 | : Audio unit | |
| N21 | W/6 | : Audio unit | |
| N22 | W/8 | : Hazard switch | |
| N23 | W/3 | : Illumination control switch | |
| N24 | GY/6 | : Joint connector-18 | |
| N25 | W/6 | : Telephone switch | |
| N29 | W/16 | : Audio unit | |
| N30 | W/6 | : Rear sunshade switch | |
| N31 | W/6 | : Rear window defogger switch | |
| N32 | W/20 | : Display and NAVI control unit | |
| N33 | GY/20 | : Display and NAVI control unit | |

★ : Be sure to connect and lock the connectors securely after repair work. Failure to do so may cause the ECM to have diagnostic trouble codes. **Do not disconnect these connectors except in the case of working according to WORK FLOW of TROUBLE DIAGNOSES in EC and AT sections.**

CEL254A

**NOTE:**

## Main Harness




CEL057M

## Main Harness (Cont'd)

A3★ (M1) SMJ : Fuse block (J/B)
A2 (M2) L/4 : Sunroof relay
A3 (M3) W/48 : To (B4)
A3★ (M4) SMJ : To (B3)
B3★ (M6) SMJ : To (N1)
A2 (M11) W/40 : To (D1)
B3★ (M12) SMJ : To (E66)
B2 (M13) B/1 : Parking brake switch
A2 (M14) – : Body ground
A1 (M15) W/18 : To (R1)
B2 (M16) W/2 : Diode
B2 (M17) W/2 : Diode
C2 (M18) W/8 : Shift lock control unit
C3 (M19) B/20 : ASCD control unit
C2 (M20) B/2 : Stop lamp switch
C2 (M21) L/2 : ASCD brake switch
D2 (M22) SMJ : BCM (Body control module)
D2 (M23) W/6 : ASCD hold unit
E2 (M24) W/2 : Trunk lid opener cancel switch
E2 (M25) BR/2 : Glove box lamp switch
F3 (M26) W/2 : Glove box lamp
F3 (M27) W/2 : Blower motor
G3 (M28) W/2 : Footwell lamp (Passenger side)
F3 (M29) W/4 : Fan control amp.
F2 (M30) W/8 : Intake door motor
E1 (M31) W/3 : Bi-level door motor
F2 (M32) W/20 : To (Z1)
E2 (M33) W/8 : Power steering control unit
F3 (M34) W/3 : Intake sensor
D2 (M35) W/3 : Mode door motor
E4 (M36) W/12 : A/T device
E3 (M38) W/12 : NATS IMMU
E2 (M39) B/3 : Combination flasher unit
E3 (M40) B/6 : Rear vent door motor
D3 (M41) W/2 : In-vehicle sensor
C3 (M42) W/2 : Footwell lamp (Driver side)
D3 (M43) W/3 : Air mix door motor
C3 (M44) W/20 : A/C auto amp.
C2 (M45) W/16 : A/C auto amp.
G2 (M47) – : Body ground
G2 (M48) W/40 : To (D21)
G3★ (M49) W/48 : To (F63)
G2★ (M50) W/48 : To (B101)
B3 (M51) L/12 : Joint connector-1
A3 (M52) G/12 : Joint connector-2
A3 (M53) G/12 : Joint connector-3
B2 (M54) G/12 : Joint connector-4
F1 (M55) B/12 : Joint connector-5
F1★ (M56) G/12 : Joint connector-6
B4 (M57) G/12 : Joint connector-7
B4★ (M58) L/12 : Joint connector-8
A4 (M59) B/12 : Joint connector-9
D1 (M60) W/6 : Joint connector-10
E2 (M61) GY/6 : Joint connector-11
E2 (M62) W/6 : Joint connector-12
A2 (M64) W/6 : To (R9)
B3 (M65) W/20 : To (E75)
B3 (M66) W/18 : To (N3)
G2★ (M68) W/20 : To (B185)
A2 (M69) BR/6 : Vehicle security lamp relay
E3 (M82) B/20 : Steering wheel receiver control switch

(M16) : Diode




(M17) : Diode




★ : Be sure to connect and lock the connectors securely after repair work. Failure to do so may cause the ECM to have diagnostic trouble codes. **Do not disconnect these connectors except in the case of working according to WORK FLOW of TROUBLE DIAGNOSES in EC and AT sections.**

CEL288A

## Engine Control Harness


CEL059M

## Engine Control Harness (Cont'd)

### Engine control harness

C1 ★ F1 GY/6 : To E14
C1 ★ F2 GY/8 : To E13
C1 ★ F3 GY/8 : To E12
D1 F4 B/8 : To E11
D1 F5 SB/6 : Front wiper motor
D1 F6 GY/1 : Check connector
D1 F7 SB/8 : ABS actuator
C2 F8 DGY/8 : ABS actuator
C1 F9 L/4 : Air conditioner relay
C2 F11 GY/2 : Front wheel sensor RH
D1 ★ F12 GY/3 : Heated oxygen sensor 1 (Front) (Bank 2)
D1 ★ F13 GY/3 : Intake valve timing control position sensor RH
D2 ★ F14 GY/8 : To F131
C2 ★ F15 GY/3 : Ignition coil (With power transistor No. 8)
C2 ★ F16 GY/3 : Ignition coil (With power transistor No. 6)
C2 ★ F17 GY/3 : Ignition coil (With power transistor No. 4)
C2 ★ F18 GY/3 : Ignition coil (With power transistor No. 2)
D4 ★ F22 SB/6 : To F101
E2 F23 GY/2 : Condenser
C3 ★ F24 – : Engine ground
C4 ★ F25 – : Engine ground
C3 ★ F26 SB/8 : To F106
C3 ★ F27 B/2 : Intake valve timing control solenoid valve RH
C3 F28 B/1 : Thermal transmitter
C3 ★ F29 B/2 : Intake valve timing control solenoid valve LH
D3 ★ F30 GY/6 : IACV-AAC valve
D4 ★ F31 GY/4 : Camshaft position sensor
E4 ★ F32 GY/3 : Mass air flow sensor
E4 ★ F33 GY/2 : Intake air temperature sensor
E4 ★ F34 GY/3 : Ignition coil (With power transistor No. 1)
F3 ★ F35 GY/3 : Ignition coil (With power transistor No. 3)
E4 F36 PU/2 : IACV-FICD solenoid valve
F3 ★ F37 BR/3 : Secondary throttle position sensor
F4 ★ F38 GY/4 : Throttle position switch
F3 ★ F39 B/4 : Throttle position sensor
F3 ★ F40 GY/3 : Ignition coil (With power transistor No. 7)
F3 ★ F41 GY/3 : Ignition coil (With power transistor No. 5)
F3 F42 B/2 : Throttle motor
F2 ★ F43 GY/2 : EGR temperature sensor
G2 ★ F44 GY/3 : Intake valve timing control position sensor LH
F2 ★ F45 GY/3 : Heated oxygen sensor 1 (Front) (Bank 1)
B5 ★ F60 L/4 : Fuel pump relay-2
A4 ★ F63 W/48 : To M49
B4 ★ F64 W/30 : To B102
A4 F65 GY/2 : Resistor
B4 ★ F66 BR/6 : ECM relay
B5 ★ F67 L/4 : Fuel pump relay-1
A5 ★ F69 SMJ : ECM
B5 F70 L/4 : Fog lamp relay
A5 F74 GY/16 : TAC module
A5 ★ F75 GY/20 : TAC module
B5 F76 – : Body ground
E1 ★ F77 GY/6 : EVAP canister purge volume control solenoid valve
E1 ★ F78 B/2 : EVAP canister purge control solenoid valve
E1 ★ F79 GY/3 : Absolute pressure sensor
D2 ★ F80 SB/8 : To F126

### Engine control sub-harness-1

D4 ★ F101 GY/6 : To F22
E3 ★ F102 B/2 : Injector No. 1
E3 ★ F103 B/2 : Injector No. 3
E3 ★ F104 B/2 : Injector No. 5
F2 ★ F105 B/2 : Injector No. 7
C2 ★ F106 GY/8 : To F26
C3 ★ F107 B/2 : Injector No. 2
D2 ★ F108 B/2 : Injector No. 4
E3 ★ F109 B/2 : Injector No. 6
D3 ★ F110 GY/2 : Engine coolant temperature sensor
F1 ★ F111 B/2 : Injector No. 8

### Engine control sub-harness-2

E2 ★ F122 B/2 : Knock sensor LH
F2 ★ F123 B/2 : Knock sensor RH
F2 ★ F124 BR/2 : MAP/BARO switch solenoid valve
F3 ★ F125 B/2 : EGRC-solenoid valve
D3 ★ F126 GY/8 : To F80

### Engine control sub-harness-3

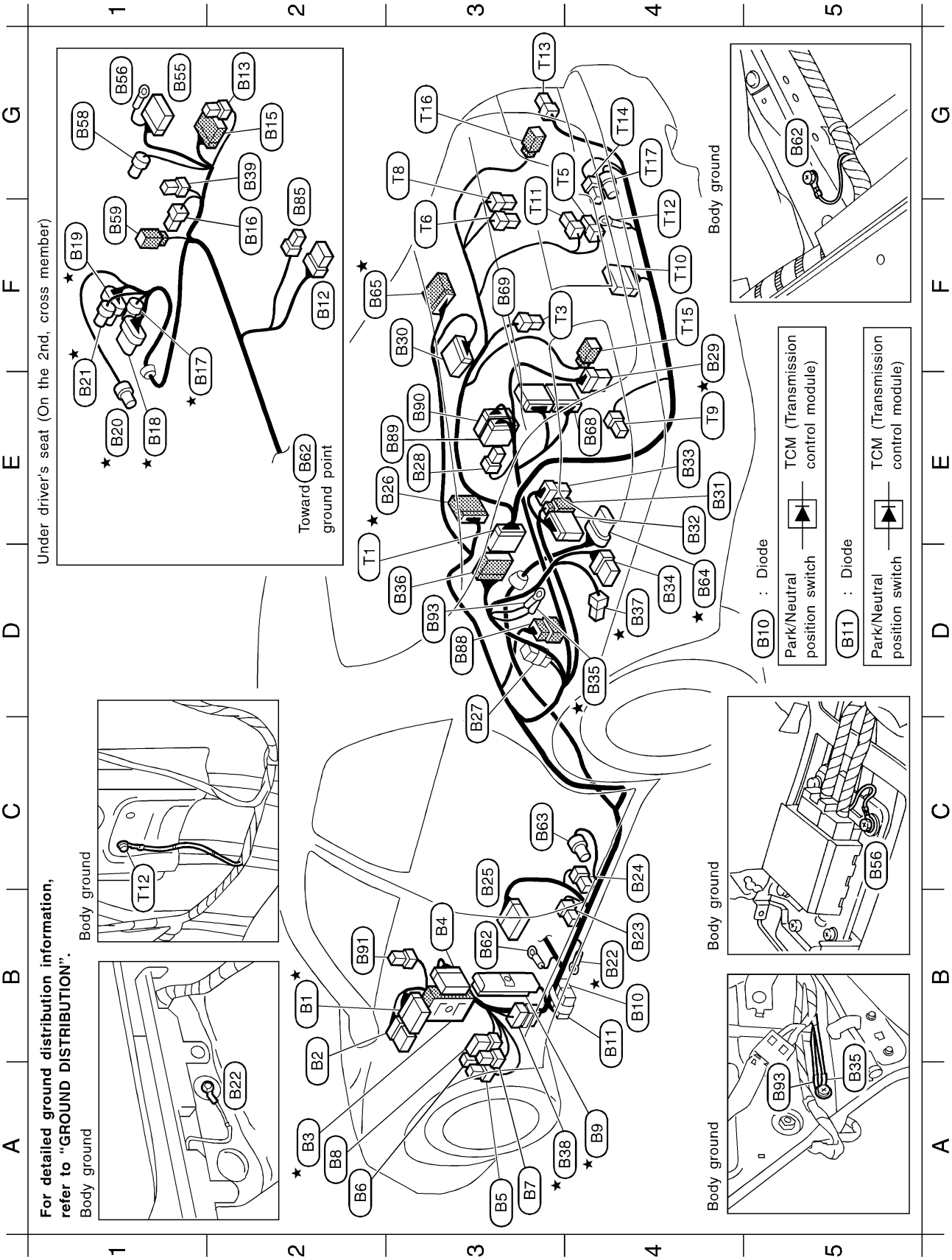
D1 ★ F131 SB/8 : To F14
E1 ★ F132 GY/2 : Crankshaft position sensor (OBD)
F1 ★ F133 GY/4 : Heated oxygen sensor 2 (Rear) (Bank 2)

★ : Be sure to connect and lock the connectors securely after repair work. Failure to do so may cause the ECM to have diagnostic trouble codes.

**Do not disconnect these connectors except in the case of working according to WORK FLOW of TROUBLE DIAGNOSES in EC and AT sections.**

CEL289A

## Body Harness and Tail Harness




CEL290A

## Body Harness and Tail Harness (Cont'd)

### Body harness

| | | | |
|---|---|---|---|
| B2★ B1 | W/16 | : | Fuse block (J/B) |
| B2 B2 | W/6 | : | Fuse block (J/B) |
| B3★ B3 | SMJ | : | To M4 |
| B3 B4 | W/48 | : | To M3 |
| A3 B5 | W/2 | : | Circuit breaker-1 |
| A2 B6 | W/2 | : | Circuit breaker-2 |
| A3 B7 | L/4 | : | Door mirror defogger relay |
| A2 B8 | BR/6 | : | Rear window defogger relay |
| A4★ B9 | SMJ | : | TCM (Transmission control module) |
| B4 B10 | W/2 | : | Diode |
| B4 B11 | W/2 | : | Diode |
| F2 B12 | W/8 | : | Driver's seat control unit (LCU05) |
| G2 B13 | B/2 | : | Front power socket |
| G2 B15 | W/12 | : | Handset |
| F2 B16 | L/4 | : | Heated seat switch (Driver side) |
| F1★ B17 | GY/3 | : | Revolution sensor |
| E1★ B18 | BR/8 | : | A/T solenoid valve |
| F1★ B19 | GY/8 | : | Park/Neutral position switch |
| E1★ B20 | GY/2 | : | Vehicle speed sensor |
| F1★ B21 | BR/3 | : | Turbine revolution sensor |
| B4★ B22 | – | : | Body ground |
| B4 B23 | BR/1 | : | Front door switch (Driver side) |
| C4 B24 | W/4 | : | Seat belt pre-tensioner LH |
| B3 B25 | W/18 | : | To D41 |
| E2★ B26 | GY/16 | : | To B111 |
| D3 B27 | W/2 | : | Condenser |
| E3 B28 | W/4 | : | Rear speaker LH |
| E2★ B29 | W/6 | : | Fuel pump, Fuel level sensor unit |
| F3 B30 | GY/26 | : | BOSE speaker amp. |
| E4 B31 | B/4 | : | Receiver |
| E4 B32 | W/16 | : | Receiver |
| E4 B33 | W/6 | : | Receiver |
| D4 B34 | W/6 | : | Power antenna timer and motor |
| D4★ B35 | – | : | Body ground |
| D3 B36 | W/16 | : | To T1 |
| D4★ B37 | W/4 | : | Fuel pump control module (FPCM) |
| A3★ B38 | GY/6 | : | Joint connector-16 |
| G2 B39 | W/4 | : | Heated seat switch (Passenger side) |
| G1 B55 | Y/10 | : | Air bag diagnosis sensor unit |
| G1 B56 | – | : | Body ground |
| G1 B58 | Y/4 | : | To B175 |
| F1 B59 | W/3 | : | To B177 |
| E2 B62 | – | : | Body ground |
| C3 B63 | Y/2 | : | Satellite sensor LH |
| F3★ B64 | GY/8 | : | To C14 |
| E3★ B65 | W/20 | : | To B178 |
| E4 B68 | W/22 | : | IVCS unit |
| E2 B69 | W/16 | : | IVCS unit |
| F2 B85 | Y/2 | : | Side air bag module LH |
| D3 B88 | W/6 | : | Rear shock absorber actuator LH (With active damper suspension) |
| E3 B89 | W/24 | : | Active damper suspension control unit (With active damper suspension) |
| E3 B90 | GY/24 | : | Active damper suspension control unit (With active damper suspension) |
| B3 B91 | W/3 | : | Front vertical G sensor |
| D3 B93 | – | : | Body ground |

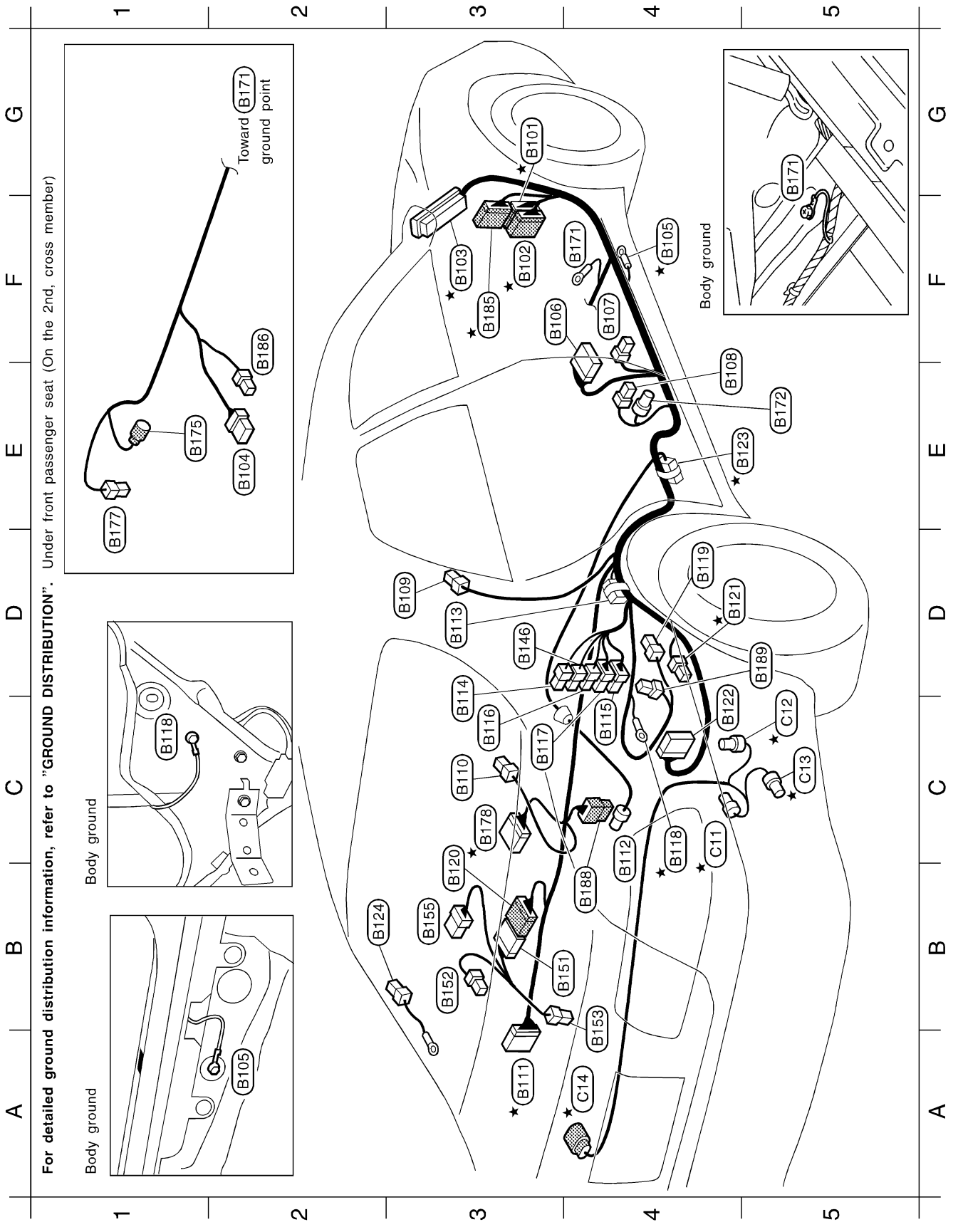
### Tail harness

| | | | |
|---|---|---|---|
| D2 T1 | W/16 | : | To B36 |
| F3 T3 | W/2 | : | License lamp LH |
| G3 T5 | B/2 | : | Trunk lid opener actuator |
| F3 T6 | W/2 | : | License lamp RH |
| G3 T8 | W/3 | : | Trunk lid key cylinder switch (Unlock switch) |
| E4 T9 | W/4 | : | Rear combination lamp LH |
| G4 T10 | W/12 | : | Stop and Tail lamp sensor |
| F3 T11 | W/2 | : | Trunk room lamp switch |
| F4 T12 | – | : | Body ground |
| G3 T13 | W/4 | : | Rear combination lamp RH |
| G4 T14 | W/4 | : | Trunk closure control unit |
| F4 T15 | W/2 | : | Back-up lamp LH |
| G3 T16 | W/2 | : | Back-up lamp RH |
| G4 T17 | GY/2 | : | Striker switch |

★ : Be sure to connect and lock the connectors securely after repair work. Failure to do so may cause the ECM to have diagnostic trouble codes. **Do not disconnect these connectors except in the case of working according to WORK FLOW of TROUBLE DIAGNOSES in EC and AT sections.**

CEL291A

## Body No. 2 Harness




CEL063M

## Body No. 2 Harness (Cont'd)

### Body No. 2 harness

G3★ (B101) W/48 : To (M50)
F3★ (B102) W/30 : To (F64)
F3★ (B103) SMJ : ABS/TCS control unit
E2 (B104) W/6 : Power seat switch (Passenger side)
F4★ (B105) – : Body ground
F3 (B106) W/18 : To (D61)
F4 (B107) BR/1 : Front door switch (Passenger side)
E4 (B108) W/4 : Seat belt pre-tensioner RH
D3 (B109) B/1 : Condenser (Rear window defogger)
C3 (B110) W/4 : Rear speaker RH
A3★ (B111) GY/16 : To (B26)
C4 (B112) GY/4 : Rear wheel sensor
D3 (B113) W/2 : Diode
D3 (B114) L/4 : Fuel lid opener relay
C4 (B115) BR/6 : Multi-remote control relay
C3 (B116) L/4 : Audio amp. relay
C3 (B117) BR/6 : Vehicle security horn relay
C4★ (B118) – : Body ground
D4 (B119) BR/2 : Fuel lid opener actuator
B3 (B120) W/10 : To (B151)
D4★ (B121) W/2 : Dropping resistor
C4 (B122) W/16 : CD auto changer
E5★ (B123) GY/6 : Joint connector-17
B2 (B124) B/1 : Rear window defogger (Ground cable)
D3 (B146) L/4 : Throttle motor relay
F4 (B171) – : Body ground
E5 (B172) Y/2 : Satellite sensor RH
E1 (B175) Y/4 : To (B58)
D1 (B177) W/3 : To (B59)
A3★ (B178) W/20 : To (B65)
F3★ (B185) W/20 : To (M68)
F2 (B186) Y/2 : Side air bag module RH
B4 (B188) W/6 : Rear shock absorber actuator RH (With active damper suspention)
D5 (B189) W/3 : Rear vertical G sensor RH (With active damper suspension)

### Body No. 2 sub-harness

B3 (B151) W/10 : To (B120)
B3 (B152) W/2 : High-mounted stop lamp
B4 (B153) W/2 : Trunk room lamp
B3 (B155) W/6 : Rear sunshade unit

### Chassis sub-harness

C5★ (C11) GY/3 : EVAP control system pressure sensor
D5★ (C12) G/2 : Vacuum cut valve bypass valve
C5★ (C13) B/2 : EVAP canister vent control valve
A4★ (C14) GY/8 : To (B64)

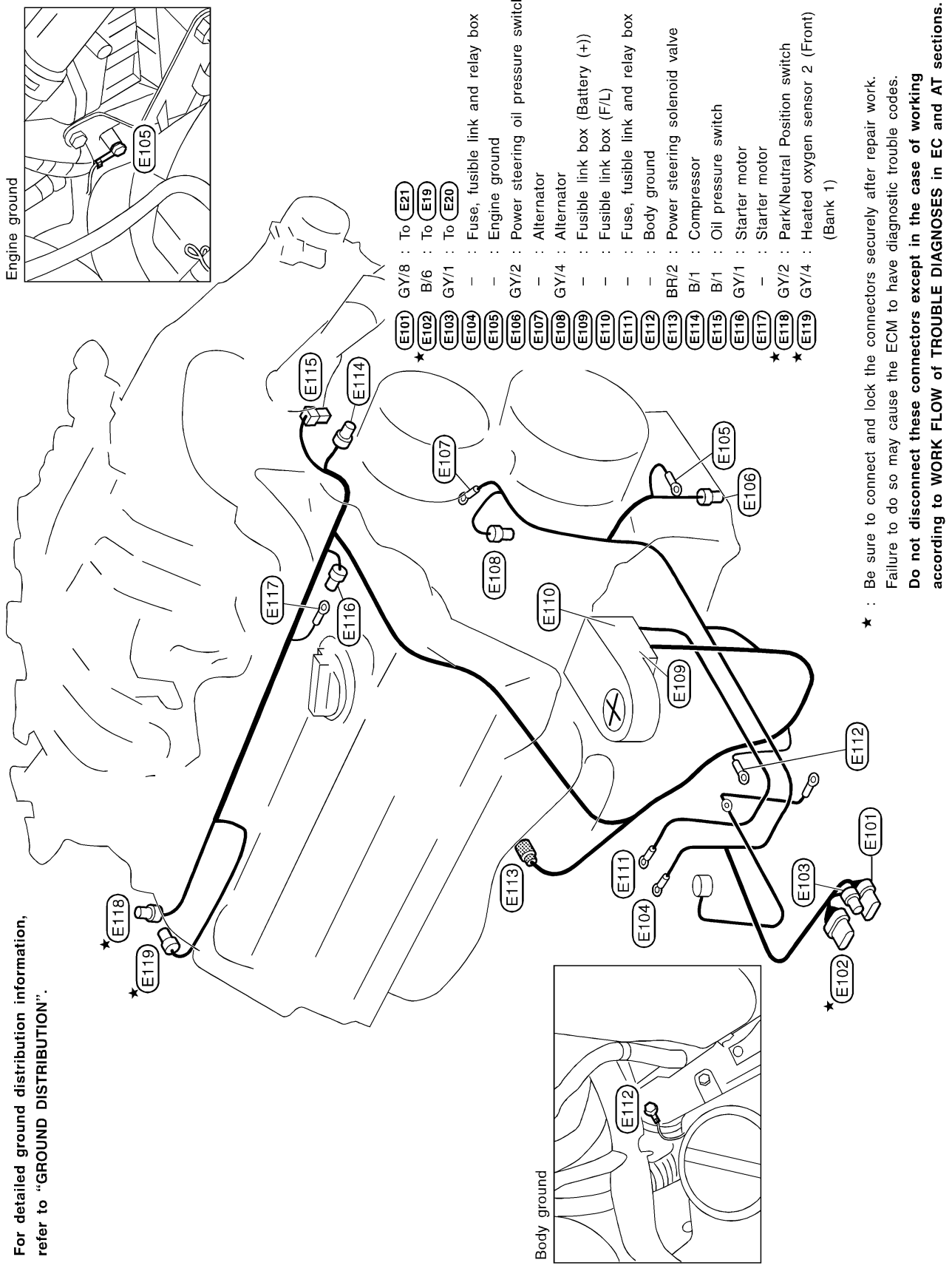
(B113) : Diode




★ : Be sure to connect and lock the connectors securely after the repair work. Failure to do so may cause the ECM to have diagnostic trouble codes. **Do not disconnect these connectors except in the case of working according to WORK FLOW of TROUBLE DIAGNOSES in EC and AT sections.**

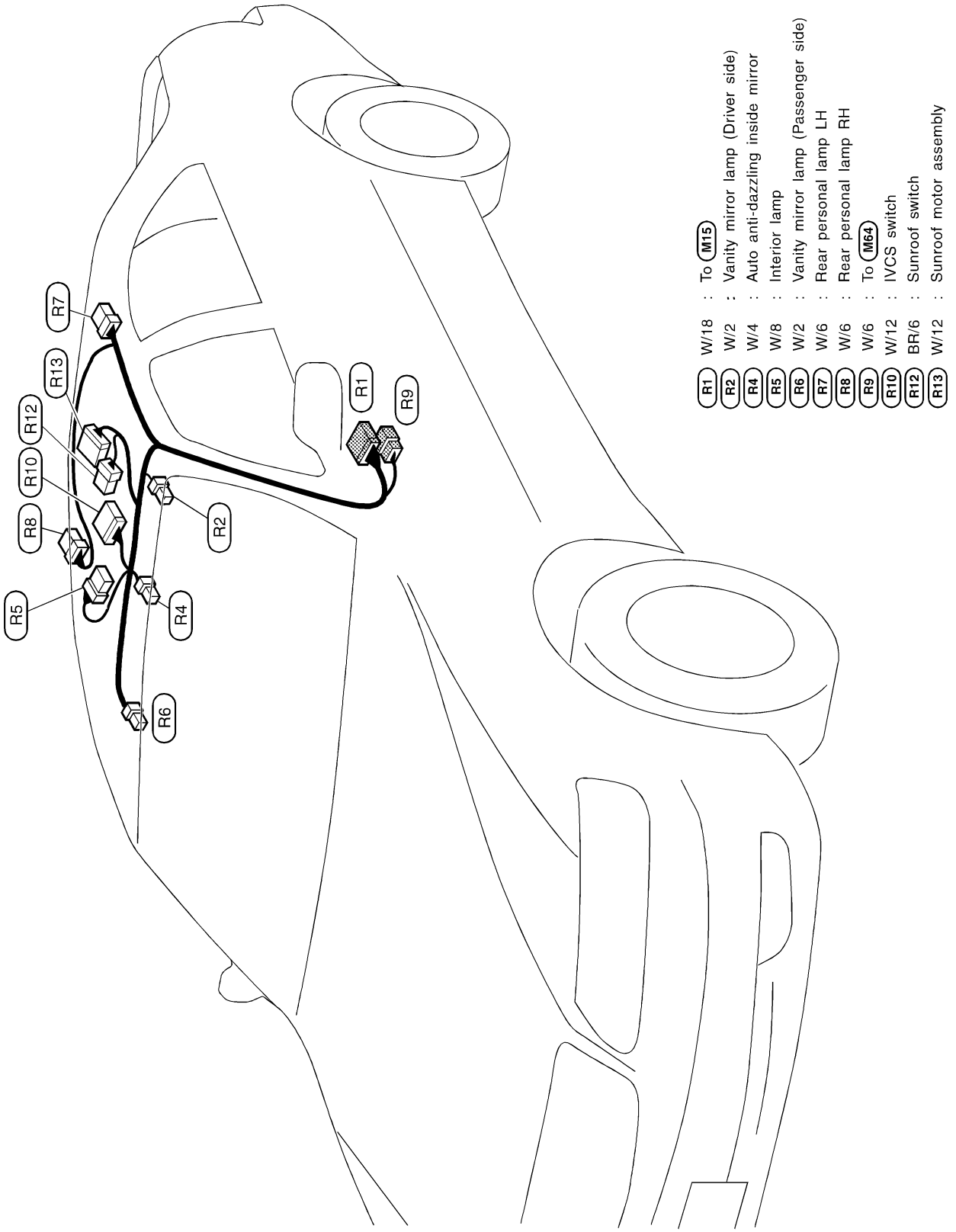
CEL292A

## Engine Harness



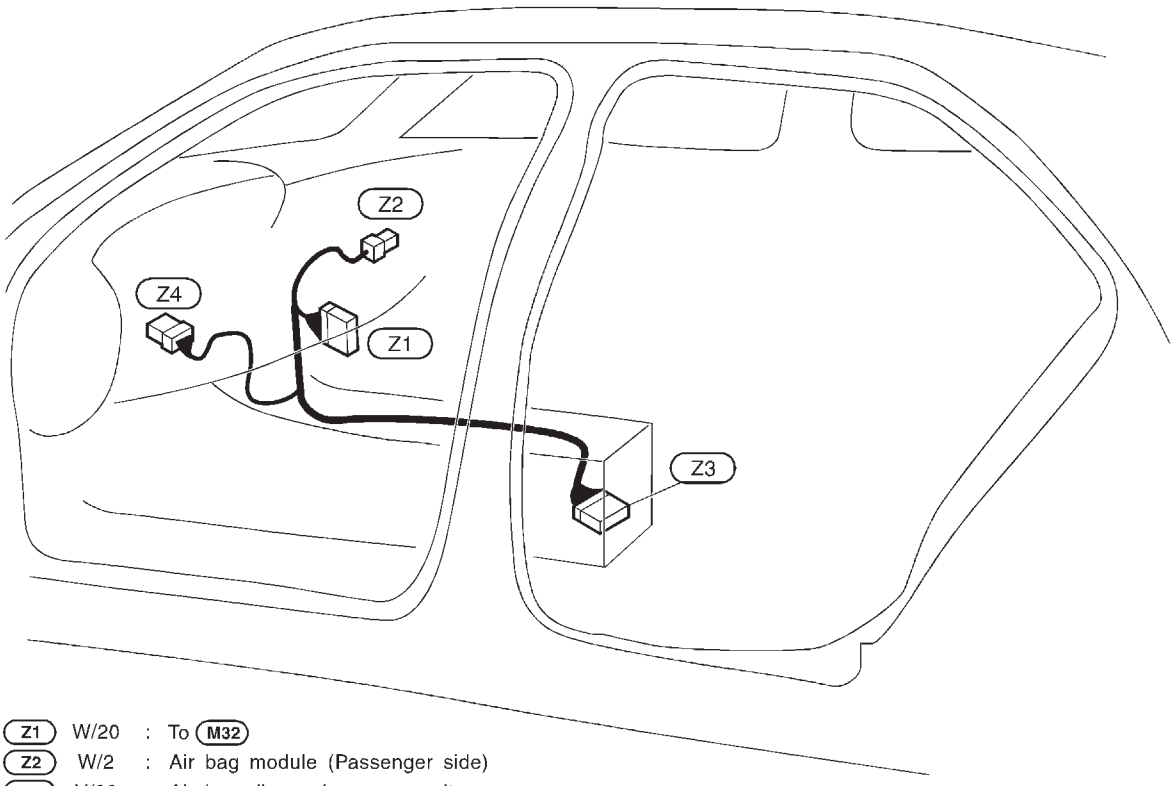

CEL293A

## Room Lamp Harness




CEL065M

## Air Bag Harness



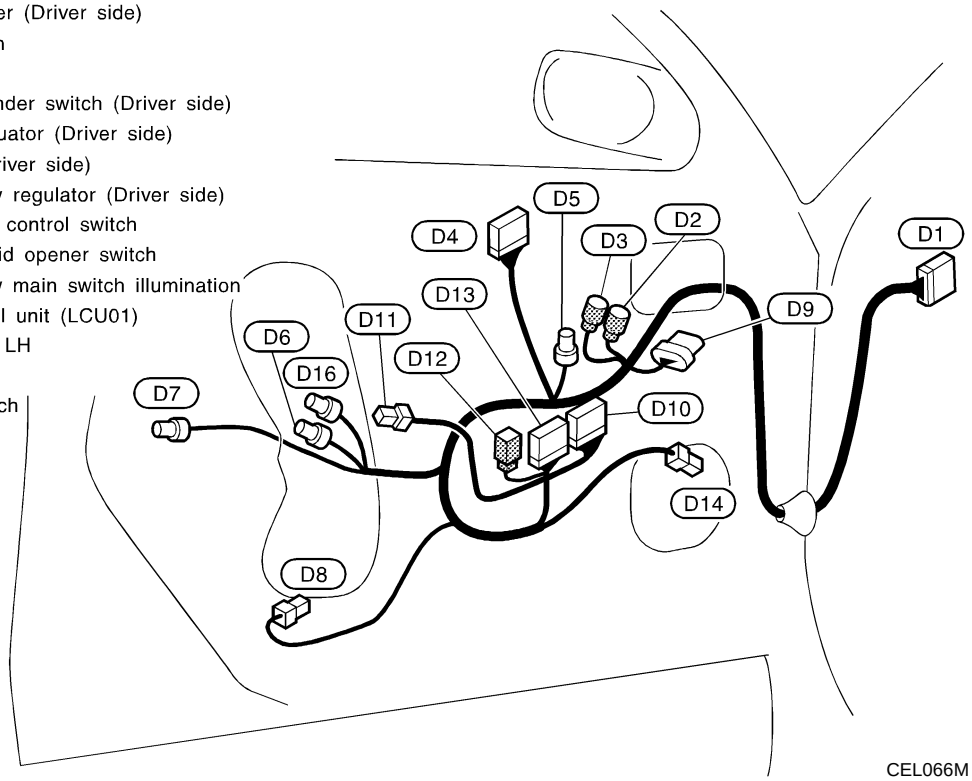

Z1 W/20 : To M32
Z2 W/2 : Air bag module (Passenger side)
Z3 Y/22 : Air bag diagnosis sensor unit
Z4 Y/6 : To E82

CEL455

## DRIVER SIDE

## Front Door Harness

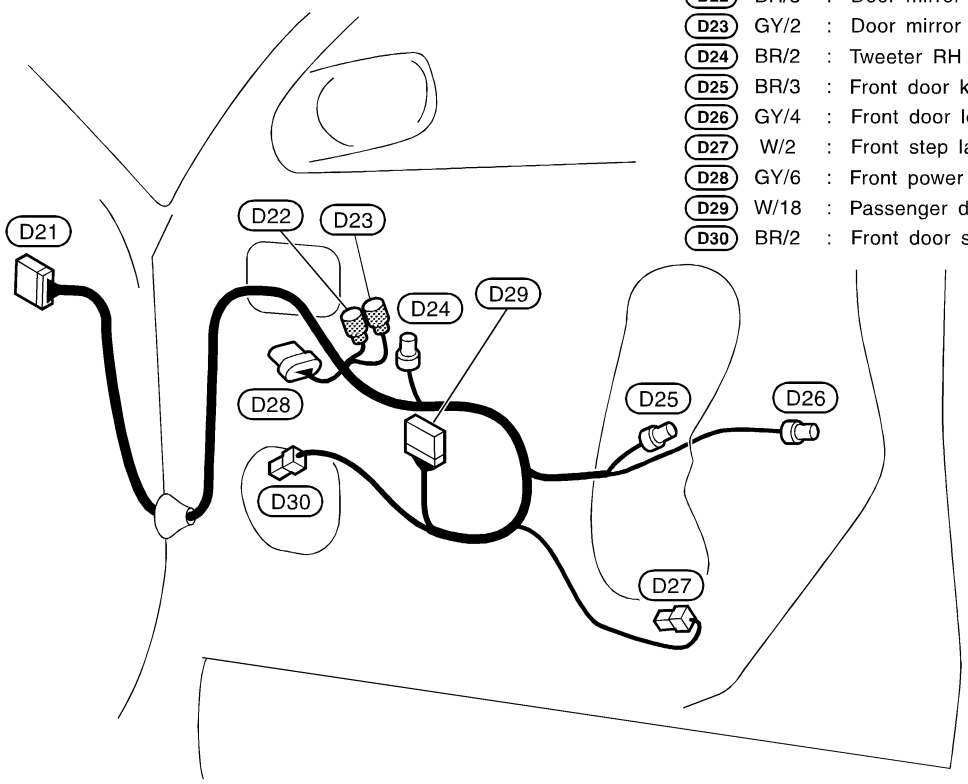
| | | | |
|---|---|---|---|
| D1 | W/40 | : | To M11 |
| D2 | BR/3 | : | Door mirror actuator (Driver side) |
| D3 | GY/2 | : | Door mirror defogger (Driver side) |
| D4 | W/8 | : | Seat memory switch |
| D5 | BR/2 | : | Tweeter LH |
| D6 | BR/3 | : | Front door key cylinder switch (Driver side) |
| D7 | GY/4 | : | Front door lock actuator (Driver side) |
| D8 | W/2 | : | Front step lamp (Driver side) |
| D9 | GY/6 | : | Front power window regulator (Driver side) |
| D10 | W/10 | : | Door mirror remote control switch |
| D11 | W/3 | : | Trunk lid and fuel lid opener switch |
| D12 | W/2 | : | Front power window main switch illumination |
| D13 | W/18 | : | Driver's door control unit (LCU01) |
| D14 | BR/2 | : | Front door speaker LH |
| D16 | GY/2 | : | Driver side door outside handle switch |




CEL066M

## PASSENGER SIDE

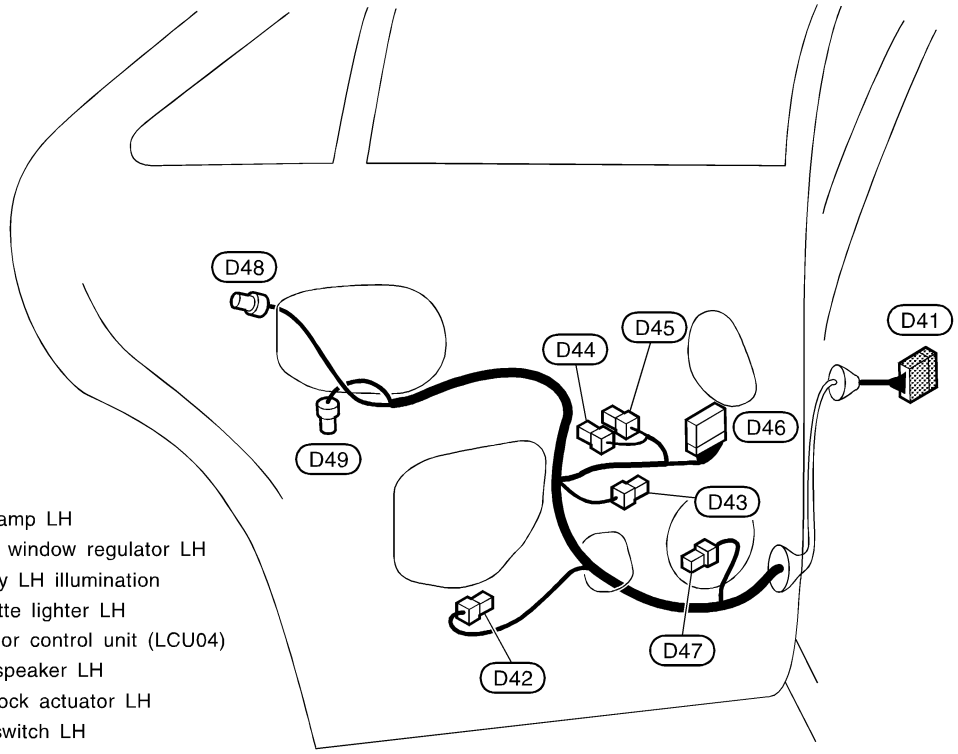
| | | | |
|---|---|---|---|
| D21 | W/40 | : | To M48 |
| D22 | BR/3 | : | Door mirror actuator (Passenger side) |
| D23 | GY/2 | : | Door mirror defogger (Passenger side) |
| D24 | BR/2 | : | Tweeter RH |
| D25 | BR/3 | : | Front door key cylinder switch (Passenger side) |
| D26 | GY/4 | : | Front door lock actuator (Passenger side) |
| D27 | W/2 | : | Front step lamp (Passenger side) |
| D28 | GY/6 | : | Front power window regulator (Passenger side) |
| D29 | W/18 | : | Passenger door control unit (LCU02) |
| D30 | BR/2 | : | Front door speaker RH |




CEL067M

## LH SIDE

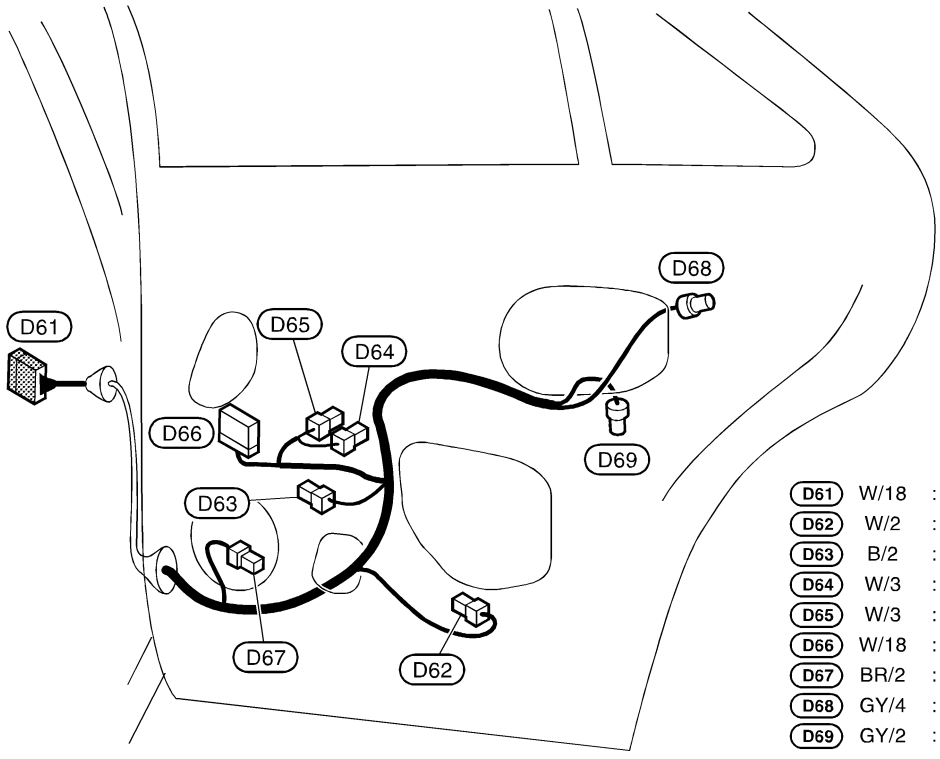
## Rear Door Harness




| | | | |
|---|---|---|---|
| D41 | W/18 | : | To B25 |
| D42 | W/2 | : | Rear step lamp LH |
| D43 | B/2 | : | Rear power window regulator LH |
| D44 | W/3 | : | Rear ashtray LH illumination |
| D45 | W/3 | : | Rear cigarette lighter LH |
| D46 | W/18 | : | Rear LH door control unit (LCU04) |
| D47 | BR/2 | : | Rear door speaker LH |
| D48 | GY/4 | : | Rear door lock actuator LH |
| D49 | GY/2 | : | Rear door switch LH |

CEL458

## RH SIDE

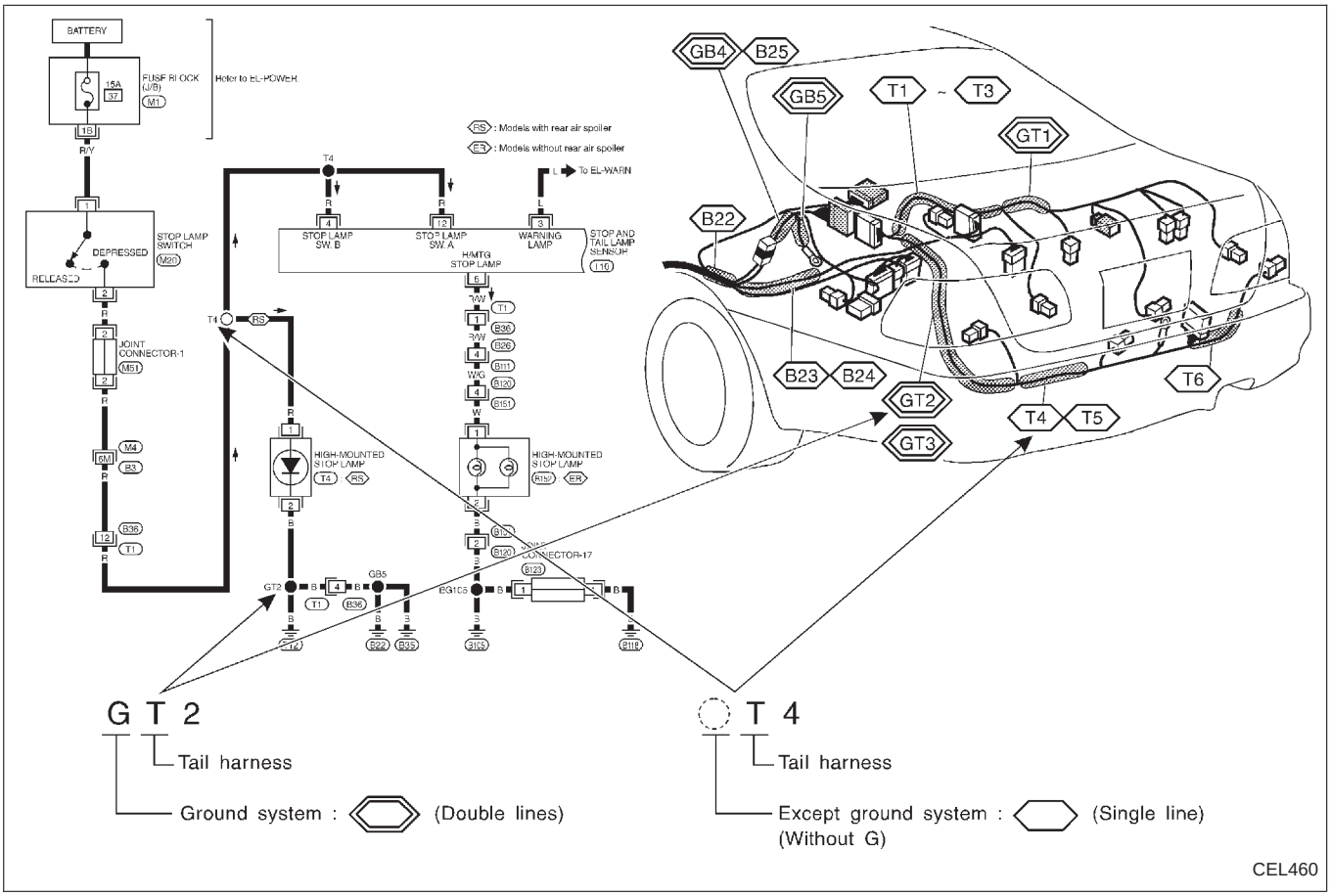



| | | | |
|---|---|---|---|
| D61 | W/18 | : | To B106 |
| D62 | W/2 | : | Rear step lamp RH |
| D63 | B/2 | : | Rear power window regulator RH |
| D64 | W/3 | : | Rear ashtray RH illumination |
| D65 | W/3 | : | Rear cigarette lighter RH |
| D66 | W/18 | : | Rear RH door control unit (LCU03) |
| D67 | BR/2 | : | Rear door speaker RH |
| D68 | GY/4 | : | Rear door lock actuator RH |
| D69 | GY/2 | : | Rear door switch RH |

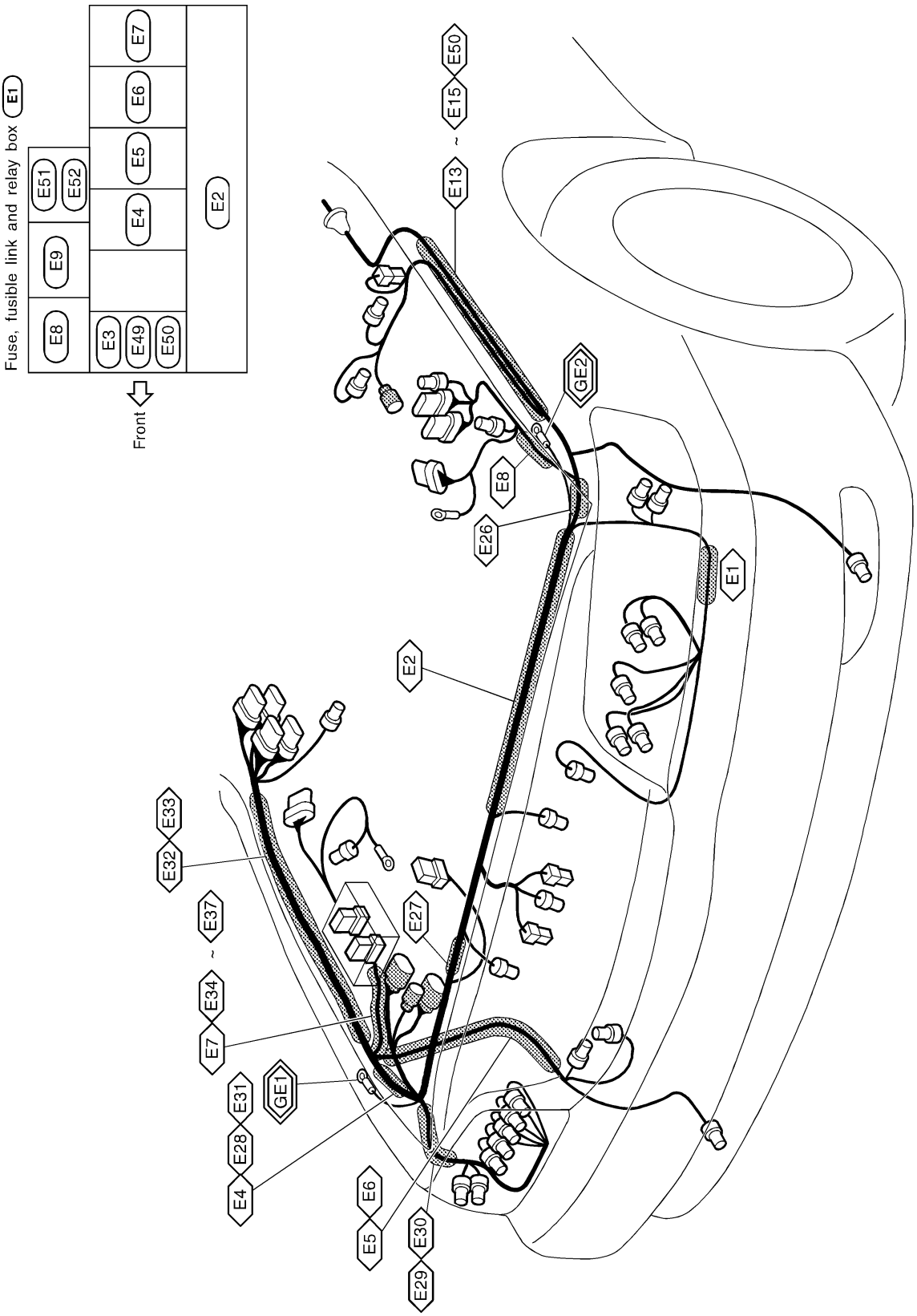
CEL459

## How to Read Splice Location

- "GT2", "T4" etc., which are shown in the wiring diagram, refer to wiring harness splice points. These points are located in shaded areas "GT2", "T4", etc. in illustrations under the title "SPLICE LOCATION".
- Wiring harness splice points are subject to change without prior notice.

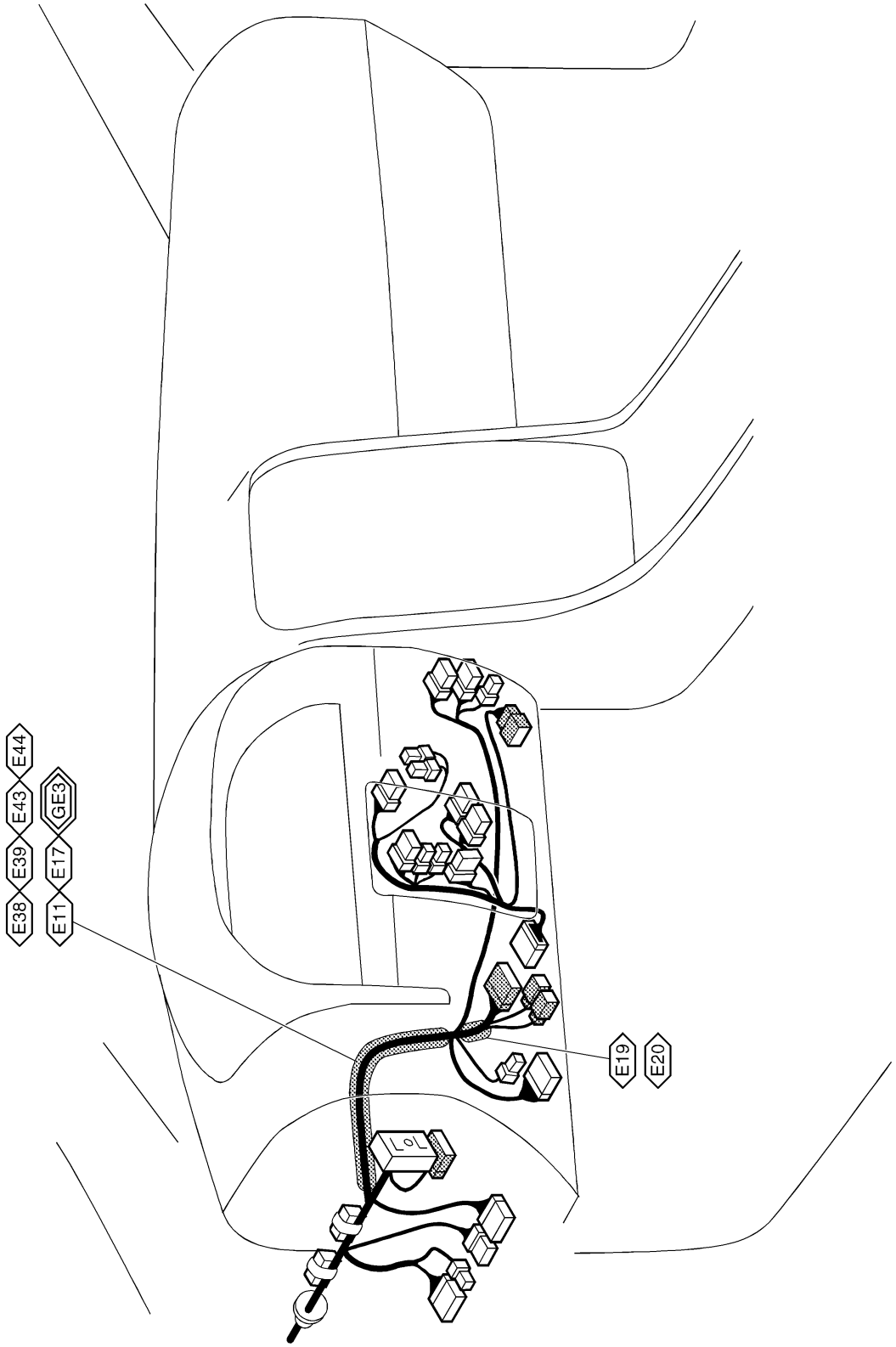


## Engine Room Harness



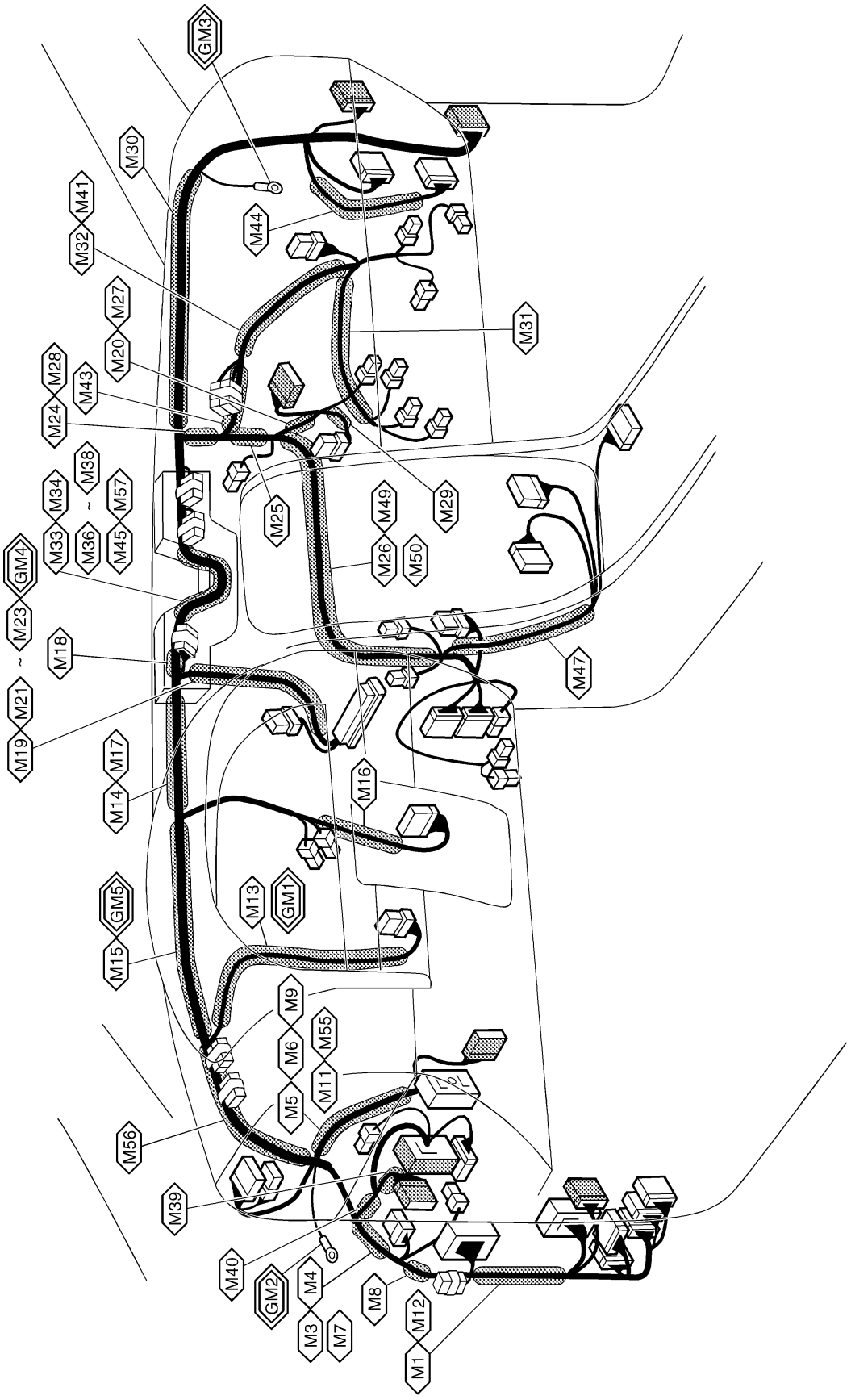

CEL294A

## Engine Room Harness (Cont'd)




CEL069M

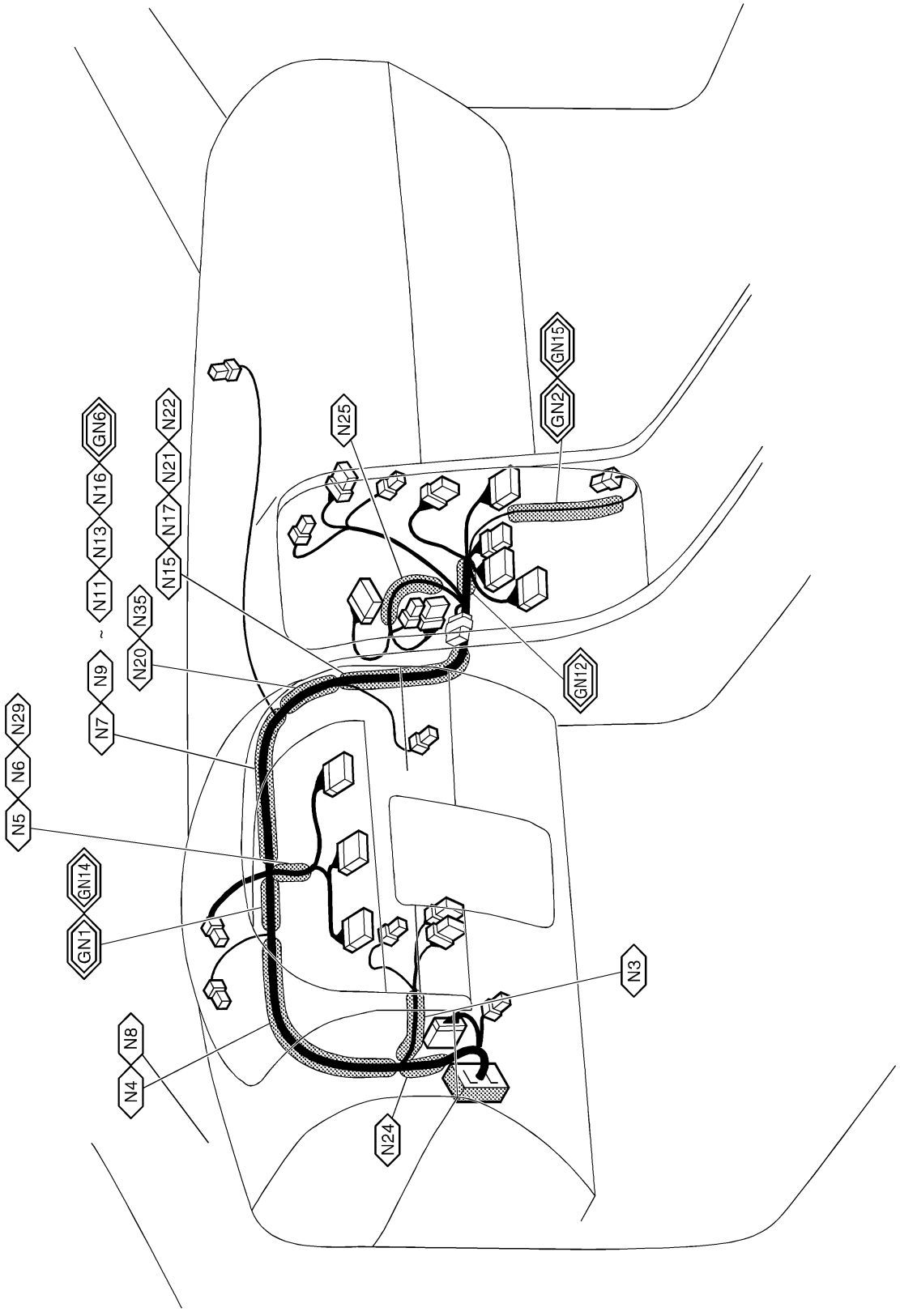
## Main Harness




CEL070M

## Instrument Harness

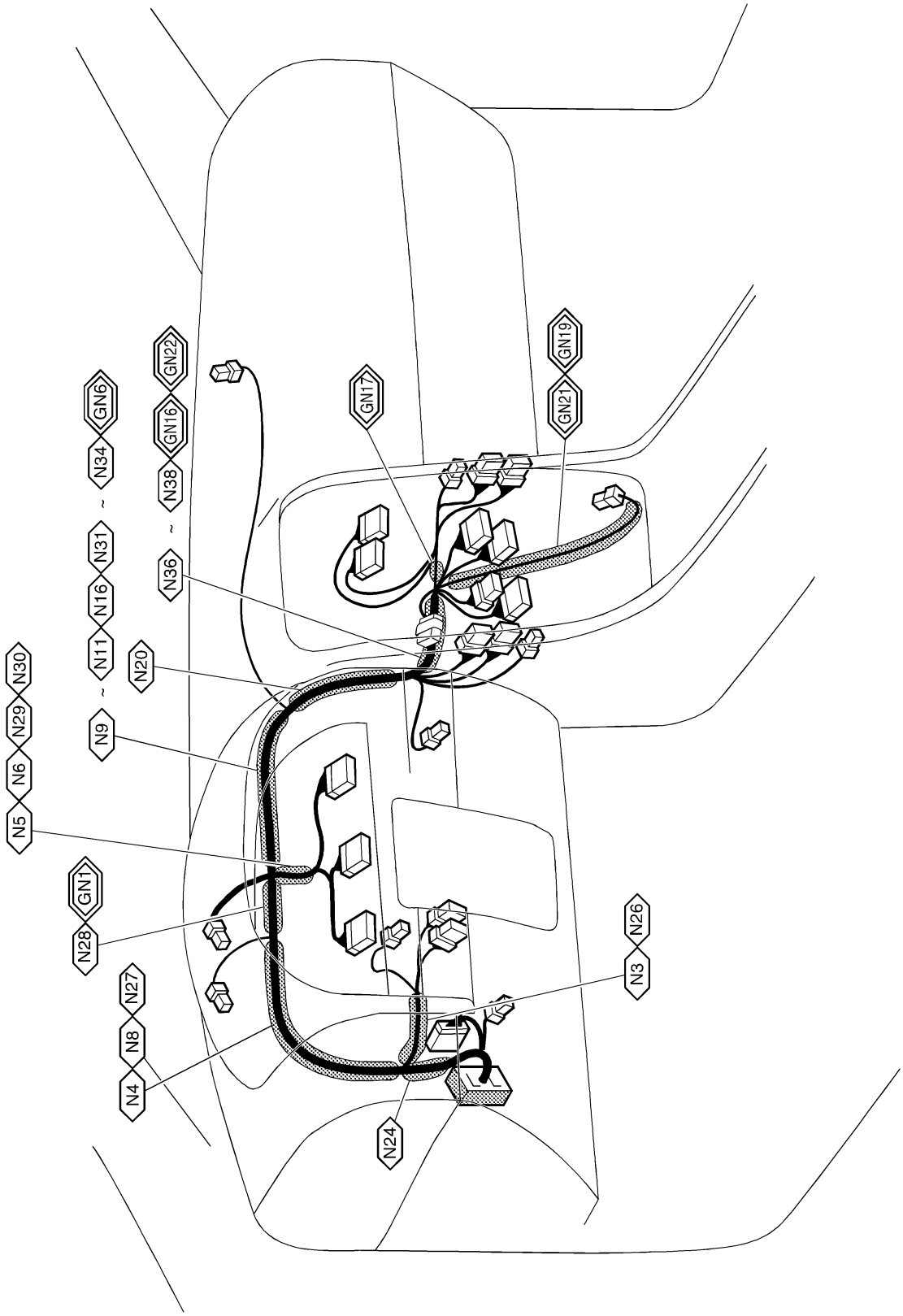
### WITHOUT NAVIGATION SYSTEM




CEL071M

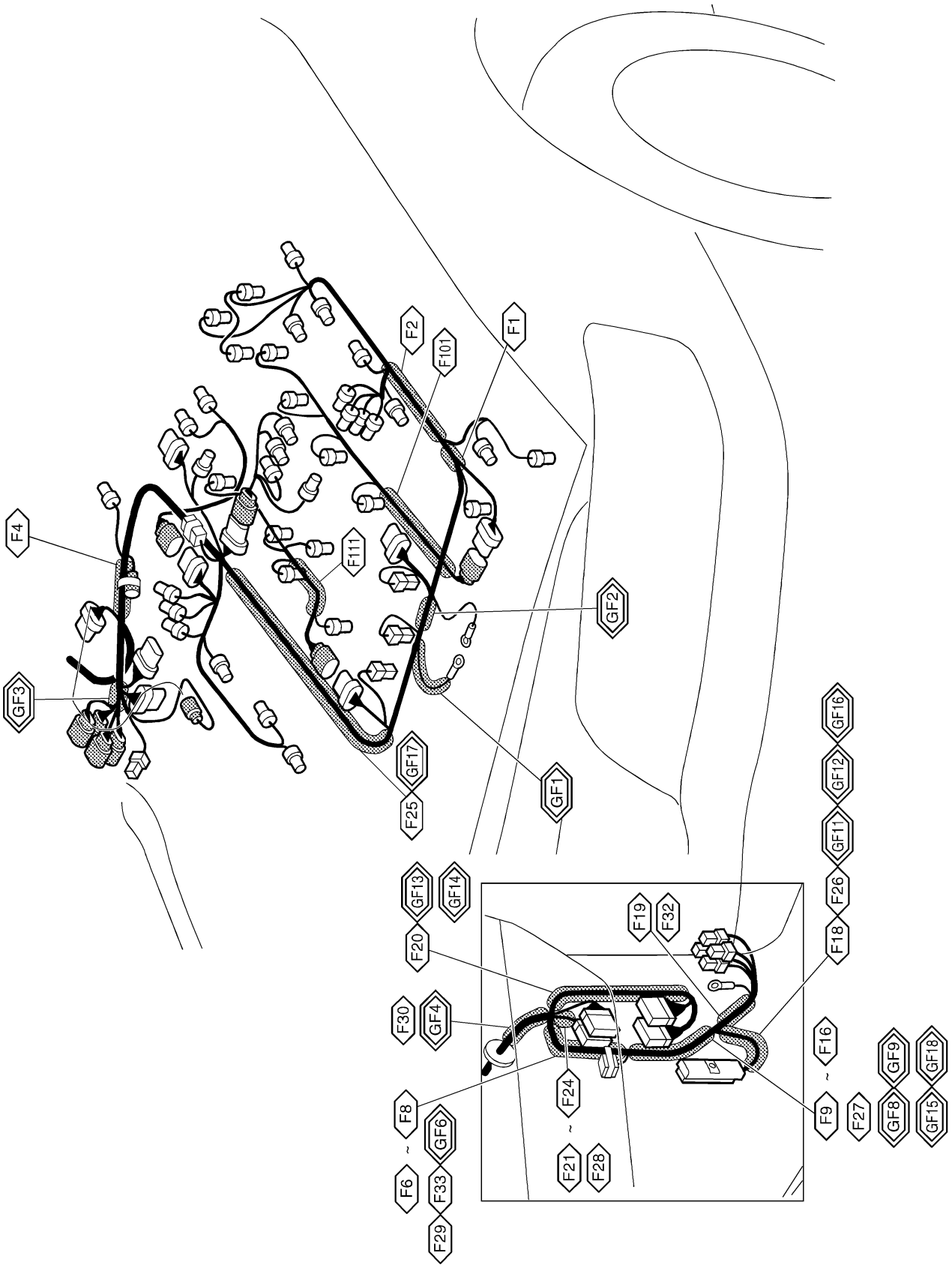
## Instrument Harness (Cont'd)

**WITH NAVIGATION SYSTEM**



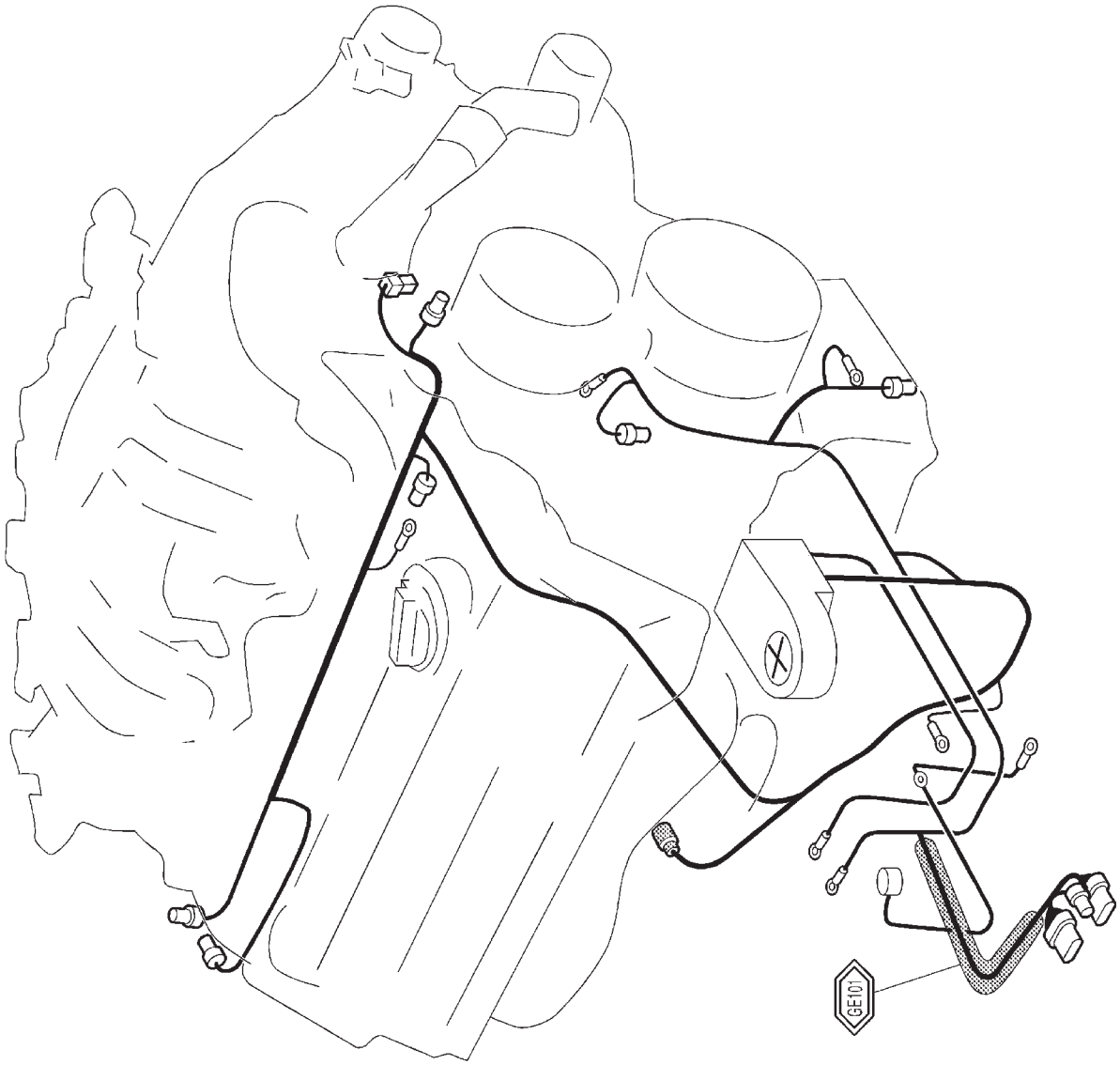

CEL255A

## Engine Control Harness



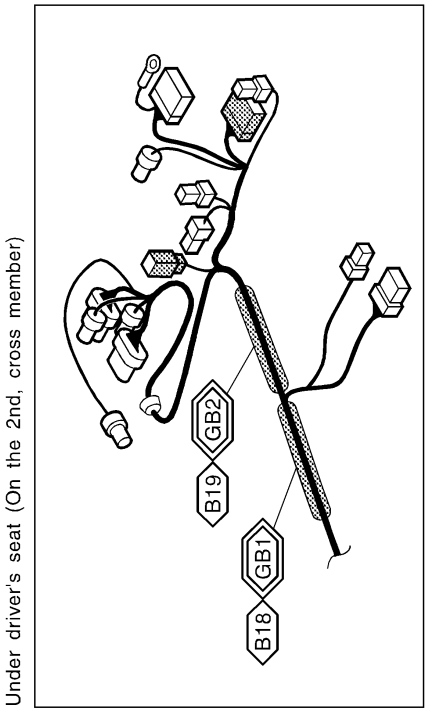

CEL011M

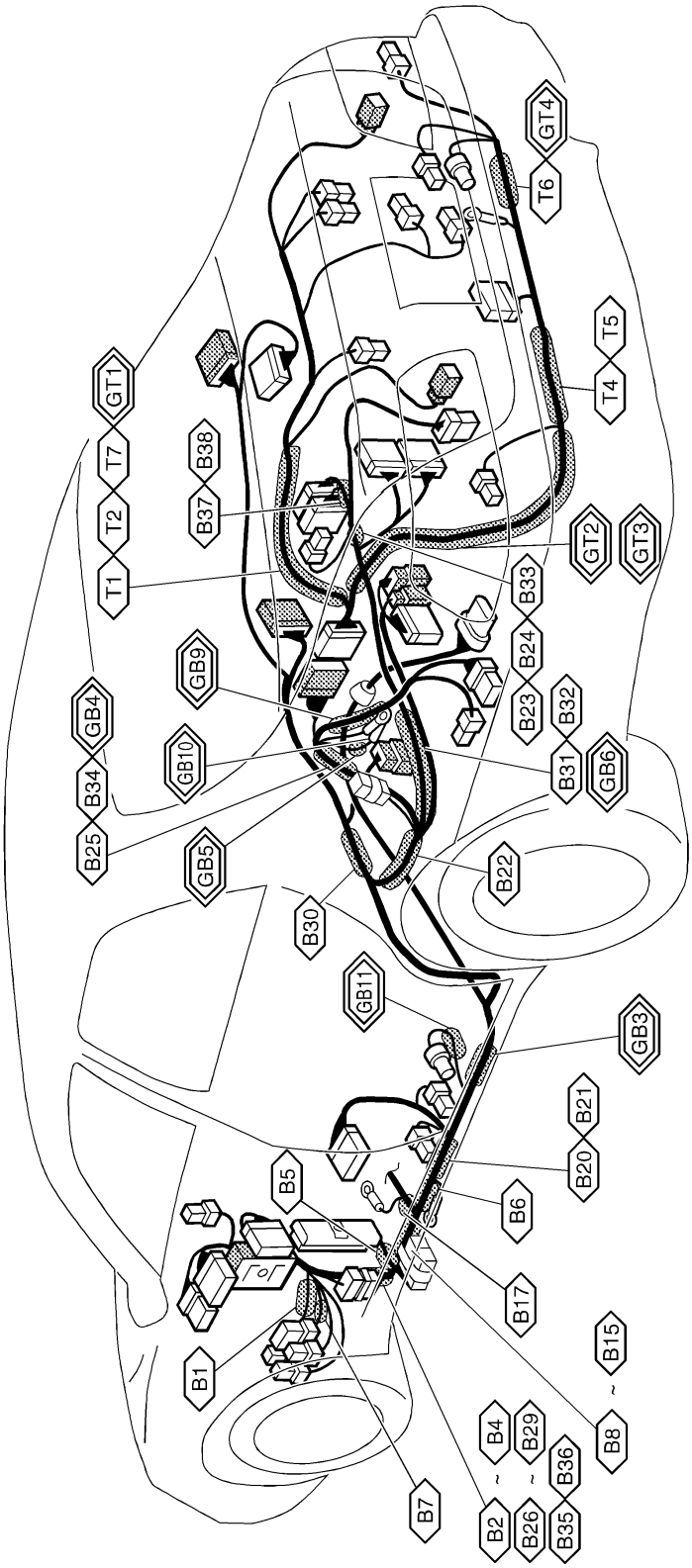
## Engine Harness




CEL466

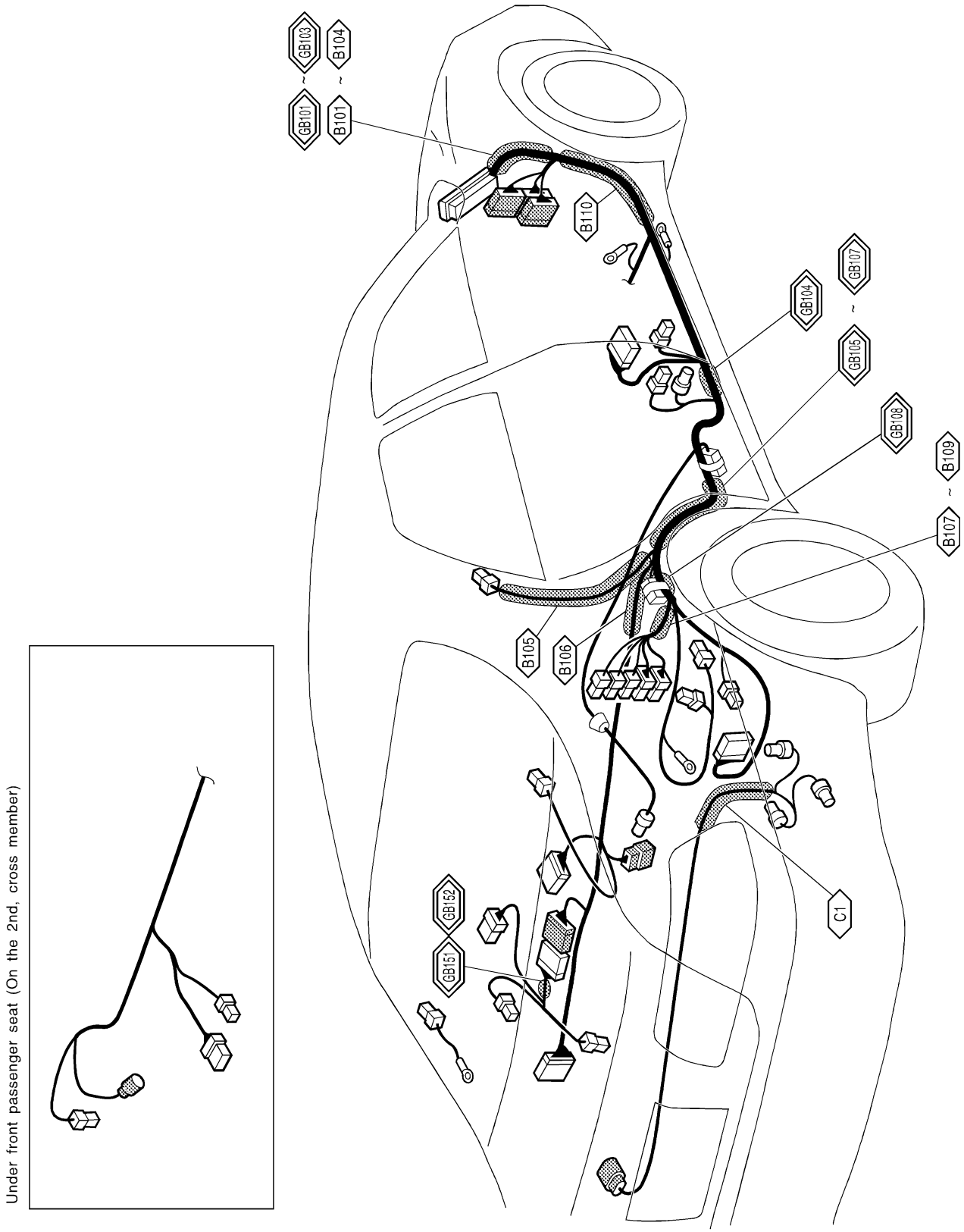
## Body Harness and Tail Harness



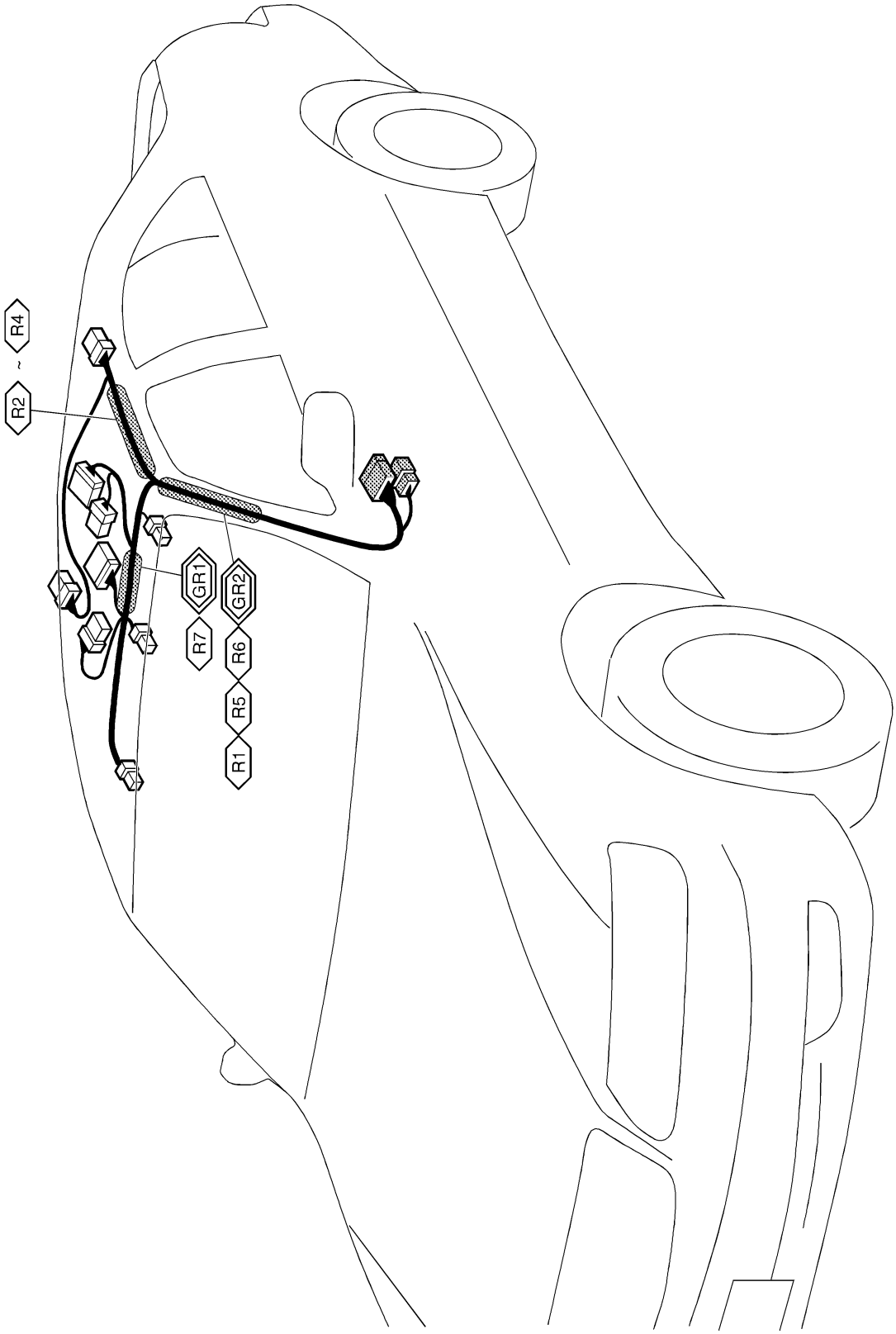

CEL298A

## Body No. 2 Harness




CEL073M

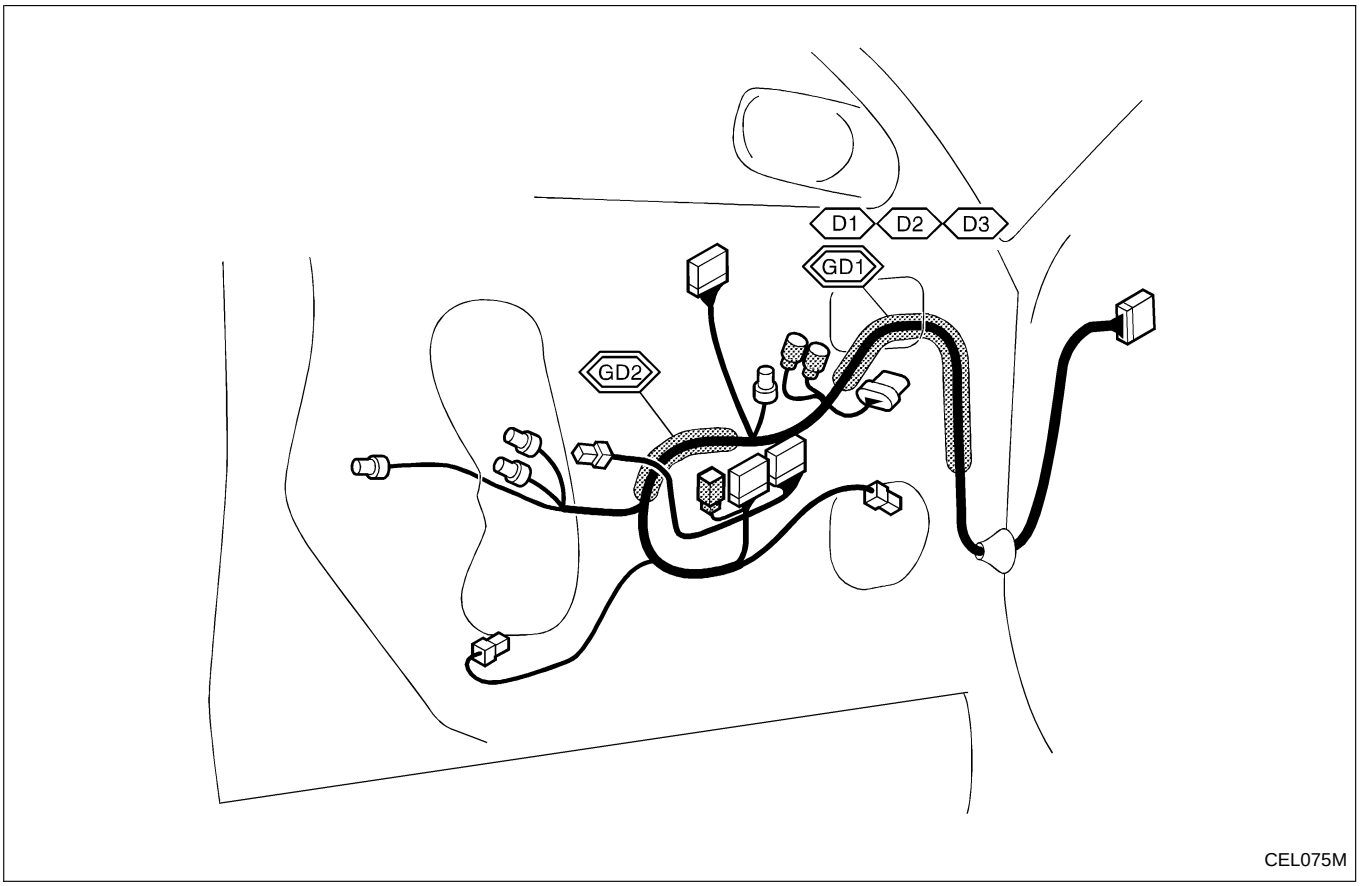
## Room Lamp Harness



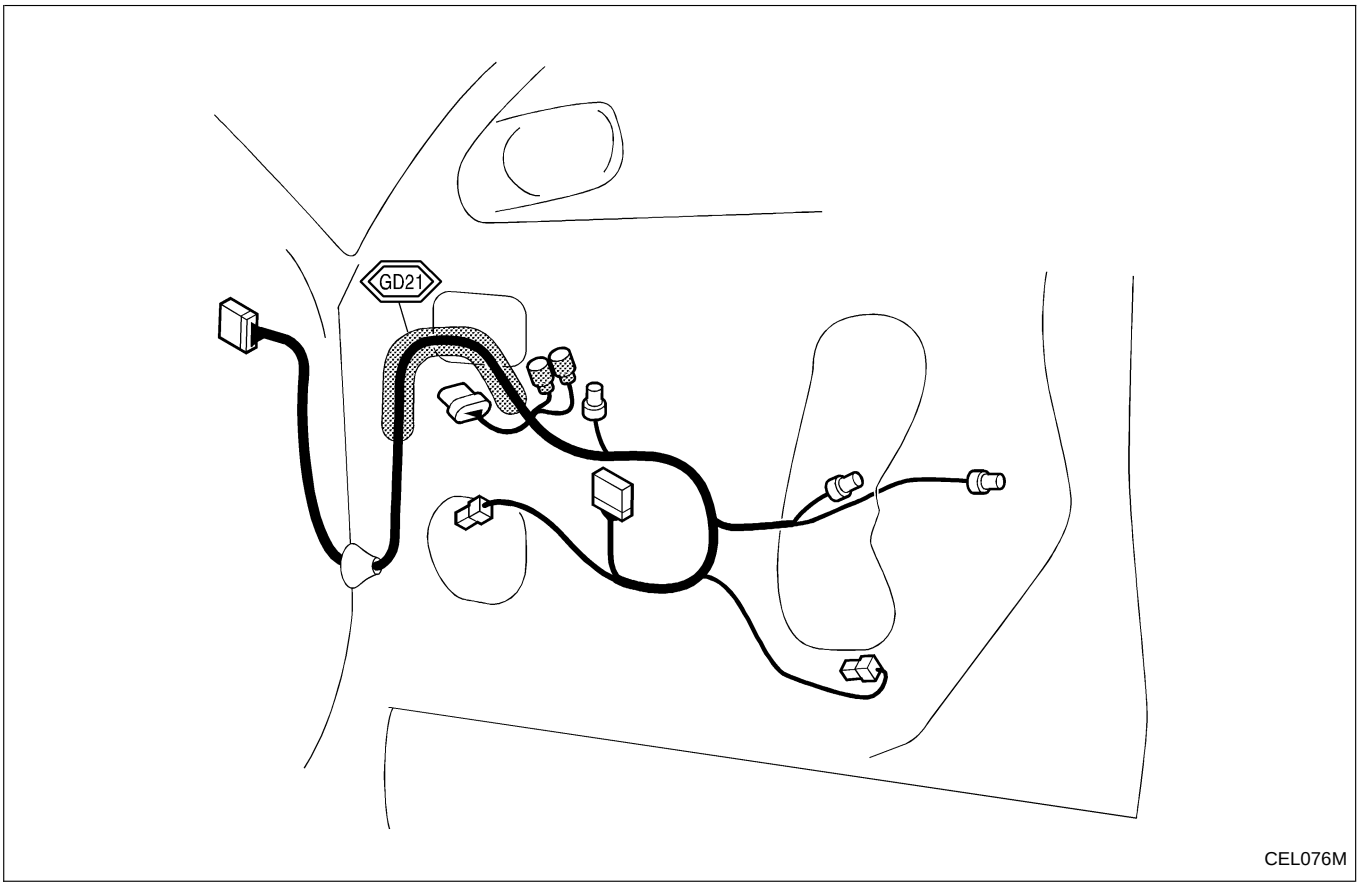

CEL074M

**DRIVER SIDE**

## Front Door Harness

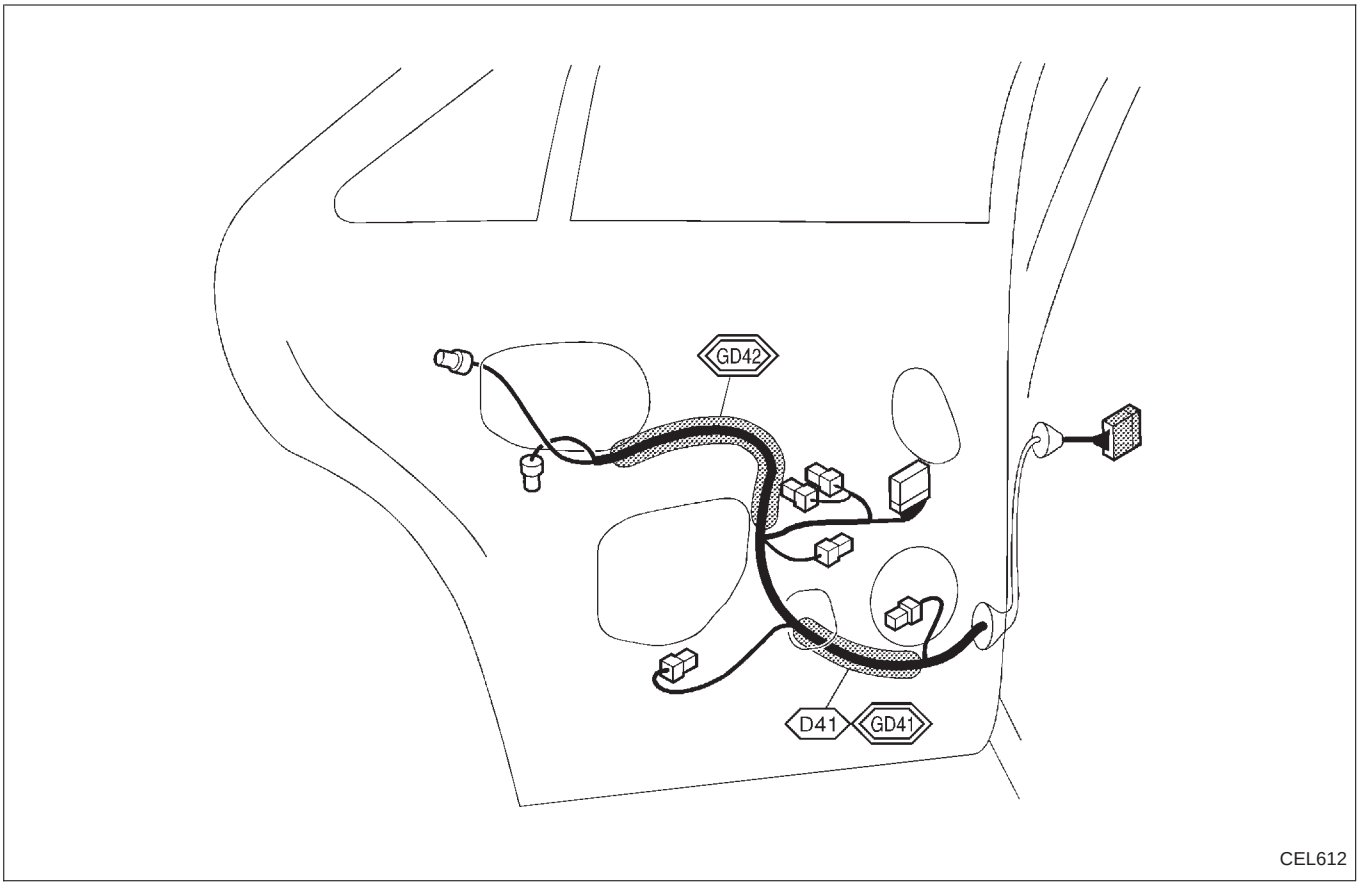



**PASSENGER SIDE**

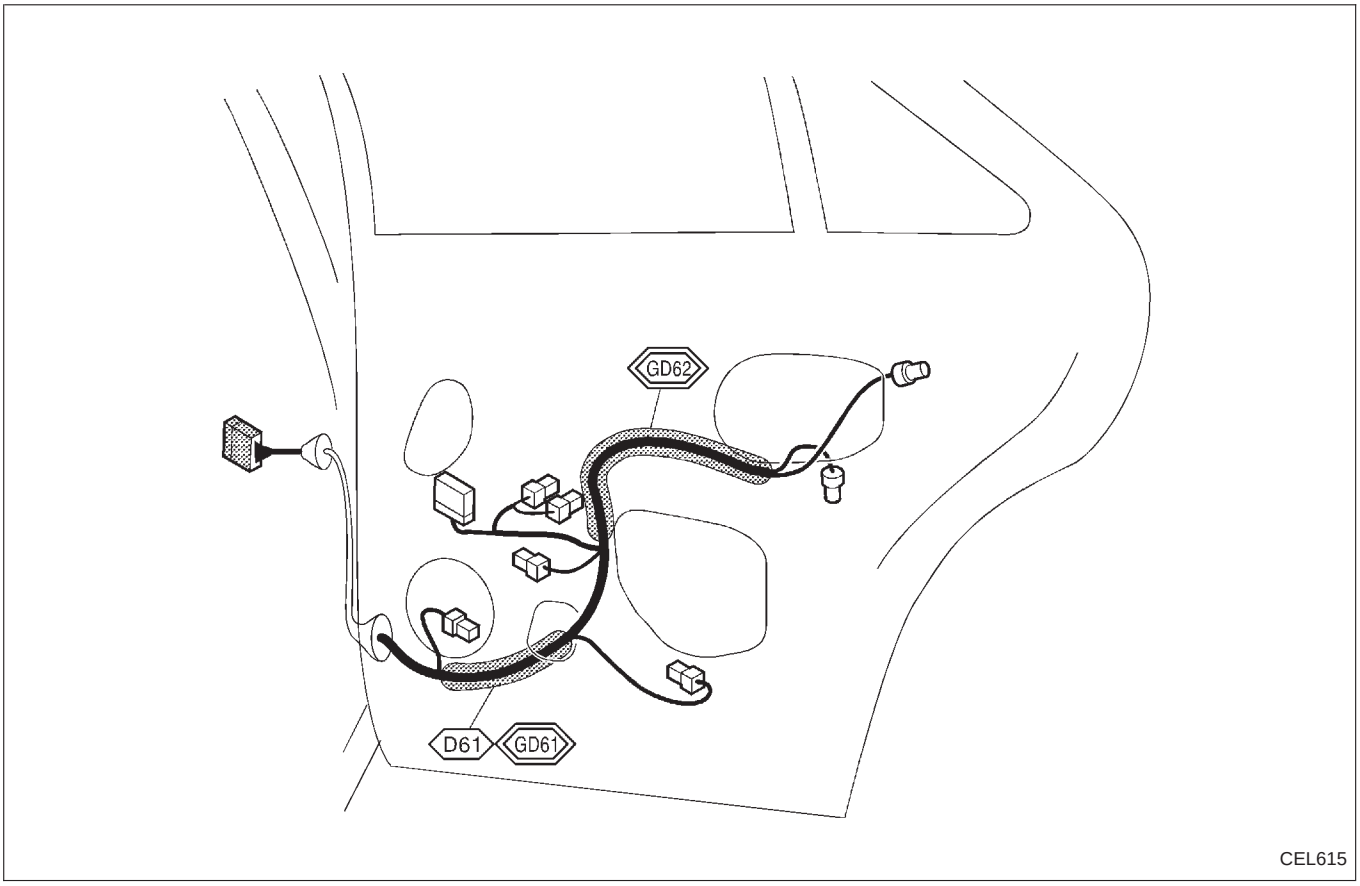


## Rear Door Harness

**LH SIDE**




**RH SIDE**



## Headlamp

| Item | Wattage W |
|---|---|
| High/Low (Without xenon headlamp) | 60/55 (HB2) |
| High/Low (With xenon headlamp) | 55/35 (H1/D2R) |

## Exterior Lamp

| Item | Wattage W |
|---|---|
| Front fog lamp | 55 |
| Front combination lamp | |
| Turn signal/Parking lamp | 27/8 |
| Rear combination lamp | |
| Turn signal lamp | 21 |
| Stop/Tail lamp | 21/5 |
| Tail lamp | 5 |
| Back-up lamp | 18 |
| License lamp | 5 |
| High-mounted stop lamp | 18 |

## Interior Lamp

| Item | Wattage W |
|---|---|
| Front map lamp | 8 |
| Rear personal lamp | 8 |
| Vanity mirror lamp | 1.4 |
| Step lamp | 2.7 |
| Footwell lamp | 3.4 |
| Trunk room lamp | 3.4 |

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 |
|---|---|---|
| AAC/V | EC | IACV-AAC Valve |
| A/C | HA | Air Conditioner |
| AP/SEN | EC | Absolute Pressure Sensor |
| ASCD | EL | Automatic Speed Control Device (ASCD) |
| A/T | AT | A/T |
| AT/IND | EL | A/T Indicator Lamp |
| AT/C | EC | A/T Control |
| AUDIO | EL | Audio |
| AUT/DP | EL | Automatic Drive Positioner — IVMS |
| BACK/L | EL | Back-up Lamp |
| BYPS/V | EC | Vacuum Cut Valve Bypass Valve |
| CANI/V | EC | EVAP Canister Purge Control Valve/ Solenoid Valve |
| CHARGE | EL | Charging System |
| CHIME | EL | Warning Chime |
| CIGAR | EL | Cigarette Lighter |
| CKPS | EC | Crank Shaft Position Sensor (OBD) |
| CLOCK | EL | Clock |
| CMPS | EC | Camshaft Position Sensor |
| COMM | EL | IVMS — Communication Check, Power Supply & Ground |
| COOL/F | EC | Cooling Fan Control |
| DEF | EL | Rear Window Defogger |
| D/LOCK | EL | Power Door Lock — IVMS |
| DTRL | EL | Headlamp - With Daytime Light System |
| ECTS | EC | Engine Coolant Temperature Sensor |
| EGRC1 | EC | EGR Function |
| EGRC/V | EC | EGRC-Solenoid Valve |
| EGR/TS | EC | EGR Temperature Sensor |
| EPS | ST | Electric Controlled Power Steering System |
| F/FOG | EL | Front Fog Lamp |
| FO2H-L | EC | Heated Oxygen Sensor 1 Heater (Front) (Bank 1) |
| FO2H-R | EC | Heated Oxygen Sensor 1 Heater (Front) (Bank 2) |
| FPCM | EC | Fuel Pump Control Module |
| F/PUMP | EC | Fuel Pump |

| Code | Section | Wiring Diagram Name |
|---|---|---|
| O2H1B1 | EC | Heated Oxygen Sensor 1 (Front) (Bank 1) |
| O2H1B2 | EC | Heated Oxygen Sensor 1 (Front) (Bank 2) |
| FUELLH | EC | Fuel Injection System Function (Left Bank) |
| FUELRH | EC | Fuel Injection System Function (Right Bank) |
| H/AIM | EL | Headlamp Aiming Control System |
| H/LAMP | EL | Headlamp |
| HORN | EL | Horn |
| HSEAT | EL | Heated Seat |
| IATS | EC | Intake Air Temperature Sensor |
| IGN/SG | EC | Ignition Signal |
| ILL | EL | Illumination |
| I/MIRR | EL | Inside Mirror |
| INJECT | EC | Injector |
| INT/L | EL | Vanity Mirror and Trunk Room Lamps |
| IVC-L | EC | Intake Valve Timing Control Solenoid Valve LH |
| IVC-R | EC | Intake Valve Timing Control Solenoid Valve RH |
| IVCS | EL | Infiniti Communicator (IVCS) |
| IVCS-L | EC | Intake Valve Timing Control Position Sensor LH |
| IVCS-R | EC | Intake Valve Timing Control Position Sensor RH |
| KS | EC | Knock Sensor |
| LOAD | EC | 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/DL | EC | MIL and Data Link Connectors |
| MIRROR | EL | Door Mirror |
| MULTI | EL | Multi-remote Control System — IVMS |
| NATS | EL | NATS (Nissan Anti-Theft System) |
| NAVI | EL | Navigation System |
| P/ANT | EL | Power Antenna |

| Code | Section | Wiring Diagram Name |
|---|---|---|
| PGC/V | EC | EVAP Canister Purge Control Solenoid Valve |
| PHONE | EL | Telephone |
| 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 |
| REMOTE | EL | Audio (Remote Control Switch) |
| ROOM/L | EL | Interior Room Lamp — IVMS |
| O2H2B1 | EC | Heated Oxygen Sensor 2 Heater (Rear) (Bank1) |
| O2H2B2 | EC | Heated Oxygen Sensor 2 Heater (Rear) (Bank2) |
| O2S2B1 | EC | Heated Oxygen Sensor 2 (Rear) (Bank1) |
| O2S2B2 | EC | Heated Oxygen Sensor 2 (Rear) (Bank2) |
| SEAT | EL | Power Seat |
| SHADE | EL | Rear Sunshade |
| SHIFT | AT | A/T Shift Lock System |
| SROOF | EL | Sunroof |
| SRS | RS | Supplemental Restraint System |
| S/SIG | EC | Start Signal |
| START | EL | Starting System |
| STEP/L | EL | Step Lamp — IVMS |
| STOP/L | EL | Stop lamp |
| STPS | EC | Secondary Throttle Position Sensor |
| SW/ILL | EL | Power Window Switch Illumination — IVMS |
| SW/V | EC | MAP/BARO Switch Solenoid Valve |
| TAIL/L | EL | Parking, License, Tail and Stop Lamps |
| T/CLOS | EL | Trunk Closure |
| TCS | EC | Traction Control System |
| TCS | BR | Traction Control System |
| TCS/SW | EC | TCS Signal |
| T&FLID | EL | Trunk Lid and Fuel Filler Lid Opener |
| FTTS | EC | Fuel Tank Temperature Sensor |
| VEHSEC | EL | Vehicle Security System — IVMS |
| TPS | EC | Throttle Position Sensor |
| TP/SW | EC | Throttle Position Switch |
| TRNSMT | EL | Integrated Homelink Transmitter |
| 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 — IVMS |
| WIPER | EL | Front Wiper and Washer |